OFFICIAL GAZETTE UNITED STATES PATENT OFFICE

VOL 30 & 31

JAN THRU JUN

1885

MICRO PHOTO INC
CLEVELAND, OHIO

OFFICIAL GAZETTE

OF THE

UNITED STATES PATENT OFFICE.

VOLUME XXX.

JANUARY 6 TO MARCH 31, INCLUSIVE.

1885.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1885.

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INDEX OF PATENTS AND PATENTEES FOR THE QUARTER YEAR, JANUARY 1 TO MARCH 31, 1885.

ERRATA.

310,761, page 152, in title, name of assignee, for "W. S. Lamsen" read *W. S. Lamson.*

311,019, page 229, in title, names of inventors, for "Henry C. Frost" read *Henry C. Trost.*

311,100, page 242, in title, name of assignee, for "Bergmann & Co." read *Bergmann and Company.*

311,127, page 249, strike out all after number—title, drawing, and claims—and insert WITHDRAWN.

311,130, page 250, in title, name of assignee, for "Bergmann & Co." read *Bergmann and Company.*

311,131, page 251, in title, name of assignee, for "Bergmann & Co." read *Bergmann and Company.*

311,291, page 300, in title, name of inventor, for "William B. Chisholm" read *William B. Chisolm.*

311,356, page 316, in title, names of assignees, for "Anson Tabor" read *Amson Tabor.*

311,357, page 317, in title, names of assignees, for "Anson Tabor" read *Amson Tabor.*

311,466, page 350, in title, name of inventor, for "Alfred V. Brokhalme" read *Alfred V. Brokhahne.*

311,612, page 395, third claim, line 2, for "ends" read *end.*

311,673, page 401, second claim, line 4, for "great" read *greater.*

311,844, page 441, in title, name of assignee, for "Alfred Dodge" read *Alfred Dolge.*

311,847, page 442, in title, name of assignee, for "David H. Brewer" read *David W. Brewer.*

311,878, page 459, in title, name of assignee, for "F. O. Matthiessen & Wiecher's Sugar Refining Company" read *F. O. Matthiessen & Wiechers Sugar Refining Company.*

311,993, page 490, strike out all after number—title, drawing, and claims—and insert WITHDRAWN.

312,534, page 638, in title, after "(No model)" insert *Patented in Canada Jan.* 30, 1885, *No.* 21,004.

312,751, pages 700–701, strike out all after number—title, drawing, and claims—and insert WITHDRAWN.

312,753, page 701, first claim, line 2, strike out the word "flexible;" insert after the word "spring" *mechanism and by strap-*, and strike out claim 4.

312,752, page 701, strike out all after number—title, drawing, and claims—and insert WITHDRAWN.

312,995, page 756, in title, after "(No specimens)" insert *Patented in Canada Jan.* 26, 1885, No. 20,967.

313,039, page 768, in title, name of assignee, for "Ohio Power and Light Company, Dayton, Ohio" read *The American Electric Headlight Company, same place.*

313,181, page 817, strike out all after number—title, drawing, and claims—and insert WITHDRAWN.

313,305, page 847, in title, names of inventors, for "Edmond A. Eckert" read *Edward A. Eckert.*

314,720, page 1249, first claim, line 5, strike out "smaller controlling-cylinder and the."

314,749, page 1256, in title, after residence of inventor, insert *assignor of one-half to Robert C. Marks.*

10,571, (Reissue,) page 990, strike out all after number—title, drawing, and claims—and insert CANCELED.

13,877, (Design,) page 4, first column, line 16, for "Curtain Fabric" read *Upholstery Fabric.*

Commissioner's Decisions, page 1187, second column, line 12, for "trade-mark" read *label.*

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OFFICIAL GAZETTE

OF THE

UNITED STATES PATENT OFFICE.

JANUARY–MARCH, 1885.

THE OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

VOL. 30—No. 1. TUESDAY, JANUARY 6, 1885. PRICE—$5 per year.

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The Official Gazette.

The OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Order No. 207.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, December 29, 1884.

The existing sub-classes in Class 22, Division XIV, "Metal-Founding," are hereby abolished, and the following sub-classes established in lieu thereof:

In metal molds—
- Apparatus and plants.
- Chains, hinges, and joints.
- Hardware.
- Hollow ware.
- Ingots, hollow, pipes and tube.
- Ingots.
- Ingots, compound.
- Ingots, plants.
- Materials.
- Ordnance and projectiles.
- Pigs.
- Plows.
- Rolls.
- Screw-threads.
- Soft-metal machines.
- Soft-metal molds.
- Soft-metal shot.
- Soft-metal spoons.
- Soft-metal traps.
- Vehicle-wheels.
- Wheels.

In molded molds—
- Chains, hinges, and joints.
- Hardware.
- Hollow ware.
- Molded molds.
- Molders' flasks.
- Molders' materials.
- Molders' tools, and arts.
- Ordnance and projectiles.
- Pipes.
- Pipes, horizontal.
- Pipe-elbows.
- Plants.
- Plows.
- Rolls.
- Screw-threads.
- Tools.
- Vehicle-wheels.
- Wheels.

Molding apparatus—
- Blacking-molds.
- Hollow ware.
- Machines.
- Ordnance and projectiles.
- Pipes.
- Pipes, horizontal.
- Pipe-cores.
- Screw-threads.
- Vehicle-wheels.
- Wheels.

BENJ. BUTTERWORTH,
Commissioner.

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Issue of January 6, 1885.

Patents.....387—No. 310,163 to No. 310,549, inclusive.
Designs.....33—No. 15,678 to No. 15,710, inclusive.
Trade-Marks.....10—No. 11,843 to No. 11,852, inclusive.
Labels.....5—No. 4,304 to No. 4,308, inclusive.
Reissues of patents.....1—No. 10,548.

Total issue.....436

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	1	.....	Nebraska	1	.....
Arizona Territory	.....	.....	Nevada	.....	.....
Arkansas	1	.....	New Hampshire	1	.....
California	8	.....	New Jersey	12	.....
Colorado	2	.....	New Mexico Territ'y	1	.....
Connecticut	15	.....	New York	81	1
Dakota Territory	1	.....	North Carolina	2	1
Delaware	.....	.....	Ohio	45	.....
District of Columbia	3	.....	Oregon	.....	.....
Florida	.....	.....	Pennsylvania	34	7
Georgia	3	.....	Rhode Island	5	.....
Idaho Territory	.....	.....	South Carolina	5	.....
Illinois	22	1	Tennessee	4	.....
Indiana	13	.....	Texas	3	.....
Indian Territory	.....	.....	Utah Territory	2	.....
Iowa	9	.....	Vermont	3	.....
Kansas	5	.....	Virginia	.....	.....
Kentucky	5	1	Washington Territ'y	.....	.....
Louisiana	1	.....	West Virginia	2	.....
Maine	6	.....	Wisconsin	9	1
Maryland	7	1	Wyoming Territory	.....	.....
Massachusetts	41	.....	United States Army	.....	.....
Michigan	17	.....	United States Navy	.....	.....
Minnesota	1	.....			
Mississippi	1	.....	Total to citizens of the United States	380	13
Missouri	8	.....			
Montana Territory	.....	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Australia	.....	.....	Germany	13	1
Austria-Hungary	1	.....	Mexico	3	.....
Barbadoes	.....	.....	New South Wales	1	.....
Belgium	.....	.....	New Zealand	1	.....
Bermuda	.....	.....	Norway	.....	.....
Brazil	.....	.....	Russia	.....	.....
Canada	6	.....	Scotland	.....	.....
Central America	.....	.....	Spain	.....	.....
Colombia, U. S. of	.....	.....	Switzerland	2	.....
Cuba	.....	.....	Venezuela	.....	.....
Denmark	.....	.....			
Ecuador	.....	.....			
England	12	1	Total to citizens of foreign countries	40	2
France	1	.....			

DESIGNS.

13,678 and 13,679.—COOKING-STOVE.—*H. Clay Bascom*, Troy, N. Y. Applications filed October 20, 1884. Term of patents 7 years.

13,680 and 13,681.—CARPET.—*Edwin Fisher*, Boston, assignor to *The Lowell Manufacturing Company*, Lowell, Mass. Applications filed November 28, 1884. Term of patents 3½ years.

13,682.—CARPET.—*Ella O. Frost*, Boston, assignor to *The Lowell Manufacturing Company*, Lowell, Mass. Application filed November 28, 1884. Term of patent 3½ years.

13,683.—CURTAIN FABRIC.—*Ernest G. Nufer*, Philadelphia, Pa., assignor to *George Brooks & Son*, same place. Application filed November 24, 1884. Term of patent 3½ years.

13,684.—FONT OF PRINTING-TYPE.—*Charles E. Heyer*, Chicago, Ill., assignor to *Arthur M.* and *Alson E. Barnhart*, same place. Application filed December 1, 1884. Term of patent 14 years.

13,685.—CARBON FILAMENT.—*Julian A. Hurdle*, New York, N. Y. Application filed October 24, 1884. Term of patent 3½ years.

13,686.—CARPET.—*David G. Melville*, Medford, assignor to *The Roxbury Carpet Company*, Boston, Mass. Application filed November 26, 1884. Term of patent 3½ years.

13,687.—PENDANT.—*Charles A. Otto*, New York, N. Y. Application filed August 16, 1884. Term of patent 3½ years.

13,688.—NECKSCARF.—*Siegfried Salomon*, New York, N. Y., assignor to *Herman Bendix*, same place. Application filed November 29, 1884. Term of patent 7 years.

13,689.—LADY'S COSTUME.—*Mary Turner*, New York, N. Y., assignor to *The Butterick Publishing Company*, (*Limited*,) same place. Application filed November 15, 1884. Term of patent 3½ years.

13,690.—MISS'S COSTUME.—*Louise Tully*, New York, N. Y., assignor to *The Butterick Publishing Company*, (*Limited*,) same place. Application filed November 22, 1884. Term of patent 3½ years.

13,691.—LADY'S BASQUE.—*Louise Tully*, New York, N. Y., assignor to *The Butterick Publishing Company*, (*Limited*,) same place. Application filed November 22, 1884. Term of patent 3½ years.

13,692 to 13,696, inclusive.—CARPET.—*Edwin Fisher*, Boston, assignor to *The Lowell Manufacturing Company*, Lowell, Mass. Applications filed November 28, 1884. Term of patents 3½ years.

13,697.—BOTTLE.—*Henry Humbert*, Brooklyn, N. Y. Application filed November 4, 1884. Term of patent 7 years.

13,698.—DRAWER-PULL.—*Charles Rowland*, Quincy, Ill. Application filed September 19, 1884. Term of patent 7 years.

13,699.—FIRE-PLACE FRONT.—*George E. Sharpe*, Steubenville, Ohio. Application filed October 28, 1884. Term of patent 7 years.

13,700 to 13,709, inclusive.—CARPET.—*Charles W. Swapp*, New York, N. Y., assignor to *The Lowell Manufacturing Company*, Lowell, Mass. Application filed November 28, 1884. Term of patent 3½ years.

13,710.—FONT OF PRINTING-TYPE.—*Charles E. Heyer*, Chicago, Ill., assignor to *Arthur M.* and *Alson E. Barnhart*, same place. Application filed September 15, 1884. Term of patent 14 years.

TRADE-MARKS.

[Certificates of registration of Trade-Marks numbered 8,191 and upward are registered under the act of March 3, 1884.]

11,843.—RIBBON.—*J. & J. Cash*, Coventry, England. Application filed December 11, 1884.

"The picture of a blacksmith, an anvil, the limb of a tree, and the word 'BLACKSMITH.'"

11,844.—WOVEN SHAWLS.—*William A. Gardner & Co.*, (*Limited*,) Philadelphia, Pa. Application filed November 18, 1884.

"The letters 'I X L' and the form of shield shown."

11,845.—BOYS', GIRLS', CHILDREN'S, AND INFANTS' SHOES.—*Thomas M. Harris & Co.*, Philadelphia, Pa. Application filed August 25, 1884.

"The representation of a boy riding in a shoe."

11,846.—COTTON CLOTHS.—*Hyde & Burton*, New York, N. Y. Application filed December 12, 1884.

"A representation of an Egyptian pyramid with a picture of a sphinx thereon."

11,847.—SMOKING-TOBACCO.—*Z. I. Lyon & Co.*, Durham, N. C. Application filed December 8, 1884.

"The words 'KING DURHAM.'"

11,848.—ITALIAN CLOTH.—*Wm. Schütte & Co.*, Barmen, Prussia, Germany, and New York, N. Y. Application filed November 28, 1884.

"The word 'NATIONAL' and the figure of Germania on black background."

11,849.—CLOTHS AND CASSIMERES FOR GARMENTS.—*Edward T. Steel & Co.*, Philadelphia, Pa. Application filed November 1, 1884.

"The representation of crossed shears sustained by two four-footed animals, the latter grasping the blades and handles of the shears."

11,850.—CANNED AND PRESERVED FRUITS, VEGETABLES, OYSTERS, &c.—*Thompson, Fry & Co.*, Philadelphia, Pa. Application filed August 20, 1884.

"The word-symbol 'HOME.'"

11,851.—CIGARS.—*James C. Toner*, Baltimore, Md. Application filed December 10, 1884.

"The words 'HONEY OF ROSES' and the letters 'J. C. T.'"

11,852.—CIGARS.—*Van Pietersom Bros.*, Milwaukee, Wis. Application filed December 8, 1884.

"The arbitrarily-selected word-symbol 'HERMANN,' in connection with the pictorial representation of a group of statuary consisting of three figures, the central and highest figure being clad chiefly by a belted shirt and cloak of fur, and standing, leaning with one arm on a shield, and bearing an upright sword in the other and raised arm, and with a winged helmet on his head, while the other figures are seated, one on each side, one being clad in furs or skins and bearing a spear, while the other is clad in woven fabrics and bears a battle-ax. In the front or foreground are trophies and implements of the chase and of war, consisting of skulls of animals, with horns or antlers attached, shields, swords, &c., with a banner, and at each end of the picture are forest trees."

LABELS.

4,304.—Title: "CLARK'S HOG REMEDY."—*Samuel A. Clark*, Chicago, Ill. Application filed December 17, 1884

4,305.—Title: "DOMESTIC PARLOR ILLUMINATOR." (FOR BURNING FLUID.)—*Jacob Erb*, Philadelphia, Pa. Application filed November 12, 1884.

4,306.—Title: "THE ATKINSON DRESS SHIRT."—*Hess Mayer & Co.*, Louisville, Ky. Application filed September 24, 1884.

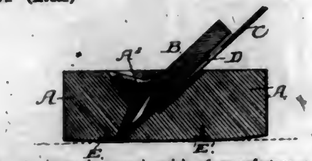
4,307.—Title: "AMMONIATED" (FOR SOAP.)—*Gustavus K. Morehead*, Philadelphia, Pa. Application filed December 17, 1884.

4,308.—Title: "THE ENGLISH CORRECT STYLE WAUKENPHAST."—*Laird, Schober & Mitchell*, Philadelphia, Pa. Application filed December 3, 1884.

PATENTS

GRANTED JAN. 6, 1885.

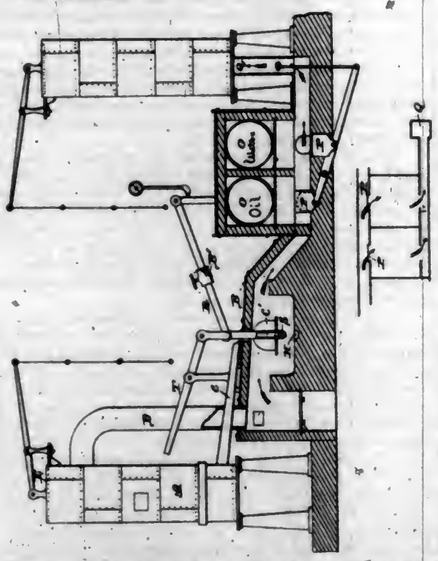
310,168. PLANE. WILLIAM F. ACHENBACH, Reading, Pa. Filed Sept. 15, 1884. (Model.)



Claim.—1. As an improved article of manufacture, a carpenter's bench-plane provided with inserted metallic plates suitably secured in the face thereof, one, E, at and forming the fore edge of the mouth of the plane, and one, E', at about one-third of the length of the plane from the rear end of the same, and dressing the fore and rear faces of the plane from said plates E and E', as described, in combination with the plane A, wedge B, bit C, and cap D, as and for the purpose set forth.

2. In combination with carpenters'-fore, jack, and smoothing planes, having their faces dressed as described, the plates E and E', with one or more plates intermediate thereto, recessed in said plane-faces, and suitably secured therein, substantially as shown, and for the purpose set forth.

310,164. FURNACE FOR THE MANUFACTURE OF IRON DIRECT FROM THE ORE. CHARLES ADAMS, Allegheny City, Pa. Filed Jan. 31, 1884. (No model.)



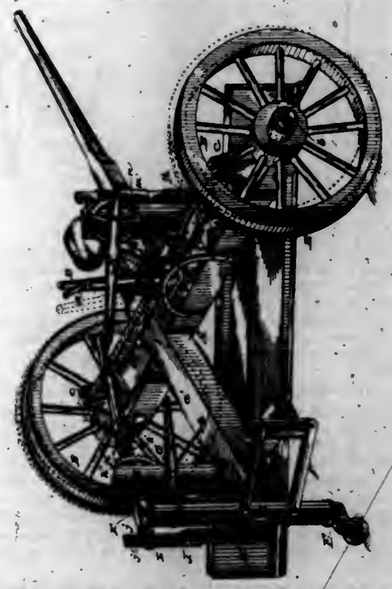
Claim.—1. The combination of a blast-furnace, a puddling-furnace connected thereto by means of a flue, so that the products of combustion of the blast can be passed through the puddling-furnace, a boiler for the generation of gas, and a jointed perforated pipe and connection by means of which the gas may be introduced in the molten iron ore in the puddling-furnace, substantially as shown.

2. The combination of the puddling-furnace having an opening through its top, the gas-generator arranged in such relation to the furnace as to be heated by the waste products of combustion, the pipe R, having the perforated end S, and the lever T, connected to the pipe, substantially as described.

3. The combination of a puddling-furnace, a vapor-generator, and a steam-boiler with the escape-flues for the products of combustion, located beneath the said gas-generator and steam-boiler, and the two valves connected to the same lever, whereby the passage of the products of combustion under the vapor-generator and boiler is controlled, substantially as specified.

310,165. ROAD-GRADING MACHINE. JOSEPH D. ADAMS, Marshall, Ind. Filed July 21, 1884. (No model.)

Brief.—A scraper having pivoted guide-blocks thereon, sliding in grooved standards, is raised by a lever connected to a bar from the scraper by a pin of varying diameter for detachably fitting in key-hole slots in such bar. The carrying-wheels having projecting flanges are mounted on pivoted spindles connected by a rod thrown by a lever to cant the wheels, to lower the scraper, and thereby also resist side pressure. A rear caster-wheel has its standard braced by pivoted parallel bars from each side to the main frame, and an operating-lever.



Claim.—1. In a road-grading machine, the combination, with the scraper or leveling bar and supporting-wheels, of the pivoted and adjustable spindles and the adjustable caster-wheel, substantially as and for the purpose specified.

2. In a road-grading machine, the combination of the pivoted and adjustable spindles and the supporting-wheels provided with the project-

ing circular metallic flanges, substantially as and for the purpose specified.

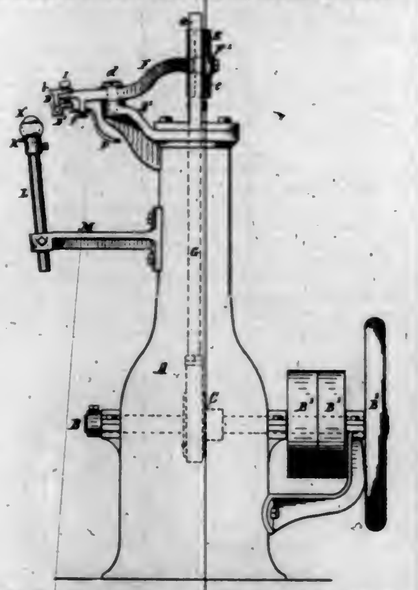
3. In a road-grading machine, the combination of the pivoted spindles, the connecting-bar common to both spindles, and the operating-lever attached to said connecting-bar at or near the center thereof, substantially as described, and for the purpose set forth.

4. In a road-grading machine, the combination of the slotted caster-wheel standard, the parallel bars *f f*, pivoted to each side of said standard and connecting the same to the main frame, the upright *e*, slotted at its upper end, and the lever G, fulcrumed in said slotted standard *e*, and loosely pivoted to the upright *f*, substantially as described, and for the purpose specified.

5. In a road-grading machine, the combination of the scraper or leveling bar having the blocks *h h*, vertical uprights I I, having corresponding guide-grooves for said blocks, and mechanism for connecting and adjusting said bar relative to the main frame, substantially as herein shown and described.

6. The combination, with the scraper or leveling bar and the pivoted lever K, of the vertical bar J, having the horizontal slot *j*, enlarged circular opening *j'*, and a lock-pin having its ends of different diameters, substantially as and for the purpose herein shown and described.

310,166. BURNISHING-MACHINE FOR BOOTS AND SHOES. WM. R. ALBERTSON, Worcester, Mass. Filed July 10, 1884. (No model.)



Claim.—1. The burnishing-tool D, provided with the beading or projection *b*, and the adjustable gage D', in combination with a laterally-swinging carrier-arm or vibrating lever, F, substantially as and for the purpose set forth.

2. The combination, with the burnishing-tool adapted for lateral vibrating action, and having the beading-edge *b*, of the adjustable gage D', the adjusting-screw I, and guiding-dowels *i*, as and for the purpose set forth.

3. In an edge-burnishing machine, the combination, with the burnishing-tool, of an arm or lever, as F, centrally fulcrumed, as at *d*, for laterally-swinging action, and having said burnishing-tool detachably connected to its forward end, while its rear end is connected with mechanism for imparting lateral motion thereto, substantially as set forth.

4. The combination of the centrally-pivoted lever F, carrying the burnishing-tool attached to its forward arm, an actuating device having operating engagement with the rear arm of said lever, the operating-shaft provided with crank or eccentric C, and the reciprocating rod G, connecting the parts for operation, substantially as and for the purpose set forth.

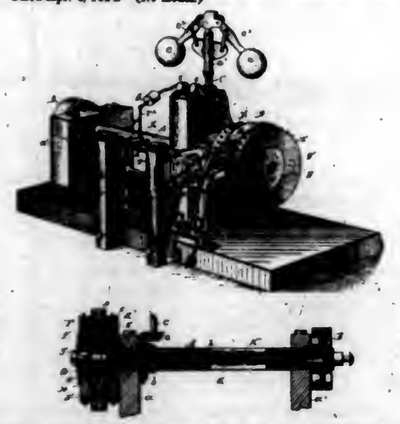
5. In a burnishing-machine, the guiding-rest provided with a yielding ball or sphere loosely confined within a supporting-socket, substantially as set forth.

6. The combination, in a burnishing-machine, of a laterally-swinging arm carrying a burnishing-tool, and stationary sole-supporting rest having a yielding rotating ball or elastic sphere for sustaining the boot or shoe while its edge is held to the burnishing-tool, substantially as set forth.

7. The combination, as described, of the standard A, having the forward projection, A', the operating-shaft B, having pulleys B', and crank or eccentric C, mounted in the lower part of said standard, the swinging arm F, pivoted on said forward projection, as at *d*, the diagonally-slotted head E, the connecting-rod G, the burnishing-tool D, and the shoe-supporting arm M, with adjustable rod L and yielding ball-rest K, for the purposes set forth.

8. In a burnishing-machine for boots and shoes, the combination, with a laterally-swinging arm or vibrating lever having a tool-supporting seat at its forward end, of the burnishing-tools provided with a backward projection or ear matching said seat, and attaching devices, as shown, whereby the heel and fore-part burnishers are adapted for interchanging, substantially as set forth.

310,167. SPEED-GOVERNOR. GEORGE W. ANDERSON, Westport, Ind. Filed Apr. 4, 1884. (No model.)



Claim.—1. In speed-governing mechanism, the combination, with a governor proper and a revolving hollow shaft, of a screw-threaded shaft centrally located within the hollow shaft, a screw-threaded nut or sleeve on the central shaft, adapted to rotate with the hollow shaft, connecting mechanism for rotating both shafts simultaneously, and mechanism connecting the governor and central shaft, whereby the latter is automatically locked against rotary movement, substantially as set forth.

2. In speed-governing mechanism, the combination, with a governor proper and a revolving hollow shaft, said shaft being provided with a cam-wheel rigidly secured thereon and a spur-wheel loosely mounted thereon, of a central threaded shaft locked against longitudinal motion within said hollow shaft, and provided with a spur-wheel rigidly secured thereon and a nut movably secured thereon, and mechanism adapted to communicate the motions of the governor-sleeve to the said spur-wheels, and mechanism for communicating the action of the spur-wheels to the central shaft, substantially as set forth.

3. In speed-governing mechanism, the combination, with a governor proper, a revolving hollow shaft provided with a cam-wheel and spur-wheel, the former secured rigidly and the latter mounted loosely thereon, and a central threaded shaft locked against end motion within the hollow shaft, and provided with a spur-wheel secured rigidly thereon and a movable nut secured thereon, of radial pinions mounted in the body of the cam-wheel, adapted to engage the said spur-wheels, and mechanism for communicating the motions of the governor-sleeve to the spur-wheels, substantially as set forth.

4. In speed-governing mechanism, the combination, with a governor proper, a revolving hollow shaft provided with a cam-wheel having radial pinions, and a spur-wheel, and a central threaded shaft locked against end motion within the hollow shaft, and provided with a spur-wheel and movable nut, said spur-wheels being situated in contact with said radial pinions, of spring-pressed dogs adapted to engage the spur-wheels, and mechanism communicating the motions of the governor-sleeve to the dogs, substantially as set forth.

5. In speed-governing mechanism, the combination, with a governor proper, a revolving hollow shaft provided with a cam-wheel carrying radial pinions, and a spur-wheel, a central shaft provided with a spur-wheel and movable nut, said spur-wheels having annular gear in contact with said radial pinions, and a guide adapted to rest against the rim of the cam-wheel, of two spring-pressed dogs bearing against the guide, said dogs being constructed to engage the spur-wheels, and mechanism whereby the motions of the governor-sleeve release either of the dogs or hold both out of engagement, substantially as set forth.

6. In speed-governing mechanism, the combination, with a revolving cam-wheel provided with radial pinions, and two spur-wheels secured on concentric shafts, one on each, each spur-wheel being provided with annular gear in contact with said radial pinions, of mechanism connected with a governor proper, whereby two spring-pressed dogs are caused to engage the said spur-wheels, and thereby control the head of steam or water, substantially as set forth.

7. In speed-governing mechanism, the combination, with a governor proper, a lever operated by the governor-sleeve, and a rock-shaft connected with the said lever and provided with sector-arms, of two spring-pressed dogs adapted to be singly released or both held in suspense by the armed sector, and two spur-wheels secured on concentric shafts, said spur-wheels being operated by a revolving cam-wheel, and adapted to be held in check by the engagement of the dogs, and mechanism whereby the action of the dogs causes an increase or decrease in the head of steam or water, substantially as set forth.

8. In speed-governing mechanism, the combination, with a revolving cam-wheel and two spur-wheels secured on concentric shafts, said spur-wheels being in contact with the cam-wheel, of dogs operated by a governor proper, and an adjustable guide adapted to regulate the contact of the dogs with the spur-wheels, substantially as set forth.

9. In speed-governing mechanism, a cam-wheel carrying radial pinions mounted in the body of the wheel, constructed in the manner and for the purpose substantially as set forth.

10. In speed-governing mechanism, the combination, with a revolving cam-wheel carrying radial pinions, of two spur-wheels operated by said radial pinions in the manner and for the purpose substantially as set forth.

11. Speed-governing mechanism consisting, essentially, of a revolving hollow shaft provided with a cam-wheel and spur-wheel, the former secured rigidly and the latter loosely thereon, a central shaft provided with a spur-wheel rigidly secured thereon, and with a movable nut, two spring-pressed dogs adapted to engage the said spur-wheels, a guide adapted to regulate the contact of the dogs with the spur-wheels, a governor proper, and mechanism connecting the governor with the dogs, whereby either of the dogs is released or both held in suspense by the motions of the governor-slide, the whole constructed in the manner and for the purpose substantially as set forth.

310,168. DOUBLE PEN-HOLDER. CLARENCE R. ARNOLD, Wellsville, Ohio. Filed May 13, 1884. (No model.)

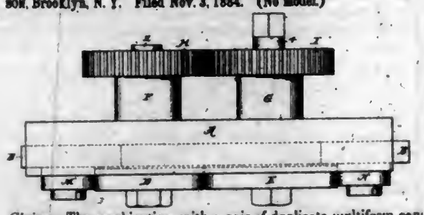


Claim.—1. A pen-holder provided with two pen-holding devices adapted to be adjusted a greater or less distance from each other, and of a spring for pressing the nibs of the pen toward each other, substantially as herein shown and described.

2. A pen-holder provided with a fixed barrel, a movable barrel, a spring for pressing the nibs of the pens toward each other, and a stop-screw, substantially as herein shown and described.

3. In a pen-holder, the combination, with the barrel B, provided with a wing, D, having a lug, L, of the barrel F, provided with a wing, E, pivoted on the wing D and having a lug, G, in which a set-screw, K, is held, substantially as herein shown and described.

310,169. DEVICE FOR CONVERTING MOTION. WILLIAM H. ATKINSON, Brooklyn, N. Y. Filed Nov. 3, 1884. (No model.)



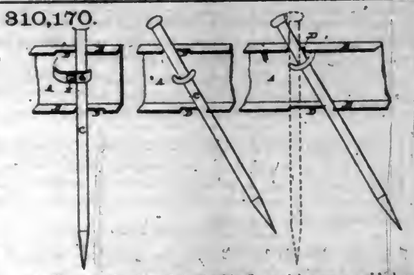
Claim.—The combination, with a pair of duplicate multiform cam-drivers and means for rotating the same in unison, of a sliding head carrying bearers that are acted upon by said drivers, whereby a reciprocating movement is imparted to said head, all substantially as described

310,170. HARROW. JAMES H. BARLEY, Sedalia, Mo., assignor of one-half to Thomas K. Barley, same place. Filed Apr. 2, 1884. (No model.)

Claim.—1. In a harrow, the doubly-flanged or channeled beam having slots or recesses in the flanges thereof, adapted to hold the teeth in either a vertical or an inclined position, as described.

2. In a harrow, the combination of the double-flanged beams, the harrow-teeth and suitable clamping devices for holding the teeth in position against the beam, the flanges of the beams being provided with slots or recesses for regulating the angle at which the harrow-teeth shall stand, substantially as shown.

310,170.



3. The combination of the double-flanged beams provided with recesses or slots in the flanges to receive the harrow-teeth, and curved clamping devices which hold the teeth against the side of the beam, and yet allow them to change position in relation to the beam, substantially as described.

310,171. BATHING-GARMENT. MARTHA J. BEERS, Boston, Mass. Filed May 7, 1884. (No model.)

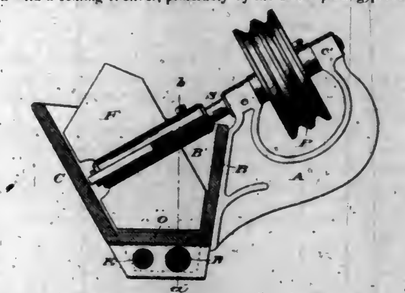


Claim.—1. A bathing-garment consisting solely of a body and skirt in one piece, in combination with the leg portion attached directly thereto at the waist of said piece forming the body and skirt.

2. The combination of the body B and skirt C, in one piece, with the legs D D and the gathering-band *d*, said band being attached to said body, and serving to gather in the waist of the leg portion of the garment.

310,172. AMALGAMATOR. JOHN C. BLEVNEY, Newark, N. J. Filed Jan. 26, 1884. (No model.)

Brief.—The paddles are first plated with a coating of copper and then with a coating of silver, preferably by the electroplating process.



Claim.—1. In an amalgamator, the combination, with a sectional channel, B', provided with pockets, of a paddle-wheel revolving in line with and fitting close to said channel, and secured to a shaft mounted outside of and at an inclination to the level of said channel, for the purpose substantially as set forth.

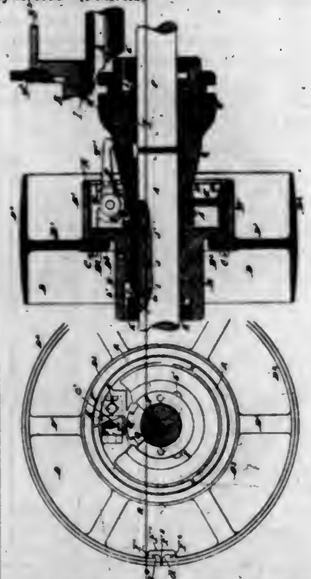
2. In an amalgamator, a series of paddle-wheels, each secured to a seperate shaft revolving at an inclination to the level of the apparatus and parallel to one another, said shafts being journaled outside of the amalgamating-channel, in combination with a straight channel formed of a series of sections secured together, each having a pocket communicating with a pipe connecting them and to a reservoir, for the purpose substantially as set forth.

3. In an amalgamator of the kind described, a series of pockets for holding amalgam, each pocket connected by a pipe to one adjacent and to a reservoir, for the purpose substantially as described.

4. The combination, in an amalgamator, of a series of sections having each a pocket communicating with one another and a reservoir, and a steam-pipe passing through them, for the purpose substantially as set forth.

5. In an amalgamator, the combination of a series of sections forming a channel having the pockets p, the connecting-pipe H, the steam-pipe E, the reservoir I, and a series of paddle-wheels mounted at an angle to the level of the apparatus, and means for revolving them, all for the purpose substantially as set forth.

310,178. FRICTION-COUPLING. JOHN C. BLEVNEY, Newark, N. J. Filed May 21, 1884. (No model.)



Claim.—1. A split pulley having clamping-surfaces D' and beveled recesses *d*, in combination with clamps having flanges F'' F², and engaging-ridges F³, arranged to serve substantially as herein specified.

2. The beaded feather J J', wedges I, having recess *i*, and screw-ring K, in combination with each other and with the hub B and shaft A, as herein specified.

3. The shaft A, hub B, and wedges I, in combination with each other and with the screw-ring K, having a projection, K', arranged to serve as herein specified.

4. The wedges I, having each a recess, *i*, on its exterior face, in combination with the hub B, having recesses to receive the wedges, and also longitudinal recesses *b*, as shown, and with the shaft A, bar O, hook-bolts L, and nut *l*, adapted to serve in withdrawing the wedges, as herein specified.

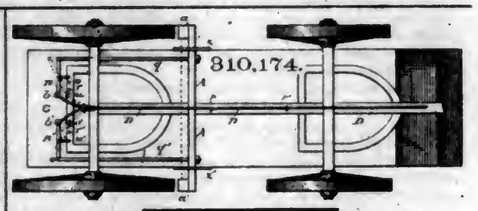
5. The hub B, cylinder B', fixed thereon, and expansible segments R, in combination with each other and with the wedges I, all operated as described, and arranged to serve as herein specified.

6. The hub B, secured to shaft A, and finished lip B², in combination with the shaft A, exchangeable pulley D, matching said lip B², and with suitable fastenings, C, arranged for joint operation, as herein specified.

7. The hub B and cylinder B', having a finished lip, B², in combination with the friction-segments R, operated as described, and with the exchangeable wheel or pulley D, having a corresponding finished groove to receive said lip, and with fastenings C, all arranged for joint operation, substantially as herein specified.

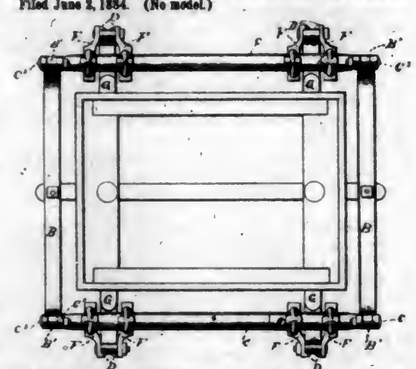
8. The shaft A, wedges I, feather J J', hub B, having cylinder B' and lip B², friction-segments R, and operating means T T' W, exchangeable pulley D, and fastening means C, combined and arranged to serve as and for the purposes herein specified.

310,174. WAGON-BRAKE. BERTHOLD BOSCH, Burlington, Iowa. Filed Aug. 21, 1884. (No model.)



Claim.—In a wagon-brake, the brake-bar A, having brake-shoes *a* and *a'*, and sliding in guides *x* and *x'*, in combination with rods *q* and *q'*, levers B and B', bars *b* and *b'*, rod D, arm E, projection *k*, and dentated guide M, substantially as and for the purpose herein described.

310,175. VEHICLE-SPRING. WILLIAM BOUGHTON, Caledonia, Ohio. Filed June 3, 1884. (No model.)



Claim.—1. The combination of the side bars, the spring-supports secured rigidly to and projected laterally outward from the side bars, and the body-springs having their extremities supported on the outer ends of the supports, substantially as set forth.

2. A clip for vehicle-springs, having its side bars or arms provided at their outer ends with inwardly-projected ears, substantially as set forth.

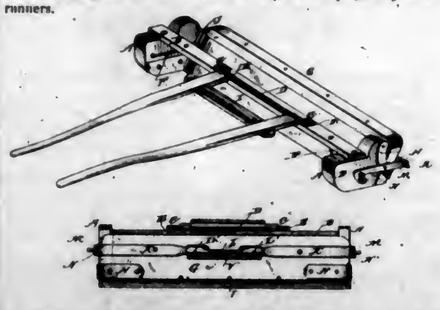
3. The combination of the bolster-springs, the side bars having their ends supported on and depending from the said springs, the spring-supports secured rigidly to and projected laterally outward from the side bars, and the body-springs having their extremities supported on the outer ends of the supports, substantially as set forth.

4. A clip for vehicle-springs, having its side bars or arms provided at their outer ends with inwardly-projected ears, and at their opposite ends with inwardly-projected feet or base-plates, movable one upon the other, substantially as set forth.

5. The combination, with the swinging side bars, of the spring-supports rigidly secured to said bars, and the body-springs having their extremities secured on said supports, substantially as set forth.

310,176. ICE-SCRAPER. DAVID BOYD, Damariscotta Mills, Me. Filed Sept. 2, 1884. (No model.)

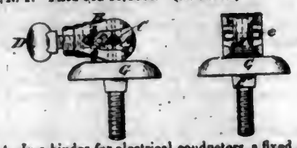
Brief.—A pair of sled-runners connected by draw-bar and a scraper, with its lower edge covered by metallic casing, pivoted thereto by angle-irons. The scraper is operated by a system of levers consisting of a pair of slotted levers connected at one end by wooden bar, and at the other engaging catch-levers which fasten upon studs projecting from the runners.



Claim.—1. The combination, with the connected runners having metal shoes secured to their inner faces, and keeper-studs P, projecting from their outer faces, of the scraper hinged to the runners by angle-irons provided with pivoted catch-levers N N', the slotted levers fulcrumed to the back of the scraper, and the wooden connecting-bar connected to the inner ends of the slotted levers by bolts and nuts, substantially as specified.

2. The combination, with the connected runners having thills coupled to the connecting-bar, of the scraper, having the face-plate I, the angle-irons pivoted to the runners and secured to the scraper, the pivoted catch-levers, and the pivoted slotted levers, and the wooden connecting-bar, substantially as specified.

310,177. BINDER FOR ELECTRICAL CONDUCTORS. JAMES BRADY, Brooklyn, N. Y. Filed Oct. 16, 1883. (No model.)



Claim.—1. In a binder for electrical conductors, a fixed and a moving jaw, each having crossing or intersecting clamping-faces, whereby a conductor may be clamped in more than one position, in combination with a screw for bringing said jaws together, substantially as set forth.

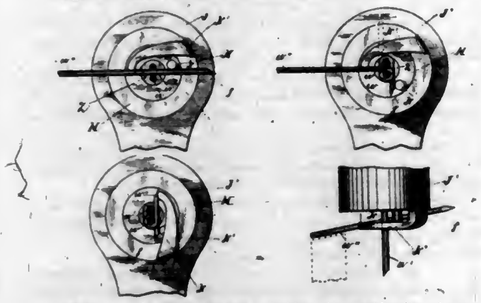
2. In a binder for electrical conductors, the movable clamping-jaw A, in combination with the fixed jaw B, having the pin *e* projecting into or through the sides of said movable jaw, substantially as set forth.

3. In a binder for electrical conductors, the movable clamping-jaw A, having slot *a*, open sides *b b*, and intersecting or crossing clamping-faces *c d*, and provided with the screw D, in combination with the fixed jaw B, having corresponding clamping-faces, and arranged in the path of said screw, substantially as set forth.

4. An electrical binder formed with an intermediate shedding flange or cap, G, an attaching-stem, F, beneath said flange, and a socket for binding the wire or connection above said flange, substantially as and for the purpose set forth.

5. In a electrical binder, the intermediate overhanging shed or flange, G, in combination with the underlying insulated stem F, the overlying fixed jaw B, and corresponding movable jaw, A, with its clamping-screw, substantially as and for the purpose set forth.

310,178. WIRE-BARBING MACHINE. FRANK W. BRAINERD, Chicago, Ill. Filed Mar. 19, 1884. (No model.)



Claim.—1. In a wire-barbing machine, the combination of a stationary main-wire-supporting spindle, a sleeve rotating freely on said spindle, a second sleeve rotating freely on said first-mentioned sleeve, wrapping devices attached to the front faces of said sleeves, respectively, and means, substantially as shown and described, for rotating said sleeves.

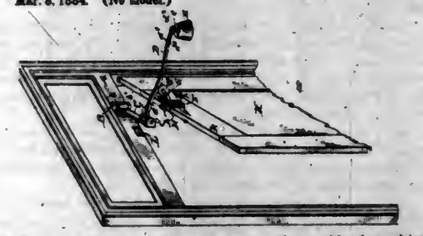
2. In a wire-barbing machine, the combination of a stationary spindle longitudinally perforated for the passage and support of two main wires, an inner sleeve rotating freely on said spindle, an outer sleeve rotating freely on said inner sleeve, suitable wrapping devices attached to the front faces of said sleeves, means for feeding a barb-wire across and between said main wires in front of said sleeves and in contact with said wrapping devices, means for severing said barb-wire between the feeding mechanism and the main wires, and means for rotating said sleeves, respectively, whereby both ends of the severed barb are wrapped about said main wires at the same time.

3. The combination of the spindle Z, sleeve L, rotating on said spindle, sleeve M, rotating on said sleeve L, wrapping-pin N, attached to the front face of the sleeve L and adapted to wrap the free end of a barb-wire about the main wires and against the face of the spindle, and the wrapping-finger N', having its base attached to the front of the sleeve M at a suitable distance from the center to permit the free end of the barb to pass under it without striking, while its point is sufficiently near the center to adapt it for wrapping the severed end of the barb about the main wires, substantially as shown and described, and for the purpose set forth.

4. The combination of the spindle Z, the sleeve L, mounted on said spindle, sleeve M, mounted on said sleeve L, and bearing J, in which said sleeve M is journaled, all constructed and combined substantially as shown and described, and for the purpose set forth.

5. The combination of the spindle Z, sleeves L M, pinions I' I, mounted rigidly on said sleeves, respectively, geared segments K' K, engaging with said pinions, respectively, oscillating levers D' D, formed integrally with said segments, respectively, and cams C' C, actuating said levers, respectively, whereby said sleeves are rotated reciprocally, substantially as shown and described, and for the purpose set forth.

310,179. DOOR-CLOSER. EDWD. H. BROWN, New York, N. Y. Filed Mar. 8, 1884. (No model.)

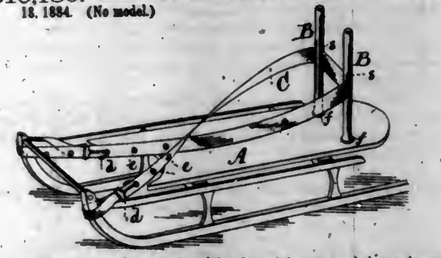


Claim.—1. In a door-closing apparatus, the combination, with the door and its transom, of the arm C, attached to said transom by a vertical hinge, B, and the weighted arm D, attached to the outer end of arm C by a horizontal hinge, substantially as described.

2. A door-closing apparatus consisting of the following parts: the arm C, swinging in a horizontal plane and hinged to the door-frame, the arm D, hinged to the outer end of the arm C, so as to swing vertically, the latter arm being weighted at its free end, and a bearing roller, *g*, carried in suitable bearings attached to the door, so placed that the arm D will rest upon its periphery as the door opens and shuts, the whole working in combination, substantially as described.

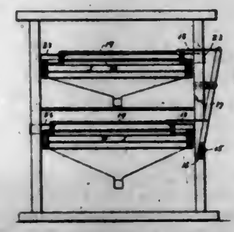
3. In a door-closing apparatus, the combination, with the door and its transom, of the horizontally-swinging arm C, hinged to the transom, and the vertically-swinging weighted arm D, hinged to the outer end of arm C, the arm D being curved upon its under side, substantially as shown, whereby its tendency is to close the door to whatever extent the latter may be opened, substantially as described.

310,180. SLED. AGNES M. BRUNDAGE, Brooklyn, N. Y. Filed Aug. 18, 1884. (No model.)



Claim.—As an improved article of manufacture, a sled attachment consisting of rods or standards B, provided with diagonal slots *s*, and having their lower ends furnished with flanged ferrules *f*, and adapted to engage with sockets or holes in the floor of the sled, and a band or strap, C, passing through said slots, and provided with hooks and eyelet-holes or other means of fastening said strap or band in position to hold a child securely in place on a sled, substantially as and for the purpose herein described.

310,181. MIDDLINGS-PURIFIER. JOHN M. CASE, Columbus, Ohio, assignor to the Case Manufacturing Company, same place. Filed Apr. 17, 1884. (No model.)



Claim.—1. In a middlings-purifier, the combination, with the bolt constructed of bolting-cloth, of a reciprocating frame placed below said bolt, and provided with tightly-stretched wires or cords vibrating in contact with the under side of the cloth, as explained.

2. In a middlings-purifier, the bolt and a reciprocating frame placed below it, and having wires or cords tightly stretched thereon, in combination with a fan for producing a current of air past said cords, whereby they are vibrated, as explained.

3. In a middlings-purifier, the bolt and a reciprocating frame having tightly-stretched wires or cords placed beneath said bolt, in combination with a fan placed above the bolt for producing a current of air upward past said cords and through said bolt, as and for the purposes set forth.

4. In a middlings-purifier, the combination, with a reciprocating frame having bolting-cloth stretched thereon, of a reciprocating frame having wires or cords tightly stretched thereon, said frames being so arranged that the wires of the latter shall traverse and communicate their tremulous action to the under side of the cloth of the former, as and for the purpose set forth.

5. The combination of two or more riddles mounted in the same frame, a belt or strap connected to one end of each riddle, an eccentric for operating said strap, and a walking-beam connected at its respective ends to the riddles, for the purpose set forth.

6. The combination of the single eccentric-shaft 5, the central strap or yoke, 3, the bolts 2, the anti-friction bearings 2*, the riddles 1, and the walking-beam 6.

7. In a middlings-purifier, the combination of a riddle, a cleaning device consisting of tightly-stretched wires or cords arranged in proximity to the under side thereof, and a fan for vibrating said cords, as explained.

8. In a middlings-purifier, the combination, with the vibrating riddle, of a feeding device carried thereby, consisting of a hopper-spout having deflectors therein, branch spouts for conducting the material therefrom, and a box into which said material empties, as explained.

9. In a middlings-purifier, the combination, with a reciprocating riddle, of a feed-box carried thereby, and extending completely across the same, whereby an equal and uniform quantity of material is fed to said riddle from side to side, as explained.

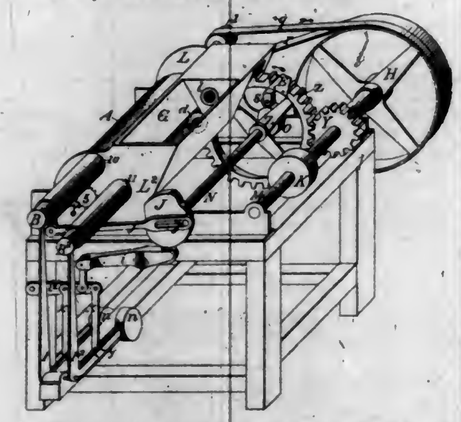
10. The combination, with the feed-hopper 24 and delivery-spouts 25, branching therefrom, of the adjustable deflectors 26, located in said hopper, as and for the purposes set forth.

11. The combination, with the riddles 1, the straps 2, connecting them, and means for imparting a reciprocating motion to said straps, of the walking-beam 6, connected to said riddles at its respective ends, and having an adjustable fulcrum, as and for the purpose set forth.

12. The combination, with the cleaning-frames 19 19 and walking-beam 17, connected thereto at its respective ends, of the crank-shaft 13, driving-shaft 5, and gearing mechanism, substantially as and for the purpose set forth.

13. In a middlings-purifier, the combination, with a riddle, of a reciprocating frame placed below it, and provided with tightly-stretched wires or cords vibrating in contact with the under side thereof, as and for the purpose set forth.

310,182. CORN-HUSKING MACHINE. ISAAC MCKIM CHASE, Washington, D. C. Filed May 16, 1883. (No model.)



Claim.—1. In a corn-husking machine, the combination of a carrying device, a reciprocating centering-bar, and a perforated concave shield, the said bar being adapted to engage the ear at the point and the shield at the butt, and means for effecting an incision through the husk, substantially as described.

2. In a corn-husking machine, a carrying device, a reciprocating centering-bar, and a perforated concave shield, in combination with a cutter having a rotary and reciprocating motion, the latter being adjustable to regulate the depth and diameter of the annular incision, substantially as set forth.

3. In a corn-husking machine, a carrying device, and a reciprocating centering-bar provided with means, substantially as described, for clasping the ear at the point and holding the same, in combination with a rotary cutter, as and for the purpose set forth.

4. In a corn-husking machine, a carrying device, and a centering-bar automatically adjustable to ears of various lengths and adapted to hold the ear at the point, in combination with a rotary cutter for severing the stem, substantially as described.

5. In a corn-husking machine, a carrying device combined with an automatically-adjustable centering-bar, the adjustment of which is determined by the length of the ear operated upon, substantially as described.

6. In a corn-husking machine, a carrying device, reciprocating centering-bars, one of which has a concave end, and means for holding the ear at the point, in combination with a concave shield for holding the ear at the butt, and cutters for severing the stem and husk, substantially as set forth.

7. In a corn-husking machine, a carrying device with longitudinal grooves, and means for holding the ear at the point, in combination with perforated concave shields and suitable cutters, substantially as shown and described.

8. The combination of the grooved carrying device, the reciprocating centering-bar, a cutter, and means for imparting to the cutter a rotary and a reciprocating motion, substantially as described.

9. The combination of the grooved carrying device, a cleaning-cylinder having elastic projections, and a brush revolving at a higher velocity than the cylinder and in peripheral contact therewith, substantially as described.

10. In a corn-husking machine, a grooved carrying device, a cylinder having elastic projections, and a brush revolving at a higher velocity than the cylinder and in peripheral contact therewith, in combination with an inclined plane located between the cylinder and brush, substantially as specified.

11. In a corn-husking machine, the combination of a feeding-hopper, a grooved carrying device provided with perforated concave shields, and means for severing the husk and removing the same, substantially as set forth.

12. In a corn-husking machine, a revolving cutter provided with blades adapted to be adjusted to cut incisions of different diameters, substantially as shown.

13. In a corn-husking machine, a revolving shaft provided with a head having projections and recesses, in combination with removable cutters, and means for securing the same to the head, substantially as shown.

14. The combination of the feed-hopper, the grooved carrying device, the automatically-adjustable centering-bars, and the cutters operating at right angles to each other, substantially as specified.

15. The combination of the feed-hopper, the grooved carrying device, the automatically-adjustable centering-bars, the cutters for removing the stem and severing the husk, and the cylinder provided with elastic projections, substantially as set forth.

16. The combination of the feed-hopper, the grooved carrying device, the adjustable centering-bars, the cutters for removing the stem and severing the husk, the cylinder provided with elastic projections, and the brush revolving in contact with said elastic projections, substantially as described.

310,183. ELEVATOR. PHILIP F. CORBETT, Boston, Mass. Filed June 9, 1884. (No model.)

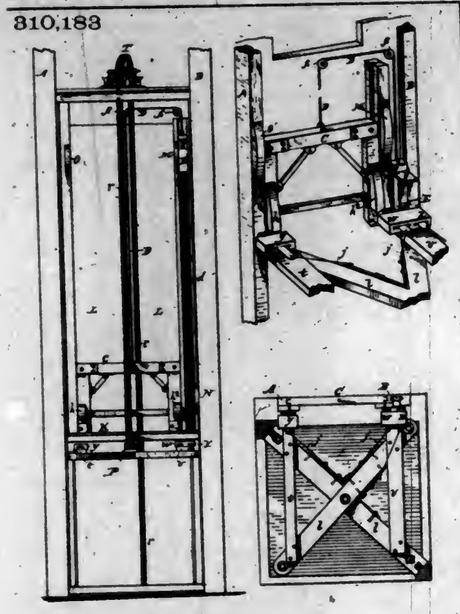
Claim.—1. In an elevator, the combination of the following instrumentalities, to wit: a well, a door opening into the well, a carriage, a gate adapted to close the door, a counter-balance for the gate, a cord connecting the gate and counter-balance, and a cam or cams disposed on the interior of the well, the carriage being adapted to engage the gate as it ascends and carry it upwardly until disengaged therefrom and dropped by the cam or cams, and the counter-balance adapted to engage the rising carriage when the gate drops and remain in engagement therewith until the gate closes, said counter-balance being also adapted to engage the carriage as the carriage descends, and remain in engagement therewith until disengaged therefrom by the cam or cams, thereby releasing the gate and permitting it to drop, and the carriage adapted to engage the falling gate and cause it to descend in unison with the carriage until it reaches the floor and closes the door, substantially as described.

2. In an elevator, the combination of the carriage P, a counter-balance adapted to engage said carriage, the gate C, cord D, cams O M N, catches A A², bolts *y w x*, and operative mechanism, substantially as set forth.

3. In an elevator, the counter-balance E, provided with the hinged lever *g*, in combination with the carriage P, bolt *x*, cam N, gate C, cord D, and operative mechanism, substantially as described.

4. In an elevator, the levers *n*, pull *q*, links *z*, and cords *j*, in combination with the bolts *y w x*, and carriage P, substantially as set forth.

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5. In an elevator, the gate C, provided with the catches A A², in combination with the cord D, counter-balance E, and carriage P, having the bolts *y w*, substantially as described.

6. In an elevator, a counter-balance and carriage adapted to pass each other freely as the carriage ascends, and to engage each other as the carriage descends, in combination with a gate for closing the door, a cord connecting the gate and counter-balance, and operative mechanism, substantially as set forth.

7. In an elevator, a counter-balance and carriage adapted to engage each other as the carriage descends, and to pass each other freely as the carriage ascends, in combination with a gate, a cord for connecting the gate and counter-balance, and a cam for disengaging the carriage and counter-balance, substantially as described.

8. In an elevator, the bolt *y*, in combination with the carriage P, catch A², and cam O, said bolt being adapted to engage said catch and cam, substantially as set forth.

9. In an elevator, the bolt *w*, in combination with the catch A² and cam M, said bolt being adapted to engage said catch and cam, substantially as described.

10. In an elevator, the bolt *x*, in combination with the cam N and lever *g*, said bolt being adapted to engage said cam and catch, substantially as set forth.

310,184. SPLINT. CLINTON DAVIS, Steelville, Ill. Filed Aug. 29, 1884. (No model.)

Claim.—1. The adjustable splint A, formed of the small splints B C in two portions, having the slots *a* and *b*, ferrule *c'*, and thumb-screw *c*, connected by chains D D', substantially as and for the purpose described.

2. The chain D, formed of the links *d'* and *d²*, and pins *e e*, in combination with the splints to which the chain is fastened, substantially as and for the purpose described.

3. The combination of the splint A and the brace-chain H, substantially as and for the purpose described.

4. The combination of the splint with the adjustable pad F, having the spring *f*, the pad being applied to the top edge of the splint, substantially as and for the purpose described.

5. The combination of the splint A and adjustable pads F and G, the pads being applied to the ends of the splint, substantially as and for the purpose described.

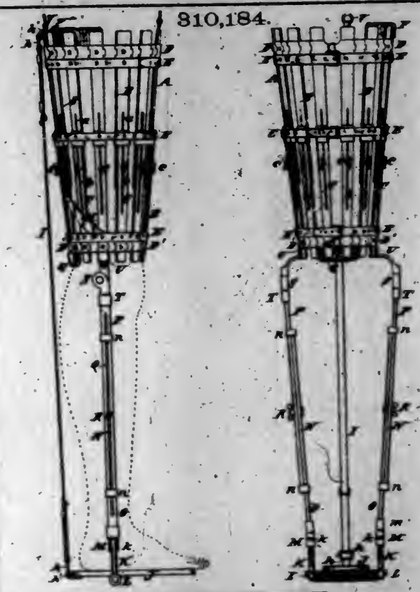
6. The swivel having an eye in lower end of shank, shank K, pin *k*, and socket M, substantially as and for the purpose described.

7. The combination of the brace N and swivel having socket M, shank K, and pin *k*, substantially as and for the purpose described.

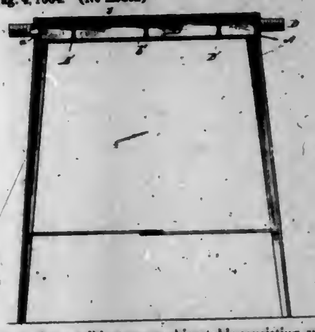
8. The combination of the braces N N and foot-piece J, having pins L L and strap I, substantially as and for the purpose described.

9. The combination of the splint A, braces N N, foot-piece J, and strap I, substantially as and for the purpose described.

310,184.



310,185. STEAMING-TABLE. ROYAL E. DRAKE, New York, N. Y. Filed Aug. 4, 1884. (No model.)



Claim.—1. A reversible steam-cooking table consisting, substantially as before set forth, of a hollow steam-tight box provided at opposite edges with tubular trunnions or pipes.

2. The combination, with the stand or frame provided at the top with an opening having journal-bearings at opposite sides, of the hollow steam-tight box consisting a cooking-table, constructed to fit loosely within said opening, and provided at opposite sides with tubular trunnions adapted to fit said bearings, substantially as described.

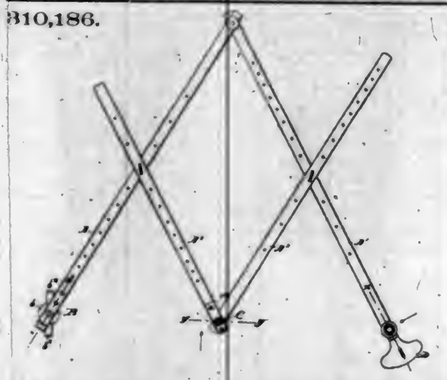
3. A reversible steam-cooking table consisting of a hollow steam-tight box provided at opposite edges with tubular trunnions or pipes communicating with the interior of the box, and having a series of depressions in one of its cooking-surfaces, substantially as described.

4. A reversible steam-cooking table consisting of a hollow steam-tight box having at opposite sides tubular trunnions or pipes communicating with the interior of the box, and provided interiorly with points connecting the opposite walls of the box, substantially as specified.

310,186. PANTOGRAPH. MARC DIAMOND, New York, N. Y. Filed Mar. 24, 1884. (No model.)



310,186.

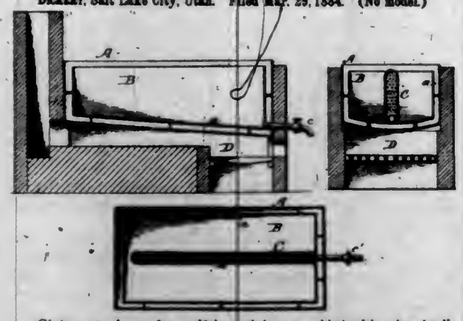


Claim.—1. The combination, with the outer end of the pencil-arm of a pantograph, of a supporting-block, D, secured thereto, the longer horizontal axis of which is at right angles to the length of the arm, and adapted to slide upon the surface over which the arm is extended, and thereby prevent a rocking of the arm, substantially in the manner and for the purpose herein set forth.

2. The combination, with a longitudinally-slotted tube, E, secured to the pencil-arm of a pantograph to project upwardly therefrom and receive and guide its pencil, of a spiral spring, F, encircling the tube, secured at its lower end to a ring or collar, G, rotating upon the tube, and whose coils are adapted to engage a pin projecting from the pencil through the slot in the tube, substantially in the manner and for the purpose herein set forth.

3. The combination, with the joint at the intersection with each other of the controlling-arms A^2 A^3 of a pantograph, and with a detachable tracing pin or point, C, adapted to serve as the pivot for said joint, of a nut or threaded socket, C^2, rigidly secured to the upper superimposed arm, so as to engage and hold the pin upon which the lower arm only is left free to turn, substantially in the manner and for the purpose herein set forth.

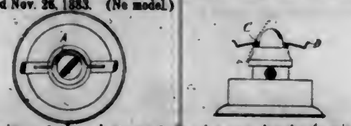
310,187. APPARATUS FOR REFINING SULPHUR. FERDINAND DICKERT, Salt Lake City, Utah. Filed Mar. 29, 1884. (No model.)



Claim.—1. A vat for purifying sulphur, provided with a longitudinal discharge-passage separated from the main body of the vat by a reticulated or apertured cover extending the length thereof, in combination with a furnace under said vat, substantially as shown and described.

2. In a sulphur-refining apparatus, the combination of the vat A, lining B, discharge-passage C, and longitudinal reticulated cover c, and a furnace under said vat, substantially as shown and described.

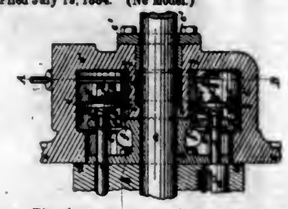
310,188. TUBULAR LANTERN. FREDERICK DIETZ, New York, N. Y. Filed Nov. 26, 1883. (No model.)



Claim.—1. In a lantern of the character herein described, the combination, with the side lifting-wires, the burner-cone, and globe-supporting plate, of a seat for said plate interposed between the same and the burner-cone and bearing against the latter both when the globe is upright and when tilted, whereby said seat is caused at all times to hold the cone in place, substantially as and for the purpose set forth.

2. In a tubular lantern provided with globe-lifting side wires, a perforated plate or globe-holder, a burner-cone, and a seat for the globe-holder having the latter hinged thereto, the said seat and its hinge bearing against the cone to throw the weight of the globe on the cone both when the globe is upright and when tilted, whereby the seat and globe will hold the cone in place at both such times, substantially as and for the purpose set forth.

310,189. VALVE CUT-OFF MECHANISM. JOSIAH DOW, Lowell, Mass. Filed July 19, 1884. (No model.)



Claim.—1. The single disk *i*, attached to the valve-stem *d* of the valve and provided with opposite and alternate opening and closing pins *i''* *i''*, in combination with the opening and closing rings *f* and *g*, having the respective projections F G and cam-grooves F' F'' G' G'', as and for the purpose set forth.

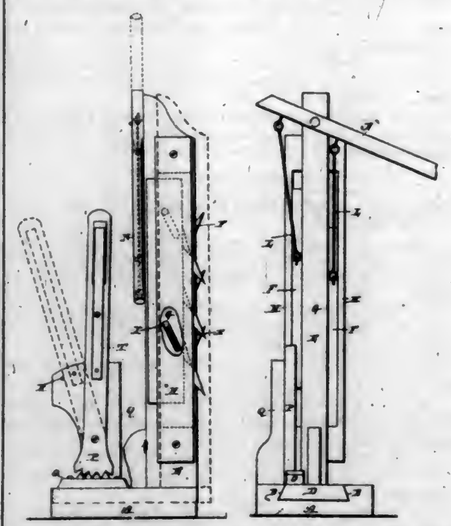
2. In a valve-operating mechanism, the rotary cylinder *b*, shaft *g*, and flanged bearing piece or bracket *c*, carrying the valve-stem *d*, and its single disk *i*, having the opposite alternate pins *i'* *i''* upon it, in combination with the stationary ring *f* and its opening device F F' F'', and the movable ring *g* and its closing device G G' G'', as and for the purpose set forth.

3. In combination with the bearing-bracket *c*, its stem *d*, and disk *i*, the bearing-sleeve *c'*, having flange *c''* located between the outside of bracket or bearing-piece *c* and hub I of the disk *i*, as and for the purpose set forth.

4. In a valve-operating mechanism, the single disk *i* with its side projections, *i''*, in combination with the stationary ring *f*, having cam-groove F' F'', for automatically turning the disk *i* for the purpose of opening its valve *d'*, as set forth and described.

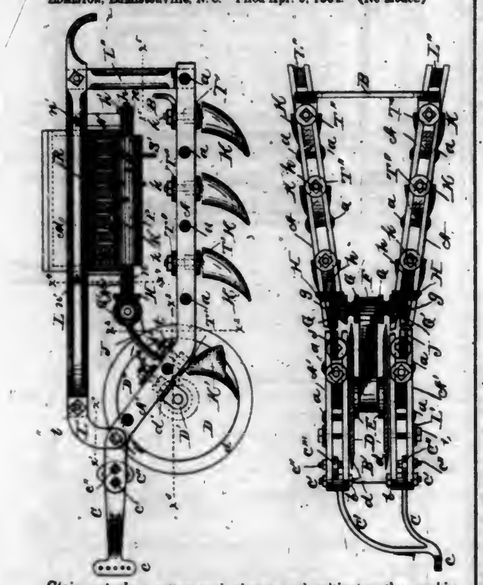
5. In a valve-operating mechanism, the single disk *i* with its side projections, *i''*, in combination with the adjustable ring *g*, having cam-groove G' G'', for automatically closing the valve *d'* on which the disk *i* is attached, as and for the purpose set forth.

310,190. SAW-MILL DOG. ELDRIDGE DRAKE and CHARLES M. DRAKE, Gardiner, Me. Filed Mar. 13, 1884. (No model.)



Claim.—The combination of the standard, the two slotted sides which are applied to opposite sides of the standard, the side pieces which keep the dogs in position, the guiding-pins secured to the slides, and which catch in suitable slots made to receive them in the standard or side pieces, the operating-lever, and connecting-rods, whereby the dogs are made to move in opposite directions, substantially as shown.

310,191. COTTON-SEED PLANTER AND CULTIVATOR. JOHN F. EDMISTON, Edmistonville, N. C. Filed Apr. 9, 1884. (No model.)



Claim.—1. In a cotton-seed planter and cultivator, the combination of the seed-box having concaved slotted sides and the rotating cylinders S, provided with a series of seed-pickers, S', arranged in spiral order to consecutively enter the slots in the seed-box and engage with and discharge the seed, substantially as specified.

2. The rolling cutters D D, provided with adjustable bearings D', in combination with the upwardly-inclined drag-bars A, as and for the purpose set forth.

3. The cultivator-blades K and K', provided with integral shanks *k* and shouldered sleeves T T' and washers T'', in combination with recessed drag-bars A, having upward inclination, substantially as specified.

4. The combination of the drag-bars A, standards J J, pulley E, cross-belt F, pulley G, and rotary seed-picking mechanism, substantially as and for the purpose set forth.

310,192. FIBROUS-PULP ROOFING-TILE. JULIUS T. EDSON, Cleveland, Ohio, assignor of one-half to Howard W. White, same place. Filed July 28, 1884. (No model.)



Claim.—1. A fibrous-pulp tile impregnated with a water-proof solution and enameled with a fire-proof solution, substantially as set forth.

2. A fibrous-pulp tile impregnated with a water-proof solution, enameled with a fire-proof solution, and provided with a coating of sand, substantially as set forth.

3. A process of making fibrous-pulp tile by, first, pressing the pulp into the desired form; second, drying the same; third, impregnating said tile with a water-proof solution; fourth, subjecting said tile to a baking heat; fifth, treating said tile with a fire-proof solution; sixth, furnishing said tile with a coating of sand; and, seventh, subjecting said tile to another operation of baking heat, substantially as set forth.

310,193. COTTON-GIN RIB. WILLIAM F. EDWARDS, Covington, Ga. Filed Sept. 3, 1884. (No model.)

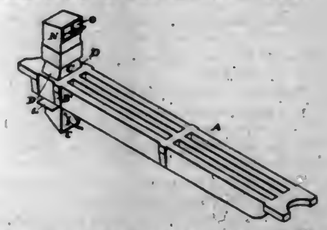


Claim.—1. As an improved article of manufacture, the herein-described cotton-gin rib, having a recess formed therein, shoulders projecting from the rib into the ends of the recess, a plate concavo-concave in form and fitted in the correspondingly-shaped recess of the rib, and having its ends notched to receive the said shoulders, the sides of the plate at the ends protecting the rib from wear, as set forth.

2. As an improved article of manufacture, the herein-described cotton-gin rib, having a recess formed therein, shoulders projecting from the rib into the ends of the recess and tapered to a point, a plate fitted in the recess of the rib, and having V-shaped notches at each end to receive the said shoulders, the sides of the plate at the ends thereof protecting the rib from wear, and said plate being reversible, so that when one wearing-surface has been worn it can be changed around to present a new wearing-face, as set forth.

3. As an improved article of manufacture, the herein-described cotton-gin rib, having a recess formed therein, and a plate fitted in the recess, said plate being concavo-concave in form, and the recess in the rib being shaped correspondingly to receive the plate, the latter thereby being reversible both from the ends and faces, so that when one wearing-surface has been worn the plate can be changed around to present a new wearing-face, as set forth.

310,194. GRATE-BAR ATTACHMENT FOR FURNACES. MICHAEL A. FOSTER, St. Louis, Mo. Filed June 9, 1884. (Model.)



Claim.—1. A grate-bar having strengthening-ribs B' and a socket or opening to receive an air pipe or flue, for the purpose mentioned

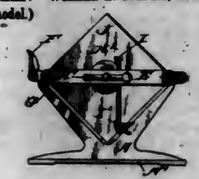
2. The combination of the grate-bar and air pipe or flue, the former having a socket to receive the latter, and the latter having strengthening-partitions, for the purpose mentioned.

3. The combination of the grate-bar and air pipe or flue, the former having a socket to receive the latter, and the latter having a fire-clay cap or hood, for the purpose set forth.

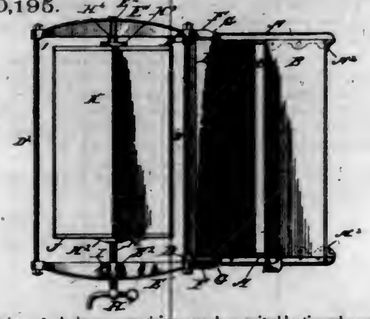
4. The combination of the grate-bar and air pipe or flue, the former having a socket to receive the latter, and the latter having a damper, strengthening-partitions, and a fire-clay hood or cap, all arranged and operating substantially as and for the purpose set forth.

5. The combination of the grate-bar and air pipe or flue, the former having a socket to receive the latter, and the latter fitting in the socket and having flanges D and side mouth or opening, I, substantially as shown and described, for the purpose set forth.

310,195. CLAMP. WILLIAM H. GOLDING, Chelsea, Mass. Filed June 7, 1884. (No model.)



310,195.



Claim.—1. A clamp comprising cross-bars united by tie-rods and provided with bearing-blocks and a tightening-screw and pivotally mounted upon a base having a bed the walls of which are arranged at right angles to each other, substantially as specified.

2. A clamp comprising cross-bars, each provided with a rotatable bearing-block and a tightening-screw centrally arranged therein and pivoted to a frame or bed having walls arranged at right angles to each other, substantially as specified.

3. A clamp comprising cross-bars having bearing-blocks, a tightening-screw, and tie-rods, one of which forms a pivot for the frame, said cross-bars having projecting arms at their pivoted ends, in combination with a frame or bed having walls arranged at right angles to each other and having stops to limit the movement of the clamping-frame when open, substantially as specified.

4. A clamp comprising a frame of cross-bars and connecting tie-rods having bearing-blocks and a tightening-screw, the frame being pivotally connected to a bed provided with a lug arranged to support the clamp by means of an adjusting-screw projecting therefrom, substantially as specified.

5. The frame comprising the bifurcated standards having inwardly-projecting flanges, and the bottom boards or walls secured to said flanges and arranged at a right angle to each other, in combination with a clamp pivoted to said frame, substantially as specified.

6. The frame comprising the bifurcated standards having inwardly-projecting flanges, and the bottom boards or walls arranged at a right angle to and at a distance from each other at their lower edges, substantially as specified.

7. The bifurcated standard provided at one side thereof with projecting stops and at the other side thereof with projecting flanges and at the top of one of the bifurcations thereof with a hub or bearing, substantially as shown and described.

8. The clamp-frame consisting of two cross-bars, each having at one end thereof a projecting arm and a bearing for a tie-rod, and each having at the opposite end a similar bearing for a similar tie-rod, and one of the said cross-bars having a bearing for a binding-screw, substantially as shown and described.

9. The combination of the standards A, inclined bottom boards, B, spaced as at C, with the clamping-frame provided with the rotatable bearing-block H^2, and the tightening-screw H, provided with the rotatable bearing-block H^2, substantially as shown and described.

10. The combination, with the clamping-frame comprising the bars E E', rods D' D^2, tightening-screw H, and adjusting-screw I, with the bottom boards, B, and end standards, A, one of which is provided with the lug I', substantially as shown and described.

11. The combination, with the clamping-frame provided with adjusting-screw I, bearing-block H^2, set-screw and tightening-screw H, and bearing-block H^2, of the standard A, having the lug I', substantially as shown and described.

12. A clamp comprising a V-shaped trough, and a frame pivoted thereto and provided with a tightening-screw, substantially as specified.

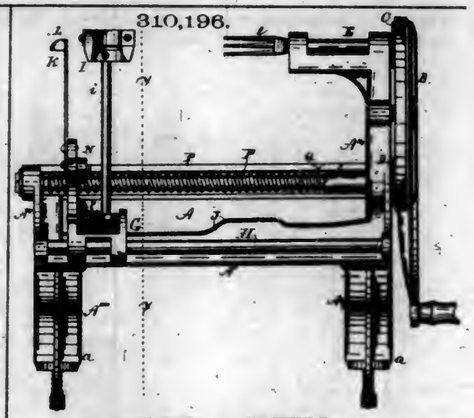
13. A clamp comprising a V-shaped trough, and a frame pivoted thereto and provided with a tightening-screw and with an adjusting-screw, substantially as specified.

310,196. APPLE-PARER. DAVID H. GOODELL, Antrim, N. H., assignor to the Goodell Company, same place. Filed Oct. 31, 1882. (Model.)

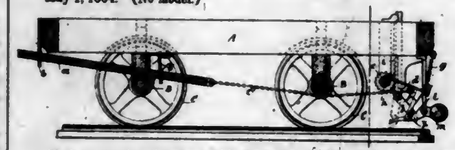
Claim.—1. In combination with the feed-screw and sliding head carrying the paring-knife, segment-nut, and latch, the bar P, which partly encircles the feed-screw F, adapted to engage the latch, and provided with a cam-track for raising the latch, substantially as and for the purpose specified.

2. In combination with the main frame, feed-screw, rod H, fork e, sliding head carrying the paring-knife, segment-nut, and swinging latch and mechanism for operating the same, the bar P, having a recess which receives the feed-screw F, and a cam-track for raising the latch, substantially as and for the purpose specified.

310,196.



310,197. CAR-STARTER. JAS. GOODFELLOW, New York, N. Y. Filed May 1, 1884. (No model.)



Claim.—1. A pair of movable feet or props for starting a car, supported from the car-frame, in combination with mechanism whereby said feet or props may be automatically swung forward and straightened to raise the rear end of the frame and impel the car forward by its own gravity, substantially as herein shown and described.

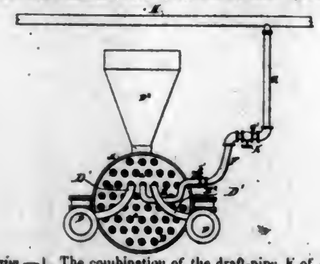
2. In a car-starter of substantially the construction described, the weighted cams *m m*, for holding the swinging feet above the track when the car is in motion, as set forth.

3. In a car-starter of substantially the construction described, the hook-shaped arm *f*, for holding the swinging feet above the track while the car is in motion and after the pull on the rod *a* is slackened, as set forth.

4. In a car-starter, a pair of swinging feet, each swiveled to a rack-bar which is in mesh with a pinion mounted on a shaft, in combination with a chain fixedly connected to said shaft and a rod fixed to said chain, so that when the horses move forward the shaft is rotated and said feet are swung forward and straightened to bear on the track and raise the rear end of the frame of the car, whereby the car is impelled forward by its own gravity, substantially as herein shown and described.

5. In a car-starter, a pair of swinging feet, each swiveled to the lower end of a rack-bar arranged to move vertically in the sides of the car-frame and in mesh with a pinion mounted on a shaft, an arm fixed to said shaft, a chain fixed to said arm, and a rod fixed to said chain, in combination with a hook-shaped arm and a pair of weighted cams, substantially as herein shown and described, for the purpose specified.

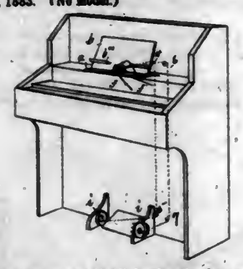
310,198. DRAFT APPARATUS FOR STEAM-BOILERS. MOSES M. GREENWADE, Cincinnati, Ohio. Filed Jan. 28, 1882. (No model.)



Claim.—1. The combination of the draft-pipe E of a locomotive, pipe F, and a switch-box, E^3, having a straight passage, *b*, controlled by a valve, *b'*, and the curved side passages, *d d'*, for introducing steam from an outside source either to the smoke-stack or steam-space of the boiler, substantially as and for the purposes specified.

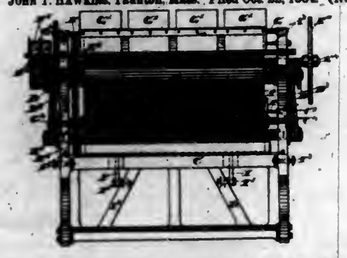
2. The combination of draft-pipe E, connected at one end to the upper portion of fire-box, steam-dome, and cock E', controlling the passage through pipe E to and from said steam-dome, the pipe E opening at its forward end in the fire-box B of the locomotive, and located between the exhaust-orifice of the cylinders D D, and valve E^2, located in pipe E, and provided with cock *b'* in passage-way *b*, forming a part of the direct passage-way through pipe E, and further provided with curved passages *d d'*, respectively opening into the pipe E at opposite sides of cock *b'*, these passages *d d'* being respectively provided with nozzles d^2 and d^3, and overhead pipe H, connected to a steam-supply, and rigid down-pipe G, connected at its upper end to pipe H and at its lower end provided with horizontal branch G', having cock for controlling the passage through said branch G, and the flexible pipe F, connecting the free end of branch pipe G to one or the other of the nozzles d^2 or d^3, and adapted to be connected or disconnected from said pipes at pleasure, substantially as and for the purposes specified.

310,199. MUSIC-LEAF TURNER. EDWIN G. HASTINGS, Nevada, Iowa. Filed Dec. 17, 1883. (No model.)



Claim.—The book-rest *a b b'' b'''*, having fixed posts *c c'*, the spool *d*, having a series of toothed sectors, 1 2 3, and a pulley, *d'*, a series of arms, *f*, having toothed sectors on their ends and carrying leaf-clasping devices, pin-wheels *i i*, having pulleys *l*, a cord, *k*, and cord-directing pulleys 4 5 6 7, arranged and combined relative to each other, and an organ or piano, in the manner set forth, for the purposes specified.

310,200. MACHINE FOR VARNISHING PRINTED SHEETS OF PAPER. JOHN T. HAWKINS, Taunton, Mass. Filed Oct. 22, 1884. (No model.)



Claim.—1. In a machine for varnishing, glossing, or sizing paper or other similar material, a depositing-roller, as C^4, adjustably journaled in arms, as C^5, swinging upon the axis of a fountain-roller, as C', whereby said depositing-roller is held at an adjustably-fixed distance from said fountain-roller, and also adapted to be moved to and from a sheet-cylinder, as A', substantially as and for the purposes set forth.

2. In a machine for varnishing, glossing, or sizing paper or other similar material, the combination of gearing for actuating the depositing and fountain rollers, consisting of a gear-wheel, as E, secured to the sheet-cylinder, meshing with an intermediate gear, as E', secured to the depositing-roller, and this latter meshing with the third gear, as E^2, secured to the fountain-roller, substantially as and for the purposes set forth.

3. In a machine for varnishing, glossing, or sizing paper or other similar material, the combination, with a depositing-roller, as C^4, adjustably journaled in levers, as C^5, swinging upon the axis of a fountain-roller, as C', of adjustable cams, as D, and springs, as D^2, for automatically swinging the said levers upon the axis of said fountain-roller as a fulcrum, and thus moving the said depositing-roller to and from a sheet-cylinder, as A', substantially as and for the purposes set forth.

4. In a machine for varnishing, glossing, or sizing paper or other similar material, in combination with a sheet-cylinder, as A, a rotary fan, as G', whereby the double purpose of pressing the sheet against the said sheet-cylinder and partially drying the varnish or other deposited material by the blast of said fan is accomplished, substantially as and for the purposes set forth.

5. In a machine for varnishing, glossing, or sizing paper or other similar material, or other machine to which sheets of paper are to be under-fed to a sheet-cylinder, as A', the combination of front guides and hinged feed-board, consisting of a rock-shaft, as B^2, levers for lifting the feed-board, as B^3, and front guides, as B^4, secured to said rock-shaft and extending in the opposite direction from said levers, and an actuating-lever, as B^5, the latter operated to oscillate said rock-shaft, substantially as described, by any suitable connection to the machine, substantially as and for the purposes set forth.

6. In a machine for varnishing, glossing, or sizing paper or other similar material, a swinging varnish-fountain, as C, fulcrumed to any suitable part of the machine, as to the cross-stay I^2, so as to swing clear of a varnish-roller, as C', and held in position by suitable pins or screws, as I^3, substantially as and for the purposes set forth

310,201. TAG-HOLDER. JAS. D. HAWKINS, Brazil, Ind. Filed May 20, 1884. (No model.)



Claim.—1. The combination of a tag and a tag-holder, said tag-holder having a head part upon one end, and having hooks formed on its other end, with a single neck portion between said head and said hooked portions, upon which said tag is placed, whereby a tag-holder is provided adapted to fasten into the end of a bolt of cloth and hold the tag face outward at all times, substantially as set forth.

2. The combination, with a tag, of a tag-holder formed of a single piece of wire doubled together and having a head-piece formed on said double part, and the ends of said wire being extended out and formed into hooks, and a straight neck-piece being formed between said head-piece and said hooks, upon which the tag is mounted, whereby said tag is enabled to maintain its position when attached to an article regardless of the position of said article, substantially as set forth.

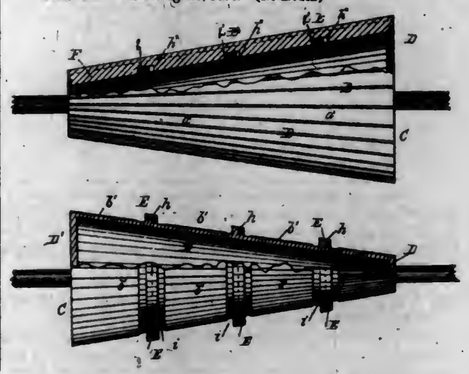
3. The combination of the tag B and holder C, said holder having a head-piece, *c*, and hooks *c'* formed thereon, and said tag being mounted upon a neck-piece between said parts, substantially as described, and for the purposes specified.

310,202. DEMIJOHN OR BOTTLE. ADOLPH HOERER, St. Louis, Mo. Filed May 19, 1884. (No model.)



Claim.—In combination with a demijohn or glass vessel, the metal liquor-gage, C, having the elongated opening *c*, bands *d d'*, to fasten said gage round the glass vessel, and the wicker jacket B, covering said glass vessel and the bands of the gage, but having an opening to expose and display the said liquor-gage, its opening, and the contents in the vessel, substantially as and for the purposes set forth.

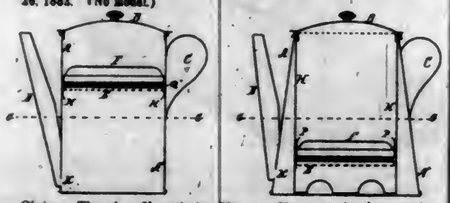
310,203. ROLL FOR PAPER-PULP ENGINES. JOHN H. HORNE, Lawrence, Mass. Filed Aug. 27, 1884. (No model.)



Claim.—1. The roll C, having annular ribs E raised thereon, each rib being provided on one face with a projecting annular flange, A, in combination with a series of blades F, each of which has in its inner edge a series of recesses, A^2, forming tongues A', which interlock with said flanges A, substantially as set forth.

2. The roll C, having longitudinal grooves b' and unbroken undercut annular ribs E, in combination with blades F, which fit into grooves b' and interlock with said ribs, substantially as set forth.

310,204. COFFEE-POT. LEMUEL P. JENES, Boston, Mass. Filed Dec. 26, 1883. (No model.)



Claim.—The ring E, with its filter or filters of circular or other shape, and having the springs Q, in combination with and fitting tightly into a device continuously surrounding it, of the same or similar shape in horizontal section, in which it slides, whether the latter be the pot-body or a tube placed in the same, the said ring and filter being adjustable at any altitude above the bottom of the pot and retained there by springs (which I thus include in my combination, as claimed) attached to the ring or its handle, all constructed and arranged substantially as described and shown.

310,205. FABRIC FOR COVERING HEATED SURFACES. HENRY W. JOHNS, New York, N. Y. Filed Feb. 1, 1884. (No model.)



Claim.—1. As a new article of manufacture, a fabric composed of a sheet having attached to the surface thereof rolls or ropes of fibrous material, substantially as specified.

2. The combination, in a fabric, of a corrugated sheet and rolls or ropes contained in the corrugations, substantially as specified.

3. The combination, in a fabric, of a sheet having notched edges and rolls or ropes covering the surface and fitting into the notches, substantially as specified.

4. The combination, in a fabric, of a corrugated sheet having notched edges and rolls or ropes fitting into the corrugations and notches, substantially as specified.

5. The combination, of a sheet, with rolls or ropes attached to one or both surfaces, the sheet extending at the sides beyond the covering, substantially as specified.

6. The fabric consisting of rolls or ropes woven with stripe of paper, sheathing, or other sheet, substantially as specified.

310,206. PACKAGE-WRAPPER. DAVID D. KELLEY, Yarmouth, Mass. Filed Dec. 22, 1883. (Model.)

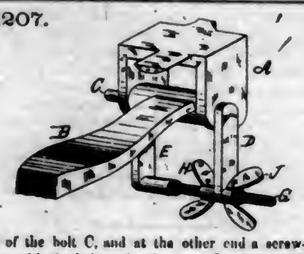


Claim.—A package-wrapper composed of a sheet of paper, A, provided with a pocket, B, and a string-fastening, C, stored in said pocket, and having free ends capable of being drawn out to a suitable length to secure, by tying, the package wrapped therein, substantially as specified.

310,207. THILL-COUPLING. WALLACE A. KENDALL and FRANK R. GLOVER, Framingham, Mass. Filed July 31, 1884. (No model.)

Claim.—1. As an improved article of manufacture, a thill-coupling consisting of a bolt, C, having an arm or extension, D, provided with a hole, *d*, and a bar, E, having at one end a hole, *e*, for engagement with

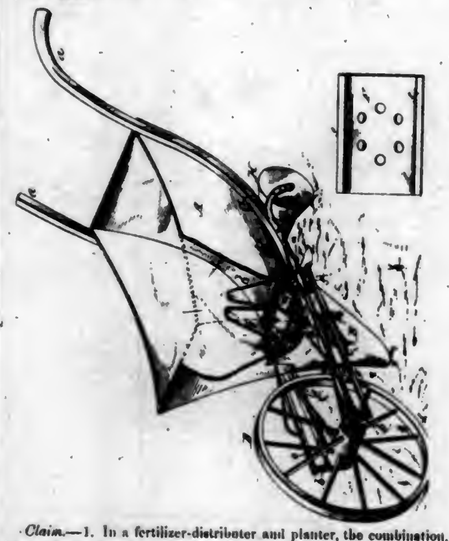
310,207.



the end of the bolt C, and at the other end a screw-bolt, G, for engagement with the hole *d* in the arm D, substantially as herein described.

2. The thumb-nuts H J, in combination with the arm D and screw-bolt G, substantially as and for the purpose herein described.

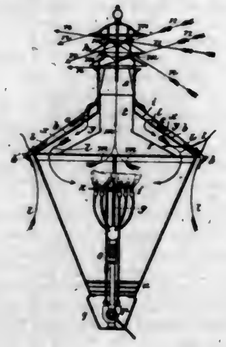
310,208. FERTILIZER-DISTRIBUTER AND PLANTER. FRANCIS M. KING and WILLIAM E. KING, Wilmington, N. C. Filed June 9, 1884. (No model.)



Claim.—1. In a fertilizer-distributer and planter, the combination, with a suitable hopper and spout, of interchangeable gage-plates and agitators, and feeders having an alternative motion both vertically and horizontally over said gage-plates, substantially as and for the purpose set forth.

2. In a fertilizer-distributer and planter, the combination, with forked feeders terminating at their outer ends in cranks, of rods connecting therewith and with cranks on the axle of the driving-wheel, and agitators connected to the rod and extending through and into the hopper over the feeders, and operating in connection therewith, substantially as and for the purpose specified.

310,209. STREET-LAMP. RUDOLF KRAUSSE, Mentz, Germany. Filed Aug. 22, 1883. (No model.) Patented in Germany Apr. 5, 1883, No. 22,927.

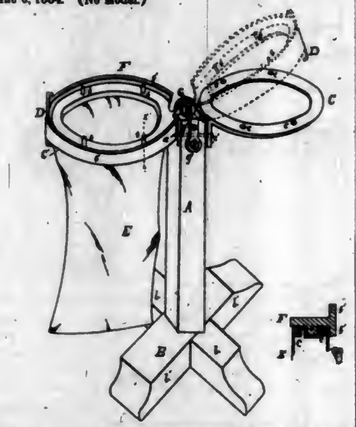


Claim.—1. A lantern for gas-lighting, provided with a second roof, *c*, outside of and substantially parallel with the main roof *b*, and extending downward to the level of the lowermost line of said main roof, and admitting air only between these roofs and at or below said lowermost line, the combination and arrangement of these parts serving not only to exclude the influence of external currents of air, but also for the purpose of storing and preheating air for combustion, all substantially as shown and described.

2. In combination with the main-roof *b* and with the exterior roof, *c*, extending down to the plane or level of the lowermost line of the main roof, the inwardly-turned flange *b'*, projecting inwardly from the lower line of said roof *c*, as and for the purpose set forth.

3. In combination with the preheating chamber *x*, located between the roof *b* and a second and outer roof, *c*, the openings *i* in the main roof *b*, and the deflector *r*, the combination being and operating substantially as and for the purposes set forth.

310,210. BAG-HOLDER. LUDWIG LIEDEL, Golden City, Mo. Filed June 6, 1884. (No model.)

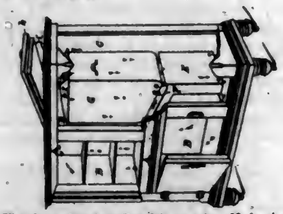


Claim.—1. A bag-holder composed of a standard, A, and foot-piece B, frame-pieces C C', having slots *c*, and a frame, F, having lugs *f*, catch D, and rims *f'*, all substantially as shown and described.

2. Frame-pieces C C', having slots *c*, combined with a hinged frame, F, having lugs *f*, rims *f'*, and double spring-catch D, all substantially as shown and described.

3. In combination with a hinged frame, F, and a standard having a broad base, frame-pieces C C', substantially as and for the purpose set forth.

310,211. REFRIGERATOR. JOEL LINSLEY, Burlington, Vt. Filed Sept. 22, 1884. (No model.)



Claim.—The ice-chamber C, with opening H, in the refrigerator A, in combination with the removable ice-tank G, provided with the air-tight cover I and removable faucet *g*, and elevated on legs, so that there shall be an open space entirely around its outside, substantially as described, and for the purpose set forth.

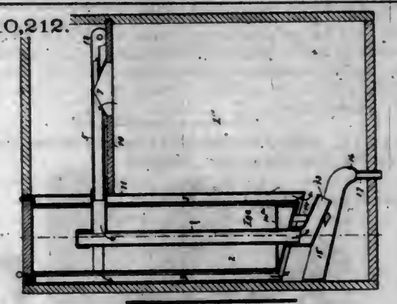
310,212. AIR-REFRIGERATING APPARATUS. CHARLES P. MARSHALL, Memphis, Tenn. Filed May 14, 1884. (No model.)

Claim.—1. The combination, with the ice-chest 2, having double jackets 3, open at bottom, as described, of the pipes 4 6, passing through the ice-chest 2 and opening into the space between the jackets on the opposite side thereof, as and for the purpose set forth.

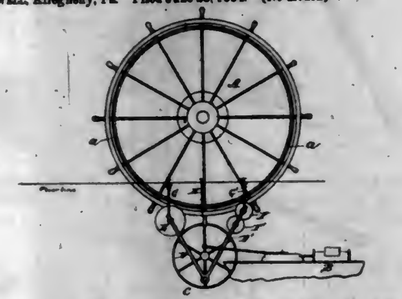
2. The combination of ice-chest 2, double-jacketed, as shown, pipes 4 6, having hoods 7, and ingress-ports 11 12, substantially as and for the purpose set forth.

3. In combination with pipes 4 5 6 and hoods 7, the diaphragm 10 for deflecting the air rising in the compartment into said hoods, as shown and described.

310,212.



310,213. TILLER-WHEEL ON STEAMBOATS, &c. JAMES A. MAXWELL, Allegheny, Pa. Filed June 28, 1884. (No model.)

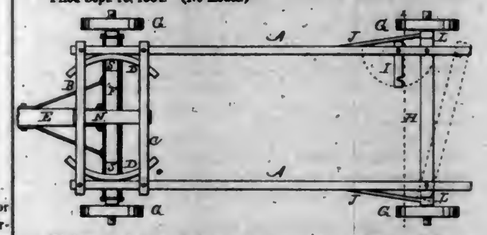


Claim.—1. The combination of the tiller-wheel, a rim, band, or circle secured rigidly to its side, a pivoted crank-lever placed below the wheel and band, friction-wheels which are journaled upon the arms of the lever, a fly-wheel located beneath the tiller, and a mechanism for driving the fly-wheel, the lever being adapted to be moved so as to press the wheel or wheels upon its arms between the rim or band on the tiller-wheel and the fly-wheel, substantially as shown.

2. The combination of the tiller-wheel, the circle rigidly secured to its side, a fly-wheel placed below the tiller-wheel, and a mechanism for driving the fly-wheel, with spring-actuated levers which have friction-wheels journaled upon them, and which wheels are moved by the levers, so as to bear against both the fly-wheel and the circle, substantially as set forth.

3. The combination of the tiller-wheel, a circle rigidly secured thereto, the fly-wheel, and a mechanism for driving it, with the pivoted crank-lever, having a spring applied to each arm, and the friction-wheels E F F', journaled upon the arms, substantially as described.

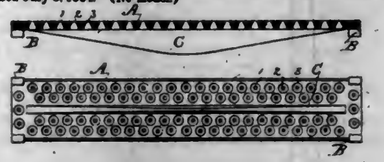
310,214. REAPER-TRUCK. GILBERT M. L. MCMILLEN, Dayton, Ohio. Filed Sept. 15, 1884. (No model.)



Claim.—1. In a truck-frame, the transverse cross-pieces B C, the longitudinal bearing-block N, the segmental brace and bearing-pieces D D, and side rails, A A, arranged substantially as set forth.

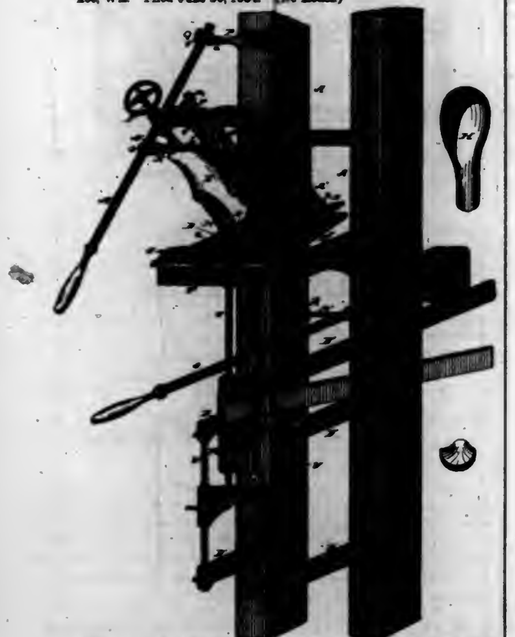
2. The notched detachable axle H, arranged with reference to the side rails, A A, and stump axles L L, with bolts to secure the several parts, substantially as described.

310,215. FURNACE-GRATE. FRED. V. MEDYNSKI, Des Moines, Iowa. Filed July 5, 1884. (No model.)



Claim.—A furnace-grate composed of a series of bars or sections having broad, flat, and perforated top surfaces, A, lateral and downward projections B, tapering flanges C, extending along their under sides and centers, and cup-shaped openings or cells in the entire under side, substantially as shown and described, to operate in the manner set forth, for the purposes stated.

310,216. WOODEN-SHOE MACHINE. FERDINAND MEINECKE, Milwaukee, Wis. Filed June 30, 1884. (No model.)



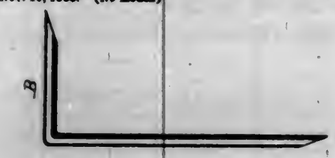
Claim.—1. In a machine for excavating shoes, the combination of the bracket T, rigidly affixed to a supporting-frame, oscillating plate I, provided with pivotal supports J J, operating in journal-bearings on said bracket, oscillating holders A' A', respectively secured to said plate I by pivotal supports G, said holders being connected by a bar, and provided with an operating-lever, by which they are simultaneously moved together, shaft U, provided with cutting-knife H, shaft R, provided with bearing and operating against the interior surface of the form, form or pattern C, rigidly fixed to the holder, as shown, slide W, guideway Y Y, said slide serving to support and simultaneously move said shafts U and R, link B', and lever S, all substantially as and for the purpose specified.

2. In a machine for excavating wooden shoes, the combination of the oscillating holders A' A', mounted upon pivotal supports which permit of their universal movement, connecting-bar K, sleeve or link O, adapted to turn on said bar K, pivot N, handle M, secured to said sleeve O by said pivot, universal joint or swivel Q, arm P, and post or frame A, substantially as set forth.

3. In a machine for excavating wooden shoes, the combination, with the oscillating holders A' A', of the movable retaining-screws F F and stationary dogs E E, said screws being adapted to retain the upper end of said shoe-block and form, while said dogs retain their lower ends, as set forth.

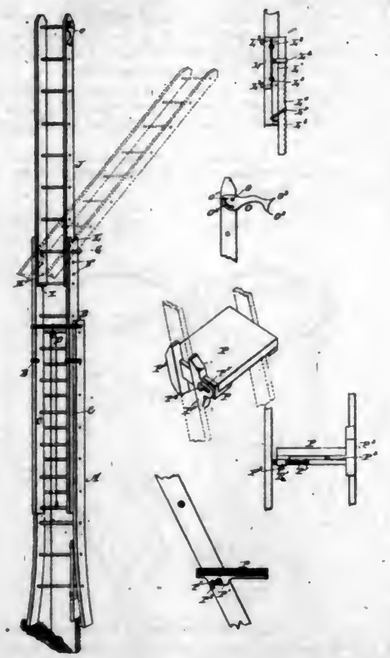
4. In a machine for excavating wooden shoes, the combination, with the single slide W and handle S, connected together by link B', said slide being mounted on the guideways Y Y, of the vertically-moving rotating shaft U, provided at its upper end with a cutting-knife, and the vertically-moving shaft R, provided at its upper end with a former, substantially as set forth.

310,217. CARPET-FASTENER. GAMALIEL C. MYERS, Dayton, Ohio. Filed Nov. 19, 1883. (No model.)



Claim.—A carpet-tack formed of wire cut diagonally and bent at a right angle to form the head and shank, with the diagonal face of said head on the under side, substantially as set forth.

310,218. LADDER. JOSEPH D. NORTON and LEONARD M. NORTON, West Hampton, Mass. Filed Oct. 1, 1884. (No model.)



Claim.—1. In a ladder, the combination of a lower section, a sliding section which is secured thereto, means for raising and lowering the sliding section, and an upper section which is adapted to be rigidly secured to the sliding section or to be pivoted to the upper end thereof, for the purpose set forth, substantially as described.

2. In a ladder, the combination of a lower section, a sliding section which is attached thereto, means for raising or lowering the sliding section, said sliding section being provided with openings F, and an upper section which is provided with openings H and notched lower ends, I, and a pin, G, substantially as described.

3. The combination, with a ladder, of an extension-leg which is composed of the clamp-bars L and L', thumb-screws L^2, and sliding leg L^3, provided with notches, and a link, L^4, which is pivoted to one of the bars, and which is adapted to catch in the notches in the sliding leg, substantially as described.

4. The combination of a ladder with a hook, O, which is provided with the points O^2 O^3, slot O^4, and set-screw O^5, substantially as specified.

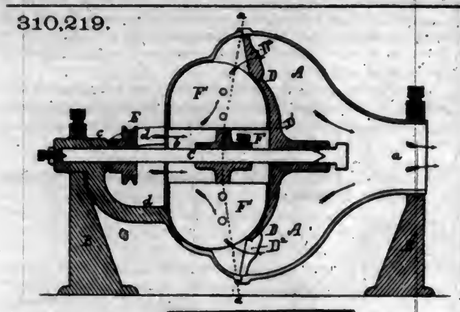
5. The combination, with a ladder, of a step which is provided with lugs at one of its ends for supporting it upon one of the rounds of the ladder, a shoulder which is secured to the opposite end of the step for bearing against one of the sides of the ladder, and a sliding clamping-shoulder that is secured to the step opposite to the bearing-shoulder, substantially as described.

6. The combination, with a ladder, of a step which is provided with means, substantially as shown, for securing it to one of the sides of the ladder, a rod which is adapted to be extended beyond one of the ends of the step, for the purpose set forth, and means for clamping said rod in place, substantially as described.

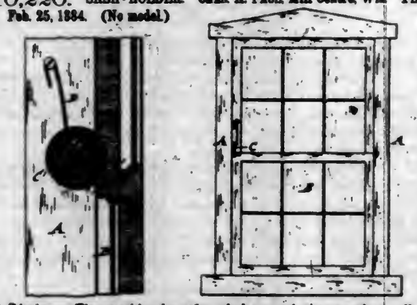
310,219. FAN-BLOWER. HENRY H. PACKER, Boston, Mass. Filed Sept. 24, 1883. (No model.)

Claim.—The bulb-shaped case A, consisting of two parts overlapping at the joint, and having an inlet-opening at one end and an outlet-opening at the other, in combination with a concave deflector, D, attached to one of those two parts at the joint thereof and serving to brace the same, and a rotary fan, F, turning in the concavity of said deflector and the proximate part of said case, substantially as set forth.

310,219.

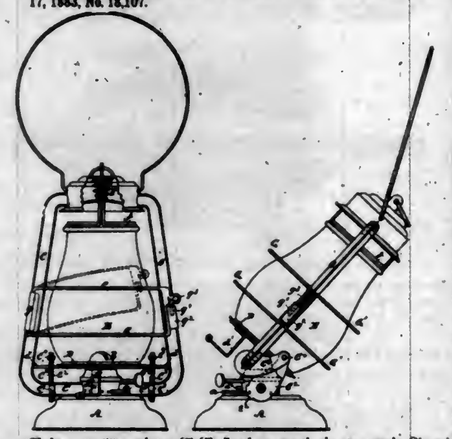


310,220. SASH-HOLDER. CHAS. A. PAUL, Mill Centre, Wis. Filed Feb. 25, 1884. (No model.)



Claim.—The combination of a window-sash the meeting-rail of which has a concave recess, a disk having an elastic tire and pivoted eccentrically to the window-frame, arranged at right angles to the sash-frame, a laterally-projecting pin attached to said disk, the window-frame to which the disk is secured, and a curved spring the upper end of which is attached to the casing above the disk, while the lower end is engaged by the pin, substantially as described.

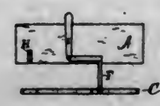
310,221. TUBULAR LANTERN. THOMAS PHILLIPS, Orillia, Ontario, Canada. Filed Dec. 21, 1883. (No model.) Patented in Canada Nov. 17, 1883, No. 18,107.



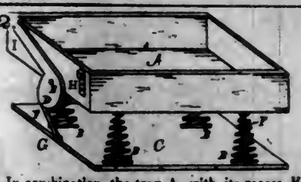
Claim.—1. The plates C^2 (C^3, fixed, respectively, to trunk C' and tube C, said plates having apertures coinciding with the tube and trunk, and pivoted together to swing the globe E upwardly, as set forth.

2. The hinged guard G, in combination with the tubes C C and fixed guard G', as set forth.

310,222. TRUNK-TRAY. JULIUS PROSSNITZER, Nashville, Tenn. Filed Sept. 10, 1884. (No model.)



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Claim.—In combination, the tray A, with its recess K, the board C, the springs B B B B, the eccentric lever D I, the cord or strap F, and the hook H, all substantially as described, and operating in the manner set forth.

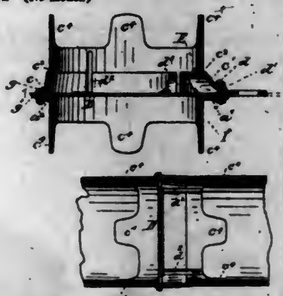
310,223. BURIAL-CASKET. NICHOLAS RAPPLEYEA, Rochester, N. Y. Filed Aug. 21, 1884. (No model.)



Claim.—1. In a burial-casket, the socket D, beveled at its top and provided with a screw swiveled into the lower end of the socket, and provided with shoulders that will move the socket both forward and back as the screw is turned in opposite directions, as set forth.

2. In a burial-casket, the combination of studs provided with round heads, attached to the lid, and sockets provided with slots in the upper edge, and with screws swiveled to the lower end, resting in the edges of the casket, as shown and described, and for the purpose specified.

310,224. DAMPER. JOHAN M. READ, Everett, Mass. Filed Feb. 15, 1884. (No model.)



Claim.—1. The combination, in a damper, of a box consisting of the sections *a b*, one of which has the extension *a'*, provided with an opening or openings, a^4, and the other of which has the rounded hood or extension *c'*, covering the same, and in connection with the opening or openings a^4 forming the passage E, and the damper D, all substantially as and for the purposes described.

2. The combination of the box *a b*, having the pipe-collars c^2 *f* and extensions *c'* and *a'*, with the damper D, all substantially as and for the purposes described.

3. A stove-pipe coupling having the pipe-collars c^2, c^3, and *f*, and the stays or guides c^4, projecting from the edges of the collars and adapted to center, support, and connect the ends of the pipes, all substantially as and for the purposes described.

4. The pipe collar or flange c^3, having the guides c^4, all substantially as and for the purposes described.

5. The combination of the two sections *a b*, one of which has the flange a^2, lip a^3, and the extension *a'*, provided with the opening or openings a^4, and the other of which fits upon the first section and has an extension or hood curved to provide a lateral cover to the extension *a'*, and to form in connection with the opening or openings a^4 a passage, E, and the damper D, all substantially as and for the purposes described.

6. The combination of the flange a^2, the lugs d^2 d^3, the extension *a' c'*, forming the passage E, and the damper D, all substantially as and for the purposes described.

7. The combination, in a cold-air regulator, of the damper-box having the cold-air passage or inlet E, and the sliding damper D, shaped to cover said opening when drawn out and to open the same when closed or nearly closed, all substantially as and for the purposes described.

310,225. STEAM-SUPERHEATER. JOSEPH W. REED, Kalamazoo, Mich. Filed July 25, 1884. (No model.)

Claim.—1. The combination of a steam-chest, a cylinder, a smoke-box, and pipes leading from the cylinder to the steam-chest, and passing

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through the smoke-box and formed spiral in said box, substantially as set forth.

2. The combination of a steam-engine cylinder, steam-chest, smoke-box, and spiral pipes connecting the steam-chest and cylinder-ports and passing through the smoke-box, said pipes being provided with suitable cocks and check-valves, substantially as set forth.

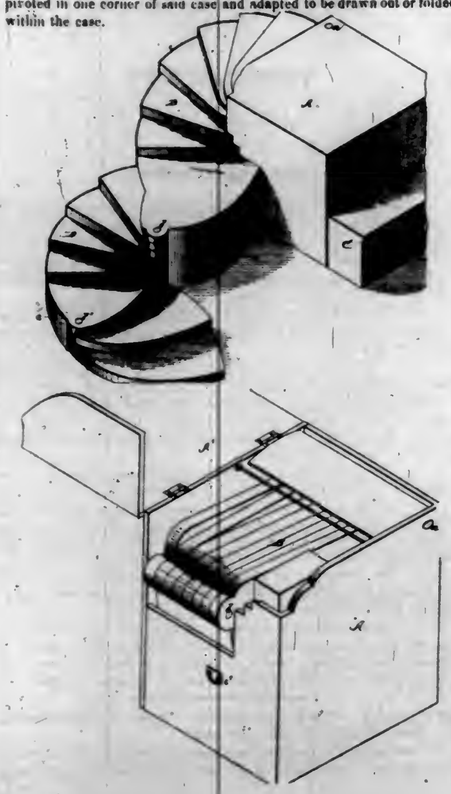
3. The combination, with the cylinder and steam-chest of a steam-engine, of a steam-heating chamber suspended in the smoke-box of the boiler, said chamber provided with vent-pipes and pipes connecting with the steam chest and cylinder and with said steam-heating chamber, all substantially as set forth.

4. The combination, with a steam-heating chamber suspended in the smoke-box of a steam-boiler, of a steam chest and cylinder, a pipe provided with the spiral portion leading from the cylinder to said chamber, and a pipe leading from said chamber to the steam-chest, substantially as set forth.

5. The combination, with a cylinder and steam-chest of an engine, of a steam-heating chamber suspended in the smoke-box of the boiler, said chamber provided with the under extension, vent-pipes connecting therewith, and pipes connecting said chamber and cylinder and steam-chest, all substantially as set forth.

310,226. FOLDING STEPS. D. BURT RICE, CHAUNCY N. SWORD, and FLAVIUS M. WILDER, Chicago, Ill. Filed Apr. 10, 1884. (No model.)

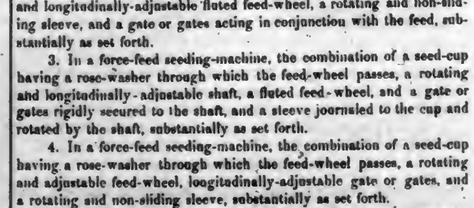
Brief.—The case has a handle, a removable bottom, and end. A series of triangular steps provided with stops on their inner edges are pivoted in one corner of said case and adapted to be drawn out or folded within the case.



Claim.—1. In a folding stair, a case or frame in combination with a series of steps pivoted in one corner of the same, and adapted to be drawn out or entirely folded within the case at will, substantially as and for the purpose set forth.

2. The box or case A, having handles *c'* and a removable bottom and end, A', in combination with a series of triangular steps, B, hinged or pivoted in one corner of the box, and provided with the stops b^2, substantially as and for the purpose set forth.

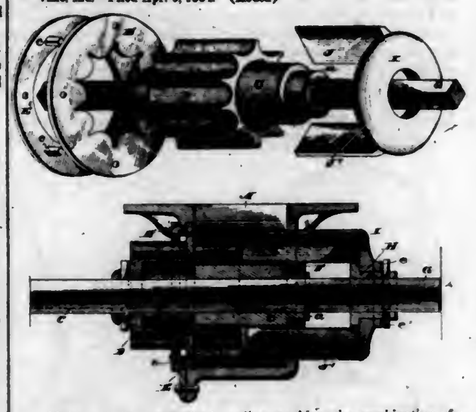
310,227. PLOW. MARTIN L. RINEHART, Richmond, Ohio. Filed July 31, 1884. (No model.)



Claim.—1. The combination, with the standard B, formed with the dovetailed recess *b*, of the share G, formed with the recess H, as shown, the cutter C, fitting in the recess H of the share, with a dovetailed arm, *c*, fitting in recess *b*, and dovetailed key D, fitted in said recess against said arm, substantially as described.

2. The combination of the mold-board A, formed straight upon its upper portion, and its working-surface being concaved in forward section and convexed in rear section, said curves being greatest on lines *x x* and gradually decreasing toward its top, of the share G, having the recess H, and the cutter or jointer C, provided with the arm *c*, engaging with the post B, having dovetailed recess *b*, substantially as and for the purpose set forth.

310,228. FORCE-FEED SEEDING-MACHINE. JOHN L. RITER, Brownsville, Ind. Filed Apr. 9, 1884. (Model.)



Claim.—1. In a force-feed seeding-machine, the combination of a seed-cup having a rose-washer through which the feed-wheel passes, a rotating and non-sliding sleeve, and a rotating and longitudinally-adjustable fluted feed-wheel, substantially as set forth.

2. In a force-feed seeding-machine, the combination of a seed-cup having a rose-washer through which the feed-wheel passes, a rotating and longitudinally-adjustable fluted feed-wheel, a rotating and non-sliding sleeve, and a gate or gates acting in conjunction with the feed, substantially as set forth.

3. In a force-feed seeding-machine, the combination of a seed-cup having a rose-washer through which the feed-wheel passes, a rotating and longitudinally-adjustable shaft, a fluted feed-wheel, and a gate or gates rigidly secured to the shaft, and a sleeve journaled to the cup and rotated by the shaft, substantially as set forth.

4. In a force-feed seeding-machine, the combination of a seed-cup having a rose-washer through which the feed-wheel passes, a rotating and adjustable feed-wheel, longitudinally-adjustable gate or gates, and a rotating and non-sliding sleeve, substantially as set forth.

5. In a force-feed seeding-machine, the combination of a seed-cup having a rose-washer through which the feed-wheel passes, a fluted feed-wheel, gate or gates for cutting off the discharge, a rotating and non-sliding sleeve, and devices for longitudinally adjusting the feed-wheel and gate or gates.

6. In a seeding-machine, the combination, with a seed-cup and a feed-wheel, of a rose-washer seated in or against the inner face of the

cup, and a ring seated against the outer face of the cup, said ring and washer being secured together and embracing the feed-wheel, substantially as set forth.

7. The combination, with a seed-cup and a fluted feed-wheel, of a rose-washer located inside of the cup and embracing the feed-wheel, a ring situated outside of the cup, and provided with lugs against which the washer bears, and rivets connecting the ring and washer, substantially as set forth.

8. The combination, with a seed-cup and a longitudinally-movable shaft, of a sleeve embracing the shaft, a hollow feed-wheel secured to the shaft and overlapping the sleeve, and a gate or gates journaled to a sleeve rigidly secured to the shaft, substantially as set forth.

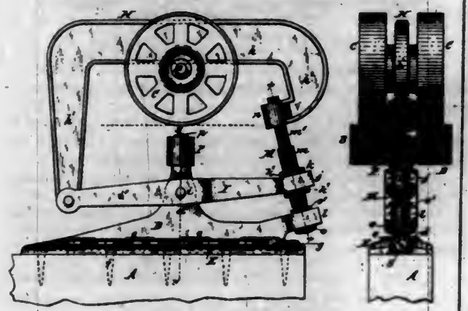
9. The combination, with a seed-cup having a longitudinally-adjustable shaft, of a sleeve mounted on the shaft and movably secured in one wall of the cup by a collar, a hollow feed-wheel rigidly secured to the shaft, and a gate or gates journaled on a sleeve rigidly secured to the shaft, substantially as set forth.

10. The combination, with an adjustable feed-wheel having depressions in its surface for the reception of seed, of a rotating and non-sliding sleeve acting in conjunction with the feed-wheel.

11. The combination, with an adjustable hollow feed-wheel having depressions on its outer surface, of a rotating and non-sliding sleeve acting in conjunction with the feed-wheel.

12. The combination, with a seed-cup and an adjustable feed-wheel, of a rotating sleeve journaled in one wall of the cup, substantially as set forth.

310,229. DOOR-HANGER. CRADMAN SEELY, Syracuse, N. Y., assignor to E. C. Stearns & Co., same place. Filed Aug. 2, 1884. (Model.)



Claim.—1. In a door-hanger, the combination, with the base-plate D and rider-bar H, of a pivoted lever, I, whereby the base-plate and rider-bar are connected, and an adjusting-screw whereby the lever I is swung on its pivot and the rider-bar adjusted in a horizontal position, substantially as set forth.

2. In a door-hanger, the combination, with the base-plate and rider-bar, of a lever fulcromed on the base-plate and attached to one end of the rider-bar, and a right-and-left-hand adjusting-screw connecting the opposite ends of the rider-bar and lever with the base-plate, substantially as set forth.

3. In a door-hanger, the combination, with a rider-bar, H, and base-plate D, of a lever, I, pivoted to the base-plate, and provided at one of its ends with a movable screw-nut, *k*, and a screw-bolt, M, substantially as set forth.
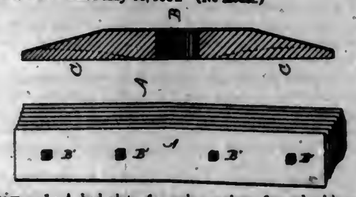
4. In a door-hanger, the combination, with a rider-bar, H, and base-plate D, of a lever, I, pivoted to said base-plate, and provided with a movable screw-nut, *k*, and a bolt, M, provided with right and left hand screw-threads *m m'*, and connecting the rider-bar and base-plate and engaging with the nut *k*, substantially as set forth.

5. In a door-hanger, the combination, with the plate D, provided with a slotted lug, *l*, and rider-bar H, having a threaded socket, *n*, of a lever, I, pivoted to the rider-bar and base-plate, and provided at one of its ends with a threaded nut, *k*, and a bolt, M, provided with right and left hand screw-threads, and engaging with the nut *k* and threaded socket *n*, substantially as set forth.

6. In a door-hanger, the combination, with an adjustable rider-bar and supporting-rollers, of a base-plate, D, secured to the door, and a friction-roller, P, attached to said base-plate independently of the rider-bar, substantially as set forth.

7. In a door-hanger, the combination, with the base-plate D, provided with a friction-roller, P, and a slotted lug, *l*, of a rider-bar, H, having arms h' h^2 and threaded socket *n*, a lever, I, pivoted at its center to the base-plate and at one end to the rider-bar, and provided at its opposite end with a threaded nut, *k*, and a screw-bolt, M, secured at its lower end to the base-plate, and provided with right and left hand screw-threads *m m'*, engaging, respectively, with the nut *k* of the lever I and the socket *n* of the rider-bar, substantially as set forth.

310,230. BED-PLATE FOR PULP-ENGINES. ALVAN A. SIMONDS, Dayton, Ohio. Filed May 10, 1884. (No model.)



Claim.—1. A bed-plate for pulp-engines, formed with an inner plane surface, central back portion parallel therewith, and both edges of said rear surface beveled, as shown and set forth.

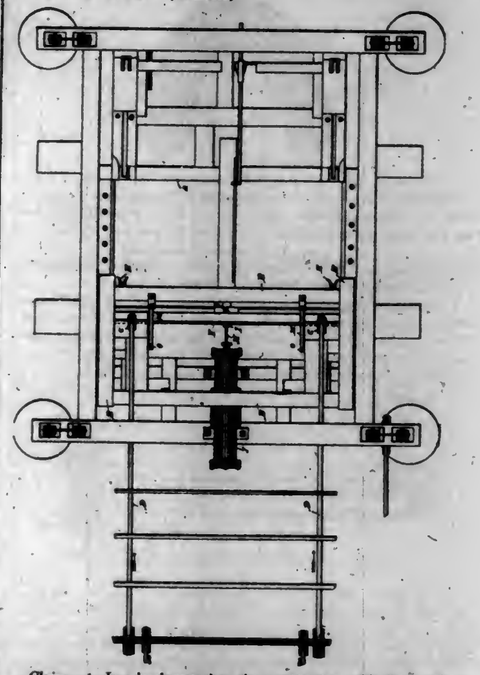
2. As a new article of manufacture, sets of bed-plates for pulp-engines, each plate having beveled edges on the same side, and intermediate flat abutting surfaces secured together by bolts to be operative in reversed positions, substantially as set forth.

310,231. HORSESHOE-NAIL. JOS. C. SIMPSON, Oakland, Cal. Filed Aug. 10, 1883. (No model.)



Claim.—A horseshoe-nail having one side made convex and the other concave for a part of its length, substantially as herein described.

310,232. LUMBER-STACKER. WILLIAM T. SMITH, Bozeman, Ala. Filed Nov. 12, 1884. (No model.)



Claim.—1. In a lumber-stacker, the combination, with the traveling mechanism constructed to lay the spacing-strips and to deposit boards thereon, of the cylinder connected therewith and adapted to actuate it when charged with a motive agent.

2. In a lumber-stacker, the traveling mechanism provided with grasping-fingers, depositing-levers, the chains or belts to feed the lumber thereto, and the stationary cylinder having its piston-rod connected with said mechanism, and adapted to operate the same to and fro when charged with a motive agent.

3. In a lumber-stacker, the combination, with a vertically-adjustable frame and traveling mechanism supported thereby, and constructed to lay the spacing-strips and to deposit boards thereon, of the cylinder

having its piston-rod attached to said mechanism, and adapted to actuate it when charged with a motive agent.

4. In a lumber-stacker, the combination, with traveling mechanism constructed to deposit boards in layers, of a cylinder having its piston-rod attached thereto, and adapted to actuate said mechanism when charged with a motive agent.

5. In a lumber-stacker, the combination, with a vertically-traveling frame, a traveling carriage mounted thereon provided with grasping-fingers and depositing-levers, and the chains or belts for conveying the lumber to the levers, of a cylinder fixed to the frame and having its piston-rod connected with the carriage, and adapted to actuate the same when charged with a motive agent.

6. In a lumber-stacker, the combination, with a traveling carriage provided with grasping-fingers and depositing-levers, and the chains or belts to deliver the lumber to these levers, of the fixed cylinder having its piston-rod connected with said carriage, and adapted to actuate the same when charged with a motive agent.

7. In a lumber-stacker, the combination, with the traveling carriage, of the depositing-levers yieldingly connected thereto, and constructed to oscillate a given distance, and having an incline and an overbalancing member.

8. In a lumber-stacker, the combination of a traveling frame having grasping-fingers connected thereto, and the depositing-levers pivotally connected therewith, having inclined and overbalancing members, a shoulder, a slot, and a stud or bolt to determine the oscillation thereof.

9. In a lumber-stacker, a depositing-lever constructed with two members, one to overbalance the other and provided with a slot, and the other at an angle thereto and having a shoulder.

10. In a lumber-stacker, the combination, with the actuating-cylinder, of the pipe for conducting the motive agent, constructed in sections, one of which is adapted to slide in the other.

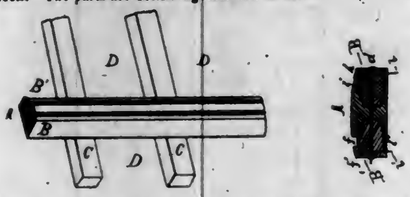
310,233. DENTAL PLATE. JOSEPH SYER and ROBERT S. INGALLS, Newton, Kans. Filed Apr. 21, 1882. (No model.)



Claim.—A dental plate provided on its suction-face with a series of slightly-rounded or approximately semi-oval projections arranged in close proximity to each other and in such number as to practically cover the said suction-face, substantially as and for the purposes set forth.

310,234. STREET-RAILWAY TRACK. FLAVIUS J. UNDERWOOD, North Springfield, Mo. Filed Aug. 31, 1883. (No model.)

Brief.—Consists of a T-rail with adjacent wooden beams located between the flanges of the rail, the outer beam on a level with the head of the rail and beveled outwardly therefrom, and the inner beam beveled outward and cut away adjacent to the rail for the flange of car-wheels. The parts are bolted together and to ties.



Claim.—1. A street-railway rail composed of a T-rail, resting upon and spiked to the cross-ties C, and two wooden rails, B B', bolted together by bolts passing horizontally through the said T-rail, which is placed between them, the outer wooden rail being beveled from a point next to and on a line level with the top of the T-rail outward and downward, and the inner rail, B', beveled from a point next to and as near the T-rail as the flange of the car-wheel will permit, all arranged and constructed for using the T-rail upon street-railways, substantially as shown and described.

2. The combination, in a street-railway rail, of a T-rail, spiked to the cross-ties C, with two wooden rails, B B', also spiked to the said cross-ties, and bolted to each other by bolts extending through the said T-rail, the outer one extending to the top of the T-rail, the inner one extending as near the top of the T-rail as the flange of the car-wheel will permit, all constructed and arranged substantially as and for the purpose set forth.

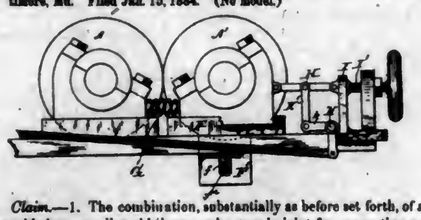
310,235. HARNESS-HOOK. JULIUS WAGNER, Reading, Pa. Filed Sept. 10, 1884. (No model.)



Claim.—1. As an improved article of manufacture, a terret-hook for a harness-saddle, provided with keeper A', guard A^2, spindle C, and seats A^3, cast or formed integral with the body of said hook, in combination with the harness-saddle by the usual bolt and nut, B B^2, substantially as and for the purpose set forth.

2. As an improved article of manufacture, a terret-hook for a harness-saddle, provided with keeper A', guard A^2, spindle C, and seat A^3, cast or formed integral with the body of said hook, in combination with an anti-friction roller, D, substantially as and for the purpose set forth.

310,236. ROLLER GRINDING-MILL. WILLIAM H. WAKEFORD, Baltimore, Md. Filed Jan. 15, 1884. (No model.)



Claim.—1. The combination, substantially as before set forth, of an adjustable box, an adjustable knee, and a toggle-joint for connecting said box to said knee.

2. The combination, substantially as before set forth, of an adjustable box, an adjustable knee, a toggle-joint for connecting said box to said knee, and a screw for holding and adjusting the knee.

3. The combination, substantially as before set forth, of the adjustable boxes of an adjustable roller, an adjustable knee for each box, toggle-joints for connecting the boxes to the knees, a rock-shaft provided with arms, and links for connecting the arms of the rock-shafts with the toggle-joints.

310,237. WINDMILL. AUSTIN WESLEY, Lincoln Centre, Kans. Filed Oct. 11, 1883. (No model.)



Claim.—The box B, pivoted upon the tower and provided with the vane B^2, and the cranked shaft C, having two wind-wheels, C', secured upon it and revolving with half their blades within the box, in combination with a beveled shield, D^2, sliding vertically in guides upon the forward end of the wheel-box, and the regulating-vane D D', pivoted above the wheels and connected to the shield by a link, all constructed and arranged to operate substantially as and for the purpose set forth.

310,238. HARNESS-SADDLE. WILLIAM H. WHEELER, Mohawk Village, Ohio. Filed Oct. 29, 1884. (No model.)

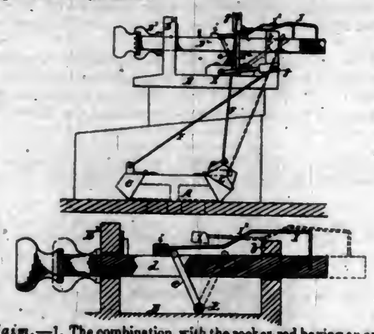


310,238.



Claim.—The herein-described harness-saddle consisting of the face-strip having inturned sides, a strip, C, having a strip, D, secured thereto, said strip D having its sides thinner than its central portion, a flat spring for holding said face-strip in shape, a re-enforcing strip, nuts *e*, and eye-bolts to engage the same, substantially as set forth.

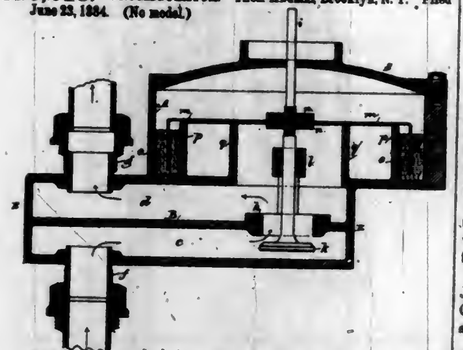
310,239. STOP-ACTION FOR ORGANS. MORRIS S. WARNER, Worcester, Mass., assignor of one-half to Alice P. Carpenter, same place. Filed Sept. 19, 1883. (No model.)



Claim.—1. The combination, with the rocker-rod having an arm, *e*, of the pull-bar provided with the spring I, having the bend I', and latch-dog *i*, and the support-piece *b*, as and for the purpose set forth.

2. The combination of the rocking rods E E, provided with arms *e* and laterally-extended top portions *e'*, the pulls D D^2, and the pull D', severally provided with springs I and dogs *i*, all adapted for operation substantially as and for the purpose set forth.

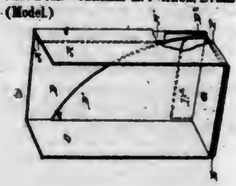
310,240. GAS-REGULATOR. THOS. ASHELL, Brooklyn, N. Y. Filed June 23, 1884. (No model.)



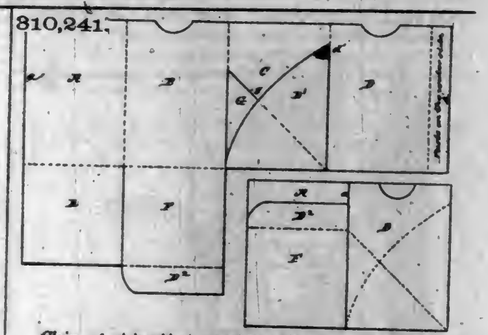
Claim.—1. The combination, with the case A, of a lateral case, E, with a partition in it, an upwardly-projecting bridge, and a valve-seat screwed into an opening in such partition, a valve and stem, an inverted cup attached to and removable from the valve-stem, an annular mercury-trough within the case A, and a dam, also within said case, whereby the valve and its seat may be removed after the inverted cup has been taken off the stem, substantially as specified.

2. In combination with the gas-regulator and lateral case E, having a partition and valve-seat, the removable and changeable couplings *f* and *g*, in line with each other, and screwed into openings in the flat top and bottom plates of such case E, substantially as set forth.

310,241. PAPER BOX. CHARLES M. ARTHUR, Evansville, Wis. Filed Sept. 15, 1884. (Model.)



310,241.

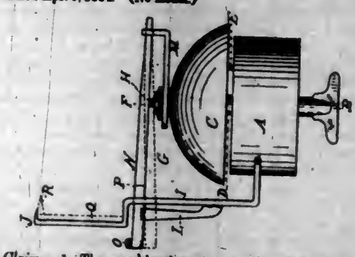


Claim.—1. A box-blank comprising the four sides A B C D and lap A', arranged continuously in line with each other, the end flaps, E, F, and G, continuous with the sides A, B, and C, the tuck D^2, continuous with the flap F, and a member, D', continuous with the side of the flap G, and terminating practically at or in line with the edge of the side lap, A', substantially as described, and for the purposes set forth.

2. A collapsed partly-made box constructed from the blank described, and having the parts A' and D' permanently secured, respectively, to the sides A and D, as set forth.

3. In a telescoping box, the combination, with an inner part, L, of the box, of an outer open-ended part, T, constructed from the blank described, and having the member D' pointed and permanently secured at its pointed extremity to the side D, substantially as and for the purposes set forth.

310,242. BURGLAR-ALARM. JAMES G. BATTERSON, Hartford, Conn. Filed Apr. 9, 1884. (No model.)

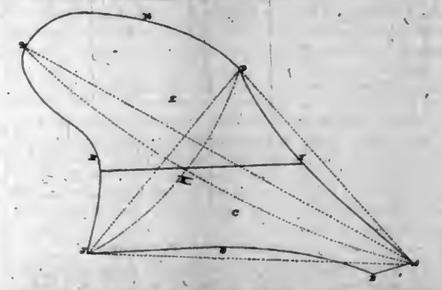


Claim.—1. The combination of a clock-work bell, the arm I, for supporting said bell, the bar N, having a swinging movement within the arm I, means for supporting that end of the bar which is opposite said arm I, and the spring L, for catching and holding the bar N in position when it has been moved by the door, substantially as described, and for the purpose specified.

2. The combination of a clock-work bell, the arms I and M, and the setting-off bar N, having both a swinging and longitudinal movement within said arms, substantially as described, and for the purpose specified.

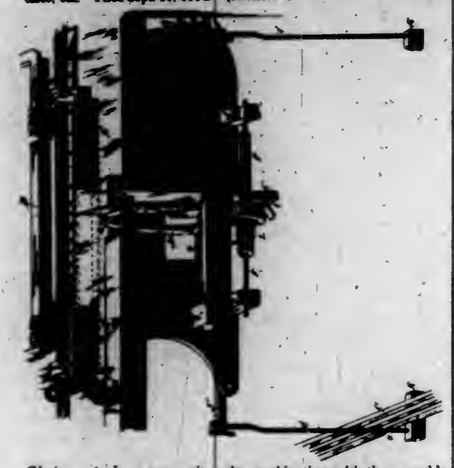
3. The combination of the bell-supporting arm I, having prongs J J, and a confronting shoulder, as shown, with the re enforcement piece Q, fitted in between the prongs J and confronting shoulder, substantially as described, and for the purpose specified.

310,243. PLOW. GEORGE W. BEDINGER, near Joshua, Tex. Filed Jan. 3, 1884. (No model.)



Claim.—The plow mold-board herein shown and described, formed according to the lines A G, A D, D J, and the curved lines A K G, A F D, and J K D, and having the angles, outlines, and proportions as set forth.

310,244. TYPE-WRITING MACHINE. EDWIN S. BELDEN, San Francisco, Cal. Filed Sept. 18, 1884. (No model.)



Claim.—1. In a type-writer, the combination, with the movable pawl, of the carriage D, the rack E, and a graduated stop arranged when in position to bear against a fixed portion of the machine in front and adapted to have a backward movement, said stop being adapted to limit the side movement of the movable pawl at varying distances and be carried back by the pawl, whereby said pawl may re-engage the rack of the traveling paper-carriage and hold it after it has moved a distance of one or more of its teeth, according to the distance at which the movable pawl is limited, substantially as and for the purpose herein described.

2. In a type-writer, the pivoted arm or bar N, having in its top the pins O, of different lengths, forming graduated stops or depressions of different depths, and the spring a, under the influence of which the arm or bar is held to position against a fixed portion of the machine, in combination with the oscillating movable pawl I, the side movement of which is limited by the graduated stops, substantially as herein described.

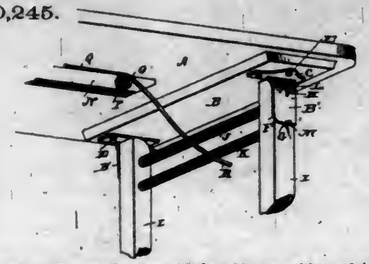
3. In a type-writer having a traveling carriage with a rack adapted to be released, re-engaged, and held by a fixed and a movable pawl, as described, the combination of the movable pawl, a pivoted graduated stop adapted to limit its side movement at varying distances to enable it to re-engage the rack at different distances beyond its former engagement and to allow the carriage to move a distance of one or more of its teeth before being held by said pawl, and a mechanism, substantially as described, operated by the keys of the machine, for throwing the movable pawl forward different distances to engage suitably with the graduated stop, as herein set forth.

4. In a type-writer, the pivoted arm or bar N, having in its top the pins O, of different lengths, forming graduated stops or depressions of different depths, and the spring a, to hold the arm or bar to position, in combination with the movable pawl I, the keys B, and their levers C, and a mechanism, substantially as described, for transmitting the power of said levers to throw said pawl I forward to varying distances to cause it to fall against and be limited in its side movement by any of the graduated stops, substantially as and for the purpose herein set forth.

5. In a type-writer, the pivoted spring arm or bar N, having in its top the pins O, of different lengths, forming graduated stops or depressions of different depths, in combination with the rack engaging movable pawl I, mounted on an oscillating frame, and the mechanism by which said pawl is thrown forward to different distances for the purpose described, consisting of the keys B, levers C, lever K, adapted to be depressed more or less by said key-levers, links *j*, cross-bar J', and arm J, connected with the oscillating frame, substantially as and for the purpose described.

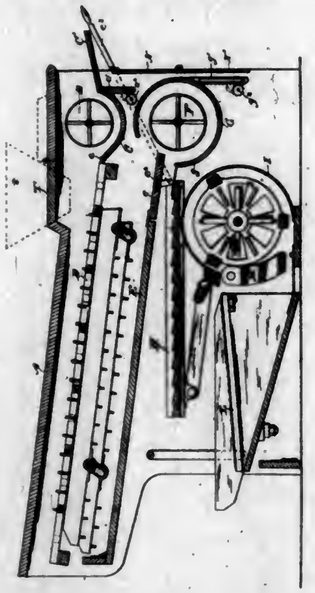
6. In a type-writer, the lever K, the vibrating key-levers C, arranged to depress the lever through the whole or a portion of their stroke, whereby said type-lever is moved to varying distances, the movable rack engaging pawl I, and a connection, as set forth, between said pawl and the lever, whereby the pawl is thrown forward to varying distances, in combination with the pivoted spring arm or bar N, having the graduated stops O in its top adapted to limit at varying distances the side movement of the pawl I, substantially as and for the purpose herein described.

310,245. FOLDING TABLE. JACOB BENEDICT, Grand Rapids, Mich., assignor to Julius M. Wheeler, William Green, Abram B. Knowlson, James S. Orwin, and Aaron L. Sibley, all of same place. Filed Oct. 23, 1883. (No model.)



Claim.—The combination, with the table top and legs, of the herein-described bracket, comprising a plate having fastening-flanges at its upper edge, stop E at the outer edge fitting around one side of the legs, a rounded inner corner, F, at the lower end, a vertical elongated slot, H, in the side, a notch, G, at the bottom edge, a screw, L, passing through the slot H into the legs, and a pin, M, projecting from the legs and arranged to enter the notch G, a slat, N, arranged under the table-top, a stud, O, extending laterally outward from the same, and a spring, R, coiled around the stud, one arm of the spring bearing against the table-top and the other arm against one of the rungs of the leg, as set forth.

310,246. CLOVER THRASHER AND HULLER. CHARLES A. BIKLE, Hagerstown, Md. Filed Apr. 30, 1884. (No model.)

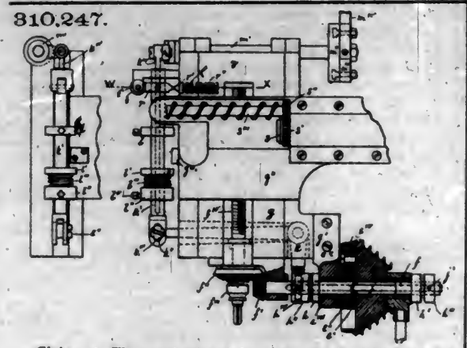


Claim.—1. In a hulling-cylinder, the combination of the removable teeth, screw-threaded and fastened by nuts, as described, the perforated cylinder, the open heads, and the removable covers, substantially as described.

2. In an organized clover huller and thrasher, and in combination with the cylinders and concaves arranged at the front of the casing, as described, the separating and cleaning mechanism arranged in rear of the said thrashing and hulling devices, the pivoted feed-board or cut-off located in front of the hulling-cylinder beneath the receiving end of the carrier and pod-separator, and the movable lid in the casing above the said feed-board or cut-off, substantially as and for the purpose set forth.

3. In a clover-huller, the combination of the thrashing-cylinder and its concave, the carrier and pod-separator, the partition or platform upon which the pods are received, the hulling-cylinder and concave, the conveyer and seed-separator, and the pivoted feed-board or cut-off, having the operating handle arranged alongside the feed-board of the thrashing-cylinder, substantially as described.

310,247. AUTOMATIC GEAR-CUTTING MACHINE. AMOS H. BRAINARD and ZORESTER B. COES, Hyde Park, Mass.; said Coes assignor to said Brainard. Filed Feb. 6, 1884. (No model.)



Claim.—1. The combination of the ratchet-clutches *h h'' h' h'''* with the hollow shaft *f*, lever *k*, clutch-rod *j*, pins *j'* and the gears *e' e''*, pinion *e'''*, and pulley *e*, as set forth.

2. The combination of the lever *k*, the hollow slotted shipper-rod *k'*, wedge-block *r*, roll *t*, block *t'*, latch *r'*, and spring *r''*, as set forth.

3. The combination of the compound dog *l' l''*, having slot *l'''* in part *l''*, spring *l''''*, set-screw or pin *l'''*, with the clamp *l'''*, clamp-screw *l''''*, and index shipper-rod *k''*, as shown and described.

4. The combination of the index shipper-rod *k''* with the crank-arm *m*, shaft *m'*, and adjusting-plates *m'' m'''*, as shown and described.

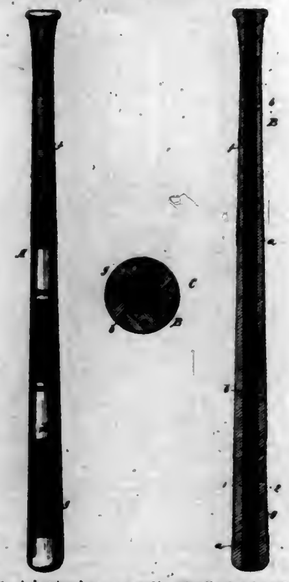
5. The combination of the adjusting-plates *m'' m'''*, ribbon *m''*, index latch-plate *n*, having lugs *n'*, latch-rod *n''*, arm *n'''*, stud or shaft N, and index-latch *o*, substantially as set forth.

6. The combination of the latch-plate *n*, latch-rod *n''*, arm *n'''*, and index-latch *o*, as set forth.

7. The combination of the latch-plate *n*, latch-rod *n''*, stud-collar *n''''*, roll *n'''*, cam *n'*, and spring *n''''*, as set forth and described.

8. The combination of latch-plate *n*, latch-rod *n''*, stud-collar *n''''*, roll *n'''*, cam *n'*, arm *n'''*, spring *n''''*, with latch *o*, adapted to lock into a recess on disk *o''*, located on shaft *o'''*, and connecting gears to worm-shaft *p'''*, for the purpose of obtaining any desired amount of division on wheel *p''* by one complete revolution of disk *o'''*, as set forth.

310,248. BASE-BALL BAT. WILLIAM T. BROWN, Hastings, Mich. Filed June 2, 1884. (No model.)

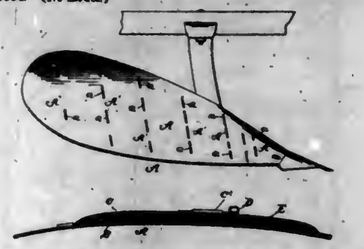


Claim.—1. A bat having a core of longitudinal strips of rattan fitted and cemented closely together, and an outer portion composed of strips of hard wood, fitted and cemented to and inclosing the core part, substantially as described.

2. A bat having a core of longitudinal strips of rattan fitted and cemented together, and an outer portion composed of wood strips fitted and cemented to and inclosing the core part, and an exterior wrapping at one or more points, substantially as described.

3. The combination, in a bat, of the inner core of longitudinal strips of rattan, the outer portion consisting of wood strips cemented to each other and to the core, and recessed, as set forth, and a wrapping of twine within said recessed portion, substantially as described.

310,249. PLOW. WILLARD E. BROWN, Philadelphia, Pa. Filed Sept. 5, 1884. (No model.)

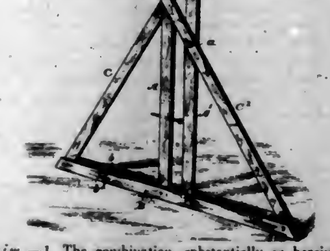


Claim.—1. A mold-board having perforations or openings formed through it, and formed with a chamber, B, on its rear side, and packing placed in said chamber, and adapted to carry oil and deposit same through the openings in the mold-board, substantially as set forth.

2. In a plow, the mold-board of metal, having a polished surface and openings formed through it, and provided in its rear side with a chamber, B, and packing held in said chamber and saturated with oil, substantially as set forth.

3. The improved mold-board made of metal, and provided with openings *a*, elongated transversely the direction of the length of the mold-board, and arranged in parallel rows A', and provided on its rear side with chamber B, having centrally-disposed opening C', having guides C^2 C^2 on its opposite edges, the packing held in chamber B, and the door or cover D, sliding in guides C^2, and adapted to close opening C' substantially as set forth.

310,250. FENCE-POST. WILLIAM W. CARPENTER and ADOLPHUS S. DUDLEY, Granville, assignors to Elizabeth P. Dudley, Morrow, Ohio. Filed Mar. 15, 1883. (No model.)



Claim.—1. The combination, substantially as hereinbefore described, of the sill or sleeper, the two uprights, one of which is pivoted thereto, the inclined braces crossing said uprights at different heights to form rail-supports, and connected to the pivoted upright by removable fastenings, and to the stationary upright by a through-bolt, and the loop-binder catching over a protruding end of the upper brace and over an incline or bevel upon the opposite upright.

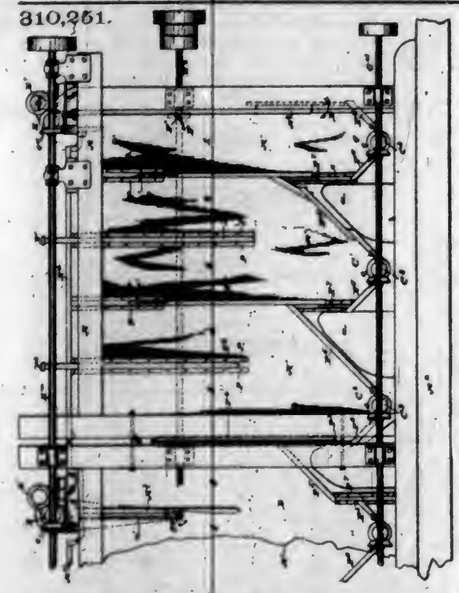
2. The combination, substantially as hereinbefore set forth, of the sill or sleeper, the two uprights, one of which is pivoted to said sleeper, the inclined braces joined to the pivoted upright by removable fastenings, and to the other upright by a permanent fastening, the loop-binder, and the pin projecting from the stationary upright across the space between it and the other.

310,251. PNEUMATIC SEPARATOR. DELOS CAR-SKADEN, Chicago, Ill. Filed Feb. 21, 1884. (No model.)

Claim.—1. The combination, with a separating-chamber and suitable feeding and air-suction mechanisms, of a series of variably-expansible partial partitions projecting alternately from the top and bottom of the chamber, whereby the free ends of said partitions may be made to more or less proximate the wall opposite that from which they severally spring, substantially as described, and for the purposes set forth.

2. The combination, with exterior housings of the separating-chamber, of a series of partial vertical imperforate and variably-extensible partitions projecting alternately from the top and lower part of the chamber and dividing the latter into a series of connected vertical longitudinally-variable air-passages, hoppers forming the bottoms of the air-pas-

310,251.



sages, and air-inlet openings provided with slides or registers communicating with the lower ends of the air-passages, substantially as described.

3. The combination, with the exterior housings of the separating-chamber, of a series of vertical variable partitions affording a series of vertical air-passages connected with each other alternately at the top and bottom, an air-inlet at the lower end of the passage at the head of the machine, an air-outlet at the upper end of the passage at the tail of the machine, said last-mentioned passage being of larger transverse dimensions than the preceding ones, receptacles located at the bottoms of the air-passages, means for drawing air through the passages from the head to the tail of the machine, and suitable means for delivering material to be separated into the upward air-passage at the head of the machine, substantially as described.

4. In a dry-ore separator provided with a series of vertical air-passages connected at the top and bottom, and in the initial passage of which series the air has an upward direction, the combination, with the said initial or first passage and a scattering device located therein, of a feed mechanism comprising a longitudinally-apertured receptacle, and a conveyer in said receptacle, whereby the material is distributed with practical uniformity throughout the entire extent of the said air-passage, substantially as described.

5. The combination, in a dry-ore separator, with a vertical air-passage and a scattering mechanism in said passage, of a feed device comprising a receptacle provided with a narrow longitudinal feed-aperture, and an outlet at one end for the surplus material, and a conveyer in said receptacle operating to carry the material therein toward the outlet, substantially as and for the purposes set forth.

6. The combination, with an air-passage of a separator, of a receptacle provided with a longitudinal feed-aperture arranged to deliver into the air-passage, a second receptacle arranged side by side with the first and having interior communication therewith at both ends, and conveyers in the several receptacles operating in opposite directions, substantially as and for the purposes set forth.

7. The combination, with an air-passage of a separator, of a longitudinally-apertured feeding-receptacle arranged to deliver into the air-passage, a second and relatively-inclined receptacle having interior communication with the first at both ends, and oppositely-operating conveyers in the several receptacles, substantially as described, and for the purposes set forth.

8. The combination, with the air-passage of a separator, of a longitudinally-apertured feeding-receptacle arranged to deliver into the air-passage, a second receptacle arranged side by side with the first, laterally-arranged passages connecting the ends of the receptacles, oppositely-operating spiral conveyers in the several receptacles, and wings, as e', upon the said conveyers opposite the outlet-openings of the receptacles, substantially as and for the purposes set forth.

9. The combination, in a dry-ore separator, with an air-passage and a scattering device in said air-passage, of a receptacle provided with a longitudinal feed-aperture and an outlet at one end, a conveyer in the said receptacle, and an adjustable slide for controlling the downward passage of material through the said aperture, substantially as described.

10. The combination, with an air-passage of a dry-ore separator, of a rapidly-rotating roll located in said passage and at one side thereof, and a chute arranged to direct the falling material upon the top of said roll, whereby the latter may operate to scatter said material in a substantially horizontal direction across said passage, substantially as described.

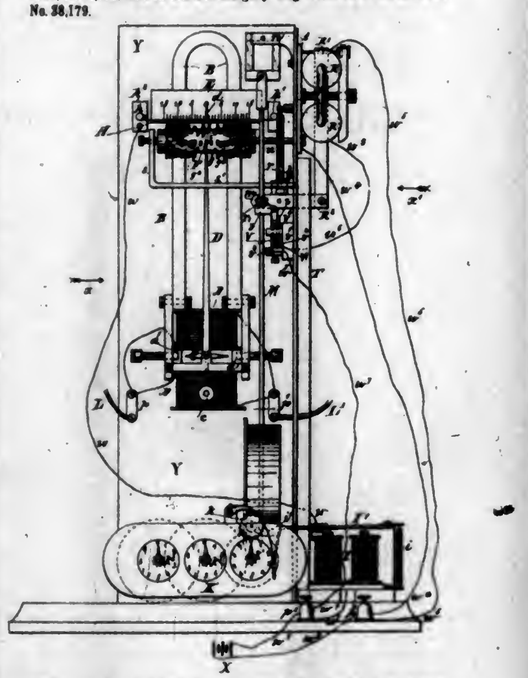
11. In a series of separators, each having alternating upward and downward vertical air-passages continuously in communication throughout the series, the combination, with a machine provided with an elevated air-outlet at D', of an adjacent machine in the series having its inlet coincident with the said outlet, and a downward passage, 6, leading from said inlet, and delivering the air at the bottom of the next vertical passage into which the material is fed, substantially as described.

12. The combination, with the housing, suitable air-suction and feeding mechanisms, and a series of vertical partial partitions projecting from the bottom of the machine toward the top within the housing, of a series of depending partial partitions arranged intermediate to the upwardly-projecting partitions mentioned and constructed to slide through the top of the housing, whereby said depending partitions may be lengthened or shortened at pleasure, substantially as described.

13. The combination, with the housing and a series of adjustable depending partitions therein, of a series of stationary intermediate partial and upwardly-projecting partitions, and removable extension-strips p', for lengthening said partitions, substantially as and for the purposes set forth.

14. The combination, with the recessed wall of the first upward air-passage of the series of air-passages, of a rapidly-rotating scattering-roller set partially in the recess of said wall, and a chute for guiding the material upon the upper and exposed surface of said roller, substantially as described, and for the purposes set forth.

310,252. APPARATUS FOR MEASURING ELECTRICITY. JULES CAUDERAY, Lausanne, Switzerland. Filed May 1, 1883. (No model.) Patented in France Mar. 17, 1883, No. 154,362; in Belgium Apr. 2, 1883, No. 60,946; in Germany Apr. 5, 1883, No. 25,542; in England Apr. 7, 1883, No. 1,756; in Italy Aug. 2, 1883, No. 15,793; in Spain Nov. 16, 1883, No. 4,791, and in Austria-Hungary Aug. 23, 1884, No. 13,180 and No. 38,179.



Claim.—1. In an electric meter, the combination, with a galvanometer arranged to be actuated by the current to be measured, of a separate circuit, an electro-magnetic register included in said separate circuit, and a circuit-closing mechanism for said circuit controlled by the galvanometer-needle as it assumes positions under the influence of the current through the galvanometer, substantially as described.

2. In an electric meter, the combination, with a galvanometer arranged to be actuated by a current to be measured, of a local circuit, including the galvanometer-needle, graduated sets of contacts operating to close the local circuit as the needle assumes positions under the action of the current, and an electro-magnet arranged to operate a register and included in the local circuit, substantially as described.

3. In an electric meter, the combination, with a galvanometer arranged to be actuated by a current to be measured, of a separate circuit, an electro-magnetic register included in said separate circuit, mechanism arranged to operate, in connection with the galvanometer-needle, for closing said separate circuit as said needle assumes positions under the influence of the current through the galvanometer, and a time mechanism for actuating said circuit-closing mechanism, substantially as described.

4. The combination, with a galvanometer and a registering mechanism arranged to be controlled by the galvanometer-needle through electric connections, of a time mechanism controlling such electric connections, substantially as and for the purpose set forth.

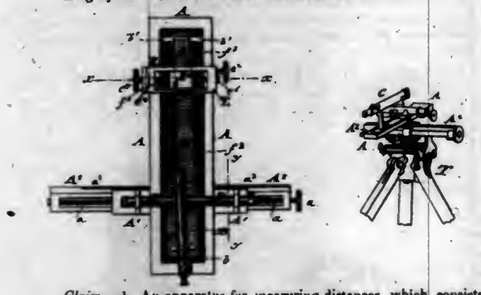
5. The combination, with the galvanometer, of the permanent magnet having adjustable pole-pieces opposite the ends of the galvanometer-needle, substantially as and for the purpose set forth.

6. In an electric meter, the combination, with a galvanometer arranged to be included in a circuit the current on which is to be measured, of an electro-magnetic registering mechanism in a separate circuit, automatic circuit-closing devices in said separate circuit governed by the needle as it assumes positions under the influence of current, and means for regulating the sensitiveness of said needle, whereby it will be caused to take positions properly in accordance with the currents and circuit-closing devices, substantially as set forth.

7. In an electric meter, the combination, with a galvanometer in a circuit the current on which is to be measured, of an electro-magnetic registering mechanism in a separate circuit, closing and breaking devices in said separate circuit, and arranged to be regulated in their action by the galvanometer-needle, and a time mechanism arranged to actuate said circuit closing and breaking devices in conjunction with the needle.

8. In an electric meter, the combination, with a galvanometer arranged to be included in a circuit the current on which is to be measured, of an electro-magnetic registering mechanism in a separate circuit, automatic circuit-closing devices in said separate circuit governed by the needle as it assumes positions under the influence of current, and means for regulating the sensitiveness of said needle, whereby it will be caused to take positions properly in accordance with the currents and the circuit-closing devices, as set forth.

310,253. APPARATUS FOR MEASURING DISTANCES. LUIGI CREBOTANI, Sayn, Prussia, Germany. Filed July 9, 1883. (No model.) Patented in Italy Dec. 31, 1881, XXVII, 325; XV, 23,451; in Germany Apr. 23, 1882, No. 20,635; in England Dec. 1, 1882, No. 5,730; in France Dec. 11, 1882, No. 152,565; in Belgium Dec. 23, 1882, No. 59,960, and in Austria-Hungary Jan. 30, 1883, No. 40,887 and No. 3,536.

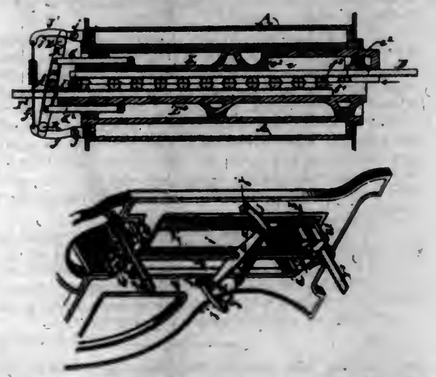


Claim.—1. An apparatus for measuring distances, which consists of a supporting-box mounted on a tripod, a longitudinal ruler pivoted at one end to the box, a principal telescope mounted on said ruler, a controlling-telescope supported in standards of the supporting-box, and a longitudinally-movable slide-frame having a laterally-traversing slide-piece and index-pin, the latter forming contact with the edge of the ruler substantially as set forth.

2. In an apparatus for measuring distances, the combination of a supporting-box mounted on a transverse guide-piece, means for laterally adjusting the box on said guide-piece, a longitudinal ruler pivoted at one end to the box, a principal telescope mounted on said ruler, a controlling-telescope mounted on the supporting-box, a longitudinally-movable slide-frame guided on the box and having a laterally-traversing slide-piece carrying an index-pin, the latter forming contact with the edge of the ruler, substantially as set forth.

3. In an apparatus for measuring distances, the combination of a supporting-box mounted on a tripod, a longitudinal ruler pivoted at one end to the box, a principal telescope mounted on said ruler, an auxiliary telescope mounted on said box, a controlling-telescope supported in bearings of the box, a longitudinally-movable slide-frame guided on said box, and a laterally-traversing slide-piece guided in said slide-frame and provided with an index-pin, forming contact with the edge of the ruler, substantially as set forth.

310,254. WIRE-NETTING MACHINE. HIRAM S. COBB, Detroit, Mich. Filed Oct. 23, 1883. (No model.)



Claim.—1. In a wire-netting machine, the combination, with one or more bobbins, each provided with a gear upon each end, of the arm M, substantially as described.

2. The combination, in a wire-netting machine, of two sets of slides, E E', E² E², and two sets of rack-bars, D and D', I and I', adapted to mesh with divided gears upon the bobbins, substantially as and for the purpose described.

3. The combination, with a series of bobbins having divided gears, of two sets of slides provided with two sets of rack-bars adapted to mesh with said gears, said slides connected by eveners, substantially as described.

4. The combination, with a series of bobbins having divided gears, of two sets of slides provided with two sets of rack-bars adapted to mesh with said gears, said slides connected by eveners, and in connection therewith mechanism for suitably holding said slides as the rack-bars are reciprocated, substantially as described.

5. The combination, with two sets of slides, E E', E² E², connected by eveners mounted upon a shaft, H², of an additional evener, K, mounted upon said shaft, and in connection therewith suitable locking-arms, J J', substantially as described.

6. The combination, with a series of bobbins having divided gears, of two sets of slides, two sets of rack-bars adapted to mesh with said gears, said slides connected by eveners mounted upon a shaft, an additional evener, K, mounted upon said shaft, and in connection therewith suitable locking-arms, substantially as and for the purpose described.

7. The combination, with a series of bobbins having divided gears upon each end, of two sets of slides, E E', E² E², said slides each provided with a rack-bar adapted to mesh with said gears upon opposite sides, and means for suitably holding said slides in a given position while the wire is twisted, substantially as described.

8. In a wire-netting machine provided with a series of bobbins having divided gears on each end, the slides E and E², located at one end of said bobbins, the slides E' E² at the opposite ends, said slides connected by eveners H and H', mounted upon the shaft H², and one of the slides at the top and bottom of the bobbins provided with a slot, e, the head-blocks adapted to slide in said slots, and the rack-bars connected with said blocks, substantially as described.

9. The combination, with a series of bobbins having divided gears of two sets of slides forming the bearings of the divided gears, two sets of rack-bars adapted to mesh with said gears, and in connection therewith the gears I and I', suitably mounted upon a shaft, and adapted to mesh with said rack-bars, substantially as described.

10. The combination, with two sets of slides, E E' and E² E², of the eveners H and H', mounted upon a shaft, said shaft provided with an evener, K, mechanism for holding said slides from being reciprocated while the wire is twisted, and in connection therewith gears I and I', and rack-bars with which said gears mesh, substantially as described.

11. In a wire-netting machine provided with a series of bobbins having divided gears, the slides E and E², located at the upper end of said bobbins, the slides E' and E², located at the lower end of said bobbins, said slides forming the bearings of the bobbins and connected by eveners, and each provided with a rack-bar, one of said slides at the top and bottom provided with a slot, e, and in connection therewith the rods C and C', provided with suitable cross-heads adapted to travel in said slots, said cross-heads secured to the rack-bars D and D', the construction being such that said rack-bars may be caused to travel the length of the slot and the slides to be then reciprocated, substantially as described.

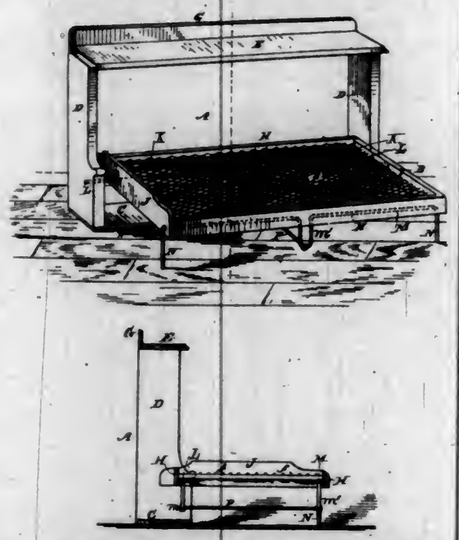
12. In a wire-netting machine, the gear Q', mounted upon a suitable shaft, said shaft provided with two or more hubs, and the forks q', carrying spools R, having bearings in said hubs, said bearings provided with

cranks q^2, suitably secured upon a wheel, S, said wheel having its bearing at a distance from the shaft of crank q^2 corresponding to the length of said crank, all constructed and arranged substantially as and for the purpose described.

13. In a wire-netting machine consisting of the combination, with a frame and suitable driving-gear, of a series of bobbins provided with half-gears at the ends of the bobbins, two sets of slides forming the bearings of said gears, said slides provided with two sets of rack-bars, mechanism for reciprocating said rack-bars and slides, mechanism for holding the slides while the rack-bars are partially reciprocated, and in connection therewith suitable mechanism for twisting two or more strands, the construction being such that as the slides are reciprocated the half-gears will be interchanged and the warp and the woof of the selvage be suitably netted together by the rotation of the bobbins, substantially as described.

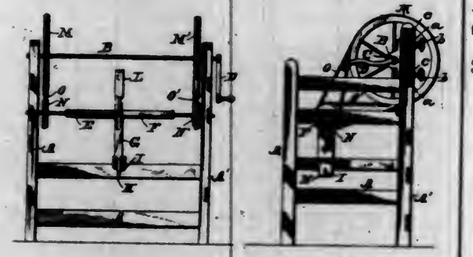
14. The combination, with a suitable frame, of a series of bobbins provided with half-gears at the ends of the bobbins, two sets of slides forming the bearings of said bobbins, said slides provided with rack-bars adapted to mesh with said divided gears at the top and bottom of the spindles, and in connection therewith suitable mechanism for reciprocating said slides and rack-bars, substantially as described.

310,255. BED. HARVEY S. COOK, Boston, Mass. Filed Dec. 31, 1883. (No model.)



Claim.—The combination, in a mantel-bedstead, of a casing provided with a mantel, a supporting-rod extending between the ends of said casing, a swinging bed-frame supported at its inner side by said rod, and pivoted to swing thereon, a fixed rod extending between the ends of said casing in front of said supporting-rod, and provided with a downward-bent arm, a swiveling rod having its bearings in the end rails of said bed-frame, near the outer side thereof, said swiveling rod being provided with legs at its outer ends and with an intermediate crank, and a link connecting said arm of the fixed rod with said crank of the swiveling rod, substantially as described.

310,256. MECHANICAL MOTOR. MADISON COOK, Sidney, Ohio. Filed Dec. 10, 1884. (No model.)

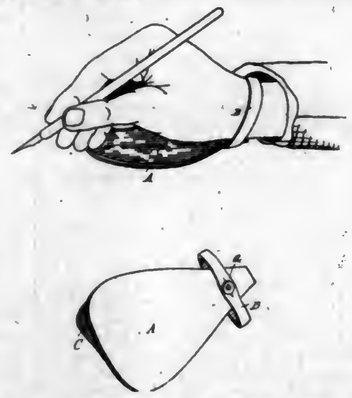


Claim.—1. The main driving-shaft B, provided with pulleys and belts, whereby the secondary shafts E F will be caused to rotate in opposite directions, as and for the purpose set forth.

2. The combination, with the main driving-shaft and its connected mechanism, of the auxiliary shaft E F and the removable central bearing-standard, G, as and for the purpose set forth.

3. The main shaft B, mounted in boxes C C, adjustably secured to the frame, in combination with the auxiliary shafts E F and means for operating them in opposite directions, as and for the purpose set forth.

310,257. SHIELD AND BLOTTER. MILES R. B. COWAN, Windsor, Ontario, Canada, assignor, by mesne assignments, of two-thirds to Henry W. Booth, same place, and Frank H. Leavenworth, Detroit, Mich. Filed July 23, 1884. (No model.)



Claim.—1. A combined hand-rest and blotter consisting of a pad having an expanded portion conforming to the shape of the hand, and a contracted portion conforming to the shape of the wrist, in combination with an elastic strap attached to said contracted portion to secure the pad to the wrist of the penman, and allow the expanded portion to extend forward and form a rest for the penman's fingers, substantially as shown and described.

2. The combination of the blotting-pad A, shield C, covering said pad on one side, elastic strap B, and the eyelet *a*, said eyelet securing the various parts together, substantially as herein shown and described.

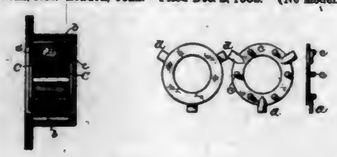
310,258. MANUFACTURE OF TELEGRAPH-CONDUCTORS. ALFRED A. COWLES, New York, N. Y., assignor to the Ansonia Brass and Copper Company, Ansonia, Conn. Filed Feb. 7, 1884. (No model.)



Claim.—1. The method herein specified of manufacturing copper electric conductors of great length and of uniform strength and conductivity, consisting in uniting the diagonally-cut ends of lengths of wire by silver solder, and then drawing the wire down to the proper size and stiffness, substantially as set forth.

2. A copper telegraphic conductor of uniform strength and conductivity and of great length in which the joints between the lengths of wire are of silver solder and the wire hard-drawn, substantially as set forth.

310,259. FRICTION-ROLLER BUSHING OR BEARING. AUSTIN P. DABOLL, New London, Conn. Filed Dec. 2, 1882. (No model.)



Claim.—1. The method of uniting the rollers, pivot-rings, and solid shell of friction-bearings, substantially as hereinbefore described, by expanding one or both of said rings from a conical to a flattened condition after insertion within the shell and while in proper relation to said rollers.

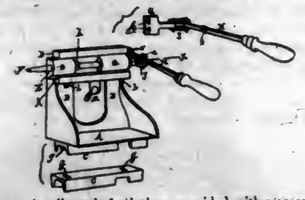
2. The combination, with the internally annularly-recessed solid shell and friction-rollers, of the rings provided with pivots which occupy the axial bearings of the rollers, and are also provided with radial lugs which occupy the annular recess of the shell, substantially as described.

3. The combination, with the internally annularly-recessed solid shell and friction-rollers, of pivot-rings provided with lugs, which have sidewise bearing against the inner surface of the shell at the end of the annular recess, substantially as described.

4. The combination, with a solid shell having an internal annular recess and a series of friction-rollers, of one or more roller pivot-rings provided with radial lugs, and secured within the annular recess by peripheral expansion, substantially as described.

5. The conical pivot-ring provided with radial lugs, substantially as described.

310,260. TAIL-STOCK FOR LATHES. ALEXANDER DODDS, Grand Rapids, Mich. Filed Dec. 12, 1883. (No model.)



Claim.—1. A tail-stock for lathes, provided with a cross-head having bearings and arranged to move parallel with the bed of the lathe, a spindle revolving in said bearings, and the means, substantially as described, for sliding such cross-head and bearings lengthwise of the spindle in the tail-stock, as and for the purposes set forth.

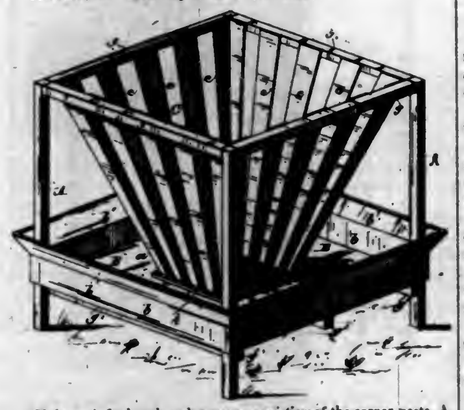
2. In a tail-stock for lathes, and in combination with the base A thereof, constructed to rest on the lathe-shears, the flanged casting C, adapted to pass between the shears, and the means, substantially as described, for adjusting said base thereon transverse to the axis of the tail-stock spindle, as set forth.

3. In combination with the standard B, the guide-block D, vertically adjustable upon such standard, and carrying the spindle F and its bearings *a*, substantially as and for the purposes set forth.

4. In a tail-stock for lathes, and in combination with guide-block D and cross-head E, the spindle F, collar *b*, stop *c*, and adjusting-screw *d*, substantially as and for the purposes specified.

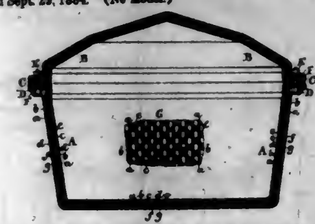
5. In a tail-stock for lathes, the combination of the base A, standard B, guide-block D, flanged casting C, cross-head E, spindle F, bracket G, toggle I, lever H, and yoke J, all constructed, arranged, and operating substantially in the manner and for the purposes set forth.

310,261. COMBINED FEED RACK AND MANGER. WILLIAM S. DOWNING, Half Moon Bay, assignor of one-half to George H. Walker, San Francisco, Cal. Filed May 5, 1884. (No model.)



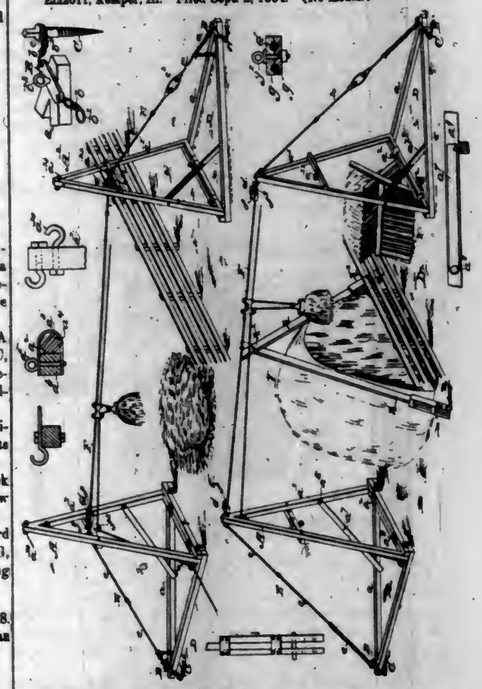
Claim.—A feed rack and manger consisting of the corner posts, A, with cross-pieces *g* and *g'* at top and bottom, the floor *a*, the stripe *h*, nailed or otherwise fastened to said floor, upwardly-flaring slats *c*, secured to the cross-pieces *g* and stripe *h*, and the siding *b*, having the flaring top or rim *b'*, substantially as herein described.

310,262. COFFIN. LEOPOLD EICHELBERG, Heidelberg, Germany. Filed Sept. 29, 1884. (No model.)



Claim.—The combination of the angle-iron D, the interlaced or woven wires *a b*, the interlaced paper strips *c*, the paper covering *d e f g*, and the interposed water-proof material, substantially as herein described.

310,263. GRAIN AND HAY DERRICK AND CARRIER. THOMAS B. ELLIOTT, Kemper, Ill. Filed Sept. 2, 1884. (No model.)



Claim.—1. The combination of the supports A A', and the carrier-rope F, said supports consisting of the parts *a a'*, hinged together at a^2 a^3, and the tie E, adapted to be tightened and loosened, substantially as described.

2. The combination of the parts *a a'*, hinged together at a^2 a^3, and the leg a^7, substantially as described.

3. The combination of the support A, the plate B, the chains *b b*, and the pins C C, substantially as described.

4. The combination of the parts *a a'*, hinged together at a^2 a^3, and the swiveled tie E, substantially as described.

5. The auxiliary support H, the same consisting of the legs *h h*, pivoted together and adapted to be lengthened and shortened, substantially as described.

6. The combination of the rope F, the support A, and the clamp G, said clamp consisting of the blocks *g g* and the clamping-bolt *g'*, substantially as described.

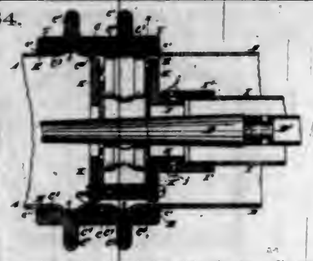
7. The combination of the supports A A', constructed as described, the rope F, and the carrier I, substantially as described.

8. The combination of the supports A A', the rope F, the canvas *j*, the frame j' j'', the sling j^4, and the trip j^5 j^7, substantially as described.

310,264. TUBE-JOINT. CHARLES E. EMERY, Brooklyn, N. Y. Filed Apr. 25, 1883. (No model.)

Claim.—1. In a tube-joint, in combination with the tubes A B, a coupling-ring having an internal annular rib, c^2, against which the ends of the said pipes abut, and having internal annular rounded recesses, *c*,

310,264.



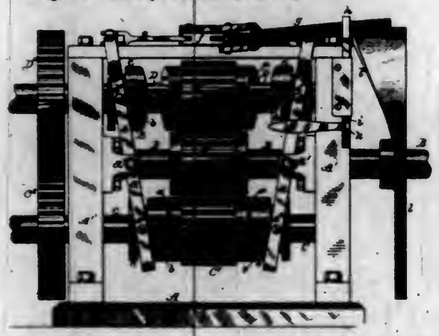
into which the material of the pipes is forced by the expanding-rollers, as and for the purposes set forth.

2. In a tube-joint, the combination, with the pipes A B, of a coupling-ring having internal annular recesses, as c, into which the pipe material is forced by expanding-rollers, and having re-enforcing external ribs to correspond with such recesses and withstand the pressure, the pipes A B abutting against an internal annular rib formed in the coupling, as set forth.

3. The ring C, having the re-enforces C′ on the exterior and the internal recesses, c, and central internal abutting-rib, C², in combination with the two tubes A B, and joined tightly thereto by the expansion of the tubes, all substantially as and for the purposes herein specified.

4. The ring C, having the calking-spaces c′ c′, in combination with the tubes A B, the paste E, and rings T, as and for the purposes set forth.

310,265. DRIVING AND REVERSING GEAR. HERVEY W. FOWLER, Chicago, Ill. Filed Sept. 16, 1884. (No model.)



Claim.—1. The combination of a driving-shaft having a tight pinion, a pair of clutch-shafts each having a loose pinion, a clutch on each clutch-shaft for rotatively connecting said clutch-shaft to the driving-shaft, and a lever controlling both clutches, substantially as described, whereby said clutches are simultaneously operated for the respective engagement and disengagement of said clutch-shafts from the driving-shaft, as set forth.

2. The combination of a driving-shaft having a tight pinion, two clutch-shafts each having a loose pinion and a clutch, and pinions or gears on said clutch-shaft which mesh directly with each other, substantially as described, whereby either clutch-shaft, when not driven directly from the driving-shaft, will be oppositely rotated by its connection with the directly-driven clutch-shaft.

3. The combination of a driving-shaft having a tight pinion, two clutch-shafts having loose pinions meshing with said tight pinion, a clutch at each side of and embracing each loose pinion, and levers for operating said clutches, substantially as described, whereby either loose pinion may be rotatively locked at each end to its respective clutch-shaft.

4. The combination of a driving-shaft having a tight pinion, two clutch-shafts having loose pinions meshing with said tight pinion, a pair of clutches on each clutch-shaft for locking its loose pinion thereto, and levers connecting all of said clutches, substantially as described, whereby either pair of said clutches on either clutch-shaft may be thrown into service simultaneously with the disengagement of the pair of clutches on the other clutch-shaft.

5. The combination, substantially as hereinbefore described, of the driving-shaft, its pinions or gears, the cam-wheel, the clutch-shafts, their loose pinions and clutches, the levers connected to said clutches, and one or more sliding push-bars coupled to the clutch-levers and moved by the cam-wheel.

6. The combination, with the driving-shaft and its pinion, the clutch-shafts and their loose pinions, and the clutches and their controlling-levers, of the sliding push-bars coupled to said levers, the hand-lever for alternately raising and lowering the outer ends of said push-bars, and the cam-wheel, substantially as described, whereby either pair of clutches can be engaged or disengaged by the cam-wheel, according to the particular manipulation of the hand-lever.

7. The combination of the driving-shaft, the two clutch-shafts, the tight and loose pinions, and the clutches, and a cushioning-spring for relieving the shock incident to the locking of either loose pinion to its clutch-shaft, substantially as described.

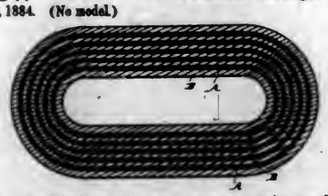
8. The combination of the driving and reversing gear embodying the driving-shaft, its tight pinion, the clutch-shafts, their loose pinions and connecting-pinions, clutches for locking said loose pinions to the clutch-shafts, and metal-working rolls coupled to said driving and reversing gear, substantially as described, whereby said rolls may be driven in either direction without reversal of the driving-shaft

310,266. METHOD OF PACKING AND PRESERVING ICE-CREAM. MORDECAI T. PUSSELL, New York, N. Y. Filed July 3, 1884. (No specimens.)

Claim.—1. The combination, with a box or package containing ice-cream, of a refrigerated wrapper of felt or other suitable material, substantially as and for the purposes set forth.

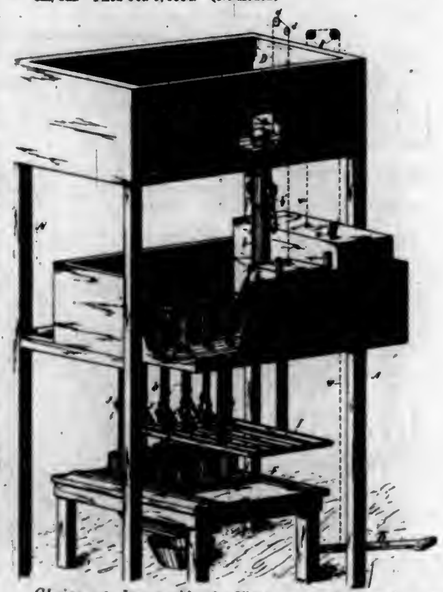
2. The method of preserving ice-cream in a hard condition when packed in boxes for transportation, which consists, first, in placing wrappers of felt or other suitable porous material in a refrigerator until their temperature is reduced to a point lower than that of the external air, and, second, inclosing each box or package of cream in one of such wrappers, substantially as set forth.

310,267. CHAIN-LINK. WILLIAM GERHARD, Philadelphia, Pa. Filed Oct. 8, 1884. (No model.)



Claim.—A chain-link made up of two or more layers of steel enveloped and combined with iron, the combined bars being welded together to form a solid link, substantially as shown and described.

310,268. FILLING-MACHINE FOR CANS, &c. JAS. J. GORMAN, Temescal, Cal. Filed Oct. 9, 1884. (No model.)



Claim.—1. In a machine for filling cans or other vessels, a main supply-tank, a secondary or feed tank having independent measuring receptacles or cups within it, adapted to supply the cans or vessels to be filled, a displacement-body and means for raising it from and lowering it into the liquid in the feed-tank, whereby its level is raised to flow over into the measuring-receptacles, and lowered to cut off their supply, a connection between the main tank and feed-tank, and a mechanism operated by the rising or falling level of liquid in the feed-tank to shut off the said connection, or open it to renew the supply, substantially as herein described.

2. In a machine for filling cans or other vessels, a main supply-tank, a secondary or feed tank having the independent measuring receptacles or cups H within it, adapted to supply the cans or vessels to be filled, a displacement-body and means for raising it from and lowering it into the liquid in the feed-tank, whereby its level is raised to flow over into the measuring-cups, and lowered to cut off their supply, the pipe *b*, connecting the main tank with the feed-tank, and the mechanism by which the supply from the main tank is cut off or opened, consisting of the float E in the feed-tank, the cord D, and the valve *c*, governing pipe *b*, substantially as herein described.

3. In a filling-machine for cans or other vessels, the series of measuring-cups H within the feed-tank, adapted to receive their stated supply by the rise of the liquid in said tank, and to discharge it through independent pipes into the series of cans or other vessels below, substantially as herein described.

4. In a machine for filling cans or other vessels, the series of measuring-cups H within the feed-tank, adapted to receive their stated supply by the rise of the liquid in said tank, and to discharge it into the vessels to be filled, said cups being detachable for the substitution of others of different capacity, substantially as and for the purpose herein described.

5. In a machine for filling cans and other vessels, the series of detachable measuring-cups H within the feed-tank, and the discharge-pipes *h*, upon top of which said cups are screwed or otherwise detachably secured, substantially as herein described.

6. In a filling-machine for cans and other vessels, the tank C, and series of measuring-cups H within said tank, adapted to discharge their contents in the series of cans or vessels below, in combination with the displacement-body W, by which the liquid in tank C is caused to overflow into the measuring-cups, substantially as herein described.

7. In a filling-machine for cans and other vessels, the series of discharge-pipes *h*, having cocks J, with handles *i*, in combination with the swinging lever-frame I, secured to said handles, by which the cocks are operated, substantially as herein described.

8. In a machine for filling cans and other vessels, the feed-tank C, having the measuring-cups H, with outlet-pipes *h*, having cocks J, with handles *i*, the displacement-body W, by which the measuring-cups are filled, and the reciprocating lever-frame I, secured to handles *i*, whereby the cocks J are operated, substantially as herein described.

9. In a machine for filling cans and other vessels, the main tank B, feed-tank C, and pipe *b*, between them, having valve *c*, the measuring-cups H in tank C, having outlet-pipes *h*, with governing-cocks, the reciprocating frame I, by which the cocks are operated, the reciprocating displacement-body W in tank C, and the float E therein, connected with valve *c*, all arranged and operating substantially as herein described.

10. In a filling-machine for cans and other vessels, the hollow bottomless displacement body or casing W, having an air-outlet in its top governed by a cock, substantially as and for the purpose herein described.

310,269. METALLIC RAILROAD CROSS-TIE. ABRAHAM GOTTLIEB, Pittsburg, Pa. Filed Aug. 15, 1884. (No model.)

Brief.—A metallic railroad-tie provided with angular slots near its ends, and flanged locking-plates, also angularly slotted, upon the ties beneath the rails for adjusting the gage of the track. The tie is prevented from longitudinal movement by vertical transverse braces.

Claim.—1. A wrought-iron or steel cross-tie having double rail seats or beds longitudinally corrugated between said beds, and having its lower edges connected by vertical transverse braces adapted when the tie is in place to prevent any longitudinal movement of the tie on its bed, substantially as set forth.

2. A wrought-iron or steel cross-tie having double rail seats or beds angularly slotted, as described, in combination with locking-plates resting on such rail seats or beds, and provided with angularly-arranged slots, substantially as set forth.

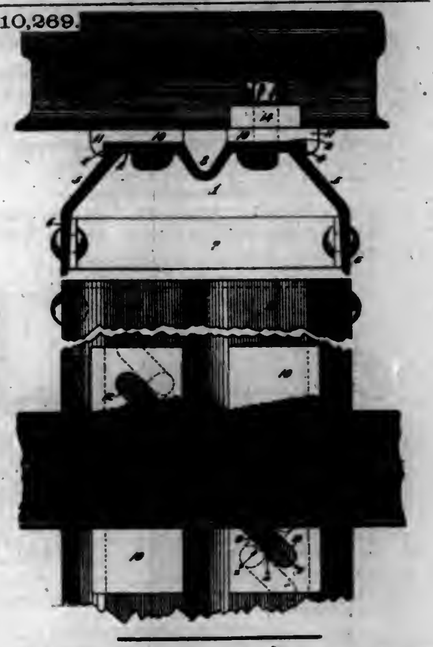
3. A wrought-iron or steel cross-tie having double rail seats or beds angularly slotted, as described, provided with the vertical ledge 4, in combination with a locking-plate angularly slotted, and provided with longitudinal flange along one edge thereof, substantially as set forth.

4. A wrought-iron or steel cross-tie having a suitable rail bed or seat angularly slotted, as described, in combination with a locking-plate adapted to be secured as against transverse movement on the rail bed or seat, and provided with an angularly-arranged slot, substantially as set forth.

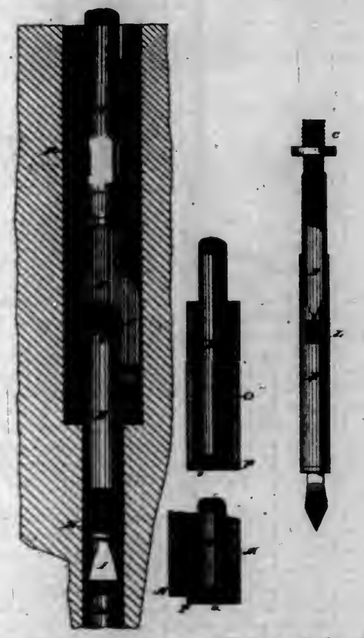
5. A wrought-iron or steel cross-tie having a suitable rail bed or support angularly slotted, as described, in combination with a wedge-like locking-plate angularly slotted, substantially as set forth.

6. A metal railway-track cross-tie having a rail-supporting slat or bed, and a pair of angular slots near one or both ends thereof, substantially as set forth.

310,269.



310,270. WELL-REAMER. FRANK M. GRAY, Milwaukee, Wis. Filed Aug. 16, 1884. (No model.)



Claim.—1. In a reciprocating drop-drill, the combination, with the drill-shaft A, of the shank B, having a blunt eccentric-arm provided at its lower end with a cutting-point, D, by which the hole is enlarged below the tubing, and a central guide-shaft, E, serving, as it operates in the lead-opening, to hold said cutting-point at a uniform distance from the central hole, whereby said point will drill a hole of greater diameter than the tubing, substantially as set forth.

2. The combination of shaft A, shank B, having eccentric-arm and cutting-point D, with the detachable tubular shank E′, provided with apertures L, substantially as and for the purpose specified.

3. The combination of the shaft A, shank B, having eccentric-arm and point D, central guide-shaft, E, tubular casing O, and retaining-collars P P, as set forth.

4. The combination of shaft A, shank B, having eccentric-arm and point D, central guide-shaft, E, eccentrically-arranged casing M, eccentric collars N N, and retaining-collars P P, as set forth.

5. The combination of the shaft A, shank B, having blunt eccentric-arm provided at its lower end with a cutting-point, central guide, E, and drill-point I, attached to the lower end of said central guide, E, substantially as set forth.

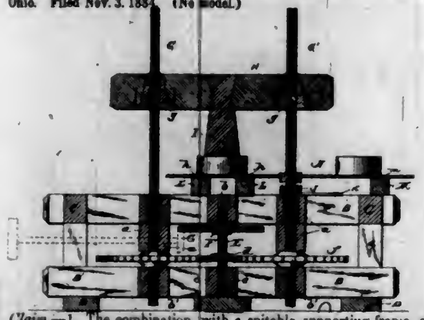
310,271. METALLIC CURBING FOR CONTAINING ELECTRICAL WIRES. P. HENRY GRIFFIN, Detroit, Mich. Filed Sept. 10, 1884. (No model.)



Claim.—1. The metallic curbing herein described, consisting of the metallic box A, having two substantially vertical sides, a closed bottom, and an open top, with an opening, *a'*, at the junction of one of the sides with the bottom, and provided with a removable top having depending flanges *a*, substantially as described.

2. The metallic curbing herein described, consisting of the open box A, having two vertical sides, an open enlarged end, a removable top, and an opening, as *a'*, formed at the junction of the bottom with one of the sides for the passage of water, in combination with the well C, to receive the discharge, all constructed and arranged substantially as shown and described.

310,272. CIDER-PRESS. JOHN GYPE and CHRISTIAN GYPE, Tedrow, Ohio. Filed Nov. 3, 1884. (No model.)



Claim.—1. The combination, with a suitable supporting-frame, of shafts, screw-threaded at their upper ends, mounted therein, a follower mounted on said shafts, and a platform for supporting the tube containing the fruit to be operated upon, as set forth.

2. The combination, with a suitable supporting-frame, of shafts, screw-threaded at their upper ends, mounted therein, a follower-beam carrying a follower or platen, and a platform, substantially as and for the purpose set forth.

3. The combination, with a suitable supporting-frame, of shafts, screw-threaded at their upper ends, mounted therein, means, substantially as described, for operating said shafts, a follower-beam carrying a follower, and a platform, substantially as and for the purpose set forth.

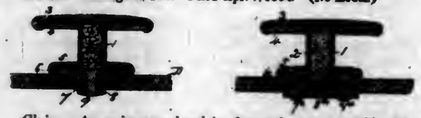
4. In a cider-press, the combination, with the shafts G G', and means, substantially as described, for operating the same, of a follower-beam having a follower secured thereto, and a movable platform for supporting the tube containing the fruit to be operated upon, as set forth.

5. In a cider-press, a movable platform adapted to be turned, substantially as described, when the follower is raised, as set forth.

6. In a cider-press, the combination, with a suitable supporting-frame, of the shafts G G', mounted therein, gearing, substantially as described, for operating said shafts, a follower-beam, a follower, a platform loosely connected with one of said shafts, and a clutch, substantially as set forth.

7. The combination, with a suitable supporting-frame, of shafts G G', mounted therein, gearing, substantially as described, for operating said shafts, a follower-beam mounted on said shafts, a follower secured to said beam, a platform having ribs upon its under side, supporting-beams having grooves to receive the same, and a clutch, substantially as set forth.

310,273. COMBINED BUTTON AND FASTENER. MANES HAMBURGER, Washington, D.C. Filed Apr. 7, 1884. (No model.)



Claim.—As an improved article of manufacture, a combined button and fastener composed of a button, a flexible shank, and a rigid shoe, constructed substantially as described, and adapted to receive a suitable fastener, substantially as and for the purposes specified.

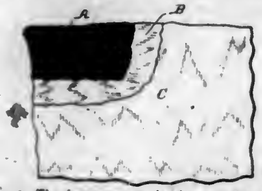
310,274. COUPLING HOOK AND LOOP. CHARLES P. HARRIS and STEPHEN BALTELY, Hill's Ferry, Cal. Filed Apr. 8, 1884. (No model.)



Claim.—1. The oppositely-located end hooks, *a a*, each provided with drop-links *d*, and the central side loops, *b*, *b*, one on each side of a central rib, substantially as herein described.

2. The bar A, having an upward-turned hook, *a*, at each end, and the loops *b b*, one on each side of the bar A, in combination with a spring-guard strip, *c*, and the drop-links pivotally secured in the ends of the hooks *a*, substantially as herein set forth.

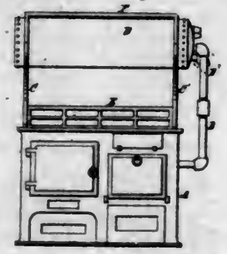
310,275. COLORED WATER-PROOF FABRIC. THEODORE HAWLEY, Fairfield, Conn. Filed July 14, 1884. (Specimens.)



Claim.—1. The improvement in the art of manufacturing water-proof fabrics, which consists in running a groundwork of uncolored vulcanizable material upon a suitable backing, then producing the desired color by applying a dressing consisting of the color suitably prepared in oil, and finally volcanizing the fabric in the ordinary manner.

2. As a new manufacture, a water-proof fabric in which uncolored water-proof material is laid upon a suitable backing, and the desired color obtained by laying an oil-dressing upon the water-proof material, substantially as described.

310,276. RANGE OR STOVE. ISAAC HAYES, Philadelphia, Pa. Filed Mar. 15, 1884. (No model.)

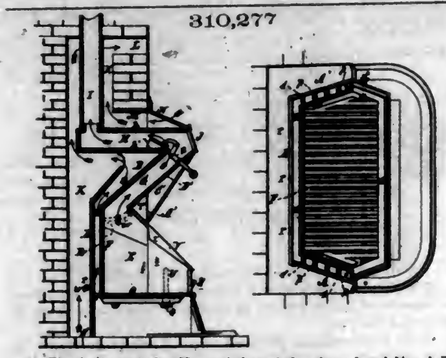


Claim.—The combination of the portable range A, uprights C C', plate E, warming-shelf F, boiler D, and pipes B B', substantially as shown and described.

310,277. OPEN FIRE-PLACE. ISAAC HAYES, Philadelphia, Pa. Filed Apr. 2, 1884. (No model.)

Claim.—1. The side plates, A and A', and triangular projections C C', in combination with the inclined plates D and D', arranged to form the flue G, sloping forward from the rear of the fire-surface up to and beyond the breast of the chimney, and having a suitable connection to said chimney, substantially as and for the purpose specified.

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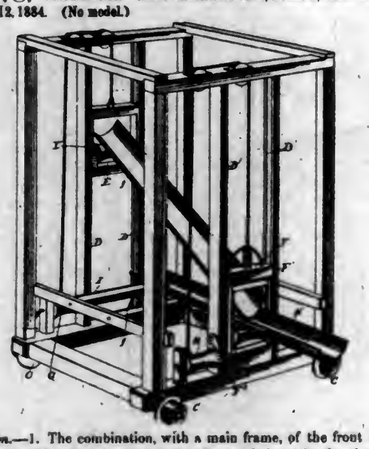
2. The horizontal flue H, consisting of the plates A and A' and J, in combination with the inclined flue G, formed by the side plates, A and A', projections C and C', plate D, and plate D', and being located in front of and parallel to plate D, so as to slope forward from the rear of the fire-surface and project beyond the breast of the chimney, substantially as shown, and for the purpose specified.

3. The bed-plate O, constructed as described, with oblique ends *d e* and *d f*, and openings *p*, in combination with the side plates, A A', openings *g' g*, and lining F, having hollow wings *i i*, substantially as and for the purpose specified.

4. The combination, in an open fire-place, of the bed-plate O, having openings *p*, lining F, provided with hollow wings *i i*, air-passage R, and openings *g*, *s*, and *r*, constructed and arranged substantially as shown and described.

5. The combination of the bar T, plate D', fender V, pintle *u*, lever W, and counter-balance X, substantially as and for the purpose specified.

310,278. COAL-CHUTE. JACOB HEATHERINGTON, Bellaire, Ohio. Filed Nov. 12, 1884. (No model.)



Claim.—1. The combination, with a main frame, of the front and rear supporting-frames, adjustable vertically and independently of each other, and the upper and lower troughs, substantially as set forth.

2. The combination of a flat-boat or float, a main frame mounted thereon and provided with trough-supports, and the troughs, substantially as set forth.

3. The combination of the main frame, the supporting-frame, adjustable vertically, and provided with anti-friction rollers, and the troughs, substantially as set forth.

4. In a coal-discharge, a trough-supporting frame pivotally supported, whereby it may be rotated in an approximately-horizontal plane, substantially as set forth.

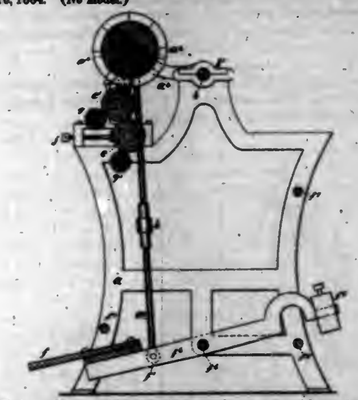
5. The combination, with the vertically-adjustable frame F, of the frame F', pivotally supported therein, whereby it may be rotated in an approximately-horizontal plane, substantially as set forth.

6. The combination, with a main frame, of a trough-support held and adjustable vertically therein, substantially as set forth.

7. The combination, with the main frame, of the trough K and the anti-friction roller, or roller I, substantially as set forth.

8. A coal-discharge comprising a main frame, front and rear supporting-frames held and movable vertically in said frame, windlasses, whereby said frames may be raised to and held at any desired point, and the trough, substantially as set forth.

310,279. PUTTING-OUT MACHINE. WILLIAM M. HOFFMAN, Buffalo, N. Y., assignor to himself and Edgar B. Stevens, same place. Filed Sept. 16, 1884. (No model.)



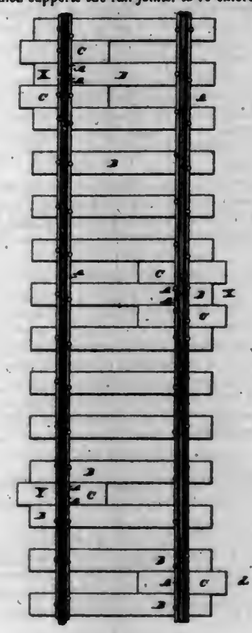
Claim.—The combination, in a putting-out machine, of a driving-shaft, *b*, carrying a gear, b^2, a putting-out cylinder, *a'*, supported on a shaft, a^3, journaled in arms a^4, pivoted to the shaft *b*, gear b^4 on the shaft a^3, engaging with the gear-wheel b^3, and feed-rollers *e e'* below the cylinder *a'*, and extensible rods e^2 e^3, each connected at one end to the arms a^4, and at the opposite end to the pivoted and counter-weighted foot-treadle *f*, substantially as and for the purpose described.

310,280. MANUFACTURE OF CUTTING-TOOLS AND TOOL-BLANKS. MARTIN A. HOWELL, Jr., Chicago, Ill. Filed Mar. 28, 1884. (No specimens.)

Claim.—In the manufacture of tools, implements, or other products of steel, the process which consists in the rolling or cutting of the soft blanks from decarburized iron or low-carbon steels of granular or semi-granular structure—as that made by the Bessemer or similar processes—and the restoration thereof to a true carburet in a sealed flask connected with a gas-holder containing the vapors of hydrocarbon or its equivalent, said vapor being freed from oxygen and kept under pressure during the process of carbureting, and held free from oxygen to the end of the cooling or discharge of the contents of said flask.

310,281. RAILROAD-TRACK. SAMUEL W. HUDSON, Hudsondale, Pa. Filed July 1, 1884. (No model.)

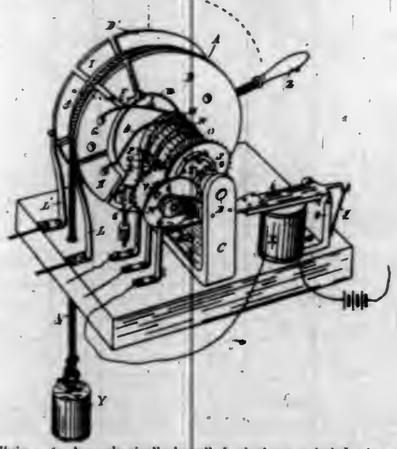
Brief.—Short tie-sections are placed under the rails on each side of the long tie which supports the rail-joints, to re-enforce the same



Claim.—1. The combination, substantially as set forth, of the rails, the long ties, and the short tie-sections that re-enforce the track at the junction of the rails.

2. The combination, substantially as set forth, of the rails, the long tie placed under the junction of the rails, and the short tie-sections placed under the rails on each side of the long tie.

310,282. TELEPHONE SYSTEM. WILLIAM A. JACKSON and WILLIAM R. COLE, Detroit, Mich., assignors to the Western Electric Company, Chicago, Ill. Filed Mar. 5, 1884. (No model.)



Claim.—1. A mechanically-impelled telephone-switch having stationary contact-springs and movable segment-contacts electrically insulated and forming a part of a rotary disk or disks, said connections forming a part of a series of independent circuits, in combination with an electro-magnet included in one circuit of the series and a clock-work acted on by said electro-magnet to effect its release, to impart a uniform motion to the switch to successively make and break each circuit in the series, substantially in the manner described.

2. In a mechanically-impelled telephone-switch, the combination of the revolving wheel A, carrying a series of insulated segment-contacts, with the insulated disks M N O, contact-springs P Q R, bearing on said insulated disks, and the wires *k l m*, for electrically connecting the said insulated segments with the insulated disks, substantially as and for the purpose described.

3. In a telephone-switch including a series of independent circuits, the combination of the mechanically-impelled wheel A, forming a part of said circuits and its regulating clock-work, the detent-wheel W, provided with shoulder *d*, and the electro-magnet X, included in one of said circuits, and provided with an armature, *i*, arranged to contact with the shoulder *d* of said detent-wheel, whereby a single momentary exciting of the electro-magnet disconnects the armature and shoulder *d* and permits the entire revolution of the wheel W, to successively make and break the remaining circuits of the series, substantially as and for the purposes herein set forth.

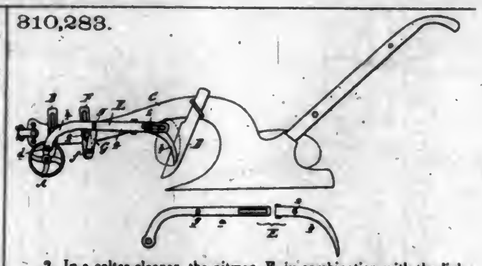
4. In a telephone-switch, the combination of the metal disks D D', having electrically disconnected segmental sections which form the movable contact-pieces of the switch, with the insulating-disk E and the stationary contact-springs L L', substantially as and for the purpose described.

5. The combination of a mechanically-impelled telephone-switch, D D', carrying insulated segmental sections forming the terminals of a series of circuits, and stationary contact-springs L L', forming the other terminals of a series of circuits, with a regulating clock-work and an electro-magnet located in and forming a part of one circuit of the series, and constructed and arranged to automatically release said clock-work and permit the escape-wheel thereof to make an entire revolution, to compel said segmental sections to successively contact with the springs L L', to make and break each circuit of the series successively, substantially as and for the purposes specified.

310,283. COLTER-CLEANER. F. EUGENE JEANJAQUET, Detroit, Mich., assignor of one-half to John F. Guilbot, same place. Filed Feb. 15, 1884. (No model.)

Claim.—1. In a colter-cleaner, the pitman E, provided at one end with a downward bend, *h*, directly attached to the plow-wheel, and the cleaner-hook *b* at the other, with a moving fulcrum between the two, and adapted to operate approximately at the height of the plow-beam and in general line with it, substantially as and for the purpose described.

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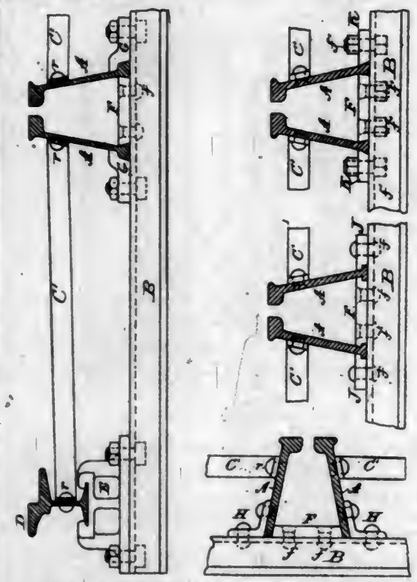
2. In a colter-cleaner, the pitman E, in combination with the link G and standard F, which latter is adjustably secured to the plow-beam and forms an adjustable fulcrum for the link G, substantially as and for the purpose described.

3. In a colter-cleaner, the combination of the pitman E with the link G, adjustable standard F, and adjustable cleaner-hook *b*, all arranged and combined as described, and for the purpose of giving the necessary adjustments to apply the device to plows of different styles or to accommodate it to varying adjustments of the same plow, substantially as described.

4. The colter-cleaner herein described, consisting of the pitman E, provided at one end with a downward bend, *h*, and at the other with the hooked end *b*, in combination with the link G, having an adjustable fulcrum at one end and a pivotal connection with the pitman E at the other end, said pivotal connection being comparatively close to and above the crank-pin connection of the pitman with the plow-wheel, all combined, arranged, and operating substantially as described.

310,284. CABLE-WAY FOR RAILWAY TRACTION-CABLES. TOM L. JOHNSON, Cleveland, Ohio. Filed July 22, 1884. (No model.)

Brief.—The cable-way is formed from bevel-rolled rails provided with a bottom at their base. The rail ends are spliced together on the outside, and securing-chocks are placed inside. Brace-rods extend from the track-rails to the tube-irons.



Claim.—1. In a cable-railway system, a cable-way composed of bevel-rolled slot-rails on each side, with or without lower angles or feet, and provided with a bottom at the base of said rails, substantially as and for the purposes set forth.

2. In a cable-railway system, a slotted cable-way composed of rails on each side, butt-jointed or fished by outside plates or bars, as *a*, and secured by inside chocks, substantially as and for the purposes set forth.

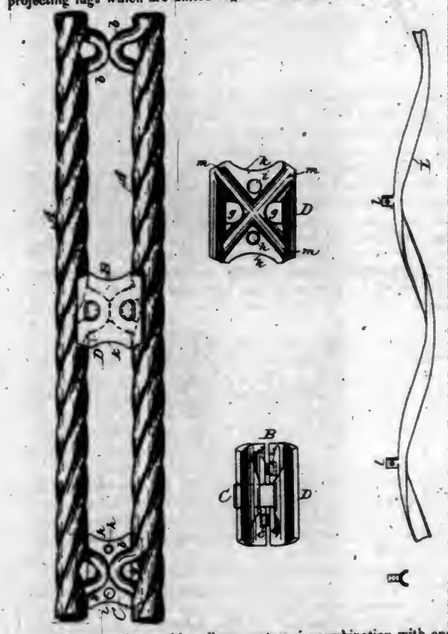
3. In a cable-railway system, in combination with the rails of the track, a slotted cable-way tied on each side directly to said rails by rods or braces, as C', substantially as and for the purposes set forth.

4. In a cable-railway system, in combination with a cable-way composed of slot-rails, as A A, the inside chocks, outside foot or angle braces, and cross-ties for supporting said cable-way, substantially as and for the purposes set forth.

5. In a cable-railway system, in combination with the rails of the track, a slotted cable-way composed of slot-rails, as A A, rods or braces, as C', inside chocks, outside foot-braces, and cross-ties for supporting said cable-ways, substantially as and for the purposes set forth.

310,285. DOUBLE CABLE FOR CABLE RAILWAYS. TOM L. JOHNSON, Cleveland, Ohio. Filed Aug. 16, 1884. (No model.)

Brief.—Cross-stops uniting cable strands are secured thereto through exterior fastenings only, permitting the cable to wind around pulleys without kinking it. Strips of metal encircling the cable have projecting lugs which are united together to form the cross-stops.

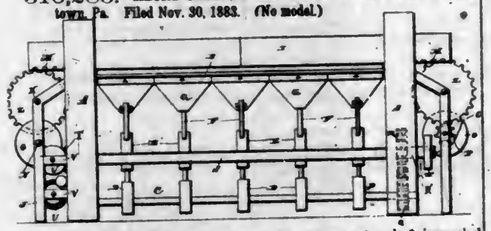


Claim.—1. In a cable-railway system, in combination with one or more driving pulleys or wheels, a traction-cable composed of two cables formed into a double cable, and provided at regular intervals with cross stops or bars secured thereto by exterior fastenings only, whereby said cable is adapted to wind or coil over or around said pulleys without angles or kinks and in a path true to the curve of the peripheries of said pulleys, substantially as and for the purposes set forth.

2. In a cable-railway system, a double traction-cable composed of two cables exteriorly provided with loops or lugs at regular intervals and connected by means of said loops or lugs to cross bars or stops, substantially as and for the purposes set forth.

3. In a cable-railway system, a double traction-cable composed of two cables provided with lugs secured at regular intervals to strips of metal encircling said cables in helical paths and united by cross stops or bars, substantially as and for the purposes set forth.

310,286. METAL-BENDING MACHINE. OLIVER C. KNIPE, Norristown, Pa. Filed Nov. 30, 1883. (No model.)



Claim.—1. The combination, with a frame, of a shaft journaled therein, eccentrics journaled to the latter, pivoted forming-jaws indirectly connected with said eccentrics, a sectional mandrel around which the jaws close, and the gearing, substantially as described, for withdrawing the mandrel, all of the above parts combined as set forth.

2. The combination, with a frame, of a sectional mandrel, pinions and racks for moving the sections of said mandrel in opposite directions, forming-jaws, and the mechanism, substantially as described, for closing the latter around the mandrel, substantially as and for the purpose described.

3. The combination, with a frame, of a shaft journaled therein, eccentrics secured to the latter, pivoted jaws indirectly connected to said eccentrics, a sectional mandrel around which the jaws are adapted to close, and the mechanism, substantially as described, for moving the sections of the mandrel either toward or away from each other, substantially as and for the purpose described.

4. The combination, with a frame, of a shaft journaled therein, eccentrics secured to the shaft, pitmen pivotally secured to the latter, forming-jaws connected with said pitmen by pivoted rods, a sectional mandrel around which said jaws are adapted to close, and the gearing, substantially as described, for moving the mandrel.

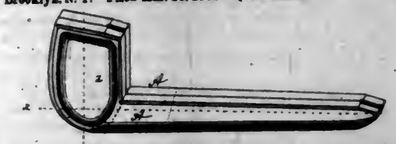
5. The combination, with a frame, of a shaft journaled therein, eccentrics secured to said shaft, pitmen pivotally secured to the eccentrics, connecting-rods pivotally secured to the pitmen, sectional forming-jaws secured to the said rods, a sectional mandrel around which said jaws are adapted to close, and the gearing, substantially as described, for moving the mandrel, substantially as and for the purpose set forth.

6. The combination, with a frame, of a shaft journaled therein, a sectional mandrel loosely secured in said frame and provided with cog-teeth, cog-wheels the teeth of which are adapted to mesh with the said teeth on the mandrel, and the gearing, substantially as described, connecting said cog-wheels with the sections of the mandrel, whereby the latter may be moved either toward or away from each other, substantially as set forth.

7. In a machine for bending metal, the combination, with a sectional mandrel having cog-teeth thereon, of cog-wheels meshing with said teeth, the wheels O, gear-wheels P and T', and the friction-wheels T, all of the above parts combined as described.

8. The combination, with the main frame and its driving-shaft, of the secondary frame, the rolls and scarfing devices, gears connecting the scarfing devices and rolls, and gears connecting the rolls and driving-shaft, substantially as set forth.

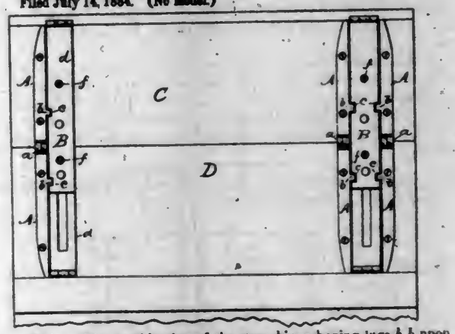
310,287. PIPE-CASE. CHARLES KOCH, New York, and HENRY KOCH, Brooklyn, N. Y. Filed Mar. 28, 1884. (No model.)



Claim.—1. The combination of sections A A, hinged together, and consisting of shells *b* and frames *a*, that form an open head, with covering *d*, which is flexible within said open head, substantially as and for the purpose specified.

2. The combination of sections A A, hinged together, and consisting of shells *b* and frames *a*, that form an open head, with covering *d* and lining *c*, which are flexible and bulged within said open head, substantially as specified.

310,288. TRUNK HINGE AND STAY. JAMES E. LADD, Bristol, Conn. Filed July 14, 1884. (No model.)



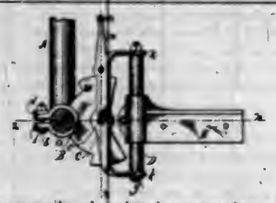
Claim.—The combination of the strap-hinge having lugs *b b* upon one edge, and the trunk-stay having corresponding notches in its adjoining edge, the same being adapted to be applied to a trunk cover and body, substantially as described, and for the purpose specified.

310,289. CULTIVATOR. JOHN LANE, Hyde Park, assignor to the Hapgood Plow Company, Alton, Ill. Filed Sept. 18, 1884. (No model.)

Claim.—1. The yoke C, provided with the long slot *e*, perforation *i*, and perforated arms *k k*, substantially as and for the purpose set forth.

2. In a cultivator, a yoke provided with a central perforation adapted to be connected pivotally to the rear end of the coupling, perforated arms adapted to be connected to the pipe or sleeve, and a horn

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or lever projecting upwardly, adapted to be connected to a spring to rock the said yoke, substantially as and for the purpose set forth.

3. The combination, with the coupling provided with a tail or wing, of the yoke provided with a slotted front end, a central perforation, a bolt seated in the said perforation, connecting the said yoke pivotally to the said wing, and said bolt adapted to compress the sides of the said slot to a close and snug bearing upon said wing, substantially as and for the purpose set forth.

310,290. ATTACHMENT FOR CULTIVATOR AND SEEDER TEETH. HUGH O. LEWIS, Portage, Wis. Filed Dec. 14, 1883. (No model.)



Claim.—1. The combination, with a cultivator or seeder tooth pivoted to the drag-bar M, of the curved retracting-spring A, connected with the top of said tooth, auxiliary spring B, attached to said drag-bar and bearing at its rear end against spring A, and drag-bar M, substantially as and for the purposes set forth.

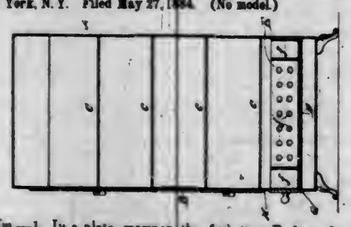
2. The combination, with a cultivator or seeder tooth pivoted to the drag-bar M, of the curved retracting-spring A, connected with said tooth, auxiliary spring B, provided with roller C, and drag-bar M, substantially as and for the purposes set forth.

3. In a cultivator or seeder, the combination of the tooth or shovel G, attached to the lower end of sleeve E, pivoted to the drag-bar, curved retracting-spring A, connected with the top of said sleeve by means of the eyebolt D and bail N, and auxiliary spring B, provided at its end with small roller C, bearing against a step in said spring A, whereby resistance is offered to the compression of said spring A at its inception, substantially as and for the purposes set forth.

4. In combination with a cultivator or seeder tooth, pivoted, as herein described, to the drag-bar, the curved retracting-spring A, connected with the upper end of said tooth by means of eyebolt D and bail N, auxiliary spring B, provided with small roller C, and set-bolt o, adapted to regulate the position of the roller C and the resistance of spring B to the compression of spring A, substantially as and for the purposes set forth.

5. The combination, with the drag-bar M, of the sleeve E, pivoted thereto and open at the rear and in front of said drag-bar, the loop *y*, connecting the sides of said sleeve at its upper end, and passing around the front of said drag-bar, and formed into loops or hooks for the attachment of spring A, and spring A, substantially as and for the purposes set forth.

310,291. DISH-WARMER. RICHARD V. LEWIS and HENRY C. CONGER, New York, N. Y. Filed May 27, 1884. (No model.)

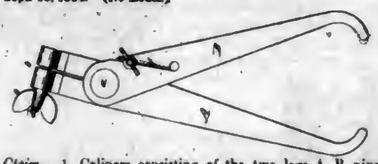


Claim.—1. In a plate-warmer, the fuel-tray E, formed with the partitions *f*, and having its side walls perforated, substantially as described.

2. The casing A, having door B, perforated shelves C, false bottom D, and partial front wall, H, in combination with the fuel-tray E, adapted to slide in and out of the casing upon the false bottom D, substantially as and for the purpose set forth.

3. The casing A, having perforated shelves C, false bottom D, and apertured partial front wall, H, in combination with the sliding fuel-tray E, formed with perforations *f'* and end partitions, *f f*, substantially as shown and described.

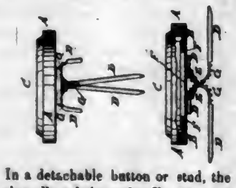
310,292. CALIPERS. FRANK G. LILJA, Springfield, Mass. Filed Sept. 15, 1884. (No model.)



Claim.—1. Calipers consisting of the two legs A B, pivoted together, the one constructed with a slit, *f*, opening from one side and extending toward the opposite side, combined with the wedge *h*, arranged through said slit with its nut *l*, substantially as described.

2. Calipers consisting of the legs A B, pivoted together, the one leg A extending above the pivot, divided, combined with the screw *d* and nut *e*, as a clamp to set the legs A upon the pivot, the leg B, constructed with a slit, *f*, opening from one side and extending toward the opposite side, and with the wedge *h* and nut *l*, substantially as specified.

310,293. DETACHABLE BUTTON OR STUD. JACOB J. LINDAUER, New York, N. Y. Filed Oct. 7, 1884. (No model.)



Claim.—1. In a detachable button or stud, the combination, with the slotted back plate, B, and the spring F, of the J-shaped bars D, having teeth G in their adjacent convex surfaces, substantially as herein shown and described, whereby both the said bars will be turned by the movement of either, as set forth.

2. A detachable button or stud provided with the J-shaped bars D, made substantially as herein shown and described, with teeth G upon their convex surfaces, as set forth.

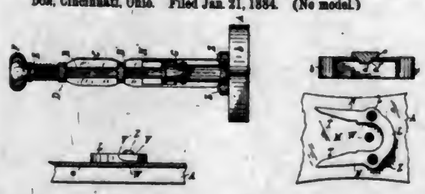
3. In a detachable button or stud, the combination, with the back plate thereof, of curved locking-bars toothed upon their convex surfaces, and held to be partially revolved in contact with each other upon said back plate, substantially as herein shown and described.

310,294. ARTIFICIAL TOOTH-CROWN. MARSHALL L. LOGAN, Tyrone, assignor to the S. S. White Dental Manufacturing Company, Philadelphia, Pa. Filed Jan. 25, 1884. (No model.)



Claim.—A porcelain tooth-crown provided with an enlarged basal opening coextensive, substantially, with the entire base of the crown and with a pin projecting beyond said base, said pin extending through said opening into the body of the crown and around the end of which the said crown is baked or burned in the process of manufacture, substantially as described.

310,295. CARTRIDGE-LOADING IMPLEMENT. CHARLES F. LOCKDON, Cincinnati, Ohio. Filed Jan. 21, 1884. (No model.)



Claim.—1. The combination of the hollow guide G for the charge in loading, located above the bed on which cartridge-shell rests, and adapted to receive the upper end of the cartridge-shell, and a standard, and the elastic or spring connection between the said standard and the guide, forming the immediate support of the said guide, substantially as and for the purposes specified.

2. The combination of a bed and guide, G, having opening *l* from its middle portion, enlarging toward its upper and lower ends, and having an interior shoulder, *k*, and the elastic connection H, suitably upheld, and a supporting-standard, the guide G being connected to the standard by this elastic connection, substantially as and for the purposes specified.

3. The combination of the guide G for the charge in loading, and adapted to receive the upper end of the cartridge-shell, while the lower end of the shell rests upon a suitable bed below, uprights C, and spring-plate H, flange H', having slot K, set-screw I, and pin J, substantially as and for the purposes specified.

4. The combination of the guide G, spring-plate H, flange H', having slot K, set-screw I, pin J, and uprights C, provided with lug or tongue *d* and set-screw *f*, and the bed A, having slot *d'*, substantially as and for the purposes specified.

5. In a cartridge-holder, a base or bed and the guideway L, whose sides approach each other, said guideway L communicating with the guideway V, substantially circular, except where it is open to guideway L, substantially as and for the purposes specified.

6. In a cartridge-holder, the base or bed and the guideway L, having sides approaching each other, and the guideway V, communicating with guideway L, and provided with an overlapping flange or edge, substantially as and for the purposes specified.

7. In a cartridge-holder, a base or bed and the guideway L, whose sides approach each other, and communicating with the guideway V, substantially circular, except where it is open to guideway L, and provided at its upper edge with a flange adapted to overlap the flange of the closed end of the shell, substantially as and for the purposes specified.

8. In a cartridge-holder, a base or bed and the guideway L, whose sides approach each other, and communicating with the guideway V, substantially circular, except where it is open to guideway L, and provided at its upper edge with a flange adapted to overlap the flange of the closed end of the shell, each forward end of said flange of the guideway being inclined outward and upward in a bevel, V', substantially as and for the purposes specified.

9. The combination of a device for holding the upper end of the cartridge-shell, and the guideway L, and partially-circular guideway V, communicating with guideway L, the sides of guideway L approaching each other and terminating in the guideway V, having upper inwardly-extending flange provided with beveled ends V', substantially as and for the purposes specified.

10. The combination of the guideway L and partially-circular guideway V, communicating with guideway L, the sides of guideway L approaching each other and terminating in the guideway V, having upper inwardly-extending flange provided with beveled ends V', and guideway G, supported on an elastic connection, substantially as and for the purposes specified.

11. The combination of the guide G for the charge in loading, having vertical central opening, *l*, provided with upper flare, *n*, and lower flare, *m*, and shoulder *k*, located at the upper end of flare *m*, the guide being adapted to receive in its lower portion, as far up as shoulder *k*, the upper end of the cartridge-shell, and the guideway L, for receiving the lower end of the cartridge-shell, the approaching sides of said guideway L being connected to the adjacent ends of guide V, closed at rear, and having a circular outwardly-extending upper flange, terminating in beveled ends V', substantially as and for the purposes specified.

12. In combination, the bed provided with guideway L and guideway V, upright C, guide G, having compound funnel-opening *l*, and having shoulder *k*, and the spring-connection H between the guide and upright C, the latter provided with guide D, and ramrod and spring, substantially as and for the purposes specified.

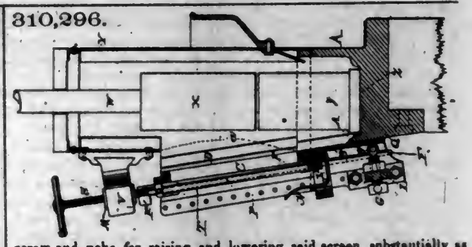
13. In combination, the bed provided with guideway L and guideway V, upright C, guide G, having compound funnel-opening *l*, and having shoulder *k*, and the spring-connection H between the guide and upright C, the latter provided with guide D and ramrod B, and a decapper, substantially as and for the purposes specified.

14. In combination, the bed provided with guideway L and guideway V, upright C, guide G, having compound funnel-opening *l*, and having shoulder *k*, and the spring-connection H between the guide and upright C, the latter provided with guide D and ramrod, provided at its lower end with female screw, and the decapper consisting of portion R, having screw at one side and decapping-point S at the other, substantially as and for the purposes specified.

15. The combination of the ramrod, decapper, upright C, guide G, raised bed A, having guideway L, and guideway V, communicating together, the guideway V having inwardly overlapping or overhanging flange terminating in inclined ends V', substantially as and for the purposes specified.

310,296. MORTAR-BED FOR STAMP-BATTERIES. GEORGE MASSU and FILOMENO FERNANDEZ, Marathan, Mexico. Filed May 27, 1884. (No model.)

Claim.—1. In an ore-crushing battery or stamp-mill, a mortar-bed and a screen at the discharge of the mortar-bed, in combination with a



screw and yoke for raising and lowering said screen, substantially as and for the purpose herein described.

2. The combination, in an ore-crushing battery or stamp-mill, of the mortar-bed, open or cut away at its discharge, a screen at said discharge, and a screw and yoke for raising and lowering said screen, whereby its height above the dies in the mortar-bed may be maintained, whether said dies be new or worn, substantially as described.

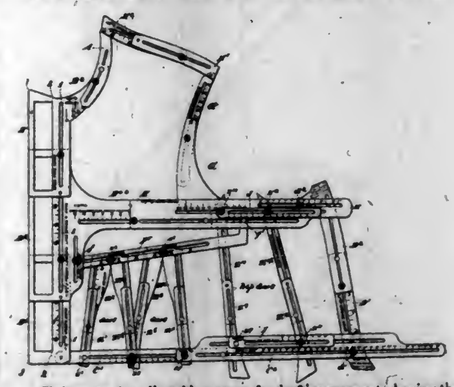
3. The combination, in an ore-crushing battery or stamp-mill, of a mortar-bed, Z, open at its discharge *a*, and having a toe, A, across the discharge, the die *z*, a suitable screen covering the discharge, and a screw and yoke for raising or lowering it in the open space *a*, substantially as described.

4. The combination, in an ore-crushing battery or stamp-mill, of a mortar-bed, Z, die *z*, the movable plate B, and screen C, secured to its top, wedges F, angle-irons D, and guides P, for holding said plate and screen against the mortar and frame of the battery, and a screw and yoke for raising and lowering them, substantially as and for the purpose herein described.

5. In an ore-crushing battery or stamp-mill, a mortar-bed, Z, having projecting arms R and die *z*, the movable plate B, having liners or strips K, and the screen C, secured to the top of plate, in combination with the means for holding said plate and screen in place, consisting of the wedges F, angle-irons D, and guides P, riveted to arms R and to the housing of the mill, the tightening-screws G, and cross-piece L, said screws having wheels or spurs *g*, bearing against said plate B, substantially as described.

6. The combination, in an ore-crushing battery or stamp-mill, of a mortar-bed, Z, die *z*, the movable plate B, and screen C, secured to its top, means for holding said plate and screen against the mortar-bed over its discharge, and the mechanism for raising and lowering them, consisting of the yoke T, bearings or brackets H on the plate B, the screw S, nut M, and bracket V, secured to the frame of the mill, substantially as herein described.

310,297. ADJUSTABLE PATTERN FOR DRAFTING DRESSES. ALBERT MCDOWELL, New York, N. Y. Filed Dec. 11, 1883. (No model.)



Claim.—1. An adjustable pattern for drafting garments, having the whole or a portion of the edge formed of plates of such width and so arranged that the inner edge corresponds to the sewing-line and the outer edge to the cutting-line, so that both lines can be drafted therefrom at one operation, all substantially as herein specified.

2. In an adjustable pattern for drafting the front of a garment, the front gage composed of two or more separate plates, connected as shown, and provided with longitudinal slots 1, corresponding to the line of buttons and button-holes, an edge, 2, corresponding to the folding-line, and an edge, 3, corresponding to the cutting-line, combined and arranged so that all three lines may be drafted at a single application of the pattern, all substantially as herein specified.

3. In an adjustable pattern for drafting the front of a lady's garment, two or more dart-gages having their lower ends supported in the

waist-gage at adjustable distances apart, in combination with a single brace, F, pivoted at adjustable heights in the front gage, B^2, while the other end is free to adjust itself on the bust-gage E, as herein specified.

4. In an adjustable pattern for drafting the front of a lady's garment, the extensible plates C' C^2, in combination with each other, and with a suitable front-line gage and two or more extensible dart-gages, Z' Z^2 Z^7 Z^8, and pivot-pins z', z^2, z^6, and z^7, as herein specified.

5. In an adjustable pattern for drafting the front of a lady's garment, the horizontal plate E, in combination with the branch B^{2*} of the front plate, B^2, provided with suitable guiding and adjusting means, the adjusting-screw z^{30}, connecting the armhole-gage G' at a changeable point, and the hip-dart gages Z^{10} Z^{12}, and side-seam gage D' D^2, and provision for adjusting their positions, all adapted to serve as herein specified.

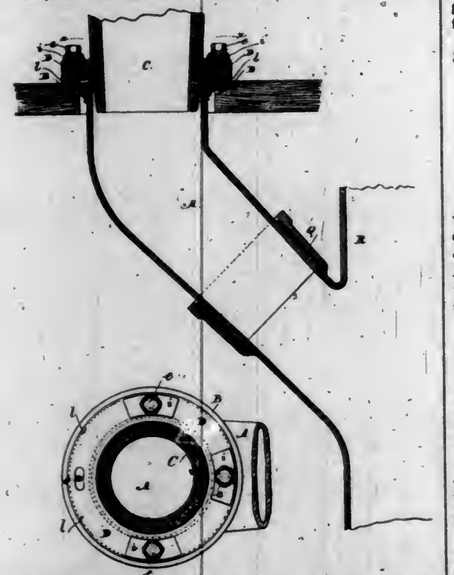
6. In an adjustable pattern for drafting garments, the independent connections z^{10} z^{12} on the bust-gage E, whereby the hip-dart gages Z^9 Z^{10} Z^{11} Z^{12} are adjustable at variable distances apart at top, in combination with means for also adjusting the distance apart at the bottom, and for shifting the position of the piece relatively to the grain of the cloth, substantially as and for the purposes herein specified.

7. In an adjustable pattern for drafting garments, the graduated plates [illegible] and J, in combination with the hip-dart gages Z^9 Z^{10} and Z^{11} Z^{12}, and with the properly-slotted gages C^2 and E, arranged to serve as herein specified.

8. In an adjustable pattern for drafting the back of a garment, the upright plate M', branch or cross piece M^*, and curved gage P' P^2, pivoted at each end and made in two separate parts, extensible as shown, in combination with the adjusting means p^2, adapted to serve as herein specified.

9. In an adjustable pattern for drafting the side body of a garment independent of the back and front, the plates U V W', hinged and adjustable, as shown, in combination with each other and with the plates T' T^* W^2, for drafting the side body, substantially as herein specified.

310,298. SEWER-CONNECTION FOR WATER-CLOSETS. SAMUEL G. MCFARLAND, New York, N. Y., assignor to the J. L. Mott Iron Works, same place. Filed Apr. 4, 1884. (No model.)

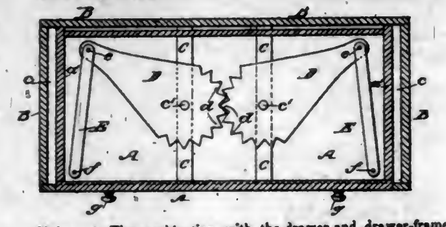


Claim.—1. The combination, with the metal sewer-pipe A and flange B, of the delivery-pipe C of the closet or trap, having the flange D around it, with segmental slots in the same, and the bolts *e*, passing through such slots into screw-threaded holes in the flange B, substantially as set forth.

2. The cast-iron sewer-pipe, in combination with a horizontal flange screwed upon the upper end, and having screw-holes in such flange, a discharge-pipe from a closet or trap passing into the upper end of such sewer-pipe, and having a flange and bolts to connect the flanges together, substantially as set forth.

3. In combination with the cast-iron sewer-pipe R and the branch hub Q upon the same, the inclined cast-iron pipe A, passing into such hub Q and calked, and the separate flange B, secured upon the upper end of the pipe A, occupying a horizontal position at or near the level of the floor, substantially as set forth.

310,299. DRAWER. MICHAEL MEYER, Waukesha, Wis. Filed Apr. 16, 1884. (No model.)



Claim.—1. The combination, with the drawer and drawer-frame, of intermeshing toothed sectors D, pivoted to the drawer-frame, and having their outer ends connected to the bottom of the drawer, whereby a parallelism with the front face of the drawer is maintained, as set forth.

2. The combination, with the drawer A and the drawer-frame B, provided with the cleats C, of intermeshing toothed sectors D, pivoted to said cleats, and the links E, pivoted to the outer ends of the sectors and to the drawer-bottom, substantially as described.

310,300. PIPE-COUPLING. WILLIAM R. MIDDLETON, Cleveland, Ohio, assignor of one-half to Horace Tuttle, same place. Filed Oct. 5, 1883. (No model.)



Claim.—In a pipe-coupling, the pipe A, having secured on one end thereof a thimble forming a stuffing-box gland, packing, and a hollow nut, said nut being provided with an annular groove and two-part clamp K, having, respectively, annular ribs adapted to fit the said annular grooves, in combination with the connecting-pipe B, substantially as and for the purpose described.

310,301. KEY-RING. GEORGE W. MILLER, Meriden, Conn. Filed Apr. 9, 1883. (No model.)



Claim.—An improved key-ring, consisting of an elastic or spring wire, 2, bent into form, with its two end portions out of line with each other and an opening between its ends, combined with a sliding tube or clasp, 4, placed on one of its end portions, and adapted to be moved along said wire to cover and hold both ends thereof closed by the lateral outward pressure of the end portions of the wire against the inside of the tube or clasp, substantially as described.

310,302. PROCESS FOR THE SEPARATION OF METALS. BERNARD MOEBIUS, Chihuahua, Mexico. Filed July 22, 1884. (No specimens.)

Claim.—1. The herein-described method of refining silver by electrolysis, consisting in subjecting the alloy as anode to an electric current of small electro-motive force in a bath consisting of nitrate of silver, nitrate of copper, and nitric acid, and precipitating the silver at the cathode in a loose, spongy, or crystalline state, leaving the copper in solution, and metallic gold, platinum, antimony, and all lead, as peroxide of lead, at the anode, and preventing the anions and cations from being mixed with each other by receptacles placed under or around the electrodes, substantially as described.

2. The herein-described method of refining silver by electrolysis, which consists in subjecting the alloy as anode to an electric current in a bath of nitrate of silver, nitrate of copper, and nitric acid, and precipitating the silver at the cathodes, leaving the copper in solution, and gold, platinum, lead, &c., at the anodes, and subjecting the electrodes to a continuous brushing or scraping, whereby anions and cations are removed from the same, and a complete separation of the metals is effected, substantially as set forth.

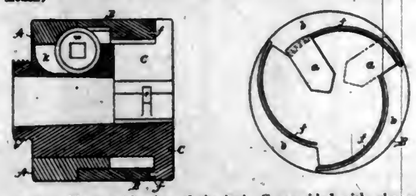
3. The herein-described method of refining base bullion that contains more than about one-third of copper, which consists in subjecting the alloy as anodes to an electric current in a bath of nitrate or sulphate of copper, and precipitating the copper at the cathodes, leaving the gold, silver, lead, &c., at the anodes, and subjecting the same during the action of the current to a continuous brushing or scraping, whereby the silver, gold, lead, &c., are removed from the anodes and dissolving action of the current, whereby a simultaneous precipitation of silver with the copper is prevented and the decomposition of the alloy greatly accelerated, substantially as herein shown and described.

4. The herein-described method of facilitating and accelerating the precipitation of metals in solution by immersion of a precipitant metal, which method consists in subjecting the precipitant metal to a continuous scraping of brushes or scrapers acting on the said precipitant metal during the time the same is in solution, substantially as herein shown and described.

5. The herein-described method of separating the gold from mixtures of metals, which consists in dissolving the gold in a closed vessel by a solution of bromine and hydrobromic acid, and distilling the surplus of bromine into a receiver filled with iron shavings, whereby bromide of iron is formed, that can be used for precipitating the gold in the solution drawn from the vessel, substantially as herein shown and described, and whereby also handling of liquids producing noxious gases is avoided, and the bromine and hydrobromic acid can be regenerated with facility, as set forth.

6. The herein-described method of precipitating copper or other metal in a loose state by an electric current at the cathode, which consists in using an indissolvable metal or carbon as anode, and catching the metal dropping from the cathode on or in a conductive plate or box placed under the electrodes, and connected with the cathode-conductors, whereby a redissolving of the precipitated metal in the exciting-liquid is prevented, substantially as herein shown and described.

310,303. CHUCK. SAMUEL MOORE, Providence, R. I., assignor of one-fourth to James B. Richardson, same place. Filed Dec. 12, 1883. (No model.)



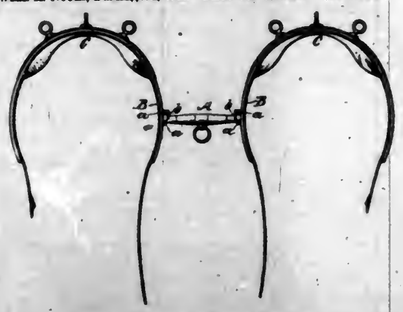
Claim.—The combination of the body C, provided with channel-ways *c c c* and guiding-slots *e e e*, as shown, a ring, B, provided with internal cams, *b b b*, and an internal gear, *g*, as shown, with a cap, A, and a worm, *w*, contained within the recess *k*, extending partly into the cap A and partly into the body C, said worm engaging the internal gear, *g*, to operate the ring B.

310,304. BOTTLE-STOPPER. CHAS. L. MORRISON, Brooklyn, N. Y. Filed June 14, 1884. (No model.)



Claim.—In a bottle-stopper, the combination, with the internally-screw-threaded ring E, having arms D, and an offset, J, of the screw-plug F and elastic plug G, held in the ring E, and provided with a projection, offset, or shoulder, H, substantially as herein shown and described.

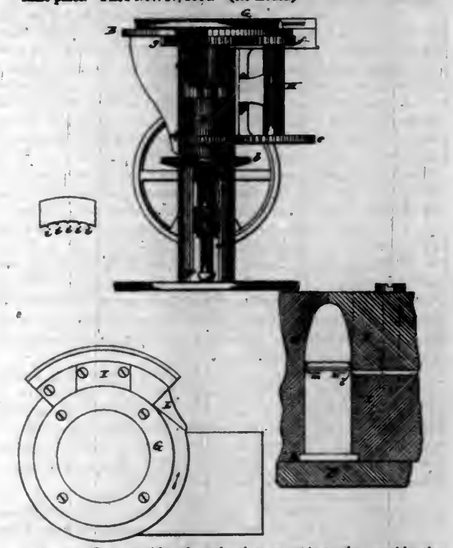
310,305. HARNESS AND NECK-YOKE FOR DOUBLE TEAMS. ROSWELL R. NOTER, Darlington, Wis. Filed Oct. 7, 1884. (No model.)



Claim.—1. The combination, with the back-pads of a double harness, of a neck-yoke and means for pivotally connecting the ends of the neck-yoke to the skirts of the said back-pads, substantially as herein shown and described, and for the purpose set forth.

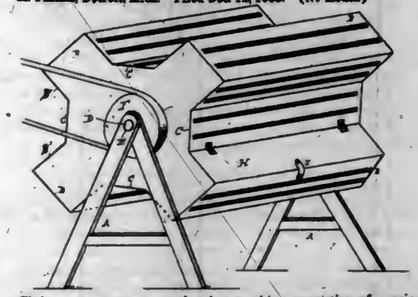
2. The skirts B, provided with the eye-plates *a*, in combination with the neck-yoke provided with the hooks *b*, substantially as and for the purposes set forth.

310,306. MACHINE FOR CRIMPING CARTRIDGES. E. PARKER, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. Filed Nov. 17, 1884. (No model.)



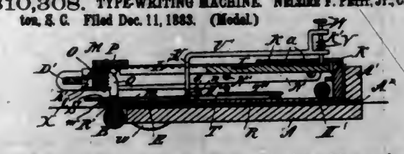
Claim.—In a machine for crimping cartridges, the combination of a revolving disk and a fixed segment in the same plane with the disk, the space between the disk and segment corresponding substantially to the shape of the cartridge, with a series of teeth projecting into the space between the segment and disk, and substantially in the plane of the mouth of the shell, substantially as described, and whereby as the cartridge is rotated between said disk and segment a series of indentations will be made around the mouth of the shell into the bullet, substantially as specified.

310,307. CARPET-CLEANING MACHINE. JOHN B. PETERS and LOUIS M. PETERS, Detroit, Mich. Filed Dec. 12, 1883. (No model.)



Claim.—A rotary carpet-cleaning machine, consisting of a series of perimetal compartments, as B, having substantially parallel sides B', and inclined sides C, said inclined sides C joining and bracing the adjacent sides B' of each two adjacent compartments, substantially as and for the purpose specified.

310,308. TYPE-WRITING MACHINE. NELSON F. PETIT, Jr., Charleston, S. C. Filed Dec. 11, 1883. (Model.)



Claim.—1. In a type-writer, the combination, with a carriage, of a type-plate, a plate provided with apertures arranged the same as the type on the type-plate, a frame pivoted to the rear of the carriage and adapted to be operated by a pin in the free end of an arm for adjusting the type-plate, and a frame pivoted at the front end of the carriage, and

provided at the rear end with a finger for depressing the types of the type-plate, substantially as herein shown and described.

2. In a type-writer, the combination, with a type-plate carriage, of the type-plate S, secured to a slotted plate, T, the pin *o*, the nut *n*, and the handle U', substantially as herein shown and described, and for the purpose of shifting the type-plate.

3. In a type-writer, the combination, with a movable carriage having an apertured bottom, of the type-plate S, resting on the said bottom the pivoted frame L, having shanks L', the levers N, united by a cross-rod, N', and by a cross-bar, O, at the free ends, and of the finger Q, secured to the cross-bar O, substantially as herein shown and described.

4. In a type-writer, the combination, with a sliding carriage, of the flexible type-plate S, the plate M, secured to the rear end of the carriage, the plate L, provided with the shanks L', hinged to the plate M, the pivoted levers N, united by a cross-rod, N', and by a cross-bar, O, at the free ends, the finger Q, projecting down from the cross-bar O, and the spring P, secured to the cross-bar O and to the plate M, for drawing the cross-bar O upward, substantially as herein shown and described.

5. In a type-writer, the combination, with a carriage, of the flexible type-plate S, provided with a handle-arm, U', the pin W, held in the free end of the said handle-arm, the plate K, provided with apertures *a*, arranged in the same manner as the type on the type-plate, the plate L, provided with shanks L', hinged to the rear end of the carriage, the levers N, pivoted at the front part of the carriage, the cross-rod N' and the cross-bar O, uniting the levers N, and the finger Q, substantially as herein shown and described.

6. In a type-writer, the combination, with a type-carriage carrying a frame adapted to swing vertically, of the plate A, secured on the swinging end of the frame, and provided with a tooth, A', the longitudinally-slotted plate *l*, held on the swinging end of the frame, and provided with a tooth, *l'*, and the rack D', secured on the shaft D, provided with a handle-lever, D^2, for rocking the shaft to swing the rack up and down, substantially as herein shown and described.

310,309. GARMENT. ISRAEL PEIL, London, County of Middlesex, England. Filed Nov. 14, 1884. (No model.) Patented in England Sept. 25, 1884, No. 1,634.



Claim.—As an improved article of manufacture, a combined cape, boa, and muff, consisting of the cape A, provided with the boa B around its collar, and the parts C, forming a continuation of the boa and having the muff D at their ends, the cape being provided with the external and internal openings, E F, as set forth.

310,310. CUT-OFF-VALVE GEAR. JOHN B. PITCHFORD, San Francisco, Cal., assignor of one-half to William T. Garratt, same place. Filed Apr. 14, 1884. (No model.)

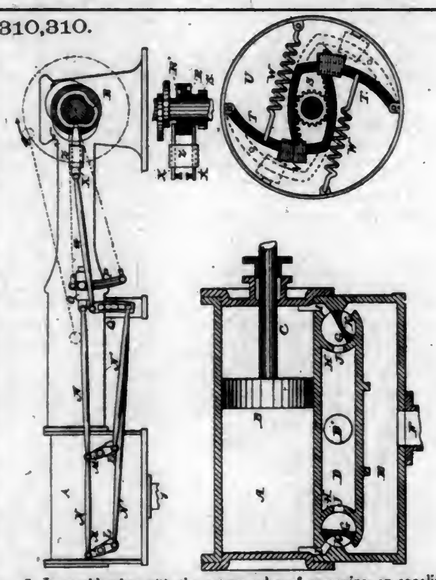
Claim.—1. In an engine valve-gear, an equalizing arm or lever which is connected with the valve-stem of the engine, a mechanism, substantially as described, by which movement may be imparted to the valve through it from two different sources at the same time or at different times, and mechanism, substantially as described, for automatically varying the cut-off point of the valve.

2. In an engine, a single rotary steam and exhaust valve for each end of the cylinder, rocker-arms fixed to the valve-stems, and equalizing-levers M, with their centers journaled on pins on the rocker-arms, together with cam-grooves on the main engine-shaft, connected with opposite ends of the equalizing-levers, substantially as herein described.

3. In an engine, the single rotary steam and exhaust valves for each end of the cylinder, with rocker-arms and equalizing-levers, fixed eccentrics connected with one end of the equalizing-levers, and adjustable cut-off cam-grooves connected with the opposite ends of the levers, substantially as herein described.

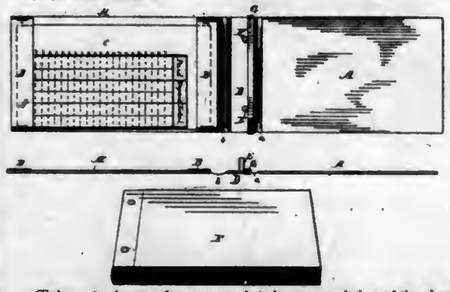
4. In an engine, single rotary steam and exhaust valves at each end of the cylinders, with rocker-arms and equalizing-levers, fixed eccentrics connected with one end of the equalizing-levers, with intermediate reversing-links, and adjustable cut-off cam-grooves connected with the other ends of the levers, with interposed links by which the cut-off gear may be reversed or thrown out of action, substantially as herein described.

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5. In combination with the rotary valve of an engine, an equalizing arm or lever connected with the pin on the rocker-arm of the rotary valve at a point between the ends of said arm or lever, an eccentric, and connection between said eccentric and one end of said lever, a grooved cam and connection between it and the other end of said arm or lever, and a governor connected with and controlling said grooved cam, all substantially as described.

310,311. BLACK-LEAF CHECK-BOOK. GEORGE POWLEY, Toronto, Ontario, Canada. Filed Oct. 26, 1883. (Model.) Patented in Canada June 21, 1883, No. 17,032.



Claim.—1. A cover for memorandum-leaves, consisting of the short part A, long part A', and the intermediate short part, D, with a joint, *a*, between said parts A and D, and a larger joint, *b*, between the parts A' and D, forming the back of the book and connecting the parts A' and D, substantially as and for the purpose specified.

2. A cover for memorandum-leaves, consisting of the short part A, long part A', and intermediate short part, D, with a joint, *a*, between said parts A and D, and a larger joint, *b*, between the parts A' and D, connecting said parts A' and D, and forming a protector for the ends of the leaves, said part D provided with pins E, for holding the memorandum-leaves, substantially as described.

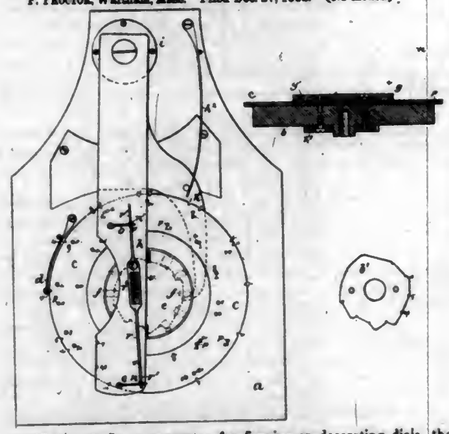
310,312. WINDOW-SCREEN. JOSIAH K. PROCTOR, Philadelphia, Pa. Filed Apr. 17, 1884. (No model.)

Brief.—A screen in two or more sections is made removable section by section through a fixed recessed guideway.



Claim.—The combination of a window-frame and its sash or sashes, with a screen composed of two or more sections, each less in height than the height of the window-opening when the sash is fully raised, and with a guide recessed for the removal of the screen-sections therefrom, the bottom of the recess being above the sill of the frame, as set forth.

310,313. APPARATUS FOR FIGURING WATCH-DIALS. THOMAS F. PROCTOR, Waltham, Mass. Filed Dec. 27, 1882. (No model.)



Claim.—1. In an apparatus for figuring or decorating dials, the turn-table adapted to be moved through definite predetermined angles, and means to hold the dials in definite position thereon, combined with a tool-guiding device for a hand-operated tool, and the connecting mechanism between the said turn-table and guiding device, whereby the latter is held in different definite positions corresponding with the different positions to which the turn-table is moved, substantially as and for the purpose described.

2. The turn-table and controlling-disk provided with pin-sockets, combined with the tool-guiding device, spring-pressed pins thereon to enter the said sockets, and pin-lifting device, substantially as described.

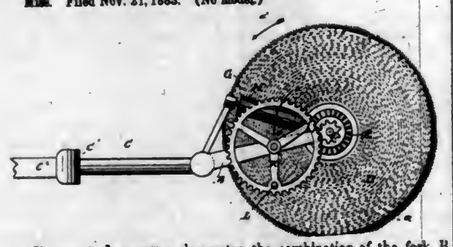
3. The turn-table, combined with the straight-edge, provided with spring-pressed pins, and the spring-pressed slide having inclines for operating the said pins, substantially as described.

4. The turn-table, and means, substantially as set forth, to hold a dial in definite position thereon, and a tool-guiding device, combined with a cam, whereby the relative position of the said turn-table and tool-guiding device is determined, substantially as described.

5. The rotating dial-holding table *b* and disk *c*, connected therewith, having a notched periphery, combined with the cam *b'*, connected with the said table, substantially as described.

6. The turn-table and controlling-disk provided with pin-sockets, combined with the movable tool-guiding device and pins connected therewith co-operating with the said pin-sockets, whereby the said guiding device is locked in definite positions with relation to the turn-table, substantially as described.

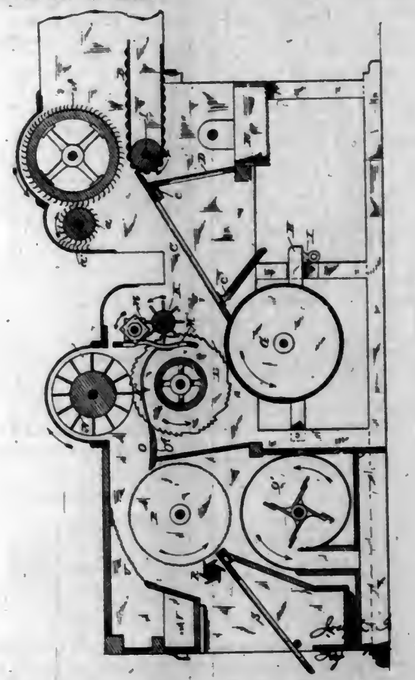
310,314. COTTON-HARVESTER. GEORGE W. PURCELL, Black Hawk, Miss. Filed Nov. 21, 1883. (No model.)



Claim.—1. In a cotton-harvester, the combination of the fork B and the disk D, journaled in the outer ends thereof, with the clearer-brushes H, journaled within the fork at opposite sides of the disk B, pinion J on the outer end of the shaft of the disk D, and pinion K, meshing therewith for revolving the disk, substantially as set forth.

2. In a cotton-harvester, the combination, with the picker-disk D, mounted on the shaft A, journaled in the fork B, of the bevel cog-wheels E, formed on the hub of the disk, the bevel-pinions F, the clearer-brushes H, the pinion J on the shaft A, and the cog-wheel K, engaging with the pinion J, substantially as herein shown and described.

310,315. COTTON-CLEANER. JOE. RALSTON, Brenham, Tex. Filed June 1, 1883. (No model.)



Claim.—1. The feeding-belt, feeding cylinder or drum, and small roller, the two latter provided with teeth and arranged in the same horizontal plane, and combined for operation substantially as shown and described.

2. The feeding-belt, feeding-cylinder provided with teeth, the small roller, also provided with teeth; and a toothed concave in rear of the small roller, said rollers being geared together and driven by belt-connection with the stripping-fan, all arranged and combined substantially as shown, and for the purposes set forth.

3. The combination of the feeding-belt, feeding-drum, small roller arranged in rear of the feeding-drum for cleaning said drum and breaking the bulls, and the wire screen D, substantially as shown and described.

4. In a cotton-cleaner, the combination, with feeding mechanism, of a screen, C, hinged at its upper end and adapted to be moved up and down, a shaft, and a rod connected with said screen and eccentrically with said shaft for operating said screen, substantially as described.

5. The herein-described cockle-burr roller, composed of the series of metal disks mounted on the shaft and separated from each other by the wooden fillings of different lengths, said fillings being provided with the flattened metallic points, all combined and arranged for operation substantially as shown and set forth.

6. The combination, with the saws, the rib-plate, and the roller for keeping back the burrs, of the roller M, provided with a central shaft having angular metallic disks mounted thereon, separated from each other by fillings, and adapted to work above the saws between the ribs of the rib-plate, substantially as and for the purposes set forth.

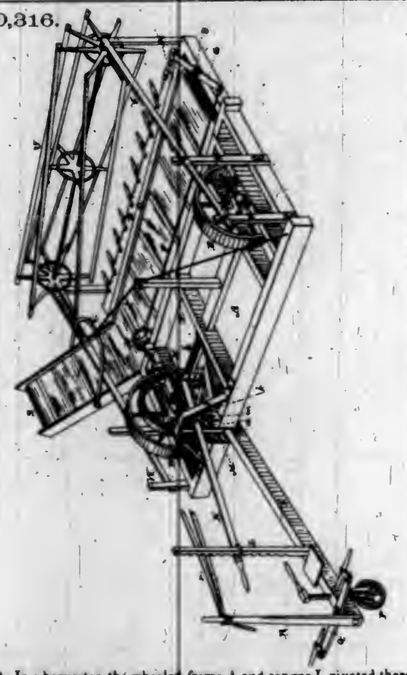
7. In a cotton-cleaner, the combination of the main driving-shaft, the friction-clutch F, the feeding-belt, the feeding-roller, the screens C and D, and the saws, substantially as and for the purposes set forth.

8. The combination of the saws L, rollers K and M, stripping-fan N, flue O, wire drum P, exhaust-fan O', screen U, drawer V, shaking-screen S, and drawer T, substantially as set forth.

310,316. HARVESTER. JAMES W. REAMS, Napa County, Cal. Filed Nov. 17, 1883. (No model.)

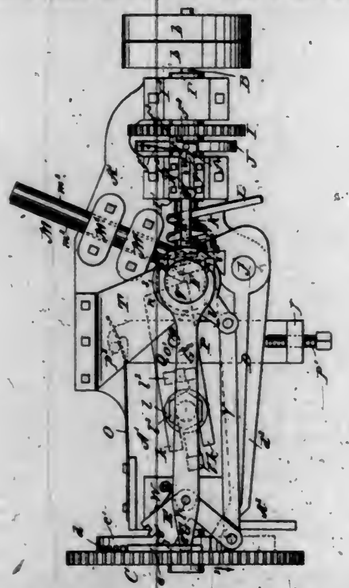
Claim.—1. In a harvester, the wheeled frame A and tongue I pivoted thereto, as shown, in combination with the lever K, connected with the tongue in front by a rocking bearing and fulcrumed on the rear of the frame in a slotted frame, and means, as described, by which the fulcrum-pin of said lever may be vertically adjusted, substantially as herein described.

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2. In a harvester, the wheeled frame A and tongue I, pivoted thereto, said tongue being hinged to the axle, as shown, in combination with the lever K, pivoted to the forward end of the tongue by a rocking-bearing, N, and having a cross-pin, *k*, and the slotted fulcrum-support, M, having the series of notches *m*, with which the pin *k* engages, whereby the fulcrum-pin of said lever may be vertically adjusted, substantially as herein described.

310,317. MACHINE FOR MAKING AND TWISTING CHAIN-LINKS. CHARLES H. REINICH, New York, N. Y. Filed Apr. 18, 1884. (No model.)



Claim.—1. The mandrel K, held in a shaft, I', in combination with the disk J, made fast to the shaft, and the gear-wheel I, placed loosely upon the shaft, the disk and gear-wheel being provided with clutching and releasing mechanism, whereby continuous rotary motion of the gear-wheel I will impart an intermittent rotary motion to the disk, shaft, and mandrel, substantially as and for the purposes set forth.

2. The combination, with the mandrel K, over which the rod or wire to be made into links is coiled, of the stationary cutter-edge *m*, and a reciprocating cutting-lever arranged to cut the coils one by one as they are wound off from the mandrel by its intermittent revolution, substantially as and for the purposes set forth.

3. The stationary cutter M, made trough-shaped, and formed with the cutting-edge *m*, substantially as and for the purposes set forth.

4. The holding-bar Q, yoked to the cutting-lever D, so as to be brought forward by the outward movement of the main arm of the cutting-lever, to act in connection with the knife of the cutting-lever for grasping and holding the links, substantially as and for the purposes set forth.

5. The holding-bar Q, yoked to the cutting-lever D by the plate P, pivoted to the bar Q, and made adjustable by the screw *p'*, whereby the holding-edges for the links will automatically adjust themselves to irregularities in the links, substantially as described.

6. The holding-bar Q, made longitudinally adjustable, in combination with the reciprocating cutting-lever D and yoke-plate P, arranged to operate substantially as and for the purposes set forth.

7. The combination, with the device for cutting and grasping the link, of the twister F, and the means, substantially as described, for raising and lowering and turning the twister, as and for the purposes set forth.

8. The wheel C, provided with the cam *c*, having the abrupt surface *c²* and concentric surface *c'*, in combination with the cutting-lever D and the reciprocating holding-bar Q, arranged to be brought forward by the outward movement of the main arm *d²* of the cutting-lever, substantially as and for the purposes set forth.

9. The combination, with the supporting-frame and the mandrel K, of the arm *h'*, pivoted to the frame above the mandrel, the presser-roller journaled on the end of the said arm, the spring *h²*, having its free end resting on the outer end of the said arm, and the thumb-screw *h³*, engaging the spring, substantially as herein shown and described.

10. The wheel C, provided with the cam *c*, in combination with the lever G and twister F, held in the sleeve R, arranged above the cutting-edge *m*, substantially as and for the purposes set forth.

11. The wheel C, having rack *d*, and the bell-crank lever E, arranged to be turned by the rack, in combination with the collar R, twister F, and connecting-rod V, all arranged to operate substantially as and for the purposes set forth.

12. The main cutting-bar D, arranged to be reciprocated by the cam *c*, in combination with the holding-bar Q, yoke-plate P, and spring O, arranged to operate substantially as and for the purposes set forth.

13. The bell-crank E, connected to the collar R, held in the bracket T, in combination with the rack *d* and spring W for reciprocating the collar and lever, substantially as and for the purposes set forth.

14. The holding-bar Q, placed upon the hub *l*, combined with the screw *l'*, arranged for adjusting the bar Q longitudinally, substantially as and for the purposes set forth.

15. The combination, with the intermittently-rotating mandrel K, stationary guide and cutting-bar M, and reciprocating cutting-lever D, of the longitudinally-adjustable holding-bar Q and adjustable yoke-bar P, arranged to operate substantially as described.

16. The combination, with the intermittently-rotating mandrel K, stationary cutter M, and reciprocating cutting-lever D, of the swing holding-bar P and reciprocating and rotating twister F, arranged to operate substantially as described.

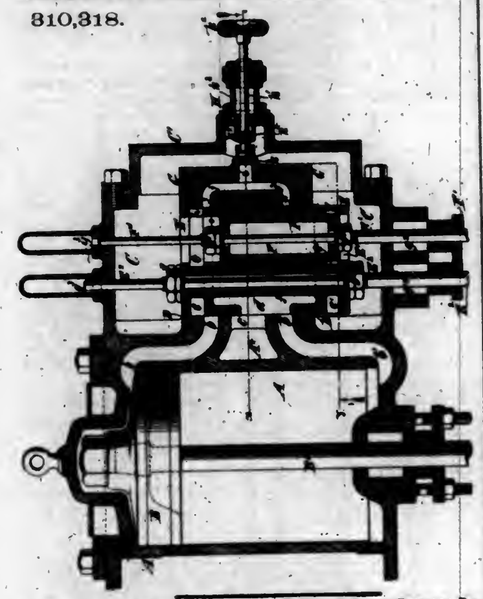
310,318. CUT-OFF VALVE. GEORGE H. REYNOLDS, New York, N. Y., assignor of one-half to Cornelius H. Delamater, George H. Robinson, and William Delamater, all of same place. Filed July 8, 1884. (No model.)

Claim.—1. The combination, with the hollow box-like main valve E, having the slideway E', cavity *d*, and main ports *e e'*, opening into or intercepting the slideway, of the cylindric cut-off valve F, working in said slideway to control the ports *e e'*, and the saddle or balancing plate G, supported upon the port-face or valve-seat, and within and under which the main valve works, substantially as and for the purpose herein described.

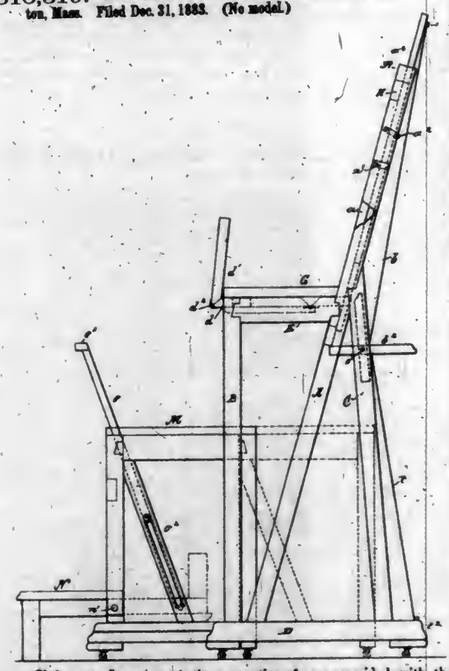
2. The combination, with the main slide-valve and the cut-off valve working within it, and serving to control the main steam-ports of said main valve, the main valve being provided in its back with ports which are in direct communication with said main steam-ports of the main valve, and uncontrolled by the said cut-off valve, of a saddle or balancing plate fitted to the main valve, and constructed with passages for supplying steam to said small ports in the main valve, and a valve for controlling the admission of steam to the passages in said saddle or balancing plate, substantially as and for the purpose herein described.

3. The combination of the chest C, the box-like main valve E, constructed with the slideway E', main steam-ports *e e'*, and small ports *h h'*, the cut-off valve F, the balancing saddle or plate G, constructed with passages *j j'* and steam-inlet *i*, and the hand-valve *k*, controlling the inlet *i*, and capable of operation, substantially as and for the purpose herein described.

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310,319. PICTURE-EXHIBITING EASEL. J. DUDLEY RICHARDS, Boston, Mass. Filed Dec. 31, 1883. (No model.)



Claim.—1. In an easel, the supporting-frame provided with the forwardly-inclined pieces A, the bar *a*, arranged between the pieces A and substantially parallel therewith, combined with a loose picture-holding bar provided with a picture-engaging device, a clamp-plate secured in fixed position on the bar *a*, and having a clamp pivoted thereto, adapted to be pivotally moved over the face of the bar *a*, and to automatically bite and retain the picture-holding bar in desired position on said bar *a*, and a rest to support the lower edge of the picture and enable the upper end to be tipped forward, substantially as set forth.

2. In an easel, the bar *a*, provided with a fixed clamp-plate having a clamp pivoted thereto, and adapted to be pivotally moved over the face of the said bar, as specified, combined with an independent bar or picture-holder having a picture-engaging device, and adapted to be passed between the clamp and the face of the bar *a*, so as to be automatically retained on said bar, substantially as described.

3. In an easel, the bar *a*, provided with a retaining-loop, and a fixed clamp-plate having a clamp pivoted thereto, and adapted to be pivotally moved over the face of the said bar, as specified, combined with an independent bar or picture-holder having a picture-engaging device, and adapted to be passed between the clamp and the face of the bar *a*, so as to be automatically retained on said bar, substantially as described.

4. The main part of the easel, composed of the connected side pieces and the seat G, combined with the sliding table M, substantially as described.

5. The connected side pieces of the easel and means to hold a picture inclined forwardly, combined with a horizontally-sliding table, M, and rest *a²*, constituting a portfolio-stand, substantially as described.

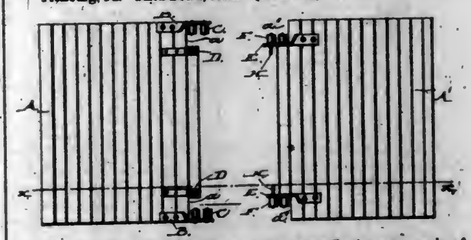
6. The main part of the easel, composed of the connected side pieces, and the seat G, and the sliding table M, combined with the rest *d'*, substantially as described.

7. The main part of the easel, composed of the connected side pieces and the seat G, the sliding table M, and the rest *d'*, combined with the slide and bar *a²*, substantially as set forth.

8. The main part of the easel, composed of the parts A B C, and the seat G, and the sliding table M, and the rest *d'*, and the slide *o*, and bar *a²*, combined with the step N, substantially as shown and described.

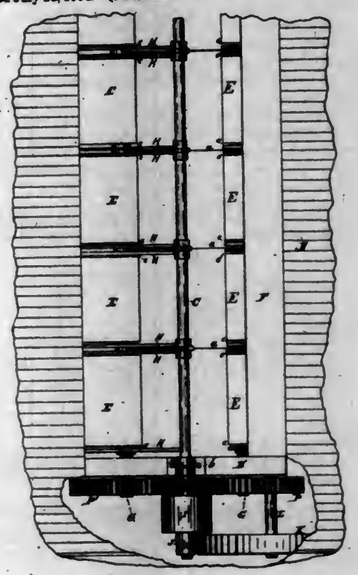
9. The herein-described easel, composed of the main parts A B C G and base D, a sliding table, M, rests *d'* and *b³*, and slide and bar *o a²*, all substantially as described.

310,320. SPRING-LOCK FOR HATCHWAYS. WILLIAM J. RITCHEY, Pittsburg, Pa. Filed Dec. 2, 1884. (No model.)

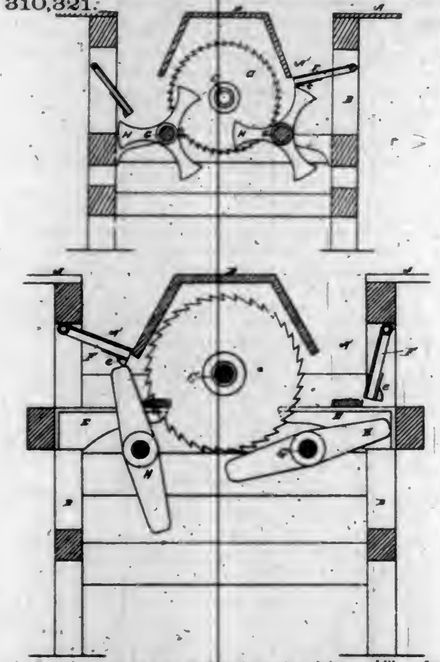


Claim.—The door A, having metallic plates B, the outer ends of which are bent at right angles to receive the journals of the anti-friction rollers C, and spring-catches D, formed with a bend or loop, *d*, in combination with the door A, provided with angular plates E, in which are journaled anti-friction rollers F, and inwardly-projecting studs H, secured to the plates F, and adapted to engage the catches on the opposite door, all constructed and combined to operate as herein set forth.

310,321. EDGING-CUTTER. ALEXANDER RODGERS, Muskegon, Mich. Filed July 28, 1884. (No model.)



310,321.



Claim.—1. In a sawing-machine for cutting edgings and like refuse the combination, with the saws *a a* and a hopper having a swinging table, F, adapted to form the bottom of said hopper when swung upward, and thereby give an intermittent supply of edgings to the saws, of a cover, D, arranged above the saws, and provided with an inclined side, substantially as described.

2. In a machine for cutting edgings, the combination, with the saws *a a*, the cover D, and a hopper having swinging tables F, of a rotary shaft, G, provided with arms or wipers H H, adapted to alternately raise and lower said tables, whereby the edgings are supplied to the saws intermittently, substantially as described.

3. In a machine for cutting edgings, the combination, with the saws *a a* and swinging tables F F, having cleats *e e* on their under sides, of the rotary wiper-shafts G G and the arms or wipers H H, mounted thereon, substantially as described.

4. In a machine for cutting edgings, the combination, with the saws *a a*, of a hopper having stationary tables E E on each side, swinging tables F F, pivoted above the stationary tables, mechanism for raising the swinging tables alternately, and a cover, D, arranged above the saws and provided with oppositely-inclined sides, substantially as described.

5. In a machine for cutting edgings, the combination of a series of saws, *a a*, the rotary shafts G G, each having a series of arms or wipers, H H, the cover D, arranged above the saws and provided with oppositely-inclined sides, and a hopper having stationary tables E E and swinging tables F F, substantially as described.

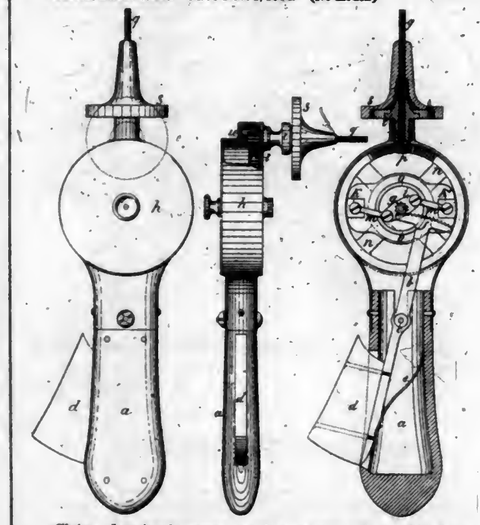
310,322. DEVICE FOR CONTROLLING RUNAWAY HORSES. LEONARD ROLL, Wilkes-Barré, Pa. Filed Sept. 26, 1884. (No model.)



Claim.—1. In a device for controlling runaway horses, the combination of the case B with the rod C, the eye D, the collar *e*, the shoulder *g*, the spring *f*, the cords or chains H, and the eye J, to form the device A, all substantially as described.

2. The combination, with a bridle, of the case B, the rod C, the eye D, the collar *e*, the spring *f*, the shoulder *g*, the cords or chains H, and line *k*, all substantially as described.

310,323. HAND-PRESSURE ROTATING APPARATUS. A. SCHMID, Zurich, Switzerland. Filed Nov. 1, 1884. (No model.)



Claim.—In a hand-pressure rotating apparatus, the combination of lever *b* with spring *c* and toothed segment *f*, acting on pinion *g*, beam *i*, links *m m'*, slides *k k'*, the toothed bevel-wheel *n* or spur-wheel *t*, and the pinions *p* or *u*, with the shaft *q* and fly-wheel *s*, all the mechanism being inclosed in the handle *a* and casing *h*, as described, and for the purposes set forth.

310,324. GRAIN-BINDING HARVESTER. J. F. SEIBERLING, Akron, Ohio. Filed July 5, 1883. (No model.)

Claim.—1. The combination of the inclined binder-table arranged between the drive-wheel and grain-platform, the rotary pickers arranged above said table, between the grain-platform and binder-packers, and the oscillating arm arranged beneath and at the rear end of said binder-table, and in the front of said rotary pickers, operated from a crank on the packer-shaft, for moving the rear end of the grain beyond the reach of the conveyers in its passage to the needle, and a yielding retaining-plate arranged above said table, substantially as described.

2. The platform-carrier formed of teeth secured to an endless belt or chain, in combination with an inclined tooth-clearer, E, for each belt, that overlaps the lower edges of the inclined binder-table, said tooth-clearer being formed and consisting of a plate secured to the platform-frame, provided with a transverse slot, through which the teeth may pass, and an upturned inclined edge, e^2, that bears closely against the sides of the teeth, substantially as and for the purpose described.

3. The combination of the inclined binder-table arranged below the top of the drive-wheel, with its outer end close to the vertical plane of the inner side of the drive-wheel, the platform-carriers secured to the platform, an inclined tooth-clearer for each belt, overlapping the lower edge of the binder-table, and provided with an upturned inclined edge, e^2, that bears closely against the sides of the teeth, and the rotary toothed pickers arranged to overhang the lower end of the table, above the tooth-clearers, to receive the grain therefrom, substantially as described.

4. The combination, in a grain-binder, of the platform, the platform carriers and rollers driven by gearing from the driving-wheel, and the stop mechanism consisting of an oscillating crank-shaft actuated at one end from the oscillating needle-arm shaft, and actuating at its other end a clutch to stop and start the picker-shaft, substantially as described.

5. In a grain-binder, the combination of the inclined binder-table arranged below the top of the drive-wheel, with its outer end close to the vertical plane of the inner side of the drive-wheel, with continuously-operating packers, and rotary pickers suspended above and at the lower part of the inclined table, and adapted to move the grain up to the packers, a clutch secured to the picker-shaft, and connected with the binder mechanism, to connect and disconnect at suitable intervals.

6. The combination of the binder-shaft provided with a fixed sprocket-wheel, the picker-shaft provided with a sprocket-wheel connected with its shaft by a clutch, the reel-gear revolving upon a stud-axle overhanging the picker-shaft, and the sprocket-wheel affixed thereto, the chain connecting said sprocket-wheels, and the pendent clutch-lever connected with and operated by the needle and knotter actuating mechanisms, substantially as and for the purpose described.

7. The combination, with the oscillating needle, of a needle-guard provided with a sliding and folding extension to form a cut-off for the inflowing grain, substantially as and for the purpose described.

8. The oscillating needle provided with a guard extending in the direction of the path of said needle, in combination with an extension-piece arranged to slide upon said guard, to form a cut-off for the flowing grain, and fold upon the guard when it is retracted, substantially as and for the purpose described.

9. In a grain-binder, the combination, with the trip-finger operated by the pressure of the grain, of the rock-shaft for operating the clutch mechanism provided with a hammer-extension and an anvil-plate to receive the force of the blow, substantially as and for the purpose described.

10. The combination, with the trip-finger, of the rock-shaft, the arm on the rock-shaft connected with the finger, the arm on said shaft connected with the trip-arm, formed with an elbow or hammer-extension arranged to operate upon the anvil-plate of the binder-gear, substantially as and for the purpose described.

11. The combination of the overhung bracket secured to the knotter-shaft sleeve, the revolving delivery-arm, the suspended lever, the connecting-rod, and the pendent discharge-arm, said lever and discharge-arm being pivoted to the overhung bracket, substantially as and for the purpose described.

12. The combination of an overhung bracket, the delivery-arm, the discharge-arm, and the suspended lever connected to the discharge-arm, and formed of two downwardly-projecting arms, that are actuated, alternately, by a projection or roller upon the discharge-arm, substantially as and for the purpose described.

13. The combination of the bracket, the delivery-arm, the discharge-arm, the suspended lever connected to the discharge-arm, and the detent-spring crooked at its end, to engage with and support the suspended lever and discharge-arm, substantially as and for the purpose described.

14. The combination and arrangement, substantially as described, of the grain-platform, the inclined binder-table, the drive-wheel, the bundle-carrier, the tilting lever, and a driver's seat arranged upon the stubble side of and above the wheel and bundle-carrier, so as to overhang the space through which the bundle is ejected, substantially as described.

15. The combination, with the frame of the machine, of the reel-standard supported on the platform or inside shoe, the reel-shaft adjusted vertically upon the end of the reel-standard, and the braces connecting the reel-shaft with one or more brackets secured to the overhung binder-frame, substantially as and for the purpose described.

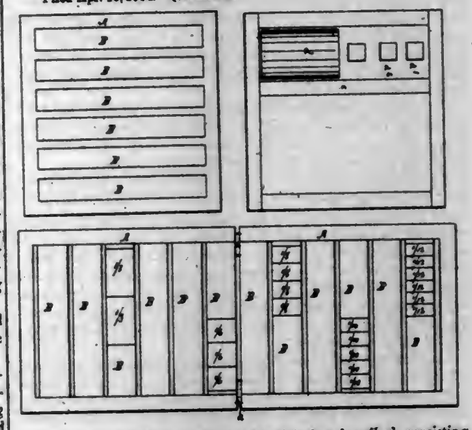
16. The combination of the shoe, the reel-standard, the braces secured to the reel-post, the crank-shaft, the pivotal bracket, and segment-rack secured to the binder-frame, these parts being combined and arranged for joint operation, to adjust the reel both vertically and horizontally, substantially as described.

17. The combination of the main frame, the inclined adjustable binder-frame, the intermittently-operating pickers interposed between the platform-carrier and the packers, and the oscillating butter operated intermittently by gearing from the picker-shaft, all arranged and operating substantially as described.

18. The combination of the main frame, the binder-table, the oscillating butter-bar provided with fingers at its lower end, and the wing-board hinged to the lower end of the butter-bar, and connected by a link at its upper end with an adjustable band-lever, substantially as described.

19. The combination of the main frame, the adjustable binder-table, the oscillating butter-bar provided with fingers, and held at its lower end in a fixed position relative to the cutter-bar, and a wing-board hinged to the butter-bar at its lower end, and connected at its upper end by a link and lever with the adjustable binder-table frame, substantially as described.

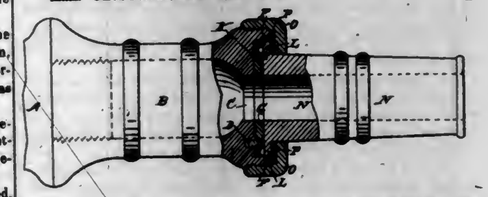
310,325. GAME OF FRACTIONS. FANNY B. SHANNON, Denver, Colo. Filed Apr. 10, 1884. (No model.)



Claim.—1. The combination hereinbefore described, consisting, substantially, of numeral blocks or dice having fractional numbers marked thereon, a game-board having spaces designated thereon, as set forth, and blocks representing units and fractional parts of a unit, all operating together as described, and for the purpose set forth.

2. The combination, with a game-board having spaces marked thereon, as described, of blocks of wood or equivalent material representing units and fractional parts of units, the blocks or dice having fractional numbers designated thereon by figures, and the dice-box, all operating together, as set forth, whereby a game may be played in which the players may become familiar with relative sizes and fractional numbers, as described, and by the means set forth.

310,326. CUT-OFF FOR HOSE-NOZZLES. LYMAN B. SMITH, Chelsea, Mass. Filed Feb. 21, 1884. (No model.)

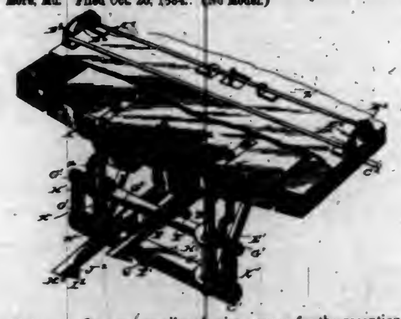


Claim.—1. In a hose-nozzle or faucet, a cut-off consisting of a single perforated sliding plate held between parallel walls, and movable laterally between them by a partial rotation of the nozzle or cap, for the purpose set forth.

2. The cap B, having a plane outer face with a central perforation, a projecting pin, and a threaded annular flange, and the nozzle N, with its plane collar and projecting pin, in combination with the recessed slid-

ing cut-off G and an annular coupling holding said flange and collar in contact with the cut-off, substantially as set forth.

310,327. CAR-COUPLING. CARL SPEER and WILLIAM SPEER, Baltimore, Md. Filed Oct. 20, 1884. (No model.)



Claim.—1. In a car-coupling having means for the reception of a common coupling-pin, the combination of a draw-bar formed with a box at its outer end open at its forward and under side and having central registering-perforations and eccentric registering-perforations in its sides, a hook-shaped draw-head having its inner end flattened, perforated, and formed with a shoulder upon its upper side, a pin inserted permanently through the central perforations forming a pivot for the draw-head, and a pin inserted removably through the eccentric registering-perforations in the box and flat end of the draw-bar, as and for the purpose shown and set forth.

2. The combination, with the hook-shaped draw-heads placed below and to the side of one another, of the sliding cross-bars having springs forcing them upward, and means for forcing the sliding cross-bars downward, as and for the purpose shown and set forth.

3. The combination of the hook-shaped spring-cushioned draw-bars, and heads placed one in a plane below the other and at equal distances to the opposite sides of the central line of the car, the vertical rods secured to the under side of the platform, at the front edge of the same, the sliding cross-bars having perforations at their ends sliding upon the vertical rods, having beveled or rounded forward edges, and secured at a distance from each other by the vertical connecting-rods, the springs forcing the cross-bars upward, and the bifurcated lever, having means, as shown, for depressing the sliding cross-bars, as and for the purpose shown and set forth.

4. The combination of the hook-shaped spring-cushioned draw-bars, and heads placed one in a plane below the other and at equal distances to the opposite sides of the central line of the car, the vertical rods projecting downward from the front edge of the platform, the flat cross-bar secured at the lower ends of the vertical rods and having the upwardly-projecting cylindrical lugs upon the upper sides of its ends, the upper sliding cross-bar having perforations near its ends sliding upon the vertical rods, and having the cylindrical lugs projecting from the under sides of its ends, the spiral springs secured in pairs wrapped around each other upon the lugs, the lower cross-bar having the perforations at its ends sliding upon the vertical rods and connected to the upper cross-bar by the vertical connecting-rods, and the means, as shown and described, for depressing the sliding cross-bars, as and for the purpose shown and set forth.

310,328. MAGAZINE FIRE-ARM. GEORGE N. SPENCER, Jackson, Mich. Filed June 9, 1884. (No model.)

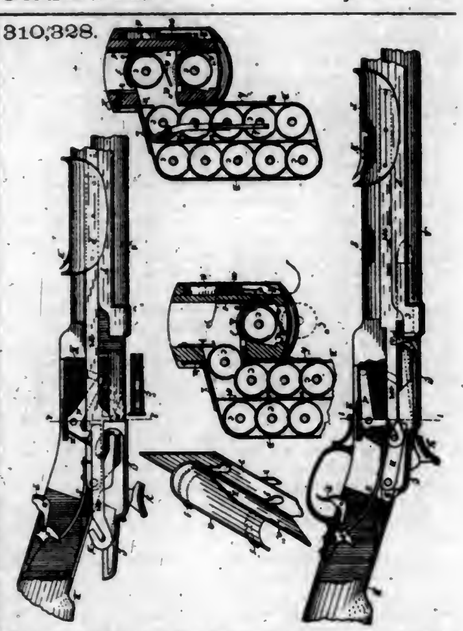
Claim.—1. A fire-arm provided with a vertically-playing cartridge-carriage having an open side to receive the cartridges, and adapted to rotate in its supports, a sliding breech-block, means for operating said carriage and breech-block, and a magazine adapted for the passage of cartridges therefrom into said carriage by the force of gravity, all substantially as set forth.

2. The combination, with a fire-arm and a substantially semi-tubular vertically-movable cartridge-carriage adapted to rotate in its supports, means for operating said carriage, a movable breech-block, and means for operating said breech-block, of a magazine adapted for the passage of cartridges therefrom by the force of gravity, substantially as set forth.

3. In a fire-arm, a magazine having compartments, the separating-partition of which is provided with a hinged door, in combination with a tilting lever, which, when held in position by the front tier of cartridges, holds said door closed, and when said tier of cartridges is removed tilts, releasing the door, whereby the latter may be forced open by the pressure of cartridges in the rear thereof, substantially as set forth.

4. A fire-arm having a breech-chamber and sliding breech-block, a substantially semi-tubular cartridge-carriage, adapted to rotate in its bearings and to play vertically, a magazine adapted for the passage of cartridges therefrom into said carriage, alternately-operating levers in

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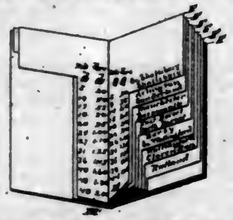
the cartridge-passage to control the cartridge-supply, a pivoted lever for operating said supply-levers, a sliding hand-plate, and connecting sliding bars for operating both the pivoted lever and breech-block, substantially as set forth.

5. The combination of a fire-arm, a magazine adapted for the passage of cartridges therefrom into the breech-chamber, levers in the cartridge-passage for controlling the cartridge-supply, a pivoted lever for operating the supply-levers, a sliding hand-plate, a sliding bar connecting the hand-plate for operating said pivoted lever, a vertically-playing cartridge-carriage, levers for supporting the carriage in an operative manner, a sliding breech-block, a pivoted spring-actuated breech-locking block, and a sliding operating-bar connecting with the hand-plate and adapted to operate the breech-block, the carriage-supporting levers, and the breech-locking block, all substantially as set forth.

6. In a fire-arm, the combination of a sliding breech-block, a trigger, a spring-actuated trigger-lock, a pivoted lever for both operating and holding the trigger-lock and for locking the breech-block against a rebound, and a sliding hand-plate and connecting-bar for operating the pivoted lever and sliding breech-block, substantially as set forth.

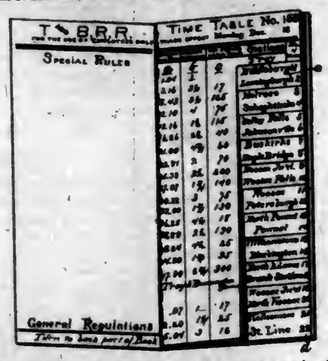
7. In a fire-arm, the combination of a breech-chamber having a recess in the upper forward portion, a sliding breech-block, a sliding hand-plate, and an operating-bar connected to said hand-plate and provided with a pivoted lever, which engages the breech-block during the forward movement of the operating-bar, carrying said breech-block forward to place, and after said action enters the chamber-recess, whereby the operating-bar may be carried on forward, substantially as set forth.

310,329. RAILWAY PASSENGER-TARIFF AND DISTANCE GUIDE-BOOK. SAMUEL F. STEVENS, North Adams, Mass. Filed Nov. 13, 1883. (Model.)



Claim.—A railway guide-book with index-leaves having thereon the names of two stations in their order and columns of figures opposite the names of the stations, separately indicating on each left-hand page the fare and distances between the upper station of the fly-leaf where the book is opened and each succeeding station below, and columns of figures on the inner edge of the right-hand pages opposite the station-names, indicating the fare and distance between the second station on the fly-leaf where the book is opened and the stations below, as shown and described.

310,330. RAILWAY TIME-TABLE AND DISTANCE GUIDE-BOOK. SAMUEL F. STEVENS, North Adams, Mass. Filed Feb. 26, 1884. (Model.)

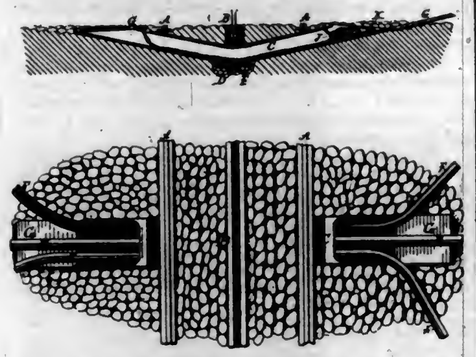


Claim.—1. The combination, in a railway guide-book, of an underlapping fly-index on each right-hand page, each of which indices, excepting the first, has printed thereon the names of two more stations in their order than the next preceding page, as herein shown, columns of figures on the first right-hand page of the book, which, where opposite the station-names, separately indicate the distances between the first station and each succeeding station, the distances between each station and the one succeeding it, and the car-track capacity of each station, substantially as herein described.

2. The combination, in a railway guide-book, of an underlapping fly-index on each right-hand page, each of which fly-indices, excepting the first, has printed thereon the names of two more stations than the fly of the page next preceding it, the scheduled number of two oppositely-running trains printed on the underlapping bottom of each fly, a column of figures on the left-hand page indicating, where opposite the stations, the time of the arrival or departure of said trains, and a column of figures on the right-hand page, where such figures are opposite the names of the stations, designating the time of the arrival or departure of the other of said scheduled trains, as herein described.

310,331. HOSE-GUARD FOR RAILWAYS. WILLIAM X. STEVENS, Washington, D. C. Filed Dec. 11, 1884. (No model.)

Brief.—A hose-guard crossing laid beneath the track of a railroad and having means attached for pulling the hose through in case of need.



Claim.—1. The combination, with a railway in a street, of a hose-guard consisting of a covered passage extending beneath the track from the street at one side thereof to the street at the other side thereof, substantially as shown and described.

2. The combination, with a railway in a street, of a hose-guard consisting of a covered passage extending beneath the track from the street at one side thereof to the street at the other side thereof, and covers removably secured over the ends of the passage, practically flush with the street, substantially as shown and described.

3. The combination, with a railway in a street, of a pipe or passage crossing beneath the rails and opening each side thereof at the street-level, substantially as described.

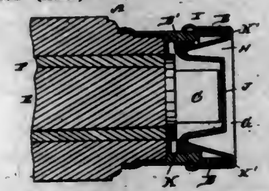
4. The combination, with a pipe crossing beneath a railway and curved downward midway, of an outlet for water in the lower part of the curve, substantially as shown and described.

5. A hose-guard crossing beneath a railway, substantially as described.

6. The combination, with a passage-crossing beneath a railway, of a rope within the passage, secured near each end thereof, and about twice as long as the passage, substantially as and for the purpose specified.

7. The combination, with a passage-crossing beneath a railway, of a rope within the passage, secured near each end thereof, and about twice as long as the passage, and a loop or equivalent device near the middle of the rope for attaching the same to a hose, substantially as described, for the purpose specified.

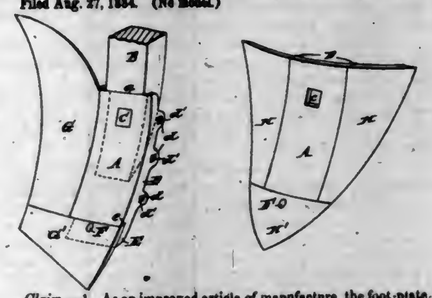
310,332. HUB-CAP. ALBERT F. TAYLOR, Pawtucket, R. I. Filed Apr. 10, 1884. (Model.)



Claim.—1. The band B, provided with the internal screw-threaded projection, B', in combination with the cap G, formed with V-shaped depression H, hollow projecting part J, annular flange I, constructed to fit over the outer end of the band, and screw-threaded portion K, as shown, for engaging the screw-threaded projection B', substantially as shown and described.

2. The band B, provided with the internal screw-threaded projection, B', in combination with the cap G, formed with V-shaped depression H, hollow projecting part J, annular flange I, forming a groove for the end of the band to fit in, screw-threaded portion K, and the packing K', within the groove formed by the flange I, for the end of the band to rest against, substantially as shown and described.

310,333. CONVERTIBLE PLOW. HENRY D. TERRELL, Covington, Ga. Filed Aug. 27, 1884. (No model.)



Claim.—1. As an improved article of manufacture, the foot-plate A, formed with the apertured offset E, having undercut shoulder e, and with the backwardly-extending edge-flanges D, having apertures d', as set forth.

2. The combination, with the foot-plate A, formed with the apertured offset E and the apertured edge-flanges D, of an interchangeable point and flanged wing, whereby various forms of points and wings are adapted to be secured to the offset and flanges of the foot-plate, substantially as herein shown and described.

3. The combination, with the foot-plate A, formed with the apertured offset E and the apertured edge-flanges D, of the mold-board G, provided with the apertured flange g g', and the point G', secured in the said offset, substantially as herein shown and described.

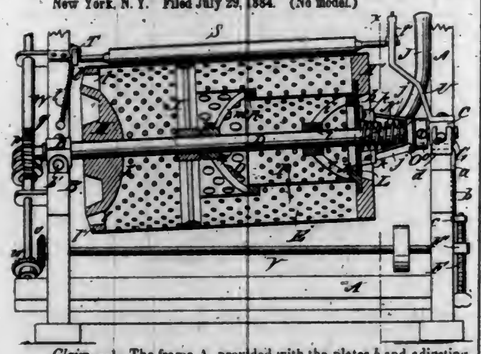
310,334. ASBESTUS PAPER. SILVANUS TINGLEY, Boston, Mass. Filed Aug. 25, 1884. (No model.)



Claim.—1. As an improved article of manufacture, a paper composed of a body sheet of asbestus, and covered on one or both sides with ordinary thin paper commonly employed to receive writing or printing, the said thin paper being coated with a salt, substantially as described, which will form a glaze when the paper is subjected to a high heat, substantially as set forth.

2. A sheet of paper composed of an asbestus body having a thin sheet of ordinary writing-paper cemented to it at one side, the cement used containing silicate of soda, the said thin paper being coated with tungstate of soda or its known equivalents, to operate substantially as described.

310,335. MACHINE FOR GRADING SHOT. CHRISTOPHER C. TRACY, New York, N. Y. Filed July 29, 1884. (No model.)



Claim.—1. The frame A, provided with the plates *b* and adjusting-screw F, combined with the crutch G, held by the plates *b* and supported upon the screw F, the drum E, the journal-box C, pivoted in the crutch, the pivoted journal-box B, and the drum-shaft D, journaled at one end in the box C and at the other in the pivoted box B, substantially as set forth.

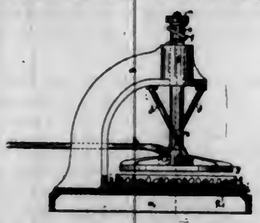
2. The combination, with the adjustable drum E, of the roller S, the vertically-adjustable arm U, and the swinging arm T, substantially as set forth.

3. The combination, with the drum E, shaft D, pivoted arm T, and pivoted journal-box B, of the pivoted vertically-adjustable journal-box C, slotted arm U, secured to the top of said box, and roller S, journaled in said slotted arm and arm T, substantially as set forth.

4. The drum E, provided with an annular head, H', having a metal ring, M, and the shaft, in combination with the plate L, placed upon the shaft, and the coiled spring N, substantially as set forth.

5. The drum E, having head H', plate M, plate L, the shaft, and the spring, in combination with the spider O, having arms *j*, the plates *k k*, having orifices, said plates being attached to the plate L, and the collar *o*, substantially as set forth.

310,336. MILL FOR GRINDING OR PRESSING COFFEE, SPICE, &c. OSCAR UNGER, Leipsic, Saxony, Germany. Filed Feb. 23, 1884. (No model.) Patented in Germany Jan. 1, 1884, No. 28,118; in Belgium Jan. 4, 1884, No. 63,757; in France Jan. 5, 1884, No. 159,571; in England Jan. 18, 1884, No. 1,711; in Austria-Hungary Feb. 23, 1884, No. 1,028 and No 7,957; in Sweden Mar. 26, 1884, and in Norway May 16, 1884, No. 237.



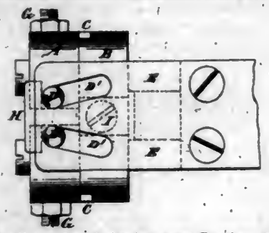
Claim.—1. In grinding or crushing mills, the combination of a fixed plate, *k'*, serving as a receptacle for the raw material, with a disk, *g*, and shaft *c*, adapted to receive simultaneous rectilinear and rotary motion, a fixed guide, *l*, rods *d*, connected by ball-and-socket joints with the disk *g* and with the guide *l*, and a helical spring, *f*, adapted to draw the disk *g* away from the plate *k'*, substantially as described.

2. In grinding or crushing mills, the combination of fixed plate *k'*, forming a flanged receptacle, *k*, with a disk, *g*, and shaft *c*, guide *l*, rods *d*, and spring *f*, substantially as described.

3. In grinding or crushing mills, the combination of fixed plate *k'* with disk *g* and shaft *c*, hand-lever *h*, guide *l*, rods *d*, and spring *f*, substantially as described.

310,337. SCREW-CUTTING MACHINE. JESSE VAN DENBURGH, Chicago, Ill. Filed June 2, 1884. (No model.)

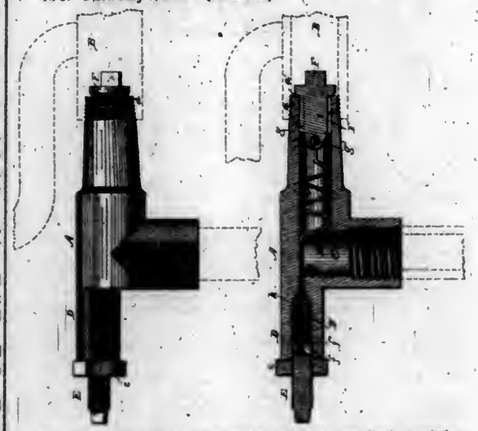
Claim.—1. In combination with the longitudinally-moving sleeve of a screw-cutting machine, substantially as described, and with the



cam-slots D', the die-carriers A, having arms D, adapted to carry the dies, and to be moved outward or inward in a direct line, as set forth.

2. The combination of the cam-plates E, having cam-slots D', with the die-carriers having arms D, the adjustable dies, as shown, the T-pieces H, and screws I and G, as and for the purpose set forth.

310,338. VENT FOR STEAM-PIPES. JOHN S. VENSON, Four Mile, N.Y. Filed July 3, 1884. (No model.)



Claim.—1. The improved attachment herein described, consisting of a vent device having a portion for connection to the steam-supply circuit, and a discharge-opening, in combination with a valve interposed between said connecting portion and discharge, and adapted to be closed by pressure in the supply-circuit, and automatically open when said pressure is removed, substantially as set forth.

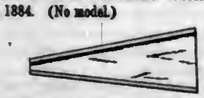
2. The improved attachment herein described, having a portion for connection to the steam-supply circuit, and a discharge-opening, in combination with a valve interposed between said connecting portion and discharge, to operate as described, and means for adjusting said valve, substantially as described.

3. The improved vent for steam-pipes, consisting of the casting A, provided with a discharge-opening, a passage-way to one end of the same, and a valve located in one end of the opening, and provided with a spiral spring which is attached to an adjusting means, substantially as shown, for the purpose set forth.

310,339. METHOD OF MANUFACTURING HYDRATED GRAPE SUGAR. LUDWIG VIRNEISEL, Mannheim, Baden, Germany. Filed Aug 31, 1882. (No specimens.)

Claim.—The process herein described of making hydrated grape-sugar, which consists, first, in forming a magma of crystals of grape-sugar hydrate from a starch-glucose solution of twenty-five to thirty saccharometer degrees, and of a co-efficient of purity of 95; secondly, mixing the magma thoroughly with a thin colorless juice of grape-sugar; thirdly, draining or washing off the sirup from the crystals and repeating the washing operation until the uncrystallizable or unfermentable substances are entirely separated from the crystals of hydrated grape-sugar, substantially as specified.

310,340. INSIDE STAY FOR SHOES. JOSEPH WALDEN, Orange, N.J. Filed Mar. 24, 1884. (No model.)

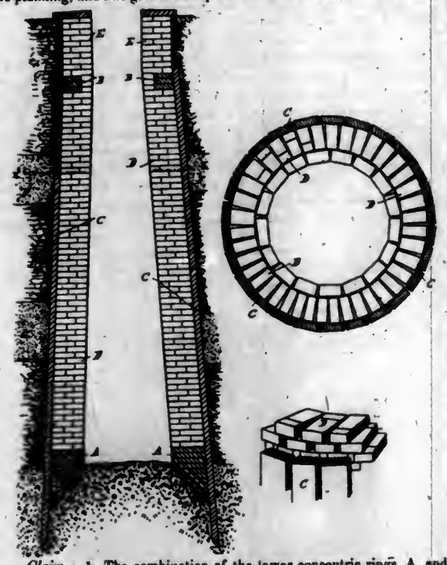


Claim.—1. As an article of manufacture, an inside stay for shoes, made of woven material, and having a folded edge and tapering from top to bottom, substantially as described.

2. As an article of manufacture, an inside stay for shoes, made of woven material, waterproofed, as set forth, and having a folded edge and tapering from top to bottom, substantially as described.

310,341. WELL-CURB. MEHAN WALKER, Port Huron, Mich. Filed June 18, 1884. (No model.)

Brief.—Consists of vertical planking secured to concentric wooden rings at top and bottom, and provided with a brick lining resting on the lower concentric ring. A space is left between the adjacent edges of the planking, and fine gravel fills spaces between the bricks of the lining.



Claim.—1. The combination of the lower concentric rings, A, and the upper rings, B, and the planking C, secured to said rings, the rings A forming a support for the brick lining, substantially as described.

2. A wooden curb lined with brick, such brick resting upon one of the concentric rings to which the planking is secured, with a filling of fine gravel filling the insterticos between the bricks which form the lining, substantially as and for the purposes specified.

3. A well-curb composed of the planking C, secured at top and bottom to concentric rings, and provided with a brick lining, a space being left between the adjacent edges of said planks, whereby the water will enter from the various water-bearing strata through which said curb passes, substantially as described.

310,342. SUBMARINE TORPEDO-BOAT. PHILIP B. WALKER and HENRY G. RHOES, Sydney, New South Wales. Filed Sept. 1, 1884. (No model.) Patented in England May 8, 1883, No. 2,320.

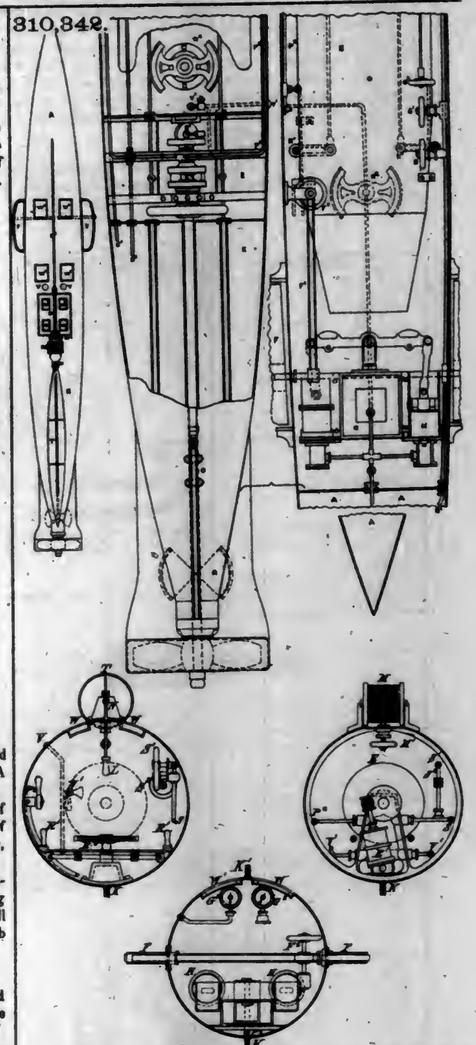
Claim.—1. The combination of the boat formed with compressed-air reservoirs A and C at opposite ends thereof, the air-engines E', the valved pipe S^2, connecting reservoir C with the engines, the valved pipe S' for connecting the two reservoirs and equalizing the pressure between them, and the valved pipe S, communicating with pipe S' between its valve and reservoir A, and connecting with the air-engines for supplying air thereto from reservoir A, substantially as described.

2. In a torpedo-boat, the combination, with engines E', of the compressed-air reservoirs A C, the valved pipes S S^2, respectively connecting said pipes with said engines, the valved pipe S', connecting said reservoirs, and having pipe S connected thereto between its valve and reservoir A, and the foot-pumps H, connected with the same engines E' by valved pipe P^2, whereby said engines may be operated in connection with said foot-pumps and reservoirs alternately, substantially as described.

3. The combination, with the boat, of the movable fins F', secured to a shaft passed transversely through the boat and protected by guards, the screw F^2, located within the boat, and the rod F'', connected at one end to said transverse shaft and at the other end to said screw, to be moved vertically thereby, substantially as described.

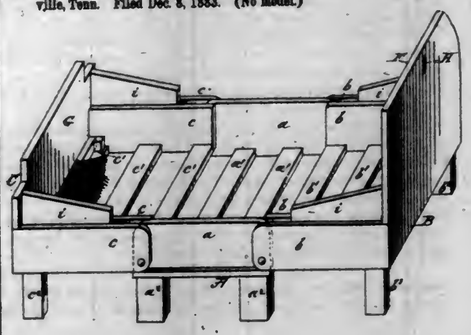
4. The combination, with a boat, of a torpedo, T, formed at its tail end with a keeper for a bolt, a cap secured to the boat to receive the opposite end of the torpedo, a bolt secured to the outside of the boat, adjacent to said keeper to engage therewith, a pivoted lever, L, within the boat, and a rod connected at one end to said lever and extending through the boat, and connected at the other end to said bolt for retracting the latter, substantially as described.

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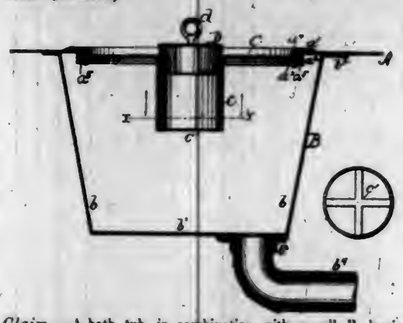
5. The combination, with a torpedo-boat, of a movable reel, M, on the outside of the boat, a brake, M^3, also on the outside of the boat, adjacent to said reel, and a screw, M', within the boat and connecting with said reel to control its movement to and from the brake, substantially as described.

310,348. WARDROBE-BEDSTEAD. AUGUSTUS J. WARREN, Nashville, Tenn. Filed Dec. 8, 1883. (No model.)



Claim.—In a folding bedstead, the combination of the central section, A, composed of side rails *a a*, slats *a' a'*, panel E', and legs a^2 a^2, the head section B, having double side rails *b b*, slats *b' b'*, pivoted legs b^2 b^2, and head-board F, and the foot section C, provided with double side rails *c c*, slats *c' c'*, pivoted legs c^2 c^2, and foot-board G, the pivoted legs b^2 c^2 being slotted at *e* and having their inner ends arranged to fit in recesses formed by the blocks *k k'* between the double side rails, substantially as shown and described.

310,344. BATH-TUB. ALEXANDER M. WATERWORTH, Baltimore, Md., assignor of one-half to Thomas T. A. Hitaffer, same place. Filed Jan. 23, 1884. (No model.)



Claim.—A bath-tub, in combination with a well, B, having a cover, C, a stopper, D, the flanged rim a' a^2 a^3, and packing a^3, as and for the purpose set forth.

310,345. ELECTRICAL CONDUCTOR. HENRY C. WATT, Philadelphia, Pa. Filed Mar. 26, 1884. (No model.)



Claim.—1. An electric conducting-wire having a coating of gum-turpentine, coverings of hemp or linen braid, coatings of metallic or water-proof paint, and a covering of braided wire, substantially as and for the purpose set forth.

2. An electric conducting-wire having a coating of gum-turpentine, coverings of hemp or linen braid, coatings of metallic or water-proof paint, a covering of braided wire, and an exterior of tar, substantially as and for the purpose set forth.

310,346. LAMP-BURNER. CHARLES G. WEBBER, Flushing, N. Y., assignor to Sarah A. Webber, same place. Filed Jan. 10, 1884. (No model.)



Claim.—1. In a lamp-burner, the floor or platform supporting the chimney, and a chimney-holder consisting of a slotted standard, a lever provided with a V-shaped projection working through the slotted standard, a spring plate or rod secured to the platform, and having its free end fitted to and bearing against the V-shaped projection, and an operating-handle for the lever, as set forth.

2. In a lamp-burner, the floor or platform supporting the chimney, a lever provided with an inwardly-extending projection adapted to fit over the lower edge of the chimney, and a spring plate or rod secured to the said floor or platform, and having its free end bearing against the projection, for the purpose set forth.

3. In a lamp-burner, the floor or platform supporting the chimney, and formed with a series of projections or guards, and a chimney-holder consisting of a slotted standard, a lever attached at its lower end to the bottom of the floor or platform, and formed with a V-shaped projection arranged to work through the slotted standard, a handle at the upper end of the lever, and a spring plate or rod fitting around the floor or platform within the guards or projections, and having its free end bearing against the V-shaped projection, for the purpose set forth.

4. In a lamp-burner, the combination, with the wick-tube, of the blow-tube, arranged as described, and having its upper end closed, an opening formed in one side of the blow-tube adjacent to the wick-tube, and a valve arranged within the blow-tube, and adapted to move vertically above the opening by the force of air injected or blown through the said blow-tube, as set forth.

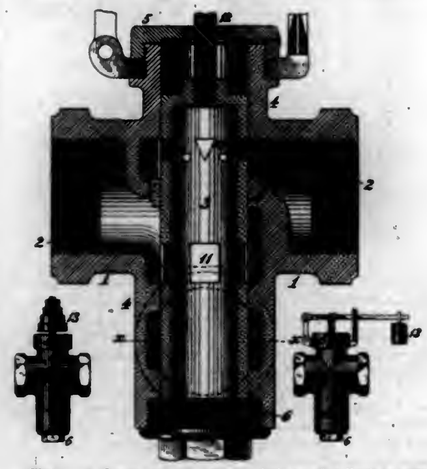
5. In a lamp-burner, the combination, with the wick-tube, of a blow-tube provided with a vertically-moving valve arranged within the same, said valve automatically opening by the force of the air blown through the said blow-tube, as set forth.

6. In a lamp-burner, the combination, with the wick-tube, of a blow-tube, arranged as described, a rod extending transversely across and within the blow-tube, and a valve having its ends forming journals to rest loosely upon the rod, said valve being adapted to move vertically, for the purpose set forth.

7. In a lamp-burner, an opening formed in the side thereof, a door or flap for closing the opening, a plate secured above the flap, a rod journaled in the plate and attached to the outer face of the flap, and a piece of sandstone or serrated metal secured to the inner face of the same, arranged and operating so that when the rod is turned the door or flap will be raised to expose the sandstone to view and permit communication with the opening in the burner, as set forth.

8. In a lamp-burner, an opening formed in the side thereof, a door or flap for closing the opening, a plate secured above the flap, and a rod journaled in the plate and attached to the door or flap, and provided with a hand-wheel for operating the same, for the purpose set forth.

310,347. PRESSURE-REGULATOR. GEORGE WESTINGHOUSE, Jr., Pittsburg, Pa. Filed June 21, 1884. (No model.)



Claim.—1. In an apparatus for regulating and relieving excess of fluid-pressure, a valve having supply-ports, delivery-ports, and a relief-port located, respectively, at different points in its length, said ports being adapted by the movement of the valve to effect the supply of fluid when the valve is in certain positions and the relief of pressure when in other positions, substantially as set forth.

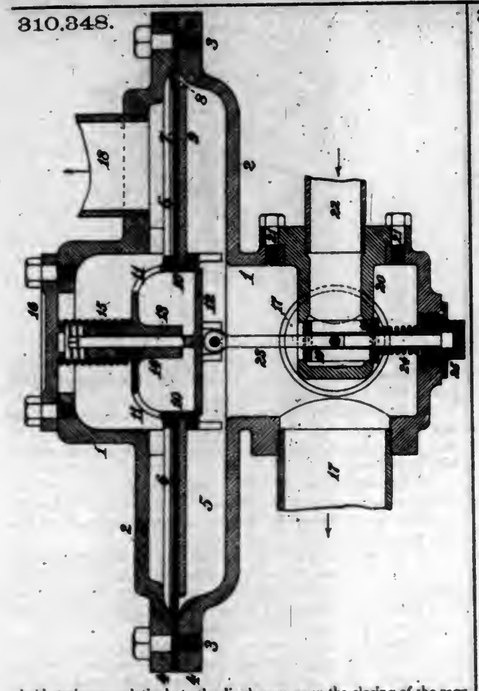
2. The combination of a valve-casing having supply and delivery connections and a discharge-passage, and a weighted tubular valve fitting in said casing and having supply-ports, delivery-ports, and a relief-port located, respectively, at different points in its length, said supply and delivery ports controlling communication between the supply and delivery-connections, and said delivery and relief ports controlling communication between the delivery-connection and the discharge-passage, substantially as set forth.

3. The combination of a valve-casing having supply and delivery connections separated by a partition, and a discharge-passage on one side of said partition, a weighted tubular valve passing freely through said partition, and having a closed and an open end, ports formed in said valve adjacent to its closed end and controlling communication between the supply-connection and the interior of the valve, and ports intermediate between the ports first specified and the open end of the valve, and establishing communication between the delivery-connection and the interior of the valve, substantially as set forth.

310,348. PRESSURE-REGULATOR AND RELIEF-VALVE. GEORGE WESTINGHOUSE, Jr., Pittsburg, Pa. Filed July 1, 1884. (No model.)

Claim.—1. In a combined pressure regulating and relieving apparatus, the combination of a pressure-regulating valve actuated by movements of a flexible diaphragm under variations of pressure thereon, and a relief-valve connected to the regulating-valve and effecting the discharge of fluid through an opening in the diaphragm-casing by being held stationary relatively to the diaphragm upon the closing of the regulating-valve, substantially as set forth.

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2. In a combined pressure regulating and relieving apparatus, the combination of a main casing, a flexible diaphragm extending across a diaphragm-chamber therein, a relief-valve seated in a casing secured to said diaphragm, the casing being provided with openings on the side thereof farthest from the relief-valve, a balanced pressure-regulating valve governing communication between a supply-pipe and the main casing, a rod or link connecting said regulating-valve with the relief-valve, a spring bearing against the relief-valve casing on the end farthest from the regulating-valve, and delivery and relief pipes connected to the main casing on opposite sides, respectively, of the diaphragm, substantially as set forth.

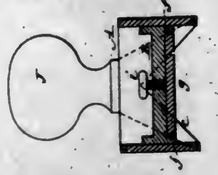
3. The combination of a main casing, a balanced pressure-regulating valve governing ports or openings in a supply-casing connected thereto, a rod connecting said regulating-valve with a relief-valve fitting against a valve-casing connected to a flexible diaphragm, and a spring bearing against the casing of said relief-valve, substantially as set forth.

310,349. CHAMFERING-PLANE. REUBEN V. WIERS, Brooklyn, N. Y. Filed Apr. 29, 1884. (Model.)

Claim.—1. The combination, with the stock A, having an oblique opening, *b*, up through it, and a longitudinal angular recess or groove, *c*, in its base, shaped to conform to the adjacent longitudinal marginal portions of the wood to be worked, of the guide and cutter-holder B, having a lower face-piece made to conform to the shape of the chamfer or molding to be produced, and adjustable along with the cutter, of like shape on its cutting-edge, down through said oblique opening and into the longitudinal angular groove *c*, which it crosses, substantially as and for the purposes herein set forth.

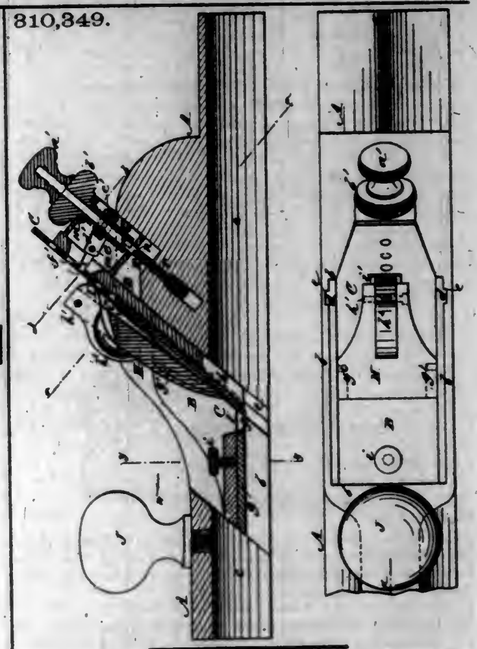
2. The removable guiding face piece or plate *f*, in combination with the adjustable guide or shoe B and the separately-adjustable cutter C, carried by said guide or shoe, essentially as shown and described.

3. The screws E and G, arranged to pass longitudinally one through the other, in combination with the stock A, the guide or shoe B, and the cutter C, for separate and collective adjustment of said guide or shoe and cutter, substantially as specified.

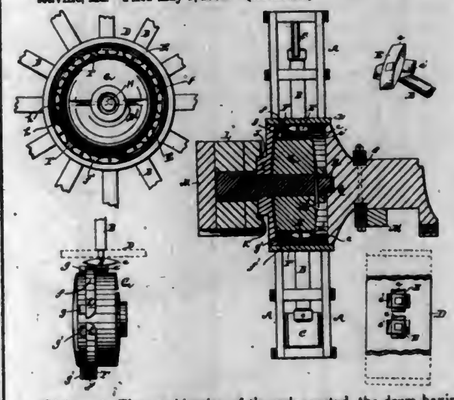




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310,350. FEATHERING PADDLE-WHEEL. JAMES WILLIAMS, Laytonville, Md. Filed May 9, 1884. (No model.)



Claim.—1. The combination of the axle or stud, the drum having cams thereon, the wheel having the hollow cylindrical hub inclosing said drum, and radial shafts and paddles operated by said cams, and the heads of the said cylindrical hub having bearings for said stud, and journals for supporting the wheel, substantially as shown and described.

2. The combination, with the wheel and its supporting-frame, of the stud or axle having the head-block rigidly secured thereto, and ways for receiving and supporting said head-block removably in the said supporting-frame, and buttons for securing it therein, substantially as shown and described.

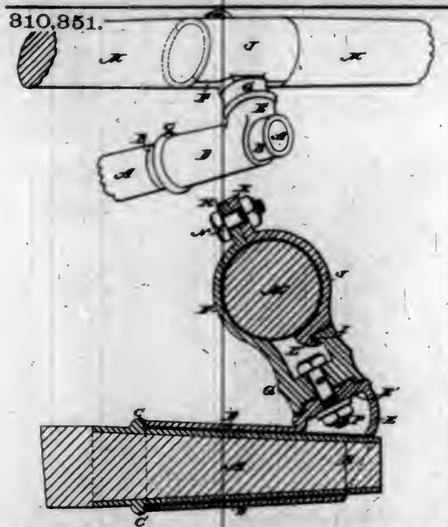
310,351. NECK-YOKE CLAMP. ELIHU WOLF, North Vernon, Ind. Filed Apr. 30, 1884. (Model.)

Claim.—1. The combination, with a neck-yoke clamp having a downwardly-projecting neck, of a sleeve provided with an upwardly-projecting neck, and of a bolt passed through the neck on the clamp and the neck on the sleeve, whereby the clamp is swiveled on the sleeve, substantially as herein shown and described.

2. In a neck-yoke clamp, the combination, with the clamp-section F, having a neck, G, a flange, H, and ridge I, and the section J, having a flange, K, and a prong, L, of the bolt O and the sleeve D, having a neck, E, substantially as herein shown and described.

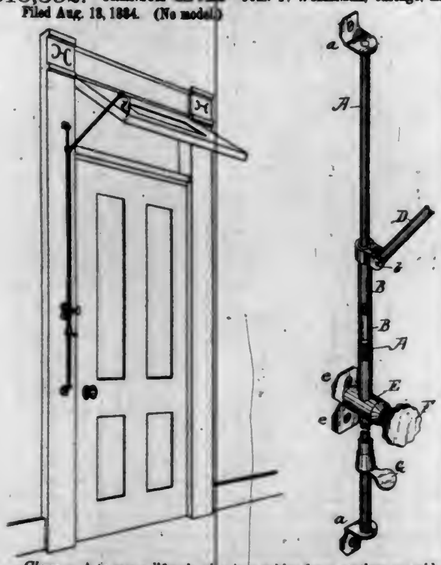
3. In a neck-yoke clamp, the combination, with a clamp having a neck, G, provided in its bottom with a circular recess, of a sleeve having

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an upwardly-projecting neck provided on its end with a circular projection fitting in the recess in the bottom of the neck on the clamp, and of a bolt passed through the neck on the clamp and the neck on the sleeve, substantially as herein shown and described.

310,852. TRANSOM-LIFTER. JOHN F. WOLLENSAK, Chicago, Ill. Filed Aug. 18, 1884. (No model.)



Claim.—A transom-lifter having in combination a stationary guide-rod, an operating-rod wholly or partially surrounding the guide-rod and having a continuous bearing thereon, and a lifting-arm, substantially as and for the purpose set forth.

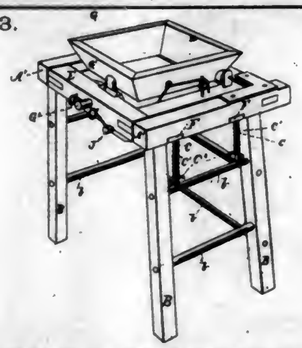
310,853. SACK-HOLDER. CLAUDIUS D. WOOD, Alexander, Minn. Filed Apr. 21, 1884. (No model.)

Claim.—1. The combination of the hopper-frame provided with a key, G², the hopper provided with a latch, G', and pivotally secured to the frame, and means for tilting said hopper on said pivot, substantially as set forth.

2. The combination, with the hopper-frame and the sack-holding shafts journaled therein, of the cords wound around said shafts and in opposite directions, and means for securing said cords, whereby the shafts may be held normally from revolving, substantially as set forth.

3. The combination of the hopper-frame, the shafts I I', the shaft J, having crank-arm *j*, the key J', and the cords M N, substantially as set forth.

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4. The combination, with the hopper-frame, the shafts I I', the shaft J, and the cords M N, of spring K, and a cord connecting said spring and the shaft J, substantially as set forth.

5. The combination of the yielding hopper-frame, the shafts I I', the shaft J, the cords M N, and a tension or return device connected with shaft J, and adapted to return said shaft to its normal position, substantially as set forth.

6. The combination of the supporting-frame open at its front side, the hopper-frame secured in the said frame, the bag-securing devices, and the latches passed through the front bar of the hopper-frame, substantially as set forth.

7. The combination of the hopper-frame, the bag-supporting devices, and the hopper secured on the hopper-frame, and adapted to be turned away from over the bag-securing devices in said frame, the said devices being supported in the hopper-frame, and adapted to alone secure the bag, substantially as and for the purposes specified.

8. The combination of the main frame, having its opposite top side bars provided with depending rods C, having stops C² at their lower ends, the springs C', placed on said rods, the hopper-frame secured within the main frame, and having lateral lugs F, projected from its opposite sides and sliding on the rods C above, and supported on springs C', substantially as and for the purposes specified.

310,854. METHOD OF MAKING SHEET-IRON. W. DEWEES WOOD, Pittsburg, Pa. Filed May 13, 1884. (No specimens.)

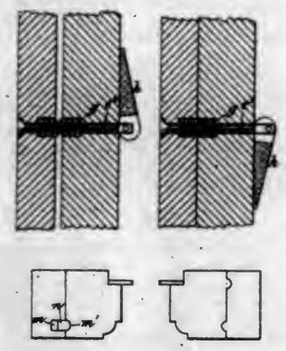
Claim.—The method of imparting a mottled appearance or surface to planished sheet-iron by reducing a portion of the sheets in soft rolls and another portion in hard rolls, and alternately arranging such sheets in packs preparatory to final hammering or rolling, substantially as set forth.

310,855. WINDOW. ROBERT ADAMS, 17 Blackman Street Borough, County of Surrey, England. Filed June 7, 1884. (No model.) Patented in England Mar. 15, 1884, No. 4,934.

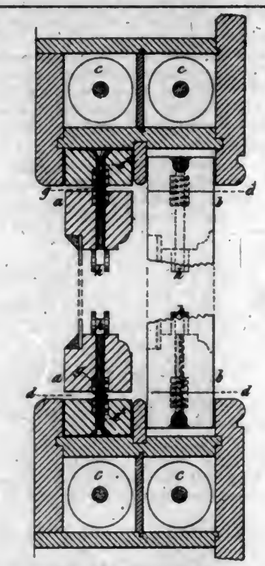
Brief.—Consisting of a lever pinned to the center pivot for separating the two parts of the stile. A spiral spring surrounds the pivot-pin.

Claim.—1. In convertible window-sashes, the combination of the pivots or center-pins e^3 and eccentric lever A with the divided sash-stile or duplex frame, substantially as set forth.

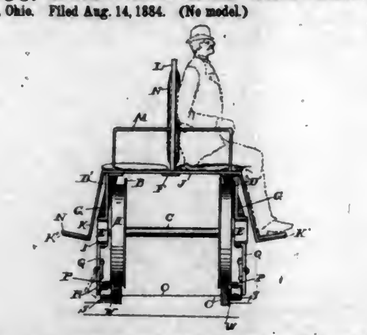
2. In convertible window-sashes, the combination of the pivots or center-pins e^3, the encircling springs *g*, and eccentric levers A with the divided sash-stile or duplex frame, substantially as herein set forth.



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310,856. ROLLER COASTING-VEHICLE. CHARLES H. ALCOCK, Hamilton, Ohio. Filed Aug. 14, 1884. (No model.)

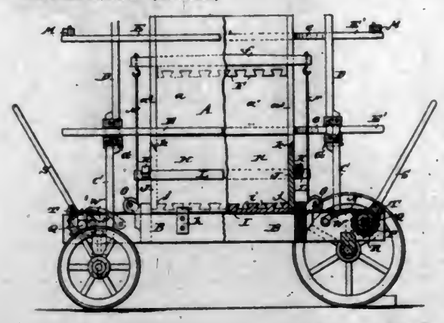


Claim.—1. In a roller-coaster, the frame D D', to which the axles are journaled, having at the lower end of the said vertical limbs arms R, provided with the horizontal rollers, which roll against the under side of the rail-flange, and rollers W, which rotate on a horizontal plane against the web of the rail, substantially as described.

2. In a roller coasting-vehicle, substantially as described, and in combination with the vertical limbs D', the piece R, the journal T, and horizontal roller S, recessed at U, and provided with the retaining-piece as and for the purposes set forth.

3. The combination of the vertical limbs D' of the frame to which the axles are journaled, with the wheels A, hinged roller-limb R, and flanged rail, as and for the purposes substantially as herein described.

310,857. BALING-PRESS. WILLIAM T. ANDERSON, Rock Hill, S. C. Filed Oct. 16, 1884. (No model.)



Claim.—1. A baling-press constructed with the upper part of its press-box made vertically adjustable, so as to be extended for use and let down when out of use, substantially as herein set forth.

2. A baling-press constructed with the upper part of its press-box made vertically adjustable, so as to be extended for use and let down when out of use, and said upper part of the press-box being made in two separate side sections, in combination with means for supporting said side sections, substantially as herein set forth.

3. A baling-press constructed with the upper part of its press-box made vertically adjustable, and with lower walls, which may be placed below the upper walls of the press-box when pressing a bale, and may be removed to discharge the bale, substantially as herein set forth.

4. The combination, in a baling-press, of the upper side sections, $a' a^2 a^3$ and $a\ a^2 a^3$, of the press-box, connected to opposite beams, E E', to which posts D are fixed, and the posts C, on which the posts D slide vertically, the pins G, for holding up the sections, and the tie-beams M, substantially as herein set forth.

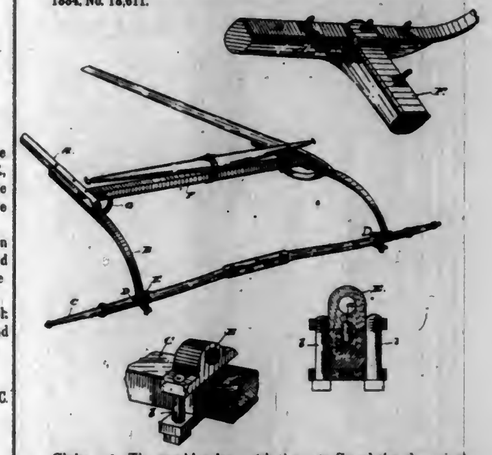
5. The combination, in a baling-press, of the upper side sections, $a' a^2 a^3$ and $a\ a^2 a^3$, of the press-box, connected to opposite beams, E E', braced by beams M, and the supporting-posts C D, and pins G, substantially as specified, and the lower press-box walls, H J, adapted to be locked in place beneath the upper press-box sections while pressing the bale, and to be removed for discharging the bale, substantially as herein set forth.

6. A baling-press constructed with a pull rope or chain connected to its follower, and said rope arranged to wind on a tapering drum fitted to move transversely of the press-bed, and so that the pull-rope shall wind on the drum from its larger toward its smaller end, and with means for rotating the drum, substantially as herein set forth.

7. The combination, in a baling-press, and with the follower pull rope or chain N, of the tapering drum P, moved along a shaft, Q, by a nut, U, fixed to the drum, engaging screw-threads V on the shaft, and said rope N being connected to the drum at its larger end and winding on the drum toward its smaller end, and means for rotating the drum, substantially as herein set forth.

8. The combination, in a baling-press, and with the follower pull rope N, of the tapering drum P, moved along a shaft, Q, by a nut, U, fixed to the drum, engaging screw-threads V on the shaft, and said drum P having a ratchet-wheel, R, secured to it and operated by lever-and-pawl devices engaging the ratchet-wheel, substantially as herein set forth.

310,858. THILL-COUPLING. JOHN B. ARMSTRONG, Guelph, Ontario, Canada. Filed June 13, 1884. (No model.) Patented in Canada Feb. 4 1884, No. 18,611.



Claim.—1. The combination, with the axle C and the draw-jacks E, having tapering holes and rigidly secured to the axle, of the spring draw-bars B and the rigid tapering pins D, detachably secured to the draw-bars, the parts being constructed and arranged to automatically take up the wear and prevent rattling, whereby the pins may be removed when worn, substantially as described.

2. In road-vehicles provided with shafts or pole, curved elastic steel draw-bars rigidly secured to the end of the shaft or pole, and having at their ends draw-pins set at right angles to the bars, and arranged to be sprung into draw-jacks attached to the front axle of the vehicle.

3. In road-vehicles provided with a thill or pole, curved elastic steel draw-bars rigidly secured to said thill or pole, and provided with tapered draw-pins set at right angles to the bars, in combination with draw-jacks having tapered holes to receive the draw-pins, and rigidly secured to the front axle, the parts being constructed and arranged substantially as specified, whereby when the pins are sprung into place the

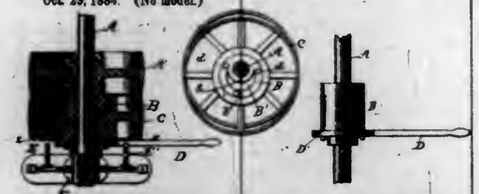
edges of the bars will approach close to the edges of the jacks, as and for the purpose set forth.

4. In road-vehicles provided with a metal front axle, a draw-jack connected to the said axle by a pin or stud, *a*, fitting in recesses in the draw-jack and axle, and secured in position by screw-bolts, one on either side of the axle, and passing through a plate situated on the side of the axle opposite to that upon which the draw-jack is situated.

5. In road-vehicles, the metal draw-bars B, provided with re-enforced openings, a metal cross-bar, F, running from one draw-bar to the other, and provided with offset ends having an opening to fit over one of the re-enforcements of said draw-bars, and provided with a re-enforced hole at a distance from each end, in combination with a semicircular brace to engage the re-enforcements on either side of the junction of the bars F and B, and engage the re-enforcement near the end of the bar F, substantially as and for the purposes described.

6. In combination with the thill or pole of a vehicle, a spring draw-bar having its upper and lower surfaces gradually approaching each other, said bar being rigidly attached at one end to the thill or pole and extending therefrom in a rearward direction, its opposite end carving downwardly and being pivotally connected to the axle, as and for the purposes specified.

310,359. BELT-GEARING. JAS. T. BAGGS, Bridgeport, Ohio. Filed Oct. 29, 1884. (No model.)

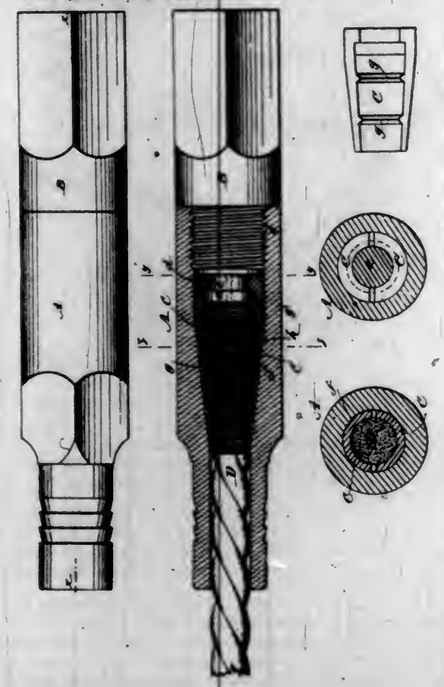


Claim.—1. The combination of the shaft, the center journaled eccentrically thereon, and the pulley journaled on the said eccentric-center, substantially as and for the purposes specified.

2. The combination of the shaft, the center journaled eccentrically thereon and provided with a cavity, B', having outlet-ports *b b'*, and the pulley journaled on the center, substantially as set forth.

3. The combination of the bearing-frame provided with racks E', the shaft, the eccentric-center, the pulley journaled thereon, and the handle secured to the eccentric, substantially as set forth.

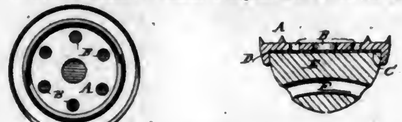
310,360. ROPE-SOCKET. JOHN H. BANSER, North Clarendon, Pa. Filed Apr. 3, 1884. (No model.)



Claim.—1. In the truck described, the combination of lever H and lifting device K or P, as and for the purpose set forth.

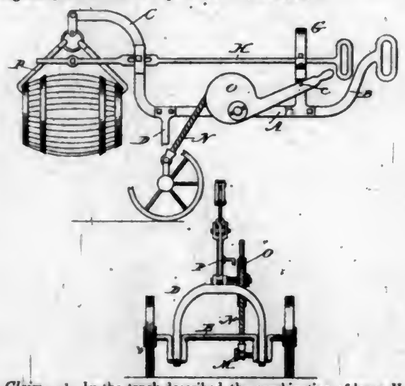
2. The combination, with the truck, mounted on bent axle E, of rope N, cam O, and the lifting mechanism described.

310,361. BUTTON. EDWARD BERMAN, London, County of Middlesex, England, assignor to Benjamin Blumenthal, New York, N. Y. Filed Oct. 13, 1884. (No model.) Patented in England June 16, 1884, No. 9,016.



Claim.—The herein-described button, consisting of an apertured head having its under surface recessed, a shank held in the recess, and an ornamental disk of metal or other suitable material held in the recess between the head and shank, as specified.

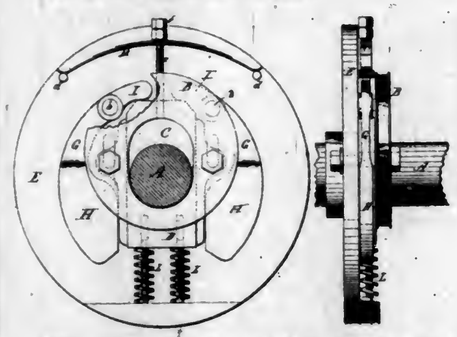
310,362. TRUCK. FRANCIS L. BENTON, Knoxville, Iowa, assignor of two-thirds to Charles H. Baker, same place, and Thomas C. Cunningham, Sigourney, Iowa. Filed May 13, 1884. (No model.)



Claim.—1. The combination, with a tapering socket, of a tapering divided clamp having one end provided with inwardly-projecting lips, and a tool-holder provided with a headed extension engaging the lips of the clamp, substantially as herein shown and described.

2. The combination, with the tapering socket A, of the tapering divided clamp C, provided with the lips *d* and the ribs *g*, and the tool-holder B, provided with the headed extension *c e*, substantially as herein shown and described.

310,363. STEAM-ENGINE GOVERNOR. GEORGE W. BIGELOW, New Haven, Conn. Filed Sept. 1, 1884. (No model.)



Claim.—1. The combination of the shaft of the engine, a disk or plate made fast to said shaft in a plane at right angles to its axis, a slide movable in guides on said plate and at like right angles to said shaft, an eccentric attached to or made a part of said slide and so as to move with it, a pair of levers hung to said plate to swing in a plane parallel therewith, one arm of each lever weighted and free, the other arm arranged to bear upon said slide, and a spring to resist the movement of said slide under the outward-swinging movement of the weighted arms, substantially as described.

2. The combination of the shaft of the engine, a plate or disk made fast to said shaft in a plane at right angles to its axis, a slide movable in guides on said plate and at like right angles to said shaft, an eccentric attached to or made a part of said slide and so as to move with it, a pair of levers hung to said plate to swing in a plane parallel therewith, one arm of each lever weighted and free, the other arm arranged to bear upon said slide, a spring to resist the movement of said slide under the outward-swinging movement of the weighted arms, and an auxiliary spring in adjustable connection with said slide, substantially as described.

3. The combination of the shaft A, the disk or plate E, fixed thereto and in a plane at right angles to the shaft, carrying guides *a a*, the slide D, arranged and movable in said guides, the eccentric B, attached to or made a part of said slide, a pair of levers hung to said plate and so as to swing in a plane parallel therewith, the longer arm G, provided with a weight at its outer end, the shorter arm I, turned inward to bear upon one end of said slide, and a spring arranged to resist the movement of the slide under the outward throw of the weighted end of the arm, said slide constructed with a slot to permit its movement in guides at right angles to the shaft, that end of the slide opposite the end upon which the shorter arms of the lever bear made heavier and so as to form a counterbalancing-weight, substantially as described.

310,364. WEATHER-STRIP. CHAS. A. BINKLEY, Troy, Ohio. Filed Aug. 30, 1884. (No model.)

Brief.—Consisting of a lug formed integral with the hinge to limit the upward rise of the strip, and a block having a spring fastened to it secured in a recess of the strip.

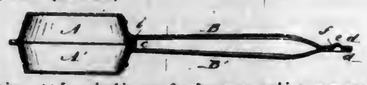


Claim.—1. The combination, with the door, of the strip B, spring engaging the under side of the same, and the hinge having the forwardly-extending arm or stop-lug formed integral with the said hinge, substantially as specified.

2. The combination, with the door, of the strip B, having its upper inner side inclined inwardly, and its under longitudinal side plane, the hinges having the forwardly-extending arm or stop-lug, the spring engaging the under side of the said strip, the elastic strip, and the cam secured to the door-frame, substantially as specified.

3. The combination, with the door having the recess *d*, of the block F and the spiral spring arranged in the said recess, with one of its ends secured to the said block, and its opposite end adapted to engage the said strip B, substantially as specified.

310,365. FRYING-PAN. HENRY F. BOCK, Lansing, Ill. Filed Apr 16, 1884. (No model.)

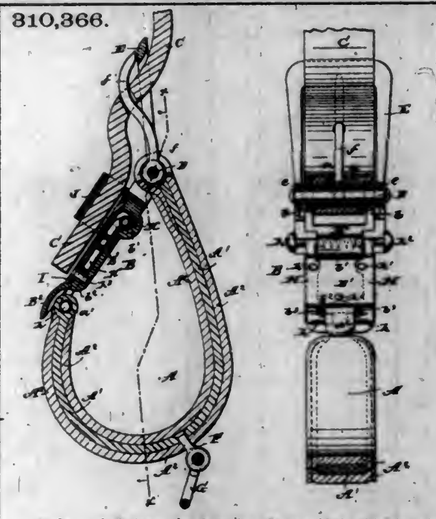


Claim.—1. In a double pan for frying or cooking purposes, composed of two longitudinal sections closing one upon the other and each having a handle and complete pan-body, the pan-bodies A A', provided the one of them with one or more bent-over flanges, *c*, on its rim, and the other of them with one or more rim-lips, *b*, arranged to engage with said flanges, for securely holding and locking the pan-bodies together and admitting of their ready disengagement when required, substantially as specified.

2. In a double pan for frying or cooking purposes, composed of two longitudinal sections closing one upon the other, and each having a handle and complete pan-body, the transversely-bent handles B B', constructed with meeting outer end portions, *d d*, the one of which is provided with a nipple or protuberance, *e*, and the other with an aperture, *f*, arranged to receive said nipple within or through it, essentially as and for the purposes herein described.

3. The combination, in a double pan, of the pan-bodies A A', provided with rim-locking lips and flanges *b c*, and the hollow handles B B', having meeting outer end portions, *d d*, provided with an engaging nipple and aperture *e f*, substantially as shown and described.

310,366. SHAFT-TUG. HENRY F. BOCK, Lansing, Ill. Filed June 25, 1884. (No model.)



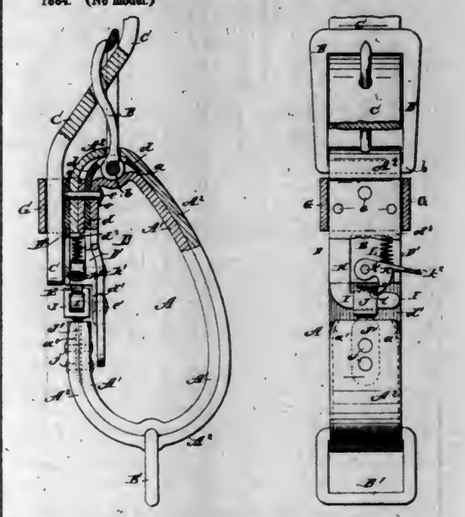
Claim.—1. A shaft-loop constructed with a loop part, A, hinged with the buckle E, by which the loop is hung from the saddle-strap C, and provided with a transverse eye, *a'*, at its joint end, and the fastening B, connecting with the top of the loop, and provided with the spring-catches H H, adapted to enter the eye *a'*, substantially as shown and described.

2. In a shaft-loop, the fastening B, provided with the pivoted catches H H, having inturned locking ends *h h*, head portions h^2 h^2, and a spring, K, interposed between the parts h^2 h^2, substantially as shown and described.

3. In a shaft-loop, the fastening B, bent at *b'*, and extended to form the rest and guard B^2 for the eye *a'* at the loop-joint, substantially as shown and described.

4. A shaft-loop constructed with a loop, A, having a metallic core, A', and an eye, *a'*, and hinged with the fastening B and buckle E on a pivot-pin, D, said fastening B having the back-strap loop J secured to it, and also having the pivoted catches H H, adapted to engage the eye *a'* of the loop part A, substantially as shown and described.

310,367. SHAFT-TUG. HENRY F. BOCK, Lansing, Ill. Filed June 25, 1884. (No model.)

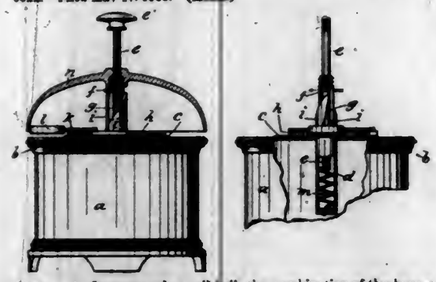


Claim.—1. The combination, in the shaft-loop A, of the eye J, the transverse arm I, the catch having a tooth, *k*, engaging a notch, *i*, of the arm, and a spring acting to force the catch against the arm, substantially as shown and described.

2. A shaft-loop constructed with the strap $A'.A^2$, the buckle B, the fastening D, having an arm, I, and spring-catch, and the eye J and loop G, substantially as shown and described.

3. In a shaft-loop, the fastening D, formed with its base-plate extended at *d*, for the purpose described, and with the flange d^2 at right angles thereto, said flange forming the top of the recess containing the catch of the fastening, substantially as set forth.

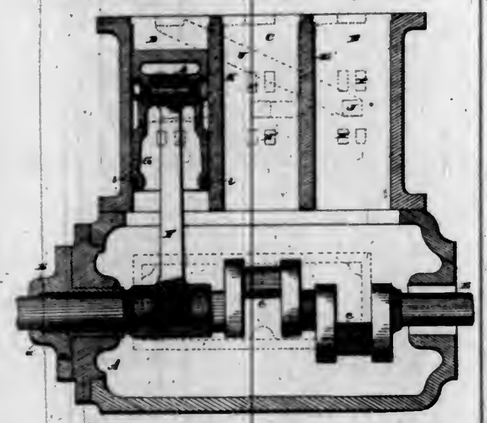
310,368. REPEATING CALL-BELL. ALBERT T. BOOTH, Meriden, Conn. Filed May 17, 1883. (Model.)



Claim.—1. In a repeating call-bell, the combination of the base *a*, stem *d*, rotary ratchet *h*, bearing the double-faced cams *i*, push-pintle *e*, having a rectilinear and a rotary motion, bearing pin *f*, and the bell and striking mechanism, all substantially as described, and for the purpose set forth.

2. In a repeating call-bell, in combination, a base, *a*, bearing a fixed hollow stem, *d*, a spiral spring, *m*, arranged within the stem and rigidly attached to both the stem and the push-pintle, the push-pintle *e*, having both a rectilinear and rotary motion and bearing a pin, *f*, the rotary ratchet *h*, bearing the double-faced cams *i*, and the bell and striking mechanism, all substantially as described.

310,369. STEAM OR VAPOR ENGINE. ALBERT BOWN, Streator, Ill., assignor of one-half to Fawcett Plumb, same place. Filed May 8, 1884. (No model.)



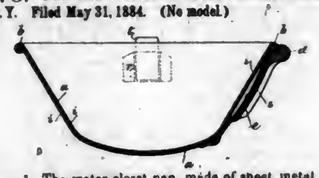
Claim.—1. In a multiple-cylinder engine, the combination, with three cylinders having inlet and exhaust passages common to them all and provided with communicating passages, substantially as described, of the three pistons, each provided with a recess and a circumferential groove leading into said recess, adapting it to operate as a valve for another cylinder, substantially as set forth.

2. The combination, with a suitable casing, of three vertical cylinders secured to the upper side thereof and having inlet and exhaust passages common to them all, the first cylinder being also provided with a passage leading into the third cylinder, the third cylinder with a passage leading into the second cylinder, and the second cylinder with a passage leading into the first cylinder, and three pistons, each constructed and arranged to operate as a valve for another cylinder, substantially as set forth.

3. The combination, with a suitable casing, of three vertical cylinders secured to the upper side thereof and having inlet and exhaust passages common to them all, and provided with communicating passages, substantially as described, a crank-shaft journaled in the ends of said casing, three pistons connected to the shaft by pitmen, and each provided with a recess and a circumferential groove leading into the recess, adapting it to act as a valve for another cylinder, substantially as set forth.

4. The combination, with a suitable casing, of the cylinders B C D, having the inlet H and the exhaust I, common to all, and provided with the passages J K L, three pistons, G, each provided with a recess, *d'*, and a groove, *d*, shaft E, and pitmen F, all of the above parts combined and adapted to operate substantially as set forth.

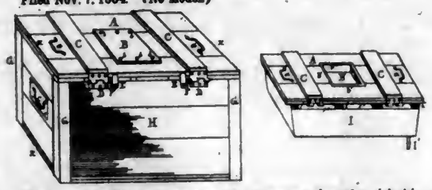
310,370. PAN FOR WATER-CLOSETS. EDWARD J. BRADY, Brooklyn, N. Y. Filed May 31, 1884. (No model.)



Claim.—1. The water-closet pan, made of sheet metal, with a re-enforcing plate attached at one side, and having an air-space between such pan and the central portion of such re-enforcing plate, substantially as set forth.

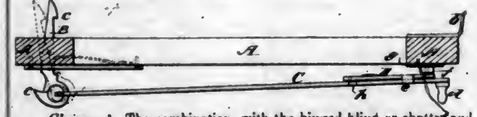
2. The water-closet pan, made of sheet metal, with the surface enameled and one or more sockets upon the pan near its edge, in combination with the rubber block inserted into the socket, substantially as set forth.

310,371. REFRIGERATOR. GEORGE S. BROWN, Charleston, S. C. Filed Nov. 7, 1884. (No model.)



Claim.—A refrigerator-package for transportation of perishable articles, constructed of thin boards crossing each other grainwise, having the ice-chamber attached to the under side of the top, which top is removably secured to the two sides by pins, and having an opening in it to put in the ice, substantially as and for the purpose described.

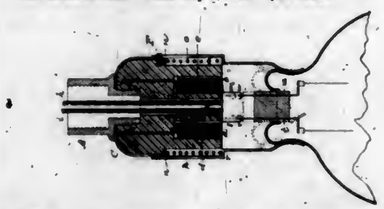
310,372. SHUTTER-WORKER. ROBERT I. BROWN, New York, N. Y. Filed Aug. 14, 1884. (No model.)



Claim.—1. The combination, with the hinged blind or shutter and its rocking fastening-hook, of the handle-rod C and the radius-rod D, connected thereto and to the inside of the frame of the shutter, substantially as specified.

2. The combination, with the hinged blind or shutter frame A, of the spring-hook B, arranged in proximity to the opening edge of the shutter, the handle-rod C, connected with said hook and arranged to extend into proximity with the hinge edge of the shutter, and provided with a side lip, *e*, and the radius-rod D, connected at its one end with the handle-rod C, and having its pivot *f* on the shutter-frame arranged above the level of the plane in which the fastening-hook moves, essentially as and for the purposes herein set forth.

310,373. HOLDER FOR INCANDESCENT LAMPS. THOS. W. BRYANT, Ansonia, Conn. Filed May 2, 1884. (No model.)



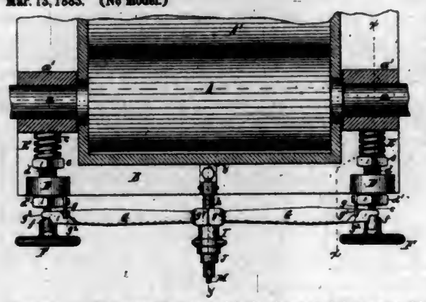
Claim.—1. The herein-described holder for incandescent lamps, consisting of the body B, constructed with vertical recesses *a b*, a helical spring in each of said recesses, said springs at their lower ends terminating in hook shape, the other end of the springs in connection with the respective line-wires, a surrounding shell, *p*, helical spring *o*, the said shell constructed at its lower end to embrace the neck of the globe, the lamp provided with the two hooks *v w*, in connection with the carbon in the lamp, and so as to engage the respective hooks *l m* of the holder, substantially as described.

2. The combination of the body B, line-wires extending downward through the body, the body constructed with recesses *a b*, helical springs

arranged in said recesses, their upper end continued through the body and returned to the lower end and there connected with the line-wires, the lower end of the springs constructed to form hooks *l m*, the vertically-movable shell *p*, constructed at its lower end to embrace the neck of the lamp, and the wires from the carbon in the lamp constructed to engage the said hooks *l m*, substantially as described.

3. The combination of the head B, helical springs *d e*, one end of each in connection with the respective line-wires, the other end constructed to engage the respective wires from the lamp, the vertically-movable shell *p*, constructed at its lower end to embrace the neck of the lamp, and also constructed with the L-shaped slot E G, and the spring *o*, all substantially as and for the purpose described.

310,374. ROLLER-MILL. SAMUEL R. CAMPBELL, Buffalo, N. Y. Filed Mar. 13, 1883. (No model.)



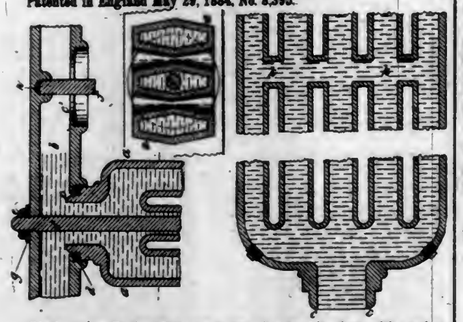
Claim.—1. The combination, with the bearings of the movable roller, of levers G G, mechanism whereby said levers are connected with said bearings, an adjusting-nut, I, whereby both levers may be simultaneously adjusted, and an eccentric or cam lever, M, whereby both levers G can be moved without disturbing their adjustment, substantially as set forth.

2. The combination, with the bearings of the movable roller, of the levers G G, mechanism whereby the levers are connected with said bearings, a bolt, A, screw-sleeves I and J, and eccentric or cam lever M, substantially as set forth.

3. The combination, with the roller A and bearings *a'*, of the screw-rods *c*, screw-threaded sleeves *d*, nuts *e*, springs E, levers G G, hand-wheels F, bolt A, screw-threaded sleeves I and J, and eccentric-lever M, substantially as set forth.

4. The combination, with the roll-adjusting mechanism and adjusting-levers M of two or more roller-mills arranged side by side, of rods *n*, whereby said levers are connected, and adjustable coupling-sleeves, whereby the ends of the rods are attached to each other, substantially as set forth.

310,375. STEAM-RADIATOR. WILLIAM G. CANNON, London Road, Southwark, County of Surrey, England. Filed July 30, 1884. (No model.) Patented in England May 29, 1884, No. 8,395.

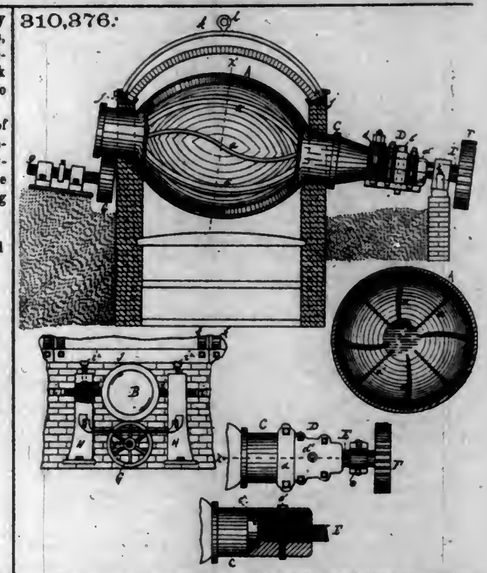


Claim.—1. In heating apparatus, the combination, with socket-pipes, of multiple pipes merging into one at each end, and a tension-rod passing through one branch of the multiple pipes, and having its ends connected to the socket-pipes, substantially as described.

2. In heating apparatus, the combination of the pipes *b*, having sockets, and the multiple pipes merging into one at each end and formed with transverse communicating ways or chambers, and the ends of the pipes fitting the said sockets with the tension-rod passing through one branch of the multiple pipes and having its ends connected to the socket-pipes, substantially as described.

310,376. APPARATUS FOR THE MANUFACTURE OF PRUSSIATE OF POTASH. ELLIS R. CARHUFF, Newark, N. J. Filed Oct. 9, 1883. (No model.)

310,376.



Claim.—1. A retort, A, provided with a hollow neck, an elongated end, C, having thereon a feather, as *c*, for the purpose herein set forth, and having within S-shaped ribs.

2. In combination, a retort, A, having on the elongated end thereof a lug, *c*, shaft E, coupling D, friction-roller G, and means for supporting the end of the retort, which turns on said friction-roller, all substantially as set forth.

3. In combination, a retort, A, shaft E, coupling D, friction-roller G, arms H, and adjustable gibs *i*, all as set forth.

4. A retort, A, adapted to be used in the manufacture of prussiate of potash, having within curved ribs, as *a*, said curves being approximately S-shaped, all substantially as and for the purposes set forth.

5. A retort, as A, having within S-shaped ribs, as *a*, and straight ribs *a'*, all substantially as and for the purposes set forth.

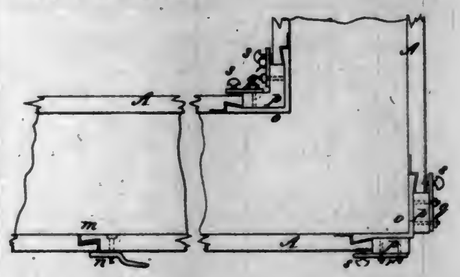
6. In combination, a furnace adapted to be used in the manufacture of prussiate of potash, having a removable roof, a retort, A, arranged and adapted to rotate within said furnace, a friction-roller, G, a coupling device, as D, and driving-gear, all substantially as set forth.

7. In combination, a furnace adapted to be used in the manufacture of prussiate of potash, a retort, A, friction-roller G, means for supporting the end of the retort bearing on said friction-roller, a coupling device, D, and driving-gear, said retort rotating on a single bearing-point at each end thereof, placed outside of the furnace.

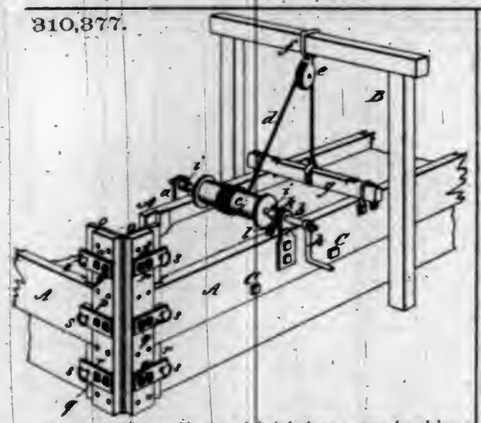
8. A retort adapted to be used in the manufacture of prussiate of potash, the body of which is arranged within a furnace, one end bearing upon one or more friction-rollers, the other end being coupled with a shaft turning in a bearing, said shaft being provided with gearing, or otherwise adapted to receive motion from a driving-shaft with both the bearings outside of the furnace.

9. A retort approximately spherical, adapted to be used in the manufacture of prussiate of potash, having a non-perforated shell, and provided with elongated ends, one of which has an opening therethrough, substantially as and for the purposes herein set forth.

310,377. MOLD AND MOLD-HOISTING APPARATUS FOR BUILDING CONCRETE WALLS. THOMAS W. CARROD, San Antonio, Tex. Filed Aug. 18, 1884. (No model.)



310,377.



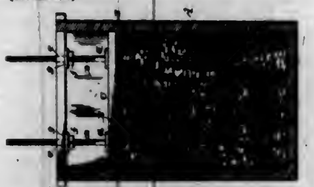
Claim.—1. The combination of shaft *b*, drum *c*, rope *d*, and bar *g* with the mold formed of plank A, and with frame B, substantially as described.

2. The planks A of the mold, made with rabbeted ends *m*, and provided with clamps *n*, substantially as and for the purpose specified.

3. The combination of angle-pieces *o*, bars *p*, and clamping-screws *s* with the mold-planks A, substantially as described.

4. The combination, with the planks of a concrete-mold having beveled ends, of angle-pieces, also having beveled ends, and provided with screws for clamping the plank, substantially as described.

310,378. SILO. THOMAS R. CARSKADON, Keyser, W. Va. Filed Nov. 29, 1884. (No model.)



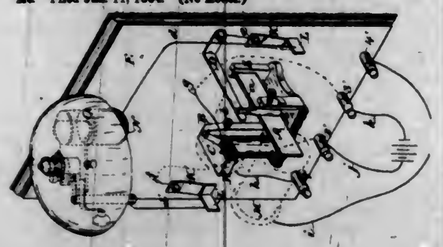
Claim.—1. In a silo, the combination, with a suitable receptacle and a vertically-sliding cover, of a set of threaded bolts resting on the cover and passing upwardly through cross-beams, and movable nuts adapted to bear against the lower faces of the cross-beams and force the bolts downwardly, substantially as set forth.

2. In a silo, the combination, with a suitable receptacle and a flexible cover having a vertically-sliding motion thereon, of a set of screws resting on the cover, and means for forcing the screws downwardly independently of one another, for the purpose substantially as set forth.

3. In a silo, the combination, with a cover consisting of independent boards or planks, of cross planks or ties adapted to be arranged in different positions on the cover, independent screws resting on the cross plank or ties, and means for forcing the screws downwardly, substantially as set forth.

4. In a silo, the combination, with a receptacle provided with a sectional cover, of a set of independent screw-bolts resting in contact with the cover, and perforated cross-beams through which the screw-bolts pass, whereby the screw-bolts may be adjusted in different positions on the cover, and nuts bearing against washers in contact with the lower faces of the beams, for forcing the screws downwardly, substantially as set forth.

310,379. TELEPHONE SIGNALING APPARATUS. JAMES H. CARY, Boston, Mass., assignor to the Cary Telephone Signal Company, Portland, Me. Filed Jan. 11, 1884. (No model.)



Claim.—1. In a telephone signaling system, a signaling apparatus consisting of an electro-magnet, a polarized armature therefor, a spring-contact for the same, a neutral armature carrying a contact-arm, and springs and connections, substantially as described, the arrangement being such that a light current of proper polarity may operate the polarized armature only, while a heavy current may operate the neutral armature alone, or both the polarized and neutral, according to its direction, as set forth.

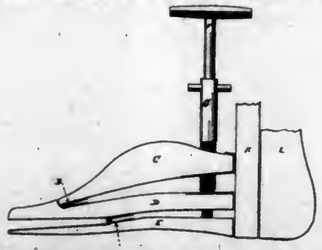
2. In a telephone signaling system, a signaling apparatus having an electro-magnet, a polarized armature, and a neutral armature therefor adapted to respond, respectively, to weaker and stronger current, a contact-spring, as C, adapted to make contact with the polarized armature when the latter is attracted by a current of proper polarity, a contact-spring, as D, adapted to be adjusted so as to make contact with an arm on the neutral armature, either when the latter is separated from the poles of the magnet or attracted thereto, and connections, substantially as described, whereby a local circuit may be completed either by the attraction of the polarized armature alone, or by the simultaneous attraction of both armatures by currents of proper polarity, as set forth.

3. The combination of a generator adapted to send interrupted currents of either polarity, or currents of alternating polarity, with the key K^3 and connections whereby either of said currents may be sent to line, a series of signals adapted to be operated, respectively, by interrupted currents of positive polarity, interrupted currents of negative polarity, and weakened currents of alternating polarity, and a resistance whereby the currents of alternating polarity are weakened, as set forth.

4. The combination, with a generator or generators and circuit-controlling devices whereby currents of varying polarity and strength may be sent to line, of a generator and switch apparatus whereby interrupted currents of either or alternating polarity may be sent to line, and a series of signaling-instruments, each adapted to be operated by only one of said currents, as set forth.

5. The combination, with a voltaic battery and circuit-controlling devices whereby currents of varying strength and polarity may be sent to line, of a generator and circuit-controller whereby magnetic currents of either polarity or magnetic currents of alternating polarity may be sent to line, and a series of signaling devices, each adapted to respond to one, and only one, of said currents, substantially as described.

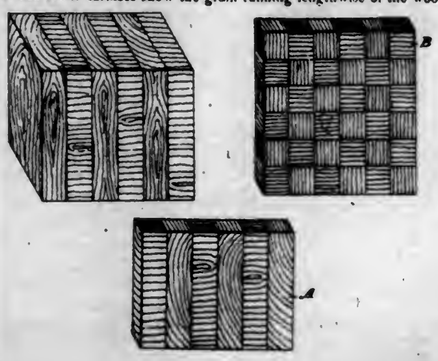
310,380. TOE AND INSTEP STRETCHER FOR BOOTS OR SHOES. CHARLES S. CASE, Binghamton, N. Y. Filed Oct. 14, 1882. (No model.)



Claim.—The toe and instep stretcher composed of the sections D and E, hinge A, rod F, nut I, and plate J, combined with the section C, hinge B, sleeve G, and nut H, and constructed and operating substantially as shown and described.

310,381. MARQUETRY. AMAND J. B. A. CHATAIN, New York, N. Y. Filed Apr. 27, 1883. (No model.)

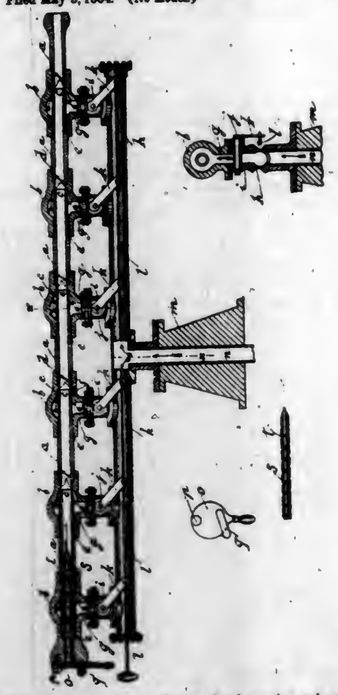
Brief.—Consisting of rectangular pieces of wood so glued together that the grain of each piece is transverse to the one adjacent. The upper and lower surfaces show the grain running lengthwise of the wood.



Claim.—1. The method of manufacturing tiles of mosaic work, consisting in sawing sections from the approximately-squared ends of pieces of wood crosswise of the grain; sawing other sections from the approximately-squared ends of pieces of wood lengthwise of the grain; gluing these sections together in such manner that the grains of alternate sections will run in the same direction, the whole forming a composite block, sawing from this block in a direction at right angles to the glued surfaces thereof and crosswise of the sections whose grains are lengthwise thereof other sections of a thickness corresponding to that of the first sections, said second sections being then composed of strips or blocks A, alternate blocks having their grains running in the same direction; gluing these second sections together in such manner that the grain of the wood in each strip or block A is on all sides transverse to that of the strips or blocks next adjacent to it, and upon the two opposite sides of the block which show the ends of the blocks A only the side of the grain is shown in any of the pieces composing it, the whole forming an approximate cube; sawing from this cube in a direction transverse to the length of the several pieces forming the cube, by making the cuts in planes substantially parallel to the above-named two opposite sides, other sections of any desired thickness, each of which sections is then composed of approximate cubes glued together in such manner that the grains of alternate cubes run in the same direction, and the upper and lower surfaces of which show the grain running lengthwise of the wood, substantially as specified.

2. A mosaic tile consisting of approximately-rectangular pieces of wood glued together, the grain of each of which pieces of wood is transverse to that of those next adjacent, and the upper and lower surfaces of which show the grain running lengthwise of the wood.

310,382. COMPRESSED-AIR MULTIPLE GUN. LEWIS S. CHICHESTER, Jersey City, N. J., assignor to Robert Brown Symington, New York, N. Y. Filed May 5, 1884. (No model.)



Claim.—1. In a compressed-air gun for dynamite and other projectiles, an annular nozzle surrounding the bore of the gun, to deliver the compressed air therein in an annular jet, substantially as described.

2. In a compressed-air gun for dynamite and other projectiles, a series of annular nozzles arranged at intervals along the bore of the gun, to deliver the air in a series of annular jets behind, along the sides of, and in advance of the projectile, substantially as described.

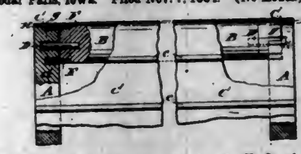
3. The combination of a projectile having a series of circumferential ledges on its exterior, with a compressed-air gun having one or more annular nozzles surrounding the bore of the gun, and discharging the air therein by annular jets which impinge on the ledges, and also surround the projectile with a thin film that separates it from the bore of the barrel during its flight along the barrel, substantially as described.

4. The combination, in a compressed-air gun, of a series of tubes and hollow globe T's, forming the barrel, annular nozzles, and annular jet-orifices surrounding the bore of the gun, substantially as described.

5. The combination, with the barrel in a compressed-air gun having annular nozzles and air-passages along the same, of a compressed-air holder extending wholly or partly along the barrel, and having valved passages at intervals corresponding with the said annular nozzles and air-passages and connecting therewith, substantially as described.

6. The combination, with the barrel in a compressed-air gun having annular nozzles and air-passages along the same, of a compressed-air holder extending wholly or partly along the barrel, and having valved passages at intervals corresponding with the said annular nozzles and air-passages and connected therewith, and also having valves suitably connected for being opened simultaneously, substantially as described.

310,383. ROLLER-BEARING. HENRY H. CLAY and MILLARD D. PHILLEO, Cedar Falls, Iowa. Filed Nov. 7, 1884. (No model.)

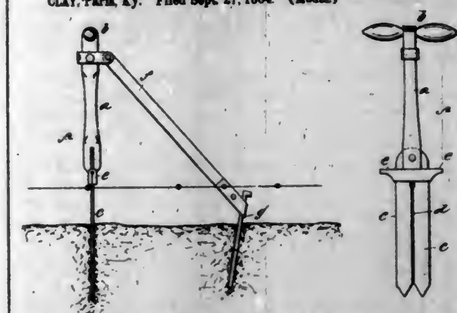


Claim.—1. In roller-bearings, the ferrule F, fitted to the ends of the roller B, and running in grooves G in the faces of their supporting-bars, substantially as herein set forth.

2. In roller-bearings, the ferrules F, fitted to the ends of the roller B, and running in grooves G in the faces of the side bars, A, in combination with the axles or gudgeons D on the roller or side bars, entering holes in the side bars or roller, substantially as herein set forth.

3. As an improvement in the roller-bearings of endless carriers, ferrules F, fitted to the ends of the rollers B, and running in grooves G, cut at the faces of the roller-supporting bars A, so as to form shoulders *g* at the extremities of the bars, the ends of which bars are cut away beneath or inside of the peripheral line of travel of the rollers to form clearance-spaces, as at H, between the carrier-belts C and the ends of the bars A, substantially as herein set forth.

310,384. ANCHOR-STAKE FOR CHECK-ROW WIRES. WILLIAM H. CLAY, Paris, Ky. Filed Sept. 27, 1884. (Model.)



Claim.—1. The anchor-stake having the blade provided with a longitudinal slot, forming the blade with two prongs, to permit the stake to be placed bodily astride of the check-row wire, substantially as and for the purpose set forth.

2. In an anchor-stake, the shank having the longitudinally-slotted blade and the foot cross-piece disposed at the base of said shank and the upper end of said blade, substantially as and for the purpose set forth.

3. In an anchor-stake, the shank having the longitudinally-slotted blade and the foot cross-piece, in combination with the brace connected to said shank and receiving through its lower end a pin, substantially as and for the purpose set forth.

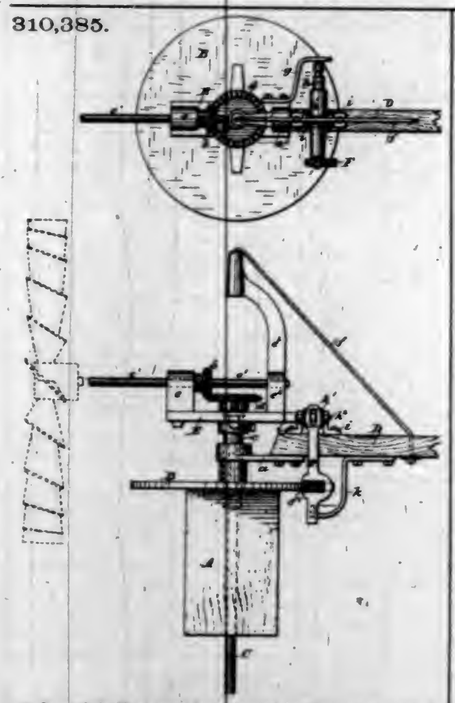
310,385. WINDMILL. PETER T. COFFIELD, New Carlisle, Ohio, assignor to himself, Charles H. Neff, and Albert L. Wooley, same place. Filed Mar. 22, 1884. (No model.)

Claim.—1. In a windmill, a spring push-bar provided with a pivotal clutch-lever for engaging with a circular base-plate, and acted on by an arm or lever attached to the vane-bar of the mill, substantially as described.

2. In a windmill, a pivoted clutch-lever provided with spring presser-foot engaging with both sides of a circular bed-plate, and operated by a spring push-bar and an arm attached to the vane-bar, substantially as described.

3. In a windmill, the combination, with a circular bed-plate, of a spring push-bar mounted in a pivoted box secured to the vane-bar, and attached at one end to a clutch-lever, and acted against at the opposite end by an arm connected to the bracketed plate E, substantially as described.

310,385.



4. In a windmill, a clutch-lever, having jaws to engage with the upper and lower surface of a circular bed-plate attached to the upper end of the derrick, and operated by a spring push-bar, against which an arm on the vane-bar bears, and a spring presser-foot, substantially as described.

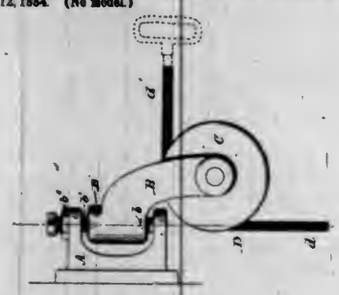
5. The combination, with a circular bed-plate, of a spring push-bar mounted in a pivoted box, and connected to a clutch-lever at one end, and acted against by an arm connected to the wheel-frame, with an arm secured to the lower side of the vane-bar, for the purpose of unlocking the clutch-lever, substantially as described.

6. The combination, with a circular bed-plate, of a spring push-bar mounted in a pivoted box journaled in standards on the vane-bar, and connected at one end to a pivoted clutch-lever provided with a spring presser-foot, and having clamping-jaws, with an arm secured to the lower side of the vane-bar, and an arm connected to the supporting-frame, all arranged for operation substantially as described.

7. The combination, with a circular bed-plate, of a spring push-bar mounted in a box having trunnions journaled in standards on the vane-bar, and connected at one end to a pivoted clutch-lever, with an arm attached to a bracketed plate secured to the bearing of the vertical shaft, and carrying the gearing and wind-wheel shaft, substantially as described.

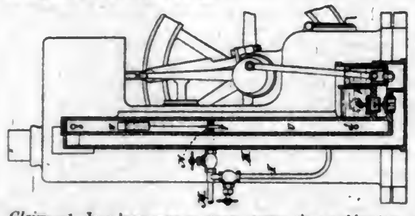
8. The combination, with a circular bed-plate, of a spring push-bar, a pivoted clutch-lever secured thereto, and carrying a spring presser-foot, with an arm attached to a bracketed plate secured to the bearing of the vertical shaft, and carrying the gearing and the wind-wheel shaft, all arranged substantially as described.

310,386. SWIVEL-BLOCK. WILLIAM L. COOP, Providence, R. I. Filed Nov. 12, 1884. (No model.)



Claim.—The combination, with the bracket having the center pivots, one of which is adjustable, of the swiveling pulley-block having plugs of elastic material let into its opposite ends, and chambered to receive said center pivots, and the sheave pivoted in said block at right angles to the swivel-axis of the block, substantially as described.

310,387. LOW-PRESSURE STEAM-MOTOR. HENRY DAVEY, Leeds, County of York, England. Filed July 7, 1884. (No model.) Patented in England Feb. 23, 1884, No. 3,833.

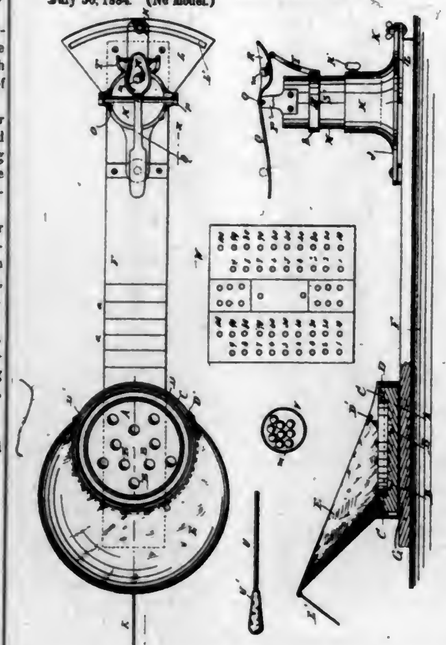


Claim.—1. In a low-pressure steam-motor, the combination, with an upright boiler, of a fire-box and flue placed within said boiler, and a cylinder arranged wholly within the steam-space of the latter, and a condenser connected with the exhaust by a branch having a throttle-valve, substantially as described.

2. In a low-pressure steam-motor, the combination, with the boiler and a cylinder wholly contained within the steam-space thereof, of a condenser connected with the exhaust of the cylinder, a pump worked by a pitman upon the main shaft and drawing water and air from the condenser, and a well having a lateral outlet which receives the water, an aperture being formed between the well and the plunger-chamber for the admission of water to the latter, substantially as described.

3. In a low-pressure steam-motor, the combination, with a boiler having a lower projection to receive the fire-box, and an upper projection adapted to receive the cylinder, of a condenser, K, a water-supply tube, U, a feed branch, N, entering the latter, a conical valve, V, closing the feed branch, a float, W, connected to said valve, an injection branch, I, communicating with the condenser, and a pump withdrawing the water and air from the latter, substantially as described.

310,388. GAME. PAUL K. DEALY, Brandon, Manitoba, Canada. Filed July 30, 1884. (No model.)



Claim.—1. In a game apparatus, the combination, with a base-board, of a disk or plate resting on the board and provided in its top with a series of apertures, a standard held on the board, and of a lever pivoted on the standard and having a cup formed on one end, substantially as herein shown and described.

2. In a game apparatus, the combination, with the base-board F, of the disk A, held to slide on the board F, and provided in its upper surface with a series of recesses or apertures, a vertically and laterally adjustable standard on the board, and a lever pivoted on the top of the standard and having a cup formed on one end, substantially as herein shown and described.

3. In a game apparatus, the combination, with the base-board F, of the recessed plate or disk A, resting on the board F, the guard or chute E on the disk A, a standard on the base-board, and a lever pivoted on the standard and provided with a cup at one end, substantially as herein shown and described.

4. In a game apparatus, the combination, with the base-board F, of the recessed disk A, having a circular groove in its top, the folding guard or chute E on the disk A, a standard on the board F, and a lever pivoted on the standard and having a cup on one end, substantially as herein shown and described.

5. In a game apparatus, the combination, with the base-board F, of the disk A, the hollow standard H, held laterally adjustable on the base-board, the standard M, and the lever Q, pivoted on the top of the same and provided with a cup, R, at one end, substantially as herein shown and described.

6. In a game apparatus, the combination, with the plate or disk A, of a standard held on a plate, J, pivoted on one end on the base-plate and provided at its opposite end with a screw, K, passed through a segmental slot, L', in a plate, L, and the lever Q, pivoted on the standard, substantially as herein shown and described.

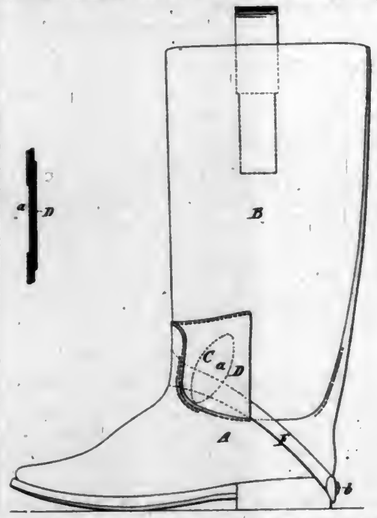
7. In a game apparatus, the combination, with the base-board F, of the plate or disk A, the hollow standard H, the vertically-adjustable standard M in the same, the ring S, held vertically adjustable on the standard M, and provided with an arm, T, and of the lever Q, pivoted on the standard M, and provided with a cup, R, at one end, substantially as herein shown and described.

8. In a game apparatus, the combination, with a disk or plate having apertures or recesses in its top, of a standard, and a lever pivoted in the top of the standard, which lever is provided with a cup on one end substantially as herein shown and described.

9. In a game apparatus, the combination, with the disk or plate A, provided with apertures or recesses in its top, of the guard or chute E, held on the said disk, substantially as herein shown and described.

10. In a game apparatus, the combination, with the disk or plate A, provided with recesses or apertures in its top, of the ring D, surrounding the disk A, and having jaws D', and of the chute or guard E pivoted to the jaws D', substantially as herein shown and described.

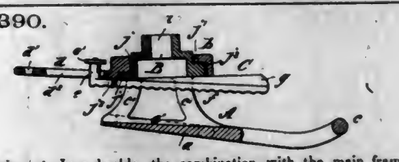
310,389. BOOT. JOHN R. DEAN, Westminster, England. Filed Aug 15, 1884. (No model.) Patented in France Mar. 19, 1884, No. 161,052.



Claim.—1. In knee, thigh, and other high boots, the combination of a spring or gusset, as *a*, with a flap, as D, substantially as and for the purpose set forth.

2. In knee, thigh, and other high boots, the combination of a spring or gusset, as *a*, flap, as D, and instep-strap, as F, substantially as set forth.

310,390. TRACE OR HAME-TUG BUCKLE. AMBROSE E. DEIBERT Kansas City, Mo. Filed June 2, 1884. (No model.)



Claim.—1. In a buckle, the combination, with the main frame thereof, of a clamping plate or wedge and key, arranged substantially as described, for causing the clamping plate or wedge to grasp and release the trace, substantially as set forth.

2. The revolving cam-key B, combined with the clamping-plate C and main frame A of the buckle, substantially as described.

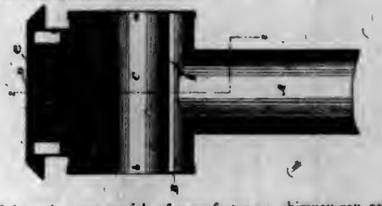
3. In a buckle, the clamping plate or wedge C, adapted to have a longitudinal movement, in combination with a key for forcing it inward to bind the trace against the frame, substantially as described.

4. The revolving cam-key B, fitted in a corresponding cam-recess made in the face-plate *b*, in combination with the back plate, *a*, and clamping-plate C, substantially as and for the purpose set forth.

5. The main frame A, formed with the inclined back plate, *a*, and the face-plate *b*, having the aperture *j* and cam countersink or recess j^2 and stops i^2, in combination with the revolving key B and sliding clamping plate or wedge C, the key B being formed with the stop i^1, substantially as described.

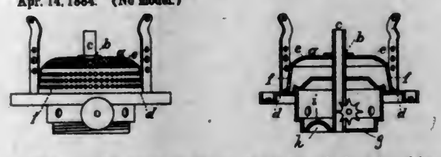
6. In a buckle, the revolving cam-key B, formed with the head *i*, and placed in a recess made in the face-plate *b*, so that the key may be turned for causing the clamping plate or wedge C to grasp and release the trace, substantially as and for the purposes set forth.

310,391. CHIMNEY-CAP. HENRY S. DICKINSON, Jersey City, N. J. Filed June 23, 1884. (No model.)



Claim.—As a new article of manufacture, a chimney-cap consisting of the cap B, having openings *d* and *e*, the transverse tube C, having openings *a* and *b*, and the cap D, substantially as and for the purposes set forth.

310,392. LAMP-BURNER. RUFUS McK. DILL, Freeport Me. Filed Apr. 14, 1884. (No model.)



Claim.—1. The cap *a*, resting on the perforated plate *d*, and having the slit *b*, the perforations *e* in the top, and the perforations *f* in the sides, in combination with and resting upon the perforated plate *d*, and in combination with the wick-tube *c*, as herein set forth.

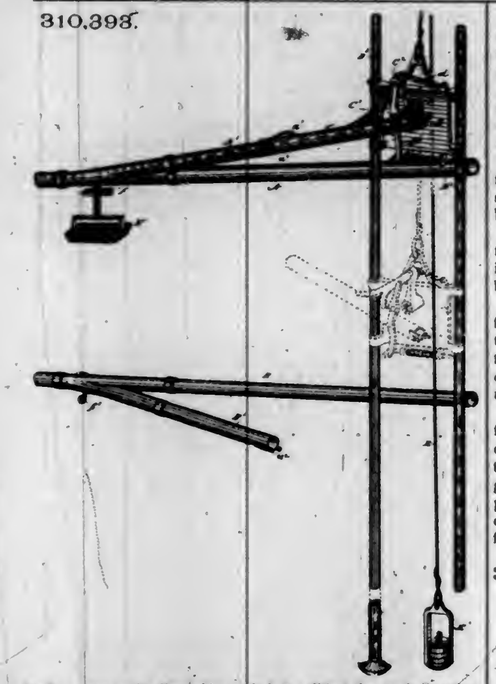
2. The concavity A, with its perforations in the top and at a level with the plate or bottom *g*, as and for the purposes herein set forth.

310,393. CONVEYER APPARATUS. JEROME F. DOWNING, Erie, Pa. Filed Nov. 28, 1884. (No model.)

Claim.—1. In a conveyer apparatus, the combination, substantially as set forth, of two main tracks formed of slotted tubes, as shown, and graded in opposite directions, switch-tracks branching from said main track, formed of like tubes, and arranged one above the other, a vertical elevator-way, an elevator-frame moving on said way, a section of slotted tubular track-section pivoted on said elevator-frame by a crank-arm, whereby it will be moved endwise as it is tilted, and whereby it will be brought in conjunction with said vertically-arranged switch-tracks as it is moved vertically by said elevator, and, finally, means, substantially as shown, for tilting the said track-section automatically.

2. In a conveyer apparatus, the combination, substantially as set forth, of the slotted tubular tracks A and B, graded in opposite directions, the switch-tracks A' and B', arranged in vertical line, the elevator-way D^2 D^3, the elevator-frame D, the pivoted crank-arm C' C^2, the track-section C, attached to said crank-arm, so as to be in vertical line with the said switch-tracks, and so as to be tilted in one direction by its own weight and in the other direction by the weight of a car, and,

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finally, a stop at the dispatching-switch for tilting the track C against the weight of the car thereon as the elevator is moved up.

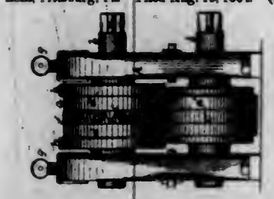
3. In a conveyer apparatus, the combination, substantially as shown, of a receiving and a dispatching track arranged in vertical line, a vertical elevator-way arranged in proper relation to said tracks, an elevator-frame moving vertically on said way, and, finally, a section of track pivoted on said elevator-frame by a crank-arm in a manner substantially as described, whereby as it is tilted it is moved lengthwise, for the purposes named.

4. In a conveyer apparatus, the combination, substantially as described, of the elevator-way D^3 D^3, the elevator D, the crank-arm C' C^2, the track-section C, the lever D', and spring-catch D^2.

5. In a conveyer apparatus, the combination, substantially as set forth, of a track or way consisting of a tube having a longitudinal slot on its under side, a switch-track consisting of a similar tube with its slot branching from the main-track slot, a car having a running-gear which runs in the interior of said tubes, and has a stem or frame-piece extending down through the slot, a fender adjusted on said stem below the tracks, and means, substantially as set forth, at the switch-point or branch-slot opening to act upon said fender and divert the said stem or frame-piece from the main slot into the branch slot, and thereby cause the car to run onto the switch-track.

6. In a conveyer apparatus, the combination, substantially as set forth, of a track or way consisting of a tube having a longitudinal slot on its under side, a switch-track consisting of a similar tube, with its slot branching from the main-track slot, a movable switch point or tongue, G, with projecting pin *g*, a car having a running-gear which moves in the interior of said tubes, and has a stem or frame-piece extending down through the slot, and a fender, *f*, on the said stem below the track, which will come in contact with said pin *g* and move the said switch-tongue G across the main-track slot, and thus divert the said stem or frame-piece into the branch slot, and thereby cause the car to run onto the switch-track.

310,394. DEVICE FOR MAKING BARBED STRIPS FOR FENCES. JOSIAH W. ELLS, Pittsburg, Pa. Filed Aug. 15, 1884. (No model.)



Claim.—1. In a machine for forming barbed metallic rails or flexible strips for fencing, a circular disk provided with a connected series of integral zigzag-shaped sharp cutting-edges, in combination with a plain-faced roll.

2. In a machine for forming barbed metallic rails or flexible strips for fencing, a detachable circular disk provided with a series of zigzag sharp cutting-edges integral therewith, and a flange on each side of the disk, in combination with a plain-faced roll.

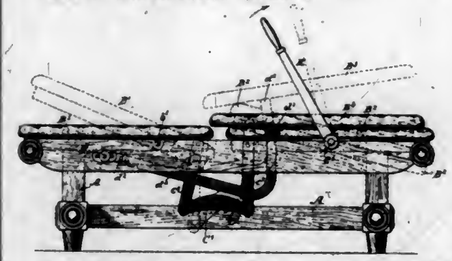
3. In a machine for forming barbed metallic rails or flexible strips for fencing, a circular disk provided with a connected series of zigzag-shaped cutting-edges, made adjustable up or down in a frame, in combination with its side supporting-flanges and a plain-faced roll.

4. In a machine for forming barbed metallic rails or flexible strips for fencing, a circular disk provided with a series of zigzag cutting-edges, in combination with a plain-faced roll and a guide-box leading to the space between them.

5. In a machine for forming barbed metallic rails or flexible strips for fencing, a circular disk provided with a continuous zigzag cutting-edge that is supported on each side by a flange, in combination with a roll containing a detachable plain-faced disk arranged in close proximity to the cutting-disk, and operating jointly in such a manner as to sever strips of metal entered between them.

6. In a machine for forming barbed metallic rails or flexible strips for fencing, a circular disk provided with a sharp zigzag cutting-edge, in combination with a plain-faced roll, working in conjunction with the cutting-disk to sever strips of metal in such a manner as to leave sharp angular points on each along the line of cut and separation, a guide-box for properly directing such strips of metal to the cutting action of the sharp-edged disk, a table for receiving the strips after being cut, and a means for adjusting the cutting-disk toward and from the plain-faced roll.

310,395. MOVEMENT-CURE APPARATUS. MOSES G. FARMER, New York, N. Y. Filed Oct. 14, 1884. (No model.)



Claim.—1. In a couch, the combination, substantially as hereinbefore set forth, with the hinged sections B' and B^3, of the lever E, the section B^2, and the mechanical connection between the sections B' and B^3, consisting of the beam or lever C' and the links *c'* and c^3.

2. The combination, substantially as hereinbefore set forth, of a stationary support, a couch divided transversely into two upper portions or sections, the first of which is pivoted at an intermediate point in its length, while the second is supported by a pivoted extension, and a system of levers, substantially such as described, for turning the first-named section downward and simultaneously moving the second section upward upon its pivot, and vice versa, which levers are connected with the first-named section at a point between its pivot and the end adjacent to the second section.

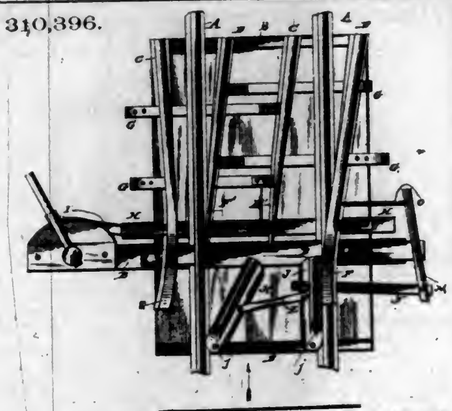
3. The combination, substantially as hereinbefore set forth, of the section B', having the hinge *b'*, the section B^3, and the lever E, for moving the same, the beam C', the links *c'* and c^3, respectively connecting said beam with said sections B' and B^3, and the section B^3, having the pivoted extension *d'*.

310,396. RAILWAY-SWITCH. ROBERT W. FARRELL, Wheatland, Ind. Filed Oct. 26, 1883. (No model.)

Brief.—Continuous main rails for two sidings, the rails of each siding being movable together, and the inner rails of the sidings being pointed and the outer ones elevated, bent, and recessed to fit over the main rails; inclined grooved pivoted guide-blocks actuated at the same time with the switch-rails from the same lever, and placed between the main rails opposite the ends of the outer switch-rails to guide and lift the wheels across the main rail.

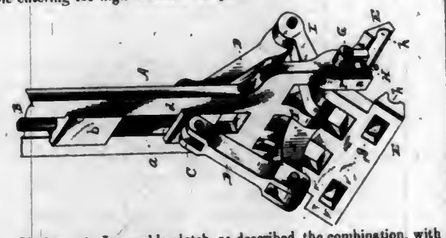
Claim.—As an improvement in railway-switches, the combination of the pivoted outside switch-rails, E and F, of a greater height than the rails of the main line, and having outwardly-curved beveled recessed ends, substantially as described, inside point-rails E' and F', pivoted guide-blocks J and K, having inclined grooved upper surfaces, and connected together by the link L, sliding bars G and H, lever M, and pitmen I N O, the whole constructed and arranged to operate substantially in the manner and for the purpose shown and set forth.

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310,397. CLUTCH FOR CABLE RAILWAYS. NOBLE A. FISHER, Sacramento, Cal. Filed Aug. 9, 1884. (No model.)

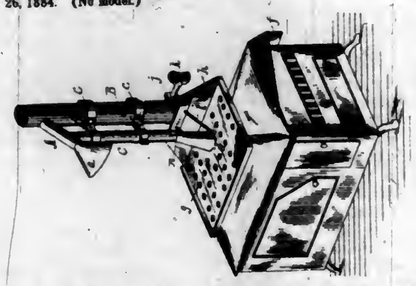
Brief.—The grooves in the jaws have friction-rollers extending therein, and rollers are also located above the grooves to prevent the cable entering too high between the jaws.



Claim.—1. In a cable-clutch, as described, the combination, with the jaws, as E E, having semi-grooves *h*, of friction-rollers, as *g*, journaled in the jaws and projecting into the groove, as and for the purposes set forth.

2. The cable-clutch described, having the friction-rollers *g*, journaled in the jaws and operating in the groove, and having also the transverse rollers H, journaled in fixed bearings and directly above the groove, all combined and adapted to serve as set forth.

310,398. STOVE-HOOD. ASA S. FISK, Stevensville, Pa. Filed June 26, 1884. (No model.)



Claim.—1. The combination, in a stove attachment, of a pipe-section adapted for attachment to the upper portion of the stove-pipe, and provided at its free end with a funnel or flaring mouth, a vertical pipe-section depending from said first-mentioned pipe-section and having devices for the attachment of the same to the stove-pipe, a second pipe-section sliding in said first vertical section and adjustably secured to the stove-pipe and provided at its lower end with a hood or cap, substantially as set forth.

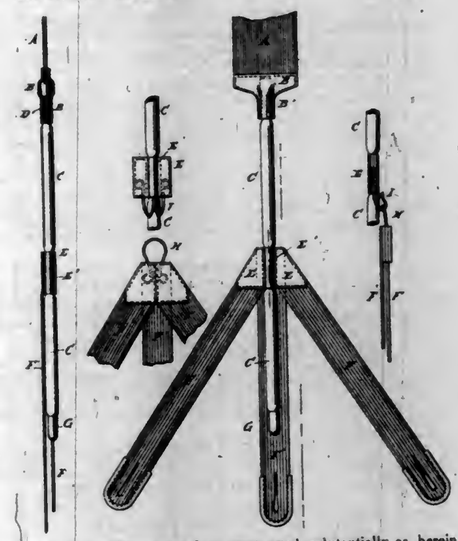
2. The combination, in a stove attachment, of an inclined pipe-section, A, adapted for attachment to the upper portion of the stove-pipe, a vertical pipe-section depending from the same and having devices for its attachment to the stove-pipe, and a pipe-section, D, sliding in said vertical section and carrying a combined hood and shelf at its lower end, substantially as set forth.

3. The combination, in a stove attachment, of an inclined section, A, adapted for attachment to the upper portion of the stove-pipe, a section, C, depending from said section A and carrying devices for its attachment to the said stove-pipe, and a hood, F, located at the lower portion of a section, D, sliding in the section C, the said hood being provided with side and rear wings, *e f*, substantially as set forth.

4. The combination, in a stove attachment, of an inclined pipe, A, adapted for connection to the stove-pipe, a section, C, depending from the pipe A and carrying devices for its attachment to said stove-pipe, a section, D, sliding in said section C and carrying a hood, F, at its lower portion, an adjustable clamp for the upper portion of the hood, and a spiral spring embracing the lower portion of the stove-pipe and secured to the lower portion of the hood, substantially as set forth.

5. The combination, in a stove attachment, of an inclined pipe-section adapted for attachment to the upper portion of the stove-pipe, and provided at one end with a funnel or flaring mouth, a vertical pipe, C, communicating with and depending from said pipe-section, a pipe, D, playing in said pipe C and carrying a hood at its lower end, and an inclined section, *o*, located in the inclined pipe-section at one side of the point at which the pipe C connects, substantially as set forth.

310,399. SUSPENDERS. FRANK E. FLAGG, New York, N. Y. Filed Nov. 19, 1884. (No model.)



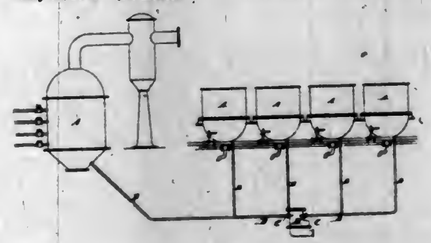
Claim.—1. The suspenders constructed, substantially as herein shown and described, with the shoulder-straps connected with the suspender-ends by rubber rods, as set forth.

2. In suspenders, the combination, with the shoulder-strap A and the suspender-ends F, of the cap B, having tubular socket B', the rubber rod C, and the regulator E, having tubular aperture E', substantially as herein shown and described, whereby the said shoulder-straps and suspender-ends are securely connected, as set forth.

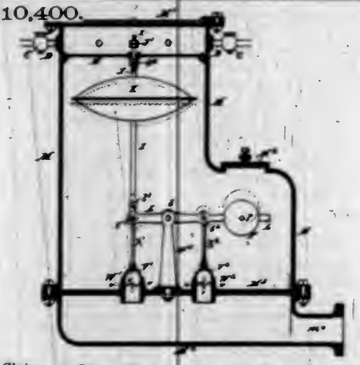
3. In suspenders, the combination, with the rods C and the suspender-ends F, of the regulator E, having a tubular aperture, E', smaller than the said rubber rod, substantially as herein shown and described, whereby the said regulator can be readily adjusted and will be held in place securely, as set forth.

4. In suspenders, the combination, with the shoulder-strap A and the rubber rod C, having its upper part wound with thread, of the cap B, having a tubular socket, B', smaller than the said rubber rod, substantially as herein shown and described, whereby the said rubber rod is securely connected with the said shoulder-strap, as set forth.

310,400. STEAM-TRAP. JAMES H. FOGARTY, New York, N. Y. Filed May 31, 1884. (No model.)



310,400.



Claim.—1. In combination with a single steam-trap, two or more independent steam-condensing apparatuses, A A, and independent pipe-connections between said trap and each condensing apparatus, as and for the purposes herein specified.

2. In combination with a single steam-trap and two or more independent steam-condensing apparatuses, A A, independent pipe-connection between said trap and each condensing apparatus, and a check-valve, as C, in each independent pipe-connection, as and for the purposes set forth.

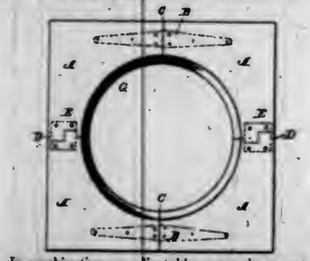
3. A steam-trap, M, having a strainer, H, and suitable connections to a series of independent check-valves, C, in combination therewith and with independent connections B, leading to two or more sets of steam-condensing apparatus, A, arranged for joint operation, as herein specified.

4. In a steam-trap, an operating float, K, vibrating lever L, and balancing-weight P, in combination with each other and with two cylinders or valves connected to the lever on opposite sides of the fulcrum, and opening the one with and the other against the pressure of the fluid, all arranged for joint operation, substantially as herein specified.

5. In a steam-trap, the balanced cylinders $V' V^2$, working easily in the fixed cylinders $W' W^2$, having perforations *w*, connected, as shown, to the controlling-lever L, in combination with the float K, and suitable connecting means, I, arranged for joint operation, substantially as herein specified.

6. The trap M, cylinders $W' W^2$, having perforations *w*, controlling-lever L, weight P, screw Q, rod I, stops $J' J^2$, float K, and strainer H, in combination with each other and with two or more check-valves, C, pipes B, and steam-condensing apparatus A, arranged for joint operation, substantially as and for the purposes herein specified.

310,401. WATER-CLOSET SEAT. MELCHIOR FOX, Eau Claire, Wis. Filed May 9, 1884. (No model.)

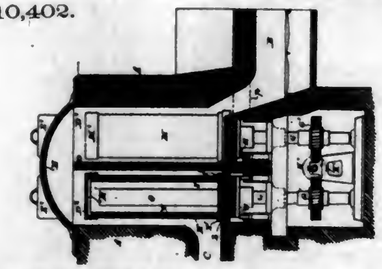


Claim.—In combination, an adjustable water-closet seat formed in sections and with an opening centrally, two of the joints in the same plane provided with hinges, the joints at right angles having slide-hinges so as to form detachable independent halves, and with projecting screws or lugs beneath, the whole arranged as and for the purpose substantially as herein set forth.

310,402. APPARATUS FOR ANNEALING WIRE AND METAL IN OTHER FORMS. SAMUEL FOX, 110 Gloucester Place, County of Middlesex, England. Filed May 19, 1884. (No model.) Patented in England Nov. 5, 1883, No. 5,234; in France May 5, 1884, No. 161,901; in Belgium May 7, 1884, No. 65,090; in Germany May 11, 1884, No. 29,779; in Austria-Hungary Sept. 2, 1884, No. 18,025 and No. 39,646.

Claim.—1. The arrangement of annealing furnaces and apparatus, as herein described, the body of the furnace being divided into two compartments, serving the one as a heating and the other as a cooling chamber, and containing annealing-cylinders to which a rotary motion is imparted, substantially as herein described.

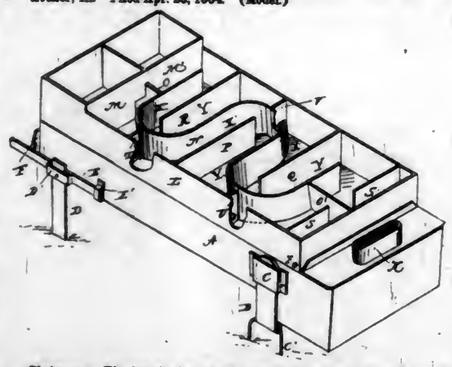
310,402.



2. The arrangement of annealing furnaces and apparatus consisting of an annealing-chamber containing rotating annealing-cylinders, each receiving within it an annealing-box which approximately fits it, and which contains coils of wire to be annealed, substantially as described.

3. The combination, in annealing apparatus essentially such as described, of rotating annealing-cylinders, annealing-boxes within said cylinders, and dummy-cylinders within the annealing-boxes, substantially as and for the purpose set forth.

310,403. EVAPORATING PAN AND FURNACE. CHAS. W. FREEK, Becker, Ill. Filed Apr. 23, 1884. (Model.)



Claim.—1. The herein-described evaporating-pan, adapted to cook two lots of juice at one time, comprising the two compartments M M' at one end, vertical partitions O O' at each end, projecting out in the center, a longitudinal serpentine partition, N, which extends from one partition, O, to the other, O', forming U-shaped compartments on opposite sides of the pan, and long transverse partitions arranged across the bottom of the pan nearly to the serpentine partition, so as to subdivide the U-shaped compartments into two smaller communicating chambers, so that the juice will have a winding sinuous course from one end of the pan to the other, retarding the direct flow of the juice, and thus enabling a more perfect evaporation to be effected, as and for the purpose set forth.

2. The herein-described evaporating-pan, adapted to cook two lots of juice at one time, comprising the two compartments M M' at one end, vertical partitions O O' at each end arranged in the center of the pan, a longitudinal serpentine partition, N, which extends from one partition, O, to the other, O', forming U-shaped compartments on opposite sides of the pan, long transverse partitions P Q R, extending across the bottom of the pan nearly to the serpentine partition N, so as to subdivide the U-shaped compartments into smaller compartments X Y, short transverse partitions T U V, connecting with the central partition, N, and partitions S at the rear end of the pan extending nearly to the vertical partition O', arranged and operating as and for the purpose set forth.

310,404. FIRE-EXTINGUISHING COMPOUND. FERDINAND FRÖHLICH, New York, N. Y. Filed May 15, 1884. (Specimens.)

Claim.—1. A fire-extinguishing compound consisting of an alkaline silicate, alum, common salt, and phosphate of ammonia, combined and mixed together in about the proportion herein set forth.

2. A powder for admixture with a liquid in extinguishing fires, consisting of silicate of soda, alum, common salt, and phosphate of ammonia, combined and mixed together substantially as herein described.

310,405. SIFTER FOR FLOUR, &c. HARRIE E. FULLER, Fredonia, Kans. Filed Sept. 4, 1884. (No model.)

Claim.—1. In a sifting device for flour and other substances, the combination of a vessel or receptacle having a reticulated bottom, stirrers or agitators, an operating-crank, and a flexible shaft connecting said stirrers and crank, whereby the latter, turning in a vertical plane, operates the former in a plane horizontal or at right angles thereto, substantially as described.

310,405.



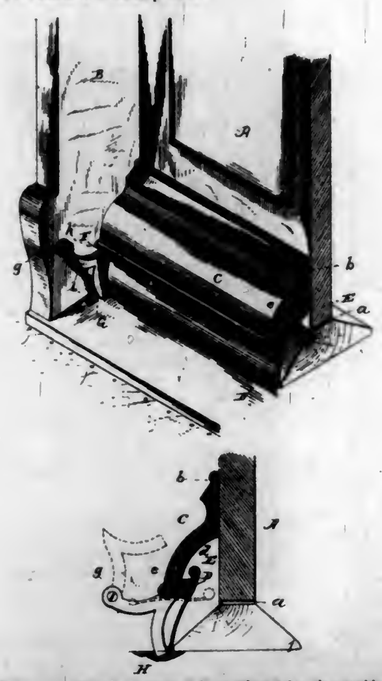
2. The combination of the vessel A, having removable reticulated bottom, the bracket *c*, and an inwardly-extending guide or brace, the crank, the spring or flexible shaft C, connected at its upper end to said crank, and terminating at its lower end with a straight portion, as shown, and the stirrers *e*, connected to said straight portion, substantially as described.

3. The herein-described sifter, comprising the receptacle having at its bottom diametrically-opposite lugs, the sieve portion B, provided with angle-slots corresponding to said lugs, stirrers *e*, spring-shaft C, having screw-threaded sleeve at its upper end, and crank D, secured in said sleeve, and bearing one or more elastic washers, substantially as and for the purpose set forth.

4. The combination of the vessel A, having reticulated bottom, the bracket *c*, and the brace or stay *b*, extending from the side of the receptacle, within, and formed with the hooked portion, the spring or flexible shaft, the stirrers attached to the lower end of said shaft by a hook or link connection, and the removable operating-crank, all substantially as described.

310,406. WEATHER-STRIP. STEPHEN J. GARD and JAROSLAV ZARUBA, Goshen, Iowa. Filed July 19, 1884. (No model.)

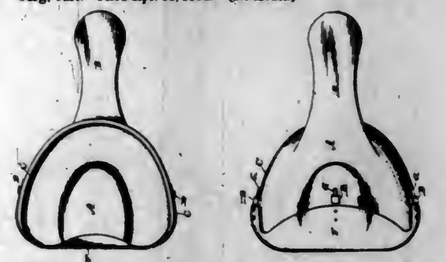
Brief.—A cam or V-shaped casting pivoted to the door-jamb at the outer end of one of its branches can operate to depress the strip or allow it to remain in a raised position.



Claim.—1. As an improvement in weather-strips, the combination, with the door, of the cap-strip C, having the rear longitudinal recess, *d*, and at its lower edge the rear extension, *e*, the weather-strip D, of flat contour, hinged thereto and weighted at its inner end, and the pivoted cam F, adapted to engage the said strip and be moved therefrom, substantially as specified.

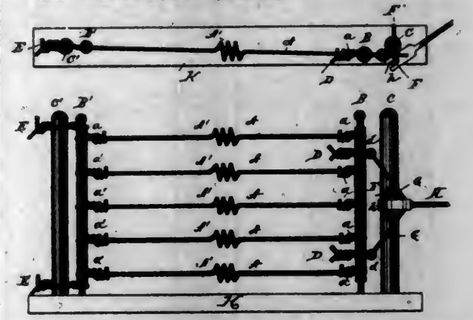
2. As an improvement in weather-strips, the combination, with a door and door-frame, of the cam F, pivoted to the door-frame, as shown, and adapted to engage a hinged weather-strip, and serve an additional function of allowing the door to close without engaging the strip, substantially as and for the purposes specified.

310,407. DENTAL IMPRESSION-CUP. AMARIAH GARNER, Lynchburg, Ohio. Filed Apr. 11, 1884. (No model.)



Claim.—The combination, with an impression-cup provided with staples or eyes, of a rubber or other elastic dam provided with pins or keys adapted to enter said staples or eyes and keep the dam in proper position, substantially as set forth.

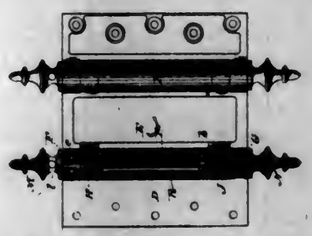
310,408. GATE. GIDEON GIBSON, Union Township, Union County Iowa. Filed Jan. 28, 1884. (No model.)



Claim.—1. In a gate, the wires A, having spring-coils A', in combination with the frame-pieces B B', the tie-wires or hinges E, and the post C', substantially as specified, for the purpose set forth.

2. The latch-lever H, having an open slotted end for engaging with the staples F F' on opposite sides of the post C, in combination with the gate-frame and the connecting-wire G, substantially as specified, and for the purpose set forth.

310,409. SPRING-HINGE. WILLIAM GILFILLAN, New Haven, Conn assignor to Sargent & Co., same place. Filed June 30, 1884. (Model.)

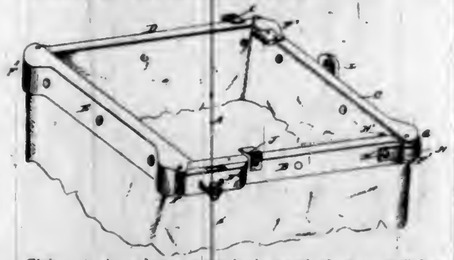


Claim.—In a spring-hinge, the combination of the leaves constructed with their respective ears F G and H J, with the pintle L, having a longitudinal groove, *a*, and extending through the ears to form a bearing on which the leaves will turn, the pintle constructed with a head, M, at one end, screw-threaded at its opposite end, the nut N, fitted to said screw-threaded end of the pintle, a spiral spring around said pintle and between the ears of the one part, one end bearing upon one leaf, the other end turned inward and extending into the groove of the pintle, the pintle within one of the ears on the leaf D constructed with one or more radial holes, *e*, the ear with a corresponding hole, *f*, and the pin A, substantially as and for the purpose described.

310,410. INCRUSTATION PREVENTIVE. HYACINTH GIRARD, Dubuque, Iowa. Filed July 29, 1884. (No specimens.)

Claim.—The process of removing or preventing incrustation in steam-boilers, which consists in distilling malt-sprouts and adding the resultant liquor to the water in the boiler, substantially in the manner and proportions described.

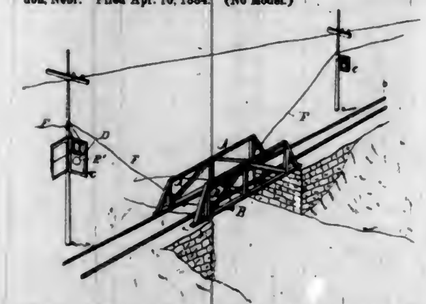
310,411. MAIL-BAG. NATHAN W. GIVEN and ROBERT A. DUNNING, Brunswick, Mo. Filed Oct. 28, 1884. (No model.)



Claim.—1. As an improvement in the mouth-pieces for mail bags and pouches, the combination, with the bag or pooch, of the metal bars connected by compensating-joints, and a spring secured around the outside of one or more of the joints, so that the closing of the mouth-piece draws the two ends of the spring close around the joints, as shown and described.

2. A mouth-piece for mail-bags, comprising the bars connected together by hinges or joints, and a spring secured around the outside of one or more of the joints, the ends of the spring being attached to the bars on each side of said joints and curved to cover the latter, whereby the action of closing the mouth-piece draws the spring tight around the joints, as and for the purpose set forth.

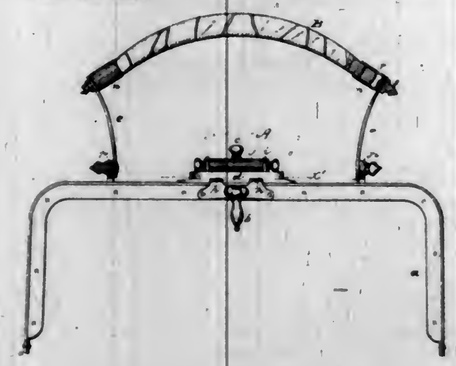
310,412. VISUAL ELECTRIC SIGNAL. FRANK M. GODFREY, Congdon, Nebr. Filed Apr. 10, 1884. (No model.)



Claim.—1. The combination of the magnet D, armature E and reflector E' attached thereto, at a signal-box, and electrical connections to a bridge or other part crossed by the road, substantially as and for the purpose set forth.

2. The combination of the magnet D, armature E and reflector E' attached thereto, at a signal-box, with electrical connections, as described, to road and line, and the insulators B B upon the bridge or other par of road, substantially as and for the purpose set forth.

310,413. BAG-LOCK. AUGUST GOERTZ, Newark, N. J. Filed Sept. 1 1884. (No model.)



Claim.—1. In combination with a bag-frame, *a a*, a lock or catch having a transversely-moving finger-piece, or one having the finger-piece move in a direction at right angles to the frame in opening the bag, substantially as set forth.

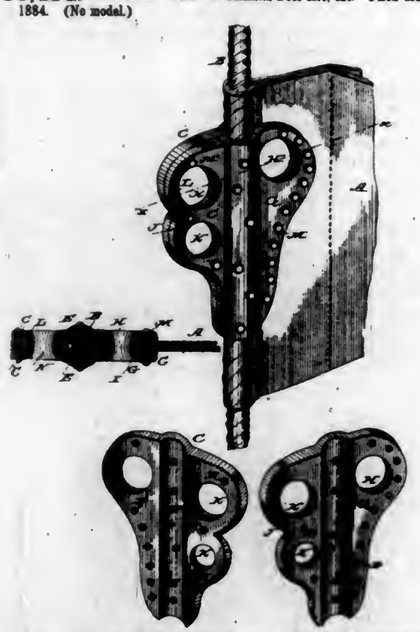
2. In combination with the sections *a a* of a bag-frame, the lock having a longitudinally-sliding bolt and a transversely-moving finger-piece to actuate the same, substantially as set forth.

3. In combination with the sections *a a* of a bag or satchel frame, the lock having the bolt, a rock-shaft provided with a projection to engage said bolt, and a finger-piece, substantially as set forth.

4. In combination with sections *a a* of a bag-frame, the lock-case having catching mechanism therein, a rocking shaft secured on the outside of said case and operating said mechanism, and a finger-piece projecting from said rocking shaft, substantially as and for the purposes set forth.

5. In combination, the frame-sections *a a*, case *d*, bolt *e*, springs *f* and *g*, rocking shaft *j*, having projection *k*, and finger-piece *c*, all said parts being arranged and operating substantially as set forth.

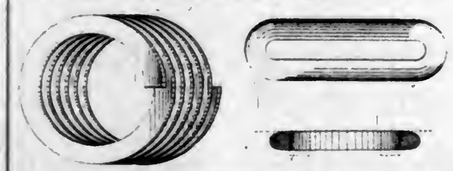
310,414. CRINGLE. JOHN W. GREENE, Deer Isle, Me. Filed May 8, 1884. (No model.)



Claim.—1. A cringle consisting of two halves having corresponding longitudinal grooves upon their meeting sides, having corresponding clew-eyes in their inner portions, having corresponding or registering cringle-eyes in their outer portions, and having rivet-holes, as an article of manufacture.

2. The combination of the sail, the bolt-rope, the cringle-halves having registering-grooves for the bolt-rope upon their meeting sides, having registering clew-eyes in their inner portions and registering cringle-eyes in their outer portions, and having registering rivet-holes, the rivets, and the bushings inserted in the eyes, as and for the purpose shown and set forth.

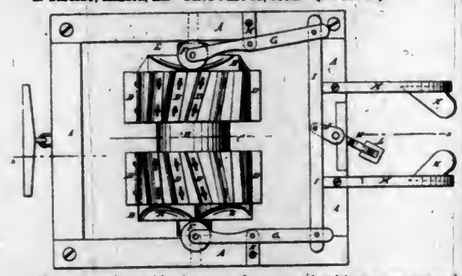
310,415. MANUFACTURE OF LINKS. PETER F. GREENWOOD, Catasauqua, Pa. Filed Mar. 20, 1884. (No model.)



Claim.—1. The improvement in the manufacture of a link, consisting in coiling a bar of metal into helical form, the coils being of equal diameter and placed one on the other, rolling the coils so as to weld the same, forming an annulus, and then distending or elongating the annulus, converting it into an ellipse or link shape, substantially as and for the purpose set forth.

2. A new and improved method in the manufacture of links for chains, consisting, first, in coiling a flat bar of metal edgewise into a helical form; second, rolling the coils so as to weld the same and form an annulus having a rounded outer face and a flat inner one; and, third, in drawing out or elongating said annulus until it is of an elliptical or link shape, substantially as described.

310,416. COMBINED COTTON CHOPPER AND CULTIVATOR. L. Z. GRIGSBY, Minden, La. Filed June 11, 1884. (No model.)



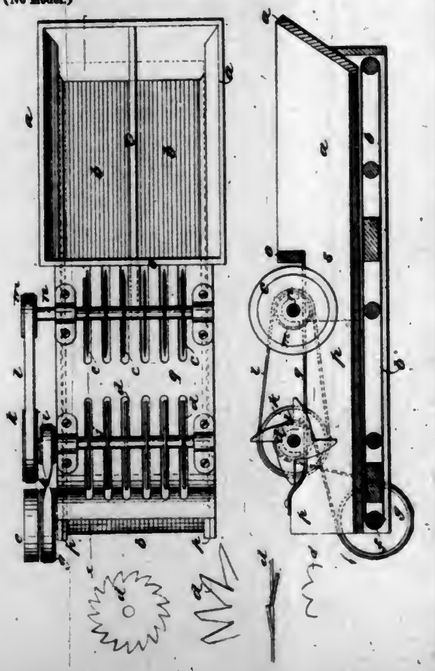
Claim.—1. A combined cotton chopper and cultivator constructed substantially as herein shown and described, and consisting of the frame A, the grooved cylinder B, having knives D on its face and cam-concaves E in its ends, the wheels, levers, and cross-bar F G I, and the crank J, standard K, and hoe L, as set forth.

2. The combination, with the frame A, of the cylinder B, having central annular groove, C, and the adjustable knives D, substantially as herein shown and described, whereby the stalks, roots, vines, weeds, and grass at the sides of the row will be cut in pieces and the soil mellowed, as set forth.

3. The combination, with the frame A and the cylinder B, having central annular groove, C, and cam-concaves E in its ends, of the wheels F, the levers G, the cross-bar I, and the crank J, carrying the standard K, and the chopping-hoe L, substantially as herein shown and described, whereby the said hoe will be operated by the advance of the machine, as set forth.

4. In a cotton-chopper, the frame A, the cylinder B, having the central annular groove, C, and the knives D, the chopping-hoe L, and the plow-beams M, carrying the plows N, in combination, substantially as and for the purpose set forth.

310,417. COMBINED BAND-CUTTER AND FEEDER FOR THRASHING-MACHINES. DAVID GRUBB, Waldron, Ind. Filed Mar. 28, 1884. (No model.)



Claim.—The combination, with the hopper *a*, open at its top and bottom, and the endless apron *b*, forming the bottom of the same, of the guard *q*, formed with two series of slots, as shown, and extending over and secured to the sides of the hopper, a series of cutting-disks, *c*, and a series of toothed feed-wheels, *d*, mounted on shafts *f n* above the guard-plate *q*, and extending through the slots therein, whereby the straw is prevented from being wound around the journals of the cutters and feed-wheels, and a feedway is formed between the said guard, endless belt, and sides of the hopper, substantially as set forth.

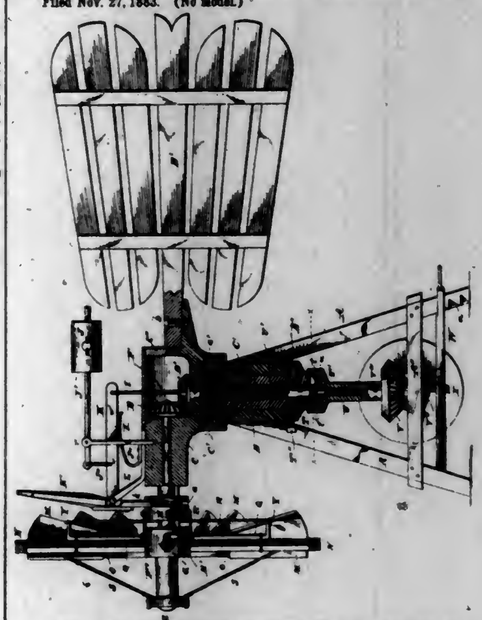
310,418. COFFEE AND SPICE MILL. CHAS. HALSTEAD, New York, N. Y. Filed Mar. 29, 1884. (No model.)



Claim.—1. A burr provided with spiral teeth and grooves, in combination with a shell provided with vertical teeth and grooves, the grooves both in the burr and the shell decreasing in depth toward the bottom, and the teeth in both having straight edges, substantially as described.

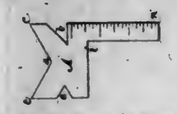
2. A burr provided with spiral teeth, in combination with a surrounding shell provided with teeth arranged in vertical planes and having vertical edges, all points of which come in contact successively with said spiral teeth, substantially as set forth.

310,419. WIND-ENGINE. JACOB G. HANOVER, Reed City, Mich. Filed Nov. 27, 1883. (No model.)



Claim.—The bell-crank-lever mechanism K *k* L *k'*, provided with upright extension K', and connected to a grooved collar E *s*, mounted loosely on the wind-wheel shaft and connected to the wheel and spring X, in combination with the weighted lever mechanism J J' J'' J''', for regulating the automatic governor action, substantially as specified.

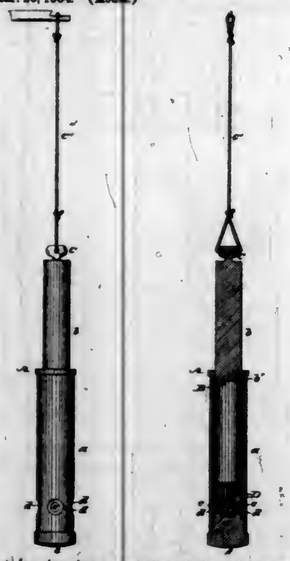
310,420. COMBINATION-GAGE. ANDREW J. HELLINGS, Philadelphia, Pa. Filed Mar. 8, 1884. (No model.)



Claim.—The combination, in a gage formed of sheet metal, of a straight narrow portion having the gradnations *n'*, and the body portion forming a right angle, *i*, therewith, the internal angles of sixty degrees in one side, *e*, forty-five degrees in the other side, *b*, and one hundred

and twenty degrees in the end *a*, and the solid angles of sixty degrees at each of the corners *c*, as shown and described, for the purpose specified.

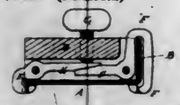
310,421. BURGLAR-ALARM. HORACE T. HELMBOLD, Philadelphia, Pa. Filed Mar. 26, 1884. (Model.)



Claim.—1. A burglar-alarm consisting of a barrel, a hammer fitted thereto telescopically, and a cartridge-holder, the hammer having its lower end provided with a spur, the barrel having a vent near its bottom, and the holder having a vent which opens into the bore of the holder and communicates with the vent of the barrel, the bottom of the holder closing the bottom of the bore of said barrel and having a striking-head substantially as and for the purpose set forth.

2. In a burglar-alarm, the barrel and cartridge-holder, having vents of different diameters or sizes, said holder being capable of rotation, and said vents located in the same horizontal plane, substantially as and for the purpose set forth.

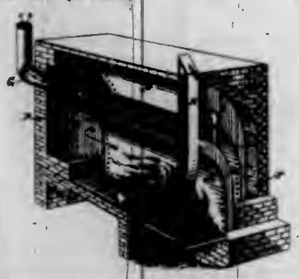
310,422. COMPOSING-STICK. WILLIAM HENDRICKSON, Brooklyn, N. Y. Filed Apr. 15, 1884. (No model.)



Claim.—1. The combination, with the recessed knee of a composing-stick, of lever-clamps pivoted to said knee, and a screw for operating said clamps to cause them to engage the body of the stick, substantially as set forth.

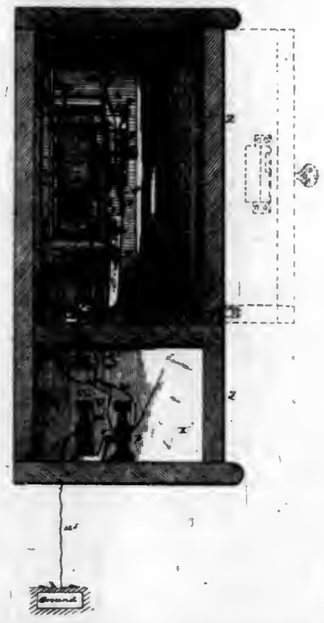
2. A composing-stick consisting of the bottom, back flange, and end A B C, recessed knee D, bent lever-clamps E F, pivoted in a recess in the knee D and embracing the edges of the bottom and back flange with their bent ends, and overlapped at their free ends, and the screw G, passing through the knee to operate the said levers, substantially as set forth.

310,423. STEAM-BOILER. MICHAEL P. HERBERT, St. Joseph, Mo. Filed July 18, 1884. (No model.)



Claim.—The combination of the upper section, having a semi-annular chamber communicating with a semi-cylindrical chamber at its rear end, the lower and inner section having a semi-annular chamber, and having the hollow bridge communicating therewith, the circulating-pipes connecting said sections together, and the coal-magazine located at the front end of the boiler, substantially as shown and described.

310,424. AUTOMATIC FIRE-ALARM BOX. WILLIAM C. HESS, Louisville, Ky. Filed Apr. 19, 1884. (No model.)



Claim.—1. In an automatic fire-alarm mechanism, the combination, with a tripping-lever, F, arranged to trip the mechanism into operation, of the spring I, secured to the door of the inclosing-box, and provided with the catch *k*, arranged to slide by and catch behind said lever, the lug *l*, projecting from said spring, and the suitably-supported plate M, having a beveled edge arranged to strike said lug and force the spring downward when the latter is moved outward by the opening of the door, substantially as described.

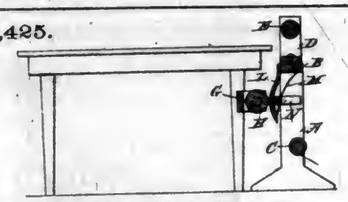
2. In an automatic fire-alarm mechanism, the combination, with the break-wheel D, of the disk E, included in the train with said break-wheel, and having the slot e^2, the lever F, having one end normally pressed outward by a spring, and provided with the notched arm *f*, arranged to embrace the margin of said disk when in motion, and to enter the slot of said disk for arresting the same, and a tripping device attached to a door of a case inclosing the mechanism, and arranged to move the lever for releasing the disk when the door is opened, substantially as described.

3. A fire-alarm-signal box having two compartments provided with independently-accessible doors, one compartment containing automatic fire-signal mechanism arranged to be tripped into operation by the opening of the door of said compartment, and the other compartment containing a signaling device or devices connected with the automatic mechanism, but accessible through the door of its own compartment and without interfering with said automatic mechanism, substantially as described.

310,425. CLOTH MEASURING AND FACING MACHINE. BERNHARD HEUMANN, Rochester, and FRANKLIN B. PEASE, Ontario Centre, N. Y. Filed May 7, 1884. (No model.)



310,425.

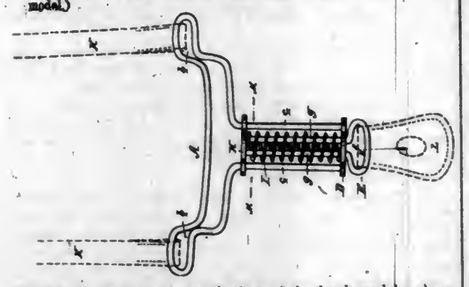


Claim.—1. In a cloth-measuring machine, the combination of the measuring-roll H, mounted on the shaft I, a registering mechanism, K, connected to said shaft, the pressure-foot L, spring M, and guides N N, substantially as described.

2. In a cloth-measuring machine, the combination of the rollers O E, measuring-roll H, mounted on the shaft I, a registering mechanism, K, connected to said shaft, the yielding pressure-foot L, and the guides N N, substantially as described.

3. A cloth measuring and facing machine consisting of the frame A B, having guides N N and bracket G, a registering mechanism, K, carried by said bracket, a measuring-roll, H, mounted on a shaft, I, journaled in the bracket and connected to said registering mechanism, the pressure-foot L, and spring M, attached to the cross-piece B, the lower roller, C, and the pivoted frame D, carrying roller E, substantially as described.

310,426. TENSION CHECK-SPRING. THOS. H. HUKE, Detroit, Mich., assignor to MAX LOUIS ROSSVALLY, same place. Filed Oct. 9, 1884. (No model.)



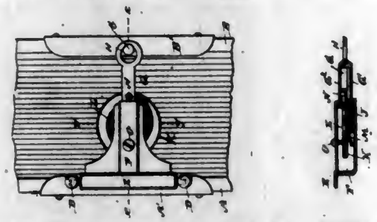
Claim.—1. In combination, the frame A, having loops *b b* and parallel guide-bars *c c*, the frame E, having loop *f* and parallel guide-bars *g g*, the guide-plates D H, secured to the ends of the guide-bars of one frame and sliding loosely on the guide-bars of the other frame, respectively, and a coil-spring, I, interposed between the guide-plates, substantially as described.

2. As an improved article of manufacture, a tension check-spring consisting of the frames A E, bent of single pieces of wire, forming suitable loops for securing the device in place, guide-bars *c c g g*, guide-plates D H, secured to the ends of the guide-bars of one frame and sliding loosely on the guide-bars of the other frame, respectively, and the tension-spring I, interposed between the guide-plates, all combined substantially as described.

310,427. REMEDY FOR LIVER AND KIDNEY DISEASES. GEORGE P. HILTON, Glendale, S. C. Filed June 30, 1883. (No specimens.)

Claim.—The medicine compounded of senna-leaves, dandelion and mandrake roots, buchu-leaves, bicarbonate of soda, whisky, and tincture of ginger, in the proportions substantially as specified.

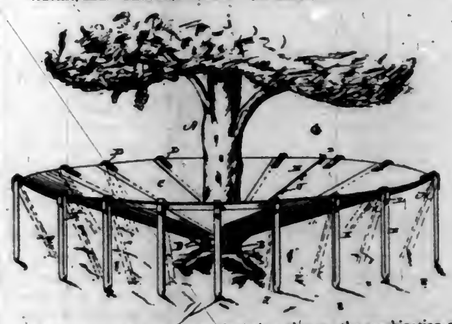
310,428. ALBUM-CLASP. ERNST P. HINKEL, Offenbach-on-the-Main, Germany. Filed Sept. 23, 1884. (No model.)



Claim.—1. In an adjustable album-clasp, the combination, with a hinged forked part, of a disk held in the same, and provided with a spiral groove, and of a sliding fork in the hinged part, studs projecting from the hinged part and the sliding part into the spiral groove of the disk, substantially as herein shown and described.

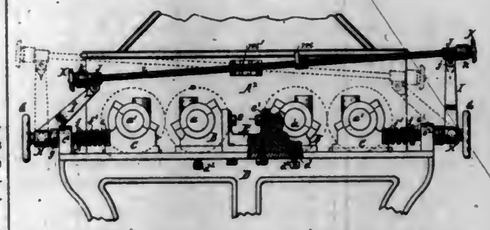
2. In an adjustable album-clasp, the combination, with the hinged part F, of the disk K, having a spiral groove, L, the sliding fork G, provided with a groove, J, in one prong, the spring-strip M on the under side of the disk, and of the studs O N, projecting from the parts F or G into the spiral groove L, substantially as herein shown and described.

310,429. FRUIT AND NUT GATHERER. GEORGE W. HOGAN, Bentonville, Ark. Filed Sept. 7, 1883. (No model.)



Claim.—As an improvement in fruit-gatherers, the combination of the belt, the circular apron, the series of supports or stays flexibly connected with the outer periphery thereof, whereby the inclination of said apron may be varied at will, the inner periphery provided with a series of eyelets, and being disposed some distance from the belt, and a series of radial cords extending from the belt to and through the said eyelets and knotted at the face of the apron, these cords being adjustable in the perforations to regulate the distance between the apron and the tree, substantially as set forth.

310,430. ROLLER-MILL. NOAH W. HOLT, Buffalo, N. Y. Filed Oct. 23, 1883. (No model.)



Claim.—1. The combination, with the main frame D, of a bearing-box constructed with a convex back, a standard, E, secured to the frame, and provided with a concave face, in which the convex back of the bearing-box is seated, and a vertically-adjustable pivot, which supports the bearing-box on said frame, the convex and concave contact-surfaces of the bearing-box and standard being curved concentric with the axis of said supporting-pivot, whereby said bearing-box can be turned on the supporting-pivot while resting against the supporting-standard, substantially as set forth.

2. The combination, with the movable bearings C, of adjusting-rods *c*, tubular screws *c'*, provided with projections *g'*, springs *f'*, and screw-nuts *f*, hand-wheels G, shaft *h*, provided with eccentrics *h'*, and bearings H, substantially as set forth.

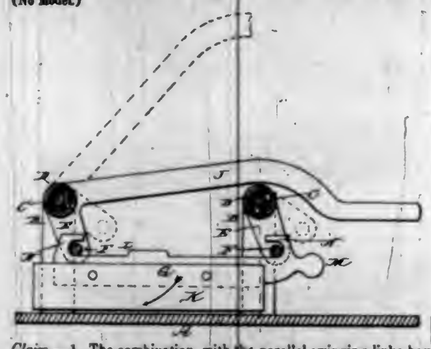
3. In a roller-mill provided with two pairs of rollers, the outer rollers being mounted in movable boxes C, adjusting devices whereby each movable box can be adjusted independently, shafts *h*, provided with eccentrics *h'*, and mechanism whereby both movable bearings of the same roller can be adjusted simultaneously to separate the rollers by turning the shafts *h*, levers I, secured to the shafts *h*, a rod, *i*, connecting said levers, and mechanism applied to the ends of said rod, whereby each lever can be adjusted to regulate the grinding adjustment, substantially as set forth.

4. The combination, with the levers I I and mechanism whereby the movable boxes can be adjusted independently and simultaneously, of the connecting-rod *i*, mechanism whereby the connecting-rod can be held against longitudinal movement, and mechanism whereby each lever can be adjusted on the connecting-rod, substantially as set forth.

5. The combination, with the levers I and connecting-rod *i*, of pivoted bearings J, hand-wheels K, and screw-sleeves *k*, substantially as set forth.

6. The combination, with the levers I I, connecting-rod *i*, and means whereby the levers are adjustably connected to the connecting-rod, dog *m*, and fixed jaws *m'*, substantially as set forth.

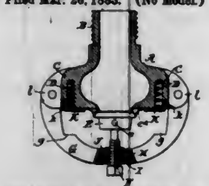
310,431. TOBACCO-CUTTER. JOHN J. HOPPES, Springfield, Ohio, assignor of one-half to Warren A. Ross, same place. Filed May 22, 1884. (No model.)



Claim.—1. The combination, with the parallel swinging links having means for operating them and provided with transverse pins at their lower ends, of a knife provided with hook-shaped bearings at its upper edge, the said bearings pointing toward each other, as and for the purpose shown and set forth.

2. The combination, in a tobacco-cutter, of the uprights arranged in pairs, the parallel arms or links pivoted at their upper ends between the upper ends of the uprights and having transverse pins at their lower ends, springs forcing the links to one side, a handle attached at an angle to one of the links, and a knife having hook-shaped bearings at the ends of its upper edge, said bearings pointing toward each other with their hook-shaped portions, as and for the purpose shown and set forth.

310,432. AUTOMATIC FIRE-EXTINGUISHER. CHARLES L. HORACK, Brooklyn, N. Y. Filed Mar. 26, 1883. (No model.)



Claim.—1. An automatic fire-extinguisher provided with a valve held closed by a fusible solder-joint and having a movable deflector held by an independent fusible joint, substantially as set forth.

2. An automatic fire-extinguisher provided with a valve held closed by a fusible solder-joint and having a movable deflector held above the discharge-outlet by an independent fusible joint, substantially as set forth.

3. An automatic fire-extinguisher provided with a valve held closed by a fusible solder-joint and having a movable deflector held by an independent fusible joint and a spring arranged to act upon the deflector when the restraining-joint is fused, substantially as set forth.

4. An automatic fire-extinguisher provided with the yoke G, in combination with the valve E, held closed by a fusible joint in the yoke, and the movable deflector K, held to the extinguisher by an independent fusible joint, substantially as and for the purpose set forth.

5. In an automatic fire-extinguisher, the combination, with a casing provided with a discharge-outlet, of a valve held by a fusible joint, a deflector held by an independent fusible joint, a spring constructed to bear upon the deflector, and a projection extending from the valve into the path of the deflector, for the purpose of communicating the thrust of said spring, after the independent fusible joint has been broken, to the agencies restraining the movement of the valve, substantially as set forth.

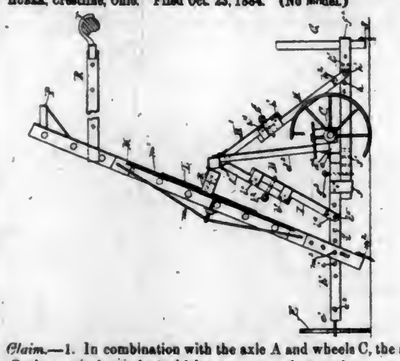
6. In an automatic fire-extinguisher, the combination, with a casing provided with a discharge-outlet, of a valve held by a fusible joint, a spring held by an independent fusible joint, a shoe upon which the spring bears, and projections on the valve in the path of the shoe, substantially as and for the purpose specified.

7. In an automatic fire-extinguisher, the combination, with a casing provided with a discharge-outlet, of a valve held by a fusible joint, a spring held by an independent fusible joint located above the discharge-outlet, a shoe upon which the spring bears, and projections on the valve in the path of the shoe, substantially as set forth.

310,433. PROCESS OF HARDENING STEEL. NAPOLEON C. HUBBELL, Hartford, Conn., assignor to Louis F. Houblein, same place. Filed Apr. 28, 1884. (No specimens.)

Claim.—The herein-described improvement in the process of hardening steel, consisting in immersing the hot steel in a bath composed of water and shell-marl, substantially as described.

310,434. PORTABLE LADDER FOR GATHERING FRUIT. HENRY HUBER, Crestline, Ohio. Filed Oct. 23, 1884. (No model.)



Claim.—1. In combination with the axle A and wheels C, the stub-axles B, the vertical arm *b* of which serves as a pivot, and means, as B' B^2, for adjusting the said wheels, as set forth.

2. In combination with the axle A, adjustable tongue E, the wheels C, and wheel E', the stub-axles B, segments B', and spring-catches B^2, as and for the purposes set forth.

3. In combination with the truck A C, adjustable tongue E, and extension F, the frame D, pivoted to the axle A at *d*, and having the holes d^3, the adjustable braces H H' and I I', and pins d^5, as and for the purposes set forth.

4. The combination, with the adjustable frame D and truck, of the hinged bar J, pivoted block K, having guides *k*, and the ladder M, having plates L and points m^2, as and for the purposes set forth.

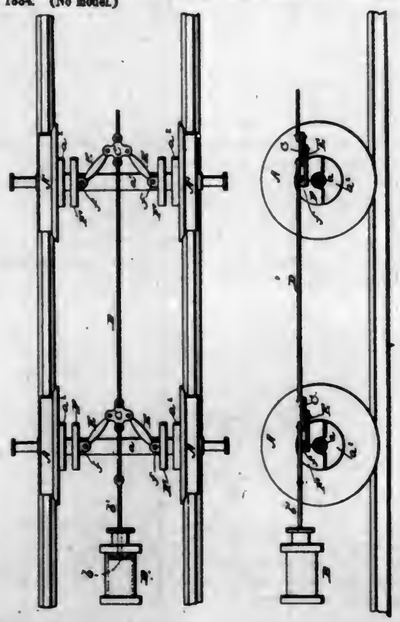
5. The combination, with the adjustable tongue E, hinged to the frame D, the said frame D pivoted to the truck and having adjusting means, as described, and the adjustable extension E, having holes *i*, of the ladder M L, pivoted block K, hinged bar J, and bolt or pin m^2, as and for the purposes set forth.

6. The adjustable frame D, having the braces H' I' hinged thereto and the tongue E, hinged to the frame D and having wheel-spindles *e* e^2, combined with the extension F, anchoring-leg G, the adjustable wheels C, the wheel E', and the ladder M, as and for the purposes set forth.

7. In combination with the ladder M, as described, the platform consisting of the part *p*, having hooks *p'*, the adjustable braces p^3, having hooks p^3, and the locking means p^4, as and for the purposes set forth.

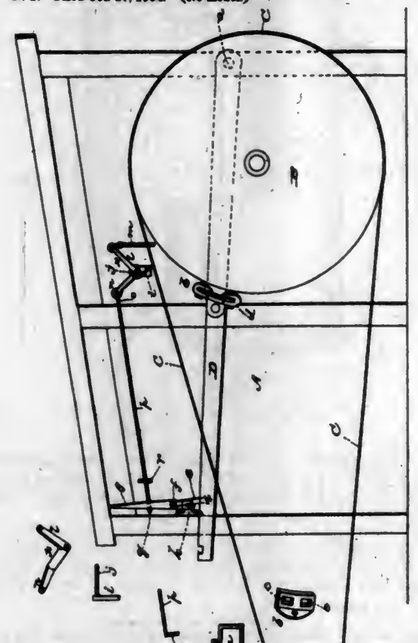
8. The combination, with the ladder M, of the attachment R, having hook *r*, with rubber cover *r'*, as and for the purposes set forth.

310,435. CAR-BRAKE. LOUIS C. HUBER, Huber, Ky. Filed June 12, 1884. (No model.)



Claim.—As an improvement in car-brakes, the combination, with the axles *a a'*, of the disks a^2, rigidly attached to the inner sides of the truck-wheels, the brake-shoes F, sliding upon the said axles to engage the said disks, and provided with central horizontal projections, *f*, levers E, plates C C', rod D, and mechanism for operating the same, substantially as specified.

310,436. BRAKE FOR HORSE-POWERS. BYRON J. IRISH, Hague, N. Y. Filed Oct. 27, 1884. (No model.)

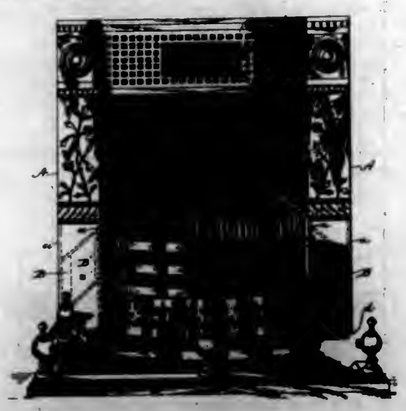


Claim.—1. In a brake for horse-powers, the slotted shoe provided with leather wear-plates, in combination with the lever D and means, as described, for automatically operating the brake, substantially as specified.

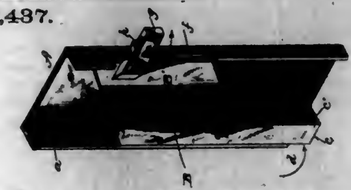
2. In a horse-power brake, the combination, with the lever D, belt-wheel, and frame, of the lever *g*, rod *p*, bracket *i*, angular arm *k*, and loop or bail *m*, the whole arranged and operating as described, and for the purpose specified.

310,437. GRATE-FRONT. E. A. JACKSON, New York, N. Y. Filed Apr. 3, 1884. (No model.)

Claim.—1. The combination, with the side uprights of the grate-frame, of the flue-plates composed of the trough-like portions open at the bottom and the recessed portions extending laterally therefrom to the ends of the grate and open thereto, substantially as described.

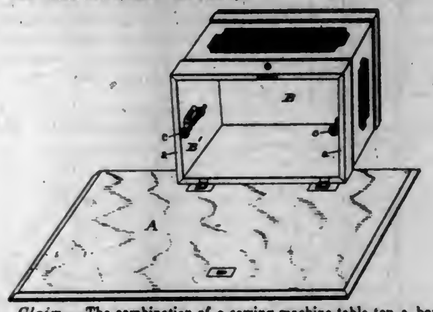


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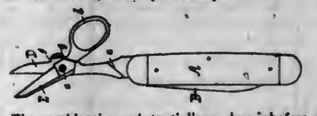
2. The combination, with the side uprights having rearwardly-extending flanges which are notched opposite the position of the grate, of the flue-plates, each composed of a vertical trough-like portion closed at top and open at bottom, and the wide recessed portion B', extending laterally from said trough-like portion to the notch in the adjacent flange of the upright, said flue-plates being attached to the uprights respectively, and forming in connection therewith the inclosing-walls of air-flues which keep said uprights cool when fire is kindled in a grate supported between them, as set forth.

310,438. SEWING-MACHINE TABLE. LEVIN T. JONES, Baltimore, Md. Filed Nov. 2, 1883. (No model.)



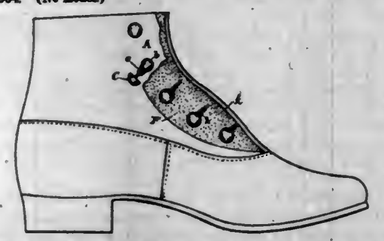
Claim.—The combination of a sewing-machine-table top, a box-cover, and hinges for securing the cover to the table, and springs attached to the box-cover, projecting below its lower edge and adapted to rest on the surface of the table-top when the cover is on the table in position, as set forth.

310,439. COMBINED KNIFE AND SCISSORS. MAX KAHAK, New York, N. Y. Filed Oct. 2, 1884. (No model.)



Claim.—The combination, substantially as hereinbefore described, with the handle A, the spring *a*, and the scissor-blade D, pivoted to the handle and exposed to the action of the spring, of the scissor-blade E, provided with the bow *d*, and connected to the scissor-blade D by a pivot, on which it can be swung around to close the scissors into the handle.

310,440. SHOE. GUSTAV S. KAHN, Baltimore, Md. Filed June 12, 1884. (No model.)

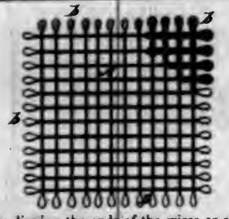


Claim.—A shoe having its buttons fastened by means of an elastic cord passing through the button-eye, whereby each button has elasticity imparted to it, and a button-hole flap, F, of elastic material having a leather facing, *g*, on one side where the button-holes are formed, as set forth.

310,441. MANUFACTURE OF WIRE COATED ARTICLES. EMIL KELLERMANN, Cincinnati, Ohio. Filed Sept. 20, 1884. (Model.)

Claim.—1. In the manufacture of coated wire articles made from wire-cloth, the process herein described of decorating the same, which

310,441.

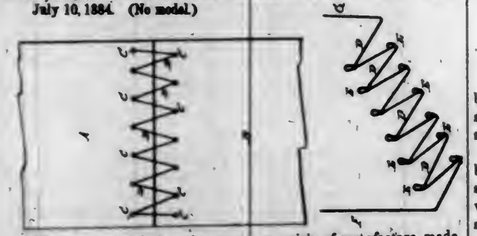


consists in repeatedly dipping the ends of the wires or edges of the material in an adhesive substance or compound and covering said dipped ends, which assume the form of bulbs or protuberances, with a granular or flocculent material, substantially as specified.

2. In the manufacture of coated wire articles, wire-cloth formed with bulbs on the ends of the wires, composed of an adhesive substance or compound and a granular or flocculent material, essentially as described.

3. In the manufacture of coated wire articles, the method herein described of making and decorating the same, which consists in constructing the article from one or more pieces of wire-cloth, repeatedly dipping the exposed ends of the wires in an adhesive substance or compound, and covering the same with granular or flocculent material to form bulbs, blocking the structure into shape, and finally coating the whole, substantially as specified.

310,442. BELT-FASTENER. THOMAS KELLS, Brooklyn, N.Y. Filed July 10, 1884. (No model.)



Claim.—1. A belt-fastening, as a new article of manufacture, made substantially as herein shown and described, and consisting of a wire bent for about half its length into zigzag form, and having its angles bent upward at right angles, to form a series of loops adapted to be applied to the ends of a belt, as set forth.

2. The combination, with the ends A B of a belt, of the wire fastening having zigzags D and angle-loops E, having its end F passed through the said loops E, forming zigzags H, and having its ends twisted together, substantially as herein shown and described.

310,443. TRACTION-ENGINE. OLIVER W. KELLY and LOUIS F. DIETZ, Springfield, Ohio, assignors to the Springfield Engine and Thresher Company, same place. Filed Sept. 1, 1884. (No model.)

Claim.—1. The combination, with the front axle and the sleeve thereon, of the socket on said sleeve, the spring-case provided with the ball-shaped end adapted to turn in said socket, and the spring supporting the boiler on said spring-case, substantially as set forth.

2. The combination, with the front axle and the sleeve thereon, of the socket on said sleeve, the ball-shaped spring-case adapted to turn in said socket, the outer casing secured to said boiler, and provided with guides for said spring-case, and the spring supporting the boiler on said spring-case, substantially as specified.

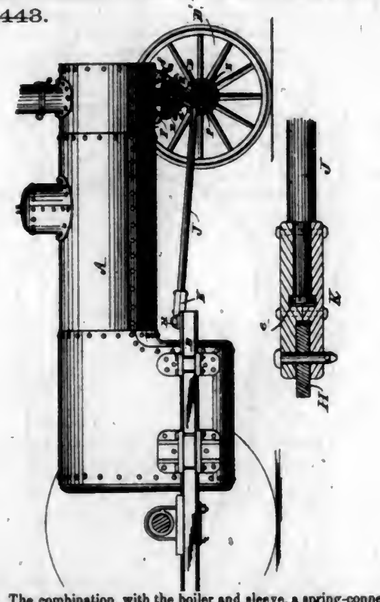
3. The combination, with the front axle and the sleeve thereon, of the socket on said sleeve, the ball-shaped spring-case adapted to turn in said socket and to form a bearing for a spring supporting the boiler thereon, an outer casing provided with guides for said spring-case, and a hand-screw for tightening said spring-case on said guides, substantially as set forth.

4. The combination, with the front axle, of the ball-and-socket connection from said axle to the boiler, a frame supporting the traction-wheels, and a push-rod connecting said frame and axle, said push-rod being connected to said frame by a coupling, in which the end of said push-rod is journaled, substantially as set forth.

5. The combination, with the front axle, of the sleeve supported thereon, a socket on said sleeve, a ball-shaped connection from the boiler adapted to turn in said socket, and the pin passing through said ball, socket, axle, and sleeve, substantially as set forth.

6. The combination, with the boiler and axle, of a socket on said axle, a ball-shaped spring-support adapted to turn in said socket, a spring between said spring-support and boiler, guides for holding said spring-support from turning, and means for tightening said support on said guides, substantially as specified.

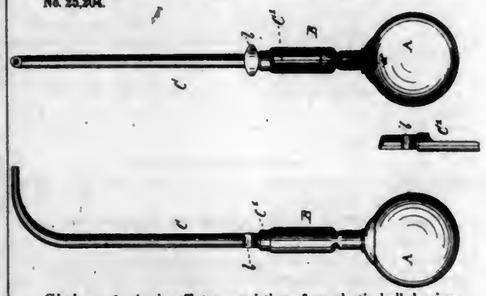
310,448.



7. The combination, with the boiler and sleeve, a spring-connection between said boiler and sleeve, of the axle passing through said sleeve, a push-rod connected to said axle, and a pin passing directly through said sleeve, push-rod, and axle, substantially as specified.

8. The combination, with the front axle and sleeve, supporting a ball-and-socket connection thereon, of a spring supporting the boiler on said ball-and-socket connection, a frame adapted to support the traction-wheels, and a push-rod connecting said frame and axle, substantially as and for the purpose set forth.

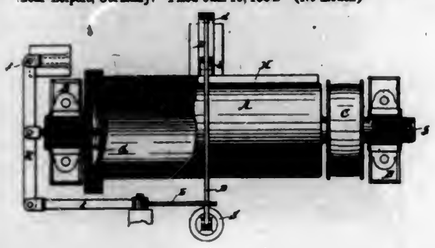
310,444. INSUFFLATOR. AUGUST KIELE, Weissenfels, Germany. Filed Mar. 29, 1884. (No model.) Patented in Germany Feb. 17, 1883, No. 25,204.



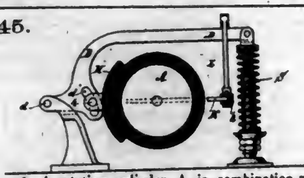
Claim.—1. An insufflator consisting of an elastic bulb having a fixed socket, and of a detachable nozzle provided with a spoon-shaped end fitted into the socket of the bulb, substantially as set forth.

2. An insufflator consisting of an elastic bulb having a fixed socket, and of a detachable nozzle provided with a spoon-shaped end fitted into the socket of the bulb, the shank of the nozzle having an enlargement or handle, substantially as specified.

310,445. HEATING APPARATUS. EDUARD KRASCHOVITZ, Roudnitz, near Leipsic, Germany. Filed Jan. 15, 1884. (No model.)



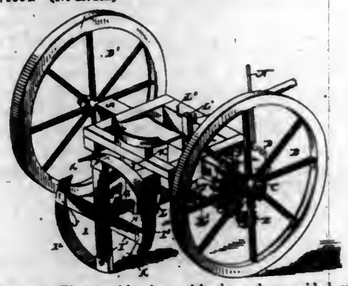
310,445.



Claim.—1. A rotating cylinder, A, in combination with one or more shoes, H, lever D, with eccentric slot *d'*, and spring S, arranged to operate in the manner and for the purpose described.

2. A rotating cylinder, A, with one or more shoes, H, pressed against its circumference, filled with air, gas, or fluid, in combination with the internal disk, G, spindle *n*, lever K, rod *k*, bell-crank L, and lever D, supporting the shoe or shoes H, arranged to operate substantially in the manner and for the purpose set forth.

310,446. COTTON-CHOPPER. JAMES S. LAMAR, Augusta, Ga. Filed Oct. 1, 1884. (No model.)



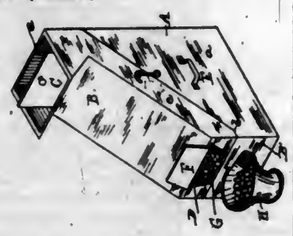
Claim.—1. The combination, with the axle provided with the frame and hangers, as described, of the wheel B', and the wheel B provided with cog-gear on its hub, the transverse gear-shaft in hangers secured to the axle, the horizontal longitudinal geared shaft, the recessed lever G, the rotary chopper having the curved blades I^2 I^2, with spaces between said blades, and the adjusting-screw and crank-lever, substantially as specified.

2. The combination, with the frame secured to the axle mounted on the wheels B B', and provided with the hangers and stirrup, as described, of the recessed lever G, fulcrumed in the hanger secured to the axle, the rotary chopper having the curved blades I^2 I^2, with spaces between said blades, the adjusting-screw and crank-lever, and mechanism, substantially as described, for rotating the chopper, substantially as specified.

3. The combination, with the frame and axle provided with the hangers and stirrup, as described, of the recessed lever G, the rotary cutter with curved blades and spaces between the ends of said blades, the adjusting-screw, and mechanism, substantially as described, for operating the rotary cutter, as specified.

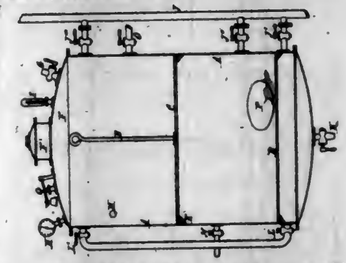
4. In a cotton-chopper, the combination, with the hub having cross-arms and sectional peripheral cutting-knives, of the recessed pivoted lever G, the adjusting-screw, and mechanism, substantially as described, for rotating the rotary cutter, substantially as specified.

310,447. ASH-SIEVE. CHARLES LEFFINGWELL, Newark, N.J. Filed Nov. 5, 1883. (No model.)



Claim.—As an improvement in ash-sifters, the combination, with the ash-box A, having its longitudinal side walls inclined on their upper edges downwardly to the rear horizontal portion, *b*, which meets the upper horizontal edge of the rear wall, B', of the cover B, having a hopper at its upper end, and a discharge-aperture, D, at its lower end, having a closing-door, F, the said cover also having a sieve secured between the longitudinal side walls, and its lower end provided with a horizontal portion, *d*, to engage the horizontal portion *b* of the ash-box, and means for connecting the cover to the box, substantially as shown and described.

310,448. PROCESS OF AND APPARATUS FOR BARYTA OR STRONTIA TREATMENT OF SACCHARINE LIQUORS AND PRODUCTION AND RECOVERY OF THESE REAGENTS. HIPPOLYTE LEPLAY, Paris, France. Filed Apr. 23, 1884. (No model.) Patented in France Sept. 25, 1883, No. 157,732, and Nov. 27, 1883, No. 158,818; in England Sept. 26, 1883, No. 4,592; in Belgium Dec. 12, 1883, No. 63,517, and in Italy Dec. 21, 1883, XXXIII, 91.



Claim.—1. The within process of obtaining sucrate of baryta or strontia, consisting in adding monohydrate or low hydrate of baryta or strontia to saccharine liquor, and dissolving the same therein to form the precipitate of the baryta or strontia, substantially as described.

2. The within process of treating saccharine liquor to obtain sucrate of baryta or strontia, consisting in bringing boiling saccharine liquor and monohydrate or low hydrate of baryta or strontia together, then blowing steam through the liquid, and subsequently, when the monohydrate has dissolved, allowing the mother-liquor to escape, then washing the precipitate thus formed, and afterward blowing steam through it to drain the same, substantially as described.

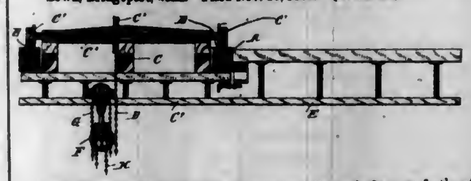
3. The within process of producing and recovering monohydrate or low hydrate of baryta or strontia, consisting in heating the carbonate of baryta or strontia, and while in that condition subjecting the carbonate to the action of superheated steam to drive off the carbonic acid, substantially as described.

4. The process herein described of producing the monohydrate or a low hydrate of strontia, said process consisting in mixing the ordinary hydrate with fragments of anhydrate produced by the action of superheated steam upon the heated carbonate of strontia, substantially as described.

5. The process herein described of producing the monohydrate or a low hydrate of strontia for use in the treatment of saccharine liquors, said process consisting in molding the carbonate of strontia into forms presenting extended surfaces, heating the molded pieces, subjecting them to the action of superheated steam, breaking said pieces into fragments, and mingling them with crystals of ordinary strontia hydrate, substantially as described.

6. The apparatus herein described and shown for the treatment of saccharine liquors by a low hydrate of baryta or strontia, said apparatus consisting of the closed vessel A, having a cover provided with a manhole, the steam-pipe J, communicating with the upper and lower parts of the vessel, escape-valve G, inlet-valve M, decanting-valve N, bottom-water valve O, and outlet K, said vessel having an inner finely-perforated screen, B, near its bottom, with a man-hole, P, above and a grating, C, midway of said vessel, substantially as described.

310,449. SYSTEM OF TRAVELING TRANSFER-CRANES. WM. LOWE, Bridgeport, Conn. Filed Nov. 10, 1884. (No model.)

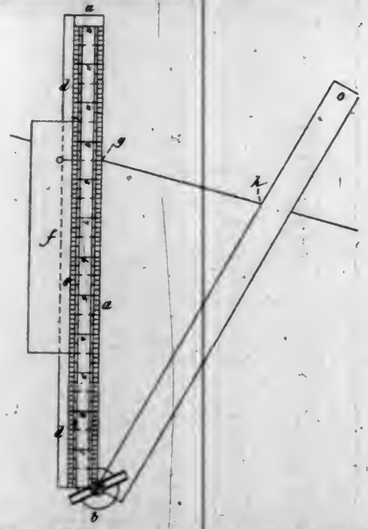


Claim.—1. The combination, substantially as before set forth, of two or more traveling cranes carrying tracks arranged in the same horizontal plane, and trolleys or carriages which are adapted to travel on said tracks.

2. The combination, substantially as before set forth, of two or more traveling cranes carrying tracks arranged transversely to the line of movement of the cranes, means—for example, bolts—for locking the cranes together when the tracks register, and trolleys or carriages adapted to travel on said tracks and pass freely from one crane to another.

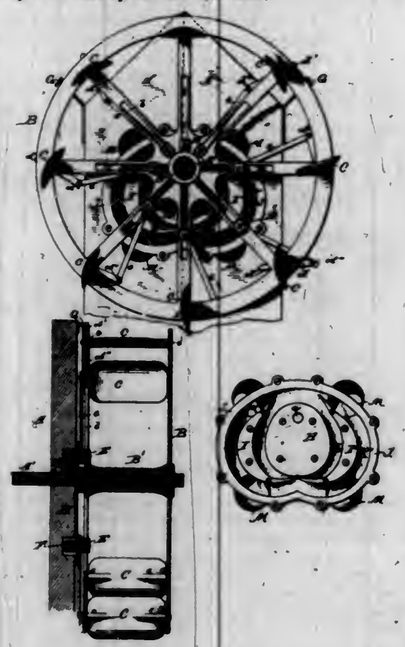
3. The combination of traveling cranes carrying tracks, which register with each other, stationary tracks or tramways, which register with those upon the cranes, and trolleys or carriages adapted to travel on said tracks and pass freely from one track to another without depositing the load.

310,450. DRAFTSMAN'S DIVIDING-INSTRUMENT. PHOEBE S. MARSH, 13 1 Cornwall Residences, Regents Park, St. Marylebone, County of Middlesex, England. Filed May 2, 1884. (No model.) Patented in England Mar. 25, 1884, No. 5,443.



Claim.—A dividing and ruling instrument consisting of the combination of a base-piece, *f*, adapted to be fixedly held upon the material to be divided or marked, and provided with a zero or indicating point, a graduated limb, *a*, secured thereto by a tongue and groove, permitting longitudinal movement of the two relatively to each other, and a limb or ruler, O, pivotally attached to the limb *a* and adapted to be moved therewith as the latter is slid in the fixed base-piece *f*, whereby the limb or ruler O may be moved suitable distances to divide a limb or space into equal divisions by the conjoint action of the graduated limb, fixed base-piece, and its zero or indicating point, substantially as described.

310,451. FEATHERING PADDLE-WHEEL. PARKER C. MARSH, Troy, N. Y. Filed Apr. 26, 1884. (No model.)



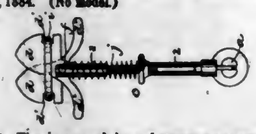
Claim.—1. The combination, in a propeller-wheel, of a drive-shaft suitably journaled, a wheel provided with parallel rim-sections, and having its spokes slotted as described, a series of paddles having journals bearing in said rim-sections, an arm, *d*, connected to one of said journals of each paddle, an arm, *e*, connected to arm *d* and to a block located in one of the spoke-slots, devices for moving said block in said slot, and a trip device, G, for contacting with the end of the arm *d* when the same is in line with the arm *e*, substantially as set forth.

2. The combination, in a propeller-wheel, of a drive-shaft suitably journaled, a wheel provided with parallel rim-sections, and having its spokes slotted as described, a series of paddles having journals bearing in said rim-sections, a block located in the slot of each of the spokes and connected to one of the journals of each of the paddles, a roller carried by said block and adapted to travel in eccentric guide-passages formed in the adjacent side of the vessel, and weighted dogs having spurs *m* closing the upper ends of one set of passages and the lower ends of another set, substantially as set forth.

3. In a feathering paddle-wheel, the pivoted paddle-blades C, formed of a single piece of metal, and hollowed so as to be concave both longitudinally and laterally, and provided on the rear with raised portions *c*, from which project the side journals, substantially as shown.

4. In a self-feathering paddle-wheel, the guide-recesses K K' L L', provided with weighted dogs M, pivoted as shown, and an anti-friction roller adapted to travel therein, and connected to the paddles so that they will operate so as to present their concave surface to the water when the wheel is rotated in either direction, substantially as shown.

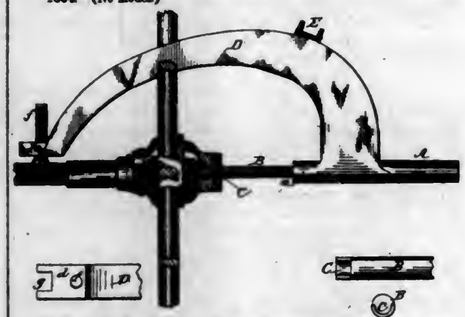
310,452. KEY-FASTENER. EPHRAIM MCDONALD, Somerville, Mass. Filed July 7, 1884. (No model.)



Claim.—1. The improved key-fastener composed of a stud or holder provided with means for attachment to a door, an arm pivoted to said stud, jaws *d d*, pivoted to said arm and formed to enter and engage with the handle of a key, and a spring whereby said jaws are pressed outwardly, as set forth.

2. The improved key-fastener composed of a stud or a holder, *a*, adapted to be attached to the door, the arm *c*, composed of the part 2, pivoted to the stud, and the part 3, adapted to slide in the part 2, the jaws *d d*, pivoted to the part 3, and the spring *j*, whereby the part 3 is pressed upwardly and the jaws *d d* are pressed outwardly, as set forth.

310,453. CARRIAGE-JACK. JAMES MCFARLAND, Richland, Iowa, assignor of one-half to Thomas Catesby Long, Iola, Kans. Filed Oct. 30, 1884. (No model.)



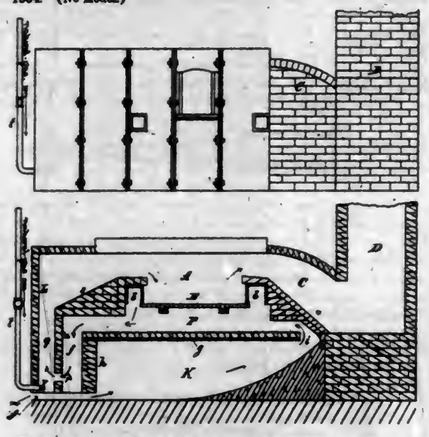
Claim.—1. The combination, in a lifting-jack, of the bow or goose-neck D, a handle therefor, the continuous axle-bearing part B, and an axle-fulcrum bearing, substantially as and for the purpose set forth.

2. The combination, in a lifting-jack, of the goose-neck D, the handle A, the continuous axle part provided with the supporting open bearing C, and a forked axle-bearing part, F *f*, substantially as and for the purpose described.

3. The herein-described lifting-jack, consisting of a bowed arm or goose-neck having a handle and an axle and wheel supporting arm at one end and a fulcrum-bearing at the other end, as a new article of manufacture, substantially as herein set forth.

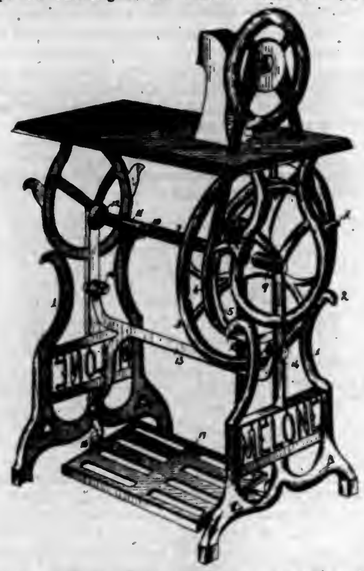
4. As a new article of manufacture, a lifting-jack formed as an entirety of a goose-neck or bow having at one end a handle and a cylindrical arm provided with a socket end adapted to receive and support both the axle and the wheel, and at its other end a fulcrum-bearing and one or more nut-wrenches, substantially as described.

310,454. METALLURGICAL FURNACE. WILLIAM MCKENNA, Pittsburg, Pa., assignor of one-half to D. E. Park, same place. Filed July 18, 1884. (No model.)



Claim.—In a metallurgic furnace adapted to burn gas as a fuel, the combination, with the working-chamber A, the horizontal flue K, entering at the bottom of the furnace, the return-flue F, passing between the flue K and the chamber A, of the depending flue *f*, the dividing-wall *n*, having an opening, *p*, located entirely below the top of flue K and leading to the ascending flue *q*, which has an unobstructed passage directly to the working-chamber, and a gas-burner at its bottom and below the opening *p*, substantially as described.

310,455. SEWING-MACHINE STAND. THOMAS L. MELONE, Chillicothe, Ohio. Filed Aug. 13, 1883. Renewed June 24, 1884. (No model.)



Claim.—1. In combination with the side or leg of a sewing-machine frame, the crank-wheel having grooved or faced portion to receive the belt, located between the rim of the wheel and the side of the frame, substantially as and for the purposes set forth.

2. In combination with the side or leg of a sewing-machine stand, having projecting lugs 2 around the path of the belt, the crank-wheel having rim 3, and the grooved or faced portion 5 in close proximity to the side of the stand, substantially as set forth.

3. The combination, with the side or leg 1 and crank-wheel 3, having grooved or faced portion 5, of the screw-bolt or other projection, 14, adapted to span or nearly span the space between the rim of the crank-wheel and the side of the frame, substantially as and for the purposes set forth.

4. The crank-shaft having conical bearings, as shown, in combination with the inwardly-projecting adjustable bearing 11, forming a construction of the crank-shaft, and having jam-nut 12, substantially as described.

5. The combination, with the crank-shaft having means for taking up wear, substantially as described, of the crank-wheel and attached band-wheel having means for longitudinal adjustment on said shaft, for the purpose set forth.

6. The combination of crank-shaft 7, carrying wheel 3 5, and the treadle 17, weighted at heel to balance the weight of the crank, substantially as set forth.

310,456. BILLIARD-CUE. OLIVER F. MITCHELL, Merrill, Wis., assignor of one-half to William H. Swinhart, same place. Filed July 15, 1884. (No model.)



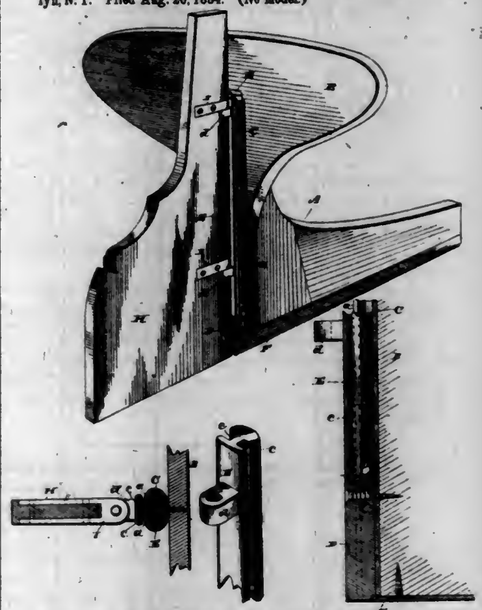
Claim.—A cue having at one end two tenons of different diameters, in combination with a ferrule having near one end an inwardly-projecting flange, 7, and a rim beyond said flange, the extremity of the smaller tenon fitting the orifice in the flange, and a tip secured in the end of the ferrule upon the flange, substantially as described.

310,457. METHOD OF MAKING STEEL-GIRDER STREET-RAILS. ARTHUR J. MOXHAM, Johnstown, Pa. Filed Mar. 21, 1884. (No model.)



Claim.—The above-described method or process of making steel-girder street-rails, consisting in rolling an ingot or bloom thinnest in the center for the web, with a contour approximating that of the finished rail, preparatory to subsequent heating and rolling out of said ingot or bloom into a girder-rail, substantially as set forth.

310,458. ATTACHING RUDDERS TO BOATS. JOHN F. MUHM, Brooklyn, N. Y. Filed Aug. 20, 1884. (No model.)

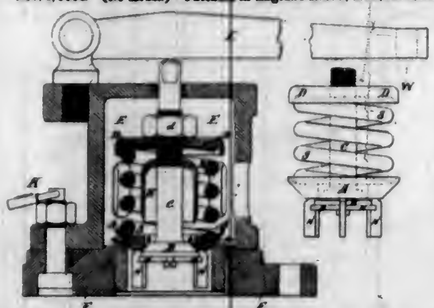


Claim.—1. The combination, with a single elongated socket constructed substantially as described, of the rudder-slide slightly shorter than the socket, and provided with side grooves, in which the flanges of the socket rest, the perforated lugs rigidly secured to the outer face of the slide, for the attachment of the rudder, and a block closing the lower end of the socket.

2. The combination, with the socket secured to the stern of the boat, the block secured within the lower end of the socket, and the

plate secured to the keel and forming a seat for the socket and block, of the rudder-slide and rudder, all of the above parts constructed substantially as set forth.

310,459. SAFETY-VALVE. W. NEWTON NICHOLSON and ARTHUR T. ALLCOCK, Newark-upon-Trent, County of Nottingham, England. Filed Nov. 6, 1884. (No model.) Patented in England Mar. 1, 1884, No. 4,211.



Claim.—1. The combination of the annular valve A, the internal central valve, B, for controlling the opening in valve A, the spindle C to valve B, spring S, acting on said valves, and an adjustable pressure-power applied to said spindle, substantially as described.

2. The combination of the annular valve A, the internal central valve, B, for controlling the opening in valve A, the spindle C to valve B, a spring, S, acting on valve A, a collar, D, connecting with spindle C and serving as a bearing for spring S, and a nut, *d*, for regulating the pressure of said spring, substantially as described.

3. The combination, with a valve having an opening therein and a second valve for controlling said valve, of a whistle adjacent to the opening in said first valve, to sound an alarm when said second valve is moved from its seat, substantially as described.

4. The combination of the annular valve A, the internal central valve, B, for controlling the opening in said valve, and stops N and N' permitting the rotation of said valves, substantially as described.

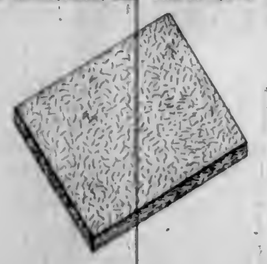
310,460. CAR-COUPLING. JOHN G. OGDEN, Chicago, Ill. Filed Oct. 1, 1884. (No model.)



Claim.—1. In a car-coupler, the combination of the coupler A, having a flaring mouth, *a*, passage *a'*, curved end a^2, slot a^3, shoulder a^4, and recess a^5, with the coupling-bar B, consisting of a middle portion, *b*, and enlarged ends *b'*, and with the uncoupler C, pivoted in a slot in the lower part of the coupler and provided with an inclined plane, c^3, for raising the end of the coupling-bar, substantially as described and shown, and for the purpose set forth.

2. In a car-coupler, the combination of the coupler A, constructed substantially as described and shown, the coupling-bar B, consisting of a middle portion, *b*, with enlarged ends *b'*, the uncoupler C, provided with an inclined plane for raising the end of the coupling-bar, the quadrant D, attached to the uncoupler by a bolt, *c'*, and the uncoupling-rod E, provided with the handle e^5, by which the car's may be uncoupled without going between them, substantially as described and shown, and for the purpose specified.

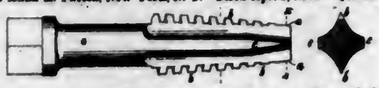
310,461. NON-CONDUCTING COMPOSITION FOR REFRIGERATORS, &c. JOHN M. ORDWAY, Boston, Mass. Filed Oct. 2, 1884. (No model.)



Claim.—1. A composition of matter to form a non-conductor of heat or sound, consisting, essentially, of a mixture of granulated cork, bark, or pith and water-glass, shaped and dried substantially as set forth.

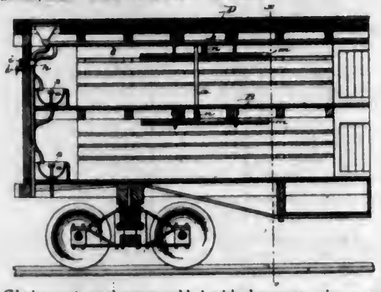
2. A non-conducting coating of granulated cork, bark, or pith agglomerated by water-glass, in combination with a lining of fossil-meal or magnesia, as specified.

310,462. TAP AND DIE. JEFFERSON PATTEN, Brooklyn, assignor to Anna M. Patten, New York, N. Y. Filed Apr. 2, 1884. (No model.)



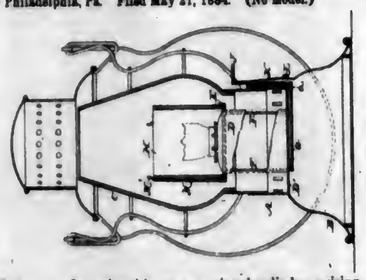
Claim.—A tap or die having rows of teeth so disposed that the teeth in each row will alternate with those in the other row, the teeth being so constructed that they will taper radially, or, in other words, in the direction of their projection, and that they will have so short an extent in a direction transverse to the length of the tap that the tap may be rotated to the right or the left for the purpose of cutting a screw-thread in either direction, substantially as specified.

310,463. STOCK-CAR. EDWIN F. PERKINS and GEORGE D. BURTON, Boston, Mass. Filed Feb. 8, 1884. (No model.)



Claim.—A stock-car provided with the water-pipe *e*, extending along its top, said pipe having the funnel-shape supply-openings *f*, and branch pipes *k*, leading to sprinklers *m*, located within the car, and branch pipes *g*, leading to troughs *a*, combined with valves in said branch pipes, the handles or turning-plugs of which valves are located without the car, all arranged substantially as shown and described.

310,464. SIGNAL-LANTERN. ABRAHAM H. PHILLIPPI, Reading, assignor of two-thirds to Daniel P. Disterich and Richard M. Popham, both of Philadelphia, Pa. Filed May 21, 1884. (No model.)



Claim.—1. In a signal-lantern, a colored cylinder, a rising and falling support for the same, and a handle connected with said support at the side of the lantern, in combination with a spring depending from and connected with said handle, and a ledge on the base of the lantern, against which the bottom of said spring is thrust when the cylinder is raised, substantially as and for the purpose set forth.

2. In a signal-lantern, a colored cylinder and a support for the same, in combination with inwardly-pressing spring-fingers formed with shoulders which engage with the top of said cylinder, substantially as and for the purpose set forth.

310,465. RUFFLING ATTACHMENT FOR SEWING-MACHINES. ORRIN A. REYNOLDS, Covington, Ky. Filed Feb. 13, 1883. (Model.)



Claim.—1. In a ruffling attachment for sewing-machines, the combination, with the arm D, supported by a foot shouldered and curved upon its sole, as shown, of the levers E M, the former being provided with the limb H, said limb also being provided with lips J' J', the lever K, and the spring-fingers I and L', substantially as described.

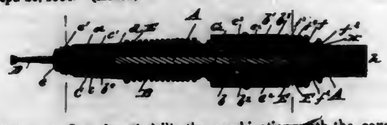
2. In a ruffler, the combination, with the arm D, its foot, and means for securing it to a pressure-bar, of the part E, having arms G F, and a limb, H, bearing the finger I and stop-lips J' J', the limb K, having arm L and finger L', and the lever M, flanged and provided with a set-screw, Q, substantially in the manner and for the purposes specified.

310,466. LAMP-WICK CUTTER AND CLEANER. HEINRICH RIBSER, Aalen, Wirtemberg, Germany. Filed June 18, 1884. (No model.) Patented in Germany Sept. 23, 1883, No. 26,489, and in France Feb. 5, 1884, No. 160,136.



Claim.—A combined wick trimmer and cleaner for Argand burners composed of a cleaning-brush, *a*, a cutting-disk, *b*, and a knob, *c*, substantially as herein specified.

310,467. DENTAL DRILL. ROBERT M. ROSS, Utica, N. Y. Filed Sept. 29, 1884. (Model.)



Claim.—1. In a dental drill, the combination, with the cover E, plug F, and screw f^3, of the drill-spindle A, steel bushings *e* and *f*, and set-screw *e'*, substantially as specified.

2. In a dental drill, the combination, with the spindle A, of the pinion C, screw *c*, and sleeve B, provided with the milled head *b* and teeth *b'*, substantially as specified.

3. In a dental drill, the combination of the spindle A, sleeve B, and cover E with the collar b^3, milled head *b'*, sleeve b^3, pinion C, and screw *c*, substantially as specified.

310,468. COVER FOR CULINARY VESSELS. RUDOLF F. SCHIMPER and CHARLES F. W. SIEDHOF, Union Hill, N. J. Filed Aug. 13, 1884. (No model.)



Claim.—1. The combination, with the vessel, A of a depressed disk, B, provided with perforations *c*, and adapted to receive and hold articles to be steamed, and a central tube, C, attached to the same, substantially as set forth.

2. An attachment for cooking-vessels, consisting of a concave disk, B, with a central opening and circumferential perforations, *c*, a tapered tube, C, rigidly attached thereto, and provided at its upper portion with a concave cover, D, supported above the end of the tube, substantially as shown, and for the purpose set forth.

310,469. CENTRIFUGAL WOOD AND PAPER SORTING MACHINE. HEINRICH SCHLATTER, Reutlingen, Wirtemberg, Germany. Filed Oct. 22, 1884. (No model.)

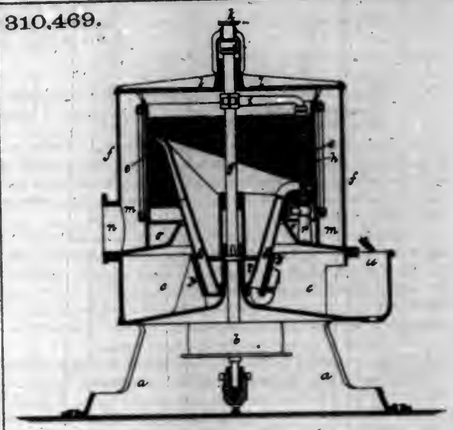
Claim.—1. A distributer, *d*, provided with spouts *z*, arranged at varying heights along the periphery or rim of said distributer, substantially as set forth.

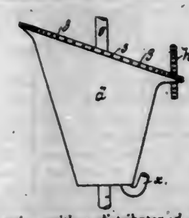
2. The combination, with a rotating distributer, *d*, of a tube or conduit, *h*, connected to said distributer and rotating therewith, substantially as set forth.

3. The combination, with a distributer, *d*, and reservoir *c*, of an inlet or duct, *x*, communicating with the interior of said distributer, substantially as set forth.

4. The combination, with a distributer, *d*, of a jacket or funnel, *y*, surrounding the lower portion of said distributer, substantially as set forth.

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5. The combination, with a distributer, *d*, of a tube or conduit, *h*, and an axle or shaft, *g*, provided with an inlet communicating with said tube or conduit *h*, substantially as set forth.

6. The combination, with a distributer, *d*, of a tube or conduit, *h*, and a jacket or funnel, *y*, surrounding the lower portion of said distributer, substantially as set forth.

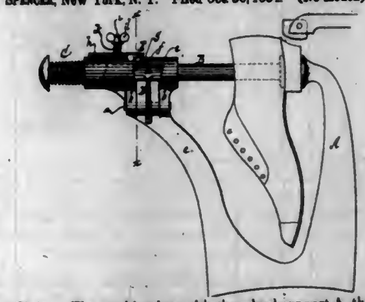
7. The combination, with a distributer, *d*, of a jacket or funnel, *y*, surrounding the lower portion of said distributer, a reservoir, *c*, and an inlet or duct, *x*, communicating with the interior of said distributer, substantially as set forth.

8. The combination, with a rotating distributer, *d*, of an ejector, *r*, operated by said distributer, substantially as set forth.

9. The combination, with a distributer, *d*, mounted on a vertical shaft, *g*, and provided with a tube or conduit, *h*, of a screen, *e*, reservoirs or chambers *c o m*, jacket *y*, and inlet or duct *x*, substantially as set forth.

10. The combination, with a distributer, *d*, mounted on a vertical shaft, *g*, and provided with a tube or conduit, *h*, and an ejector, *r*, of reservoirs or chambers *c o m* and outlets *n* and *p*, substantially as set forth.

310,470. JACK FOR HEEL-BURNISHING MACHINES. EDWARD E. SPENCER, New York, N. Y. Filed Oct. 30, 1884. (No model.)



Claim.—The combination, with the wheel-support A, the clamping-bar B, and the cam-lever D, of a yielding friction-stop adapted to bear against the cam-lever, substantially as described.

310,471. BALANCE. ALFRED SPRINGER and FREDERICK A. ROEDER, Cincinnati, Ohio. Filed June 2, 1884. (No model.)

Claim.—1. In an elastic pivot-balance, a movable weight arranged to automatically shift its position relatively to the center of beam-oscillation toward the depressed end of the beam as the same is deflected, and oppose thereby a counteracting force to the molecular resistance of the elastic pivot or pivots, substantially as set forth.

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2. In an elastic pivot-balance, the combination, with the beam and its elastic pivot, of a shifting weight arranged to move automatically toward the depressed end of the beam as the latter is deflected, and a poise or supplemental weight mounted on a vertical fixed standard oscillating with the beam, substantially as set forth.

3. In an elastic pivot-balance, the combination, with the beam and a pivot acting by molecular displacement and involving molecular resistance thereby, of a tube or vessel containing liquid which by deflection of the beam is carried by gravity toward the depressed end of the beam, thereby opposing a counter-resistance of the gravity of the liquid to the resistance of the pivot, substantially as and for the purpose specified.

310,472. THERMAL CUT-OUT. WM. STANLEY, Jr., Englewood, N. J. Filed Dec. 5, 1882. Renewed July 8, 1884. (No model.)

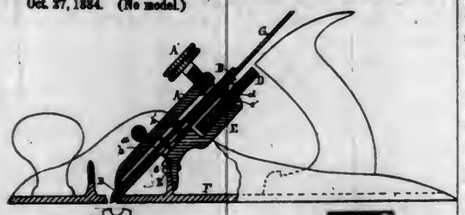


Claim.—1. In an electric cut-out, the combination of an air-chamber, an electric conductor arranged in such proximity to said chamber that heat generated by the current will materially expand the confined air, and a movable body arranged to close said chamber and connecting with said conductor, as and for the purpose set forth.

2. In an electric cut-out, an air-chamber provided with a capillary passage normally closed by a liquid conductor, in combination with an electric circuit arranged in such proximity to said chamber that heat generated by the current will materially expand the confined air, as and for the purpose set forth.

3. In an electric cut-out, an electric conductor composed of two parts of different conductivity, in combination with an air-chamber closed by a movable body, substantially as and for the purpose set forth.

310,473. BENCH-PLANE. WM. STEERS, Brattleborough, Vt. Filed Oct. 27, 1884. (No model.)





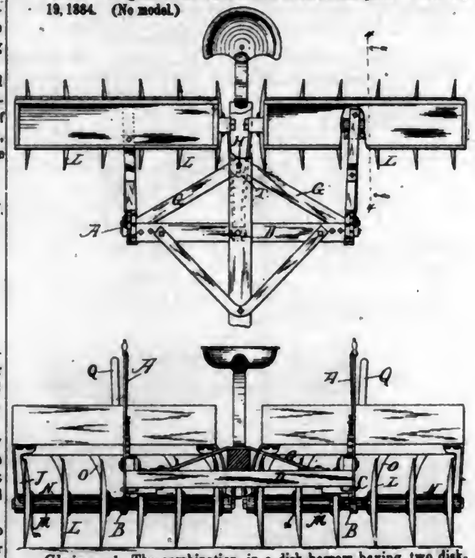
Claim.—In metallic planes, the adjusting crank-wheel D, the link C, attached at one end immediately to the crank-wheel by a wrist-pin, having at its other end a pin which passes through a slot in the plane iron or knife into the back-iron, in combination with the plane iron or knife and back-iron, substantially as and for the purpose described.

310,474. SHIFTING-RAIL FOR VEHICLES. GEORGE STRAW, Constantine, Mich., assignor of two-thirds to Samuel W. Harvey and John Gregg, same place. Filed Oct. 20, 1884. (No model.)



Claim.—The combination, with a vehicle-seat having a back provided with recessed and shouldered supports, of a shifting-rail carrying the top, said rail resting in the recesses E, and removably secured by hooked bolts H, provided with stiffening-stripe I, substantially as shown and described.

310,475. DISK-HARROW. R. K. SWIFT and LYMAN E. PHELPS, Rochelle, Ill., assignors of one-third to J. J. A. Zeller, same place. Filed July 19, 1884. (No model.)



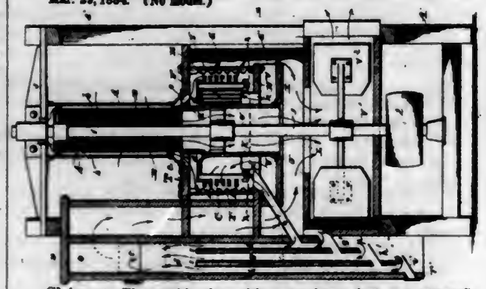
Claim.—1. The combination, in a disk-harrow having two disk-gangs attached to the main frame at their inner ends, respectively, of an adjusting-lever, a swing-bar operated by said lever, and a horizontally-moving link or bar connected at its rear end to the gang-axles, at or near the center of the latter, and having its forward end adapted to slide in suitable ways on the under side of the draft-bar, substantially as described.

2. The combination, in a disk-harrow, of a draft-frame, gang-axles, and rods connecting the inner ends of the gang-axles with the frame, and adapted to hold the same at a certain fixed distance back therefrom, and to engage with frame-timbers or stops, whereby the inner ends of the gangs are prevented from being raised out of the ground, and separate adjusting devices for each gang, comprising an operating-lever and a connecting link or links connected to the gang-axle at or near its center, substantially as described.

3. The combination, in a disk-harrow, of a draft-frame, gang-axles, rods connecting the inner ends of the gang-axles with the frame, and a slotted wedge or plug inserted between the rods and the draft bar or tongue, whereby the depth of the inner ends of the disk-gangs can be regulated, substantially as described.

4. In a disk-harrow, the combination, with a non-rotating axle and a series of disks, of spools spacing the disks upon the axle and forming bearings for the latter, and clamp-rods N and washers, substantially as and for the purpose described.

310,476. GRAIN-SCOURER. ABE L. TEXTOR, Indianapolis, Ind. Filed Mar. 29, 1884. (No model.)



Claim.—1. The combination, with a revolving shaft, a perforated casing secured to said shaft, and a brush secured to the shaft below the casing, of perforated stationary casings surrounding said movable casing and brush, and a fan secured to said shaft below the brush.

2. The combination, with a shaft journaled in a suitable frame, a perforated casing secured to the shaft, and a cylindrical brush located below the perforated casing and revolving with the shaft, of a stationary perforated casing surrounding the movable casing, and a stationary perforated casing surrounding the brush.

3. The combination, with a revolving shaft, a perforated casing secured thereto, a stationary perforated casing surrounding the movable casing, a cylindrical brush rotated by the shaft, and a perforated casing inclosing the brush, of a plate located between the upper and lower stationary casings and provided with discharge-openings and feed-regulating devices, substantially as described, for regulating the feed of grain to the brush.

4. The combination, with a shaft journaled in a suitable frame, of a brush secured to the shaft, a casing, the top of said brush being formed concave, a scouring-chamber leading to said brush, and the plates F and T, situated between the scouring-chamber and brush, substantially as and for the purpose described.

5. The combination, with a shaft and a scouring-chamber consisting, essentially, of a movable and stationary casing, of a brush having air spaces or openings therein and located below the scouring-chamber, a perforated casing surrounding the brush, and an air-chamber communicating with the inside of the brush, substantially as set forth.

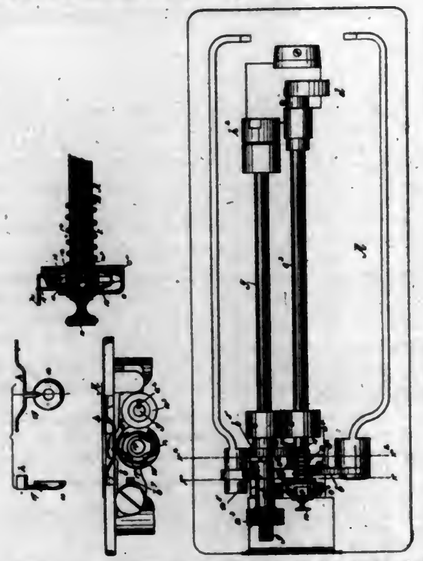
6. The combination, with a revolving shaft and a scouring-chamber consisting, essentially, of a movable and stationary perforated casings, of a brush revolving with the shaft and having openings therein for the passage of air, a perforated casing surrounding the brush, an air-chamber located below the brush and communicating with the interior thereof, and a fan for exhausting the air from said chamber, substantially as set forth.

7. The combination, with a shaft journaled in a frame, of the brush C, secured to the shaft, plates F H I, casings E G, cylinders A B, a fan, and a fan-chamber, all of the above parts combined and adapted to operate substantially as and for the purpose described.

8. The combination, with the shaft, the perforated movable casing and brush secured to said shaft, and the stationary perforated casings surrounding said movable casing and brush, of the separator in open relation with the chamber in which the brush is located, and the fan, all of the above parts being constructed and arranged substantially as set forth.

310,477. SEWING-MACHINE. EDDY T. THOMAS, New York, N. Y., assignor to the New Home Sewing Machine Company, Orange, Mass. Filed Jan. 25, 1884. (No model.)

Brief.—A disk-bobbin and a bobbin-case are held within an oscillating hook. The shaft carrying and operating the hook is grooved longitudinally to receive the shank of the bobbin-holding yoke. A spiral spring surrounding the shaft draws the yoke to hold the bobbin-case and the bobbin in working position, and with the bobbin pressed against the face of the hook with a yielding pressure. Tension is secured upon the bobbin-thread by drawing the same through holes in the bobbin-case, which latter is restrained from oscillating by a holder.



Claim.—1. The oscillating shaft c^3, its attached hook c^4, and the disk-bobbin and bobbin-case, combined with a longitudinally-movable spring-held sliding yoke carried by the said shaft and oscillating with it, substantially as described.

2. The oscillating shaft c^3, its attached hook c^4, and the disk-bobbin and bobbin-case, combined with longitudinally-movable spring-held sliding yoke carried by the said shaft and oscillating with it, and with means to restrain the bobbin-case from oscillating to the same extent as the said hook, substantially as described.

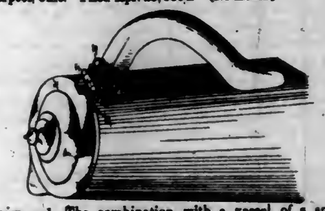
3. The oscillating shaft c^3, its recessed hook c^4, and the bobbin-holding yoke e, placed in and oscillating in unison with the said hook, and provided with a shank, combined with a spring to operate upon the said yoke and keep the bobbin in the recessed face of the said hook, substantially as described.

4. The oscillating hook-shaft and hook, and the spring-pressed center or pad n, to act against the bobbin, combined with the bobbin and bobbin-case, and with the bobbin-holding yoke connected with and serving to retain the bobbin in the hook, and oscillating in unison with the said hook, substantially as described.

5. The oscillating shaft, its attached oscillating hook to engage the needle-thread, and the disk-bobbin and bobbin-case, provided with means for altering and regulating the tension upon the thread proceeding from the bobbin, combined with the bobbin-holding yoke connected and oscillating in unison with the said hook, and means for holding the bobbin-case and bobbin in the said hook, and with means to prevent the oscillation of the bobbin-case with the said hook, as and for the purpose described.

6. In a sewing-machine, the oscillating shaft and its attached hook, shaped and operated to enter the loop of thread contained in the usual eye-pointed needle, and to spread and carry the said loop about the bobbin-case, and the bobbin and the bobbin-case, and the bobbin-holding yoke connected and oscillating in unison with the said hook, combined with means, substantially as described, to prevent the oscillation of the bobbin-case with and to the same extent as the hook, for the purposes set forth.

310,478. LID FOR TEA-POTS, JUGS, &c. JOHN C. THOMPSON, East Liverpool, Ohio. Filed Apr. 23, 1884. (No model.)

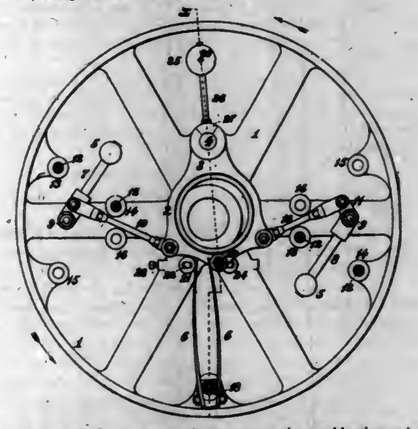


Claim.—1. The combination, with a vessel, of a spring-clamp adapted to be removably secured to the rim or handle of the vessel, and having curved or bent ends, and a cover pivotally secured to said clamp.

2. The combination, with a vessel, of a spring-clamp provided with curved or bent ends, and a cover pivotally secured to said clamp.

3. The combination, with a vessel, of a clamp removably secured to the handle of the vessel, and a lid pivoted to said clamp.

310,479. STEAM-ENGINE GOVERNOR. JOS. W. THOMPSON, Salem, Ohio, assignor of one-half to the Buckeye Engine Company, same place. Filed Aug. 15, 1884. (No model.)



Claim.—1. In a steam-engine governor, the combination, substantially as set forth, of a supporting wheel or disk, a valve-operating eccentric pivoted thereto, two weighted arms pivoted to the supporting-wheel

at points in a line perpendicular to the line joining the centers of said wheel and of the eccentric-pivot, and adapted to move about their pivots on opposite sides of the line joining the same, links coupling the eccentric with the weight-arms, and connected to the latter on opposite sides, respectively, of their pivots, and a pair of plate-springs connected at one end to the supporting-wheel at a point substantially in line with the centers of said wheel and of the eccentric-pivot, and abutting at the other against stops on the wheel and on the eccentric, respectively.

2. In a steam-engine governor, the combination, substantially as set forth, of a supporting wheel or disk, a valve-operating eccentric pivoted thereto, weighted arms pivoted to said wheel and adapted to be relatively reversed in position thereon, links connecting said arms with the eccentric, stop-pin sockets located in pairs on opposite sides of a diametric line connecting the weight-arm pivots, a pair of stop-pins for each weight-arm, adapted to fit in the sockets on either side of said line, a spring-stop adapted to fit in either of two sockets adjacent to the eccentric, and on opposite sides of a line perpendicular to the line joining the weight-arm pivots, and springs connected to the supporting-wheel and bearing against said stop and against a stop on the eccentric.

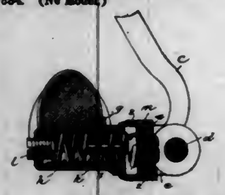
3. In a steam-engine governor, the combination, substantially as set forth, of a supporting wheel or disk, a valve-operating eccentric pivoted thereto, weighted arms pivoted to said wheel and coupled to the eccentric, a spring-block pivoted to the supporting-wheel, and having its sides tapered or inclined toward the periphery thereof, and a pair of plate-springs secured to the sides of the spring-block, and adapted to bear against stops on the supporting-wheel and the eccentric, respectively.

4. In a steam-engine governor, the combination, substantially as set forth, of a supporting wheel or disk, a valve-operating eccentric pivoted thereto, a counter-weight connected adjustably to said eccentric, and weights and springs acting to vary the position of said eccentric by the exertion of centrifugal and centripetal forces, respectively, thereon.

5. In a steam-engine governor, the combination, substantially as set forth, of a supporting wheel or disk, a valve-operating eccentric pivoted thereto, weighted arms pivoted to the supporting-wheel and coupled to the eccentric, an adjustable spring-stop connected to said wheel, and springs secured at one end to said wheel and bearing at the other against said adjustable stop and against a stop on the eccentric.

6. In a steam-engine governor, the combination, substantially as set forth, of a spring-block having inclined or tapered sides and an opening for a pivot by which it may be secured to the supporting wheel or case of the governor, and a pair of flat plate-springs connected to the sides of the spring-block, these members being combined for joint operation to admit of the reversal and setting of the springs.

310,480. THILL-COUPLING. WILLIAM P. TRACY, Grand Rapids, Mich. Filed May 16, 1884. (No model.)



Claim.—1. A shackle adapted to fit the axle and chambered to receive a spring, a spring inserted therein, and a block fitted between the ears of the shackle and interposed between the spring and the bail, all substantially as described.

2. A shaft-coupling and supporter consisting of a block fitted between the ears of the shackle, a spring behind said block, and a suitable bail to connect the shaft to the shackle, the bail and block being provided with an interlocking rib and grooves, whereby the shafts are held in upright position, substantially as described.

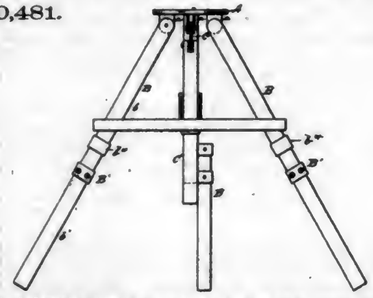
310,481. EASEL. THOMAS C. VAIL, Topeka, Kans. Filed July 1, 1884. (No model.)

Claim.—1. A clamp for holding the legs of an easel at different heights, consisting of the portions B^2 B^3, having the side portions, B^4, pivoted thereto, and the spring B^5, as set forth.

2. The combination, with the adjustable leg portions b b', one of which is provided with the notches b^2, of the pivoted clamp described, having the lip or protruding edge B^6 and the thumb-piece B^8, as set forth.



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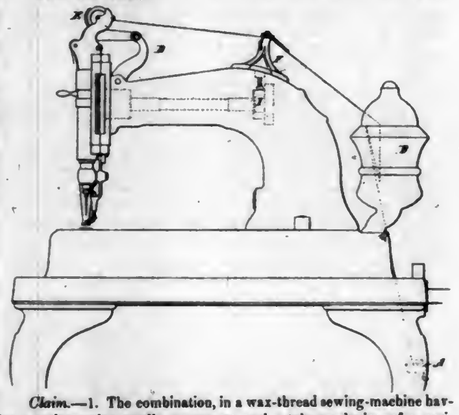
3. A fastening for the depending arm of an easel, consisting of the band D, pivoted arms f, and engaging device F, substantially as set forth.

4. A fastening for easels, consisting of the band D, having the auxiliary front plate, d, pivoted arms f, engaging device F, lip f', and thumb-piece f^2, and provided with the spring G, as set forth.

5. The combination, with the depending arm C, having the notches c', of the band D, having the auxiliary front plate, d, forming a pocket or slot on the front of the band, pivoted arms f f, and engaging device F, all substantially as and for the purpose set forth.

6. The combination, with the depending arm C and the shelf E, having the tongue e, as shown, of the fastening described, consisting, essentially, of the band D, having pocket on the front to receive the tongue e, and a device for engaging the fastening adjustably upon the arm, as set forth.

310,482. THREAD-REGULATING DEVICE FOR SEWING-MACHINES. SIMON W. WARDWELL, Jr., Woonsocket, R. I. Filed Jan. 22, 1883. (No model.)



Claim.—1. The combination, in a wax-thread sewing-machine having a reciprocating needle, a wax-pot, and a take-up device, of a positive gripper holding the thread immovably during the action of the take-up, and a movable arm interposed between the gripper and the wax-pot, and constructed to draw a definite portion of the thread from the pot during the time it is held by the gripper, and to then release the thread and permit it to pass freely to the needle, substantially as and for the purpose set forth.

2. The combination, with a wax-thread sewing-machine having a reciprocating needle, a wax-pot, and a take-up device, of a positive gripper holding the thread immovably during the action of the take-up, and mechanism arranged, and operated between the gripper and wax-pot, whereby a definite portion of thread is drawn from the wax-pot while it is held by the gripper, substantially as specified.

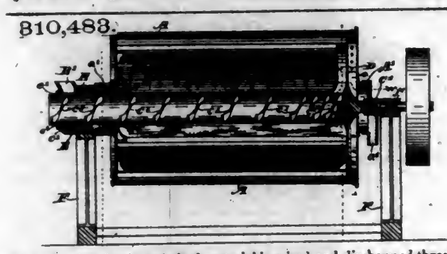
3. An attachment consisting of the bracket F, lever G, and sliding rod H, adapted to be detachably secured to a sewing-machine, substantially as set forth.

4. The combination, with the lever G and appliances for vibrating the same, of a wheel, b, shoe c, and spring, whereby said shoe is pressed with a uniform pressure against the wheel, substantially as set forth.

310,483. BOLTING-REEL. JESSE WARRINGTON, Indianapolis, Ind., assignor to the Nordyke & Marmon Company, same place. Filed Mar. 3, 1884. (No model.)

Claim.—1. The combination of the reel B, a hollow shaft having internal conveyer-flights and orifices c, and wings d in the lower end of

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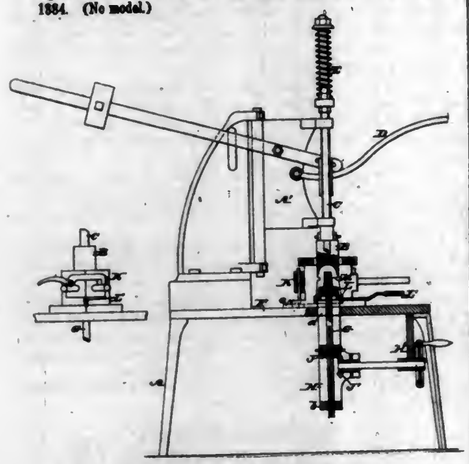


the reel, whereby the unbolted material is raised and discharged through said holes into said shaft and carried back to the end of the reel which it entered, substantially as set forth.

2. The combination of the casing A, reel B, hollow shaft C, head D, which operates to transfer the material from said reel to said hollow shaft, and tube E, said several parts being arranged and operating substantially as set forth.

3. The combination of a reel, a head, D, whereby the material is transferred from said reel to the hollow shaft, said hollow shaft, and a spout, said shaft having external conveyer-flights where it enters said spout, and internal conveyer-flight leading from said head to the other end, substantially as described, and for the purposes specified.

310,484. PRESS FOR THE MANUFACTURE OF INSULATORS AND OTHER GLASS ARTICLES. GEO. W. WEYMAN, Philadelphia, Pa., assignor of one-half to Charles T. Weyman, same place. Filed Sept. 25, 1884. (No model.)



Claim.—1. In a glass-press, a mold, a plunger, and a rising and falling shaft having a die, in combination with a holder of the form of an annulus, removably fitted within the mold, substantially as and for the purpose set forth.

2. In a glass-press, a mold, a plunger, and a rising and falling shaft having a screw-shaped die, in combination with a holder of the form of an annulus, fitted within the mold and provided with a handle, whereby the article, when formed, may be removed from the mold by said holder, substantially as and for the purpose set forth.

3. In a glass-press, a rising and falling shaft carrying a screw-die on one end, in combination with a plunger and a detachable holder, said holder being annular in form, and having an upper portion of less external diameter than the lower face of the plunger, whereby said holder acts in connection with the said die in shaping the article pressed, substantially as and for the purpose set forth.

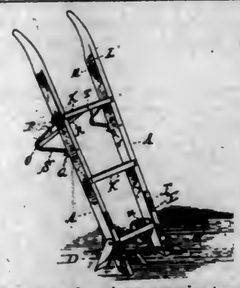
4. A screw-shaped die and means for rotating and raising and lowering the same, a mold, a detachable holder within the mold, and a plunger, combined and operating substantially as and for the purpose set forth.

310,485. HAND-TRUCK. DANIEL S. WING, New York, N. Y. Filed Mar. 29, 1884. (No model.)

Claim.—1. In a truck, the combination, with the main frame, of the shoes or stirrups terminating in upwardly and outwardly extending pointed projections, and having reverse branches converging toward each other, substantially as shown and described.

2. In a truck, the combination, with the main frame, of the shoes or stirrups terminating in upwardly and outwardly extending pointed

310,485.



projections, and having reverse branches converging toward each other, said branches being provided upon their inner edges with opposite teeth, substantially as shown and described.

3. In a truck, the combination, with the main frame, of the adjustable shoes or stirrups terminating in upwardly and outwardly extending pointed projections, substantially as described.

4. In a truck, the combination, with the side bars, of the pivoted standards secured by single bolts, and consisting of the back piece having a longitudinal strengthening rib and lip, I, the cheek-pieces, and the cap-piece by means of which the axle is attached thereto, substantially as described.

310,486. PRODUCING GELATINOUS PRINTING-PLATES. WALTER B. WOODBURY, London, England, assignor to Frederick Nevill Clarke, same place. Filed Feb. 16, 1884. (No specimens.) Patented in Belgium Nov. 14, 1879, No. 49,819, June 9, 1880, No. 51,708, and July 7, 1881, No. 55,113; in France Nov. 15, 1879, No. 133,677, and in England June 10, 1881, No. 2,527.

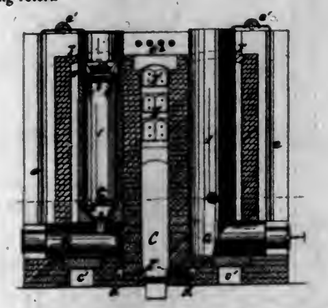
Claim.—1. The method of producing photographic gelatinous printing-plates by first developing a photographic design upon a sheet of gelatinous matter, then drying and mounting said sheet upon a solid back, and then coating the surface of said sheet with tin-foil applied thereto under pressure, for developing on the surface of the foil the photographic design, and thereby affording a metallic printing-surface for reproducing said design, substantially as described.

2. The method of producing foil-coated photographic gelatinous printing-plates by applying between the foil and the gelatinous matter a thin layer or film of caoutchouc, and then subjecting the foil to pressure, substantially as described.

3. The method of producing photographic gelatinous printing-plates by first developing a photographic design upon a sheet of gelatinous matter, then coating said sheet with foil and developing said design on the surface of said foil by pressure, and then electroplating said foil-surface, substantially as described.

310,487. APPARATUS FOR THE MANUFACTURE OF GAS. AUGUSTUS L. ALLEN, Poughkeepsie, N. Y. Filed July 11, 1884. (No model.)

Brief.—A current of steam or superheated steam is passed continuously through a mass of highly-heated carbon of gradually-increasing temperature, and finally through one or more independent masses of incandescent carbon of equal temperature with the final temperature of the decomposing-retort.



Claim.—1. The method herein described for the manufacture of gas, which consists in passing a current of steam or superheated steam continuously through a mass of highly-heated carbon of gradually-increasing temperature, and finally through one or more independent masses of incandescent carbon of equal temperature with the final temperature of the decomposing-retort, substantially as and for the purposes specified.

2. In apparatus for the manufacture of gas, the combination of two or more vertical decomposing-retorts, each provided at its upper end with a steam-distributer, said retorts arranged in series and connected below with each other, and one of said retorts provided with a conduit which

leads from the bottom or hottest part of said retort directly to the point of carburation or storage, so that the gas from the first retort shall pass across and through the lower or hottest part of the second retort on its way to the main, or to a carbureting-retort, substantially as and for the purposes specified.

3. In apparatus for the manufacture of gas, the combination of two or more vertical decomposing-retorts connected below by a cross-pipe or connection, and an inspection or clearance pipe which communicates with one of said retorts in line with the cross or connecting pipe and projects through the furnace-walls, substantially as and for the purpose specified.

4. In apparatus for the manufacture of gas, the combination, with a vertical retort having a steam-distributer at its upper end and a gas-exit at its lower end, of a gas conduit or flue arranged vertically in the furnace and having an elbow or horizontal pipe connection with the gas-exit of the retort, substantially as and for the purpose specified.

5. In apparatus for the manufacture of gas, the combination, in a furnace, of two or more vertical retorts, each having a steam-distributer in its upper end and a gas-exit near its bottom, said retorts arranged in series, the adjacent retorts connected by their gas-exits, gas-conduit connected with the gas-exit of the last retort of the series, and inspection-pipes which are arranged in line with the retort-connections, project through the furnace-walls, and connect the one with the first retort of the series and the other with the gas-flue, substantially as and for the purpose specified.

6. A vertical gas-retort having in its upper end a perforated annular steam-chamber, substantially as and for the purposes specified.

7. The combination, with a vertical gas-retort having an annular perforated shelf in its upper end, of a detachable annular ring having a concave face and side to form with the shelf and side of the retort a steam-chamber in the upper part of the retort, substantially as and for the purposes specified.

8. A vertical gas-retort having a perforated or open bottom, and two openings or ports diametrically opposite and at points just above the bottom of the retort, substantially as and for the purposes specified.

9. A vertical gas-retort having a perforated steam-chamber, 11, in its upper end, an open bottom, and a gas-exit, 4, provided with the bell 5, substantially as and for the purposes specified.

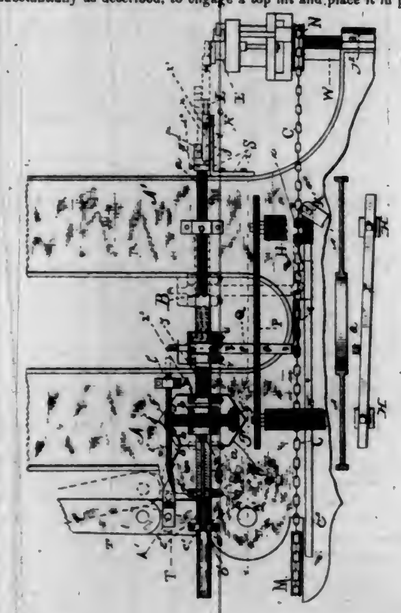
310,488. HEEL-NAILING MACHINE FOR BOOTS OR SHOES.

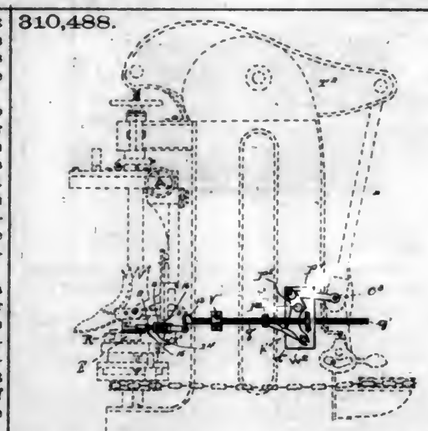
EDWARD B. ALLEN, Portland, Me., assignor to James W. Brooks, Cambridge, Mass., trustee. Filed May 3, 1884. (No model.)

Claim.—1. In a heeling-machine, the combination, with the nail-box and a top-lift plate, of means, substantially as described, to automatically move the said plate into position above the nail-box to cover the same preparatory to applying the top lift, substantially as described.

2. In a heeling-machine, the top-lift plate and the nail-box, combined with a connecting-rod to automatically operate the said top-lift plate to move it into or out of position with relation to the nail-box, substantially as described.

3. In a heeling-machine, the nail-box, combined with a top-lift carrier, substantially as described, to engage a top lift and place it in position between the top-lift plate and the end of the heel, to operate substantially as described.





4. In a heeling-machine, the nail-box, the top-lift plate, and top-lift carrier, combined with means to actuate the top-lift carrier to take a top lift and move it into position between the top-lift plate and heel of the boot or shoe, substantially as described.

5. The nail-box and the top-lift carrier, having jaws to grasp and hold the top lift, combined with the slide-bar and means to reciprocate it and the carrier forward and backward with relation to the nail-box, as and for the purpose described.

6. A plate or table, S, and the top-lift carrier and nail-box, combined with means to move the said carrier to present a top lift in position below the heel of the boot or shoe with which the top lift is to be attached, and to thereafter withdraw the said carrier, substantially as described.

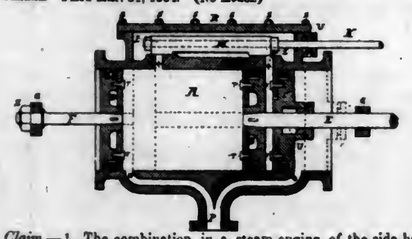
7. In a heel-nailing machine, the nail-box, the top-lift plate, and means to automatically operate the said top-lift plate, combined with the top-lift carrier and with means to automatically operate it, substantially as described.

8. The combination, with the die-bed spindle W, of an attached hook to engage a fixed part of the frame at the completion of each descent of the said working-spindle, substantially as described.

9. The combination, with the die-bed spindle W, and the attached hook to engage a part of the frame-work at the descent of and to lock the said spindle down, of a treadle and connected devices to release the said hook when the spindle is again to be lifted, substantially as described.

310,489. STEAM-ENGINE.

WILLIAM S. ARNOLD, Chatham, Ontario, Canada. Filed Mar. 31, 1884. (No model.)



Claim.—1. The combination, in a steam-engine, of the side bars, H H, provided with wrist-pins I I, the cross-heads G G, carried by said side bars, the piston-rods F F F, secured to cross-heads G G, the piston-heads C D, secured to piston-rods F F F, all having an intermitting reciprocating motion derived from and operated by the mechanism consisting of the disk *b*, with its projection *c*, said disk being secured to the shaft *a*, the plate *d*, with its projections *s c''*, the rod *g*, which connects the plate *d* to the upper end of the slotted rocking lever *i*, the sliding block *j*, the wrist-pins *o p*, the cranks *l l*, the crank-shaft *k*, and the connecting-rods *m m*, which connect the wrist-pins *o p* with the wrist-pins I I on the side bars, H H, all substantially as described, for the purposes specified.

2. In a steam-engine cylinder, the combination of the piston-heads C D with the steam-ports N N and the exhaust-ports O O, substantially as shown, and for the purposes specified.

310,490. GAGE-COCK.

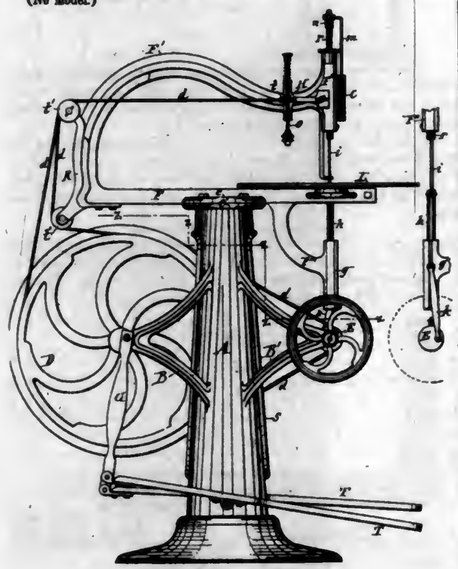
JAMES B. ATWOOD and ALBERT W. SLATE, Springfield, Mass., assignors of one-third to Geo. Dwight, Jr., same place. Filed Feb. 16, 1884. (No model.)

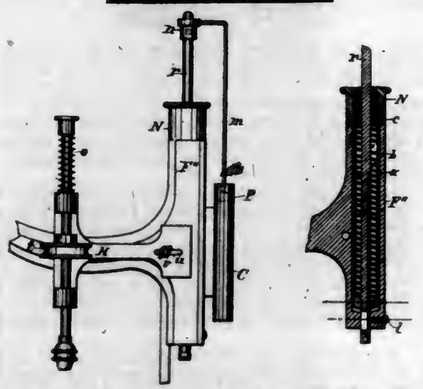


Claim.—The body A of a gage-cock, having a longitudinal passage provided with a nozzle, cap, and packing, substantially as described, and having narrow annular groove *v* surrounding the same, in combination with the headed spindle *d*, having longitudinal grooves leading from the valve-seat to the escape-port, and a circumferential groove, *w*, which is in line with groove *v* in the body when the valve is on its seat, substantially as described.

310,491. SCROLL-SAWING MACHINE.

ANSEL BALL, Seneca Falls, N. Y., assignor to Adelbert S. Davis, same place. Filed Sept. 24, 1884. (No model.)





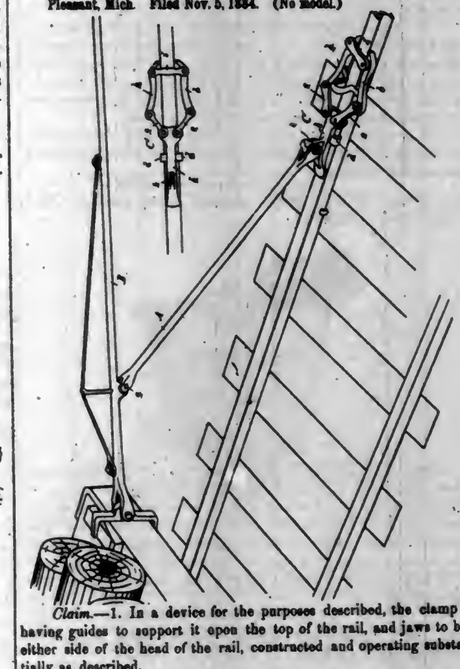
Claim.—1. In combination with the frame-head F''', jig-saw, and rod *r*, connected with said saw, the sleeve *a*, seated in the head F''' and surrounding the rod *r*, and provided with screw-threads on its upper end, the spring *b*, seated in the sleeve, the collar *c*, affixed to the rod *r* at the upper end of the spring, and the nut N, seated on top of the head F''' and engaging the screw-threaded end of the sleeve, substantially as described and shown.

2. In combination with the frame-head F''', jig-saw *i*, and rod *r*, the sleeve *a*, seated in the head F''' and surrounding the rod *r* and screw-threaded at its upper end, a lug and groove connection between the sleeve and rod, the spring *b*, seated in the sleeve, the collar *c*, adjustably connected to the rod above the spring to adjust the tension of said spring, and the nut N, seated on top of the head F''' and engaging the screw-threaded end of the sleeve, whereby a secondary adjustment of the spring is effected, substantially as described and shown.

3. In combination with the jig-saw *i*, rod *r*, cylinder C, and piston P, the collar *n*, connected with the piston-rod and clamped on the rod *r* adjustably in relation to its distance from the end of the cylinder C, substantially as described and shown.

310,492. DEVICE FOR MOVING CARS.

EMORY BARNES, Mount Pleasant, Mich. Filed Nov. 5, 1884. (No model.)

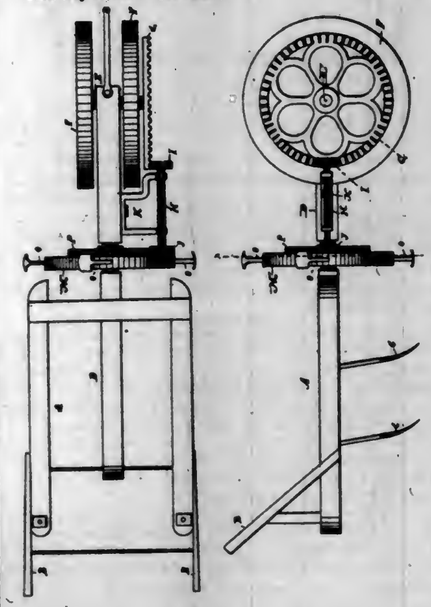


Claim.—1. In a device for the purposes described, the clamp C, having guides to support it upon the top of the rail, and jaws to bite either side of the head of the rail, constructed and operating substantially as described.

2. In combination with the clamp C, constructed substantially as described, the lever A, pivotally secured at one end to such clamp, and having pivotally secured to its free end the lever B, the parts being constructed, arranged, and operating substantially as and for the purposes specified.

310,493. COTTON-CHOPPER.

HENRY T. BUTLER, Spartanburg, S. C. Filed May 15, 1884. (No model.)



Claim.—1. In a cotton-chopper, the combination, with the center beam extended forward of the frame, and the supporting-wheels mounted at either side thereof and carrying a driving gear-wheel, of the hoe-wheel mounted on the said center beam and provided with a series of hoes, and with the gear-wheel and the intermediate pinions mounted on a common shaft and adapted to intergear, respectively, with the said gear-wheels.

2. In a cotton-chopper, the combination, with the center beam extended forward of the main frame, and the supporting-wheels mounted on either side of the divided journal-sleeves, of the divided hoe-wheel mounted on said beam and provided with a series of hoes, and the intermediate pinions mounted on a common shaft and adapted to communicate motion from the driving-wheels to the hoe-wheel.

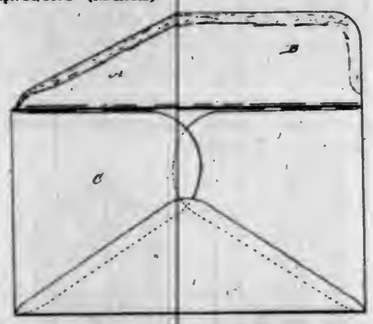
3. In a cotton-chopper, the combination, with the center beam provided with the divided journal-sleeve, of the divided hoe-wheel having means to unite its parts.

310,494. MILK-STRAINER. GEORGE H. CORNELL, Amboy, Ill. Filed Apr. 4, 1884. (No model.)



Claim.—The combination, with a milk-pail having a breast constructed and secured thereto, substantially as set forth, and having its annular discharge-spout provided with the wired edge, of the spring-clamp F, composed of a strand of spring-wire bent in ring form, having its free ends overlapping each other and terminating in oppositely-directing loops, whereby the said ring may be diametrically expanded by pressing the free ends in the direction of one another, substantially as shown and described.

310,495. ENVELOPE. GEORGE W. CRANE, Topeka, Kans. Filed Apr. 24, 1884. (No model.)



Claim.—As an improved article of manufacture, an envelope provided with a flap the free edge of which is inclined from one corner of the envelope to the transverse center line of the flap, and from this point extends to the opposite end of the envelope, parallel with the longitudinal edges of the envelope, and having the top edge of the side flap that is to be under the straight longitudinal edge of the top flap formed parallel and even with the top of the envelope when closed, substantially as shown and described.

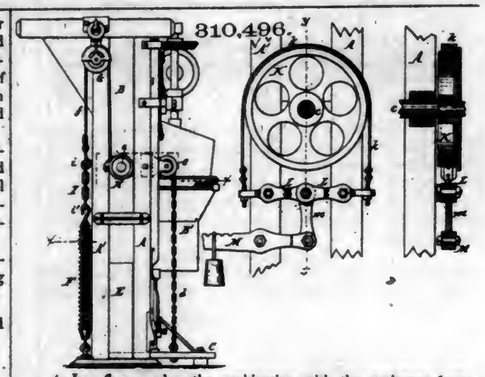
310,496. FLOUR-PACKER. LEWIS CREVELING, Akron, Ohio, assignor to Howes & Ewell, Silver Creek, N. Y. Filed Oct. 29, 1884. (No model.)

Claim.—1. In a flour-packer, the combination, with the movable platform and the shaft to which the platform is attached, of a coiled spring, F, and a connecting device, substantially as described, whereby said spring is connected with said shaft, substantially as set forth.

2. In a flour-packer, the combination, with the movable platform and the shaft to which the platform is attached, of a pulley, H, mounted on said shaft, a coiled spring, F, and a cord, *f*, connecting said spring with said pulley, substantially as set forth.

3. In a flour-packer, the combination, with the stationary frame, the movable platform, and the shaft to which the platform is attached, of a coiled spring, F, and an adjusting device, substantially as described, whereby the coiled spring is attached to the frame, substantially as set forth.

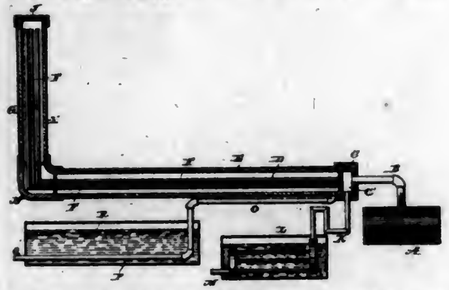
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4. In a flour-packer, the combination, with the stationary frame, movable platform, and shaft *c*, of the guide-rollers *e*, attached to said frame, and chains *d*, connecting the platform with said shaft and running over the rollers *e*, substantially as set forth.

5. In a flour-packer, the combination, with a movable platform and shaft *c*, of the brake-pulley K, brake-band *k*, levers L L, connected with both ends of the brake-band, and a weighted lever, M, whereby both ends of the brake-band are simultaneously moved, substantially as set forth.

310,497. PROCESS OF AND APPARATUS FOR THE FRACTIONAL DISTILLATION OF PETROLEUM. RICHARD DEAN, Cleveland, Ohio, assignor to Joseph B. Marian, same place. Filed July 14, 1883. Renewed Dec. 15, 1884. (No model.)



Claim.—1. In the fractional distillation of petroleum, the process hereinbefore described, consisting in passing the vapor from the still through condensing tubes or conduits, (one or more,) and conducting the uncondensed vapors backwardly in direct contact with said tubes or conduits, and thence into a condenser, whereby the uncondensed vapor serves as the sole condensing bath or medium for the vapor coming from the still, and drawing off the liquid condensed in said primary condensing tubes or conduits, substantially as set forth.

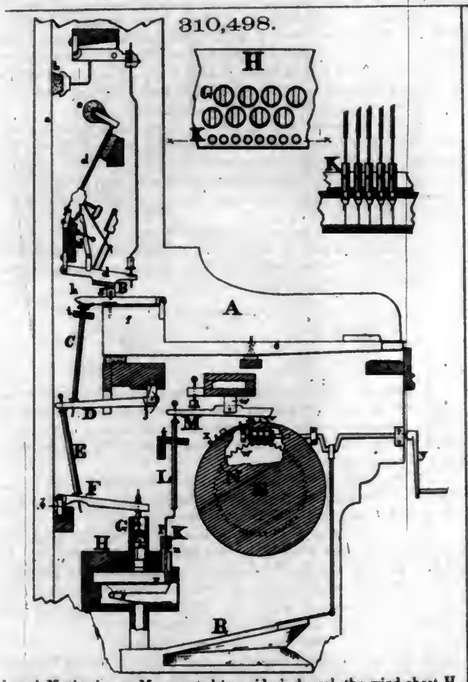
2. In an apparatus for the fractional distillation of petroleum, the combination, with a still and condensing tubes or conduits (one or more) communicating therewith, of a chamber inclosing said condensing tubes or conduits, and constructed and arranged to convey the uncondensed vapor issuing from the said tubes or conduits backwardly in direct contact therewith, and constitute the sole condensing medium therefor, a condenser connected with said inclosing-chamber, and pipes for drawing off the liquid from the condensing tubes or conduits, substantially as set forth.

3. In an apparatus for the fractional distillation of petroleum and other oils, the combination, with a still and a series of condensing pipes or conduits communicating at one end with the still, and open at their opposite ends, and arranged substantially horizontally for a portion of their length, and substantially vertically for the remaining portion, of an inclosing-chamber closed at its outer end, and separate discharge-pipes communicating, respectively, with the series of condensing-pipes and with the inclosing-chamber, substantially as set forth.

310,498. MECHANICAL MUSICAL INSTRUMENT. CESARE DONADONI, Berlin, Germany, assignor to himself and Pohl, same place. Filed Apr. 7, 1884. (No model.) Patented in England Jan. 25, 1882, No. 376; in Austria-Hungary Mar. 22, 1882, No. 2,407 and No. 10,274; in Belgium Apr. 15, 1882, No. 57,412; in France Apr. 28, 1882, No. 147,394, and in Germany July 25, 1882, No. 23,552.

Claim.—1. A combined ordinary and mechanical or automatic piano-forte consisting of the ordinary piano-forte having the usual key-levers, *e*, provided at their inner ends with levers B, the rotatable pin-barrel N, the levers M, operated by said pin-barrel, the wind-chest H, having valves *r*, and bellows for filling said chest with air, said chest also having a series of cylinders, G and K, having pistons *l* and *o*, respectively, and rods in said pistons, the rods of pistons *o* being extended to levers M, to be operated by said levers to open the valves *r*, to admit pressure of air to move the piston *l*, to operate, through the levers F and B and suitable connections, the hammer *c* and dampers *b*, all the parts being combined and constructed substantially as shown, and operating as described.

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2. In combination with a piano-forte having the ordinary key-levers, *e*, the pin-barrel N, and mechanism for revolving the same, the wind-chest H, and means, substantially as described, for filling the same, the said chest provided with a series of cylinders, G and K, with pistons and rods therein, and suitable levers and rods and connections therefor for operating said pistons from the pin-barrel to operate the hammers *c* and dampers *b*, as set forth.

3. In combination with a piano-forte having the ordinary key-levers, *e*, provided with levers B, fulcrumed on said key-levers, the pin-barrel and mechanism for rotating the same, the wind-chest H, and means, substantially as described, for filling the same, the said chest provided with a series of cylinders, G and K, with pistons and rods therein, and suitable levers and rods and connections therefor for operating said pistons from the pin-barrel to operate the hammers *c* and dampers *b*, as set forth.

4. In a combined ordinary and mechanical or automatic piano-forte substantially as described, the wind-chest H, and means for filling the same with air, said chest provided with the cylinders G, having pistons *l* therein, combined with valves *r*, and means for operating them to admit air to the said cylinders G, to move the pistons *l* to operate the hammers *c* and dampers *b*, as set forth.

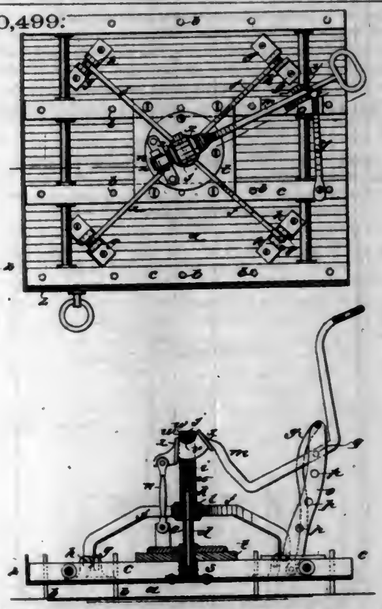
5. In a combined ordinary and mechanical or automatic piano-forte, the wind-chest H, provided with the series of cylinders G and K, the latter having the openings *n*, for the purpose set forth.

310,499. HARROW. CHRISTOPHER DREW, ANDREAS W. LEISNER, and PHILIP NELSON, Las Vegas, N. Mex. Filed July 1, 1884. (No model.)

Claim.—1. The combination, with the harrow-frame *c* and teeth *b*, of the smoothing-plate *a*, provided with vertical flanges *z*, extending up by the forward sides of frame *c*, and with openings for the teeth *b* to pass through, a rigid spider, *f*, provided with a central aperture, and jointed at the ends of its arms to the plate *a*, a presser connected with the plate *a* through the aperture in the spider, springs for pressing the plate *a* upward, and a lever fulcrumed to the frame and connected to the presser for operating the plate *a*, substantially as set forth.

2. The combination of the rod *d*, springs *s* and *u*, presser *j*, and tubular standard *e* with plate *a* and lever *m*, said plate being fitted to shift up and down on the teeth *b*, and having the spider *f*, substantially as described.

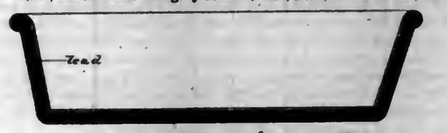
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3. The combination of the lever-setting standard *o*, lever *m*, presser *j*, spider *f*, tubular standard *e*, rod *d*, and springs *s* and *u* with the plate *a*, fitted to shift up and down on the harrow-teeth *b*, substantially as described.

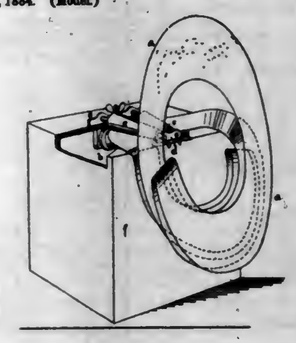
4. In a harrow of the character described, the tubular presser *j*, provided with a curved slot *u'*, socket *k*, and rod *d*, in combination with the lever *m*, provided with a curved notch, *v*, within the slot of the presser, stop-lugs *x* on opposite sides of said slot, and the link *n*, connected to the short arm of the lever, substantially as and for the purpose set forth.

310,500. PROCESS OF CONSTRUCTING LEAD VESSELS. HERMANN EGELLS, Berlin, Germany. Filed Nov. 1, 1884. (No model.) Patented in France Oct. 19, 1883, No. 158,120; in England Dec. 28, 1883, No 5,894, and in Austria-Hungary June 19, 1884, No. 9,859 and No. 26,458.



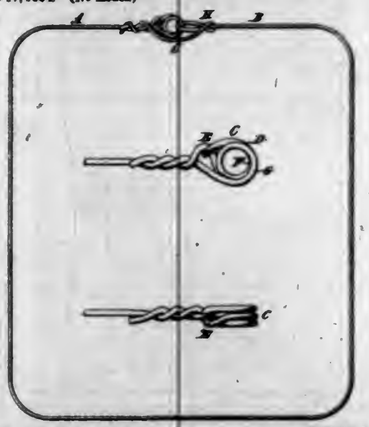
Claim.—The described improvement in the manufacture of vessels and apparatus to be exposed to corrosive action, consisting in constructing the body of the same of one of the harder alloys of lead—such as type-metal—and then coating the surface or surfaces to be exposed to such corrosive action with lead fused directly upon the same, as hereinbefore set forth.

310,501. MUSIC-SHEET FOR MECHANICAL MUSICAL INSTRUMENTS. PAUL EHRLICH, Gohlis, near Leipsic, Saxony, Germany. Filed May 21, 1884. (Model.)



Claim.—A music-sheet composed of a plurality of divided annular pieces of paper, card-board, or the like, united at their ends so as to form a continuous surface, which, when laid flat, folds together in three or more layers, whereof at least one comprises a full circle, the said surface being provided with perforations corresponding to the notes to be produced, substantially as and for the purpose hereinbefore described.

310,502. BALE-TIE. LEWIS R. EVANS, East Orange, N. J. Filed June 17, 1884. (No model.)



Claim.—1. A wire bale-tie having an eye on one end of the band, formed by first bending the wire upon itself to form a loop, and then bending one side of the loop around the other side, and bending to form one or more circular eyes so arranged as to lie in parallel planes with each other and the loop first formed, and finally twisting the strands together to secure the eye, said eye adapted to receive the free or straight end of the band to be knotted or twisted to secure the tie.

2. A wire bale-tie having an eye on one end of the band, formed of a locked loop and one or more eyes arranged parallel with said loop and in close relation thereto, said eye so formed adapted to receive the free end of the band to be twisted to secure the tie, substantially as described.

3. A wire bale-tie having an eye on one end of the band, provided with a broad bearing, on which the free end of the band rests, formed by bending one end of the band upon itself in such a manner as to form a locked loop, and one or more circular eyes arranged in parallel planes and in close relation with said locked loop, substantially as described.

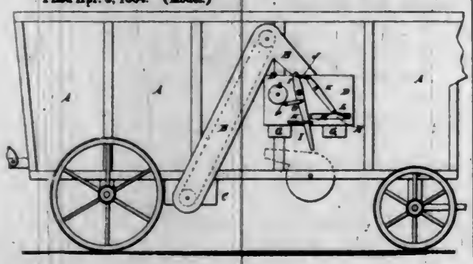
4. A wire bale-tie formed of a single wire, having one end of the band bent to form one or more circular eyes, and a loop, arranged parallel to each other, the ends of the wire so bent being twisted to form the fastening-eye, adapted to receive and connect with the free end of the band to secure the tie, substantially as described.

5. In a bale-tie, the combination, with the free end of the band B, of an eye on the other end of the band, formed by bending the wire upon itself in such a manner as to form the loop D, bight E, and circular eyes F G, the ends of the wires being twisted together.

6. In a bale-tie, the combination of the free or straight end of the wire B with the end of the wire A, having the eye C at its extremity, said eye C adapted to receive the free end A, which is twisted to secure the tie, substantially as described.

7. A wire bale-tie bent, locked, and twisted at one end to form the eye C, said eye being adapted to receive the straight end of the band to secure the tie, substantially as described.

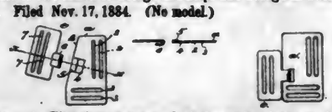
310,503. MEASURING, SACKING, AND REGISTERING ATTACHMENT FOR GRAIN-SEPARATORS. JAMES FORREST, Grand Forks, Dak. Filed Apr. 3, 1884. (Model.)



Claim.—1. The combination, with the box D, measure H, and levers I K, of the elbow-lever P, spring-pawl R S, ratchet-wheel T, the series of wheels U, provided with spring-held sliding bolts W and ratchet-wheels *a*, and pivot-bolt Q, having grooves Y and cams Z, substantially as herein shown and described, whereby the quantity of grain measured and sacked will be accurately registered, as set forth.

2. In a measuring, sacking, and registering attachment for grain-separators, the register, constructed substantially as herein shown and described, and consisting of the wheels U, provided with ratchet-wheels *a* and spring-held sliding bolts W, the pivot-bolt Q, provided with grooves Y and cams Z, and the ratchet-wheel T, pawl R, elbow-lever P, and operating-lever I, as set forth.

310,504. CLASP OR FASTENING. GEORGE FROST, West Newton, assignor of two-thirds to George H. Phelps and George A. Frost, Newton, Mass. Filed Nov. 17, 1884. (No model.)



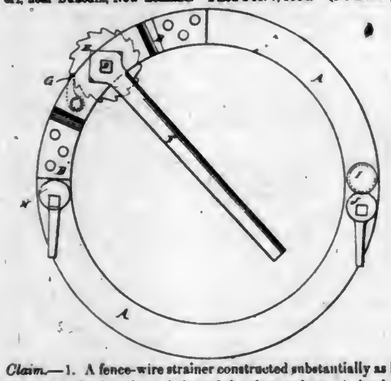
Claim.—1. The clasp composed of the main plate provided at one edge with the slots 2, and at its other edge with the notch 4, made to occupy a diagonal position with relation to the said slots, and of a book-plate provided with a hook to enter the said notch and engage the main plate, substantially as described.

2. The main plate *a*, slotted at 2, provided with a notch, 4, and having an inclined edge, 8, combined with the plate *e*, provided with the hook 6, to operate as and for the purpose set forth.

3. The main plate *a*, having the slots 2 and 3, and the notch 4 at an angle to the slots 2, combined with the plate *e*, provided with the hook 6, and with the slots 7 7, to operate all substantially as described.

4. The main plate *a*, provided with side slots, 2 2, end slots, 3 3, and a notch, 4, combined with a plate, *e*, slotted at 7, and provided with a hook, 6, to operate substantially as described.

310,505. FENCE-WIRE STRAINER. SYDNEY W. FULTON, West Taieri, near Dunedin, New Zealand. Filed Feb. 7, 1884. (No model.)



Claim.—1. A fence-wire strainer constructed substantially as herein shown and described, and consisting of the ring or frame A, having slot C in its circumference, the shaft D, arranged in said slot, and having transverse perforation L, the lever F, and the clamps H B' and I J, said clamps being arranged individually in line and out of line with the shaft D, as set forth.

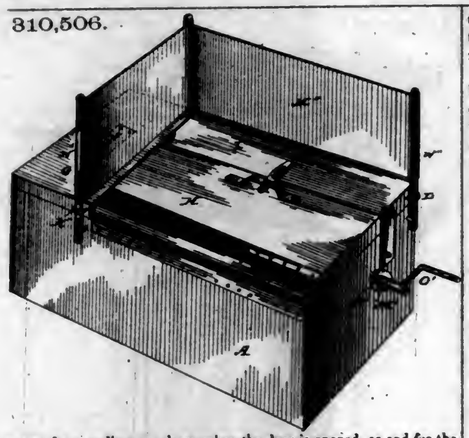
2. In a fence-wire strainer, the combination, with the ring or frame A, having slot C in its circumference, of the shaft D, arranged in said slot, and having transverse perforation L, the lever F, the ratchet-wheel and pawl E G, and the clamps H B' and I J, arranged individually in line and out of line with the shaft D, substantially as herein shown and described, whereby the wire can be put under any desired strain, as set forth.

310,506. BALLOT-BOX. WILLIAM P. FURNELL, Silver Hill, W. Va. Filed May 27, 1884. (No model.)

Claim.—1. The combination of an index-plate having narrow slots near its edge, as described, a sheet traveling beneath the index-plate, a box inclosing the said plate and sheet, and provided with a swinging lid or door, and means, as described, for moving the sheet equidistant spaces when the lid or door is opened, as and for the purpose shown and set forth.

2. The combination of an index-plate having narrow slots near its edge, a sheet traveling beneath the index-plate, a box inclosing the said plate and sheet, and provided with a swinging lid or door, means, as described, for moving the sheet forward by the opening of the door, and

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means for sounding an alarm when the door is opened, as and for the purpose shown and set forth.

3. The combination of an index-plate having slots near its edge, a sheet traveling under the said plate, and means, substantially as described, for moving the said sheet one space at the time, as and for the purpose shown and set forth.

4. The index-plate or ticket-holding frame having a row of narrow slots near one edge, having a rod provided with hinged strips of the same width as the slots, and having a glazed frame hinged at its other edge, as and for the purpose shown and set forth.

5. The combination of the ticket-holding frame having a row of slots near one edge, having a rod provided with hinged strips corresponding in width to the length of the slots, and having a glazed frame hinged to its other edge, with a ticket ruled to correspond to the slots in the plate, as and for the purpose shown and set forth.

6. The combination of the box, the lid or cover hinged to one side of the box, the rock-shaft turning in bearings at the upper edge of the side of the box, attached to rock with the lid or door, and formed with a crank near one end, the ticket-holding frame slotted as described, and secured in the top of the box under the hinged lid, two cylinders journaled under the ticket-holding frame in the box, one provided with a ratchet-wheel at its end, a sheet traveling over the cylinders, and a pawl-arm pivoted to the crank upon the rock-shaft and engaging the ratchet-wheel, as and for the purpose shown and set forth.

7. The combination of the cylinder, the ratchet-wheel secured to the end of the cylinder, the pawl-arm, means, as described, for reciprocating the pawl-arm, the spring bearing against the under side of the pawl-arm, the spring bearing against the upper side of the pawl-arm, and the ticket-holding frame bearing with one end against the upper spring, forcing it down and counteracting the force of the lower spring, as and for the purpose shown and set forth.

8. The combination of the box, the cylinder journaled in the box, and provided at one end with a ratchet-wheel, the lid or door hinged to the upper edge of one side of the box, the pawl-arm connected pivotally to the said lid or door, the spring bearing against the lower side of the said arm, the spring bearing against the upper side of the arm, the ticket-holding frame bearing with one end against the said upper spring, forcing it down to counteract the force of the lower spring, the stop-pawl, the spring bearing against its lower side, the spring bearing against its upper side, and the lid or cover hinged to the other side of the box, and provided with a downwardly-projecting rod bearing against the upper spring of the stop-pawl, forcing it to counteract the force of the lower spring, as and for the purpose shown and set forth.

9. The combination of the box, the ratchet-bearing cylinder, the cylinder provided with a polygonous trunnion for the application of a key, the sheet traveling over the cylinders, the lid hinged to the upper edge of one side of the box, the pawl-arm attached pivotally to the said lid, the springs bearing against the upper and under side of the pawl-arm, the ticket-holding frame bearing against the upper spring, the stop-pawl, the springs bearing against the upper and under side of the same, and the hinged lid provided with a downwardly-projecting rod bearing against the upper spring, as and for the purpose shown and set forth.

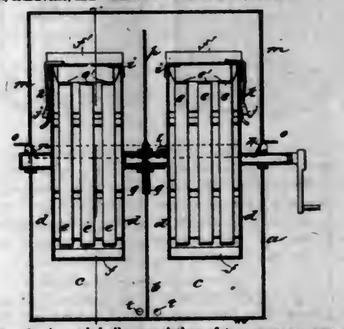
10. The combination of the slotted ticket-holding frame, the ratchet-bearing cylinder, the means, as described, for turning the said cylinder, the tally-sheet, the disk or roller secured upon the trunnion of the ratchet-bearing cylinder, the smaller roller journaled to turn in the same plane as the disk or roller, the registering-strip, and the slotted plate secured above the said strip, as and for the purpose shown and set forth.

11. The combination of the ticket-holding frame having a row of slots near one edge corresponding to the names upon the ticket, the rod secured longitudinally upon the frame outside the slots, the strips hinged upon the said rod, the glazed frame hinged at the other edge of the ticket-holding frame, and the bail secured to the outer edge of the narrow lid or door, as and for the purpose shown and set forth.

12. The voting-machine consisting of a box provided with hinged lids or covers and formed with a compartment or name-receptacle at one end, a ticket-holding frame secured in the box, and having slots registering with the names upon the ticket, a traveling sheet exposed through the said slots, means for moving the said sheet when one of the hinged lids is opened, a registering-strip traveling with the sheet, and an alarm adapted to be sounded by the opening of the lid, all constructed, combined, and arranged to operate as and for the purpose shown and set forth.

13. The tally or vote-recording sheet having the names of the offices and the names of the candidates for the said offices inscribed at one end of the sheet, ruled at each name, having spaces for the totals of marks upon each line at the end of the same, and having a blank form for the certificate of the judges or commissioners of the election at the end of the sheet opposite to the end having the ticket inscribed, in combination with a plate having slots corresponding to and registering with the rulings of the sheet, and means, substantially as described, for moving the said sheet, as and for the purpose shown and set forth.

310,507. WASHING-MACHINE. ANDREW J. GUFFIN and MATILDA C. GUFFIN, Rushville, Ind. Filed Nov. 10, 1883. (Model.)

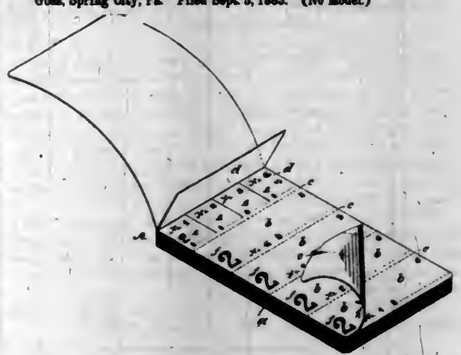


Claim.—1. A wash-boiler consisting of two or more separate and independent sections, *c c*, in combination with drums or wash-wheels journaled therein on independent journals, and a clutch mechanism for engaging and holding said shafts together, whereby the said wheels may be operated separately or together, substantially as set forth.

2. A wash-boiler consisting of two separate and independent sections, *c*, in combination with the wash-wheels or drums, journaled separately therein, and provided at their adjacent faces with hollow apertured journals fitting one within the other, and the spring locking-catch *l*, for securing said journals together when desired, substantially as set forth.

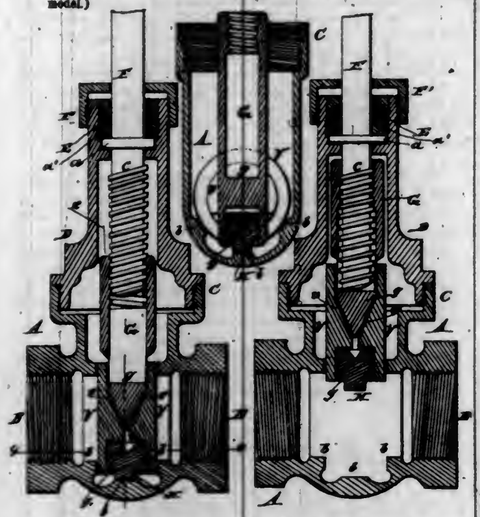
3. The combination, with the boiler *a*, partition *b*, and its removable extension *p*, forming independent sections *c c*, of the drums *d*, journaled therein, substantially as set forth.

310,508. CASHIER'S AND SALESMAN'S CHECK-BOOK. JACOB A. GUSS, Spring City, Pa. Filed Sept. 5, 1883. (No model.)



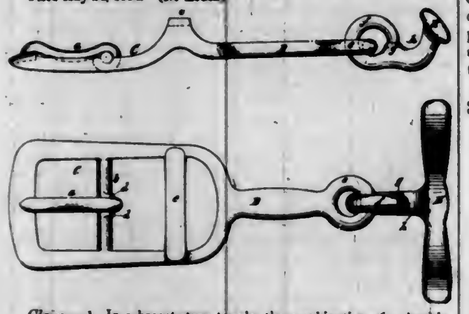
Claim.—A cashier's and salesman's check-book the leaves whereof are each formed of a stub, *d*, consisting of a series of columns, *e*, and a series of checks or sections, *b*, arranged at a right angle to said columns, one under the other, with the separating-perforations between the several sections extending transversely, so that each section may be torn off by a single movement across the width of the leaf, substantially as and for the purpose set forth.

310,509. VALVE. HENRY HALL, Lansingburg, N. Y., assignor to himself and William S. Flack, same place. Filed May 17, 1884. (No model.)



Claim.—The combination, with a valve-box constructed and bored out as described, and provided with a lug, *b*, and valve-seats, of the vertically-movable and separable valve-disks or gates, a vertically-movable stirrup, a wedge, *g*, adapted to act on the inclined planes *v v* on the said disks, a movable block, H, adapted to afford a bearing for the valves, and a screw-threaded valve-rod, all constructed and adapted to operate substantially in the manner and for the purposes described.

310,510. BREAST-STRAP TOGGLE. ROBERT G. HANFORD, Jr., Newark, assignor to the New Jersey Steel and Iron Company, Trenton, N. J. Filed May 24, 1884. (No model.)

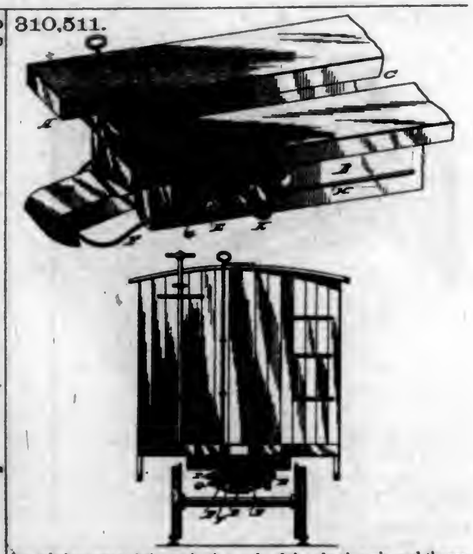


Claim.—1. In a breast-strap toggle, the combination of a buckle, a bar formed integral with the buckle, flattened at opposite sides and provided with an eye arranged in the same plane as the flattened sides of the bar, and a toggle-bar provided with an eye arranged in a plane at about right angles to the length of said bar, and having its central aperture in a line approximately parallel with the length of said bar, and engaging with the eye first named, substantially as described, whereby the toggle-bar and the bar first named may be brought close together in approximately parallel lines.

2. The combination, with a bar designed for engagement with a hame or collar ring, of an eye integral with and arranged in a plane at about right angles to the length of the bar, and having its central aperture in a line approximately parallel with the length of said bar, substantially as specified.

3. The combination, with the bar D, of the bar E, the eye *f*, the recess *h*, and the projection *g*, substantially as specified.

310,511. CAR-COUPLING. JAMES M. HARRISON and LUTHER N. WHITE, Columbia City, Ind.; said White assignor to said Harrison. Filed Aug. 4, 1884. (No model.)

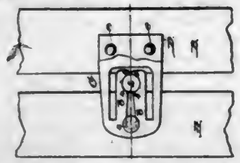


Claim.—1. In a car-coupling, the combination, with a draw-head consisting of suitably-connected side pieces, of a coupling-hook pivoted between the same upon a pin which is provided with projecting ends, and a link or bail extending in front of the said draw-head, and having its ends bent around the projecting ends of the pivoting-pin, and thence downwardly and forwardly and around suitably-arranged laterally-projecting pins or studs, substantially as set forth.

2. In a car-coupling, the combination of the draw-head, a link or bail projecting forwardly from the same, a pivoted coupling-hook, and a shaft pivoted transversely above and in rear of the pivoting-point of the coupling-hook, and having a lip or flange adapted to bear against the latter, and provided at its outer end with an operating lever or handle, substantially as set forth.

3. In a car-coupling, the herein-described draw-head, consisting of side pieces extending from one end of the car to the other, coupling-hooks pivoted in the said draw-head upon pins which extend beyond the sides of the draw-head, the links or bails extending in front of the ends of the draw-head, and having their ends bent around the projecting ends of the pivoting-pins, and thence downwardly and around suitably-arranged studs, and longitudinal rods or braces connecting the projecting ends of the pivoting-pins, substantially as and for the purpose set forth.

310,512. CORSET-CLASP. LUCIAN HILL, North Brookfield, Mass., assignor to Theodore C. Bates, same place. Filed Sept. 8, 1883. (No model.)



Claim.—1. A corset-clasp plate, C, having the openings 2 and 3 and a connecting-slot, and spring *b*, constituting one side of such openings and slot, and integral with the plate and extending from the fore end of the plate rearward to the steel to which it is attached, the free end thereof resting above said steel, substantially as described.

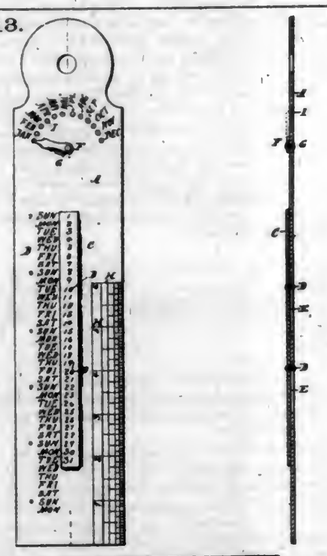
2. A corset-clasp plate, C, having the openings 2 and 3 and a connecting-slot, and spring *b*, constituting one side of such openings and slot, and integral with the plate and extending from the fore end of the plate rearward to the steel to which it is attached, the free end thereof resting above said steel, combined with the cap-plate D, substantially as described.

3. A corset-clasp plate or eye having openings 2 3 and slot for connecting the same, and spring-arms *b b* integral with the metal of the plate and forming the sides of the said openings and slot, substantially as described.

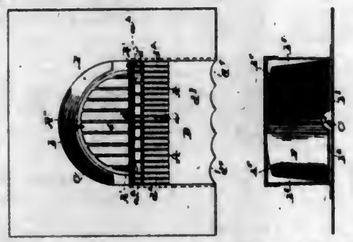
310,513. PAPER-CUTTER. AUSTIN D. HOFFMAN, Chicago, Ill. Filed Mar. 4, 1882. (No model.)

Claim.—The paper-cutter A, bearing near one end the arc-shaped series of names and the pivoted pointer F, and having marked upon it the longitudinal week-day column B, in combination with the slide C, having marked upon it a corresponding month-day column, substantially as and for the purposes described.

310,513.



310,514. GRATE. JOHN W. HOUSTON, Ballaire, Ohio, assignor to himself and William O. Houston, same place. Filed Dec. 26, 1883. (No model.)

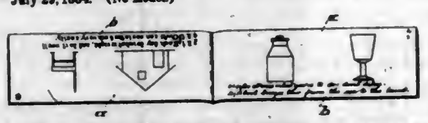


Claim.—1. In combination with a grate with a back section, A', an upper removable back section, A'', with a clear open space between them and the back wall, substantially as described.

2. The combination of the arched and inclined radiator B, provided on its front edge with the opening b^4, and the front, side, and back walls of the fire-place, with the intermediate open spaces, b^2, b^3, and b^5, between the edges of said radiator and the walls of the fire-place, substantially as described and shown.

3. In combination with a grate, the screen D, composed of the cross-bars *d* and d', vertical bars d^2, and close plate d^3, with openings d^4, substantially as described and shown.

310,515. CHILD'S COPY-BOOK. H. PRIOLI HURST, Newport, Ky. Filed July 29, 1884. (No model.)



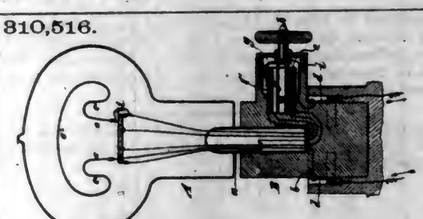
Claim.—1. A child's copy-book in which the lesson on each page is inverted relatively to that on the reverse page of the same leaf, as and for the purpose set forth.

2. A system or series of copy-books with reversely-presented consecutive pages, substantially as and for the purpose set forth.

310,516. INCANDESCENT ELECTRIC LAMP. CHARLES A. HUSSEY, New York, N. Y., assignor to the Hussey Electric Light and Power Company, same place. Filed Apr. 10, 1883. (No model.)

Claim.—1. The combination, in an incandescent lamp, of a flask in which a vacuum is established, a main filament for producing light inclosed in the flask, an extra filament constituting a resistance device, also inclosed in the flask, and means whereby a greater or less length of the said extra filament may be switched into or out of the circuit, substantially as specified.

310,516.

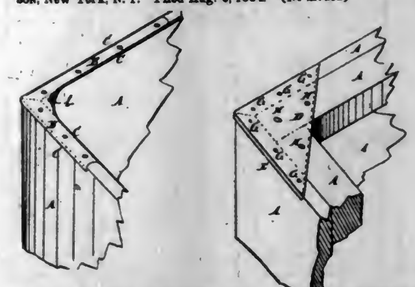


2. The combination, in an incandescent lamp, of a flask in which a vacuum is established, a main filament for producing light inclosed in the flask, an extra filament constituting a resistance device, also inclosed in the flask, and means whereby the whole of the extra filament or a greater or less length of it may be switched into or out of the circuit, substantially as specified.

3. The combination, in an incandescent lamp, of a flask, A, in which a vacuum is established, a main filament for producing light inclosed in the flask, the extra filament D, the regulator comprising metal strips *f f'*, &c., and a spring, *g*, the wires *k k'*, &c., and the wires *i j l*, substantially as specified.

4. A flask for an incandescent lamp, having a solid piece or stem, *a*, of glass, formed around the metallic conductors, and fused to and extending beyond it, substantially as and for the purpose specified.

310,517. CORNER-IRON FOR WAGON-BODIES. EDWARD HUTCHINSON, New York, N. Y. Filed Aug. 6, 1884. (No model.)

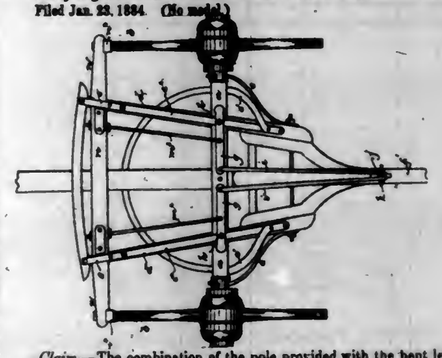


Claim.—1. Corner angle-irons for wagon bodies and seats made, substantially as herein shown and described, with flanges along their edges and with the inner corner of its angle bent to form a brace, *b*, whereby the angle-irons will be able to stand greater strain at the corners or angles, as set forth.

2. The combination, with the upper edges of the side and end boards of a wagon body or seat, A, of the angular plate B, having flanges C along its side edges and strengthening-brace *b* at the inner corner of its angle, substantially as herein shown and described.

3. The combination, with the lower edges of the side and end boards of a wagon body or seat and the lower side of the body-frame, of the triangular plate D, having flanges E along its edges, substantially as herein shown and described.

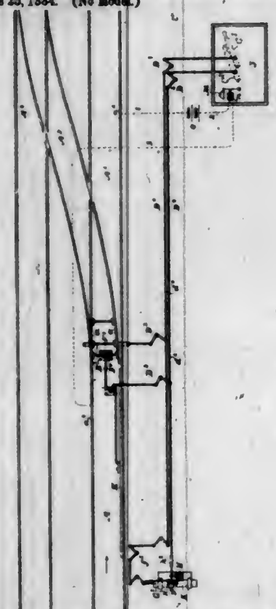
310,518. VEHICLE-BRAKE. PHILO H. INGRAHM, Marathon, N. Y.; Fanny Ingrahm administratrix of said Philo H. Ingrahm, deceased. Filed Jan. 23, 1884. (No model.)



Claim.—The combination of the pole provided with the bent lever *j*, extended along and resting on the tongue *f*, and having the operating-cord *m* attached to the end of the lever and within reach of the driver, the axle having the lever *g* fulcrumed to the under side thereof, the hounds

provided with the brake-bar, secured thereto by the metal loops *o*, the rod *i*, connecting the levers *g* and *j*, and the rods m^3, attached to the levers *g* between their fulcrum and the rods *i*, and connecting said levers *g* and the brake-bar, substantially as shown and described, and for the purposes set forth.

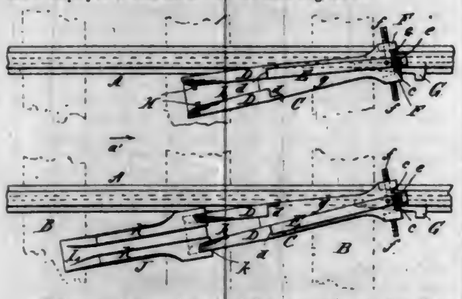
310,519. RAILWAY-SIGNAL. CHARLES R. JOHNSON, New York, N. Y., assignor to the Union Switch and Signal Company, Pittsburg, Pa. Filed June 25, 1884. (No model.)



Claim.—The combination, substantially as hereinbefore set forth, with a main track and a siding, of movable switch-rails and mechanism for operating the same, a switch-lock and mechanism for operating said lock, signal devices for indicating the two positions of the switch-rails, a device for permitting one or the other of said signals to be operated, which is controlled by said switch-operating mechanism, means, substantially such as described, controlled by said locking mechanism, for preventing one or the other of said signal-blades from being operated except when said switches are locked in one position or the other, an electric signal-bell, and means, substantially such as described, for completing an electric circuit through the same while a train or engine is passing along said switch-rails.

310,520. CAR-REPLACER. ROBERT JONES, Salt Lake City, Utah. Filed Mar. 15, 1884. (No model.)

Brief.—The main body has a pivoted tongue and side guard-flanges, its forward end being secured to the track-rail by vertical arms and a wedge between one of said arms and the web of the track-rail. An inclined extension-plate having side flanges and recessed at its forward end is employed in connection with the main frog-section.



Claim.—1. A car-replacer consisting, essentially, of a frog, C, provided with a pivoted tongue, and bent at I to form a downward incline, A, the inclined flanges D, formed on opposite sides of said incline A, and the depending legs F, at the opposite end of the frog from the incline I, substantially as set forth.

2. In a car-replacer, the combination, with a frog adapted to extend from the rail to the road-bed, provided with a pivoted tongue, and having downwardly-extending lugs, of a wedge adapted to be placed between one of the lugs and the web of the rail, substantially as specified.

3. The combination, with the frog C, having flanges D, downwardly-extending lugs F, and prongs H, and provided with the tongue E, of the wedge G, and the set-screws *f*, substantially as specified.

4. In a car-replacer, the extension-piece J, having flanges K, and adapted to fit upon the frog C, substantially as specified.

310,521. RUBBER FOR CLOVER-HULLERS. JOHN N. KAILOR, Newark, assignor to the Newark Machine Company, Columbus, Ohio. Filed Aug. 27, 1884. (No model.)

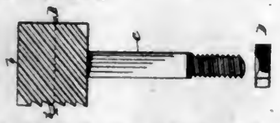


Claim.—1. A rubber for clover-hullers, comprising two sides having corrugations arranged transverse to the line of travel, a chamfered or inclined portion, as *b'*, forming a sharp front edge, C, and multiplied projections 1 2 3 4, as set forth.

2. A rubber for clover-hullers of the class described, comprising, essentially, two parallel sides having corrugations arranged transverse to the line of travel, a chamfered or inclined portion, as *b'*, to give a sharp front edge, C, and multiplied projections, as 1 2 3 4, as set forth.

3. The rubber described, having the parallel corrugated sides B *b*, sharp front *b'*, forming a ridge or prow, C, projections 1 2 3 4, the rectangular shank A, having thread *a*, and nut *a'*, the whole adapted to serve as and for the purposes set forth.

310,522. RUBBER FOR CLOVER-HULLERS. JOHN N. KAILOR, Newark, assignor to the Newark Machine Company, Columbus, Ohio. Filed Aug. 27, 1884. (No model.)



Claim.—1. A rubber for clover-hullers, having fluted sides and a toothed prow or front formed by making the grooves and ridges of one side continuous with those of the opposite side, as set forth.

2. The rubber described, having parallel fluted sides, the beveled or sharpened front *b'*, and the corrugations on one side made continuous with those on the opposite side to give a toothed contour to the front or prow, as set forth.

310,523. RUBBER FOR CLOVER-HULLERS. JOHN N. KAILOR, Newark, assignor to the Newark Machine Company, Columbus, Ohio. Filed Aug. 27, 1884. (No model.)



Claim.—1. The rubber described, having fluted sides and a sharpened inclined corrugated front, the direction of the corrugations extending forward and obliquely downward, as set forth.

2. The rubber described, having parallel fluted sides and a sharpened inclined corrugated front, the direction of the corrugations extending forward and obliquely downward, as set forth.

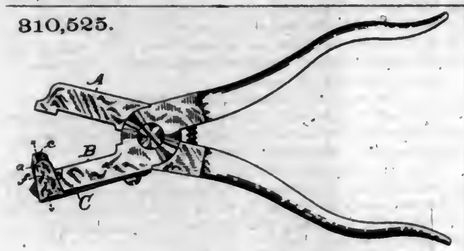
310,524. BUTTON-FASTENER. ELEAZER KEMPSHALL, New Britain, assignor to the Kempshall Patent Button Fastener Company, Derby, Conn. Filed Apr. 14, 1884. (No model.)



Claim.—A sheet-metal button-fastener consisting of the base D and the hook E, integral therewith, the said hook projecting from one cut edge of said base, and having one substantially semicircular bend, and a straight end below said bend substantially parallel with the post of the hook, and its extremity substantially even with the lower cut edge of the base, all substantially as described, and for the purpose explained.

310,525. BUTTON-SETTING INSTRUMENT. ELEAZER KEMPSHALL, New Britain, assignor to the Kempshall Patent Button Fastener Company, Derby, Conn. Filed June 27, 1884. (No model.)

310,525.



Brief.—Improvement on Patent No. 298,984, dated May 20, 1884.

Claim.—1. In a button-setting instrument, the combination of the slotted guide-block having the solid wall *d* extending along one side of the slot thereof, and the anvil *b*, secured to the jaw B, and terminating within the slot, substantially as described.

2. In a button-setting instrument, the combination of the yielding guide-block, slotted longitudinally from end to end, the anvil *b*, projecting into said slot, and the spring *c*, extending longitudinally through the slot by the side of the anvil, and with its ends bent to one side, substantially as described.

3. In a button-setting instrument, the combination of an anvil, a yielding guide-block slotted longitudinally, and the spring C, for pressing upon the end of the guide-block, and having the wing or guide *f* extending upward by one of the ends of the anvil, substantially as described.

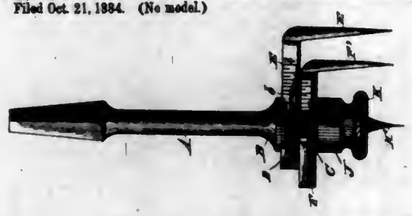
4. In a button-setting instrument, the combination of the anvil, the yielding guide-block for supporting the sides of the fastener, and yielding guides for supporting the two ends of the base of the fastener, substantially as described.

310,526. METHOD OF COILING METAL RODS. ROBERT W. KENNEDY, Pittsburg, Pa., assignor to Jones & Laughlins, (Limited,) same place. Filed June 27, 1884. (No specimens.)

Claim.—1. The method of preventing the adhesion of metallic coils on the mandrel on which the coiling is done, which consists in interjecting between the rod and the mandrel while the coiling is in progress a suitable solid (as distinguished from fluid) lubricating or anti-friction material, such as comminuted or small vegetable fiber, substantially as set forth.

2. The method of preventing the adhesion of metallic coils on the mandrel on which the coiling is done, and preventing the heating of the same, which consists in interjecting moistened comminuted vegetable fiber between the rod and the mandrel while the coiling is in progress, substantially as set forth.

310,527. WASHER-CUTTER. HENRY E. KOEPKA, St. Johnsbury, Vt. Filed Oct. 21, 1884. (No model.)



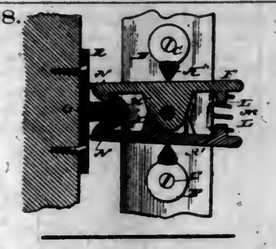
Claim.—1. The combination of the stem or shank A, having slotted part C and screw-threaded end G, adjustable arms E and F, having bits E' and F', tubular nut J, having milled flange K, and removable point H, substantially as and for the purpose shown and set forth.

2. The combination of the stem or shank A, having the head or enlargement B, provided with transverse slot or recess *b*, and slotted part C, the slot D of which registers with the recess *b*, adjustable arms E and F, having bits E' and F', tubular nut J, having milled flange K, and removable point H, substantially as and for the purpose shown and set forth.

310,528. GATE-LATCH. WILLIAM R. LAMPTON, Terre Haute, Ind., assignor of one-half to Willis O. Winn, same place. Filed July 10, 1884. (No model.)

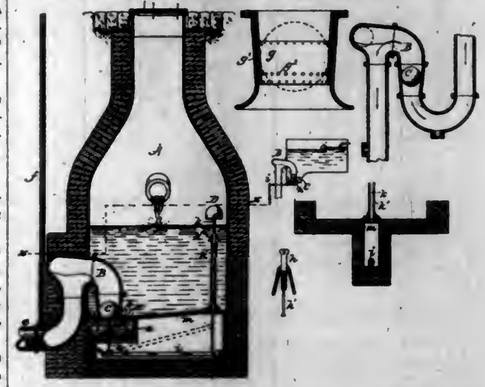
Claim.—The combination, with a bail formed with a central plate having an inwardly-projecting pintle, and with end pieces beveled upon their inner sides to form sharp edges, of a pair of levers pivoted upon the said pintle, and bearing with their outer edges against the sharp edges of the end pieces of the bail, as and for the purpose shown and set forth.

310,528.



310,529. FLUSHING-SIPHON. HARVEY C. LOWRIE, Denver, Colo. Filed Apr. 12, 1884. (No model.)

Brief.—A siphon has a flexible tapering valve-seat with a recess at its rear, a valve-ball wedging therein and moving upon a raceway inclined longitudinally and laterally. The raceway extends from the top of the short arm of the siphon and across the top of the long arm of the siphon. A lifting-spindle operated by a float acts upon the valve-ball. A cone central basin, located below the bottom of the shaft, contains the mouth of the siphon, and has an annular edge overhanging the mouth of the siphon. The float-lever is inclosed in a casing.



Claim.—1. The combination, with a siphon, of a tapering valve-seat within the short leg of the siphon, a valve-ball capable of wedging itself into said valve-seat, and an inclined raceway for said ball, extending from the top of the short leg across the top of the long leg of the siphon, substantially as described, whereby said ball operating as a valve is enabled to resist the passage of liquid through the siphon until a sufficient pressure is obtained to force said ball from its seat and lift it to and roll it upon said raceway, and after siphonage ceases enabling said ball to roll downward on its raceway, fall into the short leg of the siphon, and again wedge itself into its valve-seat, as set forth.

2. The combination, with the short leg of a siphon, of a flexible tapered valve-seat, a recess or chamber at the rear of said valve-seat accessible to liquids, and a ball capable of wedging itself in said valve-seat, substantially as described.

3. The combination, with a siphon and a ball, of a raceway for said ball, which extends from the top of the short leg across the top of the long leg of the siphon, and is inclined longitudinally and laterally, substantially as described.

4. The combination of a ball, a tapered valve-seat capable of receiving and frictionally retaining said ball, and a lifting-spindle for releasing said ball from said seat, substantially as described.

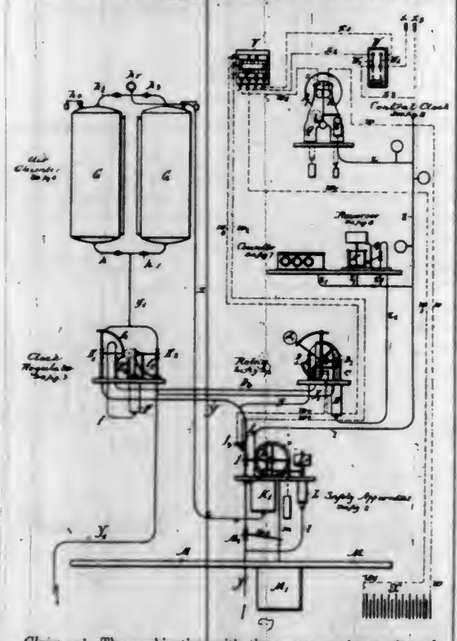
5. The combination of a tank or shaft, a ball, a tapered valve-seat capable of receiving and frictionally retaining said ball, a lifting-spindle for said ball, and a float for automatically controlling the spindle, substantially as described.

6. The combination, with a sewer tank or shaft, a siphon, and a cone-centered basin located below the surface of the bottom of the shaft, and containing the mouth of the short leg of the siphon, whereby siphonage can continue until the contents of the tank are practically discharged, but affording a water-seal to the mouth of the siphon.

7. The combination, with a tank or shaft, a siphon, and a cone-centered basin located below the bottom of the shaft, containing the mouth of the siphon, and having an overhanging annular edge, substantially as described.

8. The combination, with a sewer-flushing valve, of a lever for tripping said valve, a casing for inclosing said lever and protecting it from solid matters, and a float for lifting said lever and tripping said valve, substantially as described.

310,530. ELECTRIC PNEUMATIC-CLOCK SYSTEM. CHARLES A. MAYRHOFER, Vienna, Austria-Hungary, assignor of one-half to Carl Diener, same place. Filed Mar. 19, 1884. (No model.) Patented in France Dec. 31, 1883, No. 159,484; in Belgium Dec. 31, 1883, No. 63,721; in Italy Dec. 31, 1883, XVII, 16,373, and XXXII, 347; in Germany Jan. 1, 1884, No. 28,387; in England Jan. 1, 1884, No. 1,681; in Spain June 9, 1884, No. 5,662; and in Austria-Hungary Oct. 10, 1884, No. 770 and No. 46,788.



Claim.—1. The combination, with the center or minute arbor of a central clock or standard time-piece, of a contact-wheel and spur-wheel rigidly fastened thereto, a similar contact-wheel having a pinion meshing with the spur-wheel, and the contact-springs 8 and 8', the contact-wheels being provided with bosses adapted to make contact at proper intervals with the contact-springs to close the electric circuit, substantially as specified.

2. The combination, with the central clock and its contact-wheels and gearing and the contact-spring and plates, of the switch-board connected to the said plates by means of suitable conductors, a line connecting with an electro-magnet, and the hydropneumatic devices operated by said magnet, substantially as specified.

3. The combination, with the electro-magnet and its armature and the water supply and discharge pipes and their valves, of the mechanism, substantially as described, whereby said valves are alternately opened and closed by the electrical impulses established by the makes and breaks at the central clock, substantially as specified.

4. The combination, with the electro-magnet and its armature and the lever to which said armature is attached, (the lever resting against the end of the same,) the pivoted arm operated by said lever, and its weighted rod, of the adjustable beam having segments at its end, the weighted oscillating lever, and the alternately opening and closing valve-cocks operated by projections on the segments of the adjustable beam, substantially as specified.

5. The combination, with the weighted pulley *i*, its pinion, and the segment I', operating the valve-ring of the valve I, the lever K', engaging a lug, i^3, on the pulley, the lever K, mounted on the fulcrum-shaft *k*, the float K^2, located in a well, *K'*, and having a rod provided with a button, K^3, at its upper end, resting under the free end of the lever K, to operate the same and release the wheel *i*, substantially as and for the purpose specified.

6. The combination, with the lever K, the wheel *i*, and valve-operating segment I^2, of the float M^2, located in a well, M', the float-rod *m*, having a collar, m^2, and the valve-lever m^3, for automatically opening and closing the valve M^3, substantially as specified.

7. The combination, with the lever K, the weight L', and the cylinder L, of the float K^2 and float-rod K^3, whereby the lever K is actuated to release the wheel i^3, substantially as described.

8. The combination, with the segment I' and its actuating mechanism, of the circuit-breaker connected by suitable conductors with the central clock, whereby interruptions or breakages in the hydraulic devices are indicated, substantially as specified.

9. The combination, with the segments f^2 f^4, of the pinion F^2, pulley g^2, the rack F' and piston, the cylinder F and pipe *f*, valve E^2 and pipe D^4, and the valves E' and E^2 and connecting-pipe *y'*, all arranged to operate substantially as specified.

10. The combination, with the clock-regulating devices, of the reservoirs G and the connecting-pipes *y'*, *p*, and *h*, and the cylinder K', connecting with said reservoir by means of a pipe, *z*, and with the regulating mechanism, substantially as specified.

11. The combination, with the cylinder E, of the pipe z^2, valve O', the valve-arm n^2, bent arm *n'*, having a slot through which said valve-arm extends, the weight N^3, having a piston-rod and piston, and the cylinder N', connecting with the pipe *z'*, substantially as and for the purposes specified.

12. The combination, with the pipe *z'*, of the cylinder P and its piston, and the levers, pawl and ratchet, and registering mechanism whereby the number of impulses established by the central clock may be registered, substantially as specified.

13. The combination, with the cylinder U, connected to the pipe z^3, and the piston-rod t^2, of the lever T, having a lug, *u*, and the bent lever T', having an inclined bearing, *v'*, against which the lug works, and the fingers t^2, adapted to engage the crank-arm u^2, and the spring v^2, bearing against said lever to hold and return it to normal position, substantially as and for the purpose specified.

14. The combination, with the lever T and its actuating mechanism, of the ratchet *t*, secured to the winding-shaft S, and the pawl v^3, the setting mechanism, and mechanism for holding the said pawl from the ratchet-teeth during the setting of the clock, substantially as specified.

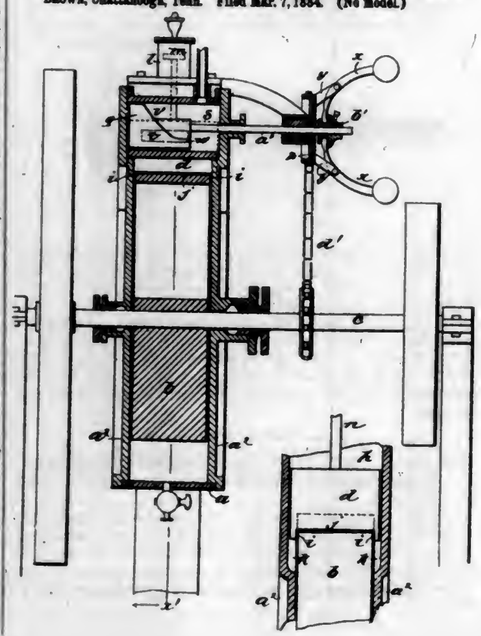
15. The combination, in an electro-hydropneumatic-clock system, with a standard or central clock and a series of secondary or controlled clocks, of a reversing apparatus, substantially as described, for returning the valves and levers to their normal position after each actuation of the circuit, substantially as described.

16. The combination, in an electro-pneumatic-clock system, with a standard clock and a series of secondary or controlled clocks, of safety device and gearing operated thereby, substantially as described, for giving a warning signal when an accident has occurred in any of the circuits, substantially as set forth.

17. The combination, with means for winding and setting a series of clocks, substantially as set forth, of devices consisting of a reservoir connected to the air-pipe, and having a weighted piston operating, substantially as described, for returning the valves and levers to their normal position, as set forth.

18. The combination, substantially as hereinbefore set forth, with means, as described, for controlling a series of secondary clocks, of devices for closing the water-supply in case of accident, the same consisting of a trough having a float and float-rod, which actuates a lever to close the water-supply cock, substantially as set forth.

310,531. ROTARY ENGINE. CHARLES H. MELVILLE and THOMAS W. BROWN, Chattanooga, Tenn. Filed Mar. 7, 1884. (No model.)

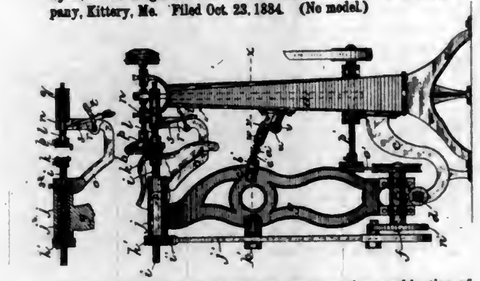


Claim.—1. The combination of the steam-cylinder *l* and piston *m* with the radially-sliding abutment *d* and eccentric drum *b*, arranged in a steam-cylinder *a* a^2, said cylinder *l* being open to the live steam above the piston and open to the exhaust below said piston, substantially as described.

2. The radially-reciprocating abutment *d*, arranged in the abutment-chest *h*, wider than the drum *b*, and fitted in the radial grooves *k* of the sides of the case, and having extensions *i* reaching past the face of the drum, each side of it, and in said groove *k*, substantially as described.

3. The rotary cylindrical steam-valve *q*, having straight steam-inlet line *u* and the spiral cut-off line *v*, and being arranged to shift lengthwise automatically by the action of the governor for automatically varying the cut-off of the steam at the port *t*, in combination with the abutment *d*, all constructed and arranged substantially as described.

310,532. JACK FOR BOOTS OR SHOES. ALMON L. F. MITCHELL, Lynn, Mass., assignor to the Mitchell Heel and Edge Burnishing Company, Kittery, Me. Filed Oct. 23, 1884. (No model.)



Claim.—1. In a heel-burnishing machine, the combination of a supporting-standard, a burnishing-tool mounted thereon, a frame pivoted to said standard to swing universally, as described, an arbor, *i*, and co-operating heel-clamping devices, substantially as described, mounted on the swinging end of said frame, and mechanism, substantially as described, whereby said arbor and co-operating devices are oscillated, as set forth.

2. The jack composed of the yoke or bearing *e*, pivoted to a fixed support to swing in a given plane, the frame *g*, pivoted to the yoke to swing in a plane at right angles to that in which the yoke swings, an arbor, *i*, and co-operating heel-clamping devices, substantially as described, mounted on the swinging end of said frame, and mechanism, substantially as described, whereby said arbor and co-operating devices are oscillated, as set forth.

3. The combination of the yoke or bearing pivoted to a fixed support, the arbor journaled in said bearing and provided with the eccentric wrist-pin, the frame mounted on said arbor, the arbor *i*, journaled in the upper end of said frame, and provided with a pinion and devices, substantially as described, co-operating with said arbor to hold a heel, and the lever pivoted to the frame and provided at one end with a rack-segment engaged with the pinion, and at the other end with a slot receiving the eccentric wrist-pin, as set forth.

4. The combination of the standard, having the curved guide-rod, and the jack pivoted to swing in two directions, as described, and provided with the telescopic connection mounted on said curved guide-rod, as set forth.

5. The combination of the jack pivoted to swing in two directions, as described, the standard having the curved guide-rod, the socket *w*, mounted to slide on said rod, the curved rod *a'*, attached to the jack, and the spring *e'*, interposed between the jack and the sliding socket, as set forth.

6. The combination of the standard having the burnishing-tool and the curved guide-rod, the jack pivoted to swing in two directions, as described, the telescopic connection mounted to slide on the guide-rod, and the spring *f''*, whereby the jack is pulled toward the burnishing-tool, as set forth.

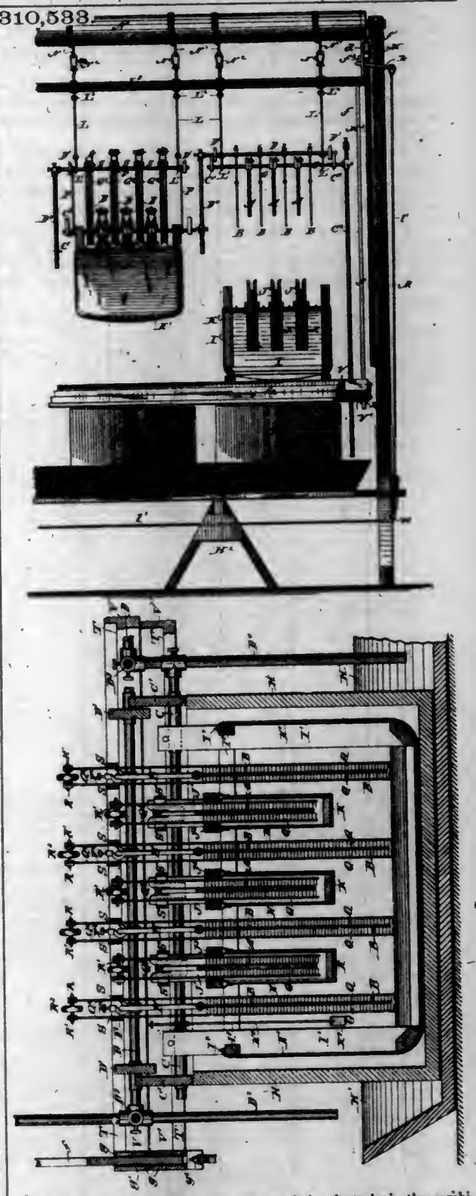
7. In a jack, the combination of the arbor *i*, having a clamping-plate, the offset-bar *o*, secured to said arbor, the rod *l*, mounted in said arm and provided with a clamping-plate, and with a spring whereby it is forced against the heel, and retracting-lever *r*, pivoted to the offset-bar and provided with holding devices, substantially as described.

310,533. APPARATUS FOR THE ELECTROLYTICAL SEPARATION AND DEPOSITION OF METALS. BERNARD MOEBIUS, Chihuahua, Mexico, assignor of three-eighths to William E. Pope, Athens, Ga. Filed Feb. 5, 1884. (No model.)

Claim.—1. In an apparatus for refining silver, the combination, with an anode formed of the silver to be refined, of a cathode provided with a coating of silver, substantially as herein shown and described.

2. In an apparatus for refining silver, the combination, with a cathode provided with a coating of silver, of an anode formed of the silver to be refined and surrounded by a bag, substantially as herein shown and described.

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3. In an apparatus for separating metals by electrolysis, the combination, with a cell and a series of elements therein, of a bag surrounding the elements, and means for raising said bag out of the exciting-liquid, substantially as herein shown and described.

4. The combination, with a cell and electrodes, of brushes or scrapers contained within the cell, means for moving the brushes or scrapers along the surfaces of the electrodes, and means for adjusting the brushes or scrapers to suit the different thickness or position of electrodes, substantially as herein shown and described.

5. The combination, with a cell and electrodes or elements in the same, of scrapers to act within the cell and exciting-liquid on the surface of the electrodes, and means for removing the electrodes and the brushes adapted to act on the same from the cell at the same time, substantially as herein shown and described.

6. The combination, with a cell and two sets of electrodes or elements in the same, of reciprocating brushes or scrapers for acting on the electrodes within the cell, and the exciting-liquid, of separate devices for operating the brushes or scrapers for each set of electrodes, and means

for removing each set of electrodes independently of the other, and at the same time removing the corresponding brushes or scrapers, substantially as herein shown and described.

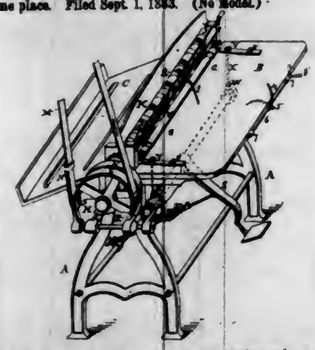
7. The combination, with a cell, of anodes and cathodes, a bag surrounding all the anodes and cathodes in one cell, and means for raising the anodes, cathodes, and bag together, substantially as herein shown and described.

8. In an apparatus for the separation of metals by electrolysis, the combination, with a reciprocating frame, of pivoted agitators having their upper ends connected to said frame and operated thereby, substantially as herein shown and described.

9. The herein-described anode-supporter, consisting of a bar through which screws are passed, on which screw locking-nuts are mounted above the bar, the lower ends of the said screws being adapted to be held to turn in the top edge of the anode, substantially as herein shown and described.

10. In an apparatus for the separation of metals by electrolysis, the combination, with a cell and its anodes and cathodes, of a bag surrounding each anode and a bag surrounding all the anodes and cathodes, substantially as herein shown and described.

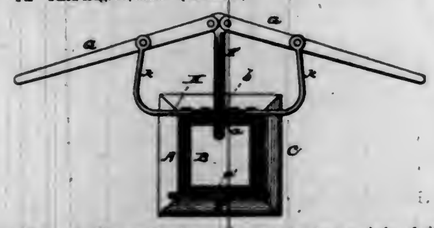
310,534. MACHINE FOR CUTTING CARD-BOARD. SAMUEL J. MURRAY, Cincinnati, Ohio, assignor to the Russell & Morgan Printing Company, same place. Filed Sept. 1, 1883. (No model.)



Claim.—1. In a machine for cutting printed sheets into strips, the combination, with a rotary gang of cutters and with a feed-roller, of the pressure-roller U, having the described connection P Q R V W X with the belt-shifting mechanism, so as to be lifted from the feed-roller, and to be caused to rest thereupon by the respective acts of stopping and starting the machine, substantially as and for the purposes set forth.

2. In a machine for cutting printed sheets into strips, the combination, with a platform, a rotary gang of cutters, and a feed-roller, of a belt-shifter and a pressure-roller, which are so geared, substantially as described, to said treadle-shaft as for said pressure-roller to rise and fall with changes in elevation of the treadle, as and for the purpose set forth.

310,535. CAR-COUPLING. CHAS. O. MYERS, York Sulphur Springs, Pa. Filed Aug. 13, 1884. (No model.)



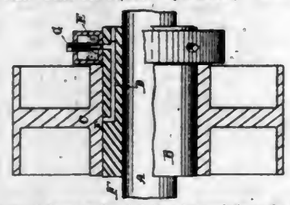
Claim.—1. The combination, with a coupler box or chair, of the sliding draw-head having its lateral walls slotted, the front and rear coupling-pins, the link, the bearing-plates extending through the slotted walls of the box and draw-head, and the springs, substantially as specified.

2. The combination, with a coupler box or chair having lateral apertures, of a sliding draw-head therein, also having lateral apertures, the transverse bearings, the spring arranged between the said bearing-plates, and the spring between the rear wall of the draw-head and the rear bearing-plate, substantially as specified.

3. The combination, with the sliding draw-head arranged within the box or chair, of the link having a front aperture for connection with the pin of the opposite draw-head, and a rear aperture and an intermediate aperture for connection with the front and rear pins of its own draw-head, substantially as specified.

4. The combination, with a draw-head, of a coupling-pin, operating-levers pivoted thereto, and spring-arms, whereby said levers are automatically held in the raised or in the depressed position, substantially as specified.

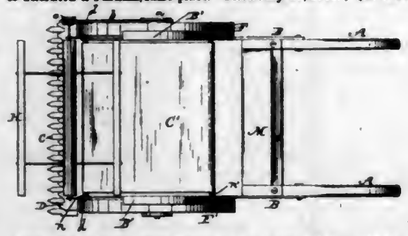
310,536. LOOSE-PULLEY LUBRICATOR. WILLIAM J. ORMSBY, Cincinnati, Ohio. Filed Oct. 16, 1884. (No model.)



Claim.—1. A loose-pulley lubricator consisting of a shell or sleeve securely attached to the shaft, and having therein one or more oil-ducts, as shown, communicating with the oil-reservoir, in combination with the oil-reservoir, substantially as herein described.

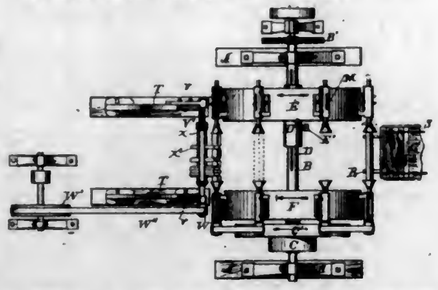
2. In a loose-pulley lubricator, the combination of the shaft A with the shell or sleeve B, firmly attached thereon, having one or more ducts communicating with the oil-reservoir and the pulley, as and for the purpose substantially as herein described.

310,537. HAND-REAPER. GEO. J. PARHAM, Bedford, Ind., assignor to Thornton & Parham, same place. Filed July 18, 1882. (No model.)



Claim.—In a hand-reaper mounted on wheels F F', a frame consisting of rear handles, side plates, front and rear braces, and side shields secured to the side plates, in combination with a cutting apparatus applied to the front ends of said side plates, a revolving reel arranged over the same, an endless apron, and a rear depressed receiving-trough, all constructed, arranged, and adapted to operate substantially in the manner and for the purpose described.

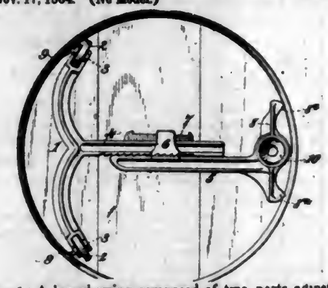
310,538. MULTIPLEX TURNING-LATHE. EDWARD J. PENNINGTON, Cincinnati, Ohio, and ALBERT E. GATCHELL, Newport, Ky., assignors to R. R. Probasco, trustee. Filed Aug. 2, 1883. (No model.)



Claim.—1. In a lathe of the character described, the combination of two cylinders with a driving and supporting shaft having a feather, D, one of said cylinders being fixed to said shaft and the other having a grooved hub endwise movable thereon, but revolving therewith, and both cylinders bearing spring-actuated centering-chucks and spindle, as described, adapted to be actuated at different intervals by an inclined plane, and springs for the purpose of automatically gripping and releasing the stuff, substantially as set forth.

2. The combination of the bell-mouth guide-piece K, and the chuck I, having pin M', and actuated by the encircling spring J', with the hollow keeper G, constructed as described, and having the tubular and slotted arm H', substantially as described.

310,539. BARREL-SWING. PRINCE A. POTTER, Providence, R. I. Filed Nov. 17, 1884. (No model.)



Claim.—1. A barrel-swing composed of two parts adjustable one upon the other, one of said parts carrying the rolls, and the other the spindle-socket, each part having spurs which engage with the chine at opposite points upon the barrel end, substantially as described.

2. In a barrel-swing, the combination, with a bar having rolls journaled in its ends and provided with outwardly-projecting spurs, of a central bar engaging with a loop formed upon a separate piece having a spurred T-head, and a wedge or key entering said loop, substantially as described.

3. In a barrel-swing, the combination, with a spurred roller-carrying bar having a point projecting upwardly near its middle part, of an adjustable bar having a spurred end, and a wedge or key by which the parts are fastened at any point to which they are adjusted, substantially as described.

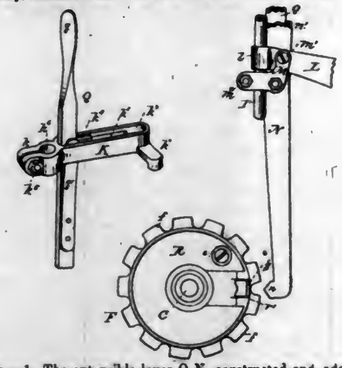
4. In a barrel-swing, the combination, with a roller-carrying bar having spurs near its ends, and a point or nipple projecting upward near its middle, of a bar formed centrally thereon, a bar having a spurred T-head, and provided with a spindle-socket, a loop formed upon said bar, and a key entering said loop and bearing upon the central bar of the roll-carrier, substantially as described.

5. In a barrel-swing, the combination, with a bar, 1, having rolls 2, and provided with spurs 9^a, of the bar 4, entering the loop 6 upon the bar 5, the T-head 8, having spurs 8^a, and the key 7, substantially as described.

6. In a barrel-swing, the combination, with the spurred bar 1, having rolls 2, and provided with the point or nipple 9^a, of the bar 5, having the loop 6, the T-head 8, having the spurs 8^a, and spindle-socket 10, and the key 7, substantially as described.

7. In a barrel-swing, the combination, with the spurred bar 1, having rolls 2, and provided with a central bar, 4, of the bar 5, having the loop 6, the key 7, the T-head 8, having a spindle-socket, 10, and the spindle 11, substantially as described.

310,540. VELOCIPEDE. CHARLES E. PRATT, Boston, Mass., and ALBERT E. WALLACE, Hartford, Conn., assignors to the Pope Manufacturing Company, Hartford, Conn. Filed Nov. 28, 1884. (No model.)



Claim.—1. The extensible lever Q N, constructed and adapted to operate essentially as set forth.

2. The bracket K, having means for attachment to the frame-work of a velocipede, a way to admit of movement of the lever, and means for holding the lever in one of two positions, essentially as set forth.

3. The adjustable detent k^4, constructed and adapted to operate substantially as and for the purposes set forth.

4. The combination, in a velocipede, of lever-arm Q, bracket K, way k^2, detent k^4, and spring q, essentially as set forth.

5. The combination, in a velocipede, of bracket M, arm L, and the pivoted lever N, essentially as set forth.

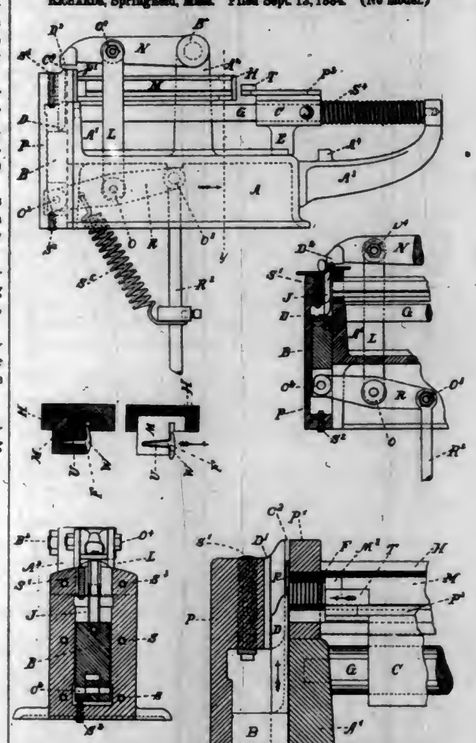
6. In an epicyclic variable-speed mechanism, a click-arm, S, click s^2, slide S', and spring s^4, constructed, combined, and adapted to operate essentially as set forth.

7. In an epicyclic variable-speed mechanism, a disk, F, having on one side projections f^3 and slots f^3, and on the other side axles t t, or their equivalent, constructed and adapted to operate essentially as set forth.

8. In an epicyclic variable-speed gear mechanism, the combination of a fixed disk on a shaft bearing an annular gear at or near its periphery, a concentric spur-gear free on a shaft, an intermediate gear meshing with said annular gear and said spur-gear, and axled upon a disk, a sleeve connecting said spur-gear, and a disk fixed thereon, a disk free to revolve on said sleeve and between the fixed disk upon the shaft and the fixed disk upon the sleeve, and bearing an axle for the intermediate gear, and having slots on its opposite side from said gear, and sprocket-teeth, or their equivalent, on its periphery, and a lever, S, click s^2, slide S', and spring s^4, all constructed and adapted to operate essentially as set forth.

9. In combination with the frame of a velocipede and an epicyclic two-speed mechanism, the actuating-lever N Q, pivoted at one point to a connection with the frame of a tricycle, having a click, n, at the lower end and a handle, q, at the upper end, and constructed and combined to operate upon said epicyclic two-speed mechanism, on a crank-shaft, and to be operated by the hand of the rider near the handle of the velocipede, essentially as set forth.

310,541. BUTTON-FASTENER-SETTING MACHINE. FRANCIS H. RICHARDS, Springfield, Mass. Filed Sept. 13, 1884. (No model.)



Claim.—1. In a button-fastener-setting machine of the class described, a magazine, grooved, substantially as described, to receive the fasteners, and opening into one side of a driver-channel above a driver, a driver-channel adapted to receive the fasteners one at a time from said magazine, and corresponding to them, substantially as described, a die above said channel adapted to bend over into a hook the prongs of said fasteners, and a driver having a reciprocating motion in said channel, and having its point comformably shaped to the fastener-head, whereby said fasteners are driven, with their prongs maintained vertically, from their point of entrance into said channel through the same and against said die, combined and operating substantially as set forth.

2. In a button-fastener-setting machine of the class described, a magazine, grooved, substantially as described, to receive the fasteners, and opening into one side of a driver-channel above a driver, a driver-channel adapted to receive the fasteners one at a time from said maga-

zine, and corresponding to them, substantially as described, a die above said channel adapted to bend over into a hook the prongs of said fasteners, and a driver having a reciprocating motion in said channel, and having its point conformably shaped to the fastener-head, whereby said fasteners are driven, with their prongs maintained vertically, from their point of entrance into said channel through the same and against said die, and an actuating mechanism, substantially as described, for operating said driver and die, combined and operating substantially as set forth.

3. In a button-fastener-setting machine of the class described, a magazine, grooved, substantially as described, to receive the fasteners, and opening into one side of a driver-channel above a driver, a driver-channel adapted to receive the fasteners one at a time from said magazine, and corresponding to them, substantially as described, a die above said channel adapted to bend over into a hook the prongs of said fasteners, and a driver having a reciprocating motion in said channel, and having its point conformably shaped to the fastener-head, whereby said fasteners are driven, with their prongs maintained vertically, from their point of entrance into said channel through the same and against said die, and the lever mechanism, substantially as described, adapted to first press down said die and then throw up the driver, combined and operating substantially as set forth.

4. In a button-fastener-setting machine, slide B, having thereon a driver, as D, a vertically-movable presser, N, having die D^2, lever R, links L, rod R^2, and spring S^2, combined and operating substantially as set forth.

5. In a button-fastener-setting machine, a button-fastener driver, D, having one or more flanges, J, in combination with driver-guide D', forming one side of the driver-channel, substantially as described.

6. A magazine for holding button-fasteners the heads of which are longer on one side of the prong than on the other side thereof, having groove V, groove V^2, and rib V^3, said rib being so formed as to retain said fasteners in the magazine only when the longer ends of their heads are in said groove V^2, substantially as described.

7. In a button-fastener-setting machine, magazine-holder H, magazine M, removably fixed on said holder and grooved to receive the button-fasteners, and plunger P^2, having a tongue adapted to slide in said groove, combined and operating substantially as described.

8. In combination, a magazine-holder, a removable magazine supported by said holder, a guide-rod parallel to the groove of said magazine, a plunger-carrier sliding on said guide-rod, having a plunger adapted to prevent said magazine from leaving its place and to feed button-fasteners through the same, and a spring arranged to slide said carrier on said rod, substantially as described.

9. In combination, magazine M, guide-rod G, carrier C, having plunger P^2 and arm E, and adapted to have a sliding and swinging motion on said rod, and groove G^2, substantially as and for the purpose described.

10. In combination, magazine M, suitably supported in a fixed position, guide G, carrier C, having plunger P^2 and arm E, and adapted to have a sliding and a swinging motion on said guide, groove G^2, having catch K, and spring S^4, substantially as and for the purpose described.

11. In a button-fastener-setting machine, in combination, a magazine-holder, H, having the short channel M^2, and magazine M, removably fitted to said holder, substantially as described.

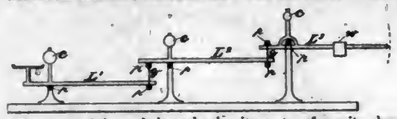
12. In combination, plate P, recessed to receive slide B and driver D, cap P', forming one side of the driver-channel, and having an opening for a channel or magazine, M^2 or M, a channel or magazine, as M^2 or M, fitted to said opening, and a stop, as S^2, determining the lower limit of the stroke of said driver, so that the upper end of the driver will coincide with the bottom of the button-fasteners in said magazine, substantially as described.

13. In combination, plate P, recessed to receive slide B and driver D, cap P', forming one side of the driver-channel, and having an opening for a channel or magazine, a channel or magazine, as M^2 or M, fitted to said opening, and a stop, as S', determining the upper limit of the stroke of said driver, so that it will drive the fasteners up against said die the distance only which is required to properly set them, substantially as described.

14. In a button-fastener-setting machine, in combination, plate P, recessed to receive slide B and driver D, cap P', forming one side of the driver-channel, and having an opening for a channel or magazine, as M^2 or M, a channel or magazine, as M^2 or M, fitted to said opening, a stop determining the lower limit of the stroke of said driver, so that the upper end of the driver will properly coincide with the bottom of the button-fasteners in said magazine, a die, D^2, suitably held above the top of said channel, and a stop determining the upper limit of the stroke of said driver, so that it will drive the fasteners up against said die the distance only which is required to properly set them, substantially as described.

15. In a button-fastener-setting machine, the magazine M, grooved to receive fasteners F, substantially as described, in combination with a sliding plunger, P^2, formed to enter and feed said fasteners through said magazine, substantially as set forth.

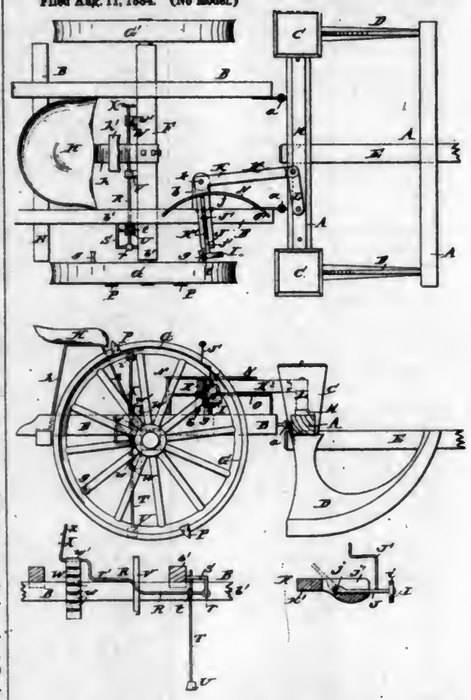
310,542. TORSIONAL-PIVOT BALANCE. FREDERICK A. ROEDER and ALFRED SPRINGER, Cincinnati, Ohio. Filed Mar. 31, 1884. (No model.)



Claim.—1. A beam-balance having its center of gravity above the center of rotation, and having its load-supports suspended from points in a line with the center of gravity of the balance, in combination with a supporting-pivot which acts torsionally by molecular displacement, substantially as described.

2. In a balance, a connected system of levers, each hung on an elastic torsional pivot, and a counterpoise connected to one only of the levers, vertically above its pivot, so as to control the movement of the series, substantially as described.

310,543. CORN-PLANTER. WILLIAM L. RUCKER, Martinsville, Mo. Filed Aug. 11, 1884. (No model.)



Claim.—1. In a corn-planter, the combination, with the drop-slide-actuating lever, of the arm having the head acted upon by the wheel-tappets, said arm being pivoted in a longitudinal slot of the slide-actuating lever, substantially as and for the purpose set forth.

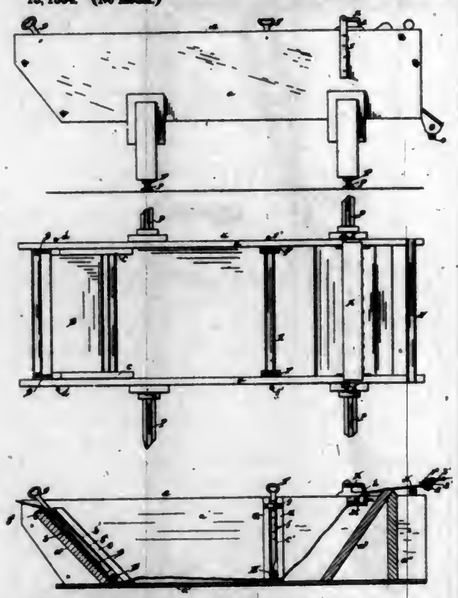
2. In a corn-planter, the combination, with the slide-actuating lever, of the head acted upon by the wheel-tappets, said arm being pivoted to said lever and having a right-angled handle to permit its operation, substantially as and for the purpose set forth.

3. In a corn-planter, the combination, with the dropping-slide, of the right-angled lever linked or toggle-jointed to the said slide and pivoted at its elbow to the frame of the machine, said right-angled lever having a pivoted arm resting thereon and carrying a head actuated by the wheel-tappets, substantially as shown and described, and for the purpose set forth.

4. In a corn-planter, the combination, with the slide-actuating lever carrying the head actuated by the wheel-tappets, of the guide N O, arranged one above and the other below said lever, substantially as and for the purpose set forth.

5. In a corn-planter, the combination, with the axle, one of whose wheels carries the slide-actuating tappets, of the cranked rod or lever guided within a keeper affixed to the axle, said rod or lever carrying a pendent arm and pivotally connected to the axle, and the rack with its upper end provided with a holding-notch, substantially as and for the purpose set forth.

310,544. APPARATUS FOR MANUFACTURING FLEXIBLE ROOFING MATERIAL. L. LEWIS SAGENDORPH, Cincinnati, Ohio, assignor of one-half to H. P. Lloyd, same place. Filed July 26, 1883. Renewed Sept. 15, 1884. (No model.)



Claim.—1. The combination of the tank, guide B, and roller E, located at or near the foot of the guide B, substantially as and for the purposes specified.

2. The combination of the tank, guide B, rollers E and H, substantially as and for the purposes specified.

3. An apparatus for removing the surplus of composition, consisting of two lips, one fixed and the other removable, the working-edges of said lips being opposite one another, substantially as and for the purposes specified.

4. The tank A, provided with guide B, rollers E and H, arms D and F, and scrapers M and K, substantially as and for the purposes set forth.

5. The guard-box B, located in the tank, substantially as and for the purposes set forth.

6. The improved apparatus for preparing flexible materials, consisting of the tank A, constructed substantially as described, and drying apparatus separated from said tank and consisting of series of racks Q q, substantially as and for the purposes described.

7. The guard-box B, provided with lip, and located in the front end of the tank, substantially as and for the purposes specified.

8. The guard-box B, and the depressing-rollers and their supporting-arms, and guides, substantially as and for the purposes described.

9. In the tank, the combination of guard-box B and roller E, and arms D, and guideways, substantially as and for the purposes specified.

10. The roller E and arms D, sliding in guideways C', and provided with handle, and a setting device, for securing the roller at any desired height, located at the front portion of the tank, substantially as and for the purposes specified.

11. In a tank for imparting a composition to flexible material, the roller H, arms F, and guides B, substantially as and for the purposes set forth.

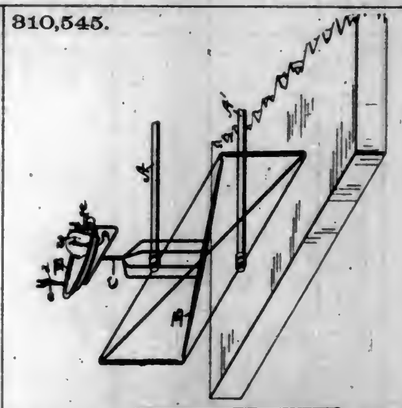
12. In a tank for imparting a composition to flexible material, the roller H and arms F, guides B, and device for adjusting the distance of the roller from the bottom of the tank, and securing the rollers at a given point, substantially as and for the purposes described.

310,545. BALANCE. ALFRED SPRINGER, Cincinnati, Ohio, assignor to the Torsional Balance and Scale Company, of Ohio. Filed Oct. 8, 1883. (No model.)

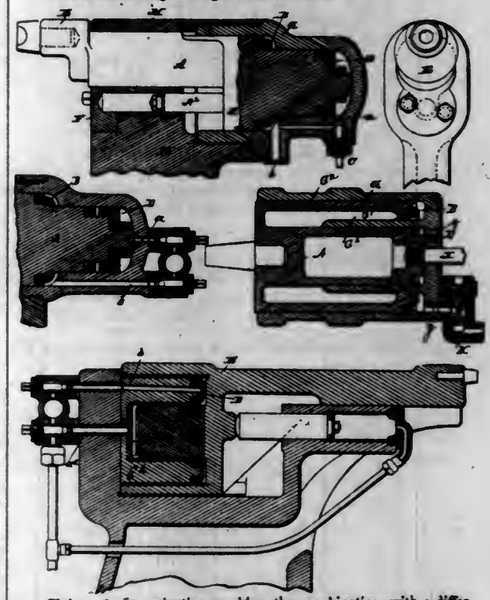
Claim.—1. In a beam-scale of the character described, in combination with the beam, a scale-pan pivotally hung from a point of support above the beam, substantially as and for the purpose set forth.

2. In a beam-scale, a bifurcated standard for carrying the scale-pan above the beam, in combination with a scale-pan pivotally suspended between its bifurcated arms, substantially as and for the purpose set forth.

310,545.



310,546. RIVETING-MACHINE. RALPH H. TWEDDELL, Westminster, County of Middlesex, and JAMES PLANT and JOHN FIELDING, Gloucester, County of Gloucester, England. Filed Apr. 19, 1884. (No model.) Patented in England Feb. 3, 1883, No. 567; in France Aug. 6, 1883, No. 156,893, and in Belgium Aug. 6, 1883, No. 62,233.



Claim.—1. In a riveting-machine, the combination, with a differential cylinder and plunger, of a push-back plunger arranged in direct contact with the forward portion of the differential plunger, and adapted to force it through its back-stroke, substantially as set forth.

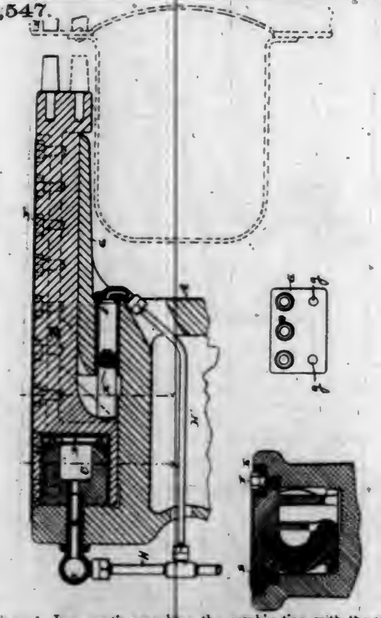
2. In a riveting-machine, the combination, with a base, a large cylinder removably secured thereto, and a riveting-plunger the inner end of which is enlarged, of the removable cylinder F and the push-back plunger, one end of which bears against the enlarged end of the riveting-plunger.

3. The combination, with a base, a removable cylinder secured thereto, and the differential plunger provided with an enlarged inner end, and with a head for bolding the riveting-tool, arranged eccentrically to the body thereof, of a removable cylinder, F, and a small plunger working in said cylinder and bearing at one end against a shoulder of the differential plunger.

4. In a riveting-machine, the combination, with a frame and a differential cylinder removably secured to the frame, of a differential plunger, the removable cylinder F, and the push-back plunger, all of the above parts adapted to operate as described.

310,547. RIVETING-MACHINE. RALPH H. TWEDDELL, Westminster, County of Middlesex, and JAMES PLATT and JOHN FIELDING, Gloucester, County of Gloucester, England. Filed May 14, 1884. (No model.)

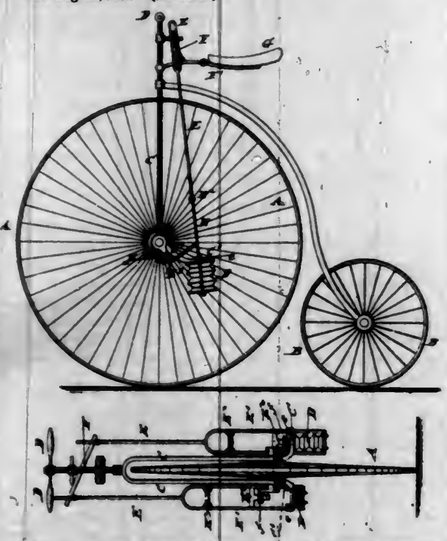
310,547.



Claim.—1. In a riveting-machine, the combination, with the supporting-base provided with a projecting plunger-support, of a plunger having a cylinder formed in its rear end, a stationary piston fitting within said cylinder, and a push-back plunger arranged to engage the main plunger, substantially as set forth.

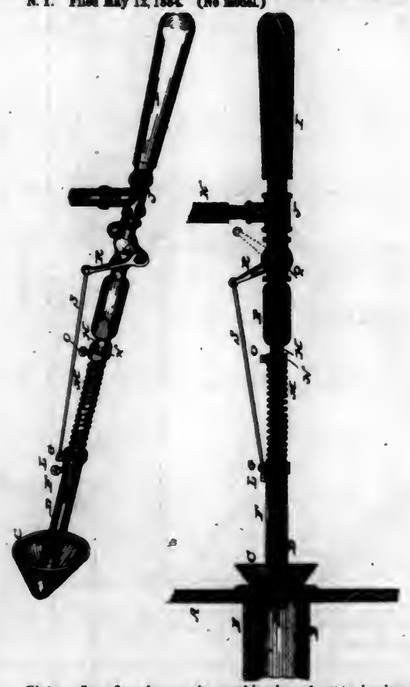
2. The combination, with a frame having a groove or gutter therein and a stationary piston secured to said frame inside of the groove, of the plunger having a cylindrical cavity or cylinder formed in the rear thereof, a smaller cylinder, and a push-back plunger working in said latter cylinder and bearing against the larger plunger.

310,548. VELOCIPEDE. ROBERT VON MALKOWSKY, New York, N. Y. Filed Aug. 30, 1884. (No model.)



Claim.—The combination, in a velocipede, with the driving-wheel, of closed bellows supported on fixed brackets of the fork, forked pedal-rods connected at the lower end of the bottom of the bellows, and at the upper end to a transverse oscillating balance-rod, said forks being provided with forward extending arms that engage fixed cranks on the axle of the driving-wheel, so as to impart rotary motion to the same, substantially as set forth.

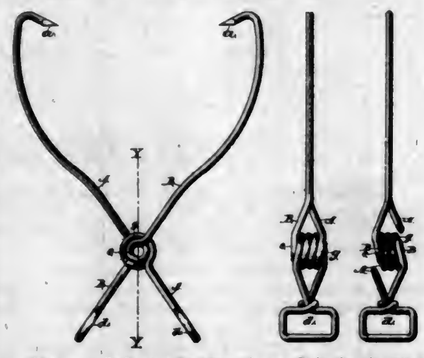
310,549. BOILER FLUE CLEANER. JAMES R. WOODWORTH, Nunda, N. Y. Filed May 12, 1884. (No model.)



Claim.—In a flue-cleaner, the combination of a tube having a funnel-shaped nozzle at its end, and having a longitudinal slot, a steam-tube having a handle at its rear end and at its middle, having a hose connecting it with the boiler, and having a screw at its forward end, sliding in the slot of the nozzle-tube, a stop-cock having a projecting arm, a connecting-rod hinged or pivoted to the arm of the stop-cock and to the rear end of the nozzle-tube, and a spring bearing against the rear end of the nozzle-tube and against an adjustable collar upon the steam-tube, as and for the purpose shown and set forth.

REISSUES.

10,548. ICE-TONGS. GILBERT J. DICKSON, Albany, N. Y. Filed Oct 24, 1884. Original No. 287,423, dated Oct. 30, 1883.



Claim.—1. In ice or other tongs, the jaw B, having the spiral coil *e*, or its equivalent, in combination with the jaw A, having the spiral coil *g*, as herein described, the said coils forming a joint for said jaws, substantially as and for the purpose set forth.

2. The combination, with the jaw A, provided with a spiral coil, *g*, as herein described, of the jaw B, provided with a pivot-stud, *e*, which is formed integrally with said jaw and passes through the coil *g*, so as to form therewith a joint for said jaws, substantially as herein specified.

N. PETERS, Photo-Lithographer, Washington, D. C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISION.

STATEMENT

OF THE CASE OF

U. S. *ex rel.* ELHANAN L. MOODIE *vs.* BENJAMIN BUTTERWORTH, COMMISSIONER OF PATENTS.

December 27, 1884.

BUTTERWORTH, *Commissioner:*

Prior to the issuance of the order hereinafter referred to the Examiner of Trade-Marks and Labels had been for some time accustomed, under the construction given to the decision of the Supreme Court of the District of Columbia in the case of *The United States ex rel. The Willcox & Gibbs Sewing Machine Company* v. *E. M. Marble, Commissioner of Patents*, (22 O. G., 1366,) to register as a label that which was subject-matter only for a trade-mark, the applicant in each case being permitted to determine for himself whether he would register as a label or trade-mark, and deciding absolutely what was and what was not proper subject-matter for a label or trade-mark. On the attention of the Commissioner being called to this matter the following order was issued:

The Examiner of Trade-Marks will determine in each case whether that which is presented for registration is in fact a label or trade-mark. If it is the latter, it will in no case be registered except upon the payment of the fee fixed by law—to wit, twenty-five dollars.

The petitioner in this case, (Moodie,) on April 9, 1884, presented an application covering subject-matter for a trade-mark, and requested to have it registered as a label. The Examiner refused, and appeal was taken to the Commissioner, who sustained the decision of the Examiner, (see 23 O. G., 1271,) the point being that the law devolved upon the Patent Office the duty of determining in each instance whether that which was sought to be registered as a label was in fact a label or only subject-matter for a trade-mark. Thereupon applicant filed in the Supreme Court of the District of Columbia a petition for a writ of mandamus to compel the Commissioner to register the subject-matter presented in accordance with the request preferred to the Examiner. The case was fully argued by Messrs. Goepel & Raegener for the petitioner, and Mr. Frank T. Brown, counsel for the Patent Office. On the 22d instant the court in an oral opinion sustained the decision of the Commissioner, and dismissed the bill.

A statement of this case is published for the reason that the opinion seems to obtain that it is entirely within the discretion of the applicant whether he will register that which is subject-matter only for a trade-mark as a label; that it is his province unquestioned to determine whether the subject-matter so presented is in fact a label or subject-matter only for a trade-mark, and that his determination in that behalf is final. The court has not sustained that view.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—Southern District of New York.

GOODYEAR RUBBER COMPANY *v.* GOODYEAR'S RUBBER MANUFACTURING COMPANY *et al.*

Decided August 15, 1884.

1. TRADE-NAME—RIGHT OF CORPORATION TO ACQUIRE—INFRINGEMENT BY ANOTHER CORPORATION.

A corporation may acquire a property right to the use of a name other than its original corporate name as a trade-mark, or as incidental to the good-will of a business, as well as an individual; and if it has acquired such a right, it cannot be deprived thereof by the assumption of such name subsequently by another corporation, whether the latter selects its name by the act of corporators who organize under the general laws of the State, or the name is selected for it in a special act by a legislative body.

2. SAME—PRIORITY—EVIDENCE—INJUNCTION—"GOODYEAR RUBBER COMPANY"—"GOODYEAR'S RUBBER MFG. CO."

Upon examination of the evidence in case at bar, *held*, that the "Goodyear Rubber Company" was entitled to an injunction restraining the defendant from using the name "Goodyear's Rubber Mfg. Co."

Mr. W. W. MacFarland for the complainant.

Mr. F. H. Betts and *Mr. Stephen P. Kellogg* for the defendants.

WALLACE, *J.:*

The complainant is a corporation organized under the laws of New York, in 1872, by its present corporate name. The defendant is a corporation organized under the laws of Connecticut, in 1847, by its present corporate name. Each corporation seeks to enjoin the other, the complainant by bill and the defendant by cross-bill, from using the name "Goodyear's Rubber Mfg. Co." Both parties concede this name to be practically identical with complainant's name. The parties are competitors in the manufacture and sale of rubber goods, and have their principal places of business in the city of New York. Each insists that it has acquired the right to the use of the name in dispute, and that such name has become a valuable adjunct of its business, and each insists that the other has endeavored, and is now attempting, by a wrongful use and appropriation of the name, to divert the custom of the other. As each party concedes that the right to use the name for the purposes of its business is a valuable property right, and asserts that such use by the other is vexatious, embarrassing, and necessarily tends to pecuniary injury, the controversy manifestly resolves itself mainly into a question of title to the name. It is incumbent upon one of the parties to establish a lawful right to use the name as against the other, and the party which does this will be entitled to the relief prayed for.

The name of a corporation has been said to be the

"knot of its combination," without which it cannot perform its corporate functions. (Smith, Merc. Law, 133.) It has neither the right nor the power to change the corporate name originally selected without recourse to such formal proceedings for the purpose as may be authorized by the laws under which it has been incorporated, or by the consent of the authority from which its charter is derived. Nevertheless, it may become known by another name by usage, and the courts have frequently treated acts done and contracts entered into by corporations under another name as though done or entered into by it with the true name. *Minot* v. *Curtis*, 7 Mass., 441; *South School-Dist.* v. *Blakeslee*, 13 Conn., 227; *Eastham* v. *Blackburn Ry. Co.*, 23 Law J. Exch. N. S., 199; *Boisgerard* v. *N. Y. Banking Co.*, 2 Sandf. Ch., 23. There is no reason why a corporation may not acquire a property right to the use of another name as a trade-mark, or as incidental to the good-will of a business, as well as an individual, and if it has acquired such a right it will of course be protected in its enjoyment to the same extent as an individual would be. It cannot be deprived of the right by the assumption of the name subsequently by another corporation, and it is immaterial whether the latter selects its name by the act of corporators who organize under the general laws of a State, or whether the name is selected for it in a special act by the legislative body. Manifestly, if the defendant had no right to use the name by which the complainant was incorporated, or one practically identical with it, at the time of the latter's incorporation, the title of the complainant is clear, because it adopted the name formally, publicly, and legitimately for all its corporate purposes. The defendant insists that it had acquired a prior right to the use of the name; that this right took its origin as early as 1862, and by a gradual process of development had ripened into a good title before complainant was incorporated.

Neither party makes any claim of exclusive right to use the word "Goodyear" alone, that word having become a generic term of description applied to a large class of India-rubber fabrics before either party became a corporation, or to the word "Goodyear" in combination with "Rubber." There were trading concerns, called the "Goodyear Metallic Shoe Co.," "The Goodyear Rubber Works," and the "Goodyear Rubber Emporium" before either party claimed the right to the name in controversy.

The defendant's theory, as sustained by the proofs, is that, beginning in 1862, when it ceased to confine itself to the manufacture of gloves, and engaged in manufacturing and selling rubber goods generally, its customers occasionally addressed it in their correspondence by various abbreviated names, such as "Goodyear's Rubber Mfg. Co.," "Goodyear Rubber Co.," "Goodyear's Co.," "Goodyear's I. R. Company," "Goodyear Company," and other abbreviations; that the use of such abbreviated addresses by its customers gradually increased, so that in 1871 the defendant received nearly two hundred letters addressed to the "Goodyear Rubber Company," and nearly one hundred to the "Goodyear Rubber Mfg. Co." On the other hand, the proofs show that during this time the defendant received many thousands of letters yearly; that the letters addressed to it by other names were comparatively a small number, averaging not over five hundred a year, but embraced upwards of seventy varieties of names, and that its correct corporate name was usually adopted by its correspondents and patrons.

It is not claimed that the officers or agents of the defendant were accustomed during any part of this period to use any other than its corporate name, or assumed the right to do so until after the complainant commenced business. To the contrary, they were solicitous and painstaking to correct the tendency of its customers to address it by any other than its corporate name; and it was their practice to send envelopes to customers with its correct name printed upon them, to prevent the occurrence of such mistakes. Concisely stated, the question would seem to be, whether the defendant can appropriate to itself the various misnomers applied to it by the carelessness or inaccuracy of a comparatively small number of its customers during a period of ten or eleven years, notwithstanding the zealous and active measures of its managers to repress the practice, and their success in preventing it from ripening into a general usage.

It would hardly be contended that an individual could found a claim of possessory right to any species of property upon the unauthorized conduct of other persons, or maintain that he had adopted a name symbolizing his products or identifying his personality with his business by protesting against its use, and of course a corporation does not occupy a different position. The proofs show that there was no general recognition of the defendant among its customers by any other than its corporate name, and no adoption by the defendant of a different name, and it must be held that the occasional or persistent use of the misnomer by a few of the defendant's customers gave no privilege to the defendant to a monopoly in the use of the name.

If the proofs warranted the inference that the complainant assumed a name by which the defendant was known for the fraudulent purpose of deceiving the public and of supplanting the defendant in the good-will of its business, the court would not only refuse to assist the complainant, but would intervene to protect the defendant. A careful reading of the proofs fails to disclose the existence of any such design, or of any intention to adopt a name with which the defendant had already become appreciably identified. The case is destitute of evidence to indicate that the complainant's corporators were aware or had reason to suppose that the defendant had become known to any extent by any other name than its corporate name. So far as appears, they had no knowledge that defendant's customers ever addressed it by other names. Nor is there anything in the proofs to justify the insinuation that the complainant was organized for the purpose of annoying the defendant by illegitimate competition. It does appear that the persons who organized the complainant had been the managers and agents of another corporation, the Rubber Clothing Company, which for many years had been a competitor of the defendant at the city of New York; that propositions for a consolidation of this company with the defendant had been somewhat discussed between their respective managers without result, and that shortly afterward the complainant was organized. For a time its affairs were transacted at the office of the Rubber Clothing Company, and the two concerns maintained very intimate relations, as might be expected from the circumstance that the managers were the same persons in both. But the sa-

lient facts that the new corporation started with a cash capital of five hundred thousand dollars and engaged in new branches of trade, while the old company continued in business, sufficiently refute any theory that complainant was not a *bona fide* concern. If it should be conceded that the two concerns were practically one, and that the main object of the complainant's organization was to enable the Rubber Clothing Company to assume a new name—one which would represent a corporation dealing in rubber articles generally, instead of in clothing only—there would be no occasion for censure, because the new name was better adapted to describe the business of the corporation. The Rubber Clothing Company had long ceased to manufacture and sell clothing only, and had become engaged in selling rubber goods generally. It was undoubtedly intended by those who organized the new concern to engage in the general rubber trade upon a more extensive scale than that of the old company. The name selected was an appropriate one, and those who adopted it had a perfect right to do so, provided they did not know or have reason to believe that by doing so they would interfere with the business of the defendant. The fact seems to be that both the Rubber Clothing Company and the defendant were doing business under names that were somewhat misleading to such persons as had not learned, by business intercourse with them, that they were manufacturers and dealers in rubber goods generally. It would have been entirely proper for either of them to adopt a new name. The complainant adopted a new name first, and if it was only the Rubber Clothing Company with a new name, the defendant had no right to complain so long as the name did not serve to engender unfair competition and deceive the trade. As has been said, however, it was a new concern with a large capital, and contemplating enlarged business operations, and the proofs do not show that its corporators were moved to select its name by any illicit motive toward the defendant. If the name selected was one calculated, by its similarity to defendant's name, to lead to confusion of business, and to confounding the identity of the two corporations, it might well be urged that those who adopted it should abide by the consequences, although they were innocent in their intentions, and not ask a court of equity to protect them against the inconveniences which might follow. But the defendant, not content that the consequences shall rest where they fall, insists upon the exclusive right to use the name, and since the complainant assumed it has issued notices and circulars to the trade, and put up a sign calling itself by the complainant's name. Upon the same theory it can also claim the exclusive right to use the multitude of misnomers applied to it from time to time by its careless customers. It has a distinctive name of its own, which it formally adopted, and which has been carefully preserved by its agents until the complainant selected one. It ought not to complain now because the latter was the first to avail itself of the choice of selection out of all unappropriated names. Certainly, it cannot be permitted to appropriate the complainant's name, or one substantially identical, and by asserting itself as the Goodyear Rubber Company, mislead the public to the detriment of the complainant.

A degree is ordered for complainant, and the cross-bill of the defendant is dismissed.

U. S. Circuit Court—Southern District of New York.

GOODYEAR RUBBER COMPANY *v.* GOODYEAR INDIA RUBBER GLOVE MANUFACTURING COMPANY AND GOODYEAR RUBBER MANUFACTURING COMPANY.

ON MOTION for rehearing and to resettle decree, before Hon. WILLIAM J. WALLACE, Circuit Judge, after argument of counsel, on motion—

Judge WALLACE: There is no ground for the motion for rehearing. The use of the name "Goodyear Manufacturing Company" in Boston does not seem material. The injunction in this case is based on interference in trade. If the plaintiff and defendant had been in different cities, there might have been no interference. It is the proximity of one store to the other and the tendency of the defendants' acts to divert the plaintiff's custom that makes the trouble.

Mr. BETTS: The defendant is not to blame for that. The plaintiff followed our location and established its store near us. I wish I could be able to satisfy your Honor of what I know to be the fact that this trouble and confusion has been altogether caused by the plaintiff's action.

Judge WALLACE: I only know what I find on record in this case, and I have read that very carefully. Now, Mr. MacFarland, there are two points in regard to the form of decree. I think the first decree was wrong in charging the costs upon the dismissal of the cross-bill. The costs ought to be made general costs in the case. Then there is the form of injunction to be considered.

Mr. BETTS: I hope your Honor will expressly limit the decree to the two names "Goodyear Rubber Co." and "Goodyear Rubber Manufactnring Company." Any abbreviation of those names is too general, and it enables Mr. MacFarland to contend that you intend to enjoin such names as "Goodyear Company," or "Rubber Company," or "Goodyear Manufacturing Company." Those are all abbreviations which I do not understand to be the case; but the decree is being used so in other litigations. I hope your Honor will express this clearly in the decree.

Judge WALLACE: I think my opinion is sufficiently clear on that point. I do not think it necessary to put it in the decree. I certainly did not intend to enjoin "Goodyear Company" any more than "Rubber Company." That is not the abbreviation meant.

Mr. BETTS: Well, it is being used so, and, as this opinion of your Honor's and decree will be used in different circuits, because these rubber companies have their business all over—even in California—and other suits may be brought against agents in other States, it ought to be clear.

Judge WALLACE: The plaintiff cannot contend that it has a right to "Goodyear Company." Mr. MacFarland, do you claim you have a right to that name?

Mr. MACFARLAND: I hope your Honor will not go into that matter, and will leave the decree as it is. That matter is before other courts. If your Honor should consider the matter of changing the decree at that point, I hope you will hear me for five minutes or ten minutes on it.

Mr. BETTS: He does claim it, and I hope your Honor will embody in the decree a statement which will remove misapprehension.

Judge WALLACE: Mr. MacFarland, you may hand in a new form of decree precisely like the old one, except that the costs are made general costs in the case, and I will consider whether any alterations of the injunction clause are necessary.

U. S. Circuit Court—Southern District of New York.

ESTES *et al. v.* BELFORD, CLARKE & CO. *et al.*

Decided December 3, 1884.

Where the reading-matter of defendant's publication was different from the complainant's, but the name, style, and arrangement were the same, and it was clear that the latter had been adopted for the advantage they gave, *Held* that taking this advantage was injurious and illegal.

Mr. J. L. S. Roberts for the orators.

Mr. J. A. Hyland for the defendants.

WHEELER, *J.*:

The infringement of a trade-mark is a trespass upon the rights of the owner by using it as a false representation that the wares of the infringer are those of the owner, for which an action of trespass on the case would lie at common law, in which all participating would be principals and proper defendants. A bill in equity lies in this court only on account of its preventive relief, and perhaps to save multiplicity of suits, as in case of the infringement of a patent. *Root* v. *Railway Co.*, 105 U. S., 189. The defendants Belford and Hart are the persons who are actively en-

gaged in, and therefore principals in, all the infringement complained of. They are agents of the other defendant, a corporation of Illinois, which ought to be proceeded against so far as it can be, and the court might in its discretion decline to proceed against these other defendants if the plaintiffs neglected to proceed against that one. But the plaintiffs have used all diligence in proceeding against the corporation, and have only been put off in that by its efforts not to be found and held here. There is no reason, therefore, why the right to an injunction against these defendants should not be decided on its merits.

The case made is clearly within the former decision. *Estes* v. *Williams*, 21 Fed. Rep., 189. The matter of the defendants' publication is different from that of the plaintiffs, although it is of the same general class of juvenile reading and illustration. If put up in ordinary form, under a name without reputation, it would have to stand on its own merits as a literary and artistic production; but the name, style, and arrangement of the plaintiffs' work is taken, and the reputation and popularity of it thereby appropriated. An ordinary purchaser would be very much guided by the name and style of the publication. It is not bought generally for what is known to be in it, but for what is to be found in it. The standard would be expected to come up to that of the former publications of the same name and the character of that would be principally relied upon. This name is nothing of itself apart from the work to which it has been applied by the orators and those upon whose rights they stand. It is quite clear that the name and style of the work are adopted for the advantage they give, and that taking this advantage is injurious to the orators.

The motion for a preliminary injunction is granted against the defendants Belford and Hart.

U. S. Circuit Court—Southern District of New York.

ESTES *et al.* v. BELFORD, CLARKE & CO. *et al.*

Decided December 5, 1884.

An agent engaged in the business in controversy in the suit is such an agent as the statutes of New York State designate as the proper person upon whom a subpœna may be served.

Mr. J. L. S. Roberts for the orators.

Mr. J. A. Hyland for the defendants.

WHEELER, *J:*

The principal defendant is a corporation of the State of Illinois, and its offices are, and its officers reside there. This suit is brought to restrain an alleged infringement of the orators' trade-mark by agents of, at a place of business of, the corporation within this district. A subpœna has been served upon one of those agents at that place of business for the corporation, and it moves to set aside the service. The statutes of New York provide for the service of a summons upon a foreign corporation by delivering a copy within the State to the president, treasurer, or secretary, or officer performing corresponding functions, or a person designated by the corporation, and if none is designated, and none of these officers can be found with due diligence, then to the cashier, a director, or managing agent of the corporation, within the State. It is objected to the service that the return of the marshal does not show that there was no person designated to receive service, nor that the officers could not be found with due diligence, and that these agents are not such as the statute contemplates. The return does not appear to show that service otherwise than upon the agent could not be made, as, perhaps, it ought to show, but the defendants allege that there are none of the officers, nor any one but those agents to make service upon here, as a reason why the service made should be set aside, and this would seem to obviate the necessity of showing the same thing in the return. The agent is agent in the very transaction out of which the suit arises. The corporation is found here doing this business by this agent. If it was doing also some other business by another agent and service had been made upon that agent, it might well be objected to. The statute probably does not mean any agent in any business, but the agent in the business in controversy in the suit. In this view the service was made in a statutory mode, according to the laws of the State, upon a corporation found here according to the laws of the United States. *Ex parte Schollenberger*, 96 U. S., 369; *Hayden* v. *Androscoggin Mills*, 1 Fed. Rep., 93; *Eaton* v. *St. Louis, &c. Co.*, 7 Fed. Rep., 143. This is not any hardship, or, if any, not an undue hardship upon this defendant as between it and the orators. It is compelled to answer away from its domicile, but not any farther away than it has gone voluntarily by its agents to do that which has given occasion for the process, and its service.

Motion denied.

OFFICIAL GAZETTE

OF THE

UNITED STATES PATENT OFFICE.

SUPPLEMENT

CONTAINING THE

REVISED CLASSIFICATION OF SUBJECTS OF INVENTION,

ALPHABETICALLY ARRANGED.

JANUARY 6, 1885.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1885.

CLASSIFICATION OF INVENTIONS.

REVISED AND APPROVED BY THE UNITED STATES PATENT OFFICE, JANUARY 6, 1885.

All inventions are classified in the United States Patent Office.

The present classification, revised January 6, 1885, contains one hundred and seventy classes, subdivided into over three thousand sub-classes.

Persons desiring to inform themselves in regard to the state of the art in any line of invention can best do so by purchasing printed copies of the specifications and drawings of patents in the sub-class containing the invention, the number and cost of which will be given upon application.

Those wishing to subscribe for the printed copies of specifications and drawings of future patents in any sub-class may do so by depositing any amount from three to ten dollars, the sum depending upon the size of the sub-class. The copies will then be mailed to them weekly, at the rate of ten cents each, until the deposit shall have become exhausted when notice will be duly sent for renewal of deposit, if desired.

Orders for specifications and drawings by classes should give the numbers as well as the titles of the class and sub-class.

Orders for single patents should give the number and date of the patent and the name of the inventor.

SPECIFICATIONS of patents issued since May 30, 1865, commencing with No. 47,911, have been printed up to this date; also, all patents previously issued for processes, and in the classes of Arms and Projectiles, Brakes and Gins, Distillation, Electricity, Fire-Arms, Fishing and Trapping, Harrows and Diggers, Harvesters, Injectors and Ejectors, Marine Propulsion, Metal Founding, Ordnance, Packing and Storing Vessels, Plows, Projectiles, Seeders and Planters, Sewing-Machines, Sheet-Metal Wire Making, Steam and Vacuum Pumps, Steam Water-Elevators, Sugar and Salt, Tobacco, Trees, Plants, and Flowers, and Wire Working, and the sub-classes of Bale-Band Tighteners, Bale-Ties, Cane-Mills, Cane-Strippers, Car-Seats, Cotton and Hay Presses, Tobacco-Driers, Tobacco-Elevators, and Time-Locks.

DRAWINGS of all patents, from earliest to present date, have been photolithographed, with a few exceptions.

The cost of copies of drawings with the specifications, if printed, when ordered in quantities of twenty or more, is ten cents per copy. If the specification has not been printed, an additional cost of ten cents per hundred words for a manuscript copy of it will be charged.

For the convenience of those who do not desire to order as many as twenty copies at one time, coupon orders, good for one drawing and printed specification, are sold in quantities of twenty or more, at ten cents each. These may be used singly and are good till used.

CLASSES NUMERICALLY ARRANGED.

Number.	Class.	Division.
1	Aeration and bottling	9
2	Apparel	24
3	Artificial limbs	20
4	Baths and closets	9
5	Beds	8
6	Bee-culture	2
7	Brewing and fermenting	3
8	Bleaching and dyeing	6
9	Boats	22
10	Metal bolts, nuts, rivets, and screws	13
11	Book-binding	17
12	Boots and shoes	11
13	Brakes and gins	25
14	Bridges	4
15	Brushing and scrubbing	27
16	Builders' hardware	20
17	Butchering	2
18	Caoutchouc and minor plastics	15
19	Carding	21
20	Carpentry	4
21	Carriages and wagons	10
22	Metal-founding	14
23	Chemicals	6
24	Clasps and buckles	11
25	Clay and pottery	15
26	Cloth finishing	21
27	Coffins	20
28	Cordage	21
29	Crinoline and corsets	5
30	Cutlery	20
31	Dairy	2
32	Dentistry	20
33	Drafting	23
34	Driers	28
35	Educational appliances	23
36	Electricity	16
37	Excavating	4
38	Felting and hats	15
39	Fences	2
40	Advertising	5
41	Fine arts	5
42	Fire-arms	22
43	Fishing and trapping	27
44	Fuel	15
45	Furniture	8
46	Games and toys	27
47	Trees, plants, and flowers	2
48	Gas	3
49	Glass	15
50	Fluid-pressure regulators	18
51	Grinding and polishing	27
52	Explosives	6
53	Hardware-making	13
54	Harness	11
55	Harrows and diggers	1
56	Harvesters	7
57	Hoisting	12
58	Horology	23
59	Chains, staples, and horseshoes	13
60	Hose and belting	11
61	Hydraulic engineering	4
62	Refrigeration	15
63	Jewelry	5
64	Journals and bearings	12
65	Kitchen and table articles	8
66	Knitting and netting	21
67	Lamps and gas-fittings	19
68	Laundry	27
69	Leather	11
70	Locks and latches	20
71	Fertilizers	6
72	Masonry	4
73	Measuring-instruments	23
74	Mechanical powers	12
75	Metallurgy	3
76	Metal tools and implements. Making	13
77	Metal boring and drilling	13
78	Metal forging	13
79	Metal personal wear. Making	13
80	Metal-rolling	13
81	Metal-working tools	28
82	Metal turning, planing, and milling	13
83	Mills	25
84	Music	5
85	Nails and spikes	13
86	Arms and projectiles. Making	13
87	Oils, fats, and glue	15
88	Optics	23
89	Ordnance	22
91	Painting	6
92	Paper-making	15
93	Paper-manufactures	17
94	Paving	15
95	Photography	5
96	Coating with metal	3
97	Plows	1
98	Pneumatics	28
99	Preserving	6
100	Presses	12
101	Printing	17
102	Projectiles	22
103	Pumps	9
104	Railways	4
105	Railway-cars	10
106	Artificial stone, lime, and cement	15
107	Bread, cracker, and lozenge making	8
108	Roofing	4
109	Safes	20
110	Steam-boiler furnaces	18
111	Seeders and planters	1
112	Sewing-machines	24
113	Sheet-metal ware. Making	14
114	Ships	22
115	Marine propulsion	22
116	Signals	5
117	Silk	21
118	Spinning	21
119	Care of live stock	2
120	Stationery	28
121	Steam-engines	18
122	Steam-boilers	18
123	Air and gas engines	18
124	Distillation	3
125	Stone-working	22
126	Stoves and furnaces	19
127	Sugar and salt	15
128	Surgery	20
129	Tanning	11
130	Thrashing	25
131	Tobacco	2
132	Toilet	5
133	Trunks	11
134	Metal tubing and wire	13
135	Umbrellas and canes	5
136	Steam-engine valves	18
137	Water-distribution	9
138	Hydraulic motors	9
139	Weaving	21
140	Wire-working	14
141	Washing apparatus	27
142	Wood-turning	22
143	Wood-sawing	22
144	Wood-working machines	22
145	Wood-working tools	22
146	Vegetable cutters and crushers	2
147	Coopering	22
148	Metal tempering, annealing, and cementation	3
149	Hides, skins, and leather. Chemical treatment of	6
150	Packing and storing vessels	14
151	Nut and bolt locks	28
152	Wagon, car, and track irons	13
153	Metal bending and straightening	13
154	Composite roofing	15
155	Chairs	8
156	Curtains, shades, and screens	8
157	Wheelwright-machines	22
158	*Metal ornamentation**	5
159	Fire-escapes and ladders	12
160	Steam and vacuum pumps	18
161	Steam water-elevators	18
162	Injectors and ejectors	18
163	Needles and pins	13
164	Punching and shearing	13
165	DESIGNS	24
166	Artesian and oil wells	15
167	Medicines	6
168	Farriery	28
169	Fire-engines	9
170	Wind-wheels	28

*Abolished. Now a sub-class in Class 63, Jewelry.

CLASSES ALPHABETICALLY ARRANGED.

Number.	Class.	Division.
40	Advertising	5
1	Aeration and bottling	9
123	Air and gas engines	18
2	Apparel	24
86	Arms and projectiles. Making	13
166	Artesian and oil wells	15
3	Artificial limbs	20
106	Artificial stone, lime, and cement	15
4	Baths and closets	9
5	Beds	8
6	Bee-culture	2
8	Bleaching and dyeing	6
9	Boats	22
11	Book-binding	17
12	Boots and shoes	11
13	Brakes and gins	25
107	Bread, cracker, and lozenge making	8
7	Brewing and fermenting	3
14	Bridges	4
15	Brushing and scrubbing	27
16	Builders' hardware	20
17	Butchering	2
18	Caoutchouc and minor plastics	15
19	Carding	21
119	Care of live stock	2
20	Carpentry	4
21	Carriages and wagons	10
59	Chains, staples, and horseshoes	13
155	Chairs	8
23	Chemicals	6
24	Clasps and buckles	11
25	Clay and pottery	15
26	Cloth	21
96	Coating with metal	3
27	Coffins	20
154	Composite roofing	15
147	Coopering	22
28	Cordage	21
29	Crinoline and corsets	24
156	Curtains, shades, and screens	8
30	Cutlery	20
31	Dairy	2
32	Dentistry	20
165	Designs	24
124	Distillation	3
33	Drafting	23
34	Driers	28
35	Educational appliances	23
36	Electricity	16
37	Excavating	4
52	Explosives	6
168	Farriery	28
38	Felting and hats	15
39	Fences	2
71	Fertilizers	6
41	Fine arts	5
42	Fire-arms	22
169	Fire-engines	9
159	Fire escapes and ladders	12
43	Fishing and trapping	27
50	Fluid-pressure regulators	18
44	Fuel	15
45	Furniture	8
46	Games and toys	27
48	Gas	3
49	Glass	15
51	Grinding and polishing	27
53	Hardware-making	13
54	Harness	11
55	Harrows and diggers	1
56	Harvesters	7
149	Hides, skins, and leather. Chemical treatment of	6
57	Hoisting	12
58	Horology	23
60	Hose and belting	11
61	Hydraulic engineering	4
138	Hydraulic motors	9
162	Injectors and ejectors	18
63	Jewelry	5
64	Journals and bearings	12
65	Kitchen and table articles	8
66	Knitting and netting	21
67	Lamps and gas-fittings	19
68	Laundry	27
69	Leather	11
70	Locks and latches	20
1	Aeration and bottling	9
115	Marine propulsion	22
72	Masonry	4
73	Measuring-instruments	23
74	Mechanical powers	12
75	Metallurgy	3
167	Medicines	6
153	Metal bending and straightening	13
10	Metal bolts, nuts, rivets, and screws	13
77	Metal boring and drilling	13
78	Metal forging	13
22	Metal-founding	14
134	Metallurgy	3
158	*Metal ornamentation**	5
79	Metal personal wear. Making	13
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148	Metal tempering, annealing, and cementation	3
76	Metal tools and implements. Making	13
134	Metal tubing and wire	13
82	Metal turning, planing, and milling	13
81	Metal-working tools	28
83	Mills	25
84	Music	5
85	Nails and spikes	13
163	Needles and pins	13
151	Nut and bolt locks	28
87	Oils, fats, and glue	15
88	Optics	23
89	Ordnance	22
150	Packing and storing vessels	14
91	Painting	6
92	Paper-making	15
93	Paper-manufactures	17
94	Paving	15
95	Photography	5
97	Plows	1
98	Pneumatics	28
99	Preserving	6
100	Presses	12
101	Printing	17
102	Projectiles	22
103	Pumps	9
164	Punching and shearing	13
105	Railway-cars	10
104	Railways	4
62	Refrigeration	15
108	Roofing	4
109	Safes	20
111	Seeders and planters	1
112	Sewing-machines	24
113	Sheet-metal ware. Making	14
114	Ships	22
116	Signals	5
117	Silk	21
118	Spinning	21
120	Stationery	28
160	Steam and vacuum pumps	18
110	Steam-boiler furnaces	18
121	Steam-engines	18
136	Steam-engine valves	18
161	Steam water-elevators	18
125	Stone-working	22
126	Stoves and furnaces	19
127	Sugar and salt	15
128	Surgery	20
129	Tanning	11
130	Thrashing	25
131	Tobacco	2
132	Toilet	5
47	Trees, plants, and flowers	2
133	Trunks	11
135	Umbrellas and canes	5
146	Vegetable cutters and crushers	2
152	Wagon, car, and track irons	13
141	Washing apparatus	27
137	Water-distribution	9
139	Weaving	21
157	Wheelwright-machines	22
170	Wind-wheels	28
140	Wire-working	14
143	Wood-sawing	22
142	Wood-turning	22
144	Wood-working machines	22
145	Wood-working tools	22

* Abolished. Now a sub-class in Class 63, Jewelry.

SUB-CLASSES.

CLASS 10.—ADVERTISING. (V.)

Sub-classes.

1. Articles.
2. Automatic devices.
3. Card-racks.
19. Counters and shelves.
4. Desks and frames.
5. Door and drawer plates
6. Dummies and hangers.
8. Indicators—
18. Time.
9. Labels.
10. Label-holders.
17. Map-holders.
11. Picture-exhibitors.
12. Show boxes and cards.
13. Show-cases.
16. Show stands and racks.
14. Signs.

CLASS 1.—AERATION AND BOTTLING. (IX.)

Sub-classes.

1. Aeration.
12. Beer apparatus.
3. Capping-machines.
5. Corking and filling.
14. Dispensing-fountains.
7. Gas-generators.
11. Sirup-fountains.
9. Soda-fountains.
10. Soda-water apparatus.

Sub-Classes in Aeration and Bottling, with Explanatory Notes.

1. AERATION. Apparatus for aerating liquids.

12. BEER APPARATUS. Apparatus for *dispensing* beer, and accessories—as agitating and aerating faucets, compressed air and gas apparatus for raising beer and forcing it out of barrels, draft-condensers, and beer-pumps—but does not include anything relating to the manufacture of beer. (Class 7, Division III.)

3. CAPPING-MACHINES. Machinery for applying sheet-metal capsules and wire caps to corked bottles.

5. CORKING AND FILLING. Apparatus for filling and stopping bottles, but not the stopper itself, (Class 150, Division XIV;) apparatus for *filling* barrels, siphon-bottles, medicinal capsules, paint-cans, oil-casks, and inkstands; apparatus for collecting natural mineral water and bottling it, and accessories for corking-machines—as sirup-agitators; and devices for holding cans or bottles while being filled.

14. DISPENSING-FOUNTAINS. Beverage-dispensing fountains not solely beer, together with their fittings.

7. GAS-GENERATORS. Only apparatus for generating gas for beverages.

11. SIRUP-FOUNTAINS. Sirup tanks, cans, and holders, with their fittings, organized to be used in connection with dispensing-fountains.

9. SODA-FOUNTAINS. Stationary and transporting fountains, together with their discharge-nozzles and fittings.

10. SODA-WATER APPARATUS. Soda-water appliances not otherwise classified—such as methods of charging fountains, carbonic-acid-gas washers, and frames for supporting carbonating apparatus.

CLASS 123.—AIR AND GAS ENGINES. (XVIII.)

Sub-classes.

1. Air.
5. Attachments.
2. Caloric.
3. Explosive.
4. Gas.

CLASS 2.—APPAREL. (XXIV.)

Sub-classes.

30. Bonnets.
1. Capes and shawls.
2. Coats and vests.
3. Collars and cuffs.
4. Cutting.
5. Diapers.
6. Embroidery-patterns.
7. Fur goods.
8. Garters and belts.
9. Glover.
10. Handkerchiefs.
31. Hats and caps.
32. Hat-sweats.
33. Hat-ventilators.
11. Neckties.
28. Needles.
12. Pants and drawers.
13. Pin and needle cases.
14. Pinking.
16. Plaiting.
15. Pockets.
18. Sewing.
19. Shirts and bosoms.
30. Skirt-elevators.
21. Skirts and protectors.
23. Stockings.
22. Stretchers and formers.
35. Tailoring.
29. Thimbles.
26. Trimmings.
27. Work-boxes.

CLASS 86.—ARMS AND PROJECTILES, MAKING (XIII.)

Sub-classes.

1. Arms.
2. Bullets and shot.
3. Cannon and ball.
4. Cartridges and caps.
5. Gun-barrels.
6. Ordnance.
7. Rifling.

CLASS. 166.—ARTESIAN AND OIL WELLS. (XV.)

Sub-classes.

1. Casing-heads.
2. Cleaning.
3. Drilling and boring.
4. Drill-jars.
5. Drill-rod grabs.
6. Reamers.
7. Tube-clamps.
8. Tubing and packing.
9. Walking-beams.

CLASS 3.—ARTIFICIAL LIMBS. (XX.)

Sub-classes.

1. Arms and hands.
4. Crutches.
2. Fracture apparatus.
3. Legs.

CLASS 106.—ARTIFICIAL STONE, LIME, AND CEMENT. (XV.)

Sub-classes.

1. Composition.
2. Fire-brick.
3. Limekilns.
4. Molds.
5. Plastering.
6. Processes.

CLASS 4.—BATHS AND CLOSETS. (IX.)

Sub-classes.

1. Basins and stands.
2. Bathing apparatus.
19. Bed-pans.
5. Closet-cisterns.
20. Dry closets.
11. Sinks and traps.
12. Urinals.
13. Vapor-baths.

Water-closets—
16. Plunger,
17. Valved.
18. Water-closet attachments.
15. Water-closet valves.
21. Water-closet and sewer ventilation.

Sub-Classes in Baths and Closets, with Explanatory Notes.

1. BASINS AND STANDS. Stationary wash-stands and fittings, the water tanks and supply connections of portable wash-stands, and wash-basins provided with toilet appliances, but not furniture, (Class 45, Division VIII,) or leveling wash-stands, (Class 114, Division XXII.)

2. BATHING APPARATUS. Stationary and portable bath-tubs and their fittings, shower-baths, swimming-baths, sea-baths, and surf-cars, but not electrical baths, (Class 128, Division XX,) vapor-baths, (Class 4, Division IX,) or toilet appliances, (Class 132, Division V.)

10. BED-PANS. Includes, besides bed-pans proper, those devices having reservoirs on the floor and tubes connecting with the bed.

5. CLOSET-CISTERNS. Flushing-tanks independent of the closet-casing, together with their discharge-fittings, overflow valves and preventors, and reservoir-boxes.

20. DRY CLOSETS. Earth-closets, privies, and chair, chamber, and portable commodes, but not slop-buckets which have no seat, (Class 150, Division XIV,) or apparatus for the removal and treatment of night-soil, (Class 71, Division VI.)

11. SINKS AND TRAPS. Sink-strainers, outlet-covers, and grease-traps, ball-traps, mercury traps, seal-traps, and underground catch-basins located in the pipes leading to the sewer; but does not include traps and catch-basins in masonry sewers. (See Class 72, Division IV.)

12. URINALS. Stationary urinals having water-flushing fittings.

13. VAPOR-BATHS. Chemical, hot-air, steam, compressed-air, medicated, and mud baths, but not electrical baths, (Class 128, Division XX.)

16. WATER-CLOSETS. PLUNGER. Closets located above ground which have their main discharge controlled by a plug or plunger which reciprocates on a vertical line only.

17. WATER-CLOSETS. VALVED. Closets and their fittings located above ground which do not have their main discharge controlled by a plug or plunger which reciprocates on a vertical line.

18. WATER-CLOSET ATTACHMENTS. An attachment is not a detail or modification but an addition to a complete closet or part thereof, and includes seat-protectors, and waste-paper boxes not storing vessels, (Class 150, Division XIV.)

15. WATER-CLOSET VALVES. Valves which are more than simple cut-offs, by reason of some construction that makes them peculiarly fitted for water-closets.

21. WATER-CLOSET AND SEWER VENTILATION. Schemes for introducing fresh air into or drawing foul air out of sewers, drainage systems, privies, railway-closets, urinals, and water closets.

CLASS 5.—BEDS. (VIII.)

Sub-classes.

Beds—
1. Air,
5. Camp.
Bed-bottoms—
23. Folding,
24. of cords,
25. of slats,
26. of slats and springs,
29. of springs,
19. of wire and other fabrics.
3. Bed-clothing.
4. Bedsteads—
8. Extension,
9. Folding,
12. Invalid,
Bedsteads—
16. Sofa,
17. Table,
18. Wardrobe.
22. Clothes-clamps.
6. Cording and fastenings.
7. Crib attachments.
20. Cribs and cradles.
10. Hammocks.
11. Head-sections.
13. Mattresses—
14. Mosquito-nets and canopies.
15. Pillows.
21. Springs.

CLASS 6.—BEE-CULTURE. (II.)

Sub-classes.

1. Bee-hives.
2. Hive appliances.

CLASS 8.—BLEACHING AND DYEING. (VI.)

Sub-classes.

2. Bleaching.
1. Carbon dyes.*
4. Dye and bleach vats.
5. Dyeing processes.
6. Dyes.
13. Mordants.
7. Press-dyeing.
8. Renovating dress.
14. Sizing fabrics.
12. Wool-cleaning.

*Title changed from aniline and homologues.

CLASS 9.—BOATS. (XXII.)

Sub-classes.

1. Boat hooks and fenders.
2. Building.
3. Buoys and safes.
4. Detaching, hoisting, and lowering.
6. Life boats and rafts.
6. Life-preservers.
7. Oars and oar-locks.
8. Rafting and booming.
9. Sectional and folding.
10. Swimming apparatus.

CLASS 11.—BOOK-BINDING. (XVII.)

Sub-classes.

1. Albums.
2. Binding-machines.
3. Books and covers.
4. Book-cover protectors.
5. Book-cutting.
6. Book-sewing.
7. Indexing.
9. Newspaper-files.
8. Ruling-machines.
10. Temporary binders.
11. Writing-tablets.

CLASS 12.—BOOTS AND SHOES. (XI.)

Sub-classes.

2. Boot-jacks.
30. Boot-treeing machines.
3. Boot-trees.
27. Box-nailing machines.
4. Burnishing.
24. Channeling-machines.
5. Crimping.
6. Edge-planes and shaves.
28. Glove and corset fastenings.
32. Hand nailing implements.
29. Heel-stiffener machines.
7. Heels.
8. Ice-creepers.
9. Lasts.
10. Lasting-machines.
25. Lasting and lasting tools.
31. Peg-floats.
11. Pegs.
12. Pegging-jacks.
13. Pegging-machines.
14. Rubber.
15. Shanks and machines.
16. Shoe-fastenings.
17. Soles.
18. Sole and heel trimming machines.
19. Sole and heel machines.
26. Sole and heel plates.
20. Tips and stiffeners.
21. Tools.
22. Uppers.
23. Upper-machines.

CLASS 13.—BRAKES AND GINS. (XXV.)

Sub-classes.

1. Gin attachments.
2. Hackling-machines.
3. Hair-pickers.
4. Oakum-machines.
5. Processes.
6. Reciprocating brakes.
7. Roller-gins.
8. Rotary brakes.
9. Saw-gins.

CLASS 107.—BREAD, CRACKER, AND LOZENGE MAKING. (VIII.)

Sub-classes.

1. Bread and cracker machines.
9. Stampers,
10. Strippers.
3. Cake-cutters.
5. Dough-raisers.
6. Lozenge-machines.
4. Mixers and kneaders.
2. Pastry-boards.
7. Pie crimpers and trimmers.
8. Rolling-pins.

CLASS 7.—BREWING AND FERMENTING. (III.)

Sub-classes.

9. Fermented beverages.
1. Fermenting-vats.
3. Malting.
4. Mashing.
5. Mash-heaters.
6. Preserving beer and wine.
7. Purifying beer and wine.
8. Hop-backs.
10. Wine.

CLASS 14.—BRIDGES. (IV.)

Sub-classes.

Bridges—
7. Arch.
1. Draw,
9. Gates,
8. Floating,
5. Suspension.
Bridges—
6. Truss.
2. Ferry-guards.
3. Girders and columns.
4. Piers.

CLASS 15.—BRUSHING AND SCRUBBING. (XXVII.)

Sub-classes.

1. Blacking box and brush cases.
18. Blacking-box holders.
61. Boot-blacking machines.
2. Boot-cleaners.
4. Broom-machines.
Brooms—
19. Broom-heads,
20. Household,
21. Stable and yard,
22. Whisk.
23. Brush and broom bridles—
24. Handles,
Brush and broom bridles—
6. Supports.
25. Brush-cleaners.
Brush heads and faces—
26. Bath and flesh brushes,
27. Brush and broom fiber,
28. Dusting-brushes,
29. Hair-brushes,
30. Hat and clothes brushes,
31. Horse-brushes,
32. Metal-cleaning brushes,
Brush heads and faces—
33. Metallic tuft-fasteners,
34. Molds and molded backs,
35. Nail-brushes,
36. Paint and whitewash brushes,
37. Rotary brushes,
13. Scrubbers,
38. Shaving-brushes,
39. Tooth-brushes.
7. Brush-machines.
40. Brush-trimming machines.
8. Carpet-cleaners.
60. Carpet-sweepers.
Chimney-cleaners—
41. Flue and stove-pipe,
42. Lamp.
43. Combined mop heads and wringers.
44. Combined scrubbers and mops.
45. Dressing and assorting machines.
Fountain-brushes—
46. Blacking,
47. Broom,
48. Hair,
49. Paint,
51. Scrubbers,
50. Shaving,
52. Tooth,
53. Window-cleaners.
Holders—
54. Brush-head,
55. Convertible mop and brush,
56. Mop-heads.
10. Mats.
57. Mops.
12. Mop-wringers.
14. Scrubbing-machines.
15. Pails.
58. Shoe-blacking stands.
16. Shoe-brushes.
17. Street-sweepers
59. Window-cleaners.

CLASS 16.—BUILDERS' HARDWARE. (XX.)

Sub-classes.

38. Bells—
31. Call,
32. Door,
39. Letter-box,
44. Sleigh.
40. Bell-hanging—
41. Pulls,
42. Ringing.
1. Blind-stops.
2. Bolts.
Burglar-alarms—
34. Combined,
35. Detonating,
43. Miscellaneous,
36. Ringing.
3. Carpet-fasteners.
4. Casters—
45. Ball,
21. Sewing-machine.
6. Door-checks—
46. Door-checks and closers. Pneumatic,
47. Door-closers. Gravitating,
7. Hangers,
8. Securers,
9. Springs,
10. Handles.
11. Hinges—
48. Awning-blind,
5. Coach,
49. Gate,
12. Lock,
14. Safe,
25. Spring,
27. Table.
50. Nail-heads. Ornamental.
15. Sash-balances—
18. Fasteners,
19. Holders,
20. Weights.
16. Sash-cord fasteners—
17. Guides.
22. Shutter-bowers—
23. Fasteners,
24. Workers.
26. Stair-rods and securers.
37. Till-alarms.
28. Transom-lifters.
29. Window-bead fasteners.
30. Window and door buttons.

CLASS 17.—BUTCHERING. (II.)

Sub-classes.

8. Butchers' stalls.
9. Chopping-blocks.
Dressing—
10. Fish-dressing machines,
11. Hog-scraping machines,
12. Intestine-cleaners,
13. Skinning.
14. Meat-clamps.
15. Hooks.
Meat-cutters—
16. Cracklings,
17. Crank mechanism,
18. Cube,
19. Cylinder and block,
20. Cylinder and concave,
Meat-cutters—
21. Double-cylinder,
22. Hand,
23. Rocking-knife,
24. Slicers,
25. Trip mechanism.
26. Meat-mixers.
Meat-tenderers—
27. Hand,
28. Pivoted-head,
29. Rotary.
6. Sausage-machines.
7. Scalding and singeing.
30. Slaughtering, elevating, and suspending.

CLASS 18.—CAOUTCHOUC AND MINOR PLASTICS. (XV.)

Sub-classes.

2. Articles.
1. Artificial ivory.
3. Celluloid.
4. Fabrics.
5. Hard rubber.
11. Insulating materials.
6. Machines for coating.
7. Miscellaneous compositions.
8. Soft rubber.
9. Vulcanizing apparatus.
10. Vulcanized fiber.

CLASS 19.—CARDING. (XXI.)

Sub-classes.

1. Burring.
2. Card-clothing.
3. Carding.
4. Cleaning.
5. Collers.
6. Combing.
12. Covering yarn.
7. Feeding-cards.
8. Lapping.
9. Pickers.
10. Wadding.
11. Wool oiling.

CLASS 119. CARE OF LIVE STOCK. (II.)

Sub-classes.

Animal-stocks—
14. Hog-traps,
15. Horse and cattle,
16. Sheep.
46. Bird cages and houses.
17. Catching and holding tools.
48. Curry-combs.
47. Gags and muzzles.
18. Gangways.
3. Grooming.
49. Hitching-posts and ties.
51. Hopples.

CLASS 119—Continued.

4. Incubators.
13. Nose-rings and ringing-tools.
12. Pokes.
5. Poultry-culture.
19. Sheep-protectors.
9. Stanchions.

Steading and feeding—
20. Calf-feeders,
21. Combined troughs and racks,
22. Feed-racks,
23. Feed-troughs,
32. Nose-bags,
24. Releasing devices,
25. Stall-floors,
26. Stalls, sheds, and pens.
27. Stock-sorters.

Straw-cutters—
Cutter and bed—
28. Reciprocating-knife,
29. Rotary-cylinder.
Straw-cutters—
30. Cylinder and concave.
31. Double-cylinder.
Pivoted-knife—
32. Rake-feed,
33. Roller-feed,
34. Without feed.
Rotary wheel—
35. Follower-feed,
36. Rake-feed,
37. Roller-feed,
38. Without feed.
Single-cylinder—
39. Rake-feed,
40. Roller-feed,
41. Without feed.
Sliding-knife—
42. Rake-feed,
43. Roller-feed,
44. Without feed.
50. Tethers.

CLASS 20.—CARPENTRY. (IV.)

Sub-classes.

2. Doors—
23. Car,
24. Sliding.
3. Door-operators.
4. Floors.
5. Frame houses.
7. Interiors.
9. Lathing.
10. Marquetry.
26. Moldings.
11. Portable houses.
12. Scaffolds—
28. Bracket.
13. Shingling-brackets.
14. Shutters—
29. Flexible,
30. Fire-proof.
15. Skylights.
16. Slatted floor-coverings.
17. Stairs.
18. Stair-covers.
19. Weather-strips.
20. Windows.

CLASS 21.—CARRIAGES AND WAGONS. (X.)

Sub-classes.

1. Ambulances.
2. Axle-boxes.
3. Axle-lubricators.
4. Axle-skeins.
5. Axles.
6. Biers.
7. Bodies.
8. Brakes.
9. Brakes. Automatic
10. Brake-levers.
11. Carriage-irons.
12. Children's carriages.
13. Clips.
14. Close carriages.
15. Dash-boards.
16. Detaching horses.
17. Doors.
18. Draft-equalizers.
19. Drays.
20. Dumping-wagons.
21. End-gates.
22. Felloes.
23. Fenders.
24. Fifth-wheels.
25. Hay-racks.
26. Hearses.
27. Holdbacks.
28. Hose-carriages.
29. Hounds.
30. Hub-attaching devices.
31. Hubs.
32. King-bolts.
33. Lumber-wagons.
34. Neck-yokes.
35. Ox-yokes.
36. Poles and shafts.
37. Rein-holders.
38. Road-engines.
39. Running-gear.
40. Sand-bands.
41. Seat-locks.
42. Seats—
43. Shifting,
44. Spring.
45. Shifting-rails.
46. Sled-brakes.
47. Sled-propellers.
48. Sleds.
49. Spoke-sockets.
50. Springs—
51. Platform,
52. Side,
53. Torsion.
54. Standards.
55. Steps.
56. Sulkies.
57. Thill-couplings.
58. Tires.
59. Tire-tighteners.
60. Top-joints.
61. Top-props.
62. Tops.
63. Tongue-supports.
64. Traction-wheels.
65. Trucks.
66. Umbrella-supports.
67. Velocipedes.
68. Wheelbarrows.
69. Wheels.
70. Whiffletree-hooks.
71. Whiffletrees.
72. Whip-sockets.
73. Windows.

CLASS 59.—CHAINS, STAPLES, AND HORSESHOES. (XIII.)

Sub-classes.

1. Chains.
2. Chain and link making.
4. Horseshoe-bars. Making
5. Horseshoe-calks. Making
6. Horseshoe-machines.
7. Staples.
8. Staples. Making

CLASS 155.—CHAIRS. (VIII.)

Sub-classes.

3. Chairs—
1. Barbers',
6. Convertible,
7. Dentists',
8. Folding,
11. Invalid,
12. Nursery,
13. Opera,
Chairs—
14. Oscillating,
16. Reclining,
17. Revolving,
18. Rocking,
21. Step-ladder,
23. Surgical.
24. Tilting.

CLASS 155—Continued.

4. Chair-bottoms.
15. Piano-stools.

Rests—
9. Foot,
10. Head.

Seats—
2. Car,
Seats—
5. Circus,
25. Spring.
19. Settees.
20. Sofas.
22. Stools and seats.

CLASS 23.—CHEMICALS. (VI.)

Sub-classes.

1. Acids. Mineral
21. Ammonia.
3. Apparatus.
24. Carbon compounds, (not dyes.)
23. Distilling wood.
5. Fire-extinguishing compounds.
25. Incandescents.
10. Metalloids.
11. Packing chemicals.
26. Purifying water.
13. Salines.
22. Soda and potash.

CLASS 24.—CLASPS AND BUCKLES. (XI.)

Sub-classes.

26. Baggage-checks.
1. Buckles.
2. Buttons—
23. Hinged shoe,
21. Separable.
3. Buttoners.
4. Button-fasteners.
5. Button-machines.
6. Clasps.
24. Cuff-holders.
7. Eyelets.
8. Eyeleting-machines.
25. Garment-supporters.
9. Hooks.
10. Hooks and eyes.
11. Necktie-fasteners.
13. Paper-fasteners.
14. Punches.
15. Rings.
16. Safety attachments.
17. Snap-hooks.
20. Suspenders.
18. Tags and tag-fasteners.
19. Ticket-clasps.

CLASS 25.—CLAY AND POTTERY. (XV.)

Sub-classes.

1. Bricks.
2. Brick-kilns.

Brick-machines—
4. Reciprocating,
3. Rotary,
5. Screw.

6. Brick-molds.
7. Crucibles.
8. Drain-tiles.
9. Paving-tiles.
10. Pottery articles.
11. Pottery-kilns.
12. Pottery-machines.
13. Pug-mills, clay-mills, and mortar-mixers.
14. Pulverizers.
15. Roofing-tiles.
16. Sarcophagi.
17. Tile-machines.

CLASS 26.—CLOTH FINISHING. (XXI.)

Sub-classes.

1. Drying.
2. Finishing.
3. Folding.
4. Napping.
5. Pressing.
6. Shearing.
7. Sponging.
8. Stretching.

CLASS 96.—COATING WITH METAL. (III.)

Sub-classes.

1. Electro-deposition.
2. Galvanizing.
5. Nickel-plating.
8. Precipitating.
7. Tinning.

CLASS 27.—COFFINS. (XX.)

No sub-classes.

CLASS 154.—COMPOSITE ROOFING. (XV.)

Sub-classes.

1. Apparatus.
2. Composite.
3. Felt.

CLASS 147.—COOPERING. (XXII.)

Sub-classes.

1. Barrel-head making.
2. Barrel-hoop machines.
3. Barrel-making machines.
4. Basket-making machines.
5. Box-machines.
11. Coiling.
12. Crozing barrels.
6. Crozing staves.
13. Hoop-drivers.
8. Jointing staves.
10. Wooden articles.

Sub-classes in Coopering, with Explanatory Notes.

1. BARREL-HEAD MAKING. The wood is held in a clamp and cut to disk form, usually with beveled edges, by a saw or cutter. The clamp revolves or cutter moves around it.

2. BARREL-HOOP MACHINES. For dressing or cutting wooden hoops by saws, or by rotary or reciprocating cutters, and mechanism for forming the taper or bevel of hoops.

3. BARREL-MAKING MACHINES. For assembling the barrel.

4. BASKET-MAKING MACHINES. For building up splints about a former.

5. BOX-MACHINES. For making pill-boxes, &c., by forming the box upon the stock by means of cutters, and then severing the box from the block.

11. COILING. Coiling hoops or veneers, usually about a collapsible former.

12. CROZING BARRELS. Machines for cutting the croze after the barrel is set up.

6. CROZING STAVES. Cutting the croze in staves or blanks.

13. HOOP-DRIVERS. Machines for trussing and evening barrels.

8. JOINTING STAVES. Machines for producing the bulge and side bevel.

10. WOODEN ARTICLES. Miscellaneous small articles of wood.

CLASS 28.—CORDAGE. (XXI.)

Sub-classes.

1. Balling.
2. Banding.
3. Bobbin-supporters.
4. Braiding.
5. Cord and rope.
6. Covering cord.
7. Finishing yarn and thread.
8. Fuse.
9. Packaging braid and yarn.
10. Reels.
11. Separating rope.
12. Spools.
13. Tassels.
14. Warping.

Winding bobbins—
15. Warp-wind,
16. Weft-wind,
17. Sewing-machine shuttle.
18. Winding spools.
19. Winding tatting-shuttles.
20. Yarn guides and clearers.

CLASS 29.—CRINOLINE AND CORSETS. (XXIV.)

Sub-classes.

1. Bustles.
3. Corsets.
4. Hoops and clasps.
5. Hoop-skirts.
6. Pads.
7. Skirt-machines.
9. Stays.
8. Underwaists.

CLASS 156.—CURTAINS, SHADES, AND SCREENS. (VIII.)

Sub-classes.

1. Carriage-curtain fastenings.
2. Curtain-cord holders.
11. Curtain-cord tighteners.
3. Curtain-fixtures.
4. Curtain rollers and brackets.
5. Curtain-tassels.
12. Door-screens.
6. Friction-rollers.
7. Inside blinds.
8. Ratchet and pawl.
9. Spring-rollers.
13. Window-cornices.
14. Window-screens.
10. Window-shades.

CLASS 30.—CUTLERY. (XX.)

Sub-classes.

1. Animal-shears.
2. Button-hole cutters.
3. Can-openers.
16. Envelope-openers.
21. Fork-guards.
5. Forks.
22. Forks and spoons. Solid.
9. Knives—
20. Gage,
8. Hay.

Knives—
10. Pocket.
19. Knife-erasers.
11. Pruning implements.
12. Razors.
13. Scissors and shears.
14. Twine-cutters.
15. Wick-trimmers.
17. Wire-shears.

CLASS 31.—DAIRY. (II.)

Sub-classes.

Butter and cheese—
24. Cutters,
23. Manufacture of
25. Butter workers and molds.
20. Centrifugal creamers.
21. Cheese-hoops.
26. Cheese-turners.
22. Cheese-vats and curd-breakers.
7. Churns—
9. Double-acting,
Reciprocating.
Crank mechanism—
29. Multiple dasher,
30. Single dasher.
31. Combined lever and crank mechanism,
32. Foot mechanism,
33. Hand and foot mechanism.
Lever mechanism—
34. Multiple dasher,
35. Single dasher.
36. Rocking-seat mechanism,
37. Without operating mechanism.
Rotary—
38. Diagonal dasher,
39. Horizontal single dasher.

Churns—Rotary—
Horizontal double dasher—
40. Concentric shafts,
41. Parallel shafts.
42. Vertical single dasher.
Vertical double dasher—
43. Concentric shafts,
44. Parallel shafts.
17. Vibrating.
18. Working body.
8. Cow-milkers.
27. Cream-pumps.
Milk-coolers—
45. Aerating.
46. Creaming-cans—
47. Agitators,
48. Depending tube.
49. Floats,
50. Vacuum creamers,
51. Vertical tube.
52. Milk-circulation.
53. Vats—
54. Air-circulation.
55. Horizontal tube,
56. Removable pipe.
13. Milk-stools.
14. Pails and strainers.
28. Tables and racks.

CLASS 32.—DENTISTRY. (XX.)

Sub-classes.

1. Articulators.
2. Drills.
3. Foil-condensers.
4. Mechanical.
5. Miscellaneous.
6. Molds.
7. Operative.
8. Pluggers.
9. Teeth.
10. Tools.

CLASS 165.—DESIGNS. (XXIV.)

The sub-classes conform as nearly as possible to those of the mechanical classes.

CLASS 124.—DISTILLATION. (III.)

Sub-classes.

1. Aging liquors.
2. Alcohol.
3. Burning-fluid.
4. Condensers.
6. Fire-tests.
7. Fresh water.
8. Oil.
9. Paraffine.
10. Preparing grain.
11. Refining oils.
13. Revenue-guards.
12. Turpentine.

CLASS 33.—DRAFTING. (XXIII.)

Sub-classes.

1. Calipers and dividers.
2. Curve-scribers.
5. Ellipsographs.
6. Pantographs.
7. Parallel-rulers.
8. Plotters.
12. Protractors—
9. Scribers,
10. Stair-curvers.
11. Rulers.

CLASS 34.—DRIERS. (XXVIII.)

Sub-classes.

13. Coffee-roasters.
1. Driers—
2. Feather-renovators,
3. Fruit,
12. Glue,
4. Grain,
5. Lumber,
6 Malt,
Driers—
7. Meal,
8. Paper,
10. Tobacco,
11. Wool.
14. Gravel-heaters.
9. Smoke-houses.

CLASS 35.—EDUCATIONAL APPLIANCES. (XXIII.)

Sub classes.

1. Alphabet-blocks.
2 Arithmetic.
3. Astronomy.
4. Geography.
5. Globes.
13. Kryptography.
6. Maps.
12. Miscellaneous.
8. Penmanship.
9. Reading.
10. Slates and blackboards.

CLASS 36.—ELECTRICITY. (XVI.)

Sub-classes.

1. Alarms—
2. Burglar.
3. Annunciators.
82. Anti-inductive devices.

Applications—
4. General,
5. Tools and machines.

Batteries—
6. Galvanic,
72. Secondary,
74. Secondary. Applications.
73. Thermal.
7. Bells.
8. Boat-steering.
9. Car-brakes.
10. Circuit-closers.
12. Condensers.
13. Conductors.
81. Anti-inductive.
14. Connectors.

Cut-outs—
80. Electro-magnetic.
79. Mechanical,
78. Thermal.
15. Dental instruments.
16. Electric heaters.

Electric lights—
17. Arc,
18. Incandescent,
19. Systems and appliances.
21. Electro-magnets.
23. Friction-generators.
76. Hand-machines.
25. Incrustation.
26. Indicators.
27. Induction-coils.
28. Insulators.
29. Keys.
30. Lightning-arresters.
31. Lightning-rods.
75. Locomotion.
33. Magneto-electric.
34. Meters.
35. Morse registers.
36. Motors.
38. Railway-signals.
39. Recorders.
40. Regulators.
41. Relays and sounders.
42. Repeaters.
43. Rheostats.
71. Switches.
85. Switch-boards.
45. Telegraphs—
46. Automatic,
47. Dial,
48. Duplex,
49. Dynamo,
50. Fire,
51. Multiplex,
52. Perforating,
54. Printing,
55. Quadruplex,
56. Railway-car.

Telephonic telegraphs—
57. Calls,
58. Details,
59. Electric,
60. Magnetic,
61. Mechanical,
62. Radiophones,
63. Reed,
77. Relays and repeaters,
64. Systems.
83. Transmission of power.
69. Transmitters.
70. Underground lines.
84. Valve-controllers.

Sub-classes in Electricity, with Explanatory Notes.

1. ALARMS. Devices for giving audible signals of abnormal or dangerous conditions. (See, also, Annunciators, Circuit-Closers, Indicators and Regulators, and Sub-class 65, Thermostats, in Class 73, Division XXIII.)

2. ALARMS. BURGLAR. Devices for indicating unwarranted interference with structures. (See, also, Circuit-Closers.)

3. ANNUNCIATORS. Visual signals for wants, communications, &c.

82. ANTI-INDUCTION DEVICES. Apparatus for neutralizing the effects upon telephonic or telegraphic receivers due to extraneous induction.

4. APPLICATIONS. GENERAL. Includes applications of electricity not otherwise classified.

5. APPLICATIONS. TOOLS AND MACHINES. Includes application of electricity to machinery and mechanical implements.

6. BATTERIES. GALVANIC. Chemical generators of electricity.

72. BATTERIES. SECONDARY. Appliances for translating electricity into chemical energy and retranslating the same into electricity.

74. BATTERIES. SECONDARY. APPLICATIONS. Devices and systems which involve the use of secondary batteries.

73. BATTERIES. THERMAL. Appliances for translating heat directly into electricity.

7. BELLS. Devices for controlling and actuating bells.

8. BOAT-STEERING. Devices for controlling and directing torpedo and other boats from a distant point.

9. CAR-BRAKES. Devices for retarding the movement of vehicles.

10. CIRCUIT-CLOSERS. Devices for making and breaking circuits—as push-buttons. (Similar devices may be found in nearly all the mechanical classes.)

12. CONDENSERS. Electro-static accumulators.

13. CONDUCTORS. Including cables, wires, and means for making and insulating the same; also, special constructions of cables for preventing induction. (See, also, Telegraphs, Lightning-Rods, and Underground Lines.)

81. CONDUCTORS. ANTI-INDUCTIVE. Conductors specially adapted for neutralizing the effects of extraneous induction in telephonic and telegraphic receivers.

14. CONNECTORS. Including binding-posts, line-connectors, &c. (See, also, Railway-Car Telegraphs and Lightning-Rods.)

80. CUT-OUTS. ELECTRO-MAGNETIC. Electro-magnetic devices for automatically cutting out translating apparatus on abnormal strength of current.

79. CUT-OUTS. MECHANICAL. Hand-switches for cutting out translating devices.

78. CUT-OUTS. THERMAL. Devices for automatically cutting out translating apparatus on abnormal temperature.

15. DENTAL INSTRUMENTS. Includes teeth-extractors, drillers, and pluggers.

16. ELECTRIC HEATERS. Devices for heating or warming by the use of the electric current.

17. ELECTRIC LIGHTS. ARC. Including apparatus for producing and controlling light by the use of discontinuous conductors.

18. ELECTRIC LIGHTS. INCANDESCENT. Including apparatus for producing and controlling light by the use of continuous conductors.

19. ELECTRIC LIGHTS. SYSTEMS AND APPLIANCES. Including methods of distribution and regulation of electric currents for lighting, and apparatus connected therewith. (See, also, Regulators.)

21. ELECTRO-MAGNETS. Special constructions and arrangements of electro-magnets and their armatures. (Found throughout the class generally, especially in Relays and Sounders and Electric Lights.)

23. FRICTION-GENERATORS. Generators of static electricity (See, also, Sub-classes 4, Electric lighting devices, and 49, Portable electric lighting devices, in Class 67, Division XIX.)

76. HAND-MACHINES. Including machines for signaling, blasting, and medical purposes.

25. INCRUSTATION. Means for preventing injurious deposition in steam-boilers.

26. INDICATORS. Devices for visibly registering and indicating various phenomena. (See, also, Alarms, Annunciators, and Recorders.)

27. INDUCTION COILS. Coiled conductors for producing and applying the higher order of currents from varying or intermittent primary currents.

28. INSULATORS. Insulating bearing-points for line-wires. (See, also, Lightning-Rods.)

29. KEYS. Hand-lever devices for making and breaking circuit in telegraphic transmission. (See Telegraphs generally.)

30. LIGHTNING-ARRESTERS. Devices for protecting telegraphic apparatus from lightning.

31. LIGHTNING-RODS. Devices for protecting structures from lightning. (See, also, Insulators.)

75. LOCOMOTION. Machines and devices adapted to the propulsion of vehicles by electricity.

33. MAGNETO-ELECTRIC. Including dynamic generators of electricity for producing currents by magneto-electric induction.

34. METERS. Including devices for measuring the electric current.

35. MORSE REGISTERS. Devices for recording telegraph-signals.

36. MOTORS. Including machines for translating electricity into mechanical power. (See, also, Dental Instruments.)

38. RAILWAY-SIGNALS. Systems and apparatus for indicating conditions and relations of the way and trains. (See Railway-Car Telegraphs.)

39. RECORDERS. Devices for making permanent records. (See Morse Registers and Telegraphs generally.)

40. REGULATORS. Devices for automatically governing currents and machines. (See, also, Electric Lights, Magneto-Electric, and Applications, Tools and Machines, and Sub-class 65, Thermostats in Class 73 Division XXIII.)

41. RELAYS AND SOUNDERS. Devices for controlling a local circuit by a line-circuit and devices for audibly reproducing telegraphic signals. (See Telegraphs generally.)

42. REPEATERS. Devices for controlling one line-circuit by another.

43. RHEOSTATS. Devices for producing artificial resistance.

71. SWITCHES. Devices for diverting the electric current from one circuit to another.

85. SWITCH-BOARDS. Apparatus for electrically connecting together two or more outlying circuits.

45. TELEGRAPHS. Including unclassified systems, circuits, and apparatus.

46. TELEGRAPHS. AUTOMATIC. Including devices for automatically transmitting and receiving fac-simile messages, Morse and other codes.

47. TELEGRAPHS. DIAL. Including devices which indicate visually upon dial-faces the desired signals.

48. TELEGRAPHS. DUPLEX. Including apparatus for transmitting simultaneously two messages in the same or opposite direction over the same line.

49. TELEGRAPHS. DYNAMO. Including applications of dynamo-electric generators to telegraphic purposes.

50. TELEGRAPHS. FIRE. Systems of signals, circuits, and apparatus used for indicating fire, and in district telegraphy.

51. TELEGRAPHS. MULTIPLEX. Including apparatus for transmitting simultaneously three or more messages in the same direction on a single line.

52. TELEGRAPHS. PERFORATING. Including machines for perforating circuit-controlling strips for automatic transmission.

54. TELEGRAPHS. PRINTING. Including apparatus for automatically printing in legible characters the messages transmitted.

55. TELEGRAPHS. QUADRUPLEX. Including apparatus for transmitting simultaneously four messages, two from each end of a single line.

56. TELEGRAPHS. RAILWAY-CAR. Devices for telegraphing upon railway-trains. (See, also, Railway-Signals.)

57. TELEPHONIC TELEGRAPHS. CALLS. Including devices at telephone-stations for calling the person with whom it is desired to communicate. (See, also, Bells, and Telephonic-Telegraph Systems.)

58. TELEPHONIC TELEGRAPHS. DETAILS. Including elements of all kinds of telephonic instruments.

59. TELEPHONIC TELEGRAPHS. ELECTRIC. Including devices for transmitting and reproducing sound by varying the resistance in electric currents.

60. TELEPHONIC TELEGRAPHS. MAGNETIC. Including devices for transmitting and reproducing sound by means of magnetically-induced currents.

61. TELEPHONIC TELEGRAPHS. MECHANICAL. Including devices for transmitting and reproducing sound by means of mechanical vibrations.

62. TELEPHONIC TELEGRAPHS. RADIOPHONES. Including devices for transmitting and reproducing sound by means of radiant energy.

63. TELEPHONIC TELEGRAPHS. REED. Including devices for transmitting and reproducing sound by means of vibrating tongues.

77. TELEPHONIC TELEGRAPHS. RELAYS AND REPEATERS. Telephonic instruments for automatic retransmission.

64. TELEPHONIC TELEGRAPHS. SYSTEMS. Including circuits and apparatus for enabling and facilitating telephonic intercommunication between stations. (See, also, Annunciators and Telephonic Telegraphs. Calls.)

83. TRANSMISSION OF POWER. Systems and apparatus for transmitting power to distant points by electricity.

69. TRANSMITTERS. Mechanical devices for sending predetermined code-signals by unskilled operators.

70. UNDERGROUND LINES. Conduits and conductors for subterranean lines.

84. VALVE-CONTROLLERS. Electrical devices for regulating and controlling valve movements.

The following sub-classes of Electricity have been distributed to other divisions, and will be found as indicated below:

CLOCKS. Devices for actuating, controlling, and synchronizing. (See Sub-class 28, Electric clocks, Class 58, Division XXIII.)

ELECTROLYSIS. Electric decomposition and deposition. (See Class 75, Metallurgy, Division III, and Class 96, Coating with Metal, Division III.)

EXPLODING. Devices for igniting explosive charges. (See Class 102, Projectiles, Division XXII.)

GAS-LIGHTING. Devices for turning on and off and igniting gas. (See Sub-classes 48, Electric lighting devices, and 49, Portable electric lighting devices, Class 67, Division XIX.)

MAGNETIC LOCKS. Application of magnets to mechanical locks. (See Class 70, Locks and Latches, Division XX.)

MUSIC-PLAYING. Applications of electricity to musical instruments. (See Class 84, Music, Division II.)

SEPARATORS. Electric and magnetic separators of heterogeneous matter. (See Sub-class 55, Electric separators, Class 83, Division XXV.)

TELEGRAPH-POLES. Posts for supporting aerial electric lines. (See, also, Insulators.) (See Sub-class 2, Fence-posts, Class 39, Division II.)

THERAPEUTICS. BATHS. Applications of electricity to baths and bath-furniture for curative purposes. (See Sub-class 30, Baths, Class 128, Division XX.)

THERAPEUTICS. BODY-WEAR. Galvanic devices to be applied to the body for curative purposes. (See Sub-class 31, Body-wear, Class 128, Division XX.)

THERAPEUTICS. ELECTRODES. Circuit terminals for applying electricity to the body. (See Sub-class 29, Electric apparatus, Class 128, Division XX.)

THERMOSTATS. Devices for controlling circuits by changes in temperature. (See, also, Alarms, Electric Lights, Fire-Telegraphs, Indicators.) (See Sub-class 65, Thermostats, Class 73, Division XXIII.)

CLASS 37.—EXCAVATING. (IV.)

Sub-classes.

11. Diggers.
1. Dredgers—
13. Agitators,
18. Anchoring,
14. Clam-shell.
2. Earth-augers.
3. Earth-works.

Excavators—
15. Carrier,
16. Dipper,
9. Hydraulic,
10. Hammers,
17. Wheel.
5. Scrapers—
19. Submarine,
7. Wheeled,
6. Self-loading carts,
8. Warping land.

CLASS 52.—EXPLOSIVES. (VI.)

Sub-classes.

1. Blasting compounds.
2. Fulminates.
4. Gunpowder.
5. Matches.
3. Nitro compounds.

CLASS 168.—FARRIERY. (XXVIII.)

Sub-classes.

1. Calk-sharpeners.
2. Hoof and shoe spreaders.
3. Hoof cleaners and trimmers.
4. Hoof-measurers.
5. Hoof-pads.
6. Shoes.
7. Shoe-nail clinchers.
8. Shoeing-stands.
9. Toe-weights.

CLASS 38.—FELTING AND HATS. (XV.)

Sub-classes.

1. Blocks.
2. Blocking and stretching.
4. Brushing and finishing.
5. Conformators.
6. Curling brims.
7. Fabrics.
8. Felting-machines.
9. Flock-cutting.
10. Forming-bats.
11. Fulling.
12. Furs and pelts.
14. Ironing.
15. Pouncing.
16. Pressing.
18. Wiring brims.

CLASS 39.—FENCES. (II.)

Sub-classes.

2. Fence-posts.
3. Fences—
1. Barbed,
4. Flood,
6. Iron,
9. Wire.
5. Gates—
11. Railway,
7. Sliding and rolling,
8. Swinging.
10. Wire-stretchers.

CLASS 71.—FERTILIZERS. (VI.)

Sub-classes.

1. Apparatus.
9. Compositions.
6. Organic.
7. Phosphates.
8. Sewage and night-soil.

CLASS 41.—FINE ARTS. (V.)

Sub-classes.

1. Artists' appliances.
2. Artificial flowers.
19. Badges.
3. Banners and flags.
4. Canvas-stretchers.
5. Decorative painting.
6. Drawing-boards.
7. Easels.
8. Engraving-machines.
9. Engraving and tools.
10. Gilding. Leaf.
12. Medals.
21. Metal ornamentation.
13. Ornamenting cloth.
14. Picture-frames.
20. Picture-supports.
15. Pictures.
16. Sculpture.
17. Theater appliances.
18. Transfers.

CLASS 42.—FIRE-ARMS. (XXII.)

Sub-classes.

25. Ball-traps.
3. Bayonets.
5. Bows and cross-bows.
6. Breech-loaders.
8. Catapults.
26. Electrical appliances.

Guns—
1. Air and spring,
4. Blow,
7. Cane,
13. Magazine.
9. Gun-barrels.
10. Gun-trimmings.
11. Implements.
12. Locks.
27. Muzzle-loaders.
15. Nipples and guards.
16. Pistol-swords.
18. Revolvers.
19. Rifling.
20. Sights.
21. Stocks.
22. Targets—
24. Flying.
23. Toy pistols.

CLASS 169.—FIRE-ENGINES. (IX.)

Sub-classes.

1. Chemical.
2. Portable.
3. Stationary.

Sub-Classes in Fire-Engines, with Explanatory Notes.

1. FIRE ENGINES. CHEMICAL. Apparatus for projecting chemicals for the extinguishment of fires, whether automatic, portable, or stationary.

2. FIRE-ENGINES. PORTABLE. The pumps of steam fire-engines, hand and horse-power fire-engines, water-discharge towers, hydraulic fire-escapes, portable engines where the water is forced by compressed air, hydraulic hose attachments, and all portable engines not chemical, for putting out fires.

3. FIRE-ENGINES. STATIONARY. All fixed systems not chemical for extinguishing fires in buildings, cars, and like-rooms, together with their pipes, tanks, special sprinklers, valves, and fittings, but does not include lamp and stove extinguishers. (Classes 67 and 126, Division XIX.)

CLASS 159.—FIRE ESCAPES AND LADDERS. (XII.)

Sub-classes.

1. Chutes.
4. Friction.
5. Hoists.
8. Ladders—
2. Escape,
Ladders—
3. Flexible,
7. Step.
6. Lazy-tongs.

CLASS 43.—FISHING AND TRAPPING. (XXVII.)

Sub-classes.

2. Decoys.

Fishing—
3. Fishways,
4. Floats,
6. Harpoons and spears,
7. Hooks,
9. Nets and seines,
10. Oyster-culture,
11. Oyster-dredges,
12. Oyster rakes and tongs,
13. Pisciculture,
15. Reels,
16. Rods.
17. Sinkers.

Insect-destroyers—
1. Catchers,
Insect-destroyers—
5. Fumigators,
8. Moth-exterminators,
14. Powder-dusters.

Traps—
18. Bed-bug,
19. Cage,
20. Fish,
21. Impalement,
22. Insect,
23. Jaw,
24. Self-set and ever-set,
25. Sporting,
26. Victim-set,
27. Wire-choker.

CLASS 50.—FLUID-PRESSURE REGULATORS. (XVIII.)

Sub-classes.

1. Gas.
2. Steam.
3. Water.

CLASS 44.—FUEL. (XV.)

Sub-classes.

1. Artificial.
2. Fire-kindlers.
3. Peat-machines.
4. Purifying coal.

CLASS 45.—FURNITURE. (VIII.)

Sub-classes.

1. Book-cases.
2. Book-shelves.
3. Book-supports.
4. Brackets.
5. Bureaus.
43. Carpet stretchers and tackers.
6. Desks.
7. Drawers.
10. Fire-screens.
13. Hat and coat racks.
14. Hat-holders.
15. Insect-guards.
16. Kitchen-cabinets.
18. Mirrors—
39. Window.
19. Music stands and portfolios.
20. Nursery-gates.
21. Oil-can holders.
22. Packing furniture.
12. Pads and feet.
23. Picture-hangers.
24. Quilting-frames.
25. School seats and desks.
28. Soap-holders.
41. Spittoons.
42. Spittoon-lifters.
30. Table-leaf supports.
31. Tables—
8. Drawing,
9. Extension,
11. Folding,
17. Kitchen,
26. Self-waiting,
27. Sewing-machine.
32. Towel racks and stands.
33. Umbrella-stands.
34. Upholstering.
35. Wall-pockets.
36. Wall-protectors.
37. Wardrobes.
38. Wash-stands.

CLASS 46.—GAMES AND TOYS. (XXVII.)

Sub-classes.

1. Automatic toys.
2. Baby-jumpers.
3. Baby-walkers.
4. Balls and bats.
6. Billiard appliances.
7. Balls,
8. Chalk-cups,
9. Cues,
10. Cue-tip fasteners,
11. Cushions,
12. Tables,
13. Table-levelers.
14. Buzzes and whirligigs.
15. Croquet.
16. Dice-boxes.
17. Dolls.
18. Dumb-bells and clubs.
19. Exercising-machines.
20. Game apparatus.
21. Game-boards.
22. Hobby-horses.
23. Kites.
24. Masks.
25. Playing-cards.
26. Roller-skates.
27. Roundabouts.

CLASS 46.—Continued.

28. Skaters' appliances.
29. Skates.
30. Skipping-ropes.
31. Soap-bubble pipes.
32. Spinning-tops.
33. Stilts.
34. Swings.
35. Toy building-blocks.
36. Toy money-boxes.
37. Toys.
38. Trundles and hoops.
39. Whistles.

CLASS 48.—GAS. (III.)

Sub-classes.

1. Anti-combustion.
2. Carburetors—
24. Carbureting-lamps,
25. Gas and air mixers,
3. Jet-mixers,
26. Oil-feed, Float-valves,
27. Oil-feed, Rotary,
28. Revolving.
4. Center-seals and by-pass valves.
9. Dip-pipes.
10. Exhausters.
Gas—
5. Coal,
6. Coal and oil,
Gas—
8. Coal and water,
7. Coal, oil, and water,
12. Hydrogen,
13. Oil,
14. Oil and water,
19. Water,
20. Wood.
22. Gas-distribution.
11. Gas-holders.
15. Purifiers.
18. Retort-chargers.
21. Retort gas-furnaces.
16. Retort-lids.
17. Retorts and settings.

CLASS 49.—GLASS. (XV.)

Sub-classes.

1. Articles.
2. Cutters.
4. Enameling.
Furnaces—
5. Annealing,
6. Melting.
7. Molds.
8. Ornamentation.
10. Plate and window.
9. Presses.
11. Tools.

CLASS 51.—GRINDING AND POLISHING. (XXVII.)

Sub-classes.

1. Abrading materials and tools.
Glass and stone—
3. Curved surfaces,
11. Plane surfaces.
Metal—
2. Card-grinding,
4. Curved surfaces,
6. Cutlery-scourers,
7. Edge-tools,
8. Mower and reaper knives,
Metal—
9. Needle-eyes,
10. Needles, rods, and points,
12. Plane surfaces,
14. Rumblers,
15. Sheet metal and wire,
16. Straps, hones, and rifles.
Wood—
5. Curved surfaces,
13. Plane surfaces.

CLASS 53.—HARDWARE-MAKING. (XIII.)

Sub-classes.

1. Bridge-irons.
2. Builders' hardware.
3. Cutlery.
4. Eyebolts and hooks.
5. Fence-barbs of sheet metal.
6. Ferrules, rings, and thimbles.
8. Gas and water fittings.
9. Hardware. (Not specified.)
10. Hinges.
11. Leather-workers' hardware.
20. Musical instrument work.
12. Pens, pencils, and holders.
21. Printing appliances.
13. Spinners and weavers.
15. Spoons. Manufacture of
16. Springs.
17. Sucker-rod joints.
19. Tinhands.
18. Umbrella-irons.

CLASS 54.—HARNESS. (XI.)

Sub-classes.

1. Bonnets and covers.
2. Bridle-bits.
3. Bridles and halters.
4. Collar-fasteners.
5. Collar-machines.
6. Fly-nets.
8. Hame-fasteners.
28. Hame-tugs.
9. Hames.
10. Harness.
11. Harness-machines.
12. Harness-saddles.
13. Harness-tools.
16. Horse-boots.
17. Horse-collars.
21. Riding-saddles.
22. Spurs and stirrups.
24. Trace-carriers.
25. Trimmings.
26. Tugs.
27. Whips.

CLASS 55.—HARROWS AND DIGGERS. (I.)

Sub-classes.

1. Clod-crushers.
2. Forks.
3. Harrows—
11. Revolving,
13. Rotary,
12. Wheel,
20. Rotary.
4. Harrow-teeth.
5. Hoes.
6. Land-rollers.
7. Pivoted teeth.
8. Pivoted tooth-bars.
9. Potato-diggers.
10. Rakes.
12. Rollers and harrows.
14. Shovels.
15. Stalk-choppers.
16. Stalk-pullers.
17. Stone-gatherers.
18. Transplanters.

CLASS 56.—HARVESTERS. (VII.)

Sub-classes.

1. Bean-harvesters.
34. Binders—
35. Compressors,
36. Grain-adjusters,
37. Sheaf-carriers,
2. Clover-harvesters.
3. Combined rakes and tedders.
4. Corn-harvesters—
38. Binders and droppers,
39. Cutters,
40. Implements,
41. Strippers and huskers.
5. Corn-shockers.
6. Cotton-harvesters.
7. Cutting apparatus—
42. Endless,
43. Guard-fingers and finger-bars,
44. Reciprocating,
45. Rotary,
46. Vibrating.
8. Droppers—
47. Direct-tilting,
49. Miscellaneous,
48. Opening and closing,
50. Side-delivery,
51. Swinging and tilting.
99. Fruit-gatherers.
9. Gearing.
10. Grain-bands.
31. Grain wheels and casters.
11. Hand-binders—
52. Attachments,
53. Elevated delivery, Rear
54. Elevated delivery, Side
55. Flat delivery,
56. Manual traction.
12. Hand-rakers.
13. Hay-caps.
14. Hay-forks—
57. Corkscrew,
58. Grapples,
59. Harpoon,
60. Tilting.
15. Hay-loaders—
61. Endless-belts,
62. Intermittent,
63. Lifting-reels,
64. Walking-rakes.
100. Headers.
16. Hedge-trimmers.
17. Hemp and flax harvesters.
18. Horse-rakes—
65. Draft-dumpers,
66. Drags,
67. Hand-dumpers,
Horse-rakers—
68. Hay-cockers,
69. Rake-teeth.
19. Lawn-mowers.
20. Manure-forks.
33. Miscellaneous.
21. Mowers—
70. Anomalies,
72. Center-cut,
73. Front-cut, One-wheel
74. Front-cut, Two-wheels
76. Rear-cut, One-wheel
77. Rear-cut, Two-wheels
75. Reciprocating-gear,
78. Thrust-cut,
32. Platform adjustments.
22. Reels.
23. Revolving rakes—
80. Flop-over,
81. Wheel.
27. Scythes and cradles.
24. Seats.
25. Self-binders—
82. Clips and prepared bands,
83. Cord-knotters,
84. General structure,
85. Gleaners and binders,
86. Tension and take-up devices,
87. Twisters and tuckers,
88. Wire-twisters.
26. Self-rakers—
89. Endless-carriers,
90. Gaveling-tongs,
91. Platform-movement,
92. Reciprocating horizontal curvilinear,
93. Reciprocating horizontal rectilinear,
96. Rotary horizontal axis,
94. Rotary vertical axis switch,
95. Rotary vertical axis, no switch,
97. Traveling vertical irregular path,
98. Traveling horizontal irregular path.
28. Tedders.
29. Thrashers.
30. Track clearers and dividers.

CLASS 149.—HIDES, SKINS, AND LEATHER. CHEMICAL TREATMENT OF. (VI.)

Sub-classes.

2. Bating.
4. Coloring and polishing.
5. Currying.
6. Depilating.
8. Preserving hides.
9. Tanning materials.
10. Tanning processes.
11. Tawing.

CLASS 57.—HOISTING. (XII.)

Sub-classes.

2. Barrel-rollers.
34. Blocks and tackles.
22. Capstans and windlasses.
3. Car-movers.
37. Chutes.
4. Cranes and derricks.
6. Dumb-waiters.
24. Elevator-brakes—
25. Retarders,
7. Elevators—
27. Alarm-indicator,
1. Barrel,
28. Counter-balance,
29. Endless-belt,
10. Hay,
12. Hod,
14. Ice,
30. Inclined,
31. Lazy-tongs,
Elevators—
32. Screw,
23. Tobacco.
8. Grain-conveyers.
9. Grapples.
35. Hatchways.
11. Hay-slings.
13. Hoisting-buckets.
33. Jack-screws.
15. Lifting-jacks.
16. Loading and unloading.
17. Pulleys—
5. Differential.
18. Skids.
19. Stump-extractors.
20. Tender-loaders.
21. Track-raisers.
36. Warehouse-railways.

CLASS 58.—HOROLOGY. (XXIII.)

Sub-classes.

3. Clocks.
2. Calendar,
28. Electric,
9. Geographical,
29. Pneumatic.
4. Clock-cases.
5. Clock-striking.
6. Clock-winding.
34. Dials and hands.
8. Escapements.
10. Metronomes.
11. Pendulums.
30. Repeaters.
12. Safety-wheels.
13. Stem-winders.
14. Sun dials.
15. Time-alarms.
16. Time-checks.
31. Time lamp-lighters.
33. Time-signals.
17. Watches.
18. Watch-balances.
19. Watch-barrels.
20. Watch-cases.
21. Watch-case springs.
22. Watch dust-caps.
23. Watch-keys.
33. Watch-maker's tools.
24. Watch-plates.
25. Watch-regulators.
26. Watch-stops.
27. Watch-winding.

CLASS 60.—HOSE AND BELTING. (XI.)

Sub-classes.

1. Belt-fasteners.
2. Belt-machines.
3. Belting.
4. Hose and tubing.
5. Hose-machines.
6. Drive-chains.

CLASS 61.—HYDRAULIC ENGINEERING. (IV.)

Sub-classes.

1. Aqueducts.
2. Cable-laying.
3. Caissons.
4. Canals.
6. Dams.
7. Diving-armor.
8. Docks.
9. Drains.
10. Harbors.
11. Marine ways.
12. Mining.
13. Pile-drivers.
18. Piles.
14. Sea-walls.
15. Tide-powers.
16. Tunnels.
17. Water-gates.

CLASS 138.—HYDRAULIC MOTORS. (IX.)

Sub-classes.

1. Oscillating.
2. Reciprocating.
3. Rotary.
Turbine—
4. Bottom supply,
Turbine—
5. Side ring supply,
6. Top and side direct supply,
7. Top ring supply.

Sub-Classes in Hydraulic Motors, with Explanatory Notes.

HYDRAULIC MOTORS include, beside *Turbines* as defined, Water-wheels, Breast, Overshot and Undershot, and other water-propelled motors.

1. HYDRAULIC MOTORS. OSCILLATING. Constructions involving an oscillating piston or cylinder or an oscillating beam operated by one or more buckets alternately filled and discharged.

2. HYDRAULIC MOTORS. RECIPROCATING. Constructions involving a reciprocating piston or cylinder.

3. HYDRAULIC MOTORS. ROTARY. All rotating hydraulic motors not turbine water-wheels.

TURBINES include those constructions in which the whole bucket-surface of the wheel is supplied with water at the same time and the wheel has no blades or abutments which move relatively to it during its rotation.

4. TURBINES. BOTTOM SUPPLY. Those constructions where *any* of the water is supplied to the wheel below a line drawn through the lowest point of its buckets and at right angles to its axis.

5. TURBINES. SIDE RING SUPPLY. Those constructions where *any* of the water is supplied to the wheel through three or more ports or chutes below a line drawn through the highest point of the bucket-surface and above a line drawn through the lowest point of its bucket-surface, both lines being at right angles to its axis; also, flumes and casings not specially adapted for other forms of wheels.

6. TURBINES. TOP AND SIDE DIRECT SUPPLY. Those constructions where *all* of the water is supplied to the wheel through not more than two chutes or ports and *above* a line drawn through the lowest point of its bucket-surface and at right angles to its axis; also, separate wheels not necessarily belonging to other sub-classes.

7. TURBINES. TOP RING SUPPLY. Those constructions where *all* the water is supplied to the wheel through three or more ports or chutes above a line drawn through the highest point of its bucket-surface and at right angles to its axis.

CLASS 162.—INJECTORS AND EJECTORS. (XVIII.)

No sub-classes.

CLASS 63.—JEWELRY. (V.)

Sub-classes.

1. Bracelets.
2. Brooches.
4. Ear-rings.
5. Finger-rings.
8. Gem-setting.
6. Lockets.
11. Metal stock and ornamental wire fabric.
7. Ornamental chains.
10. Processes.
9. Watch-chain attachments.

CLASS 64.—JOURNALS AND BEARINGS. (XII.)

Sub-classes.

1. Anti-friction rollers.
4. Belt-shifters.
5. Belt-tighteners.
6. Clutches.
7. Compensating journals.
9. Flexible shafts.
10. Journal-boxes.
11. Lubricators.
Pulleys—
2. Band,
8. Expanding.
12. Shaft-casings.
13. Shaft-couplings.
14. Shaft-hangers.
15. Sucker-rods.

CLASS 65.—KITCHEN AND TABLE ARTICLES. (VIII.)

Sub-classes.

1. Butter-dishes.
2. Butter, egg, and table tongs.
3. Cake-turners.
6. Caster-bottles.
5. Casters.
9. Cheese-covers.
10. Compound tools.
11. Corkscrews.
12. Culinary.
13. Cups.
14. Dinner-pails.
15. Dishes and plates.
16. Dish-covers.
17. Dish-holders.
18. Dish-mats.
19. Dish stands and trays.
20. Dust-pans.
21. Egg-beaters.
22. Egg-cups.
23. Fish-scalers.
24. Fruit and cake dishes.
25. Fruit-lifters.
26. Jar-lifters.
27. Knife racks and rests.
28. Ladles.
29. Napkin-holders.
30. Oyster-openers.
31. Pitchers.
32. Plate-lifters.
33. Provision-safes.
35. Salt-cellars.
36. Scoops.
38. Spice-boxes.
41. Tea-service.
42. Tumbler-holders.
43. Twine-holders.
44. Wire articles.

CLASS 66.—KNITTING AND NETTING. (XXI.)

Sub-classes.

1. Burrs and sinkers.
2. Circular.
3. Darning.
4. Fabrics.
5. Needles.
6. Netting.
7. Stopping.
8. Straight.
9. Take-ups and tensions.
10. Tatting.

CLASS 67.—LAMPS AND GAS-FITTINGS. (XIX.)

Sub-classes.

43. Calcium and magnesium lights.
1. Candlesticks.
3. Chandeliers.
4. Chimney-holders.
50. Decorative lights.
5. Drop-lights and haugers.
6. Extinguishers.
7. Gas-burners.
40. Gas-extinguishers.
8. Gas-fittings.
41. Gas-lighting devices.
9. Gas-regulating burners.
33. Lamp-burners—
10. Argand,
11. Multiple-wick,
12. No-chimney.
13. Lamp-chimneys.
14. Lamp-collars.
32. Lamps—
39. Bracket,
2. Car,
42. Cigar-lighting,
16. Forced-draft,
17. Independent-reservoir.
19. Miners',
20. Safety-tube and central draft,
29. Street.
21. Lamp-posts,
22. Lamp-shades.
23. Lamp-wicks.
24. Lanterns—
35. Signal,
46. Submarine,
44. Tubular.
45. Lantern-holders.
25. Lighting devices—
48. Electric,
49. Portable.
26. Locomotive head-lights.
27. Match-safes.
28. Reflectors.
37. Refracting attachments.
34. Signal-lights.
38. Torches.
30. Vapor-burners.
31. Wick-raisers.

CLASS 68.—LAUNDRY. (XXVII.)

Sub-classes.

1. Bosom-boards.
2. Clamps.
34. Clothes-driers.
3. Clothes-lines.
4. Clothes-pins.
5. Clothes-pounders.
6. Clothes sticks and tongs.
7. Fluting-irons.
8. Hand-rubbers.
9. Ironing-machines.
10. Ironing-tables.
11. Laundries.
12. Line-fasteners.
13. Mangles.
14. Reels.
Washing-machines—
15. Agitator,
16. Boiler,
17. Combined washing and wringing,
Washing-machines—
18. Cylinder,
37. Miscellaneous,
19. Pounder,
20. Reciprocating rubber,
21. Rocking and swinging,
22. Roller,
23. Roller and bed,
24. Rotary rubber.
26. Sad-irons.
27. Sad-iron holders.
28. Starching-machines.
35. Wash-benches.
29. Wash-boards.
30. Wash-boilers.
31. Wash-tubs.
32. Wringers.
33. Wringer-rolls.

CLASS 69.—LEATHER. (XI.)

Sub-classes.

1. Cutting.
3. Machines.
4. Splitting.

CLASS 70.—LOCKS AND LATCHES. (XX.)

Sub-classes.

40. Baggage-seals.
3. Box-fasteners.
7. Key-fasteners.
8. Key-hole guards.
9. Keys.
10. Knobs.
11. Knob attachments.
12. Knob-roses.
13. Latches—
28. Gate,
21. Reversible.
14. Locks—
1. Alarm,
2. Bag,
4. Car-seat,
39. Electric,
5. Hasp,
6. Indicator,
18. Permutation,
20. Piano,
23. Seal,
31. Sliding-door,
25. Till,
26. Time,
27. Trunk.
15. Lock-strikes.
16. Lock-trimmings.
29. Locks and latches combined.
17. Padlocks—
19. Permutation.
24. Shackles.

CLASS 115.—MARINE PROPULSION. (XXII.)

Sub-classes.

3. Crank-paddles.
4. Feathering paddles.
7. Paddle-wheels.

Propellers—
1. Buoyant,
2. Chain,
6. Hydraulic,
8. Pneumatic,
9. Screw,
10. Steering,
12. Vibrating.
11. Towing.
13. Wheels in channels.

CLASS 72.—MASONRY. (IV.)

Sub-classes.

2. Cisterns.
3. Construction.
4. Fire-proof buildings.
5. Fire-shields.
6. Garbage-sinks.
7. Iron structures.
8. Sewers.

CLASS 73.—MEASURING-INSTRUMENTS. (XXIII.)

Sub-classes.

1. Air and gas meters.
2. Anemometers.
3. Balances.
4. Barometers.
5. Bathometers.
6. Bevels.
7. Calculators.
8. Cart-scales.
9. Cloth-measuring machines.
10. Coin-counters.
11. Coin-testers.
12. Diaphragm-meters.
13. Dividing-engines.
15. Dynamometers.
59. Fare-registers.
16. Gages.
17. Game-counters.
19. Grain-meters.
20. Grain-tallies.
21. Grain-tollers.
22. Hydrometers.
23. Hydrostatic scales.
24. Hygroscopes.
63. Leather-measuring.
60. Measuring-faucets.
61. Measuring-pumps.
62. Measuring-vessels.
27. Odometers.
28. Oscillating meters.
58. Passenger-registers.
29. Pendulum-scales.
57. Phonographs.
30. Piston-meters.
31. Pressure-gages.
32. Pyrometers.
33. Rain-gages.
34. Recorders.
35. Registers.
36. Rotary-measures.
37. Rotary meters.
38. Sack-scales.
39. Scale-beams.
40. Scale-measures.
41. Scale-pans.
64. Shoe-makers' measures.
42. Specific-gravity apparatus
43. Speed-measures.
44. Sphygmoscopes.
45. Spirit-meters.
46. Spring-scales.
47. Squares.
66. Surface-gages.
48. Tailors' measures.
49. Tape-measures.
50. Testing illuminating-fluids
51. Testing-machines.
52. Thermometers.
65. Thermostats.
67. Track-gages.
53. Voting-machines.
54. Water-gages.
55. Weather-vanes.
56. Weights.

CLASS 74.—MECHANICAL POWERS. (XII.)

Sub-classes.

21. Belt-gearing.
1. Cams and eccentrics.
2. Changing speed.
23. Clutch and brake.
4. Converting motion.
5. Cranks and levers.
6. Fly-wheels.
7. Gearing.
8. Gibs and keys.
9. Horse-powers.
10. Horse-power chains.
11. Horse-power equalizers.
12. Horse-power treads.
13. Machine-brakes.
14. Mechanical movements.
15. Motors.
20. Overcoming dead-centers.
16. Pawls and ratchets.
17. Pitmen.
22. Reversing mechanism.
25. Transmitting power.
18. Treadles.
19. Universal joints.

CLASS 167.—MEDICINES. (VI.)

Sub-classes.

1. Aerated beverages.
2. Capsules.
3. Disinfectants.
4. Extracts.
5. Hair dyes and tonics.
6. Insecticides.
7. Internal remedies.
8. Plasters.
9. Topical remedies.
10. Veterinary medicines.

CLASS 153.—METAL BENDING AND STRAIGHTENING. (XIII.)

Sub-classes.

1. Bars. Bending
2. Bending and straightening.
3. Corrugating and molding.
4. Flanging.
5. Plates. Bending
6. Twisting.

CLASS 10.—METAL BOLTS, NUTS, RIVETS, AND SCREWS. (XIII.)

Sub-classes.

1. Bolts and nuts. Dressing and assembling.
2. Bolts and rivets.
3. Bolts and rivets. Making
4. Capping screws and nails.
5. Metal-screw machines.
6. Nuts and washers.
7. Nuts and washers. Making
8. Screws.
9. Screw-blank feeders.
10. Screw-cutting machines.
11. Screw-swaging machines.
12. Screw-tapping machines.
13. Screw-threading machines.
14. Taps and dies.
15. Wood-screw machines.

CLASS 77.—METAL BORING AND DRILLING. (XIII.)

Sub-classes.

1. Bits.
2. Boring and drilling appliances.
3. Boring-machines.
4. Drill-chucks.
5. Drills. Hand-
6. Drilling-machines.
9. Ratchet-drills.
7. Reamers and drifts.
8. Tapping mains.

CLASS 78.—METAL-FORGING. (XIII.)

Sub-classes.

1. Anvils.
3. Drop-hammers.
4. Forges.
5. Forging and welding.
8. Olivers.
9. Power-hammers.
11. Riveting.
15 Upsetting metal.

CLASS 22.—METAL-FOUNDING. (XIV.)

Sub-classes.

Metal molds—
1. Apparatus and plants,
2. Chains, hinges, and joints,
4. Hardware,
5. Hollow ware,
6. Ingots, hollow, pipes, and tube,
7. Ingots,
9. Ingots, compound,
10. Ingots, plants,
11. Materials,
12. Ordnance and projectiles,
13. Pigs,
14. Plows,
15. Rolls,
18. Screw-threads,
16. Soft-metal machines,
21. Soft-metal molds,
19. Soft-metal shot,
20. Soft-metal spoons,
22. Soft-metal traps,
23. Vehicle-wheels,
24. Wheels.

Molded molds—
25. Chains, hinges, and joints,
26. Hardware,
27. Hollow ware,
28. Molded molds,
8. Molders' flasks,
29. Molders' materials,
17. Molders' tools and arts,
30. Ordnance and projectiles,
31. Pipes,
32. Pipes, horizontal,
3. Pipe-elbows,
33. Plants,
34. Plows,
35. Rolls,
36. Screw-threads,
37. Tools,
38. Vehicle-wheels,
39. Wheels.

Molding apparatus—
40. Blacking-molds,
41. Hollow ware,
42. Machines,
43. Ordnance and projectiles,
44. Pipes,
45. Pipes, horizontal,
46. Pipe-cores,
47. Screw-threads,
48. Vehicle-wheels,
49. Wheels.

CLASS 75.—METALLURGY. (III.)

Sub-classes.

1. Alloys.
31. Amalgamators—
34. Electric,
35. Lead,
36. Mercury,
37. Plate,
33. Vacuum,
38. Vapor.
2. Assaying.
3. Bessemer metal.
4. Blast-furnace accessories.
7. Calcining-kilns.
8. Coke and charcoal.
30. Fume-arresters.
10. Furnace-protecting.

Furnaces—
5. Blast,
29. Crucible,
9. Cupola,
11. Gas,
40. For heating blanks,
41. Hydrocarbon,
42. Injector-burners,

Furnaces—
Hydrocarbon—
43. Retort-vaporizers,
19. Pigment,
20. Puddling,
26. Shaft and shelf.
12. Hot-blast ovens.
14. Iron and steel direct.
15. Lead.
16. Mechanical puddlers and tools.

Metals—
17. Reducing, refining, and separating
18. Solution and precipitation of
22. Quicksilver.
23. Regenerators.
24. Revolving roasters.
25. Roasting-hearths.
28. Spelter.
27. Treating molten iron.
39. Tuyeres.

CLASS 79.—METAL PERSONAL WEAR. MAKING (XIII.)

Sub-classes.

1. Buttons and clasps.
2. Eyelets.
3. Ornamental chains.
4. Personal wear.
5. Thimbles. Manufacture of
6. Watches and clocks.

CLASS 80.—METAL-ROLLING. (XIII.)

Sub-classes.

1. Cylindrical.
2. Foil. Manufacture of
3. Mill appliances.
4. Piles and fagots.
8. Plates and bars.
5. Puddlers' balls.
6. Railroad-rails.
7. Rolling. Miscellaneous
9. Sheet and hoop iron manufacture.
10. Taper.

CLASS 148.—METAL TEMPERING, ANNEALING, AND CEMENTATION. (III.)

Sub-classes.

1. Apparatus.
2. Compositions.
3. Metals. (Generally.)
4. Sheet and plate metal.
5. Wheels and tires.
6. Wire and springs.

CLASS 76.—METAL TOOLS AND IMPLEMENTS. MAKING (XIII.)

Sub-classes.

1. Augers.
2. Axes and hatchets.
27. Compound metal-working machines.
3. Cultivator-irons.
4. Dies.
5. Drills.
6. Farm implements.
7. File-blanks.
8. File-cutting.
9. Files and rasps.
10. Hammers.
11. Harvester-irons.
12. Hoes and shovels.
13. Picks and mattocks.
14. Pitchforks.
15. Plow-irons.
16. Rake and harrow irons.
26. Saw clamps and jointers.
19. Saw-setting.
22. Saw-swaging.
17. Saws.
18. Saws. Gumming
20. Saws. Sharpening reciprocating tool-
21. Saws. Sharpening rotary tool-
23. Scythes.
24. Tools and implements.
25. Wrenches.

CLASS 134.—METAL TUBING AND WIRE. (XIII.)

Sub-classes.

1. Coiling and bending pipe.
9. Electric appliances.
2. Lead pipe. Making
3. Lightning-rods. Making
4. Lining cylinders with metal.
5. Plumbers' traps. Making
6. Tubes.
7. Wire making and drawing.
8. Wire. Pointing

CLASS 82.—METAL TURNING, PLANING, AND MILLING. (XIII.)

Sub-classes.

1. Centerers.
2. Cutters and cutter-holders.
3. Gages.
4. Gear-cutting.
5. Key-seat cutters.
6. Lathe-chucks.
7. Mandrels and work-holders.
8. Milling.
9. Milling cutters.
10. Planer-chucks.

Planers—
11. Reciprocating-bed or cutter.

Planers—
12. Rotary-bed or cutter.
13. Rests.
14. Shaping and slotting.

Turnings—
15. Irregular forms,
16. Miscellaneous,
17. Tapers,
18. Wheels and axles.
19. Watch makers' lathes.
20. Wrist-pin turners.

CLASS 81.—METAL-WORKING TOOLS. (XXVIII.)

Sub-classes.

23. Cutting sharpeners.

Nut-wrenches—
5. Pivoted and spring-jaw,
6. Ratchet-wheel,
7. Rigid-jaw,
8. Rigid-socket and axle-nut,
9. Sliding-jaw.

Pipe-cutters—
10. Inside,
11. Outside.
12. Pipe-expanders.

Pipe-wrenches—
13. Pivoted jaw,
14. Pivoted jaw, with cutter
15. Rigid jaw and spanner,
16. Sliding jaw,
17. Sliding jaw, with cutter.
18. Rod and bolt cutters.
19. Smiths' tongs.

Vises—
20. Pipe and rod,
21. Smiths',
22. Wood-workers'.

CLASS 83.—MILLS. (XXV.)

Sub-classes.

Bagging grain—
25. Bag-fasteners,
26. Bag-holders,
24. Bags.

Chop-graders—
50. Bran-dusters, Beaters
51. Bran dusters, Brushes
49. Electric purifiers,
42. Flour processes,
40. Gravity,
39. Rotary bolts,
38. Shaking bolts.

Dust-collectors—
47. Reciprocating,
48. Rotating.

Feed-regulators—
44. Grinding-mill,
61. Bolt and purifier.

Grain-scourers—
32. Centrifugal,
36. Concave face,
31. Conical,
30. Cylinder, Horizontal
29. Cylinder, Vertical
37. Disk-face,
33. Pestle-action,
35. Reciprocating and endless,
34. Screw-action.

Grinding-mills—
17. Balancing millstones,
9. Ball and drum,
21. Bark,
19. Cane,
45. Chasing.
Grinding-mills—
18. Coffee,
10. Compound movement,
13. Cone and shell,
12. Crushing-rolls,
14. Cylinder and concave,
7. Disk-action, Horizontal
8. Disk-action, Vertical
15. Grain-scrapers,
16. Grist-alarms,
23. Hominy,
6. Knife-action,
1. Mill spindles,
3. Millstone-dress,
4. Millstone-exhaust,
2. Millstone-trams,
22. Paint,
11. Rotary beaters,
46. Impact pulverizers.

Ore and coal—
52. Coal-breakers,
53. Crushers,

Separators—
54. Dry,
55. Electric,
58. Jiggers,
59. Washers,
56. Sifters and screens—
60. Household,
57. Stamps.

Preparing grain—
28. Processes,
27. Steaming and dampening.

CLASS 84.—MUSIC. (V.)

Sub-classes.

1. Accordions.
2. Banjos and guitars.
4. Bells.
6. Castanets.
7. Clarionets and flutes.
8. Cornets and trumpets.
9. Couplers.
10. Drums.
11. Exercising devices.
12. Harmonic attachments.
13. Harmonicas.
14. Harps.
48. Indicators.
15. Insulators.
16. Keys and key-boards.
49. Knee-swells.
17. Leaf-turners.
18. Notation.
19. Organ-actions.
50. Pneumatic.
20. Organ-bellows.
21. Organ-cases.
22. Organ-pipes.
23. Organ-swells.
47. Organ wind-chests.
24. Pedals.
25. Pianos.
26. Piano-actions.
27. Piano attachments.
28. Piano-frames.
29. Piano-legs.
30. Piano sounding-boards.
46. Piano-violins.
31. Pianos without strings.
32. Pipe-organs.
33. Reeds.
34. Reed-boards.
35. Reed-organs.
36. Reed-organ attachments.
37. Self-playing instruments.
51. Pneumatic.
38. Steam-organs.
40. Stringing pianos
41. Transposers.
42. Tremolos.
43. Tuning-instruments.
44. Violins.

CLASS. 85.—NAILS AND SPIKES. (XIII.)

Sub-classes.

1. Cut-nail making.
3. Horseshoe-nail-blank finishing.
2. Horseshoe-nail cutting.
4. Horseshoe-nail forging.
6. Nail-distributers.
8. Nail-plate feeders.
9. Nails and spikes.
15. Shoe nails and tacks.
16. Spike-making.
17. Wrought-nail making.

CLASS 163.—NEEDLES AND PINS. (XIII.)

Sub-classes.

1. Machine-needles. Making
4. Pins. Making
5. Pins. Papering
6. Sewing-needles. Making

CLASS 151.—NUT AND BOLT LOCKS. (XXVIII.)

Sub-classes.

1. Base, key and ratchet.
2. Base, washer.
3. Side.
4. Side, key and ratchet.
5. Thread.
6. Thread, key and ratchet.
7. Top.
8. Top, key and ratchet.

CLASS 87.—OILS, FATS, AND GLUE. (XV.)

Sub-classes.

17. Adhesives.
18. Artificial butter.
1. Barrel-linings.
2. Bleaching.
3. Candles and apparatus.
4. Decomposing fats.
5. Detergents.
6. Extracting oils.
7. Glue.
8. Lard-coolers.
9. Lubricants.
10. Lubricating. Treating oils for
12. Refining fat oils.
13. Rendering.
14. Soap.
15. Soap-cutting.
16. Soap-manufacture.
19. Wax.
20. Wool-oils.

CLASS 88.—OPTICS. (XXIII.)

Sub-classes.

1. Altitude-instruments.
19. Compasses.
2. Distance-instruments.
3. Heliostats.
4. Kaleidoscopes.
5. Lenses.
18. Levels.
6. Leveling-instruments.
7. Magic lanterns.
8. Microscopes.
20. Optometers.
9. Photometers.
10. Prisms.
11. Sextants.
12. Spectacles.
13. Stakes and targets.
14. Stereoscopes.
17. Surveying-instruments.
15. Telescopes.
16. Tripods.

CLASS 89.—ORDNANCE. (XXII.)

Sub-classes.

1. Breech-loading.
2. Carriages.
19. Cartridge-feed cases.
3. Counterpoise-carriages.
4. Disabling.
21. Electrical appliances.
7. Loading.
20. Locks.
9. Machine-guns.
10. Mortars.
11. Muzzle-loaders.
12. Operating ordnance.
22. Pneumatic.
13. Shields.
15. Submarine guns.
16. Tompions and valves.
17. Trunnions.
18. Vents and stoppers.

CLASS 150.—PACKING AND STORING VESSELS. (XIV.)

Sub-classes.

Glass and pottery—
11. Bottles and jugs,
42. Bottle-taps,
43. Boxes and tanks,
18. Ejectors,
12. Jackets,
81. Stands,
Glass and pottery—
Jackets,
74. Wrapper,
44. Jars,
73. Clamp,
75. Screw-cap,
79. Swing-cover,

CLASS 150.—Continued.

Glass and pottery—
Jars,
80. Swing-fastener,
15. Stopper-fasteners,
77. Cap and tie,
86. Swing,
87. Swing-stopper,
16. Stopper-locks,
17. Stoppers,
88. Expanding,
48. Internal,
53. Screw,
49. Valve,
Metallic vessels—
47. Baskets and crates,
29. Boxes,
85. Blacking,
83. Knockdown,
84. Pocket,
51. Canisters,
30. Cans and unclassed vessels,
54. Casks,
55. Closures,
56. Clamp,
57. Screw-cap,
58. Seam or solder,
52. Coal-scuttles,
32. Ears, bails, and handles,
59. Feeders,
60. Fillers,
33. Hermetic sealing,
61. Jackets and stands, Swing,
34. Jackets,
62. Cask,
63. Package,
64. Linings,
35. Liquid-safes, (domestic,)
36. Milk cans and carriers,
37. Nozzles and vents,
65. Screw-cap,
72. Pistons and stirrers,
Metallic vessels—
Nozzles and vents,
66. Valve,
50. Slop-buckets,
40. Storage and transfer
Paper vessels—
46. Angular,
89. Folded,
90. Slide,
45. Curved,
82. Barrels and pails.
Wooden vessels—barrels, buckets, and pails—
1. Bent,
2. Stave,
3. Packages,
4. Bungs and vents,
5. Bung-wrenches,
6. Covers,
7. Hoops,
8. Linings and coverings,
10. Stands.
Wooden vessels—baskets—
41. Baskets,
91. Covered,
67. Folding.
Wooden vessels—boxes—
19. Boxes—
18. Bent,
92. Closures,
93. Single blank,
95. Block,
94. Closures,
20. Can and bottle cases,
21. Cell-cases,
68. Cloth and card cells,
69. Paper cells,
70. Wood cells,
71. Wood veneer cells.
22. Crates,
23. Folding boxes and crates,
27. Powders, cases for

CLASS 91.—PAINTING. (VI.)

Sub-classes.

2. Enameling wood.
3. Fireproofing compounds.
4. Graining.
Ink—
21. Indelible,
5. Printing,
6. Writing,
7. Japanning.
8. Lamp-black.
9. Mixed paints.
20. Painting.
11. Painting-machines.
12. Paint-mixers.
22. Pigments.
13. Stencils.
14. Stove-polishes.
15. Striping.
16. Varnishes.
17. Varnishing-machines.
19. White lead.

CLASS 92.—PAPER-MAKING. (XV.)

Sub-classes.

1. Bleaching.
2. Bronzing-machines.
3. Calendering.
24. Carpet-lining.
4. Coating.
5. Digesters.
6. Disintegrating fibrous substances.
7. Fabrics.*
8. Fibers.
9. Flocking.
10. Materials.
11. Molding machines and articles.
12. Ornamenting.
13. Paper-board.
14. Paper-hanging machines.
15. Paper-making machines.
16. Parchment.
17. Processes.
18. Pulp-engines and bed-plates.
19. Pulp washing and straining.
20. Rag dusters and engines.
21. Stock-grinders.
22. Waterproofing and sizing.†
23. Wood-grinders.

*Includes Artificial Leather, transferred from Class 149, and Oil-Cloth, from Class 91.

†Includes Size Preparations, transferred from Class 8, Waterproofing, from Class 149, and Waterproofing Compounds, from Class 91.

CLASS 93.—PAPER-MANUFACTURES. (XVII.)

Sub-classes.

2. Articles.
3. Attaching labels.
4. Bags.
5. Bag-machines.
6. Bank notes, checks, and bonds.
10. Box-machines.
11. Collar, cuff, and bosom machines.
13. Cutters, Reciprocating
14. Cutters, Rotary
15. Envelopes.
16. Envelope-machines.
17. Feeding.
18. Folding.
19. Label and tag machines.
21. Perforating and lace paper.
22. Postage and revenue stamps
23. Tickets.
24. Tube-machines.

CLASS 94.—PAVING. (XV.)

Sub-classes.

2. Gutters.
Pavements—
1. Concrete.
3. Iron,
5. Stone,
Pavements—
8. Wood.
4. Road-rammers.
6. Tools.
7. Vault-covers.

CLASS 95.—PHOTOGRAPHY. (V.)

Sub-classes.

34. Actinometers.
1. Backgrounds and reflectors.
2. Baths. Chemical
3. Baths. Mechanical
4. Burnishers. (Presses.)
5. Cameras.
6. Camera attachments.
7. Camera-stands.
8. Coloring.
30. Combined apparatus.
9. Daguerreotypy.
10. Dark-chambers.
11. Dippers.
12. Embossing.
13. Enameling.
14. Eye-rests.
31. Galleries.
15. Head-rests.
16. Heaters and driers.
17. Mechanical printing.
18. Mounts and mounting.
19. Negatives.
32. Photosculpture.
22. Pictures.
33. Plate-vises.
25. Printing and vignetting.
29. Processes.
26. Retouching.
35. Surfaces.
28. Washing apparatus.

CLASS 97.—PLOWS. (I.)

Sub-classes.

1. Attachments.
2. Beams.
3. Cleaners.
4. Clevises.
5. Corn-coverers.
6. Colters.
7. Couplings.
8. Cotton-choppers.
9. Cotton-scrapers.
10. Cultivators—
20. Parallel,
25. Rotary,
31. Straddle-row,
34. Wheel,
35. Straddle-row.
11. Cultivator-teeth.
37. Draft-eveners.
13. Fenders.
14. Gage wheels and runners
15. Handles.
17. Landsides.
18. Mold-boards.
21½. Plows—
12. Ditching,
16. Hand,
19. Mole,
26. Shovel.
27. Side-hill,
30. Steam,
36. Wheel.
22. Points.
23. Revolving mold-boards.
24. Ridgers.
28. Sod-cutters.
29. Standards.
32. Subsoilers.
33. Weed-turners.

CLASS 98.—PNEUMATICS. (XXVIII.)

Sub-classes.

1. Aerial navigation.
5. Bellows.
6. Blow-pipes.
Chimneys and cowls—
22. Rotary,
23. Stationary.
28. Fan attachments.
27. Fans. Automatic
29. Toilet.
15. Sand-blowers.
Ventilation—
7. Car,
10. Grain,
11. House,
12. Mine.
19. Window-ventilators.

Sub-Classes of Pneumatics, with Explanatory Notes.

1. AERIAL NAVIGATION. Balloons and flying-machines and their fittings for navigating the air, but not advertising-balloons, (Class 40, Division V,) toy balloons, (Class 46, Division XV,) signal-balloons, (Class 116, Division XXII,) or balloons for raising sunken vessels, &c., (Class 114, Division XXII.)

5. BELLOWS. Air-forcing devices and fittings involving flexible diaphragms, cylinders, walls, or bags; but not bellows organized for musical instruments (Class 84, Division II) or water-pumps, (Class 103, Division IX.)

6. BLOW-PIPES. Includes all such as jewelers, glass-blowers, plumbers, and assayers use.

22. CHIMNEYS AND COWLS. ROTARY. Cowls which automatically move in whole or part to prevent a draft down through the smoke-flue.

23. CHIMNEYS AND COWLS. STATIONARY. Chimneys and cowls which are designed to prevent a draft down through the smoke-flue and have no moving part.

15. SAND-BLOWERS. Rotary blowers, air-pumps, and bellows specially adapted to throw sand by a blast of air.

7. VENTILATION. CAR. Those constructions whereby fresh air is directly or through filters introduced into the cars, or foul air is forced or drawn out; but does not include cooling air (Class 62, Division XV) or dust-guards for car-windows, (Class 92, Division IX,) or devices involving ventilation as an incident to warming, (Class 126, Division XIX.)

10. VENTILATION. GRAIN. Devices and flues for supplying fresh air to grain in bins, bulk, and stacks, but not devices and methods for *drying* grain by heat, (Class 34, Division XIX.)

11. VENTILATION. HOUSE. Those constructions whereby fresh air is directly or through filters introduced into the house, or foul air is forced or drawn out; but does not include cooling-air, (Class 62, Division XV,) window-ventilators as defined, (Class 98, Division IX,) or devices involving ventilation as an incident to warming, (Class 126, Division XIX.)

12. VENTILATION. MINE. Those constructions whereby fresh air is directly or through filters introduced into mines and tunnels, or foul air or fire-damp is forced or drawn out; but does not include cooling air (Class 62, Division XV) or devices involving ventilation as an incident to warming, (Class 126, Division XIX.)

19. WINDOW-VENTILATORS. Ventilators depending in whole or part on the raising or lowering of the sash, removable ventilators which are inserted in the open window under or over the sash, devices for preventing moisture on the glass, schemes for ventilating bulk-head windows, and car-window dust-guards, all when mere attachments; but does not include ventilators or dust-guards involving the construction of the window or its frame, nor window-screens, (Class 20, Division IV.)

CLASS 99.—PRESERVING. (VI.)

Sub-classes.

1. Antiseptics.
2. Apparatus.
4. Cold.
5. Desiccation.
6. Egg-testers.
7. Embalming.
8. Exclusion of air.
11. Food compounds.
9. Fumigation.
10. Panification.
12. Wood saturation.

CLASS 100.—PRESSES. (XII.)

Sub-classes.

2. Bale-band tighteners.
Bale-ties—
19. Wire.
3. Baling hay.
9. Flour-packers.
10. Fruit-packers.
17. Oil-press mats.
18. Paint-expellers.
Presses—
4. Cheese,
5. Cider and wine,
6. Cloth,
7. Cotton and hay,
20. Bale-ejectors,
21. Rack-bar,
Presses—
Cotton and hay,
22. Ratchet and grapple bar,
23. Revolving bale-boxes,
24. Screw,
25. Toggle-joint,
8. Cork,
11. Fruit,
26. Fuel,
12. Hop,
13. Lard and oil,
14. Sugar,
15. Tobacco,
16. Wool.

CLASS 101.—PRINTING. (XVII.)

Sub-classes.

1. Addressing.
2. Autographic.
3. Blankets.
4. Block.
5. Branding-stamps.
7. Calico and fabric.
6. Card, tag, and ticket.
8. Chases.
9. Chromatic.
10. Composing-sticks.
11. Copying.
12. Cylinder.
13. Damping.
14. Delivering.
15. Electrotyping.
16. Friskets.
17. Furniture.
18. Galleys.
19. Glass.
20. Hand-stamps.
21. Inking.
22. Lever-presses.
23. Lithographic.
44. Matrix-making.
45. Metal embossing.
24. Oscillating.
25. Paging and numbering.
26. Perforating-stamps.
27. Plate.
28. Reciprocating.
29. Registering.
30. Rotary.
31. Rules.
32. Setting and distributing.
33. Spool.
34. Stereotyping.
35. Stereotype-blocks.
36. Stereotype-plate holders.
37. Surfaces.
38. Types.
39. Type-beds.
40. Type-cases.
41. Type-machines.
42. Type-writing.
43. Warp and yarn.

CLASS 102.—PROJECTILES. (XXII.)

Sub-classes.

1. Blasting and fuses.
2. Bomb-lances.
3. Cap-boxes.
4. Cap-filling.
19. Cartridge implements.
5. Cartridge-loading.
6. Cartridges—
20. Electric.
7. Flasks and chargers.
8. Lubricating.
9. Marine torpedoes.
11. Primers.
12. Projectiles.
13. Rockets.
14. Sabots and wads.
15. Shells.
16. Shell-fuses.
17. Shot-cartridges.
18. Torpedoes.

CLASS 103.—PUMPS. (IX.)

Sub-classes.

Air-pumps—
47. Hydraulic,
48. Mechanical,
49. Mercury,
46. Rotary.
45. Accumulators.
2. Attachments.
5. Cattle.
6. Chain.
7. Compound.
8. Compressed-air water-elevators.
10. Diaphragm.
11. Double-acting.
12. Double-cylinder.
13. Double-piston.
14. Drainage.
16. Force.
17. Hollow piston-rod.
18. Hydraulic elevators.
20. Hydraulic jacks.
21. Hydraulic presses.
22. Lift.
23. Oil.
25. Oscillating.
27. Pistons.
29. Rams.
44. Rotary double piston.
43. Rotary single piston.
31. Sand.
32. Ship.
35. Windlass water-elevators.

Sub-Classes of Pumps, with Explanatory Notes.

47. AIR-PUMPS. HYDRAULIC. Constructions whereby air is forced by the *direct* action of a *motor fluid* not mercury—as water or steam—but does not include cases involving a mere water seal or air-compressors operated by hydraulic power.

48. AIR-PUMPS. MECHANICAL. All independent and complete air forcing or exhaust apparatus and details thereof not otherwise classified. Includes, also, air-reservoirs not gas-holders, (Class 48, Division III.)

49. AIR-PUMPS. MERCURY. Constructions whereby air is *forced by mercury* not a mere seal to a mechanical piston.

46. AIR-PUMPS. ROTARY. All ventilating-wheels, blast-machines, forge-blowers, air-compressors, exhaust-fans, water-seal blowers, pressure-blowers, and twin-blowers, but not bellows, (Class 98, Division XXVII,) *nor reciprocating* piston air-pumps.

45. ACCUMULATORS. Hydraulic and pneumatic devices for multiplying and accumulating power.

2. ATTACHMENTS. An attachment is something auxiliary to a pump or part thereof of ordinary form, and not a mere detail or modification.

5. CATTLE. Devices whereby water is *elevated* by the action or weight of the animal. If water is *merely turned on* by the action of the animal, to run into a drinking receptacle, the apparatus belongs in Tanks, (Class 137, Division IX.)

6. CHAIN. Devices whereby water is elevated by buckets that move in a belt.

7. COMPOUND. Schemes, automatic pumps, combined pumps, and motors, water-elevating wheels, and constructions which involve more than the primary forms contemplated by the other classes.

8. COMPRESSED-AIR WATER-ELEVATORS. Constructions not ejectors, (Class 162, Division XVIII,) whereby water is elevated by the *direct* action of a motor-fluid. An apparatus involving a mere permanent air piston or cushion is classified according to the form of the pump. If a vacuum is produced by the condensation of steam, the case belongs to Class 100, Division XVIII.

10. DIAPHRAGM. Pumps having a diaphragm, bellows, or bulb, which is operated, either directly or indirectly, to effect the water; but does not include mere siphon-primers, (Class 137, Division IX.)

11. DOUBLE-ACTING. Pumps in which a single piston or part through which no water is raised draws water *every* stroke.

12. DOUBLE-CYLINDER. Pumps having two or more cylinders the longitudinal axis of which are on parallel lines, but not in a direct line.

13. DOUBLE-PISTON. Reciprocating pumps not defined as double cylinder or compound, where water is drawn on every stroke by a valved piston, or by two or more pistons, or where the water is forced by pistons having independent piston-rods.

14. DRAINAGE. Pumps especially adapted for forcing drainage and cesspool matter, usually automatic or made with valves especially designed to avoid clogging.

16. FORCE. Pumps in which a single piston or part through which no water is raised draws water only every other stroke.

17. HOLLOW PISTON-ROD. Pumps in which a valved piston draws in water every stroke and discharges it all through the piston-rod.

18. HYDRAULIC ELEVATORS. Fluid-hoisting apparatus and devices and valves especially adapted to be used therewith. Matters relating to the cage, guides, &c., foreign to the motor-fluid belong to Class 57, Division XII.

20. HYDRAULIC JACKS. Portable fluid lifting and forcing jacks and fittings.

21. HYDRAULIC PRESSES. Fluid devices for forcing one or more platens, and pumps especially adapted therefor.

22. LIFT. Pumps having only one piston-rod which is continuous and provided with at least one valved piston, the arrangement being such that water is drawn into the pump *only* every other stroke.

23. OIL. Pumps and their attachments not adapted to be used anywhere except in oil-wells.

25. OSCILLATING. Pumps having one or more pistons which reciprocate on a curved line or oscillate on a pivot.

27. PISTONS. Only independent pistons and their packing for lift, force, and double-acting pumps. Other pistons are classified with the apparatus to which they relate.

29. RAMS. Apparatus for elevating water by suddenly checking its flow.

44. ROTARY DOUBLE-PISTON. A rotary pump is one which rotates and has no reciprocating piston. Double-piston rotary pumps include those not defined as single-piston.

43. ROTARY SINGLE-PISTON. Pumps having a single rotary piston without any blade or abutment, which, during the rotation of the piston, moves relatively to it.

31. SAND. Pumps especially adapted for raising sand and drillings, and not of general application.

32. SHIP. Pumps and arrangements of suction-pipes especially adapted to vessels, and not of general application.

35. WINDLASS WATER-ELEVATORS. Apparatus whereby water is elevated by buckets that do not move in a belt.

CLASS 164.—PUNCHING AND SHEARING. (XIII.)

Sub-classes.

1. Cutting.
2. Punching.
3. Sawing metal.
5. Shears. Lever and sliding
4. Shears. Rotary

CLASS 105.—RAILWAY-CARS. (X.)

Sub-classes.

1. Axle-boxes.
2. Axle-box lids.
3. Axle-lubricators.
4. Axles.
5. Baskets.
6. Brakes—
7. Automatic,
8. Rail.
9. Brake-shoes.
10. Bumpers.

Cars—
14. Dumping,
15. Freight,
16. Hand,
19. Passenger,
22. Safety,
23. Sleeping,
28. Steam street,
29. Stock.
31. Street.
11. Changeable gage-trucks.
12. Couplings.
13. Draw-bars.
17. Locomotives.
18. Mail-bag catchers.
20. Platforms.
21. Safety-bridges.
24. Springs.
25. Stake-holders.
26. Starters.
27. Starters and brakes.
35. Straps.
30. Street-car poles.
32. Trucks.
33. Wheel-fenders.
34. Wheels.

CLASS 104.—RAILWAYS. (IV.)

Sub-classes.

49. Buffers.
1. Car-replacers.
2. Chairs.
40. Crossings.
3. Deadening noise.
4. Elevated—
41. Cable-rail.
50. Foot-guards.
5. Frogs.
7. Hose-bridges.
8. Inclined plane.
9. Pneumatic.
10. Rails.
11. Rail-joints.
21. Signals—
42. Automatic alarm,
31. Detonating,
27. Pneumatic,
22. Switch,
43. Single rail.
12. Switches—
21. Automatic,
26. Pneumatic,
24. Tramway.
25. Switch-stands—
39. Interlocking.
13. Tank-feeders.
14. Track—
44. Fastenings,
45. Portable,
46. Stringers and ties.

Track-cleaners—
36. Centrifugal,
37. Dumping,
38. Elevators,
52. Melters,
51. Snow-plows,
34. Wheel-fenders.
16. Track-layers.
17. Track-platforms.
18. Traction—
35. Grippers,
47. Underground.
48. Transfer-tables.
19. Turn-tables.
20. Ways.

CLASS 62.—REFRIGERATION. (XV.)

Sub-classes.

1. Air-cooling apparatus.
2. Beer-coolers.
3. Corpse-coolers.
4. Ice-cream freezers.
5. Ice-crushers.
6. Ice-machines.
7. Ice picks and shavers.
8. Implements.
10. Refrigerators.
11. Refrigerator-buildings.
12. Refrigerator-cars.
13. Water-coolers.
14. Wine-coolers.

CLASS 106.—ROOFING. (IV.)

Sub-classes.

1. Battening.
2. Eaves-troughs.
3. Fenders.
4. Metallic.
5. Roofs.
6. Slate and shingle.
7. Tile.

CLASS 109.—SAFES. (XX.)

Sub-classes.

1. Burglar-proof.
2. Fire-proof.
3. Safe bolt-work.

CLASS 111.—SEEDERS AND PLANTERS. (I.)

Sub-classes.

1. Broadcast—
2. Hand,
3. Revolving hoppers,
4. Walking.
5. Check-row.
8. Cups on belt.
9. Cups on disk.

Drills—
35. Adjustable rank,
18. Grain,
36. Walking.
10. Drills and broadcast combined.
11. Drill-teeth.
12. Elastic feed-wheels.
34. Fertilizer-distributers—
13. Hand,
14. Revolving hoppers,
15. Walking.
17. Force-feed.
19. Grain-drill cleaners.
24. Land-markers.
25. Pivoted seed-cups.

Planters—
6. Corn,
7. Cotton,
16. Foot,
20. Hand,
21. Oscillating,
22. Reciprocating,
23. Rotating,
27. Potato,
28. Walking,
32. Walking,
33. Vibrating hoppers.
26. Plungers.
29. Preparing seed.
30. Rolling hoppers.
31. Screw-feed.

CLASS 112.—SEWING-MACHINES. (XXIV.)

Sub-classes.

35. Attachment-holders.
1. Binders.
2. Bobbin-winders.
3. Braiders and corders.
4. Button-hole.
5. Chain and double chain.

CLASS 112.—Continued.

7. Embroidering.
8. Feeding.
36. Glove-sewing machines.
9. Guides.
10. Hemmers.
34. Methods.
29. Miscellaneous parts.
11. Needles.
37. Needle-clamps.
13. Presser-feet and lifters.
14. Quilting.
38. Revolving hooks.
15. Revolving-hook machines.
16. Rufflers and gatherers.
17. Running-stitch.
18. Setters and threaders.
31. Sewing hats.
19. Sewing looped fabrics.
32. Sewing on buttons.
20. Sewing shoes.
21. Short-thread.
22. Shuttle-machines.
23. Shuttles and bobbins.
24. Special machines.
25. Straw.
26. Take-ups.
39. Tensions.
33. Thread-cutters.
6. Trimmers.
27. Tuck creasers and markers.
12. Tucking-guides.
40. Turfing fabrics.
28. Wax-thread.

Sub-classes of Sewing-Machines, with Explantory Notes.

35. ATTACHMENT-HOLDERS. Devices adapted to secure different kinds of attachments in proper position relative to the sewing mechanism.

1. BINDERS. Attachments for guiding a binding and the fabric, to the edge of which it is to be secured to the sewing mechanism.

2. BOBBIN-WINDERS. Attachments for winding or filling the bobbins or spools of shuttles and rotary hooks.

3. BRAIDERS AND CORDERS. Attachments for guiding braids or cords to the sewing mechanism.

4. BUTTON-HOLE. Machines and attachments for sewing over-edge or zigzag stitches for working the edges of button-holes or fabrics, or ornamenting fabrics.

5. CHAIN AND DOUBLE CHAIN. Machines for forming chain or loop stitches with one thread and double chain or double loop stitches with two threads, respectively.

7. EMBROIDERING. Machines and attachments for ornamenting fabrics with thread.

8. FEEDING. Includes improvements which relate to feeding mechanisms only.

36. GLOVE-SEWING MACHINES. Machines for sewing the seams of gloves.

9. GUIDES. Attachments for guiding fabrics to the sewing mechanism.

10. HEMMERS. Attachments for turning hems and guiding the fabrics to be hemmed to the sewing mechanism.

34. METHODS. Particular methods of forming stitches and peculiar methods of sewing.

29. MISCELLANEOUS PARTS. Sundry devices or machines not properly classifiable under other heads.

11. NEEDLES. Sewing-machine needles only.

37. NEEDLE-CLAMPS. Devices for securing the needle to the needle-bar.

13. PRESSER-FEET AND LIFTERS. Presser-feet and devices for raising the same when the work is to be removed or inserted; also, mechanisms for automatically lifting the presser-foot at each stitch.

14. QUILTING. Machines for sewing several seams simultaneously by means of multiplex stitch-forming mechanisms; also, attachments to ordinary machines for holding fabrics to be quilted.

38. REVOLVING HOOKS. Includes improvements in hooks and loopers, oscillating or revolving, and means for attaching the same to the shaft.

15. REVOLVING-HOOK MACHINES. Machines for forming lock-stitches by means of a needle and a co-operating rotary hook which carries the needle-thread around a locking-thread from a bobbin or spool which is in most instances stationary.

16. RUFFLERS AND GATHERERS. Attachments for forming ruffling, plaiting, and shirring, either by means of a tension-plate which checks the movement of one of two strips of fabric, thus permitting the other to be moved faster by the feeding device, or by means of reciprocating-blades or other moving devices.

17. RUNNING-STITCH. Machines which crimp the fabric and feed the same on to a stationary threaded needle, thus forming the ordinary hand running stitch.

18. SETTERS AND THREADERS. Attachments for properly setting the needle in the needle-bar and for threading the same.

31. SEWING HATS. Machines and attachments for sewing linings, bindings, &c., to hats.

19. SEWING LOOPED FABRICS. Special machines for uniting the edges of knitted goods by sewing.

32. SEWING ON BUTTONS. Machines and attachments for sewing buttons to fabrics.

20. SEWING SHOES. Machines for sewing the soles of boots and shoes to their uppers.

21. SHORT-THREAD. Machines other than running-stitch machines using measured lengths of thread, in contradistinction to those machines which sew with continuous threads.

22. SHUTTLE-MACHINES. Machines which form the lock-stitch by means of a needle and a co-operating shuttle.

23. SHUTTLES AND BOBBINS. Includes improvements in shuttles and bobbins, or spools for the same.

24. SPECIAL MACHINES. Machines for doing special kinds of work not otherwise properly classifiable.

25. STRAW. Machines for sewing straw braid into hats and bonnets.

26. TAKE-UPS. Includes improvements which relate to take-up devices only.

39. TENSIONS. Includes improvements which relate to tension devices only.

33. THREAD-CUTTERS. Devices for cutting the threads when the work is to be removed from the machine.

6. TRIMMERS. Attachments for trimming off the edges of the work simultaneously with the sewing.

27. TUCK CREASERS AND MARKERS. Attachments for creasing or marking the work simultaneously with the formation of a seam, to indicate where the fabric is to be folded to form the succeeding tuck.

12. TUCKING-GUIDES. Guiding attachments for forming plaits.

40. TURFING FABRICS. Apparatus for inserting a loop or a series of loops of pile, yarn, rags, &c., through perforations made in a foundation fabric.

28. WAX-THREAD. Machines for sewing leather, &c., with waxed threads; also, thread-waxing devices for such machines.

CLASS 113.—SHEET-METAL WARE, MAKING (XIV.)

Sub-classes.

23. Burnishing.
1. Cutting printers' leads.
2. Edging sheets.
3. Roller-tools.
4. Screw-thread bending.
5. Seaming sheets.

Soldering—
6. Clamps,
7. Irons,
25. Heaters,
8. Machines,
26. Dip,
10. Solder-shapes.
24. Spinning.
11. Tools,
12. Troughs and moldings.

Tubing—
13. Curved and spouts,
14. Grooving and seaming,
15. Pipe-elbows, Making
16. Straight, Making

Vessels—
17. Angular, Bending
18. Curved, Bending
19. Die-seaming,
20. Die-shaping,
21. Roller-seaming,
22. Wiring and flanging.

CLASS 114.—SHIPS. (XXII.)

Sub-classes.

1. Anchors.
2. Anchor-trippers.
3. Armor-clad.
4. Ballasting.
5. Berths, cabins, and furniture.
6. Bilge-water. Discharging
9. Building.
10. Cables and cable-stoppers.
12. Camels.
14. Center-boards and keels.
15. Cleats and belaying-pins.
16. Couplings and tow-lines.
17. Dead-lights.
18. Decks and hatches.
19. Fire-extinguishers.
21. Floating-docks.
22. Form.
23. Gangways and bridges.
24. Hanks, cringles, and hoops
25. Hawser-clamps.
26. Ice boats and breakers.
27. Implements.
28. Iron.
29. Leak-stoppers.
30. Light and air ports.
32. Masts and spars.
33. Raising sunken vessels.
34. Reefing and furling sails.
35. Sails and rigging.
36. Scows.
37. Scuppers and hawse-holes.
38. Steamboat-chimneys.
39. Steering.
40. Submarine and torpedo.
41. Surge-relievers.
42. Travelers.
43. Turrets.
44. Valve and port stoppers.
45. Ventilating.

CLASS 116.—SIGNALS. (V.)

Sub-classes.

1. Alarms.
32. Annunciators.
9. Car-signals.
11. Fire-alarms.
12. Flag-staff holders.
13. Fog-signals.
31. Indicators.
15. Leak-alarms.
18. Nautical signals.
19. Pneumatic signals.
20. Pyrotechnic signals.
22. Semaphores.
23. Shoal-alarms.
26. Speaking-tubes.
27. Station-indicators.

CLASS 117.—SILK. (XXI.)

Sub-classes.

1. Assorting.
2. Cleaning.
3. Cocooneries.
4. Doubling.
5. Silk.
6. Stretching.
7. Throwing.
8. Winding.

CLASS 118.—SPINNING. (XXI.)

Sub-classes.

1. Bobbin and cop builders.
2. Bobbins, fliers, and spindles.
3. Bolsters and steps.
15. Cop-builders.
4. Cop-tubes.
5. Domestic.
6. Doubling.
7. Drawing and evening.
8. Hemp, flax, and hair.
9. Mules and jacks.
10. Ring-frames.
11. Rings and travelers.
12. Stopping.
13. Throstles and caps.
14. Twisting-heads.

CLASS 120.—STATIONERY. (XXVIII.)

Sub-classes.

3. Ballot-boxes.
4. Bill-files.
5. Blotters.
6. Calendars.
7. Copy-holders.
9. Erasers.
10. Fare-boxes.
11. Fountain-pens.
12. Hand-rests.
13. Inkstands.
14. Letter-boxes.
15. Mucilage-holders.
36. Paper-clips.
17. Paper-weights.
18. Pens.
19. Pen-holders.
20. Pen and pencil cases.
21. Pen racks and cleaners.
22. Pencils.
23. Pencil-clasps.
24. Pencil and crayon holders.
25. Pencil-sharpeners.
26. Post-office boxes.
28. Scholars' companions.
29. Slate and blackboard rubbers.
30. Sponge-cups.
35. Stylographic pens.
32. Ticket-cases.
33. Ticket-reels.

CLASS 160.—STEAM AND VACUUM PUMPS. (XVIII.)

No sub-classes.

CLASS 122.—STEAM-BOILERS. (XVIII.)

Sub-classes.

1. Attachments.
2. Cleaners.
3. Coverings.
5. Circulation.
22. Feeders.
6. Fire-tube.
7. Flashers.
8. Flue and tubular.
20. Heating feed-water.
21. Heating feed-water, steam-injected.
10. Incrustation.
11. Indicators.
12. Introducing smoke and gases.
13. Rotary.
14. Sectional.
15. Separators.
16. Superheaters.
17. Tubes and flues.
4. Vapor-generators.
23. Vertical.
27. Water-tube.
18. Water fire-boxes.

CLASS 110.—STEAM-BOILER FURNACES. (XVIII.)

Sub-classes.

14. Attachments.
1. Bagasse.
2. Draft-regulators.

Furnace-feeding—
3. Air.
4. Fuel.
5. Furnaces.
6. Grates and grate-bars—
10. Hollow,
9. Pulverized-fuel.
12. Smoke and gas, returning
7. Spark-arresters—
13. Conductors.

CLASS 121.—STEAM-ENGINES. (XVIII.)

Sub-classes.

1. Attachments.
2. Beam-engines.
3. Compound.

Condensers—
25. Injector,
26. Surface.
5. Direct-acting.
34. Disk-engines.
6. Exhaust mechanism.
27. Exhaust, regenerated.
7. Fire-engines.
9. Locomotives.
10. Locomotive attachments.
35. Multiple cylinder.
11. Oscillating.

Packing—
28. Compound and textile,
29. Rod,
12. Pistons and metallic,
32. Steam-joint.
13. Portable, traction, and dummy.
14. Rotary—
30. Concentric piston,
31. Eccentric piston,
34. Oscillating piston,
36. Impact.
23. Speed-governors—
37. Centrifugal,
38. Marine.
15. Steam and air brakes—
35. Attachments.
16. Steam-hammers.
22. Steam-mufflers.
17. Steam pumping-engines.
18. Steam rock-drills.
19. Steam steering-engines.
20. Traps.
21. Valve-gear—
33. Shifting eccentric.

CLASS 136.—STEAM-ENGINE VALVES. (XVIII.)

Sub-classes.

1. Balanced-slide.
2. Cut-off.
3. Gage-cocks.
4. Governor.
5. Piston.
6. Puppet.
12. Reversing.
7. Rotary.
9. Safety.
8. Slide.
10. Steam-actuated.
11. Throttle.

CLASS 161.—STEAM WATER-ELEVATORS. (XVIII.

No sub-classes.

CLASS 125.—STONE-WORKING. (XXII.)

Sub-classes.

2. Channeling-machines.
3. Chucks for rock-drills.
4. Diamond-tools.
5. Dressing slate.
6. Dressing stone.
10. Drills.
11. Millstone-dressing machines.
12. Millstone paint-stalls.
13. Millstone-picks.
14. Mining-machines.
15. Monuments.
18. Sawing stone.
19. Tools.

CLASS 126.—STOVES AND FURNACES. (XIX.

Sub-classes.

Boilers—
1. Agricultural,
16. Domestic,
17. Steamers,
34. Stand.

CLASS 126.—Continued.

Burners—
79. Hay and straw,
49. Refuse.
9. Coffee and tea pots.
12. Corn-poppers.
13. Dampers—
14. Automatic.
20. Fenders.
21. Fire-dogs.
22. Fire-places—
89. Blowers,
68. Fire-backs,
23. Fronts,
24. Grates,
70. Hot-air.
25. Fire-pots and linings.
27. Foot-warmers.
90. Fuel-boxes.
Furnaces—
76. Cremation,
37. Hot-air,
86. Steam,
43. Magazine,
91. Hydrocarbon,
46. Portable.
28. Glue-pots.
29. Grates—
78. Rotary.
31. Gridirons.
Heaters—
5. Barrel,
73. Car,
75. Pendent,
74. Steam,
15. Dish,
26. Flat-iron,
40. Lunch,
82. Solar,
53. Steam.
32. Heating-drums.
38. Hot-air registers.
Ovens—
4. Bakers',
19. Domestic.
67. Paint-breamers.
Pans—
2. Ash,
3. Bake,
60. Frying.
85. Platforms.
47. Pot and lid lifters.
81. Pots and kettles.
48. Ranges.
51. Shovel, tongs, and pokers.
83. Snow and ice melters.
72. Steam-radiator attachments.
65. Steam-radiators.
54. Steaming-tables.
55. Stove doors and windows.
56. Stove-hoods.
57. Stove-legs.
58. Stove lids and tops.
59. Stove-pipes.
60. Stove-pipe shelves.
61. Stove-pipe thimbles.
62. Stove-shelves.
Stoves—
10. Cooking,
11. Hearths,
41. Magazine,
50. Reservoir,
71. Steam,
66. Gas,
69. Heating—
92. Central air-tube,
94. Horizontal-body,
33. Hot-air,
35. Open-front,
36. Panel,
91. Parlor,
39. Lamp,
44. Magazine,
42. Fire-place,
64. Vapor.
63. Tea-kettles.
88. Waffle-irons.

CLASS 127.—SUGAR AND SALT. (XV.)

Sub-classes.

1. Bleaching cane-juice.
2. Bone-black.
3. Centrifugal machines.
4. Confectionery.
6. Cube sugar.
5. Cutters and crushers.
7. Defecating.
8. Diffusion apparatus.
9. Evaporating-pans.
10. Glucose.*
19. Graining and draining.
11. Mixers.
12. Molds and carriages.
13. Pill-machines.
14. Refining salt.
15. Refining sugar.
16. Salt-making.
17. Sugar-making.
18. Vacuum-pans.

*Includes Dextrine and Starch, transferred from Class 8.

CLASS 128.—SURGERY. (XX.)

Sub-classes.

2. Atomizers.
3. Bandages.
4. Breast pumps.
34. Capsule-machine.
5. Catamenial sacks.
9. Depuratora.
10. Ear.
29. Electric apparatus—
30. Baths,
31. Body-wear.
11. Eye.
13. Inhalers and respirators.
15. Medical spoons.
28. Miscellaneous.
16. Movement cure,
17. Nasal douches.
18. Nipples.
19. Nursing-bottles.
20. Obstetrics.
21. Pessaries.
22. Pharmaceutical.
23. Scarificators and lancets.
24. Speculums.
25. Syringes.
26. Trusses.
27. Veterinary.

CLASS 129.—TANNING. (XI.)

Sub-classes.

2. Preparing hides.
3. Stretching.
4. Tanning.
5. Tanners' tools.
6. Tan-vats.
7. Dressing.

CLASS 130.—THRASHING. (XXV.)

Sub-classes.

1. Band cutters and feeders.
31. Cane-strippers.
2. Clover-hullers.
3. Corn-cribs.
4. Corn-husking implements.
5. Corn-husking machines.
Corn-shellers—
6. Breast and cylinder,
7. Disk-action,
8. Peripheral action,
9. Ear-grasping,
10. Implements.
12. Fans and regulators.
13. Flax-thrashers.
14. Granaries and bins.
Grain separators—
17. Gravity,
18. Oat, seed, and garlic,
Grain-separators—
16. Rotary screens,
19. Screens and riddles,
15. Shaking screens,
20. Stackers.
Straw-carriers—
21. Endless aprons,
22. Overhung rakes,
23. Reels,
24. Shaking tables,
25. Vibrators,
26. Walking-rakes.
Thrashing-machines—
27. Cylinder-machines,
29. Dust-conveyers,
28. Flail-machines,
30. Vine and seed strippers.

CLASS 131.—TOBACCO. (II.)

Sub-classes.

1. Boxes, cases, and pouches.
2. Cigars, cigarettes, and cartridges.
18. Cigar-bundling machines.
3. Cigar-cutters.
4. Cigar holders and stands.
5. Cigar-machines.
21. Continuous filler,
24. Roller,
25. Stationary belt,
26. Traveling belt.
19. Cigar-makers' implements.
20. Cigar-perforators.
27. Coloring and flavoring.
28. Coloring and flavoring machines.
6. Curing.
29. Dressing-machines.
7. Granulating.
8. Leaf-treating machine.
30. Moistening apparatus.
9. Molding cigars.
10. Mouth-pieces.
11. Packing-machines.
12. Pipes and stems.
13. Pipe-cleaners.
14. Plug-making.
15. Plugs.
31. Smoking-tobacco.
22. Smoking-tubes.
16. Snuff-manufacture.
32. Substitutes.
Tobacco-cutters—
33. Pivoted-knife,
34. Reciprocating,
35. Rotary.
21. Tobacco-hangers.
36. Wrappers.

CLASS 132.—TOILET. (V.)

Sub-classes.

1. Barbers' appliances.
2. Bathing appliances.
3. Combs.
4. Crimping and curling.
5. Hair-pins.
6. Hair and wigs.
7. Jewel-boxes.
8. Mustache-guards.
9. Nail and ear cleaners.
14. Pins.
11. Toilet-cases.
12. Tooth-picks.
13. Tweezers.

CLASS 47.—TREES, PLANTS, AND FLOWERS. (II.)

Sub-classes.

2. Bouquet-holders.
4. Flower pots and stands.
6. Grafting.
13. Hedge-training,
7. Hop-culture.
14. Plant and tree culture.
8. Plant and tree protectors.
10. Propagation.
11. Sap-spouts.
12. Trellises.

CLASS 133.—TRUNKS. (XI.)

Sub-classes.

1. Accoutrements.
2. Awnings.
3. Cartridge-boxes.
4. Mail-bags.
5. Package-holders.
6. Portfolios and pocket-books.
8. Tents.
9. Traveling-bags.
10. Trunks.

CLASS 135.—UMBRELLAS AND CANES. (V.)

Sub-classes.

2. Canes.
3. Combined cane and umbrella.
4. Covers.
5. Drip-cups.
7. Handles and sticks.
8. Ribs and stretchers.
9. Runners and notches.
10. Tip cups.
12. Umbrella-supporters.

CLASS 146.—VEGETABLE CUTTERS AND CRUSHERS. (II.)

Sub classes.

8. Apple-parers.
Crushers and graters—
15. Reciprocating,
9. Rotary.
Cutters—
12. Bread,
10. Green-corn,
7. Reciprocating,
Cutters—
11. Rotary.
2. Fruit-squeezers.
3. Nut-crackers.
14. Peelers and washers.
6. Pitters, corers, and eye-cutters.
5. Shellers and seeders.

CLASS 152.—WAGON, CAR, AND TRACK IRONS. (XIII.)

Sub-classes.

1. Car axles and boxes. Making
2. Car and locomotive irons.
3. Carriage clips and shackles.
4. Carriage-irons, Miscellaneous
5. Car-wheels and tires.
6. Fifth-wheels. Making
7. Railway-chairs.
8. Repairing and capping rails.
9. Tire-heating furnaces.
10. Tire-upsetting.
11. Track-irons. Miscellaneous
12. Wagon axles and boxes. Making
13. Wagon tires and felloes. Making

CLASS 141.—WASHING APPARATUS. (XXVII.)

Sub-classes.

6. Barrel-washers.
7. Bottle and can washers.
8. Combined dish cleaners and drainers.
9. Dish cleaners.
10. Dish-cloth holders.
11. Dish-drainers.
12. Pitching casks.
13. Pot-scrapers.
3. Tumbler-washers.
5. Wool-washing machines.

CLASS 137.—WATER-DISTRIBUTION. (IX.)

Sub-classes.

1. Aquariums.
32. Check-valves.
Cocks and faucets—
26. Compound,
Cocks and faucets—
4. Reciprocating valves,
5. Sliding gates,
27. Tank,

CLASS 137.—Continued.

Cocks and faucets—
6. Tube-compressors,
7. Turning plugs.
9. Cut-offs and spouts.
10. Filters.
11. Fountains.
12. Funnels.
33. Hose-patches.
13. Hydrants and plugs.
14. Irrigating and sprinkling.
16. Mains and pipes.
17. Nozzles.
Pipe-couplings—
28. Detachable,
29. Permanent,
30. Valved.
18. Sampling-tubes.
20. Siphons.
21. Tanks.
31. Water-supply hose-holders.

Sub-Classes in Water-Distribution, with Explanatory Notes.

1. AQUARIUMS. Tanks for the exhibition of live fish when there is no water-jet.

32. CHECK-VALVES. Only those of general application. Check-valves especially designed for use with a particular apparatus are classified therewith.

COCKS AND FAUCETS include only stop-valves of *general application*. Those *not* of general application are classified with the apparatus to which they relate.

26. COCKS AND FAUCETS. COMPOUND. Those constructions in which two or more through-parts are controlled.

4. COCKS AND FAUCETS. RECIPROCATING VALVES. Those constructions in which a single through-passage is closed by a part which moves away from and against its seat, and does not slide across it, and those constructions in which a tube reciprocates to close a single through-passage.

5. COCKS AND FAUCETS. SLIDING GATES. Those constructions in which a part, not a tube, moving in a *straight* line slides across a port to close a single through-passage.

27. COCKS AND FAUCETS. TANK. Stop-valves having special means for attaching them to tanks, barrels, &c.; air-vent valves, faucet-bushings and bung-closers, and valves specially organized to be used with tanks, barrels, &c. Valves in bodies of ordinary faucet form merely are classified according to their character.

6. COCKS AND FAUCETS. TUBE-COMPRESSORS. Those constructions where an elastic tube is compressed to close it.

7. COCKS AND FAUCETS. TURNING PLUGS. Those constructions in which a plug, disk, or cylinder having a port through which the water passes rotates on its axis, but does not reciprocate, to close a single through passage; and those constructions in which a part moving in a circular line slides across a single through-passage to close it.

9. CUT-OFFS AND SPOUTS. Sheet-metal rain-water spouts and conductors, and cistern cut-offs and filters therefor.

10. FILTERS. Independent and complete apparatus for removing the mechanical impurities from liquids by straining, also sugar-filters, bone-black filters, water-filters not organized as water-coolers, filter-presses not expressing-presses, (Class 100, Division XII;) but does not include filtering-funnels, (Class 137, Division IX.)

11. FOUNTAINS. Stationary and house fountains, aquariums with water-jets, and portable automatic fountains.

12. FUNNELS. Lamp-funnels, bottle and jar funnels, bung-funnels, funnel-holders, valved and vented funnels, filtering-funnels, and funnel-strainers, but not measuring-funnels, (Class 73, Division XXIII.)

33. HOSE-PATCHES. Stops and clamps for temporarily stopping leaks in hose-pipes.

13. HYDRANTS AND PLUGS. Fire and domestic hydrants, fire-plugs, and street-washer boxes and covers, together with their valves and fittings.

14. IRRIGATING AND SPRINKLING. Lawn-sprinklers, clothes-sprinklers, watering-carts, permanent curb and street sprinklers, portable lawn-sprinklers, watering-pots, liquid poison and manure distributers for plants, and track-sprinklers attached to cars, but not mere sprinkling-tips, which are classed with nozzles, (Class 137, Division IX.) Includes, also, irrigating pipes, *ditches*, and schemes, but not ditching-plows, (Class 97, Division I,) or excavating, (Class 37, Division IV,) or drains, (Class 61, Division IV.)

16. MAINS AND PIPES. The construction of water and gas mains, water-supply systems, sediment and fish traps for water-pipes, protectors for the threaded ends of pipes, water-hammer preventers, schemes for preventing water-pipes from bursting, wooden pipes, tapping water-mains, (but not drills, Class 77, Division XIII,) tube-stoppers, service-pipe systems, air-valves for mains, wastes for water-pipes, house-reservoirs and service-pipe attachments, preventing and detecting waste of water, supplying upper stories with water, *water-works*, stand-pipes, apparatus for thawing frozen pipes, supplying water to buildings and rooms, and cleaning mains.

17. NOZZLES. Single and twin or siamese hose-nozzles, and discharge-tips for fountains, sprinklers, &c., except those especially adapted for automatic fire-extinguishers, (Class 169, Division IX.)

8. PIPE-COUPLINGS. DETACHABLE. Pipe-couplings and parts thereof adapted to be joined and unjoined by merely removing screws, keys, nuts, bolts, thimbles, &c.

29. PIPE-COUPLINGS. PERMANENT. Pipe-couplings which are partially or wholly destroyed in separating, and not adapted to be unjoined and joined by merely removing thimbles, screws, nuts, bolts, keys, &c.

30. PIPE-COUPLINGS. VALVED. Complete concentrated couplings, made in two parts, each of which is adapted to be connected to a hose or pipe, and one or both of which parts is provided with a valve that is opened when the parts are coupled and closed when the parts are uncoupled.

18. SAMPLING-TUBES. Barrel-thiefs, hydrometer-pumps, and devices for removing a column of liquid from a reservoir to illustrate the character of the strata.

20. SIPHONS. Includes, besides siphons, siphon primers and starters.

21. TANKS. Railway watering columns and tanks, and apparatus for supplying water to stock-tanks and drinking-troughs, together with their fittings.

31. WATER-SUPPLY HOSE-HOLDERS. Constructions whereby the water is supplied to the hose-holder, from which it passes into the hose connected thereto.

CLASS 139.—WEAVING. (XXI.)

Sub-classes.

1. Bag.
2. Basket.
3. Button-hole.
5. Carpet-rag looper.
6. Chenille—
40. Machines.
7. Circular.
8. Cross-weaving.
9. Fabrics.
41. Fringe-machines.
10. Fringes.
11. Hair cloth.
12. Hand-looms.
13. Heddle-machines.
14. Heddles.
15. Irregular.
16. Jacquard mechanisms.
17. Lappet.
18. Looms.
19. Narrow-ware.
20. Needle-looms.
21. Pickers.
22. Picker-checks.
23. Pile-fabric looms.
24. Reeds and reed-making.
25. Shedding.
26. Shirred-fabric machines.
27. Shuttles.
28. Shuttle-boxes.
29. Shuttle-checks.
30. Shuttle-guards.
31. Shuttle-motions.
32. Slat, cane, and straw
33. Special machines.
34. Stopping.
35. Take-ups and let-offs
36. Temples.
37. Tying-in warps.
38. Weft-forks.
39. Wire.

CLASS 157.—WHEELWRIGHT-MACHINES. (XXII.)

Sub-classes.

1. Axle-gages.
2. Boring hubs.
3. Carriage-bow setters.
8. Tire-setters.
9. Wheelwright-machines.

CLASS 170.—WIND-WHEELS. (XXVIII.)

Sub-classes.

Wind-wheels—
1. Horizontal,
2. Vertical feathering-blades,
Wind-wheels—
3. Vertical solid-wheel.

CLASS 140.—WIRE-WORKING. (XIV.)

Sub-classes.

1. Barbing—
12. Sheet-metal,
22. Tools.
3. Bending.
4. Bending and coiling.
5. Bending and twisting.
6. Coiling.
7. Covering.
8. Cutting and straightening.
9. Fabrics—
10. Making.
Fabrics—
20. Working.
21. Feeding and tension.
13. Heddles, Making
14. Joining.
15. Reels and spools.
16. Tools.
17. Wiring bottles and corks —
18. Brushes and cards,
19. Wood,
11. Fences.

CLASS 143.—WOOD-SAWING. (XXII.)

Sub-classes.

1. Band-saw mills.
3. Circular-saw mills.
4. Circular sawing machines.
Circular sawing—
22. Angular,
23. Radial.
24. Circular saws. Traveling
5. Edgers.
6. Fire-wood circular saws.
7. Fire-wood drag-saws.
9. Head-blocks.
11. Log-turners.
12. Reciprocating-saw mills.
13. Resawing.
14. Saws.
15. Saw-bucks.
25. Saw-guards.
26. Saw-guides.
16. Saw-hanging.
17. Saw-mill appliances.
18. Saw-mill dogs.
27. Saw-table gages.
19. Saw-teeth.
20. Sawing shingles.
21. Scroll-sawing machines.
28. Tubular sawing machines.

Sub-Classes in Wood-Sawing, with Explanatory Notes.

1. BAND-SAW MILLS. Machines using an endless flexible saw.

3. CIRCULAR-SAW MILLS. For sawing logs, a power-driven carriage is usually present. Sub-class A, using a saw or saws which cut through the log; B, using top saw or saws; C, saw-carriage-feed devices.

4. CIRCULAR SAWING MACHINES. For sawing on a table without a power-driven carriage.
22. CIRCULAR SAWING. ANGULAR. Circular saws arranged at an angle to the plane of the table or work.
23. CIRCULAR SAWING. RADIAL. Saws arranged to make cuts radial to the log.
24. CIRCULAR SAWS. TRAVELING. Revolving saw is carried to the work.
5. EDGERS. Two or more circular saws on a shaft, usually adjustable relatively to each other.
6. FIRE-WOOD CIRCULAR SAWS. Circular sawing machines adapted to cross-cut rough sticks.
7. FIRE-WOOD DRAG-SAWS. A, levers and connecting devices for reciprocating a saw across the timber; B, crank connections for same purpose.
9. HEAD-BLOCKS. The set-works for moving a log on its carriage.
11. LOG-TURNERS. Machines for turning logs by power.
12. RECIPROCATING-SAW MILLS. A, machines with carriages for feeding logs or timber to a reciprocating saw, which is generally hung in a gate; B, for sawing in other than straight lines; C, for light work, having a positive feed.
13 RESAWING. For dividing sawed stuff, usually at an angle. Generally with gages at each side of the work.
14. SAWS. Wood-saws with solid teeth, where the invention is in the plate or disk.
15. SAW-BUCKS.
25. SAW-GUARDS. Shields to prevent accidents.
26. SAW-GUIDES. Devices to prevent vibration of the saw.
16. SAW-HANGING. Devices for holding saws on arbors or in gates.
17. SAW-MILL APPLIANCES. Attachments—as brakes, wheels, log-decks, saw-dust conveyers, &c.
18. SAW-MILL DOGS. Devices to clamp the log to the saw-carriage.
27. SAW-TABLE GAGES. For guiding the work on the table.
19. SAW-TEETH. Insertible teeth and fastenings.
20. SAWING SHINGLES. For sawing beveled pieces, and having devices for shifting the bolt so as to produce the bevel.
21. SCROLL-SAWING MACHINES. Jig-sawing machines where the feed is by hand or under the immediate control of the operator.
28. TUBULAR SAWING MACHINES. The saw is a hollow cylinder.

CLASS 142.—WOOD-TURNING. (XXII.)

Sub-classes.

9. Irregular forms.
Lathes—
12. Automatic spindle,
2. Gage,
13. Many-spindle,
14. Single-chuck,
15. Tubular-cutter.
3. Lathe appliances.
8. Oval forms.
16. Polygonal forms.
Regular forms—
17. Lateral-movement,
18. Longitudinal-movement.

Sub-Classes in Wood-Turning, with Explanatory Notes.

9. TURNING IRREGULAR FORMS. Lathes having essentially revolving work-spindle, revolving pattern, and a bearing-surface which rests on the pattern and controls the movement of the work-spindle or the rotary cutter.
12. AUTOMATIC SPINDLE-LATHES. Lathes in which the spindles close on the work, usually for turning spools, buttons, &c.
2. GAGE-LATHES. Lathes having a revolving work-spindle, a traveling cutter, and fixed pattern for guiding the cutter.
13. MANY-SPINDLE LATHES. Lathes with a series of spindles which usually move past a series of cutters.
14. SINGLE-CHUCK LATHES. Lathes in which the work is chucked to a single spindle.
15. TUBULAR-CUTTER LATHES. A hollow revolving cutting-mandrel, through which the work is fed.
3. LATHE APPLIANCES. Attachments for wood-lathes.
8. TURNING OVAL FORMS. Spindle of lathe has double or eccentric motion.
16. TURNING POLYGONAL FORMS. Lathes in which the work-spindles have an intermittent rotary motion, the cutters acting when the spindles are at rest.
17. TURNING REGULAR FORMS. LATERAL-MOVEMENT. Simple lathes in which the cutter moves laterally toward the work.
18. TURNING REGULAR FORMS. LONGITUDINAL-MOVEMENT. Same as above, with cutters made to move lengthwise of the stick, or nearly so.

CLASS 144.—WOOD-WORKING MACHINES. (XXII.)

Sub-classes.

1. Bending wood.
2. Boring.
48. Boring and reaming.
4. Carving.
49. Chain-cutters.
6. Clothes-pin machines.
8. Comb-making.
9. Cutter-heads.
10. Cutting dye-wood.
11. Cutting gears.
14. Dovetailing.
50. Gaining.
51. Machine-tables.
16. Matches. Making
75. Match-trays.
47. Mitering.

CLASS 144.—Continued.

Molding—
52. Clamped-work,
53. Hand-feed,
54. Lateral-feed,
55. Pattern-feed,
56. Special-feed,
57. Straight-feed.
Mortising—
58. Auger-cutters,
59. Chisel and auger cutters,
60. Chisel-cutters,
61. Rotary cutters.
19. Osier-peelers.
20. Packing shingles.
22. Pencil-wood. Making
23. Planer attachments—
62. Feed,
63. Pressers and rolls.
Planers—
64. Beveling,
65. Rotary-cylinder,
66. Rotary-disk,
25. Sliding.
27. Planing and matching.
28. Planing and sawing.
67. Punching-cutters.
29. Rossing bark.
68. Routing.
Sashes and blinds—
31. Making,
74. Tenoning
69. Shaving. Fixed-knife
Slicers—
70. Beveling,
71. Reciprocating,
72. Rotary and oscillating.
36. Slivering.
37. Special work.
38. Splitting and bundling.
73. Tenoning and boring.
40. Universal joiners.
45. Working rattan.
46. Wiring blinds.
42. Wooden pins. Making
43. Wooden trays. Making
44. Wood ornamentation.

Sub-Classes in Wood-Working Machines, with Explanatory Notes.

1. BENDING WOOD. Machines for bending and holding bent sticks.
2. BORING. Machines which operate with a simple rotary bit or bits.
48. BORING AND REAMING. Machines which have reamers for enlarging as well as augers for boring holes.
4. CARVING. Machines for following the contour, usually with cutter on the end of spindle at right angles to the face of the work.
49. CHAIN-CUTTERS. Endless chains carrying cutting-blades.
6. CLOTHES-PIN MACHINES. For removing the wood between the legs of clothes-pins.
8. COMB-MAKING. Machines for slitting the spaces between the comb-teeth, usually circular saws with intermitting feed devices for the comb-blanks.
9. CUTTER-HEADS. Rotary heads with cutting-blades, (other than saws and augers.)
10. CUTTING DYE-WOOD. Chip-making machines.
11. CUTTING GEARS. Machines with cutters for forming gear-teeth, and generally a step-by-step feed.
14. DOVETAILING. Machines with rotary cutters or saws arranged at angles to the wood, which is fed in straight lines.
50. GAINING. Machines with rotary cutting-tools having their axes parallel (or nearly so) to the surface in which a groove is cut.
51. MACHINE-TABLES.
16. MATCHES. MAKING.
75. MATCH-TRAYS. A device for receiving, clamping, adjusting, or preparing the splints for dipping, &c., and which may be connected to, or disconnected from, the match-machine proper.
47. MITERING. For cutting bevels on wood. A, cutting by means of saws; B, cutting by knives or planers.
52. MOLDING. CLAMPED WORK. The blank is clamped, and the cutter advanced to operate on it.
53. MOLDING. HAND-FEED. The material is shaped by rotary cutters on axes parallel to the surface cut, the feed being under immediate control of the operator.
54. MOLDING. LATERAL-FEED. Machines with rotary cutters on axes parallel to the surface operated on, the blank being fed to the cutter and then withdrawn.
55. MOLDING. PATTERN-FEED. The material is shaped by cutters the feed being in a direction fundamentally regular but modified by transverse movements produced by patterns, cranks, or cams.
56. MOLDING. SPECIAL-FEED. The work is shaped by rotary cutters, the feed being in curved, tortuous, or irregular lines.
57. MOLDING. STRAIGHT-FEED. The work is passed directly under or over shaping-cutters.
58. MORTISING. AUGER-CUTTERS. Slots are formed by augers which first bore a hole to the required depth, and then move sidewise, cutting at the side.
59. MORTISING. CHISEL AND AUGER CUTTERS. Augers followed or accompanied by chisels which enlarge and square the hole bored.
60. MORTISING. CHISEL-CUTTERS. Machines with reciprocating chisel.
61. MORTISING. ROTARY CUTTERS. For cutting mortises by means of rotary, oscillating, or chain cutters, the axis of the cutter being parallel to the surface of the wood.
19. OSIER-PEELERS.
20. PACKING SHINGLES.
22. PENCIL-WOOD. MAKING.

23. PLANER ATTACHMENTS. Miscellaneous attachments for planing-machines.
62. PLANER ATTACHMENTS. FEED.
63. PLANER ATTACHMENTS. PRESSERS AND ROLLS.
64. PLANERS. BEVELING. For planing tapered articles—as shingles, &c.—by rotary cutters.
65. PLANERS. ROTARY-CYLINDER. Planer with rotary cutter-head on axis parallel with face of bed; knives on cylindrical surface of cutter.
66. PLANERS. ROTARY-DISK. Planers with rotary disk having knives on the flat surface, which is parallel with the bed of machine. Traversing planers.
25. PLANERS. SLIDING. Planers with fixed or reciprocating knives, the work being fed to the knife or the knife reciprocated over the work.
27. PLANING AND MATCHING. Planers with matcher-heads attached.
28. PLANING AND SAWING. Planers with circular saws or edges attached.
67. PUNCHING-CUTTERS.
29. ROSSING BARK.
68. ROUTING. Rotary cutters with their axes at right angles to the surface operated on, and capable of lateral movement over such surface, for panel-raising, &c.
31. SASHES AND BLINDS. MAKING. Machines for.
74. SASHES AND BLINDS. TENONING. Cutting round tenons on blind-slats by rotary cutters, against which the slats rotate.
69. SHAVING. FIXED-KNIFE. The work fed continuously to the stationary knife.
70. SLICERS. BEVELING. Machines with reciprocating or rotary splitting-knives, to which the work is fed by mechanism.
71. SLICERS. RECIPROCATING. Machines with reciprocating splitting-knives.
72. SLICERS. ROTARY AND OSCILLATING.
36. SLIVERING. Machines with sets of fine knives for making toothpicks, excelsior, &c.
37. SPECIAL WORK. Machines for special purposes, (as gluing, driving parts together, fastening cane-seats, felling trees, &c.)
38. SPLITTING AND BUNDLING. For fire-wood.
73. TENONING AND BORING. Cutting round tenons by hollow augers which may be replaced or accompanied by boring-augers.
40. UNIVERSAL JOINERS. Machines for performing several operations simultaneously or successively.
45. WORKING RATTAN.
46. WIRING BLINDS.
42. WOODEN PINS. MAKING
43. WOODEN TRAYS. MAKING
44. WOOD ORNAMENTATION. By cutting or embossing.

CLASS 145.—WOOD-WORKING TOOLS. (XXII.)

Sub-classes.

1. Augers.
2. Auger-handles.
3. Bench-dogs.
4. Bench-planes.
5. Bit-stocks.
6. Box-openers.
7. Box-scrapers.
22. Cant-dogs.
8. Chisels.
9. Clamps.
10. Chalk-line holders.
11. Gages.
23. Handsaws.
12. Hammers and hatchets.
13. Hollow augers.
15. Nail-extractors.
16. Saw-handles.
17. Screw-drivers.
18. Spoke-shaves.
19. Tools.
24. Tools for machines.
20. Tool-handles.
21. Work-benches.

SUBJECTS OF INVENTION.

Subjects of invention are divided into one hundred and sixty-four classes, and assigned for examination to the twenty-eight Examining Divisions of this Office, as follows:

DIVISION I.—EXAMINER FOX.

Classes.

55. Harrows and Diggers.
97. Plows.
111. Seeders and Planters.

DIVISION II.—EXAMINER BLODGETT.

Classes.

6. Bee-Culture.
17. Butchering.
119. Care of Live Stock.
31. Dairy.
39. Fences.
131. Tobacco.
47. Trees, Plants, and Flowers.
146. Vegetable Cutters and Crushers.

DIVISION III.—EXAMINER CATLIN.

Classes.

7. Brewing and Fermenting.
96. Coating with Metal.
124. Distillation.
48. Gas.
75. Metallurgy.
148. Metal Tempering, Annealing, and Cementation.

DIVISION IV.—EXAMINER POND.

Classes.

14. Bridges.
20. Carpentry.
37. Excavating.
61. Hydraulic Engineering.
72. Masonry.
104. Railways.
108. Roofing.

DIVISION V.—EXAMINER BURKE.

Classes.

40. Advertising.
41. Fine Arts.
63. Jewelry.
84. Music.
95. Photography.
116. Signals.
132. Toilet.
135. Umbrellas and Canes.

DIVISION VI.—EXAMINER ANTISELL.

Classes.

8. Bleaching and Dyeing.
23. Chemicals.
52. Explosives.
71. Fertilizers.
149. Hides, Skins, and Leather. Chemical Treatment of.
167. Medicines.
91. Painting.
99. Preserving.

DIVISION VII.—EXAMINER BOYD.

Class.

56. Harvesters.

DIVISION VIII.—EXAMINER WHITAKER.

Classes.

5. Beds.
107. Bread, Cracker, and Lozenge Making.
155. Chairs.
156. Curtains, Shades, and Screens.
45. Furniture.
65. Kitchen and Table Articles.

DIVISION IX.—EXAMINER BROWN.

Classes.

1. Aeration and Bottling.
4. Baths and Closets.
169. Fire-Engines.
138. Hydraulic Motors.
103. Pumps.
137. Water-Distribution.

DIVISION X.—EXAMINER SANDERS.

Classes.

21. Carriages and Wagons.
105. Railway-Cars.

DIVISION XI.—EXAMINER CHAPMAN.

Classes.

12. Boots and Shoes.
24. Clasps and Buckles.
54. Harness.
60. Hose and Belting.
69. Leather.
129. Tanning.
133. Trunks.

DIVISION XII.—EXAMINER SCHOEPF.

Classes.

159. Fire Escapes, and Ladders.
57. Hoisting.
64. Journals and Bearings.
74. Mechanical Powers.
100. Presses.

DIVISION XIII.—EXAMINER JAYNE.

Classes.

86. Arms and Projectiles. Making
59. Chains, Staples, and Horseshoes.
53. Hardware-Making.
153. Metal Bending and Straightening.
10. Metal Bolts, Nuts, Rivets, and Screws.
77. Metal Boring and Drilling.
78. Metal-Forging.
79. Metal Personal Wear. Making.
80. Metal-Rolling.
76. Metal Tools and Implements. Making
134. Metal Tubing and Wire.

DIVISION XIII.—Continued.

82. Metal Turning, Planing, and Milling.
85. Nails and Spikes.
163. Needles and Pins.
164. Punching and Shearing.
152. Wagon, Car, and Track Irons.

DIVISION XIV.—EXAMINER STOCKING.

Classes.

22. Metal-Founding.
150. Packing and Storing Vessels.
113. Sheet-Metal Ware. Making
140. Wire-Working.

DIVISION XV.—EXAMINER HEDRICK.

Classes.

166. Artesian and Oil Wells.
106. Artificial Stone, Lime, and Cement.
18. Caoutchouc and Minor Plastics.
25. Clay and Pottery.
154. Composite Roofing.
38. Felting and Hats.
44. Fuel.
49. Glass.
87. Oils, Fats, and Glue.
92. Paper-Making.
94. Paving.
62. Refrigeration.
127. Sugar and Salt.

DIVISION XVI.—EXAMINER KINTNER.

Class.

36. Electricity.

DIVISION XVII.—EXAMINER COOKE.

Classes.

11. Book-Binding.
93. Paper-Manufactures.
101. Printing.

DIVISION XVIII.—EXAMINER FOWLER.

Classes.

123. Air and Gas Engines.
50. Fluid-Pressure Regulators.
162. Injectors and Ejectors.
160. Steam and Vacuum Pumps.
122. Steam-Boilers.
110. Steam-Boiler Furnaces.
121. Steam-Engines.
136. Steam-Engine Valves.
161. Steam Water-Elevators.

DIVISION XIX.—EXAMINER WOODWARD.

Classes.

67. Lamps and Gas-Fittings.
126. Stoves and Furnaces.

DIVISION XX.—EXAMINER WILKINSON.

Classes.

3. Artificial Limbs.
16. Builders' Hardware.
27. Coffins.
30. Cutlery.
32. Dentistry.
70. Locks and Latches.
109. Safes.
128. Surgery.

DIVISION XXI.—EXAMINER APPLETON.

Classes.

19. Carding.
26. Cloth finishing.
28. Cordage.
66. Knitting and Netting.
117. Silk.
118. Spinning.
139. Weaving.

DIVISION XXII.—EXAMINER SEATON.

Classes.

9. Boats.
147. Coopering.
42. Fire-Arms.
115. Marine Propulsion.
89. Ordnance.
102. Projectiles.
114. Ships.
125. Stone-Working.
157. Wheelwright Machines.
143. Wood-Sawing.
142. Wood-Turning.
144. Wood-Working Machines.
145. Wood-Working Tools.

DIVISION XXIII.—EXAMINER SEELY.

Classes

TRADE MARKS—LABELS.

33. Drafting.
35. Educational Appliances.

DIVISION XXIII.—Continued.

58. Horology.
73. Measuring-Instruments.
88. Optics.

DIVISION XXIV.—EXAMINER PIERCE.

Classes.

165. DESIGNS.
2. Apparel.
29. Crinoline and Corsets.
112. Sewing-Machines.

DIVISION XXV.—EXAMINER MASON.

Classes.

13. Brakes and Gins.
83. Mills.
130. Thrashing.

DIVISION XXVI.—EXAMINER ———.

Class.

Electricity B. (Not yet organized.)

DIVISION XXVII.—EXAMINER GOULD.

Classes.

15. Brushing and Scrubbing.
43. Fishing and Trapping.
46. Games and Toys.
51. Grinding and Polishing.
68. Laundry.
141. Washing Apparatus.

DIVISION XXVIII.—FIRST ASSISTANT EXAMINER GALLATIN IN CHARGE.

Classes.

34. Driers.
168. Farriery.
81. Metal-Working Tools.
151. Nut and Bolt Locks.
98. Pneumatics.
120. Stationery.
170. Wind-Wheels.

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Official Gazette: Published every Tuesday; in two volumes a year, prior to July, 1883, subsequent to that date in quarterly volumes.

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To foreign subscribers, except Canada 7 00
Single numbers 10

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VOL. 30—No. 2. TUESDAY, JANUARY 13, 1885. PRICE—$5 per year.

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The Official Gazette.

The OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Attorneys.

DEPARTMENT OF THE INTERIOR,
Washington, January 3, 1885.

SIR: I am directed by the Secretary to inform you that the order of the Department dated May 15, 1884, disbarring Rowland H. Thorn, of Lexington, Tennessee, from practice as attorney before the Department and its bureaus has this day been rescinded.

Very respectfully,

GEO. M. LOCKWOOD,
Chief Clerk.

The Commissioner of Patents.

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DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., January 6, 1885.

SIR: I am directed by the Secretary to inform you that he has ordered that A. R. Buck & Co., of Washington, D. C., be not recognized from and after this date as attorneys in the prosecution of any claim or other matter before the Department of the Interior or any bureau thereof.

I am, sir, very respectfully, your obedient servant,

GEO. M. LOCKWOOD,
Chief Clerk.

The Commissioner of Patents.

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Issue of January 13, 1885.

Patents	318—No. 310,550 to No. 310,867,	inclusive.
Designs	25—No. 15,711 to No. 15,735	inclusive.
Trade-Marks	10—No. 11,853 to No. 11,862,	inclusive.
Labels	8—No. 4,309 to No. 4,316	inclusive.
Reissues	5—No. 10,549 to No. 10,553,	inclusive.
Total issue	366	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	1	....	Nebraska	....	1
Arizona Territory	....	....	Nevada	....	....
Arkansas	2	....	New Hampshire	....	....
California	14	....	New Jersey	9	1
Colorado	2	....	New Mexico Territ'y	....	1
Connecticut	19	....	New York	78	3
Dakota Territory	....	....	North Carolina	....	....
Delaware	1	....	Ohio	19	2
District of Columbia	2	....	Oregon	....	....
Florida	....	....	Pennsylvania	38	1
Georgia	2	....	Rhode Island	7	....
Idaho Territory	....	....	South Carolina	1	....
Illinois	23	....	Tennessee	2	....
Indiana	13	1	Texas	4	1
Indian Territory	....	....	Utah Territory	2	....
Iowa	4	....	Vermont	5	....
Kansas	....	....	Virginia	1	....
Kentucky	1	....	Washington Territ'y	....	....
Louisiana	3	....	West Virginia	3	....
Maine	2	....	Wisconsin	8	....
Maryland	3	....	Wyoming Territory	....	....
Massachusetts	34	3	United States Army	....	....
Michigan	9	1	United States Navy	....	....
Minnesota	....	....			
Mississippi	1	....	Total to citizens of		
Missouri	11	....	the United States	324	15
Montana Territory	....	....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Australia	....	....	Germany	4	....
Austria-Hungary	....	....	Hayti	....	....
Barbadoes	....	....	Holland	....	....
Belgium	....	....	Island of Trinidad	....	....
Bermuda	....	....	Italy	....	....
Brazil	....	....	Norway	....	....
Canada	7	....	Russia	1	....
Chili	....	....	Scotland	....	....
Colombia, U. S. of	....	....	Spain	....	....
Cuba	....	....	Sweden	....	....
Denmark	....	....	Victoria	....	....
Ecuador	....	....			
England	6	3	Total to citizens of		
France	1	....	foreign countries	19	3

DESIGNS.

15,711.—FINGER-RING.—*Wilbur Fisk Crafts*, New York, N. Y. Application filed September 1, 1884. Term of patent 3½ years.

15,712.—SETTEE-FRAME.—*Joseph C. Day*, Philadelphia, Pa., assignor to *Baker, Pratt & Co.*, New York, N. Y. Application filed October 14, 1884. Term of patent 7 years.

15,713.—CARPET.—*Arthur Danby*, Philadelphia, Pa. Application filed December 8, 1884. Term of patent 3½ years.

15,714.—ORNAMENTATION OF SKATING-RINKS.—*Halsey C. DeBaud*, Newark, N. J., and *Albert C. Couch*, New York, N. Y. Application filed September 12, 1884. Term of patent 7 years.

15,715.—SPOON OR ANALOGOUS ARTICLE.—*Charles T. Grosjean*, New York, N. Y., assignor to *Tifany & Co.*, same place. Application filed October 14, 1884. Term of patent 14 years.

15,716 and 15,717.—SPOON, FORK, OR KNIFE HANDLE.—*Charles T. Grosjean*, New York, N. Y., assignor to *Tifany & Co.*, same place. Applications filed October 14, 1884. Term of patents 14 years.

15,718.—STEAM-TRAP CASE.—*Edward C. Hawes*, Providence, R. I. Application filed November 3, 1884. Term of patent 14 years.

15,719.—CARPET.—*Alfred Heald*, Philadelphia, Pa. Application filed December 2, 1884. Term of patent 3½ years.

15,720.—CARPET.—*Alfred Heald*, Philadelphia, Pa. Application filed December 11, 1884. Term of patent 3½ years.

15,721.—CARPET.—*Alfred Heald*, Philadelphia, Pa. Application filed December 13, 1884. Term of patent 3½ years.

15,722.—LAMP.—*Charles Kitschelt*, New York, N. Y., assignor to *N. Muller's Sons*, same place. Application filed October 15, 1884. Term of patent 3½ years.

15,723 and 15,724.—FONT OF PRINTING-TYPE.—*John George Mengel, Jr.*, Baltimore, Md. Applications filed November 25, 1884. Term of patents 7 years.

15,725.—BADGE.—*Frank Neubert*, Springfield, Mass. Application filed September 11, 1884. Term of patent 14 years.

15,726.—FRINGE OR TASSEL BLOCK.—*William Smith*, Philadelphia, Pa. Application filed December 1, 1884. Term of patent 14 years.

15,727 to 15,735, inclusive.—CARPET.—*Charles W. Swapp*, New York, N. Y., assignor to *The Lowell Manufacturing Company*, Lowell, Mass. Applications filed November 28, 1884. Term of patents 3½ years.

TRADE-MARKS.

[Certificates of registration of Trade-Marks numbered 8,191 and upward are registered under the act of March 3, 1881.]

11,853.—CERTAIN NAMED DRUGS AND MEDICINES.—*Allen & Hanburys*, London, England. Application filed September 18, 1884.
"The representation of a plow."

11,854.—REMEDY FOR STIMULATING THE SPINE, &c.—*Alexander H. Covell*, New Bedford, Mass. Application filed December 17, 1884.
"The combined representation of a liberty-cap, a human eye, and a pendent star."

11,855.—SEDATIVE ANTI-SPASMODIC AND DIFFUSIBLE STIMULANT.—*J. T. Davenport*, Bloomsbury, London, England. Application filed June 4, 1884.
"The representation of an anchor and cable."

11,856.—CARRIAGES, PHAETONS, BUGGIES, SPRING-WAGONS, AND OTHER LIKE VEHICLES.—*Hiram W. Davis & Co.*, Cincinnati, Ohio. Application filed December 6, 1884.
"The words 'DAVIS, GOULD & CO.'"

11,857.—DENTAL ALLOY.—*The Keller Medicine Company*, Fort Wayne, Ind. Application filed November 26, 1884.
"The word 'OCCIDENTAL.'"

11,858.—ENAMELED SHEET-METAL UTENSILS AND ARTICLES FOR HOUSEHOLD PURPOSES, &c.—*Lalance & Grosjean Manufacturing Company*, New York, N. Y. Application filed December 6, 1884.
"The arbitrarily-selected word-symbol 'PEARL.'"

11,859.—CERTAIN WHIPS.—*Lewis H. Lee*, Westfield, Mass. Application filed December 4, 1884.
"The word 'DIAMOND.'"

11,860.—HOG PRODUCTS, LARD, AND MEATS.—*John Morrell & Company, Limited*, Liverpool and Manchester, England, Glasgow, Scotland, Ottumwa, Iowa, and Chicago, Ill. Application filed November 3, 1884.
"The arbitrary symbols of three pigs and a trough."

11,861.—HARD SOAP IN CAKES FOR TOILET, BATH, AND LAUNDRY.—*L. & J. Oakley*, Newburg, N. Y. Application filed September 4, 1884.
"The word 'PURITAN.'"

11,862.—DRUGS OR MEDICINES USED FOR VENEREAL DISEASES.—*Frank Rogers*, Omaha, Nebr. Application filed November 22, 1884.
"The coined word 'INJECTINE.'"

LABELS.

4,309.—Title: "BASS' CHICKEN CHOLERA CURE."—*John H. Bass, Sidney Bass*, and *Sidney J. Bass*, Terrell, Tex. Application filed December 18, 1884.

4,310.—Title: "THE REECE BUTTON-HOLE MACHINE SILK."—*Charles Curtis*, Newton, Mass. Application filed December 19, 1884.

4,311.—Title: "ENGLISH LABOR-SAVING SOAP."—*George C. Edwards*, Marysville, Ohio. Application filed December 12, 1884.

4,312.—Title: "LANDRETHS' EXTRA EARLY PEAS."—*Oliver Landreth*, Philadelphia, Pa. Application filed December 19, 1884.

4,313.—Title: "INDIAN CORN CURE."—*Charles E. Lloyd* and *S. Dexter Pilsbury*, Albany, N. Y. Application filed December 24, 1884.

4,314.—Title: "MATHIS' FAMILY LINIMENT."—*Charles B. Mathis*, Toms River, N. J. Application filed December 23, 1884.

4,315.—Title: "SPENCER'S COOLING REMEDY," (FOR BURNING OR SWEATING FEET.)—*E. W. Spencer*, Albuquerque, Territory of New Mexico. Application filed December 23, 1884.

4,316.—Title: "WARNER'S WHITE WINE OF TAR SYRUP."—*O. D. Warner*, Reading, Mich. Application filed December 20, 1884.

DISCLAIMER.

No. 10,226, (Reissue.)—*Thomas B. Davis*, New York, N. Y. Reissue patent dated October 31, 1882. IMPROVEMENT IN SCOOPS. Disclaimer filed January 2, 1885.

Enters his disclaimer to claim 1, which is in the following words, to wit:

1. In a scoop consisting of the body constructed of a single piece of sheet metal, the converging side portions, *a a*, united together by a double lap-joint, *g*, substantially as described.

PATENTS

GRANTED JAN. 13, 1885.

310,550. LIME PAINT. WILLIAM I. ADAMS and WILLIAM R. POLK, Baltimore, Md., assignors to the Baltimore Lime Paint Company, same place. Filed Dec. 11, 1884. (No specimens.)

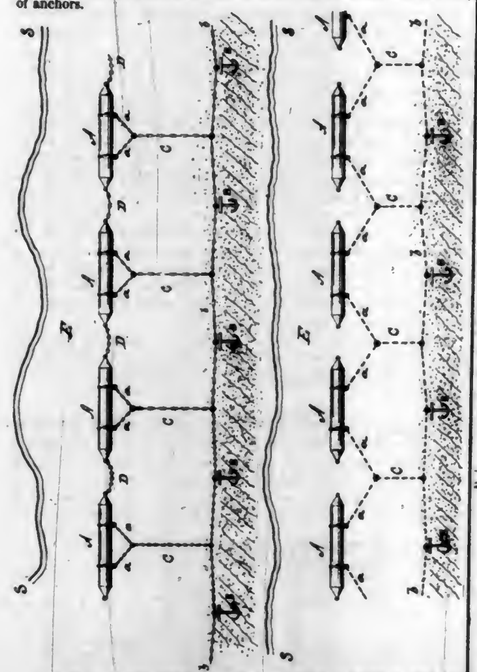
Claim.—1. In a lime paint, the following ingredients: lime, salt, alum, sirup, and a gluey substance, such as glue, gum-tragacanth, &c., as herein set forth.

2. A solution of water, salt, and alum, heated, and while hot applied to the unslaked lime, as herein set forth and specified.

3. A solution of water, salt, and alum, heated, and while hot applied to the unslaked lime, and after or while cooling incorporating the sirup, glue, and gum-tragacanth, and grinding the whole together.

310,551. SEA-BRIDLE. WILLIAM W. AVERELL, Bath, N. Y. Filed Mar. 1, 1884. (No model.)

Brief.—Floating prisms or cylinders arranged in line or in lines in echelon have branch connections to stay-chains of lengths sufficient to assume catenary curves, and secured to a main cable connecting a line of anchors.



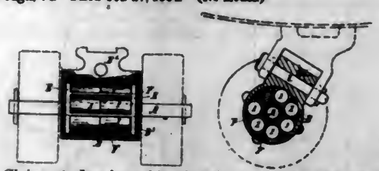
Claim.—1. The combination of a prism or cylinder of buoyant material or construction, an anchor therefor, and main and stay chains or cables, substantially as set forth.

2. The combination of a series of prisms or cylinders of buoyant material or construction, anchors therefor, main and stay chains or cables, and connecting chains or cables, substantially as set forth.

3. The combination of a series of prisms or cylinders of buoyant material or construction arranged in line or lines, the lines being arranged in echelon, anchors, main, stay, and branch chains or cables, substantially as set forth.

4. The combination of a prism or cylinder of buoyant material or construction, an anchor, and a chain or cable, with branch connections connecting the two, and of such length that it always assumes the form of a catenary curve, for meeting the varied forces producing wave motion and diverting the direction of the waves, substantially as set forth.

310,552. JOURNAL-BEARING. CHARLES E. BARRETT, Brattleborough, Vt. Filed Oct. 27, 1884. (No model.)



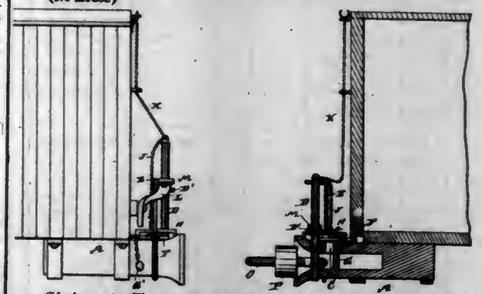
Claim.—1. In a journal-bearing, the combination of a series of anti-friction rollers and a series of radial partitions arranged intermediate between the respective rolls, parallel to the journal-axis, and supported at either end by disks or heads which are revoluble about the axis of the journal, substantially as and for the purpose set forth.

2. In a journal-bearing, the combination, with the journal A, of the bushing-sleeve D, the disks E, revoluble upon said sleeve, and carrying a series of radial partition-plates, F, the supporting-case B, having a cylindrical internal chamber, and the rims of anti-friction rolls I, disposed in the pockets or spaces between the respective plates, and adapted to roll upon the surfaces of the sleeve and casing, substantially as set forth.

3. The case B, provided with close heads or tight-fitting end plates, B', forming a cylindrical chamber adapted for containing oil, in combination with the journal A, anti-friction rolls I, partitions F, disks E, and bushing D, substantially as set forth.

4. The bushing-sleeve D, fitted between head-plates B', and provided with shoulders *d*, the disks E E, carrying the radial partition-plates F, mounted to revolve on said sleeve, and sustained from endwise movement by said shoulders, and the anti-friction rolls I, fitted longitudinally between said disks and laterally between said partition-plates, in combination with the cylindrical supporting-casing B and the journal A, movable within the sleeve, substantially as and for the purposes set forth.

310,553. CAR-COUPLING. DAVID C. BARTON, Rochesport, Mo., assignor to himself and Malcolm D. Lewis, same place. Filed Apr. 22, 1884. (No model.)

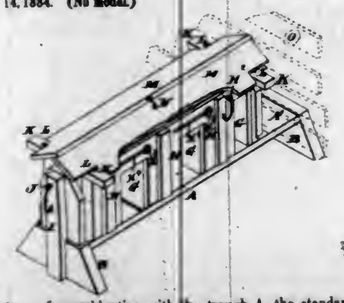


Claim.—1. The combination, in a car-coupling, of the draw-head A and coupling-pin D, formed with a groove, N, with the levers pivoted to the car on either side of the coupling-pin, and forked at their adjacent ends, substantially as set forth.

2. A coupling-link formed of the section Q, and having a slot, *m*, in the inner cross-piece, and the section R, provided on its inner cross-

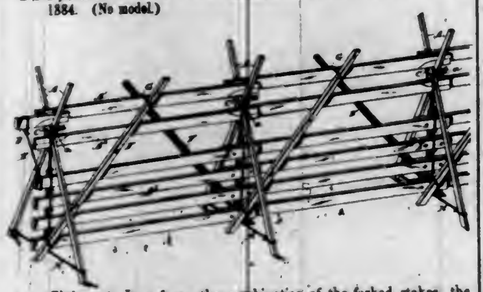
piece with a stem having a cross-piece, *n*, on its end, substantially as herein shown and described.

310,554. FEED-TROUGH. JOSEPH BLATTNER, Highland, Ill. Filed Mar. 14, 1884. (No model.)



Claim.—In combination with the trough A, the standards I, the guard-frame consisting of transverse boards E, longitudinal boards F, connecting the transverse boards, leaving openings G, sliding boards H, having suitable apertures and secured to the longitudinal boards, transverse brackets K, secured horizontally on the top, and inclined boards M, hinged to the brackets to close inwardly and open outwardly, as set forth.

310,555. FENCE. WM. H. BRAYDOBT, Vincennes, Ind. Filed Jan. 3, 1884. (No model.)



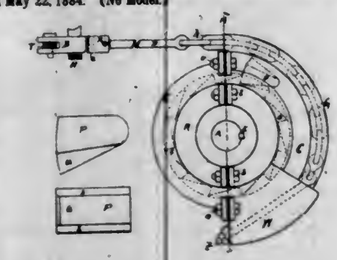
Claim.—1. In a fence, the combination of the forked stakes, the rails secured in the forks thereof, the brace-bars crossing each other and secured to the rails, and the fastenings for connecting the lower portions of the stakes and brace-bars, substantially as and for the purpose set forth.

2. In a fence, the combination of the forked stakes, the upper line of rails, A', the rails suspended between the forks of said stakes, oppositely-inclined and forked brace-bars secured at their forked ends to the rails A', and the fastenings for connecting the lower portion of the suspended rails and inclined brace-bars with the forked stakes, substantially as and for the purpose set forth.

3. In a fence, the combination of the crossed stakes, the rails fitting in the forks thereof, the strip or block fitting in the upper fork and extending beyond the stakes, the fastenings passed through the forks and across the rails and around the strip or block, and diagonal wire E, substantially as and for the purpose set forth.

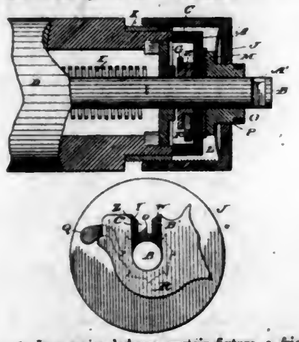
4. A fence composed of the forked stakes, the rails secured in the forks thereof by the fastenings passed through the forks and across the rails therein, the pendent rails suspended by a fastening passed through the fork of the stakes, the brace-bars crossing each other and secured to the rails, and fastenings for connecting the lower portions of the brace-bars and the pendent rails with the forked stakes, the parts being combined substantially as and for the purpose set forth.

310,556. CAR-STARTER. CHAS. B. BROADWELL, New Orleans, La. Filed May 22, 1884. (No model.)



Claim.—In a car-starter, the combination of the ratchet-wheel R, provided with the sunken cogs *c* and flanges *f*, with the counterweighted annular wheel C, and the pawl P, provided with tongue *u* and shoulder *s*, all substantially as set forth, for the purpose specified.

310,557. SPRING-BALANCE CURTAIN-FIXTURE. WM. N. BUCKLEY, Meriden, Conn. Filed Apr. 15, 1884. (No model.)



Claim.—1. In a spring-balance curtain-fixture, a friction device frictionally coupled with the roll, and an eccentric and pawl for automatically coupling the said device with the spindle when the same is free to rotate, substantially as set forth.

2. In a spring-balance curtain-fixture, a friction device frictionally coupled with the roll, means for automatically coupling the said device with the spindle when the latter is free to rotate, a threaded cap fitting over the end of the roll and engaging with a collar secured thereto, and a spring interposed between the cap and the friction device, substantially as set forth.

3. In a spring-balance curtain-fixture, a friction device frictionally coupled with the roll, and means for automatically coupling the said friction device with the spindle when the latter is free to rotate, in combination with a friction device for assisting the actuating-spring in sustaining the shade at any desired elevation, substantially as set forth.

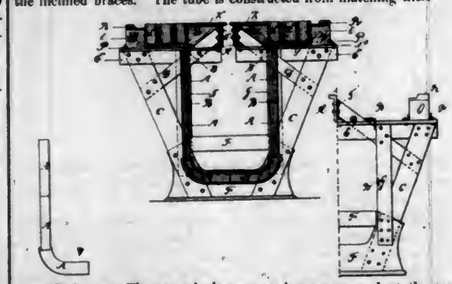
4. In a spring-balance curtain-fixture, a friction-plate journaled upon the spindle and frictionally coupled with the roll, means for automatically coupling the said plate with the spindle when the latter is free to rotate, a friction-disk journaled upon the spindle and rotating with the friction-plate when the shade is winding, and means for sustaining the disk in a fixed position with respect to the plate when the shade is unwinding, or at rest, substantially as set forth.

5. In a spring-balance curtain-fixture, a combined friction-disk and ratchet-wheel, a cap fitting over the end of the roll and provided with an aperture through which the ratchet-wheel projects, and a pawl located upon the inner face of the bracket of the fixture and engaging with the ratchet-wheel, for preventing the disk from rotating while the shade is unwinding or at rest, substantially as set forth.

6. In a spring curtain-fixture, a spindle having slots of unequal depth formed in its opposite faces and within its end, and a bracket provided with shoulders conforming to the slots in the spindle, substantially as set forth.

310,558. CABLE OR ELECTRIC RAILWAY YOKE OR FRAME, &c. CHESTER BULLOCK, New York, N. Y. Filed Sept. 11, 1884. (No model.)

Brief.—The tube-yokes consist of a cast base having vertical and inclined wrought braces extending therefrom to a horizontal plate, and a diagonal brace extending downward and outward from each slot-iron to the inclined braces. The tube is constructed from matching tiles.

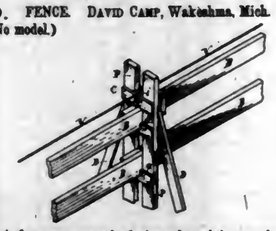


Claim.—1. The wrought-iron or steel posts secured at the top to wrought-iron or steel plate, with brace extending from post C across post G and plate E to slot-rail, in combination with cast-iron base or bottom, to form a yoke or frame for tube or conduit for cable or electric railways, as described, and for the purpose set forth.

2. The bars B, that extend from one yoke or frame to another yoke or frame when they are in place, in combination with tile forming and lining the bottom and sides, or either, of a tube or conduit for cable or electric railway, as shown, and for the purpose set forth.

3. The tile in combination with a yoke or frame in forming a tube or conduit for cable or electric railway, as described, and for the purpose set forth.

310,559. FENCE. DAVID CAMP, Wakeshma, Mich. Filed Mar. 13, 1884. (No model.)



Claim.—A fence composed of cleated upright standards with base-bars and side braces, rails, or boards, the ends thereof resting on the cleats of said standards, and clamps consisting of center blocks thinner than the standards, side pieces, and tension-bolts passed through said side pieces, and block for clamping the side pieces against the standards to hold the clamps pressed down on the top boards or rails, and a top wire connecting the clamps, all substantially as set forth.

310,560. PREPARATION OF A FLUID FOR MAKING WATER-REPELLENT FABRICS. ABRAHAM B. COWGER, New York, N. Y. Filed Sept. 10, 1881. Renewed June 20, 1884. (No specimens.)

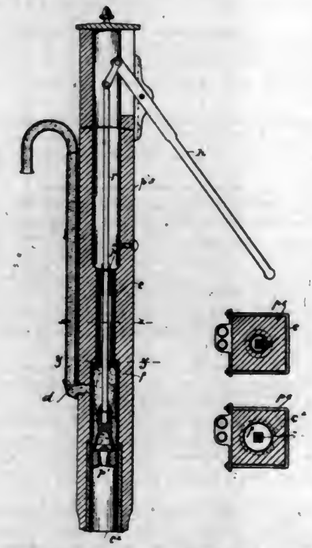
Claim.—1. The process of making a rapid solution of caoutchouc or other elastic gum in naphtha or other mineral oil by softening the gum previously to its being put in the oil, as above described and set forth.

2. The process of treating the solution of caoutchouc or other elastic gum (previously softened) and paraffine or other wax in naphtha or other mineral oil with chlorine gas, as above described and set forth.

3. The treatment of the solution of caoutchouc or other elastic gum and paraffine or other wax with the vaporized gases of nitric or muriatic acids chemically pure, as above described and set forth.

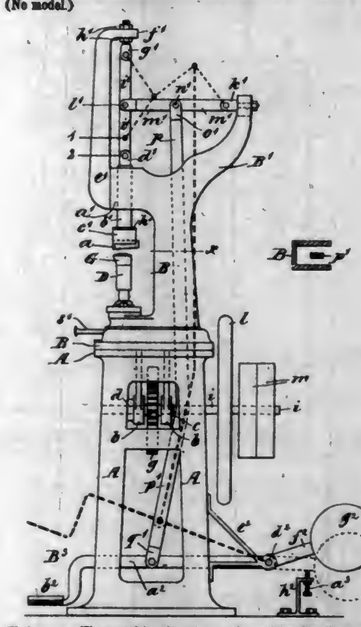
4. The process for the complete deprivation of the caoutchouc or other elastic gum of its viscous and resinous ingredients, of the other hydrocarbons employed of all trace of any oleaginous property, and for the rendering of the solution incapable of discoloration or other injury to the fabrics to be treated, as above described and set forth.

310,561. FORCE-PUMP. GEO. W. COONSE, Indianapolis, Ind. Filed May 23, 1884. (No model.)



Claim.—The pump-stock *p s*, having differential bores adapted to receive metal cylinders of different sizes, the cylinders *c* and *c'*, the upper bucket, *p'*, lower bucket, *p*, the pump-rod on which both buckets are mounted, and the loose valve *f*, adapted to rise and fall on the rod between the two cylinders, all combined substantially as described.

310,562. MACHINE FOR NAILING ON THE HEELS OF BOOTS AND SHOES. LOUIS COTÉ, St. Hyacinthe, Quebec, Canada. Filed Sept. 20, 1884. (No model.)



Claim.—1. The combination, in a sole and heel nailing machine, of the standard D, provided with plunger E, having projections L, and the rod F, head G, having nail-receiving holes H, said holes also receiving and guiding said projections L, as shown and described, follower-block *a*, slide-bar *a'*, toggle-joints *i' i''*, and *s* device for actuating the said toggle-joint by means of a treadle, B^3, and counterbalance-weight g^3, with said treadle B^3, and counterbalance-weight g^3, as described, the whole constructed and arranged substantially as shown and described.

2. The combination, in a sole and heel nailing machine, of the standard D, provided with plunger E, having projections L, and the rod F, head G, having nail-receiving holes H, said holes also receiving and guiding said projections L, as described, follower-block *a*, slide-bar *a'*, toggle-joints *i' i''* and *m' m''*, connecting-rod *p'*, and treadle B^3, the whole constructed and arranged substantially as shown and described.

3. The combination, in a sole and heel nailing machine, of the standard D, provided with plunger E, having projections L, and the rod F, head G, having nail-receiving holes H, said holes also receiving and guiding said projections L, as shown and described, follower-block *a*, toggle-joints *i' i''* and *m' m''*, connecting-rod *p'*, treadle B^3, and counterbalance-weight g^3, the whole constructed and arranged substantially as described and shown.

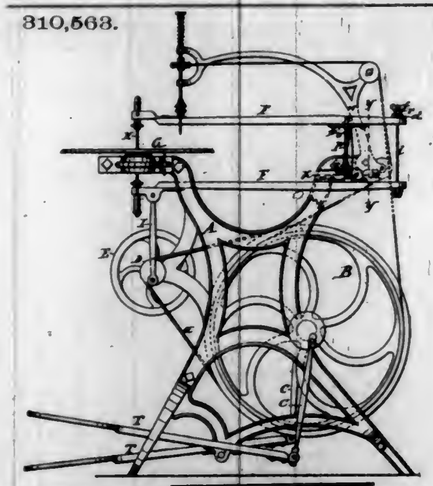
310,563. SCROLL-SAWING MACHINE. ADELBERT S. DAVIS, Seneca Falls, N. Y. Filed Oct. 20, 1884. (No model.)

Claim.—1. In combination with the main frame A and saw-frame F F, the post P, rigidly attached to the frame A, plates attached to the saw-frame, and connected with the post by bifurcations on either the plates or post, said bifurcations embracing the other of said parts, and pivots passing through the bifurcations and engaging opposite sides of the embraced part and arranged adjustably endwise to take up the wear of the pivots and adjust the frame F in its position, substantially as specified and shown.

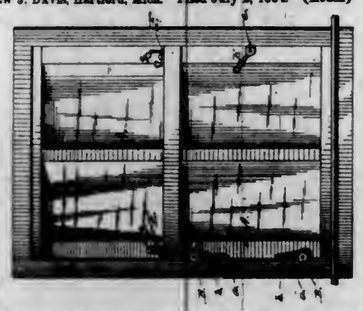
2. The combination, with the saw-frame and its supporting-post *p*, the plates *m m*, pivoted on the post and provided with slots 1 1, and attaching-screws 2 2, passing through said slots, substantially as described and shown.



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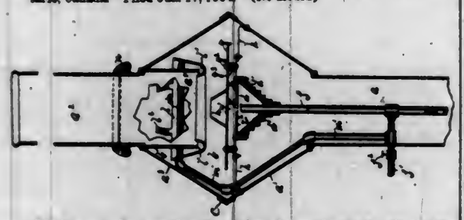
310,564. COMBINED SASH-HOLDER AND WEATHER-STRIP. ANDREW J. DAVIS, Hartford, Mich. Filed July 2, 1884. (Model.)



Claim.—1. A combined window-sash lock, stop, and weather-strip consisting of the sash A, provided with the springs *b*, rollers B, weather-strip D, bearing E, having roller *e*, and the lock F, the several parts being constructed and arranged substantially as and for the purpose specified.

2. The sash A, having slots *a* and vertical groove C, and provided with the springs *b*, carrying the rollers B, weather-strip D, lever E, having roller *e*, and lock F, in combination with the screw head or lug *g* upon the upper sash, substantially as and for the purpose specified.

310,565. SPARK-EXTINGUISHER. ISAAC DEYELL, St. Thomas, Ontario, Canada. Filed Jan. 17, 1884. (No model.)



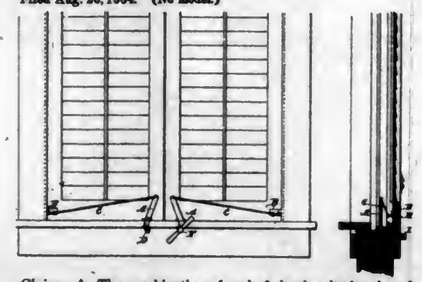
Claim.—1. In a spark-extinguisher for smoke-stacks, the steam-receptacle *d*, and cap *e*, provided with the opening *e'*, the cap *e* so arranged thereon as to leave the annular space *a'*, the disk *g*, provided with the central opening, *g'*, and the passage *h*, surrounding the opening *g'*, all combined and operating in connection with the steam-supply pipe *f*, substantially as shown and described.

2. In a spark-extinguisher, the deflector *l*, having the annular curved bottom and the perforated steam-pipe *m*, in combination with the extension a^4 in the smoke-stack, substantially as and for the purpose stated.

3. In a spark-extinguisher, the disk *g*, in combination with the deflector *l l'*, the perforated steam-pipe *m*, and the extension a^4 of the portion a^3 of the smoke-stack, substantially as and for the purpose stated.

4. The spark-extinguisher consisting of the steam-receptacle *d*, its pipe *f*, and its cap *e*, having the opening *e'*, the disk *g*, its central opening, *g'*, and its passage *h*, the deflector *l*, with its annular curved bottom *l'*, the perforated pipe *m*, with the supply-pipe *m'*, and the extension a^4, the whole combined and arranged within the chamber *b* of the smoke-stack, substantially as shown and described.

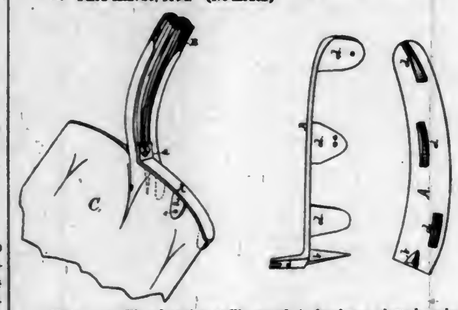
310,566. SHUTTER-WORKER. JULIUS AARS DYBLIE, Cummings, Ill. Filed Aug. 26, 1884. (No model.)



Claim.—1. The combination of a shaft having its bearings in the window-frame and provided with an arm, a bracket which is secured to the blind on its inner side, and a connecting-rod connecting the bracket with the arm of the shaft, and means for rotating said shaft, substantially as described.

2. The combination of the shaft D, having a beveled end, double cap E, arm A, secured to said shaft, a spring, K, bracket B, secured to the blind, connecting-rod C, and catch H, substantially as described.

310,567. SHOVEL STEP OR GUARD. KING H. ELLIOTT, Burlington, Vt. Filed Mar. 29, 1884. (No model.)



Claim.—1. The shovel metallic guard A, having a slotted projecting end, *a*, for securing it to the shovel-handle B, the metallic point *b*, designed to be driven into the wooden base of the handle, and the alternate projections *d*, to prevent its lateral movement, substantially as described.

2. The combination, with a shovel-blade, of the removable step or guard A, secured to the handle by means of a screw or bolt, *f*, and point *b*, and to the blade C by the alternate projections *d*, substantially as set forth.

310,568. MEDICAL STILL OR VAPOR-GENERATOR. LOWELL M. EMERY, Leavenworth, Ind., assignor of one-half to Gershom T. Craven, Cincinnati, Ohio. Filed June 13, 1883. (No model.)

Claim.—1. In a medical still or vapor-generator, the boiler A, having the central elevated dome, *a'*, above and surrounding water-table *a''* below the water-line, substantially as set forth.

2. In a medical vapor-generator, the combination, with water-table *a''*, of the distilling-vessels H, partly immersed in said water-table, substantially as set forth.

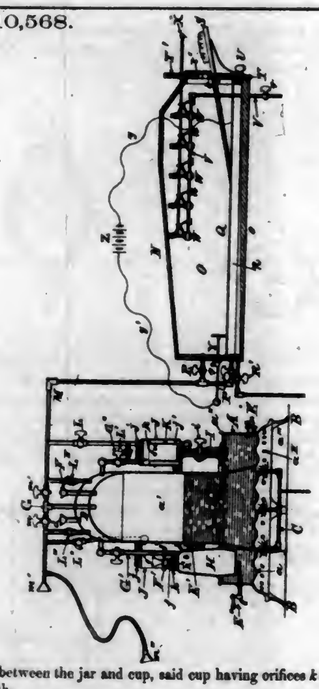
3. In a medical vapor-generator, the combination, with water-table *a''*, of the stand-pipes I from said table surmounted by the jars or digesters J, as and for the purposes set forth.

4. In a medical vapor-generator, the mixing-chamber D, surmounting the boiler-dome *a'*, communicating with the stills proper, H, by pipes having cocks G, with the digesters J by pipes having cocks G'', and with the vapor-service pipe M by pipes having cocks L''' L'', substantially as set forth.

5. In a medical vapor-generator, the combination of the vapor-service pipe M, having cocks *m m'*, the dome *a'*, having a mixing-chamber, pipe G, connecting boiler-dome to the service-pipe between the cocks, and pipes having cocks L'' L''', connecting mixing-chamber to service-pipe, the service-pipe adapted to connect in one direction with an inhaler and in the other direction with a bath, as set forth.

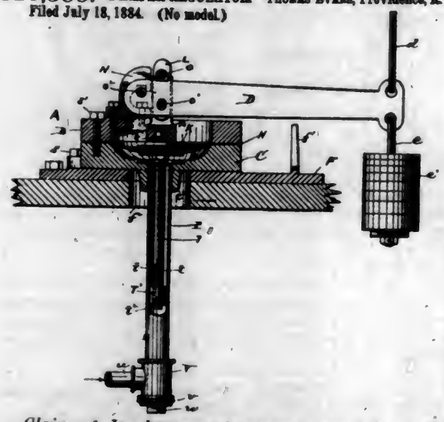
6. In a medical vapor-generator, the combination of jar J and cup K, fixed concentrically within the jar forming an enveloping interstice or

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jacket between the jar and cup, said cup having orifices *k* near its top, as set forth.

310,569. DAMPER-REGULATOR. THOMAS EVANS, Providence, R. I. Filed July 18, 1884. (No model.)



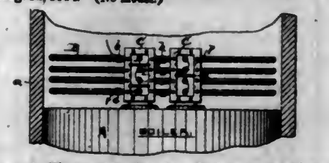
Claim.—1. In a damper-regulator having a recessed base, a diaphragm with its disk, and means for connecting the same with the weight-lever, the combination therewith of the tube P, secured to said base, provided with a piston secured to the rod T, working in said tube, and means, substantially as described, for admitting and adjusting the flow of water or other liquid within the tube.

2. The combination, in a damper-regulator provided with a depending tube inclosing a piston and rod attached to the diaphragm, of the lever D, fulcrumed and connected by means of links L and holder M, substantially as shown and described, whereby the disk *k* is adapted to move in a vertical line.

3. In a damper-regulator provided with the tube P and perforated rod T, the loosely-fitting piston T', having an adjusting-screw, t^3, whereby the water or other liquid is contracted in its passage to and from the diaphragm-chamber, substantially as shown, and for the purpose set forth.

4. The damper-regulator herein described, consisting of the base P, chambered plate C, annular ring B, provided with stops *s* and fulcrum-support N, in combination with the diaphragm H, disk K, holder M, and lever D, mounted as shown, and means, as described, for admitting water under the diaphragm into the chamber *c*, as and for the purpose set forth.

310,570. FEED-WATER HEATER. THOMAS EVANS, Providence, R. I. Filed Aug. 12, 1884. (No model.)

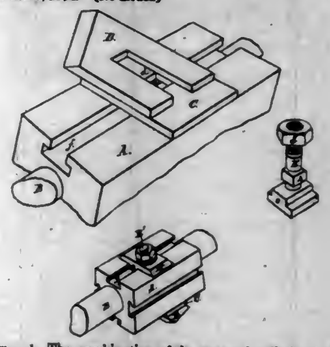


Claim.—1. The combination, in a feed-water or other analogous heater composed of heads having tubes secured thereto, means for admitting water into the heater, and suitable outlets therefor, of one or more plates or partitions adapted to be removably secured within each head, substantially as shown, and for the purposes set forth.

2. The feed-water heater for upright boilers herein described, consisting of heads C, tubes B, connecting the heads, means for admitting and exhausting the heated water, and means, substantially as shown, for dividing the heads into chambers, substantially as shown, and for the purpose set forth.

3. In a feed-water heater, the head C herein described, having suitable bosses and nozzles, and further provided with internal grooves, *p*, between the tubes, said grooves adapted to receive plates P, the whole combined and arranged substantially as shown and set forth.

310,571. CUTTER-HEAD. THOMAS FITZSIMMONS, Burlington, Vt. Filed Oct. 3, 1884. (No model.)



Claim.—1. The combination of the grooved cylinder A, the slotted cutter D, with the plate C, having a rectangular opening, *a*, and coupling-bolt E, having the rectangular projection *h* and nut *g*, substantially as shown and described.

2. The combination of the grooved cylinder-head, and a plate and cutter applied thereto, with the coupling-bolt E, having its head *e* formed to fit the groove *f* in the cylinder A, and the rectangular projection *h*, to fit the aperture *a* in the plate and slot *d* in the cutter, substantially as and for the purpose described.

310,572. FLOUR-BOLT. JAS. C. FRAZER, Vassar, Mich. Filed Feb. 14, 1884. (No model.)

Claim.—1. In a flour-bolt, the combination of a horizontal reel, an inclosing-casing, a horizontal shaft, one end of which projects in front of the end of the casing, a driven friction-wheel mounted upon the projecting end of the horizontal shaft, and a friction driving-wheel rotating in a plane at right angles to the plane of the driven wheel and engaging with the driven wheel, substantially as set forth.

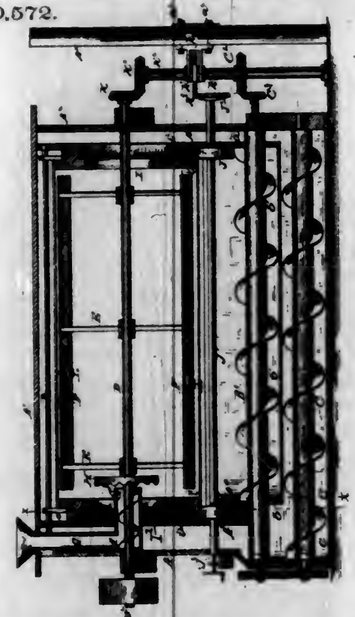
2. In a flour-bolt, the combination of a horizontal reel, an inclosing-casing, a horizontal shaft, one end of which projects in front of the end of the casing, a driven friction-wheel mounted on the horizontal shaft and rotating in a vertical plane, and an adjustable friction driving-wheel rotating in a plane at right angles to the plane of the driven wheel and engaging with the driven wheel, substantially as set forth.

3. In a flour-bolt, the combination, with a horizontal shaft, one end of which projects in front of the inclosing-casing, of a slotted standard at right angles to the horizontal shaft, and a friction driving-wheel mounted on the slotted standard and adjustable relatively to the driven wheel, substantially as set forth.

4. In a flour-bolt, the combination, with the horizontal shaft, one end of which projects in front of the casing, of a driven friction-wheel mounted on the projecting end of the horizontal shaft, and a friction driving-wheel mounted on an axle at right angles to the horizontal shaft, and adjustable on a line at right angles to the horizontal shaft, substantially as set forth.

5. The combination, in a flour-bolt, of the beater-shaft, the vertical

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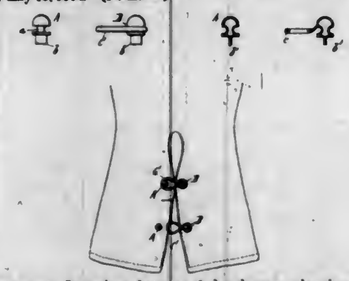


shaft driven by the beater-shaft, the friction driving-wheel rotated by the vertical shaft, the supporting and driving wheels mounted on a horizontal shaft, and the vertical wheel mounted upon said shaft and engaging with the friction driving-wheel, substantially as set forth.

6. In a flour-bolt, the combination, with the rotatory reel, of a friction driving-wheel rotating in a plane parallel with the axis of the reel, a driving-wheel rotating in a plane at right angles to the friction driving-wheel and connected with the rotatory reel, and means for engaging and disengaging the friction-wheels, substantially as set forth.

7. In a flour-bolt, the combination of a rotatory shaftless bolt, a friction driving and supporting wheel mounted on a shaft below the bolt, a wheel attached to and carried by said shaft, a friction driving-wheel, and means for engaging and disengaging the friction-wheels, substantially as set forth.

310,573. GLOVE-FASTENER. WALTER S. FROST, London, England. Filed May 13, 1884. (No model.)



Claim.—1. In a glove-fastener of the character herein set forth, the solid stud arranged to be secured on one side of the wrist-opening, and to receive the loop as explained, said stud having the rounded top and circumferential groove, the upper surface of which is made flat for the purpose of bearing down upon the loop, the same being combined with a metallic loop, substantially as shown and for the objects named.

2. In a glove-fastener of the character herein set forth, the herein-described loop rigidly connected with the stud, by which it is secured upon one side of the wrist-opening, said loop being arranged to engage in the circumferential groove in the stud upon the opposite side of the wrist-opening, substantially as shown and described.

3. The herein-described glove-fastener, composed of a stud having a rigid loop applied therein, and a second stud having a rounded top and circumferential groove, the upper surface of said groove being made flat and arranged to bear upon the loop in the manner explained, so as to prevent tipping, the whole being applied, arranged, and combined substantially as shown and described.

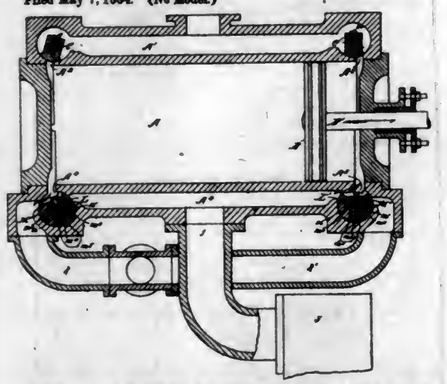
310,574. SPINNING-TOP. CHARLES H. FRY, JR., Wheeling, W. Va., assignor of one-half to Charles M. Rhodes, Bridgeport, Ohio. Filed June 19, 1884. (No model.)



Claim.—1. In a gyroscopic top, the combination, with the body having a screw-threaded neck at its upper end, of the screw-threaded cap adapted to fit thereon, and having a central opening, and the sleeve swiveled therein, in which the spinning-cord is held, substantially as specified.

2. A gyroscopic top constructed of glass or earthenware, having an externally screw-threaded neck, and a screw-threaded cap fitting thereon, and an opening in which is swiveled the end of a spinning-cord, substantially as specified.

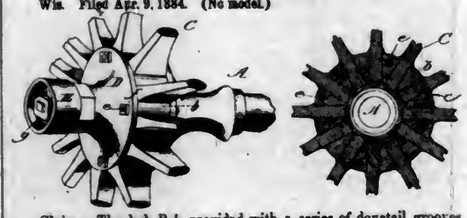
310,575. CONDENSING-ENGINE. FRANK A. GALE, Lowell, Mass. Filed May 7, 1884. (No model.)



Claim.—1. In an engine, the combination of the cylinder having an eduction-port, two exhaust-steam-conducting pipes, a two-way valve adapted to connect either of said pipes with said eduction-port, and automatic means, substantially as described, for operating said valve, as and for the purpose specified.

2. The combination of the rocking plates, the pawl-rod, and the bent pawl pivoted thereto, the spring-stud, the three-armed lever provided with pivoted guide-studs, the dash-pot connected to said lever, the crab-claw and its rod, the knock-off, and the two-way valve, as and for the purpose specified.

310,576. VEHICLE-HUB. PETER GILLEN and MICHAEL LINK, Kenosha, Wis. Filed Apr. 9, 1884. (No model.)

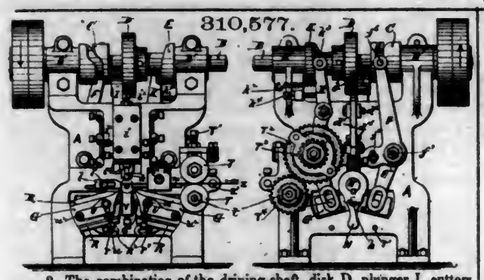


Claim.—The hub B *b*, provided with a series of dovetail grooves, in combination with spokes C, tapered on their lower ends, as at *c d*, disk D, inclined upon its inner face, cap or collar E, and bolts *e*, passed through the disk and hub, as set forth.

310,577. RING-TRAVELER MACHINE. ROBERT J. GILMORE, Providence, R. I. Filed Sept. 24, 1883. (No model.)

Claim.—1. The combination of the driving-shaft, disk D, plungers I *k*, pivoted lever *d'*, arbor H', and former *s*, the parts being connected and operated substantially as described, and for the purposes set forth.

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2. The combination of the driving-shaft, disk D, plunger I, cutters i^3, pivoted lever *d'*, arbor H', and former *s*, substantially as described, and for the purposes set forth.

3. The combination of the driving-shaft, disk D, plungers I *k*, pivoted lever *d'*, cutters i^3, arbor H', and former *s*, substantially as described, and for the purposes set forth.

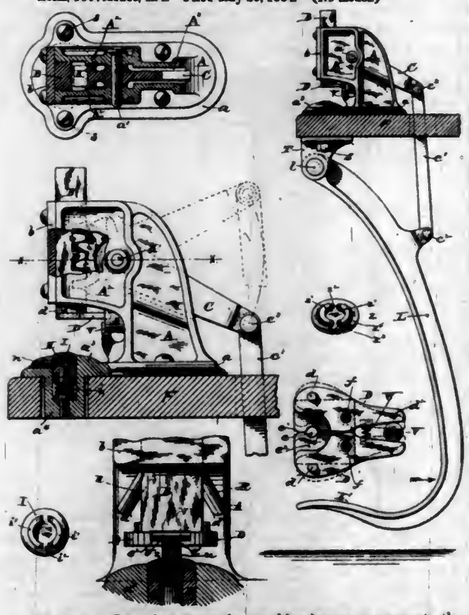
4. The combination of a frame, A, a driving-shaft, B, two pivoted and adjustable shapers, U, sliding blocks or holders G, toothed levers F^4, having arms F^2, a lever, F, the cam C, secured to the shaft B, and the feeding and cutting-off means, all substantially as shown and described.

5. In a machine for making ring-travelers, the combination, substantially as hereinbefore set forth, of bending-shapers U, mounted, arranged, and connected as described, the means for automatically feeding and cutting off a length of stock, and the means, as described, for connecting the plunger I and supplemental yielding plunger *k* with the driving-shaft B, substantially as shown.

6. The combination of the disk D, having an eccentric groove formed in its face, said groove being provided with ring D', the pin d^2, plungers I *k*, and former *s*, said disk being fixed to the shaft, substantially as described, and for the purposes set forth.

7. The holder H', mounted in the frame A, and the former *s*, in combination with the slotted lever H, secured to said holder, and the screw *h*, whereby the former *s* is adapted to be radially adjusted, substantially as shown and set forth.

310,578. MACHINE FOR ATTACHING BUTTONS. ROBERT J. GILMORE, Providence, R. I. Filed May 30, 1884. (No model.)



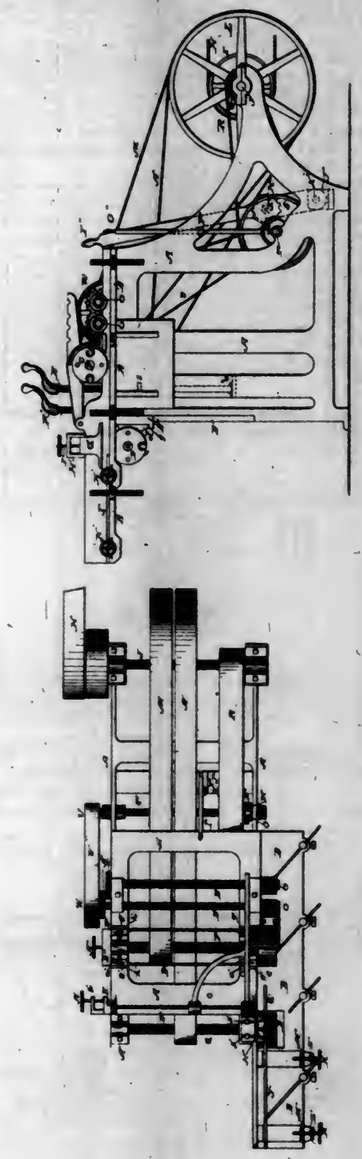
Claim.—1. In an instrument for attaching buttons to garments, the combination of the vertically-working plunger and its operating-lever and treadle, the recessed jaws pivoted to the lower end of said plunger, the spring located between their rear ends, and the inclined ribs for pressing said rear ends together when the plunger is in a normal position, substantially as and for the purpose specified.

2. The combination, with the plunger and its operating-lever and the recessed jaws, of the inclined ribs and the angular projection, arranged, as described, to open and close the jaws, substantially as and for the purposes specified.

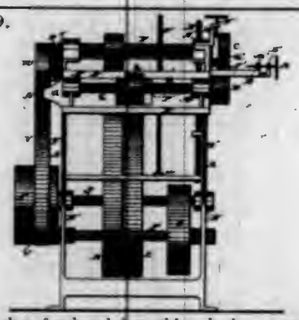
3. The combination, with the plunger and its operating-lever, the recessed jaws, inclined ribs, and angular projections, of the die supported in a boss, and having a concave surface adapted to receive the button-fastener and deflect and fasten the prongs of the button, substantially as specified.

310,579. SASH AND DOOR-STICKER. JOHN H. GLOVER, Oshkosh, Wis., assignor of one-half to Robert McMillen, same place. Filed Aug. 12, 1884. (No model.)

Claim.—1. In that class of sash and door stickers having an upper and lower cutting-head adapted to simultaneously groove both edges of the stuff, the combination of the stationary bracket or ways H', adjusting-screw I', and guide G', said guide being adjusted by said screw to enter the groove formed by the upper cutter-head, horizontal adjusting-screws K' K', brackets L', lugs M', and guide J', said guide J' being adjusted by said screws K' K' to enter the groove formed by the lower cutting-head, as set forth.



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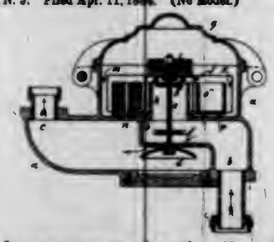


2. In that class of sash and door stickers having an upper and a lower cutting-head, the device for producing the vertical adjustment of the table and lower cutting-head, consisting in the combination, with the frame A, having seat *a*, of the adjusting-screw E, supported in said seat, vertically-adjustable table B, yoke B″, movable vertically on ways D″ D″, and ways D″ D″, substantially as and for the purpose specified.

3. In that class of sash and door stickers having an upper and a lower cutting-head, the device for producing the horizontal adjustment of the lower cutting-head, consisting in the combination, with the vertically-moving yoke B″ and retaining-ways D″, of the slide *d*, supported in horizontally-arranged ways in said yoke B″, journal-boxes A″ A″, affixed to said slide *d*, shaft G, and lower cutting-head, D, substantially as and for the purpose specified.

4. The combination, with the stationary frame A, upper cutting-head, C, mounted upon a shaft operating in fixed journal-boxes upon said frame, table B, adjustable vertically relatively to said frame by screw E, to support the lower edge of the stuff, rigidly affixed bracket H′, adjusting-screw I′, and guide G′, adjustable by said screw I′, to hold the upper edge of the stuff, lower cutting-head, D, supporting-shaft G, journal-boxes A″ A″, horizontally-moving slide *d*, and vertically-moving yoke B″, operating in vertical ways D″, said slide *d* and yoke B″ serving to produce the required horizontal and vertical adjustment of said lower cutting-head to conform to the thickness and width of the stuff, whereby both edges of the stuff may be simultaneously operated upon, all substantially as and for the purpose set forth.

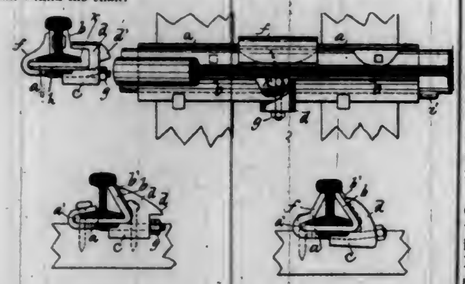
310,580. AUTOMATIC GAS-GOVERNOR. MICHAEL O. GORMAN, Jersey City, N. J. Filed Apr. 11, 1884. (No model.)



Claim.—In a gas-pressure regulator, the guide *g*, placed in the top of dome *h*, and guide *f* in the chamber *b*, in combination with the valve-stem *e* and case *a*, substantially as and for the purpose specified.

310,581. RAILWAY-RAIL JOINT, CHAIR, AND SPLICE. WILLIAM F. GOULD, Des Moines, Iowa. Filed Aug. 11, 1883. (No model.)

Brief.—A railroad chair or splice which may be slipped laterally under the ends of a rail, only engaging the flat-bottom flange and the under side of the ball, but not the web of the rail. Said chair also has a single projection in its angle to engage a notch in the flange of the rail within the chair.



Claim.—1. A railway chair and truss consisting of the horizontal portion *a*, having a turned-up edge *a′*, that is adapted to engage the under side of the edge of the flange of a rail, but not the upper side of the same edge, and the vertical extension *b*, that is adapted to engage the edge of the flange of the rail, and the under side of the ball of the rail without coming in contact with the web of the rail, and adapted as a complete device to be moved laterally and placed under the abutting ends of two rails, or a broken rail, to connect and maintain the balls of the two rails even while the flat bottoms of the same ends may be uneven, as and for the purposes stated.

2. In a railway-joint, the jaw *c d*, having a projection, *d′*, in combination with a screw clamp and nut, *g*, substantially as and for the purposes set forth.

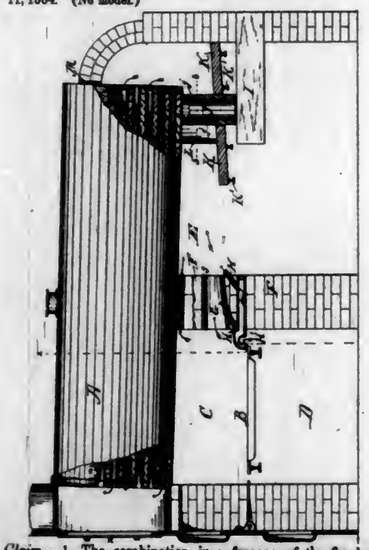
3. A railway-chair adapted to slide laterally under the abutting ends of rails to engage their flat bottoms, and also their balls on one side, a jaw adapted to extend under the horizontal portion of the chair, and also partly over the vertical part of the chair, and a clamp adapted to extend through the jaw and under the chair, and to overlap the flanges of the rails without extending vertically to the balls of the rails, arranged and combined in a railway-track as illustrated in Figs. 1 and 3, for the purposes specified.

4. A railway-chair adapted to slide laterally under the abutting ends of rails to engage their flat bottoms, and also their balls on one side, a jaw adapted to extend under the horizontal portion of the chair, and also partly over the vertical part of the chair, and a clamp adapted to extend through the jaw at its horizontal end, and to the ball of the rail at its vertical end, arranged and combined in a railway-track as illustrated in Figs. 2 and 4, for the purpose specified.

5. The improved railway joint and track composed of a chair formed complete in one piece, having a vertical portion adapted to engage the under sides of the T-heads of two abutting rails and also the top edges of their flanges, a screw-clamp, *f*, a jaw, *c d*, and one or more crossties, substantially as shown and described.

6. In a railway-joint, the combination of a railway-chair, *a b*, adapted to slide laterally under the abutting ends of two rails, and having a single projection, *k*, in its angle, a rail having a notch in its flange to admit the projection *k*, and a second rail abutting against the first within the chair, substantially as shown and described, to operate in the manner set forth, for the purposes specified.

310,582. FURNACE. GEORGE GULKESON, Chicago, Ill. Filed Aug. 11, 1884. (No model.)



Claim.—1. The combination, in a furnace, of the fire-box C with ash-pit D, combustion-chamber E, bridge-wall F, provided with egg-shaped tapering ports G G, extending through said bridge-wall, and having their larger ends turned outward, so as to distribute the heat to the sides of the boiler, and an air-passage leading from the ash-pit through the bridge-wall into the combustion-chamber at or near the mouth of said ports G G, substantially as specified.

2. The combination, in a furnace, of the fire-box C with ash-pit D, combustion-chamber E, bridge-wall F, provided with ports G G, convoluted air conductor and heater H′, projecting from the bridge-wall into the fire-box, and air-passages H, leading from said heater-passage H′ into the combustion-chamber near the ports G G, substantially as specified.

3. The combination, with the fire-box, ash-pit, and combustion-chamber, of the bridge-wall between the same, ports G G, a curved air-heater passage or casting projecting into the fire-box and leading from the ash-pit to the combustion-chamber at the mouth of said ports G G, and a deflecting-plate, K, located in the rear part of the combustion-chamber, to direct the heat and flame against the boiler, substantially as specified.

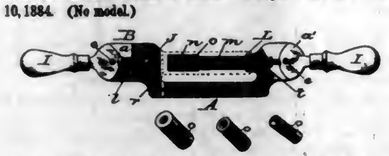
4. The combination, with the fire-box, ash-pit, and combustion-chamber, of the boiler, mud-drum, and connecting-pipe, said pipe being provided with an asbestus covering, and a deflecting-plate located above said mud-drum, substantially as specified.

5. The combination, with the fire-box, ash-pit, and combustion-chamber, of the boiler, mud-drum, and connecting-pipe, said pipe being provided with an asbestus covering, and a deflecting-plate located above said mud-drum, and a wedge-shaped hood or deflector, L, located in front of said connecting-pipe, to divide the flame and shield the pipe, substantially as specified.

6. The combination of fire-box C, ash-pit D, combustion-chamber E, bridge-wall F, passages or ports G G, leading through the same, and provided with asbestus lining *g*, air-heater casting or passage H′, projecting into the fire-box, and air-passage H, leading therefrom to the combustion-chamber, substantially as specified.

7. The combination of grates B, fire-box C, ash-pit D, combustion-chamber E, bridge-wall F, and hollow tail-block H′, projecting over the ends of the grate-bars into the fire-box, its hollow space communicating with the ash-pit and combustion-chamber for the purpose of conveying superheated air into the latter, substantially as specified.

310,583. IMPLEMENT FOR CAPPING AND UNCAPPING CARTRIDGE-SHELLS. GEORGE W. HADLEY, Chicopee Falls, Mass. Filed Oct. 10, 1884. (No model.)



Claim.—1. The herein-described implement for capping and uncapping cartridge-shells, consisting of the body A, having the shoulders or projections B and B′, formed integral therewith, the shoulder B having a recess, *r*, in its face, with the spring-punch J, and operating-cam *a*, mounted in said shoulder, and the pivoted stud L, carrying the spring-punch *m*, and its operating-cam *a′*, being pivoted to the shoulder B′, said parts being arranged to operate substantially as shown and described.

2. In combination with the pivoted stud L, provided with a shoulder near its free end, the detachable tube *o*, arranged to have its outer end project beyond the end of the stud L, to form a recess to receive the inwardly-projecting pocket of the shell and form a firm support for the head of the shell while the cap is being pressed into the pocket thereof, substantially as described.

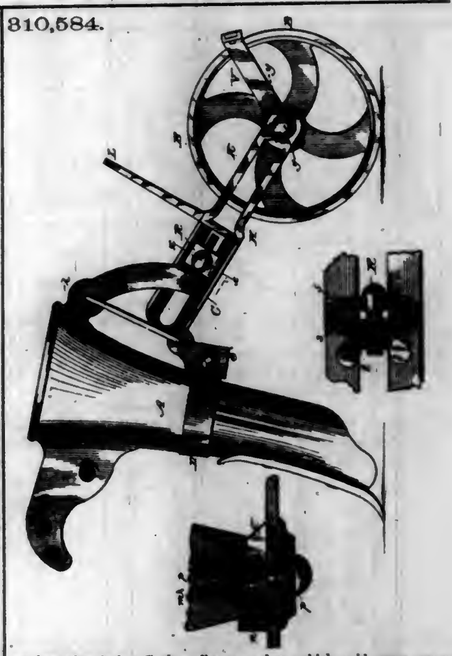
310,584. SEED-DRILL. JOHN HAMILTON, State College, Pa. Filed Jan. 31, 1884. (No model.)

Claim.—1. In a seed-drill, the combination, with the drill-tooth, of band D, provided with a lug, the plates *e*, between which the ends of said strap are secured, the main bar C, provided with lip *e′*, the connecting-rod F, and the lever-brace G, provided with arms *i*, which embrace the lug *h*, as and for the purpose described.

2. The combination, with the drill-tooth, of the lever-brace G, its upper end provided with arms *i*, by which it is secured to the lug *h* of the drill-tooth, its lower end slotted to form arms embracing the upper



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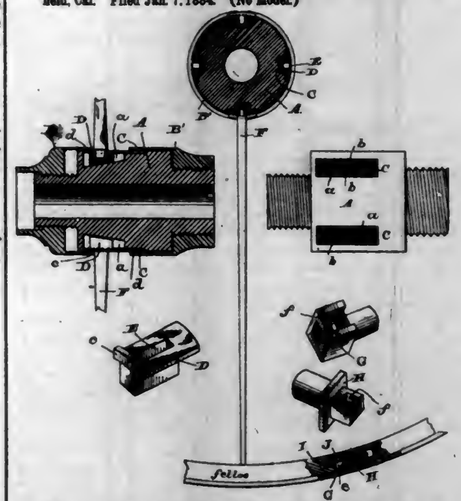


portion of main bar C, the roller or rod to which said arms are connected, the main bar C, the clamp R, composed of the serrated plates *s*, and the thumb-screw *t*, for controlling the backward movement of the lever-brace within the slot of the main bar, substantially as described.

3. The combination, with the main bar, of the frame H, provided with the shields *n*, and the cleaner V, adjustable on said shields, substantially as described.

4. The adjustable cleaner V, provided with a slot, *y′*, in combination with the axle-bolt *p* and the slotted shield *n*, whereby an arm of the said cleaner is supported and adjusted on said bolt and shield, substantially as described.

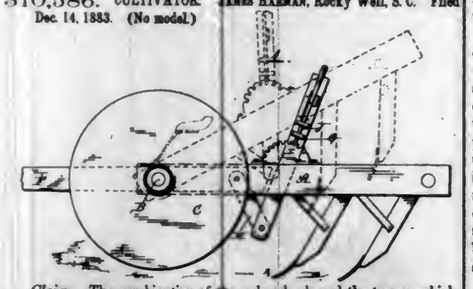
310,585. WHEEL FOR VEHICLES. WILLIAM H. HARDING, Springfield, Cal. Filed Jan. 7, 1884. (No model.)



Claim.—1. In a vehicle-wheel, the axle-box A, having slots or recesses C, with beveled bottoms, and adapted to receive the spoke-boxes D, in combination with the screw caps or bands B B′, substantially as shown, for the purpose set forth.

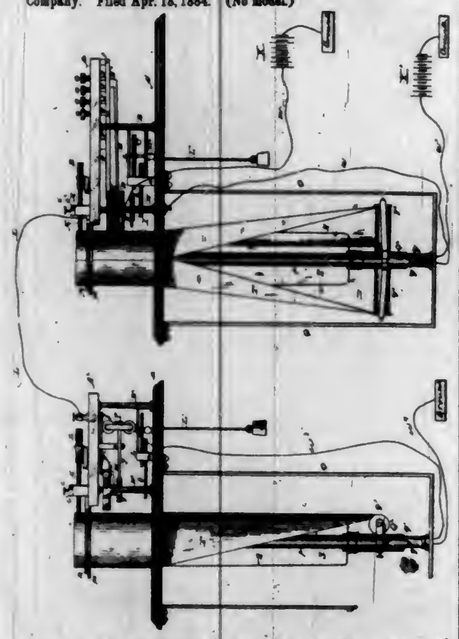
2. In a vehicle-wheel, the combination, with the sections of the felly, of the screw-boxes G H and screw I, constructed and arranged to operate substantially as shown, for the purpose set forth.

310,586. CULTIVATOR. JAMES HARMAN, Rocky Well, S. C. Filed Dec. 14, 1883. (No model.)



Claim.—The combination of the axle-wheels and the tongue which is pivoted upon the axle, with the beams A, pivoted upon the axle at their front ends, the operating-lever pivoted upon the beams, and provided with a catch, the cogs or teeth, and the connecting-rod between the end of the tongue and the lever, substantially as shown.

310,587. PRINTING-TELEGRAPH. GEORGE M. HATHAWAY, New York, N. Y., assignor to Hathaway's Printing Telegraph and Telephone Company. Filed Apr. 18, 1884. (No model.)



Claim.—1. The combination, in a printing-telegraph apparatus, of a type-wheel, devices for operating the same, means, as shown and described, for supporting a sheet of paper in tubular form adjacent to the periphery of said type-wheel and for feeding the paper circularly step by step and longitudinally line by line, and the electro-magnetic impression devices, all arranged and operating essentially as set forth.

2. In a printing-telegraph apparatus, the combination, with the type-wheel shaft carrying the revolving arm, of a series of stops arranged to arrest said arm at different points, suitable keys for operating said stops, a main-battery circuit, and a make and break wheel therein carried by the type-wheel shaft, and a supplementary battery circuit arranged to be closed to the main line each time the revolving arm strikes one of said series of stops, substantially as and for the purpose set forth.

3. The combination, with the type-wheel shaft of the transmitter, of the perforated plate D, the metallic pins E, arranged to pass through the perforations of said plate, the non-conducting-pin E', the lever arranged to be operated by all the other levers for raising said non-conducting pin, and the arm M, attached to the type-wheel shaft, substantially as and for the purpose set forth.

4. The combination, with the type-wheel, its shaft, the break-wheel on said shaft, and suitable electrodes in contact with said wheel, and arranged in a main circuit, of the devices, substantially as described, for propelling the said shaft and arresting the same at desired points, a supplementary battery circuit including a printing-magnet, and connections for closing said supplementary circuit to the main line each time the type-wheel is arrested in position for printing, substantially as described.

5. The combination, with the main and supplementary battery circuits and the transmitting-instrument constructed as described, and provided with means, as shown and described, for automatically closing the supplementary circuit to the main line each time a letter is to be printed, of the receiving-instrument having the magnet Y in circuit with said transmitter, and provided with an armature-lever carrying escapement-pallets, said receiver having also the type-wheel shaft provided with a type-wheel and escapement-wheel controlled by said pallets, and a printing-magnet in circuit with the magnet Y, and adjusted to attract its armature only when the transmitting-instrument closes the supplementary circuit, suitable mechanical motive devices being provided for propelling the type-wheel shaft of the receiving-instrument, said motive devices being controlled by the magnet Y through intermediate mechanism, substantially as described.

6. The combination, with the feeding ratchet-wheel R, having serrations on its inner periphery, and the devices, substantially as described, for rotating said wheel step by step in accordance with the movements of the type-wheel, of the elastic arms S, having serrations on their outer faces, and the automatic mechanism, as set forth, for temporarily lifting said arms for feeding the paper for lines, as set forth.

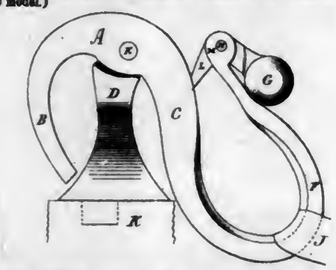
310,588. BUCKLE. HOY HOWARD, Mansfield, Ohio, assignor of one-half to J. Ditwiler & Son, same place. Filed Nov. 3, 1884. (No model.)



Claim.—1. A buckle made from a single piece of metal, provided with loops D E, covering the suspended material on both sides, and having the barbs C between them, substantially as described.

2. A barbed buckle, formed from a single flat piece of metal, having the wings D, provided with barbs, formed thereon, and bent to form two loops, one above and the other below the barbs, to receive the suspender-webbing, substantially as described.

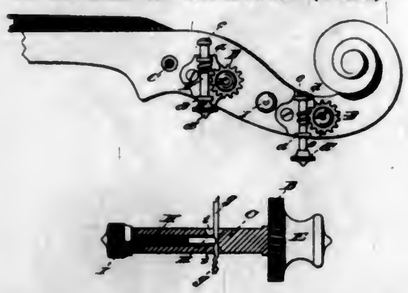
310,589. REIN-HOOK. DANIEL HUTCHINSON, Lynn, Mass., assignor to the American Rein Hook Company, Nashua, N. H. Filed Aug. 12, 1884. (No model.)



Claim.—1. The combination, in a rein-hook, of the hook A B C F, with the ball G, projection L, and pin H, substantially as described.

2. A rein-hook having the hook A B C F, standard D, pin E, ball G, pin H, and projection L, arranged substantially as in the one shown and described.

310,590. HEAD OF STRINGED MUSICAL INSTRUMENTS. ANDREW HYDE, Hatfield, Mass. Filed Jan. 24, 1884. (No model.)



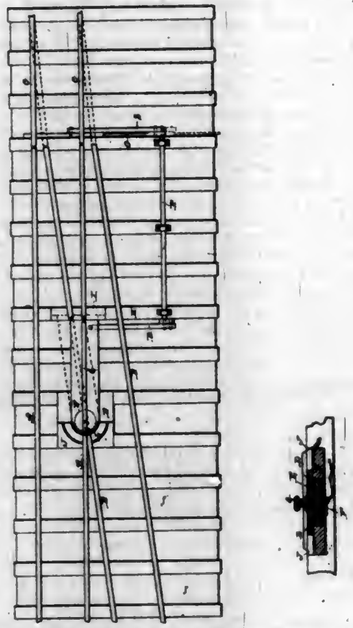
Claim.—1. In combination with the head of a stringed instrument, a winding-drum, a worm-wheel fixed to said drum outside the head, and a worm movably mounted on the head so as to be shifted into or out of engagement with the worm-wheel, substantially as described.

2. The combination, with the head of a stringed instrument, of a winding-drum, a worm-wheel secured to said drum outside the head, and a worm-shaft mounted in a swiveled and a sliding bearing, so that the worm may be swung into or out of engagement with the gear-wheel, substantially as described.

3. The combination, with a cord-winding peg or drum of a musical instrument, of a binding-screw arranged to extend from one end of the peg or drum and within the same to the hole therethrough, and adapted to, upon rotation, bind the string within said hole and so secure it to the peg or drum, substantially as shown and described.

310,591. RAILROAD-FROG. THOMAS B. JEWETT, Steubenville, Ohio, assignor to J. Stewart Lowe and William B. Jewett, both of same place. Filed Mar. 13, 1884. (No model.)

Brief.—The frog-rail is secured upon a vibrating base-plate, which is pivoted at its rear end in a perforated base-block having an inclined top surface for shedding water, the forward end of said plate moving in a slotted chair or plate.



Claim.—1. The combination of the base-plate having an opening or recess in it, the pivoted base-plate provided with a lug or projection, and the castings I J, which serve to protect the ends of the plate E, substantially as described.

2. The base-plate D, having its edges beveled away, so as to carry off the water which may fall upon it, substantially as set forth.

3. In a railroad-frog, the combination of the base-plate D, having an opening or recess in it, the sliding plate E, having the rail G upon its top, and provided with a pivotal lug or projection, the casting J, provided with flanges at one end, and the casting I, and a mechanism for moving the rails C G in opposite directions, substantially as specified.

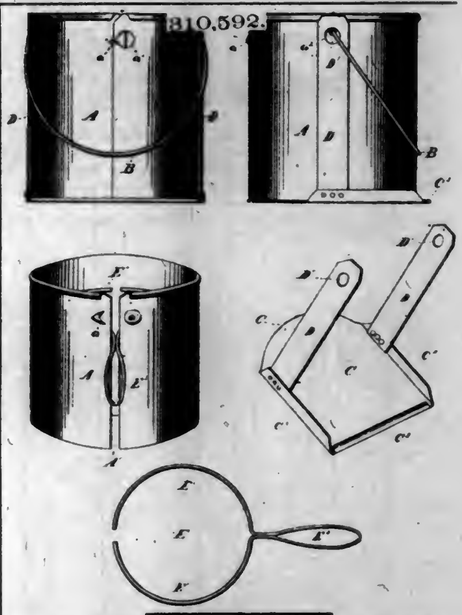
310,592. TRANSPLANTER. JOHN B. JOHNSON, Judsonia, Ark. Filed June 7, 1884. (No model.)

Claim.—1. The transplanter herein described, consisting of the carrier bent into tubular form and having its edges detachably connected, the bail, the bottom supported by the bail, and the discharger, having spring-arms E', adapted to bind snugly against the inner side of the carrier, and having its handle E² extended out between the separated edges thereof, substantially as set forth.

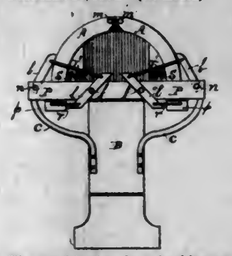
2. The herein-described transplanter, consisting of the carrier formed of an elastic plate bent into tubular form, and having its ends detachably connected, the bottom plate having arms lapped alongside of and secured and supported by the bail, and the bail, all arranged and adapted for use substantially as set forth.

3. A transplanter comprising a tubular carrier open at both ends, a bail attached to said carrier, and a removable bottom supported by the bail, substantially as set forth.

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310,593. TOBACCO-BOOKING MACHINE. WASHINGTON JONES, Lancaster, Pa. Filed Mar. 25, 1884. (No model.)



Claim.—1. The combination, in a booking-machine, of a table divided into two sections which are hinged at their point of juncture, the lower edges of said sections being held away from the leg of said table by means of springs with clamps for holding tobacco in position on said table, substantially as specified.

2. The combination, in a booking-machine, of a table divided into two sections hinged at their point of juncture, the lower edges of said sections being held away from the leg of said table by means of springs with clamps for holding tobacco in position on said table, and pivoted to their supports, each section being connected with its respective clamp by rods *r r'*, and lever *l*, whereby the inward movement of the table-section opens its clamp in the opposite direction, as and for the purpose herein set forth.

310,594. PROCESS OF MANUFACTURING ASPHALTIC POWDER SUITABLE FOR PAVING. HERMANN KETTHANN, Eschershausen, Brunswick, Germany. Filed Sept. 22, 1884. (No specimens.) Patented in England Sept. 15, 1884, No. 12,425.

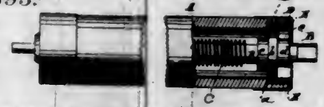
Claim.—1. The herein-described process of producing asphaltic or bituminous concretes, which consists in mixing the asphaltum or bitumen with pulverized permeable or impermeable materials while the latter are held in suspension in water or while in the condition of magma by the admixture therewith of water.

2. The herein-described process of producing asphaltic or bituminous concretes, which consists in reducing the pulverized rock or other permeable or impermeable material into a magma by the addition of water, heating the same, mixing therewith heated asphaltum or bitumen, and expelling the water from the product, as set forth.

310,595. SPRING SHADE-ROLLER. J. CHRISTOPHER LAKE, Aurora, Ill. Filed May 8, 1884. (No model.)

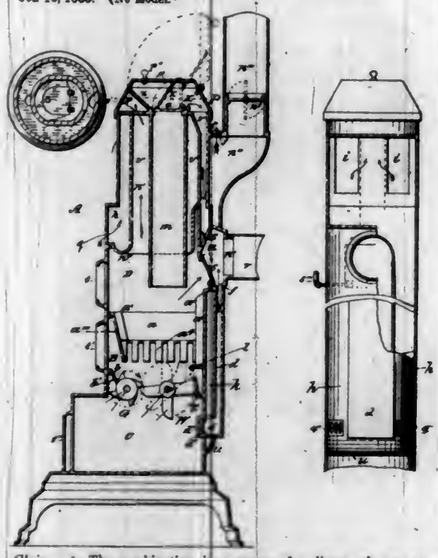
Claim.—In a spring shade-roller, the combination, with a flange thereon, and a fixed piece on the spindle, of a loose double-acting lock-

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ing-piece, having on one side an extended bearing-surface, and an irregular surface on the other side adapted to engage with the fixed piece and by the same be moved into contact with said flange in either of two directions in which the roller may be turned, substantially as described.

310,596. HEATING-STOVE. SILAS H. LA RUE, Reading, Pa. Filed Oct. 10, 1883. (No model.)



Claim.—1. The combination, in a stove, of a direct-exit passage, an indirect-exit passage which extends through the magazine-section of the stove, and an air-passage, the lower extremity of which connects with the ash-chamber, and which leads upwardly from such ash-chamber, the indirect-exit passage and the air-passage being adapted to discharge oppositely into the direct-exit passage.

2. The combination, in a stove, of a combustion-chamber, a direct-exit chamber or passage, an indirect-exit passage, and an air-passage which leads upwardly from the ash-chamber, the two latter being adapted to discharge oppositely into the direct-exit passage.

3. The combination, in a stove, of an unobstructed indirect-exit flue which discharges downwardly into a direct-exit chamber or passage, and a dampered air-flue which leads directly upward from an opening in the rear wall of the ash-chamber, and which discharges into the direct-exit chamber or passage.

4. The combination, in a stove, of a direct-exit chamber or passage, an unobstructed indirect-exit passage, which leads first upwardly and afterward downwardly through the magazine-section of the stove, a damper for controlling the opening between the combustion-chamber and the direct-exit chamber or passage, and a dampered air-flue, the lower end of which connects with the ash-chamber and which discharges upwardly into the direct-exit chamber or passage.

5. The combination of a combustion-chamber, a direct-exit chamber or passage, a damper between the combustion-chamber and the direct-exit chamber or passage, and an air-passage, the lower extremity of which connects with the ash-chamber, and which leads directly upward from an opening in the rear wall of such ash-chamber and discharges into the direct-exit chamber or passage, the main body of such air-passage being located outside of the wall of the stove.

6. The combination of a combustion-chamber, a direct-exit chamber or passage, and an air-passage, the lower end of which connects with the ash-chamber, and which leads through an air-warming chamber and extends upwardly along the rear wall of the same, and which, independently of an indirect-exit passage, conducts air from the ash-chamber to the direct-exit chamber or passage.

7. The combination, in a stove, of a combustion-chamber, a direct-exit chamber or passage, a damper which controls the opening between the combustion-chamber and the direct-exit chamber or passage, an indirect-exit passage, which leads from the combustion-chamber through the magazine-section of the stove to the direct-exit chamber or passage and discharges downwardly into the same, an air-induction chamber, which constitutes also the ash-chamber of the stove, and an upwardly-discharging passage, which connects the air-induction chamber with the exit chamber or passage.

8. The combination of a combustion-chamber, a direct-exit chamber or passage, an air-chamber which encircles the main body of the combustion-chamber, and an indirect-exit passage, which extends longitudinally through such encircling air-chamber and connects the combustion-chamber with the exit chamber or passage.

9. A stove which is provided with an air-chamber which encircles the main body of the combustion-chamber, and which extends downwardly behind the fire-pot and ash-chamber sections, and which is also provided with an air-flue, the lower extremity of which connects with the ash-chamber, and the upper extremity of which discharges into the exit chamber or passage of the stove.

10. The combination of a combustion-chamber, an air-chamber which encircles the combustion-chamber, an indirect-exit flue, which leads from the combustion-chamber and extends through the air-chamber which encircles the combustion-chamber, a dampered passage for conducting air from the air-chamber to an upper room, and dampered openings for discharging air into the room in which the heater is placed

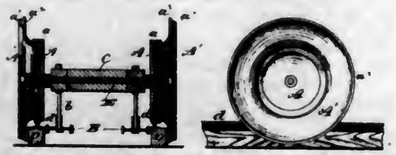
11. A magazine-stove the top opening of which is provided with a door which is hinged at the rear of the same, and the magazine of which is provided at its top with a door which is hinged at the rear of the same, the two doors being adapted by a suitable connection to be simultaneously opened or closed, and the door of the magazine being adapted in the manner described to form, when opened, a shield or guard to prevent coals from falling into the rear indirect-exit passage of the stove.

12. The combination, in a stove, of a door which is hinged at the rear of the top opening of the same, a door in the top opening of the magazine of the stove which is hinged at the rear of the same, a connection between the two doors by which they are adapted to be simultaneously moved, a feed-chute at the front of the top opening of the magazine, and a vertical flue for indirect exit of the volatile products of combustion at the rear of the top opening of the magazine, the door of the magazine being adapted to constitute, when open, a shield for the opening of the vertical flue, substantially as described.

13. The combination of the fire-pot having upward indirect draft, as described, the combustion-chamber, the direct-exit chamber or passage, a damper in the opening between the combustion-chamber and the direct-exit chamber, the ash-chamber, the air-passage or dust-flue, the lower extremity of which connects with the ash-chamber, and which leads from such ash-chamber to the direct-exit chamber or passage, and the damper which controls the passage from the ash-chamber to the direct-exit chamber or passage.

14. The combination of the fire-pot, the combustion-chamber, the direct-exit chamber or passage, a damper in the opening between the combustion-chamber and the direct-exit chamber, the ash-chamber, the air-passage or dust-flue, the lower end of which connects with the ash-chamber and conducts air therefrom to the direct-exit chamber or passage, the damper which controls the passage from the ash-chamber to the direct-exit chamber or passage, and the lower or rear air-warming chamber between the fire-pot and its ash-chamber and the air-passage or dust-flue, substantially as and for the purposes described.

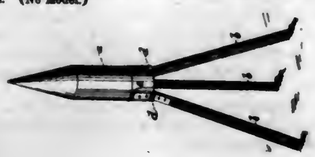
310,597. CAR-WHEEL. CHARLES LEAVITT and CHARLES G. CANFIELD, Cleveland, Ohio. Filed Apr. 29, 1884. (No model.)



Claim.—1. A car-wheel consisting of an inner or flangeless tread and an outer or flanged tread, the latter being greater in diameter than the flangeless tread, substantially as set forth.

2. The combination, with a car-wheel having a flanged tread and a flangeless tread arranged concentric with the flanged tread, of horizontal guide-wheels B, substantially as set forth.

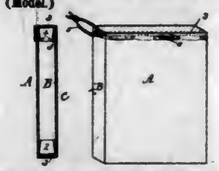
310,598. ROCKET. EDWARD F. LENTON, East New York, N. Y., assignor to the Unexcelled Fire Works Company, same place. Filed Feb. 12, 1884. (No model.)



Claim.—1. The supporting-sticks forming the tripod for the support of a rocket, hinged to the body of the rocket, and having bevel ends *c*, to form stops for the adjustment of the sticks, and also to form seats for the lower end of the rocket, said sticks being hinged to the body suitably for enabling said bevel ends to project under and touch the end of the rocket when adjusted for supporting the rocket, substantially as described.

2. In a rocket having the legs *b* attached to the body by means of hinges attached to said legs, and nailed or pinned to the body, a re-enforcing band, *e*, of paper or other material, fitted around the shell of the rocket over the nails and pasted to the shell, substantially as described.

310,599. PAPER-BOX. LUCIUS LYBRAND, Noblesville, Ind. Filed Jan. 7, 1884. (Model.)

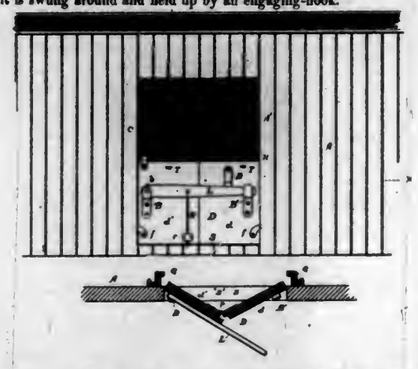


Claim.—1. The paper-box blank herein shown, having side A, provided with flaps 1 and 2, back B, side C, having flap 3, with tags *t t*^{2} connected and integral therewith, flap 1′ on the side of C, flap 3′ at the bottom, provided with end tags, *t*^{2} *t*^{2}, and re-enforcing strips *r*, all combined substantially as described.

2. The paper box herein described, constructed from a blank having side A, provided with flaps 1 and 2, back B, side C, having flap 3, with tags *t t*^{2} connected and integral therewith, flap 1′ on the side of C, flap 3′ at the bottom, provided with end tags, *t*^{2} *t*^{2}, re-enforcing strips *r*, perforations *h*, and cord S, all combined substantially as described.

310,600. GRAIN-DOOR FOR FREIGHT-CARS. LAFAYETTE J. MASON and GEO. N. WALKER, Jr., Peoria, Ill. Filed Aug. 18, 1884. (No model.)

Brief.—Consists of two outwardly-opening leaves hinged together at their meeting rabbeted edges, and secured by a lever pivoted to one of said leaves, and engaged by a clip on the other, and prevented from disengagement by a pivoted pawl. A bolt is pivoted to said lever and adapted to enter the sill of the doorway, and latches pivoted to said leaves enter the door-jambs, and a chain connects the door and ear, whereby it is swung around and held up by an engaging-hook.



Claim.—1. The combination, in a grain-door for freight-cars, of two hinged leaves, a securing-lever pivoted to one of said leaves and engaging with a clip on the other of said leaves, and a bolt pivoted to said lever and adapted to enter an eye in the sill of the doorway, substantially as and for the purpose specified.

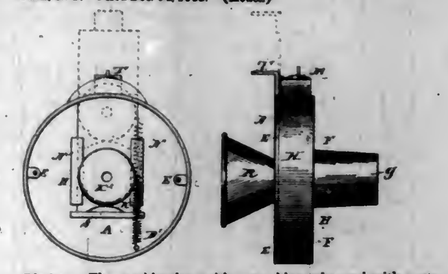
2. In a grain-door for freight-cars, two hinged leaves adapted to be opened outwardly by the pressure of the contained grain, in combination with a bar pivoted to one of said leaves, means for securing said bar to the other of said leaves, and a bolt pivoted to said bar and arranged to enter an eye in the sill of the doorway, substantially as and for the purpose set forth.

3. In a grain-door for freight-cars, the leaves *d d*′, hinged together as described, in combination with the bar L, the pivotal clip B, the open clip B′, and the bolt R, attached to said bar, substantially as and for the purpose herein described.

4. The rabbeted leaves *d d*′, hinged together as described, in combination with the bar L, the pivotal clip B, the open clip B′, and the pawl E, as set forth.

5. The grain-door D, consisting of the leaves *d d*′, the bar L, pivoted to one of said leaves, the pawl E, the pivotal clip B, the open clip B′, the bolt R, pivoted to said bar, in combination with the latches *l*, the chain C, and the hook H, as and for the purposes described.

310,601. SPEAKING-TUBE ANNUNCIATOR. ROBERT MAY, New York, N. Y. Filed Dec. 14, 1883. (Model.)



Claim.—The combination, with a speaking-tube and with a stationary mouth-piece therefor, of an interposed cylindrical chamber, H, adapted to be supported independently of the connected tube, a spring-actuated slide, K, working therein to open and close the mouth-piece, an alarm-whistle, K^3, inserted in and carried by the valve-slide, and a pivoted tell-tale, M, operated to swing in one direction by a current of air escaping through an orifice in the outer wall of the cylindrical chamber, and in the opposite direction by the movement of the slide-valve to open the mouth-piece, all substantially as and for the purpose set forth.

310,602. DOUBLE THROAT FOR PUNCHING AND SHEARING MACHINES. CHARLES E. MCBETH, Hamilton, Ohio. Filed June 21, 1884. (No model.)

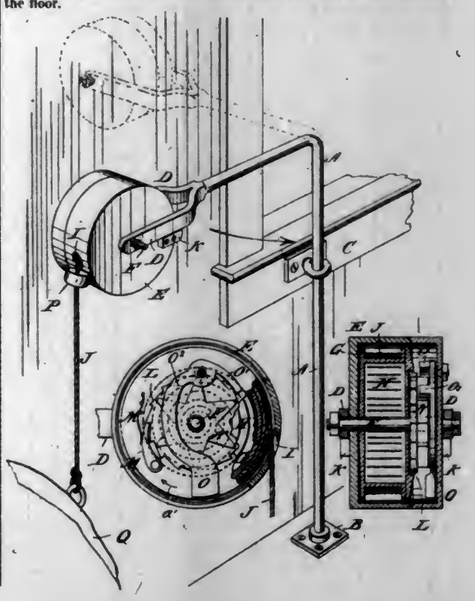
Brief.—The double throat permits the passage of the bar or sheet of metal in a direction either parallel with or transverse to the shear-blades or gang of punching-tools.



Claim.—The double throat G H, substantially as and for the purpose set forth.

310,603. FIRE-ESCAPE. LEWIS B. MCDONALD, Little Rock, Ark. Filed Apr. 16, 1884. (No model.)

Brief.—A fire-escape in which a spring-rope drum provided with ratchet-wheels and pawls arranged to regulate the speed of the unwinding of the rope is mounted between the arms of an L-shaped rod pivoted to the floor.



Claim.—1. In a fire-escape, the combination, with the bifurcated L-shaped rod pivoted to the floor and the window-sill, of a rope pulley or drum pivoted between and in the prongs or arms of the said rod, substantially as herein shown and described.

2. In a fire-escape, the combination, with the pivoted rod A, having a fork, D, formed on its end, of the casing E, held between the prongs of the fork, a spring-pulley contained in the casing, a rope secured on the spring-pulley, and of the blocks K, secured to the sides of the casing, substantially as herein shown and described.

3. In a fire-escape, the combination, with the casing E, having a fixed shaft, F, of the hollow pulley G, mounted on the shaft F, the spring H, contained in the pulley G, and having one end secured to the pulley and the other on the shaft, and the ratchet-wheel L, mounted loosely on the shaft, the pawl M, engaging with the teeth of the ratchet-wheel and pivoted on the pulley, and of means for holding the ratchet-wheel and preventing it from revolving too fast when the rope is being unwound from the pulley, substantially as herein shown and described.

4. In a fire-escape, the combination, with the casing E, having a fixed shaft, F, of the hollow pulley G, mounted loosely on the shaft, the spring H, contained in the pulley G, and having one end secured to the pulley and the other to the shaft, the ratchet-wheel L, mounted loosely on the shaft F, the pawl M, the star-wheel N, united with or made integral with the ratchet-wheel L, and of the pendulous pawl O, pivoted to the casing E, and provided with teeth O′ and O², for engaging with the teeth of the star-wheel N, substantially as herein shown and described.

310,604. MANUFACTURE OF ISATINS AND SUBSTITUTED ISATINS. PAUL J. MEYER, Berlin, Germany. Filed May 28, 1883. (No specimens.) Patented in Germany Mar. 2, 1883, No. 25,136; in England Apr. 9, 1883, No. 1,788; in Belgium Apr. 9, 1883, No. 61,020, and in France Apr. 9, 1883, No. 154,756.

Claim.—The herein-described process of obtaining isatins or substitutes of isatins from dihalogenized acetic acids, their salts, amides, ethers, and aldehydes, or from the specified amines, by directly fusing or boiling their solutions and by treating the product with a strong acid.

310,605. AUTOMATIC GAS-VALVE. ISAAC B. MILLNER, New York, N. Y., assignor of one-half to A. S. Miles, Baltimore, Md. Filed Feb. 13, 1884. (No model.)

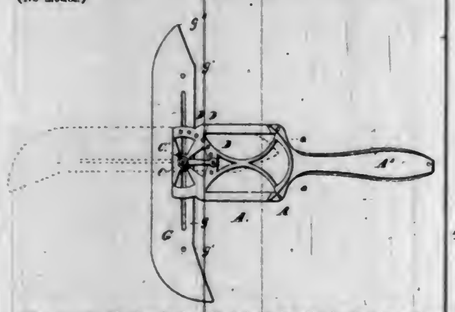


Claim.—1. A cut-off valve to be attached to a gas-tank and a receiving-vessel, and having two pistons of different size, and suitable passages arranged substantially as described, whereby a certain pressure of gas upon the larger piston will overbalance a greater pressure upon the smaller and operate to cut off the supply of gas, as set forth.

2. The combination of case or shell A, and tube C, having central opening, D, and passages F F, with piston G, and plunger E, having central opening, *e*, and ports *e′ e′*, all constructed and arranged substantially as described.

3. The combination, with an automatic cut-off valve adapted to be adjusted so as to operate under different degrees of pressure, of a safety-valve adjustable therewith and attached thereto, as set forth.

310,606. KNIFE. JOHN NAGEL, Fulton, Mo. Filed June 26, 1884. (No model.)



Claim.—1. The herein-described knife-handle, having its end or head provided with a blade-slot, and having a transverse pivot-pin opening, and a series of perforations arranged in the arc of a circle struck from such pivot-opening, substantially as set forth.

2. The combination of the handle having its head slotted longitudinally, the blade placed in said slot and provided with a slot or opening, and the clamping and pivot screw turned through the handle and blade, and adapted to clamp the latter in any desired position, substantially as set forth.

3. The combination of the handle having a slot, B, and pivot-opening and perforations D, of the blade secured in said slot, and provided with a slot, *g*, and the pivot-screw and retaining-pin, substantially as set forth.

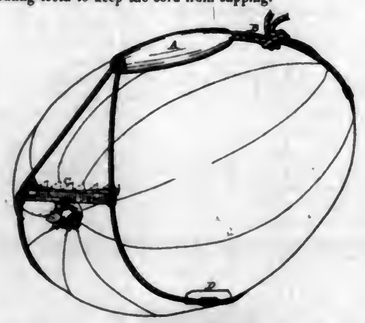
4. The combination, with the handle having slot B and transverse pivot-opening and openings D, arranged in curved series, and the blade having a slot, *g*, and openings *g′*, arranged in line with said slot, of the pivot-pin and the retaining-pin, all arranged and operating substantially as and for the purposes specified.

5. The combination, with the handle having its head slotted longitudinally, and the blade inserted midway its ends in said slot, and having its ends projected on opposite sides of and adjustable to any suitable angle relative to the handle, of devices whereby said blade may be held at any angle desired, substantially as set forth.

6. The combination of the handle provided with a curved series of apertures, D, and the blade pivoted at C to said handle, and adjustable on said pivot, and provided with an opening arranged to register with openings D, the link and the retaining-pin depending therefrom, substantially as set forth.

310,607. HAND CARRYING DEVICE FOR MELONS, &c. JAMES OLD, Pittsburg, Pa. Filed Aug. 29, 1884. (No model.)

Brief.—The cords are provided with a series of plates having penetrating-teeth to keep the cord from slipping.

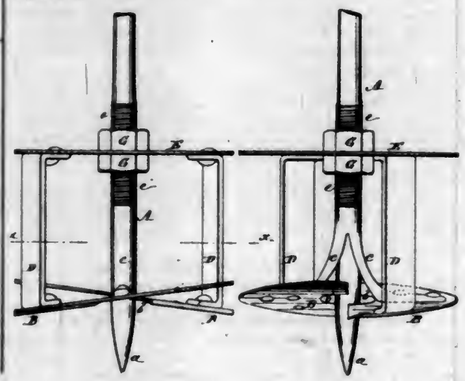


Claim.—1. In a device for carrying melons by hand, the combination of the cords, which are passed around the melon, suitable barbs which are applied to the cords for catching in the melons, and a handle also applied to the cords, substantially as shown.

2. In a device for carrying melons by hand, the combination of the cords with the plate C, having eyes upon their ends for the cords to pass through, and having edges to cut in the melons, substantially as set forth.

310,608. POST-HOLE AUGER. ALEXANDER C. OSBORN, Clarksburg, W. Va. Filed Apr. 4, 1884. (No model.)

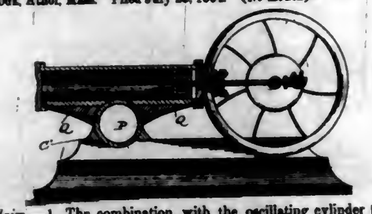
Brief.—An auger having two spiral blades secured at their middles (longitudinally) to the central stem has a disk connected by braces to the blades and adjusted by upper and lower nuts on a threaded portion of the auger-shaft.



Claim.—1. In a post-hole auger, the combination, with the central stem, of the separate blades having a fixed and an adjustable connection with said stem, the fixed connection being secured to said blades about midway their length, and the adjustable connection being secured to said blades at their entering ends or contiguously thereto, substantially as and for the purpose set forth.

2. The combination, with the stem A and cutters B B, of the disk E, braces D D, and the upper and lower nuts, G G, essentially as and for the purposes herein set forth.

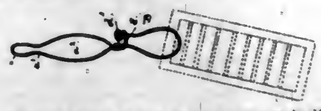
310,609. OSCILLATING-CYLINDER ENGINE. WARREN J. PARTRIDGE, Athol, Mass. Filed July 25, 1884. (No model.)



Claim.—1. The combination, with the oscillating cylinder having the annular packing-groove in the sides around the circular opening P, of the stationary valve having the collars provided with annular packing-grooves in their inner faces, the packing-rings, and the nuts for holding them in place, substantially as specified.

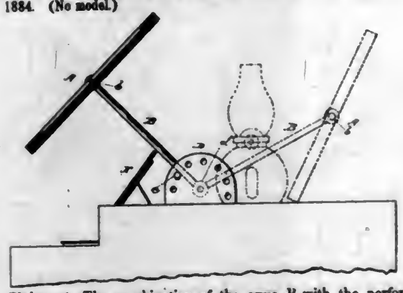
2. The combination, with the cylinder provided with the steam-chest, and annular packing-grooves at one side, of the stationary valve provided with the grooved collars, and entrance and exhaust ports, the packing-rings, and the nuts for holding them in place, substantially as specified.

310,610. TICKET-HOLDER. WILLIAM PATTERSON, San Francisco, Cal. Filed Aug. 15, 1884. (No model.)



Claim.—The ticket-holder formed of wire bent upon itself to form a loop and eye at one end, and having the end of one limb bent back to form a hook, and having the other limb twisted around the hook-limb and extended out and bent to form a catch and guard for the point of the hook, substantially as and for the purpose set forth.

310,611. REFLECTOR. EDWARD D. PECK, Sayre, Pa. Filed Feb. 16 1884. (No model.)



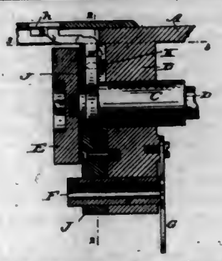
Claim.—1. The combination of the arms B with the perforated supporting-bearings D and the pivoted reflector turning upon its axis between the arms, substantially as described.

2. The combination of the supporting perforated brackets, the arms pivoted thereto, the mirror or reflector pivoted at the outer end of the said arms, and the pin for engaging the perforations of the bracket, and the pivoted arms, substantially as specified.

3. The combination of the adjustable arms B B, pivoted to suitable bearings, means, substantially as described, for supporting the arms at any vertical inclination, and the mirror pivoted at the outer ends of the arms B, whereby the said mirror may be swung over and on opposite sides of a lamp to serve the twofold function of a reflector and shade for the eyes, substantially as specified.

310,612. SEWING-MACHINE. JOHN W. POST, New York, N. Y. Filed July 3, 1884. (No model.)

Claim.—1. The combination, in a sewing-machine, of a bed-plate having a depending bracket, a recessed plate attached to said depending bracket and having a shape corresponding thereto, a driving-shaft, a bushing for said shaft, fixed to the depending bracket and projecting within the recess of its attached plate, and an eccentric and a feed-lever, both arranged within the said recess, whereby the attached recessed plate is adapted to serve as a housing for the said feed-lever, and to hold the latter in place on its eccentric, substantially as set forth.

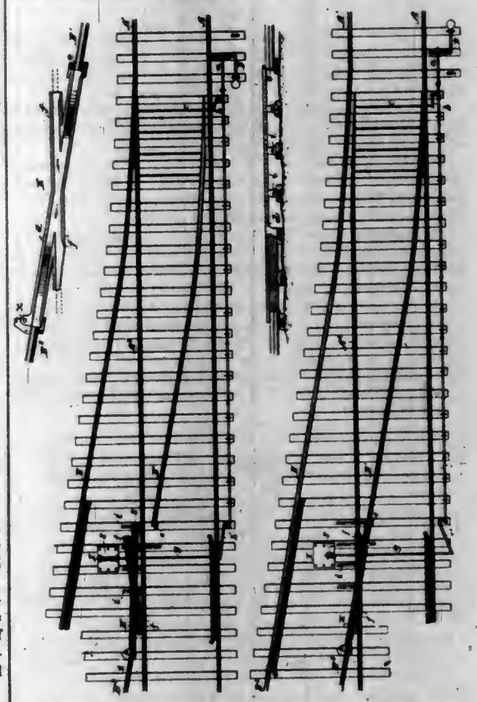


2. The combination, in a sewing-machine, of a bed-plate having a depending bracket, a recessed plate attached to said depending bracket, a feed-regulating lever attached to said recessed plate, a driving-shaft, a bushing for said shaft, fixed to the depending bracket and projecting within the recess of its attached plate, and an eccentric and a feed-lever, both arranged within the said recess, whereby the attached plate is adapted to serve as a housing for the said feed-lever, and to hold the latter and the feed-regulating lever in place, substantially as set forth.

3. The combination, in a sewing-machine, of a bed-plate having a depending bracket, a recessed plate rigidly secured to said depending bracket, a driving-shaft, an eccentric, and a feed-lever, the latter and the eccentric being contiguous to the inner surface of the said recessed plate, which is thus adapted to protect these parts from dust and to retain the said lever on its eccentric, substantially as set forth.

310,613. RAILROAD FROG-CROSSING. CHARLES B. PRICE, Pittsburg, Pa. Filed May 31, 1884. (No model.)

Brief.—A railroad-frog provided with arms set at such an angle that when the frog is moved to open the siding the said arms will be in line with and cover the inner main-track rail at that point, forming a bridge along the main track, so that it is still open for travel.



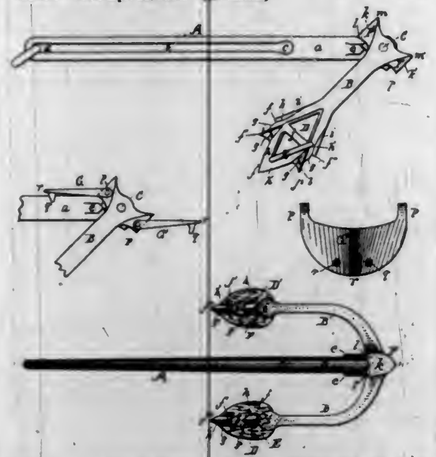
Claim.—1. The combination, with the main rail A^2 and with the siding-sections $B' B^2$, of a frog consisting of a rail jointed at one end near the end of one of the siding-sections, and provided with arms arranged to cover the main rail when the frog is in position to connect the siding-sections, substantially as set forth.

2. The combination, with the siding-sections and rail of the main track, of a frog having a rail adapted to extend over the main rail, and with arms arranged to occupy a position above and in line with said rail when the main rail is crossed by the frog, substantially as set forth.

3. The combination, with the frog adapted to be carried over the main rail, and provided with arms, as set forth, of connections between the frog and the switch, whereby the simultaneous adjustment of both is secured, substantially as specified.

4. The combination, with the continuous main rail of a track, and a crossing-frog adapted to be moved to cover the main rail, switch, and immediate connections, of a spring connected to the frog and tending to hold it in position away from over the main rail, substantially as specified.

310,614. ANCHOR. PETER PROVENCHER, North Sydney, Nova Scotia, Canada. Filed Apr. 28, 1884. (No model.)



Claim.—1. An anchor-shank, A, having a longitudinal slot, *b*, terminating at its lower end in an enlargement, *c*, in combination with a suspending link or shackle which slides in said slot, and flukes which are pivoted to the head of said shank, substantially as set forth.

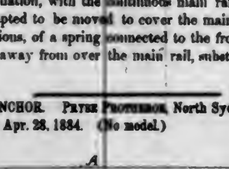
2. An anchor-shank, A, and flukes B B', pivoted thereto, in combination with movable palms attached to the end of said flukes, substantially as and for the purpose set forth.

3. The pivoted flukes B B', in combination with shank A, provided with a head, *a*, and longitudinal slot *b*, said slot extending toward said head beyond a line connecting the outer ends of the flukes when the latter are in a position to hold, substantially as shown.

4. In combination with the shank A or its equivalent, as herein described, the pivoted flukes B B', constructed with the webs D D', containing the movable palms E E and the fixed secondary palms, with their points, substantially as stated.

5. An anchor as herein described, constructed with the swinging feathering levers G G', provided with the double-inclined faces and prongs or horns *g g*, substantially as and for purposes herein set forth.

310,615. BOTTLE-COVER. WILLIAM H. REDINGTON, Chicago, Ill., assignor of one-half to H. K. Freeman, same place. Filed July 19, 1884. (No model.)



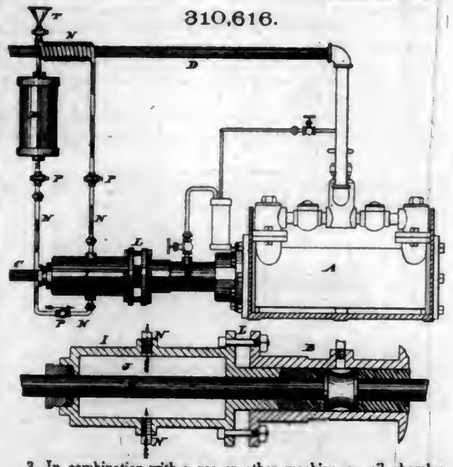
Claim.—In combination with a bottle, a cover therefor formed by the combination of the band or rim B, cap C, and pin D, substantially as described.

310,616. COOLING ATTACHMENT FOR GAS AND OTHER MACHINES. JOHN RING, St. Louis, Mo. Filed Oct. 13, 1884. (No model.)

Claim.—1. In combination with a gas or other machine, the oil chamber, tank, and circulating-pipe, the chamber surrounding the piston-rod of the machine, substantially as set forth.

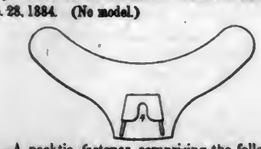
2. In combination with a gas or other machine, an oil-chamber surrounding the piston-rod of the machine, and a circulating-pipe, with means for cooling the oil as it passes through the pipe, substantially as and for the purpose set forth.

310,616.



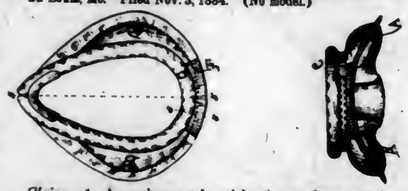
3. In combination with a gas or other machine, an oil chamber, tank, and circulating-pipe, the chamber surrounding the piston-rod and the pipe being coiled around the return-pipe of the machine, substantially as and for the purpose set forth.

310,617. NECKTIE-FASTENING. JOSEPH S. RIPLEY, Crugers, N. Y. Filed Feb. 23, 1884. (No model.)



Claim.—A necktie-fastener comprising the following features: a metallic plate having tubular edges, the upper ends of the tubes being enlarged for the reception of a knot or metallic clip on the end of an elastic cord, the cord being free to move in the length of the tube, a flange serving the double purpose of closing the enlarged ends of the tubes and as a support on the edge of the collar-button, as described, and having the free ends of the elastic cords secured to the shield at points in line with the centers of the tubes, all as herein shown, described, and set forth.

310,618. HORSE-COLLAR. ISAAC ROTHRAN and FREDERICK SCHMIDT, St. Louis, Mo. Filed Nov. 3, 1884. (No model.)

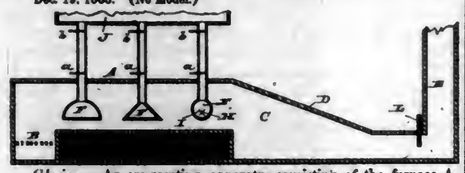


Claim.—1. As an improved article of manufacture, a horse-collar the rim, back, and belly parts of which are connected together at the roll or neck of collar by a single leather thong stitched through the said parts, so as to form a single cross-stitch on inside of roll or neck and a double line of longitudinal stitches on outside of roll or neck, substantially as described, and for the purposes set forth.

2. As an improved article of manufacture, a horse-collar the rim, back, and belly parts of which are connected together at the roll or neck of collar by a single leather thong stitched through the said parts, so as to form a single cross-stitch on inside of roll or neck and a double line of longitudinal stitches on outside of roll or neck, as described, belly-pieces A A, unstuffed at their lower ends, and a re-enforcing or spring piece, E, of leather or rawhide, inserted underneath the lower end portions of said belly-pieces, combined and arranged substantially as described, and for the purposes specified.

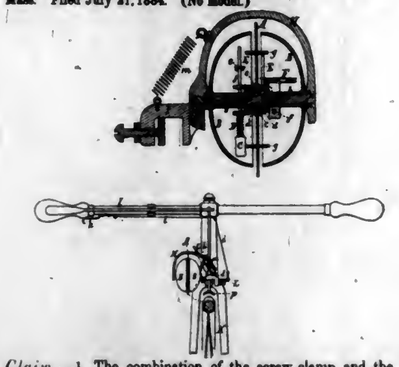
3. In a horse-collar, the combination of the rim, neck, and belly parts connected together at the roll or neck of collar by a single leather thong, stitched through the said parts, so as to form a single cross-stitch on inside of roll or neck and a double line of longitudinal stitches on outside of roll or neck, as described, belly parts A A, unstuffed at their lower ends, a re-enforcing or spring piece E, of leather or rawhide, inserted underneath the unstuffed ends of belly parts A A, and an outside strengthening-strip, F, substantially as described, and for the purposes set forth.

310,619. ORE-FURNACE. ELI F. RUSSELL, San Francisco, Cal. Filed Dec. 19, 1883. (No model.)



Claim.—An ore-roasting apparatus consisting of the furnace A, having a fire-place, B, at one end that communicates with a combustion-chamber, C, by a long heat-passage in which are located the transverse open-ended ore-chambers F F F, the chimney E, communicating with the end of the combustion-chamber on a level with the bottom of the furnace, and having a valve, L, and the ore-bin J, located above the furnace and connected to each ore-chamber by a pipe K, having gates *a b*, all combined substantially as and for the purpose specified.

310,620. BELL FOR BICYCLES. RICHARD G. SHUTE, Edgartown, Mass. Filed July 21, 1884. (No model.)



Claim.—1. The combination of the screw-clamp and the yoke hinged thereto with an alarm-bell, its striking mechanism, and the operative wheel of the latter arranged within such yoke, all being substantially as set forth.

2. The combination of the screw-clamp and a yoke hinged thereto with two bells arranged within and supported by such yoke, and having a striking mechanism to each, and an operative wheel to both, disposed between such bells, such wheel having a diameter larger than that of the bells, and all being substantially as set forth.

3. The combination of the screw-clamp and a yoke hinged thereto, and provided with an alarm apparatus having an actuating-wheel, as described, with a lever fulcrumed to the clamp and extended through an eye of the yoke, and with a retractive spring connected with the yoke and the clamp, such lever being for depressing the yoke and its alarm mechanism, and such spring being for subsequently raising them, all essentially as represented.

310,621. TWO-WHEELED VEHICLE. JNO. G. STOCKS, San Francisco, Cal. Filed Feb. 23, 1884. (No model.)



Claim.—In a two-wheeled vehicle, the combination of the bent axle A, the elliptic springs B B, mounted on said axle, the shafts C C, mounted on the springs, the brackets F F, secured to the shafts, the vehicle-body I, having irons G G, provided with pintles H H, whereby said body is pivotally suspended from said brackets between the shafts and springs, the cross-bars E E, for connecting the shafts at the front and rear of the vehicle-body, and the straps J J, for connecting the body and cross-bars, substantially as shown and described.

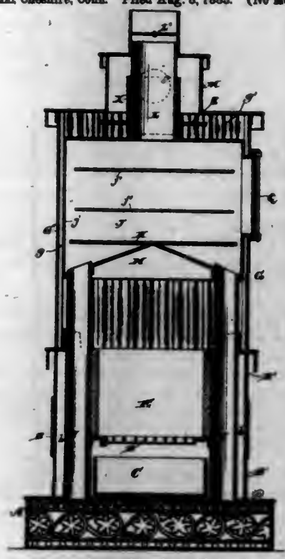
310,622. DIE FOR MAKING BARBED STRIPS. ANSON P. THAYER, Brooklyn, N. Y., assignor to Thomas W. Hall, same place. Filed Nov. 30, 1883. (No model.)



Claim.—1. In dies for simultaneously slitting a double blank strip apart and forming two barbed rods therefrom by means of dies having two grooves, *e*, and ribs *f*, relatively disposed for first slitting the strip apart by one rib and groove, and, second, shearing off the waste pieces by the other rib and groove, the said ribs and grooves respectively formed in separate pairs of dies which are separately located a distance of one or more feed movements of the blank strip apart, substantially as described.

2. In dies for simultaneously slitting a double blank strip apart and forming two barbed rods therefrom by means of dies having two grooves, *e*, and ribs *f*, relatively disposed for first slitting the strip apart by one rib and groove, and, second, shearing off the waste pieces by the other rib and groove, the said ribs and grooves respectively formed in separate pairs of dies which are separately located a distance of one or more feed movements of the blank strip apart, and the pair making the second cut arranged to cut in advance of and complete its work before the action of the first pair, substantially as described.

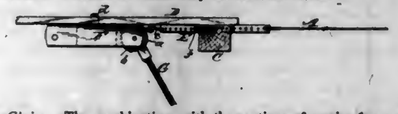
310,623. STOVE. LEWIS W. TURNER, Yalesville, and GEORGE J. CAPEWELL, Cheshire, Conn. Filed Aug. 8, 1883. (No model.)



Claim.—1. An oven, in combination with heating devices operating on the exterior of said oven, independent outlets for said heating devices and said oven, respectively, and vertical inlet-pipes exterior to and independent of the fire-box, extending from said oven to the exterior of the stove or furnace for the purpose of allowing the passage of cool external air directly to said oven without passing through or in contact with the fire-box, substantially as set forth.

2. The combination of an air-chamber or oven and its outlet-pipe L, a drum, M, through which the products of combustion pass, a sleeve surrounding said outlet-pipe, an eccentric button on said drum, which operates said sleeve, and a damper carried by said sleeve, and arranged below said drum in such manner that the raising or lowering of said sleeve controls the space between said outlet-pipe and said drum, substantially as set forth.

310,624. FENCE. THOMAS F. VAN LUVEN, Kingston, Ontario, assignor to Alfred Brown, Gananoque, Canada. Filed Sept. 6, 1884. (No model.) Patented in Canada July 18, 1884, No. 19,842.



Claim.—The combination, with the sections of a wire fence, of intervening panels of board rails, the posts of which have horizontal slits or grooves corresponding in number to the fence-wires, perforated plates sliding in said slits or grooves, one being connected to the extremity of each wire, and means, substantially as described, for holding said plates in position after the desired tension has been given to the wires, substantially as and for the purpose set forth.

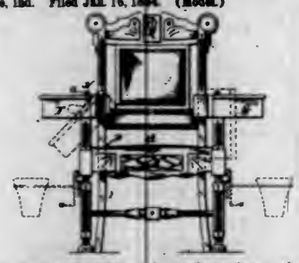
310,625. COMPOSITION FOR GRAVEL OR GRANITE ROOFING, &c. THOMAS VAUGHAN, Millvale, Pa. Filed Nov. 19, 1883. (No specimens.)

Claim.—1. The herein-described composition, consisting of linseed-oil, pitch, rosin, beeswax, and carbolic acid, in about the proportions specified.

2. The herein-described composition, consisting of linseed-oil, pitch, rosin, and beeswax, said parts being mixed and boiled, and carbolic acid added to said boiling mass, in about the proportion set forth.

3. As a new article of manufacture, paper, felt, canvas, or other fabric coated with a composition of linseed-oil, pitch, rosin, beeswax, and carbolic acid, substantially as set forth.

310,626. **ARM-CHAIR AND WRITING-DESK.** CHARLES W. VOGEL, Centreville, Ind. Filed Jan. 16, 1884. (Model.)



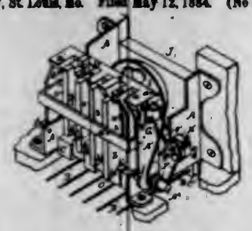
Claim.—1. The combination of the chair having a pivotal rod or bar, E, on which the box or desk turns, with the desk or box having a recess in its under side to receive the said rod or bar, and a brace or support to lock the desk or box in an elevated position, substantially as shown.

2. The combination, with the desk, of a chair provided with a pivotal rod or bar, to which desk is fastened an L-shaped inkstand secured in the desk, and a brace or support for locking the desk or box in an elevated position, substantially as set forth.

3. The combination of the chair, a desk pivoted thereto, and provided with a hinged lid or cover, with an L-shaped inkstand and projection Q in the desk, and the U-shaped slide O, mounted on the edge of the lid, as and for the purpose set forth.

4. The combination of the arm-chair provided with the pivotal rod or bar E with the box or desk having a recess, *b*, in its under side, and provided with the piece H, by which it is secured to the rod or bar E, and the brace or support for holding the box in an elevated position, substantially as specified.

310,627. **ALARM-LOCK FOR TILLS.** ERNST H. VOLLRATH and JOHN C. MCCREADY, St. Louis, Mo. Filed May 12, 1884. (No model.)



Claim.—1. In an alarm-lock for tills, the tumblers B, having long and short sides *b* and *b'*, combined with a weighted lever or dog, C, having short arm *c'*, rods, and finger-pieces for operating the same, as and for the purpose set forth.

2. In an alarm-lock for tills, the combination of a series of tumblers, B, having long and short sides *b* and *b'* and notch b^2, swinging frame A', dogs C, rods D, and finger-pieces *d*, as herein shown and described, and for the purpose set forth.

3. In an alarm-lock for tills, the swinging frame A', constructed as herein shown and described, having slots *a*, prongs *a'*, guides a^2, a^3, and a^4, the tumblers B, levers or dogs C, and latches or hooks E, all combined as herein shown and described, and for the purpose set forth.

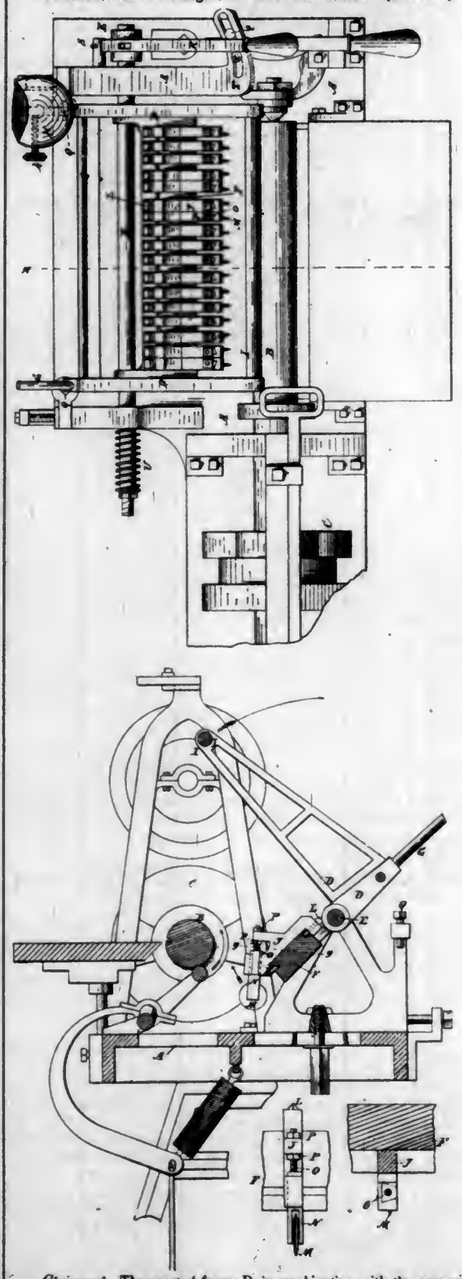
4. In an alarm-lock for tills, the combination of the frame A, swinging frame A', spring F, pawl G, bell-hammer H, and bell I, as herein shown and described, and for the purpose set forth.

5. The combination of the finger-pieces *d*, rods D, dogs or levers C, tumblers B, swinging frame A', hooks or catches E, pawl G, bell-hammer H, spring F, bell I, and frame A, as herein shown and described, to form an improved alarm-lock for tills.

310,628. **REMOVING FIBER FROM COTTON-SEED.** WM. WALL, New York, N. Y., assignor to the United States Cotton Seed Cleaning Company, same place. Filed Nov. 15, 1883. (No specimens.)

Claim.—The hereinbefore-described process of treating cotton-seed, whereby the charred fiber or carbon is removed and the acid saved for further use, consisting in dipping successive batches of the seed first in the tank containing acid, then in a tank or tanks containing at first pure water until the water contained in the tank or tanks is sufficiently charged with acid washed from the seed, together with the charred fiber, and then filtering said acid mixed with water through sand, all substantially as described.

310,629. **MACHINE FOR CUTTING PAPER TUBES.** MERRICK F. WILSON, Chicago, assignor of one-half to Charles R. Steele and V. Clarence Price, both of Waukegan, Ill. Filed Jan. 12, 1882. (No model.)

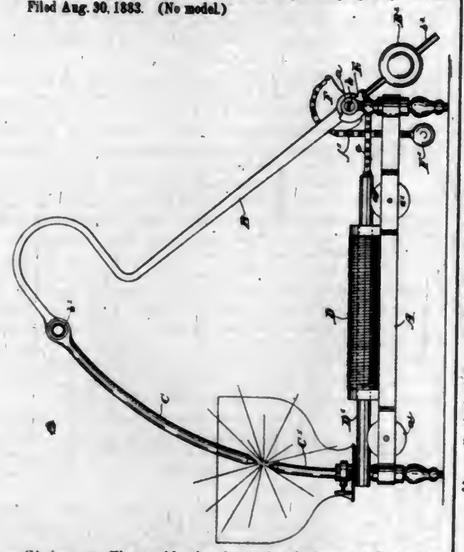


Claim.—1. The pivoted frame D, in combination with the grooved piece F, which carries the cutting apparatus, and the adjustable weights H, arranged to counterbalance the grooved piece and cutting apparatus, substantially as and for the purpose described.

2. The pivoted frame D, for carrying the adjustable cutters, and vertically-adjustable stop Q, combined and operating substantially as specified and shown.

3. The combination of the fixed frame, the longitudinally-movable shaft E, the lever R, fulcrumed on the fixed frame and attached to the shaft, the rack T, and the spring U, substantially as described, for the purpose of laterally adjusting all the cutters at once.

310,630. **ELECTRIC-ARC LAMP.** LEONIDAS G. WOOLLEY, Indianapolis, Ind., assignor to the Ohio Power and Light Company, Dayton, Ohio. Filed Aug. 30, 1883. (No model.)



Claim.—1. The combination, in an electric lamp, of the carbon-carrying pivoted swinging arm, a cam-segment on the same shaft therewith or attached thereto, and a weight suspended to said segment, whereby as the carbon is consumed and said arm approaches a more nearly horizontal position the lost weight is compensated for, substantially as set forth.

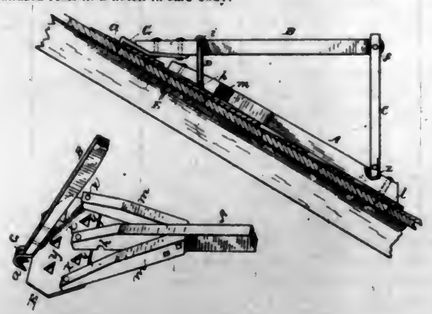
2. In an arc lamp and in combination with the fixed carbon thereof, the curved carbon secured to the pivoted and balanced arm or lever, the compensating balance for the carbon and the attached core and operating solenoid, substantially as described.

3. In an arc lamp, the combination of a counterbalanced arm or lever carrying one of the carbons, an electro-magnet operating upon said arm in opposition to the weight of the carbon to restrain its movements toward the opposite carbon, and a compensating device acting in opposition to the counter-weight, and with a force increasing in proportion to the consumption of the carbon and its diminution in weight, substantially as described.

4. In an electric lamp, a curved carbon provided with a flattened or angular portion for attachment to the holder to prevent the displacement of the carbon, substantially as described.

310,631. **SHINGLING-BRACKET.** GEORGE W. ADAMS, Boston, Mass. Filed May 10, 1884. (No model.)

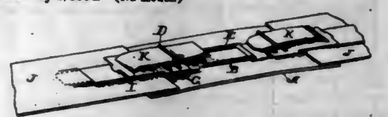
Brief.—A horizontal bar provided with a standard and a spurred claw is secured by a link to a body provided with a spur at its lower end. Said body is braced and secured to a plate by rivets, and said standard rests in a notch in said body.



Claim.—1. In a shingling-bracket, substantially such as described, the bar B, provided with the standard C, link D, and claw G, in combination with the body A, having the plate E and notches *h z*, substantially as set forth.

2. The improved shingling-bracket herein described, the same consisting of the body A, provided with the spur *l*, notches *z h*, and plate E, having the holes *y*, and the bar B, provided with the standard C, link D, and claw G, having the points *a*, all constructed, combined, and arranged to operate substantially as specified.

310,632. **KEY-BUCKLE.** SEBASTIAN M. ADKINS, Cincinnati, Ohio. Filed May 2, 1884. (No model.)

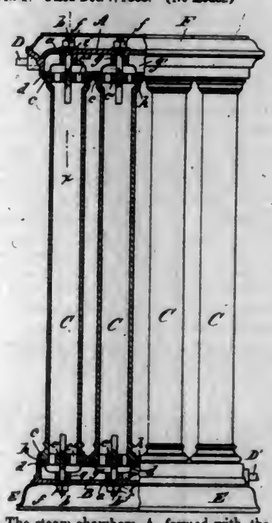


Claim.—1. A key-buckle consisting of the metallic plate B, having wings C laterally near each end, and rectangular links D, secured on the ends by means of tubes *c*, the central part formed with rectangular corrugations or ribs E, as and for the purpose substantially as herein set forth.

2. In a key-buckle, the adjusting-plate F, provided at one end with transverse slots G, the opposite end provided with a hook, H, and inwardly a transverse slot, I, combined with the strap A, connector B, strap J, and tongue K, as and for the purpose substantially as herein set forth.

3. The combination, in a key-buckle, of the adjusting-plate, one end having transverse slots, the opposite end having a hook and inwardly a transverse slot, and the connector having links for receiving adjustable plate hinged on the ends and wings laterally, the central part formed with corrugations, with the strap secured thereto, substantially as herein set forth.

310,633. **STEAM-RADIATOR.** JUAN B. ARCI and JOHN CHAPMAN, Brooklyn, N. Y. Filed Dec. 7, 1883. (No model.)
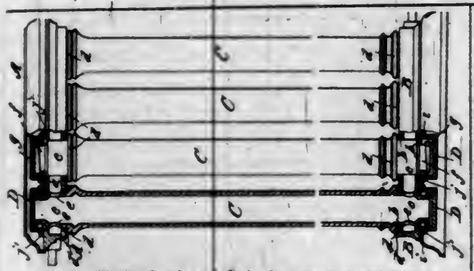


Claim.—The steam-chambers A, formed with the openings *a d*, and with the enlargements *g* and radial fins *g'*, for bracing the outer wall of the chamber, in combination with the pipes C, bridge *c'*, bolts *h*, and nuts *f*, substantially as and for the purposes set forth.

310,634. **STEAM-RADIATOR.** JUAN B. ARCI and JOHN CHAPMAN, Brooklyn, N. Y. Filed Jan. 30, 1884. (No model.)

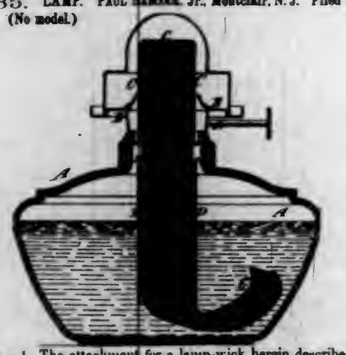
Claim.—1. In a radiator, the combination, with the chambers A B, provided with the openings *a a b b*, of the tube C, provided with the collars *d*, the shank *c*, and the cam-flange *g*, having cut-away spaces *h*, and the cap D, provided with the flange *j*, and the inwardly-projecting lugs K, substantially as herein shown and described, whereby the collars of the tubes will be drawn tightly up against the openings of the chambers when the said caps are secured upon the shanks of the tubes, as set forth.

2. The open-ended tubes C, formed with shoulders *d*, shanks *c*, having side openings, *e*, and cam-flanges *g*, which are cut away at *h*, in



combination with the chambers A B, having corresponding openings, *a a* and *b b*, and the cape D, having flanges *i* and inwardly-projecting lugs *k*, arranged to act with the cam-flanges *g*, substantially as and for the purposes set forth.

310,635. LAMP. PAUL BABCOCK Jr., Montclair, N. J. Filed Dec. 20, 1883. (No model.)

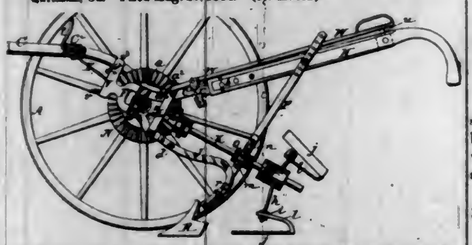


Claim.—1. The attachment for a lamp-wick herein described, consisting of a tubular and open-ended shield or guard made independent of any lamp-burner, adapted to receive the wick through it, and of a length to extend from a point near the bottom of a reservoir considerably above the level of fluid therein, the said shield or guard being provided with inwardly-deflected portions adapted to bear upon the wick and prevent the shield or guard from slipping downward thereon, substantially as and for the purpose herein described.

2. The tubular shield or guard D for a lamp-wick, open at both ends, and provided with inwardly-presented spurs or prongs *s*, substantially as and for the purpose herein described.

3. The combination, with a lamp, of a tubular shield or guard, D, receiving the wick through it, open at both ends, and extending from a point near the bottom of the reservoir upward nearly to the bottom of the burner, the attachment being suspended by the wick independently of the burner, and having a slip-connection with the wick which enables the wick to be fed upward when the shield or guard is stopped by the burner, substantially as herein described.

310,636. COTTON CHOPPER AND CULTIVATOR. GEO. M. BADGER, Quitman, Ga. Filed Aug. 27, 1884. (No model.)



Claim.—1. The combination, with the hoe-shaft, the gearing for operating it, the plow-carrying beams, and the handles, of a coupling-box arranged upon the axle, and the coupling-iron F, embracing and pivoted to said box in front of the axle, having a branch connecting the handles above the axle, a branch connecting the plow-beams below the axle, and a bearing for the hoe-shaft in rear of the axle, whereby both the revolving hoe and the plows are controlled by the handles for both lateral and vertical adjustment directly upon the axle, substantially as set forth.

2. The coupling-box G, mounted loosely upon the axle, in combination with the branched coupling-iron F, the hoe-shaft, the plow-beams, the handles, and the gearing, the said coupling-iron being coupled to the axle-box in front of the axle by a pin, whereby the coupling-iron has a pivotal movement upon the box and the latter a free movement upon the axle.

3. The combination, with the loose axle-box, the branched iron F, coupled to said box in front of the axle, the hoe and plow attachments, and the hoe-operating gearing, of a spring placed upon the axle and having bearing force against the axle-box to maintain the hoe-shaft pinion in gear with the axle-gear and allow of the lateral movements of the hoe and plow attachments.

4. The branched coupling-iron having the draft-clevis attachment, in combination with the loose coupling-box, the axle, the hoe and plow attachments, the hoe-shaft-operating gearing, and the guiding-thills, substantially as described, for the purpose specified.

5. The combination, with the axle B, the hoe-shaft, the plow-beams, and the handles, of a clevis-draft universal-joint coupling, consisting of a coupling-box, G, a coupling-iron, F, and a coupling-pin, *a*, passing through both, the said coupling-iron having a clevis attachment, V, and branches for the blow-beams and the handles, arranged upon and in relation to the axle, substantially as herein set forth.

6. The branched coupling-iron F, formed with a draft-clevis at its front end, the axle-box G, having a front projection, and the pin coupling these parts between the axle and the draft-clevis, combined with the axle-spring, the hoe and plow attachments, the hoe-shaft-operating gear, and the guiding-thills, substantially as described, for the purpose specified.

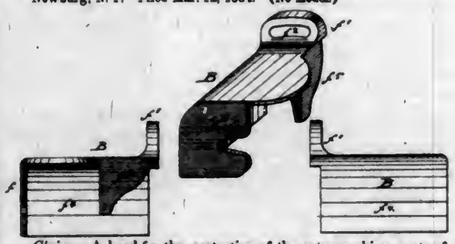
7. The combination, with the axle, the hoe attachment, its operating-gearing, and the handles, of a universal-joint axle-coupling device, consisting of the box G, the branched iron F, and the pin *a*, and the device for controlling the hoe-shaft pinion, consisting of the lever W, pivoted to the coupling-pin *a*, the spring T, and the arm X, pivoted to said lever and to a fixed axle-collar, the said lever having a pin-connection with the handles, and the said pinion and universal-joint coupling moved bodily to engage or disengage said pinion, substantially as described.

8. The revolving hoe of a cotton-chopper, consisting of a hub having screw-taps, the shouldered screw-spokes, and the hoe-blades *j*, having a bent branch arm, *l*, clamped upon the shouldered spokes by a nut, whereby the hoe-blade proper is free of the spoke-connection, for the purpose stated.

9. The branched coupling-iron F, the axle-box G, and the coupling-pin *a* for these parts, arranged in front of the axle, in combination with the hoe-shaft, having a bearing in the coupling-iron independent of the joint coupling-pin of the coupling-irons, substantially as described, for the purpose specified.

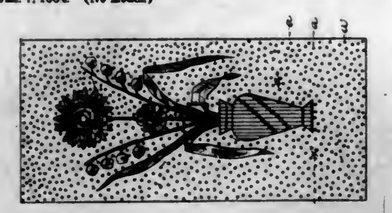
10. The combination, in a cotton-chopper, of the hoe and plow attachments, and a universal clevis-draft coupling therefor mounted directly upon the axle, with a disengaging device for the hoe-shaft-operating pinion, and the guiding-thills having a fastening-hook, *t*, whereby the hoe-shaft pinion is disengaged from the axle-gear when the plow and hoe attachments are turned up upon the thills when the machine is not in use.

310,637. HOOD FOR SHUTTER-HINGES. CHARLES W. BARNEKOW, Newburg, N. Y. Filed Mar. 12, 1884. (No model.)

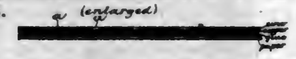


Claim.—A hood for the protection of the outer working parts of a shutter-hinge against the clogging effects of ice or snow, the said hood being open at the bottom, and provided at the front end with a recessed wall, and at the rear end with an upwardly-extending abutment, having an arc-shaped slot and a fastening thumb-screw, substantially as described.

310,638. ZINCOGRAPHY. JOHN W. BARRON, Boston, Mass., assignor to Edward F. Hagar, same place, and Henry Sawyer, Chelsea, Mass. Filed Jan. 7, 1884. (No model.)



310,638. (enlarged)



Claim.—1. A zinc plate prepared for printing and provided with perforations or reservoirs in its open spaces, as set forth.

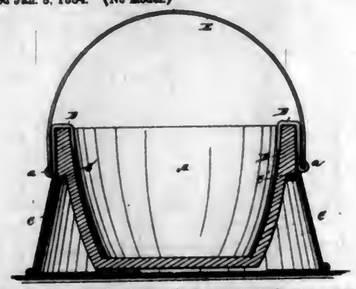
2. A zinc plate prepared for printing and provided with perforations or reservoirs in its open spaces, and with an absorbent of water in or communicating with said reservoirs, as set forth.

3. A zinc plate prepared for printing and provided with perforations or reservoirs in its open spaces, and with a backing of glue, as set forth.

4. A zinc plate prepared for printing and provided with perforations or reservoirs in its open spaces, a backing of glue or its equivalent, substantially as described, and a confining sheet or sheets of paper applied to the back of the glue, as set forth.

5. A zinc plate prepared for printing and provided with a backing of copper, whereby the plate is strengthened and protected against chemical action, as set forth.

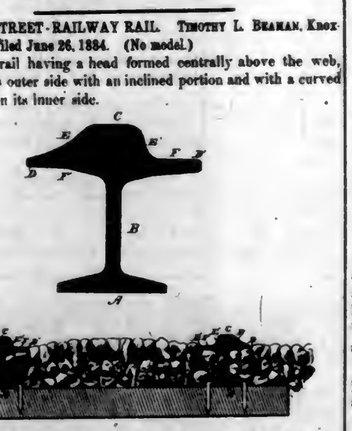
310,639. CULINARY VESSEL. THOS. G. BEAHAN, Zanesville, Ohio. Filed Jan. 8, 1884. (No model.)



Claim.—The combination, with the crock A, having a rim, B, and the metal support C, having an inwardly-projecting flange at its upper end, of the hooks D, secured at their lower ends within perforations in the flanged end of the support, bent at their upper ends to fit over the edge of the crock, and twisted between said ends to form eyes *a* for the bail, substantially as set forth.

310,640. STREET-RAILWAY RAIL. TIMOTHY L. BEAHAN, Knoxville, Tenn. Filed June 26, 1884. (No model.)

Brief.—A T-rail having a head formed centrally above the web, and provided on its outer side with an inclined portion and with a curved projecting flange on its inner side.



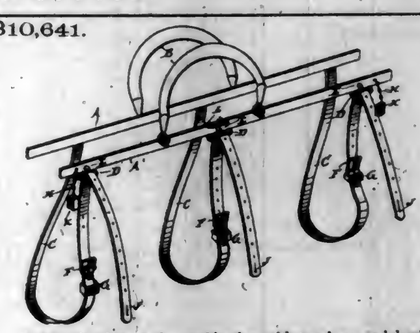
Claim.—1. The combined tram and T rail herein described, having a head formed centrally above the web, and provided on its outer side with an inclined portion and on its inner side with a horizontally-projecting flange, a curved portion being provided between the head and inner flange, as shown.

2. In a combined center-bearing tram and T rail, the head C, having a flange, D, with curved portion F', formed on one side, and on the opposite side a flange, B', with horizontal portion F, the portion between the head and horizontal portion F being an ogee curve, substantially as shown, and for the purpose set forth.

310,641. SHAWL-STRAP. LAURA A. BEATTY, Galesburg, Ill. Filed June 14, 1884. (No model.)

Claim.—1. A shawl-strap made substantially as herein shown and described, and consisting of two bars, to one of which a series of single straps are secured which pass through loops on the other bar, and are secured to themselves respectively, substantially as herein shown and described.

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2. In a shawl-strap, the combination, with two bars, each having a handle, of means, substantially as set forth, for holding the two bars together, and of straps secured to one bar and passed through loops on the other, substantially as herein shown and described.

3. In a shawl-strap, the combination, with the bars A A', of the boxes or frames K K, held by chains to the ends of the bar A', the straps C, secured to the bar A, and having buckles F, and of the elongated loops D on the bar A', substantially as herein shown and described.

4. In a shawl-strap, the combination, with the bars A A', of the boxes or frames K, the catch, clasp, or latch L, the strap C, secured on the bar A, and provided with buckles F, the loops D on the bar A', and the buttons E above the loops, substantially as herein shown and described.

310,642. GUANO-DISTRIBUTER. SAMUEL H. BELL, Pinckneyville, Ala. Filed May 13, 1884. (No model.)



Claim.—1. The combination, in a seed and grain planter, of a standard carrying the furrow-opening devices, and comprising two bars, and a hopper provided with planting means, and connected to said standard by means of a loop embracing the standard, and a guide-block received between the said bars, so as to play vertically with respect thereto, substantially as set forth.

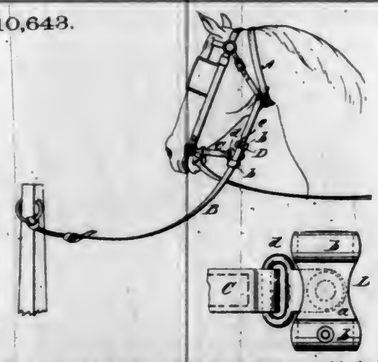
2. The combination, in a seed and grain planter, of a standard comprising two bars, and carrying the furrow-opening shoe at its lower end, a wedge-shaped shoe supported at the rear end of an arm projecting upwardly between said bars, and a hopper provided with planting devices and connected to said standard so as to play vertically with respect thereto, substantially as set forth.

3. The combination, in a seed and grain planter, of a standard carrying the furrow-opening devices, a draft-beam secured to said standard, an arm secured to said draft-beam, and passing rearwardly through the standard and supporting a wedge-shaped furrow-smoothing shoe at the rear of the standard, and a hopper provided with planting devices, and connected to said standard by means of a loop embracing the standard, so as to play vertically with respect thereto, substantially as set forth.

4. The combination, in a seed and grain planter, of a standard composed of the bars contracted at their lower portions and supporting the furrow-openers, a seed-hopper provided with planting devices, a loop secured to the front of the hopper and embracing the contracted portion of said standard, a block projecting from the front of the hopper and resting between the bars, and a pivoted button on said block, substantially as and for the purpose set forth.

310,643. HITCHING-STRAP. SAMUEL BIRDSALL, Susquehanna, Pa. Filed Nov. 11, 1884. (No model.)

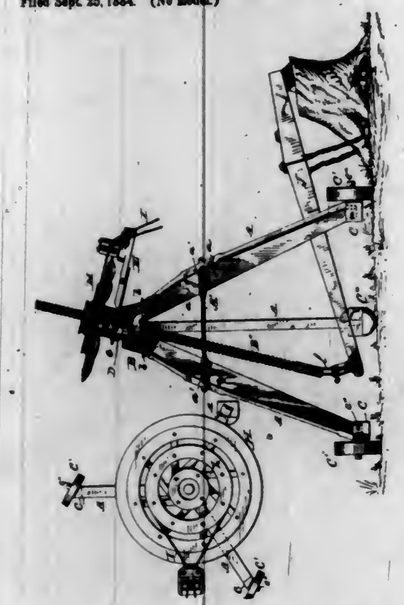
310,643.



Claim.—1. In a hitching-strap, the combination, with the strap B and brace-strap C, of the clasp formed with loops *b* and stud *c*, and the loop *d*, hung on the stud of the clasp, substantially as described.

2. The coupling device D, provided with pivoted loop *d*, combined with the tie-strap B and brace-strap C, substantially as described.

310,644. STUMP-EXTRACTOR. HOMER L. BOYLE, Hamilton, Mich. Filed Sept. 25, 1884. (No model.)



Claim.—1. In combination with the legs A A, having tenons *c*, the block or casting C, having a beveled side, and stub-axles *c''*, supporting carrying-wheels and securing the castings to the tenons, substantially as shown.

2. In a stump-puller, the casting or block B, having the legs or supports pivotally attached thereto, and provided on its upper side with a concave bearing, in combination with a convex block, D, nut G, supported thereon, operating-wheel H, having graduated disks, anti-friction rollers carried in frame F, and screw-threaded rod B'', substantially as shown, and for the purpose set forth.

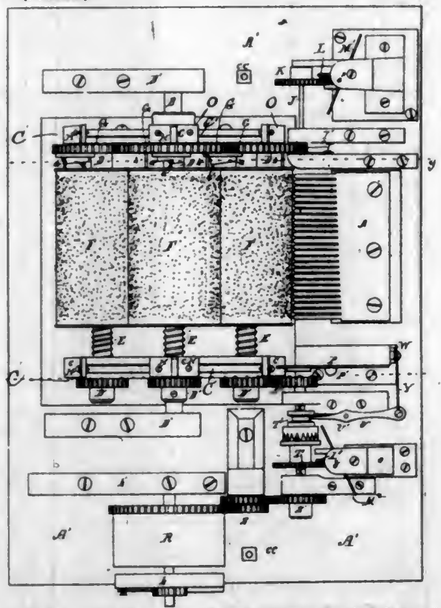
3. In a stump-puller, a tripod carrying at its upper end a rotary wheel carrying an internally screw-threaded block which is supported upon an oscillating bearing, and wheel H, carrying graduated disks *i*, substantially as shown, and for the purpose set forth.

4. In a stump-puller, a supporting-frame provided at its upper end with a concave bearing-block, nut G, convex bearing-block D, having anti-friction rollers interposed between the same, and an operating-wheel having graduated disks *i* and screw-threaded rod B'', substantially as shown, and for the purpose set forth.

5. In a stump-puller, substantially as described, the bearing-block D, grooved near its upper end, and provided with a strap, *e*, for supporting the arm E, which carries at its outer end vertical and horizontal guide-rollers, substantially as shown, and for the purpose set forth.

6. In a stump-puller, a supporting-frame the members of which are connected to each other at their upper ends by a casting having a central opening and a convave bearing-surface, a bearing-block adapted to lie within said concave surface and support an arm having guide-pulleys attached to its outer end, a ring, F, carrying a series of anti-friction rollers, and nut G, carrying the operating means, as specified, and a screw-threaded rod connected at its lower end to a lever, the parts being combined and organized substantially as shown, and for the purpose set forth.

310,645. MUSIC-BOX. JOHN A. BRADSHAW, Lowell, Mass., assignor, by direct and mesne assignments, of three-fourths to James Leach, Orange V. Smith, and Thomas F. Byron, all of same place. Filed Mar. 30, 1883. (No model.)



Claim.—1. In a music-box, the disks C' upon the shaft B, a series of cylinders mounted thereon, with the bearings C, flanges O, and set-screws H, in combination with the slide P and levers P' and W, as set forth.

2. In a music-box, the disks C' upon the shaft B, having mounted thereon a series of cylinders, with bearings or stands C, having flanges O, set-screws H, and projections H', in combination with the slide P, levers P' and W, connecting-rod Y, lever U, coupling T', gear-wheel T, gear and pinion L', screw M^2, and fan M^3, substantially as set forth.

310,646. MACHINE FOR FORGING BOLT-BLANKS. JOHN BRUDERER, Philadelphia, Pa., and ORRIN C. BURDICT, Buffalo, N. Y., assignors to Plumb, Burdict & Barnard, Buffalo, N. Y. Filed Mar. 14, 1884. (No model.)

Claim.—1. The combination, substantially as before set forth, of the reciprocating piston and its shifting die-holder with the movable blank-carriage which presents the blanks to the tool carried by said shifting die-holder.

2. The combination, substantially as before set forth, of the reciprocating piston and its rocking die-holder with lateral forging-dies.

3. The combination, substantially as before set forth, of the reciprocating piston, the rocking die-holder, the bell-crank connected with said die-holder, and the movable guide by which said bell-crank is controlled.

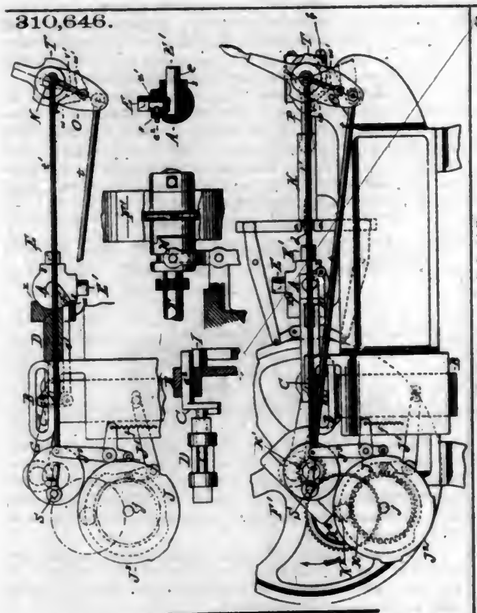
4. The combination, substantially as before set forth, of the reciprocating piston, the rocking die-holder, and the fixed guide for locking the die-holder in its several positions.

5. The combination, substantially as before set forth, of the shifting die-holder, two heading-dies, and a single set-screw.

6. The combination, substantially as before set forth, of the reciprocating piston fitted with shoulders, and the shifting die-holder fitted with shoulders.

7. The combination, substantially as before set forth, of the reciprocating piston constructed with a curved seat for the shifting die-holder, with the shifting die-holder constructed with a curved periphery to bear in said seat of said piston.

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310,647. STOVE. THOMAS BURKHARD, New York, N. Y. Filed May 28, 1884. (No model.)

Claim.—1. The combination, in a stove-body, of a sheet-iron bottom and a cast-iron skeleton base having integral feet, substantially as herein described.

2. The footed skeleton stove-base consisting of the cross *b b*, the ring *c c*, and the feet *d d* at the ends of the arms of the cross, substantially as herein described.

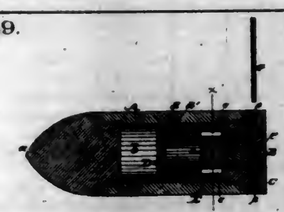
310,648. CARTRIDGE FOR COMPRESSED AIR. WILLIAM T. CHAMBERLAIN, Norwich, Conn., assignor of two-thirds to Benjamin M. Prince, same place, and William Crossley, Randolph, Mass. Filed May 27, 1884. (No model.)

Claim.—A cartridge-shell operating with an air-charged barrel consisting of a shell with ports, a valve encircling said shell for covering and uncovering said ports, and a plunger which is fitted within the shell and connected with said valve, substantially as and for the purpose set forth.

310,649. PNEUMATIC PROJECTILE. WILLIAM T. CHAMBERLAIN, Norwich, Conn., assignor of two-thirds to Benjamin M. Prince, same place, and William Crossley, Randolph, Mass. Filed May 27, 1884. (No model.)

Claim.—1. A projectile having a chamber for compressed air, an inlet for the same, a valve for closing said inlet, a movable plug in the base, a

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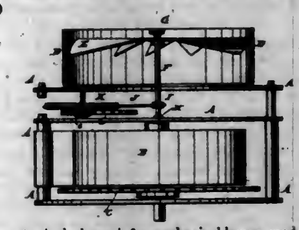
sliding valve attached to said plug, and a tubular guide attached to the base, said guide having slots or openings in communication with the air-chamber and the discharge-passage of the projectile, and said sliding valve covering the slots of the guide and made removable when the plug is struck, substantially as and for the purpose set forth.

2. In an air-charged projectile, a tubular guide in the air-chamber, with slots or openings in communication with said chamber and the discharge-passage of the projectile, in combination with a hermetically-sealed sliding valve fitted on said guide over the slots and movable by the action of a plug with which it is connected, substantially as and for the purpose set forth.

310,650. CARTRIDGE. HENRY F. CLARK, Poughkeepsie, N. Y. Filed Sept. 13, 1884. (No model.)

Claim.—The combination, with the cartridge-shell, of a bullet having a paper patch around the same, and lubricating material introduced in the shell around the point of the ball, substantially as set forth.

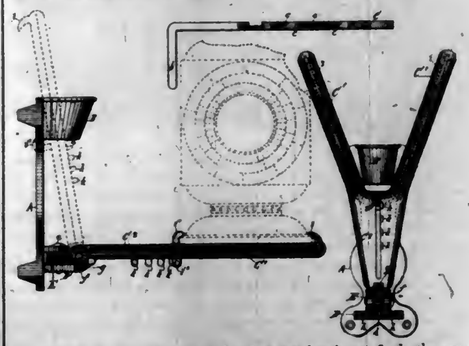
310,651. CLOCK-WORK FOR MECHANICAL LAMPS. FREDERICK COOK and JOHN H. POMEROY, New Haven, Conn. Filed Apr. 3, 1884. (No model.)



Claim.—1. A clock-work for mechanical lamps, made, substantially as herein shown and described, with the fan-shaft connected with the clock-work gear-wheels by an elastic driving-band, as set forth.

2. In a clock-work for mechanical lamps, the combination, with the clock-work gear-wheels B and the fan-shaft F, of the pulleys K I and the elastic band J, substantially as herein shown and described, whereby the fan will be driven without any injurious side pull upon the fan-post and without noise, as set forth.

310,652. HOLDER FOR SIGNAL LANTERNS AND FLAGS. FRANK W. COOLBAUGH, New York, N. Y. Filed Oct. 5, 1883. (No model.)



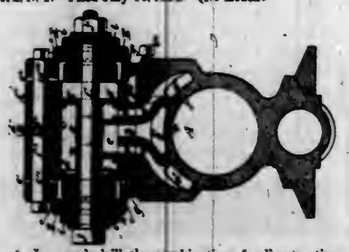
Claim.—1. In a device of the character herein set forth, the combination, with the base-plate carrying a socket for the flag-staff, of a lantern-clamp automatically adjusted to accommodate any size of lantern, and arranged to hold a lantern by spring-pressure, the arms of the

clamp being divided longitudinally and having the springs located therein, substantially as shown and described.

2. In a device of the character herein set forth, the combination, with the base-plate carrying a socket for a flag-staff, of a lantern-clamp automatically adjustable to accommodate various sizes of lanterns, said clamp being arranged to hold a lantern by spring-pressure thereon, and to be locked against accidental disarrangement of the clamp or its spring, the springs being located within the arms, substantially as and for the purposes set forth.

3. The combination, with the base-plate, of a flag-staff socket mounted thereon and arranged, as described, so as to leave a second socket or cavity behind the flag-staff socket, for the purposes and objects named.

310,653. VALVE FOR ROCK-DRILLS. GEORGE R. CULLINGWORTH, New York, N. Y. Filed July 16, 1884. (No model.)



Claim.—1. In a rock-drill, the combination of a direct-acting valve, a main cylinder and piston, and a valve-chest, the cylinder and chest being provided with passages communicating with the exhaust and controlled by the main piston, whereby provision is afforded for operating the valve by a diminution of pressure on opposite ends of the valve alternately, and valves capable of operation by hand to place one or other end of the valve-chest in direct communication with the atmosphere, substantially as and for the purpose herein described.

2. The combination, with the valve-chest C, containing the longitudinal bore C^*, and passages $c' c^2$, leading from opposite ends of the chest to the atmosphere, of the valve D, having the exhaust-cove c and heads $d' d^*$, and the plug C^3, having ports $c'^* c^{2*}$, and controlling the ports $c' c^2$, substantially as herein described.

3. The combination of the main cylinder A and chest C, constructed with the main supply and exhaust ports $a\ a'\ b$, the passages $f f$ between the cylinder and chest, and the passages $o\ o'$ between the cylinder and the main exhaust, and ranging with the passages $f f$ in a direction transverse to the cylinder, valves or throttling devices e^*, controlling the passages $f f$, the main valve D, with its heads $d\ d'$, and the main piston B, having the portion B' of reduced diameter, all substantially as herein described.

4. The combination, with the valve-chest and direct-acting valve of a rock-drill, of heads E, abutments F, provided with shank or stems h and nuts i, and the tie-bolt G, all substantially as herein described.

310,654. STEAM-MUFFLER. CHARLES H. DE WITT, Weatherly, Pa. Filed June 4, 1884. (No model.)



Claim.—1. In a steam-muffler, a shell within which is a box having an open bottom, a closed top, and a perforated wall, and straight tubes connected with said wall, communicating with the box through the perforations thereof, and projecting therefrom horizontally, and opening toward the wall of the shell, whereby the steam is dashed directly against said wall, substantially as and for the purpose set forth.

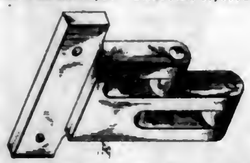
2. A shell provided with two or more boxes, located one above the other, with expansion-chambers between them, each box having an open bottom, a closed top, and a perforated wall, and tubes connected with said wall projecting therefrom at a right angle to the wall of the shell, substantially as and for the purpose set forth.

3. In a steam-muffler, a shell having a perforated box therein, and a horizontally-arranged perforated plate above the same, said shell being continued upwardly, forming a flange which projects above the said plate, substantially as and for the purpose set forth.

4. In a steam-muffler, a shell having a perforated box therein, and a horizontally-arranged perforated plate above the same, said shell being continued above said plate, and said box and plate having between them an expansion-chamber, substantially as and for the purpose set forth.

5. A shell having perforated boxes located therein, one above the other, tubes connected with said boxes, projecting horizontally therefrom at a right angle to the shell, a horizontally-arranged perforated plate above the box, an expansion-chamber between the perforated plate and the top box, and a top rim, which is a continuation of the shell above said plate, said parts being combined and operating as described, forming an improvement in steam-mufflers.

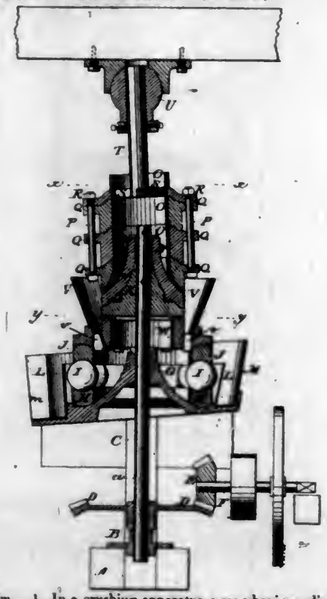
310,655. SAFETY-GUARD FOR ECCENTRIC-RODS. WILLIAM H. DUTTENDERFER, Middletown, Pa. Filed June 18, 1884. (No model.)



Claim.—1. The combination, with the eccentric-rods of a locomotive steam-engine, of a safety-guard constructed substantially as described, whereby the rods are allowed free play through the slots or bifurcations thereof, without being supported thereby, but held suspended immediately on becoming disconnected from their fastenings, substantially as and for the purpose set forth.

2. A safety-guard for the eccentric-rods of locomotive-engines, constructed substantially as described, whereby it will form a support for the rods only when they become disconnected from their fastenings, substantially as and for the purpose specified.

310,656. ROCK-CRUSHER. AARON G. DYER and JAMES M. DYER, San Francisco, Cal. Filed Dec. 26, 1883. (No model.)



Claim.—1. In a crushing apparatus, a cone having a diverging base and a central vertical shaft, in combination with a hollow cylinder surrounding the cone, and having its lower interior section made diverging and approximating the form of the exterior of the cone, and an independent guide-shaft having its upper end journaled out of line with the cone-driving shaft, substantially as herein described.

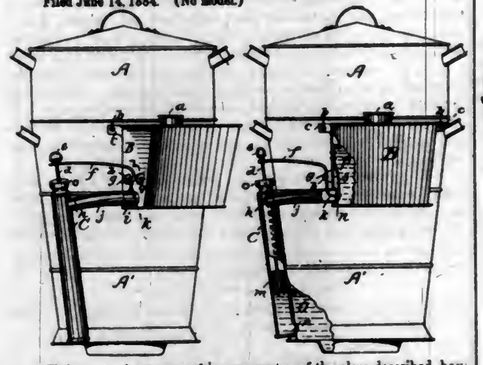
2. In a crushing apparatus, a cone having a diverging base, a central vertical driving-shaft, a hollow cylinder having a diverging conical base, and an independent shaft standing out of line with the cone-driving shaft, in combination with annular grooved dies and the balls upon which the apparatus rests and is rotated, substantially as herein described.

3. In a crushing apparatus, a vertical rotating cone, the supporting-balls, the grooved annular dies, a cylinder surrounding and resting upon the cone, and having its lower section diverging and corresponding with the exterior surface of the cone, and an independent guide-shaft for said cylinder, arranged out of line with the cone-shaft, in combination with a guiding chute or hopper, V, by which the material escaping between the cone and the cylinder is delivered between the balls and dies, substantially as herein described.

4. In a crushing apparatus, the cone K, the vertical rotating shaft, the cylinder O, having its lower part shaped similarly to the cone upon which it rests, and a shaft independent of the cone-shaft, extending upward at an angle thereto, in combination with grooved annular dies, intermediate balls, and a conical base, G, substantially as herein described.

5. In a crushing apparatus, the vertical rotating cone K, shaft C, and the superposed cylindrical casing O, in combination with the shaft T, the ball U on said shaft, and the box in which the ball fits, whereby the angle of the shaft may be changed relative to the axis of the cone, substantially as described.

310,657. STEAM-COOKER. HIRAM A. EATON, Manchester, Me. Filed June 14, 1884. (No model.)



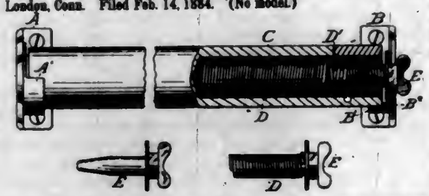
Claim.—1. A steam-cooking apparatus of the class described, having a main water-reservoir in its lower portion, combined with an external auxiliary reservoir, a passage connecting the auxiliary and main self-closing reservoirs, a self-closing valve adapted to control the flow of water from the auxiliary reservoir, a float supported by the water in the main reservoir, and a connection between said float and valve whereby the valve is opened when the water in the main reservoir falls below a given point, as set forth.

2. The combination, with a steam-cooker having a main reservoir, A', of an auxiliary reservoir secured to and bearing against the surface of the cooker, whereby the water in said auxiliary reservoir is heated, a connection between said auxiliary and main reservoirs, and means, substantially as described, whereby water from the auxiliary reservoir is automatically admitted to or shut off from the main reservoir, as set forth.

3. The combination of the main reservoir A', having the tube C and float *m*, the auxiliary reservoir B, connected by a tube or passage with the main reservoir, the self-closing valve *n*, for said tube or passage, the pivoted lever *f*, bearing against said valve, and the rod *d*, affixed to the float, and adapted to move said lever and open the valve when the float falls to a given point, as set forth.

4. The combination of the main reservoir A', the auxiliary reservoir B, detachably secured to the external surface of the main reservoir, and connected by a detachable tube, *j*, with the interior of the main reservoir, a self-closing valve adapted to control the escape of water from the auxiliary reservoir, and means, substantially as described, whereby said valve is opened and closed by variations in the height of the water in the main reservoir, as set forth.

310,658. WINDOW-CURTAIN ROLLER. GEORGE W. EDDY, New London, Conn. Filed Feb. 14, 1884. (No model.)



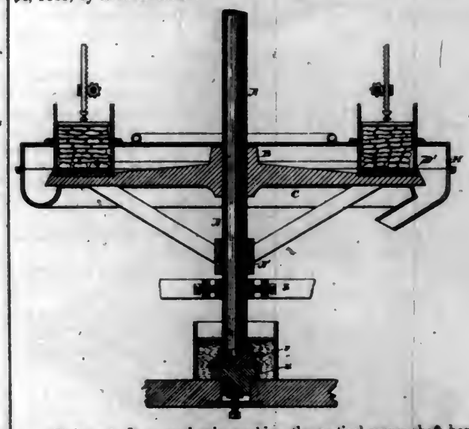
Claim.—1. The combination of the inner end of a coiled torsional spring, and the arbor or plug forced therein sufficiently tight to cause the coils to wind upon the arbor and bind thereon under torsional strain, and vice versa, substantially as described.

2. The combination of the bracket B, the flanged arbor E, firmly attached to the spring D, and the roller C, so constructed as that the spring may be tightened or loosened by lifting the arbor out of the slot of the bracket and giving it so many or parts of turns in either direction, as the case may require, and by thereupon replacing the arbor in the slot, all substantially as described.

3. The combination of a curtain-roller, a spring inclosed within one end thereof, and a journal for that end of the roller, which is independent of the arbor within the spring, substantially as described, and for the purpose specified.

310,659. MACHINE FOR THE REDUCTION OF WOOD PULP. EDWARD P. ELY, South Wallingford, Vt., assignor to Alexander H. Ritchie, New York, N. Y. Filed Nov. 7, 1883. (No model.)

Brief.—Improvement on application Serial No. 109,898, of October 24, 1883, by same inventor.



Claim.—1. In a wood-pulp machine, the vertical power-shaft having means for rotating an emery-ring, and provided with a cap adapted to rest and travel on a step, the said cap and step being respectively concave and convex, as and for the purposes set forth.

2. In a wood-pulp machine, the combination of the main power-shaft, the cap having the concave lower surface, the stop having the convex upper surface, and the surrounding water-tank, all arranged substantially as and for the purposes set forth.

3. In a wood-pulp machine, the combination, with vertical power-shaft and the concave cap, of the step adapted to form a bearing-surface for the above, and provided with means of adjustment, substantially as described.

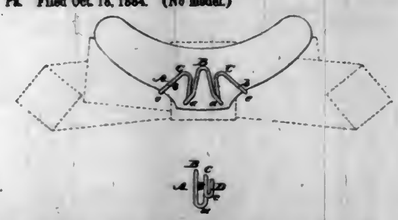
4. In a wood-pulp machine, the combination of the vertical power shaft or spindle having arms or spokes adapted to turn an emery-ring, and the braces placed directly under said emery-ring and extending downwardly and attached to the power-shaft, for strengthening the arms and supporting the arms and ring, as set forth.

5. In a wood-pulp machine, the vertical power-shaft having a loose bearing at bottom, substantially as described, in combination with an adjustable bearing surrounding said shaft, whereby it is confined to its plane of rotation, as explained.

6. In a wood-pulp machine, the vertical power-shaft having means for rotating an emery-ring, and provided at its lower end with a bearing-surface of hard wood, in combination with a bearing-step, formed also of wood, and a water-tank surrounding the same, as and for the purpose set forth.

7. The combination of a vertical shaft, a suitable step at bottom, upon which it rests and revolves, a water-tank surrounding the same, and means for maintaining them in axial alignment, substantially in the manner and for the purpose set forth.

310,660. NECK-WEAR RETAINER. LOUIS ESCHNER, Philadelphia, Pa. Filed Oct. 18, 1884. (No model.)



Claim.—An improved neck-wear retainer, consisting of the central buttoning-loop, B, side elastic loops, C, and fingers D, said parts being constructed and combined substantially as described.

310,661. SHIRT AND NECKTIE FASTENER. SIGMUND FECHHEIMER, New York, N. Y. Filed Oct. 23, 1884. (No model.)



Claim.—As an improved article of manufacture, a shirt and necktie fastener made as herein shown and described, the same consisting of a face-piece provided with inwardly-bent end hooks or fastenings that stand away from the back of the face-plate, so as to leave space when applied to the shirt for the necktie, and hold the same in place between the front of the shirt and the back of the face plate or piece, while at the same time the edges of the shirt-bosom are securely fastened, all as set forth.

310,662. TERRA-COTTA PAVEMENT. JOHN M. FREEMAN, Steubenville, Ohio. Filed May 28, 1884. (No model.)

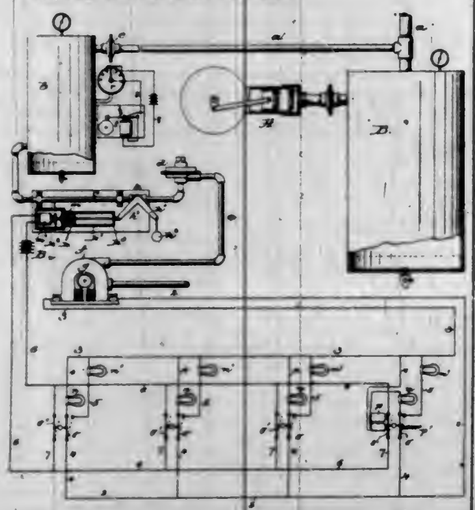


Claim.—1. A street-pavement having the upper road-bed or wearing-surface thereof formed of a series of terra-cotta blocks having tongue-and-groove connections extending centrally along the sides thereof and fitting within each other, substantially as and for the purposes set forth.

2. A street-pavement having the road-bed or wearing-surface thereof formed of a series of terra-cotta blocks provided with tongue-and-groove connections extending centrally along the side thereof, and with beveled edges or corners to form grooves, substantially as and for the purposes set forth.

3. A street-pavement having the upper road-bed or wearing-surface thereof formed of hollow terra-cotta blocks, substantially as and for the purposes set forth.

310,663. SYSTEM OF ELECTRIC LIGHTING. OSCAR GASSETT, Boston, Mass. Filed Oct. 8, 1883. (No model.)



Claim.—1. In an apparatus for electric lighting, a sub-station containing a mechanical motor and electric generator actuated thereby, combined with an electro-magnet controlling the application of power to the motor, and circuit therefor having closing branches, a circuit for the generator having branches containing lamps, and switches controlling the lamp-circuit and circuit of the controlling-magnet, substantially as described.

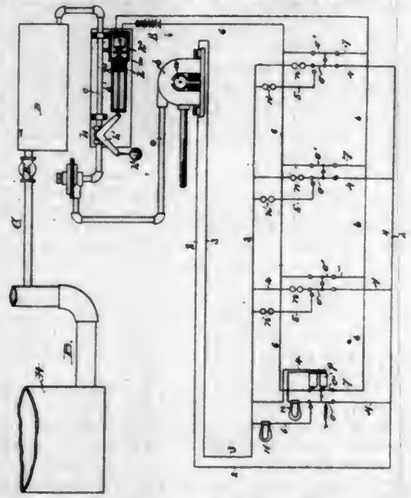
2. In a system of electric lighting, the following elements in combination, namely: a main station containing a fluid compressor and reservoir, sub-stations, each containing a reservoir connected by pipes with the main reservoir, a motor and electric generator actuated thereby, an electric circuit from the said generator, having branches containing the lamps to be used, and independent branches containing substitute lamps, and switches whereby one of the said branches is closed when the other is opened, substantially as described

3. In an electric-lighting apparatus, a motor and electric generator actuated thereby and connected in circuit with the lamps, combined with a valve controlling the application of power to the motor, and an actuating cylinder and piston for the said valve, and a valve and actuating electro-magnet controlling the admission of fluid to the said cylinder, and a circuit for the said magnet, having controlling-switches, substantially as described.

4. An electric circuit having branches containing electric lamps and other corresponding branches containing substitute lamps, combined with a switch or circuit-changing device controlling both branches, as set forth, whereby the branch containing the substitute lamp is closed when the corresponding branch is opened, and the reverse, substantially as described.

5. An electric circuit having a branch containing a lamp, and a switch-controlling magnet in the said branch, combined with a corresponding branch containing a substitute lamp, and a switch controlled by the said magnet, and itself governing the condition of both branches, whereby the second branch is automatically closed when the first-mentioned branch is broken, substantially as described.

310,664. APPARATUS FOR DISTRIBUTING ELECTRICITY. OSCAR GASSETT, Boston, Mass. Filed Feb. 23, 1884. (No model.)



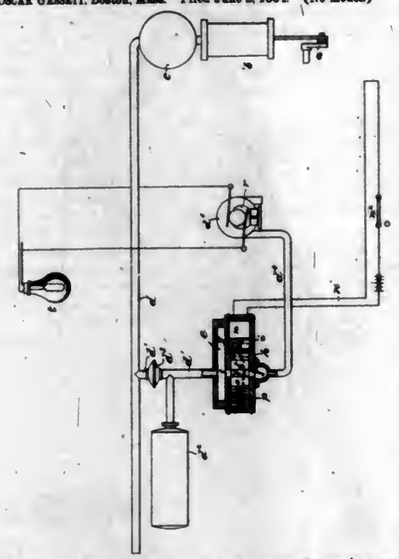
Claim.—1. In an apparatus for distribution of electricity, a mechanical motor and electric generator actuated thereby, combined with an electro-magnet controlling the application of power to the said motor and circuit therefor, and a circuit for the said generator and instruments operated by the current therein, and switches controlling the circuit of the said instruments and the circuit of the controlling-magnet, substantially as described.

2. In an apparatus for distribution of electricity, a motor and electric generator actuated thereby, and an electro-magnet controlling the application of power to the said motor, combined with a circuit from the said generator, having branches, each containing apparatus for utilizing the electric current, and a circuit for the motor-controlling magnet, and switch controlling both the said circuits simultaneously, substantially as described.

3. In an apparatus for distribution of electricity, a motor and electric generator actuated thereby, and an electro-magnet controlling the application of power to the said motor, combined with a circuit from the said generator, having branches containing electrical instruments and substitute branches of equal resistance, and a circuit for the motor-controlling magnet, and switches controlling the branches of the generator-circuit and the circuit of the generator-controlling magnet simultaneously, substantially as described.

4. A system for distributing power and electricity comprising the following elements in combination: a main station containing a main reservoir for fluid under pressure, sub-stations, each containing a reservoir connected by pipes with the main reservoir, and a motor and electric generator actuated thereby, and an electro-magnet controlling the passage of fluid from the reservoir to the motor, and circuits for the said generator and controlling-magnet, having circuit-controlling instruments accessible in common, substantially as described.

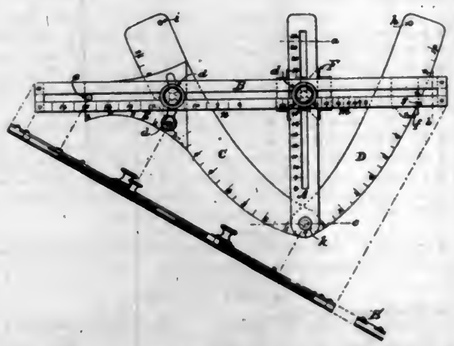
310,665. APPARATUS FOR THE DISTRIBUTION OF ELECTRICITY. OSCAR GASSETT, Boston, Mass. Filed June 2, 1884. (No model.)



Claim.—1. The combination of a prime motor for storing power, a secondary motor adapted to be actuated thereby, an electric generator actuated by the said secondary motor, and an electro-magnet, circuit, and circuit-controlling device governing the application of power to the secondary motor, substantially as described.

2. The combination of a prime motor, operating to accumulate a fluid under pressure, a main reservoir for said fluid, and distributing-pipes leading therefrom, secondary reservoirs connected with said pipes at sub-stations where the power is to be used, secondary motors and electric generators actuated thereby at the said sub-stations, and electro-magnets, circuits, and circuit-controlling devices governing the application of power to the secondary motors, substantially as described.

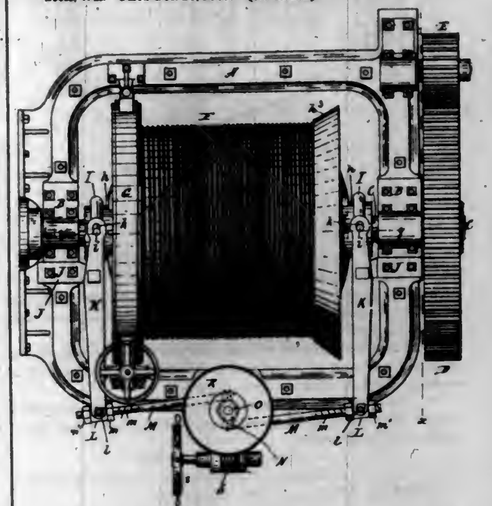
310,666. APPARATUS FOR DRAFTING THE ARM-SIZE OF GARMENTS. GEORGE S. GATES, Athol, Mass. Filed Sept. 11, 1884. (No model.)



Claim.—1. The combination of two cross-scales sliding one upon the other, so that the end of one moves parallel and perpendicular to the length of the other, one of the scales having pivoted to it two curves, and the other carrying a sliding curve, the sliding curve and cross-scales being provided with suitable clamps for holding them in any desired position, substantially as described.

2. The combination of cross-scales and pivoted curves for drafting the curve of the arm-size of garments, which gives the length of such curve and the length of a right line joining its extreme ends, substantially as described.

310,667. HOISTING APPARATUS. DUNCAN GILCHRIST, Ishpeming, Mich., assignor of one-half to the Marinette Iron Works Company, Marinette, Wis. Filed Dec. 20, 1883. (No model.)



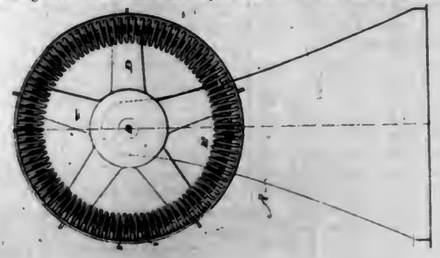
Claim.—1. The continuously-revolving driving-shaft, in combination with the drum loosely mounted thereon and provided with beveled friction-faces, the pair of driving-plates feathered to the shaft on opposite sides of the drum and provided with corresponding beveled friction-faces, and the levers K, arranged opposite the plates, respectively, each provided at one end with a fork which embraces the hub of the corresponding plate, and fulcrumed on the frame between said hub and the front side of the machine, substantially as and for the purpose described.

2. The continuously-revolving driving-shaft, in combination with the drum mounted loosely thereon and provided with the beveled friction-faces, the pair of plates feathered to the shaft and provided with corresponding beveled friction-faces, the forked levers, each connected at its inner end with the corresponding driving-plate, the vertical shaft carrying a double crank or double cranks, the connecting-rods, respectively, connecting the outer ends of the forked levers to the crank-arm on opposite sides of its shaft, and the gearing for turning said vertical shaft in either direction at the will of the operator, substantially as and for the purposes set forth.

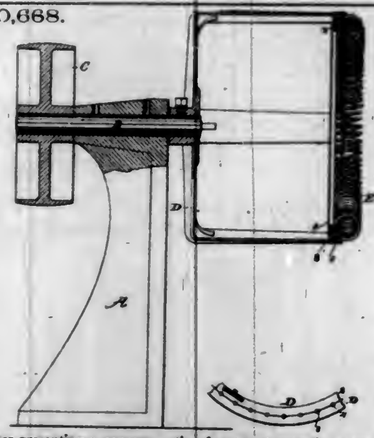
3. The drum mounted loosely on the driving-shaft, in combination with the pair of friction driving-plates feathered to the shaft, the forked levers respectively connected at their inner ends to the hubs of the plates, the trunnioned boxes mounted in the forks at the outer ends of the said levers, the connecting-rods fitted, respectively, in the said boxes, the vertical shaft provided with a double-crank arm, to which the connecting-rods are attached, respectively, on opposite sides of the shaft, and the worm-gearing for turning the vertical shaft in either direction, substantially as and for the purposes set forth.

310,668. CHANNEL-FLAP LAYER. OTHNIEL GILMORE, North Raynham, Mass. Filed June 9, 1884. (No model.)

Claim.—1. In a channel-flap-laying machine, an endless rotating open-centered wiper having at its inner side a corrugated or ribbed surface, against which within the wiper the boot or shoe may be pressed,



310,668.

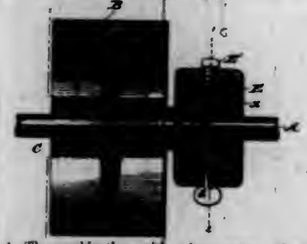


the wiper presenting a concave acting face to act upon the convex part of the sole of the boot or shoe both at the fore part and shank, substantially as described.

2. The wiper composed of a movable coil of wire, combined with means to rotate or move the said coil in the direction of the longitudinal axis of the said coil, substantially as described.

3. The shaft B and its connected carrier, combined with an attached annular wiper having a corrugated or convex surface open at its center, substantially as described.

310,669. LOOSE-PULLEY LUBRICATOR. FRANCIS GLEASON, Philadelphia, Pa. Filed Oct. 27, 1884. (No model.)



Claim.—1. The combination, with a loose pulley, of an oil-casing upon the shaft and a channel parallel with the shaft leading from the interior of the oil-casing to the pulley-bearing, substantially as described.

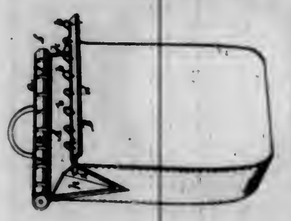
2. The combination of a shaft, oil-casing, slotted sleeve extending therefrom into the hub of an adjacent pulley, and a channel forming a communication between the slot and the oil-chamber, for the purpose specified.

3. The combination, with a shaft, of an oil-casing connected thereto, and provided with a slotted sleeve extending into the hub of an adjacent pulley, and a strip of fibrous material extending from the oil-chamber into the slot of the sleeve, for the purpose set forth.

4. The combination, with a shaft or stud, A, and loose pulley, of a slotted sleeve upon the shaft constituting the bearing of the said pulley, a casing connected to the said sleeve, containing an oil-chamber communicating with the slot in the sleeve, and a strip of fibrous material extending from the said slot to the oil-chamber, substantially as set forth.

5. The casing E, containing an oil-chamber, and adapted for attachment to a shaft, and provided with a laterally-extending hollow sleeve having a groove and a channel extending from the groove into the oil-chamber, substantially as set forth.

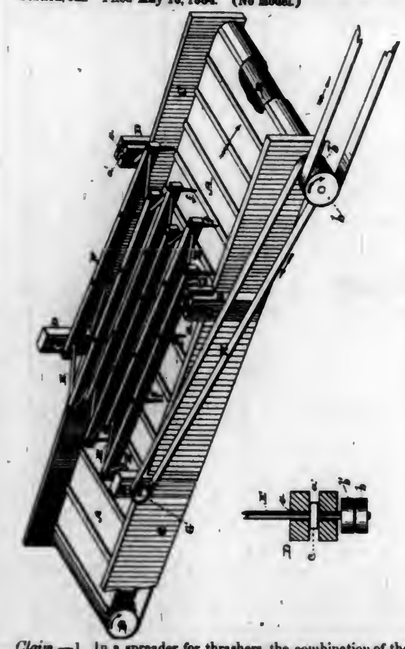
310,670. MAIL-BAG. ANDREW J. GOULD, Quincy, Cal., assignor of one-half to Howland M. Barstow, same place. Filed Oct. 3, 1884. (No model.)



Claim.—1. A mail-bag having a thickened side or jaw, A, provided with mortises or openings *f f* in its side surface, adapted to receive and inclose the staples *b b* of the other jaw, B, whereby the said staples are completely protected against violence and injury, substantially as herein specified.

2. The combination of the jaw A, having the enlarged roll *a*, the staples *b b* on the other jaw, B, and the fastening-pin C, tapering at its entering end *l*, substantially as and for the purpose herein specified.

310,671. SPREADER FOR THRASHERS. GEORGE W. GOULD, Yolo Station, Cal. Filed May 16, 1884. (No model.)



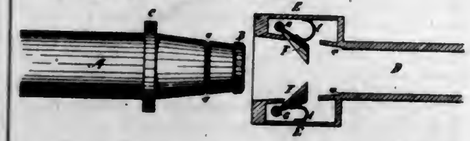
Claim.—1. In a spreader for thrashers, the combination of the endless traveling carrier-belt or draper A with the picker-bars F, having teeth *f*, the crank-shafts E, upon which said bars are mounted, said crank-shafts being rotated in a direction to carry the pickers down and move them back against the direction of travel of the belt and raise them and carry them forward with the direction of its travel, substantially as herein described.

2. In a spreader for thrashers, the combination of the endless forwardly-traveling carrier-belt or draper A, having drums B, with the picker-bars F, having teeth *f*, the crank-shafts E, carrying the bars, the pulleys *b b'* on the forward drum, B, the pulley G on the rear crank-shaft, and the belt H, all arranged and operating in the manner and for the purpose described.

3. In a spreader for thrashers, the picker-bars F, having teeth *f*, in combination with the crank-shafts E, upon the cranks of which said bars are mounted, the rear crank-shaft being fixed in a horizontal plane, and the forward one mounted loosely and adapted to be vertically adjusted by the pressure of the underlying passing grain and straw, substantially as herein described.

4. In a spreader for thrashers, the belt A, sides C, and standards D, the forward standards having a curved slot, *a*, and a cross-slot, *a'*, in combination with the picker-bars F, having teeth *f*, the crank-shafts E, mounted in the standards, the forward shaft having its ends extending into the slots *a*, and journal-boxes *c*, fitted to slide in the cross-slots *a'*, substantially as and for the purpose herein described.

310,672. HOSE-COUPLING. SAMUEL R. HACKLEY, Crockett's Station, Cal. Filed June 30, 1884. (No model.)



Claim.—1. A hose-coupling consisting of the male coupling A, having an annular groove, *a*, and the female coupling D, having the pivoted and curved spring-dogs F, adapted to engage with the groove *a* of the male coupling, substantially as herein described.

2. A hose-coupling consisting of the tapering male coupling A, having an annular groove, *a*, and the correspondingly-tapering female coupling D, having the pivoted and curved spring-dogs F, adapted to engage with the groove *a* of the male coupling, substantially as herein described.

3. A hose-coupling consisting of the tapering male coupling A, having an annular groove, *a*, and a packing ring or washer, B, and the correspondingly-tapering female coupling D, having the pivoted and curved spring-dogs F, adapted to engage with the groove *a* of the male coupling, substantially as herein described.

4. A hose-coupling consisting of the tapering male coupling A, having the annular groove *a* and a packing ring or washer, B, and the correspondingly-tapering female coupling D, having the chambered collar E, the wide-ended curved dogs F, pivoted in said collar, and the springs *f*, by which said dogs are forced into their engagement with the groove *a*, substantially as herein described.

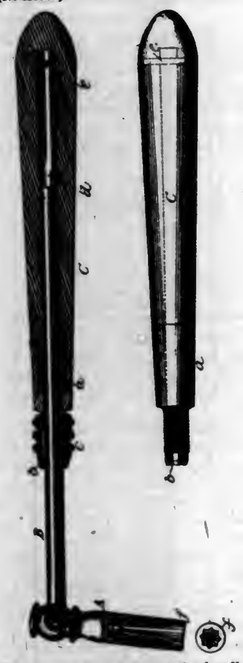
5. A hose-coupling consisting of the tapering male coupling A, having the annular groove *a* and the packing ring or washer B, and the correspondingly-tapering female coupling D, having the chambered collar E, the wide-ended curved dogs F, the short pivot-shafts G, with an end projecting to the outside, and adapted to receive a key, and the springs *f*, by which said dogs are forced in to their engagement with the groove *a*, substantially as herein described.

6. A hose-coupling consisting of the tapering male coupling A, having packing-ring B and groove *a*, and the corresponding tapering female coupling D, having the spring-dogs F and the shoulder *m*, against which the end of the male coupling abuts, substantially as herein described.

7. A hose-coupling consisting of the tapering male coupling A, having packing-ring B, groove *a*, and collar C, abutting against the end of the female coupling, and the correspondingly-tapering female coupling D, having the spring-dogs F, substantially as herein described.

8. A hose-coupling comprising the tapering pipe A, with its packing-ring B, groove *a*, and collar C, and the corresponding tapering pipe D, with its shoulder *m*, its chambered collar E, and spring-dogs F, adapted to swing by means of the pivot-shafts G, operated from the outside, all arranged and adapted to fit together substantially as herein described.

310,673. TUNING-HAMMER. FRANCIS W. HALE, Boston, Mass. Filed Feb. 26, 1884. (No model.)

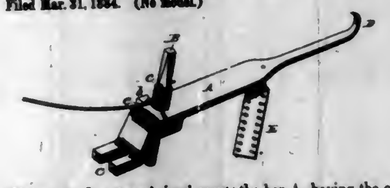


Claim.—1. The combination of the tubular handle C, the tubular ferrule *a* thereon, having its forward part elongated and reduced, split, and externally threaded, the round stem B, adapted to slide and swivel in said handle, the clamping-nut c, and the head A *a* of the tuning-hammer, as and for the purpose set forth.

2. The combination, with the head A of a tuning-hammer formed of steel, threaded at its lower part and hardened thereat, of the tip *f*, also of steel soft at its threaded nipple and hardened at its lower end, whereby the threads of the tip bind in the head, which prevents the tip from unscrewing when the hammer is turned to let down the string, as set forth.

3. In a tuning-hammer, the combination, with the head A and stem B, united by screw-threaded nipple and socket, of the fork *d* upon the end of the stem, and the fixed pin in the interior of the handle for the purpose of screwing the stem into and unscrewing it from the head, as set forth.

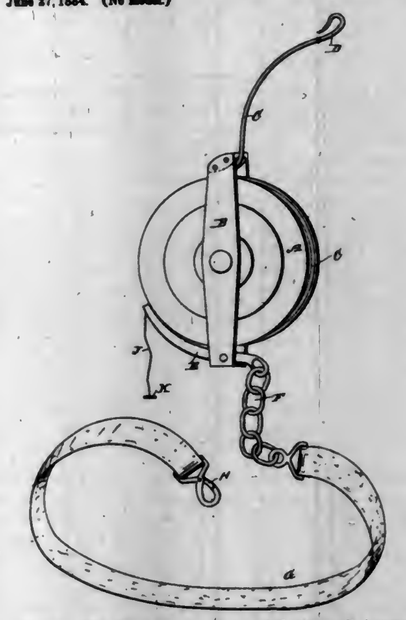
310,674. TUNING IMPLEMENT. FRANK W. HALE, Boston, Mass. Filed Mar. 31, 1884. (No model.)



Claim.—1. In a tuner's implement, the bar A, having the opening *a* slightly inclined to the axis of the bar, the lug *b*, and the bulge *g*, as and for the purposes set forth.

2. A tuner's implement comprising the bar having the opening and the lug, the clutch formed in the offset end of said bar, as shown, the hook, and the gage, all constructed and arranged substantially as and for the purposes set forth.

310,675. FIRE-ESCAPE. TOMAS P. HALL, Toronto, Canada. Filed June 27, 1884. (No model.)



Claim.—The fire-escape consisting of the frame B, between and upon which is pivoted the pulley or reel A, around which is wound cable C, and the brake-lever E, pivoted between and upon the frame below said reel or pulley, with one end connected to a belt and with its other end bearing upon the cable itself, and having a releasing-cord, J, substantially as and for the purpose set forth.

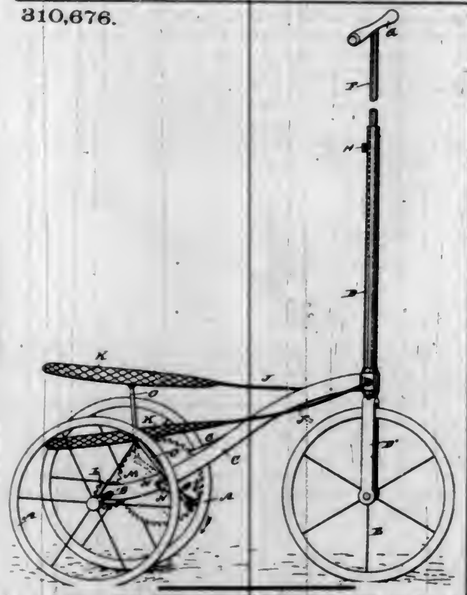
310,676. TRICYCLE. TOMAS P. HALL and JAMES B. HALL, Toronto, Canada. Filed June 27, 1884. (No model.)

Claim.—1. In a tricycle, the combination, with the frame C, of the driving-wheels A, the tube D, the steering-wheel E, pivoted to the same, the rod F in the tube D, and means for locking the rod F in place, substantially as herein shown and described.

2. In a tricycle, the combination, with the frame C, of the shaft B, the driving-wheels A, the levers J, pivoted to the front of the frame and provided with foot-plates K, and gearing for revolving the shaft B from the said foot-plates, substantially as herein shown and described.

3. In a tricycle, the combination, with the frame C, of the shaft B, the levers J, having foot-plates K, the pinion L on the shaft B, the cog-wheel M, the cranks N, and the connecting-rods O, substantially as herein shown and described.

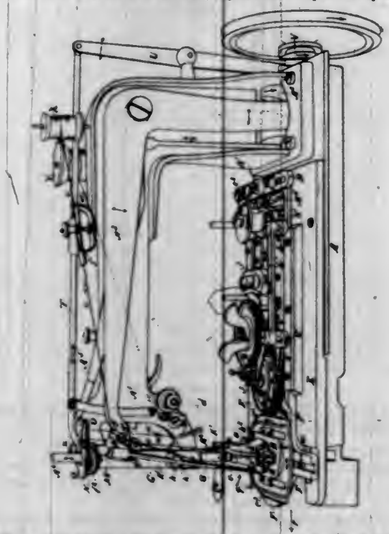
310,676.



310,677. SEWING-MACHINE FOR STITCHING BUTTON-HOLES, EYELET-HOLES, &c.

JOSEPH P. HALLENBECK, New York, N. Y., and HERBERT L. PHELPS, Chicago, Ill., assignors to the National Machine Company, New York, N. Y. Filed Apr. 4, 1884. (No model.)

Brief.—The machine is provided with means for introducing a purling or filling thread, so as to cause the needle-thread to be looped around the filling or purling thread at each stitch or at each to and fro movement of the work-holder, the work-holder having intermittent to and fro lateral movements and step-by-step progressive movements, like the work-holder described in Patent No. 273,727, granted to Joseph P. Hallenbeck, dated March 13, 1883, for producing a row of zigzag to-and-fro or over-edge stitches. The work-holders and feeding mechanisms for eyelet-hole work set forth in Patent No. 227,640, granted to George M. Morris, dated May 18, 1880, and in Patent No. 261,563, granted to H. L. Phelps, dated July 25, 1882, may be used for carrying the fabric operated upon.



Claim.—1. The combination, with a sewing-machine furnished with a work-holder, and with means for imparting to the work-holder intermittent momentary to and fro movements and a step-by-step progressive movement, of a purling-thread carrier and devices for imparting to that carrier to and fro movements simultaneously with and in essentially opposite directions to the to and fro movements of the work-holder, substantially as set forth.

2. The combination, with a sewing-machine furnished with a work-holder, and with means for imparting to the work-holder intermittent momentary to and fro movements and a step-by-step progressive movement, of the supplemental presser and devices for elevating that presser at each movement of the work-holder, substantially as set forth.

3. The combination, with a sewing-machine furnished with a work-holder, and with means for imparting to the work-holder intermittent momentary to and fro movements and a step-by-step progressive movement, of a purling-thread carrier and devices for imparting to that carrier to and fro movements simultaneously with and in essentially opposite directions to the to and fro movements of the work-holder, substantially as specified, and the supplemental presser and devices for elevating that presser at each movement of the work-holder and purling-thread carrier, substantially as set forth.

4. The combination, with a sewing-machine furnished with a work-holder, and with means for imparting to the work-holder intermittent momentary to and fro movements and a step-by-step progressive movement, of the presser K, slide K', carrying the presser, needle-bar A^4, and the parts j and a^5, arranged on said slide and needle-bar, substantially as described.

5. The combination, with a sewing-machine provided with means for producing a row of zigzag stitches, of the thread-carrying lever G, secured by the two-way joint to the head of the machine, the crank-arm M, mounted on the head of the machine, and connected by the universal joint to said thread-carrying lever, and means for imparting to and fro movements to said crank-arm relatively to the movements of the needle of the sewing-machine, substantially as set forth.

6. The combination, with a sewing-machine provided with means for producing a row of to-and-fro stitches, of the thread-carrying lever G, secured by a two-way joint to the head of the machine, the crank-arm M, mounted on the head of the machine, and connected by a universal joint to said lever, the pinion N on the shaft of the crank-arm, toothed segment O, pivoted to the head of the machine, and engaging with said pinion, and means for imparting to and fro movements to said toothed segment relatively to the movements of the needle of the sewing-machine, substantially as set forth.

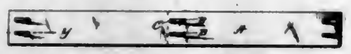
7. The combination, with a sewing-machine furnished with means for producing a row of over-edge stitches, of the thread-carrying lever G, crank-arm M, pinion N, toothed segment O, rod T, lever U, and switch-cam V, substantially as described.

310,678. DEVICE FOR SECURING MOLDINGS.

CHARLIE HALSTROM, Los Angeles, Cal. Filed July 24, 1884. (No model.)

Brief.—A molding provided with slots in the under face, and an L-shaped fastening device having two arms, the longer of which is driven down the slot into the adjacent wall, and the shorter projects outward therefrom and is forced into the casing. When a heavy molding is used, a staple is employed in connection with said device.





Claim.—1. The combination, with the molding, of the herein-described fastening device, having two arms, one of which is secured in the under face of the molding, and the other projects outward therefrom, so as to be driven into the casing where it is desired to attach the molding, as set forth.

2. The combination, with the molding provided with slots, of the herein-described fastening device, having two arms, one of which is driven down the slot so as to enter the adjacent wall, while the other arm projects outward from the molding, as set forth.

3. The combination, with the molding provided with slots, of the herein-described fastening device, comprising an L-shaped body having one of its arms longer than the other, so as to be driven through the wall adjacent to the slots, the short arm or prong extending outward from the molding, as set forth.

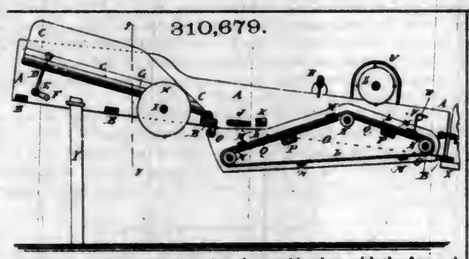
4. The combination, with the molding provided with slots, of the herein-described fastening device, comprising two arms, one of which is driven through the wall adjacent to the slots, and a staple for holding the fastening device in place, as set forth.

310,679. COMBINED BAND-CUTTER AND FEEDER FOR THRASHING-MACHINES.

RICHARD HARDING, McGaheysville, Va., assignor of one-half to Irenaeus Conder, same place. Filed May 5, 1884. (No model.)

Claim.—1. A band-cutter and feeder comprising an angular vibrating feed-spout, a rotary band-cutter, one or more grain-spreads, an endless apron, and a rotating reel, substantially as and for the purpose set forth.

310,679.



2. In a band-cutter and feeder, the combination, with the frame A B and the rotating cutter H, of the angular feed-spout C, the connecting-rods D, the crank-shaft E F, and a driving mechanism, substantially as herein shown and described, whereby the bundles will be fed to the said cutter by the action of the spout, as set forth.

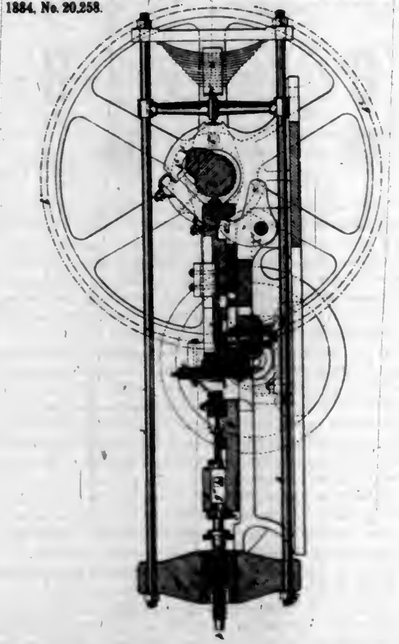
3. In a band-cutter and feeder, the combination, with the angular feed-spout C, the cutter H, and the endless apron L M, of the rotary spreader J, substantially as herein shown and described, whereby the grain will be spread as it passes from the feed-spout and cutter to the endless apron, as set forth.

4. In a combined band-cutter and feeder, the combination, with the frame A B, the rotary spreader J, and the endless apron L M, of the spreader K and mechanism for reciprocating it, substantially as herein shown and described, whereby the said rotary spreader will be assisted in spreading tangled grain, as set forth.

5. In a combined band-cutter and feeder, the combination, with the endless apron L M, having raised middle part, of the stationary rake R, the rotary reel S, and a driving mechanism, substantially as herein shown and described, whereby the said endless apron will be assisted in carrying the grain to the thrasher, as set forth.

310,680. NUT-FORGING MACHINE.

FRIEDRICH A. HASENCLEVER, Dusseldorf, Germany, assignor to the Patent Nut and Bolt Company, (Limited,) London Works, England. Filed Sept. 1, 1884. (No model.) Patented in Germany Oct. 21, 1881, No. 18,403; in England July 3, 1884, No. 9,725; in Belgium Aug. 1, 1884, No. 65,923, and in Canada Sept. 24, 1884, No. 20,258.



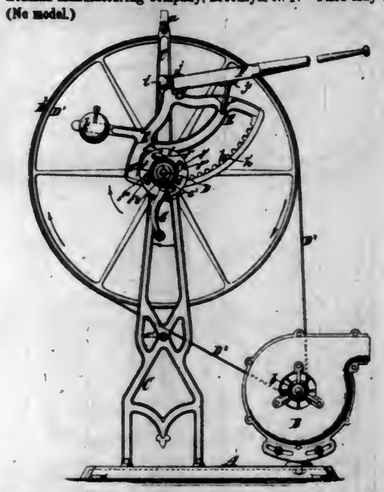
Claim.—1. The combination, in a nut-forging machine, of a main shaft, b, having the duplicate cams b^6, the central cam, b^5, and the cam b^7, having double protuberances b^8, the slides c c' c^2, the spring sliding bar f, the lever h, the sliding bolt g^4, the sliding head g, the screw p, the cross-head r, the tie-bolts s, the spring n, the bar w, the frame supporting said bar, the die-box in the slide c, the compressing-punch m', and the round punches l l^2, substantially as described.

2. The combination of the main frame b, having the duplicate cams b^6 b^6, the central cam, b^5, and the cam b^7, having the double protuberances b^8, the slides c c' c^2, the bell-crank lever X, the spring sliding bar f, the lever h, the sliding bolt g^4, the sliding head g, a support, p, for the head, the die-box in the slide c, the compressing-punch m', and round punches l l^2, substantially as described.

3. The combination of the duplicate cams b^6 b^6, the central cam, b^5, and the cam b^7, having double protuberances b^8 b^8, with the slides c c' c^2, the bell-crank lever X, the spring sliding bar f, the lever h, sliding bolt g^4, the die-box, the compressing-punch m', and round punches l and l^2, substantially as described.

310,681. MECHANISM FOR OPERATING FAN-BLOWERS.

JOHN G. HOFFMAN, New York, and GEORGE WEBER, Brooklyn, assignors to the J. G. Hoffman Manufacturing Company, Brooklyn, N. Y. Filed May 22, 1884. (No model.)



Claim.—1. The combination, with the driving-shaft and pulley or wheel, of a gear wheel or pinion loose on said shaft, and a rocking frame provided with a segment-gear engaging with said gear wheel or pinion, a clutch-connection between said gear wheel or pinion and shaft for turning the shaft in one direction only, and bearings for said shaft capable of adjustment to adapt said gear wheel or pinion to said segment-gear, substantially as herein described.

2. The combination, with the driving-shaft and its pulley or wheel, of a gear wheel or pinion loose on the shaft, a rocking frame provided with a segment-gear engaging with said wheel or pinion, said gear or pinion and segment being provided with smooth adjacent bearing-surfaces, and a clutch-connection between said gear wheel or pinion and said shaft for rotating said shaft in one direction only, substantially as herein described.

3. The combination, with the driving-shaft and pulley or wheel thereon, of a rocking frame and hand-lever, and devices, substantially such as described, for rotating said shaft, an internally-ratchet-toothed wheel upon said shaft, and a hand-crank depending from said shaft and having a pawl capable of engagement with said internally-toothed ratchet-wheel, substantially as herein set forth.

4. The combination of the shaft D and pulley D', and a wheel fast on said shaft and provided with the internal ratchet-teeth, e', and the gravity-crank G, and gravity-pawl * substantially as herein described.

310,682. PUTTY-KNIFE.

CHARLES IVES, Clinton, N. Y. Filed July 19, 1884. (No model.)

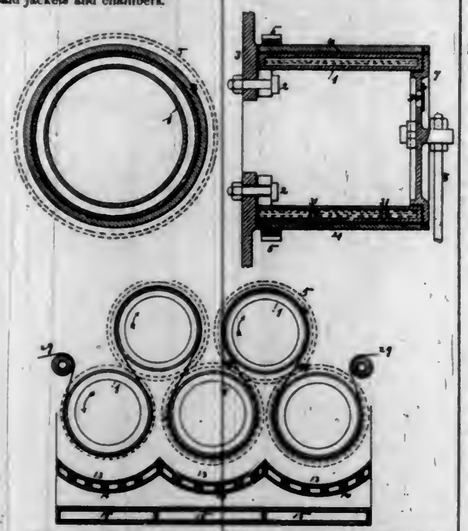


Claim.—1. The herein-described putty-knife, having a handle and a blade inserted therein, provided upon one side of the same with a projecting lip formed with two right-angled bends, combined and arranged as described, as and for the purposes stated.

2. The herein-described putty-knife, having a handle, a blade inserted therein, provided upon one side of the same with a projecting lip formed with two right-angled bends, a hammer capable of longitudinal adjustment inserted in the opposite end of the handle, with a suitable device for extending or contracting the same and holding the same rigidly in position, combined and arranged as described, as and for the purposes stated.

310,683. **MACHINE FOR DRYING FABRICS, YARN, &c.** JOSEPH JEFFERSON, MORDECAI JEFFERSON, CORNELIUS JEFFERSON, and LAZARUS JEFFERSON, Bradford, County of York, England. Filed July 21, 1884. (No model.) Patented in England Jan. 1, 1884, No. 227.

Brief.—Hollow cylindrical steam-jackets secured by bolts to the main frame are placed within the interiors of revolving drying-cylinders, around which the fabric, yarn, &c., to be dried pass. Below the drying-cylinders are curved or radiating steam-cylinders, and below these are horizontal steam-chambers. The steam-jackets and steam-chambers are all connected by circulating-pipes, through which steam is introduced to said jackets and chambers.

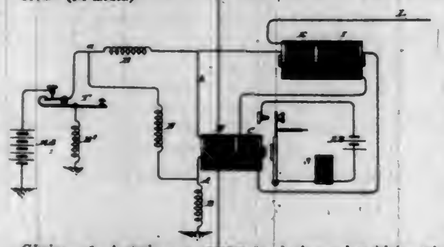


Claim.—1. The combination of the steam-jackets 1, revolving drying-cylinders 4, perforated steam-chambers 13 13, and horizontal steam-chambers 15 15 with each other and with steam-supply pipes and supports for the steam-jackets, substantially as shown and set forth.

2. The combination of the revolving drying-cylinders 4, disks 7, steam-jackets 1, rods 8, doors 10, perforated steam-chambers 13, connecting-pipes and supports for the rods 8 and the steam-jackets, substantially as shown and set forth herein.

3. The combination of the radiating perforated steam-chambers 13 with the revolving drying-cylinders 4, steam-jackets 1, connecting-pipes and supports for the steam-chambers, steam-jackets, and revolving drying-cylinders, substantially as herein shown and described.

310,684. **MEANS FOR OVERCOMING STATIC DISTURBANCES IN TELEGRAPHY.** FRANCIS W. JONES, New York, N. Y. Filed Mar. 13, 1884. (No model.)



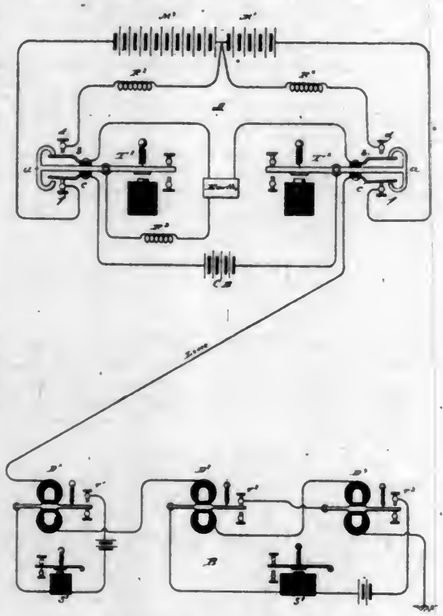
Claim.—1. A static compensator for duplex and multiplex telegraphs, consisting of an inductorium one coil of which is in circuit between the main line and the point of division of the main and artificial lines, while the other is in a closed circuit, including means for counteracting the effects of the static charge and discharge current upon the receiving apparatus.

2. The combination, with a duplex or multiplex telegraph, of a magnet placed in the main-line circuit at a point beyond the point of division of the main and artificial lines, so as to tend by its own inductive effects to cut down or oppose the effects of the static discharge-current which would otherwise flow to and produce a false signal upon the receiving-relay, and a secondary or supplemental coil upon said magnet placed in a closed local circuit, with a compensating-coil arranged to counteract the disturbing effects of static discharge-current upon the receiving apparatus.

3. The combination, in a duplex or multiplex telegraph, of a compensating electro-magnet in the line at a point beyond the point of division of the main and artificial lines, a secondary coil and a static compensating-coil for the receiving-relay, said compensating-coil being in closed local circuit with said secondary coil.

4. The combination, in a duplex or multiplex telegraph, of a compensating electro-magnet in the line at a point beyond the point of division of the main and artificial lines, a secondary coil and a static compensating device for the receiving apparatus, said static compensating device being in a circuit with the secondary coil, as and for the purpose described.

310,685. **QUADRUPLEX TELEGRAPH.** FRANCIS W. JONES, New York, N. Y. Filed June 26, 1884. (No model.)



Claim.—1. The combination, with two sections of main battery, a normally-charged circuit, and two transmitters, which respectively send signals by currents of diminished tension, but of opposite polarity, and when operated together cut off both sections of main battery, of a supplemental battery for clearing the line, said battery being placed in the circuit when both transmitters are closed, and having its poles connected in circuit, so as to place to line a weakened current of opposite polarity to that flowing when both sections of battery are to line.

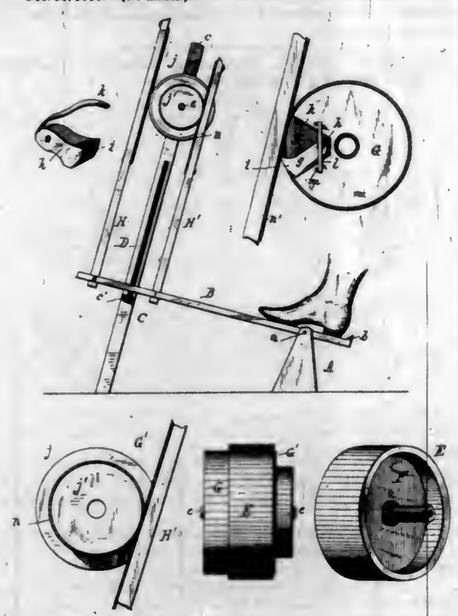
2. The combination, substantially as described, in a multiplex telegraph, of a normally-charged circuit, two transmitters which send each a current of opposite polarity to that sent by the other, but of a tension less than that of the normal current flowing when both are at rest, and when operated together send a signal by withdrawing the main or signaling battery, and a supplemental or clearing battery connected to line, with a polarity the opposite of that for the main battery when both sections of the latter are to line.

3. The combination, with two transmitters that individually send each a current of the opposite polarity to that sent by the other, but of a tension less than that of the normally-flowing current, and when they are operated together reduce the current, of a supplemental or clearing battery in the circuit when both keys are closed, but with a polarity the opposite of the normally-charging current.

4. The combination, with the two double-hook transmitters, the two sections of main battery connected at an intermediate portion to normally-open ground-point of the two transmitters, and at its extremities, respectively, to the normally-closed line-connecting points, of a supplemental or clearing battery in a connection between the two transmitters, and having a reverse pole to that of the main charging-battery connected to line when both transmitters are operated.

5. The combination, substantially as described, of the two sections of main battery, the clearing-battery C B, and artificial resistances R'' R^2, one equivalent to the resistance of one section of main battery, and the other equivalent to the other section of battery plus that of clearing-battery C B.

310,686. **TREADLE.** CHARLIE H. KINGSBURY, Jamaica, Vt. Filed Feb. 15, 1883. (No model.)



Claim.—1. The combination, in a device for transmitting power, of a band-pulley having projecting peripheral flanges, to form at each side of said pulley a recess, disks located on each side of said pulley, located partly in said recesses, and provided, respectively, with dogs, each adapted to engage said peripheral portion when the disks are rotated in opposite directions, as described, a treadle, and pitmen H H', connected thereto, and each to one of said disks, substantially as set forth.

2. The combination, in a device for transmitting power, of a band-pulley having projecting peripheral flanges, to form at each side of said pulley a recess, disks located on each side of said pulley, located partly in said recess, provided, respectively, with dogs, each adapted to engage said peripheral flanges when the disks are rotated in opposite directions, as described, a reduced portion, j', carried by one of said disks, a treadle, and pitmen H H', connected thereto, and the pitman H connected to one of said disks, and the other to the reduced portion j', substantially as set forth.

3. The combination, in a device for transmitting power, of a band-pulley having projecting peripheral flanges, to form a recess at each side of said pulley, disks located on each side of said band-pulley, located partly in said recess, provided, respectively, with dogs, each adapted to engage said peripheral portions when the disks are rotated in opposite directions, as described, a treadle, a rod, D, extending through and guiding the same, and pitmen H H', connected to said treadle, and each to one of said disks, substantially as set forth.

4. The combination, in a device for transmitting power, of a band-pulley having projecting peripheral flanges to form a recess at each side of said pulley, disks G G', located on each side of said pulley, and located partly in said recess, a disk, G', being provided with a projecting portion, j'', a recess formed in each disk, containing a pivoted dog having a curved face, i, a spring, k, connected to said dog, and operating as described, a treadle, B, and pitmen H H', connected thereto and to the disk G and projecting portions j'', substantially as set forth.

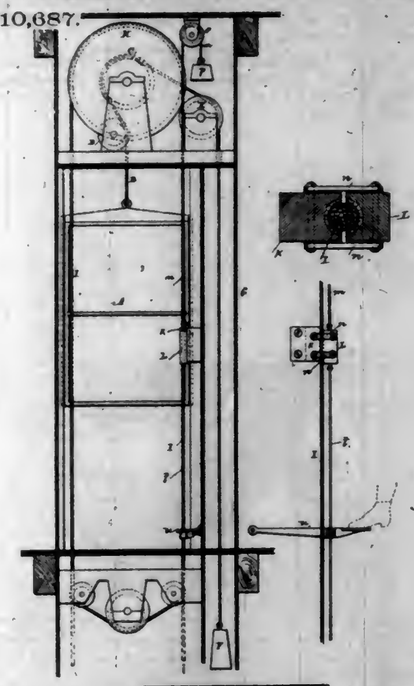
310,687. **CLAMP FOR DUMB-WAITERS.** DAVID D. LA BAW, Jersey City, N. J. Filed June 16, 1884. (No model.)

Claim.—1. The combination, with the hoist-rope and dumb-waiter, of a clamp acting upon the hoist-rope, and a cord and weight to close the same, substantially as set forth.

2. The combination, with the hoist-rope and dumb-waiter, of a clamp having grooved faces, parallel links for opening or closing the same, a cord and weight to move the clamp to close the same, and a rod or connection and a lever for opening the same, substantially as set forth.

3. The combination, with the hoist-rope and dumb-waiter, of a clamp having grooved faces lined with india-rubber, parallel links connecting the moving portion of the clamp to the fixed portion, a rope and weight to close the clamp, and a lever and rod to open the same, as specified.

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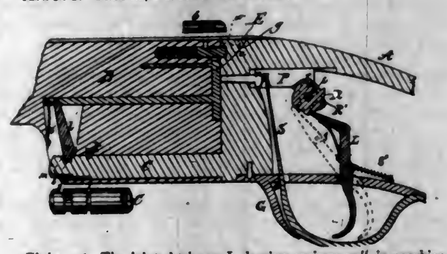


310,688. **CAR-WHEEL.** JOSEPH G. LAFONTAINE, Champlain, N. Y. Filed Sept. 15, 1884. (No model.)



Claim.—In a car-wheel, the combination of the chilled cast-iron rim inclosing a wrought-iron band with the crossed wrought-iron spokes and cast-metal hub, substantially as specified.

310,689. **BREECH-LOADING FIRE-ARM.** EVERETT L. LAKE, Syracuse, N. Y. Filed Sept. 1, 1884. (No model.)



Claim.—1. The jointed trigger L, having springs s s'', in combination with the ratchet-wheel R, star-wheels R' R'', and notched plungers P P, said ratchet-wheel and star-wheels being mounted on a longitudinally-movable shaft, c, substantially as described.

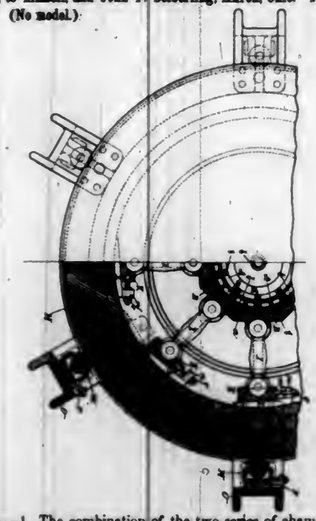
2. The right and left plungers P P, provided with notches r, which engage the star-wheels R' R'', and having mortises n, which receive the free ends of the spring S, in combination with the spring S, star-wheels R' R'', ratchet-wheel R, sliding shaft c, having spring t, and the jointed single trigger L, to alternately discharge both barrels of a gun or successively discharge either barrel, substantially as described.

3. The spring S, attached at one end to the outer side of the gun-stock, and bent to form the trigger-guard, the inner end of said spring being bifurcated and inclosed in the gun-stock, in combination with the plungers P P, having mortises n and notches r, the ratchet-wheel R, and star-wheels R' R'', mounted on a shaft, c, and the jointed trigger L, having springs s s'', substantially as described.

4. The forked spring S, bent to form the trigger-guard, in combination with the plungers P P, and a trigger-plate having a guard, G, and

a slot, *o*, the front edge of said slot being adapted to serve as a stop for the spring, substantially as described.

310,690. MACHINERY FOR DRYING DRUMS OR BARREL-BODIES. GEORGE W. LARAWAY, Hartford, Conn., assignor, by mesne assignments, to himself, and John F. Seiberling, Akron, Ohio. Filed Jan. 28, 1884. (No model.)



Claim.—1. The combination of the two series of chambered vousoirs and their chambered cap and base, arranged as set forth, and provided with mechanism for moving the outer set of said vousoirs in radial directions, substantially as specified.

2. The combination of the movable supporter G, composed of the tube and series of disks, as described, with the two series of chambered vousoirs and their chambered cap and base, arranged and adapted to operate substantially and for the purpose as described.

3. The combination of the rotary ring and its series of toggles, as described, with the supporting-frame of such ring, and with the two series of chambered vousoirs and their chambered cap and base, arranged in such frame as represented.

4. The combination of the rotary ring and its series of toggles, as described, with the supporting-frame of such ring and with the two series of chambered vousoirs, their chambered cap and base, and the tubular supporter applied to such cap, and consisting of a tube and series of disks, all being arranged and adapted to operate substantially and for the purpose as represented.

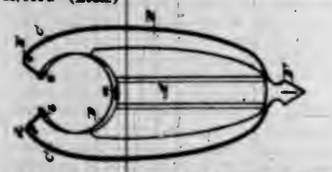
5. The combination of the adjustable wedge, having mechanism for moving it lengthwise, with the rotary ring and each toggle thereof, and its adjustable box, adapted to such ring and one of the outer set of vousoirs, substantially as set forth.

6. The combination of one or more hydraulic-press cylinders and pistons with the rotary ring and its toggles and supporting-frame, and with the two series of chambered vousoirs and their chambered cap and base, all being substantially and to operate as specified and represented.

7. The combination of the series of wedge-shaped plates or lips *t*, applied to the outer set of vousoirs, as set forth, with the two sets of chambered vousoirs and their chambered cap and base, arranged and for use substantially as represented.

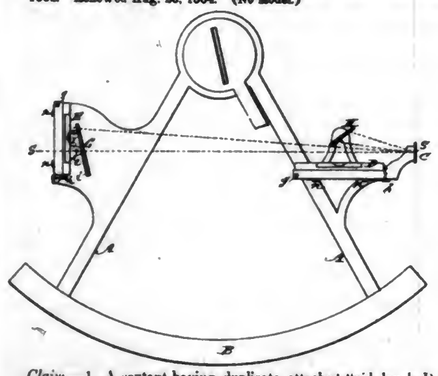
8. The inner set of vousoirs, supporter G, having the tapering mouth, as set forth, in combination with the hot-air-induction pipe, adapted to the chambered base, and provided with the tapering nose to enter and fit to such mouth, substantially as represented.

310,691. DETACHABLE BOSOM. GEORGE W. LEE, Ridgewood, N. Y. Filed Apr. 23, 1884. (Model.)



Claim.—A detachable bosom made as herein shown and described, consisting of an ordinary bosom and neckband, D, and a lower encircling-cape, C, secured to the base of the neckband and extending downward along the margins of the bosom, the outer edge of said cape being constructed on an arc of a circle greater than that described by the outer edge of the bosom, whereby said cape will rest at the back of the neck of the wearer and also at the sides thereof, at such a distance from the shoulders as to be unaffected by the shoulder motions of the wearer, substantially as set forth.

310,692. SEXTANT. PHILIPPE LEURA, Beaver, Utah. Filed Aug. 2, 1882. Renewed Aug. 28, 1884. (No model.)

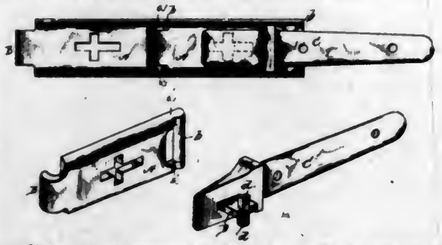


Claim.—1. A sextant having duplicate attached fluid-levels D E, arranged in relation with each other, as described, in combination with the horizon-glass G, the reflector H, and the eye-piece C, substantially as specified.

2. The combination of the hinged adjusting-piece I, with the fluid-level D, the horizon-glass G, the reflector H and the eye-piece C, essentially as specified.

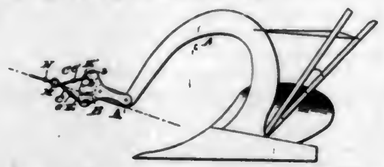
3. A sextant having one or more attached fluid-levels made open at their backs, and constructed to receive within such opening a plate having a luminous surface, substantially as and for the purpose herein described.

310,693. HAME-TUG. CHARLES B. LINDSEY and DAVID N. GODDARD, Mount Vernon, Ill. Filed Apr. 26, 1884. (No model.)



Claim.—As an improvement in hame-tugs, the herein-described adjustable tug, comprising a series of detachable sections, each of which is provided with an opening in the form of a Roman cross, as shown, in combination with the trace-plate C, having a downwardly-projecting lug, D, provided with a cross-piece, *d*, formed integral therewith and projecting at right angles thereto, said cross-piece being flush with the upper edge of the lug and adapted to hold the trace-plate in its adjusted position, as set forth.

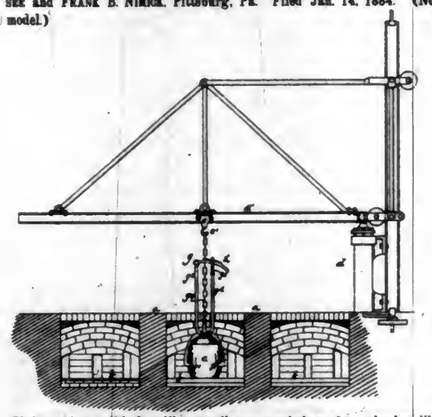
310,694. PLOW-BEAM AND ATTACHMENT. JAMES LOGAN, Otterville, Mo. Filed June 6, 1884. (No model.)



Claim.—1. The plow-beam A, curved sharply upward and then abruptly downward, as shown, to the point A', thence extending forward and upward at an angle of about eighteen degrees to the clevis end, whereby the beam meets the line of draft slightly in advance of the plow-point, and a low close hitch is secured, substantially as shown and described.

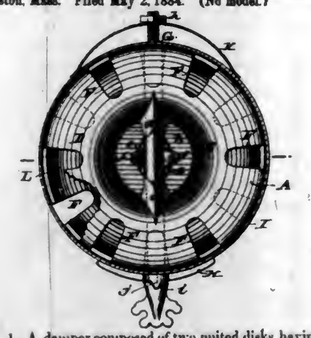
2. The combination, in a draft attachment, of the vertical clevis B, the two horizontal clevises E E', the draft-links C C'', and clevis or draft band D, substantially as shown and described.

310,695. CRANE FOR CRUCIBLE-FURNACES. LEWIS W. MALLASEE and FRANK B. NIMICK, Pittsburg, Pa. Filed Jan. 14, 1884. (No model.)



Claim.—A crucible-handling appliance consisting of a swinging jib extending horizontally above the crucible-furnace, and adapted to be elevated and lowered in a vertical direction above the same, of a traveling carrier adapted to be moved along the jib, and provided with a hook for the suspension of the crucible-tongs, whereby the crucible may be elevated in a strictly vertical position without tendency to tilting or shaking by the positive upward movement of the jib, substantially as specified.

310,696. DAMPER. DAVID MANUEL, Hyde Park, and GEORGE H. BURROWS, Boston, Mass. Filed May 2, 1884. (No model.)



Claim.—1. A damper composed of two united disks having flat portions *b c* and curved portions D E, forming a circular passage, openings F, alternately formed in said curved portions D E, and a socket or bearing for a damper-rod formed in said flat parts *b c* and curved portions D E, substantially as set forth.

2. A damper consisting of two united disks so made that an internal annular chamber is formed in said damper, and having openings through each disk into said chamber, with provision for the passage of the stem through said damper, substantially as specified.

3. In a damper, the disk B, having a flat portion, *b*, and a portion, D, curved upon the radial lines, and provided with openings F, in combination with the disk C, having a flat portion, *c*, and also curved upon the radial lines, and having openings F, the two disks having the ridges *d* and suitable means for securing the two disks together, substantially as specified.

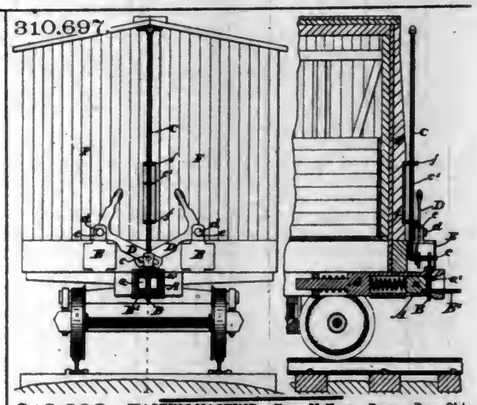
4. In a damper constructed substantially as described, the disk B, having the oval opening *e*, in combination with the disk C, having lugs *f*, substantially as specified.

310,697. CAR-COUPLING. MARION W. MCCANN, Posey Township, Fayette County, Ind. Filed Jan. 2, 1883. (No model.)

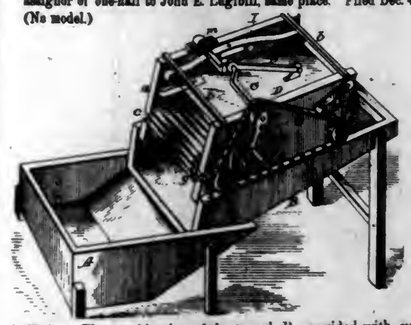
Claim.—1. The combination of the draw-head A, coupling-pin B, vertically-movable lifting-rod C, bent out horizontally at its lower end and passing through slots in the levers D and a hole in the pin B, and said levers, said several parts being constructed, arranged, and operating substantially as shown and described, and for the purposes specified.

2. The combination of the draw-head A, coupling-pin B, lifting-rod C bent out horizontally at its lower end, and passing through slots in the levers D and a hole in the pin B, said sliding rod being also provided with a stop, *c'*, which is adapted to come in contact with one of its bearings and thus limit its upward movement, and said levers D, all substantially as set forth.

310,697.

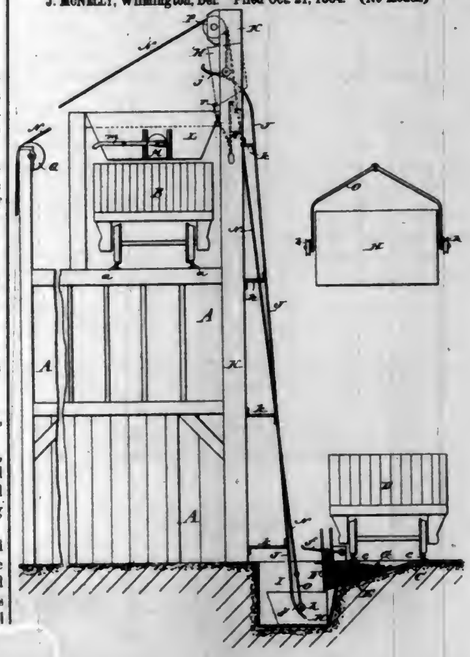


310,698. WASHING-MACHINE. FRED MCKINNY, Beaver Dam, Ohio, assignor of one-half to John E. Lugibill, same place. Filed Dec. 4, 1883. (No model.)



Claim.—The combination of the trough B, provided with supports at one end, and a washing-machine mounted thereon a short distance from the supported end of said trough, the said washing-machine being constructed, substantially as shown, so that the clothes acted upon are fed toward the supported end of the trough, substantially as and for the purpose set forth.

310,699. UNLOADING AND ELEVATING APPARATUS. MATTHIAS J. MCNELLY, Wilmington, Del. Filed Oct. 21, 1884. (No model.)



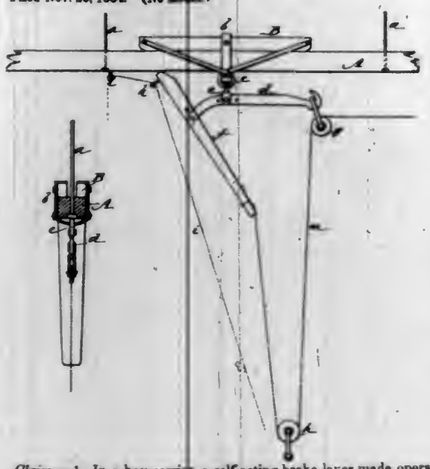
Claim.—1. An unloading and elevating apparatus constructed with a chute below the railway-track, a pit at the side of the track, an adjacent trestle having tracks on which a hoisting-bucket runs, a hopper or receptacle supported on the trestle to receive the material from the bucket and deliver it to transfer-cars, and means for hoisting the bucket and dumping its contents, substantially as herein set forth.

2. In unloading and elevating apparatus, the combination, with the chute E, pit I, and bucket H, of the trestle-tracks J, having outwardly-curved lower ends, *j'*, to carry the bucket well under the end of the chute, substantially as herein set forth.

3. In an unloading and elevating apparatus, the combination, with the elevator-bucket H and hopper L, of tracks J, having inturned upper ends, *j*, and of the yielding trip-bars R, having hook ends *r*, substantially as herein set forth.

4. The combination, in an unloading and elevating apparatus, of a chute, E, under the railway-track, and having a gate, F, and means for opening it, a pit, I, below the chute, a trestle, A, supporting tracks J, having outwardly-bent lower ends, *j'*, and inturned upper ends, *j*, yielding trip-bars R, having hook-heads *r*, and an elevating-bucket, H, adapted to the tracks J, and means for hoisting the bucket, and a hopper, L, supported on the trestle to receive the contents of the bucket H and deliver the same to transfer-cars below it, substantially as herein set forth.

310,700. HAY-CARRIER. THOMAS C. MCNICHOLS, Belmont, Ohio. Filed Nov. 20, 1884. (No model.)



Claim.—1. In a hay-carrier, a self-acting brake-lever made operative by the weight of the load, and released by the movement of the lever with the load when the latter is fully raised, substantially as herein described.

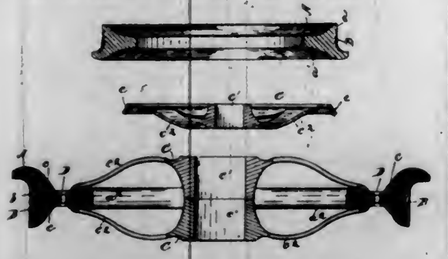
2. In a hay-carrier, the combination of a suspended lever and a brake-lever hung thereon, provided with polleys and a rope, substantially as described, whereby the weight is suspended from the ends of the two levers for regulating the pressure of the brake according to the position of the load, substantially as herein described.

3. In a hay-carrier, the combination of the suspended lever *d*, the slide B, the brake-lever *f*, the polleys *g h*, and the rope *m*, with the track A, substantially as described, for operation as specified.

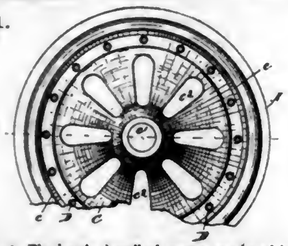
4. In a hay-carrier, the lever *d*, hung from the slide B by the swivel *e*, so that it may be reversed, substantially as and for the purpose specified.

5. In a hay-carrier, the combination, with the brake-lever *f* and the suspended lever *d*, of the rope *l* and pulley *k*, as and for the purpose set forth.

310,701. MANUFACTURE OF CAR-WHEELS. EDWARD B. MEATYARD, Lake Geneva, Wis. Filed Jan. 14, 1884. (No model.)



310,701.



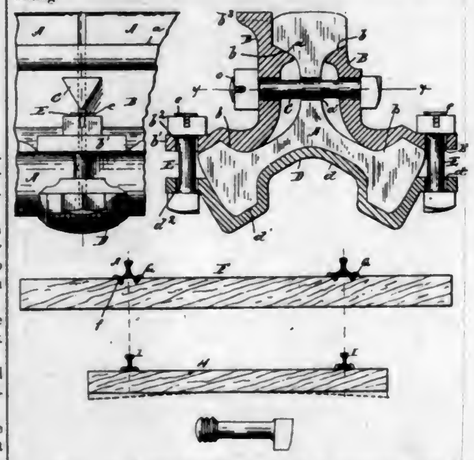
Claim.—1. The herein-described process employed in the manufacture of elastic-metal car-wheels, the same consisting in first casting the tire and body disks under great pressure, and then finishing the same severally while hot in dies in which blows of a hammer of equal force are given simultaneously to both sides of the castings, substantially as and for the purposes set forth.

2. The herein-described process of casting metal wheel-tires with a band of steel, the same consisting in first casting the band under great pressure, then rolling it to size with annular flutes or grooves on its inside surface, then casting soft steel under great pressure upon the inside of this band in a suitable mold, and then finally finishing the same in a die-hammer in which blows of equal force are given simultaneously to both sides of the castings, substantially as and for the purposes set forth.

3. The herein-described process for the manufacture of metallic car-wheels, the same consisting in first casting the tire and body disks severally under great pressure in the molds of a mechanical press, and then in the same heat finishing them in the dies of a hammer in which blows of equal force are given simultaneously to both sides of the castings, and then riveting the disks and tire together, substantially as and for the purposes set forth.

310,702. RAILWAY. EDWARD B. MEATYARD, Lake Geneva, Wis. Filed Jan. 14, 1884. (No model.)

Brief.—A three-headed rail, fish-plates equal in width with the space between two heads projecting outward beyond the rail-heads and bolted to the projecting chair. The ties between the rail-joints are notched to receive the arching base of the rails. The threaded ends of the track-bolts are formed larger than the bodies of the same without upsetting.



Claim.—1. A three-headed railway-rail, in combination with fish-plates of a width equal to the space between two adjacent heads, and track-bolts the bodies of which are considerably smaller than the threaded ends and the heads without upsetting, substantially as and for the purposes set forth.

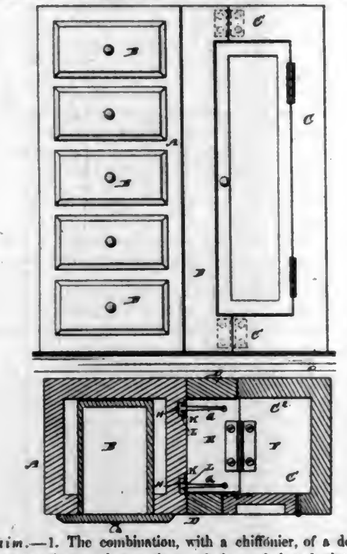
2. A three-headed railway-rail, in combination with a chair shaped to conform to the arching base of the rail and extending beyond the latter on each side thereof, fish-plates of a width equal to the space between the adjacent heads of the rail and provided with projections at their lower edges extending outward beyond the rail-heads over the ends of the chair, track-bolts for connecting the rails and fish-plates, and chair-bolts for connecting the fish-plates and chair together, substantially as and for the purposes set forth.

3. A three-headed railway-rail, in combination with fish-plates of a width equal to the space between adjacent rail-heads, and the outer one provided with a flange projecting upward flush with the face of the upper rail-head, substantially as and for the purposes set forth.

4. A three-headed railway-rail, in combination with ties provided with notches adapted to receive the arching base of the rail, substantially as and for the purposes set forth.

5. A three-headed railway-rail, in combination with ties provided with notches adapted to receive the arching base of the rail, the said rail being provided with holes through its respective webs about midway of its length, spikes driven through the said central holes in the base-webs into the ties, and spikes driven into the ties outside of the base-heads of the rail, and having their heads adapted to close down upon the upper edges of the respective heads of the rail, substantially as and for the purpose set forth.

310,703. FOLDING WARDROBE AND CHIFFONIER. HENRIETTA L. MEHRER, New Rochelle, N. Y. Filed Apr. 8, 1884. (No model.)



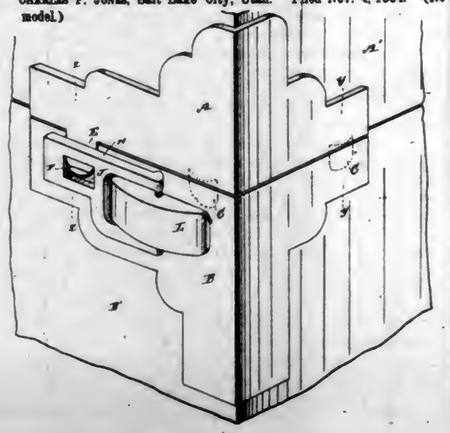
Claim.—1. The combination, with a chiffonier, of a detachable wardrobe, of spring-catches on the wardrobe, and slotted plates for receiving the catches secured on the chiffonier, substantially as herein shown and described.

2. The combination, with a chiffonier, of a wardrobe having folding wings hinged to the front, rear, top, and bottom, and of devices for holding the wardrobe on one side of the chiffonier, substantially as herein shown and described.

3. The combination, with a chiffonier, of a wardrobe having wings hinged to the front, rear, top, and bottom, spring-catches secured to the top and bottom wings, and slotted plates in the outer surface of one side of the chiffonier, substantially as herein shown and described.

4. The combination, with a chiffonier, of slotted plates K, secured on one side of the same, a wardrobe having V-shaped springs G, secured to the top and bottom, the ends of the shanks of the springs being bent to form hooks H, substantially as herein shown and described.

310,704. TRUNK. OLIVER R. MEREDITH, JAMES I. GALLACHER, and CHARLES F. JONES, Salt Lake City, Utah. Filed Nov. 4, 1884. (No model.)

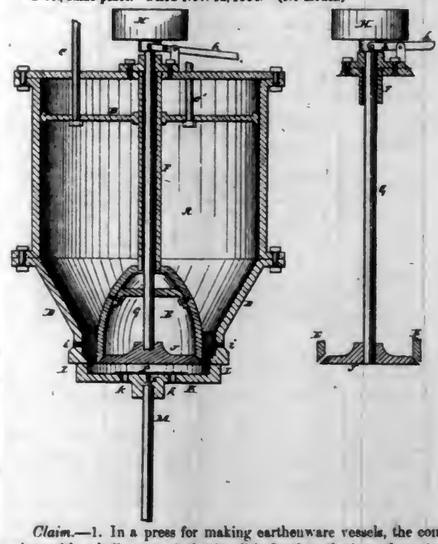


Claim.—1. The combination, with the trunk corner-piece A, having a hook-lug, E, of the corner-piece B, and the hasp H, hinged on the same, substantially as herein shown and described.

2. The combination, with the trunk corner-piece A, having lug C and a hook-lug, E, of the corner-piece B, having recesses D and G, and of the hinged hasp H, substantially as herein shown and described.

3. The trunk corner-piece A, having upon the lower edge the hook-lug E, in combination with the apertured latch H, having a pintle at its bifurcated end, and the case L, having a spring, M, bearing upon said pintle, substantially as and for the purpose set forth.

310,705. PRESS FOR FORMING EARTHENWARE VESSELS. H. E. MERRILL and W. E. DEMPSEY, Akron, Ohio, assignors to E. H. Merrill & Co., same place. Filed Nov. 12, 1884. (No model.)

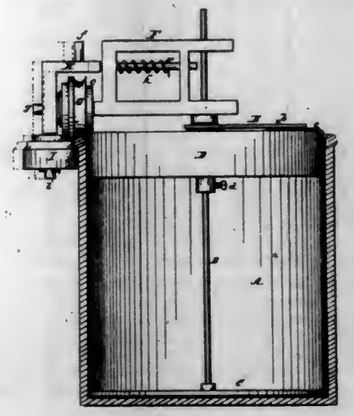


Claim.—1. In a press for making earthenware vessels, the combination, with a hollow mandrel, of a disk fitted to the base thereof, and arranged, by devices such substantially as shown, to be raised against and withdrawn from said base, substantially as shown, and for the purpose specified.

2. In a press for making earthenware vessels, the combination, with a plate to form and hold the vessel-bottom, and having a series of holes through it, of a disk lying upon and attached at one point to said plate, and covering said holes, substantially as shown, and for the purpose specified.

3. In a press for making earthenware vessels, a cylinder-head, which constitutes the outside of the annular space through which the crock-body is formed, pierced near the point of discharge with a row of holes extending around it, substantially as shown, and for the purpose specified.

310,706. MACHINE FOR MAKING CROCK-RIMS. H. E. MERRILL, Akron, Ohio, assignor to E. H. Merrill & Co., same place. Filed Nov. 12, 1884. (No model.)



Claim.—1. In a machine for forming rims upon earthenware vessels while they are in a plastic state, the combination, with a shaft arranged to stand and be supported in the axis of the vessel, of a radial arm or frame journaled upon and arranged to revolve about said shaft, and two rim-forming wheels mounted upon axles connected with said arm or frame at an angle with each other, substantially as and for the purpose hereinbefore set forth.

2. The combination of the shaft B, disk C, and adjustable pulley D, all constructed and arranged as shown, and for the purpose specified.

3. In combination with the shaft B, disk C, and adjustable pulley D, the arm E and knife *e*, all constructed and arranged substantially as shown, and for the purpose specified.

4. In combination with the frame F and wheel G, the arm H, spring *h*, and wheel I, all constructed and arranged substantially as shown, and for the purpose specified.

5. The herein-described machine, consisting of the shaft B, disk C, adjustable pulley D, arm E, bearing the knife *e*, frame F, wheel G, arm H, spring *h*, and wheel I, all constructed and arranged substantially as shown, and for the purpose specified.

310,707. PITMAN-ROD. DENNIS MICHAELS, Hopedale, Ohio. Filed Nov. 20, 1884. (No model.)

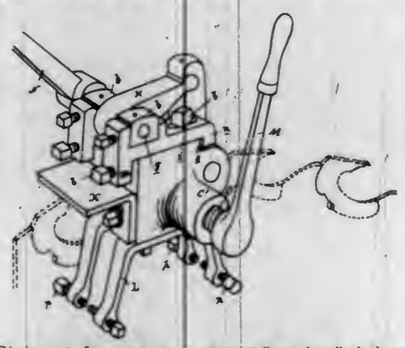


Claim.—1. In a pitman, the combination, with the main section provided with a segment of a pin, of a movable section, also provided with a segment of a pin and adjustable along the main section, substantially as set forth.

2. In a pitman, the combination, with a section provided with a segment of a pin, of a second section, also provided with a segment of a pin, which segment is divided longitudinally, and means whereby the divisions of said pin may be spread laterally, substantially as set forth.

3. In a pitman, the combination, with one section provided with a segment of a pin, and a second section, also provided with a segment of a pin, which is divided longitudinally, one of said sections being provided with a tapered slot, of a bolt or pin projected from the other section through said tapered slot, substantially as set forth.

310,708. SAW-SWAGING MACHINE. BION H. MILLER, Bay City, Mich. Filed Aug. 20, 1884. (No model.)



Claim.—1. In a saw-swage substantially as described, the mechanical devices for operating the movable die I, the same consisting of a power-lever, G, pivoted at *d*, and constituting with its free end the movable die, the pitman H, eccentric *f*, shaft *g*, and lever N, all arranged and operating substantially as described.

2. In a saw-swage substantially as described, the mechanical devices for operating the movable die I, consisting of the power-lever G, pitman H, eccentric *f*, shaft *g*, and lever N, in combination with the adjustable bed-plate *i*, upon which the shaft *g* is journaled, substantially as and for the purpose described.

3. In a saw-swage substantially as described, the lever N, operating with the movable die I, in combination with the lever M, operating the clamping device, both levers being connected independently of each other to their operating devices, but adapted to be brought jointly into action by moving in parallel planes and in the directions opposite to each other, substantially as described.

4. In a saw-swage, the device for clamping the saw-tooth under operation, the same consisting of the clamping-screws D D', tapped through the opposite sides of the head-block A, and having the follower-pins E, in combination with the lever M, actuating one of the clamping-screws, whereby the clamping device may be adjusted to any thickness of saw, substantially as described.

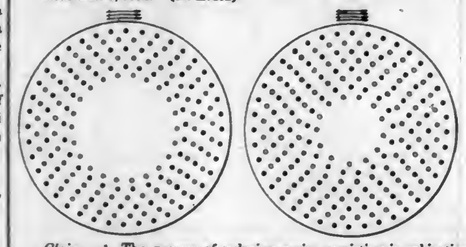
5. In a saw-swage, a device for clamping the saw-tooth under operation between them—such as the screws D D', with their follower-pins E and lever M—adjustable side rests—such as the arms L, with their set-screws *p*—and an adjustable top-rest—such as the shelf K—all in combination, and forming the devices by means of which the swage is adjusted and held in position in relation to a saw-tooth.

6. In a saw-swage, the follower-pins E E, made non-rotatable upon their axis, and provided with serrated contact-faces, said follower-pins forming, in combination with the clamping-screws D D' and lever M, a clamping device for securing the swaging-machine to the saw-tooth, so that the operation of the swaging-dies cannot displace the saw-tooth.

7. In a saw-swage, the combination of the following parts: a stationary die arranged to support the saw-tooth upon its outer face, a movable die arranged to operate against the inner face of the saw-tooth, a device for clamping the saw-swaging machine to the saw-tooth, side rests for steadying the swaging-machine against torsional displacement, a top-rest to form a guide for adjusting the device in position, a lever for operating the movable die, and a lever for operating the clamp, both levers operating in parallel planes and in directions opposite to each other, substantially as described.

8. In a swage for circular saws, a head-block or die-holder containing a stationary and a movable die, so arranged in relation to each other that the stationary die forms the anvil while the movable die produces the impress, in combination with a clamping device operating independent of the swage-operating devices for firmly holding the swaging-machine in its relative position to the tooth during its operation, substantially as described.

310,709. PROCESS OF REDUCING GRAIN. AUGUST C. NAGEL, REINHOLD H. KAEMP, and ADOLF W. F. G. LINNENBRÜGGE, Hamburg, Germany. Filed Mar. 8, 1884. (No model.)



Claim.—1. The process of reducing grain, consisting in subjecting the same in consecutive stages to the action of two or more disintegrating-machines, the number of rows of pins or beaters in each succeeding machine being greater than in the preceding one, substantially as described.

2. The process of reducing grain, consisting in subjecting the same in consecutive stages to the action of two or more disintegrating-machines, the number of rows of pins or beaters and also the relative speed of the co-operating rows in each succeeding machine being greater than in the preceding one, substantially as hereinbefore specified.

310,710. GUIDE FOR BORING DOORS FOR LOCKS. CHARLES F. NICHOLS, San Francisco, Cal. Filed Oct. 2, 1884. (No model.)

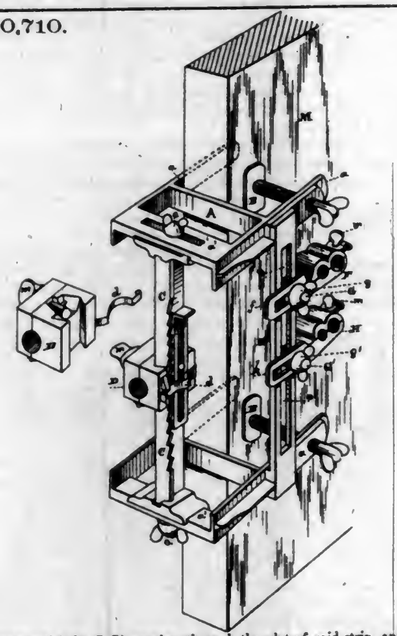
Claim.—1. In a guide for boring doors for locks, a frame adapted to be clamped on the door, and a vertically and laterally adjustable socket-guide mounted upon a vertical rack-bar and held in place by a spring-catch, and carried by the frame in front and adapted to receive, direct, and center an auger-bit to bore a number of holes in the edge of the door, substantially as herein described.

2. A guide for boring doors for locks, consisting of the frame A, adapted to be clamped to the door, the vertical rack-bar C in its front, and the socket-guide D for the auger-bit, and provided with a spring catch or pawl, *d*, engaging with the rack, whereby it is adapted to be vertically adjusted, substantially as and for the purpose herein described.

3. A guide for boring doors for locks, consisting of the frame A, adapted to be clamped to the door, the vertical rack-bar C, mounted in slotted strips *a'* in the frame, and provided with nuts *c*, whereby it may be laterally adjusted and set, and the socket-guide D for the auger-bit, said guide being provided with a spring catch or pawl, *d*, engaging with the rack, whereby it may be vertically adjusted thereon, substantially as and for the purpose herein described.

4. In a guide for boring doors for locks, the frame A, having a side strip, E, connecting the upper and lower portions of the frame, a vertical slot, *e*, in said strip, and the two-part socket-guides F H for the auger-bits, adapted to be vertically and horizontally adjusted on the side strip

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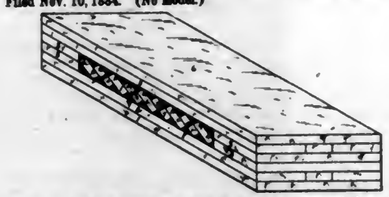


by means of bolts G G', passing through the slot of said strip, and the nuts *g g'*, substantially as and for the purpose herein described.

5. In a guide for boring doors for locks, the frame A, having a vertically-slotted side strip, E, and the socket-guides F H, formed in two parts, hinged together, said guides having horizontally-slotted stems *f h*, said guides being adjusted and set vertically and horizontally by means of bolts or pins G G' and nuts *g g'*, substantially as and for the purpose herein described.

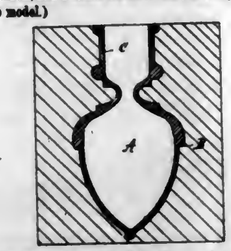
6. A guide for boring doors for locks, consisting of the frame A, having the screw-clamps B, by which it is secured to the door, the laterally-adjustable rack-bar C on its front, the vertically-adjustable socket-guide D on the rack-bar, and the vertically and horizontally adjustable socket-guides F H on the side of the frame, substantially as herein described.

310,711. PILE FOR SHEET-IRON. DAVID B. OLIVER, Pittsburg, Pa. Filed Nov. 10, 1884. (No model.)



Claim.—A pile for making sheet or plate metal, consisting of longitudinal top and bottom layers, transverse horizontal end pieces interposed between the top and bottom layers, and transverse diagonally-placed center pieces, substantially as and for the purposes described.

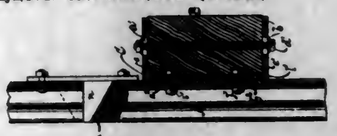
310,712. CURTAIN-POLE KNOB. DAVID B. OLMSTEAD, New York, assignor to himself, and Thomas Summerville, Brooklyn, N. Y. Filed June 9, 1884. (No model.)



Claim.—1. As an improved article of manufacture, a curtain-pole knob cast in metal or metal composition, and having its exterior surface metal-plated, substantially as herein shown and described.

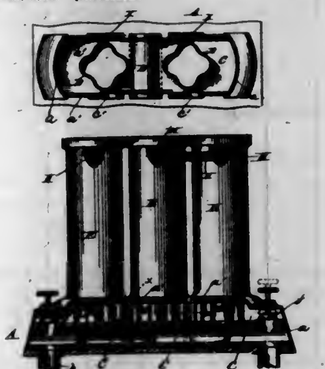
2. The combination, with a cast-metal curtain-pole knob, A, having a neck, C, of the screw D, having its head held in the neck, and of the metal E, cast around the head of the screw within the neck, substantially as herein shown and described.

310,713. CHAIR FOR ELEVATOR GUIDE-POSTS. CHARLES G. OTIS, Brooklyn, N. Y. Filed Nov. 20, 1884. (No model.)



Claim.—The combination, substantially as hereinbefore described, with the guide-post A; of the chair composed of the support C, adjustably secured to one of the beams forming the frame of the hoistway, and the clamping-jaws E E', adjustably secured to the support.

310,714. STEAM-RADIATOR. WILLIAM H. PAGE, Norwich, Conn. Filed Feb. 23, 1884. (No model.)



Claim.—1. A steam-radiator made in sections secured together, each section being constructed substantially as described, the steam-sections of the combined sections being divided into two chambers or compartments of unequal size, and means for admitting steam into either or both of said chambers at will, as herein set forth.

2. A steam-radiator made in sections secured together, each section constructed substantially as described, and having its steam-chamber divided by a partition into two chambers of unequal area, and means for admitting steam into either or both of said chambers, or causing it to flow continuously through the lower end of the radiator from and to the generator without entering the steam-chamber, as set forth.

3. In a sectional steam-radiator, the combination of a series of sections, each having a steam-chamber in its base, with apertures through its walls registering with similar apertures in the adjoining section, and a removable plate adapted to be placed between any two of the sections to cut off communication at that point and divide the radiator into separate steam-chambers, the whole being bolted together, as set forth.

4. A steam-radiator composed of sections, each of which is provided with a steam-chamber in its base, with apertures through the walls of the same adapted to register with those of the adjoining sections, and also provided with a closed tube traversing the steam-chamber, and arranged so that those of adjacent sections meet and form a closed tube when the radiator is bolted together, in the manner set forth.

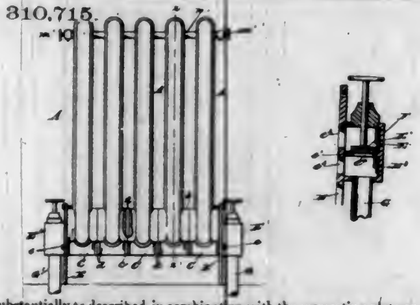
5. A steam-radiator composed of sections, each having a steam-chamber in its base, with apertures through its walls registering with those of the adjoining section, a tube-section in each section so arranged that when the sections are bolted together they will meet and form a closed tube common to all, a removable plate, as *x*, adapted to be placed between any two adjacent sections and to divide the steam-chambers, apertures between the closed tubes and each of the steam-chambers thus divided, and valves for controlling such apertures, all arranged, combined, and operating as and for the purpose set forth.

310,715. STEAM-RADIATOR. WILLIAM H. PAGE, Norwich, Conn. Filed Mar. 13, 1884. (No model.)

Claim.—1. In a steam-radiator, the tubular sections constructed as described and connected together, in combination with the supporting plate or casting having chambered extension, substantially as and for the purpose set forth.

2. In a steam-radiator, the tubular sections constructed and connected

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substantially as described, in combination with the supporting plate or casting having chambered extension divided by a horizontal partition into two chambers connected together by a valve, as and for the purpose herein set forth.

3. A steam-radiator consisting of the following elements: tubular sections A, having steam-chambers A' and steam-passages B and C, plate E, having extension E', provided with chambers E^2 E^3, and valve F, steam-pipes G G', and air-pipes *m*, constructed and adapted to operate substantially as and for the purpose set forth.

310,716. HANDLE FOR POT AND OTHER COVERS. GEORGE E PALMER, Horseheads, N. Y. Filed Jan. 14, 1884. (No model.)



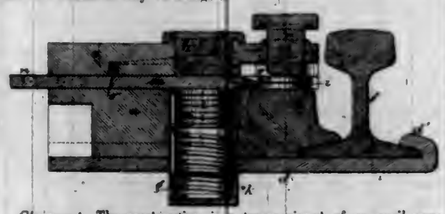
Claim.—1. A detachable loop or ring shaped handle for pot and other covers, formed of a single piece of spring material, and interrupted at its base, and constructed with flattened tongues or feet adapted to form a socketed connection with the cover, and to hold the handle, when attached, in an upright position on the cover, substantially as specified.

2. The detachable flat and elastic or yielding ring-shaped handle B, interrupted at its base, and constructed with engaging feet or tongues *d d*, in combination with the cover A, having cross-grooves or depressions *a b*, of different depths, in its top, and the plate C, secured on and within the shallower one of said grooves, essentially as and for the purposes herein set forth.

3. The divided ring-shaped detachable cover-handle B, constructed with flat straight feet *d d*, sharpened or beveled at their adjacent ends, and made to form jogs or shoulders *e e* at their junction with the curved portion of the handle, substantially as and for the purposes herein described.

310,717. TORPEDO RAILWAY-SIGNAL. TIMOTHY G. PALMER, Schultzville, N. Y. Filed Jan. 21, 1884. (No model.)

Brief.—The torpedoes, fed up by a spring from a magazine in the base-block attached to the rail, are received one by one in the jaws of a sliding piece and carried forward over an anvil beneath a hammer placed in the path of the wheel-treads and backward out of the way of the hammer as a switch with which it is connected is shifted, the sliding piece carrying the same torpedo until exploded. As the sliding piece reciprocates, cams thereon, acting upon a lever which is arranged above the sliding piece and engages lugs on the hammer, raise and lower the hammer. A removable cover is provided, through a capped opening in which the magazine may be charged.



Claim.—1. The combination, in a danger-signal, of an anvil upon which the torpedo can be exploded, a slide to move the torpedo, an exploder, a cap for holding the same, and a cam-lever acted upon by the slide for raising the exploder before passing the torpedo under it, substantially as specified.

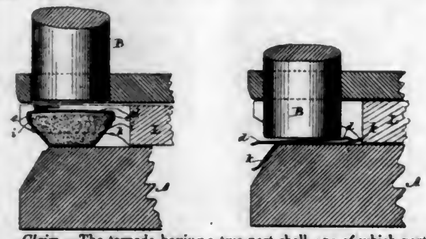
2. The combination, in a danger-signal, of a slide connected with a switch or other moving device, a torpedo-holder placed below the slide and below the level of the track, an anvil, an exploder, a cap to hold the exploder and to cover the slide, and a lever or cam between the slide and the exploder to raise the exploder before passing the torpedo beneath it, substantially as specified.

3. The slide receiving an endwise movement and having a jaw for receiving the torpedo, in combination with an anvil upon which the torpedo rests, an exploder, a lever receiving its motion from the slide and by which the exploder is raised or lowered, and a cap covering the slide, substantially as specified.

4. The combination, with an anvil, of a torpedo-magazine below the anvil, a spring to raise the torpedoes, a slide for receiving such torpedoes, an exploder, a cap covering the slide and provided with an opening for the insertion of the torpedoes, and a cover for such opening, substantially as specified.

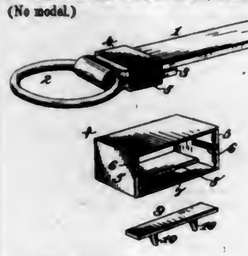
310,718. TORPEDO FOR DANGER-SIGNALS UPON RAILWAYS. TIMOTHY G. PALMER, Schultzville, N. Y. Filed July 24, 1884. (No model.)

Brief.—A torpedo consisting of a two-part shell, one slightly convex, has a rim fitting over the other, which is in the form of a truncated cone.



Claim.—The torpedo having a two-part shell, one of which parts is slightly convex and the other is in the form of a truncated cone, the rim at the edge of one shell setting within the rim at the edge of the other shell, substantially as set forth.

310,719. DEVICE FOR CONNECTING STRAPS WITH RINGS, &c. JAMES C. PARMERLEE and ALONZO SWIFT, Sedalia, Mo. Filed June 16, 1884. (No model.)



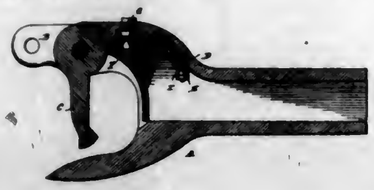
Claim.—1. The combination of the box-loop having top and bottom walls, and end walls having grooves in their inner sides, with the bar having its ends adapted to the grooves, substantially as described.

2. The combination of the box-loop having top and bottom walls, and end walls having grooves in their inner sides, with the bar having its ends adapted to the grooves, and provided intermediate its ends with a tongue, substantially as described.

3. The combination of the box-loop having its bottom wall constructed with the transverse shoulder or abutment, and its end walls constructed with the grooves intermediate the top and bottom walls, with the bar having its ends adapted to the grooves, and provided intermediate its ends with tongues the points of which are adapted to bear against the shoulder or abutment, substantially as described.

4. The combination, with a ring and a strap having the turned extremity lying against the body of the strap, and provided with holes, of the box-loop having grooves in its end walls, and the tongue-bar interposed between the strap-body and the turned extremity with its tongues entering the holes therein, substantially as described.

310,720. CAR-COUPLING. WILLIAM V. FERRY, Chicago, Ill. Filed June 18, 1884. (No model.)



Claim.—1. In combination with a coupling-lever in a car-coupling, an elastic buffer placed within the draw-bar, so as to engage with one end of the said lever as it closes in the draw-bar and thus break the shock of contact.

2. In a car-coupling, an elastic buffer placed on the bearing side of a latch-pin, and against which the pin is adapted to set to break the shock of contact.

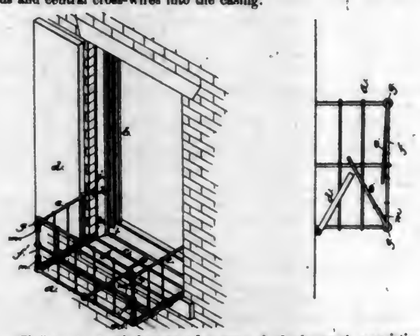
3. In a car-coupling, an elastic buffer so placed as to engage with one of the arms of a coupling-lever, in combination with an elastic buffer engaging with the bearing side of a latch-pin which secures the said lever-arm, the buffers breaking the shock of contact.

4. An elastic buffer having a metallic face-plate and a securing-bolt, in combination with a flange raised on one side of the latch-pin bearings in a draw-bar, to which flange the buffer is secured.

5. The combination, in a car-coupling, of an elastic buffer having a metallic face-plate and a securing-bolt, and resting in a recess in a draw-bar, with one or more elastic buffers having metallic face-plates and securing-bolts, and fastened to flanges raised on one side of the latch-pin bearings, the buffers acting to break the shock of coupling and starting.

310,721. WINDOW-GUARD. JOHN POLKOWSKI, New York, N. Y. Filed Aug. 23, 1884. (No model.)

Brief.—A wire-work bottom section, with a front railing, has hinged automatically-closing side sections provided with hooks on their inner ends, which connect with eyebolts on the window-frame, and the bottom section is secured by screws which pass through loops on the ends and central cross-wires into the casing.

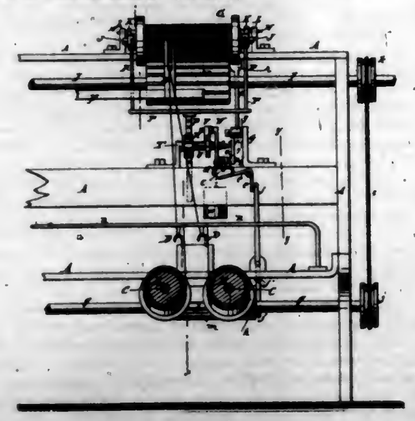


Claim.—1. A window-guard composed of wire-work, consisting of a bottom section and front railing, having hinged automatically-closing side sections, as set forth.

2. A portable window-guard consisting of a bottom frame of wire, with fixed front railing, *f*, side railings, *e e*, hinged to the ends of the front railing, with eyebolts *h*, and hooks *i*, and loops and screws *k j*, for securing the same to the window-frame, all arranged and operating as and for the purpose set forth.

3. The combination, in a wire-work window-guard, of a bottom frame with front railing, side railings hinged to the ends of the front railing, and provided on their inner ends with fastening-hooks to connect with eyebolts on the window-frame, and springs for automatically operating said side railings, with means for securing said guard to the window-casing, as set forth.

310,722. DOUBLING-SPOOLER. LEONARD V. RICHMOND, Sand Lake, N. Y. Filed Oct. 23, 1883. (No model.)



Claim.—1. The combination, with the arms adapted to carry the receiving-spool, of the forked rack P, spindle S, the gear-wheel R, the ratchet-wheel and pawl U V, the pawl-carrying lever W, cord X, pulley Y, and the weight *a*, substantially as herein shown and described, whereby the said spool can be raised by the gravity of the said weight, as set forth.

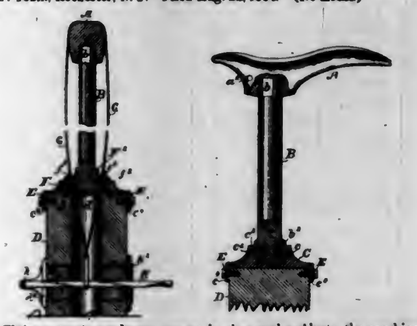
2. The combination, with the arms adapted to carry the receiving-spool and the rack connected to said arms, of the spindle S, gear-wheel R, and ratchet U, connected together and loosely mounted on said spindle, lever W, pivoted on spindle S, pawl V, pivoted to the upper end of said lever and engaging the ratchet-wheel, latch *c* at the lower end of said lever, catch *d*, and mechanism connected with the lower end of said lever, opposite the said latch, for drawing the lower end inward, substantially as set forth, whereby when the latch is released and the lower end of the lever moved inward the upper end of the lever and its pawl will be forced outward to turn the ratchet-wheel and raise the rack and the receiving-spool connected thereto, as described.

3. The combination, with the lever-locking latch *c*, of the levers *e f*, the shaft *g*, the sliding sleeve *h*, having scalloped rear end, the loose sleeve *l*, having scalloped forward end and radial flanges *m*, means for preventing the sleeve *l* from longitudinal movement, and the hook-pins D, substantially as herein shown and described, whereby the said latch will be disengaged automatically by the dropping of a hook-pin, as set forth.

4. The combination, with the weight *a*, cord X, pulley Y, shaft S, pawl-carrying lever W, and spindle *b*, of the brake-lever *p*, having a brake, substantially as herein shown and described, whereby the movement of the said pawl-carrying lever to raise the receiving-spool will apply the brake to the said spool, as set forth.

5. The combination, with the spool-carrying arms K, of the forked rack-bar P, the gear-wheel R, the ratchet-wheel and pawl U V, the pawl-carrying lever W; and the cord X, pulley Y, spindle S, and weight *a* for raising the receiving-spool, the latch and catch *c d* for locking the lever W against the gravity of the weight *a*, the levers *e f*, shaft *g*, the sliding sleeve *h*, having scalloped rear end, the loose sleeve *l*, provided with means for preventing its longitudinal movement, and having scalloped forward end and radial flanges *m*, the hoop-pins D, the lever *p*, and brake *r*, substantially as herein shown and described, whereby the dropping of a hook-pin will throw the receiving-spool out of gear and stop the motion of the said spool, as set forth.

310,723. SHOE-MAKER'S IRON LAST. JAMES ROBERTSON and JOHN F. TOBIN, Rochester, N. Y. Filed Aug. 22, 1884. (No model.)



Claim.—1. As an improvement in shoe-makers' lasts, the combination of the last having the elliptical recess in its under side, the cylindrical standard having its top end conforming to the recess and received by the same, and provided with a cylindrical bottom end, b^2, and with the annular circumferential shoulder b^3 above the same, and the base-plate having a central recess corresponding to and receiving the end of the standard, and provided with the ears at its edge by which it is secured in position, substantially as set forth.

2. The combination, in a shoe-maker's last, of the last formed with the elliptical opening in its under side, the standard having a corresponding elliptical top end entirely filling said recess, and provided with a bottom portion formed with the annular shoulder and the slots f^2 f^2, the base-plate provided with the opening receiving the slotted bottom portion of the standard, and the retaining-strap passing through said slots, substantially as set forth.

310,724. SECONDARY BATTERY AND MEANS FOR TRANSPORTING THE SAME. LEBBEUS H. ROGERS, New York, N. Y. Filed Oct. 26, 1883. (No model.)

Claim.—1. A secondary battery built into a vehicle, and provided with a corrugated or extensible lining to the containing-vessel, substantially as described.

2. A vehicle having a secondary battery built therein, the battery-chamber being accessible through the side or end of the vehicle, substantially as described.

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3. A railway-car carrying one or more secondary batteries arranged under the seats or floor, and being provided with one or more openings in the side, whereby said batteries are made accessible from the outside at the side of the vehicle, substantially as described.

4. In an electric train, the combination of the conductors and couplers, substantially as described, each car or vehicle having a series of conductors extending from end to end of the same, and terminating in the contact-makers of the couplers, part of said conductors being connected with the electrical apparatus or battery in that car or vehicle, and part being disconnected therefrom, and the said couplers, when adjacent cars are electrically coupled thereby, connecting the disconnected or through conductors of one car with those conductors in the adjacent car which are connected in the latter with the electrical apparatus or battery carried thereby, whereby each car or vehicle is, by the mere act of coupling, connected with independent conductors running through the train and terminating in a common car or vehicle, such as the locomotive, and serving to conduct the electricity between said common car or vehicle and each of the cars individually, substantially as described.

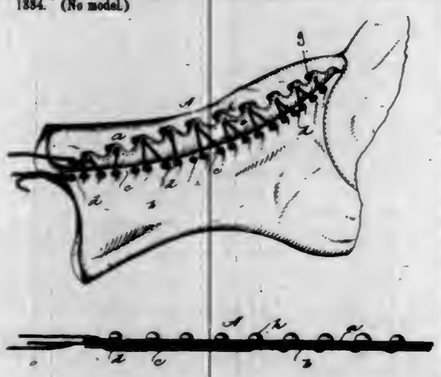
5. An electric locomotive and a train of vehicles or cars drawn thereby, having each a secondary battery built in the vehicle, in combination with conductors and couplers constructed, arranged, and connected, as explained, so that the mere act of coupling establishes an independent circuit or branch between the locomotive and the several cars, and switch mechanism for diverting the current from the secondary batteries into the motor or engine of the locomotive, substantially as described.

6. A series of vehicles coupled as a train, and including an electric locomotive for drawing the same, the cars of said train carrying secondary batteries, the locomotive carrying a switch for controlling the supply of electricity to the driving-motor, and conductors with couplers between the vehicles being provided for separately connecting the batteries with the aforesaid switch, substantially as described.

7. A vehicle having a secondary battery built therein, and provided with a side or end opening into the battery-chamber, the said chamber forming the containing-vessel of the battery, and being provided with conducting and supporting means for supporting the elements in said chamber and connecting them with terminal conductors, and for permitting the removal of the same through said side or end opening, substantially as described.

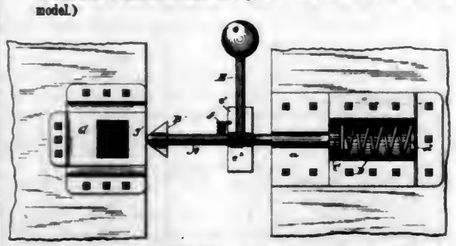
8. A combined vehicle and secondary battery for transportation of passengers or freight as well as stored electric energy, the said vehicle containing, in addition to the passenger or freight space, one or more battery-chambers built into said vehicle so as to form a permanent part thereof, and being provided with the battery-plates and the conductors, the said chambers constituting the containing-vessels of the secondary battery, and being provided with removable doors or hatches closing liquid-tight, said battery-plates being removably supported in said chambers and being held from independent motion, and said conductors which are connected with said plates being protected from the exciting-liquid and being arranged so as to be out of the way of the passengers or freight, substantially as described.

310,725. SHOE. WALTER E. ROSE, Prophetstown, Ill. Filed Oct. 21, 1884. (No model.)



Claim.—A shoe having the flaps *a b*, each flap having a series of openings, buttons arranged in the openings of the upper flap, a cord secured to the lower button and engaging a portion of the buttons, and then passed through the upper eye of the lower flap, and a cord or cords adapted to engage the remainder of the buttons, substantially as described, and be passed through the upper opening of the flap *a*, substantially as set forth.

310,726. CAR-COUPLING. JAMES A. ROSS, Plymouth, Pa., assignor of one-half to Ruth L. Jones, same place. Filed Nov. 25, 1884. (No model.)

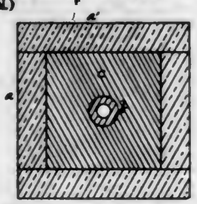


Claim.—1. In a car-coupling, a draw-bar supported by a bearing, and having a flat arrow-head and an enlarged rear end, suitable springs for holding the draw-bar in a position to couple, and a weight adapted to turn the draw-bar and effect the coupling when said draw-bar is released from the springs, in combination with a receiving draw-head provided with suitable shoulders for engaging with the flat arrow-head of the draw-bar when the same is released from the springs and turned by the weight, all arranged and operating substantially as shown and described.

2. The draw-bar A, having the flat arrow-head B, enlarged rear end, C, weighted arm E, and bearing *a*, and spring-catch *f*, in combination with the draw-head G, having the mouth *g* and shoulders *g'*, substantially as shown and described.

3. The draw-bar A, having the flat arrow-head B, enlarged rear end, C, and weighted arm E, the bearing *a*, cylinder D, spring *d*, and spring-catch *f*, in combination with the draw-head G, having the mouth *g* and shoulders *g'*, all arranged and operating substantially as and for the purpose shown and described.

310,727. PROTECTOR FOR UNDERGROUND PIPES. WILLIAM ROWBOTTOM and JOHN M. ROWBOTTOM, Allegheny City, Pa. Filed June 22, 1883. (No model.)



Claim.—As an improvement in protecting metallic water and similar pipes laid under cinder-banks and similar places from the corrosive action of the acidulous drainage therefrom, the combination of such a pipe with a thick impervious covering composed of cement and sand, substantially as and for the purposes described.

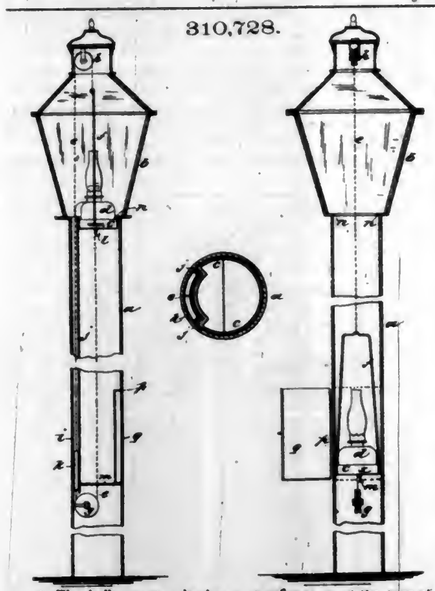
310,728. STREET-LAMP. H. GEORGE SCHUETTE, Manitowoc, Wis. Filed Mar. 17, 1884. (No model.)

Claim.—1. The combination, with the hollow post *a* and the lantern *b* of a street-lamp, of an elevating-platform, *c*, connected in an endless chain, *e*, arranged on guide-pulleys *g* and *h*, located in the lower part of the post and in the top of the lantern, respectively, said post having an opening, *p*, and a door, *q*, for closing the same, near the lower end, the platform being adapted to carry and support a lamp, *d*, substantially as described.

2. The combination, with the hollow post *a* and the lantern *b* of a street-lamp, of an elevating-platform, *c*, and a counterbalancing-weight, *k*, connected in an endless chain, *e*, arranged on guide-pulleys *g* and *h*, located in the lower part of the post and on the top of the lantern, respectively, said post having an opening, *p*, and a door, *q*, for closing the same, near the lower end, the platform being adapted to carry and support a lamp, *d*, substantially as described.

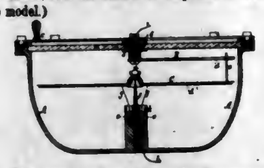
3. The combination of the elevator-platform *c*, weight *k*, chain *e*, and the guide-pulleys *g* and *h*, with the lantern *b* and hollow post *a* of a street-lamp, said platform, weight, and chain being connected in endless belt, and arranged to run up and down in said post and on said pulleys, and said post having a partition, *j*, separating the weight-chamber *i* from the main space wherein the elevator runs, the weight being arranged to run in said weight-chamber, substantially as described.

310,728.



4. The hollow post *a*, having a stop-flange, *n*, at the base of the lantern, in combination with the elevator-platform *c*, arranged in an endless chain running on pulleys *g* and *h* near the bottom of the post and at the top of the lantern *b*, respectively, substantially as described.

310,729. MARINER'S COMPASS. JAMES SCOTLAND and FRANÇOIS CORDON, St. Pierre, near the Islands of Miquelon, France. Filed July 15, 1884. (No model.)



Claim.—1. The combination of a mariner's-compass bowl and its needle or card with a stud extending up from such needle or card, and with a single rigid revoluble furcated arm provided with springs within the fork, and pivoted to the glass cover of the bowl of the compass, and having such stud between its prongs, the said revoluble arm and the pivot of the needle or card having or being to have connected with them an electric circuit provided with a galvanic battery or generator of electricity, and an apparatus for sounding or giving an alarm when the circuit may be closed by the stud being carried into contact with the revoluble arm of one of the prongs or springs thereof, all being to operate substantially and for the purpose as set forth.

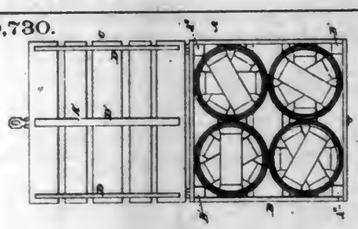
2. The combination of a mariner's-compass bowl and its needle or card with a single rigid revoluble furcated arm arranged within the bowl and pivoted to its glass cover, a stud extending up from the compass-card or needle and between the prongs of the arm, a cup of mercury, and a wire or wires extending into the latter from the magnetic needle or card, all being substantially and to operate for the purpose described, with an electrical circuit, its galvanic battery, and an alarm applied to such circuit.

3. The combination of a mariner's compass having a single rigid revoluble furcated and metallic arm pivoted to its bowl, and also having a metallic stud extending up from the needle or magnet of the card and between the prongs of such arm, with an electric circuit and its battery or generator of electricity, and with an alarm apparatus connected with such circuit, to operate to sound or give an alarm on the circuit being closed by contact of the stud with the arm, all being substantially and for the purpose as set forth.

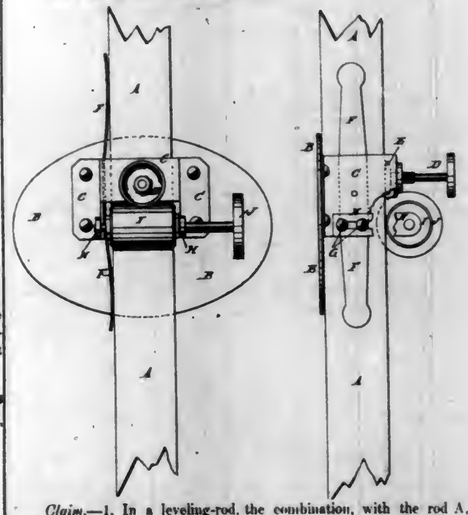
310,730. CRATE FOR FRUIT, &c. ISAAC B. SEELEY, Philadelphia, Pa. Filed Aug. 31, 1881. (No model.)

Claim.—The improved crate, consisting of a body formed of the slats A' and corner-posts B', with cut-away or depressed tops A'', and a lid with depending cleats D', the lid abutting against the top slats of the body, and the cleats abutting against the depressed tops of the posts while compressing the baskets within the body, substantially as and for the purpose set forth.

310,730.



310,731. LEVELING-ROD. ROBERT B. SEYMOUR, Willet's Point, N. Y. Filed Aug. 19, 1884. (No model.)



Claim.—1. In a leveling-rod, the combination, with the rod A, target B, and keeper C, of a friction-roller, I, and a connecting mechanism, substantially as herein shown and described, whereby the said target can be easily and accurately adjusted upon the said rod, as set forth.

2. In a leveling-rod, the combination, with the rod A, target B, keeper C, and friction-roller I, of the slotted bearing-bars H and the fastening-screws G, substantially as herein shown and described, whereby the said roller can be readily adjusted to bear with any desired force against the said rod, as set forth.

310,732. SUSPENDER-END. JAS. B. SHARP, New York, N. Y. Filed Nov. 3, 1883. (No model.)



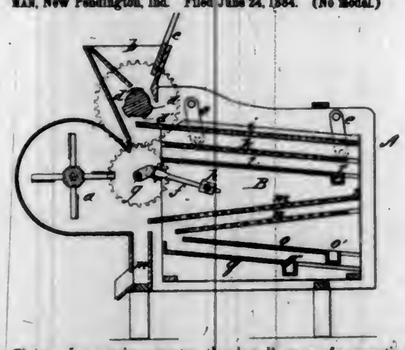
Claim.—A suspender-end made of a flat tape having one end portion bent around to form a button-loop, with its free end laid flat upon and in line with the body of the tape, in combination with a metallic clip for surrounding the parts, said clip having teeth cut from its body intermediate of its length and width, for connecting and attaching the parts together, substantially as described.

310,733. ELECTRODE DUMB-BELL FOR ELECTRICAL EXERCISING APPARATUS. JAMES H. SHAW, New York, N. Y. Filed Mar. 13 1884. (No model.)



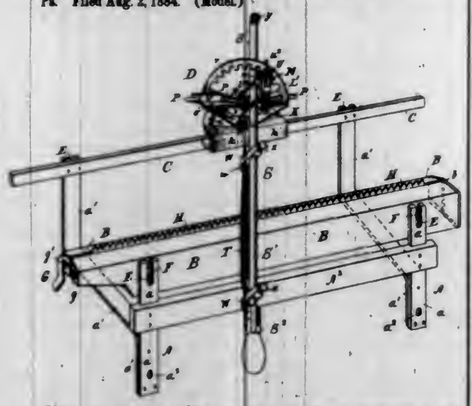
Claim.—An electrode constructed, substantially as set forth, in the form of a dumb-bell, with an internal longitudinal chamber therein closed by a suitable stopper, and with an exterior electric conducting-surface adapted for contact with the hand grasping the dumb-bell and for connection with the flexible electric conductor of an electro-magnetic machine or battery.

310,734. GRAIN SEPARATOR AND CLEANER. EDWARD SHERMAN, New Pendington, Ind. Filed June 24, 1884. (No model.)



Claim.—In a grain-separator, the shoe B, means for operating the same, the top screen, *i*, extending from the feed-opening to the opposite end of the shoe, the screen *k*, below the screen *i*, chute *l*, provided with a pocket, *l'*, the said screen *k* and chute *l* terminating a short distance from the rear end of the shoe, the spout *m'*, the screen *m*, extending from the rear end of the shoe to the spout *m'* at the forward end, the screen *n* below the screen *m*, the chute *o*, provided with a pocket, *o'*, said screen *n* and chute *o* terminating a short distance from the front of the shoe, and the chute *q*, extending from the front of the shoe rearward, and provided with a pocket, *q'*, as shown and described.

310,735. SAW-FILING MACHINE. HAMILTON SHERMAN, Waverly Pa. Filed Aug. 2, 1884. (Model.)



Claim.—1. In a saw-filing machine, the frame consisting of end brackets, A A, formed of bars *a a'*, and a tie-bar, A^2, as specified, and said brackets having slots E, adapted to receive headed studs on the saw-clamps B and file-frame guide-bar C, substantially as shown and described.

2. The combination, with the end brackets, A A, formed of bars *a a'*, having end slots, E, as specified, of the saw-clamps B B and guide-bar C, having headed studs F, engaging the slots E, substantially as shown and described.

3. The saw-clamp consisting of two bars, B B, connected at one end by a plate or hinge, *b*, and having means for clamping them on the saw connected to the other end, substantially as shown and described.

4. The saw-clamp consisting of two bars, B B, connected at one end by a plate or hinge, *b*, and at the other end by a pivoted cam-lever, G, and a stud, *g'*, substantially as shown and described.

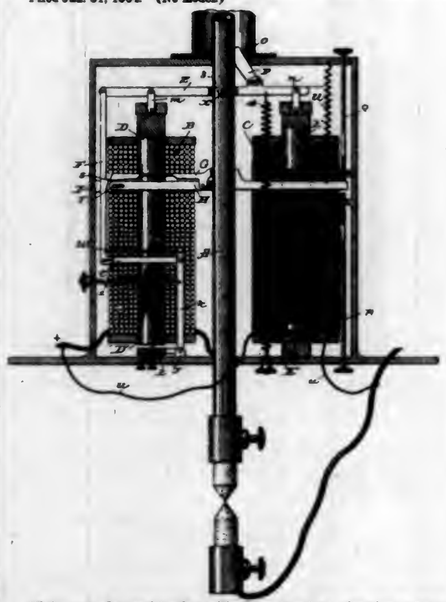
5. The file-frame guide D, constructed with a base piece or plate, K, adapted to slide on a guide bar or plate, C, a head-piece, L, pivoted to the plate K and to swing in horizontal plane, and means for holding the head-piece in different positions, a guide-frame, M, adapted to carry the file-frame bar and pivoted at P to the head-piece L, and means for locking the frame M in different positions on the head-piece, substantially as shown and described.

6. The file-frame guide constructed with a base piece or plate, K, adapted to slide on a bar or plate, C, and provided with notches *n*, a head-piece, L, pivoted to the plate K to swing in horizontal plane and provided with notches *r*, the pawl O, pivoted to the head-piece L and engaging the notches *n*, the guide-frame M, adapted to carry the file-frame bar S' and pivoted at R to the head-piece, and a catch fixed to the frame M and engaging the notches *r*, substantially as shown and described.

7. The file-frame guide constructed for adjusting the file sidewise and axially, as specified, and formed with the flanges *k k'* and stop k^2, for engaging the guide-bar C, substantially as shown and described.

8. The combination, in a saw-filing machine, with the file-frame guide D, constructed with parts K L M, and means for holding them when adjusted to incline the file sidewise and move the file axially, as specified, of the guide-bar C, the saw-clamps B, arranged in front of the guide-bar, and the file-frame S, consisting of a bar, S', and blocks W W, all constructed and arranged for operation substantially as shown and described.

310,736. ELECTRIC-ARC LAMP. SIDNEY H. SHORT, Denver, Colo. Filed Jan. 31, 1884. (No model.)



Claim.—1. In combination with the coils of an electric-arc lamp, the fixed and movable cores formed with inclined faces, which faces are in planes parallel with each other, as set forth.

2. In an electric-arc lamp, and in combination, coils of larger and smaller wire, as described, cores suspended from a lever, a clamp connected to said lever to raise the upper-carbon holder, and gripping mechanism, substantially as described, adapted to drop the said carbon when the arc is unduly increased.

3. In combination, substantially as described, the coils of larger and smaller wire, the suspended cores, the pivoted lever Z, carrying a clamp adapted to raise the upper-carbon holder, the rod F, lever H, clamp-lever G, mechanism for turning rod F into and out of connection with lever H, springs for the levers Z and H, and means for limiting the movement of lever H.

4. A lever pivoted in the manner represented, in combination with the movable cores, wedge, ring, and rod F, substantially as and for the purpose set forth.

5. In combination with the carbon-holder A, the lever Z, and suspended cores of the electro-magnets, one having smaller and the other larger wires, as described, and with a spring, 4, the ring O and the wedge P, pivoted on the lever Z, and projecting upward against the carbon-holder, all substantially as described.

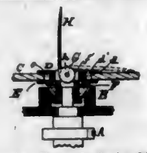
6. In combination with the rod F and the lever Z, the lever H, spring U, adjusting-screws, and the clamping-lever G, the lever K, and armature L, and the spring and link connection of the lever K, all substantially as described.

7. In combination with electro-magnets having coils of wire of different size, a lever connected to the movable cores, and means thereon for separating the carbons, a gripping-lever for lowering the upper carbon, a catch-rod for operating the grip of the lowering-lever, and an armature, L, opposite the fixed core of the electro-magnet, having the larger wire, and connections between said magnet and the catch-bar, all substantially as described.

310,737. WATCH-KEY. HORACE G. SKIDMORE, Cincinnati, Ohio. Filed Apr. 4, 1884. (No model.)

Claim.—1. The winding attachment for watches, consisting of a short winding-pipe, F, having a retaining-flange, *f*, and a hinged handle, H,

310,737.

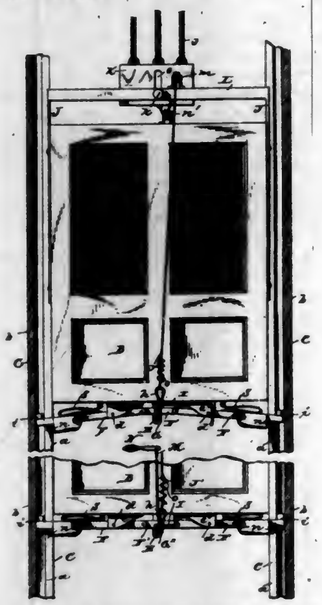


said pipe occupying an eyelet, D, so locked within an orifice, *c*, in the inner back of the watch as to be capable of lateral play, substantially as set forth.

2. The combination, in a winding device for watches, of short winding-pipe F, having detaining-flange *f*, and hinged handle H, occupying an eyelet, D, which is so locked (around the washer E) within an orifice in the rear cap of the watch as to be capable of lateral play, as and for the purpose explained.

3. The combination, with a watch which has a funnel-formed guard to its winding-arbor, of the short winder or key pipe, F, within an eyelet, D, that occupies and is locked loosely within an orifice in the inner back of the watch-case, substantially as set forth.

310,738. ELEVATOR. ISRAEL S. SMITH, Sr., Washington, D. C. Filed May 17, 1884. (No model.)



Claim.—1. An elevator having grooved guides for the cage or platform thereof, in combination with spring-actuated friction biting-levers, as specified.

2. An elevator having extension-levers spring actuated, and constructed, as described, to bite the guideways, substantially as described.

3. The combination of spring-actuated levers having gripping angular jaws with a guide having flanged lips, substantially as described.

4. The combination, in an elevator, of grooved guides and spring-actuated toggle-levers, substantially as described.

5. The combination of spring-actuated levers having cruciform end and back shoulders, with the double-L uprights, substantially as described.

6. The combination, with a platform in an elevator, of the double compound gripping-levers, the guides therefor, a spring connected to a lever, which is again connected to the main suspension rope or cable, as specified.

7. The spring-actuated levers connected by a link, as described, in combination with the suspension-rope, the cage and the cruciform heads and the shoulders on said levers, substantially as described.

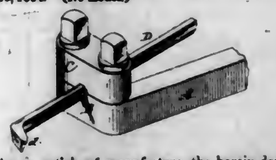
8. The combination of the spring-actuated gripping-levers connected by a link, the intermediate lever, and devices, substantially as described, for actuating said levers, substantially as described.

9. In an elevator, the means, substantially as herein described, for checking or positively arresting a car, cage, cab, or platform should the rope or cable break, consisting in spring-actuated compound cruciform locking-levers and double-L-shaped guides, substantially as described.

10. The combination, with the double gripping-levers, of a spring-actuated lever for keeping them out of action, and a lever attached to the spring-actuated lever in the car for positively throwing them into action at pleasure, substantially as shown and described.

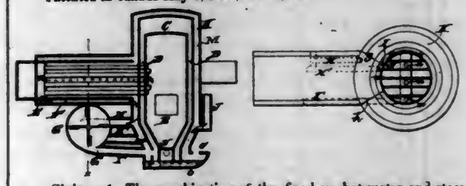
11. The combination, with the lever G, of the cord J', spring O, and the rod M, whereby the lever G may be automatically or positively operated, thereby causing the levers to impinge and arrest the car, cage, or platform, substantially as shown and described.

310,739. LATHE-TOOL HOLDER. JAMES M. SMITH, Seymour, Conn. Filed Oct. 20, 1884. (No model.)



Claim.—As an article of manufacture, the herein-described lathe-tool holder, consisting of the shank A, having its end turned to one side to form the part B of the head, combined with the second part, C, of the head, corresponding to the part B, the said two parts B and C having a V-shaped recess transversely across their adjacent faces, and the screws *b b*, loose through one of the parts and tapped into the other part, substantially as described, the said holder adapted to receive and support a polygonal-shaped tool.

310,740. BOILER AND STRAW-BURNING FURNACE. WILLIAM STEPHENSON, Jordan, Ontario, Canada. Filed Jan. 6, 1883. (No model.) Patented in Canada May 3, 1881, No. 12,729.

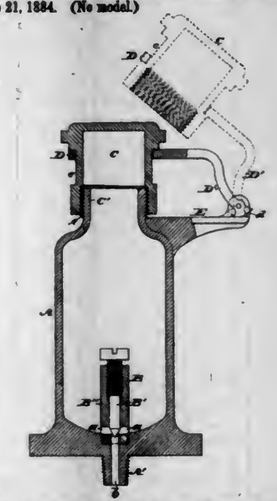


Claim.—1. The combination of the fire-box, hot-water and steam chamber surrounding the same, a water-tank below said fire-box and chamber, and the fans G and G', all substantially as and for the purposes set forth.

2. The combination of the fire-box, a hot-water and steam chamber surrounding the same, and exhaust-steam space surrounding said chamber and inclosed by a steam-tight jacket, and the partitions *g h n n n*, all substantially as and for the purposes set forth.

3. The combination of the fire-box having horizontal smoke-passages connected with the same, the return-flue F, smoke-fan G, steam-chambers D and M, water-tank O, and exit-pipe J, all substantially as and for the purposes set forth.

310,741. LUBRICATOR. SAMUEL J. STEVENSON, Philadelphia, Pa. Filed June 21, 1884. (No model.)



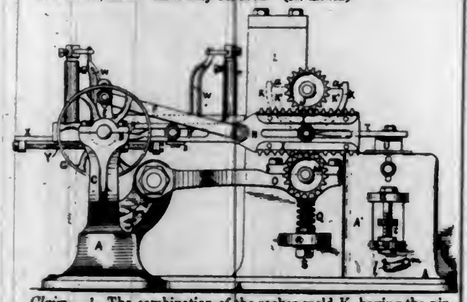
Claim.—1. A lubricator having at the bottom of its cup a valve, formed of a screw-stem, and a tubular guide, at top a removable cap whereby access is had to the valve without displacement of the lubricator, substantially as and for the purpose set forth.

2. A lubricator having at the bottom of its cup a valve, formed of a screw-stem, and a tubular guide, and at top a closing cap which is freely encircled by a yoke pivoted to the cup, substantially as and for the purpose set forth.

3. A lubricator having a cup which is provided with a closing-cap and a yoke pivoted to the cup freely encircling said cap, substantially as and for the purpose set forth.

4. In a lubricator, a cap or cover, in combination with the pivoted arm D', having a diagonal heel, *d*, substantially as and for the purpose set forth.

310,742. LEATHER-SKIVING MACHINE. GEORGE E. STOCKWELL, Marblehead, Mass. Filed July 11, 1884. (No model.)



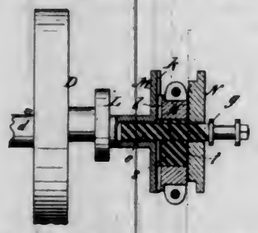
Claim.—1. The combination of the rocker-mold K, having the pinion J, the rocker-feeder N, having the pinion M, the horizontal sliding rack-bars I, provided upon the carrier-frame H, crank-arm E, and connecting-bar F, substantially as described.

2. The combination, with the rocking mold K and rocking feeder N, of the vertical spring-presser *e*, having the friction-roll *i*, substantially as described.

3. The combination, with the rocking mold K and rocking feeder N, of the adjustable forked holders W, sliding carrier-plate Z, and spring guide-roll E', substantially as described.

4. The combination, with the mold K and feeder N, of the adjustable knife T, rest U, supports V, screw-rod *l*, and nut *k*, substantially as described.

310,743. VALVE-GEAR. JAMES A. STOUT, Belleville, Ill., assignor to the Harrison Machine Works, same place. Filed Apr. 11, 1884. (No model.)



Claim.—1. In combination with the main-valve reversing-lever E, the rod G, for controlling the throttle-valve connected with the reversing-lever, so as to admit of its engagement with and disengagement therefrom, whereby said rod G may either be operated automatically in concert with the reversing-lever E or independently thereof, essentially as described.

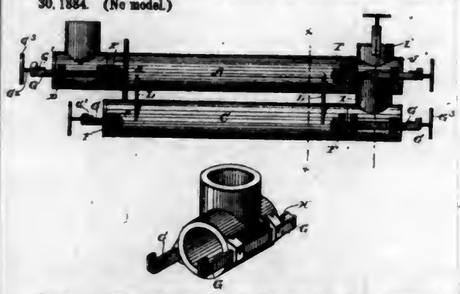
2. The combination, with the main crank D, the return-crank L, and the plate M, on the same spindle or shaft as said crank L, provided with a series of parallel grooves, *k*, in its face, of the valve-eccentric H, provided with a series of tongues or teeth, *l*, adapted to slide within grooves *k*, and an outer plate connected with the plate M for holding the eccentric H in engagement therewith, substantially as set forth.

3. The combination, with the main crank D, the return-crank L, and the grooved plate M, on the same spindle-shaft therewith, of the valve-eccentric H, provided with tongues for engaging the grooves of plate M, and with slots *n*, the outer plate, N, and the bolts *m*, passing through said plate and slots *n* into the plate M, substantially as set forth.

4. The combination, with the main crank D, the return-crank L, plate M, on the same spindle therewith, and the outer plate, N, of the valve-eccentric H, held to slide between said plates, and provided with an oblique-grooved slot at one side of its center, and the pin *g*, passing through the plates and eccentric and provided with oblique teeth for engaging the teeth of the eccentric H and sliding it between the plates, substantially as set forth.

5. The combination, with the main crank D, the return-crank L, and the guide-plates L M, of the valve-eccentric H, held to slide between said plates, and provided with the slot *t* and oblique grooves *n*, the obliquely-toothed pin *g*, passing through plates N M, and slot of valve-eccentric H, the pivoted laterally-swinging shifting-lever K, the reversing-lever E, the connecting-rod I, and the rod G for operating the throttle adapted to be operated by the reversing-lever, substantially as set forth.

310,744. GAS-RETORT. APPIOUS C. SWAIN, Chico, Cal. Filed Aug. 30, 1884. (No model.)

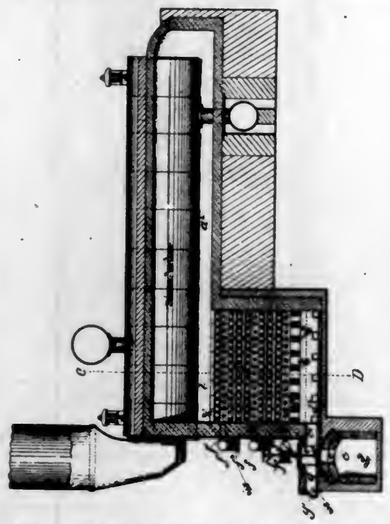


Claim.—1. The combination, with the retorts A B C, separated by trusses and provided with staples near their ends, of the lids, the head-bars turned in at their inner ends and turned up at their outer ends, the keys H, the lid-bars G, and the hand-screws, substantially as specified.

2. The combination of the retorts B and C and the superheater A, connected by removable end connections, said superheater being provided with the removable mouth-piece D, substantially as specified.

3. The combination, with the retorts A B C, separated by trusses and provided with lugs near their ends, of the removable end connections and the removable mouth-piece, substantially as specified.

310,745. GAS-FURNACE. WM. SWINDELL, Allegheny City, Pa. Filed July 2, 1884. (No model.)



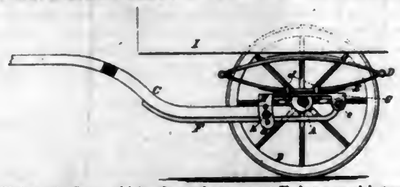
Claim.—1. A boiler or other furnace having a chamber arranged in front of the bridge-wall, filled with open checker-work in which is arranged one or more courses of flue-bricks for discharging air or air and gas into the checker-work, substantially as and for the purposes described.

2. The combination, in a furnace, of a chamber filled with checker-work, having one or more courses of flue-bricks arranged in the checker-work, with means for admitting air and gas into the checker-work, substantially as and for the purposes described.

3. The combination of a pile of checker-work arranged in the fire-chamber of a furnace, with a course or courses of flue-bricks arranged in the checker-work, and provided with lateral channels for delivering air, steam, or gas into the checker-work, substantially as and for the purposes described.

4. A furnace having a chamber filled with checker-work, with a course or courses of flue-bricks arranged in the same, in combination with means for supplying air or gas to said flues, and a blast apparatus for forcing air, steam, or gas into the flues, substantially as and for the purposes described.

310,746. TWO-WHEELED VEHICLE. RUBEN F. TALIAFERRO and EDWARD P. MITCHELL, Hueneme, Cal. Filed Apr. 15, 1884. (Model.)



Claim.—1. In a vehicle, the spring-support E, interposed between and in combination with the axle and the spring, and having the shaft connected to its under side, substantially as and for the purpose set forth.

2. In a vehicle, the spring-support E, interposed between and in combination with the spring and axle, said support having its rear end connected to the shaft-bar F, disposed below the axle, the forward end of said spring-support having depending arms H, adjustably connected to the shaft C, substantially as and for the purpose set forth.

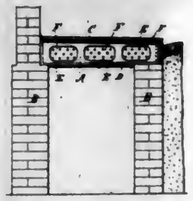
310,747. BRIDGE-TRUSS. EDWIN THACHER, Pittsburg, Pa. Filed Aug. 18, 1884. (No model.)

Brief.—Employs a top chord, a bottom chord, and a web of struts and ties connected to said top and bottom chords, respectively, and forming therewith a series of triangles free to change figure under the action of temperature, the center ties extending over not less than three panel-lengths, and the struts over not more than two, and a secondary trussing connecting the top chord and the ties of the primary truss.



Claim.—In a bridge-truss, the combination of a top chord, a bottom chord, and a web of strut and ties connected to said top and bottom chords, respectively, and forming therewith a series of triangles free to change figure under the action of temperature, the center ties extending over not less than three panel-lengths, and the struts over not more than two, and a secondary trussing connecting the top chord and the ties of the primary truss, substantially as set forth.

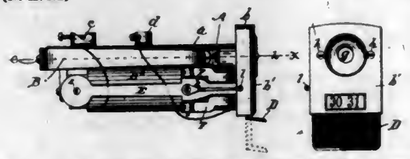
310,748. UNDERGROUND HOUSING AND INSULATION FOR ELECTRIC CONDUCTORS. ELI C. TOWNSEND, New York, N. Y. Filed Mar. 31, 1884. (No model.)



Claim.—1. The described water-tight chamber under a sidewalk, formed by means of the iron beams A, across the sidewalk, and resting on suitable supports, iron plates C, laid with water-tight joints on said beams to form the surface of the walk, and iron plates secured with water-tight joints to the under faces of said beams, together with means for supporting and insulating wires within said chamber, consisting of the insulators F, supported in openings E in the said beams, all as and for the purpose described.

2. The combination, with girders A, provided with the openings E, of the perforated insulators F, placed and supported in said openings.

310,749. COMBINED SPRING-JACK AND ANNUNCIATOR. LOUIS TOWNSEND and ROBERT W. MOORE, Evansville, Ind. Filed Apr. 21, 1884. (No model.)



Claim.—1. The combination, with the shank and head *a b*, forming the main frame, and recessed, slotted, and apertured for the plug, as described, of the two springs B B, bent inwardly toward each other at the slotted portion, and an insulated block arranged in the shank portion to rest normally in contact with the springs, and connected with one of the binding-screws, as described.

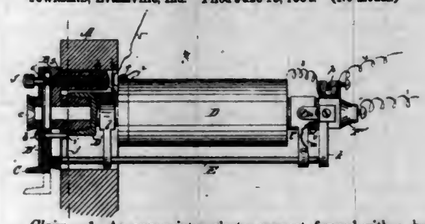
2. The shank and head *a b*, the shank having its sides recessed and formed with a through-slot at the ends of the recess, and the head having a central aperture, as described, in combination with two springs arranged upon the opposite recessed sides of the shank, and bent inwardly toward each other at the through-slot, substantially as shown and described.

3. The hollow head *b*, having spring-jack opening through it, the slotted drop-slide, and the face-plate having screws which both attach the face-plate to the head and retain the drop-slide in the head, as set forth.

4. The combination, with the sliding drop and its attached notched bar, of the armatured lever and its spring and adjusting-screw, as and for the purpose described.

5. The combination of the hollow annunciator-frame having the opening *g* through the same, the vertically-sliding drop D, having slotted branches on opposite sides of said opening, the holding-screws *d' d*, and a spring-jack arranged in rear of said opening, substantially as described.

310,750. COMBINED ANNUNCIATOR AND SPRING-JACK. LOUIS TOWNSEND, Evansville, Ind. Filed June 18, 1884. (No model.)



Claim.—1. An annunciator electro-magnet formed with a hollow core, in combination with a spring-jack located within said core, as and for the purpose described.

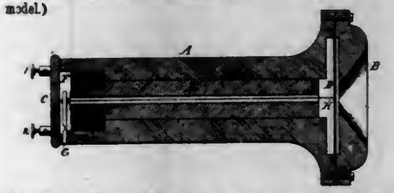
2. The combination, with an annunciator-frame having a rearwardly-projecting screw-threaded sleeve, *a*, and switch-board, of an electro-magnet having a screw-threaded connection with said sleeve, and arranged upon the opposite side of the switch-board from the annunciator-frame, so as to clamp the board between them, as described.

3. The frame for the annunciator, consisting of the face-plate B' and the frame B, with barrel *d*, in combination with the push-pin *e* and spring *g*, as and for the purpose described.

4. The combination of the magnet, the drop-slide C, having rearwardly-projecting stud *i*, the rock-shaft E, arranged parallel to the magnet, and having arm *j* and armatures *l l'*, and a spring for rocking the shaft, as shown and described.

5. The combination of the annunciator-frame B B', having drop-slide and central hole, the magnet having hollow core, and the spring-jack arranged within the hollow core, as and for the purpose described.

310,751. TELEPHONE. HENRY E. WAITE, New York, N. Y., assignor to Charles F. Livermore, trustee, same place. Filed Apr. 25, 1884. (No model.)



Claim.—1. The combination, in a telephone, of a diaphragm, a magnet having a coil or helix upon the end farthest from the diaphragm, an armature adapted to vibrate before the coil or helix, and means for connecting the diaphragm and armature, substantially as set forth.

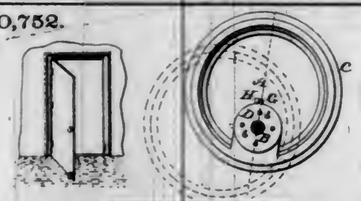
2. The combination, in a telephone, of a diaphragm, a tubular magnet extending at an angle to the diaphragm, and a coil or helix upon the end of the magnet farthest from the diaphragm, an armature adapted to vibrate before the coil, and a bar or rod passing through the magnet and connecting the diaphragm and armature, substantially as described.

3. A magneto-telephone consisting of a suitable case containing a hollow-bar magnet having a non-magnetic diaphragm located at or near one end, and a helix upon the other or opposite end, a spring-armature, and a bar or rod of non-magnetic material connecting the diaphragm and spring-armature, substantially as described.

310,752. DOOR-CHECK. ALONZO B. WALKER, Canton, Ohio. Filed Apr. 11, 1884. (No model.)

Claim.—The eccentric A, provided upon its rear side with the lug H, in combination with the washer-plate B, having lug G, and provided upon its rear side with pointed projections *b*, said eccentric and washer-plate being pivotally connected to each other, substantially as described and shown.

310,752.



310,753. TREATMENT OF YUCCA OR SOTAL FIBER FOR THE PRODUCTION OF PAPER PULP OR STOCK, AND OBTAINING BY-PRODUCTS THEREFROM. GEORGE B. WALKER, London, England. Filed May 23, 1884. (No specimens.)

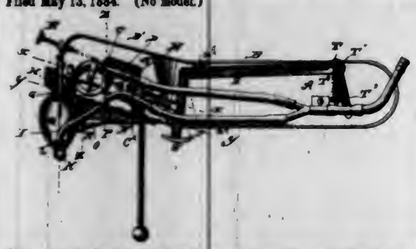
Claim.—1. The method of preparing paper pulp or stock from yucca fiber, consisting in treating the fiber, after it has been rendered into a condition resembling tow, by steeping it in waste acid sulphite liquors, then opening the fiber, and then digesting it in a closed vessel by means of sulphurous acid while being agitated, substantially as set forth.

2. The method of preparing paper pulp or stock from yucca fiber, consisting in treating the fiber, after it has been rendered into a condition of tow, in the manner described, by steeping it in waste acid sulphite liquors, then opening the fiber, and then digesting it in a closed vessel by means of borax-liquor and sulphurous acid while being agitated, and then washing in a weak carbonate-of-soda solution, substantially as set forth.

3. In the method of preparing paper pulp or stock from yucca fiber, the method of treating the fiber by means of a solution of crude or native borax, in combination with sulphurous acid, substantially as set forth.

4. In the method of preparing paper pulp or stock from yucca fiber, the method of treating the fiber by means of waste acid sulphite liquors from a previous operation, substantially as set forth.

310,754. PAINT-DISTRIBUTER. LIBERTY WALKUP, Rockford, Ill. Filed May 13, 1884. (No model.)



Claim.—1. In a paint-distributer, the combination, with the hand portion of the case, of a forward portion for containing the operating parts, arranged at an angle to the main portion or inclining backward from its front edge at an angle corresponding to the inclination of the needle, whereby the parts for operating the needle are caused to move in planes parallel therewith, substantially as described.

2. In a paint-distributer, the combination, with the wind-wheel support having an endwise movement to regulate the stroke of the needle, and with the wind-wheel and walking-beam for operating the needle, of a set-screw to regulate the throw of the wind-wheel support, substantially as and for the purpose described.

3. In a paint-distributer, the combination, with the case provided with the rib or guide and with the slotted wind-wheel support, of the spring-plate and set-screw, substantially as and for the purpose described.

4. In a paint-distributer, the combination, with the needle-guide, of an adjustable screw or pin for limiting the downward movement of the guide and regulate its pressure on the needle, substantially as and for the purpose described.

5. In a paint-distributer, the combination, with the air-tube or blast-pipe, of a vertical nozzle having an adjustable connection with the air-tube, whereby the nozzle can be adjusted to bring the blast directly over the point of the reciprocating needle, substantially as and for the purpose set forth.

6. In a paint-distributer, the combination, with the air-tube and adjustable nozzle, of a set-nut to hold the nozzle in its adjusted position, substantially as and for the purpose set forth.

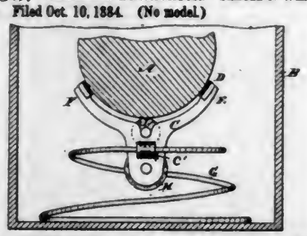
7. The combination, with the air-tube having the vertical nozzle connected thereto, and connected to the case, substantially as described, of the set-screw for raising or inclining the nozzle, substantially as and for the purpose set forth.

8. In a paint-distributer, the combination of the valve-lever having the collar formed thereon for engaging the pin formed on the case with the spring and set-nut for regulating the pressure of the valve upon the valve-seat, substantially as described.

9. In a paint-distributer, the combination, with the case having the perforations at each end, of the jointed cover provided at one end with the fixed pin, and at the other with the spring-bolt for engaging said perforations, substantially as and for the purpose set forth.

10. In a paint-distributer, the combination, with the case having the perforations at each end, and with the jointed cover provided with the fixed pin and spring-bolt, of the swinging latch pivoted to the cover and adapted to be engaged with the side walls of the case, substantially as described.

310,755. CAR-AXLE LUBRICATOR. SAMUEL J. WALLACE, Keokuk, Iowa. Filed Oct. 10, 1884. (No model.)

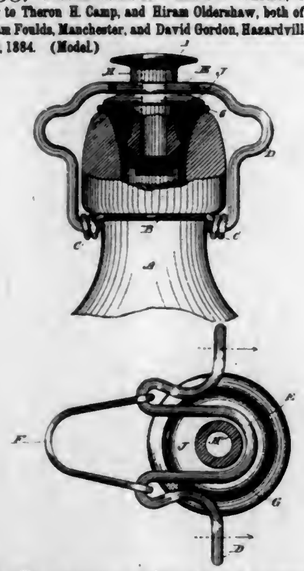


Claim.—1. The combination of a roller, H, supported by a spring-frame, C, with one or more rollers, I, held in open or slotted bearings in the spring-frame, and resting directly upon and supported by the roller H below, substantially as set forth.

2. A journal-lubricator provided with a frame, C, having a spring-base, and holding roller H, supported by its journals therein, and made spool-shaped, or cut away to one or more narrow rims, to carry up and apply a lubricant to roller I, by which it is turned by friction.

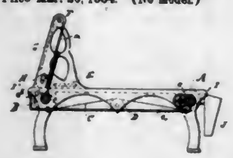
3. A journal-lubricator provided with a train of two rollers, H I, having contact between them upon a depressed space, *i*, upon the roller in contact with the journal.

310,756. BOTTLE-STOPPER. HENRY C. WALTER, Bridgeport, assignor to Theron H. Camp, and Hiram Oldershaw, both of New Britain, William Foulds, Manchester, and David Gordon, Hazardville, Conn. Filed Apr. 9, 1884. (Model.)

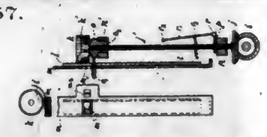


Claim.—The combination of the locking-wire secured to the neck of the bottle and having a loop of a link loosely connected thereto, and a stopper having a neck and having a shoulder which projects laterally above the neck and has a diameter greater than the width of the opening formed by the link and loop, substantially as described.

310,757. CLOTH MEASURING AND INSPECTING MACHINE. CHAS C. WEBBER, Holyoke, Mass., assignor to himself, and Thomas Campbell, Chicago, Ill. Filed Mar. 26, 1884. (No model.)



310,757.



Claim.—1. In a cloth-measuring machine, an endless apron connected with a counting device, and adapted to carry the cloth lengthwise upon a taut horizontal, or substantially horizontal, portion thereof, substantially as herein specified, for measuring the length of cloth in the manner set forth.

2. In a cloth-measuring machine having an endless cloth-carrying apron connected with its counting device, and a pair of rolls, around which said apron is stretched to render portion thereof taut in a horizontal plane, horizontal shields above the rolls, to relieve the cloth from roll-effect in passing above the rolls, substantially as herein specified.

3. The combination, in a cloth-measuring machine, of an endless cloth-carrying apron, a roll for driving said apron, and a roll driven by said apron, the latter connected with a counting device, said apron being stretched around said rolls and adapted to carry the cloth on a taut horizontal portion thereof, substantially as herein specified.

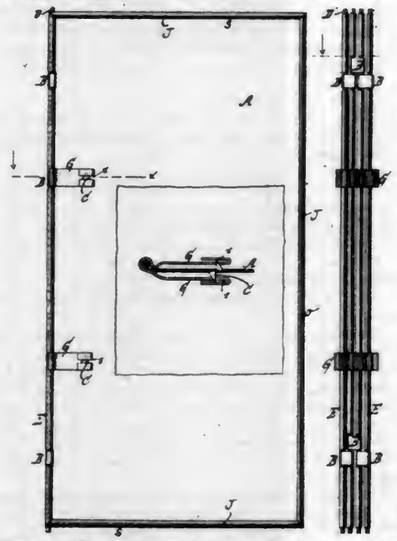
4. In a cloth-measuring machine, a counting device comprising a rotary cylinder to indicate eighths individually, and a notched slide operated by a stepped circumferential flange on said cylinder to indicate measured yards individually, in the manner set forth.

5. In a cloth measuring and inspecting machine, the combination, with the within-described rotary count indicating cylinder *k* and gravitating count-indicating slide *l*, of an upper bearing for the shaft of said cylinder, having a cam-recess in its upper surface, and an eccentrically-bored bushing-sleeve adapted to rotate and slide within said bearing, and constructed with a projection to coact with said cam-recess, substantially as herein specified, for the purpose set forth.

6. In a cloth-measuring machine, the combination of the within-described slide *l*, cylinder *k*, shaft *j'*, bearing *n'*, sleeve *o*, spring r^2, swinging rod *r'*, roller *r*, and heart-shaped cam *p*, substantially as shown and described, for the purposes set forth.

7. In a cloth measuring and inspecting machine, the combination of the within-described shelf E, elevated roll F, inclined inspecting-table G, and delivery-roll H, substantially as shown, for the purposes set forth.

310,758. PAPER-FILE. FREDERICK D. WEBER, East New York, N. Y., assignor, by mesne assignments, to Meta Weber, same place. Filed June 26, 1884. (No model.)

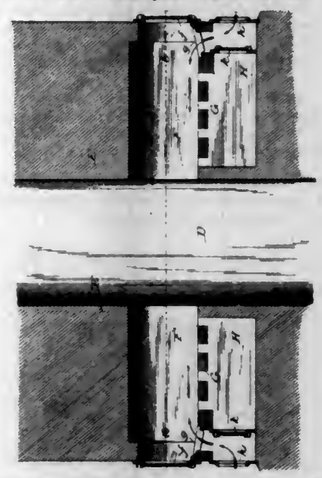


Claim.—1. The combination, in a paper-file, of a series of leaves which are hinged together on one edge and provided adjacent to such edge with barbs for piercing the sheets to be filed, and the slotted fingers hung to the joint-pins of the leaves, for depressing the sheets on the barbs, substantially as described.

2. The combination, in a paper-file, of a series of hinged leaves, of sheet metal, having sheet-piercing barbs struck up therefrom to project in opposite directions, for adapting both sides of the leaves to receive the sheets to be filed, and the double fingers hung to the joint-pins of the leaves, for depressing the sheets on the barbs of both sides of the leaves, substantially as described.

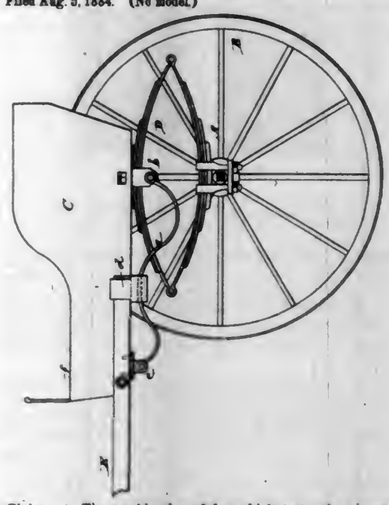
3. The combination, in a paper-file, of the double fingers hung to the joint-pins, and the series of leaves, of sheet metal, having barbs struck up therefrom in opposite directions, and provided at their free edges with the ribs or offsets J, substantially as set forth.

310,759. LIMEKILN. ABNER B. WEEKS, Rockland, Me., assignor of one-half to Francis Cobb, same place. Filed Oct. 25, 1884. (No model.)



Claim.—In combination with the stack, chamber, or flue D, a fire-chamber, F, having a grate, G, and ash-pit H, underneath, and the door *f* in front, an inner door, *k*, and grate *g*, all substantially as described.

310,760. TWO-WHEELED VEHICLE. JOHN WESELY, Chicago, Ill. Filed Aug. 5, 1884. (No model.)



Claim.—1. The combination of the vehicle-body, the pivoted thill, the front and rear brackets, *c* and *b*, the intermediate bracket, *d*, connected with the thill, and the spring *a*, connected at its ends, respectively, with the front and rear brackets, and between its ends with the intermediate bracket, substantially as described.

2. The bracket *d*, having the cushion *e*, in combination with the shaft E and spring *a*, substantially as set forth.

310,761. MANUFACTURE OF INCANDESCENTS. EDWARD WESTON, Newark, N. J., assignor to the United States Electric Lighting Company, New York, N. Y. Filed Nov. 20, 1883. (No model.)



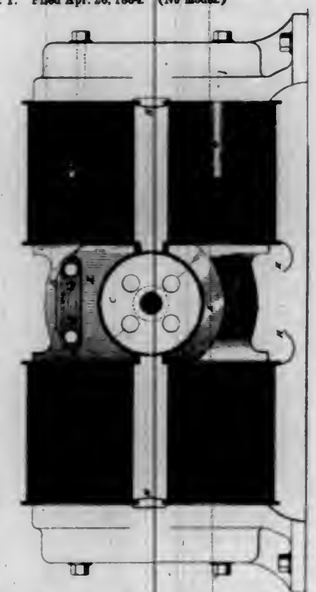
310,761.



Claim.—1. The method or process of preparing conductors for incandescent lamps, which consists in winding the blanks upon mandrels and baking them to set or fix their shape, then packing them in a muffle with flaky plumbago, and carbonizing them, in substantially the manner set forth.

2. The method of manufacturing carbon conductors of irregular shape, and adapted for use in incandescent lamps, which consists in packing blanks of the desired shape in a muffle with flaky plumbago, and carbonizing them, in substantially the manner herein set forth.

310,762. DYNAMO-ELECTRIC MACHINE. EDWARD WESTON, Newark, N. J., assignor to the United States Electric Lighting Company, New York, N. Y. Filed Apr. 26, 1884. (No model.)



Claim.—1. The combination of an electric circuit, translating devices included either singly or in series therein, and a derived field-circuit dynamo machine having field-magnets of such degree of sluggishness relatively to the number and character of the translating devices that injurious reaction upon its magnetic intensity by momentary or temporary variations of the translating devices is prevented, as and for the purpose specified.

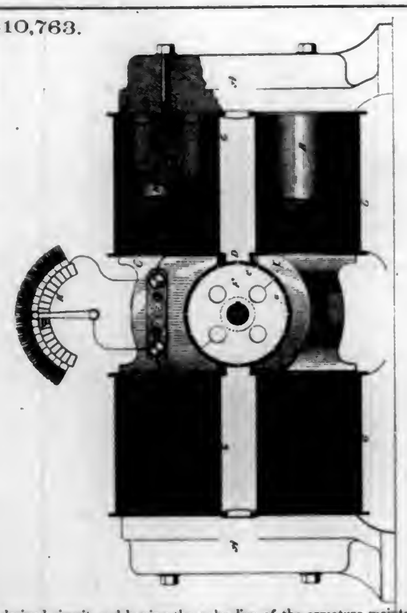
2. The combination of a electric circuit, electric-arc lamps or similar translating devices included singly or in series therein, and a derived field-circuit dynamo machine having field-magnets of such degree of sluggishness relatively to the number and character of the lamps or other devices that variations in the action of such devices have time to subside before any reaction upon the magnetic intensity of the field takes place, such as would increase such variation, substantially as described.

310,763. SYSTEM OF GENERATING AND REGULATING ELECTRIC CURRENTS. EDWARD WESTON, Newark, N. J., assignor to the United States Electric Lighting Company, New York, N. Y. Filed Apr. 26, 1884. (No model.)

Claim.—1. The combination, with an electric circuit and translating devices included in series therein, of a dynamo-electric machine having the maximum points on the commutator maintained in approximately the same position, notwithstanding variations in the intensity of the field, within the working limits of the machine, substantially as described, and means for varying the intensity of the field within such limits, whereby a constant current is maintained for all normal variations in the resistance of the external circuit without adjustment of the commutator or brushes bearing thereon, as hereinbefore set forth.

2. The combination, with an electric circuit and translating devices included in series therein, of a dynamo-electric machine with its field-coils

310,763.



in derived circuit, and having the polar line of the armature maintained approximately coincident with that of the field, under all variations of the magnetic intensity of the field, within the normal working limits of the machine, substantially as described, and a variable resistance or rheostat in the field-current adapted to vary the current flowing through said circuit, and thereby the magnetic intensity of the field, in such manner as to compensate for variations in the resistance of the main circuit and within the working limits of the machine, as hereinbefore set forth.

3. The combination, with an electric circuit and translating devices included in series therein, of a dynamo-electric machine the field and armature magnets of which are constructed relatively to each other, in substantially the manner described, whereby the polar lines of both are maintained approximately coincident, the field-coils in a derived circuit, an electro-magnet in the main circuit, and mechanism operated or controlled thereby for varying the current passing in the field-coils within such limits that the coincidence of the polar lines is not affected, substantially as set forth.

310,764. SWITCH FOR CASH-RAILWAYS. WILLIAM H. WIGGIN and FRANK L. WIGGIN, Lowell, Mass., assignors to W. S. Lamsen, same place. Filed Sept. 10, 1884. (No model.)

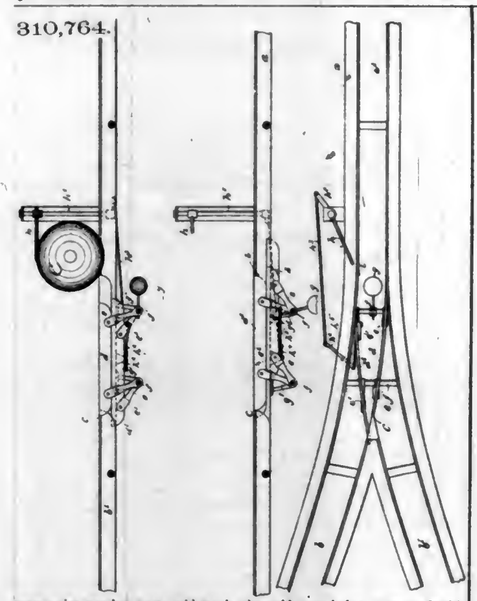
Claim.—1. The combination, with the continuous main rails forming the main track and diverging to form the outer rails of two branch tracks, and the inner rails of the said branches meeting at a point between the said diverging rails, of the switch-rails adapted to span the space between the said point and the main rails, and automatic shifting mechanism whereby one of the said switch-rails is moved into position to connect the main track with one branch and the other rail is at the same time removed from position to affect the carriers passing over the tracks, substantially as described.

2. The continuous main rails constituting the main track and diverging to form the outer rails of two branch tracks, and the inner rails of the said branch tracks meeting at a point between the diverging main rails, combined with the vertically-movable switch-rails and actuating mechanism therefor, whereby one of the said rails is placed in a position parallel with one continuous main rail, and spanning the space between the other main rail and the junction of the inner branch rails, while the other switch-rail is placed below the level of the main and branch tracks, substantially as described.

3. The main and branch tracks and the switch-rails for completing the connection between the main and either of the branch tracks, combined with the arms supporting the said switch-rails, the rock-shafts connected with the said arms, and the yielding switch-operating device whereby the said parts are normally retained in one position, connecting the main track with one of the branches, substantially as described.

4. The main and branch tracks and switch-rails for completing the connection between the said main track and either of the branch tracks, combined with the yielding switch-operating device whereby the switch-rails are normally retained in position to connect the main with one of the branch tracks, and the automatic shifting device consisting of an arm extending over the main track in position to be struck by carriers of

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proper size passing over said track, the said arm being connected with the switch-rails, substantially as described.

5. The main and branch tracks, and the switch-rails and arms and rock-shafts supporting the same, as described, whereby one of the said switch-rails is supported above the rock-shaft at the level of the tracks and the other below the said level, the said arms moving slightly beyond the vertical position in elevating the corresponding rail, and being thus retained in position by the weight of the carrier passing over the said rail, substantially as described.

6. The main and branch tracks, and the switch-rails and arms and rock-shafts supporting the same, as described, whereby one of the said switch-rails is supported above the rock-shaft at the level of the tracks and the other below the said level, combined with shifting mechanism whereby the position of the said switch-rail is reversed, and stops limiting the movement of the said rails, substantially as described.

7. The combination, with the main and branch tracks of a railway, of two switch-rails guided to move vertically, and mechanism for elevating the said rails to complete the main and branch tracks, substantially as described.

8. The combination, with the main and branch tracks of a railway, of two vertically guided and movable switch-rails, and appliances whereby the same are adjusted as the carrier approaches the switch, substantially as described.

310,765. TURN-OUT FOR STORE-SERVICE TRACKS. WILLIAM H. WIGGIN and FRANK L. WIGGIN, Lowell, Mass. Filed Dec. 6, 1884. (No model.)

Claim.—1. The combination, with the continuous track of a railway, of a vertically-adjustable rail constituting a continuation of the branch track, and extending between the point and the rail of the main track, substantially as set forth.

2. The combination, in a railway, of a main track, a branch track, a fixed rail constituting a part of one of the tracks to make the latter an unbroken track, and a movable rail constituting part of the other track, crossing the fixed rail, and capable of adjustment to bring its upper edge above that of the fixed rail, substantially as set forth.

3. The combination, in a railway turn-out, of a continuous track and a branch track provided with a movable rail crossing the inner rail of the continuous track, and capable of vertical adjustment to bring its edge above or below that of the said inner rail, substantially as set forth.

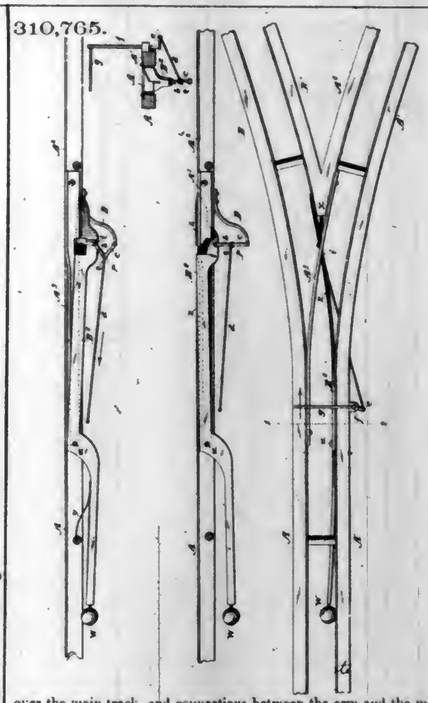
4. The combination of the continuous track, branch track, and movable rail constituting a part of the branch track, counterbalanced substantially as and for the purpose specified.

5. The combination of the continuous track, branch track, and movable rail constituting part of the branch track, notched for the passage of the inner rail of the continuous track and vertically adjustable, substantially as specified.

6. The combination of the continuous track, branch track, and pivoted, notched, and counterbalanced rail constituting part of the branch track, substantially as specified.

7. The combination, with the continuous track, branch track, and vertically-movable rail of one of the tracks, of a movable arm extending

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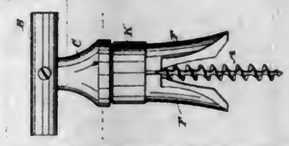
over the main track, and connections between the arm and the movable rail, substantially as and for the purpose set forth.

8. The combination, in a store-service railway, of a continuous track, a branch track, a movable rail constituting a part of one of the tracks, and connections between the rail and an arm arranged adjacent to the main track, to be struck by graduated carriers thereon, substantially as specified.

9. The combination, in a railway turn-out, of a vertically-movable rail crossing the inner fixed rail of one of the tracks, an arm arranged adjacent to the track, to be struck by graduated carriers thereon, and connections, substantially as described, whereby the movement of the said arm alters the vertical position of the movable rail, substantially as specified.

10. The combination, with the main track and branch track, of a fixed rail, A^3, constituting a continuation of one of the tracks, and a movable rail, B^3, constituting a continuation of the other track, and vertically adjustable to bring its edge above or below that of the rail A^3, substantially as set forth.

310,766. CORKSCREW. BARTHOLOMY WILHELM, Appleton, Wis., assignor of one-half to John Henry Kamps, same place. Filed July 14, 1884. (No model.)



Claim.—1. The corkscrew having the prongs loosely connected and adjustable thereon, said prongs being adapted to rest upon the bottle-neck, substantially as and for the purpose set forth.

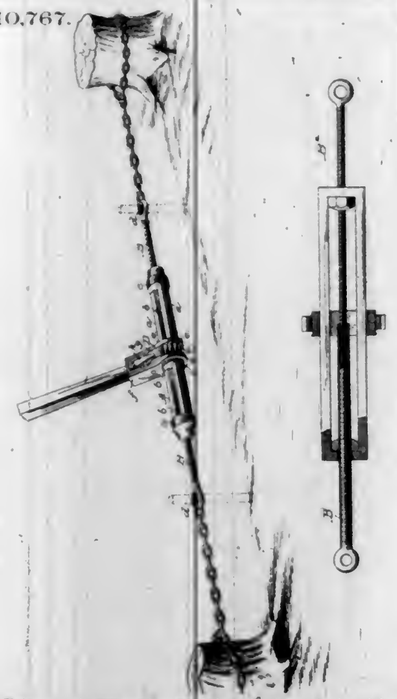
2. The combination, with a corkscrew, of prongs held loosely on the same, and of a sliding ring on the prongs, substantially as herein shown and described.

3. The combination, with a corkscrew, of the fixed part C, having a circular groove in its bottom, the prongs F, having tongues E at their upper ends, and of the ring K, substantially as herein shown and described.

4. The combination, with the corkscrew A, of the flat ring H, the tapered part C, having a groove in its lower end, the prongs F, having tongues E and internal shoulders, G, and of the sliding ring K, substantially as herein shown and described.

310,767. STUMP-EXTRACTOR. JOHN B. WILSON, Petersburg, Ill. Filed Nov. 26, 1884. (No model.)

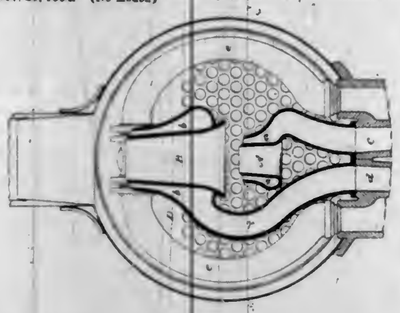
310,767.



Claim.—1. A stump-puller consisting of a frame having right and left hand screws fitted to the ends thereof, suitable chain-connections between said screw ends and the load to be pulled, and pawl-and-ratchet mechanism connected to the said frame and adapted to be operated to draw on the load, substantially as described.

2. A stump-puller consisting of a frame, right and left hand screws fitted to the ends thereof, chains attached to the eyes of the screws, and adapted to be secured at the other ends to the load to be pulled, and a ratchet-wheel secured to the frame at its center, a pawl mechanism swiveled on the frame, and a socket for the insertion of a handle, all operating substantially as described.

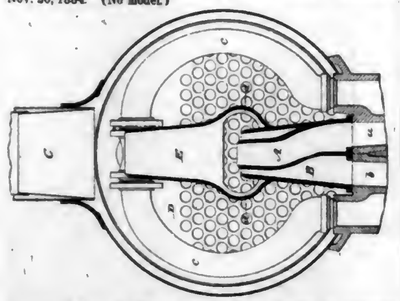
310,768. EXHAUST-NOZZLE FOR LOCOMOTIVES. BERTHA WOTAPEK, New York, N. Y., administratrix of Joseph Wotapek, deceased. Filed Nov. 20, 1884. (No model.)



Claim.—1. The combination, with the smoke-box and the smoke-stack, of the two exhaust-nozzles placed concentrically one above the other and centrally below the smoke-stack, and a receiving-cone surrounded by the upper nozzle, through which cone passes the steam discharged from the lower exhaust-nozzle, together with the gases drawn along by and with that steam, substantially as hereinbefore set forth.

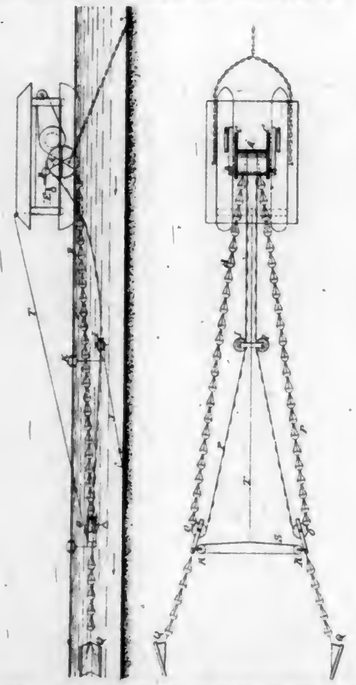
2. The combination of the smoke-box, the smoke-stack, the two annular exhaust-nozzles placed concentrically one above the other and centrally below the smoke-stack, and two receiving-cones communicating with the interior of the smoke-box and surrounded, the one by the upper and the other by the lower exhaust-nozzle, substantially as and for the purposes hereinbefore set forth.

310,769. EXHAUST-NOZZLE FOR LOCOMOTIVES. BERTHA WOTAPEK, New York, N. Y., administratrix of Joseph Wotapek, deceased. Filed Nov. 20, 1884. (No model.)



Claim.—The combination, with the smoke box or chamber and smoke-stack, of the two concentric exhaust-nozzles having their axes on the prolongation of the axis of the smoke-stack, and the receiving-cone intermediate between and located in line with the two nozzles and the smoke-stack, and communicating at its base and top with the interior of the smoke-box, as and for the purposes hereinbefore set forth.

310,770. HYDRAULIC MOTOR. NICHOLAS YAGN, St. Petersburg, Russia. Filed Mar. 31, 1884. (No model.) Patented in France Dec. 20, 1883, No. 146,903, and in Germany Apr. 19, 1884, No. 28,798.



Claim.—1. The combination of the endless parachute-ropes of a hydraulic motor with a frame and grooved drum, A, over which the said rope passes for more than half its circumference, and weighted pressing-rollers to keep the said rope in position on the drum, substantially as set forth.

2. The combination of a frame, transmission-drum, and two endless parachute-ropes, with guide-pulleys I I, around which the slack parts of the rope pass, between the drum and the outer ends of the loops, to prevent the entanglement of the ropes, substantially as described.

3. The combination of a frame, transmission-drum, and two endless parachute-ropes, with pulleys O O, over which the outer ends of the loops pass, and steering devices, connecting-cord S, and a cord, T, by which said connecting-cord is controlled, substantially as set forth.

310,771. PEN-HOLDER. JAMES H. ANDERSON, Macon, Ga. Filed May 31, 1884. (No model.)

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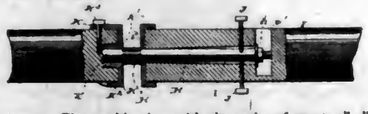


Claim.—1. A pen-holder having rigidly or pivotally secured to it a thimble or socket having one end closed to protect the fingers from ink.

2. In combination, in a pen-holder, with the thimble or socket, the pen-holding and paper-protecting cylinders, substantially as and for the purpose specified.

3. The combination, with the thimble or socket, of the pen-holding and paper-protecting cylinders, and the pin passing through the said cylinders and securing the thimble to them, substantially as and for the purpose set forth.

310,772. FLOUR-BOLT. JOHN F. AYRES, Alloway, N. J. Filed Apr. 25, 1884. (No model.)



Claim.—1. The combination, with the series of spouts d' d^2, &c., and the two troughs arranged below and on opposite sides thereof, of the switches or shunts composed of plates f, arranged at the ends of the spouts d' d^2, &c., and the boards F, pivotally supported at their lower edges, and having their upper edges projected into the said spouts and adjustable from side to side thereof, substantially as set forth.

2. In a rotating bolt, the combination of the shaft I, provided with a socket, i, the gudgeon having its shank seated and movable in said socket, and the adjusting-screws, substantially as set forth.

3. The combination of the rotary bolt having its shaft I, provided with end socket, i, and intersecting mortise i', the gudgeon having its shank seated in said socket, the retaining-nut h, and the screws J, all substantially as and for the purposes set forth.

310,773. CONDUIT-PIPE. THEODORE BACHMEISTER, Toulon, Ill. Filed June 13, 1884. (No model.)

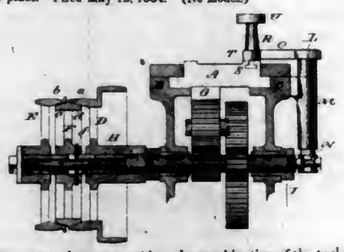


Claim.—1. A conduit-pipe having its external diameter alternately increasing and diminishing, in combination with strengthening-bands encircling said pipe, the diameter of said bands being less than the greater diameters of said pipe and greater than the lesser diameters of the same, substantially as and for the purpose specified.

2. A pipe, A, having its diameter alternately increasing and diminishing, substantially as set forth, in combination with metal bands B, for the purpose herein described.

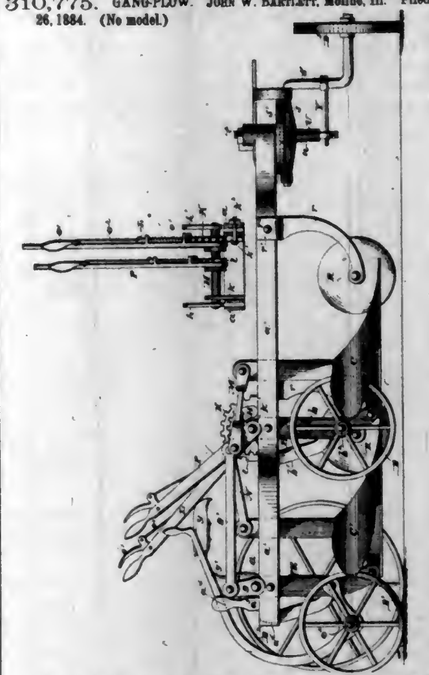
3. In a conduit-pipe, a pipe, A, formed of several strips or staves, each of which has the alternate elevations and depressions a a', in combination with the metal bands B, as and for the purpose herein set forth.

310,774. REVERSING-GEAR FOR SHAPING-MACHINES. DAVID L. BALLARD, Torrington, Conn., assignor to the Hendey Machine Company, same place. Filed May 12, 1884. (No model.)



Claim.—In a shaping-machine, the combination of the tool-carrying slide A, the horizontal tubular shaft C in gear-connection with said slide, loose pulleys D E, arranged upon the shaft at one side of the bed, the friction-clutch F on the shaft between said pulleys, the face of the clutch and the inner faces of the pulleys correspondingly inclined for frictional engagement, the spindle H within said tubular shaft, in connection at one end with the clutch F, the other end extending through the shaft and fitted with an annular grooved collar, I, a vertical rock-shaft, M, carrying at its lower end a fork, N, in connection with the said grooved collar, the lever O on the upper end of the rock-shaft, and adjustable stops P R on the slide, substantially as and for the purpose described.

310,775. GANG-PLOW. JOHN W. BARTLETT, Moline, Ill. Filed Jan. 26, 1884. (No model.)



Claim.—1. In a gang-plow, the combination, with a main frame supported on wheels, and a crank-axle journaled in the main frame and provided with a supporting-wheel, of two or more plows pivotally connected to arms depending from the main frame, a rock-shaft journaled in bearings mounted on the main frame, a hand-lever rigidly secured to said rock-shaft, a hand-lever loosely sleeved on said rock-shaft, sector-bars for each hand-lever, and links for transmitting the motion of the hand-levers to the main frame and plows, substantially as set forth.

2. The combination, with the main frame and a plow pivotally connected at the heel of its landside, with a stationary depending arm attached to the main frame, of an adjustable toothed sector, a rock-shaft and link, and a hand-lever for raising and lowering the point of the plow, substantially as set forth.

3. The combination, with the main frame and a series of plows, each being pivotally connected at the heel portion of its landside with a stationary depending arm attached to the main frame, of an adjustable toothed sector, a rock-shaft, connecting-links, and a hand-lever for simultaneously raising or lowering the points of the several plows, substantially as set forth.

4. The combination, with a main frame and plow vertically adjustable on said frame, of a lever pivotally connected to the frame, and a furrow-wheel journaled to said lever, substantially as set forth.

5. The combination, with a main frame and plow vertically adjustable on said frame, of the bent lever F, pivotally connected to the main frame in rear of the plow, and a furrow-wheel journaled to said lever.

6. The combination, with a main frame and a plow vertically adjustable on said frame, of a lever pivotally connected to said frame, a furrow-wheel journaled to said lever, and a stud or projection on the main frame for holding the furrow-wheel in its depressed adjustment.

7. The combination, with a plow-frame, of a crank-axle having a land-wheel thereon, a lever for turning said axle, and a lever pivoted to said frame, and a furrow-wheel journaled to said lever.

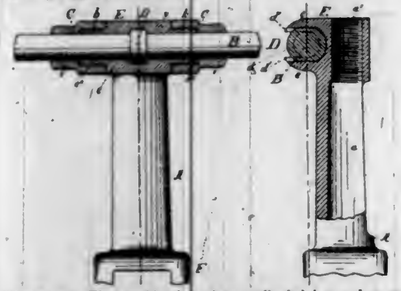
8. In a gang-plow, the combination, with a wheel for supporting the forward end of the frame, of independently-adjustable wheels for supporting the rear end of the frame, and a non-adjustable wheel connected with the main frame between the front and rear wheels, substantially as set forth.

9. The combination, with a plow pivotally connected at the heel of its landside to the frame of the machine, and a plow-standard terminating above the frame, of the rock-shaft, a link connecting the plow-standard and rock-shaft, and a hand-lever and sector for securing the rock-shaft in any desired adjustment.

10. In a gang-plow, the combination, with a frame, a crank-axle journaled in the frame, and provided with an arm, and a wheel journaled on the crank-axle, of a rock-shaft, a lever loosely mounted on a shaft, a sector rigidly secured to the shaft, devices for locking the lever to the sector, a pitman connecting the lever and arm, a lever rigidly secured to said rock-shaft, and a sector rigidly secured to the frame, substantially as set forth.

11. The combination, with the main frame, brackets depending from the frame, plows pivoted at their heels to said brackets, and devices for elevating the points of said plows, of a furrow-wheel journaled on a non-adjustable stud secured to one of said brackets, and a lever pivoted to another of said brackets, and a furrow-wheel journaled to said lever, all of the above parts combined as described.

310,776. VELOCIPEDE. WILLIAM P. BENHAM, Hartford, Conn., assignor to the Pope Manufacturing Company, same place. Filed Dec. 8, 1884. (No model.)



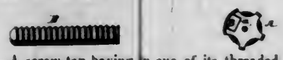
Claim.—1. The combination of an undivided bar and an open-slotted lug, and two sleeve-nuts, or their equivalents, one on either side the lug, surrounding the bar and adapted to lock it rigidly to the lug, essentially as set forth.

2. The described improvement in handle-bar lugs for velocipede-steering heads, consisting in an open slot, *d*, between the two jaws *e e* of the lug, for admission of a continuous handle-bar, and projections *b b*, or their equivalents, adapted to receive and be combined with sleeve-nuts for retaining the handle-bar securely in place and for allowing it to be removed, essentially as set forth.

3. In combination with the handle-bar B, the detent D, constructed and adapted to operate substantially as and for the purposes set forth.

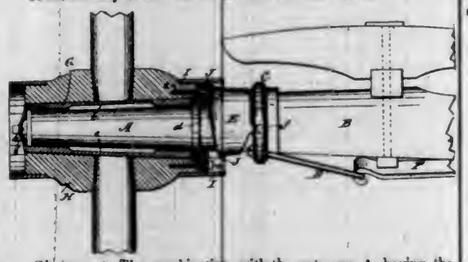
4. The combination, in a velocipede, of lug E, having jaws *e e*, slots *d d' d'*, and projections *b b*, or their equivalents, a continuous handle-bar, B, detent D, and sleeve-nuts C C, or their equivalents, essentially as set forth.

310,777. SCREW-TAP. HENRY W. BILL, Cuyahoga Falls, Ohio. Filed Aug. 4, 1884. (No model.)



Claim.—A screw-tap having in one of its threaded faces a longitudinal channel containing a movable bar fitted to said channel, and with its outer face screw-threaded in conformity with said tap, substantially as shown, and for the purpose specified.

310,778. AXLE BOX AND SKEIN. LAWRENCE BIMEL and WILLIAM BIMEL, St. Mary's, Ohio. Filed June 14, 1884. (No model.)



Claim.—1. The combination, with the axle-arm A, having the flanges C and *d*, of the ring J, loosely fitted upon the arm between the said flanges, substantially as described, whereby the ring may be retained in place and hold the wheel in place.

2. The combination, with the arm A, provided with the apertured flange C, of the flaring sand-shield E, having ears *f*, adapted to engage the apertures in the flange C, as and for the purpose specified.

3. The combination, with the arm A, having the flanges *d* and C, and the hub H thereon, of the ring J, loosely fitted upon the arm between the said flanges, and secured to the hub by bolts *e*, and the flaring shield E, having ears adapted to engage the flange C, as shown and described.

4. The combination, with the arm A, having the flanges C and *d*, and the ring J, loosely fitting the arm between the flanges, of the axle-box G, having the internal enlargement, *c*, and the convex inclosed end *b*, provided with an oil-hole, and a screw-plug, *a*, therefor, substantially as described, whereby an oil-chamber is formed in the said convex inclosure and around the arm, as set forth.

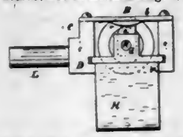
310,779. VEHICLE-WHEEL. JAS. H. BISSELL, Rochester, Ohio. Filed Aug. 16, 1884. (No model.)



Claim.—1. In a carriage-wheel, hollow metal hubs with the rear outer portion integral with the pipe or thimble-box for the axle-spindle, and the front outer portion integral with an inside thimble adapted to fit over the pipe-box, and the front and rear portion provided, respectively, with outside flanges, and inside shoulders adapted to embrace the spokes, with intermediate vacant spaces or chambers between the outside and inside surfaces that engage the spokes, substantially as set forth.

2. In a carriage-wheel, a hollow metal hub consisting, essentially, of the part A, terminating in the flange *a*, and integral with the part B, that forms the box for the axle-spindle, and provided with a shoulder, *b*, perpendicular with the inner face of the flange *a*, and with the lug *b'*, and the part C, provided with the flange *c* and integral with the sleeve C', adapted to fit over the part B, and the inner end thereof perpendicular with the inner surface of the flange *c*, and the parts provided, respectively, with vacant spaces or chambers between the outer and inner surfaces that engage the spokes, substantially as set forth.

310,780. BRUSH-HOLDER FOR DYNAMO-ELECTRIC MACHINES. HERRMANN R. BOSSIER, New York, N. Y. Filed May 13, 1882. (No model.) Patented in England Jan. 22, 1883, No. 357; in France Jan. 22, 1883, No. 153,253; in Belgium Jan. 22, 1883, No. 60,233; in Germany Jan. 24, 1883, No. 25,295, and in Austria Aug. 7, 1883, No. 4,289.

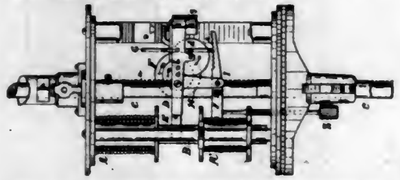


Claim.—1. A brush-holder for a dynamo or a magneto electric machine, consisting of a frame, a follower sliding therein, and an eccentric or cam for operating the follower, substantially as set forth.

2. A brush-holder for a dynamo or magneto electric machine, consisting of a frame, a follower capable of sliding therein, and an eccentric or cam for operating the follower, mounted upon a rod having its bearings in lugs upon the follower, substantially as set forth.

3. In a dynamo or magneto electric machine, the combination of an eccentric having its top composed of three curves, the middle one being concave, as shown, with a spring adapted to take in such curve and hold the same in position with the frame and follower of a brush-holder, all substantially as shown and set forth.

310,781. REGULATOR FOR ELECTRIC-ARC LAMPS. HERRMANN R. BOSSIER, New York, N. Y. Filed May 13, 1882. (No model.) Patented in England Jan. 22, 1883, No. 361; in France Jan. 22, 1883, No. 153,254; in Belgium Jan. 22, 1883, No. 60,234; in Germany Jan. 24, 1883, No. 26,217, and in Austria May 9, 1883, No. 2,547.



Claim.—1. In an electric-light regulator, the combination of a vibrating fly gearing with the rack attached to the upper-carbon carrier, and a lever notched at one end and normally in contact with the edge of the fly, the other end being weighted, so as to keep the notched end in contact with the fly and prevent its oscillation except when released by the weighted end coming in contact with a stop attached to the frame of the regulator, both the said parts being contained entirely in the swinging frame, substantially as shown and described.

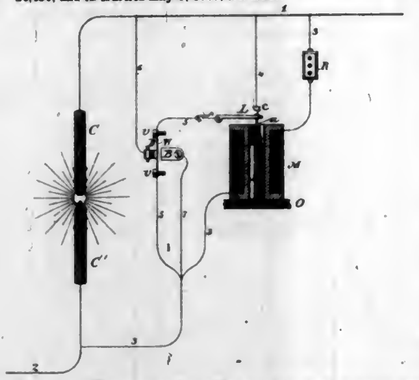
2. The combination of the vibrating fly G, pivoted to the swinging frame D, and the lever I, notched at *e* and weighted at *f*, the said lever being also pivoted to the swinging frame, all substantially as shown and described.

310,782. DYNAMO-ELECTRIC MACHINE. HERMANN R. BOSSIER, New York, N. Y. Filed Mar. 5, 1883. (No model.) Patented in England Jan. 22, 1883, No. 357; in France Jan. 22, 1883, No. 153,253; in Belgium Jan. 22, 1883, No. 60,233; in Germany Jan. 24, 1883, No. 25,602, and in Austria Aug. 7, 1883, No. 4,289.



Claim.—The combination, with the poles or brushes or collectors of a dynamo-electric machine, of a switch formed of the resilient conductors S S', one of which is provided with means for forcing their contiguous ends apart, substantially as set forth.

310,783. CUT-OUT FOR ELECTRIC-ARC LAMPS. HERMANN R. BOSSIER, New York, N. Y. Filed Mar. 5, 1883. (No model.) Patented in England Jan. 22, 1883, No. 361; in France Jan. 22, 1883, No. 153,254; in Belgium Jan. 22, 1883, No. 60,234; in Germany Jan. 24, 1883, No. 26,439, and in Austria May 9, 1883, No. 2,547.



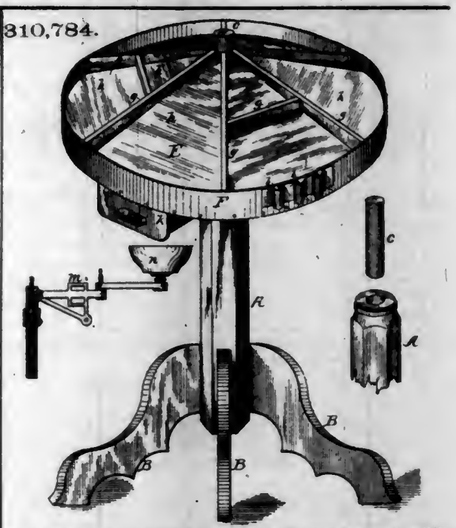
Claim.—1. The combination of the main circuit of an electric lamp with three shunt-circuits, one containing a magnet and adjustable resistance, one containing a fusible wire, and one containing a make-and-break mechanism, each of said shunt-circuits being arranged relatively to each other, substantially as shown and set forth.

2. The combination, in an electric lamp, of a shunt-circuit containing a make-and-break cut-out with a second shunt including a fusible conductor and a normally-open circuit-closer, and a third shunt-circuit containing an electro-magnet, all arranged substantially as described, whereby the second shunt is closed by the action of the electro-magnet due to an abnormal flow of current in the third shunt, and the first shunt is permitted to close by the rupture of the fusible conductor in the second shunt, thereby establishing a path of low resistance around the lamp.

3. In an electric lamp or regulator, the combination of the resistance R, hollow electro-magnet M, movable core A, lever L, contact-point *c*, fusible wire W, contact-point B, spring-contact D, with the necessary circuits, arranged substantially as shown and described.

310,784. WORK-TABLE FOR SHOE-MAKERS. ALEXANDER M. BOLLINGER, Kelly's Station, Pa. Filed Oct. 15, 1884. (No model.)

Claim.—As an improved article of manufacture, a work-table consisting of a perpendicular post provided with diverging legs or feet for supporting the same, a round pin inserted and extending above the upper end of said post, a circular frame or table pivoted thereto, the top of which presents a sloping surface that inclines downwardly from its center or pivotal point, and is divided by suitable walls into several triangular-shaped open compartments, beneath one of which is placed a sliding drawer, the edge of the table being bounded by a high circumferential ledge fitted with outside projecting pockets.



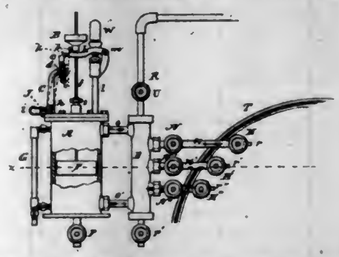
310,785. TAG-FASTENER. H. B. BREWSTER, Centralia, Ill. Filed Oct. 6, 1884. (No model.)



Claim.—1. A tag-fastener consisting of a strip formed at one end with an eye or opening to receive the tag, with oppositely-projecting barbs to prevent the withdrawal of the strip, and also formed near its outer end with inwardly-projecting barbs, substantially as set forth.

2. A tag-fastener consisting of a metallic strip formed at one end with an eye to engage a tag, and having its edges formed with oppositely-inclined barbs, substantially as set forth.

310,786. LOW-WATER ALARM. HENRY G. BROOKS, Battle Creek, Mich. Filed July 24, 1884. (No model.)



Claim.—1. The float F, having rigidly connected therewith the stem *f*, said stem being provided at its upper portion with an adjustable cup, in combination with the whistle-lever L, slotted to engage the stem *f*, and the cylinder A, having communication with the boiler, all arranged and operating substantially in the manner described, and for the purpose specified.

2. The adjustable dog C *c*, in combination with the lever L of an alarm-whistle, substantially as herein described and shown.

3. In a low-water alarm, the auxiliary drum D, in combination with the cylinder A and pipes *n n' n''*, substantially as and for the purpose shown and described.

4. The low-water apparatus herein described, consisting of the float F, containing cylinder A, auxiliary drum D, dog C, and connecting-pipes *o o' n n' n''*, in combination with the gage-cocks H, H', and H'', and with an alarm-whistle, substantially as and for the purpose as shown and specified.

310,787. BOLT. HERBERT T. BUCKLEY and WILLIAM H. WINELAND, Easton, Pa. Filed July 1, 1884. (No model.)



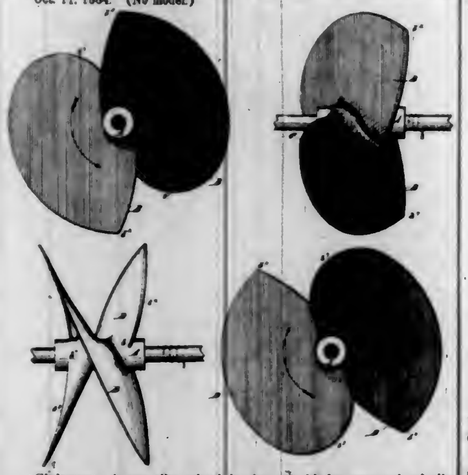
Claim.—A bolt provided with an opening having a catch therein, said catch consisting of a neck, shoulder, shank, and collar, said shank being provided with an encircling spiral spring interposed between the under side of said collar and the face of the bolt, a face-incasing plate provided with a central longitudinal slot with enlarged terminal openings, and one or more end openings to admit the passage of the end of the bolt, in combination with a base-plate having a recess therein, substantially as described, and for the purposes set forth.

310,788. CAR-COUPLING. JOSEPH K. BYWATER, Paris, Tex. Filed Nov. 8, 1884. (No model.)



Claim.—In a car-coupler, the coupler E, having at its forward end a loop or link, G, hook H, and connected rigidly with the ball B or any suitable device moving in a passage, A, substantially as set forth and described.

310,789. PROPELLER-WHEEL. NICHOLAS CAIN, Detroit, Mich. Filed Oct. 11, 1884. (No model.)



Claim.—1. A propeller-wheel having two blades mounted spirally upon an axis which is entirely embraced by each, the leading edges of each blade being nearly straight and the rear edges curved and inclined slightly forward as they approach the axis, substantially as described.

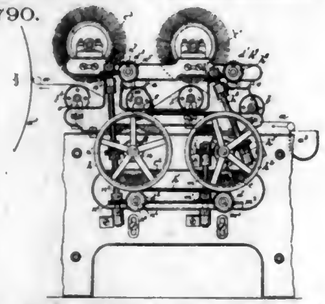
2. A propeller-wheel having its leading edges b^2 slightly curved and its rear edges, b^3, curved from the point of each blade substantially in the arc of about one-third the circle described from the axis A, and then curved inward to the axis, the blades being spirally mounted on said axis and entirely or nearly embracing it, substantially as described.

3. The propeller-wheel having two blades, B B, spirally mounted on a hub, A, and entirely or nearly entirely embracing it, said blades having leading edges b^2, which are nearly straight or curved but slightly, and rear edges, b^3, which from the points of the blades are substantially coincident with about one-third the circle described from the axis, and curved thence inward, substantially as described.

310,790. WARP-SLASHER. SAMUEL R. CAMPBELL, New York Mills, N. Y., assignor of one-half to George Draper & Sons, Hopedale, Mass. (No model.)

Claim.—1. A brush and means to operate it, combined with a warp-supporting roll, about which the warp is bent to support the sheet of warp exactly opposite the points where the brush touches the said warp, whereby the bristles of the brush are prevented by the roll from penetrating or passing entirely through and beyond the side of the sheet of warps next the roll and opposite the point acted upon by the brush, thus obviating breakage of the warp, substantially as described.

310,790.

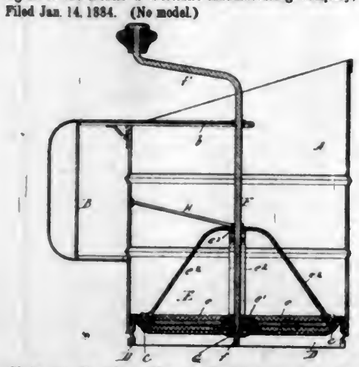


2. A series of warp-supporting rolls, combined with a series of brushes arranged to brush the warp-threads at their points of contact with the said rolls, both above and below the series of rolls, and with suitable means to move the said brushes, substantially as set forth.

3. A brush and a roller about which the warp is bent to support it exactly at the points where it is acted upon by the said brush, combined with a brush to clean the brush which acts upon the warp, and with means to move the said brushes, substantially as described.

4. A size-box to apply size to a sheet of warps, and a drying apparatus to dry the same, combined with a series of rotating brushes arranged above and below the sheet of warps, and with a series of supporting-surfaces for the warp-threads immediately opposite the brushes, to support the warp-threads when acted upon by the brushes, substantially as shown and described.

310,791. FLOUR-SIFTER. WILLIAM N. CAMPBELL, Chicago, Ill., assignor to the Adams & Westlake Manufacturing Company, same place. Filed Jan. 14, 1884. (No model.)



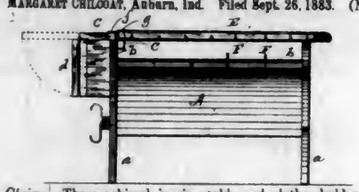
Claim.—1. In a flour-sifter, a cylindrical receptacle, in combination with a straight horizontal sieve-bottom bent upward slightly at its outer edge, substantially as and for the purposes set forth.

2. In a flour-sifter, a cylindrical receptacle, in combination with a straight horizontal sieve-bottom bent upward slightly at its edge, and an agitator the arms of which are straight, with a short upward bend at their extremities to conform to the bottom, substantially as and for the purposes set forth.

3. A cylindrical receiver, A, in combination with the straight bottom C, bent up at its edge, the straight agitator-arms *e*, bent upward slightly at their outer ends, the connecting-strips e^2, and the shaft F, threaded at its lower end, substantially as and for the purposes set forth.

4. The receiver A, in combination with the handle B, provided with an inward extension, *b*, in one piece therewith, the shaft F, agitator E, and bottom C, substantially as and for the purposes set forth.

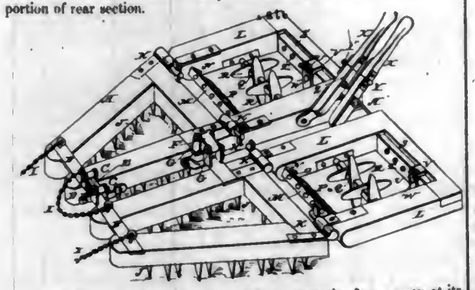
310,792. COMBINED IRONING-TABLE AND CLOTHES-HOLDER. MARGARET CHILCOAT, Auburn, Ind. Filed Sept. 26, 1883. (No model.)



Claim.—The combined ironing-table and clothes-holder described, consisting of the trough A, having its end walls vertically extended, and its side walls provided with the pivoted arms F, the trough at one end having a drawer, the top board, c, of which is provided with eyebolts or loops to engage hooks on the inner end of the ironing-board, the said ironing-board E detachably arranged upon the end walls of the trough, the bar *i*, arranged beneath the drawer-frame, and having a series of pivoted hooks, as shown, whereby the said hooks may be turned up and out of the way when not in use, substantially as specified.

310,793. HARROW. GEORGE F. CLARK, Ravenswood, W. Va. Filed July 12, 1884. (No model.)

Brief.—Front sections of ordinary harrow connected detachably with rear sections carrying inclined cutters, revolving crushers, and adjustable markers. Bar carrying cutters secured adjustably in open front portion of rear section.

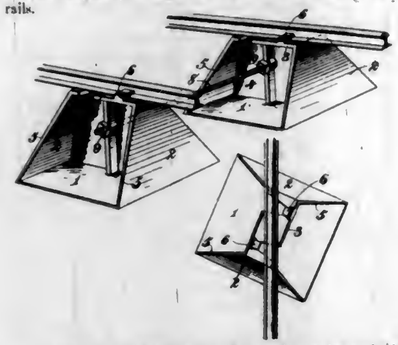


Claim.—1. The combination of the rectangular frame, open at its forward end, the flat bar having its ends bent at right angles and provided with cutter-teeth sharpened upon their forward edges, and the screws passing through the perforated ends of the flat bar into the inner sides of the side pieces of the frame, as and for the purpose shown and set forth.

2. The combined harrow, stalk-cutter, clod-crusher, and land-marker, consisting of two frames having converging outer side pieces provided with harrow-teeth and hinged together at their inner side pieces, and two rectangular frames hinged to the rear ends of the harrow-frames, having adjustable inclined cutter-teeth in their forward ends, revolving crusher-teeth at their middles, and land-marking teeth secured adjustably upon their end pieces, all constructed and arranged as and for the purpose shown and set forth.

310,794. RAILWAY TIE OR SUPPORT. JOHN K. CLARK, Buffalo, N. Y. Filed Feb. 14, 1884. (No model.)

Brief.—A railway-tie consisting of two supports united by a tie-rod, each support consisting of a casting having an extended bottom part, tapering side walls, a central supporting-web perforated to receive the tie-rod, and diagonally-arranged lips upon the top, whereby to secure the rails.



Claim.—1. A support for a railway-rail cast integral with the extended bottom wall, side walls, top plate, and diagonally-arranged overhanging lips on the top plate, and a web having an orifice for the passage of the connecting-rod, substantially as described.

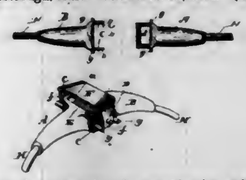
2. A support for a railway-rail cast integral with the extended bottom wall, side walls, top plate, diagonally-arranged overhanging lips on the top plate, and a central web having an orifice for the connecting-rod, and joined to the top plate and the bottom and side walls, substantially as described.

3. The combination of the two supports, each constructed with an extended bottom wall, side walls, a top plate formed with diagonally-arranged overhanging lips, and a web having an orifice, with a connecting-rod passing through the webs and having a tightening and a jam nut, substantially as described.

4. The combination of the two supports, each cast integral with an extended bottom wall, side walls, a top plate, diagonally-arranged overhanging lips on said plate, and a web having an orifice and joined to the top plate and the bottom and side walls, with the connecting-rod passing through the webs and nuts for tightening and holding the rod, substantially as described.

5. A railway-support having two side walls joined at the base by an extended bottom wall, and at the top by a plate formed with diagonally-arranged overhanging lips, and a web between the walls and plate having an orifice for the passage of a connecting-rod, substantially as described.

310,795. BRACELET. D. EDGAR CODDING and OSMYN H. ATWOOD, North Attleborough, Mass. Filed June 28, 1884. (No model.)



Claim.—1. In a bracelet, the combination, with two wings, the head of one wing being pivotally secured within the head of the other, of a spiral spring embracing the pivotal rivet, and having its ends locked in contact with the opposite edges of the heads of the wings, substantially as set forth.

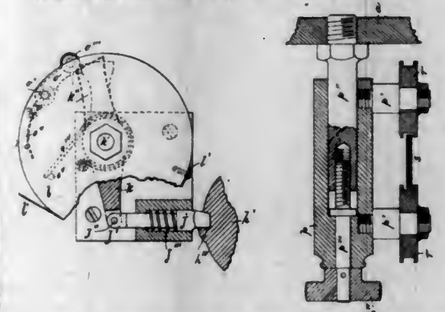
2. In a bracelet, the combination, with a front consisting of two wings, the head of one wing being pivotally secured within the head of the other, and a spring located within the head of one wing and tending to hold the wings in closed adjustment, of a cap secured in an upright position over the wing-heads, substantially as set forth.

3. In a bracelet, the combination, with a front consisting of two wings pivotally secured together, and a spiral spring secured on the pivotal bolt, with its ends pressing against the opposite edges of the wings, of a cap secured on the pivotal bolt and adapted to cover the ends of the wings and limit the open adjustment of the same, substantially as set forth.

4. In a bracelet, the combination, with two wings, the head of one wing being partially embraced by and pivotally secured to the head of the other, and a spring secured on the pivotal bolt and tending to hold the wings in closed adjustment, of an ornamental cap secured on the pivotal bolt and held in an upright position by studs or lugs on the heads of the wings, substantially as set forth.

5. A bracelet consisting of an ornamental front consisting of two wings stamped from thin strips or sheets of metal, having angular heads formed on their ends, one of which heads partially embraces the other, and is pivotally secured thereto by a bolt or rivet, a spiral spring secured on the pivotal bolt, the ends of the spring pressing the opposite edges of the wing-heads, a cap secured on the pivotal bolt covering the wing-heads, and semi-annular band-sections secured to the wings, the whole constructed in the manner and for the purpose substantially as set forth.

310,796. GEAR-CUTTING MACHINE. ZORESTER B. COBB, Hyde Park, Mass., and GEORGE W. MILLER, Woonsocket, R. I., assignors to Amos H. Brainard, Hyde Park, Mass. Filed July 11, 1884. (No model.)



Claim.—1. A friction-gearing for driving the dividing mechanism of a gear-cutting machine, composed of a tight and loose pulley, and means, substantially as described, for constantly retaining a portion of the driving-belt on the loose pulley, and adjusting such portion of the belt only upon the tight pulley as may be required for operating the dividing mechanism, as herein set forth and described.

2. In a gear-cutting machine, the adjustable sleeve *p*, carrying the rolls *r r*, for regulating width of belt necessary to drive the dividing mechanism, substantially as set forth.

3. In combination, the disk *l*, pawl *o*, spring *o''*, roll *o'''*, cam *l''*, and the lever *k*, as and for the purpose set forth.

310,797. CORSET-CLASP. JULIUS M. COHN, New York, N. Y. Filed June 18, 1884. (No model.)

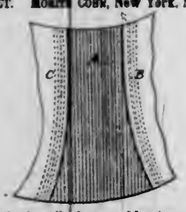


Claim.—1. The herein-described improvement in corset-clasps, consisting of the eye composed of a body, A, constructed with a slot, *a*, having an enlarged opening, *d*, near the busk end of the eye, the outer end extended, and a corresponding slot made in said extension, the extension turned backward over the body A to form a spring, B, the slot and enlarged opening in the spring portion corresponding to the slot and opening in the body of the eye, substantially as described.

2. A clasp-eye having the body A and the spring B formed in one and the same piece, the spring turned over and upon the surface of the eye, the body and spring constructed with a corresponding slot for the introduction of the head of the stud, and the spring constructed with the offsets *f g*, more or less in number, substantially as described.

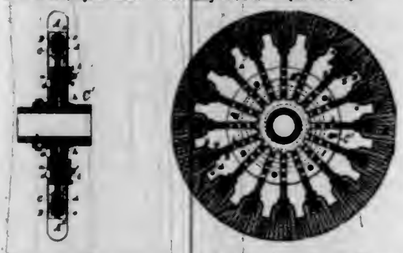
3. The herein-described improvement in corset-clasps, consisting of the eye composed of a body, A, constructed with a slot, *a*, having an opening, *d*, near the busk end of the eye, the outer end extended, and a corresponding slot made in said extension, the extension turned backward over the body A to form a spring, B, the slot in the spring portion corresponding to the slot in the body of the eye, combined with a stud constructed with an annular groove, *h*, the diameter of the stud in the groove corresponding substantially to the slot in the eye, and substantially as described.

310,798. CORSET. MORITZ COHN, New York, N. Y. Filed Feb. 23, 1884. (No model.)



Claim.—The herein-described corset, having one or more of the sections constructed from a fabric woven with parallel pockets and shaped upon formers corresponding to the required shape for the section, the adjacent sections of the corset composed of two thicknesses cut from fabric and stitched together, the said woven section introduced between the thicknesses of the said adjacent sections and stitched thereto, substantially as described.

310,799. WHEEL FOR GRINDING OR POLISHING SURFACES. J. E. COMPTON, Lynn, Mass. Filed May 20, 1884. (No model.)



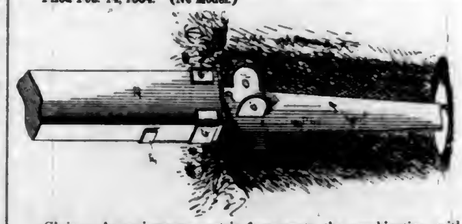
Claim.—1. The combination of the helically and radially grooved sections of the hub with the series of arms applied, as described, to such section, and with the rim consisting of a series of voussoirs, each of which is composed of pieces of leather, as set forth, and connected with the arms, the whole being so that by revolving in one direction the helically-grooved section of the hub the several voussoirs, by means of the arms, shall be drawn and held firmly together, essentially as explained.

2. The wheel-rim consisting of a series of voussoirs, each of which is composed of pieces of leather in pack, in combination with a hub, and with arms adapted thereto and to such voussoirs, and provided with mechanism for moving such arms in radial directions toward the hub, so as to draw together the several voussoirs, all being substantially as set forth, the said mechanism for moving such arms consisting of the disk *y*, provided with the helical groove *n*, having the arms, where covering it, extended into it, as set forth.

3. The wheel provided with the circular groove dovetailed transversely, and with one or more weights, made in two sections, dovetailed as described, and arranged with such groove and held in place thereto by screws going into and between the two sections, all being substantially as set forth.

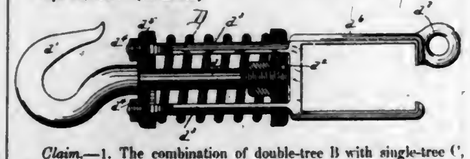
4. The wheel-hub, made in sections, helically and radially grooved and connected, substantially as described, in combination with the series of radial arms, arranged between and applied, as described, to the said sections, and with the rim composed of the loops and voussoirs of leather, and of the strengthening metallic plates applied to each loop, the said arms being extended through the loops and such plates and connected therewith by screws and nuts, substantially as represented.

310,800. FENCE-POST. ABNER D. DOUBLEDAY, Kalamazoo, Mich. Filed Feb. 14, 1884. (No model.)



Claim.—As an improvement in fence-posts, the combination, with the metallic base provided with a series of semicircular wings and decreasing in width downwardly from said wings, a circular portion at the end of the base, and a ledge or stop projecting outwardly from the inner side of the same, of the wooden standard resting at its lower end on said ledge or stop, flanges formed integral with the base and clasping the sides of the standard, and screws or other fastening means securing the upper end of the base to the standard, as set forth.

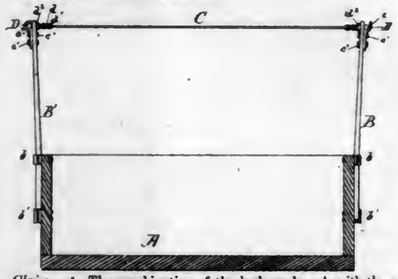
310,801. DOUBLE-TREE. JAMES T. DOUGHTY, Chicago, Ill. Filed Apr. 16, 1884. (No model.)



Claim.—1. The combination of double-tree B with single-tree C, coil compression-spring D, caps d^2 and d^4, and pull-rods *d* and d^3, said pull-rod *d* being provided with a hook for attachment to the single-tree, and said pull-rod d^3 having two branches sliding in said cap d^2, and being provided with open-end socket d^5, for attachment to the double-tree, substantially as specified.

2. The combination of double-tree B with single-tree C, coil compression-spring D, cap d^2, pull-rod d^3, provided with two branches secured to said cap, and having clip d^6 secured to the double-tree and stay-chain eye d^7, cap d^2, and pull-rod *d*, provided with hook *d'* for the single-tree, substantially as specified.

310,802. SEAT FOR WAGONS. JAMES T. DOUGHTY, Chicago, Ill. Filed Aug. 11, 1884. (No model.)



Claim.—1. The combination of the body or box A with the spring-standards B B', secured to the sides of said box, and flexible seat C, suspended between said spring-standards, substantially as specified.

2. The combination of the box with a pair of spring-standards, B, secured to the side of said box on one side, and a pair of spring-standards, B', secured to the opposite side of said box, and a flexible seat, C, furnished with end rods, D D, substantially as specified.

3. The combination of spring-standards B B', and flexible seat C, suspended between said spring-standards near the top thereof, substantially as specified.

4. The combination of flexible seat C, made of canvas or other like material, with spring-standards B B', furnished with bearings or supports near their top, and rods D D, secured to the ends of said canvas seat, and supported in the bearings on said spring-standards, substantially as specified.

5. The combination of spring-standards B B and B' B' with rods D D, provided with offsets or shoulders d^2 d^2, and canvas seat C, secured to said rods D at each end, substantially as specified.

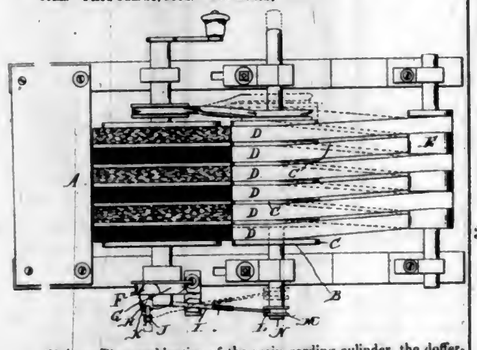
6. The combination of spring-standards B B' with rods D D, provided with webs *d d*, and canvas seat C, secured to said rods D between said webs *d d*, substantially as specified.

7. The combination of the box A with the spring-standards B B', secured to the sides of said box by clips *b* and socket-clips *b'*, canvas seat C, and rods D, secured thereto at each end, one of said rods D being mounted in forks or open bearings *c* at the top of said spring-standards B, and the other of said rods D being mounted in hinged bearings c^2 at the top of said spring-standards B', so that said seat may be swung over the side of the box, substantially as specified.

8. The combination of the spring-standards B B', and a flexible seat suspended between said standards, and provided with a hinge-connection thereto at one end, and an open connection or bearing at the other end, substantially as specified.

9. The combination of spring-standards B B and B' B' with flexible seat C, suspended between said standards, and a back, E, secured to the rear standard, the same being extended above the seat, for the purpose substantially as specified.

310,803. CARDING-MACHINE FOR THE MANUFACTURE OF MOTTLED ROVINGS. JOB DYSON and CHARLES W. COOKSON, New Britain, Conn. Filed Jan. 28, 1882. (No model.)



Claim.—The combination of the main carding-cylinder, the doffer-cylinder having equidistant flanges upon its surface, means, as described, for reciprocating said cylinder, the smaller rollers, journaled one above the other, and the endless belts of card-clothing passing over the doffer-cylinder and alternately over the rollers, as and for the purpose shown and set forth.

310,804. GLASS-FURNACE. JOHN V. EBEL, Pittsburg, Pa., assignor of two-thirds to Henry F. Voigt, Theodore L. E. Ortman, John W. Albertson, James W. Patterson, and Joseph O. C. Campbell, same place. Filed Sept. 22, 1884. (No model.)

Claim.—1. In a glass-furnace, the combination of a generator provided with a receiving-chamber, the diverging and converging flues 10 and 11, a glass-working chamber connected at its ends with the flues 10 and 11, and regulating-valves located at the points of junction of said flues, substantially as set forth.

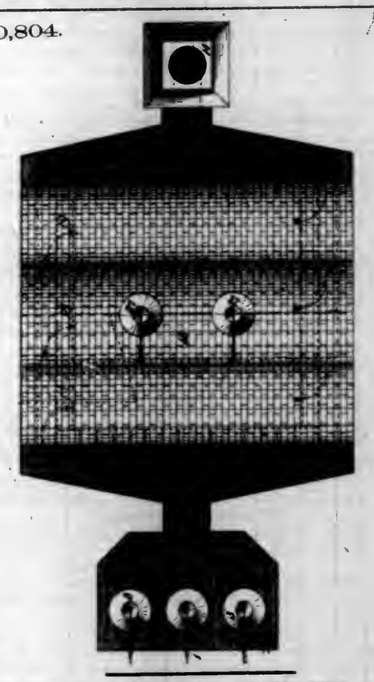
2. In a glass-furnace, the combination of a generator, the diverging flues 10 and 11, a glass-working chamber, rising flues located at the ends of the melting-chamber, and connecting said chamber with the flues 10 and 11, and regulating-valves located at the points of junction of said flues 10 and 11, substantially as set forth.

3. In a glass-furnace, the combination of the melting-pot provided with a central melting-basin, and side working-basins connected to the melting-chamber by suitable passages, flues 10 and 11, leading from a suitable generator, and rising flues 17, 18, and 19, connecting the ends of said basins with the flues 10 and 11, substantially as set forth.

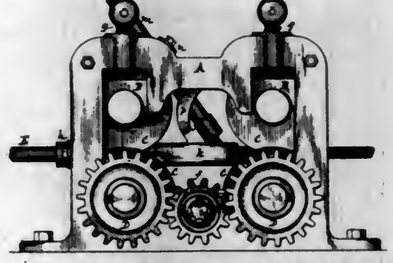
4. The combination of a glass-furnace having a suitable combustion-chamber, and provided with working-holes along its sides, a melting-pot located within the combustion-chamber, partition-walls dividing the combustion-chamber and melting-pot into a central melting and side working compartments or basins, said walls being perforated at their upper and lower edges, as described, rising flues opening into the compartments of the combustion-chamber, and connected at their lower ends with flues 10 and 11, leading from a suitable generator and passing along the ends of the furnace, substantially as set forth.

5. The combination of a glass-furnace having a suitable combustion-chamber, and provided with working-holes 28 along its sides, a melting-pot located within the combustion-chamber, partition-walls 24, provided with openings 25 and 26, rising flues 17, 18, and 19, located at the ends of the furnace, valves 21, located in the side flues, 17 and 19, and the flues 10 and 11, substantially as set forth.

310,804.



310,805. MACHINE FOR MAKING COMPOUND WIRE. JOSIAH W. ELLS, Pittsburg, Pa. Filed Mar. 15, 1884. (No model.)



Claim.—1. In a machine, and as a means for providing bars or rods of iron with an inner part or core of copper, the combination of a pair of grooved rolls, one of which is formed with a projecting tongue or fillet for making a deep longitudinal channel or furrow in and along one side of the iron, a guide for properly directing the iron to and between the rolls, and a guide on the opposite or discharging side thereof for receiving the channeled iron as it leaves said rolls.

2. In a machine for providing bars or rods of iron with an inner part or core of copper, the combination of a pair of grooved rolls, one of which is constructed with a projecting tongue or fillet for forming a deep longitudinal channel or furrow in and along one side of the iron, a guide for properly directing the iron to and between the rolls, a guide on the opposite or discharge side of the rolls for receiving the channeled iron, and a chute for sustaining and properly delivering a rod of copper into and along said channel in the iron.

3. In a machine for providing bars or rods of iron with an inner part or core of copper, the combination of a pair of rolls for forcing bars or rods of iron through a guide-box, an inclined chute for delivering a rod of copper to the iron, and a pair of rolls for compressing the iron around the copper.

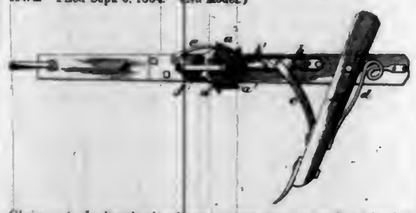
4. In a machine for providing bars or rods of iron with an inner part or core of copper, the combination of a pair of rolls for forcing bars or rods of iron through a guide-box, a chute for delivering a rod of copper to the iron, and a pair of rolls for compressing and welding the iron around the copper, a toothed wheel on one of each pair of rolls, and an intermediate pinion to operate in conjunction therewith.

5. In a machine for providing bars or rods of iron with an inner part or core of copper, the combination of a guide for properly directing

a bar or rod of iron to receive a copper rod, a chute for delivering a rod of copper to the iron, and a pair of rolls for compressing the iron over and around the copper.

6. In a machine for providing bars or rods of iron with an inner part or core of copper, the combination of a guide for properly directing a bar or billet of iron to receive a copper rod, and a chute affixed to the machine by means whereby the chute may be adjusted or detached.

310,806. CULTIVATOR. REUBEN H. EWING, Promise City, assignor of one-half to Joseph A. Wolfinger and Wm. J. Wolfinger, Wayne County, Iowa. Filed Sept. 6, 1884. (No model.)



Claim.—1. In break-pin plows or cultivators, a ratchet-wheel having a pin-hole for each tooth, and adapted to bring forward a fresh pin in place of a broken one, substantially as described.

2. The combination, with a plow or cultivator beam and standard, of a beam-pawl, a ratchet having pin-holes, a loop-bar on the beam, and a strap connecting said pawl with the standard, whereby pins may be automatically supplied as others are broken, substantially in the manner and for the purpose specified.

310,807. BALUSTER. JAMES W. FERER, Renovo, Pa., assignor of one-third to Albert E. Weil, same place. Filed Nov. 26, 1884. (No model.)

Brief.—Consists of a pillar having lower cylindrical portion and a pin and an upper portion terminating in a screw-thread. Hollow ornamental sections encircle said lower portion, and it has a hollow base with screw-threaded portion which enters the floor or lift of the step. A collar is placed over the lower end of said pillar.



Claim.—1. In a baluster, the combination of the pillar A, screw-threaded at its upper portion, sections C D, encircling said pillar, and a base-piece with a screw-threaded portion which projects on its under side, substantially as shown, and for the purpose set forth.

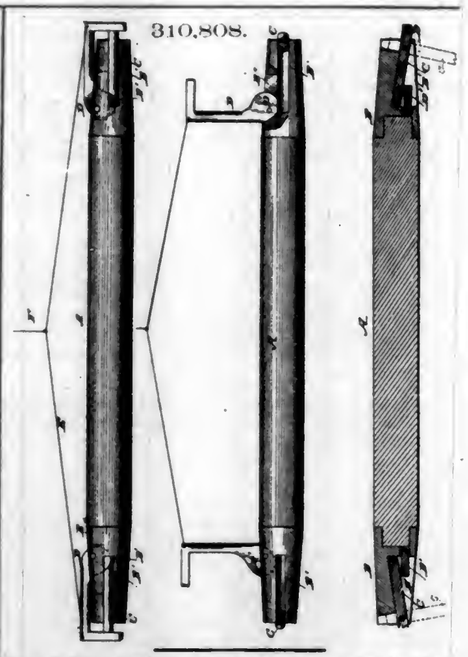
2. In a baluster or newel-post, a hollow base-piece, B, with a screw-threaded portion formed on its under side, the rim of said base-piece forming a support for the hollow section D, in combination with a pillar, A, ornamented at its upper end and provided with a screw-threaded portion, substantially as shown, and for the purpose set forth.

3. In a baluster, a metallic pillar, A, having a lower cylindrical portion and pin, *a'''*, said pillar terminating at its upper portion in a screw-thread, in combination with the hollow ornamental sections C D, encircling the lower portion of the pillar, and a hollow base-piece, B, with screw-threaded portion *b* and collar E, the parts being organized substantially as shown.

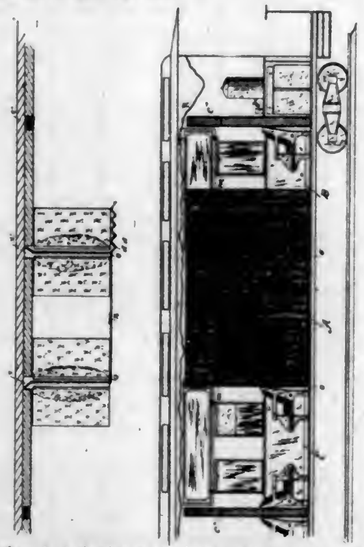
310,808. HORSE-DETACHER. THOMAS M. FERGUSON, Sacarnoche, Miss. Filed Apr. 17, 1884. (No model.)

Claim.—As an improvement in horse-detachers, the combination, with a single-tree provided with metallic caps, each of which is provided with a longitudinal recess and a vertical slot opening down into the said recess near its inner end, of the trace-holding pins pivotally secured within the said recesses, detaching-levers provided at their inner end with cams adapted to be pivoted eccentrically within the vertical slots of the metallic caps, and having their outer ends bent down at right angles, so as to extend immediately in front of the outer ends of the trace-holding pins, and operating-cords extending from the outer ends of the detaching-levers to a point within easy reach of the driver's hand, all constructed and arranged to operate substantially in the manner and for the purpose shown and set forth.

310,808.



310,809. SLEEPING-CAR. WALTER W. FESSLER, New York, N. Y. Filed May 27, 1884. (No model.)



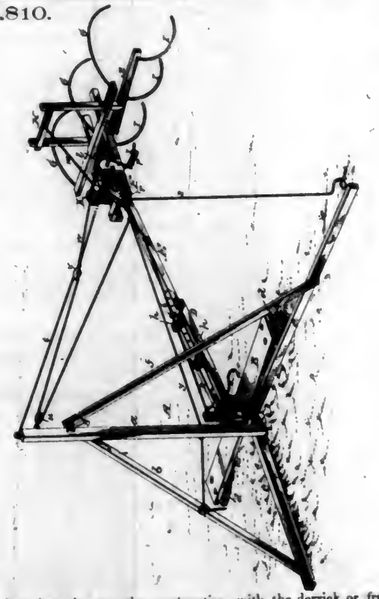
Claim.—1. A sleeping-car berth or section inclosure consisting of narrow vertical strips, made of wood or any suitable material, and hinged together in such a manner as will permit of their being folded flat against each other in alternate directions, in order that the said inclosure may be compactly incased in the side of the car, as described and specified.

2. An inclosure for sleeping-car berths, consisting of narrow vertical strips joined as described, and so arranged as to make the inclosure of the upper and lower berths entirely independent of each other, as described, and for the purpose herein set forth.

310,810. HAY-ELEVATOR. P. F. FLEMING, Huntsville, Mo. Filed Nov. 22, 1884. (No model.)

Claim.—1. A hay-elevator provided with a derrick or frame consisting of a stationary and a hinged section adapted to be folded together or extended, to increase the area of base of the derrick or frame when the elevator is in use, substantially as and for the purpose set forth.

310,810.



2. In a hay-elevator, the combination, with the derrick or frame, of an extensible arm carrying the grab-teeth at its outer end, substantially as and for the purpose specified.

3. In a hay-elevator, the derrick or frame provided with a horizontally-pivoted block, in combination with bars pivoted to the sides thereof, and having connected to it an arm carrying the grab-teeth, substantially as and for the purpose described.

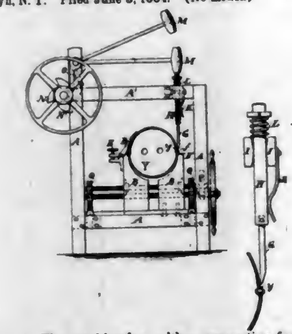
4. In a hay-elevator, the combination, with a pivoted arm, of two frames pivoted together and provided with grab-teeth, one of said frames being pivoted to the arm, and having a windlass, ratchet, and pawl for connecting the two frames together by a cord or rope, substantially as and for the purpose set forth.

5. A hay-elevator consisting of a derrick or frame formed in two hinged sections, an extensible arm suitably pivoted to a block, which is in turn pivoted to the derrick or frame, and two frames carrying the grab-teeth, pivoted together and to the arm, and a windlass, ratchet, and pawl for operating one of said frames, substantially as and for the purpose set forth.

310,811. PROCESS OF PRESERVING SHRIMPS. YEE FO, Grand Lake, La. Filed July 2, 1884. (No specimens.)

Claim.—The herein-described process for preserving shrimps, the same consisting in first placing the shrimps in boiling water containing salt in the proportion stated, in thoroughly stirring the same for the purpose described, and, finally, in successively drying, treading, beating, and packing the shrimps, substantially in the manner and for the purpose set forth.

310,812. MACHINE FOR CALKING BOILERS. HENRY P. FOLSOM, Brooklyn, N. Y. Filed June 3, 1884. (No model.)



Claim.—1. The combination, with a supporting-frame, of a movable boiler support or cradle and one or more automatically-reciprocating calking-tools, substantially as described.

2. A calking-machine consisting of the following elements in combination, a movable and adjustable cradle, B B, provided with clamp D or its equivalent and one or more reciprocating calking-tools, substantially as described.

3. The combination of a movable support for a boiler and one or more reciprocating calking-tools moving through round-surfaced bearings, and pressed against the boiler by a spring, K.

4. In a calking-machine, the combination of an adjustable cradle, B B, and clamp D, one or more reciprocating calking-tools, and one or more hammers operating by gravity.

5. The reciprocating calking-tool G, in combination with the round-surfaced bearings I I and spring K, substantially as described.

6. The combination of the adjustable parts B B, having the surface F and clamp D, substantially as and for the purpose described.

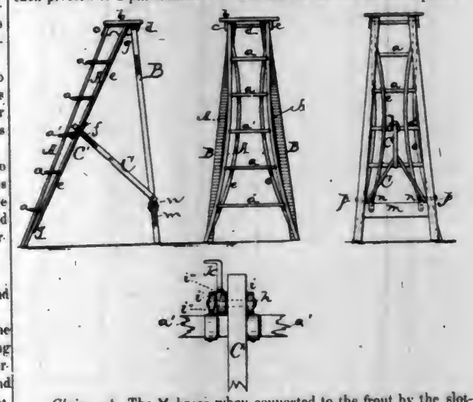
310,813. PROCESS OF MAKING BARBED FENCES. FRANKLIN D. FORD, Providence, R. I., assignor of one-half to Cornelius S. Sweetland, same place. Filed June 17, 1884. (No model.)



Claim.—The method of forming pointed barbs or spurs on fence-rails, consisting in making two diagonal incisions in a plain flat strip of metal, said incisions extending in opposite directions directly from the edge of the metal strip and from at or about the same starting-point, and bending said cut portions outwardly in the plane of the strips, substantially as described.

310,814. STEP-LADDER. SYLVENUS A. GARDNER, Jamestown, N. Y., assignor of one-half to Charles F. Baker, same place. Filed May 7, 1884. (No model.)

Brief.—Steps are secured to inwardly-curved separate double risers and to inwardly-curved tie-bars attached at the bottom and top of said risers, each step gradually widening from rear to front. A Y-shaped brace is adjustable by means of an eccentric nut and pin on the ladder engaging a slotted end of the brace. The lower arms of said brace are each pivoted to a pin secured to a strut and an ear on the cross-piece.



Claim.—1. The Y-brace when connected to the front by the slotted stem C *f*, each arm pivoted to a leg of the strut by a metal ear, *n*, attached to the cross-piece *m*, and secured by a pin passing through the arm from the ear and into the inside of the leg, all substantially as and for the purpose specified.

2. In a step-ladder, the inwardly-curved separate double risers A A, the portions of each double riser gradually widening apart from bottom to top, in combination with the steps *a a a b*, and the inwardly-curved tie-bars *e e*, the latter attached at bottom and top to the risers and intermediately to each step at the back, all substantially as specified.

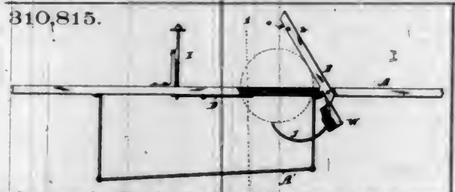
3. In a step-ladder, the combination, with a brace having the slotted stem C *f*, of the eccentric fastening *k* (having the cut-out *i'''*) on rod *h*, and the ears *i i'*, the latter having the cut-out *i'''*, all substantially as and for the purpose specified.

4. In a step-ladder, the combination, with the risers or sides A A, of the step *a a a*, gradually widening from front to rear, as and for the purpose specified.

310,815. SWITCH FOR STORE-SERVICE APPARATUS. EDWIN L. GILES, Lowell, Mass., assignor to the Lamson Cash Railway Company, same place. Filed May 24, 1884. (No model.)

Claim.—1. A switch for store-service apparatus, in which a switch-section of the track adjacent to each station is pivoted close to its end adjacent to the lower portion of the track, and is combined with a locking and releasing device adapted to be operated only by the carriers to be discharged at such station, and with an arm arranged to be struck by the

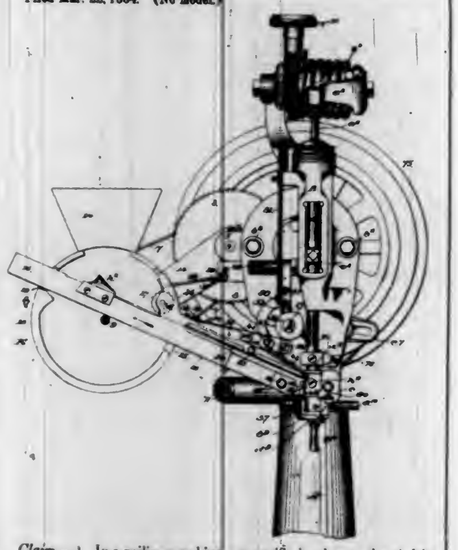
310,815.



carriers for moving the switch to a horizontal position as a carrier passes through the track, substantially as described.

2. The combination of the switch-section pivoted at its lower end to the main track, locking device adapted to be operated by the carriers, arm on the switch-section arranged to be struck by the carriers as they pass from the track, and a supplemental track arranged below the main track, substantially as set forth.

310,816. NAILING-MACHINE. LOUIS GODDU, Winchester, assignor, by mesne assignments, to Nathaniel S. Hotchkiss, Boston, Mass. Filed Mar. 22, 1884. (No model.)



Claim.—1. In a nailing-machine, a movable head, an awl and driver-bar carried therein, and a nail-guiding chute, attached to and made movable in unison with the said head, and provided with the nail-rest, combined with a rigid shielding-bar for the heads of the nails, and with an independently-movable lever and finger thereon, to act upon the heads of the nails on the said rest, substantially as described.

2. The rotating nail-receiving drum to deposit nails into a chute, a chute, and a shielding-bar above it to cover the heads of the nails, combined with a toothed wheel located above the chute at the point where the nails pass from the drum into the chute, and with means to operate the said toothed wheel when the nails clog, to throw from the chute nails improperly lodged therein or thereon, substantially as described.

3. The nail-chute provided with the nail-rest at its lower end, the shielding-bar located above the said chute over the heads of the nails, and the finger-carrying lever and finger, and means to actuate them to throw the finger against the head of the foremost nail and at the rear side of its center, and also on the head of the nail next to the foremost nail, whereby the said two foremost nails are separated, substantially as described.

4. The nail-chute provided with the nail-rest at its lower end, the shielding-bar located above the said chute over the heads of the nails, and the finger-carrying lever and finger, and means to actuate the same and force the finger upon the heads of the nails, as described, to separate their points, combined with the movable head, nose, and the driver-bar and driver, the latter acting as a stop for the foremost nail, to operate substantially as described.

5. The nail-chute provided with the nail-rest at its lower end, the shielding-bar located above the said chute over the heads of the nails, and the finger-carrying lever and finger, and means to move the said lever, combined with the separator and means to operate it at the proper time, substantially as described.

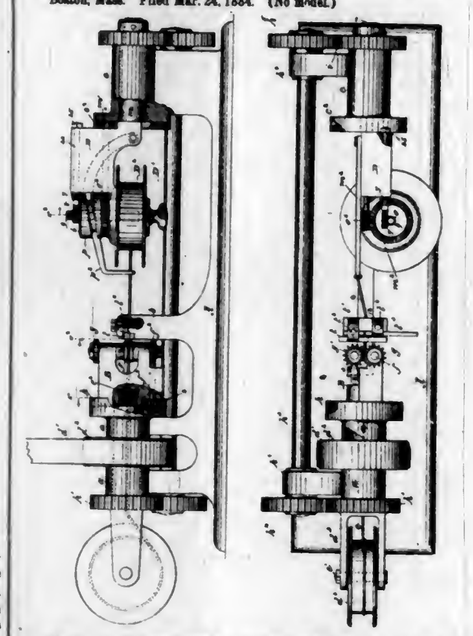
6. The nose and the nail-centering devices 57, provided with recesses to receive the nails dropped into the said nose, and with shoulder 58, combined with a spring to operate upon the said centering devices and cause them to hold up the nails to be driven until acted upon by the driver, substantially as described.

7. In a nailing-machine, a nose having a driver-passage, a chute to conduct nails directly into it, and a finger to act upon the head of the foremost nail in the chute and throw its body out from the end of the chute or toward the driver, combined with a driver-bar and an attached driver, the latter acting to support the endmost nail and the column of nails back of it when the separator is withdrawn, as described.

8. In a nailing-machine, a chute to conduct nails to a nose and driver, and having a rest, 44, for the heads of the nails, combined with an independently-movable lever and attached finger, to act upon the head of the endmost nail and incline its shank toward the driver, and with means to operate the said lever and finger, substantially as described.

9. The chute provided with rest 44 and a cover, combined with an independently-movable rigid pivoted lever, 34, and finger 42, to operate substantially as described.

310,817. MACHINE FOR SCREW-THREADING WIRE. LOUIS GODDU, Winchester, assignor, by mesne assignments, to Nathaniel S. Hotchkiss, Boston, Mass. Filed Mar. 24, 1884. (No model.)



Claim.—1. In a machine for screw-threading wire, a spool to hold the wire to be threaded, a spool to receive the wire after it is threaded, combined with a stationary cutting or threading tool, and with means to revolve both spools to rotate the wire in contact with the said tool, substantially as described.

2. The hollow rotating spindle, the wire-holding spool connected therewith, the head and its feeding-rollers, and the stationary gear *h*, combined with the shaft f^3, and gearing to rotate the said feeding-rollers, substantially as described.

3. In a machine for screw-threading wire, the shaft *m*, its attached head, the spindle *o*, the loose gear o^3 thereon, and means to rotate it, combined with the frictionally-driven wire-receiving spool placed on the said spindle, the parts operating substantially as and for the purpose described.

4. In a machine for threading wire, the shaft *m*, its attached head, the spindle *o*, the loose gear o^3 thereon, means to rotate it, the wire-receiving spool placed on the said spindle and driven frictionally, as described, combined with the cam *p*, mounted loosely on the said spindle, the wire-distributer or arm, and with means between the said spindle and cam to rotate the latter, substantially as described.

5. The hollow spindle or shaft *d*, the spool d^4, rotated with it, the head B, feeding mechanism, and means to actuate the latter, combined with the shaft *m*, its head D, the spindle *o*, carried in the said head, means to rotate it, and the spool D^2, the material e from the spool d^4 being wound upon the spool D^2, substantially as described.

6. The hollow spindle *d*, its attached spool, the head, the feeding mechanism, means to actuate the latter, the wire-rest and threading-tool, and the shaft *m*, its attached head D, the spindle *o* therein, the spool D^2, and means to rotate the spindle *o* and the said spool, combined with means to rotate the spindle *d* and shaft *m*, substantially as described.

7. The spindle *o*, provided with the threaded portion 9, the drum attached to it, the worm-pinion o^3, and cam loose on the said spindle, a friction-disk between the said pinion and drum, and means to rotate the said pinion, combined with gearing between the spindle and cam to rotate the latter at a given relative speed as compared with that of the drum, and with a distributer to distribute the said wire on the drum from flange to flange, substantially as described.

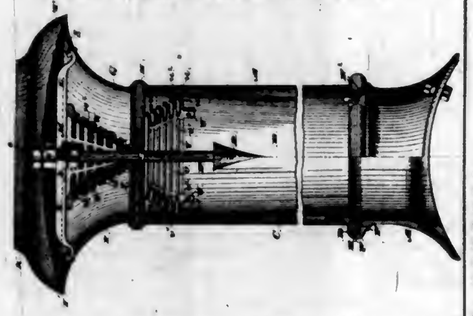
310,818. PIPE-WRENCH. JAS. F. GUTHRIE, Somerville, Mass. Filed Mar. 28, 1884. (No model.)



Claim.—1. In a pipe-wrench, in combination with a jaw, D, a jaw, C, arranged to bear and slide upon an inclined surface, *a*, across the body portion of the wrench, and provided with an arm, *g*, substantially as and for the purpose specified.

2. In a pipe-wrench, in combination with a jaw, D, a jaw, C, arranged to bear and slide upon an inclined surface, *a*, across the body portion of the wrench and secured thereto by an extension, H, having its outer end enlarged in cross-section and engaging with a socket, K, in said body, and provided with an arm, *g*, substantially as and for the purpose specified.

310,819. SPARK AND CINDER ARRESTER. THEODORE H. HABERKORN, Fort Wayne, Ind. Filed June 11, 1884. (No model.)



Claim.—1. In combination with a smoke-stack provided with a central deflecting-cone, the frame situated in the stack above the cone, consisting of a series of rings decreasing in size toward the top, supported at distances from each other, and having their inner faces inclined upward and inward, substantially as and for the purpose described

2. In combination with a smoke-stack provided with a deflecting-cone, the frame within the stack above the deflector in the shape of the frustum of a cone formed of a series of rings supported at distances from each other, having their inner faces inclined inward and upward to form a conical surface within the frame, and their lower faces inclined upward and outward to form acute angles at their intersections with the inner faces, substantially as and for the purpose described.

3. In combination with the stack, the spider fastened within it at or near its flaring portion, the screw-threaded rod extending up through the center of the spider and provided with a nut resting against the under side of the spider, the inverted dish-shaped screen resting at its edge on the inner surface of the flaring portion of the stack, and the nut on the upper end of the rod bearing down upon the center of the screen, substantially as and for the purpose set forth.

4. In combination with the stack, the spider fastened within it, the inverted dish-shaped screen resting at its edge upon the inner face of the flaring portion of the stack, the rod passing up through the center of the spider and the screen, the nut thereon bearing against the under side of the spider, and the two nuts at or near the upper end of the rod, one above and the other below the screen, and adapted to clamp and hold the central portion of the screen between them, substantially as and for the purpose set forth.

5. In a spark and cinder arrester and consumer for smoke-stacks, the inverted conical frame situated centrally within the stack, and composed of a series of rings supported at distances from each other, and having their outer faces coincident with the surface of the cone, substantially as shown and described.

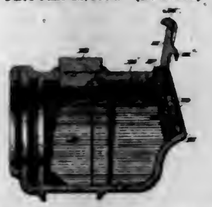
6. In combination with the spider within the stack and the deflector-bar extending downward from the spider and carrying on its lower end a deflecting-cone, the inverted conical frame composed of a series of rings surrounding the bar and held between a collar on said bar and the spider bearing against its upturned base, substantially as shown and described.

7. In a spark and cinder arrester for smoke-stacks, the inverted conical frame composed of a series of rings supported at distances from each other, having their outer faces in the plane of the surface of the cone and their lower faces inclined upward at acute angles thereto to form edges, against which the sparks and cinders will be sheared, substantially as and for the purpose described.

8. The spark and cinder arrester for smoke-stacks, consisting of a deflecting-cone, a frusto-conical frame above the cone, composed of a series of suitably-supported rings, having their inner faces inclined inward and coincident with the same conical surface, and sharp corners or edges at the intersections of their inner and lower faces, an inverted conical frame above the open end of the other frame, consisting of a series of suitably-supported rings, having their outer faces coincident with the same inverted conical surface, and sharp corners or edges at the intersections of the outer and lower faces, and a screen in the stack above the upper frame, substantially as shown and described.

9. A spark and cinder arrester for locomotives, consisting of a deflecting-cone within the stack, a frusto-conical frame above, against the inner face of which the sparks and cinders are directed by the deflector, and an inverted conical frame above such frame, against the outer surface of which the sparks and cinders are directed by the inner surface of the frame below it, substantially as shown and described.

310,820. CAR-AXLE-BOX LID. THEODORE H. HABERKORN, Fort Wayne, Ind. Filed June 12, 1884. (No model.)



Claim.—1. In combination with the box provided upon each side of its open end with the flanges or ribs D and I, inclined downward and outward and approaching each other at their lower ends, the upturned flange on the outer edge of the box-bottom, and the sliding lid provided at the sides of its outer face with flanges diminishing in height toward the lower end, so that the box edges and flanges will fit closely the way between the ribs or flanges D and I when the lid is down, substantially as shown and described.

2. In combination with the car-axle box having at the sides of its open end suitable guideways, the lid sliding in such ways with its inner face close to the front edge of the box-top, and provided with the rib or flange G on the inside of its lower end, projecting into the box and adapted to come into contact with the edge of the box-top when the lid is raised and prevent the lid from being slid directly out of the ways, substantially as shown and described.

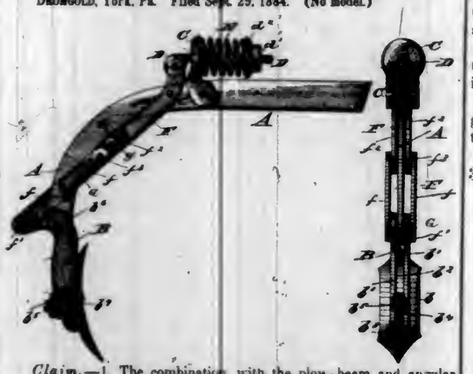
3. In combination with the car-axle box provided on the sides of its open end with ways, the lid guided and supported at its sides in such ways, sliding close to the outer or front edge of the box-top, and provided with a rib or lug projecting inward substantially at a right angle to the lid-face to such a distance as to project under the box-top when the lid is slid up in its ways, and having its upper face at a distance from the lower end of the lid less than that from the outer side of the way and the edge of the box-top, so that when the lid is pushed up and swung down flat upon the box-top the rib or lug can pass up over the edge of the box-top, substantially as shown and described.

4. In combination with a car-axle box having the ways at the sides of its open end, the lid at its sides fitting and sliding in such ways, with its inner face close to the outer edge of the box-top, provided with a lug or rib at its upper end resting on the box-top, and with a lug or rib at its lower end projecting inward into the box substantially at a right angle to the lid, and of such thickness that when the lid is raised and thrown back on the box-top, with the upper lug resting thereon, the arcs of movement of the lower edge of the lid and the upper face of the lower lug as the lid is swung upward will pass between the planes of the outer side of the way and the edge of the box-top, substantially as and for the purpose described.

5. The cover for a car-axle box, at its sides fitting and sliding in ways in the sides of the box, and provided at its lower end with an inwardly-projecting lug or rib projecting beyond the ways into the box, adapted, when the lid is down, to be engaged by the contents of the box, to strike against the under side of the box-top as the lid is slid up, and to pass up over the edge of the top when the lid is raised and swung down upon said box-top, and with a lug at its upper end adapted to come

in contact with and rest upon the arch-bar when the latter is in position, whereby the lid is prevented from being swung down upon the box-top, substantially as and for the purpose described.

310,821. CULTIVATOR SPRING-HOE. S. N. HENCH and W. A. DROUGOLD, York, Pa. Filed Sept. 29, 1884. (No model.)



Claim.—1. The combination, with the plow-beam and angular standard, of the connecting-arm, pivoted lever having the adjustable stop interposed between its branches, and means for operating the same, substantially as specified.

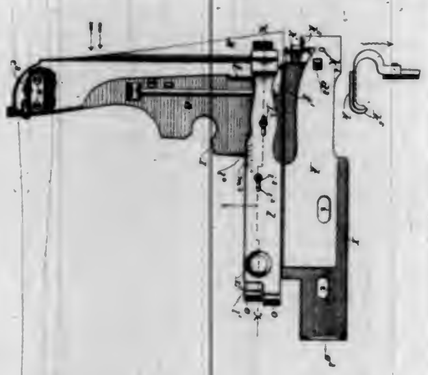
2. The pivoted lever carrying the eccentric hexagonal nut, and adapted to be connected at its lower end with a pivoted plow-standard, and at its opposite end with spring-actuated devices, substantially as specified.

3. The combination, with the plow-beam, of the bracket C, disk d^3, nut d', spiral spring E, rod D, and devices for connecting the rear end of the same with a pivoted plow blade or point, substantially as specified.

4. The combination, with the plow-beam, of the curved shovel-standard pivoted at its angular portion to the said beam, the pivoted lever connected to the spring-actuated rod arranged at the rear horizontal portion of the beam, and the arm connecting the lower end of the said lever to the short rearwardly-curved arm of the standard, substantially as shown and described.

310,822. BINDING ATTACHMENT FOR SEWING-MACHINES. R. HILGNER, New Orleans, La., assignor of one-half to George B. Lawrason, same place. Filed June 28, 1884. (Model.)

Brief.—Improvement on the attachment for which Letters Patent No. 293,022, dated February 5, 1884, were granted to same inventor.



Claim.—1. The plate I, having holes i, and an increased thickness or base, i^3, in combination with the braid-channels A B and the underneath adjustable guide, k' l', lying beneath the plate I, and removed from contact with the table by the thickness i^3, as and for the purpose described.

2. The braid-channel sections A and B, having a ridge or projection, c^3, between them at the point where they are fastened together for a hinging action, as described.

3. The braid-guide k, having a lug, k^3, in advance of the needle, and turned upwardly and inwardly to receive and clamp the presser-foot of the machine, in combination with said presser-foot and the braid-folding devices, as described.

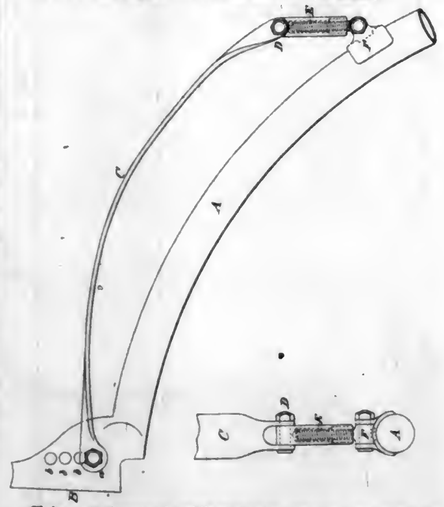
4. The combination, with the braid-folders A and B and the plate I, of the gage-plates l and l', connected adjustably together by slot i^2 and screw i^3, and a set-screw, L^3, for connecting both to the frame I, as and for the purpose described.

5. The combination, with frame-plate I, the braid-folders A B, and the gage l, and means for fastening the gage l to the frame-plate, of the set-screw L^4, for adapting this gage to the thickness of the material.

6. The combination of the frame-plate I, having upturned flange o^2, the gage and guides k l and k' l', having handles o o, and the braid-folding devices, as and for the purpose described.

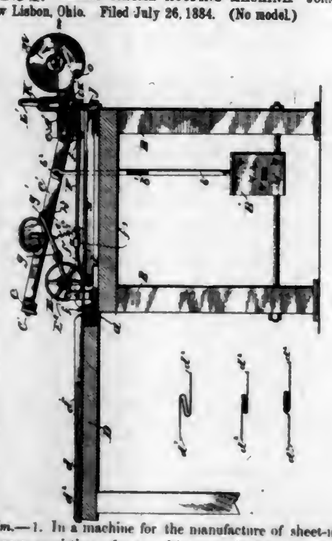
7. The frame-plate I, having index-log i^4, in combination with the gage l, having graduations m^4, and the braid-folding devices, as and for the purpose described.

310,823. SADDLE-SPRING FOR VELOCIPEDES. WILLIAM HILLMAN, Coventry, England. Filed Oct. 22, 1884. (No model.)



Claim.—An improved saddle-spring for bicycles and velocipedes, consisting of a spring adjusted to the backbone of the bicycle or velocipede, provided with a series of vertical holes at the upper end or neck of the backbone, and adjusted there by means of a bolt, and having at the lower end a screwed sleeve or socket engaging a screwed rod linked to a bracket on the backbone, substantially as and for the purpose above set forth.

310,824. SHEET-METAL-ROOFING MACHINE. JOHN L. HOLTON, New Lisbon, Ohio. Filed July 26, 1884. (No model.)



Claim.—1. In a machine for the manufacture of sheet-metal roofing, a creaser consisting of a metal bar attached to or connected with the hammer and depending below the face of the hammer, substantially as set forth.

2. A creaser consisting of a metal bar adjustably secured to the hammer, and so arranged that the edge thereof will more or less depend below the face of the hammer, and adapted to crease the upper sheet of roofing at the edge of the seam and to bring it in line with the lower sheet, substantially as set forth.

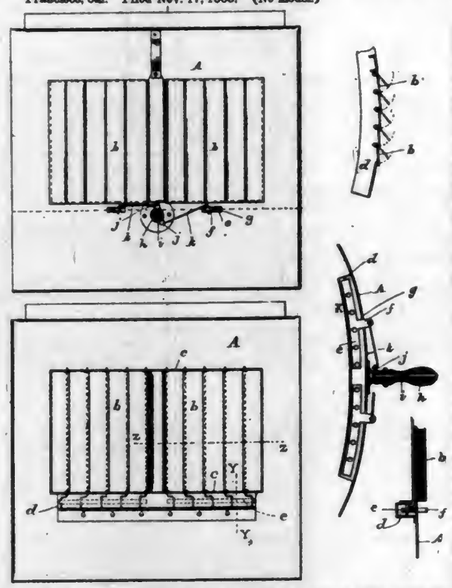
3. In a machine for the manufacture of sheet-metal roofing, a carrying-roller set obliquely with the machine, with the lead of the roller in the direction that will keep the metal sheets in contact with the guide, substantially as set forth.

4. In a machine for the manufacture of sheet-metal roofing, gaging-fingers pivotally attached to the hammer-frame, so that the fingers are drawn back when a stroke of the hammer is given and made adjustable in length, substantially as set forth.

5. The measuring-rollers E, mounted on the rod E', provided with the screw E^3, in combination with a sliding frame actuated by said screw, and a scale to indicate the distance the measuring-wheels travel over the work, and a signal-bell to give notice when the required length of roofing has passed a given point, and the parts arranged and operated substantially as set forth.

6. In a machine for the manufacture of sheet-metal roofing, a device for severing the metal sheets, consisting, essentially, of the bar or blade, a sliding frame provided with a beveled wheel, arranged and operated substantially as set forth.

310,825. BLOWER FOR FIRE-GRATES. STEPHEN C. HOUGHTON, San Francisco, Cal. Filed Nov. 17, 1883. (No model.)



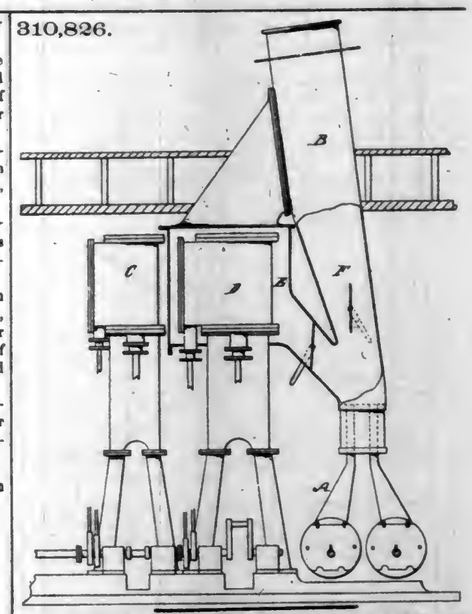
Claim.—1. A blower for fire-grates having one or more openings made in it above the level of the grate, in combination with a series of slats or shutters, b, mounted upon journals across said opening or openings, the journals of the slats being formed into cranks, the bar e, provided with perforations for the ends of said cranks, and suitable devices for opening and closing said slats, consisting of a handle, h, and rods k, substantially as described.

2. A blower for fire-grates having slats or shutters b mounted across an opening or openings above the fire-grates, the lower journals of said slats or shutters being formed into cranks and connected with a sliding bar, e, in combination with the handle h, with its arms or levers j j, and the connecting rods or wires k k, for operating the shutters, substantially as described.

310,826. REGENERATOR FOR COMPOUND ENGINES. THOMAS HULME, Galveston, Tex. Filed Aug. 6, 1884. (No model.)

Claim.—The regenerator for steam-engines herein described, consisting of a casing surrounding a steam-cylinder and connected with the uptake-flue, dampers being provided for closing the uptake and the entrance therefrom to the said casing, whereby the products of combustion may be either directed through the uptake or through the casing around said cylinder, as set forth.

310,826.

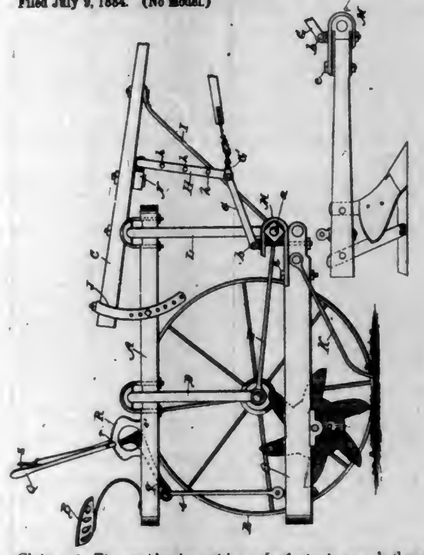


310,827. COMPOSITION FOR JOURNAL-BOXES. JEHU H. HUNGATE, Denver, Colo. Filed Nov. 14, 1884. (No specimens.)

Claim.—1. The composition for journal-boxes herein described, consisting of asbestus, mica, plumbago, salt, and a cementing substance, substantially as described.

2. The journal-box herein described, consisting of a composition of asbestus, mica, plumbago, salt, and glue pressed into shape and then baked, substantially as described.

310,828. SULKY-CULTIVATOR. EDWARD F. HUSK, Malden, Mo. Filed July 9, 1884. (No model.)



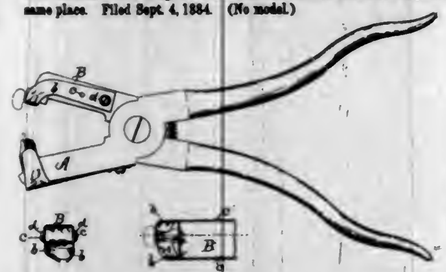
Claim.—1. The combination, with a pair of wheels, an axle therefor curved upward midway, and a frame hung to the raised portion of the axle by a rocking joint, of a tongue, C, and a pair of hangers, L, hung to the frame by a rocking joint, a pair of braces, I, connecting the arms of the hangers with the tongue, a pair of braces, F, connecting the arms of the hangers with the arms of the wheel-axle, and means, substantially as described, for adjusting the tongue vertically to the frame, as and for the purpose specified.

2. The combination, with the plow-beam, the link G, and the bolts b and c, of the invertible clevis-strap M, as shown and described.

310,829. COMPOSITION OF MATTER FOR CLEANING CARPETS, &c. JAMES J. HYNER, Louisville, Ky. Filed Nov. 17, 1884. (No specimens.)

Claim.—The herein-described composition of matter, to be used for cleaning carpets, plushes of all descriptions, silks, satins, silk-velvets, woolen goods of all descriptions, and for laundry purposes for white cotton and linen goods, consisting of soft water, borax, vegetable-oil soap, and liquid ammonia, in the proportions specified.

310,830. BUTTON-SETTING INSTRUMENT. ELEAZER KEMPSHALL, New Britain, Conn., assignor to the American Button Fastener Company, same place. Filed Sept. 4, 1884. (No model.)



Claim.—In a button-setting instrument, the part containing the die-recess, in combination with the spring-holders *b b*, curved inward from opposite sides, with their operative ends confronting each other, and with an open space between, substantially as described, and for the purpose specified.

310,831. GALVANIC BATTERY. WILLIAM E. KIDDER, New York, N. Y., assignor to the Jerome Kidder Manufacturing Company, same place. Filed May 17, 1883. (No model.)



Claim.—1. The combination, with the jar, its soft-rubber stopper, and the slide-rods arranged in vertical passages of the stopper for supporting the battery elements, of the metallic lining or linings arranged in said passages, to terminate above the lower surface of the stopper, thus allowing the rubber to close on the rods at that place, substantially as described.

2. The combination, with the jar and the slide-rods for supporting the battery elements, of the stopper having vertical passages to receive said rods, and having a cavity in its upper surface surrounding said passages for the reception of a liquid to lubricate the passages, substantially as described.

3. The combination, with the jar and its stopper, having vertical passages provided with metallic linings, of the slide-rods arranged in the vertical passages of the stopper for supporting the battery elements, and provided with shoulders H, of gutta-percha or other similar material, at the junction of the rods with said elements, substantially as and for the purpose described.

4. The combination, with the jar, its stopper, and the slide-rods for supporting the battery elements, of the clamps F F° on said rods, the screw-coupling uniting the clamps F, and the insulating-sleeve surrounding said coupling and containing the clamp F°, substantially as and for the purpose described.

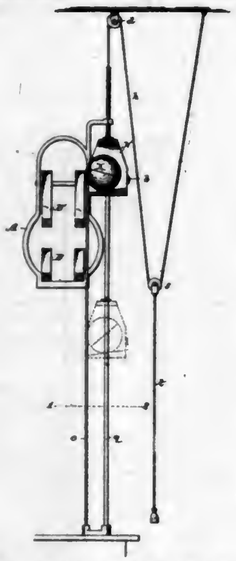
5. The combination, with the jar and stopper, and the slide-rods for supporting the battery elements, of the clamps F, one having a series of holes in different vertical planes, and the screw-coupling uniting said clamps, substantially as and for the purpose described.

6. The combination, with the stopper and the slide-rods, of a washer, W, to each rod, the top plate of the stopper, the screw-bolt for holding said plate, and the washer W³ of the screw-bolt, substantially as and for the purpose described.

310,832. ELEVATOR FOR CASH-CARRIERS. WILLIAM S. LAMSON, Lowell, Mass. Filed Dec. 2, 1884. (No model.)

Claim.—1. The combination, with a vertically-moving elevator for cash-carriers, and with the receiving-track, of a retaining-rod arranged in front of the path traveled by the elevator, and extending to the point where the carrier is to be delivered to the track, substantially as set forth.

310,832.



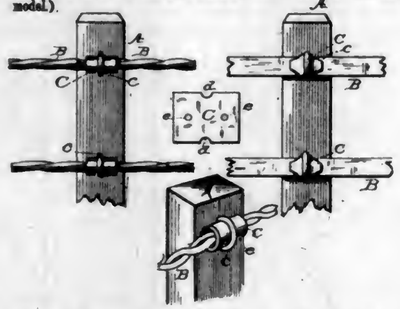
2. The combination, with a track of a store-service apparatus, and with a vertically-guided elevator for the cash-carrier, of a rod arranged to retain the carriers in the elevator until the latter is in a position to deliver the same to the track, substantially as specified.

3. The combination, with the track of a store-service apparatus, of an elevator-box, parallel rods guiding and supporting the latter, and a retaining-rod arranged to hold the carriers in the elevator until the latter is above the receiving-track, substantially as specified.

4. The combination of an elevator-box vertically guided, and provided with an inclined bottom, and a retaining-rod arranged to prevent the carriers from rolling out of the box, substantially as specified.

5. The combination of a vertically-guided elevator-box, track D, tilting bridge D′, and retaining-rod extending upward to said bridge, for the purpose specified.

310,833. FENCE-WIRE FASTENER. EDWIN S. LENOX, FRED H. DANIELS, and JOHN D. CURTIS, Worcester, Mass. Filed Sept. 19, 1883. (No model.)



Claim.—In fastening devices for fence-wires, the combination, with the wire, of the metal guard C, formed with one or more recesses, *d*, and provided with openings *e*, and a staple for securing the same to a post, substantially as set forth and described.

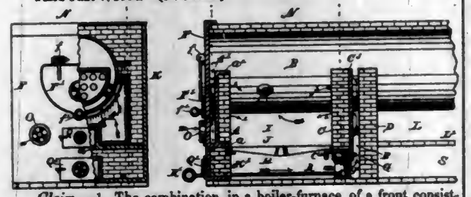
310,834. HOSE-COUPLING. STAFFORD LIGHTBURNE, Jr., St. Louis, Mo. Filed Apr. 21, 1884. (No model.)



Claim.—The coupling herein described, consisting of female member B, having a body and head secured together by screw-threads, the packing C, formed with a cylindrical wall, C′, having an interior flange,

I, inclined inwardly toward the male member, and the male member A, formed with an interior wall, L″, and annular seat L′, the said head having shoulder J, the wall of the packing fitting between the shoulder and the body, and the interior flange occupying the seat and having its inner edge resting against the interior wall, as shown and described.

310,835. FURNACE-FRONT. WILLIAM LOWE, Bridgeport, Conn. Filed June 7, 1884. (No model.)



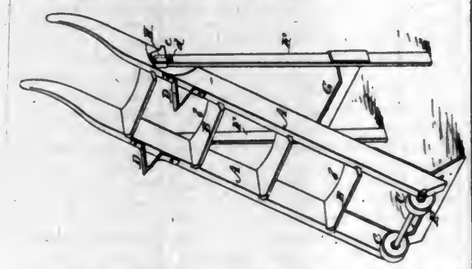
Claim.—1. The combination, in a boiler-furnace, of a front consisting of a metallic facing, and having a rearwardly-extending horizontal ledge, and an inner brick wall built upon said ledge to form an intermediate air-space, substantially as set forth.

2. The combination, in a boiler-furnace, of a front consisting of a metallic facing having a rearwardly-extending horizontal ledge and a vertical portion forming an intermediate air-space, and an inner brick wall built upon said ledge to re-enforce said vertical portion, substantially as set forth.

3. The combination, in a boiler-furnace, of an auxiliary bridge-wall, C, consisting of a metal plate provided with a horizontal ledge, and a vertical portion and brick wall built upon said ledge, substantially as set forth.

4. The combination, in a boiler-furnace, of a main bridge-wall, an auxiliary bridge-wall arranged to form an intermediate air-space, E, a gate, G, and means for operating the same, substantially as set forth.

310,836. COMBINED TRUCK AND LADDER. JOHN C. LOWEN, Titusville, Pa. Filed May 28, 1884. (Model.)



Claim.—1. The combination, with the truck having cross-braces B, of the side standards, F, pivoted to the sides of the bars A, and provided near their lower ends with cross-piece G, extending across the upper side of the truck, as shown, for holding the standards in place, and serving also as a guard for the lower or forward end of the truck-frame, whereby when the truck is raised on its nose the standards will automatically swing outward, substantially as described.

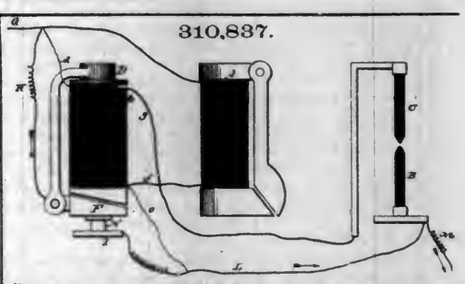
2. The combination, with the sides A of an ordinary truck, having cross-braces B, of the standards F, extensibly pivoted to the sides A near their upper or forward ends, and a locking device, H, secured to the sides A above or in rear of the pivots of the standards, whereby when the truck is raised on its nose the standards will automatically swing outward and into engagement with the locking devices, substantially as set forth.

3. The combination, with an ordinary truck having cross-braces B, of the standards F, slotted at *d*, and pivoted to the rod c at the upper or rear end of the truck, as shown, locking device consisting of a socket-plate secured to the sides of the truck above or in rear of rod c, and the cross-brace G, connected to the lower or forward end of the standard, and adapted to rest on the upper surface of the truck when folded, all constructed and arranged substantially as set forth.

310,837. ELECTRIC-ARC LAMP. NORMAN MCCARTY, Hoosac, N. Y., assignor to J. B. Tibbits, same place. Filed Apr. 18, 1884. (No model.)

Claim.—1. In an arc lamp, the combination of the principal or feeding magnet A, the magnet D, having its core E wound with fine wire and with an overlay of coarse wire, the coarse wire in the circuit through the principal magnet and positive carbon, the resistance-coil H, leading from the main line to the armature F of the magnet D, a second resistance-coil, L, between the contact I and the negative carbon, the armature F, provided with a contact, N, arranged to engage the contact I when said armature F is released from its magnet, one end of the fine-coil or shunt wire of the magnet D in connection with the main

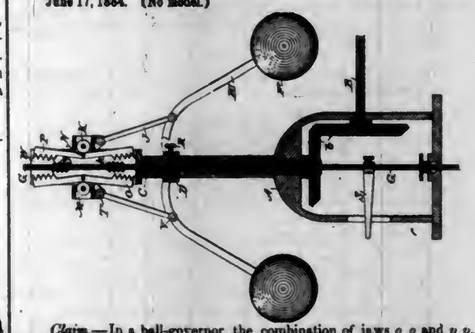
310,837.



line, the other in connection with the second resistance-coil, L, substantially as described.

2. In an arc lamp, the combination of the principal or feeding magnet, a differential magnet, and resistance-coils between the main line and the negative carbon, outside the principal magnet, the circuit being through the armature of the differential magnet, substantially as described, and whereby said magnet and resistance-coils maintain a balance between the outside circuit and the machine, substantially as and for the purpose described.

310,838. BALL-GOVERNOR. ROBT. MCKENNA, White, Penn. Filed June 17, 1884. (No model.)



Claim.—In a ball-governor, the combination of jaws *o o* and *p p*, their pivots N, anti-friction rollers K, roller-frame M, connecting-rods J, and pins T and V with stand A, driving-shaft B, miter-gears *b*, main shaft C, arms pivot-block D, arms E, balls F, and valve-stem G, the latter having a right-hand thread, *h*, on a part of its length and a left-hand thread, *g*, on another part of its length.

310,839. BENCH-VISE. WILLIAM MEKEL, Oscoda, N. Y. Filed Apr. 26, 1884. (No model.)



Claim.—1. As an improvement in vises, the combination of the bed-plate, provided with a central longitudinal slot and upwardly-projecting standards, between which the operative portions of the vise are pivotally secured, a pivoted vertically-adjustable arm or lever provided at its forward end with a pivoted jaw adapted to be secure in such positions as to exert either a downward or lateral pressure, an eccentrically-pivoted cam provided with an operating-handle, and having secured upon one of its sides a curved rack, and a pawl adapted to engage with the teeth of the said rack, whereby the operative portions of the vise are held firmly in their operative positions, as and for the purpose shown and set forth.

2. As an improvement in vises, the combination of the bed-plate, provided near each side with longitudinal slots the rear ends of which are enlarged, while their forward ends are extended so near the forward end of the bed-plate as to form or leave two narrow strips or teeth at the front edge of the bed-plate, and further provided with a central longitudinal slot and upwardly-projecting standards, between which the op-

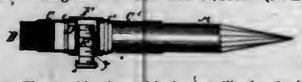
erative portions of the vise are pivotally secured, a pivoted vertically-adjustable arm or lever provided at its forward end with a pivoted jaw adapted to be secured in such positions as to exert either a downward or lateral pressure, an eccentrically-pivoted cam provided with an operating-handle, and having secured upon one of its sides a curved rack adapted to be engaged by a suitable pawl, an adjustable carriage provided at its rear ends with downwardly-curved projections enlarged at their lower ends, and having its side pieces provided with downwardly-projecting teeth adapted to engage the teeth on the forward edge of the bed-plate, and provided at its forward end with a vertical slot adapted to receive and hold in operative position any of the attachments H' I J, all constructed and arranged to operate substantially in the manner and for the purpose shown and described.

3. In a vise of the described construction, the combination, with the adjustable carriage, of the attachment H', consisting of the rigid jaw H'' and the hinged or movable jaw H''', constructed and arranged to operate substantially in the manner and for the purpose shown and described.

4. In a vise of the described construction, the combination, with the adjustable carriage, of the attachment I, consisting of the rigid portion I' and adjustably-pivoted portion I'', having the adjustably-pivoted vertical jaw K, and a smaller hinged vertical jaw, K', all constructed and arranged to operate substantially in the manner and for the purpose shown and set forth.

5. In a vise of the described construction, the combination, with the adjustable carriage, of the vertical jaw J, provided near the lower edge of its operative face with the flangee or projections J', constructed and arranged to operate substantially in the manner and for the purpose shown and described.

310,840. COMBINED LEAD-PENCIL TIP AND TAPE-MEASURE. I. B. MILLNER, Washington, D. C. Filed Nov. 26, 1884. (No model.)



Claim.—1. The combination, with the metallic tip of a lead-pencil, of a tape-measure adapted and designed to be coiled up within said tip, substantially as described.

2. The combination, with a metallic pencil-tip having a central shaft and a movable portion provided with a slot, of a tape-measure secured at one end to said shaft, its other end projecting through said slot, the said shaft being adapted to be revolved by turning the pencil, and the tape-measure being wound up thereby, substantially as described.

3. The combination, with a hollow pencil-tip made in two or more sections, of a shaft or spindle secured to one of said sections, and a tape-measure secured to said shaft and passing through a slot in the other of said sections, whereby the tape will be wound up by turning either of the sections, substantially as described.

4. The combination of metallic sections C C', reel D, secured thereto, sleeve F, turning upon said sections, and tape-measure E, secured to said reel and passing through the slot *f* in said sleeve, substantially as described and shown.

310,841. MEANS FOR PREVENTING LEAKAGE FROM GAS-CONDUCTING MAINS. HENRY MOEBUS, Allegheny, Pa. Filed Sept. 25, 1884. (No model.)

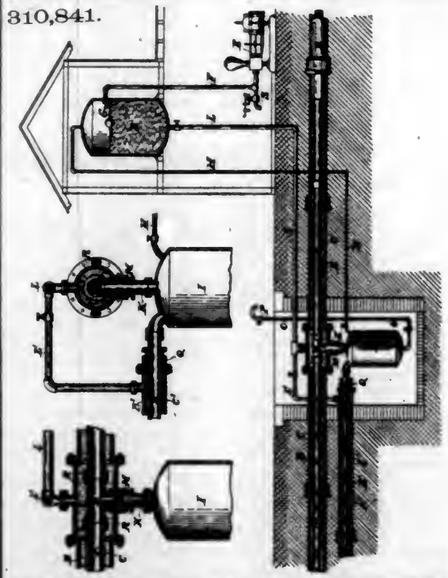
Claim.—1. The herein-described means of maintaining an equable water-pressure around a gas main or pipe, consisting in conducting the said gas under pressure to a reservoir or receptacle, and then conducting the accumulated gas to a water-reservoir having communication to the water-envelope around the said gas-pipes, substantially as and for the purpose specified.

2. The herein-described means of maintaining an equable water-pressure around a gas-pipe, consisting in conducting the said gas under pressure to a reservoir or receptacle, and then conducting the accumulated gas to an elevated water-reservoir in which the water is maintained at a general level, the gas adding to the gravity-pressure of the said water on the water-envelope, substantially as and for the purpose specified.

3. The combination of a conduit-pipe for conveying gas, a casing around said pipe, and an intermediate encircling space or chamber, an inlet-pipe and reservoir for supplying said chamber with water, and a close vessel for the reception of such water as may find its way by leakage from the chamber into the conduit-pipe, and a valve or spigot whereby the leakage-water may be discharged or blown out.

4. The combination of a conduit-pipe for conveying or transmitting gas under pressure, a casing around the same, forming an intermediate encircling space or chamber, an inlet-pipe and reservoir for supplying said chamber with water, and a pipe for conducting a portion of high-pressure gas into the reservoir above the water therein, whereby an elastic gaseous force is used to exert a pressure on the water in the reservoir equal to that in the conduit-pipe, and enable the column of water entering and supplying the encircling-chamber from the reservoir to give or produce an additional pressure around the inclosed conduit-pipe corresponding to the difference between the altitude of the water-level in the reservoir and that of the line of said conduit-pipe.

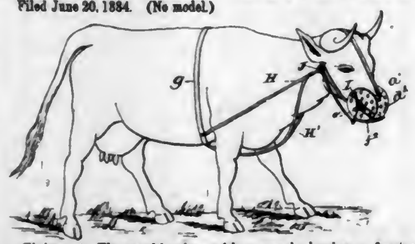
310,841.



5. The combination of a conduit-pipe for transmitting gas under pressure, a casing around the same, forming an intermediate encircling space or chamber, an inlet-pipe and reservoir for supplying said encircling-chamber with water, a suitable closed vessel for receiving any leakage of water that may find its way from the chamber into the conduit-pipe, and a branch gas-conduit leading therefrom and inclosed by a casing and water-chamber connected with said reservoir.

6. The combination of a conduit-pipe for transmitting gas under pressure, a casing around the same, forming an intermediate encircling space or chamber, an inlet-pipe and reservoir for supplying water thereto, a pipe leading from said gas-conduit into a vessel provided with a means for forcing out or blowing off any water that may enter therein, and a portion of the casing around the main line or gas-conduit pipe, made in two or more pieces joined together and to the general line of casing in such a manner as to admit of being removed for easy access to the pipes within.

310,842. ANIMAL-MUZZLE. FRANCIS M. MOORE, Worcester, Mo. Filed June 20, 1884. (No model.)



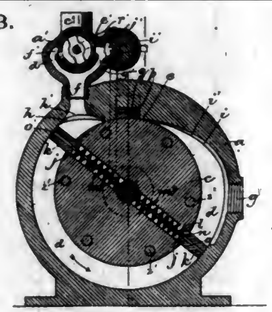
Claim.—1. The combination, with a muzzle having a front plate and a spring extending from side to side thereof and a sufficient distance from the edge of the front plate to permit the passage of the animal's mouth, of a visor pivoted to said muzzle and movable toward the spring, and a retracting-spring, substantially as and for the purpose set forth.

2. The combination, substantially as specified, of the muzzle, the halter provided with guides, the visor pivoted to said muzzle, the retracting-springs, the surcingle, and the straps passed through said guides and secured at one end to the visor and at the opposite end to the surcingle, substantially as set forth.

310,843. ROTARY ENGINE. FREDERIC C. MORTON, Chelsea, Mass. Filed Feb. 25, 1884. (No model.)

Claim.—1. In a rotary engine, the combination of the rotary hub having the outwardly-impelled radially-movable spring-impelled pistons, and the chambered casing having a portion (more than half) of its inner surface concentric with the axis of the hub, and separated from the surface of the hub, and the remaining portions composed of the concave abutment having an elongated bearing on the hub, the curved incline *i*,

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tangential both to the separated concentric surface and the concave abutment, and arranged mainly between the eduction-port and the abutment, whereby the pistons are forced in gradually with the minimum of friction after the steam has mainly exhausted, and the shorter incline *h* connecting the abutment with the separated concentric surface, whereby the pistons, after passing the abutment, are enabled to quickly reach their operative position and receive the pressure of the entering steam, as set forth.

2. The casing having the abutment, grooved inclines, and ports, relatively arranged as described, combined with the recessed hub having the spring-impelled pistons, the latter having apertures for the admission of steam into the recesses of the hub, as set forth.

3. The combination, with the casing having the abutment, grooved inclines, and ports, relatively arranged as described, of the recessed hub having grooved end plates or flanges, and the spring-impelled pistons adapted to slide in the recesses of the hub and in the grooves of the flanges, as set forth.

4. The hub having the piston-receiving recesses, the rods *n*, affixed to the hub and projecting into said recesses, the pistons *k*, adapted to slide in said recesses, and provided with orifices receiving the rods *n*, and with passages *m*, whereby steam is admitted to the recesses to balance the pistons, and the springs surrounding the rods *n* and adapted to force the pistons outwardly, as set forth.

5. The hub having the spring-impelled pistons and end plates or flanges, combined with the casing having the ports, inclines, and abutments, and the L-shaped packing-plates supported by expansible backings, and bearing simultaneously against the hub and its flanges, as set forth.

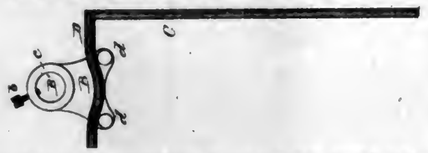
6. The hub having disk-shaped end plates, *c'*, with beveled edges, the flat-ended casing inclosing the same, the triangular packing-rings surrounding and bearing against the beveled portions of the end plates, and mechanism, substantially as described, whereby the rings may be adjusted, all combined and operating substantially as described.

7. The combination of the casing, the triangular packing-rings, and the hub having the beveled flanges bearing against the packing-rings, and provided with grooves for the admission of oil to lubricate the bearing-surfaces of the flanges and rings, as set forth.

8. The combination of the oscillating hollow valve *a'*, open at both ends, and having side ports, *d' e'*, and the casing having corresponding ports, *f' g'*, with the casing of a rotary engine having a port communicating with said ports *f' g'*, and a rotating hub and piston, as described, substantially as set forth.

9. The combination, with the casing of a rotary engine having rotating hub and pistons, as described, of the oscillating hollow valve *a'*, having ports at opposite sides, the induction-ports in the casing to correspond therewith, and the starting-valve *i'* in a casing, and adapted to make connection with the induction-port, substantially as set forth.

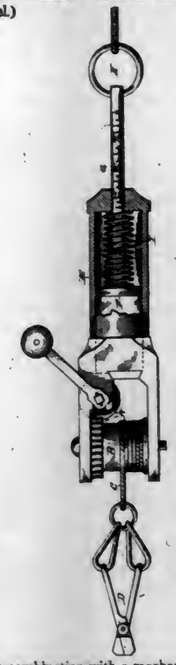
310,844. DOOR-CHECK. EMIL NIGGLI, San Antonio, Tex. Filed Dec. 10, 1883. (Model.)



Claim.—1. In a door-holder, the rod C, passing through eyes *e e*, bent at right angles at the top, the horizontal portion D, secured to the knob-shank by means of the casting B, having set-screw *b'*, and projecting pins *d d*, substantially as shown, and for the purpose set forth.

2. In a door-holder, the casting B, having at its lower portion pins *d d*, adapted to be secured to the knob-shank, in combination with the sliding rod attached to the door, and recessed stop A, substantially as shown.

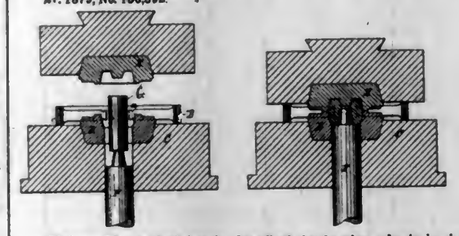
310,845. DEVICE FOR MEASURING THE STRAIN ON FENCE-WIRES. ADDISON OVERBAGH, Coxsackie Station, N. Y. Filed June 6, 1884. (No model.)



Claim.—1. In combination with a mechanism for stretching fence-wires, a measurer having coincident and relative scales to indicate the amount of strain to be applied for a known degree of temperature, substantially as and for the purpose specified.

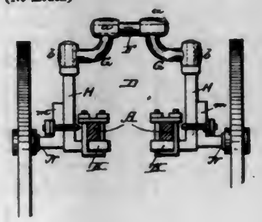
2. In a wire-stretcher for wire fences, the combination of a worm-gear, drum, tongs, and connections, with a spring-retained scale arm or rod, said rod containing a ring at its outer end, substantially as and for the purpose set forth.

310,846. MANUFACTURE OF WHEELS. GEO. D. OWEN and ROBT. DYSON, Rotherham, County of York, England. Filed May 22, 1882. (No model.) Patented in England Feb. 15, 1879, No. 606, and in France May 27, 1879, No. 130,892.



Claim.—The method herein described for forming wheels having metal hubs and metal spokes, which consists in shaping, compressing, and shrinking the hub upon the ends of the spokes while the metal of the hub exceeds in temperature that of the spokes, substantially as and for the purpose specified.

310,847. CULTIVATOR. JOHN R. PEIRCE, Buffalo, Ill. Filed July 19, 1884. (No model.)



erative portions of the vise are pivotally secured, a pivoted vertically-adjustable arm or lever provided at its forward end with a pivoted jaw adapted to be secured in such positions as to exert either a downward or lateral pressure, an eccentrically-pivoted cam provided with an operating-handle, and having secured upon one of its sides a curved rack adapted to be engaged by a suitable pawl, an adjustable carriage provided at its rear ends with downwardly-curved projections enlarged at their lower ends, and having its side pieces provided with downwardly-projecting teeth adapted to engage the teeth on the forward edge of the bed-plate, and provided at its forward end with a vertical slot adapted to receive and hold in operative position any of the attachments H' I J, all constructed and arranged to operate substantially in the manner and for the purpose shown and described.

3. In a vise of the described construction, the combination, with the adjustable carriage, of the attachment H', consisting of the rigid jaw H'' and the hinged or movable jaw H''', constructed and arranged to operate substantially in the manner and for the purpose shown and described.

4. In a vise of the described construction, the combination, with the adjustable carriage, of the attachment I, consisting of the rigid portion I' and adjustably-pivoted portion I'', having the adjustably-pivoted vertical jaw K, and a smaller hinged vertical jaw, K', all constructed and arranged to operate substantially in the manner and for the purpose shown and set forth.

5. In a vise of the described construction, the combination, with the adjustable carriage, of the vertical jaw J, provided near the lower edge of its operative face with the flanges or projections J', constructed and arranged to operate substantially in the manner and for the purpose shown and described.

310,840. COMBINED LEAD-PENCIL TIP AND TAPE-MEASURE. I. B. MILLNER, Washington, D. C. Filed Nov. 26, 1884. (No model.)



Claim.—1. The combination, with the metallic tip of a lead-pencil, of a tape-measure adapted and designed to be coiled up within said tip, substantially as described.

2. The combination, with a metallic pencil-tip having a central shaft and a movable portion provided with a slot, of a tape-measure secured at one end to said shaft, its other end projecting through said slot, the said shaft being adapted to be revolved by turning the pencil, and the tape-measure being wound up thereby, substantially as described.

3. The combination, with a hollow pencil-tip made in two or more sections, of a shaft or spindle secured to one of said sections, and a tape-measure secured to said shaft and passing through a slot in the other of said sections, whereby the tape will be wound up by turning either of the sections, substantially as described.

4. The combination of metallic sections C C', reel D, secured thereto, sleeve F, turning upon said sections, and tape-measure E, secured to said reel and passing through the slot *f* in said sleeve, substantially as described and shown.

310,841. MEANS FOR PREVENTING LEAKAGE FROM GAS-CONDUCTING MAINS. HENRY MORRIS, Allegheny, Pa. Filed Sept. 25, 1884. (No model.)

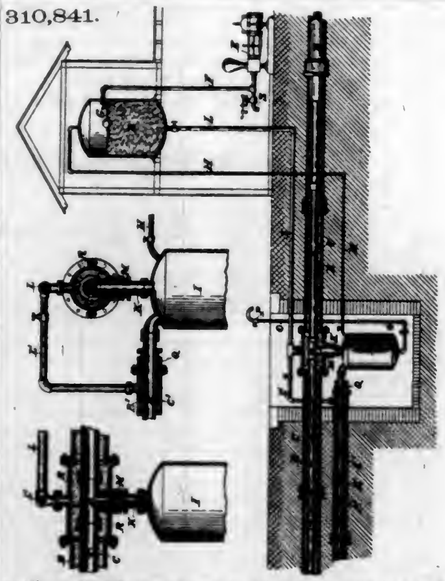
Claim.—1. The herein-described means of maintaining an equable water-pressure around a gas main or pipe, consisting in conducting the said gas under pressure to a reservoir or receptacle, and then conducting the accumulated gas to a water-reservoir having communication to the water-envelope around the said gas-pipes, substantially as and for the purpose specified.

2. The herein-described means of maintaining an equable water-pressure around a gas-pipe, consisting in conducting the said gas under pressure to a reservoir or receptacle, and then conducting the accumulated gas to an elevated water-reservoir in which the water is maintained at a general level, the gas adding to the gravity-pressure of the said water on the water-envelope, substantially as and for the purpose specified.

3. The combination of a conduit-pipe for conveying gas, a casing around said pipe, and an intermediate encircling space or chamber, an inlet-pipe and reservoir for supplying said chamber with water, and a close vessel for the reception of such water as may find its way by leakage from the chamber into the conduit-pipe, and a valve or spigot whereby the leakage-water may be discharged or blown out.

4. The combination of a conduit-pipe for conveying or transmitting gas under pressure, a casing around the same, forming an intermediate encircling space or chamber, an inlet-pipe and reservoir for supplying said chamber with water, and a pipe for conducting a portion of high-pressure gas into the reservoir above the water therein, whereby an elastic gaseous force is used to exert a pressure on the water in the reservoir equal to that in the conduit-pipe, and enable the column of water entering and supplying the encircling-chamber from the reservoir to give or produce an additional pressure around the inclosed conduit-pipe corresponding to the difference between the altitude of the water-level in the reservoir and that of the line of said conduit-pipe.

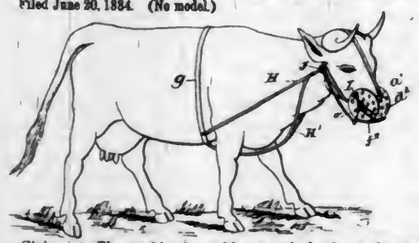
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5. The combination of a conduit-pipe for transmitting gas under pressure, a casing around the same, forming an intermediate encircling space or chamber with water, a suitable closed vessel for receiving any leakage of water that may find its way from the chamber into the conduit-pipe, and a branch gas-conduit leading therefrom and inclosed by a casing and water-chamber connected with said reservoir.

6. The combination of a conduit-pipe for transmitting gas under pressure, a casing around the same, forming an intermediate encircling space or chamber, an inlet-pipe and reservoir for supplying water thereto, a pipe leading from said gas-conduit into a vessel provided with a means for forcing out or blowing off any water that may enter therein, and a portion of the casing around the main line or gas-conduit pipe, made in two or more pieces joined together and to the general line of casing in such a manner as to admit of being removed for easy access to the pipes within.

310,842. ANIMAL-MUZZLE. FRANCIS M. MOORE, Worcester, Mo. Filed June 20, 1884. (No model.)



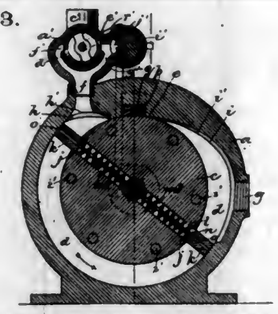
Claim.—1. The combination, with a muzzle having a front plate and a spring extending from side to side thereof and a sufficient distance from the edge of the front plate to permit the passage of the animal's mouth, of a visor pivoted to said muzzle and movable toward the spring, and a retracting-spring, substantially as and for the purpose set forth.

2. The combination, substantially as specified, of the muzzle, the halter provided with guides, the visor pivoted to said muzzle, the retracting-springs, the surcingle, and the straps passed through said guides and secured at one end to the visor and at the opposite end to the surcingle, substantially as set forth.

310,843. ROTARY ENGINE. FREDERIC C. MORTON, Chelsea, Mass. Filed Feb. 25, 1884. (No model.)

Claim.—1. In a rotary engine, the combination of the rotary hub having the outwardly-impelled radially-movable spring-impelled pistons, and the chambered casing having a portion (more than half) of its inner surface concentric with the axis of the hub, and separated from the surface of the hub, and the remaining portions composed of the concave abutment having an elongated bearing on the hub, the curved incline *i*,

310,843.



tangential both to the separated concentric surface and the concave abutment, and arranged mainly between the eduction-port and the abutment, whereby the pistons are forced in gradually with the minimum of friction after the steam has mainly exhausted, and the shorter incline *h* connecting the abutment with the separated concentric surface, whereby the pistons, after passing the abutment, are enabled to quickly reach their operative position and receive the pressure of the entering steam, as set forth.

2. The casing having the abutment, grooved inclines, and ports, relatively arranged as described, combined with the recessed hub having the spring-impelled pistons, the latter having apertures for the admission of steam into the recesses of the hub, as set forth.

3. The combination, with the casing having the abutment, grooved inclines, and ports, relatively arranged as described, of the recessed hub having grooved end plates or flanges, and the spring-impelled pistons adapted to slide in the recesses of the hub and in the grooves of the flanges, as set forth.

4. The hub having the piston-receiving recesses, the rods *n*, affixed to the hub and projecting into said recesses, the pistons *k*, adapted to slide in said recesses, and provided with orifices receiving the rods *n*, and with passages *m*, whereby steam is admitted to the recesses to balance the pistons, and the springs surrounding the rods *n* and adapted to force the pistons outwardly, as set forth.

5. The hub having the spring-impelled pistons and end plates or flanges, combined with the casing having the ports, inclines, and abutments, and the L-shaped packing-plates supported by expansible backings, and bearing simultaneously against the hub and its flanges, as set forth.

6. The hub having disk-shaped end plates, *c'*, with beveled edges, the flat-ended casing inclosing the same, the triangular packing-rings surrounding and bearing against the beveled portions of the end plates, and mechanism, substantially as described, whereby the rings may be adjusted, all combined and operating substantially as described.

7. The combination of the casing, the triangular packing-rings, and the hub having the beveled flanges bearing against the packing-rings, and provided with grooves for the admission of oil to lubricate the bearing-surfaces of the flanges and rings, as set forth.

8. The combination of the oscillating hollow valve *a'*, open at both ends, and having side ports, *d' e'*, and the casing having corresponding ports, *f' g'*, with the casing of a rotary engine having a port communicating with said ports *f' g'*, and a rotating hub and piston, as described, substantially as set forth.

9. The combination, with the casing of a rotary engine having rotating hub and pistons, as described, of the oscillating hollow valve *a'*, having ports at opposite sides, the induction-ports in the casing to correspond therewith, and the starting-valve *i'* in a casing, and adapted to make connection with the induction-port, substantially as set forth.

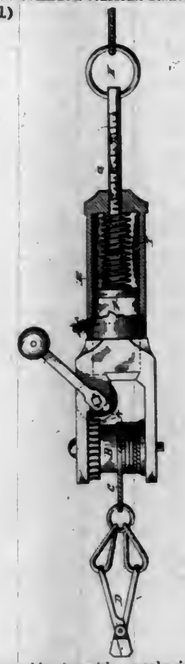
310,844. DOOR-CHECK. EMIL NIGGLI, San Antonio, Tex. Filed Dec. 10, 1883. (Model.)



Claim.—1. In a door-holder, the rod C, passing through eyes *e e*, bent at right angles at the top, the horizontal portion D, secured to the knob-shank by means of the casting B, having set-screw *b'*, and projecting pins *d d*, substantially as shown, and for the purpose set forth.

2. In a door-holder, the casting B, having at its lower portion pins *d d*, adapted to be secured to the knob-shank, in combination with the sliding rod attached to the door, and recessed stop A, substantially as shown.

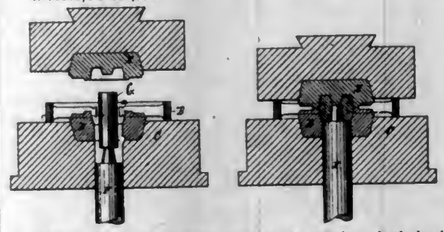
310,845. DEVICE FOR MEASURING THE STRAIN ON FENCE-WIRES. ADDISON OVERBAGH, Coxsackie Station, N. Y. Filed June 6, 1884. (No model.)



Claim.—1. In combination with a mechanism for stretching fence-wires, a measurer having coincident and relative scales to indicate the amount of strain to be applied for a known degree of temperature, substantially as and for the purpose specified.

2. In a wire-stretcher for wire fences, the combination of a worm-gear, drum, tongs, and connections, with a spring-retained scale arm or rod, said rod containing a ring at its outer end, substantially as and for the purpose set forth.

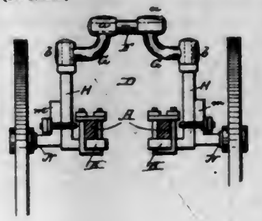
310,846. MANUFACTURE OF WHEELS. GEO. D. OWEN and ROBT. DYSON, Rotherham, County of York, England. Filed May 22, 1882. (No model.) Patented in England Feb. 15, 1879, No. 608, and in France May 27, 1879, No. 130,892.



Claim.—The method herein described for forming wheels having metal hubs and metal spokes, which consists in shaping, compressing, and shrinking the hub upon the ends of the spokes while the metal of the hub exceeds in temperature that of the spokes, substantially as and for the purpose specified

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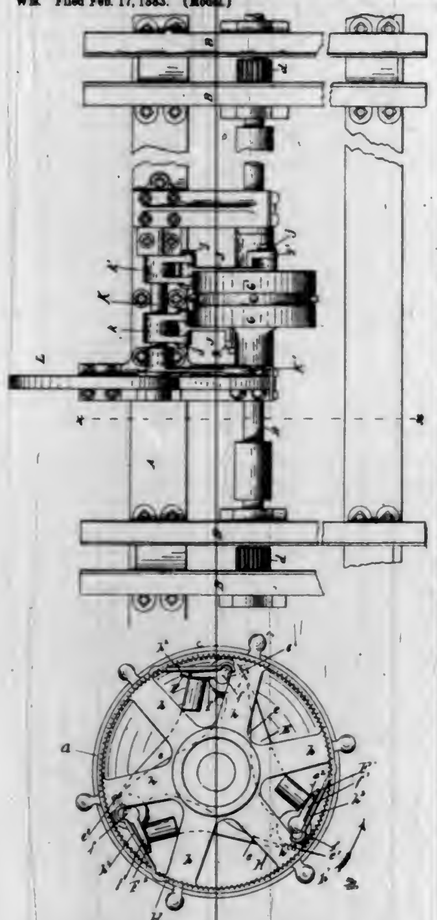
310,847. CULTIVATOR. JOHN R. PIERCE, Buffalo, Ill. Filed July 19, 1884. (No model.)



Claim.—1. The cultivator-arch consisting of the transverse journal-bar F, the quarter-arms G, having horizontal upper bearings engaging the journals of said bar, and lateral standards H, having horizontal arms at their lower ends, to which the plow-beams are clipped, and having their upper ends swiveled in the vertical upper bearings of the quarter-arms, substantially as specified.

2. The combination, with the plow-beams A, having the draft applied to their front ends, of the lateral arms H, having the squared horizontal arms K at their lower ends, the transverse journal-bar F, and the quarter-arms G, having the horizontal and vertical journal-bearings *a b*, and the adjustable spindles on the arms H, substantially as specified.

310,848. SAW-MILL SET-WORKS. DE WITT C. PRESCOTT, Marinette, Wis. Filed Feb. 17, 1883. (Model.)



Claim.—1. An internally-toothed ratchet-wheel, a pawl arranged to engage automatically with the teeth, and an independently-revolving depressor provided with a plate about equal in length to the pawl, inclining from the periphery toward the center of the depressor, and arranged to engage with the pawl when brought opposite to it by the revolution of the depressor, substantially as and for the purpose described.

2. The pawl-carrier E, having radial arms *e*, provided, as described, with pawl-sockets and spring-sockets, in combination with pawls shaped and arranged as described, and with the ratchet-wheel G, having an internally-toothed flange, arranged to surround the pawl-carrier, substantially as and for the purpose described.

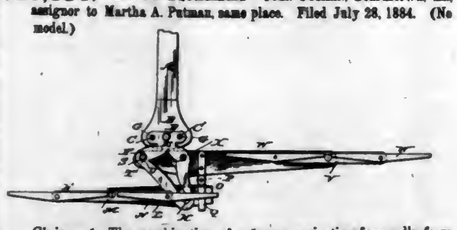
3. The pawl-depressor H, provided with the spokes A, arranged as described, and with the plates A^2, extending obliquely from spoke to spoke, and arched at their inner ends, substantially as and for the purpose described.

310,849. ARTIFICIAL TOOTH. JAMES A. PRIEST, Utica, N. Y. Filed Apr. 18, 1884. (No model.)



Claim.—An artificial tooth provided on each side with a vertical strip of platinum, the inner edges of said strips being perforated and embedded in the substance of the tooth, and the said strips being extended above and below the tooth, and adapted to form a covering for the sides, under surface, and crown, and a means of attachment by soldering, substantially as described.

310,850. DRAFT-EQUALIZER. JOHN PUTMAN, Beardstown, Ill., assignor to Martha A. Putman, same place. Filed July 28, 1884. (No model.)



Claim.—1. The combination of a frame projecting forwardly from the object to be drawn, and having perforations to one side of the line of draft and one perforation in the line of draft and forward of the lateral perforations, a longer lever pivoted with its inner end having a series of perforations upon a bolt passing through one of the lateral perforations of the frame, a stirrup projecting forward from near the inner end of the longer lever, and having an anti-friction roller journaled between its inner ends, a shorter lever pivoted with a perforation near its inner end upon a bolt passing through the forward perforation of the frame and having the rear edge of its inner end bearing against the roller in the stirrup upon the longer lever, and single and double trees pivoted upon the levers, as and for the purpose shown and set forth.

2. The combination of the clevis-plate having a number of perforations, the forwardly-projecting frames having cross-heads at their inner ends provided with perforations registering with the perforations in the clevis-plate, and having perforations in their forward ends and perforations lateral to the line of draft, bolt or bolts passing through the perforations in the cross-heads of the frames and in the clevis-plates, bolts passing through the forward perforations of the frames and through one set of perforations to the side of the line of draft, sleeves fitting upon the said bolts, a long lever having perforations at and near its inner end and fitting with the said perforations upon the sleeve upon the bolt in one of the lateral perforations, a stirrup projecting from near the inner end of the lever and having a roller journaled between the inner ends, a shorter lever pivoted near its inner end upon the sleeve fitting upon the bolt at the forward ends of the frames and bearing against the roller with the rear edge of its inner end, double-trees pivoted upon the ends of the levers, and single-trees pivoted upon the ends of the double-trees, as and for the purpose shown and set forth.

310,851. COMBINATION-TOOL. THOMAS E. RIDDEL, Philadelphia, Pa., assignor of one-half to E. Lucien Richie, same place. Filed Dec. 13, 1884. (No model.)



Claim.—A socket provided with a rubber, and constructed with a head and a handle, the latter having a claw, forming together a combined hammer, tack-lifter, and knife-cleaner, as described.

310,852. LINE-THROWING PROJECTILE. PHILANDER B. ROYS, Pultneyville, N. Y. Filed May 5, 1884. (No model.)

Claim.—1. In a projectile of the class described, the combination of the body B, provided with suitable head, the independent case E, contained within the case B, adapted to receive the combustible material, the supplemental casing G, adapted to the end of the body B, and an extended loop, I, rigidly connected to the supplemental casing G, all substantially as described.

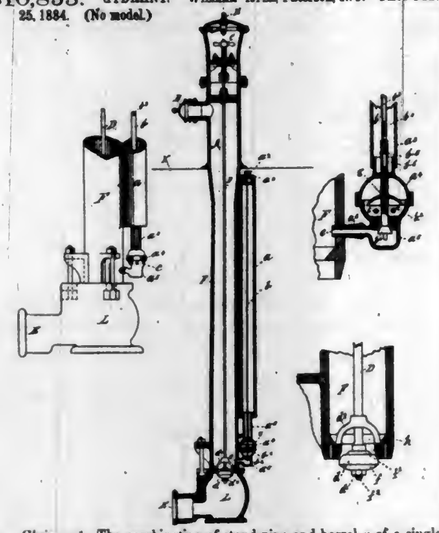
310,852.



2. In a projectile of the class described, the combination of the body B and suitable head, a case, E, contained within the case B, adapted to receive the combustible material, and an air-chamber, also contained within the body B, substantially as described.

3. In a projectile of the class described, the combination of the body B, provided with the head A, the independent case E within the case B, containing the combustible material, constructed substantially as described, the supplemental casing G, adapted to the body B and having the conical seat, and the hollow nipple *h*, all the parts being arranged and operating substantially as described.

310,853. HYDRANT. WILLIAM RYLE, Paterson, N. J. Filed June 25, 1884. (No model.)



Claim.—1. The combination of stand-pipe and barrel *a* of a single rigid structure, a clearing-valve, its seat rigidly connected with the stand-pipe, and a removable pipe-section, a^3, connecting said valve-seat with the lower end of barrel *a*, as set forth.

2. The valve-seat a^3 *K*, having openings C, the valve b^3, the tap *e*, for permitting the entrance of water under pressure below the valve, the valve-rod b^4, and the lift or prompter *g* above the valve, for the purpose set forth.

3. The combination of the valve-case having a valve-seat, the valve b^3, for clearing said seat, and the tube *b*, having weights b^4 removably placed therein for adaptation to any length of hydrant, as set forth.

4. The combination of the valve-case having a valve-seat, and valve b^3, for clearing said seat, and lift or prompter *g*, for prompting said valve, and tube *b*, with shot b^4, for weighting said tube to suit different lengths of hydrant, substantially as described.

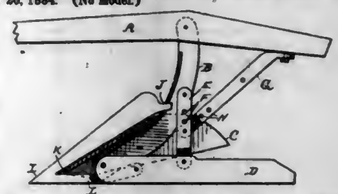
310,854. CAR-COUPLING. STEPHEN SCHROTER, Pottstown, Pa., assignor of one-half to Abner Woodward, same place. Filed Sept. 18, 1884. (No model.)



Claim.—1. The combination of the draw-head A, and the cast-iron head, beveled or rounded above and below, and having a recess, *m*, with the gravity-dog H, containing the head, all substantially as set forth.

2. The combination of the draw-head A, the head D, made self-accommodating to the link, the gravity-dog H, and the wooden block B, contained in the draw-head and interposed between the end of the latter and the head D, substantially as set forth.

310,855. HILLING-PLOW. RUDOLPH SCHUSTER, Waldeck, Tex. Filed May 20, 1884. (No model.)

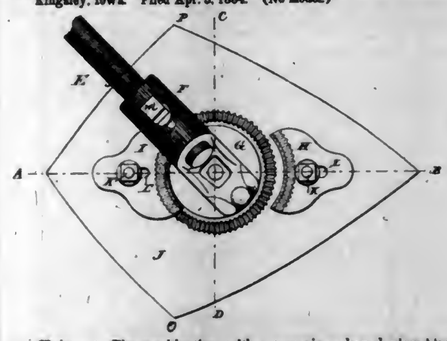


Claim.—1. The combination, with the beam, the stock, and the pivoted heel-bar, of the adjustable brace connecting said stock and heel-bar together, and the adjustable brace connecting the said brace with the rear of the beam, substantially as shown and described.

2. The combination, with the stock and the right and left hand or double mold-board, of the plow-point or colter having the blade running down the middle of the mold-board and terminating in front of and below the mold-board and forming an angle for supporting the lower end of the mold-board, substantially as shown and described.

3. The combination, with the stock and the heel-bar, of the double mold-board and the plow-point or colter having its upper end set in a recess in the stock above the mold-board, and its lower end provided with an arm which extends rearward under the mold-board and is secured to the heel-bar, substantially as shown and described.

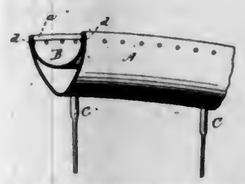
310,856. ADJUSTABLE CULTIVATOR-SHOVEL. M. A. TWITCHELL, Kingsley, Iowa. Filed Apr. 5, 1884. (No model.)



Claim.—1. The combination, with a trapezium-shaped plow-blade sharpened at its four edges, concave, and centrally perforated, of a cylindrical standard, E, a shank, F, having a socket therefor, and a set-screw, *m*, and a bolt securing the shank reversibly to the center of the said blade, substantially as described, whereby a plow-blade hung to present any side or corner forward may be turned around the standard to any angle with the line of travel, for the purpose set forth.

2. The combination, with the many-edged blade J, of the beveled serrated wheel G, pivoted thereon, the shank F, secured to the wheel G, and provided with a standard-socket, and the buttons H and I, having serrated edges and slots L, and the bolts K, substantially as shown and described.

310,857. VELOCIPEDE-WHEEL. ALBERT M. WHITE, Waterbury, assignor to the Pope Manufacturing Company, Hartford, Conn. Filed Nov. 7, 1884. (No model.)



Claim.—1. A hollow metallic rim consisting of two parts, one part forming the spoke side of the rim and having inwardly-projecting lips *a a*, and the other part forming the tire side of the rim and meeting the former on its inside at the lips, essentially as set forth.

2. A metallic felly consisting of two pieces of wrought metal, one piece forming the interior convex spoke-receiving portion, and the other part forming the exterior concave tire-receiving portion, of the rim, placed together with their edges meeting and fastened at the tire side, essentially as set forth.

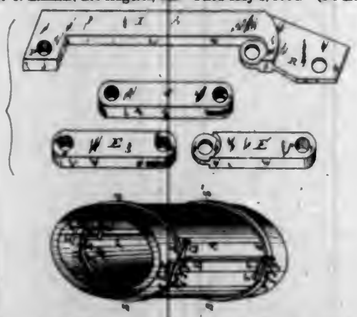
3. A metallic wheel-rim consisting of the parts A and B, placed together, and fastened at or near their edges by rivets *d d*, essentially as set forth.

310,858. BICYCLE. JOSEPH L. YOST, Wallingford, Conn. Filed Oct. 18, 1884. (No model.)



Claim.—The combination, with an axle, A, and a wheel fast thereon, of a standard or frame, B, provided with a bearing through which said axle runs loose, a stud or arm, I, fast to said standard or frame, a hollow shell, H, arranged to receive the end of said stud or arm I, a spring, K, having one end attached to said shell H and the other end to said stud or arm I, the block L, constructed with inclines or tangents *n*, rollers *r*, and treadle M, all substantially as and for the purpose herein set forth.

310,859. PIPE AND DRAIN-TILE MOLD. CHARLES N. EARL and HENRY T. HAZARD, Los Angeles, Cal. Filed May 1, 1884. (No model.)



Claim.—1. The toggle-hasp consisting of two arms attached by their free ends to the parts to be drawn together, one of such arms being hinged in a recess in the other, substantially as shown, both the free ends of the toggle extending from the same side of the hinge, whereby when the hasp is closed the free ends of the toggle are drawn together.

2. In a pipe-mold-jacket fastening, a toggle-hasp one arm of which is hinged in a recess in the other arm, the points of attachment at the free ends of the toggle being in line with the joint when the hasp is closed.

3. A pipe-mold-core fastening consisting of two toggle-joints attached by their free ends to the edges of the core, and being connected by a rod attached to their respective hinges, substantially as and for the purpose shown and described.

4. The combination, in a pipe-mold, of the core B, toggle-joints E E', the connecting-rod F, and the stop-stud *x*, substantially as shown and described.

5. In a pipe-mold, the combination of the jacket, toggle-hasp, and connecting-rod, substantially as shown and described.

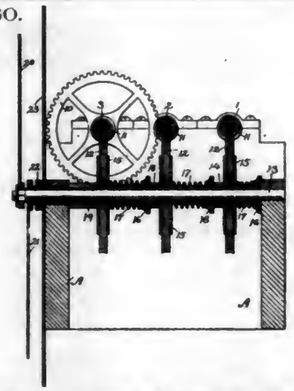
6. In a pipe-mold, the combination of the spring-bands S S and the hasp I J, the major arm I having the handle Q, and being recessed, as and for the purpose shown.

7. In a mold for the manufacture of concrete pipe, the hasp-fastening I and J, the smaller hasp-fastening fitting into the major hasp-fastening, substantially as set forth, the strain being direct when closed.

310,860. MOVEMENT-INDICATOR. HORACE T. FIELD, Boston, Mass., assignor of one-half to Caleb W. Hodgdon, same place. Filed May 3, 1884. (No model.)

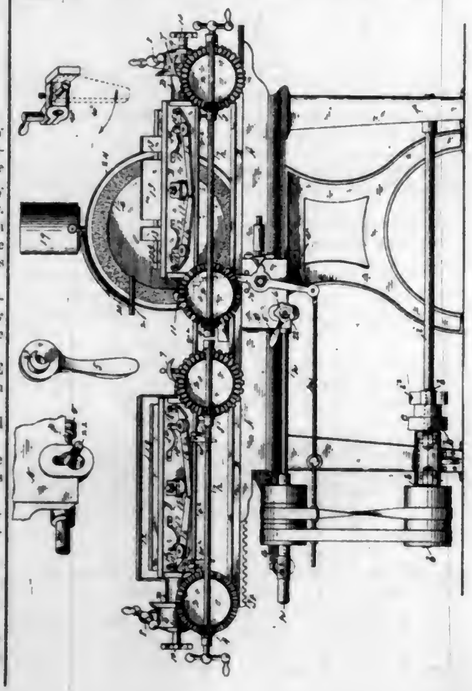
Claim.—1. In a movement-indicator, the combination of a series of arbors, as 1 2 3, differentially geared together, with endless screws secured upon and actuated by said arbors, a series of tangent-wheels engaged and rotated by said screws, and respectively mounted upon independent axes having a common center, and each having an independent and differentiated movement, as controlled by its actuating-screw, an indicating-hand attached to and carried by the axis of each of said tangent-wheels, and a dial spaced and numbered to co-operate with and indicate the respective movements of said hands, substantially as specified.

2. In a movement-indicator, the combination of a series of arbors, as 1 2 3, differentially geared together, as specified, endless screws 11, secured on said arbors, tangent-wheels 12, engaged and rotated by said screws, and respectively and independently mounted on hubs 14 18 19, axially arranged on arbor 13, the respective hands arranged on said arbor 13 and hubs 18 19, and a dial, 23, spaced, numbered, and arranged to indicate the respective movements of said hands as actuated by said gearing, substantially as specified.



310,861. KNIFE-GRINDING MACHINE. ELWIN R. HYDE, Springfield, and EDWARD VALLENTINE, Florence, Mass.; said Vallentine assignor to said Hyde. Filed Jan. 15, 1884. (No model.)

Brief.—Improvements on Patent No. 265,482, dated October 3, 1882, to perfect devices for unshipping the traversing gear, the devices for setting the knife-bar at an incline to the grinder, to grind taper, the knife-clamp, and the drip-catchers; also has two knife-clamps on same traversing bed, one being in action while the other is supplied with a knife.



Claim.—1. In a knife-grinding machine, the bed A, having the arm *a* thereon, the swivel-bearing n^3, hung in said arm, and the feed-shaft *n*, having one end supported in said bearing, and the belt-pulleys thereon located between the bearing n^3 and the worm-bearing end of the shaft, combined and operating substantially as set forth.

2. The combination, with the bearing of the shaft *n*, back of the hood *t*, of the latter having a cam-socket therein, the screw-stud 22, the cam-lever 5, and the nut 6, substantially as set forth.

3. The combination of the knife-bar D, having flange 35, the casing 9, adapted to receive said flange, the worm 33, worm-gear 34, and the hand-nut 10, substantially as described and shown.

4. The combination of the block 31, knife-bar D, screw 37, the gear 2, having teeth on its periphery, and the oscillating pawl 7, adapted to set said gear for either right or left hand tapers, substantially as described and shown.

5. The carriage B, having the pan 28 cast integral therewith under the knife-bar, and having tube 29 therein, and the bed A, having the pan 30 cast thereon and located under the end of tube 29, combined and operating substantially as set forth.

6. The combination, with the knife-bar D and with the clamp-plate 113, of the bolts 14, screws 15, levers 16, cam 18, and springs 17, substantially as set forth.

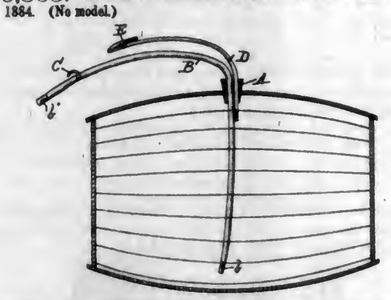
7. The combination of the knife-bars D, shaft v^3, adjustable blocks *w*, having pivoted latches w^3 thereon, and the lever *r*, substantially as set forth.

310,862. ELASTIC TIRE FOR WHEELS. JAMES LEIGH, Chelsea, Mass., and ROBERT W. H. MCDOWELL, Manchester, County of Lancaster, England, assignors, by mesne assignments, to the Revere Rubber Company, Boston, Mass. Filed Aug. 23, 1882. (No model.) Patented in England Dec. 19, 1876, No. 4,898.



Claim.—The combination, with a rubber tire, of a semi-hard rubber core unyielding at ordinary temperatures, and extensible at a temperature non-injurious to the rubber, as hereinbefore set forth.

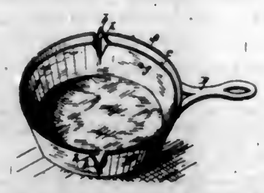
310,863. SIPHON. JOSHUA LOW, Steubenville, Ohio. Filed Aug. 5, 1884. (No model.)



Claim.—1. The combination, with the taper bung A, provided with air-tube D, of the tube B, provided with the hook C, and ferrule *b'*, whereby the end of said tube may be bent back and secured by said tube, so as to form a valve, substantially as and for the purpose set forth.

2. The combination, with the taper bung A, provided with the air-tube D, having sliding double sleeve E, of the tube B, adjustably secured in said bung, as and for the purpose set forth.

310,864. FRYING-PAN. JOHN MASON and GEORGE W. WINSOR, Providence, R. I., assignors to themselves. Filed June 17, 1884. (No model.)



Claim.—The combination of the outer portion, A, provided with the notch *h*, with the attached inner portion, D, provided with the spout *b*, adapted to enter the notch *h*, and having a continuous air-space, *c*, between the inner and outer portions, substantially as described.

310,865. STEM WINDING AND SETTING ATTACHMENT FOR WATCHES. HERMAN A. T. REHNEKER, Thomaston, Conn. Filed Aug. 28, 1884. (No model.)



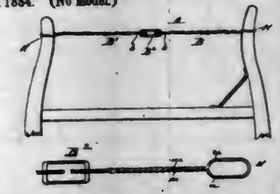
Claim.—1. As an improvement in stem winding and setting attachments for watches, a collar which is adapted to receive and form a bearing for the outer end of a winding-pinion, and is locked in place by engagement with the adjacent parts, substantially as and for the purpose specified.

2. A collar which forms a bearing for the outer end of a winding-pinion, and is locked in place by engagement with a recess that is formed in one of the movement-plates, substantially as and for the purpose shown.

3. In combination with a winding-pinion, a bridge which is adapted to receive the same and to journal its inner end, and is secured to or upon one of the movement-plates, and a collar that operates to journal the outer end of said pinion, substantially as and for the purpose set forth.

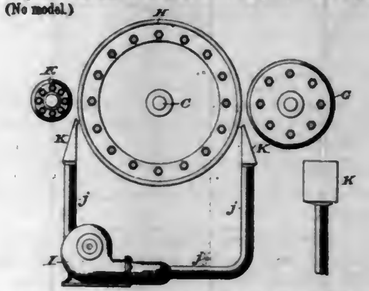
4. A watch-movement in which are combined the following elements, to wit: a winding-bridge which is held in position upon the pillar-plate by a single screw, a winding-pinion having its inner end journaled within said bridge, and a collar that operates to journal the outer end of said pinion, and is contained within a recess which is partly formed in said bridge and in part within said pillar-plate substantially as and for the purpose shown and described.

310,866. ROD FOR SAW-FRAMES. CORNELIUS TENNEY, Brooklyn, N. Y., assignor to the C. Tenney Hardware Company, same place. Filed July 8, 1884. (No model.)



Claim.—A tension-rod for saws, made of wire, each part folded upon itself and its ends twisted together, forming a loop, and welded and threaded, in combination with an intermediate threaded tension-link, as herein shown and described.

310,867. FRICTION-GEARING. GEORGE M. WHEELER, Warsaw, Wis., assignor of one-half to James Adams, same place. Filed Sept. 26, 1883. (No model.)



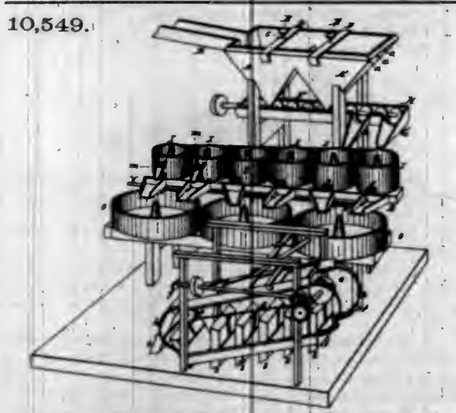
Claim.—In the frictional gear of the feed and gig works of a rotary saw-mill, a blast of cold air through a wide flat nozzle having several or one continuous opening to the periphery of the iron frictional pulley at one or more places, substantially as described, and for the purposes set forth.

REISSUES.

10,549. APPARATUS FOR AMALGAMATING ORES. MARTIN P. BOSS, Oakland, Cal. Filed Aug. 14, 1883. Original No. 248,568, dated Oct. 25, 1881.

Claim.—1. The combination, with the hoppers A A', and the trough F, having the feeding-screw H, and the right-angled arranged spouts G G', of the series of pans I, connected together by pipes *j*, and having a common trough, K, connected thereto by pipes *l*, substantially as and for the purpose set forth.

10,549.

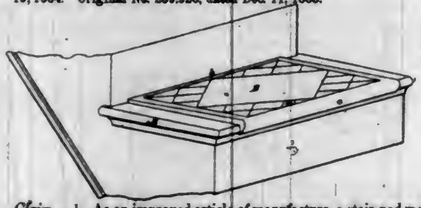


2. The pan I, having the discharge-pipe *g*, provided with an orifice, *g'*, in combination with the cup *s*, having an overflow-tube, *t*, reaching down through its bottom and emptying into the trough or pipe V, substantially as and for the purpose set forth.

3. An apparatus for treating ore pulp, consisting of the hoppers A A', trough F, with its conveyer-screw H, and spouts G G', the connecting series of pans I, with their overflows *j j*, and trough K, and having the discharge-tubes *g*, the quicksilver-cups *s*, with the overflow-pipes *t*, and the main pipe V, and the lower set of settling-pans, O, connected by overflows, as described, all combined and arranged to operate substantially as above specified.

4. The combination of the series of pans I, connected together by overflow-pipes *j*, and the settling or separating series of larger pans O, also connected together by overflow-pipes, with a discharging-viaduct connecting the terminal pans of the first series with the primary pan of the second series, whereby a continuous circulation of the pulp from pan to pan is secured until it is thoroughly reduced, and finally discharged from the last large pan or settler as waste tailings, substantially as shown and described.

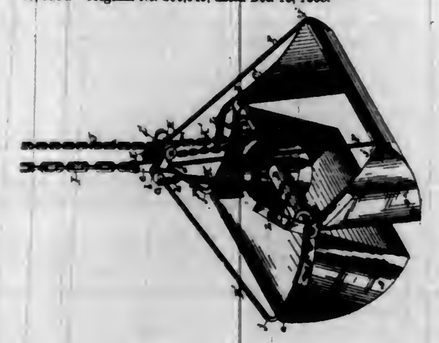
10,550. STAIR-PAD. HENRY W. MATHER, Butler, N. J. Filed Dec. 19, 1884. Original No. 289,920, dated Dec. 11, 1883.



Claim.—1. As an improved article of manufacture, a stair-pad made from felt of the character described, and sufficiently rigid or stiff to retain its form, and having a lip formed on its front edge, substantially as and for the purposes set forth.

2. As an improved article of manufacture, a stair-pad of felt of the character described, made thicker at its front edge than at its rear edge, and having a lip formed on its front edge, substantially as and for the purposes set forth.

10,551. HOISTING-BUCKET. GEORGE E. NEWELL and LOREN G. LADD, Pawtucket, R. I., assignors to Smith, Grant & Co., same place. Filed Dec. 10, 1884. Original No. 290,649, dated Dec. 18, 1883.



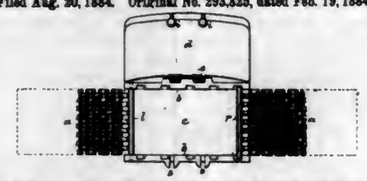
Claim.—1. In a hoisting-bucket, the combination of a hoisting-chain connected to the four corners of the bucket by means of upwardly-converging pivoted rods, and a hoisting-chain operating by means of the sheave and drum, and drum-chains to open and close the bucket, with the opposite inwardly-projecting guide-bars adapted to prevent the pivot-joint of the bucket from catching under the sides of the hatch, substantially as described.

2. In a hoisting-bucket, the combination of the pivoted bucket-jaws with the upwardly-converging rods pivoted within the boundary-line of the corners of the bucket, and provided with an outward bend at near the pivot-joint, whereby the corners of the bucket are prevented from catching at the hatch upon the ascending movement of the bucket, substantially as described.

3. In a hoisting-bucket, the combination of the pivoted bucket-jaws A A', inwardly-projecting guide-bars L L, pivot-bar B, drum D, sheave E, converging pivoted rods F F F' F', the rods F' F' being provided with the arms *d d'*, friction-sheave H, and chains I, J, K, and K', all arranged and operating substantially as described.

4. In a hoisting-bucket, the combination of the opening and closing jaws, the operating-chains, and the drum, with the sheave provided with projecting guides adapted to bring the chain into proper alignment with the sheave in closing the bucket, substantially as described.

10,552. CLASP FOR BRACELETS. SAML. WALLACE, New York, N. Y. Filed Aug. 20, 1884. Original No. 293,825, dated Feb. 19, 1884.



Claim.—1. The combination, with the bracelet-chain and its end piece, of a clasp or center piece having a bottom, sides, and hinged cover, and slots within the box for receiving and holding the end piece of the chain, substantially as specified.

2. The combination, with the bracelet-chain, of a fastening device attached to and projecting from the loose end of the chain, a clasp or center piece to which the other end of the chain is attached, a cover for the center piece, and holding devices within the clasp for the fastening that projects from the loose end of the chain, substantially as set forth.

3. The combination, with the flat bracelet-chain, of a clasp having a bottom, sides, and a hinged cover, there being grooves in the inner surfaces of the sides, and a cross-bar at the end of the chain passing into such grooves, substantially as set forth.

4. The bracelet-chain having a cross-bar at one end and an attaching-pin at the other end, in combination with a clasp that is provided with a movable cover, and inclined grooves in the opposite faces of the clasp to receive the ends of the cross-bar, substantially as set forth.

10,553. EMBROIDERY-HOLDER. JONATHAN B. WEST, Rochester, assignor to L. N. Axiel & Co., New York, N. Y., and Berthold Galland, same place. Filed Aug. 7, 1884. Original No. 299,943, dated June 3, 1884.



Claim.—1. In an embroidery-holder, the combination, with a two-headed spool, A, of an inclosing cylindrical band, B, provided with a flange, *g*, at one end and with slots *h h* in the rim, through which a portion of the embroidery may be exposed to view, the spool fitting into and forming the heads of the box, substantially as and for the purpose herein specified.

2. The spool for embroidery or similar material formed of two flat circular heads, a hollow central hub, to the ends of which the heads are attached, and a pin projecting from the hub for hooking on the inner end of the strip of material to be wound upon such spool, substantially as specified.

3. The combination, with the spool having two flat circular heads and a central hub rigidly connected at its ends to the circular heads, of a circular band having an inward flange at one side, and adapted to receive and hold the spool, substantially as set forth, so that the heads of the spool form the ends of the box, substantially as specified.

4. The combination, with the circular band having an inward flange at one end and an opening in the rim, of a spool with two circular heads and a connecting-hub, and a projecting pin upon the hub for the reception of the strip of embroidery or similar material, substantially as set forth.

5. In combination with a spool having two heads, a band having an inward flange at one end, and adapted to receive the spool and form a box for embroidery or similar material, and to expose a portion of such embroidery, substantially as set forth.

N. PETERS, Photo-Lithographer, Washington, D. C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

THOMSON *v.* WATERHOUSE.

Decided December 31, 1884.

1. An application filed under section 4897 R. S. within two years and in lieu of one which had become forfeited by reason of a failure to pay the final fee, is to be regarded for some purposes as a continuation of the former application and relates back to and adopts its date.
2. Delay in renewing under the statute may raise a suspicion of abandonment, and this should be met by the applicant's oath to facts which negative the presumption of abandonment of the invention.

APPEAL from the Examiner of Interferences.

ELECTRIC LAMPS.

Patent No. 295,836 granted to E. Thomson March 25, 1884. Application of A. G. Waterhouse filed August 23, 1882; renewed April 26, 1884.

Mr. H. C. Townsend for Thomson.

Mr. P. W. Page for Waterhouse.

BUTTERWORTH, *Commissioner:*

In this case the record discloses that Thomson, the appellant, on April 2, 1883, filed an application which embraced the device in issue; that a patent was issued to him, predicated upon said application, upon March 25, 1884, said patent being numbered 295,836. Waterhouse, the appellee, filed his application on the 23d of August, 1882, which was allowed and passed to issue January 9, 1883. The final fee was not paid within six months, and the case became forfeited. A second, or renewed application, embracing the same subject-matter, was filed April 26, 1884. An interference was declared between this second application and the patent of Thomson, and Thomson was adjudged by the Examiner of Interferences to be the junior applicant, and the burden of proof, under the rules, devolved upon him. From the action of the Examiner of Interferences in that behalf an appeal is taken to the Commissioner.

In adjudging Thomson to be the junior applicant the Examiner of Interferences held that Waterhouse's second application was in legal contemplation, and in fact a renewal or continuation of his original filed August 23, 1882. If the Examiner of Interferences was right in so holding, his judgment must be affirmed; if not, it must be reversed.

It is proper to say that the appellant Thomson moved to reform the declaration of interference, making Waterhouse the junior applicant. He has presented a very able and full argument in support of his position. It is urged by counsel that the second or renewed application filed under and in accordance with the provisions of section 4897 Revised Statutes can in no proper sense be treated as a renewal or continuation of the original application, but is severed and thoroughly distinct from it, the logic of his argument being that the second application stands precisely in the same position as if no so-called original application had been filed. It is urged that the language of that section is such as to indicate that the application which may be filed in pursuance of its provision is to be regarded in all respects as an original application, and my attention is called to the fact that the words of the section are—

> * * * Shall have a right to make an application for a patent for such invention or discovery *the same as in the case of an original application.* * * *

And further on—

> But such *second application* must be made within two years after the allowance of the original application.

There is much force in the suggestion made by counsel, based upon the language just quoted; but he will observe that further on in the section the following language occurs:

> And upon the hearing of *renewed applications* preferred under this section, abandonment shall be considered as a question of fact.

The language quoted will be construed hereafter.

It is further urged that Rule 171, as amended November 21, 1884, indicates clearly that no notice whatever can be taken of a forfeited application. The part of the rule (171) which was stricken out by the amendment reads as follows:

> But when an applicant makes claim to an invention previously claimed by and allowed to another, whose application has become forfeited by reason of the non-payment of the final fee within six months from the date of the letter of allowance, he will be notified that unless he shall file an affidavit, showing that he made the invention before such previously-allowed application was filed, his own application will not be passed to issue.
>
> When more than one subsequent applicant claims the invention thus previously allowed, each will be required to file the affidavit above mentioned within a reasonable specified time, before an interference can be declared between such later application.

The rule was amended for the excellent reason that the provision stricken out was, as a rule of practice, unjust in its operation, because it provided for trying an issue of fact between a pending application and one that had become forfeited by non-payment of the final fee, on an affidavit filed by the party whose application was pending and the statements contained in the record of the forfeited application which the junior applicant was not permitted to inspect, and in determining the question the rule unwarrantably and conclusively presumed two controlling facts—i. e., *first*, that the forfeited and the junior applications mentioned and described the same invention, and, *second*, that the applicant whose case had become forfeited was in fact the first and original inventor. It would seem clear an application cannot properly be put into interference with another unless the inventions are the same in both, and on that point the junior applicant should have a right to be heard, a right the rule as it stood denied him. Whether the Office will take notice of a forfeited application and put a junior pending application in inter-

ference with it on any terms is one question; whether an applicant whose application has become forfeited by the non-payment of the final fee can under section 4897 Revised Statutes file a second application which shall operate in any sense or for any purpose as a renewal or continuation of the former one is quite another question.

The logic of the amendment of Rule 171 would seem to indicate an indisposition on the part of the Office to notice the forfeited application for any purpose; but the amendment does not authorize the conclusion reached by counsel for Thomson. On the filing of a second application under the provisions of section 4897 the Commissioner is not permitted to regard the forfeited application as having no existence. On the contrary, the section mentioned expressly provides that any person may file a new application for the *same* invention, but *such second application* must be made within two years after the allowance of the *original application*. *Original of what?* Why of the second application. So it is seen the statute clearly requires that reference must be had to the *original* to ascertain several facts, such as dates, identity of invention, &c. It follows that the two applications plainly have reference to each other. The question is, what relation does the second bear to the first or original? Although on the filing of a second or renewed application under section 4897 the question of abandonment is one of fact, it does not follow that such second application is not within the meaning of that section, and for some purposes to be treated as a renewal of the first or original. Nor is there anything in the language of the section which is repugnant to the construction which regards the second application as a renewal of the first. An applicant who seeks by a second application to renew the first may very properly be met by evidence of abandonment. It may be said that delay in renewing under the statute raises a suspicion of abandonment, and this may be met by the applicant's oath to facts which negative the idea or presumption of abandonment of the invention. Whether an applicant has in fact abandoned his invention is open to inquiry in any case. In construing the clause which makes the question of abandonment one of fact, it must be borne in mind that the act of March 3, 1883, conclusively presumed abandonment on failure of applicant to pay the final fee within six months from the date of allowance of the application. The present statute omits that provision, and declares that there shall be no such presumption, but on the contrary that abandonment shall be a question of fact.

I am unable to adopt the interpretation of section 4897 contended for by counsel for Thomson. The particular clause of the section to which he directs my attention is:

> * * * Shall have a right to make an application for a patent for *such* invention or discovery the same as in the case of an *original application*, * * *

stress being laid on the words "as in the case of an *original application*."

A careful examination of the language will, I think, make it clear that the construction contended for cannot be adopted without obviously departing from the true intent and meaning of the legislature. The section under consideration authorizes *any* person in interest, whether inventor, discoverer, or assignee, to make the application, and upon the hearing of *such*—mark the words—*renewed* application abandonment shall be considered a question of fact. *First*, it will be observed that *any* person having an interest, &c., may make application for a patent for *such* invention or discovery; *second*, "that upon the hearing of such *renewed* application abandonment shall be considered as a question of fact." It will be observed that the right to make the application is not limited as in sections 4894, 4895, and 4896, each of which treats of the *original* application, but is conferred upon *any* party *in interest*, whether inventor, discoverer, or assignee, the conditions precedent being that the *original application must have been allowed; second*, that it must have become forfeited by non-payment of the final fee; *third*, that the renewed application must have been filed *within two years* after the date of such allowance; *fourth*, it must be for *such*—*i. e.*, the *same invention*, and, *finally*, the question of abandonment must be considered as a question of fact. Why is an assignee allowed to apply? Clearly because all the questions of patentability, &c., under section 4894, have already been determined, and hence he may apply "the same" as in an original application—*i. e.*, he may become an applicant, making the oath himself, and for the palpable reason stated above—to wit, that the only invention for which the *assignee* may prosecute an application is *such* as is covered by the first or *original application*, and has been adjudged to be patentable, and a patent allowed, but not issued by reason of the non-payment of the final fee, the only question remaining being one of abandonment, which is one of fact. It would seem clear that an assignee cannot make an *original* application, but he can make a *second* or "*renewed*" application for the invention already allowed, and such *second* application may very properly be treated as it is described in the section—as a *renewal* of the original—the obvious intention of the section being to permit *any party in interest*, within the limit prescribed by the statute, to take out a patent for an invention for which an application has been prosecuted to final determination and allowed; but he must do it by filing another formal application based upon the original.

It is urged that the language of the section properly construed requires the oath to such second or renewed application to be made and signed *by the inventor*. Whether the rule requires it or not, I am satisfied that it would be quite sufficient for an assignee to make the oath. Why? Because there has been an adjudication and the applicant already adjudged to be the first and original inventor; and of this fact the assignee may be advised, and there is no satisfactory reason why he should not make the oath to the renewal, and there is still less reason why the inventor more than the assignee should do so. This second application is in its nature like a motion or petition for the revival of a judgment that has become dormant. The original proceeding prosecuted to final judgment determined the question of the debt or liability which was the basis of the suit. A motion or petition to revive the judgment does not raise that question, but one of payment, conformable to that of abandonment in the case at bar.

It is urged with some force that the construction above suggested involves an inconsistency between sections 4885 and 4897, inasmuch as the former provides that the patent shall bear date not later than six months after the allowance of the application. It follows, therefore, it is said, that if the second application is a continuation or renewal of the former and relates back to it for its date, the patent could not bear date later than six months after the allowance. This reasoning is more plausible than sound. It is not questioned that a division of an original application may properly be and is regarded as a continuation of the original, and relates back to it and adopts its date for certain purposes, yet a patent may issue and bear date five years after the allowance of the first. The "second" or "renewed" application is no less an *application* upon which a patent may issue, because it operates as a revival or renewal of the original in the sense that it is predicated upon it, the first being the foundation or authority for the second, which for the purposes of the statute in the matter of public use, &c., adopts the date of the original. The statute provides that the *renewal* shall be by *separate application;* so by law the second is an *application* upon which a patent may issue, and must of course bear date not later than six months after the allowance of the application. The position of counsel that on the construction suggested section 4897 would be but a repetition of section 4895 is not tenable. By the act of 1865, on failure to pay the final fee within six months, the invention did not become public property, (prior to that time it was otherwise,) but the party might apply within two years, or on default the invention became public property. The act of 1870 omitted the clause providing that the invention should become public property on failure to prosecute the application within two years. It would seem clear that the right, under section 4897, to file a second or renewed application *within* two years from the date of the allowance of the original, and the right to file a new application *after* two years under section 4894, where the application had become abandoned, are not the same, else section 4897 is needless and meaningless and might as well be repealed, as very properly suggested by counsel. It will be observed that the right of an assignee to file an application under the former section is limited to two years; after the expiration of that term he is absolutely prohibited from prosecuting an application for the invention. In either case the question of abandonment is one of fact, the point of difference being that the application under section 4897 is a renewal, or continuation of another, the original, and in the other it is not; and *that* is the difference, the result being that in the case of an application under section 4894 *after* two years, in determining the question of public use the date of the pending application is alone considered, while in case of a renewal under section 4897 the application relates back to and adopts the date of the original.

The point suggested that section 4897 is a mere amplification of section 4894 is clearly not well taken. I have read the case of *Weir* v. *Worden*, (29 O. G., 83.) The point raised in the case at bar was not discussed by counsel nor definitely decided by the learned judge in the cause cited. The concluding remarks of the judge indicate the inclination of his mind, but no opinion was announced which can properly serve as a guide to direct me in the determination of the cause I am considering, and I am not doubtful as to the result on full discussion and careful consideration of the point.

The judgment of the Examiner of Interferences is approved and affirmed.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—Southern District of New York.

PICKHARDT *et al.* v. PACKARD *et al.*

Decided December 16, 1884.

1. A party being the first discoverer of a process for making a certain product, is entitled to make a broad claim for the product when made by his process; and such a claim is not to be construed as one for the product obtained by any method or process, but for any method which is the equivalent of the process described because it produces like results.
2. Though the proofs do not show that the defendant's product was made by the process described in the patent, yet there is nothing to the contrary, and as sufficient appears to establish the chemical identity of the defendant's product with the complainant's, a sufficient *prima facia* case is shown upon the question of infringement.
3. The patentees do not explicitly transfer to complainants the right to vend to others the right to make the patented article, but they do not reserve that right to themselves in the instrument; and as the complainants are vested with the exclusive right to make the article, as well as to use and vend it, the patentees have nothing left to transfer, and therefore the complainants are assignees and not licensees.

Mr. J. Van Santvoord, *Mr. Livingston Gifford*, and *Mr. B. F. Thurston* for the complainants.

Mr. Wm. H. King for the defendants.

WALLACE, *J.:*

The complainants have acquired from the patentee the full and exclusive right to make, use and sell, and vend to others to use and sell, throughout the United States, the invention described in letters patent of the United States, issued to Badische Anilin and Soda Fabrik, a corporation, as assignee of Heinrich Caro, for a new and useful improvement in coloring-matters obtained from alpha-naphthol. The patent was granted March 2, 1880, (No. 225,103.) The gist of Caro's invention, as described in the specification, is a process whereby alpha-naphthol is converted into sulpho-acids, which are capable of being treated with nitric acid without losing their sulpho groups. Until this process was employed the sulpho-acids of alpha-naphthol when thus treated lost their sulpho groups and were converted into dinitro-naphthol or naphthalene yellow, a coloring-matter insoluble in water. Caro's sulpho-acids when thus treated are converted into a yellow coloring-matter which is soluble in water, and is especially adapted for being used in dyeing and printing in mixture with other dye-stuffs which possess similar acid properties, such as extract of indigo or the sulpho-acids of azo compounds. The specification fully details the process of converting the alpha-naphthol into the requisite sulpho-acids, and also the process of treating the sulpho-acids with nitric acids.

The claim is as follows:

> As a new manufacture, the coloring-matter or sulpho-acid of dinitro-alpha naphthol, obtained from the action of nitric acid upon the within-described alpha-naphthol sulpho-acids, substantially in the manner set forth, or by any other method which will produce a like result.

It is shown by the proofs that Caro's coloring-matter is superior to any previously known in the art of dyeing, as regards fastness to water when applied to wool or other material of animal fiber. It does not blend or run when wetted, which is the case with picric acid, Manchester yellow, Martin's yellow, and the other yellow coloring-matters previously used. This is clearly indicated by the samples produced. That it is an extremely valuable contribution to the art of dyeing is plain.

So far as appears Caro was the first discoverer of the process by which the destructive sulpho-acids of alpha-naphthol capable of treatment with nitric acid without the destruction of their sulpho groups could be produced. Consequently he was entitled when applying for a patent to make a broad claim for the product when made by his process, whether as part of the process the treatment of the sulpho-acids with nitric acid should be according to his method or should be by any other equivalent method which would produce his product. The claim of the patent is not to be construed as one for his coloring-matter obtained by any method or process of treating the alpha-naphthol sulpho-acids with nitric acids, but for any method of treatment which is the equivalent of the process described because it produces like results. The claim is capable of this construction, and should be construed so as if possible to secure the real invention to the patentee. It was not shown by the complainants that the defendants' coloring-matter was made by the process described in the patent, nor was any evidence to the contrary produced by the defendants. The proofs show satisfactorily, however, that the defendants' coloring-matter possesses the peculiar characteristics of the patented article. Sufficient appears to establish the chemical identity of the defendants' coloring-matter with the complainants by the evidence of the results produced by each in experimental tests. As these results were new until Caro's process was employed, a sufficient *prima facie* case is shown upon the question of infringement. The only attack made upon the novelty of the invention is by evidence which shows that various yellow coloring-matters—such as Martin's yellow, Manchester yellow, and others—were old and had been in public use since 1863. An attempt was made on the part of the defendants to show the identity in characteristics between those coloring-matters and the patented article; but no doubt is entertained that there is a substantial difference between them in the respects which have already been referred to.

The complainants are not licensees, but are assignees, of the entire monopoly conferred by the patent. The patentees do not explicitly transfer to complainants the right to vend to others the privilege of making the patented article; but they do not reserve that right to themselves in the instrument; and as the complainants are vested with the exclusive right to make the article in the United States, as well as to use and vend it, the patentees have nothing left which they can transfer.

These considerations dispose of the several objections which have been urged by the defendants to the case made by the complainants.

A decree is ordered for complainants.

U. S. Circuit Court—Southern District of New York.

RAILWAY REGISTER MANUFACTURING COMPANY *v.* BROADWAY AND SEVENTH AVENUE RAILROAD COMPANY. SAME *v.* CENTRAL PARK NORTH AND EAST RIVER RAILROAD COMPANY.

Decided December 26, 1884.

1. BENTON—FARE-REGISTER.

Letters Patent No. 260,526, granted July 4, 1882, to John B. Benton for an improvement in fare-registers, sustained and held to be infringed.

2. RANSOM—FARE REGISTER AND RECORDER.

Letters Patent No. 265,145, granted September 26, 1882, to Newman A. Ransom for an improvement in fare registers and recorders, held not to have been anticipated or invalidated by public use, and also infringed.

Mr. Edward N. Dickerson, Jr., for the orator.

Mr. John Dane, Jr., for the defendants.

WHEELER, *J.*:

These suits are brought upon Letters Patent No. 265,145, dated September 26, 1882, and granted to Newman A. Ransom, assignor to the orator, for a fare register and recorder, and No. 260,526, dated July 4, 1882, and granted to John B. Benton, assignor to the orator, for a fare-register, for an alleged infringement of claims 12 to 17 of the former, inclusive, and all of the claims, five in number, of the latter. Want of novelty and denial of infringement are set up as to the former, and public use for more than two years prior to the application as to the latter. Many patents, English and American, and among the latter one to the same inventor, are relied upon as anticipations. The application for this patent was on file when the prior patent to this inventor was granted, and therefore the description of this invention in that patent would not affect at all the validity of this one. *James* v. *Campbell*, 104 U. S., 356. None of the other patents show in any description of any one instrument the combination of any of these claims; but the several parts of the combinations are all shown in different contrivances for various purposes. It is argued, with as much plausibility, apparently, as the subject admits, that these combinations are so far mere aggregations of parts; that these parts, as shown in the prior descriptions, are anticipations of all that was patentable in combinations. These instruments are, however, each single machines for registering and retaining the number of fares received and signaled trip by trip for a number of trips in such a manner that those for each trip must be begun at the same point and all must be kept free from being tampered with until examined and compared with the fares by the proper person. All the parts act together for this purpose, and each has an influence in producing the result in a more perfect and reliable manner than was known before. This seems to be more than the assembling of several parts, each doing something by itself unaffected by the others, and to amount to a new arrangement for working together of old devices into a patentable contrivance. According to this view the defense of want of novelty fails. The defendants appear, upon the evidence, to use these several parts, or their known equivalents, in the same arrangement, so that they really appropriate the patented invention of these several claims. The public use of the other invention was, according to the evidence, upon street-railway cars, in the only manner in which they could be conveniently used, for the purpose of actual experiment to ascertain the best mode of construction. This seems to have been allowable. *Elizabeth* v. *Pavement Company*, 97 U. S., 126.

Let there be a decree for the orator for an injunction and account in each case as to all these claims, with costs.

THE

OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

VOL. 30—NO. 3. TUESDAY, JANUARY 20, 1885. PRICE—$5 per year.

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The Official Gazette.

The OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Indexes to Patents on Electricity.

Appendix No. 2 to the index to patents relating to electricity covering the period of time from July 1, 1882, to June 30, 1883, has been issued, and is now for sale. These indexes, arranged alphabetically, numerically, and by classes, are completed to June 30, 1883, and comprise the following volumes:

Vol. 1. Index to patents relating to electricity granted by the United States prior to June 30, 1881, with an appendix, July 1, 1881, to June 30, 1882. One volume, 250 pages. In paper covers, $3; bound, $5.

Vol. 2. Appendix No. 2, July 1, 1882, to June 30, 1883. One volume, 50 pages. In paper covers, $1.50.

Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., January 8, 1885.

SIR: I am directed by the Secretary to inform you that he has ordered that Levi Lockhart, of Pikesville, Indiana, be not recognized from and after this date as attorney in the prosecution of any claim or other matter before the Department of the Interior or any bureau thereof.

I am, sir, very respectfully, your obedient servant,
GEO. M. LOCKWOOD,
Chief Clerk.

The Commissioner of Patents.

—

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., January 12, 1885.

SIR: I am directed by the Secretary to inform you that he has ordered that Anthony A. Kelly, of Fond du Lac, Wisconsin, be not recognized from and after this date as attorney in the prosecution of any claim or other matter before the Department of the Interior or any bureau thereof.

I am, sir, very respectfully, your obedient servant,
GEO. M. LOCKWOOD,
Chief Clerk.

The Commissioner of Patents.

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Issue of January 20, 1885.

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Reissues of patents	—None.	
Total issue	325	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	1		Nebraska		
Arizona Territory			Nevada		
Arkansas			New Hampshire	2	
California	7	1	New Jersey	15	
Colorado	2		New Mexico Territ'y		
Connecticut	11		New York	68	2
Dakota Territory			North Carolina	1	
Delaware	1		Ohio	17	
District of Columbia	4		Oregon		
Florida	2		Pennsylvania	22	4
Georgia			Rhode Island	9	
Idaho Territory			South Carolina	1	
Illinois	26		Tennessee	1	
Indiana	6		Texas	3	
Indian Territory			Utah Territory	1	
Iowa	3		Vermont	3	
Kansas			Virginia		1
Kentucky		1	Washington Territ'y	1	
Louisiana			West Virginia	1	
Maine	4		Wisconsin	9	2
Maryland	5		Wyoming Territory		
Massachusetts	43	4	United States Army		
Michigan	8	1	United States Navy		
Minnesota	4				
Mississippi	1		Total to citizens of		
Missouri	4	1	the United States	286	17
Montana Territory					

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Australia			Germany	4	
Austria-Hungary			Ireland	2	
Barbadoes			New South Wales		
Belgium	2		New Zealand		
Bermuda			Norway		
Brazil			Russia		
Canada	1		Scotland		
Central America			Spain		
Colombia, U. S. of			Switzerland	3	
Cuba			Venezuela		
Denmark					
Ecuador			Total to citizens of		
England	6	1	foreign countries	21	1
France	3				

DESIGNS.

15,736.—PACKAGE-HOLDER.—*George H. Benedict*, New York, N. Y. Application filed October 6, 1884. Term of patent 7 years.

15,737.—PENDANT.—*Morris Bernhard*, New York, N. Y., assignor to *Dreyfus Brothers*, same place. Application filed November 18, 1884. Term of patent 7 years.

15,738.—CHENILLE ORNAMENT.—*Julius Dreyfuss*, New York, N. Y. Application filed August 14, 1884. Term of patent 3½ years.

15,739.—PENDANT.—*Bernhard Dreyfus*, New York, N. Y. Application filed November 18, 1884. Term of patent 7 years.

15,740.—COOKING-STOVE.—*Joseph Leon Gobeille*, Cleveland, Ohio, assignor to *Myers, Osborn & Co.*, same place. Application filed November 19, 1884. Term of patent 3½ years.

15,741.—CURTAIN FABRIC.—*John Hartley*, Philadelphia, Pa., assignor to *John Davenport*, same place. Application filed December 6, 1884. Term of patent 3½ years.

15,742.—CARPET.—*Alfred Heald*, Philadelphia, Pa., assignor to *Hugh McCallum, Orlando Crease*, and *Andrew J. Sloan*, all of same place. Application filed October 27, 1884. Term of patent 3½ years.

15,743.—FONT OF PRINTING-TYPE.—*William W. Jackson*, Philadelphia, Pa., assignor to *Arthur M.* and *Alson E. Barnhart*, Chicago, Ill. Application filed December 8, 1884. Term of patent 14 years.

15,744.—SATCHEL-FRAME.—*Bernard Rice*, New York, N. Y. Application filed October 20, 1884. Term of patent 7 years.

15,745.—DOMINOS.—*Charles Selkirk*, Albany, N. Y., assignor to *The Embossing Company*, same place. Application filed July 31, 1884. Term of patent 14 years.

TRADE-MARKS.

[Certificates of registration of Trade-Marks numbered 8,191 and upward are registered under the act of March 3, 1881.]

11,863.—MEDICINAL FLUID EXTRACTS FOR INTERNAL USE.—*Burroughs, Wellcome & Co.*, London, England. Application filed May 14, 1884.

"The word 'VALOID.'"

11,864.—REFRIGERATORS.—*Andrew J. Chase*, Boston, Mass. Application filed December 15, 1884.

"The word-symbol 'FREEZINE-BLAST.'"

11,865.—SMOKING AND CHEWING TOBACCO.—*Easley Bros.*, South Boston, Va. Application filed July 25, 1884.

"The word 'HOMESPUN.'"

11,866.—CHEMICAL FERTILIZERS.—*Farmers' Fertilizer Company*, Syracuse, N. Y. Application filed September 19, 1884.

"The words 'THE REAPER.'"

11,867.—OAK TANNED HARNESS-LEATHER.—*William Flaccus & Son*, Pittsburg, Pa. Application filed December 29, 1884.

"The word 'DIAMOND' printed or impressed on a diamond or rhomboid shaped ground or field."

11,868.—CIGARS, CIGARETTES, AND SMOKING AND CHEWING TOBACCO.—*The Friend-Erskine Cigar Company*, San Francisco, Cal. Application filed November 28, 1884.

"The representation of a butcher's cleaver held poised in a human hand, (showing the wrist and a small portion of the forearm.)"

11,869.—MECHANICAL ORGAN.—*Merritt Gally*, New York, N. Y. Application filed November 26, 1884.

"The letters and word 'ORCHESTRONE.'"

11,870.—HAIR AND GENERAL TOILET WASH.—*D. Lewis Grant*, Philadelphia, Pa. Application filed December 6, 1884.

"The fanciful title 'EGG JULIP.'"

11,871.—MEN'S AND BOYS' UNDERWEAR.—*Hess, Mayer & Co.*, Louisville, Ky. Application filed September 2, 1884.

"The representation of the god Mercury."

11,872.—ALE, BEER, AND OTHER MALT LIQUORS.—*John W. Koch*, Detroit, Mich. Application filed November 19, 1884.

"The words 'MICHIGAN BOTTLING WORKS' and the arbitrary symbol composed of two monograms—to wit, the letters 'M,' 'B,' and 'W,' combined with the letters 'J' and 'K,' all combined in one monogram."

11,873.—PLAYING-CARDS.—*Perfection Card Company*, Philadelphia, Pa. Application filed December 20, 1884.

"The ace of spades with the aces of hearts, clubs, and diamonds inclosed therein."

11,874.—FLUID MEDICINE FOR INTERNAL USE.—*The Potter Drug and Chemical Company*, Boston, Mass. Application filed December 13, 1884.

"The letters and word 'CUTICURA,' printed, stamped, or embossed in any color or colors, in any order or form, on paper or any other substance or fabric of any color."

11,875.—MEDICATED SOAP.—*The Potter Drug and Chemical Company*, Boston, Mass. Application filed December 13, 1884.

"The word 'CUTICURA,' printed, stamped, or embossed in any form, in any color or colors, on paper or other substance of any color."

11,876.—SALVE OR OINTMENT.—*The Potter Drug and Chemical Company*, Boston, Mass. Application filed December 13, 1884.

"The word 'CUTICURA,' printed in any form, in any color or colors, on any color of paper or other substance or fabric."

11,877.—OYSTERS.—*Will K. Reeme*, Kansas City, Mo. Application filed December 2, 1884.

"The word 'LION' or a picture-symbol of a lion's head, or both."

LABELS.

4,317.—Title: "PERFECTION" (FOR PLAYING CARDS.)—*Perfection Card Company*, Philadelphia, Pa. Application filed December 20, 1884.

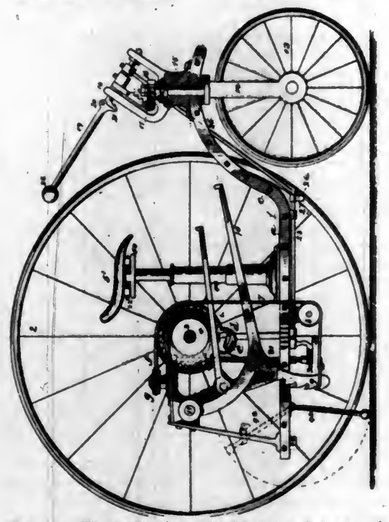
4,318.—Title: "MEDICAL LAKE" (FOR MINERAL WATER.)—*Wolf & Monahan*, Milwaukee, Wis. Application filed December 26, 1884.

4,319.—Title: "MEDICAL LAKE GINGER ALE."—*Wolf & Monahan*, Milwaukee, Wis. Application filed December 26, 1884.

PATENTS

GRANTED JAN. 20, 1885.

310,868. TRICYCLE. REUBEN H. ANDREWS, Washington, D. C. Filed May 16, 1884. (No model.)

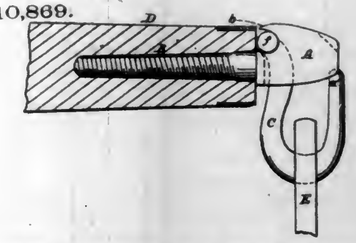


Claim.—1. The combination, with the driving-shaft of a tricycle, of a ratchet driving-gear, a two-armed pedal-lever, one arm extending to the pivot, the other forming an arc-shaped extension provided with a series of catches, and belt-connections from the ratchet mechanism to the catches on said lever, as set forth.

2. The combination, with the driving-shaft and ratchet-connections, of the pedal-lever having its pivot at 11, and the extension-arm 9, provided with a series of hooks, and a belt connecting the ratchet mechanism around a pulley with one of said hooks, as set forth.

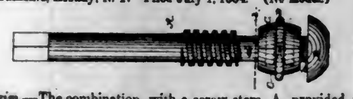
3. The combination, with the driving-shaft and a clutch-coupling [illegible] wedge, substantially as set forth.

310,869.



Claim.—The combination, with the holder A, formed with a threaded shank, B, and having the central opening, *a*, bifurcated portion *b*, and recesses *c d*, of the hook C, provided with the T-shape bearing-head *f*, constructed to fit and oscillate loosely in the holder, substantially as and for the purpose described.

310,870. REVOLUBLE JOINT FOR SCREW VALVE-STEMS. JAMES H. BLESSING, Albany, N. Y. Filed July 1, 1884. (No model.)



Claim.—The combination, with a screw-stem, A, provided with a circular flange, *a*, and a valve, B, provided with a central stud, *b*, having a circular flange, *b'*, as herein described, of a split coupling, C, adapted to engage with the flanges *a* and *b'*, and secured in place substantially as herein specified.

310,871. SPINDLE-SUPPORTING BOLSTER AND STEP. *J. Booth, Central Falls, assignor to Stephen A. Jenks, Lincoln, R. I. Filed Oct. 5, 1882. (No model.)*

Brief.—The outside of the bolster is tapered from the line of the hand-pull to each end thereof, and is provided with a pin or projection at said line. An oil-groove extending from its top to the spindle-step is formed on its inner face, and one or more passages connect this with the bolster-cam. The bolster fits loosely in the bolster-case and rests on a bolt in the bottom thereof [illegible] projection fitting into a groove provided in the bolster-case to rest the same and to prevent it from turning with the spindle.

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15,737.—PENDANT.—*Morris Bernhard*, New York, N. Y., assignor to *Dreyfus Brothers*, same place. Application filed November 18, 1884. Term of patent 7 years.

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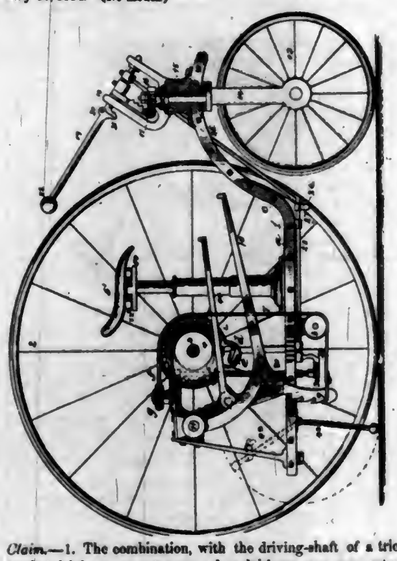
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PATENTS

GRANTED JAN. 20, 1885.

310,868. TRICYCLE. REUBEN H. ANDREWS, Washington, D. C. Filed May 16, 1884. (No model.)



Claim.—1. The combination, with the driving-shaft of a tricycle, of a ratchet driving-gear, a two-armed pedal-lever, one arm extending to the pivot, the other forming an arc-shaped extension provided with a series of catches, and belt-connections from the ratchet mechanism to the catches on said lever, as set forth.

2. The combination, with the driving-shaft and ratchet-connections, of the pedal-lever having its pivot at 11, and the extension-arm 9, provided with a series of hooks, and a belt connecting the ratchet mechanism around a pulley with one of said hooks, as set forth.

3. The combination, with the driving-shaft and a clutch-coupling attached to the wheel, of a wedge which when shifted serves to uncouple the clutch, and a train of mechanism, substantially as described, whereby the wedge is moved by the movement of the steering-bar.

4. The combination, with the steering-wheel of a tricycle, of a steering-bar having a hinge-joint, 20, and a pin, 21, on the side of the bar opposite the hinge, whereby the handle of the bar may be swung in one direction, but have a double bearing when straightened, substantially as set forth.

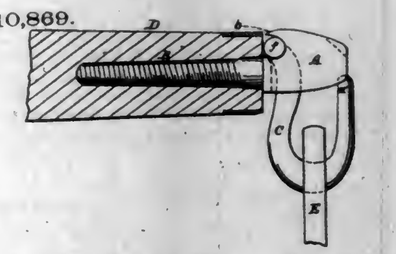
5. The seat described, consisting of standard or casing 44, having internal spring, 45, the upright 46, the spindle 47, longitudinally adjustable, as described, and the seat 51, all combined and arranged in a vehicle, as set forth.

6. The combination, with the standard 44, of the inclosed spring 45, the upright 46, having lugs which project into slots in the standard, the screw-threaded spindle 49, the gimbal-frame supported thereby, and the adjustable seat on the gimbal-frame, all constructed and relatively arranged substantially as set forth.

7. The combination, with the frame and revolving axle, of a catch to lock the two together to prevent rotation of the axle, substantially as described.

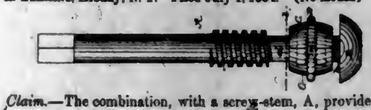
310,869. WHIFFLETREE-HOOK. HENRY C. BATES, Miles, Iowa, assignor of one-half to William Courtauge, same place. Filed Oct. 13, 1884. (No model.)

310,869.



Claim.—The combination, with the holder A, formed with a threaded shank, H, and having the central opening, *a*, bifurcated portion *b*, and recesses *c d*, of the hook C, provided with the T-shape bearing-head *f*, constructed to fit and oscillate loosely in the holder, substantially as and for the purpose described.

310,870. REVOLUBLE JOINT FOR SCREW VALVE-STEMS. JAMES H. BLESSING, Albany, N. Y. Filed July 1, 1884. (No model.)



Claim.—The combination, with a screw-stem, A, provided with a circular flange, *a*, and a valve, B, provided with a central stud, *b*, having a circular flange, *b'*, as herein described, of a split coupling, C, adapted to engage with the flanges *a* and *b'*, and secured in place substantially as herein specified.

310,871. SPINDLE-SUPPORTING BOLSTER AND STEP. J. BOOTH, Central Falls, assignor to Stephen A. Jenks, Lincoln, R. I. Filed Oct. 5, 1883. (No model.)

Brief.—The outside of the bolster is tapered from the line of the band-pull to each end thereof, and is provided with a pin or projection at said line. An oil-groove extending from its top to the spindle-step is formed on its inner face, and one or more passages connect this with the bolster-case. The bolster fits loosely in the bolster-case and rests on a ball in the bottom thereof, its pin or projection fitting into a groove provided in the bolster-case to receive the same and to prevent it from turning with the spindle.



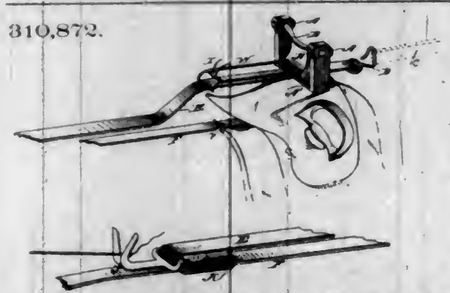
Claim.—In combination, the bolster C, tapered at *c c'*, and having an oil-groove, *e*, and oil-passages *h*, pin or projection P, the bolster-case closed at bottom and positively engaging said pin or projection to prevent rotation of the bolster in its case, the plate *f*, and bolster-rest F, substantially as described.

310,872. DEVICE FOR CHECKING HORSES. CHARLES A. BRADFORD, Peru, N. Y. Filed Oct. 13, 1884. (No model.)

Claim.—1. The combination, with the clamp-frame and check-dog, of the double frame W, having fork I, and the check-strap E, having hook D, substantially as specified.

2. The combination, with the clamp-frame with check-dog, the double frame W, having fork I, and the check-strap E, having hook D, of the back-strap F, slide K, and hook J, substantially as specified.

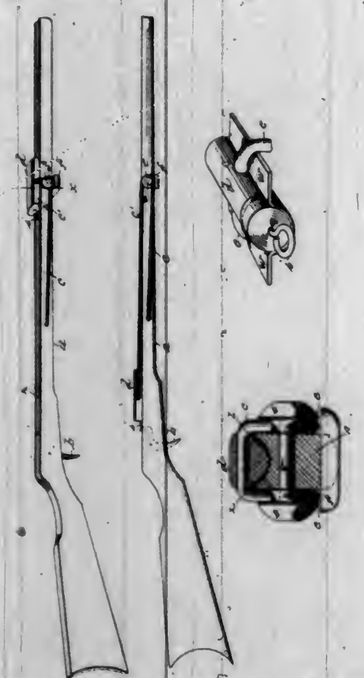
310,872.



3. The combination, with the clamp-frame and check-dog, of the frame or lever W, formed with a projection and connecting with the dog, the check-strap E, passing through the frame and clamp-frame beneath the said dog, and the check-rein connecting with the strap E, arranged and operating so that by placing a whip or like article in the projection of the frame W the latter is drawn backward to raise the check-dog from the check-strap and allow the horse to lower his head, as set forth.

4. The back or crupper strap, in combination with the check-strap having a sliding loop at its rear end, working on the back-strap, a projection or loop, J, connected to the check-strap, and the check-dog and check-rein, as and for the purpose set forth.

310,873. TOY SPRING-GUN. MILTON BRADLEY, Springfield, Mass. Filed June 20, 1884. (No model.)

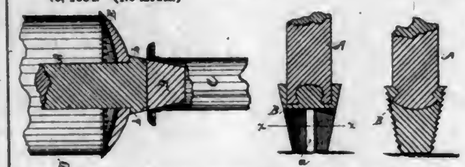


Claim.—1. In a toy gun, a stock having cord-rollers hung on each side thereof, an elastic driver-cord having its ends secured to the stock between said rollers and the breech of the gun, and a driver engaging with said cord and provided with laterally-extending lips between the cord and the stock, combined and operating substantially as set forth.

2. In a toy gun, a stock having cord-rollers hung on each side thereof, an elastic driver-cord having its ends secured to the stock between said rollers and the breech of the gun, a driver engaging with said cord, and a cord-bar secured to the stock under the roller-shaft, combined and operating substantially as set forth.

3. In a toy gun, a stock having cord-rollers hung on each side thereof, and a driver, substantially as described, and an elastic braid-covered driver-cord adapted to pass over said rollers and engaging with the driver, having a portion of its surface coated with an elastic cement, combined and operating substantially as set forth.

310,874. CANDLE. HENRY L. BREVOORT, Brooklyn, N. Y. Filed Oct 10, 1884. (No model.)



Claim.—1. A candle provided with a butt or end of different material than that of the candle, and being an integral part thereof, adapted to enable the same to be fitted into a candle stick or holder having a diameter different from that of the candle, substantially as described.

2. A candle provided with a butt or end of different material than that of the candle, and being an integral part thereof, adapted to enable the same to be fitted into a candle stick or holder having a diameter either larger or smaller than that of the candle, substantially as described.

3. A candle provided with a butt or end of different material than that of the candle, and being an integral part thereof, firmly attached to the candle, and having a tapering exterior, substantially as described.

4. A candle and a butt or end of different material than that of the candle, and being an integral part thereof, attached firmly to each other, having a tapering and a roughened exterior, substantially as described.

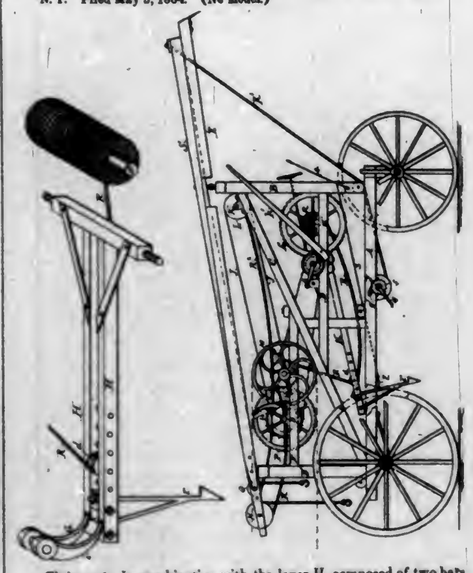
5. A candle and a butt or end of different material than that of the candle, and being an integral part thereof, attached firmly to each other, the said butt or end having a springy or yielding action to enable it to more firmly fit and retain its position in the candle stick or holder, substantially as described.

6. A candle and a butt or end of different material than that of the candle, and being an integral part thereof, attached firmly to each other, the said butt or end having a roughened exterior and a springy or flexible action, substantially as described.

7. A candle provided with a butt or end of material other than that of the candle, and forming an integral part of the said candle, the butt or end being provided with a flange to enable it to catch the grease which runs down the outside of the candle, substantially as described.

8. A candle provided with a butt or end of material other than that of the candle, and forming an integral part of the said candle, the butt or end being provided with a flange to enable it to catch the grease which runs down the outside of the candle, in combination with a ridge formed on the inside of the flange, and provided with holes adapting it to hold a chimney, substantially as described.

310,875. WELL-DRILLING MACHINE. WM. E. BROWN, Elbridge, N. Y. Filed May 3, 1884. (No model.)

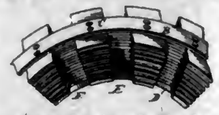


Claim.—1 In combination with the lever H, composed of two bars carrying between them the sheave *d*, the two cams G G, bearing on said lever respectively at opposite sides of the sheave, substantially as described and shown.

2. The combination, with the lever H, of the hook *r* and latch *t*, substantially as and for the purpose shown and described.

3. In combination with the rope-shaft *a'* and shaft *a*, geared to transmit motion to the shaft *a'*, the pinion *e*, and the worm *e'*, pivoted to an oscillatory bearing, and adapted to be thrown in and out of connection with the said pinion, substantially as and for the purpose set forth.

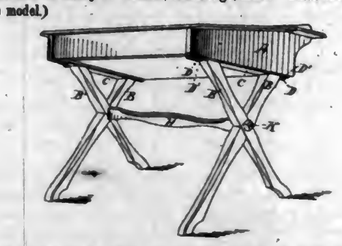
310,876. ARMATURE FOR DYNAMO-ELECTRIC MACHINES. C. F. BRUSH, Cleveland, Ohio. Filed May 13, 1884. (No model.)



Claim.—1. An armature-ring formed of bands or strips of iron of different widths, the bands or strips being cut away to form bobbin-spaces, substantially as set forth.

2. An armature-ring formed of alternate layers of wide and narrow band-iron, the wide bands being cut away at the bobbin-spaces to the width of the narrow bands.

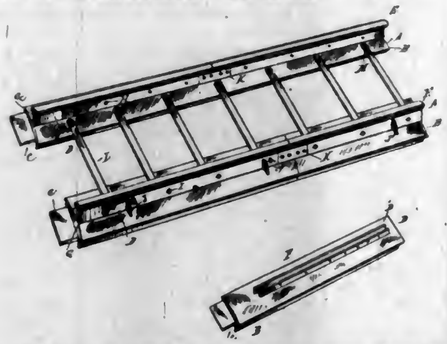
310,877. DESK. DAVID N. BUTTERFIELD, New Boston, N. H., assignor of one-half to Henry F. Willard, Cambridge, Mass. Filed May 5, 1884. (No model.)



Claim.—In a child's desk, the combination of the cross-bar H, the supports B B', and the plate C, nicked as shown, with the screws D D and the body A of the desk, all constructed substantially as described, and for the purpose set forth.

310,878. RAILWAY. JOHN T. CAMPBELL, Easton, Ill. Filed June 4, 1884. (No model.)

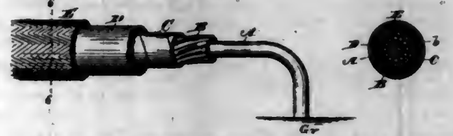
Brief.—The sleepers have vertically-depending flanges on their under faces, and projections on one end fitting between the said flanges of the next adjoining section. On the upper faces of the sleepers flanges are formed to inclose and hold the web of the rails.



Claim.—1. The combination of the sleepers having the vertical depending flanges B on their under faces at the sides, and the rectangular projections C, extending beyond one end of the sleepers, between the flanges and below the upper edge of the base portion of the said sleepers, the projection of one section fitting within the space between the flanges of the other section, so that the upper face of the two sleepers will be flush and in a line with each other, as set forth.

2. The combination, with the sleepers having the vertical depending flanges B B on their under faces, near the side edges of the sleepers, and the projections C at one end thereof, the projection of one sleeper fitting neatly between the flanges of the adjoining sleeper, and flanges D D', extending along the middle portions of their upper faces, but not to the ends, of the rail having its web inclosed by the flanges D D', bolts and nuts for holding the rail in place, and rail-joints for connecting the several sections, the fish-plates K of said joints occupying the space on the sleepers left by the flanges D D', as and for the purpose set forth

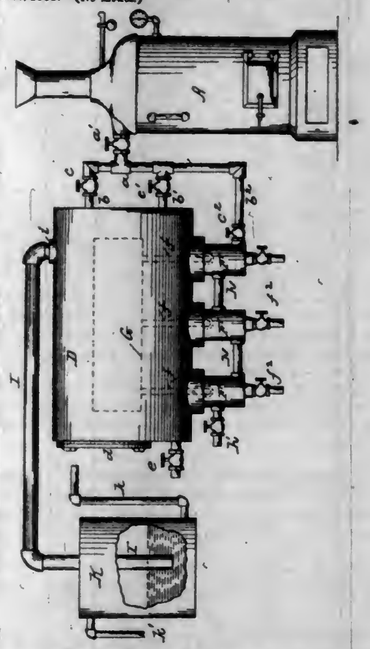
310,879. ELECTRICAL CABLE. HENRY A. CLARK, Boston, Mass. Filed Feb. 18, 1884. (No model.)



Claim.—1. An electrical conducting-cable consisting of a central naked conducting-core, a series of independently-insulated wires wound spirally thereabout, a conducting-strip of foil or thin sheet metal applied thereover, and a braided or woven fibrous jacket inclosing and protecting the wires and foil, the inner core and the foil or sheet metal being adapted to be connected to the earth, substantially as described.

2. An electrical conducting-cable consisting of a naked conducting-core, a series of wires each independently insulated and spirally wound around the core, a strip of foil or other thin sheet conductor wound or folded thereupon, a coat of insulating material placed over and around the foil or sheet conductor, and a braided or woven fibrous protecting-jacket inclosing the whole structure, substantially as described.

310,880. APPARATUS FOR PRESERVING WOOD. EDWARD Z. COLLINGS, Camden, N. J., and CHARLES F. PIKE, Philadelphia, Pa. Filed Sept. 24, 1883. (No model.)



Claim.—1. In combination with a treating-chamber having a radiator, a pocket or pockets below and opening directly into said treating-chamber, and provided with a radiator and steam-pipe connections for said radiators, substantially as described.

2. In combination with a treating-chamber having a radiator, a pocket or pockets for holding the supply of preservative agents, and each provided with an outlet, *f*², and heating-coil and steam-pipe connections for said treating-chamber and radiators, substantially as described.

3. In combination with the chamber D, the radiators E and H, pockets F, and pipes or branches *b*, *b'*, and *b*², substantially as described.

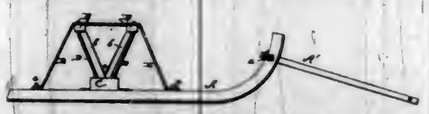
4. The combination of chamber D, having a pocket or pockets, F, with connections to tank G, and radiators H, having pipe-connections for heat, substantially as shown and described.

5. An apparatus for treating wood to preserve it from decay, comprising a receiving-chamber with steam-connections, a steam-radiator located therein, a pocket or pockets below said radiator for holding a preservative material, and a steam-radiator for vaporizing the latter, substantially as described.

6. In an apparatus for preserving wood, the combination of a heating device having valved pipes *b*, *b'*, and *b*², chamber D, having steam-radiators E, a pocket or pockets, F, radiators H, and tank K, constructed and arranged substantially as described.

7. An apparatus for treating wood, comprising a receiving-chamber with steam-connections, a steam-radiator located therein, a pocket or pockets below said radiators for holding the preservative material, a steam-radiator for vaporizing the latter, and a condenser connected with the escape-pipe I of the receiving-chamber, substantially as described.

310,881. BOB-SLEIGH. STANLEY M. CRITES, Pipestone, Mich. Filed Apr. 25, 1884. (No model.)

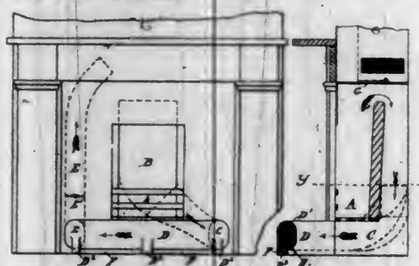


Claim.—1. In a bob-sleigh, the combination, with the runners A, of the two cross-beams B, having their knees supported from a single point upon the runners, substantially as and for the purpose set forth.

2. The cross-beams B B, having their knees *b b* brought together at their lower ends, in combination with the socket or casting C and the Y-shaped brace *c*, substantially as and for the purpose set forth.

3. The runners A A and tongue or reach A', secured by nuts *a*, in combination with the cross-beams B, knees *b*, brace *c*, socket C, and braces D and E, all constructed and arranged to operate substantially as and for the purpose set forth.

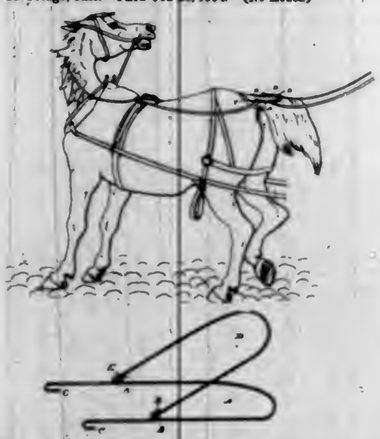
310,882. FIRE-PLACE. WILLIAM CROOK, Salisbury, England. Filed Mar. 26, 1884. (No model.)



Claim.—1. The combination, with an open or closed stove or range, of a flue located to the rear thereof, and extending out to the front at the bottom, the hollow fender connecting therewith, having deflector H and diaphragm D^3, and the flue E, for carrying off the products of combustion, substantially as described.

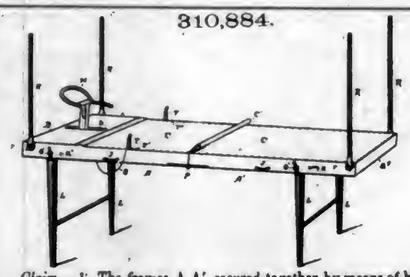
2. The combination, with the hollow fender having the back or deflector H, of the diaphragm D^3, forming a space, whereby the circulation of air to the fire is facilitated, substantially as and in the manner described.

310,883. REIN SUPPORTER AND PROTECTOR. JAMES A. CUSHWA, Isle St. George, Ohio. Filed Oct. 28, 1884. (No model.)



Claim.—The rein supporter and protector herein described, consisting of the wires A and D, hinged together and provided with the hooks C C, substantially as specified.

310,884. COOLING AND EMBALMING TABLE. THOMAS H. DE MOTTE, Eureka, Ill. Filed July 14, 1884. (No model.)



Claim.—1. The frames A A', secured together by means of hinges P, and canvas *c*, stretched laterally over said frames tightly, but having the flap *c'* over the joint between said frames for the purpose set forth, in combination with the legs L, pivoted to the side bars of said frames, substantially as and for the purpose specified.

2. The frames A A', secured together by means of hinges P, and canvas *c*, stretched laterally over said frames tightly, but having the flap *c'*, in combination with the legs L, the radially-corrugated disks M, having ears *m*, and the radially-corrugated disks N, having ears *n*, the bolts O and set-nuts O', whereby said legs are pivoted to said frames and fastened firmly at any desired points of angular adjustment, as set forth.

3. The pivotally-united frames A A', canvas *c*, having flap *c'*, and the board B, in combination with the legs L, and the head-rest H, adapted to be vertically and longitudinally movable upon said board, substantially as and for the purpose specified.

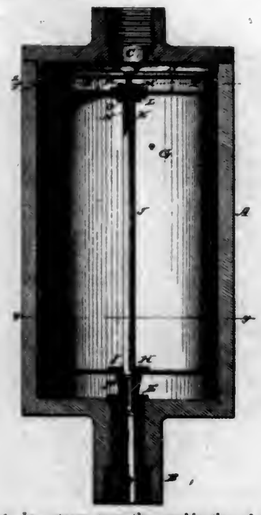
4. The pivotally-united frames A A', canvas *c*, having flap *c'*, and the legs L, pivotally secured to said frames, in combination with the rods R, pivoted to said frames by means of the bolts and nuts *r*, substantially as and for the purpose described.

5. The pivotally-united frames A A', canvas *c*, having flaps *c'*, and the slotted board B, in combination with the legs L, pivotal bolts O, head-rest H, having supporting-post E, adapted to be raised and lowered and longitudinally moved in said slot of the board B, the rods R, and bolts and set-nuts *r*, as and for the purpose set forth.

6. The head and neck rest H, and post E, supporting the same, in combination with the block D, in an opening through which said post is vertically adjustable, and the slotted board B, beneath which said block is movable, as and for the purpose described.

7. In combination with the board B of a cooling-table, the slot *b* in said board, ways *d*, block D, movable in said ways, post E, projecting through said slot and vertically movable in said block, the plate *f*, notched bar F, repressible within a longitudinal groove in said post, and the head-rest H, secured at the upper extremity of said post, for the purpose specified.

310,885. STEAM-TRAP. JAMES DINELOW, Wilmington, Del. Filed Apr. 10, 1884. (No model.)

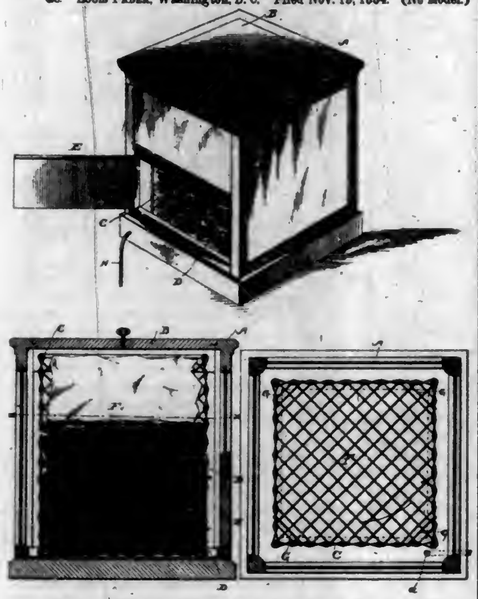


Claim.—1. In a steam-trap, the combination of an outer casing provided with a valve-seat at the outlet-aperture, a float having a perforated plug at its lower end fitting upon the said valve-seat, and a rod fitting with its lower end in the upper end of the perforated plug of the float, secured to the flexible top plate of the float, and having means for

connecting the interior of the float with the space around the same, as and for the purpose shown and set forth.

2. In a steam-trap, the combination of the casing having the outlet-pipe at its bottom, forming a valve-seat, having the inlet-pipe at its top, and having a plate perforated at its edge and perforated at its center, secured below the inlet, the cylindrical float having a perforated plug at its bottom, forming a valve-seat at its inner side, the valve-rod fitting with its lower end upon the valve-seat in the perforated plug secured in the top plate of the float, and having a threaded recess and bent perforation at its upper end, and the threaded plug having a longitudinal groove and an upwardly-projecting rod, as and for the purpose shown and set forth.

310,886. REFRIGERATOR FOR PRESERVING OYSTERS, CLAMS, &c. LOUIS FABER, Washington, D. C. Filed Nov. 15, 1884. (No model.)



Claim.—1. In a refrigerator for oysters, &c., the combination, with the outer box or casing, of the inner receptacle for the oysters, a removable bottom provided in the upper end of the latter, and the ice resting on the bottom, the water melting from the ice trickling through the bottom and oysters down to the bottom of the box, where it is carried off, as and for the purpose set forth.

2. In a refrigerator for oysters, the combination, with the outer box or casing, of the inner receptacle for the oysters, and a false bottom provided in the upper end of the latter a suitable distance from the top to receive a supply of ice, as set forth.

3. In a refrigerator for oysters, the combination, with the outer casing or box, of the inner receptacle for the oysters, having an opening formed in one side, the ice supported at the upper end of the receptacle, and a door provided in the outer box or casing on a line with the opening in the receptacle, as and for the purpose set forth.

4. In a refrigerator for oysters, &c., the combination, with the outer casing or box, of the inner receptacle for the oysters, constructed of wire interlaced, twined, or otherwise secured together, and having means for supporting the ice at the upper end thereof, as set forth.

5. In a refrigerator for oysters, &c., the combination, with the outer casing or box, of the inner receptacle for the oysters, constructed of an open frame-work or provided with openings in a solid frame-work, and a bottom supported at the upper end of the receptacle and similarly constructed, as and for the purposes set forth.

6. In a refrigerator for oysters, &c., the combination, with the outer casing or box having an opening at its upper end closed by a cover, of the inner receptacle disposed within the box or casing, and a bottom supported at the upper end of the receptacle, as set forth.

7. In a refrigerator for oysters, &c., the combination, with the outer box or casing provided with a door, of the inner receptacle arranged within the box or casing, a false bottom supported at the upper end of the said receptacle, an opening in one side of the latter, and a pipe communicating with the bottom of the box for carrying off the waste water, as set forth.

8. In a refrigerator, the combination, with the outer casing or box, of the inner receptacle, wire braces or supports attached to the sides of the latter at the corners, and a false bottom resting on the braces or supports, as set forth.

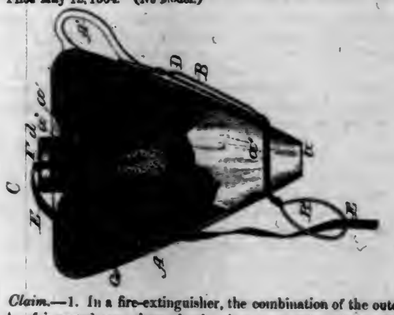
9. In a refrigerator, the combination, with the outer box or casing, of the inner receptacle for containing the oysters, constructed of an open frame-work, as and for the purpose set forth.

10. In a refrigerator, the combination, with the outer casing or box, of the perforated false bottom supported within the box or casing, and receiving the ice, the oysters being placed in the space below the false bottom, and the water melting from the ice trickling through the oysters to the bottom of the casing, where it may be drawn off, as set forth.

310,887. FIRE-EXTINGUISHING COMPOUND. JOHN M. GIBLIN, Sheboygan, Wis. Filed Aug. 18, 1884. (No specimens.)

Claim.—A fire-extinguisher consisting of a closed vessel, of glass or analogous frangible material, containing sulphurous oxide liquefied by previous cold and pressure, substantially as set forth.

310,888. FIRE-EXTINGUISHER. JOHN M. GIBLIN, Sheboygan, Wis. Filed May 12, 1884. (No model.)



Claim.—1. In a fire-extinguisher, the combination of the outer vessel, A, of inverted-cone shape, having its upper surface deflected or inclined toward the center, and there provided with a neck rising only as high as the outer edge of the top, and provided with the cap F, substantially as set forth.

2. The combination of the outer vessel with neck a^2, apertured cork C, receptacle D, with tube *d*, sustained within the aperture of the cork, and fuse E, substantially as set forth.

3. The combination of the outer vessel with neck a^2, cork C, receptacle D, fuse E, and cap F, having hole *f*, substantially as set forth.

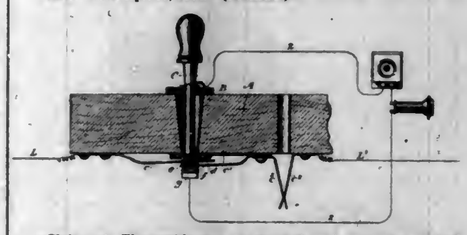
4. The combination of the outer vessel having handle A' on one side near the top, and exterior groove, a^3, near the bottom, with the wire or cord B, extending from the handle down one side to the groove and then around in said groove and terminating in the loop B' on the side and at the end opposite to the handle A', substantially as set forth.

310,889. FIRE-EXTINGUISHING COMPOUND. JOHN M. GIBLIN, Sheboygan, Wis. Filed Aug. 4, 1884. (No specimens.)

Claim.—1. A fire-extinguishing compound consisting of sulphurous oxide dissolved in an ammoniacal liquid in a closed vessel, substantially as set forth.

2. A fire-extinguisher consisting of a tightly-closed vessel of frangible material containing sulphurous oxide dissolved in an alkaline liquid, substantially as set forth.

310,890. SWITCH-BOARD. FRANK W. HARRINGTON, Charlestown, Mass. Filed Apr. 19, 1884. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, with a telephonic main line, of a contact-spring and its contact-point included in the circuit of said line, a local telephonic conductor and telephonic apparatus included therein, a switch-pin in electrical connection with one terminal of said local conductor, a contact plate or point in electrical connection with the other terminal of said local conductor, a flexible spring applied to the last-named point, which spring is in electrical connection with one portion of said main line, and is adapted to be placed in contact with said point through the action of said switch-plug after

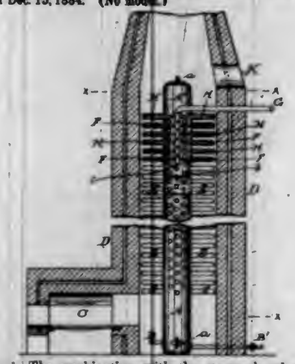
said plug has interrupted the normal connections of said main line, substantially as described.

2. The combination, substantially as hereinbefore set forth, of the plug C, the spring *c*, the point *d*, the spring *f*, the point *g*, and the circuit-connections of the same, substantially as described.

3. The combination, substantially as hereinbefore set forth, with a telephone main line and the central-office instruments, of a contact-spring connected with said main line, a resting contact-point, through which the normal connections of said main line are completed from said spring, a contact-point in electrical connection with one terminal of the conductor including said instruments, a switch-plug connected with the other terminal of said conductor, which plug, when caused to impinge against said spring, completes an electrical connection therewith and separates the same from said resting contact-step, and also places said resting-stop in electrical connection with the remaining contact-point.

4. The combination, substantially as hereinbefore set forth, in a switch-board, of a flexible circuit-closing spring, a flexible contact-spring applied thereto, two contact-points which are respectively applied to said circuit-closing and contact springs, means for preventing said springs from making electrical connection with each other, and a switch-plug which, by impinging against said circuit-closing spring, serves to separate the same from its contact-point and to force said contact-spring against its contact-point.

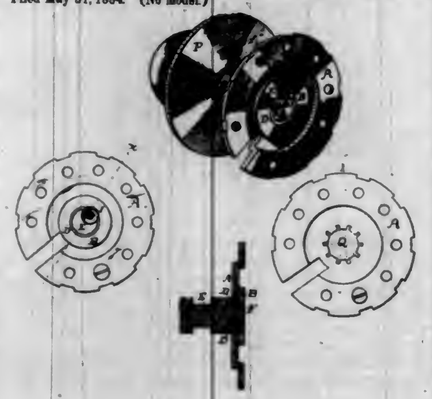
310,891. **STEAM-BOILER.** MILTON W. HAZELTON, New York, N. Y., assignor of one-half to F. S. T. Kennedy, same place. Filed Mar. 6, 1884. Renewed Dec. 15, 1884. (No model.)



Claim.—1. The combination, with the steam-chamber of a boiler and the steam-delivery pipe closed at its inner end, of a series of tubes with closed outer ends radiating from the steam-chamber into a hot-air chamber, and a series of smaller open-ended tubes radiating from the steam-delivery pipe into the said steam-chamber tubes, substantially as and for the purposes set forth.

2. The method substantially as herein described of drying or superheating steam, consisting in subdividing the mass of steam into many distinct and individual columns or jets and exposing them to heat by causing the steam from the steam-chamber to enter a series of tubes radiating therefrom, and then to pass into tubes that radiate from the steam-delivery pipe into the steam-chamber tubes, and thence into the steam-delivery pipe, said steam-chamber and the tubes radiating therefrom being exposed to heat in a hot-air chamber, as set forth.

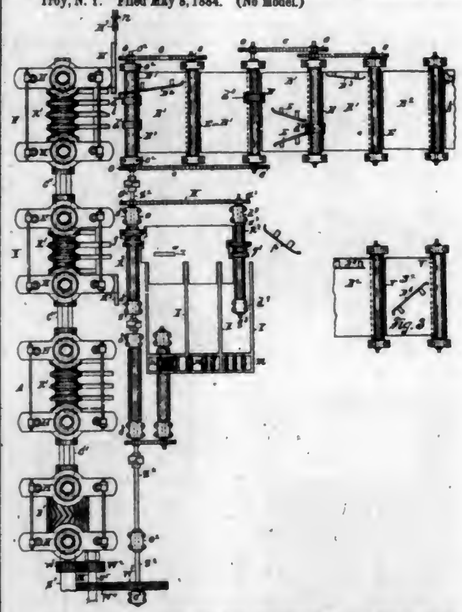
310,892. **PERMUTATION-LOCK.** CHARLES HILL, Los Angeles, Cal. Filed May 31, 1884. (No model.)



Claim.—1. In a permutation-lock, the following elements: the true arbor E, the false arbor D, adapted for attachment to the true arbor and having pintles or projections O thereon, as shown, and the driving-tumbler having around its nave notches corresponding in size to the pintles O, all being in combination with each other, substantially as and for the purpose set forth.

2. The combination, in a permutation-lock, of the true arbor E, false arbor D, notched tumbler A, and locking-washer B, substantially as and for the purpose set forth.

310,893. **FEEDING-TABLE FOR ROLLING-MILLS.** ROBERT W. HUNT, Troy, N. Y. Filed May 8, 1884. (No model.)



Claim.—1. In an automatic feed attachment to a rolling-mill, the combination of the inclined platform or slideway I, arranged with reference to the roughing-rolls, as shown, the conveying-rollers R^2 and R^3, constructed to turn with parallel rotation, and with the upper part of said rotation directed toward the train, the guide *h*, stop T, and the guide-plate *p*, with the said parts constructed and arranged to operate substantially in the manner as and for the purposes set forth.

2. In an automatic feed attachment to a rolling-mill, the combination of the inclined platform or slideway I, arranged with reference to the roughing-rolls, as shown, the conveying-roller R^2, made with the grooved collar g^2, the roller R^3, made with the grooved collar g', the guide *h*, the stop T, and the upwardly-projected guide-plate *p*, with the said parts constructed and arranged to operate substantially in the manner as and for the purposes set forth.

3. In an automatic feed attachment to a rolling-mill, the combination of the inclined platforms B', the roller E, the collars d' d^2, and the guide-plates L L, said parts being constructed and arranged to operate substantially in the manner as and for the purposes set forth.

4. In an automatic feed attachment to a rolling-mill, the combination of the inclined platforms B', the rollers E, and the guides *l* and l^2, with the said parts constructed and arranged to operate substantially as and for the purposes set forth.

5. In an automatic feed attachment to a rolling-mill, the combination of the inclined platforms B', the rollers E, the collars d' d^2 d^3 d^4, the guides *l* l^2, with the said parts constructed and arranged to operate substantially in the manner as and for the purposes set forth.

6. In an automatic feed attachment to a rolling-mill, the combination of the inclined platforms B', the rollers E, the collars d' d^2 d^3 d^4, the guides L L, with the said parts constructed and arranged to operate substantially in the manner as and for the purposes set forth.

7. In an automatic feed attachment to a rolling-mill, the combination of the inclined platforms B', the rollers E, collars d' d^2 d^3 d^4, guides *l* l^2, plates L L, and guide-plate D^2, with said parts constructed and arranged to operate substantially in the manner as and for the purposes set forth.

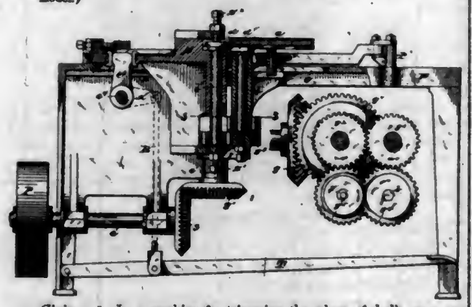
8. In an automatic feed attachment to a rolling-mill, the combination of the rollers E, actuated to turn with a parallel rotation, that in its upper circumference is toward the train, the inclined platforms B', the friction-rollers V, the inclined platforms B^2, and deflecting-plate D^2, with

said parts arranged with reference to each other, and constructed to be operated substantially in the manner as and for the purposes set forth.

9. In combination with an automatic feed mechanism for a rolling-mill, the stop N, arranged in front of the lower pass-openings of the train rolls, and constructed to operate substantially in the manner as and for the purposes set forth.

10. In an inclined platform or slideway for a rolling-mill train, the friction-rollers *m*, arranged in the upper edge of the said platform, as and for the purposes set forth.

310,894. **TRIMMING-MACHINE.** EDMUND JORDAN, Brooklyn, N. Y., assignor to Eliphalet W. Bliss, same place. Filed May 2, 1884. (No model.)

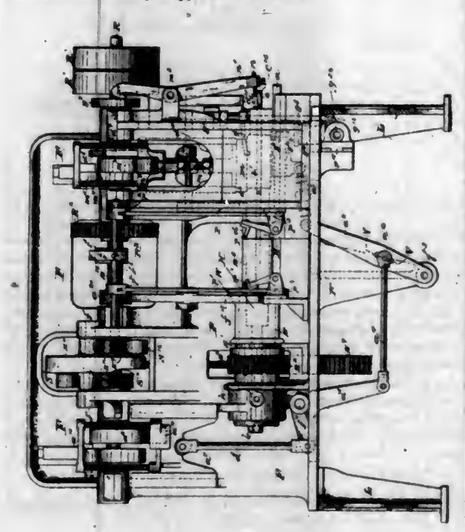


Claim.—1. In a machine for trimming the edges of shells, cups, or other articles made of sheet metal, pasteboard, paper, or other material, the following combination: first, two reciprocating cutters revolving in opposite directions; second, mechanism whereby one of the cutters receives an outward and an inward motion while rotating, for placing the article to be trimmed in the machine and performing the work of trimming; third, a movable carrier holding a plate or disk on which the article to be trimmed is placed.

2. In a machine for trimming the edges of shells, cups, or other articles made of sheet metal, pasteboard, paper, or other material, a circular cutter, *d*, on shaft *b'*, carried and rotated in movable slide S, cutter d' on shaft *b*, suitable means for rotating the cutters in opposite directions, and means for actuating the disk S, combined with a carrier, a^3, and a plate or disk, *a*, upon which to place the article to be trimmed, as and for the purposes stated.

310,895. **MACHINE FOR FORMING AND SEAMING SHEET-METAL TUBES.** EDMUND JORDAN, Brooklyn, N. Y., assignor to E. W. Bliss, same place. Filed May 15, 1884. (No model.)

Brief.—Sheets of metal with hooks turned on their ends are fed to a former, which wraps them about a mandrel or horn. The sheets are then moved along the graduated portion of the horn, which locks the hooks. The body so formed is thence moved under a die which closes the seam, and is finally stripped from the horn.



Claim.—1. In a machine for forming tubes from sheet metal, a grooved horn having different diameters, with a graduated surface from the larger to the smaller diameter, in combination with suitable means for forming sheet metal round the smaller diameter, and means for moving it on to the larger diameter of the horn.

2. In a machine for forming sheet-metal tubes, a horn having different diameters, with a graduated surface from the smaller to the larger diameter, with longitudinal grooves in the same, provided with suitable means for forming the sheet metal round the smaller diameter of the horn, in combination with a moving slide carrying a stripping device constructed to engage with the longitudinal grooves of the horn, for moving the tubes from the smaller to the larger diameter of the horn to expand the tubes.

3. In a machine for forming and seaming sheet-metal tubes, a horn having different diameters, with a graduated surface from the smaller to the larger diameter, provided with suitable means for wrapping the sheet metal round the smaller diameter of the horn, in combination with a moving slide carrying a stripping device for moving the tubes from the smaller to the larger diameter of the horn, for expanding the tubes, and moving force to close the seam when the tube is expanded on the horn.

4. In a machine for forming and seaming sheet-metal tubes, the following mechanical combinations: a horn having different diameters, with a graduated surface between the different diameters, to allow the sheet metal to be wrapped on the smaller diameter of the horn, so as to permit the hooks on the seam to lap and hook; a device operating to move the tubes on the longitudinal diameter of the horn and expand the same, lock the hooks, and strip the tubes from the horn; a device to keep the hooks locked when the tube is being moved and expanded on the horn; a device to even the edges of the tube; a force to close the seam when the tube is expanded and the edges evened, and a device for stripping the tubes from the horn after the seam is closed.

5. In a machine for forming sheet-metal tubes, a horn having different diameters, the horn having also a graduated surface from the smaller to the larger diameter, to allow the hooks on the sheet metal to lock during wrapping, with a graduated surface from the smaller to the larger diameter for expanding the tube to the required size, a former constructed and arranged to bend the sheets around the smaller portion of the horn, with its hooks overlapped, in combination with a force to close the seam on the horn.

6. In a machine for forming and seaming sheet-metal tubes, a horn having two diameters, with a graduated surface from the smaller to the larger diameter, the smaller diameter of the horn being of sufficient size to allow the sheet metal provided with hooks to be wrapped on the horn and to allow the hooks to overlap, a former to wrap the sheet metal on the horn, a carrier to move the tubes on the horn from the smaller to the larger diameter to expand the same, a force to close the seam of the tube while on the horn after the tube is expanded, combined and arranged substantially as stated.

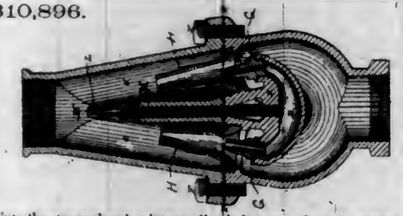
7. A machine for forming and seaming sheet-metal tubes having a horn of different diameters, with a graduated surface from the smaller to the larger diameter, to expand the same and lock the seam, a former to wrap the sheet around the smaller diameter, of the horn, with its hooks overlapped, a device to even the edge of the tube when moved on to the larger diameter of the horn, a device to move the tube on to the larger diameter of the horn under the force, a guide to hold the lock-seam when the tube is being moved under the force, a force to close the seam when the tube is expanded on the horn, a device to strip the tube from the horn, and an automatically-divided feed-table, to allow the sheet metal to drop in position to be wrapped on the horn and to close after the former commences its work, combined and arranged substantially as described, for the purposes stated.

8. A machine for forming sheet-metal tubes having a horn of different diameters, with a graduated surface from the larger to the smaller diameter, the larger diameter being provided to expand the tube and lock the seam, a former to wrap the sheet around the smaller diameter of the horn, where its hooks overlap, a device to even the edges of the tube when moved on to the larger diameter of the horn, a device to move the tubes on to the larger diameter of the horn under the force, a guide to hold the lock-seam when the tube is being moved, a force to close the seam when the tube is expanded, a device to strip the tube from the horn, combined and arranged substantially as described, for the purposes stated.

310,896. **EJECTOR-PUMP.** HENRY KLEINMAN, Allegheny, Pa. Filed June 4, 1884. (Model.)

Claim.—1. In an ejector steam-pump, the combination of the branch pipes C C, separated by a central partition or web, I, but having free communication with each other at the ends where the suction and discharge pipes A D are connected, water-nozzles secured within each branch pipe, a steam-chamber, B, formed at the base of the partition or web and opening into each branch pipe below the water-nozzles, and a steam-pipe, K, arranged within the central partition or web, I, and open-

310,896.

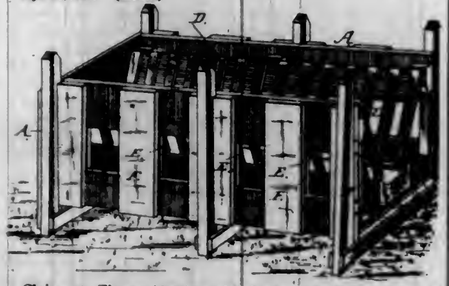


ing into the steam-chamber intermediately between the outer ends thereof, as and for the purpose set forth.

2. In an ejector steam-pump, the combination, with the branch pipes C C, separated by a central web, I, but having free communication with each other at the ends where the suction and discharge pipes A D are connected, and water-nozzles H, secured within the branch pipes on each side of the web, of a steam-chamber, B, formed at the lower end of the web and opening into each branch pipe, an inlet, N, for supplying said chamber with steam, nozzles G, secured on the outlet ends of the steam-chamber and opening into the lower ends of the water-nozzles, and a steam-pipe, K, fitted in a central opening of the web I, and connected with the steam-chamber intermediately between the nozzles G, as and for the purpose set forth.

3. In an ejector steam-pump, the combination, with the branch pipes C C, made in two sections and connected together, said pipes being separated by a central web, I, but having free communication with each other at the ends where the suction and discharge pipes A D connect, and water-nozzles H H, screwing into the inner faces of the branch pipes and web, of the semicircular-shaped steam-chamber B, formed at the lower end of the web and extending across and connecting the two branch pipes, steam-inlet N, nozzles G G, attached to the outlet ends of the steam-chamber and extending into the lower ends of the water-nozzles, a central opening, J, provided in the web I, a steam-pipe, K, fitted in the opening and communicating with the upper middle portion of the steam-chamber, and a nozzle, L, provided at the upper end of the web I, as and for the purpose set forth.

310,897. SHEEP-RACK. EDGAR A. LEGATE, Charlemont, Mass. Filed Apr. 21, 1884. (Model.)



Claim.—1. The combination, with the frame A, of the platform B, provided with longitudinal flanges, hinged racks for long feed, and grain-troughs C, substantially as set forth.

2. A rack for feeding sheep, composed of the frame A, provided with openings in its longitudinal sides, and sliding doors for closing said openings simultaneously, one side at a time, hinged racks, an elevated platform provided with longitudinal flanges to serve as stops to the said racks, and grain-troughs arranged on opposite sides of the said elevated platform, all arranged substantially as and for the purposes set forth.

310,898. BUTTON-EYE. HENRY C. LUTHER, Providence, R. I. Filed Nov. 7, 1883. (No model.)

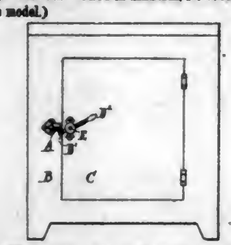


Claim.—The combination of the eye provided with the shank-wires with the involute spiral wire collar provided with openings for the reception of the shank-wires at opposite sides of the initial end of the wire coil of the collar, substantially as described.

310,899. PLASTIC COMPOUND SUITABLE FOR MOLDING INTO VARIOUS USEFUL ARTICLES, SUCH AS SCREW-STOPPERS FOR BOTTLES, JARS, &c. MURDOCH MACKAY, London, England, assignor of one-half to Richard Edward Geulden, same place. Filed June 11 1884. (No specimens.) Patented in England Nov. 20, 1883, No. 5,467; in France May 20, 1884, No. 162,249, and in Belgium May 23, 1884, No. 65,296.

Claim.—The plastic compound described, consisting of lac, gum-sandarac, rosin, ivory-black, and asbestus, or their described equivalents, in the proportions substantially as set forth.

310,900. LATCH. PAUL L. MALTBIE, Newark, N. J. Filed Apr. 5, 1884. (No model.)



Claim.—1. The combination, with the latch D′, pivoted upon the door, and provided with the handle D^2, as described, of the catch A, formed with double inclines upon its inner and outer sides, and secured upon the casing B, the catch and latch being reversible, and adapted for use at the right or left hand side of the door, substantially as herein shown and described.

2. The combination, with the catch A, constructed with the reversible double inclines, as described, of the foot-piece provided with the laterally-projecting hook or flange A′, adapted to fit inside the casing adjacent to the door, to engage the wood-work and resist the pull upon the catch, substantially as herein set forth.

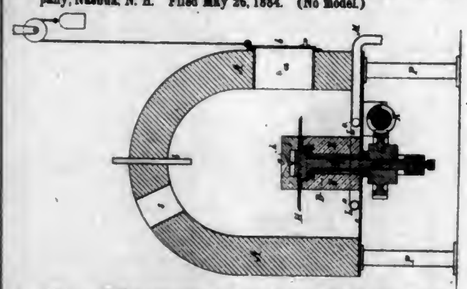
3. The combination, with the reversible latch D′, of the pivot-brace F, provided with feet at top and bottom, as described, and the reversible seat G, provided with the stop *g*, constructed to fit against the foot of the brace, substantially as shown and described.

4. The combination, with the latch D′, pivoted upon the door, and provided with the handle D^2, as described, of the reversible catch A, constructed, as herein shown and described, with the projecting tooth *a*, having the inner inclines, *c*′, united together upon the inner side of the tooth, as and for the purpose set forth.

310,901. PROCESS OF MAKING MALLEABLE FERRO-NICKEL AND FERRO-COBALT. HENRY MARBEAU, Aîné, Paris, France. Filed Mar. 20, 1884. (Specimens.) Patented in France Apr. 24, 1883, No. 155,098, and in Belgium Apr. 25, 1883, No. 61,224.

Claim.—The process above described of producing malleable ferro-nickel and ferro-cobalt by the direct employment of pigs or mats of these metals, these pigs or mats being combined at one and the same fusion with ferro-cyanide or cyanide of potassium and one of the oxides of manganese, adding at the moment of casting a small quantity of aluminium.

310,902. FURNACE FOR HEATING DISKS. ALEXANDER MCDONALD, Cambridge, Mass., assignor to the McDonald Stone Cutting Machine Company, Nashua, N. H. Filed May 26, 1884. (No model.)

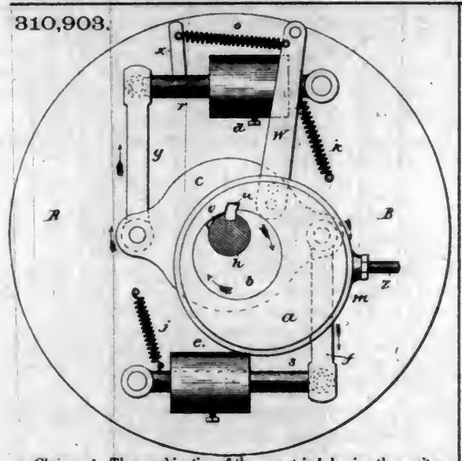


Claim.—1. The combination of the furnace shell or body provided with a hearth and mouth, a smoke-discharge opening or flue, and means of supplying such shell with air, with two concentric tubular columns extending upward from such hearth, and with a shaft or spindle going upward through and within the inner of said tubular columns, and provided with mechanism for revolving it—the said shaft or spindle—and with means of supporting on it and within the shell a metallic disk or cutter, as and for the purpose set forth.

2. The combination of the furnace with a shaft arranged within it, and having mechanism for revolving it—the said shaft—with one or more fire-resisting tubular columns concentric with such shaft, the said shaft being provided at its upper part with means of supporting a metallic disk, or such and a fire-resisting cap resting on it, as set forth.

310,903. CUT-OFF-VALVE GEAR. JOHN W. MCFARLAND, Alliance, Ohio. Filed Jan. 5, 1884. (Model.)

310,903.



Claim.—1. The combination of the eccentric *b*, having the cavity *v*, the feather *u*, and the eccentric *a*, the eccentric *b* being set inside of and at right angles with the eccentric *a*.

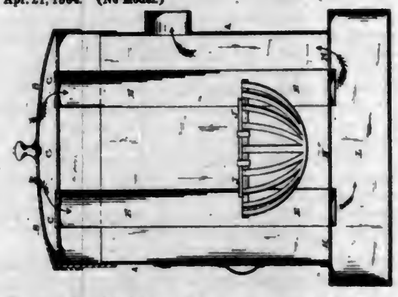
2. The combination of the eccentrics *a* and *b*, the shaft *k*, and the feather *u*, with its incline or curve, as shown.

3. The combination of the eccentric *a*, with its arm *w*, the spring *o*, feather *u*, and the projection to which the spring *o* is attached.

4. The combination, with a shaft, of an inner and outer eccentric, the outer eccentric being loosely keyed to the shaft, substantially as and for the purpose set forth.

5. The combination, with a shaft, of an outer and inner eccentric, said outer eccentric being loosely keyed to the shaft, and a governor upon the said shaft for automatically shifting the eccentrics, substantially as and for the purpose set forth.

310,904. HEATING-STOVE. PRESTON K. MCMINN, Bement, Ill. Filed Apr. 21, 1884. (No model.)



Claim.—In a heating-stove, the combination of the body A, the perforated cap B, the chamber C, and the hot-air pipes which pass down through the fire-chamber and into the chamber in the base of the stove to supply air beneath the grate, the parts being combined and arranged to operate substantially as set forth.

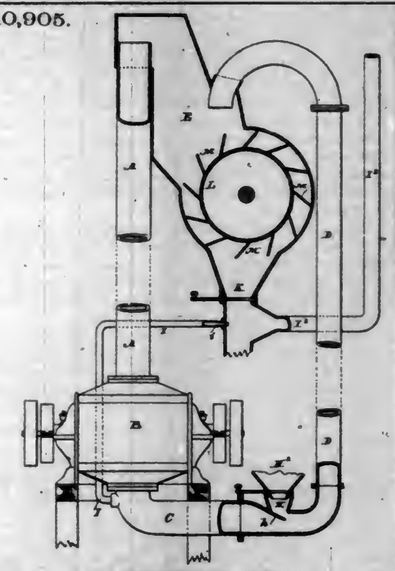
310,905. PNEUMATIC ELEVATOR FOR GRAIN. ROBERT W. MILBANK, New York, N. Y. Filed Apr. 14, 1884. (No model.)

Claim.—1. In a pneumatic elevating apparatus for grain or other material, the combination, with the blower and the pneumatic elevating-tube, of a delivery-hopper, a suction-pipe extending from the delivery-hopper to the blower, and a tube extending from the lower end of the elevating-tube to the blower, through which the air from the blower is discharged, and an opening in the said tube through which air and the material pass, and a deflector in such tube, substantially as set forth.

2. In a pneumatic elevating apparatus, the combination, with the elevator-pipe D, the hopper E, and the pipe A, of a blower for drawing the air through the pipe A, a pipe, I, with a blast-mouth near the discharge K from the hopper E, for winnowing the material as it passes away from said hopper, and the air-blast pipe C from the blower to the lower end of the pipe D, substantially as set forth.

3. The combination, with the pneumatic elevator-tube D and blower B, of the pipe A, the hopper E, the wheel L, and buckets M, substantially as and for the purposes set forth.

310,905.



310,906. BANJO. FREDERICK J. MILLER, Brooklyn, N. Y. Filed Jan. 22, 1884. (No model.)



Claim.—1. In a banjo, a rim constructed, substantially as herein shown and described, of a non-metallic material, covered and strengthened by a metallic sheathing in intimate contact with both sides of and extending over the top of said rim, substantially as set forth.

2. In a banjo, a rim composed of a non-metallic material inclosed within and filling the space between the sides of a sheet-metal case, leaving a tubular chamber around the upper edge of said rim, as and for the purposes specified.

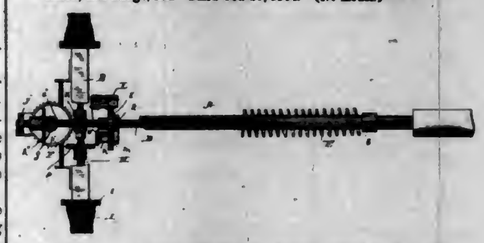
3. The combination, with a banjo head and rim, of a centrally-apertured metallic sounding-board having a downwardly-projecting flange, *g*, substantially as herein shown and described, and means for securing said sounding-board horizontally to the rim beneath the head, as set forth.

4. A banjo-rim provided with a metallic sheathing, in combination with metallic tubes passing through said rim and sheathing, and performing the double function of uniting said rim and sheathing and of serving as sound-outlets, substantially as shown and described.

5. In a banjo, the combination, with an arm, C, and hollow metallic arm prolongation C′, of vibratory helices *m*, attached to said prolongation C′, substantially as herein shown, and for the purposes described.

6. In a banjo, a hollow arm provided with transverse slots *k*, to serve the double function of guides and sound-outlets, substantially as described.

310,907. POWER-ACCUMULATOR FOR VEHICLES. LOUIS MONTGILLON, Elk Ridge, Md. Filed Oct. 29, 1884. (No model.)



Claim.—1. A draft-equalizer for vehicles, consisting of a loosely-hung carriage or frame, a system of gearing arranged therein, a suitable spring flexibly connected with relation to said gearing, a shaft at right angles to the frame or carriage, and provided with a worm, gear, and spur wheels, toothed hub-bands, and an automatic latch mechanism, all constructed and arranged to operate substantially as and for the purpose described.

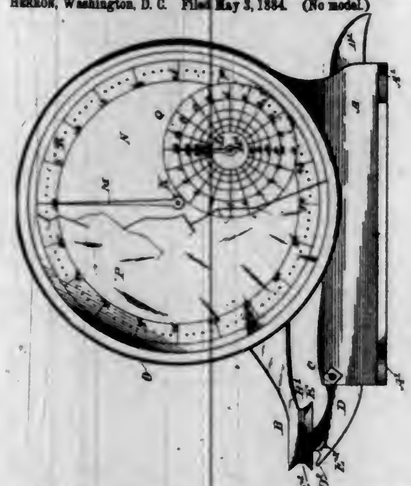
2. In combination with the rear axle, toothed hub-bands, and reach of a vehicle, a carriage or frame hung in loose bearings and containing a system of gearing, a shaft located beneath and parallel with said axle and constructed with a worm, gear, and spur wheels, a suitable spring arranged and connected with relation to the main gear of the frame or carriage, and a latch mechanism, substantially as shown and described.

3. A loosely-hung frame or carriage having a forward-extended rod and front and rear angular extensions, in combination with a system of gearing arranged, and supported therein, an automatic latch mechanism, flexibly-connected spring, a shaft provided with a worm, gear, and spur wheels, and toothed hub-bands, arranged to operate in the manner as and for the purpose set forth.

4. An automatic latch mechanism consisting of two sliding latch-pieces arranged upon an upright, a weighted lever connected pivotally to said latch-pieces, and an ear having a slot at its upper forward end and a stop upon its outer side, in combination with a frame or carriage loosely hung to the rear axle and reach of a vehicle and supporting a system of gearing, substantially as and for the purpose set forth.

5. In combination with the rear axle and reach of a vehicle, a frame or carriage loosely hung thereto and provided with a front and rear extension, a main gear-wheel, F, having a pinion, *g*, shaft *i*, gear-wheel *h l*, shaft H, constructed with worm *h*, gear-wheel *p*, and spur-wheels *q*, cog-toothed sleeve *o*, and gear *m*, toothed hub-bands *r*, forward-extended rod D, flexibly-connected spring E, and latch mechanism, all arranged to operate substantially as and for the purpose described.

310,908. THICKNESS-GAGE. EBENEZER MORRISON and JAMES P HERRON, Washington, D. C. Filed May 3, 1884. (No model.)



Claim.—1. The combination of the fixed jaw, a pivoted lever carrying a jaw, and provided with a rack adapted to mesh directly with and operate a system of gear-wheels one of which carries a pointer over a suitable scale, substantially as specified.

2. In a thickness-gage, the combination of a pivoted lever carrying one of the jaws of the gage, a system of gearing carrying a pointer over a suitable scale, and a connecting rack-bar secured directly to the lever, and having teeth formed in a circle described from an axial line of the pivot of said lever, substantially as specified.

3. In a thickness-gage, the combination of a fixed jaw, a pivoted lever carrying a movable jaw, a rack secured to the lever and adapted to operate a gear-wheel meshing with a pinion carrying a pointer over a scale, substantially as specified.

4. In a thickness-gage, the combination of a fixed jaw, a pivoted lever carrying a jaw, a system of gearing carrying a pointer over a scale, and a rack-bar secured to the longer arm of said lever, the latter being extended to form a handle, and weighted to operate the gearing by its gravity, substantially as specified.

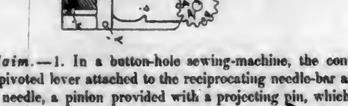
5. In a thickness-gage, the combination of a fixed jaw, a pivoted lever carrying a pivoted jaw, and having a projection, as D^2, for limiting the movement of the movable jaw, substantially as specified.

6. In a thickness-gage, the combination of a fixed jaw, a pivoted lever carrying a movable jaw and connected directly by means of a rack secured to its lower arm, with a system of gearing, comprising a pinion and gear, upon a shaft carrying a pointer over a concentric scale, and a pinion meshing with said gear and mounted upon a shaft carrying a pointer over a second scale, the scales and gearing and pivoted lever being proportioned relatively to each other, substantially as specified.

7. The combination of the case A, adapted to sustain the pivoted lever D, and the system of gearing H I J, and the rack F, and provided with the fixed jaw B, forming a part thereof, with the dial N, provided with the scales Q and R, substantially as shown and described.

8. The combination of the case A, having the fixed jaw, with the pivoted lever D, carrying the movable jaw at one end of the case and projecting from the other end of the case, as at D', substantially as shown and described.

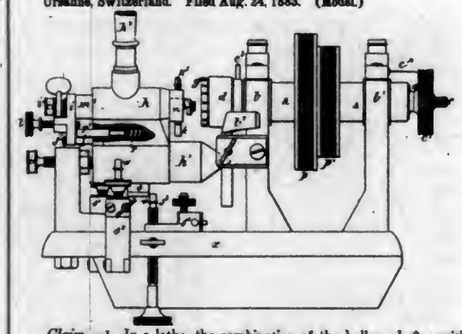
310,909. BUTTON. NELSON C. NEWELL, Springfield, Mass. Filed Oct. 31, 1884. (No model.)



Claim.—1. In a button, the combination of central face-piece of rigid material, a rim-plate, as *o*, surrounding the same and covered with textile material, a back plate, and an eyelet connecting all the parts.

2. In a button, the combination of central face-piece of rigid material, a surrounding rim of textile material suitably supported, a back plate, a filling-piece, substantially as described, and a securing-eyelet, all relatively arranged substantially as shown and described.

310,910. WATCH-CASE-GRAVING LATHE. CAMILLE PIGUERET, Saint Ursanne, Switzerland. Filed Aug. 24, 1883. (Model.)



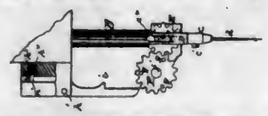
Claim.—1. In a lathe, the combination of the hollow shaft *a* with the spindle *c*, mechanism, substantially as described, for turning said shaft and said spindle jointly, and with the clasp *g*, box *d*, disk *f*, and mechanism, substantially as described, for moving the spindle *c* longitudinally independent of the shaft *a*, as specified.

2. The combination of the block *h*, shaft *h'*, and a series of pistons *m m' m^2 m^3*, with the graver-holders *k*, shaft *a*, spindle *c*, clasp *g*, box *d* disk *f*, and plates *i*, substantially as herein shown and described.

3. The combination of the pistons *m m' m^2 m^3* with the screws *l l* spring-stop *o*, and screw *o'*, substantially as herein shown and described

4. The series of stops *s*, *s'*, and s^2, arranged as described, and combined with the piston-revolver *h*, carrying the graver-holding pistons *m m'*, m^2, and m^3, substantially as herein shown and described.

310,911. BUTTON-HOLE ATTACHMENT FOR SEWING-MACHINES. GEORGE REHFUSS, Philadelphia, Pa. Filed Mar. 13, 1884. (No model.)

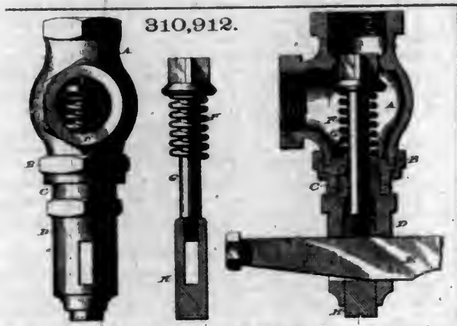


Claim.—1. In a button-hole sewing-machine, the combination, with a pivoted lever attached to the reciprocating needle-bar and carrying the needle, a pinion provided with a projecting pin, which engages with said lever, a gear-wheel engaging with said pinion and having pins upon its face, of an arm attached to the sewing-machine head and provided with a tooth, which engages with the pins upon the gear-wheel, thereby turning the same and causing the lever to vibrate, substantially as described.

2. In a button-hole sewing-machine, the combination, with the reciprocating needle-bar, a pivoted lever, D, attached thereto and carrying the needle, and a pinion, E, journaled upon a block, C, upon said needle-bar, said pinion engaging said lever, of a gear-wheel, F, having pins *g*, and a pivoted spring-arm, I, having a tooth, *i*, for engagement with said pins, substantially as and for the purpose set forth.

310,912. RELIEF-VALVE FOR STEAM-ENGINES. HALE G. ROBINSON, Sandusky, Ohio. Filed June 18, 1884. (No model.)

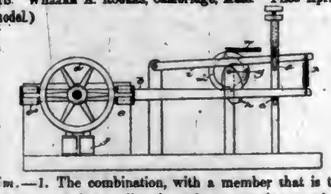
Claim.—1. In relief-valves for steam-engines, the combination of the pipe-bowl A, flanged nut B, stuffing-box C, slotted plunger-casing D,



opening-wedge E, valve-stem G, and plunger H, all constructed and operating in the manner substantially as shown and described.

2. In relief-valves for steam-engines, the combination of pipe-bowl A, flanged nut B, stuffing-box C, slotted plunger-casing D, opening-wedge E, coil-spring F, valve-stem G, and plunger H, all constructed and operating in the manner substantially as shown and described.

310,913. ELECTRO-MAGNETIC CLUTCH FOR STEP-BY-STEP MOVEMENTS. WILLIAM A. ROGERS, Cambridge, Mass. Filed Apr. 14, 1884. (No model.)



Claim.—1. The combination, with a member that is to receive successive movements in one direction, of an actuating member having a to-and-fro movement, and an electro-magnetic clamp, the two members of which clamp are without appreciable movement with relation to one another in the operation of clamping and unclamping, which is effected by changes in magnetic condition, substantially as described.

2. The combination, with the actuated member that is to receive the successive movements in one direction, and an actuating member having a determinate to-and-fro movement, of an electro-magnet connected with the said actuating member, and a stationary electro-magnet, both magnets being adapted to engage and hold by magnetic attraction the said actuated member, substantially as described.

3. The combination of a wheel or disk of magnetic material, and a liquid sustaining a portion of its weight, with an actuating device having a to-and-fro oscillating movement about the axis of the said disk, stops to limit such movement, and an electro-magnet attached to the said arm, having its poles fitted to the said wheel or disk, whereby the said disk and arm may be locked or fastened together by magnetic attraction, substantially as described.

310,914. CUTTER FOR CUTTING GLASS TUBES. EDWARD K. ROLLINS, Scranton, Pa., assignor of one-half to Alexander E. Hunt, same place. Filed May 26, 1884. (No model.)

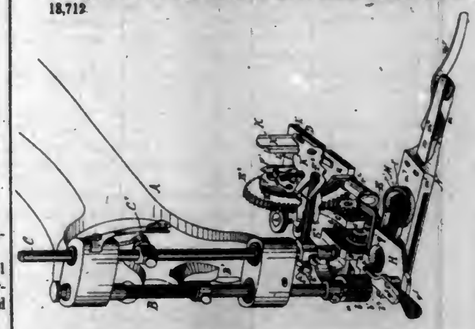


Claim.—1. A cutter for cutting glass tubes, comprising the parts A *a' a^2* and A' *a* and disk *c*, the parts A *a'* and A' *a* being crossed and pivoted together at *b*, so that by pressing together the handles *h h'* a glass tube, B, may be grasped by the disk *c* on the part A' *a* on the inside of the tube, and by the clamp-piece a^2 on the part A *a'* on the outside of the tube, substantially as and for the purpose described.

2. A cutter for cutting glass tubes, which comprises in its construction crossed and jointed operating parts, which carry a cutter and a clamp, whereby a circular channel can be cut on the inside of the tube, while the tube is held by the external pressure of the clamp-piece a^2 in conjunction with the interior cutting-disk, *c*, from moving out of a right angle with said disk during the act of cutting the channel, substantially as described.

3. The within-described hand-lever implement for cutting determined circular lines of fracture on the inner surface of glass tubes, the said implement comprising parts A A', pivoted together at *b* and constructed to serve as handles at their rear ends, and one part provided with a revolving cutter for entering the bore of the glass tube, and the other with a concave clamping-piece, substantially as described.

310,915. BUTTON-HOLE ATTACHMENT FOR SEWING-MACHINES. WILLIAM SCHOTT, New York, N. Y., assignor to the Schott Button Hole Attachment Company, of New York. Filed Dec. 6, 1883. (Model.) Patented in England Jan. 29, 1884, No. 2,313; in France Jan. 29, 1884, No. 159,997; in Belgium Jan. 29, 1884, No. 63,985, and in Canada Feb. 26, 1884, No. 18,712.



Claim.—1. A button-hole attachment for sewing-machines, containing the following elements: a carrier-plate for supporting and guiding a reciprocating foot, a reciprocating foot supporting the feeding mechanism for moving the button-hole form-plate and cloth-clamp, means for reciprocating the reciprocating foot and regulating the bight of the stitches, comprising a reciprocator-lever operated by the needle-bar, a vertically-moving gate provided with a horizontal rod, a latch having oppositely-inclined planes and an adjustable vibrating lever, a ratchet adapted to be automatically thrown out of gear with the wheel through which motion is transmitted to revolve the form-plate, a lever operated by the moving form-plate to regulate the speed of the latter and the distance between the stitches, a device embracing an eccentric-lever and arm and an adjusting-lever for stopping the feed of the form-plate, and the mechanism for transmitting motion thereto for the purpose of barring a button-hole, a combined thread-holder, guide, and revolving presser-foot, a combined cloth-clamp and permanently fixed open-ended button-hole form-plate, said button-hole form-plate having irregularities in its face for automatically operating a feed-regulating lever, all combined and operating substantially as herein shown and described.

2. In a button-hole attachment for sewing-machines, the combination, with the carrier-plate provided with grooved frame K and reciprocator-lever K^3, of gate K', provided with rod *h'*, reciprocating foot E, yoke h^4, adjustable vibrating lever L, stud *k*, nut *k'*, spring i^3, and latch L', all constructed, arranged, and operated substantially as set forth.

3. In a button-hole attachment for sewing-machines, as a means for transmitting motion from the needle-bar-operated lever to the mechanism operating the reciprocating foot, the vertically-movable gate K', provided with suitable attachment, *h'*, in combination with said foot and needle-bar-operated lever, substantially as herein shown and described.

4. In a button-hole attachment for sewing-machines, and as a means for imparting a reciprocating movement to the foot E from the needle-bar-operated lever K^3, the vertically-reciprocating gate K', carrying the rod *h'*, in combination with said foot E and lever K^3, the lever L, and latch L', arranged and operating substantially as described.

5. In a button-hole attachment for sewing-machines, and in combination with the button-hole form-plate, feeding mechanism thereof, and the lever F, carrying the spring-pawl F', for transmitting motion from the needle-bar to said mechanism, the adjustable finger Q' and lever Q, whereby the movement of said feeding mechanism is regulated, substantially as and for the purposes specified.

6. In a button-hole attachment for sewing-machines, and in combination with the reciprocating foot E, a rod, as *q'*, constructed and arranged to move freely in and be supported by said foot, and carrying a roller, *q*, whereby the edges of a button-hole are held down and prevented from following the movement of the needle, substantially as specified.

7. In a button-hole attachment for a sewing-machine, and in combination with the stitch-forming mechanism thereof, as a means for holding and guiding a thread or cord for cording a button-hole, a roller, *q*, grooved to receive and guide the thread, the support *q'*, guides q^2 on foot H, and perforated plate q^3, all arranged substantially as herein shown and described.

8. In a button-hole attachment for sewing-machines, and in combination with the form-plate-feeding mechanism, the lever for operating the same and the button-hole form-plate, a lever, as Q, arranged intermediate of the form-plate and feeding mechanism, one end being in contact with the form-plate and the other end arranged to come in contact with the said feeding mechanism, whereby the connection between the feeding mechanism and the lever operating the same is intermittently broken substantially as and for the purpose specified.

9. In a button-hole attachment for sewing-machines, and in combination with the button-hole form-plate-feeding mechanism, and a device constructed, substantially as described, for interrupting the movement of said mechanism, means for governing the position of said device and regulating the feeding mechanism, consisting of a form-plate with alternate depressions and elevations, substantially as described.

10. In a button-hole attachment for sewing-machines, the cloth-clamp N, consisting of the plate m and upper plate m^1, both rigidly connected together and parallel with each other, the interposed plate m^2, and means, substantially as described, for pressing the said plate m^2 downward upon the plate m, as and for the purposes set forth.

11. In a button-hole attachment for sewing-machines, the combination, with the needle-bar, form-plate, and the ratchet transmitting motion from said needle-bar to the mechanism for moving the form-plate, of a pawl provided with an adjustable finger constructed to engage with a stop, as and for the purposes set forth.

310,916. GRINDING-MILL. SILAS C. SCHOFIELD, Freeport, Ill. Filed Jan. 14, 1884. (No model.)



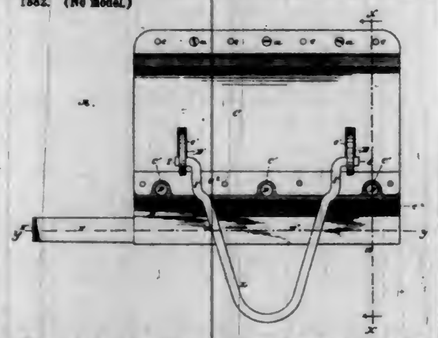
Claim.—1. The combination of a sweep-actuated grinding-mill, a meal-box supporting said mill, cross-rods binding together the opposite sides of said meal-box, and each provided at one end with means for attaching to it an anchoring-rod, anchoring-rods attached at one end to the ends of said cross-rods, respectively, and extending therefrom in a direction opposite to the direction of rotation of the sweeps, and anchoring-stakes securing the extremities of said anchoring-rods, substantially as shown and described, and for the purpose set forth.

2. In a grinding-mill, an annular base-plate, T, having its upper edge provided with a groove, c, and beveled faces b b on either side of said groove, in combination with a movable ring, S, whose lower edge is provided with a convex central portion conforming to the groove c, and two downwardly-inclined lips, a a', conforming to the beveled surfaces b b, substantially as shown and described, and for the purpose set forth.

3. The combination of the ring S, trunnions V, and lug Q, formed integrally therewith, sweep-levers R, pivoted on said trunnions, cross-bar O, connecting said levers, and recessed, as described, for the reception of said lug, and stirrup P, extending across the bottom of said recess, substantially as shown and described, and for the purpose set forth.

4. The combination of the annular base-plate T, ring S, rotating thereon, integrally-formed converging arms H, provided with lugs M at their outer ends, cone G, suspended from said arms, lugs K on the upper surface of said cone, adapted to engage with the lugs M and insure simultaneous rotation of said ring and cone, and means for rotating said ring, substantially as shown and described, and for the purpose set forth.

310,917. PUNCH. JAMES S. SHANNON, Hinsdale, Ill. Filed July 22, 1882. (No model.)



Claim.—1. In a cutting-punch, the combination, with a die and matrix, of jaws supporting said die and matrix, formed by plates secured together at their edges, opposite the points of attachment of the die and matrix, and arranged to stand normally apart at their free edges, and a lever for forcing said jaws together in the operation of the punch, substantially as described.

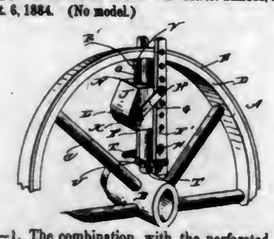
2. In a cutting-punch, the combination of a rigid plate, B, flexible plate C, punch-die D, rigidly secured to one of the said plates, and a corresponding matrix, C', belonging to the opposite plate, said plates being secured to each other at the margin opposite the die and matrix and constructed to support said die and matrix accurately in proper working relation, substantially as described.

3. In combination with the plates B and C, provided with one or more opposing punch-dies and matrices, and connected with each other, as described, lugs B', proceeding from one of said plates, and a lever, L, pivoted to said lugs, and constructed to bear upon the opposite plate at a point or points adjacent to the punch or punches, whereby said plates may be forced toward each other for the operation of the punch or punches, substantially as set forth.

4. In combination with the punch having studs or punch-dies D projecting above the bed, and having a plate, C, prolonged and upwardly turned at c^3, the recessed guide-plate E', arranged to direct the sheet to be punched over the tops of the studs, substantially as described.

5. In combination with the punch, plate E, forming a guide or support for the sheet to be punched, and the slide F, provided with the upturned projection F', said slide being movably attached to the plate E, and combined with means for guiding and retaining it in place, substantially as described.

310,918. TIRE-TIGHTENER. NEWTON J. SKAGGS, Montgomery, Ala. Filed Oct. 6, 1884. (No model.)



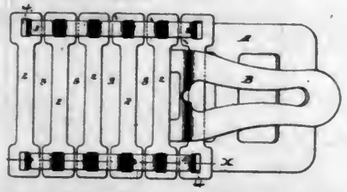
Claim.—1. The combination, with the perforated metal bars, the intervening blocks, and the connecting bolts and nuts, of the pivoted arms, the concaved block, and the tightening-screw, substantially as specified.

2. The combination, with the perforated metal bars, the intervening blocks, connecting-bolts, perforated arms T, and rod U, of the pivoted arms, the concaved block with the threaded nut, and the tightening-screw, substantially as specified.

3. The combination, with the perforated metal bars, their blocks and connecting-bolts, of the hinged recessed block, the threaded nut, and the tightening-screw, substantially as specified.

4. The combination, with the perforated metal bars having the perforated arms T, the intervening blocks, connecting bolts and nuts, and rod U, of the hinged recessed block, the threaded nut, and the tightening-screw, substantially as specified.

310,919. LEVER-BUCKLE. EDWARD S. SMITH, Waterbury, Conn. Filed Dec. 5, 1884. (No model.)



Claim.—1. An attaching or catch plate constructed with one or more joints and provided with bearing-bars and interlocking spaces, whereby it is adapted to bend and interlock with buckles or clasps, substantially as described.

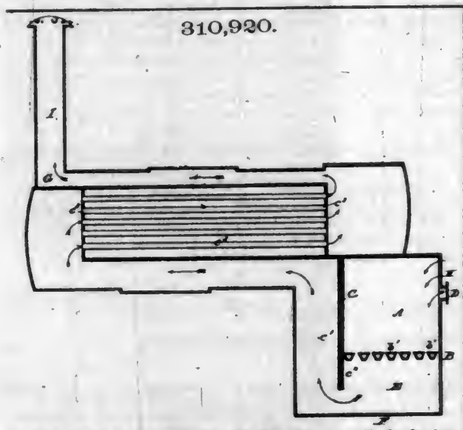
2. The combination, with a buckle or clasp having a swinging lever, of an attaching or catch plate constructed with one or more joints and provided with one or more bearing-bars and interlocking spaces, substantially as described.

3. An attaching-plate for buckles or clasps, consisting of bars 2, spaces 8, and links 3, substantially as described.

310,920. SMOKE-CONSUMER FOR LOCOMOTIVES, STATIONARY BOILERS, FURNACES, AND STOVES. HENRY A. SPEAR, Charlestown, and ALBION P. WIGHT, Jr., North Adams, Mass., assignors to themselves, Harris C. Brownell, Newtonville, and Frank Brownell, Newton, Mass. Filed May 10, 1884. (No model.)

Claim.—1. In combination with a boiler-furnace having a downward draft, a hollow bridge-wall or partition, C, at the back of the fire-

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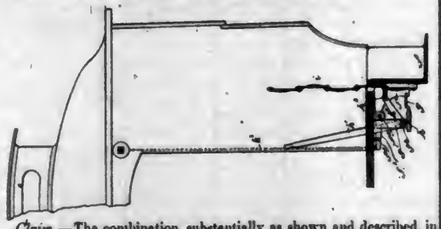
chamber, and not communicating with the boiler nor with the fire-box, and separating it from the heat-passage behind, such wall being provided with an inlet and outlet, whereby a cool current either of air or water may be passed through it, as and for the purposes set forth.

2. In combination with a boiler-furnace having a downward draft, the hollow bridge-wall or partition C, to admit through it a current of air or water from the exterior, and provided with a hollow projection or extension, c'', below the grate-bars, also adapted to admit through it a current of air or of water.

3. In a boiler-furnace having a downward draft, the combination of the hollow wall or partition C, its hollow extension c'', and the hollow grate-bars, the partition, extension, and grate-bars being all adapted to admit through them a current or currents of air or water from the exterior.

4. In combination with a furnace provided with hollow grate-bars adapted for passing through them a current or currents either of air or water, an extension-pipe, j, directly and continuously connecting with such hollow bars, and arranged in the smoke-pipe, as shown and set forth.

310,921. REGISTER FOR STREET-RAILWAY CARS. GEORGE B. THAYER, Boston, Mass. Filed Feb. 27, 1884. (No model.)



Claim.—The combination, substantially as shown and described, in a street-railway car, of a passenger-platform, the normally-stationary step f, its lever-projections f', the bolt g for locking said step in its normal position, means to retract said bolt to release the step to permit it to move on its pivots, the gate i, operable by the means for locking and unlocking the step, a registering apparatus, and means between the step and the registering apparatus operated by the step to actuate the registering apparatus.

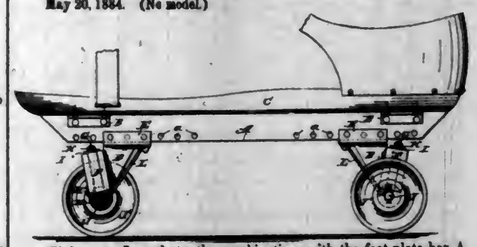
310,922. COAT. ABNER J. TOWER, Boston, Mass. Filed Jan. 12, 1880.



Claim.—1. The herein-described coat, comprising an outside or face cloth and a lining, the latter provided with transverse slits to admit the wearer's legs between the lining and cloth to inclose them, the lining being connected at the bottom with the face-cloth to afford supports for the feet to hold the garment down, as set forth.

2. In a coat, the combination of the outer portion, a, lining b, provided with the slits or openings c, and the straps d, arranged substantially as and for the purpose specified.

310,923. SKATE. CHARLES E. WARDWELL, Holyoke, Mass. Filed May 20, 1884. (No model.)

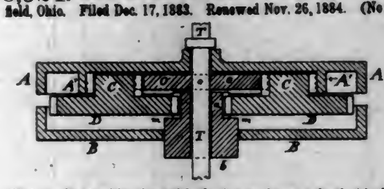


Claim.—1. In a skate, the combination, with the foot-plate bar A, of the knees D, held detachably on the bar A, and provided with socket-pieces F, spindles held in the socket-pieces, and rollers or runners held on the spindles, substantially as herein shown and described.

2. In a skate, the combination, with the knee D, having a spring rod or wire, L, of a spindle held to turn in the knee, and a sleeve or runner-plate held on the lower end of the spindle and provided with a notch or recess for receiving the lower end of the spring-rod L and with a recess or notch to limit its movement upon the spindle, substantially as herein shown and described.

3. In a skate, the foot-plate bar A, and the knees D, having spindles and the spring-rods L, in combination with the runners M, with their connecting-plates O, provided with central apertures, O', sockets S, and pins or studs w, entering sockets in the lower ends of the knees, substantially as and for the purpose set forth.

310,924. MECHANICAL MOVEMENT. FRANK M. WATERS, Springfield, Ohio. Filed Dec. 17, 1883. Renewed Nov. 26, 1884. (No model.)



Claim.—In combination with the internal-gear wheel A', the shaft T, with spur O, having the intermeshing double gear C and D, spur D meshing into pinion a, with casing A and B, having projections E, as shown.

310,925. THERMOMETER. HENRY WEINHAGEN, Hoboken, N. J. Filed Oct. 1, 1884. (Model.)



Claim.—A thermometer having embodied in the glass thereof a dark light-absorbing shield, C, which is placed behind the mercury-column, substantially as and for the purpose herein shown and described.

310,926. WOOD-STEAMING APPARATUS. VAN BUREN WHEAT, Orleans, N. Y. Filed Feb. 19, 1884. (No model.)

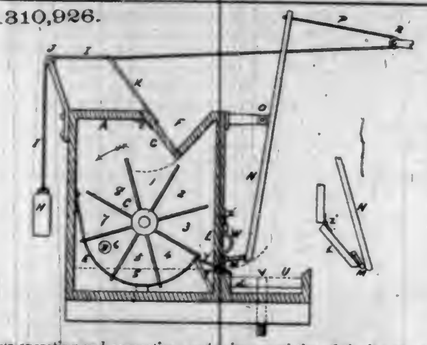
Claim.—1. In a wood-steaming apparatus, the rotating reel C, consisting of a shaft, and the inner spoked wheels, and the outside registering-wheel, D, operating in connection with the spring dog or catch X, all in combination with the box A, substantially as described.

2. The concave guide strips or ways E E E, operating, with the water, to retain, support, and convey the material in the pockets of the reel, in combination with the inclined ways Y and box A, substantially as described.

3. In a wood-steaming apparatus, the hopper F, with its hinged trap or door G, in and through which the material to be steamed is respectively placed and deposited upon the reel C, in combination with the steam-box A, and the operating mechanism consisting of the handle K, rope I, pulley J, and weight H, substantially as described.

4. In a wood-steaming apparatus, the door L, (through which the raw material is deposited upon the reel,) and the door G, (through which the steamed and boiled material is discharged for use,) in combination with

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their operating and connecting mechanism, consisting of the handle and catch W, pitman M, lever N, handle K, pulleys R and J, ropes P and I, and weight H, by which the said doors L and G are simultaneously opened and closed, for the purposes herein set forth and described.

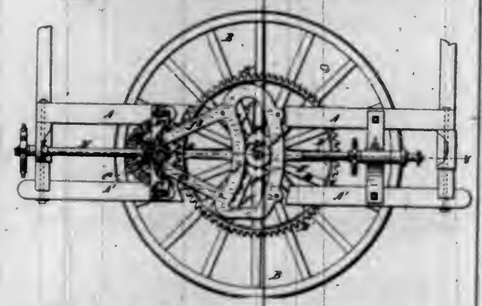
5. In a wood-steaming apparatus, the auxiliary trough U, with its bridges *d d d*, into and upon which the prepared material is discharged and transiently held until required for use, in combination with the steam-box A and overflow-pipe T, substantially as set forth.

6. In a wood-steaming apparatus, the combination of the rotating reel C, concave guide strips or ways E E E, inclined ways Y, all operating to convey and guide the material through the apparatus, hopper F, and doors L and G, with their connecting and operating mechanism, by which they are simultaneously opened and closed to respectively deposit and discharge the material, substantially as described, all in combination with the auxiliary trough U and steam-box A, substantially as and for the purposes herein set forth.

310,927. PROCESS OF MAKING SWEET-POTATO FLOUR. JAMES A. WHITCOMB, Washington, D. C. Filed Feb. 2, 1884. (No specimens.)

Claim.—The process herein described for obtaining an esculent from the sweet potato, consisting in first baking to separate the skin, then removing the said skin, then evaporating off the moisture, then separating the fiber, and finally preparing the residual starchy and saccharine matters into a flour for market, as set forth.

310,928. MECHANISM FOR RAISING AND LOWERING HARVESTING-MACHINES. JOHN F. APPLEBY, Minneapolis, Minn., assignor to the Minneapolis Harvester Works, same place. Filed Nov. 24, 1883. (No model.)



Claim.—1. In mechanism for raising and lowering harvesters of the type in which a pinion rigidly mounted upon the axle of the drive-wheel engages a rack secured to the main frame, the rack-standard secured to the main frame, and a metallic yoke cast or otherwise formed in one piece therewith, in combination with a bearing for the counter-shaft, also secured to the main frame and embraced by the bight of the said yoke, substantially as and for the purpose set forth.

2. The rack-standard *f*, armed with a metallic yoke having the recess f^3 in its bight, in combination with the box *e*, provided with the projection f^2, as and for the purpose set forth.

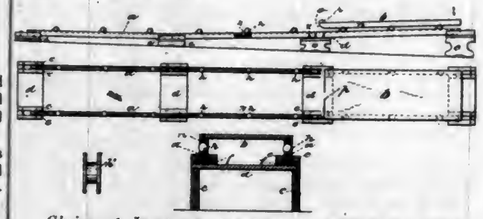
3. The bevel-gear frame E, provided with the box *e* for the counter-shaft C′ upon one side of the bevel-gear C^2, and with the box *d* for the counter-shaft C′ upon the other side of the bevel-gear C^2, and with the transverse box *d*′ for the shaft D′, and with suitable flanges adapting it to be fastened upon the main frame of the harvester.

4. The rack-standard *g*, secured to the main frame and provided with the rack i^3, in combination with the weighted stop-pawl I, loosely mounted upon the main axle, and means for automatically releasing the said pawl when the frame is raised by the riding upward of the pinion C upon the drive-wheel gear B′, whereby the tooth *i* of the pawl by the action of gravity is swung into engagement with the rack i^3, and the further ascent of the frame is prevented, as set forth.

5. The rack i^3, affixed to the frame of the machine, and the stop-pawl I, provided with a suitable tooth for engaging the teeth of said rack, in combination with the windlass-chain H, and the windlass G, affixed to the axle of the drive-wheel, as and for the purposes set forth.

310,929. TOY GRAVITY-RAILROAD OR PARLOR-SLEIGH. JAMES S. BALDWIN, Newark, N. J., assignor to Louise Harper, same place. Filed Dec. 26, 1883. (No model.)

Brief.—A portable sectional inclined track consisting of grooved rails supported upon graduated standards, said rails being provided with yielding stops against which the balls or rollers rest before being acted upon by the moving car or sled.



Claim.—1. In a toy, graduated portable standards, in combination with detachable rails, substantially as and for the purpose set forth.

2. In a toy, graduated standards having one edge parallel with the floor and the opposite edge inclined at an angle thereto, in combination with rails arranged thereon, substantially as and for the purpose set forth.

3. In a toy, an inclined track or way provided with recesses or stops for holding the balls or rollers in their several positions on said track, substantially as and for the purposes set forth.

4. In a toy, a track or way provided with yielding and projecting stops for holding the balls or rollers, substantially as and for the purpose set forth.

5. In a toy, the combination of a sled or vehicle, a track or way provided with a series of balls or rollers placed at intervals thereon, said balls or rollers being detached from said track and free to travel thereon under the operation of said sled or vehicle, substantially as and for the purpose set forth.

6. In a toy, graduated portable standards, in combination with rails grooved longitudinally on their upper surfaces, and provided with holding mechanism for the balls or rollers at intervals, substantially as and for the purpose set forth.

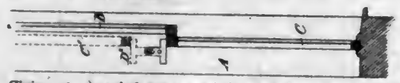
7. In a toy, the combination of an inclined track or way having longitudinal grooves, a series of balls arranged at intervals in said grooves, and a sled or vehicle provided with grooves to engage with said balls, substantially as and for the purposes set forth.

8. In a toy, a sled or vehicle having longitudinal grooves on its under surface and curved or beveled at the front end thereof to admit the passage of the balls, substantially as and for the purpose set forth.

9. In a toy, rods or wires running crosswise of the grooves in the standards, in combination with notched rails adapted to engage with said rods, substantially as and for the purpose set forth.

10. As a new article of manufacture, a toy consisting of an inclined track or way made in detachable sections, a series of detached balls or rollers free to travel thereon, and a sled or vehicle adapted to engage with and travel on said balls or rollers, all of said parts being constructed, arranged, and adapted to operate substantially as herein set forth.

310,930. SASH-FASTENER. OLIVER BENSON, Hinsdale, N. Y. Filed July 18, 1884. (No model.)



Claim.—1. A sash-fastener consisting of a shank, *a*, adapted to be pivoted to a window-frame, and provided with opposite lateral projections *b*, arranged to engage as stops to a sliding window-sash by turning the fastener upon its pivot into one or the other of two positions, as hereinbefore set forth.

2. In a sash-fastening device, the combination of the pivoted T-shaped fastener D, provided with the spring F, with the pivoting-screw *d*, having reduced or flattened portions *f*, to engage the said spring for the purpose of temporarily retaining the fastener in position in or out of contact with the sash-frame, substantially as specified.

3. In a pivoted sash-fastener, D, the combination of the stationary pivoting screw or stud *d*, having upon its head flattened portions *g*, with a shank, *a*, having in a bored or socketed portion adjacent to the pivoting-screw a spring-pressed sliding knob, H, provided with a lip or flat surface, *h*, arranged to engage and interlock with the said flattened surfaces *g* upon the screw-head, to prevent the fastener from turning on its pivot, as hereinbefore set forth.

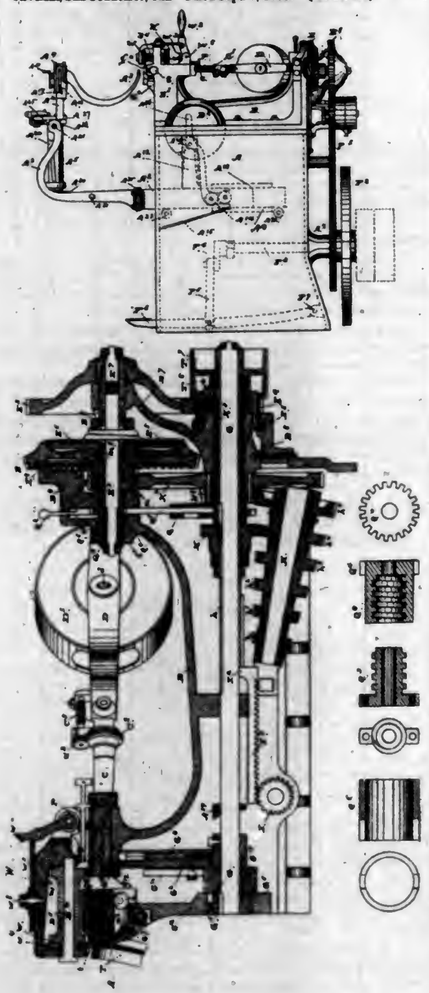
4. The combination of the pivoted sash-fastener D, provided with a sliding knob, H, arranged to engage and interlock with the pivoting-stud, the pivoting-screw *d*, having upon its shanks opposite reductions *e*, and the plate or washer E, provided with a notch, *e*′, to engage the reduced portion of the said shank, the said screw *d* and plate E being both securable to the same frame, A, as and for the purposes hereinbefore set forth.

310,931. DEVICE FOR SECURING ELECTRIC WIRES TO POLES. GEORGE L. BROOMHALL, Paterson, N. J. Filed May 23, 1884. (No model.)



Claim.—A device for securing telegraph and telephone wires to the telegraph or telephone pole, consisting of a plate, *f*, having screw-pin *b*, with a hollow, C, the plate having holes *e*, and hammer-seats *d*, with pins *h*, in combination with the pole B and insulator *a*, substantially as described.

310,932. NAILING-MACHINE FOR BOOTS OR SHOES. ANDREA CAVALLI, San Francisco, Cal. Filed Sept. 7, 1883. (No model.)



Claim.—1. The combination, with the machine-supporting stand or base A, of the reciprocating frame A^7 A^8, the swinging standard supported therein, the sliding head adapted to support a work-holding horn or jack, means, substantially as described, for moving and setting said sliding head, and mechanism for imparting to the said frame an intermittent reciprocating movement with respect to the time of action of the wire-driving mechanism, substantially as described.

2. The combination of the supporting-frame A^7 A^8, the swinging frame A^{20}, having top plate pivoted in said frame, the yoke A^4 with foot-plate A^5, the pivot A^{26}, the sliding head A^9, having means, substantially as described, for moving and setting it within the yoke, and a locking device to hold it when set, and means for locking the two plates of the parts A^4 A^5 together when set, substantially as described.

3. The combination, with the supporting-frame A^7 A^8, of the two-part jack-standard, the upper part carrying a sliding head to support a jack, and the springs A^{30} at the lower end, for the purpose described.

4. The combination, with the jack-standard having the sliding head A^9, of the carriage A′, having the slide-bar A, and a boss, A^6, by which to fix it to the sliding head, the adjustable screw-studs A^6 A^6, and the screw-threaded sleeves A^5 A^5, fixed to the top of a last-block, a work-holding form, and adapted to screw onto the screw-stud, substantially as described.

5. The combination of the swinging clamp W with feed-wheel having driving-pinion *w*′, spindle B^4, locking-plate w^3, studs w^8, and a locking-lever for moving said plate, substantially as described.

6. The combination, with the swinging clamp W, pivoted in a sliding box, w^{10}, in the bracket w^9, of the set-screw P, substantially as described.

7. The combination, with the stationary dies R, of the whirling bobbin-carrying frame, the feed-wheels *f f*′, and mechanism for driving them from or by the rotation of the whirling frame, consisting, essentially, of the fixed gear C′, surrounding a part of the whirling frame and gear-connections to the said wheels, substantially as described.

8. The combination, with the whirling bobbin-carrying frame having the guide-tube C, of the stationary gear C′, worm-shaft C^3, having pinion C^4, wheel C^5, and feed-wheels *f f*′, and a friction-brake, f^2, substantially as described.

9. The combination, with the principal shaft G′, of the sliding pinion K, cone of gears H, bevel-pinion H^6, sleeve K^2, bevel-gear and spur-wheel K^3, giving motion to the wheel-actuating gear E.

10. The combination, with the principal shaft G, of the spindle E^2, the sleeve E^3, the gears E^4 E^5 for driving it, the clutch-disk E^6, locked to said sleeve, the sleeve carrying the clutch-disk E^8, and having pinion *m*, the two-part extensible sleeve Q^2 Q^3, the rack Q′, the pinion Q^4, and the cam on the shaft G.

11. The combination, with the stock N, of the movable die-plates R and the fixed tongue R′.

12. The combination, with the stock N, of the fixed tongue R′ movable die-plates R R, adjusting-screws S, separable dies R^3, and holding-screws S^2.

13. The combination, with the stock N, having a fixed tongue or recessed die-plate, R′, of the detachable jaw R, having one stationary die, R^2, and one removable die, R^3, and the screws S S′ S^2.

14. The combination, with the shaft G, to which varying rates of speed are to be given, of the sliding pinion K, the set of cone-gears H, fixed on an inclined shaft and in gear with and deriving motion from a driver, as H^6, substantially as described.

310,933. REED-ORGAN. MELVILLE CLARK, Chicago, Ill. Filed Nov. 8, 1883. (No model.)

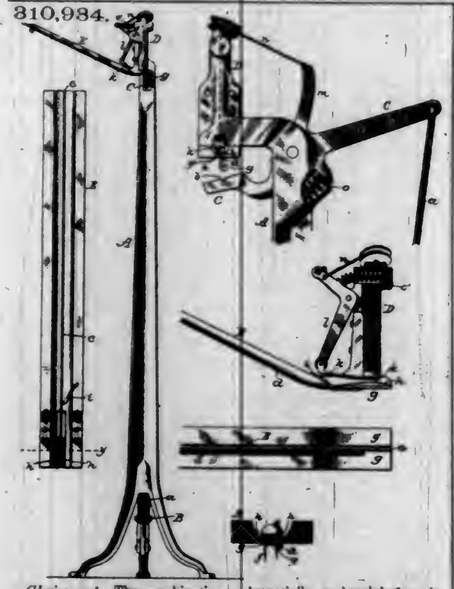


Claim.—1. The combination, with the ordinary mute and swell of a reed-organ, of an auxiliary swell and an auxiliary mute situated under said swell, as and for the purpose set forth.

2. In a reed-organ, the board D, provided with a series of openings situated over the vibrating ends of the reeds and covered by auxiliary mutes, said openings being of uniform size from middle C throughout the treble, and graduated from middle C throughout the bass, as and for the purpose set forth.

310,934. BUTTON-ATTACHING MACHINE. JOSEPH C. F. DICK, Belvidere, Ill. Filed Mar. 28, 1884. (No model.)

310,934.



Claim.—1. The combination, substantially as hereinbefore described, of the raceway adapted to receive shank-eye buttons with pronged fasteners suspended therefrom, the stationary slotted button-holding jaw provided with button-lifting springs and mounted upon a standard, and the reciprocating clinching-jaw.

2. The combination, substantially as hereinbefore described, of the slotted stationary button-holding jaw mounted on a standard, the inclined raceway having a slot communicating with the slot in the holding-jaw, a button-stop in said raceway, a feeding-finger, and a reciprocating clinching-die.

3. The combination, substantially as hereinbefore described, of the stationary head mounted upon a standard, the inclined slotted raceway attached to said head, the button-stop in said raceway, the button-holding slot within said head, the springs at each side of the slot within the head, for lifting the button when in position for setting, the reciprocating clinching-die, and the feeding-finger coupled to and moved by the clinching-die.

4. The combination of the slotted stationary jaw for holding and setting shank-eye buttons with three-pronged fasteners and the raceway longitudinally slotted for receiving the button-shank eyes flatwise while fasteners are suspended therefrom, and having a longitudinal rib on the under side at one side of its slot, substantially as described, for preventing the disengagement of the pendent fasteners from the shank-eyes during the descent of the buttons in the raceway, as set forth.

5. The combination of the stationary head mounted upon a standard and containing a stationary button-holding jaw which is provided with a slot, and button-lifting springs on each side of said slot, the raceway attached to said head and having a slot communicating with the slot in the holding-jaw, the button-stop in said raceway, the vibrating feeding-finger for carrying the buttons one by one from the button-stop to the button-lifting springs, the pivoted clinching-jaw, and the treadle for imparting motion to said clinching-jaw and feeding-finger, substantially as described.

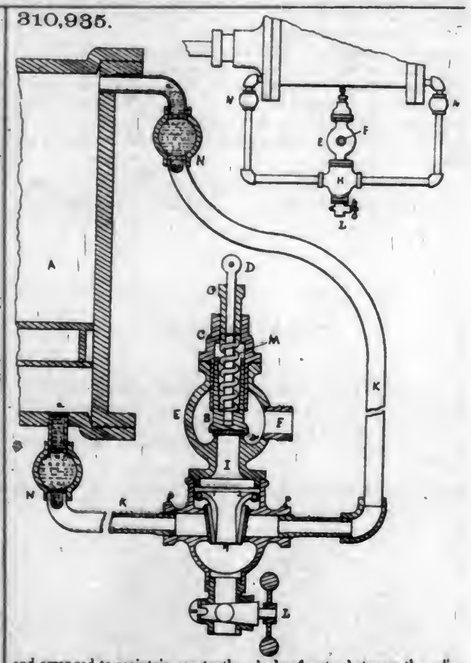
310,935. RELIEF-VALVE FOR STEAM-ENGINE CYLINDERS. T M. FELA, Brooklyn, assignor to the United States Steam Specialty Company, New York, N. Y. Filed July 29, 1884. (No model.)

Claim.—1. The combination, with a relief-valve and compression-pipes leading thereto, of check-valves for preventing the fluid being forced back through one pipe by the pressure in another, substantially as described.

2. The combination, with an engine-cylinder and a compression-pipe leading therefrom, of a relief-valve connected with said pipe, and an air-cock, also connected with said pipe and arranged below the relief-valve, so as to draw off the fluid between it and the cylinder, said cock and the seat of said relief-valve being arranged below the point where the pipe opens into the cylinder, substantially as described.

3. The combination, with an engine-cylinder, of a compression-pipe leading therefrom, and a spring-actuated relief-valve connected with said pipe, the latter descending below its junction with the cylinder, and both it and the chamber on the cylinder side of the valve being constructed

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and arranged to maintain constantly a body of water between the cylinder and the relief-valve, substantially as described.

4. In steam-engines, the compression or relief pipes K, cylinder A, and the relief-valve B, operating in the manner shown, in combination with the receiving-chambers N, all operated for the purposes and in the manner as substantially specified.

5. The relief-valve B, chamber E, with its exhaust F, the screw-plug G, spring M, compression-chamber H, and pipes K K, in combination with the check-valves 1 and 2, all arranged and operated in the manner and for the purposes substantially as specified.

6. The air-cock L, in combination with the chamber H, the relief-valve B, exhaust F, compression-pipes K, and cylinder A, for the purposes and substantially in the manner specified.

7. The combination, with an engine-cylinder, of a relief-valve apparatus, and the compression-pipes connecting a common chamber in said apparatus with both ends of said cylinder, said apparatus and said pipes being constructed and arranged to maintain constantly a body of water between the said apparatus and both ends of the cylinder, substantially as described.

310,936. STOP-WATCH. FREDERICK FITT, Chaux-de-Fonds, Neuchatel, Switzerland. Filed Jan. 22, 1884. (No model.) Patented in England Jan. 7, 1884, No. 392.



Claim.—1. In combination with a watch-spindle, a collar encircling said spindle, provided with a friction device to clasp the spindle and with a hand, and a spring-plate adapted and arranged to bear facewise upon the collar and to exert a pressure only in the direction of the length of the spindle, or to be raised therefrom as required, whereby the collar can be held against rotation without producing lateral pressure or friction upon the spindle.

2. In combination with a spindle of a watch-movement, a collar, *a*, provided with a hand, a disk, *b*, and spring *c*, to bear against the spindle, spring-plate K, adapted and arranged to bear facewise upon the collar and to exert a pressure thereon only in the direction of the axis of the spindle, and means, substantially such as described and shown, for raising and lowering the spring-plate to remove or apply pressure from or to the collar.

3. In combination with spindle E F of a watch-movement and with frictional collars *a*, encircling said spindle, and provided with hands, spring-plate K, provided with perforations *d*, to encircle the spindles, and means, substantially such as shown and described, for raising and lowering the spring-plate.

4. The combination, substantially as described and shown, of a watch-movement having a dial and a cylindrical spindle, a collar, *a*, encircling said spindle and provided with a friction-spring to bear thereon, and with a hand, spring-plate K, overhanging the collar, spring-arm O, having a lateral ear overlapping plate K, cam-wheel P, provided with notches *h*, and means, substantially such as shown and described, for imparting a step-by-step rotation to said wheel.

5. In combination with a watch-movement having a dial and a cylindrical spindle, a friction-collar encircling said spindle, and provided with a hand, spring-plate K, overhanging the collar, spring-arm O, having lip *f*, overlapping the plate K, wheel P, provided with notches *h* and teeth *k*, lever R, push-pin S, dog *s*, and spring T, substantially as set forth.

6. The herein-described chronograph, consisting of a time-movement provided with the ordinary time-hands and with cylindrical spindles E F, collars *a*, encircling said spindles, and provided with hands H I, heart-shaped disks *b*, and springs *c*, spring-plate K, forked lever J, spring-arm O, provided with lateral extension *f*, wheel P, provided with notches *h* and teeth *k*, lever R, push-pin S, and dog *s*, all combined and arranged to operate substantially as explained.

310,937. WATCH-MOVEMENT BOX. FREDERICK FITT, Chaux-de-Fonds, Neuchâtel, Switzerland. Filed Mar. 7, 1884. (No model.) Patented in England Feb. 4, 1884, No. 2,700.



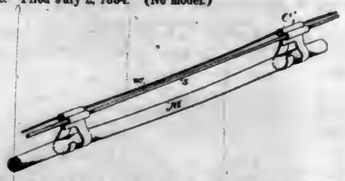
Claim.—1. In combination with box A and holder C, a spring, E, adapted to support the holder, substantially as explained, and having the arms bent up to form clasps or hooks *g*, as and for the purpose explained.

2. In combination with box A B, holder C and spring E, placed therein, and disk D, passing through the holder and the spring, and secured to the box, to retain said parts in place and guide and limit their movement.

3. In combination with box A, holder C, and a connection, substantially such as shown and described, spring E, having upwardly-bent arms *f*, provided with hooks *g*, having beveled faces *h*.

4. In combination with an outer box, A B, an inner spring-sustained holder, C, of a size just to receive a watch-movement, and closed on the sides and bottom, substantially as described and shown, whereby a watch-movement may be carried free from danger of breakage or entrance of dust or dirt.

310,938. SUSPENSION OF AERIAL CABLES. EZRA T. GILLILAND, Boston, Mass., assignor to the American Bell Telephone Company, same place. Filed July 2, 1884. (No model.)



Claim.—1. A suspension for aerial cables, comprising two or more wires and a series of cable-clips, each clip having a vertical stem, two eyes or loops at the top of said stem, and a stirrup or stirrups at the lower end, substantially as described.

2. A suspension for aerial cables, consisting of a suspending-wire, a leading-in wire, and a series of cable-clips, hooks, or connections.

3. A suspension for aerial cables, consisting of a suspending-wire of considerable tensile strength, a leading-in wire formed of a metal which may be of low tensile strength, but which is less liable to corrode, and a series of cable-clips, hooks, or connections.

4. An aerial suspension consisting of a suspending wire or wires, two or more cables, and a series of clips or connections, each clip having a separate hook or stirrup for each cable, so that each cable is supported independently of the others, substantially as described.

5. A cable-clip of sheet metal, having a stem vertical when in position, and elongated loops or passages for the reception of three or more wires or conductors, substantially as described.

6. A cable-clip formed of two pieces of sheet metal fastened together and provided with hooks or passages for the reception of three or more wires, cables, or conductors, substantially as described.

7. In a device for drawing cables through suspension devices, a swivel-jointed connection having a tapering end for connection thereat with a leading-in wire, and screw-threaded at the opposite end to receive the threaded end of the wire to be led in, substantially as described.

8. The improved cable-clip described, being of flexible metal and having a stirrup or stirrups for the cables, and two elongated loops or eyes in close proximity for the supporting-wires, as set forth.

310,939. BUTTON. CHARLES V. GODDARD, Brooklyn, N. Y. Filed July 3, 1884. (No model.)

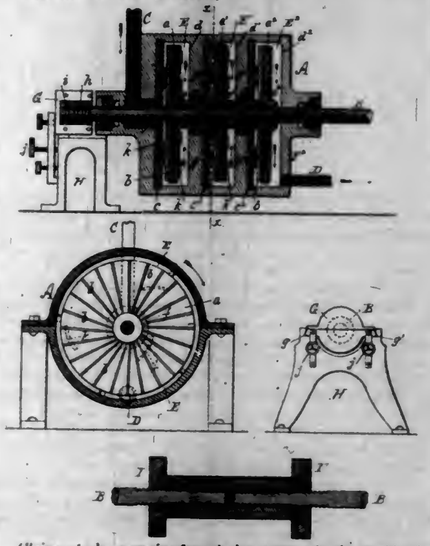
Claim.—1. The combination, in a button, of the following elements: the front plate provided with the central opening and curled backward at the periphery to embrace the back plate, the cross-bar having its extremities bent or curved to follow the edges of the central portion, and the back plate having its central portion perforated and recessed to fit closely over and around the extremities of the cross-bar and its peripheral portion seated against and secured firmly to the back and front plates, whereby the cross-bar is retained firmly in position and the outer portion of the button given a thin outer edge.

2. In combination with the intermediate cross-bar having its ends bent or curved laterally, the front and back plates united at the periphery and perforated at the center, one of said plates being provided, as shown, with lips *d*, clasping the bent portions of the cross-bar, whereby the bar is held centrally in place and prevented from moving in any direction.

3. In a button consisting of two united centrally-perforated plates and a central cross-bar having its end or ends curved, as described, lips *d*, formed on one of said plates and curled outward and backward, as described, to embrace the extremities of the cross-bar.

4. In a button, the combination of the front and back plates, united at the periphery with the cross-bar having the diametric portion of a round form in cross-section, and the circular peripheral portion of a flat form in cross-section, whereby a round surface is presented to receive the thread and the bar held firmly in position between the plates.

310,940. COMPOUND PULP-BEATING ENGINE. SIMEON L. GOULD, Gardiner, Me., assignor of one-half to George W. Russell, Lawrence, Mass. Filed Sept. 16, 1884. (No model.)



Claim.—1. In an engine for reducing paper-pulp, the combination, with a hopper constructed as described, with its stationary bed-plates, of a series of rotary heads so adapted and arranged individually as to successively partially reduce the pulp which is passed to the circumference thereof, and then returned on the rear side to be fed centrally to the next adjacent head in the series, substantially as and for purposes stated.

2. In a paper-pulp engine, the series of centrally-fed rotary heads provided with a front or active and a rear or inactive side, the latter as a means to return the pulp centrally to the active side of the next adjacent head successively throughout the series, substantially as stated.

3. A paper-pulp-reducing engine composed of a case having two or more bed-plates and two or more rotary heads, each co-operating with its own bed-plate, substantially as described.

4. A case provided with two or more chambers connected together by openings *f f* at or near their centers, and two or more bed-plates, combined with two or more rotary heads and a shaft to move them, one of the said bed-plates and rotary heads being in each of the said chambers, substantially as described.

5. A case provided with two or more connected chambers and two or more bed-plates, one in each chamber, combined with two or more rotary heads provided with cutters of different size, to gradually and successively act upon and reduce the paper-pulp passing between them and the heads, substantially as described.

6. A case provided with an inlet for the paper-pulp stock, to maintain the same in a column above the top of the case, and having two or more connected chambers and an outlet, combined with two or more bed-plates and two or more rotary heads, to operate substantially as described, the length of the column in the inlet-pipe aiding in maintaining the circulation of the pulp through the case.

7. The case and its connected chambers, and the bed-plates, one in each chamber, combined with two or more rotary heads provided with cutters at their sides next the bed-plates, and with curved plates *k k* at their opposite faces, substantially as described.

8. The case having two or more connected chambers, and a bed-plate in each chamber, combined with the shaft and its attached rotary plates, each plate being arranged with its face near the bed-plate, the back of the plate being at a greater distance from the wall of the case to form a space through which the pulp may readily pass on its way to the next chamber, as set forth.

9. In a paper-pulp-reducing engine, a case having a series of connected chambers, and a series of bed-plates open at their centers, combined with a rotary shaft and a series of bed-plates, this shaft being extended through the open centers of the bed-plates, substantially as described.

310,941. CAR-AXLE LUBRICATOR. JOHN D. GRAHAM, Brooklyn, assignor of one-half to Samuel I. Knight, New York, N. Y. Filed Feb. 25, 1884. (No model.)



Claim.—1. As an article of manufacture, the car-axle-lubricating device consisting of rollers 1 2, tied together, supported in contact, and upheld by crossed spring-arms upon which their axes rest, so that one dips in the oil and the other bears upon the axle, substantially as described.

2. The combination, with the rollers 1 2, tied together by the straps 4, of the crossed spring-arms arranged to afford bearings that support the said rollers in different planes, whereby while both are elastically seated and run in contact one may dip into the oil and the other bear upon the axle, substantially as described.

3. In an axle-lubricating device, the combination, with the axle, of the rollers 1 2, geared together, held in rolling contact, and supported in different planes upon crossed springs, substantially as described.

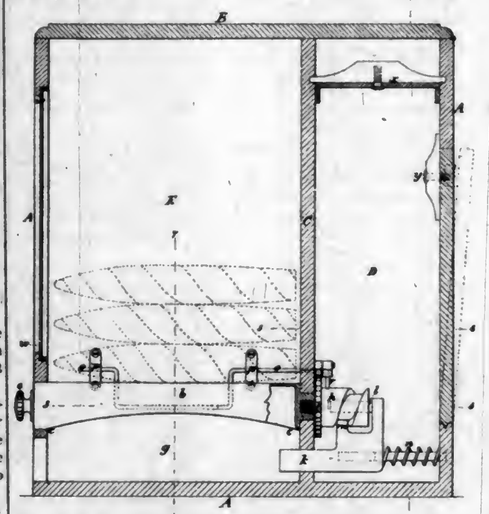
4. The combination, with the axle, the crossed springs, and rollers supported in different planes thereby, of the lubricating-pads at the extremities of said springs, substantially as described.

5. In an axle-lubricating device, the combination, with the axle and means for applying the lubricant thereto, of a roller, as 1, provided with rigid breakers or buckets for breaking up the lubricant when congealed, substantially as described.

310,942. CIGAR-CABINET. JAMES F. HEKIE, Slevoir, Roscrea, Ireland. Filed June 16, 1884. (No model.)

Claim.—1. The combination, in a detector cigar box or cabinet, for preventing the fraudulent use thereof, of the following instrumentalities: first, a box or case having one or more compartments to receive separate rows of cigars, and adapted to be locked or sealed; second, a rotatable hollow slotted cylindrical delivering device located at the end of each of said compartments; third, a receptacle to receive the cigar as it escapes from said delivery device; fourth, a device, substantially as described,

310,942.



actuated by the delivering device to eject the cigar from the said receptacle; and, fifth, a guard or detent, also operated by the delivering device, to prevent the insertion of a cigar into the cabinet or case through the said delivering device, as set forth.

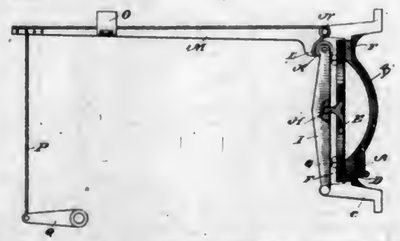
2. The combination, in a cigar case or cabinet substantially as described, of the delivering-cylinder and the expelling or discharging device consisting of the striker adapted to be withdrawn by a scroll-cam on the delivering device, and a spring to impel the striker forward when it has reached its extreme withdrawn position on the cam, as set forth.

3. The combination, in a cigar case or cabinet having the delivery-cylinder, substantially as described, of the guard or check device consisting of a rocking spindle carrying a crank-arm operated by a cam projection rotating with the said delivery-cylinder, said arm being caused to enter and leave the cylinder laterally once at each revolution thereof, as and for the purpose specified.

4. The combination, in a cigar box or cabinet, of the narrow compartment *a*, slotted rotating delivery-cylinder *b*, and rocking guard or check arm *q*, actuated from the said cylinder, as and for the purpose specified.

5. The combination, in a cigar box or cabinet, of the narrow compartment *a*, slotted rotary delivery-cylinder *b*, guard or check arm *q*, receptacle *g*, and spring-actuated striker or expeller *k*, working through the inner end of said receptacle, as and for the purpose specified.

310,943. AUTOMATIC DAMPER-REGULATOR. JAMES A. HOUSE and CHARLES H. DIMOND, Bridgeport, Conn. Filed June 10, 1884. (No model.)

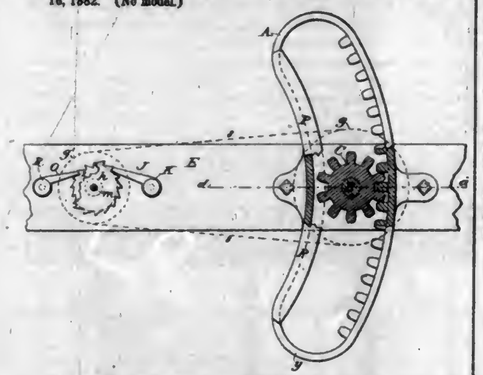


Claim—1. In a damper-regulator, the diaphragm held to the chamber by the gasket-ring, in combination with a cap, as described, resting against said diaphragm, and adapted to actuate a pivoted bar, substantially as set forth.

2. The bar pivotally attached to the frame and provided at its upper end with an anti-friction roller, in combination with a weighted arm having at its point of contact with the roller a cam-surface upon which said roller may act, substantially as described.

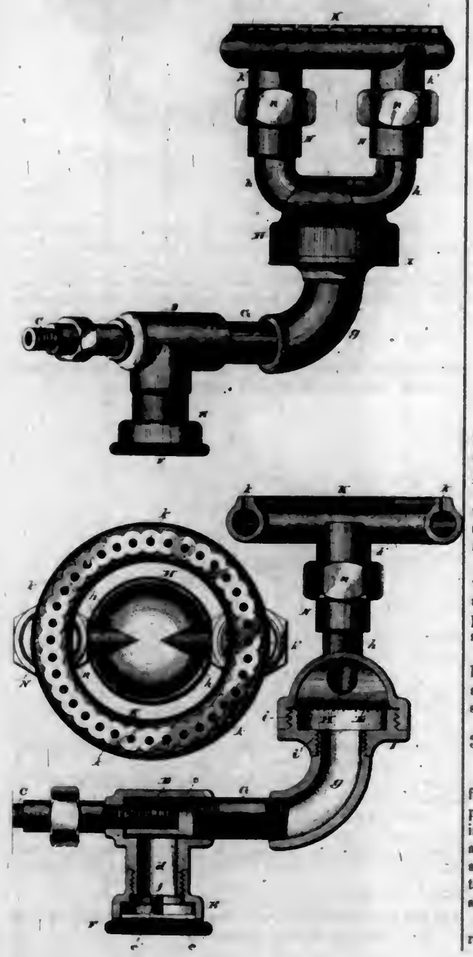
3. In a damper-regulator, the combination, with the chamber A, having outlet D, of the diaphragm E, ring F, cap H, pivoted bar I, having roller K, and arm M, pivoted with cam-surface L, all arranged as described, and for the purpose set forth.

310,944. HARVESTER. GEORGE G. HUNT, Bristol, Ill. Filed Feb. 16, 1882. (No model.)



Claim.—The main frame and segment-rack plates, in combination with the main wheel, the axle provided with the pinions and chain-sheave, the endless chain, the actuating-sheave therefor, and the two oppositely-acting automatic pawls adapted to lock said actuating-sheave against rotation in either direction.

310,945. GAS-BURNER. WALTER M. JACKSON, Providence, R. I. Filed May 28, 1884. (No model.)



Claim.—1. The combination, with a gas-supply pipe provided with two or more branches, of an annular burner provided with socket-openings cast therewith, to which the branches are secured, substantially as set forth.

2. The combination, with an annular burner having pipe-connections cast integral therewith, of a safety-chamber having branch-pipe connections cast integral therewith, substantially as set forth.

3. The combination, with a burner, of a gas-supply pipe and a safety-chamber interposed between the supply-pipe and burner, said safety-chamber provided with a wire-gauze diaphragm and having two or more branch pipes cast integral therewith, substantially as set forth.

4. The combination, with an annular burner having two or more branch supply-pipe connections cast integral therewith, of a safety-chamber provided with branch pipes and an injector and commingling-chamber, substantially as set forth.

310,946. GAS-STOVE. WALTER M. JACKSON, Providence, R. I. Filed May 28, 1884. (No model.)



Claim.—1. A burner consisting of two sections, the wall of one section being provided with a series of saw-tooth notches, and the wall of the other section constructed to overlap said notches, substantially as set forth.

2. A burner consisting of two screw-threaded sections, the inner wall of one section being notched, and the corresponding wall of the upper section formed to overlap said notches and form gas-jets, substantially as set forth.

3. A burner consisting of two screw-threaded sections, the inner wall of one section being provided with a circuit of saw-tooth notches, and the corresponding wall of the upper section formed to rest upon and project over the edges of the notches and form gas-jets, substantially as set forth.

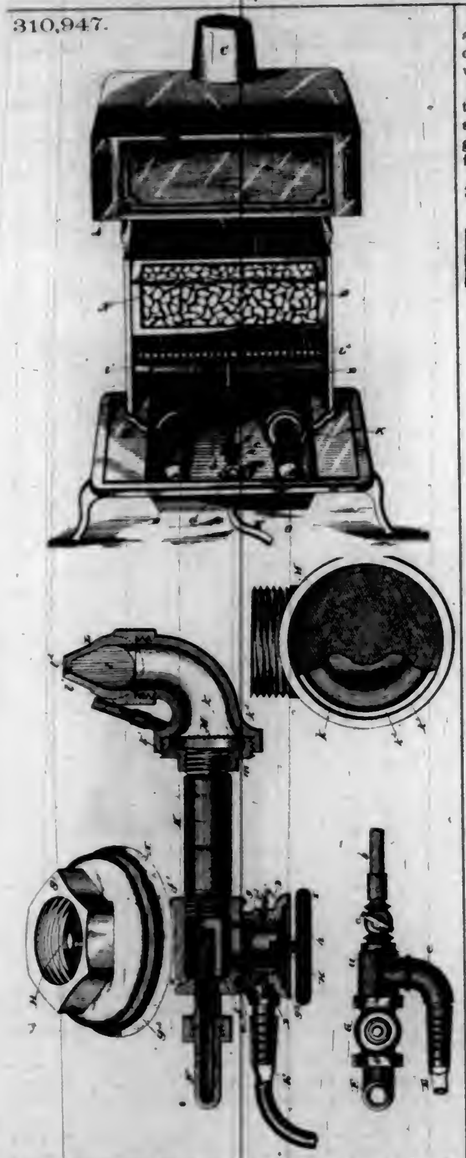
4. A burner consisting of a lower section with notched wall, and having gas-supply branches cast integral therewith, in combination with an upper section constructed to overlap the notches in the lower sections, substantially as set forth.

310,947. GAS-STOVE. WALTER M. JACKSON, Providence, R. I. Filed May 28, 1884. (No model.)

Claim.—1. In a heating or cooking stove, the combination, with a fire-pot or receptacle filled with refractory material and provided with a permanently-open air-draft below the refractory material and a pipe forming a communication between the chamber above the refractory material and the outer air, of a burner located below the refractory material and a commingling-chamber and valve for supplying mixed air and gas to the burner for producing a non-luminous or nearly non-luminous flame, substantially as set forth.

2. The combination, with a stove provided with a fire-pot filled with refractory material, of a burner located below the fire-pot, gas and air

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injector, and commingling-chamber and valve for regulating the relative supply of air and gas to the burner, and an enlarged chamber provided with a safety-diaphragm interposed between the burner and the commingling-chamber, the several parts being constructed and arranged substantially as and for the purpose set forth.

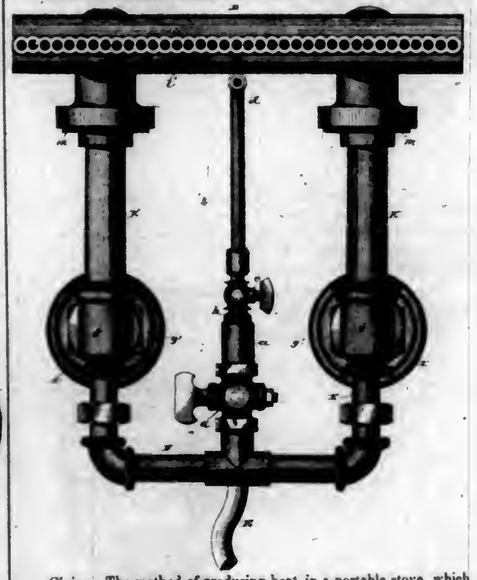
3. The combination, with a burner consisting of an elongated chamber provided with a series of holes or jet-openings, of two gas and air injector and commingling chambers communicating with the opposite ends of the burner, valves for regulating the relative supply of air and gas, safety-chambers interposed between the injector and commingling chambers and burner, and a single gas-pipe for supplying gas to both of said chambers, substantially as set forth.

4. The combination, with a receptacle or fire-pot filled with refractory material, a burner located below the fire-pot and provided with a series of holes or jet-openings, gas and air commingling chambers communicating with the burner, and valves for regulating the relative supply of air and gas to the burner, of a pilot-burner located in close proximity to the main burner and secured to a separate and independent gas-supply pipe, and a separate stop-cock for regulating the supply of gas to the pilot-burner, substantially as set forth.

5. The combination, with a stove, a burner, and gas and air injector and commingling chamber located within the stove, of an air-supply coupling extending through an opening in the wall of the stove and provided with a hand-valve on its outer end, substantially as set forth.

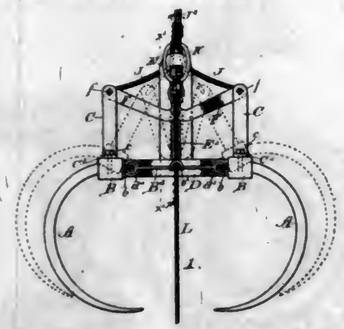
6. The combination, with a stove and devices for supplying gas to the stove, of air-supply couplings entending through the wall of the stove, and check-nuts constructed to engage the couplings and lock the gas-supply apparatus to the stove and at the same time form valve-seats for hand-valves, substantially as set forth.

310,948. METHOD OF PRODUCING HEAT IN PORTABLE STOVES. WALTER M. JACKSON, Providence, R.I. Filed Apr. 19, 1884. (No model.)



Claim.—The method of producing heat in a portable stove, which consists in, first, employing a non-luminous or nearly non-luminous flame below a body or mass of refractory material; secondly, introducing a constant and fixed supply of air to the non-luminous flame; third, causing the flame and air to pass through the interstices between the fragments of refractory material; and, fourth, conducting the products of combustion to the outside air.

310,949. HORSE HAY-FORK. GUSTAF JOHNSON and NELS R. JOHNSON, Lariat, Colo. Filed May 29, 1884. (No model.)

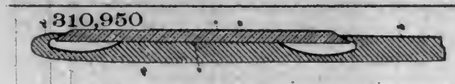


Claim.—1. In a horse hay-fork, the trigger-carriage G, having a pivoted trigger-carrying arm, H, provided with a notch, h', slot h, trigger I, trigger-latch I', and the slotted carriage-guide E', substantially as set forth.

2. The trigger-carriage provided with trigger-latch I', pivoted trigger-carrying arm H, and trigger I, arranged to operate as described, in combination with the carriage-guide E', frame D, toggles F, standards C, link K, ring M, beams B, having tines A, and the operating-ropes J J' J², substantially as set forth.

310,950. TOILET-MIRROR. FREDERICK J. KALDENBERG, New York, N. Y. Filed May 23, 1883. (No model.)

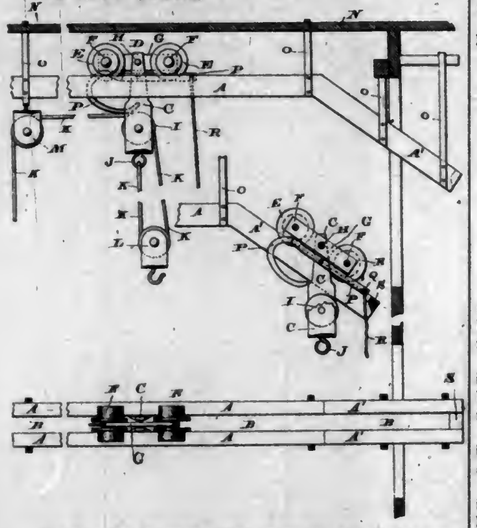
310,950



Claim.—1. A frame for containing mirror or other glasses, provided with a rim and overhanging lip and having a boss or protuberance of unyielding material formed on the back portion, for supporting the glass above the back, as set forth.

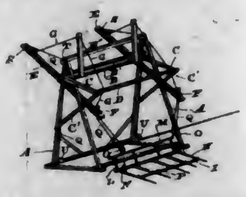
2. In a toilet-mirror, the combination, with a mirror-glass, of a frame having an overhanging rim and having its back portion re-enforced by increasing the thickness of the material from the outer edge to the center, whereby increased strength is given to the back and a solid elevated bearing is formed for the glass, as and for the purposes set forth.

310,951. HAY-CARRIER AND TRACK-FRAME. ISAAC N. MATLICK, San José, Cal., assignor of one-half to John N. Prather, same place. Filed June 18, 1884. (No model.)



Claim.—In a hay-carrier, the combination, with the horizontal tracks A A and inclined tracks A' A', having chock-block S, of the wheeled truck or carrier D, pivoted hanger C, pulleys I M, hoisting-block L, brakes P, and ropes K R, substantially as shown and described.

310,952. HAY ELEVATOR, CONVEYER, AND STACKER. ISAAC N. MATLICK, San José, Cal., assignor of one-half to John N. Prather, same place. Filed June 18, 1884. (No model.)



Claim.—1. In a hay-stacker, the supporting-frame A, having two parallel carrier-frames, E, and carrier F, operated by a system of pulleys and ropes, substantially as shown, for the purpose set forth.

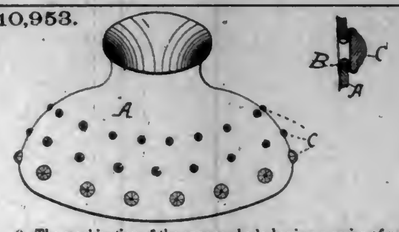
2. In a hay-stacker, the combination of the pitcher-frame herein described, consisting of a series of parallel teeth, H, connecting bars or braces I, J, and K, standard L, connecting-bar M, detaining prongs or teeth P, and bail-chains and pulleys N O, substantially as shown and set forth.

3. The double carrier-frame E E, supported by a suitable frame-work, A, and having the pulleys S S, carriers F F, and a pitcher-frame operated by pulleys and ropes, substantially as shown and set forth.

310,953. LAMP-SHADE. FRANK D. MERSEREAU, Orange, N. J. Filed June 5, 1884. (No model.)

Claim.—1. As a new article of manufacture, a lamp-shade consisting of an opaque shade having a series of perforations therein, and transparent lenses or jewels set therein, as specified and set forth.

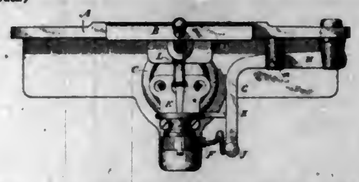
310,953.



2. The combination of the opaque shade having a series of perforations and transparent lenses or jewels set therein, as specified and set forth.

3. The combination of a lamp-shade having a series of perforations and a reflecting-surface on the inner side thereof, with transparent lenses or jewels set in the perforations, as specified.

310,954. SEWING-MACHINE ATTACHMENT FOR PLACING AND EJECTING BOBBINS. CHARLES MIEHLING, New York, N. Y., assignor to himself and Charles Miehling, same place. Filed May 22, 1884. (No model.)



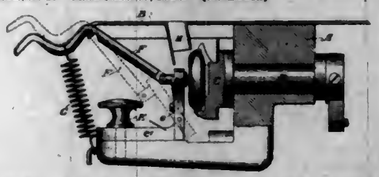
Claim.—1. In combination with the revolving hook and bobbin of a sewing-machine, the lever G, having arms H and J, and the hinged block and drop E and catch F, substantially as and for the purposes set forth.

2. In combination with the revolving hook and bobbin of a sewing-machine, the lever G, having arms H and J and K, and the hinged block and drop E and catch F, substantially as and for the purposes set forth.

3. In combination with the revolving hook and bobbin of a sewing-machine, the arm L and the hinged block and drop E, substantially as and for the purposes set forth.

4. In combination with the revolving hook and bobbin of a sewing-machine, the arm L, the hinged block and drop E, and the plate A, having opening M and funnel N, substantially as and for the purposes set forth.

310,955. SEWING-MACHINE ATTACHMENT FOR PLACING AND EJECTING BOBBINS. CHARLES MIEHLING and CHARLES MIEHLING, New York, N. Y. Filed June 25, 1884. (No model.)



Claim.—1. In a sewing-machine, the notched rod F, passing through an opening in the plate, and the pivoted bobbin-holder *e*, in combination with the revolving hook and bobbin, substantially as and for the purposes set forth.

2. In a sewing-machine, the notched rod F, passing through an opening in the plate, the pivoted bobbin-holder *e*, and the spring G, in combination with the revolving hook and bobbin, substantially as and for the purposes set forth.

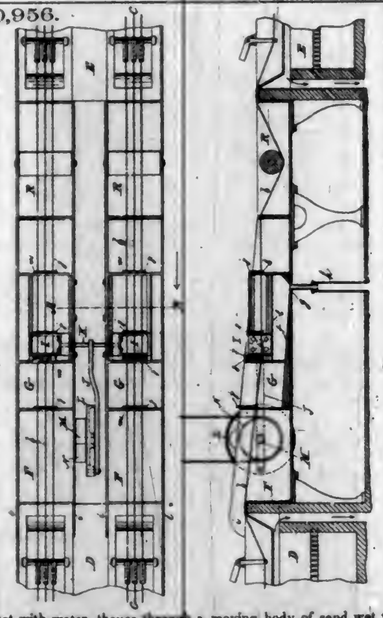
3. In combination with the revolving hook and bobbin of a sewing-machine, the notched rod F and pivoted bobbin-holder *e*, and the plate B and funnel H, substantially as and for the purposes set forth.

4. In combination with the revolving hook and bobbin of a sewing-machine, the notched rod F and pivoted bobbin-holder *e* and spring G, and the plate B and funnel H, substantially as and for the purposes set forth.

310,956. ART OF MAKING WIRE. THOMAS MIDGLEY, Worcester, Mass., assignor of one-half to Charles G. Washburn, same place. Filed May 8, 1884. (No model.)

Claim.—1. In the process of annealing, cleaning, and coating wire and similar strands of metal by a continuous and automatic operation, cleaning the same between the annealing and coating operations by first passing said wire through a body of dry sand, thence through a body of

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sand wet with water, thence through a moving body of sand wet with diluted acid suitable for facilitating the scouring operation, thence through a body of dry sand mixed with a suitable wiping material, and, finally, just prior to being coated, through a bath of suitable diluted acid or fluxing-fluid, substantially as shown and described.

2. The combination, with an annealing-furnace and galvanizing or plating furnace for treating wire and similar strands of metal, of a cleaning apparatus arranged between said furnaces, consisting of a series of boxes or receptacles, F, G, I, R, and R', means for supporting, guiding, and operating the sliding box I, means for providing the compartment G with water, and means for disposing of waste liquids from the apparatus, substantially as shown and described.

310,957. MANUFACTURE OF COMPOUNDS TO BE USED FOR INSULATING, &c. ALEXANDER RUTHERFORD, Norwood, County of Surrey, England. Filed Dec. 2, 1884. (No specimens.) Patented in England Dec. 22, 1883, No. 5,835.

Claim.—1. The compound to be used for insulating or protecting electrical conductors, which consists of a purified mixture of paraffine-wax or other hydrocarbons and gutta-percha, substantially as described.

2. The compound to be used for insulating or protecting electrical conductors, which consists of a purified mixture of paraffine-wax or other hydrocarbons containing a small proportion of sulphur and gutta-percha, substantially as described.

3. The compound to be used for insulating or protecting electrical conductors, which consists of a mixture of purified gutta-percha, prepared by dissolving the same out of raw gum by means of paraffine or other hydrocarbons, with sulphurized oil prepared by subjecting vegetable oils, stearine, or other glycerides to the action of chloride of sulphur, substantially as described.

4. The compound to be used for insulating or protecting electrical conductors, which consists of a mixture of gutta-percha with sulphurized oil prepared by subjecting vegetable oils, stearine, or other glycerides to the action of chloride of sulphur, substantially as described.

5. The production of a partly-vulcanized plastic compound for coating electrical conductors, which consists in dissolving out the raw gutta-percha in melted paraffine-wax or other hydrocarbon at a high temperature, then purifying the material so obtained, then mixing the same with sulphurized oil prepared by subjecting vegetable oils or stearine to the action of chloride of sulphur, and subjecting the mixture under pressure to a high pressure for two to three hours, substantially as set forth.

6. The production of a partly-vulcanized plastic compound for coating electrical conductors, which consists in dissolving out the raw gutta-percha in melted paraffine-wax or other hydrocarbon at a high temperature, then purifying the material so obtained, then mixing three parts thereof, by weight, with two parts of sulphurized oil prepared by subjecting vegetable oils or stearine to the action of chloride of sulphur, and then subjecting the mixture to a temperature of from 280° to 300° Fahrenheit for from two to three hours under pressure, substantially as set forth.

7. In the manufacture of compounds to be used for insulating, protecting, or analogous purposes, dissolving out the gutta-percha from the raw material by means of melted paraffine-wax or other hydrocarbon at a high temperature, substantially as described.

8. In the manufacture of compounds to be used for insulating, protecting, or analogous purpose, the hereinbefore-described methods of purifying the solution of gutta-percha in paraffine-wax employed therein by treatment of the same with bisulphide of carbon, as set forth.

9. The use of stearine and other pure glycerides in the manufacture of elastic substitution products formed by the action of chloride of sulphur upon such bodies, as described.

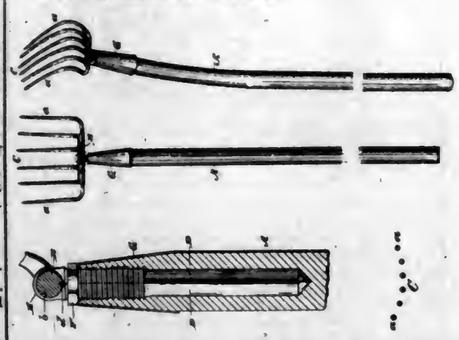
10. The compound to be used for insulating or protecting electrical conductors, which consists of a mixture of purified gutta-percha prepared by dissolving the same out of raw gum by means of paraffine or other hydrocarbons with sulphurized oil containing gum-kauri, prepared by subjecting vegetable oils, stearine, or other glycerides containing the same to the action of chloride of sulphur, substantially as described.

11. In the manufacture of compounds to be used for insulating, protecting, or analogous purposes, the hereinbefore-described method of hardening said compound, consisting in adding gum-kauri to the liquid containing the soluble glycerides before treatment with chloride of sulphur, substantially as described.

12. The compound to be used for insulating or protecting electrical conductors, which consists of a mixture of gutta-percha and bitumen with sulphurized oil prepared by subjecting vegetable oils, stearine, or other glycerides to the action of chloride of sulphur, as set forth.

13. In the manufacture of compounds to be used for insulating, protecting, or analogous purposes, the hereinbefore-described method of hardening the mixture of gutta-percha and sulphurized oil by adding purified bitumen thereto, substantially as set forth.

310,958. STONE AND POTATO FORK. WILLIAM O. NOYES, Derry, N. H. Filed June 16, 1883. (No model.)



Claim.—1. As a new article of manufacture, a stone and potato fork consisting of a handle having at one end a head provided with tines set closely together and curved backward and then sharply forward, forming an angle with the fork-handle, the outer tines being raised somewhat above the intermediate tines, substantially as and for the purpose set forth.

2. The combination, in a stone and potato fork, of a transverse head provided with tines constructed as described, a collar surrounding the central portion of said head, a split shank formed of the same metal with the collar and having a threaded end, and a nut running upon the latter, whereby the collar is drawn closely around the head, substantially as and for the purpose described.

3. The adjustable shank D, formed in a single piece, bent in the middle to encircle the picker-head, and having its extremities brought together, forming a lower rectangular portion and an upper cylindrical and threaded portion adapted to receive a compressing-nut, substantially as and for the purpose set forth.

4. The combination, with a transverse cylindrical head provided with curved tines and having longitudinal triangular slots formed therein at suitable intervals, of a split shank formed in a single piece, bent in the middle to embrace the slotted head, and having its ends brought together to receive a nut which turns upon its upper and threaded portion, a notch being formed in the throat of the encircling-loop to register with one of the notches or slots in the cross-head and receive a rectangular spline, whereby the tines may be adjusted at different angles with the handle, substantially as and for the purpose set forth.

5. The combination, with the cross-head B, provided with tines C, and having slots *b*, of the split shank D D, having a loop, E, encircling the head, with a notch formed in the throat of said loop, a spline, *d*, and nut F, turning upon the cylindrical threaded portion of the shank, substantially as and for the purpose set forth.

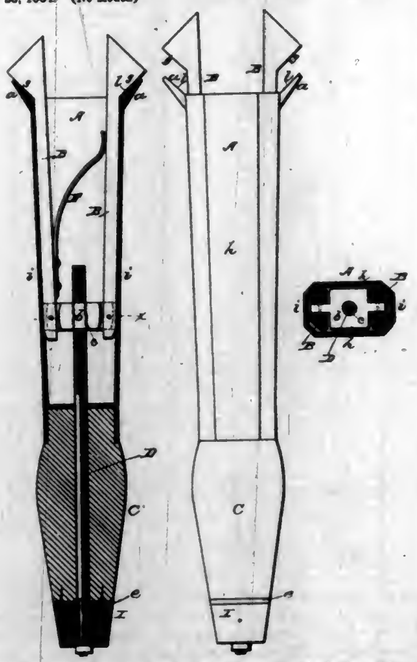
6. The implement herein described, consisting of the handle A, the head B, provided with tines C, with outer tines, *a a*, constructed as described, and the adjustable split shank D, having a lower rectangular and an upper threaded portion, with a loop surrounding the head B, and a nut, F, the head being slotted at suitable intervals to receive a spline, *d*, which rests partly in the slot and partly in a notch in the throat of the loop E, substantially as and for the purposes set forth.

310,959. TOOL-HANDLE. WILLIAM NUNLEY, Newark, N. J. Filed June 7, 1884. (No model.)



Claim.—The improved handle for leather-shavers' steels, consisting of a recessed and perforated handle-body, A, and a recessed and perforated metallic core-piece, B, arranged in the recess of the said body, the perforations in said body and core-piece corresponding to make a continuous transverse perforation, and the recess in the said core-piece extending to the transverse perforation therein to allow the shank to project into said perforation, substantially as and for the purposes set forth and shown.

310,960. WRENCH. JOHN L. PHILLIPS, Sullivan, Ind. Filed Apr. 28, 1884. (No model.)



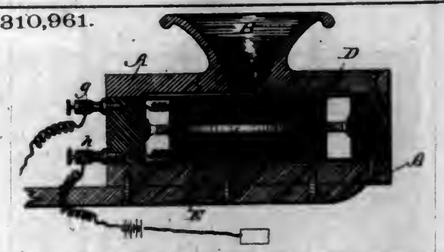
Claim.—1. In a wrench, the combination, with the barrel increasing in diameter forwardly to a flaring mouth, of the spring-jaws arranged therein and pivotally connected at their rear ends by a cross-bar, *b*, having a threaded aperture, said jaws having their forward ends headed and inclined rearwardly on their outer sides, and the threaded rod engaging the aperture of the cross-bar and provided at its outer ends with a turning-knob, substantially as specified.

2. The combination, with the barrel, constructed as described, of the pivoted spring-jaws B B, the nut *b*, the handle C, the plate *e*, threaded rod D, and the knob for turning the threaded rod, substantially as specified.

310,961. TELEPHONE. HARRY P. PRATT, Chicago, Ill., assignor, by mesne assignments, to himself, Charles C. Bonney, John A. Hamlin, and Charles E. Barrett, all of same place, and William R. Plum, Lombard, Ill., trustees. Filed Oct. 1, 1883. (No model.)

Claim.—1. In an instrument for receiving sound, speech, or signals, a non-polarized plate or diaphragm made of iron or other suitable substance, in combination with a coil or coils of wire without a core, substantially as described, and for the purpose set forth.

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2. In an instrument for receiving sounds, speech, or signals, the combination of the case A, the ear-piece B, the coil C, without a core, and the non-polarized plate D, made of iron or other suitable substance, all arranged, constructed, and operated substantially as described, and for the purpose set forth.

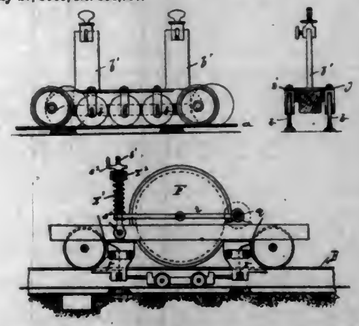
3. In an instrument for receiving sounds or signals, the combination of the case A, the ear-piece B, the coil C, without a core, the non-polarized plate D, made of iron or other suitable substance, and the plate E, constructed substantially as described, and for the purpose set forth.

4. In a telephone, the combination of the case A, the non-polarized plate D, made of iron or other suitable substance, and one or more coils without a core or cores, substantially as described, and for the purpose specified.

5. In an instrument for receiving sounds, speech, or signals, a coil or coils without a core or cores, in combination with one or more non-polarized plates or diaphragms, made of iron or other suitable substance, placed between said coil or coils and the ear-piece, substantially as described, and for the purpose set forth.

6. In a telephone receiving-instrument, the combination of the case A, ear-piece B, non-polarized diaphragms or plates, coil C, support F, and binding-posts *g* and *h*, substantially as described, and for the purpose set forth.

310,962. ELECTRIC RAILWAY SYSTEM AND CAR. M. HOLROYD SMITH, Halifax, County of York, England. Filed Nov. 24, 1883. (No model.) Patented in England Feb. 24, 1883, No. 1,014, and in France July 27, 1883, No. 156,767.



Claim.—1. In an electric railway system, a car provided with an electric motor and suitable driving-wheels, an underground channel or conduit provided with the insulated conductors, and a trolley or truck traveling in said channel or conduit, and having attached thereto the contact-makers, movable with relation to said trolley or truck, and provided with means to hold said contact-makers against the conductors, and suitable connections and switch for operating the electric motor, as set forth.

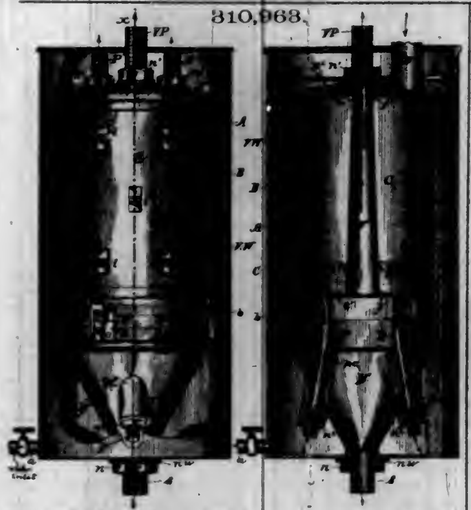
2. In combination with an electric railway or track having the additional central rail or conduit, a railway-car having the main driving-wheel F, provided with a frame, *r*, hinged at *q*, held at its movable end on the pivoted screw-rod *s'*, a spring, *r'*, and cap r^2, and a handled nut, s^2, on said screw-rod, whereby the driving-wheel is adjustably and yieldingly held on its track, as described.

310,963. SPIRIT-CONDENSER. FRANK SOMER, Peoria, Ill. Filed Oct. 13, 1884. (No model.)

Claim.—1. A spirit-condensing apparatus having an outer tank provided with suitable water-supply pipe, within which is a cylinder, B, having a removable funnel-shaped bottom, B', in combination with an interior cylinder, C, provided with water induction and eduction pipes P P' and vapor-pipe V, all arranged as described, as and for the purpose intended, substantially as described.

2. In a spirit-condensing apparatus, the cylinder B, having dome B^3, provided with orifices *v w w* and vapor-inlet pipe D, and further provided with a removable funnel-shaped bottom, B', having hollow

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stem *s* and orifices b^2 b^2, as and for the purpose intended, substantially as described.

3. In a spirit-condensing apparatus, the removable vapor-pipe V, tapering in form from its lower part, having a lower outwardly-extending flange, *f*, and an upper outwardly-extending flange, *f'*, and having a straight tubular upper extension, V P, outwardly screw-threaded, adapted to receive a nut, *n'*, in combination with cylinders B and C, substantially as described.

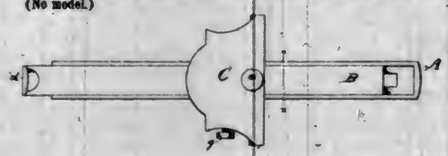
4. In a spirit-condensing apparatus, the cylinder C, having a cap or dome, *c*, provided with outlet-pipes P' P', and a central opening for pipe V P, and a bottom provided with central opening for reception of vapor-pipe V and water-inlet pipes P P, substantially as described.

5. In a spirit-condensing apparatus, the inner cylinder, C, having downwardly-extending water-inlet pipes P P, provided with sectional collars *p c*, divided obliquely at or near the middle, the upper sections of which are permanently attached to said pipes, the lower sections of which are adaptable to embrace the ends of said pipes after passing through the orifices b^2 b^2 of the separator B', in combination with said separator, substantially as described.

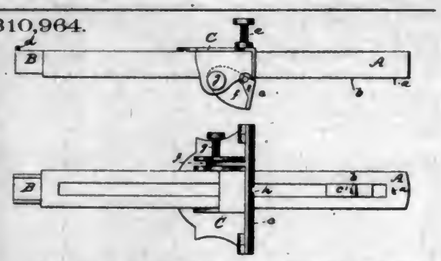
6. A spirit-condensing apparatus consisting of the separable tanks and cylinders, with attachments, as described, provided with obliquely-divided collar *p c*, and nuts n^3, for connecting pipes P P to separator B', and nuts *n*, for connecting said separator to tank A, and nuts n^3, for connecting pipes P' to dome B^2, and nut *n'*, for connecting pipe V P to said dome, all in combination with a suitable brace, as E, for securely fastening the several connected parts within a tank, A, substantially as described.

7. A spirit-condensing apparatus consisting of the following elements: an exterior casing or tank, A, having a water-supply pipe, *a*, within which is a cylinder, B, having dome B^2, carrying spirit-induction pipe D, and central opening for passage of vapor-pipe V P, and having a removable funnel-shaped bottom, B', with a low-wine return-pipe, *s*, the two parts provided with coincident peripheral flanges *p f b'* and locking devices b b^2, the space between said cylinder B and tank A forming a water-jacket, W, the inner smaller cylinder, C, with bottom *c'*, having central opening for reception of vapor-pipe V and downwardly-extending water-inlet pipes P P, and having dome or cap *c*, with opening for passage of extension V P of vapor-pipe V, the space between the cylinders B C constituting vapor-jacket V W, the vapor-pipe V with lower and upper flanges, *f f'*, the space outside of said vapor-pipe, when in place within the cylinder C, forming water-chamber W C, the brace E, all arranged as set forth and shown, and adapted to be connected and disconnected by adjustment of the nuts *n n' n*^{3} *n*^{3}, and sectionally-divided collar *p c*, as and for the purpose intended, substantially as described.

310,964. MARKING-GAGE. RANSOM STEELE, New Britain, Conn., assignor of one-half to Albert M. Hyde, same place. Filed Aug. 14, 1884. (No model.)



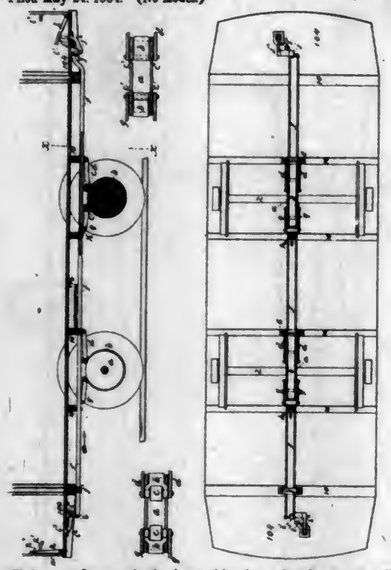
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Claim.—1. In a marking-gage, the combination of the gage-bar, the block C, having the arm-receiving socket, and the set-screw *g*, which extends through one of the side walls of said socket, and the face-plate *e*, hinged to said block and having on its back side the arm *f*, which extends into the socket in the block C, the entire face-plate and its fastening-screw being located below the upper surface of the gage-bar, substantially as described, and for the purpose specified.

2. In a marking-gage, the combination of the gage-bar, the block C, the face-plate hinged to said block at a point just back of its face and in the same plane with the under face of the gage-bar, substantially as described, and for the purpose specified.

310,965. CAR-BRAKE. CHARLES W. STRINGHAM, Brooklyn, N. Y. Filed May 24, 1884. (No model.)



Claim.—1. In a car-brake, in combination, a foot-lever or treadle pivoted on the platform of the car, and adapted to be moved up against the dash-guard out of the way when not in use, a bar placed longitudinally under the car, a bell-crank lever pivoted to the end of the bar, by which it is actuated by the foot-lever, a brake band or bands secured at one end to the bar and at the other end to the body, and a drum or drums secured to the axle or axles, and embraced by the brake-bands, substantially as and for the purpose set forth.

2. In a car-brake, the combination, with a drum secured to the axle, of a band surrounding the drum, and anti-friction supporting-rollers on the ends of the band, by which the same is supported on but held clear of the drum when the brake is open, substantially as and for the purpose set forth.

3. In a car-brake, in combination, the foot-lever *k*, provided with the stud *k'*, and pivoted to the platform, the hook or button k^2, for holding the foot-lever against the dash-guard, and the lever or arm of the brake mechanism, provided with the stud i^2, projecting into a hole through the platform, substantially as and for the purpose set forth.

4. In combination, the sliding brake-bar *f*, the bell-crank i i^2 i^3, connected to end thereof, and the inverted bell-crank j j^2 j^3, connected to the other end thereof, the pivoted foot-levers or treadles *k* and *l*, and the spring *m*, substantially as and for the purpose set forth.

5. In combination, the drum *a*, the band *b*, the rollers *c c*, the links *d d*, the links *g g*, and sliding bar *f*, substantially as and for the purpose set forth.

6. In combination, the foot-lever *k*, with projecting stud *k'*, the bell-crank i i^2, having stud i^3 on arm i^2, and the sliding bar *f*, connected to the other arm; *i*, substantially as and for the purpose hereinbefore set forth.

310,966. ROLLER COASTING STRUCTURE. LA MARCUS A. THOMPSON, South Chicago, Ill. Filed Apr. 3, 1884. (No model.)

Brief.—The end stations are at the same elevation and are provided with switch-tracks. The tracks are supported by trestle-work and are undulating.



Claim.—1. In a coasting structure, the combination, with the tracks B B', running parallel with each other and having the starting and terminal stations at the same elevation, of the switch-tracks E F, whereby the car reaching the terminus on the outgoing track is transferred to the return-track and back again to the first track for another trip, substantially as described.

2. In a coasting structure, the combination, with two parallel tracks or road-beds having undulating grades or planes, of the supporting trestle-work C and the platform d' and d^2 of the same height, substantially as described

310,967. STEAM-TRAP. WILLIAM VANDERMAN, Willimantic, Conn. Filed Oct. 13, 1884. (No model.)

Claim.—1. In a steam-trap, the combination, with a body or case, of coiled pipes arranged upon the upper side thereof, and a lever carrying a weighted ball and a hollow ball, substantially as set forth.

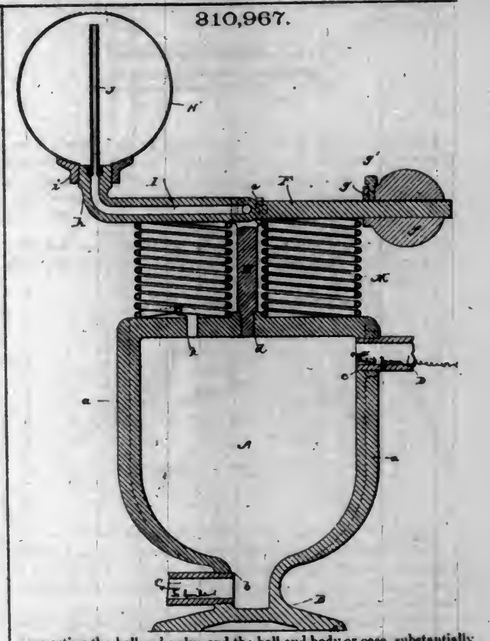
2. In a steam-trap, the combination, with a body or case, of coiled pipes arranged upon the upper side thereof, a valve, and a pivoted lever having a hollow ball at one end and weighted at its other end, one of said pipes connecting the hollow ball and valve, while the other connects the hollow ball and case, substantially as set forth.

3. In a steam-trap, the combination, with a body or case, of coiled pipes arranged upon the upper side thereof, a valve, and a pivoted lever having a hollow ball at one end, its other end being weighted, and an arm or rod connecting the valve-stem with said weighted end of the lever, substantially as set forth.

4. In a steam-trap, the combination, with a body or case, of a forked standard having recessed ends, and removably secured to said body, a lever having outwardly-extending arms bearing in said recessed ends of the forked standard, a hollow ball arranged upon one end of said lever, a valve, and coiled pipes connecting the ball and valve and the ball and body or case, substantially as set forth.

5. The combination, with a body or case having inlet and outlet tubes, as described, of a valve arranged upon the upper side thereof and communicating therewith, a lever pivoted upon the upper side of said body, a hollow ball secured upon one end of said lever, a valve, and coiled pipes

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connecting the ball and valve and the ball and body or case, substantially as set forth.

6. The combination, with a body or case having inlet and outlet openings, as described, of a valve arranged upon the upper side thereof and communicating therewith, a lever pivoted upon the upper side of said case, said lever having a hollow ball at one end and a weighted ball at its other end, a rod connecting the valve-stem and weighted ball, and coiled pipes connecting the hollow ball and valve and the ball and case, substantially as set forth.

7. The combination, with a body or case having inlet and outlet openings, as described, of a valve arranged upon the upper side thereof and communicating therewith, and also communicating with the boiler, a lever pivoted upon the upper side of said case, said lever having a hollow ball at one end and a weighted ball at its other end, a rod connecting the weighted ball and valve-stem, and coiled pipes connecting the valve and hollow ball and the case and hollow ball, substantially as set forth.

8. The combination, with a body or case having inlet and outlet openings, as described, of a valve communicating therewith, and also communicating with the boiler, a lever pivoted upon the upper end of said case, said lever having a hollow ball at one end and a weighted ball at its other end, passages formed in said lever and communicating with the hollow ball, and coiled pipes connecting one of said passages and the valve, while the other connects the other passage and the case, substantially as set forth.

9. The combination, with a body or case having inlet and outlet openings, as described, of a valve communicating therewith, and also communicating with the boiler, a lever pivoted upon the upper end of said case, said lever having a hollow ball at one end and an adjustable weighted ball at its other end, a rod connecting the valve-stem and weighted ball, passages formed in said lever and communicating with the hollow ball, and coiled pipes connecting one of said passages and the valve, while the other connects the other passage and body or case, substantially as set forth.

10. The combination, with a body or case having inlet and outlet openings, as described, of a valve communicating therewith, and also communicating with the boiler, a forked standard secured upon the upper side of said case, a lever pivoted upon said standard, said lever having a hollow ball at one end and an adjustable weighted ball at its other end, a pivoted rod connecting the valve-stem and weighted ball, passages formed in said lever, pipes arranged at the ends of said passages and leading into the hollow ball, and coiled pipes connecting one of said passages and the valve, while the other connects the other passage and case, as set forth.

310,968. FEED-WATER HEATER. JAMES WELSH, Plymouth, Pa. Filed June 9, 1884. (No model.)

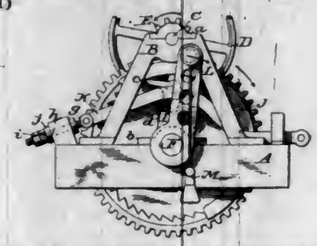
Claim.—The combination, with the smoke-stack A, of a water-tank, B, built around the same, the pipes K, passing through the water-

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tank and opening into the smoke-stack, to deliver the smoke and products of combustion thereto, a supply-pipe, D, for the tank, perforations E, provided in the upper end of the latter, and a distributing-pipe, G, communicating with the tank, and connecting with three or more branch pipes, H, arranged and operating as and for the purpose set forth.

310,969. DROP-HAMMER LIFTER. ALFRED WILLIAMS, Moline, Ill., assignor to Williams, White & Co., same place. Filed Jan. 3, 1883. (No model.)

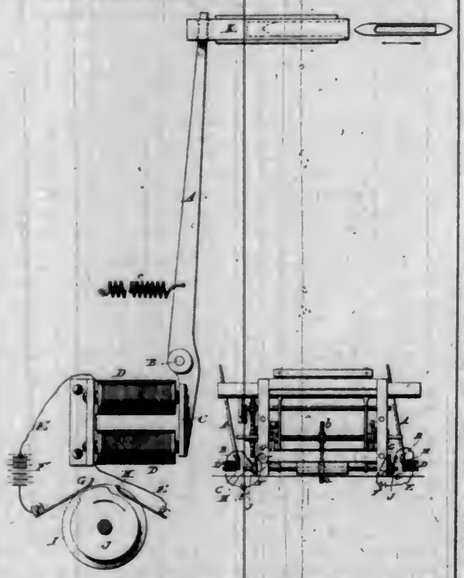


Claim.—1. In a drop-hammer lifter, the combination of wheel G, provided with teeth H, arm I, provided with pawl *e*, spring *d*, serving to hold said pawl in engagement with the teeth H, and crank-arm L, provided with hammer M and connected with arm I, substantially as described and shown.

2. In a hammer-lifter substantially such as described and shown, the combination of wheel G, arm I, provided with lug *e*, latch K, provided with lug *f*, and a cushioned or yielding support for said latch, for the purpose explained.

3. In a hammer-lifter substantially such as described and shown, the combination of wheel G, having teeth H, arm I, having pawl *e* and lug *e*, fixed block *h*, eyebolt *g*, cushion *j*, nut or enlargement *i*, and latch K, pivoted to said eyebolt and provided with lug *f*, all substantially as set forth.

310,970. SHUTTLE-OPERATING MECHANISM FOR LOOMS. EDWARD S. WINCHESTER, Boston, Mass. Filed Sept. 10, 1883. (No model.)



Claim.—1. The combination of the picker-staff pivoted near its lower end and provided with an armature, the electro-magnet to attract said armature, the source of electric supply connected with the magnet, the circuit opening and closing devices, and driving mechanism therefor, said members being constructed and organized for joint operation substantially as described and shown.

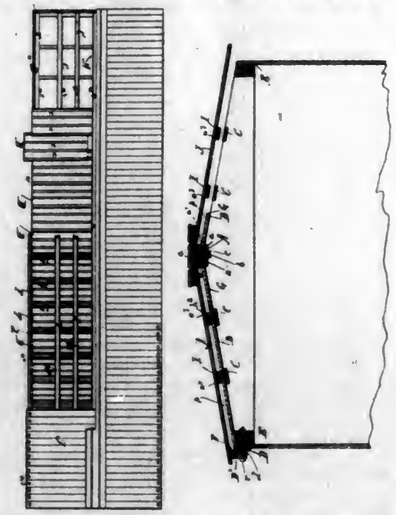
2. In a loom, the combination of the two picker-staffs located at opposite sides thereof, the electro-magnets, the source of electric supply connected with said magnets, the circuit-controlling devices, and operating mechanism for said devices, substantially such as described and shown.

3. In a loom, the combination of the two picker-staffs located at opposite sides, electro-magnets acting to drive the two pickers forward, devices, substantially such as described and shown, to effect the excitation of the two magnets alternately, and the two pickers K, each having the cavity or recess to receive the shuttle, whereby the pickers are caused to drive the shuttle to and fro and the impact of the shuttle applied to return the pickers to their outer position, substantially as described.

4. In a loom, the combination of the two picker-staffs, each provided with an armature, the electro-magnets, the source or sources of electric supply connected with said magnets, the electrodes G and H, the circuit-controlling wheels I and J, and the shaft upon which said wheels are mounted, said parts being constructed and arranged for joint operation substantially as described.

310,971. CAR-ROOF. HIRAM ALDRIDGE, Wheeling, W. Va. Filed Aug. 19, 1884. (No model.)

Brief.—Lower or main purlins are framed into the earlings, the top surface of the purlins being above the level of the pitch-line of the top surface of the ridge-pole. Metallic sheets with overlapping corrugated edges rest upon the purlins. Grooved battens cover the overlapping joints of the sheets. One end of the sheets and battens enters a double rabbet-shaped groove in the ridge-pole, parallel with the pitch of the roof. The other end enters a similarly-shaped groove in the furring-blocks. Top purlins rest upon the battens which are covered by the deck-boarding. The wall-plates also support the metal sheets.



Claim.—1. The car-roof comprising sheets of metal provided with fluted or corrugated edges, and overlapping one another at said edges and placed upon the car-frame, and having matched joints between the respective sheets at right angles to the edge of the roof, joint-battens placed upon the joints formed by the lapped edges of the sheets, ridge-pole with double rabbet-shaped groove parallel with the pitch of the roof to receive the ridge ends of the sheets and battens, lower or main purlins and earlings, and wall-plates supporting the metal sheets, grooved furring-blocks for receiving the eave ends of the sheets, and top purlins resting upon the battens, substantially as described.

2. The car-roof comprising sheets of metal provided with fluted or corrugated edges, and overlapping one another and placed upon the car-frame, and having matched joints between the respective sheets at right angles to the ridge of the roof, joint-battens fluted to match the overlapping joint edges of the sheets, and placed upon the joints formed by the lapped edges of the sheets, ridge-pole with double rabbet-shaped groove parallel with the pitch of the roof, for receiving the ridge ends of the sheets and battens, lower or main purlins and earlings, and wall-plates supporting the metal sheets, grooved furring-blocks for receiving the eave ends of the sheets, eave-plates, top purlins, and outer roofing or deck boarding, substantially as described.

3. The described car-roof comprising sheets connected by their fluted lapping edges, joint-battens, and main or lower purlins framed into the earlings of the roof-frame, with their top surface above the level of the top or pitch line of said frame, upper purlins, with their top surface above the level of the pitch-line of the top surface of the ridge-pole,

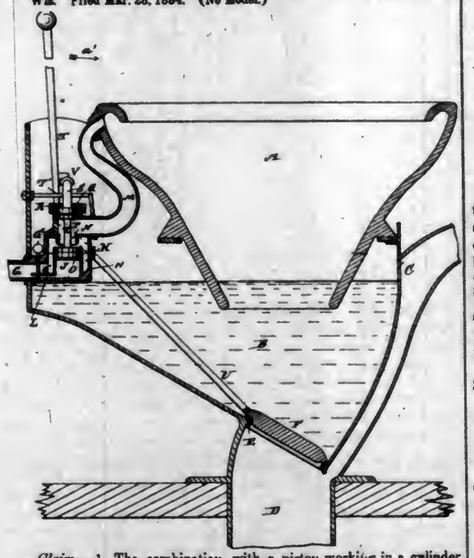
eave and wall plates of the car, and outer roofing or deck boards, substantially as and for the purpose described.

4. The car-roof having its ridge-pole provided with the double rabbet-shaped groove *a a'*, parallel with the pitch of the roof, for receiving and aiding in holding the ridge ends of the sheets and battens in place, substantially as described.

5. The combination of furring-blocks grooved on the pitch-line of the roof, ridge-pole grooved also on the pitch-line, overlapped metal sheets fluted or corrugated on their edges, joint-battens, main or lower purlins framed into the earlings of the car-frame, and wall-plates or frieze-boards, whereby the metal sheets are held parallel with the pitch-line of the roof at the ridge and eaves of the roof, while their overlapped edges are made to form tight joints beneath the battens, substantially as described.

6. In a car-roof, the metal sheets provided with fluted or corrugated edges for the purpose of forming joints between them, and held in place by joint-battens fastened at ridge and eave ends, in combination with earlings and upper and lower purlins, and an outer roof or deck fastened to the upper purlins, substantially as described.

310,972. WATER-CLOSET VALVE. HERMANN C. APEL, Milwaukee, Wis. Filed Mar. 28, 1884. (No model.)



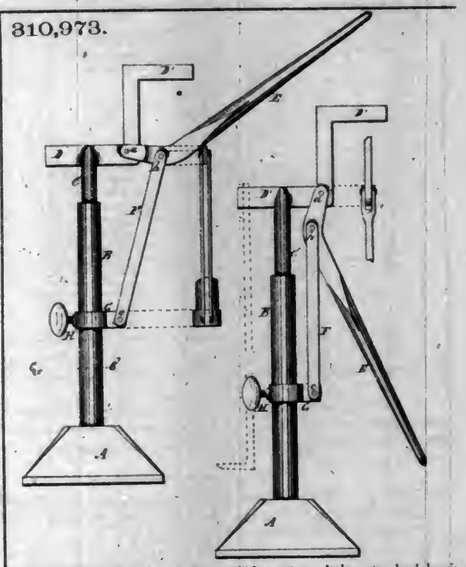
Claim.—1. The combination, with a piston working in a cylinder and forming the valve, of a lever for pressing down the piston, and of an inlet for admitting water into the bottom of the cylinder to raise the piston-valve, said piston-valve being fitted in an inner cylinder, and its seat depending in an outer cylinder, and said seat being slightly elevated above the upper end of the inner cylinder, substantially as herein shown and described.

2. The combination, with the bowl A or other vessel, of the water-inlet pipe G, forming a cylinder or casing, H, the cylinder J in the cylinder or casing H, the piston O, working in the cylinder J, and having upwardly-projecting stem, and the pipe M, connecting the casing or cylinder H with the bowl, and having a downwardly-projecting neck, N, above the piston O, said stem extending loosely into the tubular stem S of the plunger R, substantially as herein shown and described.

3. The combination, with the bowl A or other vessel, of the inlet-pipe G, the cylinder or casing H, the pipe M, connecting the cylinder or casing H with the bowl, and having a downwardly-projecting neck, N, the piston O, working in the cylinder J, and having an upwardly-projecting stem, said neck or valve-seat N being slightly elevated above the cylinder J, and said cylinder J, together with the casing H, forming the water-chamber from which the water enters said neck or seat, the inlet-pipe L at the bottom of the cylinder J, the screw G^2, and the valve G', substantially as herein shown and described.

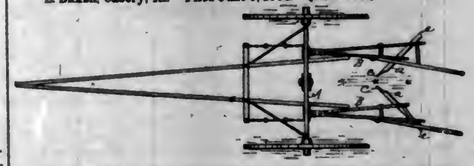
4. The combination, with the bowl A, of the water-inlet pipe G, the pipe M, connecting the pipe G with the bowl, the cylinder J, the inlet-pipe L in the bottom of the same, the piston O, the stem I, the plunger P, the hollow stem S, the lever T, the projection on the lever T, the valve F, and the rod U, connecting the lever T with the valve F, substantially as herein shown and described.

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Claim.—A lifting-jack consisting of a tubular standard having therein a movable lifting-shaft, the upper end of which terminates in an angular supporting brace or arm, to which is pivoted the minor end of a lever having its fulcrum in the upper ends of a vibratory pair of links, between which the lever is pivoted, and the lower ends of the links pivoted to a yoke or collar adjustably attached to the tubular standard by a set-screw, for the purpose of raising and lowering the shaft in the standard to adjust the implement to the object to be raised by means of the said lever as the major arm of which is forced downward, substantially as herein shown and described.

310,974. SCRAPER ATTACHMENT FOR CULTIVATORS. GEORGE L. BAKER, Cabery, Ill. Filed June 9, 1884. (No model.)

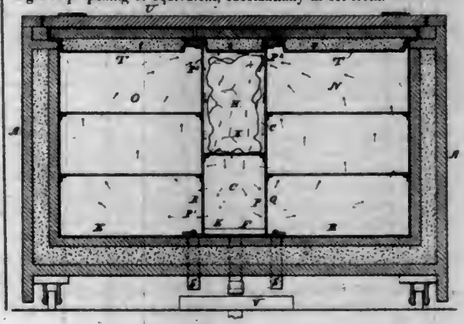


Claim.—1. As an attachment for cultivators, the scraper-blades *a a*, having the points *c* and *e*, and standards S S, in combination with the interchangeable beams B B, as and for the purpose set forth.

2. The combination of the scraper-blades *a a*, having the points *c e*, interchangeable plow-beams B B, and axle A, as and for the purpose set forth.

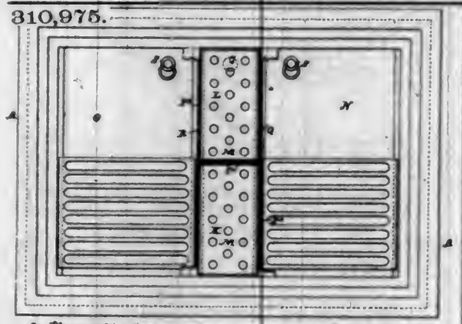
310,975. REFRIGERATOR. WILLIAM S. G. BAKER, Baltimore, Md. Filed Oct. 13, 1884. (No model.)

Claim.—1. The combination, with the food-compartments, of the central ice-compartment divided by a vertical partition into two ice-boxes, communicating independently with the respective food-compartments by means of air-openings, and provided with a water-trap and single drip-opening or equivalent, substantially as set forth.



310,978. LIFTING-JACK. JOHN D. BAILLIE, Mogadore, Ohio, assignor of one-half to John R. Musson, same place. Filed Oct. 6, 1884. (No model.)

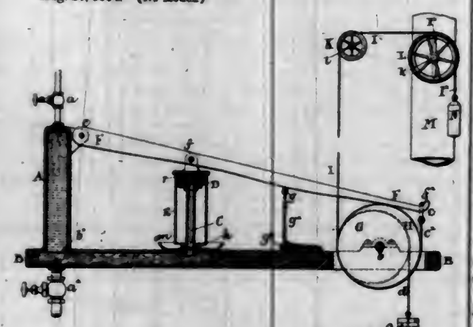
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2. The combination of two food-compartments and a central ice-box provided with perforations admitting of a circulation of air through one food-compartment and not through the other, substantially as set forth.

3. The combination, with two food-compartments, of a central or interposed ice-compartment divided into two separate ice-boxes, which communicate by openings each with only one food-compartment, substantially as set forth.

310,976. DAMPER-REGULATOR. CHARLES BALL and GEORGE LIENARD, Brooklyn, N. Y., assignors to Ball & Jewell, same place. Filed Aug. 20, 1884. (No model.)



Claim.—1. In a damper-regulator, the combination, with a hollow bed-plate and a water-chamber extending therefrom and adapted to contain water through which the pressure of steam is transmitted, of a lever fulcrumed to the water-chamber, damper-connections attached to and capable of operation by the lever, and a motor-cylinder and piston connected with said lever and communicating with the hollow bed-plate, substantially as herein described.

2. In a damper-regulator, the combination, with a hollow bed-plate adapted to contain water through which the pressure of steam is transmitted, of a lever and damper-connections to be operated thereby, an upright hollow piston-rod communicating with the bed-plate and surmounted by a stationary piston, and a movable cylinder fitting the piston and connected with said lever for operating it, substantially as herein described.

3. The combination of the hollow bed-plate B and communicating water-chamber A, the damper-operating lever F, fulcrumed to said water-chamber, the hollow piston-rod C, and stationary piston D, and the movable cylinder E, fitting the piston and connected with the lever, substantially as herein described.

4. In a damper-regulator, the combination, with a lever and a motor for operating it, of damper-connections attached to said lever, an eccentric or cam-shaped drum capable of rotation by the movement of said lever, and a weight suspended by a flexible connection from said eccentric or cam-shaped drum opposing a variable resistance to the movement of the lever, substantially as herein described.

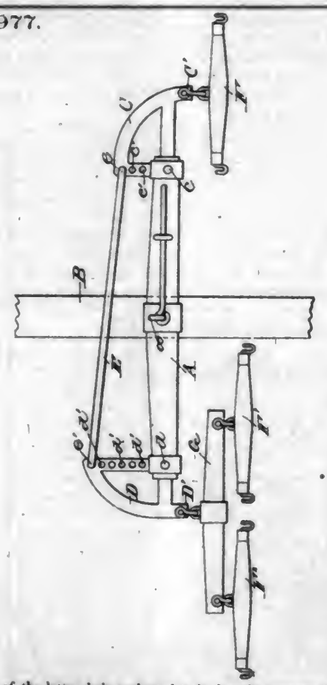
5. In a damper-regulator, the combination, with a lever and its operating-motor, of a concentric drum and an eccentric or cam-shaped drum connected and capable of rotation together, connections through which said lever serves to rotate said drums and operate the damper, and a weight suspended by a flexible connection from the eccentric or cam-shaped drum and opposing a variable resistance to the movement of said lever, substantially as herein described.

310,977. DRAFT-EQUALIZER. CHARLES BELLMANN, Barton, Wis. Filed Oct. 21, 1884. (No model.)

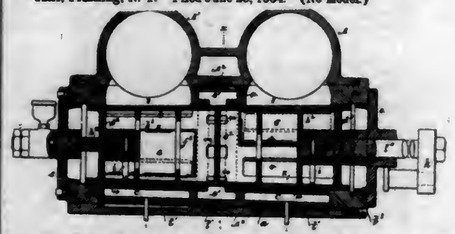
Claim.—1. In a draft-equalizer, a whiffletree having pivoted to its opposite ends the crank-levers C D, the short arm of the former and the long arm of the latter being adapted to be loosely connected at various points of their length by means of an adjustable rod, whereby the unequal draft exerted on single-trees attached to the opposite arms of the respective levers will be evenly balanced, substantially as set forth.

2. In a draft-equalizer, the combination, with the tongue B, of the whiffletree A, crank-levers C D, respectively perforated at c' c' and d' d', adjustable rod E, double-tree G, and single-trees F, F', and F², substantially as shown and described, and for the purpose set forth.

310,977.



310,978. ROTARY VALVE FOR STEAM-ENGINES. JOHN L. BOGERT, Flushing, N. Y. Filed June 25, 1884. (No model.)



Claim.—1. Twin horizontal steam-cylinders and plungers, in combination with a case crossing beneath the cylinders having openings or ports, and a hollow tapering valve within such case, substantially as specified.

2. The combination, with the twin cylinders and plungers, of a steam-passage between the cylinders, a case passing across beneath the cylinders, a cylindrical steam-valve, and the respective ports, substantially as specified.

3. In a steam-engine, a steam-cylinder, a cylindrical valve-chest across the cylinder near one end, a tubular lining or case to the valve and chest fastened into place, with a portion of one side thereof removed in boring out the steam-cylinder, so as to lessen the distance between the cylinder and valve, substantially as specified.

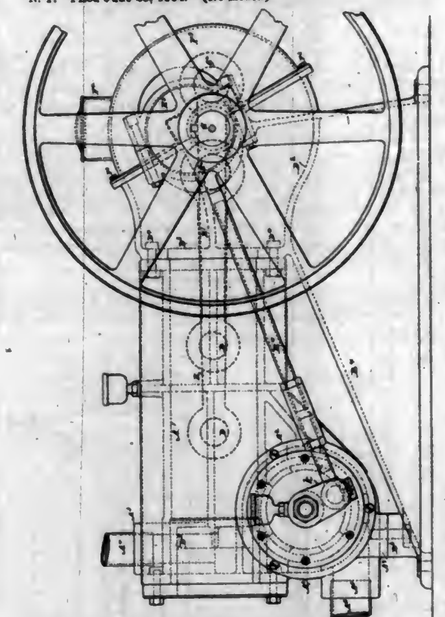
4. In a single-acting twin-cylinder engine, a tubular valve-case passing across near one end of the cylinders, with steam and exhaust openings and ports, in combination with a hollow oscillating valve within the chest, and mechanism for moving the same, substantially as specified.

5. The combination, with the tubular oscillating valve having steam and exhaust ports, of a valve-case surrounding the same, the twin steam-cylinders, steam-pipe, and ports passing in between the cylinders and spreading out laterally beneath the cylinders, exhaust-openings near the center of the valve and its case, and an exhaust-pipe, substantially as specified.

6. The combination, with the cylindrical steam-valve having ports and central openings for the exhaust-steam, of a case surrounding the valve and having an annular exhaust-passage opening to the exhaust-pipe, substantially as set forth.

7. The combination, with the cylindrical valve having steam and exhaust ports, of a central partition, and of supporting-partitions having openings in them, substantially as set forth.

310,979. TWIN-CYLINDER ENGINE. JOHN L. BOGERT, Flushing, N. Y. Filed June 25, 1884. (No model.)



Claim.—1. The twin steam-cylinders and the transverse valve-cylinder, the plungers within the steam-cylinders, the connecting-rods, the wrist-pins in the plungers, the crank and crank-shaft, the bearings for the crank-shaft, the frame extending from the bearings to the cylinders and along below the same, and the stop at the under part of the transverse valve-cylinder, and the attaching-bolts, substantially as specified.

2. The combination, with the horizontal steam-cylinders, placed side by side, their plungers and connecting-rods, of the shaft and cranks, the counterpoise connected to the cranks, the bearings for the shaft, the frame and bolts to connect the same to the ends of the cylinders, the removable hood to inclose the cranks and shaft, and the attaching-bolts, substantially as set forth.

3. The combination, with the horizontal cylinders, placed side by side, their plungers and connecting-rods, of two cranks, the crank-shaft, the bearings, a removable hood, an oil-reservoir upon the hood, above the crank-shaft, the tubular connections from the reservoir to the bearings and from the bearings through the cranks to the crank-pins, substantially as specified.

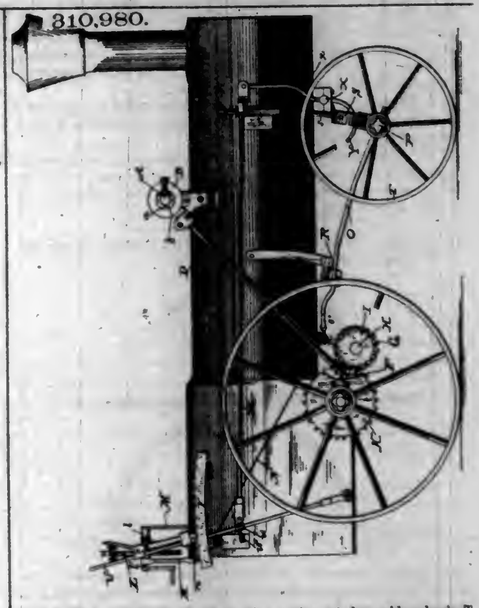
4. The combination, with the horizontal engine-cylinder, plunger, and wrist-pin, of the removable hood, the oil-reservoir and pipes upon the hood, the crank-shaft and crank, with the oil-supply tubes to the crank-pin, a tubular connecting-rod with an opening at the crank-pin and an opening at the wrist-pin, for lubricating the respective parts, substantially as set forth.

5. The combination, with the horizontal cylinder, plunger, and connecting-rod, of a crank-shaft, bearings for the same, a frame extending from the bearings to the end of the cylinder, and also extending below the cylinder, and provided with a step and bolts to connect the cylinder and its valve-chest to the respective parts of the frame, substantially as specified.

310,980. TRACTION-ENGINE. FREDERICK W. BOHN, Wabasha, Minn. Filed Mar. 31, 1884. (No model.)

Claim.—1. The combination, in a traction-engine, of the main or driving shaft thereof with the key a, the bevel-wheel B, the bevel-pinion C, the shaft D, the worm F, the gear-wheel G, the shaft H, the pinions I, and the cog-wheel K, all as hereinbefore described, for the purpose of communicating and regulating motion in and to the driving-wheels of such an engine, as hereinbefore set forth.

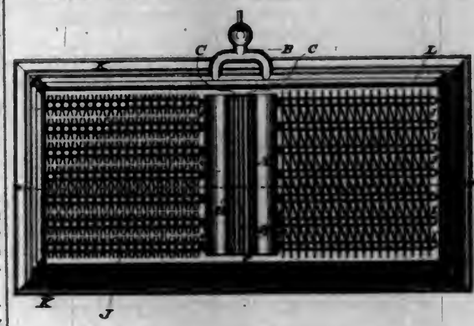
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2. The combination, in a traction-engine, of the guide-wheels T, mounted upon an axle, P, which turns upon a pivot, p, the bounds O, uniting in a loop, o', and provided with a collar, o'', the bar R, supporting said bounds, and the rope N, secured at both ends to said loop and guided by pulleys n to and wound upon a windlass, l, attached to the tiller-wheel L, which is mounted in the ordinary manner upon an axle or shaft supported by and journaled in suitable standards, whereby from the winding and unwinding of said rope upon said windlass a turning motion is given to said guide-wheels, all as hereinbefore described.

3. In traction-engines, the combination consisting of the hand-lever U, the ratchet V, the spring-pawl v, the connecting-rod W, with the sliding collar w and screw w', the roller-bar X, with lever x, the convexed feet Y, and the bow S, with arms s, cylinders s', and notches s'', all as herein described, for the purpose of elevating and depressing the front end of the boiler to preserve a proper level of water within the boiler when ascending or descending sloping ground.

310,981. HOT-WATER RADIATOR. WILLIAM H. BROWN, Indianapolis, Ind. Filed Jan. 31, 1882. (No model.)



Claim.—1. The combination, in a hot-water radiator-stove, of a central reservoir to which the heat is applied, provided with laterally-projecting corrugated plates, forming hollow chambers, into which the heated water may flow from said reservoir by means of conduits connecting said chambers to said reservoir at or near the top, and from which the cooler water will flow into said reservoir by means of conduits connecting said plates and said reservoir at or near the bottom, the circulation being maintained by the action of the heat, substantially as set forth.

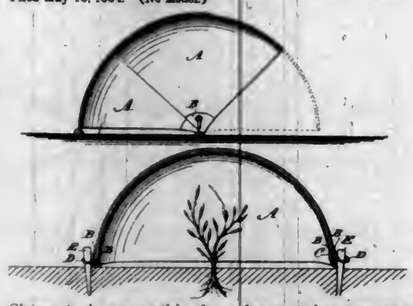
2. The combination of the central heating-reservoir, A, having water-cavities H and flame-passages C, lateral wings or plates I, corrugated to form hollow chambers or water-receptacles, and connections between said reservoir and said chambers, substantially as set forth.

3. The combination, in a radiator-stove, of the central heating-reservoir and laterally-attached corrugated plates, said plates forming, when brought together as shown, hollow water-receptacles, consisting, essentially, of two substantially horizontal tubes connected together by substantially vertical tubes.

4. The combination of the reservoir A, having flame-channels C and water-spaces H, with burner B, the wings I, and the inclosing-case, substantially as set forth.

5. In a heating apparatus, a reservoir or generator, A, constructed of corrugated plates, as shown, which form serpentine passages C for the products of combustion between similarly-formed water-cavities H, substantially as set forth.

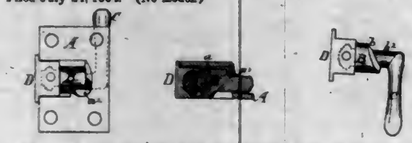
310,982. PLANT-PROTECTOR. WILLIAM H. BROWN, Dunedin, Fla. Filed May 13, 1884. (No model.)



Claim.—1. As a new article of manufacture, a plant-protector consisting, essentially, of two bottomless quarter-globe sections pivoted together at their lower adjacent ends, whereby they may be folded one within the other and extended to cover plants, substantially as set forth.

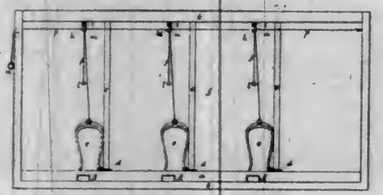
2. In a plant-protector, the combination, with the two bottomless sections A, each having the shape of a quarter of a hollow globe, of the rivets C, having eyes or loops D formed on their outer ends, substantially as herein shown and described.

310,983. SASH-HOLDER. FREDERICK BURMEISTER, Cleveland, Ohio. Filed July 24, 1884. (No model.)



Claim.—The combination, with the housing A, having inclined wall provided with hole a', of the bolt B, having spiral incline b, and reduced portion b', terminating with lever C, and provided with the swivel-jointed head D, cast thereon, constructed, combined, and operating substantially as described, and for the purpose set forth.

310,984. CATTLE-FASTENING. JAS. C. BUZZELL, Acton, Me. Filed May 12, 1884. (No model.)

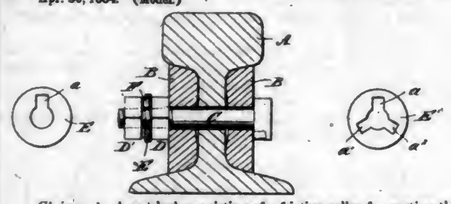


Claim.—1. The combination, with the stanchion or vertical post of a cattle-stall, of a ring and a bow or hook, and the operative line and its guides, arranged as set forth.

2. The combination of the line p and its leaders h with the cattle-securing bows e, applied to stanchions or posts c, as described, and with the raising-lines f, connected with the said bows and provided with stops m, and led through staples or guides, all being substantially and for the purposes as represented.

3. The series of line holders or staples A, as shown, projecting upward from the floor of the stall, in combination with the series of bows e, and their raising-lines f, provided with knobs or weights to operate such staples, as set forth, such bows being held by rings, as described, to posts or stanchions arranged in the stalls, as represented.

310,985. NUT-LOCK. JAMES A. CAMPBELL, Brenham, Tex. Filed Apr. 30, 1884. (Model.)

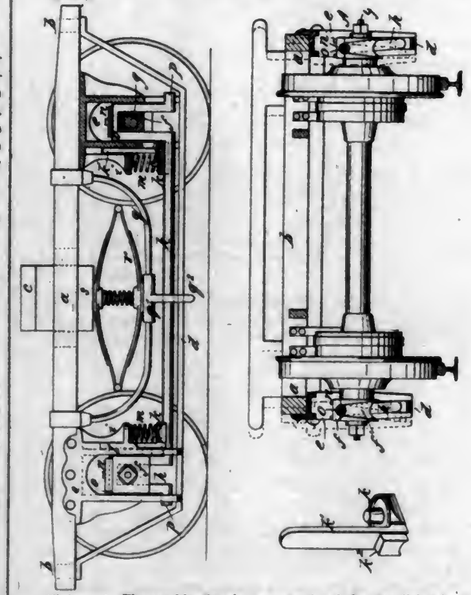


Claim.—1. A nut-lock consisting of a friction-roller for canting the nut, held between a nut screwed upon a bolt and another nut on the surface of the object to be secured by the bolt, substantially as shown and described.

2. A nut-lock consisting of a friction-roller for canting the nut, held between a nut and another nut or the object to be secured by a bolt, and in an aperture in a washer between the said nuts, or between the nut and the object to be secured by the bolt, substantially as shown and described.

3. The combination, with a bolt and its nut or nuts, of a washer having an aperture, and of a friction-roller for canting the nut, having a slightly greater diameter than the thickness of the washer, substantially as shown and described, and for the purposes set forth.

310,986. CAR-TRUCK. CHARLES E. CANDEE, New York, assignor of one-half to Albert G. Story, Little Falls, N. Y. Filed May 15, 1884. (No model.)



Claim.—1. The combination, in a car-truck, of the equalizing-bars h, made with crank-pins o, the pedestals e, and the boxes f, substantially as described, for operation as specified.

2. In a car-truck, the combination of spring-seats k, springs m, cap i, and equalizing-bar h, fitted for lateral movement, substantially as described.

3. In a car-truck, the spring-seats k, formed with tongues k', combined with pedestals having pockets l, substantially as described.

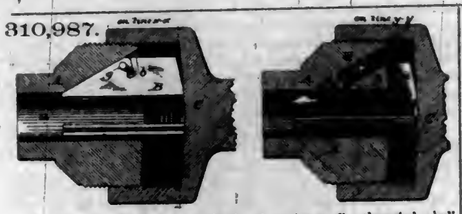
4. In a car-truck, the boxes f, made with side grooves, f', combined with the pedestals e and equalizing-bar h, having crank-arms, substantially as shown and described.

5. The combination, in a car-truck, of hangers q, spring-seats q', springs r, and equalizing-bar h, substantially as shown and described.

310,987. DRILL-CHUCK. JAS. S. CHURCH, Milwaukee, Wis., assignor of one-half to George M. Hinkley, same place. Filed Apr. 4, 1884. (No model.)

Claim.—1. In a chuck, the combination of an internally-threaded shell adapted to be applied to a lathe-mandrel, an externally-threaded block or head fitting within the shell, and provided with radial slots having faces inclined relatively to the longitudinal axis of the chuck, and jaws inserted within said slots and bearing against the shell at their inner ends, substantially as described and shown.

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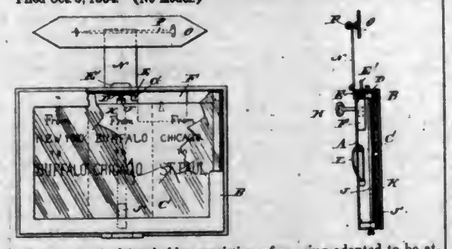


2. The combination, in a chuck, of an internally-threaded shell adapted to be applied to a lathe-mandrel, an externally-threaded head or block screwing into said shell, and provided with radial slots, and radially-moving jaws seated in said slots, all constructed and arranged substantially as described and shown, whereby the jaws are caused to tighten automatically upon an article placed within their grasp as the resistance to rotation is increased.

3. In combination with internally-threaded shell C, externally-threaded head or body A, having radial slots b, and a polygonal front end and jaws, B, seated in slots b, all substantially as described and shown.

4. In combination with head or block A, having opening a, slots b, and cavities d, springs f, seated in said cavities, jaws B, seated in the slots b, and having lugs g extending into cavities d and resting upon the springs therein, and shell C, screwed upon the body A and bearing against the inner ends of the jaws B, substantially as and for the purpose set forth.

310,988. TICKET-HOLDER. SHERBURN E. CILLEY, Tunbridge, Vt. Filed Oct. 3, 1884. (No model.)



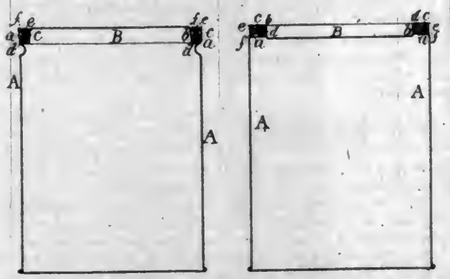
Claim.—1. A ticket-holder consisting of a casing adapted to be attached to the coat or other article, and provided with a hinged glass front having a spring-catch and a lock for locking the spring-catch, so as to prevent opening the casing, substantially as herein shown and described.

2. In a ticket-holder constructed substantially as set forth, the combination, with the casing having a hinged front, of the link-piece N and the piece O, having a pin, P, substantially as herein shown and described.

3. In a ticket-holder constructed substantially as set forth, the combination, with the casing A and its hinged front B, of the spring-strip J, secured transversely on the inner surface of the casing, substantially as herein shown and described.

4. In a ticket-holder, the combination, with the casing A and its hinged front B, of the spring-strip J and the pin L, held in the back of the casing, substantially as herein shown and described.

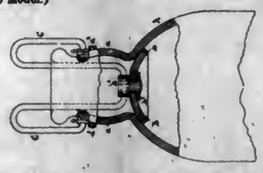
310,989. HERMETICALLY-SEALED TIN CAN, CANISTER, &c. EDWARD H. COOKE and HENRY T. SEYMOUR, Cork, Ireland. Filed June 18, 1884. (No model.)



Claim.—1. The means described for hermetically sealing tin cans, canisters, and the like, and for preventing the attaching of the cover directly to the body of the can, consisting of a packing, d, of twine or its described equivalent, placed in a channel or trough between the lid and can, and of a wire, e, soldered in the same channel above said cord, all as set forth.

2. In a tin can, canister, or the like for containing alimentary and other substances, the combination of a channel or trough, such as c, packing d, and wire e, having a projecting end or ends, substantially as and for the purposes set forth.

310,990. BOTTLE-STOPPER. GEORGE D. COREY, Lowell, Mass., assignor of one-half to James F. Puffer, Jr., same place. Filed Jan. 26, 1884. (No model.)



Claim.—1. The combination of the exterior curved part, a, of the bottle-neck, the bearing-pieces $c\,c$, and the bottle-stopper B, the bearing-pieces pressing against opposite sides of said curved part, and being connected to said bottle-stopper by suitable intermediate spring-connections, whereby the said bottle-stopper shall be held closed against the bearing-shoulder in the neck of said bottle, substantially as described.

2. The combination of the bottle-neck, the bearing-pieces $c\,c$, pressing against opposite sides thereof, the wire C, and the bottle-stopper B, substantially as described.

3. The combination of the bottle-neck, the bearing-pieces $c\,c$, the wire C, and the bottle-stopper B, said wire C and stopper B being united by a pivotal connection, substantially as described.

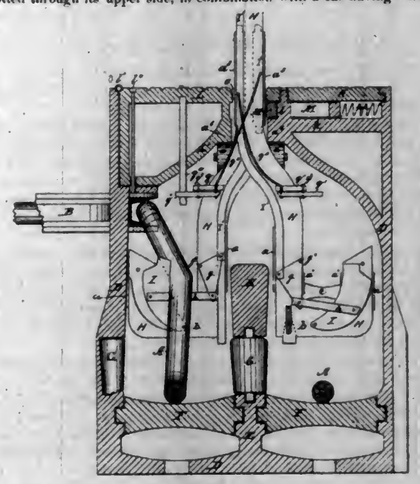
4. The combination of the bottle-neck, the studs $a^2\,a^2$, the bearing-pieces $c\,c$, the wire C, and the bottle-stopper B, substantially as described.

5. The combination of the bottle-neck, the bearing-pieces $c\,c$, the wire C, and the bottle-stopper B, the said bottle-neck having its internal bearing-shoulder for the stopper at the upper end thereof, substantially as described.

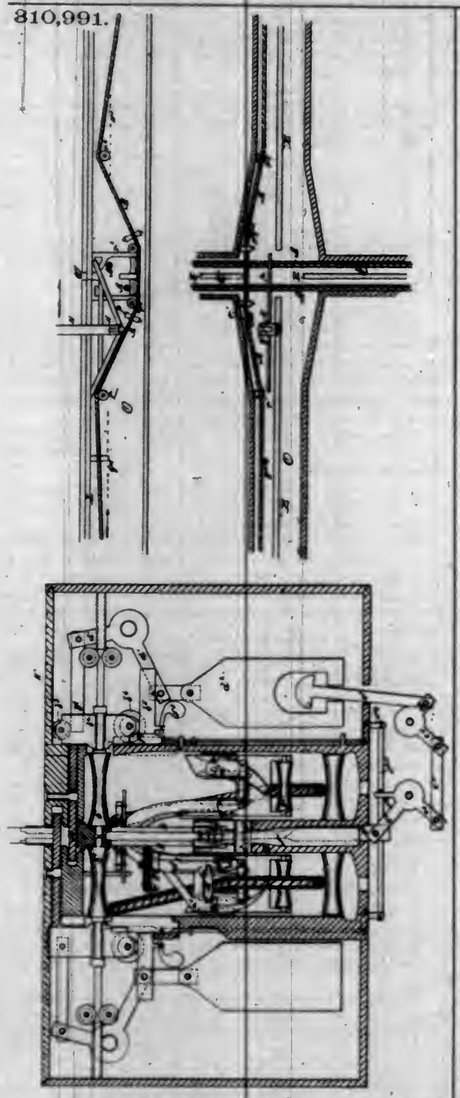
310,991. CABLE RAILROAD AND TRAMWAY. FRANCIS DE VOOGHT, Antwerp, Belgium. Filed Sept. 17, 1881. (No model.)

Brief.—The cable is secured in a hook through a pivoted cleup operated from the platform by an attendant, and automatically at crossings through a tappet in the tube. The hook has rollers upon which the cable runs when not clamped, and also side rollers to prevent friction against the side of the tube and central partition. The slot is closed by spring-plates which are slid back by the passing hook, actuating traveling carriages which carry rollers which cross the path of the cable where the cable has a tendency to be lifted to the top of the tube. Where these rollers are employed in a double tube, bearings for their inner rods are formed in a hinged division, which is automatically lowered to let the hook pass. To secure the cable in the hook where there is an up-pull, a swinging frame is employed having anti-friction rollers. At cable crossings the meeting-slot-covering plates are connected by spring-held bolts, which are automatically pressed back in passing. The under rope at crossings is elevated and deflected, so as to leave the hook until the upper cables are passed, when it is again led into the line of the hook.

Claim.—1. A railroad having a pair of rails, and a tube secured upon the road between and parallel to said rails, said tube being open or slotted through its upper side, in combination with a car having wheels



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to run upon said track, and two or more hooks or hangers secured to said car, having rollers to run against the inner sides of said tube, as shown and described.

2. A pair of rails secured upon a road, a tube secured between the rails, parallel therewith, said tube being open or slotted through its upper side, and shelves therein serving as downwardly-facing rails, in combination with a car and wheels thereon to run upon said track, hooks depending from said car to enter said tube, and wheels or rollers journaled in said hooks to roll against the aforesaid downwardly-facing rails, as shown and described.

3. The combination, with a railroad and a car adapted to run thereon, of a tube secured between and parallel to the rails thereof, a slot in the center of the top of said tube, a partition rising from the bottom part way up the height of the tube, rollers journaled at one end in the side of the tube and at the other end in the partition, and an endless cable or rope in said tube, substantially as described.

4. A railroad, a car adapted to run thereon, an open-topped tube secured parallel with the rails thereof, and a cable in said tube, in combination with one or more hooks depending from the said car into the tube, rollers journaled in the tube to guide the cable free therefrom, and to guide the cable to lie into the said hook at all points of the line of the road, and means for securing the hooks to said cable or releasing them therefrom, as described.

5. A railroad, a car, and an endless traveling cable, and one or more hooks, H, secured to the car, adapted to receive the cable A, in combination with a clamping-jaw, I, hinged to said hook, an operating-handle, J, and means connecting it with said clamping-jaw, substantially as specified, whereby the clamp may be forced to engage the cable or to release it, as specified.

6. The hook H, the jaw I, hinged thereon, the bell-crank lever *g*, and connection *h*, in combination with the crank J, elbow-lever *f*, and connections, as shown and described.

7. The combination, with the tube D, of the half-cover L, provided with the bracket portion L', hinged to the tube at *l'*, and the fastening-bolt *l''*, as shown and described.

8. The tube D, provided with the fixed brackets *k* and the studs *l* thereon, in combination with the removable half-cover K, tongued and grooved to the tube at one edge, and supported at the other edge on said studs *l*, as shown and described.

9. The tube D, having the central opening, O, between its covers, in combination with the sliding plates M, slotted to receive studs *l*, hinged together at M', and means for pressing them to slide across said opening, as described.

10. The combination, with two plates, M, attached together, forming an angle at a crossing, and having pin-holes in their edges, of two opposite plates M, spring-pins *n* therein, adapted to engage said pin-holes, and the pin-removers, as shown and described.

11. The combination, with the tube D and the sliding plate M, of the bell-crank lever *d'* and the weight d^3, as shown and described.

12. The combination, with the tube D and the sliding plate M, of the carriage b^3, having rollers b^2 and b^4, and the bracket b^5, secured to said tube, and grooves in said bracket and in the top of the tube to receive said rollers, as shown and described.

13. The tube D, having the grooved bracket b^5 and grooved top K', the carriage b^3, having rollers b^2 and b^4, the plate M, attached thereto, and means for operating the same, substantially as specified, in combination with the roller b', journaled at one end in said carriage b^3 to slide therewith, as described.

14. The combination, with the roller b', the carriage b^3, plate M and means for operating the same, and the tube D, containing them, of the bearing *e'*, pivoted to the partition E, and means for swinging the same out of the path of the hook by the action of sliding plate M, substantially as described.

15. The roller b', the carriage b^3, the sliding plate M, the bell-crank lever d', the hollow weight d^3, and the connecting-rods, in combination with the bearing *e'*, pivoted at e^3, the bell-crank levers e^4 and e^5, the weight *f'* and connections, and the button-headed rod e^1, engaging the weight d^3, as shown and described.

16. The combination, with the tube D, provided with the sliding gradient rollers b', of the hook H and the roller g^2, journaled therein, as shown and described.

17. The combination, with the hook H, of a roller, n^2, an arm, n^3, carrying the same, pivoted to the hook at n^4, to swing said roller across the hook, means for swinging the same, and the weighted arm n^5, attached thereto, as shown and described.

18. The combination, with the hook H, of the holding-down device consisting of the frame a^2, pivoted thereto by means of the vertical post n^1, the arms *c'* on said post, the post c^4, pivoted to said hook, passing up in front thereof to the car, the arms c^3 on post c^4, the connecting-rod c^2, and means for turning post c^4, substantially as specified.

19. The combination, with the hook H and the holding-down device described, of the arm c^3 on post c^4, the weighted lever c^5, and the connections and the stirrup c^7, as shown and described.

20. The combination, with the hook H, of the shares *p*, secured thereon, as shown and described.

21. The combination, with a tube having the central slot, O, and the central partial partition, E, of the hook H, bent in its shank to travel in said slot, and at the same time, to avoid said partition, said hook being pointed upward and extending its hooking portion nearly across the space between the wall and partition of said tube, as and for the purpose specified.

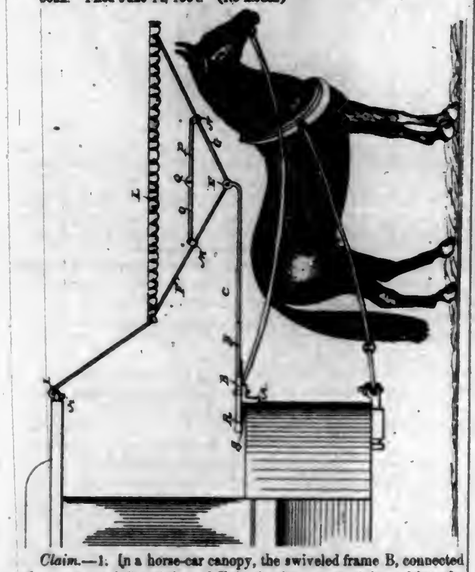
22. A railway, a slotted partially-partitioned tube thereon, a cable traveling in said tube in opposite directions on opposite sides of said partition, a car upon said railway, and two hooks on the car entering said slotted tube and extending partially across the two channels thereof each hook facing to the wall of the tubes, as described.

23. The combination, with the two hooks H and the beam S, carrying them, of the sliding ways *u*, securing said beam to a car, and the spring-buffers Y at the ends of said beam S, as shown and described.

24. The combination, with the hook H and its clamping-jaw I, of the lever *q'*, pivoted to the hook, means for connecting it with said jaw and the sentinel-stud *q'''*, located in the path of said lever, as described.

25. A railway, a car thereon, a traveling traction-cable, a clamping device upon the car, and means, substantially as described, for securing it to the cable by turning the brake-lever in one direction and releasing it by turning said lever in the other direction, in combination with a car-brake and means connecting it with said lever, whereby the turning of the lever in one direction will first release the clamp from the cable and then apply the brake, and turning said lever in the other direction will first release the brake and then clamp the cable, as described.

310,992. HORSE-CAR CANOPY. FRANK H. DIBBLE, New Haven, Conn. Filed June 14, 1884. (No model.)

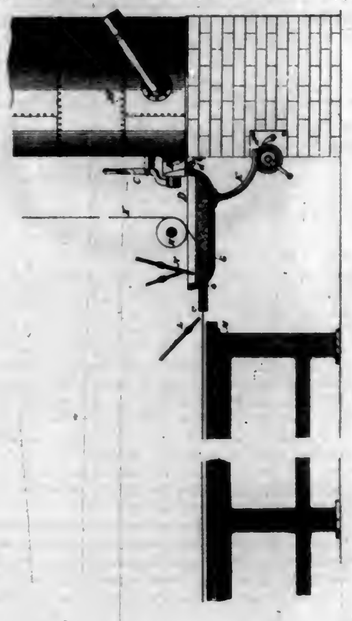


Claim.—1. In a horse-car canopy, the swiveled frame B, connected to the support-rod C, and the rod F, having its upper end formed into the hook H, in combination with the rod G, toggle-levers O P, cross-rods J K, and the canopy, substantially as and for the purpose set forth.

2. In a canopy, as described, the swiveled frame B, having handle R, adapted to engage with the segment S, and the support-rod C, to which are pivoted the rods F G, held apart by the toggle-levers O P, in combination with the cross-rods J K and canopy, as and for the purpose specified.

310,993. APPARATUS FOR THE MANUFACTURE OF COMPOUND TELEGRAPH-WIRE. MOSES G. FARMER, Newport, R. I. Filed Feb. 20, 1884. (No model.)

Brief.—Coats electroplated wire by means of molten copper.



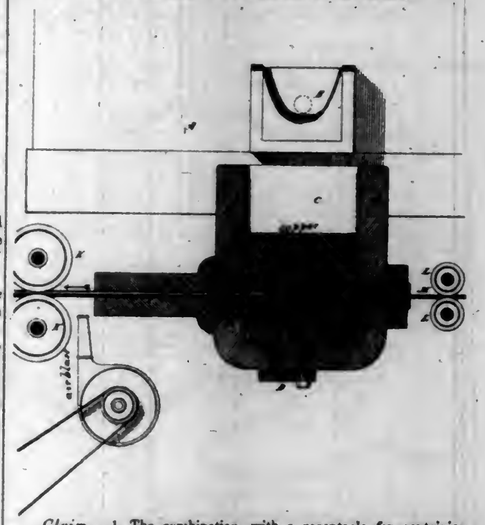
Claim.—1. The combination, in an apparatus for coating wire with metal, of a receptacle for containing the molten metal, and provided with a die or an orifice for limiting the amount of metal carried out through it by the wire, and thus forming the coats, a nozzle with a conical passage extending outward from the orifice, and means for guiding a wire centrally through the orifice, all as set forth.

2. The combination, in an apparatus for coating wire with metal, of a hinged or adjustable receptacle for holding the molten metal, and provided with an orifice, a nozzle with conical passage extending from the orifice, and means for guiding a wire centrally through the orifice, all as set forth.

3. The combination, with a receptacle for containing molten copper, of a block embedded in its side and provided with an orifice, a nozzle with conical passage extending from the block, means for guiding a wire through the orifice, and means for directing a blast of air upon the same as it issues therefrom, all as set forth.

4. The combination, in an apparatus of the kind described, of a receptacle for containing molten metal, a perforated block, *e*, and nozzle *c*, a post, G, having an eye in line with the perforation in block *e*, a roller, H, blow-pipe N, and nozzle L, for directing an air-blast into the nozzle, all as set forth.

310,994. APPARATUS FOR COATING WIRE WITH METAL. MOSES G. FARMER, Newport, R. I. Filed July 29, 1884. (No model.)



Claim.—1. The combination, with a receptacle for containing melted metal, of a tubular wire-guide extending through the same, one portion having a bore of greater diameter than the other, and both bores communicating with the interior of the receptacle in substantially the manner herein set forth.

2. The combination, with a receptacle for containing melted metal, of a tube extending through the same and containing a transverse passage or opening, the bore on one side of said passage being larger than on the other, as set forth.

3. The combination, with a receptacle for containing melted copper, of a tube extending horizontally through the same and containing a transverse passage, and wire-guide rollers located at the ends of said tube, substantially as and for the purpose specified.

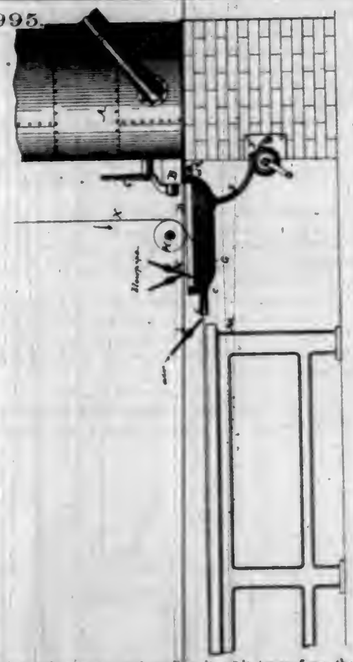
310,995. PROCESS OF MANUFACTURING COMPOUND TELEGRAPH-WIRE. MOSES G. FARMER, Newport, R. I. Filed Sept. 10, 1884. (No model.)

Claim.—1. The method herein described of manufacturing compound telegraph-wire, which consists in electroplating a steel or iron wire with a thin film of copper, then drawing the same through molten copper and shaping the coating in substantially the manner set forth.

2. The method herein described of manufacturing compound telegraph-wire, which consists in electroplating a steel or iron wire with a film of copper from a non-acid or neutral solution, then drawing the same through molten copper and shaping by a die the coating as the wire issues from the receptacle containing the copper in substantially the manner described.

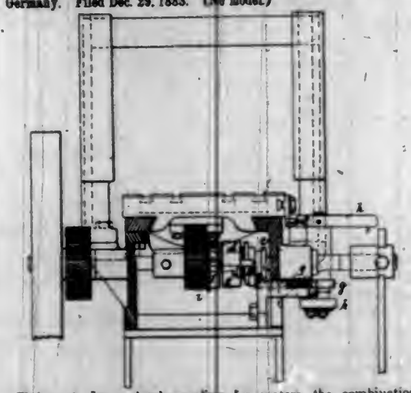
3. The method herein described of manufacturing compound telegraph-wire, which consists in electroplating a steel or iron wire with a film of copper, then drawing the same through molten copper, shaping the coating by drawing the wire through a die or orifice in the recep-

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tacle containing the copper, and coobing it as it issues from the die or orifice, all substantially as herein set forth.

310,996. CLUTCH-COUPLING. MATHIAS HAAS, St. Georgen, Baden, Germany. Filed Dec. 29, 1883. (No model.)



Claim.—1. In a clutch-coupling for motors, the combination of sliding toothed sleeve *c* with the loose eccentric toothed sleeve *d*, brake-spring *n*, and carriers *k k*, substantially as described and illustrated.

2. The combination, with the sleeve *c*, of the fork *f*, the slide *g*, and an engaging pin or stud, *l*, substantially as described.

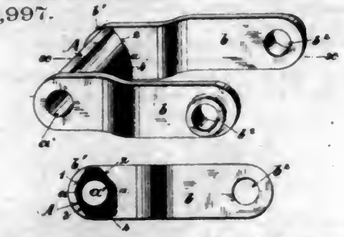
3. The combination, with the planing-table B, of the rack A, free to slide a regulated distance, spring D, fixed to the table B, and abutting-pins C C, whereby may be effected a reversal, substantially as described and shown.

4. The combination, with the cross-bar S, of the slides *g g* and an eccentric, whereby cross-bar S, and consequently the slides *g g*, will be set in motion, effecting the unshipping of both clutches and the consequent stopping of the machine, notwithstanding that both driving-shafts *a* and *b* continue their motion, substantially as set forth.

310,997. DRIVE-CHAIN. CHARLES W. HEALD, Moline, Ill. Filed May 16, 1884. (No model.)

Claim.—1. A drive-chain link provided with a driving-bar having four bearing or working faces, two above and two below the longitudinal axis of the cross-bar, one upper and one lower face being on the forward side and the other upper and lower face being on the rear side of the bar, substantially as and for the purpose set forth.

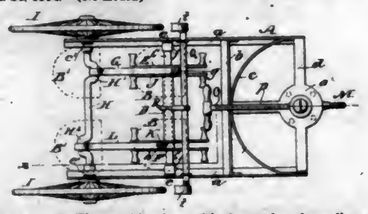
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2. A drive-chain link consisting of a driving-bar, A, provided with working or bearing faces 1 2 3 4, with arms *b b* extending forward from said bar, substantially as shown and described.

3. The herein-described drive-chain composed of a series of links, each consisting of driving-bar A, having working or bearing faces 1 2 3 4, and arms *b b*, connected by rivets or bolts, substantially as described.

310,998. TRICYCLE. CARL G. E. HENNIG, Paterson, N. J. Filed Oct. 24, 1884. (No model.)



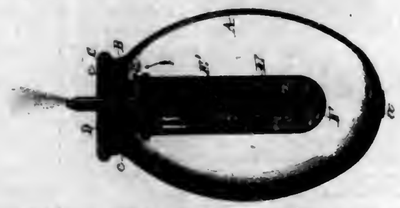
Claim.—1. The combination, with four pairs of treadles, of two rocking arms, *g h*, connected to the cranks of the axle by rods G L, two pairs of said treadles being connected to said axle, and the two other pairs of said treadles being connected to a tube, D, arranged upon said axle, substantially as described.

2. The shaft C, having cranks secured thereto, in combination with a tube placed upon the shaft and provided with cranks, the shaft and tube being connected with the crank-axle by rocking arms and connecting-rods, substantially as described.

3. The shaft C, provided with the double treadles E F, in combination with the tube D, provided with the double treadle J K, and the treadles E K, having the rocker-arms *g h* connected to the axle H, substantially as described.

4. The cross-piece *d* of the frame of the tricycle, enlarged at *o*, and braced by the rod *p*, in combination with the circular plate N, formed with hub *n*, and provided with the braces *m*, between which the guide-wheel M is held, substantially as described.

310,999. ATOMIZER. ANGUS S. HIBBARD, Milwaukee, Wis. Filed Sept. 30, 1884. (No model.)



Claim.—1. An air-bulb inclosing a liquid-receptacle, in combination with one tube leading out from within the receptacle and another leading out from the space within the bulb, and between it and the receptacle, forming an atomizing-injector, substantially as set forth.

2. In an atomizer, the combination of a liquid-receptacle inclosed within a compressible air-bulb, with tubes leading, respectively, from the receptacle and air-bulb to the outside, substantially as set forth.

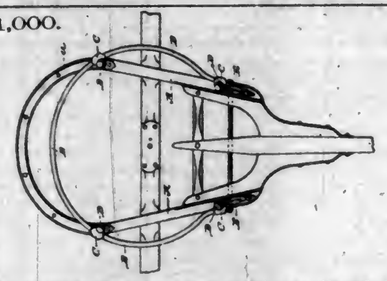
3. The combination, in an atomizer, of a compressible bulb, a liquid-receptacle, a stopper, a threaded collar, and a corresponding cover having a recess for the stopper of the liquid-receptacle, and perforations for the atomizing-tubes, substantially as set forth.

311,000. CIRCLE-POST FOR WAGONS. NATHAN L. HOLMES, Racine, Wis. Filed May 17, 1884. (No model.)

Claim.—1. A circle-post constructed with a longitudinal passage for the fastening-bolt, a horizontal passage for the circle located at one side of the bolt-passage, and a vertically-movable cap apertured to give passage to the bolt, substantially as set forth.

2. A circle-post provided with a longitudinal passage for the fastening-bolt, a horizontal passage for the circle located at one side of the bolt-passage, and a slit extending from the circle-passage through the part pierced by the bolt-passage, substantially as described, and for the purpose set forth.

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3. The combination, with the curved circle and the hound, of a vertically-apertured post provided with a laterally-arranged interiorly-enlarged circle-passage, C', and a slit, *c'*, located as shown, and a bolt, D, substantially as described, and for the purpose set forth.

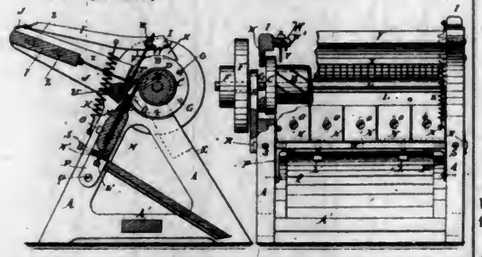
4. The combination, with the hound and the circle provided with a notch at *b*, of a vertically-apertured post and a bolt, D, projecting into the notch of the circle, substantially as described, and for the purpose set forth.

5. The combination, with the circle, the hound, and the holding-bolt, of a post provided with circle and bolt passages C' and *c*, communicating with each other, and a slit, *c'*, the said passages C' and *c* being arranged to cause the bolt to crowd the circle against the outer wall of the circle-passage, substantially as described.

6. The combination, with the axle-hounds, of a circle having its ends in the same plane with its body, posts supporting said circle ends from the hounds, and means, substantially as described, for holding said ends of the circle longitudinally in place.

7. The combination, with the hounds and the circle, having its ends in the same plane with the body thereof, of posts supporting said ends of the circle, through-bolts securing the posts to the hounds, and straps E, separate from the posts, but extending beneath them and held by the through-bolts, substantially as described.

311,001. COTTON-GIN. ELI C. HORNE, Jasper, Fla. Filed July 1, 1884. (No model.)



Claim.—1. In a cotton-gin, the combination, with the knife and its holding-plate, of the sectional clamping-plate provided with adjusting or holding screws, and having one side cut away or reduced intermediately of its upper and lower ends, and the knife-adjusting screws passed through the knife-holding plate and the sectional clamping-plate and bearing against the lower edge of the knife, substantially as and for the purpose set forth.

2. In a cotton-gin, the combination, with the knife and holding-plate, of the pivoted bracket-arms and screws passing through the base of said plate and bearing against the lower edge of said knife for adjusting and holding the plate, substantially as herein shown and described, whereby the knife can be readily adjusted to any desired distance from the ginning-cylinder, as set forth.

3. In a cotton-gin, the combination, with the knife, of the holding-plate, the pivoted brackets or arms connected to said plate, the adjusting screw-bolts connecting with said plate, and the holding-screws bearing against the sides of said bolts, substantially as and for the purpose specified.

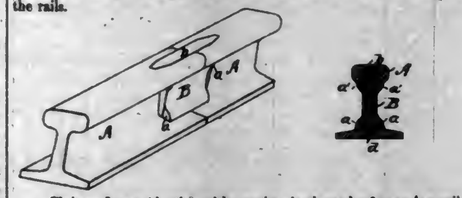
4. In a cotton-gin, the combination, with the cylinder and knife, of the vibrating bar and plate U T, the hinged screen X, connected to said bar, the adjusting-plate Y, and a supporting and operating mechanism, substantially as herein shown and described, whereby the cotton fibers are straightened and the seeds are pushed back, as set forth.

5. In a cotton-gin, the cylinder having the flanges C, the arms J of the frame, and the bar and plate U T, in combination with the rods V, connected to said bar U, pivotal pins W, curved hail-shaped brackets W', having lateral arms, the rollers G, the cams H, and the hinged bars I, substantially as and for the purpose set forth.

6. In a cotton-gin, the combination, with the arms J of the frame and the vibrating bar and plate U T, of the hinged wire-netting X; the adjustable plate Y, and its fastening-screw Z, substantially as herein shown and described, whereby the seeds are allowed to escape from the gin, and the said bar and plate can be adjusted at any desired distance from the knife, as set forth.

311,002. DEVICE FOR CONNECTING THE ENDS OF RAILROAD-RAILS. EDWIN S. HOYPT, Boston, Mass., assignor of one-half to William H. Ireland, same place. Filed Mar. 21, 1884. (No model.)

Brief.—A tenon for inserting into the mortised ends of the rails, having side flanges which project under the ball and over the flanges of the rails.



Claim.—In combination with mortises in the ends of opposing rails, the double tenon B, provided with the projecting flanges *a a'*, substantially as and for the purpose set forth.

311,003. TURNED BOOT OR SHOE. CHARLES N. HOYT, Haverhill, Mass. Filed May 28, 1884. (No model.)



Claim.—1. A turned boot or shoe having a tuck-sole interposed between the fore part of the sole proper and the upper, to which the fore part of the upper is attached, as set forth.

2. A turned boot or shoe composed of an upper, a tuck-sole secured to the upper, and an outer sole secured at its rear part directly to the upper and at its fore part to the tuck-sole outside of the upper, as set forth.

3. In a turned boot or shoe, the combination of the upper, the outer sole, *a*, channeled at its rear portion, the tuck-sole channeled in continuation of the channel in the outer sole and secured to the outer sole, as set forth.

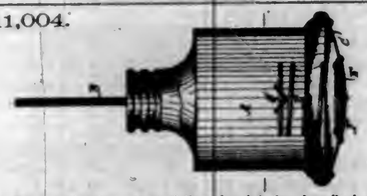
4. A turned boot or shoe composed of an upper, a tuck-sole secured to the upper, and an outer sole secured to the tuck-sole outside of the upper, and an inner sole secured to the upper and outer sole at its heel or rear portion only, as set forth.

5. The method herein described of making turned boots or shoes, the same consisting in channeling an outer sole at its rear portion only, placing upon it a tuck-sole having a channel forming a continuation of the channel of the outer sole, stitching the upper to the channeled part of the outer sole only, and to the tuck-sole forward of the channeled portion of the outer sole, turning the boot or shoe, and finally securing the outer sole to the tuck-sole, as set forth.

311,004. INSECT-POWDER EJECTOR. JULIUS JABUSH, Rutherford, N. J. Filed May 15, 1884. (No model.)

Claim.—1. The combination, substantially as hereinbefore described, with the ejector-case having the discharge-spout and flexible base, of the spiral spring acting on the base, and the cross-bar arranged in the case intermediate of its ends, to receive the inner coil of the spring for supporting the latter in the case.

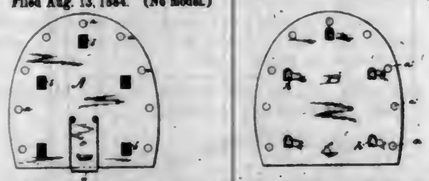
311,004.



2. The combination, substantially as hereinbefore described, with the ejector-case having the discharge-spout and flexible base, of the spiral spring acting on the base, and the cross-bar arranged in the case intermediate of its ends, and constructed with holes, in which the inner coil of the spring is inserted for connecting the spring to the bar.

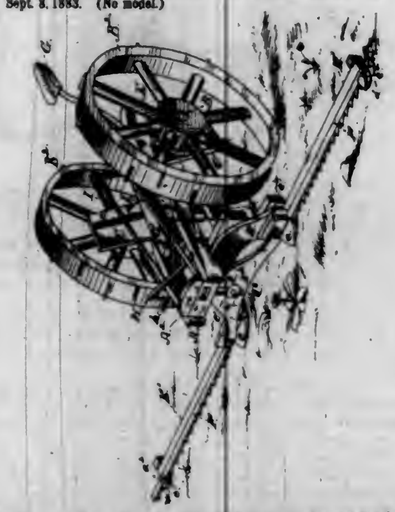
3. The combination, substantially as hereinbefore described, with the ejector-case having the discharge-spout and flexible base, of the spiral spring acting on the base, and the cross-bar arranged in the case intermediate of its ends, to receive the inner coil of the spring, and constructed to diverge in the direction of the spout.

311,005. BOOT OR SHOE HEEL. JENS C. JENSEN, Newark, N. J. Filed Aug. 13, 1884. (No model.)



Claim.—In combination, in a shoe-heel, the plate A, having perforations therein and slots forming a spring-tongue, *c*, said tongue being provided with a catching projection, *e*, and projecting to form a finger-piece, *g*, and the plate B, having hooks to enter the perforations in said plate A, and a notch or recess, *f*, to engage said projection *e*, said parts being constructed and adapted to be arranged substantially as and for the purposes set forth.

311,006. MOWING-MACHINE. JAS. H. JONES, Scotland, Mo. Filed Sept. 3, 1883. (No model.)



Claim.—1. In a mowing-machine, the combination, substantially as set forth, of the knife-bars, the supporting finger-bars, and a yoke or support connected midway its ends to the frame by a pivot-joint and pivotally secured at its opposite ends to the finger-bars, and the necessary operating mechanism, as set forth.

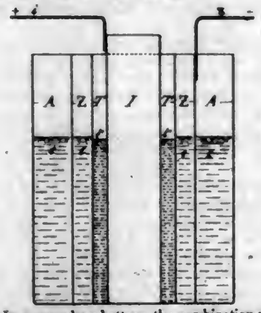
2. In a mowing-machine, the combination, with the pivoted yoke, of the finger-bars pivoted to the opposite ends of said yoke and provided with guides or keepers, the knife-bars placed in and operating through said keepers, the link connecting said knife-bars and provided with a vertical slot, a shaft provided with a crank-pin working in said slot, and necessary operating mechanism, as set forth.

3. In a mowing-machine, the combination, with the shaft *d*, geared with the operating mechanism and provided with a crank, d^3, of the yoke pivoted on the said shaft and having the finger-bars secured to its opposite ends, the knife-bars, the link connecting the same and provided with a vertical slot engaged by said crank d^3, and means for elevating the yoke at will, substantially as set forth.

4. In a mowing-machine, the combination of the pivoted yoke, the finger-bars secured to its opposite ends, the levers H H I I, chains or ropes A, and the necessary framing and operating mechanism, as set forth.

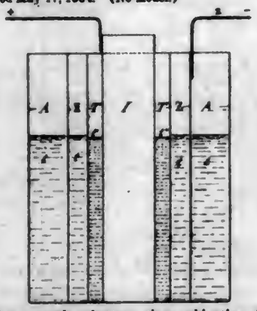
5. The combination, in a mowing-machine, of the axle B, the ratchet-wheels b', the gear-wheel B', secured thereon, the pawls arranged to engage the ratchet-wheels, the shaft D^3, provided with gear-wheel D^4 and pinion D^5, the shaft *d*, having pinion d^2 and crank d^3, the yoke pivoted on the shaft *d*, the cutting apparatus secured to the yoke, the link F', having slot *f*, and the necessary framing, as set forth.

311,007. SECONDARY BATTERY. SALOMON KALISCHER, Berlin, Germany. Filed Apr. 9, 1884. (No model.)



Claim.—In a secondary battery, the combination of a positive electrode made of pure or "naked" carbon, a negative electrode made of lead, and an electrolyte or solution of a lead salt, whereby in charging the battery peroxide of lead is deposited upon the positive electrode and metallic lead upon the lead electrode, substantially as described.

311,008. SECONDARY BATTERY. SALOMON KALISCHER, Berlin, Germany. Filed May 17, 1884. (No model.)



Claim.—In a secondary battery, the combination of a positive electrode made entirely of iron, a negative electrode of lead, and an electrolyte or exciting-solution of lead salts, whereby when the battery is charged a peroxide-of-lead coating is produced upon the positive electrode, and metallic lead is deposited upon the negative electrode, substantially as described.

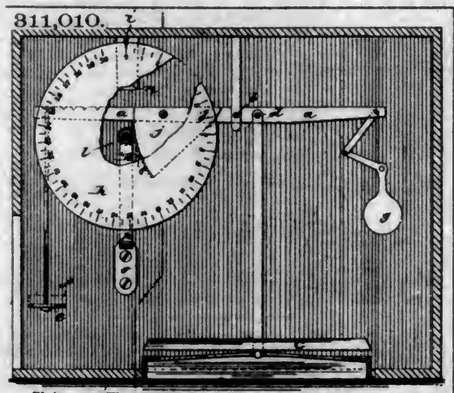
311,009. HEEL OR TOE PLATE. JOHN P. KANNALEY, Albany N. Y., assignor of one-half to William H. King, same place. Filed Sept. 6, 1883. (No model.)



Claim.—A skeleton sole or heel plate having projections on the inner periphery thereof, through which apertures are made for the insertion of nails or screws in attaching it, and also provided with perforated lugs bent downwardly from the front ends thereof, to secure it to the breast of the heel when used as a heel-plate, as set forth.

311,010. AUTOMATIC WEIGHING-SCALE. HENRY C. KEELER, Ogden, Utah. Filed Apr. 7, 1884. (No model.)

311,010.

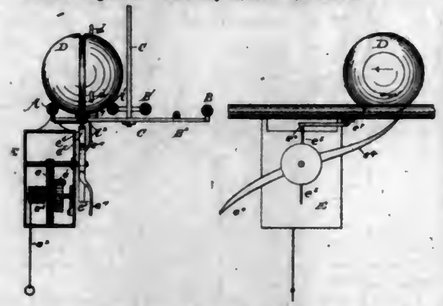


Claim.—1. The combination, with the shaft *l*, the pinion *k*, dial *h*, and pointer *i*, of the beams *a*, provided with the toothed segment *j*, the pendulum-weight *g* on the short arm of said beam, and the platform *c*, suspended from the beam *a* between its fulcrum and the pendulum-weight, substantially as herein shown and described.

2. The combination, with the shaft *l*, pinion *k*, dial *n*, and fixed pointer *i*, of the beam *a*, provided with the toothed segment *j*, the pendulum-weight *g* on the short arm of the beam, the weight-hanger *e* on the long arm of the beam, and the platform *c*, substantially as herein shown and described.

3. The combination, with the casing *m*, provided with opposite openings *n* and fixed pointers *i*, of the shaft *l*, journaled in supports in the case, and provided with the dial *h* and the pinion *k*, and the beam *a*, provided with the toothed segment *j*, the pendulum-weight *g*, and the suspended platform *c*, substantially as herein shown and described.

311,011. CASH-CARRIER. THOMAS M. KEMMEY and FRANCIS E. MASON, Cambridge, Mass. Filed May 19, 1884. (No model.)



Claim.—1. The combination, with a track and carriers adapted to travel thereon, of a stationary propelling device connected with the said track for imparting impulses to the carriers in their direction of movement, substantially as described.

2. The main rails constituting a supporting-track, and the guide-rail, combined with spherical carriers having a circumferential groove co-operating with the said guide-rail, substantially as described.

3. The main track for conveying carriers toward the cashier's desk, combined with lateral branches at the different stations, and the pivoted vertically-movable section whereby the carrier is raised from a level below to a level above the main track, substantially as described.

4. The main track composed of main rails for supporting and a guide-rail for determining the axis of rotation of a carrier, combined with the pivoted section having corresponding supporting and guide rails, substantially as described.

5. The main track for conveying carriers toward the cashier's desk, combined with a lateral branch and a pivoted rail at the junction of the main rail and branch, the said pivoted rail being normally held in line with the main rail, but adapted to be moved by the carrier passing from the branch to the main track into position to connect the branch and main rail, substantially as described.

6. The main track comprising two supporting-rails for conveying carriers from the cashier's desk, one of the said rails having a movable portion, combined with a latch for holding the said movable portion in line with the main rail, the said latch being controlled by the carriers, whereby the movable rail is released to discharge the carrier belonging to the said station, substantially as described.

7. The main return-track comprising two supporting-rails, one of the said rails having a pivoted laterally-movable portion, combined with a spring tending to move the said movable rail into line with the main rail, a latch to retain it there while a carrier is passing, and a tripping device for the said latch, operated by a portion of the carriers, whereby the latter are discharged laterally from the track, substantially as described.

8. The main return-track comprising a pair of rails, one having pivoted laterally-movable portions at the different stations along it, combined with latches engaging the said movable portions, and latch-operating plates located at different distances from the track at the different stations, substantially as described.

9. The main return-track comprising a pair of rails, one rail having a movable portion at each station, combined with latches for the said movable portions, having tripping portions located at different positions with relation to the track at the different stations, and carriers having engaging portions in different positions with relation to the track, each co-operating with the latch of the movable rail at the station to which the carrier belongs, substantially as described.

10. The main return-track consisting of two supporting-rails and a guide-rail, one of the said supporting-rails having a movable portion at each station, combined with latches for the said movable portions at each station, tripping-finger for the said latches in line with the guide-rail and projecting different distances above the same at the different stations, and carriers grooved to engage the said guide-rail, the grooves of the carriers of the different stations being of different depth, substantially as and for the purpose described.

11. The combination, with the track, of a propelling-motor and a stop therefor, operated by the passing carriers to release the said motor and permit it to impart an impulse to the carrier, substantially as described.

12. The combination, with the track, of a propelling device composed of a motor having propelling-arms to act on the carriers, and a stopping device for the said motor operated by the passing carriers, substantially as described.

13. The combination, with the track, of a stationary propelling device comprising a train of wheel-work, and an actuating device and winding-cord therefor, to operate substantially as described.

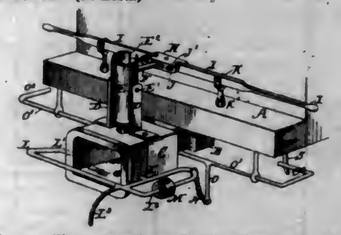
14. The track having supporting and guide rails, combined with the propelling device, composed of a motor and propelling-arms, and a pivoted stopping device for the said motor, the said propelling-arms being offset to pass at one side of the said guide-rail, substantially as described.

15. In a cash-carrying apparatus, a carrier having a body adapted to roll about a single axis, combined with a longitudinally-movable drawer and spring and latch therefor, substantially as described.

16. The carrier-body and longitudinally-movable drawer therein, combined with the hinged cover for said drawer, operated by the movement of the drawer, substantially as described.

17. The carrier-body *g*, and drawer therein, combined with the hinged cover for the drawer, and spring *u*, whereby it is pressed down upon the contents of the drawer, substantially as described.

311,012. CAR-COUPLING. OSMAN S. KING, Painesville, Ohio. Filed June 21, 1884. (No model.)



Claim.—1. The combination, with a draw-head and a coupling-pin adapted to operate therewith, of a tubular guide pivoted to suitable supports on the draw-head, and adapted to receive and guide the pin, substantially as specified.

2. The combination of a tubular pivoted guide mounted upon a draw-head, a pin adapted to ride in the guide, and a lever secured to the pin, and connected with suitable operating devices, substantially as specified.

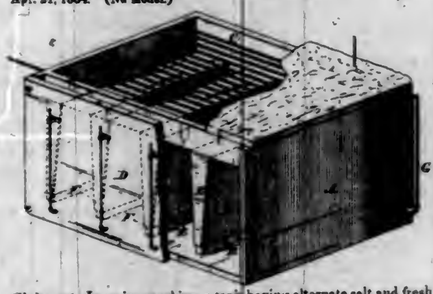
3. A link-guiding frame pivoted to both sides of a draw-head, and provided with a bar having a sliding weight mounted thereon, substantially as specified.

4. The combination, with a link-guiding frame having a bar upon one side of a draw-head, and a sliding weight mounted thereon, of means for positively raising the frame to a horizontal position, substantially as specified.

5. The combination of the head C, provided with the brackets D, the guide-tube E, provided with the trunnion E', the coupling-pin G, lever F, and levers I, suitably mounted on a platform or frame, A, substantially as shown and described.

6. The combination of a tubular pivoted guide mounted upon a draw-head, a pin adapted to ride in the guide, and a link-guiding frame pivoted to the sides of said draw-head, with a lever, O', spring S, and means, as described, for connecting the link-guiding frame with said lever, substantially as set forth.

311,013. ICE-MACHINE. JOHN C. KITTOE, San Francisco, Cal. Filed Apr. 21, 1884. (No model.)



Claim.—1. In an ice-machine, a tank having alternate salt and fresh water spaces formed by metal sides united at alternate ends, so that the salt-water spaces are open at one end and the top and the fresh-water spaces at the opposite end and the bottom, the two being unconnected, substantially as herein described.

2. In an ice-machine, an exterior tank, alternate fresh and salt water spaces formed by metal plates united, so that the fresh-water chambers are surrounded by those containing salt-water, except at the bottom and one end, and pipes C, extending through the salt-water chambers, substantially as herein described.

3. In an ice-machine, freezing-chambers made wedge-shaped in transverse section, or narrower at the top than at the bottom, and open at one end and below, and corresponding spaces or chambers for the salt-water or freezing medium between them at one end and over the top, together with a containing-tank having a removable side opposite the open ends of the freezing-chambers, substantially as herein described.

4. In an ice-machine, wedge-shaped freezing-chambers made narrower at the top than at the bottom, open at one end and below, with inclosing spaces for salt-water or a freezing medium, an exterior containing-tank with a removable side opposite the open ends of the freezing-chambers, and pipes opening through this side into the chambers below the point to which the freezing is carried, substantially as herein described.

5. In an ice-machine, wedge-shaped freezing-chambers made narrower at the top than at the bottom, open at one end and below, with surrounding spaces for salt-water or a freezing medium, an inclosing tank with a removable side opposite the open ends of the freezing-chambers, and a non-conducting cover or packing for the ends of the salt-water spaces, which are between the open ends of the freezing-chambers, substantially as herein described.

311,014. OPEN-VENEER ORNAMENTAL WORK. FREDERICK KOEXUL, Chicago, Ill. Filed May 29, 1884. (No model.)



Claim.—1. Open-veneer ornamental work composed of foundation material, open-veneer ornaments constructed separately from the cementing material, and cement which forms the cementing material for uniting the ornaments and foundation, and the background for the ornamental work, substantially as described.

2. Open-veneer ornamental work composed of the foundation material, and open-veneer ornaments constructed separately from the cementing material and united by and furnished with a cement background, and subjected to pressure while the cement is in a slightly unset or plastic state, substantially as described.

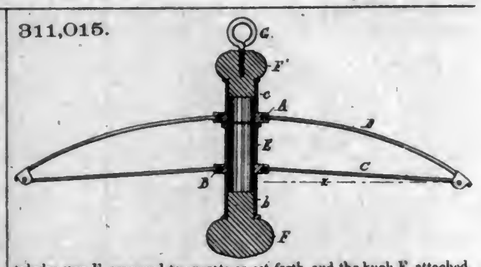
311,015. UMBRELLA RUNNER AND NOTCH. FREDERICK LEGRAFT, Jersey City, N. J. Filed Mar. 5, 1884. (No model.)

Claim.—1. The combination, with the ribs and stretchers, adjusted as described, of the notch A, runner B, and tubular stop E, arranged to operate as set forth.

2. The combination, with the top notch, A, of the tubular stop E, projected toward the runner B, as and for the purpose set forth.

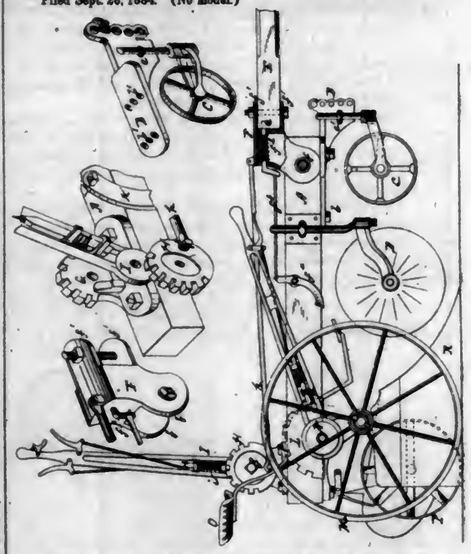
3. The combination, with the ribs and stretchers of an umbrella or sunshade frame, adjusted as described, of the notch A, runner B, and

311,015.



tubular stop E, arranged to operate as set forth, and the knob F, attached to the runner, substantially as and for the purpose set forth.

311,016. SULKY-PLOW. ROBERT E. LINHAM, Mansfield, Ohio, assignor of two-thirds to Byram R. McVay and James Allison, same place. Filed Sept. 26, 1884. (No model.)



Claim.—1. In a plow having a tongue-joint, the combination of a fixed rack, a rotary disk-rack connected with the tongue-joint, and an independent lever having dogs to engage with the fixed and rotary disk-rack, substantially as described.

2. In a sulky-plow, the combination of a plow-beam and a tongue connected by a double pivot-joint, which permits vertical and lateral play between the parts, a rack, lever, and pawl for adjusting and controlling the vertical movement of the parts, and a spring-bolt for locking the tongue against lateral vibration, substantially as and for the purposes specified.

3. The tongue-joint for sulky-plows, having vertical beam-flanges, horizontal tongue-flanges, and a spring locking-bolt, substantially as and for the purposes specified.

4. In a sulky-plow, the combination, with the plow-beam and the tongue connected by a joint having a vertical and horizontal pivot motion, of a rack, lever, and pawl, and a spring-bolt for controlling the connections between the plow-beam and tongue, and a horizontally-adjustable clevis-bracket having the wheel-caster attached thereto, substantially as and for the purpose specified.

5. The combination, with a bracket-clevis having a vertical pivot-connection which permits of lateral adjustment of the bracket on the beam, of a caster-wheel secured thereto and movable therewith, substantially as and for the purposes specified.

6. The combination, with the plow and its beam, of a bracket pivoted on the beam, a rack secured to the outer end of the bracket, an elbow-lever having a wheel-spindle and pivoted on the bracket or rack, a lever and pawl fo radjusting the elbow-lever, and braces which permit a limited play of the rack and outer end of the bracket, substantially as and for the purposes specified.

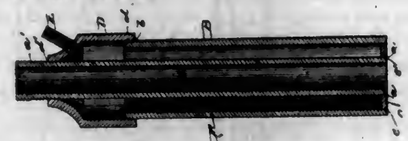
7. The elbow-lever for sulky-plows, having uniform sides and a centrally-arranged dog or pawl, whereby the same can be used for the land-wheel of either right or left hand plows, substantially as and for the purposes specified.

8. In a sulky-plow, the combination, with the adjustable land-wheel

and its pivoted bracket, of the brace adjustably connected with the plow beam or standard, substantially as and for the purposes specified.

9. The combination, with a plow-standard, a landside having a projection or lug on its inner face, and a furrow-wheel arranged between the same, of a stud or axle reduced and threaded at one end for attachment to the standard, and bored at the opposite end to receive the pin or lug on the landside, substantially as and for the purposes specified.

311,017. TUYERE-IRON. BENJAMIN S. LOGAN, Lebanon, Pa. Filed Oct. 7, 1884. (No model.)



Claim.—In a tuyere, a blast-pipe, A, externally screw-threaded at each end, in combination with the outer cylindrical casing, B, internally screw-threaded at its front end and externally at its rear end, and connected at said rear end to the blast-pipe by a coupling, D, having tubes E E' connected thereto, and a plate, C, internally and externally screw-threaded, substantially as shown, and for the purpose set forth.

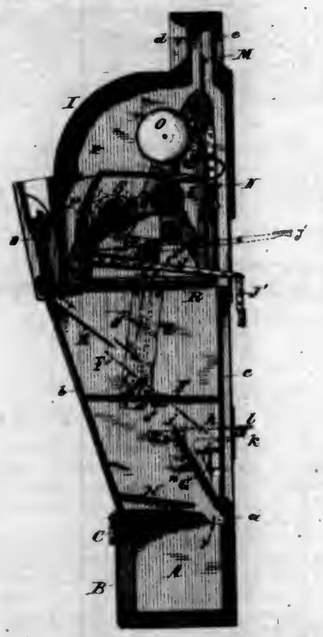
311,018. PAPER SHOE. TYLER C. LORD, Joliet, Ill., assignor to Frederick Guild, Canton, Mass. Filed June 23, 1884. (No model.)



Claim.—1. A paper shoe or slipper having the crimps or corrugations B, for the purpose set forth.

2. A paper shoe or slipper having the crimps or corrugations B and ventilating-holes C, for the purpose set forth

311,019. FARE-BOX, INDICATOR, AND RECORDER. CLINTON H. MALTBY, Dayton, Ohio, assignor to the National Manufacturing Company, same place. Filed May 5, 1884. (No model.)



Claim.—1. A fare-box having in combination a permanent locked receptacle, an inspection-chamber, into which the fares are introduced and temporarily arrested, and a recording and indicating mechanism, a series of levers, whereby the fares are indicated and recorded while arrested in the inspection-chamber, and whereby, after they are recorded, they are deposited into the permanent locked receptacle, substantially as described.

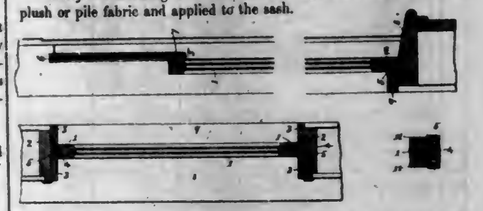
2. In a fare-box having an indicating and recording mechanism and an inspection-chamber with two or more tilting platforms and a permanent locked receptacle, the combination, with the recording-mechanism-operating levers, of the upper tilting platform with connecting mechanism, whereby when any one of the levers is operated said platform is tilted, substantially as described.

3. The combination and arrangement of the platform F, segmentally-slotted plate U, recessed arm or link *g*, vibrating frame P, and operating-levers J, substantially as described.

4. In a fare-box having the indicating and recording mechanism and inspection-chamber, as herein described, the tilting platform and the lever mechanism which operates said platform and indicates and records the fares, in combination substantially as described.

311,020. WINDOW. WILLIAM D. MANN, New York, N. Y., assignor to Mann's Boudoir Car Company, same place. Filed Mar. 17, 1884. (No model.)

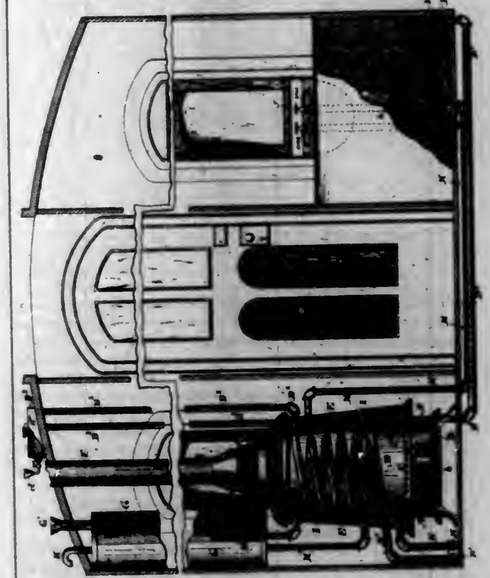
Brief.—Consisting of a wooden strip or rigid material wrapped with plush or pile fabric and applied to the sash.



Claim.—1. A packing for car-windows, consisting of plush or like pile fabric and a strip of wood or other rigid material, around which said fabric is wrapped, as herein shown and described.

2. The combination of the sash 1, beveled sill-cap 9, and the plush-covered strip 10, inserted in a recess or rabbet, as and for the purposes herein set forth.

311,021. HOT-WATER APPARATUS FOR RAILWAY-CARS. WILLIAM D. MANN, New York, N. Y., assignor to Mann's Boudoir Car Company same place. Filed May 14, 1884. (No model.)



Claim.—1. In a railway-car, the combination, with a stove or heater, a tank, and pipes for maintaining a circulation of hot water throughout the car for heating purposes, of a second tank containing water for lavatorial purposes, and an independent system of pipes (conveying said water into contact with the heater) tapped for drawing off said water for use, as described.

2. In a railway-car, the combination, with a stove or heater, of two separate and independent hot-water circuits, one consisting of a reservoir and suitable pipes conducting hot water therefrom throughout the car for heating purposes, returning it to said tank through the heater, whereby its temperature is again raised, and the other consisting of a reservoir

and similar circulating-pipes which are tapped at desired parts of the car for drawing off water for use, as described.

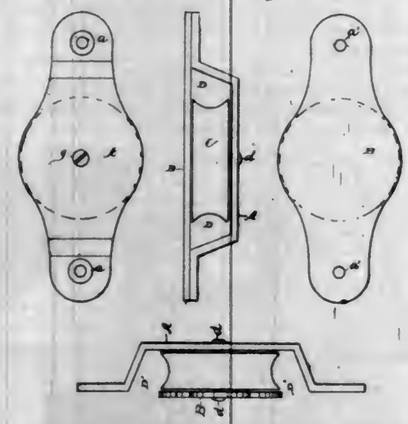
311,022. **PANEL FOR USE IN THE CONSTRUCTION OF CARS, BOATS, &c.** WILLIAM D. MANN, New York, N. Y., assignor to Mann's Boudoir Car Company, same place. Filed June 21, 1884. (No model.)

Brief.—Sliding panels having guiding-tongues for a part of their length and beveled edges for the remainder project into jambs having guiding-grooves, whereby free circulation of air is permitted at the same time perfect privacy is secured.



Claim.—The sliding panels, substantially as hereinbefore described, constructed with guiding-tongues for a small portion of their length, and with a thin or beveled edge for the remainder thereof, in combination with a frame or jamb having guiding-grooves, into which said tongues and edges project, as and for the purpose explained.

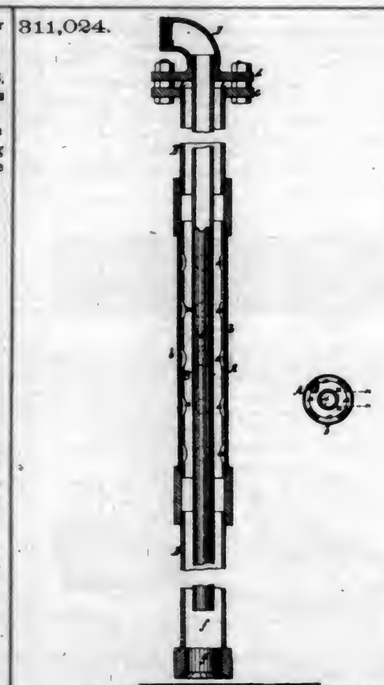
311,023. **PULLEY.** WESLEY W. MCCHESNEY, Green Island, N. Y. Filed Dec. 8, 1884. (No model.)



Claim.—1. A side pulley consisting of a pulley-supporting and inclosing box made in sections, connected by the pulley-supporting axle, and adapted to turn thereon and form an ingress and egress opening through said inclosure to and from said pulley, substantially as and for the purposes set forth.

2. In a side pulley, and in combination, a plane back plate, B, an inclosing front plate, A, connecting screw or rivet *d*, pulley C, and means for securing said plates firmly together, and at the same time to their support, as screw-holes *a a'*, substantially as and for the purposes set forth.

311,024. **WELL-TUBE.** FREDERICK W. MILLER, Brooklyn, N. Y. Filed Oct. 2, 1884. (No model.)

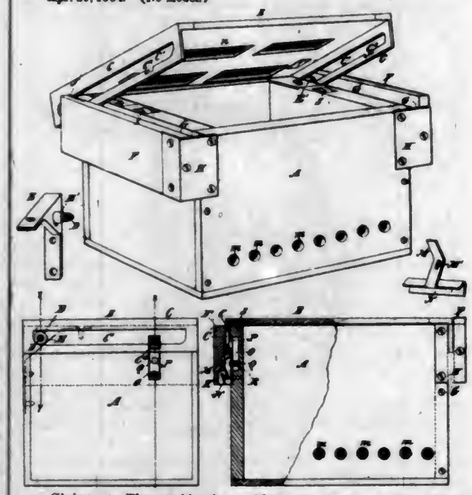


Claim.—1. The combination, with the suction-pipe C, of a strainer, A, composed of the well-tube B, the countersunk holes in said tube, and the wire-gauze jacket secured to the outer surface of the well-tube, substantially as and for the purpose described.

2. The combination, substantially as hereinbefore described, with the suction-pipe C and the well-tube B, of two flanges, *c d*, one being secured to the suction-pipe and the other to the well-tube, the open space *e* formed between said flanges and communicating with the interior of the well-tube, and the coupling for connecting the pump to the suction-pipe.

3. The combination, substantially as hereinbefore described, with the well-tube B and the strainer A, of the chamber *f*, formed below the strainer, and the suction-pipe C, extending down into this chamber.

311,025. **SHIPPING-CASE.** CHRISTIAN MITROCKER, Chicago, Ill. Filed Apr. 29, 1884. (No model.)



Claim.—1. The combination, with a box, of a cover pivotally secured thereto, and provided with longitudinally-slotted end flanges, and spring hooks or catches on the ends of the box constructed to engage the edges of the slots in said end flanges.

2. The combination, with a box having pivots on its ends at the rear corners, and also provided with spring-catches on its ends, of a cover provided with flanges having longitudinal slots, and a notch in the bottom edge of each slot, the above-mentioned pivots passing through the flanges of the cover, and the notches engaging the said spring-catches, substantially as herein shown and described.

3. The combination, with a box provided with outwardly-projecting pivots on the upper rear corners of the ends, of a cover having flanges provided with longitudinal slots, through which slots the pivots pass, and thimbles or rollers on the said pivots, substantially as herein shown and described.

4. The combination, with a box, of angle-plates secured on the upper rear corners of the ends, pivots projecting outward from the said angle-plates, and a cover having flanges provided with longitudinal slots through which the pivots pass, substantially as herein shown and described.

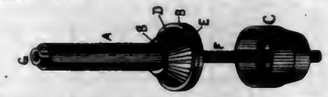
5. The combination, with a box, of guards held to the ends a short distance from the outer surfaces of the same, pivots projecting outward from the rear corners of the ends, and a cover having flanges provided with longitudinal slots through which the pivots pass, substantially as herein shown and described.

6. The combination, with the box, of guards held on the ends a short distance from the outer surface of the same, angle-plates secured on the upper corners of the ends, pivots projecting from the angle-pieces, and screwed into plates on the inner surfaces of the guards, and a cover having end flanges provided with longitudinal slots through which the pivots pass, substantially as herein shown and described.

7. The combination, with a box having outwardly-projecting pivots at the upper corners of the ends, of rollers journaled in the top edges of the ends, and of a cover having end flanges provided with longitudinal slots through which the pivots pass, substantially as herein shown and described.

8. The combination, with a box, of a cover having downwardly-projecting end flanges, and of guards held on the ends of the box, and forming grooves between the guards and the box for receiving the flanges of the cover, substantially as herein shown and described.

311,026. **FLUSHING-VALVE FOR WATER-CLOSETS.** MICHAEL T. F. O'DONNELL, Boston, Mass. Filed June 10, 1882. (No model.)



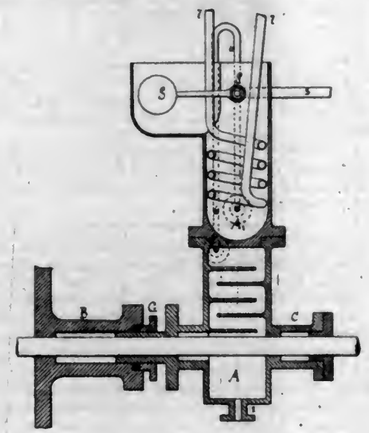
Claim.—In a flushing-valve for water-closets, the combination, with the valve-seat C and the weighted valve B, of the overflow or stand pipe A, open at its upper end and secured to said valve, a bridge-piece, B', on the under side of the valve and communicating through the same with the stand-pipe, and provided with one or more air ports or apertures, *b*, through which the air entering at the top of the stand-pipe is discharged above the top of the valve-seat when the valve is raised, and the spindle F, projecting down from the bridge-piece and passing through a guide, I, all constructed and arranged to operate substantially in the manner and for the purpose set forth.

311,027. **BURGLAR-ALARM.** WARNER F. H. O'KEEFE, Allegheny City, Pa. Filed Mar. 4, 1884. (No model.)

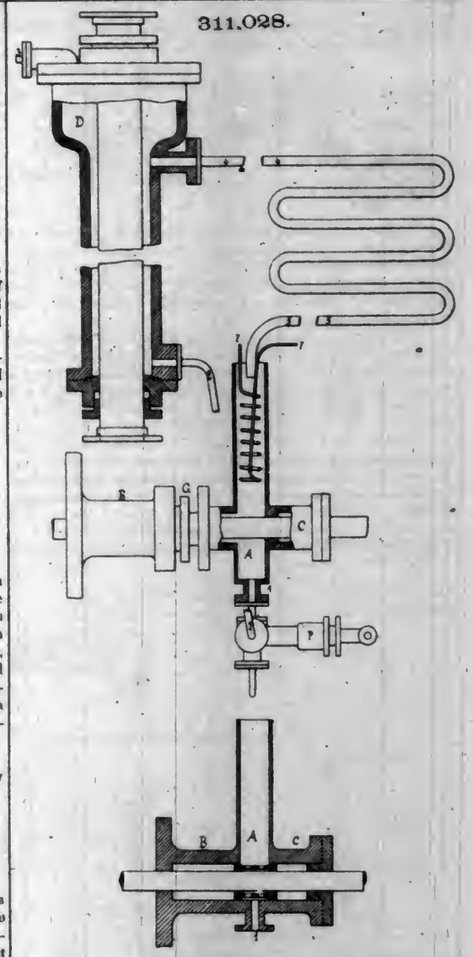


Claim.—In a burglar-alarm, the combination, with the wires of a battery, of a base or block, spring-arms secured at their outer ends to said base and provided with binding-posts, while their inner ends are oppositely bent to embrace a yielding connecting-ring, substantially as set forth.

311,028. **REFRIGERATING-MACHINE.** AUGUST OSENBRÜCK, Hemelingen, Prussia, Germany. Filed Apr. 24, 1884. (No model.)



311,028.



Claim.—1. The method of preventing the loss of gas or volatile bodies passing or escaping from stuffing-boxes by causing such air or volatile bodies to be absorbed by an absorbent exposed to the ordinary atmospheric pressure, renewing said gas or volatile bodies from such absorbent by distillation, and returning said absorbent to the stuffing-box to be again used, substantially as described.

2. The combination, with a stuffing-box, of a reservoir or receiver, A, connecting with said stuffing-box, and the interior of which reservoir is exposed to the ordinary atmospheric pressure, and a distilling apparatus, D, communicating directly with the outlet 1 of the reservoir A, substantially as described.

3. The combination, with a stuffing-box, of a reservoir or receiver, A, the interior of which is exposed to the ordinary atmospheric pressure, and a pump, P, operating independently of the operation of the remainder of the apparatus, substantially as described.

4. The combination, with a stuffing-box and a receiver, A, the interior of which is exposed to the ordinary atmospheric pressure, of a pump, P, operating independently of the operation of the remainder of the apparatus, distilling apparatus D, and a cooling apparatus, 4, substantially as described.

5. The combination, with a stuffing-box and a receiver, A, the interior of which is exposed to the ordinary atmospheric pressure, of a pump, P, operating independently of the operation of the remainder of the apparatus, distilling apparatus D, provided with an internal heating-channel, and a cooling apparatus, 4, substantially as described.

6. The combination, with a stuffing-box, of a primary receiver, A', provided with a float-valve, S, and a secondary receiver, A, provided with partitions, the interiors of both the primary and secondary receivers being exposed to the ordinary atmospheric pressure, substantially as described.

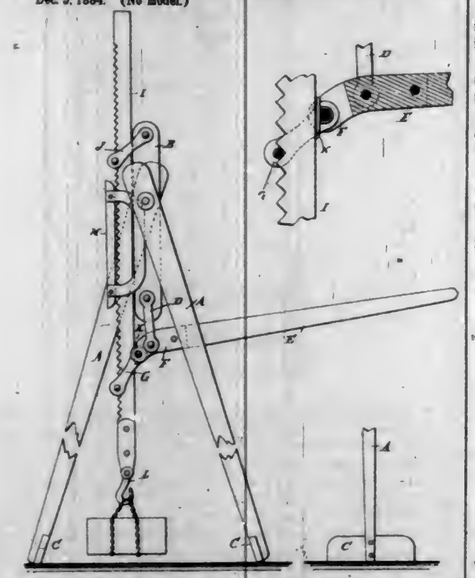
311,029. FLOOR-BOARD CLAMP. ALBERT B. PATTEN and FREDERICK E. SPRAGUE, Corinna, Me. Filed Nov. 13, 1884. (No model.)



Claim.—1. In a device for tightening floor-boards, constructed substantially as shown and described, a toggle-joint, F, hinged at one end to the frame, the members thereof being provided with upwardly-projecting ears and cross-bars *g'*, in combination with a screw-threaded rod having the plate E attached thereto, the parts being organized substantially as shown, and for the purpose set forth.

2. In a device for tightening floor-boards, the arched frame having a horizontal end with projecting pins and a vertical end with perforations, said arch being provided centrally with a screw-threaded rod having at one end a hand-wheel and at its opposite end a socketed plate, E, in combination with a toggle-joint hinged to the inner side of the end of the arched frame, and provided centrally with upwardly-projecting ears having transverse bars *g'* and projections *h h*, the free end of said toggle-joint being attached to a transverse bar having rods which pass through the perforations *b*, and are attached at their outer ends to the pressing-bar, the parts being organized substantially as shown, and for the purpose set forth.

311,030. LIFTING DEVICE. EUGENE PAUL, Norwich, N. Y. Filed Dec. 5, 1884. (No model.)



Claim.—1. In a lifting device, the combination, with the pivoted legs A and the center piece, B, of the guide H, the lifting-bar I, and the lever E, for raising the lifting-bar, substantially as herein shown and described.

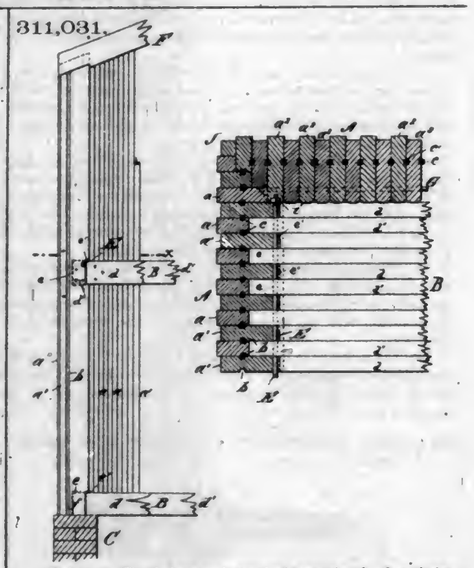
2. In a lifting device, the combination, with the legs A and the center piece, B, of the lifting-lever E, held by links on the center piece, the shackle G on the end of the lever E, the shackle J on the center piece, and the lifting-bar I, substantially as herein shown and described.

3. In a lifting device, the combination, with the legs A and center piece, B, of the links D, the lever E, the shackle G, the plate K on the inner bolt of the same, the toothed lifting-bar I, and the shackle J on the center piece, B, substantially as herein shown and described.

311,031. CONSTRUCTION OF BUILDINGS. RICHARD S. PEARSALL, Sea Cliff, N. Y. Filed July 10, 1884. (No model.)

Brief.—The walls consist of timbers placed on end and side by side, and mortised to receive the ends of the floor-boards, the latter being placed edgewise and close together. A tie-bolt passes through alternate long floor-boards and through alternate wider wall-timbers. Alternate timbers also set out from the exterior surface of the walls. The corners of the building have vertical pieces of different widths let in.

311,031.



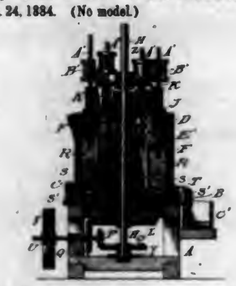
Claim.—1. The timbers *a a'*, mortised to receive the floor-timbers, in combination with said floor-timbers, the same being placed edgewise in the mortises and close together, substantially as described.

2. The vertical timbers *a a'*, having the horizontal timbers *d d'* mortised into them, in combination with the tie-bolt E, arranged substantially as described.

3. The vertical timbers *a a'*, combined with the vertical timbers a^2 a^3, forming the walls of a building, the timbers *a* a^2 being set out from the timbers *a'* a^3, substantially as and for the purposes set forth.

4. The combination, with the vertical timbers *a a'* a^2 a^3, of the pieces J, of different widths, built in at the corners of the building, substantially as and for the purposes set forth.

311,032. QUARTZ-MILL. ALBERT E. REDSTONE, San Francisco, Cal. Filed Apr. 24, 1884. (No model.)



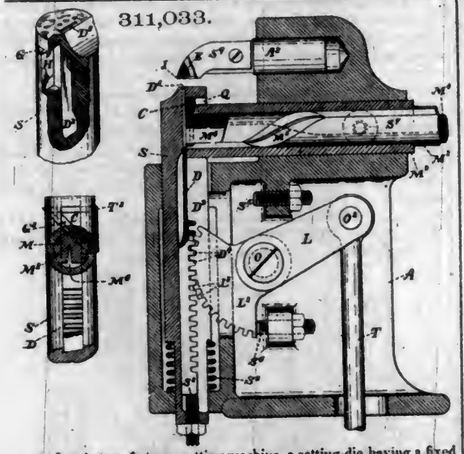
Claim.—1. In quartz-mills, the hollow shaft or sleeve F, provided with the disk J, having stem-guides K, in combination with the cam-shaft H, provided with the disk M, having cam N, shaft H, the stamps R, and gearing for carrying said stamps and cam in opposite directions, substantially as and for the purposes set forth.

2. In quartz-mills, the bevel-wheel Q, pinion P, wheels L and O, the hollow shaft F, having guide-disk J K, the cam-shaft H, having disk and cam M N, and the stamps R, all combined substantially as and for the purposes set forth.

311,033. BUTTON-FASTENER-SETTING MACHINE. FRANCIS H. RICHARDS, Springfield, Mass., assignor to the American Button Fastener Company, New Britain, Conn. Filed Sept. 24, 1884. (No model.)

Claim.—1. In a button-fastener-setting machine, a setting-die having a fixed position therein, a presser-slide, substantially as described, adapted to hold leather or fabric against said die, and having a driver-channel, substantially as described, and a lateral opening, through which button-fasteners may be introduced into said channel above a driver, a magazine extending into said lateral opening, and adapted to deliver button-fasteners one at a time into said channel above a driver, and a driver adapted to drive said fasteners through said channel and said leather or fabric against said die, in combination substantially as set forth.

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2. In a button-fastener-setting machine, a setting-die having a fixed position therein, a movable presser-slide, substantially as described, adapted to hold leather or fabric against said die, and having a driver-channel and a lateral opening to receive the end of a magazine, and a passage for a driver-channel cover, a fixed magazine extending into said opening, and a driver-channel cover adapted to close the variable portion of said lateral opening which is above said magazine, in combination substantially as described.

3. In a button-fastener-setting machine, the die E, the slide S, substantially as described, having channel D^2, the magazine M, and the driver D, in combination substantially as described.

4. In a button-fastener-setting machine, the combination of the die E, the slide S, having channel D^2, the magazine M, the driver D, and lever L, provided with connecting-gearing, substantially as described, and the stop S^5, substantially as set forth.

5. In a button-fastener-setting machine, the combination of the die E, the slide S, having channel D^2, the magazine M, the driver D, and lever L, provided with connecting-gearing, substantially as described, and stop S^6, substantially as specified.

6. In a button-fastener-setting machine, the combination of the die E, the slide S, having channel D^2, the magazine M, the driver D, and lever L, provided with connecting-gearing, substantially as described, the stop S^5, and stop S^6, substantially as set forth.

7. In a button-fastener-setting machine, a frame adapted to carry the die E and slide S, the die E, the slide S, the spring S^7, adapted to press said slide against said die, the driver D, and the stop S^5 on said slide, whereby said driver may act to force the same away from said die through a distance determined by the position of said stop, in combination substantially as described.

8. In a button-fastener-setting machine, slide S, having stop S^5, spring S^7, driver D, rod T, connecting mechanism, substantially as described, intermediate to said rod and driver, and spring B^4, in combination substantially as set forth.

9. In a button-fastener-setting machine, slide S, having stop S^5, spring S^7, driver D, rod T, connecting mechanism, substantially as described, intermediate to said rod and driver, spring B^4, stop S^5, and stop S^6, in combination substantially as set forth.

10. The magazine M, having the spiral section M^3, substantially as and for the purpose described.

11. A button-fastener magazine consisting of a rod having a straight groove, M^4, and a spiral groove, M^3, in combination with a case inclosing said spiral groove, substantially as described.

12. A button-fastener magazine consisting of a rod having groove M^4, and having spiral groove M^3, inclosed by a case, in combination with a follower adapted to invert the fasteners by pushing them from said groove M^4 through said spiral groove, substantially as described.

13. In combination, a magazine having groove M^4 and the magazine-lock M^5, substantially as and for the purpose described.

14. In combination, magazine M, having groove M^4, magazine-lock M^5, and follower N, having tongue N^2 and projection N^4, substantially as and for the purpose described.

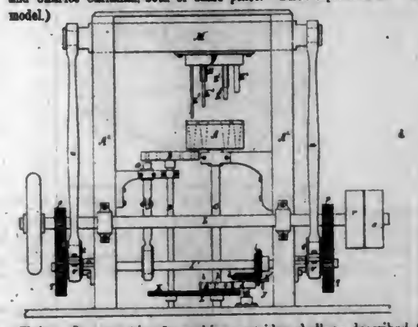
15. In combination, magazine M, having groove M^4, magazine-lock M^5, and follower N, having tongue N^2 and catch N^3, substantially as described.

16. In combination, magazine M, having groove M^4 and stop N^2, magazine-lock M^5, and follower N, having tongue N^2, projection N^4, and catch N^3, substantially as described.

17. In combination, a part, as A^2, having formed therein the setting-die E, and provided with the lip J, and a spring having the similar lip J^2, substantially as for the purpose described.

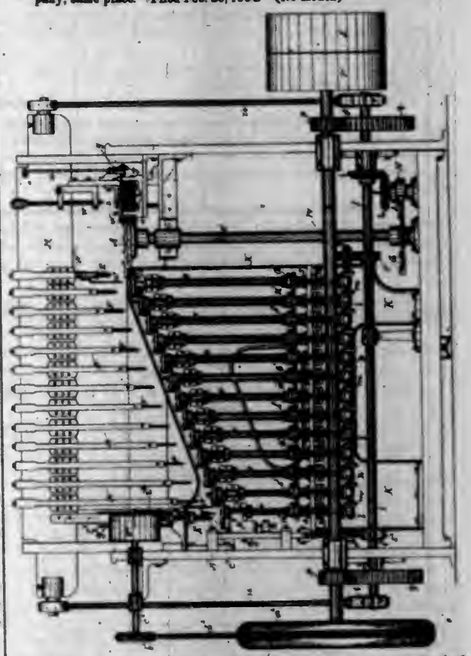
18. Slide S, having mortise H and groove G, magazine M, having tongue T^2, and cover C, having tongue T^2 and groove G^2, in combination substantially as described.

311,034. MACHINE FOR MAKING METALLIC SHELLS FOR CARTRIDGES. DENIS J. RING, Lowell, Mass., assignor to John Henry Ring and Charles Callahan, both of same place. Filed Apr. 4, 1884. (No model.)



Claim.—In a machine for making cartridge-shells as described, the combination of the main die-carrier and auxiliary die-carrier, provided with the mechanism for operating them, and having dies arranged substantially as described, with the series of punches of different lengths and diameters arranged in a circle corresponding with the dies in the main die-carrier, and having the mechanism for operating them, essentially as represented.

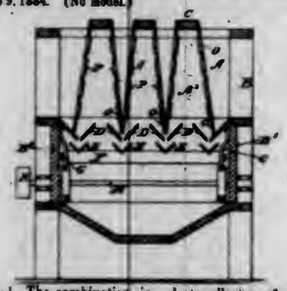
311,035. MACHINE FOR MAKING CARTRIDGE-SHELLS. JOHN H. RING, Lowell, Mass., assignor to the American Automatic Cartridge Company, same place. Filed Feb. 25, 1884. (No model.)



Claim.—1. In a cartridge-machine, the main die-carrier A, its shaft C, notched wheel G, and actuator H, in combination with the auxiliary die-carriers B, their shafts D, and notched wheels G, the shafts S, and actuators H', and the shafts R and I, all constructed and arranged as set forth, whereby the die-carriers are operated in unison but independently of one another.

2. The combination of the lubricating strip or wire a^4 and oil-holder b^4, the feeding-rollers, the punches, and expeller, having mechanism for operating them, essentially as described, with the series of main and auxiliary die-carriers, and their dies and shafts, and with a notched wheel and its actuator, as described, applied to each other and each of the said shafts, and provided with mechanism for revolving such actuator, all being substantially and to operate as specified.

311,036. DUST-CATCHER. CHARLES G. ROLLINS, Minneapolis, Minn. Filed June 9, 1884. (No model.)



Claim.—1. The combination, in a dust-collector, of air-strainers composed of metal plates having therein a series of fine perforations, and means for conducting dust-laden air to the air-strainers, whereby the air is passed through the perforations of the metal plates, while the dust is intercepted and collected below the strainers, all substantially as described.

2. The combination, in a dust-collector, of air-strainers composed of metal plates having therein a series of fine perforations provided with lips or flanges extending into the dust-collecting chamber, and means for conducting dust-laden air to the strainers, whereby the air is passed through the perforations of the metal plates, while the dust is intercepted and collected below the strainers, all substantially as described.

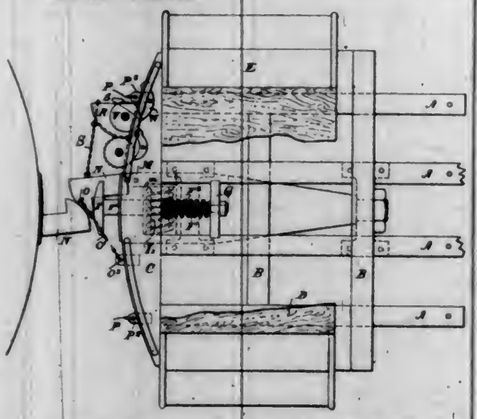
3. The combination, in a dust-collector, of air-strainers formed of metal plates having therein a series of fine perforations provided with lips or flanges extending into the dust-collector, said perforations being arranged in vertical rows, means for conducting dust-laden air to the strainers, and means under the strainers for conducting the dust from the dust-collector, all substantially as described, and for the purpose set forth.

4. The combination, in a dust-collector, of upright air-strainers formed of metal plates having therein a series of fine perforations, means for conducting dust-laden air to the air-strainers, and conductors arranged under the upright strainers for conveying the dust from the dust-collector, substantially as described.

5. The combination, in a dust-collector, of a series of air-strainers, each composed of a metal plate having therein a series of fine perforations, said series of strainers being arranged with the perforations of each plate opposite the unperforated portions of the next plate or plates, substantially as described, and means for conducting dust-laden air to the strainers.

6. The combination, in a dust-collector, of air-strainers consisting of metal plates provided with a series of fine perforations, and reciprocating spout or spouts for receiving the dust from the air-strainers and conveying it from the collector, substantially as set forth.

311,037. CAR-COUPLING. FRANK D. ROOT, Cortland, Ill. Filed Oct. 9, 1884. (No model.)

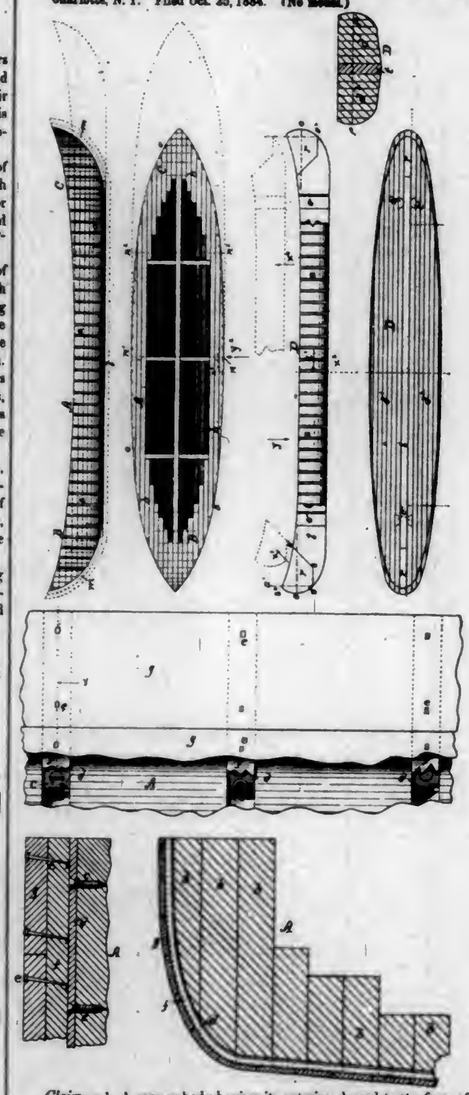


Claim.—1. The combination, with a draw-head having a transverse cavity in its outer end, of a hook pivoted on the end of the draw-head, and provided at its inner end with a tongue projecting over the open end of the said cavity, and a spring contained in the said cavity and acting on the tongue on the inner end of the said pivoted hook, the shaft Q, and the plate R, having a grooved edge, and the chain S, substantially as herein shown and described.

2. The combination, with a draw-head having a swinging hook, of the vertical shaft Q, the plate R, secured on the same and having a grooved edge, and of the chain S, secured to the plate R and to the swinging hook of the draw-head, substantially as herein shown and described.

3. In a car-coupler, the combination, with the draw-head H, of the swinging hook N, pivoted on the same, the spring L, acting on a tongue formed on the inner end of the hook N, the said spring being contained in a cavity in the outer end of the draw-head, the shaft Q, the plate R, having a quadrant edge on the same, and the chain S, secured to the plate R and to the coupling-hook, substantially as herein shown and described.

311,038. FORM TO BUILD BOATS OVER. GEORGE W. ROGERS, Charlotte, N. Y. Filed Oct. 25, 1884. (No model.)



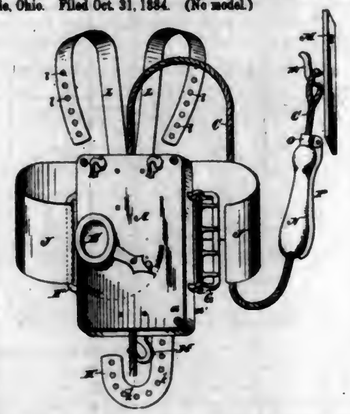
Claim.—1. A core or body having its exterior shaped to the form of a boat, over which to build the shells of boats, said core being provided with vertical grooves *a*, formed in its sides, and clinching-straps *d*, held within the grooves, substantially as and for the purpose set forth.

2. A core or body having its exterior shaped like a boat, over which to build the shells of boats, said core being made up of detachable or removable longitudinal sections joined together to form a complete core, and formed to be taken out separately from the shell of the boat, substantially as described and shown.

3. A core or body having its exterior shaped like a boat, over which to build the shells of boats, said core being divided transversely at or near the middle into sections or parts, so that corresponding sections of different lengths may be inserted between the said two original sections, to increase or decrease the extreme length of the core, substantially as shown and described, and for the purpose set forth.

4. A core or body having its exterior shaped to the form of a boat, over which to build the shells of boats, said core being provided at its sides with separate clinching-pieces *d*, to turn the points of the nails against, said clinching-pieces being located upon the core immediately back of or beneath the ribs of the boat when said ribs are put in place upon the core, substantially as described.

311,039. FIRE-ESCAPE. GOTTFRIED SCHEIDT and JOHN A. REHARD, Toledo, Ohio. Filed Oct. 31, 1884. (No model.)



Claim.—1. The case A, provided with straps for securing it to the person, and having pivoted within the same the grooved friction-rollers B B, between which the cable passes, in combination with the roller B', eccentrically pivoted within the case in proximity to one of the rollers B, and provided with means, substantially as described, for adjusting its frictional bearing upon the cable.

2. The case A, provided with straps for securing it to the person, and having pivoted within the same the grooved friction-rollers B B, between which the cable passes, in combination with the roller B', eccentrically pivoted within the case in proximity to one of the rollers B, and having a hand-wheel, E, for adjusting its frictional bearing upon the cable, and provided with an index-hand, *e*, substantially as described.

3. In a fire-escape, the case A, with its hook H, loop F, clasp or buckle G, and hooks I I, in combination with the waistband J, seat-strap K, and shoulder-straps L L, as described and specified.

4. In combination with the case A and cable C, the compression-handle N, bored centrally to receive said cable, and provided with the bushing-plate R, said handle having secured upon one end the ferrule O, to which is pivoted a lever, P, carrying a friction-roller, S, all substantially as described.

5. In a fire-escape, the combination of the case A, grooved rollers B B B', eccentric D, hand-wheel E, index-arm *e*, hook H, loop F, buckle or clasp G, hooks I I, waistband J, seat-strap K, shoulder-straps L L, rope or cable C, handle N, with its parts, as described, and plate M, with its hook *m*, all as specified.

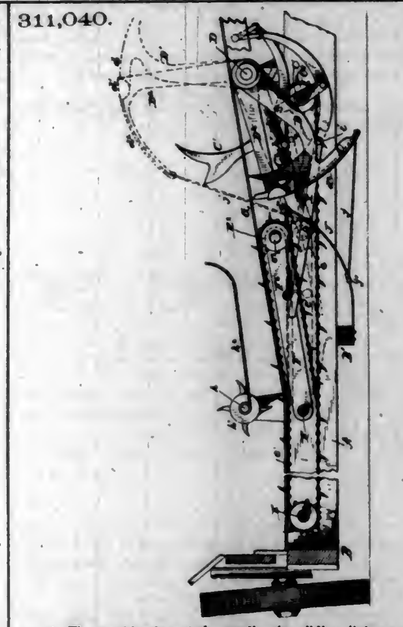
311,040. GRAIN-BINDING HARVESTER. JOHN F. SEIBERLING, Akron, Ohio. Filed Oct. 18, 1883. (No model.)

Claim.—1. The inner end of the toothed grain-carrier suspended on movable supports under the fixed platform, in combination with a binding mechanism located at the end of the platform, and connections between said binding mechanism and grain-carrier, whereby the inner end of the grain-carrier will be caused to rise and fall automatically, and alternately project the teeth above and withdraw them beneath the platform with the action of said binding mechanism in binding a bundle, substantially as described.

2. The combination of the fixed platform, the hinged frame or support for the inner end of the platform-carrier, the needle, and the rocking lever between said needle and hinged carrier-frame, substantially as described, whereby the inner end of said toothed platform-carrier will be caused to drop down away from the action of the grain on the platform when the needle starts to do its work, and raised up when the needle returns after having performed its operation in binding a bundle.

3. The combination, with the needle, of the pivoted sliding link or guard, substantially as described.

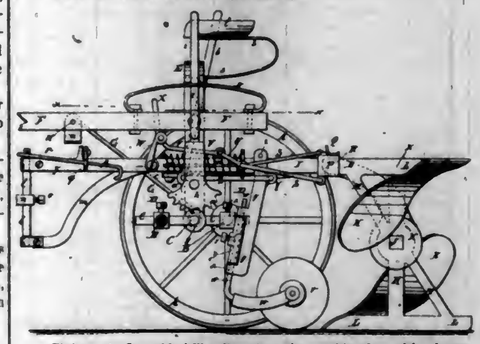
311,040.



4. The combination of the needle, the sliding link or guard connected therewith, and the guide rod or way underneath the platform, on which said guard slides, substantially as described.

5. The platform-carrier composed of the toothed endless chains *c* and *c'*, the former constituting also the drive-chain of said carrier, in combination with the movable sprocket-wheels over which the chains *c'* pass at their inner ends, substantially as and for the purpose described.

311,041. SIDE-HILL SULKY-PLOW. ADDISON D. SEWELL, Colton, Wash. Filed June 30, 1884. (No model.)



Claim.—1. In a side-hill sulky-plow, the combination, with a beam, of two plows rigidly connected with each other in reverse position and pivoted to the beam to revolve in the direction of the line of draft, a sliding sleeve on said beam, and means for sliding the said sleeve back and forth on the beam, substantially as herein shown and described.

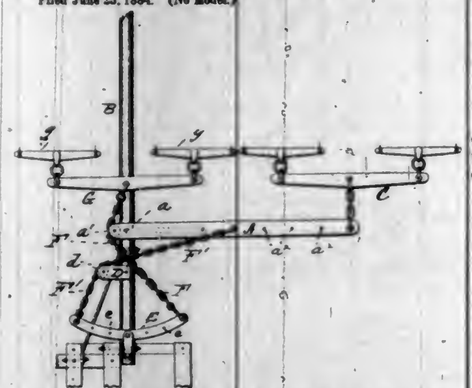
2. In a hill-side sulky-plow, the combination, with the plow-beam I, of two plows rigidly connected with each other in reversed positions and pivoted to the plow-beam, the locking-sleeve P, the spiral spring T, and the foot-lever W, substantially as herein shown and described, whereby the said plows will be locked automatically and can be readily released, as set forth.

3. In a side-hill sulky-plow, the combination, with the plow-beam I and the arched bar E, of the crank Z, the bail *c*, the guides *d*, and the lever *b*, substantially as herein shown and described, whereby the plow-beam and its attachments can be readily raised and lowered, and will be held in a horizontal position, as set forth.

4. In a side-hill sulky-plow, the combination, with a beam, I, and two plows rigidly connected together in reverse positions and pivoted to the beam, of the sliding sleeve P, provided with the upwardly-projecting flange Q, the rearwardly-inclined side flanges, R, and means for operating the said sleeve, substantially as herein shown and described.

5. In a side-hill sulky-plow, the combination, with the vertical pivoted bar *l*, carrying a horizontal draw-bar, *n*, and the plow-beam I, of the adjustable lever *p* and hinged bar *q*, substantially as herein shown and described, whereby the point of draft attachment can be readily changed from one side of the plow-beam to the other, as set forth.

311,042. DRAFT-EQUALIZER. WILLIAM B. STEELE, Berlin, Minn. Filed June 23, 1884. (No model.)



Claim.—1. The combination of the main bar A, having double-tree C, the equalizing-bar E, and the chains or cords F F', secured each at one end of the bar E, and extended thence diagonally forward across the tongue and secured, the chain F to bar A, and chain F to double-tree C, all arranged and operating substantially as set forth.

2. The combination of the tongue, the bar A, the roller *a'*, the double-tree G, bracket D, having roller *d*, equalizing-arm E, and chains F F', all arranged and operating substantially as set forth.

3. The combination, with the bar A, having roller *a'*, and the double-tree G, of the bracket D, having roller *d*, the arm E, and chains F F', substantially as set forth.

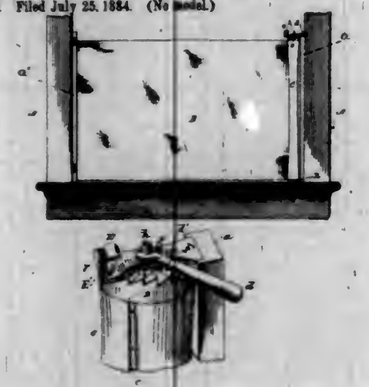
311,043. PIANO-PEDAL ATTACHMENT. TILFORD C. SWING, Mason City, Ill. Filed Mar. 3, 1884. (No model.)



Claim.—1. A cylinder, D, provided with slot E, heel-piece F, and toe-piece G, the rod J, having foot-piece L, said cylinder being hinged to the main pedal, substantially as described and set forth.

2. A slotted cylinder, D, provided with heel and toe pieces F G, respectively, and hinged to the pedal, as specified, in combination with the rod J, provided with a foot-piece, L, recess J', and thumb-screw K, substantially as described, and for the purposes set forth.

311,044. WINDOW-SCREEN ROLLER. SIMEON U. TARNEY, Auburn Ind. Filed July 25, 1884. (No model.)



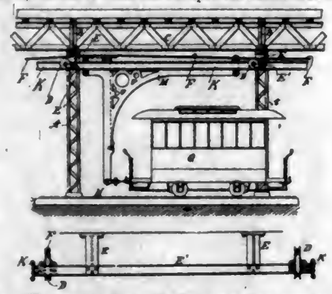
Claim.—1. The combination of the strip *a'*, the screen, the concave roller C, having ratchet D, bearing F, and pawl, substantially as described.

2. The screen and roller, the lever *d*, having a lip or projection, *d'*, in combination with ratchet D, bearing F, having shoulder at right angles to its main portion, the pawl E, having the projection E', pivoted to said shoulder, and the hub A, substantially as described.

3. The combination of the concave roller C, the lever *d*, provided with a catching projection, *d'*, integral therewith, the ratchet D, pawl E, having the projection E', and hub A, substantially as described and specified, and for the purpose set forth.

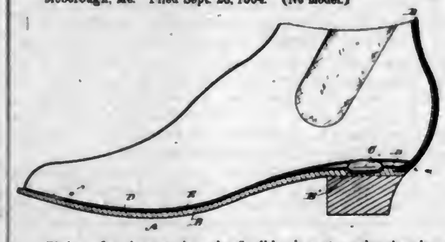
311,045. RAILWAY. CORNELIUS TIERS, Madison, N. J., and JOHN H. PENDLETON, Brooklyn, N. Y. Filed Apr. 19, 1884. (No model.)

Brief.—From an elevated structure is supported, by hangers and cross-beams, cable-supporting pulleys, a track, and a traveling carriage thereon, which supports a grip mechanism operated from the car, said carriage having an arm to which the car upon the surface road is coupled.



Claim.—The combination, with the elevated structure composed of columns and cross and longitudinal girders, of hangers below such girders, sheaves or grooved wheels supported by such hangers, an endless cable upon such wheels and actuated by competent power, a track suspended or supported by hangers below the elevated structure, a carriage upon such track, a connection from the same to a car upon a surface railway, and a clamp or grip to connect the carriage with the cable, so as to be moved thereby, substantially as set forth.

311,046. BOOT OR SHOE VENTILATOR. ADONIRAM J. TRASK, Nobleborough, Me. Filed Sept. 20, 1884. (No model.)



Claim.—In a boot or shoe, the flexible air bulb or chamber, in combination with the insole having an aperture or opening which receives the upper portion of said bulb partially, the lower sole having a corresponding aperture to receive the lower portion thereof, and the air-tubes having check-valves, substantially as and for the purpose set forth.

311,047. DUMPING-CAR. CLINTON L. VAN WORMER, Melrose, Mass. Filed Apr. 11, 1884. (No model.)

Claim.—1. The transoms constructed as described, consisting of the two iron pieces 1 1, side by side, the cross pieces or lugs 4, welded thereto, and the lower transom pieces, 6, abutting at their ends against these lugs, and bolted to the pieces 1, and having their end portions bent down over the lugs, all substantially as and for the purposes set forth.

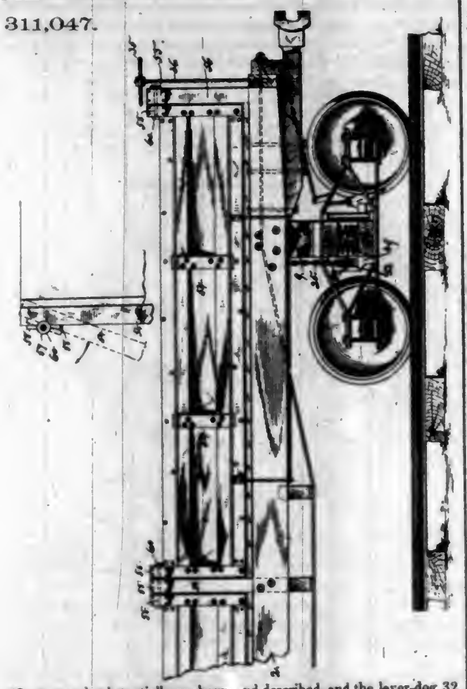
2. The roller side bearings 9, constructed as described—that is, with the broad base having a cavity therein for the two bearing-rollers 10, with the connecting-web 13, made integral with the sides and with the groove 11—these bearings being applied to move in right lines only on guideways on the outside stringers, all as and for the purposes set forth.

3. The combination of devices for operating the side bearings, consisting of the rods 14 15, lever 16, and its spring and stop 19, substantially as shown and described.

4. In combination with the side bearings and with its described devices for operating it, the key 20, serving to lock the lever 16, all substantially as set forth.

5. In combination with the main shaft and with its dumping chains and pulleys, the worm-wheel 26 on said shaft, and the adjustable worm

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27, arranged substantially as shown and described, and the lever-dog 32, serving to lock said worm either into or out of engagement with the worm-wheel.

6. The king-bolt 37, provided with two rollers at its upper end, and held as set forth to the truck, and applied to move in a vertical line only, in combination with guideways or tracks for such rollers made on the upper rocker, all substantially as and for the purposes set forth.

7. In combination with the dumping-chains secured at their ends to the car-frame, the truck-posts 49, each made integral or in a single piece, having the lateral boss or swell 50, the opening to receive the chain-pulley and to afford journal-bearings for the same, and having ears whereby the posts may be secured to the truck, all as shown and described.

8. In combination with the gates and their posts, the iron boxes 55, made each of a tube, 57, having a plate, 58, integral therewith projecting from the opposite sides of such tube, and applied to the outside of the gates and of their posts, as shown and described, and whereby the unlatched gates by their own gravity swing off from the car-body, and in the act of dumping swing far enough away from the car to be clear of the discharging load.

311,048. SLEEVE OR COLLAR BUTTON. JOS. WALL, Greenville, Miss. Filed Nov. 7, 1884. (No model.)

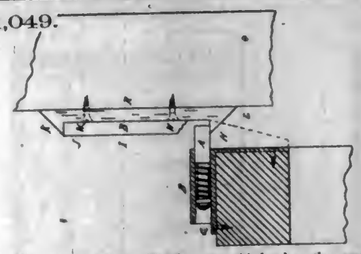


Claim.—As an improved article of manufacture, a button consisting, essentially, of the hollow cap A, provided with a notched slot, F G, in its side, pins R, near the ends of said slot, and the tubular depending stem B, having a cross-piece, H, the stem C, provided with a cross-piece, D, on its lower end, and passing up through stem B into the cap A, the spring-arm E, connected to stem C and passing through slot F, and a cross-piece, J, secured on the top of the cap, substantially as set forth.

311,049. FASTENER FOR MEETING-RAILS OF SASHES. FRANK A. WESTON and HENRY C. FROST, South Pueblo, Colo., assignors of one-third to Henry C. Albertson, same place. Filed June 7, 1884. (No model.)

Claim.—1. The combination, with the case A', having the bolt A, spiral spring, flat springs, and stop-pins, of the plate I, having beveled projections K and L, and the diagonal flange J, having straight ends connecting with the projections K L on opposite sides of the plate I, substantially as specified

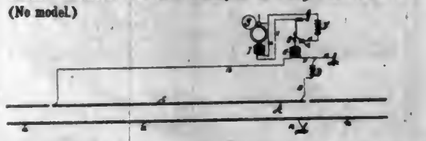
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2. The combination, with the case A', having the vertical and horizontal projections for securing it in place, and the removable cover secured in place by screws, of the bolt A, plate B', pivoted in the top and bottom of said case, the spiral spring between the plate and square portion of the bolt, the curved flat springs secured to the edge wall of the case and bearing against the bolt in front of the plate, and the stops in the case on opposite sides of the bolt, substantially as specified.

3. The combination, with the plate I, of the beveled projections K and L at opposite ends thereof, and the diagonal flange J, having straight ends connecting the projections K and L, substantially as specified.

311,050. SINGLE-RAIL CIRCUIT FOR ELECTRIC RAILWAY-SIGNALS. HENRY D. WINTON, Wellesley Hills, Mass. Filed Mar. 20, 1884. (No model.)



Claim.—1. The combination, substantially as hereinbefore described, of the insulated single-rail section forming part of one rail of a railroad-track, the rail which forms the other part of the railroad-track and is grounded, the battery having one pole connected to the insulated rail-section and the other pole to the ground, and also to one end of the helix of an electro-magnet, the other end of which is connected to the insulated single-rail section, the circuit-closer controlled by the armature of the electro-magnet, and the signal-battery, the circuit of which is controlled by the circuit-closer.

2. The combination, substantially as hereinbefore described, of the insulated single-rail section forming part of one rail of a railroad-track, the rail which forms the other part of the railroad-track and is grounded, the battery B, the electro-magnet C, the connections of these parts, as shown, the circuit-closer F, controlled by the electro-magnet C, the signal-battery B*, the signal-magnet I, signal S, and their connections, as shown.

3. The combination, substantially as hereinbefore described, of the insulated single-rail-section circuit comprising the rail-section c, battery B, and electro-magnet C with the signal-magnet I, signal S, and with the regular wire-circuit block-section comprising the battery B*, electro-magnets J K L, track-instruments T T', and the connections of these parts, as shown.

311,051. GRAIN-DRILL. NEWELL B. WOOD, Washington, Fayette County, Ohio. Filed Sept. 1, 1884. (No model.)

Claim.—1. In a grain-drill, the shoe C, hinged to the drag-bars B, and to the wheel-supporting bars D D, in combination with pressure devices applied to the supporting-bars to act simultaneously both on the covering-wheels and shoe, substantially as described.

2. In a grain-drill, the combination of shoes hinged to drag-bars B, and the wheel-supporting bars D, hinged to the shoes, which are provided with lugs *p*, for transmitting pressure from the supporting-bars through the shoes, which are also connected to the bars D at their ends by links to allow the shoes to fall, substantially as specified.

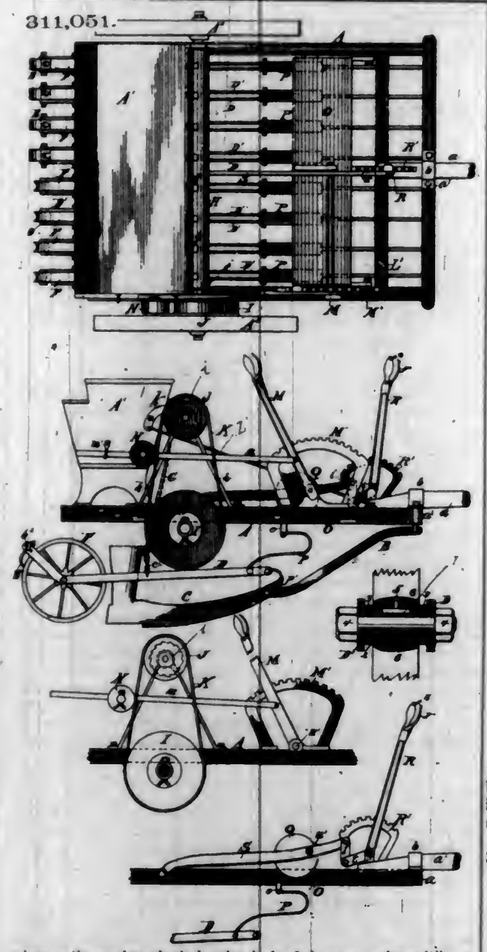
3. The combination, with the shoes hinged to the drag-bars B, the wheel-supporting bars D, hinged to the shoes, which are provided with lugs *p*, so that pressure applied to the wheel-supporting bars will hold the covering-wheels and shoes down to their work.

4. The furrow-openers and covering devices consisting of the shoes hinged to the drag-bars and covering-wheels journaled in supporting-bars which are hinged in turn to the shoe, in combination with links *a* and a spring-pressure device applied to the supporting-bars, whereby the covering devices are held down to their work by a yielding spring applied to the supporting-bars, substantially as described.

5. The wheel-supporting bars D D, having their rear ends bent or upturned, in combination with the adjustable scraper E, journaled on centers between the bent ends of the bars D, substantially as herein specified.

6. In combination with the shoe C, hinged to drag-bars, and the supporting-bars D, hinged to the shoes, the lifting devices G I J, mounted on the driving-axle, and a main frame for simultaneously raising the

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shoes and covering-wheels by the draft of the team, substantially as herein specified.

7. In combination with the lever N and connecting-rod M, pivoted thereto, mounted upon the main frame, and adapted to bring the lifting devices into operation, whereby the power of the team is applied to simultaneously raise the series of covering devices, substantially as specified.

8. The springs P, attached to the hinged pressure-bar O at one end and to the wheel-supporting bars D at the other end, in combination with lever M, with connecting devices for controlling the pressure of the springs extended upon the furrow devices D C, substantially as specified.

9. In combination with the lever M and the pivoted pressure-bar O, the cam Q, adapted to control the pressure-bar when the lever is moved so as to control the tension of spring-pressure applied to the bars D for holding the devices down to their work.

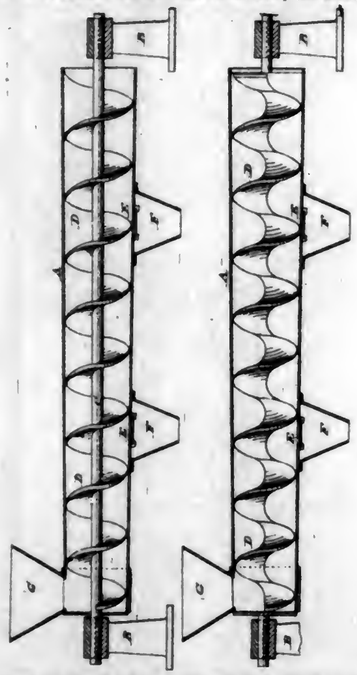
10. In combination with the lever M and cam Q, the pressure-bar O, connected to the supporting-bars of the covering-wheels by yielding springs P, whereby a pressure is simultaneously applied to all of the shoes and covering-wheels in the series by the action of the lever M, substantially as herein specified.

11. In combination with the pressure-bar O, the lock-lever R, connected to lever M, carrying the cam Q and journaled upon a shaft, *m'*, and the connecting devices S *t e*, for releasing pressure by the movement of the shipping-lever R, substantially as described.

12. The combination, with the hubs of the covering-wheels F, journaled upon the screw 1, washers 3, sleeve 2, and oil-passages 5 and 7, pierced through the hub and through the sleeve, substantially as specified.

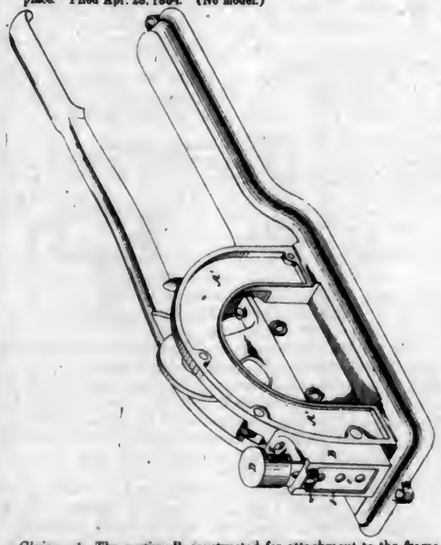
13. The supporting-bars D of the covering-wheels, hinged to the shoe C, provided with lugs *p*, and hinged to the independent drag-bars B, whereby the wheels and shoes are adapted to be raised and lowered simultaneously to the shoes C, and having an independent dragging motion, substantially as herein specified.

311,052. DEVICE FOR CONVEYING CLAY AND CLAY-SHALE TO THE MACHINES FOR PRESSING THEM INTO BRICKS. JAMES C. ANDERSON, Highland Park, Ill. Filed Oct. 14, 1884. (No model.)



Claim.—A device for conveying clay, consisting of a cylinder provided with wings or screw-shaped spirals secured therein and adapted to be rotated with the cylinder, a stationary feed-hopper, and suitable openings in the side of the cylinder to admit of the discharge of the clay, as set forth.

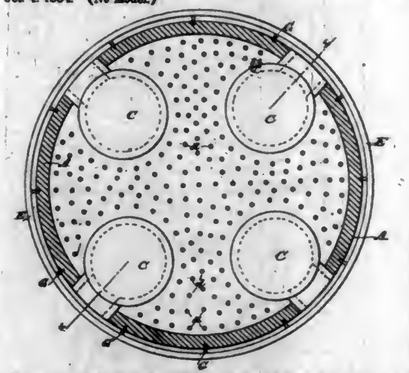
311,053. TOBACCO-CUTTER. T. HENRY ASBURY, Philadelphia, Pa., assignor to the Enterprise Manufacturing Company of Pennsylvania, same place. Filed Apr. 28, 1884. (No model.)



Claim.—1. The casting B, constructed for attachment to the frame A' of a tobacco-cutting machine, in combination with a perforated fixed blade fitted to the casting, a movable perforated blade, *h*, a spring acting thereon, and devices, substantially as described, by which the said blade *h* may be operated, as set forth.

2. The combination of the casting B, adapted to the frame of the tobacco-cutting machine, the perforated blade *e*, adapted to the recessed edge of an opening, *f*, in said casting, the perforated blade *h*, and its head D, the spring *n*, and a spring, E, interposed between the said head D and the casting, all substantially as described.

311,054. GLASS-FURNACE. J. ASHCROFT, New York, N. Y. Filed Oct. 4, 1884. (No model.)



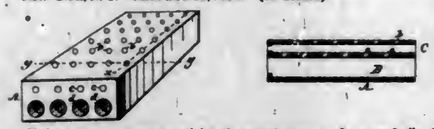
Claim.—1. A furnace for melting glass and for other purposes, the combustion-chamber of which is provided with a floor of perforated tile for the admission of gas and air, as set forth.

2. In a furnace for melting glass and for other purposes, a hollow floor provided with apertures for the admission of gas and air into the combustion-chamber, and with longitudinal passages or ducts, in combination with a pipe or pipes for supplying the gas and air under pressure, as set forth.

3. A furnace for burning gas, provided with hollow perforated tiles, substantially such as described, for the conveyance of gas and air to the combustion-chamber, in combination with a supplemental chamber in which the air is heated, as set forth.

4. A furnace for burning gas, provided with hollow perforated tiles, substantially such as described, for conveyance of gas and air to the combustion-chamber, in combination with the chamber K, located in rear of the front wall of the furnace and in juxtaposition to the combustion-chamber, said chamber K being provided with nozzles for admitting the heated air to the hollow tile, as set forth.

311,055. TILE FOR GLASS AND OTHER FURNACES. J. ASHCROFT, New York, N. Y. Filed Dec. 12, 1884. (No model.)



Claim.—1. As a new article of manufacture, a fire-proof tile for feeding gas and air to glass and other furnaces, provided with longitudinal ducts for the passage of gas and similar ducts for the introduction of air, both sets of ducts or passages being connected with inclined or vertical ducts which open out through the face of the tile, as set forth.

2. A fire-proof tile for feeding gas and air to glass and other furnaces, provided with longitudinal passages for the admission of gas, which communicate with the exterior of the tile by suitable ducts, and a larger passage for the admission of air, both passages being connected by suitable ducts, as set forth, whereby the proper amount of air is mingled with the gas before it passes out of the tile or into the combustion-chamber.

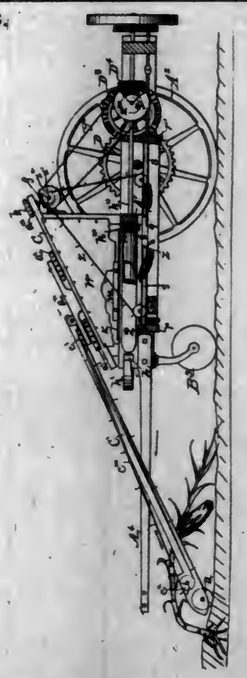
311,056. CORN-HARVESTER. ASHBEL S. AVERY and LUKE W. OSBORN, Walnut, Iowa; said Osborn assignor of three twenty-fourths to H. S. Butler, Des Moines, Iowa. Filed Dec. 4, 1883. (No model.)

Claim.—1. A corn-harvester carriage having poles projecting forward from its opposite sides at its front end, and hitching devices projecting outward from the front ends of the poles, an evener pivoted to the rear end and center of the carriage, and single-trees connected with the ends of the evener, in the manner set forth, for the purposes stated.

2. In a corn-harvester, the combination of a hinged bar having a supporting-wheel in its end to travel on the ground, a guide-pulley mounted on said bar, an endless belt or chain passing over said guide-pulley and having teeth, and suitable operating mechanism to elevate lodged or leaning corn, in the manner set forth.

3. The hinged bar or frame C', having a supporting-wheel, *a*, and pulley *c''* at its lower end, the platform C, having a sprocket-wheel, *c'*,

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and an endless belt or chain, *c'''*, having teeth, arranged and combined substantially as and for the purposes specified.

4. The inclined platforms C C, the endless chains *b'''* *b'''*, having projecting pins or teeth, the hinged bars or frames C' C', having supporting-wheels *a a*, and endless chains *c''* *c'''*, having teeth, and suitable operating mechanism, all arranged and combined to operate in the manner and for the purpose specified.

5. A chain-link having a horizontal finger, *d*, and vertical finger *d'''*, in combination with an endless chain and fixed guide-bars to engage the vertical finger, as and for the purposes set forth.

6. A platform, C, sprocket-wheels *a'*, a drive-wheel, *a'''*, an endless chain having links at intervals provided with fingers *d* and *d'''*, that project at right angles to each other, and fixed guide-bars *f f'*, arranged and combined substantially as and for the purpose shown and described.

7. The adjustable bars *k k*, in combination with the rollers 1 and 2, to prevent the ears of corn from coming in contact with the rollers as they revolve and pull the stalks downward, in the manner set forth.

8. In a corn-harvester, the combination of a pair of rollers, two parallel rollers extended over and parallel with the rollers, and a horizontally-reciprocating striker above the parallel bars, to operate in the manner set forth, for the purposes specified.

9. The combination of the striker or breaker *l l'*, having projections 3 4 5, and rods *l''*, the fixed supporting-frame *m*, the rock-shaft *m'*, having a crank, *m''*, means for rocking said rock-shaft, the link *m'''*, and a spring to operate in the manner set forth, for the purpose specified.

10. The combination, with the breaker and connecting devices, as described, of the rock-shaft *m'*, having crank-arms *m''* and *n*, the link *n''*, the bar *n'*, having a hook on its end, the rollers 1 and 2, provided with gear-wheels, and the cam or projection *o* on one of said gear-wheels, substantially as and for the purposes set forth.

11. The combination of two parallel husking-rollers placed horizontally in two different planes, and a rigid guard extending along the angle between the two rollers to retain the ears of corn upon the lower roller and keep them from contact with the upper roller, as and for the purposes set forth.

12. In combination with two husking-rollers, the guards *s* and *x*, substantially as and for the purpose shown and described.

13. The rollers 1 and 2, the fixed bars *k k*, a reciprocating breaker, *l*, the husking-rollers 8 and 9, and a fixed guard, *s*, arranged and combined in the manner and for the purpose specified.

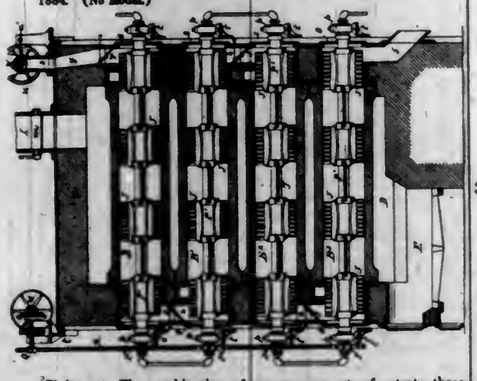
14. The corn-harvesting machine composed of the following elements, to wit: a traction-carriage adapted to be advanced astride of a row of corn in the field, parallel and inclined frames or bars carrying toothed endless chains adapted to elevate lodged corn, inclined platforms toothed endless chains carried on said platforms and adapted to move the tops of the stalks to the rear, two rollers engaging the stalks, two rigid bars to support the stalks vertically and to engage the ears on the

stalks, a reciprocating bar to strike and break off the ears from the stalks supported by the rollers and rigid bars, a pair of husking-rollers, a roller-cleaning device, and suitable operating mechanism, substantially as and for the purposes shown and described.

311,057. METHOD OF PREPARING PICTURES AND PHOTOGRAPHS FOR PHOTO-ENGRAVING. RICHARD BROWN, ROBERT W. BARNES, and JOSEPH BELL, Liverpool, County of Lancaster, England. Filed Aug. 1, 1883. (Specimens.) Patented in England Mar. 15, 1883, No. 1,380, and in France Apr. 21, 1883, No. 155,029.

Claim.—The process hereinbefore described of producing printing-type plates having lined or stippled surfaces, which process consists of mechanically roughening the surface of the photograph itself, of then taking a negative or a positive of said roughened photograph on suitable material, and of then making therefrom a printing-type surface by any well-known process, substantially as set forth.

311,058. ORE-ROASTING FURNACE. JOHN F. CARTER, Philadelphia, Pa., assignor to William McGeorge, Jr., same place. Filed May 16 1884. (No model.)



Claim.—1. The combination of one or more sets of retorts, those of each set being arranged one retort above the other, and the end portions of each retort being chambered, with a combustion-chamber the front and rear walls of which are composed of the said ends of the retorts, substantially as set forth.

2. The combination, in an ore-roasting furnace, of a series of retorts each of which has end castings forming part of the rear and front walls of the furnace, and a body of fire-clay attached to the castings, substantially as specified.

3. The combination of a series of retorts and their rotating rakes, communicating passages 2, and in each passage a damper, 3, self-opening under a weight of ore admitted to the passage and self-closing in the absence of ore, substantially as set forth.

4. The combination of the combustion-chamber and a series of retorts the opposite ends of which are castings forming the front and rear walls of the combustion-chamber, with communicating passages 2, made in the said castings, substantially as specified.

5. The combination of the combustion-chamber and one or more sets of retorts partly contained therein, with dampers 16, for restricting the passage of the products of combustion through the said chamber, substantially as set forth.

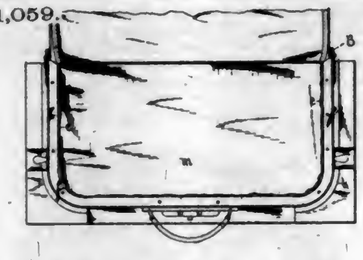
6. The combination of the combustion-chamber and a series of retorts partly contained therein, the passages k^2, and damper 13, with a flue, 14, substantially as described.

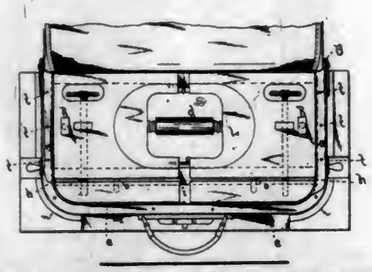
7. The combination of the combustion-chamber of an ore-roasting furnace, a series of retorts partly contained therein, the openings at the ends of the retorts, and the lateral outlets from the same, the fume-chamber in communication with the said outlets, the grated or perforated platform 18, and passages whereby the fumes from the retorts are caused to pass through the said grating to the outlet of the fume-chamber, all substantially as set forth.

311,059. PROCESS OF MANUFACTURING TRAVELING-BAGS, SATCHELS, &c. ROBERT W. CHAPMAN, Newark, N. J. Filed Apr. 8, 1884. (No model.)

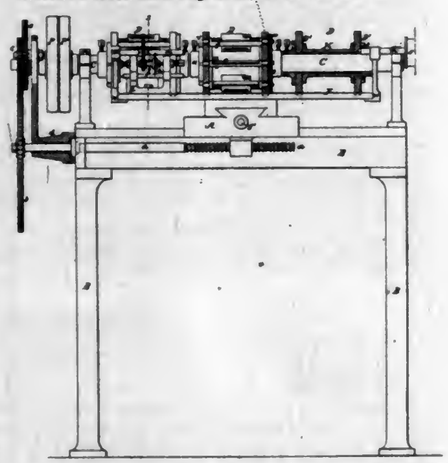
Claim.—An improved process of manufacturing traveling-bags or satchels, which consists of stretching and clamping the material forming the bag so that the edges will be in place, then simultaneously forcing all the rivets which connect the bag to the frame through the said edges, then simultaneously forcing the said rivets through the holes in the inlay, and, lastly, simultaneously heading, burling, and finishing all the rivets which connect the bag to the frame, as and for the purpose set forth.

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311,060. COMB-MAKING MACHINE. LOUIS MARIE CHORIER, Paris, France. Filed Dec. 10, 1883. (No model.) Patented in France Nov. 8, 1883, No. 158,395; in England Nov. 15, 1883, No. 5,386; in Germany Feb. 19, 1884, No. 28,039, and in Belgium May 15, 1884, No. 65,164.



Claim.—1. The combination of a rotary drum carrying a series of clamps for comb-blanks, a carrier and feed-screw to impart a continuous feed motion to the carrier alongside the drum, with a rotary cutter, and a driving-shaft for said cutter, both mounted on the carrier, substantially as described, whereby a continuous feed is imparted to the carrier alongside the drum as the latter is rotated.

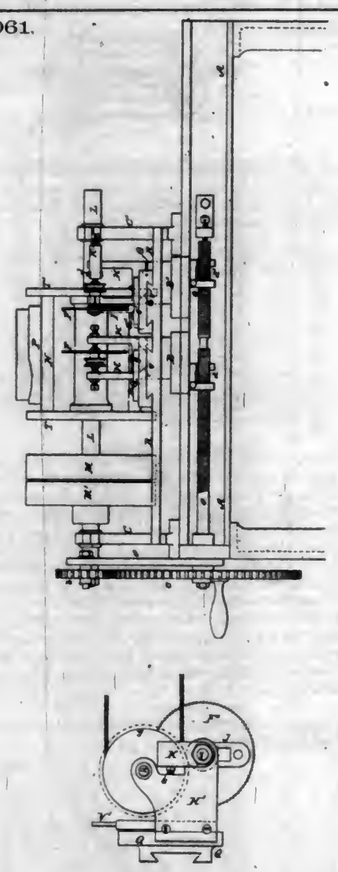
2. The combination of a series of rotary comb-carrying drums with a traversing-carrier alongside the drums, and having a series of rotary cutters and gearing, and a driving-shaft mounted on the carrier to impart motion to the cutters, substantially as set forth.

3. The combination of a comb-carrying drum with a rotary cutter alongside the drum to cut out the teeth of the comb-blanks, and a beveled cutter adjacent to the cutter to bevel the ends of the said teeth, substantially as specified.

4. The combination of a shaft, a drum, D, loose on the shaft, and a series of comb-holders, having trunnions mounted in said drum, and having pinions at one end, with a gear-wheel secured to the shaft, and gearing into said pinions, a notched wheel also secured to the shaft, and a catch carried by the drum, substantially as set forth.

311,061. COMB-MAKING MACHINE. LOUIS MARIE CHORIER, Paris, France. Filed July 31, 1884. (No model.) Patented in France June 20, 1884, No. 162,864; in Belgium June 23, 1884, No. 65,558; in England June 28, 1884, No. 9,541, and in Germany July 1, 1884, No. 30,068.

311,061.



Claim.—1. In a machine for cutting the teeth of combs, the combination of a rotary comb-carrying drum, and traveling carriages supporting cutters alongside the drum, with differential feed mechanism engaging the carriages for automatically feeding them at different speeds, to cut teeth of different sizes, substantially as set forth.

2. The combination of the rotary comb-carrying drum, traveling carriages alongside the drum, and rotary cutters mounted thereon, with a differential feed-screw having different threads to feed the cutters longitudinally of the drum at different speeds, substantially as and for the purpose set forth.

3. The combination of the rotary comb-carrying drum and a rotary cutter or saw adjacent to said drum, to cut the teeth in the blanks, with a pivoted counterpoise, K, and a saw-guide, I, adjustably mounted thereon, substantially as described.

311,062. REFRIGERATING APPARATUS. NATHAN W. CONDICT, Jr., Jersey City, N. J., and THOMAS ROSE, Brooklyn, N. Y. Filed Nov. 24, 1884. (No model.)

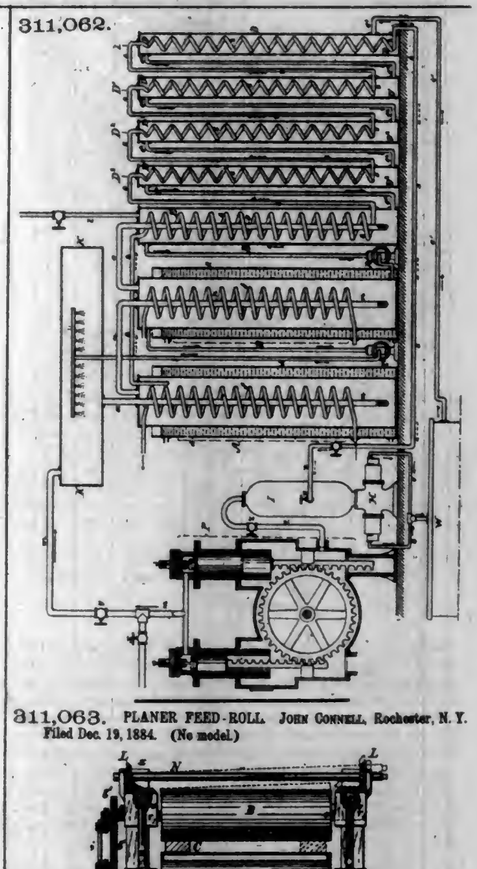
Brief.—Improvement on the invention of Thomas Rose, Patent No. 309,494, dated December 16, 1884.

Claim.—1. The combination of the absorber of refrigerating apparatus with a secondary absorber communicating with the first, for receiving from the latter any surplus gas, and thereby preventing the creation of pressure in the apparatus, substantially as set forth.

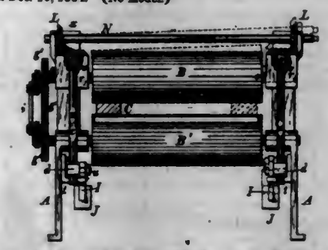
2. The combination of the pipe *e'*, for carrying the feed solution from the pipes or passages of the refrigerating-chamber, a series of vessels, D D', &c, forming enlarged continuations of the pipe, the pipe *s*, for conveying the solution from the absorber to the vacuum-chamber, and coils forming parts of the pipes and contained in the above-mentioned vessels, substantially as specified.

3. The combination of the first and secondary absorbers and the vessel E and its pipe *l* with the circulating-pumps R and T and receiver K, communicating with the first absorber, substantially as described

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311,063. PLANER FEED-ROLL. JOHN CONNELL, Rochester, N. Y. Filed Dec. 19, 1884. (No model.)



Claim.—1. The combination, with the upper adjustable feed-roll of a planing-machine, of the screws *c c*, pivoted to the journal-boxes of the feed-roll, and threaded directly into the pivoted nuts *d d*, attached to the weighted levers I I, substantially as described.

2. The combination, with the upper adjustable feed-roll of a planing-machine, of the screws *c c*, pivoted to the journal-boxes of the feed-roll, and threaded directly into the pivoted nuts *d d*, and provided at their upper ends with bevel-gears L L and connecting-shaft N, substantially as described.

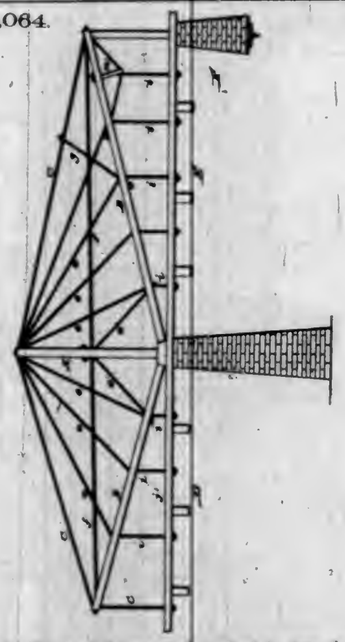
3. The combination, with the journal-box *r* of the upper adjustable feed-roll of a planing-machine, of the screw *c*, pivotally connected with the journal-box by means of the collar *e*, provided with stud *s*, substantially as described.

311,064. CANTALEVER. BENJAMIN F. DAVIS, Corsicana, Tex. Filed Aug. 6, 1884. (No model.)

Brief.—Employs a central post supported on a pier, with upwardly-inclined struts having their inner ends bearing against the base of the post; rods from the top of the post to the ends of the struts, rods from the middle of the post to near the inner ends of the struts, and rods from the ends of the struts to the middle of the post. An inclined brace connects the outermost of the rods with the strut of the shore end of the structure, the longer rod extending from the top of the post through the strut at the shore end, near the end of the same, and attached to it, a brace taking up the slack in said rod. The stringers and sleepers are supported from the struts by pendent rods.

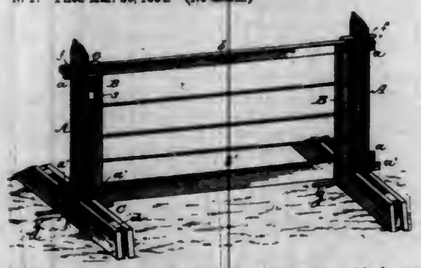
Claim.—In a truss or cantalever device for bridges or similar structures, the combination of the central post or column supported upon a pier or tower, the upwardly-inclined struts or beams bearing with their inner ends against the base of the post or column, the rods or cables ex-

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tending from the top of the post to the ends of the struts, the rods or cables extending from the middle of the post to near the inner ends of the struts, the rods or cables extending from the ends of the struts to the middle of the post, the inclined or oblique brace connecting the outermost of the rods or cables with the strut of the shore end of the structure, the longer rod or cable extending from the top of the post through the strut at the shore end near the end of the same, and attached to the end of the same, the brace filling or taking up the slack in the said rod or cable and bearing against the under side of the strut, the pending rods or cables, and the stringers and sleepers of the bridge or structure supported by the said pending rods or cables, as and for the purpose shown and set forth.

311,065. PORTABLE ANCHOR-FENCE. JOSEPH DU BOIS, Waverly, N. Y. Filed Mar. 20, 1884. (No model.)



Claim.—1. In a portable fence, the combination, with the posts having stripe *a a'* secured thereto, of the removable panels, each panel having one or more notches cut in one of the vertical end boards near the top, substantially as and for the purpose set forth.

2. In a portable fence, the combination, with the posts A and cross-stripe *a a'*, of a removable panel having notches *s*, and resting on pins passing horizontally through the post near the bottom, substantially as and for the purpose set forth.

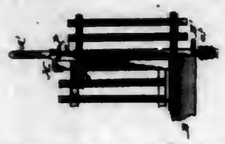
3. In a portable fence, the combination of the posts having the stripe *a a'*, the panels having the notches *s*, and the anchor-boxes provided with inclined interior stripe, *d*, and pins *p*, substantially as and for the purpose set forth.

4. In a fence, the combination, with the panels B, having the notches *s*, of the posts having stripe *a a'*, pins *f g*, anchor-boxes C, and the stakes A, as set forth.

311,066. GATE. JOSEPH DU BOIS, Waverly, N. Y. Filed Mar. 29, 1884. (No model.)

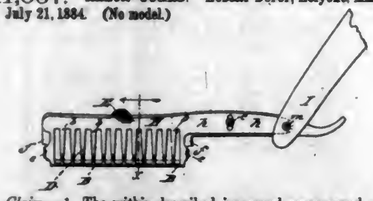
Claim.—In a gate, the combination of the stay-post A, pivot-post A', and anchor-box B, provided with a cross-plate, B', extending beyond

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the box, and having openings therein to receive the lower reduced portion of the pivot-post, said pivot-post being secured to the stay-post by a collar, H, and having perforated upper and lower reduced portions, substantially as and for the purpose set forth.

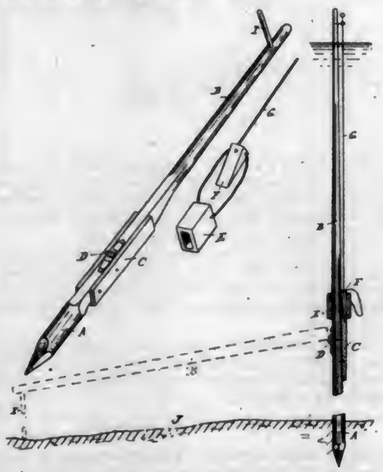
311,067. RAZOR-GUARD. HUBERT DUPUY, Holyoke, Mass. Filed July 21, 1884. (No model.)



Claim.—1. The within-described improved razor-guard consisting of a plate, H, provided with bars *b*, adapted to leave a concavity between them and the side of the blade, and adapted to curve outward from the cutting-edge to coincide with the surface of a bar uniting their ends, provided with a bar, B, approximately at right angles to and removed from the cutting-edge, having a shank, *h*, adapted to lie upon the blade-shank and be hinged, with the blade, to the handle I, and having means, as *c*, for adjustably clamping it (the said shank) to the blade, and having clips *e e* adapted to clasp the ends of the razor.

2. The combination, with a guard adapted to lie close to the blade of a razor, and means for securing it thereto, of a thumb-piece, E, adapted to support one finger of the hand in close proximity to the back of the razor, and at a point thereon near its longitudinal center, as and for the purpose set forth.

311,068. FISH-LINE STAKE. GEORGE A. DUPUIS, Detroit, Mich. Filed Mar. 26, 1884. (No model.)



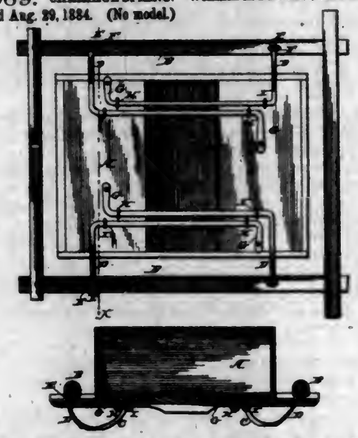
Claim.—1. In combination with a fishing-net, a pole made in two sections the lower of which is driven into the bed of the stream, and having rigidly attached thereto a box having a side opening of the width of the upper section, which section is free to turn in said opening, and when erect rests on the lower section and is firmly held against lateral displacement at the junction of the two by said box, the said upper section being braced at a distance from its junction by pieces extending across the open sides of said box, substantially as shown and described.

2. A pole for the purposes herein described, consisting of the sections A and B hinged together, in combination with the box C, rigidly attached to the part A, and having an open side in which the upper part is free to turn, and the box E for binding the parts together, substantially as described.

3. In combination, the two-part pole A B, hinged together, open-sided box C, box E, wedge F, and rod G, the parts constructed, arranged, and operating substantially as and for the purposes specified.

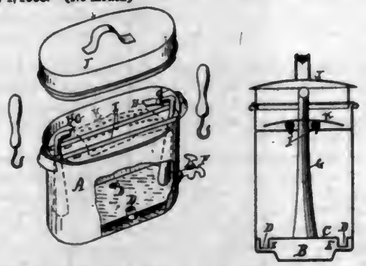
4. In combination with a hinged pole for the purposes herein set forth, an arm, as I, attached to the upper end of the folding part, to prevent its extreme outer end from becoming embedded in the bed of the stream, substantially as described.

311,069. CARRIAGE-SPRING. WILLIAM K. FRALEY, Forest Hill, Ind. Filed Aug. 29, 1884. (No model.)



Claim.—The combination, with a vehicle-body, of spring-bars arranged in bearings or staples under the same, and having at their outer ends downwardly-extending curved arms, flattened on their under sides, as at *b*, so as to form supplemental springs of superior elasticity to the torsion-springs formed by the said spring-bars, and suitably connected with the side bars or axles, and provided at their inner ends with arms or brackets bent in opposite directions and secured to the under side of the vehicle-body, substantially as and for the purpose herein shown and specified.

311,070. WASH-BOILER. BARNEY J. GAGNIER, Detroit, Mich. Filed Oct. 1, 1883. (No model.)



Claim.—A steam wash-boiler, as A, provided with a supplemental bottom, C, rigidly secured to the inner walls thereof, and having flanged holes D, formed therein, and flanges H, secured to the upper inner ends of the boiler, and the curved stand-pipes G, communicating with the space between the bottoms B and C, and secured to and braced by said flanges, in combination with the separate removable rods I, supported by said flanges, and the perforated plate K, supported by said rods above the clothes, substantially as herein shown and described, and for the purpose specified.

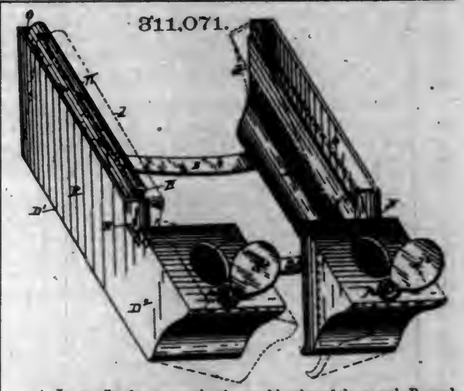
311,071. OILER FOR CAR-AXLES. JOHN GIBSON, West Troy, N. Y., assignor to the Messely Hardware Company, same place. Filed June 13, 1884. (No model.)

Claim.—1. The combination, with the journal-box I, of the vessels R R, constructed with openings *a* and wick-openings O, and adapted to be inserted within said journal-box, substantially in the manner as and for the purposes set forth.

2. In an oiler for a car-axle, the combination of the vessels R, adapted to be inserted within a car journal-box, as shown, the springs S, connecting the said vessels, the wick-holders H, and the wicks W, the said parts being constructed and arranged to operate substantially in the manner as and for the purposes set forth.

3. In an oiler for a car-axle, the combination of the vessels R, made with the opposite recesses, N, the springs S S, connecting said vessels, the wick-holders H, and the wicks W, the said parts being constructed and arranged to operate substantially in the manner as and for the purposes set forth.

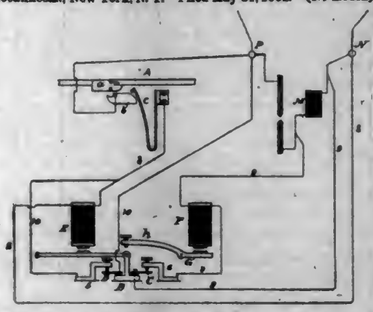
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4. In an oiler for a car-axle, the combination of the vessels R, made with the anterior lobe D^2, the posterior lobe D', and the wick-openings O, as shown and described.

5. The combination, with the journal-box I, of the vessels R, constructed with the openings *a*, covers d^2, wick-openings O, the springs S, the wick-holders H, made with the lips *m*, and the wicks W, the said parts being constructed and arranged to operate substantially in the manner as and for the purposes set forth.

311,072. AUTOMATIC CUT-OUT FOR ELECTRIC LAMPS. WILLIAM HOCHHAUSEN, New York, N. Y. Filed May 31, 1882. (No model.)



Claim.—1. The combination, substantially as and for the purpose set forth, with an automatic safety cut-out mechanism for an electric-arc lamp, of a releasing or unsetting coil or electro-magnet, and connections, as described, from said coil or electro-magnet to the general circuit, so that when the carbons come together said coil or electro-magnet will be energized.

2. The combination, substantially as described, with an automatic safety circuit-closer for electric-arc lamps, of an electro-magnet whose armature is arranged so as to impinge upon said circuit-closer when the electro-magnet is energized, and circuit-connections from said electro-magnet to the carbon-circuit, so that it may be energized when the carbons come together.

3. The combination, in an electric-arc lamp, of circuit-closing devices, a derived or branch circuit closed thereby when the current in the main circuit decreases, mechanism arranged to impinge upon said circuit-closing devices, an electro-magnet for actuating said mechanism, and connections from said electro-magnet to the circuit containing the carbons, so that when the latter come together the electro-magnet will be energized.

4. The combination, with a circuit-closer for a derived or safety circuit of an electric-arc lamp, of a supplemental circuit-closer for closing the circuit of an unsetting-magnet, and mechanism actuated by the unsetting electro-magnet, and arranged to impinge against the circuit-closing mechanism so as to break both circuits.

5. The combination, with a circuit-closer for a safety-shunt or derived circuit for an electric lamp, of an unsetting electro-magnet or coil and circuit-closing devices operating simultaneously with the safety-circuit closer, for including said magnet or coil in a circuit connected with the carbon-circuit, so as to be completed by the coming together of the carbons.

6. The combination, substantially as described, of a general circuit, a safety circuit-closer, an unsetting-coil or electro-magnet connected to the general circuit between the points of connection of the safety-circuit, and a supplemental circuit-closer for closing a break in the circuit of the releasing magnet or coil.

7. The combination, with an automatic cut-out, of a releasing or unsetting magnet in a circuit connected to the general circuit on either side of an artificial resistance, and a circuit-closer in the circuit of said magnet, said circuit-closer being controlled directly or indirectly by the automatic cut-out devices.

8. The combination, substantially as described, of an electro-magnet, E, two circuit-closers operated thereby, and electro-magnet F, having a break in its circuit controlled by one of said circuit-closers, and having also an armature-lever projecting over the support for the circuit-closers, for the purpose set forth.

9. The combination, substantially as described, of a safety cut-out circuit-closer, a supplemental circuit-closer, an unsetting or releasing electro-magnet in circuit with the supplemental circuit-closer, an artificial resistance in the circuit for the carbons at a point between the points of connection of the safety-circuit, and connections from the general circuit on either side of the resistance to the supplemental circuit-closer and the unsetting electro-magnet.

10. The combination, substantially as described, of an electro-magnet, E, in the cut-out circuit, a circuit-closer operated thereby for preserving the cut-out circuit, a supplemental circuit-closer, also operated by said electro-magnet, and an unsetting or releasing magnet in circuit with the supplemental circuit-closer for unsetting or releasing both circuit-closers, so as to break the circuit of electro-magnet E, as well as its own circuit.

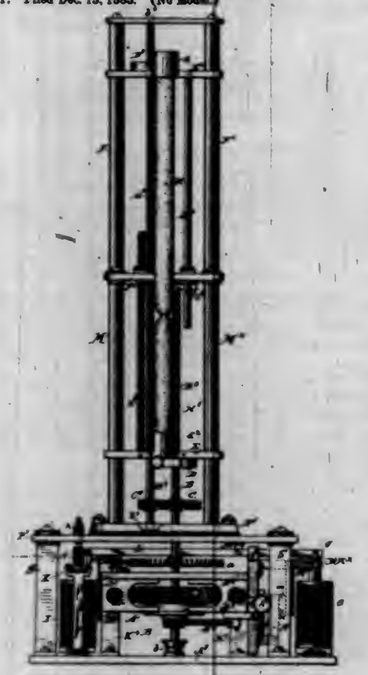
11. The combination, with the two contact-stops, of the two contact-plates or circuit-closers, mounted on a pivoted block, whose pivot is carried by a support adapted to move toward and away from the contact-stops, said contact-plates or circuit-closers being arranged on opposite sides of the pivot, as and for the purpose described.

12. The combination, substantially as described, of a safety cut-out circuit-closer, an unsetting electro-magnet, a supplemental circuit-closer in circuit with said electro-magnet, a swinging frame or support to which said circuit-closers are connected on either side of the pivotal point, and fixed stops ranged in line with the two sides of the swinging frame.

13. The combination of the armature-lever, the pivot or stem L, attached to said lever, the bodily-movable block B, swinging on said pivot and carrying the two circuit-closing points or surfaces on either side of the pivot, and the two fixed stops on the same side of the block, arranged as described, so that when the block B is carried bodily by the armature toward the stops both contacts will be closed, and the block will automatically take position so that both contacts will be broken at the same instant on the reverse movement.

14. The combination, substantially as described, of a safety cut-out circuit-closer, an unsetting electro-magnet, and a supplemental circuit-closer for introducing the electro-magnet into a circuit with the carbons

311,078. ELECTRIC-ARC LAMP. WILLIAM HOCHHAUSEN, New York N. Y. Filed Dec. 13, 1883. (No model.)



Claim.—1. The combination, substantially as described, of the two screw-shafts, each carrying a nut for supporting or actuating a carbon, an electric-motor armature carried by one of said shafts, and two wheels gearing with one another, the wheel on one shaft having twice the circumference of that upon the other.

2. The combination of the shafts B B^2, the two pairs of standards, each having a cross-piece for the support of a shaft, and the guide-plates E E^2, each carrying a nut and a carbon-holder.

3. The combination of the two pairs of standards, the cross-pieces F^2 b^4, the shafts B B^2, pinions C C^2, and the electric motor having an armature mounted on one of the shafts B B^2.

4. The combination of the pillars F F^2 M M^2, the insulated uniting-plate F^3, the sliding plates E E^2, for carrying the carbons, and the guide-pins E^3 E^4, as and for the purpose described.

5. The combination of the two pairs of pillars, the uniting-plate F^3, the two screw-shafts, one of which is stepped in a cross-piece for one pair of pillars, the other in the plate F^3, the supporting-plates for the carbon-carriers, carrying nuts that engage with the screw-shafts, and the guide-pins E^3 E^4, passing through the plate F^3, as and for the purpose described.

6. The combination, substantially as described, of the two shafts B B^2, connected, respectively, with the positive and negative carbons, and the wheels or pinions upon said shafts gearing with one another, and one or both separated from the shafts by sleeves of insulating material.

7. The combination, with the screw-shaft, of a support for the carbon, and the nut constructed in two portions swinging on a pin, and having upon one portion a pivoted clamping or connecting piece, D^2, as and for the purpose described.

8. In an electric lamp, the combination of two guiding pillars or standards forming a portion of the circuit, a sliding plate or cross-piece sliding on said standards, and a horizontally-adjustable carbon-holder supported on said plate, as and for the purpose described.

9. The combination of the two sliding plates or supports E E^2, the two carbon-holders supported thereby, and the horizontally-adjustable arms carrying the holders and sliding in and out upon the plates.

10. The combination of the plate E or E^2, the two pillars F F^2 or M M^2, the horizontally-projecting adjustable arm carrying the holder, the screw-shaft passing through the plate, and the nut supported by the plate and made in two parts pivoted on a pin projecting from said plate.

11. The combination, in an electric lamp, of the screw-shaft B, carrying a nut for moving the carbon up or down, an electric motor whose armature is supported on said shaft, and a magnet in a high-resistance branch around the carbons, for reversing the direction of the current in said armature, according to the condition of the circuit between the carbons.

12. The combination of the screw-shaft, the nut upon said shaft for imparting movement to the holder, the electric-motor armature in a bridge between two branch wires, and a double-contact circuit-closer for admitting current to one or both branches, in accordance with the condition of the carbon circuit.

13. The combination, with the carbon-carrier in an electric-arc lamp, of an electric motor for imparting movement thereto, having its armature placed in a bridge-wire between two branches, a double-contact circuit-closer, whereby the circuit of either or both branches may be closed, and an electro-magnet in a derived circuit around the carbons for controlling said circuit-closer, as and for the purpose described.

14. The combination, with mechanism in an electric lamp for imparting the desired feeding and separating movement to the carbon-carrier, of an electric motor actuating said mechanism, a bibranched circuit, a brake-controlling electro-magnet in a bridge-wire between said branches, and a double-contact circuit-closer for closing the circuit of one branch, or of both together, as and for the purpose described.

15. The combination, with the feeding and separating mechanism for an electric lamp, of an actuating electric motor, a bibranched circuit, each branch of which contains the coils of one of the field-magnets for the motor, a bridge-wire containing the armature for the motor, and means for varying the potential of the current in the two branches, as and for the purpose described.

16. The combination, with feeding and separating mechanism for a carbon of an electric lamp, of an actuating electric motor, a bibranched circuit, each branch of which contains one of the motor field-magnet coils, a bridge-wire containing the armature of the motor, a brake electro-magnet in said bridge-wire, which permits a brake to be applied to the motor when the current in the bridge-wire ceases or weakens, and means for admitting current to both branches while the arc is of normal length, and of causing a decrease in one branch or the other, according as the resistance between the carbons is above or below normal, as and for the purpose set forth.

17. The combination of the carbon separating and feeding mechanism, an electric motor for actuating said mechanism, circuit-controlling devices whereby the feeding and separating movement of the motor is controlled, mechanism tending, when no current is passing through the carbons, to hold the circuit-controlling devices in position to cause the motor to feed the carbons, and an electro-magnet in the carbon circuit

for disengaging and holding said mechanism out of action, for the purpose described.

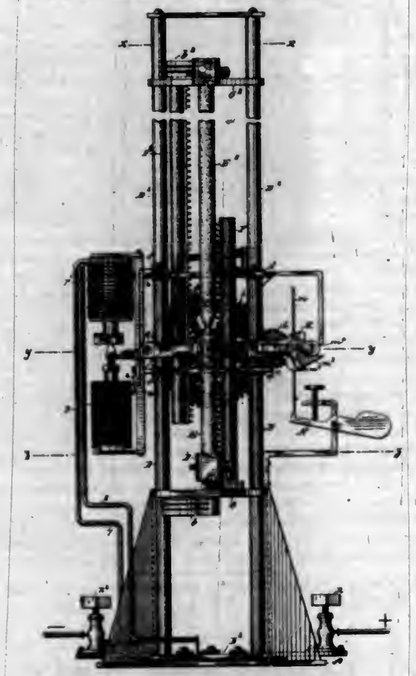
18. The combination, in an electric lamp, of an electric motor for feeding or separating the carbons, a circuit-controller for determining the movements of the motor, a derived-circuit electro-magnet acting on the circuit-controller, devices for holding the circuit-controller in position to cause a feed of the carbon or carbons when no current is flowing through the carbons, and an electro-magnet energized when the carbons come together for withdrawing and holding said devices away from the circuit-controller, whereby the retractor of the latter may be permitted to act and throw the circuit-controller into position to cause a separation of the carbons.

19. The combination, with the electric motor by which the carbons are caused to approach or recede from one another, of the circuit-controlling lever, the derived-circuit magnet O, a lever, L, adapted to bear on the circuit-controlling lever, an armature, K, connected with said lever L, and a magnet, I, in circuit with the carbons, as and for the purpose described.

20. The combination of the magnet I in circuit with the carbons, the armature K, normally closing a circuit independent of the carbons and magnet I, an electric motor for governing the position of the carbons, a circuit-controller and derived-circuit magnet, and intermediate devices between the circuit-controller and the armature K, whereby the retractor for the latter may hold the circuit-controller in position to cause the motor to force the carbons together when no current is passing between them.

21. The combination, with the actuating mechanism for an electric-arc lamp, of an electric motor, a bibranched circuit, each branch containing a resistance, a bridge-wire connecting said branches and containing the motor, and means for admitting current to one branch or the other, according to the distance between the electrodes of the lamp, whereby the motor may be caused to move in proper direction to lengthen or shorten the arc.

311,074. FOCUSING ELECTRIC-ARC LAMP. WILLIAM HOCHHAUSEN, New York, N. Y. Filed Mar. 13, 1884. (No model.)



Claim.—1. The combination, with the two carbon-carriers, of the two pinions mounted concentrically, and having the carriers engaging on opposite sides, a retarding device geared to said pinions, and a movable support for the member of the gear-train which connects with the wheel for the pinion-shaft, whereby, when said support is moved under the action of a magnet and the gear-train is at the same time held from rotation, the pinion-shaft will be turned so as to cause the carbons to move in opposite directions and away from one another.

2. The combination, with the positive and negative carbon carriers, of a feed-regulating train, with which both carriers are connected, a feed-lever, derived-circuit magnet, and retractor acting against said magnet and tending to actuate the lever, so as to separate the carbons, devices whereby said lever may be held in position when the lamp is out of action, so as to permit the carbons to come together, and means whereby when current flows through the lamp said devices may be withdrawn from action and held out of action while the lamp continues to operate, so as to permit the retractor to act unopposed save by the derived-circuit magnet.

3. The combination, in an electric lamp, of a feed-regulating train, positive and negative carbon carriers connected therewith, so as to move toward one another under the control of said train, a feed-controlling lever, and derived-circuit magnet acting on said lever against a suitable retractor, devices acting on said lever while the lamp is out of action, so as to move the lever in the same direction as the derived-circuit magnet, and means for removing said devices from action upon the lever, and holding them out of action while the lamp continues to operate.

4. The combination, with the positive and negative carbons, of the two pinions gearing, respectively, with the carbons or their carriers, a feed-regulating lever controlling the movements of said pinions, a derived-circuit magnet, a weight adapted to rest on the lever when the lamp is out of action, and means for holding said weight away from the lever while the lamp is in operation.

5. The combination, in an electric lamp, of a positive and a negative carbon, a feed-controlling wheel-work connected therewith, a regulating-lever acted upon by a derived-circuit magnet operating in opposition to a retractor, and devices for overcoming said retractor when the lamp is out of action, so that the carbons may run together.

6. The combination, with the two carbon-carriers, of the pinions insulated from one another, and mounted on the same shaft, ratchet and gear wheels, one fixed to said shaft and the other geared to a suitable retarding mechanism, a lever carrying said retarding mechanism, and a feed-regulating magnet in a high-resistance circuit around the carbons acting on said lever in opposition to a suitable retractor.

7. The combination, with the upper and lower carbon carriers, of the two feed-train wheels between said carriers, proportioned as described, and gearing, respectively, with the carriers, and a pivoted frame or lever arranged to turn on a fulcrum passing between the carriers, so as to turn the wheels in a direction to separate the carbons.

311,075. DEVICE FOR LOWERING COFFINS. WM. H. JOHNSTON, North Fairfield, Ohio. Filed Apr. 5, 1884. (No model.)



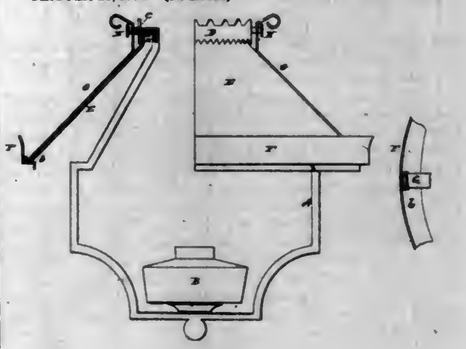
Claim.—1. In devices for lowering coffins, the combination, with a flexible cord provided with a hook and hand-rests, of an eye secured to the coffin, and adapted to receive the hook, substantially as set forth.

2. In devices for lowering coffins, the combination, with a flexible cord provided with a hook at one end, a wrist-loop at the other end, and hand-rests at intervals on the cord, of an eye secured to the coffin and adapted to loosely receive the hook, substantially as set forth.

3. In devices for lowering coffins, the combination, with a flexible cord provided with a hook and hand-rests, of an eye formed by passing the ends of a wire loop through the side or end of the coffin and secured by clinching the ends of said loop, substantially as set forth.

4. A device for lowering coffins, consisting of a flexible cord provided with a hook at one end, a wrist-loop at the other end, and blocks embracing the cord at intervals, secured in their positions by pins or rivets passing through the blocks and cord, and an eye formed by a wire loop, the ends of which are clinched on the inside of the coffin, substantially as set forth.

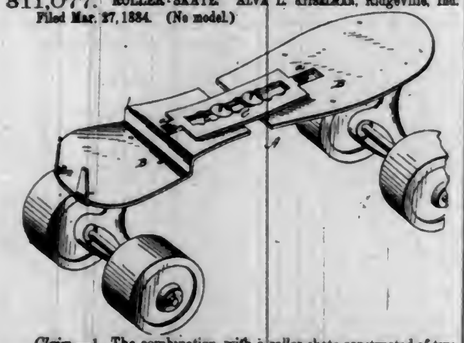
311,076. HANGING LAMP. AUGUSTUS H. JONES, Meriden, Conn. Filed June 23, 1884. (No model.)



Claim.—1. In a hanging lamp, the combination of the frame or harp carrying the lamp, the upper end of the harp-arms being turned outward, an ornamental ring, D, around the upper end of and secured to the arms, the ring F, constructed with a shoulder, *b*, to support the shade by its lower edge, and the straps G, hinged to the ring F and extending upward, constructed for connection with or disconnection from the outward projections from the arms on the frame or harp, substantially as described.

2. In a hanging lamp, the combination of the frame or harp constructed to support the lamp-front, the upper end of the harp-arms being turned outward to form projections C, the ornamental ring D, constructed with a lug, *a*, turned inward and secured to said projections, the ring F, constructed with a shoulder, *b*, the straps G, hinged to said ring F, and detachably connected with the projections C on the frame outside the ring D, substantially as described.

311,077. ROLLER-SKATE. ALVA L. KITSELMAN, Ridgeville, Ind. Filed Mar. 27, 1884. (No model.)



Claim.—1. The combination, with a roller-skate constructed of two sections, the foot-rests of which are each provided with slots, of a plate provided with a slot extending nearly its entire length and connecting said sections, and set-screws for clamping said plate at any desired point on said sections, substantially as set forth.

2. In a roller-skate, the combination, with two sections, the foot rests or plates of which are provided with longitudinal slots and perforations or openings near their ends, of an adjusting-plate having a longitudinal slot, and provided at its ends with downwardly-extending T-shaped lugs, and set-screws for securing the parts at the proper adjustment, substantially as set forth.

311,078. EXTENSION-CHANDELIER. LYMAN T. LAWTON, Meriden, Conn., assignor to the Meriden Malleable Iron Company, same place. Filed Aug. 13, 1884. (No model.)

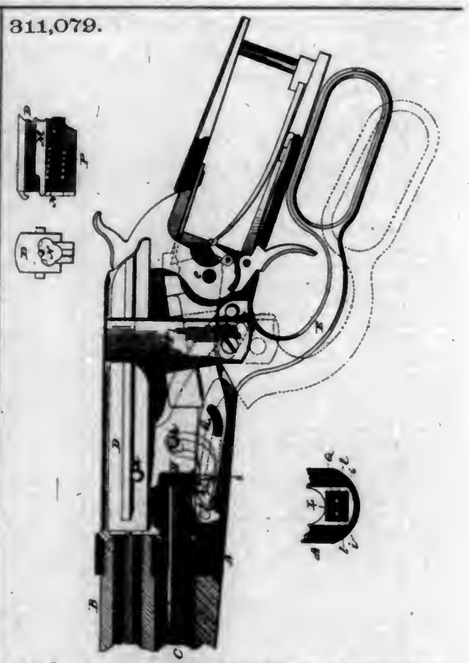


Claim.—In an extension lamp-fixture, the combination of the telescopic tube A B, the one part fixed, the other movable and arranged to carry the lamps, a cam-lever, C, arranged upon a fulcrum in the inner tube and so as to swing in a vertical plane, a suspending-cord, D, attached to one arm of said cam and so as to hold the other arm or nose within the inner tube, and a spring in connection with said cam, the tendency of which is to turn the nose of the cam outward through a slot in the inner tube, but held in suspense by the suspending cord or chain, substantially as described, and so that should the suspending cord or device give way the reaction of said spring will force the nose of the said cam into engagement with the outer tube and prevent the descent of the movable part of the fixture.

311,079. MAGAZINE FIRE-ARM. WILLIAM MASON, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. Filed Nov. 24, 1884. (No model.)

Claim.—1. In a magazine fire-arm, the combination of a longitudinally-movable breech-piece, a lever hinged to said breech-piece and extending downward to form the handle below the receiver, and by which the breech-piece may be moved, a carrier beneath the breech-piece, and arranged for vertical movement to transfer the cartridge from the magazine to a position forward of the front face of the open breech-piece, and a lever, L, its rear end hung to the actuating-lever, its other end extending forward in the carrier and guided thereby, the said other or forward end constructed with a shoulder, substantially as described, and whereby in the opening movement of the actuating-lever the said shoulder on the said lever L will be thrown up and forward of the flange of the cartridge, and so as to engage the said flange, and in the continued opening movement of the actuating-lever follow the flange of the cartridge onto the receiver.

311,079.

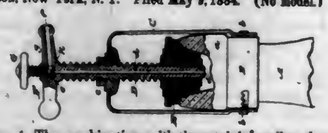


2. In a magazine fire-arm, the combination of a longitudinally-movable breech-piece, a lever hinged to said breech-piece and extending downward to form the handle below the receiver, and by which the breech-piece may be moved, a carrier beneath the breech-piece, and arranged for vertical movement to transfer the cartridge from the magazine to a position forward of the front face of the open breech-piece, a lever, L, its rear end hung to the actuating-lever, its other end extending forward in the carrier and guided thereby, the said other or forward end constructed with a hook-like shoulder, and the receiver provided with a guard, *r*, upon its inner side above and substantially parallel with the plane of the bottom of the carrier, substantially as and for the purpose described.

3. In a magazine fire-arm, the combination of a longitudinally-movable breech-piece, a lever hinged to said breech-piece and extending downward to form the handle below the receiver, and by which the breech-piece may be moved, a carrier beneath the breech-piece, and arranged for vertical movement to transfer the cartridge from the magazine to a position forward of the front face of the open breech-piece, and the L-shaped lever L, one arm extending to the rear and upward, hung to the actuating-lever, the other arm extending forward in the carrier and guided thereby, the said other arm constructed at its forward end with a shoulder, substantially as described, and whereby in the first part of the opening movement of the actuating-lever the said shoulder on the lever L will be thrown up and forward of the flange of the cartridge, and so as to engage said flange, and in the continued opening movement of the actuating-lever follow the flange of the cartridge onto the carrier.

4. In a fire-arm, the combination of the longitudinally-movable breech-piece, and the ejector N, extending through the front face of the breech-piece, the upper edge of the ejector constructed to present a bearing-point each side the center, the line of said points being diagonally across the front face of the breech-piece, substantially as described.

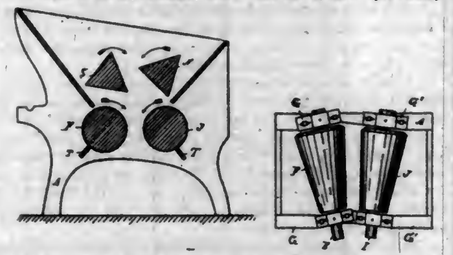
311,080. COMBINED BOTTLE STOPPER AND FAUCET. JAMES D. MATTISON, New York, N. Y. Filed May 9, 1884. (No model.)



Claim.—1. The combination, with the retaining-collar, the swiveled bail, the nut, the stopper, and its tubular branched retaining-screw, of the means, substantially as described, for opening and closing the passage in said screw, all arranged to operate as set forth.

2. The combination of the retaining-collar, the swiveled or hinged bail, the nut, the stopper, the screw D, provided with the passage *d*, recess *e*, and branch *g*, with passage *f*, and the screw G, all constructed and arranged to operate substantially as set forth.

311,081. CLAY-CRUSHING MACHINE. TRUMAN D. MCKINNEY and WALTER A. SOPER, Tecumseh, Mich. Filed Nov. 5, 1884. (No model.)



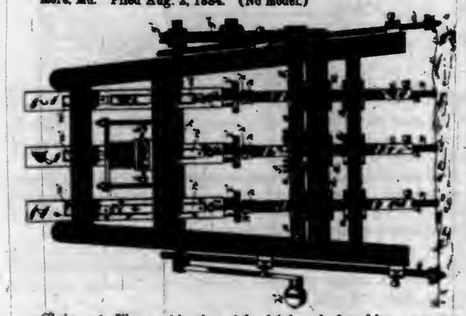
Claim.—1. In a clay-crusher, a pair of polygonally-shaped jaws adapted to rotate within a hopper to break up lumps of clay and deliver the same to a pair of crushing-rolls, substantially as and for the purposes described.

2. In a clay-crusher, a pair of polygonal jaws adapted to break up the lumps of clay with their corners, substantially as and for the purpose specified.

3. In a clay-crusher, a pair of triangular-shaped jaws constructed and arranged to rotate within a hopper to break up lumps of clay before delivering the same to the crushing-rolls, substantially as and for the purposes described.

4. In a clay-crusher, a pair of polygonal jaws arranged to revolve with the corner of one jaw opposite the face of the other jaw, whereby the lumps of clay are broken up by said corners before being delivered to the crushing-rolls, substantially as described.

311,082. STONE-DRILLING MACHINE. LOUIS MCMURRAY, Baltimore, Md. Filed Aug. 2, 1884. (No model.)



Claim.—1. The combination of the driving-shaft and its one or more tappet-arms, the one or more sliding hammers, one or more drills coupled to but capable of rotation independently of their hammers, and gearing coupled to said driving-shaft for rotating the drills, substantially as described.

2. The drill-hammer longitudinally recessed, in combination with the series of stud-arms pivoted in said recesses, and provided with controlling-springs, substantially as described.

3. The combination of the reciprocating hammer, the drill-helve, and a sliding swiveled coupling for connecting them, substantially as described.

311,083. BOLT-MAKING DEVICE. ELAM A. OLIVER, Belleville, Wis. Filed Mar. 26, 1884. (No model.)



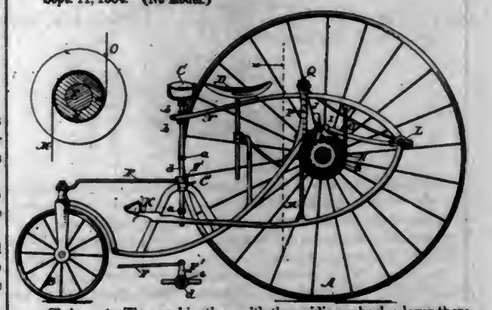
Claim.—1. The combination, with the stationary limb N and pivoted limb H, of the parts D, connected with the limb H, as described, and the lever A, pivoted to parts D, and provided with the locking-flange C, as set forth.

2. The combination, with the upright limbs N and H, having the jaws K and M and the shears R' and R, of a guide placed upon one limb, having a lower horizontal portion, S', serving as guide for the other limb, and an upright portion, S, extending up beside the shears, to prevent twisting of the metal being cut, as set forth.

3. The combination of the lever A and parts D, provided with the anti-friction roller F, with fixed limb N, and the pivoted limb H, provided with the slot G in its lower end, in which the roller F works, and the jaws K and M, substantially as set forth.

4. The combination, with the levers A and D, fixed limb N, and the pivoted limb H, of the spring I and jaws K and M, said spring being secured to a fixed part at one end and to the pivot of parts D and H at the other, as set forth.

311,084. TRICYCLE. THEOPHILUS H. PARSSLER, Malvern, Ohio. Filed Sept. 11, 1884. (No model.)



Claim.—1. The combination, with the guiding-wheel, a lever therefor, and a lever attached to revolve the drive-wheel of a velocipede, of a handle provided with a vertical shaft passing loosely through the said lever to revolve therein, and having shoulders above and below the lever to engage and operate the same, the said vertical shaft being fitted to pass to and fro freely through the wheel-guiding lever, and engaged to revolve the same by a spline, substantially as shown and described, whereby the same handle may operate both the driving-lever and the guide-wheel, as specified.

2. The combination, with two drive-wheels, A, of a velocipede mounted on an axle, and a ratchet wheel, O, secured to revolve with each of a pair of double spools, H, mounted to turn on the axle, spring-pawls adapted to engage the spools with the ratchet-wheels, treadles K, pivoted at L, and straps or chains M, connecting the said treadle with the said spools at one side of each spool, levers N, also pivoted at L, and straps or chains O, connecting levers N with the spools H on the side opposite to the chains M, a walking-beam, Q, pivoted in a plane parallel with the axle, and chains P, connecting the walking-beam with the spools H in a direction opposite to the chains M and O, substantially as shown and described.

3. The combination, with the drive-wheel and axle of a velocipede, and a ratchet-wheel secured thereto, of a lever, a spool on the axle, a strap or chain connecting the treadle with the spool, to be wound either way on the latter, and a reversible pawl adapted to connect the spool with the ratchet, to turn the latter either forward or backward by the action of the lever, as shown and described.

311,085. WATER-TRAP. J. PICKERING PUTNAM, Boston, Mass. Filed Sept. 26, 1884. (No model.)



Claim.—1. The herein-described water-trap, consisting of the bent pipes I and O and the chamber P, the latter provided with the partition D, and the said pipes making connection with the chamber at one end thereof—one upon one side and the other upon the other side of the said partition—substantially as described.

2. The combination, with the bent pipes I and O, of the chamber P, the latter provided with the partition D and the cap C, and the said pipes communicating with said chamber at one end thereof—one upon one side and the other upon the other side of the said partition—substantially as described.

311,086. WATER-TRAP. J. PERKINS PUTNAM, Boston, Mass. Filed Sept. 26, 1884. (No model.)



Claim.—A water-trap having between the passages containing the dip and overflow a chamber with an elbow or bend, the said chamber being long in horizontal measurement measuring around the bend or elbow, and low and narrow in vertical cross-section, substantially as described, for the purpose specified.

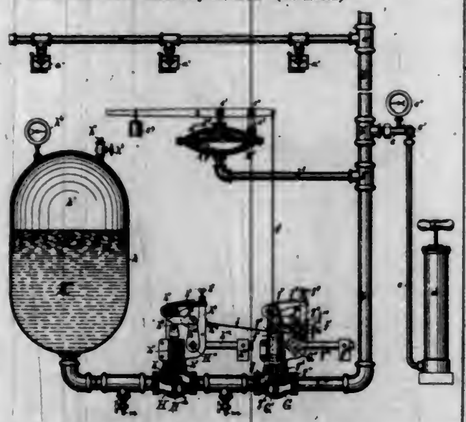
311,087. WATER-TRAP. J. PERKINS PUTNAM, Boston, Mass. Filed Sept. 26, 1884. (No model.)



Claim.—1. A water-trap having between the dip and overflow thereof a chamber provided with a movable partition and a movable cap, substantially as described.

2. A water-trap having between the dip and overflow thereof a chamber which is partially divided by a partition, the passages containing the said dip and overflow communicating with said chamber near one end thereof, and on opposite sides of said partition, and the said partition having a double curve in cross-section, substantially as described.

311,088. AUTOMATIC FIRE-EXTINGUISHER. DANIEL C. STILLSON, Somerville, Mass. Filed July 10, 1884. (No model.)



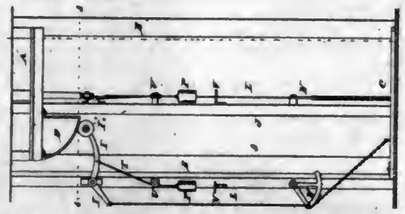
Claim.—1. In an automatic fire-extinguisher, the combination of cut-offs G and H, each provided with a steam-valve and a spring acting on the valve from below, a holding and releasing mechanism acting on each valve-stem, comprising a weighted lever having a block acting on the valve-stem connected therewith, a pawl to lock said weighted lever, the pawls of the two levers being connected together, a lever to bear against one of said pawls, a pneumatic-actuated releaser connected with the latter lever, a liquid-supply pipe connected with one of said cut-offs below its valve, an air-supply pipe connected with the other cut-off below its valve, and a fusible sprinkler having a connection with said air-supply pipe, substantially as described.

2. In a fire-extinguisher, the combination of cut-off G, provided with a stem-valve and a spring for acting on the same from below, a weighted lever provided with a block, g^3, to act on the valve-stem, and a pawl to act on said lever, substantially as described.

3. In an automatic fire-extinguisher, the combination of air-supply pipe *b*, a liquid-supply reservoir, horizontal pipe *i*, communicating with both the air-supply pipe and liquid-supply reservoir, cut-offs G and H, connected with pipe *i*, and provided, respectively, with pressure-regulated valves g' h', and constructed, substantially as described, to permit an air-pressure on the under side of the valve and a liquid-pressure on the under side of the other, a petcock, *m*, on pipe *i*, between the two cut-offs, and a petcock, *n*, between one cut-off and the liquid-supply reservoir, substantially as described.

4. In an automatic fire-extinguisher, the combination of the cut-off G, provided with the stem-valve g' and spring G, acting on the same from below, the weighted lever having the block g^3 connected therewith to act on the stem of the valve, the pawl g^{14}, to bear against the weighted lever, the pivoted lever f', to release the pawl, the pneumatic releaser provided with a lever, *e*, and a connection, *f*, between said lever and the pawl-releasing lever, substantially as described.

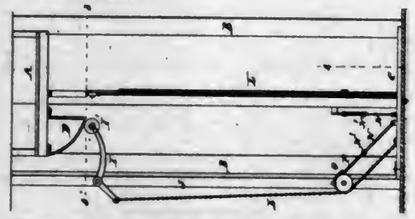
311,089. SELF-CLOSING HATCHWAY. RICHARD D. THACKSTON, St. Louis, Mo., assignor of one-half to Henry I. Coe, same place. Filed May 31, 1884. (No model.)



Claim.—1. In a self-closing hatchway, the combination of the cage, lever hinged to the support and connected to the door, weight connected to the inner part of the lever by a rope or cord, a roller over which the rope passes, and a bracket to receive the weight when the door is raised, substantially as set forth.

2. In a self-closing hatchway, the combination of the cage, lever I, post to which the lever is pivoted, segment pivoted to the post, rod connecting the segment to the lever, door, and chain connecting the door to the segment, substantially as set forth.

311,090. SELF-CLOSING HATCHWAY. RICHARD D. THACKSTON, St. Louis, Mo., assignor of one-half to Henry I. Coe, same place. Filed May 31, 1884. (No model.)



Claim.—1. In a self-closing hatchway, the combination, with a door and a support, of a spring-rod secured at one end to the door and at the other end to the support, the door being suspended by the spring-rod from the support, as set forth.

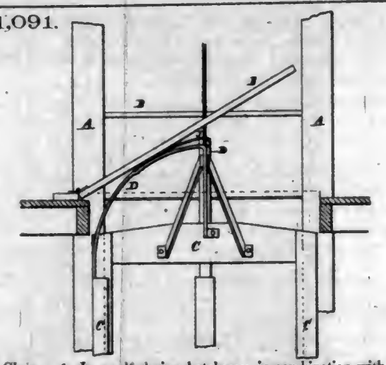
2. In a self-closing hatchway, the combination, with a door and a support, of a jointed rod and spring, the lower member of the rod being secured to the door, and the upper member secured by means of the spring to the support, as set forth.

3. In a self-closing hatchway, the combination of the door, support, jointed rod connected by its lower end to the door and by its upper end to a yoke secured to the support, and the spiral spring surrounding the rod and connecting it to the yoke, substantially as and for the purpose set forth.

4. In a self-closing hatchway, the combination of the cage, levers I, posts to which the levers are pivoted, doors, chains connecting the levers and doors, and wheels over which the chains pass, substantially as set forth.

311,091. SELF-CLOSING HATCHWAY. RICHARD D. THACKSTON, St. Louis, Mo., assignor of one-half to Henry I. Coe, same place. Filed June 6, 1884. (No model.)

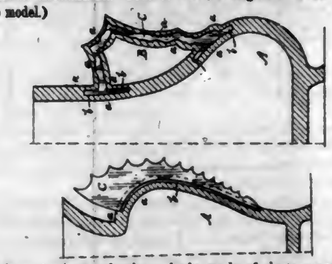
311,091.



Claim.—1. In a self-closing hatchway, in combination with a cam for opening the door, the spring connected to the cam in advance thereof, as and for the purpose set forth.

2. In a self-closing hatchway, in combination with a cam for opening the door, the flat metal spring J, secured to the cam, to strike the door in advance thereof, as set forth.

311,092. CONSTRUCTION OF VASES HAVING A BODY MADE OF PLASTIC MATERIAL. JOHN J. WEST, Chicago, Ill. Filed Oct. 6, 1884. (No model.)

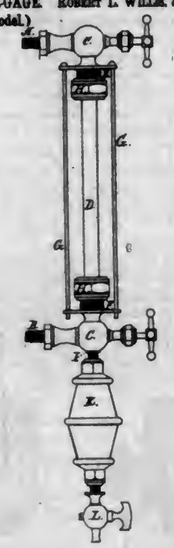


Claim.—1. A vase having a body made of plaster or plastic material, and provided with a cast-metal handle or appendage having thereon one or more feet or flanges embedded in the said body, for the purposes set forth.

2. A vase having a body made of plaster or plastic material, and provided with a cast-metal handle or appendage having thereon one or more feet or flanges conforming to the said body and embedded therein, for the purposes set forth.

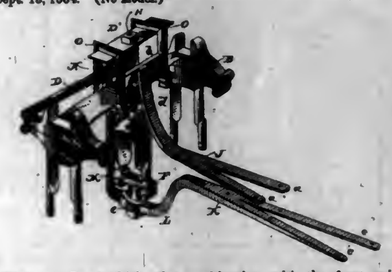
3. A vase having a body made of plaster or plastic material, and provided with a cast-metal handle or appendage having thereon one or more feet or flanges serrated at their edges and embedded in the said body, for the purposes set forth.

311,093. WATER-GAGE. ROBERT L. WILLIS, Sherman, Tex. Filed Sept. 5, 1884. (No model.)



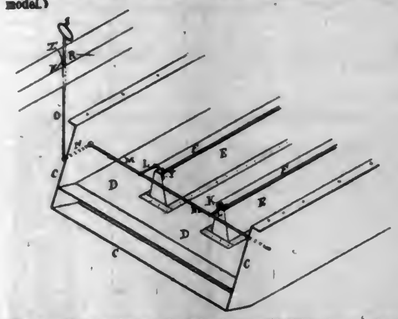
Claim.—A glass water-gage having attached to the lower valve, C, thereof a receptacle or chamber, K, to receive foreign matter, and provided with a blow-out cock, L, at its lower end for relieving said receptacle of said matter, as shown and described.

311,094. GEAR-IRON FOR VEHICLES. CHARLES R. WILSON, Detroit, Mich., assignor of one-half to Joseph C. Wilson, same place. Filed Sept. 13, 1884. (No model.)



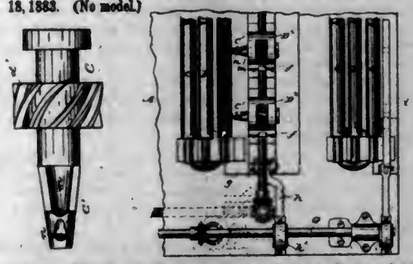
Claim.—In a vehicle, the combination, with the front axle and head-block, connected together substantially as described, of the perch or reach, the top brace, J, secured to the upper face of the same, and having a neck which extends upward and terminates in a cross-head, *b*, and the bottom brace, K, secured to the under side of the perch, and having a neck, L, passing under and secured to the axle, and an extension, M, of the neck extending upward parallel with and in front of the axle, its upper end being turned inward, and having a cross-head, N, formed thereon, and bolts passing through the head-block and connecting the cross-heads *b* N thereto, as and for the purpose set forth.

311,095. BOILER ASH-PAN. JAMES C. ANDERSON and FRANK H. LATIMER, Winnipeg, Manitoba, Canada. Filed Jan. 29, 1884. (No model.)



Claim.—In an ash-pan, the false bottom D D D, air-chambers E E, the adjustable hoods F F, and the dampers G H, when combined and arranged substantially as described, and for the purposes set forth.

311,096. MACHINERY FOR THE MANUFACTURE OF ROVING FOR SPINNING PURPOSES. ABEL T. ATHERTON, Lowell, Mass. Filed Dec. 18, 1883. (No model.)

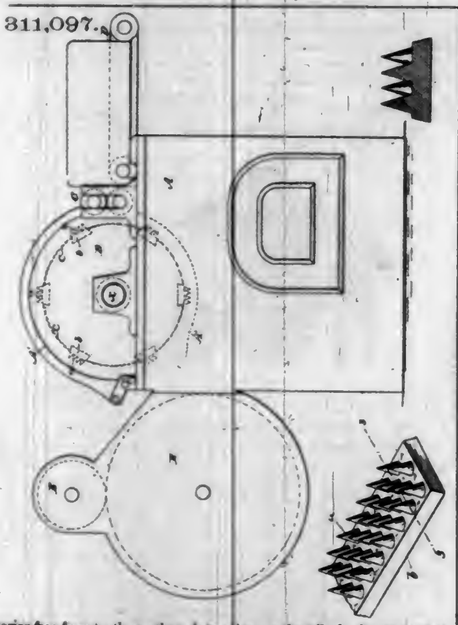


Claim.—The combination, with the two sets of drawing-rolls in which the sliver is successively drawn, of an intermediate tubular rotating condenser having its delivery-nozzle in close proximity to the forward set of drawing-rolls, and provided with lateral openings or eyes through which the sliver passes in a tortuous path on its way from the rear to the nozzle of the condenser, as and for the purposes hereinbefore set forth.

311,097. COTTON-OPENER. ABEL T. ATHERTON, Lowell, Mass. Filed May 7, 1884. (No model.)

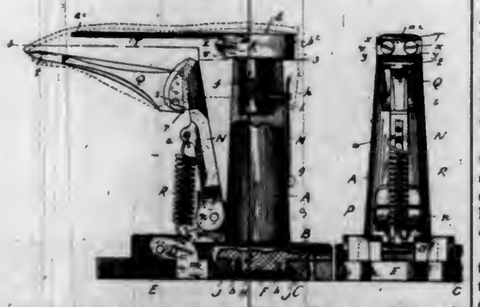
Claim.—In a machine for opening cotton waste, the combination, with the feed-rolls and the casing for the opening-cylinder, having its in

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terior free from teeth or other obstructions, as described, of a rotary opening-cylinder armed with broad-based abruptly-tapering teeth having substantially the shape and characteristics hereinbefore set forth.

311,098. HEEL-JACK. EPHRAIM BAILEY, West Newbury, Mass. Filed Oct. 31, 1884. (No model.)



Claim.—1. A jack for heeling boots and shoes, consisting, substantially, of a post carrying a detachable heel-block, in combination with and constructed and arranged to turn in a base, C, the center of which movement is substantially coincident with the center of the outline of the heel of the boot or shoe when secured to the jack, substantially as and for the purpose specified.

2. In a jack for heeling boots and shoes, in combination with a post or support for a heel-block, K, an arm, N, pivoted to said post and provided with a spring, R, and an arm, Q, pivoted thereto, all substantially as and for the purpose specified.

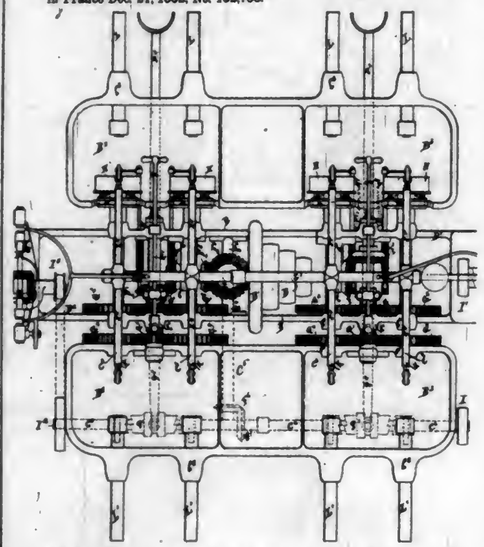
3. In a jack for heeling boots and shoes, in combination with a post or support for a heel-block, K, having a pin, L, to fit a socket, *f*, in said post, a spring-pin, *h*, arranged to engage with a socket, *l*, in said post, and a socket, *m*, in said heel-block pin L, substantially as and for the purpose specified.

4. In a jack for heeling boots and shoes, a post or support for a heel-block, K, and a plate, T, having an angular portion, *v*, adapted to be attached to and detached from said heel-block, substantially as and for the purpose specified.

5. In a jack for heeling boots and shoes, a post or support carrying a heel-block, K, and plate T, and constructed and arranged to turn in a base, C, said base being hinged to a block, E, substantially as and for the purpose specified.

6. In a jack for heeling boots and shoes, a post or support having a heel-block, K, provided with shoulders *x*, and a plate, T, having slots *y*, to engage with said shoulders for ready attachment to and detachment from said heel-block, substantially as and for the purpose specified.

311,099. MACHINE FOR THREADING SCREWS, BOLTS, AND NUTS. EDMOND PIERRE BAVILLE, Brussels, Belgium. Filed Nov. 24, 1883. (No model.) Patented in Belgium Nov. 28, 1882, No. 59,688, and in France Dec. 21, 1882, No. 152,788.



Claim.—1. In a machine for forming screw-threads, the combination, with the die-stock H, of the cutter-holders Q, the screws *p*, and the means, substantially as described, for operating said screws, substantially as herein shown and described.

2. In a machine for forming screw-threads, the combination, with die-stock H, provided with the holders Q, carrying cutters S, of the screws *p*, provided with the pinions *p'*, the racks *n*, and the means for operating said racks, substantially as herein shown and described.

3. In a machine for forming screw-threads, the combination, with the die-stock H, provided with the hub P', of the holders Q, the cutters S, the screws *p*, provided with pinions *p'*, the racks *n*, the sliding sleeve N, the pivoted lever M, and the means for vibrating said lever, substantially as herein shown and described.

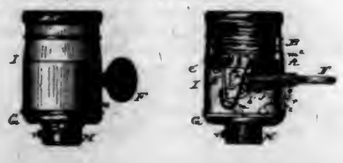
4. In a machine for forming screw-threads, the combination, with the die-stock H, the sleeve N, and the means for operating the cutters of said die-stock from the sleeve of the lever M, the pivoted arm M', the screw M^2, the wheel M^3, the nut M^4, the shaft O, the cam Q^6, the knee-lever Q^2, the shaft C^2, and clutch Q', substantially as herein shown and described.

5. In a machine for forming screw-threads, the combination, with the die-stock H, the shaft O, provided with the notch p^2, the cam Q^6, the screw M^2, and the intermediate mechanism for operating the cutters of the die-stock, of the sliding bolt-holder L, carrying tappet *k'*, the spring-pressed rod P^6, provided with arms p^4 p^5, the lever P^3, provided with the arm P^4, the spring-pressed bolt P, and connecting-rod p' p^3, substantially as herein shown and described.

6. In a machine for forming screw-threads, the combination, with the die-stock H and the sliding bolt-holder L, carrying tappet *k'*, of the spring-pressed rod P^6, provided with the arms p^4 p^5, the lever P^3, provided with arm P^4, connecting-rods p^3 p', spring-pressed bolt P, shaft O, having notch p^2, shaft O^2, having springs o^2 o^4 surrounding it, rock-lever O', cam Q^6, and the intermediate mechanism for communicating the movement of shaft O to the cutters of the die-stock, substantially as herein shown and described.

7. In a machine for forming screw-threads, the combination, with the tube l^3 and the head *a*, of the sliding gripping-jaws *a'*, the nut *l*, and the ring l^4, substantially as herein shown and described.

311,100. SOCKET FOR INCANDESCENT ELECTRIC LAMPS. SIGMUND BERGMANN, New York, N. Y., assignor to Bergmann & Co., same place. Filed Apr. 10, 1884. (No model.)



Claim.—1. In a socket for an electric lamp, the combination of two circuit terminals, one a sleeve adapted to make contact with the band or ring terminal, the other a spring movable into and out of contact with the bottom terminal of the lamp, substantially as set forth.

2. In a socket for an electric lamp, the combination of a disk of insulating material, a contact-sleeve carried by said disk, for making contact with the band or ring terminal of the lamp, and a contact-piece, also carried by said disk, for making contact with the bottom terminal of the lamp, substantially as set forth.

3. In a socket for an electric lamp, the combination, with a disk of insulating material, of a contact-sleeve for making contact with the band or ring terminal of the lamp, a contact-piece for making contact with the bottom terminal of the lamp, and two terminals for the circuit-wires leading to the socket, all said socket contacts and terminals being carried by the said insulating-disk, substantially as set forth.

4. In a socket for an electric lamp having two terminals for making connection with corresponding lamp terminals, the combination of a metal supporting portion and a disk of insulating material carried thereby and carrying all the terminals and contacts of the socket, substantially as set forth.

5. In a socket for incandescing electric lamps having a bottom terminal movable into and out of contact with the plate terminal of the lamp, the insulating-disk having a raised portion meeting said plate terminal, substantially as set forth.

6. The combination of the insulating-disk having an aperture in its center, and the contact-spring working through such aperture, for making and breaking circuit with a lamp terminal, substantially as set forth.

7. The combination, with the insulating-disk having a central aperture, of a contact-spring secured beneath said disk, passing through the aperture, and bent horizontally above the disk, substantially as set forth.

8. The combination of the sleeve B and the movable contact-spring s^2, said sleeve having a slot to allow the movement of said spring, substantially as set forth.

9. The combination, with a contact-spring, substantially of the form described, of a separate turning-key bearing against said spring, whereby it may be forced upward to make contact, substantially as set forth.

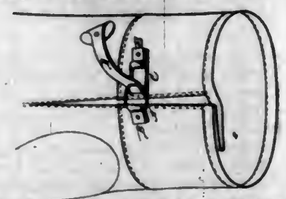
10. The combination of the sleeve B, the insulating-disk, and a circuit-wire terminal beneath said disk, with the connecting-screw extending through the disk from said sleeve to said terminal, substantially as set forth.

11. The combination, with the insulating-disk and metal parts attached thereto, of the attaching-screws having their heads covered with insulating material, substantially as set forth.

12. The combination of the circuit-closing spring and the metal key for moving the same, said key having an insulating-tip, substantially as set forth.

13. In a socket for electric lamps, the insulating-body which supports the terminals or connections, formed of non-combustible material, substantially as set forth.

311,101. GLOVE-FASTENING. JOHN BLOMSTROM, Rockford, Ill., assignor to Henry W. Price, same place. Filed Nov. 18, 1884. (No model.)



Claim.—1. A glove-fastening consisting of a two-part hook-clasp, in combination with a tuck-band arranged in relation to the hook, substantially as and for the purpose set forth.

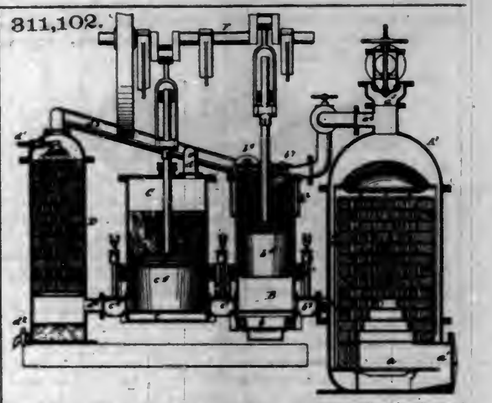
2. The combination, with a glove or mitten, of a loop and hook clasp, and a tuck-band connected with the wristlet and with each other, and operating substantially as set forth.

311,102. CALORIC ENGINE. MATTHEW P. W. BOULTON, Tew Park, County of Oxford, and EDWARD PERRETT, Westminster, County of Middlesex, England. Filed June 12, 1884. (No model.) Patented in England Apr. 14, 1883, No. 1,788; in France July 24, 1882, No. 150,277; in Germany July 25, 1882, No. 21,046; in Belgium July 29, 1882, No. 58,617; in Austria Dec. 15, 1882, No. 2,313, and in Italy Dec. 31, 1882, XXIX, 205.

Claim.—1. A caloric or hot-air engine, consisting of a heater or heaters, A' A^2, a pumping-cylinder, B, and an expanding cylinder, C, with their pipes, valves, and connections, arranged and operating substantially as described.

2. A caloric or hot-air engine, consisting of a heater or heaters, A A^2, a pumping-cylinder, B, an expanding cylinder, C, and a cooler, D, with their pipes, valves, and connections, arranged and operating substantially as described.

311,102.

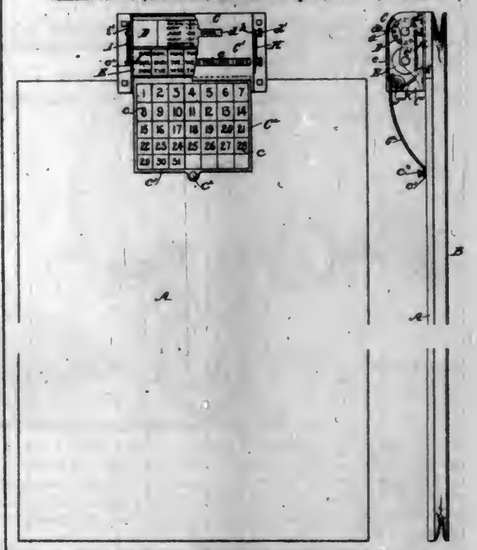


3. The herein-described improvement in the art of heating the air or gaseous fluid of caloric engines, which consists in alternately heating, by a furnace, closed heaters containing refractory material, as described, and subsequently alternately heating the working-fluid forced into the heaters and under pressure by the alternate action of the heated refractory material of the heaters, substantially as and for the purposes set forth.

4. For heating the working-fluid of a caloric engine, a heater, A' or A^2, consisting of a vessel which contains refractory material, a^2, disposed with suitable interstices or apertures, and has a fire-place, *a*, with a tightly-closing door, *a'*, a chimney-valve, a^3, a dome, a^5, a partition, a^4, and supply and discharge pipes a^6 and a^7, provided with shut-off valves, substantially as herein described.

5. For cooling the working-fluid of a caloric engine, a cooler, D, containing wetted material *d*, disposed with suitable interstices, and provided with water supply and discharge pipes d' d^2, and with inlet and outlet pipes d^6 and d^7 for the working-fluid, substantially as described.

311,103. COMBINED DESK-PAD, PORTFOLIO, AND CALENDAR. WILLIAM R. COLE, Pottsville, Pa. Filed May 29, 1884. (No model.)



Claim.—1. A desk article consisting of a writing-pad or tablet, a portfolio fixed to its back, and a calendar fixed to the pad, and provided with month and week rollers indicating their characters through slots in the calendar-case, and having, also, a numerical day-calendar formed on the face of a plate which constitutes the spring-clip for holding the paper to the pad, all constructed and arranged substantially as shown and described.

2. The combination, with the calendar C, having the month and week rollers D E, indicating their characters through slots in the calendar-face, as specified, of the spring-clip C^2, provided with the numerical day-calendar, substantially as shown and described.

311,104. SHOE-FASTENING. GEORGE A. COLTON, SYRACUSE, N. Y., assignor of one-half to the Syracuse Bolt Company, same place. Filed Nov. 10, 1884. (No model.)



Claim.—1. In a shoe clasp or fastening, the locking-lever D, provided with the pintles D′, the draft hook or hooks D^2, and the cross-bar D^2, arranged below the hooks, substantially as specified.

2. The locking-lever D, formed of a single piece of metal, slotted, as at D^1, and provided with the pintles D′, cross-bar D^2, and draft-hooks D^2, these features being arranged in the relative positions specified.

3. The combination, with the locking-lever D, having the draft hook or hooks D^2, and the cross-bar D^2 below its pivots D′, of the bail B, the eye-bars of which are arranged outside of said hook or hooks and cross-bar, and the connecting-bar C, having bars or lugs C′, adapted to take into the hook or hooks D^2, substantially as shown and described.

4. The combination of the connecting-bar C, having lugs C′, the slotted locking-lever D, the sides of which are provided with pivots D′, and are bent to form draft-hooks D^2, and the bail B, the sides of which are separated to receive the lever and the connecting-bar, substantially as shown and described.

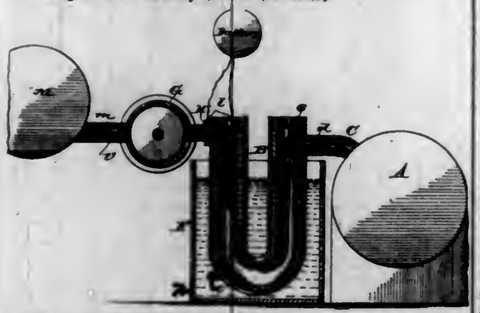
5. The combination, with the parts A A′ of an article, of the loop B, the lever D, having the pintles D′, mounted in the loop, and having the draft-hooks D^2 and cross-bar D^2, arranged below its pintles, and the connecting-bar C, having the marginal lugs C′ and the slot C^2, substantially as shown and described.

311,105. COVERING FOR CHIMNEY-TOPS. ANDREW J. CONWAY, Belleville, Ill., assignor of one-half, by mesne assignments, to Edward W. West, Jr., same place. Filed Sept. 25, 1883. (No model.)



Claim.—A chimney-cover consisting of an incasing portion, A, and a cap portion, C, provided with weather-breaks c′ c′ and fastening-flanges c^2 c^2, as described, and for the purpose set forth.

311,106. AIR-COMPRESSING ENGINE. FRANCIS E. COREY, Westborough, Mass. Filed May 3, 1884. (No model.)

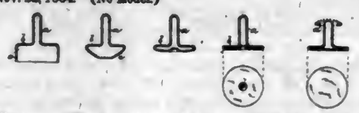


Claim.—1. The U-shaped generator B, having at one end a cut-off valve and electric connection, and at the other an air-valve and passage to a storing-vessel, provided with a valve opening only in the direction of said storage-vessel, means for supplying air to the generator, and means for receiving the compressed air expelled therefrom, substantially as specified.

2. The combination, with the U-shaped explosion-vessels B and the storage-vessel A, of the gas-reservoir, the pump communicating with said reservoir and with said generators, the cut-off valves, and electric-circuit connections operated by eccentric, the air-valves, and the valves in the passages leading from the generators to the storage-vessel, substantially as specified.

3. The combination, with the gas-reservoir and the reservoir or holder for compressed air, of an intermediate pump, and U-shaped generators, each communicating by one branch with the pump and by the other branch with the holder, and each having a cut-off, and electric-circuit maker operated by eccentric, substantially as specified.

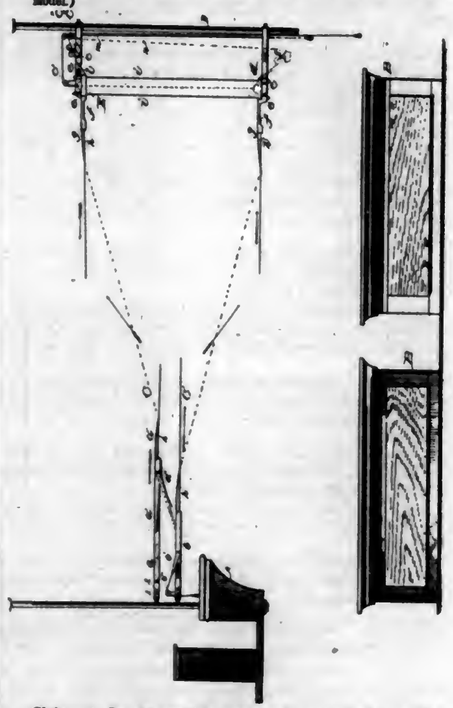
311,107. COLLAR-BUTTON. SHUBAEL COTTLE, New York, N. Y. Filed Nov. 22, 1884. (No model.)



Claim.—1. The improved collar-button, substantially as described, the same consisting of the double back and hollow post formed in one piece, and said post being provided with a suitable head.

2. The collar-button having a double or hollow back, b′, which is formed entire or without an opening therein, and in one piece with the hollow post, a′, which is provided with a suitable head, substantially as shown and described.

311,108. CASH AND PARCEL CARRYING SYSTEM FOR STORE SERVICE. JAMES T. COWLEY, Baltimore, Md. Filed Dec. 22, 1884. (No model.)



Claim.—1. In store-service systems, the combination, with forwarding and return tracks extending between the cashier's desk and each station, of an elevator for elevating the car upon the forwarding-track, which descends automatically and acts as a receiver for the return-track, substantially as described.

2. In store-service systems, the combination of forwarding and return tracks inclined in opposite directions, and an elevator for elevating the car to the forwarding-track, which descends automatically and serves as a receiver for the car from the return-track, substantially as described.

3. In store-service systems, the combination, with forwarding and return tracks inclined in directions opposite to each other, of a drop for transferring the car from the forwarding-track, and flexible media for receiving the car, and by which it is elevated to the return-track, substantially as described.

4. The combination, in a store-service system, of forwarding and return tracks inclined in opposite directions to each other, an elevator for elevating the car upon the forwarding-track, and descending to act as receiver for the return-track, a drop for transferring the car from the forwarding-track, and flexible media for receiving the car, and by which it is elevated to the return-track, substantially as described.

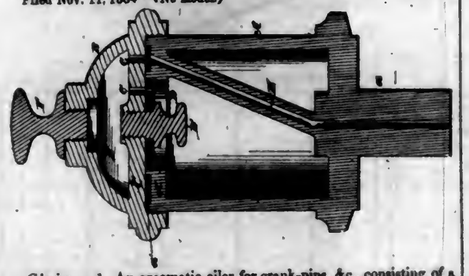
5. In store-service systems, the combination, with the reversely-inclined forwarding and return tracks, of the brackets *c d*, formed with the stops, the former having the pulleys mounted thereon, the guide-rods, the elevator E, working on said guide-rods, and the cords attached to the elevator in their respective manners and rendering over the pulleys, substantially as described.

6. The combination, with the reversely-inclined forwarding and return tracks, of the bracket *a*, having hinged arm *a″* and spring *a‴*, the bracket *b*, having hinged arm *b′* and pulley *b″*, and the weighted cord attached to arm *b′* and rendering over the pulley, substantially as described

7. In a store-service system, the combination, with reversely-inclined forwarding and return tracks, of a supporting-bracket for the two, widened at its extremity, and having the two ends or sides thereof bent or turned over, the hinged arm *a′* and its depending cord, the spring *a*, and the spring-catch *p*, substantially as described.

8. The combination, in a store-service system, of independent forwarding and return tracks for each station, an elevator for elevating a car to a forwarding-track, which also serves as a receiver for the return-track, and devices for transferring and receiving the car from one track to the other, substantially as described.

311,109. AUTOMATIC OILER. FRED P. CROCKETT, Detroit, Mich. Filed Nov. 11, 1884. (No model.)

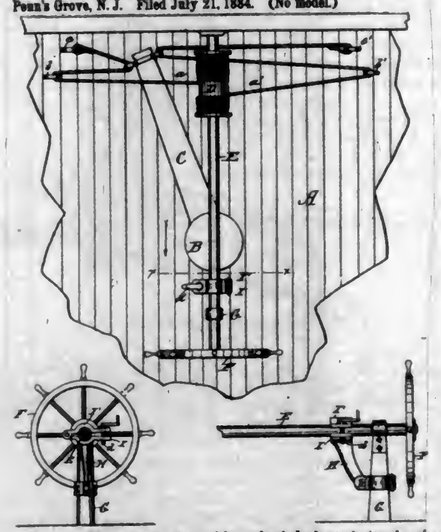


Claim.—1. An automatic oiler for crank-pins, &c., consisting of a reservoir, a cap having a chamber therein, with the base and top thereof formed integral with each other, the said base being formed with an orifice leading into said chamber and another orifice leading therefrom, and an oil-conduit, E, communicating with the latter, substantially as described.

2. An oiler for crank-pins, &c., consisting of an oil-reservoir, an annular channel at its top, with an oil-conduit, E, leading therefrom, a screw-cap provided with a chamber, an orifice leading from the reservoir into said chamber, and another orifice leading from the chamber into the annular conduit, substantially as described.

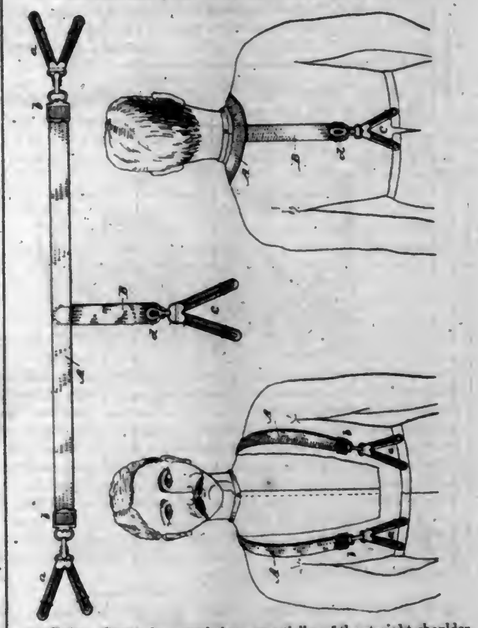
3. The combination, with an oiler for crank-pins, &c., of a chambered cap, the base-diaphragm thereof forming a part of it, and having an orifice leading from the oil-reservoir into said chamber and another orifice leading from the chamber, an adjustable disk for regulating the quantity of oil introduced through the said conduit, and an oil-exit passage from the said chamber to the parts to be lubricated, substantially as described.

311,110. BECKET-CLAMP FOR STEERING-WHEELS. ALADIN DOLE, Penn's Grove, N. J. Filed July 21, 1884. (No model.)



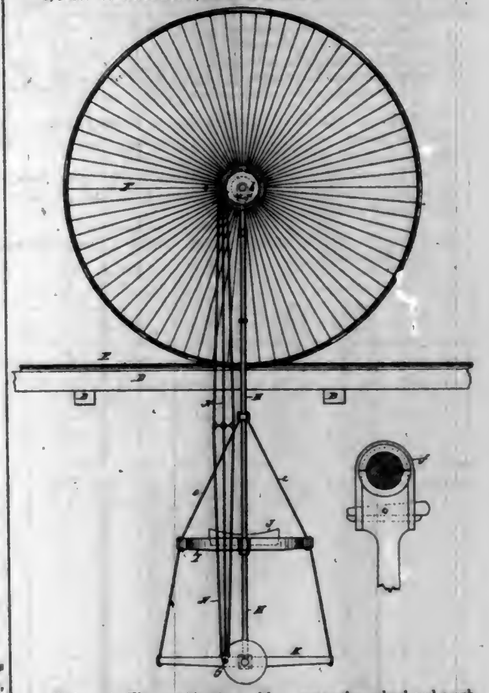
Claim.—The combination, with a wheel-shaft, stationary bearings containing the same, and a steering-gear connecting with the rudder, tiller, and the wheel-shaft, of a clamp, I I′, surrounding the said shaft and provided with screw *d*, and the standard H, supporting said clamp at its upper end, and provided at its lower end with an attachment secured to a stationary part of the vessel, substantially as described.

311,111. SUSPENDERS. MARCUS EISLER, New York, N. Y., assignor to M. Sweboda, same place. Filed Nov. 7, 1884. (No model.)



Claim.—Suspenders consisting, essentially, of the straight shoulder-strip A and the back-strip B, attached at right angles thereto, each provided with means by which it may be connected to the garment, substantially as and for the purposes set forth.

311,112. TRANSCYCLE. JOHN A. ENOS, Peabody, Mass. Filed Jan 8, 1883. Renewed Dec. 9, 1884. (No model.)

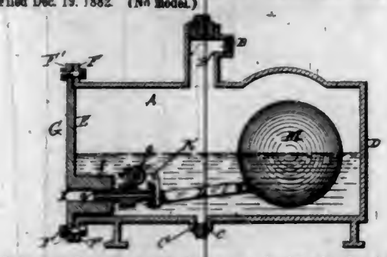


Claim.—1. The combination, with a supporting-wheel and a subjacent seat or saddle, of a light rigid skeleton frame connecting the seat to the wheel upon one side of the same and trussed or braced substantially as described, and means for driving said wheel, located at the lower

end of the frame and connected to the wheel above, substantially as set forth.

2. The combination of the wheel F with rigid shaft G, the supporting-frame H *c d e*, bearing offsetting saddle J, the double-crank shaft L, and the connecting-rod N, transmitting motion from the crank-shaft to the wheel-shaft, substantially as described.

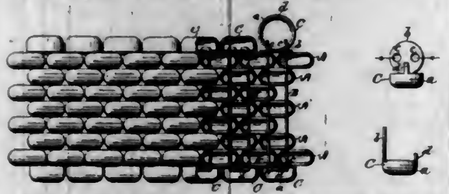
311,113. STEAM-TRAP. WILLIAM A. FOSKETT, New Haven, Conn. Filed Dec. 19, 1882. (No model.)



Claim.—1. In a steam-trap, the case A, having closed end D and removable head G, said removable head having an inwardly-extending hollow boss, I, formed integrally therewith, valve-seat connected with said boss I, compression block or valve K, pivoted to a projection or offset from said seat, and a float connected with said valve, whereby said valve-seat, valve, and float are attached to the removable head and rendered capable of being withdrawn from the case by said head G on its removal from the case, substantially as and for the purpose set forth.

2. In a steam-trap, the case A, having closed end D and removable head G, a valve-seat connected to said removable head, a valve pivotally connected to said seat, and a float connected with said valve, substantially as and for the purpose set forth.

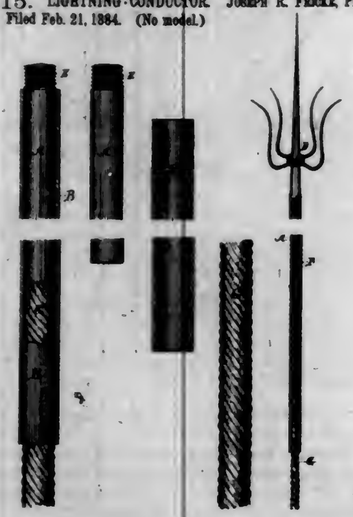
311,114. ORNAMENTAL CHAIN. BENJAMIN S. FREEMAN, Jr., and EDWIN L. ROBINSON, Attleborough Falls, Mass., assignors to B. S. Freeman & Co., same place. Filed Sept. 8, 1884. (No model.)



Claim.—1. The improved edge unit for an ornamental chain, consisting of the cup, perforated or notched plate, and fastening-lip, made integral with each other, substantially as described.

2. In an ornamental chain, the combination of the central beads or links and the connecting-staples with the integral edge units, constructed and arranged substantially as described.

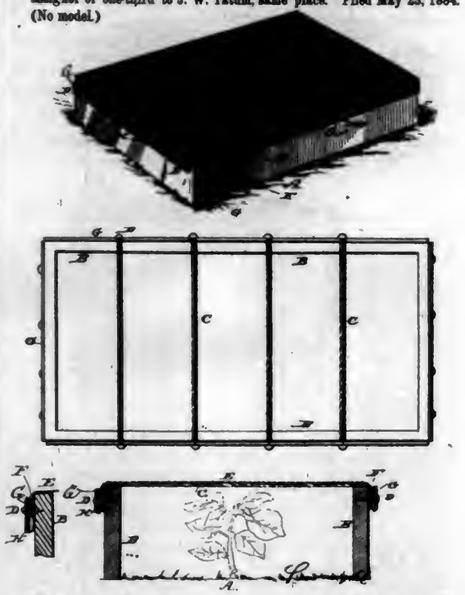
311,115. LIGHTNING-CONDUCTOR. JOSEPH R. FRICKE, Pittsburg, Pa. Filed Feb. 21, 1884. (No model.)



Claim.—1. A flexible lightning-conductor, G, in combination with the tube B, applied to its upper end, the tip D, applied at the upper end of the tube, and the rod A, supporting said tip, substantially as shown.

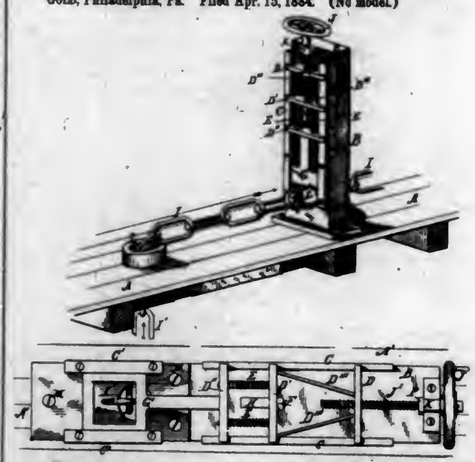
2. The combination of the cable conductor, a tube applied to its upper end, the rigid rod, which is placed in the tube, and the tip, substantially as set forth.

311,116. PLANT-PROTECTOR. SAMUEL GARRARD, Durham, N. C., assignor of one-third to J. W. Tatum, same place. Filed May 23, 1884. (No model.)



Claim.—In a plant-protector, the combination of a frame, a textile screen or cover stretched upon the same, securing-strips arranged in folds at the edges of such textile covering, and suitably attached to the outer side of the frame, at the upper edges of the latter, and transverse supporting-cords arranged across the top of the frame, under the covering of the same, substantially as and for the purpose herein set forth.

311,117. ANCHOR-CHAIN COMPRESSOR AND STOPPER. WILLIS D. GOLD, Philadelphia, Pa. Filed Apr. 15, 1884. (No model.)



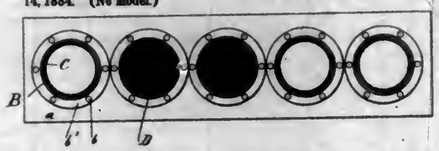
Claim.—1. In compressors or stoppers for anchor-cables, slide G, set in suitable guides, C' C', the screw-rod J', adapted to be turned by suitable mechanism, J, cross-bar D, with which the screw engages, cross-bars D' D'', with the intermediate springs, E E, and chock H, said cross-bars sliding in guides C C, motion being imparted from the bar D to the bar D' through the intermediate connecting-pieces, D''' D''', all connected and operating substantially as described.

2. In a compressor or stopper for the anchor-cables of vessels, the combination of the slide G, screw J', actuating mechanism J to turn said screw and parts D D' D'', guided by guides C C, intermediate between the slide G and screw J', with which such intermediate parts said screw engages, whereby by the turning of said screw the slide G is driven against the chain I or released from it, substantially as described.

3. In a compressor or stopper for the anchor-cables of vessels, the combination of the slide G, screw J', actuating mechanism J to turn said screw, and parts D D' D'', and springs E E, guided by guides C C intermediate between the slide G and screw J', with which such intermediate parts said screw engages, whereby by the turning of said screw the slide G is driven against the chain I or released from it, substantially as described.

4. In a compressor or stopper for anchor-cables for vessels, the clamp G, actuated to bite the chain by means of a screw-rod, J', actuated by a suitable mechanism, J, and the springs E E, intermediary between the screw-rod and the clamp G, to graduate the bite of the clamp, substantially as described.

311,118. MANUFACTURE OF AMBER VARNISH. JOHANN WILHELM GOOSSEN, Chicago, Ill., assignor to F. H. Herhold, same place. Filed Apr. 14, 1884. (No model.)

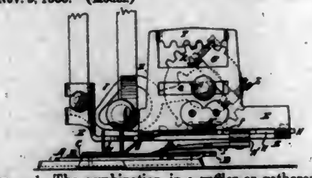


Claim.—1. The step in the manufacture of amber varnish which consists in fusing the amber by ignition, substantially as described.

2. In the manufacture of amber varnish, the method of fusing the amber, which consists in igniting it upon a wire-cloth and allowing it to drip through the cloth, substantially as described.

3. The process of manufacturing amber varnish, which consists in first fusing the amber by ignition, and subsequently boiling it with oil and finishing it in the usual manner, substantially as described.

311,119. RUFFLER FOR SEWING-MACHINES. JOHN M. GRIEST, Chicago, Ill., assignor to the Chicago Attachment Company, same place. Filed Nov. 5, 1883. (Model.)



Claim.—1. The combination, in a ruffler or gatherer for sewing-machines, composed of an upper group of parts adapted for attachment to the needle-bar, and of a lower group of parts adapted for attachment to the cloth-plate, of the shield C in the lower group, the said shield having thereon the points *c c*, and being arranged to cover the serrated feed-plate of the machine, the bed-plate B, the spring N, the holder M, the ruffling-blade, the main frame or stock, and means for reciprocating the said blade, substantially as and for the purposes specified.

2. The combination, in a ruffler or gatherer for sewing-machines, of the bed-plate B, the shield C, the separator-blade D, the holder M, the spring N, the ruffling-blade, the main frame or stock, and means for reciprocating the said blade, all arranged for operation together, substantially as and for the purposes specified.

311,120. ELEVATOR-GATE. ALBERT U. GRUNMANN, Indianapolis, Ind. Filed Oct. 4, 1884. (No model.)



Claim.—1. The combination, with a vertically-movable elevator-gate, of a spring-catch secured transversely thereof, the lower end of which is bent out to engage with the floor when the gate is closed, and the top end of which is bent in to engage with the front edge of the elevator when the gate is open, whereby it is adapted to hold said gate in both its open and closed positions, substantially as set forth.

2. The combination, with a vertically-movable elevator-gate, of a spring-catch secured thereto, its upper end being bulged out to engage with a strike on the edge of the elevator, and its lower end being bent out on the other side of the gate to engage with the floor, and a lever secured to said spring near its lower end and extending down through a hole in the lower rail of the gate, the lower end of which is also bulged out to engage with the strike on the edge of the elevator, whereby the elevator automatically operates to disengage said spring-catch from the floor, substantially as set forth.

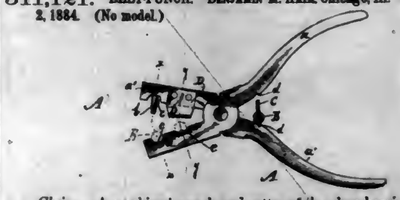
3. The combination of the elevator A, hollow gate-posts B, gate C, mounted between said gate-posts, cords C', attached to said gate and running over sheaves *b* into the hollow posts, weights C^3, attached to the ends of said cords in said hollow posts, the spring-catch D for holding said gate in position, and the lever D', secured to said spring-catch at one end and extending out at the other end to engage with a strike on the edge of the elevator, substantially as described, and for the purposes specified.

4. The combination, with an elevator-gate provided with adjustable rollers on its ends, of the posts B, having grooves *b'* formed in the sides facing each other, said rollers of the gate being arranged to travel in said grooves of the posts, the cords C', secured at one end to the gate and passing up over the sheaves *b*, and the weights C^3, attached to the other end of said cords, substantially as set forth.

5. The combination of the elevator A, provided with a strike, *a*, on its front edge, hollow gate-posts B, having cushions B', gate C, mounted between said gate-posts, cords C', attached to said gate at one end and passing up over the sheaves *b* into the posts, weights C^3, attached to said cords, the spring-catch D, the upper end of which is bulged out to engage with the elevator, and the lower end of which is bent out on the other side of the gate to engage with the top edge of the floor, and a lever, D', attached to said spring at one end, said lever extending down through a hole in the bottom rail of the gate, and being also bulged out to engage with the elevator, substantially as described, and for the purposes specified.

6. The combination of an elevator, a vertically-movable elevator-gate, a spring-catch secured transversely thereof, the lower end of which is bent out to engage with the floor when the gate is closed, and a lever fulcrumed in said gate and secured to said spring, with which said elevator will come in contact as it passes up and down, and thereby disengage said lower end from the floor, substantially as set forth.

311,121. BELT-PUNCH. BENJAMIN M. HAIR, Chicago, Ill. Filed June 2, 1884. (No model.)



Claim.—A combined punch and cutter of the class hereinbefore described, having in the lever-handles, back of their joint or pivoted point, the notches *d d*, substantially as and for the purposes specified.

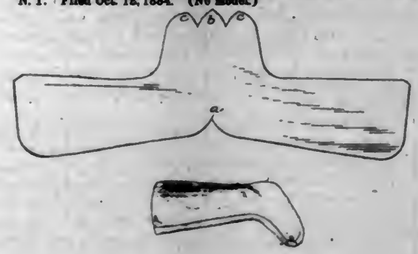
311,122. ORNAMENTAL SCREW-HEAD CAP. GEORGE B. HAKES, Norwood, N. Y., assignor of one-half to Henry G. Pert, same place. Filed Apr. 3, 1884. (No model.)



Claim.—1. The detachable ornamental cap for screw-heads, consisting of an ornamental shallow box or case having inwardly-projecting lugs or catches E E, adapted to engage the slots formed by the nick in the screw-head, substantially as and for the purpose shown and set forth.

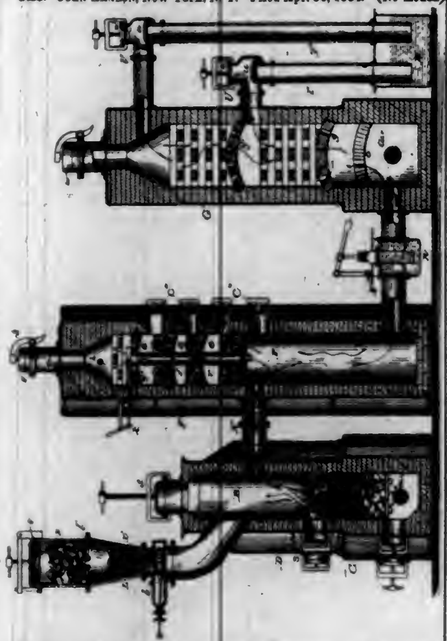
2. As an improved article of manufacture, an ornamental cap for screw-heads, consisting of a blank of sheet metal cut to form the wings D, having said wings set up at right angles, and provided with indentations forming the inwardly-projecting catches E E opposite to each other, and adapted to engage the slots formed by the nick in the screw-head, substantially as and for the purpose shown and specified.

311,123. CLOTH BOOT. EUGENE E. HALL, Troy, assignor of two-thirds to Francis C. Huyck and Chauncey E. Argersinger, both of Albany, N. Y. Filed Oct. 12, 1884. (No model.)



Claim.—A boot formed of one piece from the blank, substantially as shown, having a rear seam, *n n*, a front seam, *o p*, and the toe-seams *o q o q*, and the seamless bottom, all substantially as described.

311,124. PROCESS OF AND APPARATUS FOR MANUFACTURING GAS. JOHN HANLON, New York, N. Y. Filed Apr. 30, 1884. (No model.)



Claim.—1. The process of uniformly combining and fixing the mixed gas and vapor produced during an ordinary run in a gas-generating furnace, which consists in heating a comparatively large body or several bodies of refractory material in a fixing chamber or chambers to the proper temperature, then passing the mixed gas and vapor produced during the first period (five to ten minutes) of the run through a portion of such heated refractory material to the main, then passing the succeeding volumes of mixed gas and vapor produced during the succeeding period (five to ten minutes) of the run through another portion of heated refractory material and to the main, and thus on to the end of the run, whereby destructive decomposition of the hydrocarbons is prevented and a uniform quality of gas, as to candle-power, is produced.

2. In the manufacture of illuminating-gas, the process of uniformly combining and fixing the mixed gas and vapor produced in an ordinary run in a gas-generating furnace, which consists in heating two or more bodies of refractory material to successively higher temperatures from the first upward, then passing mixed gas and vapor produced during the first period (five to ten minutes) of the run through the refractory material at the lowest temperature to the main, then passing the succeeding volume of mixed gas and vapor produced during the succeeding period (five to ten minutes) of the run through the next higher heated body of refractory material to the main, and thus on to the end of the run, for the purpose described.

3. The process of manufacturing gas which consists in highly superheating steam in contact with heated brick-work, passing such steam down through heated metallic scrap, producing hydrogen, then passing the hydrogen, together with any undecomposed steam, through one or more bodies of heated carbonaceous material for fully converting all watery vapor into fixed gas.

4. The process of manufacturing gas which consists in highly superheating steam and then passing it down through heated iron-scrap, thereby producing hydrogen, then passing such hydrogen, together with any undecomposed steam, through a body of heated carbonaceous material for completing the decomposition of the steam, then carbureting the resulting gas with hydrocarbon vapors from liquid or solid material in a heated chamber.

5. The process of manufacturing gas which consists in superheating steam, decomposing it in contact with heated iron-scrap, passing the resulting hydrogen gas, together with any remaining undecomposed steam, through one or more bodies of heated carbonaceous material for completing decomposition of the steam into fixed gas, then carbureting the gas and fixing it by passing volumes of it made in successive periods through successive bodies of heated refractory material to the end of the run, whereby destructive decomposition of hydrocarbons is prevented and a uniform quality of gas is produced.

6. The process of generating hydrogen gas which consists in first highly superheating steam, then passing it through one or more beds of heated iron-scrap or other similar metal, thereby oxidizing said scrap and partially decomposing the steam, then further superheating and decomposing any remaining portion of the steam by passing it through heated refractory material and one or more beds of heated metallic scrap, and thus passing the steam, in company with the hydrogen formed, through alternate bodies of heated refractory material and heated metallic scrap until a complete decomposition of the steam is obtained.

7. The process of manufacturing gas which consists in first highly superheating steam, then decomposing said steam by passing it through heated iron-scrap or similar metal, and then passing the resulting gas through one or more bodies of incandescent fuel, substantially as described.

8. The process of manufacturing gas which consists in first highly superheating steam, then decomposing said steam by passing it through heated iron-scrap or similar metal, thereby oxidizing said scrap, and then passing the product through one or more bodies of incandescent fuel, and alternately reducing the oxidized scrap to a metallic condition by subjecting it to the action of nascent carbonic oxide, thereby enabling the continued use of said scrap without removal from the apparatus, substantially as described.

9. The process of manufacturing gas which consists in first highly superheating steam, then decomposing said steam by passing it through heated iron-scrap or similar metal, then passing the product through heated refractory material, and then through one or more bodies of incandescent fuel, substantially as described.

10. The process of manufacturing illuminating-gas which consists in first highly superheating steam, then decomposing said steam by passing it through heated iron-scrap or similar metal, then passing the product through one or more bodies of incandescent or highly-heated fuel, and then enriching said gas by mingling with it the vapor of a hydrocarbon, and finally fixing the gas by passing it, in conjunction with said hydrocarbon vapor, through a heated fixing-chamber, substantially as described.

11. The process of manufacturing illuminating-gas which consists in first highly superheating steam, then decomposing said steam by passing it through heated iron-scrap or similar metal, then passing the product through one or more bodies of incandescent or highly-heated fuel, then enriching the gas so produced by adding to it the products of distillation of soft coal, finally adding to said mixture the vapor of a hydrocarbon, and then fixing said gas and vapor by passing them through a heated fixing-chamber, substantially as described.

12. The three fuel-chambers connected by a common base, and consisting of two side decomposing-chambers, each having an inlet for steam or other gaseous fluid near its top, and the central distilling-chamber having a gas-outlet near the top, for the purpose described.

13. In combination with a fuel-chamber of a gas apparatus, a steam superheating and decomposing chamber having one or more bodies of iron-scrap on its lower supports, and having a body of refractory brick-work above the iron-scrap, as and for the purpose described.

14. In a gas-generating apparatus, a steam superheating and decomposing chamber having two or more perforated arches, with iron-scrap on the lower arch and loosely-laid brick-work on the upper arch, and having a steam-inlet pipe at the top and an outlet-pipe below the lower arch, for the purpose described.

15. In a gas-generating apparatus, a steam superheating and decomposing chamber having perforated supporting-arches, a tube passing through such arches, means for closing the tube, a steam-inlet pipe, and an outlet-pipe, connected as described.

16. In combination with a gas-generator, two or more fixing-chambers united to a common base, as shown, and each chamber having a valved outlet-pipe, for the purpose described.

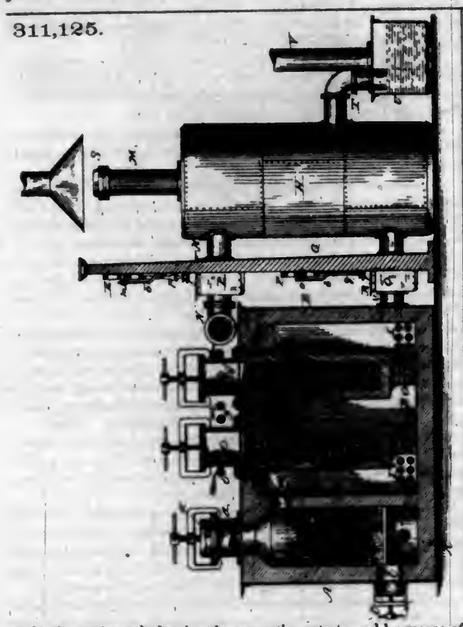
17. In combination with the distilling-chamber, the gas-chamber H and the contained coils of steam-superheating pipe connecting with the steam superheating and decomposing chambers, for the purpose described.

311,125. PROCESS OF AND APPARATUS FOR MANUFACTURING GAS. JOHN HANLON, New York, N. Y. Filed May 3, 1884. (No model.)

Brief.—Illuminating-gas is made by continuously heating the generating-retorts by the combustion of gaseous products from a producer, and such products, after partial combustion, are used for alternately heating internally two fixing-chambers. Gas is generated continuously in the retorts by passing superheated steam down through a body of charcoal, where it is decomposed, passing the resulting gas up through the vaporizing-chamber, into which oil is admitted, and then passing the mixed gas and oil-vapor through one of the heated fixing-chambers, where they are converted into a fixed gas. One of the fixing-chambers is being heated up while the other is used for fixing gas.

Claim.—1. The process of manufacturing illuminating-gas which

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consists in continuously heating the generating-retorts, and by means of the waste or partially-burned gaseous products alternately heating internally two fixing-chambers, first one and then the other, generating gas continuously in the retorts and fixing it continuously in the fixing-chambers, alternating the heating up of one chamber with fixing gas in the other chamber, as described.

2. The process of generating gas continuously which consists in superheating steam, passing it down through a body of charcoal continuously maintained at a decomposing temperature, where it is decomposed, passing the resulting gas up through the vaporizing-chamber, into which oil is admitted, thereby intimately mingling gas and oil-vapor and carrying the latter from the retort, and then forming a fixed gas by passing the mixture of gas and vapor through a heated chamber.

3. The combination of the producer A and the connected retort-chamber, built in one structure, the dividing-wall between them having a passage near its top, an air-blast pipe connecting with the top of the retort-chamber, an escape-pipe for products of combustion, connecting near the bottom thereof, and the contained vertical retorts.

4. The combination of the heating-gas producer, the connected retort-chamber and retorts, an air-blast pipe connected with such chamber, a gas-fixing chamber, a pipe for products of combustion connecting the bases of the retort-chamber and fixing-chamber, and a pipe connecting the retorts with the top of such fixing-chamber, whereby gas to be fixed may be passed down through the fixing-chamber.

5. The combination of the retort-chamber and contained retorts, means for heating them, a fixing-chamber connected both with the retort-chamber and the retorts, and a valve on each connecting-pipe, whereby hot gaseous products may be passed from the retort-chamber to the fixing-chamber for heating the latter, and when such products are shut off illuminating-gas may be passed into such chamber to be fixed, as described.

6. The combination of the retort-chamber and one or more contained retorts with two fixing-chambers, connecting-pipes from the retort-chamber and from the retorts to both fixing-chambers, and reciprocating valves on all the pipes, whereby heating-gas may be conducted to one chamber, while illuminating-gas to be fixed may be conducted to the other chamber, and the flow of each kind of gas changed from one chamber to the other, as desired.

7. In combination with a continuous gas-generator, two fixing-chambers, and pipes having connected reciprocating valves connecting the generator with such chambers, and means for admitting heating-gas to each fixing-chamber.

8. In combination with a continuous gas-generator, two fixing-chambers, and pipes having valves connecting the generator with such chambers, and means for admitting heating-gas to each fixing-chamber, whereby the chambers may be used alternately for fixing gas, one chamber being heated up while gas is being fixed in the other chamber, as described.

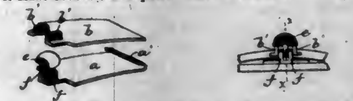
9. In combination with the two fixing-chambers, two inlet-pipes for heating-gas connecting with the bottom thereof, and having a pair of connected reciprocating valves, two inlet-pipes for illuminating-gas connecting near the top of such chamber, also having a pair of connected reciprocating gas-outlet pipes connecting near the bottoms of the fixing-chamber, and valves or stoppers in the stacks of such chambers.

10. In combination with two fixing-chambers, two inlet-pipes for heating-gas, having a pair of connected reciprocating valves, two inlet-pipes for illuminating-gas, also having a pair of connected reciprocating valves, and a pair of connected stopper-valves in the stacks, for the purpose described.

11. The vertical retort having an opening and lid at each end, a vertical partition having an opening, a steam-inlet pipe connecting with one chamber, an oil-inlet pipe connecting with the other chamber, and a gas-outlet pipe leading from the oil-vaporizing chamber.

12. The vertical retort having an opening and lid at each end, a vertical partition having an opening at its lower end, a steam-inlet pipe connecting with the top of the decomposing-chamber, an oil-supply pipe extending into the vaporizing-chamber, and a gas-outlet pipe leading from the top of such vaporizing-chamber, for the purpose described.

311,126. CLASP. CYRUS H. HARDY, Hingham, Mass., assignor of one-half to Isaac Gardner, same place. Filed June 4, 1884. (No model.)



Claim.—1. A clasp composed of the member *a*, having a hook, *a'*, at one end, and a pivoted fastening device at the other end, and the member *b*, adapted to engage at one end with said hook, and provided at the other end with ears *b'*, or their specified equivalent, adapted to engage with the fastening device, as set forth.

2. A clasp composed of the member *a*, having a hook, *a'*, at one end and a pivoted button, *c*, at the other end, and the member *b*, formed at one end to engage said hook, and having at the other end the ears *b' b'*, constituting bearings for the button, and separated by a recess, which receives the ears to which the button *c* is pivoted, as set forth.

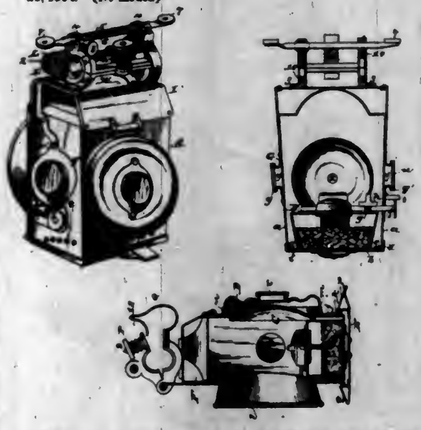
311,127. BOOT OR SHOE SOLE. ELMER S. HARRIS and LUCIAN M. NICHOLS, Haverhill, Mass. Filed Aug. 26, 1884. (No model.)



WITHDRAWN.

Claim.—A sole for a boot or shoe, having a lip, *i*, cut or channeled at its edge and turned back toward the side of the sole, of which said lip is a part, said lip being thinner at or diminishing in thickness toward its edge, for the purpose specified.

311,128. LANTERN. HARRIS B. HART, Philadelphia, Pa. Filed Mar. 21, 1884. (No model.)



Claim.—1. A lantern-case provided with sides bent in to form lips above the bottom, in combination with a detachable lamp supported between said lips and a plate forming the bottom of the case, riveted or soldered to the sides, substantially as set forth.

2. A lantern provided with a case having an opening at the rear of the burner, and a reflector fitting said opening and removable from the rear, substantially as set forth.

3. The combination of the casing having an opening at the rear of the burner, a detachable reflector, and a hinged cap, and means for clamping the same against the reflector, for the purpose specified.

4. The combination of the lantern-casing having a flanged opening, and the detachable reflector having an edge flange and peripheral lip, substantially as set forth.

5. The combination of the casing, detachable reflector having a central opening, *x*, and hinged cap D, having a central opening and glass plate, as described.

6. A lantern-case having an opening at the rear of the burner, hinged cap covering said opening, and hinged plate closing the front of the case, in combination with a spring-plate having beveled ends and shoulders and arranged to hold both the cap and plate in place, substantially as set forth.

7. The combination of the casing having a side opening, a frame pivoted to the side of the case and carrying a glass disk and provided with a pin, *s*, and a corrugated spring-arm, *t*, engaging with said pin, substantially as described.

8. A clamp for bicycle-lanterns, consisting of two skeleton frames, each having a semicircular portion at each end, one frame being secured to the hood and the other pivoted to the first and serving to support the lantern on the shaft, and elastic connections between said frames, substantially as described.

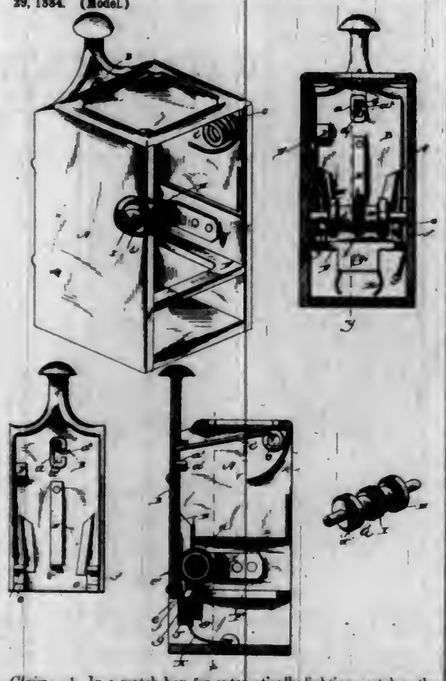
9. The combination, with the divided clamp consisting of the frames jointed together, of a spring carried by one frame and a screw attached to the other, the spring bearing upon the screw and serving to adjustably hold the frames in position, substantially as described.

10. The combination of the jointed frames, a screw connected to turn upon one of the frames, and a spring upon the other frame bearing with its end against the screw, whereby the clamps may be held by an adjustable elastic pressure and the shocks to the lantern avoided, substantially as described.

11. The combination, with the shaft of a bicycle, of a lantern having a divided clamp and elastic connections, and provided with semicircular recesses, and of solid metallic bearings extending around said recesses and adapted to bear upon the shaft, whereby the friction between the shaft and lantern is reduced to a minimum, substantially as described.

12. The combination, with the case of a bicycle-lantern, of a clamp consisting of two skeleton sections, one fixed to the case and the other pivoted to the first and supporting the lantern, and an elastic or spring securing device attached to one of the sections, and an adjusting device attached to the other section, substantially as set forth.

311,129. MATCH-BOX. SETH W. HOAG, Grand Isle, Vt. Filed Feb. 29, 1884. (Model.)



Claim.—1. In a match-box for automatically lighting matches, the combination, with a suitable box or casing, of a platform or tray for holding the matches, a sliding cutter, and means for automatically feeding the matches thereto, substantially as set forth.

2. In a box for automatically lighting matches, the combination, with a suitable box or casing, of a sliding cutter, a tray for holding the matches, means for automatically feeding the matches to said cutter, and a lighting device, substantially as set forth.

3. In a box for automatically lighting matches, the combination, with a suitable box or casing, of a sliding cutter and a lighting device, and means for automatically returning the same to its normal position after a match has been cut, substantially as set forth.

4. In a box for automatically lighting matches, the combination, with a suitable box or casing, of a sliding cutter and suitably-arranged serrated plate, substantially as set forth.

5. In a box for automatically lighting matches, the combination, with a suitable box or casing, of a sliding cutter provided on its inner side with outwardly-projecting lugs, and lugs projecting outwardly from the inner sides of said box or casing, substantially as set forth.

6. In a box for automatically lighting matches, the combination, with a suitable box or casing, of a sliding cutter, a serrated plate for igniting the matches, and upwardly-projecting arms to receive the same after ignition, substantially as set forth.

7. In a box for automatically lighting matches, the combination, with a suitable box or casing, of a cutter sliding in guides formed on the rear side thereof, a coil-spring secured to the upper end of said cutter, its other end being secured to the inner side of the casing, and lugs formed upon the inner side of the casing adapted to engage lugs projecting outwardly from the sliding cutter, substantially as set forth.

8. In a match-box for automatically lighting matches, the combination, with a sliding cutter, of a platform or tray for holding a card of matches, and roller for feeding the same to the cutter, substantially as set forth.

9. In a match-box for automatically lighting matches, the combination with a sliding cutter, of a platform for holding a card of matches, and a roller mounted in the sides of the box, said roller being provided with rubber disks, whereby the matches are automatically fed to the cutter at each downward stroke of the same, substantially as set forth.

10. In a match-box for automatically lighting matches, the combination, with a sliding cutter having a strip of spring metal secured to its inner side, the lower or free end of which is bent outwardly, of a platform for holding the matches, and a roller having bearings in the sides of the casing, said roller having a serrated disk to engage the end of the said spring, substantially as set forth.

11. In a match-box for automatically lighting matches, the combination, of a sliding cutter having a strip of spring metal secured at its upper end to the inner side thereof, the lower or free end being bent outwardly, said cutter being also provided with brackets at its lower ends, which are provided with transverse slots, and a roller, substantially as set forth.

12. In a match-box for automatically lighting matches, the combination, with a sliding cutter provided at its lower corners with brackets having transverse slots, of a platform having a downwardly-projecting strip, whereby a match is held in said slots until the lower end of the said strip has been reached, substantially as set forth.

13. In a match-box for automatically lighting matches, the combination, with a sliding cutter having a strip of spring metal secured at its upper end to the inner side thereof, the lower or free end being bent outwardly, said cutter being also provided at its lower corners with brackets having transverse slots, of a platform having a downwardly-projecting strip at its front end, and a roller provided at about its center with a serrated disk, substantially as set forth.

14. In a match-box for automatically lighting matches, the combination, with a sliding cutter having a strip of spring metal secured at its upper end to the inner side thereof, the lower or free end being bent outwardly, said cutter being also provided at its lower corners with brackets having transverse slots, of a platform having a downwardly-projecting strip at its front end, a roller provided at about its center with a serrated disk, and a serrated plate secured to the inner side of the casing just below said platform, substantially as set forth.

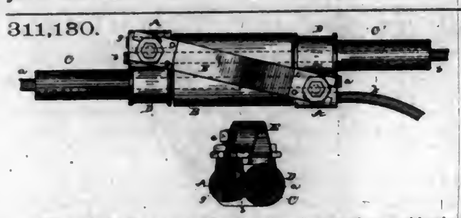
15. In a match-box for automatically lighting matches, the combination, with a sliding cutter having a strip of spring metal secured at its upper end to the inner side thereof, the lower or free end being bent outwardly, said cutter being also provided at its lower corners with brackets having transverse slots, of a platform having a downwardly-projecting strip at its front end, a roller having a centrally-located serrated disk, a serrated plate secured to the inner side of the casing, and arms projecting upwardly from the floor thereof, substantially as set forth.

16. In a match-box for automatically lighting matches, the combination, with a suitable box or casing, of a sliding cutter, a feed-roller, and a spring for actuating said feed-roller at each downward stroke of the cutter, substantially as set forth.

311,130. CONNECTION FOR ELECTRICAL CONDUCTORS. EDWARD H. JOHNSON, New York, N. Y., assignor to Bergmann & Co., same place. Filed Jan. 10, 1884. (No model.)

Claim.—1. In a device for joining the parts of an electric circuit, the combination of means for keeping such parts from lateral movement, and a screw forced between such parts and cutting into the same, substantially as set forth.

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2. In a device for joining the ends of conductors, the combination of a receptacle for the ends, preventing lateral movement of the conductors, and a screw forced between and cutting into said conductors, substantially as set forth.

3. The combination of the metallic receptacle having two longitudinal apertures, and a central aperture connecting with both said longitudinal apertures, with the screw entering such central aperture, substantially as and for the purpose set forth.

4. The combination of the insulating-block, the metallic receptacles—one at each end of said block—for holding the ends of conductors and the safety-catch connecting said receptacles, substantially as set forth.

5. The combination of the insulating-block provided with apertures through which the conductors to be joined pass, the metallic receptacles at the ends of the block, which the ends of such conductors enter, and the safety-catch connecting such receptacles, substantially as set forth.

6. The insulating-block having a tubular extension at each end, in combination with the receptacles supported by said extensions, the conductors passing through said block and its extensions and entering said receptacles, and the safety-catch connecting said receptacles, substantially as set forth.

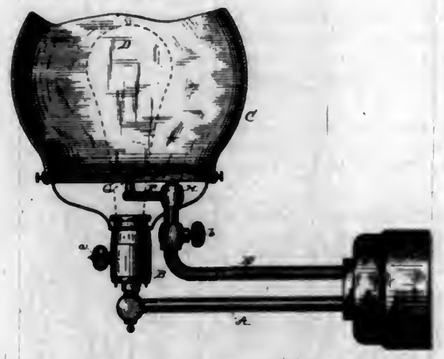
7. The combination of the insulating-block, a receptacle supported at one end of said block, a main conductor passing through said block to said receptacle, the short section of conductor also in said receptacle, and the screw forced between said main conductor and said short section, substantially as set forth.

8. The combination of the receptacle and the sleeve placed on the extensions of the insulating-block to support such receptacle, substantially as set forth.

9. The combination of the receptacle and the supporting-sleeve with the insulating-extension projecting beyond such sleeve, substantially as set forth.

10. The combination of the insulating-block, the receptacles at the ends thereof, the conductors to be joined, the connecting-screws, and the safety-catch having its ends held under the heads of said screws, substantially as set forth.

311,131. COMBINED GAS AND ELECTRIC-LIGHT FIXTURE. P. H. KLEIN, Jr., New York, N. Y., assignor to Bergmann & Co., same place. Filed Apr. 2, 1884. (No model.)



Claim.—1. In combined gas and electric-light fixtures, the combination, with a globe, of a gas-burner and an electric-lamp socket, both permanently attached to the fixture, one of said parts being located in the center of said globe, while the other is adjustable toward and away from the center of the globe, substantially as set forth.

2. In combined gas and electric-light fixtures, the combination of a gas-arm and an electric-lamp arm with a globe common to the gas-burner and the electric lamp, and means for swinging in a horizontal plane the part or parts conducting one lighting medium, substantially as set forth.

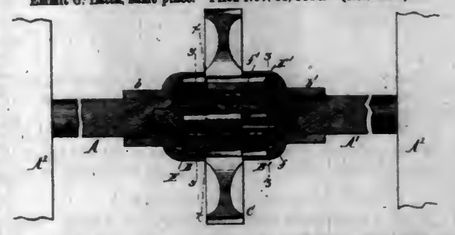
3. In combined gas and electric-light fixtures, the combination, with a stationary electric-lamp arm, of a gas-arm, a swivel-joint permitting the movement of the gas-arm or a part thereof toward and away from the electric lamp, and a globe common both to the gas-burner and the electric lamp, substantially as set forth.

4. In a combined gas and electric-light fixture, the combination, with a globe, of an electric lamp stationary in said globe, and a swiveled gas-tip capable of being swung into and out of position for lighting in said globe, substantially as set forth.

5. In a combined gas and electric-light fixture, the combination, with a globe, of an electric lamp stationary in said globe, and a swiveled gas-tip capable of being swung into and out of position for lighting in said globe, said swiveled gas-tip forming a gas-cock, substantially as set forth.

6. In combined gas and electric-light fixtures, the combination of gas and electric-light arms, located one within the other, with a globe common both to the gas-burner and the electric lamp, and a swinging tip for one of the arms, substantially as set forth.

311,132. DRIVING-GEAR FOR MOWING AND REAPING MACHINES. ADRIAN C. LATTA, Friendship, N. Y., assignor of one-half to Emmit G. Latta, same place. Filed Nov. 11, 1884. (No model.)



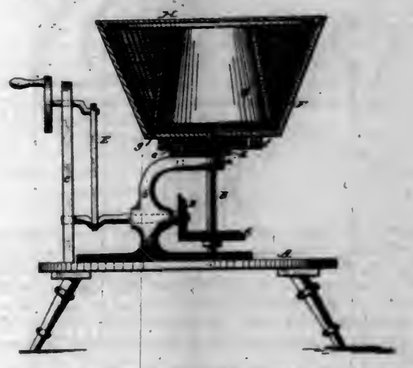
Claim.—1. In a mowing or reaping machine, the combination, with the gear-wheel connecting with the cutter mechanism, and two driving-wheels from which power is derived, of a differential-gear mechanism connecting both driving-wheels with said gear-wheel, whereby the motion of both driving-wheels is transmitted to said gear-wheel cumulatively or differentially, according to the relative direction and speed of the rotation of the driving-wheels, substantially as set forth.

2. In a mowing or reaping machine, the combination, with two driving-wheels from which power is derived, of a gear-wheel, C, connecting with the cutter mechanism, pinions E E', mounted in said gear-wheel to rotate therewith, and gear-wheels connecting the driving-wheels with the pinions E E', substantially as set forth.

3. In a mowing and reaping machine, the combination, with two driving-wheels from which power is derived, of a gear-wheel, C, connecting with the cutter mechanism, pinions E E', turning loosely on pins *f f'*, secured in the hub of the gear-wheel C and meshing with each other, and internal-gear wheels B B', meshing, respectively, with the pinions E E', substantially as set forth.

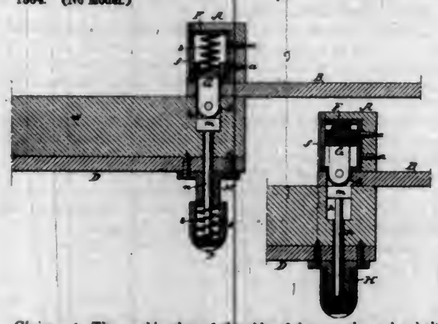
4. In a mowing and reaping machine, the combination, with the driving-wheels secured to shafts A A', of the internal-gear wheels B B', secured to said shafts, the gear-wheel C, pivoted in said shafts, and pinions E E', mounted in the gear-wheel C and meshing with each other and the gear-wheels B B', substantially as set forth.

311,133. WASHING-MACHINE. JOHN M. LOCKHART, Allegheny, Pa. Filed Dec. 6, 1883. (No model.)



Claim.—A washing-machine consisting of two tubs or receptacles, one contained within the other, flaring or tapering in opposite directions, and provided with mechanism, substantially as described, for imparting to them a motion in opposite directions, the inner one of said tubs or receptacles serving both as a rubber and a receptacle for containing the rinsing-water and clothes, substantially as and for the purpose set forth.

311,134. CAR-DOOR RETAINER. HUGH MCCAFFREY, Philadelphia, Pa., assignor of one-half to John Phipps, same place. Filed Aug. 22, 1884. (No model.)



Claim.—1. The combination of the side of the car, the spring-bolt, and its anti-friction roller with the door and its spring-plunger for retracting said bolt, substantially as set forth.

2. The combination of the car-frame and its spring-bolt G with the door, having a recess, *h*, tubular stud H, attached to the door, plunger *m*, its stem *n*, hollow button S, and spring *i*, all substantially as described.

311,135. RECOVERING RUBBER FROM RUBBER WASTE. CHAS. J. MCDERMOTT, Sandy Hook, Conn., assignor to New York Belting and Packing Company, New York, N. Y. Filed Jan. 11, 1882. (No specimens.)

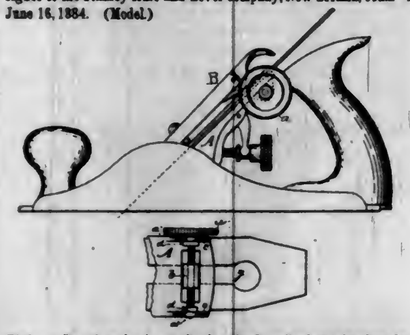
Claim.—1. The method of eliminating fiber from fibrous rubber waste or scrap, vulcanized or unvulcanized, by treating the scrap or waste in dilute acid—say sulphuric acid of 12° Baumé, more or less—and afterward washing the rubber, substantially as described.

2. The method of eliminating fiber from fibrous rubber waste or scrap, vulcanized or unvulcanized, by boiling the scrap or waste in dilute acid—say sulphuric acid of 12° Baumé, more or less—at a high temperature and afterward washing the rubber, substantially as described.

3. In eliminating fiber from fibrous rubber waste or scrap, the improvement consisting in treating the scrap or waste with a mixture of sulphuric and muriatic acids, substantially as described.

4. In eliminating fiber from fibrous rubber waste, the improvement consisting in treating the same with an acid solution containing materials adapted to generate nascent chlorine—such as the mixture of sulphuric acid, salt, and manganese described.

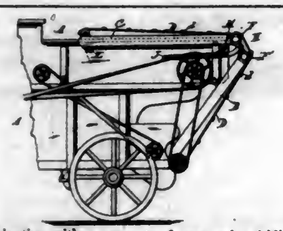
311,136. BENCH-PLANE. CHARLES L. MEAD, New York, N. Y., assignor to the Stanley Rule and Level Company, New Britain, Conn. Filed June 16, 1884. (Model.)



Claim.—In a bench-plane, the herein-described mechanism for adjusting the cutting-bit laterally, consisting of the adjusting-screw *a*, the traveling block *b*, having the upwardly-extending projection *f*, for taking into the longitudinal slot of the cutting-bit, said screw and block located at the upper end of the frog, and operating to adjust the cutting-bit laterally by the direct action of the block against the side walls of the slot in said bit at its upper end, substantially as described, and for the purpose specified.

311,137. STRAW-STACKER. ABRAHAM MILLER, Newark, assignor to Newark Machine Company, Columbus, Ohio. Filed Aug. 13, 1884. (No model.)

Claim.—1. In combination with a separator-frame and a folding elevator-frame constructed in sections, slotted rods J, secured to the elevator-frame at one end, and means for securing the other end to the separator-frame, as set forth.



2. In combination with a separator-frame and a folding elevator-frame constructed in sections, slotted rods J, secured to the hinge of the free section of the elevator-frame at one end, and means for securing the other end to the separator-frame, as set forth.

3. In combination with the sections of a hinged stacker and a hinge, H, adjusting-rods J, secured to the pivot of the hinge at one end, and means for locking the stacker at any point of elevation, as set forth.

4. In a stacker, substantially as described, the combination of the plate F, having sleeve *f*, the plate F', having eye *f'*, the bolt G, washer *g'*, and nut *g²*, with the rods J, and locking means, as *k*, as set forth.

5. In combination with a separator-frame and a hinged elevator-frame, as described, the slotted rod J *j*, hinge H, and nut *k*, as and for the purposes set forth.

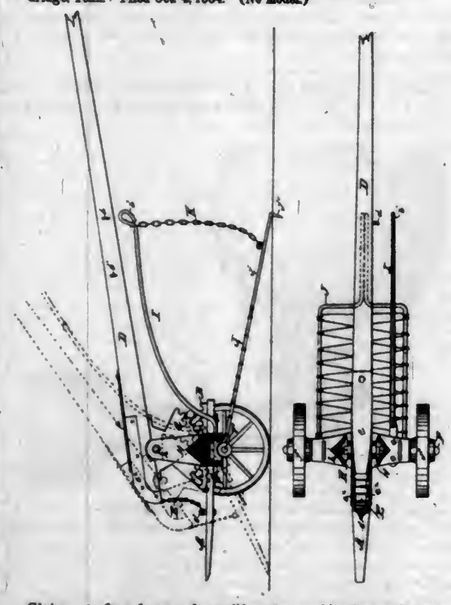
6. The rods J, having closed slots *j*, combined with the bolts K, nuts *k*, hinge H, the elevator-frame, and sections B C, as and for the purposes set forth.

7. In combination with a separator-frame, a hinged elevator-frame, and its slatted apron, as described, hooks secured upon the separator, and adapted to engage the slats *d* of the apron, and to hold said apron against movement in both directions, as specified.

8. In a stacker, as described, the combination of the sections B C, hinge H, rods J, and nut *k*, with the separator-frame having bolt K, pulleys M, and brackets L, as and for the purposes set forth.

9. In combination with the separator-frame, the hinged elevator-frame, and apron D, having slats *d*, the hooks P, secured upon the upper portion of the separator-frame, and the hooks P', secured upon the lower portion thereof, and means for supporting and locking the elevator-frame when folded, as set forth.

311,138. FENCE AND POST LIFTER. EDMUND B. MILLER, Dandridge, Tenn. Filed Oct. 4, 1884. (No model.)



Claim.—1. In a fence and post lifter, the combination of the crow-bar A, having a toothed rack, B, fastened to the upper side of it, with the lever D, having a toothed segment, C, and with one end of it projecting beyond said toothed segment, and the chain E, attached to the crow-bar A and extending over the projecting end of the lever D, to which it is also attached, substantially as described and shown.

2. In a fence and post lifter, the combination of the crow-bar A, having a toothed rack, B, the lever D, having a toothed segment, C, and with one end projecting beyond said segment, chain E, attached to

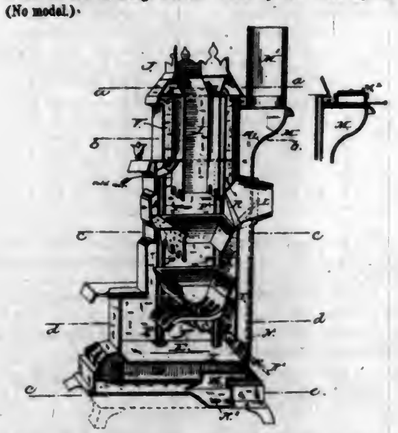
crow-bar A and extending over the projecting end of lever D, fastener *e*, for attaching said chain to lever D, and guide-plates *e²*, attached to the sides of the lever, substantially as shown and specified.

3. In a fence and post lifter, the combination of crow-bar A, having toothed rack B, lever D, having toothed segment C, chain E, attaching said crow-bar to said lever, brackets H, in which lever D is pivoted, casting G, provided with the projecting portions *g*, and axle F, provided with wheels *f* for moving the machine about, substantially as described and shown.

4. The combination of crow-bar A, having toothed rack B, lever D, having toothed segment C, chain E, attaching said crow-bar to said lever, brackets H, in which said lever is pivoted, casting G, provided with projecting portions *g*, axle F, provided with wheels *f*, and handle I, secured to casting G and provided with the looped end *i* for engaging with pin *d* in lever D, substantially as shown, described, and set forth.

5. The combination of the lever J, pivoted on axle F and provided with an end, *j'*, for digging into the ground, chain K, handle I, having the looped end *i*, lever D, having toothed segment C, pin *d*, and hook *d'*, chain E, crow-bar A, having toothed rack B, brackets H, in which lever D is pivoted, casting G, provided with projecting portions *g*, and axle F, mounted on wheels, substantially as shown and described, and for the purpose set forth.

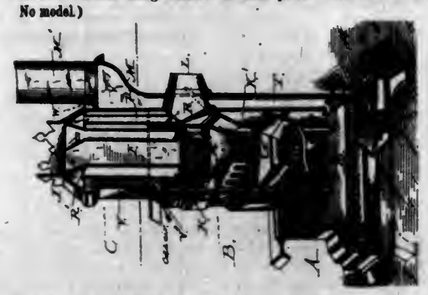
311,139. PARLOR HEATING-STOVE. J. ALLISON ORR and HENRY SEIVARD, Reading, Pa., assignors to themselves, Samuel H. Kutz, John Hahn, Frank P. Geisler, Andora McKnight, M. Brayton McKnight, and Zadok W. Bowen, doing business at same place. Filed Apr. 13, 1883. (No model.)



Claim.—1. The combination of the combustion-chamber K, and the heating-drum V within the same, with a magazine freely suspended in said combustion-chamber, the heated products of combustion circulating around the magazine and impinging upon the interior surface of the drum, said drum provided with inlets V^2 and outlets V', as shown, and for the purpose set forth.

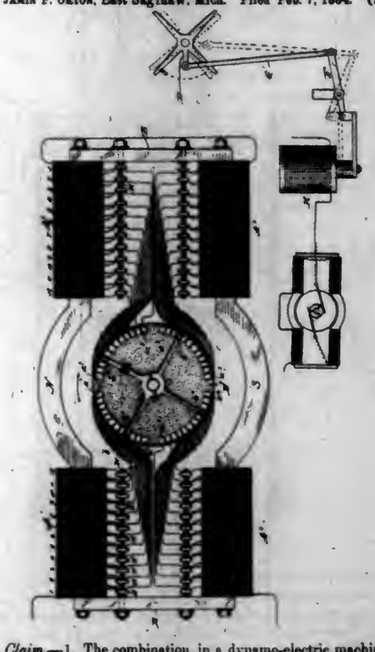
2. The combination of the following elements: the heating-drum V, having the inlet-ducts V^2 and exit-openings V', the hot-air reservoir M, having register W and hot-air pipe M', and the air-jacket N, substantially as described.

311,140. PARLOR HEATING-STOVE. J. ALLISON ORR and HENRY SEIVARD, Reading, Pa., assignors to themselves, Samuel H. Kutz, John Hahn, Frank P. Geisler, Andora McKnight, M. Brayton McKnight, and Zadok W. Bowen, doing business at same place. Filed Nov. 7, 1883. (No model.)



Claim.—In combination with a double fire-pot square cross-sectioned stove, as described, provided with a hot-air base and cold-air chambers and pipes P, the three-sided hot-air drum V, located in the combustion-chamber K, the three sides of its inner boundary being cast integral with each other, its base-plate having a passage, V^2, for cold air from the exterior, and its rear plate having passages V' for hot air to pass from the interior into the reservoir M', substantially as and for the purpose specified.

311,141. REGULATOR FOR DYNAMO-ELECTRIC MACHINES. BENJAMIN F. ORTON, East Saginaw, Mich. Filed Feb. 7, 1884. (No model.)



Claim.—1. The combination, in a dynamo-electric machine, of two sets of field-magnet coils or sections on separate legs or cores of the field-magnet for said machine, two contact-arms electrically connected and forming the connection between the two sets of coils, two corresponding sets of contacts connected with the coil-sections, all arranged as set forth, so that coils will be simultaneously thrown out of circuit on both cores, and a magnet energized by the current of the machine, and having a movable core connected with the shaft supporting the arms, as and for the purpose described.

2. The combination, with base piece or support B^3, of the four series of concentric contacts, the four contact-arms electrically connected in pairs, and connections from said contacts to coil-sections on the field-magnet legs, each pair of said contact-arms serving as the electrical connection whereby current flowing in the coils on one field-magnet leg finds circuit to the coils on another field-magnet leg, as and for the purpose described.

3. The combination, in a dynamo-machine regulator, of the block B^3, contacts a' a^2 a^3 a^4, arranged concentrically, two double circuit-closers each adapted to complete the circuit between two sets of contacts, and the coils connected with said contacts but insulated from one another, and sectional field-magnet coils connected with the contacts, as and for the purpose described.

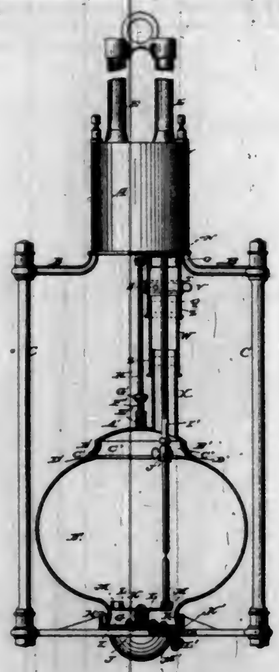
4. The combination, with the sectional field-magnet coil and a circuit-controller for determining the number of sections that shall be in circuit, of a series of binding posts and a suitable support therefor carried by the cross-piece B and ranged parallel with the field-magnet.

5. The combination, with the sectional field-magnet coil, of the circuit-controller having contact-arms mounted on a common shaft, and arranged to move in the arc of a circle over suitable contacts, and a magnet in the main circuit of the machine mechanically connected with said shaft, as and for the purpose described.

311,142. VOLTAIC-ARC LAMP. WILLIAM P. PATTON, Harrisburg, Pa., assignor of one-half to W. E. Machlin, same place. Filed May 19, 1884. (No model.)

Claim.—1. In an electric lamp, the combination of a feed-case, a supporting-frame suitably connected to the same, a globe suitably mounted in the said supporting-frame, an air-tight cover for the said globe provided with a socket upon its upper convex side, a rod pivoted to the under side of the feed-case and having at its lower end a nut, the shank of which is adapted to work or slide in the socket of the air-tight cover, and a telescopic tube connecting the said air-tight cover with a flange upon the under side of the feed-box, substantially as set forth.

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2. In an electric lamp, the combination, with a feed-case, the supporting-frame attached thereto, and a globe mounted in the said supporting-frame, of an air-tight cover for the said globe, a telescopic tube connecting the said air-tight cover with a flange upon the under side of the feed-case, the upper section of the said cylinder or telescopic jointed tube being provided with a perforation, as shown, an adjustable gate for the said perforation, and means for admitting regulated quantities of air into the bottom of the globe, substantially as set forth.

3. In an electric lamp, the combination, with a feed-case, of a frame attached to the same and supporting a globe, an air-tight cover for the latter, a central pivoted rod attached to the under side of the feed-case and connected detachably with the center of the air-tight cover of the globe, and an eccentrically-arranged telescopic tube connecting the said air-tight cover with the under side of the feed-case, substantially as set forth.

4. In an electric lamp, the combination, with the feed-case having an eccentrically-arranged downwardly-projecting flange or collar, of a tube mounted detachably upon the said collar and provided with an air-admission opening and a regulating-gate, additional tubes telescoping within the said detachable tube, a globe-cover connected permanently and eccentrically to the lowermost tube, and a suitably-arranged globe, substantially as herein set forth.

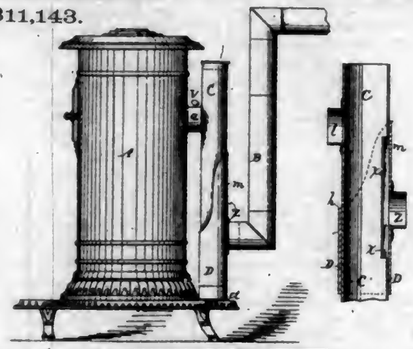
5. In an electric lamp, the combination of a suitable feed-case, the frame attached to the same, a flanged disk arranged upon the lower frame-bar, a flexible packing-disk arranged upon the said plate, a grooved or flattened feed-screw extending through the said plate and packing-disk, a flanged globe mounted upon the latter, an air-tight cover for the said globe, a central rod pivoted to the under side of the feed-case, and having a nut whereby the said cover may be tightened against the upper side of the globe, and a telescopic tube connected detachably to the under side of the feed-case, and having its lower section connected eccentrically to the air-tight cover of the globe, the upper section of the said telescopic tube being provided with an air-inlet and mechanism for regulating the admission of air, substantially as herein described, for the purpose set forth.

311,143. STOVE-PIPE. HENRY M. PICKERING, Holliston, Mass. Filed May 10, 1884. (No model.)

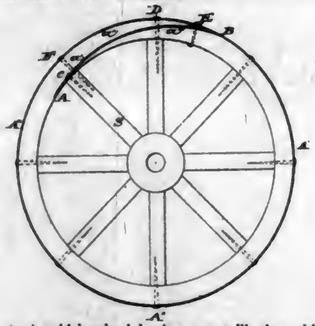
Claim.—1. The pipe C, provided with the pipe-collar *l* and slot *x*, and the sleeve D, provided with the pipe-collar *z* and flange *m*, constructed, combined, and arranged to operate substantially as set forth.

2. The stove A, having the pipe C, provided with the slot *x*, in combination with a sleeve carrying a pipe-collar and adapted to be adjusted vertically on said pipe, substantially as and for the purpose specified.

311,143.



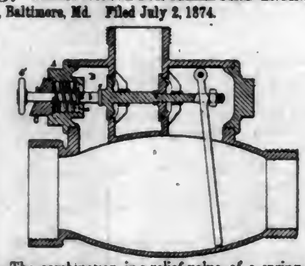
311,144. VEHICLE-WHEEL. FORREST M. PRIESTLEY, Grand Rapids, Mich. Filed June 2, 1884. (No model.)



Claim.—1. A vehicle-wheel having a metallic tire, with one end of the same or other strip of metal inserted between the two halves of the lap *a' a'' a'''*, substantially as shown.

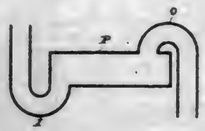
2. In a vehicle-wheel, the combination of the metallic tire or other strip of metal and the felly, the metallic tire or other strip of metal being inserted between the lapped ends of the felly, and all fastened together and to the spokes, substantially as described.

311,145. RELIEF-VALVE FOR STEAM FIRE-ENGINES. JOHN E. PRUNTY, Baltimore, Md. Filed July 2, 1874.



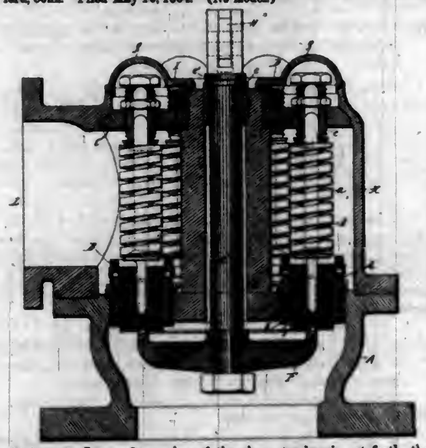
Claim.—The combination, in a relief-valve, of a spring with double puppet-valves, suction and relief pipe, and vibrating ring, said spring being adjusted to prevent air passing the valves until water has been obtained, substantially as set forth.

311,146. WATER-TRAP. J. PICKERING PUTNAM, Boston, Mass. Filed Nov. 2, 1883. (No model.)



Claim.—A trap having between the dip and overflow thereof a chamber long in horizontal measurement, but in cross-section only a little exceeding in measurement the measurement of a cross-section of the part or passage containing the dip at or near its entrance to said chamber, the dip and overflow communicating with the said chamber at positions remote from each other, the former at the bottom and the latter at the top, substantially as described.

311,147. MULTIPLEX SAFETY-VALVE. GEORGE W. RICHARDSON, Boston, Mass., assignor to the Consolidated Safety Valve Company, Hartford, Conn. Filed May 16, 1884. (No model.)



Claim.—1. In a safety-valve of the character herein set forth, the combination, with the series of independently-operating valves, of a spider and a lever connected therewith for the purpose of lifting all the valves simultaneously, substantially as shown and described.

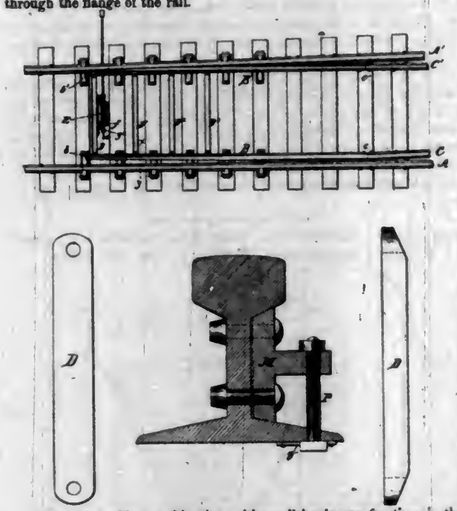
2. The base-piece carrying the seats for the series of valves, the hollow standard erected upon said base-piece, the spider for lifting the valves, and the rod passing through said standard and packed therein, combined and arranged substantially as shown and described.

3. In combination with the series of independently-operating valves and their stems arranged around a central standard, the tension-screws located in a plate rigidly connected with the plate containing the valve-seats, substantially as and for the purposes set forth.

4. The herein-described safety-valve, composed of the base, the series of independent valves, the springs, stems, and adjusting-screws, the shell provided with the outlet, and the cap-plate, combined and arranged substantially as shown, and for the purposes explained.

311,148. TIE OR CONNECTING BAR FOR RAILROAD-SWITCHES. JOHN T. RICHARDSON, Harrisburg, assignor to himself, and Alexander H. Ege, Mechanicsburg, Pa. Filed Jan. 15, 1884. (No model.)

Brief.—A continuous plain tie-bar is joined to the projecting limb of the T-rail by a bolt passing through perforations in said projection and through the flange of the rail.



Claim.—1. The combination, with a rail having perforations in the lower inside flange, of a bearing-plate secured to the web of the rail, having a perforated projection or lug, and bolts or pins passing through the perforations and adapted to secure the connecting-rods, as set forth.

2. The combination, with the moving rails of a switch, of continuous T-shaped strengthening-bearings adapted to be secured to the webs of the rails, the said bearings being connected by a series of continuous plain tie-bars joined to the laterally-projecting limb of the T-rail upon one side thereof only, substantially as described.

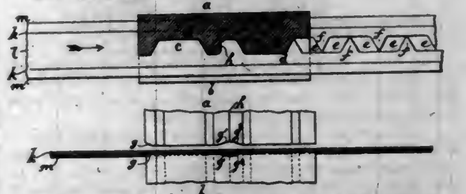
311,149. CHIMNEY FOR DWELLING-HOUSES. WILLIAM E. STEVENS, San Francisco, Cal. Filed Mar. 12, 1884. (No model.)



Claim.—1. A chimney composed of the outside casing, A, tile-sections B, with the projections C near their upper ends, the bands D, and the annular filled orifices inside of the band D, all constructed and arranged substantially as herein described.

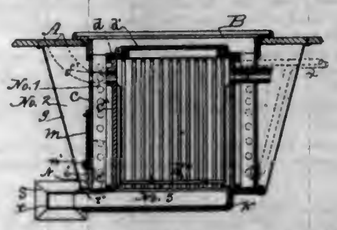
2. The combination, in a chimney of the outside metallic case, A, and metal band D, with the tile-sections, having the projections C near their upper ends, all combined and arranged substantially as herein set forth.

311,150. DIE FOR MAKING BARBED FENCING. AMSON P. THAYER, Brooklyn, N. Y., assignor to Thomas W. Hall, same place. Filed Nov. 30 1883. (No model.)



Claim.—Dies for simultaneously slitting a double blank strip apart and forming two barbed rods therefrom, consisting of two dies, *a b*, each having a conversely-arranged taper or bevel-sided rib, *c*, and groove *d* as wide as the distance between the barbs to be made on the separate rods, and located the width of two barbs, *f*, and one waste piece, *e*, apart in the double blank strip, with an offset, *h*, between the ribs and grooves, and the curved edges *g g'*, forming convex faces of the first ribbed and grooved portion of the dies to which the blank strips are fed, substantially as described.

311,151. APPARATUS FOR HEATING STREET-CARS AND OTHER VEHICLES. JOHN E. THOROUGHGOOD, Des Moines, Iowa, assignor, by direct and mesne assignments, of three-fourths to Jackson Wishart, same place, and I. W. Johnson, Osceola, Iowa. Filed Jan. 18, 1884. (No model.)



Claim.—1. The combination of the square metal frame B, the four metal sides C, having flanges at their edges, the bottom or furnace-support C', the furnace-sides C'', having continuous flanges extending outward from their edges, and vertical corrugations on their inside faces, the fixed top *d*, the hinged cover *d'*, and the plate K, adapted to form a chamber under the grate, substantially as and for the purposes specified.

2. A sliding drawer having blowers S S and a chamber at its front end, in combination with a furnace suspended from a car-floor, and provided with a chamber under the furnace-grate adapted to receive the sliding drawer, for the purposes set forth.

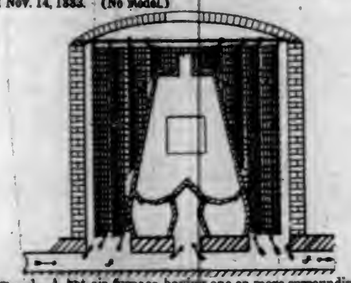
3. The drawer R R', having a slot, R'', and the slide M, in combination with the box C C' and furnace-bottom K, to operate in the manner set forth, for the purposes specified.

4. A car-heating apparatus composed of the following elements, to wit: a box suspended from the floor of a car and provided with a register at its top, a covered furnace inclosed in the suspended box to produce a concentric chamber adapted to inclose a portion of a continuous tube, a case surrounding the suspended box, to produce a concentric cold-air chamber outside of the box, a slide or register for admitting air under and within the furnace, a blower for forcing cold air to the furnace-fire when the car is in motion, and a steam-generating and heat-distributing

tube partially coiled around the furnace and within the suspended box and partially within the car, to operate in the manner set forth.

5. In a car-heating apparatus, the combination of a box pendent from the floor of a car and enveloped by a cold-air chamber by means of a case, a furnace inclosed within the pendent box, and a steam-generating and heat-radiating tube partially coiled around the furnace and within the pendent box, to heat cold air and discharge it into the car, and also to radiate heat within the car, for the purpose of maintaining pure warm air and even temperature within the car.

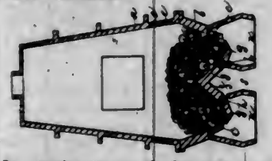
311,152. HOT-AIR FURNACE. EDWARD A. TUTTLE, New York, N. Y. Filed Nov. 14, 1883. (No model.)



Claim.—1. A hot-air furnace having one or more surrounding jackets or webs of woven wire arranged within the wall inclosing the air-space parallel to the furnace-shell and inclosing-walls, to intercept the heat-rays and heat the air, substantially as described.

2. In a hot-air furnace having a series of surrounding jackets of woven wire arranged within the inclosing-wall, one or more of said jackets suspended above the sides of the furnace, with a free space, *d*, between the furnace and the lower end or ends of the jacket or jackets, for the free passage of air under and into the said jacket or jackets, substantially as described.

311,153. HOT-AIR FURNACE. EDWARD A. TUTTLE, New York, N. Y. Filed Nov. 14, 1883. (No model.)

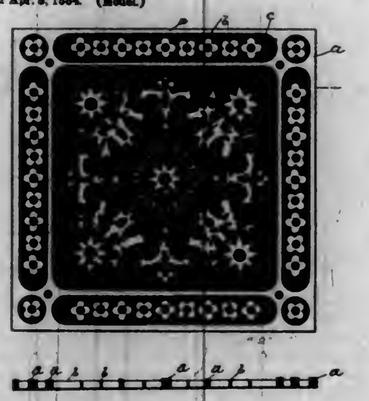


Claim.—1. In a heating-furnace, the fire-grate *c*, arranged along and projecting inward from the side of the fire-box, in combination with the door *g*, below or inside of the fire-grate, and the sloping bottom *f* of the fire-box back of the door, substantially as described.

2. In a heating-furnace, the fire-grates *c*, arranged along and projecting inward from the opposite sides of the fire-box, in combination with a door, *g*, below or inside of each grate, and with the inverted-V-shaped bottom *f*, arranged between said grates and doors, substantially as described.

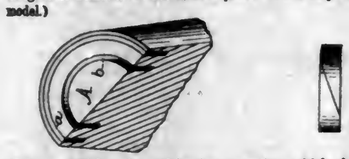
3. In one and the same fire box or chamber, two separate fire-grates separated by the A-shaped imperforate bottom, substantially as described.

311,154. REGISTER-FRONT. SILAS TUTTLE, Jr., Brooklyn, N. Y. Filed Apr. 3, 1884. (Model.)



Claim.—A register-front of fret-work, constructed with an ornamental design in relief on a subordinated dead-finished or equivalent depressed frame-work supporting the same, substantially as described.

311,155. WOODEN MALLET, &c. OSCAR E. WAIT, Springfield, Vt., assignor to Philetus W. Gould, same place. Filed July 31, 1883. (No model.)



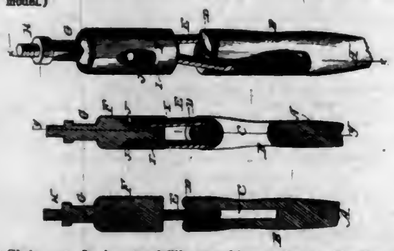
Claim.—Articles of wood having a surface which shows the end of the grain, with a non-metallic splint or splints glued or cemented into a groove or grooves therein, said splints being formed with beveled ends lapped one over the other, so that the seam stands transversely to the grain of the wood in which the ring is embedded, substantially as described, and for the purpose specified.

311,156. MANUFACTURE OF ARTIFICIAL-STONE COMPOSITIONS. C. IRVINE WALKER, Charleston, S. C., assignor to the Stoney Landing Company, same place. Filed Oct. 27, 1884. (No specimens.)

Brief.—Improvement on the invention in Letters Patent No. 283,358, dated August 14, 1883.

Claim.—The mode herein described of making an artificial-stone composition, said mode consisting in grinding lime and silica to powder, intimately mixing the two, slaking the lime, and adding sand or gravel, as set forth.

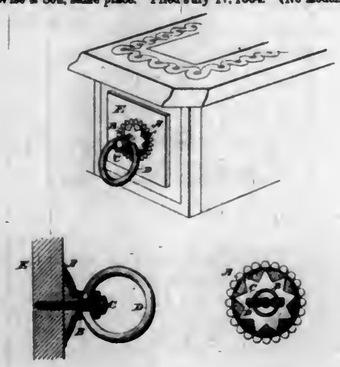
311,157. ROPE DRILL-JAR. LAMBERT WHEELER, Allentown, N. Y. assignor to Lizzie Wheeler, same place. Filed Sept. 2, 1884. (No model.)



Claim.—1. In jars for drilling machinery, the combination of the drill-stem provided at its upper end with a handle having a vertical slot, from the upper end of which grooves extend to the upper end of the handle, with the jar or box having a screw-threaded stem, and provided with inclined perforations extending from its lower end upward to its sides, substantially as and for the purpose set forth.

2. In jars for drilling machinery, the combination of the drill-stem handle having a vertical slot rounded at its upper end, and grooves extending from the same to the top of the handle, the jar-box having inclined perforations extending from its lower end to its sides, and terminating in enlargements, and the rope-bight extending through the slot in the handle, and having its ends passed through the perforations in the box and made fast by knotting, substantially as and for the purpose set forth.

311,158. DRAWER-PULL. JOSEPH WISE, Watertown, N. Y., assignor to J. Wise & Son, same place. Filed July 17, 1884. (No model.)

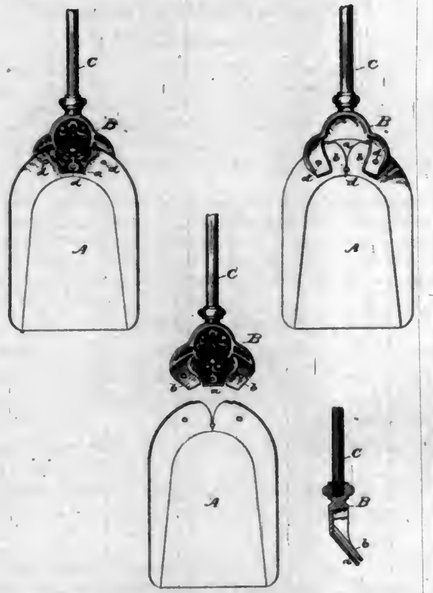


Claim.—In a drawer-pull, the combination of the hollow base or escutcheon and head made in one piece, a fastening-screw passing centrally through the same and taking into the wood of the drawer, whereby the elasticity of the continuous base and head bearing against the drawer and the head of the screw prevents the latter from turning, and a ring or handle sprung into holes in said head, substantially as described.

311,159. METHOD OF REMOVING SILICON FROM WROUGHT-IRON. W. A. OTTO WUTH, Pittsburg, Pa. Filed June 2, 1884. (No specimens.)

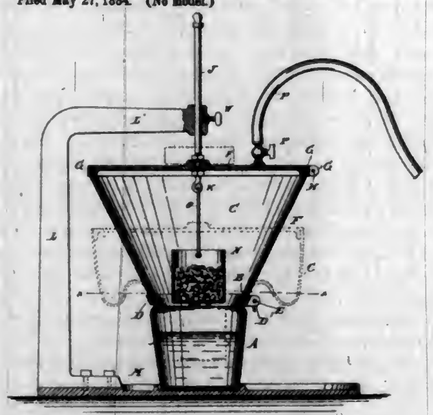
Claim.—The improved method of removing silicate of iron from wrought-iron, which consists in passing the heated ball as it comes from the furnace through the squeezer, then reheating, and finally hammering it, substantially as described.

311,160. FIRE-SHOVEL. CHARLES M. BURGESS, New Britain, Conn., assignor to the Russell & Erwin Manufacturing Company, same place. Filed Sept. 17, 1884. (No model.)

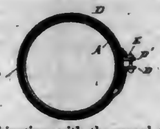


Claim.—The herein-described handle-connection for fire-shovels and analogous pans, consisting of the cross-head, the central lug, *a*, and the two side lugs, *b b*, depending from said cross-head and spaced between their confronting edges, so as not to overlap each other at any part, substantially as described, and for the purpose specified.

311,161. GAS-GENERATOR. FREDERICK CLAUSS, Elizabeth, N. J. Filed May 27, 1884. (No model.)



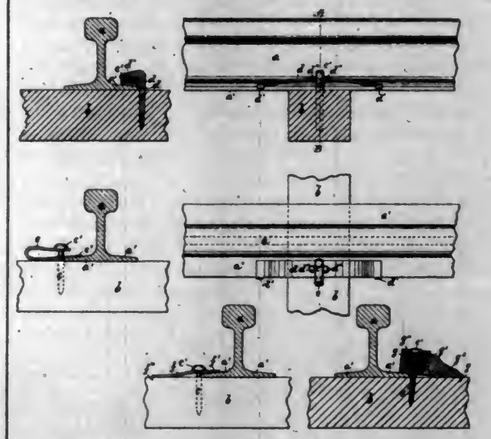
311,161.



Claim.—The combination, with the vessel A, having a neck, B, of the flexible cone-shaped extension C, clamped on the neck B by a ring, D, the cover F, held in the top of the flexible funnel-shaped extension C, the ring G, clamping the top of the flexible funnel-shaped extension C on the cover F, the rod J, the hook G, the vessel N, suspended from the cover F, and the outlet-tube P, substantially as herein shown and described.

311,162. RAIL-FASTENING DEVICE. BERNARD GALLAGHER, Lynn, Mass. Filed Feb. 9, 1884. Renewed Dec. 30, 1884. (No model.)

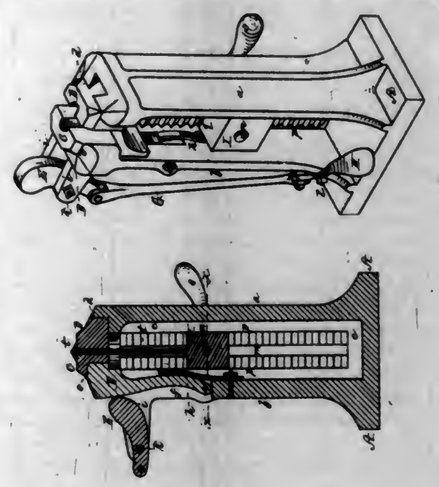
Brief.—A spring or yielding substance is interposed between the spike-head and the rail-base to take the vibration or jar, and thereby prevent the drawing of the spikes.



Claim.—The herein-described device for securing rails to their sleepers, consisting in interposing between the rail-flange *a'* and the head *c'* of the spike *c* an elastic spring or other elastic medium, for the purpose as herein set forth.

311,163. WITHDRAWN.

311,164. BOLT-HEADING MACHINE. LYMAN P. LEWIS, Charlestown, and EDWIN M. SCOTT, Everett, Mass. Filed Feb. 9, 1884. (No model.)



Claim.—A stationary die located in the top of the standard *a*, a movable die in an arm or jaw, D, pivoted to the standard *b*, and pressed outwardly by a spring, *h*, a cam-lever, E, also pivoted to the standard *b* at the back of the arm or jaw D, and a treadle, H, connected with the cam-lever E, for moving said arm or jaw D inwardly, the parts being combined, constructed, and arranged substantially as described.

PHOTO-LITH NORRIS PETERS WASHINGTON D.C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

DRAWBAUGH *v.* BLAKE *v.* EDISON.

Decided January 8, 1885.

1. The Secretary having reversed the decision of the Commissioner, and the latter having acquiesced and directed that the case should proceed in conformity with the decision of the Secretary, *Held* that the Commissioner had thereby so ratified and adopted the ruling of the Secretary as to interpose a valid objection to the Commissioner subsequently treating it as a nullity.
2. Although the claims are couched in such language that they do not in terms conflict, yet if the devices or inventions claimed do in fact conflict, an interference should be declared. The question is whether both parties do in fact claim the same invention, not whether the conflict appears in terms in the claims. Rule laid down in *ex parte* Upton approved.

SPEAKING-TELEPHONES.

Application of Daniel Drawbaugh filed May 11, 1882. Patent No. 250,126 granted Francis Blake, November 29, 1881. Patent No. 203,013 granted Thomas A. Edison, April 30, 1878.

Mr. P. Benjamin, *Mr. L. Hill*, and *Mr. M. Church* for Drawbaugh.

Messrs. Howson & Son and *Mr. W. W. Swan* for Blake.

Hon. Roscoe Conkling and *Mr. L. W. Serrell* for Edison.

BUTTERWORTH, *Commissioner:*

This case comes to me on a petition filed on behalf of Thomas A. Edison, by his counsel, with a view to determining definitely and fixing the status of an interference heretofore declared between Drawbaugh, Edison, and Blake, the subject-matter of the interference being the combination, in a telephone, of a metallic diaphragm and an elastic pad or muffler. The record in the Office discloses that Letters Patent No. 203,013, bearing date April 30, 1878, were granted to Edison for an improvement in speaking-telephones; that subsequently—to wit, the 11th of May, 1882—Drawbaugh filed an application for letters patent for certain improvements in speaking-telephones; that thereafter the application of the said Drawbaugh was put in interference with Letters Patent No. 250,126, granted to Francis Blake, November 29, 1881; that on the 14th day of April, 1883, the patent of Edison, aforesaid, was added to the interference, the issue embraced in the declaration of interference remaining the same; that on the 28th of April, 1883, Drawbaugh moved to dissolve the interference on the ground that there was no conflict of claim between his application and either of the patents mentioned; that this motion was heard by the Commissioner of Patents in person, and on the 7th day of August, 1883, a decision was rendered by him continuing the interference between Drawbaugh and the patent of Blake, but dissolving it as to the patent of Edison; that from the decision of the Commissioner, Mr. Marble, Drawbaugh appealed to the Secretary of the Interior, or from so much thereof as continued the interference with reference to the patent of Blake, and Edison appealed to the honorable Secretary from so much of the decision as dissolved the interference as to his said patent; that the whole case and all the parties were thus brought before the honorable Secretary; that the case was heard by the honorable Secretary, who, on the 4th of February, 1884, rendered a decision affirming that of the Commissioner continuing the interference between Drawbaugh and Blake, and reversing his decision dissolving the interference between Edison and Drawbaugh. The decision of the honorable Secretary is in the following words, viz:

"I have considered the appeals of Daniel Drawbaugh and Thomas A. Edison from the decision of your predecessor in the case of *Drawbaugh* v. *Blake* v. *Edison*. The subject-matter in controversy is the combination, in a telephone, of a metallic diaphragm and an elastic pad or muffler. An interference was duly declared between an application of Drawbaugh, filed May 11, 1882, and a patent issued to Francis Blake, November 29, 1881. Afterward upon a petition on behalf of Edison a patent granted to him April 30, 1878, was also included in the interference. Drawbaugh moved a dissolution of the interference upon the ground that the claims involved are not for the same patentable invention, and upon appeal to the Commissioner he held in a decision, dated August 7, 1883, that the interference should continue as between Drawbaugh and Blake, but that Edison's patent should be excluded therefrom. From this action the present appeals are taken on behalf of both Drawbaugh and Edison. There are immaterial differences in the forms of the devices claimed by the respective parties; but they are intended to perform the same function in the same way to accomplish the same result. In my judgment, the claims of the patent and of the applicant, properly construed, embrace the same invention, in substance, and you will therefore cause the interference to proceed to determine the question of priority as between the patents of Blake and Edison and the application of Drawbaugh. The papers belonging to the files of your Office are herewith returned."

The decision of the honorable Secretary was transmitted to the present Commissioner of Patents, who forwarded the same to the Examiner of Interferences with the following indorsement: This decision is referred to the Examiner of Interferences.

BENJ. BUTTERWORTH,
Commissioner.

February 6, 1884.

Thereupon notice was given to the parties to proceed with the interference.

It appears that at that time there was pending in the United States Circuit Court for the Southern District of New York a suit between the Bell Telephone Company and the People's Telephone Company which involved questions of interest to both parties to this interference, and they desired to wait the hearing and determination of that case before proceeding with the interference under consideration. They thereupon entered into a stipulation postponing the times for taking testimony until a decision was rendered in said case. Said stipulation provided that immediately after such decision either party might proceed to take testimony upon ten days' notice. Before the case pending as aforesaid in the United States Circuit Court for the Southern District of New York was decided, the case of

U. S. ex rel. R. Hoe & Co. and George C. Gill v. *Benjamin Butterworth, Commissioner of Patents*, which had been appealed from the Supreme Court of the District of Columbia to the Supreme Court of the United States, was decided by the latter tribunal, wherein it was held—the point having been expressly made—that the Secretary of the Interior has not the jurisdiction to review the decisions of the Commissioner of Patents. (See 29 O. G., 615.)

It occurs now that counsel for Drawbaugh desire that the decision of the Secretary of the Interior, in which the decision of Mr. Commissioner Marble was reversed and the interference between Drawbaugh and Blake continued, should be treated as a nullity and the decision of the Commissioner allowed to stand as the judgment of the Office, and that the interference between Drawbaugh and Edison shall stand dissolved; while, on the other hand, counsel for Blake and Edison contend that under the circumstances and in conformity to well-settled legal principles the decision of the honorable Secretary shall not be disturbed. In order to determine the question and fix the status of the several parties to the pending interference the petition now under consideration was filed.

When the case came on to be heard, counsel for Drawbaugh filed a motion asking the Commissioner to dismiss the petition of Edison and Blake for want of jurisdiction in the Commissioner to hear and determine the questions presented by said petition. That motion is overruled.

Several questions arise in this case. It is clear that under the decision of the Supreme Court of the United States above referred to the Secretary of the Interior had not the legal authority to sit as a court of review to revise the decisions of the Commissioner of Patents, nor the legal authority under the statute to revise the decision of the Commissioner in the case under consideration. Admitting this to be true as an abstract legal proposition, it does not follow that the decision of the honorable Secretary shall be treated as a nullity, and that the case shall stand as if no appeal had been taken, since there are other considerations which must have due weight in determining the questions presented. So far as appears all the parties to this interference were of opinion that the Secretary of the Interior *did* have the jurisdiction to revise the decisions of the Commissioner of Patents, the exercise of which they each and all invoked by the appeal. (*That* jurisdiction was not only invoked voluntarily by them and each of them, but was exercised after a full hearing by counsel. When the decision was rendered and forwarded to the Commissioner of Patents, coupled with a mandate to proceed with the interference in accordance with the terms of the decision, no exception was taken by either party, but was acquiesced in by all. As before suggested, the Commissioner upon the receipt of the decision of the Secretary of the Interior forwarded the same without note or comment to the Examiner of Interferences for his guidance and direction in hearing the interference then pending before him. The said Examiner gave notice, as disclosed by the record, to the parties to proceed to take testimony. No objection was made by them. It is fairly presumed that rights have intervened and interests changed hands in the meantime. In view of the facts which have been recited, counsel for Blake and Edison, as before stated, insist that the present status shall not be disturbed; that not only has there been a full acquiescence in what has been done, but that sound public policy requires in this and in like cases, where an officer has exercised jurisdiction *de facto* though not *de jure*, and especially when, as in this case, the parties conceded the officer to have jurisdiction, and, in fact, invoked its exercise, the decision rendered should stand. Without discussing the legal proposition in the abstract, I am clear that in the exercise of the authority vested in the Commissioner of Patents it is perfectly competent for him to adopt the decisions of the Secretary of the Interior rendered in the several cases appealed to him and direct that all further proceedings in such cases shall conform thereto. The record of the Office discloses that for a number of years the Secretary of the Interior has exercised the jurisdiction which was called in question in the case of *Gill* v. *Scott*, and an opinion of the Attorney-General of the United States sustained that jurisdiction, and ever since its exercise has been generally acquiesced in, and scores of cases of great importance and involving valuable interests have been in the exercise of that jurisdiction disposed of by the honorable Secretary.

Since the decision of the Supreme Court of the United States referred to a number of parties who had prosecuted appeals to the honorable Secretary and were disappointed in the result have moved to open up the cases before the Commissioner with a view to having the decision of the former treated as an absolute nullity. A number of petitions have been filed looking to that end, the object being to treat the appeal and everything done in pursuance thereof as utterly void, and asking that the cases proceed in all respects as if no action in that behalf had been taken.

It is not difficult to see the result of granting the prayer of these several petitions. It would disturb vested interests and open up controversies and litigations which have been determined and decisions made in that behalf acquiesced in. If the finding of the Commissioner in this case were a finality, and the interests of all the parties to this interference were to be definitely determined, I would still be slow to consent to reopen the case or disturb the condition of things resulting from the action of the honorable Secretary.

Touching the question as to whether the Commissioner has by his indorsement upon the decision of the honorable Secretary consented to or ratified the judgment entered by the latter, I submit that if it were necessary in order to secure an end to litigation, and to avoid the vexatious consequences which would result from reopening a large number of cases heretofore determined by the honorable Secretary in the exercise of what was supposed to be his rightful jurisdiction, I should have no difficulty in holding that the failure on the part of the Commissioner to object to the overruling of his decision, and his acquiescence in the order entered in that behalf, as evidenced by his allowing the proceedings in interference to go forward under and by his authority as the head of the bureau, was such an adoption and ratification of the ruling of the honorable Secretary as to interpose a valid objection to the Commissioner's subsequently treating it as a nullity.

I do not deem it necessary to go into the merits of this case further than I have. I will not now express an opinion as to whether the interference was properly declared. While I have very decided views upon that point they are not necessary o a determination of this case. I may say that if the interference between Drawbaugh and Edison were dissolved merely because the claims were so drawn that they did not in terms interfere—that is, if they were couched in such language that they did not *in terms* while they did *in fact* interfere so far as the device claimed was concerned—I would, if the case were before me on that point, hold without hesitation that the decision dissolving the interference was erroneous. I have no doubt about the correctness of the rule laid down in *ex parte* Upton, (27 O. G., 99.) It is the *substance* of things and not the *shadow* with which we deal, so that where there is an actual conflict, whether the language in which the claims are drawn discloses the fact or not, there should be an interference. I do not, however, decide whether that was the case here or not. It is sufficient to say that I shall in no instance disturb the judgment of the honorable Secretary in cases like the present.

It is suggested by counsel for Drawbaugh that my action in this behalf is not consistent with the determination of the motion in the case of *Gill* v. *Scott*, in which counsel for Scott sought a rehearing. I think counsel is in error in his conclusion. Counsel assumes that the decision of the honorable Secretary has been set aside and that I am now considering the question merely as to whether I will overrule the decision of a former Commissioner. The case is not presented in that shape, nor do I pass upon that question. I shall adhere to the rule which provides that decisions made by a former Commissioner will not be disturbed by his successor except in conformity to the rules governing the granting of new trials. In this case the decision of the honorable Secretary will be treated as if rendered by the Commissioner, and all proceedings in the matter of the interference will conform to the terms of said decision. In other words, the Office adopts the judgment as it finds it and the situation as it is, and all proceedings will be had in conformity thereto.

DECISIONS OF THE U. S. COURTS.

Supreme Court of the United States.

BIRDSELL *et al.* v. SHALIOL *et al.*

Decided December 8, 1884.

Judgment for and payment of nominal damages upon a bill in equity by a patentee without joining his licensee against one who has made and sold a machine in violation of the patent are no bar to a bill in equity by the patentee and licensee together, for the benefit of the licensee, against another person who afterward uses the same machine.

APPEAL from the Circuit Court of the United States for the Northern District of Ohio.

Mr. Justice GRAY delivered the opinion of the Court.

This was a bill in equity for an injunction and damages for the infringement of a patent for an improvement in machines for thrashing and hulling clover-seed. The answer set up a former decree as an estoppel. The case was heard in the circuit court upon a statement of facts agreed upon by the parties, by which it appeared to be as follows:

Birdsell was the inventor and patentee of the improvement, and granted to the Birdsell Manufacturing Company, a corporation of which he was the president and active manager, and owner of a large part of the stock, an exclusive oral license to make, vend, and use his invention, but did not give it authority to license others to make, vend, and use. The corporation paid him no royalty, but set apart a sinking fund to defray the expense of defending the patent in the courts. A former suit in equity was brought by Birdsell against the Ashland Machine Company for an infringement of his patent by making and selling large numbers of machines. The Birdsell Manufacturing Company was not made a party to that suit, but participated in instituting it and carrying it on till its close. In that suit a perpetual injunction was decreed and the case was referred to a master, before whom damages sustained by the Birdsell Manufacturing Company were proved and claimed, and who reported that the defendant had made no profits for which it should account, and that if any damages had been sustained they had been sustained by the Birdsell Manufacturing Company, a stranger to the suit, and that Birdsell, the plaintiff, was entitled to recover only one dollar as nominal damages. The Ashland Machine Company afterward, pending that suit, became insolvent, and a decree was rendered in Birdsell's favor according to the master's report for nominal damages and for costs, which were paid by that company. The present suit was brought by Birdsell and the Birdsell Manufacturing Company against Gerhart Shaliol and John Feikert, who had used one of the machines manufactured by the Ashland Machine Company and embraced in the master's report in the suit against that company. The circuit court held that in the former suit the Birdsell Manufacturing Company, although not named as a party plaintiff in the bill, was in reality a co-plaintiff with Birdsell, and that by the final decree in that suit and the recovery and payment of nominal damages Birdsell and the Birdsell Manufacturing Company were estopped to maintain the present bill, and therefore dismissed the bill, with costs. The plaintiffs appealed to this Court.

The plaintiffs in the present suit—Birdsell, the patentee, in whom is the legal title, and the Birdsell Manufacturing Company, his licensee, in whom is the beneficial interest—make three objections to the decree set up by way of estoppel: 1. That the Birdsell Manufacturing Company was not a party. 2. That the present defendants were not parties. 3. That only nominal damages were recovered and paid.

1. A licensee of a patent cannot bring a suit in his own name at law or in equity for its infringement by a stranger. An action at law for the benefit of the licensee must be brought in the name of the patentee alone. A suit in equity may be brought by the patentee and the licensee together. *Gayler* v. *Wilder*, 10 How., 477, 495; *Littlefield* v. *Perry*, 21 Wall., 205, 223; *Paper Bag Cases*, 105 U. S., 766, 771. In a suit in equity brought by the patentee alone, if the defendant seasonably objected to the non-joinder of the licensee, the court might, as Judge Lowell did in *Hammond* v. *Hunt*, (4 Banning & Arden, 111,) order him to be joined. But when a suit in equity has been brought and prosecuted in the name of the patentee alone, with the licensee's consent and concurrence, to final judgment from which, if for too small a sum, an appeal might have been taken in the

name of the patentee, we should hesitate to say that the licensee, merely because he was not a formal plaintiff in that suit, could bring a new suit to recover damages against the same defendant for the same infringement.

2. It is a more serious question whether a decree in favor of the patentee, upon a bill in equity against one person for making and selling a patented machine, is a bar to a subsequent suit by the patentee against another person for afterward using the same machine within the term of the patent. A license from the patentee to make, use, and sell machines gives the licensee the right to do so, within the scope of the license, throughout the term of the patent, and has the same effect upon machines sold by the licensee under authority of his license that a sale by the patentee has upon machines sold by himself, of wholly releasing them from the monopoly and discharging all claim of the patentee for their use by anybody, because such is the effect of the patentee's voluntary act of licensing or selling in consideration of the sum paid him for the license or sale. *Adams* v. *Burke*, 17 Wall., 453. But an infringer does not, by paying damages for making and using a machine in infringement of a patent, acquire any right himself to the future use of the machine. On the contrary, he may, in addition to the payment of damages for past infringement, be restrained by injunction from further use, and when the whole machine is an infringement of the patent be ordered to deliver it up to be destroyed. *Suffolk Co.* v. *Hayden*, 3 Wall., 315, 320; *Root* v. *Railway Co.*, 105 U. S., 189, 198; *Needham* v. *Oxley*, 8 Law Times, (N. S.,) 604; C. S., 2 New Rep. Eq. & Com. Law, 388; *Frearson* v. *Loe*, 9 Ch. D., 48, 67. No more does one who pays damages for selling a machine in infringement of a patent acquire for himself or his vendee any right to use that machine. In the case of a license or a sale by the patentee the rights of the licensee or the vendee arise out of contract with him. In the case of infringement, the liability of infringers arises out of their own wrongful invasion of his rights. The recovery and satisfaction of a judgment for damages against one wrong-doer do not ordinarily confer upon him or upon others the right to continue or repeat the wrong. This view is in accord with the judgment of Vice-Chancellor Wood (afterward Lord Chancellor Hatherley) in two suits brought by a patentee, the one against the manufacturer and the other against the user, where the plaintiff asked for an injunction against each—for an account against the manufacturer and for damages against the user—and declined to accept an offer of the user to pay him the like royalties that other persons paid. It was argued in behalf of the user that the patentee was not entitled to damages against him as well as to an account against the manufacturer, and could not have an account against the seller without adopting the sale, and if he adopted the sale had no right to get anything from the purchaser. But the vice-chancellor held that the plaintiff was entitled to an injunction, to an account, or, upon his waiving that, to damages against the manufacturer, and also to damages against the user, and said:

> With regard to the damages, it has never, I think, been held in this court that an account directed against a manufacturer of a patented article licenses the use of that article in the hands of all the purchasers. The patent is a continuing patent, and I do not see why the article should not be followed in every man's hand until the infringement is got rid of. So long as the article is used there is continuing damage. As to the royalties, I cannot compel the plaintiff to accept the same royalty from these defendants as he receives from others. I cannot in the decree do less than give the plaintiff his full right, and I cannot bargain for him what he may choose or may not choose to do. (*Penn* v. *Bibby*, L. R., 3 Eq., 308; S. C., 15 Weekly Reporter, 192.)

3. If one person is in any case exempt from being sued for damages for using the same machine for the making and selling of which damages have been recovered against and paid by another person, it can only be when actual damages have been paid, and upon the theory that the plaintiff has been deprived of the same property by the acts of two wrong-doers, and has received full compensation from one of them. In that view the case of the patentee, whose right of property under his patent had been invaded, would be analogous to that of one from whom personal property had been taken. But, according to the law of England, as well as of America, the owner of a chattel, which others have taken from him and converted to their own use, is not deprived of his property therein by recovering judgment for damages against any or all of them, without actual satisfaction by somebody. By the law of England, indeed, as declared by its courts upon technical grounds, the owner of a chattel, who has recovered judgment for its value in trover against one of two joint tort-feasors, cannot, although that judgment remains unsatisfied, bring a like action against the other for the same cause. But even by that law such a judgment against the one without satisfaction does not vest the property in the chattel in him or bar a subsequent action against the other for continuing to detain the chattel. Judges Holroyd and Littledale in *Morris* v. *Robinson*, 5 D. & R., 34, 47, 48: S. C., 3 B. & C., 196, 206, 207; *Brinsmead* v. *Harrison*, L. R., 6 C. P., 584, and L. R., 7 C. P., 547, 554; *ex parte* Drake, 5 Ch. D., 866. In *Brinsmead* v. *Harrison*, Mr. Justice Willes observed that to say that the mere obtaining judgment for nominal damages vests the property in the defendant would be an absurdity. L. R., 6 C. P., 588. By our law, judgment against one joint trespasser without full satisfaction is no bar to a suit against another for the same trespass. *Lovejoy* v. *Murray*, 3 Wall., 1. The reasons are therefore stronger, if possible, here than in England for holding that a judgment for nominal damages against one wrong-doer does not bar a suit against another for a continuance of the wrong.

The result is that, in any view of the case, the decree of the circuit court dismissing this bill was erroneous, and must be reversed.

decisions of the Commissioner of Patents. (See 20 O. G., 615.)

It occurs now that counsel for Drawbaugh desire that the decision of the Secretary of the Interior, in which the decision of Mr. Commissioner Marble was reversed and the interference between Drawbaugh and Blake continued, should be treated as a nullity and the decision of the Commissioner allowed to stand as the judgment of the Office, and that the interference between Drawbaugh and Edison shall stand dissolved; while, on the other hand, counsel for Blake and Edison contend that under the circumstances and in conformity to well-settled legal principles the decision of the honorable Secretary shall not be disturbed. In order to determine the question and fix the status of the several parties to the pending interference the petition now under consideration was filed.

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voked its exercise, the decision rendered should stand. Without discussing the legal proposition in the abstract, I am clear that in the exercise of the authority vested in the Commissioner of Patents it is perfectly competent for him to adopt the decisions of the Secretary of the Interior rendered in the several cases appealed to him and direct that all further proceedings in such cases shall conform thereto. The record of the Office discloses that for a number of years the Secretary of the Interior has exercised the jurisdiction which was called in question in the case of *Gill* v. *Scott*, and an opinion of the Attorney-General of the United States sustained that jurisdiction, and ever since its exercise has been generally acquiesced in, and scores of cases of great importance and involving valuable interests have been in the exercise of that jurisdiction disposed of by the honorable Secretary.

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Decided December 8, 1884.

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1. A licensee of a patent cannot bring a suit in his own name at law or in equity for its infringement by a stranger. An action at law for the benefit of the licensee must be brought in the name of the patentee alone. A suit in equity may be brought by the patentee and the licensee together. *Gayler* v. *Wilder*, 10 How., 477, 495; *Littlefield* v. *Perry*, 21 Wall., 205, 223; *Paper Bag Cases*, 105 U. S., 766, 771. In a suit in equity brought by the patentee alone, if the defendant seasonably objected to the non-joinder of the licensee, the court might, as Judge Lowell did in *Hammond* v. *Hunt*, (4 Banning & Arden, 111,) order him to be joined. But when a suit in equity has been brought and prosecuted in the name of the patentee alone, with the licensee's consent and concurrence, to final judgment from which, if for too small a sum, an appeal might have been taken in the

name of the patentee, we should hesitate to say that the licensee, merely because he was not a formal plaintiff in that suit, could bring a new suit to recover damages against the same defendant for the same infringement.

2. It is a more serious question whether a decree in favor of the patentee, upon a bill in equity against one person for making and selling a patented machine, is a bar to a subsequent suit by the patentee against another person for afterward using the same machine within the term of the patent. A license from the patentee to make, use, and sell machines gives the licensee the right to do so, within the scope of the license, throughout the term of the patent, and has the same effect upon machines sold by the licensee under authority of his license that a sale by the patentee has upon machines sold by himself, of wholly releasing them from the monopoly and discharging all claim of the patentee for their use by anybody, because such is the effect of the patentee's voluntary act of licensing or selling in consideration of the sum paid him for the license or sale. *Adams* v. *Burke*, 17 Wall., 453. But an infringer does not, by paying damages for making and using a machine in infringement of a patent, acquire any right himself to the future use of the machine. On the contrary, he may, in addition to the payment of damages for past infringement, be restrained by injunction from further use, and when the whole machine is an infringement of the patent be ordered to deliver it up to be destroyed. *Suffolk Co.* v. *Hayden*, 3 Wall., 315, 320; *Root* v. *Railway Co.*, 105 U. S., 189, 198; *Needham* v. *Oxley*, 8 Law Times, (N. S.,) 604; C. S., 2 New Rep. Eq. & Com. Law, 388; *Frearson* v. *Loe*, 9 Ch. D., 48, 67. No more does one who pays damages for selling a machine in infringement of a patent acquire for himself or his vendee any right to use that machine. In the case of a license or a sale by the patentee the rights of the licensee or the vendee arise out of contract with him. In the case of infringement, the liability of infringers arises out of their own wrongful invasion of his rights. The recovery and satisfaction of a judgment for damages against one wrong-doer do not ordinarily confer upon him or upon others the right to continue or repeat the wrong. This view is in accord with the judgment of Vice-Chancellor Wood (afterward Lord Chancellor Hatherley) in two suits brought by a patentee, the one against the manufacturer and the other against the user, where the plaintiff asked for an injunction against each—for an account against the manufacturer and for damages against the user—and declined to accept an offer of the user to pay him the like royalties that other persons paid. It was argued in behalf of the user that the patentee was not entitled to damages against him as well as to an account against the manufacturer, and could not have an account against the seller without adopting the sale, and if he adopted the sale had no right to get anything from the purchaser. But the vice-chancellor held that the plaintiff was entitled to an injunction, to an account, or, upon his waiving that, to damages against the manufacturer, and also to damages against the user, and said:

> With regard to the damages, it has never, I think, been held in this court that an account directed against a manufacturer of a patented article licenses the use of that article in the hands of all the purchasers. The patent is a continuing patent, and I do not see why the article should not be followed in every man's hand until the infringement is got rid of. So long as the article is used there is continuing damage. As to the royalties, I cannot compel the plaintiff to accept the same royalty from these defendants as he receives from others. I cannot in the decree do less than give the plaintiff his full right, and I cannot bargain for him what he may choose or may not choose to do. (*Penn* v. *Bibby*, L. R., 3 Eq., 308; S. C., 15 Weekly Reporter, 192.)

3. If one person is in any case exempt from being sued for damages for using the same machine for the making and selling of which damages have been recovered against and paid by another person, it can only be when actual damages have been paid, and upon the theory that the plaintiff has been deprived of the same property by the acts of two wrong-doers, and has received full compensation from one of them. In that view the case of the patentee, whose right of property under his patent had been invaded, would be analogous to that of one from whom personal property had been taken. But, according to the law of England, as well as of America, the owner of a chattel, which others have taken from him and converted to their own use, is not deprived of his property therein by recovering judgment for damages against any or all of them, without actual satisfaction by somebody. By the law of England, indeed, as declared by its courts upon technical grounds, the owner of a chattel, who has recovered judgment for its value in trover against one of two joint tort-feasors, cannot, although that judgment remains unsatisfied, bring a like action against the other for the same cause. But even by that law such a judgment against the one without satisfaction does not vest the property in the chattel in him or bar a subsequent action against the other for continuing to detain the chattel. Judges Holroyd and Littledale in *Morris* v. *Robinson*, 5 D. & R., 34, 47, 48; S. C., 3 B. & C., 196, 206, 207; *Brinsmead* v. *Harrison*, L. R., 6 C. P., 584, and L. R., 7 C. P., 547, 554; *ex parte* Drake, 5 Ch. D., 866. In *Brinsmead* v. *Harrison*, Mr. Justice Willes observed that to say that the mere obtaining judgment for nominal damages vests the property in the defendant would be an absurdity. L. R., 6 C. P., 588. By our law, judgment against one joint trespasser without full satisfaction is no bar to a suit against another for the same trespass. *Lovejoy* v. *Murray*, 3 Wall., 1. The reasons are therefore stronger, if possible, here than in England for holding that a judgment for nominal damages against one wrong-doer does not bar a suit against another for a continuance of the wrong.

The result is that, in any view of the case, the decree of the circuit court dismissing this bill was erroneous, and must be reversed.

THE OFFICIAL GAZETTE OF THE United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

VOL. 30—No. 4. TUESDAY, JANUARY 27, 1885. PRICE—$5 per year.

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The Official Gazette.

The OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Indexes to Patents on Electricity.

Appendix No. 2 to the index to patents relating to electricity covering the period of time from July 1, 1882, to June 30, 1883, has been issued, and is now for sale. These indexes, arranged alphabetically, numerically, and by classes, are completed to June 30, 1883, and comprise the following volumes:

Vol. 1. Index to patents relating to electricity granted by the United States prior to June 30, 1881, with an appendix, July 1, 1881, to June 30, 1882. One volume, 250 pages. In paper covers, $3; bound, $5.

Vol. 2. Appendix No. 2, July 1, 1882, to June 30, 1883. One volume, 50 pages. In paper covers, $1.50.

Attorneys.

DEPARTMENT OF THE INTERIOR,
Washington, January 21, 1885.

SIR: I am directed by the Secretary to inform you that the order of the Department dated the 12th instant, disbarring Anthony A. Kelly, of Fond du Lac, Wisconsin, from practice as attorney before the Department and its bureaus has this day been rescinded.

Very respectfully,

GEO. M. LOCKWOOD,
Chief Clerk.

The Commissioner of Patents.

30 O G—4—i

Order No. 212.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, January 20, 1885.

The following changes are hereby made in the classification of Class 112, "Sewing-Machines," Division XXIV:

Sub-class 6, "Cutting and Trimming" is changed to *Trimmers.*
Sub-class 12, "Plaiters" is changed to *Tucking-Guides.*
Sub-class 34, "Methods and Articles" is changed to *Methods.*
Sub-class 11, "Needles and Needle-Bars" is changed to *Needles.*
Sub-class 26, "Take-ups and Tensions" is changed to *Take-ups.*

The following new sub-classes are formed:

36. Glove-Sewing Machines.
37. Needle-Clamps.
38. Revolving Hooks.
39. Tensions.
40. Turfing Fabrics.

BENJ. BUTTERWORTH,
Commissioner.

Order No. 213.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, January 22, 1885.

The titles of the following sub-classes of Class 150, "Packing and Storing Vessels," Division XIV, are hereby changed:

Sub-class "Paper vessels—"Angular bodies," to *Paper Vessels—Angular.*
Sub-class "Paper vessels—"Curved bodies," to *Paper Vessels—Curved.*
Sub-class "Wooden vessels—boxes—"Boxes—"Jointed," to *Wooden Vessels—boxes—Boxes.*

The following new sub-classes are also established:

In Glass and Pottery—
Ejectors.
Jacket. Stands,
Jars. Swing-cover,
Jars. Swing-fastener,
Stopper-fasteners. Cap and tie,
Stopper-fastoners. Swing,
Stopper-fasteners. Swing stoppers,
Stoppers. Expanding.
In Metallic Vessels—
Boxes. Blacking-
Boxes. Knockdown-
Boxes. Pocket-
In Paper Vessels—
Angular folded,
Angular slide,
Curved barrels and pails.
In Wooden Baskets—
Baskets. Covered
In Wooden Boxes—
Boxes. Closures,
Boxes. Bent closures,
Boxes. Bent single-blank,
Boxes. Block-
In Class 113, "Sheet-Metal Ware. Making"—
Soldering-irons. Heaters,
Soldering-machine. Dip.

BENJ. BUTTERWORTH,
Commissioner.

Issue of January 27, 1885.

Patents	295	No. 311,165 to No. 311,459, inclusive.
Designs	10	No. 15,746 to No. 15,755, inclusive.
Trade-Marks	13	No. 11,878 to No. 11,890, inclusive.
Labels	7	No. 4,320 to No. 4,326, inclusive.
Reissues of patents	1	No. 10,554.
Total issue	326	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	....	....	Nebraska	....	....
Arizona Territory	....	....	Nevada	....	....
Arkansas	1	....	New Hampshire	2	....
California	3	....	New Jersey	15	....
Colorado	3	....	New Mexico Territ'y	....	....
Connecticut	14	....	New York	71	7
Dakota Territory	....	....	North Carolina	....	....
Delaware	1	....	Ohio	15	....
District of Columbia	5	....	Oregon	1	....
Florida	....	....	Pennsylvania	35	2
Georgia	....	....	Rhode Island	6	....
Idaho Territory	....	....	South Carolina	3	....
Illinois	19	1	Tennessee	2	....
Indiana	7	....	Texas	1	....
Indian Territory	....	....	Utah Territory	1	....
Iowa	4	....	Vermont	....	....
Kansas	6	....	Virginia	1	....
Kentucky	2	....	Washington Territ'y	....	....
Louisiana	1	....	West Virginia	....	....
Maine	....	....	Wisconsin	5	....
Maryland	10	1	Wyoming Territory	....	....
Massachusetts	25	4	United States Army	....	....
Michigan	8	1	United States Navy	2	....
Minnesota	4	1			
Mississippi	2	....	Total to citizens of the United States	284	19
Missouri	9	2			
Montana Territory	....	....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Australia	....	....	Germany	5	....
Austria-Hungary	....	....	Hayti	....	....
Barbadoes	....	....	Holland	....	....
Belgium	....	....	Island of Trinidad	....	....
Bermuda	....	....	Italy	....	....
Brazil	....	....	Norway	....	....
Canada	1	....	Russia	....	....
Chili	....	....	Scotland	....	....
Colombia, U. S. of	....	....	Spain	....	....
Cuba	....	....	Sweden	....	....
Denmark	....	....	Victoria	....	....
Ecuador	....	....			
England	12	1	Total to citizens of foreign countries	21	1
France	3	....			

DESIGNS.

15,746.—PENDANT.—*Morris Bernhard*, New York, N. Y., assignor to *Dreyfus Brothers*, same place. Application filed November 25, 1884. Term of patent 7 years.

15,747 to 15,749, inclusive.—TYPE.—*Henry Brehmer*, Stapleton, assignor to *David Wolfe Bruce*, New York, N. Y. Applications filed December 13, 1884. Term of patents 14 years.

15,750.—PENDANT.—*Bernhard Dreyfus*, New York, N. Y. Application filed September 17, 1884. Term of patent 7 years.

15,751 and 15,752.—TYPE.—*Herman Ihlenburg*, Philadelphia, Pa., assignor to *David Wolfe Bruce*, New York, N. Y. Applications filed December 13, 1884. Term of patents 14 years.

15,753.—NAPPY OR DISH.—*Isaace W. Knowles*, *John N. Taylor*, and *Homer S. Knowles*, East Liverpool, Ohio. Application filed December 11, 1884. Term of patent 3½ years.

15,754.—DOOR-KNOB.—*Henry E. Russell, Jr.*, New Britain, Conn., assignor to *The Russell & Erwin Manufacturing Company*, same place. Application filed December 22, 1884. Term of patent 14 years.

15,755.—SASH-FASTENER FRAME.—*William E. Sparks*, New Britain, Conn., assignor to *The Kempshall Manufacturing Company*, same place. Application filed October 15, 1883. Term of patent 14 years.

TRADE-MARKS.

[Certificates of registration of Trade-Marks numbered 8,191 and upward are registered under the act of March 3, 1881.]

11,878.—CORSETS.—*Theodore C. Bates*, Worcester, Mass. Application filed December 27, 1884.
"The word 'ROLLER-SKATE.'"

11,879.—BOOTS AND SHOES FOR MEN, BOYS, WOMEN, AND CHILDREN.—*The P. Cox Shoe Manufacturing Company*, Rochester, N. Y. Application filed December 22, 1884.
"The letter and word 'P. COX' inclosed by an oval or ellipse."

11,880.—DRAWERS, OVERALLS, AND PANTALOONS.—*Joseph Eisner*, Baltimore, Md. Application filed January 3, 1885.
"The word-symbol 'ALL IN ONE.'"

11,881.—WHEAT-FLOUR.—*Louis Fusz* and *Mathias Backer*, St. Louis, Mo. Application filed July 31, 1884.
"The word 'TUBE-ROSE.'"

11,882.—WHEAT-FLOUR.—*Louis Fusz* and *Mathias Backer*, St. Louis, Mo. Application filed July 31, 1884.
"The word 'ANGELIC.'"

11,883.—HAND-GRENADE FIRE-EXTINGUISHERS.—*The Harden Hand Grenade Fire Extinguisher Company*, Chicago, Ill. Application filed December 29, 1884.
"A blue or blnish-green grenade-bottle having the general configuration or appearance of a melon with meridian-like flutings and an equatorial band, and having a red label upon and about the base of the bottle-neck."

11,884.—FIGS.—*Joseph A. Iasigi*, Boston, Mass. Application filed December 19, 1884.
"The stellar exhibit or figure termed a 'star,' which may have five or any other suitable number of points or radiations."

11,885.—GENTLEMEN'S HATS.—*Edward Miller*, New York, N. Y. Application filed December 31, 1884.
"The monogram 'E M.'"

11,886.—REFINED PETROLEUM.—*Pratt Manufacturing Company*, New York, N. Y. Application filed November 17, 1884.
"A representation of the head of the mythological god Mercury with the Greek words 'NOMOΣ' 'APEΣTV' 'ΠETPEAAION' 'EAAHNIKOY MONOΠΩAIOY,' either in full or in an abbreviated form."

11,887.—PERFUMERY.—*James B. Weaver* and *Harry Schandein*, Philadelphia, Pa. Application filed December 27, 1884.
"The word 'FLORADULCIS.'"

11,888.—PERFUMERY.—*James B. Weaver* and *Harry Schandein*, Philadelphia, Pa. Application filed December 27, 1884.
"The word 'ESTERHAZY.'"

11,889.—FLOUR.—*The St. Paul Roller Mill Company*, St. Paul, Minn. Application filed July 30, 1884.
"The arbitrarily-selected words 'RED CROSS.'"

11,890.—ALE, BEER, PORTER, AND STOUT.—*William Hogarth*, Liverpool, county of Lancaster, England. Application filed December 22, 1884.
"The representation of a pelican with nest and young."

LABELS.

4,320.—Title: "LINIMENT."—*Ezra B. Bean* and *Thorne S. Haight*, New York, N. Y. Application filed November 20, 1884.

4,321.—Title: "COVELL'S GENUINE OLD DR. SPENCER'S QUEEN OF PAIN OR MINUTE CURE OF THE PERIOD."—*Alexander H. Covell*, New Bedford, Mass. Application filed December 31, 1884.

4,322.—Title: "JAMAICA TONIC-PUNCH," (FOR A BEVERAGE.)—*William C. Dunn*, Brooklyn, N. Y. Application filed December 30, 1884.

4,323.—Title: "WHITE BRONZE" (FOR BURIAL CASKETS, &c.)—*Delano D. Dunklee*, Kalamazoo, Mich. Application filed December 5, 1884.

4,324.—Title: "OUR OWN" (FOR CIGARS.)—*Henry Frautz* and *Edwin C. Stewart*, Ithaca, N. Y. Application filed December 30, 1884.

4,325.—Title: "GOODSTOCK" (FOR SHIRTS, COATS, AND JACKETS.) *William T. Galt*, Port Byron, N. Y. Application filed January 2, 1885.

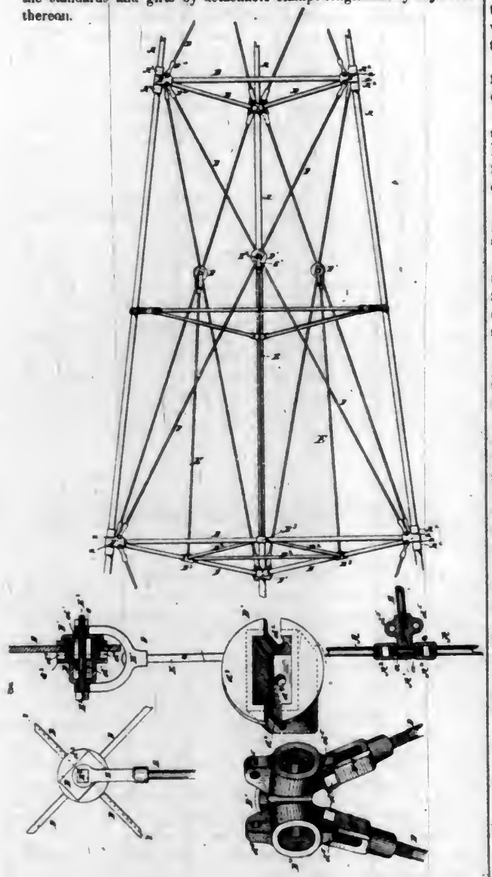
4,326.—Title: "PHINNEY'S CAMPHOR ICE."—*H. F. Phinney*, Boston, Mass. Application filed December 11, 1884.

PATENTS

GRANTED JAN. 27, 1885.

311,165. SKELETON TOWER. JOHN S. ADAMS, Elgin, Ill., assignor to the Detroit Iron Tower Company, Detroit, Mich. Filed Nov. 26, 1881. Renewed July 30, 1883. Again renewed June 30, 1884. (No model.)

Brief.—The girt-couplings are held between the couplings which connect the sections of the standards, the lower coupling forming a shoulder for the girt-couplings to set over and rest upon. Intermediate girts set within the plane of the diagonal braces are secured to the standards by a two-part coupling bolted or screwed together around or against the standards. At the intersecting points of connection of the diagonal braces each end of said braces is formed with a square head which fits into a two-part recessed junction-box, which parts, when fitted and bolted together, retain the heads in place. The other ends of the diagonal braces are screwed into clevises on the girt-couplings. To a clevis supported by the bolt which secures the parts of the junction-box together a suspending-rod is secured, whereby the girts are centrally supported. While in process of construction temporary brace-rods are pivotally secured to the standards and girts by detachable clamps longitudinally adjustable thereon.



Claim.—1. In combination with the standards A and with the girt-coupling B', provided with the eye *b* for the admission of the threaded part A', connecting adjacent standards, the couplings A^2, or their equivalent shouldered parts, arranged above and below the coupling B', whereby the latter may be confined in place, substantially as described.

2. In combination with the girts B, joined by the couplings B', having eyes *b*, the standards A, of an incomplete skeleton iron tower provided with shoulders *a*, and short vertical threaded nipples A', whereby the couplings B' of the previously-connected girts B may be set over the said nipples A', to rest on the shoulders preparatory to the addition of the next sections of standards, substantially as described.

3. In combination with the standards A, provided with shoulders *a* near their upper ends, and having their upper ends threaded, the girts B, connected with each other at their extremities by the couplings B', rigidly secured to said girts, and provided with the aperture *b*, adapted to set over the upper ends of the standards, substantially as described.

4. In combination with the standards A, the girts C, joined by the two-part couplings $C' C^2$, recessed to receive the standards, and provided with fastenings, whereby the parts of the coupling may be clamped about the standards, substantially as described.

5. In combination with the sectional standards A, diagonally braced from end to end, the girts C, arranged inside the plane occupied by the diagonal braces, substantially as described.

6. In combination with the inclined standards A, provided with shoulders *a* near their ends, which shoulders support the girt-couplings B', said couplings rigidly secured to the horizontal girts and having their faces inclined to bear squarely against the shoulders *a*, substantially as described.

7. In combination with the diagonal brace D, formed of two headed parts, as shown, the connection D', having the recess *d'* and slots d^2, substantially as and for the purposes stated.

8. In combination with the standards and girts, the intersecting screw-threaded diagonal braces D D, each formed of two parts, and connecting-plates D', joining the parts of the several diagonals at the intersection of the latter, and means for locking said plates to each other, substantially as described.

9. In combination with the headed rods D and recessed connecting-plates D', brought to position with their open faces opposite each other, the central bolt, E^2, operating to hold the parts in place and to confine the rod-heads *d*, substantially as described.

10. In combination with the girts B and with the intersecting diagonal braces D D, connected to each other at their intersection, the suspending rod E, arranged to centrally support the girts from the braces, substantially as described.

11. In combination with the plates D', connecting the parts of the several braces D, and with the bolt E^2, connecting said plates, the clevis E', forming an attachment for the suspending rod E with the braces, substantially as described.

12. In combination with the diagonal braces D, threaded at their ends, the girt-couplings B', provided with eyes d^3, and the threaded clevises D^4, pivoted to said eyes, substantially as described.

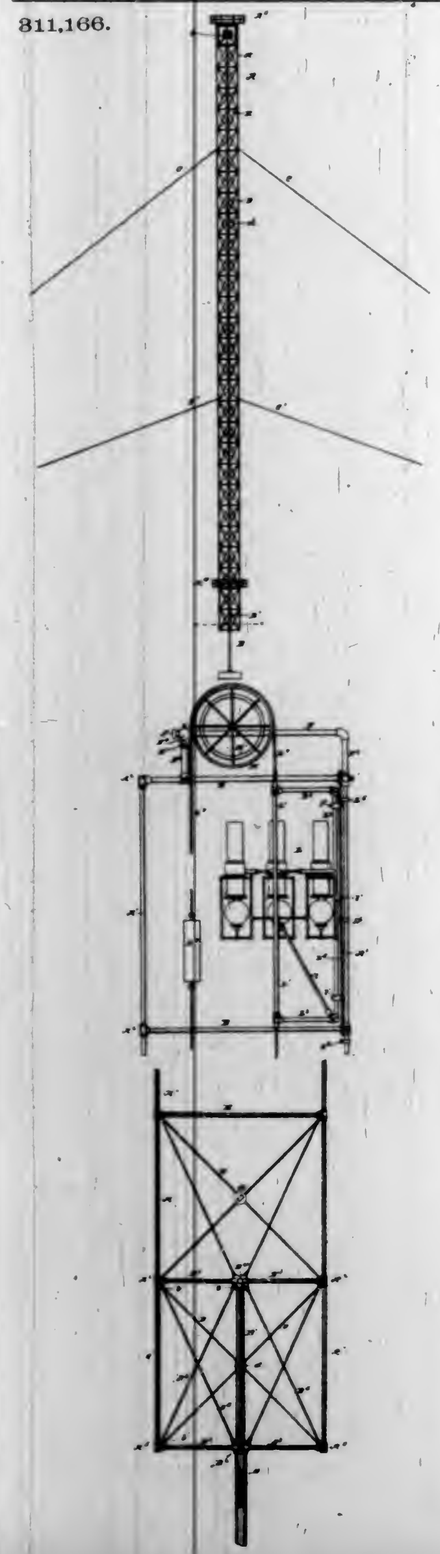
13. In combination with the standards A and girts C, temporary braces F, adapted to be removably attached to the standards and girts, substantially as described, and for the purposes set forth.

14. In combination with the tower standards and girts, the brace-rods F, provided with detachable clamps F' and F^2, the latter longitudinally adjusted upon said rods, substantially as and for the purposes set forth.

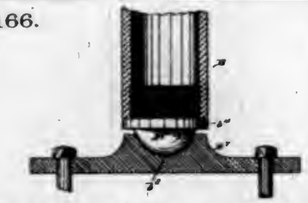
15. In combination with the tower standards and girts, the brace-rods F, provided with detachable clamps pivotally connected with the rods, substantially as described, and for the purposes stated.

311,166. ELECTRIC-LIGHT TOWER. JOHN S. ADAMS, Elgin, Ill., assignor to the Detroit Iron Tower Company, Detroit, Mich. Filed July 25, 1882. Renewed July 30, 1883. Again renewed June 30, 1884. (No model.)

311,166.



311,166.



Brief.—A skeleton tower of prismatic form suitably trussed, and wholly supported laterally by guys bifurcated near their attachment to the tower, and having a central base-support flexibly seated in its foundation. The elevator is provided with guiding-bars, which move in recessed guiding-lugs secured to the tower.

Claim.—1. As a means for lighting large areas, the combination of a lamp and a trussed skeleton tower of prismatic form for supporting the lamp, substantially as described.

2. A trussed skeleton tower of prismatic form, combined with guys for its lateral support, and with an interiorly-running elevator-carriage and suitable hoisting and guiding apparatus, substantially as described.

3. A tower for the support of electric lamps and similar purposes, consisting of a skeleton trussed structure supported clear of the ground by a central post, and laterally sustained by guys, substantially as described.

4. In a tower consisting of a trussed skeleton structure sustained clear of the ground by a central support, and laterally sustained by guys, said central support having rigid connection with the superposed structure, and having its foot flexibly seated on the foundation, substantially as described.

5. In combination, a hollow prismatic skeleton trussed tower, a central support upholding said tower clear of the ground, guys for laterally sustaining the tower, and an interior elevator and hoisting apparatus, substantially as described, and for the purposes set forth.

6. In a tower composed of a central base-support and a hollowed trussed skeleton structure supported thereby, suspending-rods B''''', connecting the top of the support with the bottom of the trussed structure, substantially as described.

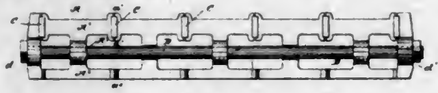
7. In a tower composed of a central base-support and a hollow trussed structure supported thereby, the combination, with said parts, of suspending-rods B'''' and horizontal arms B''', whereby the base-support upholds and is rigidly joined to the superposed part of the tower, substantially as described.

8. In a tower having an interior elevator, said elevator provided with guiding-bars L'''', in combination with recessed guiding-lugs L^5, attached to the tower, substantially as described.

9. In combination with a skeleton tower dependent upon guys for its lateral support, one or more of said guys connected with two adjacent tower-uprights by means of a yoke or links, c', arranged to give draft upon said guy in the line of the tower-axis, substantially as described.

311,167. IRON GRATING. JOHN S. ADAMS, Elgin, Ill., assignor to the Detroit Iron Tower Company, Detroit, Mich. Filed July 25, 1882. Renewed July 30, 1883. Again renewed June 30, 1884. (No model.)

Brief.—A combination consisting of grating-bars, spacing-blocks with terminal clamping-heads constructed to bear against grating-bars, and a binding-rod arranged between the bearing-points of the spacing-blocks and clamping-head.



Claim.—1. The combination, with the grating-bars C, of spacing-blocks A, and terminal clamping-heads B, constructed to bear against the bars C and against each other below the said bars, and a binding-rod, D, arranged between the bearing-points of the parts A and B, substantially as described.

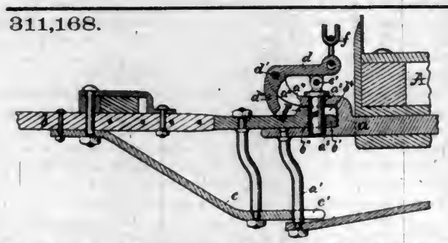
2. In combination with the grating-bars C and suitable binding devices, the spacing truss-blocks A, having the flanges a' a', forming an intermediate recess for the grating-bars, substantially as described.

3. In combination with the grating-bars, the binding-rod and terminal supports for the nut and head of said rod, the spacing-blocks having a lateral recess, a'', substantially as described, and for the purposes set forth.

311,168. POLE-COUPLER FOR HORSE-CARS. JOHN N. AKARMAN, Somerville, Mass. Filed Oct. 10, 1884. (No model.)

Claim.—1. In an automatic pole or evener coupler for horse-cars, the forked draw-bar *a*, the lever *d*, pivoted to the said draw-bar, and having the arm *d''*, as described, the pin *e*, pivoted to said lever and arranged to pass through the holes a^3 a^3 in the draw-bar, in combination

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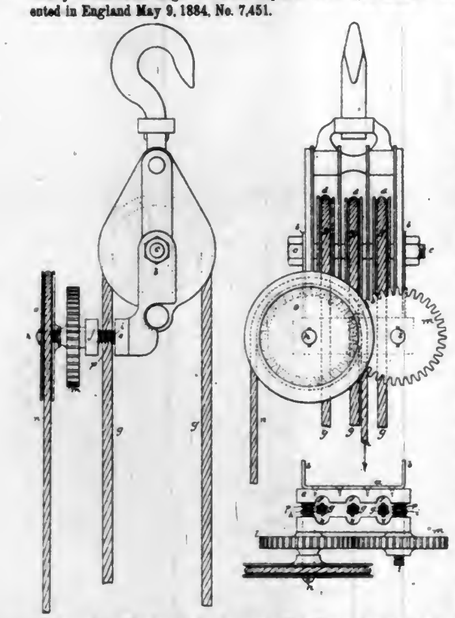
with the eye b' b'' of the pole *b*, and the projection b^3 on said eye to act on the arm *d''* of the lever *d*, all as and for the purpose set forth.

2. In an automatic pole or evener coupler for horse-cars, the forked draw-bar *a*, the lever *d*, pivoted to the said draw-bar, and having the arm *d''*, as described, the pin *e*, pivoted to said lever and arranged to pass through the holes a^3 a^3 in the draw-bar, in combination with the eye b' b'' of the pole *b*, the groove b^4 on said eye, and the projection b^3 on said eye to act on the arm *d''* of the lever *d*, all as and for the purpose set forth and described.

3. In an automatic pole or evener coupler for horse-cars, the forked draw-bar *a*, the lever *d*, pivoted to said draw-bar, and the pin *e*, pivoted to said lever and passing through holes in the draw-bar, in combination with the stop a^4 on said draw-bar, for the purpose set forth.

4. In an automatic pole or evener coupler for horse-cars, the forked draw-bar *a*, the lever *d*, pivoted to said draw-bar, and the pin *e*, pivoted to said lever and arranged to pass through holes in said draw-bar, in combination with the chain, rod, or cord *f*, for disconnecting the pole or evener from the draw-bar, as set forth.

311,169. ROPE-PULLEY BLOCK. ANDREW JAMES BELL, Manchester, County of Lancaster, England. Filed Sept. 27, 1884. (No model.) Patented in England May 9, 1884, No. 7,451.



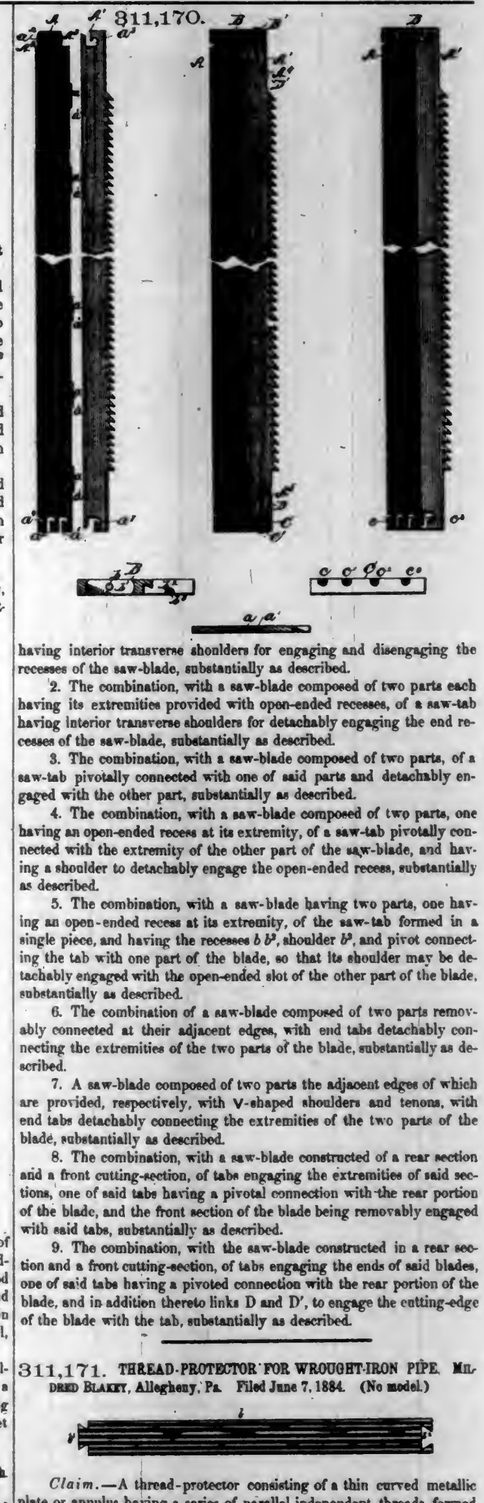
Claim.—1. A friction-brake for rope-pulley blocks, having a pair of brake-blocks between which the pulley-ropes pass, a pair of right-and-left screws extending through one of said brake-blocks, a pair of toothed wheel-nuts applied to said screws and intermeshing with each other, and a hand-rope pulley attached to one of said nuts, substantially as herein specified, for stopping or retarding the motion of said pulley-ropes at will, in the manner set forth.

2. The within-described brake attachment to an ordinary rope-pulley block, consisting of a supplemental frame, a pair of brake-blocks, a hand rope-pulley, and means, substantially as specified, for transmitting motion to one of said brake-blocks from said pulley, for the purpose set forth.

311,170. SAW-TAB. LAWRISTON R. BEURMANN, East Saginaw, Mich. Filed July 5, 1884. (No model.)

Claim.—1. The combination, with a saw-blade having open-ended recesses at its extremities, of a slotted saw-tab composed of a single piece,

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having interior transverse shoulders for engaging and disengaging the recesses of the saw-blade, substantially as described.

2. The combination, with a saw-blade composed of two parts each having its extremities provided with open-ended recesses, of a saw-tab having interior transverse shoulders for detachably engaging the end recesses of the saw-blade, substantially as described.

3. The combination, with a saw-blade composed of two parts, of a saw-tab pivotally connected with one of said parts and detachably engaged with the other part, substantially as described.

4. The combination, with a saw-blade composed of two parts, one having an open-ended recess at its extremity, of a saw-tab pivotally connected with the extremity of the other part of the saw-blade, and having a shoulder to detachably engage the open-ended recess, substantially as described.

5. The combination, with a saw-blade having two parts, one having an open-ended recess at its extremity, of the saw-tab formed in a single piece, and having the recesses b b^2, shoulder b^2, and pivot connecting the tab with one part of the blade, so that its shoulder may be detachably engaged with the open-ended slot of the other part of the blade, substantially as described.

6. The combination of a saw-blade composed of two parts removably connected at their adjacent edges, with end tabs detachably connecting the extremities of the two parts of the blade, substantially as described.

7. A saw-blade composed of two parts the adjacent edges of which are provided, respectively, with V-shaped shoulders and tenons, with end tabs detachably connecting the extremities of the two parts of the blade, substantially as described.

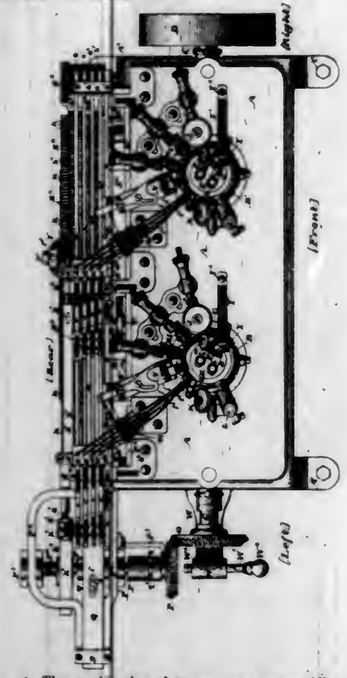
8. The combination, with a saw-blade constructed of a rear section and a front cutting-section, of tabs engaging the extremities of said sections, one of said tabs having a pivotal connection with the rear portion of the blade, and the front section of the blade being removably engaged with said tabs, substantially as described.

9. The combination, with the saw-blade constructed in a rear section and a front cutting-section, of tabs engaging the ends of said blades, one of said tabs having a pivoted connection with the rear portion of the blade, and in addition thereto links D and D', to engage the cutting-edge of the blade with the tab, substantially as described.

311,171. THREAD-PROTECTOR FOR WROUGHT-IRON PIPE. MILDRED BLAKEY, Allegheny, Pa. Filed June 7, 1884. (No model.)

Claim.—A thread-protector consisting of a thin curved metallic plate or annulus having a series of parallel independent threads formed on its inner face, substantially as and for the purposes described.

311,172. KNITTING-MACHINE. JOHN BYFIELD, Lowell, Mass. Filed Sept. 17, 1883. (No model.)



Claim.—1. The combination of two or more yarn-guiding levers, two or more reciprocating cam-bars, mechanism connecting the cam-bars with the yarn-guiding levers, two or more pawls arranged to engage with and move said bars, mechanism for reciprocating said pawls, a pattern-chain provided with two or more longitudinal rows of holes, having set therein pattern-determining pins adapted to operate said pawls, and mechanism for operating said pattern-chain, substantially as and for the purposes described.

2. The combination of two or more yarn-guiding levers, two or more reciprocating cam-bars, mechanism connecting said cam-bars with the yarn-guiding levers, two or more pawls arranged to engage with and move said bars, two or more pivoted dogs, each carrying at its free end one of said pawls, two or more springs for pressing the free ends of said pawls upward, mechanism for reciprocating said dogs and pawls, two or more lugs—one to each of said dogs—two or more pins adapted to co-operate with said lugs to raise said dogs, and mechanism for raising and lowering said pins, substantially as and for the purposes described.

3. The combination of two or more yarn-guiding levers, f f', &c., two or more reciprocating cam-bars, b b', &c., mechanism connecting the cam-bars with the yarn-guiding levers, two or more pins, b^2 b^2, the cam-bar e, provided with the plate e', and bracket e^4, and the reciprocating bar Q, provided with the shoulder e^3, substantially as and for the purposes described.

4. The combination of the bar Q, the cross-piece g^3, two or more pawls, g^7 g^7, pivoted thereto, two or more reciprocating cam-bars, b b', &c., two or more yarn-guiding levers, f f', &c., mechanism connecting the cam-bars with the yarn-guiding levers, the forked bracket Q^2, the eccentric cam-wheel Q′, and the shaft I″, substantially as and for the purposes described.

5. The combination of two or more yarn-guiding levers, f f', &c., two or more reciprocating cam-bars, b b', &c., mechanism connecting the cam-bars with the yarn-guiding levers, two or more pawls, g^7 g^7, the bar Q, for reciprocating said pawls, the forked bracket Q^2, the screws i i, the slots i' i', the eccentric cam-wheel Q′, and mechanism for rotating said cam-wheel, substantially as and for the purposes described.

6. The combination of two or more yarn-guiding levers, f f', &c., two or more reciprocating cam-bars, b b', &c., mechanism connecting said cam-bars with the yarn-guiding levers, two or more reciprocating pawls, g^7 g^7, two or more pins h h, the stand R, the shelves j j', the pins j^3 j^3, the springs j^4 j^4, and mechanism for raising said pins, substantially as and for the purposes described.

7. The combination of a pattern-chain provided with two or more series of holes, each series consisting of two or more longitudinal rows, two or more series of removable pins, l l, set therein, one or more pins or rods, h, arranged above said chain, one or more pawls, g^4, means for reciprocating said pawls, one or more cam-bars arranged to be acted upon and moved by said pawls, a series of ratchet-teeth formed upon the outer surface of said chain, a reciprocating pawl arranged to act upon said teeth to impart to said chain an intermittent longitudinal motion, and mechanism for intermittently moving said chain transversely, all arranged and adapted to operate substantially as and for the purposes described.

8. The combination of the pattern-chain S^4 S^5, the pin T^2, moving therewith, the toothed wheel T, the elevations n, n', and n^2 thereon, the carriage S^3, the toe m, secured thereto, and adapted to be pressed against the elevations n, n', and n^2, and means for moving the pattern-chain lengthwise, substantially as and for the purposes described.

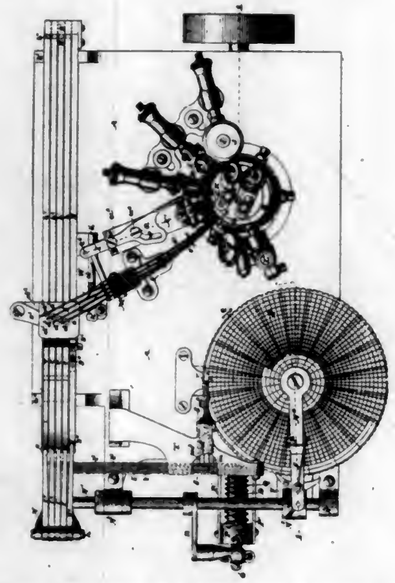
9. The combination of the intermittently-moving pattern-chain S^4 S^5, the carriage S^3, the toe m, the spring m^2, the cam-wheel T, provided with the elevations n, n', and n^2, and means for moving said cam-wheel T a given distance about its axis with every revolution of the pattern-chain, substantially as and for the purposes described.

10. The combination of the bevel gear-wheel O, the driving-shaft C, the bevel gear-wheel P, provided with the groove P^6, the bracket P^7, the collar P^5, the pins q q q' q', the spring P^4, adapted to cause the engagement of said pins q q and q' q' when disengaged, and the rod or plunger W^2, all arranged and adapted to operate substantially as and for the purposes described.

11. In combination with a circular series of needles arranged to be moved about a common axis, and a knocking-over wheel, the brush Y, mounted upon the spring or yielding support Y′, in a position in contact with said needles at a point in close proximity to the knocking-over wheel, and adapted to brush the ends of the yarns away from the needles and prevent them from being knit into the work, substantially as described.

311,173. KNITTING-MACHINE. JOHN BYFIELD, Lowell, Mass. Filed May 2, 1883. Renewed Sept. 26, 1884. (No model.)

Brief.—An improvement upon the invention described in Letters Patent No. 252,864, January 31, 1882.



Claim.—1. The combination, with two or more yarn-guiding levers adapted to carry yarns of different colors, of two or more reciprocating cam-bars, mechanism connecting said cam-bars with said yarn-guides, a pattern-wheel for controlling the movements of said cam-bars, and mechanism connecting said pattern-wheel with said cam-bars, substantially as and for the purposes described.

2. The combination, with two or more yarn-guiding levers and yarn severing and holding devices, of two or more reciprocating cam-bars, mechanism connecting said cam-bars with said yarn-guides, a single reciprocating cam-bar for operating the yarn severing and holding devices, and mechanism connecting said cam-bars with the pattern-wheel, substantially as and for the purposes described.

3. The combination of a plurality of cam-bars, b, b', b^2, or b^3, provided with the shoulders e and pins b^2 b^2, the cam-bar g, provided with the shoulder g^3 and the arm or plate g', a plurality of pawls, f, f', f^2, or f^3, the hook-pawl g^2, and mechanism for intermittently moving said pawls endwise, substantially as and for the purposes described.

4. The combination, with two or more yarn-guiding levers adapted to carry yarns of different colors, of a plurality of pendent rods, s, s', s^2, and s^3, connected thereto, and each provided with a detent-notch, s^4, the latch-lever s^5, arranged to engage with each of said detent-notches s^4 when said rods are raised to hold said rods in said elevated positions, mechanism for raising said rods, and mechanism for tripping said latch to release the rods, substantially as described.

5. The combination of a plurality of yarn-guiding levers d, d', d^2, or d^3, of a plurality of pendent rods, s, s', s^2, or s^3, the latch-lever s^5, the spring c', the lever c^2, the bar g, having mounted thereon the toe g^6, a plurality of bars, b, b', b^2, or b^3, each carrying a cam or wedge, c, and mechanism for intermittently moving the bars b, b', b^2, b^3, and g endwise, substantially as described.

6. The pattern-wheel S, provided upon its under side with the double scroll-paths p and p', and having formed in its upper side four or more scroll series of pin-holes arranged in two sets, each corresponding to one of the scroll-paths in its under side, substantially as and for the purpose described.

7. The wheel S, provided with the two parallel scroll-paths p and p' in its under side, and having one or more sections of the walls of said paths removable, substantially as and for the purpose described.

8. The pattern-wheel S, provided with the two parallel scroll-paths p and p', and the two sets of two or more scroll series of pin-holes, the sliding carriage S′, and means for moving said wheel, in combination with the fixed pin p^4, and the springs U and U′, all arranged and adapted to operate substantially as and for the purposes described.

9. The combination of two or more yarn-guiding levers, two or more reciprocating cam-bars, mechanism connecting said cam-bars with said yarn-guiding levers, two or more pawls arranged to engage with and move said bars, mechanism for reciprocating said pawls, two or more levers, and two or more springs engaging with said levers, and adapted to hold said pawls above the point of engagement with said cam-bars, two or more other levers arranged to bear one upon each of the first-named levers to depress them, a pattern-wheel provided with two sets of two or more scroll series of holes, two sets of pattern-determining pins set therein, and mechanism for intermittently rotating said wheel and moving its axis, substantially as and for the purposes described.

10. The combination, with two or more yarn-guiding levers and yarn severing and holding devices, of two or more reciprocating cam-bars, mechanism connecting said cam-bars with said yarn-guiding levers, a single cam-bar for operating the yarn severing and holding devices, three or more pawls arranged to engage with and move said cam-bars, mechanism for reciprocating said pawls, two or more levers arranged and adapted to hold the pawls for operating the yarn-guide-operating cam-bars above the points of engagement with said bars, two or more springs for raising said levers, two or more other levers arranged to bear one upon each of said first-named levers to depress them, a wheel provided with two sets of two or more scroll series of holes, two sets of pattern-determining pins set therein, mechanism for intermittently rotating said wheel in either direction, and mechanism for moving the axis around which said wheel revolves, substantially as and for the purposes described.

11. The combination of the shaft D, having set therein the fixed pin i, the crank P, having a radial groove formed in the inner face of its hub, and the collar P^5, secured thereto or formed in one piece therewith, the spring Q, and the reciprocating cam-bar Z^3, all arranged and adapted to operate substantially as and for the purpose described.

12. The combination of two or more yarn-guiding levers, yarn-severing mechanism, yarn-holding devices, two or more reciprocating cam-bars, mechanism for connecting said cam-bars with the yarn-guides, and a single cam-bar for operating the yarn severing and holding devices, and an arm or shoulder formed upon or secured to said single bar, and arranged and adapted to engage with or be acted upon by each of the first-named cam-bars to move them in one direction or to move it in the opposite direction, substantially as and for the purposes described.

13. The combination of the reciprocating bar g, the cam-plate W, provided with the fixed oblique rib k', and spring-actuated pivoted gate k^2, the bar Y, provided with the cutter-blade t^3, and the roll t^5, and the fixed hook-shaped cutter-blade t, all arranged and adapted to operate substantially as described.

14. The reciprocating bar Y, having secured thereto the cutter-blade t^3, and the push-blade t^4, in combination with the fixed hook-shaped cutter-blade t, and the spring-pressed clamping-jaw u, all arranged and adapted to operate substantially as and for the purposes described.

15. The combination of the reciprocating bar Y, carrying the cutter-blade t^3, the stationary hook-shaped cutter t, the pivoted lever Z, provided with the cam-slot u^3, the pin u^4, and the wire hook v, attached to the movable end of said lever Z, and arranged and adapted to be moved at right angles, or nearly so, to the movement of the bar Y, substantially as described.

16. The combination of the bar X, carrying the cutter-blade t^3, means for reciprocating said bar, the pivoted lever Z, provided with the cam-slot u^3, the pin u^4, the wire hook v, attached to the movable end of said lever Z, the push-back L, and the plate v', secured to said push-back and projecting over the needles, substantially as and for the purposes described.

311,174. ELECTRIC CABLE. HENRY A. CLARK, Boston, Mass. Filed Apr. 24, 1884. (No model.)



Claim.—1. An electric conducting-cable composed of a center electric conducting wire or wires surrounded by a series or layer of electric conducting-wires, one or more of which wires are bare wires and the rest insulated wires, which are covered with an electric conducting material and an outside protecting-covering, substantially as and for the purpose specified.

2. An electric conducting-cable composed of a center electric conducting wire or wires surrounded by a series or layer of electric conducting-wires, one or more of which wires are bare wires and the rest insulated wires, said series or layer being covered with an electric conducting material, which is covered with an insulating material and with an outside protecting-covering, substantially as and for the purpose specified.

3. An electric conducting-cable composed of a center electric conducting wire or wires surrounded by a series or layer of electric conducting-wires, one or more of which wires are bare wires and the rest insulated wires, said series or layer being covered with an electric conducting material, which is surrounded by another series or layer of insulated wires and one or more bare wires, said second series or layer being covered with an electric conducting material covered with an insulating material and with an outside protecting-covering, substantially as and for the purpose specified.

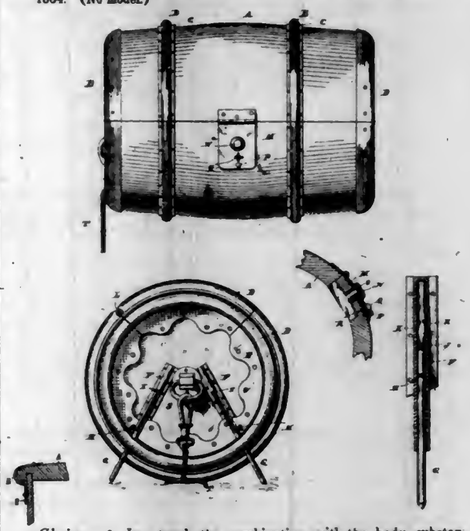
4. An electric conducting-cable composed of a center electric conducting wire or wires, surrounded by a series or layer of electric conducting-wires, one or more of which wires are bare wires and the rest insulated wires, in turn covered with a second series or layer of insulated wires and bare wire or wires, said second series or layer being covered with an electric conducting material which is covered with an insulating material and with an outside protecting-covering, substantially as and for the purpose specified.

311,175. STEREOTYPE-PLATE. MICHAEL CRANE, Brooklyn, N. Y., and JOSEPH L. FIRM, Jersey City, N. J. Filed Oct. 5, 1883. (No model.)



Claim.—The improved printing-plate consisting of a honeycombed casting having beveled edges to admit of its ready attachment to the impression bed or cylinder of a printing-press, and reversible for use on both faces, which faces are variable at pleasure to obtain new and different printing-surfaces, substantially as shown and described.

311,176. TRUNK. GUSTAVE DEINEL, Hancock, Mich. Filed Mar. 18, 1884. (No model.)



Claim.—1. In a trunk, the combination, with the body, substantially of barrel form, of the rims or cap-pieces, constructed to fit over and snugly embrace the chines, and having their outer surfaces devoid of angles.

2. In a trunk, the combination, with the body, substantially of barrel form, and the tubular casings secured to the end pieces thereof, hav-

ing transverse notches, of legs or braces fitted therein and provided with knobs and friction-springs.

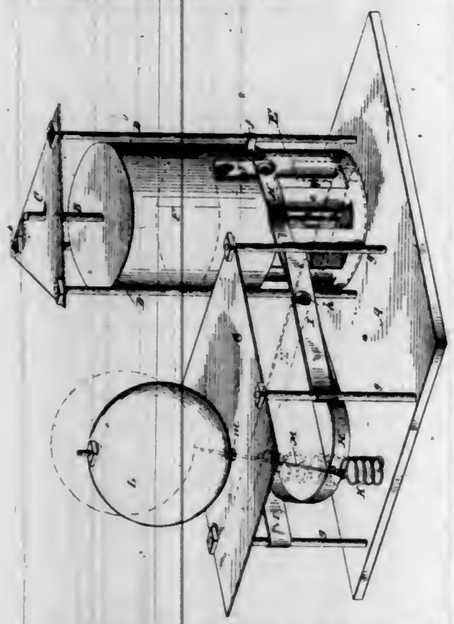
3. In a trunk, the combination, with the body, of a lock-hasp having a packing, of the key-hole having a bushing fitted therein, and means to secure the hasp over the key-hole.

4. In a trunk, the combination, with the body, substantially of barrel form, of the rims or cap-pieces fitting over and snugly embracing the chines, and having their outer surfaces devoid of angles, and the hoops or bands having flanges and their outer surfaces devoid of angles.

5. In a trunk, the combination, with the body, of the hasp having a recess and a packing fitted therein, a key-hole having a bushing fitted therein which extends slightly beyond the surface of the trunk, and a catch adapted to enter a slot in the hasp, and provided with an elongated head, whereby the clasp is held against the bushing.

6. As an improved article of manufacture, a trunk whose body is of the form of a barrel, provided with rims or cap-pieces constructed to fit over and embrace the chines, with hoops or bands having flanges, the said rims and hoops being devoid of angles on their outer surfaces, with tubular casings secured to the ends thereof having legs or braces fitted therein, with a lock-hasp having a packing, and with a key-hole having a bushing fitted therein, and means to secure the clasp.

311,177. HORIZONTAL WINDMILL. AUGUST DE ST. AUBIN, Concordia, Kans. Filed Apr. 29, 1884. (No model.)



Claim.—1. A horizontal wind-wheel and a vertically-movable shield encircling the same, in combination with a hollow wind sail or regulator and a lever connecting it with the shield, substantially as and for the purpose set forth.

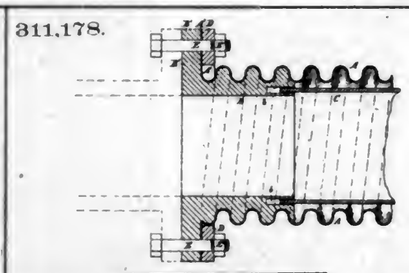
2. The combination herein described of the wheel, the shield adjustable over the wheel, the platform arranged alongside the wheel, the lever having its inner end connected with the shield and its outer end extended under the platform and pivoted thereto, a spring connected with and adapted to depress the outer end of the lever, and a device adapted to be operated by the wind, and supported on the platform and connected with the outer end of the lever, substantially as set forth.

311,178. EXPANSION-JOINT FOR STEAM AND OTHER PIPES. T. W. DUFFY, New York, N. Y., assignor to the New York Steam Company of New York. Filed Mar. 2, 1883. (No model.)

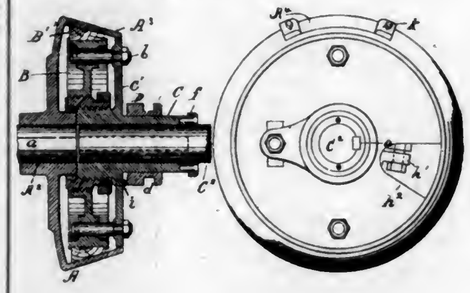
Claim.—1. The combination of corrugated tube A, having flange A', inserted tube C, and flanged thimble B, having the expansion-groove *b*, all substantially as shown and set forth.

2. The flanged thimble B B', with the exterior of B screw-threaded, in combination with the flanged tube A A', formed in helical corrugations matching to the screw-threads on B, so as to be supported thereby, and suitable means for holding the flanges tightly together, all substantially as and for the purposes herein specified.

311,178.



311,179. FRICTION-COUPLING. HENRY E. EBERHARDT, Newark, N. J. Filed Nov. 3, 1884. (No model.)



Claim.—1. The combination, with the cone A and shaft A^2, attached together as described, of the hub C, attached to the shaft C^2, as described, the driving-cone fitted within the cone A, the threaded bushing connected to the hub and driving-cone, as described, and means, as cam-block *c*, actuated independently of the clutch, for rotating the threaded bushing and pressing the cones together.

2. The combination, with the cones A and B B', the hub C, the plate D, and the shafts A^2 and C^2, attached to the cone A and hub C, as described, of the studs *d*, attached to the plate D, and inserted loosely in the driving-cone, the threaded bush connecting the hub and driving-cone together, and means, as cam-block *c*, actuated independently of the clutch, for rotating the threaded bushing and pressing the cones together.

3. The combination, with the cone A and hub C, attached to the separate shafts, of the driving-cone rotated by studs connected with the hub C, the bushing provided with crank *e*, and threaded internally and externally, and fitted to the hub and driving-cone, as described, the sliding sleeve D upon the hub C, and the cam-block operating upon the crank *e*, substantially as and for the purpose set forth.

4. The combination, in a clutch, of two opposed cones, a threaded bushing for pressing the cones together, a mechanism, as cam *c*, for rotating the bushing a fixed amount, and an adjustable crank fitted to the bushing, and provided with means for securing it upon the bushing, as and for the purpose set forth.

5. The combination, in a clutch, of two opposed cones, a threaded bushing for pressing the cones together, a mechanism, as cam *c*, for rotating the bushing a fixed amount, the clamp-ring *h* and bolts *h'*, securing the roller *c'* adjustably to the bushing, and the set-screw *i*, for holding the bushing in a fixed position when adjusting the ring upon the same, as and for the purpose set forth.

311,180. DEVICE TO ASSIST HEARING. LEO EHRLICH, St. Louis, Mo. Filed Jan. 23, 1884. (No model.)

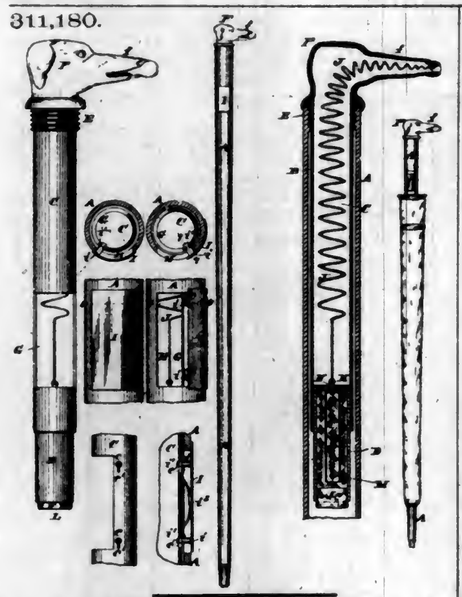
Claim.—1. The combination of a tube, C, with nozzle or aperture *f* and aperture G at its lower part, and a spiral wire, J, extending centrally in the tube, out of contact with the sides thereof.

2. The combination of staff or rod A, tube C, nozzle or aperture *f*, spiral wire J, and electric battery, when the staff and tube have openings G H and are made to turn on one another, for the purpose set forth.

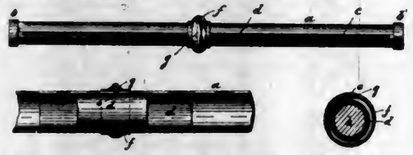
3. The combination of staff A, having opening H, tube C, with opening G and nozzle or aperture *f*, shield I, attached to the tube C, and spiral wire extending centrally in the tube, substantially as and for the purpose set forth.

4. The combination of a tube or hollow case, with an induction opening or openings for sound-vibrations, and an eduction nozzle or opening, *f*, a conducting-wire, and an electric battery, for the purpose set forth.

311,180.



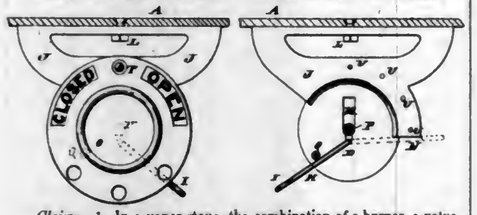
311,181. ADJUSTABLE HOLDER FOR PENS, PENCILS, &c. F. L. FISCHER, Pittsburg, Pa. Filed Feb. 13, 1884. (No model.)



Claim.—1. A slitted tube or case, *a*, having an internal tubular or cylindrical tool or implement holder, *d*, capable of sliding therein, and an external cam-ring, *f*, adapted to lock said holder *d* by rotation on the case *a*, substantially as described.

2. The tube or case *a*, having slit *c*, in combination with the internal holder, *d*, having pin *e*, and ring *f*, having cam-groove *g*, substantially as described.

311,182. GASOLINE-STOVE ATTACHMENT. JOSEPH FORSHAW and NATHAN FORSHAW, St. Louis, Mo. Filed Feb. 13, 1884. (No model.)



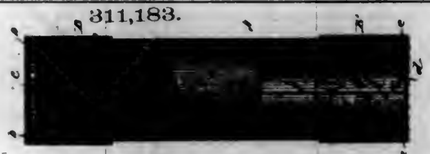
Claim.—1. In a vapor-stove, the combination of a burner, a valve, a valve-stem having a crank-handle, a bracket in front of which the handle rotates, and end stops to indicate the open and closed condition of the valve, and adjustable to compensate for the wear of the valve, as set forth.

2. In combination with the burner and valve-stem of a gasoline-stove, an adjustable dial-disk provided with a stop, substantially as and for the purpose set forth.

3. In a gasoline-stove, the combination of the burner, valve-stem with lever, removable bracket provided with a slot to receive the lever of the valve-stem, and perforations to receive the inner end of a screw, and a disk having a stud entering the slot of the bracket, and a screw to enter any one of the perforations of the bracket, and having a stop-pin to receive the lever of the valve-stem when the valve is closed, as set forth.

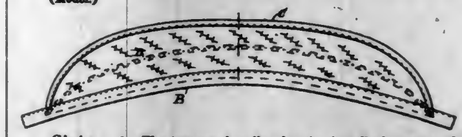
311,183. SQUIB, MATCH, AND TOUCH-PAPER SAFETY-BOX. THOS. J. FOSTER, Shenandoah, Pa., assignor to George W. Gail, Ernst Schmeisser, and Christian Ax, Baltimore, Md. Filed Oct. 25, 1884. (No model.)

311,183.



Claim.—A box for miners' use having a compartment at one end for matches, a separate compartment surrounding the same for squibs, and a compartment at the opposite end of the box for touch-paper.

311,184. APPAREL-COLLAR. WILLIAM H. GALLUP, Troy, N. Y., assignor to the Gallup Novelty Works, same place. Filed Nov. 20, 1882. (Model.)



Claim.—1. The improved collar herein described, composed of counterpart plies, an upper supplemental ply of less width than the collar, and having its outer edges counterpart with the shape of the collar, and its lower edge curved from its ends upward, and a lower supplemental ply of less width than the collar, having its upper edge cut in alignment with and lapping the under edge of the upper supplemental ply, said parts being secured together by a line of stitches about the edges of the collar, and by a line of stitches on a fold-line through the lapped edges of the supplemental plies, substantially as and for the purpose set forth.

2. The improved collar, composed of counterpart plies, an upper supplemental ply of less width than the collar, interposed between the counterpart plies, having its outer edges cut to the shape of the collar and its under edge curved from its ends upward, and a lower supplemental ply of less width than the collar interposed between the counterpart plies, having its upper edge curved in alignment with and lapping the lower edge of the upper supplemental ply, said parts being secured together by a line of stitches about the edges of the collar, and by a line of stitches on a fold-line through the lapped edges of the supplemental plies, substantially as and for the purpose set forth.

311,185. APPARATUS FOR TESTING THE EYES. FRANCIS A. HARDY, Chicago, Ill. Filed Aug. 1, 1884. (No model.)

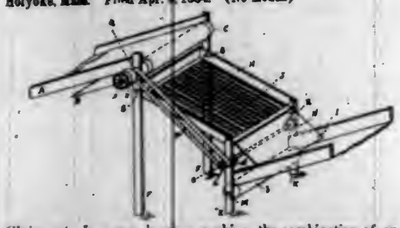


Claim.—1. The combination, in an apparatus for testing the eye, of a series of spherical lenses mounted in a rotatable disk, so that they may severally be brought into line with the eye, and a series of cylindrical lenses mounted in a straight slide sliding in a set of ways or guide made rotatable concentrically with the line of sight, substantially as specified.

2. In an apparatus for testing the eye, the single disk A, provided with several series of spherical lenses, *a a'*, one series arranged concentric to the other, said disk being mounted to rotate on a frame which carries a single eye-piece, B, the disk and eye-piece being movable in relation to each other, substantially as specified, so that either series of lenses may at will be brought into line with said eye-piece.

3. The stenopaic slit contrived to be rotated in front of the eye, in combination with a series of spherical lenses arranged in a circle in a disk, to be brought one at a time into visual line with said slit, substantially as specified.

311,186. DEVICE FOR CLEANING CUT RAGS AND SAVING SMALL RAGS OF THE SAME. JOHN B. HART and EMERY H. WALKER, Holyoke, Mass. Filed Apr. 4, 1884. (No model.)



Claim.—1. In a rag-cleaning machine, the combination of an endless delivery belt or apron, an endless receiving belt or apron, and an interposed tray having an open-work or foraminous bottom, substantially as set forth.

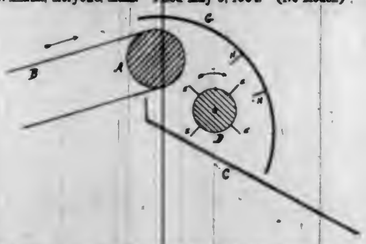
2. In a rag-cleaning machine, the combination of an endless receiving belt or apron, an endless delivery belt or apron, an interposed inclined tray having an open-work or perforated bottom, and a cam-shaft having cams for vibrating said tray, substantially as set forth.

3. In a rag-cleaning machine, the combination, with endless delivery and receiving belts or aprons, of a pivoted inclined tray placed between said belts, and provided at its lower end with projections, and a cam-shaft having cams on which said projections rest, as set forth.

4. In a rag-cleaning machine, the combination, with endless delivery and receiving belts, of an inclined vibrating tray placed between said belts, and having an open-work or perforated bottom, and an inclined apron arranged at the lower end of said tray, substantially as set forth.

5. The combination, in a rag cleaning and separating machine, of carrier-rolls C and S, and carriers, tray H, apron I, cams N, projections R, and pulleys E, Q, and O, substantially as set forth.

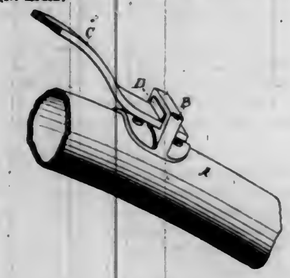
311,187. RAG-CLEANING MACHINE. JOHN B. HART and EMERY H. WALKER, Holyoke, Mass. Filed May 5, 1884. (No model.)



Claim.—1. In a rag-cleaning machine, the combination of an endless feeding-belt or carrier, a revolving shaft or cylinder having beating-arms, a bonnet or shield inclosing said shaft or cylinder, and a screen placed below the latter and the forward end of the feeding-belt, substantially as set forth.

2. In a rag-cleaning machine, the combination of an endless feeding-belt or carrier, a revolving shaft or cylinder having beating-arms, a bonnet or shield inclosing said shaft or cylinder, and provided on its inner side with wings, and an inclined screen placed below the latter and the forward end of the feeding-belt, substantially as set forth.

311,188. VELOCIPEDE-SPRING CLIP. JOHN KNOCH, Hartford, Conn., assignor to the Pope Manufacturing Company, same place. Filed Dec. 8 1884. (No model.)

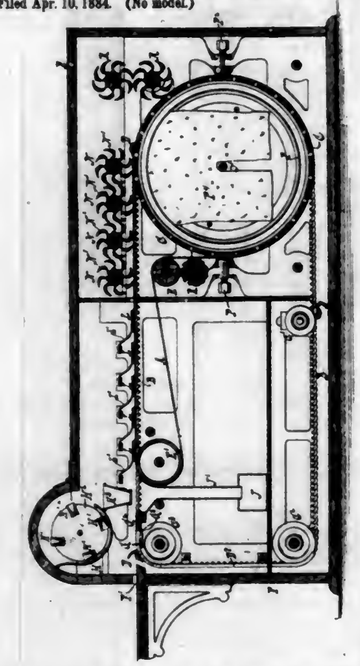


Claim.—1. In a velocipede-saddle-spring clip, a metallic spring constructed and adapted to operate essentially as set forth.

2. A spring-block, D, having sides d d' d', and spring d^2, constructed and adapted to be combined with a velocipede-spring clip, substantially as set forth.

3. The combination of saddle-spring C, clip B, and the metallic spring d^2, with means for holding the latter in position, essentially as set forth.

311,189. BRONZING-MACHINE. ALBERT KOMP, New York, N. Y. Filed Apr. 10, 1884. (No model.)



Claim.—1. The combination of the endless apron composing the sheet-carrier, the endless chains composing the gripper-carrier, arranged adjacent to the edges of the apron, and rollers supporting a portion of both the apron and the chains in the same horizontal plane, substantially as and for the purpose described.

2. A gripper composed of the bar, the shaft arranged on the bar, and constructed with an arm at one end, the jaws fixed to the shaft to close against the bar, and the spiral springs arranged on the shaft to close the jaws, in combination with the trip fixed to the machine-frame to engage the arm of the gripper-shaft for opening the jaws, and the endless chains engaging the opposite ends of the gripper-bar, substantially as and for the purpose described.

3. A gripper composed of the bar sunken on one of its longitudinal edges, the shaft arranged on the other longitudinal edge of such bar, and constructed with a lateral arm at one end, the jaws fixed to the shaft to close against the sunken portion of the bar, and the spiral springs arranged on the shaft to close the jaws, in combination with the trip fixed to the machine-frame to engage the arm of the gripper-shaft for opening the jaws, and the endless chains engaging the opposite ends of the gripper-bar, substantially as and for the purpose described.

4. The combination of the bed for supporting the leading edge of the sheet, the edge-gage made in sections which are pivoted in the bed, and the spring or springs of the gage-sections with the gripper-carrier and the gripper arranged to displace the gage-sections, and constructed to close at a point opposite thereto, substantially as and for the purpose described.

5. The combination, with the bronze-feeder and bronze-reservoir, of the revolving bucket-wheel, the weighted buckets of such wheel, the bucket-shafts constructed with an arm at one end, and the trip fixed to the machine-frame to engage the arms of the bucket-shafts for reversing the buckets at a point above the bronze-feeder, substantially as described.

6. The combination, with the apron composing the sheet-carrier, of the bronze-feeder arranged at a point in advance of the sheet-carrier, leaving an open space below the feeder, the waste-receptacle, and the conveyer leading from a point below the bronze-feeder to the waste-receptacle, substantially as shown and described.

7. The combination, with the endless apron composing the sheet-carrier, of laterally-reciprocating bronze-distributing brushes, and the spring-arms supporting such brushes, substantially as and for the purpose described.

8. The combination, with the endless apron composing the sheet-carrier, of the revolving sheet-cleaning brushes, each constructed with yielding flaps to impinge against the sheet and engage the flaps of the adjacent brush or brushes, substantially as and for the purpose described.

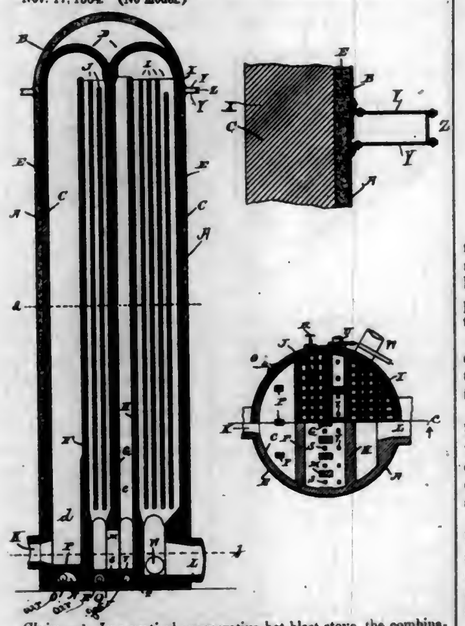
9. The combination, with the apron composing the sheet-carrier, the bronze feeding and distributing devices, and the inclosing-case, of the revolving perforated cylinder, forming a support for the apron, and the revolving suction-fans arranged at the opposite ends of the cylinder, substantially as and for the purpose described.

10. The combination, with the apron composing the sheet-carrier, the bronze feeding and distributing devices, and the inclosing-case, of the revolving perforated cylinder, forming a support for the apron, the stationary cylinder, of cloth or other similar material, within the revolving cylinder, the end heads of the stationary cylinder, and the revolving suction-fans arranged in the end heads, substantially as and for the purpose described.

11. The combination, with the apron composing the sheet-carrier, the bronze feeding and distributing devices, and the inclosing-case, of the revolving perforated cylinder having end rings provided with anti-friction rollers, the stationary cylinder, of cloth or other similar material, within the revolving cylinder, the end heads of the stationary cylinder having guideways for the anti-friction rollers of the revolving cylinder, and the revolving suction-fans arranged in the cylinder-heads, substantially as and for the purpose described.

12. The combination, with the apron composing the sheet-carrier, the bronze feeding and distributing devices, and the inclosing-case, of the revolving perforated cylinder, the stationary cylinder, of cloth or other similar material, the screen arranged in the stationary cylinder at about its mid-length, and the revolving suction-fans arranged in such cylinder at its opposite ends, substantially as and for the purpose described.

311,190. HOT-BLAST STOVE. DAVID LAMOND, Allegheny, Pa. Filed Nov. 17, 1884. (No model.)

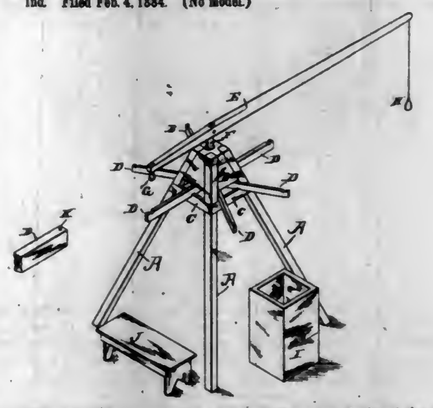


Claim.—1. In a vertical regenerative hot-blast stove, the combination, with an initial combustion-chamber provided with a gas and an air inlet, of a gas and air inlet at the foot of the second uptake in the stove, between the combustion-chamber and the chimney-point of the stove, substantially as and for the purpose set forth.

2. The combination, with the initial combustion-chamber provided with inlets for gas and air, and the uptake e, between such combustion-chamber and the chimney-point of the stove, of chamber T, ports V, gas-valve U, chamber Q, ports S, and air-valve R, located at the foot of such uptake, substantially as and for the purpose set forth.

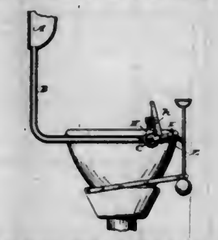
3. The combination of the vertical brick wall-work, the vertical metal shell surrounding the same, the top portion of the metal shell joined to the base portion of the shell by a yielding joint, and arches at the top of the wall-work abutting upon the top portion of the metal shell, substantially as and for the purpose set forth.

311,191. BUTCHERING DEVICE. ROBT. M. LAREMORE, near Peoria, Ind. Filed Feb. 4, 1884. (No model.)



Claim.—The combination, substantially as set forth, of the pyramidally-arranged legs A, the top piece, B, the fulcrum-pieces C, secured to the legs upon a level below the bottom of the top piece, arms D, fitted to engage over said fulcrum-pieces and under said top piece, and the sweep-lever E, pivoted to swivel in the top piece.

311,192. AUTOMATICALLY DISINFECTING WATER-CLOSETS, URINALS, &c. WILLIAM J. LONGLEY, Mount Vernon, N. Y., and CHARLES ELKIN, Jersey City, N. J. Filed Nov. 20, 1883. (No model.)



Claim.—1. The herein-described disinfecting device, consisting of the combination, with a water-closet basin or analogous receptacle, of a reservoir, a pipe connecting the reservoir and basin, and a movable valve having a chamber communicating with said pipe, and adapted to hold a portion of the contents of said reservoir and to be placed in communication alternately with the reservoir and basin, substantially as set forth.

2. An automatic disinfecting device comprising a storage-reservoir, supply-pipe, and stop and carriage cock, box, and box-chamber, adapted to act in connection with mechanism provided to produce a flow of water for the purposes of cleansing, substantially as described.

3. The herein-described disinfecting device, consisting of the combination, with a water-closet basin or analogous receptacle, of a reservoir, a pipe connecting the reservoir and basin, a box having a chamber communicating with said pipe, and a valve adapted to place said box in communication alternately with the reservoir and with the basin, substantially as set forth.

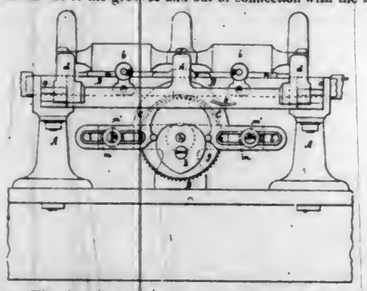
4. The herein-described disinfecting device, consisting of the combination, with a water-closet basin or analogous receptacle, of a reservoir, a pipe connecting the reservoir and basin, a box having a chamber communicating with said pipe, a valve adapted to place said box in communication alternately with the reservoir and with the basin, and means for regulating the capacity of said box, substantially as set forth.

5. The herein-described disinfecting device, consisting of the combination, with a water-closet basin or analogous receptacle, of a reservoir, a pipe connecting the reservoir and basin, a box having a chamber communicating with said pipe, and a valve adapted to place said box in communication alternately with the reservoir and with the basin, said box being provided with a piston, substantially as set forth.

6. The herein-described disinfecting device, consisting of the combination, with a water-closet basin or analogous receptacle, of a reservoir, a pipe connecting the reservoir and basin, a box having a chamber communicating with said pipe, a valve adapted to place said box in communication alternately with the reservoir and with the basin, a piston in said box, and devices for connecting said piston with the operating-handle of the valve, substantially as set forth.

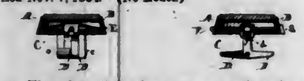
311,193. ROVING TRAVERSE MOTION OF SPINNING-MACHINES. FREDERICK MASON, Taunton, Mass., administrator of William Mason, deceased. Filed Nov. 26, 1883. (No model.)

Brief.—The slide is entirely supported by the stand, and the guide-bar rests in open grooved guides. This arrangement allows the guide-bar to be lifted out of the grooves and out of connection with the slide.



Claim.—The shaft *e*, having arms *d*, and pivoted to the stand, the stand A, having the grooved guides *o o*, the guide-bar D, resting on guides *o o*, the slide C, separably connected to the guide-bar, slide-operating devices, substantially such as shown, and the rollers *a b*, all combined, constructed, and arranged as and for the purpose set forth.

311,194. BUTTON OR STUD. NATHAN F. MATHEWSON, Providence, R. I. Filed Nov. 7, 1884. (No model.)



Claim.—1. The plate C, having posts *c c* and wedge *d*, for supporting and seating the elbow-levers D D, in combination with said elbow-levers D D and spring E, the whole constructed and operating substantially as described.

2. The lever-operated spring E, having prongs *e e*, in combination with the plate C and elbow-levers D D, for locking and releasing said levers D D, in the manner and for the purposes substantially as described.

3. The combination of the pronged lever-operated spring E, plate C, as described, and elbow-levers D D, the whole constructed and operating substantially as specified.

4. The combination of the plate C, lugged raising-lever F, and pronged spring E, the whole arranged and operating substantially as described.

5. The combination of the shell A, annular rim B, pronged spring E, raising-lever F, plate C, and suitably-supported elbow-levers D D, the whole arranged and operating together substantially as described.

311,195. ROAD-SCRAPER. JAS. A. MCKENZIE, Galesburg, Ill. Filed Apr. 11, 1884. (No model.)

Brief.—A two-part scraper-box is formed with a shorter front hinged scraping part, the tipping down of the front edge of which raises its rear end and the front end of the rear or receiving part. Handles may be attached to the forward part and their play over the receiving part limited by rear stops and adjustable forward stops, and have a locking pin or spring and thumb-lever to engage a catch on the back of scraper-box.



Claim.—1. A road-scraper formed in two parts—a shorter forward part and longer rear part—hinged to each other and adapted, the forward part to be turned downwardly at the front end, whereby it may enter and raise the dirt and discharge it into the rear part, which rear part is raised at its front end by turning down the front end of the forward part, substantially as described.

2. In a road-scraper, in combination, substantially as described, with a scraper-box formed in two parts—a forward cutting part and a rear dirt-receiving part—hinged to each other, handles fixed to the forward part, for the purpose specified.

3. A road-scraper consisting of two parts hinged together, the hinged and adjacent parts adapted to be raised in the act of scraping and loading, and having the guards *c'* lapping and engaging when in said raised position, substantially as and for the purpose specified.

4. In a road-scraper, in combination, substantially as described, with a scraper-box formed in two parts—a forward cutting part and a rear dirt-receiving part—the forward part being provided with dirt-guards *c'*, the handles D, fixed to the forward part, for the purpose specified.

5. In a road-scraper, in combination, substantially as described, with a scraper-box formed in two parts—a forward cutting part and a rear dirt-receiving part—hinged to each other, handles fixed to the forward part, and a lock by which the handles may be locked to and released from the rear part of the scraper-box, substantially as and for the purpose specified.

6. In combination with the scraper-box, made in two parts, hinged to each other, and the handles fixed to the forward part, A', the catch *b*, bolt *e'*, spring E, rod *f'*, and elbow-shaped thumb-lever F, substantially as and for the purpose specified.

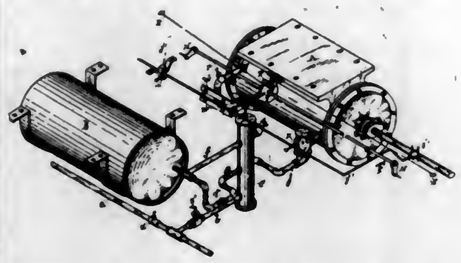
7. In a road-scraper, in combination, substantially as described, with a scraper-box formed in two parts—a forward cutting part and a rear dirt-receiving part—hinged to each other, and handles D, stops H, for the purpose specified.

8. In a road-scraper, in combination, substantially as described, with a scraper-box formed in two parts—a forward cutting part and a rear dirt-receiving part—hinged to each other, and handles D, adjustable stops H, for the purpose specified.

9. In a road-scraper, in combination, substantially as described, with a scraper-box formed in two parts—a forward cutting part and a rear dirt-receiving part—hinged to each other, and handles D, the stops G, for the purpose specified.

10. In combination, the box A, made in two parts, A' A'', hinged to each other, handles D, fixed to the part A', and the stops G and H, substantially as and for the purpose specified.

311,196. AUTOMATIC AIR-BRAKE. ROBERT M. MCKINNEY, Elizabeth, Pa. Filed May 19, 1884. (No model.)



Claim.—1. In an air-brake apparatus, the combination of a brake-cylinder, a reservoir, a main air-supply, and a valve arranged with relation thereto so as to release the brakes by an increase in the main air-supply, and apply them by decreasing the same, as and for the purposes set forth.

2. In an air-brake apparatus, the combination of a brake-cylinder, a reservoir, a main air-supply, an interposed valve-chamber, a piston arranged in the valve-chamber so that its opposite heads are subjected the one to the pressure in the main supply-pipe and the other to the pressure in the reservoir, valves actuated by said piston, air-pipes which lead to opposite ends of the brake-cylinder, and pipes leading from the valve-chamber to the reservoir, one of said pipes being provided with a check-valve, substantially as and for the purposes specified.

3. In an air-brake apparatus, the combination, with an air-reservoir, a brake-cylinder, and a main air-supply, of the valve-chamber having the two ports leading to the reservoir, the two ports leading to the brake-cylinder, and the exhaust-port, and the piston having the three slide-valves which control said ports, substantially as and for the purposes specified.

4. In an air-brake apparatus, the combination of a brake-cylinder, a reservoir, a main supply-pipe, a valve-chamber provided with valves actuated by disturbing the equilibrium of pressure in the reservoir and main supply-pipe, and a conductor's valve located on the main supply-pipe, substantially as and for the purposes specified.

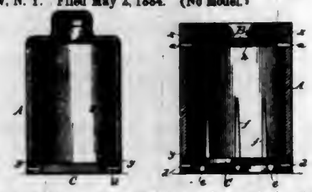
5. In an air-brake apparatus, the combination of a brake-cylinder, a reservoir, a main supply-pipe, a valve-chamber provided with a valve actuated by disturbing the equilibrium of pressure in the main supply-pipe and reservoir, a spring-resistance for increasing the resistance of the valve to pressure in the reservoir, and a locking device for restricting the action of the spring, substantially as and for the purposes specified.

6. In an air-brake apparatus, the combination, with a balanced valve, of an auxiliary spring, an adjustable radial spring-arm, and traveling locking-bars actuated from the piston-rod of the brake-cylinder, substantially as and for the purposes specified.

7. In air-brake apparatus, the combination, with a balanced valve, of an auxiliary spring, a radial spring-arm for increasing or decreasing the power of the auxiliary spring, and adjustable traveling locking-bars actuated from the piston-rod of the brake-cylinder, substantially as and for the purpose specified.

8. In an air-brake, the combination, with the air-supply pipe, the brake-cylinder, and pipes leading to opposite sides of the piston thereof, of a reducing-valve interposed between the air-supply and brake-cylinder and opening inwardly toward the latter, substantially as set forth and described.

311,197. MANUFACTURE OF GLASS CRUETS. DAVID A. MCNAIR, Warsaw, N. Y. Filed May 2, 1884. (No model.)



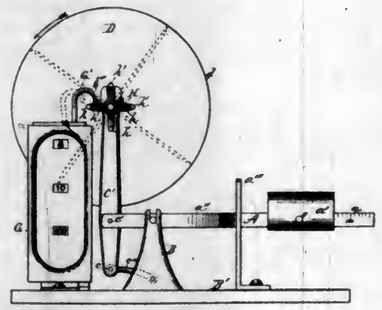
Claim.—1. A cruet or vessel having a vitreous body with an opening at the lower end as large as the internal chamber of the body and with a shoulder, *y*, and bottom piece, C, confined by pins *d*, substantially as set forth.

2. A glass vessel open at both ends having internal shoulders, *x y*, and top and bottom pieces, B C, confined against said shoulders by pins, substantially as described.

3. The vessel having an internal shoulder, a plate in contact therewith, and with external lugs and internal fingers, substantially as and for the purpose set forth.

4. The vessel having an upper perforated portion open at the bottom and provided with a detachable piece, C, and having a sheet, *h*, confined beneath the upper perforated part, substantially as and for the purpose set forth.

311,198. AUTOMATIC WEIGHING-SCALE. PROSPER MORRISON, Maquon, Ill. Filed Apr. 11, 1884. (No model.)



Claim.—1. In combination with the pivoted scale-beam, the frame pivoted vertically to and extending above and below said scale-beam, and having link *c''* below the fulcrum and attached to the stationary part of the device, a rotary receiver journaled in said frame above the fulcrum, and a stopping device, substantially as described.

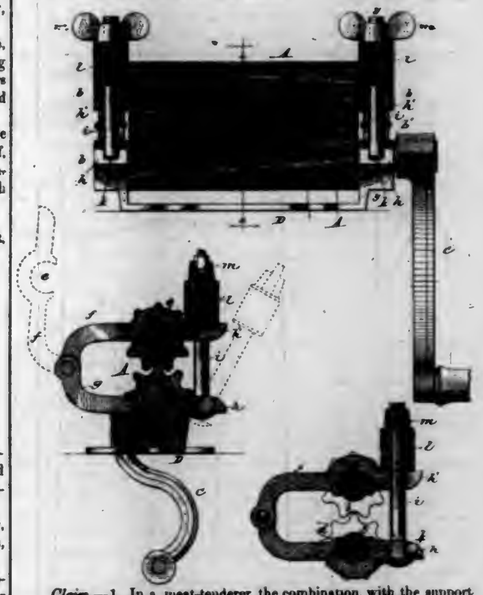
2. In combination, the scale-beam, the rotary grain-receiver, having compartments *d''* and lugs *f*, and the spring-plate E, having a catch, *e*, with notch *e'*, and cam *e''*, substantially as and for the purpose specified.

3. In combination, the scale-beam, the frame C, the links *c''*, the receiver D, having lugs *f*, and the spring-plate E, having a catch, *e*, with notch *e'*, and cam *e''*, adapted to operate substantially as and for the purpose specified.

4. In combination, the scale-beam, the rotary receiver suspended thereon by frame C, the links *c''*, the receiver D, having lugs *f*, the spring-catch *e*, the registering apparatus, and the arms *h*, having tappets *h'*, adapted to operate the register by acting on the arm G', substantially as and for the purpose specified.

5. In a weighing-scale, the combination of a rotary receiver having the tappet *h'* on one of its journals, and a registering device having the curved arm G' in contact with and operated by said tappets, substantially as described.

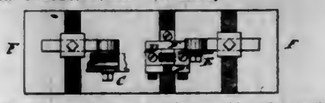
311,199. MEAT-TENDERER. SARAH A. MOULTON, Grand Rapids, Mich. Filed Dec. 29, 1882. (No model.)



Claim.—1. In a meat-tenderer, the combination, with the supporting-frame and the actuating devices, of a ribbed roller mounted in bearings in said frame, a second ribbed roller arranged to mesh with the former, arms or links hinged to said frame and having bearings for said second roller, and swinging clamps consisting of the bolts *i*, connected loosely with the frame, and having springs and nuts adapted to engage with said links, substantially as set forth.

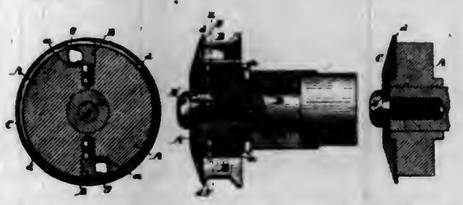
2. In a meat-tenderer, the combination, with the supporting-frame and the actuating devices, of a ribbed roller mounted in bearings in said frame, a second ribbed roller arranged to mesh with the former, arms or links hinged to said frame and having bearings for said second roller, and swinging clamps consisting of the bolts *i*, held loosely in apertures in the frame, and adapted to be supported in an inclined position by the cross-bars *k*, and nuts and springs on said bolts adapted to engage with forks in said links, substantially as set forth.

311,200. ATTACHMENT FOR SCREW-CUTTING MACHINES. F. MÜLLER, Elizabeth, N. J., assignor to himself and Matthew Macdougall, same place. Filed Dec. 28, 1883. (No model.)



Claim.—In an automatic screw-cutting machine, the combination, with a transversely-sliding tool-supporting piece, of a head-shaping tool, a cutting-off tool, and a knurling die or roller that is supported on said sliding piece intermediately between said tools, substantially as described.

311,201. ROTARY CUTTER. WILLIAM D. ORCUTT, Boston, Mass., assignor of one-half to James H. Bussell, same place. Filed Feb. 8, 1884. (No model.)

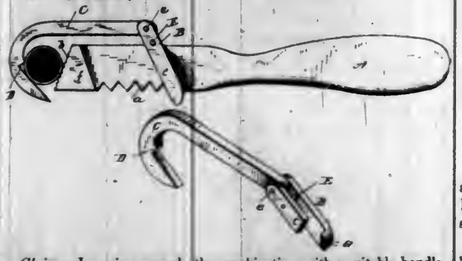


Claim.—1. The combination of a circular cutter-head provided with one or more radial slots cut longitudinally through its periphery parallel to its axis, and one or more cutters mounted and adjustable radially in said slots, and having their outer ends molded to the counterpart of the desired shape to be given to the sole-edge, and each provided with the throat *e* and the circumferentially-projecting blade *f*, whereby it is adapted

to be sharpened by grinding its front radial or nearly-radial face, substantially as described.

2. The cutter A, provided with one or more slots, *a*, one or more cutter-blades, B, fitted to and arranged to be adjusted radially in said slots, and the rand-guard C, provided with the annular lip *d*, all arranged and adapted to operate substantially as and for the purposes described.

311,202. WRENCH. WASHINGTON L. PARKER, Spartanburg, S. C., assignor of one-half to Edward McDowell, same place. Filed Apr. 14, 1884. (No model.)

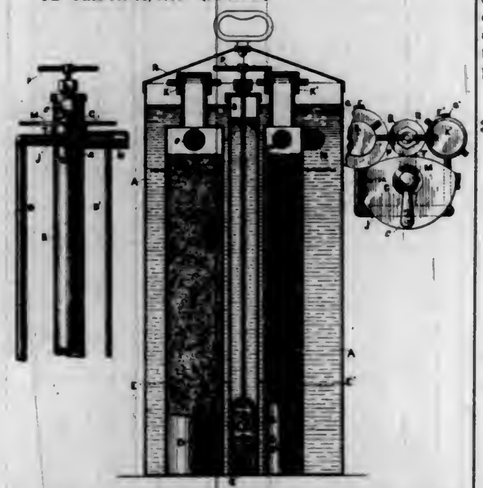


Claim.—In a pipe-wrench, the combination, with a suitable handle, A, formed on one of its edges with the teeth *a*, of the sliding collar or sleeve B, formed with the transverse bar *d*, having an inclined face to engage the teeth, the jaw or hook C, pivoted to the sleeve or collar, a bar, E, arranged below the pivot of the hook, to prevent the contact of the latter with the handle, the forward end of the hook or jaw extending around the front end of the handle, the action of the hook or jaw drawing the sleeve or collar in an inclined position on the handle to cause the bar *d* to engage with the teeth more firmly, as and for the purpose set forth.

311,203. COMPOSITION OF MATTER FOR WATERPROOFING. I. V. REAGLE, Schenectady, N. Y., assignor of two-thirds to Isaac Y. Fuller, same place, and William A. Fish, Utica, N. Y. Filed Nov. 19, 1883. (Specimens.)

Claim.—The herein-described waterproofing compound, consisting of the following ingredients in the proportions essentially as stated, to wit: wood-alcohol, one gallon; castor-oil, one pound; gum-camphor, one pound; pyroxyline, one pound; gum-shellac, one-fourth of a pound.

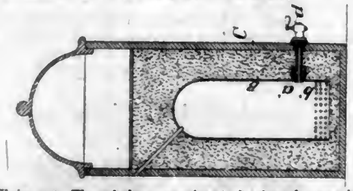
311,204. FIRE-EXTINGUISHER. JOHN S. SHRAWDER, Upper Dublin Pa. Filed Oct. 31, 1883. (No model.)



Claim.—1. The combination, in a chemical fire-extinguisher, of the following elements: a pump for supplying water, a discharge-pipe leading therefrom to two separate inlet-pipes whose combined capacity is not substantially greater than the capacity of said discharge-pipe, two chemical reservoirs into which said inlet-pipes, respectively, lead, and two separate exit-pipes leading from said reservoirs and uniting in a common discharge-nozzle, said elements being arranged (with reference to the travel of the water stream) in the order mentioned, and for the purposes set forth.

2. The combination, in a chemical fire-extinguisher, of the following elements: a tank, a pair of chemical-reservoirs within said tank, but isolated therefrom and from each other, a pump having an inlet communicating with said tank, and separate supply-pipes which lead into said reservoirs, separate exit-pipes leading from said cylinders, a combining-chamber into which said exit-pipes lead, and a final exit-pipe adjacent to said combining-chamber, said tank forming an inclosure for the other elements of such combination, substantially in the manner specified.

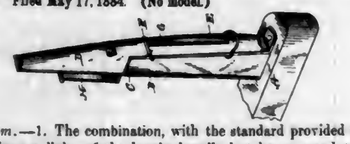
311,205. WATER-COCK ATTACHMENT. LAWRENCE SHUSTER, Jr., Philadelphia, Pa. Filed Mar. 1, 1884. (No model.)



Claim.—1. The tubular extension A, having the tapering point *a* and tapering screw-thread *b*, in combination with the inner reservoir, B, outer casing, C, and cock *d*, substantially as and for the purpose described.

2. The tubular extension or attachment A, having the tapering point *a*, and provided on the opposite end with the tapering screw-thread *b*, in combination with an inner vessel, B, and outer casing, C, substantially as and for the purpose described.

311,206. DETACHABLE WAGON-STAKE. ROBERT D. SHUTT, Capac, Mich. Filed May 17, 1884. (No model.)

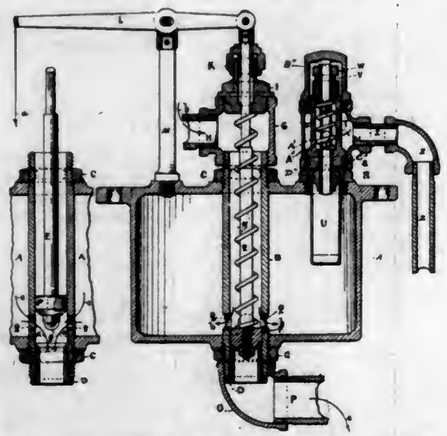


Claim.—1. The combination, with the standard provided with a series of rings or links, of the herein-described stake arranged to pass through the links, and a spring catch or rod adapted to spring around one of the links, as set forth.

2. The combination, with the standard, of the herein-described stake detachably fitted to the standard, and provided with a hanger-plate arranged on the inner face of the same, and adapted to suspend the extra board on a line with the side-board of the wagon, as set forth.

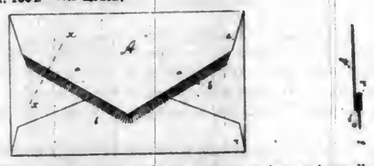
3. The combination, with the standard having two or more links or rings secured thereto, of the herein-described stake provided with a downwardly-extending arm passing through the links, the upper portion of the stake resting on the top of the standard, and provided on its inner face with a hanger-plate to receive an extra board, as and for the purpose set forth.

311,207. WATER-CLOSET TANK OR CISTERN. MICHAEL J. SMITH, New York, N. Y. Filed Jan. 16, 1884. (No model.)



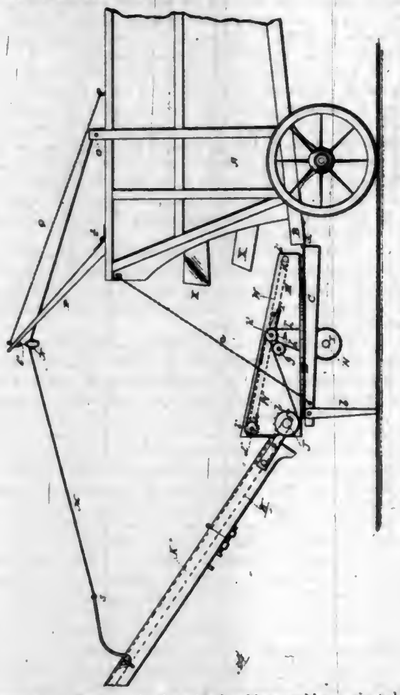
Claim.—In a water-closet cistern, the combination of the tank A, tube B, connected with the water-supply pipe H, and having openings o o, and valve F, operating in said tube to admit water to the tank, and also to open communication between the tank and receptacle to be flushed, substantially as and for the purpose set forth.

311,208. ENVELOPE. ROBERT SNEIDER, Brooklyn, N. Y. Filed Jan. 11, 1884. (No model.)



Claim.—The combination of envelope A, having inwardly-turned fold *c* and outwardly-turned fold *d*, with the border *b*, fastened between folds *c d*, substantially as herein shown and described.

311,209. STRAW-STACKER. DUDLEY D. SPRAGUE, California, CHAS. D. SPRAGUE, Chilhowee, and PEARLEY J. SPRAGUE, Higbee, Mo.; said Charles D. Sprague assignor to said Dudley D. and Pearley J. Sprague. Filed Jan. 29, 1883. (No model.)



Claim.—1. The combination of a thrashing-machine, a pivoted laterally-swinging straw-elevator, and a pivoted conveyer intermediate of the machine and swinging elevator, to follow the lateral swing of the elevator and transfer the straw thereto.

2. In a stacker for thrashing-machines, the combination of a supporting-frame, a carrier-frame pivoted to turn on the supporting-frame, and an elevator-frame hinged to the carrier-frame to turn therewith, as set forth.

3. In a stacker, the combination of a pivoted horizontally-movable frame, an endless carrier in said frame, and an elevator-frame having an endless carrier and hinged to the movable frame, as set forth.

4. The combination, with the main frame of a thrashing-machine, of the pivoted horizontally-movable intermediate frame, a carrier, and a vertically-adjustable elevator-frame connected to the outer end of the intermediate frame.

5. In a stacker, the combination of a supporting-base, a driving-shaft mounted in bearings on the supporting-base, a carrier-frame, a shaft mounted in bearings in the carrier-frame, a pivot-bolt securing the frame to the base, gear-wheels connecting the shafts and pivot-bolt, a carrier, and an elevator-frame hinged to the carrier-frame, as set forth.

6. The combination, with a thrashing-machine and elevator-frame, of the frame hinged to the machine, and the carrier-frame mounted thereon intermediate of the elevator-frame and machine, as set forth.

7. In a stacker, the combination, with the laterally-swinging carrier-frame, and elevator-frame hinged thereto, of the track-bearing supporting-base under the carrier-frame, the central idle-wheel on a vertical pivot-pin, and the gear-shafts in bearings, respectively, of the track-bearing frame and carrier-frame, and engaging said idle-wheel, as set forth.

8. The combination, with the hinged folding derrick, its pendent or swiveled pulley, the windlass, and rope or chain extending therefrom, of the elevator-frame, an intermediate laterally-swinging carrier-frame, and a supporting-frame, as set forth.

9. The combination of a thrashing-machine, a supporting-frame hinged thereto, a carrier-frame mounted on the supporting-frame, and an elevator-frame hinged to the carrier-frame and transversely divided, the divided parts being hinged together, as set forth.

10. The combination of a supporting-frame pivoted horizontally, movable carrier-frame, short carrier W, supported on shafts *d d'*, having bearings in the short carrier-frame, a driving-wheel, and wheels to carry suitable belts to connect the driving-wheel with a shaft of the short carrier, as set forth.

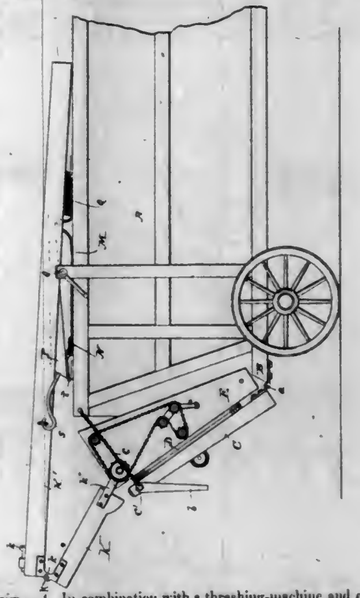
11. The combination of a supporting-frame, the pivoted horizontally-movable frame E, short carrier W, elevator-frame secured at the rear of the movable frame, the carrier-shafts *d d'*, and the sprocket-wheels I, *m*, *k*, *l*, and *j*, as set forth.

12. The combination of the short carrier W, pivoted frame E, elevator-frame, carrier-shaft J, short carrier-shafts *d d'*, and sprocket-wheels I *j k l m*, as set forth.

13. In a stacker, the combination of a supporting-frame, laterally-swinging carrier-frame, a circular notched track on which the carrier-frame is mounted, and an arm rigidly secured to the carrier-frame, having a latch to engage the notched track, as set forth.

311,210. STRAW-STACKER FOR THRASHING-MACHINES. DUDLEY D. SPRAGUE, California, CHARLES D. SPRAGUE, Chilhowee, and PEARLEY J. SPRAGUE, Higbee, Mo.; said Charles D. Sprague assignor to said Dudley D. and Pearley J. Sprague. Filed Dec. 5, 1884. (No model.)

Brief.—A division of application filed by same parties January 29, 1883, Serial No. 83,397.



Claim.—1. In combination with a thrashing-machine and elevator-frame, the intermediate frame hinged or pivoted to the machine and supporting the elevator-frame, substantially as set forth.

2. In combination with a thrashing-machine and elevator-frame, a hinged or pivoted intermediate frame, C, as set forth.

3. The combination of a thrashing-machine, a folding derrick supported by and hinged to the machine, and an elevator-frame adapted to be folded on top of the machine over the derrick, substantially as set forth.

311,211. COVER FOR FRUIT-BASKETS. RICHARD STEPHENS, Albany, N. Y. Filed Oct. 4, 1884. (No model.)

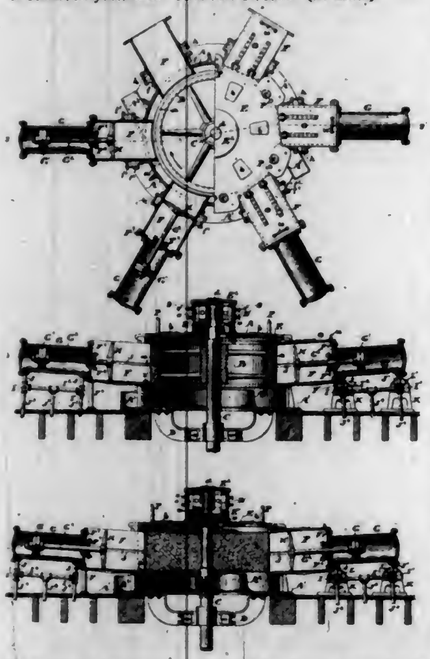
Claim.—1. A fruit-basket cover having a slatted top, and side pieces capable of resting on the rim of the basket, and corner-pieces *c*, holding the cover to its square form, and capable of engaging with the outer circumference of the rim of the basket for holding the cover from shifting horizontally with relation to the basket, all substantially as and for the purposes set forth.

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2. A fruit-basket cover having a slatted top, and side rim-pieces capable of resting on the rim of the basket, and downwardly-projecting pieces secured to the side rim-pieces for holding the cover from shifting horizontally with relation to the basket, and corner tie-pieces to hold the cover to its square form, and capable of engaging with the outer circumference of the rim of the basket, all substantially as and for the purposes set forth.

311,212. MACHINE FOR GRINDING PULP FROM WOOD. ASHLEY B. TOWER, Holyoke, Mass. Filed July 14, 1884. (No model.)



Claim.—1. In combination with a grinding-wheel arranged to be revolved about a vertical axis, one or more feed-boxes or hoppers, arranged with their bottoms inclined to the plane of revolution of said wheel, substantially as described.

2. In combination with a grinding-wheel arranged to revolve about a vertical axis, one or more feed-boxes or hoppers arranged with their center lines (as viewed in plan) at one side of but parallel with radial lines drawn through the center of said wheel, substantially as and for the purposes described.

3. The cylinder A, provided with the annular trough A^3 and one or more discharge-nozzles, A^3, opening therefrom in a direction tangent, or nearly so, to said trough, substantially as and for the purposes described.

4. The combination of the cylinder A, having cut through its vertical wall one or more rectangular openings, one or more hoppers, F, fitted to said openings, the bolts *g*, the slots *f'*, and the bolts *h*, and ears f^2 and f^3, all arranged and adapted to operate substantially as and for the purposes described.

5. The combination, with the cylinder A and grinding-wheel B, of the hopper F, the cylinder G, the piston G', and follower H, mounted upon a common piston-rod, the pipes I^2, J, J', J^3, J^3, and J^4 for conveying water or other fluid to the cylinder G, and the three-way valves I and I', for controlling the flow of said water or steam, substantially as described.

6. The combination of the hopper F, the follower H, the cylinder G, the three-way valve I, the wheel L, mounted upon the stem of said valve the weight M, connected to the wheel L by the cable *n*, the ball or enlargement *o* on said cable, the grip-jaws *p p*, arranged to support the weight M independent of the wheel L, the links *q q*, the rod *r*, the elbow-lever *r'*, and the pin r^2, all arranged and adapted to operate substantially as described.

7. The combination of the hopper F, the follower H, the cylinder G, the piston G' and rod G^2, the three-way valve I, the wheel L, mounted upon the stem of said valve, and provided with a detent-notch in its rim, the weight M', suspended from the periphery of said wheel, the locking latch-lever *m*, the bar N, and the pin *t*, all arranged and adapted to operate substantially as and for the purposes described.

8. The combination of the hopper F, the cylinder G, the piston G', the rod G^2, the follower H, the three-way valves I and I', the wheels L and L', mounted upon the stems of said valves, the rod L^2 for connecting said wheels, the differential weights M and M', connected to the wheel L by suitable flexible connections, the grip-jaws *p p* for supporting the weight M independently of the wheel L, the links *q q*, rod *r*, elbow-lever *r'*, the pin r^2, the bar N, provided with the pin *t*, the spring *y*, and the locking latch-lever *m*, arranged to engage with a detent-notch in the wheel L, all constructed and adapted to operate substantially as and for the purposes described.

9. In combination with a grinding-wheel arranged to revolve about a vertical axis, and a bearing for its shaft above said wheel, the bearing-inclosing cylinder E', the annular trough *v*, fitted to said cylinder, and the inverted cup *w*, attached to the shaft of said wheel, substantially as described, for the purpose specified.

10. The combination of the grinding-wheel B, the shaft C, the cylinder A, the cover E, provided with the cylinder E', having the inwardly-projecting bearing-lugs *e e*, the spider-bearing D', and the set-screws *e' e'*, all arranged and adapted to operate substantially as described.

11. The combination of the hopper F, provided with the longitudinal grooves *j j*, and the slots *s* and *t'*, the follower H, provided with the lugs *i i*, the bar N, provided with the pin *t*, the locking-latch *m*, the wheel L, provided with a detent-notch to receive said latch, the elbow-lever *r'*, provided with the pin r^2, the rod *r*, provided with the slot *z* in its lower end, the links *q q*, the grip-jaws *p p*, the weight M, connected to the wheel L by the cable *n*, and the ball or enlargement *o* on said cable, all arranged and adapted to operate substantially as described.

12. In combination with the cylinder A and the grinding-wheel B, the hopper F, arranged to project through the wall of the cylinder A into its interior, and provided with the discharge-orifice *z'*, substantially as described.

13. In a machine for grinding wood pulp, the combination of a grinding-wheel mounted upon and adapted to revolve about a vertical axis, a suitable casing inclosing said wheel, one or more feed-boxes or hoppers fitted to rectangular openings in the vertical wall of said casing, a cylinder extending outward from each of said hoppers, and containing a piston connected with a follower in said hopper, pipes for conveying water or other fluid to and from said cylinder, valves for controlling the flow of said fluid, and devices for operating said valves by the movements of the wood-feeding follower, when all of these parts are adjustable horizontally, or nearly so, toward the axis of the grinding-wheel, substantially as described.

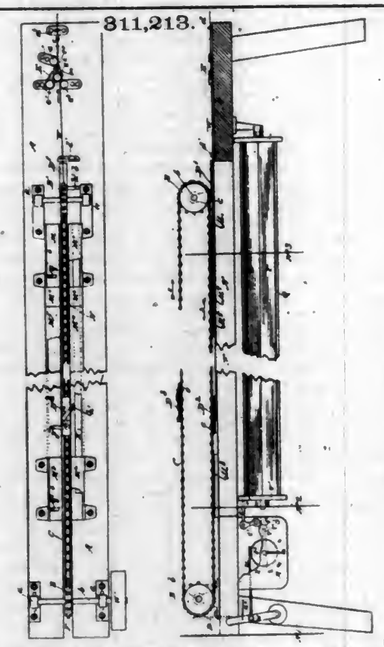
311,213. MACHINE FOR STRAIGHTENING, MEASURING, CUTTING, AND COUNTING WIRE. CORNELIUS VAN DERZEE, Albany, N. Y., assignor to David H. Mathias, same place. Filed Nov. 15, 1883. (No model.)

Brief.—Grasps the wire, draws it through straighteners a predetermined distance, and cuts off a piece. After, say, fifty pieces have dropped onto a shelf of a revoluble rack, a detent is withdrawn, and the weight of the wires revolves the detent and the wires are dumped. The number of them is registered.

Claim.—1. In a machine for straightening and cutting wire, the runner D, constructed and arranged to be moved in a way, and provided with mechanism for pinching and holding a strand of wire, and mechanism for cutting the wire at a point forward of the point where the wire is held by the pinching mechanism, the said pinching mechanism being constructed and arranged to be operated as described, for the purposes set forth.

2. In a runner, D, of a wire-straightening machine, the combination with plate *f*, of block *g*, pinching-cam provided with a lever, cutter provided with a lever, and a spring operating with each said lever, all substantially as and for the purpose set forth.

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3. In combination with the moving runner D, above described, the horizontal flange-shoulder *o'*, operating with one edge of the runner, and horizontal bar K, operating with the lever of the pincher of said runner, substantially as and for the purpose set forth.

4. The combination, with the moving runner D, above described, of flange-shoulders *o'* and *p'* and the tripping-piece *q*, adapted to operate with the lever of the cutter of the runner, substantially as and for the purpose set forth.

5. The combination, with the moving runner D, above described, of a way provided with flange-shoulders *o'* and *p*, bar K, and tripping-piece *q*, for operations with the respective parts of said runner, substantially as and for the purpose set forth.

6. The combination, with the moving runner D, above described, of a way provided with flange-shoulders *o'* and *p*, tripping-piece *q'*, and chamber-room O at the forward end termination of bar K, substantially as and for the purpose set forth.

7. The combination, with the runner D, above described, and way F, provided with flange-shoulders *o'* and *p*, of the movable bar K, and mechanism for moving said bar nearer to said runner or permit it to be moved from the same, substantially as and for the purpose set forth.

8. In a machine for straightening and cutting wire, the combination, with frame A, provided with way F, having horizontal flange-shoulders and the bar above described, with chamber-room O, at the rear end of said bar, and tripping-pieces *q q'* and slot N, made in said way of the endless belt, carried by sprocket-wheels and provided with two or more runners, D, as above described, and mechanism for operating the same, all substantially as and for the purpose set forth.

9. The combination, with frame A and moving runner D, of a register, R, and mechanism for operating said register by the action of the runner, substantially as and for the purpose set forth.

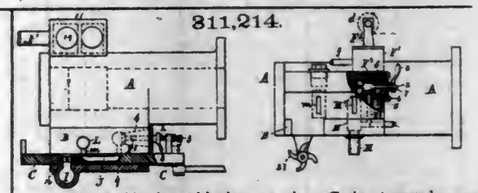
10. The combination, with the wire straightening and cutting machine above described, of the revolving rack Q, and mechanism for alternately holding and loosing said rack accordingly as the runners of said machine are brought in action with said mechanism for operations, substantially as set forth.

11. The combination, with frame A and group E of wire-straightening rollers arranged and combined as above described, of an endless belt provided with two or more runners provided with mechanism, substantially as above described, and moving in way F, provided with mechanism for operating with the parts of said runners, as set forth.

311,214. GAS-MOTOR. GEORGE M. WARD, Newark, N. J. Filed Apr. 25, 1884. (No model.)

Claim.—1. The combination, with the gas-supply duct F^2, of the taper plug 1, inserted across the duct F^2, and provided with the spring G' and spindle 2, and the slide C, provided with lug *g*, arranged and operated to open the gas-duct, all substantially as and for the purpose set forth.

311,214.



2. The combination, with the taper shut-off plug 4, seated across the gas-duct, and provided with duct F^2, as described, of the taper plug 1, seated inside the shut-off plug, and provided with spring G' and spindle 2, and adapted to move endwise to open the duct F^2, as and for the purpose set forth.

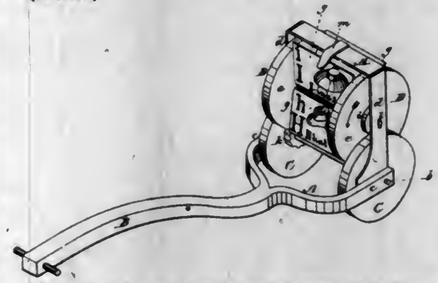
3. The combination, with the slide C and its internal port, J, for conducting the air and gas to the valve-chamber L, of the gratings having inclined perforations for dividing and remixing the gases, substantially in the manner shown and described.

4. The combination, with the slide C and the exhaust-valve 18, of the shaft 20, cam 21, ratchet-wheel 23, and pawl 24, attached to the slide, substantially as and for the purpose set forth.

5. The combination, with the ratchet-shaft 20, intermittently rotated by the pawl 24, of the cam constructed with opposite teeth 21 and 30, and means, substantially as described, for shifting it longitudinally, as and for the purpose set forth.

6. The combination, with the cylinder A and its exhaust-passage, of the check-valve 17 and the exhaust-valve 18, arranged substantially as described, and the means for opening the exhaust-valve intermittently, the whole arranged and operated substantially as and for the purpose set forth.

311,215. TOY. JESSE G. WEBB, Boston, Mass. Filed Aug. 11, 1884. (No model.)



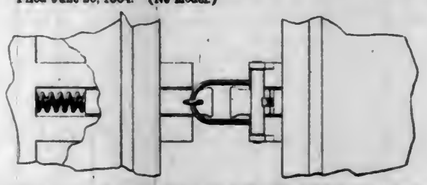
Claim.—1. In a toy, a rotating carrier mounted in a frame, and provided with a series of pivoted leaves bearing letters, pictures, or designs, and adapted to be successively raised into view and dropped down out of the way as the carrier is revolved, substantially as set forth.

2. In a toy the combination, with a trundling-frame having a handle, of a rotating carrier mounted in said frame, and provided with a series of pivoted leaves bearing letters, pictures, or designs, and adapted to be successively raised into view and dropped down out of the way as the carrier is revolved, substantially as set forth.

3. In a toy, the combination, with a trundling-frame, A, supported on wheels C, and provided with a handle, B, of the carrier D, mounted in said frame and provided with a series of leaves, *g*, pivoted between the disks *e e*, and bearing letters, pictures, or designs, and means for transmitting the motion of the wheels C to the carrier D, substantially as described.

4. In a toy, the combination, with the frame A and the rotating carrier D, provided with a series of pivoted leaves, *g*, of the spring *m*, operating substantially in the manner and for the purpose set forth.

311,216. CAR-COUPLING. ROBINSON P. WILSON, Vicksburg, Miss. Filed June 26, 1884. (No model.)



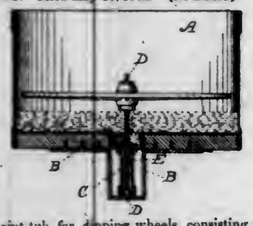
Claim.—1. The combination, with the longitudinal parallel beams B, of a sliding draw-bar having a reduced end, a transverse beam having a forwardly-extending post, and a spiral spring fitted on said post and reduced end of the draw-bar, as set forth.

2. The combination, with the beams B, of a sliding draw-bar having a reduced end, a transverse beam having a forwardly-extending post, a spiral spring fitted on said post and reduced end, an elongated horizontal slot in said draw-bar, and a bar fitting in said slot and secured on the beams B at the ends, substantially as set forth.

3. The combination, with the beams B, of a sliding draw-bar having a seat upon its upper side, and a shaft having a loop, said shaft being pivoted to the beams and having a rib or projection, substantially as set forth.

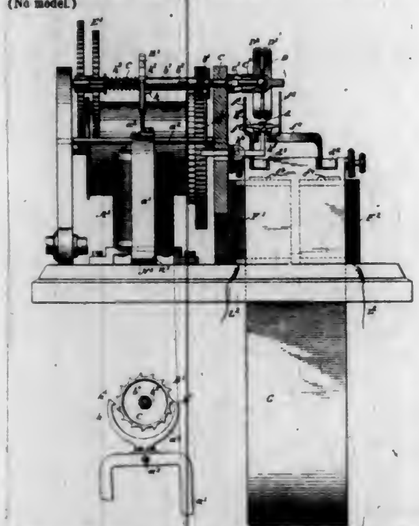
4. The combination, with the beams B, of a sliding draw-bar having an angular seat upon its upper side, a shaft mounted in upwardly-extending ears on the beams B, said shaft having an angular rib or projection, a spring secured to the draw-head and adapted to engage a notch on the shaft, and a loop formed with said shaft, said loop being adapted to engage a hook on the draw-bar of the adjacent car, substantially as set forth.

311,217. PAINT-TUB FOR WAGON-WHEELS. MOSES T. WINTON, Binghamton, N. Y. Filed May 10, 1884. (No model.)



Claim.—A paint-tub for dipping wheels, consisting of a tub large enough to receive the wheel when in a horizontal position, with the well C set in an orifice in the bottom of the tub, said well being fitted with spindle D and spiral spring E and protected by guard B, substantially as shown and described.

311,218. PRINTING-TELEGRAPH. JOHN E. WRIGHT, New York, N. Y., and J. HOLMES LONGSTREET, Hoboken, N. J. Filed May 14, 1884. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, of an electro-magnet, a permanent magnet the poles of which extend in proximity to one pole of said electro-magnet, an escapement-anchor actuated by means of said permanent magnet under the influence of electric currents of alternating polarity, a scape-wheel to which said escapement-anchor is applied, two type-wheel faces moving with said scape-wheel, a printing-platen applied to said type-wheel faces and two electro-magnets, two armature-levers applied thereto and each adapted to actuate said printing-platen, and means, substantially such as described, for causing one or the other of said type-wheel faces to be placed in position to print accordingly as one or the other of said electro-magnets is vitalized.

2. The combination, substantially as hereinbefore set forth, with a type-wheel shaft, of a scape-wheel, an escapement-anchor, a permanent magnet for actuating said anchor, and an electro-magnet to one pole of which said permanent magnet is pivoted at its neutral point, while the respective poles of said permanent magnet extend into proximity to the remaining pole of said electro-magnet or extensions thereof.

3. The combination, substantially as hereinbefore set forth, with the scape-wheels of a printing-telegraph, of an escapement-anchor applied thereto, means, substantially such as described, for actuating the same, two type-wheel faces revolving with said scape-wheel, a printing-platen applied to said type-wheel faces, two electro-magnets and their armatures for actuating said printing-platen, means, substantially such as described, for normally inducing in the cores of said electro-magnets polarization of a given character, and means, substantially such as described, for causing one or the other of said armatures to impel said platen toward said type-wheel faces under the influence of an electric current accordingly as it is transmitted in one direction or the other.

4. The combination, substantially as hereinbefore set forth, with two type-wheel faces of a printing-telegraph instrument, and means, substantially such as described, for revolving the same, of two actuating-armatures upon a permanent magnet inducing in said armatures a given polarization, two electro-magnets, to which said armatures are applied, in the cores of which said permanent magnet normally induces magnetism of the opposite polarity, and retractile springs applied to said armatures having tension sufficient to normally hold said armatures away from their electro-magnets.

5. The combination, substantially as hereinbefore set forth, with a type-wheel and a printing-platen, of an electro-magnet and its armature for actuating said platen, and permanent magnet for normally inducing in said electro-magnet and its armature a given amount of magnetism, a retractile spring of sufficient force to overcome the attractive force normally existing between said electro-magnet and its armature, and means, substantially such as described, for increasing the polarization of said electro-magnet sufficiently to cause its armature to respond.

6. The combination, substantially as hereinbefore set forth, of two type-wheels or type-wheel faces, a printing-platen applied thereto, and two armatures for actuating the same, two electro-magnets applied to said armatures, either one or the other of which may be caused to attract its armature and to thereby effect an impression from the corresponding type-wheel or type-wheel faces, and means, substantially such as described, for causing both of said armatures to respond when desired.

7. The combination, substantially as hereinbefore set forth, of two electro-magnets and their armatures, means, substantially such as described, for causing one or the other or both of said electro-magnets to attract their armatures, a scape-wheel, and means, substantially such as described, for causing said scape-wheel to be moved out of engagement with its anchor when both of said armatures are actuated.

8. The combination, substantially as hereinbefore set forth, of two type-wheel faces, two levers for effecting impressions from said type-wheel faces, respectively, means, substantially such as described, for actuating either one or the other of the same, a scape-wheel controlling the movements of said type-wheel faces, an anchor applied to said scape-wheel, and means, substantially such as described, for causing said scape-wheel to be disengaged from said anchor when both of said levers are actuated simultaneously.

9. The combination, substantially as hereinbefore set forth, with two type-wheel faces, of a scape-wheel and its anchor, two electro-magnets, their armatures, means, substantially such as described, for causing both of said armatures to be actuated simultaneously and to thereby cause said scape-wheel to be disengaged from its anchor, and a pin or detent moving with said scape-wheel which is engaged by said anchor at given point in the revolution of said type-wheels when said scape-wheel is out of engagement with said anchor.

10. The combination, substantially as hereinbefore set forth, of two movable levers, means, substantially such as described, for moving either one or the other or both at will, a tilting lever and its support, the respective ends of which tilting lever may be engaged by the first-named levers independently of each other without interrupting their movements, while both ends when simultaneously engaged cause the said support to be moved and a unison-stop for printing-telegraphs brought into action through the instrumentality of said levers.

11. A type-wheel for printing-telegraph instruments, constructed with two type-faces the planes of which incline from each other, substantially as described.

12. A type-wheel for printing-telegraph instruments, having two type-bearing faces in planes diverging from each other, in combination with a shaft to which said type-wheel is coupled by a universal joint, substantially as described.

13. The combination, substantially as hereinbefore set forth, of a type-wheel having two beveled bearing-faces, a shaft to which it is coupled by a universal joint, and means, substantially such as described, for causing said type-wheel to normally stand with its axis in line with said shaft.

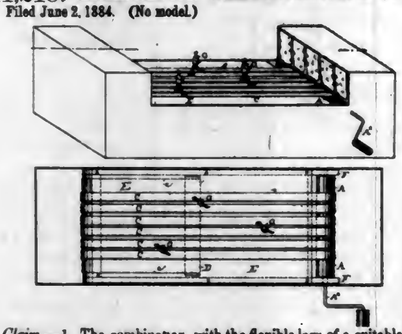
14. The combination, substantially as hereinbefore set forth, of a type-wheel having two beveled faces, a shaft to which it is coupled by a universal joint, a printing-platen for effecting impressions from the same, and means, substantially such as described, for turning said type-wheel so that it will present one or the other of its faces to said platen.

15. The combination, substantially as hereinbefore set forth, of a type-wheel having two beveled faces carrying type, a printing-platen for effecting impressions from one or the other of said faces accordingly as one or the other is presented thereto, two levers either of which may be employed for actuating said platen, and means, substantially such as described, for causing said type-wheel to present one or the other of its faces to said platen accordingly as one or the other of said levers is actuated.

16. The combination, substantially as hereinbefore set forth, of a type-wheel having two beveled faces carrying type, a printing-platen for effecting impressions from one or the other of said faces accordingly as one or the other is presented thereto, two levers either of which may be employed for actuating said platen, and means, substantially such as described, for causing said type-wheel to present one or the other of its faces to said platen accordingly as one or the other of said levers is actuated, and means, substantially such as described, for causing one or the other or both of said levers to be actuated at will.

17. The combination, substantially as hereinbefore set forth, of a type-wheel having two beveled faces carrying type, a printing-platen for effecting impressions from one or the other of said faces accordingly as one or the other is presented thereto, two levers either of which may be employed for actuating said platen, and means, substantially such as described, for causing said type-wheel to present one or the other of its faces to said platen accordingly as one or the other of said levers is actuated, a unison device for said type-wheel which is brought into action when both of said levers are actuated, and means, substantially such as described, for actuating either one or the other or both of said levers at will.

311,219. MECHANICAL TOY. WILLIAM H. ANDERSON, Brooklyn, N. Y. Filed June 2, 1884. (No model.)



Claim.—1. The combination, with the flexible legs of a suitable toy figure, of endless belts or aprons C C, roller A, constructed with gripping-surfaces or devices *a* at different portions of its circumference, and a bar or support, B, all substantially as and for the purpose herein set forth.

2. The combination, with the flexible legs of a suitable toy figure, of endless belts or aprons C C, roller A, constructed with gripping surfaces or devices *a* at different portions of its circumference, a bar or support, B, and an idler-bar, D, all substantially as and for the purpose herein set forth.

3. The combination, with the flexible legs of a suitable toy figure, of endless belts or aprons C C, roller A, constructed with gripping surfaces or devices *a* at different portions of its circumference, a bar or support, B, and a table, E, all substantially as and for the purpose herein set forth.

4. The combination, with the flexible legs of a suitable toy figure, of endless belts or aprons C C, roller A, constructed with gripping surfaces or devices *a* at different portions of its circumference, a bar or support, B, an idler-bar, D, and table E, all substantially as and for the purpose herein set forth.

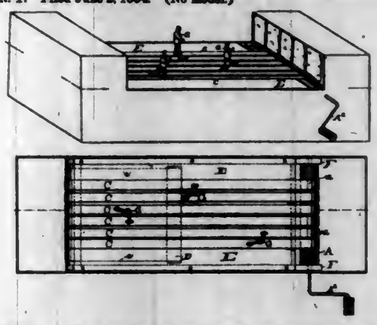
5. The combination, with the flexible legs of a suitable toy figure, of endless belts or aprons C C, roller A, constructed with gripping surfaces or devices *a* at different portions of its circumference, a bar or support, B, and guides I, all substantially as and for the purpose herein set forth.

6. The combination, with the flexible legs of a suitable toy figure, of endless belts or aprons C C, roller A, constructed with gripping surfaces or devices *a* at different portions of its circumference, a bar or support, B, an idler-bar, D, and guides I, all substantially as and for the purpose herein set forth.

7. The combination, with the flexible legs of a suitable toy figure, of endless belts or aprons C C, roller A, constructed with gripping surfaces or devices *a* at different portions of its circumference, a bar or support, B, a table, E, and guides I, all substantially as and for the purpose herein set forth.

8. The combination, with the flexible legs of a suitable toy figure of endless belts or aprons C C, roller A, constructed with gripping surfaces or devices *a* at different portions of its circumference, a bar or support, B, an idler-bar, D, table E, and guides I, all substantially as and for the purpose herein set forth.

311,220. MECHANICAL MOVEMENT. WM. H. ANDERSON, Brooklyn, N. Y. Filed June 2, 1884. (No model.)



Claim.—1. In a mechanical movement, the combination of endless belts or aprons C C, roller A, constructed with gripping surfaces or devices *a* at different portions of its circumference, and a bar or support, B, all substantially as and for the purpose herein set forth.

2. In a mechanical movement, the combination of endless belts or aprons C C, roller A, constructed with gripping surfaces or devices *a* at different portions of its circumference, a bar or support, B, and an idler-bar, D, all substantially as and for the purpose herein set forth.

3. In a mechanical movement, the combination of endless belts or aprons C C, roller A, constructed with gripping surfaces or devices *a* at different portions of its circumference, a bar or support, B, and a table, E, all substantially as and for the purpose herein set forth.

4. In a mechanical movement, the combination of endless belts or aprons C C, roller A, constructed with gripping surfaces or devices *a* at different portions of its circumference, a bar or support, B, an idler-bar, D, and table E, all substantially as and for the purpose herein set forth.

5. In a mechanical movement, the combination of endless belts or aprons C C, rollers A, constructed with gripping surfaces or devices *a* at different portions of its circumference, a bar or support, B, and guides I, all substantially as and for the purpose herein set forth.

6. In a mechanical movement, the combination of endless belts or aprons C C, roller A, constructed with gripping surfaces or devices *a* at different portions of its circumference, a bar or support, B, an idler-bar, D, and guides I, all substantially as and for the purpose herein set forth.

7. In a mechanical movement, the combination of endless belts or aprons C C, roller A, constructed with gripping surfaces or devices *a* at different portions of its circumference, a bar or support, B, a table, E, and guides I, all substantially as and for the purpose herein set forth.

8. In a mechanical movement, the combination of endless belts or aprons C C, roller A, constructed with gripping surfaces or devices *a* at different portions of its circumference, a bar or support, B, an idler-bar, D, table E, and guides I, all substantially as and for the purpose herein set forth.

311,221. LEVELING-ROD. HENRY F. BEAN, Jackson, Mich. Filed July 9, 1884. (No model.)

Claim.—1. The rod B, longitudinally recessed and having lateral apertures at fixed intervals running at right angles to the recess, in combination with a rod, C, sliding wholly within said recess and having its sides exposed through the aforesaid apertures, as and for the purposes set forth.

2. The rod B, longitudinally recessed and laterally apertured, in combination with the rod C, sliding wholly within the said recess, and the clip D, performing the double function of binding the two rods together and adjusting the rod C within the rod B, substantially as and for the purposes described.

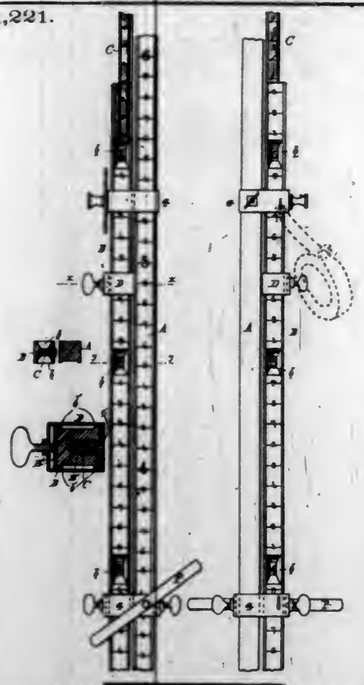
3. In combination, the rod B, provided with the lateral extensions *b'*, sliding rod C, and the clip D, all combined, arranged, and operating as and for the purposes set forth.

4. The rod B, longitudinally recessed, in combination with the rod C, sliding wholly within the said recess and having its central portion of less width than said recess, substantially as and for the purpose specified.

5. The combination, with the rods A and B, adjustably connected together, of the bars P, pivotally connected with one of said rods and vertically adjustable thereon, substantially as and for the purpose set forth.

6. The rod A, in combination with the rod B, clips *a*, and the bars P, pivotally attached to said clips, the parts being combined and arranged substantially as and for the purposes specified.

311,221.



311,222. WIRE BALE-TIE. PARK BENJAMIN, Brooklyn, N. Y. Filed Aug. 5, 1884. (No model.)



Claim.—1. In a wire bale-tie, and at one end thereof, a closed loop or eye consisting of a clove-hitch formed of the wire of said tie, substantially as described.

2. In a wire bale-tie, and at one end thereof, a closed loop or eye formed by making the loops A and B in the wire of said tie and placing the loop B over and upon the loop A, substantially as described.

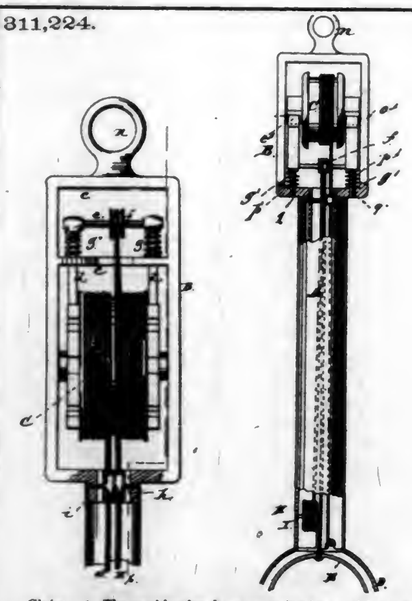
311,223. FILTERING-PAPER. GEORGE H. BILLINGS, EZRA W. CARTER, and DAVID R. SMITH, Cohoes, N. Y. Filed Sept. 18, 1884. (No model.)



Claim.—As an article of manufacture, a sheet of filtering-paper having a fibrous material embedded in its central portion, substantially as described.

311,224. EXTENSION-LAMP. GEORGE BOEHNER and JOSEPH E. BOEHNER, Chicago, Ill. Filed Mar. 4, 1884. (No model.)

311,224.

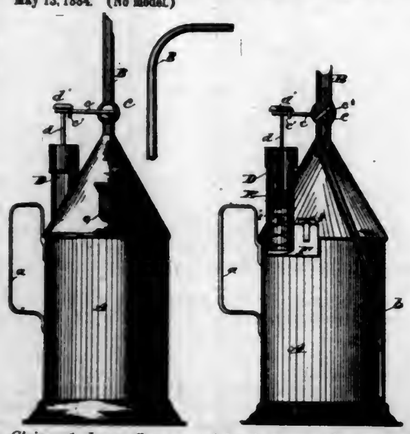


Claim.—1. The combination, in an extension-lamp, of the extension-tube, a main winding-drum, arranged at the upper end of the extension-tube, a cord for the said drum, a locking device for holding and releasing the drum, and a second winding-cord acting on the locking device, substantially as described.

2. In an extension-lamp, the combination of an extension-tube, a main winding-drum, and devices for locking the same, both located at the upper end of the tube, a main winding-cord for raising and lowering the lamp, and a second winding-cord connected at one end with a winding-drum, and at the other end with a movable part operated from below the lower end of the extension-tube, and arranged to act upon the locking device, substantially as specified.

3. In an extension-lamp, the combination of an extension-tube, a main winding-drum and device for locking the same, both located at the upper end of the extension-tube, a pulley connected with the locking device, a main winding-cord for raising and lowering the lamp, and a second winding-cord having one end connected with a winding-drum and passing over the pulley, then down through the extension-tube to a movable part operated from below the extension-tube, substantially as and for the purpose specified.

311,225. OILING-CAN. FREDERIK W. BORN, Cleveland, Ohio. Filed May 13, 1884. (No model.)



Claim.—1. In an oiler operated by air-pressure, the combination, with an air-pump and mechanism for operating the pump to force air into the oiler, of a valve located in the discharging-nozzle of the can, and mechanism connecting the valve and pump, the parts being so arranged that the valve is operated by the movement of the pump, and the relation of parts being such that the pump may be worked a part of its stroke without opening the discharging-valve, substantially as set forth.

2. The combination, with the air-pump D, arranged substantially as set forth, of the valve C, provided with suitable connections, by means of which the valve is operated by the movement of the pump, the parts being so arranged that the valve is opened only when the piston of the air-pump is depressed near to its full stroke, substantially as set forth.

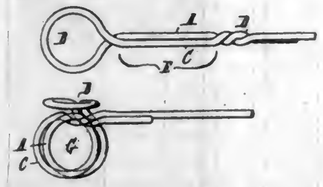
311,226. BALE-TIE. WASHINGTON BROCKNER, New York, N. Y. Filed July 18, 1884. (No model.)



Claim.—1. In a wire bale-tie having at its opposite end a closed loop or eye, a closed loop or eye, F, having its parts brought together and bent twice to form an upwardly-curved loop, C, and a straight horizontal portion at right angles to and extending beyond said loop C, the end of said horizontal portion being bent upward and rearward, and having its extremity closely approximated to the loop C, substantially as described.

2. In a wire bale-tie having at its opposite end a closed loop or eye, G, a closed loop or eye, F, having its parts brought together and bent twice to form an upwardly-curved loop, C, and the remaining outer portion of said loop F being doubled by bending back upon itself to form a brace for said loop C, and resting with its bight D upon and above the shank or twisted portion of the eye G, substantially as described.

311,227. BALE-TIE. WASHINGTON BROCKNER, New York, N. Y. Filed July 24, 1884. (No model.)



Claim.—1. In a wire bale-tie, an eye or loop formed of three parts of the wire, one part being a closed loop formed in the end of the band by doubling over and twisting said end, and two parts being a closed loop formed in said doubled portion between the standing part of the wire and the first loop, the said two loops being placed relatively parallel and in contact, substantially as described.

2. In a wire bale-tie, an eye consisting of the double-stranded loop G and the single-stranded loop B, placed relatively parallel and in contact, substantially as described.

3. The method of making a three-stranded eye in the end of a wire bale-tie, consisting in first bending the end of the wire back upon itself to form a closed loop and a doubled portion; second, twisting or securing the bent-over extremity to the standing part; third, forming a closed loop or eye in said doubled portion between the loop first formed and the fastening-point; fourth, bringing the loop or eye first formed around the doubled standing part and into contact and parallel with the second loop, substantially as described.

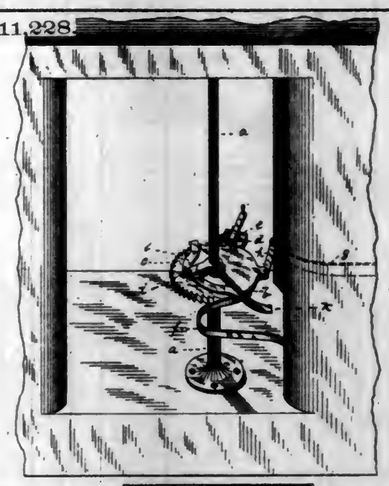
4. The method of making a three-stranded eye in the end of a wire bale-tie, consisting in bending over and securing the end of the wire and forming a loop, as in Fig. 1; then bending the part so doubled to form a second loop, as in Figs. 2 and 3; then bringing the first-made loop around the standing part of and into contact and parallel with the second loop, as in Figs. 4 and 5, substantially as described.

311,228. MAIL-BAG CATCHER. PETER B. CASSIDY, Pittsburg, Pa., assignor of one-half to James Crawley, same place. Filed Nov. 21, 1884. (No model.)

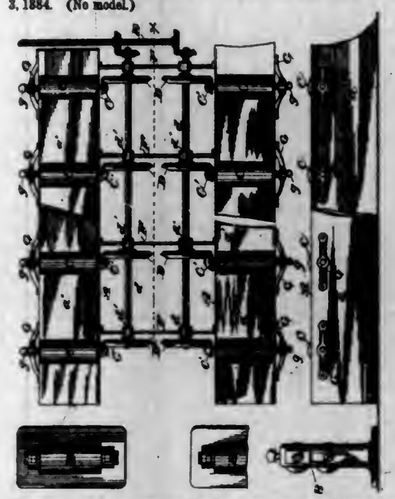
Claim.—1. In a mail-bag catcher, the combination of a pivoted disk or arm having secured thereto a projecting yoke, a spring or other device arranged so as to form a resistance to the movement of the yoke as it engages with the bag, and a pawl or securing device for retaining the yoke in position after it has been thrown back by the mail-bag, substantially as and for the purposes specified.

2. In a mail-bag catcher, the combination of a pivoted disk or arm having secured thereto a projecting yoke, a spring or other device arranged so as to form a resistance to the movement of the yoke as it engages with the bag, a pawl or securing device for retaining the yoke in position after it has been thrown back by the mail-bag, and a retaining-arm adapted to automatically close the mouth of the yoke by the movement of the same, substantially as and for the purposes described.

311,228.



311,229. FEEDING DEVICE FOR ROLLING-MILLS. WILSON B. CHISHOLM, JOHN WALKER, and EDWIN H. MARTIN, Cleveland, Ohio. Filed Oct. 3, 1884. (No model.)



Claim.—1. In an apparatus for the manufacture of hoop-iron, the combination, with finishing-rolls, a table located in line with and in close proximity to the finishing-rolls, carrying-rolls mounted on said table, and a friction-wheel secured to each carrying-roll, of a shaft located alongside of and parallel with the table, a series of friction-wheels secured on said shaft, and devices for holding the friction-wheels of the carrying-rolls in contact with the friction-wheels on the shaft, substantially as set forth.

2. The combination, with the rollers C and friction-wheels for revolving the same, of the yokes G and the adjusting-screws *g*, substantially as set forth.

3. In a double carrying-table for delivering hoop-iron from the finishing-rolls, the combination, with the rollers C, provided with the yokes G, the adjusting-screws *g*, and the bevel friction-wheels C', of the double-faced friction-wheels D, substantially as set forth.

311,230. COMBINED MATCH-BOX AND CIGAR-CUTTER. RICHARD M. COLLARD, New York, N. Y., assignor to Le Roy W. Fairchild, same place. Filed June 9, 1884. (No model.)

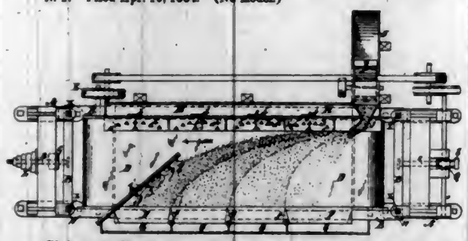
Claim.—1. The combined match-box and cigar-cutter consisting of the box A, divided by a transverse partition, I, with the hinged cover B at one end, and the cup-shaped cigar-holder C, and hinged lid D, having the V-shaped cutter *e* secured thereto at the opposite end, all constructed and arranged to operate substantially as shown and described.

2. The box A, having the holder C, secured in one side, in combination with the lid D, having the blade *e* rigidly attached thereto, said lid being pivoted to the opposite side of the box by the angular arm *b* at a point opposite the center of the holder C, or substantially so, substantially as and for the purpose set forth.

311,280.



311,231. ORE CONCENTRATOR AND SEPARATOR. FREDERICK G. CORNING, Brooklyn, assignor of one-half to Geo. H. Benjamin, New York, N. Y. Filed Apr. 19, 1884. (No model.)



Claim.—1. In an ore concentrator and separator, the combination of a laterally-inclined horizontally-reciprocating percussion-frame, an endless apron or belt supported on and adapted to be moved horizontally in and around said frame, and having a lateral discharge, with a means for imparting to said frame and the apron thereon a sudden movement, impulse, blow, or percussion in the direction of the line of travel of the apron, and a supply of water laterally discharged on said apron proportionately to the increasing specific gravity of the pulp thereon, substantially as and for the purposes described.

2. In an ore concentrator and separator, the combination of a laterally-inclined reciprocating percussion-frame, an endless apron adapted to move in a horizontal direction thereon, a pulp-mixer and chute in direct connection with said device, for feeding the pulp upon the apron immediately after the mixing, with means for producing a percussion of the reciprocating frame in the direction of the line of travel of the endless apron thereon, substantially as described.

3. In an ore concentrator and separator, the combination of a laterally-inclined reciprocating percussion-frame, an endless apron adapted to move in a horizontal direction thereon, a water-trough, distributing-boards, and deflectors arranged over the highest side of the apron, for discharging streams of water of increasing force upon the apron, with means for percussing the reciprocating frame in the direction of the line of travel of the endless apron thereon, substantially as described.

4. In an ore concentrator and separator, the combination of a laterally-inclined reciprocating percussion-frame, an endless apron and means for moving it in a horizontal direction thereon, a receiving board or trough provided with movable switches arranged thereon, said board or trough being arranged under the lowest side of the apron to separate the different grades of ore, and separate receptacles therefor, with means for percussing the reciprocating frame in the direction of the line of travel of the endless apron thereon, substantially as described.

5. In an ore concentrator and separator, the combination of the main frame A, percussion-frame B, endless apron D, reciprocating rods R r, percussion-block c, spring L, lever S, cam Q, and interposed mechanism for imparting motion to said parts, substantially as described.

6. In an ore concentrator and separator, the combination of the percussion-frame B, rod R, attached thereto, bumper-block c, encircling and guiding said rod, and spring L, substantially as described.

7. In an ore concentrator and separator, the combination of the percussion-frame B, pulp-mixer J, water-trough H, constructed as described, for regulating the water-discharge, and provided with apertures i and deflectors h', with means for percussing the frame in the direction of the line of travel of the endless apron thereon, substantially as described.

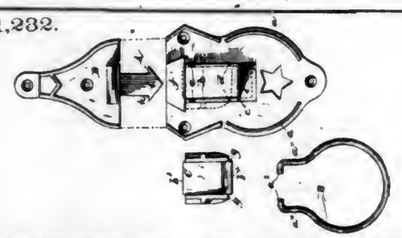
8. In an ore concentrator and separator, the combination of a reciprocating frame, an endless apron traveling on and supported by said frame, and means for discharging laterally a supply of water on said apron proportionately to the increasing specific gravity of the pulp contained thereon, substantially as and for the purposes specified.

311,232. TRUNK-FASTENER. WILLIAM B. COULTER, Bristol, Conn. Filed Aug. 16, 1884. (No model.)

Claim.—1. The combination, with a plate having a raised housing, the side edges of the cap of which are inclined, and a hasp adapted to enter the housing, of a spring having bent ends, which latter rest within the housing and engage the hasp, substantially as set forth.

2. The combination, with a plate having ribs or walls integral therewith, forming the side walls and end wall of the hasp-housing, and a cap forming the cover of said housing, having inclined side edges and secured in place as shown, of a spring having bent ends, which latter rest within said housing, and a hasp, substantially as set forth.

311,232.

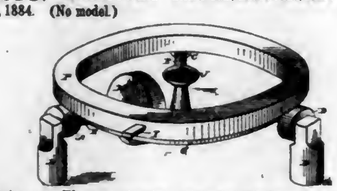


3. The combination, with a plate having ribs *b*, of a spring having its ends bent inwardly and resting within recesses formed in said ribs, a cap having its side edges inclined and secured on said ribs, and a hasp, substantially as set forth.

4. The combination, with a plate having ribs *b* and wall *c c'*, a bridge, *f*, and a cap resting on said ribs and held in place by the portion *c'* of the wall and the bridge, as described, of the spring, the ends of which pass through the ribs, and a hasp, substantially as set forth.

5. The combination, with the plate A, formed with the ribs *b b* and wall *c c'*, said ribs having the recesses *e e*, of the spring B, plate C, and hasp D, all of the above parts adapted to operate substantially as set forth.

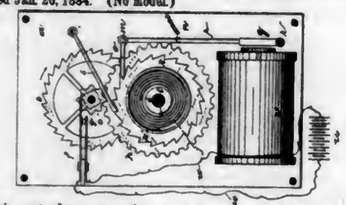
311,233. HORSE-POWER. SAML. COX, Booneville, Miss. Filed Nov. 22, 1884. (No model.)



Claim.—1. The combination, with the friction-rolls A B C, journaled in the posts D D, of the drive-wheel F and the band-wheel H substantially as specified.

2. The combination, with the friction-rolls A B C, journaled in the posts D D, and having each a larger and a smaller diameter, of the drive-wheel F, having a peripheral flange, and the band-wheel H on the shaft of one of the friction-rolls, substantially as specified.

311,234. ELECTRIC CLOCK. AUGUSTUS S. CRANE, Newark, N. J. Filed Jan. 26, 1884. (No model.)



Claim.—1. In combination, the escape-wheel *b*, pinion *g*, arbor *e*, cam *e*, cog-wheel *h*, arbor *i*, ratchet *k*, spring *j*, pawl *s*, pawl *o*, connected to the armature *q*, magnet *v*, battery *u*, conducting-wires *w*, and circuit-closer *f*, all arranged and operating substantially as set forth.

2. In combination, in an electric clock, the escape-wheel, the pinion, cam, and contact-arms, the cog *h*, spring *j*, and ratchet and pawl, the magnet, armature, and battery, all arranged and operating substantially as and for the purposes set forth.

3. In an electric clock, the combination of a spring receiving power from a magnet and expending the same to actuate an escape-wheel, said escape-wheel and magnet, a circuit breaker or closer, and a cam engaging with said circuit breaker or closer, all said parts being arranged and operating substantially as and for the purposes set forth.

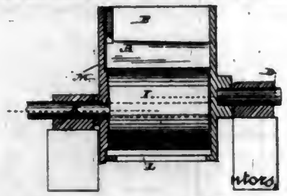
4. In an electric clock, the combination of an escape-wheel, a spring or its equivalent for actuating said escape-wheel, a magnet for supplying power to said spring, contact-points for controlling the magnet, and a cam having a fixed relation to said escape-wheel, and adapted to separate said points, said parts being arranged and operating substantially as and for the purposes set forth.

5. In an electric clock, the combination of an escape-wheel, a cam having a fixed relation thereto and having a series of cam projections disposed around the periphery thereof, and adapted to hold the contact-points apart during a major portion of a given interval, and said contact-points, said parts being arranged and adapted to operate substantially as and for the purposes set forth.

6. The combination, with the actuating-spring of a clock-movement, of an electro-magnet having attached to its armature-lever a pawl

engaging a ratchet-wheel to wind the spring, and contact-points operated by a cam connected with the movement to close the circuit and vitalize the magnet at regular intervals.

311,235. ROCK CRUSHER AND PULVERIZER. AARON G. DYER and JAMES M. DYER, San Francisco, Cal. Filed Nov. 5, 1883. (No model.)



Claim.—1. In a crushing apparatus, a hollow receiver provided with a horizontal shaft and having the end opposite the shaft open, in combination with a cylinder of smaller diameter extending into the open end of the receiver, and provided with a shaft journaled in a line below the shaft of the receiver, said receiver and cylinder being nearest together at the bottom, substantially as herein described.

2. In a crushing apparatus, an exterior receiver closed at one end and provided with a hopper, into which ore may be fed at the top, a discharge-opening at the bottom, and a horizontal shaft extending from the closed end and journaled to support the receiver, and mechanism, substantially as described, by which the receiver may be caused to oscillate, in combination with a cylinder of smaller diameter extending into the open end of the receiver, and provided with a shaft extending horizontally from its end and journaled in a line below the axis of the first shaft, substantially as herein described.

3. In a crushing apparatus, the hollow receiver open at one end and provided with a shaft extending horizontally from its opposite closed end, said receiver having a feed opening or hopper at the upper side and a discharge-opening at the lower side, and mechanism by which it may be caused to oscillate from side to side about its shaft, in combination with a cylinder of smaller diameter extending into the open end of the receiver, and having a horizontal shaft extending outwardly from its opposite end and in line below that of the axis of the receiver, and a flange, M, extending outwardly aronnd the edge of the cylinder, as herein described.

4. In a crushing apparatus, an oscillating cylindrical receiver closed at one end and provided with a horizontal shaft extending axially from that end, a cylinder of smaller diameter extending into the receiver, and having a flange which extends outwardly to close the open end of the receiver, and a shaft extending horizontally outward from the opposite end and in line below the shaft of the receiver, the lower side of the cylinder being near the bottom of the receiver, and adjustable boxes by which the shaft and the cylinder may be raised or lowered, as herein described.

5. The receiver A, having a feed-opening at its upper side and a discharge-opening at its bottom, and journaled, as shown, in combination with the internal cylinder, I, having the flange M, and means, as described, whereby the cylinder may be raised or lowered, as and for the purpose set forth.

311,236. METHOD OF PREPARING THE ELEMENTS OF STORAGE-BATTERIES. ASAHEL K. EATON, Brooklyn, N. Y. Filed Oct. 2, 1882 (No model.)



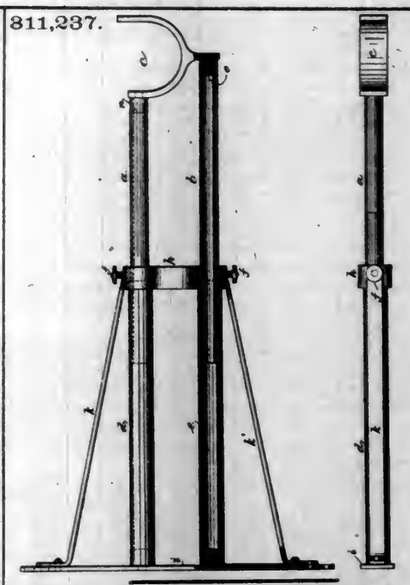
Claim.—The process substantially herein described of producing a mixture of sponge-lead and peroxide of lead useful in the manufacture of storage-batteries, which process consists in treating red lead with acetic acid, and of then treating the resulting product with zinc or its equivalent, substantially as described.

311,237. EXTENSION-BRACKET FOR CURTAIN-POLES. WILLIAM H. EDGELL, Brooklyn, N. Y. Filed Feb. 27, 1884. (No model.)

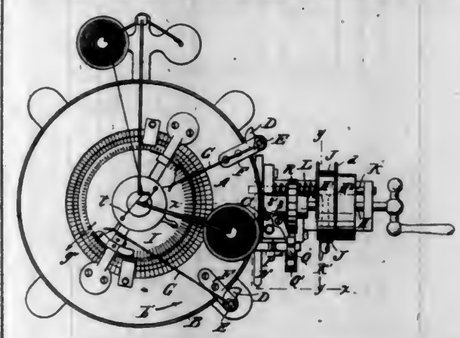
Claim.—1. An extensible bracket for curtain-poles, consisting of two rods, a bearing for the curtain-pole, attached to the outer ends of the two rods, two tubes into which said rods slide, and a frame for such tubes, and clamping-screws for holding the sliding rods in the desired position, substantially as set forth.

2. The extensible bracket for curtain-poles, consisting of the rods *a b*, bearer *c*, tubes *d e*, clamping-screws *f*, end piece, *h*, plate *i*, and braces *k k'*, one above the tubes and the other below, substantially as set forth.

311,237.



311,238. STOP-MOTION FOR KNITTING-MACHINES. OLIVER H. EDWARDS, New York, N. Y., assignor, by mesne assignments, of one-half to Frederick H. McCoun, same place. Filed Sept. 21, 1883. (No model.)



Claim.—1. The combination, with a knitting-machine needle-ring, a revolving ring surrounding the same, the driving-shaft, a ratchet-wheel thereon, and means for operating the driving-shaft, of a loose ring surrounding the said revolving ring and provided with a laterally-projecting stud, cams on the revolving ring adapted to clamp the loose ring to the revolving ring when the thread breaks, a latch engaging the stud of the loose ring, a lever adapted to engage said ratchet-wheel, and a spring adapted to press the lever into engagement with the ratchet-wheel, substantially as herein shown and described.

2. The combination, with the needle-ring, the driving-shaft, a ratchet-wheel thereon, a revolving ring, a loose ring surrounding the revolving ring, provided with a lateral stud, and means for locking the loose ring to the revolving ring and operating the machine, of a latch engaging the stud of the loose ring, a toothed lever adapted to engage the ratchet-wheel, a spring adapted to press the lever into engagement with the ratchet-wheel, a belt-shifting fork, and intermediate mechanism for operating the toothed lever from the belt-shifting fork, substantially as herein shown and described.

3. The combination, with a knitting-machine needle-ring, a revolving ring, and means for operating the machine, of a ring loosely mounted on the revolving ring, a stud projecting from the loose ring, the latch S, the elbow-lever Q, having teeth, the ratchet-wheel R, the driving-shaft H, and means for automatically locking the loose ring on the revolving ring when the thread breaks, substantially as herein shown and described.

4. The combination, with a knitting-machine needle-ring, the revolving ring A, and means for operating the machine, of the loose ring B, the stud C, the latch S, the elbow-lever Q, levers P and N, the springs Q' and O, the belt-shifter rod K, the spring L, and means for automatic-

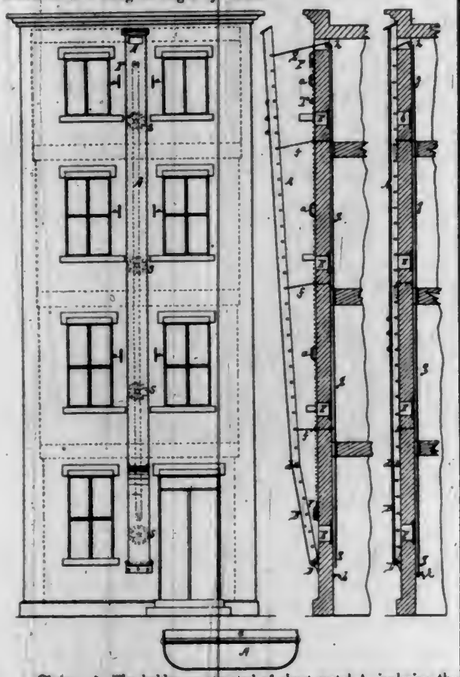
ally locking the loose ring on the revolving ring when a thread breaks, substantially as herein shown and described.

5. The combination, with a knitting-machine needle-ring, the revolving ring A, and means for operating the machine, of the loose ring B, the stud C, the lever S, the elbow-lever Q, the levers P and N, the latter provided with a plate or blade, M, the springs Q' and O, the belt-shifter rod K, having a notch, *g*, the spring L, and means for locking the ring B on the ring A automatically when a thread breaks, substantially as herein shown and described.

6. The combination, with a knitting-machine needle-ring, I, the revolving ring A, and means for operating the machine, of cams D, held on the ring A, the ring B, provided with the stud C, the shafts E, the wires G, secured to and coiled around the said shafts E, and projecting toward the middle of the needle-ring, and devices for shifting the belt and stopping the rotation of the driving-shaft, which devices are adapted to be released and operated by the stud on the ring B, substantially as herein shown and described.

311,289. COMBINED FIRE-ESCAPE LADDER AND VENTILATING-FLUE. JAMES W. EVANS, New York, N. Y., assignor of one-third to Benjamin S. Clark, same place. Filed Mar. 29, 1883. (No model.)

Brief.—A fire-escape consisting of an inclosed ladder constructed to form a flue when folded against the building, and provided with ventilators. The ladder is hinged at its lower end to the building, and is connected to it along its length by chains.



Claim.—1. The ladder constructed of sheet metal A, inclosing the rounds *e*, in combination with the joints D and *d*, chains *f f f*, and rope *g*, substantially as described, and for the purpose specified.

2. The ladder A, constructed to form also a flue, in combination with the ventilators E E E, substantially as described, and for the purpose specified.

311,240. CONCENTRIC ROTARY ENGINE. JAMES B. EWER, Wellsville, Kans. Filed May 3, 1884. (No model.)



Claim.—1. In a rotary engine, an inner revolving hub provided with division-plates H, extending radially from the hub, in combination with oscillating pistons I, substantially as described.

2. In a rotary engine, an inner revolving hub provided with division-plates H, in combination with the oscillating pistons I, having pivoted guide-rods, with or without the springs i, substantially as described.

3. In a rotary engine, an inner revolving hub provided with the division-plates H, in combination with the double-winged oscillating pistons I, one of said wings being of greater weight than the other, for the purpose herein set forth.

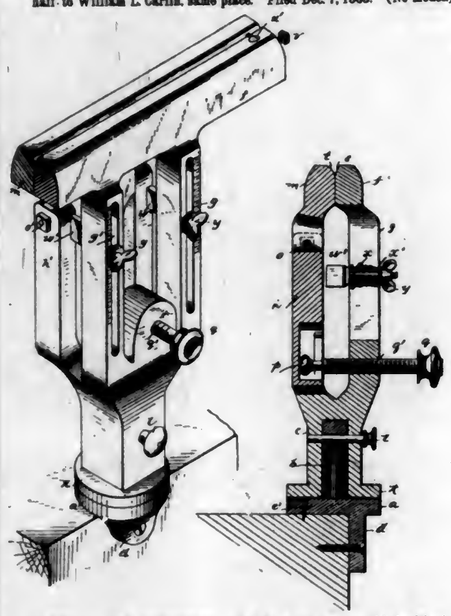
4. A rotary engine having an inner and outer cylinder, the outer periphery of the inner cylinder or lining being provided with an annular steam-passage and cross-serrations, which form communicating steam-passages with the packing-recess, substantially as described.

5. The combination, in a rotary engine having an inner and outer cylinder rigidly secured to each other, of the downwardly and outwardly beveled packing-recess, provided with suitable packing having corresponding contour to fit said recess, substantially as set forth.

6. In a rotary engine, the combination of the central hub having oscillating pistons, and the cylinder-heads secured to said hub, with the side and top oil or lubricating cups, substantially as set forth.

7. The combination, in a rotary engine, of a concentrically-revolving hub, said hub being provided with partitions or division-plates, with the pivoted pistons having two wings, one of which is of greater area than the other, whereby when steam-pressure is acting on both the wider one will overbalance the narrower and turn the pistons in the proper direction, as described.

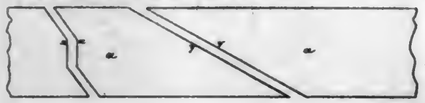
311,241. SAW-VISE. HENRY FLATER, Findlay, Ohio, assignor of one half to William L. Carlin, same place. Filed Dec. 7, 1883. (No model.)

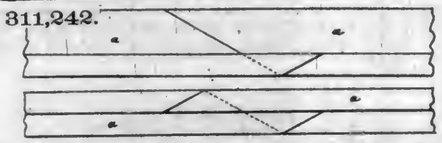


Claim.—1. The combination, with the fixed jaw provided with the vertical gages near its ends, and set-screws for holding them to their adjustments, and the steel face upper inner edge, of the movable jaw hinged to the vertically-bored stand, the ball-head screw, and the bed-plate having the vertical standard and locking-pin, substantially as specified.

2. The combination, with the bed-plate having the vertical stand thereon, and the vertically-bored standard having the fixed jaw at the ends, of the vertically-slotted gage-arms, the movable jaw and operating-screw, and the vertically-adjustable saw-rests provided with thumb-nuts and working in the slotted gage-arms, as set forth.

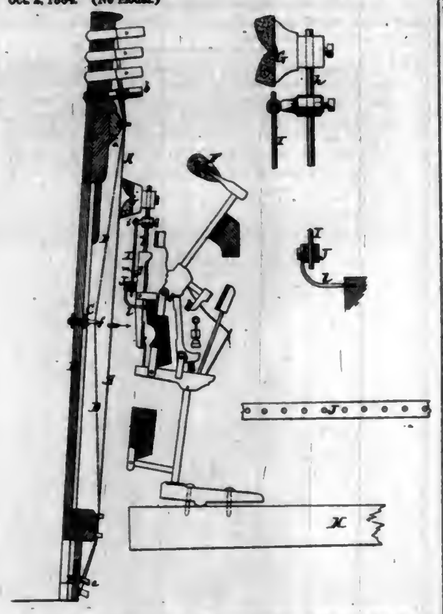
311,242. BELT. MAURICE GANDY, Liverpool, County of Lancaster, England. Filed June 13, 1884. (No model.)





Claim.—An endless belt composed of two or more thicknesses of folded cotton canvas, duck, or other suitable material having its ends joined upon a plane cut diagonally to the length of the belt before folding, and having its ends and several thicknesses stitched together after folding, the object being to make the joint as part of the operation of manufacturing the belt, substantially as described.

311,243. PIANO-FORTE. PAUL GMEHLIN, New York, N. Y. Filed Oct. 2, 1884. (No model.)



Claim.—1. In a piano-forte, the combination of the regular strings A A and their sustaining-bridges *a d* with the sounding-board E and intermediate agraffes, *f*, which are carried by said sounding-board, and the additional strings D D, which additional strings are by the agraffes *f* divided each into two equal vibratory halves, each of which halves has half the length of the corresponding main string, to vibrate in sympathy therewith when the main string is struck, substantially as specified.

2. The combination of the sounding-board E with the middle bridge, C, having agraffes *f*, extra strings D, wrest-plank string-bridge *a*, sounding-board bridge *d*, and main strings A, all arranged to produce of each extra string two vibratory portions of equal length, substantially as specified.

3. In a piano-forte, the dampers G G, which pertain to consecutive octaves united in pairs, in the manner substantially as described, so that the damper pertaining to the upper octave will lift the damper pertaining to the lower octave, while the damper pertaining to the lower octave will not lift the damper pertaining to the upper octave, substantially as described.

4. The combination of the dampers G G with the blocks *i i*, levers I I, rail J, and cushions *m*, as described.

5. The damper G, having block *i* and cushion *m*, substantially as and for the purpose specified.

6. In a piano-forte, the combination of the main strings A A with the additional strings D D, sounding-board E, agraffes *f*, which are sustained by said sounding-board midway between the bridges *a d*, dampers G G, and connecting devices I, which unite the dampers that pertain to consecutive octaves, substantially as described.

311,244. TWO-WHEELED VEHICLE. PETER F. HELLERSTEDT, Morrison, Ill. Filed Aug. 27, 1884. (No model.)

Claim.—1. The shafts A A, cross-bar E, journaled therein, body-loops D D, spring O, and hinge H, all arranged substantially as described, and for the purpose mentioned.

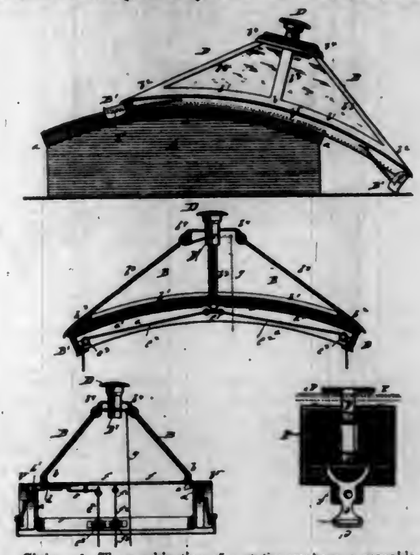
311,244.



2. The body C, hinge H, spring O, and shafts A, the latter being pivotally connected to the cross-bar E, substantially as shown, and for the purpose specified.

311,245. SKYLIGHT. EDUARD HEIM, Jersey City, N. J., assignor to Abraham Heyman, New York, N. Y. Filed Oct. 20, 1884. (No model.)

Brief.—A stationary base having side guide-rails and a movable skylight provided with spring-actuated guard-plates rolling on said base; also devices for locking, unlocking, and moving the skylight upon base.



Claim.—1. The combination of a stationary base, a movable skylight supported thereon having hinged and spring-actuated end guard-plates, a locking device for locking the skylight in closed position to the base, means for releasing the locking device, and means for moving the skylight into open or closed position, substantially as set forth.

2. The combination of a stationary base having side guide-rails, a movable skylight guided by anti-friction rollers on the base, and having hinged and spring-actuated end guard-plates, a locking device, means for releasing the locking device, and means for moving the skylight into open or closed position, substantially as set forth.

3. The combination of a stationary base, a movable skylight supported thereon, and provided with hinged and spring-actuated guard-plates at the ends, and means for locking the skylight in closed position, substantially as set forth.

4. The combination of a stationary base having side guide-rails, a movable skylight having anti-friction rollers and U-shaped side rails, means for locking the skylight in closed position, cords connected to the locking device for unlocking the same, and cords connected to the transverse center bar of the skylight for moving the same into open or closed position after the locking device has been released, substantially as set forth.

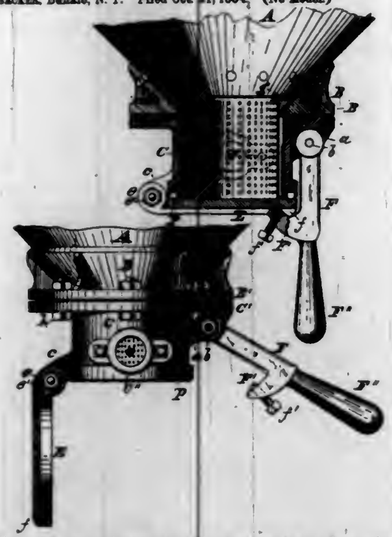
311,246. SWINGING HOOK. FRANK J. HERRICK and ALONZO MCMANUS, New Britain, Conn., assignors to the North & Judd Manufacturing Company, same place. Filed Oct. 16, 1884. (No model.)

Claim.—In a swinging hook, the combination of the part A, having the shank *b*, for securing the complete device in place, and upon the outer end of said shank the open hook or eye, which terminates in the enlarged end or head *a*, with the hook B, having an eye whose diameter is smaller than that of said head *a*, substantially as described, and for the purpose specified.

311,246.



311,247. DROP-VALVE FOR STEEP TUBS AND VATS. JOHN IRELACKER, Buffalo, N. Y. Filed Oct. 31, 1884. (No model.)

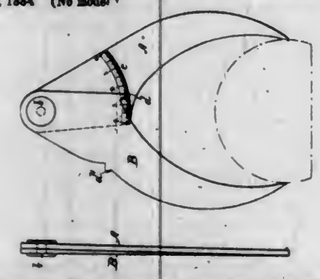


Claim.—1. As an improved article of manufacture, a drop-valve for steep-tubs, consisting, essentially, of the valve-casing C', having one or more branches, C'', a hinged cover locked to said casing by means of the lever F, having projection F', engaging the rib *f* on said drop-bottom, and a locking-screw, *f'*, to lock said lever in position, and the cylindrical strainer G, the whole being constructed and combined substantially in the manner as and for the object stated.

2. In steep-tub valves, the combination, with the casing C, having the drop-bottom E, provided with the rib *f*, of the pivoted lever F, having the projection F', engaging said rib *f*, as and for the object stated.

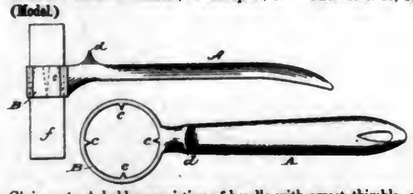
3. In steep-tubs, the combination, with the casing C, having the drop-bottom E, provided with a rib, *f*, of the pivoted locking-lever F, having the projection F', engaging said rib *f*, and the locking-bolt *f'* to lock the said lever when the drop-bottom is shut, substantially as and for the object stated.

311,248. CALIPERS. STEWART A. JELLETT, Philadelphia, Pa. Filed Aug. 13, 1884. (No model.)



Claim.—The combination, with the pivoted legs A B, of the scale c on the one leg, and the pointers *d d'* on the opposite edges of the other leg, the whole being constructed and arranged to permit of the computation on the same scale by said pointers, respectively, either an outside or inside measurement, and said pointers *d d'* being constructed and arranged so that when the calipers are closed they will not project beyond the edges of the leg on which the scale is arranged, substantially as specified.

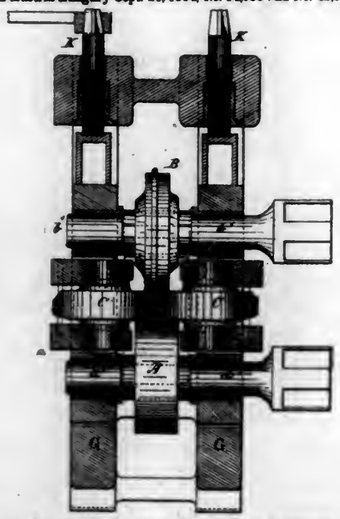
311,249. SCOURER FOR KNIVES AND FORKS, METAL, AND GLASS. HIRAM J. KEELER, Philadelphia, Pa. Filed Mar. 17, 1884. (Model.)



Claim.—1. A holder consisting of handle with arrest, thimble, and lugs combined, for holding a scouring agent for operating the same, as a device for scouring, as shown and described.

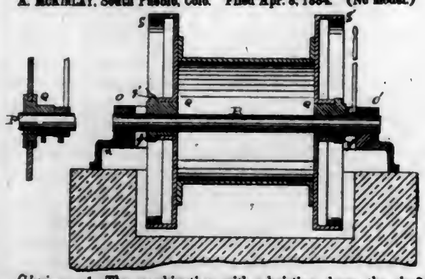
2. A holder consisting of handle and thimble and lugs combined for holding a scouring agent for operating the same, as a device for scouring, as shown and described.

311,250. ROLLING-MILL FOR TRAMWAY-RAILS. HEINRICH KOHLER, Bochum, Prussia, Germany, assignor to Die Gesellschaft für Stahlindustrie, same place. Filed May 1, 1884. (No model.) Patented in Belgium Apr. 19, 1884, No. 64,876; in France Apr. 19, 1884, No. 161,637; in England Apr. 19, 1884, No. 6,577; in Luxemburg Apr. 19, 1884, No. 383; in Germany Apr. 20, 1884, No. 29,977; in Spain Sept. 1, 1884, No. 4,155, and in Austria-Hungary Sept. 21, 1884, No. 14,936 and No. 42,311.



Claim.—The combination, in a rolling-mill for channeling the head of railway-rails, of a channeling-roll, a cylindrical roll for supporting the rail, both driven positively, and two web-rolls for supporting the web of the rail against crushing, said rolls constituting a finishing rolling-mill, as described, for the purpose specified.

311,251. HOISTING-MACHINE. EDWARD S. MCKINLAY and WILLIAM A. MCKINLAY, South Pueblo, Colo. Filed Apr. 8, 1884. (No model.)

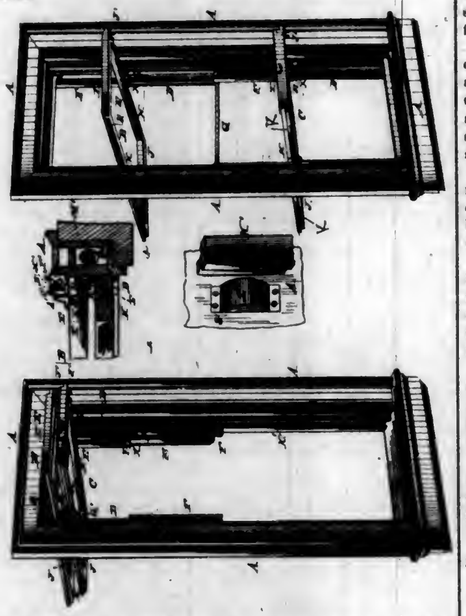


Claim.—1. The combination, with a hoisting-drum, the shaft of uniform diameter from end to end, and the lever, of the bearing-piece for the drum formed separately from the lever and from the lever-fastening devices and secured independently thereof to the shaft, substantially as set forth.

2. The combination, with the drum, the shaft of uniform diameter from end to end, and the lever, of the drum-bearing formed separately from the lever and from the lever-fastening devices, and secured to the shaft adjustably and independently of the lever, substantially as set forth.

311,252. WINDOW. MARTIN S. MILLARD, Kansas City, Mo., assignor of two-thirds to Wm. H. H. Tainter, same place, and Geo. H. King, Salisbury, Mo. Filed May 12, 1882. (No model.)

Brief.—Consists of a vertically-sliding frame partly embracing the sash, the latter adapted to be turned to a horizontal position, and vertically adjustable independently of the frame. Lugs for the sash-cords in recesses in the sash move in elongated slots in the sliding frame. The lug is mounted on a metallic plate. The sash and frame have abutting shoulders and a weather-strip at that point. The parting beads are of T shape, engaging grooves of the sliding frames. The sash is held in adjustment on its pivot by means of a spring-actuated plate bearing against the sliding frame, and a pin adjustably held by a thumb-nut in a slotted lug of said plate and projecting from a plate on the sash. The sliding frame is held in vertical adjustment by means of a spring projecting through a slot in the window-frame and bearing against the sliding frame.



Claim.—1. The combination, with a window-frame, of a window-sash and a frame partly embracing the sash, the said sash being adapted to be turned to a horizontal position within its frame, and to be adjusted vertically independently of its frame while in a horizontal position.

2. The combination, with a window-frame, of a window-sash and a vertically-movable frame partly embracing the sash, the said sash adapted to be turned to a horizontal position, and to be vertically adjusted while in this horizontal position independently of its frame.

3. The combination, with a window-frame, of a window-sash, a vertically-movable frame partly embracing the sash, and weights and cords the ends of which are connected to the sashes, whereby the latter can be adjusted independently of their frames, substantially as set forth.

4. The combination, with a window-frame, of a sash provided centrally with laterally-projecting lugs, a frame partly embracing the sash, and provided with elongated slots in which the lugs rest, and sash-cords the ends of which are connected to the lugs.

5. The combination, with a window-frame, of a window-sash provided with shoulders and laterally-projecting lugs, a frame partly embracing the sash, and provided with shoulders against which the shoulders of the sash abut when the latter is in a vertical position, and with elongated slots in which the lugs rest and move, and sash-cords connected to said lugs, substantially as set forth.

6. The frames D E, constructed as described, the latter having side rails, H, with recesses L, in combination with the cap-plates P, lining said recesses, and having pivoted lugs or studs Q for the attachment thereto of pins Q^2 and the sash-cords, as set forth.

7. The combination of the frame D, having side rails, F, provided with grooves R, having slots or mortises W, with the frame E, having side rails, H, provided with recesses L, the plates P, having pivoted studs Q, pins Q^2, and the sash-cords M', all arranged substantially as set forth.

8. The combination, with the frames D E, jointed together, as herein described, of the elastic packing-strip X, fitted in a diagonal recess in the bridge-piece V of frame D, as and for the purpose set forth.

9. The combination, with the frames D E, of the plate A', secured to a side rail of the latter, and having laterally-projecting screw B', the plate C', having slot D', flange E', and spring F', the washer H', and thumb-nut G', all arranged and operating substantially as set forth.

10. The combination, with the frames D E, jointed together, as shown, the latter pivoted and vertically adjustable in the former, of mechanism for retaining said frame E at any position to which it may be adjusted in frame D, as set forth.

11. The combination of the plate A', having screw B', and plate C', having slot D', flange E', and spring F', with the washer H', having a groove to accommodate said spring, and the thumb-nut G', as set forth.

12. In a window, the combination, with the sashes consisting of vertically-sliding frames D, in which auxiliary frames E are pivoted and vertically adjustable, of the T-rail K', secured vertically to the sides of the window-frame, between the sashes, and engaging grooves L' in the side rails of the outer frames of said sashes, as and for the purpose set forth.

13. In a window, the combination of the window-frame, the sashes consisting of the vertically-sliding outer frames in which auxiliary frames are pivoted and vertically adjustable, and the sash-cords having their ends attached to pivoted lugs near the pivoting-points of the inner or auxiliary frames of the upper and lower sashes, respectively, with the sash-cord guide-pulleys at the top of the window-frame, and the weights suspended by pulleys upon said sash-cords, as set forth.

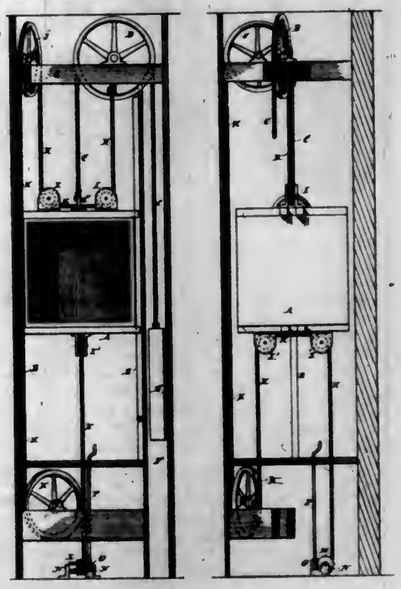
14. In a window constructed substantially as described, the combination, with the upper sash, consisting of an outer and a pivoted vertically-adjustable inner frame, of a bulging elastic strip sunk in a suitably-located recess in the window-frame, and forming a friction-stop for said upper sash, as and for the purpose set forth.

15. The combination, with a window-frame, of the sashes consisting, essentially, of an inner and outer frame, the said sashes being vertically adjustable, and the inner frames of said sashes adapted to be turned to horizontal positions, and adjusted vertically independently of their outer frames, whereby both sashes can be moved into close contact to the top of the window-frame, substantially as set forth.

16. The combination, with a window-frame, of a sash provided with laterally-projecting lugs, a frame partly embracing the sash, and provided with elongated slots in which the lugs rest, sash-cords, and loops secured to the ends of the sash-cord and forming bearings for the lugs, substantially as set forth.

17. The combination, with a window-frame, of a sash provided with perforated lugs, a frame partly embracing the sash, and provided with elongated slots, screws secured within the lugs, loops attached to the screws, and sash-cords connected to the loops, substantially as set forth.

311,253. DUMB-WAITER. STEPHEN A. MORSE, Philadelphia, Pa. Filed Oct. 30, 1884. (No model.)



Claim.—1. The combination of the dumb-waiter cage and its carriage-operating cord, one end of which is secured to a rigid support, with a take-up cylinder, to which the other end of the cord is secured, and devices to rotate said cylinder and prevent its running down, which consist of a worm and worm-wheel, substantially as and for the purpose specified.

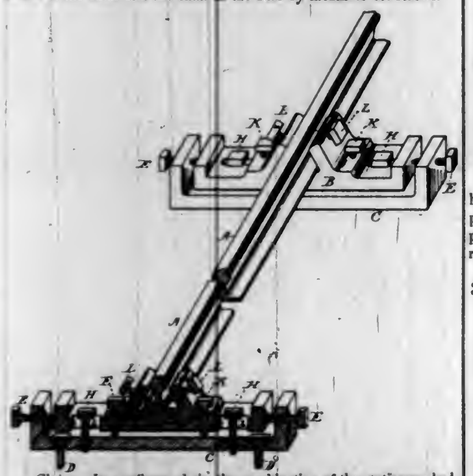
2. The combination of cage A, cord H, pulleys I J K I', cylinder L, and suitable devices, consisting of drum worm and worm-wheel, to rotate said cylinder and keep it from running down, substantially as and for the purpose specified.

3. The combination of cage A, rope C, sheaves D, weight E, cord H, pulleys I J K I', cylinder L, having worm-wheel M, worm O, and long vertical crank P, substantially as and for the purpose specified.

4. The combination of cage A, separate pulleys I I', loop C', rope C, weight E, sheaves D J K, and rope H, substantially as and for the purpose specified.

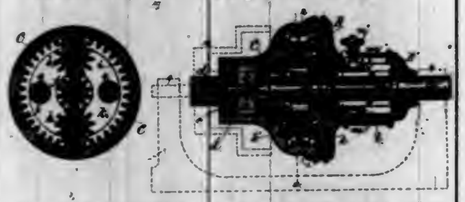
311,254. ADJUSTABLE CHAIR FOR TRACKS. WILLIAM E. NICKERSON, Somerville, Mass. Filed Aug. 14, 1884. (No model.)

Brief.—A chair for a saw-mill track in which the rail is adjustably seated in the chair and the chair to the base by means of set-screws.



Claim.—In a railway-chair, the combination of the stationary bed-piece C with the adjustable chair proper, B, said chair being provided with adjusting-screws E E and K K and clamping-screws H H, all operating together, substantially as described, and for the purpose set forth.

311,255. DEVICE FOR TRANSMITTING MOTION. JOHANNES T. PEDERSEN, Brooklyn, N. Y. Filed Aug. 12, 1884. (No model.)



Claim.—1. The combination, with the motor-shaft and the driven shaft, of a case supporting the shafts in line with each other, a central pinion, a gear around the inside of the case, intermediate gear-wheels, disks carrying the same, and couplings to connect or disconnect the respective parts, substantially as set forth.

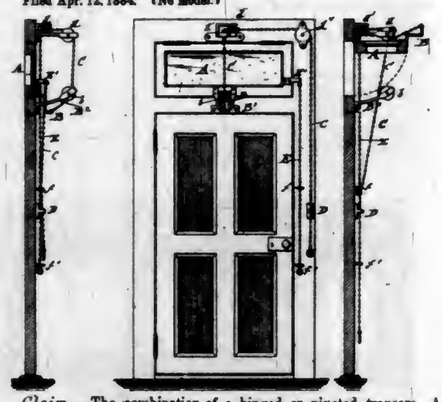
2. The combination, with the motor-shaft and the driven shaft, of a pinion and sleeve upon the motor-shaft, a coupling-ring for moving the pinion endwise, a key upon the motor-shaft, and a key to connect the pinion with the driven shaft, and a female gear wheel and wheels between the same and the pinion, substantially as set forth.

3. The combination, with the motor-shaft and the driven shaft, of a central pinion, a female gear, intermediate gear-wheels, a coupling for connecting or disconnecting the pinion and the motor-shaft, and a key to connect the pinion with the driven shaft, substantially as set forth.

4. The sleeve with a diagonal slot, the shell having a slotted cylinder for receiving the sleeve, a sliding clutch within the shell, a pinion around the motor-shaft, a female gear, intermediate wheels, disks and slotted hubs for supporting the disks, and the arms and key passing into such slots, substantially as set forth.

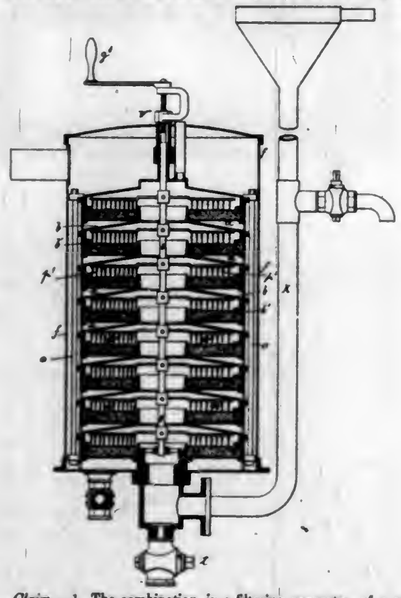
5. The combination, with the internal or female gear and intermediate wheels, of a motor-shaft, a sleeve and pinion on such shaft, keys and coupling devices, substantially as set forth, for connecting the pinion and the driven shaft or the pinion to the motor-shaft, substantially as set forth, whereby the driven shaft can be coupled and driven either fast or slow, or at the same speed as the motor-shaft, as specified.

311,256. TRANSOM-LIFTER. AUGUST F. PFEIFER, Newark, N. J. Filed Apr. 12, 1884. (No model.)



Claim.—The combination of a hinged or pivoted transom, A, having a U-shaped bracket-arm, B, a fixed guide-arm, B', having a pulley, *b*, a lifting-chain, C, attached to the bracket-arm B, a fixed upper arm, *d'*, having guide-pulleys *d d*, a side guide-pulley, d^2, and a retaining device, D, for the lifting-chain, substantially as set forth.

311,257. FILTERING APPARATUS. CARL W. E. PIEPER, Berlin, Germany. Filed Dec. 26, 1883. (No model.) Patented in Germany Feb. 13, 1881, No. 15,741; in England May 14, 1881, No. 2,114; in Belgium May 16, 1881, No. 54,569; in France July 28, 1881, No. 142,835; in Austria Jan. 2, 1882, No. 37,003, and in Italy May 8, 1883, No. 15,399/403.



Claim.—1. The combination, in a filtering apparatus, of a receiving-vessel, a series of superposed pans within said vessel, screens supported on said pans, the pans and screens being smaller in diameter than said vessel, whereby an annular space is formed between them and the inner circumference thereof, layers of filtering material upon said pans, and a central tube passing through said pans and screens and provided with open perforations or slots opposite the pans, substantially as described.

2. The combination, in a filtering apparatus, of a receiving-vessel, a series of superposed pans within said vessel, screens supported on said pans, layers of filtering material upon said pans, a central tube passing through said pans and screens, and provided with perforations or slots opposite the pans, and rotary stirrers arranged over the screens, substantially as described.

3. The combination, in a filtering apparatus, of a receiving-vessel, a series of superposed pans within said vessel, screens supported on said pans, layers of filtering material on said screens, composed of sand and fibrous material, rotary stirring-arms over said screens, provided with teeth, and a central tube passing through said pans and screens, and provided with perforations or slots opposite the pans, substantially as described.

311,258. AMALGAMATOR. DAVID S. RANDOLPH, St. Louis, Mo., assignor of one-half to John A. Cable, same place. Filed Nov. 1, 1884. (No model.)



Claim.—1. In an ore-amalgamator, the combination of a mercury and amalgam well, a rotating amalgamating-cylinder, and a pump arranged within the amalgamating-cylinder for elevating the mercury from the well and delivering it into the ore at the feed end of the amalgamating-cylinder, substantially as and for the purposes specified.

2. In an ore amalgamator and separator, the combination of a mercury and amalgam well, a rotating amalgamating-cylinder stepped in the mercury-well, a mercury-pump arranged within the amalgamating-cylinder for elevating the mercury from the well and delivering it into the feed end of the amalgamating-cylinder, and a refuse-washer arranged over the mercury-well and delivering thereinto, substantially as and for the purposes specified.

3. In an ore amalgamator and separator, the combination of a mercury and amalgam well, a rotating amalgamator, a pump for raising the mercury from the well and delivering it into the feed end of the amalgamator, a refuse-washer arranged over the mercury-well, and a concentrate-conveyer arranged in the water-zone of the well, substantially as and for the purposes specified.

4. In an ore-amalgamator, the combination of a mercury-well, a perforated false bottom arranged therein, a central mercury-pump, and a rotating amalgamating-cylinder inclosing the mercury-pump and supported by the false bottom, substantially as and for the purposes specified.

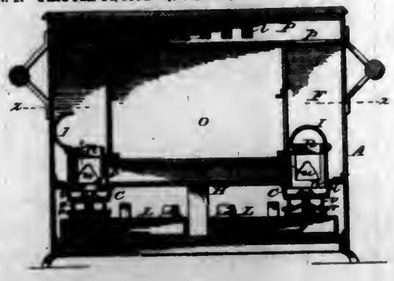
5. In an amalgamator having a central stationary shaft and a rotating shell, the combination of the saucer-shaped amalgamating-disks one corrugated radially on the convex and the other on the concave surface, substantially as and for the purposes specified.

6. In an amalgamator, the combination of a central adjustable pump-barrel having a series of corrugated amalgamating-disks, and an inclosing amalgamating-cylinder having a corresponding series of corrugated annular amalgamating-disks, substantially as and for the purposes specified.

7. In an amalgamator, the combination of a mercury-well, a false bottom arranged therein, a vertical rotatable amalgamator journaled on the false bottom, a bearing-ring in which the upper end of the amalgamator is journaled, and stays extending from the mercury-well to the bearing-ring, substantially as and for the purposes specified.

8. In an amalgamator, the combination of a central pump-barrel provided with convex radially-corrugated amalgamating-disks, and an inclosing-shell provided with corresponding concave radially-corrugated amalgamating-disks, one of said devices being journaled to rotate, substantially as and for the purposes specified.

311,259. COAL-OIL STOVE. CHRISTOPHER RIESSNER, New York, N. Y. Filed Jan. 14, 1884. (No model.)

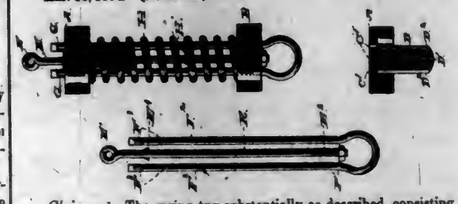


Claim.—1. The combination, in a coal-oil stove, of an oven, O, having a vertical heat-flue, F, at each side, and a curved hinged damper or deflector, I, for each flue, with a space at its ends within the flue, whereby when said deflector is closed the heat from the lamp is caused to first pass laterally in opposite directions along the sides of the oven at its lower portion, and pass thence from under the ends of the deflector up into the flue above, substantially as described.

2. The lamp L, having a cone, C, provided with the vertically-projecting lips *i*, in combination with the box-flue R, provided with the downwardly-projecting lips or flanges *n*, said parts being constructed and arranged to operate as described, whereby the lamp, when inserted in the stove, is guided to its position and its displacement is prevented, as set forth.

3. The combination, in a coal-oil stove, of the centrally-located oven O, surrounded by the flues F, F, G, and P, and the box-flues R, provided with openings *o* at their inner sides and at top and bottom, and having the curved deflector I hinged thereto, as shown, all being arranged to operate substantially as shown and described.

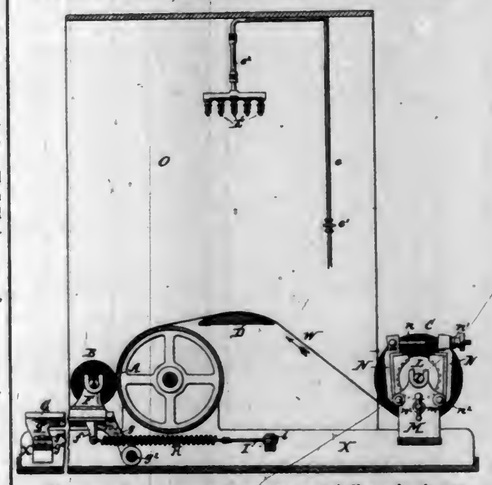
311,260. DRAFT-SPRING. JACOB M. ROHRER, Chewsville, Md. Filed Mar. 11, 1884. (No model.)



Claim.—1. The spring-tug substantially as described, consisting of the cap A, provided with apertures C C' C', the plug D, extended from the inner face of cap A, and provided with central opening, D', and longitudinal side grooves, D^2 D^2, and having its lower extremity rounded or chamfered, whereby it may be readily inserted in and is freed from interference with the spring, the cap B, the rod E, extended through openings C D', and cap B, and provided with eye E', and draft-rod F, bent to form legs F^2, which are carried upward through cap B, lapped into grooves D^2, and thence through openings C' C', the spring, and the retaining devices, substantially as set forth.

2. In a spring-tug, the combination, with the perforated end caps, and the spring, of draft-rod E, having eye E' on one end, and having its other end threaded, as described, and provided with a retaining and adjusting nut, and the draft-rod F, having its legs F^2, provided near their ends with a series of slots, and the keys fitted to said slots, and adjustable from one to the other thereof, whereby the tension of the spring may be adjusted, substantially as set forth.

311,261. MACHINE FOR DAMPENING WEBS OF PRINTING-PAPER. GEO. ROSQUIST, Brooklyn, N. Y. Filed Feb. 4, 1884. (No model.)



Claim.—1. In a machine for dampening and winding webs of paper, the combination, with the power or driving roll and movable supports for the roll on which the dampened paper is to be wound, of weights and yielding connections between said weights and said supports, whereby the dampened roll will be held in yielding contact with said driving-roll, substantially as set forth.

2. In a machine for dampening and winding webs of paper, the combination, with the power or driving roll, of movable supports for the roll on which the dampened paper is to be wound, ways on which said supports slide, said supports having projections extending below said ways, springs attached to said projections, and weights connected with said springs, substantially as set forth.

3. In a machine for dampening and winding webs of paper, the combination, with the supports for the roll of dampened paper, of laterally-adjustable ways by which said supports are sustained, substantially as set forth.

4. The combination, with the supports F and ways G, having arms g', of the slotted rail g^3 and the bolts g^4, substantially as set forth.

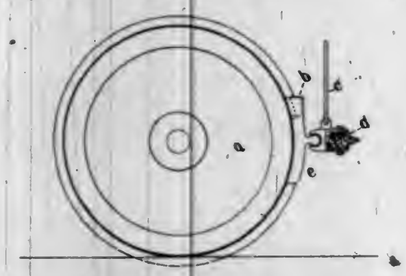
5. In a paper-dampening machine, the combination, with the spindle or shaft for the dry roll, of a clamp immovably fixed thereto near one end, and a movable clamp near the other end, supports for said shaft and mechanism, as screw m, nut m', and brake-pieces N N, attached to one of said supports and connected with said movable clamp, for changing the position of the latter on the shaft, as set forth.

6. The combination, with the shaft l, a stationary clamp, L', and a movable clamp, L, of two devices for holding said clamps, and of means for moving said holding devices laterally of the machine, all substantially as described, whereby the position of the movable clamp upon the shaft may be changed, and the shaft may be moved in the direction of its axis, as set forth.

7. The combination, with a roll-supporting shaft and a movable clamp, as L, or a brake adapted to act on said clamp, means to operate said brake, and means for changing the position of said brake to move the clamp longitudinally upon the shaft, all substantially as herein described.

8. The combination, with the standards M, of the brake-pieces N, supported thereby, but movable relative thereto, and the adjusting-screw m, for changing the position of said brake-pieces relative to said standard, substantially as set forth.

311,262. CAR-BRAKE. THOMAS SHAW, Philadelphia, Pa. Filed Oct. 23, 1884. (No model.)



Claim.—1. The combination, with a wheel and brake-shoe, of a fluid or semi-fluid frictional wearing material, substantially as described.

2. The combination, with a wheel and brake-shoe, of a fluid or semi-fluid material of a tough, tenacious character, capable of being torn apart and reunited, and forming a frictional coating between the wearing-surface of the wheel and shoe, substantially as described.

3. The combination, with a wheel, of a brake-shoe having a pocket or recess for the reception of the wearing material, and a passage from said recess to the wearing-surface of the shoe, substantially as described.

4. As a means of preventing the wearing and grinding of the metal surfaces of a wheel and brake, a coating of frictional material applied to said surfaces, substantially as described.

5. The combination of the wheel, shoe, and receptacle for a frictional fluid arranged to supply the bearing-faces, substantially as described.

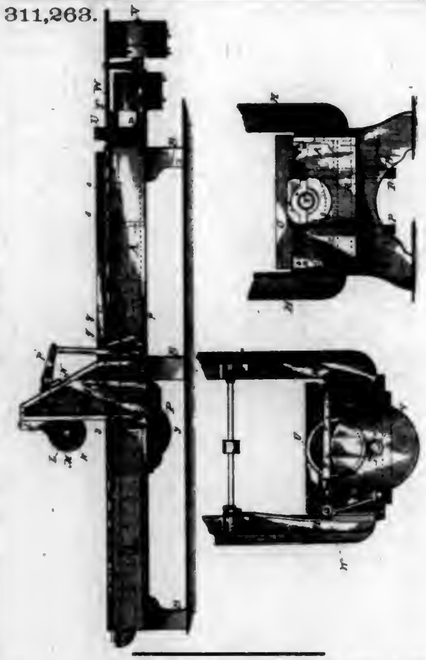
311,263. MACHINE FOR SLITTING METAL. JOHN N. SHORT, Johnstown, Pa., assignor to the Cambria Iron Company, same place. Filed Mar. 29, 1884. (No model.)

Claim.—1. The circular cutter M, secured upon the spindle L, and rotated by friction with the piece being operated upon, in combination with two flat cutters or knives provided with means for operating the same, substantially as and for the purpose set forth.

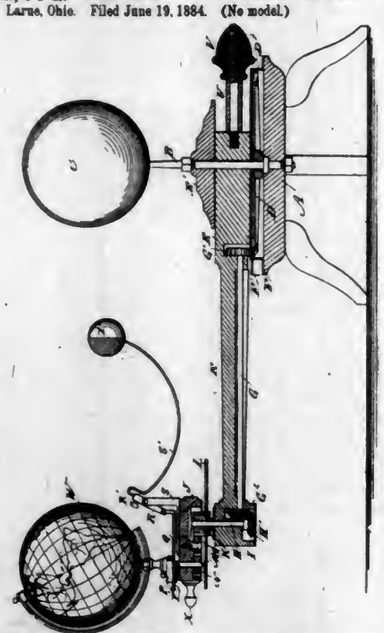
2. The combination of a circular cutter, M, head-block K, flat cutters or knives E E, and platen C, substantially as and for the purpose set forth.

3. The combination of the platen C, operated by a screw or other means, the knives E E, and adjustable pressure-rollers P P, substantially as and for the purpose set forth.

311,263.



311,264. TELLURIAN. WILLIAM G. SHORT and HENRY L. SHORT, Larue, Ohio. Filed June 19, 1884. (No model.)



Claim.—1. In a tellurian, the combination, with a suitable base or support, of an arm, E, held to turn on the same, a vertical shaft in the end of the arm, an arm, J, mounted on the vertical shaft, a globe held on one end of the arm J, and a rocking lever held on the opposite end of the arm J, in which rocking lever a wire is secured, on the free end of which a ball representing the moon is held, substantially as herein shown and described.

2. In a tellurian, the combination, with a base, of the arm E, held to turn on the same, the subdivided ring F on the base A, the vertical shaft H, journaled in the end of the arm E, the arm J, mounted on the upper end of the shaft H, and a subdivided disk or plate, L, held on the upper end of the shaft H and below the arm J, substantially as herein shown and described.

3. In a tellurian, the combination, with the base A, and a circular rack secured on the same, of an arm held to turn on a shaft on the base, a shaft journaled longitudinally in the arm, and provided at one end with a cog-wheel engaging with the circular rack, a vertical shaft journaled in the free end of the arm, and provided with a cog-wheel, with which a cog-wheel on the outer end of the longitudinal shaft engages, an arm mounted on the upper end of the vertical shaft, the cog-wheel K, mounted on the upper end of the said vertical shaft, an intermediate cog-wheel, O, and the cog-wheel N, mounted on the lower end of a vertical shaft, M, in the free end of the arm J, and on this vertical shaft M a frame holding a globe is mounted, substantially as herein shown and described.

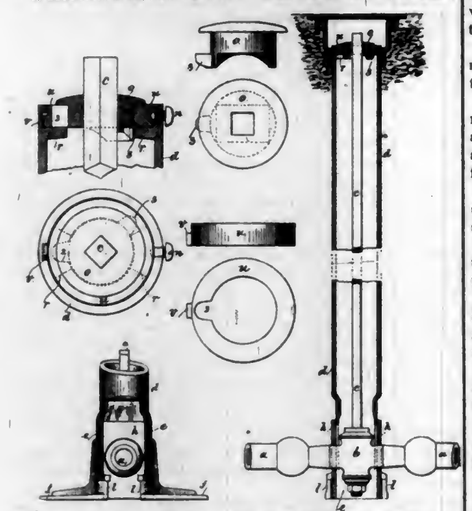
4. In a tellurian, the combination, with a base, of an arm mounted to turn on a vertical shaft on the base, a vertical shaft journaled in the free end of the arm, gearing for revolving the said shaft, an arm on the upper end of the vertical shaft, a globe-holding frame mounted on the free end of the said arm and adapted to be revolved from the vertical shaft, a rocking lever pivoted on that end of the arm opposite the one on which the globe-holding frame is held, means for rocking the lever from the shaft of the globe-frame, and of a curved rod or wire, on the free end of which a ball representing the moon is held, substantially as herein shown and described.

5. In a tellurian, the combination, with the arm J of the shaft M, of the globe-holding frame, the disk P, mounted eccentrically on the shaft M, the strap P', surrounding the disk P, the standard S, the lever R, pivoted in the same, the rod Q, connecting the ring P' with the lever R, a curved rod or wire held in the upper end of the lever R, and a ball representing the moon held on the free end of the said curved rod or wire, substantially as herein shown and described.

6. In a tellurian, the combination, with an arm mounted on a revolving shaft, of a globe-holding frame held in the free end of the arm, a rocking lever pivoted on the opposite end of the arm, an eccentric disk and rod for operating the rocking lever from the globe-holding frame, a curved rod or wire held in the rocking lever, and a ball representing the moon held on the free end of the wire, substantially as herein shown and described.

7. In a tellurian, the combination, with an arm mounted on a revolving shaft, of a globe-holding frame held on the free end of the arm, a rocking lever pivoted on the opposite end of the arm, an eccentric disk and rod for operating the rocking lever from the globe-holding frame, a curved rod or wire held in the rocking lever, a ball, t, held on the free end of the rod or wire, and the ball T, provided with a socket for receiving and holding the ball t, substantially as herein shown and described.

311,265. STOP-COCK BOX. BENJAMIN C. SMITH, Brooklyn, assignor to Fred Adee & Co., New York, N. Y. Filed Mar. 3, 1884. (No model.)

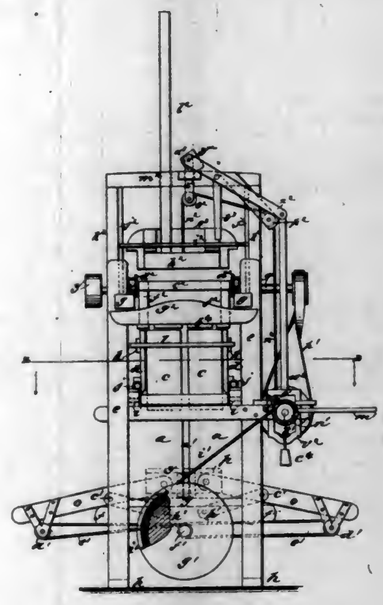


Claim.—1. The combination, with the stop-cock and tubular box having a fork and feet at the lower end, of the side plates, h, surrounding the tube a, or the tubular portion of the cock, and acting to close the sides of the fork, substantially as set forth.

2. The combination, with the movable plates h, stop-cock, and pipe, of the tubular metal box having the forks and feet at the lower end, and the projections l, behind which the plates are received, substantially as set forth.

3. The combination, with the tubular stop-cock box, the stop-cock, and its rod or key e, of the check having a projection, the guide-ring that receives the check, the stops beneath the guide-ring for limiting the movement of the check, and the fastenings for the guide-ring, substantially as set forth.

311,266. BALING-PRESS. WILLIAM F. SMITH and WILLIAM W. ADAMS, Ozark, Ark.; said Smith assignor to said Adams. Filed June 12, 1884. (No model.)



Claim.—1. The combination of an endless carrier or elevator consisting of endless belts t', toothed bars u', and suitable rollers, s' and v', with the compressing-roller x', cotton-gin chute x', toothed chute a^2, and the baling-press, substantially as described.

2. The combination, with the baling-press case, of the endless carrier or elevator, chute a^2, tramper h^2, provided with the gate e^3 on the tramper, substantially as described.

3. The combination, with a baling-press, of a tramper, h^2, hoisting-rope n^2, suitable guide-pulleys, o^2 and p^2, clutch-spool q^2, driving-shaft k', and mechanism, substantially as described, for automatically clutching and unclutching the spool for raising and dropping the tramper, as set forth.

4. The combination of the disk t^2, grooved yoke v^2, suspending-rod w^2, lever x^2, and the hanger-bar b^2, with the tramper h^2, hoisting-rope n^2, and the clutch-spool q^2, substantially as described.

5. The combination of the eccentric bearing a^2 and stirrup z^2 with the lever x^2, spool-shifting yoke v^2, hoisting-rope n^2, pulley o^2, and the tramper, substantially as described.

6. The sides b of the lower section of the case, spaced distantly from the sides of the upper section and suspended in notches m of the sides a, in combination with the levers o, acting upon said slides b, by which the follower is raised, substantially as described.

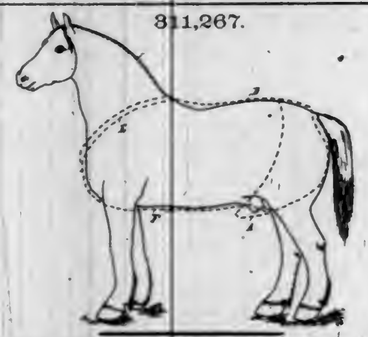
7. The sides b of the lower section of the case, arranged to be lifted up by the follower-levers o, and having cleats s, in combination with the lifting-bars t on said levers, substantially as described.

8. The combination of the driving-shaft k', clutch-spool j', shifting and brake lever m', rope i', drum g', and shaft f' with the rope e', toggle-levers o, and follower p, substantially as described.

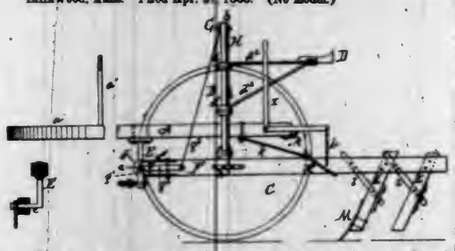
311,267. HORSE-SHIELD. NELSON E. SPRINGSTON, Detroit, Mich. Filed Sept. 13, 1884. (No model.)

Claim.—The shield A, interiorly provided with spurs, and having a water-outlet, in combination with the strap B, secured to the rear end thereof and adapted to embrace the tail of the animal, the back-strap D, the strap F, secured to the front of said shield and connected with the collar E, which is connected to said back-strap, and the loin-straps G, the straps D, B, and G all being buckled together at C, substantially as and for the purposes specified.

311,267.



311,268. CULTIVATOR. FREDERICK STANGE and THEODOR STAEBER, Ellinwood, Kans. Filed Apr. 27, 1883. (No model.)



Claim.—In a cultivator such as described, the arched axle B and the seat D, in combination with the sliding arms which connect the seat with the axle, whereby the seat is adjustable, as set forth.

311,269. BUSTLE. ALBERT STILES, Jackson, Mich. Filed May 13, 1884. (No model.)



Claim.—1. A bustle or pannier composed of a body portion, A, having alternating large and small pockets, the said large pockets being filled with a soft or yielding material, and the said small pockets with shaping or stiffening material, substantially as described.

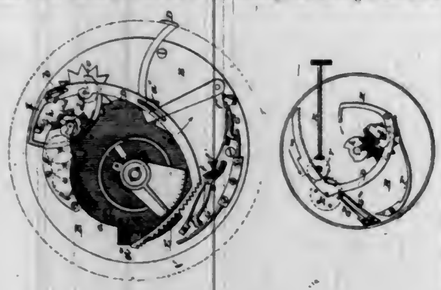
2. A bustle or pannier consisting of a body portion, A, composed of two parts stitched upon the line *a a*, as described, with the pockets *g h*, filled as described, and the laced diaphragm B, all substantially as described.

311,270. REPEATING ATTACHMENT FOR WATCHES. FRED TERSTEGEN, Elizabeth, N. J. Filed Aug. 21, 1882. (Model.)

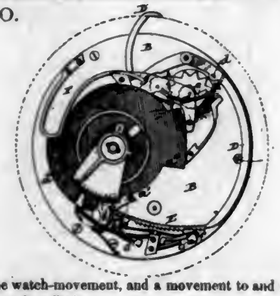
Claim.—1. In repeating attachments for watches and other time-pieces, the method herein described of changing the strokes to indicate the several divisions of time, which consists in giving an up-and-down movement to the striking-rack to cause it to engage the striking mechanism at different points, substantially as described.

2. The method herein described of changing the strokes to indicate the several divisions of time, which consists in giving an up-and-down movement to the lever to operate the striking-rack, substantially as described.

3. The method herein described of striking the several divisions of time, which consists in the use of one striking-rack having a movement



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parallel to the watch-movement, and a movement to and from the same, substantially as described.

4. The method herein described of striking the several divisions of time, consisting in striking the hours and quarters by the direct or positive motion of the striking-rack, and the minutes by the return movement, substantially as described.

5. A striking-rack for repeating-watches and other time-pieces, adapted to strike the several divisions of time by changing its movement to different planes above the plate as it engages the striking mechanism, substantially as described.

6. A striking-rack for repeating-watches and other time-pieces, having a sidewise movement to engage the striking mechanism, and a movement from and toward the plate to adjust itself to engage the proper striking mechanism to sound the several divisions of hours, quarters, and minutes, substantially as specified.

7. A striking-rack adapted to sound the divisions of time by operating the hammer-clicks, both on its forward and back movements, substantially as described.

8. The lever D, arranged to change its position from and toward the plate when its connecting-pieces come in contact with the snails, in combination with a rack having a movement from and toward the plate, substantially as described.

9. A striking-rack adjustable from and toward the plate, in combination with the lever, arranged to change its position automatically while striking the time, substantially as specified.

10. In combination with a rack having a movement from and toward the plate, the lever D, having near its attached end a suitable adjusting-spring, and adapted to be changed in its position by the contact of its snail-pieces, with the snails, substantially as specified.

11. The pivoted lever D, connected with its axis by a swivel-joint, and provided with a suitable adjusting-spring, substantially as specified.

12. A striking-rack for repeating-watches and other time-pieces, having a movement to and from the plate, provided with two groups of teeth, one group having three teeth and the other fourteen teeth, for the purpose specified.

13. A self-adjusting striking-rack having one group of teeth to strike the hours and minutes successively, substantially as specified.

14. A striking-rack having one group of teeth to strike the hours on the forward motion and the minutes by its reverse motion, substantially as described.

15. A striking-rack adjustable to and from the plate, in combination with the pivoted lever D, adapted to move automatically to and from the plate and parallel to said plate when operating the striking-rack, substantially as described.

16. A striking-rack having a movement to and from the plate, in combination with a slide or pull adapted to be drawn out of the case, and intermediate mechanism to connect the rack with the slide or pull, substantially as specified.

17. In combination with the repeating mechanism of time-pieces, a slide or lever arranged to set the striking-rack and regulate the retraction of the mainspring by being drawn out, substantially as described, and for the purpose set forth.

18. A slide or lever adapted to operate the striking-rack back and forth by being drawn out and pushed in the watch-case, so as to act as a starting device to set the repeating mechanism in motion, substantially as set forth.

19. A slide or lever arranged to be drawn or pulled out to move the striking-rack and retract the mainspring of the repeating mechanism, substantially as described.

20. The combination of a single striking-rack having a motion parallel to the plate of a watch and a motion to and from the same, with striking devices arranged in different planes, so that the said rack engages the said striking devices at proper intervals to separately strike the hours, quarters, and minutes successively, substantially as specified.

21. In combination with a striking-rack adapted to engage the striking devices in different planes, a lever for operating the striking-rack having a sidewise motion and a motion from and to the plate, as and for the purpose specified.

22. In combination with the striking-rack herein described, having a sidewise motion and a motion to and from the plate, a lever operating the same having the hour-piece connected with it, substantially as specified.

23. In combination with the striking-rack having a sidewise motion and a motion to and from the plate, a lever for operating the same having the quarter-piece connected with it, substantially as specified.

24. In combination with the hour-rack herein described, a lever for operating the same arranged and constructed to automatically change its position from and to the plate while in motion, and having the minute-piece connected with it, substantially as specified.

25. In combination with the hour-rack herein described, a lever for operating the same having the hour, quarter, and minute pieces connected with it, substantially as and for the purpose specified.

26. In combination with the lever for operating a single striking-rack arranged to strike the several divisions of time, a quarter-piece adapted to be carried directly to the quarter-snail by the said lever, substantially as specified.

27. The lever for operating the striking-rack, in combination with an hour-piece arranged to operate upon the said lever to give it a movement to and from the plate, substantially as described.

28. In combination with the lever for operating the striking-rack arranged to move to and from the plate, an hour-piece attached to the lever and adapted to change the position of the said lever when acted upon by the hour-snail, substantially as specified.

29. The snail herein described, having three points or sections equidistant from each other and constructed and arranged to raise the hour-piece and with it the lever and rack when the hour-piece is moved against it, substantially as and for the purpose specified.

30. In combination with the star-shaped snail, an hour-piece adapted to be carried against the snail when moved in the direction of the motion of the snail, substantially as and for the purpose specified.

31. The star-shaped snail, in combination with the hour-piece so constructed that when the hour-piece is carried against the snail it rises up and carries the lever with it, thereby raising the striking-rack out of engagement with the striking devices, substantially as specified.

32. In combination with the striking rack and lever and the hour-piece connected therewith, a snail adapted to throw the said rack out of engagement with the striking devices when the hour-piece is moved against it, substantially as specified.

33. A snail for repeating-watches, adapted to regulate the number of strokes of the striking mechanism by moving the striking-rack out of engagement with the striking devices, substantially as specified.

34. In combination with the hour-snail, a star-wheel, and a suitable device attached to the quarter-snail shaft to move by its revolution the said star-wheel one tooth forward and hold it steady, substantially as shown and described.

35. In repeating mechanism for watches and other time-pieces, the pin *m* and notched disk or piece O, connected with the quarter-snail, in combination with the star-wheel and hour-snail, substantially as and for the purpose specified.

36. In combination with the striking-rack and its lever, a quarter-piece adapted to throw the striking-rack out of engagement with the striking devices, substantially as specified.

37. The method of regulating the striking of the minutes, which consists in moving the minute-piece in the direction of the revolution of the minute-snail and against a notch in the said snail to adjust the rack for the right number of strokes, substantially as specified.

38. The method of limiting the movement of the striking-rack when striking the minutes, which consists in moving the minute-piece in the direction of the revolution of the minute-snail, and carrying the said minute-piece against the face of a notch in the snail, by which movement the minute-piece is raised and thereby throws the striking-rack out of connection with the striking devices, as specified.

39. The minute-piece *j*, composed of a spring-pawl attached to one arm of the striking-rack lever, in combination with the minute-snail and striking-rack, substantially for the purpose specified.

40. A minute-snail for repeating-watches and other time-pieces, consisting of a disk provided with four equal sections divided by notches, in combination with a quarter-snail shaft and minute-piece, substantially as described.

41. The combination of the minute-snail I, divided into four equal sections by notches, and minute-piece *j*, with the striking-rack and connecting-lever, substantially as specified.

42. In combination with the minute-snail and minute-piece, a striking-rack in one piece adapted to change its position from and to the plate automatically while moving sidewise against the striking mechanism, substantially as specified.

43. As a new article of manufacture, a plate, B, adapted to receive the various parts of a repeating attachment and to be connected with a watch-movement, substantially as shown and described.

44. A plate, B, carrying a repeating mechanism, and adapted to be connected with and detached from a watch-movement, in combination with a watch-movement, substantially as described.

45. A plate, B, provided with an opening, *a*, and adapted to receive the several parts of a repeating attachment, in combination with a watch-movement, substantially as described and shown.

46. As a new article of manufacture, a repeating attachment for watches and other time-pieces, made separate from the watch-movement, and adapted to be attached to the same, substantially as described.

47. A repeating attachment for watches made separate from the watch-movement, in combination with the plate B, adapted to be connected with the watch-movement, substantially as described.

48. A plate, B, of suitable shape, adapted to be connected with a watch-movement, in combination with a repeating mechanism made separate from the watch-movement, substantially as specified.

49. A repeating mechanism for watches and other time-pieces, so constructed that it may be attached to or detached from the movement as a whole without disarranging its parts, substantially as herein described.

50. A repeating mechanism for watches, placed on the back of a watch-movement, in combination with a watch-movement, substantially as herein shown and described.

51. A repeating mechanism constructed on the back of a watch-movement, so that it can be seen and examined, and, if necessary, removed without taking the movement apart, substantially as described and shown.

52. A pull or slide for operating the repeating mechanism of a watch by being drawn or pulled out of the watch, in combination with a watch-case provided with openings in the rim and covers of the watch-case substantially as and for the purpose described.

53. The bell wires or forks for a repeating attachment for watches arranged above or over the back of a watch-movement, substantially as and for the purpose described.

54. The clicks or pawls for operating the striking-hammers, fixed on different planes above the plate, in combination with a striking-rack having a sidewise motion and a motion from and to the plate, substantially as specified.

55. A hammer for repeating attachment for watches and other time-pieces, having the pawl and actuating-spring made in one piece, and attached directly to the hammer, substantially as described.

56. The combination, with the repeating mechanism, of a pull or slide adapted to be drawn out through an opening in the watch-case, and provided with a finger-piece movable from and toward the edge of the case, substantially as and for the purpose described.

57. The operating device for repeating mechanism arranged on the back of a watch-movement, in combination with the striking mechanism, substantially as described.

58. The hour-snail for repeating mechanism, arranged above or over the back of the watch-movement, in combination with the watch-movement, substantially as described.

59. A striking-rack for repeating mechanism, arranged on the back of a watch-movement, in combination with the striking devices, substantially as described.

60. A striking-rack arranged over or above the back of a watch-movement, in combination with a snail, and the devices for connecting the snail with the time-train, substantially as described.

61. A striking-rack for repeating mechanism for watches, movable between the back of a watch-movement and the cap or cover of the watch-case, substantially as described.

62. The quarter-snail for repeating mechanism, placed above or over the back of a watch-movement, in combination with the time-train, and devices for connecting the same, substantially as described.

63. The quarter and minute snails for repeating mechanism, arranged above or over the back of a watch-movement, in combination with the quarter and minute pieces for adjusting the actuating mechanism for the striking devices, substantially as described.

64. The quarter and minute snails for repeating mechanism, arranged above or over the back of a watch-movement, in combination with the time-train, and devices for connecting the same, substantially as described.

65. A minute-snail revolving above or over the back of a watch-movement, in combination with the minute-piece arranged above or over the back of the watch-movement, and the striking-rack, substantially as described.

66. The regulating-wheels or gearing for the repeating mechanism, arranged above or over the back of a watch-movement, in combination with the repeating mechanism, substantially as described.

67. In a watch-movement, a back plate having on its outer side the striking-rack of a repeating mechanism, and devices for connecting the same with the time-train, substantially as described.

68. A back plate for a watch-movement, adapted to expose the balance-wheel and bridge, and having on its outer side the striking-rack of a repeating mechanism, and devices for connecting the same with the time-train, substantially as described.

69. A repeater-plate having irregular openings *a*, and cuts a' a^2, substantially as described and shown.

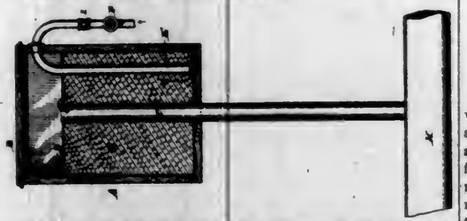
70. A repeater-plate, B, having an irregular opening, *a*, and the cut a^2, substantially as described and shown.

71. A quarter-snail for repeating mechanism, arranged above or over the back plate of a watch-movement, and provided with a device for setting the hour-snail, in combination with the time-train, substantially as specified.

72. The snails for repeating mechanism, placed on the plate B, between the center of the watch-movement and its periphery and adjoining the cut a^3 of the plate, substantially as described and shown.

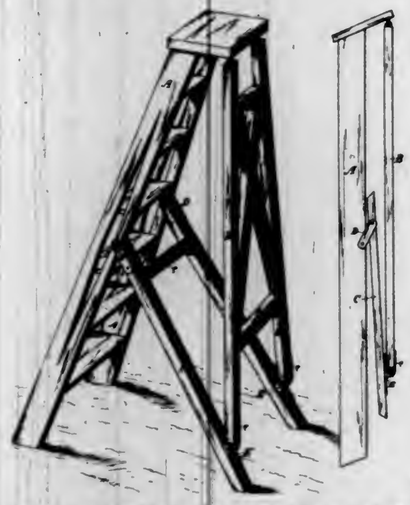
73. In a watch-movement, a snail or snails for repeating mechanism, placed above or over the back plate on one side between the center of the movement and the periphery, in combination with a striking-rack placed on the opposite side of the movement between the center and the periphery, substantially as described and shown.

311,271. DISINFECTING APPARATUS. RUSSELL THAYER, Philadelphia, Pa. Filed May 22, 1884. (No model.)



Claim.—In a disinfecting apparatus, the combination of a box, A, having the central overflow-pipe, C, the supply-pipe E, extending close to the bottom of the box and connected with the water-main, a valve, F, to regulate the flow of water through said pipe, and a check-valve, I, to prevent siphoning of the disinfectant liquid from said tank, substantially as and for the purpose specified.

311,272. STEP-LADDER. LAYTON S. TIBBALS, Mission San José, Cal. Filed Nov. 10, 1884. (No model.)



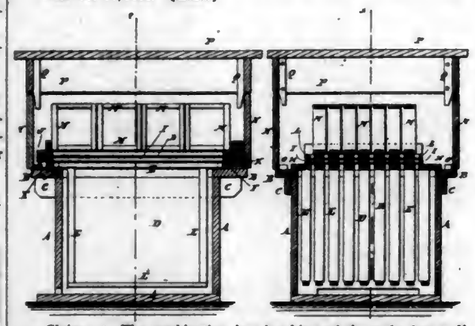
Claim.—1. In a step-ladder, the brace-legs C, their tops bearing against the sides of the front of the ladder and connected therewith by pivoted links, and their lower ends resting on the floor and supporting and hinged to the folding legs of the ladder, substantially as herein described.

2. The combination, in a step-ladder, with the front A and hinged folding legs B, of the brace-legs C, secured at their upper ends to the sides of the front, and supporting near their lower ends the legs B, substantially as herein described.

3. The combination, in a step-ladder, with the front A and hinged folding legs B, of the brace-legs C, supporting and hinged to the legs B, having beveled upper ends adapted to bear against the sides of the front A, and the pivoted links D, by which the tops of the brace-legs C are connected with the front, substantially as herein described.

4. In a step-ladder, the front A and folding legs B, in combination with the brace-legs C, the pivoted links D, by which their beveled tops are connected with the sides of the front, and the bracket E and pivoted arm *e*, by which the legs B are supported and hinged to the brace-legs, substantially as herein described.

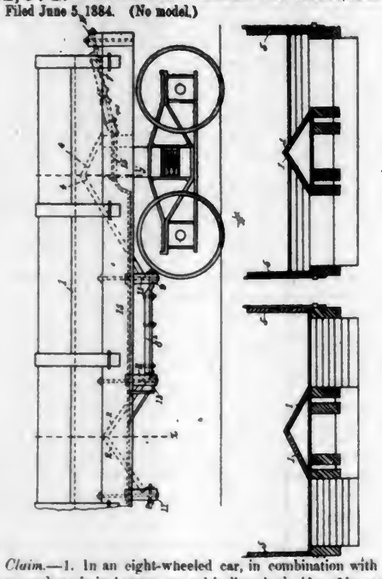
311,278. BEE-HIVE. GEORGE L. TINKER, New Philadelphia, Ohio. Filed Oct. 17, 1883. (Model.)



Claim.—1. The combination, in a bee-hive, of the main frames E with the intermediate rack, I, resting thereon, and provided with upper and lower cleats, J K, at its ends, section-rack L, resting on the rack I, and surplus-frame M, resting on the section-rack L, the cross-bars of said frames and racks being of the same width, and being in vertical alignment and resting one upon the other, whereby the said racks may be moved singly or together by means of the cleats and in the direction of the length of the bars or slats, substantially as set forth.

2. The combination, in a bee-hive, of the main frames E with the intermediate rack, I, resting thereon, and provided at its ends with the upper and lower cleats, J K, section-rack L, resting on the rack I, and provided on its upper surface at its ends with cleats, surplus-honey frames M, held between said cleats, with their lower cross-bars resting on the bars of rack L, the cross-bars of all of said frames and racks resting one upon the other in vertical alignment, whereby the racks may be moved singly or together in the direction of the length of the bars or slats of the frames and racks, and the surplus-honey frames be removed with rack L, for the purpose of tiering, without disturbing their relative position to the rack, substantially as set forth.

311,274. DUMPING-CAR. MATTHEW VAN WORMER, Malden, Mass. Filed June 5, 1884. (No model.)



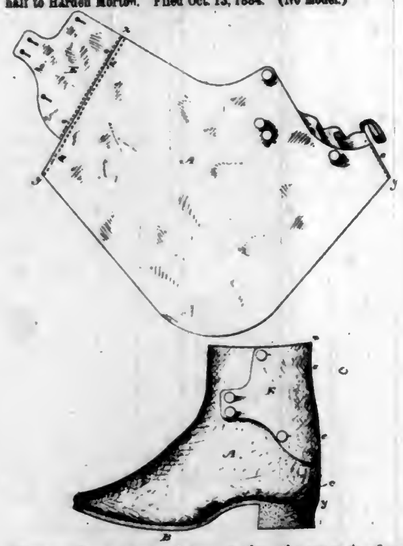
Claim.—1. In an eight-wheeled car, in combination with a series of gates or doors in its bottom, ranged in lines both sides of its center, the car-bottom composed of a system of double inclines, of which one extends centrally lengthwise of the car and inclines downward and outward both ways from the car-center, and the others extend laterally therefrom to the sides of the car and incline downward and outward in opposite directions, and all arranged to discharge the load through the bottom doors or gates.

2. The car-bottom gates 8 8^2, each arranged to swing downward when unlatched, one of these gates, 8, being provided with long bars extending under the other, 8^2, to support it, in combination with sliding latches arranged to be pushed under such bars to fasten the gates, all substantially as shown and described.

3. The combination of devices for latching and unlatching the series of gates, consisting of the hand-lever 16, rod 15, levers 14, and their attached latches 13, substantially as shown and described.

4. The combination of devices for lifting the series of gates, consisting of the crank-wheels 17, wheel and axle 22, chain 18, rod 19, short chains 20, and pulleys or rollers 21 23, substantially as shown and described.

311,275. SHOE. WILLIAM WATKINS, Linneus, Mo., assignor of one half to Harden Morton. Filed Oct. 13, 1884. (No model.)



Claim.—In an improved boot or shoe, the upper A, of a single piece of stock, provided with fastenings upon one edge, and with the closing-flap E upon its opposite edge, adapted to fold around the ankle at the back of the shoe and fasten upon the inside, all substantially as set forth.

311,276. TRUNK-CATCH. JAMES WAYLAND, Newark, N. J., assignor to George M. Ballard, same place. Filed May 8, 1884. (No model.)



Claim.—1. In combination, in a trunk-catch, the plate *a*, having the hook or tongue *c*, the plate *b*, having the slot *f*, cross-bar *n*, and pin *m*, the hasp pivoted on said pin and engaging with the hook, the spring, and the lever, all said parts being arranged and operating substantially as and for the purposes set forth.

2. In combination with the removable lever *h*, arranged in bearings in the plate *b*, and the hasp *e*, the guards *p*, formed on said plate below said bearings, substantially as and for the purposes set forth and shown.

3. In a trunk-catch, the combination, with the plates *a b*, of the rigid hasp pivoted on the plate *b*, and projecting into the plate *a*, and acting therein as a dowel to prevent lateral vibration of said plates, the spring *d*, and lever *h*, all said parts being arranged substantially as and for the purpose set forth.

4. In combination, the plate *a*, having the hook or tongue *c*, and the plate *b*, having the slot *f*, finger-piece *g*, passing therethrough and adapted to engage with a hasp, said hasp pivoted on the pin *m*, and perforated to catch upon the hook or tongue, and the spring *d*, carried by the rivet or tent *o*, and pressing the hasp forward to engage with the tongue, all substantially as herein set forth and shown.

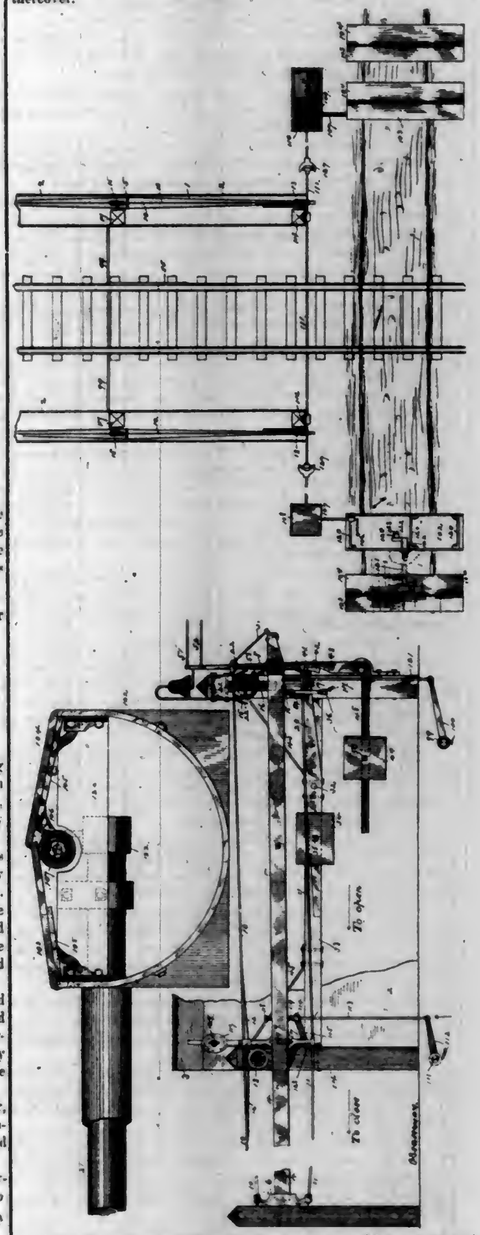
5. In a trunk-catch, the combination of the plates *a* and *b*, a lever, *h*, and spring *d*, and the hasp having the pivotal perforation *e'*, the catching recess or perforation *e''*, and the cam projection *e'''*, all arranged and adapted to operate substantially as herein set forth and shown.

6. In a trunk-catch, the catch-plate *b*, having the slot *f*, laterally-adjacent fulcrumal recesses *i i*, cross-bar *n*, pin *m* thereon, and guards *p* all arranged and operating in combination with a lever, *h*, substantially as and for the purposes set forth and shown.

7. In a trunk-catch, the perforated hasp adapted to engage the tongue on the opposite plate, and having a cam projection, *e'''*, in combination with said plate and tongue, and a lever, *h*, all substantially as set forth.

311,277. RAILROAD-GATE. SYLVESTER J. WETMORE, Watson, N. Y. Filed Mar. 5, 1884. (No model.)

Brief.—A railway-gate in which the upper truss-rod is provided with a spring-track which moves upon a grooved supporting-pulley mounted upon the central post, and whose rear end is mounted upon a vertically-movable pulley on the rear post, which is raised and lowered automatically by mechanism put into operation by the passage of a train, thereby allowing the gate to open and close by gravity. In connection with said gate, brake mechanism is provided for holding the gate after it has started down, and which is operated by mechanism extending over the highway, and which is operated by the wheels of passing vehicles thereover.



Claim.—1. A railway-gate composed of a central beam composed of two parts trussed together at their respective ends, and an upper and a lower truss rod or track, and end and central vertical braces for bracing said central beam and truss-rods together, substantially as set forth.

2. A railway-gate having a truss-rod provided with an inclined spring-track, and means for raising and lowering the front end of said gate to adapt it to automatically slide horizontally in either direction.

3. A railway-gate having a truss-rod provided with a spring-track, said a central supporting-post provided with a fixed supporting grooved roller, 15, and a rear post having slotted plate 16, a vertically-adjustable grooved roller mounted within said slotted plate, pivoted gate-latching beam 20, and rod 18, connecting said roller 15 and gate-latching beam 20, for the purpose of raising and lowering said adjustable roller, and thereby changing the incline of the gate, substantially as and for the purpose set forth.

4. A horizontally-sliding railway-gate having at one end a vertically-sliding support, means for reciprocating said sliding support, a pivotal latching-beam, mechanism for reciprocating said latching-beam, and a catch adapted to engage said latching-beam, and to be operated by the wheels of a locomotive or car passing along the track.

5. The combination, with a pivotal gate-latching beam, of a vertically-adjustable stop for the purpose of limiting the vertical movement of said latching-beam, substantially as set forth.

6. A gate-latching beam having a weighted pawl pivoted in one end thereof, in combination with a suitable catch adapted to engage with said pawl and hold said beam rigid, substantially as set forth.

7. The lever or arm 43, pivotally connected with one of the gate-supporting posts, and having a catch, 42, adapted to engage with the pawl 41, and having at its upper portion suitable rods connecting with a lever or latch adapted to be operated by the wheels of a passing locomotive or car, to draw said catch 42 from engagement with the pawl 41, substantially as described.

8. The pivotal lever or arm 43, having a longitudinally-adjustable weight, 49, for the purpose of returning said arm 43 and catch 42 into locking engagement with the pawl 41.

9. The gate-closing lever or latch 54, pivotally connected at one end with the railway-rail guard 61, to prevent the sidewise movement of said latch, vertically-adjustable stop 62, and bracket 63, for regulating the projection of said latch above the rail, roller 64, arm or rod 65, arm 66, and rock-shaft 67, for the purpose of affording a yielding support to said latch, and means, substantially as described, for connecting said latch with the gate-closing mechanism.

10. The gate-opening latch or lever 55, pivotally connected at one end with the railway-rail, in combination with guard 61, vertically-adjustable stop 62, rod or arm 97, arm 98, rock-shaft 99, bracket 80, and mechanism, substantially as described, connected with said rock-shaft, for raising and opening the gate.

11. The blocks or plates 57, having lugs 59, forming bearings for the pivotal ends of the gate opening and closing levers, and flanges 60, for the purpose of guarding against sidewise movement of said levers, substantially as set forth.

12. The post 75, supporting a rod, 52, connected with one gate-closing latch or lever for operating the gate-catching lever or arm 43, and having bell-cranks 77 and 79, for the purpose of connecting the rod 51 respectively with said lever and with another gate-closing latch in the track in an opposite direction to that of the gate-closing latch connected with the rod 52, substantially as set forth.

13. The combination, with a gate-closing lever or latch, 54, and the latch 55ª, of connecting-arms 90, 91, and 88, rod 86, and arm 64, rock-shaft 89, arm 92, rod 93, and weighted arm 94, for the purpose of automatically restoring said latches 54 and 55ª to operative position above the rail after depression by a passing train.

14. The combination, with a gate having a spring-track, 12, of a vertically-reciprocating block, 23, adapted to receive and hold said track, and to diminish or increase the degree of angularity of said track as said block is raised or lowered, substantially as set forth.

15. The combination, with the closing-lever 54, of a lever, 55ª, having pivotal connection at one end with rock-shaft 89, arm 88, rod 86 and arm 65, for the purpose of releasing the free end of the closing-lever 54 and permitting it to drop down out of operative position, substantially as and for the purpose set forth.

16. In combination with a gate having a truss rod or track, a reciprocating brake-staff, 130, adapted to engage with and clamp said truss rod or track, and means for operating said brake-staff, substantially as set forth.

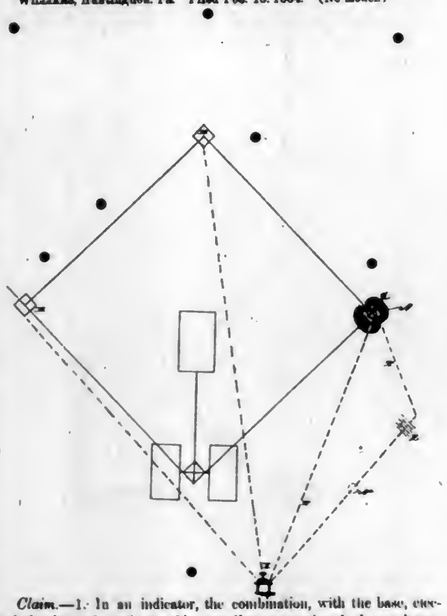
17. In combination with a gate having a truss rod or track, a bell-crank arm, 115, having at its upper end a vertically-adjustable weight, 117, and means, substantially as described, for operating said arm and gripping said weighted arm upon the truss-rod.

18. The combination, with a gate having a truss rod or track, of the rod 113, and means, substantially as described, for reciprocating the same, of the weighted bell-crank-shaped arm 115, and the vertically-adjustable brake-staff, for the purpose of clamping the truss-rod and holding the gate rigid, substantially as set forth.

19. The combination, with a sliding railway-gate, of brake mechanism adapted to grip said gate and hold it rigid, and mechanism extending across the highway, and adapted to be operated by passing vehicles, for placing said brake mechanism in contact with and removing the same from the gate.

20. The combination, with sliding railway-gates and brake mechanism for holding said gates rigid, of a rock-shaft secured transversely across the track, vertical rods connecting said rock-shaft with the brake mechanism, and levers or arms connected with the respective ends of said rock-shaft, and extending across the highway and adapted to be automatically operated by passing vehicles to alternately lock and unlock said gates.

311,278. INDICATOR FOR BASE-BALL OR CRICKET FIELDS. WM WILLIAMS, Huntingdon, Pa. Filed Feb. 18, 1884. (No model.)



Claim.—1. In an indicator, the combination, with the base, electrical circuits, and an alarm, of intermediate connecting devices, substantially as described, whereby when the runner steps on the base the alarm is sounded, as and for the purpose set forth.

2. In an indicator, the combination, with the electric bell, the electric circuit, and contact-post, of a vertically-moving rod to which the base is attached, said devices operating in the manner described, so that when the runner steps on the base the rod will be depressed to come in contact with the contact-post and close the circuit, thus ringing the bell, as set forth.

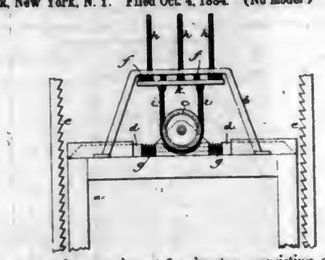
3. In an indicator, the combination, with the bell, the electric circuit, and contact-post, of a vertically-moving spring-pressed bar or rod and a sectional disk, one section of said disk being stationary and the other section being fitted to the upper end of the rod, and the base attached to the disk, arranged and operating in the manner described, for the purpose set forth.

4. In an indicator, the combination, with the electric bell, electric circuit, and contact-post, of a series of plates arranged above each other at different distances apart and held together in any suitable manner, a rod projecting upward from the bottom plate, a movable rod having a spring coiled thereon and passing through the two upper plates, a disk formed in two sections, and to which the base is attached, one section of said disk being secured to the stationary rod, and the other section being fitted to the movable rod, arranged and operating for the purpose set forth.

5. In an indicator, the combination, with the bell, the electric circuit, and contact-post, of a vertically-moving rod, a stationary rod, and a sectional disk, one section of said disk being attached to the upper end of the stationary rod, and the other section being fitted to the upper end of the moving rod, the base fitted to the disk, and means for limiting the downward movement of the moving rod, and also to hold said movable section at a slight distance above the stationary section, as and for the purpose set forth.

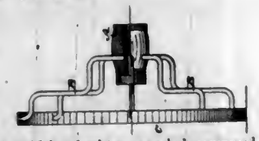
6. In an indicator, the combination, with the bell, electric circuit, and contact-post, of a board arranged in the bottom of a box or casing, a series of plates secured above the board at different distances apart, a stationary rod projecting up from the bottom plate, a vertically-moving rod passing through the plates, a spring coiled on said rod, and provided with means for adjusting the tension of said spring, a sectional disk to which the base is attached, one section being secured to the stationary rod, and the other section being fitted to the moving rod, for the purposes set forth.

311,279. SAFETY ATTACHMENT FOR ELEVATORS. ARTHUR M. BAKER, New York, N. Y. Filed Oct. 4, 1884. (No model.)



Claim.—A safety attachment for elevators, consisting of a suspension-bar connected, respectively, with the hoisting rope or cable and the arresting-pawls by intervening springs, whereby a constant yielding of said springs produces an easy movement of the elevator and forces the arresting-pawls into engagement upon breakage of the hoisting-rope, substantially as described.

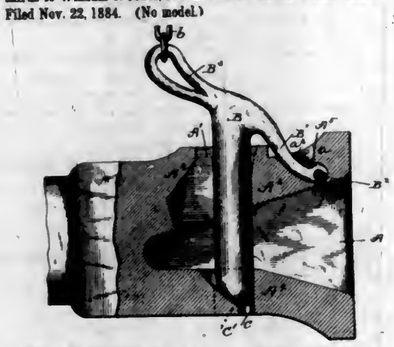
311,280. VEHICLE-WHEEL. JOS. BARBIERE, Landsdale, Pa. Filed Sept. 18, 1884. (No model.)



Claim.—1. A vehicle-wheel having a hub composed of a separate piece from the spokes and out of the plane of the rim, and provided with spokes of a double-arch form in the direction of the axle, and a rim, said parts being arranged and combined substantially in the manner and for the purpose specified.

2. A vehicle-wheel having its hub out of the plane of the rim thereof, and provided with spokes of a double-arch form, the ends secured to the hub being straight and in the same plane, the outer surface of the rim being a plane curve, substantially as and for the purpose set forth.

311,281. CAR-COUPLING. HENRY T. BEAM, Palestine, assignor of two-thirds to William C. Jones, Robinson, and Charles Butler, Effingham, Ill. Filed Nov. 22, 1884. (No model.)



Claim.—In combination with a draw-head provided with an inclined passage, a^3, in the forward portion thereof, the coupling-pin provided with an arm extending rearward and an arm extending forward and a rod passing through the extremity of the forward arm and beyond the sides of the draw-head, substantially as and for the purpose described.

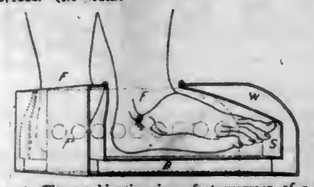
311,282. HANGER FOR PIPE. GEORGE W. BLAKE, New York, N. Y. Filed Sept. 11, 1884. (No model.)



Claim.—1. In a pipe-hanger, the combination, with an eyebolt or other support, of a yoke or stirrup composed of two sections pivoted to said bolt or support and detachably connected or interlocked at their lower portions, substantially as and for the purpose herein described.

2. The combination, with the eyebolt or support, of the yoke or stirrup composed of the two sections B B', halved together as described, and constructed one with a stud or projection and the other with an eye or socket to receive the same, whereby they are detachably connected or interlocked, substantially as and for the purpose herein described.

311,283. FOOT-WARMER. MARGARET E. BOYD, Carthage, Ill. Filed July 19, 1883. (No model.)

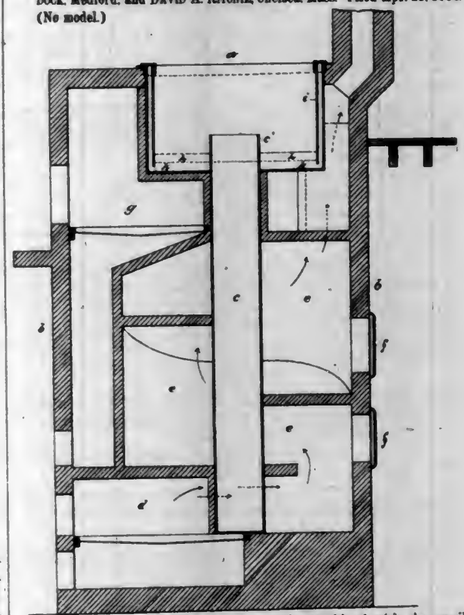


Claim.—1. The combination, in a foot-warmer, of a box or case having a foot-receptacle suspended therein to form a closed water-chamber around said receptacle, the latter being connected to the case around an opening formed therein for access to the receptacle, substantially as set forth.

2. The combination, in a foot-warmer, of a box or case having feet-receptacles suspended therein to form a closed water-chamber surrounding said receptacles, a central partition arranged in said box or case, and perforated as described, and vertical braces located beneath said receptacles, substantially as set forth.

3. The combination, in a foot-warmer, of a box or case having a foot-receptacle suspended therein to form a closed water-chamber around said receptacle, and a lining of felt or other like material arranged in said receptacle, substantially as set forth.

311,284. APPARATUS FOR COATING METALS. EDWARD I. BRADDOCK, Medford, and DAVID A. RITCHIE, Chelsea, Mass. Filed Apr. 28, 1884. (No model.)



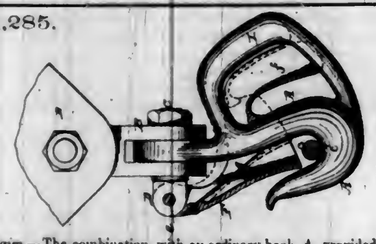
Claim.—1. The main tank or reservoir, combined with the auxiliary reservoir extending downward from the bottom thereof, and having its upper end projecting above the bottom of the main tank, substantially as and for the purpose described.

2. The main tank or reservoir, combined with a bottomless internal jacket adjacent to the side walls of the said reservoir, the space between the said tank and jacket containing one molten metal, which also covers the bottom of the main tank, and the tank within the said jacket containing a different molten metal of less specific gravity, substantially as described.

3. The main tank and auxiliary reservoir extending downward from the bottom thereof, combined with independent furnaces for heating the said tank and auxiliary reservoir, substantially as described.

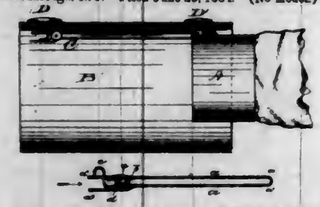
311,285. BUCKET-HOOK FOR HOISTING AND CONVEYING APPARATUS. ALEXANDER E. BROWN, Cleveland, Ohio. Filed Dec. 5, 1884. (No model.)

311,285.



Claim.—The combination, with an ordinary hook, A, provided with a rear loop-like device or hand-piece, I, of a safety device formed or provided with a rearward hand portion, *f*, or its equivalent, and arranged and operating as described, to be moved into the proper position to permit the disengagement of the device engaged with the hook whenever the hand-piece I and the device *f* are to be grasped by the operative, and shall automatically close up the throat of the hook whenever the last-named devices shall be released by the operative.

311,286. COMBINED CUFF AND BUTTON HOLDER. DANIEL W. BROWN, Woodbridge, N. J. Filed June 20, 1884. (No model.)



Claim.—1. In combination, the buttons D D' and fastener C, the former of which buttons has the fastener secured to it, and the latter holds said fastener in longitudinal relation to the cuff, all substantially as and for the purposes set forth.

2. In combination, the buttons D D', the latter of which has an eye, *f*, in the shank or shoe thereof, and a fastener caught upon one of said buttons, and having one of the grasping-jaws held in the eye of the other, substantially as set forth.

3. In combination, in a cuff-holder, the button D, provided with shanks or shoes adapted to extend through the button-holes of the cuff, and spring-actuated jaws *a a*, adapted to catch the wristband, and provided with mechanism, substantially as described, to catch the said button shank or shoe.

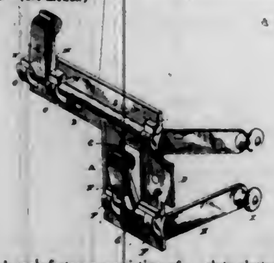
4. As an improved article of manufacture, grasping-jaws adapted to grasp the wristband at one end, and provided with fulcrumal ears *b b*, a pin, *c*, and a spring encircling said pin, and having one end extend up through the end *a'''* of one of said jaws and form a hook adapted to co-operate with said end *a''*, to grasp the button shank or shoe, substantially as shown and described.

311,287. PLASTIC-CEMENT MIXTURE FOR NON-CONDUCTING COVERINGS FOR BOILERS, &c. D. AUSTIN BROWN, Boston, Mass. Filed July 10, 1883. (No specimens.)

Claim.—1. A plastic-cement mixture composed of infusorial earth, lime, and asbestus, substantially as described.

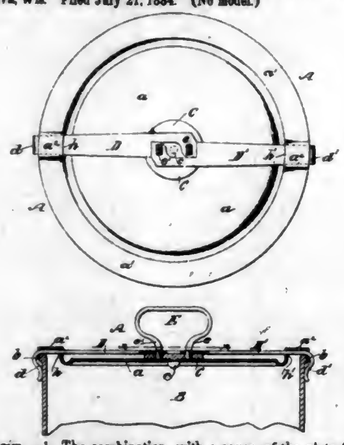
2. A non-conducting molded covering-section consisting of a cement mixture composed of infusorial earth, lime, and asbestus, substantially as described.

311,288. SASH-FASTENER. WILLIAM BROWN, Duncannon, Pa. Filed May 8, 1884. (No model.)



Claim.—A sash-fastener consisting of a plate slotted through its central portion, and having a tongue on one side and a right-angle extension on the other, said plate and extension also having on it lugs bent to form bearings, and shafts journaled in the said bearings, having at one end handles and near the other headed arms, one of the said arms operating through the longitudinal slot in the plate and the other through a slot in the extension, the entire device being secured to a window-frame, and operating substantially as and for the purpose specified.

311,289. POT AND KETTLE COVER. WILLIS L. BROWN, Lake Geneva, Wis. Filed July 21, 1884. (No model.)



Claim.—1. The combination, with a cover, of the plate C, pivoted to the center thereof, and provided with a handle, and the clamping-arms D, pivoted at their inner ends to the plate C, and bent downward at their outer ends, substantially as set forth.

2. The cover A, formed with a central depression, an outer flat portion, *a'*, above the plane of said depressed portion, and raised pockets a^2, the under surfaces of which are in a higher plane than the under surface of said portion *a'*, in combination with the revoluble plate C and the clamping-arms D D', pivoted to said plate, and passing through the pockets a^2, the under sides of said clamping arms being flush with the under surface of the raised part *a'*, thereby allowing said raised part to rest evenly on the rim of a vessel, substantially as set forth.

3. The combination, with the cover A, of the plate C, pivoted thereto, and provided with a handle, E, having shanks *e e'*, and the clamping-arms D D', pivoted to said plate C by the shanks *e e'*, said shanks serving to hold the handle to the pivoted plate and as pivots to the clamping-arms, substantially as set forth.

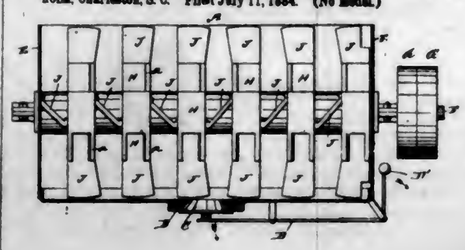
4. The combination, with the cover A, the plate C, pivoted thereto, and the handle E, having shanks *e e'*, riveted to the plate C, of the clamping-arms D D', pivoted at their ends *f* to opposite sides of the plate C by the shanks *e e'*, and formed with recesses on their opposite edges, near their inner ends, to form shoulders *g*, substantially as set forth.

311,290. TWO-WHEELED VEHICLE. WILLIAM M. BOGHMAN, Columbia, Tenn. Filed Apr. 10, 1884. (No model.)



Claim.—The combination of rear-depressed shafts, a rear-depressed axle, a front-depressed cross-tie, rear transverse springs, front helical springs, and forward flexible connections for the body of the vehicle, all constructed and adapted to operate substantially in the manner and for the purposes described.

311,291. MACHINE FOR MIXING FERTILIZERS. WILLIAM B. CHISHOLM, Charleston, S. C. Filed July 11, 1884. (No model.)

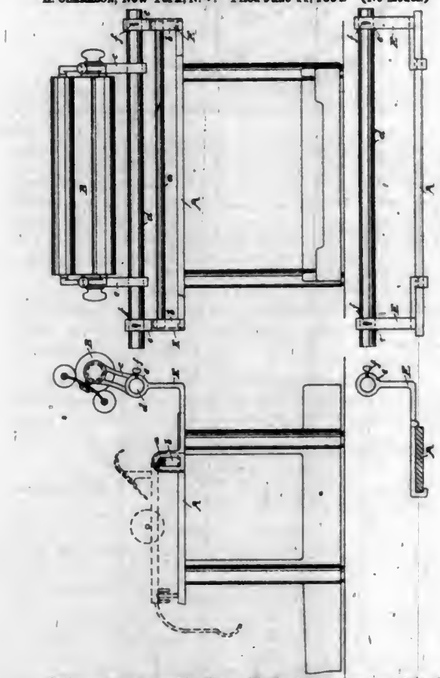


Claim.—1. The combination, with a trough or box, of a shaft journaled longitudinally in the same, arms formed on the shaft, and blades or wings held adjustably on the arms, the said blades or wings being inclined from the ends toward the middle of the box, substantially as herein shown and described.

2. The combination, with the box or trough A, of the shaft F, the arms H on the same, the wings or blades J, having flanges *a* and slots K, and of the bolts M, substantially as herein shown and described.

3. The combination, with the box or trough A, having a central opening, B, of the shaft F, the blades or wings J, held on the same, which blades are inclined from the ends toward the center, and of the plug C, held on a lever, D, substantially as herein shown and described.

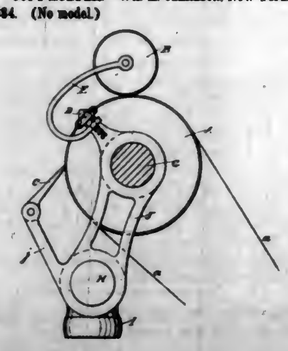
311,292. COPY-HOLDER FOR TYPE-WRITING MACHINES. WM. H. CLARKSON, New York, N. Y. Filed June 11, 1884. (No model.)



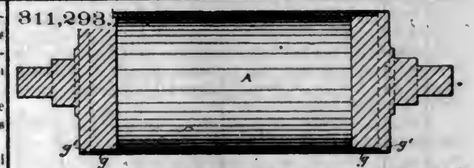
Claim.—1. The combination, with the lower member of the framing of a copy-holder, of brackets having eyes adapted to receive said lower member, made adjustable longitudinally by sliding them upon said lower member, and so that the copy-holder can be swiveled in said eyes to any required angle with the vertical, substantially as shown and described, and for the purpose set forth.

2. The combination of the brackets E E, adapted to fasten to the upper parts of the framing of a type-writing machine, and provided with eyes *e e*, with the cross-bar *d*, forming the lower member of the framing of a copy-holder, and with the thumb-screws *f f*, for clamping said brackets to said lower member, substantially as herein described and shown, and for the purpose set forth.

311,293. COPY-HOLDER. WM. H. CLARKSON, New York, N. Y. Filed June 11, 1884. (No model.)



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Claim.—1. A copy-holder consisting of a revolving cylinder held in a rigid frame, in combination with a roller and with a slat, both of which are pressed upon the surface of said cylinder by springs attached to the framing by screws, or by their own weight, so that the manuscript, when inserted between them, is carried forward by the motion of said cylinder and presented to the eye of the operator, substantially as and for the purposes hereinbefore described.

2. In a copy-holder, the combination of the revolving cylinder A, the roller B, and springs E E, the slat C, and springs *c' c'*, substantially as described, and for the purpose set forth.

3. In a copy-holder, constructing the rotating cylinders or rollers of hollow tubes with flanged ends fastened into them, substantially as described and shown, and for the purpose set forth.

311,294. PROCESS OF SURFACE-COATING IRON. PONTUS H. CONRADSON, Brooklyn, N. Y., assignor of one-half to Albert W. Hale, Plainfield, N. J. Filed Aug. 13, 1883. Renewed July 1, 1884. (Specimens.)

Brief.—Exposes iron to sulphur-vapor in muffle in an atmosphere of carbonic dioxide at a temperature of 500° to 600° centigrade. Sulphureted hydrogen may be substituted for sulphur-vapor, but with inferior results. Varies shade of coating by admitting a little air into muffle. May coat iron with another metal previously to treatment.

Claim.—1. The mode of protecting articles and materials of iron and steel from corrosion, which consists in forming a coating of sulphuret on their surfaces by chemical action.

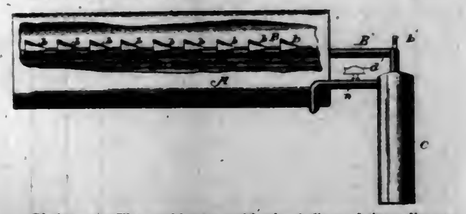
2. The mode of protecting articles and materials of iron and steel from corrosion, which consists in forming a coating of sulphide on their surfaces by subjecting them in a heated state and in the absence of air to the action of vapor of sulphur.

311,295. DUST-COLLECTOR. WILLIAM COOK, Columbus, Ind., assignor of one-half to Frederick Donner, same place. Filed Nov. 22, 1884. (No model.)



Claim.—The combination of a suitable casing, a dust-collecting balloon provided with a slotted tube or chamber, a fan connecting with the balloon-center and exhausting therefrom, and a fan connected to the said slotted tube or chamber isolating the sections, and adapted to force air through said isolated sections, as set forth.

311,296. BOILER-CLEANER. LLOYD A. CRAIG, Woodson, Ill. Filed June 30, 1884. (No model.)



Claim.—1. The combination, with the boiler and the sediment-chamber, of a pipe connecting the boiler with the chamber and adapted to convey the sediment from the former to the latter, a return-tube ex-

tended from the sediment-chamber to and opening into the boiler, and provided with an extension projected beyond said point of connection, a valve arranged in the return-pipe between the sediment-chamber and the connection of such pipe with the boiler, and a valve arranged in the return-pipe between the extremity thereof and the said connection, substantially as set forth.

2. In a boiler-cleaner, the combination of the boiler, the confluent tube arranged therein and provided with gatherers *b*, and extended at B' beyond the boiler, and opening into the sediment-chamber, the sediment-chamber, a valve arranged in extension B' between the boiler and the sediment-chamber, a return-pipe, D, projected from the sediment-chamber, connecting at D' with the boiler, and provided with an extension beyond said connection, a valve arranged in the extension of pipe D, and a valve, *d'*, arranged in said pipe D between the sediment-chamber and the boiler, substantially as set forth.

311,297. ENLARGEMENT-RING FOR WATCH-PLATES. WILLIAM E. DOOLITTLE, West Haven, assignor to the New Haven Watch Company, New Haven, Conn. Filed Feb. 14, 1884. (Model.)

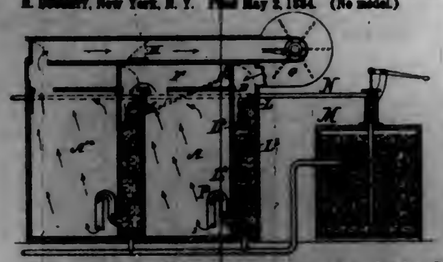


Claim.—1. In combination with a watch-plate, an enlargement-ring, substantially of the same thickness as the plate, adapted interiorly to fit the plate and exteriorly to fit the watch-case center, substantially as and for the purpose described.

2. In combination with the watch-plate B, the enlargement-ring, of substantially the same thickness as the plate, adapted to fit over the edge of the plate and form an extension thereof, and means for fastening the ring in place on the edge of said plate, substantially as shown and described.

3. In combination with the plate B, having its edge rabbeted below, as shown, the ring A, rabbeted on its inner side to fit the plate edge and on its outer side or periphery rabbeted like the plate, and one or more screws, C, on the plate whose heads are adapted to overlap the lower side of the ring, substantially as and for the purpose described.

311,298. REFRIGERATION FOR RAILROAD-CARS, &c. WILLIAM H. DOUGHTY, New York, N. Y. Filed May 2, 1884. (No model.)



Claim.—1. In a refrigerating apparatus, a cooling-chamber, B, provided with a series of perforated pans, as shown, in combination with means for supplying said pans with cold water, and a fan or blower for supplying said cooling-chamber with atmospheric air, substantially as and for the purpose herein set forth.

2. A refrigerating apparatus comprising a refrigerating compartment, a cooling-chamber, as B, means for supplying cold water to said cooling-chamber, a fan or blower for supplying atmospheric air to the cooling-chamber, and a trap located within the refrigerating compartment and guarding the outlet for the cooled air, substantially as and for the purpose set forth.

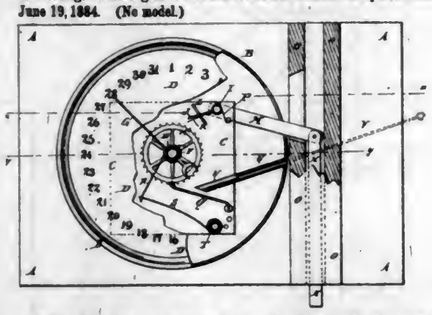
311,299. WELL-TUBE. JAMES ELLIOTT, Melville, N. Y. Filed Sept. 19, 1884. (No model.)



Claim.—1. The combination, with a pair of well-tubes consisting of tubular cylinders the adjoining ends of which are provided with exterior notches, of a joint or coupling consisting of a plain annular sheet-metal ring or band adapted to have its edges clinched or bent into the notches of the adjoining tube ends, substantially as and for the purpose set forth.

2. A pipe-coupling for well-tubes, consisting of a plain annular sheet-metal ring or band the edges of which are bent or clinched into notches formed exteriorly in the adjoining ends of two well-tubes, substantially as and for the purpose herein set forth.

311,300. REGISTER FOR BILLIARDS. ROBERT EMBRET, North Lewisburg, Ohio, assignor of one-half to Samuel Landes, same place. Filed June 19, 1884. (No model.)

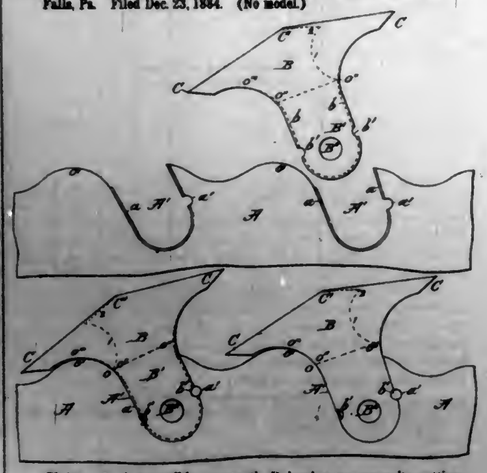


Claim.—1. In a game-counter, the combination, with the ratchet, with its sleeve provided with a pointer, and its retaining-pawl, of the shaft connected to a push-bar, and provided with a pawl with its free end just clearing the ratchet-teeth, and carrying upon its forward side a spring projecting beyond said end of pawl and engaging the ratchet-teeth, substantially as and for the purpose set forth.

2. In a game-counter, the ratchet, with its sleeve carrying a pointer, and its retaining-pawl, in combination with the shaft connected to a push-bar, and provided with a pawl with its free end just clearing the ratchet-teeth, and carrying upon its front side a spring projecting beyond said end of pawl and engaging with said ratchet-teeth, together with the recessed bar or bracket limiting the movement of said pawl, substantially as and for the purpose set forth.

3. In a game-counter, the shaft connected to a push-bar, and having a pawl provided with a spring projecting beyond the free end of said pawl, in combination with the ratchet, with its retaining-pawl and its sleeve provided with a pointer, and the spring with one end connected to a ratchet-sleeve, substantially as and for the purpose set forth.

311,301. INSERTIBLE SAW-TOOTH. JAMES E. EMERSON, Beaver Falls, Pa. Filed Dec. 23, 1884. (No model.)

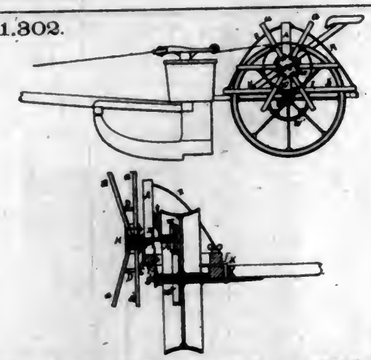


Claim.—1. A reversible saw-tooth, B, having two opposite cutting-edges, C, a tang, B', having straight opposite sides, intersected at their outer termini with curved lines, to form a dust-space on the cutting side and a support on the saw-blade on the opposite side, at their inner termini with the half-circle base, and having opposite half-circle rivet-holes *b'*, substantially as described and shown.

2. The combination of the double-edged reversible saw-tooth B, having opposite cutting-edges C, tang B', having straight opposite sides, intersected at their outer termini with curved lines and at their inner termini with a half-circle base, and having opposite half-circle rivet-holes, *b'*, with the saw-plate A, having the inclined recess A', to receive the tang of the tooth, and rivet-hole *a'*, to coincide with half-circle hole *b'* in the tang of the tooth, substantially as described.

311,302. REEL FOR CHECK-ROWER ROPES. JOHN R. ENOS, Buffalo Hart, Ill. Filed Sept. 13, 1884. (No model.)

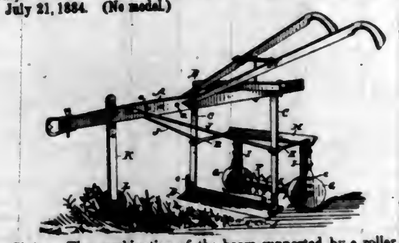
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Claim.—1. The frame F F, the arm A, the rods R R, the slotted irons K K, the casting C, and the stirrups, as and for the purposes described.

2. The reel proper, consisting of the hub H, with the arms *a a'*, and the piece D, with the pinion-shaft P, the gear-iron *g*, and the wheel *w*, combined and arranged as shown and described, for the purposes specified.

311,303. CULTIVATOR. JOHN FEAST, Sr., Baltimore, Md. Filed July 21, 1884. (No model.)



Claim.—The combination of the beam supported by a roller at its forward end, the cross-bar secured to the beam near its rear end, the blade connected to the cross-bar by vertical bars, the angular bars connected together and carrying the rotary rake and a pair of rollers, and the stay-rods connected to the angular bars and to the bars carrying the blade, substantially as shown and described.

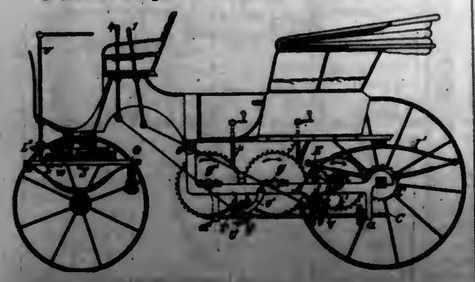
311,304. MEASURE FOR LIQUIDS. WILLIAM H. GANTNER, Pittsburg, Pa. Filed Aug. 26, 1884. (No model.)



Claim.—1. The measure A, having a lip on one side of its top edge, the funnel C on the opposite edge, and a handle placed on one side of the measure, and between the lip and funnel, substantially as shown.

2. The measure A, having a lip on one side of its top edge and the funnel C D on the opposite edge, substantially as described.

311,305. SPRING-MOTOR FOR PROPELLING VEHICLES. REDMAN H. GARLAND, Chicago, Ill. Filed May 29, 1884. (No model.)



Claim.—1. In an apparatus for locomotive light-running vehicles, a supporting iron frame to be attached to the body, consisting of two side pieces, A A', the same having their front ends turned up and pivoted to hinges *e e'* on the body of the vehicle, and the rear ends firmly secured to the axle of the driving-wheels and rigidly held in position by brace-bars B B', the side piece A' having near the pivoted end a projecting arm, *o*, and further provided with a recessed space, *b*, with a notch, *b'*, slotted guide-holes *b'' b'''*, and supporting-hangers *a a'*, the other side piece, A, being provided with slotted supports U V, substantially as described, and for the purpose specified.

2. In combination with the attachable frame of an apparatus for locomotive vehicles, the reels H H', having ratcheted mounted disks *f f'* on one side and spur-wheels *g g'* on the opposite side, connected together by cross-beams G G', the same having lateral grooves *r'*, the reels being connected to shafts *c c'*, the same having a dovetailed inclined recess *h''*, and mounted at their extreme ends with worm-wheels *h h'*, substantially as described, and for the purpose specified.

3. In combination with an apparatus for locomotion, supported by an attachable iron frame to vehicles, the reels H H' on shafts *c c'*, the same in connection with coiled steel springs mounted and wound in rows inside the periphery of said constructed reels, the springs being constructed of steel plates K, representing a plano-concave surface capable of changing its shape, as described, the inner end, *k'''*, tapered and the outer end terminating into a head, *r*, of cylindrical form, substantially as described, and for the purpose specified.

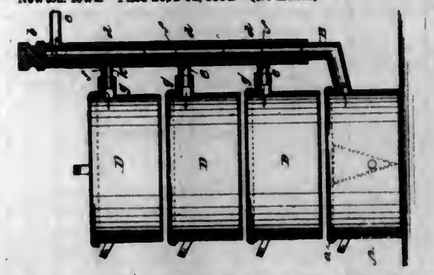
4. In combination with the attachable frame for vehicles, supporting an apparatus for locomotion, the reels H H', in connection with coiled spring-plates K, and the double-acting brake M, consisting of two segmental shaped sections, *d d'*, the same being recessed in center and traversing each other, and pivoted to the frame of the apparatus, substantially as described, and for the purpose specified.

5. In combination with the reels H H', the intermittent gear T and combination-gear E, the latter secured to driven shaft D, and in connection with said shaft the arrangement of a gearing for winding up the springs for locomotion, consisting of bevel-wheel *m*, and double beveled gear *n*, the same being in contact alternately with bevel-wheel *n'*, and twin bevel-gear P, the same provided with a handle, N, and secured to a sliding shaft, C, all combined and arranged on a supporting-frame attachable to the body of a vehicle, substantially as described, and for the purpose specified.

6. The shifting-lever L, with separating parts *l' l''*, the same having shoulders *s s'* and inclined sides *o' o''* projecting toward a recessed part, *l'''*, in middle, for the purpose described, in combination with a twin beveled gear, P, having a handle, N, and sliding shaft C on a frame, substantially as described, and for the purpose specified.

7. In an apparatus or a spring-motor for propelling vehicles, having an attachable frame for supporting the same, the combination of a steering apparatus consisting of beveled gears L' L'', worm-wheel Q on a platform, operated by a tangent worm-gear, *w*, the same supported by hangers *p' p''* on a flanged collar-block, R, and the arrangement of hand-levers Nos. 1 2 3 4, to operate certain connected mechanical parts, as specified, all constructed, combined, and arranged as described, and for the purpose set forth.

311,306. STEAMER FOR COOKING-FOOD. CHARLES A. GIFFORD, Newton, Iowa. Filed Sept. 12, 1884. (No model.)

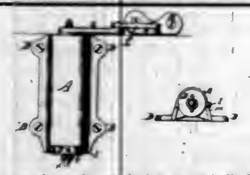


Claim.—The combination of the water-vessel A and cooking-vessels D, provided with tubular necks *g*, with the stand-pipe B, and the tubular sections *d*, adapted to turn on the stand-pipe, and having side extensions, *e*, substantially as herein shown and described.

311,307. DOOR-SPRING. WILLIAM GRIFFILLAN, New Haven, Conn., assignor to Sargent & Co., same place. Filed Aug. 25, 1884. (No model.)

Claim.—1. The combination of the barrel A, constructed with a spring-chamber, the sleeve *a*, constructed with a collar, D, arranged for rotation at one end of the barrel, said sleeve extending into the spring-chamber, the spindle E, longitudinally through the barrel and spring-chamber, the helical spring H, arranged in the spring-chamber, one end engaged with the said sleeve, the other with said spindle, an adjustable

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stop, *l*, on the collar, the lever G, attached to the spindle E, and a lever, L, one end hung to the said lever G and the other to a bracket, substantially as described.

2. The combination of the barrel A, constructed with a recess open upon the rear side of the barrel, said recess forming a spring-chamber, and with a bearing at its upper and lower ends, the sleeve *a*, arranged in the lower bearing, but extending into the spring-chamber, and provided with the collar D, an adjustable stop, *l*, on said collar, the spindle E, longitudinally through the spring-chamber, supported in a bearing at the upper end and in the sleeve at the lower end, the helical spring H, arranged in said chamber, one end engaged with the spindle and the other with said sleeve, the lever G, attached to said spindle, and the lever L, hinged to said lever G and to the bracket, substantially as described.

311,308. COMBINED TWEEZERS AND SCREW-DRIVER. CHARLES E. GLESSNER, Boulder, Colo. Filed Oct. 13, 1884. (Model.)



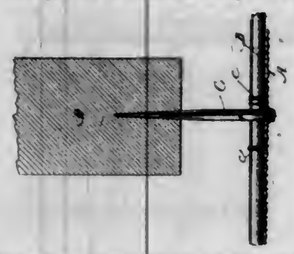
Claim.—1. In a combined tweezers and screw-driver, the combination of the stem A, provided with an opening-bead, F, advance recessed bead F', and driver C, and the sleeve G, sliding thereon, having spring-jaws J, formed with bows J', the jaws adapted to occupy the recesses in the advance bead, and the opening-bead releasing the jaws from the recessed bead when the sleeve is retracted, as set forth.

2. The combination of the stem A, having a point, C, the sleeve G, having spring-jaws J J, and the intermediate adjustable sleeve, D, as set forth.

3. The combined tweezers and screw-driver, consisting of the stem A, having point C, the sleeve G, having stud-screw H, and carrying spring-jaws J J, formed with bows J' J', and the intermediate sleeve, D, formed with the opening-bead F, guide-bead F', having recesses for the jaws, slot I for the stud-screw, and the set-screw E, as set forth.

311,309. DEVICE FOR RENDERING WOODEN HOUSES FIRE-PROOF. JOSEPH N. GLOVER, Chicago, Ill. Filed June 27, 1884. (No model.)

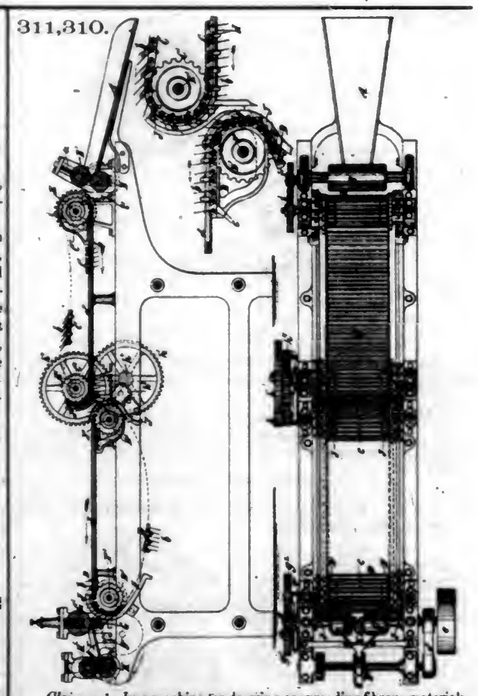
Brief.—Wire lathing is spaced from the wooden supports by eye-bolts, through which pass rods to which said lathing is secured.



Claim.—In combination with a wire-cloth lathing for ceilings and wooden walls, a series of transverse rods, B, fastened to the lathing and extending across the joists or studs and the eyebolt C, the point of which is adapted to be driven into the same and its eye to extend out therefrom and inclose and confine the rods against both vertical and lateral motion and hold them at such distance from such joists or studs as to afford ample air-space between them and the plaster, after the same shall have been spread and keyed upon the lathing, substantially as described.

311,310. MACHINE FOR DRAWING OR SPREADING FIBROUS MATERIALS. JOHN GOOD, Brooklyn, N. Y. Filed Feb. 24, 1882. Renewed Mar. 14, 1884. (No model.)

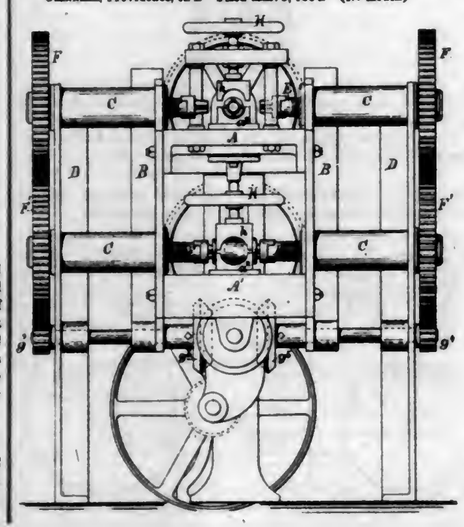
311,310.



Claim.—1. In a machine for drawing or spreading fibrous materials the combination of two endless belts of combing or hackling pins arranged one before the other and one above the other, so that the pins which are at any time in operation are presented in a downward direction on the lower portion of the higher belt and in an upward direction on the upper portion of the lower belt, and mechanism for operating said belts, substantially as and for the purpose specified.

2. In a machine for drawing or spreading fibrous materials, the combination of feed-rolls, an endless belt of combing or hackling pins, having said pins presented in a downward direction on its lower operating portion for taking material from said feed-rolls, a second endless belt of pins arranged in advance of and below the first-mentioned belt, and having its pins presented in an upward direction on its upper or operating portion, and mechanism for operating said rolls and belts, substantially as and for the purpose specified.

311,311. MACHINE FOR TAPPING PIPE-FITTINGS. FREDERICK GRINNELL, Providence, R. I. Filed Mar. 3, 1884. (No model.)



Claim.—1. The combination, with the machine-frame composed of the standards, the tables, and the sleeves, of the thrust-bearings or nuts secured to the inner ends of said sleeves, and the mandrels supported in said bearings, as and for the purpose described.

2. The machine-frame composed of the standards B D, the tables A A', and the sleeves C, substantially as and for the purpose set forth.

3. The combination, with the frame composed of the standards B D, the tables A A', and the sleeves C, of the mandrels, the nuts or thrust-bearings, and the driving-gears, all constructed and arranged to operate substantially, as specified, so as to constitute a double-decked machine, having its tapping mechanism arranged in two sets, one above the other.

4. The combination, with the machine-frame composed of the standards B D, the tables A A', and the sleeves C, of the thrust-bearings or nuts, the mandrels E, and the shafts carrying the pinions g^4 and gears g^5, F, and F', arranged, as described, so as to turn the two sets of taps in opposite directions, for the purposes stated.

5. The combination, with the machine-frame, constructed as described, of the nuts or thrust-bearings E^2, located at the inner ends of the sleeves of the frame, the screw-threaded mandrels E, and the gears F F', constructed and arranged to operate as described.

6. The combination, with the frame composed of the standards, tables, and sleeves, of the thrust-bearings or nuts located at the inner ends of said sleeves, the mandrels having the leading-screws, and the bolsters held in sockets in the tables and arranged to automatically center the fittings, as described.

7. The combination, with the frame composed of the standards, tables, and sleeves, of the bolsters *h*, the screws therefor, and the slides *h'*, resting upon said sleeves and interposed between the bolsters *h* and their screws, as and for the purposes described.

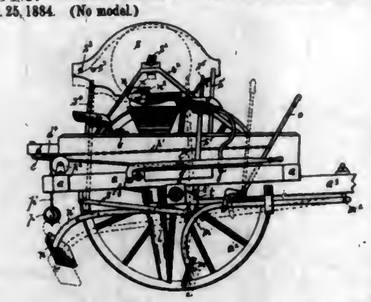
8. The combination, with the sleeve C and the mandrel E, provided with the screw-thread E' and spline *e*, of the nut E^2, secured in the sleeve and bearing against its face, and the gear F, provided with the hub *f*, extending into the sleeve C, and constructed to turn the mandrel, as described.

9. The combination, with the three-part frame composed of a series of standards, sleeves, and two tables, arranged one above the other, of a holding and a thread-cutting mechanism for each table, and gearing for driving the mandrels of each set of thread-cutters in opposite directions from the other set and from a single driving-shaft, substantially as described.

10. The combination, with the frame composed of the standards, tables, and sleeves, of the bolsters and bolster-screws, the slides, nuts, or thrust-bearings, mandrels with leading-screws, the gears F F', the driving-shaft carrying the gears g g^3 and pulleys G G' G^2, and the shafts carrying the gears g', g^2, g^4, and g^5, as and for the purposes described.

11. The combination, with the bolsters and screw for holding the fitting, of the slide *h'*, extending to and resting upon a fixed part of the frame and bearing upon the bolster, substantially as and for the purpose specified.

311,312. POTATO-PLANTER. JOHN HAIR, Crittenden, N. Y. Filed Jan. 25, 1884. (No model.)



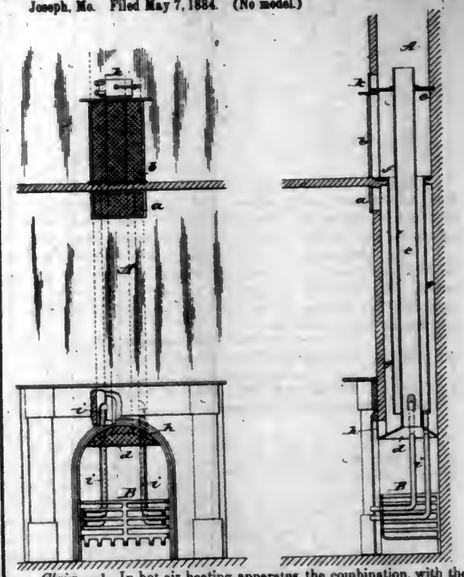
Claim.—1. In a potato-planter, as a means of feeding the potatoes to the hopper, the pivoted drum *r*, provided with the pivoted adjustable slide *s* and auxiliary adjustable slide *n*, the drum being revolved from the axle of the carriage, substantially as shown and described.

2. In a potato-planter, the combination, with the revolving drum *r* and its pivoted adjustable slide *s*, of the rod s^1, the bent lever s^2, and pawl and ratchet *t t'*, substantially as shown and described.

3. In a potato-planter, the combination, with the bell-crank lever *e'* and the sliding rod e^2, of the pivoted bar *f* and adjusting-screw *f''*, by means of which the sliding rod e^2 can be adjusted with relation to the spurs *k k'*, substantially as shown and described.

4. In a potato-planter, the combination, with the slide *d*, the spring d^1, secured at one end to the slide and at the other end to the box *b*, the rod *e*, the bell-crank lever *e'*, the sliding rod e^2, with beveled end e^3, and the beveled spurs *k k'* upon the wheel, of the pivoted bar *f*, and adjusting-screw *f''*, substantially as shown and described.

311,313. HOT-AIR HEATING APPARATUS. JOHN L. HAMILTON, St. Joseph, Mo. Filed May 7, 1884. (No model.)



Claim.—1. In hot-air heating apparatus, the combination, with the hood disposed within the fire-place above the fire-grate, and connected to the smoke-flue, of the subdivided hot-air flue, arranged between said smoke-flue and the inner surface of the chimney-flue, and the plate connected to said smoke-flue, and disposed above an opening communicating with the inner chamber of the subdivided flue and with an upper room, substantially as and for the purpose set forth.

2. In hot-air heating apparatus, the combination, with the hood disposed within the fire-place above the fire-grate, and connected to the smoke-flue, of the subdivided hot-air flue, arranged between the smoke-flue and the inner surface of the chimney-flue, the outer chamber of said subdivided flue communicating with the lower room, and the inner chamber of said subdivided flue communicating with the upper room, substantially as and for the purpose set forth.

3. In a hot-air heating apparatus, the hood disposed with the fire-place above the fire-grate, and having its front edge connected to a perforated plate, in turn connected to the upper front edge of the fire-place, in combination with the smoke-flue and the subdivided hot-air flue, with each of its subdividing cylinders disposed at its lower end, a short distance above said hood, and with its inner chamber communicating with the upper room, and its outer chamber communicating with the lower room, and the cold-air tubes leading from the grate into the subdivided hot-air flues, substantially as for the purpose set forth.

311,314. INHALER. CORNELIUS B. HARNESS, London, England. Filed Oct. 21, 1884. (No model.) Patented in England July 23, 1884, No. 10,500.



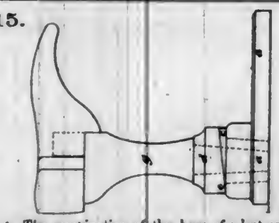
Claim.—1. The combination, with the tube *a*, having the mouth-piece *b*, of the handles *d*, screwed into the same and provided with valves and means for operating them to regulate or control the supply or admission of air to the said tube, substantially as and for the purpose set forth.

2. The combination, with the tube *a*, having the mouth-piece *b*, and provided with the ferrules *c c*, secured in each end of said tube, of the handle *d*, screwed into said ferrules, and provided with valves and means for operating them, substantially as described.

3. The combination, with the tube *a*, having the mouth-piece *p*, of the tubular handles *d*, screwed into the same, and having apertures *i*, the rods *f*, valves *f'*, caps or push-pieces f^2, and the springs *h*, substantially as and for the purposes set forth.

311,315. LAST-STAND FOR SHOE-MAKERS' USE. THOMAS HARTLEY and BERNARD HARTLEY, Accrington, County of Lancaster, England. Filed Oct. 9, 1884. (No model.) Patented in England July 14, 1884, No. 10,111.

311,315.



Claim.—1. The combination of the base of a last or stand having steps *c* with a block having corresponding steps and a stem adapted to said block, to allow of the adjustment of the said stem around its vertical axis and hold the same when adjusted, substantially as set forth.

2. The combination of the base and block with a stand adapted to said block, and having a horizontal socket partially grooved at top and bottom, and grooved barrel adapted to said socket and to receive the stem of the last, whereby the said last may be adjusted on its horizontal axis, substantially as described.

311,316. WITHDRAWN.

311,317. STRAW-STACKER. LEWIS W. HASSELMAN, Indianapolis, Ind. Filed Oct. 9, 1884. (No model.)

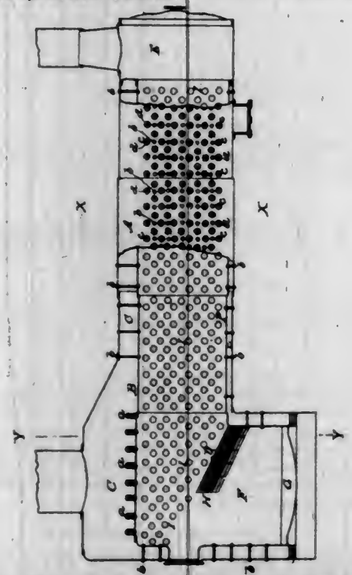


Claim.—1. The combination, in a straw-stacker, of the bed-frame, the swinging frame pivoted so as to swing vertically on and extending above and below said bed-frame, and the turning straw-carrier mounted on said swinging frame, all substantially as shown and described.

2. The combination, in a straw-stacker, of the bed-frame, the swinging frame pivoted so as to swing vertically on and extending above and below said bed-frame, a stop secured to said bed-frame and adapted to engage said swinging frame, and the turning straw-carrier mounted on said swinging frame, all substantially as specified.

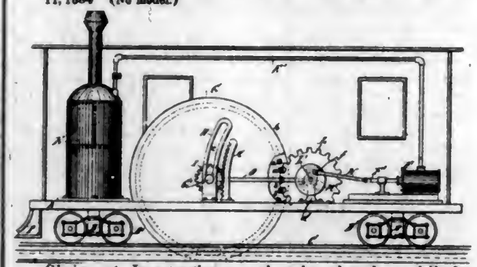
3. In a straw-stacker, the combination, with the bed-frame, the swinging frame, and the straw-carrier, of the windlass, and the rope connecting said windlass, swinging frame, and straw-carrier, whereby said swinging frame is raised and the straw-carrier tilted, in the manner shown and described.

311,318. LOCOMOTIVE-BOILER. MILTON W. HAZELTON, Chicago, Ill. Filed Apr. 29, 1884. (No model.)



Claim.—A boiler of the locomotive type, consisting of the following elements: inner and outer shells, B and A, firmly stayed by bars *a* and bolts *b*, tubes I, rigidly attached to the shell B, and extending inwardly therefrom into the combustion-chamber, leaving a space, *f*, between their free ends, and a clear space above said tubes and between the same and the top of the shell B, openings *c* in the outer shell coincident with said tubes I, plugs *d*, closing the same, and the deflector H, protecting the tubes immediately over the fire-chamber F, the parts being combined arranged, and operating substantially as and for the purposes specified.

311,319. TRACTION-ENGINE. MILTON W. HAZELTON, New York N. Y., assignor of one-half to Walter N. Evans, Chicago, Ill. Filed July 11, 1884. (No model.)



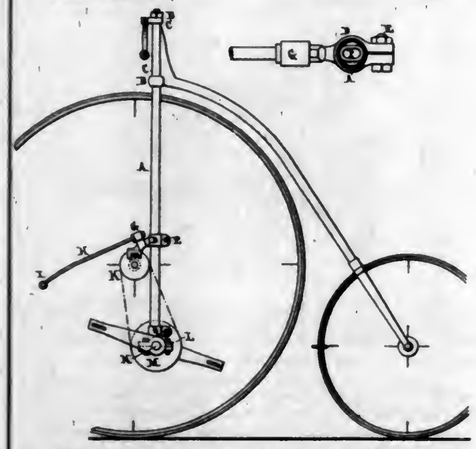
Claim.—1. In a traction or road engine adapted especially for street-railroads, and provided with wheels for running on the track-rails, as a means for applying the motive power of the engine, the combination, with suitable gears and connected mechanisms movable by the piston-rods of the engine-cylinders, of a traction-wheel located about centrally of the engine-frame, with its axle adjustably journaled above the frame-sills, so as to rise and fall with the wheel as the latter passes over obstructions, and its tread resting on the road-bed between the rails, as set forth.

2. In a traction or road engine, the combination, with a traction-wheel, as G, and axle, as G', of guide-posts, as H, secured on the engine-frame, and having curved slots, as *c*, substantially as herein shown and described, said slotted guide-posts being designed to support the said wheel and its axle, and to permit the free rise and fall thereof over obstacles, as set forth.

3. In a traction or road engine, as a means for assuring the equal and synchronous rise and fall of both ends of the traction-wheel axle when said axle is free to rise and fall as the wheel passes over obstructions, the combination, with the said axle, of pinions, as I I, and curved racks, as K K, all arranged substantially as set forth.

4. In a traction or road engine, a traction-wheel, as G, constructed with alternate sunken peripheral teeth and mortises *a b*, the latter extending entirely through the rim of the wheel, and projecting side rims or treads, A A, substantially as and for the purposes set forth.

311,320. VELOCIPEDE. WILLIAM HILLMAN, Binley Road, Coventry, England. Filed July 31, 1884. (No model.) Patented in England Mar. 6, 1884, No. 4,473.



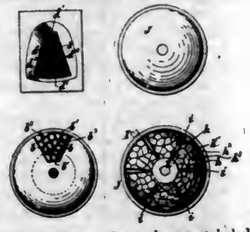
Claim.—1. In a bicycle or like velocipede, the combination of the fork A, and split brackets D, arranged to encircle and be adjusted on the fork A, and provided with bearings for the axle of the driving-wheel, substantially as set forth.

2. In a bicycle or like velocipede, the combination of a fork, A, and split brackets D D, attached to and made adjustable on the fork, said brackets being provided with bearings for the axle of the driving-wheel,

and with forward-extending rods H H, having foot-rests I I at their outer ends, substantially as specified.

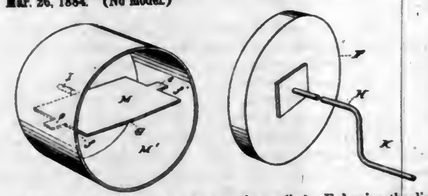
3. The combination of the extended fork A, and bearings L L at the lower ends of the fork, said bearings having tubular extensions O and interior stiffening-tubes, P, substantially as and for the purpose described.

311,321. MANUFACTURE OF ARTICLES OF SHEET METAL FOR LAMP-FIXTURES. ROBERT HOADLEY, Ansonia, Conn., assignor to the Ansonia Brass and Copper Company, same place, and Walcott A. Hull, New York, N. Y. Filed June 12, 1884. (No model.)



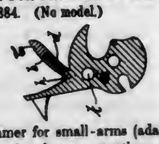
Claim.—The process of stamping a sheet-metal shell consisting in stamping a segmental portion, in turning the shell a certain distance, in then stamping another segmental portion, leaving an intervening rib-like portion between it and the first stamped segmental portion, and in proceeding similarly until the shell is stamped entirely around its circumference with segmental portions having intervening rib-like portions between them, substantially as specified.

311,322. COFFEE-ROASTER. MICHAEL HOLMES, Lodi, Wis. Filed Mar. 26, 1884. (No model.)



Claim.—In a coffee-roaster, the rotating cylinder E, having the diaphragm G, secured to the inner walls thereof by the end extensions, *e e*, leaving marginal intervals *f* between the edges of the said diaphragm and the walls of the vessel, whereby when the vessel is rotated the coffee will be gradually fed to and kept against the heated walls of the cylinder, substantially as specified.

311,323. HAMMER FOR FIRE-ARMS. SAML. S. HOPKINS, Norwich, Conn. Filed Nov. 5, 1884. (No model.)



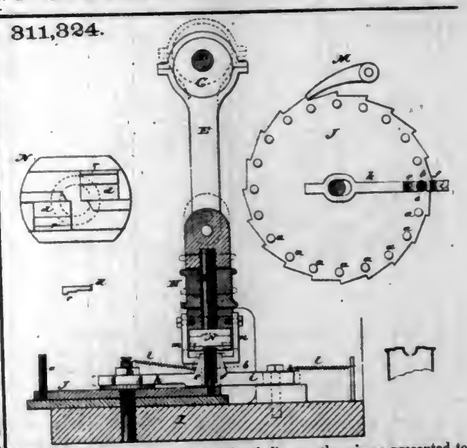
Claim.—1. A hammer for small-arms (adapted to be pivoted in the frame A) having pivoted to its upper portion a comb or thumb-piece which may be folded against the hammer proper and within or approximately within the frame outline, substantially as described, and for the object set forth.

2. A hammer combining the following elements: the body portion E, adapted to be secured pivotally in frame A, and having a nose to engage and explode a cartridge, a comb or thumb-piece so attached to the body portion E that it may be folded against or within said body portion or may be opened for the purpose of cocking or lowering the hammer by hand, and means for automatically returning the comb C to its closed position, all substantially as described, and for the objects specified.

311,324. MACHINE FOR TRIMMING CARTRIDGE-HEADS. ARTHUR L. HOWARD, New Haven, Conn. Filed June 23, 1884. (No model.)

Claim.—1. In a machine for trimming the heads of cartridges, the combination of a vertical reciprocating and revolving spindle, a cutter-head attached to the lower end of said spindle, provided with cutters corresponding in shape to the shape of the head to be finished, mechanism, substantially such as described, to impart reciprocating and rotative movement to said spindle, a dial arranged upon an axis parallel with the axis of the spindle, the said dial provided with a series of pins in a circle concentric with the axis of the dial, and arranged in relation to the said spindle so that the axis of said pins will pass the axial line of said spindle, mechanism, substantially such as described, to impart intermittent or step-by-step rotation to said dial, whereby the said pins will be successively presented in axial line with said spindle, and a clamp, substantially such as described, to clamp the shell upon the pin so presented to said cutter, substantially as specified.

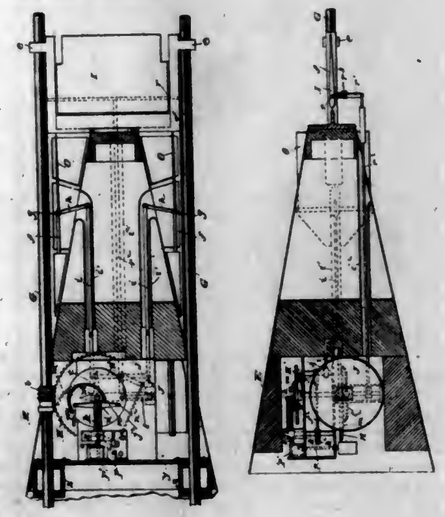
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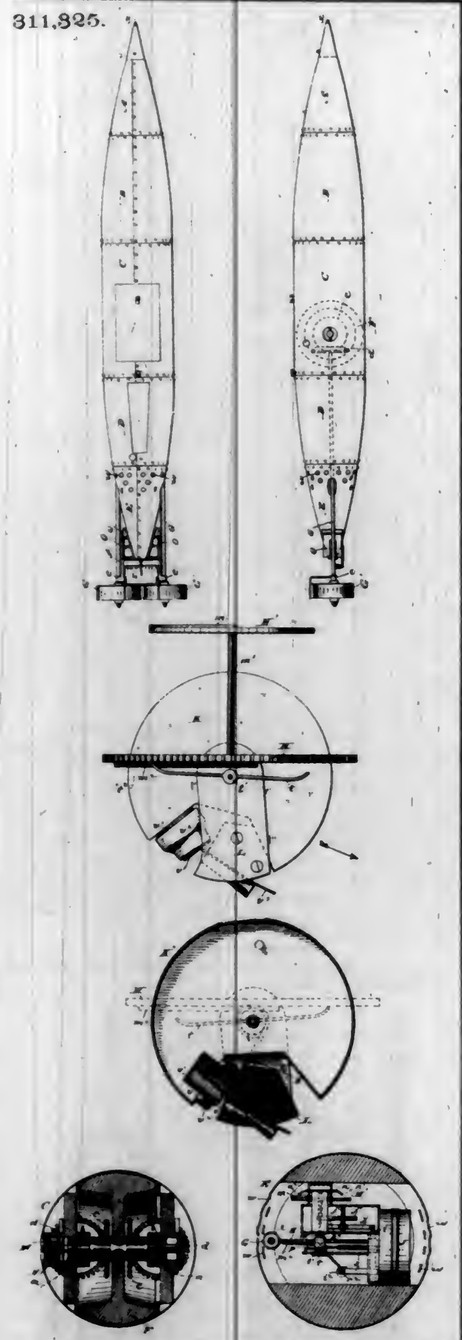
2. The combination of the spindle F, carrying the cutter-head N, said cutter-head armed upon its face with cutters corresponding to the shape of the head of the shell to be dressed, mechanism, substantially such as described, to impart vertically reciprocating and rotative movement to said spindle and cutter-head, the dial J, carrying a series of pins, *a*, concentric with the axis of the dial, mechanism, substantially such as described, to impart intermittent or step-by-step rotation to said dial, the jaws *e f*, arranged beneath said cutter-head, and substantially in the plane of the axis of the spindle, and movable on guides in a plane at substantially right angles to the axis of the spindle, the face of said jaws corresponding substantially to the external surface of the shell to be trimmed, the backs of said jaws inclined upward and toward each other, and reciprocating followers *m n*, arranged to strike the backs of said jaws in the descent of said spindle, substantially as described.

3. The combination of the slide A, mechanism, substantially such as described, to impart reciprocating movement to said slide, the spindle F, arranged in bearings in said slide, and so as to partake of its reciprocating movement, pulley H on said spindle, whereby rotation is imparted thereto, cutter-head N on the lower end of said spindle carrying cutters *d d*, the cutting-edge of which corresponds to the shape of the head of the shell to be dressed, the dial J, arranged to rotate in a horizontal plane, and carrying a series of pins, *a*, the jaws *e f*, their faces constructed corresponding to the external surface of the shells and their backs inclined, followers *m n*, attached to said slide, and mechanism, substantially such as described, to impart intermittent rotation to said dial, substantially as and for the purpose described.

311,325. MARINE TORPEDO. JOHN A. HOWELL, U. S. Navy. Filed Oct. 6, 1884. (No model.)



311,325.



Claim.—1. The combination, with the torpedo case or shell and the fly-wheel mounted therein, with its rotation-axis located, substantially as described, to obtain a resultant axis of motion in case of deviating forces acting on the torpedo, of steering mechanism, and suitable devices for controlling the same, arranged and operating substantially in the manner hereinbefore set forth, whereby said steering mechanism shall be brought into action upon occurrence of the resultant motion, and when thus brought into action shall be caused to set up an opposite deviating force, which will counteract and neutralize the initial extraneous deviating force.

2. The torpedo case or shell and the fly-wheel mounted therein with its axis of rotation at right angles to the longitudinal axis of the torpedo, whereby the application to the torpedo of a laterally-deflecting force effects the rolling of the torpedo upon its longitudinal axis, in combination with steering mechanism arranged and automatically operating, substantially in the manner hereinbefore described, to offer to the initial deflecting force an opposing deflecting force which will suppress the rolling of the torpedo and bring it to normal position.

3. The combination of the torpedo case or shell, the fly-wheel having its axis at right angles to the longitudinal axis of the case, the propelling mechanism geared to and driven by said fly-wheel, the steering rudder or rudders, the tiller connected to said rudders, the tilting arm or beam carried by said tiller, the pendulum connected to said arm and acting to maintain the same in horizontal position, and the rotating cam-wheel which co-operates with said arm, the combination being and acting substantially as hereinbefore set forth.

4. The combination, with the torpedo case or shell, of the tiller, the pendulum-controlled rocking arm carried thereby, the rotating cam-wheel, and the steering rudder or rudders connected to said tiller, these parts being arranged to operate substantially in the manner hereinbefore set forth, so that when the torpedo rolls to starboard the helm will be automatically put to starboard, and when it rolls to port the helm automatically will be put to port.

5. The combination, substantially as set forth, of the fly-wheel having a transverse horizontal axis of rotation, the automatically-operating steering mechanism, the diving-rudder, and the mechanism for automatically operating the same, these parts being combined and arranged to jointly operate, substantially in the manner hereinbefore set forth.

6. The combination of the fly-wheel, one or more propellers, one or more steering-rudders, the diving-rudder, and means, substantially as described, whereby the propeller and rudders are actuated from the fly-wheel at the times and in the manner substantially as hereinbefore set forth.

7. The tiller-controlling pendulum, in combination with the hydrostatic regulator carried by said pendulum and connected to the pendulum-bob, substantially as and for the purposes set forth.

8. The combined pendulum and regulator, in combination with the diving-rudder, the tiller for moving the same, and the tiller-controlling cam, substantially as and for the purposes hereinbefore set forth.

9. The combination of the pivoted pendulum-case, the spring-controlled pendulum-bob swiveled on the axis of the case, and the hydrostatic regulator carried by the case and connected to the bob, substantially as and for the purposes set forth.

10. The combination, with the tiller, and a tilting arm carried by the same and adapted to engage at either end the motor by which the tiller is actuated, of a pendulum, and a flexible shaft connecting the axle of the pendulum with that of the tilting arm, substantially as and for the purposes hereinbefore set forth.

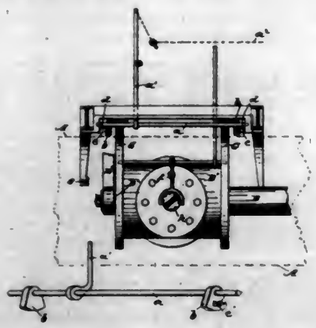
11. The combination, with the torpedo, of one or more steadying-tubes, G', placed at the rear of and axially in line or parallel with the longitudinal axis of the torpedo, substantially as and for the purposes hereinbefore set forth.

311,326. APPARATUS FOR LAUNCHING TORPEDOES. JOHN A. HOWELL, U. S. Navy. Filed Oct. 27, 1884. (No model.)

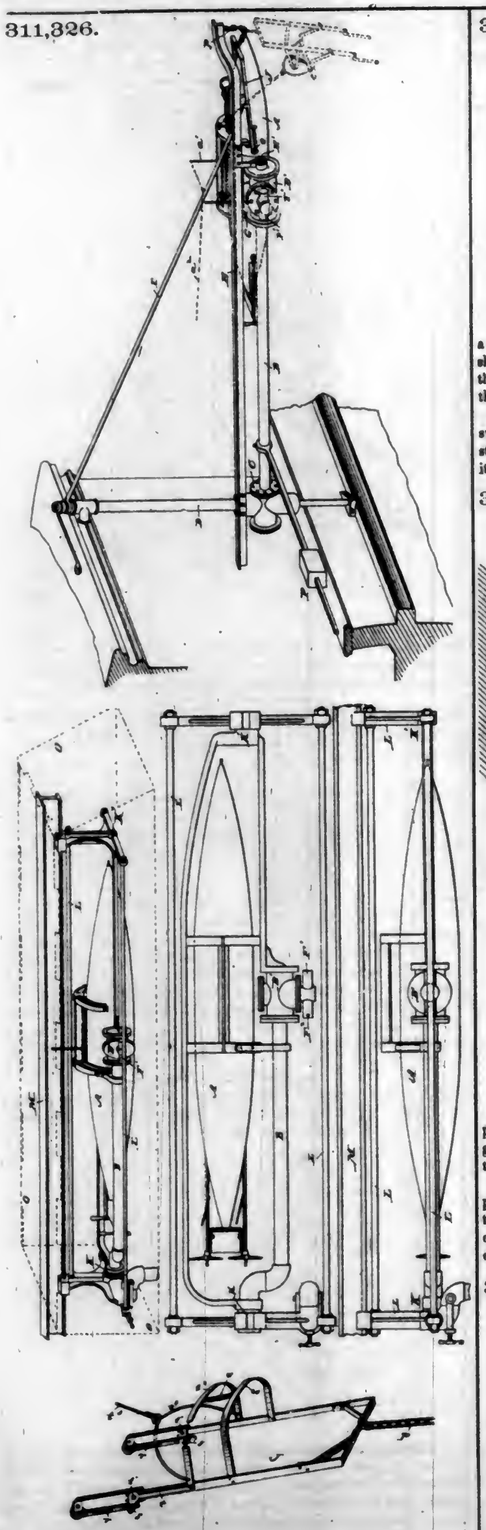
Claim.—1. In an apparatus for launching fly-wheel torpedoes, a torpedo-supporting frame mounted therein to rock freely upon an axis at right angles to the axis of the fly-wheel when the torpedo is in its place in the frame, substantially as and for the purposes hereinbefore set forth.

2. The combination of a carrier movable outboard or inboard with a rocking torpedo-supporting frame mounted in said carrier on an axis at right angles to the axis of the fly-wheel of the torpedo when the latter is in its place in said frame, substantially as and for the purposes set forth.

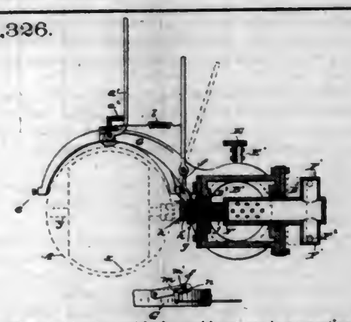
3. The combination, with the rocking torpedo-supporting frame, of means, substantially as described, carried by said frame, for speeding up the fly-wheel of the torpedo held in said frame.



311,326.



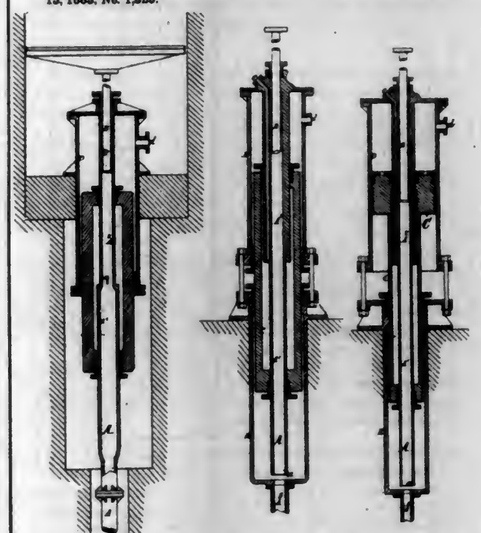
311,326.



4. The combination, with the rocking torpedo-supporting frame, of a motor carried by said frame, having the rotation-axis of its driving-shaft at right angles to the axis of motion of the frame, and in line with the axis of the fly-wheel of the torpedo when the latter is in place in the frame.

5. The combination, with the torpedo-supporting frame, of the swinging yoke carried by said frame, and arranged and operating, substantially as hereinbefore set forth, to impart to the torpedo at the time it is dropped a movement away from the vessel.

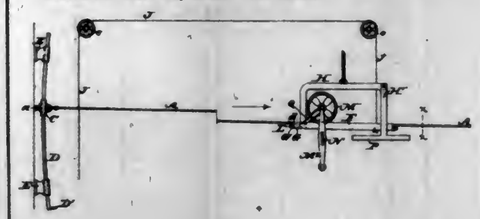
311,327. HYDRAULIC LIFT. WILLIAM H. JOHNSON, Westminster, County of Middlesex, assignor to Edward Bayzand Ellington, Chester, England. Filed Nov. 24, 1883. (No model.) Patented in England Mar 13, 1883, No. 1,325.



Claim.—1. The combination, with the central lift-cylinder and lift-plunger of a hydraulic lift, of a vertically-moving counterbalancing-plunger surrounding the lift-cylinder, and a cylinder surrounding said counterbalancing-plunger, substantially as described.

2. The combination, in a hydraulic lift, of the lift-cylinder and lift-plunger with the counterbalancing hollow plunger annularly surrounding the lift-cylinder and plunger and movable vertically thereon, and the cylinder for the counterbalancing-plunger also surrounding the lift-cylinder and plunger, substantially as described.

311,328. STORE-SERVICE APPARATUS. CHARLES B. KEEN, Philadelphia, Pa. Filed July 5, 1884. (No model.)



Claim.—1. In store-service apparatus, a rail provided with a section pivoted at one end and movably supported at the other end, whereby it may be raised and lowered, the means employed being substantially as described.

2. In store-service apparatus, a rail provided with a section pivotally connected at one end, in combination with a sleeve or clamp with which the other end of said rail is connected, and a curved support for said clamp, adapted to be raised and lowered, substantially as and for the purpose set forth.

3. In store-service apparatus, a switch-rail, in combination with a cord, J, and spring K, for operating said rail in opposite directions, substantially as and for the purpose set forth.

4. In store-service apparatus, coupling for the rails, consisting of a bed and block and a screw or bolt, the ends of the rails being clamped between said bed and block, substantially as and for the purpose set forth.

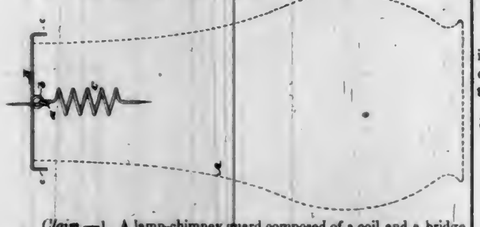
5. In store-service apparatus, a bracket consisting of an upright, a cross-piece, and a brace, whereby it may be adjusted vertically and laterally, substantially as and for the purpose set forth.

6. The arm M′ of the roller M, provided with a hook, N, for engagement with the guard P of the switch, substantially as and for the purpose set forth.

7. The roller M, provided with a frame, R, one side or arm thereof being adapted to swing or yield, substantially as and for the purpose set forth.

8. In store-service apparatus, a carriage and a roller or wheel thereof, in combination with a frame which is connected with the axle of said roller and incloses the rail on which the roller runs, one portion of said frame being adapted to yield, substantially as and for the purpose set forth.

311,329. LAMP-CHIMNEY GUARD. FRANK KOENIG, Philadelphia, Pa. Filed Apr. 9, 1884. (No model.)



Claim.—1. A lamp-chimney guard composed of a coil and a bridge having lips at its ends, substantially as and for the purpose set forth.

2. A lamp-chimney guard consisting of a metallic coil having pointed ends, and a bridge to which the said coil is secured, so that a portion thereof extends above the said bridge, while the lower part depends within the chimney, substantially as and for the purpose set forth.

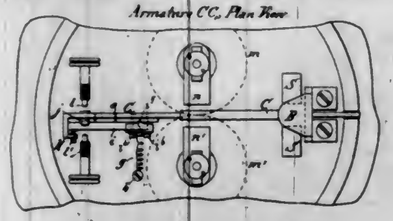
3. In a lamp-chimney guard, the bridge B, having the eye *b*, in combination with the metallic coil C, having pointed ends, and an eye, *a*, the upper of said pointed ends extending above the chimney, substantially as and for the purpose set forth.

311,330. TELEGRAPHIC REPEATER. JOSEPH KÖLZER, Duisburg, Prussia, Germany. Filed Mar. 13, 1884. (No model.)

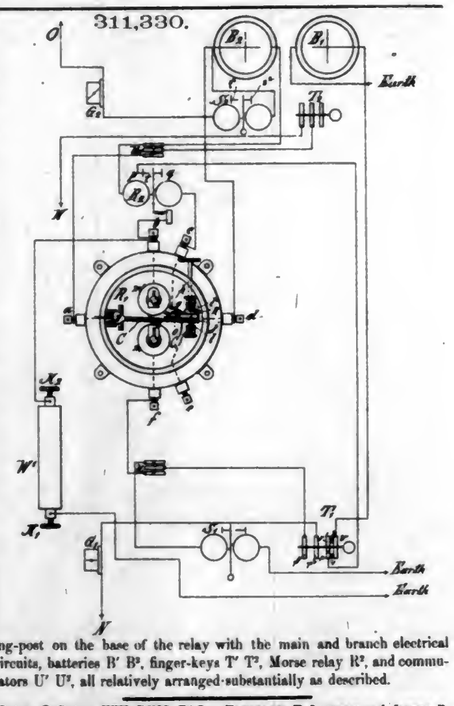
Claim.—1. In a telegraph apparatus for transmitting messages through a main line and branch line, and vice versa, the combination of a polarized relay having its armature-lever provided with a tongue or extension, C′, a contact, *k*, an insulating-strip, *o*, a block or saddle, *i*³, and a spring, *i*, and the yielding conductor *g*, connected with said spring-tongue and binding-post *h*, with the stops *l* and *l′*, line-connections for main and branch electrical circuits, and suitable batteries for the latter, finger-keys T′ T², Morse relay R², and commutators U′ U², all substantially as described.

2. In a telegraph apparatus, the combination of the polarized relay having its armature-lever provided with an extension or tongue, C′, terminating in a contact-point, *k*, a spring, *i*, mounted on the extension of the armature-lever and bearing upon the contact-point *k*, means, substantially as shown, for insulating the spring *i* from the extension C′, and a yielding electrical conductor, *g*, connected with the spring, and a binding-post on the base of the relay with the main and branch electrical circuits, batteries B′ B², finger-keys T′ T², Morse relay R², and commutators U′ U², all relatively arranged substantially as described.

Armature CC, Plan View.



311,330. (continued)

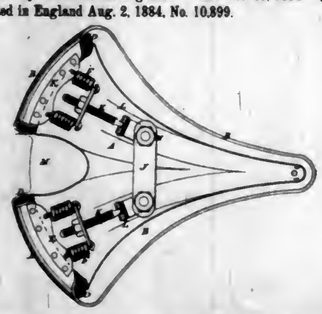


311,331. KEY-RING TAG. FREDERICK H. LAFORGE and JOSEPH R. SMITH, Waterbury, Conn. Filed Oct. 17, 1884. (No model.)



Claim.—The combination of the plate A, constructed for attachment to the key-ring, bent to form the diagonal transverse shoulder *b* upon one side, and with a recess on the same side as the shoulder, and extending from near the shoulder toward the opposite side, a cover corresponding in shape to the plate from the shoulder over the recess, and pivoted to the plate at the side of the recess opposite the said shoulder, substantially as described.

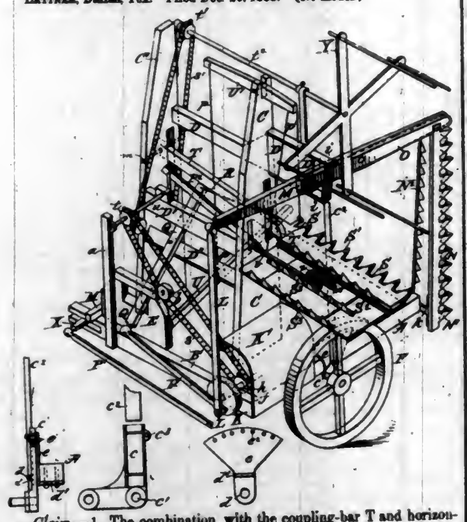
311,332. SADDLE FOR BICYCLES. JAMES A. LAMPLOUGH, Birmingham, County of Warwick, England. Filed Oct. 25, 1884. (No model.) Patented in England Aug. 2, 1884, No. 10,899.



Claim.—1. The combination of the bent steel plate A, provided at its rear edge with one or more elastic pads, D, the seat B, attached at its forward end to the plate A, and having its rear edge turned over said elastic pads and adjustably secured to the under side of the plate A by means of screw-bolts K, substantially as described.

2. The combination of the plate A, bent at its rear edge to form a seat for the elastic pads D, the elastic pads, one or more, resting therein, and the seat B, secured at its forward end to the plate A, and at its rear edge turned over the elastic pads, and adjustably secured to the under side of said plate by means of screw-bolts K, substantially as described.

311,333. COMBINED HEDGE-TRIMMER AND MOWER. JACOB V. LATTNER, Dallas, Tex. Filed Dec. 20, 1883. (No model.)



Claim.—1. The combination, with the coupling-bar T and horizontal cutter S, of the brush-carrying rake S², substantially as shown and described.

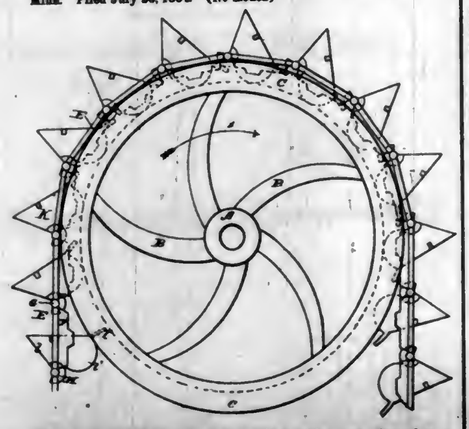
2. The combination, with the lever M, cutter-bar N, and finger-bar N′, of the toothed clearing rod or bar N², said cutter and clearing-rod being arranged in a vertically-inclined position, substantially as shown and described.

3. The combination of the horizontal cutter S, brush-carrying rake S², vertically-inclined cutter N, toothed clearing-rod N², and means for actuating the same, substantially as shown and described.

4. The combination of the cutters N S, brush-carrying rake S², vertically-inclined clearing-rod N², and revolving reel Y, substantially as shown and described.

5. The combination, with the adjustable coupling-bar T, horizontal cutter-bar S, and finger-bar S′, of the reciprocating brush-carrying rake S², pitman P, shafts *u* and J, sprockets *t* A, and belt or chain *s*, substantially as shown and described.

311,334. ELEVATOR-CHAIN. CHRISTOPHER W. LEVALLEY, St. Paul, Minn. Filed July 26, 1884. (No model.)



Claim.—1. An elevator-bucket provided with a seat adapted to receive the end bars of chain-links, substantially as set forth.

2. The combination of the grooved driving-wheel, the rectangular links, and the buckets pivoted upon the end bars of the links, substantially as set forth.

3. In an elevator, the combination of rectangular links, and buckets provided with couplers adapted to receive end bars of adjacent links, and to vibrate thereon, substantially as set forth.

4. In an elevator, the combination, with a wheel having a longitudinal peripheral groove, of a chain, and buckets pivoted upon the chain, and adapted to engage with the groove of the wheel, and to be tilted thereby, substantially as set forth.

5. The combination of the grooved wheel, the centrally-open chain-links, the buckets pivoted to the chain-links, and stops upon the buckets to limit their vibrations upon the chain-links, substantially as set forth.

6. The combination of the grooved wheel, the open chain-links, and the buckets pivoted to the chain-links, and adapted to engage with the bottom of the groove in the wheel, and provided with stops adapted to engage with the side bars of the chain to limit the vibration of the buckets, substantially as set forth.

7. The combination of the rectangular links having the flattened end bars, and the forked hooks, with the buckets mounted upon the end bars between the forked hooks, substantially as set forth.

8. A chain-bucket having an open hook with a narrow throat adapted to receive and be supported upon a flattened end bar of a drive-chain, substantially as set forth.

9. The combination, with the grooved driving-wheel, of the chain, and the buckets mounted upon and vibrating about the end bars of the chain, and having the stops and the wings to limit their vibrations, substantially as set forth.

10. The combination, with the grooved driving-wheel and the chute J, of the chain, and the buckets pivoted to the chain so that the inner ends of the buckets engage with the driving-wheel, and are tilted to discharge their contents after passing the chute, substantially as set forth.

11. The combination, with the centrally-open rectangular links having the flattened end bars and divided hooks, of the buckets provided with the narrow-throated hooks adapted to receive the flattened end bars, and with the stops which limit the vibrations of the bucket, substantially as set forth.

12. The combination of the driving-chain, the buckets adapted to be coupled to the chain when placed in an unusual position, and stops which retain the buckets in working position, substantially as set forth.

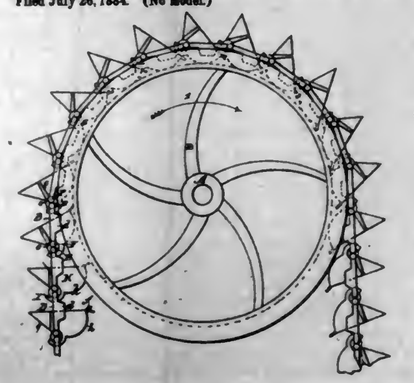
13. The combination of a chain-link, an elevator-bucket pivoted upon the chain-link, its pivotal line being nearer one end than the other, whereby the greater part of the weight of the bucket is to one side of the connection with the link, and a stop which limits the tilting of the bucket, substantially as set forth.

14. The combination of a driving-wheel, a chain which passes around said wheel, elevator-buckets pivoted upon the link of a chain, its pivotal line being nearer one end than the other, whereby the greater part of the weight of the bucket is upon the inside of the loop formed by the chain passing around the wheel, and a stop which limits the tilting of the bucket, the said wheel being adapted to tilt the bucket and discharge its contents, substantially in the manner described.

15. The combination of a driving-wheel, a chain composed of open rectangular links, and buckets pivoted upon the links and lying across the line of the chain, said wheel being adapted, substantially as set forth, to engage with one end of the bucket and tilt the same to discharge its contents before the bucket passes the horizontal line of the axis of the wheel, substantially as set forth.

16. The combination of the driving-wheel, a chain composed of open rectangular links, and buckets pivoted to the links and lying across the line of the chain, said wheel being adapted, substantially as set forth, to engage with one end of the bucket and tilt the same to discharge its contents, the end of the bucket with which the chain engages being rounded or curved, substantially as set forth.

311,335. ELEVATOR. CHRISTOPHER W. LEVALLEY, St. Paul, Minn. Filed July 26, 1884. (No model.)



Claim.—1. In an elevator, the combination of rectangular links, and buckets provided with couplers, each coupler being adapted to receive and retain two end bars of adjacent links, substantially as set forth.

2. In an elevator, the combination of rectangular links, and buckets provided with couplers each adapted to receive two end bars of adjacent links and to vibrate thereon, substantially as set forth.

3. The combination of the drive-chain links the end bars of which are of different diameters, and an elevator-bucket provided with a seat for the end bars of two adjacent links, the larger end bar being adapted to hold the smaller end bar in its seat, substantially as set forth.

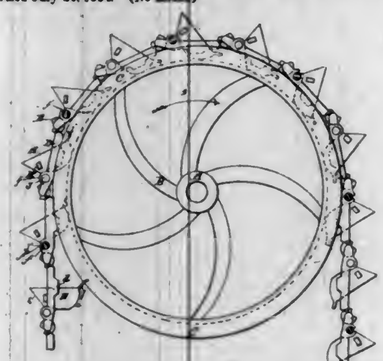
4. The combination of the chain-links and the buckets provided with couplers adapted to receive the end bars of two adjacent links, the throat *i* of the coupler being of less width than the diameter of one of the end bars, whereby the end bar of one link locks the end bar of the adjacent link in position, substantially as set forth.

5. In an elevator, the combination of the chain-links having end bars of different diameters, and the buckets provided with couplers adapted to receive the end bars of two adjacent links and having an internal diameter equal to the diameter of the larger end bar of the link, substantially as set forth.

6. The combination, with the buckets provided with the couplers, of the chain-links each having at one end a circular end bar and at the opposite end a recessed end bar, substantially as set forth.

7. In an elevator, the combination of the chain-links each having at one end a circular end bar and at the opposite end a recessed end bar, and having an internal diameter equal to the diameter of the larger end bar of the links, substantially as set forth.

311,336. ELEVATOR. CHRISTOPHER W. LEVALLEY, St. Paul, Minn.
Filed July 26, 1884. (No model.)



Claim.—1. A central open rectangular link provided with bearings in its side bars, in combination with a bucket pivoted in the side bars, and adapted to be inserted in and removed from said bearings when placed in an unusual position, substantially as set forth.

2. A centrally-open link having side bars provided with bearings, in combination with a bucket pivoted in the side bars, and provided with stops engaging with opposite sides of the link, for limiting the vibration of the bucket.

3. A centrally-open rectangular chain-link provided with bearings in its side bars, in combination with a bucket pivoted in the side bars, and provided with stops adapted to engage with the bars of the link and to hold the bucket in proper working position, substantially as set forth.

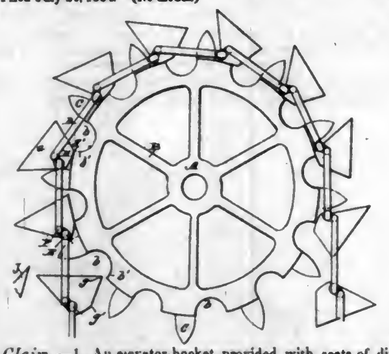
4. The combination of the drive-wheel, a drive-chain passing around said wheel, and buckets pivoted in the side bars of the links of said chain, said buckets being provided with stops adapted to engage with the side bars of the links and hold the buckets in proper working relation, said driving-wheel being adapted, substantially as set forth, to tilt the buckets and discharge their contents, as described.

5. A centrally-open chain-link having its side bars provided with bearings, in combination with a bucket pivoted in the bearings in the side bars, and provided with a stop situated at a distance from the pivotal support of the bucket, and adapted to engage with the link for limiting the vibration of the bucket, substantially as set forth.

6. A centrally-open link having one of its side bars provided with a closed eye, and the other side bar provided with an eye having a narrow throat, in combination with a bucket having a trunnion adapted to fit closely the closed eye, and a trunnion adapted to pass through the throat of the opposite eye, substantially as set forth.

7. A centrally-open link having side bars provided with bearings, in combination with a bucket mounted in bearings, and provided with a stop which engages with the upper face of the link, and a stop which engages with the opposite face of the link, substantially as set forth.

311,337. ELEVATOR. CHRISTOPHER W. LEVALLEY, St. Paul, Minn.
Filed July 26, 1884. (No model.)



Claim.—1. An elevator-bucket provided with seats of different sizes communicating with each other, adapted to receive chain-link end bars of different sizes, substantially as set forth.

2. The combination of the buckets provided with seats, and the chain-links having their end bars supported in the seats formed in the buckets, substantially as set forth.

3. An elevator-bucket having end-bar seats which communicate with each other, and having a throat of less diameter than one of the end bars, in combination with the chain-links, whereby one of the end bars locks the end bar of the adjacent link in position, substantially as set forth.

4. An elevator-bucket provided with two end-bar seats, one arranged above the other, in combination with the chain-links, whereby the bucket is maintained in a horizontal position by the weight of the chain below it, substantially as set forth.

5. The combination, with the sprocket-wheel, of the links and the bucket uniting the links, substantially as set forth.

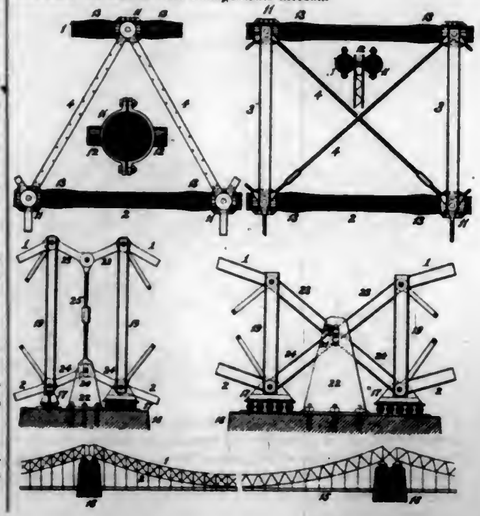
6. The herein-described sprocket-wheel, provided with recesses *b*, adapted to receive corners of the buckets, substantially as set forth.

7. The combination, with the chain and the buckets, of the wheel provided with recesses *b* and shoulders *b'*, substantially as set forth.

8. The combination, with the chain and the buckets pivoted thereon, they being provided with the corners *g'*, of the sprocket-wheel provided with recesses *b* and shoulders *b'*, said shoulders being adapted to engage with the corners *g'* of the bucket to tilt the bucket and discharge its contents, substantially as set forth.

311,338. ARCH-BRIDGE. GUSTAV LINDENTHAL, Pittsburg, Pa. Filed Aug. 18, 1884. (No model.)

Brief.—An arch-bridge of more than one span is composed of an upper and lower arch member, posts connected to the ends of said members and supported upon shoes or rockers on a pier, and links or struts connecting the ends of the arch members with a pin having the capacity of vertical movement and connected with an anchorage. A system of web-bracing is interposed between the upper and lower cables, and is connected thereto between enlargements thereon.



Claim.—1. In an arch-bridge, the combination of an upper and a lower arch member, bearings supporting said members separately and independently upon piers or abutments, and balancing ties or struts connecting the ends of said members with each other and with anchorages, substantially as set forth.

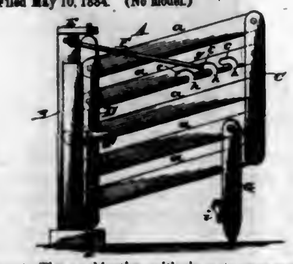
2. In an arch-bridge of more than one span, the combination of an upper and a lower arch member in each span, bearings supporting said members separately and independently upon the piers, and a balancing connection as described between the ends of the spans supported on the pier, substantially as set forth.

3. In an arch-bridge of one or more spans, the combination of an upper and a lower arch member, posts connected to the ends of said members and supported upon shoes or rockers on a pier, and links or struts connecting the ends of the arch members with a pin having the capacity of vertical movement, substantially as set forth.

4. In an arch-bridge of more than one span, the combination of a series of arches, each composed of separate upper and lower members, bearings supporting said members separately and independently upon one or more piers, a balancing connection as described between the ends of the spans supported on the pier or piers, bearings supporting the arch members separately and independently upon abutments, and ties or links connecting the ends of said members with each other and with anchorages, substantially as set forth.

5. In an arch-bridge as described, the combination of an upper and a lower wire cable and a system of interposed web-bracing connected to said wire cables between swells or enlargements thereon, substantially as set forth.

311,339. GATE. JEREMIAH LOCKWOOD and WILLIAM CRARY, Sullivan, Ind. Filed May 10, 1884. (No model.)



Claim.—1. The combination, with the gate composed of horizontal slats pivoted at their opposite ends between vertical strips, and the pivot-bar D, which engages the cap-block of the hinge-post, one of said slats having the open-end elongated slots *e*, of the pivoted connecting-rod F, having its forward end hooked to engage one of the slots *e*, and a stay-bar connected to one of the low slats of the gate and carrying a turn-button, all adapted to operate substantially as specified.

2. The combination, with the parallel pivoted slats of a gate, whereof one is provided with engaging-slots, of the pivot-bars to which said slats are pivoted, the hinge-post, the hook-rod engaging by one end one of said slots, and connected by the other to a bearing of the hinge-post at the side of the pivot of the pivot-bar, and a stay-bar connected to the gate, substantially as specified.

311,340. MACHINE FOR FEEDING LETTERS TO STAMPING-DIES.
WILHELM LÖFFELHARDT, Hamburg, assignor to Georg Haller, Ottensen, near Hamburg, Germany. Filed Sept. 27, 1881. (No model.) Patented in Germany June 8, 1879, No. 10,511, Sept. 19, 1879, No. 11,581, and Sept. 14, 1880, No. 14,188; in France Sept. 15, 1880, No. 138,716; in Belgium Sept. 16, 1880, No. 52,581; in England Sept. 27, 1880, No. 3,902; in Italy Oct. 1, 1880, and in Austria-Hungary Nov. 22, 1880.

Claim.—1. The combination, with the dies *d'* and the letter-supporting devices, substantially as described, of the chain-carrier provided with fingers *c*, adapted to hold the letter against said supports and to transport it, substantially as hereinbefore described.

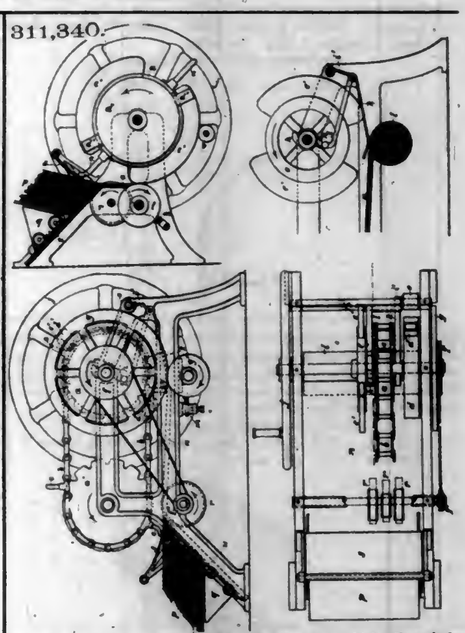
2. The combination, with the dies *d'*, the letter-supporting devices, substantially as described, and the transporting-fingers *c*, of the guard *s*, arranged between said supports and the path of the fingers, whereby the time and point of contact of said fingers with the letter are made uniform, substantially as hereinbefore set forth.

3. The combination of the dies *d'*, the letter-supporting devices, the flexible transporting-fingers *c*, and the supporting and carrying devices for said fingers, the fingers being mounted on said carrying devices in a position substantially at right angles to their lines of travel, and being of a length greater than the distance between said carrier and the table *n*, and of less thickness at their operative extremity than at their base, whereby said extremity is adapted to be bent over abruptly when in contact with the letter, substantially as hereinbefore set forth.

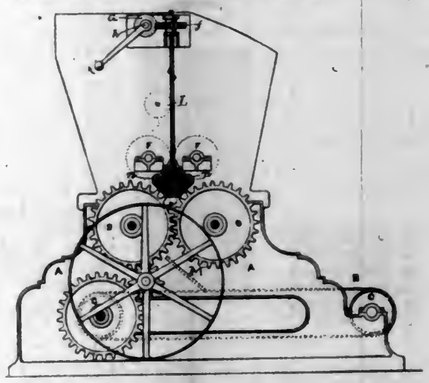
4. The combination, with the dies *d'*, of the chain-carrier provided with fingers *c* and the opposing inclined table *n*, whereby the letter may be held with a relaxed grasp as it reaches the gage which adjusts it for the stamping operation, substantially as hereinbefore set forth.

5. The combination, with the rotating dies *d'*, a roller or disk, *l*, and the transporting-fingers *c*, of the disks *r*, covered with india-rubber or other similar material, and rotating contrary to the direction in which the letters are moved by the fingers *c*, substantially as and for the purposes described.

6. The combination, with the rotating dies *d'*, the roller or disk *l*, fingers *c*, and disk *e*, with segments *e'*, of the lever *i*, operated upon by the cams *h*, and provided with springing arms *k* and spring *i'*, as hereinbefore specified, and for the purpose set forth.



311,341. MACHINE FOR MIXING AND MOLDING ARTIFICIAL FUEL AND OTHER GRANULATED MATERIALS. EMILE F. LOREAU, Philadelphia, Pa. Filed Aug. 13, 1883. (No model.)



Claim.—1. The molding cylinders or drums having recesses, pockets, or cavities connected by channels *a'*, all substantially as specified.

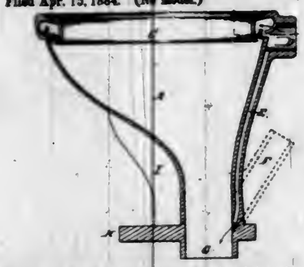
2. The combination of the hopper, the molding-drums, and the regulator K, occupying the converging space above the two drums, as set forth.

3. The combination of the hopper, the molding-drums, the regulator K, located centrally above the drums, and the stirrer-blades F', working almost in contact with the regulator, as set forth.

4. The combination of the hopper, the molding-drums, and the regulator K, having an adjustable block, K^2, as set forth.

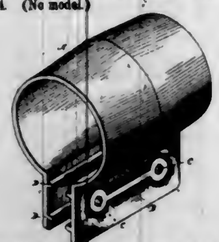
5. The combination of the hopper, the molding-drums, the stirrer-blades F', the regulator K, and the filler-blocks G, as specified.

311,342. HOPPER WATER-CLOSET. HENRY W. MANSUR, Boston, Mass. Filed Apr. 15, 1884. (No model.)



Claim.—In a hopper water-closet having inlet-pipe D, the bowl A, constructed as described, having the forward portion of the flushing-rim slightly elevated, and the skirt-flange overhanging the same, combined with a vertical waste-pipe, E, extending from the base of said inlet-pipe at its point of junction with the bowl to the discharge-opening thereof, substantially as specified.

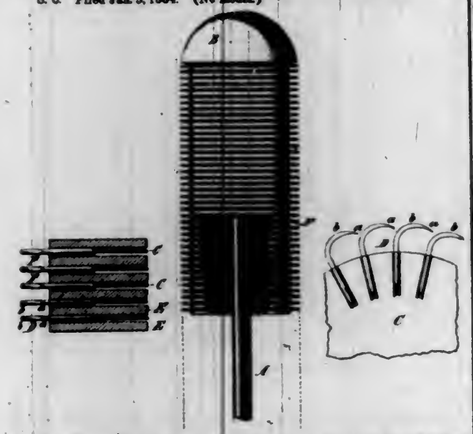
311,343. NECK-YOKE. JOHN H. MARKELL, Hayt's Corners, N. Y. Filed Sept. 5, 1884. (No model.)



Claim.—1. A neck-yoke having the wings which clasp the pole-leather each provided on each side the screw or bolt holes with longitudinal flanges or ribs formed a short distance from the edges of the said wings, substantially as and for the purpose specified.

2. A neck-yoke having the wings which clasp the pole-leather each provided with longitudinal flanges or ribs having rounded edges, the said ribs being on the inner or bearing side of the said wings, substantially as and for the purpose specified.

311,344. COTTON-PICKER STEM. CHARLES T. MASON, Jr., Sumter, S. C. Filed Jan. 5, 1884. (No model.)



Claim.—1. In a cotton-picker stem, two or more circumferential rows of picking-teeth projecting from the outer periphery of said stem, the said teeth bent over or curved, and having the end or point of each tooth disposed at a level with or below the upper side of the bent-over portion of said tooth, and cotton-receiving intervals or spaces between said rows of teeth, substantially as described.

2. In a cotton-picker stem, two or more circumferential rows of picking-teeth projecting from the outer periphery of said stem, the said teeth being bent over or curved in the same direction, and the end or point of each tooth being placed in close proximity to the next adjacent tooth and disposed below the level of the upper side of the bent-over portion of said adjacent tooth, and cotton-receiving intervals or spaces between said rows of teeth, substantially as described.

3. In a cotton-picker stem, a series of disks of like diameter, each alternate disk having bent-over or curved teeth projecting from its circumference, substantially as described.

4. In a cotton-picker stem, the combination of a central rod, a fixed head or cap on the end of said rod, and a series of alternately-toothed and plain disks, central apertures for the reception of said rod, the teeth on said toothed disks projecting radially beyond the peripheries of the plain disks, substantially as described.

5. In a cotton-picker stem, a picking-disk of thin metal having a central aperture to receive a supporting-rod, and having struck-up radial recesses around its circumference and bent-metal teeth secured in said recesses, substantially as described.

6. In a cotton-picker stem, a central rod, and supported thereon a series of disks of substantially uniform diameter, each alternate disk having picking-teeth projecting radially from its periphery, the point of each tooth being bent over and disposed at or below the level of the upper side of the bent-over portion of the next adjacent tooth, substantially as described.

7. The combination of the central rod, A, disks C, having bent radially-projecting picking-teeth D, and interposed spacing-disks E, uniform in diameter with disks C, substantially as described.

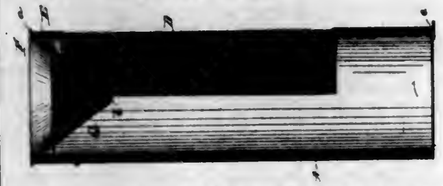
311,345. BUNG. JOHN L. MACILVAINE, West New Brighton, N. Y. Filed July 21, 1884. (No model.)



Claim.—1. The combination, with a metal socket, made tapering from the outer to the inner end, adapted to be driven into a hole in the head of a barrel or cask, made open at both ends and having the inwardly and outwardly extending flanges *b b'*, and having the steps or offsets *c*, and provided with keys or segments C, having external and internal threads, *c' c''*, adapted to fit into the steps or offsets *c*, of a false bushing or annular piece of wood, D, fitting into the socket B, provided with an aperture to receive a ping or bung, substantially as herein described.

2. The combination of a metallic socket, made tapering, provided with the flanges *b b'*, offsets or steps *c*, keys or segments C, having threads *c' c''*, and having the holes *f*, to admit the liquor in the cask to come in contact with the bushing D for the purpose of swelling the same, thereby forming a tight joint, substantially as and for the purposes set forth.

311,346. FISH TRAP AND BUCKET. GEORGE H. MCKINNEY, Stanford, Ky. Filed Apr. 7, 1884. (No model.)



Claim.—1. In a combined fish trap and bucket, the body A, forming a single compartment or receptacle, and provided with a reticulated section, D, attached to the body portion, as shown, in combination with a removable conical section provided with an end ring adapted to be inserted in the open end of the body portion, substantially as set forth.

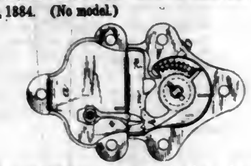
2. In a combined fish trap and bucket, the combination, with the body A, provided with a reticulated section, D, of ring E and inclined ring F, carrying a perforated cone, G, substantially as and for the purpose set forth.

3. The combination, in a combined fish trap and bucket, of the body provided with the reticulated section D, arranged as described, a ring, E, having an inclined ring, F, carrying a perforated cone, G, loops *e*, having the bail *d* attached, and loop *e*, located at or near the bottom of the device, as and for the purpose set forth.

311,347. LUBRICATING COMPOUND. SOLOMON D. MCMILLAN, Rochester, and CHARLES H. HAM, Charlotte, N. Y. Filed Dec. 18, 1884. (No specimens.)

Claim.—The lubricating compound herein described, consisting of petroleum or other oil, rosin-oil, beef-tallow, plumbago, and bicarbonate of soda, in proportions substantially as specified.

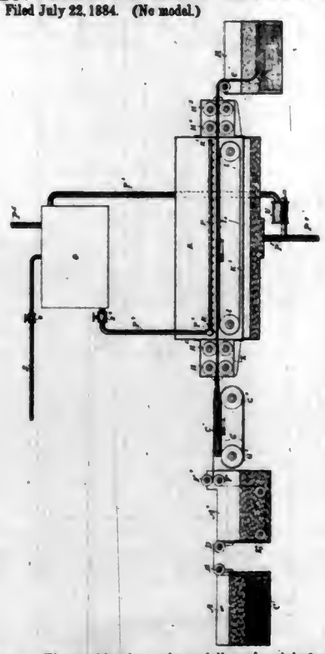
311,348. TRUNK-FASTENER. JOHN H. MEDCRAFT, Newark, N. J. Filed June 20, 1884. (No model.)



Claim.—1. In combination, the plate *a*, having a hasp or lug, *p*, and gravity-catch *o*, and the plate *b*, having a pivoted and spring-actuated catch, *c*, with a notch, *n*, therein to engage said catch, substantially as set forth.

2. In a trunk catch or fastener, the plate *b*, having a pivoted catch working thereon, said catch being provided with the hook *h*, bevel *m*, notch *n*, and a bearing, *i*, for a spring, said parts being arranged and combined substantially as and for the purposes set forth.

311,349. BLEACHING APPARATUS. JAMES MEIKLE, Providence, R. I. Filed July 22, 1884. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, with a bleaching keir or boiler, of an endless apron or belt within the same for conveying the fabric, a system of perforated pipes extending above said belt or apron, and means, substantially such as described, for conveying the fabric into and out of said keir.

2. The combination, substantially as hereinbefore set forth, of a bleaching keir or boiler, a system of perforated pipes therein and extending across the same, an endless belt or apron within said keir, for conveying the fabric therethrough, a perforated false bottom to said keir, and means, substantially such as described, for conveying a solution into said pipes under pressure, and for drawing the same away from said keir.

3. The combination, with the keir or boiler K, of the rollers H, H', H^2, and H^3, the belt L, the pipes *p*, *p'*, p^2, and p^3, and the pump U, substantially as described.

311,350. METHOD OF AND MEANS FOR PRODUCING PRINTING-SURFACES. OTTMAR MERGENTHALER, Baltimore, Md., assignor to the National Typographic Company, Washington, D. C. Filed Mar. 12, 1883. (No model.)

Claim.—1. The method of producing letter-press forms or surfaces in relief, consisting in producing a matrix in the form of a single continuous line, casting therefrom long bars, and subsequently subdividing the bars and arranging the sections side by side.

2. The herein-described method of producing relief printing-surfaces in the form of pages or columns, consisting in casting the letters or characters on continuous bars of great length, and subsequently dividing said bars into shorter lengths, and combining said lengths in parallel lines, substantially as described and shown.

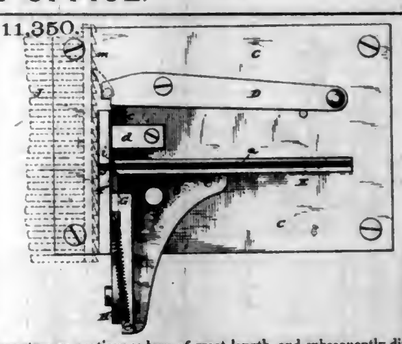
3. The improved device for severing printing-bars, the same consisting of a stationary anvil, a swinging guide, and a moving knife, combined for joint operation substantially as described and shown.

4. The combination of the anvil F, the swinging guide E, the knife G, spring *c*, lever H, and spring I.

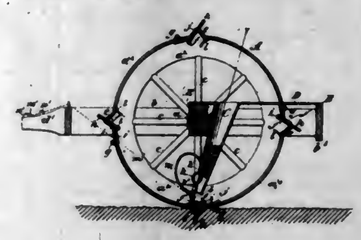
5. In combination with the anvil and the cutting mechanism co-operating therewith, the sliding frame J and mechanism, substantially as described, for intermittingly advancing said frame, whereby it is brought in position to receive the successive lengths severed from the bar by the cutting mechanism.

6. The combination of the anvil, the cutter, the grooved sliding frame J, and the lever and pawl for advancing said frame.

311,350.



311,351. CORN-PLANTER. GEO. H. MEYER, Santa Rosa, Cal. Filed Apr. 14, 1884. (No model.)



Claim.—1. The wheel A, formed with the seed-openings *f* and penetrating-lips *e*, plates *h*, projecting beyond said lips and penetrating the ground, and springs *j*, acting to close said plates upon emerging from the ground, substantially as and for the purposes set forth.

2. The plates *h*, pivoted in the seed-openings *f*, and arranged to open and close the same, and to penetrate the ground to actuate said plates by the action of the resisting earth, substantially as and for the purposes set forth.

3. The wheel A, formed with the openings *f* and lips *e*, in combination with the plates *h*, pivoted in the openings *f*, and projecting beyond said lips, substantially as and for the purposes set forth.

4. The wheel A, formed with the openings *f*, lips *e*, and covering projections *g*, in combination with the plates *h*, pivoted in the openings *f*, substantially as and for the purposes set forth.

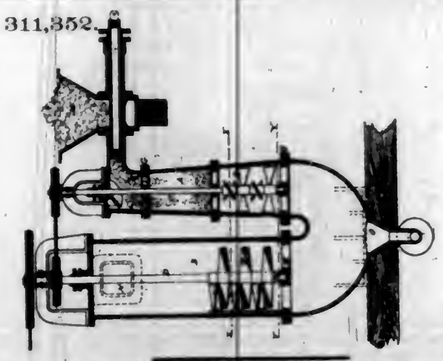
5. The hopper C, having the double-acting valve *k*, pivoted at its lower end, in combination with the wheel A, having finger *l*, arranged in front of the openings *f*, substantially as and for the purposes set forth.

311,352. AMALGAMATING APPARATUS. ADAM MILLER, London, England. Filed Sept. 23, 1884. (No model.) Patented in England June 18, 1884, No. 9,151; in France Sept. 11, 1884; in Belgium Sept. 15, 1884, No. 66,310; in Germany Sept. 26, 1884, and in Austria Oct. 11, 1884.

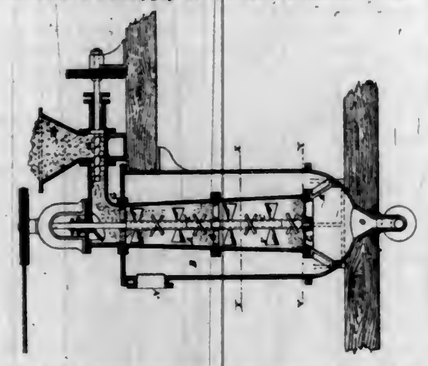
Claim.—In amalgamating apparatus, the combination of the siphon-shaped vessel A B with the grids G H, shafts C D, blades E, F, and K, hopper M, and plunger L, arranged and operating as set forth.



311,352.

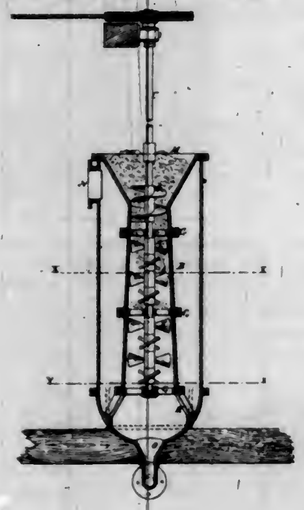


311,353. AMALGAMATING APPARATUS. ADAM MILLER, London, England. Filed Nov. 6, 1884. (No model.) Patented in England June 13, 1884, No. 9,151; in France Sept. 11, 1884; in Belgium Sept. 15, 1884, No. 66,310; in Germany Sept. 26, 1884, and in Austria Oct. 11, 1884.



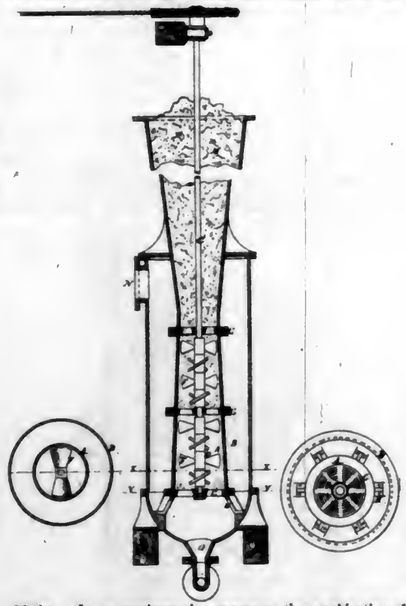
Claim.—In an amalgamating apparatus, the combination of the two concentric vessels A and B, the hopper M, the lateral passage connecting the hopper and inner vessel, the screw L, arranged horizontally in the lateral passage, the vertical shaft C, the grids G, through which the shaft passes, and the helical blades F, on the shaft between the upper and lower grids, substantially as described.

311,354. AMALGAMATING APPARATUS. ADAM MILLER, London, England. Filed Nov. 6, 1884. (No model.) Patented in England June 13, 1884, No. 9,151; in France Sept. 11, 1884; in Belgium Sept. 15, 1884 No. 66,310; in Germany Sept. 26, 1884, and in Austria Oct. 11, 1884.



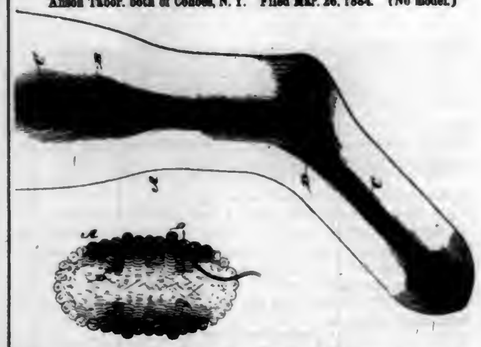
Claim.—In an amalgamating apparatus, the combination of the concentric vessels A and B, the hopper M at the upper end of the inner vessel, the grids G within the latter, the vertical shaft C, extending through the grids and the hopper, the screw L on the shaft in the hopper above the upper grid, and the helical blades F, also on said shaft between the upper and lower grids, substantially as described.

311,355. AMALGAMATING APPARATUS. ADAM MILLER, London, England. Filed Nov. 6, 1884. (No model.) Patented in England June 13, 1884, No. 9,151; in France Sept. 11, 1884; in Belgium Sept. 15, 1884, No. 66,310; in Germany Sept. 26, 1884, and in Austria Oct. 11, 1884.



Claim.—In an amalgamating apparatus, the combination of the two concentric vessels A and B, the latter being tapering, the feet H, supporting the inner vessel, the hopper M, extending upward from the inner vessel to a considerable height, and through which the ore descends by gravity, the grids G within the inner vessel, the vertical shaft C, extending through the grids, and the helical blades F on said shaft between the upper and lower grids, substantially as described.

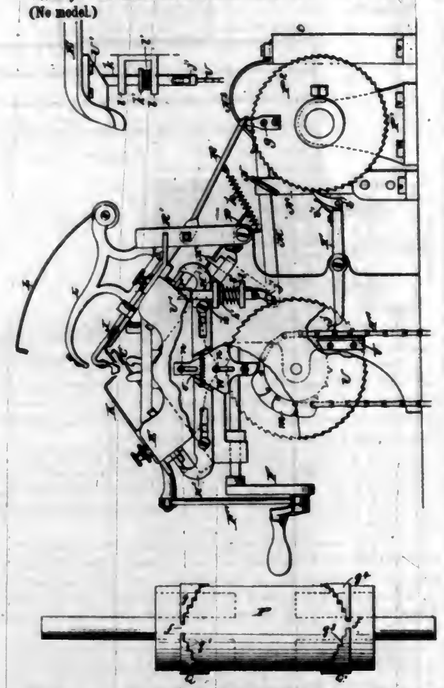
311,356. STOCKING. CHARLES E. NORRIS, Laconia, N. H., assignor of three-fourths to Eugene Vermilyea, Waterford, and Le Roy Vermilyea and Anson Tabor, both of Cohoes, N. Y. Filed Mar. 26, 1884. (No model.)



Claim.—1. A seamless knit stocking, the foot portion having the narrowings adjacent to the heel formed in opposite sides thereof on both sides of the middle walls, and converging toward said walls, substantially as described.

2. A seamless knit stocking, the leg portion whereof is formed with narrowings in opposite sides thereof on both sides of the middle walls, and converging toward such walls, and the foot portion formed with narrowings in opposite sides thereof on both the upper and lower sides of the middle walls, and converging toward said walls, substantially as described.

311,357. KNITTING-MACHINE. CHARLES E. NORRIS, Laconia, N. H., assignor of three-fourths to Eugene Vermilyea, Waterford, and Le Roy Vermilyea and Anson Tabor, both of Cohoes, N. Y. Filed Mar. 28, 1884. (No model.)



Claim.—1. The combination of the needle-bed, grooved to permit the needles to be raised and dropped, the needles fitting therein, the rotating cylinder provided with the pattern, having on opposite edges the series of steps of a descending scale toward the ends of the cylinder, with the steps at one end of the cylinder out of line with those at the other end, a series of levers connected with said needles and resting on the pattern of the rotating cylinder, a hinged arm, and a lever connecting the same with the rotating cylinder, a reciprocating carriage carrying needle-actuating cams and provided with cams arranged thereon, to be thereby alternately brought into contact with said hinged arm to actuate the rotating pattern-cylinder, whereby the needles are dropped or raised one at a time and alternately from opposite ends of the needle-bed plate, substantially as described.

2. The combination of the needle-bed, grooved to receive the needles, the needles therein, the reciprocating carriage, the needle-actuating cams carried thereby, the cam-shifters at the end of the bed, to alternately open and close the needle-actuating cams, and means, operating substantially as described, for automatically moving said shifters at one end of the bed out of the line of travel of the actuating-cams and holding them out of line therewith while knitting the heel, whereby in the reciprocation of the carriage one of the needle-actuating cams will remain closed and the other open, and the stitches will be formed on one row of needles only, substantially as described.

3. The combination of the needle-bed, grooved to receive the needles, the needles therein, the reciprocating carriage, the needle-actuating cams carried thereby, the cam-shifters at the end of the bed, to alternately open and close the needle-actuating cams, the sliding cam between the cam-shifters at one end of the needle-bed, the wheel at the end of the needle-bed next to said sliding cam, the pattern-chain provided with projections, a hub on said wheel having said chain mounted thereon, the sliding rod connected with said wheel, and a cam on the reciprocating carriage to depress said rod and move said wheel, substantially as described.

4. The combination of the needle-bed, grooved to receive the needles, the needles therein, the pattern-cylinder, the reciprocating carriage, the needle-actuating cams carried by said carriage, the endless chain having a lug thereon, a wheel for moving said chain, a rod connected with said wheel, a cam on the reciprocating carriage to impel said rod to move said wheel, and a lever connecting with the pattern-cylinder and acted on by said lug on the endless chain to move the pattern-cylinder, substantially as described.

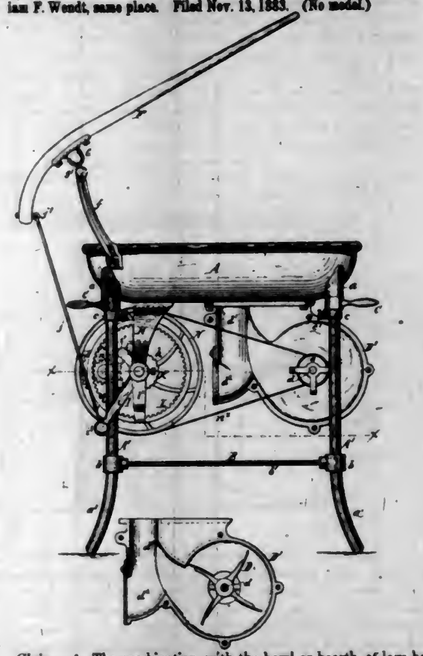
5. The combination of the double-inclined needle-bed formed with grooves on both inclined faces, the grooves on one face tapering in depth from top to bottom, whereby the needles may be raised and dropped, the needles fitting in the grooves of the bed, the rotary cylinder provided with a pattern having a series of steps in succession from opposite ends of the cylinder, substantially as described, the series of levers resting on said pattern-cylinder and connected with the needles in the tapered grooves of the needle-bed, the reciprocating carriage, the needle-actuating cams carried thereby, the cam-shifters at opposite ends of the bed-plate, means for moving at stated periods the cam-shifters at one end of the bed-plate out of the line of travel of the needle-actuating cams, levers connected with the pattern-cylinder intermediate of it, and the reciprocating carriage to act on said levers to move the pattern-cylinder, substantially as described.

6. The combination with the needle-bed, grooved to receive the needles, the reciprocating carriage, the needle-actuating cams carried thereby, the cam-shifters at the ends of the needle-bed, the sliding cam intermediate of the cam-shifters at one end of the bed and adapted to be projected against said shifters to move them out of the line of travel of the needle-actuating cams, means for automatically moving said sliding cams, and a spring connected to said shifters to retract them after the sliding cam is restored to its normal position, substantially as described.

7. The combination, with the needle-bed, the needles therein, and the series of levers connected with said needles, of the rotary cylinder provided with the pattern, constructed substantially as described, with a way for one end of the needle-levers to rest in, and a series of ascending and descending steps on opposing faces of the pattern and out of line with each other, the said steps operating to raise the said levers at their ends next to said cylinder one at a time and alternately from opposite ends of the cylinder, and after they have been raised to drop them at the same ends one at a time and alternately from opposite ends of the cylinder, substantially as described.

8. The combination, with the needle-bed, the needles therein, and the series of levers connected with said needles, of the rotary cylinder provided with the pattern, constructed substantially as described, with steps of a rising and descending scale on opposing faces of the pattern and out of line with each other, and with ways for one end of the needle-levers to rest in at the base and top of said scale-steps, to raise the said levers at their ends next to said cylinder one at a time and alternately from opposite ends of the cylinder, and then, after they have all been raised, to simultaneously drop all of them, and afterward to raise them all simultaneously, and then drop them one at a time and alternately from opposite ends of the cylinder, substantially as described.

311,358. FORGE. J. LESTER OSGOOD, Buffalo, N. Y., assignor to William F. Wendt, same place. Filed Nov. 13, 1883. (No model.)



Claim.—1. The combination, with the bowl or hearth, of legs having lower diverging portions, and a rigid frame provided with sleeves surrounding said legs and adapted to be held in place by the diverging lower portions of the legs, substantially as set forth.

2. The combination, with the bowl or hearth, of legs having lower diverging portions and a rigid frame, B, connecting the lower portions

of the legs, and composed of bars b', and sleeves b, cast on the ends of said bars, substantially as set forth.

3. The combination, with the bowl or hearth, of legs A', handles C, and divided collars c, whereby the handles are supported on the legs, substantially as set forth.

4. In a portable forge, the combination, with the bowl or hearth, of an actuating-lever and a ball-and-socket joint, whereby said lever is supported on the bowl or hearth, substantially as set forth.

5. The combination, with the bowl or hearth, of a bracket, f, provided with a spherical knuckle, g, and a lever, F, provided with a spherical socket, G, substantially as set forth.

6. The combination, with the bowl or hearth, of a bracket, f, provided with a spherical knuckle, g, and a lever, F, provided with a spherical socket, G, cast around the knuckle g, substantially as set forth.

7. The combination, with the bowl or hearth and blower, of an actuating-lever, F, ratchet-wheel K, pawl-lever I, connecting-rod j, and a ball-and-socket joint, whereby said connecting-rod is attached to the pawl-lever, substantially as set forth.

8. The combination, with the bowl or hearth and blower, of an actuating-lever, a ball-and-socket joint, forming the fulcrum of the actuating-lever, a pawl-lever, and a ball-and-socket joint whereby the connecting-rod is connected with the pawl-lever, substantially as set forth.

9. The combination, with the rotary fan, driving pulleys and belt, and ratchet mechanism, of the hand-lever F, connecting-rod j, having a spherical knuckle, j^3, and pawl-lever I, provided with a spherical socket, i^3, cast around the knuckle j^3, substantially as set forth.

10. The combination, with the rotary fan, driving pulleys and belt, and ratchet-wheel K, of the pawl-lever I, having pin o', provided with a lip, o^2, and a pawl, i^2, constructed with a notch, o, substantially as set forth.

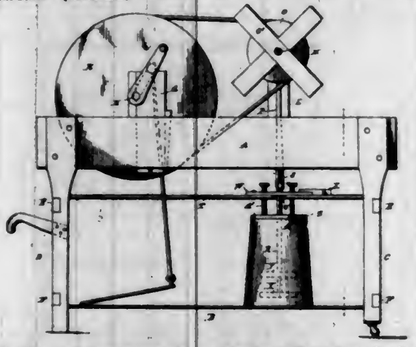
11. In a portable forge, the combination, with a hearth and blower, of a ratchet-wheel, K, to which the power is applied, a pinion, k', from which the power is transmitted to the blower, (both wheels being mounted on the same axis or arbor,) and a connecting-gear mechanism whereby motion is transmitted with increased velocity from the ratchet-wheel K to the pinion k', substantially as set forth.

12. The combination, with the rotary fan and driving pulleys and belt, of the pawl-lever I, ratchet-wheel K, and arbor k, the crank M, secured together and attached to the crank M, a stationary gear-rim, L, and a pinion, k', substantially as set forth.

13. The combination, with the rotary fan and driving pulleys and belt, of the pawl-lever I, ratchet-wheel K, and arbor k, the crank M, secured together and attached to the crank M, a stationary gear-rim, L, a pinion, k', and pulley N, secured to the pinion k', substantially as set forth.

14. The combination, with the pawl-lever I, ratchet-wheel K, and arbor k, of the crank M, secured to the ratchet-wheel, a pinion, n, and gear-wheel n', secured together and attached to the crank M, a stationary gear-rim, L, a pinion, k', a pulley, N, secured to the pinion k', a blower, D D', pulley e, and endless belt n^3, substantially as set forth.

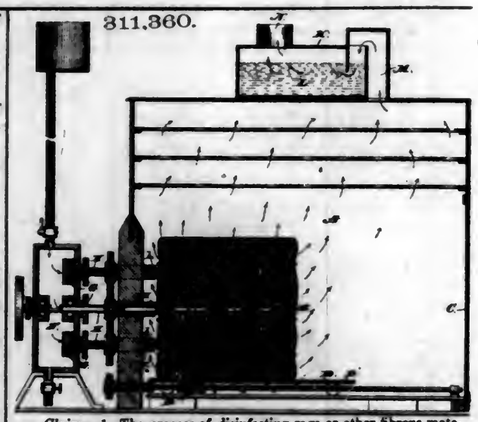
311,359. CHURN. WILLIAM I. PACK, Tom's Creek, Tenn. Filed Apr. 24, 1884. (No model.)



Claim.—In a churn-power, the combination, with a frame having casters or rollers and handles, a churn-supporting cross-piece in the frame, and a cross-piece above the other containing retaining-screws, of a crank-shaft carrying a band-wheel, and provided with adjustable bearings, and a crank-shaft carrying a band wheel or pulley and a rimless fan or balance-wheel, said shaft carrying a pitman connected to and operating the dasher of the churn, substantially as and for the purpose specified.

311,360. PROCESS OF DISINFECTING BALED RAGS, &c. SAMUEL W. PARKER and HENRY BLACKMAN, New York, N. Y. Filed Oct. 23, 1884. (No model.)

311,360.



Claim.—1. The process of disinfecting rags or other fibrous materials while in the bale, which consists in inserting a perforated nozzle into the bale at an angle to the layers of material therein and then causing a disinfectant to pass through the nozzle and out through the perforations thereof, substantially as and for the purpose described.

2. The process of disinfecting rags and other fibrous materials, which consists in forcing into a bale thereof at right angles to the layers of materials in the bale a series of perforated tubular nozzles and then forcing through the nozzles and the perforations a disinfectant, substantially as described.

3. The process of disinfecting rags and other fibrous material, which consists in placing the material while in the bale in a suitable chamber, then screwing into the bale at right angles to the layers of material in the bale a series of perforated tubular screw-nozzles, and then forcing through such nozzles a disinfectant, substantially as and for the purpose described.

4. The process of disinfecting rags and other fibrous materials, which consists in forcing a disinfectant into and through the material while in the bale and then forcing into and through the bale cold air, substantially as and for the purpose set forth.

5. The process of disinfecting rags and other fibrous materials while in the bale, which consists in placing the bale in a closed chamber, then injecting into the interior of the bale a disinfectant under pressure, then turning off the disinfectant and forcing into the interior of the bale dry cold air in sufficient quantity to cool the bale as it passes out through it and to drive out the foul air and gases from the chamber, substantially as described.

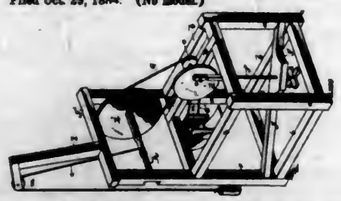
311,361. PENCIL-HOLDER AND SLATE-CLEANER. CHAS. O. PATTERSON, Augusta, Kans. Filed June 20, 1884. (No model.)



Claim.—1. The combination, with a tube, of a stopper in one end, a cap provided with a brush or wiper in the opposite end, and a cap fitting on the ends of the tube and adapted to receive and hold a pencil, substantially as herein shown and described.

2. The combination, with a tube, of a cap, D, having prongs E on the inner end, the brush G, held in the cap D, and the wire H, connecting the brush with the prongs E, substantially as herein shown and described.

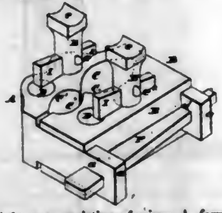
311,362. MECHANICAL MOVEMENT. JAMES W. PORTH, Calhoun, La. Filed Oct. 29, 1884. (No model.)



Claim.—1. In a mechanical power, the combination, with a suitable supporting-frame, of a shaft carrying a crank-wheel, a pitman connected with said crank-wheel and with a dasher, pulleys on said shaft, a shaft mounted in extended uprights of the frame, a cord connected therewith, and a weight attached to said cord, said cord and weight being supported above the frame by an arm carrying a roller, substantially as set forth.

2. The combination, with a suitable frame, of a shaft mounted therein, a crank-wheel on said shaft, a pitman connected with said crank-wheel, a dasher pivoted to said pitman, a fan mounted upon the under side of one of the cross-beams, extended uprights, a shaft journaled on said uprights, a vertical arm, a roller at the upper end of said arm, a weight attached to a cord connecting the said shaft and roller, a brake, and band-wheels and pulleys connected by belts or bands for imparting motion to the dasher and fan, substantially as set forth.

311,363. TIRE-TIGHTENER. GEORGE W. RAWSON, Belleville, Ill., assignor to David McKee and Timothy J. McCarthy, both of same place. Filed June 7, 1884. (No model.)



Claim.—A tire-tightener consisting of a jaw, A, formed with a bolt-hole, D, half-spoke recess C, arms a, and wedge-slots in the arms, wedge F, the jaw B, having half-spoke recess C', a bolt-hole, D, and channeled ends to fit the arms, and the bolts E, each bolt being formed with a head, e, to fit a felly, wedge-slots e', and wedges I, as set forth.

311,364. COMBINED BELT GUIDE AND REEL FOR THRASHING-MACHINES, &c. FRANK B. RAY, Kansas City, Mo. Filed Dec. 22, 1884. (No model.)



Claim.—1. The combination, with a suitable frame and a band-wheel, of a combined belt guide and reel arranged on the frame and adapted to form both a reel on which to wind the belt and a guide for the belt when in use, substantially as described.

2. A combined belt guide and reel provided with a handle for adapting the device for use as a reel on which to wind the belt, substantially as described.

3. A combined belt guide and reel provided with rims, flanges, or disks having spurs formed upon the inner faces thereof for engaging the belt in winding up the same, substantially as described.

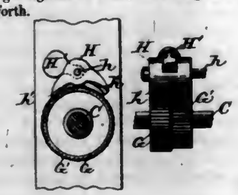
4. A combined belt guide and reel consisting of a journal and independent disks adapted to revolve independently of each other, substantially as and for the purpose set forth.

311,365. DISCHARGE APPARATUS FOR COAL AND ORE BINS. H. G. H. REED, Milwaukee, Wis. Filed Dec. 5, 1884. (No model.)

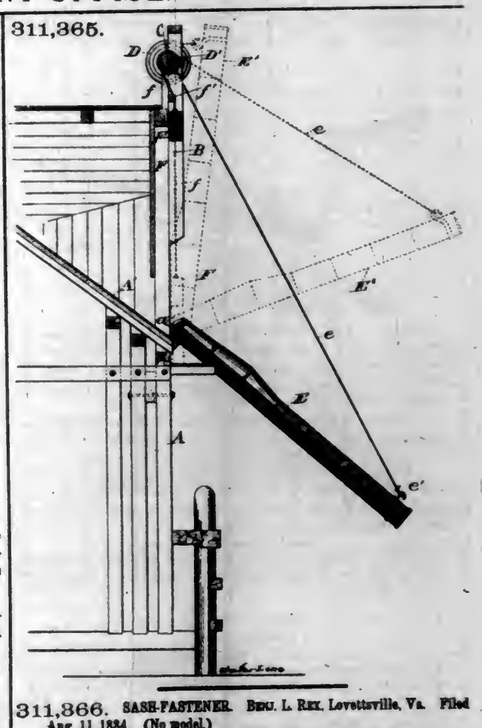
Claim.—1. In a hoisting apparatus for pivoted ore or grain spouts, a counterbalancing device adapted to reduce the heaviest strain at the point of the greatest resistance, so as to be overcome by the mean power required to lift or support the weight at all points, substantially as set forth.

2. In a hoisting apparatus for pivoted spouts, the combination of the frame B, crank-shaft C, having central cone-block, B, spirally grooved at d, spout E, rope or chain e, and counterbalancing-weights F F, connected by ropes f to the spirally-grooved cone-blocks D' D^2, substantially as shown and described, and for the purpose set forth.

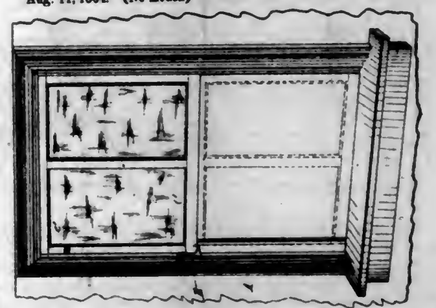
3. In a hoisting apparatus, the combination of the frame B, provided with crank-shaft C, having cone-blocks D D' D^2, and double ratchet-wheel G G', pawl H, having weighted lever H', and taking ends or points h' h^2, substantially as set forth.



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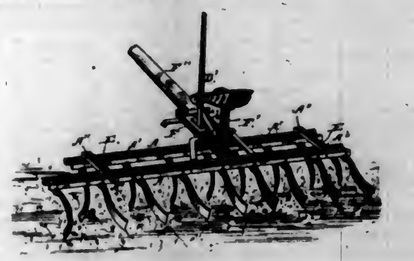
311,366. SASH-FASTENER. BENJ. L. REX, Lovettsville, Va. Filed Aug. 11, 1884. (No model.)



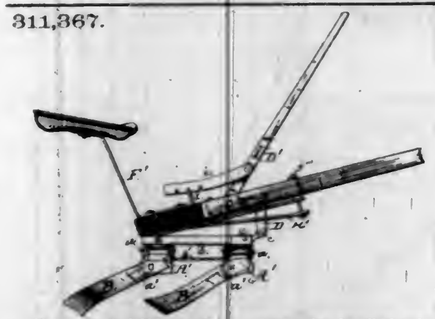
Claim.—1. A sash-holder adapted for use alongside of a movable sash, consisting of the upright arm d and horizontal arm f on the lower end of the upright arm projecting toward the sash, and the cam e on the upper end of the upright arm having its impinging face turned normally away from the sash, substantially as and for the purpose set forth.

2. A sash-holder consisting of the upright portion d, having the curved thumb-piece g formed therein, the right-angle arm f, with the upward projection f' on its end, and the cam e on the upper end of the arm d, having its face turned away from the sash normally, as set forth.

311,367. HARROW. EDMUND D. REYNOLDS and OLIVER B. REYNOLDS, Brockton, Mass. Filed Apr. 14, 1884. (No model.)



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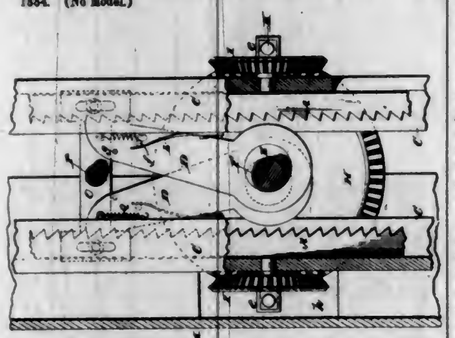


Claim.—1. A rigid harrow-frame constructed as described, and consisting of the bars A A and blocks A', provided with downward and rearward projections *a'*, in combination with the tie-plates E, blocks A", provided with the flanges *c*, and the tie-plates *b* and *b'*, all constructed to operate substantially as and for the purpose set forth.

2. The bars A A and blocks A', provided with the downward and rearward projections *a'*, and the lips or flanges 1 and 2, in combination with the teeth B, substantially as and for the purpose set forth.

3. A harrow-frame constructed as described, and provided with a rock-shaft, G, and blocks *f f*, in combination with the frame-work *g g'*, pole-stub F, pole F", and seat-support F", all constructed to operate substantially as and for the purpose set forth.

311,368. PRESS. SAMUEL T. RICHARDSON, Baltimore, Md., assignor to the Richardson Manufacturing Company, same place. Filed June 24, 1884. (No model.)



Claim.—1. In a press, the combination, with a vertically-movable follower and rack-bars connected thereto, of a rotary shaft carrying cam-actuated pawls adapted to engage with said rack-bars, and the mechanism, substantially as herein described, for converting an oscillatory movement into a continuous rotary movement of the shaft carrying the cam-actuated pawls, substantially as herein set forth.

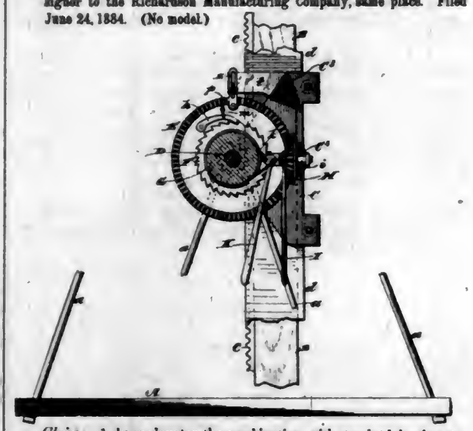
2. In a press, the combination, with rack-bars connected to a follower or platen, of toothed pawls mounted upon cams on a rotary shaft, springs for normally holding said pawls away from engagement with the rack-bars, and a roller attached to an adjustable support and capable of being brought into the path of the pawls, so as to exert a pressure thereon sufficient to overcome the tension of the springs, thereby forcing the pawls alternately into engagement with the racks for the purpose of permitting the follower to descend gradually, substantially as described.

3. In a press, the combination of a follower, rack-bars connected thereto and adapted to move in suitable guideways, a shaft carrying cam-actuated pawls for engaging said rack-bars, a pair of ratchet-wheels rigidly secured to said shaft, a pair of bevel-gears mounted loosely on said shaft and having pawls for engaging with the ratchet-wheels, and an intermediate gearing, gear, or gears arranged in a plane at right angles to the bevel-gears and meshing therewith, and means for actuating said intermediate gear or gears, substantially as described.

4. In a press, the combination, with the shaft F, having cams E E and pawls D D mounted thereon for actuating the rack-bars A A, connected to a follower, B, of the ratchet-wheels G G, secured to said shaft, the bevel-gears H H', mounted loosely thereon, and having pawls *d d'* for engaging with the ratchet-wheels, and the intermediate gears, I I, provided with levers K K, substantially as described.

5. In a press, the combination, with the rack-bars A A, of the shaft F, having cam-actuated pawls D D, provided with pins *g g*, the detachable springs Q Q, and the adjustable roller P, whereby the racks are permitted to descend gradually, substantially as described.

311,369. ELEVATOR. SAMUEL T. RICHARDSON, Baltimore, Md., assignor to the Richardson Manufacturing Company, same place. Filed June 24, 1884. (No model.)



Claim.—1. In an elevator, the combination, with standards having stationary racks and guideways, of bearing-plates supporting the elevator and having guide-rollers for engaging said guideways, a rotary shaft journaled in said bearing-plates and carrying pinions for engaging the racks, a ratchet wheel or wheels rigidly secured to said shaft, a pair of oscillating bevel-gears mounted loosely on the shaft at the outer sides of the ratchet-wheels and carrying pawls adapted to engage therewith, and an intermediate bevel-gear journaled in a plane at right angles with the loose bevel-gears and provided with an actuating-lever, substantially as described.

2. In an elevator, the combination, with stationary racks and guideways, and bearing-plates for supporting the elevator cage or platform, said plates having rollers for engaging the guideways, of a rotary shaft journaled in said plates and carrying pinions for engaging the racks, a ratchet wheel or wheels, and a brake-pulley rigidly secured to said shaft, a pair of bevel-gears mounted loosely on the shaft and having pawls for alternately engaging the ratchets, an intermediate gear for actuating said loose gears, and a brake-lever and strap for acting upon the brake-pulley to arrest the motion of the shaft, substantially as described.

3. In an elevator, the combination of the stationary racks *c c* and guideways *d d*, the bearing-plates C C' for supporting the elevator cage or platform, said bearing-plates having guide-rollers *e e* for engaging with the stationary guideways, a shaft, D, journaled in the bearing-plates and carrying pinions *b b* for engaging the racks, a ratchet wheel or wheels, F, rigidly secured to said shaft, bevel-gears E E, loosely mounted on the shaft and carrying pawls *h h* for engaging the ratchet-wheels, an intermediate bevel-gear for actuating the loose gears, means for arresting the motion of the shaft, and means for retarding the backward movement in lowering the elevator, substantially as described.

4. In an elevator, the combination, with the standards B B, having racks *c c* and guideways *d d*, of the bearing-plates C C' for supporting the elevator platform or cage, said plates being provided with guide-rollers *e e*, a rotary shaft, D, journaled in said plates and carrying pinions *b b* for engaging the racks, and mechanism connected to the driving-shaft D for converting an oscillatory movement into a continuous rotary movement, substantially as described.

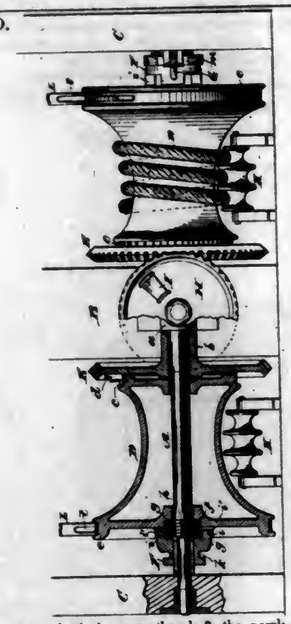
5. In an elevator, the combination, with the standards B B, having racks *c c* and guideways *d d*, of the bearing-plates C C', having guide-rollers *e e*, the platform A, connecting-rods *a a*, shaft D, having pinions *b b* and washers *f f g g*, the ratchet-wheels F and pulley G, rigid on said shaft, the loose gears E E, having pawls *h h*, the intermediate gear, H, having lever I, and mounted on a stud, *i*, in the bearing-plate C', the brake-lever K, pivoted in the end of said stud and connected to the pulley G by a brake-strap, *k*, the springs *m*, and the adjustable slide L, carrying rollers *p p*, substantially as described.

311,370. WINDLASS. SAMUEL T. RICHARDSON, Baltimore, Md., assignor to the Richardson Manufacturing Company, same place. Filed June 24, 1884. (No model.)

Claim.—1. The combination, in a windlass, of the shaft supported in bearings, the clutches sliding on the shaft, the two loose drums having at their adjacent ends the annular series of ratchet-teeth and provided with clutches at their other ends, the loose gear-wheels on the shaft, the gravitating pawls on the outer faces of the gear-wheels for automatically engaging the annular series of ratchet-teeth and the intermediate gear-wheel, substantially as described.

2. The combination, in a windlass, of the shaft mounted in bearings, the two drums loose on the shaft and provided with the annular series of ratchet-teeth, clutches for rigidly connecting one or both drums to

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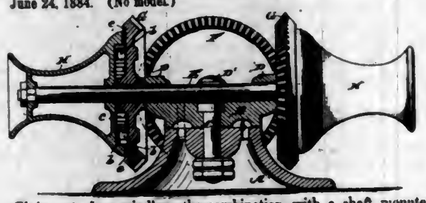
the shaft, the gear-wheels loose on the shaft, the pawls on the gear-wheels automatically engaging the ratchet-teeth on the drums, and means for operating the gear-wheels to impart a continuous rotary movement to one or both drums, substantially as described.

3. The combination, in a windlass, of the shaft, the two drums loose thereon and provided with the annular series of ratchet-teeth, clutches for rigidly connecting one or both drums to the shaft, the gear-wheels loose on the shaft, the pawls on the gear-wheels automatically engaging the ratchet-teeth on the drums, the intermediate gear for operating the gear-wheels and imparting a continuous rotary motion to one or more drums, and the friction-brakes acting on the drums, substantially as described.

4. The combination, in a windlass, of a shaft, two drums loose thereon and each provided with an annular series of ratchet-teeth, a pair of gear-wheels loose on the shaft and carrying pawls automatically thrown into engagement with the ratchet, means for holding the pawls of either gear-wheel out of engagement with its ratchet, and gear for oscillating said gear-wheels, substantially as described.

5. In a windlass, the combination of the shaft A, drums or barrels D D, having ratchet-teeth *c c*, the loose bevel-gears E E, carrying pivoted pawls *d d* for engaging said ratchets, the bars *p p*, and the intermediate bevel-gear, H, substantially as described.

311,371. WINDLASS. SAMUEL T. RICHARDSON, Baltimore, Md., assignor to the Richardson Manufacturing Company, same place. Filed June 24, 1884. (No model.)



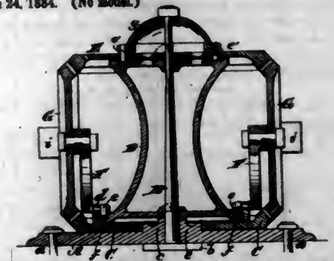
Claim.—1. In a windlass, the combination, with a shaft mounted in suitable bearings, of a pair of windlass-barrels secured to opposite ends of said shaft, and provided at their inner ends with internal ratchet-teeth, *c*, the bevel-gears G G, loosely mounted on the shaft at the inner ends of said barrels, and provided with a number of gravity-pawls, *b b*, and the intermediate gear, F, substantially as described.

2. In a windlass, the combination of a pair of windlass-barrels rigidly secured to a common axis or shaft, and provided at their inner recessed ends with internal ratchet-teeth, a pair of bevel-gears mounted loosely on the shaft, and each having a number of gravity-pawls for engaging the ratchets, and an intermediate bevel-gear arranged in a plane at right angles to the pawl-gears, substantially as described.

3. In a windlass, the combination of the shaft E, windlass-barrels H H, rigidly secured, and having internal ratchet-teeth, *c c*, the bevel-gears G G, each having a number of gravity-pawls, *b b*, pivoted in contact with bearing-lugs *d d*, and the intermediate gear, F, substantially as described.

4. In a windlass, the combination of a turn-table, a rotary shaft mounted thereon, a pair of windlass-barrels rigidly secured to said shaft and carrying at their inner ends a series of bevel-gears mounted loosely on the shaft, and having gravity-pawls for engaging the ratchets, and an intermediate bevel-gear journaled on the turn-table in a plane at right angles to the pawl-gears and meshing therewith, substantially as described.

311,372. CAPSTAN. SAMUEL T. RICHARDSON, Baltimore, Md., assignor to the Richardson Manufacturing Company, same place. Filed June 24, 1884. (No model.)

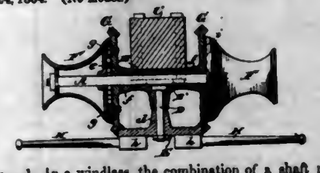


Claim.—1. The combination, with a capstan-barrel, of mechanism for converting an oscillatory movement into a continuous rotary movement, said mechanism consisting of loosely-pivoted gears arranged to inclose the capstan-barrel on four sides, and two of said gears being provided with pawls adapted to engage alternately with ratchets on the barrels, substantially as described.

2. The combination, in a capstan, of a rigid base-plate having a vertical spindle and a pair of bracket-bearings, a capstan-barrel mounted loosely on said spindle and provided with an annular ratchet at each end, a pair of horizontal gears loosely mounted on the spindle and carrying pawls adapted to engage with the ratchet, and a pair of vertical gears pivoted in the bracket-bearings and arranged to mesh with the horizontal gears, said vertical gears being provided with actuating-levers, substantially as described.

3. The combination of the base-plate A, having hub *c*, the spindle B, loosely-mounted barrel D, having ratchets *f f'*, horizontal gears C E, provided with pawls *e e'*, and the vertical gears G G, having levers H H, whereby an oscillatory movement of the gears is converted into a continuous rotary movement of the capstan-barrel, substantially as described.

311,373. WINDLASS. SAMUEL T. RICHARDSON, Baltimore, Md., assignor to the Richardson Manufacturing Company, same place. Filed June 24, 1884. (No model.)



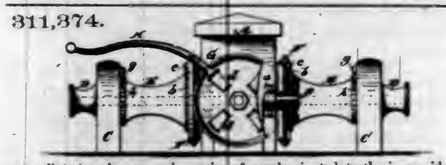
Claim.—1. In a windlass, the combination of a shaft mounted in suitable bearings and carrying a barrel at each end, said barrels being provided with ratchet-teeth, a pair of bevel-gears mounted loosely on the shaft at the inner ends of the windlass-barrels, and carrying pawls adapted to engage with the ratchets, and an intermediate bevel-gear pivoted in a plane at right angles with the pawl-carrying gears and arranged to mesh therewith, substantially as described.

2. In a windlass, the combination of the post or standard C, the bearing-plates B B', bolted thereto, one of said plates being provided with a tubular boss, *b'*, the shaft A, the windlass-barrels F F, rigidly secured thereon and provided with ratchets *e e*, the bevel-gears G G, mounted loosely on the shaft at the inner ends of the barrels, and having hubs *f f* and pawls *g g*, and the intermediate bevel-gear, E, having levers H H and hub *d*, said gear being journaled on a pin, D, supported in the tubular boss of the bearing B', substantially as described.

311,374. WINDLASS. SAMUEL T. RICHARDSON, Baltimore, Md., assignor to the Richardson Manufacturing Company, same place. Filed June 24, 1884. (No model.)

Claim.—1. In a windlass, the combination of a rotary shaft journaled in bearings on a main standard and supported in an additional bearing or standard at or near each end, a pair of windlass-barrels rigidly secured to said shaft and provided with ratchet-teeth at each end, a pair of bevel-gears loosely mounted on the shaft at the inner ends of the barrel, and having pawls for engaging the ratchet-teeth thereon, an

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intermediate bevel-gear, and a series of pawls pivoted to the inner side of the outer standards in position to engage with the ratchet-teeth on the outer ends of the barrels under back-strain thereon, substantially as described.

2. In a windlass, the combination of the main standard A, having abutment *f*, the outer standards, C C, provided with pawls *g g*, the shaft B, windlass-barrels E E, having ratchet-teeth *b b*, loose bevel-gears F F, having pawls *c c*, and the intermediate bevel-gear, G, having detachable hand-levers H H, substantially as described.

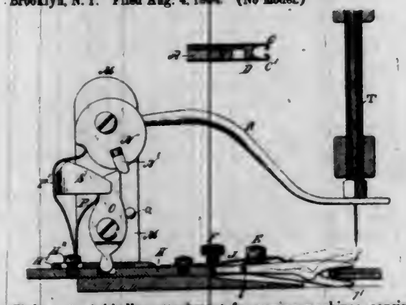
311,375. TOBACCO-PLANT SLITTER AND CUTTER. DAVID ROBINSON, Reynolds, Ill. Filed May 10, 1884. (No model.)



Claim.—1. In a tobacco-plant slitter and cutter, the combination, with the handle A, provided with the cross-pin H, of the stationary knife C, having the bent point F, and the sliding splitting-knife I, held to the handle A by a clasp, substantially as specified.

2. In a tobacco-plant slitter and cutter, the combination, with the handle A and cross-pin H, of the sliding splitting-knife I, held to the handle A, and provided with the inclined stop L', substantially as specified.

311,376. SEWING-MACHINE BINDING ATTACHMENT. CARL RUTZ, Brooklyn, N. Y. Filed Aug. 4, 1884. (No model.)



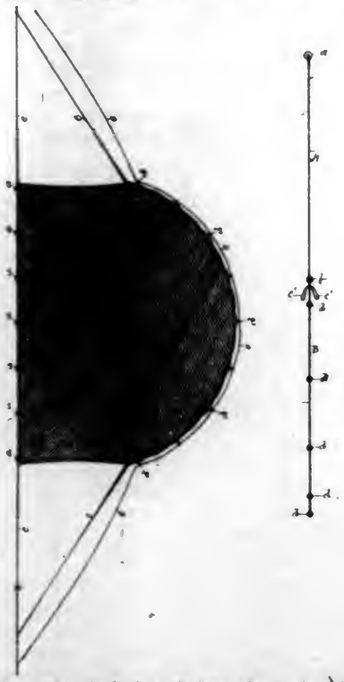
Claim.—1. A binding attachment for sewing-machines, consisting of a reciprocating bar adapted to move at a right angle to the line of movement of the fabric to be bound and to be actuated mediately by and in unison with the movements of the needle-bar, and which is provided with a terminal recess formed to embrace the edge of the fabric, substantially in the manner and for the purpose herein set forth.

2. In a binding attachment for sewing-machines, having a bed-plate adapted to be secured upon the cloth-plate of the machine with its front edge parallel to the line of feed, the combination, with said feed-plate and with a sliding bar reciprocating thereon at right angles to the line of feed and provided with a terminal recess adapted to embrace the edge of the fabric to be bound, of an oscillating lever adapted to be engaged and operated by the needle-bar and to actuate mediately the reciprocating bar, and a folding device projecting from the front edge of the bed-plate in advance of said bar, substantially in the manner and for the purpose herein set forth.

3. The combination, in a binding attachment for sewing-machines, with a reciprocating bar adapted to move intermittently at a right angle to the line of movement of the fabric to be bound, of arms pivoted longitudinally to said bar to project therefrom and embrace between their outer ends the edge of the cloth, and a spring-plate adapted to bear upon the upper arm and close it with an elastic pressure toward the lower arm, substantially in the manner and for the purpose herein set forth.

4. A binding attachment for sewing-machines, constructed of a bed-plate, A, a standard, M, a bar, H, sliding upon the plate at a right angle to its front edge, parallel arms I I', pivoted to said bar to move therewith beyond the front edge of the bed-plate, a spring bearing upon the upper arm, I, a lever, O, pivoted to the standard M and engaging at its lower end the reciprocating bar H to actuate the same, an eccentric, N, pivoted to the standard M, armed with a tooth, N', to engage the upper end of the lever O, an arm, R, projecting from the eccentric to be engaged by the needle-bar of the machine, and springs P and P', adapted, respectively, to actuate the eccentric N and lever O, all substantially in the manner and for the purpose herein set forth.

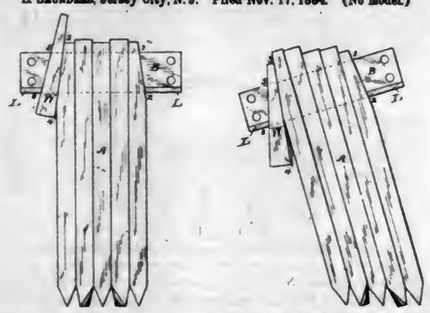
311,377. SEINE. STEPHEN B. SAWIN, New Bedford, Mass. Filed June 17, 1884. (No model.)



Claim.—1. A seine having at its lower edge a series of loops arranged in pairs, with the two of each pair close together, in combination with a pursing-apron attached to the seine and extending at its upper edge between the loops of each pair, and provided at its lower or outer edge with rings, and a pursing-line going through such rings, all being substantially and for use as set forth.

2. The combination of a seine and a series of loops projecting from its lower edges and arranged in pairs, with intervals or spaces between the pairs, with a pursing-apron extending at its upper edge between the loops of each pair, all being substantially as set forth.

311,378. DRILL-HEAD FOR CHANNELING-MACHINES. WILLIAM L. SAUNDERS, Jersey City, N. J. Filed Nov. 17, 1884. (No model.)

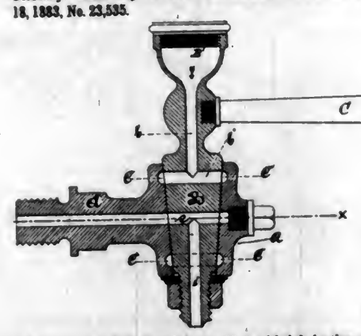


Claim.—1. In a reciprocating drill, the head B, having drill-receiving depression or recess in the side thereof, said recess being formed with a longitudinal plane surface, against which the drills rest, and beveled ends between which the said drills are secured, in combination with one or more drills having beveled outer faces and the removable wedge W, as described.

2. In a reciprocating drill, a head having drill-receiving recess or depression terminating in differentially-beveled ends, in combination with one or more drills, A, and the removable wedge W, as described.

3. In a reciprocating drill, the head B, having drill-receiving depression with differentially-beveled ends formed with the lip L, in combination with one or more drills, A, having beveled outer faces, and the wedge W, as described.

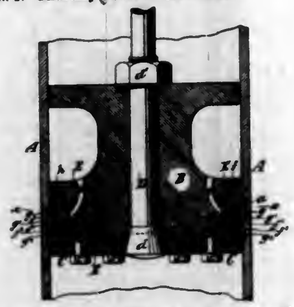
311,379. LUBRICATING-VALVE. MAX SCHNEIDER, Doos, Bavaria, Germany. Filed July 16, 1884. (No model.) Patented in Germany Jan 18, 1883, No. 23,535.



Claim.—1. A faucet-casing provided with lubricating-channels arranged, respectively, above and below the outlet-passage of the plug, and provided with means of communication, in combination with a plug turning in said casing, and means of supplying lubricants to said channels, substantially as set forth.

2. A rotary faucet-plug, B, provided with a lubricant-chamber, B', and passages *b b'*, for conducting the oil downward therefrom, in combination with casing A, provided with an annular channel, c, communicating with channel *b'*, before the outlet-passage of the plug, a similar channel, *c'*, below said passage, and vertical channels *d*, which allow the oil to pass from channel c down to channel *c'*, substantially as and for the purpose set forth.

311,380. PACKING FOR HYDRAULIC PISTONS. ALONZO B. SEE, Yonkers, N. Y. Filed May 28, 1884. (No model.)



Claim.—1. In a hydraulic piston, the combination, with the piston-body B, having water-passages *e*, and the follower C, of the packing consisting of the cup-leather E and a number of compound packing-rings surrounding the cup-leather, one above another, and each comprising an inner ring, *f*, of flexible material bearing on the cup-leather, and an outer metallic ring, *g*, composed of sections secured to the flexible ring, the several metallic rings forming the wearing-surface of the packing, and the several flexible rings forming a yielding support to the metallic rings, and serving to transmit to them the outward pressure of the cup-leather, substantially as herein described.

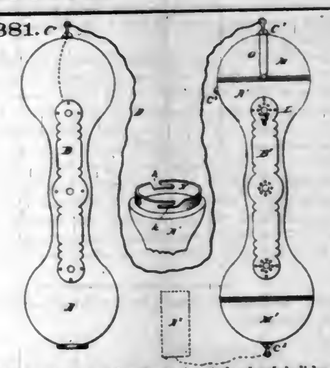
2. In a hydraulic piston-packing, the combination, with a cup-packing, of compound packing-rings surrounding said cup-packing, each compound ring consisting of an inner flexible ring and an outer metallic ring secured thereto, and clasps or clips connecting the several compound rings, substantially as and for the purpose herein described.

311,381. ELECTRICAL EXERCISING APPARATUS. JAMES H. SHAW, New York, N. Y. Filed Mar. 13, 1884. (No model.)

Claim.—1. The combination, in an electrical exercising apparatus, with a rheophore dumb-bell inclosing a battery, an induction-coil, and rheotome, and fitted with suitable manual contact-plates, of a separate electrode dumb-bell fitted with manual contact-plates, and a detachable insulated conducting-cord adapted to close a circuit from the battery or inductorium through said contact-plates and the body of the person grasping the two devices, all substantially in the manner and for the purpose herein set forth.

2. The combination, in a rheophore dumb-bell or exercising device, and with its induction-coil, of a metallic cylinder encircling the coil and insulated therefrom, and which is adapted to be moved back and forth

311,381. C

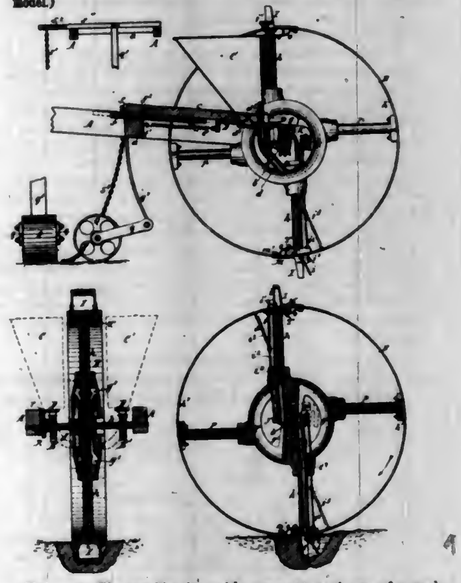


longitudinally thereon within the body of the dumb-bell by means of an outwardly-projecting pin, substantially in the manner and for the purpose herein set forth.

3. The combination, with the end of a rheophore dumb-bell or exercising device, and with a cap fitting thereon, and a battery-cell and inductorium inclosed therein, of a fixed metallic band encircling the seat of the cap, and notched to form a bayonet-joint with one or more pins on the cap, and adapted, by means of suitable conducting wires or plates connected thereto and to said pins, to produce an electrical connection between a binding-screw or contact-point on the cap and the cell and induction-coil of the rheophore, substantially in the manner and for the purpose herein set forth.

4. The combination, with an external manual contact-plate upon a rheophore dumb-bell or exercising device, and with the wires and conducting-strips arranged to close the primary circuit from the battery to the inductorium and through said contact-plate, of an external slide included in said circuit, and adapted by its movement to open and close the same, substantially in the manner and for the purpose herein set forth.

311,382. CORN-PLANTER. MARK A. SHELDON, Corry, Pa., assignor of one-half to Walter H. Starbird, same place. Filed June 11, 1884. (No model.)



Claim.—1. The combination, with a supporting-frame, of a seed-hopper secured to said frame, a seed-slide whereby the delivery of seed from the hopper is regulated, a spout extending below said slide, a supporting-wheel provided with an annular seed-conduit, which receives the grain from the discharge-spout, a hollow spoke, which conducts the seed from the annular conduit to the periphery of the wheel, a seed-chamber arranged at the periphery of the wheel, and a valve whereby the discharge of the seed from said chamber is controlled, substantially as set forth.

2. The combination, with the seed-hopper and frame, of a wheel, B, a seed-slide, D, provided with cogs *e*, and a gear-segment, E, having its

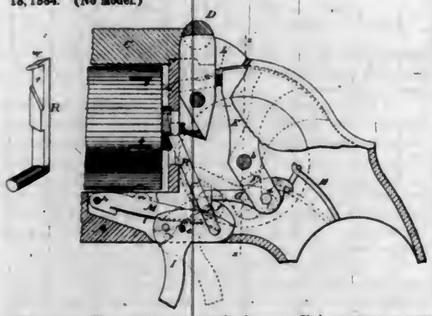
teeth extended rearwardly beyond the teeth of the slide to jar the latter, substantially as set forth.

3. The combination, with the supporting-frame, of a seed-hopper, C, secured thereto, a seed-slide, D, and spout *d*, a segment, E, whereby the slide is actuated, a wheel, B, provided with the annular seed-chamber *g'*, hollow spoke *h*, peripheral seed-receptacle I, hinged valve *i*, a cam, K, and a spring, i^3, whereby said valve is actuated, substantially as set forth.

4. The combination, with a wheel, B, having its rim provided with elongated holes *n n'*, having enlarged end portions, of the seed-receptacle I, constructed with studs *m m'*, having enlarged heads, and a spring, *o*, whereby the receptacle I is locked in position, substantially as set forth.

5. The combination, with the seed-hopper and frame, of the wheel B, composed of a cross-head, *g*, semicircular channels *g'*, hollow spokes *h*, peripheral rim *h'*, and peripheral seed-receptacles I, substantially as set forth.

311,383. REVOLVER. JOHN T. SMITH, Rockfall, Conn. Filed July 18, 1884. (No model.)

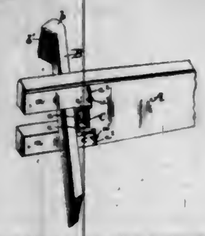


Claim.—1. The combination of the hammer E, hung upon a pivot within and inclosed by the frame, the dog G, hung in the hammer below its pivot, the mainspring H, engaged with one arm of said dog in rear of the hammer, the trigger I, constructed with the cam-shaped hook *f*, the forward arm of the dog G, constructed with a corresponding shoulder, with which said hook will engage to throw the hammer rearward, the lever M, hung forward of the trigger, its free end extending over the trigger, a spring, *i*, between said lever M and trigger, said lever constructed with one or more shoulders to engage a corresponding shoulder on the dog G, substantially as described.

2. The combination of the hammer E, hung upon a pivot in the frame, constructed with an arm, F, extending below its pivot, the dog G, hung in said arm F, and extending forward, constructed with a shoulder, *m*, its rear end to engage the mainspring, the lever M, hung forward beneath the cylinder and extending rearward, constructed with a shoulder, *l*, to engage the shoulder *m* of the dog G, to hold the hammer in the half-cock position, the said lever also constructed with a stop, *n*, the cylinder constructed with notches *o*, with which said stop *n* will engage, the trigger I, constructed with its hook-shaped nose *f*, and the spring *i* between the lever M and trigger, substantially as described.

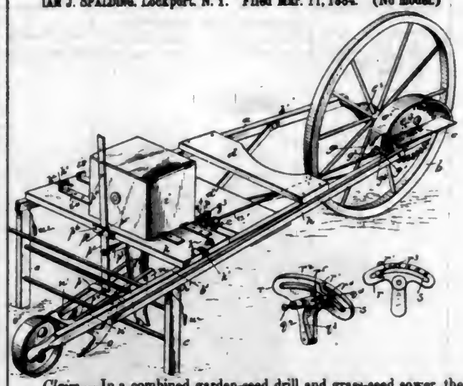
3. In a revolver in which the cylinder is rotated by a pawl extending from the mechanism within the arm through the recoil-plate to engage the ratchet on the cylinder, the pawl constructed with a recess, *r*, upon one side to form a shoulder, *w*, near its working end, and the recoil-plate constructed with a recess, *s*, and with a shoulder, *u*, therein corresponding to the shoulder *w* on the pawl, substantially as and for the purpose described.

311,384. IRONING-TABLE. BENJAMIN F. SNYDER, Middleburg, assignor of one-half to Harry S. Fuss, Franklin County, Pa. Filed Jan. 31, 1883. (No model.)



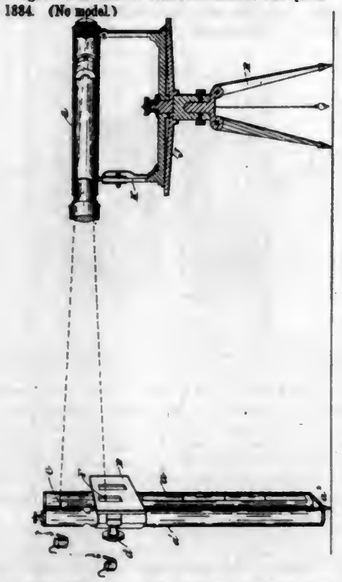
Claim.—The combination, in an ironing-board, of the leaf A, the rest B, and the hinge-bar C, said hinge-bar being attached to the leaf A and the rest B in the manner and relative positions herein shown and described, whereby the said leaf may be firmly adjusted to suitable supports of varying thickness, as hereinbefore set forth.

311,385. COMBINED GARDEN-DRILL AND SEED-SOWER. WILLIAM J. SPALDING, Lockport, N. Y. Filed Mar. 11, 1884. (No model.)



Claim.—In a combined garden-seed drill and grass-seed sower, the combination, with the frame of the machine provided with the board secured to the under faces of the side bars, and the barrow-wheel provided with the shouldered hub having the miter-wheel secured to its vertical face, of the operating-rod supported in a bearing on the strengthening-board, and provided at that end with a slotted gage, a pivoted angular indicator-arm, provided with an adjusting-bolt and thumb-nut, and a stud to which the pitman-rod is pivoted, and at the other end with a pinion and a pivoted arm connected with a pivoted lever at the side of one of the side bars, for throwing the pinion in and out of gear with the miter-wheel, substantially as specified.

311,386. SURVEYING-INSTRUMENT. CHARLES E. TAFT, Chicago, Ill., assignor of one-half to Charles V. Hickox, same place. Filed Mar. 10, 1884. (No model.)



Claim.—1. A stadium-rod having graduations thereon, and composed of two parallel rods or bars connected at top and bottom, and arranged with a narrow space between them, in combination with a centering-pin set in the bottom connection at the exact center of this space, substantially as and for the purposes set forth.

2. The stadium-rod A, consisting of the two parallel bars *a a'*, arranged a slight distance apart, and one of which is graduated, in combination with the cross-wire located at the zero-point of the graduated scale, and the sliding target D, provided with the opening *d'*, coinciding with the opening between the rod-bars and the cross-wire across the said opening *d'*, substantially as and for the purpose set forth.

3. The telescope provided with two horizontal wires, in combination with the stadium-rod, the cross-wire arranged at zero-point on the stadium-rod, and the sliding target provided with a central opening and a wire stretched across the same, all constructed and operating substantially as and for the purposes set forth.

311,387. RAILROAD-CHAIR. FRANCIS E. TAPLING, Mount Gilead, Ohio. Filed Apr. 3, 1884. (No model.)

Brief.—A rail-chair having its base formed of two sections, one of which wholly supports the rail and is provided with a tenon projecting laterally beyond the line of the rail into a mortise in the other section.



Claim.—1. A railway-chair consisting of the jaw or section D, having its upper end projected into and fitting the web of the rail, and having its lower side or base projected inwardly under the rail to a point in line with the opposite edge of the rail, and formed in its upper side with a seat, *d'*, adapted to wholly support the rail, and having a tenon, d^3, extended laterally from its inner edge out beyond the line of the rail and beyond the seat *d'*, and the section or jaw C, having its base arranged in a plane with the base of the section D, and having its upper end fitted into the web of the rail and its lower side abutted at its inner edge against the inner edge of the section D, and provided in said inner edge with a mortise, *c*, closed at its upper side and fitted to receive the tenon d^3, the said tenon d^3 and mortise *c* being engaged at a point lateral to the line of the rail, substantially as set forth.

2. In a railway-joint, the combination of the rail having the lower side of its bottom or base curved transversely, the chair-section D, having its upper side fitted into the web of the rail, and having its lower side extended under the rail to a point in line with the opposite edge of same, and provided in its upper side with a curved seat, *d'*, adapted to receive and wholly support the curved base of the rail, and a tenon, d^3, extended from its inner edge out laterally beyond the rail, and the chair-section C, having its upper end fitted into the web of the rail, and its lower side formed in a plane with the lower side of the section D, and provided in the lower side of its inner edge with a mortise or tenon, *c'*, closed at its upper side and fitted to receive the tenon d^3, the said mortise and tenon being engaged laterally to the line of the rail, substantially as set forth.

311,388. FABRIC FOR DECORATION. ROBT. H. THOMPSON, Brooklyn, N. Y. Filed Oct. 6, 1884. (Specimens.)

Claim.—1. The method of manufacturing an article for decorative purposes, consisting in taking cloth, paper, or an analogous material, applying thereto a coating of glue, paste, or other adhesive substance, applying granulated cork to said adhesive substance, next applying upon said granulated cork a coating of glue, paste, or other adhesive substance, and subsequently applying to said adhesive substance spangle, glass, or other decorative substance, substantially as described.

2. As an article of manufacture, the combination, with paper, cloth, or analogous material, of granulated cork applied thereto, and spangle, glass, powder, or paint applied to said cork, substantially as specified.

311,389. FABRIC FOR DECORATION. ROBT. H. THOMPSON, Brooklyn, N. Y. Filed Oct. 6, 1884. (Specimens.)

Claim.—1. The method of manufacturing articles for decoration, consisting in preparing corrugated or fluted paper by passing the paper through corrugating or fluting rollers, applying a strip of paper to the corrugated paper to stiffen the same, applying to one side of said corrugated paper a coating of glue, paste, or other adhesive substance, and subsequently applying granulated spangle or glass to said adhesive substance, substantially as specified.

2. As an article of manufacture, the combination, with corrugated or fluted paper, of granulated spangle or glass applied thereto, substantially as specified.

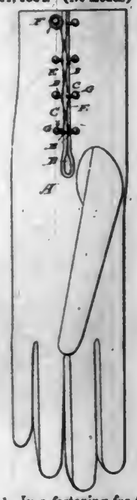
311,390. LINING FOR CARPETS. ROBT. H. THOMPSON, Brooklyn, N. Y. Filed Oct. 6, 1884. (Specimens.)

Claim.—1. The process of making a lining for carpeting consisting in applying a coating of glue, paste, or other adhesive substance to a floor, spreading granulated cork upon the adhesive substance, and subsequently allowing the same to set, substantially as specified.

2. The process of making a lining for carpeting consisting in applying a coating of glue, paste, or other adhesive substance to a floor, spreading coarsely-granulated cork upon the adhesive substance, allowing the cork and adhesive substance to become dry and set, subsequently applying a coating of glue, paste, or other adhesive substance to the first-named layer of cork, spreading upon the same a layer of finely-granulated cork, and subsequently allowing the same to set, substantially as specified.

3. The process of making a lining for carpeting consisting in applying a coating of glue, paste, or other adhesive substance to a floor, spreading a layer of granulated cork upon the adhesive substance, allowing the same to set, and subsequently spreading upon said cork a layer of paper or cloth and paper, substantially as specified.

311,391. GLOVE-FASTENING. JOHN H. VANTASSEL, New York, N.Y. Filed Oct. 11, 1884. (No model.)

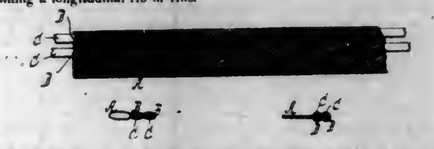


Claim.—1. In a fastening for the end of a lacing-cord, the combination of a button having a shank at its center, with a spring-washer secured at the end of the shank, and having its edges turned inward toward the shank to form a spring-cushion, as and for the purpose shown and set forth.

2. A fastening for the end of a lacing-cord, consisting of a concavo-convex disk, a shank passed through the center of the disk, and through the material to which the fastening is secured, and a sheet-metal spring-washer secured upon the end of the shank, and having its edges turned inward toward the shank to form a spring-cushion, as and for the purpose shown and set forth.

311,392. WEATHER-STRIP. GUSTAVUS G. WAGNER, Mount Vernon, N. Y. Filed Jan. 16, 1883. (No model.)

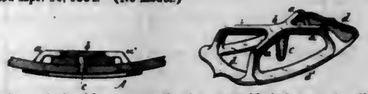
Brief.—A woven, knitted, or braided weather-strip having its tubular body formed integral with a longitudinal pocket or pockets containing a longitudinal rib or ribs.



Claim.—1. A woven, knitted, or braided weather-strip having its body formed integral with a longitudinal pocket or pockets containing a longitudinal rib or ribs, substantially as and for the purpose described.

2. A woven, knitted, or braided weather-strip having its body made tubular on one edge and integral with a longitudinal pocket or pockets containing a rib or ribs, substantially as and for the purpose described.

311,393. HARNESS-BUCKLE. ADDISON C. WALKER, Merrill, Wis. Filed Apr. 19, 1884. (No model.)



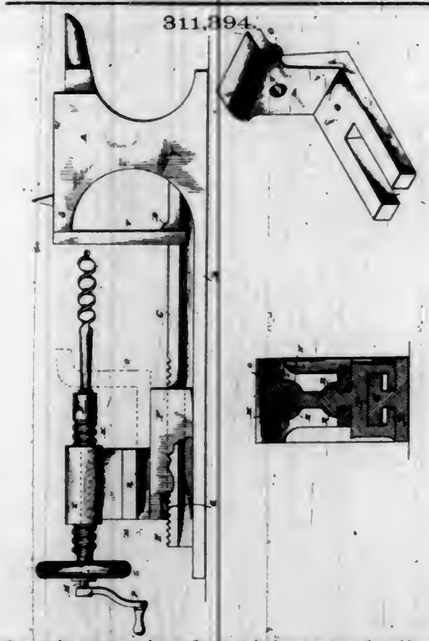
Claim.—A buckle composed of a four-sided frame, A, diagonal arms *a*, depressed below the frame, united at their inner ends, and connected at their outer ends to the corners of the frame, and forming end loops, *d*, and side loops, *d'*, therewith, and a fixed tongue, *c*, supported by said arms, substantially as set forth.

311,394. COMBINED ANVIL, VISE, AND DRILL. JAS. WEATHERS, Indianapolis, Ind. Filed May 8, 1884. (No model.)

Claim.—1. The combination, with an anvil having an extended base, of a guide-plate raised on the said extension, and a sliding carriage adapted to carry the vise and drill operating mechanism, and to travel on the said guide-plate, substantially as and for the purpose specified.

2. The combination, with an anvil having an extended base on which is raised a serrated or toothed guide-plate, of a carriage embracing and traveling on the guide-plate, the said carriage having inwardly-projecting flanges thicker at one end than at the other, a curved lower bearing-

311,394.



surface, and a transverse lug or flange on its inner surface, the said carriage carrying the vise and drill operating mechanism, substantially as and for the purpose specified.

3. The combination, with an anvil having an extended base on which is raised a guide-plate, of a sliding carriage, the upright thereon having a screw-threaded bearing on top, a hollow screw-shaft having on one end a hand-wheel, and the rod passing through the screw-shaft, and having one end enlarged into a tool-holding head and the other bearing a crank, all arranged to operate substantially as and for the purpose specified.

4. The combination, with an anvil having an extended base on which is raised a guide-plate, of the sliding carriage, the upright thereon having flanges on its sides, the screw-shaft and wheel operating through the upright, the headed rod passing through the shaft, and the movable vise-jaw having a slotted backward-extending base, all the parts arranged and operating substantially as and for the purpose specified.

5. The combination, with an anvil having an extended base on which is raised a guide-plate having a transverse flange near the anvil, of the sliding carriage, the drilling mechanism thereon, and the drill-bed straddling the guide-bed and bearing against the flange and against the rea of the anvil, substantially as and for the purpose specified.

6. The combination, with an anvil having an extended base on which is raised a guide-plate, of a carriage traveling on the guide-plate, the drilling mechanism thereon, and the movable vise-jaw having a hole through it for the purpose of supporting and guiding the drill, the parts being arranged and operating substantially as and for the purpose specified.

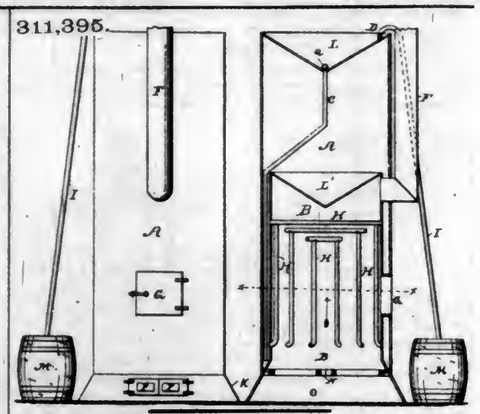
7. The combination, with an anvil having an extended base and a sliding carriage carrying the drilling and vise mechanism, of a T guide-plate formed integral with the base and having on its upper surface a series of serrations or teeth, substantially as and for the purpose specified.

8. The combination, with the anvil having an extended base, of the T guide-plate having serrations or teeth on top and a transverse flange, the sliding carriage, traveling and adjustable on the guide-plate, the flanged upright having screw-threaded bearings on top, the hollow screw-shaft having on one end a hand-wheel, the rod passing through the shaft, and having one end formed into a tool-holding head and the other bearing a crank, the movable vise-jaw slotted in its base to embrace the upright, and having a hole through it, and a drill-bed resting against the flange on the guide-plate and the rear of the anvil, all the parts arranged substantially as and for the purpose specified.

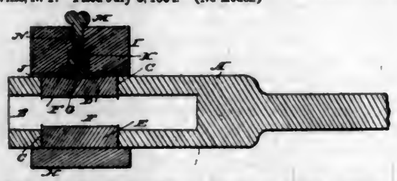
311,395. STEAM-GENERATOR. ANDREW WELTE, Atchison, Kans. Filed Apr. 18, 1884. (No model.)

Claim.—In a boiler, the combination, with the outer shell, A shaped with its top L like an inverted cone and its body a vertical cylinder, and the shell B within the shell A forming an annular space between the two shells, of the tube C, extending from the apex of the conical top L into the said annular space, and a self-closing ball-valve, G, substantially as shown and described, for the purpose specified.

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311,396. CHUCK FOR ROCK-DRILLS. CHAS. S. WESTBROOK, Sprague ville, N. Y. Filed July 3, 1884. (No model.)



Claim.—1. The combination of a piston-rod having a bore or perforation in its outer end formed with radial longitudinal slots in the sides of the bore, blocks fitting in the said slots, having concave cylindrical inner sides and thicker than the walls of the bore, projecting upon both sides of the same, a sleeve fitting loosely around the end of the piston-rod around the outer sides of the blocks, and means, substantially as described, for forcing one block inward and for causing the sleeve to force the diametrically-opposite block inward, as and for the purpose shown and set forth.

2. The combination of a piston-rod having a bore or recess in its outer end, formed with radial longitudinal slots in the sides of the bore, blocks having concave cylindrical inner faces fitting in the said slots and projecting upon both sides of the same, a sleeve fitting loosely around the end of the piston-rod and around the outer sides of the blocks, having a longitudinal web or enlargement at one side, and having a transverse slot or perforation through the said web, communicating at its middle with the bore or perforation of the sleeve, and a key or wedge fitting in the said perforation and bearing with its inner side against one of the blocks, as and for the purpose shown and set forth.

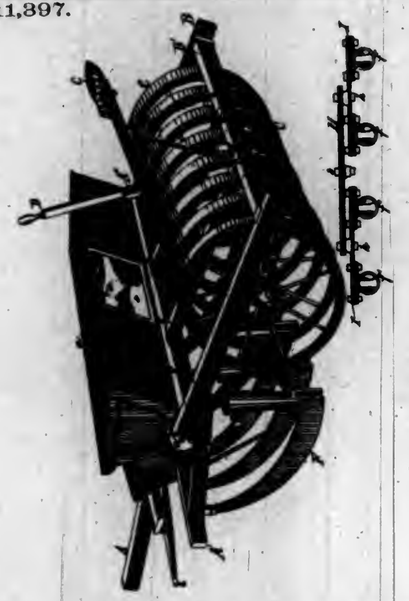
3. The combination of a piston-rod having a bore or recess in its outer end formed with diametrically-opposite longitudinal slots in the sides of the bore, blocks fitting in the said slots, having their inner faces concave and cylindrical, and projecting with their inner and outer sides at both sides of the walls of the bore, one of the said blocks having a transverse notch or groove in its outer face, a sleeve fitting loosely around the end of the piston-rod and around the outer sides of the blocks, having a longitudinal web or enlargement at one side, having a longitudinal groove in the side of its bore upon the inner side of the web, and having a transverse slot or perforation intersecting the said longitudinal groove, and a wedge or key fitting in the slot, as and for the purpose shown and set forth.

4. The combination of a piston-rod having a bore or recess in its outer end, formed with diametrically-opposite longitudinal slots in the sides of the bore, blocks fitting in the said slots, having their inner faces concave and cylindrical, and projecting with their inner and outer portions at both sides of the walls of the bore, one of the said blocks having a transverse notch or groove in its outer face, a sleeve fitting loosely around the end of the piston-rod and around the outer portions of the blocks, having a longitudinal web or enlargement, and a longitudinal groove in the side of its bore upon the inner side of the web, having a transverse slot or perforation intersecting the said longitudinal groove, and having a threaded perforation opening into the said slot, a wedge or key fitting in the slot or perforation, and a set-screw fitting in the threaded perforation, as and for the purpose shown and set forth.

311,397. GRAIN-DRILL. JOHN M. WESTCOTT, Richmond, Ind., assignor to the Hoosier Drill Company, same place. Filed Sept. 6, 1884. (No model.)

Claim.—1. In a grain-drill composed, substantially, of a main frame, B, supported on the series of covering-wheels C, and hinged to the supplemental frame A, and the tongue B, rigidly secured to the supplemental frame, in combination with the runner F, hinged at their front ends to the supplemental frame and at their rear ends to an evener-bar, H, which is in turn secured to the supplemental frame, substantially as specified.

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2. In a grain-drill composed, substantially, of a main frame, B, supported upon a series of ground-covering wheels and hinged to a supplemental frame rigidly connected to the tongue, in combination with the said runners F, hinged to the supplemental frame at their front ends and to an evener-bar, H, at their rear ends, and a locking-lever, D, journaled upon the axle of the main frame for operating the runner-frame, substantially as specified.

3. In combination with the main frame B, the bell-crank lever D, journaled on the main axle, said lever being loosely hinged to the main frame, and provided with locking devices for locking the frames together and allowing the runners F to vibrate vertically with the pivoted evener-bar H, substantially as described.

4. The combination, with the main frame, of the seed-frame rigidly connected to the tongue and hinged to the said main frame, supported on runners F, hinged at their front ends to the frame, and connected to supplemental evener-bar I, and pivoted on evener-bar H, whereby the runners automatically accommodate themselves to the unevenness of the ground by a vertical motion on the bar I in series of two.

5. In combination with the seed-frame, the runners F, pivoted at their front ends, and connected at their rear ends to a supplemental bar, I, which is pivoted to the evener-bar H, pivotally attached to the rear of the said frame, substantially as specified.

6. The combination, with the main frame B, of the seed-frame A, hinged to the main frame, the lifting-lever D, journaled on the main frame adapted to lift the shoes and tilt the seed-frame, and the latch P, pivoted on the seed-frame and operating the unshipping mechanism by the tilting of the hinged frame, substantially as described.

7. In combination with the feed-shaft J, the sliding clutch L, and shipping device N O, arranged upon the seed-frame, so as to be operated by the oscillation of the main frame when lever D is moved backward to elevate the runners, substantially as specified.

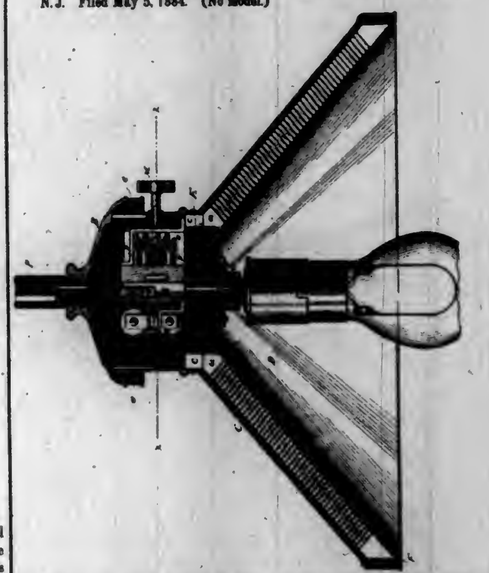
8. In combination with the clutch L, the shipping mechanism N O, mounted upon the oscillating frame and pivoted in a bearing, and adapted to be lifted by the contact of the main frame for unshipping the clutch L, when the runner-frame is raised by the lifting-lever, substantially as herein set forth.

9. In combination with the oscillating main frame mounted upon the covering-wheels, and the seed-frame hinged thereto, the shipping mechanism N O, clutch L, and shifting-latch P, mounted upon the seed-frame and automatically operated by the lever mechanism mounted upon a main frame in unison with the raising and lowering of the seed-frame, substantially as herein set forth.

10. In combination with the lid Q of the seed-box, the eccentric hinge-joint uniting the lid to the box, whereby they occupy the same vertical plane when raised, and the lid moves back to form a cover when lowered, substantially as specified.

11. In combination with the box A and lid Q, the hinge-joint composed, substantially, of the slots R T and pins S t, constructed substantially as specified.

311,398. ELECTRIC-LAMP FIXTURE. EDWARD WESTON, Newark, N. J. Filed May 5, 1884. (No model.)



Claim.—1. The combination, with a fixture or casing having means for the attachment of an electric lamp thereto, of an artificial resistance contained in said casing, and means for ventilating or cooling the same.

2. The combination, in and with a fixture or casing having means for the attachment thereto of an electrical lamp, of an artificial resistance, means for ventilating or cooling the same, and an automatic switch or cut-out for operating the resistance, as set forth.

3. The combination, with a fixture or casing having means for the attachment thereto of an incandescent lamp, and formed as a reflector for the lamp, of an artificial resistance and circuit-controlling mechanism contained within said casing, as and for the purpose specified.

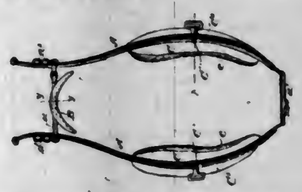
4. The combination, with a fixture or casing for electric lamps, and formed as a reflector, of a coil equal in resistance to that of a lamp, and means for substituting the same for a lamp, all substantially as herein described.

5. A casing or fixture for incandescent lamps containing resistance-coils and circuit-controlling mechanisms, and provided with ventilating-passages, as and for the purpose specified.

6. The combination, with the cylindrical portion of the fixture or casing herein described, and the circuit-controlling devices contained therein, of the lower portion formed as a reflector, and the resistance-coils inclosed by the same, as and for the purpose specified.

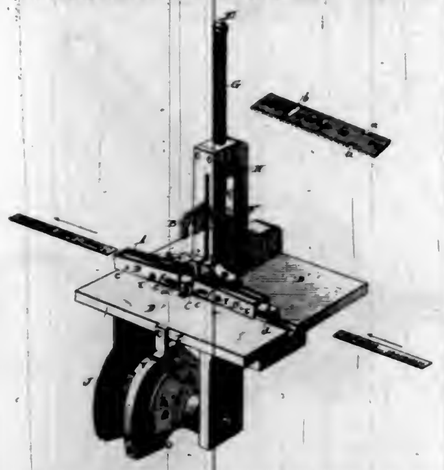
7. The combination, with the cylindrical portion of the fixture or casing herein described, and the circuit-controlling devices contained therein, of the lower portions formed as a reflector, the resistance-coils inclosed by the same, these parts being constructed and arranged to permit the circulation of air through the fixture, as and for the purpose specified.

311,399. HARNESS. EPPINGER E. WHIPPLE, Eaton Rapids, Mich. Filed Sept. 28, 1883. (No model.)



Claim.—The combination, with the hames A, of shoulder-pads C and bolts C', pivotally connecting the pads with the hames, whereby the said pads are adapted to rotate in the direction of the plane of their bearing-surfaces, substantially as described.

311,400. MACHINE FOR JUSTIFYING MATRIX-STRIPS. JOHN H. WHITE, Washington, D. C., assignor, by direct and mesne assignments, to the National Typographic Company, of West Virginia. Filed Mar. 19, 1883. Renewed Nov. 12, 1884. (No model.)



Claim.—1. In a machine for justifying strip-matrices, the fixed support having notches in opposite sides, combined with a forked incising-knife acting from above, substantially as described.

2. In combination with the fixed matrix-support, clamping or holding device, the incising-knife acting from above, and the anvil or bending device acting from below.

3. In a justifying-machine, the combination of a stationary bed or support having notches in its opposite edges, clamping or holding devices, and an anvil or bending device arranged to ascend through the support between the notches, substantially as described, whereby the bending and shortening of the previously-incised strip are effected.

4. In combination with a matrix-support, the jaws or clamps adapted, as described, to engage with the matrix and move toward each other for the purpose of folding or doubling said matrix at the intermediate point.

5. In combination with the matrix-support, a movable anvil acting to bend the matrix, and movable clamping devices acting to force the two ends of the matrix toward each other from opposite sides of the anvil.

6. The combination of the matrix-support, the knife and the anvil acting from opposite directions, and the clamps or jaws acting to force the two ends of the matrix toward each other.

7. In a machine for justifying matrix-strips, the combination of two jaws or clamps to engage said strip, and mechanism, substantially as described, whereby said jaws are caused to recede, engage the strip, and finally move toward each other while in engagement therewith, whereby that portion of the strip between the clamps is folded or shortened.

8. The method of shortening or justifying matrix-strips in line form, the same consisting in engaging the strips on opposite sides of a given point and urging the two ends forcibly together, whereby the intermediate portion is doubled or shortened.

9. The combination of the matrix-support, the incising-knife and the anvil acting in opposite directions, the two clamps, and mechanism, substantially as described, for operating said knife, anvil, and clamps in the order named.

10. In combination with the incising-knife, the operating-cam K, and the two springs G and H.

11. In combination with the incising-knife and its spindle, the depressing-cam K and the elevating-cam P.

12. In a justifying-machine, the combination, with a matrix-holding mechanism, of the anvil or bending device C and the actuating-cam V, substantially as described.

13. In combination with the movable anvil, the elevating-cam V and depressing-cam W, arranged to act successively and alternately, as described.

14. In combination with the matrix-support, the vertically and horizontally moving jaws D, levers X, and the cams and springs for imparting motion to said levers.

15. In combination with the matrix-support, the longitudinally and vertically movable clamp connected thereto by means of the pins and curved slots, substantially as described.

16. In combination with the matrix-support, the movable jaws or clamps D, provided with slots or openings in their upper sides for the purpose of exposing the letters or characters of the matrix.

17. In combination with the incising-knife, the anvil, and the movable jaws, the single shaft I, provided with cams for imparting motion to said parts, substantially as described and shown.

18. In combination with the matrix-support A, the paper-clamps of substantially a ∩ form in cross-section, and means, substantially as described, whereby said clamps are caused to move vertically and longitudinally.

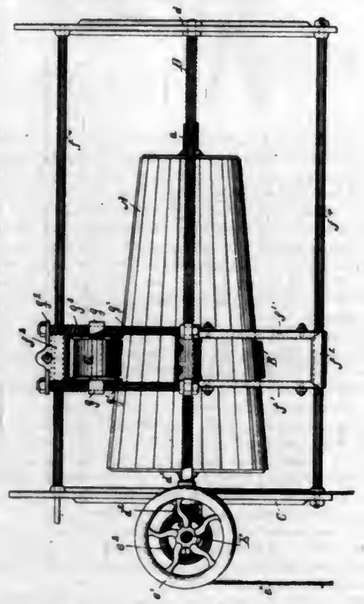
19. In combination with the matrix-support having longitudinal grooves in its side faces, the substantially ∩-shaped clamps D, connected at their onter ends with said grooves and connected at their forward ends with the support by means of pins, and curved slots, as described, whereby the clamps are caused to descend during the forward movement, and vice versa.

20. In combination, with the matrix-support and the longitudinally-sliding clamps, the transverse pins Y and operating-lever X, as described and shown.

311,401. PAINT. WILLIAM H. WILBER, Buffalo, N. Y., assignor of one-half to Philip P. Seeber, same place. Filed Mar. 27, 1884. (No specimens.)

Claim.—A priming-paint compound composed of liquid asphaltum, rosin, linseed-oil, turpentine or naphtha, and white lead, in their relative proportions substantially as set forth.

311,402. CONE-PULLEY. JAS. WITHINGTON, Chambersburg, assignor to the Trenton Iron Company, Trenton, N. J. Filed June 3, 1884. (No model.)



Claim.—1. In combination, a pair of cone-pulleys, an endless belt traveling thereupon, the belt-shifting frames for controlling the position of said belt upon said pulleys, the screw-shafts for actuating said belt-shifting frames, the counter-shaft, and the miter-gears for connecting the screw-shafts with the counter-shaft, substantially as set forth.

2. In combination, the cone-pulleys, the endless belt, the belt-shifting frames provided with belt-tightening rolls, the screw-shafts, the counter-shaft, and the miter-gears for connecting said shafts, substantially as set forth.

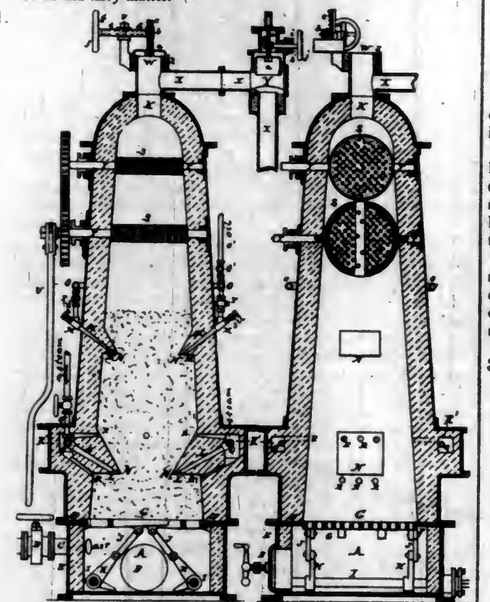
3. The combination, to form a belt-shifting contrivance, of the belt-shifting frames, the guide-rods, the screw-shafts, the counter-shaft, miter-gears connecting said counter-shaft with the screw-shafts, and the hand-wheel and rope for imparting motion to the counter-shaft, substantially as set forth.

4. The combination, to form a belt-shifting contrivance, of the belt-shifting frames, the guide-rods, the screw-shafts, the counter-shaft, miter-gears connecting said counter-shaft with the screw-shafts, means for imparting rotation to the counter-shaft, the cone-pulleys, and the endless belt, substantially as described.

5. In combination with the vertical bars, suitably connected together by the yoke-sleeves, and provided with threaded sleeve-bearings, the vertical rods, slide-bearings, springs, and belt-tightener roll carried by said slide-bearings, substantially as set forth.

311,403. FURNACE FOR GENERATING ILLUMINATING-GAS. S. I. ANTHONY, New York, N. Y. Filed May 20, 1884. (No model.)

Brief.—Steam is superheated and decomposed in the lower part of the generator, and the resulting gas is carbureted and fixed in the upper part thereof. The perforated tile or fire-brick strainers in the upper part of the furnace serve to heat the gas and to remove from it the lamp-black and tarry matter.



Claim.—1. In combination with the fixing-chamber of a gas-generator, the perforated tile strainer provided with means whereby it may be placed horizontally across the chamber or tilted at any desired angle, for the purpose described.

2. In combination with a gas-generating furnace, the perforated strainer provided with journals or shafts fitted in the walls of the furnace above the fuel-chamber, and means for operating such shafts, for the purpose described.

3. In combination with a gas-generating furnace, the perforated strainers composed of refractory material fitted within a metallic band, and provided with means for supporting it in the walls of the furnace and permitting it to oscillate as required, for the purpose set forth.

4. In combination with a gas-generating furnace, the tile-guides projecting from the walls into the feed-chamber a short distance above the grate, the steam-nozzles passing through such guides, and connected steam-supply pipe, whereby steam to be decomposed is delivered into the central portion of the fuel.

5. In combination with a gas-generating furnace, the projecting tile-guides and steam-nozzles, the heating chamber or channel formed in the wall of the furnace and connected with the fuel-chamber by suitable passages, and the steam-supply pipe placed in such heating channel, as set forth.

6. The wall of the generating-furnace formed with a surrounding enlargement provided with a heating-chamber extending around the fuel-chamber and connected therewith by passages, in combination with the steam-superheating pipe laid in said heating-chamber, and the steam-nozzles.

7. The annular heating-chamber connected with the fuel-chamber by upper and lower passages, in combination with the projecting tile-guides, the steam-superheating pipe, and supply-nozzles, arranged as described.

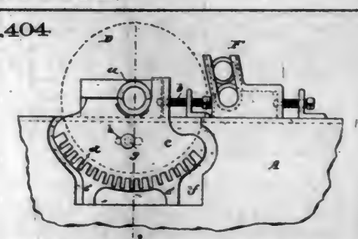
8. In combination with a gas-generating furnace, the projecting tile-guides near the base provided with steam-supply nozzles, and the projecting tile-guides near the top of the fuel-chamber provided with oil-supply nozzles, for the purpose described.

9. In combination with a gas-generating cupola, the lower and upper tile-guides, provided, respectively, with steam and oil nozzles, and the perforated strainers located in the fixing-chamber of the cupola, for the purpose described.

311,404. CARDING-MACHINE. ABEL T. ATHERTON, Lowell, Mass. Filed Apr. 29, 1884. (No model.)

Brief.—The grid beneath the "leader" roll and conforming in curvature thereto is made adjustable in unison with the leader-roll when-

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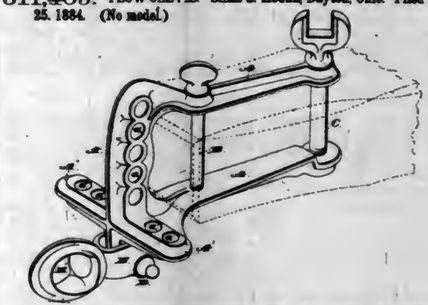


ever by reason of the wear of the teeth of carding-cylinder or licker-in it is necessary to set the latter nearer to the former.

Claim.—1. The combination, with that one of the licker-in rolls known as the "leader," the boxes by which said roll is carried, the supporting-frame, and means for longitudinally adjusting the boxes on said frame, of a grid connected to said boxes substantially in the manner hereinbefore set forth, whereby the grid shall move with said boxes when the latter are adjusted longitudinally of the machine.

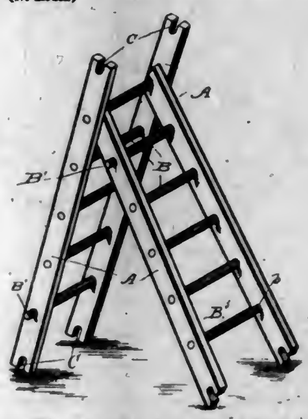
2. The combination of the frame, the grid composed of grid-bars and rack-plates supported and capable of longitudinal movement in recesses in said frame, and the longitudinally-adjustable leader-roll boxes engaging the said rack-plates, under the arrangement and for operation substantially as hereinbefore set forth.

311,405. PLOW-CLEVIS. SILAS S. ARGER, Dayton, Ohio. Filed Sept. 25, 1884. (No model.)



Claim.—A plow-clevis constructed from one piece, and having a vertical front end and lateral wings, each of which parts is provided with openings for the insertion of a bolt, in combination with a supplemental swivel-clevis, substantially as and for the purpose shown.

311,406. LADDER. HOBART AYERS, Clinton, Iowa. Filed June 27, 1884. (No model.)



Claim.—1. The combination, in a ladder, of sides so sloping that the narrow end of one section fits within the wider end of any other section, with slots C C, and the bar B, having projections B' B', and bar B'', having shoulder or smaller portion *b b*, all substantially as described, and for the purpose specified.

2. The combination, in a ladder, of sides so sloping that the narrow end of one section fits within the wider end of any other section, with slots C C, spring-catch D, and the bar B, having projections B' B', and the bar B'', having smaller portion or shoulder *b*, all substantially as described, and for the purpose specified.

311,407. MEANS FOR CONVERTING RECIPROCATING INTO ROTARY MOTION. HENRY H. BARNARD, Syracuse, N. Y., assignor of one-half to John D. Gray, same place. Filed Dec. 13, 1884. (No model.)



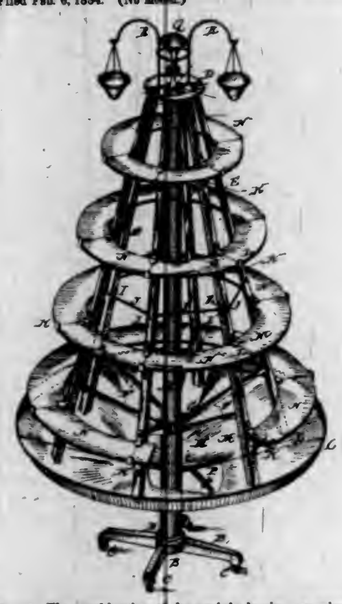
Claim.—1. As a means for imparting intermittent rotary motion to a wheel mounted loosely on its axial support, a clutch adapted to alternately engage and release the wheel, a reciprocating rod connected with said clutch, and a brake-band encircling the wheel, and having one end rigidly and the opposite end yieldingly attached to the axial support of the wheel, substantially as described and shown.

2. In combination with the feed-wheel W, its axial support, and mechanism for imparting intermittent motion to said wheel, a brake band or wire encircling the feed-wheel, and having one end rigidly attached to the axial support, and a spring connecting the opposite end of said band or wire with said axial support, substantially as and for the purpose set forth.

3. In combination with the supporting-ring A, the feed-wheel W, provided with the circumferential groove *a*, the band or wire *b*, lying in said groove and rigidly connected at one end to the ring A, and the spring *s*, connecting the opposite end of the band or wire with the said ring, substantially as described and shown.

4. In combination with a wheel and reciprocating mechanism for rotating said wheel, a friction band or wire encircling the wheel or its hub, and arranged to alternately engage and release said wheel automatically with the movement of the reciprocating mechanism, substantially as set forth and shown.

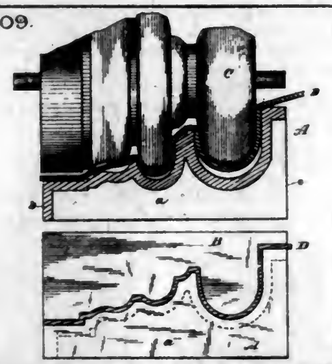
311,408. REVOLVING FLOWER-STAND. WILLIAM BUTCHER, York, Pa. Filed Feb. 6, 1884. (No model.)



Claim.—1. The combination of the upright having an enlargement or shoulder at its lower portion, the collar or cap at the upper end of the upright, the arms hinged to the said collar or cap at their upper ends, the collar sliding upon the upright, and the braces hinged to the collar, and hinged to the arms in a plane above the shoulder upon the upright, as and for the purpose shown and set forth.

2. The combination of the upright having an enlargement or shoulder at its lower portion, the collar or cap at the upper end of the upright, the arms hinged at their upper ends to the said collar or cap, and having eyes upon their sides, the collar sliding upon the upright, the braces hinged to the collar and hinged to the arms in a plane above the shoulder of the upright, and the hooked rods, as and for the purpose shown and set forth.

311,409. PROCESS OF MAKING MOLDINGS, &c., FROM PAPER, &c. BENNIVILLE BUTZ and OLIVER J. PFLUEGER, Allentown, Pa. Filed Dec. 3, 1884. (No model.)



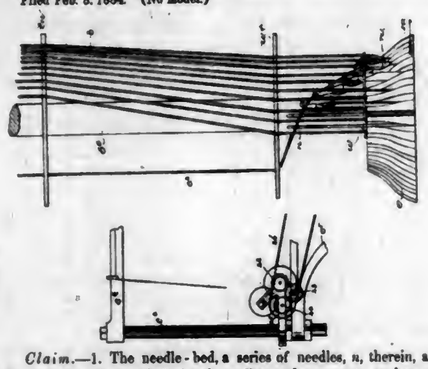
Claim.—1. The process herein described of making molding which consists in placing paper or other like material between two dies the upper one of which possesses sufficient specific gravity independent of other mechanical devices to gradually and uniformly press the material into the lower die, substantially as and for the purpose described.

2. The process of manufacturing paper and other like moldings which consists in dampening the material, placing it upon a female die, and passing a male die of cylindrical shape over the same, to partly press the material into the female die, and then placing a male die upon the material which is of sufficient specific gravity to gradually and uniformly press the same into position, and then subjecting the whole to the action of a drying agent, substantially as and for the purpose described.

3. The combination of a female die of uniform thickness with a male die of the herein-described specific gravity, substantially as specified.

4. The female die A, having the hollow chamber *a*, and side and end walls, *b* and *c*, substantially as and for the purpose set forth.

311,410. KNITTING-MACHINE. CORNELIUS CALLAHAN, Chelsea, Mass. Filed Feb. 8, 1884. (No model.)

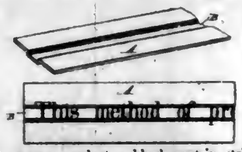


Claim.—1. The needle-bed, a series of needles, *n*, therein, and means to rotate the needle-bed and needles, and means to reciprocate the said needles, combined with the rod b^6, and stationary throwing-out cam-plate *w t*, made as a thin plate provided with the circular parts 33, against which the warp-threads take bearing wholly above the tops of the said needles when in their most elevated positions, the said circular part being substantially equal in length to the distance between the highest needle and the lowest needle along the series of descending needles, or those acting to draw down the knitting-thread, substantially as described.

2. The needle-bed, a series of needles, *n*, therein, and means to rotate the needle-bed and needles, and means to reciprocate the said needles, combined with the rod b^6 and stationary throwing-out cam-plate *w t*, made as a thin plate provided with the circular parts 33, against which the warp-threads take bearing wholly above the tops of the said needles when in their most elevated positions, the said circular part being substantially equal in length to the distance between the highest needle and the lowest needle along the series of descending needles, or those acting to draw down the knitting-thread, and with the fixed take-up cam-plate *t u*, having circular portions substantially as described, the circular portions being arranged with relation to each other as and for the purposes set forth.

3. The needle-bed, needles therein, warp-throwing-out cam, and means to support it, combined with spools to supply the knitting-thread, drums upon which the said spools rest, and with means to rotate the said drums and spools to feed the knitting-thread as required by the needles, substantially as set forth.

311,411. MATRIX FOR PRINTING-SURFACES. JAMES O. CLEPHANE, Washington, D. C., assignor to the National Typographic Company, of West Virginia. Filed July 26, 1883. Renewed Nov. 12, 1884. (No model.)

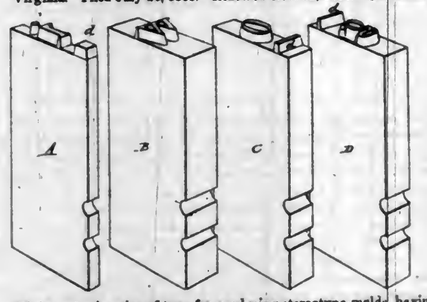


Claim.—1. As a new product, a blank matrix strip or sheet for stereotyping purposes, grooved or channeled to receive the impression of the type, with elevated marginal surfaces to receive the mold or casting-frame.

2. As a new article of manufacture, a blank matrix of paper or equivalent material, provided with a longitudinal groove or channel of relatively narrow width adapted to receive the impressions of the type therein.

3. The matrix consisting of a strip or sheet provided with a groove or channel and with letters or characters sunk therein, the body portions of said characters being within the groove and the remaining portions extended beyond the same into the margin of the strip.

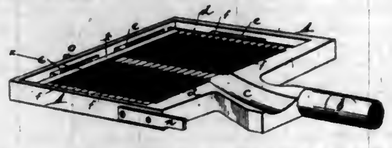
311,412. TYPE FOR MATRIX-MAKING. JAMES O. CLEPHANE, Washington, D. C., assignor to the National Typographic Company, of West Virginia. Filed July 26, 1883. Renewed Nov. 12, 1884. (No model.)



Claim.—1. A series of type for producing stereotype-molds, having their surfaces equalized in area by supplemental projections or surfaces applied to or combined with those of small area.

2. A raised type for producing a mold or matrix, having on its operative end a supplemental raised portion, substantially as described, to increase the resistance offered to the impression or indentation of the type into the material from which the cast is to be taken.

311,413. CASTING APPLIANCE FOR STEREOTYPE-BARS. JAMES O. CLEPHANE, Washington, D. C., assignor to the National Typographic Company, of West Virginia. Filed Aug. 20, 1883. Renewed Nov. 12, 1884. (No model.)



Claim.—1. A mold-frame for producing a series of independent printing-bars, the same consisting of detachable shouldered bars, a frame encircling the same, and intermediate quoins or fastening devices, substantially as described.

2. The combination, substantially as herein described, of the continuous inclosing-frame, the internal-shouldered bars *d*, and the quoins or tightening devices.

3. In a mold for casting stereotype-bars in series, the combination, substantially as herein set forth, of the encircling-frame, the series of internal-shouldered bars, devices for applying pressure to said bars in a lateral direction, and devices for applying pressure to said bars in an endwise direction.

4. In a casting frame or mold, a series of detachable bars provided with shoulders or offsets both at the end and at the middle, substantially as described, whereby each pair of bars is adapted to the formation of two castings.

5. In a mold for casting stereotype-bars, the mold-bars provided with shoulders or offsets at the ends and at the middle, and with a central depression for the admission of the liquid metal.

6. In an apparatus for casting stereotype-bars, a base-plate, C, provided with longitudinal shoulders or guides *k'*, and with a transverse guide, *l*, rabbeted or undercut, as described.

7. In combination with the matrix-sheet having the indented lines or strips thereon, the bed-plate provided with guides *k* and *l*, adapted to engage the edges of the sheet, as described and shown.

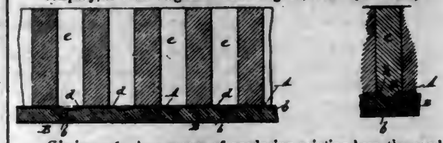
8. In combination with the matrix-supporting plate provided with guides *p*, the mold-frame provided with longitudinal guides *n* and *o*, whereby the mold-frame may be secured against lateral movement, but permitted to move endwise.

9. In combination with the matrix-supporting plate and the mold-frame, adjustable stop devices, substantially as described, whereby the mold-frame may be adjusted relatively to the matrix.

10. In combination with a mold-frame having a series of slits or openings therein, the plate C, provided with means, substantially as described, for securing the matrix-sheets firmly in position thereon, and means, substantially as described, for guiding and adjusting the mold-frame with respect to the other parts.

11. The combination, substantially as herein described, of the matrix-sheet, the mold-frame containing a series of slits or openings, and the intermediate slotted plate constructed of metal, as contradistinguished from a plate of papier-mache or other non-conducting material.

311,414. MEANS FOR PRODUCING PRINTING-SURFACES. JAMES O. CLEPHANE, Washington, D. C., assignor to the National Typographic Company, of West Virginia. Filed Aug. 11, 1883. (No model.)

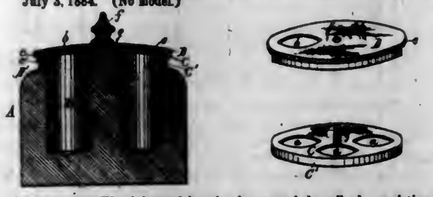


Claim.—1. As a means of producing printing-bars, the combination of a grooved bed plate or support and a metallic or other matrix-strip having indented characters seated in the grooved portions of the plate, and having its edges sustained upon the face of said plate.

2. The bed-plate provided with grooves or channels, combined with the matrix having characters formed in relief on its back, and seated in its grooves, and the slotted mold-frame seated on the edges of the matrix outside of the grooves.

3. The mold having the transverse grooves *c*, with chamfered edges *g*, in combination with a matrix-strip of corresponding form, as set forth.

311,415. INKSTAND. THOMAS B. CLEVELAND, Newark, N. J. Filed July 3, 1884. (No model.)

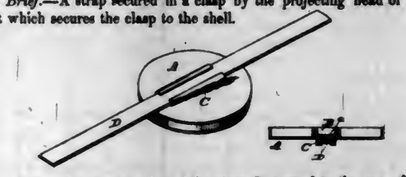


Claim.—1. The inkstand herein shown and described, consisting in the solid body A, formed in one piece, with compartments B, the cap C, cemented thereto, and provided with the openings corresponding to the compartments, and the cover D, pivoted thereon, and provided with the packing *e* and aperture *b*, as and for the purpose set forth.

2. The combination, with the solid body A, formed in one piece, and constructed with compartments, as described, of the cap C, formed with collar C' to hold the cement, and having openings *a a*, the cap being applied to the body, so that the openings will register with the compartments, and the pivoted cover provided with packing *e* and aperture *b*, as and for the purpose set forth.

311,416. RAILROAD-TORPEDO. JEFFERSON M. CLOUGH, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. Filed May 5, 1884. (No model.)

Brief.—A strap secured in a clasp by the projecting head of the rivet which secures the clasp to the shell.



Claim.—The combination of the clasp C, secured to the case of the torpedo by a rivet, *a*, projecting within said clasp, and the strap D, laid within the clasp upon the rivet, the said rivet engaging the strap, and the sides of the clasp closed upon the strap, substantially as described.

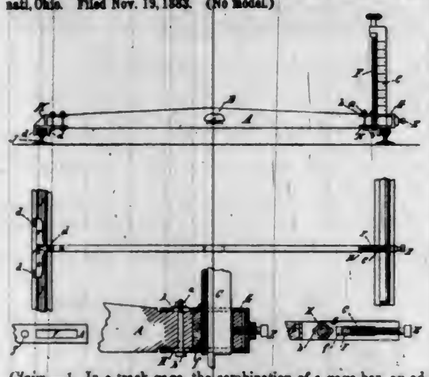
311,417. METHOD OF MANUFACTURING MALTOSE. LÉON CUISINIER, Paris, France. Filed Aug. 23, 1883. (No specimens.)

Claim.—1. The herein-described process for the manufacture of maltose industrially, which consists in first reducing the amylaceous material to a pulp, then mixing said pulp with water containing from five to ten per cent. of the infusion of malt, as described, then heating the mass gradually and slowly up to about 80° centigrade for about one hour, and then digesting the mass under a pressure of from one to two atmospheres for about half an hour, whereby the liquefaction of the starch is effected, as set forth.

2. The herein-described process for the manufacture of maltose industrially, which consists in adding to liquefied starch while at a temperature of about 48° centigrade from five to twenty per cent. of an infusion of malt, as described, then after about an hour has elapsed filtering the wort through paper, and then concentrating, substantially as set forth.

3. The herein-described process for the manufacture of maltose industrially, which consists in first reducing the amylaceous material to a pulp, then mixing said pulp with water and infusion of malt in substantially the proportions and at substantially the temperature specified, then heating the mass gradually up to 80° centigrade for about an hour, then digesting the mass under a pressure of from one to two atmospheres to effect the liquefaction of the starch, then adding to the liquefied starch the specified proportions of the infusion of malt while the temperature is maintained at about 48° centigrade, then allowing the wort to stand about an hour before effecting the saccharification, then filtering the saccharified wort through paper, and then concentrating, substantially as described.

311,418. TRACK-GAGE. WILLIAM D. DALTON, Ludlow, Ky., assignor of two-thirds to John M. Cole, same place, and Thomas H. Foules, Cincinnati, Ohio. Filed Nov. 19, 1883. (No model.)



Claim.—1. In a track-gage, the combination of a gage-bar, an adjustable end piece, a clamp to hold it to its adjustment, an elevator-bar carried by the end piece, and a set-screw for holding said bar to its adjustment, substantially as described.

2. In a track-gage, the combination of a gage-bar and adjustable end piece, an elevation-bar, and a screw for adjusting the elevation of said bar, the said screw and elevation-bar being carried by the adjustable end piece, substantially as described.

3. In a track-gage, the combination of a gage-bar, an elevation-bar, a vertical screw connected to the elevation-bar, and a set-screw for holding the bar to its adjustment, substantially as described.

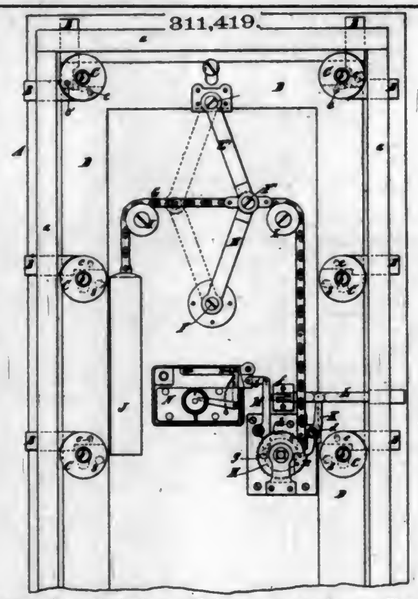
4. In a track-gage, the combination of the gage-bar provided with a spirit-level, the arms at one end formed with downwardly-projecting lugs near their outer ends, and a lug intermediate of said lugs to fit on the opposite side of a rail, an adjustable end piece at the other end of the bar, an elevation-bar carried by said end piece, a screw for adjusting the elevation of said bar, and a set-screw for holding said bar to its adjustment, substantially as described.

311,419. MEANS FOR LOCKING AND UNLOCKING THE DOORS OF SAFES, &c. GEORGE L. DAMON, Boston, Mass. Filed Feb. 1, 1884. (No model.)

Claim.—1. A door, a bolt, a carrier-bar serving to impart motion to the bolt and adapted to be moved vertically, a wheel or oscillating arm serving to impart an upward motion to the carrier-bar for effecting the movement of the bolt necessary for locking the door, a weight or spring, a connection between the weight or spring, and the wheel or oscillating arm, all being combined and organized substantially as described, whereby in case of breakage the carrier-bar will descend through gravity and cause the bolt to unlock the door.

2. The combination, with a door, of a bolt, a carrier-bar serving to impart motion to the bolt, a wheel or oscillating arm pivotally connected to the door, a link pivotally connected at one end to the said wheel or oscillating arm and pivotally connected at the other to the carrier-bar and when oscillated causing the bolt to be operated, a weight or spring

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for actuating said wheel or oscillating arm, a stop for controlling the wheel or oscillating arm, a nose-piece which while the door is being closed will be shifted to cause the stop to release the wheel or oscillating arm in order that the said wheel or oscillating arm and link may actuate the bolt for locking the door, a second stop for controlling the wheel or oscillating arm, and a time mechanism for causing the release of the wheel or oscillating arm from this second stop, substantially as specified.

3. The combination, with a door, of a bolt, a carrier-bar for actuating the bolt, a wheel or oscillating arm, a weight or spring for effecting the movements of the carrier-bar in opposite directions, a stop, a nose-piece which while the door is being closed will be shifted to cause the stop to release the weight or spring and allow it to effect a movement of the carrier-bar sufficient to cause the bolt to lock the door, a second stop, and a time mechanism serving to operate this second stop for causing it to release the weight or spring and allow it to effect a movement of the carrier-bar for the purpose of causing the bolt to unlock the door, substantially as specified.

4. The combination, with a door, of a bolt, a carrier-bar for actuating the bolt, a wheel or oscillating arm pivotally connected to the door and serving to actuate the carrier-bar, a chain or its equivalent connecting the second wheel with the wheel or oscillating arm, a weight or spring acting on the chain or its equivalent, a stop, a nose-piece which while the door is being closed will be shifted to cause the stop to release the weight or spring and allow it to shift the wheel or oscillating arm so that it will effect the movement of the bolt for locking the door, a second stop, and a time mechanism adapted to cause this second stop to release the weight or spring, whereby the same will shift the wheel or oscillating arm in order that the latter may effect the movement of the bolt for unlocking the door, substantially as specified.

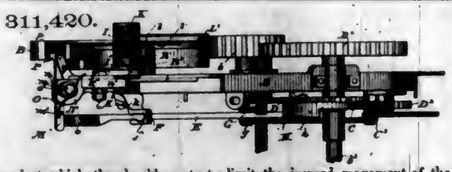
5. A door, a bolt, a wheel or oscillating arm, a connection between the bolt and the wheel or oscillating arm whereby the latter may operate the bolt to lock and unlock the door, a weight or spring serving to impart motion to the wheel or oscillating arm, a connection between the said weight or spring and the wheel or oscillating arm, all being combined and organized substantially as described, whereby in case of breakage the bolt will unlock the door.

6. The combination, with a door, of a bolt, a wheel or oscillating arm, a connection between the bolt and the wheel or oscillating arm, a weight or spring, a connection between the weight or spring and the wheel or oscillating arm whereby the weight or spring is adapted while moving in but one direction to effect the movement of the bolt in opposite directions for locking and unlocking the door, a stop, a nose-piece which while the door is being closed will be shifted to cause the stop to release the weight or spring in order that it may operate the bolt to lock the door, a second stop, and a time mechanism for causing this second stop to release the weight or spring in order that it may actuate the bolt to unlock the door, substantially as specified.

311,420. MECHANISM FOR ACTUATING GRAIN-BINDERS. JOHN S. DAVIS, Toledo, Ohio. Filed Nov. 19, 1883. (No model.)

Claim.—1. The combination of the main gear, its clutch mechanism, the thrust-bar provided with the stop-shoulder, and the guide-bracket

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against which the shoulder acts to limit the inward movement of the thrust-bar, substantially as hereinbefore set forth.

2. The combination, substantially as hereinbefore set forth, of the thrust-bar, the clutch mechanism of the main gear, and the gear provided with the long edge rib acting upon the thrust-bar, for the purpose described.

3. The combination, substantially as hereinbefore set forth, of the thrust-bar, the gear provided with the long edge rib acting on the thrust-bar, and the locking and tripping lever of the clutch mechanism of the main gear acted upon with a yielding pressure by the thrust-bar, for the purpose described.

4. The combination of the main gear, its tubular stud-shaft provided with the notched flange, the frame having the guideway-recess and the seat against which the flange of the stud-shaft bears, and the securing bolts and nuts, substantially as and for the purpose hereinbefore set forth.

5. The combination, substantially as hereinbefore set forth, of the main gear, the spring-actuated lever by which the gear is positively locked when in its inoperative position, and the thrust-bar for tripping said lever, for the purpose described.

6. The combination of the intermittingly-actuated main gear having the notch in its rim and the shoulder at the side thereof, and the spring-actuated locking and tripping lever, substantially as and for the purpose hereinbefore set forth.

7. The combination, substantially as hereinbefore set forth, of the main gear, its clutch-bolt, the controller by which the clutch-bolt is positively held when at rest and positively projected and retracted, and the locking and tripping lever which positively holds the main gear when in its inoperative position and actuates the controller of the clutch-bolt, for the purpose described.

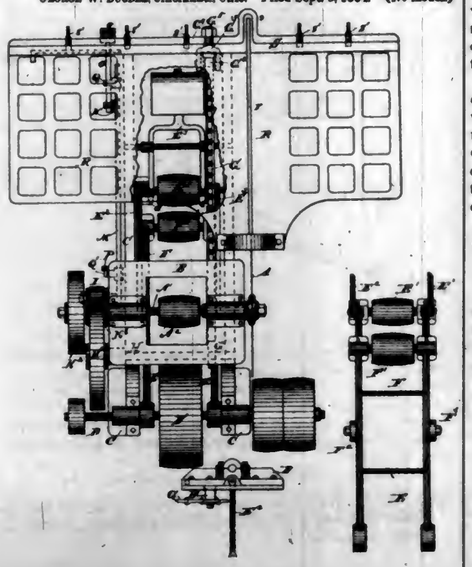
8. The combination of the main gear, the clutch-bolt provided with the pin passing through a slot in the main gear, and the sliding controller provided with the curved ribs for acting on the pin of the clutch-bolt, substantially as and for the purpose hereinbefore set forth.

9. The sliding controller for the clutch-bolt, provided with the curved rib R and the shorter curved rib, R', inclined at its end, substantially as and for the purpose hereinbefore set forth.

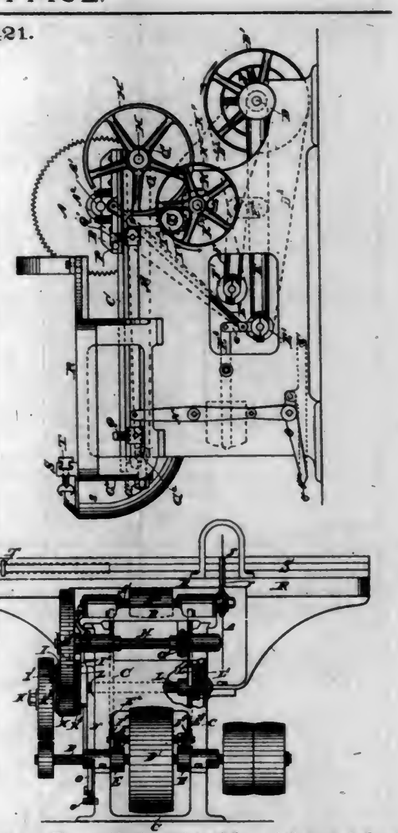
10. The combination of the compressor rock-shaft, the main gear, and its attachments by which the rock-shaft is yieldingly actuated, substantially as and for the purpose hereinbefore set forth.

11. The combination, with the main gear, of the cam-ended rib provided with the spring, substantially as and for the purpose hereinbefore set forth.

311,421. CIRCULAR SAWING MACHINE. WILLIAM H. DOANE and GEORGE W. BUGBEE, Cincinnati, Ohio. Filed Sept. 6, 1884. (No model.)



311,421.



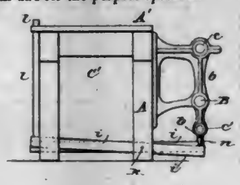
Claim.—1. The combination, substantially as before set forth, of the saw-carriage, the endless chain connected therewith, the shaft and sprocket-wheel and friction-pulley for moving the chain, two friction-drivers for rotating the said friction-pulley alternately in reverse directions, the lever carrying the friction-drivers, and the foot-lever connected with said lever.

2. The combination, substantially as before set forth, of the saw-carriage, the endless chain connected therewith, the shaft and sprocket-wheel and friction-pulley for moving the chain, two friction-drivers for rotating the said friction-pulley alternately in reverse directions, the lever carrying the friction-drivers, the spring for turning the lever in one direction, and the foot-lever for turning it in the other direction.

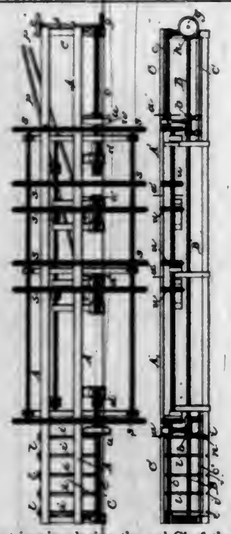
3. The combination, substantially as before set forth, of the saw-carriage, the endless chain connected therewith, the shaft and sprocket-wheel and friction-pulley for moving the chain, two friction-drivers for rotating the said friction-pulley alternately in reverse directions, the lever carrying the said friction-drivers, the spring for turning the said lever in one direction, the foot-lever for turning it in the other direction, and the tappet-gear for automatically turning the lever carrying the friction-drivers to a middle position to throw both said friction-drivers out of gear.

311,422. EDGER. WILLIAM DUNBAR, Larrabee, Pa., assignor of one-half to Judson J. Newman, Buffalo, N. Y. Filed July 17, 1884. (No model.)

Claim.—1. In a lumber-trimmer, the combination and arrangement of the end saws, *a a*, on screw-shaft B, the intermediate raising and lowering saws, *a' a'*, the saw-frame *b*, provided with the wheel *n*, and the pivoted levers *i i i*, with the stops and indicators *l l l* pivoted thereto, all substantially as and for the purpose specified.

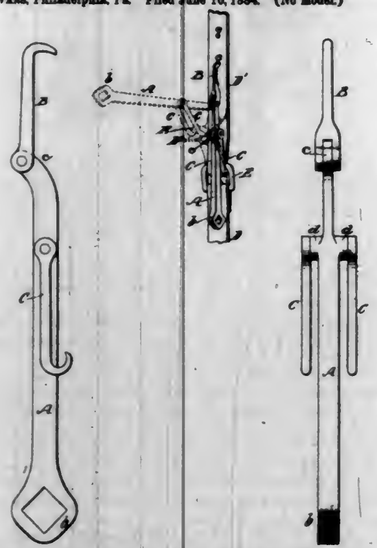


311,422.



2. In a lumber-trimming device, the end C' of the main machine, provided with the pivoted levers *i i i*, equidistant apart, having the upright stops and indicators *l l*, pivoted thereto and operated by the movement of the saw-frame *b*, having the wheel *n* at the bottom coming in contact with said levers, all substantially as and for the purpose specified.

311,423. STRAP-BUCKLER AND WRENCH COMBINED. THOMAS P. EVANS, Philadelphia, Pa. Filed June 10, 1884. (No model.)

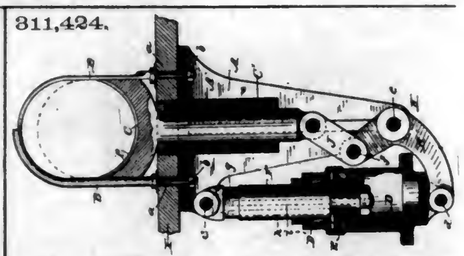


Claim.—1. In a canvas or strap buckler, the combination of the lever A, the pivoted central or line hook, B, at the inner end of said lever, and the two side hooks, C C, pivoted to said lever between the inner and outer ends thereof, and upon each side of a longitudinal plane passing through the pivotal point of hook B, substantially as and for the purposes herein set forth.

2. In a canvas or strap buckler, the lever or handle A, constructed at its outer end, *b*, to form a wrench, in combination with the pivoted forward central or line hook, B, and the pivoted side hooks, C C, the whole forming a canvas or strap buckler and wrench combined, substantially as specified.

311,424. MACHINE FOR BUNDLING KINDLING-WOOD. JOHN C. EVERETT, Williamsport, Pa., and ROBERT HARDER, Hoboken, N. J. Filed Oct. 14, 1884. (No model.)

311,424.



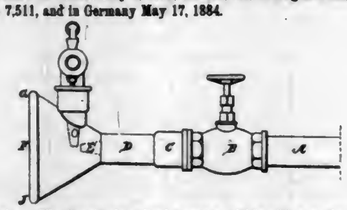
Claim.—1. The combination of the wood-receptacle, the reciprocatory follower or presser, the toggle-lever, the cylinder, the piston and piston-rod, and the valve for regulating the admission and escape of the motor-fluid to and from the cylinder, the combination being and having the mode of operation substantially as hereinbefore set forth.

2. The combination, with the piston, piston-rod, and cylinder, from which motion is imparted to the follower or presser, of the valve and valve-ports and passages arranged and operating to deliver the charge of motor-fluid to the cylinder upon one side of the piston, so as to effect the compressing movement of the follower, and subsequently to distribute the charge in the cylinder upon both sides of the piston, substantially as and for the purposes hereinbefore set forth.

3. The combination, with the presser or follower and the toggle-lever, of the cylinder jointed to one arm of the toggle, the piston, and the piston-rod jointed to the frame or stationary part of the machine, substantially as and for the purposes hereinbefore set forth.

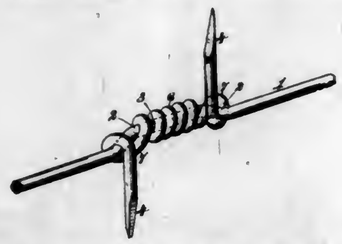
4. The follower-actuating cylinder, in combination with the piston-rod provided with inlet and exhaust passages, and the annular valve mounted on and carried by said piston-rod and adapted to operate in connection with the ports and passages therein, substantially as and for the purposes hereinbefore set forth.

311,425. MEANS FOR BLEACHING PAPER-PULP, &c. JEAN B. PESSY, Saint-Etienne, Loire, France. Filed June 30, 1884. (No model.) Patented in France May 5, 1884, No. 161,904; in England May 9, 1884 No. 7,511, and in Germany May 17, 1884.



Claim.—The herein-described process of bleaching or decolorizing paper-pulp and similar materials, said process consisting in applying the coloring agent in a pulverized or sprayed condition to the materials, substantially as set forth.

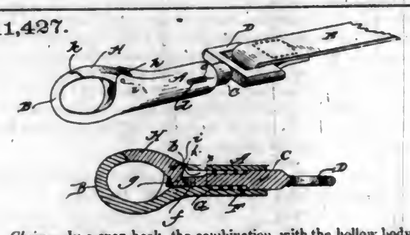
311,426. BARBED-WIRE FENCE. FRANKLIN D. FORD, Providence, R. I., assignor of one-half to Cornelius S. Sweetland, same place. Filed May 19, 1884. (No model.)



Claim.—The combination of the fence-wire provided with short bends or offsets 2, and with a straight connecting portion, 3, between said offsets, with a barb formed of a piece of wire having its end portions, 4, bent at right angles to the fence-wire and twisted around the offsets and having its middle portion formed into closely-lying coils that are wound tightly on the straight connecting portion between the offsets, substantially as described.

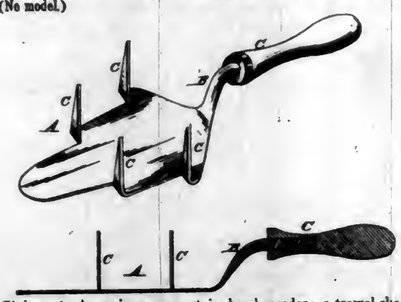
311,427. SNAP-HOOK. GEORGE W. GIFFARD, Great Bend, Kans., assignor of one-half to Oliver Bascom Wilson, same place. Filed Oct. 20, 1884. (No model.)

311,427.



Claim.—In a snap-hook, the combination, with the hollow body A, having a hook, B, formed therewith, of a finger-lever, H, closing the entrance to the hook, a sliding stem or shank, C, working within the body and having a slot, *f*, at its front end to receive a projection, *g*, of the said lever H, a spring, G, coiled around the stem or shank and bearing against the same, and a loop, D, provided on the lower end of the stem or shank beyond the body, as set forth.

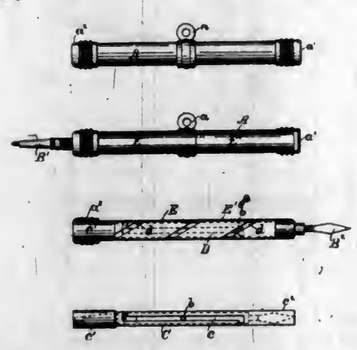
311,428. HAND-WEEDER. LOUIS C. HILL, Myrtle Creek, Oreg., assignor of one-half to John W. Weaver, same place. Filed July 5, 1884. (No model.)



Claim.—1. As an improvement in hand-weeders, a trowel-shaped blade provided with a suitable shank and handle, and having downwardly-extending teeth, substantially as herein described, for the purpose set forth.

2. The herein-described improved garden-tool or weeder, consisting of a trowel-shaped blade having a suitable shank and handle, and provided with teeth struck up from its front edges and extending downwardly nearly at right angles to the blade, substantially as and for the purpose set forth.

311,429. WATCH-CHAIN BAR. JOHN HOAGLAND, Providence, R. I., assignor to Pearce & Hoagland, same place. Filed Apr. 18, 1884. (No model.)



Claim.—1. The combination, with a tubular watch-chain bar closed at one end, of a case arranged to be inserted removably within said bar and containing a single holder for two implements, constructed to move longitudinally within said case, as described.

2. The combination, with the bar A, having the cap *a'*, of the removable case E E', having the cap a^2, the sleeve D, having the spiral slot *d*, the sleeve C, having the slot *c*, and the holder B, having the pin *b*, all constructed and arranged as described.

3. The combination of the bar A, having the ring *a* and the cap *a'*, the case E E', having the cap a^2, the sleeve D, having the slot *d*, the sleeve C, having the slot *c*, and the holder B, having the implements B' B^2, and provided with the pin *b*, all as described.

311,430. DIE FOR MAKING CARRIAGE-SHAFT TIPS. ARTHUR L. HOWARD, New Haven, assignor to Woodruff, Miller & Co., Mount Carmel, Conn. Filed Feb. 29, 1884. (No model.)



Claim.—The die herein described, having a bore of central tapering form and having a straight upper portion, jointly with a punch having an annular rabbet or reduced portion near its lower end for forming carriage-shaft tips, as described and set forth.

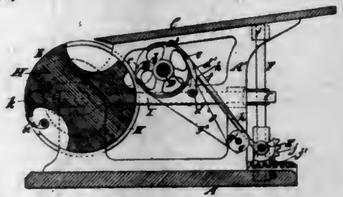
311,431. FLEXIBLE STOPPLE FOR BOTTLES. LEWIS S. HOYT, Boston, Mass. Filed May 2, 1884. (No model.)



Claim.—1. In the construction of a flexible stopple, the hollow central chamber, D, and the radial openings E E, in combination with an expansion-spring, F, for the purposes herein set forth.

2. In an improved flexible stopple, the partial covering G, of rubber, formed with an annular ring, H, having unequally-projecting floors I and J, in combination with an exterior groove, C, for the purpose herein specified.

311,432. SHEET-DELIVERING APPARATUS FOR PRINTING-PRESSES. BERTHOLD HUBER, Taunton, Mass. Filed July 7, 1882. (No model.)



Claim.—1. In a printing-press, the combination, with a fly having a shaft fulcrumed at one side of the press, of devices, substantially as described, for imparting a swinging motion to said fly-shaft upon its fulcrum, and for instantaneously rotating it to reverse the fly and deposit the sheet, substantially as specified.

2. In a printing-press, the combination, with a fly-shaft and an upright shaft to which the fly-shaft is connected, so that the upright shaft forms a fulcrum for the fly-shaft, of devices, substantially such as described, for imparting a rotary motion alternately in opposite directions to the upright shaft, a gear upon the fly-shaft, and a stationary gear engaging therewith and serving to turn the fly-shaft, substantially as specified.

3. The combination of the fly-shaft E, the upright shaft F, the gear *j*, the stationary gear *j'*, the cam H, the rack-bar I, and the gear *m* on the shaft F, substantially as specified.

311,433. MECHANISM FOR ADJUSTING AND LOCKING SWITCHES. EDWARD H. JOHNSTON, Philadelphia, Pa., assignor to the Wharton Railroad Switch Company, same place. Filed Nov. 26, 1883. (No model.)

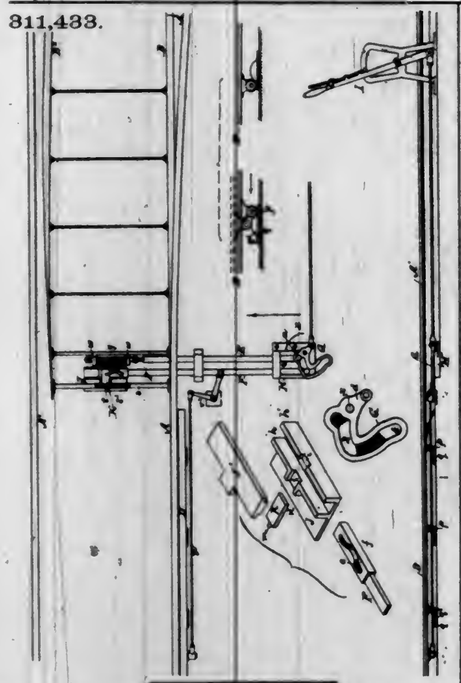
Brief.—A switch locking and unlocking bar and a switch-shifting bar are engaged and controlled by a scroll-slot in an oscillating plate, and the lock-bolt is reciprocated by means of a curved slot in the locking and unlocking bar.

Claim:—1. The combination, with a switch, of the following instrumentalities: first, a lever, G, having in one arm a scroll slot or recess, the other being connected to any available operating mechanism second, two bars, E and F, both under the control of the scroll slot or recess of the lever, the bar E being connected to the switch; and, third, a switch-locking device also controlled by the scroll-slot of the lever through the medium of the bar F, all substantially as set forth.

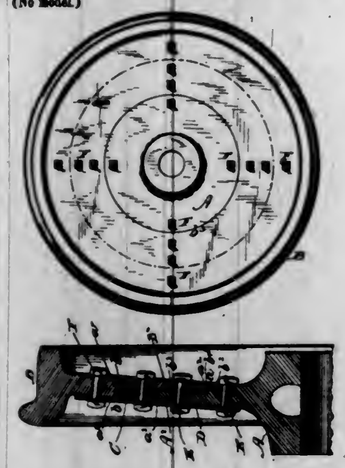
2. The combination of a switch-operating rod, E, and switch-locking rod F, with a lever, G, having a scroll-slot, the portions 1 and 3 of which are concentric with the pivot of the lever, the portions 2 and 4 being eccentric therewith, substantially as set forth.

3. The combination of a switch, the cross-bar and its holes *t t'*, with a locking-block, K, and with a rod, F, having a curved slot for controlling the block, substantially as set forth.

311,433.



311,434. CAR-WHEEL. GEORGE P. KING, St. Thomas, Ontario, Canada, assignor of one-half to George E. King, Detroit, Mich. Filed Oct. 4, 1884. (No model.)

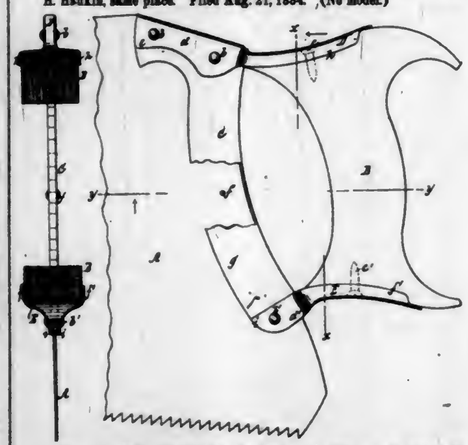


Claim.—1. In an improved two-part car-wheel, the combination of the hub portion provided with an annular shoulder, *a*, and with the flange A^3 extending therefrom, the rim portion provided with a corresponding shoulder, *b*, and corresponding flange, B^3, the packing interposed between the adjoining faces of the said flanges, and the annular retaining-plate disposed against the face of the wheel, substantially as and for the purpose set forth.

2. The combination, in an improved two-part car-wheel, of the separate hub and rim portions provided with the annular shoulders beveled at their inner ends, and with the disk or flanges provided with a straight annular edge, forming the joint, and with the corresponding bevel, the packing interposed between the adjoining faces of these lapped flanges, the retaining-plate secured against the face of the wheel, and the transverse bolt, substantially as and for the purpose set forth.

3. As an improvement in two-part car-wheels, the combination of the hub-section consisting of the bearing portion, the annular shoulder *a*, beveled at its inner portion, a^2, and the disk or flange projecting from this shoulder and formed with the straight annular edge a^3, beveled at its inner side, a^4, the rim portion consisting of the tread, a corresponding beveled shoulder, and disk or flange projecting therefrom and provided with the corresponding annular beveled edge, the packing interposed between the adjoining faces of the flanges and between the beveled inner portions of the shoulders, the annular retaining-plate disposed against the face of the wheel and over the joint of the flanges, and the transverse bolts, substantially as and for the purpose set forth.

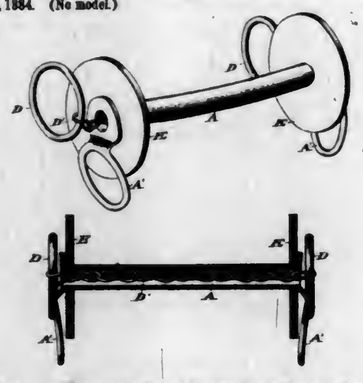
311,435. SAW. ALSON LORD, Brooklyn, N.Y., assignor to William H. Hoskin, same place. Filed Aug. 21, 1884. (No model.)



Claim.—1. The combination, with the saw-blade A, the handle B, and the re-enforcing plate C, embracing the rear end of the saw-blade, of the upper and lower caps, D and E, secured to the handle, and having extensions *d d'*, embracing the upper and lower portions of the re-enforcing plate and secured thereon, substantially as described.

2. The combination, with the saw-blade A, the handle B, and the re-enforcing plate C, having jaws *g*, embracing the saw-blade, of the caps D and E, having flanges *h* and *f'*, embracing, respectively, the opposite sides of the upper and lower portions of the handle, and provided with the forward extensions, *d d'*, embracing the upper and lower portions of the re-enforcing plate, substantially as described.

311,436. BRIDLE-BIT. LAWRENCE LYNCH, Batavia, N. Y. Filed July 16, 1884. (No model.)



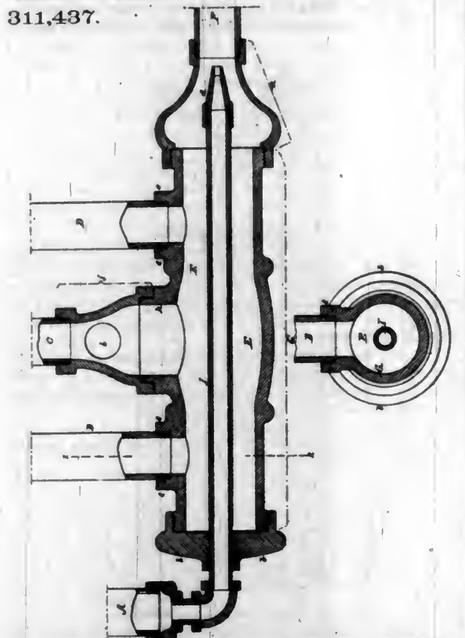
Claim.—1. The combination of the tubular mouth-piece, the cheek-strap pieces firmly united to the mouth-piece, with the orifice extending through the whole length, and the cheek-pieces sleeved upon the tubular mouth-piece, substantially as described.

2. The combination of the tubular mouth-piece, the cheek-strap eyes firmly united with the mouth-piece, and the flexible rod or guiding-chain, arranged substantially as described.

3. The combination of the tubular mouth-piece, the flexible guiding rod or chain, and the rein-rings attached to either end of the chain, substantially as described.

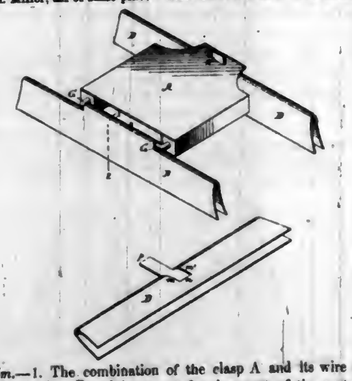
311,437. ATTACHMENT FOR STEAM-PIPES. JOHN S. MCDANIEL, Wilmington, Del., assignor of one-half to James Watson, Philadelphia, Pa. Filed May 24, 1884. (No model.)

311,437.



Claim.—The combination of the terminal portions of two or more waste-pipes of heating apparatus with an ejector, the nozzle of which communicates with one of the pipes, substantially as set forth.

311,438. CLASP FOR ALBUMS AND OTHER BOOKS. ANDREW J. MEYER, Philadelphia, Pa., assignor to himself, John Y. Huber, and Francis H. Miller, all of same place. Filed June 26, 1884. (No model.)

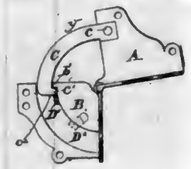


Claim.—1. The combination of the clasp A and its wire loop G with the bent plate B and its eye *t*, forming part of the plate, as set forth.

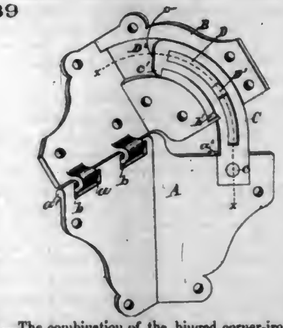
2. In a book-clasp, the bent plate B, having the projection *p*, forming part of the plate, adapted to hold a wire loop, G, all constructed substantially as set forth.

3. The bent plate D, having a lip or projection, *p*, adapted to enter a slot in the clasp A, consisting of a portion cut from one side of the plate, all substantially as specified.

311,439. TRUNK-STAY. SIGISMUND M. MICHELSON, Milwaukee, Wis., assignor of one-half to George Sylvester, same place. Filed June 5, 1884. (No model.)

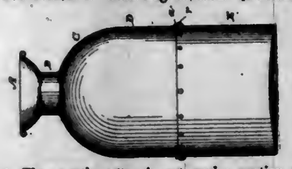


311,439



Claim.—The combination of the hinged corner-irons A B, lug D', detent *b'*, and curved flexible and elastic metallic guide C, having catch *c'*, substantially as set forth.

311,440. MILK-CAN. JOHN C. MILLIGAN, Brooklyn, and JULES CHAUMONT, Woodhaven, assignors to the Lalance & Grosjean Manufacturing Company, New York, N. Y. Filed Aug. 13, 1884. (No model.)



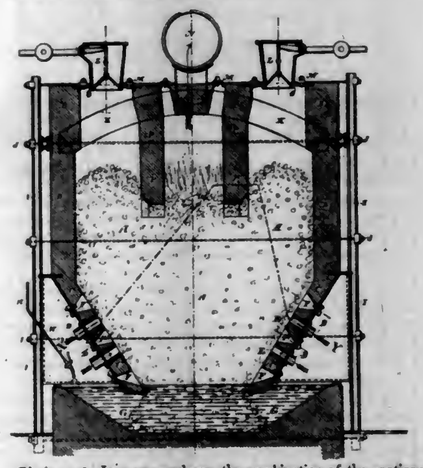
Claim.—1. The mouth, collar, breast, and a portion of the main body of a milk-can, all formed together of one piece of sheet metal without seam, substantially as described.

2. The concave or bell-shaped mouth, together with the collar, breast, and a portion of the main body of a milk-can, all formed together of one piece of sheet metal without seam, substantially as described.

3. As a new article of manufacture, a milk-can in which the concave or bell-shaped mouth, together with the collar or neck and breast and a portion of the main body, is formed from a single piece of sheet metal, the remaining portion of the body, with the bottom, also being formed from a single piece of sheet metal, and the two portions joined by a hoop formed on one of said portions, in the manner substantially as described.

4. The mouth A, collar B, breast C, and main portion D, all formed from a single piece of metal, in combination with the lower portion, E, being united thereto by means substantially as described.

311,441. GAS-GENERATOR. LUDWIG MOND, Winnington Hall, near Northwich, County of Chester, England. Filed Mar. 7, 1884. (No model.) Patented in England Aug. 4, 1883, No. 3,821.



Claim.—1. In a gas-producer, the combination of the continuous line of air-grates E on each side of the producer, said grates having the bars arranged in vertical planes, and having the air-passages spreading out, like a fan, with the contracted air-inlet tubes D, of much smaller area, substantially as described.

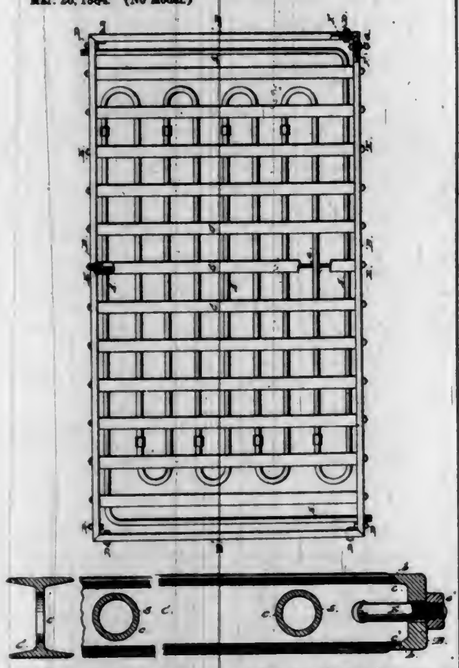
2. In a gas-producer, the combination of the two parallel working-faces B C B C, strongly tied with tie-bars, the transverse walls each common to two contiguous gas-producers, except the end walls of the row, and the transverse longitudinal arches P P, whereby a very strong serviceable gas-producer is formed.

3. In a gas-producer, the combination of the doors R R, the bars Q Q, and the clinkering-orifice below, with air-grates at a higher level, whereby while clinkering can be easily effected, the entire clinkering-orifice is sealed against gas-emission except during clinkering, and a much higher pressure can be given to the air and steam admitted through the air-grates without fear of any escape of gas at the clinkering-orifice.

4. In a gas-producer, the two arched semi-diaphragm walls P P, firmly supported on the transverse walls, and dividing the upper part of the chamber into three compartments, the two outer compartments having feed-hoppers and the central compartment the gas-exit pipe, by which means a strong firm division is formed, (to force the gases to pass through the incandescent portion of the fuel near the center of the chamber before escaping,) in place of the ordinary bell-mouth receiver suspended from the roof, substantially as described.

5. In a gas-producer, the combination of the sloping parallel working-fronts C C, having air-grates E therein, said air-grates being independent of the clinkering-openings, and the poking-holes F, located both above and below the air-grates, and entirely above the clinkering and discharge openings, substantially as set forth.

311,442. LUMBER-DRIER. HORACE J. MORTON, Pullman, Ill. Filed Mar. 20, 1884. (No model.)



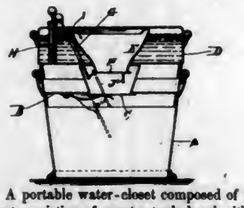
Claim.—1. An open platen consisting of perforated iron bars set edgewise and secured rigidly to an external frame in parallel positions at a distance apart, and a steam or other heating pipe arranged tortuously and supported in the perforations of the said bars, all combined and arranged to serve as and for the purposes set forth.

2. In a platen, substantially as described, the combination, with the channel-bars B, of the removable studs G, having threaded shanks g, projecting through said channel-bars, collars g^3, affording an extended bearing upon the outer surface of said bars, a body, g^4, and a threaded shank, g^4, of smaller diameter than the body, to form shoulder g^5, all adapted to serve with the nuts g' g^3, as and for the purposes set forth.

3. A platen for lumber-driers, consisting of a rectangular frame of channel-bars having inclines b, and a series of double T supporting-bars, C, arranged at intervals apart, and having bevels c', as shown, whereby the said bars C will have a bearing in the channel-bars above and below equal to the entire width of the upper and lower plates of said bars C, as set forth.

4. In combination with the channel-bars having inclines b, and the double T supporting-bars C c', the hook-bolts E and nuts e', as and for the purposes set forth.

311,443. PORTABLE WATER-CLOSET. CHARLES C. NASH, Providence, R. I., assignor to D. M. Small, same place. Filed Oct. 17, 1883. (No model.)



Claim.—1. A portable water-closet composed of two detachable parts, the upper part consisting of a water-tank, bowl with valve thereto, and device for forcing water therein from the tank, and the lower part consisting of a slop-chamber with a tight-fitting cover thereto, and with an opening therein covered by a valve with device for operating the same, all substantially as set forth.

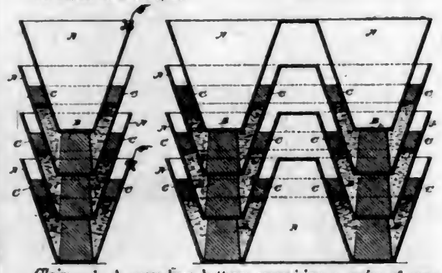
2. The combination, with a portable water-closet, of a detachable slop-chamber supplied with a tight-fitting cover having an aperture therein, to which is secured a valve distinct from the cover, that closes automatically, for the purpose set forth.

311,444. FERTILIZER-DISTRIBUTER. EIDER OSTENSEN, Highlandville, Iowa. Filed July 7, 1884. (No model.)



Claim.—The combination of the hopper having a concave bottom provided with two perforations, the board secured below the bottom of the hopper, and provided with an outlet-aperture and spout registering with the adjoining halves of the perforations in the bottom of the hopper, a slide pivoted to oscillate between the bottom of the hopper and the board, having two perforations registering with the perforations in the bottom of the hopper, having channels upon its under side, as described, and having one end provided with a cogged segment, and a cogged cam adapted to be rocked or oscillated by any suitable connections, as and for the purpose shown and set forth.

311,445. SECONDARY BATTERY OR ELECTRIC ACCUMULATOR. SIMON PHILIPPART, Fils, Paris, France, assignor to the Electrical Power Storage Company, (Limited,) London, England. Filed Apr. 22, 1884. (No model.) Patented in France Mar. 7, 1881, No. 141,556; in England Mar. 14, 1881, No. 1,097; in Belgium Apr. 15, 1881, No. 54,393; in Germany Apr. 27, 1881, No. 16,318; in Spain June 27, 1881, No. 1,461; in Italy July 15, 1881, No. 13,129, and in Austria-Hungary Aug. 26, 1881 No. 14,285 and No. 28,920.



Claim.—1. A secondary battery comprising a series of cups or vases with porous active material on the inside and porous active material on the outside, said cups or vases being set one within another and separated so as to leave between them spaces or cells for the exciting-liquid, substantially as described.

2. In a secondary battery, a series of lead cups or vases set one within another, and separated so as to form spaces for the exciting-liquid between them, substantially as described.

3. A secondary battery comprising a series of conducting cups or vases made of the same metal inside and outside, said cups or vases being set one within another, and being separated to leave between them spaces or cells for the exciting-liquid, substantially as described.

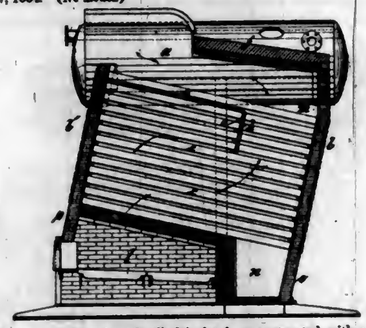
4. In a secondary battery, a series of cups or vases placed one within another, with pieces of non-conducting material interposed, said pieces separating the cups or vases from one another and forming supports for the same within the inclosing cup or vase below, substantially as described.

5. In a secondary battery comprising a series of cups or vases set one within another, and separated to leave cells or spaces for the exciting-liquid, the gradually-flaring cups or vases separated by strips or pieces within the cups, having a depth much greater than the width of the cups or vases at the bottom, so that the cells between them are deep and narrow, substantially as described.

6. In a secondary battery, a conducting cup or vase divided by an upright wall, so as to constitute a double containing-vessel, substantially as described.

7. A cell of secondary battery comprising a cup or vase provided on its interior upright wall with a porous active layer, combined with an inclosed electrode or element of unlike name, also provided with a layer of porous active material, said cup or vase constituting the containing-vessel of the cell and the conducting-support of the active material on the inner wall of the same, substantially as described.

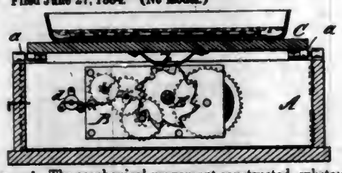
311,446. STEAM-GENERATOR. NATHANIEL W. PRATT, Brooklyn, assignor to the Babcock & Wilcox Company, New York, N. Y. Filed May 17, 1884. (No model.)



Claim.—1. A series of cylindrical tubes constructed with eccentric ends, said tubes being arranged in opposite tube-sheets parallel with each other at such distance apart that the adjacent surfaces will be brought in longitudinal contact and crowded together to form a tight joint by revolving said tubes on their eccentric bearings previous to securing the same, as set forth.

2. A boiler arch or crown composed of a series of separated cast-iron plates having projecting spuds or spikes distributed upon their interior surfaces at an acute angle therewith, the surrounding space being filled with fire-clay or other heat-resisting material.

311,447. MECHANICAL MOVEMENT. GEORGE M. REED, Leadville, Colo. Filed June 27, 1884. (No model.)

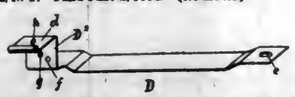


Claim.—1. The mechanical movement constructed, substantially as described, with a pivoted or balanced table, and mechanism for giving a rocking or oscillating motion to the table, as specified.

2. The combination of the balanced table or platform C, spring D, and cam wheel or disk E, substantially as described, for operation as specified.

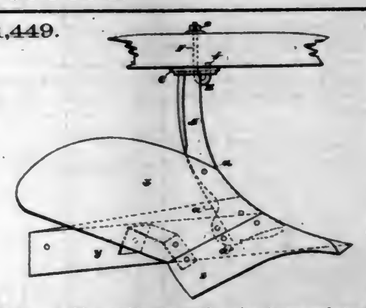
3. The combination of motor B, cam-wheel E, and sprung D with a balanced table, substantially as described, for giving a rocking motion to the table.

311,448. SHUTTER-FASTENER. JOHN S. RYAN and JOHN CONWAY, New York, N. Y. Filed June 2, 1884. (No model.)



Claim.—As an improved article of manufacture, a shutter-fastener consisting of a spring, D D^1 d, made in one piece, and having the main portion D adapted to engage with a latch or hook on the outer wall to hold the shutter open, and an arm or extension consisting of the portion D^1 d, adapted to engage with a pin projecting from the window-sill to hold the shutter closed, substantially as herein described.

311,449. PLOW. WILLIAM H. RYER, South Bend, Ind. Filed Sept. 12, 1884. (No model.)



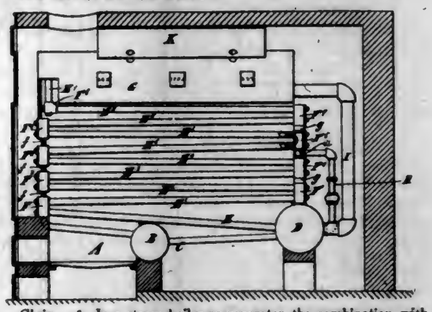
Claim.—1. The combination, with a plow beam and standard, the latter consisting of one piece of sheet metal or angle metal formed into shape to receive the mold-board, landside, and point, and provided with a perforation near its upper end, of a metallic cap provided with a recess adapted to receive the upper end of the standard, and a hook or other bolt adapted to pass through the plow-beam, cap, and standard and lock the cap and standard to the beam, substantially as set forth.

2. The combination, with a plow-beam and a plow-standard, the latter angular or U-shaped in cross-section, of a metallic cap provided with a recess adapted to snugly receive the end of the standard, and a bolt adapted to pass through the cap, standard, and beam and lock the cap and standard snugly to the beam, substantially as set forth.

3. The combination, with a plow-standard consisting of a sheet of steel formed into angular or U shape in cross-section and arch shape in longitudinal section, of a metallic cap provided with a recess, and a downwardly-projecting lip or rim adapted to snugly fit the upper end of the standard, and a hooked bolt adapted to pass through the beam, cap, and standard and securely fasten the cap and standard to the beam, substantially as set forth.

4. The combination, with a plow-beam and a standard angular or U shaped in cross-section, arch shape in longitudinal section, and constructed to combine in itself the functions of a frog lug and cleat for securing the mold-board, landside, and share thereto, of a metallic cap, and the bolt adapted to pass through the beam, cap, and standard and secure the cap to the standard and both cap and standard to the beam, substantially as set forth.

311,450. STEAM-GENERATOR. JAMES C. STEAD, Brooklyn, N. Y. Filed Jan. 5, 1884. (No model.)



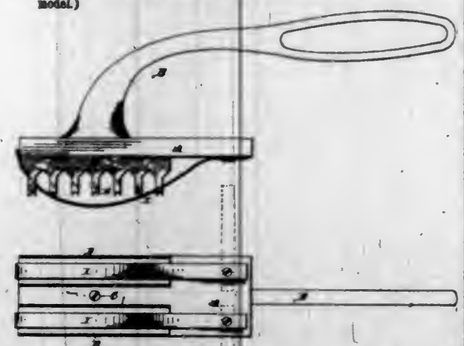
Claim.—1. In a steam boiler or generator, the combination, with a row of pipes and another row arranged above it, of a header divided by transverse partitions and a perforated longitudinal partition into compartments which severally connect a pipe in the lower row with a pipe in the upper row, and which intercommunicate through the perforations in the longitudinal partition with the passage beyond the same, substantially as specified.

2. In a steam-generator, the combination of a drum, rows of reversely-inclined circulating-pipes leading therefrom, through which water ascends, headers or return-bends connecting said circulating-pipes, a separator or separators with which each row of circulating-pipes is separately connected, pipes leading from the separator or separators back to the drum, and through which water returns, a header arranged below the separator or separators, and with which each vertical row of circulating-pipes is separately connected, said header being unconnected with the pipes through which water is returned from the separator to the drum, and a pipe or pipes leading from said header back to the drum, and adapted to afford at the header relief from excessive pressure, substantially as specified.

3. In a steam boiler or generator, the combination of a drum, rows of circulating-pipes, headers or return-bends connecting the rows of pipes, a separator or separators into which the uppermost pipes extend, pipes leading from the separator or separators back to the drum, pipes leading

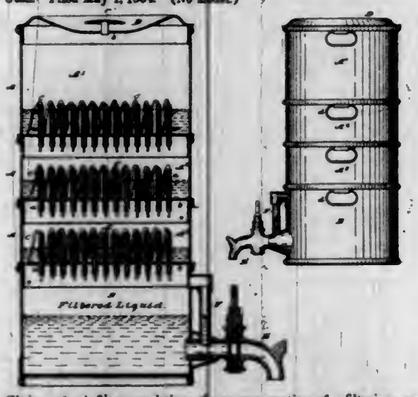
from a header below the separator or separators back to the drum, and check-valves in these pipes, substantially as specified.

311,451. MEAT-TENDERER. LEVI STONE, St. Mary's, Ohio, assignor of one-half to Elijah Stone, Chicago, Ill. Filed Mar. 23, 1884. (No model.)



Claim.—The combination of the plate A, provided with a handle, the U-shaped steel cutting-plates D, fastened to the under side of the plate A, and the springs I, which are adapted to be turned at an angle to the cutting-plates, substantially as set forth.

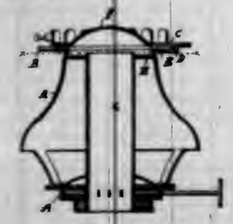
311,452. CAPILLARY FILTER. JOHN A. TUPPER, Salt Lake City, Utah. Filed May 1, 1884. (No model.)



Claim.—1. A filter consisting of the combination of a filtering-vessel provided with a series of wick-tubes projecting into it upward and through its bottom, a series of wicks in said tubes, their upper ends hanging over the tops of the tubes and their lower ends extending down within the tubes sufficiently far to cause the wicks to act as capillary siphons, and a receiving-vessel for the filtered liquid arranged beneath the bottom of the said vessel and receiving the drip from said wicks, substantially as and for the purposes set forth.

2. The combination, to form a capillary filter, of two or more filtering-vessels constructed to fit one above another, and each provided with wick-tubes inclosed within it extending upward from its bottom, with a closed receiving-vessel for the filtered liquid arranged beneath and fitting the lowermost filtering-vessel, substantially as set forth, whereby the liquid in the upper vessel is subjected to successive capillary filtrations, and the wicks are concealed and protected.

311,453. LAMP-BURNER. CHRISTIAN TURNER, Fairfield, Iowa. Filed May 5, 1884. (No model.)



Claim.—1. In a lamp-burner, the combination, with the wick-tube, the outer shell of an enlarged diameter at its lower end having converging walls, a flange at its upper end provided with a stud on the lower side thereof, and a perforated diaphragm located within the same immediately below the upper end of the wick-tube, of the pivoted disk having a slight conical embossment, and a stud terminating in a lip which embraces the under side of said flange, whereby the flange and the disk are kept in their relative positions.

2. In a lamp-burner, the combination, with the outer shell or body provided at its upper end with a flange having a stud on the lower side, of the pivoted disk having a slight conical embossment, and a stud terminating in a lip, whereby the flange and disk are kept in their proper relative position.

311,454. RAILROAD-RAIL JOINT. GEORGE B. WILT, Bradford, Pa., assignor of one-half to William M. Page, same place. Filed May 23, 1883. (No model.)

Brief.—The meeting-rail ends have horizontal overlapping portions, which are uncut vertically, and which are prevented from lateral displacement by vertical interlocking portions, and also a vertical dovetail.



Claim.—1. A rail-joint consisting of the two meeting members formed with horizontally-overlapping portions, said overlapping portions being uncut or undivided vertically, as set forth.

2. A rail-joint consisting of the two meeting members formed with horizontally-overlapping portions, said overlapping portions being uncut or undivided and secured against lateral displacement by vertically-interlocking portions, substantially as described.

3. A rail-joint consisting of the two meeting members formed with horizontally-overlapping portions, in combination with a vertical dovetail joint for securing the parts against lateral displacement.

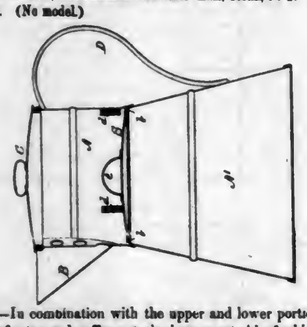
4. A rail-joint consisting of the two meeting members formed with horizontally-overlapping portions, in combination with a vertical dovetail joint and vertical tongues and grooves for securing the parts against lateral displacement, as set forth.

5. A joint for the meeting ends of railway-rails, consisting of a solid web projecting from the end of one member and the solid head and base portions projecting from the end of the other member complementarily, as set forth.

6. A joint for the meeting ends of railway-rails, consisting of a solid web projecting from the end of one member and solid head and base portions projecting from the end of the other member complementarily, said parts being secured against lateral displacement, substantially as described.

7. In a rail-joint, the combination of tongue *d*, recess *e* in head, projecting web *f*, recess *e*, groove *g*, and tongue *i* and recess *h* in base, substantially as and for the purposes set forth.

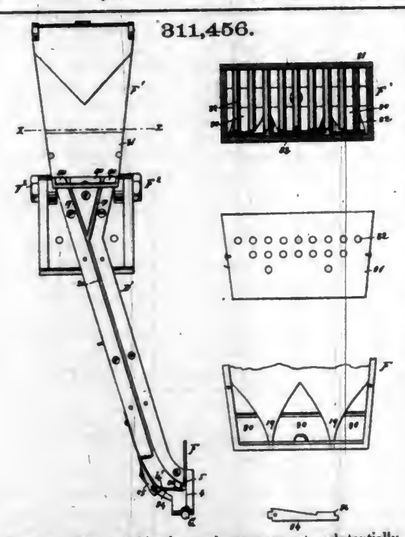
311,455. TEA OR COFFEE POT. FRED WEBNER, Ridgway, Pa., assignor to himself, and Alanson Mortimer Hall, Olean, N. Y. Filed Aug. 16, 1884. (No model.)



Claim.—In combination with the upper and lower portions, A A', of the body of a tea and coffee pot, the lower part, A', of which is made flaring in a downward direction, and the upper edge of which is turned in to form a shoulder, *b*, the strainer S, provided with a handle, *c*, and having notches *c c* in its edge, and the locking wires or projections *d d* on the interior of the upper part of the body, substantially as shown and described, and for the purposes herein set forth.

311,456. MACHINE FOR ATTACHING BUTTONS. ERASTUS WOODWARD, Somerville, Mass., assignor, by mesne assignments, to George W. Prentice, Providence, R. I., and William A. Boland, Lynn, Mass. Filed Aug. 2, 1883. (No model.)

311,456.

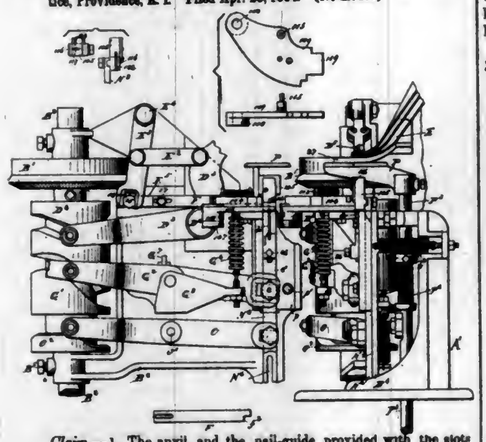


Claim.—1. The combination and arrangement, substantially as shown and described, with the receiver F', provided with a mouth, and the tack-conductor, of the auxiliary mouth-piece, consisting of the plate 81, and the pins or wires 82, extending from the same into the mouth of the receiver, for the purpose set forth.

2. The combination and arrangement, substantially as shown and described, of the tack-receiver provided with a mouth, the tack-conductor connected to said receiver, the auxiliary mouth-piece of the receiver, composed of the plate 81, arranged in the mouth of said receiver, the pins or wires 82, depending from said plate, and the funnel or directing plate 80, for the purpose set forth.

3. The combination and arrangement, substantially as shown and described, with the tack-receiver and its attached conductor, of the detent 84, having the shoulders 86, and held by a spring, 85, crosswise of the roadway of the conductor in the groove 41 therein, for the purpose set forth.

311,457. BUTTON-SETTING MACHINE. ERASTUS WOODWARD, Somerville, assignor to William A. Boland, Lynn, Mass., and George W. Prentice, Providence, R. I. Filed Apr. 28, 1884. (No model.)



Claim.—1. The anvil, and the nail-guide provided with the slots 122 and 117, and cutter-plate 116, combined with the nail-strip guide, and driver and under cutter, 103, to operate substantially as described.

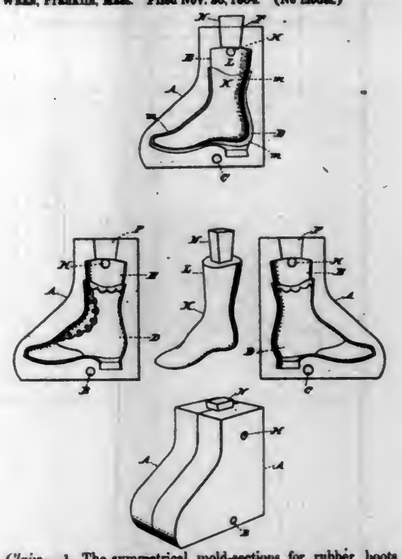
2. The anvil, the nail-guide provided with the slots 122 and 117, and the pivoted nail-strip guide 104, provided with the finger 112, combined with the reciprocating slide or transferrer F, to operate the nail-strip guide in one direction, substantially as described.

3. In a machine for setting buttons, a nail-guide and cutter-plate, 116, combined with a driver provided with a projecting cutter member, 103, to operate substantially as described.

4. The driver provided with the cutter 103 and projection 118, to cut and act upon the ends of the head of a nail, and embed the same into the material into which the nail is driven, substantially as described.

5. In a button-setting machine, a support, P, for the material upon which the button is to be attached, a button conductor or chute, and anvil, combined with the movable nail-strip guide, and driver and cutter working from below the said support and acting to cut a nail from the strip and drive it into the material and through the eye of the button, substantially as described.

311,458. MOLD FOR MAKING RUBBER BOOTS AND SHOES. P. WERN, Franklin, Mass. Filed Nov. 20, 1884. (No model.)

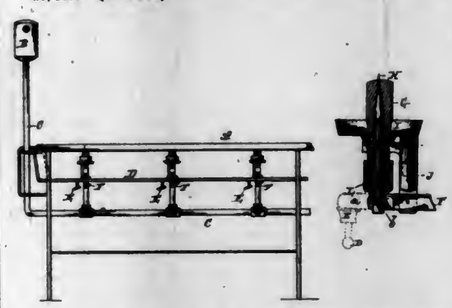


Claim.—1. The symmetrical mold-sections for rubber boots and shoes, having the matrix D, offsets E, and channels F extending outward from said offsets, substantially as specified.

2. The combination, with the rubber boot or shoe mold-sections having the matrices, offsets, and seat-channels, of the former or last-mold having the leg-extension L, and the holding-lug N, substantially as specified.

3. The combination, with the mold-sections having the matrices D, offsets E, and flaring channels F, of the former or last-mold having the leg-extension L, adapted to fit the offset-chamber, and the dovetail holding-lug N, substantially as specified.

311,459. VAPOR-STOVE. ZEBULON DAVIS, Canton, Ohio. Filed Dec. 29, 1883. (No model.)



Claim.—1. The combination, in a vapor-burner, of an endwise-moving valve, a pivoted lever for moving the valve, and a support or fulcrum for the lever, and which projects down from the burner and supports the lever between its outer free end and its point of connection with the needle-valve, substantially as shown.

2. In a vapor-burner, the combination of the endwise-moving needle and the pivoted lever for moving the same, the lever being pivoted in a suitable bearing or support which projects down from the drip-cup, and which bearing is adapted to move concentrically to the needle, substantially as described.

3. The combination, in a vapor-burner, of the endwise-moving needle, the needle-barrel, the drip-cup which is applied to the needle-barrel, a suitable support which projects down from the drip-cup, the pivoted lever, and the adjustable packing-box, substantially as specified.

4. The combination of the partially-rotating supply-pipe having one or more vapor-burners connected thereto, the endwise-moving needles, the pivoted levers, and the endwise-moving rod provided with suitable inclines, substantially as described.

5. The combination of the vapor-burners provided with endwise-moving needles, and pivoted operating-levers, with the endwise-moving rod D, provided with suitable devices for depressing the operating-levers of the burners when the rod is moved endwise, one of the ends of the rod being made to act as a lock to prevent the lowering of the tank until the burners have been extinguished, substantially as set forth.

REISSUES.

10,554. STEM-WINDING WATCH. HARRY R. SMITH, Cincinnati, Ohio, and RUFUS FOLSOM, Boston, Mass., assignors to the Elgin National Watch Company, Elgin, Ill. Filed Jan. 8, 1885. Original No. 119,889, dated Oct. 10, 1871.



Claim.—1. As an improvement in stem-winding and hand-setting watches, in combination with one of the dial-wheels and with a stem-driven wheel, an intermediate wheel which is adapted to rotate in a plane parallel with the watch-plate, and is shiftable in a direction perpendicular thereto to cause said wheels to be connected with or disconnected from each other, substantially as and for the purpose specified.

2. As an improvement in stem-winding and hand-setting watches, in combination with the winding-arbor wheel and with a stem-driven wheel, a wheel which is adapted to rotate in a plane parallel with the watch-plate, and is shiftable in a direction perpendicular thereto to cause said wheels to be connected with or disconnected from each other, substantially as and for the purpose shown.

3. As an improvement in stem-winding and hand-setting watches, a train composed in part of a wheel which is adapted to form a connection between one of the dial-wheels and a stem-driven wheel, and is rotatable in a plane parallel with the watch-plate and shiftable in a direction perpendicular thereto, to connect or disconnect said wheels, in combination with the stem of the watch, and with means, substantially as shown, whereby as said train is thus connected with or disconnected from said dial-wheels said stem is simultaneously disconnected from or connected with the winding-arbor wheel, substantially as and for the purpose set forth.

4. The combination of the stem D, pinion E, wheels F and G, pinion H, spring-bar I, and push-bar K, having an inclined end, *k*, substantially as and for the purpose shown and described.

5. The combination of the stem D, pinion E, wheel F, provided with the openings *f*, arbor L, shiftable wheel M, having the engaging-pins *m*, winding-arbor wheel N, spring O, stud P, and push-bar K, provided with the notch *k'*, substantially as and for the purpose specified.

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DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

SMITH AND THOMAS *v.* COWLES.

Decided January 13, 1885.

1. Rule 105, relating to preliminary statements, is not inconsistent with law, and is necessary to the orderly and proper conduct of interference cases.
2. A party should be permitted to correct a mistake in his preliminary statement resulting from inadvertence, but such correction should be made in accordance with some fixed and reasonable rule, and such a rule has been prescribed, and requires that the motion to correct the statement must be made, if possible, before the taking of any testimony, and as soon as practicable after the discovery of the error.
3. It is only in cases where parties have failed to comply with the law after having made reasonable and proper efforts to do so that further opportunity should be accorded. Facts conclusive in themselves will not authorize an amendment of the statement if the statement is faulty through the negligence or refusal of the applicant to make suitable efforts to ascertain the real facts upon which his right depended, and which the rule required him to set forth in his statement.
4. It is better to insist upon a reasonable and just compliance with the rules of the Office, though it may work a hardship in an individual case, than adopt a course which would result in a practical abrogation of them with consequent confusion.

APPEAL from the Examiner of Interferences.

LAMP-BURNERS.

Application of Smith and Thomas filed November 7, 1883. Application of J. A. Cowles filed October 18, 1883.

Messrs. Knight Bros. for Smith and Thomas.
Mr. F. A. Fouts for Cowles.

BUTTERWORTH, *Commissioner:*

This case comes to me on appeal from the ruling of the Examiner of Interferences denying the application of Cowles to amend his preliminary statement. The denial of the right is based upon the plain provisions of the rules which govern the filing and amendment of preliminary statements. The application of Smith and Thomas was filed November 7, 1883; that of Cowles, October 18, 1883. They were put in interference. Smith and Thomas filed their preliminary statement; Cowles filed his. Times were fixed for taking testimony. Before Cowles had taken any testimony he discovered, as he alleges, that there was an error in his preliminary statement. He did not, however, make application to correct the error, but proceeded to take the testimony, which was concluded and the records filed, after which he presented the motion which is now under consideration.

The real question in this case is whether the rules prescribed for the conduct of cases in interference are to be regarded at all. The rule (105) in regard to the filing of preliminary statements is as follows:

Each party to the interference will be required to file a concise statement, under oath, showing the date of his original conception of the invention, of the making of a drawing, of the making of a model, of its disclosure to others, of its reduction to practice, and of the extent of its use. The parties will be strictly held in their proof to the dates set up in their statements. The statement must be sealed up before filing, (to be opened only by the Examiner of Interferences,) and the name of the party filing it, the title of the case, and the subject of the invention indicated on the envelope. The statements shall not be open to the inspection of the opposing parties until both shall have been filed, or the time for filing both with any extension thereof shall have expired, nor then unless they have been examined by the proper officer and found to be satisfactory. When the invention was made abroad, the statement should set forth when and where, if ever, the invention was patented, (giving the date and number of the patent,) and when, if ever, it was described in a printed publication, (giving the title, date, and place of publication,) and when, if ever, it was introduced, or knowledge of it was introduced, into this country, (giving the circumstances which are thought to establish the facts thereof.)

Rule 110 relates to the amendment of preliminary statements, and is as follows:

In case of material error in the statement, arising through inadvertance or mistake, it may be corrected on motion (see Rule 149) upon showing to the satisfaction of the Commissioner that its correction is essential to the ends of justice. The motion to correct the statement must be made, if possible, before the taking of any testimony, and as soon as practicable after the discovery of the error.

It has been urged that the provisions of the rule first cited are at variance with the law, and that in fact no preliminary statement should be required, and that in legal strictness it could not be. It is further urged that it is the duty of the Commissioner to determine who is the original and first inventor, and that he is not at liberty to disregard evidence however and whenever brought to his attention, but must receive and consider it. The logic of this is, that rules for the orderly conduct of business in the Office are unnecessary; that at best they are merely convenient, and that it is within the discretion of any applicant to disregard the rules as he may see fit.

The absolute necessity for providing rules for the conduct of all proceedings before the Patent Office is too palpable to need argument in support of it. The statute recognizes that necessity, and provides that the Commissioner of Patents, subject to the approval of the Secretary of the Interior, may from time to time establish regulations, not inconsistent with law, for the conduct of proceedings in the Patent Office. There is no proceeding before the Office concerning which fixed rules are more indispensable than in cases of interference. It is certainly just and proper to require an applicant to state his case—that is, to set out the claim upon which he bases his right. If he has made an invention, he can certainly state that fact. He can also state when he made it, and all other facts required by the rule. He is authorized by the rule and good conscience to fix the *earliest* date or dates. It is also just and proper that in case he makes a mistake in his preliminary statement by reason of inadvertence that he should be permitted to correct it; but it is equally important that such correction should be made in ac-

cordance with some fixed and reasonable rule; and such a rule has been prescribed, and is hereinbefore cited. That rule requires that the motion to correct the statement must be made, if possible, before the taking of any testimony, and as soon as practicable after the discovery of the error.

In the case at bar, the original error, if there is error, is the result of want of care and attention in preparing the preliminary statement. It seems clear that if there had been a proper effort made to comply with the reasonable requirement of the rule, there would have been no need of an amendment at all; but waiving that, the error was discovered before the applicant Cowles proceeded to take his testimony, and it was not until after all the testimony was taken that a motion is made to amend the preliminary statement. It is urged that this motion is similar to one which is not unfrequently made in courts of law under the statute, and in courts of chancery under well-recognized principles and practice, which authorize the amendment of the petition or bill after the case is heard. The cases are not parallel, however. It is perfectly clear that if in a proceeding at law or in chancery, the party had knowingly failed and wilfully neglected to comply with the plain provision of the rules of practice or law when he could have done so, the court would not recognize his right to make correction subsequently. The trouble in this case arises from the fact that to allow the amendment suggested would establish a precedent which would be thoroughly mischievous, and it must occur to counsel that it is better to insist upon a reasonable and just compliance with the rules of the Office, though it may work a hardship in an individual case, than adopt a course which would result in a practical abrogation of them, with consequent confusion.

My attention is called to the case, decided by the Secretary of the Interior, in which it was suggested that where facts conclusive in themselves are shown they should be considered whenever presented. This is not such a case. But if the Secretary meant by that opinion to say that an applicant may in any case, as in this, exercise his own pleasure about complying with the rules, regardless alike of the character of the evidence and the time of its introduction, I should not regard his decision as either a practical exposition of the law or as good practice, and I should not feel bound to regard it. It is only in cases where parties have failed to comply with the law, after having made reasonable and proper efforts to do so, that further opportunity to amend is or should be accorded. This case does not come within that rule. The preliminary statement was faulty, if at all, through the failure of the applicant to make suitable efforts to ascertain the facts, which he was required by the rule to set forth, and upon which his statement was predicated, and in the matter of amendment the rule was knowingly disregarded. The testimony closed before this motion was filed.

It will be apparent that if the amendment may be made in this case it should be permitted in any and every case, and, as before suggested, the rule might as well be abrogated.

It is said on behalf of the party making this motion that if a patent should issue to his competitor it would on the evidence adduced be declared invalid. That is possible; but I am clear that it will never be declared invalid unless the reasonable rules of practice provided for the conduct of proceedings in the courts are observed by the party whose rights are to be established and interests protected by such decree. In other words, to establish a right, he must observe the rules provided for proceedings in that behalf. No man has just cause to complain if he falls short in obtaining what he conceives to be fairly due him, if he has negligently failed to take the requisite steps to that end; nor is he at liberty to determine arbitrarily for himself whether he will or not observe the rules prescribed to obtain relief. If this were a case in which there were doubts which I could resolve in favor of the applicant making this motion, I would not hesitate to give him the benefit of such doubts; but it does not belong to that class. His disregard of the rule is palpable, obvious, and open, and there is nothing left to do except to abolish the rule or compel its observance, and there is only one way of accomplishing the latter, and that is by attaching the penalty, which is to refuse to permit an amendment which will admit the testimony sought to be offered. The courts are open, so if it occurs that applicant has lost, by neglect and refusal to comply with the just requirements of reasonable rules, what he conceives to be a right, he may, by seeking a remedy in the courts and conforming to the law and rules of practice made in pursuance thereof, obtain redress. I am not clear that the evidence is at all conclusive, but I am clear that its presentation is in direct violation of the rules cited.

The decision of the Examiner of Interferences is affirmed.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—Northern District of New York.

TUTTLE *et al.* v. LOOMIS *et al.*

Decided January 2, 1885.

1. After a lapse of eight years no amendment can be imported into a reissue to effect a broadening of the claim of the original in the absence of very special circumstances.
2. In view of decisions in certain suits in which the complainants in this case occupied a similar position, and in which the defendants herein were closely identified with the defendants therein, although not in such sense privies as to effect an estoppel, the court declined to render a decree until a rehearing (the motion for which had been made) had been had of the former cases, and an opportunity thus afforded for a consideration in them of recent decisions of the Supreme Court on the subject of reissues.

Messrs. Duell & Hey and *M. D. Leggett*, counsel for the complainants.

Mr. N. H. Stewart and *Mr. John R. Bennett*, counsel for the defendants.

WALLACE, *J.:*

All the questions involved here have been decided in favor of the complainants in suits upon these patents, first by Judges Drummond and Gresham in the Circuit Court of the District of Indiana, and again by Justice Matthews and Judge Dyer in the Circuit Court for the Western District of Michigan. Not only were these complainants the complainants of record in those suits, but the defendants in those suits were closely identified with the present defendants, although not in such sense privies as to effect an estoppel. In view of these decisions I ought not to consider the questions now presented as open. Upon the question of the validity of the reissue, however, my impressions are so strongly against the complainants that I am unwilling to direct a decree in their favor until the rehearing upon that question now pending in the western district of Michigan has been had and a decision reached by the court. When the suit was decided by Judge Drummond, the law upon the subject of reissues was generally recognized as conferring broader powers upon the Commissioner of Patents, and as authorizing a wider latitude in modifying the claims of original patents than has since been declared to be the rule by the decisions of the Supreme Court.

Carver's original patent described spring harrow-teeth of such form that when attached to the under side of the harrow-bar the teeth would curve back over the bar and extend to the ground below the under side of the harrow-frame, with their points inclining forward. The claim covered such teeth. It is obvious that all the functions of such teeth could be obtained without adhering to the precise form and mode of attachment specified by Carver; and assuming that he was the pioneer in the invention of spring harrow-teeth, he was entitled to a broader claim than he made. Whether he described in his original patent just the invention he supposed he had made, or whether his invention was really a broader one than he himself supposed it to be when it became apparent that the real invention was unduly restricted and narrowed by the description, he was entitled to a reissue if the error arose from inadvertence, accident, or mistake. After the lapse of eight years, however, no amendment could be imported into the reissue to effect a broadening of the claim of the original in the absence of very special circumstances. (*Mahn* v. *Harwood*, Sup. Ct. Rep., Dec., 1884, 174.) The specification here was very plain and free from complexity, and no special circumstances exist to take the case out of the general rule.

It seems to have been the purpose of the first reissue to eliminate some of the details of form and arrangement which were imported as a part of the description into the claim of the original patent. The description is amended by the statement that—

> The size and shape of the teeth may be varied considerably without departing from the principle of my invention, which contemplates, broadly, a harrow provided with teeth fastened at one end of the frame, but so formed between the point of attachment to the frame and the point of contact with the ground that it will spring or yield so as to pass over lumps or obstacles without injury to the tooth itself, and without disturbing the operation of the other teeth of the harrow.

The claims are modified so as to cover the invention thus described. But in the second reissue all reference to such details in essentials is omitted in order to prepare the way for broad claims which will embrace any harrow having two or more series of spring-teeth, and any harrow-tooth which "embodies the principle" of Carver's tooth. The drawings are referred to as embodying the principle of the invention, and the parts shown by the drawings are described. There the specification is amended by the statement that the inventor was the first to have produced a harrow wherein the harrow-frame is supported on two or more series of spring-teeth which are adapted to yield to an unlimited extent when in use. When the several claims of the reissue are read with the specification as amended there does not seem to be one which restricts the scope of the patent to a spring-tooth fastened to the under side of the bar and curving back over the bar. All the claims of this reissue, except the third and fourth, are on their face much broader than the claim of the original, or for a different invention than is disclosed in the original. The third claim read with the specification is not limited to a spring-tooth curving back over the bar of the frame or fastened to the lower side of the bar, nor is the fourth. These claims therefore are broader than the claim of the original by proper construction, although they are not in express terms.

In view of the lapse of time between the original and the reissue in suit, it would seem clear that the inventor abandoned to the public all that he described and did not claim in his original patent. I have not considered the question whether this expansion of the claims was made in order to embrace in the monopoly of the patentee the harrows or harrow-teeth made subsequently to the original patent by others. It seems quite obvious that the defendants' devices and the several other devices shown on the map used at the hearing in illustration of the subsequent state of the art embody the essential features of Carver's real invention, with modifications apparently designed, mainly, to evade the claim of the original patent. Entertaining these views, I am unwilling to decree for the complainants, unless upon the review pending in the Circuit Court for the Western District of Michigan that court should adhere to its original judgment. It is but just to the complainants to state that their counsel have not been fully heard; and one reason why I deemed it proper to curtail their argument was because the decision of the question involved more properly belongs to the Circuit Court of the Western District of Michigan, and the action of that court should not be forestalled by a decision here on full consideration.

U. S. Circuit Court—Southern District of New York.

TATE *et al. v.* THOMAS.

Decided January 10, 1885.

1. When the language of the claim explicitly imports a certain arrangement into such claim, it is unnecessary to consider whether that arrangement is essential to the combination for the purpose of producing the result desired, and a machine which does not employ such arrangement is not an infringement of the claim.
2. The addition of certain elements to a patented construction which does not unfit it for performing its original result, but simply adds the results due to the new elements, does not avoid infringement.

Mr. Edwin H. Brown for the complainants.

Mr. S. J. Gordon for the defendant.

WALLACE, *J.:*

Infringement is alleged of the patent granted August 22, 1871, to William John Tate for an improvement in quilting-machines. The court has been relieved by the concessions of counsel made at the hearing from the consideration of any question except whether the defendant's machine, known as the "Thomas Machine," and made under a license from the owner of the patent, granted June 9, 1874, to M. A. King, is an infringement of the eighth claim of the complainants' patent. It has been conceded that the other machines made by the defendant are infringements of one or more of the claims of that patent. The object of the invention is to effect the quilting by machinery of complex patterns over the surface of materials used

for bed-coverings, the lining of garments, &c. One feature of the invention relates to the production of diamond patterns or figures in the material quilted, and, as the infringing machine is adapted to produce such patterns only, it will not be necessary to consider the other features of the invention.

It is obvious that Tate was the first to invent a quilting-machine which would produce the various complex and elaborate patterns which before his invention were produced by hand-work. The nearest advance in the art before his invention had been made by William Muir, whose quilting-machine is described in his patent of April 20, 1869. This machine could quilt in straight parallel lines like the stitching of the sewing-machine, but it could also quilt in coincident zigzag lines, and thus form patterns defined by such lines. This latter result was effected by a single row of needles combined with devices for feeding the fabric to the needles, which would impart both a forward or longitudinal and a laterally-vibrating movement to the fabric, thus causing the stitching to be done in waved or zigzag lines. Tate conceived that by employing two rows of needles and so organizing the feeding devices so that those for each row would operate successively, and not simultaneously, the zigzag lines of stitching of one row of needles could be made to meet those of the other row at the angle of the zigzag, and thus produce the desired diamond-shaped pattern. The invention described in his patent, so far as it relates to the production of the diamond-shaped patterns, is a combination of the two rows of needles with the requisite feeding devices.

The specification and drawings describe the needles as arranged in two parallel rows, and those of one row so located as to be opposite the spaces between the needles of the other row. Thus the series is one row alternate with those in the other row. When thus located and the described forward and lateral feed movement is applied, the relative disposition of the zigzag lines made by each row of needles is such that the angles of the lines meet at their apexes, thus producing the diamond figures or patterns in the place of the figures or patterns resulting from coinciding zigzag lines.

The eighth claim of the patent is as follows:

8. The combination of a series of needles, arranged in two rows, one behind and alternating with the other, and devices for feeding the work beneath the needles, substantially as described.

Whether the alternating arrangement of the needles is essential to the combination for the purpose of producing the diamond pattern it is not necessary to consider, because the language of the claim in question explicitly imports that arrangement into the claim. A machine which does not have the series of needles arranged in two rows, one behind alternating with the other, is not an infringement of the claim. The defendant's machine employs the feeding devices which are one of the elements of the claim, and also the series of needles arranged in two rows, one behind the other; but in this machine the needles of each row are located opposite those of the other row. It does not follow, however, that this machine does not have the alternating needles of the claim, and upon an analysis it appears that it has two sets of needles, and each set consists of a series in two rows alternating each with the other. Each set of needles operates on the principle of Tate's invention and does the work of his machine in the same way. In other words, the defendant has incorporated Tate's alternating needles into the machine and then duplicated Tate's arrangement, and when this has been done each needle in one row is opposite a needle in the other row. No new result is obtained by the change, although an aggregation of results is accomplished. If the additional needles had not been inserted, the defendant's machine would quilt diamond patterns just as it does now. The machine is held to be an infringement.

A decree is ordered for the complainants.

U. S. Circuit Court—Southern District of New York.

DE KUYPER *et al. v.* WITTEMAN *et al.*

Decided January 12, 1885.

The mere acts of printing and selling labels in imitation of that of a complainant might be innocent; but when done with the purpose of enabling others, by the use of such labels, to palm off their goods as the goods of complainant, there is ground for proceedings in a court of equity.

Mr. Rowland Cox for the complainants.

General B. B. Foster for the defendants.

WALLACE, *J.*:

The demurrer in this case is without merits. The complainants, upon the facts shown in the bill of complaint, have a good title to their trade-mark and a case for its protection irrespective of their statutory rights under the registration in the Patent Office. As the necessary diversity of citizenship exists between the parties, they are entitled to invoke the jurisdiction of this court. Upon the allegations of the bill the defendants are actively engaged in assisting third persons to use the complainants' trade-mark in violation of their rights. The mere acts of printing and selling labels in imitation of the complainants' might be innocent, and without evidence of an illicit purpose would not be a violation of the complainants' rights. It is otherwise, however, when this is done with the obvious purpose of enabling others, by the use of the labels, to palm off their goods upon the public as the goods of the complainants.

The demurrer is overruled, with costs. Defendants may answer upon payment of costs.

THE

OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

VOL. 30—No. 5. TUESDAY, FEBRUARY 3, 1885. PRICE—$5 per year.

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The Official Gazette.

The OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Indexes to Patents on Electricity.

Appendix No. 2 to the index to patents relating to electricity, covering the period of time from July 1, 1882, to June 30, 1883, has been issued, and is now for sale. These indexes, arranged alphabetically, numerically, and by classes, are completed to June 30, 1883, and comprise the following volumes:

Vol. 1. Index to patents relating to electricity granted by the United States prior to June 30, 1881, with an appendix, July 1, 1881, to June 30, 1882. One volume, 250 pages. In paper covers, $3; bound, $5.

Vol. 2. Appendix No. 2, July 1, 1882, to June 30, 1883. One volume, 50 pages. In paper covers, $1.50.

Order No. 215.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., January 26, 1885.

Sub-class 25, "Lighting Devices—Electric," of Class 67, "Lamps and Gas-Fittings," is hereby transferred from Division XIX to Division XVI. Sub-class 91, "Hydrocarbon Furnaces," of Class 126, "Stoves and Furnaces," is hereby transferred from Division XIX to Division III.

BENJ. BUTTERWORTH,
Commissioner.

Issue of February 3, 1885.

Patents	404—No. 311 460 to No. 311 863,	inclusive.
Designs	26—No. 15,756 to No. 15,781,	inclusive.
Trade-Marks	15—No. 11,891 to No. 11,905,	inclusive.
Labels	11—No. 4,327 to No. 4,337,	inclusive.
Reissues	4—No. 10,555 to No. 10,558,	inclusive.
Total issue	460	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	2	.....	Nebraska	4	.....
Arizona Territory	.....	.....	Nevada	1	.....
Arkansas	1	.....	New Hampshire	.....	.....
California	10	.....	New Jersey	18	.....
Colorado	3	.....	New Mexico Territ'y	.....	.....
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Florida	.....	.....	Pennsylvania	38	4
Georgia	1	.....	Rhode Island	6	.....
Idaho Territory	.....	.....	South Carolina	1	.....
Illinois	33	3	Tennessee	2	.....
Indiana	15	.....	Texas	1	.....
Indian Territory	.....	.....	Utah Territory	2	.....
Iowa	12	1	Vermont	1	.....
Kansas	3	.....	Virginia	4	.....
Kentucky	3	1	Washington Territ'y	.....	.....
Louisiana	1	.....	West Virginia	.....	.....
Maine	5	1	Wisconsin	13	1
Maryland	2	.....	Wyoming Territory	.....	.....
Massachusetts	34	1	United States Army	.....	.....
Michigan	19	.....	United States Navy	.....	.....
Minnesota	2	.....			
Mississippi	.....	.....	Total to citizens of the United States	395	26
Missouri	8	1			
Montana Territory	2	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
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Austria-Hungary	.....	.....	Holland	1	.....
Barbadoes	.....	.....	Ireland	.....	.....
Belgium	.....	1	Mexico	1	.....
Bermuda	.....	.....	Norway	.....	.....
Brazil	.....	.....	Russia	.....	.....
Canada	8	.....	Scotland	.....	.....
Central America	.....	.....	Spain	.....	.....
Colombia, U. S. of	.....	.....	Switzerland	3	.....
Cuba	1	.....	Venezuela	.....	.....
Denmark	.....	.....			
Ecuador	.....	.....	Total to citizens of foreign countries	35	1
England	12	.....			
France	7	.....			

DESIGNS.

15,756.—BADGE OR BREASTPIN.—*Dewey F. Adams*, Providence, R. I. Application filed December 8, 1884. Term of patent 3½ years.

15,757 to 15,762, inclusive.—CARRIAGE-STEP.—*Charles A. Babcock*, Buffalo, N. Y., assignor to *Pratt & Letchworth*, same place. Applications filed December 31, 1884. Term of patents 7 years.

15,763.—COOKING-STOVE.—*H. Clay Bascom*, Troy, N. Y. Application filed October 20, 1884. Term of patent 7 years.

15,764.—PAPER-CUTTER.—*Theodore C. Brecht*, Washington, D. C. Application filed December 30, 1884. Term of patent 7 years.

15,765.—CURTAIN FABRIC.—*Patrick McCaffray*, Philadelphia, Pa., assignor to *William T. Smith*, same place. Application filed December 4, 1884. Term of patent 3½ years.

15,766.—PENDANT.—*Bernhard Dreyfus*, New York, N. Y. Application filed November 26, 1884. Term of patent 7 years.

15,767.—TYPE.—*Peter J. Dawkins*, Brooklyn, N. Y. Application filed December 23, 1884. Term of patent 7 years.

15,768.—CARPET.—*James L. Folsom*, Brooklyn, N. Y., assignor to *The Hartford Carpet Company*, Hartford, Conn. Application filed August 6, 1884. Term of patent 3½ years.

15,769.—CARPET.—*Alfred Heald*, Philadelphia, Pa. Application filed December 26, 1884. Term of patent 3½ years.

15,770.—TRUNK-IRON.—*Martin Maier*, Detroit, Mich. Application filed October 24, 1884. Term of patent 7 years.

15,771 to 15,776, inclusive.—OIL-CLOTH.—*Charles T. Meyer* and *Victor E. Meyer*, Bergen, N. J., assignors to *Edward C. Sampson*, New York, N. Y. Applications filed December 29, 1884. Term of patents 3½ years.

15,777.—FONT OF PRINTING-TYPE.—*John K. Rogers*, Brookline, Mass. Application filed October 6, 1884. Term of patent 7 years.

15,778.—RUG.—*William T. Smith*, Philadelphia, Pa. Application filed December 4, 1884. Term of patent 3½ years.

15,779.—RADIATOR LEG OR LOOP.—*George W. Walker*, Malden, Mass. Application filed December 22, 1884. Term of patent 14 years.

15,780.—TILE FLOOR OR PAVEMENT.—*Max Wiese*, Boston, Mass. Application filed August 12, 1884. Term of patent 14 years.

15,781.—LAMP-RESERVOIR.—*George W. Woodward*, New York, N. Y., assignor to *Wolcott A. Hull* and *The Ansonia Brass and Copper Company*, same place. Application filed August 15, 1884. Term of patent 7 years.

TRADE-MARKS.

[Certificates of registration of Trade-Marks numbered 8,191 and upward are registered under the act of March 3, 1881.]

11,891.—CULTIVATOR.—*The Burton Handle Company*, Burton, Ohio. Application filed December 19, 1884.
"The arbitrary word-symbol 'THE BRIGGS.'"

11,892.—PEPTONIZED MEAT.—*Compagnie Peptones de Viande du Docteur Kochs*, (*Société Anonyme*,) Antwerp, Belgium. Application filed January 5, 1885.
"The letters 'DR. K.' with the Esculapian stick."

11,893.—HAVANA LEAF-TOBACCO.—*John B. Creagh*, Philadelphia, Pa. Application filed October 21, 1884.
"The representation or illustration of a fan and the letters 'J. B. C.'"

11,894.—CIGARS.—*Grommes & Ullrich*, Chicago, Ill. Application filed December 23, 1884.
"The word 'PICKWICK.'"

11,895.—MEDICINE FOR THE CURE OF CRAMPS.—*Levi H. Harris*, Pittsburg, Pa. Application filed December 23, 1884.
"The illustration of a boy apparently in great pain."

11,896.—CORDIAL FOR SUMMER COMPLAINTS.—*Levi H. Harris*, Pittsburg, Pa. Application filed December 23, 1884.
"The representation of a boy sitting and eating a melon."

11,897.—CERTAIN BELTING FOR MACHINERY.—*New York Belting and Packing Company*, New York, N. Y. Application filed January 3, 1885.
"A representation of the planet Saturn and the word 'SATURN.'"

11,898.—LEATHER OF ALL DESCRIPTIONS.—*J. S. Rockwell & Co.*, Brooklyn, N. Y. Application filed January 8, 1885.
"The arbitrarily-selected word 'WALLABOUT.'"

11,899.—MALT WHISKY.—*Rosskam, Gerstley & Co.*, Philadelphia, Pa. Application filed January 2, 1885.
"The designation 'KEYSTONE,' whether expressed by word or figure, or both."

11,900.—COMPOUNDED BEVERAGE KNOWN AS JAMAICA RUM AND MAPLE-SUGAR.—*Steinhardt Bros.*, New York, N. Y. Application filed December 5, 1884.
"The representation of a landscape containing many maple-trees, with men tapping the same for maple-sirup, boiling the sirup in large kettles or pans, and a loaded wagon with a team of oxen yoked thereto."

11,901.—SALVES.—*Howard F. Tower*, New York, N. Y. Application filed January 3, 1885.
"The figure of a tower."

11,902.—LARD-PAILS AND ANALOGOUS VESSELS.—*F. A. Walsh & Co.*, Milwaukee, Wis. Application filed January 12, 1885.
"The arbitrary word-symbol 'ACME.'"

11,903.—SOLID PREPARATION FOR ASTHMA, CATARRH, HAY-FEVER, AND CERTAIN OTHER DISEASES.—*Hulbert H. Warner*, Rochester, N. Y. Application filed January 7, 1885.
"The word-symbol 'THROATINE.'"

11,904.—BARLEY BEER.—*George R. Wheeler* and *James A. Herold*, Council Bluffs, Iowa. Application filed January 13, 1885.
"The figures of two bees."

11,905.—METAL FORGINGS.—*J. H. Williams & Co.*, Flushing, N. Y. Application filed May 2, 1884.
"A representation of the letter 'W' in conjunction with the representation of a diamond."

LABELS.

4,327.—Title: "THE COMPLEXION OINTMENT."—*Joseph Bard*, Chicago, Ill. Application filed January 8, 1885.

4,328.—Title: "THE MEXICAN SYPHILITIC TREATMENT."—*Louis William Eckels*, Louisville, Ky. Application filed January 10, 1885.

4,329.—Title: "RODERIC'S WILD CHERRY COUGH BALSAM."—*Charles S. Foss*, Deering, Me. Application filed January 12, 1885.

4,330.—Title: "FALKE'S SULPHURET CREAM." (FOR CHAPPED HANDS, &c.)—*Julius Falke*, St. Louis, Mo. Application filed December 20, 1884.

4,331.—Title: "ARLINGTON SKIRT MANUFACTURING CO." (FOR SKIRTS.)—*Jacob Mayer*, New York, N. Y. Application filed January 13, 1885.

4,332.—Title: "THE BOSTON BROWN BREAD MIXTURE."—*Henry E. Pearson*, Newbury, Mass. Application filed November 14, 1884.

4,333.—Title: "C. T. RAYNOLDS AND CO'S SPECIALLY PREPARED PAINTS."—*C. T. Raynolds & Co.*, New York, N. Y. Application filed January 9, 1885.

4,334.—Title: "SAWYER'S SICK HEADACHE POWDERS."—*Andrew Sawyer*, Troy, N. Y. Application filed January 10, 1885.

4,335.—Title: "PERUVIAN BARK TONIC BITTERS."—*Albert G. Schmidt*, Chicago, Ill. Application filed December 16, 1884.

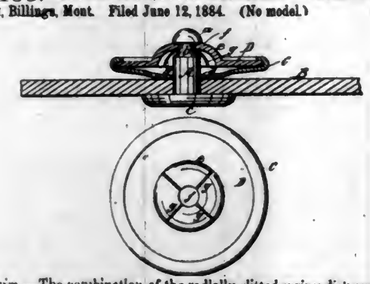
4,336.—Title: "WINDHAM THREAD."—*The Willimantic Linen Company*, Hartford, Conn. Application filed January 9, 1885.

4,337.—Title: "IVERTON MILLS" (FOR SPOOLS OF SEWING THREAD.) *The Willimantic Linen Company*, Hartford, Conn. Application filed January 8, 1885.

PATENTS

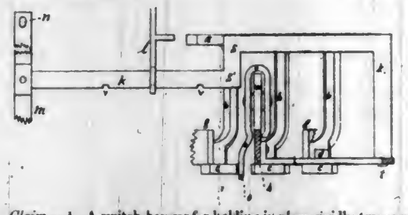
GRANTED FEB. 3, 1885.

311,460. BUTTON AND BUTTON-FASTENING. WILLIAM J. ALLASON, Billings, Mont. Filed June 12, 1884. (No model.)



Claim.—The combination of the radially-slitted spring-disk and button-front having the hemispherical bulge *e* at the center, the button-back having its edge overlapping the edge of said disk to hold it securely against strain, and the shank having a comparatively large hemispherical head adapted to be sprung through the perforation in the disk, substantially as shown and described, whereby the spring-disk is made to form an ornamental and strong front for the button.

311,461. SWITCH. ELWOOD H. ALLCUTT, Kansas City, Mo. Filed Dec. 2, 1884. (No model.)

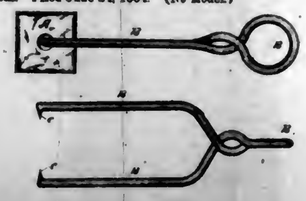


Claim.—1. A switch-hanger for holding in place rigidly two or more stationary rails, so as to prevent the said rails from spreading apart, approaching one another, or from rising or falling from position, said switch-hanger being composed of a top plate, A, and two or more legs, *b b b*, each leg supplied with a foot, *c c c*, all substantially as set forth.

2. A device for preventing a carrier from leaving the system of rails at the switch, said device obtained by combination of the bars *k* and *i*, the feet *c c c*, and the legs *b b b*, all substantially as set forth.

3. A device obtained by combination of the levers *m*, *k*, and *i* and the casting *l*, for swinging a movable rail pivoted at one end, and holding the free end of said movable rail firmly in coincidence with the end of any stationary rail attached to the switch-hanger, all substantially as set forth.

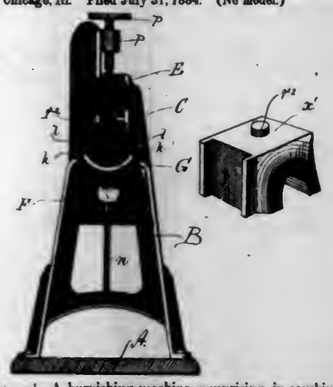
311,462. FIRE LIGHTER AND KINDLER. NELSON ARCHIBALD, Santa Maria, Cal. Filed June 24, 1884. (No model.)



Claim.—1. As an article of manufacture, a non-combustible substance, A, saturated in oil or other inflammable material, and held by means of pivotal bearings, C, that are kept in place by means of the spring-handle B, substantially as and for the purpose set forth and described.

2. As an article of manufacture, a handle being made of one continuous piece, forming at one extremity a spring, and the ends of said piece being bent and pointed, substantially as and for the purpose set forth and described.

311,463. PHOTOGRAPH-BURNISHING MACHINE. MYRON T. BALDWIN, Chicago, Ill. Filed July 31, 1884. (No model.)



Claim.—1. A burnishing-machine comprising, in combination, rollers supported upon journals in the frame of the machine, a petticoat, F, provided with chambers *h*, means for heating the roller C, and means for revolving the said rollers, substantially as described.

2. In a burnishing-machine having standards B B, the combination, with the roller C, of a petticoat, F, adjustably secured to the said standards, and provided with an apron, G, and an extension, *m*, at each end to form chambers *h* with the inner surfaces of the standards B B, substantially as and for the purpose set forth.

3. In a burnishing-machine, the combination of the following elements, viz: standards B B, journal-bearings *t*, *t'*, *r*, and *r'*, each formed in two parts and lying within recesses formed in the standards B B, and provided each with a recess, *q*, which embraces the standard in which it rests, rollers C and E, supported on their journals within the said bearings and revolving at a differential speed, means for adjusting the rollers C and E with relation to each other, and means for heating the roller C by radiation, the whole being constructed and arranged to operate substantially as described.

4. In a burnishing-machine, the combination of the following elements, viz: standards B B, journal-bearings *t*, *t'*, *r*, and *r'*, each formed in two parts and lying within recesses formed in the standards B B, and provided each with a recess, *q*, which embraces the standard in which it rests, rollers C and E, supported on their journals within the said bearings, means for revolving the said rollers, a cog-wheel, D, on the roller C, and a cog-wheel, D', on the roller E and of greater diameter than the cog-wheel D, means for adjusting the rollers C and E with relation to each other, a petticoat, F, adjustably secured to the said standards and provided with an apron, G, and an extension, *m*, at each end to form chambers *h* with the inner surfaces of the standards, and means for heating the apron G, the whole being constructed and arranged to operate substantially as and for the purpose set forth.

5. In a burnishing-machine, the combination of the following ele-

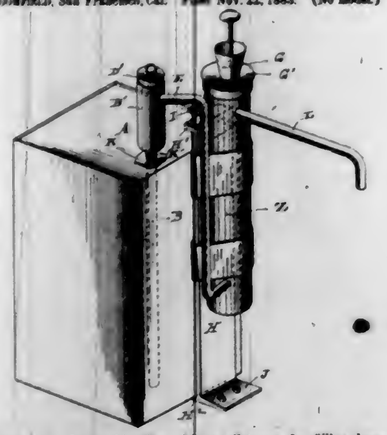
ments, viz: recessed standards B B, journal-bearings *t*, *t'*, *r*, and *r'*, each formed in two parts and lying within the recesses formed in the said standards and provided each with a recess, *q*, which embraces the standard in which it rests, rollers C and E, supported on their journals within the said bearings, annular heads *p*, formed upon extensions of the said standards, set-screws *p'* within the said annular heads, to press upon the journal-bearings of the said rollers and effect the adjustment of their proximity to each other, and to permit by the release of the said set-screws the ready removal of the said rollers, means for revolving the said rollers, a cog-wheel, D, on the roller C, a cog-wheel, D', on the roller E and of greater diameter than the said cog-wheel D, a petticoat, F, adjustably secured to the said standards and provided with an apron, G, and an extension, *m*, at each end to form chambers *b* with the inner surfaces of the said standards, and means for heating the apron G, the whole being constructed and arranged to operate substantially as and for the purpose set forth.

311,464. THILL-COUPLING. GEORGE W. BLAIR, Wabash, Ind., assignor of two-thirds to Louis H. Pangburn and James M. Haas, both of same place. Filed May 10, 1884. (No model.)



Claim.—A spring for thill-couplings which is formed from a single piece of wire consisting of the bend A', arms B', coils C', curved arms D', semicircular bends E', curved arms F', approaching said arms D' at their upper ends, coils G', in a line with the coils C', arms H', and projecting terminal arms I', for bearing against the under side of the axle, substantially as described.

311,465. LAMP-FILLING ATTACHMENT FOR OIL-CANS. WILLIAM BLOOMFIELD, San Francisco, Cal. Filed Nov. 22, 1883. (No model.)



Claim.—1. In combination with an oil-pump for filling lamps directly from a can, the intermediate suction-chamber, B', having a valve, C', said chamber being connected with the oil-can by a pipe, B, and with the pump by a pipe, E, substantially as shown and described.

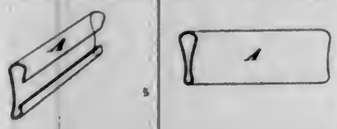
2. The vent-plate K, placed between the suction-chamber B and the top of the can, and held in place by the spiral spring K', constructed and arranged to operate substantially in the manner as set forth and specified.

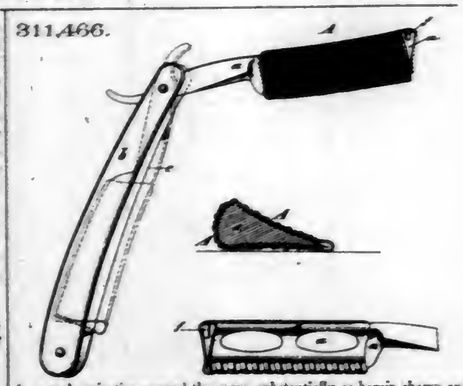
3. The suction-pipe and suction-chamber provided with an eduction-pipe leading into the oil-pump, in combination with the oil-pump, constructed, arranged, and operated substantially in the manner and for the purpose as herein set forth and specified.

4. The combination of the can A, pump Z, clamp H, having lugs H' H', screws I, and base-plate J, the intermediate suction-chamber, B', and connecting-pipes B E, substantially as shown and described.

311,466. RAZOR-GUARD. ALFRED V. BROKHALME, New York, N. Y. Filed Mar. 15, 1884. (No model.)

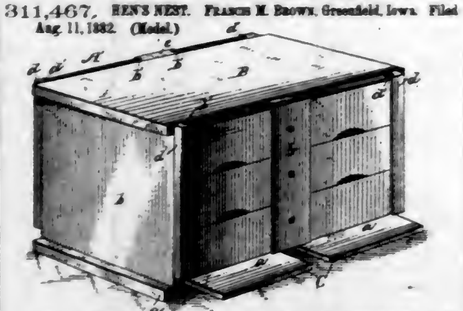
Claim.—A tubular shield adapted to fit over a razor-blade, tightly embracing the same at the back and sides, with the front edge isolated





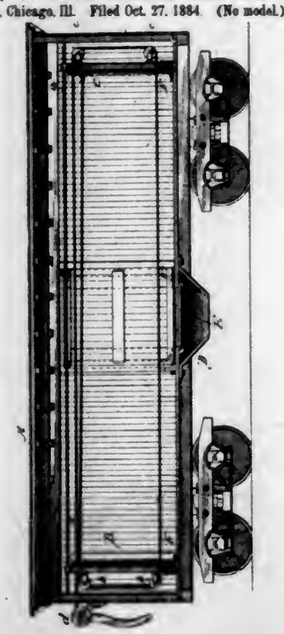
from and projecting around the same, substantially as herein shown and described.

311,467. HEN'S NEST. FRANCIS M. BROWN, Greenfield, Iowa. Filed Aug. 11, 1882. (Model.)



Claim.—The combination, with the frame A', constructed as described and provided with the vertically-grooved corner-strips *d*, of the intermediate vertically-grooved strip, *e*, the top having a transverse groove arranged on its under side relatively at right angles to the said intermediate strip, *e*, the supplemental floor-sections, a transverse partition provided on its front edge with a vertically-grooved strip, *f*, and the front and rear closing-slats, *g*, provided with ventilating-apertures, substantially as specified.

311,468. DEVICE FOR UNLOADING GRAIN FROM VEHICLES. J. H. BROWN, Chicago, Ill. Filed Oct. 27, 1884. (No model.)



Claim.—1. A grain or other receptacle and a chute opening in the bottom thereof, in combination with the sliding heads, arranged and operating substantially as described.

2. The combination, with the receptacle and the chute opening in the bottom thereof, of the sliding heads and mechanisms connecting and actuating said heads, substantially as described.

311,469. TOBACCO-PIPE. WILLIAM R. CHADSEY, St. Louis, Mo. Filed Feb. 19, 1884. (No model.)



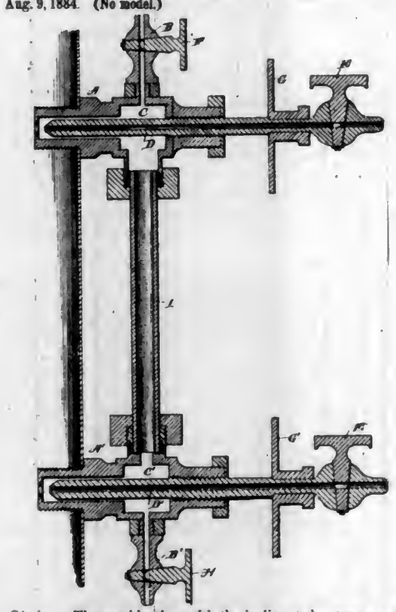
Claim.—1. The outer bowl, A, having the bevel-face *d'* and the notches d^4, in combination with the inside bowl, C, having the like bevel-face, *d*, and opposite projections, d^3, for seating the said thimble or inside bowl in the manner and for the purposes set forth.

2. The improved tobacco-pipe consisting of the outer bowl, A, with stem B, having the trough-shaped bottom portions, *a b*, the bevel-face *d'*, and the notches d^4, and the thimble C, having diagonal openings *c c*, the solid bottom portion, *c'*, the upper bevel-face, *d*, and projections d^3, all combined and operating substantially in the manner and for the purposes set forth.

311,470. COMPOSITION FOR PRESERVING EGGS. CHESTER U. CHAMBERLIN, Hartford, N. Y. Filed May 21, 1884. (No specimens.)

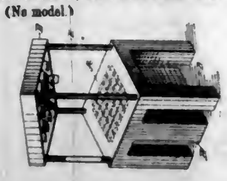
Claim.—The herein-described composition of matter for preserving eggs, consisting of alcohol, crystals salicylic acid, deodorized wood-naphtha, bleached resin-lac, and powdered chalk, in substantially the proportions named.

311,471. WATER-GAGE. GEORGE S. CHASE, Bellefonte, Pa. Filed Aug. 9, 1884. (No model.)



Claim.—The combination, with the bodies of the steam-cock and water-cock connected by the water-glass, of the hollow valve-stems provided with valves or cocks near their outer ends, as set forth.

311,472. ANNUNCIATOR FOR TELEPHONE SYSTEMS. WILLIAM A. CHILDS, Englewood, N. J., and FRANK SHAW, New York, N. Y. Filed Jan. 26, 1884. (No model.)



Claim.—1. An electro-magnetic annunciator having its parts disposed in a horizontal instead of a vertical plane, and provided with drops or indicators numbered on opposite faces and arranged in the manner described, so that the drop, when released, may be seen from both sides, as and for the purpose described.

2. An electro-magnetic annunciator whose magnets are disposed in the same horizontal plane, and provided with pivoted indicator or number cards, each normally held in a horizontal plane, and arranged, when released, to swing into a vertical plane.

3. An annunciator having its parts disposed in a plane substantially parallel with but above a horizontal switch-board, said annunciator being provided with cards or indicators suitably constructed or mounted to permit them to be seen from all sides, as and for the purpose described.

4. The combination, with a pivoted annunciator-drop normally held in a horizontal plane, of a perforated stop-spring, and a stud upon the drop adapted to enter the perforation, so as to bring the drop to rest in a vertical plane and prevent it from oscillating.

5. The combination, with the vertical armature, of the horizontal pivoted drop, the stud, and the perforated stop-spring, as and for the purpose described.

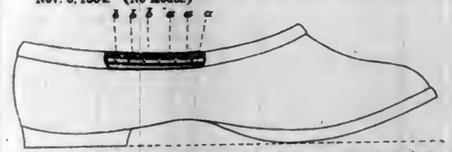
6. The combination of the drop having stud and the insulated perforated conducting-spring, as and for the purpose described.

7. In an electric annunciator whose parts are disposed in a horizontal plane, as described, an annunciator-drop having its indicating number or character upon both sides, as and for the purpose described.

8. The combination, with a pivoted annunciator-drop, and a stop-spring, of a stud or projection, and an opening or recess for said stud, one member carried by the drop, and the other by the spring, or vice versa, and arranged in the manner described to prevent oscillation of the drop.

9. In a telephone-exchange apparatus having the switching apparatus arranged in a horizontal or substantially horizontal plane, an annunciator having its parts disposed in a general horizontal plane above the switching apparatus, as and for the purpose described.

311,473. RUBBER SHOE. CHARLES CLEVES, Omaha, Nebr. Filed Nov. 8, 1884. (No model.)



Claim.—A rubber shoe provided with a metallic chain inclosed around the mouth or foot opening of the shoe, all substantially as and for the purpose set forth.

311,474. BUTTON OR STUD. CHARLES H. COOKE, Providence, R. I., assignor to J. B. Mathewson & Co. Filed Oct. 17, 1884. (No model.)



Claim.—1. The combination, in a button or similar article, of a shoe made in two parts—one fixed and the other hinged—with a hollow post and a spring contained in said post and adapted to act upon a projection on the hinged shoe lying behind the axis of the hinge, substantially as shown and described.

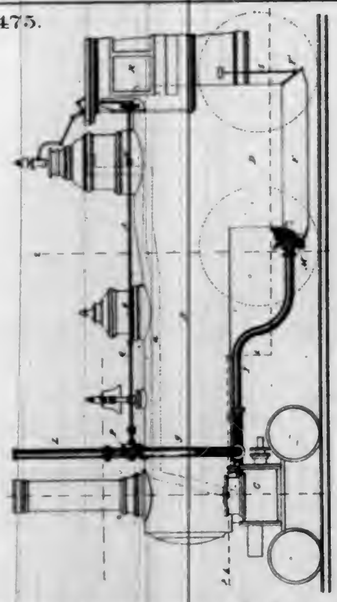
2. In a button or similar article, a shoe made in two parts, one part being fixed to a hollow post at right angles thereto, and the other being hinged to swing in a half-circle over upon the fixed part when the button is to be applied or detached, and to spring back into the plane of the fixed part, a projection, *b*, on the hinged shoe, and a spring within the hollow post, all substantially as described.

311,475. MEANS FOR SUPPLYING AIR TO THE FURNACES OF LOCOMOTIVE-BOILERS. THOS. C. CRAVEN, Greenbush, assignor of one-half to Abraham Schell, Albany, N. Y. Filed Mar. 5, 1884. (No model.)

Claim.—1. The combination, with the ash-pan of a locomotive-boiler, of the oblong air-funnel above described, arranged horizontally in front of and across the ash-pan, with its flaring open end on a vertical plane and facing in a forward direction from said front wall, and its contracted discharge end extended rearwardly through said wall to within the chamber of the pan, so as to produce between the latter and the outer air in front of the same a funnel-shaped conduit having a horizontal extension about equal to the width of the ash-pan chamber, for operations and purposes set forth.

2. The combination, with the ash-pan of the furnace of a locomotive-boiler and an oblong air-funnel extended horizontally across the front of said pan, with its flaring open end on a vertical plane and facing forward from said pan, and its contracted discharge end opening into the chamber of the same through the entire width of its front wall, of a door or

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valve under control of the engineer, and arranged at the rear end of said pan and opposite to the discharge end of the air-funnel, substantially as and for the purposes set forth.

3. The steam-blower M above described, having an oblong steam-chamber for receiving and partially retaining a body of steam, said chamber being in length about equal to the width of the ash-box, and provided at one side with an opening that communicates with a steam-pipe, and having on the opposite side a gradually-contracted discharge port or opening which has an unbroken extension of length about equal to that of the steam-chamber, and being narrow in a transverse direction, whereby the current of steam will be discharged from the blower in a thin sheet, substantially as and for the purposes set forth.

4. The combination, with the ash-pan of a locomotive-boiler, of the combined steam and air blowing devices above described, arranged horizontally in front of and across the said pan, the gradually-contracted ends of both the air-funnel and steam-chamber discharging into the pan from its front side in currents which, respectively, will be wide in a horizontal direction and narrow in a vertical direction, substantially as and for the purposes set forth.

5. A steam and air blower for locomotives arranged in combination with the ash-pan of the furnace, and formed by the combination of an oblong air-funnel arranged in front of and extending entirely across the said pan, with its flaring open end on a vertical plane and its contracted discharge end opening into the chamber of the pan, and the steam-blowing device consisting of a steam-receiving chamber of a length equal to the width of the said funnel, and provided with a gradually-contracted discharge-nozzle having a long extension of opening in its horizontal direction and a narrow opening in a vertical direction, the said steam-blower being arranged horizontally within the air-funnel, with its discharge end about central between the upper and lower contracting side walls of the same, substantially as and for the purposes set forth.

6. The combination, with the ash-pan of the furnace of a locomotive and a steam and air blowing apparatus, which is so arranged in relation to said chamber that its air and steam discharge ends will open into said chamber from its front side, with the length of the discharge-openings of the same extended horizontally across the front end of said chamber, of a door or valve at the opposite or rear side of the said ash-pan chamber, and mechanism for opening the same under the control of the engineer, substantially as and for the purposes set forth.

7. The combination, with the ash-pan of a locomotive-boiler and the oblong air-funnel N above described, arranged horizontally in front of said ash-pan, with its flaring open end on a vertical plane and facing forward, and with its contracted discharge end projected into the front end of said pan, with its length of discharge-opening extended horizontally across the front of the same, of the steam-blower M, constructed and arranged in relation to said air-funnel, substantially as above described, and a steam-pipe communicating with the exhaust-ports of the engine and the said steam-blower, substantially as and for the purposes set forth.

8. The combination, with the ash-pan of a furnace and the combined steam and air blower M N, constructed and arranged in relation to said ash-pan, substantially as above described, of a pipe leading from the exhaust-ports of the engine, and provided with branches, one of which connects with said steam and air blower for operating the same, and the other arranged between the said engine and said blower, and a valve mechanism between said blower and the discharge end of the last-mentioned branch, substantially as and for the purposes set forth.

9. In a locomotive-engine, the combination, with its exhaust-ports and a chamber, H, communicating therewith, of pipes *g* and pipe L, discharging the exhaust-steam into the air, and a pipe, I, connecting the chamber H with the steam and air blower M N, constructed and arranged as above described, and a valve located between pipe L and chamber H, all arranged and operating substantially as set forth.

10. The combination, with the pipe L, for discharging exhaust-steam from an engine into the air, and pipe I, for operating the steam and air blower, constructed and arranged with relation to the furnace, substantially as above described, of a valve or valves arranged between said pipes for operation, substantially as and for the purpose set forth.

11. The duplex valves and chest above described, consisting of the chambers K K, separated from each other by a division-wall, *j*, and having a single discharge-opening, and valves *k k*, mounted on shafts *p p*, provided with gears P P, substantially as and for the purposes set forth.

12. The combination, with the separated steam-chambers K K, receiving the steam from the exhaust-ports of the cylinder, and having a discharge-opening communicating with a pipe adapted to discharge the steam into the air from said separated chambers, and pipe I, having communication with the exhaust-ports of the cylinders and the said separated chambers, and adapted to lead steam to the steam and air blower of the furnace, of valves *k k*, for operation and purposes substantially as set forth.

13. The combination, with the exhaust-ports, of cylinders C, chamber H, pipes *f f*, leading from said ports to said chamber, pipes *g g*, and separated chambers K K, provided with valves which control passages leading to a pipe which discharges into the air, and pipe I, connecting at one end with chamber H, and at the other end with a steam and air blower of the furnace, substantially as and for the purposes set forth.

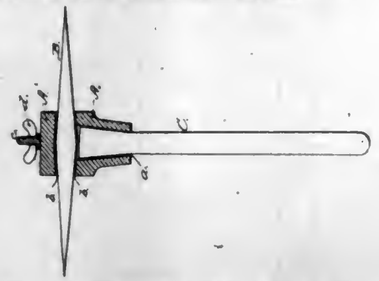
14. In a locomotive-engine, the combination and arrangement, with pipes *f f*, leading from the exhaust-ports of the cylinders thereof, and pipes *g g*, encircling the boiler and connecting with a pipe common to both, and which discharges into the air, chamber H, having division-strip *h'*, and oppositely-located openings in its side communicating with said pipes *g g*, and a discharge-opening at its end which communicates with pipe I, leading steam to the steam and air blower of the furnace, of the described valve mechanism under the control of the operator, and which is adapted to control the discharge of steam in both directions, and also control the relative volume of steam discharged in the different directions at the same time, substantially as and for the purposes set forth.

15. In a locomotive-engine, the combination and arrangement, with valve-chambers K K, receiving exhaust-steam from two pipes and discharging into a pipe common to both, of duplicated valves *k k*, segmental gears P P, and rod Q, extending into the cab, substantially as and for the purposes set forth.

16. The combination and arrangement, with valves *k k*, working in chambers K K by the simultaneous movement of gears P P, mounted on the shafts of said valves, of shaft Q, provided with a universal joint and extending into the cab of an engine, and lever *q*, provided with a pawl which engages with a ratchet located in the cab, substantially as and for the purposes set forth.

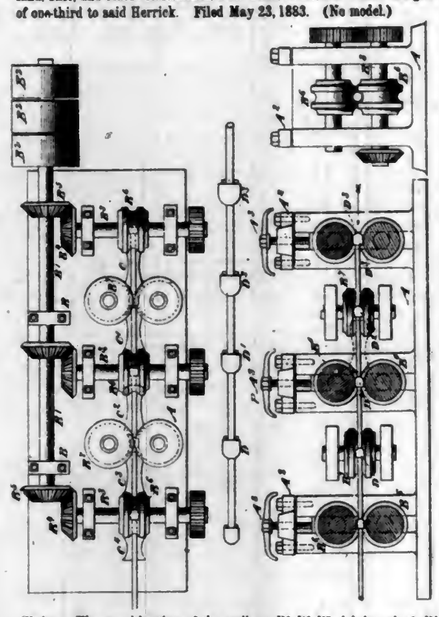
17. In a locomotive-engine, the combination, with its cylinders and the ash-pan of the furnace, of the steam and air blower communicating with said ash-pan through its front wall, exhaust-discharge pipes, which are exterior to the smoke-stack, one of said pipes being adapted to discharge the steam into the air and the other into the steam and air blower, the described valve mechanism between said pipes, and a door or valve in the rear wall of the ash-pan chamber, all substantially as and for the purposes set forth.

311,476. HANDLE FOR MILLSTONE-PICKS. HERBERT P. DICKSON, West Lima, Wis. Filed Oct. 24, 1884. (No model.)



Claim.—The herein-described millstone-pick holder, consisting of the lower section or frame, A, provided with a central tapering hole, *a*, threaded bolts *c*, thumb-screws *d*, and V-shaped groove *b*, and the upper section, A', having suitable holes for the passage of the bolts *c*, and provided with the V-shaped groove *b*, in combination with the pick B and handle C, substantially as specified.

311,477. MACHINE FOR MAKING TUBES. JOHN J. FISHER, Cleveland, Ohio, and JAMES A. HERRICK, New York, N. Y.; said Fisher assignor of one-third to said Herrick. Filed May 23, 1883. (No model.)



Claim.—The combination of the pulleys B^3 B^3 B^3, driving-shaft B', the shafts B^3, rolls B^6 and B^7, and a rod or shaft carrying upon it a series of blocks or dies for determining the interior diameter of the tube, the parts being arranged substantially as described, whereby the tube may be formed upon the blocks or dies and removed therefrom, as set forth.

311,478. GRAPPLE FOR LIFTING AND MOVING BARRELS. ANTHONY FLANSBURGH, Saratoga Springs, N. Y. Filed Dec. 10, 1884. (No model.)



Claim.—1. A grapple for lifting and carrying barrels and other objects, consisting of two horizontal and parallel bars the extremities of which form the handles, and two frames connected thereto and pivoted together, substantially as and for the purpose set forth.

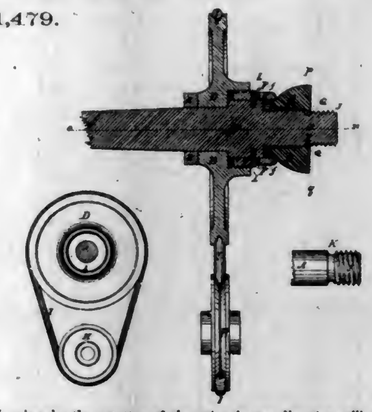
2. A grapple for lifting and carrying barrels and other objects, consisting of two horizontal and parallel bars and two frames connected thereto and pivoted together, the lower portion of said frames being curved to correspond in form to the object to be lifted and carried, substantially as and for the purpose specified.

311,479. NUT-ARBOR. GEORGE B. FOOTE, Helena, Mont. Filed Feb. 1, 1884. (No model.)

Claim.—1. A nut-arbor, in combination with an oscillatory shoulder-piece, B, articulated thereto, as herein specified, said shoulder-piece having the center of its oscillation, *x*, near the plane of impact between the nut and shoulder-piece, substantially as described.

2. A nut-arbor having a movable sleeve, C, in combination with a movable shoulder-piece, B, friction-wheel D, stationary wheel H, and

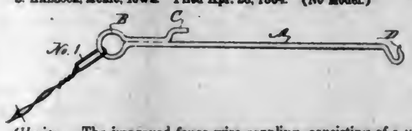
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belt I, whereby the rotation of the arbor in one direction will tend to secure the sleeve in contact with the shoulder-piece to hold the nut securely, while the reverse rotation will retract the sleeve and release the shoulder-piece so as to allow the removal of the nut, substantially as described.

3. The combination of a threaded nut-arbor having a broad annular groove with a movable shoulder-piece having a single thread, substantially as specified.

311,480. FENCE-WIRE COUPLING. NASON H. FULLER and HENRY S. HALLOCK, Menlo, Iowa. Filed Apr. 28, 1884. (No model.)



Claim.—The improved fence-wire coupling, consisting of a metal rod, A, bent double at one end to produce a hook, C, and an eye, B, in which a link is inclosed, and bent at its opposite end to produce a laterally-extending hook, D, substantially as shown and described.

311,481. SAW-FITTING TOOL. WILLIAM GOLDEN, Port Huron, Mich. Filed May 31, 1884. (No model.)



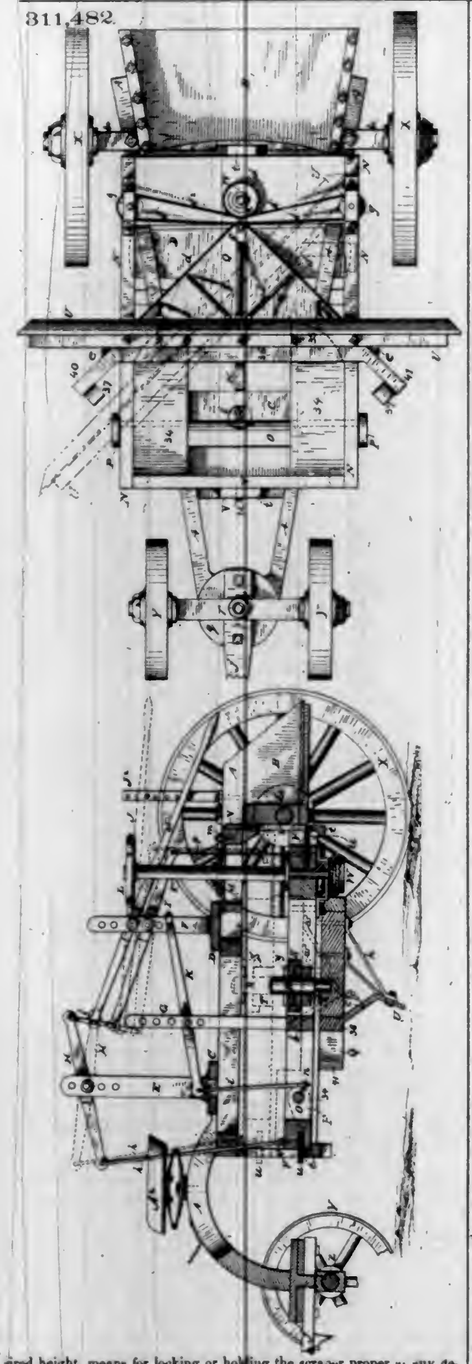
Claim.—The herein-described combination-tool for fitting saws, comprising a raker-gage, a jointer, a hammer for swaging rakers, a saw-set and tooth-gage, and a swager for hitting on the end of the set, substantially as specified.

311,482. ROAD-SCRAPER. ROBERT N. GOWELL, Ashburnham, Mass. Filed June 6, 1884. (No model.)

Brief.—A main frame with draft-pole and operator's step has a slotted lug at each end, in which slide end pins on an auxiliary frame, which may be vertically adjusted or rocked by means of pairs of levers connected by rods to its corners, and one pair to another by rods, to which controlling-levers are connected. Through a slotted cross-bar projects a stud with a cap-plate and fastening-pin, which supports a triangular frame carrying the scraper, and having a front cross-bar playing under plates on the auxiliary frame, and having a projecting flange on each front corner, one or the other of which enters recesses in the auxiliary frame and is held by cams on a rock-rod controlled by lever and rod. Adjustment of the scraper is by a windlass and cords turning and sliding the stud in its slot and having a hand-wheel rod and locking ratchet and pawls.

Claim.—1. In a road-scraper, the combination of the following instrumentalities, to wit: a main frame mounted on wheels, an auxiliary frame disposed beneath the main frame, and supported thereby, said auxiliary frame being adapted to be tilted or rocked laterally, and also raised and lowered vertically, a scraper proper disposed on a frame beneath the auxiliary frame, and supported thereby, said scraper proper being thus adapted to lateral and vertical adjustment and to be tilted endwise, means for locking or securing the frame carrying the scraper proper at any de-

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sired height, means for locking or holding the scraper proper at any desired angle when the same is tilted, means for raising, lowering, and tilting the auxiliary frame, and means for adjusting the scraper proper vertically and laterally, and also tilting the same endwise, substantially as described.

2. In a road-scraper, the auxiliary frame N, provided with the studs *n*, in combination with the main frame A, provided with the slotted lugs V, the scraper U, means for raising and lowering the frame N, and means for adjusting the scraper laterally, substantially as set forth.

3. In a road-scraper, the main frame A, mounted on the wheels Y X, and provided with the slotted lugs V, pole *j*, and step B, the auxiliary frame N, having the slotted bar T, cap S, and plates 34, the V-shaped frame Q, carrying the scraper U, and provided with the stud or journal R, the shaft *r*, provided with the drum W, cord *o*, ratchet M, pawl *m*, and wheel L, the rocker-shaft O, provided with the arms P and arm *n*, the lever K, mounted in the standard *b*, and provided with the rod *i*, the levers H, mounted in the standards E, the levers I J, mounted in the standards F, the rods *h p*, and links *l*, combined and arranged to operate substantially as described.

4. In a road-scraper, the frame Q, provided with the flanges 37, in combination with the frame N, having the plates 34, and shaft O, having the arms P, substantially as set forth.

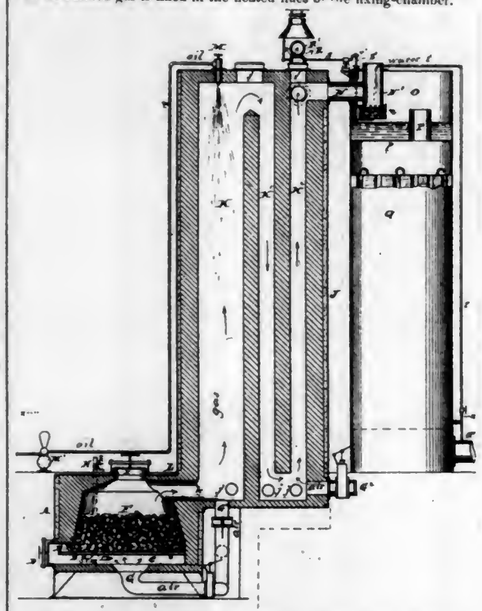
5. In a road-scraper, the levers H I J, in combination with the frame N and rods *h p l*, substantially as set forth.

6. In a road-scraper, the rocker-shaft O, having the arms P *n*, in combination with the lever K, and rod *i* for locking the frame Q, substantially as described.

7. In a road-scraper, the slide or cap S, in combination with the bar T, stud R, pin *y*, frame Q, scraper U, and means for operating said scraper, substantially as described.

311,483. APPARATUS FOR MANUFACTURING GAS. ARTHUR O. GRANGER and JOSEPH H. COLLINS, Jr., Philadelphia, Pa. Filed June 13, 1883. (No model.)

Brief.—Water-gas is made by the decomposition of steam in contact with heated carbon in a furnace, and such gas is passed into the bottom of a vertical heated flue or chamber, and is therein enriched or carbureted with hydrocarbon vapor sprayed in at the top of the flue The carbureted gas is fixed in the heated flues of the fixing-chamber.



Claim.—1. A generator in which to generate water-gas, in combination with a high flue or chamber unobstructed from top to bottom, the top of said generator opening into the bottom of said chamber, and means to spray oil under high pressure into the top of said chamber and allow it to fall in the form of finely-divided spray, causing it to pass in an opposite direction to the passage of the water-gas, whereby it is all vaporized and carried off by said water-gas, substantially as and for the purpose specified.

2. A generator in which to generate water-gas, in combination with a high vertical flue or chamber, means projecting through the roof of said chamber or flue to spray oil under high pressure into the top of the same and allow it to fall, causing it to pass in an opposite direction to the passage of the water-gas, whereby it is all vaporized and carried off by said water-gas, and a fixing-chamber in which said gases are fixed, substantially as and for the purpose specified.

3. The combination of a generator, A, having blast-pipe G and steam-pipe H, with a superheater, J, provided with vertical walls forming chambers K K' K², blast-pipes to admit air to said chambers, and a nozzle or pipe to admit fluid hydrocarbon to carburet the water-gas, substantially as and for the purpose specified.

4. The combination of generator A, having blast-pipe G and steam-pipe H, with a superheater, J, provided with vertical walls forming chamber K K' K², blast-pipes to admit air to said chambers, a nozzle or pipe to admit fluid hydrocarbon to carburet the water-gas, smoke-flue R, valve R', water-seal *n*, and seal-box O, substantially as and for the purpose specified.

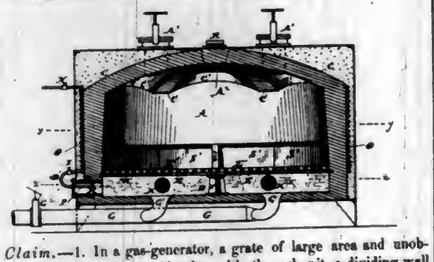
5. The generator A, provided with grate-bars C, in combination with auxiliary hinged bars or plate E, which may be forced inward by the stoking-bar, but not outward, substantially as and for the purpose specified.

6. A gas generator and superheater having sheet-iron casings, and supported at different levels, the bottom of the superheater being a little lower than the top of the generator, and being so combined that the two casings merge into each other and are secured together by rivets or bolts, the adjacent parts of the linings in said generator and superheater being in the same vertical line, so that the superheater casing and lining are partly supported by the generator, substantially as shown.

7. The combination of a generator and a superheater with pipes N N', water-seal *n*, box or tank O, pipe P, and condenser or scrubber Q, the said box O being made integral with the condenser or scrubber, substantially as and for the purpose specified.

8. The combination of a generator and superheater with a condenser and seal-box, the said seal-box being supported upon and made integral with said condenser, whereby it is supported close to the top of the superheater, substantially as and for the purpose specified.

311,484. GAS-GENERATING APPARATUS. ARTHUR O. GRANGER, Philadelphia, Pa. Filed June 25, 1883. (No model.)



Claim.—1. In a gas-generator, a grate of large area and unobstructed from above, in combination with the ash-pit, a dividing-wall having one or more open passages through the same and supporting the said grate diametrically across its center, air and steam pipes opening into said divided ash-pit and on each side of said dividing-wall, and cleaning-doors arranged upon diametrically-opposite sides of the grate at right angles to the dividing-wall, substantially as and for the purpose specified.

2. In a generator, a grate of large area and unobstructed from above, in combination with the ash-pit, a dividing-wall having one or more open passages through the same, and supporting the said grate diametrically across its center, air and steam pipes opening into said divided ash-pit and on each side of said dividing-wall, and cleaning-doors arranged upon diametrically-opposite sides of the grate and at right angles to dividing-wall, and of sufficient height to expose the space above the grate as well as the ash-pit, substantially as and for the purpose specified.

3. In a gas-generator, a grate of large area and unobstructed from above, in combination with an ash-pit, a dividing-wall having one or more perforations and supporting said grate diametrically across its center, posts F, and supporting-bars E, substantially as and for the purpose specified

4. A gas-generator of large diameter provided with cleaning-doors consisting of four doors, S', hinged, as shown, to form a set on a level with the grate and ash-pits and on opposite sides thereof, the said doors when open exposing the entire width of grate and ash-pit or full internal diameter of the generator, substantially as and for the purpose specified.

5. A gas-generator of large diameter provided with cleaning-doors on a level with the grate and ash-pits and on opposite sides thereof, in combination with grate E', supporting-bars E, dividing-wall D, and blast-pipes, substantially as and for the purpose specified.

6. A gas-generator of large diameter provided with cleaning-doors on a level with the grate and ash-pits and on opposite sides thereof, in combination with grate E', supporting-bars E, perforated dividing-wall D, and blast and steam pipes, substantially as and for the purpose specified.

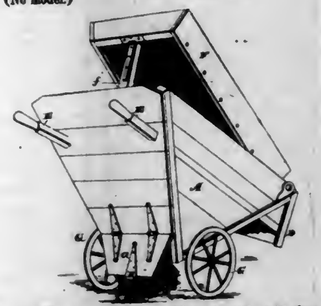
7. A gas-generator of large diameter provided with a groined arch dome or roof consisting of arches C C', and cooling-holes through said arches C' between the arches C, substantially as and for the purpose specified.

8. A gas-generator of large diameter provided with a groined arch dome or roof consisting of arches C C', and coaling and stoking holes through said arches C' between the arches C, substantially as and for the purpose specified.

9. A gas-generator of large diameter provided with a groined arch dome or roof consisting of arches C C', coaling and stoking holes, and exit gas-flue through said arches C' between the arches C, substantially as and for the purpose specified.

10. In a gas-generator, the combination of the grate, ash-pit, dividing-wall for said ash-pit, a single blast-pipe, G, provided with a valve, G², and a series of blast-nozzles, G', also opening from said blast-pipe, arranged to face the grate-bars, and substantially equidistant from each other, substantially as and for the purpose specified.

311,485. COMBINED COAL-SCREEN AND DUST-RECEIVER. HARRISON GRIDLEY and THOMAS JOHNSON, Canandaigua, N. Y. Filed Nov. 12, 1884. (No model.)



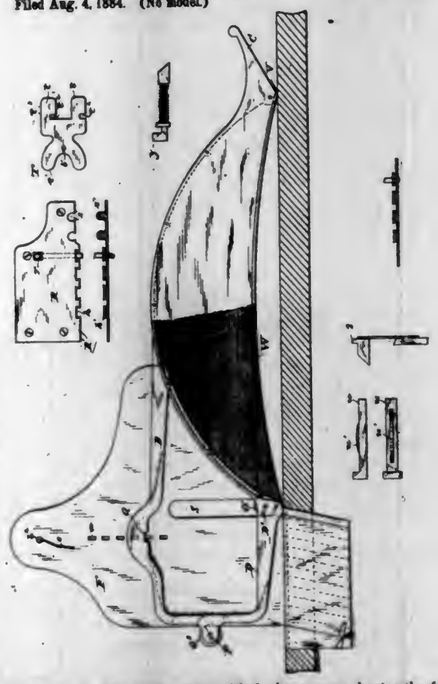
Claim.—1. The combination, with a funnel or V shaped dust-receiver provided at or near its center with wheels, of an inclined screen secured thereon, substantially as set forth.

2. The combination, with a funnel-shaped dust-receiver provided at or near its center with a pair of wheels, of a screen secured thereon in vertical angular adjustment.

3. The combination, with a funnel or V shaped dust-receiver mounted at or near its center on a pair of wheels, of a door located at the junction of the front and rear sides of the receiver for unloading or discharging the contents.

4. The combination, with a funnel-shaped tilting dust-receiver provided with handles, a depending end support, and a pair of wheels, of a vertically-adjustable screen secured thereon, substantially as set forth.

311,486. SAW-GUARD. JOS. G. GROFF, Connersville, Ind., assignor to the Groff & Bennett Saw Guard Manufactaring Company, same place. Filed Aug. 4, 1884. (No model.)



Claim.—1. The combination, with the hood proper having the forward-inclined projection, of the rearwardly-projecting arms having the recess Q, the vertical blade provided with the elongated slot S, and the

series of openings *a*, and the key or stop T, whereby when the outer end of the hood is lifted the said key or stop serves as the pivotal point, while the recess permits a limited horizontal movement upon the stop till the forward shoulder of said recess abuts against the key, when the further tilting motion ceases and the rear end of the hood begins to rise, guided by the slot and roller, all substantially as described.

2. The combination, with the hood having the rearwardly-extending arms, of the vertical blade having the series of openings *a*, and the key or stop T, having the slotted projections *f f*, the handle or grasping portion, and the bearings f^2 f^2 for the guard-arms, substantially as described.

3. In a saw-guard, the hood-supporting blade having a series of locking projections on its side near its lower end, in combination with a socket or bed piece having on its side a series of recesses corresponding to the projections on the blade, and into which said projections are adapted to fit and lock when the blade is placed in working position, substantially as described.

4. In a saw-guard, the hood-supporting blade thereof having a series of locking projections on its side near its lower end, in combination with the socket or bed plate having upon its side two series of recesses located in different vertical planes and adapted to receive the corresponding projections on the blade, substantially as described.

5. In the herein-described saw-guard, the combination, with the bed-piece having the recesses on its side, of the vertical blade having the corresponding projections and a bolt for locking the blade to the bed-plate, so as to prevent vertical displacement of the parts, substantially as described.

6. The combination, with the bed-plate having the locking-recesses in its side, of the vertical blade having the locking projections fitting the recesses of the bed-plate, and the sliding locking-bolt bearing the spring which operates to secure it in either projected or retracted position, substantially as described.

311,487. VISE. THOMAS G. HALL, Brooklyn, N. Y. Filed Mar. 26, 1884. (No model.)



Claim.—1. In a vise, the jaws *b b'*, pivoted together and formed with bearing-surfaces *c c* and rims *m m*, being counterparts of each other at the points of juncture, substantially as described, for the purpose specified.

2. In a vise, the combination of jaws *b b'*, bolt *d*, with its attendant parts for operating the jaws of the vise, and set-screw *j*, said bolt having a head formed with curved interior surface seated in a correspondingly-shaped groove in one of said jaws, and said jaws being pierced with funnel-shaped perforations, substantially as and for the purpose set forth.

3. In a vise, the jaws *b b'*, pivoted together and formed with bearing-surfaces *c c* and rims *m m*, combined with a V-shaped spring held loosely in notches cut in said jaws, substantially as described.

311,488. OIL-CAN. HARRIE B. HART, Philadelphia, Pa. Filed Oct. 31, 1884. (No model.)

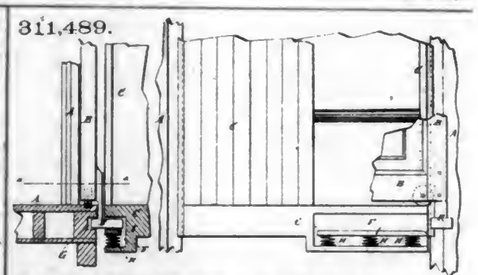


Claim.—The combination, with a spout of an oil-can having a disk or flange, *a*, at its base, of a screw-stopper having a threaded socket adapted to the threaded end of the spout, the said stopper having flanges at its upper and lower edges, and a rigid link pivoted at the lower end to the flange *a*, and provided at its upper end with a ring encircling the stopper between the flanges and permitting the latter to slide therein to a limited extent, substantially as described.

311,489. ELEVATOR. CHARLES W. HAYS, Orange, N. J. Filed June 16, 1884. (No model.)

Claim.—1. In an elevator, the combination, with the carriage, the well-door, and the floor, of a T-bar secured to the said door and engaging with the carriage and the floor when the door is open, and disengaged from the carriage when the door is closed, substantially as herein shown and described.

2. In an elevator, the combination, with the carriage C, provided with the groove F, the floor of the building provided with the groove G, and the well-door B, of the T-bar E, secured to the said door with one arm in the groove of the floor, and the other arm entering the groove of



the carriage when the door is opened, and withdrawing therefrom when the door is closed, substantially as herein shown and described, whereby the said carriage will be locked when the well-door is open and released when closed, as set forth.

3. In an elevator, the combination, with the carriage C, having groove F, and the T-bar E, attached to the well-door B and entering the said groove, of one or more springs, H, and the plate I, substantially as herein shown and described, whereby the hoisting mechanism or other parts will be protected from a sudden strain should the carriage be started before the well-door is closed, as set forth.

311,490. SEWING-MACHINE SHUTTLE. JOHN HEDERLING, Cleveland, Ohio, and WILLIAM L. HEDERLING, Bath, Ill. Filed Apr. 29, 1884. (No model.)



Claim.—1. A sewing-machine shuttle-shell cut away on one side to form a loop-passage, and having a bobbin-space extending to said loop-passage, and a pin centrally arranged in said bobbin-space, combined with a bobbin-case loosely journaled on said pin, and having its periphery extending to the edge of said shuttle-shell at said loop-passage, and a bobbin arranged within said bobbin-case, substantially as set forth.

2. An outwardly-flaring dish-formed sewing-machine shuttle-shell, having an open face and a peripheral flange, the latter provided with a point or hook, combined with a bobbin-case and bobbin, both of greater depth or thickness than the body of said shuttle-shell, and an inclined guard on the face or outer side of said shell rearward of said hook, for keeping the loops of needle-thread clear of the said bobbin-case, substantially as set forth.

3. The combination, with the shuttle-shell A, having the pin *c*, of the bobbin C and the bobbin-case D, the latter having a slot, d^6, and groove d^8, rigid arm E', having V-shaped slot *e*, into which said groove leads, guard e^2, having slot e^3, and the tension-spring F^2, attached to said arm, and having the the thread-finger f^3, substantially as set forth.

311,491. SEWING-MACHINE SHUTTLE. JOHN HEDERLING, Cleveland, Ohio, and WILLIAM L. HEDERLING, Bath, Ill. Filed Apr. 29, 1884. (No model.)



Claim.—1. A sewing-machine shuttle-shell consisting of an outwardly-flaring dish-formed body having a peripheral flange and a face which is entirely open outside of said flange, and having also a supporting-pin for the bobbin-case and bobbin, combined with a bobbin-case and bobbin loosely sustained by said pin, so that they may remain stationary while the shuttle rotates, substantially as set forth.

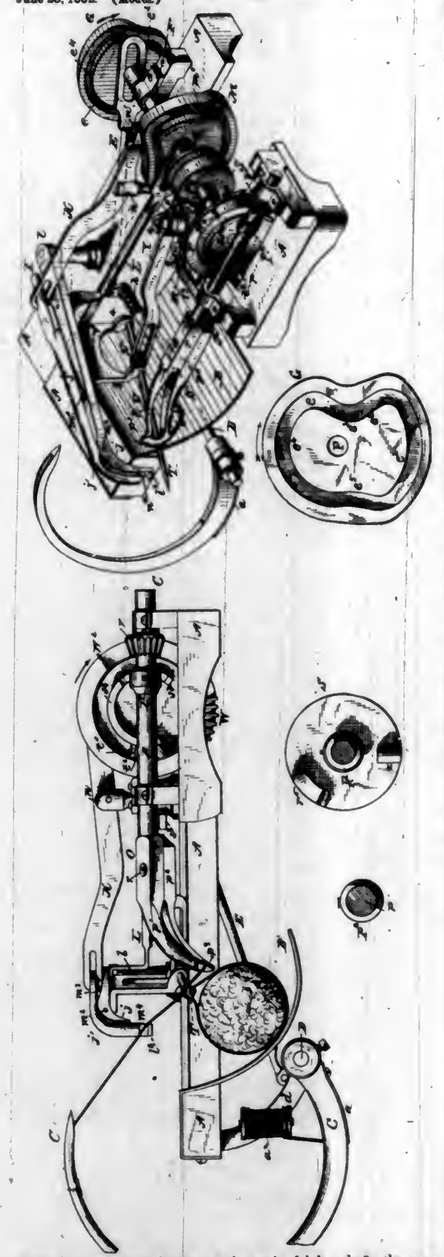
2. A sewing-machine shuttle-shell consisting of an outwardly-flaring dish-formed body having an open face and a supporting-pin for the bobbin-case and bobbin, combined with a bobbin-case having a depth or thickness greater than that of said shell, and provided with an inclined guide on one side only of said case and extending within the outer face of the said shell, and a bobbin arranged within said bobbin-case, substantially as set forth.

3. The combination, with the shuttle-shell A, having the pin *c*, of the bobbin-case D, having slot d^6, and the rigid arm G, the latter having thread-fingers g^3 and g^4, the tension-spring F, secured to the periphery of the said bobbin-case, and the bobbin C, arranged within said case, substantially as set forth.

4. The combination, with the shuttle-shell A, having the pin *c*, of the bobbin-case D, having the slot d^6, and the rigid arm G, the latter having the thread-fingers g^3 and g^4, and the convex projection g^5, the

tension-spring F, secured to the periphery of the said bobbin-case, and the bobbin C, arranged within the said case, substantially as set forth.

311,492. GRAIN-BINDER. HARVEY R. INGLEDUE, Gray, Iowa. Filed June 28, 1882. (Model.)



Claim.—1. The combination of the main driving-shaft, the gear-wheel and cams carried thereby, the needle-arm, the reciprocating gripping device, the arm for giving the gripping device its reciprocating motion, the looper, the center pin, and intermediate operating mechanism, substantially as set forth.

2. The gripping device I, consisting of the lower arm, *j*, the upper jaw, *j'*, pivoted to the arm *j*, and the spring m^3, adapted to hold the jaw *j'* normally in contact with the arm *j*, in combination with a connecting-rod and means for vibrating the gripping device, and suitable actuating mechanism to open the jaw *j'*, substantially as set forth.

3. The longitudinally-reciprocating and laterally-vibrating center pin and yielding guard, in combination with means for operating the same, substantially as set forth.

4. In combination with the needle-arm, the looping device, and the gripper, the center pin over which the cord is drawn in tying the knot, provided with a yielding guard to prevent the cord being drawn too tightly about the pin while the slack in the cord is being taken up, substantially as set forth.

5. The combination of the gripper, the looper, the center pin, the yielding guard, and suitable mechanism for vibrating said gripper and center pin toward and from said looper, substantially as set forth.

6. The center pin around which the cord is drawn in tying the knot, in combination with the needle-arm, the looper, and suitable mechanism for moving said needle-arm and looper away from said center pin, whereby all slack in the cord is taken up and the knot tied tightly, substantially as set forth.

7. The gripper, the needle-arm, and operating mechanism for throwing said needle-arm over the grain, whereby the two ends of the cord are crossed, in combination with the reciprocating center pin, and mechanism for operating said center pin, whereby it is advanced above the crossed cords, substantially as set forth.

8. The looper, the cord-carrying needle-arm, and mechanism which partially lifts said needle-arm, whereby the cord is carried over and back of the jaws of said looper, in combination with the center pin adapted to prevent the cord from slipping over the jaws of the looper, substantially as set forth.

9. The looper, and mechanism adapted to give said looper a complete rotation, whereby the jaws of said looper pass under and raise the cord, in combination with the needle-arm which holds the cord over said looper, the center pin, the gripping device, and mechanism adapted to throw said center pin and gripping device laterally forward, whereby said center pin and gripping device are carried beyond the jaws of the looper when it has completed its rotation, substantially as and for the purpose herein specified.

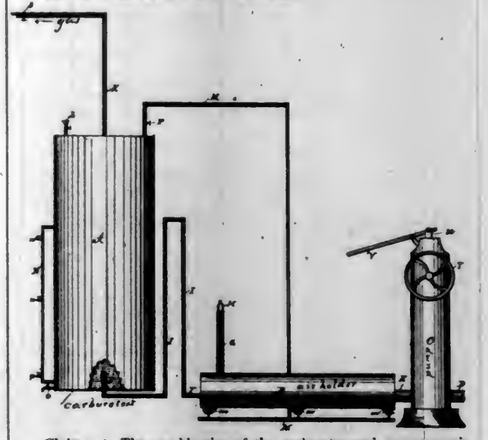
10. The jaws of the looper, and mechanism which opens said jaws, in combination with the gripping device, and mechanism which moves said gripping device back through said open jaws of the looper, substantially as set forth.

11. The center pin, in combination with the looper, and mechanism which gives said looper a partial backward rotation, whereby the loop is drawn off from the looper onto the center pin, substantially as described.

12. The center pin which holds the loose knot, in combination with the needle-arm, mechanism which causes said needle-arm to recede, the looper, and mechanism which causes said looper to return to its original position, whereby the knot is tightly tied, substantially as set forth.

13. The combination of the center pin, mechanism which withdraws it from the knot, the needle-arm, the gripping device, mechanism which retracts the needle-arm, whereby the cord is passed between the open jaws of the gripping device, mechanism which closes the jaws of the gripping device, whereby the cord is severed, the looper, and mechanism which opens the jaws of the looper, whereby the end of the cord held by said jaws is released, substantially as set forth.

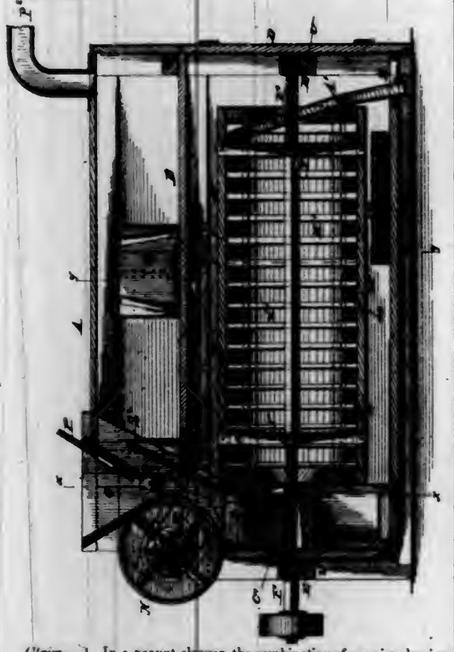
311,493. APPARATUS FOR GENERATING GAS. IRA JAMES, Mattoon, Ill. Filed Dec. 10, 1883. (No model.)



Claim.—1. The combination of the carburetor and gas-reservoir A, the elongated cylindrical air-reservoir, the air-pump, the goose-neck pipe I, connecting the base of the carburetor with the air-reservoir, a pipe connecting the pump with the air-reservoir, the burners located below the air-reservoir, and a gas-supply pipe, all arranged and operating as described.

2. The combination of the air-pump, the connected elongated cylindrical air-reservoir having as essential parts an indicator and pop-valve, the carburetor and gas-reservoir A, the bent or goose-neck pipe connecting the carburetor with the air-reservoir, and a gas-conducting pipe leading from the carburetor, and provided with burners located beneath the air-reservoir, as described, and for the purpose set forth.

311,494. PEANUT-CLEANER. JOSEE JOHNSON, Norfolk, Va., assignor to himself and Holloway P. Embury, same place. Filed Apr. 15, 1884. (No model.)

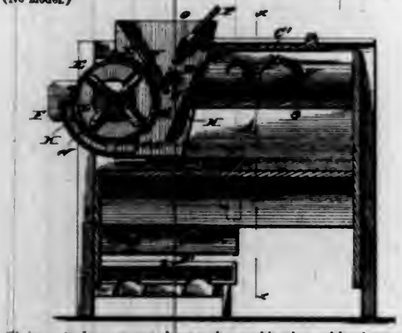


Claim.—1. In a peanut-cleaner, the combination of a casing having an upper and a lower compartment, a rotary scouring-cylinder, a fan located near the mouth of the hopper, side passages leading into the apertured fan-case, and a passage crossing the mouth of the hopper and leading into the upper compartment of the casing, substantially as described.

2. The combination of the casing, the scouring-cylinder and its shaft, removable from the casing, the removable chute S, the table T, the removable beams U U, and the casing-door B', substantially as described.

3. The combination of a fan, a fan-case having end openings and an opening, N^2, a casing having passages S' R, the chute S, the hopper, the upper and lower compartments, and a cylinder adapted to scour peanuts, substantially as described.

311,495. PEANUT-CLEANER. JOSEE JOHNSON, Norfolk, Va., assignor to himself and Holloway P. Embury, same place. Filed Apr. 15, 1884. (No model.)



Claim.—1. In a peanut-cleaner, the combination, with a box or casing, of a fan, a fan-case having a blast-opening, G, and a passage, J, an inclined deflector arranged in rear of the same, and an adjustable slide, I, arranged in said passage, substantially as described.

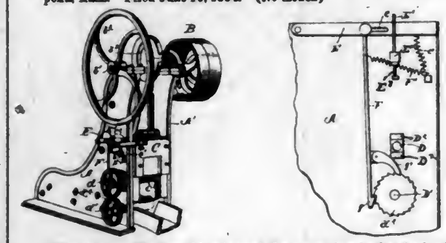
2. In a peanut-cleaner, the combination, with the box or casing and the hopper, of the fan, a fan-case having blast-openings directed beneath the discharge from the hopper, the flexible slides, and the deflector H, substantially as described.

3. In a peanut-cleaner, the combination, with a casing having a V-shaped bottom, and a fan-case having separate and independent blast-openings, one of said openings, L M, communicating with said V-shaped bottom, of an inclined deflector, and a longitudinal inclined partition, substantially as set forth.

4. The combination, in a peanut-cleaner, of a casing having a V-shaped bottom, a fan-case having separate and independent blast-openings, one of said openings, L M, communicating with said V-shaped bottom, an inclined deflector, an inclined longitudinal partition, and a series of transverse partitions, substantially as set forth.

5. In a peanut-cleaner, the combination of a box or casing having an inverted-V-shaped bottom, a fan-case having two separate and independent blast-openings, an inclined deflector, an inclined longitudinal partition having escape-openings at its lower edge, and a partition straddling and longitudinally adjustable upon the inverted-V-shaped bottom of the casing, substantially as set forth.

311,496. SPLINT-CUTTING MACHINE. JOHN D. JONES, North Topeka, Kans. Filed June 19, 1884. (No model.)



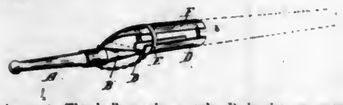
Claim.—1. The combination of the cross-head, the feed-rollers both having intermeshed gears, and one of said rollers being provided with a ratchet-wheel, a pallet adapted at one end to engage the ratchet-wheel, and having its opposite end supported on the pivoted arm, and the arm pivoted at one end, and having its other end operated by the cross-head, substantially as and for the purposes specified.

2. The combination of the feed-rollers having their journals or shafts provided with intermeshed gears, the ratchet-rings secured on one of said journals, the arm pivoted at one end and extended approximately horizontally along the framing, the cross-head provided within a bar or extension engaged with the said arm, and a pallet depending from said arm and having a clutch adapted to engage and operate the ratchet-ring, all substantially as and for the purposes set forth.

3. The combination of the cross-head provided with lateral arm or extension c^3, the feed-rollers having their journals extended, and provided with intermeshed gears, the ratchet-ring secured on one of said journals, the arm E, pivoted at its inner end, and having its opposite end extended in position to be engaged by the bar c^3, the pendent pallet secured at its upper end to the pivoted arm, and having its opposite end adapted to engage the ratchet-ring, and the springs c' F, secured at one end to the framing a, and at their other end with, respectively, the pivoted arm and the pallet, substantially as set forth.

4. The combination of the feed-rollers, the ratchet-wheel secured on the shaft of one of said rollers, the pallet having its lower end adapted to engage the ratchet, and its other end connected with the pivoted arm, the arm having one end pivoted, and its other end held and movable vertically in the guide-frame, and the set-screw turned upward through the base-bar of said frame, substantially as and for the purposes set forth.

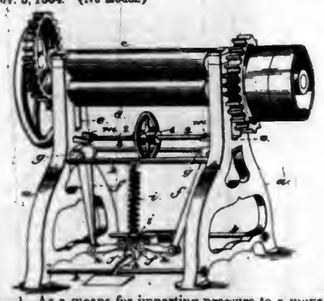
311,497. CIGAR-HOLDER. GEORGE W. KEITH and GEORGE C. SUTHERLAND, Toronto, Ontario, Canada; said Sutherland assignor to said Keith. Filed Feb. 18, 1884. (No model.) Patented in Canada Mar. 13, 1884, No. 18,865.



Claim.—1. The hollow wire or tube B, having an upturned and pointed end, and having an opening, *b*, mouth-piece A' attached to said tube, and supporting-piece D, also attached to said tube, in combination with the cap F, hinged to said tube, and the adjustable ring E, substantially as and for the purposes specified.

2. A cigar-holder consisting of the tube B, having conical enlargement B', and provided with the opening *b* near its upturned and pointed end, supporting-piece D, attached to said tube, mouth-piece A, inserted in said conical enlargement, the cap F, hinged to said part B', and the adjustable ring E, substantially as and for the purpose specified.

311,498. LEATHER-ROLLING MACHINE. DAVID KNOX, Lynn, Mass. Filed Nov. 3, 1884. (No model.)



Claim.—1. As a means for imparting pressure to a movable roll or an equivalent pressure device, two pivoted bell-crank levers having longer and shorter arms, and supporting the pressure device on their shorter arms, a treadle between the longer arms of said levers, and toggle-links connecting the treadle with the longer arms of the levers, said links being arranged to be brought into line, or approximately so, by the depression of the treadle, and thereby act on the bell-crank levers, as set forth.

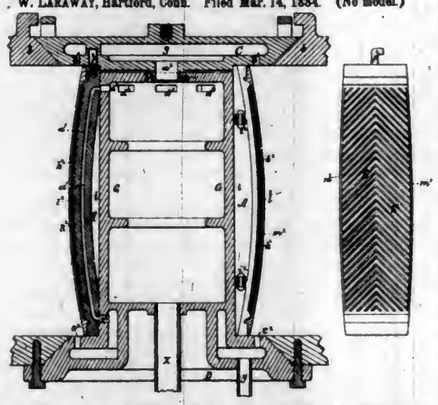
2. The combination of a roll or its specified equivalent journaled in fixed bearings, a co-operating roll or cylinder journaled in movable bearings, the two-armed pivoted levers supporting said movable bearings on their shorter arms, the toggle-links connected to the longer arms of said levers, and the treadle supporting said links, as set forth.

3. The combination of the supporting-frame, the roll *c*, journaled in fixed bearings therein, the roll *d*, journaled in movable bearings, the pivoted two-armed levers *f f*, supporting said movable bearings on their shorter arms, the treadle located between the longer arms of the levers, a spring whereby said treadle is normally raised, and the toggle-links connecting the treadle and the longer arms of the levers, as set forth.

4. The combination, with the movable bearings or boxes, of the wedges *m m*, supporting the boxes, and the connecting device composed of two sections, 2 3, and the socketed hub or coupling 4, in which said sections are adjustable, as set forth.

5. The combination of the levers *f f*, the links *h h*, the connecting-bar *i*, the treadle *k*, and the yoke *j*, pivoted to the treadle, and having a slot, *j'*, wider than the bar *i*, through which slot said bar passes, as set forth.

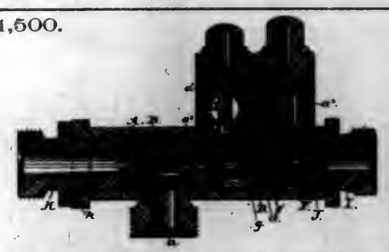
311,499. DRIER FOR PAPER DRUMS AND BARRELS. GEORGE W. LARAWAY, Hartford, Conn. Filed Mar. 14, 1884. (No model.)



Claim.—1. The combination of the stationary and chambered supporter G, provided with an induct and educts, as described, with the two series of chambered voussoirs and their chambered cap C and base D, the external series of voussoirs having mechanism for operating them, as set forth.

2. In a machine essentially and for the purpose as described, the combination of the inner voussoirs provided with grooves extending lengthwise therein, and also with others opening into such longitudinal grooves and inclined upward therefrom, with foraminous plates arranged against the voussoirs and covering their grooves, all being substantially as set forth.

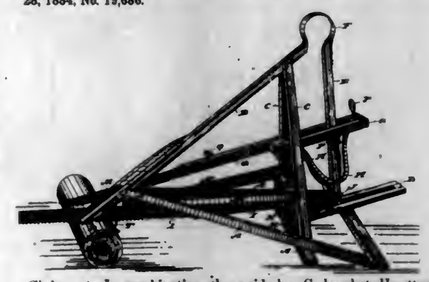
311,500. FEED-WATER INJECTOR. JOHN LOFTUS, Albany, N. Y., assignor of one-half to Peter Kinnear, same place. Filed Apr. 11, 1883. (Model.)



Claim.—1. In a feed-water injector, a removable combining-tube or bushing, G, fixed in the annular flange D of the body-piece A, and provided at its rearmost end with wings or lugs g^2, as and for the purpose herein specified.

2. In a feed-water injector, the combination, with the bushing I, contained in the discharge end of the body-piece A, of the removable bushing or reducer J, inserted in the inner end of the bushing I, as and for the purpose herein specified.

311,501. SAWING-MACHINE. WILLIAM LUCAS, Markdale, Ontario, Canada. Filed July 24, 1884. (No model.) Patented in Canada June 28, 1884, No. 19,686.



Claim.—1. In combination, the guide-bar G, bracket H, attached thereto, leg E, pivoted between its ends to said bracket, one of said ends being connected with the saw, and the spring F, arranged to support the other end and give an impulse to the saw, substantially as described.

2. In combination with the saw L, handle I, frame B, and leg E, the reciprocating bar G, slotted at one end to admit of the passage of the leg E, and bracket H, the parts being constructed, arranged, and operating substantially as set forth.

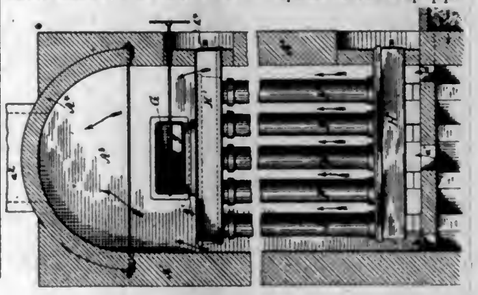
3. The saw L, attached to the handle I, and deriving a reciprocating motion, as specified, in combination with the triangular bar-frame N, pivoted to the main frame of the machine, and provided with a friction-roller, O, slotted guide-frame B, vertical guide-bars K, and frame D, the parts being arranged and operating for the purpose specified.

4. The frame B, provided with means for securing and holding a log, S, in combination with the saw L, leg E, and bar G, reciprocating in and guided by the frame B, as specified, and actuating the leg E, substantially as and for the purpose set forth.

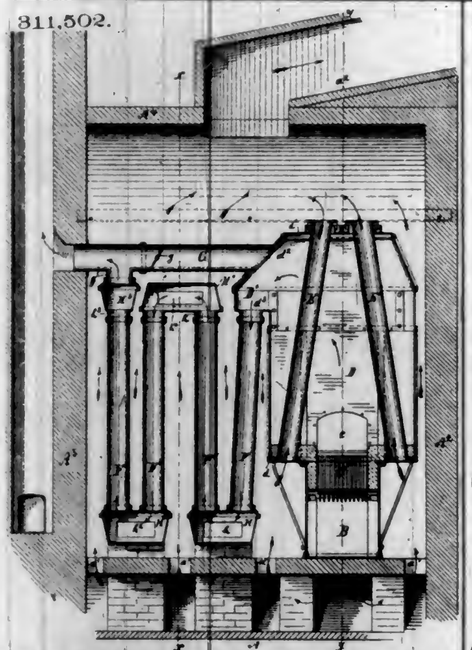
311,502. HOT-AIR FURNACE. ABRAM MANN, Kansas City, Mo. Filed Feb. 6, 1884. (No model.)

Claim.—1. The combination, in a hot-air furnace having suitable ports for the admission and discharge of air, of the fire-box, the combustion-chamber having a series of escape-pipes, and the series of open-ended air-tubes extending from top to bottom of said combustion-chamber in front of the series of escape-pipes, whereby an even distribution of the products of combustion around the air-tubes is effected, substantially as described.

2. In a hot-air furnace, the combination, with the fire-box and combustion-chamber, of the series of rows of separate vertical escape-pipes



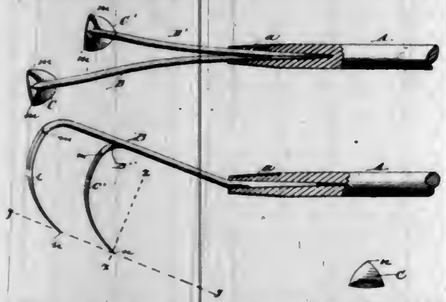
311,502.



F, F', F², and F³, the upper and lower boxes, H, H', H², and H³, arranged independently of each other, and the smoke-flue G, connected with the box H³, and independent of the other boxes, and provided with the damper *q*, substantially as described.

3. In a hot-air furnace, the combination, with the fire-box and combustion-chamber, of the row of open-ended pipes extending through the combustion-chamber in front of the outlets for the products of combustion, and the rows of vertical escape-pipes connected together at their tops and bottoms to form separate sinuous channels for the products of combustion, and connected to the combustion-chamber with relation to the open-ended air-tubes, in substantially the manner shown and described.

311,503. GARDEN IMPLEMENT. CALVIN MARSHALL, Dexter, Iowa. Filed July 9, 1884. (No model.)



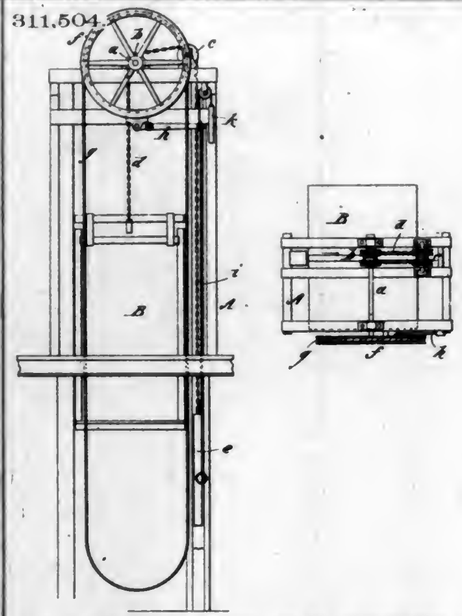
Claim.—1. A garden-hoe consisting, essentially, of two blades adjustably secured to a handle and at unequal distances therefrom, the blades being curved, substantially as described, and having shanks integral therewith, and extending therefrom to the handle in an oblique direction in a horizontal plane, in combination with a handle, as and for the purposes set forth.

2. In a garden-tool, two blades, C C', curved from top to bottom and convexo-convex in cross-section, as described, said blades provided with shanks B B', having their free ends corrugated or roughened upon their adjacent faces, and extending from the blades at an angle to a handle, A, substantially as described, and for the purpose set forth.

311,504. ELEVATOR. VOLNEY W. MASON, Providence, R. I. Filed June 17, 1884. (No model.)

Claim.—1. In an elevator, the hoisting mechanism consisting of shaft *a*, chain-wheels *b c*, and hand-rope wheel *f*, combined with chains *d* and balance-weight *e*, substantially as described.

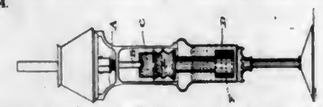
311,504.



2. In an elevator, the combination, with the suspension-chains, of chain-wheels *b b* on the operating-shaft *a*, substantially as described.

3. The brake-lever *h* and rope *i*, combined with the operating-wheel *f*, said rope being connected to said lever and passed over a pulley, with a weight, *k*, attached to one end, and with its other end extended down for convenient manipulation of the operator, whereby the same rope or medium is adapted to apply and release the brake, substantially as described.

311,505. LAMP. MARMADUKE MATTHEWS, Toronto, Ontario, Canada. Filed May 23, 1884. (No model.) Patented in Canada June 7, 1884, No. 19,504.

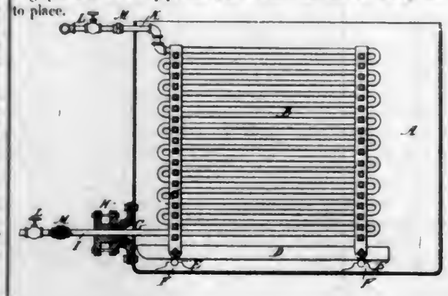


Claim.—1. A wick-tube, B, having a burner, A, fitted to it and connected to the oil-reservoir, in combination with a vessel, E, arranged to contain brine or other fluid heavier than oil, and provided with a float, F, supported in fluid within a lamp-body, D, and arranged to keep the oil at about an equal distance from the burner, substantially as and for the purpose specified.

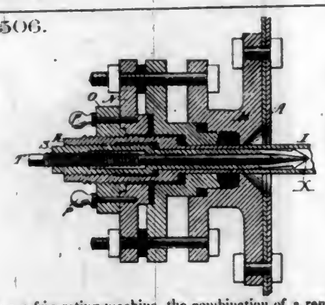
2. A wick-tube, B, connected to the oil-reservoir C, communicating with a compressible vessel, E, in combination with a float, F, contained within the body D, and arranged to compress the vessel E by its buoyancy, substantially as and for the purpose specified.

311,506. REFRIGERATING-MACHINE. CHARLES G. MAYER, Nahvoo, Ill. Filed Dec. 1, 1884. (No model.)

Claim.—1. In a refrigerating-machine, the combination of a brine-tank, a cooling-coil provided at its lower end with supporting-slides, rollers which rest on stools on the bottom of the tank, and a compound plug adapted to close the return-pipe aperture when the coil is removed and to grip and draw the pipe into place when the coils are being restored to place.



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2. In a refrigerating-machine, the combination of a removable coil and a tank provided with a conical recess about the return-pipe aperture, which serves as a guide for the return-pipe.

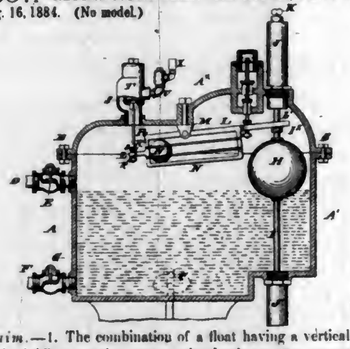
3. In a refrigerating-machine, the combination of a removable coil, supported on a frame provided with slides, with rollers which rest on stools on the bottom of the tank.

4. In a refrigerating-machine, the combination of a removable coil with a compound plug, which closes the return-pipe aperture when the coil is removed, and which draws in the end of the pipe when the coil is being restored to position.

5. In a refrigerating-machine, the combination of a compound plug, as and for the purpose described, with a tank provided with a conical recess terminating in the return-pipe aperture, and a removable coil.

6. In a refrigerating-machine, a plug composed of an outer shell, a barbed piece screw-threaded within the shell, and a wedge screw-threaded within the barbed piece, as and for the purpose described.

311,507. RETURN-STEAM TRAP. JAS. MCGWIN, Fulton, Mo. Filed Aug. 16, 1884. (No model.)



Claim.—1. The combination of a float having a vertical stem, to which it is rigidly secured, a steam-valve having a stem, normally-open valve having a stem, and a lever engaged by the float-stem and connecting with the steam-valve stem and normally-open valve-stem to open the steam-valve and close the normally-open valve, or vice versa.

2. A lever engaging the stem of a steam-valve at one side of the fulcrum and engaging the stem of normally-open valve on the other side of the fulcrum, and having a cage extending past the fulcrum in both directions and containing a ball having longitudinal movement in the cage, for the purpose set forth.

3. The combination of a chamber, a balanced normally-open valve, a pipe leading from the normally-open valve, and a safety-valve in the pipe, as set forth.

4. The combination of a chamber, a balanced normally-open valve, a pipe leading from the normally-open valve, a safety-valve in the pipe, and a whistle connected to the pipe, as set forth.

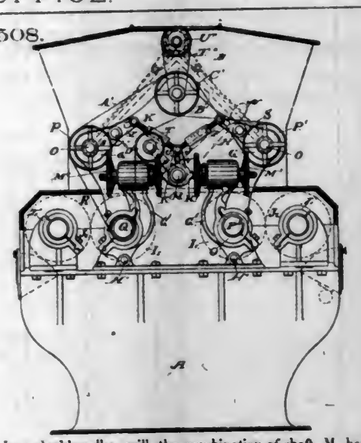
5. The combination of a chamber, a normally-closed steam-valve, a balanced normally-open valve, a lever governing the valves, and a float to actuate the lever, as set forth.

311,508. ROLLER-MILL. JAMES D. MILLAR, Milwaukee, Wis. Filed Apr. 28, 1884. (No model.)

Claim.—1. In a roller-mill, the combination, with one end of each of the shafts of the adjustable rolls, of a spherical-shaped movable journal-box having an eccentric journal-bearing in which the journal of each shaft rotates, said journal-box being adapted to be both inclined and turned in its bearing in the supporting arms, substantially as and for the purpose specified.

2. In a roller-mill, the combination, with both ends of each of the two central roll-shafts of the spherical-shaped movable journal-boxes O' O', and with one end of each of said shafts, of eccentric journal-bearings in which the journal of each of such shafts rotates, adjustable arms G' G', pivotal supports H' H', and operating mechanism for adjusting the upper ends of the arms H H, substantially as set forth.

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3. In a double-roller mill, the combination of shaft M, handle N, eccentrics F" F', screw-rods K' K', arms G' G', each carrying one end of the two central rolls, hand-nuts M' M', springs N' N', and pivotal supports H' H', as set forth.

4. In a double-roller mill, a single driving-belt for simultaneously rotating one of each of two pairs of grinding-rolls in the same direction, in combination with the fixed band-pulleys of such rolls, of a free open pulley-rim interposed partially between and held in contact with said fixed pulleys, a belt passing from the drive-shaft to and partially around and between said fixed pulleys, and nearly around said open pulley-rim and retaining said rim against the belt on the peripheries of both of said fixed pulleys, whereby said belt is retained in contact with and rotates both of said fixed pulleys in the same direction, as set forth.

5. In a double-roller mill, the combination of pulleys D" and E', respectively attached to one roll of each of two pairs of grinding-rolls, with the open pulley-rim E", and driving-band V', said driving-band V' being retained in place against said pulleys D" and E' by said pulley-rim E", band-pulleys A" and B", pulley-rim C", and driving-belt I", whereby the respective rolls in both pairs are rotated by separate bands in opposite directions toward each other, as set forth.

6. The combination, with a case, of a roller-mill and a door hinged at its lower edge to such case and provided with vertical side plates, of a counterpoise rigidly affixed to said side plates within said case upon the opposite side of the center of gravity of said door, whereby it is adapted by its gravity to close said door upwardly, as set forth.

7. The devices for holding the scraping-blades in contact with the grinding-rolls, consisting in the combination, with the respective ends of said blades, of the screw-cut adjustable standards W" W", adjusting hand-nuts Y" and Z", springs A" A", and supporting-arm V", substantially as set forth.

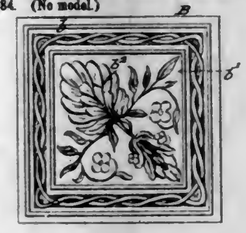
8. The combination, with the throat or discharge of the hopper of a roller-mill having rigid immovable sides, of an adjustable agitating-roll, movable bearings, and suitable adjusting mechanism therefor by which it is retained in actual close contact with both sides of said throat as the hopper is closed, and removed as the hopper is opened, as set forth.

9. In a roller-mill, the combination of shaft M, handle N, eccentrics L, arm J, screw-rods K K, arms S S, pivotal supports H H, and feed-rolls F F, said feed-rolls being adapted to be both simultaneously adjusted by moving said handle, as set forth.

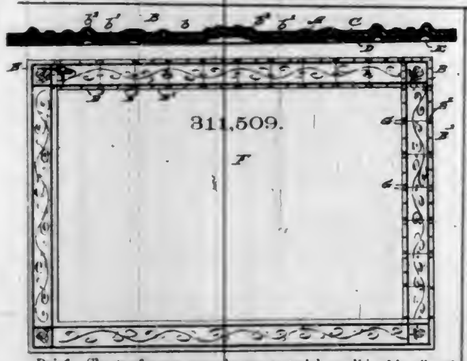
10. The combination, with the hopper having upwardly-converging bottoms C, and the feed-rolls, of the upwardly-converging vertically-moving agitating-bars K", the eccentrics at their upper ends, and operative mechanism by which said bars are reciprocated toward and from the feed-rolls, as set forth.

11. The combination of the agitating-bars K", bracket U", eccentric R", shaft S", band T", and pulley C', said agitating-bars being connected with said bracket and adapted to move upward and downward as said bracket is rocked, as set forth.

311,509. FRESCO-WORK. ETTORE S. MIRAGOLI, St. Louis, Mo. Filed Apr. 29, 1884. (No model.)



311,509.



Brief.—Sheets of paper or analogous material are dipped in oil and made into separate and removable sections, each of said sections having its portion of complete design stamped in relief and strengthened and arranged to form an ornamental design.

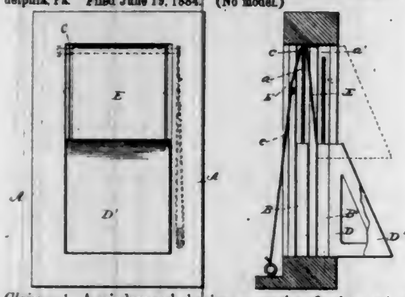
Claim.—1. The fresco-work herein described, consisting of sheets A, C, D, and E, dipped in oil, substantially as described.

2. A fresco for a wall or ceiling, composed of various removable sections grouped together to form an ornamental design, each section being made of one or more layers of paper having its portion of the complete design stamped in relief, and stiffened and strengthened, substantially as described.

3. As a new article of manufacture, a fresco for walls or ceilings, composed of separate and removable sections B B', &c., of paper or analogous material stamped in relief and grouped together to form an ornamental design.

4. Fresco-work having a surface stamped into relief and backed with textile fabric, and dipped in oil.

311,510. AWNING FOR WINDOWS. MATTHEW MONEYMENT, Philadelphia, Pa. Filed June 19, 1884. (No model.)



Claim.—1. A window-sash having an awning fixed to and movable with it, the said awning having its lower front side held out away from the sash, substantially as set forth.

2. The combination of the window-frame, a supporting rod or guide secured in the upper part thereof, an awning movable vertically along said frame, and a curtain secured at one end to the awning, and having its other end carried over the rod or guide, substantially as set forth.

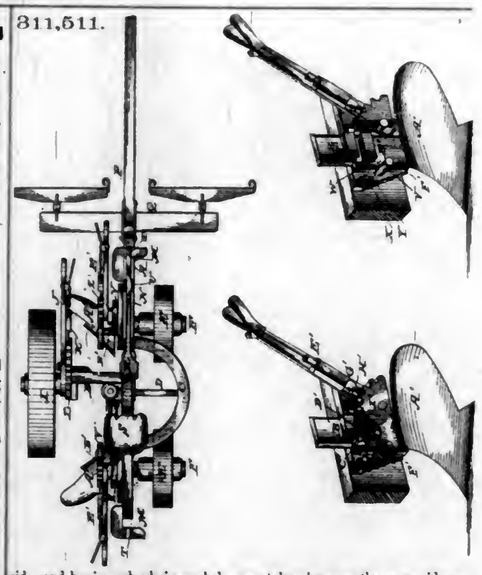
3. The herein-described improvement in windows, consisting of the frame provided in its upper end with a rod or curtain-guide, the outer sash, an awning secured to and movable vertically with the outer sash, and a curtain secured at one end to the awning, and having its other end supported on the rod or guide in the frame, substantially as set forth.

311,511. PLOW. FRANK M. MOTT, Greeley, Colo. Filed June 6, 1884. (No model.)

Claim.—1. The combination, in a reversible plow, of a beam mounted upon wheels, having two vertical recesses near its ends, having notches in the upper edges of the outer sides of the recesses, and having a semicircular frame projecting laterally from the middle of its side, a swinging arm pivoted at its inner end upon the middle of the upper side of the beam, having its outer end bent downward, adapted to fit into the recesses in the ends of the beam, and having the tongue attached to its end, and a foot-lever pivoted upon the upper side of the arm, playing with its outer weighted end between two upright lugs upon the arm, and fitting with its end in one of the notches, as and for the purpose shown and set forth.

2. In a reversible plow, the combination of a beam having a semicircular frame projecting laterally from the upper edge of one side, at the middle of the same, having a laterally-projecting wing upon its other

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side, and having wheels journaled upon stub-axles upon the same side as the frame, a swinging arm pivoted at the center of the upper side of the beam, having the tongue attached to its outer end, and having means for securing it at the ends of the beam, and a crank hinged upon the end of the wing upon the beam, having a wheel journaled upon its wrist-pin, and having means for raising or lowering it, as and for the purpose shown and set forth.

3. In a reversible plow, the combination of the beam having wheels journaled upon stub-axles upon its land side, having vertical recesses near the ends of its land side, having a semicircular frame projecting laterally from the middle of the upper edge of its land side, and having a wing projecting laterally from the middle of its furrow side, a swinging arm pivoted upon the center of the upper side of the beam, having the tongue attached to its outer end, and having a lever pivoted upon its upper side, adapted to engage a notch in each end of the beam, the plows sliding with their standards in bearings upon the sides of the beam, and having means for raising and lowering them, the caster-colter, the crank hinged upon the end of the wing upon the beam, and having the hand-lever having means for adjusting the same, and the wheel journaled upon the wrist-pin of the crank, as and for the purpose shown and set forth.

4. In a plow, the combination of the beam, a plate pivoted at one corner upon a bolt and sliding with a slot at its other edge upon a bolt or screw, forming vertical bearings upon its outer side, and having laterally-projecting lugs, as described, a plow-standard sliding in the bearings and having transverse ways upon its outer side, a segmental rack secured upon the outer ends of the lugs upon the pivoted plate, and a lever having its short arm bent and provided with an inwardly-projecting pin sliding in the ways upon the standard, and provided upon its long arm or handle with a spring-lock engaging the segmental rack, as and for the purpose shown and set forth.

311,512. BALLOT-BOX. WILLIAM H. MUNROE and TIMOTHY C. SULLIVAN, Boston, Mass. Filed July 10, 1884. (No model.)

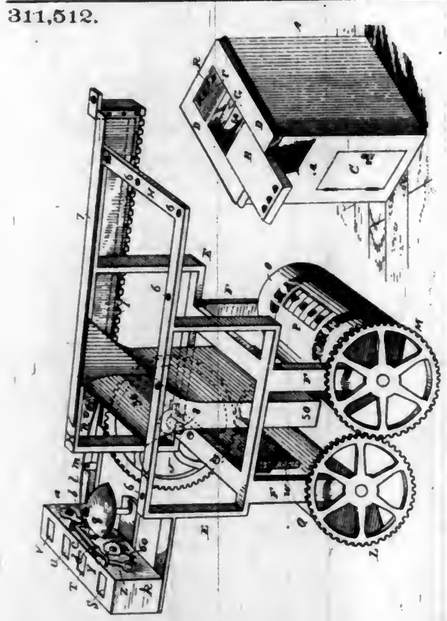
Claim.—1. In a ballot-box, the combination of the following instrumentalities, to wit: a cover for opening and closing the box, and a printing mechanism adapted to print each ticket or ballot differently, said mechanism being actuated by said cover, substantially as described.

2. In a ballot-box, the combination of the following instrumentalities, to wit: a cover adapted to open and close the box, a printing mechanism actuated by said cover and adapted to print each ticket or ballot differently, and a chute or hopper for receiving and conveying the ticket or ballot to the printing mechanism, substantially as set forth.

3. In a ballot-box, the combination of the following instrumentalities, to wit: a cover adapted to open and close the box, a printing mechanism adapted to print each ticket or ballot differently, and a registering mechanism for indicating the number of tickets or ballots cast, said printing and registering mechanisms being actuated by said cover, substantially as described.

4. In a ballot-box, the combination of the following instrumentalities, to wit: a cover adapted to open and close the box, a printing mechanism adapted to print each ticket or ballot differently, and means for automatically terminating the printing at the end of each thousand, or other given number of impressions, and commencing anew, substantially as set forth.

311,512.



5. In a ballot-box, the combination of the following instrumentalities, to wit: a cover adapted to open and close the box, a printing mechanism adapted to print each ticket or ballot differently, a registering mechanism adapted to register the number of ballots cast, and means for automatically terminating the registering at the end of each thousand, or other given number, and beginning the registration anew, substantially as described.

6. In a ballot-box, the combination of the following instrumentalities, to wit: a cover for opening and closing the box, a printing mechanism adapted to print each ticket or ballot differently, a registering mechanism adapted to register the number of ballots or tickets cast, and an alarm mechanism adapted to give an alarm at each deposit of a ticket or ballot, substantially as described.

7. A ballot-box having a cover arranged to slide horizontally, and provided with a rack adapted to engage a gear journaled in the body of the box and through said gear communicate regular reciprocating rotary movements to rolls adapted to print the tickets, substantially as set forth.

8. In a ballot-box, the roll O, provided with the changeable type-disks 1 2 3 4, in combination with the roll Q, the vertical chute 50, means for reciprocating said rolls, means for properly presenting the ticket to the type, and means for changing the type automatically as each ballot is cast, substantially as described.

9. In a ballot-box, the roll O, provided with type adapted to be changed automatically as each ballot is cast, and with type adapted to print a word or words on the ticket to indicate in what ward or other locality the ballot was cast, substantially as set forth.

10. In a ballot-box, the disk I, provided with the ratchet-wheel 71, holes 76 and 74, and spring push-pin 75, the disks 2 and 3, provided with spring push-pins and holes 76 and 74, the disk 3, provided with the holes 76 and 74, and stud 81, the disk 4, provided with the projections 80 and 82, and holes 76, and the shaft 10, provided with the spring-arm 79, arm 72, and arm 57, in combination with the rolls O Q, means for reciprocating said rolls axially, and means for rocking said shaft and changing said disks, each of which is provided with type adapted to print the ballot or ticket, substantially as described.

11. In a ballot-box, the stops 59 and 58, in combination with the rocker shaft 10, having the arm 57, and carrying the type-disks 1 2 3 4, substantially as and for the purpose set forth.

12. In a ballot-box, the printing-rolls O Q, ink-roll N, gears L K J, rack I, cover B, and chute 50, substantially as set forth.

13. In a ballot-box, the shaft 10, provided with the spring-arm 79, having a rule-joint, in combination with disk 4, provided with the projection 80, substantially as and for the purpose specified.

14. In a ballot-box, the lever *c*, in combination with the rolls S T U V, levers *a z*, and means for connecting and actuating said rolls, substantially as described.

15. In a ballot-box, the pivoted lever *l*, having the incline *s*, in combination with the wheel *f*, rack I, wheel 54, and cover B, substantially as and for the purpose set forth.

311,513. CASH AND PARCEL CARRYING SYSTEM FOR STORE SERVICE. JAMES K. P. NOURSE, Franklin, assignor of two-thirds to Charles Grant, Jr., Boston, Mass. Filed Dec. 29, 1884. (No model.)



Claim.—1. A cash and parcel carrying system for store service, &c., consisting of a track having a single rail permanently inclined with both ends thereof fixed, and a cash or parcel receptacle provided with wheels to descend by gravity thereon, in combination with a means for returning the receptacle to the station from which it was sent, substantially as set forth.

2. A permanently-fixed single-rail inclined track and a fixed horizontal single-rail track converging toward each other (without meeting) at an acute angle, in combination with a wheeled car, and a means for raising and lowering the same in order to transfer it from the end of one track to the contiguous end of the other, substantially as described.

3. Two oppositely-inclined single-rail fixed tracks located one above the other, in combination with a wheeled cash or parcel receptacle, and means located beyond the ends of the tracks for transferring it from one incline to the other, as specified.

4. A cash and parcel carrying system having two oppositely-inclined fixed single-rail tracks one above the other, and in which the car traverses the circuit between the salesman and the cashier in the order and in the manner by means substantially as follows: first, raising the car with its contents upon an inclined switch which forms a track-extension common to both tracks at the salesman's station, then allowing the car by gravity to descend the incline of said switch, then to pass over the fixed end of the upper track and down the same over its lower fixed end, then receiving the car upon an inclined switch or track extension common to both tracks at the cashier's station, where its contents are removed, then lowering the empty car on the switch to the upper end of the lower track, then down said switch over the fixed end of said track to the foot of the same, then over the fixed lower end of the lower track to and upon the switch at the salesman's station, and finally lowering said switch with the car thereon to the first position from which it started.

5. Two fixed single-rail tracks one located above and forming an acute angle with the other without meeting, in combination with a switch, M, pivoted to an elevator for transferring the cars vertically between the fixed ends of the tracks at the salesman's station, the said switch also forming alternately a common extension to the track ends thereat, as set forth.

6. In combination with two fixed single-rail tracks one above and forming an acute angle with the other without meeting, the switch M', pivoted to a device located at the cashier's station for transferring the cars between the fixed ends of the tracks thereat, said switch alternately forming a common extension to said track ends, as described.

7. The switch M at the salesman's station and the switch M' at the cashier's station, in combination with two fixed single-rail tracks one above and forming an acute angle with the other without meeting, said switches alternately forming connections with and transferring the cars to their respective fixed ends of said tracks, substantially as specified.

8. The guide-bar K, the elevator L, moving thereon, and the switch M, pivoted to the latter, in combination with the spring *i*, for inclining the switch upward to form the lower-track connection, and the stop *k*, for counteracting the spring *i* when the switch has arrived at its proper inclination, constructed to operate as set forth.

9. The elevator L with the switch pivoted thereto, in combination with the guide-bar K, its stop *m*, and the upper end of the upper track for inclining the switch down to form connection therewith, as described.

10. The lever N, with its notch 14 and spring 16, in combination with and for supporting the elevator L, with its pin *n* and switch M in its middle position, and the car G, cushioning-spring *l*, and arm 23, for releasing the elevator and the switch and allowing the descent by gravity thereon of the empty car.

11. The bifurcated bracket E, in combination with and for securing thereto the two track ends contiguous to the cashier's station, as specified.

12. The curved bracket E, with its bifurcations provided with grooves *d*, in combination with the two track ends contiguous to the cashier's station, as set forth.

13. The independent curved brackets H, with their grooved ends, in combination with the two fixed track ends at the salesman's station, substantially as described.

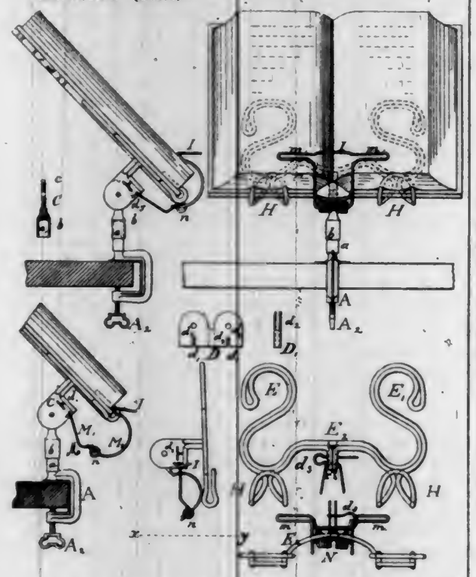
14. In combination, a continuous wire forming two fixed single-rail tracks one above and inclined at an acute angle to the other without meeting, a bifurcated bracket, E, having grooved ends to which the bight or middle of the single wire is secured, and two independent brackets, H, to which the ends of the wire are secured, constructed substantially as specified.

15. A cash and parcel receptacle, P, having its lower portion weighted and pivoted thereto, in combination with a wheeled car, G, and track adapted thereto, as set forth.

16. In combination with a car, G, having grooved wheels, a cash and parcel receptacle, P, provided with a spring for exerting an upward pressure on the track, and thereby counteracting the tendency of the car to jump from the same, substantially as described.

17. A wheeled carrier having one of its sides open to admit of its being seated upon or removed from the track at any point of its circuit by a simple lateral movement given thereto (the carrier) by the operator, in combination with the device which prevents the jumping of the carrier from the same, substantially as specified.

311,514. BOOK-HOLDER. LA VERNE W. NOYES, Chicago, Ill. Filed Mar. 20, 1883. (Model.)



Claim.—1. In a book-holder, in combination with the book-support, a leaf-holder pivoted by one end to the book-support, and having the other end, which rests upon the book, expanded into the laterally-extending leaf-finger *m'*, and having the finger-loop I, intermediate between said leaf-finger and integral therewith, substantially as set forth.

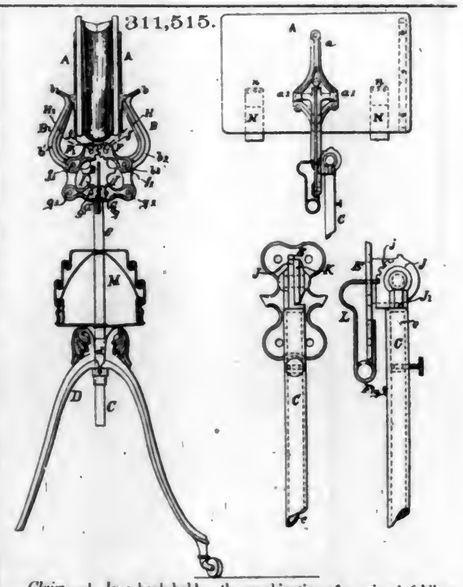
2. In a book-holder, in combination with the book-support and the vertical supporting-stem, the disk C, and, closely embracing it, the saddle D', secured, the one to the book-support and the other to the supporting-stem, and pivoted together at the center of the disk, and a releasable retaining-piece connecting said disk and saddle elsewhere than at said pivot, substantially as set forth.

3. In a book-holder, in combination, the notched disk C, the saddle D', pivoted thereto and having its two side wings closely embracing the disk, and the spring-catch d^3, secured to the saddle and engaging the notches of the disk.

4. In a book-holder, in combination, the book-shelf E, formed of a single continuous piece of wire having the ends contiguous, and provided with the parallel groove, and the saddle D', formed of one continuous piece of sheet metal, having the edges of its wings E' parallel, the shelf M and the saddle D' being united by securing the said parallel edges of the latter in the said parallel groove of the former.

5. In a book-holder, in combination with the book-support, a leaf-holder jointed midway between its ends, pivoted freely by one end to the book-support, in the rear of the shelf thereof, provided with a spring to flex the joint in direction to embrace the edge of the book-shelf in the angle between the two members of said leaf-holder, whereby the book upon the book-support may be embraced between the members of the leaf-holder, substantially as set forth.

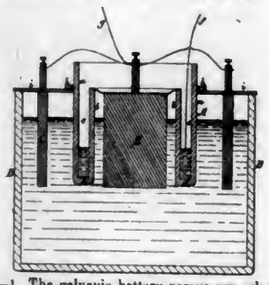
311,515. BOOK-HOLDER. LA VERNE W. NOYES, Chicago, Ill. Filed Mar. 20, 1883. (No model.)



Claim.—1. In a book-holder, the combination of a pair of folding shelves, a pair of supporting-arms pivotally connected thereto, a rigid support, and two pairs of connecting-links which are connected one pair to each arm and all to the support, and provided at their contiguous ends with intermeshing gears

2. The combination of the folding shelves A A and the supporting-arms B B' with the gear-links F F' and G G', and with their common rigid support, substantially as and for the purpose set forth.

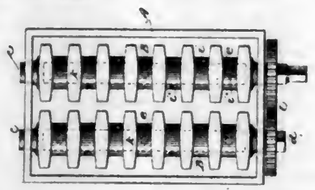
311,516. GALVANIC-BATTERY POROUS CUP. CHARLES P. ORNE, Cambridge, Mass. Filed June 23, 1884. (No model.)



Claim.—1. The galvanic-battery porous cup substantially as described, composed of the two porous tubes concentric with each other and an annular space between them, and provided with an annular bottom connecting them at their lower ends, the inner tube being open at the lower part of its bore, and all being essentially as represented.

2. A galvanic battery composed of a tank, D, an acid solution therein, a porous cell consisting of two concentric tubes united at their lower ends by a bottoming, a charge of amalgam or mercury and zinc placed within the holding-space of the cell, and a mass of carbon extended down within the internal tube of the cell, all being substantially as set forth, and one or more other masses of carbon in the tank and outside of the cell, as represented.

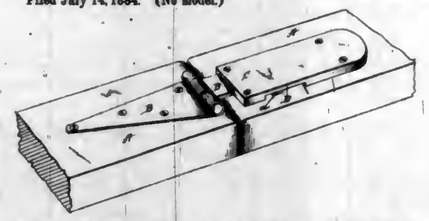
311,517. GRATE-BAR. CYRUS F. PALMER, Utica, N. Y. Filed Mar. 24, 1884. (No model.)



Claim.—1. The hollow grate-bar having transverse air-passages, the entrances to which are directed away from the falling ashes when the bar is in its normal supporting position, substantially as and for the purpose described.

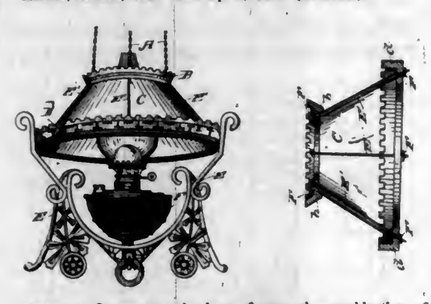
2. The combination of the hollow grate-bar, clinker-teeth of triangular form, and air-holes arranged respectively opposite a sharp point of a clinker-tooth and at equal distances apart around the grate-bar, substantially as and for the purpose described.

311,518. STRAP-HINGE. BARTLETT D. PALMER, What Cheer, Iowa. Filed July 14, 1884. (No model.)



Claim.—In a hinge, the combination of two straps, B B', the strap B' having outwardly-extending lugs *a*, and a plate, C, secured over said strap B', and having slots, as shown, to receive the lugs *a*, said strap B' being allowed movement the length of the slots, while the strap B is rigidly secured, substantially as and for the purpose set forth.

311,519. SUSPENSION DEVICE FOR LAMP-SHADES. DEXTER W PARKER, Meriden, Conn. Filed Apr. 5, 1884. (No model.)



Claim.—1. In an extension-lamp fixture, the combination of a crown-ring, a base-ring, a harp, and a shade with rods or chains which connect said rings to one another, substantially as set forth.

2. In an extension-lamp fixture, the combination of a crown-ring, a base-ring, a harp attached to one of said rings, a lamp-shade, and rods or chains which connect said rings to one another, substantially as set forth.

3. The combination of a crown-ring, a base-ring, and a shade with a lamp-harp suspended from said base-ring, and devices connecting said base-ring to said crown-ring, said connecting devices being independent of the harp, substantially as set forth.

4. Adjustable connecting devices, in combination with two shade-rings, to which they are attached, a shade arranged between said rings and supported by one or both of them, and a lamp-harp attached to the lower ring and unattached to said connecting devices, substantially as set forth.

5. A lamp-shade and its crown-ring and base-ring, in combination with a harp attached to said base-ring, and connecting devices detachable from both of said rings, substantially as set forth.

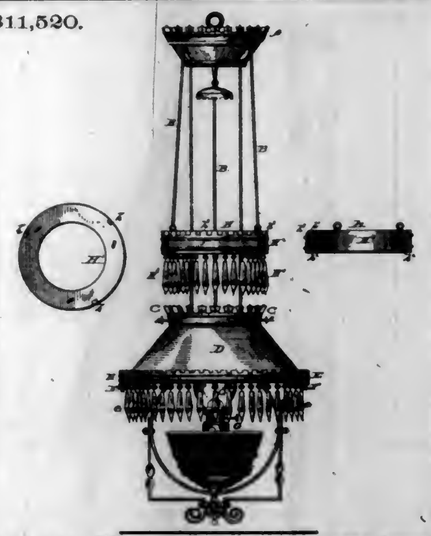
311,520. EXTENSION-LAMP. DEXTER W. PARKER and LEWIS F. GRISWOLD, Meriden, Conn., assignors to the Charles Parker Company, same place. Filed Apr. 14, 1884. (No model.)

Claim.—1. A weight for an extension-lamp, consisting of an annular casting and an inclosing-shell of sheet metal attached thereto and covering the same, for the purpose set forth.

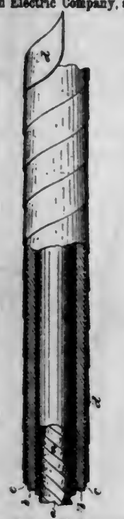
2. A weight for an extension-lamp, consisting of an annular cast-metal core having recesses formed therein, and an annular sheet-metal inclosing-shell provided with tongues, which are bent into said recesses to attach said shell to said core, substantially as set forth.

3. In a weight for extension-lamps, the cast-metal inner ring, H', provided with recesses h' in its upper and outer edge, in combination with the shell H^2, provided with the annular flange h^2, which extends under said cast-metal inner ring, and with the tongues h^3 at its upper edge, which are bent into said recesses h', for the purpose of holding the shell in place, substantially as set forth.

311,520. [duplicate]



311,521. TELEGRAPH-CABLE. WILLIAM R. PATTERSON, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Sept. 22, 1884. (No model.)



Claim.—1. The combination, with the rubber tube placed about the core of a telegraph-cable, of the paraffine filling, and the jacket *c*, braided loosely about the pipe, whereby the expansion of the tube is limited, substantially as and for the purpose specified.

2. The combination, with the core of insulated flexible wires, of an elastic tube, a filling of insulating substance, the loose jacket, and the strong serving about the jacket, closely wound, as described.

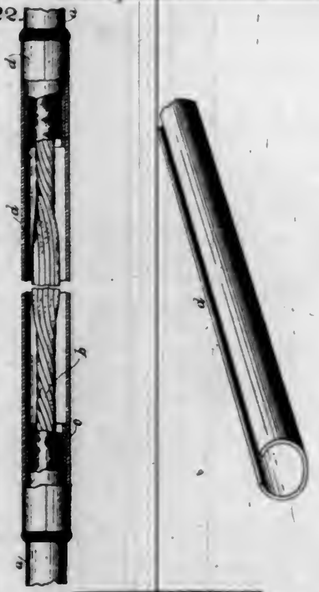
3. The telegraph-cable which consists of the combination, with an elastic tube, of a core of insulated conductors and the paraffine filling, substantially as shown and described.

311,522. METHOD OF REPAIRING TELEGRAPH-CABLES. WILLIAM R. PATTERSON, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Sept. 22, 1884. (No model.)

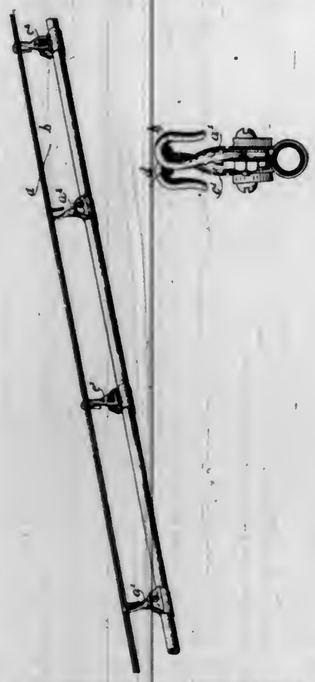
Claim.—1. The method of repairing telegraph-cables which consists in removing the lead pipe from the injured portion, pouring onto the conductors hot paraffine or other insulating material until the moisture is evaporated, and then protecting the core by a sleeve of lead soldered at each end to the lead pipe and made water-tight, as described.

2. The method of repairing electric cables which consists in exposing and separating the insulated conductors where they have become moist, pouring thereon hot paraffine, and protecting the conductors thus dried by placing a lead sleeve about the lead pipe of the cable and soldering it thereto at each end and along the longitudinal seam, substantially as and for the purpose specified.

311,522.



311,528. MEANS FOR HANGING TELEGRAPH-CABLES. WILLIAM R. PATTERSON, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Sept. 22, 1884. (No model.)

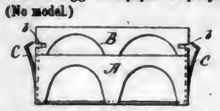


Claim.—1. The combination, with a telegraph-cable, of hooks rigidly attached thereto, the alternate hooks facing outwardly in opposite directions, and two suspending-wires whereby the hooks are supported and prevented from being thrown off, substantially as and for the purpose specified.

2. The combination of suspending-wires *b d*, each supporting a separate series of hooks facing in opposite directions and attached to the cable, substantially as and for the purpose specified.

3. The combination, with a telegraph-cable, of hooks attached thereto, the alternate hooks facing outward in opposite directions, and two suspending-wires whereby the hooks are supported and prevented from being thrown off, substantially as and for the purpose specified.

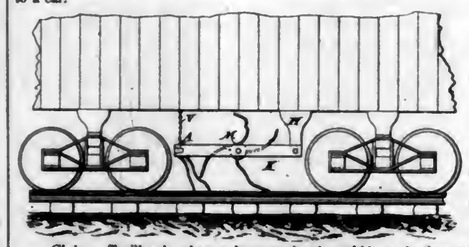
311,524. STEREOTYPE-PLATE HOLDER. EDWIN K. PRATT, Chicago, Ill., assignor to A. N. Kellogg Newspaper Company, same place. Filed June 29, 1883. (No model.)



Claim.—The combination, with the block and plate, of the unattached springs C C, passing under the block, and having the turned-over points adapted to be forced into the recesses in the plate, substantially as specified.

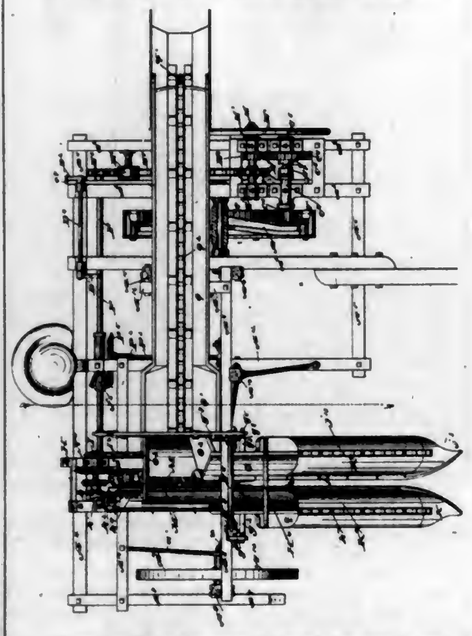
311,525. WEED-KILLING MACHINE. JOSHUA P. RAND, Dallas City, Ill. Filed Apr. 16, 1884. (No model.)

Brief.—A weed-killing machine consisting of strips of rawhide or leather secured to a roller mounted in a frame and adjustably connected to a car.



Claim.—Trailing brushes or drags made of rawhide or leather, for the purpose of killing growing vegetation on the road-bed of railways.

311,526. CORN-HARVESTER. FRANK J. RANDALL, Aurora, and GILBERT B. SNOW, Sugar Grove, Ill., Ida F. Randall administratrix of Frank J. Randall, deceased; said administratrix and said Snow assignors to William Deering, Chicago, Ill. Filed Oct. 22, 1883. (No model.)



Claim.—1. The gathering-frame adapted to straddle the row of corn, and provided with the rounded upper surfaces, in combination with the gathering mechanism having its teeth reaching above or outside of the said rounded surfaces, whereby broken or prostrate stalks are carried upward while being drawn over the said rounded surfaces, substantially as described.

2. The combination of the gathering-frame having the cylindrical surfaces, the gathering-chains j^4, k^4, j^{12}, and k^{10}, suitable supporting mechanism, and the driving-gearing, substantially as described.

3. The combination of the gathering-frame having the cylindrical surfaces, the gathering-chains j^{12} k^{10}, supported by said frame, and provided with teeth projecting above said cylindrical surfaces, the gathering-chains j^4 and k^4, moving in a plane substantially at right angles to the first-named chains, gearing for driving said chains j^4 and k^4, and intermediate operating mechanism whereby said chains j^{12} k^{10} are respectively driven by the chains j^4 k^4, substantially as and for the purpose set forth.

4. In a corn-harvester, picking-rollers having screw-threads and intermediate webs connecting the threads, and constructed and arranged in such a manner that the threads of one roller intermesh with the threads of the other, substantially as and for the purpose described.

5. The combination of the main frame, the gathering-frame mounted thereon on a vertical pivot, the gathering mechanism carried by said gathering-frame, the shaft G′, crossing the axis of said vertical pivot, the driving-shaft F, also crossing the vertical axis, and means for transmitting motion from said driving-shaft F to said shaft G′, located nearly coincident with the vertical axis, whereby said transmitting means is not materially affected by the lateral adjustment of the gathering-frame, substantially as described.

6. The combination of the main frame, the laterally-adjustable picking-frame supported on a vertical pivot, the shaft G′, crossing the axis of the vertical pivot, and provided with the sprocket-wheel G^2, having its axis coincident with the point of intersection of the axes of said shaft and said vertical pivot, the driving-shaft F, having the sprocket-wheel *f*, located substantially at the intersection of said shaft and said vertical axis, and the driving-chain f^2, substantially as set forth.

7. The combination of the main frame, the shaft F, supported thereon in permanent bearings, and provided with the sprocket-wheel *f*, the yoke G^2, pivoted to the main frame on a vertical axis, the shaft G′, supported on said yoke, and provided with the sprocket-wheel G^2, and means for vertically adjusting said yoke, substantially as and for the purpose described.

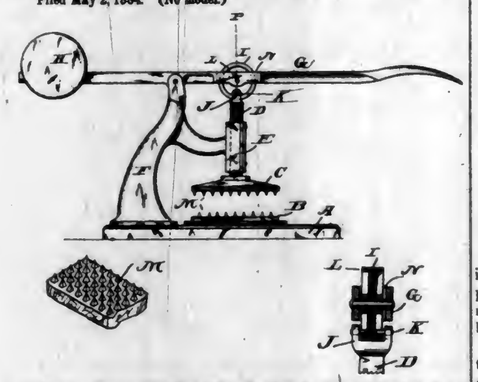
8. The combination, with the main frame, of the yoke G^2, pivoted to said frame on a vertical axis, and the gathering-frame pivoted on said yoke on a horizontal axis, substantially as and for the purpose set forth.

9. The combination, with the gathering-chains, of the guide-bars at their backs, and means for adjusting said guides, substantially as described.

10. The combination, with the gathering-chains, of the edge guides, k^{17} and k^{18}, and the adjustable back guide, k^{14}, substantially as and for the purpose described.

11. The chains j^{12} and j^4, the sprocket-wheels *j* and j^9, and the gears $j^\times$ and j^3, all combined substantially as described.

311,527. BEEFSTEAK-TENDERER. ADAM REIN, Hamilton, Ohio. Filed May 2, 1884. (No model.)

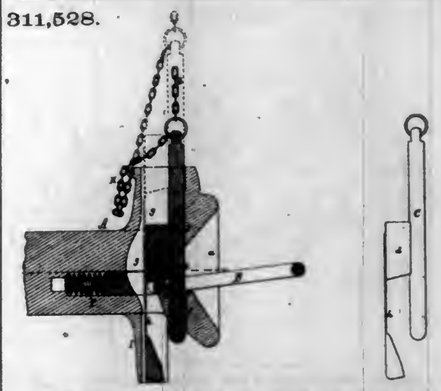


Claim.—The combination of the die-plate B, platen C, having plunger D, provided with inwardly-projecting pins K, the standard F, supporting a lever-pivot and a plunger-guide, the lever G, having a mortise provided with a journal-pin, and the disk I, journaled within said mortise and provided with side flanges, L, engaging the top of said plunger and under the pins at its top, substantially as and for the purpose specified.

311,528. CAR-COUPLING. DAVID L. RICHARDS, St. John, New Brunswick, Canada. Filed Nov. 1, 1884. (No model.)

Claim.—1. The draw-bar having in rear of its flaring mouth the chamber provided with the inclined bottom, and also having passages for the shackling-pin, its link-holder, and latch to move in, in combination with the shackling-pin provided with such holder and latch, all being substantially and to operate as described.

311,528.



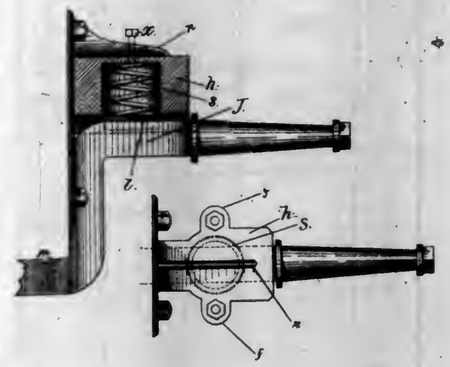
2. The combination of the furcated auxiliary bunter and its spring, arranged in the chambered draw-bar as described, with such bar and with the shackling-pin and its link-holder and latch, applied and to operate in the bar essentially as set forth.

3. The combination of the draw-bar provided with the grooved or chambered projection I, the link-receiving chamber, and the passages for the shackling-pin and its link-holder and latch to work in, with such shackling-pin and the link-holder and latch connected therewith, all being substantially as represented.

311,529. LUBRICANT. HERRMANN RIEDEL, Neenah, Wis. Filed Sept. 13, 1884. (No specimens.)

Claim.—The herein-described composition of matter to be used as a lubricant, consisting of mineral oil, boiled linseed-oil, and powdered plumbago, in or in about the proportions specified.

311,530. TRACTION-ENGINE. FRANCIS W. ROBINSON, Richmond, Ind. Filed Mar. 14, 1884. (No model.)



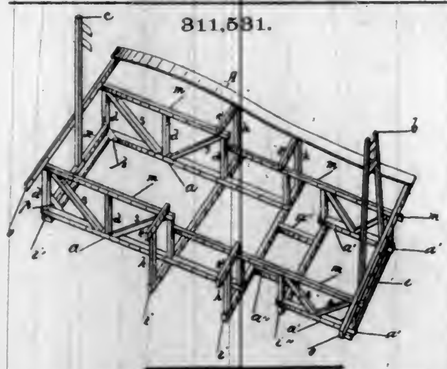
Claim.—1. The combination, in a road-engine, of the axle J, passing under the fire-box of the boiler, the housing *h*, having a slotted base-plate, *b*, in which the axle plays, and the spring *s*, located in a circular recess in said housing, the base-plate of the housing being fastened to the boiler, substantially as specified.

2. The combination, in a road-engine, of the axle J, passing under the fire-box of the boiler, the housing *h*, having a longitudinal groove, *g*, on its lower side, and a slotted base-plate, *b*, in which the axle plays, the spring *s*, located in a circular recess in the said housing, and the bar *c*, secured under the axle by means of rods *d*, passing through said bar and through lugs on the housing, the base-plate of the housing being fastened to the boiler, substantially as specified.

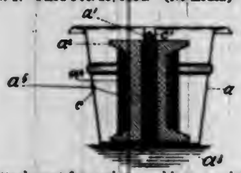
311,531. HAY-LADDER. HENRY D. ROBINSON, Chester, Ind. Filed Feb. 21, 1884. (No model.)

Claim.—The combination and arrangement of the sills *a*, *a*, *a′*, *a′*, *a″*, *a″*, and *e*, the cross-pieces *i i′ i″*, rails *m m*, posts *d d*, braces *s s*, standard *c*, shaft *x*, angle-plate *p*, side rails, A, rails *o o*, posts *h h*, rails *n n*, and frame *b*, all substantially in the manner specified, and for the purpose set forth.

311,531.

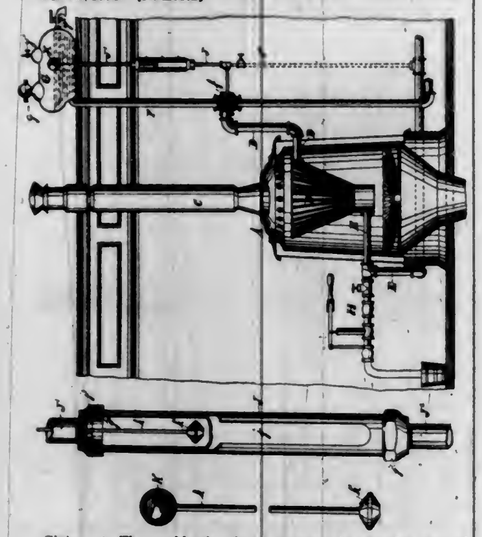


311,532. SPOOL-HOLDER FOR SEWING-MACHINES. JOSEPH C. ROTH, Buffalo, N. Y. Filed Feb. 25, 1884. (No model.)



Claim.—An attachment for sewing-machines, consisting of the case *a*, having a perforation, *c*, and provided with a vertical tube, *c'*, adapted to fit over the spool-supporting stem or rod of a sewing machine and to receive the spool of thread, substantially as and for the purposes specified.

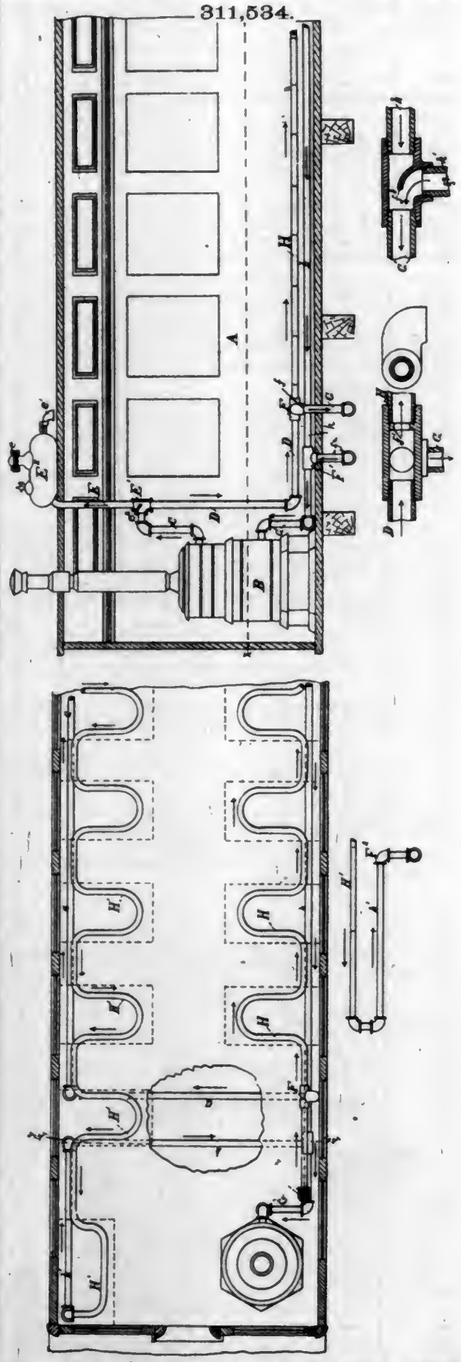
311,533. CAR-WARMER. JOHN Q. C. SEARLE, Chicago, Ill. Filed Feb. 23, 1884. (No model.)



Claim.—1. The combination, in an apparatus for warming cars, of an expansion-chamber, G, a float, K, an indicator, a glass-tube water-gage arranged below the expansion-chamber and connected therewith, and the system of circulation-pipes, substantially as described.

2. In a hot-water warming apparatus for railway-cars, in combination with expansion-chamber G and the special fitting *f*, of the pipes J' J^2, case J, glass tube *j*, float K, stem *k*, and index *k'*, substantially as and for the purpose described.

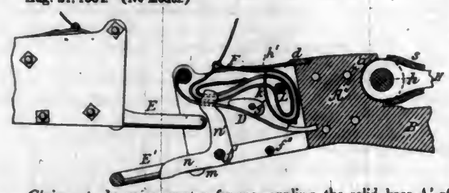
311,534.



311,534. CAR-WARMER. JOHN Q. C. SEARLE, Chicago, Ill. Filed Mar. 17, 1884. (No model.)

Claim.—In a hot-water warming apparatus, the heater B, the supply-pipe D, the fitting F, which divides the supply-pipe into two branches, the branch H, extending from the fitting F in a series of bends to the end of the car farthest from the heater, and returning by a straight pipe, *h*, to a fitting, F', located near the heater, the branch G, running from the fitting underneath the floor to the opposite side of the car, thence to the further end of the same, returning in a series of bends, H', to the end of the car nearest the heater, then doubling back by the pipe *h'* to a point where it crossed, and recrossing under the floor, to make a connection with the fitting F', the fitting F', which joins the return-pipes *h* and *h'*, and the main return-pipe G', all combined and arranged as and for the purpose set forth.

311,535. CAR-COUPLING. WILLIAM N. SEWELL, Hedgen, Ky. Filed Aug. 21, 1884. (No model.)



Claim.—1. In an apparatus for car-coupling, the solid base A' of the draw-head, with a semicircular recess, *a*, for the insertion of the draw-bar at its rear end, the same continuing in an inclined projecting shank, B, as shown, the front end of the base provided with a dovetailed notch, *b*, and recesses *c c'*, substantially as described, and for the purpose specified.

2. In combination with the base A', in an apparatus for car-coupling, the side plates, C C', secured to the said base, forming in their projecting front part the draw-head A, and said side plates having at their rear end projecting lugs *e e'*, with corresponding center holes, their front ends provided with a passing screw-bolt, *f*, mounted with braces *g g'* and bolt L, substantially as described, and for the purpose specified.

3. In combination with the draw-head A of an apparatus for coupling cars, with projecting side plates, C C', the connected coupling-link E', the same having open rear ends and provided with studs *m m* and coupling-pin I, substantially as described, and for the purpose specified.

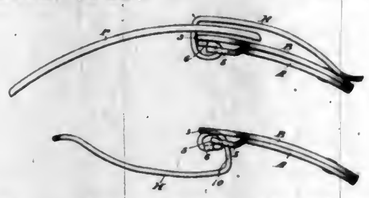
4. In combination with the draw-head A, side plates, C C', and coupling-link E' of a car-coupling, the coupling-pin I, pivoted by bolt *f'* in the space between the said coupling-link, and consisting of two arms *n n'*, the same being in right angles each to the other, one arm provided with a tappet, *r*, and recess *o* underneath, substantially as described, and for the purpose specified.

5. In combination with the draw-head A of a car-coupling, the side plates, C C', of the same, the coupling-pin I, and coupling-link E'; the throat-plate D, traversing the interior space of the draw-head and connected to the screw-bolt *f* and recesses *c c'* of the same, said throat-plate being partially slotted, forming prongs *i i*, provided with abutments *u u'*, the same rising from the surface of the metal and having shoulders *j j'*, substantially as shown and described, and for the purpose specified.

6. In combination with the draw-head of a car-coupling, the construction of the pin-latch F, made of a strip of suitable metal, and uniform in dimensions, the same slotted at intervals and circumfolded and bent as illustrated, having a tongue, *k*, at one end, and provided with a flange, *l*, substantially as described, and for the purpose specified.

7. In combination with the base A' of the draw-head and side plates, C C', coupling-link E', coupling-pin I, throat-plate D, pin-latch F, and pivoted draft-bar H, the same mounted with friction-collar *s*, all combined, connected, and constructed as described, and for the purpose set forth.

311,536. SPRING-CLASP. EDWD. S. SMITH, Waterbury, Conn. Filed Dec. 5, 1884. (No model.)

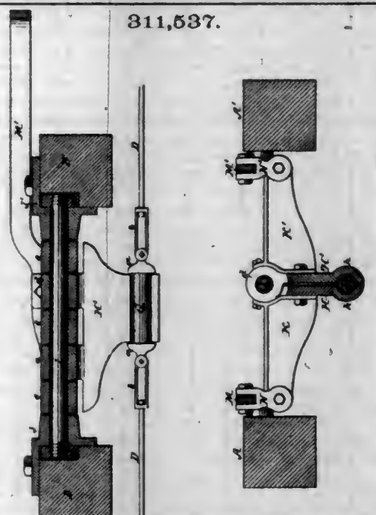


Claim.—1. A spring-clasp consisting of a body having arms 3 3 and 5 5, and a pivot, 4, and a holding-lever provided with a knuckle, K, bearers 6 6, and a holdback, 10, forward of the pivot, substantially as described.

2. The combination of an attaching-plate, P, with a spring-clasp consisting of a body having arms 3 3 and 5 5, and a pivot, 4, and a holding-lever provided with a knuckle, K, bearers 6 6, and a holdback, 10, forward of the pivot, substantially as described.

3. The combination, with the body of a spring-clasp, of a holding-lever consisting of a metal plate shaped and folded to provide the knuckle K in the rear of its holdback 10, and its bearers over its pivotal point, substantially as described.

311,537.

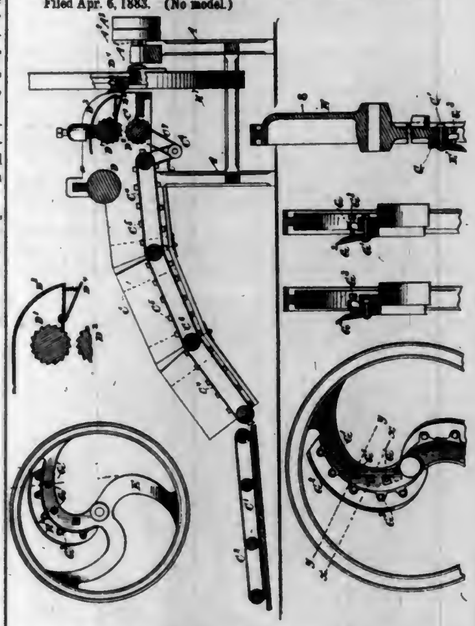


Claim.—A traction-rope provided with a shouldered link or links, G, in combination with a car, a shaft, I, thereon, plates H H', hinged to the shaft, and adapted to the said shouldered link, and mechanism for operating the said plates, all substantially as set forth.

311,537. TRACTION CABLE AND CAR. JAMES H. SMITH, Newark, Ohio. Filed Aug. 18, 1884. (No model.)

Brief.—The cars are attached to shouldered links on the cable through swinging plates upon a shaft secured in the car-frame, a U-shaped lever operating to free the plates from the link.

311,538. ENSILAGE-CUTTER. JOHN Y. SMITH, Doylestown, Pa. Filed Apr. 6, 1883. (No model.)



Claim.—1. The flexible conveyer C, formed of sections that are hinged together at their lower sides, in combination with the cutting-box of a feed-cutting machine, endless aprons or carriers located in said sections, and means for operating them, substantially as described.

2. A fly-wheel having arms E, plates G, that are bolted to said arms, cutting-knives G^2, that are bolted to said plates, and set-screws G^3, that extend through lugs formed on the plates G and bear against the cutting-knives for the purpose of adjusting them, substantially as described.

3. A fly-wheel having arms E, plates G, that are bolted to said arms, cutting-knives G^2, that are bolted to said plates, set-screws G^3, that extend through lugs formed on the plates G and bear against the cutting-knives for the purpose of adjusting them, and arms *s*, one or more, that are placed out of line with the arms E, for the purpose set forth, substantially as described.

4. The combination of the feeding-rollers of a feed-cutter, one of which has an extended shaft, a shaft, A^4, journaled at an angle thereto, gearing for connecting said shafts, means for connecting and disconnecting said gearing, an arm that is secured to the shaft A^4, and means for permitting an independent movement of said arm on said shaft in one direction, a driving-shaft having a gear-wheel eccentrically secured thereon, a gear-wheel that is eccentrically mounted and that meshes therewith, a rod for connecting said latter gear-wheel with the arm, means for adjusting the end of the rod that is pivoted to the arm in or out thereupon, and means for securing said rod in position when adjusted, for the purpose set forth, substantially as described.

5. The combination of the feeding-rollers of a feed-cutter, one of which has an extended shaft, a shaft, A^4, journaled at an angle thereto, gearing for connecting said shafts, an arm that is secured to the shaft A^4, and means for permitting an independent movement of said arm on said shaft in one direction, a driving-shaft having a gear-wheel eccentrically secured thereon, a gear-wheel that is eccentrically mounted and that meshes therewith, a rod for connecting said latter gear-wheel with the arm, means for adjusting the end of the rod that is pivoted to the arm in or out thereupon, means for securing said rod in position when adjusted, clutch B′ on shaft A^4, lever B^2, that is pivoted to the cutter-box, sliding bar B^3, and connecting-rod B^4, for connecting said bar to the lever, all combined and arranged to operate substantially as described.

6. The combination of the cutter-wheel, a case for inclosing it, and rollers located in said case, and endless belts driven by said rollers, for the purpose described, substantially as set forth.

7. The combination of the cutter-wheel, a case for inclosing it, rollers located in said case, and endless belts having projecting teeth that are driven by the rollers for the purpose of preventing the cut material from clogging between the rim of the wheel and its inclosing-case, substantially as described.

311,539. BUTTON-HOOK. JOSEPH A. SMITH, Deep River, Conn. Filed July 21, 1884. (No model.)



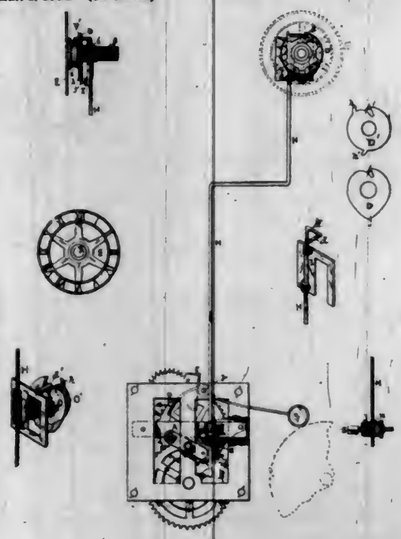
Claim.—1. In a button-hook and the like, the outer casing or tube, A, having arranged therein the shank B, in combination with the tube C, having spring-arms *a*, at whose end are catches *b*, tube D, and spring E, substantially as and for the purpose set forth.

2. In a button-hook, as described, the casing A, in combination with the sliding shank, spring-arms, catches *b*, and thumb-tube, substantially as shown and described.

3. In a button-hook, as described, the combination of the sliding shank, corrugated, tube C, corrugated, catches *b*, and thumb-tube D, as and for the purpose set forth.

4. The combination of the casing A, shank B, having corrugations adapted to fit corrugations in the tube C, tube C, spring-arms *a*, catches *b*, thumb-tube D, and spring E, all arranged to operate as described and shown.

311,540. ALARM-CLOCK. WILLIAM D. SMITH, Pittsburg, Pa. Filed Mar. 1, 1884. (No model.)



Claim.—1. In an alarm apparatus for clocks, the combination of one or more notched disks connected with the hour-hand shaft of the time-movement, an independent detached alarm-movement, and a rod attached at one end to the starting-arm of the alarm, and having the other or free end resting upon the periphery of the notched disk or disks, substantially as and for the purpose set forth.

2. The combination, with a clock or time-movement and an independent alarm mechanism, of a connecting-rod attached at one end to the starting-arm of the alarm mechanism, and at the other to the sleeve on the hour-hand arbor of the time-movement, substantially as and for the purpose set forth.

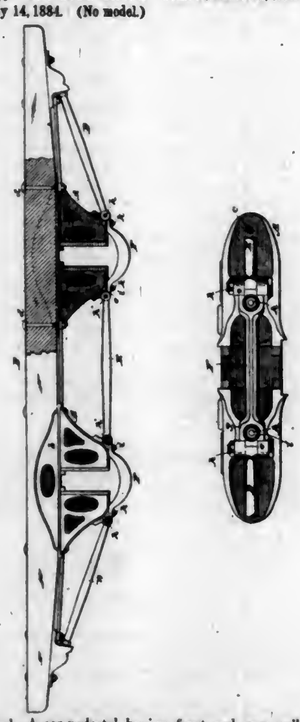
3. The combination, with a clock or time-movement and an independent alarm mechanism, of the sleeve *g*, and disk D or disks on the arbor of the hour-hand, rod H, and swivel J, constructed and arranged substantially as described.

4. In an alarm apparatus for clocks, the swivel J, connected with the starting-arm of the detached alarm-movement, with a screw or equivalent device for adjustably attaching thereto the rod which connects with and is operated by the clock or time-movement, substantially as and for the purpose described.

5. The combination, with a clock or time-movement and an independent alarm mechanism, of the rod H, swivel J, and saddle I, constructed and arranged substantially as described, and for the purpose set forth.

6. As a device for connecting a time-movement and an independent alarm mechanism, the sleeve to fit on the hour-hand arbor of the time-movement, having notched disk or disks, the connecting-rod, and a saddle connected with both the sleeve and the connecting-rod, substantially as described.

311,541. CAR-BODY TRUSS. JOHN STEPHENSON, New York, N. Y. Filed July 14, 1884. (No model.)



Claim.—1. A car-pedestal having front and rear walls connected by union-bars, carrying lugs forming the walls of intermediate chambers or sockets and extending below the pedestal, and having bearing edges or shoulders, substantially as and for the purpose set forth.

2. A car-truss pedestal having front and rear walls connected by union-bars, with sockets at the outer sides of the latter for the reception of the ends of the strut and stay-bar, substantially as specified.

3. A car-truss pedestal provided with lugs arranged at the lower corners to form intermediate sockets, and with inclined or beveled inner bearing-faces, substantially as set forth.

4. A car-truss pedestal provided with lugs at the opposite lower corners extending downward, and having inclined inner faces, and with a detachable wedge-bar having inclined ends or shoulders, and fitting between the beveled faces of the lugs, substantially as set forth.

5. A car-truss pedestal provided with union-bars, carrying lugs having inclined inner faces, and perforated to receive bolts connecting the wedge-bar to the pedestal, substantially as set forth.

6. A car-pedestal having union-bars, carrying lugs with beveled edges, and a wedge-bar with inclined edges abutting against the edges of the lugs and crossing the open jaws of the pedestal, substantially as set forth.

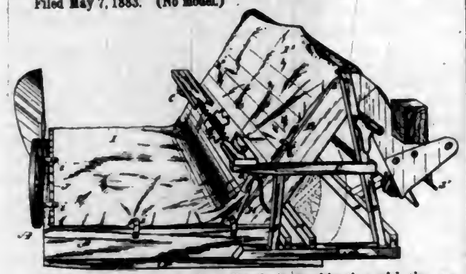
7. A car-pedestal provided with lugs at the opposite or lower corners having inclined lower faces, and a union-bar provided with inclined faces bearing against those of the lugs, and with a tongue, *m*, extending between the lugs, substantially as set forth.

8. A car-pedestal provided with bearings for a wedge-bar having lugs *n*, substantially as set forth.

9. A car-pedestal provided with beveled bearing-faces upon the opposite jaws, and with a wedge-bar having beveled ends and fitting between the said bearing-faces, substantially as set forth.

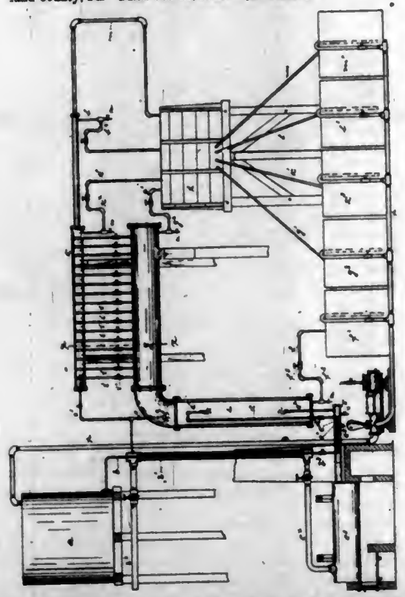
10. A car-truss pedestal provided with stiffening-flanges above the bed-plate, and with front and rear walls connected by union-bars, carrying lugs with inclined inner faces, and with bearings at the inner edges of the union-bars for receiving between them a wedge-bar, substantially as set forth.

311,542. HARVESTER-COVERING. JOHN F. STEWARD, Chicago, Ill. Filed May 7, 1883. (No model.)



Claim.—In a harvester, the roller G, in combination with the canvas covering, the parts I and I′ of said canvas extending in opposite directions from said roller, whereby the canvas may be wound upon the roller with less number of revolutions of the latter than if said canvas extended in one direction only, substantially as set forth.

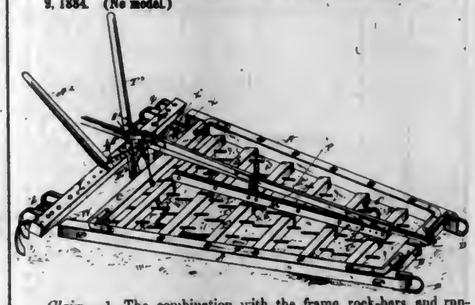
311,543. PROCESS OF REFINING, REDUCING, AND SEPARATING HYDROCARBON OILS. EBENEZER W. STRAIN, Allegheny City, assignor to himself, and Robert P. Crawford, Lower Burrell Township, Westmoreland County, Pa. Filed Oct. 18, 1883. (No model.)



Claim.—1. The herein-described method of refining, reducing, and separating oil by a continuous process, consisting, first, in subjecting it to the action of heat under pressure and while in a state of transit, whereby it is raised to such a sufficient degree of temperature as to cause the separation of the volatile gases from the heavier oils on removal of the pressure; second, in spraying the heated oil in an expansion-chamber; and, third, in trapping the oil which is condensed in the expansion-chamber, and conveying the uncondensed vapors through surface-condensers, where the vapors of different degrees of gravity are, at the points of condensation, trapped, and thereby separated, substantially as and for the purposes described.

2. The herein-described method of reducing, refining, and separating hydrocarbon oils by a continuous process, consisting in, first, subjecting the oil in transit and under pressure to a heat which will vaporize the same; secondly, spraying the oil into an expansion-chamber in the presence of superheated steam, where the oil and vapors are separated; and, thirdly, conducting the vapors through a surface or air condenser, where the vapors of different degrees of gravity are, at the points of condensation, trapped, and thereby separated, substantially as and for the purposes described.

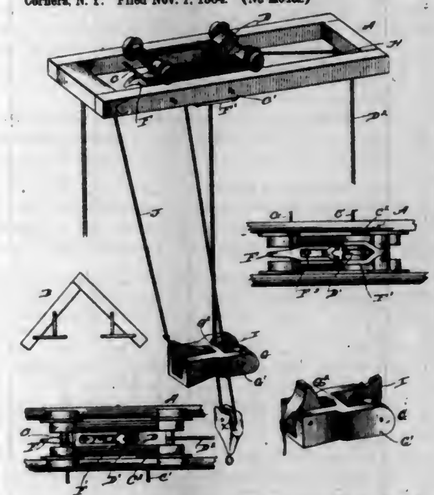
311,544. HARROW. ANTHONY W. THOMAS, Bedford, Ind. Filed July 9, 1884. (No model.)



Claim.—1. The combination, with the frame, rock-bars, and runners, as described, of the clip-irons connected to the rock-bars, the parallel bars connected to the arms of the clip-irons by pivot-bolts and provided with perforations at their front ends for the break-pin, the locking-lever fulcromed to the frame and provided with jaws near its front end and a wear-plate near its rear end, the wooden break-pin in the parallel bars, the connecting-bar, and the hinged lever for operating the rock-bars, substantially as specified.

2. The combination, with the harrow-frame having journals, standard, and rock-bars, as described, of the plow attachment hinged to the journals and connected to the standard on the harrow-frame by a hinged perforated connecting-bar and a wooden break-pin, substantially as specified.

311,545. HAY-CARRIER. HERBERT K. VANDEWALKER, Pamelia Four Corners, N. Y. Filed Nov. 1, 1884. (No model.)



Claim.—1. The combination, with the carrier-frame having four flanged wheels, and provided with the friction-pulley D′, of the pivoted bail, F′, the pivoted bifurcated catch F, and the serrated dog D, on the pivoted trip-arm C^4, as set forth.

2. The combination, with the carrier-frame, its pulley D′, pivoted bail, serrated dog, and pivoted bifurcated catch F, of the hoisting-rope

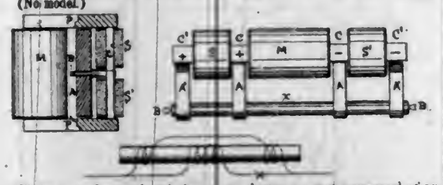
D², the double-pulley block with its partition, pulleys, and trip-rope, and the single pulley and its open ring, substantially as specified.

3. The combination, with the carrier-frame, its pulley D', pivoted bail, serrated dog, and pivoted bifurcated catch F, of the hoisting-rope D², the double-pulley block with its partition, pulleys, and trip-rope, and the single pulley, its open ring, and the wired sling, substantially as specified.

4. As a new article of manufacture, the herein-described sling, consisting of a piece of rope wired to form a loop at its middle and wired at each end, substantially as specified.

5. The combination, with the suspended track having the stop-rod and trip-rod and pulleys, of the carrier-frame mounted on flanged wheels, and provided with the pulley D', and the serrated dog, the pivoted bail, the bifurcated catch, and the operating-ropes, substantially as specified.

311,546. ELECTRIC ARC LAMP. BARTON B. WARD, Hartford, Conn., assignor to Frank G. Waterhouse, Sacramento, Cal. Filed Apr. 18, 1884. (No model.)



Claim.—1. In an electric lamp, an electro-magnet composed of an iron core provided with a coiled conductor, M, placed at or near its center for carrying the main current in a given direction, also coiled conductors S S' at each end of the core, for carrying a shunt-current in the same direction as that in coil M, and poles or pole-places P' P' at points on the core located between the main-current conductors and the shunt-current conductors, and armatures connected to the movable carbon and arranged to be actuated by the varying magnetism of the magnet, substantially as and for the purposes above set forth.

2. In an electric lamp, an electro-magnet composed of a coil carrying a current from the main circuit, and a coil or coils carrying a current from the shunt-circuit, both currents passing around the magnet in the same direction, the main-current coil being located at or near the center of the magnet-core, the poles or pole-places at each end of the main-circuit coil, and the shunt coil or coils located at or near the ends of the magnet and beyond the poles or pole-places, so that the action of the main current will cause the poles or pole-places to attract an armature or armatures, and the action of the shunt-current will be to move the magnetism of the main current beyond the reach of said armatures, substantially as and for the purposes set forth.

3. In an electric lamp, an electro-magnet composed of an iron core, C, provided with coils of conductors located as follows: a central coil, M, for carrying the main current in a certain direction, and two coils, S S', located so as to leave pole-places between the three coils and at each end of the core C, the coils S S' to carry a shunt-current in the same direction as the current in M, so that the main current in M will polarize the adjacent parts of the magnet, and the shunt-current will tend to polarize the parts of the magnet beyond the shunt-coils, substantially as and for the purposes set forth.

4. In an electric lamp, an electro-magnet composed of a main magnet, M, having its poles beyond the main coil, an armature, A, and shunt-coils arranged beyond the armature, substantially as and for the purposes set forth.

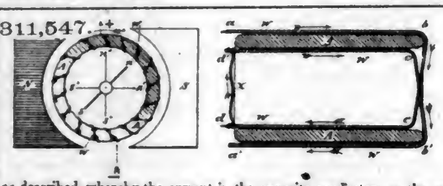
5. An electro-magnet composed of the coils S, M, and S', placed upon the core with the exposed pole-places between the central and end coils, and with other exposed pole-places at the ends of the core, and an armature connected to operate the movable electrode, substantially as and for the purposes set forth.

6. In an electric lamp, an electro-magnet consisting of a tubular core, C, through which the carbon rod extends, said core C being provided with projecting poles P P', between which the armature A swings, in combination with a coil for the main current placed around the core between the poles P and P', and one or two coils for the shunt-current placed around said core between its ends and the poles P P', substantially as and for the purposes set forth.

7. In an electric lamp, an electro-magnet consisting of a core, C, with poles P P' for acting upon an armature, said core C being provided with a coil, M, for the main current, placed between the poles P and P', and coils S S' for the shunt-current, placed upon said core between the ends of the core and the poles P and P', substantially as and for the purposes set forth.

311,547. DYNAMO-ELECTRIC MACHINE. FRANK G. WATERHOUSE, Sacramento, Cal. Filed Feb. 19, 1884. (No model.)

Claim.—1. An armature having conductors which form a path for an electric current on the outside of the iron in the armature, and also a path for a current inside of the iron of the armature, wound and connected



as described, whereby the current in the opposite conductors on the outside of the iron will flow in opposite directions, and the current in the opposite conductors on the inside of the iron will flow in opposite directions, and the current in the conductors on any one side of the armature will flow in the same direction, both outside and inside of the iron composing the armature, substantially as and for the purposes as set forth.

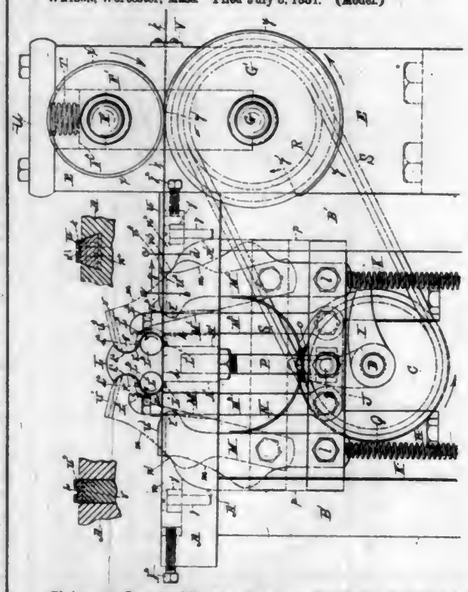
2. In a dynamo-electric machine, an armature composed of a number of coils any one of which form an electrical path extending along the outside of the iron or cylinder on one side of the armature and along the inside of the iron ring or cylinder at or near the opposite side of the armature, substantially as and for the purposes as set forth.

3. In a dynamo-electric machine, an armature wound with wire or conductors forming an electrical path running longitudinally along the outside of the iron composing the armature, then crossing at the end of the armature and running on the opposite side of the armature inside of the iron, substantially as and for the purposes set forth.

4. In a dynamo-electric machine, a hollow cylinder or ring armature provided with conductors a single strand of which forms an electrical path commencing on the outside of the armature, at one end, extending longitudinally along the outside of the armature, then crossing diametrically, then returning longitudinally on the inside of the iron of the armature, then crossing back to the place of beginning, substantially as and for the purposes set forth.

5. In a dynamo-electric machine, an armature composed of an iron ring, I, in combination with a non-magnetic core or spider, B, having a recess or recesses for the wire or conductors W, between the iron I and spider B, substantially as and for the purposes set forth.

311,548. MACHINE FOR MAKING EYEGLASS-SPRINGS. EDWIN J WATSON, Worcester, Mass. Filed July 8, 1881. (Model.)



Claim.—1. In a machine for making eyeglass-springs from long flat strips of metal by a continuous and automatic operation, the combination of a suitable rigid former, L, the heads l^2 l^2, provided with bending-fingers L' L', the means for operating said heads and fingers, the rocking cam-levers M M', the means for operating said levers, and the means for feeding forward the strips from which the springs are made, and for cutting them into sections of proper length to form said springs preparatory to the bending operation, substantially as shown and described.

2. The combination of the former L with cam-arms M M', provided with cam-surfaces *m m*, guides u' u^4, and cutter *v*, turning-heads l^2 l^2, provided with bending-fingers L' L', guide *u*, provided with cutter *v'*, bed A, feed-rolls F' G', provided with friction-bands *w x*, and ribs *y y*, and guide V, substantially as and for the purposes set forth.

3. The combination of feed-rolls F' G' with shafts F G, turning in suitable bearings, standards E E, springs T T, cap U, pulleys Q R, shaft D, bearings C C, and pulley H, substantially as and for the purposes set forth.

4. The combination of cam I on shaft D, spiral springs K K, or their equivalents, and cross-piece J, with legs B' B', bed A, cam-arms M M', provided with guides w' w^4, spring N, adjustable parts n n^2, guide *u*, heads l^2 l^2, provided with bending-fingers L' L', and former L, substantially as and for the purposes set forth.

5. The combination of cam I' on shaft D, spiral springs K' K', or their equivalents, and cross-piece J', with vertical arms M^2 M^2, provided with racks l^3 l^3, bed A, pinions l^4 l^4, rocking shafts l^2 l^2, bearings l^4 l^4, heads l^2 l^2, provided with bending-fingers L' L', cam-arms M M', and former L, substantially as and for the purposes set forth.

6. The combination of former L with heads l^2 l^2, provided with bending-fingers L' L', substantially as and for the purposes set forth.

7. The combination of former L with cam-arms M M', adjustable parts n n^2, arranged in proper supports, and cross-piece J, substantially as and for the purposes set forth.

8. The combination of cams I I' and springs K with cross-pieces J J', arms or levers M M' M^2 M^2, part O, vertical rods P, and bed A, substantially as and for the purposes set forth.

9. The combination, with cam-arm M', provided with guide u^4 and cutting-edge *v*, and means for operating said cam-arm, of bed A, adjustable part n^2, and guide *u*, provided with cutting-edge *v'*, substantially as and for the purposes set forth.

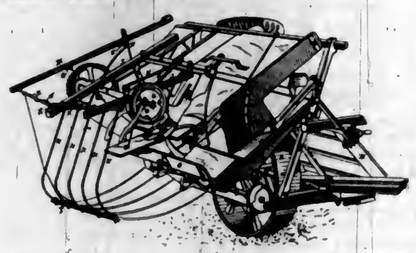
10. The combination of cam-arms M M' with bed A, and adjustable parts n n^2, provided with holding-nuts *z*, slots *z'*, and adjusting-screws z^2, substantially as and for the purposes set forth.

311,549. DIE-STOCK. FREDERIC E. WELLS, Greenfield, Mass. Filed Mar. 5, 1884. (No model.)



Claim.—The die-stock comprehending the dies A A, the die-holder B, and the guide C, all constructed, arranged, and secured together, substantially as shown and described.

311,550. SHEAF-CARRIER. WM. N. WHITELEY, Springfield, Ohio. Filed Nov. 22, 1883. (No model.)



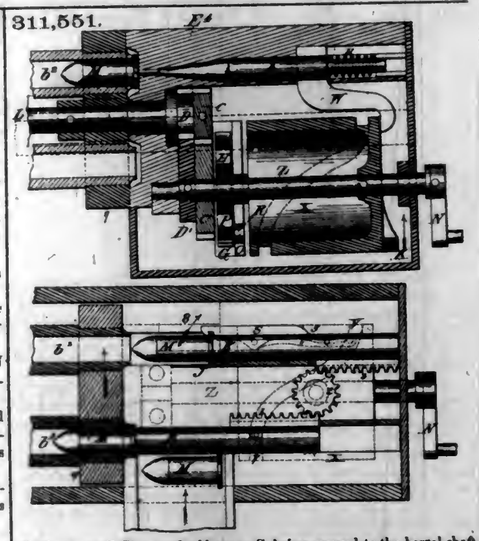
Claim.—1. The combination, with an automatic grain-binder, of a rock-shaft supported from the main frame thereof, curved depending fingers secured to said rock-shaft, and a stop, U, upon the frame for arresting the downward movement of said fingers.

2. The rock-shaft K and crank L, provided with the depending fingers to constitute a swinging sheaf-carrier, combined with the elastic rest or stop U.

3. The rock-shaft K, provided with the crank-arm L and curved fingers N, attached thereto, combined with the brace or stretcher rod P, and the brace-rod Q, to constitute a sheaf-carrier.

4. The frame E, and the bar F, attached thereto and supported thereon by the braces G H, combined with the bars I J, attached to said frame and bar, as shown, and the swinging sheaf-carrier, as set forth.

311,551. MACHINE-GUN. JAMES S. WHITNEY, Lowell, Mass. Filed July 10, 1880. (No model.)



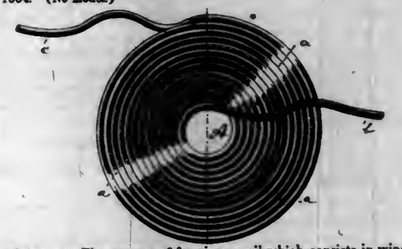
Claim.—1. The combination of the hinged reciprocating yoke P, provided with the pawl E, the eccentric cam H, attached to the shaft Z, the shaft Z, the gears C C', one of said gears, C, being secured to the barrel-shaft L, and the other gear, C', being secured to the ratchet G, the barrel-shaft L, and the ratchet G, as and for the purpose specified.

2. The combination of the barrels b^3, the barrel-shaft L, and the fluted stop-roll D with the crank-shaft Z and the stop-cam D', as and for the purpose specified.

3. The combination of the hinged reciprocating yoke P, provided with the pawl E, the eccentric cam H, attached to the shaft Z, the shaft Z, the gears C C', one of said gears, C, being secured to the ratchet G, the barrel-shaft L, and the other gear, C', being secured to the ratchet G, the cylinder X, provided with the cam-groove V, the plungers B B', each of said plungers being provided with a rack, 1 and 3, and one of said plungers, B, being provided with the pin Q, and the pinion 2, as and for the purpose specified.

4. The combination of the extracting-plunger B', the lever S, pivoted thereto, and provided with a notch at the front end and a bevel at the rear end, and the casing provided with the shoulder J, and opening 8, as and for the purpose specified.

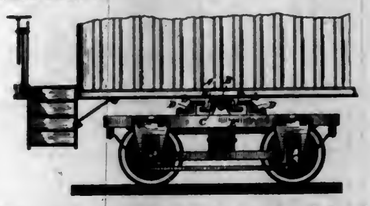
311,552. HEATING AND COOLING COIL AND PROCESS OF PRODUCING THE SAME. FRANZ WILHÖFT, New York, N. Y. Filed Nov. 29, 1884. (No model.)



Claim.—1. The process of forming a coil which consists in winding an unvulcanized warm rubber tubing upon itself to constitute a spiral, pressing the convolutions together to cause adhesion, and then vulcanizing the completed coil, substantially as and for the purpose specified.

2. As a new article of manufacture, a coil, A, composed of rubber convolutions *a*, wound in a spiral and connected without an intermediate binding material in such a way that the adjoining convolutions are blended into one another at their junction, substantially as specified.

311,553. RAILWAY-CAR. THOMAS L. WILSON, Port Hope, Ontario, Canada. Filed Sept. 22, 1884. (No model.) Patented in Canada Dec. 15, 1884, No. 20,742.



Claim.—The saddle C, bolted to the body-bolster B, and having an arm or arms, *a*, projecting from its sides, in combination with the saddles D, bolted to the truck-frame, and having flanges *b* arranged to project over the arms *a*, substantially as and for the purpose specified.

311,554. FOUNTAIN-PEN. PAUL E. WIRT, Bloomsburg, Pa. Filed June 26, 1884. (No model.)



Claim.—1. In a fountain-pen, the combination, with the ink-reservoir, of the nozzle fitted thereto and carrying the pen, and the rubber shaft extending through the nozzle in the space between the inner face of the latter and the upper face of the pen, and held within the nozzle at an intermediate point of its length, one end of the shaft extending beyond the nozzle into the ink-reservoir, so as to draw the ink downward from the same, while the other end lies over the pen, so that when the latter is pressed upward in writing it comes in contact with the shaft to produce capillary attraction and cause the feeding of the ink downward upon the pen, as set forth.

2. In a fountain-pen, the combination, with the ink-reservoir, of the nozzle detachably fitted to one end of the same, the pen attached to the nozzle, and the rubber shaft provided with an enlargement to hold it in place in the nozzle, and one end extending into the ink-reservoir, and the other end of the shaft lying over the pen, as set forth.

3. In a fountain-pen, the combination, with the ink-reservoir, of the nozzle detachably fitted to one end of the same, and formed with a recess at its inner end, a pen attached to the nozzle, and having its inner end arranged to communicate with the ink which accumulates in the recess, and a rubber shaft formed with an enlargement fitting within the recess, the rear end of the shaft extending into the ink-reservoir, while the front end lies over the pen, as set forth.

4. In a fountain-pen, the combination, with the handle or ink-reservoir, of the nozzle fitted thereto and carrying the pen, a recess at the inner end of the nozzle, and a rubber shaft held within the nozzle at an intermediate point of its length, one end of the shaft extending beyond the nozzle into the ink-reservoir, so as to draw the ink downward into the recess, while the other end lies over the pen, so that when the latter is pressed upward in writing it comes in contact with the shaft to produce capillary attraction and cause the feeding of the ink from the recess upon the pen, as set forth.

5. In a fountain-pen, the combination, with the ink-reservoir, of the nozzle fitted to one end thereof and carrying the pen, a recess at the inner end of the nozzle, a perforated disk fitted in the inner end of the recess, and a rubber shaft passing through the nozzle and disk, arranged and operating as and for the purpose set forth.

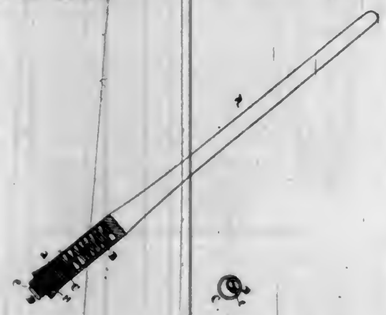
311,555. COMPOSITION FOR SOAP. HENRY ZAHN, Chicago, Ill. Filed May 31, 1884. (Specimens.)

Claim.—1. As an ingredient in the composition of soaps, the silicious alkaline earth herein specified.

2. A soap composed of the silicious alkaline earth herein described, and animal fats or vegetable oils, and a saponifying alkali, substantially as and for the purposes specified.

3. A soap composed of the silicious alkaline earth herein specified, and animal fats or vegetable oils, and a saponifying alkali, and a small quantity of rosin as a binder of the silicious scales, substantially as and for the purposes specified.

311,556. PEN-HOLDER. GEORGE H. ALLEN, Ayer, Mass. Filed June 20, 1884. (Model.)

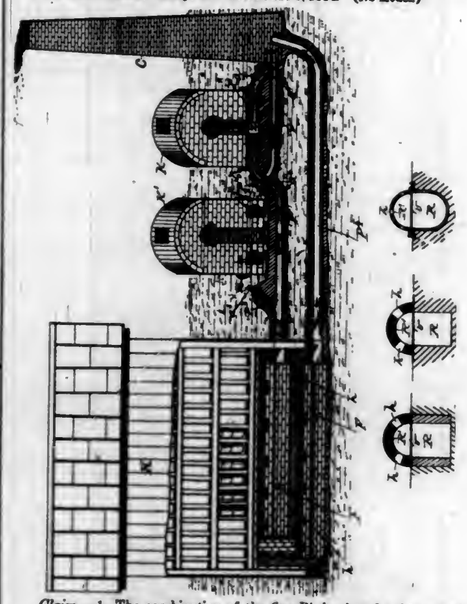


Claim.—1. A pen-socket for a pen-holder, formed of helically-coiled wire so bent that a part of the wire of the lower coil will be in the plane of the diameter of the coil, and extending backward, forming an angle and terminating near the inner surface of the coil, and adapted to bear against the concave surface of the pen, substantially as set forth.

2. In combination with a pen-stock bored out at its lower end, a spirally-formed pen-socket provided with pen-retaining points located within the coil, and integral therewith, and inserted in said stock and adapted to hold a pen, substantially as set forth.

3. A pen-socket for a pen-holder, formed of wire bent in helical coils, provided with pen-retaining points located within and integral with the wire of the coil, adapted to hold a pen independently of the pen-stock, substantially as set forth.

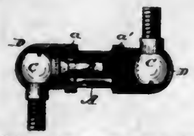
311,557. DRYING APPARATUS FOR BRICK AND TILE KILNS. CHESTER L. AMES, Cabery, Ill. Filed June 9, 1884. (No model.)



Claim.—1. The combination of the flue P^4, having the thin metal plate or cover v and arched cover R', provided with the perforations h, sewers P' P^2 P^3 P, having the dampers a a' a^2 a^3, and kilns K and K', having the chambers Z, all adapted to operate as and for the purpose set forth.

2. In combination with the dry-house H, the flue I^4, having the thin metal cover v and perforated arched cover R', and means for conducting the escaping heat from detached kilns K and K' through said flue, as and for the purpose set forth.

311,558. LINK OR PITMAN. SATTERLEE ARNOLD, Brooklyn, N. Y., assignor to Anna M. Arnold, same place. Filed June 28, 1884. (No model.)

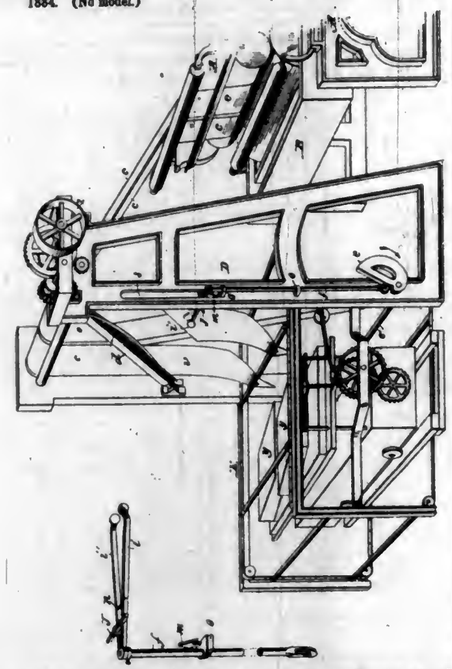


Claim.—1. A link or pitman consisting of the combination of a hollow barrel or sleeve having right and left hand screw-threads at its opposite ends, a stem placed loosely in said barrel, and threaded caps fitting the threaded ends of said barrel, substantially as set forth.

2. A link or pitman consisting of the combination of a hollow barrel or sleeve having right and left hand screw-threads at its opposite ends, an annular fixed shoulder adjacent to one of the threaded ends, and a check-nut or adjustable shoulder fitting the other threaded end, a stem placed loosely in said barrel, and threaded caps fitting the threaded ends of said barrel, substantially as set forth.

3. The combination of the barrel A, having right and left hand threaded ends, annular shoulder a, and check-nut a', stem B, having concave ends, pins C, having spherical heads, and caps D, having slots d, and threaded to fit the threaded ends of said barrel, substantially as set forth.

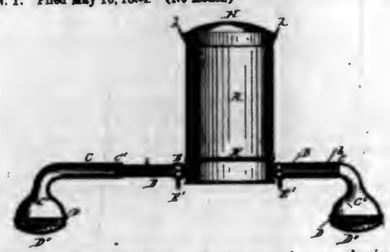
311,559. MACHINE FOR CUTTING SHEETS WITH OBLIQUE EDGES FROM WEBS OF PAPER. JAMES BALL, Holyoke, Mass. Filed Apr. 12, 1884. (No model.)



Claim.—1. In a paper-cutting machine, the combination of web-feeding mechanism, an oblique cutter extending across the width of two webs, and a sheet-retarder at one side only of the machine, substantially as described.

2. The combination, with the diagonal cutter d, of the nippers i i and means, substantially as described, for opening and shutting said nippers and for giving them a vertical movement, substantially as set forth.

311,560. SPRINKLING APPARATUS. NADAB O. BARTLEY, Auburn, N. Y. Filed May 10, 1884. (No model.)



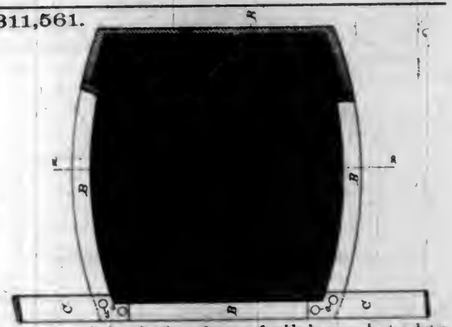
Claim.—1. The combination, with the reservoir or can having the fixed outlet-pipes upon each side thereof, of the extension-pipes connected therewith, substantially as described, whereby the pipes can be extended upon either or both sides of the can, as and for the purpose set forth.

2. The combination, with the reservoir or can provided with the outlet-pipes upon each side thereof, of the extension-pipes provided with the sprinklers or rose-plates and the self-closing cocks or faucets arranged in the fixed portion of the pipes, substantially as and for the purpose set forth.

3. The can or reservoir having the handle secured to the front portion thereof, in combination with the strap for suspending the can from the neck of the operator, substantially as and for the purpose set forth.

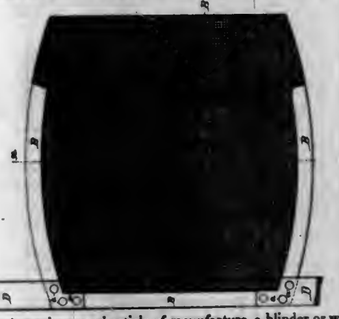
311,561. WINKER FOR BRIDLES. WILLIAM W. BEACH, New York, N. Y., assignor to David R. Morse, Brooklyn, N. Y., and Randolph M. Stelle, Plainfield, N. J. Filed June 27, 1884. (No model.)

Claim.—1. As an improved article of manufacture, a blinder or winker for headstalls or bridles, composed of a foraminated piece or sheet, A, and a circumferential rim, B, of celluloid or equivalent plastic material, attached to the circumference of said piece or sheet, substantially as and for the purpose herein set forth.



2. The combination of an embossed concave or convex foraminated piece or sheet, A, and a surrounding rim, B, of plastic material, substantially as and for the purpose herein set forth.

311,562. BLINDER OR WINKER FOR BRIDLES. WILLIAM W. BEACH, New York, N. Y., assignor to David R. Morse, Brooklyn, N. Y., and Randolph M. Stelle, Plainfield, N. J. Filed June 27, 1884. (No model.)



Claim.—As an improved article of manufacture, a blinder or winker for headstalls or bridles, of a foraminated piece or sheet, A, and a cast-metal rim, B, the sides of which are integrally connected through the meshes of said foraminated material, all substantially as and for the purpose herein set forth.

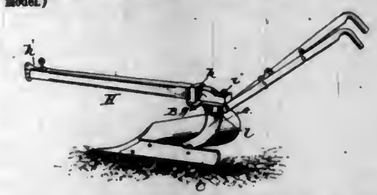
311,563. WATCH-CASE SPRING. THEOPHILOUS L. BEAR, Camden, N. J. Filed Feb. 14, 1884. (No model.)



Claim.—1. The combination, in a watch-case spring, of a screw or screws passing vertically through the body of the spring, for the purpose of producing a vertical adjustment, substantially as set forth.

2. The combination, in a watch-case spring, of the screws A A and the screw B, substantially as set forth.

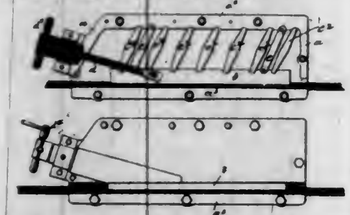
311,564. PLOW. GEORGE E. BLAINE, Chattanooga, Tenn., assignor to the Blaine Centre Draft Plow Company. Filed June 4, 1884. (No model.)



Claim.—1. The combination, with the mold-board, landside, and point of a plow, of a curved standard formed at its forward end with a shoe, upon which said mold-board, landside, and point are secured, with a beam-seat and tubular braces formed integral therewith, substantially as described.

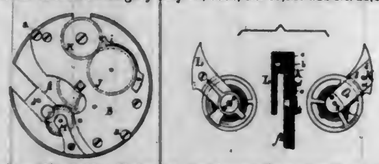
2. The combination, with the mold-board and landside, of a standard formed at its forward end with a shoe inclined for the reception of the mold-board, and beveled on its opposite side, as described, said standard having tubular side braces formed to hold the landside and mold-board in position, substantially as described.

311,565. ROPE-STOPPER. WILLIAM M. BULLIVANT, London, England. Filed Apr. 3, 1884. (No model.) Patented in England Jan. 23, 1880 No. 314, and in Belgium Nov. 21, 1882, No. 59,631.



Claim.—The casing *a*, provided with cheeks a^2 a^3, in combination with the block *b*, the links *c*, connecting the block to the casing, the inclined toggles or levers c^2, interposed between the block and the cheek a^3, and means, substantially as described, for moving the block, these parts being constructed and arranged together as hereinbefore set forth.

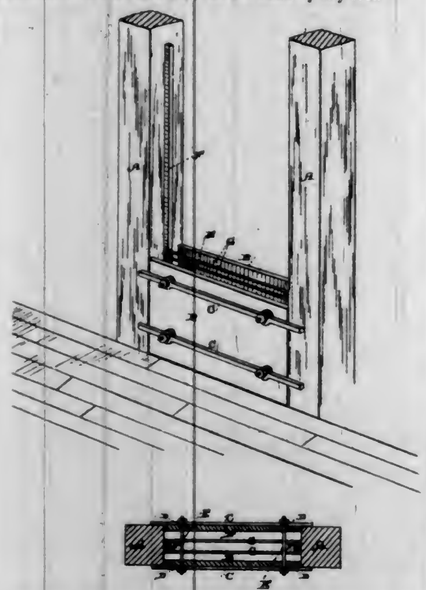
311,566. WATCH. ALBERT CHOPARD, Moutier-Grandval, Switzerland, assignor to the Société Industrielle, same place. Filed May 2, 1884. (No model.) Patented in Belgium July 15, 1882, No. 58,480; in Germany July 18, 1882, No. 21,127; in Italy Apr. 9, 1884, XVIII, 16,693; XXXIII, 164, and in Austria-Hungary July 10, 1884, No. 13,849 and No. 28,433.



Claim.—The bridge K, having an elongated opening therein, the rock I, connected to said bridge by the screw *b*, and the balance supported by the bearing K I, in combination with the slotted and recessed plate A, and the screw *d*, passing through the opening in the bridge I, into the plate A, as set forth.

311,567. DEAFENING OR FILLING FOR WALLS. LEONARD E. CLAWSON, San Francisco, Cal. Filed Apr. 24, 1884. (No model.)

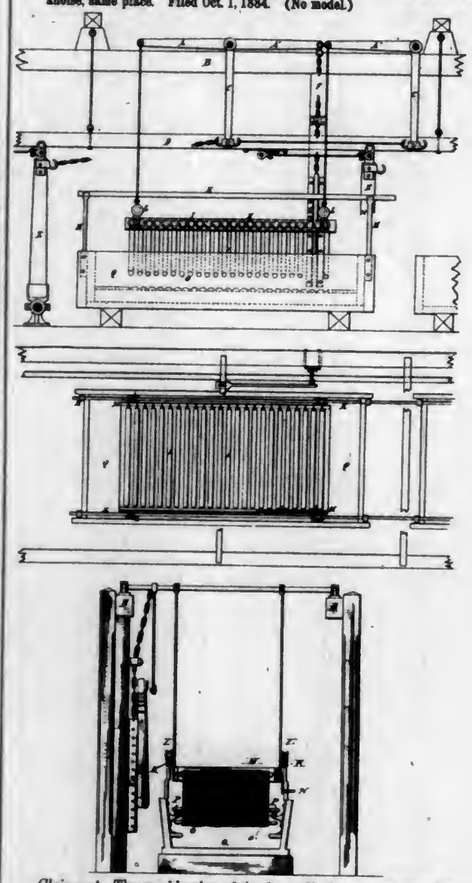
Brief.—Employs a mold consisting of removable sides extending between the studding, and held in place by bars overlapping the studding, and bolts passing through said sides and bars. The studding have a vertical strip on their inner face, and are united by stay-rods.



Claim.—1. The inclosure or mold consisting of the removable sides B, extending between the studding, and held in place by the bars C and the bolts E, passing through the sides and bars and uniting the parts, substantially as herein described.

2. The studding A, with the vertical projecting strips F on the inner faces, and the stay-rods G, uniting the studding so as to pass through the interposed filling material, substantially as herein described.

311,568. APPARATUS FOR DYEING YARN. CÉSAR CORRON, Saint-Etienne, Loire, France, assignor to Société Anonyme la Teinturerie Stephanoise, same place. Filed Oct. 1, 1884. (No model.)



Claim.—1. The combination of the frame H, the suspension-rollers J J, mounted therein, the dye-trough Q, and levers A A′ A″ C C C, for producing an upward and downward movement of said frame and suspension-rollers, substantially as herein described.

2. The combination, with the dye-trough Q, the frame H, suspended over the same, the suspension-rollers J J, mounted in said frame, and the extending-rollers O O′, and supports for the latter rollers within the trough, whereby the said rollers may be either supported by the trough within the skeins, or suspended in the skeins themselves, substantially as and for the purpose herein set forth.

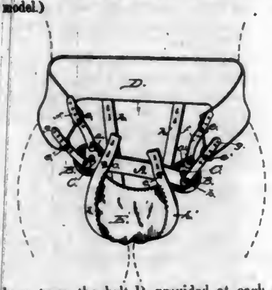
311,569. COMPOSITE ROOFING. WILLIAM COULTAS, Stockton-on-Tees, County of Durham, England, assignor to Thomas Coultas, Pittsburg, Pa. Filed Nov. 24, 1884. (No specimens.)

Claim.—1. A covering for boilers, roofs, or other surfaces, which consists of an argillaceous paste or plaster mixed with fiber, the composition so made being coated with tar after it has been applied to the surface to be covered, substantially as and for the purposes described.

2. A covering for boilers, roofs, or other surfaces, which consists of an argillaceous paste or plaster mixed with shives and other longer fiber and soot, the composition so made being coated with tar after it has been applied to the surface to be covered, substantially as and for the purposes described.

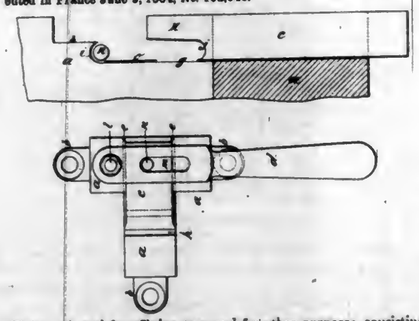
3. A covering for boilers, roofs, or other surfaces, which consists of an argillaceous paste or plaster mixed with fiber and soot, the composition so made being coated with tar after it has been applied to the surface to be covered, and finally coated with a mixture of melted pitch and tar, substantially as and for the purposes described.

311,570. TRUSS. JOHN CRONIN, New Orleans, La. Filed Sept. 25, 1884. (No model.)



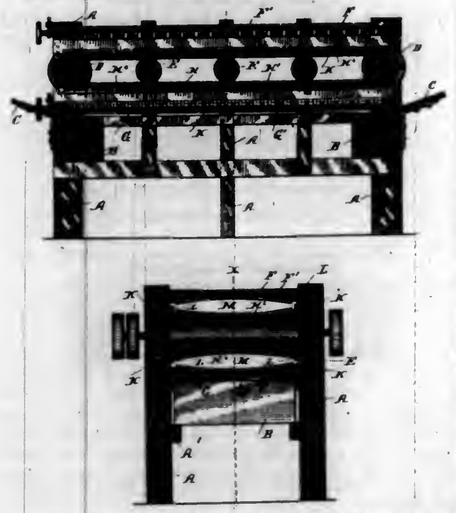
Claim.—In a truss, the belt D, provided at each end with the buckles *e e′* and straps *f g*, in combination with the metallic plate A, having projections *a* at each end, and provided with the pads B, adjustable thereon by means of the screws C, and metallic studs *b*, *c*, and *d*, substantially as specified.

311,571. TOOL FOR AFFIXING METAL TAGS TO LACES. ALBERT DIDIER DELAVIÈRE, Paris, France. Filed Dec. 20, 1884. (No model.) Patented in France June 9, 1884, No. 162,640.



Claim.—A tool for affixing tags and for other purposes, consisting, essentially, of a slide, *c*, recessed at *j* and provided with extension *k*, a block, *a*, having a semi-cylindrical hollow, *i*, and the surface *h*, and a lever, *d*, pivoted at *l*, and having a slot, *m*, engaging with a pin, *n*, for imparting motion to the slide *c*, substantially as shown and described.

311,572. HAT-SIZING MACHINE. GEORGE W. ELWELL and BERNARD FAY, Danbury, Conn. Filed Oct. 10, 1884. (No model.)



Claim.—1. A hat-sizing machine having an adjustable roof and bottom, in combination with an endless apron consisting of strips placed close together and secured to belts, of metal, rubber, or any suitable material, passing over rollers, whereby unyielding chambers are formed both above and below the apron.

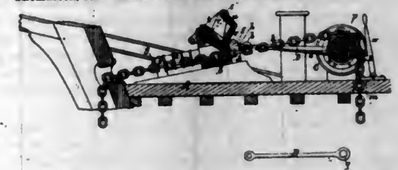
2. The concave roof and bottom, in combination with an endless apron consisting of concave strips placed close together and secured to endless belts passing over rollers, whereby two unyielding concave chambers are formed, one wall of each chamber being stationary and the other in constant motion when the machine is in use.

3. In a hat-sizing machine, two unyielding concave chambers having lags or ribs upon both walls, one of said walls being stationary, the other in constant motion, when the machine is in use.

4. The adjustable concave roof and bottom, in combination with an endless apron consisting of strips concave in the direction of their length and secured to endless bands or belts, rollers which support said apron, and a polygonal roller at each end of the machine whose sides are equal in width to the width of the strips, as and for the purpose set forth.

5. The adjustable roof and bottom, and the endless apron consisting of strips placed close together and secured to bands or belts, rollers which support said apron, and sliding journal-boxes which carry the end rolls, as and for the purpose set forth.

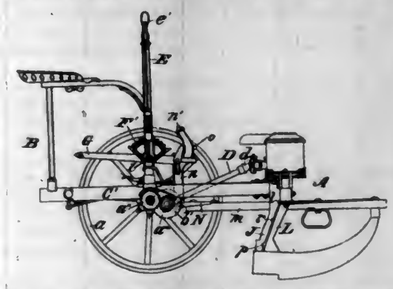
311,573. MECHANISM RELATING TO CHAIN-STOPPERS AND WINDLASSES OF NAVIGABLE VESSELS. JOHN J. EMERY, South Thomaston, Me. Filed Oct. 3, 1884. (No model.)



Claim.—1. The combination of the chain-stopper B and the windlass C with the rods D, connecting the bolts of the stopper with the shaft of the windlass, all being substantially as set forth.

2. The combination of the lever *w*, arranged at or abaft of and close to the windlass and fulcrumed to the deck, with the pawl of the chain-stopper, by mechanism whereby by the movement of the said lever in one direction the pawl may be lifted out of engagement with and by an opposite movement of the lever forced down upon the chain, such mechanism, as described, being the connecting-rod *x*, shaft *s*, arms *t* and *u*, and the link or rod *v*, arranged and applied as set forth.

311,574. DRILLING ATTACHMENT FOR CORN-PLANTERS. AUSTIN C. EVANS, Springfield, Ohio. Filed Aug. 25, 1884. (No model.)



Claim.—1. In a drilling attachment for a corn-planter, the combination of a drive-wheel, a short transverse shaft with intermediate driven gear, a coupling-shaft having a pinion sliding loosely thereon engaged by the latter, a spiral spring to hold said pinion in engagement with its connected gear-wheel, and a pivoted sleeve-hanger supporting the rear end of said coupling-shaft in line therewith to allow the latter to be elevated or depressed at the front end in conforming to the movements of the planter.

2. In a drilling attachment for a corn-planter, a coupling-shaft connecting the drive-gear with the slide-bar of the planter, a loose sliding pinion thereon rotating with said coupling-shaft, a spring encircling the latter pressing upon said pinion to hold it in engagement with its drive-gear, and a collar, with means for attaching the latter to the coupling-shaft and for adjusting the pinion and spring thereon for deep and shallow furrowing, as set forth.

3. In a drilling attachment for a corn-planter, a coupling-shaft connecting the driving-gear and seeding devices having a sliding pinion adjustably secured thereon, a spring to hold said pinion in engagement with its drive-gear, said coupling-shaft being pivotally supported at its rear end in an open sleeve-hanger to allow it to have free radial movement upward and downward and to permit of endwise or thrust movement through said sleeve-hanger in tilting the front section of the planter and in engaging and disengaging said pinion to throw the drilling attachment in and out of gear.

4. In a drilling attachment for a corn-planter, the combination of the adjustable coupling-shaft connecting the driving-gear mechanism with the slide-bar of the planter, the pinion sliding thereon, the spring to hold the latter in engagement with its connecting-gear, and the collar and set-screw or other equivalent means for adjusting said pinion and spring upon said coupling-shaft to allow it to engage the drive-gear in forming deep or shallow furrows and drilling therein, as set forth.

5. In a two-horse corn-planter having a drilling attachment and provided with a foot and a hand lever and either or both adapted to operate the front section of the planter, the combination of a coupling-shaft, a loose sliding pinion thereon, a compression-spring, with means for adjusting both pinion and spring to retain said pinion in engagement to ease the shock when the latter is thrown into gear and in operating the planter over uneven ground and to obviate the necessity of a separate clutch on said coupling-shaft, said pinion being engaged and disengaged automatically by the movement of the foot-lever or the hand-lever either separately or in conjunction, as set forth.

6. In a two-horse corn-planter convertible from a dropper to a drill, the combination, with the covering-wheel, of the hollow spur-wheel, and means for attaching the latter to the hub of said covering-wheel, the system of gearing and attachments operated by said spur-wheel consisting of the spur-pinion and bevel-gear wheel, the transverse shaft, the coupling-shaft with a pinion thereon adapted to have an endwise movement, a spiral spring encircling said coupling-shaft above said pinion and connected therewith, and a collar attached to the opposite end of said spring provided with means for adjusting the pinion, spring, and collar together upon said shaft, for the purpose set forth.

7. In a corn-planter having a drill attachment, the combination of an adjustable coupling-shaft with a pinion thereon adapted to have a sliding movement, means for preventing said pinion from turning and for retaining it in adjustment on said shaft, a spring upon the latter for holding said pinion in engagement, and a pivoted open sleeve supporting the rear end of said coupling-shaft to allow the latter to adjust itself by an endwise movement through said sleeve in operating said planter and its drill attachment, as set forth.

8. In a drilling attachment for a corn-planter, a coupling-shaft provided with a longitudinal slot, a pinion having a spline therein engaging said slot and adapted to slide upon said shaft in adjusting itself to the engaged gear-wheel, a spiral spring actuating said pinion when moved upon the shaft to adjust it into its proper position, and a collar, and means for adjusting the same, securing said spring and pinion upon said shaft, and a bracket having a pivoted open sleeve supporting the rear end of said coupling-shaft to allow end-thrust of the latter through said sleeve in operating the planter and its attachment, as set forth.

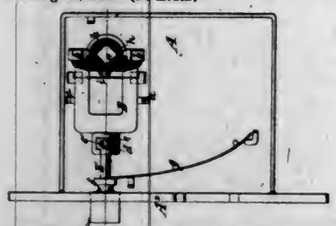
9. In a corn-planter with a drill attachment, the combination, with the coupling-shaft of the latter and a post of the dropper's seat, of a clip-iron or stirrup securing the front bearing of said coupling-shaft thereto, as set forth.

10. In combination, the bracket I, the pivoted sleeve b'', and coupling-shaft D, the latter having free radial movement upward and downward as well as end-thrust through said sleeve, substantially as and for the purpose set forth.

11. In a hand-lever operated between two toothed sectors, the arrangement of the two latch-levers with the handles for actuating the same on the two opposite sides of said hand-levers for the purpose of allowing the operator to manipulate either or both latch-levers in connection with the hand-lever without removing his hand from the latter, said latch-lever handles operating across the line of movement of the hand-lever, as set forth.

12. In a corn-planter with a drilling attachment, a runner-post having rearwardly-extending lugs and a single lug on one side for connecting it with the seed-tube, in combination with the latter, having a single lug on one side approximating that upon said runner-post, and provided with notches engaging one or more of the rearwardly-extending lugs on said runner-post, substantially as set forth.

311,575. REVERSIBLE LATCH. DANIEL H. FITZGERALD, Reading, Pa. Filed Aug. 20, 1884. (No model.)



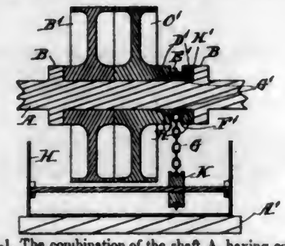
Claim.—1. The combination, with the side plates, A A', of a lock-case, of the latch-bolt composed of the yoke or fork B, having ears b, and the part B', capable of being turned relatively to the yoke B, a spring for projecting the bolt, the hub C, consisting of a single piece of a length to fit and slide between the plates of the lock-case, and having toes c, which act upon the ears b to retract the bolt, and a spring for resisting the sliding movement of the hub in a direction to project the bolt, substantially as herein described.

2. The combination, with the lock-case constructed with semicircular flanges A on their inner sides, of the hub fitting in said flanges and capable of sliding between the plates of the case, a spring for resisting such sliding movement of the hub, and a latch-bolt comprising a reversible portion, substantially as herein described.

3. The combination, with a lock-case and a bolt comprising a reversible portion, of a hub arranged to slide between the plates of the case, a spring for resisting the sliding movement of the hub in a direction to project the bolt, and a spindle fitting the hub, the plates of the lock-case being formed with holes which are of sufficient size to receive the spindle, but too small to receive the hub, and which prevent any sliding movement of the hub so long as the spindle is in place, substantially as herein described.

4. The combination, with the plates A A', having semicircular flanges h, and the hub C, journaled therein and sliding between the plates, of the spring i, extending across and bearing upon the hub, and confined at its ends, and the bolt B B', capable of operation by the hub, substantially as herein described.

311,576. LUBRICATOR. ISAIE FRECHETTE, St. Hyacinthe, Quebec, Canada. Filed Dec. 9, 1884. (No model.)

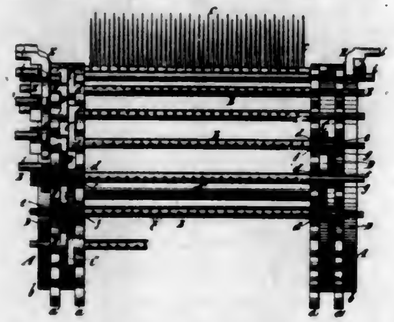


Claim.—1. The combination of the shaft A, having collars B, bearing C D, having passages E F, as described, chain G, and tank H, with a fluid lubricating material, the whole constructed and arranged substantially as shown and described, for the purpose set forth.

2. The combination of the shaft A, having collars B, bearing C D, having passages E F, as described, chain G, tank H, and grooved wheel K, with a fluid lubricating material, the whole constructed and arranged substantially as shown and described.

3. The combination of the shaft A, having collars B, loose pulley C', having extended sleeve D', provided with groove E', and perforations, as described, with chain G, and tank H, the whole constructed and arranged as described, substantially as shown and described.

311,577. CHAIN AND CHAIN-WHEEL FOR MACHINERY FOR PREPARING FIBROUS MATERIALS, &c. JOHN GOOD, Brooklyn, N. Y. Filed Mar. 11, 1882. Renewed Mar. 14, 1884. (No model.)



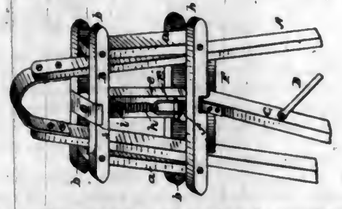
Claim.—1. The combination, in a chain, of alternate links provided with hubs upon their outer sides, and also upon their inner sides, and intermediate links provided with hubs on their outer sides which receive the hubs on the outer sides of the alternate links, and thereby connect the alternate links to form the chain, substantially as and for the purpose specified.

2. The combination, with a chain composed of the alternate links provided with hubs on their outer and inner sides, and intermediate links provided with hubs on their outer sides fitting upon the hubs on the outer sides of the alternate links, of a chain-wheel provided with two notched flanges, between which the links of the chain work, and which engage one with the hubs on the inner sides of the alternate links and the other with the hubs on the outer sides of the intermediate links, substantially as and for the purpose specified.

3. The combination of the wheels A, provided with flanges a a', and the projecting rim b, the chain composed of the links C D, provided with hubs d e g, the pin-carrying bars or rods B, passing loosely through the chains, and the dogs E, provided with the arc-shaped bearings j, fitting the rim b, all substantially as and for the purpose specified.

311,578. SCAFFOLDING. JOHN T. HASKELL, Norwalk, Ohio, assignor of one-half to Harry E. Streator, same place. Filed May 31, 1884. (No model.)

Brief.—Consists of two vertical uprights connected at their upper ends, having a frame adapted to slide thereon, and a spring-actuated locking-bar for holding said frame at any point upon said uprights, and a standard is hinged to said frame and braced by rods pivoted to said standard and uprights.



Claim.—1. The combination, with two laterally-movable uprights, of a frame sliding thereon, and a bar for automatically locking said frame at any point upon the vertical uprights, substantially as set forth.

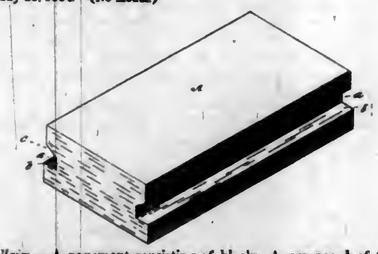
2. The combination, with two laterally-movable uprights connected at their upper ends, of a frame sliding thereon, a locking-bar, and a coil-spring connecting said locking-bar to the frame, substantially as set forth.

3. The combination, with two laterally-movable uprights connected at their upper ends, of a sliding frame, a locking-bar, and a bail connecting said locking-bar with a coil-spring, said spring being attached to the sliding frame, substantially as set forth.

4. The combination, with two laterally-movable uprights, of a frame sliding thereon, and a support hinged to said frame for raising the same, substantially as set forth.

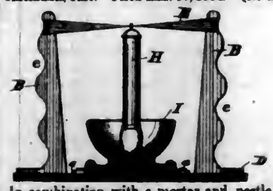
5. The combination, with two laterally-movable uprights, of a frame sliding thereon, a support or standard hinged to the lower end of the frame, and brace-rods pivoted to said standard and to the vertical uprights, substantially as set forth.

311,579. PAVEMENT. EDWARD HETLYN, New York, N. Y. Filed May 28, 1884. (No model.)



Claim.—A pavement consisting of blocks A, composed of the ingredients named, in about the proportion specified, and molded into the form herein shown and described, in combination with a concrete foundation, B, and filling C, as and for the purpose set forth.

311,580. DEVICE FOR ACTUATING MORTAR-PESTLES. SIEGFRIED L. HOCHERT, Cincinnati, Ohio. Filed Mar. 17, 1884. (No model.)

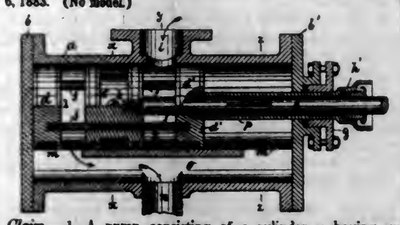


Claim.—1. In combination with a mortar and pestle, standards B B and elastic pressure-band E, secured to the standards B and pestle H, substantially as specified.

2. In combination with a mortar and pestle, the standards B B, adjustably secured to the table A and adapted to receive the elastic pressure-band E, substantially as shown and described.

3. In combination with the mortar and pestle, the table A, provided with means, substantially as shown and described, for holding the mortar, and having adjustably secured thereto standards B B, said standards being provided with notches e e, and the elastic pressure-band E, attached to the pestle and adjustably secured to the standards, substantially as specified.

311,581. PUMP. HORACE F. HODGES, Chelsea, assignor to Charles F. Payne, Groveland, and George H. Spencer, Fitchburg, Mass. Filed Sept. 6, 1883. (No model.)



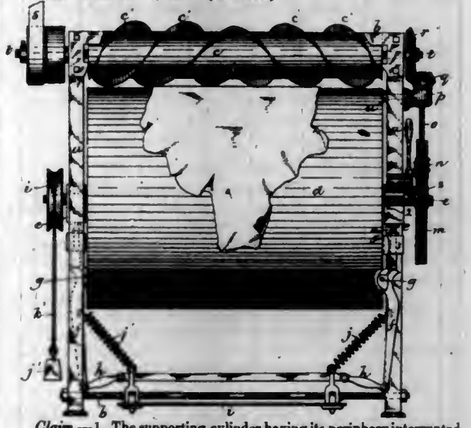
Claim.—1. A pump consisting of a cylinder, a, having suitable heads, b b', and containing a main piston adapted to have a continuous reciprocating motion, and two supplementary pistons, d d', adapted to have a simultaneous reciprocating motion, said cylinder being provided with suitable ports, substantially as shown and described.

2. The combination of the cylinder a, heads b b', piston c, supplementary valveless pistons d d', connecting-rods f f, and piston-rod e, all substantially as and for the purpose set forth.

3. The combination of the cylinder a, heads b b', piston c, friction device i j k, supplementary pistons d d', connecting-rods f f, and piston-rod e, substantially as shown and described.

4. The combination of the cylinder a, heads b b', ports l m m', piston c, containing the friction devices, the supplementary pistons d d', rods f f, piston-rod e, and sleeve p, substantially as shown and described.

311,582. MACHINE FOR PUTTING OUT AND CLEANING LEATHER. JABEZ HODGKINSON, Salem, assignor of one-half to David Knox, Lynn, Mass. Filed Nov. 3, 1884. (No model.)



Claim.—1. The supporting-cylinder having its periphery interrupted to form an opening, and provided with a plate or flap hinged at one edge of said opening, so as to swing into but not outside of the periphery of the cylinder, the swinging edge of the plate co-operating with the corresponding edge of said opening in grasping a skin, and being held in engagement with the skin by the tension exerted on the latter, as set forth.

2. The combination of the driven scraping-roll mounted in fixed bearings, the supporting-cylinder mounted in movable bearings, and mechanism, substantially as described, whereby power is imparted from the scraping-roll to the supporting-cylinder, and mechanism, substantially as described, whereby the cylinder may be disconnected from the mechanism that rotates it, as set forth.

3. The combination of the driven scraping-roll mounted in fixed bearings, the supporting-cylinder mounted in movable bearings, the swinging arbor o, geared at one end to the arbor of the scraping-roll, and having a worm formed to mesh with a worm-wheel on the arbor of the cylinder, and means, as described, for swinging said arbor o toward or from said worm-wheel, as set forth.

4. The combination of the driven scraping-roll mounted in fixed bearings, the supporting-cylinder mounted in movable bearings, the swinging arbor having the worm adapted to engage with a worm-wheel on

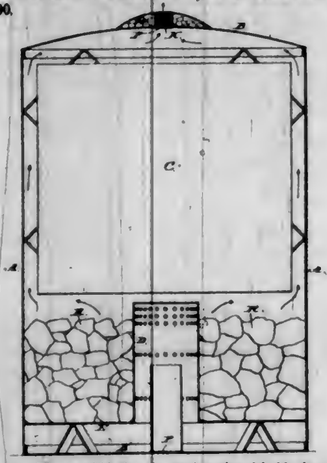
the arbor of the cylinder, and the bell-crank lever connected at one end with a sleeve on the swinging arbor, and at the other end with one of the movable boxes of the cylinder, as set forth.

5. The combination, with the driven scraping-roll mounted in fixed bearings, of the supporting-cylinder mounted in movable bearings, mechanism, substantially as described, whereby the cylinder is rotated when it is pressed toward the scraping-roll, and released when it is moved away from the scraping-roll, and a weight and pulley on the arbor of the cylinder, whereby the cylinder is automatically restored to its starting position, as set forth.

6. The combination of the scraping-roll, the supporting-cylinder mounted in movable bearings and provided with mechanism, substantially as described, for pressing it toward the scraping-roll, and the weighted lever, whereby the cylinder is counterbalanced, as set forth.

7. The cylinder having the interrupted periphery and the hinged holding flap or plate provided with an arm or handle, combined with a yielding stud on the supporting-frame, whereby the arm or handle is turned inwardly to release the skin when the cylinder is rotated backwardly, and outwardly to grasp the skin when the cylinder is rotated in the opposite direction, as set forth.

311,583. **INEXTINGUISHABLE LAMP FOR MARINE AND LAND PURPOSES.** JOSEPH R. HOLMES, London, County of Middlesex, England. Filed Nov. 15, 1884. (No model.) Patented in England Feb. 18, 1884. No. 2,490.



Claim.—1. The combination, in an inextinguishable lamp, with a chamber for containing phosphuret or phosphide of calcium, and a tube therein for the distribution of the inflowing water admitted thereto, of one or more perforated disks or screens encircling the tube as a support for the chemicals, and by means whereof the spent matter is allowed to separate from the phosphide of calcium, as hereinbefore described.

2. The combination, with the gas-generating chamber in an inextinguishable lamp, and with its eduction-openings, of an independent chamber to contain ingredients for the generation of oxygen gas and for coloring the flame, and a perforated tube or conduit in said oxygen-chamber, to conduct the phosphureted-hydrogen gas through the same, substantially as and for the purpose herein set forth.

311,584. **RULE-GAGE.** JONATHAN W. HUNT and JOHN BRESSLER, Crescent City, Cal. Filed Sept. 12, 1884. (No model.)

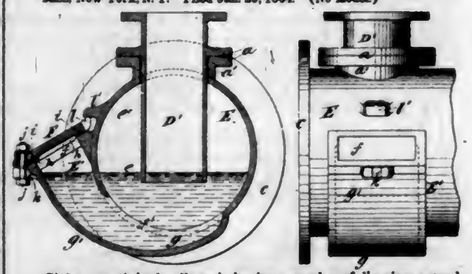


Claim.—1. A rule-gage consisting of a plate adapted to fit and to be held upon the fingers, and having a straight end adapted to be pressed against the edge of a board or material, and a flange at right angles with the end against which the rule is to be held, substantially as herein described.

2. A rule-gage consisting of the plate A, having a downturned curved end, forming a socket, *a*, for the second finger, a downturned straight end, B, bearing against the outer side of the index-finger, and an upturned flange, C, at its rear edge at right angles with the end B, substantially as and for the purpose herein described.

3. A rule-gage consisting of the plate A, having a downturned curved end, forming a socket, *a*, for the second finger, a downturned straight end, B, curved at its forward end, forming a bearing, *b*, for the end of the index-finger, and an upturned flange, C, at its rear edge at right angles with the end B, substantially as and for the purpose herein described.

311,585. **HYDRAULIC MAIN FOR GAS-WORKS.** CHARLES W. ISBELL, New York, N. Y. Filed Jan. 29, 1884. (No model.)



Claim.—1. A hydraulic main having a number of dip-pipes extending vertically downward into it, provided in its bottom with depressions or pockets directly below the downwardly-presented ends of the vertical dip-pipes, and having cleaning-holes or branches extending from the depressions or pockets to the exterior of the main above the liquid-level, and there provided with separately-removable lids or covers, substantially as and for the purpose herein described.

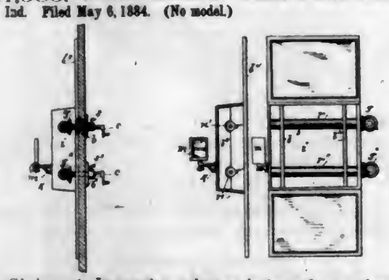
2. A hydraulic main having at the side a cleaning-hole or branch, the mouth of which is presented at the exterior of the main above the liquid-level therein, and which communicates with the interior thereof below the liquid-level therein, the back of such cleaning-hole or branch being curved or rounded in a direction transverse to the main and approximately straight in a direction lengthwise of the main, substantially as and for the purpose herein described.

3. A hydraulic main having in the bottom and below the liquid-level a depression or pocket, and having a cleaning-hole or branch extending from such depression or pocket upward and outward to a point above the liquid-level in the main, the bottom of said depression or pocket and the back of said cleaning-hole or branch being curved or rounded in a direction transverse to the main and straight in a direction lengthwise of the main, substantially as and for the purpose described.

4. The combination, with the hydraulic main E, having the cleaning-hole or transverse branch E′, communicating with the interior thereof at *f′*, and having its mouth *f* inclined downward and outward from the side of the main, of the cover F, provided with a lip, *h*, entering said mouth on the lower side or back thereof, substantially as and for the purpose herein described.

5. The combination, with the hydraulic main E, having the cleaning-hole or transverse branch E′, communicating with the interior thereof at *f′*, and the mouth of which is inclined downward and outward from the side of the main, and also having the lugs or ears *l′* and K, of the cover F, fitting under said lug or ear *l′* at its upper edge, and the bolt *j*, securing the cover at its lower edge, substantially as and for the purpose herein described.

311,586. **STATION-INDICATOR.** CHARLES H. JENNE, Indianapolis, Ind. Filed May 6, 1884. (No model.)

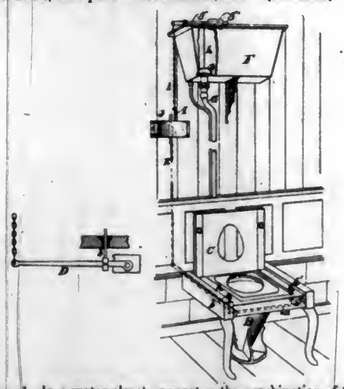


Claim.—1. In a station and street indicator for steamboats, railroads, and street-cars, the combination of the crank-shafts c c′, working loosely in their bases, and provided each with two annular grooves to receive the stops *s s′*, the gearing *g* and *g′*, actuating rollers *r* and *r′*, substantially in the manner and for the purpose set forth.

2. In a station and street indicator for railroads and street-cars, the adjustable mirror *m*, attached to the indicator by means of the bracket *k*, and held in position by a thumb-screw, in combination with mechanism for bringing the names of the stations or streets into position on the face of the indicator, substantially in the manner and for the purpose set forth.

3. In a station and street indicator for steamboats and railroad and street cars, the combination of slats *b² b³*, provided with semilunar notches to fit over rollers *r r′* to serve as guides for the canvas belt upon which the names and stations are printed, with the rollers *r r′*, gearing *g g′*; and case or cabinet *i*, having back board, *b⁴*, substantially in the manner and for the purpose set forth.

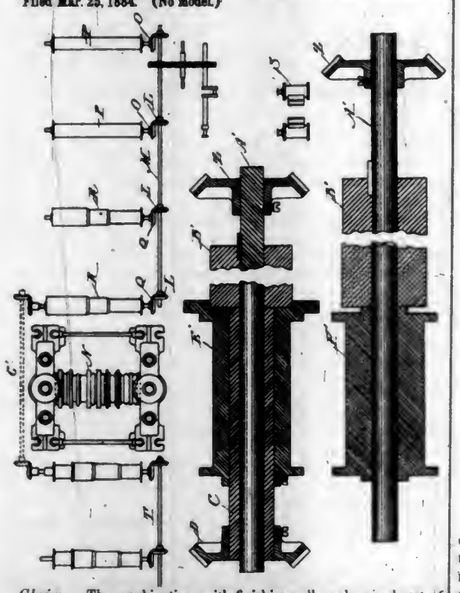
311,587. **APPARATUS FOR FLUSHING THE BOWLS OF WATER-CLOSETS.** THOMAS KEYWORTH, Brooklyn, N. Y., assignor of one-half to Edward Davis, same place. Filed Mar. 10, 1884. (No model.)



Claim.—1. In a water-closet apparatus, the combination of the following elements, to wit: an elevated tank, a flush-pipe, a flush-pipe valve, a water-closet bowl, a movable seat, mechanism for moving said valve by the movement of said seat, and a train of gears or clock-work arranged to slow the movement of the valve in closing, all substantially as and for the purpose herein set forth.

2. In a water-closet apparatus, the combination of the following elements, to wit: a flush-pipe, a flush-pipe valve, the bar A*, constructed with a tooth, B*, the forked lever L, elbow-lever K, a train or system of gears, wheel-work or clock-work, the lever M, and mechanism for transmitting motion from the said lever to the flush-valve, all substantially as and for the purpose herein set forth.

311,588. **RAIL-ROLLING MILL.** HENRY C. KRIETE, Chicago, Ill. Filed Mar. 25, 1884. (No model.)

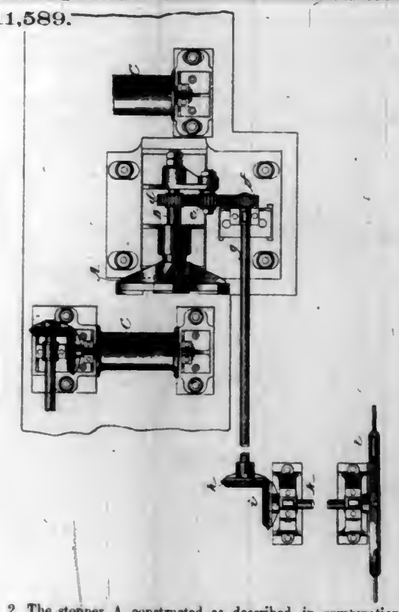


Claim.—The combination, with finishing-rolls and a single set of reversible rolls upon each side thereof adapted to reciprocate the rail between such finishing-rolls, of a one-way set of rolls adapted to receive the finished rail and carry it from the finishing-rolls without interfering with the finishing process upon the next succeeding rail, as set forth.

311,589. **RAIL-CUTTING DEVICE.** HENRY C. KRIETE, Chicago, Ill. Filed Mar. 25, 1884. (No model.)

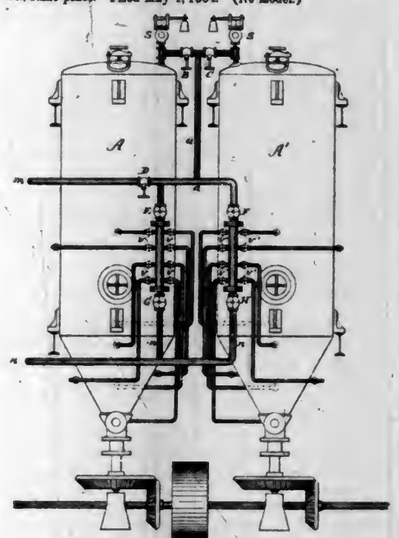
Claim.—1. In a device for cutting rails, the combination, with suitable cutting mechanism, of a stopper provided with a series of projections of different thicknesses, as and for the purpose set forth.

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2. The stopper A, constructed as described, in combination with means for operating it, as and for the purpose set forth.

311,590. **METHOD OF AND APPARATUS FOR MASHING AND COOKING GRAIN.** FREDERICK O. KUNZ, Omaha, Nebr., assignor to Iler & Co., same place. Filed May 1, 1884. (No model.)



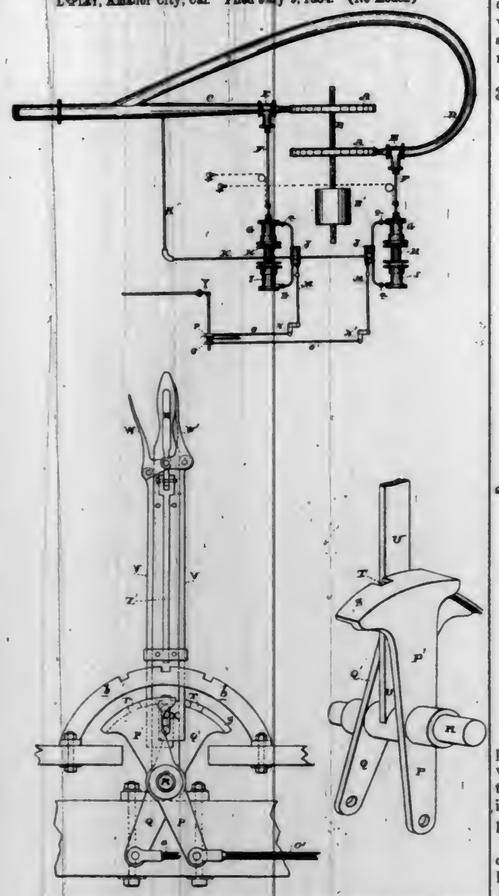
Claim.—1. The improved method herein described of mashing, consisting of admitting steam to a suitable chamber or receptacle containing the grain, then withdrawing said steam to a second chamber or receptacle containing grain, and admitting to the latter chamber or receptacle sufficient additional steam to raise the temperature of the reused steam, substantially as set forth.

2. The combination, with the two cooking-cylinders of a double mash-cooking apparatus, of two distributing-cylinders, each having a number of pipes leading to different points of one of the cooking-cylinders, and a steam-pipe independent of said distributing-pipes, and connecting with the upper part of the other cylinder, together with a steam-inlet pipe communicating with both distributing-cylinders, substantially as described, and for the purpose set forth.

3. The combination, with the two cooking-cylinders of a double mash-cooking apparatus, of a steam-distributing cylinder having a steam-

outlet pipe, a number of pipes leading to different points of one of the cooking-cylinders, and a steam-pipe independent of said distributing-pipes connecting with the upper part of the other cooking-cylinder, substantially as described, and for the purpose set forth.

311,591. VALVE-GEAR FOR HIGH-SPEED WATER-WHEELS. L. LUPLEY, Amador City, Cal. Filed July 9, 1884. (No model.)



Claim.—1. The water-wheels fixed to a single shaft with buckets formed to receive water from opposite directions, pipes with gates through which water is discharged upon the wheels, in combination with gate-stems connected with plungers fitted into cylinders which are placed in line, and with an open interval between their adjacent ends, substantially as herein described.

2. The water-gate-actuating plunger, the cylinders G and I, with an open interval between them, pipes leading from the outer ends of the cylinder to a valve-chamber having a valve through which water may be admitted to them, and a valve-stem, in combination with a mechanism by which the valve may be moved, consisting of stems M, rods O O', and levers, whereby the ports leading to one or the other of said cylinders may be opened, substantially as herein described.

3. The valve-stems, with the connecting-rods and bell-crank levers, in combination with the double lever-arms loosely mounted upon a shaft, with a hand-lever moving between them, and means for connecting it with either of the arms, substantially as herein described.

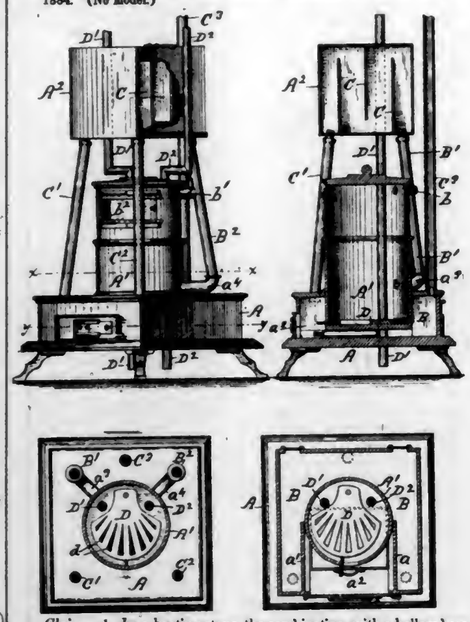
4. The hubs having the arms P P' and Q Q' turning loosely upon a shaft, each connected with the water-gate valve gear of one of two oppositely-moving wheels, in combination with a hand-lever placed between the arms P' Q', and mechanism by which it may be connected with either of said arms, substantially as herein described.

5. The levers P Q, connected with the valve-gear of oppositely-revolving water-wheels, and the lever-arms P' Q', with the notched flanges, as shown, in combination with the hand-lever moving between the arms, short levers W W', and rods with lugs X', which may be caused to engage the notched flanges of either arm by means of the levers W W', substantially as herein described.

6. The shaft R, loose double levers P P' Q Q', intermediate hand-lever with the hand-pieces W, W', and Z, and the connecting-rods with lugs to engage the lever-arms P' Q', or the rack *b*, in combination with the double water-wheel valve-gear and connecting-rods, substantially as herein described.

7. The combination, with the water-gate-actuating plunger and the cylinders G I, of pipes leading from the outer ends of the cylinders to a valve-chamber having a valve through which water may be admitted, a stem, M, rods O, and levers N and P, for operating the valves and a regulating-valve, *a*, substantially as described.

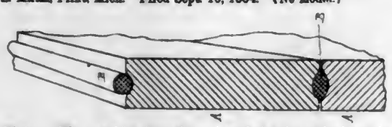
311,592. STOVE. DANIEL LINDAHL, Chesterton, Ind. Filed Mar. 25, 1884. (No model.)



Claim.—1. In a heating-stove, the combination, with a hollow base provided with the partitions *a a'*, of a heating-cylinder adapted to set well down inside of said chambered base, the vertical smoke-pipes B' B², the horizontal pipes a^3 a^4, the companion horizontal pipes *b b'*, the heating-drum A², and the pipes C' C² C³, substantially as and for the purpose set forth.

2. In a heating-stove, the combination, with the heating-drum A, connected with the fire-pot and provided with a number of diaphragms having alternate ends cut away, of the pipes C' C², the chambered base A, and the pipes C³, substantially as set forth.

311,593. ELASTIC JOINT FOR THE PLANKING OF VESSELS. C. E. MARK, Flint, Mich. Filed Sept. 10, 1884. (No model.)



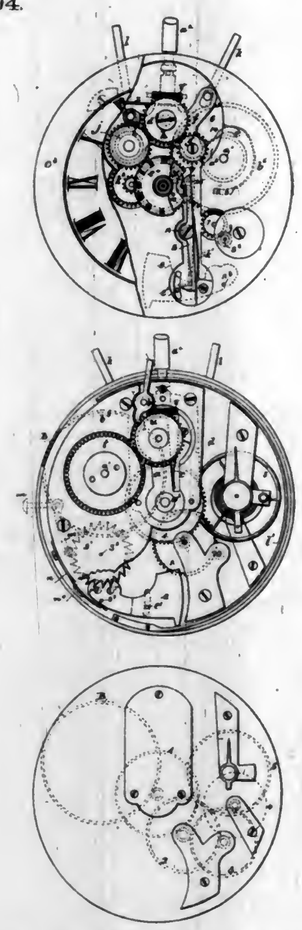
Claim.—The combination of two boards having coincident beveled edges and arranged at a span or distance apart with a board of less width than said span and beveled on its inverse edges, and an elastic roll inserted between the junction of said boards, substantially as shown, and for the purposes described.

311,594. ALARM-WATCH. CHARLES MASMEJAN, Arogno, Tessin, Switzerland. Filed Feb. 11, 1884. (Model.) Patented in France Apr. 16, 1883, No. 154,905; in Germany Nov. 11, 1883, No. 26,971, and in Italy Dec. 6, 1883, XVII, 16,181; XXII, 158.

Claim.—1. The rocker *a*, pivoted at the center of the watch, in combination with the wheel *u*, carried by said rocker, the spring-barrel and its wheel *t*, the stem a^3, and wheel *v*, substantially as and for the purposes specified.

2. The dial e^4, notched disk *y*, and wheel *q* upon the cannon of the hour-hand, in combination with the lever *s*, resting at one end against said disk *y*, the hammer *e*, having a pin passing through a slot in the watch-plate and contiguous to the outer end of said lever *s*, the spring *l'*,

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escapement-wheel *s'*, studs *r* on the hammer, and the sounder-spring *l'*, substantially as set forth.

3. The double rocker-plate *f*, the wheels *h*, *i*, *j*, and *g*, the stem a^3, and wheel *v*, the hand-setting wheel l^3, the alarm-dial e^4, gear *q*, and notched disk *y*, substantially as set forth.

4. The combination, in an alarm-watch, of the stem-winder, the wheels for communicating motion to the spring-barrel, two wheels actuated by the spring—one to move the time-works, the other the alarm-works—the rocker-plates *a* and *f*, the gearing carried by the same, the dial e^4, wheel *q*, notched disk *y*, lever *s*, hammer *e*, spring *l'*, and escapement-gearing, substantially as set forth.

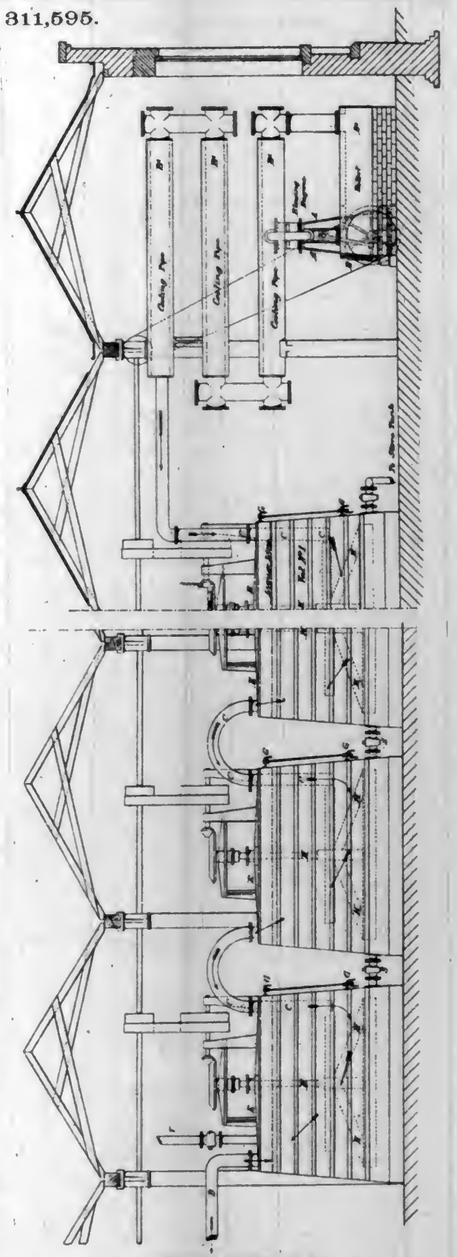
5. In combination with the time and alarm mechanism, the rocker *f*, and wheels *g h i j*, carried by said rocker, the wheels *i* and *j* being upon the same stud, and the wheel *h* upon the pivot of the rocker, substantially as and for the purposes set forth.

6. The combination, with the escapement-wheel *s'*, of the pivoted hammer *e*, having pins *r r* for the teeth of the wheel *s'* to act against, said pins being provided with circular bodies and semicircular heads, substantially as and for the purposes set forth.

311,595. PRODUCTION OF SULPHUROUS ACID. ISAAC S. MCDOUGALL, Irk Vale, Chadderton, near Manchester, County of Lancaster, England. Filed Sept. 22, 1883. (No model.) Patented in England Mar. 13, 1883, No. 1,349.

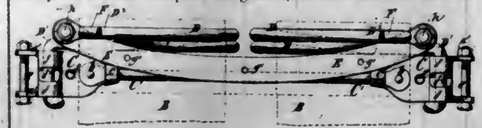
Claim.—The method of producing sulphurous acid by forcing air under pressure into a close vessel or retort containing ignited sulphur or sulphur-bearing material, and maintaining a low temperature in said vessel or retort by surrounding the same with a cooling medium—such as water—and conducting the sulphurous gases from said retort into and below the surface of an absorbing liquid in one vessel or a series, where it is allowed to escape, substantially as described.

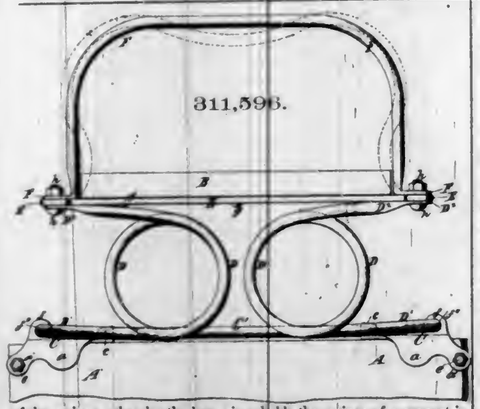
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311,596. SPRING SEAT-SUPPORT. BERNARD G. MEINKHEIM, Newtown, N. Y. Filed Sept. 5, 1884. (No model.)

Claim.—1. The combination, with a seat, of spring-supports therefor, each comprising a base-piece, and coiled springs having their upper and lower arms extending in reverse directions, the upper arms serving to support the seat and the lower arms being pivotally connected with the base-piece, and the base-piece being arranged out of line with the coils





of the springs, whereby the base-piece holds the springs of a support in a proper relative position, and affords provision for the yielding of the coils downward at the side of the base-piece, substantially as herein described.

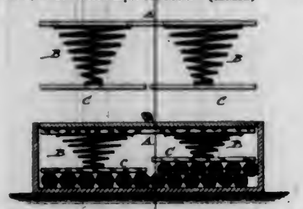
2. The combination, with a seat, of spring-supports, each comprising a base-piece adapted to fit upon the upper edges of a wagon-box, and having downwardly-projecting flanges *a* to hold it in place laterally, and coiled springs D D, having upper arms, D^2, which support the seat, and lower arms, D', which are pivotally connected with base-piece, substantially as herein described.

3. The combination, with a seat, of spring-supports therefor, each comprising coiled springs D D, having upper arms, D^2, supporting the seat, and lower arms, D', a flanged base-piece with which the lower arms, D', are pivotally connected, and which is provided with ears *a'*, and pivot-bolts *e*, whereby the base-piece is pivoted to its support and provision is afforded for swinging the seat in a vertical plane upon said bolts *e* as centers, substantially as herein described.

4. The combination, with a seat, of spring-supports, each comprising a base-piece provided with transverse lugs or ears *f* at the top, and coiled springs D D, having upper arms, D^2, which support the seat, and lower arms, D', the ends of which are bent transversely to form pivots fitting the lugs or ears *f*, substantially as herein described.

5. The combination, in a spring seat-support, of springs D D, having upper arms, D^2, and lower arms, D', a base-piece arranged at the side of the springs and with which the lower arms, D', are pivotally connected, and a bearer, E, connecting the upper arms, D^2, of the springs, and offset laterally out of line beyond the coils of the springs, substantially as herein described.

311,597. SPRING-FOLLOWER FOR CIGAR-BOXES. MOSES MICHAELS, New York, N. Y. Filed Apr. 14, 1884. (Model.)



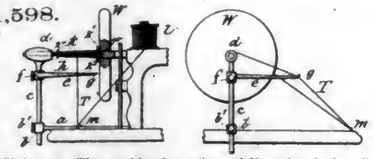
Claim.—1. A spring-follower for cigar-boxes, consisting of a main piece adapted to fit a cigar-box, springs depending therefrom, and two or more horizontal followers attached to the lower ends of said springs, and adapted to cover the interior of said box, and to press upon different layers of cigars therein, substantially as described.

2. A spring-follower for cigar-boxes, composed of a main piece, intermediate springs, a follower or followers attached to the lower ends of said springs, and locking-clasps for retaining the springs and followers on the main piece, substantially as set forth.

311,598. BOBBIN-WINDING ATTACHMENT FOR SEWING-MACHINES. ANATOLE T. MOISSON, Versailles, France. Filed July 19, 1883. (Model.) Patented in France July 29, 1882, No. 150,326; in Belgium June 30, 1883, No. 45,086; in Germany June 25, 1883, No. 23,092, and in England June 26, 1883, No. 3,166.

Brief.—On the arm guiding the thread in its delivery to the bobbin is a thread-cut-off notch. A recess on the face of the fly-wheel affords a bearing for one end of the bobbin, a spring-held bearing being provided for the other end.

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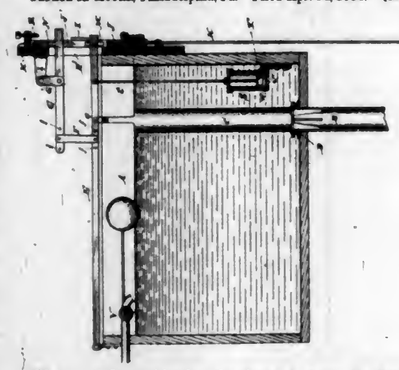


Claim.—1. The combination, substantially as herein described, with the fly-wheel of a sewing machine, of the spool-winder, consisting of the standard *c*, terminating in a bearing, *d*, for one end of the spindle of a spool, the fly-wheel being provided with a bearing for the other end of said spindle, the curved thread-guide *e*, adjustable vertically on the standard, and the supporting-arm *a*, in which the standard is vertically adjustable, said parts being arranged for operation as set forth.

2. The combination, substantially as herein described, with the fly-wheel of a sewing-machine provided with a bearing for one end of a spool, of a bobbin-winding mechanism consisting of a standard, *c*, having at its upper end a bearing-sleeve, *d*, containing a yielding bearing for the other end of the spool, the guide *e*, secured to the standard *c*, and means, such as shown and described, for securing the standard to the machine.

3. The combination, substantially as herein described, with the fly-wheel of a sewing-machine provided with a bearing for the reception of one end of a spool, the rod *a*, the standard *c*, adjustable vertically on rod *a* and having at its upper end a yielding bearing for the opposite end of a spool, and the curved guide *e*, adjustable vertically on said standard, for the purpose set forth.

311,599. VALVE MECHANISM FOR WATER-CLOSET CISTERNS. GEORGE R. MOORE, Philadelphia, Pa. Filed Apr. 14, 1884. (No model.)



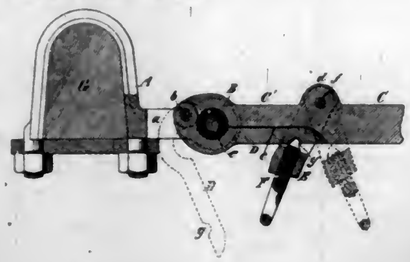
Claim.—1. In combination, the cistern A, frame H, sliding bar J, lever E, valve C, trip-lever M, and counter-balance L, substantially as and for the purpose herein set forth.

2. In combination, the cistern A, valve C, frame H, sliding bar J, levers E and G, and trip-levers M and N, substantially as and for the purpose herein set forth.

3. In combination, the cistern A, frame H, sliding bar J, levers E and G, trip-levers M and N, spring *s*, counter-balance L, pull-rod K, valve C, and retard S, as and for the purpose herein set forth.

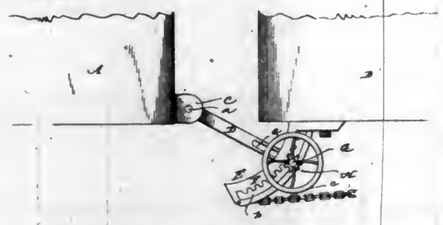
4. In combination, the cistern A, valve C, levers E and G, with connecting-link F, changeable to two or more places, as shown in this case, by the pivotal centers *f f* and *g g*, so that the leverage from the free end of G in its reach toward the valve is changed and the fore wash is thereby regulated, as and for the purpose herein set forth.

311,600. THILL-COUPLING. JOHN L. H. MOSIER, Long Island City, N. Y., assignor to himself, and Alphonso S. Sherwood, East Orange, N. J. Filed May 24, 1884. (No model.)



Claim.—The coupling herein described, consisting in the combination, with the clip-yoke A for an axle provided with the fixed jaws *a a* and pin B, of the coupling-head having its eye made of two parts, C' D, fitting the pin B, and hinged together in rear of said pin, the lower part, D, being adapted to swing downward and backward, the loop E, embracing the parts C' D and pivoted at its upper end to the part C', so that it may be swung into and out of engagement with the free front end of the part D, and the set-screw F, inserted upward through the bottom of the loop and engaging with the under side of the part D, all substantially as herein described.

311,601. LOCOMOTIVE. FREDERICK NEWHOUSE, Toledo, Ohio, assignor of one-half to E. J. and F. L. Cable, same place. Filed Oct. 20, 1884. (No model.)



Claim.—1. The combination, with a locomotive and tender, of a vertically-adjustable shaft mounted upon the under side of the tender, a bar connecting said shaft and the locomotive, and means for raising said shaft and bar, as set forth.

2. The combination, with a locomotive and tender, of a vertically-adjustable shaft mounted upon the under side of said tender, a bar having an elongated slot, and means for raising said shaft and bar, as set forth.

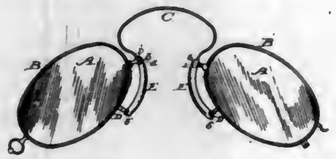
3. The combination, with a tender, of downwardly-extending slotted plates, a shaft mounted therein, and a bar connecting said shaft and the locomotive, substantially as set forth.

4. The combination, with a tender, of downwardly-extending slotted segmental plates, a shaft mounted in said slots, and a bar connecting said shaft and the locomotive, as set forth.

5. The combination, with a tender, of downwardly-extending slotted segmental plates, a shaft mounted in said slots, a bar having an elongated slot, and connecting said shaft and the locomotive, substantially as set forth.

6. The combination, with a tender, of downwardly-extending slotted segmental plates secured to the under side thereof, outwardly-extending rack-flanges formed integral with said plates, a shaft mounted in said slots, pinions on said shaft, and a bar having an elongated slot, as set forth.

311,602. EYEGLASS-FRAME. STACY B. OPDYKE, New Haven, Conn. Filed Oct. 20, 1884. (No model.)



Claim—1. A fastening-piece, F, having longitudinal grooves in its sides, in combination with the side pieces of an eyeglass-bow, and pads which fold around said side pieces and enter said grooves, substantially as set forth.

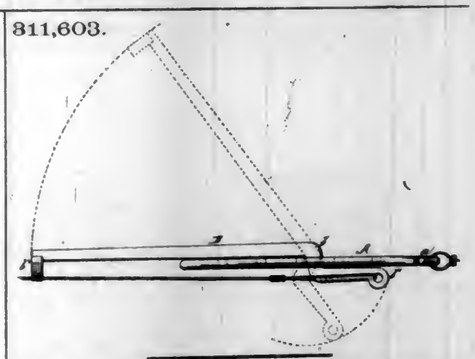
2. In combination with an eyeglass-bow and side springs or plates, a pair of flexible sheets which fold around said springs to form nose-pads, and a pair of fastening-pieces arranged behind said side springs, respectively, and clamped on the edges of said pads to hold the same, substantially as set forth.

311,603. WIRE-FENCE LATCH. LEVI R. ORR, Waterman, Ill. Filed Feb. 12, 1884. (No model.)

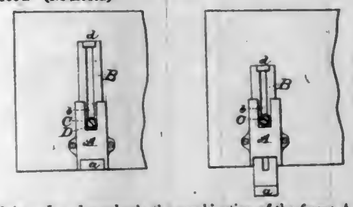
Claim.—1. In a wire-fence latch, a bent or shouldered lever having a hook at one end and an eye at the other, in combination with a link or frame having an eye at one end, and a series of cross-bars formed across it at suitable intervals, substantially as and for the purpose set forth.

2. In a wire-fence latch, the lever B, formed with the eye *b'*, band *b*, and hook b^2, in combination with the link or frame A, having eye *a* and cross-bars *a'*, substantially as and for the purpose set forth.

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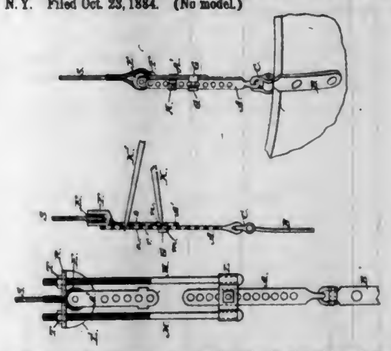


311,604. DOOR-CHECK. LEVI PENTZ, Canton, Ohio, assignor of two-thirds to George N. Yohe and Joseph L. Higby, same place. Filed Sept. 1, 1884. (No model.)



Claim.—In a door-check, the combination of the frame A, provided with a movable metallic back plate and the opening *b*, of the sliding bar B, provided with the head *a* and the knob or handle *d*, of the collars D D, and the rubber block E, all arranged substantially as shown, and for the purpose set forth.

311,605. RIGGING-STRETCHER. H. HENRY PICKENPACK, Brooklyn, N. Y. Filed Oct. 23, 1884. (No model.)

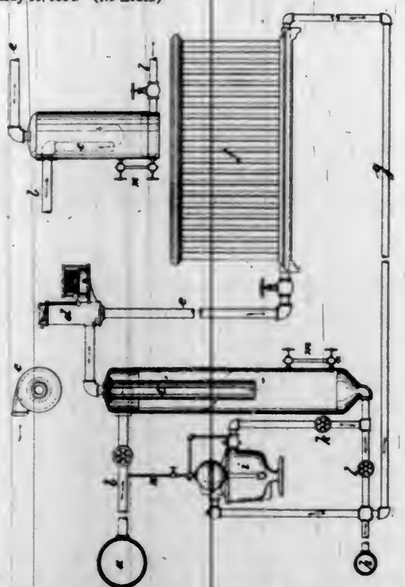


Claim.—1. The combination, with a single plate hinged or pivoted to a fixed support, of a second single plate secured to the loose end of a shroud or rope, each plate being provided with a series of bolt-holes, and one of them with a clamping plate or plates projecting from its edges, to overlap the edges of the other when the two plates are superimposed, substantially in the manner and for the purpose herein set forth.

2. The combination, with each other, and with the loose end of a shroud or stay-rope and a fixed support for the same, of a single plate attached to the fixed support by a pivotal connection and perforated longitudinally with a series of holes, and a second single plate secured to the end of the shroud or stay-rope to slide over and overlap the ends of the first plate, and which is pierced with a series of holes perforated at greater intervals apart than are those in said first plate, to provide thereby a fulcrum for a lever inserted through one of the outer holes into the underlying hole to move said sliding plate, substantially in the manner and for the purpose herein set forth.

3. In a device for stretching and securing the shrouds of a vessel and other stay-ropes, consisting of a single perforated movable plate secured to the shroud or rope to overlap a second fixed plate secured to the chain-plate or other fixed support, draw-heads adapted to be made fast to the fixed and movable perforated plates, and screws for drawing said heads together, a notched flange, R, projecting from the upper draw-head at a right angle to its face, to strengthen and stay the same, substantially in the manner and for the purpose herein set forth.

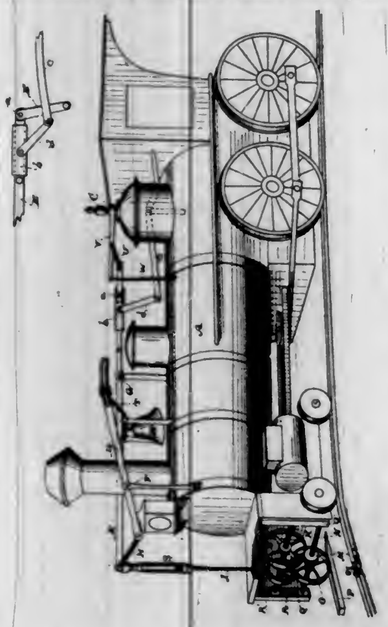
311,606. STEAM-SUPPLY SYSTEM. NATHANIEL W. PRATT, Brooklyn, assignor to the Stratton Separator Company, New York, N. Y. Filed May 15, 1884. (No model.)



Claim.—A steam-supply system of distribution, consisting of a distributing-main and delivery-pipe communicating through an interposed separator, wherein the water particles of the passing steam are arrested, an apparatus for discharging such accumulated water or returning the same to the generator, and an automatic measuring-meter to indicate the quantity of steam supplied.

311,607. AUTOMATIC ALARM FOR RAILROAD-CROSSINGS. JOHN T. PRITCHARD, Carson City, Nev., assignor of one-half to Jeff Work, same place. Filed Feb. 15, 1884. (No model.)

Brief.—A whistle-sounding lever and a bell-sounding lever are mounted on a locomotive and vibrated together by means of a rod joined to their connected ends, and operated from an eccentric rotated by means



of a train of wheels provided with elastic bearings and actuated from a projection in the track. The long arm of the bell-lever engages the crank-pin of the bell, and is slotted for the purpose. The short arm of the whistle-lever engages the whistle-valve arm by means of a pin. It has a joint and sleeve, whereby it may be thrown out of action.

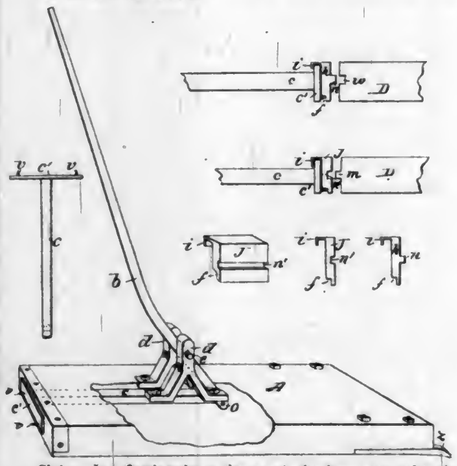
Claim.—1. The levers D and E, connected, respectively, with the bell and the whistle of a locomotive, and having their ends united, in combination with a connecting-rod, I, and an actuating mechanism, the fulcrum of the lever D being placed nearer to the rod than the fulcrum of the lever E, so that the levers have different lengths of stroke at their opposite ends, substantially as herein described.

2. The lever D, connected with the bell, and the lever E, connected with the whistle, of a locomotive, both levers being connected by a rod, I, with a single actuating mechanism, in combination with a joint, *a*, and sleeve *b*, whereby the lever E may be thrown out of action without disconnecting, substantially as described.

3. In combination with the whistle-lever V and spring W, the lever E with the pin U, joint *a*, sleeve *b*, and lever *c*, substantially as herein described.

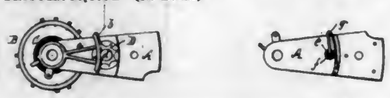
4. In combination with the levers D and E and connecting-rod I, the crank or eccentric, and the shaft K, with its vertically-moving journal-boxes, the wheel-shaft N, with movable boxes, and the adjusting-springs R and R', wheels L, M, and O, and the raised rail P, substantially as herein described.

311,608. FLOORING-CLAMP. ALONZO REDMAN, Chicopee, Mass. Filed Oct. 31, 1884. (No model.)



Claim.—In a flooring-clamp, the case A, the dogs *z*, secured to the latter and having one end sharpened and curved downward, the lever-supports *d d*, bolted to the case, the bar *c*, having the head *c'* thereon provided with the teeth *v v*, the lever *b*, pivoted between the supports *d* and to the bar *c*, and the shoe J, provided with the hook *i*, the offset *f*, and the groove *n'*, combined and operating substantially as set forth.

311,609. WATCH-REGULATOR. GEORGE P. REED, Melrose, Mass. Filed June 30, 1884. (No model.)



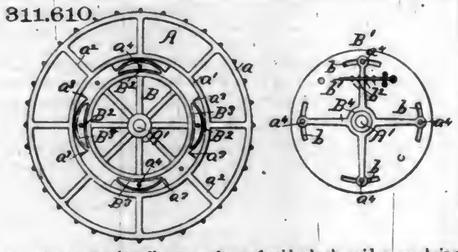
Claim.—In a watch-regulator, a balance-wheel, balance-spring lever, and toothless segment, in combination with a friction-roll which is in contact with said segment, and a spring which automatically holds said roll against said segment, substantially as set forth.

311,610. DEVICE FOR CONVERTING MOTION. GEORGE W. RICHARDSON, Plano, Ill. Filed Nov. 21, 1884. (No model.)

Claim.—1. The combination, with the traction-wheel having the inner circumferential surface thereof provided with inward projections which gradually widen toward the ends, as described, of the inner wheel mounted rigidly upon the driving-shaft, the segment-shaped carrier-frame inserted between the inwardly-projecting surfaces on said traction-wheel and the periphery of said inner wheel, and the clamping-roller loosely inserted in said frame, substantially as and for the purpose set forth.

2. The combination, with a traction-wheel, of an inner wheel adapted to rotate with or independently of said traction-wheel, a number of spaces

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formed between the adjacent surfaces of said wheels, said spaces being wide at the middle and gradually contracted or narrowed at the ends, of a carrier-frame corresponding in shape to said spaces, and a loose friction clamping-roller adapted to grip and lock said wheels together, substantially as and for the purpose set forth.

3. The combination, with a carrier frame or frames provided with the outwardly-projecting pins, of a face-cap having elongated apertures, a spider mounted loosely on the hub of said face-cap and having arms which are adapted to engage with said pins, and adjusting-lever provided with a number of stops, whereby said carrier-frames may be moved in either direction from a central position, substantially as and for the purpose set forth.

4. The combination, with a traction-wheel, of an inner wheel mounted rigidly on a driving-shaft, of one or more contracted spaces between the adjacent surfaces of said wheels, a carrier-frame adapted to move in said contracted space, a friction clamping-roller loosely inserted in said carrier-frame, and means for retracting said carrier-frame, substantially as and for the purpose set forth.

311,611. ELECTRICAL CONNECTING-CORD. WILLIAM H. SAWYER, Providence, R. I. Filed Sept. 26, 1884. (No model.)



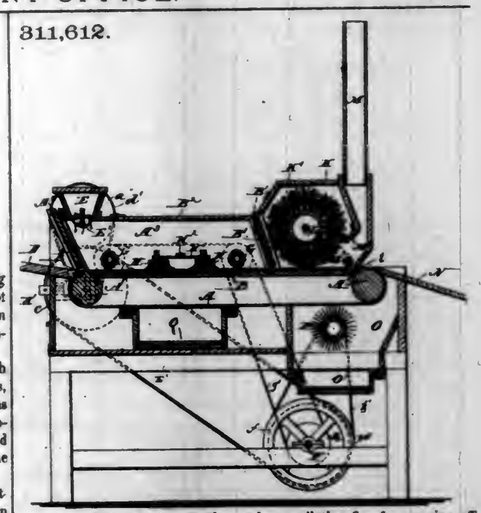
Claim.—1. An electrical connecting-cord comprising two covered conductors inclosed in a common braided covering from which they both project at both ends, and two non-conducting suspension-cords separately formed and attached at or near the points, respectively, where the conductors emerge from their common covering.

2. The combination, with an electrical connecting-cord comprising two covered conductors inclosed in and projecting at both ends from a common tubular covering, of two non-conducting suspension-cords separately formed and attached to the connecting-cord at or near the points, respectively, where the conductors emerge from their common covering.

311,612. BRONZING-MACHINE. JACOB SCHNEIDER, New York, N. Y. Filed May 14, 1884. (No model.)

Claim.—1. A bronzing-machine constructed with an endless belt for carrying the sheets through the machine, brushes for rubbing the bronze-powder on the printed matter on the sheets, and a brush for

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sweeping off the surplus powder, and a ventilating-flue for carrying off the powder swept off by the brush, the said cleaning-brush being arranged directly over the belt, substantially as herein shown and described.

2. In a bronzing-machine, the combination, with the box A^2, of the endless belt A, the brushes G and H above the bolt, the feather brush L, contained in the box K above the belt, and the ventilating-flue M, extending upward from the box K, substantially as herein shown and described.

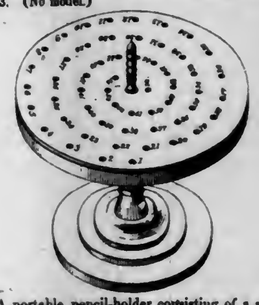
3. In a bronzing-machine, the combination, with an endless belt, of brushes for rubbing bronze-powder on the printed matter on sheets on the said belt, a brush for sweeping off the surplus bronze-powder, a flue for carrying off the said surplus powder, and a brush for cleaning the outer surface of the endless belt, substantially as herein shown and described.

4. In a bronzing-machine, the combination, with the box A^2, of the endless belt A, the brushes G H, the brush L in the box K, the flue M, the brush P, for cleaning the outer surface of the belt, and the drawer O' below the brush P, substantially as herein shown and described.

5. In a bronzing-machine, the combination, with the box A^2, of the endless belt A, the brushes G H, the brush L in the box K, the flue M on the box K, the brush P, for cleaning the outer surface of the belt, the drawer O' below the brush P, and the drawer Q below the brushes G H, substantially as herein shown and described.

6. In a bronzing-machine, the combination, with a box, of an endless belt in the said box, brushes for rubbing the bronze-powder on the printed matter, of sheets on the belt, a brush for sweeping off the surplus bronze-powder, and a brush for cleaning the outer surface of the belt, and of means for adjusting the brushes a greater or less distance from the belt, substantially as herein shown and described.

311,613. PENCIL-HOLDER. BRUCE H. SHELDEN, Oswego, N. Y. Filed Mar. 9, 1883. (No model.)



Claim.—A portable pencil-holder consisting of a suitably-mounted table or disk having a series of numbered holes or pockets of suitable size and configuration in its face-surface to receive the end of a pencil, and provided with elastic holding rings or clasps, substantially as shown, for the purpose set forth.

311,614. HAY-TEDDER. JOHN SKINNER, Flint, Mich., assignor of one-third to R. M. Barker, same place. Filed Dec. 5, 1883. (No model.)

Claim.—1. In a hay-tedder, the combination of the bars H, pivoted to the frame, and a crank shaft or shafts adapted to be rotated by the

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travel of the wheels, and journaled in boxes upon the ends of said bars, whereby said shafts and bars may have a yielding movement independent of the frame, substantially as described.

2. In a hay-tedder, the means for adjusting the elevation of the operating parts, consisting of the bars I I J, rods P, and posts O, constructed, arranged, and operating substantially as and for the purposes set forth.

3. In a hay-tedder, the combination of the crank-shafts F and G, bars H, I I, and J, axle A, wheels B, and gears D E, substantially as specified.

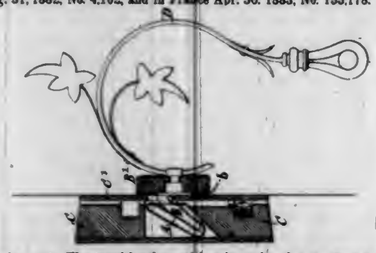
4. In a hay-tedder, in combination with the forks K, the arms L, and spring-rods *d*, pivoted to the upper ends of the forks, substantially as set forth.

311,615. EYEGLASSES OR SPECTACLES. CHARLES SLOTTERBEK, Lakeport, Cal. Filed Aug. 16, 1884. (Model.)



Claim.—An improvement in spectacles or eyeglasses, consisting of the perforated opaque diaphragm fixed at one side of the lens, substantially as herein described.

311,616. ELECTRIC-CIRCUIT CONNECTION. THOMAS T. SMITH, London, England. Filed Oct. 14, 1884. (No model.) Patented in England Aug. 31, 1882, No. 4,162, and in France Apr. 30, 1883, No. 155,178.



Claim.—1. The combination, with a lamp bracket or support, D, for one or more electric lamps, suitably insulated conductors for conveying the current to the lamps on the end of the said bracket, and a pair of metal hooks or pins, B B, insulated the one from the other and connected, respectively, with the said conductors, of a pair of suitably-insulated spring-terminals, A A', inclosed within a case or block, C, and a guard-plate or cover, C', having slots or apertures *c c* to admit the hooks B B, substantially as and for the purpose set forth.

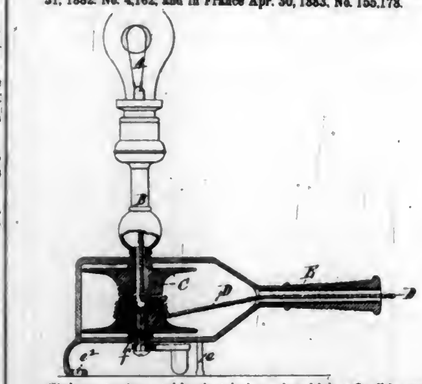
2. The combination, with the wires of an electric conductor and a pair of insulated metal hooks or pins, B B, mounted or set upon a supporting-block, B', of a pair of spring-metal terminals connected, respectively, with the main or lead wires and forming elastic sockets for the reception of the said hooks, the said sockets being insulated the one from the other and so mounted as to be protected from touch, when in use, by a case, C, and covering-plate, C', having apertures *c c*, formed in it to admit of the insertion of the hooks or pins B B, substantially as set forth.

3. An electric coupling consisting of a case or block, C, on or within which are mounted a pair of insulated spring-metal terminal sockets or shoes, A A', protected, when in use, from touch by an insulating guard-plate or cover, C', having slots or apertures *c c* formed in it, in combination with a pair of insulated metal hooks, B B, mounted or set obliquely on a block or base, B', and adapted to enter the slots or apertures *c c* and make metallic contact with the spring-terminals within the case or block C, as set forth.

4. The combination, with one pair or set of conducting-wires, E E', and a box or case, C, containing a pair of insulated spring-terminal sockets or shoes, A A', and having apertures or slots *c c* formed in it, of a flexible cord or cords containing both the flow and return wires, suitably insulated, and a pair of insulated metal hooks or pins, B, mounted or set obliquely on a rose or block, B', as and for the purpose set forth.

5. In an electric coupling, the combination, with the tapering metal hooks B B, mounted obliquely on a rose or block, B', of a box or case, C, having apertures or slots *c c*, surrounded by insulating material formed in it of a size to receive and firmly support the bases of the said hooks, and containing insulated spring-terminal sockets A A', the springs and hooks being so shaped that when pushed fully home the metal hooks will be firmly gripped and held, but when somewhat separated the springs will tend to eject the said hooks and facilitate the disengagement of the coupling.

311,617. PORTABLE ELECTRIC LAMP. THOMAS T. SMITH, London, England. Filed Oct. 16, 1884. (No model.) Patented in England Aug. 31, 1882, No. 4,162, and in France Apr. 30, 1883, No. 155,178.



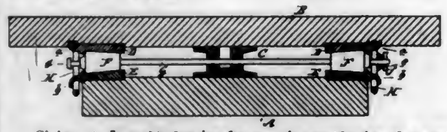
Claim.—1. A portable electric lamp in which a flexible conductor, D, containing both the flow and return wires, suitably insulated, passes in unbroken connection from the outside of the lamp through a guide-tube or aperture to the center of a hand winch or reel and through the hollow stem or spindle of the said winch to the lamp-socket on the end thereof, whereby simple and efficient means are provided for winding up or paying out the conductor, as required, while the lamp is in use, and which lamp is further provided with feet so formed that it may be stood on a horizontal surface or be hung against a wall or on a rail, substantially as and for the purpose set forth.

2. In a portable electric lamp, the combination, with the base or frame E', having suitably-formed feet *e e* and a hollow tube or handle, E, extending from it, of a hand winch or reel, C, mounted within the said base or frame upon one end of a hollow stem or spindle, B, so as to rotate therewith, a lamp-socket and lamp, A, being fast on the other end of the said hollow stem or spindle, and a flexible conductor, D, containing both the flow and return wires, suitably insulated, serving to convey the current to the said lamp-socket and lamp from any suitable source or point in unbroken connection, substantially as described.

3. The combination, with the lamp base or support E', fitted with a handle, E, for raising and carrying it about, and having an opening in it for the passage of a flexible conductor, D, of a stem or spindle, B, lamp and lamp-socket A, and reel C, the said reel having a hole in it for the purpose of enabling the wires in the flexible conductor to be threaded through, and to be electrically connected with the lamp and lamp-socket A by way of the stem or spindle B, as and for the purpose set forth.

4. In a portable electric lamp, the combination, with a lamp-frame or support, E', fitted with a handle, E, and stem supporting a lamp and lamp-socket, of a hand winch or reel, C, and a flexible conductor, D, the said conductor passing through an opening or guide in the lamp base or support and through a hole in the barrel of the reel to the stem on which the lamp is mounted, substantially as described, and for the purpose set forth.

311,618. CAR-BEARING. FRANCIS G. SUSEMIHL, Detroit, Mich. Filed Nov. 5, 1884. (No model.)



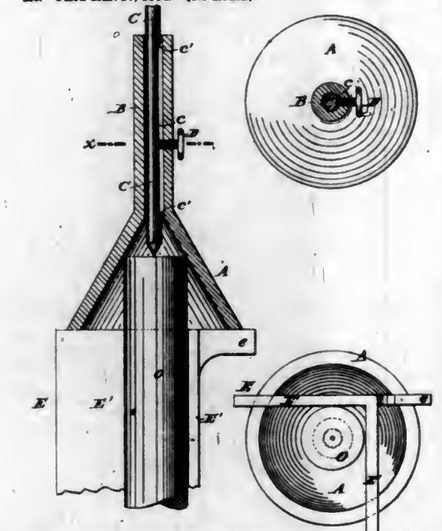
Claim.—1. In a side bearing for cars, the combination of an anti-friction roller, having its face in contact with both of the primary bearings, with one or more swinging links pivotally secured to the upper and lower bearing, respectively, and embracing with its loop or loops the projecting end or ends of the axle of the roller for the purpose of preventing its accidental displacement from its prescribed position, substantially as described.

2. In a side bearing for cars, the combination of the anti-friction rollers F F, the axle G, on which they are mounted, the swinging links H H, pivotally secured to the upper and lower bearings, respectively, and embracing with their loops the projecting ends of the axle G of the rollers, all combined and operating substantially as and for the purpose specified.

3. In a side bearing for cars, the pivots *a b*, placed at equal distances above and below the axis of the anti-friction roller F, in combination with the link H, swinging upon these pivots and embracing the axle of the roller, for the purpose of giving a coincident center of motion to the roller and to the link, substantially as set forth.

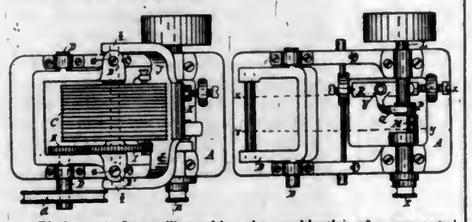
4. In a side bearing for cars, the swinging links H H, pivotally secured at one end to the transom of the car, and at the other to the bolster of the truck, and forming a loop of limited length to prevent the abnormal oscillation of the two parts, substantially as and for the purpose described.

311,619. CENTERING-TOOL. GEORGE W. VARNUM, Montgomery City, Mo. Filed Mar. 17, 1884. (No model.)



Claim.—The combination, with the centering-tool A B C, constructed as described, of the auxiliary gage E, having two right-angular sides, E' E', and the lip *e*, the whole being adapted to center-mark the untrued ends of rods or bars, substantially as herein set forth.

311,620. PILL-MACHINE. ALEXANDER F. WARD, Detroit, Mich. Filed May 15, 1884. (No model.)



Claim.—1. In a pill-machine, the combination of a corrugated wheel or roll rotated with a continuous feed with a corrugated concave having an oscillating and laterally-vibrating motion upon an axis coincident with that of the roll, substantially as and for the purposes described.

2. In a pill-machine, a corrugated wheel or roll journaled in a yoke which in turn is journaled to the main frame, substantially as specified.

3. In a pill-machine, a concave having an oscillating and laterally-vibrating motion, and forming a hopper to receive the mass in pencil form to be operated, in combination with a corrugated wheel or roll, substantially as and for the purposes set forth.

4. In a pill-machine, a yoke one end of which is journaled to the frame and having a corrugated wheel or roll journaled between its free ends which is rotated by suitable connections with a main driving-shaft and adapted to be thrown back into the position shown in Fig. 3, as and for the purposes described.

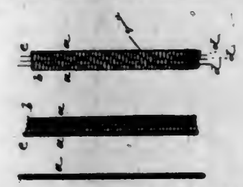
5. In a pill-machine, and as a means for giving the concave its oscillating motions, and in combination with the main shaft, a crank in said shaft having a box sleeved thereon and engaging with and between parallel jaws projecting from the rear face of said concave, substantially as specified.

6. In a pill-machine, and as a means for giving the concave a laterally-vibrating motion, and in combination with the main shaft, an eccentric on said shaft engaging with a pair of parallel arms secured to a rock-shaft, the latter being provided with a spur or lug which engages with a lug or lugs projecting from the rear face of said concave, substantially as set forth.

7. In a pill-machine, and in combination with a suitable frame, a main driving-shaft having a crank and an eccentric, each engaging with the concave through the intervening mechanism herein described for the purpose of giving such concave an oscillating and lateral vibrating motion, substantially as described.

8. In a pill-machine, a corrugated concave supported by a yoke having an oscillating and lateral vibrating motion, and adjusting set-screws, in combination with a corrugated wheel or roll having a continuous rotary motion, substantially as and for the purposes described.

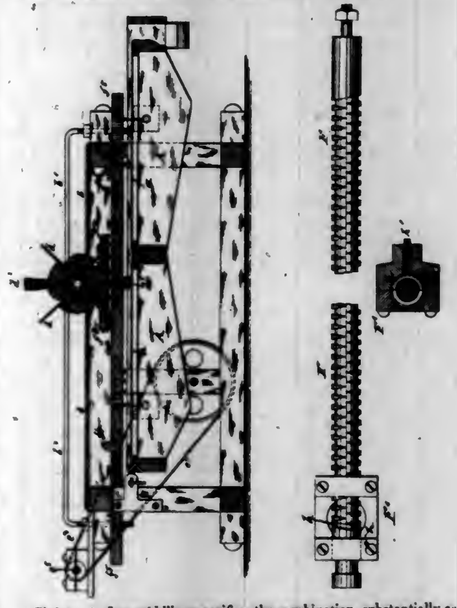
311,621. STIFFENING-STRIP AND MODE OF PRODUCING THE SAME. EDWARD K. WARREN, Three Oaks, Mich. Filed Apr. 25, 1884. (No model.)



Claim.—1. As an improved article of manufacture, the flat strip composed of two or more strands of feather-bone cord, made from the enamel or quill portions of feathers, said strands lying side by side and being secured together by cross-winding threads and threads passing lengthwise between the strands and through the braid, substantially as specified.

2. The method of forming flat strips composed of previously-wound strands, consisting in cross-winding two or more strands placed side by side, substantially as described, with binding-threads to form a flat strip, and afterward stitching through and through the strip lengthwise thereof and between all of the strands, substantially as described.

311,622. CLEANING-BRUSH FOR MIDDLINGS-PURIFIERS. CHRISTIAN WERNER, Buffalo, N. Y. Filed May 2, 1884. (No model.)

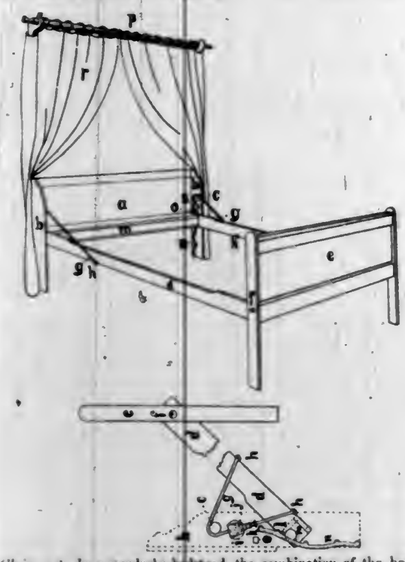


Claim.—1. In a middlings-purifier, the combination, substantially as set forth, with the shaking screens at the top of the purifier, of a rotary traversing middlings-distributer composed of slitted leather strips provided with openings, rotary traversing brushes, and means for imparting simultaneous rotary and reciprocatory motion to said distributers and brushes, substantially as described.

2. A cleaning-brush and distributer for middlings-purifiers, composed of a cylindrical roller provided with rows of distributing-strips of slitted leather having openings, and with intermediate rows of cleaning-brushes, substantially as described.

3. In a middlings-purifier, the combination, substantially as set forth, with the shaking screen at the top of the purifier, of a cylindrical roller provided with rows of distributing-strips of slitted leather having openings, and with intermediate rows of cleaning-brushes, and means for imparting simultaneous rotary and reciprocatory motion to said roller, substantially as described.

311,628. WARDROBE-BEDSTEAD. LYMAN W. WELCH, Montpelier, Vt. Filed Mar. 4, 1884. (No model.)



Claim.—1. In a wardrobe-bedstead, the combination of the head-board *a* with the casings *b b*, provided with the fixed pulleys *c c*, and the bed-frame *d*, provided with the flexuous cords, cables, or chains *g g*, which pass over the fixed pulleys *c c*, all constructed to operate substantially as set forth and described.

2. In a wardrobe-bedstead, the combination of the head-board *a* and the casings *b b*, provided with the springs *j j*, and the fixed pulleys *c c*, with the bed-frame *d*, said bed-frame being provided with flexuous cords, cables, or chains *g g*, which pass over the fixed pulleys *c c* and through the springs *j j*, and to which are attached lugs or stops *k k*, to engage said springs, all constructed to operate substantially as shown, and for the purposes described.

3. In a wardrobe-bedstead, the combination of the bed-frame *d*, having the weighted box end *m*, and the anti-friction pulleys *l l*, with the head-board *a*, and the casings *b b*, said casings having attached the fixed pulleys *c c*, the springs *j j*, and the tracks *n n*, all constructed to operate substantially as shown, and for the purposes described.

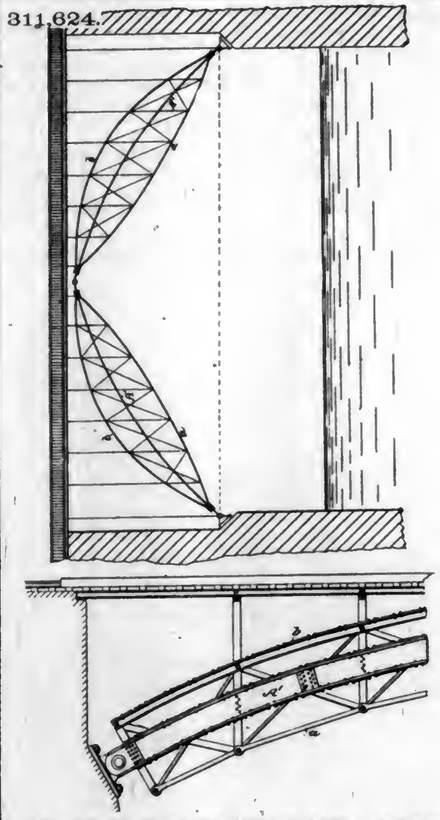
311,624. BRIDGE. EMERSON A. WERNER, New York, N. Y. Filed Apr. 27, 1882. (No model.)

Brief.—By interposing a special strut between the upper and lower chords of each half of a bow-girder, and the crown and abutment joints being made with said special struts, and said chords being connected to and mounted upon said struts, the direct and primary thrust is sent through the struts and not through the chords, thereby making the crown of such height that the vertical components of the bending moments upon the struts are less than the vertical components of the thrust and load, constant compression and tension are preserved in their respective chords, and plain tension and compression chords may be used.

Claim.—1. The combination, in a bow-girder having joints at the top and at the abutments, of a plain tension and a plain compression chord and a special strut in union with said chords, substantially as and for the purpose set forth.

2. In a bow-girder, the combination, with an upper plain compression-chord and a lower plain tension-chord united to each other by suitable trussing, of struts jointed together at the crown and jointed to the abutments, said chords and bracing being connected to said struts, as described, and suitable supports for the roadway, substantially as herein shown and described, and for the purpose set forth.

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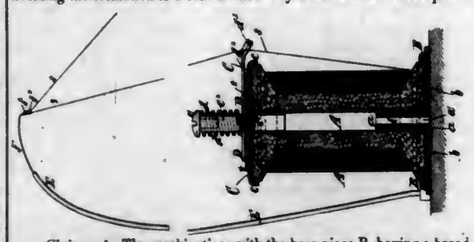


3. In a bow-girder, the combination, with the two sections forming the bow, of struts jointed together at the crown and forming an angle, which struts are jointed to the abutments, and of suitable supports for the roadway, substantially as herein shown and described, and for the purpose set forth.

4. In a bow-girder, the combination, with the two sections forming the bow, of curved struts jointed together at the crown and forming a Gothic arch, which struts are jointed to the abutments, and of suitable supports for the roadway, substantially as herein shown and described, and for the purpose set forth.

311,625. UNWINDING ATTACHMENT FOR SPOOLS AND BOBBINS. CHARLES E. WILKINSON, Matteawan, N. Y., assignor to the Willimantic Linen Company, Willimantic, Conn. Filed July 10, 1884. (No model.)

Brief.—The attachment may be supported on a flat bearing or may fit upon the spool-spindle of a sewing-machine. The horizontal portion of the thread-eye at the extremity of the fine elastic wire is designed, through its vibratory movements, to afford a uniform wearing-surface, avoiding the formation of a crease therein by constant wear at one point.



Claim.—1. The combination, with the base-piece B, having a broad bottom surface, whereby it may be supported on a bench or other flat support, and having the stud or spindle *a*, adapted to receive a spool, and bored to fit the spool-spindle of a sewing-machine, of a spool on the spindle *a*, a cap, C, applied to the top of the spool, and a drag-flier, D, pivoted concentrically to said cap and working thereon, all substantially as herein described.

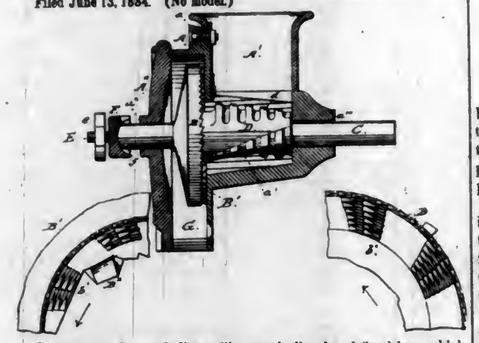
2. The combination, with a fixed spindle and a spool thereon, of the friction-cap C, having a downwardly-projecting stud, *c'*, entering the spool, and an upwardly-projecting stud or spindle, *c²*, both said studs being integral with the cap, and the cap having a plane upper surface and a covering, , of friction-producing material, and a drag-flier, D, pivoted on said stud *c²* and having a bearing on the friction-producing material, all substantially as herein described.

3. The combination, with a fixed spindle, a spool thereon, and a friction-cap and drag-flier operating as described, of an upper thread-guide having an approximately straight or horizontal member or portion, along which the thread is caused to traverse by its movement from side to side of the spool as the drag-flier rotates, substantially as and for the purpose herein described.

4. The combination, with a fixed spindle, a spool thereon, and a friction-cap and drag-flier adapted to operate as described, of an upper thread-guide having an elastic or yielding support, and provided with an approximately straight or horizontal member or portion, along which the thread is caused to traverse by its movement from side to side of the spool as the drag-flier rotates, substantially as and for the purpose herein described.

5. The combination, with a fixed spindle, a spool thereon, and a friction-cap and drag-flier adapted to operate as described, of the wire or rod support E, having a prolongation, *f'*, of fine wire, provided at the end with a thread-guide, *f*, having the straight member *f''*, all substantially as herein described.

311,626. GRINDING-MILL. FRANK WILSON, Easton, Pa., assignor of two-thirds to John L. Wilson and James E. Wilson, both of same place. Filed June 13, 1884. (No model.)



Claim.—1. In a grinding-mill, a vertically-placed fixed burr which is provided with a crushing-tooth which projects outwardly from the grinding-face of the burr beyond the plane of the surrounding teeth, and which is located upon the upper portion of the burr, in combination with a rotary burr.

2. In a grinding-mill, the combination of a vertically-arranged fixed burr, which is provided with grinding-teeth the grinding-face of each of which is radial to the center of the operating-shaft of the mill, and which is provided with a crushing-tooth upon its upper portion, with a vertically-arranged rotary burr, which is provided with grinding-teeth the grinding-face of each of which is radial to the axial center of the burr and its operating-shaft.

3. The combination of the shell provided with grinding-surfaces, the horizontal cone provided with grinding-teeth, the fixed burr provided with grinding-teeth and with an upper crushing-tooth, and the rotary burr.

311,627. CAR-STARTER. ABRAHAM R. WITMER, Safe Harbor, Pa. Filed Dec. 2, 1884. (No model.)

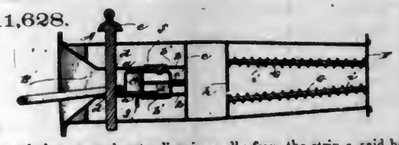


Claim.—The sectional sleeve D D', having the clutch F integral with the section D, and the clutch F' connected with it by means of a screw, the spiral spring E, having its ends attached to the said clutches F F', the clutch-collars G, attached to the axle B, the clutch-collars H, attached to the case I, and the case I and the mechanism for moving it, substantially as specified.

311,628. CAR-COUPLING. JOHN J. WOLFE, West Millville, Pa. Filed Oct. 7, 1884. (No model.)

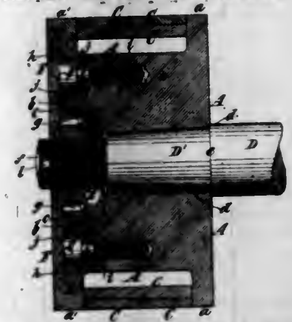
Claim.—The combination, with a draw-head having the passage B, the upper and lower sides of which are provided with slots, as shown, of a bracket sliding in said passage, said bracket having the lug *f* and extension *g* to fit said openings, a strip, *c*, a bar having a coil-spring

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mounted thereon and extending inwardly from the strip *c*, said bar fitting an opening in the rear end of the bracket C, and the spring-bumper arranged in rear of the opening B, and constructed and operating as set forth.

311,629. PISTON FOR COMPRESSOR AND OTHER PUMPS AND ENGINES. WILLIAM H. WORTHEN, Brooklyn, N. Y., assignor to Guild & Garrison, same place. Filed Mar. 31, 1884. (No model.)



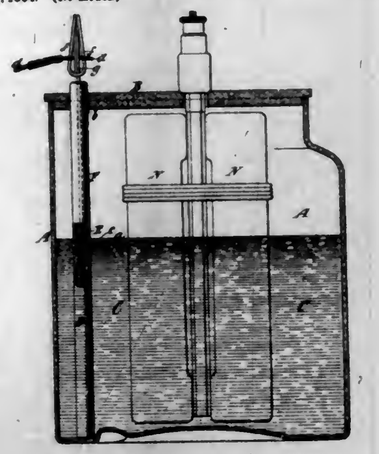
Claim.—1. The combination, with a piston-body, A, and a follower, B, having countersinks *j* in its outer face, of screws *i*, inserted through the follower and into the body, and having their heads *i'* fitting the countersinks *j* in said follower, and a guard-plate secured at the back of the piston and covering the heads of said screws, substantially as and for the purpose herein described.

2. The combination, with a piston-body, A, and a follower, B, having in its outer face a main countersink, *h*, and minor countersinks *j* in the bottom of said main countersink, of screws *i*, inserted through the follower and into said body, and having their heads *i'* fitting the minor countersinks *j*, and a guard-plate, F, secured in said countersink *h*, and covering said screws, substantially as and for the purpose herein described.

3. The combination, with the piston-body having the countersink *c*, and a rod, D, having a screw-threaded end, *f*, of a nut, E, upon said rod, fitting the countersink *c* in said body, a follower, B, having the countersinks *j*, screws *i*, inserted through the follower and into the body, and having their heads *i'* fitting said countersinks *j*, and a guard-plate secured at the back of the piston and covering said nut and screws, substantially as and for the purpose herein described.

4. The combination, with the body A, having the hub or projection *b* and countersink *c*, of the rod D D' *f*, the nut E, the follower B, having the main and minor countersinks *h j*, the screws *i i'*, and the guard-plate F, all substantially as and for the purpose herein described.

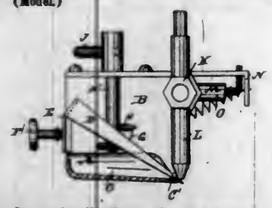
311,630. ELECTRIC BATTERY. ALDEN M. YOUNG, Waterbury, Conn., assignor of one-fourth to David S. Plume, same place. Filed Mar. 11, 1884. (No model.)



Claim.—1. The combination, with the battery-jar and its cover and a negative electrode, of a zinc electrode consisting of a rod, D, adapted to be entirely immersed in the battery-liquid and having a cavity, c, for quicksilver in its upper end, and an insulated conductor, E, fixed in the upper end of the zinc electrode and extending upward therefrom through the cover, substantially as herein described.

2. The combination, with the jar A and the negative electrode, of the zinc rod D, forming the positive electrode and immersed in the battery-liquid, the conductor E, fixed in said rod, and the sheath F, of wood or other non-corrosive material, removably slipped upon the conductor above the electrode, substantially as herein described.

311,631. PAINT-DISTRIBUTER. WILBUR I. ARMSTRONG, Belvidere, Ill., assignor to himself and Alfred Thomas Armstrong, same place. Filed July 7, 1883. (Model.)



Claim.—1. In a paint-distributer, the combination, with a paint-receptacle, of a forked feeder extending over the edge of the paint-receptacle, and an air-nozzle held directly above the point of the feeder, substantially as herein shown and described.

2. In a paint-distributer, the combination, with a spoon-shaped paint-receptacle, of an inclined feeder provided with spring-shanks, and an air-nozzle held directly above the ends of the spring-shanks of the feeder, substantially as herein shown and described.

3. In a paint-distributer, the combination, with a paint-receptacle, of a feeder having spring-shanks, a nozzle held directly above the ends of the said spring-shanks, and a spring for separating the points of the shanks, substantially as herein shown and described.

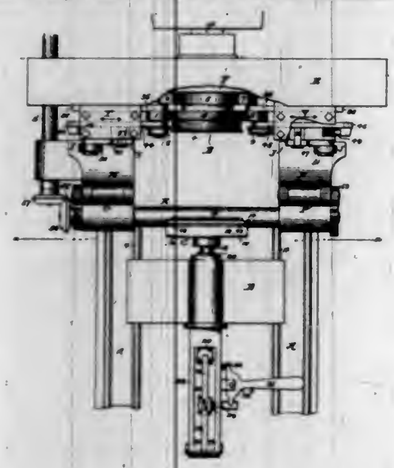
4. In a paint-distributer, the combination, with the block B, the receptacle A, and the nozzle L, of the forked feeder D, the spring E, secured to the feeder and block, and the adjusting-screw F, substantially as herein shown and described.

5. In a paint-distributer, the combination, with the block B, the receptacle A, and the nozzle L, of the feeder D, having spring-shanks, the shaft H', provided with the arm H and the handle J, and the wire G, connected to the said arm and to one of the shanks of the feeder, substantially as herein shown and described.

6. In a paint-distributer, the combination, with the receptacle A and the forked feeder D, of the tube K, provided with the nozzle L and cock M, the pivoted lever N, and the spring O, substantially as herein shown and described.

311,632. MACHINE FOR SEAMING IRREGULAR-SHAPED CANS. WILLIAM H. ATKINSON, Brooklyn, N. Y., assignor to Somers Bros., same place. Filed Aug. 25, 1884. (No model.)

Brief.—The seaming-tools are carried on carriages which are reciprocated by cams on the head-stock. The tools are held in operative position by bell-crank levers and a platform operated by a cam on a counter-shaft. May be used either as a vertical or horizontal machine.



Claim.—1. In a can-seaming machine, the combination, with a head-stock carrying an anvil or support, 4, and provided with a pattern-cam, as 6, conforming to the contour of the vessel to be operated upon, and with a co-operating cam, as 5, of a sliding carriage supporting the seaming-tool, and means connecting said carriage with the actuating-cams, whereby the positive movement of the carriage and the tool it carries is accomplished in both directions, all substantially as described.

2. In a can-seaming machine, the combination, with a head-stock carrying an anvil or support, 4, and provided with a pattern-cam, as 6, conforming to the contour of the vessel to be operated upon, and with a cam, as 5, of two sliding carriages, each supporting a seaming-tool, and with means connecting the carriages with the actuating-cams, whereby the positive movement of the carriages and the tools carried thereby is accomplished in both directions, substantially as described.

3. The combination, with a head-stock provided with a work-supporting anvil and with a pattern-cam, both conforming to the shape of the vessel operated upon, and with a co-operating seaming-tool-actuating cam, of two sliding seaming-tool-supporting carriages, means connecting said carriages with said cams so as to be positively moved in both directions thereby, and means automatically operating to adjust said tools into working position at different periods of time, substantially as described.

4. In a can-seaming machine, the combination, with a head-stock having an anvil, as 4, and cams 6 5, of a movable carriage carrying the seaming-roll and provided with bearings or rolls 1 7, substantially as described.

5. In a can-seaming machine, the combination, with a head-stock having an anvil, as 4, and cams 6 5, of two movable carriages, each carrying a seaming-roll and respectively provided with bearings or rolls 1 7 and 3 2, substantially as described.

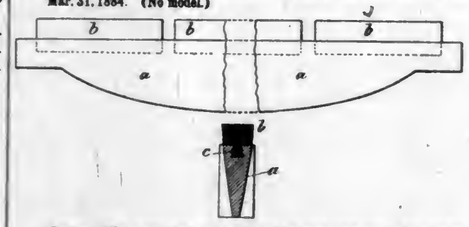
6. In a can-seaming machine, the combination, with a head-stock having an anvil, 4, and cams 6 5, and a movable carriage provided with bearings or rolls 1 7, and carrying a movable seaming-tool, of a guide-rail and a cam for automatically raising it, and mechanism operated by the guide-rail to adjust said seaming-tool into operative position, substantially as described.

7. In a can-seaming machine, the combination, with a head-stock having an anvil, 4, and cams 6 5, and movable carriages provided, respectively, with bearings or rolls 1 7 and 3 2, and each carrying a seaming-tool, of guide-rails and means for automatically operating them to adjust the seaming-tools into operative position, all substantially as described.

8. In a can-seaming machine, the combination, with two seaming-tools mounted, respectively, in reciprocating carriages the movements of which are controlled by pattern-cams, of cams for automatically adjusting said seaming-tools into and out of operative position, substantially as described.

9. In a can-seaming machine, the combination, with a seaming-tool mounted in a reciprocating carriage the movements of which are controlled by pattern-cams, of a cam and devices transmitting motion from said cam to the seaming-tool and automatically adjusting it into and out of operative position, substantially as described.

311,633. GRATE-BAR. NORMAN L. AUSTIN, Norwalk, Conn. Filed Mar. 31, 1884. (No model.)



Claim.—The grate-bar having a body of cast-iron and a fire-surface composed of short sections of wrought-iron or steel connected to the cast-iron body, substantially as set forth.

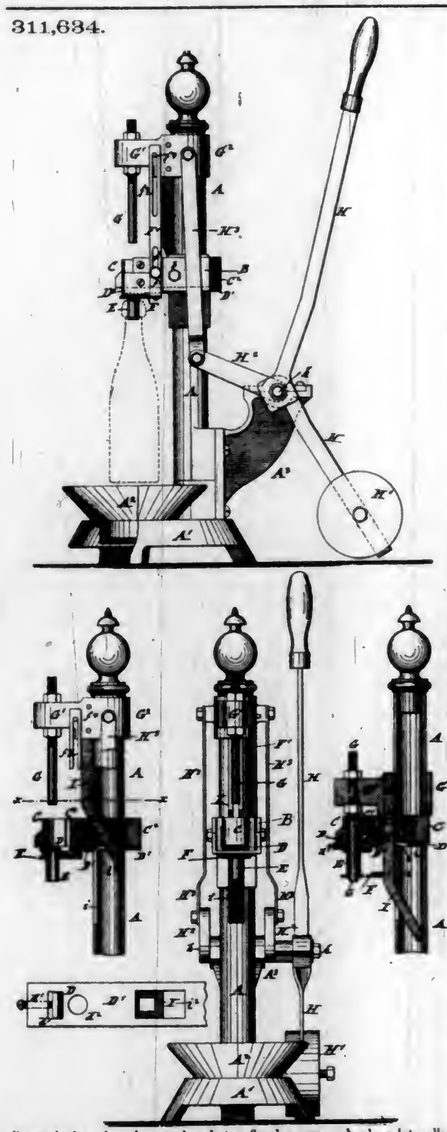
311,634. CORKING-MACHINE. ALEXANDER BAMMWART, Zurich, Switzerland, and EDWARD ERNOLD, New York, N. Y., assignors to Wittemann Brothers. Filed Mar. 12, 1884. (No model.)

Claim.—1. The combination, in a bottle-corking machine, of a vertically-reciprocating plunger, a fixed cheek, and a laterally-reciprocating cork-pressing cheek, a horizontal reciprocating wiper below the cheeks, a fixed cork-guiding tube, and a vertically-reciprocating clearer below the wiper, substantially as set forth.

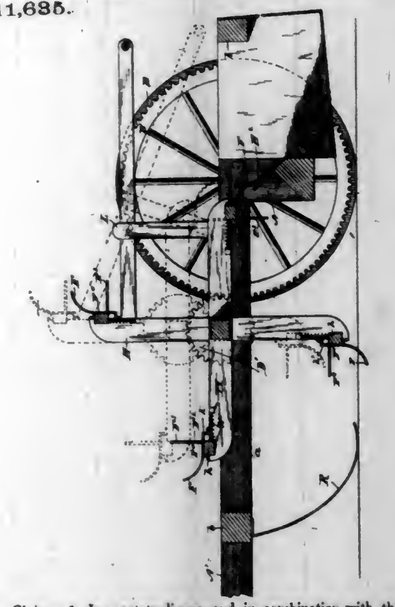
2. The combination of a vertically-reciprocating plunger, a fixed cork-pressing cheek, a movable cork-pressing cheek, a wiper below the presser-cheeks, and means for laterally reciprocating the movable cheek and the wiper, substantially as set forth.

3. The combination of the vertically-guided bracket, a plunger secured to said bracket, means for vertically reciprocating the plunger, a

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Claim.—1. In a potato-digger, and in combination with the digging apparatus thereof, the runner provided with the lateral cutting-edges, substantially as described.

2. In a potato-digger, and in combination with the main frame thereof, mounted upon driving-wheels, a curved runner provided with lateral cutting-edges and attached to the forward portion of the machine, substantially as described.

3. In a potato-digger, and in combination with the main frame, carrying the operative mechanism, the curved runner having lateral tapering cutting-edges, as and for the purpose set forth.

4. In a potato-digger, and in combination with the main frame thereof, the revolving frame, mounted upon a shaft geared to the driving-wheels and provided with a series of radial arms having bearings or boxes therein, a series of cross-bars, each fitted to slide in said bearings, springs for supporting said cross-bars, and a series of spades attached to said cross-bars, as and for the purpose specified.

5. The combination, with the main frame of a potato-digger, of a series of yielding cross-bars, *h'*, mounted in radial arms H, attached to shaft D, slotted posts C C, and driving mechanism, such as indicated, intermediate the main driving-wheels and shaft D, substantially as described.

6. In combination with the radial arms H, mounted upon the shaft D, and provided with boxes *h'*, the series of cross-bars *h*, each carrying a plate, F², bent to form spades F, and fingers F², substantially as described.

rail attached to the plunger-bracket, a fixed presser-cheek, a laterally-movable presser-cheek operated by said rail, and a wiper below the presser-cheeks, the wiper being also operated by said rail, substantially as set forth.

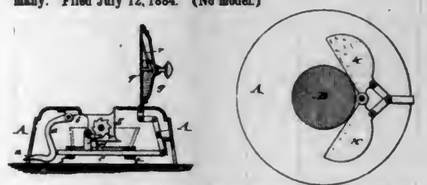
4. The combination of a supporting-pillar, a vertically-sliding bracket provided with a laterally-projecting pin, a plunger attached to said bracket, a fixed bracket provided with laterally-projecting pins, a cork-guiding tube attached to said fixed bracket vertically below said plunger, a clearer adapted to slide on said tube, and a vertically-slotted clearer-rod supporting said clearer and sliding upon and actuated by the said laterally-projecting pins, substantially as described.

5. The combination of a vertically-reciprocating plunger, G, a fixed presser-cheek, C, a laterally-reciprocating presser-cheek, C', a laterally-reciprocating wiper-frame, D', having a wiper, D, and a tubular opening, *d*², adjoining the wiper, a cork-guiding tube, E, vertically in line with the plunger G, a clearer, F, and a slotted clearer-rod, F', that reciprocates the clearer, substantially as set forth.

6. In a bottle-corking machine, a wiper consisting of a frame, D', an elastic wiper, D, means for compressing the wiper, and a circular opening, *d*², adjoining the same, substantially as set forth.

311,635. POTATO-DIGGER. WILLIAM BENEDICT, Tunkhannock, Pa. Filed Mar. 1, 1884. (No model.)

311,636. SPITTOON. THEODOR BERGMANN, Gaggenau, Baden, Germany. Filed July 12, 1884. (No model.)



Claim.—1. The combination of a casing having a funnel-shaped opening, a hinged outer lid, a treadle, and intermediate mechanism connected to the lid for opening and closing the same, a receiving-vessel at the interior of the casing, auxiliary lids arranged below the funnel-shaped opening, and mechanism whereby the auxiliary lids are connected to the treadle mechanism and closed or opened while opening or closing the outer lid, substantially as set forth.

2. The combination of a casing or receptacle for refuse matter, a hinged lid or cover, a treadle, and mechanism, substantially as described, intermediately between the treadle and lid, whereby the lid is opened or closed by depressing or releasing the treadle, substantially as set forth.

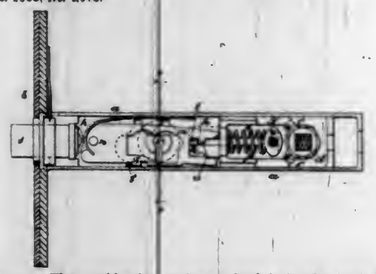
3. The combination of the casing having a funnel-shaped opening, a hinged lid for the same, auxiliary lids below the opening, a treadle or

foot-lever pivoted to the casing, a spring-acted slide-rod operated by the treadle or foot-lever, and mechanism, substantially as shown, connecting the slide-rod with the outer and auxiliary lids, so as to raise the outer lid and place the auxiliary lids below the opening on depressing the treadle, substantially as set forth.

4. The combination of a casing, A, having a funnel-shaped opening, *l*, and a hinged lid, *g*, laterally-swinging auxiliary lids *k k*, arranged below the opening, a vessel, B, a treadle, *a*, a spring-acted slide-rod, *c*, having racks *h h*, pinions *i i*, pivots *i' i'*, to which the lids *k k* are attached, lever *d*, link *e*, and crank-arm *f*, constructed and operating substantially as set forth.

5. In a receptacle for refuse matter, the combination of an inclosing-casing, a hollow hinged cover containing a disinfecting-liquid, and means, arranged in the hollow cover, as described, whereby a few drops of the disinfecting-liquid are discharged whenever the lid is raised and lowered, substantially as set forth.

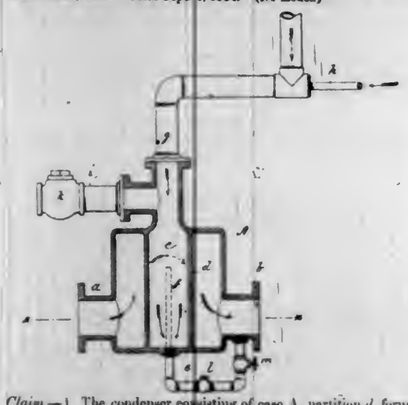
311,637. LATCH AND LOCK COMBINED. FREDERICK J. BIGGS, London, England. Filed Apr. 9, 1884. (No model.) Patented in England Oct. 2, 1883, No. 4,675.



Claim.—1. The combination, to form a latch-lock, of a latch-bolt divided into two parts, the beveled latch borne by one of said parts, the knob-spindle connected to and actuating the other of said parts, a tumbler pivoted to one part of the bolt, a tooth or projection on the other part thereof, adapted to be engaged by said tumbler or disengaged therefrom, and a beveled face on said tooth or tumbler, or both, substantially as set forth, whereby when the tooth is moved against the tumbler it will displace the latter and engage with it.

2. The combination, to form a latch-lock, of a latch-bolt divided into two parts, the knob-spindle connected to and actuating the rear part, a tumbler pivoted to the front part, and adapted to engage the rear part, a tooth, *s*, on said tumbler, and a fixed tooth, *t*, on the case of the lock, substantially as set forth, whereby the interlocking of said teeth *s t* prevents the retraction of the latch when it is shot and the shooting of the same when it is retracted.

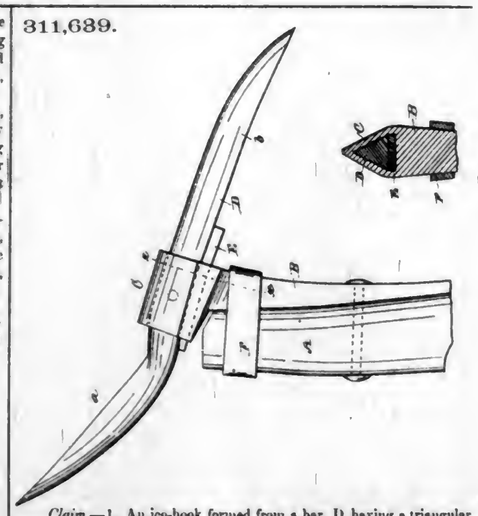
311,638. CONDENSER FOR STEAM-PUMPS. HENRY T. BLACKWELL, What Cheer, Iowa. Filed Sept. 6, 1884. (No model.)



Claim.—1. The condenser consisting of case A, partition *d*, forming chamber *c*, steam-pipe *g*, water-connections *a b*, and pipe *e*, connecting chamber *c* to the outlet *b*, substantially as described.

2. In a condenser, the combination of the case having the inner chamber, *c*, and the radial partitions *f*, with the steam-pipe *g*, water-connections *a b*, and pipe *e*, connecting chamber *c* to the outlet *b*, substantially as and for the purpose set forth.

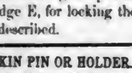
311,639. ICE-HOOK. J. GEORGE BODENSTEIN, Staatsburg, N.Y. Filed Oct. 13, 1884. (No model.)



Claim.—1. An ice-hook formed from a bar, D, having a triangular cross-section and pointed at its ends, the bar being twisted at the middle of its length and bent at the twisted part, substantially as herein shown and described.

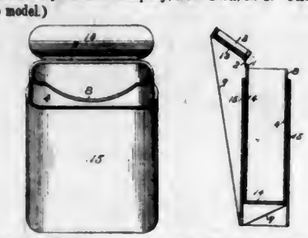
2. In an ice-hook, the combination, with the triangular eyebolt B C, secured to a handle, of the triangular pointed bar D, twisted and bent, as described, and the wedge E, for locking the bar in the eye, substantially as herein shown and described.

311,640. NAPKIN PIN OR HOLDER. AMY L. BURLINGAME, Willett, N.Y. Filed July 21, 1884. (No model.)



Claim.—The coiled wire spring in one piece, in form as shown at S A B *b*, hook or clasp C, and sharp pointed hook *h*, substantially as shown and described.

311,641. CIGARETTE-CASE. WILLIAM H. BUTLER, Brooklyn, assignor to the Kinney Tobacco Company, New York, N. Y. Filed Oct. 29, 1884. (No model.)

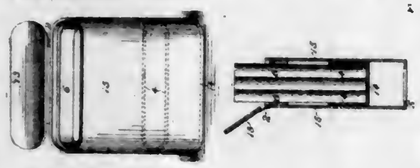


Claim.—1. The combination, with the tubular sheath 15, of the tubular body 4, having the cover 13 hinged to and arranged to close its end, and the opening tape or ribbon 9, substantially as described.

2. The combination, with the tubular sheath 15, of the tubular body 4, having the hinged cover 13 and the bottom 14, and the opening tape or ribbon 9, attached to said cover and bottom, substantially as described.

3. The combination, with the tubular sheath 15, of the tubular body 4, having the hinged covers 13 14, and the opening tape or ribbon 9, attached to both of said covers, substantially as described.

311,642. CIGARETTE-CASE. WILLIAM H. BUTLER, Brooklyn, assignor to the Kinney Tobacco Company, New York, N. Y. Filed Oct. 29, 1884. (No model.)

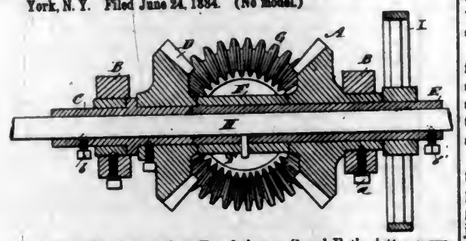


Claim.—1. The combination, with the tubular body 15, having the stops 5 6, of the hinged cover 13, and the sliding bottom 14, having the rim 4, substantially as described.

2. The combination, with the tubular body 15, of the hinged cover 13, arranged to close into the ends of the body, and the sliding bottom 14, substantially as described.

3. The combination, with the tubular body 15, of the hinged cover 13, sliding bottom 14, and the opening-tape 9, substantially as described.

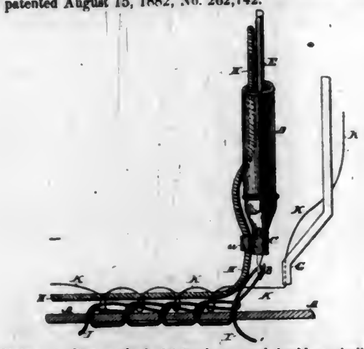
311,643. MECHANICAL MOVEMENT. JAMES H. CARRINGTON, New York, N. Y. Filed June 24, 1884. (No model.)



Claim.—The hollow shaft E and sleeves C and F, the latter carrying the intermediate gear, G, combined with the axial shaft H and the gear-wheels A and D, arranged to operate substantially as described.

311,644. METHOD OF FIXING CORDS OR BRAIDS TO TEXTILE FABRICS BY MEANS OF SEWING OR EMBROIDERING MACHINES. EMIL CORNELY, Paris, France. Filed Dec. 19, 1883. (No model.) Patented in England May 24, 1883, No. 2,597.

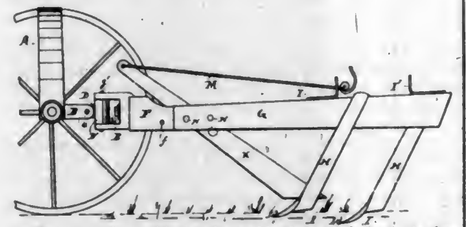
Brief.—The method relates to attaching a cord to a fabric by a sewing or embroidering machine while the stitching or seam is being formed—as, for example, in that kind of work executed by the applicant's machine patented August 15, 1882, No. 262,742.



Claim.—1. The method of fastening a cord, braid, or similar article to the seam formed by a sewing or embroidering machine, by winding a thread around the said cord or other article and around the sewing-thread simultaneously with the formation of the stitches, substantially as described.

2. The combination, with the operative elements of a sewing or embroidering machine, of a cording-guide and means, as described, for winding a thread around the cord delivered by said guide and around the sewing-thread, whereby the said cord is secured to the seam produced by the machine, substantially as set forth.

311,645. CULTIVATOR. RICHARD CRAGRAFT, Berwick, assignor of one-half to J. Hartz Miller, Abingdon, Ill. Filed Apr. 30, 1884. (No model.)



Claim.—1. In a cultivator, the combination of arched axle A, slots *a*, bolts C, yokes B, parts D D', provided with bolts *e*, clevis E, bolt *g'*, bolt L, and casting F, with a plow-beam, G, substantially as described, and for the purposes set forth.

2. In a cultivator, the plow-beam G, in combination with drag K, metal bar M, hooks I I', and plows H H, substantially as described, and for the purposes set forth.

311,646. LIQUEFACTION, DEXTRINATION, AND SACCHARIFICATION BY MEANS OF MALT OF THE STARCH IN AMYLACEOUS SUBSTANCES. LÉON CUBNIER, Paris, France. Filed Dec. 18, 1884. (No specimens.) Patented in England Oct. 22, 1884, No. 14,011.

Claim.—1. The herein-described process for the extraction and the liquefaction, dextrination, and saccharification of starch by malt, which consists in steeping the grain from which the malt is to be made in lime-water, and then germinating the grain and drying it, substantially as set forth.

2. The herein-described process for the extraction and the liquefaction, dextrination, and saccharification of starch by malt, which consists in first malting grain in the usual manner, and then washing or steeping the malt in lime-water in order to destroy any germs of fermentation that may have accumulated on its surface during germination, substantially as described.

3. The herein-described improvement in the manufacture of maltose from amylaceous material, which consists in liquefying the starch in the presence of malt at a nearly uniform temperature of 70° to 75° centigrade, whereby the active principle of the malt is preserved against injury from excessive heat and is enabled to act to the best advantage, and whereby worts of very great density may be produced, substantially as described.

4. The herein-described process for the extraction and the liquefaction, dextrination, and saccharification of starch by malt, which consists in liquefying the starch with malt in the presence of the residues of the amylaceous material, and afterward separating the said residues from the wort, substantially as herein set forth.

5. The herein-described improvement in the manufacture of maltose from amylaceous materials, which consists in adding to the triturated mixture of water and amylaceous material while maintained at a temperature of from 70° to 75° centigrade an infusion of malt by degrees, or little by little, at intervals during the liquefaction, whereby the loss of activity of the malt due to prolonged exposure to a high temperature is avoided, substantially as set forth.

6. The herein-described improvement in the manufacture of maltose from amylaceous materials, which consists in mixing paper-pulp with the liquefied starch and the residues of amylaceous materials mingled therewith, and then pressing the mass, whereby the removal of the liquid portion is facilitated, substantially as described.

7. The herein-described improvement in the manufacture of maltose from amylaceous materials wherein a tendency to alteration has already developed, which consists in steeping said materials in lime-water previous to grinding in order to destoy the germ of fermentation therein, substantially as described.

8. The herein-described process for the extraction and the liquefaction, dextrination, and saccharification of starch by malt, which consists in first preparing an infusion of malt substantially as described, then macerating the amylaceous materials in water for two or three days at a temperature not exceeding 50° centigrade, then grinding and triturating said macerated materials, then adding to said triturated materials from two and a half to five per cent. of the infusion of malt, then thinning the mass with water and subjecting it to a temperature of from 70° to 75° centigrade for a sufficient time to effect the liquefaction of the starch, then separating the residues from the mass, substantially as described, then clarifying the expressed wort, substantially as described, then cooling the wort to 70° centigrade and adding from one to two per cent. of the infusion of malt to effect the dextrination, substantially as described, then saccharifying the dextrinated wort at a temperature not exceeding 50° centigrade by the addition thereto of the infusion of malt, substantially as described, and finally concentrating, all substantially as described.

311,647. AXLE CUTTER AND THREADER. EDWARD F. DALTON, Waterford, N. Y., assignor of one-half to William F. Holroyd, same place. Filed Aug. 4, 1884. (No model.)



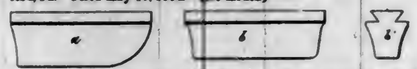
Claim.—1. The combination of a stock, A, provided with internal ribs, *a*, with twin cutters B, having longitudinal grooves *b* and *b²*, cutting-teeth 1, beveled downwardly from the groove *b²*, and teeth 2, beveled from the edge *b²*, substantially as and for the purpose described.

2. The combination of the stock A, provided with internal ribs, cutters B, having longitudinal grooves *b²*, cutting-teeth 1 and 2, beveled as described, and a conical opening, *b⁴*, between said grooves and cutters, substantially as and for the purpose described.

3. The combination of the stock A, provided with internal ribs, cutters B, having longitudinal grooves *b²* and a conical opening between

em, with screw-cutting dies, and a screw-handle, B², substantially as and for the purpose described.

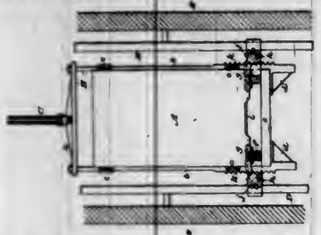
311,648. DIE FOR MAKING STEEL JARS. JAMES J. DAVIN, Bradford, Pa. Filed May 10, 1884. (No model.)



Claim.—1. The apparatus for making steel jars, consisting of main dies A A', fitted with cutters or fullers for cutting and shaping the reins, as specified.

2. The dies A A' for forming steel jars, having removable central portions, *a b*, as and for the purpose specified.

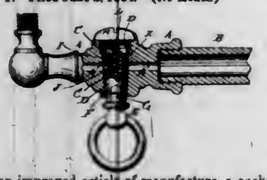
311,649. AUTOMATIC SAFETY-BRAKE FOR ELEVATORS AND HOISTS. DOMINIQUE CRESPIN DE LA JEANNIÈRE, Paris, France. Filed Sept. 20, 1884. (No model.) Patented in Belgium Aug. 23, 1884, No. 66,110, and in Italy Sept. 1, 1884, XXXIV, 241



Claim.—1. The combination, with a car, A, its hoisting-frame E, hoisting-rope C, and springs *f*, of the screw-shafts *h*, provided with right and left screw-threads, the brake-jaws *i*, mounted on said shafts, as described, and the means described for causing the jaws to clamp on the guide-rods when the weight of the car is taken off the spring *f*, as set forth.

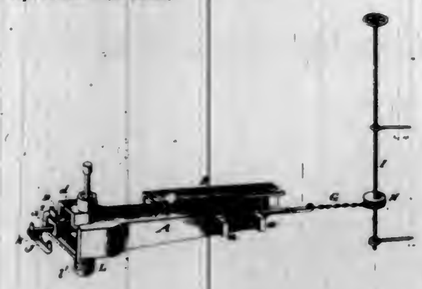
2. The combination, with a car, A, its hoisting-frame E, hoisting-rope C, and springs *f*, of the screw-shafts *h*, mounted in rotative bearings on the car and provided with right and left screws, the pinions fixed on said screw-shafts, the racks on the hoisting-frame, and the brake-jaws provided with female screws and mounted on the screw-shafts, substantially as shown and described.

311,650. COCK FOR GAS AND WATER FITTINGS. HENRY P. DREW, New York, N. Y. Filed June 2, 1884. (No model.)



Claim.—As an improved article of manufacture, a cock for gas and water fittings, consisting, essentially, of the stock A, having the longitudinal passage A', downward tapering perforation C, and recess K in the rear inner wall of the said perforation C, as shown, the tapering plug D, having a recess, I, in its upper larger end opening into the upper part of perforation C and the recess K, and a lateral perforation, J, adapted to register with the passage A', the spring L, the screw-cap H, fitting into the top of the perforation C, the spring L bearing against the under side of plug H and the bottom of recess I, and the thumb-piece E on the lower end of the plug D, substantially as set forth.

311,651. CAR-COUPLING. DENNIS P. EDGAR, Jackson, Mich. Filed Sept. 24, 1884. (No model.)



Claim.—1. The combination, with a draw-head having side studs, *a*, of car-boxes B, provided with two rubbers, C C, in each box, and arranged to take both the back and forward shock, as set forth.

2. In car-couplings, the pin-supporting slide made with a slot, *d*, contracted at the rear to have its sides work in groove *f* of the pin, and thence toward the front sufficiently enlarged to allow the shank but not the head of pin to pass through, the slide thus moving back over the pin-shank and catching the pin-head, as described.

3. The combination, with a pin-support provided with an opening sufficiently large to let the pin drop entirely through it, of a draw-head having a vertically-apertured trap, L, arranged to let the shank pass through but to catch the head, substantially as described.

4. A car-coupling draw-head provided with a subjacent trap, L, having a vertical hole, *l*, a front hole, *l'*, and a rear open slot, *l²*, whereby the pin may be removed, as described.

5. In car-couplers, the angular link-support J, pivoted by one arm to turn down at the side, as and for the purpose set forth.

6. In car-couplings, a link-support pivoted to turn transversely in a vertical plane and provided with a median stud on its upper side adapted to enter the link, as set forth.

7. The combination, with the pivot-arm of the link-support J, of a spring arranged beneath said arm, so as to hold said support in whatever position it may be placed, as set forth.

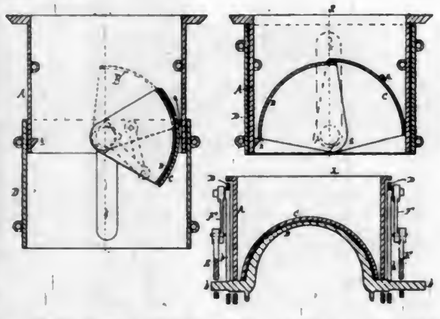
311,652. BORING-BAR. LUTHER R. FAUGHT, Philadelphia, Pa. Filed June 4, 1884. (No model.)



Claim.—1. A clamping-key for boring-cutters having a flattened face upon its inclined or beveled side and a curved or segmental face upon its straight side, substantially as and for the purpose set forth.

2. The combination, substantially as set forth, of a transversely-slotted boring-bar, a tool or cutter fitting in a slot in said bar, and a clamping key or wedge fitting in a transverse slot in said bar at right angles to the cutter-slot, said key bearing by a flattened face against the cutter, and by a curved or segmental face against the boring-bar.

311,653. STOVE. MILES W. GARDNER, Detroit, Mich., assignor of one-half to the Michigan Stove Company, same place. Filed Feb. 2, 1884. (No model.)



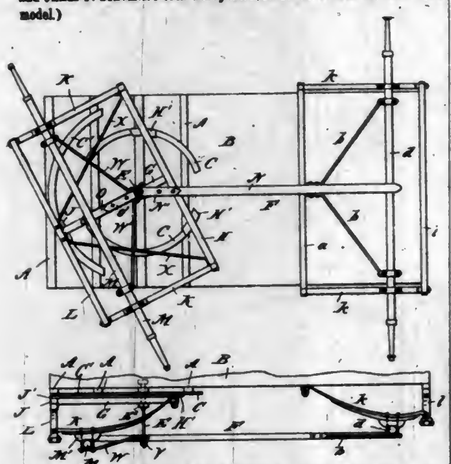
Claim.—1. The combination, with a magazine of a stove, of two segmental cut-off plates and means for partially rotating such plates in the same direction, substantially as and for the purposes described.

2. The combination, with a magazine of a stove, of a slotted sleeve, at the discharge end of such magazine, and the levers E, secured to the trunnions *b b'*, passing through the slots in said sleeve, and the levers F connecting said levers E with said sleeve, for vertically raising or lowering such sleeve upon the magazine, substantially as described.

3. The combination, in a magazine-stove, of an extensible magazine in two or more sections, the lower one of which can be projected or retracted, and a cut-off in the upper section of such extensible magazine, said extension and cut-off being connected to operate together, substantially as and for the purposes specified.

4. The combination, in a magazine-stove, of the magazine A and two segmental cut-off plates, B C, arranged to be partially rotated in the same direction by the operation of the trunnions common to both, substantially as set forth.

311,654. RUNNING-GEAR FOR VEHICLES. SYLVESTER GESNER, Jr., and JAMES F. STEVENS, North Tarrytown, N. Y. Filed Feb. 19, 1884. (No model.)

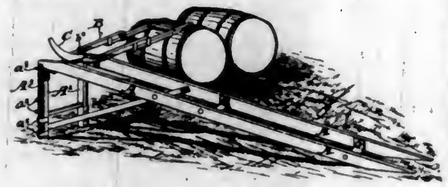


Claim.—1. In a vehicle, the combination, with fifth-wheel track-plates having different diameters and secured to the under side of the wagon-box, of a spring-frame carrying the front axle pivoted to the under side of the box by a king-bolt, substantially as herein shown and described.

2. In a vehicle, the combination, with fifth-wheel track-plates having different diameters and secured to the under side of the wagon-box, of a spring-frame carrying the front axle, a jointed reach, and a king-bolt serving as a pivot for both the frame and the sections of the reach, substantially as herein shown and described.

3. In a vehicle, the combination, with fifth-wheel track-plates having different diameters, of the axle-frame consisting of the side springs, K, secured to the axle, the front cross-spring, L, connecting the front ends of the side springs, the head-block J, the cross-bar H, uniting the inner ends of the side springs, the bar G, extending from the cross-bar H to the head-block, and the plates H' J', secured, respectively, to said cross-bar and head-block, substantially as herein shown and described.

311,655. BARREL-SKID. ALBERT U. GUNMANN, Indianapolis, Ind., assignor of one-half to John F. Brown, same place. Filed Dec. 13, 1884. (No model.)



Claim.—1. The combination of the main skid A, elevated at one end, and the supplemental skid B, pivoted thereto upon the elevated end, substantially as set forth.

2. The combination of a main skid elevated at one end and an extensible supplemental skid, substantially as set forth.

3. The combination of the main skid A and the supplemental skid B, pivoted thereto, and constructed of sections adjustable upon each other, substantially as set forth.

4. The combination of the main skid, a supplemental skid, and the turn-table, substantially as set forth.

5. The combination of the main skid, the supplemental skid, and the turn-table mounted in a revoluble pivot having an arm by which said pivot and turn-table are automatically returned to position, substantially as set forth.

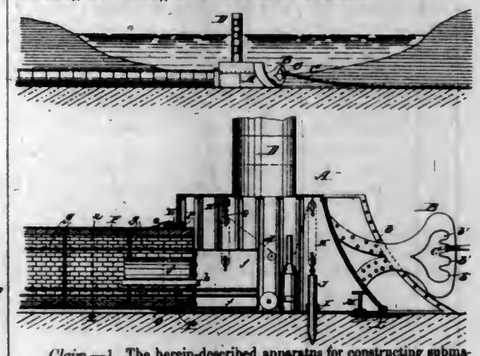
6. The combination, with a barrel-skid, of a spring-mounted turn-table, the spring whereof operates to return the turn-table to its normal position.

7. The combination, with a barrel-skid provided with legs, of supplemental or adjustable legs, whereby the height of the elevated end of the skid can be regulated, substantially as set forth.

8. The combination of the skid A, having legs A', on which are clips *a'*, and projections *a²* of supplemental or extensible legs A², mounted in said clips and having projections *a³*, substantially as set forth.

311,656. APPARATUS FOR LAYING SUBMARINE TUNNELS AND TUBES. HAYDEN H. HALL, New Hamburg, N. Y. Filed Nov. 8, 1883. (No model.)

Brief.—A movable caisson having a prow and means for attaching a draft-chain, also having a hatchway extending to the top of the water, an outwardly-projecting neck, thin below, to receive the end of the tunnel-tube, a described packing, and a hinged plate on the bottom for raising and lowering the forward end of the structure.



Claim.—1. The herein-described apparatus for constructing submarine tunnels, consisting of a caisson provided with a prow and means for attaching a draft chain or cable at one end and with a neck for receiving the end of the tunnel-tube at the opposite end, substantially as set forth.

2. A caisson provided with the clevis B, having a series of notches, *b'*, substantially as herein shown and described.

3. The combination, with a caisson having a neck for receiving the end of the tunnel-tube, of a packing placed between the neck and the tunnel-tube, and a packing placed on the outer surface of the neck and the outer surface of the tunnel-tube, substantially as herein shown and described.

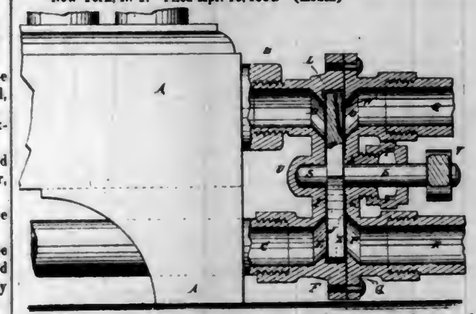
4. The combination, with a caisson, of a neck for receiving the end of the tunnel-tube, the outer and inner edges of which neck are arranged eccentrically, so that the neck will be thicker or wider at the top than at the bottom, substantially as herein shown and described.

5. The combination, with a caisson having a neck adapted to receive the end of the tunnel-tube, of an eccentric packing placed around the tunnel-tube between the outer surface of the tunnel-tube and the inner surface of the neck, substantially as herein shown and described.

6. The combination, with a movable caisson, of a plate hinged to the same, so that the free end of the plate will be toward the rear end of the caisson, and of means for raising or lowering the free end of the said hinged plate, substantially as herein shown and described.

7. The combination, with a movable caisson, of a plate hinged to the same, so that the free end of the plate will be toward the rear end of the caisson, and of a screw-shaft, *m*, for raising or lowering the free end of the said plate, substantially as herein shown and described.

311,657. VALVE FOR STEAM-RADIATORS. THOMAS S. HEWITT, New York, N. Y. Filed Apr. 10, 1884. (Model.)

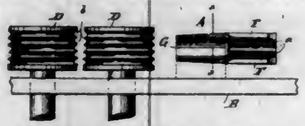


Claim.—1. A valve constructed substantially as herein shown and described, and consisting of the plates F G, having openings D E and O P, valve-seats K K', spaces L L', and ribs M, the valve-plug J, having recesses W X, and the stem and handle S V, as set forth.

2. In a valve, the combination, with the plates F G, having opposite inlet and exhaust openings D E and O P and valve-seats K K', of the valve-plug J and the stem and handle S V, substantially as herein shown and described, whereby the inlet and outlet openings can both be closed or opened by a single movement, as set forth.

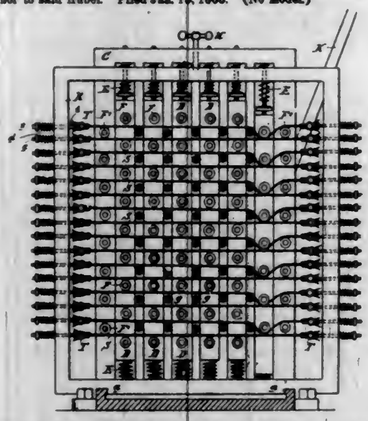
3. In a valve, the combination, with the plates F G, having spaces L L', and ribs M, of the valve-plug J, having recesses W X, and the stem and handle S V, substantially as herein shown and described, whereby a small quantity of steam, when the valve is closed, can pass continuously from the live-steam pipe to the exhaust-pipe to keep up the circulation, as set forth.

311,658. DIE FOR CUTTING RATTAN. HENRY HEYWOOD and DAVID F. PRATT, Gardner, Mass. Filed Nov. 19, 1884. (No model.)



Claim.—An improved die for splitting rattan, having a series of bores, *a*, at one end, and a single larger bore, G, at the other end, and provided with two or more longitudinal splitting-ridges, F, on the outside, substantially as shown and described.

311,659. MACHINE FOR GREASING CAPSULE-MOLD PINS. FREDERICK A. HUBEL and FRANK REINHOLD, Detroit, Mich.; said Reinhold assignor to said Hubel. Filed Jan. 15, 1883. (No model.)



Claim.—1. In a machine for greasing capsule-molds, the combination of a mold-plate, a movable support adapted to carry said mold-plate, a series of greased ribbons held by elastic attachments in a frame, and mechanism adapted to force successive portions of said ribbons out of their normal planes, substantially as and for the purpose specified.

2. In a greasing-machine for gelatine-capsule-mold pins, the combination of the detachable greasing-rack, upon which the lubricating-bands are stretched, with said bands and suitable tension devices, substantially as described.

3. In a greasing-machine for gelatine-capsule-mold pins, the bars D, arranged to move in guides, and provided with fingers F in vertical series, in combination with devices for successively depressing the same, substantially as and for the purpose described.

4. In a greasing-machine for gelatine-capsule-mold pins, the finger-bars D, held in middle position by the springs E E, acting upon their upper and lower ends, and in combination with devices for depressing and raising the same successively for the purpose of drawing the lubricating medium over the upper and lower halves of the mold-pins, substantially as described.

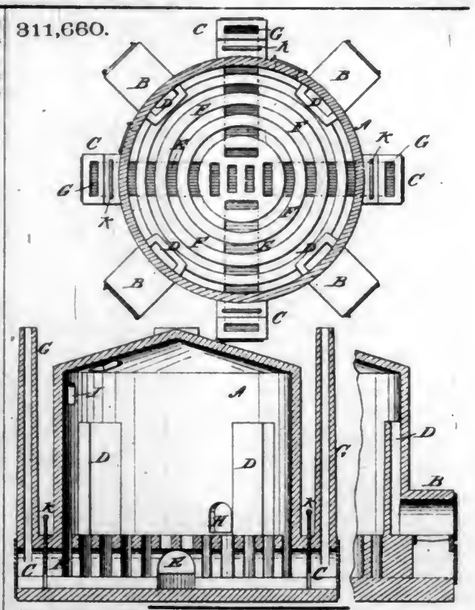
5. In a greasing-machine for gelatine-capsule-mold pins, the greasing-rack provided with a series of bands with tension devices, and in combination with actuating-fingers F, arranged in horizontal series below and above each set of two ribbons, substantially as and for the purposes specified.

6. As a means for raising and lowering the finger-bars D, and in combination therewith, the grooved plate H, lever K, wrist J, and cams P, substantially as and for the purpose specified.

311,660. TILE-KILN. GREGORY JENNINGS, West Cairo, Ohio. Filed Oct. 20, 1884. (Model.)

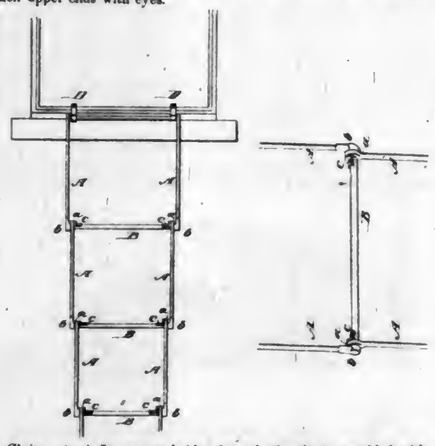
Claim.—In a tile-kiln, the body A, in combination with the fire-boxes B, arranged externally of said body and having the flues D disposed internally of said body, the external valved air-chambers having external air-flues, G, and flues E, arranged within said body and crossing each other, and the circular air-flues F, connecting said air-flues E from center to circumference of the body and opening into said body above, substantially as and for the purpose set forth.

311,660.



311,661. FIRE-ESCAPE. CHARLES W. JOYNT, Makanda, Ill. Filed May 1, 1884. (No model.)

Brief.—A flexible ladder consisting of side bars provided at their lower ends with right-angled sockets to receive the ends of the rungs and at their upper ends with eyes.



Claim.—1. A fire-escape ladder formed of rods A, provided with eyes *a*, the right-angled sockets *b*, secured to the rods A, and the rounds B, entering the sockets *b* and secured therein, as described.

2. The combination, with a ladder formed of rods A, having eyes *a*, the right-angled sockets *b*, and the rounds B, of the hooks or straps D and box C, as described

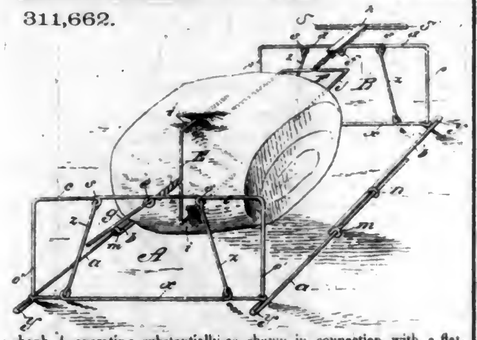
3. The combination, in a fire-escape ladder, of the rods A, having eyes *a*, the right-angled sockets *b*, rounds B, and stops *c*, as described.

311,662. SPIT. MARGARET E. KNIGHT, Ashland, Mass. Filed Aug. 4, 1884. (No model.)

Claim.—1. The within-described improved spit, consisting of a spit-frame formed in two sections, to afford at opposite ends of said frame bearings to a spit, and extensible, substantially as shown, one within the other to lengthen or shorten said frame, and a spit in two sections adapted to bear in said frame to inclose a roast between its ends and be adjustable longitudinally to conform to the length of the frame, as set forth.

2. The within-described improvement in spits, consisting of a frame having opposite end bearings for a spit-fork, in combination with a fork in two sections adapted to inclose the meat between opposite ends, provided with means for revolving it, and having at one end a flat-sided

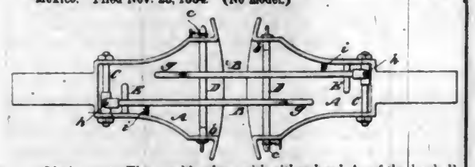
311,662.



shank, *h*, operating, substantially as shown, in connection with a flat-sided socket, *f*, in the frame, and provided upon the other end thereof with a shank adapted to revolve at different angles in a bearing in the frame, whereby the roast may be revolved and held stationary in different positions, for the purpose set forth.

3. The improved spit, consisting of frame-sections A B, formed each of a continuous rod or wire bent, as shown, to form bearings *e f*, and side bars, *a b*, adapted to be extensible one in the other, and having their upright ends braced, substantially as shown, in combination with the fork-sections E F, having the shank *g*, adapted to turn loosely at different angles in bearing *e*, and the shank *h*, adapted, in connection with bearing *f*, to remain fixed in different positions.

311,663. CAR COUPLING. ALEXANDER C. LÜBBERT, H. Guaymas, Mexico. Filed Nov. 25, 1884. (No model.)

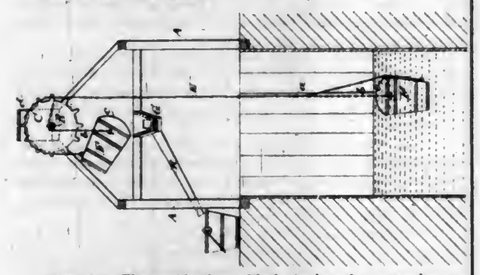


Claim.—1. The combination, with either head A, of the hook B, pivoted to rise and fall, as described, laterally-removable bar D, arranged for operation on and engagement with the pivoted hook of the coupler of an adjacent car, and an additional bar, E, projecting from the inner side of the draw-head in rear of the aforesaid bar B and retaining the hook in coupling position, substantially as specified.

2. The hooks B, pivotally embracing the pivots C to admit of them swinging laterally on their pivots, in combination with the heads A and laterally-removable bars D, essentially as described.

3. The combination of the springs *i*, the boxes or heads A, with their removable bars D, the cross-pivots C, and the hooks B, jointed to swing laterally on said pivots, substantially as and for the purposes herein set forth.

311,664. WATER-ELEVATOR. ELI MCALLISTER, Albia, Iowa. Filed Mar. 29, 1884. (No model.)

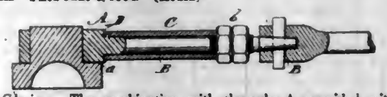


Claim.—1. The combination, with the bucket of a water-elevator, of a belt-chain attached to the sides thereof near the bottom, and bail-chains connected to the sides of the bucket and to the belt-chains, substantially as described.

2. The combination, in a water-elevator, of a sprocket-wheel, C, buckets F, belt-chain E, attached to the sides of the buckets near the bottom, and bail-chains *b*, attached to opposite sides of the buckets near the top, and connected with the eyes *a*, projecting from the belt-chain, as described.

3. The combination, with two oppositely-arranged buckets, F, belt-chain E, bail-chains *b*, and sprocket-wheel C, for operating the same, of the centrally-arranged trough G, as described.

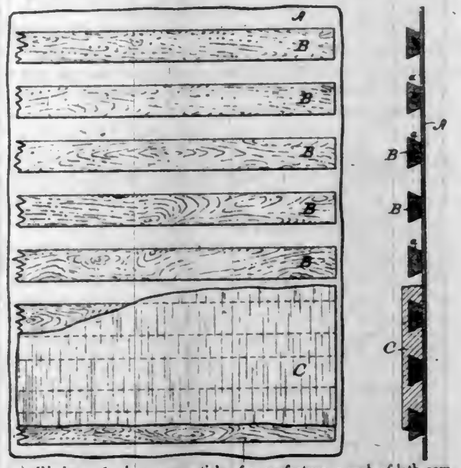
311,665. PISTON AND VALVE ROD. JOSEPH MCGRAL, Savanna, Ill. Filed June 4, 1884. (Model.)



Claim.—The combination, with the yoke A, provided with the shoulder D, having the recess *a*, and the stem B, having its outer end screw-threaded, of the plain sleeve C, having its end resting in the said recess, and the clamping-nuts *b* on the screw-threaded end of the stem, substantially as herein shown and described, and for the purpose set forth.

311,666. LATH. JAMES MORRISON, Jr., New York, N. Y. Filed Dec. 13, 1884. (No model.)

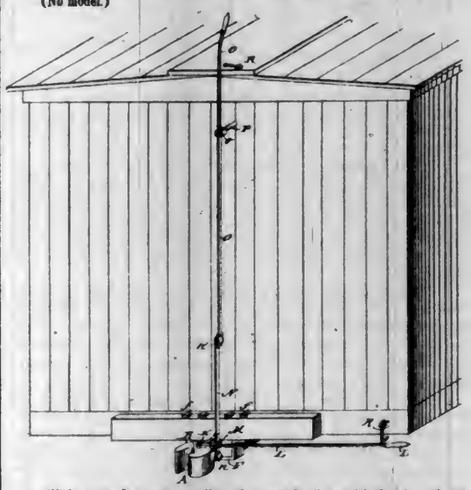
Brief.—Lathing-web formed by securing the lath-stick to a flexible backing.



Claim.—1. As a new article of manufacture, a web of lath composed of the backing A and lath-sticks B, secured to the backing, substantially as described.

2. The lath-sticks B, secured to the backing A, and beveled at their edges, substantially as and for the purpose set forth.

311,667. CAR-COUPLING. WILLIAM MÜLLER, Atlanta, Ga., assignor to himself and Philip Breitenbucher, same place. Filed Nov. 7, 1884. (No model.)



Claim.—1. In a car-coupling, the combination, with the draw-head A, having a cavity, B, and a horn or lug, *a'*, at one side of its vertically-ranging end socket, *a*, of the pivoted coupling-hook G, having the head *g*, means for pressing the hook outward for coupling, and a cam adapted to act upon both of the coupling-hooks simultaneously to separate them, substantially as herein shown and described.

2. In car-couplings, the combination, with the draw-head A, recessed at B, and having a socket, *g*, and horn *a'*, as specified, of the pivoted coupling-hook G *g*, and means for pressing the plate outward for coupling, and a pivoted cam, J, acting by its part *j* to force the adjacent hook G inward, and simultaneously by its part *j'* to force back the coupling-hook of the opposing draw-head, and means for operating the cam, substantially as shown and described.

3. In car-couplings, the combination, with the draw-head A, recessed at B, and having a socket, *a*, and horn *a'* as specified, of the pivoted coupling-hook G *g*, the cam J, having double-acting parts *j j'*, the spring I, and means for operating the cam, substantially as shown and described.

4. The combination, in a car-coupling, and with the draw-head A, recessed at B, and having a socket, *a*, and horn *a'*, as specified, of the coupling-hook G *g*, the cam J, spring I, lever L, connected to the cam and extending to the side of the car, the lever N, tied by a link, M, to the lever L, and the lever O, connected to lever N and extending to the top of the car, substantially as shown and described.

5. The tie-link M, having apertures *m m'*, in combination with the crossed uncoupling-levers L N, substantially as shown and described.

311,668. DITCHING-MACHINE. SAMUEL M. MURRAY and JOHN C. STRIKER, Tipton, Iowa. Filed May 21, 1884. (No model.)

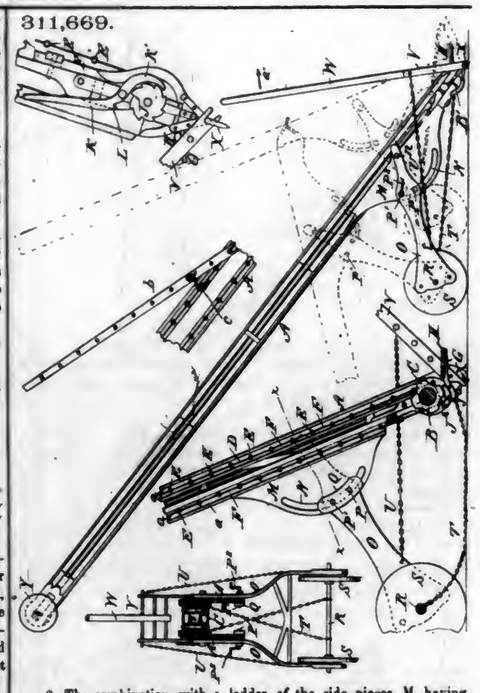


Claim.—1. In a ditching-machine, the combination, with the U-shaped scoop *d* and its carrying-frame *a*, of the chute *f*, with its lower forward end resting in the lower part of the scoop, near its forward end, said chute having its upper flared end disposed at the upper side of the frame *a*, and the mold-board *i*, of an approximately V-shaped cross-section at its lower end, with its upper end formed with an outwardly-curved wing at each side of its center, substantially as and for the purpose set forth.

2. In a ditching-machine, the combination, with the U-shaped scoop *d* and its carrying-frame *a*, of the chute *f*, disposed within said scoop, the mold-board *i*, of an approximately V-shaped cross-section, with its upper end formed with an outwardly curved wing at each side of its center, the inclined cutters *g*, with their outer upper ends connected to said frame, and their lower inner ends connected to the front edges of the scoop *d*, and the colter *j*, hung about centrally of the cutters *g g*, substantially as and for the purpose set forth.

3. The ditching-machine comprising the carrying-frame, the U-shaped scoop *d*, provided with cutters *g*, chute *f*, disposed in the latter, with its upper flared end arranged at the lower tapered end of the double mold-board *i*, the colter *j*, disposed intermediately of the cutters *g*, the adjustable shoe *k m b*, and the double mold-board *n* at the front end of the carrying-frame, substantially as and for the purpose set forth.

311,669.



311,669. FIRE-ESCAPE. ROBERT H. NICHOLS, Aylesford, Nova Scotia, Canada. Filed June 29, 1883. (No model.)

Claim.—1. The combination, with the ladder-frame A, of the levers O, having the wheels S, and pivoted to side pieces, M, secured to the lower or base end of said frame, said side pieces also having segmental slots N, which receive adjusting and holding bolts P' P² and guide-pins P from said levers, substantially as and for the purpose set forth.

2. The combination, with the ladder-frame A, having the side pieces, M, provided with segmental slots N, of the levers O, having the axle R, provided with wheels S, said levers having adjusting and holding bolts P' P² and guide-pins P, and the frame V, resting upon the spikes X at the lower end of the ladder-frame and connected by the chains U to said levers, and provided with a lever, W, substantially as and for the purpose set forth.

3. The combination, with a ladder, of side pieces attached to the lower part of the same, which side pieces are provided with segmental slots, levers pivoted to the said side pieces, wheels held on the free ends of the levers, and pintles passing through the levers into the segmental slots, substantially as herein shown and described, and for the purpose set forth.

4. The combination, with a ladder, of side pieces attached to the lower part of the same, which side pieces are provided with segmental slots, levers pivoted to the said side pieces, wheels held in the free ends of the levers, pintles passing through the levers into the segmental slots, and locking devices provided on the pintles for holding the levers at the desired inclination to the ladder, substantially as herein shown and described, and for the purpose set forth.

5. The combination, with a ladder, of the side pieces, M, the levers O, the wheels S, held in the free ends of the same, the nuts or plates Q, and the pintles P P', passed through the levers O and the slots N into the plates or nuts Q, substantially as herein shown and described, and for the purpose set forth.

6. The combination, with a ladder, of the side pieces, M, having segmental slots N, of the levers O, pivoted to the side pieces, M, the wheels S, the frame V, pivoted to the bottom of the ladder, the rod or handle-frame W, and the chains U, connecting the frame V with the levers O, substantially as herein shown and described, and for the purpose set forth.

7. The combination, with a ladder, of the side pieces, M, the levers O, pivoted to the same, the wheels S, held in the levers O, the frame V, the chains U, attached to the levers O and to the frame V, and a chain, T, secured to the axle of the wheels S at the lower end of the ladder, substantially as herein shown and described, and for the purpose set forth.

8. The combination, with the fire-escape ladder A, the arms O, the axle R, and the wheels S, of pivots projecting from the sides of the ladder, a forked frame for receiving the pivots, which forked frame is swiveled on a frame provided with wheels, substantially as herein shown and described, and for the purpose set forth.

9. The combination, with the fire-escape ladder A, the arms O, the axle R, and the wheels S, of the pivots *n*, and the forked frame *o o'*, swiveled on frames *p*, resting on an axle mounted on wheels and provided with springs for supporting the frames *p*, substantially as herein shown and described, and for the purpose set forth.

10. In a fire-escape, the combination, with the endless chain-ladder, of the levers G, having the brake-shoes J², with their shaft or fulcrum J, provided with a notched disk or wheel, H', and a spring, *m*, connected to said shoes and shaft, and a lever, H², substantially as and for the purpose set forth.

11. In a fire-escape, the combination, with the endless chain ladder, of the levers G, having brake-shoes J², with their fulcrum or shaft J provided with a notched disk or wheel, H', and a spring, *m*, connected to said shoes and shaft, the lever H², and the foot-board H, substantially as and for the purpose set forth.

12. The combination, with a ladder, of levers pivoted to the sides of the same, wheels held in the free ends of the said levers, and spikes or prongs projecting from the lower ends of the ladder, substantially as herein shown and described, and for the purpose set forth.

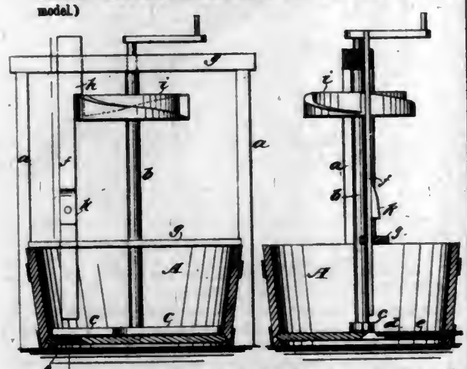
13. The combination, with a frame, of a drum journaled in each end of the same, a flexible endless ladder passing over said drums, and the levers G, pivoted to the lower ends of the frame and connected at the outer ends to the platform H, and provided at the inner ends with brake-shoes J, substantially as herein shown and described, and for the purpose set forth.

14. The combination, with a frame having side bars, A, each provided with two grooves, *a*, of the rungs E, the ends of which rest in the grooves *a*, which rungs are united by a chain or cable, whereby an endless flexible ladder is formed, substantially as herein shown and described, and for the purpose set forth.

15. The combination, with a frame, of a drum journaled in each end of the same, an endless flexible ladder passed over the said drums, and of an additional ladder, *b*, having forks formed at the lower ends of its side bars and provided with a hook, *c*, a short distance above its lower end, substantially as herein shown and described, and for the purpose set forth.

16. The combination, with a frame having a drum journaled in each end, of a flexible endless ladder passed over the said drums, and of a ladder adapted to be held on the said endless ladder, substantially as herein shown and described, and for the purpose set forth.

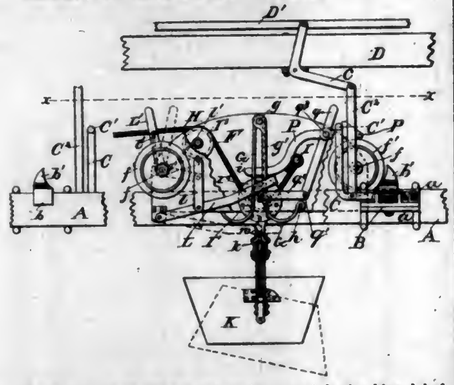
311,670. APPARATUS FOR FEEDING FLOUR AND OTHER MATERIAL. ANSON D. NORTHRUP, Carbon, Iowa. Filed June 30, 1884. (No model.)



Claim.—1. In an apparatus for feeding flour, the combination, with the receptacle A, provided with the flaring aperture *d*, of the plunger *f* and the cam *i*, substantially as herein shown and described.

2. In an apparatus for feeding flour, the combination, with the apertured receptacle A, provided with the standards *a* and cross-bars *g*, the shaft *b*, and the cam-wheel *i*, of the plunger *f*, provided with the shoulder A and the projection *k*, substantially as herein shown and described.

311,671. HOISTING AND CONVEYING APPARATUS. JOHN O'NEILL, Milwaukee, Wis. Filed Dec. 10, 1884. (No model.)



Claim.—1. In an elevator and carrier, a truck having hinged buffers, in combination with rods and levers for raising and lowering them, substantially as described.

2. The hinged buffers and their levers, in combination with a cross-bar, C', levers P and *q*, headed bars *g'*, and the bucket-block having lugs on one side, as described.

3. The carriage having guides for the bucket-block and headed bars for supporting the latter, in combination with a lever, P *q q²*, and the bar or arm C' of lever C.

4. The combination, with the bucket and its catch-lever, of the levers L and L' and a tripping device, substantially as described.

311,672. BOILER-CLEANING APPARATUS. WILLIAM ORD, Brooklyn, Ohio. Filed July 22, 1884. (No model.)

Claim.—1. In a boiler-cleaner, a tilting scraper, pivoted as shown, and located inside of a steam-boiler, and operated by an inflexible rod extending outside of the boiler, substantially as set forth.

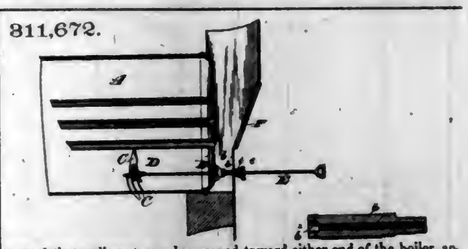
2. A reversible tilting scraper located inside of the steam-boiler and operated by an inflexible rod extending outside of the boiler, and so arranged that sediment may be scraped toward either end of the boiler, according to the position of the scraper, substantially as set forth.

3. The combination, with a scraper located inside a steam-boiler and operated by a rod extending outside of the boiler, of a hollow bolt for securing the hand-hold plate, and so arranged that the hole in the bolt furnishes a passage-way for the scraper-rod, substantially as set forth.

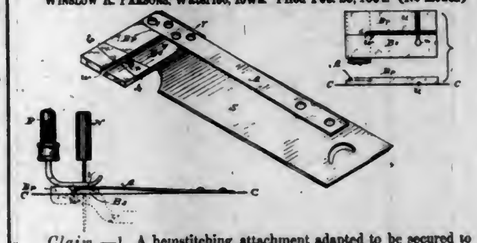
4. In a boiler-cleaner, the combination, with the hollow bolt *b*, provided with an enlarged tapering opening or seat, *b²*, of the part D, adapted to engage the seat *b²*, substantially as set forth.

5. In a boiler-cleaner, the combination, with the hollow bolt *b*, of the tube E' and the parts *e* and *e'*, substantially as set forth.

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311,678. HEMSTITCHING ATTACHMENT FOR SEWING-MACHINES. WINSLOW R. PARSONS, Waterloo, Iowa. Filed Feb. 25, 1884. (No model.)



Claim.—1. A hemstitching attachment adapted to be secured to the bed-plate of a sewing-machine, and having two arms—viz., a separating-bar and a presser—united at one end and separated at the other by a slot or space, the free end of the rear arm being thicker than the corresponding end of the front arm, and the latter having a needle-notch in its rear edge, as set forth.

2. In combination with the sewing mechanism and ordinary stitching presser-foot of an under-feed sewing-machine, a hemstitching block supported beneath and separate from said presser-foot, and constructed with a separating-bar and a presser of great vertical depth behind and parallel with said bar, free passage-ways for the upper cloth being formed between said bar and the presser-foot and between said bar and said presser, substantially as herein specified, for the purposes set forth.

3. In combination with the sewing mechanism of a sewing-machine, a hemstitching attachment or attachments comprising a separating-bar projecting in front of and a short distance behind the path of the needle, and provided with a rearwardly-opening stitch-escape slot, and a presser or presser-support behind said separating-bar, with a stitch-escape groove in its sole in line with said slot, substantially as herein specified, for the purposes set forth.

4. In combination with the sewing mechanism and ordinary presser-foot of an under-feed sewing-machine, a hemstitching attachment comprising a separating-bar provided with interchangeable top pieces of different thicknesses held in undercut stop-grooves in the line of feed, and a presser or presser-support provided correspondingly with interchangeable top pieces, as herein specified, for the purposes set forth.

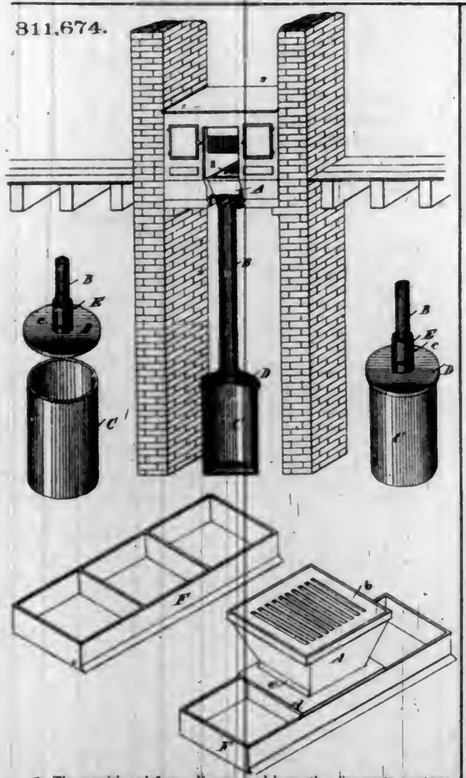
5. The improved hemstitching attachment for under-feed sewing-machines, composed of a shuttle-race slide, S, a spring-arm, A, the separating-bar B*x*, with its slot *x* and support end *r*, and the presser B*p* as a distinct part, said bar and presser being separately attached to said spring-arm, so as to be supported thereby in the manner set forth.

311,674. ASH-CHUTE. HENRY PASHLEY, Brooklyn, N.Y. Filed Apr. 11, 1884. (No model.)

Claim.—1. In an ash-chute having a body, A, and tube or pipe B, arranged and connected in the manner described, a cover, D, for the ash-receptacle, provided with an upwardly-extending sleeve, E, slotted to engage with a pin on the tube B, whereby the cover can be held above or lowered onto the ash-receptacle, substantially as herein shown and set forth.

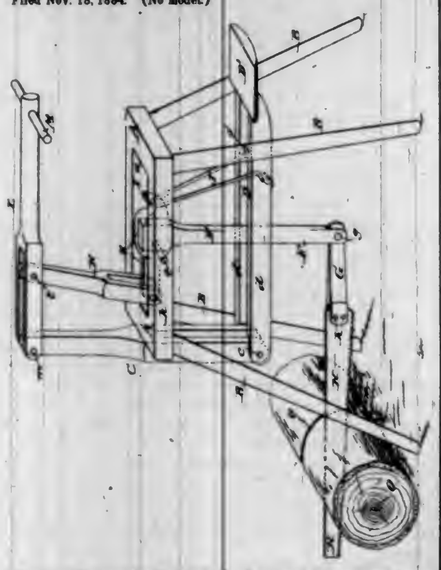
2. The partitioned frame F, adapted to be arranged beneath the fire-grate or stove, substantially as shown and described, to receive the upper end or body portion, A, of the chute, having the pipe B leading to a distant ash-can, as set forth.

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3. The partitioned frame F, arranged beneath a fire-grate or stove, combined with the collar or plate *d*, resting on the top of said frame F, the said collar or plate having an opening adapted to receive the upper or enlarged end, A, of the chute, substantially as shown.

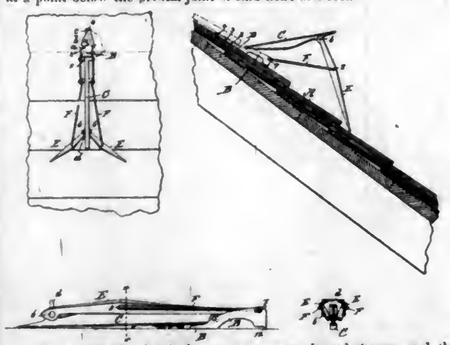
311,675. SAWING-MACHINE. JAMES W. POFF, Harrisburg, Ark. Filed Nov. 18, 1884. (No model.)



Claim.—The combination, with the fixed upright equidistantly secured to the supporting-frame, of the pendent lever having a fixed cross-head, with one arm connected by links to a treadle, one end of said treadle being connected to the lower end of said fixed upright, and the hand-lever, pivoted at one end to the upper end of the said upright, and connected intermediately of its pivoted and free ends by a link to the other arm of said cross-head, substantially as and for the purpose set forth.

311,676. ROOFING-BRACKET. EDWIN PRESCOTT, Arlington, Mass. Filed Aug. 18, 1884. (No model.)

Brief.—A rest provided with a lug having inclined faces is pivoted to a head provided with an open slot at one side. Legs pivoted to the inclined faces of the lug on the rest are connected to the head by links at a point below the pivotal joint of said head and rest.



Claim.—1. The head, the rest or support pivoted thereto, and the legs pivoted upon the rest or support, combined with a rod or link to connect the head and leg, to operate all substantially as described.

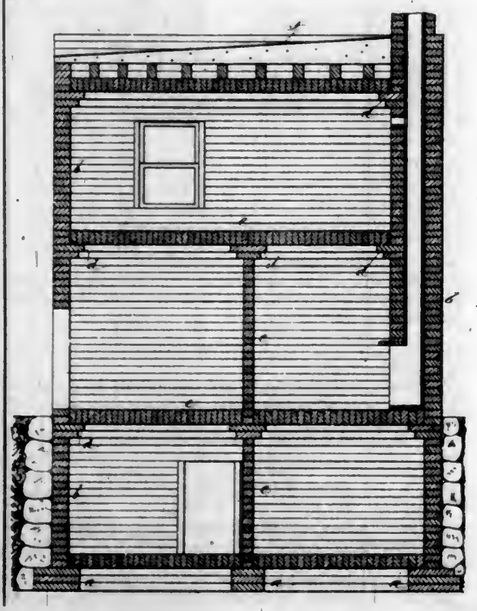
2. The rest provided with a lug having inclined faces, combined with the pivoted legs, to operate substantially as described.

3. In a roof-bracket, the head provided with an open slot at one side, and adapted to be swung laterally about a nail or pivot, to remove the head from the nail holding it to the roof, substantially as described.

4. The head, the rest pivoted thereon, provided with the lug having inclined sides, and the legs pivoted on the rest at each side the said lug, combined with the rods or links loosely connected with the said legs between their ends, the ends of the said rods connected with the legs being pivoted to the head at a point below the pivotal point of the rest with the head, substantially as described.

311,677. CONSTRUCTION OF BUILDINGS. ELISHA L. RANDALL, Durand, Wis. Filed May 12, 1884. (No model.)

Brief.—Foundations, walls, floors, and partitions are formed solid of planks in courses, coated with coal-tar and spiked together. The foundations extend outside. The floors are supported by offsets in the walls.

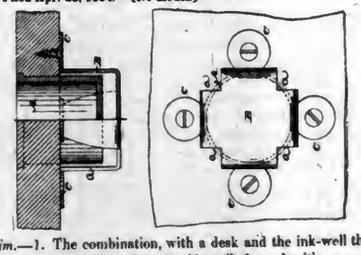


Claim.—1. A building constructed substantially as herein shown and described—that is, with walls, floors, and partitions formed solid of plank in courses, coated with coal-tar and spiked together, as specified.

2. In a building, the foundations *a*, of plank, supporting solid walls of the same construction, and extending outside, for the purpose as specified.

3. In a building having solid walls of plank in courses, the solid plank floors *e*, supported by offsets or flanges on the walls, substantially as described.

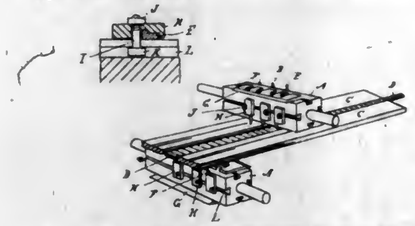
311,678. INK-WELL GUARD. ANNA M. RITTENHOUSE, Philadelphia, Pa. Filed Apr. 28, 1884. (No model.)



Claim.—1. The combination, with a desk and the ink-well thereof, of a guard for the lower portion of said well, formed with eyes which are rigidly fastened to the under side of the top of the desk, and openings in its sides, substantially as and for the purpose set forth.

2. An ink-well guard consisting of a body having a series of side pieces and supporting-eyes at the top, the latter being rigidly secured to the under side of a desk, said side pieces being turned up from the bottom of the body and having openings between them, substantially as and for the purpose set forth.

311,679. CUTTER-HEAD. JAS. A. ROBERTS, Detroit, Mich., assignor to the Roberts Duplex Planing Machine Tool Company, same place. Filed Sept. 17, 1884. (No model.)



Claim.—The combination of a cutter-head having undercut lateral grooves or mortises upon its face, the nut J, retaining-bolt I, and a knife having its acting face varying from a straight line and uniform in cross-section throughout its whole length, with a retaining-cap recessed upon its under side in conformity to the shape of the cutting-face of the knife, all constructed and arranged substantially as described, whereby an increased frictional surface is secured between the tool and cap, as set forth.

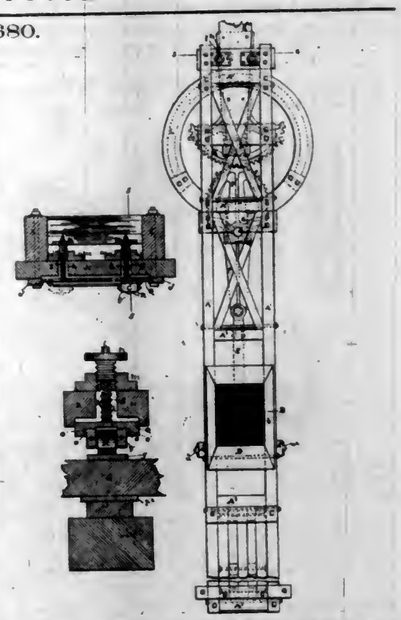
311,680. BALING-PRESS. ALBERT S. ROBINSON, Albany, N. Y., assignor of one-half to Abraham Schell, same place. Filed Mar. 24, 1884. (No model.)

Claim.—1. In a baling-press, an open-sided baling-chamber, C, which is formed by the combination of horizontal sills A A, horizontal plates A' A', and upper and lower horizontal linings, *a* and *a'*, so arranged that the said linings *a* and *a'* will be set apart from each other and from the facing horizontal surfaces of the sills and plates, respectively, as at dotted lines y^4 y^5, so that the surfaces a^2 a^2 of said sills and plates will form partial sides to the vertical sides of the baling-chamber, substantially as and for the purposes set forth.

2. In a baling-press, the combination, with the platen provided with hinged arm E, of the lever F F' and sweep-lever G G', the short arm of lever F F' being made with the form of a section of an ellipse, with a fulcrum placed substantially as above described, and the sweep-lever having its short arm made in the form of a section of a circle, with its fulcrum set eccentrically with the same, substantially as above described, and both of said short arms being provided with engaging-teeth on their face surfaces, all for operations substantially as and for the purposes set forth.

3. In a baling-press, the combination, with the press-frame and a sweep-lever which turns on a pivot made stationary in the frame for actuating a toggle-lever pivoted to the platen, of sweep-supporting ways arranged one above and one below said sweep-lever, substantially as and for the purposes set forth.

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4. In a baling-press, the combination and arrangement, with the press-frame and a reciprocating moving sweep-lever which operates a toggle-lever of the platen of the press, of the circular ways L L', substantially as and for the purpose set forth.

5. In a baling-press, the combination, with the frame-work of the same and a sweep-lever operating a platen by means of a toggle-lever mechanism, of a brake mechanism between said frame-work and the sweep-lever which will operate with the said lever to retard its movements only when the toggle-levers have commenced to assume diverging lines and cease such retarding when the reactive force of the compressed material in the pressing and baling chambers have ceased to effect the platen, for operations and purposes set forth.

6. In a baling-press, the combination, with piece H, of the frame and sweep-lever operating a toggle-lever mechanism which works the platen, of a brake-roller which is revolved under pressure only when it is running on and across the sweep-lever or a plate attached thereto, and while the toggle-levers are affected by the reactive force of the compressed material in the pressing and baling chambers.

7. In a baling-press, the combination, with piece H, and the sweep-lever operating a toggle-lever mechanism, of a traveling roller, R, adapted to be moved both directions to stops *j*, and an elastic pressing mechanism operating to force said roller down on the sweep-lever or a piece attached thereto only after the sweep-lever has passed a line coincident with the lines of the toggle-levers operating the platen, and until the compressed material has ceased to react against said toggle-levers, substantially as set forth.

8. The combination, with sweep-lever G, provided with plate *g*, and the plate Q, provided with ways *o*, working between shoulders or stops *j j*, and provided with arms *l l*, working in seats *m m*, of springs *s s*, flange-nuts *n n*, and traveling roller R, mounted in a housing working in ways made in the plate Q, substantially as and for the purposes set forth.

9. In a baling-press, the combination, with the press-frame and a sweep actuating a pressing mechanism, of a friction device which will be stopped to a short distance by the action of the sweep toward the side to which the sweep is being moved, and in this shifted position operate with the sweep until it has moved fully past its center of motion, substantially as and for the purposes set forth.

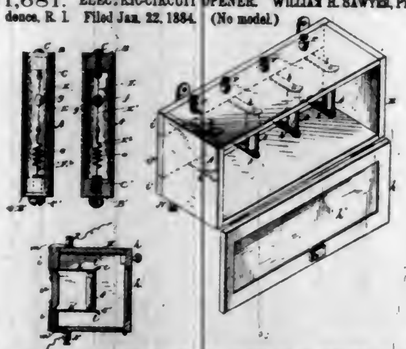
10. In a baling-press, the combination, with the platen, toggle-lever operating said platen, sweep-lever actuating said toggle-lever, of an elastic way supported from the press-frame, a traveling friction-roller working with said way, and a friction-plate secured to the sweep-lever, for operation substantially as set forth.

11. The combination, with sweep-lever provided with a variable short arm having teeth, and toggle-lever pivoted to the platen, with a lever thereof provided also with a variable short arm, also having teeth, of a friction-plate secured to the sweep-lever, and a friction-roller supported from the frame and operating with the friction-plate when the variable short arms of said levers are passing their centers, substantially as and for the purpose set forth.

12. In a baling-press, the combination, with retaining-dogs pro-

vided with springs, of supporting-stem a^2, plate a^3, provided with perforations or bearings for freely receiving said supporting-stem pin, and a key, a', or its equivalent, substantially as and for the purpose set forth.

311,681. ELECTRIC-CIRCUIT OPENER. WILLIAM H. SAWYER, Providence, R. I. Filed Jan. 22, 1884. (No model.)



Claim.—1. In an electric-circuit opener to be operated by heat generated by an electric current traversing the circuit, the combination, with the lapping fine wires and a spring tending to draw them apart, of the mass of non-metallic adhesive substance readily fusible by heat and embedding the lap-joint of the wires, substantially as described.

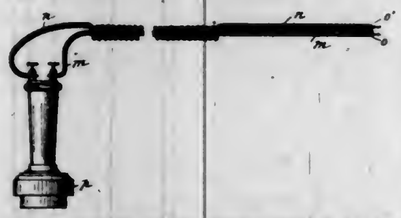
2. In a circuit-opener, the combination, with the lapping fine wires of high resistance, one having a spring connected therewith, and the mass of substance easily softened or melted by heat inclosing and securing the lap-joint of said wires, of the transparent non-conducting tube inclosing said wires, and metallic connecting attachments for said wires arranged in the opposite ends of said tube, substantially as described.

3. The combination of the fine wire E, the lapping fine wire E' and attached wire E^2, having a portion thereof bent or coiled to form a spring, *e*, the glass tube inclosing said wires, and the metallic supports for said wires arranged in the ends of said tube, substantially as described.

4. The combination, with the circuit-opener composed of the fine wires under tension and held in lapping contact by a mass of substance embedding their lap-joints and readily fusible or softened by heat, of the metallic spring-arms arranged to receive and support said circuit-opener between them and come in electrical connection with said fine wires, substantially as described.

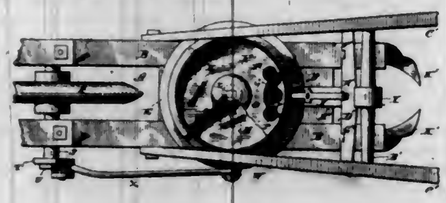
5. The combination, with one or more circuit-openers of the kind described, of an inclosing-box provided with metallic spring-arms arranged to clasp said circuit opener or openers, and adapted to be connected in an electric circuit, substantially as described.

311,682. ELECTRIC CIRCUIT. WM. A. SHAW, Brooklyn, assignor to Charles A. Cheever, trustee, New York, N. Y. Filed Dec. 2, 1881. (No model.)

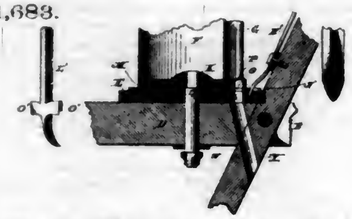


Claim.—A compound electrical conductor composed of a straight inside insulated wire and an outside insulated wire wound partially helically thereon, and arranged partially straight and parallel thereto, substantially as described.

311,683. CORN-PLANTER. JOHN P. SIMMONS, Bell's Depot, Tenn. Filed July 2, 1884. (No model.)



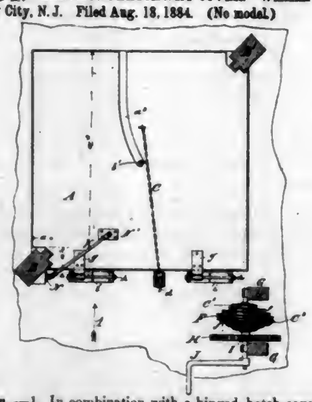
311,683.



Claim.—1. A colter, L', provided with wings O', in combination with a seed-planting device, substantially as described.

2. The combination of the frame, the hopper, the furrow-opener, shaft L, having the seed-plate rigidly secured thereto, and cut-off plate located beneath the seed-plate and loosely secured on the shaft, a seed-duct, wheel R, having a cranked shaft, connecting-rod X and arm W, for actuating the seed-plate, and pivoted lever H', for actuating the cut-off plate, and bar D', having notches E', F', and G', for retaining the lever H', substantially as described.

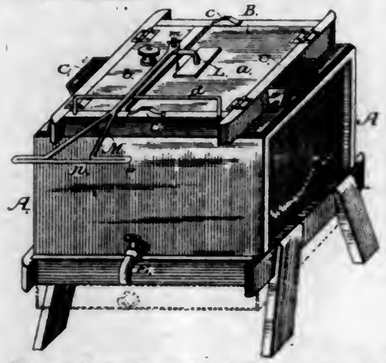
311,684. ELEVATOR-HATCHWAY COVER. WILLIAM H. SKERRITT, Jersey City, N. J. Filed Aug. 18, 1884. (No model.)



Claim.—1. In combination with a hinged hatch-cover, A, and a stationary part of the hatchway, the lugs M M', swiveled, respectively, to the said stationary part and to the said cover, the jaws L L', hinged to the said lugs M M', respectively, and the rod K, swiveled with its ends to the said jaws, the pintles of the said hatch-cover hinges being sufficiently longer than the hinge-straps to allow of the lateral movement desired, substantially as and for the purpose set forth.

2. The combination of one or more or a series of hatchway-covers, A, a winding-drum, F, consisting of two fusees, *f f'*, and two ropes or chains, C C^2, suspended on suitable pulleys, D D', the rope C being attached to the said covers, and with one end to one of the said fusees, and the rope C^2 being attached with one end to the other fusee, and having a counter-weight, E, attached to its free pendent end, substantially as and for the purpose set forth.

311,685. CHURN. THOMAS M. SMILEY, Farmington, Mo. Filed Apr. 12, 1884. (No model.)



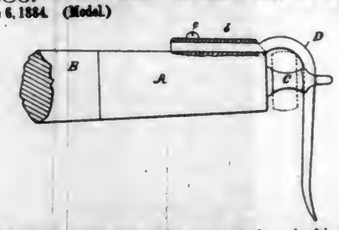
Claim.—1. In a rotary churn, and in combination with the hot-water chambers with metal plates extending from top to bottom, and outlets, the dasher herein described, consisting of the cross-bars *f*, slotted, as shown, to receive the upper and lower ends of the parallel blades *g*, a projecting pin, *k*, formed on a step, *l*, secured to the bottom of the churn, and the means herein described and shown for imparting a rotary motion to the said dasher, as and for the purpose herein set forth.

2. In combination with a rotary churn having a dasher, constructed as shown and described, a short vertical shaft, L, having a squared portion to engage the perforation *h'* in the upper cross-bar of the dasher, and provided with the bent portions, as shown, and an operating-lever, M, formed of a single piece of wire with suitable handles, and provided with means, as described, for attaching the said lever to the crank-arm *m*, all constructed to operate substantially as herein set forth

3. In a rotary churn provided with the raised supporting-bar *d*, the operating-lever M, formed of one piece of metal, and having an eye adapted to engage the bent end of a single vertical shaft, having a squared portion on its lower end adapted to enter a perforation formed in the upper cross-bar of a dasher constructed as shown, all constructed to operate substantially as herein set forth.

4. In a rotary churn, the frame A, buttons *c*, cover B, formed by the lids *a* and *b*, hot-water chambers C, the dasher F, provided with slotted cross-bars *f*, said bars perforated, as shown at *h h'*, parallel blades *g*, step *l*, pin *k*, vertical shaft L, provided with bent portions, as shown, lever M, formed with a handle, *n*, and a raised bar, *d*, secured to the top of the churn, and upon which rests the lever, all in combination and arranged to operate as and for the purpose set forth.

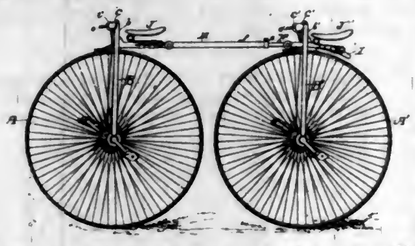
311,686. TRACE-HOLDER. JOEL STROUD, College Hill, Ohio. Filed June 6, 1884. (Model.)



Claim.—1. In trace-holders, the socket A, formed with keeper *b* for receiving the end of the leather key, substantially as described.

2. In trace-holders, the combination of socket A, the keeper *b*, key D, and the pin C, having an eye for the key, substantially as described.

311,687. BICYCLE. FREMONT SWAIN, Indianapolis, Ind. Filed May 12, 1884. (No model.)



Claim.—1. A backbone for tandem bicycles that can be readily lengthened or shortened to connect driving-wheels of any diameter, substantially as described and specified.

2. A backbone for tandem bicycles having a telescopic joint for lengthening the backbone, and a suitable means for locking the joint at any desired point, as described and set forth.

3. In a backbone for tandem bicycles, a telescopic joint locked by means of a clamp at any desired point, as described and set forth.

4. In a backbone for tandem bicycles, a joint for adjusting the angle of the seats, as described and specified.

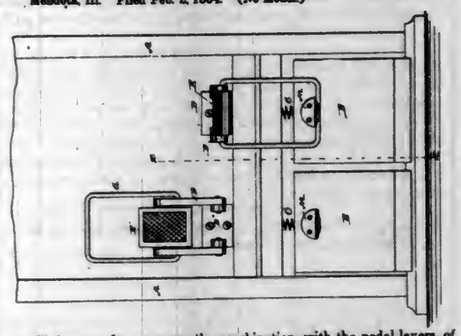
5. In a backbone for tandem bicycles, a joint for adjusting the seats, formed of two heads, one attached to and continuous with each adjacent section of the backbone, the contacting faces of said heads having notches which interlock and hold the heads from turning upon each other when brought together by a suitable bolt, substantially as described.

6. In a backbone for tandem bicycles, a separate joint for adjusting each of the two seats, as described.

7. In a backbone for transforming bicycles having heads closed in front into a tandem machine, the curve R in the backbone opposite the rear spindle to pass around the outside of the head, substantially as described and specified.

8. In a backbone for tandem bicycles, the telescopic joint for varying the length of the backbone, and the joints M and M' for adjusting the saddles, substantially as described and specified.

311,688. PEDAL ATTACHMENT FOR ORGANS. JOHN SWANSON, Mendota, Ill. Filed Feb. 2, 1884. (No model.)



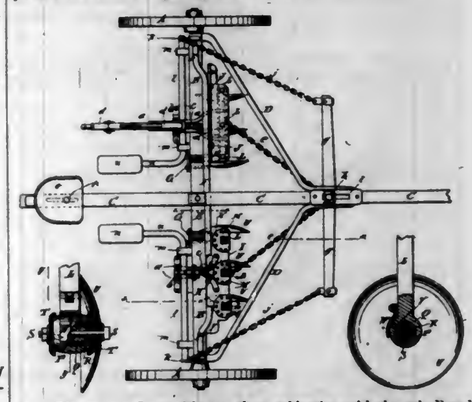
Claim.—1. In an organ, the combination, with the pedal-levers, of the U-shaped frames D, pivoted to the case-front over the pedal-levers, and connecting-rods pivoted in the outer ends of the frames D, and constructed to rest on the pedal-levers, substantially as set forth.

2. In an organ, the combination of the frames D, pivoted to the organ-front over the pedals, pivoted foot-plates E in said frames, and pivoted connecting-rods G, with the pedals B, having the clips M thereon, substantially as set forth.

3. As an improved article of manufacture, an auxiliary organ-pedal consisting of the bracket D', frame D, pivoted thereto, foot-plate E, pivoted in the outer end of frame D, and the connecting-bars G, pivoted to the said frame, substantially as shown and described.

311,689. CORN-CULTIVATOR. ANDREW J. SWEENEY, Pana, Ill. Filed June 17, 1884. (No model.)

Brief.—Each series of disks raised and lowered by independent lever, and each disk independently adjustable to change its inclination to line of draft. Disk, washers, and spindle secured rigidly to axial bolt, so as to rotate therewith. Pivoted double-tree flexibly connected to independent foot-levers, for guiding the machine.



Claim.—1. In a cultivator, the combination, with the axle B and the cross-bar F, of the slotted plates I K, and their fastening-bolts H J, the standards L, and the concaved rotary knives U, substantially as herein shown and described, whereby the standards and knives upon each side will be securely held, and can be readily adjusted nearer to or farther from the center of the machine, as set forth.

2. In a cultivator, the vertical standard L, having a hub, P, lining O within the hub, and the spindle R, adapted to revolve within the lining, in combination with a bolt, S, rigidly connected to the spindle R, the washers T, rigidly connected to the bolt S on opposite sides of the hub, and knife-disk U, rigidly connected to one end of the bolt outside of one of the washers, substantially as set forth.

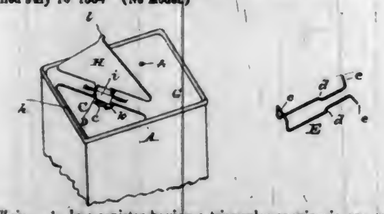
3. In a cultivator, the combination, with the vertical standards L and the plates I, provided with openings through which said standards pass, of the horizontal clamping-bars X on opposite sides of standards, the bolts S, passing through said bars and securing them firmly to the standards, and the pivoted levers *a*, connected at their forward ends to the said bars X, for simultaneously raising and lowering the standards, substantially as herein shown and described.

4. In a cultivator, the combination, with the axle B and the double-tree *g*, of the bent foot-levers consisting of the horizontal rocking bars *l*, foot-levers *n* at the inner ends thereof, and the vertical standards *k* at the

outer ends, and the chains *j*, connected at their ends to the vertical standards *k* and the ends of the double-tree, whereby the draft may be alternately changed from the center to the ends of the double-tree for guiding the machine, substantially as set forth.

5. In a cultivator, the combination, with the axle B and the cross-bar F, of the laterally-adjustable plates I K, secured, respectively, to the axle and cross-bar, vertical knife-standards L, passing through openings in said plates and secured together by bars, notched rack-bars *b*, secured to the plates I, pawl-levers *a*, pivoted to said rack-bars with their short arms extending to the standards L, for operating them, whereby when said knife-standards are adjusted horizontally by means of plates I K the relative position of levers *a* thereto will not be changed, substantially as set forth.

311,690. CANISTER. CLARENCE M. STRODS, San Francisco, Cal. Filed July 16, 1884. (No model.)

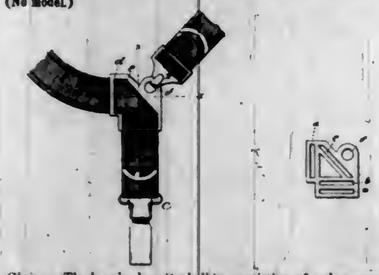


Claim.—1. In a canister having a triangular opening in one corner of the head thereof, the removable spring-lid H, made triangular in plan, and having a prong or tang, *i*, and provided with journal-bearings or pintles *j*, and a rib, *k*, substantially as shown, for the purpose set forth.

2. In a canister having a spring-lid to close an opening in the head thereof, the spring E, having upward-curved lip *c*, shoulders *d*, and outward-flared ends *e*, in combination with a clamp, F, and rivet *f*, for securing the spring to the head of the canister, substantially as shown and described.

3. In a canister, the head G of which is provided with a triangular opening, C, having an offset, D, pintle-receiving ridges *b*, and spring E, secured by a clamp, and having a lip, *c*, the lid H, having a tang, *i*, with its outer end bent at an angle to form a rib, *k*, substantially as shown, for the purpose set forth and specified.

311,691. GARTER-SLIDE. DON S. THOMPSON, West Haven, Conn., assignor to West Haven Buckle Company, same place. Filed Dec. 15, 1884. (No model.)



Claim.—The herein-described slide, consisting of a plate constructed with two horizontal parallel slots, *a b*, the slot *d* at right angles to said horizontal slots, the diagonal slot *e*, and with the eye *f*, substantially as described.

311,692. INSERTIBLE SAW-TOOTH. JOHN C. TROLLINGER, Astoria, Oregon. Filed June 6, 1884. (No model.)

Claim.—1. In a saw of that class having a rotary clamping-bit seated in a recess at the bottom of the throat in front of each tooth, the removable tooth back or shank, having a case-hardened portion at the back of the inserted portion of the tooth, substantially as and for the purpose set forth.

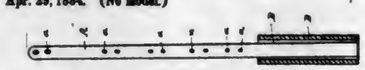
2. In a saw, the combination, with the blade, of the rotary clamping-bit seated in a curved recess at the bottom of the throat in front of each tooth, and the removable tooth shank or back curved at its front side to conform to the curvature of said recess or seat, together with the tooth, with its lower portion interposed or held between said shank and bit, substantially as and for the purpose set forth.

3. In a saw, the combination, with the blade or plate, of the rotary clamping-bit seated in a curved recess at the bottom of the throat in front of each tooth, and the removable shank or back curved to conform to the curvature of the aforesaid recess, and having a case-hardened portion along its upper curved surface, together with the tooth, with its lower portion held or interposed between the case-hardened portion of the removable shank or back and said bit, substantially as and for the purpose set forth.

311,692.

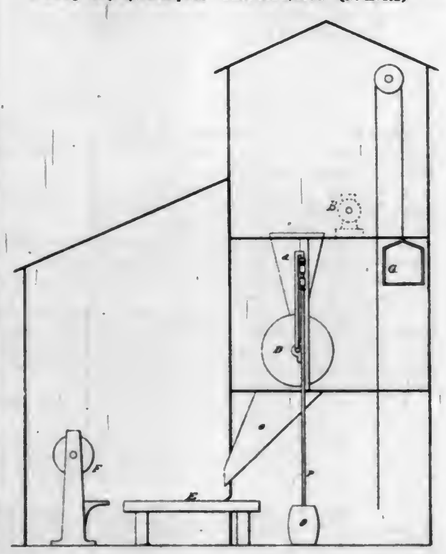


311,693. FENCE-POST. PHILIP VANBRIGGLE, Rensselville, Ind. Filed Apr. 29, 1884. (No model.)

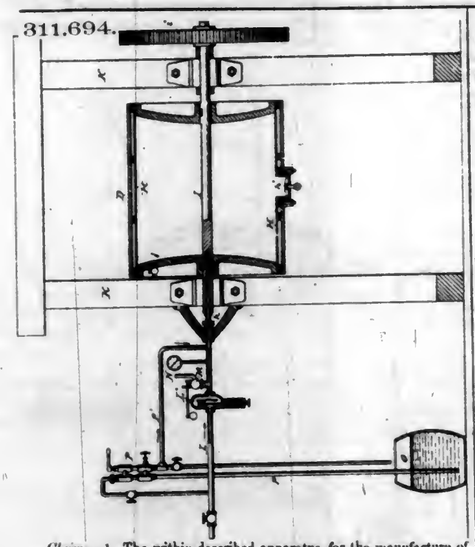


Claim.—A fence-post, A, of iron, provided with elongated openings *a*, adapted to receive staples D, said post being secured in a hollow burnt-clay base, B, by means of cement, in combination with boards C C', having openings *d*, staples D, and S-shaped couplings E, as described, and for the purposes set forth.

311,694. APPARATUS FOR THE MANUFACTURE OF ARTIFICIAL STONE. C. IRVINE WALKER, Charleston, S. C., assignor to the Stoney Landing Company, same place. Filed Oct. 2, 1884. (No model.)



311,694.



Claim.—1. The within-described apparatus for the manufacture of artificial stone, said apparatus consisting of an elevator, a hopper, a mixing-machine communicating with said hopper, a chute into which the mixing-machine discharges, a platform onto which the chute discharges, and a molding-machine adjacent to said platform, as set forth.

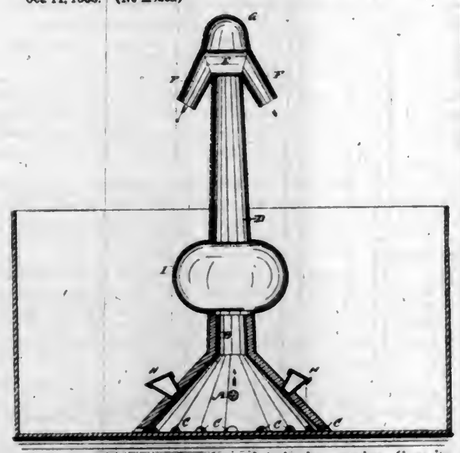
2. The within-described apparatus for the manufacture of artificial stone, said apparatus consisting of an elevator, a grinding-mill adjacent to the top of the elevator, a mixing-machine below the grinding-mill, a receiving-platform below the mixing-machine, and a molding-machine adjacent to the platform, as set forth.

3. The herein-described mixer, consisting of a revolving cylinder with a non-conducting covering, and steam and water supply pipes.

4. The combination of the revolving mixing-cylinder with steam-supply pipe, water-reservoir and injector, or other device for supplying an ascertained quantity of water to the material in the cylinder.

5. The combination of the revolving mixing-cylinder with a water and a steam supply pipe having a pressure-valve, safety-valve, and gage, substantially as set forth.

311,695. WASH-BOILER. MARY R. WALPOLE, Mayfield, Ky. Filed Oct. 11, 1883. (No model.)



Claim.—1. The cone-shaped vessel A, having openings C on its lower edge, provided with perforated receptacles in its sides, in combination with the pipe D, provided with an enlargement forming a drum, I, near the cone-shaped vessel, and at its upper end with cross-piece E, downwardly-projecting pipes F, and cap G, substantially as set forth.

2. The cone-shaped vessel A, provided with openings C at its lower edge, and with a neck, B, as shown, in combination with the pipe D, fitting the neck B, and provided at its lower end with an enlargement forming a drum, I, and at its upper end with the cross-piece E and discharge-pipes F, substantially as set forth.

3. The cone-shaped vessel A, having openings at its lower edge, in combination with the perforated tubes H, having perforated caps, whereby a free passage is allowed the water through said tubes, and the pipe D, provided with discharge-pipes at its upper end, substantially as set forth.

311,696. PILE-BOX. JOHN A. WALSH, Wareham, assignor to the Tremont Nail Company, West Wareham, Mass. Filed June 28, 1884. (No model.)

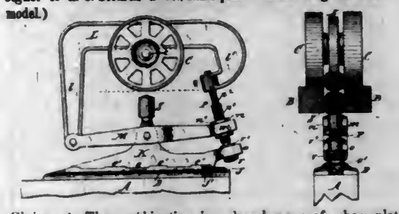


Claim.—1. A device for containing iron or steel scrap, the same consisting of a bottom divided into two or more parts, A and B, the U-shaped side pieces, C and D, and a cover, L, substantially as and for the purpose herein described.

2. The combination, with the bottom and cover, each consisting of two or more independent pieces, A and B, of the U-shaped side pieces, C and D, constructed and arranged to operate substantially as described.

3. In a box for containing scrap iron or steel, and in combination with the top and bottom, as described, the welding pieces F F, by means of which the side pieces, C and D, are joined together, substantially as herein set forth.

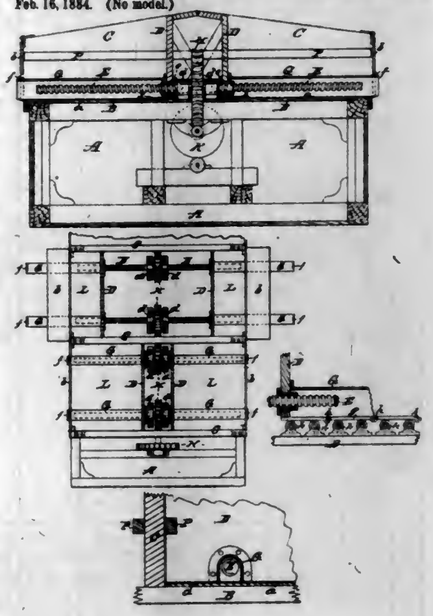
311,697. DOOR-HANGER. WARREN E. WARNER, Syracuse, N. Y., assignor to E. C. Stearns & Co., same place. Filed Aug. 13, 1884. (No model.)



Claim.—1. The combination, in a door-hanger, of a base-plate, D, provided with projecting lugs *c'*, having overlapping inner faces, a stop, *h*, a longitudinal groove, *i*, provided with a screw-thread, *j*, and a screw, J, substantially as set forth.

2. In a door-hanger, the combination, with the base-plate D, provided with lugs *c'*, a central longitudinal groove, *f*, stop *h*, and recess *i*, provided with a screw-thread, *j*, of a plate, K, provided with ribs *k*, and a screw, J, engaging the screw-thread of the groove *i* and bearing against the plate K, substantially as set forth.

311,698. DUMPING-SCOW. ALFRED WEBER, Jersey City, N. J. Filed Feb. 16, 1884. (No model.)



Claim.—1. In a transport scow or float, the compartments L upon the deck thereof, formed by the transverse partition C and the hinged doors *b*, substantially as and for the purpose specified.

2. In a transport scow or float with compartments L, the movable partitions or backs D, arranged across the center of the compartments L, moving freely therein, and connected by screw or other driving power for forcing same to the outer side of float and discharging the load, substantially as described.

3. In a transport scow or float with compartments L and movable partitions D, the screw-guard G, for protecting the screw, and provided with projections or lugs *f*, for securing or locking the swinging doors *b*, substantially as described.

4. In a transport scow or float with compartments L and movable partitions D, the guide P, secured to side of partition C, and the scraper S, hinged to the bottom of said partition, substantially as and for the purpose specified.

5. In a transport scow or float with compartments L, the hinged sectional flooring *g*, with partitions D, attached thereto, and the whole moving outwardly on rollers *k*, secured to the deck, substantially as and for the purpose specified.

311,699. APPARATUS FOR RECOVERING VOLATILIZED METALS. ARTHUR F. WENDT, New York, N. Y. Filed Aug. 14, 1884. (No model.)



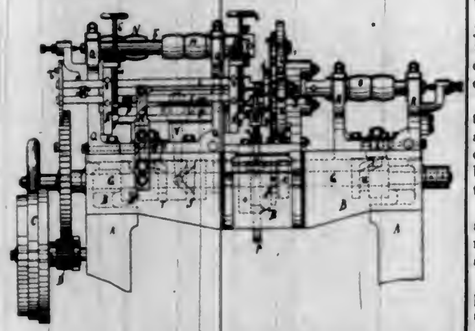
Claim.—1. An apparatus for recovering volatilized metals, consisting of an air-tight exterior casing, an interior condensing wire screen or wire screens, an inlet-pipe communicating with the screen or screens, and an outlet-pipe communicating with the casing, substantially as set forth.

2. An apparatus for recovering volatilized metals from furnace-gases, which consists of a series of vertical stand-pipes, interior cylindrical wire screens, an inlet-pipe and an outlet-pipe, communicating, respectively, with the stand-pipes, substantially as set forth.

3. An apparatus for recovering volatilized metals from furnace-gases, consisting of a series of vertical stand-pipes, cylindrical wire screens at the interior of said stand-pipes, an inlet-pipe communicating with the bottom ends of said stand-pipes and having cleaning-doors vertically below the same, and an outlet-pipe connecting the top ends of the stand-pipes, substantially as set forth.

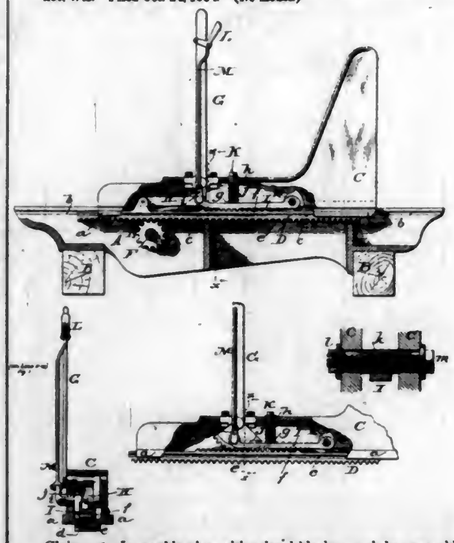
4. An apparatus for recovering volatilized metals from furnace-gases, consisting of a series of vertical stand-pipes having interior cylindrical wire screens, an inlet-pipe communicating with the lower ends of said stand-pipes, and having pivoted cleaning-doors vertically in line with said stand-pipes, and an outlet-pipe communicating with the top of the stand-pipes, and provided with hinged explosion-doors vertically above the screens, substantially as set forth.

311,700. MACHINE FOR SHAPING BUTTONS. EMIL WEYERBUSCH, Elberfeld, Germany. Filed May 6, 1884. (No model.) Patented in Austria-Hungary Nov. 10, 1882, No. 32,753 and No. 45,293, and in Germany Oct. 15, 1883, No. U 200.



Claim.—The combination, with the head-stock Q, fitted to slide upon the bed B of a button-making machine, and the button-holding tongs *e*, fitted to slide longitudinally in the head-stock of the plate T''', located between the tongs and fixed to the machine relative to the motion of the tongs, substantially as described, whereby a button will be knocked out of the tongs in their retreating motion.

311,701. SAW-MILL HEAD-BLOCK. THEODORE S. WILKIN, Milwaukee, Wis. Filed Oct. 24, 1884. (No model.)



Claim.—1. In combination with a head-block, a rack-bar movable in relation to said head-block, a knee adjustable independently of the rack-bar, a latch for locking the knee and rack-bar together, said latch being pivoted to one of said parts and adapted to engage with the other, and a shifting-lever fulcrumed in the knee and connected with the rack-bar, substantially as shown and described.

2. The combination, substantially as herein described and shown, of a head-block, a setting rack-bar provided with teeth on opposite sides, a setting-pinion meshing with one set of said teeth, a knee adjustable independently of the rack-bar, and a toothed latch-bar pivoted to the knee, adapted to engage with the second set of teeth thereof and to lock the knee to the rack and prevent independent movement of the knee or rack in either direction.

3. The combination of a head-block, a setting rack-bar provided with teeth on its upper and lower sides, a setting-pinion meshing with the teeth of one side, a knee adjustable independently of the rack-bar, a latch-bar pivoted to the knee and adapted to engage with the teeth of the other side of the rack-bar, and a shifting-lever fulcrumed in the knee and connected with the rack-bar, substantially as described and shown.

4. The combination of a head-block, a setting rack-bar provided with teeth on opposite faces, a setting-pinion meshing with the teeth of one face, a knee adjustable independently of the rack-bar, a latch-bar pivoted to the knee and adapted to engage with the second set of teeth of the rack, a shifting-lever fulcrumed in the knee and connected with the rack-bar, substantially as described and shown, and a hand-piece pivoted to the shifting-lever, connected with and serving to lift the latch-bar out of engagement with the rack.

5. The combination of a head-block, a setting rack-bar, a knee adjustable independently of the rack-bar, a latch-bar adapted to lock the rack-bar and knee together and prevent independent movement in any direction, and a spring bearing upon said latch and serving to hold it in engagement with the rack, substantially as set forth.

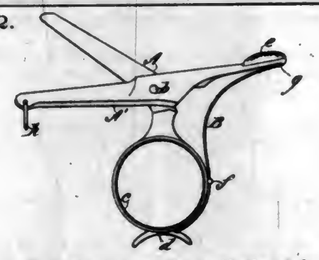
6. The combination of a head-block, a rack-bar movable in relation thereto, a knee adjustable independently of the rack-bar, a latch-bar adapted to lock the knee and rack-bar together, said latch-bar being pivoted to one of said parts and adapted to engage with the other, a spring bearing upon said latch-bar, and an adjustable screw-plug bearing upon the spring, substantially as described and shown.

7. The combination of a head-block, a rack-bar, and a knee adjustable independently of the rack-bar, a latch adapted to lock the knee and rack-bar together, and an adjustable pivot for the latch, substantially as and for the purpose set forth.

8. The combination of a head-block, A, a sliding rack, D, an independently-adjustable knee, C, a latch-bar, I, adapted to lock the knee and rack-bar together, said latch-bar being attached to one of said parts and adapted to engage with the other, and an eccentric pivot, *k*, for said latch-bar, provided with a clamping or binding device, substantially as shown and described.

311,702. SCISSORS. JOSEPHUS T. WILLS, Cuba Station, Ala. Filed July 9, 1884. (Model.)

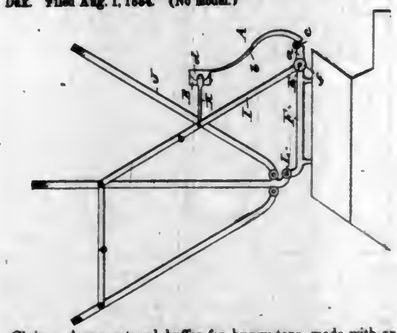
311,702.



Claim.—1. In a pair of scissors, the combination of the pivoted blades A A', the finger-ring *c*, with its attached finger-rest *d*, on the handle-end portion of the blade A, the knob or thumb-piece *e* on the handle-end portion of the blade A', and the flat spring B, essentially as shown and described.

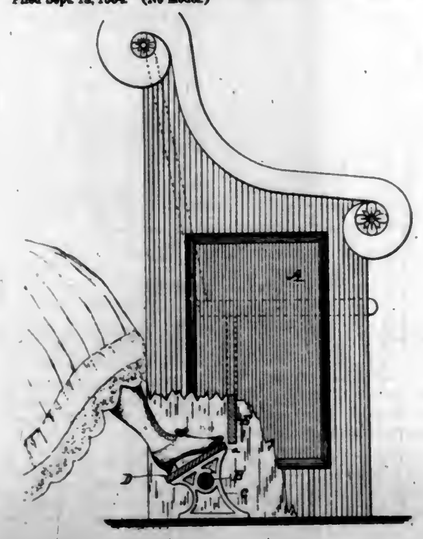
2. In a pair of scissors in which a spring is combined with the pivoted blades to throw the blades open, the combination, with said parts, of a pendent fastening attached to the forward end of one of said blades for engagement with or over the forward end of the other of said blades, whereby the blades may be kept closed against the tension of the opening-spring, substantially as specified.

311,703. SUPPORT FOR BUGGY-TOPS. AUGUST WITTEL, Deadwood, Dak. Filed Aug. 1, 1884. (No model.)



Claim.—A support and buffer for buggy-tops, made with an arm, A, consisting of two sections, *a b*, hinged to each other by a stop-joint at *c*, and carrying an elastic block or cushion, B, at its outer end, and said arm-section *a* being fitted on the shifting-rail stud E, so as to be held against turning thereon, in combination with the top prop-bar, I, pivoted on the stud E, and connected to the head of the arm-section *b* by the link K, substantially as shown and described.

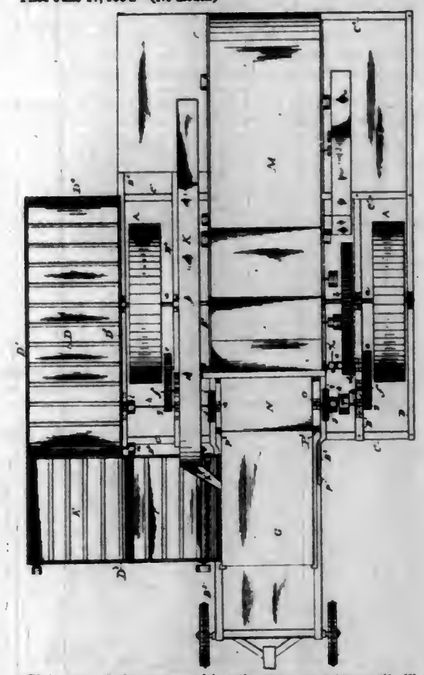
311,704. STEAM-HEATING DEVICE. EDWIN A. WOOD, Utica, N. Y. Filed Sept. 13, 1884. (No model.)



Claim.—1. In a steam-heating device for churches, halls, cars, &c., a horizontal pipe or pipes arranged underneath the pew or seat, in combination with an inclined board or plate located above the pipe or pipes, as described, whereby the heated air is deflected forward under the seat, as set forth.

2. In a device for heating churches, halls, cars, &c., a pipe or series of pipes arranged underneath the seats, supported by suitable brackets, in combination with a deflecting-board, as set forth.

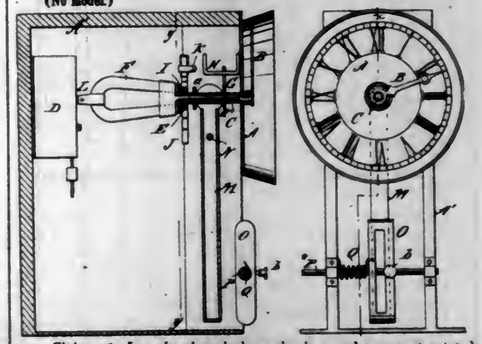
311,705. TRAVELING THRASHER. DAVID YOUNG, Stockton, Cal. Filed June 17, 1884. (No model.)



Claim.—1. A frame comprising the transverse beams C, C', and C², longitudinal beams B, B', B², B³, B⁴, and B⁵, in combination with suitable supporting and driving wheels, A A, upon which the frame is mounted, and connecting-gearing comprising the axles *a*, main gear-wheels *b*, pinion *c*, shafts *d*, gear-wheels *e*, gear-wheels *f* and shafts, pinions *g*, shafts *h*, gear-wheels *i*, gear-wheels *j*, cylinder-shaft *k*, the pulley *l* on shaft *h*, and the pulley *m* on the shaft actuating conveyer D, substantially as set forth.

2. The combination of the angular trough D' D² D³ D⁴ D⁵, the conveyer D, the conveyers E F, placed at an angle thereto, the feeding-box G, feeding-conveyer H, trunk M, and trough K, substantially as described.

311,706. AUTOMATIC TIME-SIGNAL FOR RAILWAYS, &c. FRANCIS H. YOUNG and FRANK I. DAVIS, Port Morris, N. J. Filed Mar. 12, 1884. (No model.)



Claim.—1. In a signal, a clock mechanism, and a magnet rotated thereby, in combination with a pointer-carrying spindle rotated by the magnet, and means for returning the pointer to a fixed point when dis-

connected from the magnet, and mechanism, substantially as described, for breaking and automatically making connection between the magnet and spindle, as set forth.

2. The signal herein shown and described, consisting of a longitudinally-movable spindle, C, and suitable bearings therefor, pointer B, indicator A, clock mechanism D, intermediate magnet-connection, F, spring J, for returning the pointer to a fixed point, pivoted pendent bar M, rod P P', spring Q, and cross-head O, for causing the bar M to move the spindle C along its bearings, substantially as set forth.

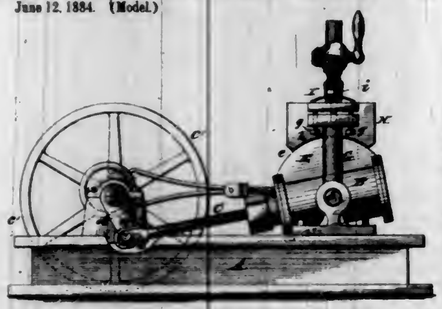
3. The signal herein described, consisting of the hollow spindle C, provided with collars *a a*, and pointer B, indicator A, clock mechanism D, and magnet F, secured thereto, arm E, secured to the magnet and projecting into spindle C, spring J, pivoted pendent bar M, the upper end of which rests between collars *a a*, spring-operated rod P P', and cross-head O, for operating the bar M, substantially as set forth

311,707. PACKING FOR STEAM-JOINTS. ALBERT A. ADAMS and WILLIAM LEE, McBride's, Mich. Filed Apr. 29, 1884. (No model.)



Claim.—As an improved article of manufacture, a packing consisting of sheets of rubber, having alternating wires interposed loosely between them, substantially as described.

311,708. STEAM-ENGINE. DANIEL W. ARGO, Sarton, Pa. Filed June 12, 1884. (Model.)



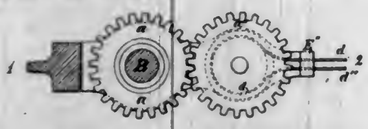
Claim.—1. In an oscillating steam-engine, the combination, with the cylinder B, segment E, uprights G G, and steam-chest H, of the springs I I and screws *i i*, substantially as specified.

2. An oscillating steam-engine having its cylinder provided on its upper side with a fixed segment, in combination with a steam-chest having an engaging concave face, and provided with springs adapted to keep the said cylinder pressed down upon the said segment, substantially as specified.

3. The combination, with the frame supporting the steam-cylinder having the vertical standards, of the steam-cylinder having the segmental portion, the steam-chest, springs for pressing the steam-chest in the direction of the cylinder, and means for connecting the chest with the said standards, substantially as specified.

4. The combination, with the steam-cylinder having the segmental portion and means for supporting the same, of a steam-chest provided with spring-engaging devices, and means of adjusting the tension of the spring, whereby the said steam-chest may be kept in engagement with the segmental portion of the cylinder, substantially as specified.

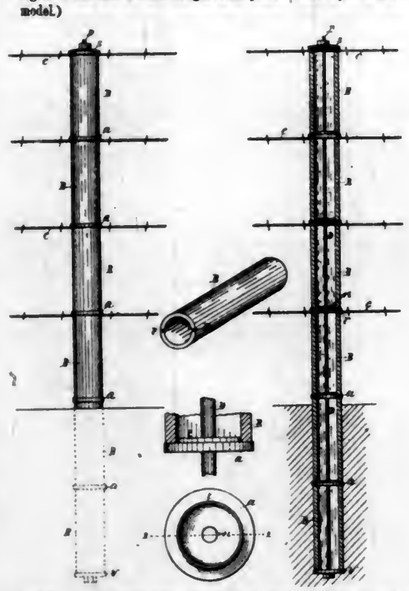
311,709. DRILLING-MACHINE. EUCLID ANDERSON, Peekskill, N. Y. Filed Jan. 5, 1884. (No model.)



Claim.—1. The combination, in a drilling-machine, of the traversing threaded spindle B, driver or pinion *b*, differential feed mechanism *a a' a''*, shifter *d*, sleeve C, and adjustable center *h*, substantially as described.

2. The combination, with the differential feed mechanism of a drilling machine, as above described, of the combined shifter and friction-brake *d*, substantially as shown.

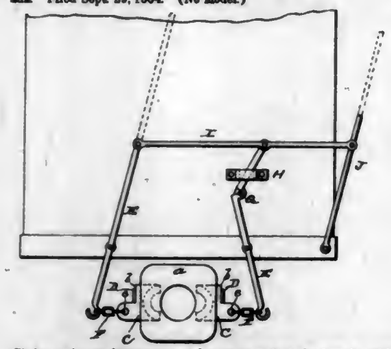
311,710. FENCE-POST. EDWARD R. ANNABLE, Paw Paw, Mich., assignor of one-half to John Hodges, same place. Filed Apr. 29, 1884. (No model.)



Claim.—1. A fence-post consisting of sections of hollow tile, plates engaging the ends of said sections, having central perforations, and a rod passing through the perforations and binding the parts together, by which means the rod is kept in the vertical center of the hollow of each section for the object stated, substantially as set forth.

2. A fence-post consisting of sections of hollow tile having gains in the end to receive the fence-wires, ribbed plates engaging the ends of the sections and having central perforations, and a rod passing through the perforations and binding the parts together, whereby the wires are indented by the ribs of the plates, substantially as set forth.

311,711. CAR-COUPLING. JACOB W. BAKER, Uxbridge, Ontario, Canada. Filed Sept. 29, 1884. (No model.)

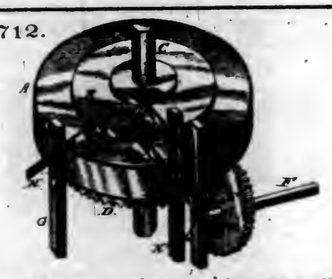


Claim.—As an improvement in car-coupling devices in which the lateral walls of the draw-head are transversely slotted and provided with spring-actuated slide clutches or bolts, the combination therewith of the pivoted vertical levers E, one of which is provided with a rule-joint, as shown, the bar I, connecting the said levers at their upper ends, the hand-lever J, and chains connecting the said levers E at their lower ends to the slide-clutches, substantially as specified.

311,712. MACHINE FOR SEPARATING PEANUTS. ALONZO W. BALLARD, Buckhorn, Va. Filed Oct. 6, 1884. (No model.)

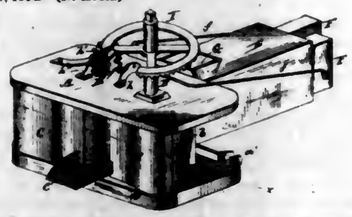
Claim.—The combination of a circular table having its central portion raised to form a circular step, means for revolving the table, a scraper

311,712.



bearing against the lower annular step, and two scrapers secured one above the other and bearing against the upper and the lower steps, as and for the purpose set forth.

311,713. CIDER-PRESS. STEPHEN BALLARD, Winchester, Ind. Filed Oct. 7, 1884. (No model.)

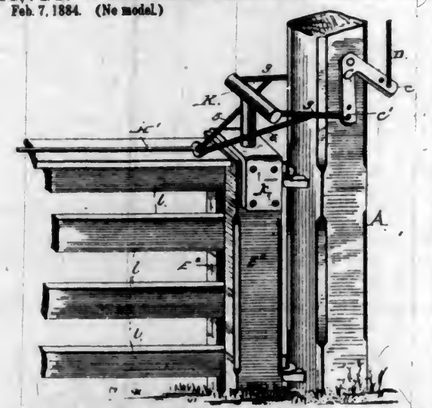


Claim.—1. In a cider-press, the combination, with a suitable supporting-frame, of rollers B B, reciprocating plungers F F, and a hinged gate, *c'*, substantially as shown, and for the purpose set forth.

2. In a cider-press, the frame A', having an upwardly-projecting rim, *a*, and upwardly-inclined projecting portions *d*, adjacent to the shafts which carry the pressing-rollers, substantially as shown, and for the purpose set forth.

3. In combination with the frames A A', the rollers B B, journaled between the same, feed-trough G, plungers F, crank-connections with the driving devices, plates C C, bearing against the rollers, as described, and discharge-trough connected to said plates, so as to lead the pomace directly from said rollers, substantially as set forth.

311,714. SWINGING GATE. WINFIELD S. BANGS, Alma, Mich. Filed Feb. 7, 1884. (No model.)



Claim.—In a swinging gate, the combination of the pivoted levers *e*, rods D, bell-crank levers C, secured on each side of the post A, the chains or rods *g*, T-shaped casting K, chains 5 and 6, the draw-bar, and a latch, substantially as and for the purpose set forth.

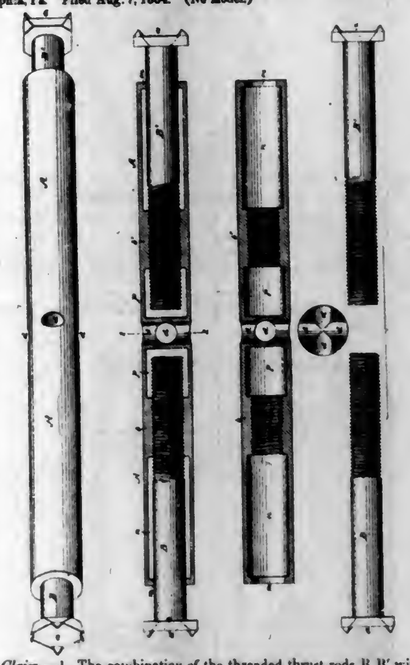
311,715. SUPPORTING-BUTTON FOR COFFINS. SILAS E. BAUDER, Birmingham, Ohio. Filed Apr. 16, 1884. (No model.)



Claim.—1. In an outside box for coffins or caskets, the combination of the box having circular recesses in the inner side of its bottom, said recesses having inclined bottoms with circular wedge-shaped buttons pivoted at their centers, to turn in the recesses, and having their upper faces flush with the surface of the bottom when the thick portions of the buttons are resting in the lowest portions of the recesses, as and for the purpose shown and set forth.

2. In an outside box for coffins and caskets, the combination of the box having circular recesses in the inner side of its bottom, the said recesses having inclined bottoms, with circular wedge-shaped buttons having central countersunk perforations and pivoted upon nails or screws passing through the said perforations, the faces of the buttons having notches and being flush with the surface of the bottom when the thickest portions of the buttons rest in the lowest portions of the recesses, as and for the purpose shown and set forth.

311,716. JACK. JAMES BERCHER and TERRENCE P. SMART, Philadelphia, Pa. Filed Aug. 7, 1884. (No model.)

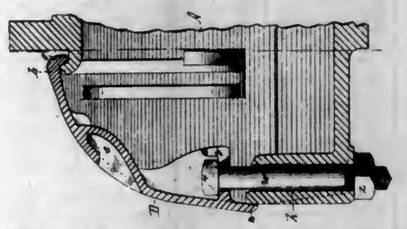


Claim.—1. The combination of the threaded thrust-rods B B' with the tube A, having internal nuts, *b b'*, and ends *m*, which fit snugly to the unthreaded portions of the rods, as set forth.

2. The combination of the threaded thrust-rods B B' with the tube A, having internal nuts, *b b'*, chambered portions *n n*, and ends *m m*, which fit snugly to the unthreaded portions of the rods, as specified.

3. The combination of the threaded rods B B' with the tube A, having internal nuts, *b b'*, and incased transverse openings *d*, as set forth.

311,717. CAR-AXLE BOX. SUMNER A. BEMIS, Springfield, Mass., assignor to the Bemis Car Box Company, New York, N. Y. Filed Dec. 8, 1884. (No model.)



Claim.—1. A car-axle box having a lip thereon for the engagement therewith of the upper edge of the cap, and having a vertical bolt-socket at its front end, a bolt extending through said socket and projecting beneath the box, a cap having its upper edge engaging with the lip on the box, and means, substantially as described, on its inner side, whereby the head of said bolt is engaged with the cap, combined and operating substantially as set forth.

2. A car-axle box having a lip thereon for the engagement therewith of the upper edge of the cap, and having a vertical bolt-socket at its front end, a bolt extending through said socket and projecting below

the box, a cap having its upper edge engaging with said lip on the box, and a finger-socket sunk in its outer surface and projecting from its inner surface, and brackets with which the head of said bolt engages, combined and operating substantially as described.

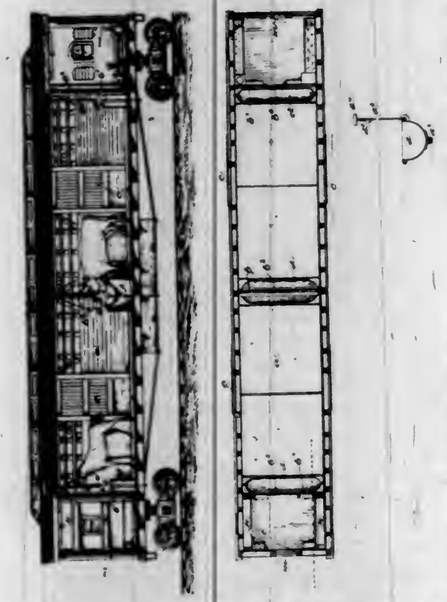
3. In combination, the box A, bolt *e*, and the cap D, having the brackets *r r* thereon, substantially as set forth.

311,718. ROTARY STEAM-ENGINE. JOHN BEYSTROM, Pittsburg, Pa. Filed June 23, 1884. (No model.)



Claim.—In rotary engines, the combination, with a cylinder, of a shaft, C'', a cylindrical hub secured thereon, and having the seats *h*, pistons *k*, having pins *l*, and cylinder-heads provided with the grooves *n*, having their walls formed of rings *p*, substantially for the purposes set forth.

311,719. STOCK-CAR. GEORGE D. BURTON, Boston, Mass. Filed June 23, 1884. (No model.)

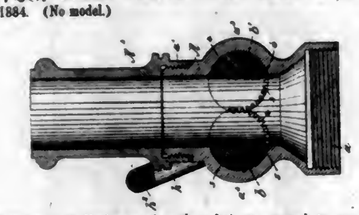


Claim.—1. In a stock-car, the combination of the troughs *d* and boxes *f* thereunder, with the vertically-sliding doors *h* at the sides of the car affording access to the said boxes, and the timbers *i*, provided with shouldered guides for the said doors, which have a vertical sliding movement in the said guides, and may be retained thereby in an elevated position, substantially as described.

2. The car-body provided with partitions *b b'*, forming apartments at the middle of the car for live stock, and separate compartments for the attendants or other persons at the end of the car, the said middle compartments being provided with appliances for feeding and watering the live stock, combined with doors at the end of the car entering the said compartments, the said partitions being provided with openings b^2, affording a view through the entire length of the car from the end compartments, substantially as described.

3. The car-body having at its middle portion compartments for live stock and doors at the side of the car, combined with compartments at the ends of the car for the attendants of the live stock, and doors at the ends of the car entering the said compartments, substantially as described.

311,720. NOZZLE. CORNELIUS CALLAHAN, Chelsea, Mass. Filed July 5, 1884. (No model.)



Claim.—1. A discharge-pipe threaded at one end to receive the hose-connection, and at its other end to receive the nozzle, and bulged at a^3 for the reception of about one-half of each of two partial cylinders, combined with a valve composed of two partial cylinders, each having a portion of its periphery removed to its longitudinal center, and provided with teeth to insure their movement in unison, rotation of the partial cylinders opening and closing the water-way, all substantially as described.

2. The discharge-pipe and a valve composed of two partial cylinders having a portion of their peripheries removed to constitute a water-way, combined with the two disks *c c'*, to receive each one of the journals of the said cylinders, the pipe having bearings for the remaining journals, substantially as described.

3. The discharge-pipe A, threaded at one end to receive the hose-connection, and at its other end to receive the nozzle, and bulged at a^3 for the reception of about one-half of each of two partial cylinders, combined with a valve composed of two partial cylinders, each having a portion of its periphery removed to its longitudinal center, and provided with teeth to insure their movement in unison, and with packing 3 4, interposed between the said cylinders and pipe, to operate all substantially as described.

4. The discharge-pipe A and the valve composed of two partial cylinders, each having a portion of its periphery cut away, and the partial cylinders being each provided with teeth to insure the movement in unison, combined with a tooth, 6, on one cylinder and a co-operating packing, 5, on the other cylinder, to operate substantially as described.

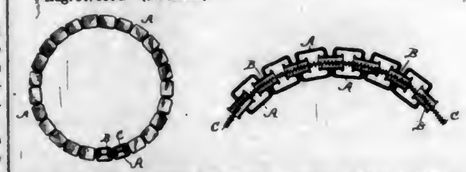
311,721. TRUNK-CATCH. THEODORE F. CONKLIN, Fond du Lac, Wis., assignor, by mesne assignments, to the Conklin Trunk Bolt Company, (Limited,) same place. Filed July 31, 1884. (No model.)



Claim.—1. In a trunk-catch, the combination, with the box-plate transversely perforated and provided with an inwardly-projecting pin, of a catch mounted on said pin and having a retaining-lug at its free end, and a pin projecting through the hole in the box-plate, said catch having also one side cut away or rounded out, and another plate having a stationary hasp rigid therewith, provided with a hole for engagement with the lug on the catch, and an inwardly-projecting finger at one side for engagement with the cut-away portion of the catch, substantially as and for the purpose set forth.

2. In a trunk-catch, the combination of the box-plate A, having pin *a* and transverse slot a^4, catch A', cut away or rounded out at one side, and having lug *a'* and pin a^3, spring a^2, and plate B, having stationary hasp *b*, provided with perforation *b'* and finger b^2, substantially as set forth.

311,722. BRACELET. SHUBAEL COTTLE, New York, N. Y. Filed Aug. 30, 1884. (No model.)



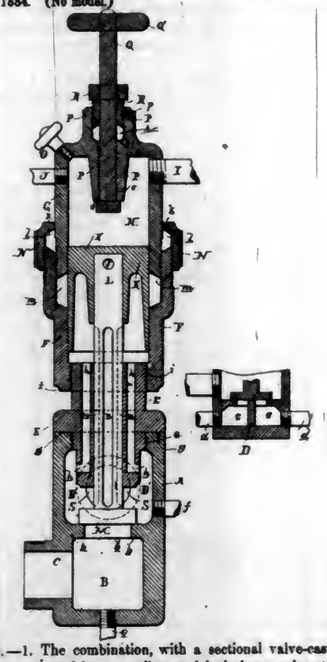
Claim.—1. A bracelet composed of a series of beads or boxes, a series of tubes which connect them in pairs inseparably, and an extensible spring passing loosely through both series, substantially as described.

2. A bracelet composed of a series of boxes having openings in their ends, a series of connecting-tubes having their ends provided with flanges, and a spring passing through the boxes and tubes, as shown and described.

3. The bracelet composed of the boxes A and tubes B, each having a rectangular form, and the tubes provided with flanges and fitting in rectangular openings in said boxes, and the extensible spring C, all combined as shown and described.

4. A bracelet composed of a series of boxes or beads, A, and a series of connecting-tubes, B, on which the former are adapted to slide lengthwise, and a spring, C, passing through both series, as shown and described.

311,723. RELIEF-VALVE. WILLIAM B. COULTER, Bristol, Conn. Filed Apr. 23, 1884. (No model.)



Claim.—1. The combination, with a sectional valve-casing, the sections being connected by a coupling, and inclosing a valve-stem provided on one end with a valve and on the other end with a piston or valve, of a steam-chamber connected to the upper of said sections, and provided with a pipe connected to the boiler or feed-pipe, the lower section being connected by a pipe or pipes to the chamber containing the pressure to be relieved, substantially as set forth.

2. In a relief-valve, the combination, with two or more sections of a valve-casing inclosing a valve-stem and connected by a coupling, of a steam-chamber connected with the upper of said sections, and by a pipe to the boiler or feed-pipe, the lower section being provided with a pipe or pipes connecting with chamber containing the pressure to be relieved, and means connected with the steam-chamber for checking the action of the piston, substantially as set forth.

3. The combination, with the casing A F, connected by a suitable coupling and inclosing a valve-stem provided on one end with a valve and on the other end with a piston or valve, of a steam-chamber connected with the casing F, and by a pipe to the boiler or main feed-pipe, and a pipe or pipes connecting the casing A with the chamber containing the pressure to be relieved, substantially as set forth.

4. The combination, with the casing A F, of a coupling, E, provided with a dripway, *h*, casing G, and stem L, provided with valves or piston K M, the above parts combined and adapted to operate substantially as set forth.

5. The combination, with a valve-casing inclosing a valve-stem provided on each end with a valve or piston, of a steam-chamber casing connected with said valve-casing, and provided with a pipe connected to the boiler or feed-pipe, a rod secured to the steam-chamber casing, and adapted to be screwed down onto said piston-valve, substantially as set forth.

6. The combination, with valve-casing A F, of the coupling E, casing G, stem L, provided with valve or piston K, valve M, rod Q, provided with wheel Q', and nut R, all of the above parts combined and adapted to operate in the manner and for the purpose substantially as set forth.

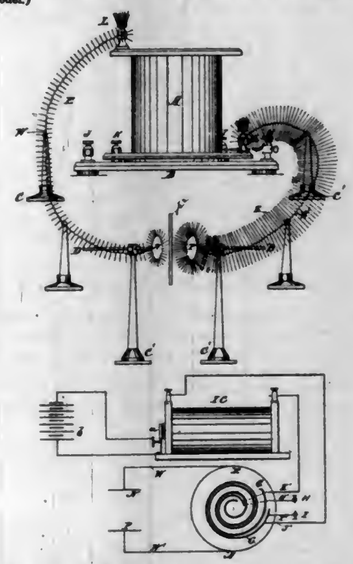
311,724. RECORD-TABLET. JAMES CROCKETT, Bloomingdale, Pa. Filed Aug. 1, 1884. (No model.)

Claim.—A record-tablet consisting of the glass case A, having a tapered recess, A', and glass tablet B, comprising a record, the tablet being inserted in the case and secured by means of the tapered plug or stopper G, hermetically sealed therein, substantially as shown, and for the purpose described.

311,724.



311,725. DEMONSTRATIVE ELECTRICAL APPARATUS. JAMES D. CULP, San Felipe, Cal. Filed July 7, 1883. Renewed Apr. 10, 1884. (No model.)



Claim.—1. A condenser consisting of alternate layers of sheet metal and dielectric material, combined with and surrounded by an insulated coil, E, or its described equivalent, as set forth.

2. The combination, with the secondary wire of an induction-coil, of the spirally-wound sheets of alternating sheet metal and dielectric material, one of which sheets of metal is connected to an air-spark terminal and the secondary wire of the induction-coil at the inner end of its convolution, and the other of which sheets of metal is connected to the other secondary wire of the induction-coil and the other air-spark terminal at the outer end of its convolution, substantially as shown and described.

3. The combination, with an induction-coil, of the condenser C, air-spark terminals H I, and disconnected coil E, as and for the purpose described.

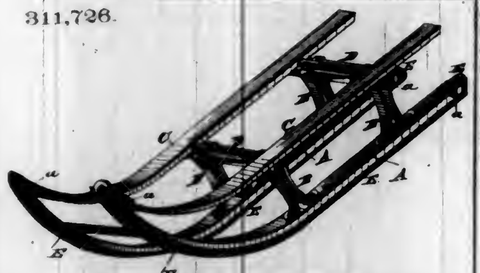
4. The cylindrical case A, having coil E, insulated between sheets of rubber, combined with and adapted to fit over a condenser, C, as shown and described.

311,726. SLED. PATRICK H. CUMMINS, Amsterdam, N. Y. Filed Sept. 10, 1884. (No model.)

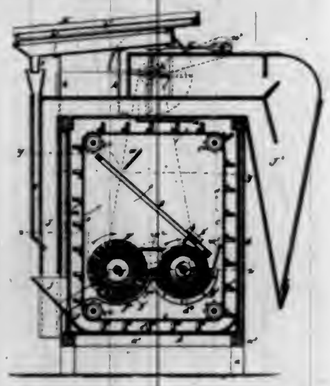
Claim.—1. The combination, with a sled-runner formed substantially as described, of a self-holding shoe adapted to fit the top and bottom edges of the runner, and having its ends overturned and locked thereto, as specified.

2. The combination, with a sled-runner formed substantially as described, of a shoe having overturned ends and adapted to fit the top and bottom edges of the runner, and the re-enforcing rivets or bolts, substantially as specified.

311,726.



311,727. GRAIN SEPARATOR AND SCOURER. JOHN DAMP, Ashland, Ohio. Filed Aug. 19, 1884. (No model.)



Claim.—1. The combination, in a grain-separator, of an inclined screen, an elevating mechanism arranged with its descending and ascending sides on opposite sides of the inclined screen, a shaking-shoe which sifts the grain before entering the machine, and an air-trunk which receives the sifted grain from the shoe and effects a separation of the light grain and chess from the heavy grain before it enters the machine, substantially as set forth.

2. The combination, with an inclined screen, of deflectors whereby the grain is moved laterally across the machine, a scouring-cylinder and concave which receive the grain from the screen, and an elevator whereby the grain is returned to the head of the screen after it has passed through the scourer, substantially as set forth.

3. The combination, with an inclined screen, of a scouring-cylinder and concave, whereby the grain is scoured after it leaves the screen, a brush-cylinder and concave which receive the grain after it has passed through the scourer, and an elevator which returns the grain from the brush mechanism to the head of the screen, whereby the grain is repeatedly screened, scoured, and brushed in passing through the machine, substantially as set forth.

4. The combination, with an inclined screen, of deflectors whereby the grain is moved laterally across the machine, a scouring-cylinder and concave which receive the grain from the screen, an elevator whereby the grain is returned to the head of the screen after it has passed through the screen, and a separating air-trunk which receives the grain after the operations of screening and scouring are completed, substantially as set forth.

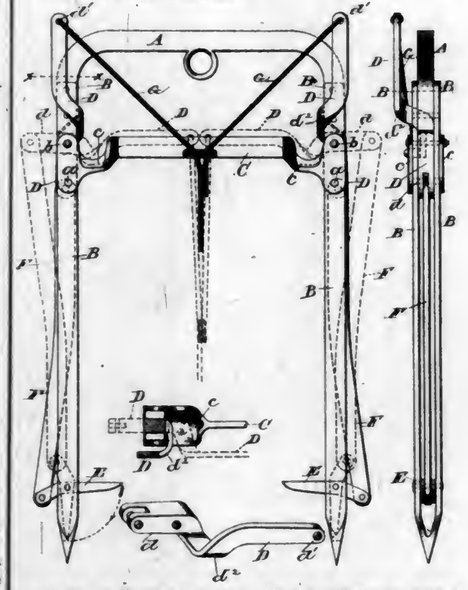
5. The combination, with an inclined screen, of a scouring-cylinder and concave receiving the grain from the screen, a brush-cylinder and concave receiving the grain from the scourer, an elevator whereby the grain is returned from the brush mechanism to the head of the screen, and a separating air-trunk to which the grain is finally discharged from the brush mechanism, substantially as set forth.

6. The combination, with the inclined screen, of a scouring-cylinder and concave receiving the grain from the screen, a brush-cylinder and concave receiving the grain from the scourer, an elevator whereby the grain is returned from the brush mechanism to the head of the screen, a separating air-trunk to which the grain is finally discharged from the brush mechanism, and a preliminary separating air-trunk through which the grain passes before it is subjected to the operations of screening, scouring, and brushing, substantially as set forth.

7. The combination, in a grain-separator, of an inclined screen, B, an elevating mechanism, C, arranged with its ascending and descending sides on opposite sides of the screen, an inclosing-casing provided with air-inlet openings *m* in its side, and outlet-openings *n* in its top, and a fan, K, having its eye communicating with the openings *n*, whereby a current of air is drawn through the inclined screen, substantially as set forth.

8. The combination, in a grain-separator, of an inclosing-casing, an inclined screen, a concave arranged at the lower end of the screen, and provided with scouring-segments, a scouring-cylinder provided with scouring-disks working between the segments of the concave, and an elevator, substantially as set forth.

311,728. HORSE HAY-FORK. FRED A. DENNETT, Milwaukee, Wis. Filed May 31, 1884. (No model.)



Claim.—1. In a hay-fork, the combination, with the legs and bail, of the brace having a recess in each end, the curved operating-levers and the tines connected therewith.

2. In a hay-fork, the operating-levers, each of which has two approximately-straight portions joined by a curved portion, d^2, in combination with the tines and the legs, as and for the purpose set forth.

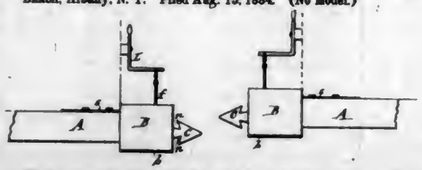
311,729. ASBESTUS PACKING. JOHN DEWRANCE, Lambeth, County of Surrey, England. Filed May 31, 1884. (No specimens.)

Claim.—1. The within-described method of compacting asbestus fiber for use as a packing, which consists in incorporating with asbestus fibers in a loose state india-rubber or the like gum and sulphur or other hardening material in solution, evaporating the vehicle by which the gum is dissolved, and then hardening the mass by subjecting it to heat, all substantially as described.

2. As an improved article of manufacture, a packing for steam-valves and the like formed of asbestus fiber or equivalent material coated with india-rubber or the like gum in solution, all substantially as described.

3. As an improved article of manufacture, a packing for steam-valves or the like formed of asbestus fiber coated with india-rubber or the like gum in solution, then compressed to shape and hardened, as by heat, all substantially as described.

311,730. CAR-COUPLING. BENJ. H. DOWNER, Buffalo, and CHAS. A. BEACH, Albany, N. Y. Filed Aug. 15, 1884. (No model.)



Claim.—1. The combination, with the draw-bar or bumper, of a coupling-hook disposed in a vertical plane, and connected with the draw-bar to slide vertically thereon, and braced in a horizontal position, substantially as set forth.

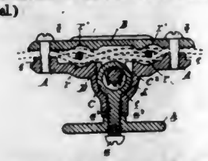
2. The combination of the draw-bar provided with vertical grooves and the coupling-hook disposed in a vertical plane, as shown, provided with cheek-pieces adapted to slide in said grooves, substantially as set forth.

3. The combination of the draw-bar provided with vertical grooves, the coupling-bar formed with cheek-pieces adapted to slide in said grooves, and having harpoon-shaped coupling-hooks disposed in a vertical plane, as shown, a stop across the lower end of the grooves, and a sprig-guard over the coupling-hook adapted to arrest the upward thrust of the coupling-bar out of the draw-bar, substantially as described and shown.

4. The combination of the draw-bar A, having vertical jaws B B, provided on their inner side with vertical grooves *a a*, and with a stop, *b*, at the lower end of said grooves, the coupling-bar C, formed with cheek-pieces *c*, fitted movably in the grooves *a*, said coupling-bar having harpoon-shaped coupling-hooks standing in a vertical plane, and the spring *s*, secured to the top of the draw-bar, and having its free end extended over the space between the jaws B B, substantially as described and shown.

5. In combination with the draw-bar A, provided with the vertical jaws B B, and the coupling-hook C, sliding vertically between said jaws, the spring *s*, applied to the top of the draw-bar, and provided with the slot *d*, and the bolt *e*, passing through said slot, whereby the spring can be shifted to release the coupling-hook, substantially as set forth.

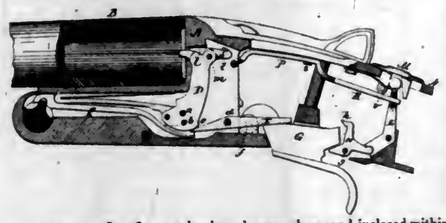
311,731. TOP-SUPPORT FOR CARRIAGES. FREDERIK EGE, Detroit, Mich., assignor of one-half to Antonio Dondero, same place. Filed June 23, 1884. (Model.)



Claim.—1. In an adjustable top-support for a child's carriage, the plate A, having the toothed bearings *t t* above and below the chamber C^2, in combination with a thimble, C, adapted to lie within said chamber, said thimble having a screw-threaded shank passing through the hub, a^3 of a wheel, *h*, and supporting rod R, substantially as and for the purposes set forth.

2. In combination with a woven or willow body of a child's carriage, the plate A, attached to the outside of said body, having vertical recesses *r r*, and central recess having inclined side flanges, D D, toothed bearings *t t*, screw-threaded thimbles, *e e*, of a cylinder, having screw-threaded shank a^3, hand-wheel, *h*, of a top-supporting rod, and the plate B, having vertical recesses *r' r'* and ears *z z*, said plate being attached on the inside of the body, and secured to said body by screws or bolts *b b*, substantially as and for the purposes set forth.

311,732. SAFETY-LOCK FOR FIRE-ARMS. CARL J. EBERTH, Hartford, Conn., assignor to the Colts Patent Fire Arms Manufacturing Company, same place. Filed Dec. 15, 1884. (No model.)

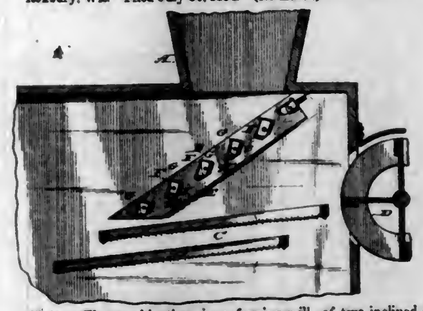


Claim.—1. In a fire-arm having a hammer hung and inclosed within the receiver, the combination therewith of a dog hung to the hammer, a stop movable into or from the path of the said dog, and a shoulder in the receiver, against which the said dog may be turned by said stop when said stop is in the path of said dog, and from which shoulder the dog will escape when said stud is out of the path of the dog, substantially as described.

2. In a fire-arm substantially such as described, the combination of the hammer hung and inclosed within the receiver, the dog hinged to said hammer, the nose of the dog extending forward of its hinging-pivot, and the tail of the dog to the rear of said pivot, the said tail constructed with a shoulder, *r*, the receiver constructed with a shoulder, *w*, in rear of the aperture, through which the hammer strikes the cartridge, a slide, M, on the tang of the receiver, and a lever, P R, hung below the tang, one arm constructed with a diagonal slot, in which a stud from said slide M works, the other arm, P, of said lever constructed with a stud, *t*, substantially as described, and whereby said stud may be thrown into or taken from the path of the tail of the dog, substantially as specified.

3. In a fire-arm substantially such as described, the combination of the hammer hung and inclosed within the receiver, the dog hinged to said hammer, the nose of the dog extending forward from its hinging-pivot toward the nose of the hammer, and the tail of the dog extending to the rear of said pivot, the said tail constructed with a shoulder, *r*, the receiver constructed with a shoulder, *w*, in rear of the aperture, through which the nose of the hammer passes to strike the cartridge, a slide, M, on the tang of the receiver, and a lever, P R, hung below the tang, one arm constructed with a diagonal slot, in which a stud from the said slide M works, the other arm, P, of the said lever constructed with a stud, *t*, substantially as described, and whereby said stud may be thrown into or taken from the path of the tail of the dog, substantially as specified.

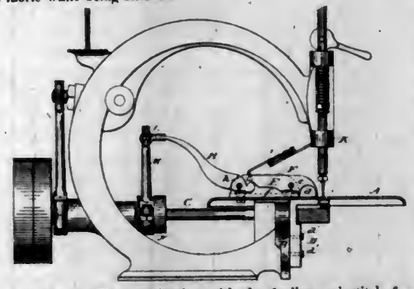
311,733. FANNING-MILL. PETER M. FARING and JOHN ACKERMANN, Roxbury, Wis. Filed July 30, 1884. (No model.)



Claim.—The combination, in a fanning-mill, of two inclined side pieces, and a number of strips or steps bent longitudinally at an obtuse angle formed with corrugations at the bends, and having the ends of the flanges separated and bent at right angles to the flanges and secured to the inner sides of the side pieces, the inner flanges of the steps projecting inclinedly downward, as and for the purpose shown and set forth.

311,734. SEWING-MACHINE TRIMMER. HENRY H. PEPEL, Philadelphia, Pa., assignor of three-fourths to Henry Brooks, same place. Filed May 28, 1884. (No model.)

Brief.—Two meeting but not striking cutting-edges set on a line parallel with the feed-line of movement—one or both movable—trim the fabric while being stitched.



Claim.—1. The combination, with the feeding and stitch-forming mechanism of a sewing-machine, of a trimming device comprising two jaws having sharp opposing parallel edges in a plane parallel with the line of feed of the machine, said jaws being constructed and relatively arranged as described, so that both their edges act simultaneously throughout their length, both edges cutting at the same time, with mechanism, substantially as described, for imparting motion to one or to both jaws from the working parts of the sewing-machine, substantially as shown and described.

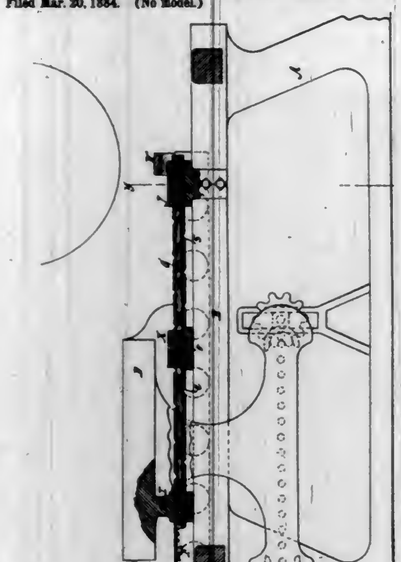
2. The combination, with the feeding and stitch-forming mechanism of a sewing-machine, of a trimming attachment comprising two jaws having sharp edges directly opposed to and parallel with one another and in a plane parallel with the line of feed, said edges being equidistant at all of their cutting-points and flaring apart at their feeding end, and mechanism for imparting motion to one or to both of said jaws from the working parts of the machine, substantially as shown and described.

3. The combination, with the feeding and stitch-forming mechanism of a sewing-machine, of a trimming attachment comprising two cutting-jaws with sharp opposing edges in a plane parallel with the line of the feed and parallel with each other, the cutting parts of said edges being equidistant for their entire extent, one of said jaws being located mainly below the cloth-plate of the machine, but having its edge projecting upwardly through a slot in the latter, the other jaw being fulcrumed in a bracket mounted on the said plate, and having connecting mechanism

for the working parts of the machine, whereby one jaw is caused to approach the other with a movement of uniform length for all points of its edge, substantially as shown and described.

4. The combination, with a sewing-machine, of a fixed lower jaw, D, secured to the bed-piece B, and having its edge projected through a slot in the cloth-plate, a movable jaw, E, fulcrumed in an adjustable bracket, F, mounted on said cloth-plate, a lever, H, also fulcrumed in said bracket, and connected, by a rod, M, and strap N, with an eccentric on the main shaft of the machine, and a spring, I, for holding the adjacent ends of said movable jaw and lever in contact, said parts being constructed and arranged for operation substantially as shown and described.

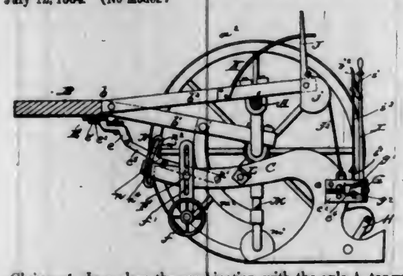
311,735. PRINTING-PRESS. GEORGE P. PENNER, New London, Conn. Filed Mar. 20, 1884. (No model.)



Claim.—1. The combination, substantially as hereinbefore described, with the type-bed, the bed-supporting rollers, the sliders connecting the rollers together, and the roller-track, of the nuts, the journal-bearing, and the rotating bar having two spiral grooves engaging the nuts, respectively, and a journal engaging the journal-bearing.

2. The combination, substantially as hereinbefore described, with the type-bed, the bed-supporting rollers, the sliders connecting the rollers together, and the roller-track, of the nuts on the bed and track, respectively, the journal-bearing on the sliders, and the rotating bar having spiral grooves extending in opposite directions to engage the nuts, and a journal intermediate of the grooves to engage the journal-bearing.

311,736. SULKY-PLOW. OSMOND H. FIELD, Kiantone, N. Y. Filed July 12, 1884. (No model.)

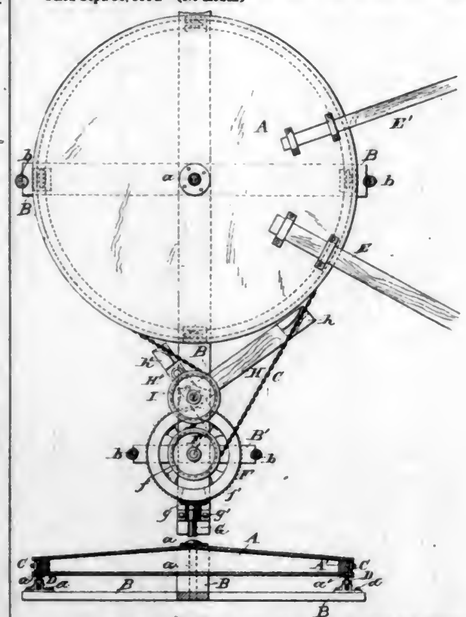


Claim.—1. In a plow, the combination, with the axle A, tongue B, attached to the same, and beam C, provided with rear projection, c, (the said tongue and beam being connected at the front end of the latter by a vertically-adjusting joint,) of the cylinder c^3, braces G and H, rod I, provided with spring i, pin i', lever i^3, and connecting chain or cord i, substantially as specified.

2. In a plow, the combination, with the axle A and tongue B, secured thereto, of the arm N, having slotted cross-head n^2, plow-beam C, with pin n^4, link c^6, and head-block E, having the rear projection, as shown and set forth.

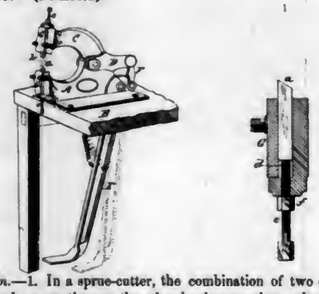
3. In a plow, the combination, with the tongue and axle, of the sleeve m, adapted to be laterally adjusted upon the said axle, the standard M, having its lower end provided with the inclined bearing, the gage-wheel m' arranged thereon, and the upper portion of the said standard passing through the sleeve, whereby the gage-wheel may be allowed to rise and pass over obstructions, substantially as specified.

311,737. HORSE-POWER MOTOR. PETER FISHER, Oak Creek, Wis. Filed Sept. 30, 1884. (No model.)



Claim.—In a horse-power motor, the combination of the master-wheel A, pivoting-pin a, draft-pole E, guide-pole E', cross-frame B B', brackets d d, rollers D D, chain C, transmitting-gear F, with grooved pinion f and bevel-wheel f', bars H H', with guiding-plates h h', idler I, pivoting-pin i, bevel-pinion g, bearing-box g', and shaft G, substantially as shown and described, and for the purpose set forth.

311,738. SPRUE-CUTTER. FREDERICK C. FLADD, Middletown, Conn., assignor to the Stiles & Parker Press Company, same place. Filed Sept. 22, 1884. (No model.)



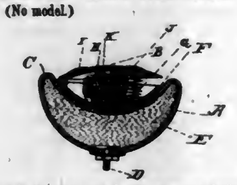
Claim.—1. In a sprue-cutter, the combination of two cutter-holders arranged, one stationary, the other having a reciprocating movement imparted to it toward and from the one, each of said holders constructed with a vertical recess, the recess in the one being in line with the recess in the other, and each recess corresponding to the shape of the cutter-bar, a cutter-bar arranged in each of said recesses, their cutting ends toward each other, the set-screw in each of said holders in line with the cutter-bar, and so as to form an adjustable abutment for each of said cutter-bars, and a cap removably attached to said holders, and so as to close the open side of said recesses and hold the cutter therein, yet leave them adjustable by their own set-screws, substantially as described.

2. The combination of the base A, the adjustable cutter a therein, the second cutter-lever hung to said base, one arm, C, extending forward over the base, a cutter, b, arranged therein corresponding to the fixed cutter a, the other arm, D, of said lever extending rearward, and the foot-lever E, in connection with said arm D, substantially as and for the purpose described.

3. The base A, having a vertical recess, d, in its forward end, the cutter a, arranged in said recess, a set-screw, e, through the bottom of said recess, and so as to abut against the inner end of the cutter, the cap G, arranged to close the front of said recess and support the cutter, the lever hung to said base, one arm, C, extending forward and constructed at its outer end with a recess corresponding to the recess in the base below, a like cutter, b, arranged in said recess, and a like adjusting-screw to abut against the inner end of said cutter, and a like cap, G, arranged to close the recess and support the cutter, the other arm, D, of said lever extending rearward, the foot-lever in connection with said arm D, substantially as described.

4. The base A, having a vertical recess, d, in its forward end, the cutter a, arranged in said recess, a set-screw, e, through the bottom of said recess, and so as to abut against the inner end of the cutter, the cap G, arranged to close the front of said recess and support the cutter, the lever hung to said base, one arm, C, extending forward and constructed at its outer end with a recess corresponding to the recess in the base below, a like cutter, b, arranged in said recess, and a like adjusting-screw to abut against the inner end of said cutter, and a like cap, G, arranged to close the recess and support the cutter, substantially as described.

311,739. TRUSS-PAD. ISAAC N. FOOTE, Middletown, Ohio. Filed Apr. 28, 1884. (No model.)

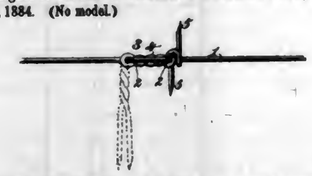


Claim.—1. In a hollow truss-pad, a permanent facial concavity and peripheral facial ring, a back of soft rubber or analogous material, and a hard button seated within the concavity, combined substantially as and for the purpose set forth.

2. In a truss-pad, the combination of a shell of soft rubber or analogous material having a facial concavity, a cup secured within and forming a lining for said concavity, and a hard button articulated to said cup, substantially as and for the purpose set forth.

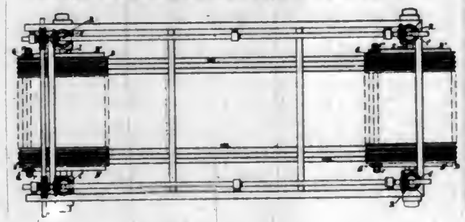
3. The combination of a truss-pad having a facial concavity, a cup secured within and forming a lining for said concavity, a cover articulated to said cup, and forming the button of the truss-pad, electrodes presenting at the faces of said button, and an electric battery beneath said cover, and joined up with said electrodes, substantially as and for the purpose set forth.

311,740. BARBED-WIRE FENCE. FRANKLIN D. FORD, Providence, R. I., assignor of one-half to Cornelius S. Sweetland, same place. Filed May 19, 1884. (No model.)



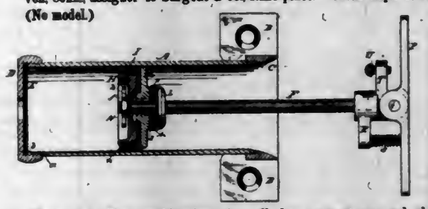
Claim.—The combination, with a fence-wire provided with bends or offsets, of a barb consisting of a single piece of wire looped at its middle around one of said offsets, twisted together spirally underneath or alongside the fence-wire, and having its end portions bent or coiled around the fence-wire on the outside of and next to another offset, so as to form projecting points or prongs, substantially as described.

311,741. MACHINE FOR SAWING STONE. PAULIN GAY, Paris, France. Filed Jan. 24, 1883. (No model.) Patented in France July 31, 1880, No. 138,043; in Belgium Nov. 17, 1882, No. 59,590; in Italy Dec. 27, 1882, No. 14,940—455; in Germany Dec. 28, 1882, No. 24,319; in Luxemburg Jan. 2, 1883, No. 243, and in England Feb. 2, 1883, No. 578.



Claim.—In a machine for sawing stone, the combination of two rollers arranged on parallel shafts, vertical screws carrying bearings for the shafts of said rollers, one screw to each bearing, the said screws extending upward, provided with bevel-pinions at their upper end, longitudinal shafts carrying corresponding bevel-pinions and connecting the vertical shafts on each side with a transverse shaft carrying a worm working in corresponding gears on said longitudinal shafts, and whereby the bearings and the rollers they carry may be caused to be moved simultaneously up or down, as the case may be, endless wires running around said rollers, and grooved pulleys B, arranged to guide the wires upon the said rollers, all substantially as and for the purpose described.

311,742. PNEUMATIC DOOR-CHECK. WILLIAM GILFILLAN, New Haven, Conn., assignor to Sargent & Co., same place. Filed Sept. 1, 1884. (No model.)



Claim.—1. The combination of a cylinder, open at one end, closed at the other except as to a slight aperture, a piston arranged to work in said cylinder, and a bracket to which said piston-rod is hinged, said bracket and cylinder being constructed the one for attachment to the door and to swing with the door, the other constructed for stationary attachment, and so that the two may entirely separate, the piston provided with a stop to arrest its turning upon the hinge on the bracket as it leaves the cylinder, substantially as described.

2. The combination of the cylinder A, open at one end, the cap D, adjustable upon the opposite end, the said cylinder constructed with an aperture, b, beneath said cap, and which is adjustable by said cap, a piston in said cylinder, the bracket P, to which the piston-rod is hinged, the said bracket and cylinder, the one constructed for attachment to the door and the other for stationary attachment, and so that the two may entirely separate upon the opening of the door, and a stop to support said piston as it leaves the cylinder, substantially as described.

3. The combination of the cylinder A, open at one end, closed at the other except as to a small aperture, a piston in the cylinder, the bracket to which the piston-rod is hinged, said bracket and cylinder constructed the one for attachment to the door, the other for stationary attachment, and separating the one from the other in opening of the door, said piston constructed with an aperture from the open end of the cylinder to the reverse side of the piston, a valve arranged to close said aperture in the piston, and a stop to hold said piston as it leaves the cylinder, substantially as described.

4. The combination of the cylinder A, open at one end, closed at the opposite end except as to a small aperture, a piston in the cylinder, the bracket P, to which said piston is hinged, said bracket and cylinder constructed the one for attachment to the door, the other for stationary attachment, an adjustable stop, by which said piston is held as it passes from the cylinder, and a spring arranged to turn the piston toward and hold it upon said stop, substantially as described.

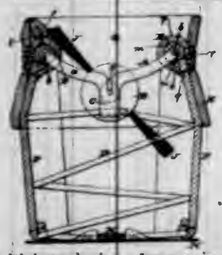
5. The combination of the cylinder A, constructed open at one end and closed at the opposite end except as to a small aperture, the bracket P, said bracket and cylinder constructed the one for attachment to the door, the other for stationary attachment, a piston within the cylinder, its rod hinged to said bracket, said piston consisting of the disks G H and packing I, the said disks constructed with an aperture through them from the open side of the cylinder to the reverse side of the piston, the elastic collar M, and fixed collar L on the piston-rod, substantially as and for the purpose described.

6. The combination of the cylinder A, constructed open at one end and closed at the opposite end except as to a small aperture, a bracket, P, said bracket and cylinder constructed the one for attachment to the door, the other for stationary attachment, a piston within the cylinder, its rod hinged to said bracket, said piston consisting of the disks G H, cup-shaped packing I, and the spring i, between the periphery of the said collar H and the inner surface of said packing I, substantially as described.

7. The combination of a cylinder, open at one end, closed at the other except as to a slight aperture, a piston arranged to work in said cylinder, a bracket to which said piston-rod is hinged, said bracket and cylinder being constructed the one for attachment to the door and to swing with the door, the other constructed for stationary attachment, and so that the two may entirely separate, with the removable disk J, arranged upon the piston-rod, substantially as described.

311,743. CAR-AXLE LUBRICATOR. THOMAS R. GORDON, Brooklyn, N. Y. Filed Oct. 17, 1883. (No model.)

311,743



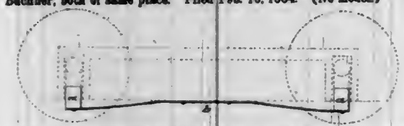
Claim.—1. A lubricator having a frame, spring, cushions, and a wiper, the fabric of the cushions being doubled and bent over the traverses of the frame and looped and stitched through above said traverses, substantially as and for the purpose set forth.

2. The frame and connected spring, in combination with the cushions E, the end flaps, G, separated side strips or skirts, F, and the depending apron K, having loose sides, substantially as and for the purpose set forth.

3. In a lubricator, a frame, A, provided with a lug, C, in combination with a roller, B, journaled in said frame, a spring, D, attached to said lug and supporting said frame, and a base-plate, H, provided with raised lips H′, for retaining the spring in place, substantially as set forth

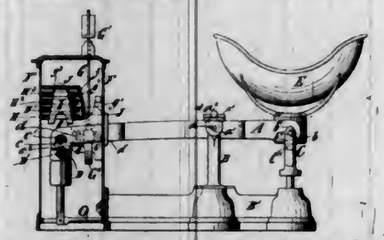
4. In combination with a spring-supported frame and cushions formed thereon, an apron, K, which is exterior to said frame and cushions and rises above the same, said apron being sewed to said cushions, substantially as set forth.

311,744. LOCOMOTIVE-JOURNAL LUBRICATOR. ERI GRAHAM, Lancaster, Wis., assignor to two-thirds to Eugene Miller and Herman Buchner, both of same place. Filed Feb. 16, 1884. (No model.)



Claim.—The combination of the spring-blade *b″* with the saddles *a″ a″*, all substantially as set forth.

311,745. WEIGHING-SCALE. DAVID HALLOCK, New York, N. Y. Filed July 14, 1883. (No model.)



Claim.—1. The combination, with a scale-beam and its jack, of a number of weights and a fixed support comprising steps for retaining them one over the other with their centers of gravity all on the same vertical line, and also comprising inclines *i* above the steps, substantially as and for the purpose described.

2. The combination, with a scale-beam and its jack, of a number of weights adapted to be lifted successively by an upward movement of said jack, and a fixed support for said weights, the points of supports of the weights and the points acted on in raising them being in approximately the same planes, and the weights or support being beveled or inclined on all sides to guide the weights in all directions as they fall back to their proper position, and to afford an increasing space on all sides between the weights and support as the weights are lifted, substantially as described.

3. The combination, with a scale-beam and its jack, of a vertical tier of weights adapted to be lifted successively by an upward movement of said jack, and a fixed support for the weights, the weights or support being beveled or inclined on all sides to guide the weights in all directions as they fall back to their proper positions on the fixed support, and to afford an increasing space on all sides between the weights and support as the weights are lifted by the jack, and the lowermost weight having a plain surface acted upon by plain surfaces on the jack to allow the jack to move laterally without so moving the weight and crowding it against the support, substantially as described.

4. The combination, with a scale-beam and a jack, of a vertical tier of weights capable of being raised successively by an upward movement of the jack, a fixed support for the weights, the said beam having a graduated bar, and a weight movable on said bar for indicating weights intermediate between those indicated by the weights of the series, substantially as described.

5. The combination, with a scale-beam and its jack, of a vertical tier of weights adapted to be lifted successively by the upward movement of the jack, and a fixed support comprising steps for the weights and inclines above the steps, whereby the weights in rising move away from the inclines, substantially as herein described.

6. The combination, with a scale-beam and a vertical tier of weights adapted to be lifted successively, of a jack on the beam adapted to act upon the lowermost weight near its ends, and to raise the weights successively by its upward movement, and a fixed support for the weights between the two bearing-points of the jack, substantially as and for the purpose described.

7. The combination, with a scale-beam, of a fixed stepped support, a vertical tier of weights, the several weights having apertures of different sizes adapted to the several steps of the support, and a jack adapted to act upon the lowermost weight and to raise the weights successively by its upward movement, substantially as herein described.

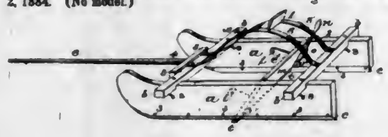
8. The combination, with the scale-beam and its jack, of the stepped support I, provided with a rib, *k′*, and weights H H′, &c., having apertures of different sizes, and notches *k*, substantially as described.

9. The combination, with the scale-beam, of a number of weights to be lifted successively, an indicator having knife-edge pivots and bearing, and a curved arm extending from the indicator around under said bearing and connected with said jack, substantially as described.

10. The combination, with the scale-beam and its jack, of a number of weights to be successively lifted by the jack, the support comprising steps for the weights, and on which they are placed from the top thereof, and a hood independent of and within the case of the scale, placed immediately above the support and serving to protect the weights and to hold them in their proper positions on the stepped support, substantially as herein described.

11. The combination, with the scale-beam having pivots *a b c*, and having recesses b^2 c^2 in its under side and projections a^2 on its upper side, of the caps a^2, having concave recesses a^4, adapted to receive said projections, and the jacks having bearings for the pivots *b c*, and provided with portions adapted to engage with the recesses b^2 c^2 of the beam for the purpose of providing for locking all the parts in such manner as to keep the pivots securely out of contact with their bearings when the scale is packed, substantially as herein described.

311,746. ICE-SCRAPER. LEVI HALLOWELL, China, Me. Filed Feb. 2, 1884. (No model.)



Claim.—In an ice-scraper, the scraper *m*, having the beveled cutter *t* and brake *n*, or its equivalent, thereon connected to the runners *a a* by the straps *e e*, all in combination, as and for the purposes set forth.

311,747. FLUID REGULATOR AND CUT-OFF. JAMES T. HAMBAY, Pittsburg, Pa., assignor to George Westinghouse, Jr., same place. Filed Oct. 1, 1884. (No model.)

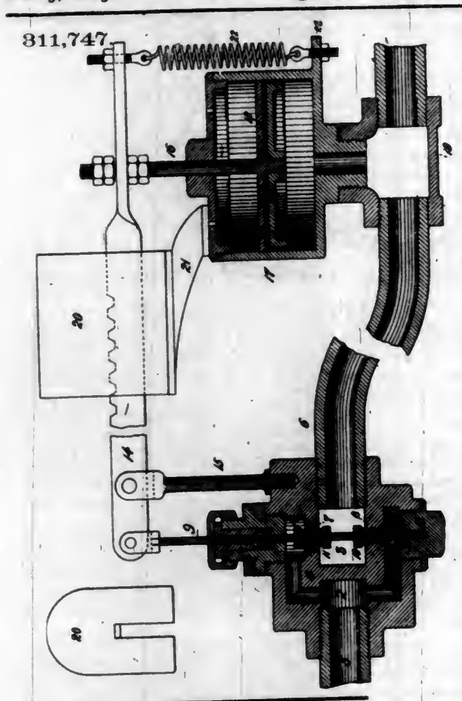
Claim.—1. In a system of two or more pipes for the supply and distribution, under different pressures, of fluids under pressure, a double-acting valve for regulating and cutting off the supply from the high-pressure part of the system to the low-pressure part, in combination with a piston connected to said valve and subject to pressure from the low-pressure part of the system, said parts being so arranged for conjoint operation that the valve is closed by an abnormal pressure and opened by a reduction to normal pressure, and is closed by a dangerous reduction of pressure, and held in such closed position when the pressure is restored, substantially as set forth.

2. In a gas regulator and cut-off, the combination of double-balanced valves and a piston for operating said valves, said parts being arranged in such relation to each other that the valves are closed by an abnormal increase of pressure, and opened by a reduction to normal pressure, and are closed by a dangerous reduction of pressure, and held in such closed position when the pressure is restored, substantially as set forth.

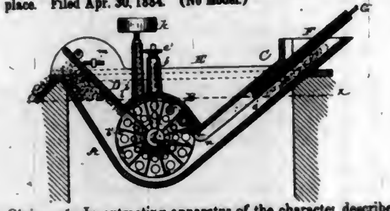
3. In a gas-regulator, the combination of balanced valves, a lever connected at one end to said valves, a cylinder having its piston connected to the opposite end of said lever, and a weight mounted on the lever, substantially as set forth.

4. In a gas regulator and cut-off, the combination of a double-acting valve, a lever connected to said valve, a cylinder having its piston attached to one end of said lever, a slotted weight mounted on the lever, a stop for supporting the weight, and a spring connecting the lever and cylinder, substantially as set forth.

311,747



311,748. METAL-EXTRACTING APPARATUS. WALTER HAMILTON, New York, N. Y., assignor to the Acme Mining Machine Company, same place. Filed Apr. 30, 1884. (No model.)



Claim.—1. In extracting apparatus of the character described, the combination, with the kettle, of an open distributing-chamber traveling longitudinally in the kettle, whereby the material is conveyed through the liquid from the feeding end toward the discharge, substantially as set forth.

2. In extracting apparatus of the character described, the combination, with the kettle, of a series of open distributing-chambers traveling in succession longitudinally through the kettle, whereby successive portions of the material are carried through the liquid from the feeding toward the discharge, substantially as set forth.

3. In extracting apparatus of the character described, the combination, with a kettle, of an open distributing-chamber constantly submerged in the liquid of the kettle for conveying the ore through the liquid, and a feeding device for conveying the ore beneath the surface of the liquid to said chamber, substantially as set forth.

4. In extracting apparatus of the character described, the combination, with a kettle, of a series of distributing-chambers for conveying the ore through the liquid of the kettle, and an intermittently-operating feeding device for feeding portions of ore successively to the chambers, substantially as set forth.

5. In extracting apparatus of the character described, the combination, with a kettle, of a cylinder revolving in a direction parallel with the length of the kettle, having open distributing-chambers for conveying the ore through the liquid of the kettle, substantially as set forth.

6. In extracting apparatus of the character described, the combination, with a kettle, of a revolving cylinder entirely submerged in the liquid of the kettle, having open distributing-chambers for conveying the ore through the liquid, and an intermittently-operating feeding device conveying portions of ore successively to the chambers, substantially as set forth.

7. In extracting apparatus of the character described, the combination, with a kettle, of the revolving cylinder entirely submerged in the liquid, having open distributing-chambers for conveying the ore through the liquid, and a plunger for conveying portions of the ore successively to the chambers, substantially as set forth.

8. In extracting apparatus of the character described, the combination, with a kettle, of two or more cylinders revolving within said kettle, each having distributing-chambers, the first of which delivers the ore to the next, and so on, if more than two are used, substantially as set forth.

9. In extracting apparatus of the character described, the combination, with the kettle, of the cylinder revolving in the liquid of the kettle, divided into open radial chambers, and having one or more outlets for each chamber at the ends of the cylinder, substantially as set forth.

10. In extracting apparatus of the character described, the cylinder having end plates, and radial plates dividing it into chambers, and one or more apertures in the end plates for each chamber, substantially as set forth.

11. In extracting apparatus of the character described, radial plates, each having a continuous surface, between which the material is carried through the liquid, substantially as set forth.

12. In extracting apparatus of the character described, radial plates riffled in both sides, between which the material is carried through the liquid of the kettle, substantially as set forth.

13. In extracting apparatus of the character described, the combination, with the kettle, of the cover forming a scraping-surface for the ore-conveying devices, substantially as set forth.

14. In extracting apparatus of the character described, the ore-conveying cylinder, adjustable vertically relative to the cover, substantially as set forth.

15. In extracting apparatus of the character described, the combination, with the kettle having a cover and the cylinder revolving beneath said cover, of the ribs or flanges on the inner side of the cover, forming a pocket inclosing the upper part of the cylinder, substantially as set forth.

16. In extracting apparatus of the character described, the combination, with the kettle and the cover having ribs on its under side, of the plunger moving between said ribs for delivering the material to the liquid in the kettle, substantially as set forth.

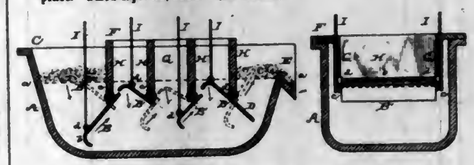
17. In extracting apparatus of the character described, the combination, with the kettle, of the plunger for delivering the material to the liquid in the kettle, said plunger having a movable face-plate, substantially as set forth.

18. In extracting apparatus of the character described, the combination, with the kettle, of the tubular plunger for delivering the material to the liquid in the kettle, and the rod extending through said plunger, and carrying a face-plate at its end, substantially as set forth.

19. In extracting apparatus of the character described, the combination, with a kettle having a discharge-opening, through which the refuse rises, of means for varying the angle at which it rises, substantially as set forth.

20. The combination, with the kettle which contains the amalgamating-liquid, and devices for conveying the material through the liquid to the discharge, of a hinged plate forming one side of the discharge-way, substantially as set forth.

311,749. METAL-EXTRACTING APPARATUS. WALTER HAMILTON, New York, N. Y., assignor to the Acme Mining Machine Company, same place. Filed Apr. 30, 1884. (No model.)



Claim.—1. In extracting apparatus of the character described, a feeding device consisting of a rocking plate which carries the material to the bottom of the kettle and then allows it to rise, substantially as set forth.

2. In extracting apparatus of the character described, the combination, with the kettle, of a rocking plate carrying the material to the bottom of the kettle, and distributing devices to which the material rises from said rocking plate, substantially as set forth.

3. In extracting apparatus of the character described, the combination, with the kettle, of a series of alternately rocking plates for carrying the material from one end of the kettle to the other, substantially as set forth.

4. In extracting apparatus of the character described, the combination, with the kettle, of a series of alternately rocking plates, the first having its forward end extending above the surface, the last having its rearward end extending above the surface, and the intermediate plates entirely submerged, substantially as set forth.

5. A rocking plate for the purpose described, having a curved end, substantially as set forth.

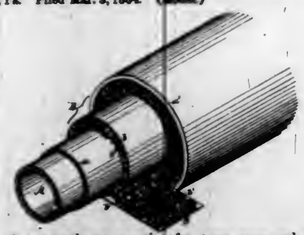
6. The rocking plate having a curved end and side ribs, substantially as set forth.

7. The rocking plate for the purpose mentioned, curved at one end, and having its other end extended so as to reach above the surface of the liquid, substantially as set forth.

8. The combination, with the kettle, of the partitions extending down into it and supporting the rocking plates, substantially as set forth.

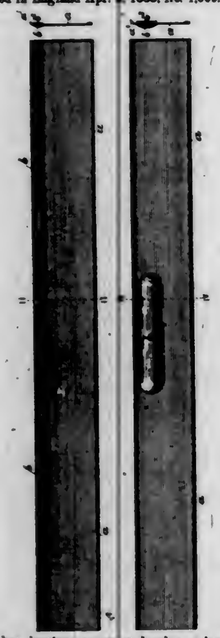
9. The rocking plate for the purpose mentioned, having a riffled surface, substantially as set forth.

311,750. COVERING FOR STEAM-PIPES. J. MILTON HASKELL, Philadelphia, Pa. Filed Mar. 3, 1884. (Model.)



Claim.—A non-conductor covering for steam-pipes and similar surfaces, said covering consisting of superposed layers of paper or other material having granulated cork adhesively applied to its surface, substantially as set forth.

311,751. HAT-SWEAT. MARK HASLAM, Stockport, County of Chester, assignor to MacQueen & Co., London, England. Filed Oct. 18, 1884. (No model.) Patented in England Apr. 3, 1883, No. 1,669.



Claim.—1. A hat leather or sweat having a longitudinal groove pressed into the substance thereof, forming a projection just above the bottom of the leather or sweat.

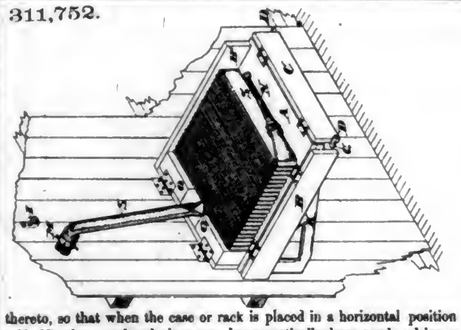
2. A hat leather or sweat having a turned-up bottom edge and a longitudinal groove, the groove being pressed into the substance of the leather or sweat and forming a projection just above its bottom.

311,752. FIRE-HOSE CASE OR BOX. JOHN T. HAWKINS, Taunton, Mass. Filed Aug. 18, 1884. (No model.)

Claim.—1. A hose rack or case pivoted or hinged at its bottom to a wall, building, or other support, so as to swing in a vertical plane on said hinges or pivots, substantially as and for the purposes set forth.

2. A hose rack or case hinged or pivoted to a wall, building, or other support, so as to swing in a vertical plane on said hinges or pivots, and provided with side pieces, as B B', and an end piece, as C, hinged

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thereto, so that when the case or rack is placed in a horizontal position said side pieces and end piece may hang vertically downward and leave the surface supporting the hose flat and unobstructed, substantially as and for the purposes set forth.

3. In a hose rack or case hinged or pivoted to a wall, building, or other support, so as to swing in a vertical plane on said hinges or pivots, the combination of side pieces, as B B', and an end piece, as C, all hinged to a front or face piece, as A, whereby when the rack or case occupies a horizontal position said pieces may hang vertically, but may close up, forming a closed box or case when the said rack or case is held in a vertical position, substantially as and for the purposes set forth.

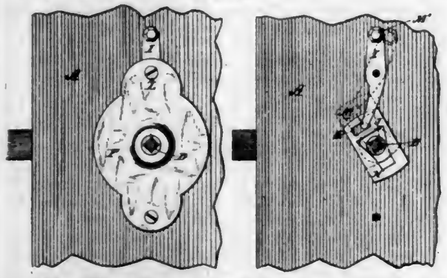
4. A hose rack or case hinged or pivoted to a wall, building, or other support, so as to swing in a vertical plane, and provided with brackets, as K K, hinged to said rack or case, so as to automatically drop by their own weight to form supports to the said rack or case when let down into a horizontal position, substantially as and for the purposes set forth.

5. A hose rack or case hinged or pivoted to a wall, building, or other support, so as to swing in a vertical plane, and provided with hinged side pieces, as B B', a hinged top or end piece, as C, and hinged brackets or supports, as K K, substantially as and for the purposes set forth.

6. In a hose rack or case swinging in a vertical plane and provided with side pieces, as B B', and a hinged end or top piece, as C, right-angled clamps or hooks, as D D, secured to said end or top piece, by means of which the said case may be held securely closed when in the vertical position, and said pieces automatically released to hang vertically downward when said case is placed in the horizontal position, substantially as and for the purposes set forth.

7. A hose rack or case constructed to swing in a vertical plane from a wall, building, or other support, and consisting of a platform, as A, hinged side pieces, as B B', a hinged end or top piece, as C, hinged brackets or supports, as K K, base-blocks, as O O, and right-angled clamps or hooks, as D D, all arranged and operating substantially as and for the purposes set forth.

311,753. DOOR-KNOB ATTACHMENT. NATHAN HAWKES, Appleton, Me. Filed July 2, 1884. (No model.)

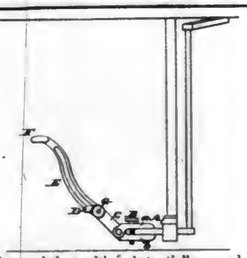


Claim.—The combination, with the escutcheon F, provided on its under surface with the recess *a* and the recess *b*, communicating therewith, of the sliding locking-plate H within the recess *a*, provided with the longitudinal slot J, widened at its upper end, and the transverse slot K, and the pivoted lever I, provided at its lower end with a pin, M, engaging the slot K, the upper end of the lever extending above the top of the escutcheon for operating the said lever and locking-plate, substantially as set forth.

311,754. PEDAL ATTACHMENT FOR PIANOS. EDWD. B. HAYNES, Baltimore, Md., assignor to Archibald C. Haynes, same place. Filed Mar. 31, 1884. (No model.)

Claim.—1. An auxiliary pedal consisting of the arm C, clamp A, and a foot-rest, D, the lower jaw, *b*, of the said clamp being an extension

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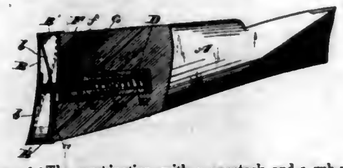


of the arm C, and integral therewith, substantially as and for the purpose set forth.

2. A slotted arm having a foot-rest connected with an arm provided with a foot-rest, and having an extension serving as the fixed jaw of a clamp which has its movable jaw connected thereto, substantially as and for the purpose set forth.

3. Clamp A, with screw B, arm C, with foot-rest D, arm E, with foot-rest F, and the bolt G, combined and operating substantially as and for the purpose set forth.

311,755. STOCK FOR FIRE-ARMS. JOHN HERMLE, Euclid, Ohio. Filed Oct. 31, 1884. (No model.)



Claim.—1. The combination, with a gunstock and a rub-plate secured to the rear end thereof, of the plate B, having a rim, B', adapted to move in contact with the rub-iron, springs for holding the plate away from the stock, and a central guiding device secured to the plate and resting within a socket in the gunstock, substantially as set forth.

2. In a stock for fire-arms, a stationary tube set in the stock, inclosing a movable tube provided with a spring for thrusting the inner tube outward, and the inner tube provided with the rod E, connecting it with the plate B, and with longitudinal ribs engaging suitable grooves or ways in the outer tube, substantially as set forth.

3. In a stock for fire-arms, an outer and an inner tube, the former set in the stock and the latter inclosed in the former and actuated endwise by an internal spring, and the inner tube connected by the rod C with the plate B, and the outer tube provided with a stuffing-box around the rod C, substantially as set forth.

4. In a stock for fire-arms, the tube D, provided with the rib, the threaded end *d*, the shoulder *d'*, and the grooves d^3, the tube E, provided with the ribs *e*, and connected by the rod C with the plate B, and the cap F and the head G, the latter arranged to form an abutment for the tube E and the spring H, substantially as set forth.

311,756. COMBINED AUDIBLE STOCK-QUOTATION SYSTEM AND FIRE-TELEGRAPH. F. BENEDICT HERZOG, New York, N. Y. Filed May 26, 1884. (No model.)

Brief.—A stock-quotation system in which the quotations are received audibly by means of two classes of signals upon one instrument, combined with a fire-alarm or other circuit without interference.

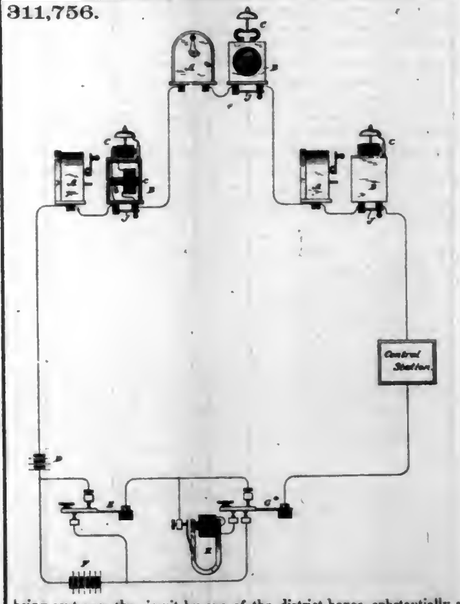
Claim.—1. The combination in direct circuit, with transmitting apparatus for transmitting two qualities or kinds of signals—such as single impulses or click signals and vibratory or buzz signals—at will, of receiving-instruments each of which will reproduce and make audible and distinguishable both classes of signals thus transmitted, substantially as hereinbefore set forth.

2. The combination, with a district-telegraph call-circuit, of a transmitting apparatus for transmitting two qualities or kinds of signals—such as single impulses or click signals and vibratory or buzz signals—and a series of receiving-instruments directly in said circuit, each of which will reproduce and make audible and distinguishable both classes of signals thus transmitted, substantially as hereinbefore set forth.

3. The combination of a normally closed and charged district-telegraph call-circuit, a transmitting key or device for transmitting single impulses or clicks, a transmitting key or device for transmitting vibratory or buzz signals, and receiving-instruments directly in said circuit, each adapted to reproduce and make audible both kinds of signals, as and for the purposes hereinbefore set forth.

4. The combination, with a district-telegraph call-circuit substantially as described, of supplemental circuit-controlling transmitting apparatus located thereon for sending electric signals over the circuit, receiving-instruments at distant stations responding to said signals, and additional devices at said receiving-instruments for indicating that a call is

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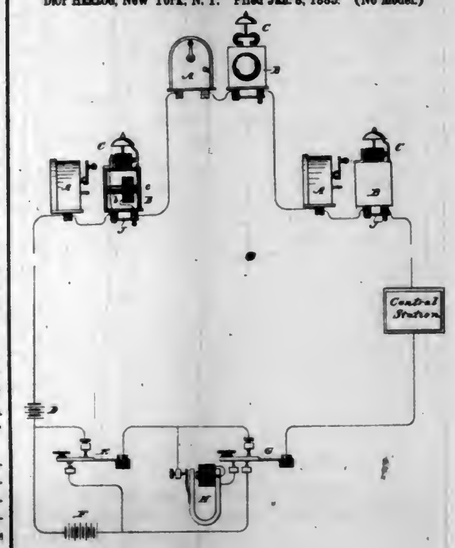


being sent over the circuit by one of the district-boxes, substantially as hereinbefore set forth.

5. The combination, with a district-telegraph circuit provided with its call-boxes A A A, and a battery D, normally in circuit, of the transmitting-key E, arranged to cut the extra battery F into the circuit, the transmitting-key G, for cutting the extra battery into circuit, and also the rheotome or circuit-breaker H, so as to intermittently shunt the extra battery and receivers B for making audible the signals transmitted by the said keys, substantially as described.

6. The combination of two or more independent circuits containing each in direct circuit signal-transmitting apparatus for transmitting two qualities of signals such as hereinbefore specified, and receiving-instruments, each of which latter instruments is adapted to reproduce and make audible both qualities of signals, the transmitting apparatus of all the circuits being connected together, substantially as hereinbefore described, so that the operation of the transmitting apparatus in one of the circuits shall effect a corresponding operation of the transmitting apparatus in the other circuits, substantially as and for the purposes hereinbefore set forth.

311,757. AUDIBLE QUOTATION-INDICATING SYSTEM. F. BENEDICT HERZOG, New York, N. Y. Filed Jan. 3, 1885. (No model.)



Claim.—The method herein described of supplying quotations or other changing information to the subscribers of a system, consisting in transmitting over the circuit groups consisting of one or more electrical signals of one character or quality—such as single impulses or clicks—and also groups consisting of one or more electrical signals of a different character—such as buzz-signals—clearly distinguishable from the others, the two kinds of signals being made to follow each other in different conventional combinations prearranged to denote the desired facts, and being made audible at subscribers' offices by receiving-instruments, each of which is adapted in itself to reproduce both classes of signals, substantially as described, whereby the signals are made understandable and received without the use of automatic printing-instruments, and the necessity of attendance is avoided.

311,758. BUTTON. PHILIP HIRSHFIELD, Lowell, Mass. Filed May 21, 1884. (No model.)



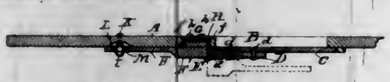
Claim.—The protector consisting of a tube having flaring open ends, and adapted to be placed between a button and the article to which such button is to be sewed, and to surround and protect the threads which connect said button to said article, said protector having the end intended to be next the button slotted, as herein described, as and for the purpose specified.

311,759. TRUNK-LOCK. WILLIAM HOSEN, New York, N. Y. Filed Oct. 29, 1884. (No model.)



Claim.—The combination of a trunk-lid having a centrally-recessed top wall and interior bearings, a spindle turning in said bearings and having locking-hooks at the ends, a hasp attached to the spindle and swinging in the recess of the lid, and corner-pieces attached to the front corners of the trunk-body, and having slotted top flanges, said locking-hooks swinging in recesses of the front corners of the lid and body, substantially as set forth.

311,760. LOCKING DEVICE FOR SLIDING DOORS. DAVID HOKE, Altoona, assignor of one-half to Henry Elias Hoke, Chambersburg, Pa. Filed June 24, 1884. (No model.)



Claim.—1. In a locking device for sliding doors of cars, the combination, with the door, of a strap secured thereto, a lever hinged to said strap and having a head upon its inner side, and a socket or shoulder attached to the side of the car in such position that the head on the lever will engage therewith when the door is closed and the lever swung around against the car-side, substantially as described, whereby the door is secured against endwise movement.

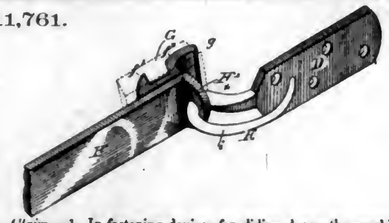
2. In a locking device for sliding doors of cars, the combination, with the door C and the socket G in the car-side, of the strap D, secured to the outside of the door, the lever F, having a head, F', one of whose ends is inclined, as shown, and the said head being adapted to enter the said socket when the lever is swung around, the inclined end bearing against one end of the socket and forcing the door against its jamb, substantially as described.

3. The combination, with side or wall A and sliding door C, of strap or bar D, hinge E, lever F, having enlarged head F', socket or abutment G, link I, and bolt K, pivotally securing the said link to the side of the car, said several parts being constructed and combined for operation substantially as shown and described, and for the purpose set forth.

4. The combination, with the sliding door C, having a locking lever or bar, F, of a link, I, jointed in a recess in the side A, whereby said link may be brought into engagement with said lever or bar when the door is closed, and will lie down in said recess behind said door when the latter is open, substantially as shown and described.

311,761. FASTENING DEVICE FOR THE DOORS OF FREIGHT CARS. HENRY E. HOKE, Chambersburg, Pa. Filed Aug. 8, 1884. (No model.)

311,761.



Claim.—1. In fastening devices for sliding doors, the combination, with the lever F, having the toe *g*, and the bar D, hinged to said lever, of the socket or box G, having the slot or undercut recess A^3, adapted to receive said toe, substantially as described.

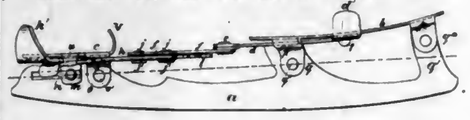
2. The combination, with the lever F, having the lug F', of the bar D, having the elongated and curved pintle or hinge-link *i*, substantially as described.

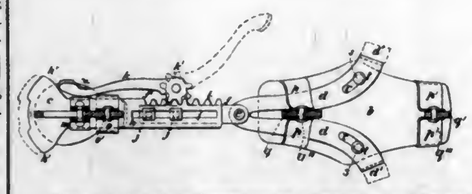
311,762. STOVE-DOOR KNOB. WILLIAM J. IRWIN, Reading, Pa. Filed Mar. 20, 1884. (No model.)



Claim.—A ventilated metallic knob for stove-doors or for heated plates, made in separable parts, as described, the base-piece A being provided with a conical serrated rim, A^3, and the cap B having an overlapping reversely-coned recess, B^3, adapted to fit over the base-piece, whereby the cap is made self-centering, substantially as and for the purpose set forth.

311,763. SKATE. CHARLES H. JOHNSON, Birmingham, assignor to Robert Gibson, Derby, Conn. Filed June 9, 1884. (Model.)





Claim.—1. In a skate, the combination of longitudinally-sliding sole and heel clamps and connecting-bar with a stationary spur at the inner end of the heel-plate, a toothed lever and longitudinally-sliding toothed bar to operate both sets of clamps simultaneously, and the skate-runner, substantially as described.

2. In a skate, the combination of longitudinally-sliding sole-clamps with sliding heel-clamps, a slotted runner, and a stationary spur at the inner end of the heel-plate, a toothed lever, and longitudinally-sliding toothed bar to operate both sets of clamps simultaneously, substantially as described.

3. The combination of the longitudinally-sliding sole-clamps *d d*, having the connecting-bar *f*, to which bar is pivoted the toothed lever *k*, with the sliding heel-clamp bar *h*, containing on its edge contiguous to the teeth *k'* of the lever *k* a series of teeth, *l*, substantially as described.

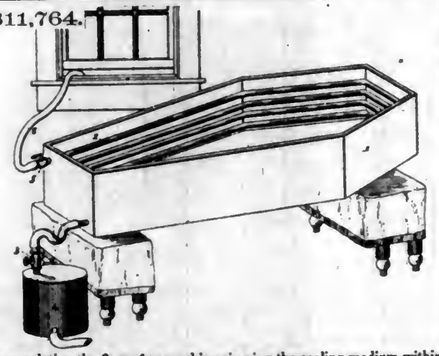
4. The combination of the longitudinally-sliding sole-clamps *d d*, having the connecting-bar *f*, to which bar is pivoted the toothed lever *k*, with the sliding heel-clamp bar *h*, containing on its edge contiguous to the teeth *k'* of the lever *k* a series of teeth, *l*, said heel-clamp bar being constructed with brackets *m m*, riveted together, and a runner containing a slot, *n*, substantially as described.

311,764. CORPSE COOLER AND PRESERVER. HENRY C. JOHNSON, Meadville, Pa. Filed Dec. 30, 1884. (No model.)

Claim.—1. The combination of the corpse-receiving case or box 1, the cooling-conduit 2, placed directly within the corpse-receiving chamber, the gas-holder 4, and the stop-cock 3, for regulating the flow of gas through the gas-holder to the cooling-pipe, as described.

2. The combination of the corpse-receiving case 1, cooling-conduit 2, gas holder or receiver 4, and the stop-cocks 3 and 5, as described,

311,764.

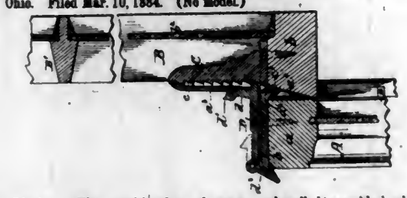


for regulating the flow of gas and imprisoning the cooling medium within the pipe 2 at will.

3. In combination with the corpse-receiving case 1, the cooling-conduit 2, gas-holder 4, stop-cocks 3 and 5, and the discharge-pipe 6, as and for the purpose described.

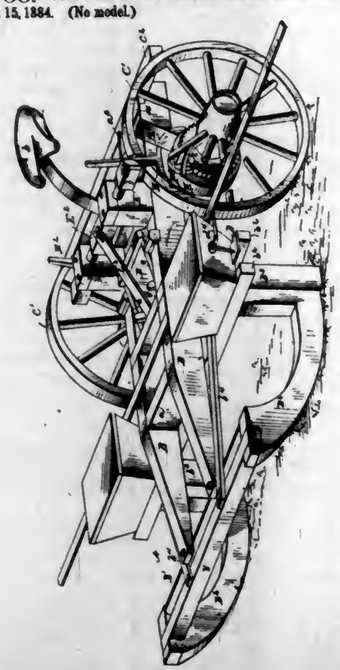
4. The combination, with a corpse-preserver constructed, as herein described, with a receiving-case, 1, and coil of cooling-conduit 2, of the cooling-board 7, constructed as explained, and adapted for placing the corpse within the case and removing it therefrom without disturbing the cooling-pipe.

311,765. WINDOW-FASTENER. GEORGE H. KAMMACHER, Columbus, Ohio. Filed Mar. 10, 1884. (No model.)



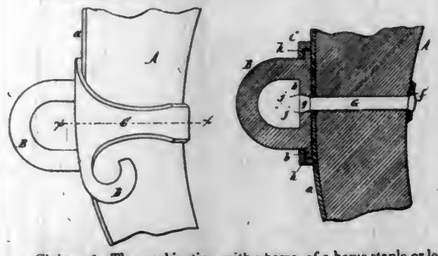
Claim.—The combination of upper sash-rail, *b*, provided with a toothed standard having an inclined wall or side, as *c'*, with a bracket having an inclined side or wall, as a^3, adapted to co-operate with the inclined wall *c'*, and a lever adapted to take into the teeth of the standard, substantially as specified.

311,766. CORN-PLANTER. GRANT LEEPER, Medora, Iowa. Filed Apr. 15, 1884. (No model.)



Claim.—The combination, with a squared shaft carrying toothed disks adjacent to the carrying-wheels, said carrying-wheels having pivoted pawls to engage said disks, pinions mounted in recessed portions of the shaft at each end thereof, a collar provided on its inner edge with a series of teeth to engage said pinions, a shaft journaled above the supporting-frame and connected with the seed-slides, tappets formed integral with said collars, a disk loosely mounted on said shaft and provided on its inner side with teeth to engage a corresponding series of teeth on the inner side of the collar, and levers adapted to engage the latter-mentioned disk to throw the same into and out of gear with said collar, substantially as set forth.

311,767. HAME. OGDEN P. LETCHWORTH, Buffalo, N. Y. Filed Apr 19, 1884. (No model.)



Claim.—1. The combination, with a hame, of a hame staple or loop, B, provided with flanges *b b*, a frame or clasp, C, extending from the base of the hame staple or loop to the opposite side of the hame, and provided on its inner side with a depression or recess, *k*, and a bolt, G, whereby the said clasp or frame and the staple or loop are secured to the hame, substantially as set forth.

2. The combination, with a hame, of a hame staple or loop, B, provided with base-plates or flanges *b b*, having tapering faces *j j*, a frame or clasp, C, extending from the base of the hame staple or loop to the opposite side of the hame, and a bolt or rivet, G, having its head fitted between the tapering faces of the flanges *b*, and whereby the said clasp or frame and the staple or loop are secured to the hame, substantially as set forth.

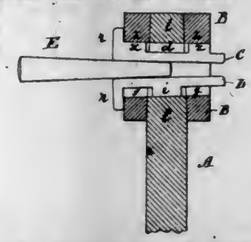
311,768. FLYING TARGET. GEORGE LEGOWSKY, Cincinnati, Ohio, assignor to the Ligowsky Clay-Pigeon Company, same place. Filed Sept. 11, 1883. (No model.)



Claim.—1. A saucer or cup shaped flying target formed as a thin shell of clay or similar material suitably hardened, without slot, tongue, or projection, substantially as and for the purpose specified, as a new article of manufacture.

2. A saucer or cup shaped flying target having a peripheral flange of uniform thickness circumferentially, and without slot or tongue, or provision for the attachment of a tongue or extraneous or special handle for propulsion, which might constitute an impediment to the axial rotation of the target, substantially as specified.

311,769. DEVICE FOR REMOVING CROSS-HEADS. CARL A. MACKAY, Boston, Mass. Filed Oct. 8, 1884. (No model.)

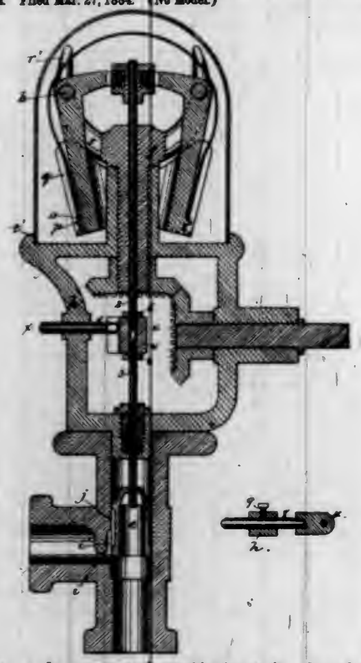


Claim.—1. In a device for removing the cross-head from a piston-rod, the combination of the following instrumentalities, to wit: two keys and a wedge adapted to fit the ordinary key-hole in the cross-head and rod, one of said two keys being provided with a flange adapted to abut against the end of the main portion of the rod within the key-hole, and two notches or depressions adapted to receive a portion of the inner end of the cross-head as it moves from the rod, and the other provided with two flanges adapted to abut against a portion of the outer end of the cross-head within the key-hole, and a notch or depression adapted to receive the end portion of the rod within the key-hole as the cross-head moves from the rod, substantially as described.

2. The keys C D and wedge E, in combination with the rod A and cross-head B, substantially as set forth.

3. In a device for removing the cross-head from a piston-rod, the key C, provided with the flanges *x* and notch *d*, the key D, provided with the notches *f g* and flange *e*, and the wedge E, substantially as described.

311,770. STEAM-ENGINE GOVERNOR. JOHN M. MASON, Chelsea, Mass. Filed Mar. 27, 1884. (No model.)



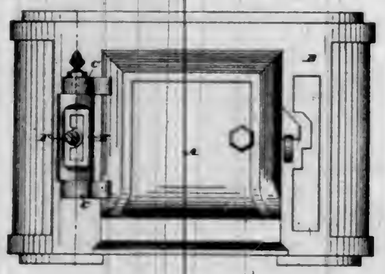
Claim.—1. In a governor, the combination of the valve-rod made in sections, as described, the turn-buckle connecting said sections and provided with longitudinal ribs or flanges 7 7, and the pin 8, passing through a socket in the supporting-frame and projecting between said flanges to prevent the turn-buckle from rotating, said pin being secured by a set-screw, 9, whereby it may be loosened and withdrawn to permit the rotation of the turn-buckle, as set forth.

2. The pivoted governor-arms having recesses *q q* and studs *p p*, combined with the single spring adapted to bear at its edges against the sides of said recesses, and having orifices in its ends adapted to engage said studs, as set forth.

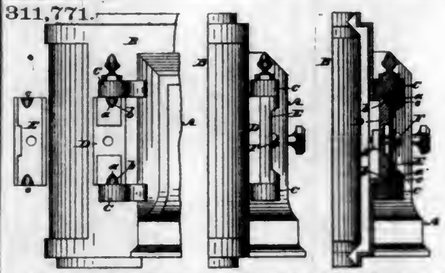
3. In a governor, the combination of the revolving governor-arms, the fixed supporting-frame having the flanged base or plate under said arms, and the elastic sheet-metal dome or cover fitted to said flanged base and bearing against the same with a yielding pressure, whereby the dome is held in place on the base and its ready removal is permitted, as set forth.

311,771. STOVE-DOOR. WILLIAM L. MCDOWELL, Lower Merion, Pa. Filed Sept. 16, 1884. (No model.)

Claim.—1. A stove-door having lugs with gudgeons, in combination with a butt on the door frame or support, and a cap, said butt and cap having matched depressions to receive the gudgeons of the door, and the cap being secured to the butt, substantially as and for the purpose set forth.

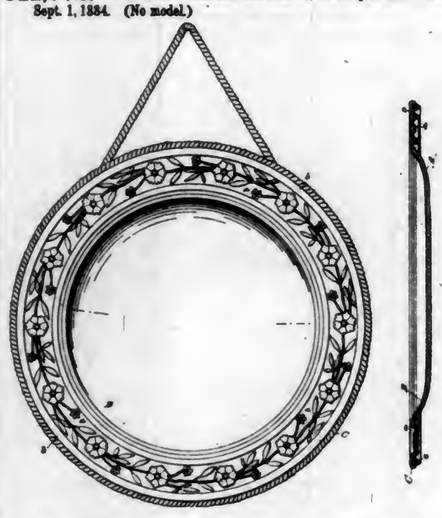


311,771.



2. A butt on the door-frame, in combination with gudgeons on the door, and a cap-piece secured to said butt, the butt and cap-piece having coincident depressions at top and bottom, substantially as and for the purpose set forth.

311,772. PLAQUE. EDMUND MCLOUGHLIN, Brooklyn, N. Y. Filed Sept. 1, 1884. (No model.)



Claim.—1. As an improved article of manufacture, a plaque formed of a backing fabric, A, to impart strength and stiffness, and a face fabric of satin, B, secured to the backing by an adhesive material, the said compound fabric being embossed in order to impart a concave form to the central portion thereof, and to form a border, *a*, around said central portion, substantially as shown and described.

2. As an improved article of manufacture, a plaque composed of a stiff backing, A, and a satin face, B, attached to said backing by an adhesive material, the compound fabric thus formed being embossed to impart the proper concavity to its central portion, and to form a marginal border, *a*, on said concave portion, having figures in relief thereon, substantially as shown and described.

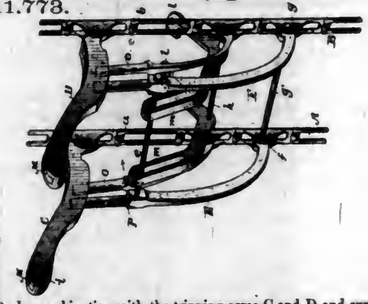
3. As an improved article of manufacture, a plaque composed of a stiff backing, A, and a satin face, B, said compound fabric being embossed to impart to it the concavity and border ornamentation, substantially as shown and described, and a binding of cord, C, around the margin of its border, substantially as shown and described.

4. As an improved article of manufacture, an embossed satin-faced plaque provided with a bead, *b*, near its margin, a circumferential recess, *c*, exterior to said bead, and a binding-cord secured in said recess, substantially as shown and described.

311,773. ELEVATOR FOR HOISTING AND LOWERING AND AUTOMATICALLY DISCHARGING BARRELS, &c. HENRY MCQUIRE, Chicago, Ill., assignor to the Link Belt Machinery Company, same place. Filed Dec. 18, 1884. (No model.)

Claim.—1. In combination with suitable load-supporting arms or devices, C and D, pivoted to suitable traveling chains or belts, A and B, bracket-like arms E and F, pivoted at their lower ends to the said chains or carriers and engaging at their upper ends, as described, with the arms C and D, and a suitable tripping mechanism arranged and operating, as described, to move the upper ends of the arms E and F inwardly and permit the arms C and D to drop and discharge their burden, substantially as hereinbefore set forth.

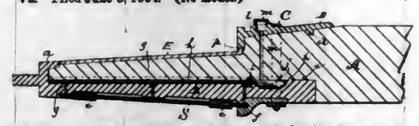
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2. In combination with the tripping-arms C and D and supporting-arms E and F, arranged together and operating substantially as described, the lifter-arms M M, pivoted to the outer ends of C and D and acted upon by the upper ends of the arms E and F, substantially as and for a purpose specified.

3. In combination with the tilting arms C and D, pivoted supporting-arms E and F, and a suitable tripping mechanism operating to move the upper ends of E and F toward the lifter chains or belts, arms O O, pivoted to the lifter chains or belts and operating, as specified, to effect the enforcement outwardly of the arms E and F, and thus insure the proper resetting of the parts for work whenever the elevator contrivance may be used for lowering goods, and the chains therefore necessarily run in the direction indicated at Fig. 2 of the drawings.

311,774. AXLE SKEIN AND BOX. WILLIAM B. MEACHAM, Boydton, Va. Filed June 5, 1884. (No model.)



Claim.—1. The combination, with an axle having its arm cut away on its under side, of a metal section, B, having overhanging flange *a*, the cap-plate D, and the strap or clip C, as and for the purpose described.

2. The combination, with the axle, of the metal section B, having overhanging flange *a*, the metal strip E, having upturned end *p*, the plate D, having a recess to receive said upturned end, and the metal strap C, as and for the purpose described.

3. The combination, with the axle having oil-hole *m*, of the plate D, having oil-cup *l*, the metal section B, having oil-reservoir *j*, channels *h* and *g*, and the revolving skein S, as and for the purpose described.

4. The metal section B, having oil-reservoir *j* and channel *h*, with a raised wall or rib around the same, in combination with the axle and means for holding them together, as described.

5. The combination, with the metal section B, of the revolving skein S and the retaining-plate *f* and means for clamping it to the section B, substantially as described.

6. The combination, with an axle-arm having therein an oil-reservoir and distributing-channels, of a perforated rubber block interposed between the reservoir and channels, and a set-screw for varying the size of the hole in the rubber block to regulate the admission of oil, substantially as shown and described.

7. The metal section B, having flange B', in combination with the axle, the cap D, having flange *d* fitting down upon B', and the strap C, as shown and described.

311,775. CUT-OFF AND REVERSING GEAR. HERMAN H. MEYER, Denver, Colo. Filed Aug. 27, 1884. (No model.)

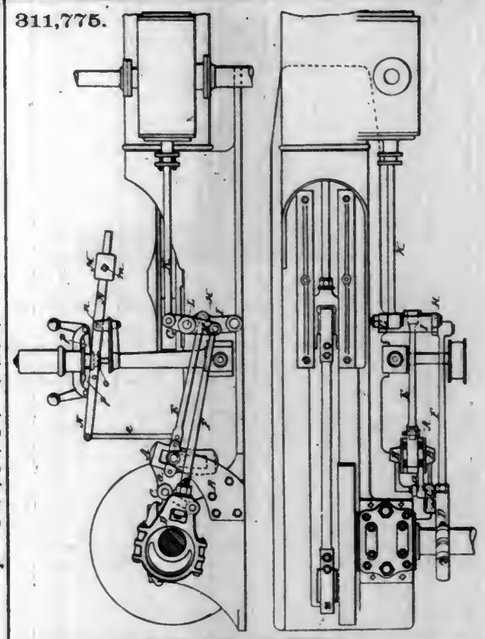
Claim.—1. In an automatic cut-off gear for steam-engines, the combination, with the cut-off-valve connections and the eccentric, of the link A, mounted upon a fixed-pin connection, and the swinging rod C, arranged between the link and the eccentric and forming a direct connection therefor, substantially as herein set forth.

2. The combination of the link A, the link-rod E, the rocker-arm I, and the rod C with the eccentric D, the arms H and G, and the valve-connecting rod K, substantially as shown and set forth.

3. The combination, with the governor, the cut-off-valve rod K, and the eccentric D, of the link A, mounted upon a fixed pin, the swinging rod C, arranged between and forming a direct connection for the link and the eccentric, the rod *e*, the governor-lever N, and the cut-off-valve connections, all arranged and connected for operation substantially as described, for the purpose specified.

4. The combination of the link A and eccentric D, connected by a rod, C, and by rods E and F to a rocker-arm, I, having arms H G, and automatically regulated by a rod, *e*, connected to a pivoted lever, N, attached to and operated by a governor, substantially as and for the purpose set forth.

311,775.



311,776. INHALER. ERNEST NITZ, New York, N. Y., assignor of one-half to Isidor Lauter, same place. Filed Aug. 2, 1884. (No model.)



Claim.—1. The combination, in an inhaler, with the case having a perforated face-plate provided with a rim, of a slide having front and rear perforated plates adapted to fit the case, substantially as described.

2. The combination, in an inhaler, with the case having a perforated face-plate and a projecting rim and covering extended around the same, of a slide having perforated front and rear pieces, and provided with flanges adapted to fit over the edge of the case, substantially as described.

311,777. MEANS FOR ATTACHING TOPS TO VESSELS. DANIEL W. NORRIS, Elgin, Ill. Filed July 25, 1884. (No model.)



Claim.—1. In combination with a beveled-mouth vessel, a metal top or cover located within the mouth and provided with an inclined ring or flange, a packing interposed between the adjacent inclined surfaces, and a screw-threaded connection on the outside of the mouth or neck for pressing and holding the metal top within the mouth of the vessel, substantially as described.

2. In combination with the beveled-mouth vessel, a metal top or cover located within the mouth and provided with an inclined ring or flange, an external flange, and a packing interposed between the adjacent inclined surfaces, substantially as described.

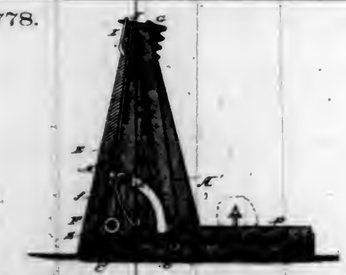
3. In combination with the inclined or beveled mouth of a vessel, a metal top having an inclined inner flange or ring, an external flange, and an interposed packing, the said inner flange being inclined at a different angle from the incline on the mouth of the vessel, substantially as described.

311,778. ANIMAL-TRAP. BERTEN T. OTOS, Willmar, Minn. Filed July 1, 1884. (No model.)

Claim.—1. An animal-trap constructed as described, having a base forming a fixed jaw, C, and a movable jaw, G, in combination with the spring S, the pivoted movable bottom D, the rod E, the hook J, and the pin I, all as herein set forth.

2. In an animal-trap, the combination of the frame A A' B H with the fixed jaw C, the movable jaw G, pivoted on the rod F, with suitable

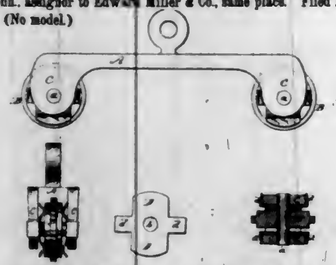
311,778.



devices for holding the movable jaw when the trap is set, the pivoted bottom D, the rods E *d*, and the springs S, all substantially as shown and described.

3. The combination, in an animal-trap, of the jaws C and G, one fixed, the other movable, with the pivoted bottom D, the springs S, the rod E, the hook J, the holding-pin I, and the frame A A' B H, all substantially as shown, and for the purposes specified.

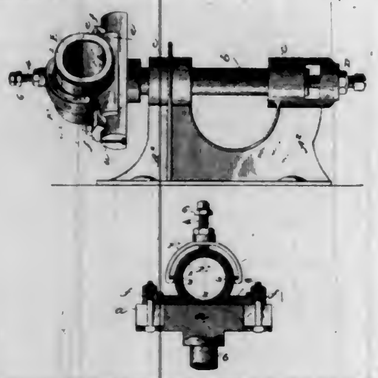
311,779. EXTENSION LAMP-FIXTURE. RUSSELL B. PERKINS, Meriden, Conn., assignor to Edward Miller & Co., same place. Filed Aug. 13, 1884. (No model.)



Claim.—1. In a lamp-fixture, the combination of the hanger A, by which the fixture is suspended, pulleys B, arranged in the respective ends of the hanger, and sheet-metal springs D D, arranged upon the pivots of the respective pulleys and between the lugs of the hanger and the side of the pulleys, and so as to bear upon the respective sides of the pulley, the said springs being engaged with the lugs of the hanger to prevent the rotation of the springs, substantially as described.

2. In a lamp-fixture, the hanger A, by which the fixture is suspended, combined with the pulleys B, hung in the respective ends, and the friction-springs applied at the sides of the pulleys, said springs being substantially cross shape and set upon the pivots of the pulleys, two of the arms forming springs on the side of the pulley, the other two arms bent upon the hanger, and so as to prevent the rotation of the springs with the pulleys, substantially as described.

311,780. SHAFT-HANGER. WILLIS J. PERKINS, Grand Rapids, Mich. Filed June 16, 1884. (No model.)



Claim.—1. In combination with a shaft, a journal-box mounted upon the cross-bar of a T-support, said T-support being provided with suitable bearings, substantially as described.

2. In combination with the shaft and journal-box, a T-support adapted to the journal-box, with its upper face rounded or semi-cylindrical in form, substantially as described.

3. A journal-box for shafting, having its base of concave form at an angle to the axis of its bearing, whereby it is adapted to turn on the cross-head, substantially as described.

4. In combination with a journal-box for shafting, a T-support adapted to said box, in combination with a screw or an equivalent device whereby it may be vertically adjusted, as set forth.

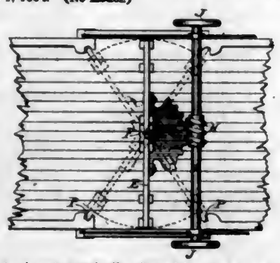
5. In combination with a journal-box for shafting, having its base of concave form, a cross-head having its upper surface convex, adapted thereto, and means, substantially as described, for insuring its horizontal adjustment on the cross-head.

6. The combination, with a journal-box for shafting, composed of two separate parts, of a bail detachably secured to one part and encircling the other, and a set-screw whereby the two parts of the box are held together, substantially as described.

7. A journal-box for shafting, having a lower part or saddle formed with a concave face, in combination with the cross-head, formed with a convex face, adapted thereto, the parts being fitted to each other, substantially as described, whereby the journal-box may have rocking or longitudinal movement upon the cross-head.

8. In combination with the journal-box for shafting, having a saddle and T-support, with a semi-cylindrical surface upon its cross-head, adapted to the saddle and permitting rocking or longitudinal movement, a spindle, *b*, adapted to turn or move vertically in its bearings, all substantially as described.

311,781. STOCK-CAR. JONATHAN E. PIERCE, Deming's Bridge, Tex. Filed Oct. 1, 1884. (No model.)



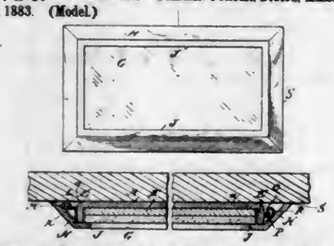
Claim.—1. A gate vertically pivoted in a stock-car centrally opposite to the door thereof, and means, substantially as described, for turning and securing the gate, as and for the purpose specified.

2. The combination, with a gate hung on vertical pivots in the center of a car, of a gear-toothed segment secured to the gate concentric with its pivots, a worm engaging said gear, the shaft of the worm extending to the side of the car, near the top thereof, and a hand-wheel on the shaft outside the car, as and for the purpose specified.

3. The combination, with a series of bolts fitted to a gate to be extended beyond its side, and vertical bars joining the bolts, of a vertical rod fitted to slide in the gate, and brace-links connecting the vertical rod with the sliding bolts, substantially as shown and described.

4. The combination, with a gate vertically pivoted in the center of a car opposite the centers of its side doors, and a series of bolts fitted to slide in the gate and project beyond the sides thereof, of two vertical bars secured in each door at a distance apart to receive the bolts between them while the gate is square across the car, and a series of apertures at each side of each door fitted to register with and receive the bolts when the gate is diagonal to the car, as shown and described.

311,782. DOOR-PLATE. STEPHEN PORTER, Boston, Mass. Filed Dec. 22, 1883. (Model.)

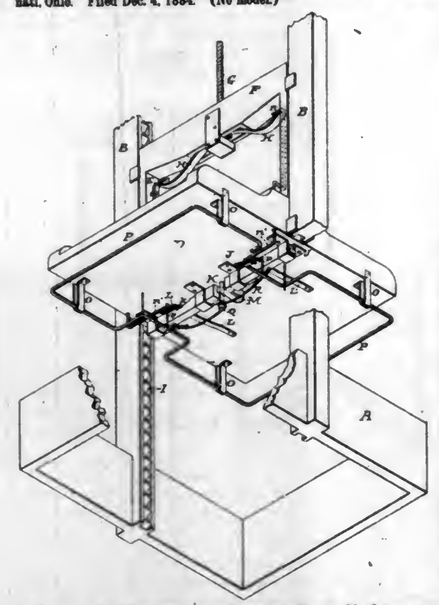


Claim.—1. In a name-plate for a door, a frame, H, having rib M and spring R, in combination with ribs K and P, secured to the door, for the purpose specified.

2. In a name-plate for a door, a frame, H, having rib M and spring R, in combination with a plate, A, adapted to be secured to the door, and having ribs K and P, for the purpose specified.

3. In a name-plate for a door, a frame, H, having rib M and spring R, in combination with a plate, A, adapted to be secured to the door, and having sides and ends D E and ribs K and P, substantially as and for the purpose specified.

311,783. ELEVATOR. WILLIAM F. RAE and CONRAD MUNCH, Cincinnati, Ohio. Filed Dec. 4, 1884. (No model.)



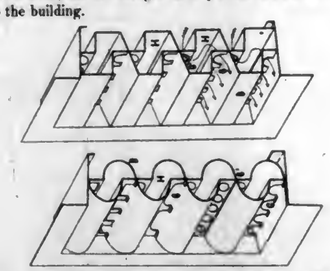
Claim.—1. The combination, with springs H and M, the recessed beam F *f*, the hoisting-cable G *g*, and with racks I of an elevator-platform, of the horizontally-sliding safety-bolts K, having notches *k*, for engagement of spring-detents L, combined, in the manner explained, with trigger-rods N, as and for the purpose set forth.

2. The combination, with the safety-bolts K and the spring-detents L, of the trigger-rail P, constructed and operated in the manner explained.

3. The combination, with the safety-bolts K, of the resetting-windlass Q R, substantially as set forth.

311,784. SKYLIGHT. RICHARD H. REILLY, New York, N. Y., assignor to George Hayes, same place. Filed Apr. 19, 1884. (No model.)

Brief.—Consisting of a series of louver-slats supported one upon the other, forming chambers within the louvers, having inlet and outlet passages for ventilation, and so arranged as to prevent the entrance of snow or rain into the building.



Claim.—1. The louver-slat D, provided with flanges E F, said flanges being constructed with escape-apertures G G', substantially as shown and described.

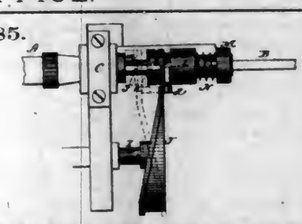
2. A series of louver-slats, D, two or more, each provided with flanges E F, supported one upon the other by said flanges, substantially as shown and described.

3. The combination of ventilating-apertures G and G' with chamber H, substantially as shown and described.

311,785. FEEDING DEVICE FOR SCREW-MACHINES. HENRY REYNOLDS, New Haven, Conn. Filed May 26, 1884. (No model.)

Claim.—1. The combination of a hollow mandrel arranged to receive a rod longitudinally through it, a sleeve on said mandrel arranged for longitudinal movement, carrying jaws arranged to extend through slots in said mandrel and so as to engage the rod therein, a second sleeve on said jaw-carrying sleeve, arranged for a certain longitudinal movement independent of the jaw-carrying sleeve, and constructed to close the jaws or permit their opening, according to the direction of its longitudinal movement, a slide parallel with said mandrel and connected, substantially as described, with said second sleeve, mechanism, substantially such as described, to impart a positive movement to said slide in one direction, and mechanism, substantially such as described, to impart movement to said slide in the opposite direction, but independent of the mechanism which imparted the first movement, substantially as specified.

311,785.



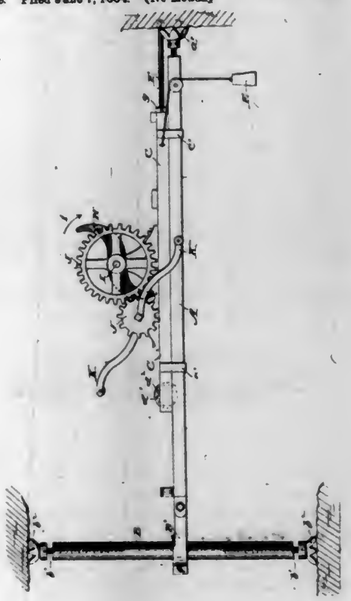
2. The combination of the hollow mandrel A, the sleeve K, longitudinally thereon, jaws *e* in said sleeve and extending through slots in the mandrel, the sleeve L on said sleeve K, its one end constructed to pass beneath the tails of the jaws and so as to close the jaws or retreat therefrom to permit their opening, the slide F, arranged for longitudinal movement parallel with the mandrel and in connection with said sleeve L, the cam J, stud *d* on said slide, arranged to follow the face of the cam, and mechanism, substantially such as described, to bear said stud against the face of the cam, substantially as specified.

3. The combination of the hollow mandrel A, the sleeve K, carrying jaws *e*, the sleeve L on said sleeve K, arranged for a certain longitudinal movement independent of said sleeve K, and so as to close said jaws or permit their opening, the slide F in connection with said sleeve L, cam J, stud *d* on said slide F, and mechanism, substantially such as described, to hold the said stud against the face of the cam, said stud made adjustable on said slide, substantially as described.

4. The combination of the hollow mandrel A, sleeve K, jaws *e*, arranged therein, sleeve L on said sleeve K, arranged for certain longitudinal movement independent of said sleeve K, whereby said jaws are closed or permitted to open, slide F in connection with said sleeve L, cam J, stud *d* on said slide, mechanism, substantially such as described, to bear said stud against the face of the cam, collar M, fixed to the sleeve K, and spring N, between said collar and the sleeve L, substantially as and for the purpose described.

5. The combination of the hollow mandrel A, the sleeve K, carrying one set of jaws, *e*, and also carrying a second set of jaws, *t*, in rear of the first set, the sleeve L on said sleeve K, arranged for certain longitudinal movement independent of said sleeve K, and so as to close said jaws e or permit their opening, the slide F in connection with said sleeve L, and mechanism, substantially such as described, to impart a forward and back movement to said slide, substantially as specified.

311,786. ROCK-DRILLING MACHINE. JEREMIAH M. RICHARDSON, Salt Lake City, Utah, assignor of one-third to Joseph L. Heywood, same place. Filed June 7, 1884. (No model.)



Claim.—1. In a rock-drilling machine, the combination of a stationary frame, a sliding carriage thereon, a drill mounted in said carriage, freely movable forward therein, and having a shoulder against the rear portion of which the carriage bears, and pressure devices, substantially as described, applied to the carriage for holding it against said shoulder with a yielding pressure, whereby the full force of the hammer is received by the drill without shock to the carriage, substantially as set forth.

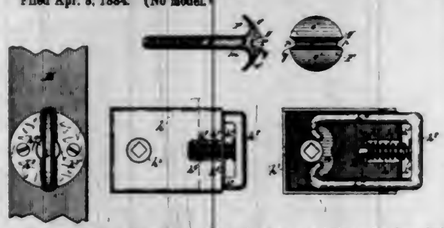
2. In a rock-drilling machine, the combination of a stationary frame, a sliding carriage thereon, a drill mounted in said carriage, freely movable forward therein and having a shoulder against the rear portion of which the carriage bears, pressure devices, substantially as described, applied to the carriage for holding it against said shoulder with a yielding pressure, the sliding hammer supported in said frame independently of and in line with the drill, and devices for forcing the hammer against the drill, substantially as set forth.

3. In a rock-drilling machine, the combination of a stationary frame, a sliding carriage thereon, a drill mounted in said carriage, freely movable forward therein and having a shoulder against the rear portion of which the carriage bears, pressure devices, substantially as described, applied to the carriage for holding it against said shoulder with a yielding pressure, a reciprocating hammer, a cam for forcing back said hammer, and a ratchet-wheel rigidly secured to the drill, said cam being provided with a lateral projection engaging with the wheel, substantially as set forth.

4. In a rock-drilling machine, the combination, with the supporting-frame, of the drill having a ratchet-wheel, and a part, H, adapted to be moved past the periphery of said wheel, and having a yielding lateral projection adapted to engage with the wheel to turn the drill and to escape therefrom should said drill become jammed, substantially as set forth.

5. In a rock-drilling machine, the combination of the supporting-frame, the drill having a ratchet-wheel, the part H, having a lateral recess, projections *h'*, mounted in said recesses, and adapted to be carried past the periphery of said wheel and engage therewith, and springs situated behind said projections to hold them out against ordinary pressure, substantially as set forth.

311,787. GATE-LATCH. ALBERT G. ROCKFELLOW, Ashland, Oreg. Filed Apr. 3, 1884. (No model.)

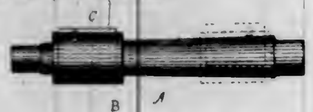


Claim.—1. An adjustable catch for latches, consisting of a threaded bolt or shank, *o*, double inclined circular head F, having central groove or notch, P, provided with end notches, *p p*, and secondary notches or offsets Q, substantially as specified, whereby the catch is adapted to catch and hold a vertically or horizontally moving latch, as set forth.

2. The combination, with the slotted latch-case *A'*, provided with flanges A^2, of the bolt A^7, spring A^8, rectangular bolt A^3, hooked at its lower ends, and tumbler *n*, substantially as shown and described.

3. The combination, with an adjustable catch for latches, consisting of a threaded bolt, *o*, double inclined head F, having central notch, P, with end or transverse notches, *p p*, and secondary notches Q, of the slotted latch-case *A'*, provided with flanges A^2, bolt A^7, spring A^8, rectangular bolt A^3, hooked at its lower end, and tumbler *n*, substantially as shown and described.

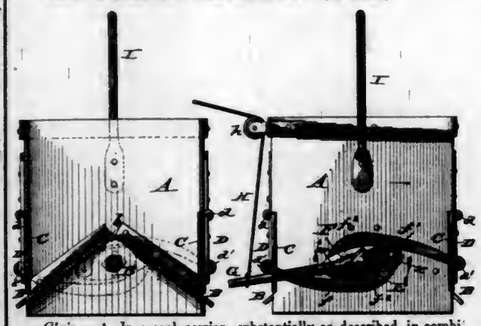
311,788. EXPANDING-MANDREL. GEORGE SHELLEY, Wilkes-Barré, Pa. Filed Dec. 18, 1883. (No model.)



Claim.—1. As an article of manufacture, the herein-described attachment for mandrels or arbors, consisting of the cylinder or barrel provided with longitudinal radial slots B', the keys placed and movable radially in said slots and formed with narrow radial grooves, and pins or studs projected from the walls of slots B', and having their points extended into the radial grooves in the keys, whereby the said keys are held from detachment from the barrel, and yet permitted to move radially therein, all combined substantially as set forth.

2. The combination, with the arbor, of the cylinder B, having radial longitudinally-extended slots B', the keys C, placed and movable radially in said slots, and having grooves D formed in their opposite ends, and the pins or studs projected from the walls of slots B' and extended into the grooves D, whereby the keys C are held from detachment from the barrel, and yet permitted to move radially therein, substantially as set forth.

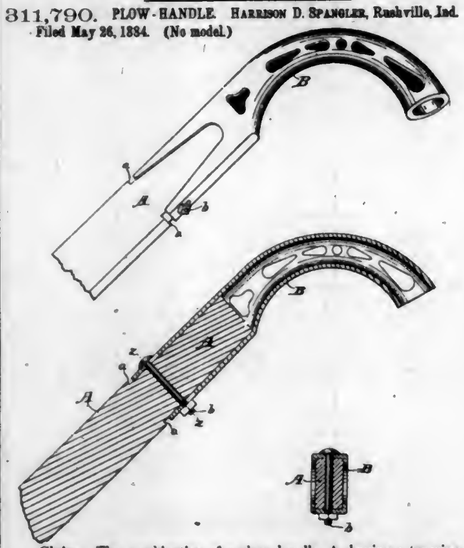
311,789. COAL OR ORE BUCKET OR CARRIER. ALBERT N. SHERRILL, Cleveland, Ohio. Filed Dec. 12, 1884. (No model.)



Claim.—1. In a coal-carrier, substantially as described, in combination with the bucket or receptacle A, having double-inclined bottom B, doors D, and rock-shaft, as E, curved links connecting each door to pivots beyond the shaft and past the axis of its motion, whereby the weight of the contents will increase the security of the lock, and a lever, as G, adapted to oscillate the rock-shaft to release the lock, as set forth.

2. The coal-bucket described, consisting of the body A, having exit-apertures C, double-inclined bottom B, doors D, and rock-shaft E, having cross-arms F, the links *f f'*, curved, as seen at *f'*, and connecting the lugs *d'* upon the doors with the pivots *x x'* upon the cross-arms, the lever G, rigid with the rock-shaft, and the rope H, adapted to manipulate the locking devices from a distance, as and for the purposes set forth.

311,790. PLOW-HANDLE. HARRISON D. SPANGLER, Rushville, Ind. Filed May 26, 1884. (No model.)



Claim.—The combination of a plow-handle, A, having a tapering tenon upon its upper end, and a metallic hand-piece, B, having a tapering socket upon its lower end, adapted to fit over said tapering tenon and elongated bolt-holes, and the bolt *b*, adapted to pass through said tenon and said bolt-holes and secure said handle and hand-piece together, substantially as shown and described.

311,791. SNAP-HOOK. GEORGE D. SPIELMAN, Cincinnati, Ohio. Filed July 11, 1883. (No model.)

Claim.—1. A snap-hook embodying in its construction an engaging-hook, an outwardly-opening spring-actuated latch pivoted thereto, and a spring-actuated bolt or pawl seated in the base of the hook, the said latch having its pivoted or hinged end cam-shaped or notched to receive said bolt or pawl when in its closed position, substantially as specified.

311,791.

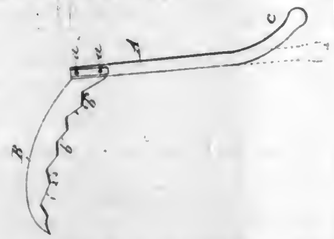


2. In a snap-hook, the combination, substantially as specified, of the hook, the outwardly-opening spring-actuated latch pivoted thereto, the bolt seated in a recess in the base of the hook, the spring to force the bolt in engagement with a notch in the latch, and the pin or knob secured to the bolt and projecting to the exterior of the hook.

3. The combination, substantially as specified, of the hook part A, recessed as shown, and the latch B, having notched and cam-shaped end b^2, with bolt C, having spur *c* and pin *c'*, and the spring D, whereby the latch is automatically opened by retracting the bolt, and automatically closed and locked in its closed position by the action of the spring when the bolt is released.

4. The blank, Fig. 12, stamped up to the form shown and adapted to form the hook A when doubled to bring the hooked ends one upon the other.

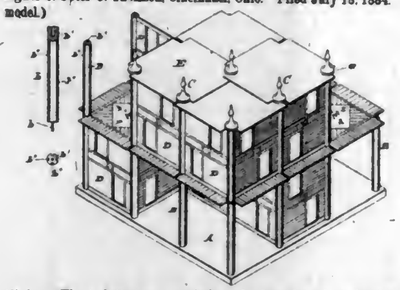
311,792. HARVESTING-KNIFE. FRANK STAFFORD, Auburn, N. Y. Filed June 16, 1882. (No model.)



Claim.—1. A harvesting implement consisting of a blade provided with two series of cutting-edges, the edges of one series being arranged at an obtuse angle to those of the other series, so as to form teeth, between the points of which the stalks of corn may be admitted, whereby said stalks may be held from motion lengthwise of the blade and acted upon by a continuous cutting-edge, in combination with a handle, whereby said blade is adapted to be used by hand, substantially as set forth.

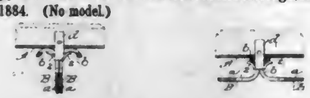
2. A harvesting implement consisting of a blade provided with two series of cutting-edges, the edges of one series being arranged at an obtuse angle to those of the other series, so as to form teeth, between the points of which the stalks of corn may be admitted, whereby said stalks may be held from motion lengthwise of the blade and acted upon by a continuous cutting-edge, in combination with a handle, whereby said implement is adapted to be used by hand, the handle having the backwardly-bent portion c, for the purposes described.

311,793. BUILDING-TOY. WALTER STRANDERS, New York, N. Y., assignor to Peter G. Thomson, Cincinnati, Ohio. Filed July 18, 1884. (No model.)



Claim.—The building-toy consisting of a base-board, A, having the several holes or pits *a*, a corresponding set of posts, B, having at one end a dowel, *b*, to occupy any hole *a* in said board, and in its other end a corresponding socket, *b'*, and in its sides four equidistant longitudinal grooves, *b''*, for partitions D, the same being combined with a series of notched floor and roof pieces, E, and of doweled finials C, substantially as set forth.

311,794. BUTTON. JNO. E. TOTTEN, North Attleborough, Mass. Filed Nov. 18, 1884. (No model.)



Claim.—The slotted shoe parts having straight and curved portions at opposite ends, respectively, combined with the post and wings holding said parts to the bottom plate of the button-head, substantially as described.

311,795. DEVICE FOR FASTENING PRESSER-FEET FOR SEWING-MACHINES TO THEIR BARS. LORENZO J. TRUSSELL, Leavenworth, Kans., assignor of one-half to Cornelius S. Hartough, same place. Filed Dec. 11, 1883. (Model.)

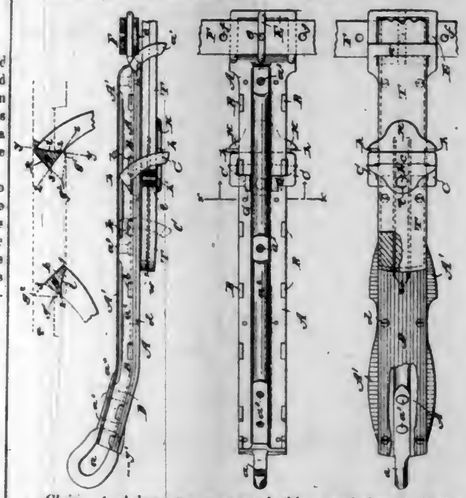
Brief.—Near the lower end of the presser-bar a vertical slot is formed. A lug projects upward into said slot, and a spring-bolt projects downward therein for securing within said slot a presser-foot shank, which latter is formed with a notch in its upper edge and with a recess in its lower edge.



Claim.—1. A presser-foot bar having a slot provided with a transverse lug and a spring-bolt projecting into the said slot from opposite sides, respectively, in combination with a presser-foot having a shank formed with edges complementary to those of the slot and lug therein and engaged by the bolt, as set forth.

2. The presser-foot bar having a vertical slot near its lower extremity, one end of said slot having a lug projecting thereinto and the opposite end having a chamfered abutting surface or seat, in combination with the presser-foot having a shank formed with a notch and with edges complementary to those of the slot, and a spring-bolt adapted to enter said notch, substantially in the manner and for the purpose set forth.

311,796. HAME-TUG AND TRACE-FASTENING. WM. H. TYLER, David City, Nebr. Filed July 2, 1884. (No model.)



Claim.—1. A hame-tug constructed with a metal plate, A, having studs B, arranged in pairs along opposite edges of the plate, and an inner face-plate, A', secured to the plate A, substantially as shown and described.

2. A hame-tug constructed with a metal plate, A, having studs B, a draft-eye, *a*, a trace-loop, *a'*, and a back-strap-holding frame, E, and a plate, A', secured to the plate A, substantially as shown and described.

3. A hame-tug made with a metal plate, A, provided with oppositely-arranged studs B and a longitudinal rib or corrugation, a^2, and a face-plate, A', secured along the rib and facing the studs, substantially as shown and described.

4. A hame-tug plate, A, formed with a longitudinal rib or corrugation, a^2, and provided on its ends with draft and trace eyes, substantially as set forth.

5. A hame-tug made with a metal plate, A, provided with opposite studs, B, a draft-loop, *a*, a trace-loop, *a'*, and the inner face-plate, A', fixed to plate A, and about parallel flatwise with the outer face of the plate A, substantially as herein shown and described.

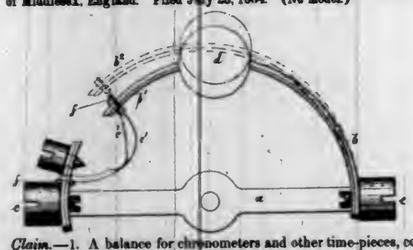
6. The combination, with the hame-tug having studs B, of a trace, T, held to the tug by a loop, C, having faces or draft-shoulders *i* and inclined faces *k*, permitting the loop to be swung for releasing the heads G from the studs B, substantially as shown and described.

7. The combination of the hame-tug having parallel plates A A' and studs B, as specified, and a trace, T, held to the tug by a swinging loop-fastening, C, provided with heads G, having shoulders *i*, inclined faces *k*, and extension-points g^2, substantially as shown and described.

8. The trace-fastening loop C, made with a cross-bar, *c*, side arms, *c' c'*, and heads G, provided with draft-faces *i*, inclined faces *k*, and points g^2, substantially as shown and described.

9. The combination, with the hame-tug plate A, having studs B, and the fastening-loop C, provided with heads G, having faces *i* to lock against the studs, as specified, of a bowed spring fitted at the end of the trace, for holding the loop-heads to the tug-plate, substantially as shown and described.

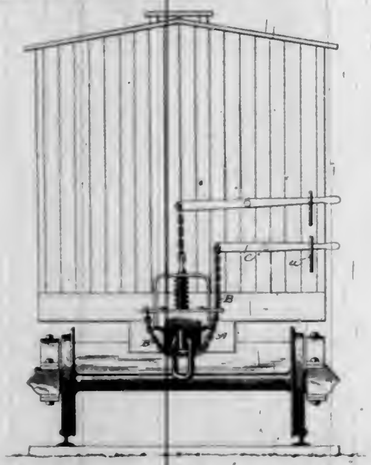
311,797. WATCH-BALANCE. JOHANN E. A. UHRIG, London, County of Middlesex, England. Filed July 23, 1884. (No model.)



Claim.—1. A balance for chronometers and other time-pieces, comprising bimetallic segmental arms and an intermediate connecting-spring, substantially as and for the purpose set forth.

2. In a balance for chronometers or other time-pieces, the bimetallic segmental arms, in combination with the spring having a tension to produce an accelerating effect upon the inward movement of said arms and a retarding effect upon their outward movement, substantially as and for the purpose set forth.

311,798. CAR-COUPLING. CLARENCE S. WOODMAN, Wichita, Kans. Filed Sept. 10, 1884. (No model.)



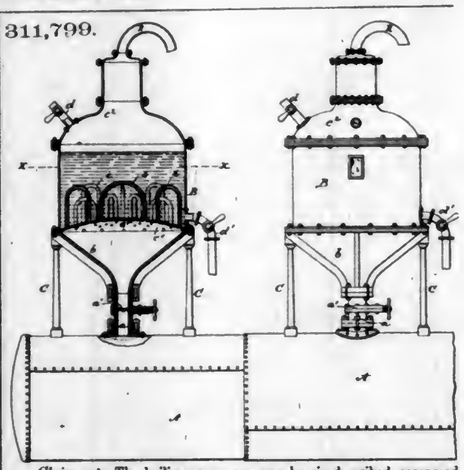
Claim.—1. In a car-coupling, and in combination, a draw-head, a link and pin adapted thereto, and a chain passing under the link, said chain being fixed at one end and secured to a moving lever at the other, whereby by the action of the lever the link is elevated, substantially as described.

2. In a car-coupling, and in combination, a draw-head, a link and pin adapted thereto, a chain secured to one side of the said draw-head and passing under the link and through a guide on the opposite side of said draw-head, and a hand-lever connected to the end of said chain, all substantially as described.

3. In a car-coupler, the draw-head formed with the upper half overhanging the lower portion, as described, in combination with the link and pin and flexible means for elevating the link, substantially as described.

311,799. HEATER AND EVAPORATOR FOR SIRUP AND OTHER LIQUIDS. HILARIO YSABA Y LAZARTE and EUGENE PROSPERO LAREE, Santa Clara, Cuba. Filed Oct. 16, 1883. Renewed Jan. 3, 1885. (No model.)

311,799.

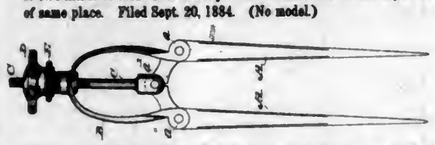


Claim.—1. The boiling or vacuum pan herein described, composed of the base *a* and valve *a'*, the portion *b*, the pan B, its dome-shaped bottom *c'*, and the inverted-U-shaped pipes *e*, substantially as set forth.

2. The combination, with a pan for heating or boiling sirup or other liquid, of the inverted-U-shaped pipes or tubes within the pan, and passing at their ends through the flat or dome-shaped bottom of the pan, for the purposes and substantially as set forth.

3. In an evaporating or boiling apparatus, a pan to contain the material to be evaporated, a jacket below the same, a steam generator or boiler, and a direct connection from the upper part of the boiler to the steam-jacket, so that the steam passes directly into the steam-jacket and water of condensation runs back into the boiler, substantially as set forth.

311,800. CALIPERS. CHARLES H. ALAPAW, St. Louis, Mo., assignor of two-thirds to John G. Brinkmeyer and Frederick A. Brinkmeyer, both of same place. Filed Sept. 20, 1884. (No model.)

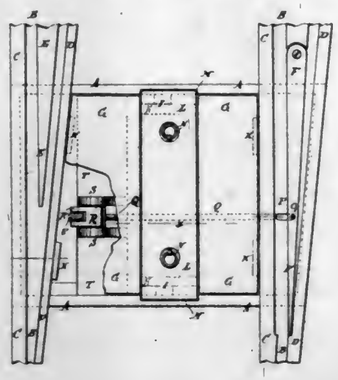


Claim.—1. The combination of the legs A A, the yoke B, the screw-rod C, and the nut D, said legs being pivoted to the yoke and extended beyond the pivots inwardly and joined to the screw-rod, substantially as described.

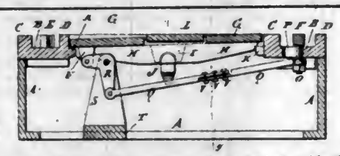
2. The combination of the legs A A, the yoke B, the screw-rod C, the nut D, and the nut E, said legs being pivoted to the yoke and extended beyond the pivots inwardly, and at their ends being jointed to the screw-rod, substantially as described.

311,801. RAILWAY-SWITCH. ABRAHAM AYRES, New York, N. Y. Filed Apr. 15, 1884. (No model.)

Brief.—A street-railway switch operated by the weight of the draft-animal. The rocking frame is connected to the switch-rail by a sectional adjustable transverse rod secured by one end to the switch-rail and through a bell-crank lever pivoted to a standard to the rocking frame.



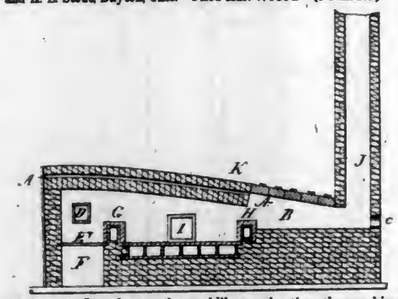
311,801.



Claim.—1. The combination, in a railroad-switch, with the oscillating plate G H, elbow-lever R, and pivoted tongue F, of the sectional rod Q, connected at its opposite ends to the elbow-lever and tongue, and provided with slots W in its adjacent overlapped ends, and the fastening-bolts V, for adjusting the length of the rod to give exactly the necessary amount of movement to the switch-tongue, substantially as set forth.

2. A railroad-switch of the character described, consisting, essentially, of the casing A, main and branch tracks C D, fixed and movable tongues E F, frame G H, pivoted at J, stationary central section, I, standard S, bell-crank lever R, pivoted thereto and pivotally connected to one side of the oscillating frame, pin O, extending from the pivoted tongue through the casing, and the rod Q, connecting said pin and the lower end of the lever R, substantially as set forth.

311,802. PUDDLING AND HEATING FURNACE. THOMAS H. BENNETT, Ironton, Ohio, assignor of two-thirds to D. Linn Gooch, same place, and A. L. Stout, Dayton, Ohio. Filed Mar. 7, 1884. (No model.)

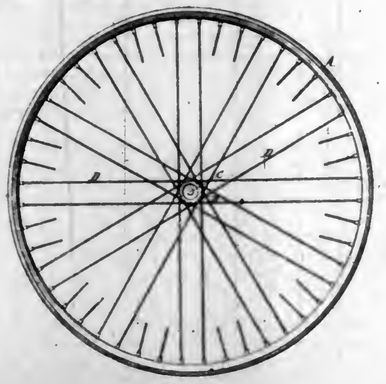


Claim.—1. In a furnace for puddling or heating, the combination, with the fuel and puddling chambers, of an air-passage, A A, within the crown of the furnace, extending from the front of the fuel-chamber to the rear of the puddling-chamber, and discharging into the front of the neck, substantially as described.

2. In a puddling or heating furnace, an air passage or flue, A A, extending from the front of the furnace along the crown thereof to the rear of the puddling-chamber, such flue being composed of a series of sections, A, placed face to face, and each provided with a single perforation, as described.

3. In a furnace, one or more air-flues, A A, extending along the crown of the furnace from the front of the same to the rear of the heating-chamber, and discharging into the front portion of the neck of the furnace, the upper portion of the neck constituting a continuation substantially in the same downwardly and rearwardly inclined plane of the upper portion of such flues, substantially as described.

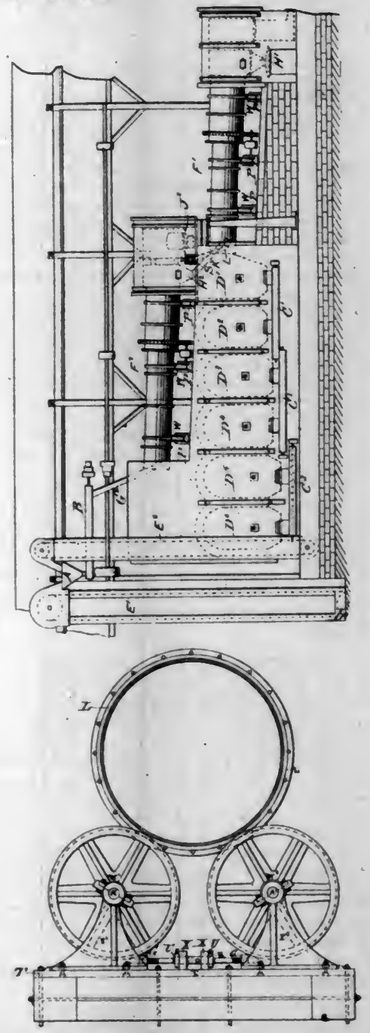
311,803. BICYCLE-WHEEL. GEO. E. BLACKHAM, Dunkirk, N. Y., assignor of two-thirds to Bull & Haynes and Ephraim N. Bowen, all of Buffalo, N. Y. Filed Nov. 11, 1884. (No model.)



Claim.—1. In a wheel for bicycles and similar vehicles, the combination, with the rim and hub, of two opposite spokes constructed of a continuous length of wire secured at its middle to the hub, and arranged in a line which is tangential to a circle drawn concentric with the wheel through the points at which the spokes are attached to the hub, substantially as set forth.

2. In a wheel for bicycles and similar vehicles, the combination, with the rim and a hub provided with an opening for the attachment of two spokes, of two opposite spokes constructed of a continuous length of wire provided with a bent shoulder, *f*, seated in said opening in the hub, both spokes being arranged in a line which is tangential to a circle drawn concentric with the wheel through the point at which the spoke is attached to the hub, substantially as set forth.

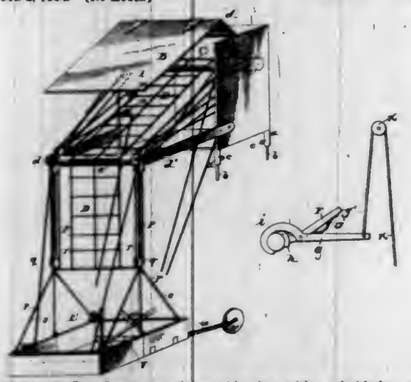
311,804. CALCINING AND CHLORIDIZING FURNACE. WILLIAM H. H. BOWERS, Salt Lake City, Utah. Filed Feb. 6, 1883. Renewed Dec. 29, 1884. (No model.)



Claim.—1. The combination, with a rotary furnace, of the grooved or ribbed bed-plate T, having lugs X X, the adjustable standards $F' F^2$, supported thereon, and having lugs G G, the capstan-screw R, secured by collars U U, and the wheels $W' W^2$, journaled in the adjustable standards, substantially as described.

2. The combination of the rotary furnaces $F' F^2$, adjustable standards $I' I^2$, bearing-wheels $W' W^2$, hoppers $A H' H^2$, dust-chambers $D' D^2 D^3 D^4 D^5 D^6$, chimney M, elevator $E' E^2$, and conveyer B, substantially as shown and described.

311,805. FIRE-ESCAPE. JOSEPH H. BOWLEY, Marengo, Ill. Filed Oct. 2, 1884. (No model.)



Claim.—1. In a fire-escape, the combination, with a suitable box or casing having a drum or shaft mounted to turn therein, a ladder wound upon said shaft, and a car attached to said ladder, of a brake adapted to limit the speed of descent by acting directly on the drum and operated by a rope within the car or cage, substantially as set forth.

2. In a fire-escape, the combination, with a suitably-mounted shaft, of a ladder or ropes secured to said shaft, a car attached to said ladder or ropes, a series of pulleys arranged upon the inner sides of the casing, double blocks attached to the car, and ropes connecting the double blocks and pulleys, as set forth.

3. In a fire-escape, the combination, with a suitable box or casing, of arms pivoted to the same, a roller connecting the outer ends of said arms, and jointed rods connecting the outer ends of the arms with the casing, as set forth.

4. The combination, with a suitable casing having a shaft, of a brake consisting of a stationary and pivoted arm adapted to act upon the shaft of the casing and operated directly from the car, as set forth.

5. In a fire-escape, the combination, with a car having a slot in the rear end thereof, of pivoted arms carrying rollers, and a toggle-lever for operating said arms, as set forth.

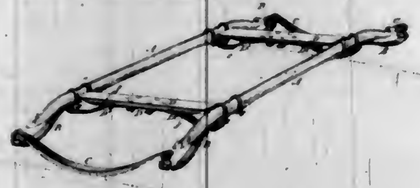
6. In a fire-escape, the combination, with a suitable casing having pulleys arranged upon its inner sides, of a car, double blocks attached to said car, ropes connecting the pulleys and blocks, a shaft journaled in the sides of the car and having a pulley or drum at each end, pulleys journaled just in front of said shaft, and a brake, as set forth.

311,806. PISTON. HIRAM L. BROWN, Vistula, assignor of one-half to George N. Thomas and Eli Albright, Goshen, Ind. Filed July 25, 1884. (No model.)



Claim.—The combination of a piston-body, a packing-disk having an overturned flange, a screw-threaded bolt axial to the piston body and projecting from its face, a disk having an annular recess at the edge of its face and having radiating grooves or recesses, T-shaped blocks having arms sliding in the radiating recesses and having segmental cross-heads formed with inwardly-facing shoulders having ratchet or wedge shaped projections, a disk turning upon the axial bolt having ratchet-teeth or cam projections corresponding in number and location to the projections upon the blocks and having a central nut, and a clamping-nut fitting upon the threaded central bolt and bearing against the nut of the disk, as and for the purpose shown and set forth.

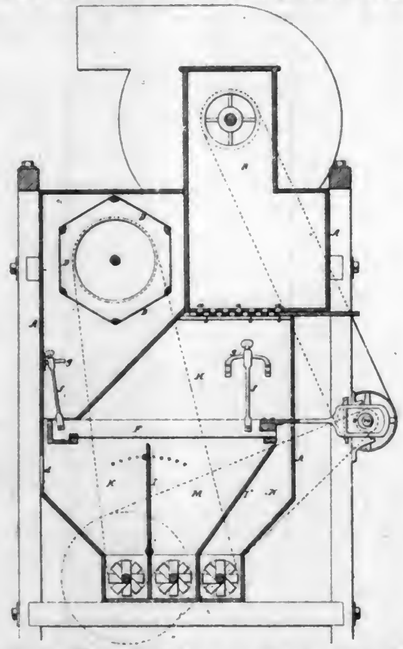
311,807. VEHICLE-SPRING. GEORGE W. BUNN, Frenchtown, N. J. Filed Jan. 17, 1884. (No model.)



Claim.—1. The combination of cross-springs adapted to receive the vehicle-body, spring side bars supporting said cross-springs, longitudinal steel springs at the ends of said side bars, and transverse half-elliptic springs connecting the longitudinal springs, substantially as described.

2. The combination of cross-springs adapted to receive the vehicle-body, each composed of steel springs, and a follower provided with curved lugs on its under side near its ends, spring side bars supporting said cross-springs, and provided with curved lugs on their under sides near their ends, transverse end springs adapted for attachment to the hind axle and bolster, respectively, and downwardly-inclined longitudinal steel springs connecting said side bars with said transverse end springs, said longitudinal steel springs passing under the curved lugs of the side bars, substantially as described.

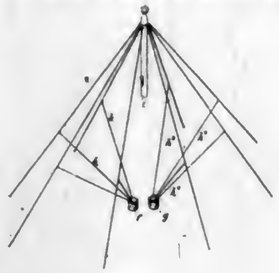
311,808. MIDDLINGS-PURIFIER. ELI T. BUTLER and THOMAS McFEELY, Philadelphia, Pa., assignors to said McFeely, Samuel E. Griscom, and Walter Griscom, all of same place. Filed Apr. 14, 1884. (No model.)



Claim.—The combination, in a separator, of a primary rotating screen, a series of secondary shaking screens, each receiving a special grade of material from said primary screen, and each having gauze of coarser grade than that of the section of primary screen supplying the material thereto, and means, substantially as described, for producing an upward draft of air through the meshes of the shaking screens, as specified.

311,809. UMBRELLA-COVERING FOR VEHICLES. CHARLES H. BUTLIN, Camborne, County of Cornwall, England. Filed Nov. 3, 1884. (No model.) Patented in England Sept. 22, 1884, No. 12,679.

Claim.—1. A folding umbrella covering or protecting attachment in which the umbrella-stick and the ribs are combined with separable ferrules or parts which carry the ribs, and can be opened out and passed on each side of a support, (to allow of the umbrella-stick being put in



311,809.

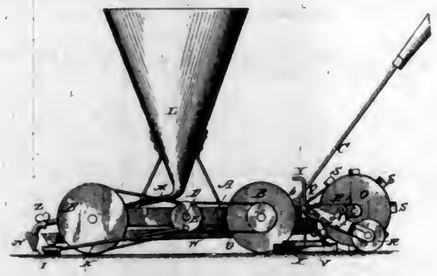


the holder on the support,) and then be brought together again and held upon the stick below the holder on the support, substantially as hereinbefore described.

2. The combination of the umbrella-support, the vehicle, and the interposed springs carrying the support and attached to the vehicle, substantially as and for the purposes hereinbefore set forth.

3. A support for umbrellas or coverings for vehicles, provided with springs for attachment to the said vehicles, the adjustable fixing of the support being effected by screws and disks attached to the springs and the ends of the supports proper, substantially as hereinbefore described, and illustrated in the accompanying drawings.

311,810. SCRUBBING-MACHINE. JOHN F. CAMERON, New York, N. Y. Filed Jan. 23, 1884. (No model.)



Claim.—1. In a scrubbing-machine mounted on wheels, having a brush hung at its forward end, and means for reciprocating the same, the combination of a pan hung to the machine and inclined forward, its forward end being above the said brush and perforated, and means, substantially as described, for raising water from the floor into the rear end of the said pan, as shown and described, whereby the same water may be brought forward of the brush and used over again.

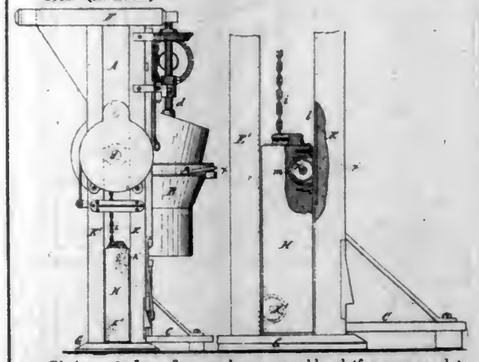
2. The combination, in a scrubbing-machine mounted on wheels, and having a settling-pan hung to it, of a wheel journaled in the machine across its rear end, having radial buckets to wipe the floor, means for connecting the said bucket-wheel to the drive-wheel of the machine, with a water-way curved to the arc of the said buckets, and hung from the pan to the floor tangent to the said buckets, substantially as shown and described, whereby water may be wiped by the bucket-wheel from the floor all the way into the pan.

3. In a scrubbing-machine mounted on wheels, and having a settling-pan hung thereto, the combination of a curved water-way hung to said pan to touch the floor, with a wheel having radial buckets curved backward from the edges to the center, and hung tangent to the said curved water-way, as shown and described.

4. The combination, in a scrubbing-machine mounted on wheels, of a settling-pan, a water-way leading thereto, a bucket-wheel, and side water-guides, and means for adjusting them, substantially as described, whereby they may be set at any desired angle with the line of travel, and with any degree of pressure upon the floor.

5. The combination, in a scrubbing-machine mounted on wheels, of a settling-pan, a water-way leading thereto, a bucket-wheel journaled in a yoke hung by hinges to the frame of the machine, and independent rollers adjustably hung to said yoke, as shown and described.

311,811. FLOUR-PACKER. HORACE P. CHAPMAN, Akron, Ohio, assignor to Howes, Babcock & Ewell, Silver Creek, N. Y. Filed Apr. 25, 1882. (No model.)

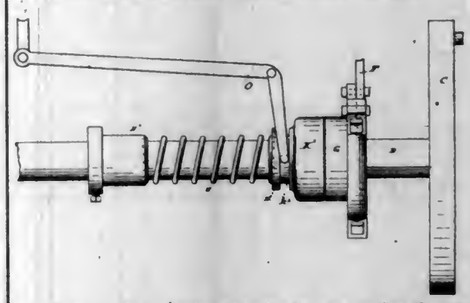


Claim.—1. In a flour-packer, a movable platform arranged to travel upon friction-rollers, substantially as set forth.

2. The combination, with the upright posts of a flour-packer and the movable platform, of the friction-rollers arranged in front and at the rear of said platform and adapted to travel vertically upon the uprights, substantially as set forth.

3. The combination, with the upright posts of a flour-packer, of a movable platform having upright side pieces sliding between said posts, and provided with rollers arranged in recesses formed, respectively, in the front and rear sides of the side pieces of the platform, and adapted to travel vertically on the posts of the machine, substantially as set forth.

311,812. REVERSING-GEAR FOR STEAM-ENGINES. WILLARD A. CLARKE, Stillwater, Minn., assignor to the North-Western Manufacturing and Car Company, same place. Filed Dec. 14, 1882. (No model.)



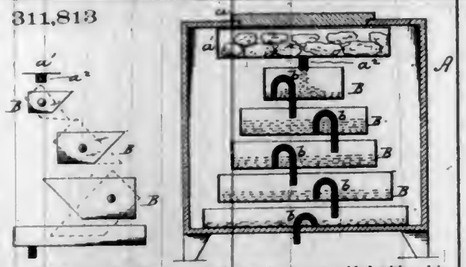
Claim.—1. In a reversing mechanism for steam-engines, the combination of the following elements, namely: the engine-shaft, the loose eccentric, and the opposing continuously-rotating collar, one of which can slide relatively to the other on the shaft, and of which one is provided with a pin or projection and the other with seats or recesses to receive the pin, said recesses being equidistant from the engine-shaft, but not diametrically opposite to each other, substantially as and for the purposes set forth.

2. In a reversing mechanism for steam-engines, the combination of the following elements, namely: the engine-shaft, the loose eccentric, and the opposing continuously-rotating collar, one of which can slide relatively to the other on the shaft, and of which one is provided with the pin or projection and the other with seats or recesses to receive the pin, said recesses being equidistant from the engine-shaft, but not diametrically opposite to each other, and a groove connecting the recesses and traversing the greater part of the circle upon which the recesses are located, substantially as set forth.

3. In a reversing mechanism for steam-engines, the combination of the following elements, namely: the engine-shaft, the loose eccentric, and the opposing continuously-rotating collar, one of which can slide relatively to the other on the shaft, and of which one is provided with a pin or projection and the other with seats or recesses to receive the pin, said recesses being equidistant from the engine-shaft, but not diametrically opposite to each other, and means whereby the part which carries the pin can be adjustably connected with the shaft, substantially as set forth.

311,813. REFRIGERATOR. EDWARD Z. COLLINGS, Camden, N. J., and CHARLES F. PIKE, Philadelphia, Pa. Filed May 15, 1884. (No model.)

311,813



Claim.—1. A refrigerator having an ice-box provided with a drip-outlet and a series of pans or troughs communicating with one another, and providing an intermittent passage or flow for the drip, substantially as shown and described.

2. A refrigerator having an ice-box with drip-outlet and a series of pans or troughs which successively receive the drip and automatically and intermittently discharge it, substantially as shown and described.

3. A refrigerator having an ice-box with drip-outlet and a series of communicating pans or troughs adapted to receive and detain the drip therein and automatically and intermittently discharge it therefrom, substantially as shown and described.

4. A refrigerator having an ice-box with drip-outlet and a series of commenicating pans or troughs of gradually-increasing size, adapted to receive, detain, and automatically and intermittently discharge the drip, substantially as shown and described.

5. A refrigerator provided with a supply of refrigerant liquid or drip, and a series of communicating pans or troughs adapted to receive and detain such liquid therein and automatically and intermittently discharge it therefrom, substantially as shown and described.

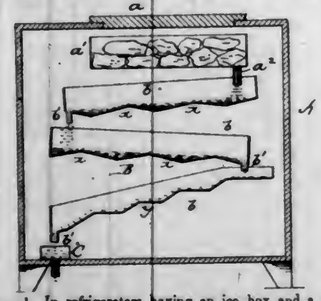
6. The method herein described for producing the refrigerant results in refrigerators, which consists of passing an intermittent flow of refrigerant liquid through the refrigerator, substantially as shown and described.

7. A refrigerator having an ice-box with drip-outlet and a series of pans or troughs having siphon-outlets which intermittently draw the water from the pans, substantially as shown and described.

8. A refrigerator having ice-box a', drip-outlet a^2, and pans B, of different sizes, and provided with siphon-outlets, said siphons intermittently drawing the water from the pans, substantially as shown and described.

9. A refrigerator having a continuous drip or flow from the ice-box and an intermittent flow for said drip through the refrigerator-box, substantially as shown and described.

311,814. REFRIGERATOR. EDWARD Z. COLLINGS, Camden, N. J., and CHARLES F. PIKE, Philadelphia, Pa. Filed May 15, 1884. (No model.)



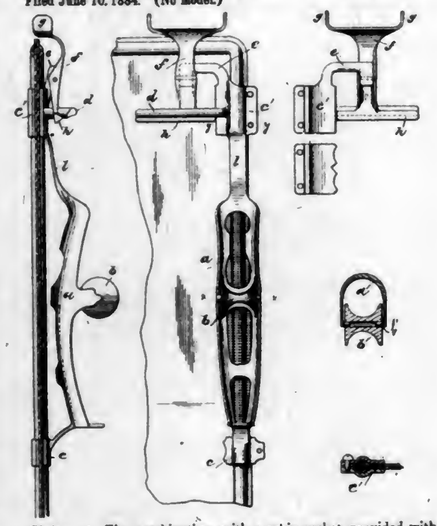
Claim.—1. In refrigerators having an ice-box and a series of troughs for conducting the drip from the ice-box through the refrigerator, the method herein described for increasing the refrigerant results, which consists of retarding the flow of drip by causing it to pass over corrugations placed transversely in the line or direction of the flow, substantially as set forth.

2. The refrigerator A, having ice-box a and a series of inclined troughs, b, provided with corrugated or wave-like bottoms, the corrugations or wave-lines of which are placed transversely to the line or direction of flow, substantially as shown and described.

3. The combination, with a refrigerator, of the inclined troughs b, having uneven or corrugated bottoms b', the corrugations or wave-lines of which are placed transversely to the line or direction of the flow, substantially as shown and described.

4. A conducting or drip-flow pan or trough having corrugated or uneven bottom b', with transverse corrugations, and the outlet for the water between one of the corrugations and the end of the trough, substantially as shown, and for the purpose set forth.

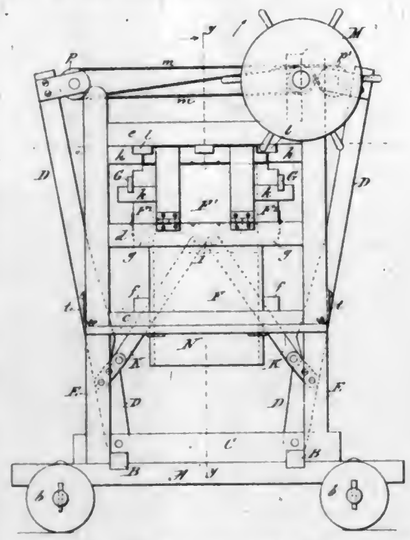
311,815. COMBINED WHIP-SOCKET AND REIN-HOLDER. E. MINER CRUMLEY, Springfield, assignor of one-half to T. J. Arnold, Boswell, Ohio. Filed June 10, 1884. (No model.)



Claim.—1. The combination, with a whip-socket provided with a clamp, c, and a line-holder provided with a clamp, c', of a connecting-strip, l, adapted to connect said whip-socket and line-holder, whereby the said line-holder and whip-socket may be held in their respective positions by said clamps, substantially as set forth.

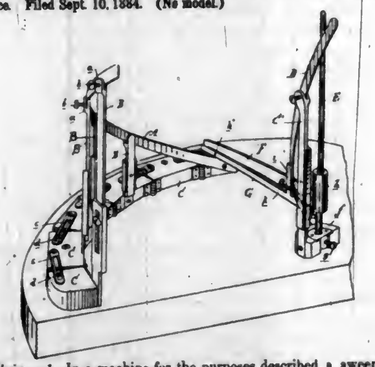
2. The combination, with the clamp c', of the arms d and e, and the gripping-lever f, pivoted to one of said arms, and adapted to bear against the other, substantially as set forth.

311,816. COTTON AND HAY PRESS. BURWELL J. CURRY, Huntsville, Ala. Filed June 12, 1884. (No model.)



Claim.—In a press, the combination, with the compression-chamber F, having hinged sides F' F^2, and the lower platen or follower, I, having levers D D and K K_2 of the drum L, having hand-wheel M, and journaled at the top of the press on one side beyond the compression-chamber, and the rope m, connected to said drum, and then passed over pulleys on the main levers and secured to a standard at one corner of the press-frame, whereby the drum and its hand-wheel are prevented from interfering with the opening and closing of the doors F' F^2, substantially as shown and described.

311,817. DEVICE FOR MOLDING PROPELLER-WHEELS. JAMES DALGARNO, Detroit, Mich., assignor of one-half to P. Henry Griffin, same place. Filed Sept. 10, 1884. (No model.)



Claim.—1. In a machine for the purposes described, a sweep connected to a carrying-arm and traveling on and guided by two guide-curves of different pitch, substantially as and for the purpose specified.

2. In a machine for the purposes described, the combination of the two guide-curves A D of different pitch, with the central post, E, radial arm F, and the sweep G, pivotally secured thereto at one end and vertically movable at the other end, substantially as described.

3. In a machine for the purposes described, the combination of the outer guide, B, with the sectional base-blocks C, adjustably connected together by means, substantially as described, for adjusting said base-blocks to circles of different radius.

4. In a machine for the purposes described, a guide provided with means, such as the adjustable standards B, for adjusting said guide to any desired pitch.

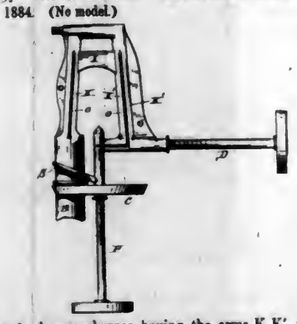
5. In a machine for the purposes described, the self-adjusting sweep G, pivotally secured at one end to the radial carrier-arm F, arranged to rise on a central supporting-spindle, said sweep G being provided with means, such as the arm i and loop k, for vertically guiding it upon its other end.

6. In a machine for the purposes described, the combination of two guide-curves of different pitch with the self-adjusting sweep G, substantially as described.

7. In a machine for the purposes described, the inner guide, D, in combination with the circular base-block f and set-screw g, for securing the inner guide in position and adjusting it radially around the post, substantially as specified.

8. In a machine for the purposes described, the combination of two guide-curves of different pitch with the self-adjusting sweep G, pivotally secured at one end to the radial carrier-arm F, and provided with means, such as the arm i and loop k, for vertically guiding it upon its other end, substantially as described.

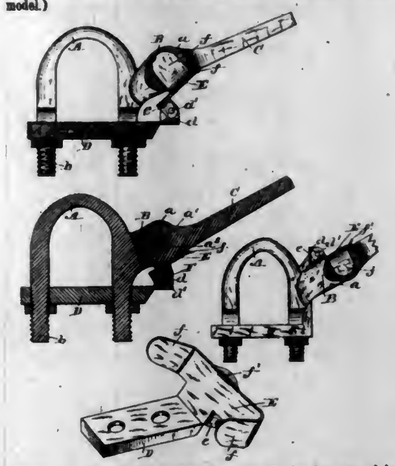
311,818. VAPOR-BURNER. ZEBULON DAVIS, Canton, Ohio. Filed July 19, 1884. (No model.)



Claim.—1. A vapor-burner having the arms K K', which extend a suitable distance above the flame, and which are united together at their upper ends by a suitable pipe or connection, which pipe and connection form a suitable conduit for the oil or vapor, and which arms are united together by a web which extends across above the top of the flame, substantially as shown.

2. A vapor-burner having the two arms K K', which project a suitable distance above the flame, and which are united together at their upper ends by means of a suitable pipe, which arms and pipe form a conduit for the oil, and which arms are connected together by means of a web, A, and provided with suitable webs, O, which extend along down the sides of the arms, substantially as set forth.

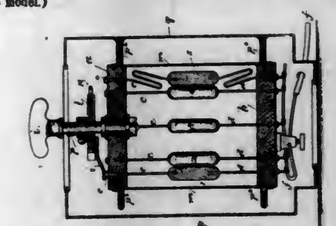
311,819. THILL-COUPLING. JAMES L. DOWNING, Richmond, Ill., assignor of one-half to G. H. Wells, same place. Filed Nov. 22, 1884. (No model.)



Claim.—1. In a thill-coupling, the yoke D, having ears d, in combination with the spring F, secured upon pin or bolt d', and plate E, substantially as shown and described.

2. In a thill-coupling, the plate E, having ears e, and flanged extensions f, in combination with the yoke D, having ears d, and spring F, substantially as shown and described.

311,820. RHEOSTAT. JOHN DOYLE, Hoboken, N. J., assignor to himself and C. Coles Dusenbury, White Plains, N. Y. Filed Mar. 31, 1884. (No model.)



Claim.—1. The combination, with the conductors in a rheostat, of a range of materials of different specific conductivity, and a movable switch device for directing the current through the desired resistance, substantially as set forth.

2. The conductors c d and the heads a b, supporting the same, in combination with the connections of different specific conductivity between the respective conductors, and a movable switch, substantially as set forth.

3. The combination of the heads a b, conductors c d, resistances of different specific conductivity, the switch, the circuit-connections, and the surrounding case of non-conducting material, substantially as set forth.

4. The heads a b, in combination with the conductors c d, the resistances of different specific conductivity uniting such conductors, the switch, the non-conducting case and surrounding covering q, and coils p^2, substantially as set forth.

5. A rheostat having a resistance composed of plumbago and borax, or its equivalent, mixed together, the resistance varying in proportion to the borax present in the mixture, substantially as set forth.

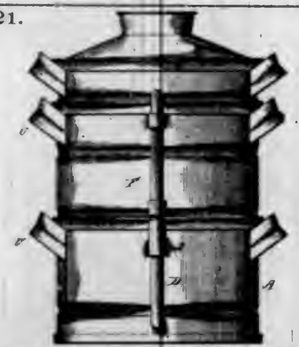
311,821. STEAM COOKING-VESSEL. ANDREW J. DUDLEY, North Anson, assignor to Ben Moore, Anson, Me. Filed Mar. 15, 1884. (No model.)

Claim.—1. The combination, in a steaming or cooking utensil, of a lower water-chamber, a cold-water receptacle located in the upper part of said utensil, and a pipe connecting the upper part with the lower water-chamber, the latter connection being beneath the low-water line of said chamber, substantially as set forth.

2. The combination, in a steaming or cooking utensil, of a lower water-chamber, a series of perforated partitions located above said chamber, an upper chamber provided with a cold-water receptacle, and a pipe connecting the upper with the lower chamber, the latter connection being beneath the low-water line of said chamber, substantially as set forth.

3. The combination, in a steaming or cooking utensil, of a lower water-chamber, a cold-water receptacle located in the upper part of said

311,821.



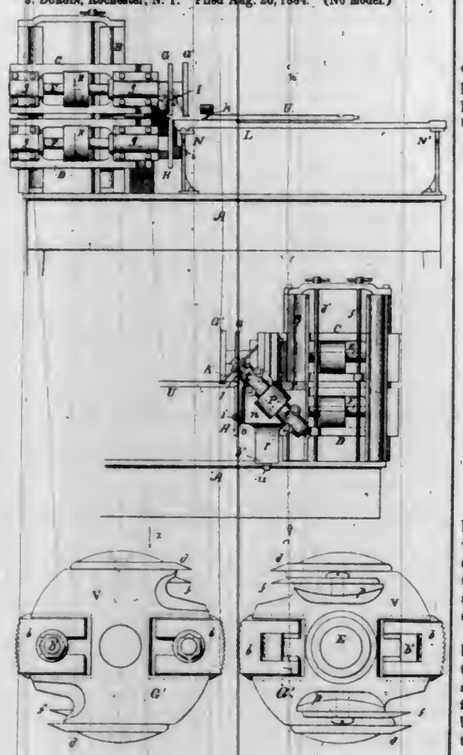
utensil, and a pipe for establishing communication between said upper part and lower water-chamber, the latter connection being beneath the low-water line of said chamber, and composed of a series of independent sections retained in position by braces and sleeves, substantially as described.

4. The combination, in a steaming or cooking utensil, of a series of receptacles arranged above each other, having perforated partitions, and forming a lower water-chamber and an upper chamber containing a cold-water receptacle, and a pipe connecting the upper part with the lower water-chamber, the latter connection being beneath the low-water line of said chamber, substantially as described.

5. The combination, in a steaming or cooking utensil, substantially as described, of an upper condensing-chamber containing a cold-water receptacle and a cylinder for exposing said receptacle to the atmosphere, in the manner and for the purpose set forth.

6. The combination, in a steaming or cooking utensil, substantially as described, of an upper condensing-chamber, a lower water-receptacle, a pipe connecting the two, an opening formed at about low-water line in the said lower chamber and communicating with an alarm, and the end of said pipe entering said chamber below said alarm-opening, as set forth.

311,822. TABLE-RAIL TENONING AND GROOVING MACHINE. H. J. DUBOIS, Rochester, N. Y. Filed Aug. 20, 1884. (No model.)



Claim.—1. In a machine for shaping rails for table-frames, a rotating spindle, E, provided with a cutter-head, G, for forming one side of the tenon of the rail, and a similar adjacent cutter-head, G', for forming a transverse groove, O, in the rail parallel to the shoulder of the tenon, said latter cutter-head being provided at each side with a spur cutter or marker, *b*, and body-cutter *d*, and a side or wing cutter, *f*, for surfacing the rail adjacent to the groove, substantially as described.

2. In a machine for shaping rails for table-frames, the cutter G', for forming the rectangular portion of the groove O, said cutter being held upon or secured to a horizontal spindle, E, and the inclined cutter K, for forming the triangular portion of said groove, secured to an inclined spindle, I, the latter cutter being held on a line with and in rear of the former cutter, in combination with a horizontal sliding carriage, L, for holding the rail and carrying the latter successively against the said cutters as said carriage advances along its bearings N N', substantially as set forth and shown.

3. In a machine for shaping rails for table-frames, the combination of the horizontal spindle E, provided with the cutter-heads G and G', the parallel horizontal spindle F, provided with the cutter-head H, said spindles being held one above the other in bearings, with the cutter-head G directly over and opposite the cutter-head H, and the inclined spindle I, provided with a cutter, K, held in line with and in rear of the cutter G', all operating conjointly to complete one end of a rail at one advance movement of the latter upon the sliding carriage L, substantially as set forth.

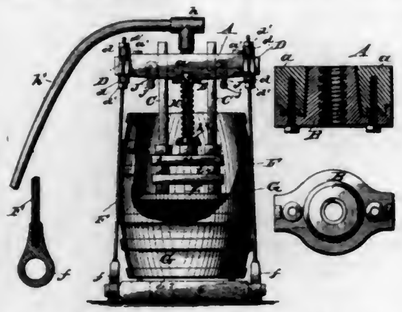
4. In a machine for shaping rails for table-frames, in combination with a horizontal spindle, E, provided with cutter-heads G and G', an inclined spindle, I, provided with a cutter, K, the latter being held in line with and in rear of the cutter G', vertical and horizontal adjusting devices *u* and *i*, to adjust the inclined cutter K with reference to the cutter G', and a sliding carriage, L, for holding the work and carrying the latter against the cutters above named, substantially as shown.

5. In a machine for shaping rails for table-frames, the combination of the horizontal spindle E, provided with cutter-heads G and G', the horizontal parallel spindle F, provided with the cutter-head H, and the inclined spindle I, provided with the cutter K, all operating conjointly to complete one end of a rail, with a sliding carriage, L, for holding the rail while being formed, and carrying the same against said cutters in a line at right angles with the axis of said spindles, substantially as specified.

311,823. METHOD OF BOOKING GOLD-LEAF. EDWARD EWING, Philadelphia, Pa., assignor to Robert E. Hastings, John V. Hastings, and Harry O. Hastings, all of same place. Filed May 10, 1884. (No specimens.)

Claim.—As an improvement in booking gold-leaf, the mode herein described of effecting the desired adherence of the leaves of gold and paper, said mode consisting in first moistening and acidulating sheets of paper, and then forming the book by alternate leaves of gold and such moistened and acidulated sheets of paper, as set forth.

311,824. PRESS. WILLIAM S. FORD, Louisville, Ky. Filed Dec. 13, 1884. (No model.)



Claim.—1. A press for tobacco or other material, composed of a head-block having properly fixed thereto a cast-metal block provided with an internally-threaded vertical opening, a cast-metal operating-screw engaging the opening in said block, a base-piece of proper construction, and rods or bars suitably constructed and arranged to connect and firmly bind together the said head-block and base-piece, substantially as specified.

2. In a press for tobacco or other material, the combination of a head-block composed of two similar opposite beams bound together at their ends by metallic straps or bands, and properly-shaped wedges inserted or driven between the said beams, so as to keep them tight in their end bands, while having a space between them, with a metallic block fixed centrally between said beams, and having an internally-threaded opening, a properly-actuated operating-screw engaging said

opening, a bed or base piece, and rods or bars properly constructed and arranged to connect and firmly bind together the said base-piece and head-block, substantially as specified.

3. In a press for tobacco or other material, the combination of the head-block A, composed of the side beams, *a a*, united at their ends by the bands or straps D, the wedges *a' a'*, and the metallic block B, with a properly-constructed base-piece provided with a central platform having an elevation above the rest of the base, and rods or bars connecting the said base and head-block together, substantially as specified.

4. The combination, in a press for tobacco or other material, of the head-block A, composed of the two similar beams *a a*, and the bands and straps D, with the wedges *a' a'*, and a cast-metal block situated centrally between the beams *a a*, provided with an internally-threaded opening, and having proper flanges to bear against the lower surfaces of the beams *a a*, and dovetailed lugs to bear against and engage the outer sides of the same, substantially as specified.

5. In a press for tobacco or other material, the combination, with a base-piece, a head-block, and rod constructed and arranged to connect the same and bind them together, of two or more retaining-rods sliding easily through channels in the head-block, and having their lower ends resting upon the apparatus to press the material acted upon, and an equal number of eccentric cams or rollers turning or pivoted in the head-block in such manner as to permit the descent of the retaining-rods, but stop their ascent, substantially as specified.

6. In a press for tobacco or other material, the combination of the head-block A and base-piece E, properly connected thereto, with the retaining-rods C C and eccentric cams J, substantially as specified.

7. In a press for tobacco or other material, the combination, with the head-block A and bands or straps D, of the base-piece E, provided with the beams *e e*, having their ends rounded and slightly tapered, and the connecting bars or rod F, having the ring-shaped lower ends or eyes, *f*, substantially as specified.

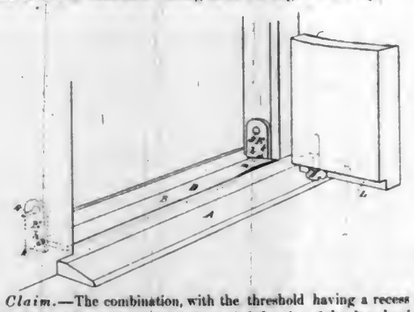
8. The combination, with a tobacco or other press, composed of a head-block and base-piece properly constructed, of a removable baling-box composed of a base-piece and detachable sides, the latter resting within proper slips attached to the former, and secured together, when set up, by the slip *k* and hook *k'*, pivoted to the bracket k^2, substantially as specified.

9. In a tobacco or other press, the combination of the head-block A, bands D, connecting-rods F, base-piece E, and cast-metal block B with the retaining-rods C, eccentric cams J, and screw H, acting upon the socket h^2, which is upheld to the packing-bars *i i* and follower I, substantially as specified.

10. In a press for tobacco or other material, the combination, with the beams *a*, forming the head-block, and upper and lower plates, D', of the rods F and bolts d^2, passing through the lower plate, D', and entering the beams *a*, substantially as specified.

311,825. WEATHER-STRIP. SOLOMON FUNK, Spirit Lake, Iowa. Filed June 28, 1884. (No model.)

Brief.—A weather-strip raised into a rabbet in the door by the conical head of a wood-screw taking under the edge of the strip.



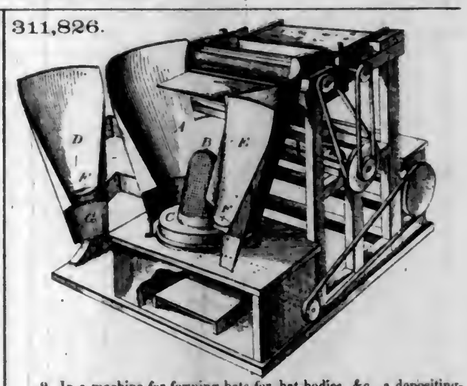
Claim.—The combination, with the threshold having a recess to receive the weather-strip, which is journaled therein, of the door having its lower inner edge rabbeted and provided with a wood-screw having its conical head extending down into the said rabbet and adapted to engage the strip at its beveled portion and raise the same into the rabbet of the door, substantially as specified.

311,826. MACHINE FOR FORMING HAT-BODIES. JOHN GILL, Orange, N. J. Filed Sept. 5, 1884. (No model.)

Brief.—Improvement on Patent No. 164,544, dated June 15, 1875, to same inventor.

Claim.—1. In combination with the depositing-chamber of a hat-body machine, and with its cone and fan, flexible metal guides or plates rigidly secured to the interior of said chamber, and adapted to be bent up or down to vary their angle of inclination to and their distance from the cone, substantially as and for the purpose set forth.

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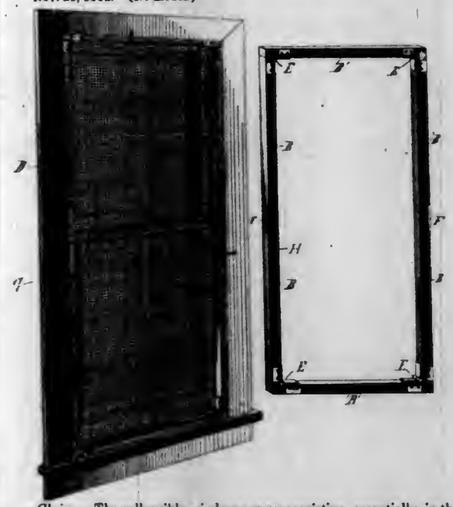


2. In a machine for forming bats for hat-bodies, &c., a depositing-chamber provided with flexible guides extending from the inner walls of said chamber inward toward the perforated cone, and adapted to be set at any desired angle by bending, substantially as and for the purpose explained.

3. In a machine for forming bats for hat-bodies, &c., the combination of a perforated rotary cone, a chamber encircling said cone, door-sections forming portions of the wall of said chamber, and provided with flexible guides extending inward from said wall toward the cone, and adapted to be set at any desired angle, and exhaust mechanism for producing an air-current inward through the perforated cone, all constructed and arranged to operate substantially as shown and described.

4. The herein-described hat-body machine, consisting of chamber A, having annular space G, perforated cone B, rotary platform C, doors D E, provided with guides F, and exhaust mechanism communicating with the interior of the cone, substantially as described and shown.

311,827. WINDOW-SCREEN. JAY R. GRAVER, Lincoln, Nebr. Filed Nov. 21, 1882. (No model.)



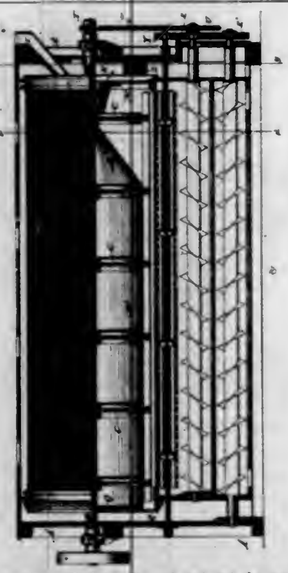
Claim.—The collapsible window-screen consisting, essentially, in the side bars, B, formed in two parts, hinges F, connecting the same at their outer sides, as shown, the end bars, B', and hinges E at the inner angle of the side and end bars, substantially as shown and described, whereby when secured in place in a window-frame the side bars may be folded inward to allow the window to be operated.

311,828. CENTRIFUGAL REEL. WILLIAM D. GRAY, Milwaukee, Wis. Filed Dec. 15, 1883. (No model.)

Claim.—1. The combination of the revolving bolt or cylinder, the revolving conical screen, a receptacle for the coarse matters discharged from said screen, and a secondary screen located in said receptacle, whereby the coarse and fine materials delivered from the conical screen are separated from each other.

2. In combination with the body or casing having the chamber at its head, the revolving bolt or cylinder, the conical screen, the inclined screen having a space or chamber thereunder, and the door or outlet above said inclined screen.

311,828.



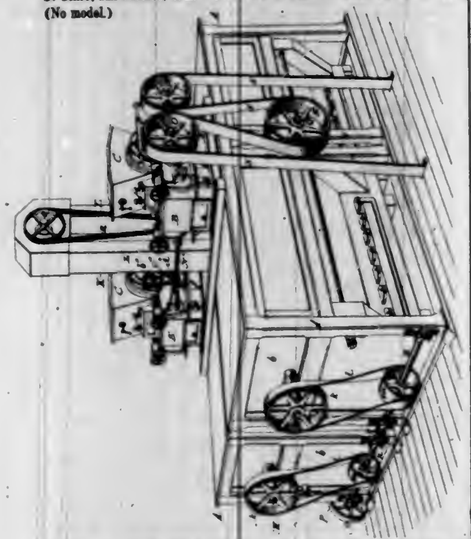
3. In combination with the horizontal reel and the rotary beaters therein, one or more centrally-arranged cones within the reel and beaters, and a cylinder or cylinders joined to the bases of the cones, as shown.

4. In combination with the beater-shaft and its pulley, the reel-driving shaft and its pulley, the adjustable idler, and the endless driving-chain passing around said pulleys, substantially as described.

5. The combination, with the beater-shaft and its pulley, of the reel-driving shaft and its pulley, the adjustable idler, the pulley upon the conveyer-shaft, and the endless chain acting upon said pulleys, substantially as described.

6. In combination with the beater-shaft and its pulley, the reel-driving shaft and its pulley, the idler, and the driving-chain acting upon the three pulleys and reversible, as described, whereby the motion of the reel with respect to the beaters may be reversed at will.

311,829. GRADUAL-REDUCTION MACHINE FOR GRAIN, &c. W. D. GRAY, Milwaukee, Wis. Filed Oct. 3, 1883. Renewed Oct. 1, 1884. (No model.)



Claim.—1. As an improvement in the construction of gradual-reduction machines, the combination of a main frame inclosed to form a bolting chest or chamber a horizontally-divided reel therein, a double roller-mill located upon said frame midway of its length, and conductors, substantially as described, to deliver the products from the respective pairs of rolls to the inner or central ends of the reel.

2. In combination with the inclosing chest or body, the horizontal centrally-divided reel, the corresponding conveyers thereunder, and the roller-mill centrally located on top of the body or chest, said mill provided, as described, with two independent pairs of rolls, independent hoppers, and independent delivery-spouts or conductors extending downward and communicating centrally and directly with inner or central ends of the reel.

3. In combination with a bolting chest or chamber, a horizontal reel transversely divided at its center, walls or partitions *m'*, the roller-mill centrally located on top of the chamber, a transverse shaft, Q', extending through the chamber between the two ends or sections of the reel, and driving mechanism, substantially as shown, connecting said shaft with the mill, whereby the use of the transverse shaft is permitted without interference with the action of the reel.

4. In combination with the centrally and transversely divided reel; the double roller-mill located directly above the point of division, the conductors from said mill extending directly downward into the opening or division, the transverse driving-shaft Q', extending through the opening or division below the conductors, and the system of driving belts and pulleys, substantially as described, connecting said shaft Q' with the rolls of the mill above, whereby the use of said driving-shaft is permitted without interference with the reel or with the conductors.

5. In a gradual-reduction machine, the combination of the main frame or body A, having its sides inclosed to form independent bolting-chambers, a horizontal transversely-divided reel located in each of said chambers, two double roller-mills located on each side of the machine midway of its length, and conductors, substantially as described, leading from the respective pairs of rolls into the inner or central ends of the reels.

6. In a gradual-reduction machine, the combination of the two transversely-divided reels, the driving-shaft Q', extending transversely through the central openings in the reels, and the transverse shaft *n*, belts and pulleys connecting said shaft with the driving-shaft Q', and also with the two reel-shafts, independently of each other.

7. In combination with the two reels provided with pulleys *k*, the two roller-mills having their axes at right angles to the reels, the shafts Q' and *n*, both at right angles to the reels, and the belts and pulleys, as specified, connecting the shaft Q' with the shaft *n*, and the latter with the reel.

8. In combination with the body or chest divided, as described, into two independent bolting-chambers, the longitudinal transversely-divided reels mounted in said chambers, the double roller-mills located above and communicating centrally with said reels, and the elevator-belts extending vertically between the two bolting-chambers and communicating by feed-spouts with the respective mills.

9. In combination with the main frame centrally divided into two bolting-chambers with a space between them, the longitudinal reels mounted in said chambers, the roller-mills located above the reels, and an elevator mounted upon the main frame between the mills and extending downward between the respective reels, substantially as described.

311,830. MANUFACTURE OF IRON AND STEEL. JOSEPH GROTTENTHALER, Allegheny, Pa., assignor of one-half to Phillip J. Huber and William P. Koonsman, both of same place. Filed Sept. 1, 1884. (Specimens.)

Claim.—The process of purifying and decarburizing iron consisting in melting the iron, adding sulphur to the same, and mixing it therewith by puddling, substantially as described.

311,831. COMBINED AIR-PRESSURE APPARATUS AND REFRIGERATOR. CHRISTIAN HEINTZ and GEORGE M. HEINTZ, Buffalo, and ANDREW DOTTERWEICH, Dunkirk, N. Y.; said Dotterweich assignor to said C. and G. M. Heintz. Filed July 12, 1884. (No model.)

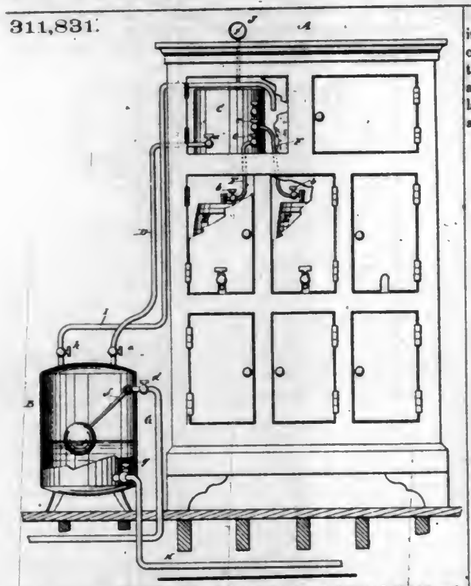
Brief.—Improvement on Patent No. 294,230, dated February 26, 1884.

Claim.—1. In a refrigerator, the process of lowering the temperature of the admitted air, which consists of forcing from a water or compressing chamber air into a refrigerant air-chamber, and returning the air thus lowered in temperature to said water-chamber, and in passing said additionally-cooled air through a pipe into the ice-chamber, substantially as described, and for the purpose set forth.

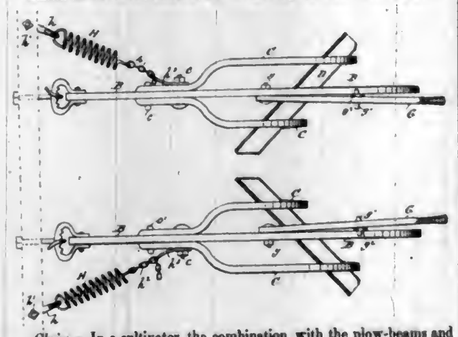
2. The air-tank C, placed in the refrigerator A and connected with the water-tank B, in combination with the pipe I, leading from the tank B to the refrigerator, for discharging a current of air into the refrigerator and cooling the compressed air in the tank C, substantially as set forth.

3. In a refrigerator, the process of lowering the temperature of the admitted air, which consists of forcing air from a water-chamber into a refrigerant air-chamber, and causing the cooled air of the refrigerant air-chamber to act in conjunction with the cooling agent of the water-chamber, to further lower the temperature of the air of said water-chamber, substantially as described, and for the purpose set forth.

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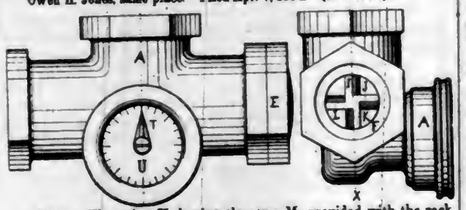


311,832. CULTIVATOR. PETER J. HOSTETLER, OLIVER C. BOWER, and ELIJAH M. HOPWOOD, Bushton, Ill. Filed Aug. 25, 1884. (No model.)



Claim.—In a cultivator, the combination, with the plow-beams and the oblique scraper, of the spring H, provided with a hook and bolt for attaching it to the axle, the short chain A^2 for regulating the tension of said spring, and the hook A^3, bolted to the cultivator-beams, substantially as described, shown, and set forth.

311,833. VALVE. BENJAMIN W. HOXIE, Hartford, Conn., assignor to Owen H. Jones, same place. Filed Apr. 7, 1884. (No model.)



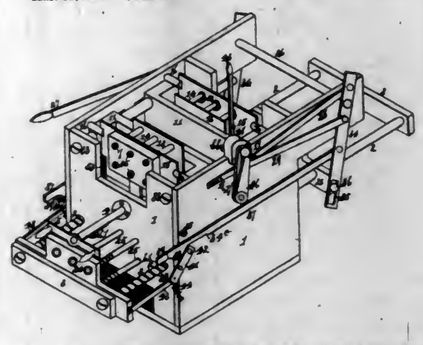
Claim.—The valve H, having the stem M, provided with the rack N, in combination with the pinion Q, the shaft R, and an external indicator, substantially as described, and for the purpose set forth.

311,834. STOPPLE FOR BOTTLES. LEWIS S. HOYT, Boston, Mass. Filed Aug. 9, 1884. (No model.)



Claim.—The process of manufacturing stopples for bottles, consisting in the following steps: first, heating and pressing thin webs of caoutchouc between rolls; second, sprinkling granulated cork over said webs; third, rolling together these layers of caoutchouc with the cork particles adhering to their faces; fourth, heating and simultaneously pressing the laminated composite material thus produced to make it take the form and consistency of a stopple, substantially as set forth.

311,835. CAPSULE-MACHINE. FREDERICK A. HUBEL and FRANK J. REINHOLD, Detroit, Mich.; said Reinhold assignor to said Hubel. Filed Mar. 28, 1884. (Model.)



Claim.—1. The combination of the sliding plates 11, adapted to carry the mold-plates 13, stripping-plates 15, and plates 7, hung on rod 4, and having therein perforations 55, substantially as shown and described.

2. In combination with the two pairs of perforated plates 7, hung on rod 4, the tubes 56, having the enlargement and shoulder 58, plungers 22 and 25, and mechanism, substantially as is described, for actuating said plungers, substantially as shown and described.

3. In combination with the tubes 56, having therein the enlargement and shoulder 58, the perforated plates 7, with mechanism for bringing the perforations in said plates in line with said tubes, guide-rods 2 2, cross-heads 23 24, pivoted levers 34, having slots 35 therein, pins 36 engaging with said slots, pivoted rods 37, having projections 40 thereon, pivoted levers 41, connecting-rods 43, and springs 30, all substantially as shown and described.

4. In combination with the mold-plates 13 and means for advancing and retracting them, the stripping-plates 15, supported on springs, and capable of motion at right angles to the mold-pins, rock-shafts 18 19, having connected thereto arms 20 21 and levers 46 47, and rock-shaft 48, having a cam-shaped end, substantially as shown and described.

5. The combination of plates 11, adapted to hold mold-plates 13, and to slide on guide-rods 32, with pins 17, levers 34, fastened to rock-shaft 26, and connecting-rods 28 29, substantially as shown and described.

6. In combination with rod 4, provided with handle 5, the hubs 6 6, each carrying a pair of perforated plates, 7, and having therein a slot, 8, to receive a pin, 9, set in said rod 4, and the springs 10, bearing against the outer ends of said hubs, substantially as shown and described.

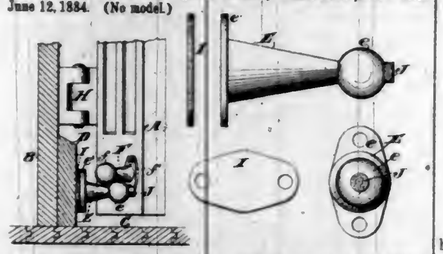
7. The combination of the sliding cross-head 24 with the plungers 25, having thereon short coil-springs, one end of which is fastened to its plunger, the other end bearing against the inner surface of said cross-head, substantially as shown and described.

8. In a capsule-machine, the combination of a number of tubes having one end enlarged and a shoulder at the inner end of said enlargement, a perforated plate adapted to receive and hold a number of caps of gelatine capsules when stripped from pins on which the same are molded, a perforated plate adapted to similarly receive and hold a like number of capsule-bodies, said plates being movable to bring the perforations of one in line with the other and with said tubes, and plungers to push said caps into the enlarged end of said tubes and to push said bodies through said tubes, substantially as described.

9. The herein-described mechanism for joining capsules, consisting of a tube having a portion of its bore enlarged to receive the cap of a capsule and at the point of such enlargement a shoulder, against which the open end of the cap may rest, a plunger to hold the cap therein for a period and then permit it to be removed, and a plunger to push the body of a capsule through said tube into the cap, and thence expel the joined capsule, substantially as described.

10. The combination of two sliding plates, each adapted to carry a mold-plate, two stripping-plates adapted to strip the caps and bodies formed on said mold-plates, and two perforated plates adapted to receive and hold said caps and bodies when stripped from the molds, substantially as shown and described.

311,836. DOOR STOP AND HOLDER. SIDNEY W. JAY and MICHAEL J. GARVEY, Toledo, Ohio, assignors to Harry Wade, same place. Filed June 12, 1884. (No model.)



Claim.—1. A door stop or holder consisting of the conical shank F, having the ball *f* at one end and the flange *f'* at the other end, secured to the door, and the conical shank E, having the ball *e* at one end and the flange *e'* at the other end, secured to the floor or wash-board, said balls being constructed and arranged to interlock when the door is thrown open, substantially as described.

2. The conical shank E, having at one end the ball *e*, provided at its outer portion with the attached projecting elastic stop J, in combination with the shank F, having the ball *f*, substantially as described.

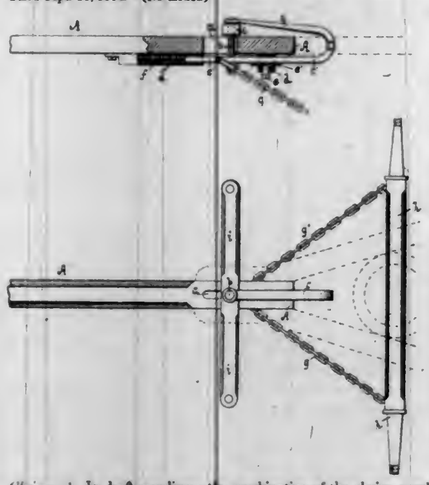
3. In a door, gate, or shutter stop and holder, the ball *f*, with its conical shank F, and its ears or flange *f'*, in combination with the ball *e* and its rubber stop J, supported upon the conical shank E, with its ears or flange *e'*, and the rubber cushion or gasket I, the balls *e* and *f* being adapted to engage with each other, as herein described and specified.

311,837. CAR-WHEEL. WILLIAM JOSLIN, Painesville, Ohio. Filed Feb. 16, 1884. (No model.)



Claim.—A car-wheel consisting in the combination, with the tire C, provided with the flange *c* and the incline *d*, of the wheel-body B, having greater diameter in the plane of its face next to said flange than is the diameter of that portion of said tire-incline at its immediate junction with said flange, said difference of said diameters normally creating an open space between said wheel-body and said flange, the joining faces *d* and *e* of said tire and wheel-body being counterpart inclines to each other, and bolts *f*, connecting together said flange and wheel-body, said parts being adapted to permit the drawing of the wheel-body by said bolts in lateral wedge movement toward said flange, thereby spreading the tire radially outwardly, by which operation any looseness of the tire is remedied, substantially as set forth.

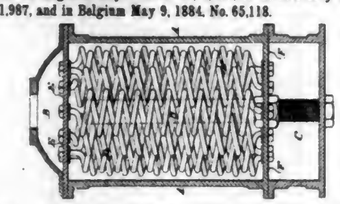
311,838. DRAFT-EQUALIZER. CHARLES KIESER, Baltimore, Md. Filed Sept. 11, 1884. (No model.)



Claim.—1. In draft-equalizers, the combination of the chains *g* and *g'*, the tree *i*, the spring *f*, the bar *c*, and the bearing *d*, provided with the plate *d'* and screw *e*, as herein shown and specified.

2. The combination of the reciprocating bar *c'* and the bearing *d*, provided with the plate *d'* and the screw *e*, whereby the rattling may be prevented or any wear taken up.

311,839. CONDENSER AND HEATER. JOHN KIRKALDY, Poplar, County of Middlesex, England. Filed May 19, 1884. (No model.) Patented in England May 3, 1884, No. 7,200; in France May 8, 1884, No. 161,987, and in Belgium May 9, 1884, No. 65,118.



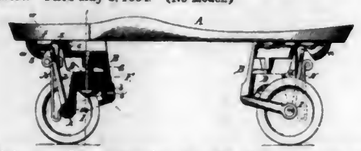
Claim.—The combination of the parallel alternately right and left handed spiral worms arranged with the coils of each worm passing into spaces between the coils of the adjacent worms and their casing, substantially as and for the purpose set forth.

311,840. KNOB FOR ELECTRIC GAS-LIGHTING APPARATUS. F. LANE, Boston, Mass., assignor to Thomas C. Frenyear, Exeter, N. H., and Lloyd E. Razee, Attleborough, Mass. Filed Dec. 26, 1883. (No model.)



Claim.—The pendant *i* for a gas-lighting apparatus, composed of the hollow transparent bulb or ball *i'*, having the internal protected coating, *i²*, of luminous material, the cap *i³*, and eye *m*, substantially as shown and described.

311,841. ROLLER-SKATE. JOHN LOVETT, Indianapolis, Ind., assignor to Ruben B. Powers, Edgar P. Denison, John B. Dougan, and Aaron H. Moore. Filed May 2, 1884. (No model.)



Claim.—1. The combination, in a roller-skate, of a frame supported by the rollers, and a bracket secured to the foot-piece of the skate and provided at one end with a socket adapted to engage with the knob at the end of an upwardly-projecting arm on said frame, and a lower rocking and rolling bearing at the opposite end of the bracket and frame below the top *z* of the frame, substantially as set forth.

2. The combination, in a roller-skate, of the roller-frame, a foot-piece provided with a bracket having at one end a pendent arm extending downward inside and below the top of the frame, and at the opposite end a socket adapted to receive the knob at the end of an upwardly-projecting arm on said roller-frame, and a screw-bolt extending into the bracket and clamping an elastic block against the roller-frame, substantially as set forth.

3. The combination of the bracket, the roller-frame having bearings on a diagonal line, as set forth, screw-pin G, and spring F, clamped by the screw against a convexed face, *z*, on the under side of the roller-frame, substantially as set forth.

4. The combination, with the roller-frame, of the bracket secured to the foot-piece having an outer bearing upon the frame, and with an inner downwardly-projecting arm terminating in teeth adapted to a toothed bearing at the inner side and below the top of the frame, the two bearings arranged to permit the roller-frame to swing on a diagonal line, substantially as set forth.

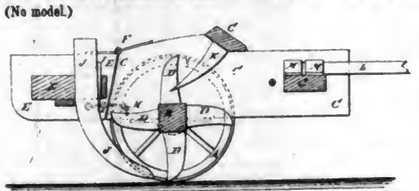
5. The combination of the frame having a box or recess to receive the spring F, screw holding the parts together, and bearings at the front and rear above and below the top of the frame, substantially as described.

6. The axle in two separate perforated parts, in combination with the frame having side arms and central box for the axle, and with holes to receive the end of a spring-key, substantially as described.

7. The combination, with the detachable axle perforated to coincide with the perforations in the frame, of a spring connected to the frame and terminating in a pin extending through both perforations, substantially as set forth.

8. The combination, with the axle in two sections with overlapping perforated ends, of a perforated frame receiving said ends, and a spring terminating in a pin extending through said perforations, substantially as set forth.

311,842. COMBINED HARROW, CLOD-CRUSHER, AND STALK-CUTTER. DAVID M. MCELHANEY, Buena Vista, Ohio. Filed Sept. 5, 1884. (No model.)



Claim.—1. A combined harrow, clod-crusher, and stalk-cutter constructed substantially as herein shown and described, and consisting of the wheels and axle provided with cutters, the stationary frame provided with cutters, and the hinged frame provided with curved harrow-teeth, as set forth.

2. In a combined harrow, clod-crusher, and stalk-cutter, the combination, with the frames E C and the revolving axle B, of the stationary curved harrow-teeth J, the stationary cutters K, and the revolving cutters D, substantially as herein shown and described, whereby the soil will be pulverized, and clods, sods, stalks, and weeds will be crushed and cut in pieces, as set forth.

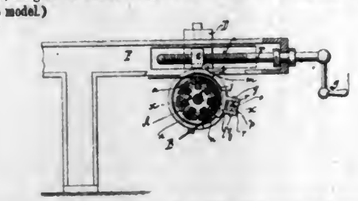
3. In a combined harrow, clod-crusher, and stalk-cutter, the combination, with the frame C, provided with cutters K, and the frame E, provided with curved harrow-teeth J, of the hinges F and the hooks G substantially as herein shown and described, whereby the said harrow-teeth can be readily secured in working position, and can be raised from the ground for convenience in passing from place to place, at set forth.

311,843. POOL-RACK. CHARLES MILLER, Auburn, N. Y. Filed June 23, 1884. (No model.)



Claim.—As an improvement in pool-racks, the combination, with a frame having a series of inclined shelves, and a chute or passage connecting the said shelves with a basket or receptacle at the bottom of the frame, of a vertically-sliding bar having fingers arranged to register with the lower ends of the said shelves or the intermediate spaces, and having a handle extending forwardly through a slot in the front part of the frame, and a vertically-sliding flexible cover having a laterally-extending arm adapted to engage the handle of the vertically-sliding retaining-bar, substantially as and for the purpose set forth.

311,844. GUIDE FOR ENDLESS APRONS. JOHN W. MILLET, Dolgeville, assignor to Alfred Dodge, New York, N. Y. Filed Dec. 11, 1884. (No model.)

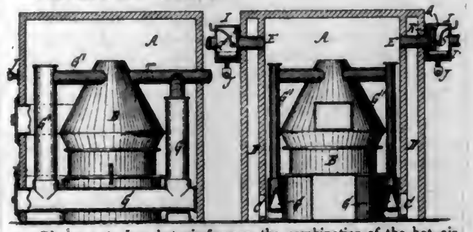


Claim.—1. The combination, substantially as hereinbefore shown and described, with the shaft C, of the roller-sections mounted on said shaft and movable thereon in the direction of its length, one independent of the other, and means, substantially such as herein described, for adjusting the roller-sections while the shaft is in motion.

2. The combination, substantially as herein shown and described, of the shaft C, the hangers which form the bearings for said shaft, means, substantially such as described, for adjusting the hangers in a direction transversely to the shaft, the roller-sections mounted on the shaft and movable thereon in the direction of its length, and means, substantially such as described, for adjusting the roller-sections on the shaft.

3. The combination, substantially as hereinbefore shown and described, of the shaft C, the hangers which form the bearings for said shaft, means, substantially such as described, for adjusting the hangers, lugs *k*, projecting from said hangers, the roller-sections mounted on the shaft and movable thereon in the direction of its length, the grooved heads formed on the ends of the roller-sections, the rings *n*, suspended from pivots secured in the lug *k*, and the set-screws *o*.

311,845. HOT-AIR FURNACE. THOMAS NUGENT, New York, N. Y. Filed June 5, 1884. (No model.)

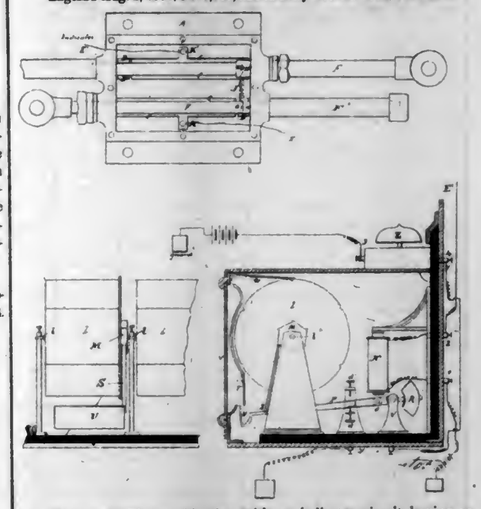


Claim.—1. In a hot-air furnace, the combination of the hot-air chamber having bottom inlet and upper outlet openings, the fire-pot inclosed in said chamber, the bottom horizontal smoke-pipes made triangular in cross-section, and the vertical and horizontal pipes for connecting said triangular smoke-pipes with the top of the fire-pot, substantially as described.

2. In a hot-air furnace, the combination, with the hot-air chamber and the fire-pot inclosed therein, of the exterior vaporizing-chamber, the water-supply tank, the feed-pipe, cock, and float, and the pipe leading from the hot-air chamber to the vaporizing-chamber, having a screen, valve, or gate, substantially as described.

3. The combination, substantially as hereinbefore described, with the hot-air chamber, of a vapor-chamber connected to the hot-air chamber, a screen of wool or other similar material arranged in the vapor-chamber opposite to its inlet-orifice on hinge-joints, and a strap or other similar device connected to the screen for adjusting it in relation to the inlet-orifice.

311,846. INDICATOR FOR RAILROAD-SWITCHES. GILBERT OTTE, Apeldoorn, Holland. Filed Aug. 28, 1882. (No model.) Patented in Belgium July 19, 1882, No. 58,612; in France Aug. 2, 1882, No. 150,436; in England Aug. 2, 1882, No. 3,667, and in Italy Dec. 14, 1882, No. 14,747.



Claim.—1. The combination, with an indicator-circuit having an electro-magnet and a contact-box within which the said circuit is completed and broken by the shifting of the switch-rails, substantially as described, of an alarm-circuit having an armature carried by a pivoted arm which forms a part of the said alarm-circuit, said armature being attracted by the electro-magnet of the indicator-circuit when said magnet is excited, whereby the pivoted arm is vibrated and the alarm-circuit completed, substantially in the manner set forth.

2. In a railway-signal, substantially as herein described, the combination, with the switch-rails, of the connecting-rods F F', carrying con-

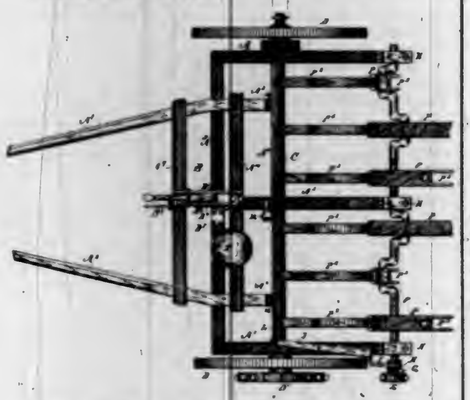
tact-buttons H H', insulated therefrom and electrically connected to each other, the conductors C C', located within the circuit, over which the buttons H H' pass during the shifting of the rails, and the insulated blocks D D', upon one of which one of said buttons rests while the rods F F' are at either extremity of their permitted movement, substantially as described.

3. The combination, with an electrical circuit and a contact-box within which said circuit is completed and broken by the shifting of the switch-rails, of an electro-magnet located within said circuit, an armature mounted on a pivoted lever and attracted by said magnet when excited, a cylinder having alternately similar signals for indicating the position of the switch, as described, and connections between said pivoted lever and cylinder, whereby the latter has a partial revolution imparted to it at each oscillation of the former, as and for the purpose set forth.

4. The combination, with the indicator-circuit completed and broken by the movement of the switch-rails, and having the electro-magnet N and the alarm-circuit, substantially as described, of the pivoted lever P, having armature O and insulator *b*, the indicator-cylinder L, and the danger-signal T U, actuated by the vibration of said lever, as explained.

5. In combination with the indicator-circuit and a contact-box within which it is completed and broken by the shifting of the switch-rails, an electro-magnet, N, located in said circuit, a pivoted lever, P, carrying armature O, attracted by said magnet when excited, the stationary signal T, the danger-signal U, carried by the lever P and adapted to cover the signal T when the switch is displaced, the cylinder L, bearing alternate similar signals, the ratchet-wheel M, carried by the cylinder L, and the pawl S, carried by the lever P, whereby said cylinder is rotated, as and for the purpose set forth.

311,847. COMBINED HAY RAKE AND TEDDER. CHARLES PERRIN, Springfield, Ohio, assignor of one third to David H. Brewer, same place. Filed July 9, 1884. (No model.)



Claim.—1. The combination, with the hay-tedder frame and its crank-shaft, of fork-carriers connected to the cranks on said shaft and flexibly connected to the frame of the tedder by means of flat springs, preferably S-shaped, as shown, and for the purpose described.

2. A hay-tedder having fork-carriers flexibly connected to the frame of the tedder by means of flat S-shaped springs, whereby the fork-carriers are adapted to yield to obstructions, substantially as described.

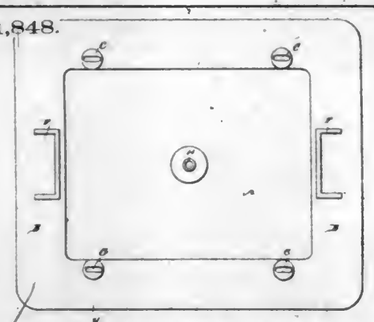
3. In a hay-tedder, the combination, with the actuating-crank, of a fork-carrier having the elongated slot P' in the direction of its length, provided with the sliding journal-box O, constructed, as shown, in two pieces, and provided with flanges to bear against the sides of the fork-carrier, substantially as described.

4. A fork-carrier for hay-teddders, provided with a flat S-shaped spring, by which it is directly connected to the frame of the tedder, said spring being constructed in the manner described, so as to support the carrier and relieve it from jars or strains while passing obstacles, substantially as set forth.

5. The combination, with the main frame provided with journal-boxes N, of the crank-shaft F, journaled in said boxes, and the slotted fork-carriers yieldingly connected to the frame-work of the tedder by means of flat S-shaped springs, substantially as described.

6. The combination, with the tedder-frame, of a detachable rake-head provided with a clutch and pulley or sprocket-wheel adapted to be actuated by the pulley or sprocket-wheel on the main axle of the tedder, and mechanism, as described, attached to the frame of the tedder to operate said clutch, as and for the purpose set forth.

311,848. BIRD-CAGE. JOHN PUTNAM, Philadelphia, Pa. Filed Jan. 5, 1884. (No model.)

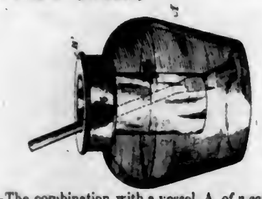


Claim.—1. The bird-cage bottom plate, A, made of glass, and provided with the feed-cups F and openings C, the said feed-cup being integral with the bottom plate, substantially as herein shown and described.

2. The combination, with a bird-cage frame, I, having bottom rim, E, and the bottom plate, A, having slots C, of the spring-pressed pins D, fitting loosely in apertures of the said bottom rim, and provided with the heads D' D², substantially as herein shown and described.

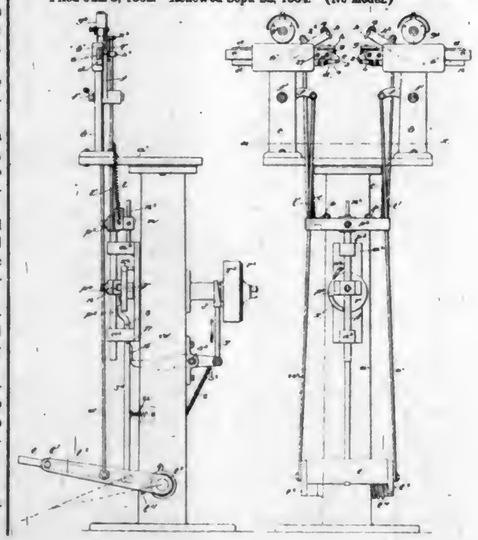
3. The bird-cage bottom plate, A, made of glass, and provided with the openings C, the feed-cups F, and the central tubular projection, H, substantially as herein shown and described.

311,849. MUCILAGE-BOTTLE. WILLIAM H. REDINGTON, Chicago, Ill. Filed Nov. 26, 1883. (No model.)



Claim.—The combination, with a vessel, A, of a separate rigid tube, B, secured in the mouth of the vessel by a loosely-fitting screw-thread constructed to permit the escape of air between the vessel and the tube during the insertion of the latter, and provided with a laterally-projecting flange, B', and a packing, C, constructed to form an air-tight joint between the vessel and tube when the latter is inserted to its full depth, said tube having its lower end of a size to give passage to a brush, and terminating at a distance from the bottom of the vessel, substantially as and for the purpose set forth.

311,850. LASTING-MACHINE. EVERETT P. RICHARDSON, Lawrence, assignor to the McKay & Thompson Consolidated Lasting Machine Association, Boston, Mass.; Gordon McKay, Newport, R. I., principal trustee. Filed Jan. 3, 1882. Renewed Sept. 22, 1884. (No model.)



Claim.—1. The two pairs of jaws to grasp the upper between them at its opposite sides and carry its edges forward simultaneously over the edge of the inner sole and stretch the upper by a direct pull, combined with two nail-driving mechanisms, substantially as described, adapted to automatically drive nails or fastenings into the upper and inner sole while the edges of the upper are clamped between the said jaws, substantially as set forth.

2. The two pairs of movable jaws located opposite each other at opposite sides of the last, and their friction devices to hold one member of each pair of jaws at rest while the other members are being moved forward to grasp or clamp between them, as described, the edges of the upper at opposite points and at opposite sides of the last, and means to move the said jaws toward each other, substantially as described, while clamping the upper between them, combined with two drivers and springs to actuate them to drive fastenings into the upper and inner sole while the edges of the upper are grasped between the said jaws, and after the upper has been drawn from opposite sides of the last by the said jaws, and is held stretched over the last, as set forth.

3. The movable jaws *c d*, the plate *g*, made movable with jaw *d*, and adapted to guide the string-nails, and the cutting device attached to the said plate, combined with the driver lever and block to engage the head of and drive the nail, the spring to actuate the driver-lever, the rod *l'* to lift the driver-lever, and means, substantially as described, to move the rod and permit the said spring to depress it and the drive-lever, substantially as set forth.

4. The string-nail-guiding plate *g* and its cutting member g^3, combined with the spring-operated driver and its block to engage the head of and drive a nail, and, by its co-operation with the cutting member g^3, sever the nail being driven by it from the string of nails.

5. The jaws *c d*, combined with the movable lever c^3, pivoted upon jaw *c*, and connected with and so as to move the jaw *d* separately, and then both jaws *c d* together, substantially as described.

6. The jaws *c d*, the lever c^3, pivoted upon one jaw, and connected with and so as to move the other jaw separately, and then both jaws in unison, and the friction device to act upon the jaw *c*, combined with means, substantially as described, to operate the said lever c^3, as and for the purposes set forth.

7. The two horizontally-reciprocating jaws *c d*, combined with the driver-lever pivoted upon and made movable horizontally with the said jaws, to drive a nail in the same relative position with relation to the jaws, whatever may be their inward position.

8. The two horizontally-movable jaws *c d*, the plate *g*, and the driver-lever pivoted to it, combined with the rest *m*, adapted to arrest the descent of the driver-lever, substantially as described.

9. The two horizontally-movable jaws, the string-nail-guiding plate carried thereby, and the detent to prevent backward movement of the string-nail material, combined with the driver-lever and driver-block to drive the string-nails, all being adapted to reciprocate backward and forward together toward and from the center of the last, substantially as and for the purpose described.

10. The arms t^2, rods *w*, levers *f*, and jaws *c d*, moved thereby, substantially as described, the treadle *t*, made movable both with the said arms t^2 and independently of them, and with the friction or clutch pulleys, combined with the rod s^4 and means, substantially as described, to engage the said pulley parts at the desired time, substantially as set forth.

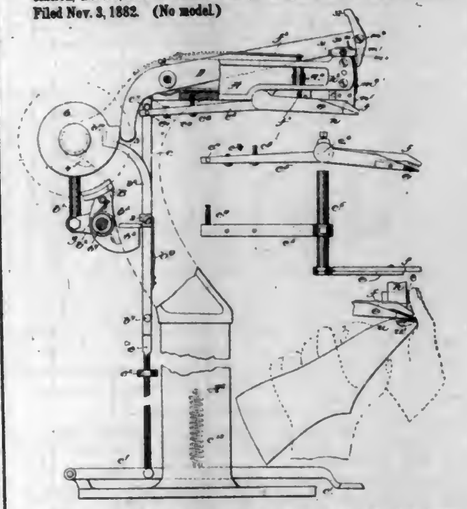
11. The rod p^2, its cross-head p^3, provided with projections 8, means, substantially as described, to operate the cross-head, links or rods *l'*, driver-levers, and springs to actuate them to drive nails, combined with the pawls to remove the said links or rods from the said projection, substantially as described.

12. The herein-described method or process of lasting a shoe, which consists in placing the upper on the last provided with an inner sole, grasping opposite edges of the upper at opposite sides of the last between jaws, drawing the said upper over on the inner sole by a direct pull thereon by the said jaws, which grasp the upper between them, driving nails or fastenings into the edges of the said upper while held clamped between the said jaws, then opening the said jaws, retaining the edges of the upper between the faces of the opened jaws, moving the upper and last horizontally to bring between the open jaws those parts of the upper at opposite sides of the last which are next to be grasped between the jaws, and closing the said jaws upon the upper preparatory to again moving the said jaws forward, substantially as described.

13. The two pairs of jaws to grasp the edges of the upper between them at its opposite sides and draw and stretch the upper about the last, combined with two nail-driving mechanisms adapted to automatically drive nails or fastenings to secure the upper to the inner sole, substantially as described.

14. The string-nail guide *g* and its cutting member g^3, combined with a spring-operated driver adapted to engage the head of and drive a nail and assist in severing the nail from the string of nails as the nail is being driven, substantially as described.

311,851. LASTING-MACHINE. EVERETT P. RICHARDSON, Lawrence, assignor to the McKay & Thompson Consolidated Lasting Machine Association, Boston, Mass.; Gordon McKay, Newport, R. I., principal trustee. Filed Nov. 3, 1882. (No model.)



Claim.—1. The jaw *e* and treadle to move it, and the jaw *f*, normally held down below the end of the nail-guide, combined with a nail-guide and driver, to operate substantially as described.

2. The jaw *f*, jaw *e*, arm e^5, rod *c*, and means to lift it to separate the jaws, combined with a nail-driver, substantially as described.

3. The jaw *e* and its arm e^5 and pin, and the jaw *f*, slotted rod *c*, and spring c^{13}, combined with the treadle, substantially as described.

4. The jaw *f*, jaw *e*, its arm e^5, and connected slotted rod and spring c^{13}, combined with the spring e^3, substantially as described.

5. The jaw *f* and spring to force it below the nail-guide, arm e^5, the jaw *e*, rod *c*, treadle with which it is connected, and a spring, c^{12}, combined with spring e^3, to operate substantially as described.

6. The lever or driver carrier D and means to move it, as described, and the driver pivoted thereon, combined with the nail-guide having the cutting member, and with a cam or projection to vibrate the said driver and cause it to engage the head of and drive a nail and cut it from a connected nail, substantially as described.

7. In a lasting-machine, a nail-guide, a nail-driver, and jaws or grippers to grasp and hold the upper with its edge directed away from the operator, combined with a thumb-rest, substantially as and for the purposes set forth.

8. In a lasting-machine, the driver-lever and driver, the clutch part a' and the clutch a^2, its cam *b*, and the wedge *b'*, combined with the arm b^3 and its connections to actuate the wedge, and with the rod *c* and its projection to engage the arm b^3 when it is desired to actuate the driver, substantially as described.

9. In a lasting-machine, the overhanging arm or jaw support and the jaws or grippers adapted to engage and hold, as described, the edges of the upper directed away from the position occupied by the operator, combined with a driver and means to operate it automatically at the desired time to drive a nail or fastening into the upper back of its edge and between its edges and the operator, substantially as described.

10. In a lasting-machine, a pair of jaws adapted to present an open mouth toward the operator to receive, grasp, and hold the upper with its edge directed away from the operator, and a treadle and connecting-rod, *c*, to operate the said jaws, combined with an organized nail-driving mechanism, substantially as described, to drive a nail into the upper while held by the said jaws.

11. The nail-guide and thumb-rest and automatically-operated nail-driver, combined with a pair of jaws and means to move them, whereby the jaws are adapted to rise and fall or move vertically with relation to the said nail-guide, and to grasp and hold the upper, as described, while the operator moves the last by hand to stretch and fit the upper to the last, substantially as described.

12. The nail-guide and automatically-operated driver, combined with jaws arranged with relation thereto as described, to be opened vertically, so as to present an open mouth toward the operator and grasp and hold the upper with its edge near which the nail or fastening is to be driven directed away from the operator, as set forth.

13. The nail-guide, combined with the jaws having their ends projected outward, as described, beyond the nail-guide, and adapted to grasp and hold the upper farther from its edge than the line of fastenings driven into the upper, as and for the purpose described.

14. In a lasting-machine, the jaws *e f*, provided with the series of holes and with a series of pins or teeth arranged one back of the other, as described, to grasp and hold a narrow part of the upper, as set forth.

15. In a lasting-machine, the spring-held or yielding jaw *f* and the movable jaw *e*, co-operating therewith, combined with a connected treadle to operate the jaw *e*, substantially as described.

311,852. CARBON BATTERY ELEMENT. ISAIAH L. ROBERTS, Brooklyn, N. Y., assignor of one-half to Henry L. Brevoort, same place. Filed Mar. 27, 1884. (No model.)



Claim.—As a new article of manufacture, a carbon for a battery-element, a metallic conductor, and a conductive metal or metallic alloy applied in a molten state, and being of such character that it will expand in cooling and secure the said conductor to the carbon, substantially as specified.

311,853. ELECTRIC BATTERY. ISAIAH L. ROBERTS, Brooklyn, N. Y., assignor of one-half to Henry L. Brevoort, same place. Filed May 29, 1884. (No model.)

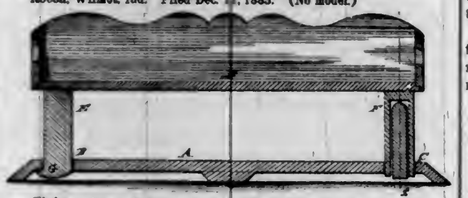
Claim.—1. In a battery, the combination of permanganate of potash and bichromate of potash, substantially as described.

2. In a battery, the combination of permanganate of potash and bichromate of potash, as depolarizers, with a non-acid solution, substantially as described.

3. In a battery having zinc and carbon elements, the combination of bichromate of potash and permanganate of potash, used as depolarizers, substantially as described.

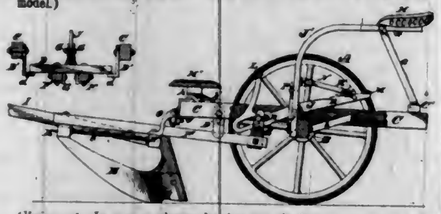
4. In a battery, the combination, with an exciting solution consisting of the chloride of an alkali dissolved in water, of bichromate of potash and permanganate of potash, substantially as described.

311,854. REMOVABLE SCHOOL AND CHURCH SEAT. SAMUEL ROUSH, Wilmot, Ind. Filed Dec. 11, 1883. (No model.)



Claim.—As an improvement in school-furniture, the combination, with a metallic base secured permanently to the floor, and having openings or apertures at or near its ends, of a detachable seat or settee having at one end a leg provided at its lower end with a catch adapted to enter and engage one of the openings in the fixed base, and having at the other end of such seat a socketed leg provided with a pivoted spring-latch in such socket adapted to engage the other of the said openings, whereby the said seat or settee may be retained securely in position, as and for the purpose shown and set forth.

311,855. CORN-PLANTER. MICHAEL RUNSTETLER, Dayton, Ohio, and ANDREW RUNSTETLER, Moline, Ill., assignors, by direct and mesne assignments, to the Farmers Friend Manufacturing Company, Dayton, Ohio, and the Deere & Mansur Company, Moline, Ill. Filed Mar. 29, 1880. (No model.)



Claim.—1. In a corn-planter having a main frame supported by an axle and ground-wheels and connected or hinged with a front runner-frame, a dropper's seat supported on the side rails of the main frame in front of the axle, and a driver's seat in rear of the axle and on said main frame, substantially as described.

2. The combination of a main frame of a corn-planter mounted at or near its center on the axle of the ground-wheels, and provided at its forward end with a dropper's seat, with a runner-frame connected with the main frame, substantially as described, for relieving the necks of the draft-animals from the weight of the dropper when the runner-frame is elevated, substantially as described.

3. In a corn-planter having a rear main frame and a front runner-frame hinged or pivoted together, a lever, J, having a rearward extension for elevating, and a forward and upward extension for depressing, the runner-frame, substantially as described.

4. In a corn-planter, the combination of the driver's seat and its supporting-standard with the elevating-lever J, centrally pivoted thereto, and provided with a forward and upward extension for depressing the runner-frame, substantially as described.

5. In a corn-planter, the combination of the side rails of the main frame extending over or above the runner-frame, and separately connected therewith by brackets P, secured to the front of the main frame, and arms O, attached to the runner-frame and connected to the slotted brackets, substantially as and for the purpose described.

6. The combination, in a corn-planter, the main and runner frames of which are loosely connected, of the side rails of the main frame carrying a dropper's seat on a bar connecting their front ends, substantially as described.

7. In a corn-planter, the rear main frame and front runner-frame hinged or pivoted together, the combination of the elevating or depressing lever J with the driver's seat and the dropper's seat both attached to the rear main frame, substantially as described.

8. In a corn-planter, the lever J, centrally pivoted to the main frame, and provided at its rear end with a foot-plate, M, and with a front end having an upward extension carrying a foot-plate, L, said lever being loosely connected with the rearward extension of the runner-frame, substantially as described.

9. The combination of the main rear frame, the front runner-frame, the slotted brackets P, secured to the front of the main frame, the arms O, attached to the runner-frame and connected with the slotted brackets, and the centrally-pivoted lever J, having its forward end connected with the runner-frame for either elevating or depressing the same, all substantially as and for the purpose described.

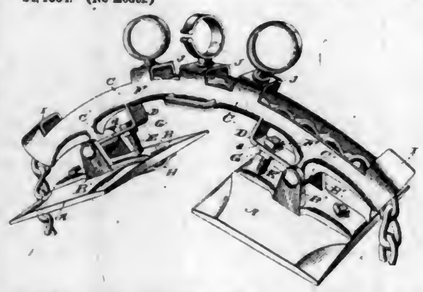
10. The combination, with the main frame and the runner-frame hinged or pivoted together, and the foot-lever for either elevating or depressing the runner-frame, and having a notch or notches on its rear extension, of the seat-standard and the detent or pawl pivoted at its upper end to the seat-standard and depending rearwardly therefrom to engage the notch or notches on the foot-lever, substantially as described.

11. In a corn-planter, the combination of the side rails of the main frame extending over or above the runner-frame, and separately connected therewith, and the lever J, for either elevating or depressing the runner-frame, substantially as described.

12. In a corn-planter, the combination of the side rails of the main frame extending over or above the runner-frame and connected thereto, and the lever J, attached to the rearward extension of the runner-frame for either elevating or depressing the runners, substantially as described.

13. In a corn-planter, the combination of the bent seat-supporting standard, and the rearward extension of the front runner-frame connected by the elevating or depressing lever, substantially as and for the purpose described.

311,856. HARNESS-SADDLE. WILLIAM H. SIPPERLY, Fishkill, assignor of one-half to William H. Jackson, Matteawan, N. Y. Filed Nov. 24, 1884. (No model.)



Claim.—1. The combination, with the tree and the pads pivotally supported thereon, of the bolts secured to the pads and projected through suitable openings in the tree, and nuts turned on the bolts, one above and the other below that portion of the tree through which they are passed, substantially as set forth.

2. The combination of the tree provided with bearing-bars having bolt-openings and arranged below the body of the tree, the pads pivotally supported on the tree, and bolts extended from the pads through the openings in the bearing-bars, substantially as set forth.

3. In a harness-saddle, the combination of the tree provided with bearing-bars having bolt-openings, the pads, the bolts projected from the pads through the openings through the bearing-bars, and nuts turned on the bolts above and below the bearing-bars, substantially as set forth.

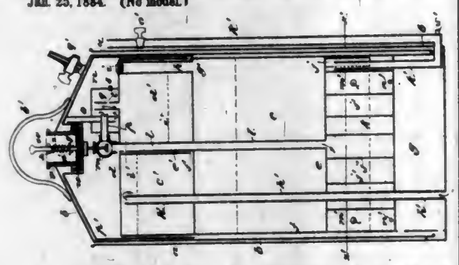
4. As an article of manufacture, a cart-saddle tree made of metal having in its upper side a chain-groove open the greater part of its length, and provided near its ends with keepers I, extended above the chain-groove, substantially as set forth.

311,857. FENDER FOR PLOWS. WILLIAM H. STONE, Bethel, Ohio, assignor of one-half to Eugene Dunning, same place. Filed Sept. 11, 1884. (No model.)



Claim.—A combined fender and vine-lifter with the concave shield-plate B, the arm or shaft A, united therewith at the front and forming a shovel-point, the curved supporting-arm H, and the shank C, provided with the adjusting-slide *b* and hinge-joint D E, substantially as shown and described.

311,858. GAS-MACHINE. WILLIAM C. STRONG, Readfield, Me. Filed Jan. 25, 1884. (No model.)



Claim.—1. In a gas-machine, the combination, with the bell *b*, of the air-trap consisting of cup *u*, tube *v*, stem *w*, spring *x*, and a packing, substantially as herein shown and described.

2. In a gas-machine, the combination, with the bell *b* and its handle *b'*, of the air-trap consisting of cup *u*, tube *v*, stem *w*, spring *x*, and packing *a'*, substantially as herein shown and described.

3. The gas-trap consisting of case *n*, stand-pipe *o*, and horizontal pipe *p*, also the angle-valve *m* and conducting-pipe *l*, in combination with the carburetor *e*, substantially as described.

4. The gas-trap consisting of case *n*, stand-pipe *o*, horizontal pipe *p*, and the stand-pipe *q*, in combination with the carburetor *e* and the expansion-regulator *d*, substantially as described.

5. The combination of tank *a*, bell *b*, carburetor *e*, gasoline-holder *c*, expansion-regulator *d*, and gas-trap *n*, for preventing back-flow of gas from the carburetor, located above the expansion-regulator and communicating therewith and arranged for ready access to it when the bell is removed, substantially as described.

6. The combination, with the carburetor *e* and a bell, *b*, and back-pressure trap *n*, in a gas-machine, of an expansion-regulator consisting of an inclosed chamber, *d'*, having communication with the water-tank and the gas-trap, substantially as described.

7. The combination, with the expansion-regulator *d'*, having communication with the water-tank and gas-trap, as described, of the chamber *c'*, having communication with chamber *d'*, and also having a vent, *h'*, and adapted for maintaining pressure on the burner when the bell is raised, substantially as described.

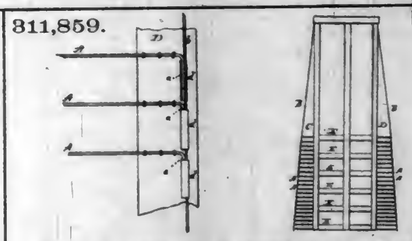
8. The improved carburetor having the spiral partition *j'*, with air and gasoline inlets at the respective ends of the spiral course along said partition, and also having the cross-partitions *l'*, with air-passages *m'* through them above the fluid-line, and gasoline-passages *n'* below said fluid-line, substantially as described.

9. The combination of the cap *p'* and pipe connection and cock *q'* with the bell *b* and tank *a* of a gas-machine, substantially as described.

311,859. HOOP-SKIRT. EDWARD STROUSE, New Haven, Conn. Filed June 12, 1884. (No model.)

Claim.—A hoop-skirt in which the hoops extend from one side near the front around to a corresponding point at the opposite side, the ends of the several hoops bent at substantially right angles to the hoop, combined with a vertical metallic stay, *b*, the said bent ends of the hoops

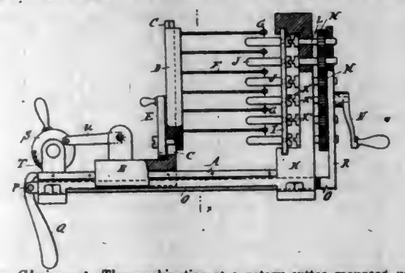
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joined to the said vertical stay by a metallic clasp, *d*, the several hoops also connected by vertical tapes, substantially as described.

311,860. CAPSULE-MACHINE. HARRISON H. TAYLOR, Detroit, Mich., assignor to Fred A. Hubel, same place. Filed Jan. 31, 1883. (No model.)

Brief.—A cutter mounted upon a support is combined with a rotary mold-pin supported on a frame and revolved upon its axis only.



Claim.—1. The combination of a rotary cutter mounted upon a fixed elastic support, a rotary mold-pin supported in a plate, and means, substantially as described, for rotating the mold-pin on its axis, substantially as shown and described.

2. The combination, in a capsule-cutting machine, of a series of cutters, a mold-plate provided with a series of mold-pins rotating on their own axes, and mechanism, substantially as described, for turning said pins while the mold-plate is in a fixed position, as set forth.

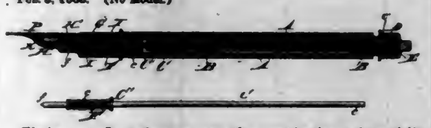
3. In a device for cutting off capsules, the vertically-sliding plate D, carrying the cutters G, and in combination with devices for vertically raising the same, substantially as and for the purposes set forth.

4. In a machine for the purposes described, the combination of the mold-pins J, clutches K K', shafts L, gears M, standard R, sliding plate O, and lever Q, substantially as and for the purposes described.

5. In a machine for the purposes described, the sliding plate B, governing the length of the capsules cut off by the cutters, in combination with the link U, cam S, and adjustable stop-pin T, substantially as described.

6. A frame carrying a series of swiveled mold-pins, combined with mechanism, substantially as described, for revolving them only around their own axes, as set forth.

311,861. FOUNTAIN-PEN. EDWARD TYRRELL, Cincinnati, Ohio. Filed Feb. 3, 1883. (No model.)



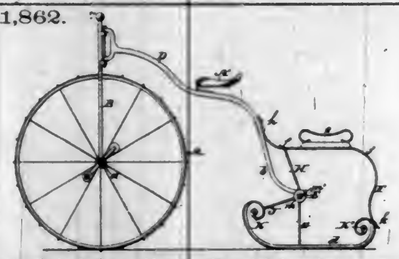
Claim.—1. In a fountain-pen, the combination, substantially as described, of barrel A, having thereon a tubular shield, B, extending nearly the length of said barrel, with a cap, D, and valve-rod C, extending through the shield, and spring F, for automatically lifting said valve-rod, and end piece, G, carrying ink-tube H, having valve-seat H' and pen P, as set forth.

2. In combination with the outside cylinder or barrel of a fountain-pen and its ink-tube, the valve-rod carrying a collar, C', and a spring, F, for automatically lifting the valve-rod, a shield or guide, B, for inclosing and guiding the valve-rod, the valve and valve-seat, the regulating-cap, and elastic cushion, all constructed and arranged to operate substantially as described.

311,862. ICE-VELOCIPEDE. CHRISTIAN WÜNSCH, Camden, N. J. Filed Sept. 12, 1884. (No model.)

Claim.—1. A velocipede in combination with a sled, the shaft connecting the runners of the latter passing through bosses formed on the bifurcated end of the reach or backbone of the former, substantially as and for the purpose set forth.

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2. A velocipede in combination with a sled formed of runners, a seat-frame secured at the rear end to the rear ends of the runners and at the front end to the reach, said runners being connected by shafts and rods, substantially as and for the purpose set forth.

3. A velocipede in combination with a sled formed of runners connected by a shaft to which is pivotally secured the bifurcated arm of the reach or backbone of the velocipede, said sled having a seat-frame directly over the runners and secured thereto at their rear ends and to the reach and provided with braces extending from the said shaft to both runners and seat-frame, substantially as and for the purpose set forth.

4. A velocipede in combination with a sled having a rod, E, braces G H, bosses *m* and nuts *m'*, for connecting the runners and seat-frame of the sled, the reach of the velocipede being also connected with said rod, substantially as and for the purpose set forth.

311,863. ORE-CONCENTRATOR. JACOB CHERNEY and WILLIAM C. DAVIS, Denver, Colo., assignors to said Cherney and Francis M. Davis, same place. Filed Sept. 1, 1884. (No model.)

Claim.—1. In an ore-concentrator, pans having flexible joints, and means for raising or lowering the sections between the joints, substantially as described.

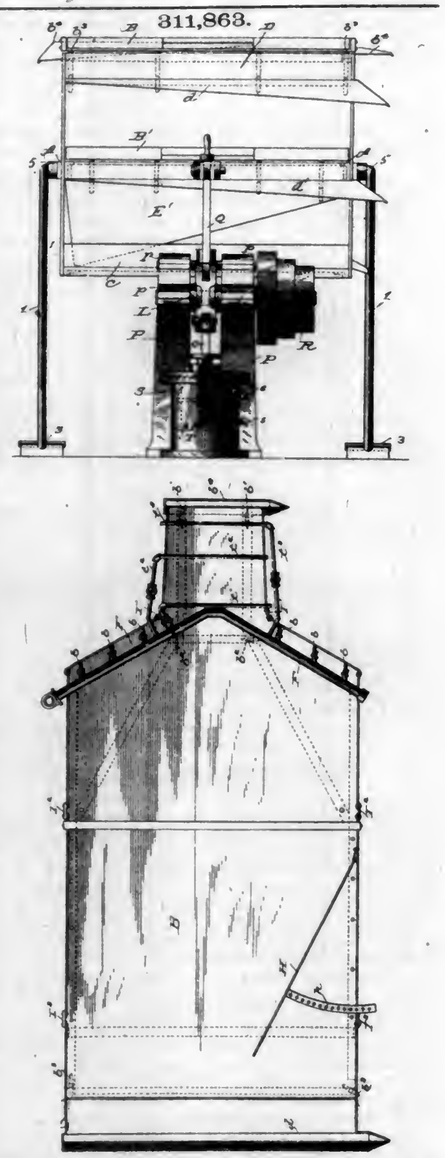
2. The combination, with the sheet-metal pan of a concentrator, formed with flanges and V-shaped cuts therein, of flexible sheets, substantially as described.

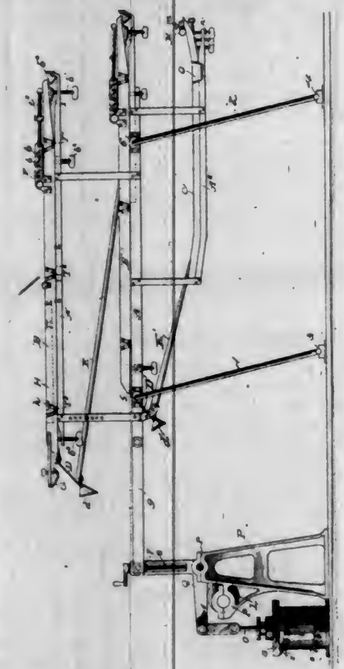
3. In combination with a pan of a concentrator, a surface-water skimmer, G, and a wave-strip, H, substantially as described.

4. In a concentrator substantially as described, the lower pan, C, of rhomboidal shape, having its feed end in one angle and discharge-pipe in opposite angle, substantially as described.

5. In combination with the pan C, having means for directing the

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current, and the slots *k*, the valves for closing said slots, substantially as described.

6. In combination with the pan C, having slots and valves, bars *g*, *g'*, and g^2.

7. In combination with the pans, the bell-crank lever, and connection between said lever and pans, an accelerating-cam, substantially as described.

8. In combination with the bell-crank lever, the cam, and the pan connected to said lever, the air-cylinder provided with vents, adapted to form air-cushions, substantially as described.

9. In combination with the cylinder and its piston, the pan, the bell-crank lever connected to the pan, the driving-shaft and its cam, and the pedestal, all substantially as described.

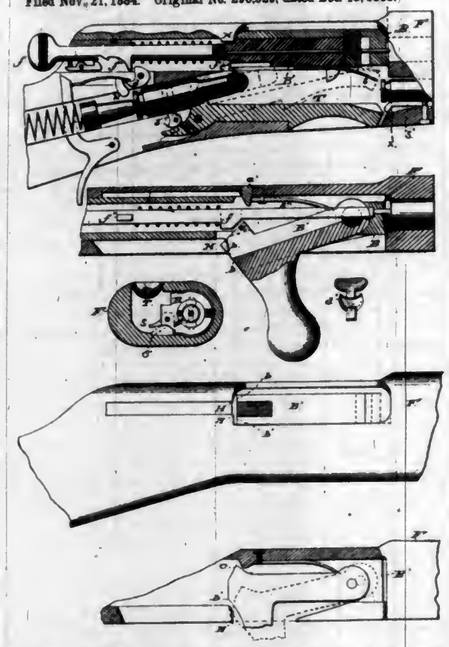
10. In combination, the frame A, mounted upon the rocking standards 1 2, the supplemental frames A' A^2, supported by the said frame A, and means for oscillating the same, substantially as described.

11. The vertically-flexible pan B, having water-supply pipes at its front end and an inclined screen connected to its rear end, combined with the pan B', and a pan, C, and suitable supporting-frames, all substantially as described.

12. In combination with the pan C, of rhomboidal shape, made with feed and discharge ends, with slots *k*, and means for directing the current, an upper pan made flexible in substantially the manner described and connected to the pan C, as set forth.

REISSUES.

10,555. MAGAZINE FIRE-ARM. ANDREW BURGESS, Owego, N. Y. Filed Nov. 21, 1884. Original No. 290,529, dated Dec. 18, 1883.



Claim.—1. The combination of a tubular magazine in the rear stock, a cartridge-detent pivoted in proximity thereto and having movement into said magazine as described, and a firing-pin in the breech mechanism having a projection as described, which projection in its movement engages with and operates said detent, substantially as set forth.

2. A reciprocating breech-bolt, and a locking-brace pivoted to said bolt within the frame of the gun, said brace being provided with a lateral projection by which operative force is applied to the brace substantially as specified, said brace having an incline on its rear which locks against a fixed shoulder in the frame, all combined substantially as stated, so that the forward and outward movement of the locking-brace by forward pressure on its projection, as aforesaid, presses the bolt forward with a cam or wedge action to force it home and lock it.

3. In combination, a reciprocating breech-bolt carrying a firing-pin, a locking-brace having its bearing in said bolt, an incline on the brace, and an inclined locking-abutment in the frame, and a handle connected to said locking-brace and extending outside the line of movement of the bolt, whereby said brace is moved to force the bolt home by the outward locking movement of the brace against the inclined locking-shoulder in the frame, substantially as described.

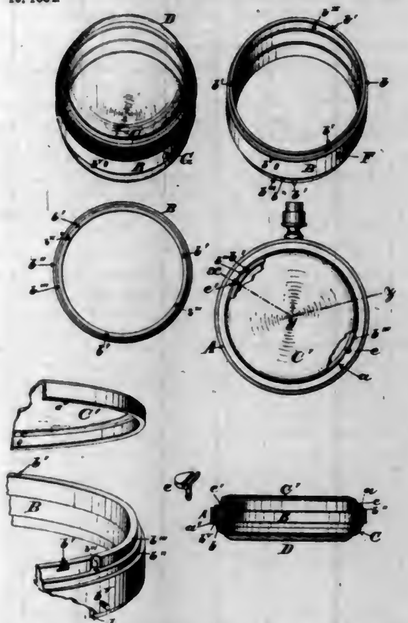
4. A reciprocating breech-bolt, a locking-brace pivoted to said bolt, so as to move therewith and to lock the bolt by direct engagement with an abutment in the frame, an incline on said locking-brace, and a firing-pin carried by the bolt, having an incline thereon in the line of movement of the incline on the locking-brace, so as to be moved back thereby, all the recited elements in combination, substantially as stated.

5. A hollow breech-bolt, a hollow locking-brace pivoted within the recess of said bolt, so that the locking portion may swing entirely into said recess, and a firing-pin in the bolt passing through the recess in the brace, all combined substantially as described.

6. In combination, in the frame of a breech-loading gun, a fixed locking-shoulder, a reciprocating bolt, a locking-brace (having an operating-handle connected therewith) hung to said bolt and swinging in its unlocking movement toward the axis of the bolt, a projection or incline, as *e*, on the locking-brace, and an incline or projection, as *e'*, on the frame, whereby the swinging movement of the brace in unlocking brings the projections into engagement and cams the bolt backward, substantially as described.

7. In a magazine-gun, a reciprocating breech-piece and a spring magazine-stop below the breech-piece, in combination with a spring trap or gate located in the side of the frame, normally outside of the line of the magazine, so that when said trap is forced laterally in the act of inserting the cartridge in the magazine said trap engages and retires the spring magazine-stop, substantially as described.

10,556. WATCH-CASE. C. WESLEY HARMAN and HORACE G. SKINMORE, Cincinnati, Ohio. Filed Apr. 12, 1884. Original No. 293,869, dated Feb. 19, 1884.



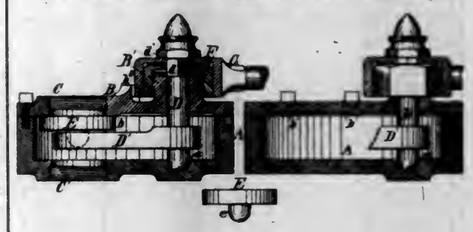
Claim.—1. A movement-holding ring for watches adapted to be held from movement in the case-center, and which has one of its covers secured to the ring-body by being turned onto it as by a screw or bayonet-joint connection, so that access can be had to the movement without removing it from the case-center, said ring being adapted for use as a movement-holding box, as set forth.

2. A movement-holding ring for watches adapted to be held from movement in the case-center, and whose back is secured to the ring-body by being turned onto it as by a screw or bayonet-joint connection, so that access can be had to the movement without removing it from the case-center, said ring being adapted for use as a movement-holding box, as set forth.

3. The watch-movement box or receptacle in three parts consisting of annular body B, having rabbets *b b'' b'''*, the spiral grooves *b'*, the hole b^{iv}, and the stud b^{v}, in combination with the separately-attached covers C D and C', having inwardly-extending studs *c*, as and for the purpose set forth.

4. The combination of a watch-case center, A, having recess *a'* and lip *a*, a movement box or receptacle in three pieces consisting of annular body B, having rabbets *b b'' b'''*, the spiral grooves *b'*, the hole b^{iv}, and the stud b^{v}, and the covers C D and C' turned thereon independently of the case-center, having studs *c*, to engage in the spiral grooves, as set forth.

10,557. THROTTLE-VALVE. EDMUND LUNKENHEIMER, Cincinnati, Ohio. Filed Nov. 11, 1884. Original No. 301,823, dated July 8, 1884.



Claim.—1. The combination of an oscillating arm, as D', stem D, and hand-lever G, with the disk-valve E, and screw-gland F, whereby said valve-disk by the oscillation of the moving parts is automatically relieved from and forced against the seat *b*, in the manner substantially as described.

2. The combination of a valve-case having a seat, *b*, a stem, D, journaled to rotate therein, an arm, D', extending from the stem to swing when the latter is rotated, a valve-disk, E, on the arm, a swinging hand-lever, G, connected with the stem to rotate the latter, and a locking-lever, H, secured to the stem to bind against the hand and lock the stem, when rotated to the position desired, substantially as described.

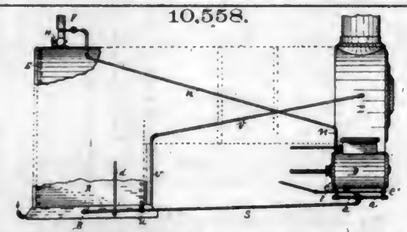
3. The combination of the oscillating valve-disk E, seat *b*, and concentric ways *b' b'*, whereby the said valve-disk is pressed upon both sides by steam when off its seat, in the manner and for the purpose substantially as specified.

4. In a throttle-valve containing an oscillating stem turning in suitable bearings, and provided with a radial arm, which arm supports a disk-valve, and in which the opening and closing movements of said disk-valve are caused by an oscillating movement imparted to said stem and arm, a bonnet in which said oscillating stem is journaled, and of which bonnet the valve-seat and concentric ways over which said disk-valve travels in its opening and closing movements are in a plane, substantially as described.

10,558. LOCOMOTIVE ASH-PAN. CHARLES M. LAKE, Jackson, Mich. Filed Oct. 7, 1884. Original No. 302,915, dated Aug. 5, 1884.

Claim.—1. The combination, with a cylinder and a pipe connecting the ports, provided with three-way cocks, suitable plugs in said cocks, and check-valves, of a condenser located beneath the ash-pan, and a connecting-pipe for conveying the steam to said condenser, substantially as set forth.

10,558.



2. The combination, with a cylinder having a connecting-pipe between the ports, and provided with three-way cocks and suitable cock-plugs, of an ash-pan frame, detachable condenser-bottom, and pipe for conveying the exhaust-steam to the condenser, substantially as set forth.

3. The combination of an ash-pan, a condenser beneath the pan, a cylinder or cylinders, pipes connecting the cylinder exhaust-ports with condenser, three-way cocks at said ports, and branch pipes for blowing out the ash-pan, having at the juncture of the branches and pipe three-way plugs whereby steam may be let into the branches or into the condenser, substantially as set forth.

4. The combination, with the cylinders, an indicator, a pipe connecting the indicator with the boiler, and heater-pipes connecting the indicator with the cylinder exhaust-ports, of an ash-pan, condenser, and pipes connecting the exhaust-ports with the condenser, said ports provided with suitable cocks and valves, all substantially as set forth.

PHOTO LITH. NORRIS PETERS WASHINGTON D.C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

Supreme Court of the United States.

THE TORRENT AND ARMS LUMBER COMPANY *v.* RODGERS.

Decided December 22, 1884.

1. Where in an action at law for the infringement of the reissued patent of Esau Torrent it was pleaded that the patentee and the plaintiff unjustly obtained such reissue for that which was not included in the original patent, and was in fact invented by John Torrent, who was using reasonable diligence in adapting and perfecting the same, and had filed an application for a patent therefor, with the knowledge of the patentee and the plaintiff, prior to the application upon which the reissued patent had issued at a date earlier than that of the patent to John Torrent, and that the invention described in John Torrent's patent had been put in use at the place where all the parties lived, and on the trial the plaintiff had put in evidence the Esau Torrent original and reissued patents, and asserted infringement of the first claim only of the reissue, which claim was not found in the original patent, and also put in evidence of infringement of said first claim, and the defendant had put in evidence the later patent of John Torrent and evidence that the supposed infringing machines were made in accordance therewith, and the defendant then requested the court to instruct the jury to bring in a verdict for the defendant, which instruction the court refused to give, *Held* that this was error on the part of the court, because such first claim was void.

2. Where upon comparison of the original and reissued letters patent of the plaintiff it was apparent that the invention had been originally for the turning of logs on their own axes on a log carriage, and the reissued patent had been expanded to embrace the rolling of logs from place to place on the log-deck or from the log-deck upon the carriage, and in so doing required the omission of parts essential in turning logs on their axes when upon the carriage, *Held* that this involved not only a change of purpose, of location of parts, of the manner of operation, but of effect produced, and this involved a change of mechanism, and therefore the reissue covered a different invention from that described in the original patent, and the claim based upon such change was void.

3. Where each of the claims of the original patent was for a combination of operative elements, and the new claim in the reissue was for a single element only, without reference to its operating mechanism, and the operation of this element had been changed in the reissue, *Held* that this claim was enlarged so as to include an invention not described or included in the original patent.

4. Where an original patent was reissued after a lapse of nearly five years, and the reissue included an invention not described in the original patent, which was described in a prior application by another party who obtained a patent after the date of the reissue, *Held* that it might fairly be inferred that the purpose of the reissue was to include the invention described in the later patent, and so far the reissue was void, as coming within the rule adopted by the Court in various decisions, particularly in the cases of *Clements* v. *Odorless Company*, *McMurray* v. *Mallory*, and *Mahn* v. *Harwood*.

5. Upon the facts presented, *Held* that the plaintiff below failed to show any cause of action, and the court should have instructed the jury to render a verdict for the defendant.

6. The first claim of Reissue Letters Patent No. 5,487, granted to Alexander Rogers as the assignee of Esau Torrent, declared void.

IN ERROR to the Circuit Court of the United States for the Western District of Michigan.

Mr. B. F. Thurston, *Mr. Geo. W. Dyer*, and *Mr. R. A. Parker* for the plaintiffs in error.

Mr. C. C. Chamberlain for the defendant in error.

Mr. Justice WOODS delivered the opinion of the Court.

This was an action at law brought June 25, 1879, by Alexander Rodgers, the defendant in error, against The Torrent and Arms Lumber Company, the plaintiff in error, to recover damages for the infringement of reissued letters patent for a new and improved machine for rolling saw-logs, dated June 25, 1873, granted to Rodgers as the assignee of Esau Torrent, the original patentee. The lumber company pleaded the general issue with notice that, among other things, it would give in evidence and insist in its defense—

that the said patentee and his assignee, the plaintiff, unjustly obtained the reissued patent for matters and principles embraced in such reissue not included in the original patent or specification therefor, and for what was in fact invented by another—to wit, John Torrent, of the city of Muskegon, who was using reasonable diligence in adapting and perfecting the same:

that John Torrent—

made his application for a patent therefor on January 29, 1873, and his patent was granted August 12, 1873, and the plaintiff and his assignee had knowledge prior to the application for such reissue of the aforesaid application for patent by the said John Torrent, and the said principles so patented by the said John Torrent had (by him) been used at the city of Muskegon aforesaid by said John Torrent and others.

Upon the trial in the circuit court Rodgers, to maintain the issue on his part, introduced in evidence the original letters patent, dated August 25, 1868, granted to Esau Torrent, for a new and improved machine for rolling saw-logs, the assignment of said letters patent by the patentee to Rodgers, and the reissued letters patent granted to Rodgers as the assignee of Torrent, applied for June 25, 1873, and issued and dated July 15, 1873.

The specification and claims of the original and reissued patents were both illustrated by the annexed drawings.

The original specification is here reproduced, so as to show the changes made in the reissue. The parts in italics are found in the reissue and not in the original, and the parts inclosed in brackets are found in the original and not in the reissue.

Be it known that I, ESAU TORRENT, of Muskegon, in the county of Muskegon and State of Michigan, have invented a new and Improved Machine for *Turning* [Rolling Saw] Logs; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art *to which it appertains* to make and use the same, reference being had to the accompanying drawings, forming [a] part of this specification.

Figure 1 is a side view of my improved machine, parts of the frame being broken away to show the construction. Fig. 2 is a detail sectional view of the same, taken through the line *x x* of Fig. 1.

Similar letters of reference indicate corresponding parts *in the different figures of the drawing*.

My invention has for its object to furnish an improved device for turning or rolling logs *to or* upon the carriage of circular or other saw mills, which shall be simple in construction, effective in

operation, and conveniently operated; and it consists in *the application for that purpose of a toothed bar connected with means for*

Fig. 1.

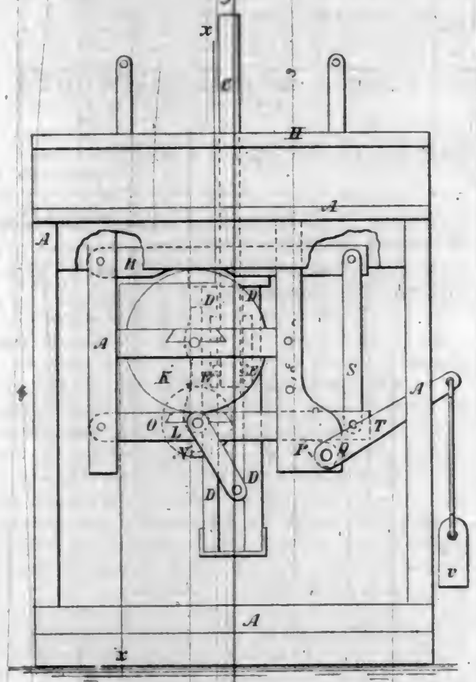
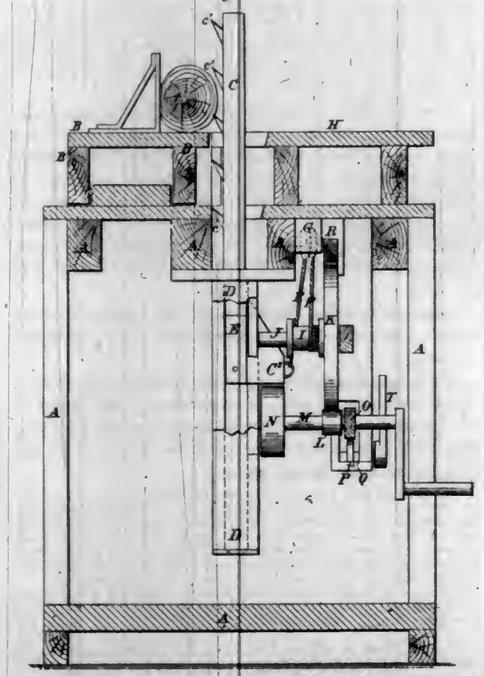


Fig. 2.



giving it the necessary movement, and, further, in the construction and combination of the various parts, as hereinafter more fully described.

A represents [a part of] the frame-work, and B [represents] the the log-carriage of *a* [an ordinary] saw-mill [about the construction of which parts there is nothing new.]

C is *a* [an upright] bar having teeth *c'* attached to its forward side, and which [moves up and down between the posts D, attached to the frame A,] *has a vertical as well as horizontal movement, controlled by suitable guides.* The lower end of the toothed arm C is pivoted to and between two blocks, E, which moves up and down in grooves in the inner sides of the posts D, as shown in Fig. 2 and in dotted lines in Fig. 1. This construction enables the upper end of the [upright] bar C to move back and forth to adjust itself to the size of the log to be rolled or turned upon the carriage B, and also to enable the teeth *c'* to pass the log when the bar is descending in the inner sides of the posts D, as shown in Fig. 2, and in dotted lines in Fig. 1. This construction enables the upper end of the [upright] bar C to move back and forth to adjust itself to the size of the log to be rolled or turned upon the carriage B, and also to enable the teeth *c'* to pass the log when the bar is descending.

To the rear side of the lower end of the bar C is attached or upon it is formed a block, arm, or projection, c^3, to which is attached the end of the rope or chain F, by means of which the said [upright] bar C is raised to turn the log. This manner of attaching the hoisting-chain forces the upper end of the said bar C forward, causing the teeth *c'* to take a *firm* [firmer] hold upon the log to be rolled. The chain or rope F passes over a pulley, G, secured in *a* proper position [immediately] beneath a log-deck, H, and thence down to the barrel or drum I *upon* [of] the shaft J, to which *one* [its] end *of it* is securely attached. *Upon* [To] the shaft J is *also* attached the large friction-pulley K, to which motion is given by the small friction-pulley L, *secured upon* [attached to] the shaft M, to which shaft is also attached the pulley N, by means of which motion is communicated to the apparatus from the driving power of the mill. One end of the shaft M works in stationary bearings attached to or connected with the frame of the mill, and its other end works in bearings *secured upon* [attached to] the bridge-tree O, one end of which is pivoted to the frame A, and the other [end of which] rests upon the cam P of the cam-shaft Q, so that by means of said cam-shaft the bridge-tree O may be raised or lowered to bring the friction-pulley L into or remove it from contact with the friction-pulley K.

R is a brake-bar, which may be made of wood or other suitable material. One end of *this* [the] brake-bar [R] is pivoted to the frame A or [to] some other suitable support, and its other end is connected with *one* [the] end of the bridge-tree O by the bar S, so that as the friction-pulley L is moved away from the [friction] pulley K, the brake may be applied to the friction-pulley K, either to hold the bar C stationary or to allow it to descend with any desired rapidity.

To one end of the cam-shaft Q is attached a lever or arm, T, having a weight, U, suspended from its end, which may be regulated so as to hold the friction-pulley L against the [friction] pulley K with any desired force.

The lever or arm T may be operated to throw the friction-pulley L into or out of gear with the friction-pulley K by means of levers or cords, as may be desired or *found most* convenient.

Having thus described my invention, [what] I claim as new, and desire to secure by Letters Patent, [is]—

1. *The toothed bar herein described operating substantially in the manner and for the purpose specified.*

[1.] 2. The toothed bar C, pivoted at its lower end between the blocks E, which are adapted to slide in vertical grooves formed in the posts D, whereby the said bar C is rendered vertically movable and capable of adjustment to suit logs of different sizes, substantially as herein set forth [and shown.]

3. The *combination* [arrangement] of the pivoted brake R, connection S, and pivoted bridge-tree O, [in which is formed the outer bearing for shaft *m*,] substantially as herein shown and described, [whereby pulley L is removed from contact with pulley K, and the brake brought into contact with the latter, and vice versa, simultaneously, as herein set forth.]

[2.] 4. The combination, with [and arrangement with relation to] the bar C, of the cord or chain F, pulley G, shaft J, drum I, friction-pulleys K L, and adjustable shaft M, [all] *substantially* as set forth [and shown.]

[4.] 5. The *combination* [arrangement] of the cam P and shaft [P] Q and weighted arm T, with [relation to] the connected brake and bridge-tree, to operate as and for the purpose described.

It appeared by the bill of exceptions that the only claim of the reissued patent upon which the plaintiff relied or which was considered under the instructions of the court to the jury was the first claim. The plaintiff relied simply upon the infringement of the toothed bar and its mode of operation. He did not allege infringement of any combination, claim, or of the device or any of its parts by which the movement of the toothed bar was produced.

The plaintiff also introduced evidence tending to show, as he claimed, infringement by the defendant of the first claim of the reissued patent, and evidence tending to show the damages sustained by him by reason of such infringement.

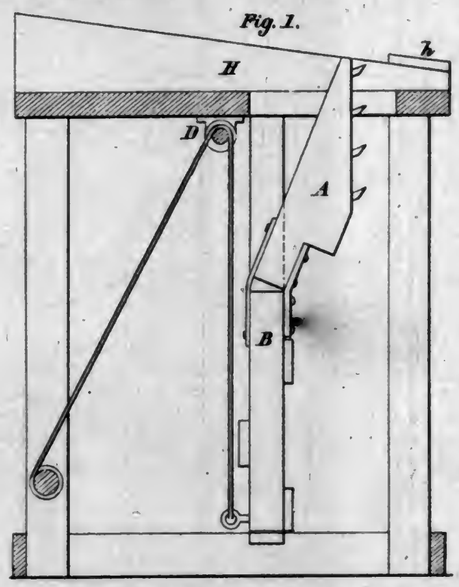
The defendant to sustain his defenses introduced in evidence letters patent for certain improvements in log-turners, issued to John Torrent, dated August 12,

1873, upon his application therefor filed January 29, 1873. In this patent a wedge-shaped tooth-bar is shown hinged at its lower end to an upright shaft, in order that it might adjust itself in proper position to take hold of a log and roll it to and on the carriage of a saw-mill. The apparatus was shown in combination with inclined ways upon the log-deck provided with a stop to hold back the logs, which lay side by side in a series on the log-deck, and it was intended that the log-turning device should separate the last log in the series from the others and roll it over from the deck upon the carriage. The first claim of the patent was—

The toothed bar, the bottom of which is pivoted to an upright reciprocating shaft, as described.

The specification of the patent was illustrated by the annexed drawing.

Fig. 1.



The defendant then introduced evidence tending to show that the machine, the use of which by him was charged by the plaintiff to be an infringement on his reissued letters patent, was constructed according to the patent of John Torrent, just described.

The evidence having been closed, the defendant asked the court to charge the jury—

That, in view of the pleadings and proof and the claims and disclaimers of the plaintiff regarding the portion of his patent claimed to be infringed, the jury are instructed to render a verdict for the defendant.

The court refused to give this charge. After receiving the charge of the court upon the case as presented by the pleadings and evidence, the jury returned a verdict for the plaintiff for nine hundred and sixty dollars, on which the court rendered judgment. The writ of error in this case brings up that judgment for review. The refusal of the court to direct the jury to return a verdict for the defendant is, among other things, assigned for error. We think the charge requested should have been given, because, in our opinion, the first claim of the reissue patent, which is the only one that the plaintiff insisted had been infringed, is void. The testimony showed that it was the practice in saw-mills to "slab" the logs after they were placed on the carriage—that is, to saw off slabs on two or four sides of the log. To accomplish this, it was necessary that the log should be turned on the carriage. An inspection of the drawings and specification of Esau Torrent's original patent shows that his device was for the turning of logs upon their axes when placed upon the carriage of a saw-mill, so that the opposite parts of the log might be successively presented to the saw and slabs cut therefrom. It was no part of the purpose of the contrivance to roll the log from one place to another, as from one part of the log-deck to another, or from the log-deck to the carriage. On the contrary, the drawing shows that the device was so made as to prevent the rolling of the log from one place to another. This was accomplished by knees considerably higher than the diameter of the log, against which the log was pressed, and which held it in position and formed part of the means by which the log was made to revolve on its axis. When placed in contact with the knees, the log was in the right position to be subjected to the action of the saw. It is not possible with this device to roll the log from one place to another, except by raising it, if that could be done, to the top of the knees and tumbling it over them to the other side, and if this were done, it would defeat the object of the invention by moving the log off the carriage and away from the saw.

In the reissue the specification is modified so as to make a radical change not only in the purpose, but in the mechanism of the invention. In the original patent the invention was declared to be an improved device for turning or rolling logs upon the carriage of a saw-mill. In the reissue the invention was declared to be a device for turning or rolling logs *to or* upon the carriage. The device as described in the reissued patent is adapted not only to turn logs on their axes, but to roll them from one place to another, as from one part of the log-deck to another, or from the log-deck to and upon the carriage. This requires a change of mechanism. To turn a log when on the carriage without change of its location requires that the toothed bar should be placed as closely as possible to the side or within the side of the carriage, and there must be knees to prevent a change in the location of the log. To roll a log to the carriage, or to roll a log from the log-deck upon the carriage, the toothed bar must be at a distance from the carriage at least as great as the diameter of the log, and the slot in which it works must be extended accordingly, and the knees are not only unnecessary, but would be an obstruction to the operation of the device. The movement of a toothed bar in turning a log on a carriage against the resistance of the knees is necessarily in the same plane, while the movement of a toothed bar in rolling a log toward or upon a carriage is necessarily in constantly-changing planes, as the bar follows the changing position of the log. The change of the specification, therefore, includes an omission of the knees, a change in the location of the toothed bar, a change in its movements, and a change in the effect produced by its movements. The reissue, consequently, covers a different invention from that described in the original patent. It embraces a different machine, intended for different purposes, and performing different functions from that described in the original patent.

When we turn to the claims of the reissued patent,

we find a corresponding enlargement of the scope of the patent. The claims of the original patent are substantially reproduced in the reissued patent, except that a combination instead of an arrangement of the different parts was claimed. But a new claim is added, namely, the first, which is as follows:

The toothed bar herein described, operating substantially in the manner and for the purpose described.

Each of the claims of the original patent was for a combination. But the first claim of the reissue covers the toothed bar, operating substantially in the manner described, without reference to the mechanism by which it was moved, segregated from the combination and claimed as a distinct invention of the patentee. The operation of the toothed bar is enlarged in the first claim of the reissue. In the original patent it was used in connection with the knees set upon the log-carriage to prevent the log changing its place and to aid in giving the log a rotary motion on its axis. In the first claim of the reissue, construed in connection with the changed specification, the toothed bar may be used with or without the knees. The knees are used when the toothed bar is employed for revolving the log on its axis, and they are omitted when the toothed bar is used for rolling the log over and moving it from one place to another. Both the specification and claims of the reissue are enlarged to include an invention not described or included in the original patent.

The application of John Torrent for his patent, dated August 12, 1873, was filed January 29, 1873. The invention covered by his patent was the alleged infringing machine used by the defendant. After the patent of John Torrent had been applied for, and his invention fully described in his application, and nearly five years after the grant of the original letters patent to Esau Torrent, the latter applied for the reissue with its expanded specification and claims. The reissue was clearly intended to forestall John Torrent's invention and include it in the claims of the reissued patent of Esau Torrent. We find, therefore, that the specification and first claim of the reissue was an enlargement of the claims of the original patent, and covered an invention not covered or described therein; that the reissue was not applied for until nearly five years after the date of the original patent, and not until another inventor had made a substantial advance in the art to which the original patent belonged, which the assignee of the original invention, it may be fairly inferred, desired to include in the monopoly of his patent, and that he sought to accomplish this by its reissue. The first claim of the reissued patent was therefore void. This conclusion is sustained by many decisions of this Court, some of which may be found in the following cases: *Gill* v. *Wells*, (22 Wall., 1;) *The Wood Paper Patent*, (23 Id., 268;) *Powder Company* v. *Powder Works*, (98 U. S., 126;) *Ball* v. *Eangles*, (102 Id., 128;) *James* v. *Campbell*, (Id., 356;) *Heald* v. *Rice*, (Id., 737;) *Miller* v. *The Brass Company*, (104 U. S., 350;) *Johnson* v. *Railroad Co.*, (105 Id., 534;) *Bautz* v. *Frantz*, (Id., 160;) *Wing* v. *Anthony*, (106 U. S., 142.) Especial attention is called to three decisions of this Court which are peculiarly apposite: *Clements* v. *Odorless Excavating Company*, (109 U. S., 641;) *McMurray* v. *Mallory*, (111 U. S., 96,) and *Mahn* v. *Harwood*, decided at the present term.

It follows, from the views we have expressed, that the plaintiff below failed to show any cause of action against the defendant. The court should, therefore, have charged the jury, as requested, to return a verdict for the defendant. Its refusal to do so was error, for which the judgment must be reversed, which is accordingly done, and the cause is remanded to the circuit court, with instructions to grant a new trial.

U. S. Circuit Court---Southern District of New York.

HOLLIDAY *et al. v.* MATHESON *et al.*

Decided December 9, 1884.

1. Unconditional sale of a patented article confers the whole title therein, and impliedly warrants full ownership on the part of the vender.
2. Title so passed, even where the sale was in a foreign country, is good everywhere, and carries the right to use or sell for use anywhere.

Mr. Edward N. Dickerson, Jr., for the orators.
Messrs. Frost & Coe for the defendants.

WHEELER, *J.:*

It is not sufficiently clear that the defendants have dealt in or used any of the patented articles since the injunction within the United States not purchased of the orators in England to warrant the severity of an attachment. The decision of the question as to those articles seems to rest on a few principles. As to articles made and sold, or sold by themselves, the orators have no greater or different rights than as if they had no patent. The right conferred by the patent is merely to prevent others from making, using, or selling for use. When they sell the patented article they confer their whole title and impliedly warrant that they have full ownership. These articles are mere personal chattels the title to which passes by the contract of sale, not only where the articles are and the sale is made, but the title is good everywhere. The sale in England was as good to pass the orators' title as a sale within the United States would have been. It carried all the rights which the orators had anywhere. This included the right to use or sell for use anywhere that the orators had it. Less than this would be a limited and not a full sale. They could not sell the whole and keep any part. The English cases support this view. (*Bolts* v. *Wilmont*, Law Rep., 6 Ch. App., 230.) The diligence of counsel has produced no American case opposed to it. It is urged that it would be oppressive to patentees in one country dealing in another, but this effect is not recognized to any unjust extent. The sale may doubtless be restricted to what the patentees wish to sell. (*American Cotton Tie Supply Company* v. *Bullard*, 17 Blatchf., 160.) If they assume to sell only what they do sell, they will deal on an equality with others where they have no patent and preserve all their rights where they have one.

Motion denied.

THE OFFICIAL GAZETTE OF THE United States Patent Office.

[*BY AUTHORITY OF CONGRESS.*]

VOL. 30—No. 6. TUESDAY, FEBRUARY 10, 1885. PRICE—$5 per year.

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Order No. 217.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., January 31, 1885.

The following sub-classes are hereby added to Class 48, "Gas," Division III:

Carburetors—
Carbureting-lamps,
Gas and air mixers,
Oil-feed. Float-valves,
Oil-feed. Rotary,
Revolving.

And the following sub-classes are added to Class 75, "Metallurgy," Division III:

Hydrocarbon-Furnaces—
Injector-burners,
Retort-vaporizers.

BENJ. BUTTERWORTH,
Commissioner.

Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., January 28, 1885.

SIR: I am directed by the Secretary to inform you that he has ordered that William M. Cherry, of Washington, North Carolina, be not recognized from and after this date as attorney in the prosecution of any claim or other matter before the Department of the Interior or any bureau thereof.

I am, sir, very respectfully, your obedient servant,
GEO. M. LOCKWOOD,
Chief Clerk.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
Washington, February 2, 1885.

SIR: I am directed by the Secretary to inform you that the order dated November 19, 1878, disbarring Samuel J. Filson, of Maysville, Kentucky, from practice before the Department of the Interior and the bureaus thereof has this day been rescinded.

Very respectfully,
GEO. M. LOCKWOOD,
Chief Clerk.

The Commissioner of Patents.

Issue of February 10, 1885.

Patents	380—No.	311,864 to No. 312,243, inclusive.
Designs	28—No.	15,782 to No. 15,809, inclusive.
Trade-Marks	42—No.	11,906 to No. 11,947, inclusive.
Labels	8—No.	4,338 to No. 4,345, inclusive.
Reissues of patents	2—No.	10,559 to No. 10,560, inclusive.
Total issue	460	

To citizens of the United States: Patents and Designs—387. Trade-Marks and Labels—49.

To citizens of foreign countries: Patents and Designs—21. Trade-Marks and Labels—1.

30 o G—6—i

DESIGNS.

15,782 and 15,783.—CARPET.—*Morton F. Beal*, Boston, assignor to *Lowell Manufacturing Company*, Lowell, Mass. Applications filed January 10, 1885. Term of patents 3½ years.

15,784.—SPOON OR FORK.—*Charles T. Grosjean*, New York, N. Y., assignor to *Tiffany & Co.*, same place. Application filed December 10, 1884. Term of patent 14 years.

15,785.—SPOON-HANDLE.—*Charles T. Grosjean*, New York, N. Y., assignor to *Tiffany & Co.*, same place. Application filed October 14, 1884. Term or patent 14 years.

15,786.—RUG.—*William Gilmour*, Philadelphia, Pa., assignor to *George W. Ennis & Co.*, same place. Application filed January 7, 1885. Term of patent 3½ years.

15,787.—FONT OF PRINTING-TYPE.—*Julius Guildenstine*, New York, N. Y., assignor to *Arthur M.* and *Alson E. Barnhart*, Chicago, Ill. Application filed January 12, 1885. Term of patent 14 years.

15,788.—BRACKET.—*Elijah T. Harris*, Chicago, Ill. Application filed June 16, 1884. Term of patent 7 years.

15,789.—PLATTER.—*Edwin Haviland*, Plainfield, N. J. Application filed September 15, 1884. Term of patent 7 years.

15,790.—STOOL.—*Jacob Hofmann*, Brooklyn, N. Y. Application filed August 12, 1884. Term of patent 7 years.

15,791.—FONT OF PRINTING-TYPE.—*Herman Ihlenburg*, Philadelphia, Pa., assignor to *MacKellar, Smiths & Jordan*, same place. Application filed January 14, 1885. Term of patent 14 years.

15,792.—FONT OF PRINTING-TYPE.—*William W. Jackson*, Philadelphia, Pa., assignor to *Arthur M.* and *Alson E. Barnhart*, Chicago, Ill. Application filed December 8, 1884. Term of patent 14 years.

15,793 to 15,795, inclusive.—CARPET.—*Adolph Petzold*, Philadelphia, Pa., assignor to *John H. Bromley, Joseph H. Bromley*, and *Edward Bromley*, all of same place. Applications filed January 2, 1885. Term of patents 3½ years.

15,796 to 15,800, inclusive.—RUG.—*Adolph Petzold*, Philadelphia, Pa., assignor to *John H. Bromley, Joseph H. Bromley*, and *Edward Bromley*, all of same place. Applications filed January 2, 1885. Term of patents 3½ years.

15,801 to 15,806, inclusive.—CARPET.—*Julius Pegel*, Philadelphia, Pa., assignor to *John H. Bromley, Joseph H. Bromley*, and *Edward Bromley*, all of same place. Applications filed January 2, 1885. Term of patents 3½ years.

15,807.—GROUP OF STATUARY.—*John Rogers*, New Canaan, Conn. Application filed January 2, 1885. Term of patent 14 years.

15,808.—SPOON-HANDLE.—*George W. Shiebler*, Brooklyn, N. Y. Application filed October 7, 1884. Term of patent 7 years.

15,809.—WASH-BOARD.—*Mark A. Smith*, Evansville, Ind. Application filed December 26, 1884. Term of patent 14 years.

TRADE-MARKS.

[Certificates of registration of Trade-Marks numbered 8,191 and upward are registered under the act of March 3, 1881.]

11,906.—MANUFACTURED GUANO.—*George L. Arps*, Norfolk, Va. Application filed January 14, 1885.
"The representation of two crossed arrows."

11,907.—COKE.—*Balfour, Guthrie & Co.*, San Francisco, Cal. Application filed December 10, 1884.
"The word-symbol 'HOOD'S.'"

11,908.—CUSTARD-POWDER.—*Alfred Frederick Bird*, Philadelphia, Pa. Application filed December 15, 1884.
"The word 'BIRD'S.'"

11,909.—OINTMENTS, PLASTERS, AND LINIMENTS.—*Thomas L. Clingman*, Asheville, N. C. Application filed January 10, 1885.
"The representation of a tobacco-leaf with the name 'CLINGMAN'S' imprinted or stamped thereon."

11,910.—CORN-PLASTERS.—*John B. A. De Winter*, New York, N. Y. Application filed August 18, 1884.
"A representation of the flower and the word 'DAISY.'"

11,911.—SALVE.—*John E. Healy* and *Charles Bigelow*, Boston, Mass. Application filed January 15, 1885.
"The representation of a buffalo's head and figures of spears, arrows, bows, canoe, and circular devices around the same."

11,912.—CRACKERS, BISCUITS, JUMBLES, SNAPS, CAKES, WAFERS, AND KINDRED ARTICLES.—*Hetfield & Ducker*, Brooklyn, N. Y. Application filed December 15, 1884.
"A figure or representation of a cock or rooster."

11,913.—CHOCOLATES.—*Huyler's*, New York, N. Y. Application filed January 15, 1885.
"The letters and words 'LA VOGUE.'"

11,914.—WATER-PROOF CLOTHING.—*Demetrius Jannopoulo*, St. Louis, Mo. Application filed January 17, 1885.
"The word 'BULL.'"

11,915.—WINES AND LIQUORS.—*Kuhl, Boehmke & Co.*, Cleveland, Ohio. Application filed October 24, 1884.
"A design of the head of a cask having a bunch of grapes thereon and a cherub sitting on the cask."

11,916.—COVERED PICTURE-FRAMES.—*Lewis Pattberg & Bros.*, New York, N. Y. Application filed December 9, 1884.
"The word-symbol 'FAVORITE.'"

11,917.—BRONZE-POWDERS, BRONZE-LIQUIDS, AND BRONZE-METAL LEAVES.—*J. Marsching & Co.*, New York, N. Y. Application filed January 15, 1885.
"The representation of a globe."

11,918.—LINIMENT.—*Adolph C. Meyer*, Baltimore, Md. Application filed January 13, 1885.
"The fanciful denomination or arbitrary symbol 'SALVATION.'"

11,919.—SOAP FOR TOILET AND GENERAL PURPOSES.—*Procter & Gamble*, Cincinnati, Ohio. Application filed January 12, 1885.
"A fanciful device as follows: The ornamental letter 'H' extends above and below parallel lines inclosing the other but smaller letters of the word 'HANDY,' with an ornamental circular device at the right-hand upper corner, with the word 'SOAP' below, and at the bottom a scroll or ribbon containing our firm-name, and minor matter of conflagration, the whole being on a light or pea green ground."

11,920.—SOAP FOR LAUNDRY AND GENERAL PURPOSES.—*Procter & Gamble*, Cincinnati, Ohio. Application filed January 12, 1885.
"A calico-pattern and a small parallelogram thereon."

11,921.—SOAP FOR LAUNDRY AND GENERAL PURPOSES.—*Procter & Gamble*, Cincinnati, Ohio. Application filed January 12, 1885.
"Within a parallelogram, the upper half of which is black and the lower half white, is the word-symbol 'WHITE,' in peculiar and fanciful pointed letters on black ground, followed by the word 'SOAP,' in fancy letters in black on the white ground, and at the left-hand lower corner is a circular device composed of the representation of thirteen white stars on a black ground and a profile similar to that of the human face."

11,922.—SOAP FOR LAUNDRY AND TOILET PURPOSES.—*Procter & Gamble*, Cincinnati, Ohio. Application filed January 12, 1885.
"A parallelogram on a yellowish-red ground and a smaller parallelogram containing the word-symbol 'PERFECT.'"

11,923.—SOAP FOR LAUNDRY AND GENERAL PURPOSES.—*Procter & Gamble*, Cincinnati, Ohio. Application filed January 12, 1885.
"A neutral-tinted ground of basket-work and an oviform figure thereon, containing the word-symbol 'AMBER.' To the left of said word is a smaller oviform figure, bearing a profile similar to that of a human face."

11,924.—SOAP FOR LAUNDRY AND GENERAL PURPOSES.—*Procter & Gamble*, Cincinnati, Ohio. Application filed January 12, 1885.
"A parallelogram containing the word-symbol 'EXTRA,' a device of thirteen stars and a profile similar to that of the human face."

11,925.—SOAP FOR LAUNDRY AND GENERAL PURPOSES.—*Procter & Gamble*, Cincinnati, Ohio. Application filed January 12, 1885.
"An aggregation of straight-lined figures, every one of which is of the shape of the letter V forming a uniform pattern, and the representation of a card diagonally placed on said pattern, with the upper right-hand corner turned down."

11,926.—SOAP FOR LAUNDRY AND GENERAL PURPOSES.—*Procter & Gamble*, Cincinnati, Ohio. Application filed January 12, 1885.
"A device of arabesque mosaic-work, an Arab on a camel, the word-symbol 'ARAB,' and a circular device composed of thirteen stars on a dark ground and a profile similar to that of the human face."

11,927.—SOAP FOR LAUNDRY AND GENERAL PURPOSES.—*Procter & Gamble*, Cincinnati, Ohio. Application filed January 12, 1885.
"A mosaic tesselation, a narrow parallelogram containing pictorial illustrations laid thereon, and the fanciful denomination 'YE OLD FOLKS.'"

11,928.—SOAP FOR LAUNDRY AND GENERAL PURPOSES.—*Procter & Gamble*, Cincinnati, Ohio. Application filed January 12, 1885.
"A parallelogram bearing a pattern of vines, &c., and a small parallelogram containing the fanciful denomination 'ALREADY,' and a circular device composed of thirteen stars and a profile resembling that of the human face."

11,929.—SOAP FOR LAUNDRY AND GENERAL PURPOSES.—*Procter & Gamble*, Cincinnati, Ohio. Application filed January 12, 1885.
"A parallelogram and a smaller parallelogram within it, containing the word-symbol 'JAPAN OLIVE,' a device composed of thirteen stars and a profile resembling that of the human face, and a representation of a Japanese person holding an open umbrella."

11,930.—SOAP FOR LAUNDRY AND GENERAL PURPOSES.—*Procter & Gamble*, Cincinnati, Ohio. Application filed January 12, 1885.
"A fanciful configuration of diagonal straight lines with circular figures containing stars and letters interspersed, the word 'DERBY,' and a parallelogram containing a circular device composed of thirteen white stars on a dark ground and a profile similar to that of the human face, represented as laid upon the fanciful configuration of straight lines, circles, stars, and letters."

11,931.—SOAP FOR LAUNDRY AND GENERAL PURPOSES.—*Procter & Gamble*, Cincinnati, Ohio. Application filed January 12, 1885.
"A parallelogram showing the representation of a wall of polygonal stones, with bosses, and a smaller parallelogram therein, inclosing the word-symbol 'WASH WELL,' and a device composed of thirteen stars on a dark ground and a profile similar to that of the human face."

11,932.—SOAP FOR LAUNDRY AND GENERAL PURPOSES.—*Procter & Gamble*, Cincinnati, Ohio. Application filed January 12, 1885.
"A parallelogram with a light-buff ground, with a pattern of branches, twigs, and flowers, and a smaller parallelogram thereon, containing a heraldic device, the fanciful denomination 'OLD ENGLISH,' and a corresponding small parallelogram containing a cross-barred window-sash."

11,933.—TALLOW SOAP IN OBLONG CAKES.—*Procter & Gamble*, Cincinnati, Ohio. Application filed January 12, 1885.
"A yellowish-red ground on which is a parallelogram with a two-lined perimeter. Within it is the fanciful denomination 'TOWN TALK,' the lettering being in heavy dark lines with thin shade-lines. Between 'TOWN' and 'TALK,' which are within curves, is the representation of a circular device of thirteen stars and a profile similar to that of a human face."

11,934.—SOAP FOR LAUNDRY AND GENERAL PURPOSES.—*Procter & Gamble*, Cincinnati, Ohio. Application filed January 12, 1885.
"A calico-pattern and a parallelogram thereon, containing the fanciful denomination 'EVERY DAY,' and a circular device composed of the representation of thirteen stars on a dark ground and a profile similar to that of a human face."

11,935.—SOAP FOR LAUNDRY AND GENERAL PURPOSES.—*Procter & Gamble*, Cincinnati, Ohio. Application filed January 12, 1885.
"A parallelogram on a yellowish-red ground, inclosing a smaller parallelogram, and a circular device of stars and profile, and the word-symbol 'QUEEN OLIVE' contained in the said smaller parallelogram."

11,936.—SOAP FOR LAUNDRY AND GENERAL PURPOSES.—*Procter & Gamble*, Cincinnati, Ohio. Application filed January 12, 1885.
"A parallelogram divided longitudinally into two nearly equal parts, the upper or larger part being light and the lower part dark. In the middle part of said parallelogram is the representation of a horseshoe, toe uppermost, and against which is a four-leaved clover or shamrock—the national emblem of Ireland—and in a curve extending across the horseshoe is the word-symbol 'GOOD LUCK,' and below the same, and in a straight line, is the word 'SOAP.'"

11,937.—SOAP FOR LAUNDRY AND GENERAL PURPOSES.—*Procter & Gamble*, Cincinnati, Ohio. Application filed January 12, 1885.
"A parallelogram on a yellow ground, containing a system of two kinds of squares in alternate rows, and a smaller parallelogram containing the word-symbol 'GOLDEN BAR,' a circular device of stars and profile, and other matters."

11,938.—SOAP FOR LAUNDRY AND GENERAL PURPOSES.—*Procter & Gamble*, Cincinnati, Ohio. Application filed January 12, 1885.
"A parallelogram having a resemblance to a wall of stone blocks, with circular figures, and a smaller parallelogram containing the denomination 'DOVER SOAP,' the firm-name, and general trade-mark of the registrants."

11,939.—SOAP IN CAKES FOR LAUNDRY AND GENERAL PURPOSES.—*Procter & Gamble*, Cincinnati, Ohio. Application filed January 12, 1885.
"A parallelogram on a white ground, containing a system of two kinds of squares in alternate rows, and a smaller parallelogram containing the word-symbol 'IVORY,' and a circular device on a dark ground, studded with thirteen stars, and having a profile similar to that of the human face."

11,940.—STOVE-POLISH AND POLISHING COMPOUNDS, BOTH LIQUID AND SOLID.—*Daniel W. Raymond*, Middletown, Conn. Application filed January 5, 1885.
"The letters and word 'CINDERELLA.'"

11,941.—TOILET AND LAUNDRY SOAPS.—*H. & G. A. Roever*, Cincinnati, Ohio. Application filed January 12, 1885.
"The head and shoulders of the Goddess of Liberty within a circular border containing stars whose number is intended to correspond with that of the United States of North America."

11,942.—WHEAT-FLOUR.—*S. Samper & Co.*, New York, N. Y. Application filed December 27, 1884.
"The words 'HARINA DEL TOLIMA' and a representation of a mountain-peak."

11,943.—NAPHTHA OF 62° to 64° GRAVITY BAUMÉ.—*Scofield, Shurmer & Teagle*, Cleveland, Ohio. Application filed December 15, 1884.
"The words 'MINERAL TURPS.'"

11,944.—MEDICINE FOR PURIFYING THE BLOOD.—*Scott Manufacturing Company*, Roanoke, Va. Application filed November 7, 1884.
"The words

'SCOTT'S SYPHILITIC SPECIFIC,'

as herewith arranged."

11,945.—CIGARS AND CIGARETTES.—*Adolph Shire*, Chicago, Ill. Application filed December 20, 1884.
"The word 'PROFETA.'"

11,946.—NEURALGIA-DROPS.—*George G. Steketee*, Grand Rapids, Mich. Application filed November 6, 1884.
"The portrait and fac-simile signature of 'GEO. G. STEKETEE.'"

11,947.—AERATED BEVERAGE.—*Charles Stoddart*, Buffalo, N. Y. Application filed November 17, 1884.
"A large diamond-shaped portion having a circular central portion for printed matter, the monograms 'SBM,' and two smaller diamond-shaped portions."

LABELS.

4,338.—Title: "GOLD AND SILVER MEDAL AMERICAN SILKS."—*Cooper & Conard*, Philadelphia, Pa. Application filed January 20, 1885.

4,339.—Title: "HAIR SOAP."—*Albert B. Hall* and *Henry C. Bailey*, Indianapolis, Ind. Application filed January 19, 1885.

4,340.—Title: "GO-GO VEGETABLE SOAP."—*Samuel Jacobs*, Baltimore, Md. Application filed December 20, 1884.

4,341.—Title: "NEW MEYER" (FOR BOOTS AND SHOES.)—*Kunkel & Griffiths*, Philadelphia, Pa. Application filed December 13, 1884.

4,342.—Title: "ORANGE ELIXIR" (FOR A LAXATIVE.)—*Orange Elixir Company*, Mobile, Ala. Application filed January 20, 1885.

4,343.—Title: "LONDON AND PARIS" (FOR READY-MADE CLOTHING.)—*Schloss Bros. & Co.*, Baltimore, Md. Application filed January 16, 1885.

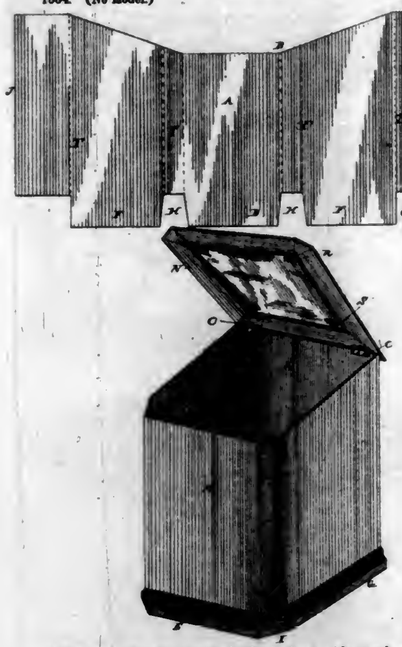
4,344.—Title: "THE HAMBURG COMPRESSED CORN BEEF COMPANY." (FOR COMPRESSED CORN BEEF.)—*John H. Schmitt*, Philadelphia, Pa. Application filed January 16, 1885.

4,345.—Title: "MERCER CO KENTUCKY PURE SMALL GRAIN BOURBON."—*Strauss, Fritz & Co.*, Cincinnati, Ohio. Application filed December 29, 1884.

PATENTS

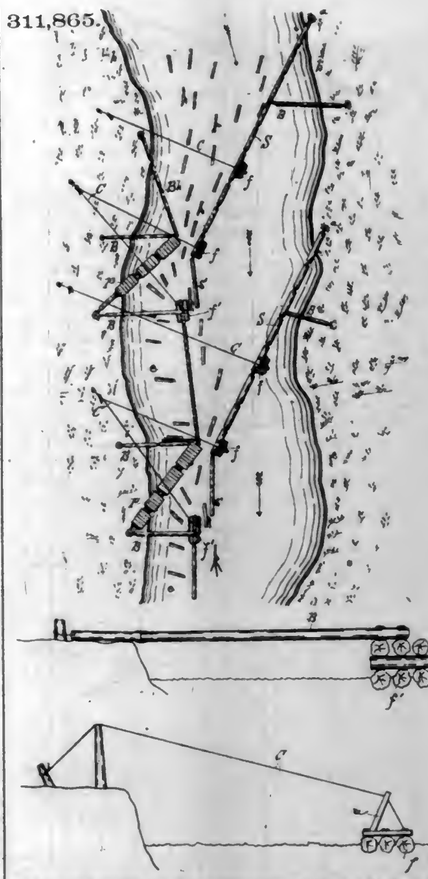
GRANTED FEB. 10, 1885.

311,864. COAL-VASE. HENRY ADLER, Pittsburg, Pa. Filed Feb. 26, 1884. (No model.)



Claim.—A coal-vase having its back, front, sides, and supporting-base formed out of a single piece of metal and a wooden bottom, substantially as set forth.

311,865. LOG-BOOM. JOHN R. ALLEN, Indianapolis, Ind. Filed Nov. 13, 1884. (No model.)



Claim.—1. A boom constructed substantially of logs, the head composed of a sheer on one side and a floating bulk-head on the other, the two converging to form a narrow mouth, in combination with a floating section for inclosing logs below the head, the lower part of the bulk-head provided with a working-platform, all secured to the respective banks of the stream, substantially as and for the purpose described.

2. A boom for catching logs, composed of a head formed of a sheer on one side and the upper portion of a floating bulk-head on the other, the two converging toward each other to form a narrowed mouth which opens in the line of the mouth of an inclosing section below for retaining the logs, in combination with such lower inclosing section, whereby the current is directed to force the logs from the mouth of the head into the opening of the inclosing section below, substantially as described.

3. The log-boom herein described, whose head is formed of a sheer, S, and floating bulk-head B^4, the sheer braced out from the bank b' by braces B, and held to the opposite bank by cables C, the lower part of the sheer, S', adapted to be swung out from or drawn toward the float f' of the inclosure e, in combination with the inclosure e and the float f', substantially as described.

4. A log-boom composed of two or more sections connected with the river-bank on the same side, the upper section having its head formed of a sheer and a floating bulk-head, the sheer provided with floats and uprights for elevating the cables connecting said sheer with the opposite bank, an inclosing section for securing logs below the mouth of the boom-head, whose mouth is so arranged as to be substantially in line with the opening into the inclosing section, whereby the current may force the logs into such inclosure, all combined substantially as described.

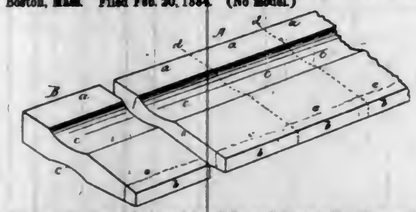
5. A log-boom having its head composed of the sheer S and bulk-head B^4, severally braced and held, as described, to the two banks of the river and converging to form a narrow mouth opposite the float f, the swinging section S', connected to the sheer below such float, and an inclosing section for retaining the logs passing through the mouth of the boom-head, whose opening is in such a line with the mouth of the boom-head that the force of the current may be utilized to direct the logs through the one into the opening of the other, all combined substantially as described.

6. In a log-boom, a floating sheer, S, anchored to the bank at its upper end and held in a slanting direction partly across the stream by means of cords and suitable braces, and provided with floats f and up-

rights *u*, framed in the floats, and a swinging end, S', in combination with a floating bulk-head, BA, the two converging toward each other to form a narrow mouth for the passage of the logs, all combined substantially as described.

7. A log-boom having a head formed of the sheer S, provided with swing S' and floats *f*, in which uprights *u* are framed, and the floating bulk-head BA, opposite, the two converging toward each other and forming a narrowed mouth, the inclosure *e*, for receiving and holding the logs which pass the mouth of the boom, the float *f'* and its connected brace, and one or more lower sections comprising the platform P, the lower sheer, S, swing S', and the lower inclosing section, *e*, all combined and arranged to operate substantially as described.

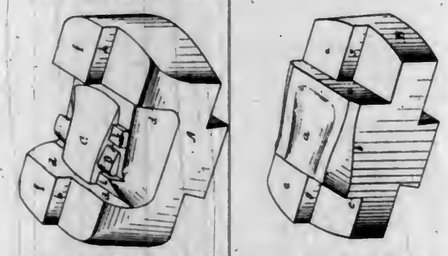
311,866. BLANK FOR AXES AND SIMILAR TOOLS. JOHN W. BOWERS, East Douglas, assignor to the Douglas Axe Manufacturing Company, Boston, Mass. Filed Feb. 20, 1884. (No model.)



Claim.—1. A metal bar substantially such as described, from which to cut blanks for axes, ax-polls, or other like articles, in each of which an eye is to be subsequently punched, which bar has the external form of a connected series of such blanks approximately of the same shape as that of the article desired, except at those portions thereof corresponding to the location of the eye to be afterward made in the blank, and there having diametrically-opposite grooves or depressions, each of such form and dimensions as to substantially compensate for the subsequent displacement of metal required in punching the eye after each blank has been cut from the bar.

2. The herein-described bar of metal from which to cut blanks for axes or ax-polls having approximately the same shape in transverse section as that of the desired blank taken perpendicularly to the axis of the eye, and especially having throughout its length along those portions where the eyes of the several blanks are to be located two diametrically-opposite grooves, each of substantially the same form and dimensions as one-half of the finished eye to be subsequently punched in the respective blanks after they have been cut from the bar, all substantially as described and shown.

311,867. DIE FOR MAKING AXES. JOHN W. BOWERS, East Douglas, assignor to the Douglas Axe Manufacturing Company, Boston, Mass. Filed July 1, 1884. (No model.)



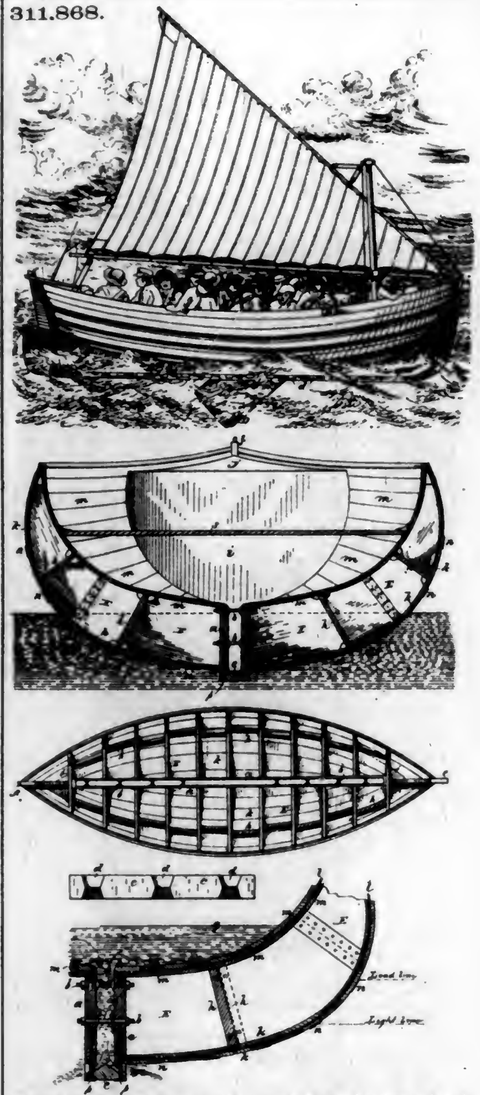
Claim.—A pair of swaging-dies consisting of two solid parts, each of which parts has shoulders or projections upon its face opposed to the other part, and each of which has counter-depressions corresponding to the projections in the other, substantially as shown and described, whereby lateral displacement of the two parts of the die in relation to each other will be prevented when they are brought together in the operation of swaging articles of tapering form.

311,868. LIFE-BOAT. AUGUSTINE B. BOYLES, Boston, Mass. Filed July 17, 1884. (No model.)

Claim.—1. The combination, with the keel formed of two halves extending from the stem to the stern-post, and having a coincident water-space between them, of a shoe secured to the lower edges of the two halves of the keel, and having formed therein the lateral vents or scuppers for the escape of the water from the space between said halves of the keel, substantially as specified.

2. The combination, with the keel formed with a longitudinal water-space between the halves thereof, of a shoe secured to said keel and closing the space or water-way between the halves thereof, and having the lateral vents or scuppers, respectively, formed with a bottom line de-

311,868.

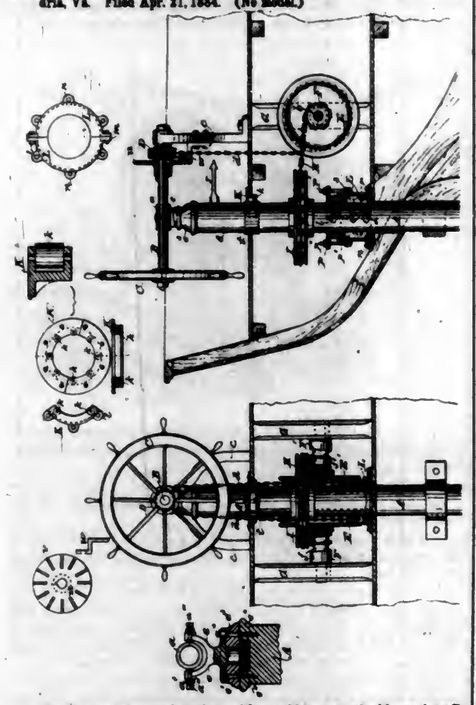


scending from the longitudinal vertical center of the shoe outward, and with side lines flaring outward or diverging from said longitudinal center, in manner as specified.

3. The combination of a keel formed in two longitudinal halves, respectively, united with the stem and stern-post, and secured one to the other, and having a continuous water-space between them, a series of ribs secured at their inner ends to said halves of the keel, and constituting the cross-section frames of the boat, and of a depth to allow the connection of the outer planking and inner sheathing with said keel respectively at the top and bottom thereof, and said outer planking and inner sheathing secured to said keel, and transverse ribs, whereby a series of compartments are formed upon each side of the keel between the inner and outer wall of the boat, and extending to the bottom of the keel, and a water-space is formed between the compartments on the respective sides of the boat, substantially as specified.

4. The combination, with a single stem and stern-post, of a keel longitudinally divided, and having the ends thereof, respectively, united with said stem and stern-post, and having also a continuous water-space between said halves, and a series of stays passing through and uniting said halves of the keel, whereby the halves of the boat are united at its central longitudinal line by means of the stem and stern-post and said stays of the divided keel, yet a continuous water-way is provided between the stem and stern-post, substantially as specified.

311,869. STEERING APPARATUS. FRANK H. CATHCART, Alexandria, Va. Filed Apr. 21, 1884. (No model.)



Claim.—1. The combination, with a rudder-post, of a bisected stuffing-box secured to the deck, around said post, for the reception of packing, to prevent leakage, when these parts are constructed as shown, and substantially as specified.

2. In a steering apparatus, the combination of the rudder-post having a sheave, I, and chain H, with the sheaves E E', having right and left hand threaded spools F, to which the chain *d* is secured, and passes over a sprocket-wheel, D, on the shaft B, all substantially as set forth.

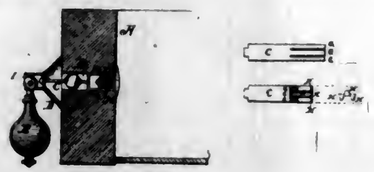
3. In a steering apparatus having a rudder-post operated by sheaves, sprocket-wheel, and spools provided with right and left hand threads, to which the chains are attached, in combination with a stuffing-box around said post, and a recessed collar with friction-rollers arranged in the upper deck, all constructed and arranged substantially as shown and set forth.

4. In a steering apparatus having a rudder-post operated by sheaves, sprocket-wheel, and spools provided with right and left hand threads, and chains connected to them, in combination with a stuffing-box for packing around said post, a recessed collar, with friction-rollers, arranged in the upper deck, and a swivel-box for the steering-wheel shaft, all constructed and arranged as and for the purpose herein described.

5. In a steering apparatus, the combination of the rudder-post with a bisected packing-receptacle, a bisected packing-ring and gland, and the eyebolts secured to pins on the packing-receptacle, all constructed and arranged substantially as set forth.

6. In a steering apparatus as herein described, the backing attachment consisting of a disk provided with a series of slots on its face, and secured to the shaft B, in combination with a dog secured to the wheel-stand *c*, constructed and arranged substantially as and for the purpose set forth.

311,870. HANDLE. WILLIAM W. CHILTON and FRANKLIN H. CHILTON, New York, N. Y., assignors of one-half to Charles V. Falle, same place. Filed May 5, 1884. (No model.)



Claim.—1. A furniture-handle consisting of the spindle having its inner end forming fingers, the handle at the outer end of said spindle, a permanent wedge for spreading apart said fingers and causing the projecting extremities thereof to engage the article to which the handle is applied, the said wedge being adapted to completely close the aperture containing the spindle and present a smooth outer surface, substantially as set forth.

2. A furniture-handle consisting of the flat spindle C, twisted to fit a round receiving-hole, and having its inner end split to form fingers G, whose extremities are bent outward, the handle at the outer end of the spindle, and a permanent wedge to spread the fingers G apart and to completely close the inner end of the aperture in the furniture, substantially as set forth.

311,871. STOP-COCK BOX. JOHN K. CLARK, Buffalo, N. Y. Filed Dec. 26, 1883. (No model.)



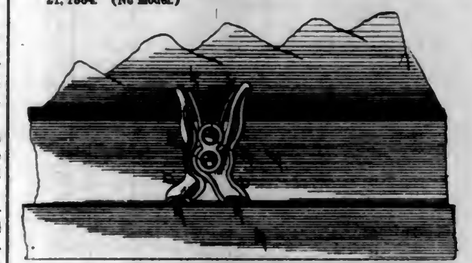
Claim.—1. A telescopic stop-cock box consisting of two sections, one sliding within the other, the inner section having formed upon a part of its periphery longitudinally a set of ratchet-teeth, the outer section having open ends and a longitudinal recess in its wall of a length approximating the length of the set of teeth on the inner section for receiving such teeth, and a pawl arranged in said recess and uniting the two sections at any desired point within the limits of their telescopic movement, substantially as described.

2. In a telescopic stop-cock box, a section, 1, made with a longitudinal recess, 6, in its wall, in the lower portion of which recess is arranged a pawl, 15, for uniting and holding said section to a second section, substantially as described.

3. In a stop-cock box, the combination of a cap therefor having a pendent extension, a screw passing transversely through the pendent extension, and a flange upon the stop-cock box provided with a vertical extension having a lateral countersunk recess into which the screw takes for uniting the two or fastening the cap to the box, substantially as described.

4. A telescopic stop-cock box consisting of the two sections, one sliding within the other, the inner section being provided with a set of teeth longitudinally upon a portion of its periphery, and the outer section provided with a recess for receiving such teeth, a pawl arranged in such recess for uniting the two sections at any desired point within the limits of their movement relatively to each other, a flange, 3, with pendent extension 4, having countersunk recess 5 therein, and a cap, 10, having pendent extension 11, in which is seated the screw 12, for engagement in the recess 5 for securing the cap thereto, substantially as described.

311,872. SASH-HOLDER. NORMAN CLARK, Sterling, Ill. Filed May 21, 1884. (No model.)

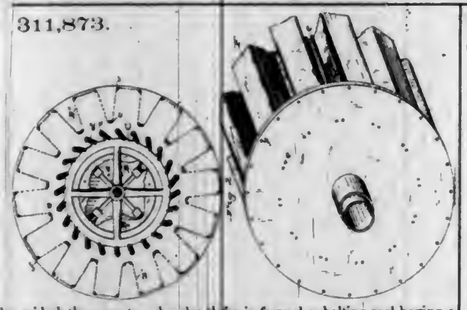


Claim.—In a sash-holder, the jaws C C, furnished with the holes *a*, through which, by means of the screw E, such jaws are pivotally attached to the sash in such relation to the window-frame as that the outer ends of such jaws will respectively engage the side of such frame above and below the pivotal point E, such outer ends of the jaws C being held in working position by the spring H, seated on a screw, G, serving as a central stop for the inner ends of such jaws, and also, by means of the double washer F, serving as an outer brace for the pivot E, substantially as shown, and for the purpose described.

311,873. FLOUR-BOLT. WILLIAM F. COCHRANE, Indianapolis, Ind., and GEORGE T. SMITH, Jackson, Mich. Filed Mar. 21, 1883. (No model.)

Claim.—1. In a flour-bolting reel, the combination of the reel-heads, one of which is provided with a central feed-opening, an inner series of cloth-supports mounted in the reel-heads, an outer series of cloth-supports mounted in the reel-heads, and a bolting-cloth supported

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by said cloth-supports, whereby there is formed a bolting-reel having a corrugated surface, substantially as set forth.

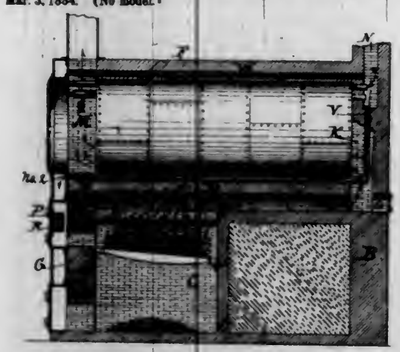
2. In a flour-bolting reel, the combination of the reel-heads, one of which is provided with a central feed-opening, a series of cloth-supporting devices mounted in the reel-heads concentrically with the axis, another series of cloth-supporting devices mounted in the reel-heads concentrically with the axis and outside of the other series of cloth-supports, and a bolting-cloth which passes outside of the outer series of cloth-supports and inside of the inner series, whereby there is formed a bolting-reel having a series of corrugations or chambers opening into the inside of the reel, substantially as set forth.

3. In a flour-bolting reel, the combination of the reel-heads, one of which is provided with a central feed-opening, two series of cloth-supporting devices mounted in the reel-heads, one series being situated outside of the other, and a bolting-cloth having portions of its surface in substantially parallel planes, and other portions attached to and joining the outer edges of said parallel portions, substantially as set forth.

4. In a flour-bolting reel, the combination of the reel-heads, one of which is provided with a central feed-opening, two series of cloth-supporting devices mounted in the reel-heads, one series being situated outside of the other, a bolting-cloth mounted upon said cloth-supports, having portions of its surface situated upon lines corresponding to the periphery of the reel, other portions situated upon lines corresponding to a circle of smaller diameter than the periphery of the reel, and other portions connecting the parts situated upon the two said concentric circles, substantially as set forth.

5. In a flour-bolting reel, the combination of the reel-heads, the beaters within the reel, cloth-supports arranged in two concentric series one within the other, and the bolting-cloth mounted on said cloth-supports, substantially as set forth, to form a reel having a corrugated surface.

311,874. BOILER-FURNACE. JOHN COLLER, Des Moines, Iowa. Filed Mar. 3, 1884. (No model.)

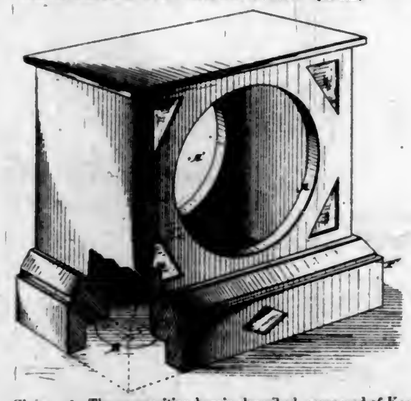


Claim.—1. A double-walled front and air-reservoir for furnaces, a boiler, a grate, and furnace-chambers, induction-tubes extending from the upper portion of the hollow front to the rear end of the boiler, for conveying and heating cold air, and superheating and distributing tubes extending into the fire-chamber from the lower portion of the same hollow front, arranged and combined to operate in the manner set forth, for the purposes specified.

2. A rear furnace-wall, B, having chambers K and N and tubes V and W, in combination with a hollow front wall and air-reservoir, to operate in the manner set forth, for the purposes specified.

3. The solid furnace-walls A, B, C, D, and F, the hollow front and air-reservoir G, having chambers R, the tubes V and W, extending from the chambers K and N to the said reservoir G, a boiler having flues extending from the chamber K to the smoke-flue M, and one or more perforated tubes, T, arranged and combined substantially as shown and described, to operate in the manner set forth, for the purposes specified.

311,875. MANUFACTURE OF CLOCK-CASES, STATUARY, VASES, AND OTHER ARTICLES FROM PLASTIC MATERIALS. REESE P. COGGHLIN, Cincinnati, Ohio. Filed June 24, 1884. (Model.)



Claim.—1. The composition herein described, composed of Keene's cement, rosin, and alum, or its described equivalents, substantially as described.

2. The composition herein described, composed of Keene's cement, rosin, alum, or its described equivalent, and a coloring-matter, substantially as described.

3. The composition herein described for dyeing artificial marble, &c., consisting of extract of logwood, copperas, tincture of iron, and water, as set forth.

4. The method herein described of manufacturing clock-cases and other articles, consisting in combining Keene's cement, rosin, alum, or its equivalent, and a coloring-matter, and then molding the same into the desired article, then honing the article, subsequently dyeing the same, and afterward finishing its surface, substantially as described.

5. The method herein described of making clock-cases and other articles, consisting in grinding Keene's cement and then mixing it in water with rosin and alum, or its equivalent, subsequently adding coloring-matter thereto, then adding more cement, then molding the same, and honing the surface of the article, afterward subjecting the same to the action of a hot dye, and subsequently polishing the surface.

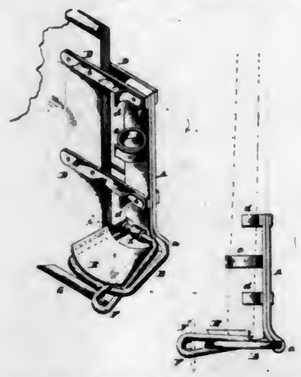
6. A clock-case made in a single piece from a composition composed of Keene's cement, rosin, alum, or its described equivalent, and a coloring-matter, substantially as described.

7. The mold composed of the separable back, side, top, and bottom plates, in combination with the detachable circular patterns and inner frame, substantially as described.

8. In a mold for clock-cases, the combination, with the side plates thereof, of the detachable back plate provided with the detachable frame and circular pattern-plate, substantially as described.

9. In a mold for clock-cases, the combination, with the side plates thereof, of face and back plates provided with patterns for forming an opening in the face and back of the case, substantially as described.

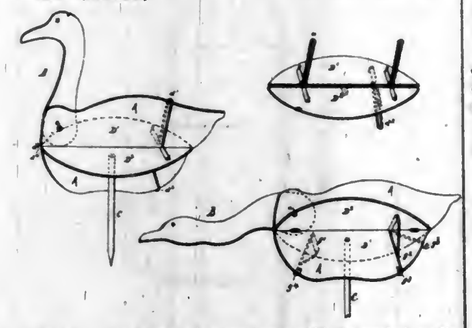
311,876. COMBINED WHIP-SOCKET AND REIN-HOLDER. GEORGE M. CUSTER, Terre Haute, Ind. Filed June 18, 1884. (No model.)



Claim.—The plate A, connected to the dasher, and provided with a whip-socket, and having eyes formed upon or connected to it, to which

are hinged the loop B and a bar, F, said bar carrying an apron and a trough or arm, G, the loop and bar operating in such manner when their free ends are moved upward or downward as to loosen or clamp the lines when placed between them, substantially as herein set forth.

311,877. DECOY. JACOB DANZ, Jr., St. Paul, Minn. Filed Feb. 15 1884. (No model.)

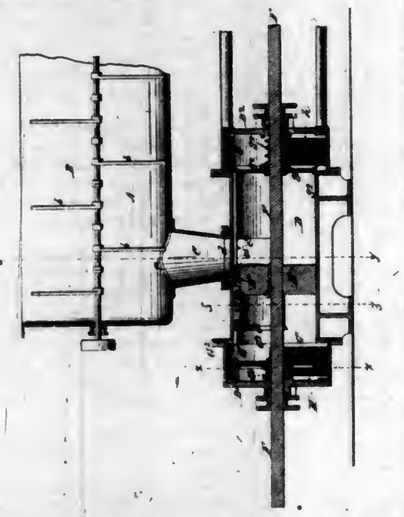


Claim.—1. In a decoy, the combination, with the vertical profile-plate A, of removable wing-plates D' D², secured to the profile-plate by loops d' d^2, substantially as and for the purpose herein specified.

2. A decoy composed of a vertical profile-plate, A, neck and head plate B, and stake C, pivoted thereto, and removable wing-plates D' D², substantially as and for the purpose herein specified.

3. A decoy provided with a set of interchangeable necks, B B, of different forms, representing different positions or attitudes of birds, substantially as and for the purpose herein specified.

311,878. MAGMA-PUMP. GEO. DINKEL, Jersey City, N. J., assignor to F. O. Matthiessen & Wiecher's Sugar Refining Company, same place. Filed Oct. 2, 1884. (No model.)



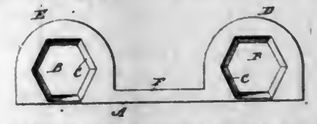
Claim.—1. In pumps for pumping semi-fluids, a cylinder having midway between its ends an induction-port of suitably large area, and having at its ends eduction-ports, respectively provided with outwardly-yielding self-closing valves, in combination with a suitably elongated reciprocating plunger within the cylinder.

2. A cylinder having midway between its ends an induction-port of suitably large area, and having at its ends eduction-ports, respectively provided with outwardly-yielding self-closing valves, in combination with the reciprocating plunger E, provided with the sliding shield or gate e, as and for the purpose set forth.

3. The reciprocating plunger E, in combination with the sliding shield or gate e, provided upon its opposite ends with the downwardly-projecting lips e^2, as and for the purpose set forth.

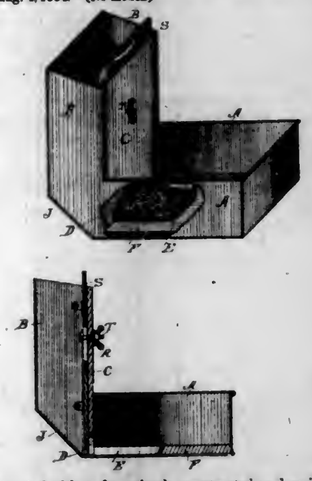
4. The reciprocating plunger E, and the sliding shield or gate e, provided with the longitudinal rib e', in combination with a groove, e^3, in the wall of the cylinder D, as and for the purpose set forth.

311,879. NUT-LOCK. WILLIAM H. DINSMORE, Connellsville, Pa. Filed May 17, 1884. (No model.)



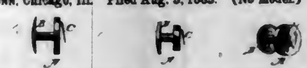
Claim.—A nut-locking plate consisting of the hoods D E, having openings B formed with outwardly-converging walls for encircling and drawing the nuts into proper position, and the straight bar F, connecting said hoods together at their bases, substantially as shown and described.

311,880. FEED-BOX FOR ANIMALS. LEVI DOTY, Frankfort, Ill. Filed Aug. 4, 1884. (No model.)



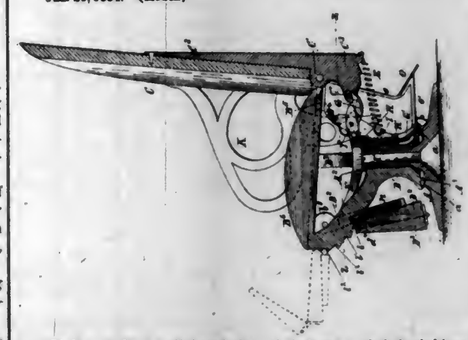
Claim.—A feed-box for animals, constructed as described, consisting of the feed-receptacle B, having the adjustable slide S and partition C, having the central discharge-opening, D, at its lower end, feed-box A, and removable bottom F, having the feed-recess E, corresponding in width with said discharge-opening D, all adapted to operate substantially as set forth.

311,881. COMBINED COLLAR-BUTTON AND SCARF-HOLDER. W. J. DUNN, Chicago, Ill. Filed Aug. 3, 1883. (No model.)



Claim.—A collar-button provided with one or more pointed hooks, C, secured to the head of the button, and extending over the face of the button in a plane substantially parallel with the said face, substantially as described.

311,882. RECLINING-CHAIR. JOSEPH P. ELLAOTT, Chicago, Ill., assignor to the Union Brass Manufacturing Company, same place. Filed Jan. 29, 1881. (Model.)



Claim.—1. In a reclining-chair, a chair-frame, a chair-back hinged to the chair-frame, a ratchet rigidly attached to the lower end of the chair-back and curved to correspond with the arc through which the

chair-back swings, a vertically-oscillating lever pivoted in the chair-frame and arranged with its shorter arm opposite the ratchet, and a spring attached at its rear end to the outer end of the ratchet and at its forward end to the chair-frame, and tending by its elasticity to draw the outer end of the ratchet toward the chair-frame, all in combination substantially as and for the purpose described.

2. The chair-frame provided with the back arms, B^4, the chair-back C, hinged to the outer ends of the back arms, the ratchet C^9, rigidly affixed to the chair-back and arranged beneath it and equidistant from the back arms, and the vertically-oscillating lever F, pivoted in the chair-frame between the back arms, and arranged with one arm opposite to the ratchet, all constructed, arranged, and operating in combination substantially as and for the purpose described.

3. The chair-base provided with the spindle portion A' and surrounding platform A^5, having the sockets *a*, in combination with the spider provided with the tubular portion B', flange H, rim B^5, and back arms, B^4, the forked lever G, pivoted between the arms B^4, the rod G', pivoted to one end of the forked lever and provided with the collar H' and spring I, the chair-back C, hinged to the arms B^4, and the plate C^9, rigidly attached to the chair-back and provided with the pins *c'*, all constructed, arranged, and operating substantially as and for the purposes described.

311,883. BELT-COUPLING. JAMES ENGLAND, New York, N. Y., assignor to Isaac S. McGlohan, same place. Filed Nov. 7, 1883. (No model.)



Claim.—As an article of manufacture, a double-ended gimlet-pointed screw provided with a suitable thread running its entire length and adapted to be applied to a belt, substantially as described.

311,884. MEDICINE FOR CROUP, DIPHTHERIA, &c. GUSTAF ERICSON and WILLIAM LINDSLOE, Des Moines, Iowa. Filed Apr. 12, 1884. (No specimens.)

Claim.—The herein-described medical compound, consisting of quassia, sarsaparilla, extract of licorice, capsicum, white sugar, and water, in the proportions specified, for the purposes stated.

311,885. VESSEL FOR AERIAL NAVIGATION. EUGENE F. FALCONNET, Nashville, Tenn. Filed Nov. 8, 1883. (No model.)

Claim.—1. A movable supporting-carriage adjusted in ways and arranged to travel vertically within the hull of the vessel, and provided with journal-bearings for and carrying a vertically-mounted propelling-screw for vertically raising and lowering aerial vessels, the whole constructed and arranged substantially as shown and described.

2. In combination, the central screw, E, axle-shaft *r*, journal-bearings *i' r'*, movable supporting-carriage i^3, supporting-frame *l*, and engaging gearing *n u u'*, the whole constructed and arranged to be secured and operated within and designed for vertically raising and lowering vessels for aerial navigation, substantially as shown and described.

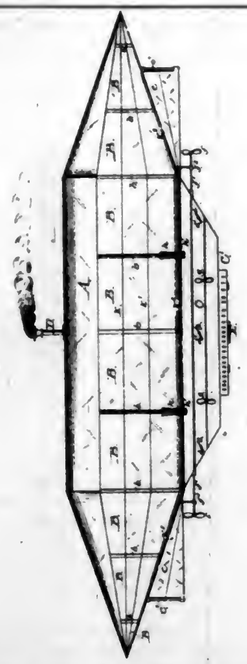
3. A movable supporting-carriage provided with external engaging gearings and internal journal-bearings, arranged to travel vertically in ways within the vessel's hull and be handled by connecting-gear, as shown, in combination with propelling-screw E, secured on the outer end of the rigid axle-shaft vertically mounted on journal-bearings within its supporting-carriage, the whole constructed, arranged, and adjusted to be handled and actuated by machinery within the vessel for vertically raising and lowering aerial vessels, substantially as shown and described.

4. In vessels for aerial navigation, a vertically-arranged movable carriage secured in ways constructed in a well passing upward into the hull of the vessel, and carrying a vertical central screw for raising and lowering such vessels, substantially as shown and described.

5. In vessels for aerial navigation, a vertical central screw mounted in and carried by a movable carriage secured in ways arranged in a well passing upward from below into the hull of the vessel, constructed and arranged substantially as shown, and for the purpose set forth.

6. In vessels for aerial navigation, a central screw secured on a perpendicularly-arranged axle-shaft carrying an impelling-wheel at the opposite end, and provided with shoulder-bearing protuberances by which it is secured in its mountings, in combination with movable vertical carriage having angular journal-boxings in a central bore for securing the axle of the vertical screw *r*, and provided with projecting shoulders at top and bottom and a toothed rack secured longitudinally along the sides, substantially as and for the purpose shown and described.

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7. In combination, the vertically-mounted central raising-and-lowering screw, movable supporting-carriage provided with journal-bearings and engaging gearing, and the supporting-frame L, the whole constructed and arranged as shown and described.

8. In vessels for aerial navigation, a central screw secured on perpendicularly-arranged axle-shaft provided with shoulder-bearing protuberances by which it is mounted in place in a movable carriage adapted for carrying the same, and adjusted within the vessel's hull, and carrying on the opposite end impelling-wheel, in combination with propulsive machinery arranged within the hull for revolving it on its axis, substantially as and for the purpose described.

9. In vessels for aerial navigation, a central screw secured on a perpendicularly-arranged axle-shaft carrying an impelling-wheel at the opposite end, and provided with shoulder-bearing protuberances by which it is secured in its mountings in annular journal-boxings in the central bore of movable vertical carriage having projecting shoulders at the top and bottom and provided with a toothed rack-gear for gearing, and in combination with machinery arranged within the vessel for raising and lowering the screw and its carriages, and propulsive machinery for impelling the vertical screw on its axis, substantially as and for the purpose described.

10. In combination with vertically-mounted central raising-and-lowering screw and its movable carriage, the supporting-frame L, substantially as shown and described.

11. In combination, the central screw, E, axle-shaft *r*, journal-bearings *r'*, movable annular journal-boxings i^7, toothed rack *u u'*, pinions *n n'*, impelling-wheel *m*, gearing-wheel *m'*, and machinery arranged within the vessel for lowering and raising the screw into and out of position and impelling it when in position, substantially as shown and described.

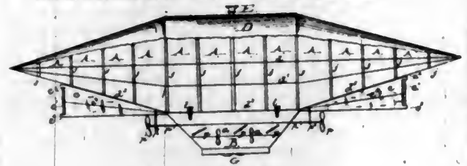
12. In combination, raising-and-lowering screw E, mounted on a vertical shaft carrying a gearing-wheel at the opposite end, movable supporting-carriage *i*, constructed as shown, provided with journal-bearings for supporting the vertical screw, supporting-frame L, consisting of vertical stanchions and horizontal and diagonal braces and support, and ways *v*, the whole constructed and arranged to support and give steadiness to the vertical screws for raising and lowering vessels for aerial navigation, substantially as shown and described.

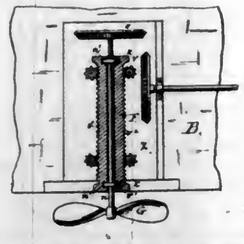
13. In combination, screw E, axle-shaft *r*, having journal protuberances *r'*, and an impelling-wheel, *m*, carriage *i*, having a bore, i^3, annular journal-boxings i^7, external shoulders, i^3 i^3, racked gear *u u'*, and ways for guiding and supporting it, gear-wheels *n*, *n'*, and *m*, well *e*, and actuating machinery, in a device for raising and lowering vessels for aerial navigation, substantially as shown and described.

14. In combination, the gas-fields B, adjustable side fins, *d*, and adjustable central raising-and-lowering screw, E, arranged, adjusted, and operated as shown, for raising and lowering and vertically deflecting the course of aerial vessels propelled, steered, and handled by internally-arranged machinery through external appliances, substantially as shown and described.

15. A raising-and-lowering device comprising a screw, E, axle-shaft *r*, journal-shoulders *r'*, impelling-wheel *m*, carriage *i*, having a bore, i^3, annular journal-boxings i^7, shoulders i^3 i^3, and gear-rack *u u'*, gear-wheels *n*, *n'*, and *m'*, in combination with well *e*, entering from below and extending upward into the hull C, of vessels for aerial navigation, substantially as and for the purpose described.

311,886. VESSEL FOR AERIAL NAVIGATION. EUGENE F. FALCONNET, Nashville, Tenn. Filed Nov. 8, 1883. (No model.)





Claim.—1. In aerial vessels constructed on one common frame and comprising a gas-field, hull, and cabin in compact form, series of stationary parallel hollow beams *x x'*, arranged horizontally in pairs at right angles to and projecting from both sides of the vessel's hull, and provided in the outer ends with journal-boxings *i*, for receiving propelling side screws, *a*, and lubricating-fountain i^2, and with internally-arranged gearing machinery for engaging with and actuating propelling side screws, the whole constructed and arranged substantially as pointed out.

2. In aerial vessels constructed on one common frame, series of stationary parallel hollow beams *x x'*, arranged horizontally in pairs at right angles to and projecting from both sides of the vessel's hull, and provided in the outer ends with journal-boxings *i*, for receiving propelling side screws, *a*, and lubricating-fountains i^2, and with internally-arranged gearing machinery for engaging with and actuating side screws, in combination with propelling side screws, *a*, the whole constructed and arranged substantially as shown and described.

3. In vessels for aerial navigation, beams *x x'*, arranged horizontally in pairs parallel to each other projecting from the sides of the vessel's hull at right angles thereto, and carrying side propelling-screws connected with and actuated by machinery arranged within the hull of the vessel through suitable gearing machinery arranged within the beams, substantially as shown and described.

4. In vessels for aerial navigation, hull B and stationary parallel hollow projecting beams *x x'*, in combination with side screws, *a*, axle-shaft *a'*, gear-wheel *i*, axle-boxings *i'*, connecting gear-wheel i^3, connecting-shaft i^3, gear-wheel i^3, and impelling gear-wheels i^3, for propelling such vessels, substantially as shown and described.

5. In vessels for aerial navigation, hull B, projecting beams *x x'*, securely braced in place, in combination with side screws, *a*, axle-journal *a'*, journal-boxings *i'*, lubricating-fountain i^2, and connecting propulsive gear extending to within the hull for propelling such vessels, substantially as shown and described.

6. In combination in aerial vessels constructed in compact form on one common frame, embracing the gas-fields A, hull B, cabin B', and provided with projecting beams *x x'* for supporting the side propelling-screws, *a*, center vertical screw, G, mounted in bearings in movable carriage F for raising and lowering the vessels, adjustable fins *q* on the sides of the vessel for deflecting its vertical flight, fans *l*, secured to the sides of the vessel, and rudder-blades *c*, for steering the vessel laterally, and screw *p* for propelling forward, all arranged and connected into a common whole for raising, lowering, steering, propelling, and varying the course of vessels for aerial navigation, substantially as shown and described.

7. In combination, an adjustable and propelling and steering screw, *p*, protruding out beyond, and mounted and taking bearings in, suitable supporting-brackets, and a movable carriage transversely placed and secured and operated in fixed ways *m*, laterally constructed in the end of the vessel's hull, and connected with and operated by propulsive machinery within the vessel through horizontal gearing, actuating-shaft intersected within the hull by a universal joint for propelling and changing the course of vessels for aerial navigation, substantially as shown and described.

8. In combination, side propelling-screws, *a*, axle-shaft *h*, journal-boxings *i'*, stationary parallel hollow beams *x x'*, arranged in pairs at right angles to and projecting from both sides of the vessel's hull, connecting-gear arranged within the beams *x x'*, propulsive machinery within the vessel, and vessels for aerial navigation, substantially as shown and described.

9. For mounting and handling end propelling and steering screws in vessels for aerial navigation, shifting carriage *s*, provided with journal-bearings *s'* and guides s^3, and adjusted in and in combination with ways arranged in a transverse aperture in the end of the vessel's hull, and shifting gearing machinery as shown, the whole constructed and arranged substantially as indicated.

10. The combination of adjustable propelling-screw *p*, revolving shaft *p'*, intersected by a universal joint, s^3, pending bracket p^3, journal-bearings *s'*, shifting carriage *s*, adjusted in horizontal ways laterally placed in the end of the vessel's hull, and vessel for aerial navigation, constructed and arranged substantially as shown and described.

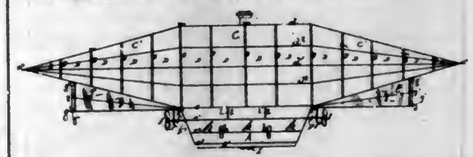
11. In combination, the movable carriage *s*, mounted and operated in fixed ways constructed in the end of the vessel's hull, and provided with journal-boxings *s'* for the axle-shaft *p'* of the end screws, *p*, the connecting and actuating gearing as shown, axle-shaft *p'*, and universal joint s^3, for adjusting, handling, and actuating the end steering and propelling screws in vessels for aerial navigation, substantially as shown and described.

12. In combination, side propelling-screws, *a*, mounted in fixed supports and actuated by machinery within the hull through proper gearings, and the revolving and adjustable side fins, *q*, also handled by machinery within the vessel's hull for propelling and vertically deflecting the flight of vessels for aerial navigation, substantially as shown and described.

13. In combination, side propelling-screws, *a*, mounted in fixed supports protruding from the side of the vessel, and actuated by machinery within the hull through proper connecting-gear, and adjustable side fans, *l*, for varying the lateral course of vessels for aerial navigation, substantially as shown and described.

14. In combination, side propelling-screws, *a*, mounted in fixed supports protruding from the side of the vessel and actuated by machinery within the hull through proper connecting-gear, and fin-shaped rudder-blades *c*, secured in ways in frame *c'*, for steering vessels for aerial navigation, substantially as shown and described.

311,887. VESSEL FOR AERIAL NAVIGATION. EUGENE F. FALCONNET, Nashville, Tenn. Filed Nov. 8, 1883. (No model.)



Claim.—1. Series of adjustable fins attached to revolving shafts journaled and secured in and projecting from the sides of the hull on both sides of the vessel at intervals from bow to stern, for vertically deflecting and steering aerial vessels in flight, substantially as shown and described.

2. For simultaneously adjusting and holding at appropriate angles for vertically steering and deflecting the course of aerial vessels in flight, series of side fins ranged at intervals along both sides of the hull from stem to stern, and trains of engaging and gearing machinery arranged within the vessel, substantially as shown and described.

3. In vessels for aerial navigation, series of adjustable fins attached to revolving axle-shafts secured in bearings in and protruding through the sides of the hull on both sides at intervals from bow to stern, in combination with revolving shafts, engaging gearings, and internally-placed propulsive machinery, the whole arranged and constructed for deflecting and steering the vessel vertically, substantially as described.

4. In vessels for aerial navigation, adjustable side fins secured to revolving shafts arranged in bearings in and passing from within out through the side of the vessel, and stayed by guys and lateral supports, substantially as shown and described.

5. In vessels for aerial navigation, adjustable revolving fins formed on revolving shafts secured in suitable bearings in the sides of and passing through to within the hull of the vessel at intervals from bow to stern, and handled by internally-arranged machinery, substantially as shown and described.

6. Adjustable revolving fins formed on a revolving shaft provided with suitable journal-bearings, and carrying a gear-wheel for handling and revolving the same on their axis, substantially as shown and described.

7. In vessels for aerial navigation, adjustable revolving fins arranged at intervals along the two sides of the ship, and secured in place by a revolving shaft passing to within the vessel, in combination with trains of internally-arranged propulsive machinery, substantially as shown and described.

8. In vessels for aerial navigation, adjustable revolving fins arranged along the sides of the hull at intervals on both sides, opposite to each other, and secured in place on a revolving axle-shaft that passes through the side to within the vessel, and provided with a gear-wheel on the inner end, in combination with chains n^2 and rag-wheels u u, the latter secured on a shaft, u^2 u^2, journaled in boxings in the side of the hull, and carrying at the opposite ends gear-wheels u' u', gearing with gear-wheel o, all constructed, arranged, and operated substantially as shown and described.

9. In combination, fin k, revolving shaft w, cross-beams w', grip-clutches r^2, chains n^2, rag-wheels u u, revolving shafts u^2 u^2, gear-wheels u' u', gear-wheel o u^2, in a fin-like device ranged along the sides for deflecting the vertical course of vessels for aerial navigation, substantially as shown and described.

10. In combination, fin k, revolving shaft w, journal-bearings o^2, gear-wheel o, shaft t, and endless screw l' in a train of machinery for simultaneously arranging and adjusting the series of side fins employed in deflecting the vertical flight of vessels for aerial navigation, substantially as shown and described.

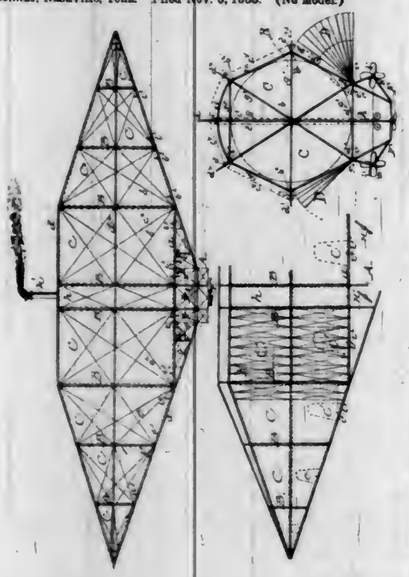
11. In vessels for aerial navigation, adjustable side fins, k, and vertical raising and lowering central screw, I, for effecting the altitude and changing the position of such vessels vertically, substantially as and for the purpose shown.

12. The side fins, k, mounted on revolving shafts and handled by propulsive machinery within the vessel, in combination with side fans, l, steering-rudder blade g, and adjustable end screw, f, for steering and deflecting the vertical and lateral course of vessels for aerial navigation, substantially as shown, and for the purpose described.

13. In aerial vessels propelled, handled, and steered by external appliances through machinery within the vessel, the combination of side propelling-screws, h, series of fins k, attached to revolving shafts w, journaled in and projecting from the sides of the hull A on both sides at intervals from bow to stern, and internally-arranged gearing machinery, the whole constructed and arranged for propelling forward and deflecting and steering the vessel vertically, substantially as shown and described.

14. Trains of engaging gearing machinery arranged within the vessel for simultaneously adjusting and holding at appropriate angles series of side fins ranged at intervals from bow to stern along both sides of the hull, and adapted for steering and deflecting the vertical course of vessels for aerial navigation while in flight, substantially as shown and described.

311,888. VESSEL FOR AERIAL NAVIGATION. EUGENE F. FALCONNET, Nashville, Tenn. Filed Nov. 8, 1883. (No model.)



Claim.—1. In aerial vessels, a hull made sharp fore and aft and constructed on one general frame of metal tubing, so arranged and united together by hollow angle-blocks at every intersecting point, as shown, and so secured at the points by packing, that the entire frame may be exhausted of air and filled with gas, substantially as indicated.

2. In vessels for aerial navigation built sharp at both ends, a common hull constructed on one general frame of metal tubing, arranged and united together by hollow angle-blocks at every intersecting point, as shown, and expanded amidships to make room for a number of decks and a protruding cabin, and having, and in combination with, a series of lateral frame bulk-heads rising therefrom at intervals from stem to stern to the height of the gas-field and forming supports therefor, said bulk-heads constructed of metal united by angle-blocks at every intersecting point, and stayed and strengthened by horizontal, vertical, and diverging braces and peripheral chords, substantially as shown and described.

3. In vessels for aerial navigation comprising a hull expanded amidships to accommodate one or more decks and a cabin, a series of radially braced and supported transversely-arranged metal bulk-heads rising out of the hull at intervals from stem to stern and extending upward at varying heights to and beyond the periphery of the gas-field for supporting the vessel laterally, and providing seats and support for the several gas-receptacles, substantially as set forth.

4. In vessels for aerial navigation, the combination of a sharp tapering metal hull, A, expanded amidships to accommodate one or more decks and a cabin, a series of radially braced and supported transversely-arranged metal bulk-heads, B, rising at intervals from stem to stern out of the hull, and extending upward to the circumference of the gas-field, gas-receptacles C, arranged between and secured to the bulk-heads, and longitudinal bracing-chords d d' d^2, the whole constructed and adapted substantially as shown and described.

5. In radially braced and supported transversely-arranged metal bulk-heads rising out of the hull of vessels for aerial navigation, intersecting intermediate terminal elbow and sleeve angle-blocks for securing the several joints, key-bolts, and tying-cables, substantially as set forth.

6. In vessels for aerial navigation, the combination of a metal hull made sharp fore and aft and expanded amidships to accommodate more than one deck and cabin, a series of radially braced and supported transversely-arranged metal bulk-heads rising at intervals therefrom from bow to stern, and a number of gas-receptacles arranged between and secured to such hull and bulk-heads, the whole provided with side and end propelling and steering screws, side adjusted vertically-deflecting fins, side adjusted laterally-deflecting fans, steering-rudders arranged on the under side of the hull, and a vertical raising and lowering screw, all constructed, arranged, and adapted substantially as shown and described.

7. In vessels for aerial navigation, the combination of a metal hull-frame made sharp fore and aft, thoroughly secured at several intersections, and divided internally into decks and a cabin, series of transversely-arranged radially-braced bulk-heads rising out of such hull at intervals from bow to stern, series of gas-receptacles arranged and secured in place between the bulk-heads for buoying the ship, together with a central screw for raising and lowering the vessel vertically, side propelling-screws adjusted in fixed supports for impelling the vessel forward, adjustable fans ranged along both sides of the hull for deflecting the course of the vessel laterally, and adjustable fins arranged along on both sides of the hull for deflecting the course of the vessels vertically, the whole constructed and arranged for buoying, supporting, propelling, and steering laterally and vertically aerial vessels, substantially as described and shown

8. In vessels for aerial navigation, the combination of a properly-braced metal hull-frame thoroughly secured at several intersections and divided internally into decks and a cabin, series of transversely-arranged radially-supported bulk-heads rising out of such hull at intervals from bow to stern, gas-compartments arranged between and secured to such bulk-heads and the hull, longitudinal bracing-chords extending over the gas-field from stem to stern, and central vertical screw for raising and lowering the vessel, substantially as pointed out.

9. In vessels for aerial navigation, a segregated gas-field consisting of a series of receptacles or gas-bags constructed of any suitable material, and of a size to adjust between and be secured to the several bulk-heads B, which rise out of the hull, each section or receptacle internally divided into compartments or cells by intersecting gas-proof partitions containing each one or more automatic valves and provided with an internally-adjusted air-sack secured by its mouth to an opening in the periphery of the gas-receptacles, the said air-sack provided with induction and eduction pipes P P^1, through which communication is maintained with the outer air, the whole constructed and adapted substantially as shown and described.

10. A segregated gas-field for aerial vessels constructed of silk, canvas, thin metal, or other suitable material, and internally divided by partitions provided with automatic valves for equally distributing the pressure of the gas into cells or compartments, and furnished with air-induction pipes for inflating and eduction-pipe for exhausting the same, also provided internally with an air-sack secured by its mouth to the periphery, where, through induction and eduction valves, it communicates with the outer air, and also provided externally with flaps and other conveniences for handling and securing such gas-bag in its seat, the whole constructed and arranged substantially as and for the purpose described.

11. In combination, segregated gas-field C, internal partitions l, provided with automatic valves P, air-sack c', the latter provided with air-valves P^1 P, the whole constructed, arranged, and adapted substantially as shown and described, for floating and buoying vessels for aerial navigation.

12. In segregated gas-field for vessels for aerial navigation, an internally-arranged gas-tight air-sack secured by the mouth to an orifice in the shell, and provided with induction and eduction valves, and adapted and designed to be inflated and collapsed within the gas-receptacle, for the purpose and substantially as pointed out.

13. In vessels for aerial navigation constructed on one general frame of metal, made sharp fore and aft, projecting wheel-house c^4 c^5, in combination with side propelling-screws, i, axle-shaft f', engaging gearing, as shown, and internally-arranged impelling machinery for propelling such vessels, substantially as pointed out.

14. In vessels for aerial navigation, hull A, having projecting wheel-houses c^4 c^5 on each side, in combination with side propelling-screws, i, axle-shaft f', and connecting-gearings f^6, f^5, and f^4, for engaging with propulsive machinery within the hull for impelling such vessels, substantially as shown and described.

15. In vessels for aerial navigation, wheel-houses protruding from the sides of the vessel's hull for supporting side propelling-screws, substantially as indicated.

16. In a device for laterally steering vessels for aerial navigation, the combination of long fin-shaped rudder-blades j j, pivoted and secured by their smaller ends o' near the base, and extending fore and aft along and conforming to the tapering under side of the conic ends of the vessel, and provided with travelers o^3 on the corners of the outer end, parallelogram frame o o' o^4, secured to and projecting downward from the vessel and provided with tracks or ways o^3 at bottom and top, steering-cable o^6, pulley-wheels o^5 o^6, drum o^9 for the tiller-cables, and steering-wheel o^{10}, the whole constructed and arranged substantially as pointed out.

17. Vessels for aerial navigation, comprising a segregated gas-field and hull, the latter constructed on one general frame, of metal, and expanded and protruded amidships, and divided internally into floors or decks, a cabin, living-compartments, and a pilot-house, and having metal bulk-heads extending upward therefrom at intervals from bow to stern through and to the height of the gas-field, and actuated, steered, and guided by internally-arranged machinery through externally mounted and adjusted side propelling-screws, end propelling and steering screws, and a central raising and lowering screw, and under adjusted rudder-blades, in combination with a series of adjustable fans secured by knuckle-joint to protuberances on the side of the hull along the sides of the vessel on both sides at intervals from stem to stern, for directing the lateral course of the vessel, and with cable c^8, pulley-wheel c^7, and machinery within the vessel, substantially as shown and described.

18. Vessels for aerial navigation, comprising segregated gas-field and hull in compact form, the former constructed to adjust between the bulk-heads rising from the hull and internally provided with partitions and an air-sack, and the latter constructed on one general frame, of metal, sending lateral metal bulk-heads up through to the height of the gas-field, and expanded at the waist into space for decks, cabin, and pilot-house, in combination with series of adjustable fans secured by knuckle-joints to protuberances on the vessel's hull along on both sides at intervals from bow to stern, for directing the lateral course of the vessel, and with cable c^8, pulleys c^7, and machinery within the vessel, substantially as shown and described.

19. In combination, the metal vessel-hull A, side fans, D, knuckle-joint c^9, cable c^8, pulleys c^7, and internally-arranged machinery within the vessel, the whole constructed and arranged to act as aids in steering the vessel laterally, substantially as shown and pointed out.

20. Vessels for aerial navigation, comprising a segregated gas-field and hull, the latter constructed on one general frame, of metal, expanded and protruded amidships, and divided internally into floors or decks, a cabin, living-compartments, and a pilot-house, and actuated, steered, guided, and handled by internally-arranged propulsive machinery through externally-mounted side propelling-screws, end propelling-screws, and under adjusted rudder-blades, in combination with a series of adjustable side fins carried on revolving shafts passing through the hull to within the vessel at intervals along both sides from bow to stern, and with machinery internally arranged for handling the same, the whole constructed and adapted for deflecting the vertical flight of the vessel, substantially as shown and described.

21. Vessels for aerial navigation, comprising a segregated gas-field and hull in compact form, the former constructed to adjust between the bulk-heads rising from the hull, and internally provided with partitions and an air-sack, and the latter constructed on one general frame, of metal, and sending lateral bulk-heads up through to the height of the gas-field, and expanded amidships into space for decks, cabin, and pilot-house, in combination with series of adjustable fins mounted on revolving shafts passing through the hull at intervals from bow to stern on both sides to within the vessel, and with machinery internally arranged for handling the fins, the whole constructed and adapted for deflecting the vertical flight of the vessel, substantially as shown and described.

22. In combination, the segregated gas-field C, metal hull A, side fins, H, mounted on a revolving shaft passing through the hull to within the vessel, and internally-arranged propulsive machinery, the whole arranged and adapted for deflecting the vertical course of the vessel, substantially as pointed out.

23. In vessels for aerial navigation, a segregated gas-field and hull, the former arranged in sections to adjust between the bulk-heads, and provided internally with partitions, an air-sack, and automatic valves, and the latter constructed on one general frame, of metal, sending upward lateral bulk-heads at intervals from bow to stern through and to the height of the gas-field, and expanded and protruding amidships into waist, horizontally and vertically divided into decks, living-compartments, a cabin, and pilot-house or outlook, and provided with protruding wheel-houses for supporting the side propelling-screws, i, arranged along the sides of the hull of the vessel, in combination with side propelling-screws, i, axle-shaft f', and connecting-gearings f^6, f^5, and f^4, for engaging with propulsive machinery within the vessel for impelling the side screws, the whole constructed and arranged substantially as shown and described.

24. In combination, the vessel's hull A, constructed on one general frame, of metal, end screw, j'', axle-shaft j^3, suspender bracket and bearings c^3, gear-wheel n^2, shaft s', pulley-wheel q', endless belt p', and propulsive machinery to act as aids in propelling and steering vessels for aerial navigation, constructed and arranged substantially as shown and described.

25. In a train of propulsive machinery for actuating the side screws, i', the combination of endless belt p', pulley-wheel q, and gear-wheels f^4 f^5, secured on and carried by revolving shaft s, gear-wheels i^7 i^7, revolving shafts i^3, and gearing-wheels i^6 i^5, the whole constructed, adapted, and arranged as shown, for connecting the motor-power within the vessel with and actuating the side propelling-screws, substantially as pointed out.

26. In a train of propulsive machinery for actuating the end propelling and steering screws, j'', the combination of endless belt p^3, pulley-wheel q', and gear-wheel f^6, both secured on revolving shaft s', gear-wheel n^2, and revolving shaft j^3, constructed, arranged, and adapted as shown, for connecting the motor-power within the vessel with and actuating the end propelling and steering screw, substantially as shown and described.

27. In vessels for aerial navigation built in compact form, and comprising a segregated gas-field and hull, the latter constructed on one general frame, of metal, and the whole propelled, steered, and handled by trains of internally-arranged machinery through externally-arranged side and end screws, steering-rudders, fans, and fins, and raised and lowered by a central vertical screw, a thin metal protruding roof, I, extending over the upper part of the vessel from bow to stern, supported by lateral and longitudinal chords, in combination with water-ducts k along the eaves, the whole arranged substantially as shown and described.

28. Hollow angle-block b^3, having receiving branching arms, as shown, in combination with central key-pin, r, and internally-arranged tying-cable, r', designed and adapted for forming the external joints in the metal frame of vessels for aerial navigation, substantially as shown and described.

29. Hollow central branching angle-blocks, b, having receiving radiating arms, as shown, in combination with central key-pin, r, internally-arranged tying-cable r', designed and adapted for forming the interior joints in the metal bulk-heads, and in the frame of vessels for aerial navigation, substantially as shown and described.

30. Hollow elbow and sleeve angle-blocks b' and b^2, having right-angle and curved peripheries and radiating receiving joints, in combination with internally-arranged tying-cable designed and adapted for forming the corner and peripheral joints of metal frames for vessels for aerial navigation, substantially as shown and described.

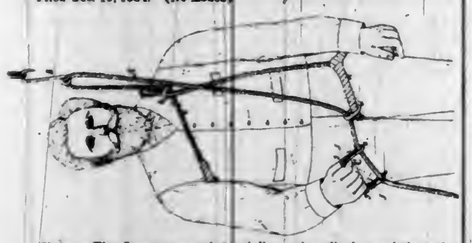
31. Hollow angle-blocks having branching receiving-arms, in combination with a central key-pin and an internally-arranged tying-cable constructed and adapted for forming the joints in the metal frames for vessels for aerial navigation, substantially as pointed out.

32. In a metal frame for vessels for aerial navigation, the combination of hollow angle-blocks, having radiating receiving-arms, and provided with a central key-pin, longitudinal and lateral supporting-chords, vertical supporting-posts, diagonal bracings, and peripheral chords, all substantially secured at their several intersections, as shown and described.

33. The combination of the longitudinal, peripheral, lateral, and diagonal chords, as shown, the vertical stanchions or posts, the central, intermediate, terminal elbow and sleeve angle-joints, central key-pin, r, rubber bolsters r^4, cushions r^2, and tying-cables r', arranged within the parts, the whole constructed and adapted for uniting the parts and strengthening the metal frames of vessels for aerial navigation, substantially as shown and described.

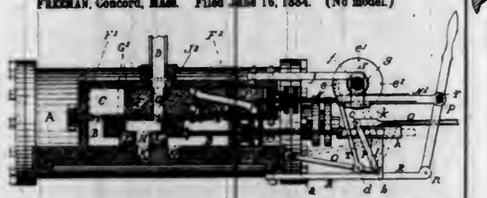
34. The combination of supporting posts or stanchions g^{11}, cross-girders g^9, and intersecting braces c^9, the whole overlaid with wire matting and covered by fire-proof material, and arranged and adapted to serve as a deck or floor for vessels for aerial navigation, substantially as shown and described.

311,889. FIRE-ESCAPE. ISAAC FARRAR and JOSEPH A. POWERS, Boston, Mass., assignors, by mesne assignments, to said Isaac Farrar. Filed Dec. 19, 1884. (No model.)



Claim.—The fire-escape, substantially as described, consisting of a rope provided with the leg-loop *a*, the ring *b*, shoulder-loop *c*, hook B, leg-loop ring *d*, and clamp C, all arranged and for use substantially as set forth.

311,890. REVERSING-VALVE FOR STEAM-ENGINES. ALONZO FREEMAN, Concord, Mass. Filed June 16, 1884. (No model.)



Claim.—1. In a steam-engine, the combination of the cylinder A, valve-chests B and C, and valves E and F, with the ports and passages G, H, I, J, X, Y, Z, K, and K', and openings for the inlet of working-steam and exit of exhaust-steam, as described, and for the purpose or purposes specified.

2. In a steam-engine, the reversing mechanism consisting of the valve-stem N and bar N', gear *g*, and plate S, connecting-rod T, fulcrum-bar O, lever P, valve-stem M, sliding pieces *i* and *h*, and eccentric-rod Q, with all their bearings, connections, and attachments, substantially as described, and operated by the lever U, as and for the purpose or purposes specified.

3. In a steam-engine, the reversing-valve F, with its ports G, I, and J, communicating with valve-chests B and C, and main valve E, and operating substantially as described, and for the purpose or purposes specified.

4. In a steam-engine, the cylinder A, valve-chests B and C, valves E and F, with their several ports communicating with the ports X, Y, and Z, and ports to steam-ducts K and K', in combination with the direct-acting and reversing mechanism, consisting of the valve-stems N and M, bar N', gear *g*, plate S, connecting-rod T, fulcrum-bar O, lever P, slide-pieces *i* and *h*, and eccentric-rod Q, all with their bearings, connections, and attachments, substantially as described, and for the purpose or purposes specified.

311,891. ILLUMINATING-TILE FOR SIDEWALKS, ROOFING, &c. CHARLES E. FURMAN, New York, N. Y. Filed Feb. 16, 1884. (No model.)



Claim.—1. An illuminating-tile composed of a sheet-metal plate provided with light-openings and upward-projecting spurs which are partly cut from and form part of said plate, in combination with glass lenses placed within or over said light-openings, and cement or other like material placed upon said plate between and around said lenses, substantially as and for the purposes described.

2. A tile composed of a sheet-metal plate provided at suitable points with upward-projecting spurs which are partly cut from and form part of the same, in combination with cement or other like material applied in a plastic or semi-liquid state to and caused to cover the surface of said plate, substantially as and for the purposes set forth.

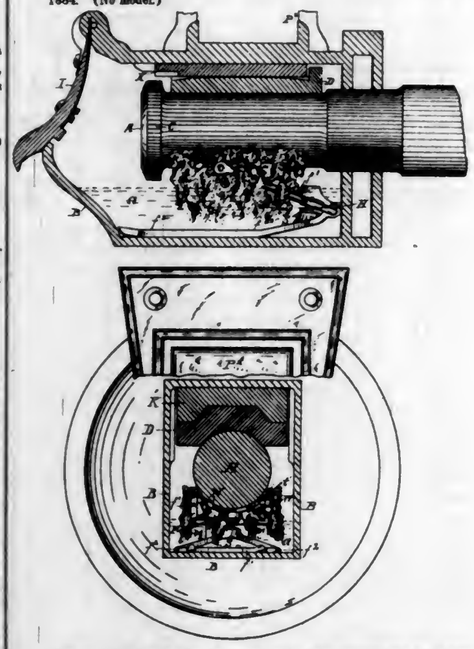
311,892. WRENCH. JOHN GIBBONS, West Troy, N. Y., assignor to the Mensely Hardware Company, same place. Filed Mar. 29, 1884. (Model.)

311,892.



Claim.—In a wrench, the combination of the bars H H, made with the jaws J, slots D, and grooves G, the bar B, made with the pins P and caps C, and the nut N, threaded to said bar B, and constructed with the rim or flange F, as shown and described.

311,893. CAR-AXLE OILER. JOHN GIBBONS, West Troy, N. Y., assignor to the Mensely Hardware Company, same place. Filed Sept. 6, 1884. (No model.)

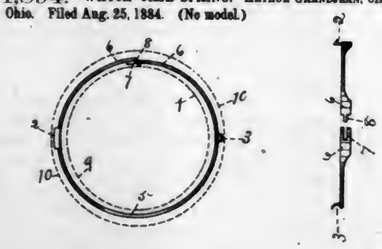


Claim.—1. In an oiler for a car-axle, the combination of a two-part wick-holder frame hinged to each other at the front, a spring between the two parts of the frame adjacently to where hinged, and a wick or waste holder on the upper part of the frame, said parts being constructed and arranged to operate substantially as and for the purposes set forth.

2. In a car-axle oiler, the combination of a two-part frame, said parts being hinged together at the front, a spring between said parts of the frame adjacently to where thus hinged, and an oil or wick holder constructed to have a pivotal connection with the upper part of said frame, said parts being constructed and arranged to operate in the manner substantially as and for the purposes set forth.

3. In a car-axle oiler, the combination of a two-part wick-frame, said parts being hinged together at the front, a spring between said parts of the frame adjacently to where hinged, and a wick-holder adjustably pivoted to the upper part of said frame, said wick-holder being made with teeth on the inner and outer edges of its sides, said parts being constructed and arranged to operate substantially in the manner as and for the purposes set forth.

311,894. WATCH-CASE SPRING. ARTHUR GRANDJEAN, Cincinnati, Ohio. Filed Aug. 25, 1884. (No model.)



Claim.—1. A watch-case spring consisting of a hoop having its ends joined together at a point between the catch and the lift-hook, and having in common therewith a catch for locking the case-cover and a lift-hook for engaging with the hinge of the cover.

2. A watch-case spring consisting of a hoop made continuous by means of a joint located in the middle portion of one side and between the catch and the lift-hook, and having a hole adjacent the catch for the stem or key-pipe, and having the body of the spring on each side of the catch reduced in cross-section, while the middle portions of each side of the spring have a depth corresponding to that at the catch, and the sides beyond the middle tapered off to a uniform section at and near the lift-hook.

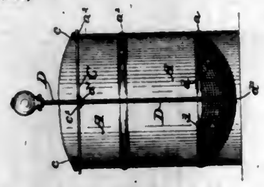
3. A watch-case spring consisting of a hoop made continuous by means of a joint located in the middle portion of one side and between the catch and the lift-hook, and having a hole adjacent the catch for the stem or key-pipe, and having the body of the spring on each side of the catch reduced in cross-section, while the middle portions of each side of the spring have a depth corresponding to that at the catch, and the sides beyond the middle tapered off to a uniform section at and near the lift-hook, and the joint consisting of a gap in the end of one extremity of the spring, and of a tongue at the other extremity, to interlock within the said gap and unite the said extremities of the hoop, whereby the hoop may be made continuous and its action be made the same as if both sides of the hoop were solid.

311,895. MANUFACTURE OF HYDRAULIC CEMENT. DAVID GRIFFITHS, Egypt, Pa. Filed June 14, 1884. (No specimens.)

Claim.—1. The hereinbefore-described improvement in the manufacture of hydraulic cement, which consists in incorporating with calcined cement-rocks or hydraulic limestones of the kind indicated raw cement-rocks and slaked lime, substantially in the proportions and in the manner set forth.

2. The hereinbefore-described improvement in the manufacture of hydraulic cement, which consists in incorporating with the calcined cement-rocks or hydraulic limestones of the kind indicated raw rocks containing silica, and slaked lime, substantially in the manner set forth.

311,896. SIFTER. ANDREW L. HENRY, Ladoga, Ind. Filed Oct. 13, 1884. (No model.)



Claim.—1. The combination, in a sifter, of the body or casing, the sieve, the agitator, and the cross-bar C, said cross-bar being formed of flat elastic metal and provided with shoulders or enlargements near each end, and a journal-bearing in the center, its ends mounted in mortise-like holes in the sides of said casing, and the agitator-shaft mounted in the journal-bearing in said cross-bar and provided with an enlargement just below it, said cross-bar thereby serving the double purpose of a support and an adjusting-spring for said agitator, substantially as set forth.

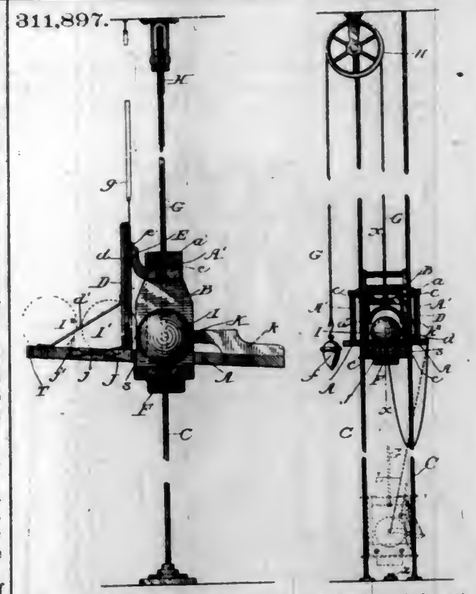
2. In a sifter, the combination of the body or casing A, composed of elastic material and provided with holes a^3 near its top, the hemispherical sieve B, near the bottom of said casing, the flat cross-bar C formed from elastic metal and provided with enlargements *c*, near each end, and a journal-bearing in the center, and the agitator D, journaled in said journal-bearing and provided with an enlargement just below said cross-bar which comes in contact therewith when the parts are in position, substantially as set forth.

3. In combination with a sifter, an agitator consisting of a shaft and radial arms, said arms being secured to the end of said shaft by a +-shaped piece of thin metal, the arms of said piece of metal being bent up between said agitator-arms alongside said agitator-shaft and soldered thereto, substantially as set forth.

4. The combination, with the agitator of a sifter, of the +-shaped piece *d'*, one arm of which is turned up between each set of wires extending from the end of the agitator-shaft and secured to the sides of said shaft, thereby covering the point of intersection of said wires and securing them rigidly to the shaft, substantially as set forth.

311,897. AUTOMATIC CASH-CARRIER. DAVID K. HILL, Chicago, Ill. Filed Oct. 18, 1882. (No model.)

311,897.



Claim.—1. A cash-carrier the tracks of which consist of two parallel rails, and the carriers of balls rolling on and between said tracks, in combination with a counterbalanced elevator adapted to receive a single ball, the weight of which ball overbalances and causes the elevator to descend, substantially as and for the purpose described.

2. In an automatic cash-carrier, the parallel tracks and the cash-balls, in combination with a counterbalanced delivery-elevator automatically actuated by the balls, to lower the balls from the track, substantially as described.

3. The combination, with the elevator, of a vertically-reciprocating cut-off gate automatically actuated and adapted to withhold balls from the elevator, substantially as described.

4. The combination, with the elevator, of the reciprocating gate engaging with and automatically actuated by the elevator, substantially as described.

5. The combination, with the parallel tracks, the carrier-balls, and the counterbalanced elevator, of a lever pivoted to the elevator, and a stop device connected with a fixed support, whereby the pivoted lever is raised and the ball is automatically released from the elevator when it descends, substantially as described.

6. The combination, with the elevator, of the spring-actuated lever pivoted thereto, and automatically actuated to release the ball from the elevator when the elevator has descended to its proper position for delivering the ball, substantially as described.

7. The combination, with the elevator and with its pivoted lever, of the brace or back stop for the lever, substantially as described.

8. The combination, with the track, the elevator, and the projecting arm rigidly secured to the elevator, of a gate mounted upon and rising above the track, whereby said arm may engage and lift the gate above the ball or carrier, substantially as described.

9. The combination, with the track adjacent to the elevator, of a weighted lever pivoted thereto and adapted to be automatically actuated by a ball on the track, so as to intercept other balls in the rear of said first ball, substantially as described.

10. The combination, with the elevator, of a weight arranged on the under side of said elevator, and an elastic buffer, substantially as described.

11. The combination, with the elevator provided with the arm E, of the sliding gate D, provided with the stud *e*, adapted to be engaged by said arm, substantially as described.

12. The combination, with the elevator and the ways thereof, of the delivery-track supported by said ways, substantially as described.

311,898. LOCK. NICHOLAS A. HULL, Peru, Ind. Filed May 19, 1883. Renewed July 21, 1884. (Model.)

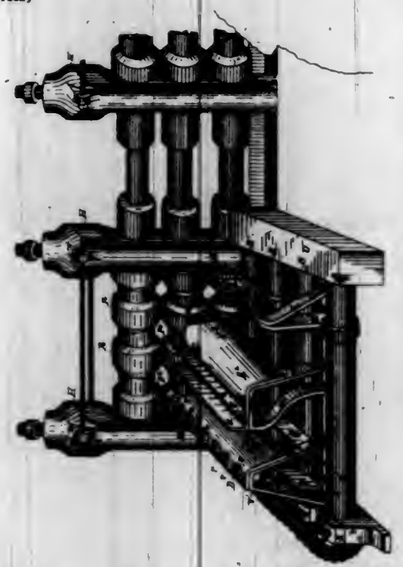


Claim.—1. In a locking device, the combination of the bolt R, pivoted within the plates A B, the reduced upper end of said bolt being limited in its downward movement by the right-angle portion of the plate A, with the spring *a* of the plate A forming a bearing against the bolt R, when arranged and combined as specified.

2. In a locking device, the double-turn bolt R, reduced at one end, with a square opening, *o*, at the opposite end, said bolt being pivoted

within the plates A B and held in position by the spring *a* of the plate A, as and for the purposes set forth.

311,899. AUTOMATIC FEEDING-TABLE FOR ROLLING-MILLS. ROBERT W. HUNT and MAXIMILLIAN M. SUPPES, Troy, N. Y.; said Suppes assignor of one-sixth of his right to said Hunt. Filed May 31, 1884. (No model.)



Claim.—1. In an automatic-feed mechanism for a rolling-mill, the combination of the receiving-platform D, the inclined apron A', and the conveying-rollers B' and B, the said parts being constructed to operate and arranged relatively to the train-rolls substantially in the manner as and for the purposes set forth.

2. In an automatic-feed mechanism for a rolling-mill, the combination of the receiving-shelf E, made with an upcast plate-edge *e*, the inclined apron A^2, and the conveying-rollers B and B', the said parts being constructed to operate and arranged relatively to the train-rolls substantially in the manner as and for the purposes set forth.

3. In an automatic-feed mechanism for a rolling-mill, the combination of the receiving-platform D, the inclined apron A', the curved standard-guide V^2, and the conveying-rollers B and B', the said parts being constructed to operate and arranged relatively to the train-rolls substantially in the manner as and for the purposes set forth.

4. In an automatic-feed mechanism for a rolling-mill, the combination of the receiving-platform D, the abruptly-inclined apron A', the curved standard-guide V^2, the upwardly-projecting plate *a*, and the conveying-rollers B and B', the said parts being constructed to operate and arranged relatively to the train-rolls substantially in the manner as and for the purposes set forth.

5. In an automatic-feed mechanism for a rolling-mill, the combination of the receiving shelf or ledge E, the adjustable plate F, made with the upturned edge *e*, the inclined apron A^2, and the conveying-rollers B and B', the said parts being constructed to operate and arranged relatively to the train-rolls substantially in the manner as and for the purposes set forth.

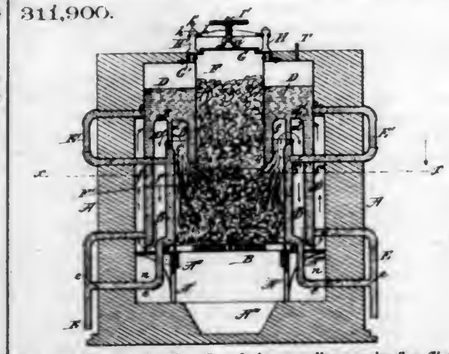
6. In an automatic-feed mechanism for a rolling-mill, the combination of the receiving shelf or ledge E, made with the turned-up edge *a*, the inclined apron A^2, the elastic guide-standards G' and G^2, and the conveying-rollers B and B', the said parts being constructed to operate and arranged relatively to the train-rolls substantially in the manner as and for the purposes set forth.

7. In an automatic-feed mechanism for a rolling-mill, the combination of the conveying-rollers B and B', constructed to be operated as shown, the platform D, the apron A', the ledge or shelf E, made with the upturned edge *a*, the apron A^2, the standard-guides V', V^2, and V^3, and G' and G^2, with the said parts constructed to operate and arranged with reference to the train-rolls as shown and described.

311,900. STEAM-GENERATOR. JOHN KANGLEY and WILLIAM S. CHERRY, Streator, Ill. Filed May 13, 1884. (No model.)

Claim.—1. The combination, in a steam-heater, of the annular boiler D, having an outer depending annular water-leg, D', and inner depending annular water-leg, D'', extending to the bottom of, around, and forming the wall of the fuel-magazine, the ascending annular flue *f*,

311,900.



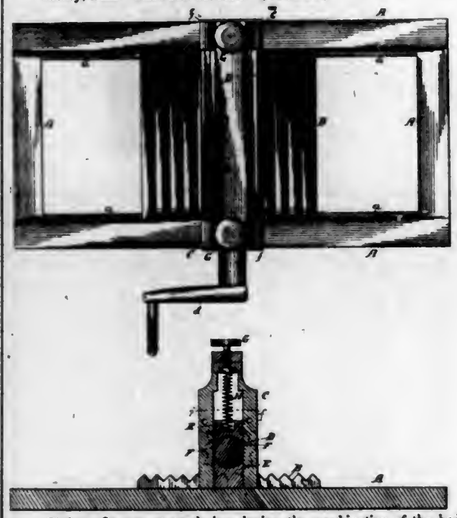
the descending annular flue *f'*, and the ascending annular flue *f''* outside of water-leg D', with a base-burning furnace composed of the central upright fuel-magazine, F, and combustion-chamber F', all the parts constructed and arranged with relation to each other substantially as described.

2. The combination, in a steam-heater, of the annular upright water-heater D''', forming the outer walls of the combustion-chamber or fire-pot F', water-supply pipes E *e e*, circulating-pipes E', with the annular boiler D, having the water-legs D' D'', and a base-burning furnace, F F', substantially as described.

3. The air-valve K, composed of the pipe *k*, having openings *k'*, thimble *k''*, having openings therein, in combination with the swinging lid G of the magazine F, as and for the purposes described.

4. In a steam-heater, the base-support A' and brackets A'', in combination with the boiler D, having annular leg D' and the inner depending leg D'', and the water-heater D''', forming the fire-pot, as and for the purposes described.

311,901. MEAT-TENDERER. SOLOMON KESNER, Liberty, Woodson County, Kans. Filed Jan. 31, 1884. (No model.)

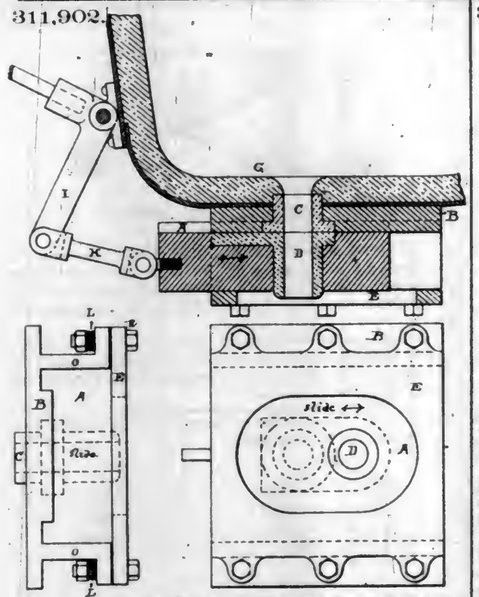


Claim.—In a meat-tendering device, the combination of the bed-plate A, consisting of a rectangular open metallic frame having interior flanges, *a*, on the side bars, forming grooves, with the sliding plate B, adapted to move within said grooves, and corrugated on its entire upper surface, the open standards C at opposite sides of the bed-plate, containing sliding journal-boxes E, each connected with an independent thumb-screw, G, whose shank extends through the top of the standard by the spiral spring H, and having plates *f* on the outer surfaces of said standards, and the corrugated roller D, with crank *d*, all arranged and adapted to operate substantially as set forth.

311,902. STOPPER FOR LADLES. DAVID D. LEWIS, Johnstown, Pa. Filed Nov. 24, 1884. (No model.)

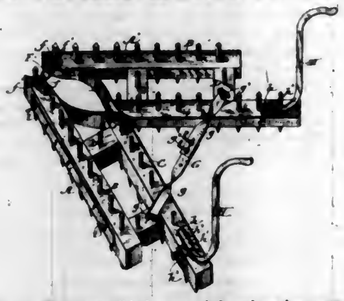
Claim.—1. The combination of the ladle, the perforated and recessed casting B, applied to its under side, with the perforated and recessed casting A, a mechanism for moving it, and the two perforated bricks C D, substantially as shown and described.

311,902.



2. The combination of the crucible, the recessed and perforated casting B, provided with the flanges O, the recessed and perforated casting A, a mechanism for moving the casting, the bricks C D, the plate E, and springs for forcing the castings A B together, substantially as set forth.

311,903. ADJUSTABLE HARROW, SLED, AND MARKER. WILLIAM R. LOCKE, New Richmond, Ohio. Filed June 2, 1884. (No model.)



Claim.—1. The convertible harrow, sled, and marker composed of two frame-sections formed of parallel beams B C, united by cross-pieces D D, and shod with the forwardly-curved plate E, which serves both as a fulcrum and runner, and provides an intermediate bearing-shoulder, C', in combination with adjustable linked connections for uniting the frame-sections, substantially as described, and for the purpose specified.

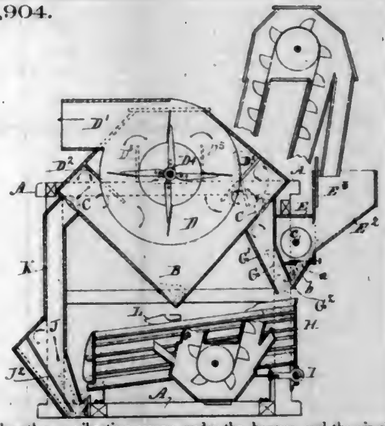
2. In a combined harrow and sled or marker, the combination of the parallel beams B C, united by cross-pieces D, the beam B, arranged to project beyond the beam C at its forward end, and the beam C, arranged to project beyond the beam B at its rear end, coupling-bars or links adapted to be arranged either in the form of a double-A harrow or a sled and marker, the removable handles H, and sockets h' h^2, arranged, respectively, upon the adjacent sides of the rearwardly-projecting ends of the beams C, substantially as described.

311,904. GRAIN SEPARATOR AND CLEANER. LEE LOCKWOOD, Des Moines, Iowa. Filed May 12, 1884. (No model.)

Claim.—1. In a grain-separator and grain-cleaning machine, the hopper B, having openings C on its opposite sides, the fan-case D D', the cut-offs D^2 and D^3, and a rotary fan within the fan-case and hopper, arranged and combined with a feed-box connected with the opening C at one side of the hopper, a spout extending down from the opening C at the opposite side of the hopper, and a vibrating screen carrying a chute under the center of the hopper, substantially as shown and described.

2. The combination of the hopper B, having openings C on opposite sides, the fan-case D, having a rotary fan inclosed, the cut-offs D^2 and D^3, a feed-box connected with one of the openings C and a spout

311,904.

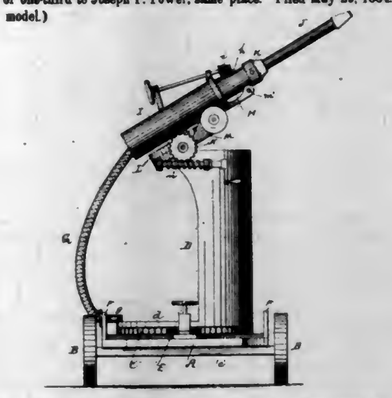


with the other, a vibrating screen under the hopper, and the air-chambers G and J, substantially as shown and described.

3. The combination of the feed-box E, having a continuous slot, *a*, in its bottom, the adjustable slide *b*, a conveyer, *c*, an air-chamber, G, a hopper, B, having an opening, C, and a fan-case and fan inclosed within the hopper, substantially as shown and described.

4. The herein-described grain separator and cleaner, comprising the base or frame A, hopper B, having openings C C, the fan-case and fan, cut-offs D^2 and D^3, the feed mechanism E E^2 E^3, the box E thereof, having slot *a*, slide *b*, and rotating conveyer *c*, the air-chambers G J, and vibrating screen-carrier H, substantially as shown and described.

311,905. WATER-TOWER. JOHN B. LOGAN, Baltimore, Md., assignor of one-third to Joseph P. Power, same place. Filed May 29, 1884. (No model.)



Claim.—1. The combination, with the tower-carrying truck A, of drop-legs consisting of the brackets C, secured at each side thereof, and the screws *c*, adapted to be screwed vertically through the said brackets onto the ground or away from the ground, as shown and described.

2. The combination, with the truck A, provided with the bed-plate *a*, of the tower D, having the circular base *d*, with teeth *e'* around its edge, the hand-wheel pinion E, mounted to engage the teeth *e'*, and the latch *e*, fixed to the truck to slide into engagement with the teeth *e*, as and for the purpose specified.

3. The combination, with the sleeve I, carrying water-pipes, as described, and provided with the table L, having an arc of teeth, *l*, of the table M, mounted on the tower D, and provided with the tangent screw *m'* to engage the teeth *l*, as and for the purpose specified.

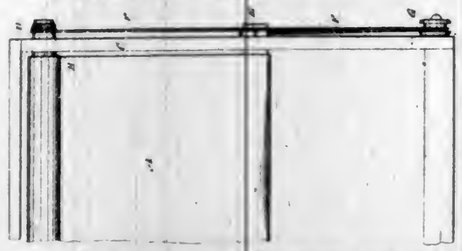
4. The combination, with the sleeve I, carrying water-pipes, as described, and secured to the table L, of the table M, serving as a pivoted base to table L, and hung to the tower D by means of trunnions *m*, the toothed wheel N on one of said trunnions, and the tangent screw *n*, mounted on the tower to engage the wheel N, as shown and described.

5. The combination, with the sleeve I, adjustably mounted on a tower, as described, of the pipe H, having a hose, G, attached at one end, and a nozzle connected with its other end, a toothed rack, *h*, secured longitudinally upon the pipe, and a worm, *i*, hung upon the sleeve to engage the toothed rack, as and for the purpose specified.

6. The combination, with the pipe H, having a flange, *h'*, and supported as described, of the nozzle J, having a flange, *j*, at its rear end, and

screw-threads *j'* in front of the flange, and a union-coupling, K, adapted to engage the screw-threads, as shown and described.

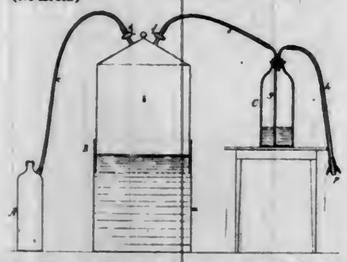
311,906. CAR-WINDOW SHADE. GIDEON B. MASSEY, Mount Vernon, N. Y. Filed Apr. 8, 1884. (No model.)



Claim.—1. The combination, with a shade-roller having tapered ends, and a shade secured on the said roller, of the standards C, having vertical guide-grooves I, the strip E, secured to the bottom of the curtain and having its ends passed through the slots I, the pulleys G at the lower ends of the standards, and the cords F, secured to the ends of the roller and to the ends of the strip E, substantially as herein shown and described.

2. The combination, with a shade-roller and a shade secured to the same, of a vertically-slotted standard, a strip secured to the shade and projecting through the vertical slots of the standards, and of cords or ropes secured to the rollers and to the said strip and passing around pulleys, substantially as herein shown and described.

311,907. INHALER. URIAL K. MAYO, Boston, Mass. Filed Nov. 10, 1884. (No model.)

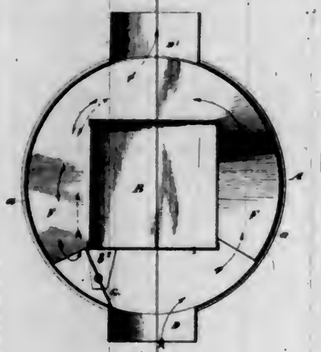


Claim.—The gas-inhalation apparatus, substantially as described, consisting of the condenser, gasometer, their flexible eduction-pipes and their stop-cocks, the sealing-bottle and its fluid charge, and internal and inhalation pipes, all arranged to operate in manner and for the purpose essentially as set forth.

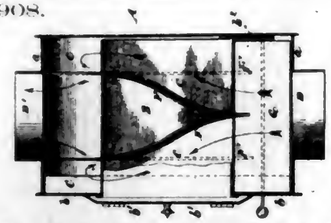
311,908. WARMING-OVEN AND RADIATOR. JAMES G. MEEHAN, Madison, Nebr. Filed July 12, 1884. (No model.)

Claim.—1. The combination, with the case A and oven B, of the plate *b*, made fast to the outlet edge of oven and forming a detachable side for the case, whereby the case is closed as the oven is inserted, as set forth.

2. In a stove-pipe attachment for the purposes described, the combination, with the case A, of an oven, B, provided with two flanges, F F, placed farthest apart near the inlet-pipe D, thence converging as they pass around, and finally coming together at a sharp edge on the opposite side of said pipe, whereby the products of combustion may be conducted, as set forth.



311,908.



3. The combination, with case A and oven B, having the convergent flanges F F, of a single damper, G, arranged to shut the products of combustion off from the opening between the divergent ends of said flanges F when they first enter the inlet D, as and for the purpose specified.

4. In a stove-pipe attachment, for the purposes set forth, an oven, B, provided with the plate *b* and the flange b^2, in combination with a damper-shaft whose bearings are in said plate and flange whereby all may be lifted out of the case together.

311,909. PLOW-FENDER. GILBERT C. MILLER, Fort Wayne, Ind. Filed Apr. 11, 1884. (No model.)



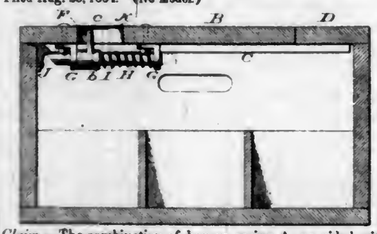
Claim.—1. A fender for cultivator-plows, consisting of a plate which projects over the plow-shovel, and has one side elongated to pass rearward on one side of the plow-beam, the said plate being adjustably connected to the said plow-beam, substantially as and for the purpose specified.

2. A plow-fender for cultivator-plows, consisting of a plate which projects over the plow-shovel, and has one side elongated, in combination with a plow-beam having a stop secured to it above the shovel, the fender-plate being adjustably secured to the said beam, and the parts operating substantially as and for the purpose specified.

3. A plow-fender consisting of a plate with an elongated side and having two bolts secured to it, having between their rear ends a bearing secured to the fender-plate, and their free ends passing through a bearing-plate, in combination with a plow-beam having a stop on it above the plow-shovel, the several parts operating substantially as and for the purpose specified.

4. A plow-fender consisting of a plate one side of which is elongated, the said plate having two bolts secured to it, having between their rear ends a bearing, and their other ends passing through a plate which bears against the plow-beam, the whole being adjustable thereon, and operating as and for the purpose specified.

311,910. BOX-FASTENER. HENRY F. MOELLER, Davenport, Iowa. Filed Aug. 25, 1884. (No model.)

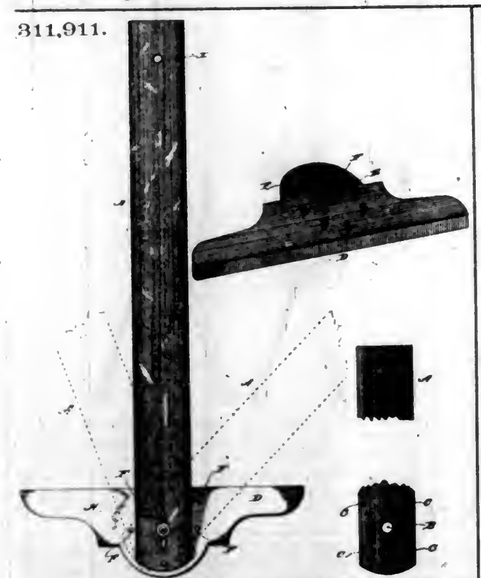


Claim.—The combination of box or casing A, provided with strip D and keeper J, cover B, provided with slot F and cleats C, eyes G, secured to the under side of the cover, bolt H, mounted in said eyes, and having lug e extending upward into slot F, and spring I, adapted to press the bolt forward, said parts being constructed and arranged substantially as shown and described, whereby the bolt is protected against accidental withdrawal, and adapted to be covered by the address-card.

311,911. COMBINED DRAWING SQUARE AND MITER. JOHN MULLER, Kansas City, Mo. Filed Oct. 27, 1884. (No model.)

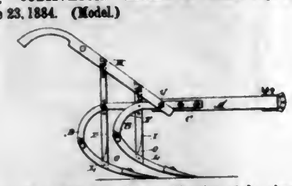
Claim.—1. The combination, with the rule provided with a bolt-hole, B, and six pin-holes, C, arranged on the arc of a circle on opposite sides of said bolt-hole, of the head-piece D, provided with the bolt-hole E and eight short pins, F, and the screw-bolt G and thumb-nut H, substantially as specified.

311,911.



2. The combination, with the rule provided with the bolt-hole and pin-holes, of the single half head-piece having the short pins F, and the screw-bolt and thumb-nut, substantially as specified.

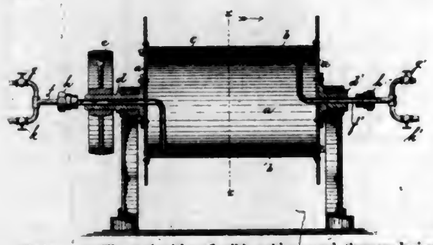
311,912. CULTIVATOR. MATHEW B. PARKS, Fayetteville, Tenn. Filed June 23, 1884. (Model.)



Claim.—1. In a cultivator, the combination of the pivoted handles, the bars secured rigidly to the beam, the standards pivoted to the lower ends of the bars, and the rods I, pivoted to the standards and adjustable upon the bars B, substantially as shown.

2. The combination of the beam, the bars B F, rigidly secured thereto, the standards pivoted to the bars, the rods I, pivoted at their lower ends to the standards and at their upper ends to the bars and handles, and the attaching-bolts, substantially as set forth.

311,913. APPARATUS FOR FILLING LEAD PIPES OF TELEGRAPH-CABLES. WILLIAM R. PATTERSON, Chicago, Ill., assignor to the Western Electric Company, same place. Filed July 18, 1884. (No model.)

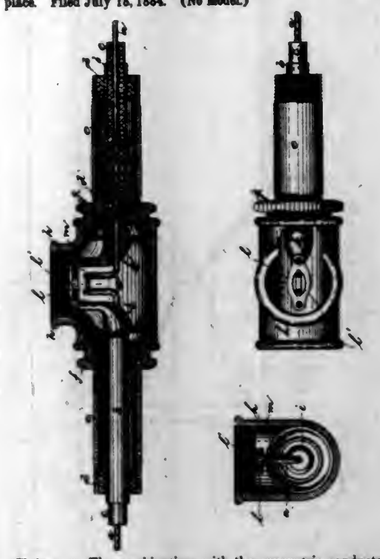


Claim.—1. The reel with a flexible cable wound thereon during the process of filling, and provided with the chamber *b*, in combination with pipes leading thereto through the hollow axles, and cocks for turning on steam and cold water, whereby the cable wound upon the drum may be heated and cooled, substantially as and for the purpose specified.

2. The combination, with the drum adapted to carry the flexible telegraph-cable coiled thereon during the process of filling the said cable, and provided with the annular chamber, of the hollow axles, the driving-pulley, the pipes provided with joints, and the cocks for turning on or off the steam or water, substantially as and for the purpose specified.

3. The drum adapted to hold a cable coiled thereon, a chamber within the drum, pipes connecting with the chamber, and valves whereby steam or water may be introduced into the chamber for heating and cooling the cable.

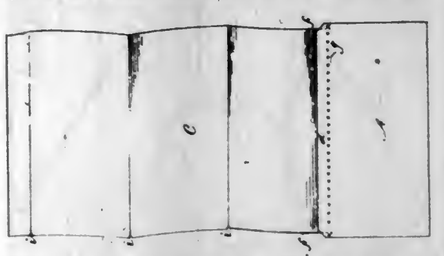
311,914. JOINT FOR ELECTRIC-ARC-LIGHT CABLES. WILLIAM R. PATTERSON, Chicago, Ill., assignor to the Western Electric Company, same place. Filed July 18, 1884. (No model.)



Claim.—1. The combination, with the concentric conductors *a* and *b* of an electric-arc-light cable, of the pieces *i* and *k*, screwed to the opposing ends of the tube of the outer conductor, and the ends of the central conductor projecting through openings in said pieces, respectively, and the removable cross-pieces *l* and *m*, substantially as and for the purpose specified.

2. The combination, with the conductor *a*, of the outer conductor, *b*, and the pieces *i k*, provided with openings for the ends of conductor *a*, substantially as and for the purpose specified.

311,915. ENVELOPE. KNOTT H. PEDRICK, Lynn, assignor of one-half to Charles D. Palmer, Lowell, Mass. Filed Oct. 26, 1883. (Model.)



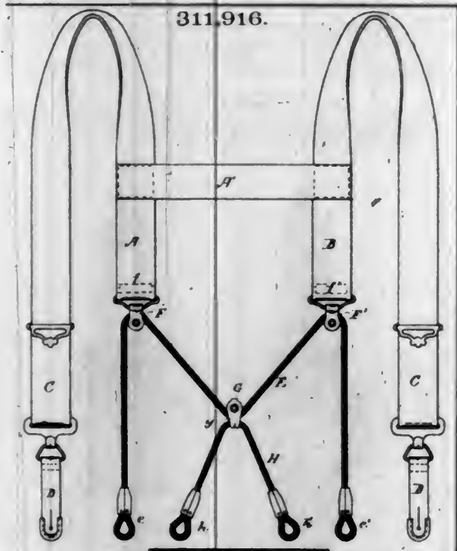
Claim.—A combined envelope and letter-sheet consisting of a pocket composed of a front, A, and back B, integral with each other, one of said parts being provided with end flaps folded and cemented to the other part, and a letter-sheet integral with and narrower than said pocket, said pocket being provided with a gummed flap adapted to close its mouth when a letter-sheet is folded therein, substantially as described.

311,916. SUSPENDERS. THOMAS O. POTTER, Boston, Mass. Filed Apr. 10, 1884. (No model.)

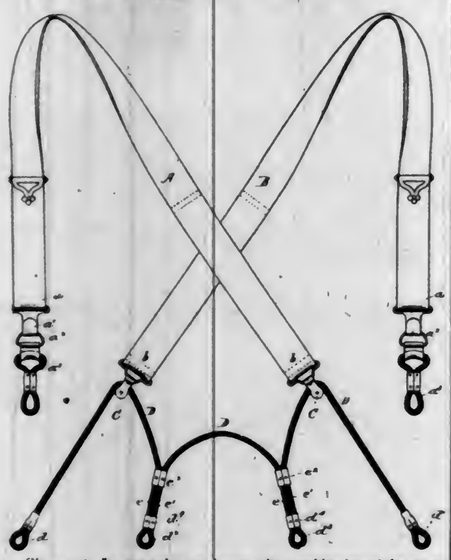
Claim.—1. The suspenders having the straps A B and front single button-pieces, D, the sheaves F F' upon the back ends, *f*, the cord E, having the button-holes e e', and a cord, H, having the button-holes *h h'* attached to said cord E, all substantially as and for the purposes described.

2. In suspenders or braces, the combination of the straps A B, the sheaves F F', the cord E, having the button-holes e e', and the cord H, secured to the cord E between the sheaves F F' by a connecting device, substantially as specified, whereby the cords E and H are movable in relation to each other, all substantially as and for the purposes described.

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311,917. SUSPENDERS. THOMAS O. POTTER, Boston, MASS. Filed Apr. 10, 1884. (No model.)



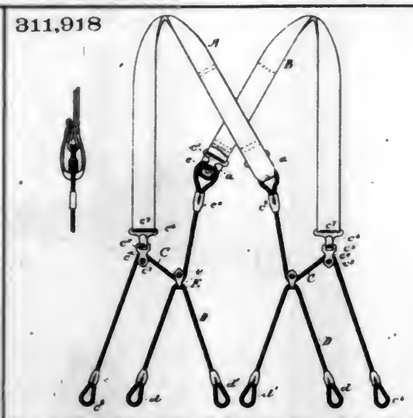
Claim.—1. In suspenders or braces, the combination of the straps A B, each of which has the front end, *a*, provided with a single button-hole, a^2, the sheaves C, attached to the back ends of the straps, and the cord-connection D, having the side button-holes, *d d'*, and the rear button-holes, d^2 d^2, formed with or rigidly fastened to the cord-connection D, whereby the cord-connection may render or move in the sheaves without changing the relation of the back button-holes to said cord, all substantially as and for the purposes described.

2. In suspenders or shoulder-braces, the straps A B, the sheaves C, supported by the back ends of the straps, and the cord-connection D, having the side button-holes, *d d'*, and the rear or back button-holes, d^2 d^2, the said back button-holes being connected with each other and with the cord-connection D by a fastening which prevents the movement of the said cord D in relation to said back button-holes, all substantially as described, and for the purposes specified.

311,918. SUSPENDERS. THOMAS O. POTTER, Boston, Mass. Filed Aug. 25, 1884. (No model.)

Claim.—1. In suspenders or braces, the combination of the straps A B, the side cords, C, attached to the rear ends of the straps or braces, having at their front ends the button-holes c^2, the sheaves c^2, adapted to

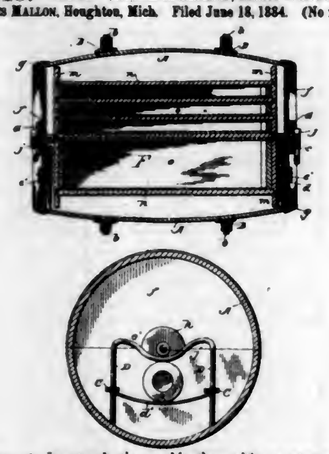
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be attached to the front ends of the suspenders, and the side and back button-hole cords, D, all substantially as and for the purposes described.

2. The combination, in suspenders, of the side straps, C, having a front button-hole, c^2, and the back and side button-hole cord, D, carried or supported by the side cords, all substantially as and for the purposes described.

311,919. TRUNK. MICHAEL R. REDMOND, GEORGE P. MCFARLANE, and JAMES MALLON, Houghton, Mich. Filed June 18, 1884. (No model.)



Claim.—1. In a trunk, the combination, with an outer casing consisting of two hinged sections, of an inner casing cylindrical in form, having a series of shelves between which are fitted a series of removable drawers or boxes, said inner casing revolving within the outer casing, substantially as set forth.

2. The combination, with a trunk, of bands of metal having upwardly-projecting flanges between which are secured gaskets of rubber or other suitable elastic material, substantially as set forth.

3. The combination, with one of the pivoted sections, of legs adapted to pass through openings in the floor thereof, and an eccentrically-pivoted disk adapted to raise and lower the same, substantially as set forth.

4. The combination, with the outer casing, of brackets secured to the inner side of one section thereof, legs working in said brackets, said legs being connected at their upper ends by means of a rod depressed at about its center, and a short distance below the brackets by a curved rod, and a die pivoted eccentrically to the inner side of said section, and a button for operating the same, substantially as set forth.

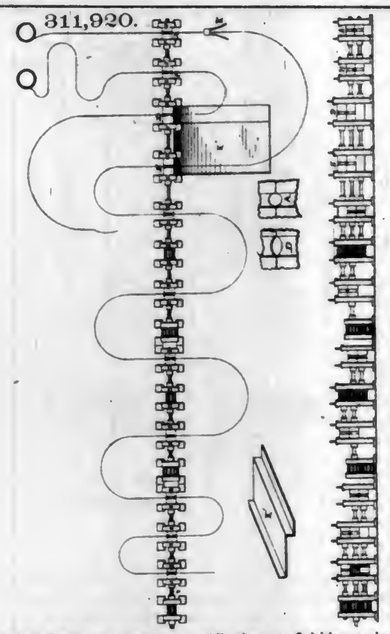
5. In a trunk, the combination, with two sections pivotally connected together, of heads for said sections, consisting of two parts, and having their edges bent outwardly and then downwardly upon the edge of the section, substantially as set forth.

311,920. ROLLING-MILL FOR RODS. JOHN T. ROWLEY, Johnstown, Pa. Filed May 19, 1884. (No model.)

Claim.—1. In a rod-mill, the combination of the two sets of finishing-ovals and two sets of finishing-rolls with the roughing-section, substantially as shown.

2. In a rod-mill, the combination of the two sets of finishing-ovals and two sets of finishing-rolls with the roughing-section, the roughing

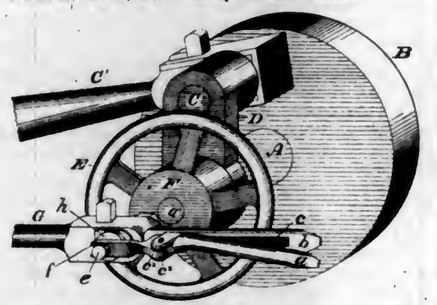
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section being made to revolve more rapidly than the finishing-ovals and finishing-rolls, substantially as set forth.

3. The combination, with the two sets of finishing-ovals, of the conductor K', substantially as set forth.

311,921. REVERSING MECHANISM FOR ENGINES. REINHARD SCHEIDLER, Newark, Ohio. Filed Sept. 17, 1884. (Model.)



Claim.—1. In a reversing device for engines, the combination of the crank provided with the steel-bushed holes, the center pin, an annulus formed on said crank concentric with the latter, the pivoted hand-wheel provided with a channel in the hub of the same engaging said annulus, the hollow wrist-pin, the valve-rod connected therewith, the loosely-fitted pin extending through said wrist-pin adapted to engage said steel-bushed holes in the crank, and the pivoted spring-lever on said valve-rod engaging said loosely-fitted pin, and adapted to operate the same, as set forth.

2. In a reversing device for engines of the class described, the combination of the main shaft, the crank-wheel, the crank, a center pin in the free end of the latter, a wheel pivoted thereon, with a tongue-and-groove connection between the hub of the latter and the crank concentric with said center pin, the steel bushes in said crank, the valve-rod, the hollow wrist-pin on which the latter is pivoted, the loosely-fitted pin extending through said wrist-pin, and means for operating the latter by which it is disengaged from one of said bushes and caused to engage with the hole in the other in reversing the motion of said crank and shaft, as set forth.

3. In a reversing device for engines of the class described, the combination, with the crank-wheel, of a crank provided with the two holes in the free end of the same, a fixed center pin in the latter, an annulus concentric with said center pin formed on said crank, the holes in the latter being in the line of said annulus, a hand-wheel pivoted on said center pin, having a channel concentric with the latter in the hub of the same engaging the annulus on the crank, a hollow wrist-pin, the valve-rod pivoted upon the latter, the loosely-fitted pin extending through said hollow wrist-pin and operated therein, and the spring-lever pivotally attached to the extension of said valve-rod, having a fork end engaging a circumferential groove in said loosely-fitted pin and adapted to operate the latter, substantially as set forth.

4. In a reversing device for engines, the combination, with the crank-wheel, of a crank having a hand-wheel pivoted on the free end of the same, said crank being provided with two holes at the proper relative distance for the throw of the valve from the center pin of the same, detachable steel bushes inserted in said holes, the hollow wrist-pin attached to said pivoted hand-wheel, the loosely-fitted pin therein circumferentially grooved below the head, the valve-rod pivotally connected with the latter and provided with an extended part in line therewith, and the pivoted spring-lever attached to said extended part, its fork end engaging the circumferential groove in said loosely-fitted pin, and adapted to disengage the latter from one of the bush-holes in the crank to allow it to engage the other as the latter is partially rotated, for the purpose set forth.

5. In combination, the crank provided with the annulus on the free end of the same concentric with its center, a hole in said annulus on either side of the latter, said holes being at points embracing about one-third the circumference of said annulus, and in a separate horizontal plane from the axial line of the center pin, the hand-wheel with a circular recess in the hub of the same engaging said annulus, the center pin connecting said hand-wheel and crank together and pivoting the former upon the latter, the hollow wrist-pin, the valve-rod, the loose-sliding pin within said wrist-pin, and means for operating the same, whereby it is disengaged from one hole in the annulus and engaged with the other to reverse the motion of the engine, substantially as set forth.

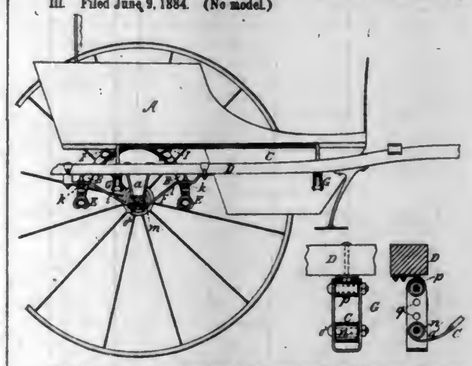
6. The combination of the crank provided with an annulus and holes therein at the proper relative distance from the center and from each other, the hand-wheel having a circular recess engaging said annulus and pivoted to said crank, the hollow wrist-pin, the valve-rod pivoted thereto, the sliding pin within said wrist-pin, and means for operating the same, whereby it is engaged and disengaged alternately with the holes in said crank in reversing the motion of the engine, substantially as set forth.

7. The combination, with the valve-rod, the reversing devices, and the crank, of the hand-wheel pivoted on the latter and adapted to be used as means for operating said valve-rod to throw the valve from one port over the other in starting the engine, as set forth.

8. The combination, with the crank, the hand-wheel, and the engaging and disengaging devices for reversing the motion, of the center pin, and means for adjusting the same, substantially as and for the purpose hereinbefore set forth.

9. In a device for reversing motion, the combination, with the crank having threaded holes therein, and the sliding pin, of the detachable tapering threaded bush-pins of hardened steel inserted in said holes, as and for the purpose hereinbefore set forth.

311,922. TWO-WHEELED VEHICLE. EDWARD G. SEITZ, Chicago, Ill. Filed June 9, 1884. (No model.)



Claim.—1. In combination with carriages and wagons, the construction of the adjustable spring-coupling E, consisting of sections *b c*, each provided with a spherical stud, *d e*, the same projecting in line of center each to the other, the upper section connected with plate *f*, having an orifice in center, the lower section provided with a screw-bolt, *h*, substantially as shown and described, and for the purpose specified.

2. In connection with the spring-coupling E, the brace-bar F, with inclined front and rear portions, *i l*, and base *m*, provided with sockets *k k* on their upper surface, substantially as described, and for the purpose specified.

3. In combination with the body of a vehicle, the spring-coupling E and coupling-brace F, the main spring B, having on the ends of the lower spring-plate, *g*, an impression or socket, *t*, the same provided with

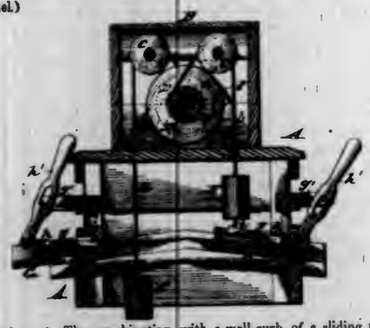
a cover, *e'*, substantially as shown and described, and for the purpose specified.

4. In connection with the plates of the main spring B of the body of a vehicle, the spring-clamp I, with concave-shaped sides, the same provided with opposite projecting conical points *s s* and arched bottom *v*, substantially as described, and for the purpose specified.

5. In combination with the body of the vehicle and main spring B, the torsion-spring C, having bended ends *a'*, the same flattened out and shaped into a cylindrical head, *n*, substantially as described, and for the purpose specified.

6. In combination with the body of a vehicle, the main spring B, provided with clamp I and sockets *k k* at the ends of the lower plates, connected with spring-couplings E E, torsion-spring C, with head *n*, the supporting yoke or frame G of the same, having holes *q* on its sides for adjustment, and top plate, *p*, all arranged and constructed substantially as and for the purpose herein set forth.

311,923. WELL-FIXTURE. JOHN T. SENN, Troy, Ala., assignor to himself and Alexander McKenzie, same place. Filed Aug. 20, 1884. (No model.)



Claim.—1. The combination, with a well-curb, of a sliding trough provided with a lever pivoted transversely upon the trough, and having on the end of its inner arm a pin adapted to raise the valve in the bottom of the bucket when the outer arm of the lever is depressed, thus allowing water to escape from the bucket into the trough, substantially as specified.

2. The combination, with a well-curb, of a sliding trough provided with a tilting-lever and an operating-lever, the latter being capable of both sliding the trough and depressing the tilting-lever, all substantially as and for the purposes set forth.

3. The combination, with a well-curb, of a sliding trough provided with a pivoted spring-controlled lever adapted to open the valve in the bucket, and means whereby the trough can be slid under the bucket and the lever actuated at the proper time, substantially as specified.

4. The combination, with a well-curb, A, sliding trough G, and spring-controlled lever *h*, secured to and turning with the rock-shaft *g*, and provided with the pin *i*, of the projection *g'* and slotted lever *h'*, turning and sliding on a pin fixed to the said projection and passing through the slot in said lever, substantially as described.

5. The combination, with a well-curb and a windlass turning in bearings therein, of the wheel D and the dogs *b*, united by the bail *b'*, pivoted to their upper ends, and each arranged to strike the edge of the wheel D below its center and stop its rotation in one direction at the time that the bucket is in position to have its valve opened by the pin *i* in the tilting-lever of the sliding trough, substantially as specified.

311,924. MACHINE FOR ROLLING AXLES, SPINDLES, AND OTHER METAL ARTICLES. MARIE E. SHAY, Fordham, assignor to Mary A. Seitz, New York, N. Y. Filed Jan. 29, 1884. (No model.)

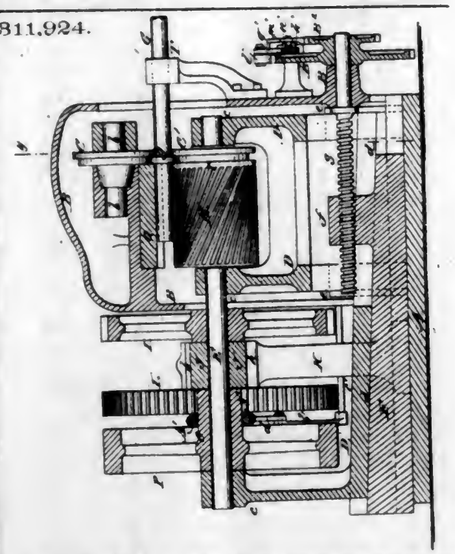
Claim.—1. In mechanism for forging metal articles, the combination of a rotating die, having spiral corrugations or grooves on its outer or acting surface, with a non-rotating resistance-die and the means, substantially as set forth, for adjusting said roller-die, and both being arranged for operation upon the heated blanks as the same are passed or held between the dies, essentially as described.

2. In mechanism for forging solid or hollow cylindrical articles, the combination of a plain or flat resistance-die, having a stop at the back end for holding the blank in its place, with a corrugated or obliquely grooved rotary die and the means, substantially as set forth, for adjusting said roller-die, and both being arranged for operation upon the heated blank under arrest by the stop, substantially as specified.

3. In a machine for forging cylindrical articles, solid or hollow, the combination of the stationary resistance-die Q, having a rear stop or back extension, *k*, and the rotary rising and falling roller-die H, constructed with spiral or oblique corrugations on its acting surface, essentially as and for the purpose herein set forth.

4. In a machine for forging cylindrical metal articles, the combination, with the fixed resistance-die Q, having a back projection or stop,

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k, of the spring-follower R, constructed to co-operate with said stop, and the rotary rising and falling roller-die H, constructed with spiral corrugations or grooves on its periphery, essentially as described.

5. In a machine for forging cylindrical metal articles, the combination, with the rotating die H, of the frame D, carrying the same, the sliding base wedge plate or device F, for raising and lowering said frame, and the means, substantially as described, for operating the wedge plate or device, substantially as specified.

6. The combination of loose wheels or formers C C' with the rising and falling rotary die H and non-rotating resistance-die Q, essentially as and for the purpose herein set forth.

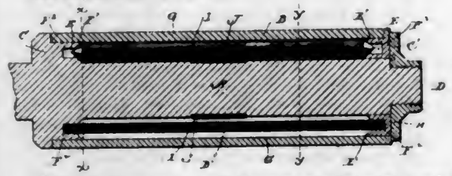
7. The combination, with the rotary forging-die H and its rising and falling frame D, of the shaft E, the spur-wheel I thereon, the loose sleeve O, pulley P and pinion N, the fixed open-mouthed standard K, shaft *i*, pinion M, wheel L, and the loose link or arm J, connecting the shafts E and *i*, substantially as specified.

8. The combination of the fixed outer main frame, B, the inner rising and falling frame, D, the forging rotary die H, carried by said inner frame, and the means, substantially as described, for raising and lowering the same, essentially as specified.

9. The combination, with the rising and falling rotary die H and the non-rotating resistance-die Q, of the means, substantially as described, for automatically raising and lowering the die H, substantially as specified.

10. The combination, with the rotary forging-die H, its rising and falling frame D, and the main shaft E, of the sliding base wedge-plate F, the screw S, the eccentric A' and rod *a'*, the lever *b'*, the rock-shaft *c'*, the arm *d'*, link *e'*, and lever *f'*, having a sliding fulcrum, *g'*, the slotted support *h'*, the links *i' i²*, the sliding bar *k'*, the upper pawl, *l'*, and lower pawl, *m'*, provided with a finger, *o'*, the reversing ratchet-wheels B' B² on the screw S, and the tripping-slide *n'*, substantially as and for the purposes herein set forth.

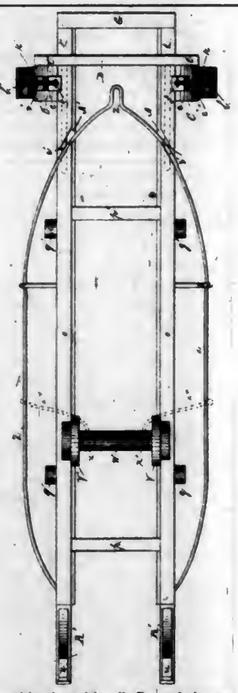
311,925. FRICTION-BEARING. GEORGE W. SHOEMAKER, Dalton, Pa. Filed Aug. 13, 1884. (No model.)



Claim.—The combination, with the untapered axle having threaded ends and the collars C C', grooved in their opposing faces, as at E' F', of the case-hardened rolls B, having tapering ends E, the rolls B, having elastic surfaces and untapered ends, the elastic hand J in a seat in the axle, the case-hardened sleeve G, and the flanged nut H, substantially as specified.

311,926. WAGON-LOADING MACHINE. ASBET L. SLAWSON, New Orleans, La. Filed June 24, 1884. (No model.)

311,926.



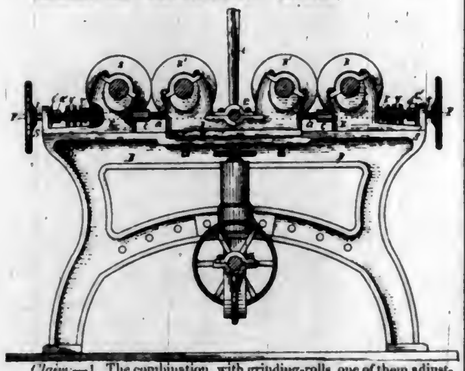
Claim.—1. In combination with rails R *o* and elevator, as described, the sections R', adapted to connect with the platform of the elevator, substantially as and for the purpose set forth.

2. In combination with the rails R and *o*, the pivoted sections R'', provided with stop *r*, and the springs T, substantially as and for the purpose set forth.

3. The wire guard Z, adapted to guide the carrying-ropes of the transporting-wheels to the outer sides of the rails, substantially as described.

4. The herein-described machine, composed of a pair of upper and lower inclined rails, the latter having a clear space between the same, and the former connected with each other by cross-ties and provided with outer guards, as set forth, in combination with pivoted sections R' R'' and an elevator, adapted to operate substantially as and for the purpose specified.

311,927. PRESSURE-INDICATOR FOR ROLLER-MILLS. E. STRONG, Kalamazoo, Mich. Filed Feb. 29, 1884. (No model.)



Claim.—1. The combination, with grinding-rolls, one of them adjustable, and means for keeping said adjustable roll in operative position by a yielding pressure, of an indicator-plate and a clamp adapted to hold the plate rigidly or set it free, whereby the condition of the grinding-roll's adjustment may be ascertained, substantially as set forth.

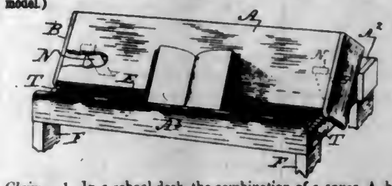
2. A roller-mill provided with a clamp which is operated by the movement of the adjustable roll's bearing and an indicator-plate in said clamp, whereby the plate is rigidly held or set free by the clamp to indicate the condition of the roll's adjustment, substantially as set forth.

3. The combination, with stationary and adjustable rolls, movable roll-bearings, pressure-springs, and means for adjusting the springs and rolls, of an indicator-plate and a clamp adapted to rigidly clamp the plate or set it free, substantially as set forth.

4. The combination of an adjustable and stationary roll, a movable bearing for the adjustable roll, provided with the upward extension, an adjusting-rod provided with the rigid collar, pressure-spring, and an indicator-plate centrally perforated and loosely mounted on the adjusting-rod between said extension and rigid collar, substantially as set forth.

5. A roller-mill provided with a clamp operated by the movement of the adjustable roll's bearing, and a centrally-perforated indicator-plate having a notched edge and loosely mounted in the clamp, substantially as and for the object set forth.

311,928. SCHOOL-DESK. JESSE H. TALBOTT, Nevada, assignor of one-half to Lewis Schooler, Des Moines, Iowa. Filed Feb. 15, 1883. (No model.)

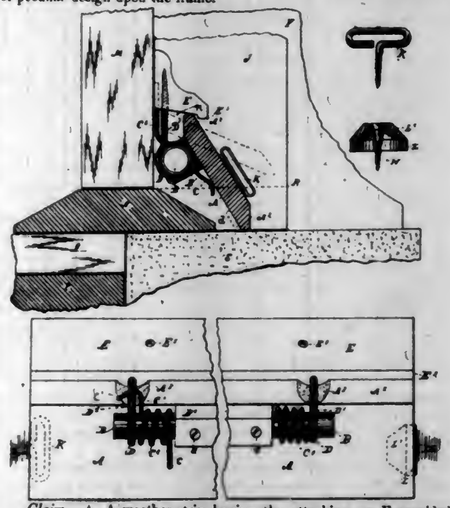


Claim.—1. In a school-desk, the combination of a cover, A, having duplex hinges attached to its under side, with a frame or stand having a fixed section of cover, A^2, on its rear side and fixed racks on the front portions of the end pieces of the frame, substantially as and for the purposes stated.

2. The cover A, having end pieces, B, projecting downward, and duplex hinges N, attached on its under side, in combination with the top of a desk having a fixed section of cover, A^2, at its rear side, a vertically-projecting front, A^3, and racks T on the ends, substantially as shown and described, to operate in the manner stated.

311,929. WEATHER-STRIP. THEOPHILUS WEAVER, Harrisburg, Pa. Filed Nov. 13, 1884. (No model.)

Brief.—A fixed cap rabbeted on its under side, provided with screw-hooks forming journals for the axle of the weather-strip, and also a limit for its upward movement. The strip is actuated by springs and by stops of peculiar design upon the frame.



Claim.—1. A weather-strip having the attaching-cap E provided with hanging screw-hooks D D', D D', in combination with the flap A, secured firmly to a bar provided with the journals B B, and thereby supported in said screw-hooks, the flap's head A' aligned close to under side of said cap, and its throw limited by the lip E' on front of cap and by the screw-shanks D' D', projected from its rear part, substantially as and for the purposes set forth.

2. The self-adjusting weather-strip set forth, composed of the attaching-cap, two hinging screw-hooks attached thereto, the axle or bar having its ends adapted as journals and placed in said hooks, one or two torsional springs applied to said journals interior to said hooks, and the flaps secured firmly to said bar and having its throw limited by said cap and the shanks of said screw-hooks, all coupled for operation substantially as shown and described.

3. In a weather-strip for doors, the attaching-cap E, having lip E' at front of rabbeted part *a*, and provided with screw-hooks D D', D D', inserted into its rear portion, in combination with the flap A, firmly attached to its rotary axle B B B', and thereby journaled in said hooks as bearings, and thereby kept in place by head A' of flap being confined under said cap, the actuating-spring C^2, and the spring-washer C^3, all connected and adapted for operation substantially as set forth.

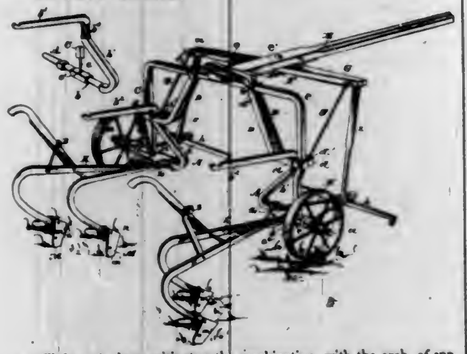
4. In a weather-strip for doors, the combination of cap E E', the screw-hooks D D', D D', the axle-bar B B B', the flap A, the actuating-spring C^2, door M, and stop or stops on door-frame, all co-operating substantially as set forth.

5. In combination with a self-raising weather-strip, A, connectedly arranged with its actuating mechanism on a door, M, the stop L L' on jamb next hinge of door, adapted as a lateral guide, and regulated fixed stops for the flap, substantially as and for the purposes set forth.

311,930. MEDICAL COMPOUND. JOSEPH WELLER, Troxlertown, Pa. Filed Aug. 15, 1884. (No specimens.)

Claim.—The herein-described compound of herbs, fruits, and medicines, to be used for medicinal purposes, consisting of confection of senna, pulverized Tinnevelly senna, cream of tartar, sublimed sulphur, crude antimony, white agaric, saffron, (*Crocus orientalis,*) distilled oil of white pine, tincture of uva ursi, nitric acid, and fluoric acid, in the proportions and the doses above more fully and at large set forth.

311,931. CULTIVATOR. JOHN WHERRY, Jr., Putnam, Ill. Filed Oct. 4, 1884. (No model.)



Claim.—1. In a cultivator, the combination, with the arch, of supporting-wheel axles pivotally secured to the arch, said axles having rearwardly-extending portions adapted to form supports for the cultivator-sections when the same are elevated, and a cultivator-section secured to each axle, substantially as set forth.

2. In a cultivator, the combination, with the arch, and axles pivotally secured on the ends of the arch, said axles extending obliquely upward, and having wrists formed thereon directly above the pivots at the ends of the arch, of clips adapted to form bearings for the wrists and secure the upper portions of the axles to the arch, substantially as set forth.

3. In a cultivator, the combination, with the arch and axles, each axle pivotally secured to the arch by a lower and an upper bearing, of a brace rigidly secured to the arch at the two said upper bearings and at the top of the arch, substantially as set forth.

4. In a cultivator, the combination, with the arch, axles pivotally secured thereto, the tongue pivotally secured to the top of the arch, cultivators secured to the axle, and the cross-bar pivotally secured to the tongue, of stay-rods and supporting-rods attached to the ends of the cross-bar and arch and axles by loose connections, whereby either section of the cultivator may be advanced without affecting the tongue, substantially as set forth.

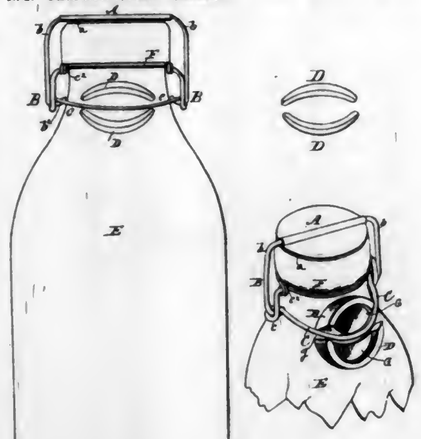
5. In a cultivator, the combination, with the arch having the supporting-axles pivoted thereto, draft-rods and cultivator-sections secured to the axles, and a tongue pivoted to the arch, of a cross-bar pivoted to the tongue, and supporting-rods attached to the ends of the cross-bar and the draft-rods by loose connections, whereby either cultivator may be advanced without increasing or diminishing the draft on the other, substantially as set forth.

6. The combination, with the axles pivotally secured to the arch, and provided with rearwardly-extending sections, of cultivator-sections pivotally secured to the axles, and provided with hooks whereby the cultivator-sections may be locked to the said axle-sections in elevated adjustment, substantially as set forth.

7. The combination, with the axles pivotally secured to the arch, and provided with rearwardly-extending sections, of cultivator-sections pivotally secured to the axles, and hooks attached to the cultivator-handles, whereby the cultivator-sections may be locked in the said axle-sections in position to be steered into position by the driver, substantially as set forth.

8. The combination, with a cultivator-beam terminating in a slotted standard, of a sheet-steel double-share tooth provided with a front perforated projection and a rear cross-brace, a bolt adapted to pass through the said projection and slotted standard, a clamp adapted to engage the brace at the rear of the standard, and a nut for locking the projection and clamp snugly to the standard, substantially as set forth.

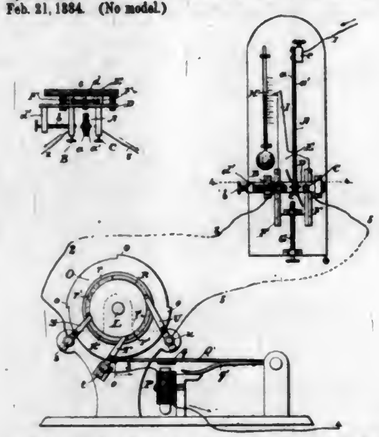
311,932. SEALING MILK-BOTTLES. JONES W. WILDER, Parkville, N. Y. Filed Nov. 7, 1884. (Model.)



Claim.—1. A bottle provided with ribs projecting from its side under the neck-band thereof, in combination with a bottle-stopper fastening having an operating-lever adapted to rest against the side of the bottle, between its projecting ribs, substantially as and for the purpose described.

2. The combination of a bottle having a projecting neck-band, and under said band two ribs or projections capable of retaining sealing-wax between them, with a bottle-stopper fastening constructed to have a portion thereof enter the groove between said ribs and be retained therein, substantially as and for the purpose described.

311,933. THERMOSTAT. GEORGE R. WILLIAMS, Ithaca, N. Y. Filed Feb. 21, 1884. (No model.)



Claim.—1. In a thermostat, the combination, with a thermal bar, of a slide carrying contact-points on opposite sides of the bar, and devices for adjusting the slide and the points thereon transversely of the bar, as set forth.

2. In a thermostat, the combination, with a thermal bar, of a slide carrying contact-points, an indicator-slide by which the contact-point's slide is adjusted transversely of the bar, a pointer to the indicator-slide, and a thermometer by which the adjustment of the slides is regulated, as set forth.

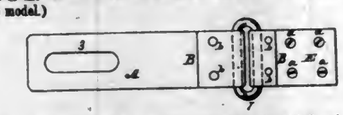
3. In a thermostat, the combination, with a thermal bar, of the slide D, having contact-points B and C, an arm, *d'*, and adjustable screw *b*, passed through the arm and contact-point next to the arm, as set forth.

4. In a thermostat, the combination, with a thermal bar, of the slide D, having contact-points B and C, and a pin, *d*, the indicator-slide E, having a diagonal slot, *e*, to receive the pin on the contact-point's slide, and a pointer, I, and a thermometer in connection with the pointer, as set forth.

5. In a thermostat, the combination, with a thermal bar, contact-points, a shaft, and means to rotate the shaft, of a toothed wheel, O, metal segments R R' on the face of the wheel, electro-magnet P, vibrating arm Q, to engage the teeth, slight springs S, T, and U, to bear on the segments and connect the magnet through the arm with the contact-points until one of the springs leaves a segment, as set forth.

6. In a thermostat, the combination of a thermal bar, contact-points, shaft, means to rotate the shaft, a pawl to retain shaft from movement, an electro-magnet to release the pawl from the shaft, a hinged door, a damper journaled to the hinged door, and a universal joint connecting the shaft with the damper, the joint permitting the door to be opened and closed at will, as set forth.

311,934. HASP. JOHN S. WILLIAMS, Chicago, Ill. Filed Nov. 10, 1884. (No model.)



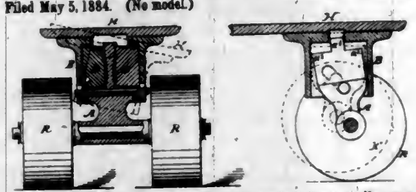
Claim.—The wings B E A B, combined with the link I and staple D, to form a hasp-fastening, whereby are covered the screws to the wing B E and the staple D, as specified.

311,935. WASHING-MACHINE. BENEDICT WING and JOEL WING, Table Rock, Nebr. Filed Feb. 16, 1884. (No model.)



Claim.—In a washing-machine, the combination, with an outer box or casing having a hinged top, and slots formed upon its sides, of an inner casing or box constructed substantially octagonal in form, said casing having obliquely-arranged stripe E, stripe F, arranged near the lower end of each alternate strip E, openings in the sides of the box or casing D, and a crank or handle for operating the same, substantially as set forth.

311,936. ROLLER-SKATE. LOWELL M. WISEWELL, Boston, Mass. Filed May 5, 1884. (No model.)



Claim.—1. The hollow shell B, with vertical inner walls open at bottom but closed at its top, and with diagonal slots b^2 b^2 in its sides, and slot b^3 in its head, and with suitable provision for attaching it to the under side of the foot-plate H, with which it is in combination, all substantially as described, and for the purposes set forth.

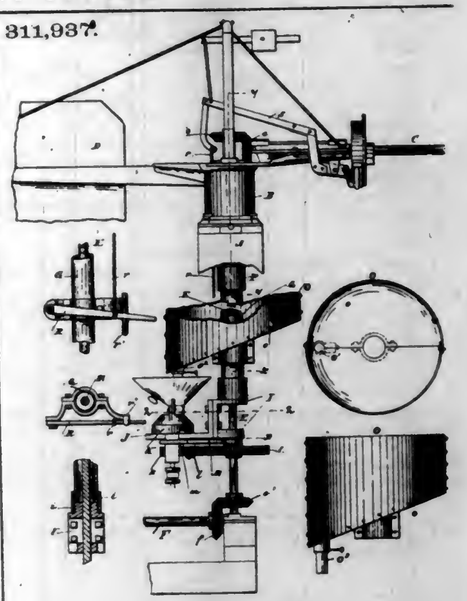
2. The truck-hanger A, formed with rectangular ledges *a'* *a'*, and center piece above them terminated at its top by the steady-pin a^2, or its equivalent, and having the guide-pins C C at its sides, and carrying in the part a^4 the axle *x*, on which the rollers R R revolve, substantially as described, and for the purposes set forth.

3. The combination, in a roller-skate, of the truck-hanger A, with steady-pin a^2, or its equivalent, at its top, and guide-pins C C at its sides, with the shell B and the cushions D D, substantially as and for the purposes set forth.

311,937. WINDMILL. JOHN Q. ADAMS, Marseilles, Ill. Filed Mar. 10, 1884. (No model.)

Claim.—1. In a geared windmill, a tube surrounding the vertical shaft and attached to the turn-table, in combination with a secondary

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machine carried by the tube, substantially as and for the purposes set forth.

2. In a geared windmill, a tube surrounding the vertical shaft and provided with trunnions at its upper end, in combination with a turn-table provided with depending brackets in which seats are made adapted to receive the tube-trunnions, substantially as and for the purposes set forth.

3. The turn-table B, in combination with the plate H, depending brackets *h'*, provided with a flange, h^3, inclined studs h^3, and ribs h^4, and the tube G, provided with trunnions *g'*, substantially as and for the purposes set forth.

4. The turn-table B, in combination with the tube G, attached thereto at its upper end, the bracket-yoke I, mounted on the vertical shaft and attached to the lower end of the tube, and the platform J, attached to the bracket-yoke, substantially as and for the purposes set forth.

5. The turn-table B, in combination with the vertical shaft E, the sectional tube G, attached to the turn-table, and the collars P, provided with a central web, *p*, adapted to form a bearing for the vertical shaft, substantially as and for the purposes set forth.

6. The tube G, in combination with the sectional vertical shaft E and the hub Q, provided with a central angular hole adapted to receive similarly-formed ends of adjacent sections of the shaft, substantially as and for the purposes set forth.

7. The turn-table, in combination with the tube connected thereto, the lever R, mounted on the tube, and mechanism for regulating the wind-wheel, connected to said lever, substantially as and for the purposes set forth.

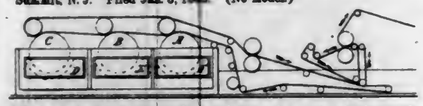
8. The turn-table, in combination with the vertical shaft, the tube surrounding said shaft and attached to the turn-table, the platform connected to the lower end of the tube, a spur-wheel fixed on the vertical shaft, a spur-wheel on the shaft of the secondary machine, an arm mounted loosely on the vertical shaft, and a pinion mounted on said arm, whereby the two wheels may be connected and disconnected by the vibration of the arm, substantially as and for the purposes set forth.

9. The vertical shaft, in combination with the spur-wheel L, attached thereto, the tube surrounding said shaft and connected to the turn-table, the spur-wheel *k*, carried by the tube, the pinion *l*, and the arm M, carrying said pinion, mounted loosely on the vertical shaft, whereby the ordinary revolution of the wheel M will tend to swing the arm outward to disengage the pinion from the wheel *k*, substantially as and for the purposes set forth.

10. The vertical shaft, in combination with the gear-wheel L, fixed thereon, the tube surrounding the shaft, the platform connected to the tube, the wheel *k*, mounted on the platform, the pinion-arm M, provided with the slot *m'*, and the bolt N, provided with a fastening-nut, *n*, substantially as and for the purposes set forth.

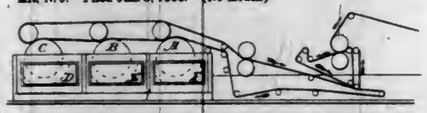
11. The turn-table, in combination with the tube connected thereto, a grinding-mill attached to and carried by the tube, and the reservoir O, attached to the tube and arranged above the mill, substantially as and for the purposes set forth.

311,938. PAPER FOR ROOFING-FELT, &c. CHARLES W. ARMOUR, Summit, N. J. Filed Jan. 3, 1885. (No model.)



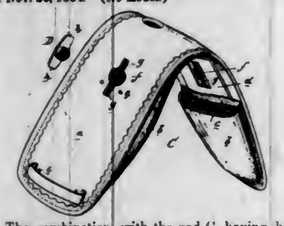
Claim.—A paper composed of a mixture of spent tan-bark, meadow-hay, and mill-waste, and covered on both sides with a layer of pulp composed of satinet rags, colors, shoddy, and straw, thus making a strong smooth paper, suitable for the purposes and substantially in the manner described.

311,939. PAPER FOR SHEATHING, &c. CHARLES W. ARMOUR, Summit, N. J. Filed Jan. 3, 1885. (No model.)



Claim.—A paper composed of a mixture of pulp composed of spent tan-bark, meadow-hay, and mill-waste, covered on both sides with a layer of pulp composed of cotton or linen rags, waste papers, or a mixture of similar materials, thus making a strong and smooth paper of any desired thickness, suitable for the purpose and substantially in the manner described.

311,940. HARNESS-SADDLE PAD. EDWIN E. ARMSTRONG, Detroit, Mich. Filed Nov. 26, 1884. (No model.)



Claim.—1. The combination, with the pad C, having hole *f*, with slots *g* extending in opposite directions from said hole, of the metallic plate stiffener *d*, having slotted hole corresponding and coincident with the hole in the pad, and the nut D, having flanges *h*, of less length and thickness than said slots, but of greater width, whereby said nut can be inserted edgewise through said slots, but is prevented from being withdrawn when turned flatwise, substantially as described.

2. The combination, with a saddle and the pad C, provided on its upper face with a hole, *f*, having slots *g* extending in opposite directions therefrom, and the metallic plate *d*, having slotted holes corresponding and coincident with the holes in the pad, of the covering *i*, the nut D, removably secured between said covering and plate, and the terrets B, passing through said saddle, pad, and plate, and engaging with said nut, substantially as and for the purpose specified.

311,941. SNAP-HOOK. FRANK ARMSTRONG, Bridgeport, Conn. Filed Oct. 2, 1884. (No model.)



Claim.—1. In a snap-hook, the hook portion A, the sleeve B, surrounding and adapted to slide upon the said hook, and a spring arranged within said sleeve bearing at one end against the sleeve and at the other against the hook portion.

2. In a snap-hook, the hook portion A, provided with the cross-piece *f*, extending across the same, the sleeve B, extending entirely around the said hook portion, and a spring arranged within the said sleeve and bearing at one end against the hook and at the other against the sleeve.

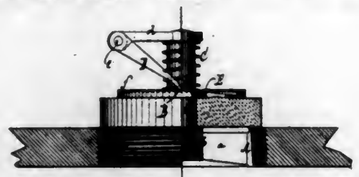
3. The combination of the hook portion A, the sleeve B, having the inwardly-bent portions *g*, and the spring *e*, substantially as and for the purpose set forth.

4. The combination of the hook portion A, having the pintle *d*, the sleeve B, having the inwardly-bent portions *g*, or the equivalent, and the spring *e*, the whole combined and operating as described.

5. The combination of the hook portion A, having the bent end, a cross-piece, *f*, and the seat for the spring of the sleeve B, having the parts *g* bent inwardly, or the equivalent, to form a seat for the spring on one side and bear against the cross-piece on the other.

6. The combination of the hook portion A, the sleeve B, having the inwardly-bent portions *g* and the outwardly-extending ears, and the spring, all substantially as described.

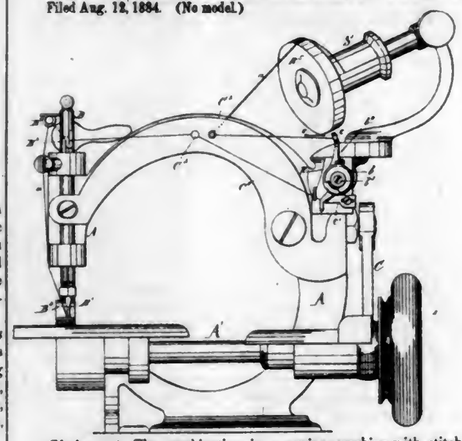
311,942. DISK AND CONE VALVE. THOMAS BARBER, Flatbush, N. Y. Filed June 5, 1884. (No model.)



Claim.—1. The combination, with a valve, of the valve-seat, a stem rising from the hub or center of said seat and passing through the valve, an arm mounted upon the stem and having a dog or pawl pivoted thereon, a circular rack upon the valve, with which the dog engages, and a spring interposed between the valve and the arm carried by the stem, substantially as described.

2. The combination, substantially as hereinbefore described, of the valve-seat, the stem secured in the hub or center of this seat, the valve, the circular rack secured on the back of the valve, and the dog which gears into this rack, and is supported by an arm extending from the stem which rises from the center of the valve-seat.

311,943. SEWING-MACHINE. WILLIAM F. BEARDSLEE, Boston, Mass., assignor to the Manufacturers Special Machine Company, Danbury, Conn. Filed Aug. 12, 1884. (No model.)



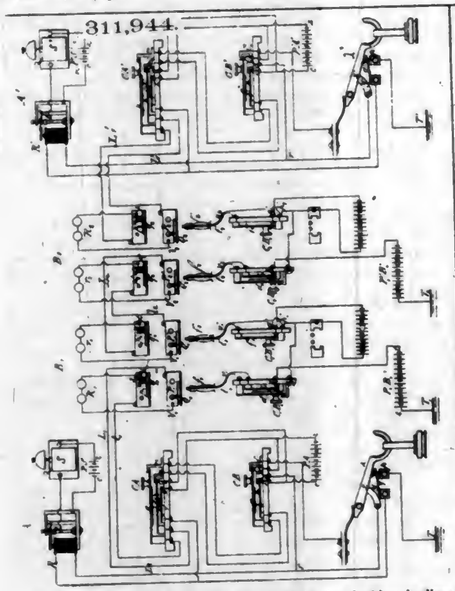
Claim.—1. The combination, in a sewing-machine with stitch-forming mechanism and a thread-supply, of a pull-off, a tension device, and a clamping device having a lever constituting its movable member, the pull-off acting upon the needle-thread during the descent of the needle-bar to pull a certain amount of thread from the thread-supply, and at the same time operate the said lever to clamp the thread between it and the stationary member *c'* of the clamp, the combination being and operating substantially as described.

2. In a sewing-machine containing stitch-forming mechanism and thread-supply, a pull-off device to act upon the thread and pull it from the thread-supply, and an adjustable block, *c'*, combined with a lever, *c*, provided with a surface, 4, opposed to the said block to clamp the thread passing between them, the said lever being acted upon at one end by the needle-thread to cause its other end, in conjunction with the said block, to clamp the thread, substantially as described.

311,944. TELEPHONIC CIRCUIT AND APPARATUS. LOUIS A. BERTHON, Paris, France, assignor to the Société Générale des Téléphones, same place. Filed Oct. 16, 1884. (No model.) Patented in France Feb. 28, 1883, No. 154,019; in Belgium Apr. 5, 1884, No. 64,751; in England Apr. 5, 1884, No. 6,013, and in Italy May 28, 1884, No. 16,849.

Claim.—1. The combination, with a telephonic circuit, substantially as described, comprising the circuit-wires, the relays at the central offices and at the stations of the subscribers, the batteries, the jacks, and the keys at the central office or offices, of the local bell-circuits and bells at the stations of the subscribers and at the central office or offices, and the special keys C A and C B, for effecting, respectively, the direct call and the office call, said keys being constructed and arranged to operate substantially as described.

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2. The combination of a telephonic circuit having double-wire lines, for use as a complete metallic circuit for ordinary telephonic purposes, with the means, substantially as described, for automatically connecting both ends of said line-wires with the earth for effecting a direct call between subscribers, whereby both wires form one line for the travel of the current in one direction, while the earth is utilized for the return side of the circuit, substantially as set forth.

3. In a telephonic circuit having a double-wire line, the combination, with said circuit, its relays and bell-circuits and bells, of the keys C A and C B at the station of the subscriber, constructed substantially as shown and described, and the call-key C' B' at the central office, constructed substantially as set forth, which admits of completing the metallic circuit (*a*) when at rest, on the telephonic apparatus at the station of the subscriber; (*b*) at the time of the call of a subscriber, on the battery at his station, substantially as set forth.

4. The special direct-call key C A, provided with three spring-plates, *g*, *h*, and *j*, of which two operate when the button is pressed to join the two line-wires, and then to establish the communication of the line thus formed with one of the poles of the subscriber's battery, the other pole of which is connected to earth by the third plate of the key, substantially as set forth.

5. A direct-call telephonic circuit, substantially as described, having a bell-relay placed at the station of the subscriber on the earth or ground wire which ends at the junction of the two line-wires, the relay serving to close the local circuit for sounding one or more bells, substantially as set forth.

6. In the telephonic system for effecting direct call between subscribers, substantially as set forth, the special relay having two bobbins, the wires on which are wound inversely, as set forth, said relay being arranged at the junction of the two line-wires, and the earth or ground wire ending at the junction of the two line-wires between the bobbins of the relay, such relay, when placed at the station of a subscriber, serving as a supplementary resistance in the metallic circuit, and assuring thus sufficient derivation for the annunciator at the office in the case of the call of this office by the subscriber, substantially as and for the purposes set forth.

7. The combination of the office-call key C B, provided with the means described for breaking two back or normal contacts and making three opposite contacts simultaneously when pressed, the call-battery P A, the key C A, the line-wires L' *l'*, the jack P' *p'*, and the relay R' at the central office B', whereby the latter office is called, said key C A forming by its back contacts a part of the circuit, substantially as described and shown.

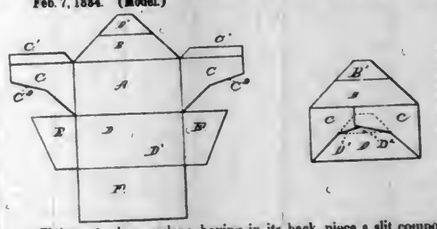
8. The combination of the direct-call key C A, provided with the means described for breaking two normal or back contacts and making three opposite contacts simultaneously when pressed, the battery P A put in circuit by pressure on the key through opposite contact *b* and plates *h* and *g*, the two line-wires forming a divided circuit that becomes one circuit at *r'*, the key C' B' forming a part of one of these circuits, the key C' B' forming a part of the other circuit, the circuit from *r'* to earth T', the relay R', which forms apart of this latter circuit, and the circuit from the pole *z* of the battery P A to earth, which is closed by contact of block *k* with spring-plate *j* when the key C A is pressed, substantially as described and shown.

311,945. SAND-PUMP. WILLIAM H. BIRGE, Franklin, assignor to the Oil Well Supply Company, (Limited,) Oil City, Pa. Filed Feb. 7, 1884. (No model.)



Claim.—In a sand-pump, the combination, with a cylinder, a ring or collar secured to the upper end of said cylinder, and provided with longitudinal ribs or projections, and the bent standards formed integral with said ring or collar, of a rocking bar journaled in the upper ends of said standards, and a plunger-rod passing through the bar, substantially as set forth.

311,946. ENVELOPE. AUGUSTUS A. BISHOP, Washington, D. C. Filed Feb. 7, 1884. (Model.)



Claim.—1. An envelope having in its back piece a slit composed of two cuts angled outward and downward from their upper or meeting ends and provided with a re-enforcing piece, F, and the wings extended from the front piece and having their lower edges cut to coincide with said slit, substantially as set forth.

2. The herein-described envelope composed of the face-piece A, the flap B, having a tongue or extension, B', the wings C, having upward extensions C', the back D, provided with a slit, D', the wings E, extended laterally from piece D, and the re-enforcing piece F, depending from back piece, D, all arranged and adapted to operate substantially as and for purposes set forth.

3. An envelope having a slit, D', in its back, a guard-piece formed by the slit and having its middle portion extended upward, as shown, and a flap extended downward over the guard-piece and having on its lower end a tongue adapted to be turned upward and inserted through the slit against the inner face of the upper portion of the back, substantially as set forth.

4. An envelope having its wings C provided with extensions C', and its back piece, D, provided with wings E, and covering-piece F, substantially as and for the purposes specified.

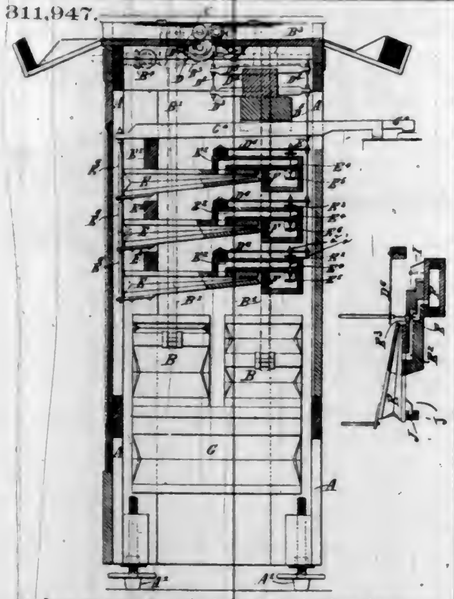
5. In an envelope having its back piece provided with a slit adapted to receive the tongue of the flap, the wings C, having their edges C' cut to coincide with the slit in the back piece, substantially as set forth.

311,947. KEY-BOARD ATTACHMENT FOR MUSICAL INSTRUMENTS. ROBERT H. BISHOP, Islington, and WILLIAM DOWN, Vicars Road, County of Middlesex, England. Filed July 17, 1884. (No model.) Patented in England Nov. 5, 1883, No. 5,248; in France May 2, 1884, No. 161,853; in Belgium May 7, 1884, No. 65,086, and in Germany May 10, 1884, No. 30,100.

Claim.—1. In an apparatus for mechanically playing key-board instruments, the combination of feed-rollers C C, for moving the music-cards across the center of the apparatus from front to back thereof, note-levers D, pneumatic levers E, and striker-levers G*, all arranged approximately parallel with each other and transversely to the feed-rollers, rods connecting the pneumatic levers E with the striker-levers G*, intermediate levers, D^2, rods connecting the note-levers with the intermediate levers at one end and connections between the other ends of the intermediate levers, and the valves of the pneumatic levers, all substantially as and for the purpose herein described.

2. In an apparatus for mechanically playing key-board instruments, the combination of the feed-rollers C C, for moving the music-card across the apparatus from front to back thereof, music-levers D, pneumatic levers E, and striker-levers G*, all arranged transversely to the feed-rollers, intermediate levers, D^2, splayed as described, and arranged in horizontal rows, and rods D^2 D^3 E^2, all arranged for operation substantially as and for the purpose herein described.

311,947.

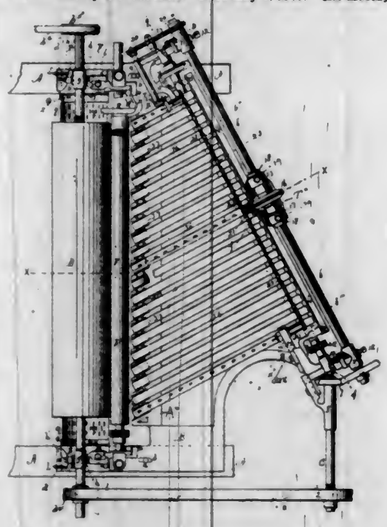


3. In an apparatus for mechanically playing key-board instruments, the combination of feed-rollers C C, for feeding the music-card across the apparatus from front to back thereof, music-levers D, two or more rows of pneumatic levers, E, and a single row of striker-levers, G*, all arranged transversely to the feed-rollers, intermediate levers, D^2, and rods D^2 D^3 E^3, all arranged for operation substantially as herein described.

4. In an apparatus for mechanically playing key-board instruments, the combination of feed-rollers C C, for moving the music-card across the apparatus from front to back thereof, music-levers D, pneumatic levers E, and striker-levers G*, all arranged transversely to the feed-rollers, intermediate levers, D^2, springs D^6, with which the valves of the pneumatic levers are connected, and rods D^2 D^3 E^3, all organized for operation substantially as herein described.

5. In apparatus for mechanically playing key-board instruments by means of the exhaustion of air, the combination of two disk-valves, as *a*, on the same valve-stem, *a'*, with the openings E^5 E^4 in the air-passage E^2, the said valves being placed outside the said openings, and operating substantially as herein described.

311,948. FEEDING MECHANISM FOR CARDING-ENGINES. WM. C. BRAMWELL, Hyde Park, Mass. Filed May 7, 1883. (No model.)



Brief.—The sliver is compressed between the vertical positively-driven rollers of the traveler, and is delivered edgewise upon the feed-bands and at right angles to the direction of their length, thereby securing a more uniformly compact mass in the throat, and a more regular feed, and preventing crawling on the feed-bands. To enable the taker-in to be run at high speed and to avoid waste, a perforated shell is placed under the taker-in and made adjustable in unison therewith.

Claim.—1. The feed-rolls F G and the series of endless belts placed diagonally with relation to the axes of rotation of the said feed-rolls, combined with means to rotate the said belts, to operate substantially as described.

2. The feed-rolls F G, a series of endless belts placed diagonally with relation to the axes of rotation of the said rolls, and a traveler to lay a sliver on the said belts at right angles to their length, combined with means to operate the said belts, rolls, and traveler, as and for the purposes set forth.

3. The series of endless belts, means to move them, the track 14 at right angles to the said belts, and the traveler and its rolls, combined with means, substantially as described, to positively reciprocate the said traveler and rotate the rolls therein, substantially as set forth.

4. The series of endless belts, means to move them, the traveler, means to reciprocate the same, the rollers mounted in the said traveler, and means to rotate them positively to flatten the sliver and deliver it edgewise into the throat, combined with the plates W and V', constituting a throat, and with the retarding-roll located at the rear side of the said throat, to operate substantially as set forth.

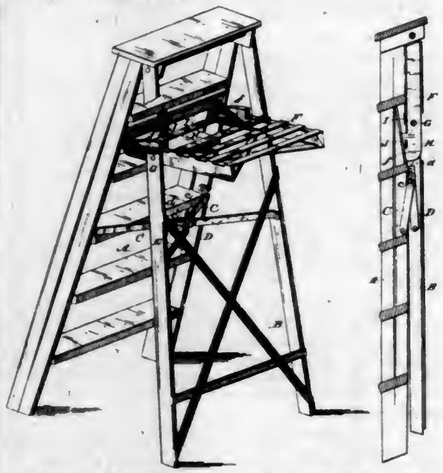
5. The feed-rolls F G, the series of endless belts placed diagonally with relation to the axes of rotation of the said feed-rolls, and means to move the said rolls and belts, the retarding-roll, and the plates W and V', constituting the throat, combined with the traveler, its track or guide, and with means to operate the said traveler and retarding-roll, for the purposes specified.

6. The traveler, its track or guide, means to move the traveler on the said track or guide, the throat composed of the plates W and V', the retarding-roller at the rear of the said throat, the shaft 6, the rolls 31', carried by the traveler, the shafts upon which the said rolls are mounted, and their gear 32', combined with gears to move the gear 32', and with means to rotate the shaft 6, the rolls 31' being located near each other to flatten the sliver delivered from between them, substantially as described.

7. The frame-work of the feeding apparatus, the taker-in, the feed-rolls F G, and the endless belts and traveler mounted on the said frame-work, and means to operate the said taker-in, rolls, belts, and traveler, combined with a perforated shell connected with and made adjustable, in unison with the said feeding apparatus, toward and from the card-cylinder, as set forth.

8. The combination of the shaft T, bevel-gears R S I' V, feed-rolls F G, shaft or roll 34, and feed-bands 36, substantially as and for the purpose set forth.

311,949. STEP-LADDER. CHARLES BRAND, Oakland, Cal. Filed Aug. 1, 1884. (No model.)

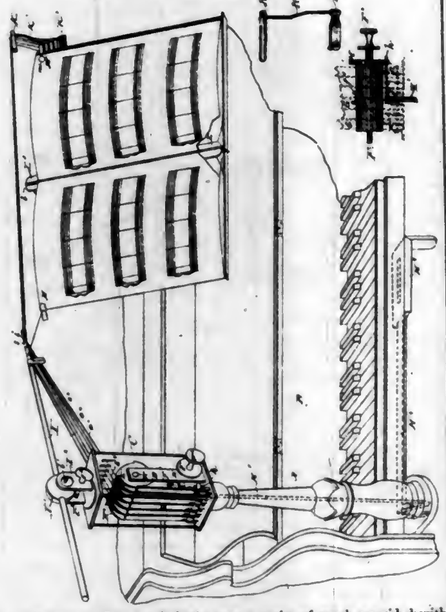


Claim.—1. In a step-ladder, a brace to hold the folding legs open when in use, consisting of the strips C, pivoted to the step portion and converging rearwardly, the strips D, pivoted to the legs and converging forwardly, a pivot-connection between the meeting ends of the strips, and means, as described, for effecting an engagement between the ends to hold them in position, substantially as herein described.

2. In a step-ladder, a brace to hold the folding legs open when in use, consisting of the strips C, pivoted to the step portion and converging rearwardly, the strips D, pivoted to the legs and converging forwardly, a pivot-connection between the meeting ends of the strips, and the means by which they engage each other in position, consisting of the notches *c* in strips C and the hooks or catches *c'* in strips D, substantially as herein described.

3. In a step-ladder having the step portion A and swinging legs B, the platform or basket-holder F, pivoted on a cross-shaft, G, between the legs, the inclined planes *f* on the inner ends of the platform, and cross-bar H, the cross-strip I on the step portion, under which the inner ends of the platform find support, and against which the inclined planes bear in folding, and the vertical strip J, with which the cross-bar H comes in contact, and by which the platform is folded, substantially as herein described.

311,950. MUSIC-LEAF TURNER. JULIUS M. BRANIG, New York, N. Y. Filed Dec. 12, 1883. (No model.)



Claim.—1. In a music-leaf turner, a series of spools provided with cords which may be attached at their ends to separate leaves of music, in combination with means for mechanically turning the spools to wind the cords, and a series of detents operated successively to release the spools and turn the leaves, substantially as described.

2. The combination of the standard A, the horizontally-reciprocating bar and knee-pedal H^2, the vertical rock-shaft H', the pawl *h*, the notched wheel H, and tripping-cylinder F', the detents G, and cord-spools E' E^2, &c., substantially as and for the purpose described.

3. In a music-leaf turner wherein a cord or cords are employed to turn the leaves, the combination, with the cord, of a longitudinally-adjustable guide-rod, I, through the end of which the cord passes, and which is secured to the frame of the machine and held thereon in any desired position, substantially as and for the purpose described.

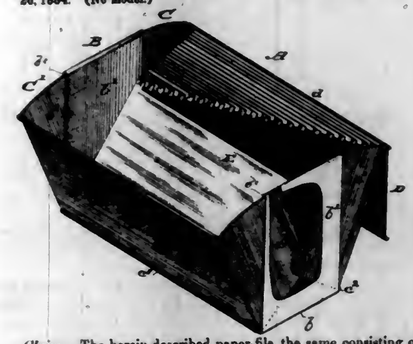
4. In a music-leaf turner wherein a cord or cords are employed to turn the leaves, the combination, with the cord and with an adjustable guide-rod, I, through the end of which the cord is led, of a stationary slitted bar, K, upheld over the upper corner of the leaf to be turned, and adapted to engage and hold the cord over the leaf, substantially in the manner and for the purpose herein set forth.

5. The combination, with the frame or standard A, of one or more spools and cords and a guide-rod arranged to hold and guide each cord and to be secured by universal joints in any desired position relatively to the frame or standard, substantially in the manner and for the purpose herein set forth.

6. The combination, with a suitable mechanism for operating a cord in a music-leaf turner, of the guide-rod I, through the end of which the cord is led, hemispherical bearings I' I', through which the rod passes, and clamping-plates I^2 I^2, supporting and securing said bearings, substantially as and for the purpose described.

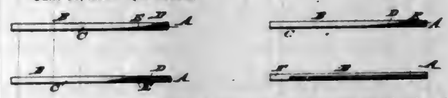
7. A clip, M, for securing turning-cords to music-leaves, consisting of a tapering elastic plate having its narrow end looped and passed through an opening in its wider end, and which terminates in a button-pad to bear against said wider end, substantially as and for the purpose described.

311,951. PAPER-FILE. WILLIAM BRIGHT, St. Louis, Mo. Filed Apr. 26, 1884. (No model.)



Claim.—The herein-described paper-file, the same consisting of the rigid central portion, B, and the wings C C', composed of parts *c* and *c'*, said central portion being composed of the base *b* and the double-walled uprights *b' b'* at the end of the base, which constitutes the support of the structure, and said wings being hinged to and both being adapted to open from and close toward the central portion, to enable the papers in the file to be tilted from the center of the file in either direction, substantially as shown and described

311,952. MATCH-CARD. RODNEY G. BRITTON, Springfield, Vt. Filed June 12, 1884. (No model.)



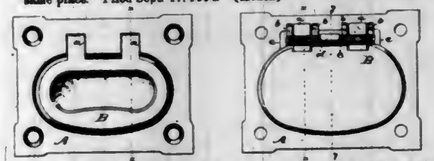
Claim.—1. As an article of manufacture, a match-card having the matches severed for the greater portion of their length, and having the inner portions of the matches separated in the direction of their length by grooves, as and for the purpose shown and set forth.

2. As an article of manufacture, a match-card having the matches separated for the greater portion of their length, and having the slots or kerfs separating them continued to form inclined grooves, as and for the purpose shown and set forth.

3. As an article of manufacture, a match-card having the inner ends of the matches connected by means of wedge-shaped portions, as and for the purpose shown and set forth.

4. As an article of manufacture, a match-card having the inner ends of the separated matches connected by wedge-shaped portions having concave upper surfaces, as and for the purpose shown and set forth.

311,953. HANDLE FOR DRAWERS. CHARLES M. BURGESS, New Britain, Conn., assignor to the Russell & Erwin Manufacturing Company, same place. Filed Sept. 17, 1884. (Model.)

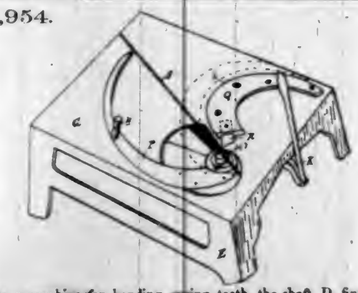


Claim.—The combination of the base-plate provided with mortises or openings to receive the hinged lug of the handle, open pintle-recesses on the back thereof, and a malleable lug with the handle B, having open pintle-recesses and the pintle *c*, the whole constructed and adapted to be secured together by inserting the handle in place, dropping the pintle sidewise into the open pintle-receiving recesses, and then securing the pintle by clinching down the malleable lug, substantially as described, and for the purpose specified.

311,954. MACHINE FOR FORMING SPRING-TEETH. ELIJAH P. BURNS, Detroit, Mich., assignor to the Detroit Steel and Spring Works, same place. Filed Feb. 2, 1884. (No model.)

Claim.—1. In a machine for forming spring-teeth, the combination of a mandrel secured in the upper end of a vertical shaft for forming the coil, a bending-finger sleeved upon said shaft, a clutch, and the means, substantially as described, constructed to bring said clutch into action in the rotation of said shaft, substantially as and for the purposes described.

311,954.



2. In a machine for bending spring-teeth, the shaft D, finger P, and its hub *h*, in combination with the clutch N *h'*, the two-part nut H, cam-plate provided with the grooves I and actuating-lever J, whereby in the rotation of said shaft an engagement between the parts N and *h'* of the clutch is compelled, substantially as specified.

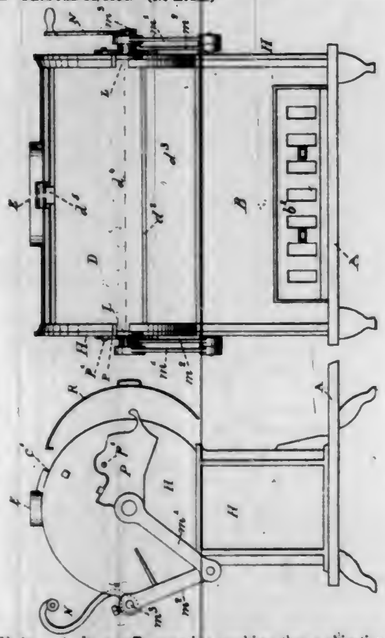
3. In a machine for the purposes described, and in combination with the shaft D, two-part nut H, and devices substantially as described, for operating the same, the guides T, secured to the frame F and embracing the nut, substantially as and for the purposes set forth.

4. In a machine for the purposes described, the combination of the wheel C, shaft D, two-part nut H, cam-plate provided with the grooves I, frame F, guides T, and treadle L, the parts being constructed, combined, and operating substantially as and for the purposes set forth.

5. In a machine for the purpose set forth, the combination of the shaft D and means for driving the same, with the resistance-plate Q, the bending-finger P, and the mechanism, substantially as described, for intermittently operating said finger, substantially as and for the purpose described.

6. In a machine for the purposes set forth, the combination of the shaft D and means for driving the same, with the mandrel O, bending-finger P, resistance-plate Q, and resistance-plate R, adjustable independently of the said resistance-plate Q, substantially as and for the purposes set forth.

311,955. COFFEE-ROASTER. THOMAS B. C. BURPEE, Philadelphia, Pa. Filed Jan. 24, 1884. (No model.)

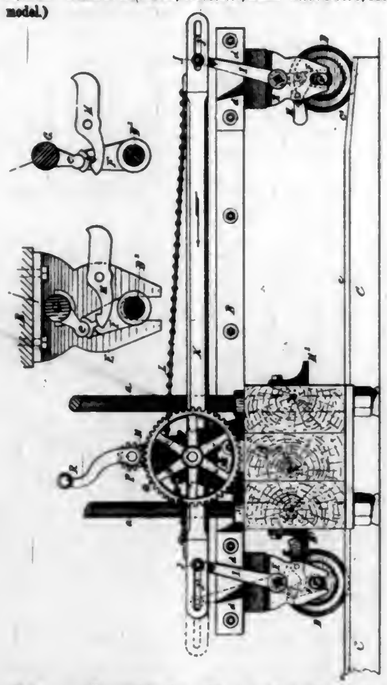


Claim.—1. In a coffee-roasting machine, the combination of a stove, a hood, C, an inside sliding door or hood, D, and a fine, G, formed between them, as herein described.

2. The combination of a stove with an exterior hood, C, directly over the fire, an interior sliding door, D, and a removable door, R, as described.

3. In a coffee-roaster, the combination of the slotted end plates, H, which serve as guides and supports for the journals n^4 of the coffee-cylinder, and the shaft m^3, connected to the journals n^4 by the links m' m^3, operating in unison as described.

311,956. DOUBLE PLATFORM AND PLATFORM-SHIFTING MECHANISM. OSCAR P. BUSHNELL, Worcester, Mass. Filed Nov. 8, 1884. (No model.)



Claim.—1. The combination, with a press for extracting liquids and other similar purposes, of a shifting double platform mounted on traveling trucks, and adapted for longitudinal adjustment across the bed of the press, an operating mechanism for moving said platform, and means for automatically raising said platform free of the press-bed at the start, and for lowering it upon said bed at the completion, of its shifting action.

2. The combination, with the platform B and its supporting-trucks and shifting mechanism, of tracks C, having inclines or depressions at their outer ends, C', for the purpose set forth.

3. The combination, with the press-bed A of the platform B, provided with double pomace-tables *b b'*, and mounted on trucks D for longitudinal shifting action, of a knuckle-joint elevating device, as F *e*, and means for automatically operating said knuckles to elevate and depress said platform at the commencement and conclusion of its shifting action, substantially as set forth.

4. The slotted bar K, the arms I, the shaft G, knuckles *e* F, and lugs *d d*, in combination with the shifting platform and its supporting mechanism, for the purpose set forth.

5. The combination, with the platform B and press-bed A, of the hangers E, the truck-shafts D', retained in slots in said hangers and carrying the knuckle-arms F, the shaft G, journaled in said hangers, and provided with knuckle-plates *e*, the arms I, and connecting-bar K, substantially as and for the purposes set forth.

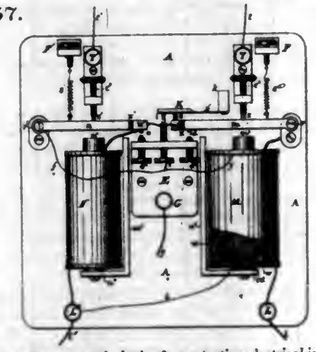
6. The combination, with the bed A and platform-supporting mechanism provided with knuckle-arms *e* and F, of the latch-dogs H and tripping-lugs H', for the purposes set forth.

7. The combination of the shifting platform, mounted for longitudinal adjustment on trucks D D, the elevating-knuckles *e* F, the arms I, the slotted bar K, the chain L, sprocket-wheel M, the operating-gears O P, and crank R, substantially as and for the purposes set forth.

311,957. TELEGRAPHIC AND TELEPHONIC INSTRUMENT PROTECTOR. GEO. A. CARDWELL, Brooklyn, N. Y., assignor to himself, Frederick K. Fitch, New York, N. Y., and Joseph T. Murray, Newark, N. J. Filed Feb. 14, 1884. (No model.)

Claim.—1. In an electro-magnetic device for protecting electrical instruments from abnormal currents, two electro-magnets, one wound with coarse wire only and not normally in circuit, the other wound with two separate non-continuous superposed coils, one of fine wire and the other of coarse wire, but both coils in the same normal circuit, the instruments to be protected being interposed between the coils or parts of a coil, substantially as shown and described.

311,957.

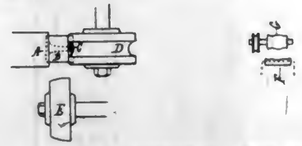


2. In an electro-magnetic device for protecting electrical instruments from abnormal currents, conducting-armatures of two electro-magnets having insulated ends electrically connected but mechanically independent, substantially as shown and described.

3. In an electro-magnetic device for the protection of electrical instruments from abnormal currents, an insulated independent spring, K, having two contact-points, one, *c*, normally in contact with the insulated portion *m'* of an armature, *m*, of an electro-magnet in the normal circuit, while the other, *i*, is separated from the ground contact-point by a slight interval, substantially as shown and described.

4. In an electro-magnetic apparatus for protecting electrical instruments from abnormal currents, the combination of electro-magnet N, electro-magnet M, with two coils, one of fine and the other of coarse wire, the armatures *n* and *m*, having insulated metallic ends *n'* and *m'*, retracting-springs *s s'*, spring K, ground-plate E, and contact-points *c*, *c'*, *e*, *i*, and *d*, substantially as shown and described.

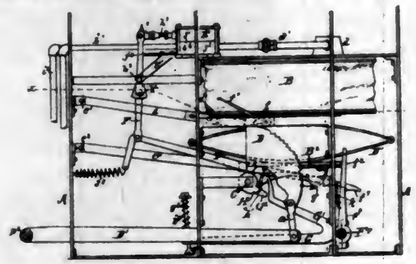
311,958. MANUFACTURE OF PEARL BUTTONS. GEORGE CARLYLE, Adrian, Mich., assignor of three-fourths to Louis A. C. Wagner, George W. Wagner, and John W. Wagner, all of same place. Filed Feb. 23, 1884. (No model.)



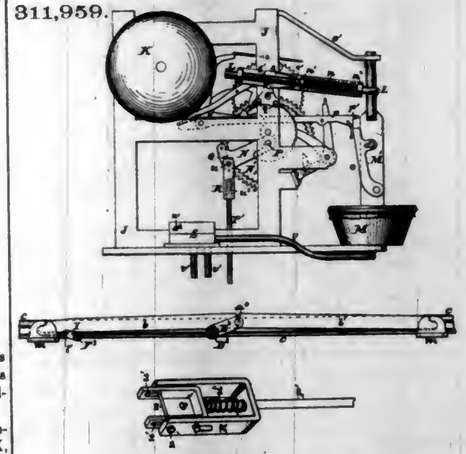
Claim.—The process of manufacturing a button herein set forth, which consists in setting the blank in a chuck, then revolving said blank in contact with a revolving grinding-surface having its acting face at right angles to the axis of the chuck, and then revolving it in contact with another revolving grinding-surface whose axis is substantially parallel to that of the chuck, substantially as described.

311,959. PNEUMATIC RAILWAY-SIGNAL. EDWARD M. CHASE, Boston, Mass., assignor to the American Pneumatic Signal Company, same place. Filed Dec. 6, 1883. (No model.)

Brief.—This device contains improvements on patent to same patentee, No. 275,019, dated April 3, 1883. A locomotive approaching the crossing operates by means of a track-lever two rock-shafts in succession, the first of which shifts a normally-closed valve to open the air-pipe connecting the bellows with the alarm mechanism placed at the crossing, and the second of which compresses the bellows. Consequent air-pressure releases the bell-striking mechanism at the crossing. A train moving away from the crossing operates the rock-shafts in reverse order and disconnects the valve-shifting mechanism.



311,959.



Claim.—1. In a pneumatic railway-signal, the combination of a valve adapted to admit air into either of two passages or sets of passages, the hooked rod F', connected with said valve, the arm F^2, rock-shaft F^3, and primary lever I, rock-shaft C', the piece *k'*, the lever D', rock-shaft D^2, and primary actuating-lever D^3, a bellows connected by an air-passage with said valve, and adapted to be operated by the oscillation of the rock-shaft C', and means of holding the primary lever I removed from the action of the wheels of the train until the bellows have ceased to contract, substantially as and for the purposes described.

2. The combination of the valve *h*, spring-actuated hooked rod F', connected with said valve, rock-shaft C', the piece *k'*, arm F^2, rock-shaft F^3, primary lever I, spring-pressed arm G, arm G', cam G^2, toothed sector D, pawl *f*, lever D', rock-shaft D^2, and primary lever D^3, and a bellows connected by an air-passage with the valve *h*, and adapted to be operated by the oscillation of the shaft C' and to cause the disengagement of the pawl *f* as the bellows contract, all arranged and adapted to operate substantially as and for the purposes described.

3. The combination of the valve *h*, ports or passages *g'* and g^2, cocks *j'* and j^2, and the bellows B, connected by an air-passage with said valve, substantially as and for the purposes described.

4. The combination of the bars *h b'*, arranged alongside the track, the lever D^3, adapted to operate the bellows mechanism, and the lever I, arranged to operate the valve mechanism, substantially as and for the purposes described.

5. The combination of the primary actuating-lever D^3, the bars *b b'*, adapted to engage with said lever, and the blocks *m m*, provided with recesses to receive the ends of said bars, said ends being tapered to fit said recesses and overlapped by hooks formed in said blocks, substantially as and for the purposes described.

6. The combination of the expansion-cup M, two or more pipes connected with and adapted to convey air to said cup, each pipe being provided with a valve to prevent the return of the air, and an alarm or signal mechanism put in motion by a current of air actuating the cup M, substantially as and for the purposes described.

7. The combination of the expansion-cup M, the chamber S, connected by an air-passage with said cup, two or more pipes communicating with and adapted to convey air to said chamber, and each provided with a valve to prevent the return of the air, the cock *w*, attached to the chamber S, and an alarm or signal mechanism put in motion by a current of air actuating the cup M, substantially as and for the purposes described.

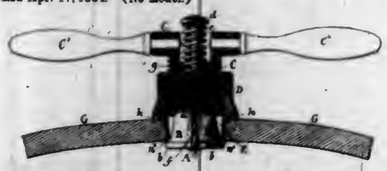
8. The combination of the gong K, spring-actuated hammer L, spring-pressed arm *s*, pivoted to said hammer, the pins *q q*, set in a hub secured upon the shaft *r*, and a pin, *t'*, to serve as a stop for the arm *s*, substantially as and for the purposes described.

9. The combination of the pivoted pawl-carrier N, rod P', slotted fork Q, spring u^2, fork R, and pin *u*, substantially as and for the purposes described.

10. The rod P', connected with the pawl-carrier N in manner substantially as described, whereby vertical play or slip between the two is permitted.

11. The combination of the rod P', the pawl and ratchet actuated thereby, the train of wheels driven by said pawl and ratchet, and the alarm actuated by said train of wheels, with the stirrup t^2, in which the power-receiving end of said rod is mounted, and the lever and pivot by which said stirrup is raised and lowered, the connection between the stirrup and rod P' being by screw-threads, which allow the extension or reduction of the operative length of said rod, as desired.

311,960. EXPANDER FOR EXPANDING AND SECURING METAL BUNG-BUSHINGS INTO CASKS. HERBERT COTTRELL, Newark, N. J. Filed Apr. 17, 1884. (No model.)

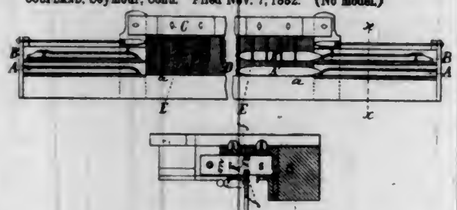


Claim.—1. The combination, with an expanding externally-screw-threaded sectional mandrel and a core, of a nut fitted to the screw-thread of the mandrel, and having upon its exterior a thread of different pitch, and a second nut fitted to the thread on the extension of the first-named nut, substantially as herein described.

2. The combination, with the expanding mandrel composed of externally-screw-threaded and flanged sections B B, of the core A, having a taper, *c*, the spring *e*, and the differentially-threaded nuts C and D, substantially as herein described.

3. The combination, with the mandrel-sections B B and differentially-threaded nuts C and D, of the core A, having a projection, *f*, to engage between the mandrel-sections, substantially as and for the purpose described.

311,961. LOOM FOR WEAVING DOUBLE-PILE FABRICS. CHARLES COUPLAND, Seymour, Conn. Filed Nov. 7, 1882. (No model.)

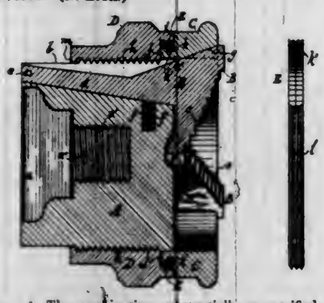


Claim.—1. The combination of a lay having fixed double shuttle-boxes placed substantially parallel with each other, and a skeleton race placed above and parallel with the lay-beam, with a double picker constructed and arranged to simultaneously actuate the shuttles of both boxes, the one shuttle upon and over the lay-beam, the other upon and over the skeleton race, all substantially as and for the purpose herein set forth.

2. The combination of a lay having fixed double shuttle-boxes placed parallel and one above the other, the slotted partition *f* between said boxes, and the skeleton race placed above and parallel with the lay, with the double picker composed of the parts *m n* and neck *r*, and arranged to be operated by a single picker-staff, the whole constructed and arranged substantially as and for the purpose herein set forth.

3. The combination of a lay having fixed double shuttle-boxes placed parallel and one above the other, the slotted partition *f* between said boxes, and the skeleton race placed above and parallel with the lay, with the double picker composed of the parts *m n* and neck *r*, and the guide or rod *a**, provided to steady said double picker, the whole constructed and arranged substantially as and for the purpose herein set forth.

311,962. LATHE-CHUCK. CHESMAN W. CRARY, Chicago, Ill. Filed Aug. 25, 1884. (No model.)



Claim.—1. The combination, substantially as specified, with the body of the chuck, of the jaws B B, pivoted to the said body, and means for setting and releasing the said jaws, for the purposes set forth.

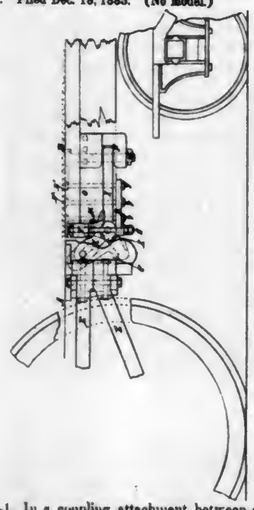
2. The combination, substantially as specified, of the body A, having therein the grooves *b b*, the jaws B B, arranged in the said groove and pivoted to the body at or near their rear ends, and means for setting and releasing the said jaws, for the purposes set forth.

3. The combination, substantially as specified, of the body A, the jaws B B, pivoted to the said body, of springs bearing outwardly against the said jaws, and means for setting the said jaws, for the purposes set forth.

4. The combination, substantially as specified, with the body of a chuck, of the jaws B B, pivoted to the said body, of springs bearing outwardly against the said jaws, of a sliding ring bearing on the said jaws, and of a screw-ring, D, connected to the said sliding ring, for the purposes set forth.

5. The combination of the grooved body A, the pivoted jaws B B, the springs *f' f'*, the sliding ring C, the screw-ring D, and the ring E, all adapted and arranged for operation together, substantially as and for the purposes set forth.

311,963. DRAW-BAR FOR LOCOMOTIVES. THOMAS C. CRAVEN, Greenbush, assignor to the Automatic Traction Draw Bar Company, Albany, N. Y. Filed Dec. 18, 1883. (No model.)



Claim.—1. In a coupling attachment between a locomotive and tender, the combination and arrangement, with a horizontal draw-bar which is connected with the lower side of the tender at a point distant from its front end, and a draw-link jointed to the outer end of said draw-bar and coupled at its opposite end to the locomotive at a point on a plane above the draw-bar, so that said link is made to support the forward end of said bar, of a support for the tender applied to the upper side of the outer end of the draw-bar, substantially as and for the purposes set forth.

2. In a coupling attachment between a locomotive and tender, formed by a lifting-link which is jointed with a horizontally-arranged draw-bar coupled with the tender, the combination, with said horizontal draw-bar, of a jack-strut having a joint-connection with said bar, supporting-socket secured to the locomotive and receiving the free foot end of said jack-strut at a point therein on a plane below the draw-bar, and a support for the tender applied to the upper side of the jointed ends of said draw-bar and jack-strut, substantially as and for the purposes set forth.

3. In a coupling attachment between a locomotive and tender for hauling and backing the latter, the combination and arrangement, with a horizontal draw-bar coupled with the tender, lifting-link coupled at one end to the locomotive and supporting the forward end of the draw-bar by having a jointed connection with the same, and a jack-strut coupled with the draw-bar and having its free foot end supported in a recess or socket attached to the locomotive at a point below the plane of the draw-bar, of a support for the tender, which is applied to the upper side of the common joint-connections of the draw-bar with the lifting-link and jack-strut, substantially as and for the purposes set forth.

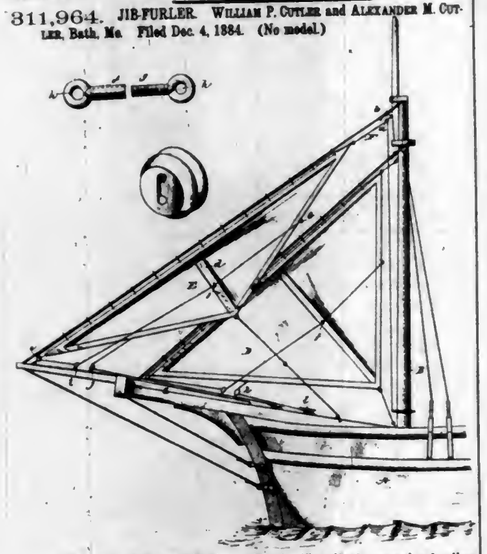
4. The combination, with coupling-plate C, provided in its face side with recesses *b* and *c*, with coupling-link hole *e* through the sides of recess *b*, and having in its rear side horizontal grooves *i i*, of tie-plate G, cross-bars D, secured to the locomotive, and bolts *h h*, substantially as and for the purposes set forth.

5. In a draw-bar attachment between a locomotive and its tender, the combination, with draw-bar I, arranged and coupled horizontally with the tender, with its forward end supported by lifting-link K, coupled with the locomotive at a point above the plane of its connection with the draw-bar, and jack-strut I, jointed with said draw-bar and lifting-link, and having its free foot end working in a recessed step securely attached to the locomotive at a point below the plane of the jointed connection of said strut with the draw-bar, of the jack-saddle M, constructed as above described, and applied to the upper side of the jointed ends of the bar, link, and strut, and mechanism securely connected with the tender and applied to the upper side of said jack-saddle, substantially as and for the purposes set forth.

6. The combination and arrangement, with the draw-bar I, lifting-link K, and jack-strut L, constructed and arranged in relation to each other and the locomotive and tender as above described, of the jack-saddle M, provided on its upper side with way P and rollers N, and applied to the upper side of the draw-bar, jack-beam T, provided with tongue *t* and applied to the upper side of said jack-saddle, and mechanism secured to the tender for forcing said beam down on the said saddle, substantially as and for the purposes set forth.

7. The combination, with jack-saddle M, applied to the upper side of the draw-bar I, arranged and connected at its ends as above described, and jack-beam T, applied to the upper side of said saddle, of dead-wood O, lifting-bars R, and jack-bolts S, substantially as and for the purposes set forth.

311,964. JIB-FURLER. WILLIAM P. CUTLER and ALEXANDER M. CUTLER, Bath, Me. Filed Dec. 4, 1884. (No model.)



Claim.—1. The combination, with the jib-sail of a vessel, of a line connecting the upper end thereof with the vessel, thence passing through a pulley on the bowsprit, through guides on the sail to a point near the upper end of the sail, and connecting such point of the sail with the bowsprit, substantially as set forth.

2. In a jib down-haul and furler, a toggle consisting of two sections, each having an eye at its end, one of said sections being interiorly threaded, while the other is exteriorly to engage the same, substantially as set forth.

3. The combination, with the jib-sails, of toggles arranged near the middle of the same, bull's-eyes arranged near the upper end of the sails, and furling-ropes for lowering, furling, and securing sails, substantially as set forth.

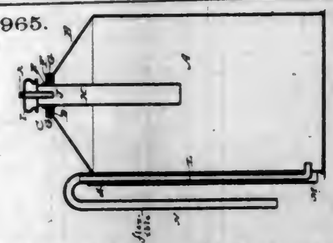
4. The combination, with the jib-sails, of toggles arranged near the middle of the same, bull's-eyes arranged near the upper ends of the sails, and a rope connected to the upper end of the flying jib passing through a pulley secured to the bowsprit, thence through the toggles and bull's-eyes of both sails, as described, and through a block or pulley, as set forth.

5. The combination, with a sail, and with the re-enforcing stripe, of the toggle passing through said strips and sail, and having an eye at each end, and consisting of two sections adapted to be secured together, substantially as set forth.

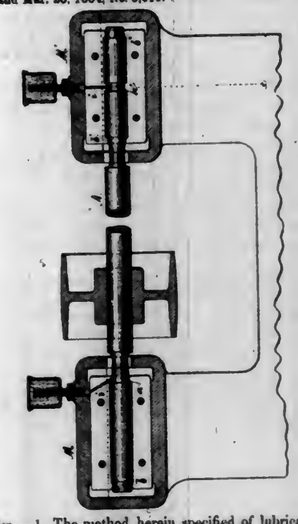
311,965. OIL-CAN. ALBION L. DAY, Urbana, Ohio. Filed Oct. 9, 1884. (No model.)

Brief—Removes the stopper from the small tube in the plunger, and, using the finger as a valve, operates the plunger to empty or fill the can.

Claim.—In a vessel for storing and dispensing fluids, the combination of the can having a neck at its top provided at its lower end with an inwardly-projecting annular flange, and formed with an annular shoulder at its upper end, the annular elastic packing interposed in the neck between the flange and the shoulder, the hollow plunger provided at its upper end with a handle or bail, and with a small tube provided with a removable stopper, and the outlet-tube opening at the bottom of the can, passing up on the side of the same, and provided at its upper end with a flexible tube, as and for the purpose shown and set forth.



311,966. DEVICE FOR LUBRICATING BEARINGS. GUSTAF DE LAVAL, Stockholm, Sweden. Filed June 27, 1884. (No model.) Patented in England Mar. 28, 1884, No. 5,619.



Claim.—1. The method herein specified of lubricating shafts or axles revolving at a high rate of speed by the centrifugal action of the revolving shaft, consisting in supplying the lubricating-liquid to a part or parts of the shaft having a smaller diameter than that part or those parts that are supported by the bearing, substantially as specified.

2. A journal or shaft to be revolved at a high rate of speed, having a diminished portion or neck adjacent to an enlarged portion or journal, in combination with a bearing surrounding such journal, and an oil-supply cup and tube passing to the said diminished portion or neck, substantially as set forth.

3. The journal or shaft to be revolved at a high rate of speed, having a diminished portion or neck between the two larger portions, in combination with the bearing surrounding such larger portions, and the oil-supply tube opening at such neck, substantially as described, and as illustrated in the accompanying sheet of drawings.

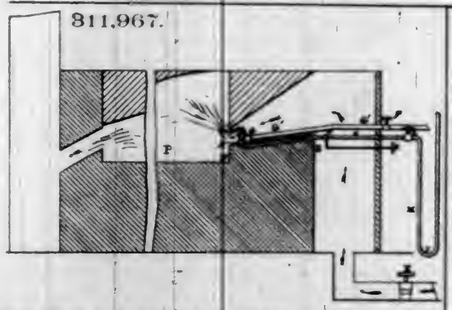
311,967. METHOD OF AND APPARATUS FOR ENRICHING AND BURNING WATER-GAS. CHARLES J. EAMES, New York, N. Y. Filed Jan. 25, 1883. (No model.)

Claim.—1. The method herein described for producing a flame for metallurgic purposes and controlling the character of the same, which consists in combining with water-gas a regulated quantity of a hydrocarbon, said hydrocarbon being vaporized at or near its point of union with the water-gas, and where the working-flame is utilized, whereby the quality of the flame can be controlled at the will of the operator, substantially as and for the purposes specified.

2. In a metallurgical furnace, the combination of an oil-vaporizer provided with a slot or perforations, and a water-gas pipe and burner provided with perforations, and an air-pipe entering a chamber, in combination with a bridge-wall of a furnace, substantially as and for the purpose specified.

3. In a metallurgical furnace, an air-pipe having a valve, and a water-gas pipe and perforated burner provided with a valve, and an oil-vaporizer provided with valves, a trap or seal in combination with a

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mixing-chamber on the bridge-wall of a furnace, as shown, and for the purpose set forth.

311,968. HOOK. RALPH ELY, Delaware, Ohio, assignor to Mary C. Ely, same place. Filed Dec. 9, 1884. (No model.)

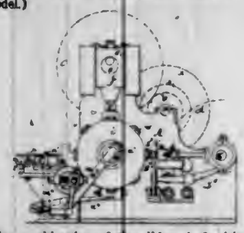


Claim.—1. A hook having its point bent around parallel to and in contiguity with the shank, and terminating near the bend of the hook in the upturned portion *c*, substantially as set forth.

2. A hook formed of a single piece of wire laid double, and having its point bent around parallel to and in contiguity with the shank, and terminating near the bend of the hook in the upturned portion *c*, substantially as set forth.

3. A hook formed of a single piece of wire bent at its middle, having its two portions laid side by side and parallel with one another, and bent at its ends into the eyes *a a*, said hook having its point bent around parallel to and in contiguity with the shank, and terminating near the bend of the hook in the upturned portion *c*, substantially as set forth.

311,969. MACHINE FOR MAKING BOLTS, RIVETS, &c. WILHELM FISCHER and RUDOLPH BUSEK, Vienna, Austria-Hungary. Filed Feb. 23, 1884. (No model.)



Claim.—1. The combination of the slides o' o^2 with jaws n n' and the springs q q' q^2, lever m^4, shaft m^3, levers m^2, rod m', nut l^3, with side stud, m, screw l^2, head l', and shaft l, arranged to operate in the manner and for the purpose substantially as described.

2. In combination with the slides o' o^2, jaws n n', and springs q q' q^2, the double-thumb lever s, arm s', sliding bar s^2, lever s^3, and cam-disk s^4, fastened upon the shaft l, arranged to operate in the manner and for the purpose substantially as set forth.

3. In combination with levers g^4 g^5, provided with jaws g^9 g^{10} on their upper ends and inclined surfaces g^{12} g^{12} on their inner edges, the wedge-shaped block g^8, with spring g^{11}, and the lever g^6, cam g^7, and shaft g, arranged to operate in the manner and for the purpose substantially as specified.

4. In combination with the sliding block h, forked eccentric-rod g^2, eccentric g^{13}, the trimming tool or die h', attached or fastened into the block h, and the stationary rod i', passing through the center of the sliding block h, and trimming-tool h', arranged to operate in the manner and for the purpose substantially as described.

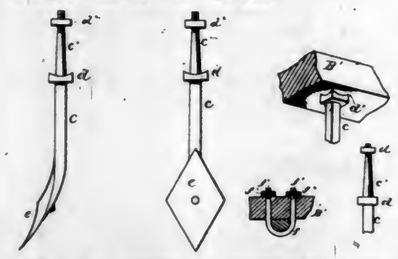
5. The herein-described trimming mechanism, consisting of the combination of the clamping-jaws g^9 g^{10}, attached to suitable levers, g^4 g^5, embracing the headed bolt close to its head, the trimming-tool h', sliding block h, eccentric-rod g^2, eccentric g^{13}, and stationary bolt i', the whole being arranged to operate in the manner substantially as set forth.

6. The combination of the lever n^1, having a forked end, n^2, and lever n^3, attached to the shaft m^3, and means for turning the shaft m^3, arranged to operate in connection with a headed bolt partly moved out of the die-wheel i, in the manner and for the purpose substantially as specified.

7. In combination with the matrices w, attached to a die-wheel, i, the pins z', slide z^3, clasp-springs z^2 z^2, spring z^3, and cam or projection z^4, attached to the gear-wheel c, arranged to operate in the manner and for the purpose substantially as described.

8. A machine for making bolts, rivets, &c., consisting of the combination of a die-wheel, i, provided with suitable matrices or dies, w, jaws n n', heading-die z, levers g^4 g^5, provided with jaws g^9 g^{10}, trimming tool or die h', and withdrawing-lever n^4, with means for operating the several parts, the whole being constructed and arranged to operate substantially as described, and in the manner and for the purpose herein set forth and specified.

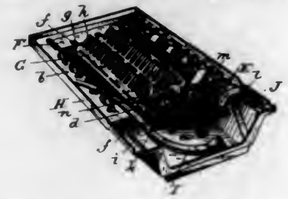
311,970. ATTACHMENT FOR CULTIVATORS. WASHINGTON I. FISH, Amboy, Ill. Filed June 2, 1884. (No model.)



Claim.—In the attachment B to a corn-cultivator, the combination of beam B' with standard c, provided with shoulder d, having the concaves forming points d', said shoulder being rigidly welded to standard c, shank c', capable of being set at any angle, and nuts d^2, whereby points d' may be embedded into the lower face of said beam and rigidly held thereon, substantially as shown and described, and for the purposes set forth.

311,971. FURNACE-GRATE. STEPHEN D. FISHER, Chicago, Ill. Filed June 28, 1884. (No model.)

Brief.—The journals f and seats g are elongated, so that the grate-bars may be shifted longitudinally in removing them from the frame.



Claim.—1. In a furnace or heater, the combination of front and rear cross-bars, E F, provided with bearings f f, grate-bar G, having journals g g and crank-arms i, and a yoke, H, interposed between the crank-arms and the cross-bar E and straddling the journals, substantially as described and shown.

2. The combination of cross-bars E F, provided with bearings f f and with a furnace-front, grate-bars G, provided with journals g g and crank-arms i, having crank-pins m, and connecting-bar J, applied to the crank-pins and held thereon by the furnace-front, substantially as described and shown.

3. The combination of supports E F, provided with bearings or recesses f f, grate-bar G, having pins or studs m, yoke H, straddling the journals g between the crank-arms and the support E, the connecting-bar J, applied to the crank-pins m, and the furnace-front L, fitting close against the front of the connecting-bar J and serving to retain the same in place.

4. In combination with a furnace and with rocking grate-bars mounted therein, connecting and operating mechanism applied to said bars, an independent removable lining-plate interposed between the fire-box and said mechanism, to protect the latter from the fire, and a furnace-front outside of said mechanism and fitting closely against the same, to protect and retain it in place, all arranged substantially as shown, whereby access may be had to the operating mechanism by removing the lining.

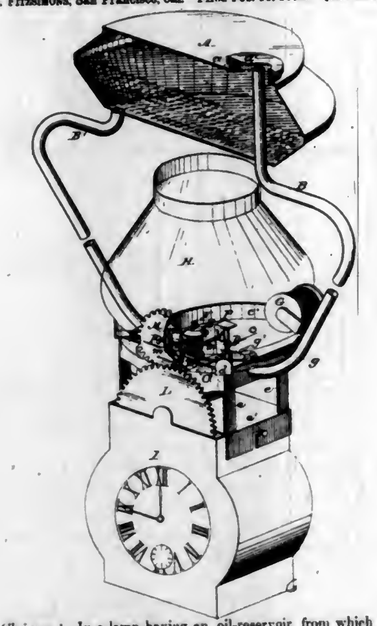
5. In combination with front and rear supporting-bars, E F, having seats or journals f, the grate-bar G, having elongated bearings g g, whereby the bars are adapted to move lengthwise in their bearings, to permit them to be connected with or disconnected from the operating mechanism.

6. In combination with a grate-bar having elongated journals at its ends, and with arms i, projecting from the journals at one end, support

E at the forward end, provided with seats f f and recesses k k, support F at the rear end, provided with elongated seats f f, and a movable yoke, H, interposed between the arms i and the support E, and provided with lugs j, adapted to fit the recesses k, as and for the purpose set forth.

7. In combination with a grate-bar having elongated journals at its ends, and with arms i, projecting from the journals at one end, supports E F, having seats f f, in which said journals can be moved lengthwise, and a movable yoke, H, straddling the journals and interposed between the arms i and support E, all substantially as described and shown.

311,972. AUTOMATIC FEEDING AND WICK-RAISING LAMP. T. A. FITZSIMONS, San Francisco, Cal. Filed Feb. 15, 1884. (No model.)



Claim.—1. In a lamp having an oil-reservoir from which an air tube or passage and an oil tube or passage open out separately, a cup containing the burner devices, and into which the said air-tube and oil-tube open to accomplish the automatic feed of the oil thereto as the mouth of the air-tube is covered or uncovered by the oil, as described, said cup having a wide upper portion beginning about on a line with the mouth of the air-tube, and a lower portion rapidly contracting or narrowing where it joins the wide upper portion, substantially as and for the purpose herein described.

2. The main oil-reservoir A of a lamp, the air-tube B, opening from said reservoir above the level of the oil therein, and the oil-tube B', in combination with the cup C, which said tubes support and into which they open, as shown, said cup containing the burner device, and having a wide upper portion and a narrow lower portion of less capacity than the upper portion, said portions joining on a line with the entrance of the air-tube, substantially as and for the purpose herein described.

3. The main oil-reservoir A of a lamp and the tubes B B', as described, in combination with the cup C, the frame D, standing therein, and burner-plate E, supported by said frame, the reel G, and the wick F on said reel, and guided by rollers down into the cup and up through the burner-plate, substantially as herein described.

4. The main oil-reservoir A of a lamp and the tubes B B', as described, in combination with the cup C, frame D in said cup, and burner-plate E on said frame, the reel G, supported on tube B, the gutter-way g, and the wick F, led from said reel down into the cup and up through the burner-plate, substantially as herein described.

5. In a lamp having an oil-cup containing the burner device and wick, a means for feeding said wick as it is consumed, in combination with the clock I, suspended from the cup by arms e, and a mechanism for transmitting the power of the clock to operate the feeding mechanism for the wick, substantially as and for the purpose herein described.

6. In a lamp having an oil-cup containing the burner device and wick, the shaft o in said cup, and having a feed-pinion, P, operating against the wick to raise it, in combination with the clock I, suspended from the cup, and having shaft J, and a mechanism for transmitting the power of said shaft to the shaft o in the cup, substantially as and for the purpose herein described.

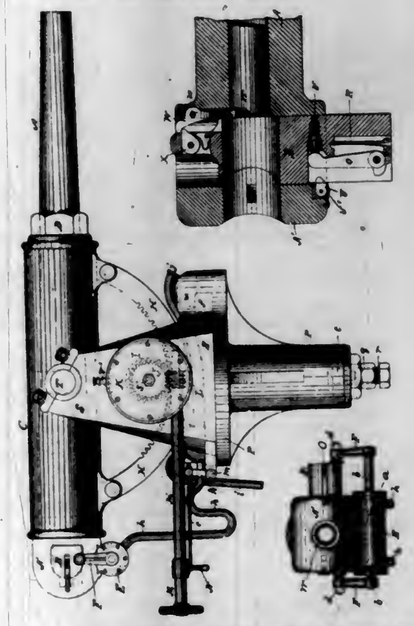
7. In a lamp, the oil-cup C, the frame D, and burner-plate E, the wick F, and the means for feeding said wick, consisting of the shaft o, mounted in frame D, the feed-pinion P on the shaft, and the guide or pressure roller p, in combination with the clock I, suspended from the cup, and having shaft J, and a mechanism for transmitting the power of said shaft to the shaft o in the cup, substantially as and for the purpose herein described.

8. In a lamp, the oil-cup C, containing the burner device and wick, the means for feeding the wick, consisting of the shaft o in the cup, having pinion P operating against the wick, in combination with the clock I, having hour-hand shaft J, and the means for transmitting the power of the hour-hand shaft to the shaft o in the cup, consisting of the gear J', pinions k k', large gear L, gear M, and pinions N O, all arranged and operating substantially as herein described.

9. In a lamp, the oil-cup C, containing the burner device and wick, the shaft o, having feed-pinion P and pinion O, the shaft m, having pinion N and gear M, the graduated face-plate Q, and dial-finger q on shaft m, in combination with the clock I, suspended from the cup, and a mechanism for transmitting the power of the clock to the gear M, whereby the wick is continually fed and its feed indicated, substantially as herein described.

10. The self-feeding lamp consisting of the main oil-reservoir A, air-tube B, oil-tube B', and cup C, which said tubes support and into which they open, said cup containing the burner device and wick and a means for feeding the wick, in combination with the clock I, suspended from the cup, and a mechanism for transmitting the power of the clock to the means for feeding the wick, whereby said means may be continuously operated, substantially as herein described.

311,973. BREECH-LOADING ORDNANCE. RICHARD J. GATLING, Hartford, Conn. Filed June 20, 1883. (No model.)



Claim.—1. In combination, the gun-barrel, the adjustable nut accessibly and exteriorly attached to the barrel, the casing having the annular diaphragm, and the contained elastic spring-packing held longitudinally between the diaphragm and nut, all substantially as described.

2. In combination, the gun-barrel, the adjustable nut attached to the barrel, the casing formed with the intermediate annular diaphragm, and the contained elastic spring-packing held longitudinally between the diaphragm and nut, all substantially as described.

3. In a breech-loading gun, a breech-block bearing the hammer and mainspring, and arranged to reciprocate laterally of the axis of the gun in firing the charge, all substantially as described.

4. In a breech-loading gun, a breech-block bearing the hammer, mainspring, and firing-pin, in combination with the pawl attached to the breech, whereby the hammer is operated by the motion of the breech-block, all substantially as described.

5. In a breech-loading gun, in combination, the reciprocating breech-block bearing the pivoted ejector-pawl, and the breech-piece bearing the pivoted ejector, all substantially as described.

6. In combination, the breech-piece, the pivoted ejector, and the sliding breech-block with pivoted ejector-pawl, by the transverse motion of which the ejector is operated, all substantially as described.

7. In a device for mounting a gun, the bed-plate P, having a pivot-socket closed by the cap *q*, in combination with the hardened step *t*, the screw-bolt *r*, and the check-nut, all substantially as described.

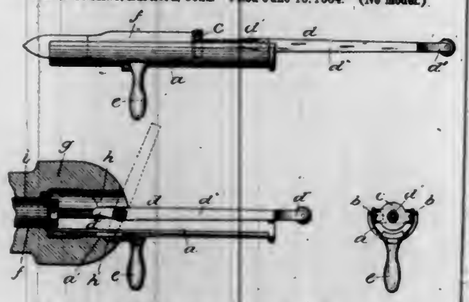
8. In a gun-mount, in combination, the swivel S, the shaft *s'*, bearing the spur-gear I, and the worm-gear J, the rotary sighting-lever M, bearing the worm L, and the segmental gear H, fast to the gun or its case, all substantially as described.

9. In a gun-mount, in combination, the bed-plate P, the swivel S, mechanism for adjusting the gun, the rotary sighting-lever M, bearing the firing-handle N, and the connected steam, compressed air, or like mechanism for firing the gun, all substantially as described.

10. In a gun-mount, the combination, with a swivel bearing the gun, of mechanism for adjusting the gun through the medium of a sighting-lever carrying a firing-handle, substantially as described.

11. In a gun-mount, the combination, with the swivel S and shaft *s'* and gear-wheels, of the rotary case K, for inclosing the said gear-wheels, and formed with peripheral sockets and a locking device, *s''*, substantially as described.

311,974. LOADING DEVICE FOR BREECH-LOADING GUNS. RICHARD J. GATLING, Hartford, Conn. Filed June 16, 1884. (No model.)



Claim.—1. As a feed device for breech-loading guns, the open trough-shaped body, having an opening through the bottom and a handle fast to the lower side of the body, a follower sliding in guides on the body, and a lever pivoted to the follower, all substantially as described.

2. In a loading device for breech-loading guns, a feed-case having a handle fixed to its lower side, an opening through the bottom of the case, a sliding follower bearing a lever, and a breech-opening in a gun having a shoulder or lug forming a fulcrum for the short arm of the lever, all substantially as described, and for the purpose set forth.

3. In a feed device for breech-loading guns, the case *a*, having the flanges or guides *b*, fixed handle *c*, and opening *a'*, the sliding follower *c*, borne on the guides, and having pivoted thereto the lever *d*, with handle d^2, and short arm *d'*, all substantially as described.

4. In a feed device for breech-loading guns, a case bearing a sliding follower and pivoted lever, in combination with a gun the chamber of which bears a fulcrum-socket for the lever, all substantially as described.

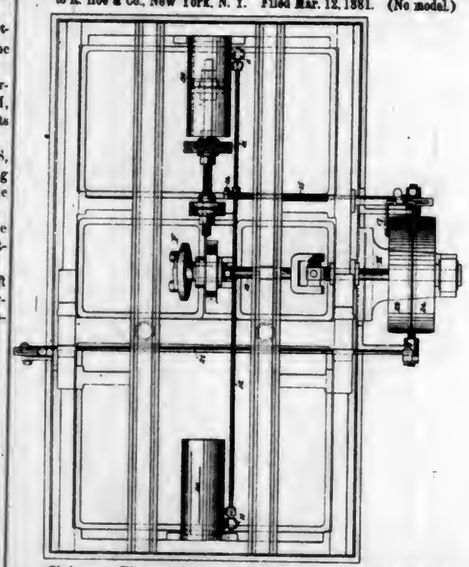
311,975. MILK-CAN. NICHOLAS GERBER, Little Falls, N. Y. Filed Oct. 8, 1883. Renewed July 18, 1884. (No model.)



Claim.—1. The combination of a milk-can having a bottom discharge-faucet, a hermetically-sealing cover having an air-vent, and an air filtering and disinfecting chamber inclosing the air-vent, substantially as set forth.

2. The combination of a milk-can having a bottom discharge-faucet, a detachable cover, means for attaching the cover hermetically to the can, a valved vent-opening, and an air filtering and disinfecting chamber inclosing the vent-opening, substantially as set forth.

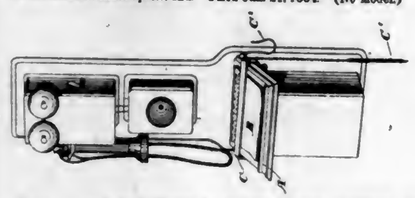
311,976. PRINTING-MACHINE. GEORGE C. GILL, Brooklyn, assignor to R. Hoe & Co., New York, N. Y. Filed Mar. 12, 1881. (No model.)



Claim.—1. The combination, with the reciprocating bed, pistons 3 5, and cylinders 30 20, of air-passages communicating with said cylinders at a point beyond that to which the piston enters, which passages are governed by a cock or cocks that are controlled by the belt-shifting mechanism of the machine, substantially as described.

2. The combination, with the bed B, pistons 3 5, cylinders 30 20, cocks 11 11, rod 12, and rock-arm 14, of means connecting said rock-arm with the lever of the belt-shifter, all substantially as described.

311,977. MEMORANDUM-HOLDER FOR TELEPHONE-BOXES. JAS. F. GILLILAND, Indianapolis, Ind. Filed Jan. 21, 1884. (No model.)



Claim.—1. The combination, with a shelf, of a clip extending across said shelf, and having its ends bent down and under the edges of said shelf, with screws in said bent-under portions which screw up against the under side of said shelf, whereby memorandum-sheets may be clamped in position, substantially as set forth.

2. The combination, with a shelf composing part of a set of telephone apparatus, of a clip for securing memorandum-blanks in place on said shelf, said clip being extended across said shelf and fastened to its edges.

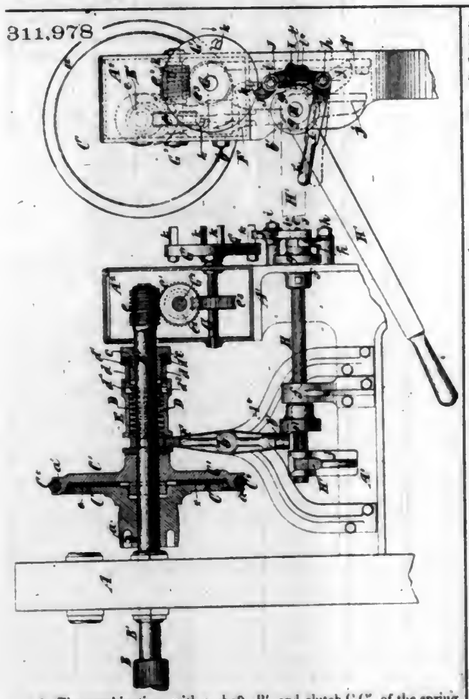
3. The combination of a shelf forming part of a set of telephone apparatus, and a clip the ends of which hook under the edges of said shelf, and are provided with screws adapted to secure said clip to said shelf, whereby memorandum-blanks may be readily clamped in position, substantially as set forth.

311,978. MEASURING STOP-MOTION FOR HEMP-SPREADERS, &c. JOHN GOOD, Brooklyn, N. Y. Filed July 17, 1884. (No model.)

Brief.—The driving-clutch is automatically thrown out of gear when the bottom roll of a pair of drawing-rolls has completed a predetermined number of revolutions.

Claim.—1. The combination, with a shaft to be rotated and a clutch for imparting motion thereto, of a spring acting upon the movable clutch portion to hold it in driving contact with its fellow, a clutch-lever for relieving or disengaging the clutch against the force of said spring, a rock-shaft weighted to turn automatically when released, and provided with a cam bearing against said clutch-lever, a catch for holding said rock-shaft against operation, to throw off the clutch-lever, and trip mechanism operated by the driven shaft, and adapted to release the said rock-shaft from the catch after a predetermined number of turns of the driven shaft, substantially as herein described.

311,978

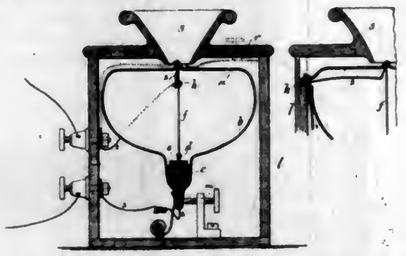


2. The combination, with a shaft, B', and clutch C C', of the spring D, sleeve E, nut and collar *d c*, the clutch-lever F, devices for acting upon said lever to compress said spring and relieve the clutch, and a trip mechanism actuated by the shaft B', and capable of operation after a predetermined number of revolutions of the shaft B', to release the devices for acting on the clutch-lever F, substantially as herein described.

3. The combination, with the shaft B', a clutch for driving the same, a spring acting on the clutch to render it operative, and a clutch-lever, F, for relieving the clutch, of the weighted rock-shaft H and its cam *f'*, the catch-lever I, for holding the rock-shaft and cam inoperative, and a tripping-cam for throwing off the said catch-lever, geared with the shaft B', substantially as herein described.

4. The combination, with the shaft B', a clutch for driving the same, a spring for acting on the clutch to render it operative, and a clutch-lever, F, for compressing said spring to render the clutch inoperative, of the weighted rock-shaft and cam H *f'*, provided with a locking-notch, *g'*, the catch-lever I, the tripping-lever J, for withdrawing said catch-lever to release said rock-shaft H, and the tripping-cam G', geared with the shaft B', all substantially as herein described.

311,979. TELEPHONIC TRANSMITTER. JOHN H. GUEST, Brooklyn, N. Y. Filed Sept. 18, 1882. Renewed July 11, 1884. (No model.)

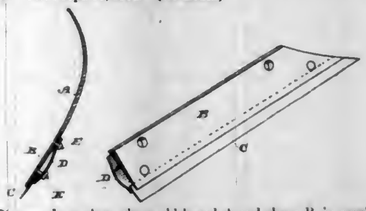


Claim.—1. The combination, with the electrodes and circuit-connections in a telephonic transmitter, of an inclosing glass case, a portion of which forms the diaphragm, substantially as set forth.

2. The combination, with the electrodes and circuit-connections in a telephonic transmitter, of a diaphragm and case of glass, and a screw or its equivalent outside such case to adjust the pressure of the electrodes, substantially as set forth.

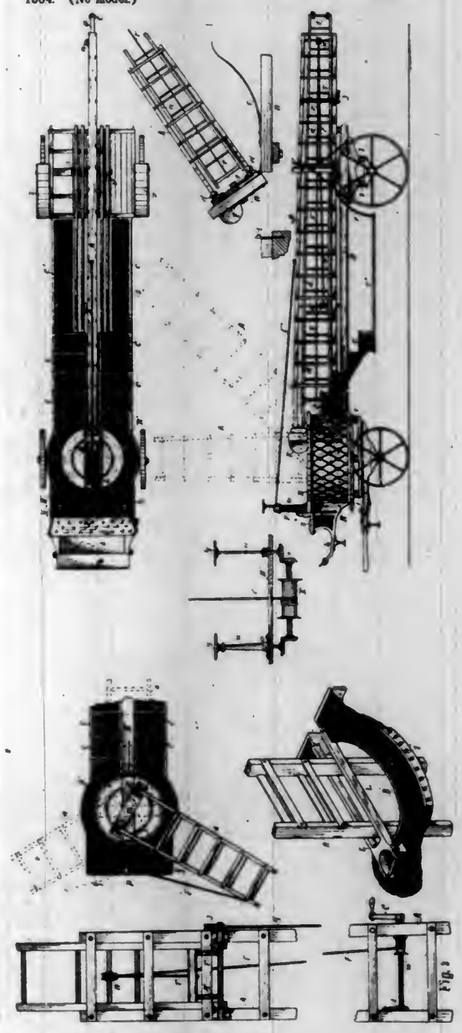
3. The combination, with the electrodes and circuit-connections in a telephonic transmitter, of a diaphragm and case of glass in one piece inclosing the electrodes, a mercury-holding receptacle formed as part of the glass case, and mercury acting to press the electrodes together, and an adjusting-screw or its equivalent, substantially as set forth.

311,980. PLOWSHARE ATTACHMENT. SAMUEL HAMILTON, Salinas, Cal. Filed Sept. 18, 1884. (No model.)



Claim.—In a plow, the mold-board A and share B, in combination with the concave supplemental plate D, the strip or ribbon C, interposed between the plate and share, and the bolts E, for securing the upper end of the plate, and also for clamping the strip so that it may be readily removed without displacing the plate, as herein set forth.

311,981. FIRE-LADDER AND TRUCK. LEVI HARRIS, Kalamazoo, Mich., assignor of one-half to Delos Phillips, same place. Filed Oct. 7, 1884. (No model.)



Claim.—1. The combination of a ladder which is supported on its edge in a horizontal position, a foundation-support, and a foot-block hinged to the foot of the ladder, the end of said block being connected with the support by a hinge-fulcrum, whereby when the ladder is raised edgewise to a vertical position the foot-block forms a horizontal extension to the support, admitting of laterally tilting the ladder on its hinges at its foot, substantially as set forth.

2. A fire-truck provided with a ladder resting on its edge when in transit, and having a hinge-fulcrum at its foot, on which it is raised in an edgewise position, and a counterbalancing-weight beyond said fulcrum to assist in raising the ladder, substantially as set forth.

3. The combination of a truck having a suitable ladder-foundation with a foot-block hinged thereto and provided with a weighted end beyond the hinge-fulcrum, and a ladder hinged to the foot-block at its lower end, substantially as set forth.

4. The combination of a ladder-foundation, a ladder connected thereto at its base by a hinge-fulcrum, and a suitable spring between the foundation and ladder to assist in raising the ladder and to cushion its fall, substantially as set forth.

5. The combination of a truck provided with the capstans, reel, and gear connections, and a ladder-foundation, a ladder connected thereto at its base by a hinge-fulcrum provided with a weight beyond the fulcrum, and a rope connecting the ladder and reel, substantially as set forth.

6. A ladder and an extensible part provided with means of extending said part, and with the automatic ladder-lock, consisting of the shaft, its end lever and spring-connection, and the elbow-rests, all adapted substantially as set forth.

7. The combination of a truck provided with a ladder-foundation, a box having an open top, the rear opening and recessed bottom, a weighted foot-block connected to said foundation at the end by a hinge-fulcrum, an extensible ladder hinged to the foot-block in a manner to be transported and raised edgewise and tilted laterally, and the forked hinged ladder-guide on top of the box to receive the raising ladder and sustain it in an upright position, substantially as set forth.

8. The combination of a fire-truck provided with a suitable ladder-foundation, a ladder hinge-fulcrumed at its base in a manner to rise edgewise, hinged to tilt laterally, and pivoted to turn in different positions.

9. The combination of a truck provided with a ladder-box having a platform at the top, an open top bounded by said platform, and an opening in the rear side of the box, and a ladder hinge-fulcrumed at its base in a manner to rise through the opening into said box, hinged to tilt laterally, and pivoted or swiveled at its lower end, whereby the ladder may be pushed around the inner supporting edge of the box-platform, substantially as set forth.

10. The combination of a fire-ladder truck provided with a ladder-box having an elevated platform bounding the open top of said box, side platforms, steps leading therefrom to the box-platform, and a ladder centrally and horizontally resting in the truck on its edge and hinge-fulcrumed at its base, adapting it to be raised edgewise into said box, substantially as set forth.

11. The combination of a ladder-box having a series of holes at the upper edge, a ladder adapted to tilt laterally in said box, and provided with the staples or equivalents, and brace-rods for detachable connection with said holes and staples to stay the ladder at different angles, substantially as set forth.

311,982. WATER-CLOSET-APPARATUS HANDLE. JOSEPH H. HAWLEY, Danbury, Conn. Filed Mar. 5, 1884. (No model.)

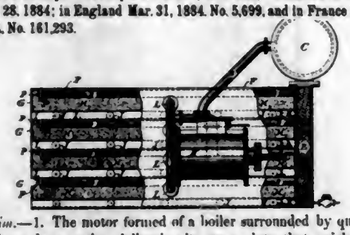


Claim.—1. In a water-closet-apparatus handle, the combination of a collar adapted to be readily secured to the cup of a water-closet handle, with an inner collar of rubber or other suitable material, and with means for tightening or loosening the grip of the collar upon the rubber, substantially as set forth.

2. The combination of a collar of sheet metal or other suitable material, as described, with an inner collar of rubber or other desirable substance, means for adjusting the size of the space within said rubber collar, and means for securing the apparatus to the cup of a water-closet-apparatus handle, substantially as described.

3. In combination with a water-closet-apparatus handle and pull-cup, the collar A, having ends B C, operated by screw D, lugs E F, spurs H, and the packing G, arranged within said collar, substantially as set forth and described.

311,983. STEAM-MOTOR. CHRISTIAN HEINZERLING, Frankfort-on-the-Main, Germany. Filed Apr. 3, 1884. (No model.) Patented in Germany Mar. 28, 1884; in England Mar. 31, 1884. No. 5,699, and in France Mar. 31, 1884. No. 161,293.



Claim.—1. The motor formed of a boiler surrounded by quicklime or strontia, and an engine delivering its steam into that quicklime or strontia, substantially as described.

2. The combination of a tubulous boiler surrounded for the most part by quicklime or strontia, and a casing holding or boxing up said lime, whereby steam can be run into said lime without escaping and heat raised thereby for raising steam in the boiler.

3. In combination with a multitubular water-tube steam-boiler, a case holding quicklime or strontia surrounding the tubes and divided by partitions, whereby the lime is held up to the tubes instead of settling in a dense mass at the bottom.

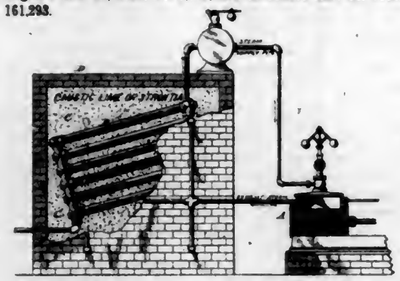
4. The combination, with a steam-boiler, of the drawers H, filled with quicklime or strontia, capable of being withdrawn from time to time and recharged.

5. The combination of the tubes D, plugs F, bearers Q, and lugs G, of the same or of less diameter than the tubes, whereby the drawer full of lime can be pushed in without any impediment except the actual tubes and the friction of the sides and a thin bar above, and the lime will remain close round the tubes without vacant space.

6. In combination with a series of charging devices, H, for charging lime among the tubes of the boiler, a series of exhaust-pipes with stop-valves leading into each charging device, whereby one charging device can be turned off and recharged while the others are being utilized.

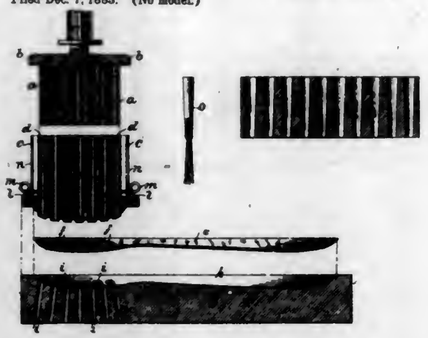
7. In a lime-engine, the combination of the drawers H, filled with quickline or strontia, and the runners and ledges for them to run upon, substantially as specified.

311,984. PROCESS OF GENERATING STEAM AND UTILIZING EXHAUST. CHRISTIAN HEINZERLING, Frankfort-on-the-Main, Germany. Filed Apr. 16, 1884. (No model.) Patented in Germany Mar. 28, 1884; in England Mar. 31, 1884, No. 5,699, and in France Mar. 31, 1884, No. 161,293.



Claim.—The herein-described method of generating steam and utilizing exhaust, which consists in discharging exhaust-steam into or upon quicklime or caustic strontia in intimate contact with the steam-generator.

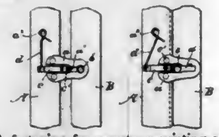
311,985. BRUSH-MACHINE. MAURICE HELLWIG, Brooklyn, N. Y. Filed Dec. 7, 1883. (No model.)



Claim.—1. The combination of the plungers and form with the receptacle *c*, having the series of tubes, and the plate *l*, filling the spaces between said tubes, substantially as and for the purpose described.

2. The combination of the receptacle c, having a perforated bottom, and tubes *d* in said perforations, with the perforated plate *l* in said receptacle, adapted to be moved to lift the surplus bristles or hair therefrom, substantially as described.

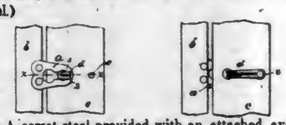
311,986. FASTENING FOR CORSETS. LUCIAN HILL, North Brookfield, Mass., assignor to Theodore C. Bates, same place. Filed May 26, 1884. (No model.)



Claim.—1. A fastening for corsets, consisting of a plate having a slot adapted at one part to permit the entrance of a headed stud and at another or forward part to prevent the escape of such headed stud, and an automatic follower adapted to move longitudinally with relation to the said slot, and operating in connection with the slotted plate to follow up and force the stud into the narrowed front portion of the slot and retain it in such position, as and for the purpose set forth.

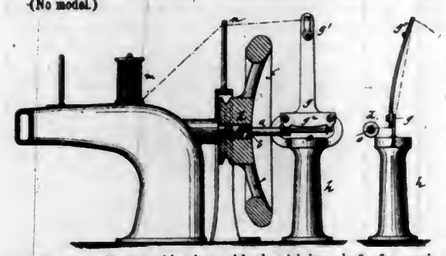
2. A fastening for corset-steels, consisting of a slotted plate to permit the entrance therein of a headed stud and a follower, and a spring to reciprocate it in the direction of the length of the said plate, the said follower acting to retain the headed stud in the said slot, substantially as set forth.

311,987. CORSET-STEEL FASTENING. LUCIAN HILL, North Brookfield, Mass., assignor to Theodore C. Bates, same place. Filed Sept. 5, 1884. (No model.)



Claim.—A corset-steel provided with an attached eye-piece, combined with a corset-steel having an attached expansible stud which is contracted by the eye-piece when inserted therein, and thereafter expands to hold the eye-piece and steels securely engaged, substantially as described.

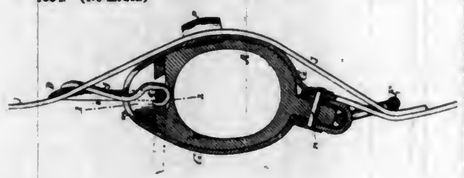
311,988. BOBBIN-WINDING ATTACHMENT FOR SEWING-MACHINES. CARL HOSCH, Haida, Austria-Hungary. Filed July 19, 1884. (No model.)



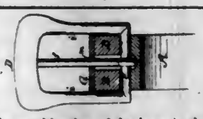
Claim.—1. The combination, with the driving-shaft of a sewing-machine, of a bobbin having an elongated spindle, socket-piece supporting said bobbin in line with the axis of said shaft, and connected to said shaft, a suitable thread-guide, and a tension device, substantially as described.

2. The combination, with the driving-shaft of a sewing-machine provided with a socket-hole at one end, of a socket-piece inserted in said socket-hole in line with the axis of the shaft, a bobbin provided with an extended spindle, one end of which is inserted in said socket-piece, said bobbin being supported in line with the axis of said shaft, a thread-guide, and a tension device, substantially as set forth.

311,989. TUG. TILGHMAN JACOBY, Allentown, Pa. Filed Aug. 18, 1884. (No model.)



311,989.



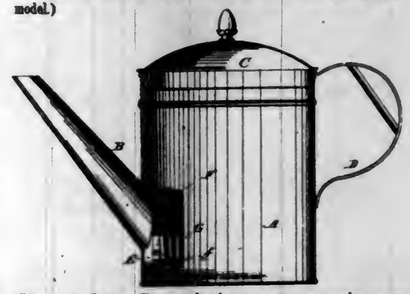
Claim.—1. The combination of the loop A, the buckle D, having a finger, *f*, the blocks B B, and the confining-strap G, having a slot, *m*, as set forth.

2. The combination of the loop A, having a dovetailed recess, *a*, the blocks B B, having dovetailed projections *b* and recesses *d*, the buckle D, having a tongue, *f*, and the confining-strap G, having a slot, *m*, as specified.

3. The combination of the loop A, having recesses *a* and *s*, the buckle D, having a detachable tongue, *f*, confining-blocks B B, and the strap G, having a slot, *m*, as specified.

4. The combination of the loop A, having a projection, *g*, the ring F, the strip *h*, the outer confining-strap, G, and the rivet *n*, as specified.

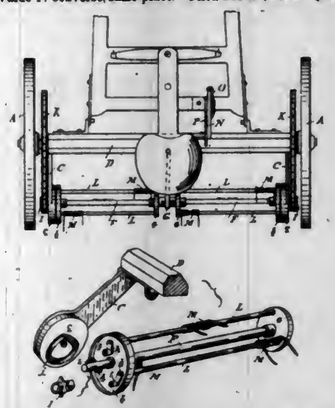
311,990. COFFEE-POT. EDWIN H. JUDKINS, San Francisco, assignor of one-half to Josiah W. Tucker, Oakland, Cal. Filed May 8, 1884. (No model.)



Claim.—1. In a coffee-pot having a spout, an annular externally-threaded projection, E, formed upon or secured to the inner surface of the pot and encircling the entrance to the spout, in combination with an internally-threaded cap or band, F, adapted to be screwed upon the projection E, and a suitable strainer or strainers, G, secured over the face of the annular projection by the cap or band, substantially as herein described.

2. In a coffee-pot having a spout, an annular externally-threaded projection, E, formed upon or secured to the inner surface of the pot and encircling the entrance to the spout, said projection having an annular flange, *e*, in combination with the annular cap or band F, internally threaded and adapted to be screwed upon the projection *e*, said cap or band having an annular flange, *f*, and the strainer disk or disks G, fitted within the cap or band and held between the flanges *f e*, substantially as herein described.

311,991. HAY-TEDDER. JEREMIAH KELLER, Sandusky, Ohio, assignor to Waldo F. Converse, same place. Filed Feb. 23, 1884. (No model.)



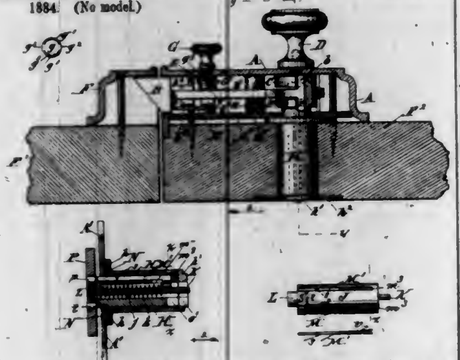
Claim.—1. In a hay-tedder, the brackets C, attached to the draft-frame D, each having bearings for a short independent axle-arm, B, at its upper end, and each provided with a cam-grooved head, *c*, at its other end, in combination with the independently-rotating shafts F, journaled between said heads, and means whereby an independent motion is imparted to each shaft, substantially as and for the purpose specified.

2. In a hay-tedder, the brackets C, secured to draft-frame D at one end, in combination with the bracket H, attached to the draft-frame, and

provided with a bearing, G, shafts F, independently journaled between said brackets, one on either side of the bracket H, and carrying the rock-shafts L, and means for independently rocking the shafts L, as and for the purposes set forth.

3. In a hay-tedder, the brackets C, secured to the draft-frame at one end, and provided with cam-grooved heads *c* at their free ends, in combination with the rotating shafts F, independently journaled in and between said heads *c*, the heads *a b*, secured to said shafts and rotating therewith, rock-shafts L, journaled in said heads, and provided with tedder-forks M, crank-arms *h*, attached to the outer ends of said shafts L and carrying the anti-friction rollers *i*, running in the cam-groove in the heads *c*, and means for imparting an independent motion to the shafts F from the drive-wheels, substantially as described.

311,992. LOCK. ANDREAS KOHLHOF, New York, N. Y. Filed May 26, 1884. (No model.)

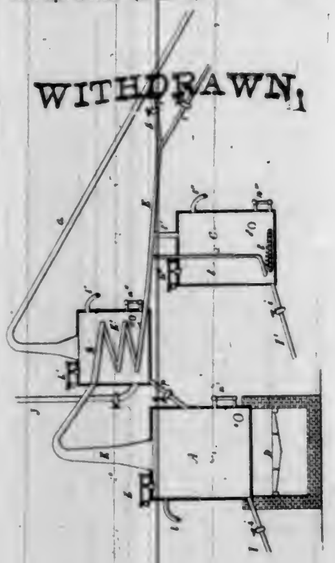


Claim.—1. The combination, with the bolt B, having a stud, *b'*, or studs *b' b²*, of the knob G, having a head, G', provided with an end socket, *g*, and a flange, *g'*, slotted at *g²*, whereby the bolt may be locked against endwise movement or be permitted to slide in the lock-case, substantially as shown and described.

2. The combination, with the bolt B, having shoulders *r*, of the cam-plate P, having slot *p*, the bit-cylinder J, grooved annularly at *t* and carrying the bits M M', having back slots, *s*, and shoulders *m*, the spring *k*, acting on the shoulders *m*, and the fixed collar N, interlocking with the bits to prevent turning of the bit-cylinder to throw the bolt by the bit M' until all the bit-slots *s* are brought by the slotted key O to coincide with the collar N, substantially as shown and described.

3. The bits M M', provided with spring-tongues *v*, in combination with the slots *m'* of the cylinder J, substantially as shown and described.

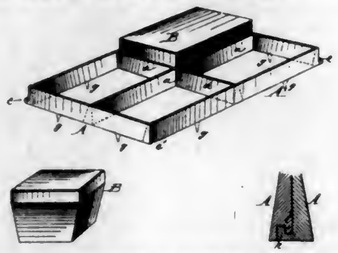
311,993. APPARATUS FOR REFINING PETROLEUM. J. MOR. KRIEGER, Brooklyn, N. Y., assignor to the Criterion Oil Company, of New York. Filed Apr. 4, 1884. (No model.)



Claim.—1. The combination, substantially as herein described, of the stills A B C, the furnace D, concomitant to the still A, the pipe E, leading from the still A, and having the coil E' in the still B, the perforated coil *t* in the still C, leading from the pipe E, the pipe *t'*, leading from the tank C to the pipe E, and the pipe G, leading from the still B and connecting with the delivery end of the pipe E, for the purposes set forth.

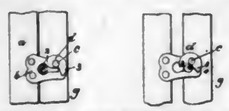
2. The combination, substantially as hereinbefore described, of the stills A B C, the pipe G, and the pipe E, having its delivery end inclined upwardly and connected to the pipe G, for the purposes set forth.

311,994. STREET-PAVEMENT. KARL KÜHN, St. Johann-on-the-Saar, Prussia, Germany. Filed Sept. 11, 1884. (No model.)



Claim.—The combination, in a pavement, of metallic frames provided with partitions dividing said frames into panels, the exterior of the vertical walls of said frames being straight, and the interior of said walls and both faces of the partitions being tapered or beveled from the base upward, and filling-blocks wedge-shaped at their lower ends set in said flaring panels, the opposite side walls of said frames being provided, respectively, with an angular upturned flange and an angular recess at the base, substantially as described.

311,995. CORSET-FASTENING. PERLEY LAFLIN, Warren, assignor to Theodore C. Bates, North Brookfield, Mass. Filed Oct. 27, 1884. (No model.)



Claim.—In a fastening for corset-steels, the steel *a*, provided with the slotted plate, and the cam plate or disk *d*, pivoted thereon, combined with the steel *g*, having the attached headed stud, which acts upon and turns the said cam-plate, the latter thereafter acting to hold the said stud in one end of the slot of the said plate, substantially as described.

311,996. PITMAN FOR MOWING-MACHINES. DEWITT C. MARKHAM, Towanda, Pa. Filed July 15, 1884. (No model.)



Claim.—1. A box forming a bearing, and a strap inclosing said box, in combination with a plug externally and internally screw-threaded, which screws through said strap against said box, and a pitman-rod which screws into said plug.

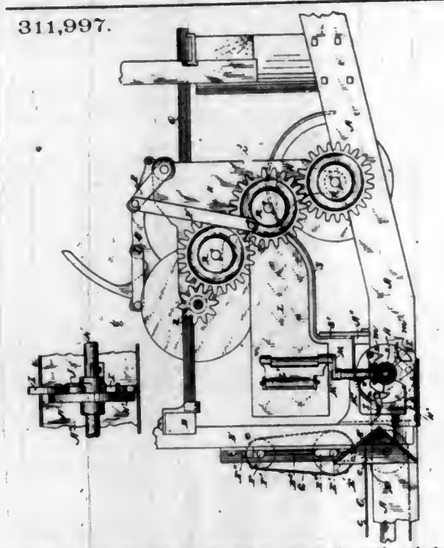
2. Two bearing-boxes and two straps inclosing the same, in combination with a plug externally and internally screw-threaded, which screws into one of said straps and against its inclosed bearing-box, and a pitman-rod which screws into said plug at one end and at the other end into the other strap and against the inclosed bearing-box, substantially as and for the purpose set forth.

311,997. GRAIN-BINDING HARVESTER. WILLIAM W. MARSH and MAURICE E. BLOOD, Sycamore, Ill. Filed Mar. 11, 1884. (No model.) Patented in England Oct. 9, 1883, No. 4,799.

Claim.—1. The combination of the roller D, operating the belt C of the platform-carrier and a vertically-running belt, G, located directly over the roller D, both belts having slats to engage the grain, and arranged in such relation to each other that they will press the grain between them for the purpose of securing a firm hold upon the grain to draw it from the platform and push it beyond the delivery end of such platform, and also to keep the inside divider clear, and the belt G made free to yield from the belt C in a vertical line to allow for the passage of different thicknesses of grain between them, substantially as specified.

2. In combination with a carrier-platform and a binder located adjacent to the delivery end of the carrier-platform, two rollers, E and F,

311,997.



located one over the other at the delivery end of the carrier-platform, and having a belt or canvas, G, around them, both the rollers and canvas adapted to rise and fall vertically, substantially as and for the purpose specified.

3. In combination with a carrier-platform, two rollers, E and F, pivoted in a support, B'', at one end, and provided with a support at their opposite ends adapted to allow them to rise and fall and float over the grain, substantially as and for the purposes specified.

4. In combination with a carrier-platform, a rise or wall, S', standing at right angles, or nearly so, with the carrier-platform, and opposite the delivery end of the same, for the purpose of retarding and strengthening the grain, and mechanism at the delivery end of the platform to push the grain against the wall S' and over it to a binding-table on the opposite side, substantially as specified.

5. In combination with a carrier-platform and a vertically-running belt or canvas over the delivery end of the carrier-platform, a receptacle for the storage of the grain, located at the delivery end of the carrier-platform, the receptacle having a rising or vertical wall on the side opposite the delivery end of the platform-carrier, substantially as and for the purposes specified.

6. In combination with a carrier-platform, a rise or wall, S', standing at right angles, or nearly so, with the carrier-platform, and opposite the delivery end of the same, and a vertically-running belt or canvas, G, located directly over the delivery end of the carrier-platform, the belt G and the platform-carrier adapted to press the grain between them and push it beyond their delivery ends against and over the wall S' to a binding-table on the opposite side, substantially as and for the purposes specified.

7. The combination of the conveyer or apron C, rollers D and E, belt or canvas G, and rise or wall S', all arranged and operating substantially as and for the purposes specified.

8. The combination of the conveyer or apron C, roller D, picker-teeth I, and rise or wall S', all arranged and operating substantially as and for the purposes specified.

9. The combination of the conveyer or apron C, roller D, picker-teeth I, rise or wall S', and binding-table S, all arranged and operating substantially as and for the purposes specified.

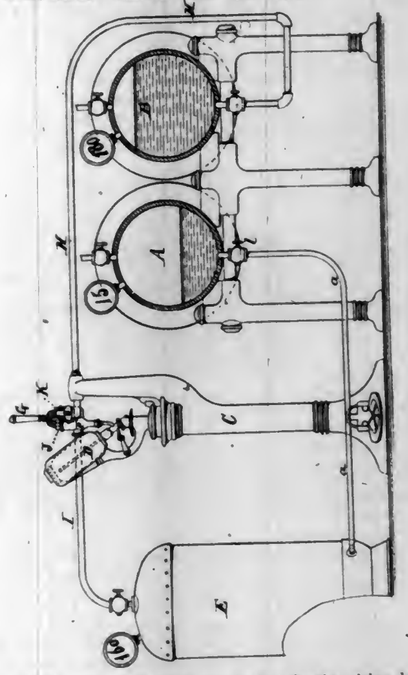
10. The combination of the conveyer or apron C, vertically-running canvas G, inside divider, T, and rise or wall S', all arranged and operating substantially as and for the purposes specified.

11. In combination with a carrier-platform, a binder-table located opposite the delivery end of the carrier-platform, but at a higher elevation than such platform, and a vertical rise or wall, S', for supporting the inner side of the binder-table, and also for resisting the flow of the grain, as a means for straightening the grain before it reaches the binder-table, substantially as specified.

12. The combination of the conveyer or apron C, rollers D and E, belt or canvas G, and the picker-teeth I, and rise or wall S', all arranged and operating as shown and described, substantially as and for the purposes specified.

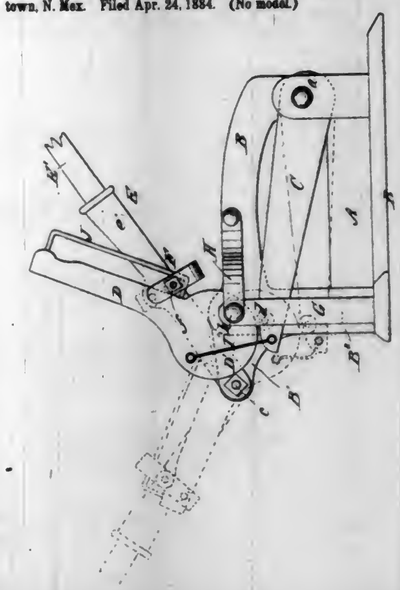
13. A vibrating batter located to operate against the butts of the grain near the inside divider, in combination with the vertically-running belt or canvas G, located directly behind the inside divider, and the vertical rise or wall S', all arranged substantially as specified.

311,998. PROCESS OF FILLING BOTTLES WITH AERATED BEVERAGES. GEORGE MATTHEWS, New York, N. Y., executor of John Matthews, deceased. Filed Feb. 9, 1884. (No model.)



Claim.—The process herein described of charging siphon-bottles having single narrow opening with aerated beverages, which process consists in first charging the bottle with gas, then, while the gas-connection is closed, charging it with water which is under greater pressure than the gas, thereby compressing the gas within the bottle, then, when the compression has been established and water ceases to flow, closing the water-connection, reopening the gas-connection, and discharging the surplus gas, then again closing the gas-connection, and opening the water-connection and letting in more water, all as specified.

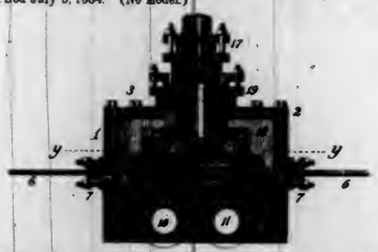
311,999. METAL-SHEARS. GILBERT MCDONALD, Augusta, Kans., assignor to Hartford M. Meredith, Silver City, and James A. Lucas, Georgetown, N. Mex. Filed Apr. 24, 1884. (No model.)



Claim.—1. The eccentric lever D, connected to and adapted to act upon the jaw C, and provided with the bent rod J, in combination with the lever E, pivoted in front of the pivot of the lever D, and coupled thereto by the sliding or shifting coupling-plate F, substantially as and for the purposes set forth.

2. The combination, with the eccentric lever D, having a bent rod, J, and the lever E, coupled to lever D by a bent plate, F, of the anti-friction roller *g*, substantially as shown and described.

312,000. BALANCED VALVE. DAVID MERCER, Bethlehem, Pa. Filed July 5, 1884. (No model.)



Claim.—1. The combination of a valve-chest, a valve governing ports in a valve-face therein, a pressure cage or box fitting against the valve on the side thereof opposite the valve-face, said pressure-cage having a closed internal supply-chamber, a supply-pipe leading into the supply-chamber and of smaller transverse sectional area than said chamber, a delivery-passage of smaller transverse sectional area than the supply-pipe and leading from the side of the chamber opposite said pipe into the valve-chest, and bearings supporting the pressure-cage on opposite sides of the valve, substantially as set forth.

2. The combination of a valve-chest, a valve, a pressure-cage, and adjustable bearing-blocks for supporting the pressure-cage and regulating the bearing thereof against the valve, substantially as set forth.

3. The combination of a valve-chest, a valve, a pressure-cage, adjustable bearing-blocks supporting the pressure-cage on its lower end, and a stuffing-box adapted to regulate the bearing of the pressure-cage upon the bearing-blocks, substantially as set forth.

4. The combination of a valve-chest, a valve, a pressure-cage, bearing-blocks having longitudinally inclined or beveled lower faces, inclined guides or ways supporting said bearing-blocks, adjusting-screws coupled to said bearing-blocks and passing through the walls of the valve-chest, and nuts engaging said screws and adapted to bear against the outside of the valve-chest, substantially as set forth.

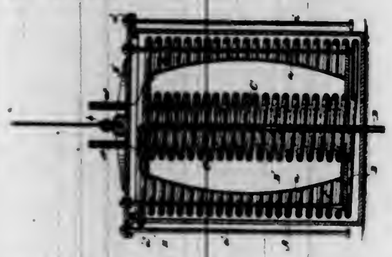
312,001. MECHANICAL MOVEMENT. JOHN G. MEYERS, Washington, D. C. Filed Jan. 12, 1885. (No model.)



Claim.—1. The combination, with the bar A, of the carriage B, provided with lever C and cam D, substantially as shown and described.

2. The combination, with the bar A, provided with serrations *a*, of the carriage B, having lever C, and the cam D, having serrations *e*, as and for the purpose set forth.

312,002. MACHINE FOR DRYING BARRELS. GEORGE MILLER, Lake View, Ill., assignor to Daniel W. Ryan, same place. Filed May 12, 1884. (No model.)

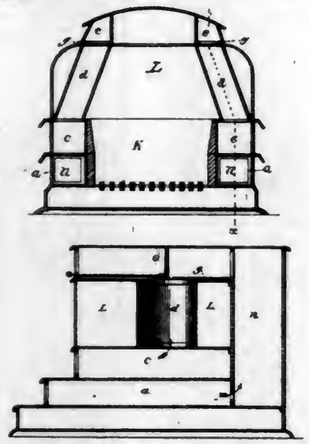


Claim.—1. In a barrel-drier, an outer heater and an inner heater, as C C', combined and arranged with reference to each other, substantially as and for the purpose specified.

2. In a barrel-drier, a tank, as A, provided with a lid, as A', in combination with an outer and an inner heater, as C C', substantially as and for the purpose specified.

3. In a barrel-drier, an outer heater, as C, and an inner heater, as C', in combination with a plate, as B, having a central opening, and mechanism for operating the same in the space between the heaters, substantially as and for the purpose specified.

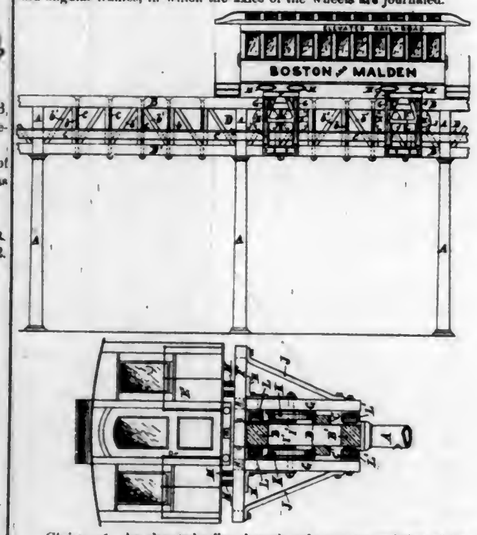
312,003. FIRE-PLACE HEATER. GARDNER L. MORRISON, Brooklyn, assignor to William H. Jackson, New York, N. Y. Filed Feb. 23, 1884. (No model.)



Claim.—In a fire-place heater, the combination, with the air-ingress chambers *a a*, leading to the back hot-air chamber, *n*, the combustion-chamber L, and register-boxes *e e* above the combustion-chamber, of separate auxiliary air-ingress chambers *c c*, inclined flues *d d*, leading from the said auxiliary chambers through the combustion-chamber to the said register-boxes, and dampers *g g*, for deflecting the heated air through the register-boxes into the room or into the rear hot-air chamber, *n*, substantially as and for the purpose herein set forth.

312,004. ELEVATED RAILROAD AND CAR-TRUCK FOR THE SAME. DAVID MOULTON, Malden, Mass. Filed Mar. 24, 1884. (No model.)

Brief.—An elevated railroad-track composed of a single girder consisting of stringers connected together by uprights, braces, and bolts, and rail-carrying stringers on each side. The truck-frame is braced by bars and angular frames, in which the axles of the wheels are journaled.

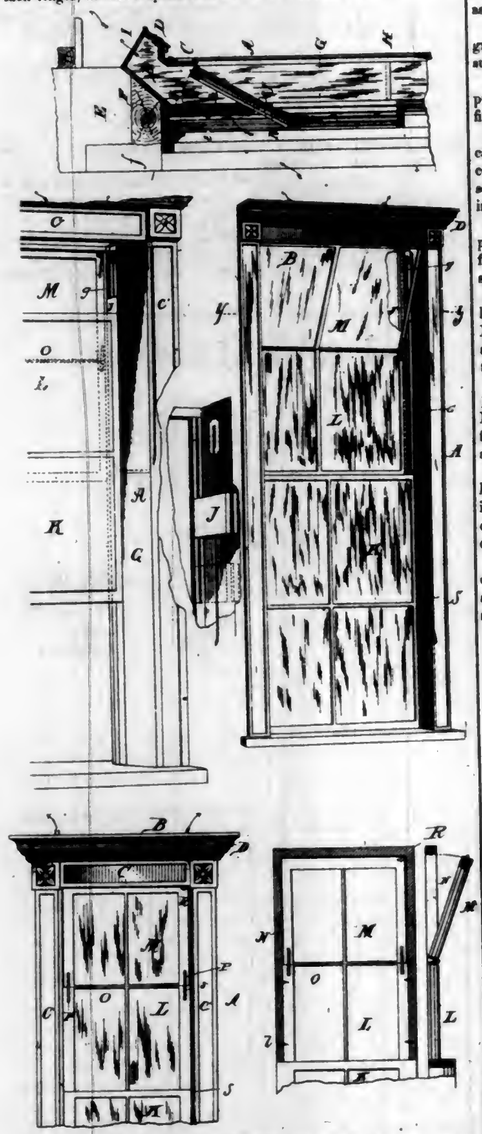


Claim.—1. An elevated railroad track and support consisting of the girder composed of the stringers B B', connected together by the uprights *b*, the braces *b'*, and bolts *c*, the stringers C, carrying the rails D, and the columns A, substantially as shown and described.

2. A truck or bogie-frame consisting of the frames F G G, in combination with the angular frames I I' and the wheels K, having bearings in the frames I I' and G G, substantially as set forth.

312,005. WINDOW. JAMES W. NAUGHTON, Brooklyn, N. Y. Filed May 13, 1884. (No model.)

Brief.—The upper sash of a window secured in a skeleton frame, so that the whole or upper half shall act as an adjustable transom. An air-passage is arranged between the cornice over the inside trimming of the frame and the inner face of the building, over which is secured a wire screen. The middle parting-strip and jamb are grooved a portion of their length, in which operates a follower of wood or metal.



Claim.—1. A device for ventilating and cooling buildings, consisting of an adjustable transom contained within a skeleton frame forming a part of a vertically-adjustable window-sash, and a window-frame for supporting said sash, the upper part of which is provided with an air-passage arranged between a cornice and the trimming on the upper part of said frame and the wall of the building or inner facing of window-frame, substantially as described.

2. In a ventilating device, the combination of an adjustable transom, a window-sash, a vertically-adjustable skeleton frame containing said transom and sash, with a window-frame, a cornice, and trimming arranged across the upper outside edge of said frame, substantially as and for the purpose set forth.

3. In a ventilating device, the combination of a window-frame provided with an air-passage in the top thereof, and arranged to deliver air-currents in an upward direction, with the means for admitting said currents from without, consisting of an adjustable transom arranged in a skeleton frame, said frame adapted to be vertically adjustable within the window-frame, substantially as described.

4. In a ventilating device, a combination in the window-frame A of the trimming-piece C and C', cornice D, and inner facing, *b*, whereby an air-passage, B, is provided in the upper part of said frame, substantially as described.

5. In a ventilating window-frame, the jamb G, provided with grooved parting-strip *g*, the trimming-pieces C and C', and cornice D, substantially as described.

6. In a ventilating device, the combination, with a window-frame provided with an air-passage in the top thereof, of the skeleton frame N, fixed sash L, and adjustable transom M, substantially as described.

7. In a ventilating window-sash, the combination, with the vertically-adjustable skeleton frame, of a fixed sash and an adjustable transom contained therein, and the means for connecting the said sash and transom together, consisting of the hinge-bar O, screws T, nut *s*, and protecting-strip *r*, all arranged substantially as described.

8. In a ventilating device, the combination, with a window-frame provided with an air-passage in the top thereof, of the sash K, skeleton frame N, transom M, fixed sash L, and follower J, substantially as described.

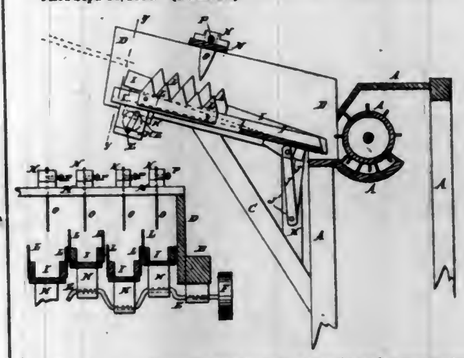
9. In a ventilating device, the combination, with a window-frame having an air-passage provided in the top thereof, of the skeleton frame N, fixed sash L, adjustable transom M, and the means for unfastening and opening said transom, consisting of the latch R and cord S, substantially as described.

10. In a ventilating device, the combination, with a window-frame having an air-passage provided in the top thereof, of the skeleton frame N, fixed sash L, adjustable transom M, and the means for closing and fastening said transom, consisting of spring P and latch R, substantially as described.

11. In a ventilating device, the combination, with the window-frame having an air-passage provided in the top thereof, and with the ventilating window-sash provided with the adjustable transom, substantially as described, of the means for preventing the ingress of insects or dust, consisting of the screen I, substantially as described.

12. In a ventilating device, the combination, with a window-frame, of the vertically-adjustable skeleton frame N, fixed sash L, angularly-adjustable transom M, and means for opening and closing said transom, substantially as described.

312,006. BAND-CUTTER AND GRAIN-FEEDER FOR THRASHERS. GEORGE NEUKOMM, LOUIS NEUKOMM, and DAVID NEUKOMM, Tremont, Ill. Filed Sept. 10, 1884. (No model.)

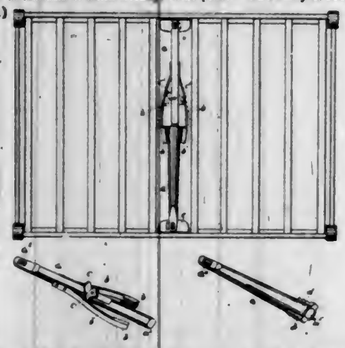


Claim.—1. A combined band-cutter and grain-feeder constructed substantially as herein shown and described, and comprising the side bars and boards, B D, the crank-shaft E and its driving mechanism, the feed-bars I, provided with toothed cutting-plates L, and the cross-bar M, provided with knives O, substantially as herein shown and described, whereby the bands of grain-bundles will be cut and the grain spread and carried to the thrasher, as set forth.

2. In a combined band-cutter and grain-feeder, the combination, with the thrasher A, of the side bars and boards, B D, the crank-shaft E and its driving mechanism, the pivoted supporting-bars J, and the vibrating grooved feed-bars I, provided with toothed cutting-plates L, substantially as herein shown and described, whereby the bands of grain-bundles will be cut and the grain spread and carried forward to the thrasher, as set forth.

3. In a combined band-cutter and grain-feeder, the combination, with the side boards, D, and the vibrating feed-bars, of the cross-bar M, provided with holding-blocks N and set-screws P, and the stationary knives O, substantially as herein shown and described, to assist in cutting the bands and spreading the grain as the grain is fed forward, as set forth.

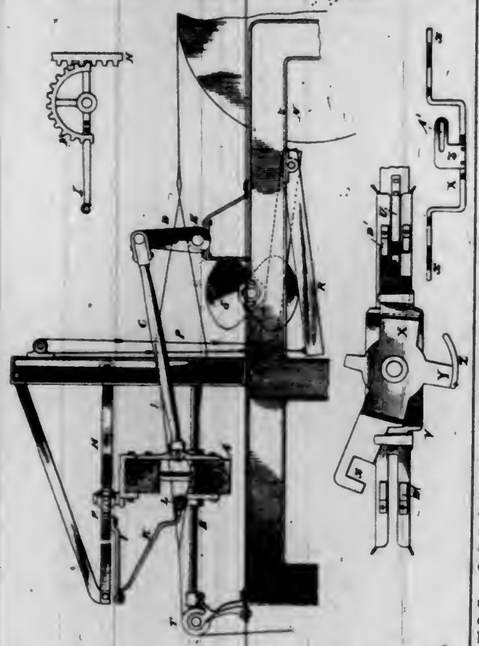
312,007. BEDSTEAD. MICHAEL O'NEILL, Michigamme, Mich., assignor of one-half to John Hickey, same place. Filed May 8, 1884. (No model.)



Claim.—1. The herein-described improvement in bedsteads, consisting of a hollow bar provided with lugs or teeth and a slot, an interlocking sliding bar fitting snugly into the hollow bar, and provided with a slot, adjustable jaws secured to the sliding bar which engage the lugs on the hollow bar, and a lever for operating the jaws, substantially as set forth.

2. The combination, with a bedstead, of the hollow bar *a'*, having a series of teeth, *d*, the sliding bar *a*, fitted to and movable into the hollow bar, and spring-jaws *b*, secured on the sliding bar and engaging and interlocking with the teeth, the said bars being secured to the opposite sides of the bedstead, substantially as set forth.

312,008. LOOM FOR WEAVING WIRE FABRIC. THOMAS PATTERSON, Cortland, N. Y. Filed Feb. 13, 1883. (No model.)



Claim.—1. The combination, with the guides B, power-shaft E, and stationary rack-bars H, of a reciprocating lay, a crank upon the main shaft, pitman connecting said crank with the lay and giving to the same a differential speed, oscillating segments mounted upon the lay, having arms I, the shuttle-carriers, and propelling-rods K, connecting said arms with the shuttle-carrier, as set forth.

2. The combination of the lay, the lay-supporting bars, and the loom-frame, with the segmental gears provided with arms, the studs on which said segmental gears are pivoted, the propelling-rods secured to the gear-arms and carriers, the carriers, the rack-bar whereby the parts are operated by the motion of the lay, and means for operating said lay, substantially as specified.

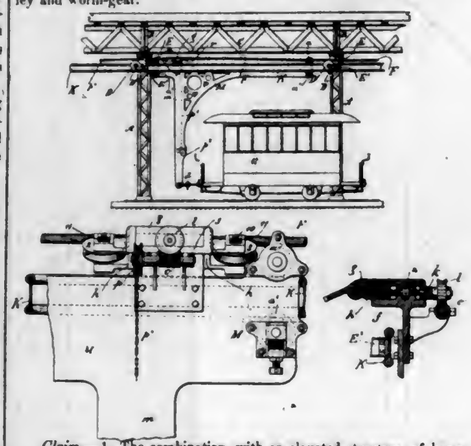
3. The combination of the carriers provided with longitudinal slots, as shown, and having spring hook-catches secured in said slots, with the shuttle having square receiving-tubes, the lay, lay-supporting bars, the loom-frame, the segmental gears and connections, and means, as described, for operating the lay, substantially as specified.

4. The combination of the shuttle-body with the locking-plate, the fixed stud or bobbin-pin, the bobbin, tension-spring, and key for holding the bobbin on the bobbin-pin, all arranged to operate substantially as specified.

5. The combination of the shuttle-body with the locking-plate provided with a projection having an eye for the passage of the wire from the bobbin, the fixed stud, the bobbin, tension-spring and key, and the confining-spring, all arranged to operate substantially as specified.

312,009. RAILWAY. JOHN H. PENDLETON, Brooklyn, N. Y. Filed Apr. 19, 1884. (No model.)

Brief.—Hangers suspended from an elevated structure support cable-pulleys on which travels the propelling-cable. Double-headed rails supported by said hangers carry traveling carriages having wheels above and below the rails, the carriage having a grip actuated by a right and left hand screw, the guide-pulleys of said grip having yielding journals. The grip is operated from the car-platform through an endless-chain pulley and worm-gear.



Claim.—1. The combination, with an elevated structure, of hangers, a two-edge railway-rail attached to the hangers, and sheaves supported by jaws upon the hangers for the traveling cable, substantially as set forth.

2. In combination with an elevated structure, cross-bars, hangers supporting such cross-bars, two tracks, one at each end of the cross-bars and connected to the same, supporting-wheels for the traveling traction-cable, and bearings for the axles of the supporting-wheels, substantially as set forth.

3. An elevated railway structure having cross and longitudinal girders, in combination with a rail supported below such structure, and parallel, or nearly so, with the surface railway, a carriage traveling upon such rail, supporting-wheels, and a traction-cable traveling over such wheels, and mechanism for connecting the carriage to the cable, substantially as set forth.

4. The combination, with the surface railway and the car upon the same, of an elevated track, wheels above and below such track, and a carriage and pendent arm from such carriage extending down in front of such car, and a coupling or connection to the draft-head of the car, an elevated cable, wheels for supporting the same, and a clamp for the cable operated from the car, substantially as specified.

5. The combination, with the elevated track, supporting-wheels, and traction-cable, of a carriage traveling upon the track, a clamp for the cable, a screw to act upon such clamping-surfaces, and a wheel and endless chain to act upon such screw to move the same in operating the clamp or grip, substantially as set forth.

6. The combination, with an elevated track, supporting-rollers, and traction-cable, of a carriage upon the elevated track, a grip and wheels upon such carriage for supporting and clamping the cable, a pendent arm from the carriage connected at its lower end to the car upon the surface railway, and mechanism for operating the grip, substantially as set forth.

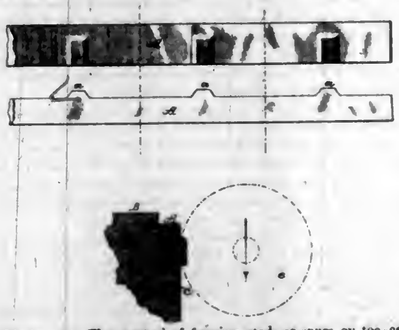
7. The combination, with the clamps or grips, of supporting-rollers at the ends of and connected with such grips, movable bearing-boxes for the axles of such rollers, and springs for pressing the rollers toward the cable, and mechanism for applying pressure to the cable, substantially as set forth.

8. The combination, with the elevated track, supporting-wheels, and traction-cable, of a carriage upon the track having wheels above and below such track, an arm below the carriage to be connected at its lower end to the car that is to be drawn, a grip upon the carriage for clamping the traction-rope, and mechanism extending to the lower part of the arm for operating the grip, so that the attendant can operate the grip from the car, substantially as set forth.

312,010. PROTECTED NITRATE OF AMMONIA FOR USE IN EXPLOSIVE COMPOUNDS. RUSSELL S. PENNIMAN, Jenkintown, Pa., assignor of one-half to John C. Schrader, McCalmsville, N. J. Filed Nov. 30, 1883. (No specimens.)

Claim.—Nitrate of ammonia in a finely-divided or in a granulated condition, protected against deliquescence by a coating of petroleum or its soft and viscous educts or products, substantially as described.

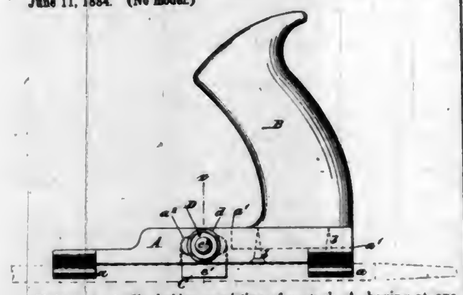
312,011. MANUFACTURE OF TOE-CALKS FOR HORSE AND MULE SHOES. CHARLES H. PERKINS, Providence, R. I.—Filed Nov. 13, 1884. (No model.)



Claim.—1. The method of forming studs or spurs on toe-calks, substantially as hereinbefore described, which consists in first producing a crosswise lug on the side of a calk-blank, and then forcing a portion of the metal in said lug beyond the adjacent edge of the blank, and thereby forming a projecting stud or spur.

2. The method of manufacturing toe-calks, substantially as hereinbefore described, which consists in die-rolling a connected series of calk-blanks, each having on one side thereof one or more crosswise lugs, and then forcing a portion of the metal in each lug beyond the adjacent edge of the blank and into a die, thereby forming a projecting stud or spur at the edge of the calk.

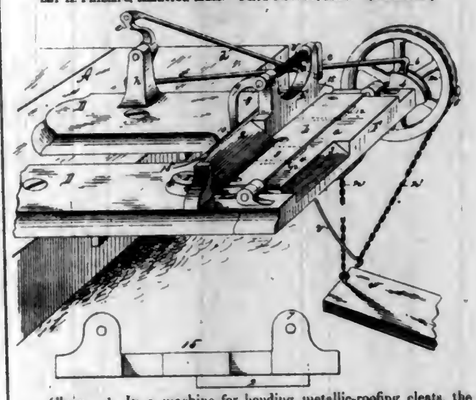
312,012. FILE-HOLDER. WILLIAM H. PHELPS, Stamford, Conn. Filed June 11, 1884. (No model.)



Claim.—1. A file-holder consisting of a stock, A, having at one edge thereof and at a distance apart two downward-projecting shoulders, *a*, a handle, B, projecting upward from the said stock, a clamp, C, arranged intermediate to the said shoulders to slide transversely to the said stock, and provided with a toe, *c'*, projecting downward at the side edge of the stock opposite that having the said shoulders *a*, and means for tightening the grip of the said clamp C, substantially as and for the purposes set forth.

2. A file-holder, consisting of a stock, A, having at one edge thereof and at a distance apart two downward-projecting shoulders, *a*, a handle, B, projecting upward from the said stock, a clamp, C, arranged intermediate to the said shoulders to slide transversely to the said stock, and provided with a toe, *c'*, projecting downward at the side edge of the stock opposite that having the said shoulders *a*, the said clamp having also a threaded shank, *c²*, and a nut, D, upon the said shank for tightening the grip of the said clamp C, substantially as and for the purposes set forth.

312,013. MACHINE FOR BENDING TIN-ROOFING CLEATS. STANLEY A. PHILLIPS, Amherst, Mass. Filed Nov. 17, 1884. (No model.)



Claim.—1. In a machine for bending metallic-roofing cleats, the combination of the folding-bar F, having the faces 4 and 3, the plate *b*, the abutment 15, having the inclined face 2, the slide 10, and means, substantially as described, for giving the folding-bar a reciprocating rotary motion, and for driving the slide toward the folding-bar after the cleat has been bent, substantially as set forth.

2. In combination, the folding-bar having its face part *a* at right angles to the front edge of the bar, the face 4, in a plane with the face *a*, and the face 3, at an incline to the face 4, the plate *b*, the abutment 15, having a portion of its side adjoining said plate at right angles thereto, and a portion thereof, as face 2, at an incline to the plate, the slide 10, having arms 12, and means, substantially as described, for giving the folding-bar a reciprocating rotary motion, and for driving the slide toward the folding-bar after the cleat is bent, substantially as set forth.

3. In combination with the cleat-folding mechanism, substantially as described, the slide 10, having arms 12 12 thereon, the hammer 9, and mechanism, substantially as described, operated by the movements of the folding mechanism for causing the hammer to strike the slide, substantially as set forth.

4. In combination, lever *e*, rods *d* and *f*, the latter provided with hook 6, segment *i*, shaft 8, having thereon arm *c*, and the hammer 9, the spring *y*, slide 10, and means, substantially as described, for reciprocally rotating said segment, substantially as set forth.

5. In combination, wheel *m*, segment *i*, chain *n*, secured at a point on said wheel, the treadle *w*, spring *v*, rod *f*, having hook 6 thereon, slide 10, the hammer 9, shaft 8, arm *c*, spring *y*, rod *d*, and lever *e*, substantially as set forth.

312,014. RECORDING AND REGISTERING APPARATUS FOR TILLS. HENRY POTTIN, Paris, France. Filed Feb. 13, 1884. (No model.) Patented in England July 4, 1883, No. 3,313.

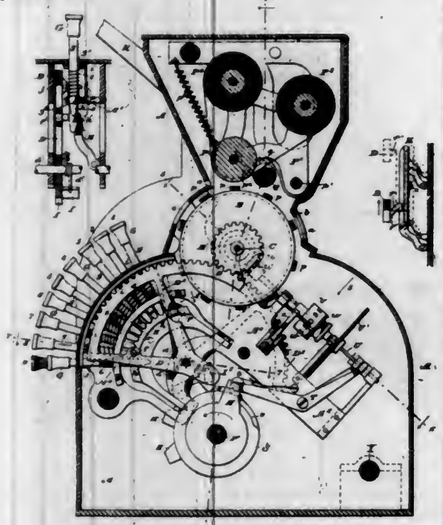
Brief.—A spring; a weight attached by means of a cord; or the mere weight of the wheel B may be the means for positively moving it when released from the holding-detent.

Claim.—1. In a counting apparatus, the combination of two successive indicating systems, each consisting of a movable indicating part having a normal tendency to move in one direction, a detent normally restraining said part from moving, and a series of keys arranged in succession each in connection with said detent, and adapted when depressed to displace said detent and thereby release the indicating part and permit the same to move, and arranged in the path of said part substantially as set forth, whereby the depressed key acts to stop the indicating part when it has moved a distance corresponding to the position of the depressed key relatively to the other keys of the series.

2. The combination, to form an indicating device, of a movable indicating part marked with digits and having a normal tendency to move in one direction, a detent restraining said part from moving, and a series of keys arranged in succession, each adapted when depressed to displace said detent and thereby release said indicating part, and to intercept or stop said part, and each key provided with a hook or shoulder adapted to be engaged by the detent, whereby the key is held depressed, substantially as set forth.

3. In a cash-counting apparatus, the combination, with an inclosing-case having a series of openings, *a a*, on one side and another series of openings, *c c*, on the other side, of a series of indicating-wheels

312,014.



each having marked on it two series of digits relatively inverted and arranged to correspond with the positions of the respective openings, whereby when one digit of one series is visible through an opening, *a*, the same digit of the other series is visible through an opening, *c*, substantially as set forth.

4. The combination, to form a cash-recording apparatus, of an inclosing-case having a series of openings, a slide closing said openings and having apertures registering therewith, a series of indicating systems, substantially as described, the several indicating-wheels whereof are marked with digits arranged to appear at said openings and are provided with types, a printing mechanism, substantially as described, for impressing said types upon a strip of paper, and a lever arranged in connection with said slide and printing mechanism substantially as described, whereby on depressing said lever the indicated amount is simultaneously exposed to view by said slide and printed by said printing mechanism, substantially as set forth.

5. The combination, to form a cash-recording apparatus, of wheels B B, bearing types *p p*, of a printing mechanism consisting of printing-roller P, frame P', in which said roller is mounted, projections p^2 p^2 on said frame, shaft Q, having projections *q q*, and lever R, substantially as set forth.

6. In a cash-counting apparatus, the combination, to form an indicating system, of a rack, D, tending to move in one direction, a detent-lever, E, having tooth *f*, engaging said rack, and formed also with a hook or shoulder, *h'*, a spring, *e*, for said detent, a series of keys, G G, each consisting of a button, a stem, *g*, hook *h*, and spring *s*, and each adapted when depressed to displace the detent, thereby releasing the rack and to become hooked to the detent, and thereby retained in place to stop the rack, substantially as set forth.

7. In a cash-counting apparatus, the combination of an indicating-system consisting of a rack, D, a detent, E, adapted to restrain said rack, and a series of keys, G G, adapted to release said detent and to intercept the rack at different points in its travel, with a restoring mechanism consisting of a rotary shaft, an arm or projection thereon adapted to engage a projection on said rack and move it back to its starting-point, and means for rotating said shaft, substantially as set forth.

8. The combination, in a cash-counting apparatus, of a series of indicating systems such as described, and a restoring mechanism, substantially as described, for turning back said systems to zero, arranged to engage the systems successively, and to restore each system before commencing to restore the succeeding one, as set forth.

9. In a cash-counting apparatus, the combination, with a series of indicating systems such as described, of a restoring mechanism consisting of the combination of a rotary shaft having arms or projections, a clock-work device adapted when wound up to rotate said shaft one revolution, a pull-lever, and means, substantially as described, interposed between said lever and said clock-work, whereby the depressing of said lever winds up and releases the same, substantially as set forth.

10. In a cash-counting apparatus, the combination, to form a restoring mechanism, of shaft F, pinion F' thereon, gear L, meshing therewith, loose wheel M, having a pawl-engaging gear, L, a spring arranged to rotate said wheel M, pull-lever J, and stop-pawl L', substantially as set forth.

11. In a cash-counting apparatus, the combination, to form a restoring mechanism, of shaft F, pinion F' thereon, gear L, having teeth *l' l'*, stop-pawl L', having notch *l²*, wheel M, having pawl M', and pull-lever J, engaging wheel M, substantially as set forth.

12. The combination, to form a cash-counting apparatus, of an indicating mechanism consisting of a series of indicating systems such as described, the several systems indicating units, tens, hundreds, &c., with a totalizing mechanism, such as described, consisting of a series of corresponding systems for units, tens, hundreds, &c., and operative connection, substantially as described, between each of the indicating systems and the corresponding systems of the totalizing mechanism, whereby the movements of the several indicating systems are imparted to the respective totalizing systems and the numbers indicated by each of the former are added to the total sum indicated by the latter, substantially as set forth.

13. The combination, to form a cash-counting apparatus, of an indicating mechanism consisting of a series of indicating systems such as described, indicating, respectively, units, tens, hundreds, &c., a totalizing mechanism, such as described, consisting of a series of corresponding systems for units, tens, hundreds, &c., are storing mechanism for the indicating systems, substantially as described, whereby they are turned back to zero successively one at a time, and connecting mechanism, substantially as described, between each indicating system and the corresponding totalizing system, whereby during the turning back of the former it is connected to and turns forward the latter, thereby adding the number which has been indicated to the total sum recorded by the totalizing mechanism, substantially as set forth.

14. The combination, to form a cash-counting apparatus, of a series of indicating systems such as described, a totalizing mechanism such as described, a restoring mechanism such as described, and means substantially as described, the operation of which brings the totalizing mechanism into operative connection with the restoring and indicating mechanisms, whereby the manipulation of such means before the restoring is essential to the operation of the totalizing mechanism.

15. In a cash-counting apparatus, the combination, with the several indicating-wheels B B of the series of indicating systems such as described, of a gear, *u*, fixed to each wheel and having ten teeth, a series of totalizing-arbors, U U, each having fixed to it a gear, *u'*, having ten teeth adapted to mesh with the gears *u u*, and means, substantially as described, for moving said arbors to bring their said gears into and out of mesh with the gears *u u*, substantially as set forth.

16. In a cash-counting apparatus, the combination, with the several indicating-wheels B B, of gears *u u*, fixed respectively thereto, totalizing-arbors U U, having gears *u' u'* fixed to them respectively, and adapted to mesh with the gears *u u*, levers T T, adapted to move said arbors endwise to bring their gears *u'* into mesh with gears *u*, cams S S, adapted to operate said levers, and rotary shaft F, carrying said cams, substantially as set forth.

17. In a cash-counting apparatus, the combination, with the several indicating systems, of a totalizing mechanism consisting of a series of totalizing-arbors, U U, bearing indicating-drums, pinions u^2 u^2, borne by said arbors, spring and escapement device, substantially as described, for releasing each pinion upon its arbor having completed one revolution, and causing it to revolve, gears U' U', fixed to the respective arbors and normally meshing with said pinions, and means for successively rotating said arbors through the medium of the indicating system, substantially as set forth.

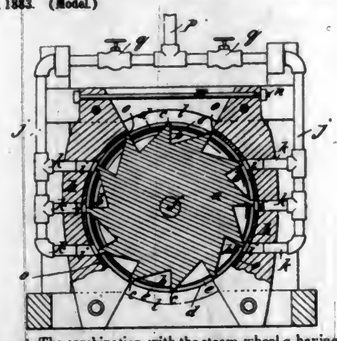
18. In a cash-counting apparatus, the combination, with the series of indicating systems substantially as described, the restoring mechanism substantially as described, and the totalizing mechanism substantially as described, of means, substantially as described, for longitudinally displacing the restoring-shaft, and consequently bringing operative cam projections or depressions into action to manipulate the totalizing mechanism, as set forth.

19. In a cash-counting apparatus, the combination, with a series of indicating systems, a totalizing mechanism, and a restoring mechanism, the latter consisting in part of a rotating shaft, F, of a series of cams, S S, on said shaft, a series of levers, T T, operated by said cams and manipulating the totalizing mechanism, means, substantially as described, for displacing said shaft endwise to bring said cams into operative connection with said levers, and means, substantially as described, for automatically shifting back said shaft at the end of its rotation, substantially as set forth.

20. In a cash-counting apparatus, the combination, with restoring-shaft F and the mechanism for rotating it, of a snail K, fixed to it, spring-lever *k*, displaced by said snail, hammer *z*, borne by said lever, and bell Z, arranged to be struck by said hammer on the dropping of the lever by the end of the snail, substantially as set forth.

21. In a cash-recording apparatus, the combination of pull-levers R and J, shaft Y, and levers Y' and Y^2, fixed thereon, and constructed, substantially as described, relatively to said levers R J, whereby on the displacement of levers Y' Y^2 by the pulling of either lever R or J they act as a stop to prevent the pulling of the other lever, substantially as set forth.

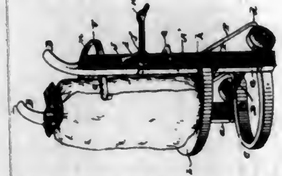
312,015. STEAM-WHEEL. ROBT. POWERS, Charleston, Miss. Filed Nov. 3, 1883. (Model.)



Claim.—1. The combination, with the steam-wheel *a*, having cavities within the face, and narrow inlets through the face thereto, of the covers *h*, secured at their lower ends to the base on opposite sides of the wheel, and connected at their upper ends by a screw-rod and nut, *m n*, and provided, further, with exhaust-spaces *l* between their upper and lower ends on opposite sides of the wheel, and with suitable supply-pipes, *k*, substantially as set forth.

2. The combination, with the steam-wheel *a*, provided with cavities *b e*, and revolving between the covers *h h*, as shown, with the removable lining *o* between said covers and the wheel, said lining-plates being flanged or C-shaped to embrace the face and sides of the covers, substantially as set forth.

312,016. COMBINED TRUCK AND BAG-HOLDER. CHARLES H. PRICE and JAMES STEVENSON, Adrian, Mich. Filed Aug. 19, 1884. (No model.)



Claim.—1. In a combined bag-holder and truck, the combination, with the truck and the elevating-platform for the bag to rest on, of the herein-described band for the mouth of the bag, comprising two adjustable sections, one of which is hinged to the truck-frame, so that the entire band may be thrown up back of the truck and out of the way of the bag, as and for the purpose set forth.

2. In a combined bag-holder and truck, the combination, with the truck and the platform for the bag to rest on, of the herein-described adjustable band for the mouth of the bag, comprising two sections hinged to the truck-frame, one of said sections being hinged to the other at one end, and having its other end constructed to be held at any suitable point, said band being thrown back out of the way when not in use, as set forth.

3. In a combined bag-holder and truck, the combination, with the truck and the platform for the bag to rest on, of the herein-described adjustable band for the mouth of the bag, comprising two sections hinged to the truck-frame, one section having one end hinged or pivoted to the other and its other end serrated and passing through a slot in the opposite end of the other section, said serrations or teeth engaging with the lower wall of said slot, for the purpose set forth.

4. In a combined bag-holder and truck, the combination with the truck, the platform for the bag to rest on, and a cross-bar secured to the upper end of the truck, of an adjustable hinged band attached to the cross-bar and arranged to be thrown up over the said bar, said band comprising two sections, *m n*, the section *n* being hinged or pivoted at one end to the adjacent end of the section *m*, and having its other end serrated and passing through a slot in the other end of the section *m*, the extreme end passing through a slot, *l*, in the under side of the cross-bar and turned outward, for the purpose set forth.

5. A combined bag-holder and truck, comprising the truck, a curved frame secured to the lower end thereof and having its ends extending rearwardly, the carrying-wheels journaled in the said ends, the braces connecting the frame of the truck to the ends of the curved frame projecting beyond the wheels so as to rest on the ground when the truck is in a horizontal position, an elevating-platform for the bag to rest on, and a band for the mouth of the bag, as set forth.

6. A combined bag-holder and truck, comprising the truck, a band for the mouth of the bag, an elevating-platform for the latter to rest on, a frame at the lower end of the truck to support the same in an upright position, and braces attached to the truck-frame and projecting beyond the wheels so as to rest on the ground when the truck is in a horizontal position, as set forth.

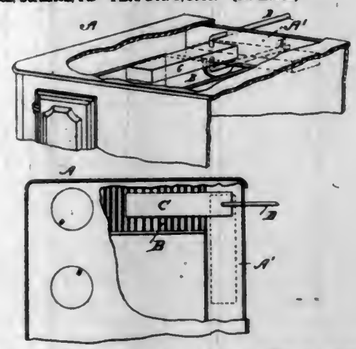
7. A combined bag-holder and truck, comprising the truck, a band for the mouth of the bag, an elevating-platform for the latter to rest on, a frame at the lower end of the truck, braces connected to the latter and projecting beyond the carrying-wheels, to rest on the ground when in a horizontal position, and a bail or support attached to the truck-frame at an intermediate point, so as to provide rests for the same and also support for the bag, as set forth.

8. A combined bag-holder and truck, comprising a hinged band for the mouth of the bag, an elevating-platform for the latter to rest on, a truck, braces secured to the latter and projecting beyond the carrying-wheels, to rest on the ground when the truck is in a horizontal position, and a bail or support attached to the truck at an intermediate point, and providing a support for the bag and rests for the truck-frame, as set forth.

9. A combined bag-holder and truck, comprising a truck, a band for the mouth of the bag, an elevating-platform carrying wheels or rollers which work on the front and rear faces of the side bars of the truck and a frame attached to the lower end of the truck, as set forth.

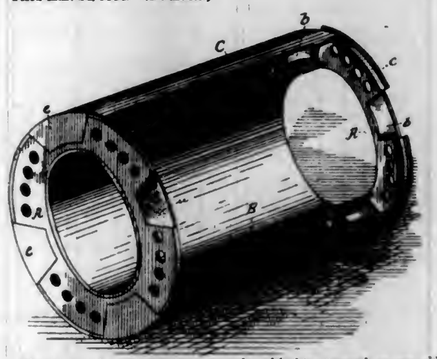
10. A combined bag-holder and truck, comprising the truck, a band for the mouth of the bag, an elevating-platform for the bag to rest on, and a bail or yoke having its ends attached to the truck-frame, bent to form rests, and then extending forward between the sides of the truck-frame, and shaped to fit the bag, so as to form a support for the same, as set forth.

312,017. WATER-HEATER FOR STOVES AND RANGES. JOHN A. PRICE, Scranton, Pa. Filed Dec. 3, 1883. (No model.)



Claim.—The combination, with a stove or range, of a water-heater located within the stove-casing, and hinged or pivoted so as to swing laterally over or away from the fire without disturbing the fire or the walls of the fire-pot, and having inlet and outlet connections for the passage of water to and from a water supply or reservoir, substantially as described.

312,018. STOVE-PIPE THIMBLE. DEWALT B. ROBBIN, Fredonia, Pa. Filed Mar. 24, 1884. (No model.)

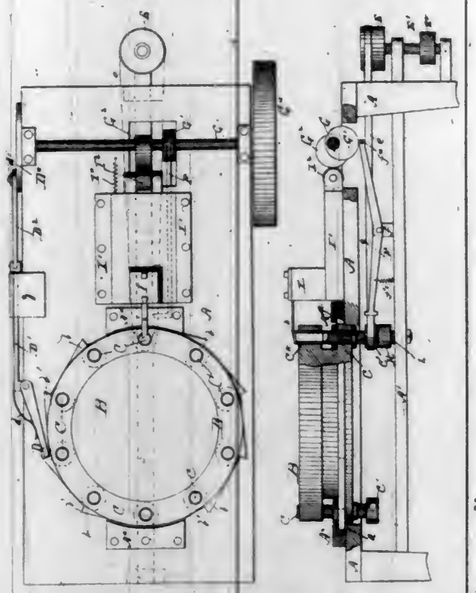


Claim.—1. A wall-ring for stove-pipe thimbles formed on one side at equidistant points of its circumference with recesses or depressions, and on the opposite side with lugs or projections which form the wall of said recesses, substantially as described.

2. A wall-ring for stove-pipe thimbles formed on its outer face with recesses or depressions, and on its opposite face with lugs or projections which extend to within a short distance of the inner rim or edge of the ring, substantially as and for the purpose described.

3. In stove-pipe thimbles, the combination, with the rings having perforations and formed on their inner and outer faces, respectively, with lugs and recesses, of the inner cylinder held between the rings under said lugs, and the outer cylinder surrounding the whole and having portions of its edges bent or turned into the recesses, all substantially as described.

312,019. MACHINE FOR FINISHING METALLIC CARTRIDGE-SHELLS. GEORGE P. SALISBURY, New Haven, Conn. Filed May 14, 1884. (No model.)



Claim.—1. The dial B, provided with the cartridge-holder C, adapted for turning in bearings in the dial, and having pulleys on their inner ends, said dial being constructed and arranged to have an intermittent and rotary motion to bring the holders successively in line with the stud *h*, having a pulley to allow the belt to run on either of the pulleys thus brought in juxtaposition, as described.

2. The tool *i*, having reciprocating motion toward and from the shells, in combination with the rotating disk B and the cartridge-holders carried by said disk, said cartridge-holders being provided with means for rotating each of them as it is brought into contact with said tool, in order that the shell may be finished by the latter, substantially as set forth.

3. A series of independently-rotatable cartridge-holders and a moving support which successively presents them in position, in combination with a tool which is brought into contact with the side of the upper end of each shell as thus rotated, for the purpose of finishing the latter, substantially as set forth.

4. A disk, B, provided with peripheral projections *b*, in combination with a pawl, D, which engages said projections, and means for operating it to rotate said disk, the cartridge-holders C, independently rotatable in said disk, and provided with pulleys C', the belt F, whereby said pulleys are successively driven, and a reciprocating tool, *i*, which acts in turn on the periphery of each shell to finish the same, substantially as set forth.

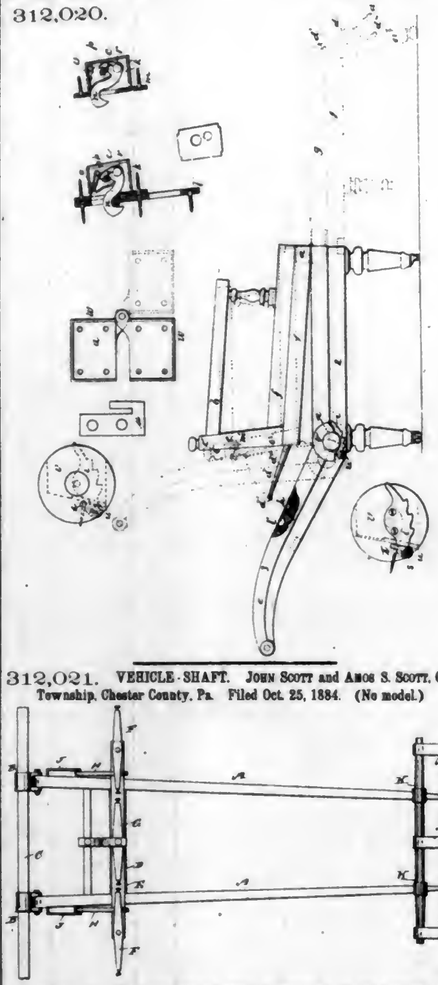
5. The combination, with the intermittently-moving dial B and cartridge-holders carried thereby, of the reciprocating tool-holder I, belt *e*, for rotating the cartridge-holder, shipper F, for shipping the belt, and shaft G, having the cams G' G², for operating the shipper and the tool-holder, respectively, as set forth.

312,020. CONVERTIBLE CHAIR. ALZAMAN SAWYER, Providence, R. I. Filed Mar. 3, 1884. (No model.)

Claim.—1. The combination of the chair-frame, the seat-section 1, and back 3, hinged together, the seat-section being recessed, and back provided with catch *l* and recess *k*, with lever *d*, and latch *n*, pivoted to the seat-frame, as and for the purpose set forth.

2. The combination, with a chair-frame, of a back pivoted thereto, a rod mounted in said back, ratchets rigidly attached to said rod, rosettes mounted on said ratchets, and catch on said chair-frame, all substantially as described.

312,020.



312,021. VEHICLE-SHAFT. JOHN SCOTT and AMOS S. SCOTT, Caln Township, Chester County, Pa. Filed Oct. 25, 1884. (No model.)

Claim.—1. The combination, with the thills A, of the triple-tree E, the single-trees F F G, the straps H, passed around the ends of the triple-tree, and of the loops J on the sides of the thills, through which loops the straps H are passed, substantially as herein shown and described.

2. The combination, with the thills A, of the triple-tree E, the single-trees F G, the straps H, passed around the ends of the triple-tree and through loops J on the sides of the thills, the cross-bar K on the free ends of the thills, and of the straps M, secured on the said bar, substantially as herein shown and described.

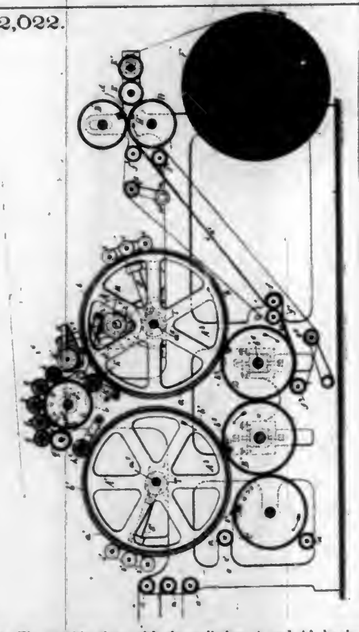
312,022. PRINTING-MACHINE. WALTER SCOTT, Plainfield, N. J. Filed Nov. 20, 1883. (No model.)

Claim.—1. The combination, in a printing-press, of the cutting-cylinders D and D', the feed-tapes *c* and *c'*, the rollers *f* and *f'*, the impression-cylinders B and B', the grippers b^2 and b^3, and the form-cylinders A and A', having printing and ink-distributing surfaces, and placed side by side above the impression-cylinders B B', substantially as set forth.

2. The combination, with the form-cylinders A and A', having printing and ink-distributing surfaces and placed side by side, of the impression-cylinders B and B' and their grippers below the cylinders A A', the delivery-cylinder C, grippers b^4, receiving the sheet from the cylinder B', and the tapes *c* and *c'*, for conveying the sheet from the cylinder C, substantially as set forth.

3. The combination, with the form-cylinders A A', having printing and ink-distributing surfaces, of the impression-cylinders B and B' and the grippers b^3 and b^3, the lever J, cams 4 and 5, and an eccentric, *j*, for actuating the grippers b^3 and b^3 every second revolution of the cylinders B and B', substantially as set forth.

312,022.



4. The combination, with the cylinders A and A', having printing and ink-distributing surfaces, of the ink-distributing cylinder G, rollers *g g'*, around the same, the fountain-roller H', doctor *h*, cam 2, and connections from the said cam to the doctor for moving the same into contact with the ink-distributing cylinder G and fountain-roller, respectively, and the doctor-rollers h' h^2, for transferring ink from the cylinder G and roller *g'* to the ink-distributing surfaces on the cylinders A A', respectively, and the inking-rollers *s* and *s'*, substantially as and for the purposes set forth.

5. The form-cylinders A A', having printing and ink-distributing surfaces, and one ink-fountain and the distributing and inking rollers, in combination with two impression-cylinders and grippers for transferring the paper and printing it on both sides, substantially as specified.

312,023. COMBINED SASH FASTENER AND LIFT. FREDERICK W. SEYMOUR, Newark, Ohio, assignor of one-half to Joseph L. Rhees, Wheeling, W. Va. Filed Aug. 21, 1884. (No model.)

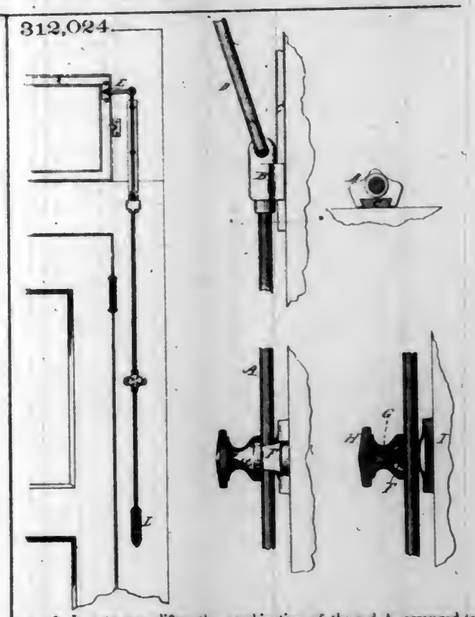


Claim.—The combined sash lifter and fastener consisting of the casing provided with a perforation in the finger-lift formed on the same, the finger-lever formed with the inclined shank, and projecting through the perforation in the finger-lift, and provided with a spring to hold it in a lifted position, and the latch-bar formed with a beveled mortise in the rear to receive the inclined shank of the finger-lever, all substantially as described.

312,024. TRANSOM-LIFTER. JOHN H. SHAW, New Haven, Conn. assignor to Sargent & Co., same place. Filed Sept. 22, 1884. (No model.)

Claim.—1. In a transom-lifter, the combination of the lifting-rod in connection with the transom, with the socket F, constructed for the passage of the rod through it, the outer end of the socket constructed with a screw, G, and the nut H upon said screw, arranged to take a bearing upon the rod both sides of the socket, substantially as described.

312,024



2. In a transom-lifter, the combination of the rod A, arranged to operate the transom, the socket F, constructed for the passage of the rod through it, and with a screw, G, upon its outer end, a spring, I, upon the base of the socket, arranged to bear outward against the rod, and the nut H, arranged upon the set-screw to bear upon the rod both sides of the socket, substantially as described.

312,025. SASH-CORD GUIDE. DAVID SHEALY, Bucyrus, Ohio. Filed Aug. 30, 1884. (No model.)

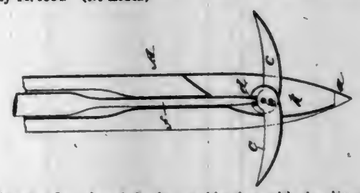


Claim.—1. The combination, with the frame-beam provided with a transverse mortise and the outer guide-pulley, of the support having the inner pulley journaled between its arms, and the extremities of said arms inserted in the transverse mortise, and a block inserted between the said arms, whereby they are held to the walls of the mortise, substantially as set forth.

2. The combination, with the frame-beam provided with a transverse mortise having lateral notches or wings, of the pulley-support having its arms inserted in said mortise, and provided with lateral extensions fitted to the wings thereof, and a block inserted between the said arms, whereby their extensions are held in engagement with said wings, substantially as set forth.

3. The combination, with the frame-beam provided with mortise B, having lateral wings *b*, of the support D, provided with pulleys C, and having its arms D' inserted within mortise B from the inner end thereof, and having lateral extensions *d*, fitted to engage wings *b*, the wedge-block E, driven between the arms D', and the pulley E, having its housing F^2 inserted in mortise B from the outer end thereof and fitting snugly between the extremities of arms D', substantially as set forth.

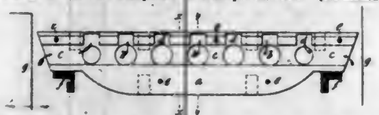
312,026. HORSE HAY-FORK. ROBERT L. SHORT, Janesville, Wis., assignor to the New Doty Manufacturing Company, same place. Filed July 16, 1884. (No model.)



Claim.—In a hay-fork, the combination, with the slotted shank and the tripping-rod, of the pivoted tines having at their inner ends shoulders to form a socket as said tines are extended to receive the lower end of said tripping-rod, said tines adapted to enter the material

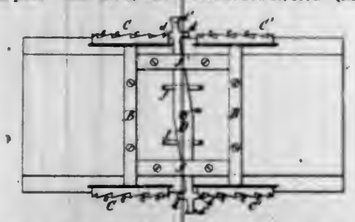
points downward and to be reversed by the action of the material as the fork enters the same and to be extended by the material as the fork is withdrawn, substantially as described.

312,027. GRATE-BAR. WILLIAM J. SIBLEY, Brooklyn, N. Y., assignor to George H. Clarke, same place. Filed Apr. 28, 1884. (No model.)



Claim.—In combination, the left-side half, *a*, having holes *b* and grooves *c* and *d* formed in its inner surface, with the right-side half, *a'*, having holes *b'* and grooves *c'* and *d'* formed in its inner side, and rivets *e e*, by which they are secured together, thereby constituting a hollow grate-bar with longitudinal and vertical air-passages and side holes connected together, substantially as and for the purpose set forth.

312,028. SPRAYING CAR-WHEEL AND SPRAYING-BAR. ANDREW A. SMITH, Crested Butte, Colo., assignor of one-half to E. A. Pray, same place. Filed Dec. 8, 1883. Renewed Dec. 16, 1884. (No model.)

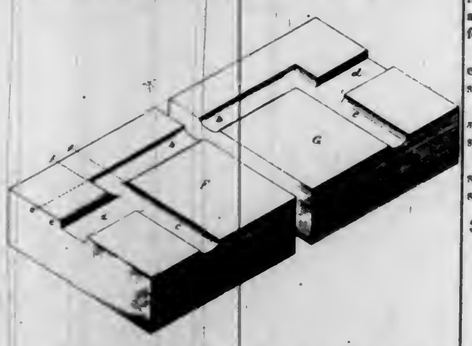


Claim.—1. The combination of a horizontally-vibrating spray-bar provided with stop-lugs and applied upon a car, with car-wheels provided with spraying teeth or pins, substantially as and for the purpose described.

2. A vibrating spray-bar, in combination with two pairs of car-wheels, each pair provided with reversely-constructed spraying-teeth, substantially as and for the purpose described.

3. The vibrating spray-bar provided with stop-lugs and an extension handle or handles, substantially as and for the purpose described.

312,029. DIE FOR CARRIAGE-DASH FRAMES. FREDERICK T. SMITH, Plantsville, Conn. Filed July 18, 1884. (No model.)



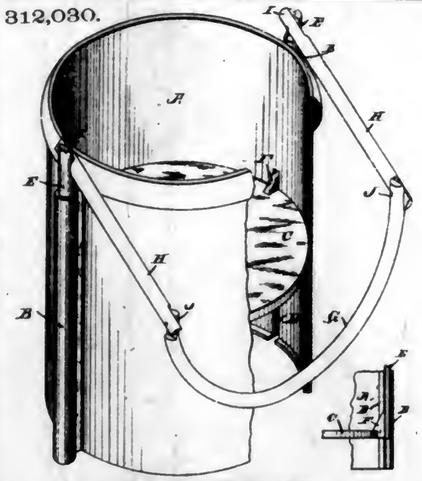
Claim.—The herein-described dies for forging carriage-dash-frame blanks, consisting of the two parts F G, each constructed with corresponding cavities, *b c d*, substantially as shown and described.

312,030. MEASURING-VESSEL. GEORGE C. SMITH, Hamilton, Ohio, assignor of one-half to S. W. Brock, same place. Filed Oct. 18, 1884. (No model.)

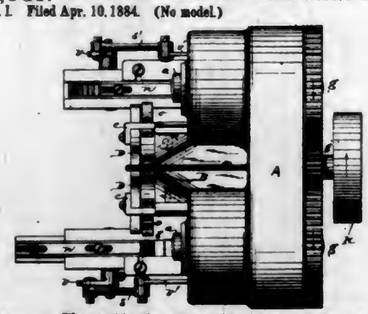
Claim.—1. A measuring-vessel provided with side tubes and side slots, a bottom fitted to slide in the vessel, and side rods attached to the bail and to said sliding rods, combined substantially as and for the purpose set forth.

2. A measuring-vessel provided with side tubes and side slots, a bottom fitted to slide in the vessel, rods fitted to slide in said tubes and connected to said sliding bottom, a bail, and link-rods uniting the bail to said sliding rods, combined substantially as and for the purpose set forth.

312,030.



312,031. NUT-TRIMMING MACHINE. THOMAS SNAPE, Pawtucket, R. I. Filed Apr. 10, 1884. (No model.)



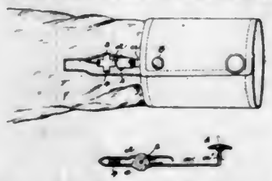
Claim.—1. The combination of two trimming-presses having a common driving-shaft and gear-connections with a trough to hold the puts, and two adjustable side troughs to conduct the nuts to the carriers that feed them to the dies, substantially as and for the purpose set forth.

2. The adjustable carrier *n*, made with a rabbet at the inner end extending under and beyond the nut *c''* when feeding it to the dies, substantially as and for the purpose specified.

3. The side troughs, D, made with slots, and provided with screws *n* at their lower ends, and having guards O, with slotted supports *e*, substantially as and for the purpose set forth.

4. The jaws *j*, held in recesses in the adjustable plates *y*, and the springs *z*, in combination with mechanism for feeding the nuts to them, substantially as and for the purpose specified.

312,032. CUFF AND SLEEVE HOLDER AND ADJUSTER. JOHN D. SOURWINE and JACOB A. CARPENTER, Brazil, Ind., assignors to the Model Cuff Adjusting Company, same place. Filed Nov. 24, 1884. (No model.)

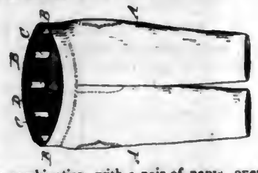


Claim.—1. In a cuff holder and adjuster, the bar *a*, having the right-angular projection at one end, and the shoe *b*, pivoted on the said projection, combined with the pivoted spring-actuated clamping-plate *d*, all substantially as described.

2. In a cuff holder and adjuster, the bar bent at one end and provided with the pivoted button or shoe, combined with a clamp having serrated jaws at both side edges thereof, to engage a sleeve at the right or left of the said bar, substantially as described.

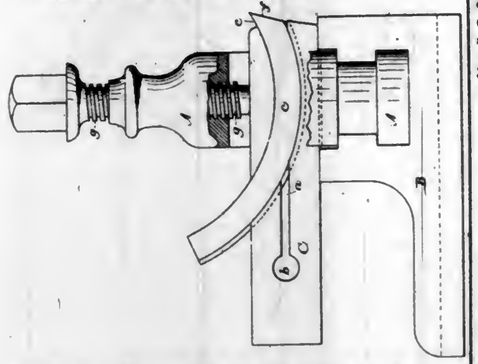
3. The cuff-holder having at one end a clamp provided with serrated end jaw and serrated side jaws, and at its other end with a pivoted shoe, substantially as described.

312,033. ATTACHMENT FOR PANTS. ISIDOR STARK, New York, N. Y. Filed Dec. 22, 1883. (No model.)



Claim.—The combination, with a pair of pants, overalls, or drawers, of a series of suspension-loops provided at their upper ends with button-holes or eyes, and attached at their lower ends to the pants or waistband, and a band passing through said loops near their upper ends, and secured to the waistband at points between said loops distant from the edges thereof, whereby the upper ends of said loops are supported in upright positions and permitted to play laterally to conform to the locations of the fastenings to which said eyes or button-holes are designed to be secured, substantially as described.

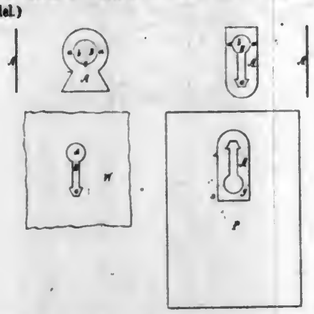
312,034. LATHE AND PLANER TOOL. HERBERT B. STEELE, Somerville, Mass. Filed Aug. 12, 1884. (No model.)



Claim.—1. The combination, in a lathe or planer tool, of a cutting-bar curved in its length bow-like, as an arc of a circle, and a stock formed with a coincidently-curved side groove to receive and support said cutting-bar, substantially as specified.

2. The combination of curved cutting-bar *c* and body or stock C, grooved to receive and support said bar, and having slot *a* and steadying-pin *d*, substantially as specified.

312,035. CARD OR PRINT HANGER. AMOS H. STETSON, Brookline, assignor to Charles B. Wheelock, Braintree, Mass. Filed June 30, 1884. (No model.)

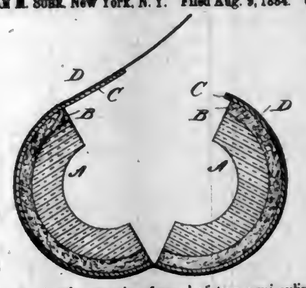


Claim.—As a new or improved article of manufacture, the card or print hanger, substantially as described, consisting of the supporter B, having the tongue or projection *c*, and of the encompassing loop A, formed together in one piece of sheet material, and slightly connected or nearly cut apart, and having on one side of each a layer of gelatine or cement, all being essentially as represented.

312,036. MATERIAL FOR FILLING MATTRESSES. RICKASON STILWELL, New York, N. Y. Filed May 12, 1884. (No specimens.)

Claim.—A new article of manufacture or composition of matter composed of intermingled shoddy and cat's-tail fiber, substantially as and for the purpose herein set forth.

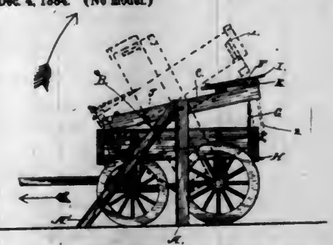
312,037. SECTIONAL NON-CONDUCTIVE COVERING FOR TUBES. WILLIAM M. SUBR, New York, N. Y. Filed Aug. 9, 1884. (Model.)



Claim.—1. A tube-covering formed of two semi-cylinders of plaster-of-paris, asbestus, and sawdust, covered on the outside with a layer of felt, which in turn is covered by a layer of thick paper, substantially as herein shown and described.

2. In a tube-covering, the combination, with two semi-cylinders, A, composed of plaster-of-paris, asbestus, and sawdust, of the felt B on the outside of the same, the paper C on the felt, and the piece of canvas D or other flexible material to which the two semi-cylinders are secured, substantially as herein shown and described.

312,038. WAGON-BED LIFTER. WILLIAM H. THOMAS, Fulton, Mo. Filed Dec. 4, 1884. (No model.)



Claim.—1. In a wagon-body lifter, the pivoted frame C, provided at one end with a windlass and chains or cords, whereby to connect the said windlass and the opposite end of the frame with a wagon-body, combined with a supporting-frame, substantially as set forth.

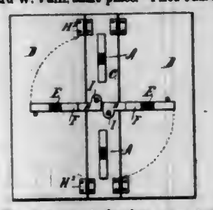
2. The combination of the supporting-frame, the frame C, pivoted thereto, the windlass supported in one end of the frame C, and chains or cords for connecting the windlass and the opposite ends of the frame C with a wagon-body, substantially as set forth.

3. In a wagon-body lifter, the combination of the frame C, the windlass E, supported at one end of frame C, the bar F, connected with the windlass, the rod I, secured at one end to bar F, and adapted at its other end to connect with the wagon running-gear, and cords or chains D G, whereby to connect windlass E and the opposite end of the frame C with a wagon-body and the supporting-frame, substantially as set forth.

4. The combination, in a wagon-body lifter, of the supporting-frame, the frame C, pivoted between its ends to the supporting-frame, and provided at its opposite ends with chains or cords for connecting it to a wagon-body, and a latch, B, whereby to secure the frame C to the supporting-frame, substantially as set forth.

5. In a wagon-body lifter, the combination, with a frame, C, pivoted between its ends, and provided at such ends with chains or cords for connecting it with a wagon-body, of a rod, J, whereby to secure the wagon-seat, substantially as set forth.

312,039. FOLDING TABLE. EPHRAIM TUCKER, Worcester, Mass., assignor to Edward W. Vaill, same place. Filed Jan. 5, 1884. (No model.)



Claim.—1. The legs A A, having a cross-piece, B, the central piece, C, of the table-top permanently connected to the legs, and the leaves D, hinged to the top C and folding downwardly, in combination with the movable legs E E, with half cross-pieces F, the hinges G, that connect the same to the cross-piece B at opposite sides, the metal plates

H, attached to the upper parts of the legs E, and each provided with a knuckle, and the screws I, by which the plates are attached to the under side of the top C, substantially as set forth.

2. The combination, with the table-legs A A and cross-piece B, of the folding legs E, having the half cross-pieces F, and hinges G, connecting the cross-piece B and half cross-pieces F, and the removable disk or basket L, substantially as set forth.

312,040. MUSIC RACK OR HOLDER. EPHRAIM TUCKER, Worcester, Mass., assignor to Edward W. Vaill, same place. Filed Jan. 5, 1884. (No model.)

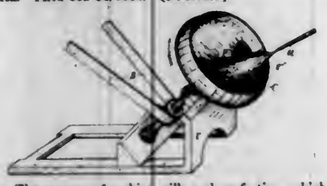


Claim.—1. The combination, in the rack or holder, of the bottom boards, D E, a central partition, K, hinged at its lower edge to the inner edges of the bottom boards, the side pieces, A B, hinged to the bottom boards, the hinged end pieces or gates, and the links M M, pivoted at O to the partition K, substantially as set forth.

2. The combination, in a music rack or holder, of the bottom boards, D E, a central partition, K, hinged at its lower edge to the bottom boards, the side pieces, A B, hinged to the bottom boards, the hinged end pieces the links M, and the folding legs T, substantially as set forth.

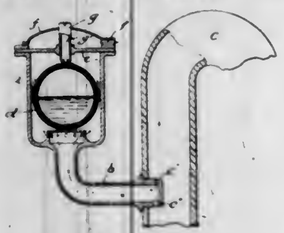
3. The combination, with the folding legs and the hinged shelf connected to the legs, of the bottom boards, side and end pieces hinged together and forming a folding music-holder, and the connections between the same and the legs, substantially as set forth.

312,041. PROCESS OF MAKING PILLS. WILLIAM E. UPJOHN, Hastings, Mich. Filed Oct. 14, 1884. (No model.)



Claim.—The process of making pills and confection, which consists in placing in a revolving pan nuclei of any suitable material, setting the pan in motion, moistening the rolling nuclei with liquid spray or vapor, sifting onto the moistened nuclei powdered ingredient or ingredients, applying to the growing pills spray or vapor, sifting onto said pills the powdered ingredient or ingredients, and so on alternately moistening and powdering until the pills have grown to the desired size, all substantially as set forth.

312,042. AUTOMATIC AIR-VALVE. WILLIAM VANDERMAN, Willimantic, Conn. Filed Oct. 17, 1883. (No model.)



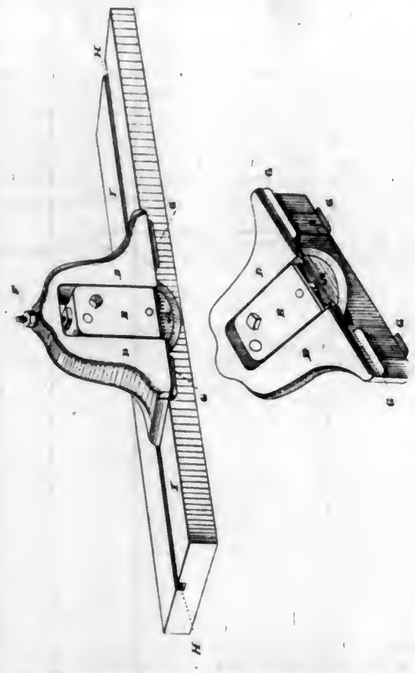
Claim.—1. In an automatic air-valve, in combination with a valve-body, *a*, a hollow valve, *d*, of india-rubber, wholly inclosed within the valve-body, cover *f*, having outlet *f'*, adjustable tube *g*, having opening *g'*, and diaphragm *e*, all substantially as described.

2. In combination, a valve-body, *a*, having hollow stem *b*, with openings c' c^2 within the radiator-tube *c*, diaphragm *e*, cover *f*, with outlet *f'*, adjustable tube *g*, having outlet *g'*, and an independent and hollow valve, *d*, of india-rubber, hermetically sealed and partly filled with liquid, all substantially as described.

3. In combination, a valve-body, *a*, having inlet and outlet openings, and inclosed independent hollow valve, *d*, of india-rubber, and a check-valve arranged in a chamber above the main valve-chamber, all substantially as described.

4. In combination, the valve-body corrugated on the inner side, and the inclosed hollow expansible valve of india-rubber hermetically sealed, all substantially as described.

312,043. WALL-PAPER-CUTTING MACHINE. JAMES C. VAN HORN, Livermore, Cal. Filed Jan. 26, 1884. (No model.)



Claim.—A straight-edge or guide provided with a slot, H, and having a frame tongued or flanged to travel upon it, in combination with a block sliding in a vertical channel in said frame, with a threaded stem and nuts for adjusting it up or down, and a circular sharp-edged disk journaled in the adjustable block, substantially as herein described.

312,044. MANUFACTURE OF IMITATION BRONZE PLATES FOR BOOK-COVERS, FURNITURE-PANELS, &c. CHAS. WAGENFÜHR, Brooklyn, N. Y. Filed Nov. 13, 1884. (Specimens.)



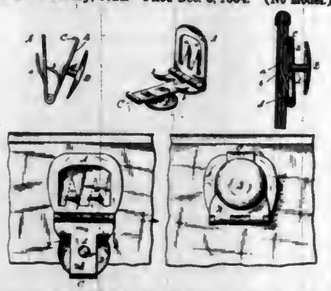
Claim.—1. The method herein described of making imitation bronze and other metal plates, which consists in embossing a metal-covered foundation-plate and then bronzing and varnishing the surface of the same, substantially as set forth.

2. As a new article of manufacture, an imitation bronze plate composed of an embossed metal-covered foundation-plate having a bronzed and varnished surface, substantially as set forth.

312,045. PROCESS OF ANNEALING COPPER WIRE. WILLIAM WALLACE and THOMAS J. WOOD, Ansonia, Conn. Filed Nov. 26, 1884. (No specimens.)

Claim.—The process herein described for annealing wire made from copper and its alloys, consisting in packing the coils of wire in pots with oxide of copper, and while so packed subjecting it to heat in the annealing-furnace, substantially as described.

312,046. SURFACE-ATTACHING GARMENT-BUTTON. PATRICK H. WALSH, Waterbury, Conn. Filed Dec. 8, 1884. (No model.)



Claim.—1. In a button, the buckle-frame provided with rearwardly-projecting teeth, whereby it may be fastened upon the outer surface of a garment, combined with the clasp-bar, adapted, substantially as shown, to fasten over the buckle-frame and into the garment, and a stud on the clasp-bar for engaging with the button-hole of a garment, &c., as set forth.

2. The buckle-frame provided with rearwardly-projecting curved perforating and fastening teeth, combined with the hinged clasp-bar having rearwardly-projecting curved perforating and fastening teeth, an integral catch, and a stud on its outer surface, as set forth.

3. The buckle-frame provided with rearwardly-projecting perforating and fastening teeth, combined with the hinged clasp-bar having rearwardly-projecting perforating and fastening teeth adapted to operate beside and at right angles to the buckle-frame teeth, said clasp-bar fastening over the buckle-frame and provided with a projecting stud, as set forth.

4. The combination of the buckle-frame A, having the curved teeth *a a*, with the clasp-bar B, having the inwardly-projecting teeth *b b*, the integral catch C, and the projecting stud D, substantially as set forth.

312,047. SCARF, NECKTIE, OR CUFF HOLDER. LEWIS F. WARD, Marathon, N. Y. Filed Sept. 5, 1884. (No model.)



Claim.—The within-described scarf, necktie, or cuff fastener, for use as a detachable appendage to collar and cuff buttons or studs, constructed of elastic metal or material bent and slitted or slotted to form a bifurcated inner back or back portion, B, having spread-out outer ends, *b b*, and an enlarged intermediate opening, *c*, an outer back portion or extension, *d*, leaving a slot or passage, *e*, for the outer head of the stud or button, and a spring-tongue, D, arranged on the outside of said portion *d*, and extending toward the spread-out ends *b b* of the bifurcated back, essentially as shown and described.

312,048. ROLLER-MILL. JESSE WARRINGTON, Indianapolis, Ind., assignor to the Nordyke & Marmon Company, same place. Filed Feb. 23, 1884. (No model.)

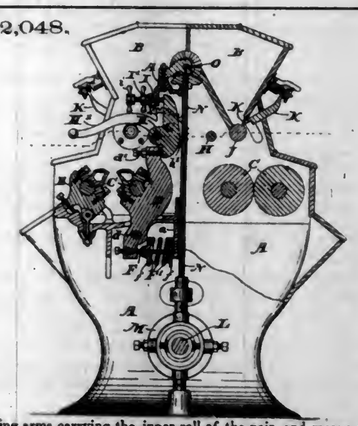
Claim.—1. The combination, in a roller-mill, of the rolls, swinging arms carrying one roll of the pair, levers for operating said swinging arms, and a cam-rod on which said levers are mounted and whereby they are operated, said cam-rod being provided with an appropriate handle, substantially as set forth.

2. The combination, in a roller-mill, of the rolls, swinging arms carrying one roll of a pair, levers for operating said swinging arms, a cam-rod on which said levers are mounted, and a handle for operating said cam-rod, said handle having a segmental extension, *k'*, whereby a second set of mechanism may be operated simultaneously with the first, all substantially as shown and specified.

3. The combination, in a roller-mill, of the rolls, swinging arms carrying the same, levers for operating said swinging arms, and distance or adjusting screws for determining the position of said levers, substantially as set forth.

4. The combination of the grinding-rolls, the adjustable boxes attached to the frame-work and carrying the outer roll of the pair, the

312,048.

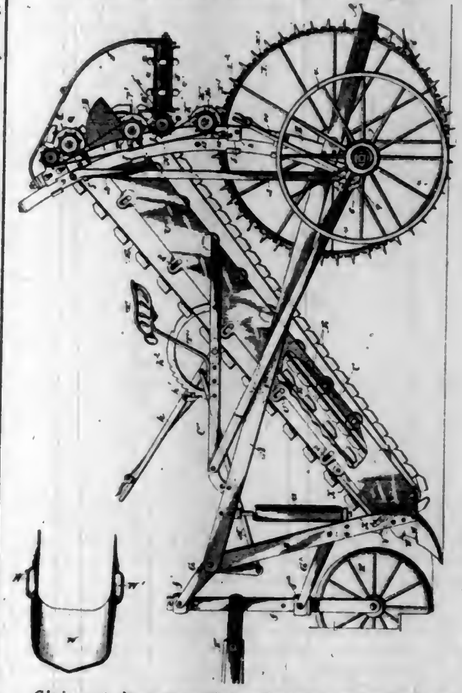


swinging arms carrying the inner roll of the pair, and means consisting of levers mounted on a cam-shaft, said cam-shaft, and hand-lever thereon, for operating said swinging arms to carry said inner roll into grinding relation with said outer roll or to part it therefrom, substantially as shown and specified.

5. The combination, in a roller-mill, of the roll-carrying swinging arms D, mounted on pivots *d*, and provided with adjusting-screws *d'*, the tempering-rods F, and the levers G, substantially as set forth.

312,049. DITCHING-MACHINE. S. FRANK WELCH, Mount Pleasant, Iowa. Filed Mar. 29, 1884. (No model.)

Brief.—In an excavator a ground-wheel drives, through peculiarly-arranged sprocket and bevel gearing, a discharge-belt and a double elevator-belt, the upper belt held to compress the material by spring-pressed rollers in elongated bearings. From an upward-curved scoop, expanding upward and rearward to discharge readily and directly upward, that its edges may cut so as to clear its rear part, extend rearward shields inclosing the elevator-belts, which have open-ended buckets with upturned sides and fingers to retain the material. The draft-pole is connected to a standard carrying a wheel, and connected to the main frame by a link and adjusting bell-crank having a hand-lever and connecting-rod.



Claim.—1. In an excavating-machine, the combination, with a plow or scoop, of a lower carrying belt or elevator, an upper belt or ele-

vator, and rollers resting on the upper elevator for yieldingly holding the latter in contact with the earth on the lower elevator, substantially as set forth.

2. In an excavating-machine, the combination, with a plow or scoop, of an elevating belt or apron, a belt or apron situated above said former belt and arranged to bear on the contents thereof and aid in raising the same, and rollers resting on the upper belt and journaled in elongated bearings, substantially as set forth.

3. In an excavating-machine, the combination, with a plow and shields extending rearwardly from said plow, of elevating belts or aprons consisting of open-link chains, and buckets secured to said chains and having upturned sides to prevent the earth from coming in contact with the shields, and open at their ends for the free passage of the earth, substantially as set forth.

4. In an excavating-machine, the combination, with a plow and shields extending rearwardly from said plow, of elevating-chains, the buckets, constructed as described, and secured to said chains, and teeth or fingers secured to the buckets, substantially as set forth.

5. In an excavating-machine, the combination, with a plow or scoop, of an elevating belt or apron, a belt or apron situated above the latter, a shield partially inclosing said belts, and spring-pressed rollers resting on the upper belt, substantially as set forth.

6. In an excavating-machine, a plow having its sides and curved bottom diverging upwardly and rearwardly, and the sides converging toward the bottom, and provided near the upper front cutting-edges with auxiliary cutters, which latter project laterally beyond the sides of the plow, substantially as set forth.

7. The combination, with the wheel I, of pinion K, sprocket-wheels M, O, P, Q, and R, chain N, gears S S', and elevating and discharging aprons, all the above parts combined and adapted to operate substantially as described.

8. The combination, with a main frame, a standard to which the draft-bar is attached, and a wheel journaled in the lower bifurcated end of said standard, of a bell-crank lever and the lever G', loosely connecting the main frame to the standard, the lever A, and the pitman connecting said lever A and bell-crank lever, substantially as set forth.

9. In an excavating-machine, the combination, with the main frame, of a vertically-adjustable plow, and elevating-belts having buckets thereon for elevating the earth, and rollers *a a*, located above the plow and lower end of the elevating-belts, and vertically adjustable therewith, substantially as set forth.

312,050. TONGUELESS CULTIVATOR. EFFINGER E. WHIPPLE, Eaton Rapids, Mich. Filed Feb. 29, 1884. (No model.)



Claim.—1. The combination, with the frame or arch of a tongueless cultivator, of separate wheel-axles pivotally connected with the frame, drag-bars attached to the wheel-axles by laterally-rigid connections, and draft-rods pivotally connected with said wheel-axles, substantially as and for the purpose set forth.

2. The combination, with the frame of a tongueless cultivator, of separate wheel-axles connected with the frame, drag-bars and draft-bars connected with the wheel-axles, and pivotal connections between the drag-bars and the axles and the draft-bars, and the axles constructed to permit either the drag-bars or the draft-bars to be rigidly secured to said axles as desired, substantially as and for the purpose set forth.

3. The combination, with the separate wheel-axles A, drag-bars attached to the axles, and vertical rods B, rigidly secured to the said axles, of a transverse bar, C, connecting the rods B, sleeves G, constructed to rotate upon the rods B, and having sliding connection with the bar G, and means for clamping the said sleeves to the said bar, substantially as and for the purpose set forth.

4. The combination, with the wheel-axles A, drag-bars connected with the axles, and vertical cylindrical rods B, rigidly connected with the said axles, of a transverse bar, C, connecting the said rods B, sleeves G, constructed to rotate upon the rods B, and rigidly connected with the transverse bar C, collars G', located upon the rods B, beneath the sleeves G, and means for adjustably securing said collars to the rods, substantially as and for the purpose set forth.

5. The combination, with the separate wheel-axles A, vertical rods B, rigidly attached to said axles, and drag-bars D, of coupling-blocks F, attached to the drag-bars, and provided with cylindric apertures constructed to fit upon the cylindric lower ends of the rods B, clamping devices for securing the coupling-blocks rigidly upon the said rods, draft-bars connected with the wheel-axles at points adjacent to the rods, and a transverse bar, C, pivotally connected with the said rods, substantially as and for the purpose set forth.

6. The combination, with the drag-bar of a cultivator, of an arm, H pivotally connected with the said bar, and a counterbalance-weight, H' applied to the said arm above its pivotal point, substantially as and for the purpose set forth.

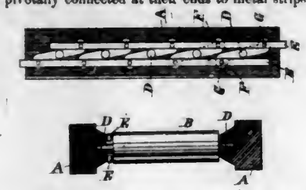
7. The combination, with the drag-bar of a cultivator, of an arm, H, pivotally connected with the said bar, a counterbalance-weight, H', attached to the arm above its pivotal point, and a rod, I, connected with said arm and extending to a point upon the machine within the reach of the operator, substantially as and for the purpose set forth.

8. The combination, with the drag-bar of a cultivator having a handle, D', of an arm, H, pivotally connected with the said drag-bar, and a rod, I, connected with the said arm at one end, having sliding connection with the handle D' at its opposite end, and provided with an apertured portion, *i*, substantially as and for the purpose set forth.

9. The combination, with the frame and drag-bars of a tongueless cultivator, of coupling-blocks F, connected with the frame, and vertical plates D^2, attached to the bars and pivotally connected with the said blocks, the plates B^2, and the coupling-blocks being provided with abutting surfaces f^2, d^3, and d^5, constructed to limit the vertical play of the drag-bars, substantially as and for the purpose set forth.

312,051. WINDOW-BLIND SLAT. HENRY E. WILLER, Milwaukee, Wis. Filed Sept. 13, 1884. (No model.)

Brief.—Slats provided on one side or both of their edges with projections are pivotally connected at their ends to metal strips.



Claim.—1. The series of blind-slats B B, provided on one side of one or both of their edges with beads or projections H, in combination with one or more connecting side strips, E, and retaining-pins G, substantially as set forth.

2. The series of slats B B, respectively provided with beads or projections H H, arranged one upon the inside and one upon the outside of the slats diagonally opposite to each other, in combination with the strips E E and pins G, said beads or projections serving as places of attachment for said strips, substantially as and for the purpose specified.

312,052. WINDOW-FRAME. HENRY E. WILLER, Milwaukee, Wis. Filed Sept. 13, 1884. (No model.)

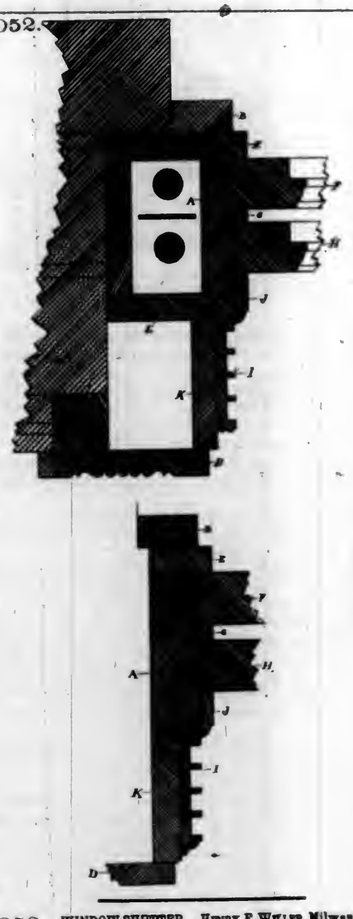
Brief.—The blindways are set back, and their front edges are on a line with the jamb or sashways, the inside stop projecting forward sufficiently to overlap the edge of the blind-way and assist in retaining it in place.

Claim.—1. The combination, with a window sash and frame, of blind way-strips having their front surfaces flush with the front surface of the jambs of the window, and beads for retaining the window-sash, substantially as and for the purpose specified.

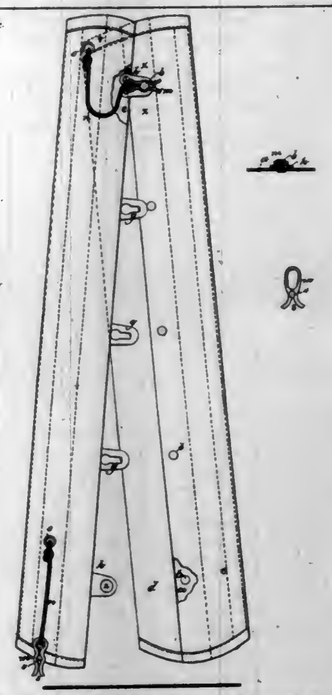
2. The combination, with a window-frame, of way-strips I, so set back from the outer surface of the jambs as to bring their outer surfaces flush with the outer surface of the jambs, and the sash-retaining beads J, having their front edges projecting forward past the rear edges of said way-strips, substantially as and for the purpose specified.

3. In a window-frame, the combination of jambs A, outside casings, B, outside stops, E, top and bottom sashes, F and H, center beads, G, inside beads, J, way-strips I, having their front or outer surfaces flush with the outer surfaces of said jambs, and inside casing, D, all substantially as and for the purpose specified.

312,052.

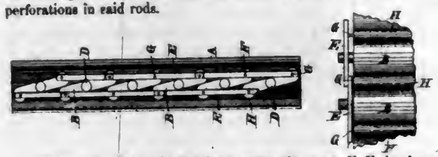


312,054



312,053. WINDOW-SHUTTER. HENRY E. WILLER, Milwaukee, Wis. Filed Oct. 22, 1884. (No model.)

Brief.—A series of short connecting-rods are attached to the outer beaded edge of shutter-slats by loosely-fitting pins which pass through perforations in said rods.



Claim.—1. The series of short connecting-rods E E, having perforations F F, said rods being attached to the outer edge of shutter-slats B B by loosely-fitting pins G G through perforations F F, in combination with shutter-slats B B, supported and turning on their tenons in the shutter side rails, A A, substantially as described.

2. The series of short connecting-rods E E, having perforations F F, said rods being attached to the outer edge of shutter-slats B B by the loosely-fitting pins G G passing through the perforations F F and driven into the beads H H on the edge of said slats, in combination with the shutter-slats B B, provided with the beads H H, said slats being supported and turning on their tenons in the shutter side rails, A A, substantially as described.

312,054. CORSET-FASTENING. CHARLES H. WILLIAMS, Worcester, assignor to Theodore C. Bates, North Brookfield, Mass. Filed May 26, 1884. (No model.)

Claim.—A corset-steel provided with a plate, *h*, having an opening for the passage of a stud, and a steel provided with a stud, combined with an independent removable clip or fork having a recess, substantially as described, to embrace the stud, and to be retained thereon after the stud has been passed through the hole in the said plate, substantially as set forth.

312,055. CORSET-FASTENING. CHARLES H. WILLIAMS, Worcester assignor to Theodore C. Bates, North Brookfield, Mass. Filed May 26, 1884. (No model.)



Claim.—1. A fastening device consisting of a plate having an elongated slot adapted at one end to permit the entrance therein of a headed stud, and at its other end narrowed to prevent the escape of said headed stud, the said plate being provided with a laterally-movable friction-slide adapted to receive the headed stud, move with and lock the same in the narrowed portion of the elongated slot, as and for the purpose set forth.

2. A fastening device consisting of a plate adapted to be secured to a steel, and having an elongated slot adapted at one end to receive a headed stud, and at its other end narrowed to prevent the escape thereof, the said plate combined with a laterally-movable friction-slide having an eye adapted to register with the enlarged portion of the elongated slot and to receive a headed stud, and adapted to be moved laterally by the stud and lock the latter in the narrowed portion of the elongated slot, substantially as set forth.

312,056. SHOE. CAROLINE H. WINTER, St. Paul, Minn. Filed June 5, 1884. (No model.)

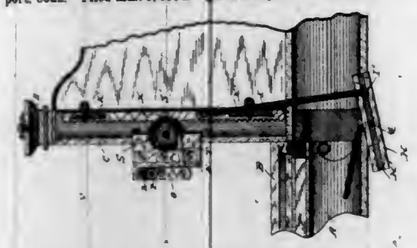


Claim.—In a shoe or boot, a thin strip of cork secured beneath the seams to protect the foot of the wearer from abrasion therefrom, substantially as set forth.

312,057. COMPOSITION FOR THE MANUFACTURE OF ARTIFICIAL STONE. JAMES L. WRAY, Watseka, Ill. Filed Dec. 18, 1883. (No specimens.)

Claim.—The herein-described composition of matter to be used for the manufacture of artificial stone, the same consisting of water, lime, alum, glue, and common mortar, in about the proportions specified.

312,058. FEED-ACTUATING MECHANISM. JOHN H. WRIGHT, Bridgeport, Conn. Filed Mar. 1, 1884. (No model.)



Claim.—1. The combination, with the tool-carrier and shafts which move the same, of a pivoted lever having two reversible spring-clicks, one of which engages a gear upon one of the shafts, the other engaging a gear upon a sleeve mounted on said shaft, a second gear upon said sleeve engaging a gear upon the other shaft, and the mechanism for imparting oscillatory motion to the lever, whereby either shaft may be rotated in either direction, or both may remain stationary.

2. The combination, with the tool-carrier and its actuating-shaft, having a gear secured thereto, of a lever carrying a reversible pawl or click, a wheel, and mechanism, as a rack and pinion, for oscillating the same, and a link connecting said wheel with said lever, as set forth.

3. Shaft N^3, having gear N^3, in combination with gears N N' on sleeve M, pivoted lever O, carrying a reversible click or pawl, and the mechanism for oscillating the lever, as described, and for the purpose set forth.

4. The combination, with the tool-carrier and its actuating-shaft L, having gear P secured thereto, of the lever O, journaled on said shaft and provided with a reversible pawl or click, an oscillating wheel, a link connecting said wheel with said lever, a rack and pinion for oscillating said wheel, and mechanism, as the cross-piece and connecting-rod, for reciprocating said rack.

5. In a metal-working machine, a pivoted lever carrying reversible clicks, and shafts actuated thereby, which move the tool-carrier, in combination with a link, one end of which is pivoted to the lever, and whose other end is pivoted to wheel S, whereby when said wheel is oscillated corresponding motion is imparted to the lever.

6. The combination, with the cross-head, the pivoted lever, and wheel S, having groove S' and aperture S^2, of link T and bolt T', whose head corresponds with the groove, whereby the link and lever may be adjusted after readjustment of the cross-head.

7. In a metal-working machine, wheel S, having an annular groove in its face, said groove being widest at the bottom, and having an opening at the back corresponding with the bottom of the groove, in combination with a bolt having a head corresponding with the groove, a link pivoted to the wheel by said bolt, and the mechanism for oscillating said wheel, substantially as described.

8. The feeding mechanism consisting of the shafts, the gears, the double-pointed clicks, the pivoted lever, and link T, in combination with wheel S and the mechanism whereby reciprocal rotary movement is imparted thereto.

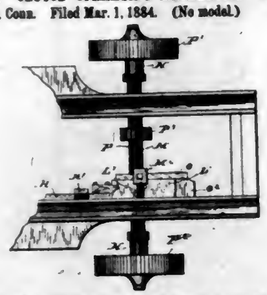
9. In a metal-working machine, the click-lever, link T, wheel S, gear S^3, and sliding rack K, in combination with the rock-shaft carrying a cross-piece, and connecting-rod I, pivoted to the rack and adjustably pivoted to the cross-piece, whereby the amount of movement imparted to the click-lever may be regulated.

10. Operating-rack G^3 and rock-shaft G, having pinion G' and grooved cross-piece H, in combination with the connecting-rod pivoted in the groove of the cross-piece, feed-shafts L and N^3, and connecting mechanism—for example, the sliding rack, gears, link, click-lever, and double-pointed clicks.

11. The combination, with the feed-shafts and connecting mechanism—for example, the sliding rack, gears, link, clicks, and click-lever—of rock-shaft G, having cross-piece H, with groove H', pivoted to its outer end, and connecting-rod I, pivoted in said groove, whereby the amount of feed is increased or decreased in accordance with the adjustment of the connecting-rod relatively to the pivotal point of said cross-piece, substantially as described.

12. The pivoted lever, the link, the grooved wheel, and pinion S^3, in combination with rack K, the connecting-rod, shaft G, having pinion and cross-piece, and rack G^3, all as described, and for the purpose set forth.

312,059. CLUTCH-OPERATING MECHANISM. JOHN H. WRIGHT, Bridgeport, Conn. Filed Mar. 1, 1884. (No model.)



Claim.—1. The clutches and the sliding clutch-rod having a pin, as shown, in combination with a sliding plate having a diagonal slot with which said pin engages, and means—for example, the shipping-lever and rack—for reciprocating said plate, so that when the pin is at either end of the slot one of the clutches will be engaged, and when in the middle of the slot both will be disengaged.

2. In a metal-working machine, the sliding clutch-rod having pin M' and block M^2, in combination with the sliding plate having diagonal slot, and plate O, having recess O', in which the block slides, as described, and for the purpose set forth.

3. The adjustable shipping-dogs and shipping-levers E and F upon shaft E', in combination with the sliding plate, and clutch-rod, and the connecting mechanism, substantially as described.

4. The shipping-dogs and shipping-levers pivoted in the bed, in combination with the link, the rack, the sliding plate, and the clutch-rod, substantially as described.

5. The clutch-rod, the sliding plate, and the rack, in combination with the shipping-lever for automatically actuating the rack, and independent means—for example, a pinion—for actuating it by hand.

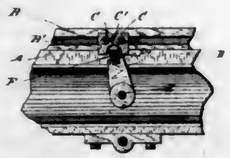
6. The clutch-rod having pin M', the sliding plate having groove L', and the rack, in combination with pinion I on shaft K, and handle for operating said shaft and pinion, as described, and for the purpose set forth.

7. The clutches, the clutch-rod having pin M', and the sliding plate having slot L', in combination with the rack, pinion I, and the operating-handle, substantially as described.

8. The shaft having a driving-gear and loose belt-pulleys on opposite sides of the bed, which are adapted to rotate in opposite directions, the clutches adapted to engage therewith, and clutch-rod having a pin, in combination with means—as the plate with diagonal slot, and rack and pinion—for causing either clutch to engage its pulley or disengaging both clutches, whereby the machine may be stopped, started, or reversed without manipulation of the belts.

9. In a metal-planer, the combination, with a shaft having a driving-gear and loose belt-pulleys at opposite ends thereof adapted to rotate in opposite directions, of independent clutches upon said shaft outside the bed which are adapted to engage said pulleys, and a device—for example, rod M—connected to said clutches whereby they may be alternately engaged and disengaged without manipulation of the belts.

312,060. SHIPPING DEVICE FOR METAL PLANING AND SHAPING MACHINES. JOHN H. WRIGHT, Bridgeport, Conn. Filed Mar. 1, 1884. (No model.)



Claim.—1. In a metal-working machine, a shipping-lever the operating portion of which is pivoted at its lower corners to the main portion thereof, and which may be thrown into or out of operative position, remaining in either position, whereby the reciprocation of the table may or may not take place without affecting any of the adjustments.

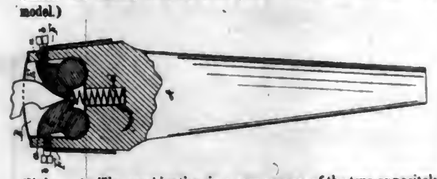
2. In a planer, a shipping-lever having a tumbling-dog pivoted at its upper end, in combination with adjustable shipping-dogs upon the table, as described, and for the purpose set forth.

3. The tumbling-dog pivoted at its outer lower corner to the shipping-lever, whereby when thrown into or out of operative position the weight of the dog will hold it in such position.

4. Shipping-levers D and G and pivoted tumbling-dog F, having concave sides F', in combination with shipping-dogs C, substantially as described.

5. Shaft E and the shipping-levers, in combination with a tumbling-dog having concave operating-faces and pivoted to one of the levers, and adjustable shipping-dogs, also having curved operating-faces, as described, and for the purpose set forth.

312,061. SAW-SWAGE. LOY B. YOUNG, Newport, Ark., assignor to himself and Samuel O. Lewis, same place. Filed June 11, 1884. (No model.)

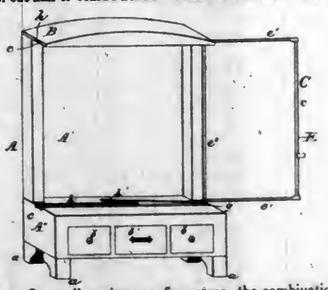


Claim.—1. The combination, in a saw-swage, of the two oppositely-arranged rolling eccentric swages, as herein described.

2. The combination, with a shank, A, provided with a chamber, B, of the swages C, having journals D, and the adjusting-screws *b*, as herein specified.

3. The combination, in a saw-swage, of the oppositely-arranged eccentric swages C, spring *d*, adjusting-screws *b*, and the shank A, as specified.

312,062. MIRROR-STAND. CHARLES ZORNOW, Brooklyn, N. Y., assignor of one-half to Conrad Brand. Filed June 5, 1884. (No model.)



Claim.—1. In a toilet-mirror or fire-screen, the combination, with a central stand comprising a base-shelf and a surmounting ledge grooved for the reception of wings or supplementary frames, of wings having pintles which slide in said grooves and constitute pivotal points for the movement of the wings when extended.

2. The combination of the frame A, having the grooves *h h'*, terminating in the boxes *i*, and the pivotal wings E E, carrying pintles *g g*, mounted in the grooves *h h'*, substantially as and for the purpose described.

3. In a screen, the combination, with the frame A, and the base-shelf A'', provided with grooves *c* and *h h'*, of the top B, grooved in similar manner to the said base-shelf, the frame C, mounted in the grooves *c c* in the base-shelf A'' and top, and the wings E E, having pintles *g g*, mounted in the grooves *h h'*, substantially as described.

312,063. FENCE-MAKING MACHINE. GEORGE Q. ADAMS, Quincy, Ill., assignor to the A B C Fence Company of New York. Filed Apr. 1, 1884. (No model.)

Claim.—1. In a fence-machine with twisting-heads, the curved detachable arms or thimbles 33, extending forward of the case 32, through which the wire 15 is passed before twisting, substantially as for the purpose specified.

2. The shaft 24, bevel-gears 23 and 22, gears 20, and twisting-heads, in combination with arm 31, movable pin 29, stop-pin 30, and disk 26, provided with slot 28, substantially as for the purpose set forth.

3. The gripping-arms 41 43, secured to shafts 38 39 and operated by arms 45 46, carriage 47, connecting-rod 51, and lever 50, substantially as for the purpose specified.

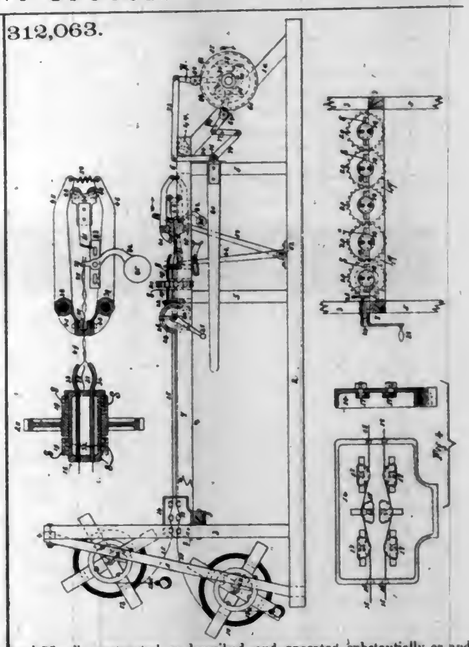
4. The stop 79, with weighted lever 82, pivoted to adjustable frame 83, in combination with frame 87, adjustable arm 84, and feed-arms 42, pivoted on frame 22, substantially as for the purpose specified.

5. The disk 60, with slots 59, and shafts 61, with threaded screws 64, and sleeve 62, in combination with the bars 56 57, with tongues 58, substantially as for the purpose specified.

6. The pawls 68 69, in combination with wheels 88, arms 70 71 lugs 72, connecting-rods 73 77, and arms 74 78, rock-shaft 76, and lever-handle 80, substantially as for the purpose set forth.

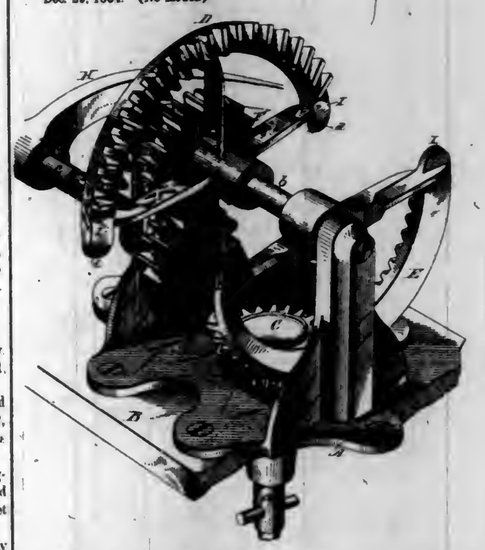
7. In a picket-fence-weaving machine, the frame 1 2 3 4 5 6 7 wire-reels 10 13, with automatic brake 13^a, tension-blocks 14, twisting-heads 18, with twisting-arms 33 34, gripping-arms 41 43, and winding-

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reel 55, all constructed as described, and operated substantially as and for the purpose specified.

312,064. GEARING. GEORGE H. ASHBY, Oskaloosa, Iowa. Filed Dec. 29, 1884. (No model.)



Claim.—1. A gearing consisting of two semicircular toothed bands mounted on a horizontal rotary shaft, and adapted to engage with the teeth of a pinion on a vertical shaft, the toothed bands being arranged on the horizontal shaft in relation to each other as shown, and for the purpose set forth.

2. In a gearing for imparting to a vertical shaft an alternating rotary or semi-rotary motion, the combination, with a pinion connected to the upper end of said shaft, of two semicircular toothed bands terminating at their extremities in projecting guides to act in conjunction with the pinion, substantially as and for the purpose specified.

3. In a gearing, a horizontal rotary shaft carrying two semicircular toothed bands, arranged thereon as shown, and adapted to engage with a pinion on the end of a vertical shaft, one of said bands being cast with a pinion, in combination with a second horizontal shaft having a crank-

handle at one end and a pinion at the other to engage with the pinion of the toothed band, substantially as and for the purpose described.

4. In a gearing, a horizontal rotary shaft carrying semicircular toothed bands terminating at their extremities in projecting beveled guides, one of said bands having cast thereon a pinion, in combination with a second horizontal shaft provided with a crank-handle and pinion, and a pinion secured to a vertical shaft, with which engage the toothed bands, substantially as and for the purpose set forth.

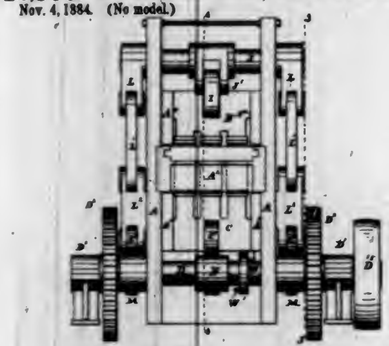
312,065. ATTACHMENT FOR VAPOR-BURNERS. AMOS P. AVERY, Plain City, Ohio. Filed Aug. 15, 1884. (No model.)

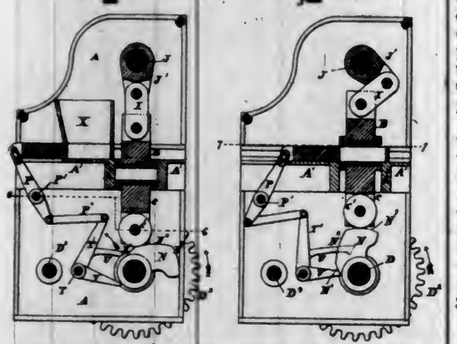


Claim.—1. The combination of the chimney, the flange at the upper end thereof, and the rim provided with recesses, as described, surrounding the said flange and serving as a support for a cooking utensil, and the deflector *f*, supported above the said chimney, to operate substantially as described.

2. As an improved article of manufacture, an attachment for vapor-burners, consisting of a chimney and flange at the upper end thereof, a deflector above the said chimney, and a rim surrounding the said flange, provided with openings or recesses, and a gauze or perforated plate in the said recesses, substantially as described.

312,066. BRICK-MACHINE. HARRY L. BALSON, De Soto, Mo. Filed Nov. 4, 1884. (No model.)

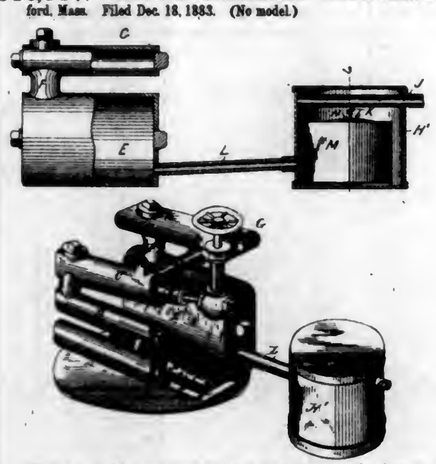




Claim.—1. In a brick-machine, the mold A^2 and upper plunger, B, in combination with the main shaft D, cam M, carried thereby, sliding block L^2, upon the lower end of which said cam impinges, rock-shaft J, having cranks L and J', links L' and I, connecting said cranks with the sliding block L^2 and plunger B, respectively, the lower plunger, C, and the cam N, arranged on said shaft D in such position relatively to the cam M as to commence its action immediately before the action of the latter ceases, as and for the purpose set forth.

2. In combination, the mold, the plungers B C, the main shaft D, actuating the said plungers, substantially as described, the disk W, secured to said shaft, and having pins W' projecting from opposite sides, the rock-shaft T, having arms U and V, against the under and upper faces of which said pins engage, respectively, the charger O, and levers connecting said charger with the rock-shaft T, as described.

312,067. VALVE FOR VAPOR-BURNERS. DAVID E. BANGS, Medford, Mass. Filed Dec. 18, 1883. (No model.)



Claim.—1. The combination, in a vapor-burner, of a burner, an oil-pipe, and a steam-chamber delivering combined steam and gas to the burner, said steam-chamber being adjacent to and heated by the flame from the burner, and provided with a water-supply and an automatically-operated float or valve controlling the supply of water to the steam-chamber, for the generation of the proper quantity of steam to be combined with the vaporized gas, substantially as described.

2. The combination, in a vapor-burner, of a burner, A, an oil-pipe connecting therewith, a water-chamber adjacent to and heated by the flame from the burner to generate steam, and connected with the oil-pipe to deliver steam thereto, a water-supply delivering water to the said chamber, and a float or valve operated by the supply-water to control the supply of water and the generation of the proper quantity of steam delivered to the oil-pipe, substantially as described.

3. The combination, in a vapor-burner, of a burner, A, an oil-supply pipe, H, connecting therewith, a water-chamber adjacent to and heated by the flame from the burner and connecting with the oil-pipe to deliver steam thereto, a water tank or reservoir connected with the said chamber, a water-pipe for delivering water to the tank or reservoir, and a float or valve operated by the water delivered to the tank or reservoir to control the inlet of water through the water-pipe, substantially as described.

4. The combination of a burner, A, an oil-supply pipe, H, connecting therewith, a steam-superheater connected with the supply-pipe, a water-chamber communicating with the superheater, and arranged adjacent to and heated by the flame from the burner to generate steam, a water-supply connected with the water-chamber, and an automatically-operated float or valve controlling the delivery of water to said water-chamber for the generation of the proper quantity of steam to be delivered to the oil-pipe, substantially as described.

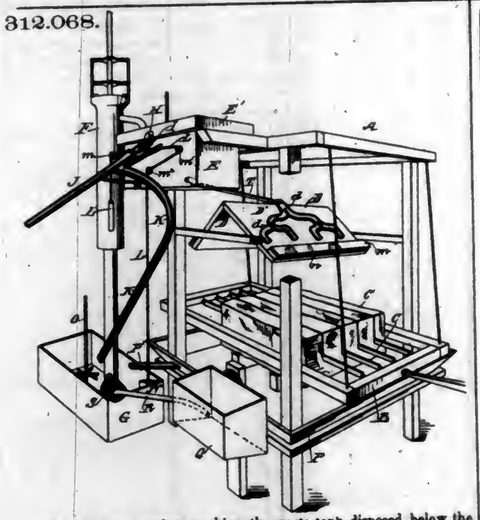
5. The combination of a burner, A, an oil-supply pipe, H, connecting therewith, a steam-superheating chamber, G, connected with the oil-supply pipe, a water-chamber, E, communicating with the superheating-chamber and arranged adjacent to and heated by the flame from the burner for the generation of steam, a water tank or reservoir connected with the water-chamber, a water-supply pipe having an orifice for delivering the water-supply to the tank or reservoir, and a float or valve operated by the water in the tank or reservoir to control the delivery of the supply of water thereto, substantially as described.

312,068. MACHINE FOR SAWING STONE. VALENTINE G. BARNEY, Charles City, Iowa. Filed Aug. 1, 1884. (No model.)

Claim.—1. In a stone-sawing machine, the combination, with the waste-tank disposed below the saw-frame and connected to a return waste water and sand tank, and means to elevate the waste water and sand, of the pitched boards having the forked conduit connected by a conduit to a supply-tank connected to said waste water and sand elevator, substantially as and for the purpose set forth.

2. In a stone-sawing machine, the waste-tank disposed below the saw-frames and connected to a return waste-tank, and a water and sand tank connected to said return waste-tank, in combination with the pump connected to an elevated water-tank connected to a distributing-conduit arranged upon a pitched board above the saw-frame, substantially as and for the purpose set forth.

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3. In a stone-sawing machine, the waste-tank disposed below the saw-frames and connected to a return waste-tank, and a water and sand tank connected to said return waste-tank by a conduit entering a screen disposed in said return waste-tank, in combination with the pump connected to an elevated water-tank, and the pitched board, together with the distributing-conduit connected to said elevated water-tank, substantially as and for the purpose set forth.

4. In a stone-sawing machine, the waste-tank disposed below the saw-frames and connected to the return waste-tank, and the pump, in combination with the water-tank arranged above the saw-frames and connected to said pump, and having an overflow-tank provided with a nozzle, and the pitched board, together with the distributing-conduit connected to the tank above the saw-frames, substantially as and for the purpose set forth.

5. In a stone-sawing machine, the combination, with the return waste water and sand tank and pump, of the overflow-tank superposed upon the elevated water-tank, and having a discharge-nozzle emptying in a flexible spout or conduit alternately discharging into a waste-conduit, and a conduit discharging into the return waste-tank, substantially as and for the purpose set forth.

6. In a stone-sawing machine, the combination, with the return waste-tank and the pump, of the elevated water-tank having the overflow-tank, with its nozzle connecting with a flexible spout or conduit connected to a cord passed over pulleys, one end of said cord suspending a weight and the other end being connected to a float disposed in said return waste-tank, and the waste and return conduits, said return-conduit discharging into said return waste-tank, substantially as and for the purpose set forth.

7. In a stone-sawing machine, the waste-tank disposed below the saw-frames and connected to a return waste-tank, said latter tank being connected to a water and sand tank and the pump, in combination with the elevated water-tank having the nozzled overflow-tank, the pitched boards having the riffles, the forked distributing valved conduit connected to said elevated water-tank and arranged upon said pitched boards, the flexible conduit or spout connecting with the nozzle of said overflow-tank and alternately discharging into a waste-conduit and a return-conduit emptying into said return waste-tank, substantially as set forth.

312,069. SAND AND WATER PUMP. VALENTINE G. BARNEY, Charles City, Iowa. Filed Aug. 7, 1884. (No model.)

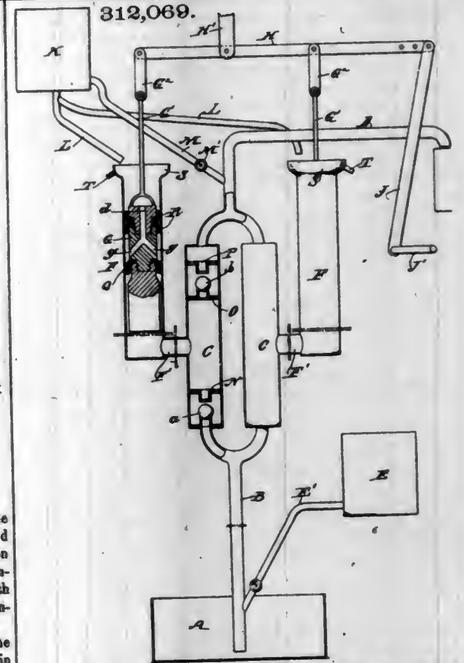
Brief.—The opening through the piston allows water to flow downward from the tank K to keep the sand from cutting the packing and clearing the cylinder at that point.

Claim.—1. In a pump, the combination, with the cylinder, of a piston the upper part of which fits closely in the cylinder, and the lower part of which fits loosely in the cylinder, the piston being provided with apertures for conducting water from the top of the piston to a point below that part of the piston fitting closely in the cylinder, substantially as herein shown and described.

2. In a pump, the combination of the cylinder F, of considerable length, and provided with a plunger having channels, with means for conducting water into the cylinder at or near its top, substantially as herein shown and described.

3. A pump-piston provided with packing-rings a short distance from each other and with channels extending from the top of the piston to the space between the packing-rings, substantially as herein shown and described.

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4. In a pump, the combination, with the cylinder, of a plunger or piston having packing-rings which fit closely in the cylinder, and having a packing-ring which fits loosely in the cylinder a short distance below the tight-fitting packing-rings, and a channel extending from the top of the piston to the space between the packing-rings, substantially as herein shown and described.

5. In a pump, the combination, with the cylinder F, of the piston or plunger G, having the close-fitting upwardly and downwardly projecting rings R at the top, the downwardly-projecting ring Q, some distance below the packing-rings R, and the channels *d g*, extending from the top of the piston to the space between the packing-rings R Q, substantially as herein shown and described.

6. In a pump, the combination, with the cylinder, of a piston or plunger having a long loosely-fitting lower end, and provided with channels and means for conducting water into the cylinder at or near its top, substantially as herein shown and described.

7. In a pump, the combination, with the valve-cylinders C C, of the pump-cylinders F F, connected with the same, the suction-pipe B, the delivery-pipe D, and the priming-pipe M, extending from the water-tank K to the delivery-pipe of the pump, substantially as herein shown and described.

312,070. SLEIGH-BELL ATTACHMENT. WILLIAM E. BARTON, East Hampton, Conn. Filed Aug. 18, 1884. (No model.)



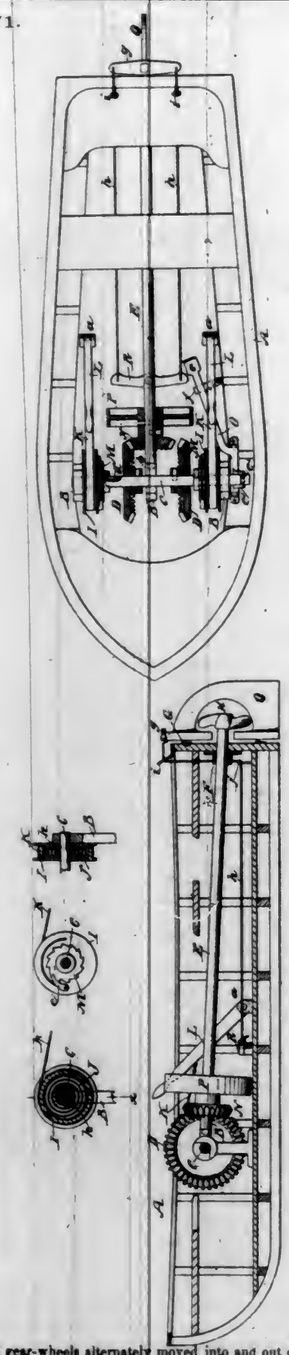
Claim.—1. The combination of the elastic rod B, fitted for attachment to the shaft, with the bells constructed with a groove in the upper end of their shank to embrace said rod, as a means for securing said bells to the rod, substantially as described.

2. The combination of the rod B, one end formed with an eye for fixed attachment of the rod, a socket in which the other end will rest free for longitudinal movement, and one or more bells attached to said rod, substantially as described.

312,071. HAND-PROPELLER FOR BOATS. MICHAEL BATZ, Brooklyn, N. Y. Filed July 21, 1884. (No model.)

Claim.—1. In a hand-propeller for boats, the combination, with the propeller-shaft carrying a pinion or cog-wheel, of the sliding transverse

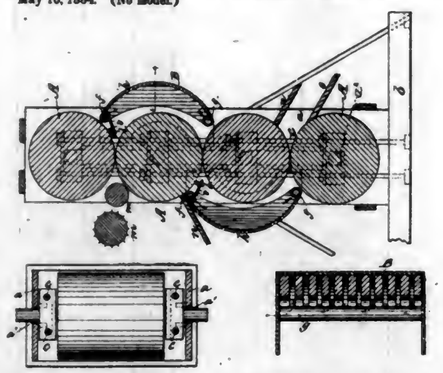
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shaft carrying gear-wheels alternately moved into and out of gear with the propeller-shaft pinion, the spring-actuated pulleys or barrels, supported upon fixed gudgeons, and having ratchet and pawl connections with said transverse shaft, and the hand-levers having strap connection with said pulleys or barrels, substantially as shown and described, and for the purpose set forth.

2. In a hand-propeller for boats, the combination, with the propeller-shaft carrying a pinion or cog-wheel, of the sliding transverse shaft carrying gear-wheels alternately moved into and out of engagement with the propeller-shaft pinion, the spring-actuated pulleys or barrels supported upon fixed gudgeons and having ratchet and pawl connection with said transverse shaft, the hand-levers having strap connection with said pulleys or barrels, and the foot-lever, with one end resting upon a spring and with its other end connected to one end of said transverse shaft, substantially as and for the purpose set forth.

312,072. CANE-MILL. JOHN BENNYWORTH, Kinsley, Kans. Filed May 10, 1884. (No model.)



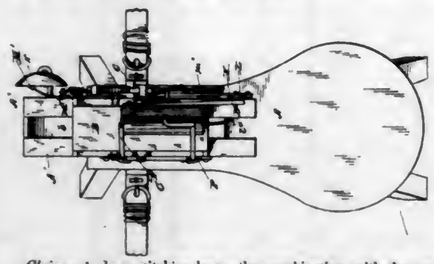
Claim.—1. The combination, with the vertical series of rollers A, of the steam-hoods B, arranged on opposite sides of the intermediate rollers to form a continuous S-shaped passage, whereby the cane will be guided between the lower and upper surfaces of the first and second rollers, thence between the lower and upper surfaces of the second and third rollers, and so on back and forth between the successive rollers, as described, to the end of the series, substantially as set forth.

2. The combination, with the rollers A, of the hoods B, arranged on opposite sides of the intermediate rollers, as shown, and a series of bars, *h*, extending from the inner surfaces of said hoods to form guides for the cane in its passage between the rollers, and also to form pockets between said bars, substantially as and for the purpose described.

3. In a cane-mill, a steam-jacket, B, formed with a series of bars, *h*, extending from its inner surface, as shown, to form guides and pockets, and a supply and exhaust pipe connected with each of said pockets, substantially as set forth.

4. In a cane-mill, the combination of the rollers A, one above the other, vertically-slotted standards *a*, vertical posts *c*, secured on opposite sides of each slot, and the sliding boxes *d* on said posts *c*, substantially as set forth, whereby the journals of rollers A may freely slide within the slotted standards and be prevented from lateral movement.

312,073. HARNESS-MAKER'S STITCHING-HORSE. JAMES F. BEST Galva, Ill. Filed Nov. 28, 1884. (No model.)



Claim—1. In a stitching-horse, the combination, with the work-clamp, of the treadle-strap plate carrying a shaft with its arm held in a flexibly upright position, together with a line to effect the depression of said lever, substantially as and for the purpose set forth.

2. In a stitching-horse, the combination, with the plate or support carrying the shaft having the awl-bar or arm, of the treadle-strap having intermittent movement transversely through the bridge of the horse, substantially as and for the purpose set forth.

3. In a stitching-horse, the shaft having an arm carrying the awl, said shaft being supported upon a plate of the treadle-strap, in combination with a spring acting upon said shaft to hold its said arm in an upright flexible position, and a line acting to deflect or depress said arm, substantially as and for the purpose described.

4. In a stitching-horse, the combination, with the work-clamp carriage, of the driving-lever having a pawl to propel the ratchet-wheel of the actuating-shaft of the carriage, said lever being acted upon by the treadle-strap, substantially as and for the purpose set forth.

5. In a stitching-horse, the combination, with the work-clamp carriage, of the driving-lever having a pawl to engage a ratchet-wheel upon the shaft geared to said carriage, said lever having a projection or stud entering a slot in the treadle-strap, substantially as and for the purpose described.

6. In a stitching-horse, the work-clamp carriage, in combination with the supplementary lever acting upon the propelling and holding pawls of the ratchet-wheel of the driving-shaft of the carriage, to disengage them from said ratchet-wheel, substantially as and for the purpose set forth.

7. In a stitching-horse, the work-clamp carriage, in combination with the supplementary lever acting upon the propelling and holding pawls of the ratchet-wheel of the carriage-driving shaft, to disengage said pawls from said ratchet-wheel, said lever being connected to a second lever, with one end provided with a finger-piece or lug, substantially as and for the purpose set forth.

8. In a stitching-horse, the work-clamp carriage, in combination with the supplementary lever acting upon the propelling and holding pawls of the ratchet-wheel of the carriage-driving shaft, said lever passing through an eye of the holding-pawl and connected to a second lever connected to the distant or forward end of the bridge of the horse, substantially as and for the purpose set forth.

9. In a stitching-horse, the driving-lever carrying a pawl engaging with a ratchet-wheel of the carriage-driving shaft and the awl-bar or arm carried by a rock-shaft, in combination with the spring cone-pulley, with one face thereof connected by a line to said awl-bar, and the other face of said pulley connected also by a line to said driving-lever, substantially as and for the purpose set forth.

10. In a stitching-horse, the combination, with the work-clamp carriage, of the cam or lever disposed in the line of travel of said carriage and actuating the hammer of the gong or bell, substantially as and for the purpose set forth.

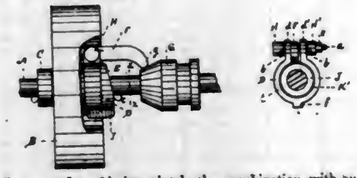
11. In a stitching-horse, the combination, with the work-clamp carriage, of the lever or cam disposed in the line of travel of said carriage and the gong or bell hammer, said carriage having at the point of contact therewith of said cam or lever a beveled edge, substantially as and for the purpose set forth.

12. In a stitching-horse, the combination, with the work-clamp, of the awl or needle guide comprising a bent rod with its upper end notched and disposed slightly in front of the plane of movement of the awl, substantially as and for the purpose described.

13. In a stitching-horse, the combination, with the work-clamp, of the channel-opener consisting of the bent rod with its upper end disposed directly over said clamp and slightly in rear of the traveling movement of the awl and opening the work, substantially as and for the purpose described.

14. In a stitching-horse, the work-clamp comprising the stationary jaw and a flexibly-seated jaw having a tongue fitting in and projecting through a slot in the base of the stationary jaw, in combination with a lever connected to the latter jaw and to the projecting end of said tongue of the flexibly-seated jaw, substantially as and for the purpose described.

312,074. FRICTION-CLUTCH. FRANCIS M. BLAKE, Worcester, Mass., assignor of one-half to C. H. Blake and D. D. Blake, same place. Filed Apr. 14, 1884. (No model.)



Claim.—1. In a friction-clutch, the combination, with an elastic friction-strap connected with the shaft and inclosing the hub of the pulley, a rotating cam-carrying bolt having a projecting lever acted on by a sliding collar, whereby the friction-strap is compressed on the hub, of a lug, *q*, projecting from the friction-strap, and a spring supported by said lug and acting on the projecting lever and rotating cam-bolt so as to reverse their action, as and for the purpose described.

2. In a friction-clutch, the combination, with an elastic friction-strap connected with the shaft and inclosing the hub of the pulley, and having lugs *d d'*, of a rotating screw-threaded bolt passing through said lug, having a head resting against the outer side of one of the lugs *d d'*, and having a squared section or sections, *n*, and connected projecting lever F, actuated by a sliding collar, of a washer sliding on a squared section of the bolt so it will rotate with it, and acting against the face of one of the lugs *d d'*, with a tightening-nut, *e*, as and for the purpose set forth.

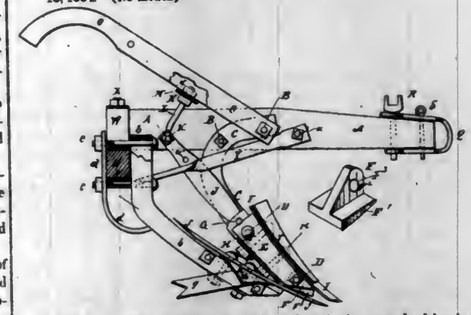
3. In a friction-clutch, the combination, with a friction-strap inclosing the hub of a pulley and connected with the shaft, and having lugs *d d'*, and a rotating bolt with a head resting against the outside of one of said lugs, of a sliding cam-shaped washer sliding on and rotating with said bolt and acting on a similar cam-surface on one of said lugs, and an adjusting-nut for determining the position of the cam-shaped washer on the rotating bolt, as and for the purpose set forth.

4. In a friction-clutch, the combination, with a friction-strap, D, inclosing the hub of the pulley, of the driving-plate E, attached to the shaft and connected with the friction-strap by an arm, I, extending laterally and entering a groove, *f*, in the friction-strap on the side opposite the ends of the friction-strap, so the connection between the driving-plate and friction-strap is made at that section of the strap where the motion caused by the expansion and contraction of the strap is the least, as and for the purpose set forth.

5. In a friction-clutch, the combination, with an elastic friction-strap inclosing the hub of a pulley, of an elastic ring held between the hub and the elastic friction-ring, and being capable of turning within the inclosing-ring, so its position relative thereto may become changed, as and for the purpose set forth.

6. The combination, in a friction-clutch, of friction-strap D, having lugs *d*, *d'*, and *q*, rotating bolt having a projecting arm, F, actuated by a sliding collar, sliding cam-washer H', adjusting-nut *e*, and spring *p*, as and for the purpose set forth.

312,075. PLOW. THOMAS A. BLANCHARD, Appling, Ga. Filed Mar. 13, 1884. (No model.)



Claim.—1. The combination, with a slotted plow-standard having its lower end beveled, of the reversible wedge-shaped spacing-block F, provided with the apertured lug F^2, and a bolt for securing the spacing-block in place, substantially as shown and described, whereby the block serves the threefold purpose of a spacing-block, a shoe for the lower end of the standard, and a means for changing the inclination of the standard, as set forth.

2. In a plow, the combination, with the standard C, bar E, bolts D, plow-plate I, plate H', and bolts H, of the reversible spacing-block F, having wedge-shaped foot-plate F', provided with a lug, F^2, having a bolt-hole, F^3, substantially as shown and described.

3. In a plow, the combination, with the plow-plate I and its fastening-bolts H, of the reversible mold-board 1, made wider at one end than at the other end, and having a shoulder, 6, the reversible wedge-block 2, having T-groove 5, and bolts 3, 4, and H, substantially as herein shown and described, whereby the said mold-board will be securely held, and can readily be applied, detached, and reversed, as set forth.

4. The combination, with the plow-standard C, the bar E, and the fastening-bolts D, of the spacing-blocks G F, substantially as herein shown and described.

5. In a plow, the combination, with the standard C and beam A, of the reversible cutting-brace J, having its upper and lower edges sharpened, and provided with end holes, and hole *a'* and bolts B K D, substantially as shown and described, whereby the cutting-edges of the root-cutter can be reversed and the latter raised and lowered, as set forth.

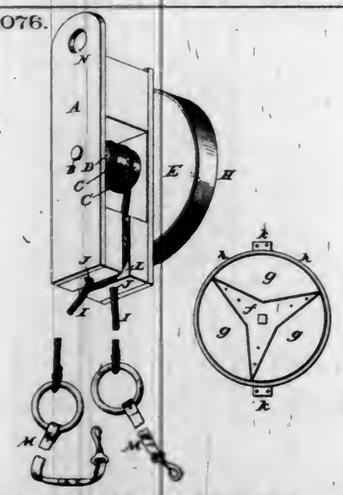
6. In a plow, the combination, with the cross-beam I', the facing-plates V W, having grooves *e*, and the standards *b*, of the bolts c and the plates *d*, having their lower ends curved forward, substantially as herein shown and described, whereby the said standards are secured adjustably to the cross-beam and its plates and will be firmly supported, as set forth.

312,076. AUTOMATIC FIRE-ESCAPE. FRANK A. BONE, Lebanon, Ohio. Filed May 12, 1884. (No model.)

Brief.—A fire-escape in which a governor is attached to the shaft over which the escape-rope is passed, which consists of a revolving star-shaped center, and loose blocks placed between the sides of the case and surrounded by a brake-strap, against which they are thrown as the device revolves.

Claim.—1. In fire-escapes, the governor E, with its revolving star-shaped center *f*, freely moving blocks *g g g*, circular metal sides F, and fixed band or brake H, substantially as and for the purposes herein set forth.

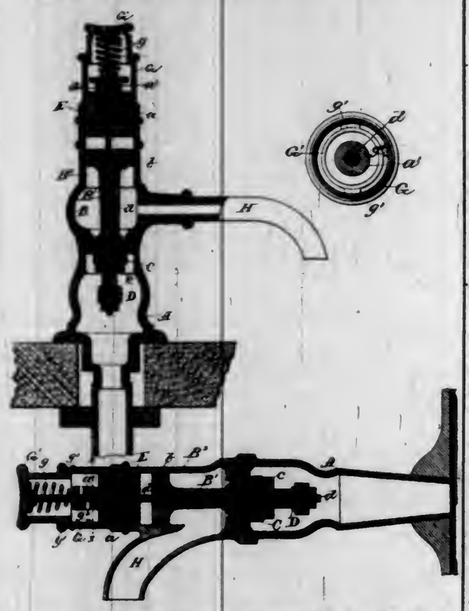
312,076.



2. The combination of the frame A, having the two longitudinal holes J J and circular groove L in the bottom, with the axis B and roller D, having two V-shaped notched grooves, C C, with governor E, having a revolving center, *f*, freely-moving blocks *g g g*, and band or brake H, firmly fixed to the frame A, substantially as and for the purposes herein set forth.

3. The combination of the frame A, having the longitudinal holes J J and circular groove L, with the rope I, having a belt, M M, at each end and passing through the frame A and around the roller D, with the roller D, axis B, governor E, center *f*, blocks *g g g*, and band H, substantially as and for the purposes herein set forth.

312,077. WATER-COCK. PHILIP A. BOWEN, Milwaukee, Wis., assignor of one-half to Loeffelholz & Co., same place. Filed Feb. 19, 1884. (No model.)



Claim.—1. The combination of the chamber B, the piston B', the valve C, the rod *d*, having valve D at one end and push-button and closing-spring at its opposite end, and the locking appliances *g'* and g^2, substantially as set forth.

2. The combination, with the chamber B and its barrel B^2, of the recessed ferrule E, having packing *a*, the closing-cap *a'*, and the thimble G for receiving the exterior push-button and its spring, substantially as specified.

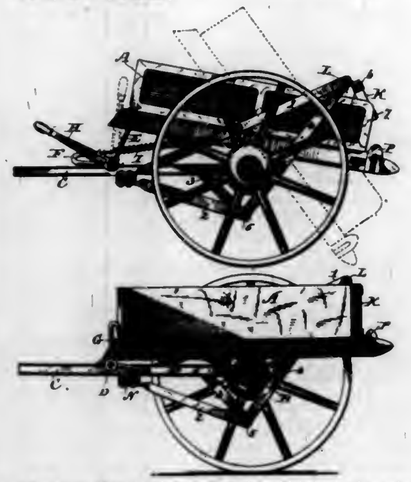
3. The combination of the thimble G, having pin g^2, with the push-button G', having locking-lug *g'*, rod *d*, and spring *g*, substantially as shown.

4. The combination of the stand A, the chamber B, the recessed ferrule E, the packing *a*, the exteriorly-threaded cap *a'* within the encircling-thimble G, the main self-closing valve C, and the valve D, operable by the rod *d*, substantially as described.

5. The combination, with the chamber B, of the piston B', the valve C, having its seat upon the lower end of the chamber B, the valve D, having its seat upon the lower end of the piston B', the ferrule E, having capped packing-chamber, and the rod *d*, connected to the valve D, and adapted by the provision of the locking appliances *g'* and g^2 to be held either in an open or in a closed position.

6. The combination, with the chamber B, interiorly threaded at its outer end, of the ferrule E, exteriorly threaded at either end, the thimble G, provided with pin g^2, and engaging at its inner end with the exterior end of the ferrule, the interior cap, *a'*, exteriorly threaded and closing the packing-chamber within the ferrule, the spring *g*, and the push-button G', provided with lug *g'* and carrying the valve-rod *d*, substantially as described.

312,078. DUMPING-CART. MICHAEL BOWES, Raleigh, N. C. Filed Oct. 2, 1884. (No model.)



Claim.—1. The combination, with the vehicle-body, the rock-shaft, the handle or device for turning said shaft, and the tilting-arm for tilting said body when the shaft is turned, of the catch connected with said parts, substantially as described, so that one movement of said handle or operating device releases the catch and tilts the said vehicle-body, as set forth.

2. The combination, with the tilting vehicle-body, of the rock-shaft, the catch attached to and carried by said shaft, the arm on said shaft for tilting the said body, the handle, and the retractile spring, substantially as described.

3. The combination, with the tilting vehicle-body and the tail-board, of the frames for upholding said tail-board, the latter being hinged to said frames so that it can swing on a horizontal axis in removing and replacing the said tail-board, being provided at the bottom with projections or pins which guide the tail-board by contact with the side pieces of the vehicle-body, substantially as described.

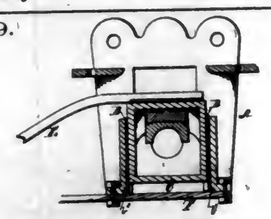
4. The combination, with the tilting body, the frames for upholding the tail-board when the vehicle-body is tilted, the tail-board hinged to said frames so that it can swing on a horizontal axis, and the stop-pieces on the vehicle-body to prevent the tail-board from swinging out when the said body is horizontal, substantially as described.

5. A dumping-cart comprising the body, the axle fastened on the bottom of said body, the shafts hinged to the axle, the frames fastened to the shafts in front of the axle, and the tail-board connected with said frames, substantially as described.

6. The combination, in a dumping-cart, with the body and shafts of the cart, of the rock-shaft, tilting-arm, catch carried by and movable with the rock-shaft, retractile spring, frames, and tail-board, said rock-shaft and frames both being fastened to the shafts, and said frames upholding the tail-board whenever the vehicle-body is tilted by turning the rock-shaft, substantially as described.

312,079. PEDESTAL FOR RAILWAY-CARS. BARNAD BRUDY and GEORGE W. MCHALE, Detroit, Mich., assignors of one-third to William E. Lennane, same place. Filed Oct. 22, 1884. (No model.)

312,079.

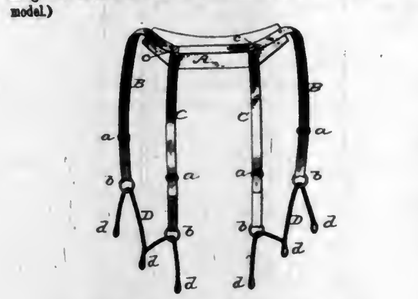


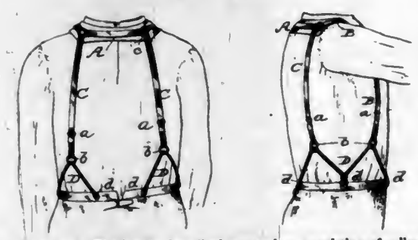
Claim.—1. The combination, with the pedestal A and box C, formed with lugs *c*, of the removable wearing-plates B, fitting within recesses in said pedestal, and formed angular, as shown, to receive the wear of said lugs as well as the sides of said box, substantially as described.

2. The combination, with the pedestal A and box C, of the removable wearing-plates B, formed at their lower ends with lugs b^3, fitting in recesses in the pedestal, substantially as described.

3. The combination, with the recessed pedestal A and box C, formed with lugs *c*, of the removable wearing-plates B, fitting within the recessed pedestal, and formed angular, as shown, to receive the wear of the sides of said box and of lugs, and provided at their lower ends with lugs b^3, to fit in recesses in the pedestal, substantially as described.

312,080. SUSPENDERS. ALFRED BROWN, Ottawa, Ontario, Canada, assignor of one-half to John R. Dow, same place. Filed Oct. 3, 1884. (No model.)



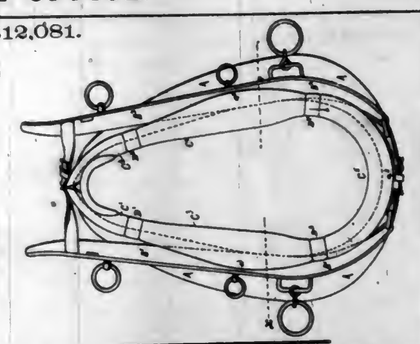


Claim.—1. The herein-described suspenders, consisting of collar A, two front and two rear straps, B C, and cords or runners D, loosely connecting said straps, all substantially as shown and described.

2. In a pair of suspenders, the combination of two front and two rear suspending-straps loosely connected, and a collar, A, secured to said straps, substantially in the manner shown.

3. In a pair of suspenders, the combination of collar A, straps B C, attached to said collar, and provided with eyes *b* at their lower extremities, and cords or runners D, connecting said straps, provided with loops *d*, and passing loosely through the eyes thereof, as and for the purpose set forth.

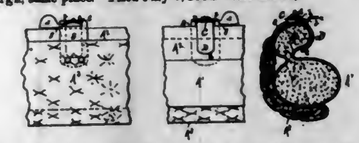
312,081. HORSE-COLLAR AND SWEAT-PAD CLAMP. RALPH BROWNSON, St. Paul, Minn., assignor of one-half to Peter R. L. Hardenbergh, same place. Filed July 7, 1884. (No model.)



Claim.—1. In combination with a horse-collar, a sweat-pad, A^2, having a plate, B, clamp D, and cam C, substantially as and for the purpose set forth.

2. The combination of the collar A' A^3, sweat-pad A^2, plate B, having lip *a* and slot *b*, and attached to said sweat-pad, cam C, having thumb-lever *d* and stop *g*, and the clamp D, substantially as and for the purpose specified.

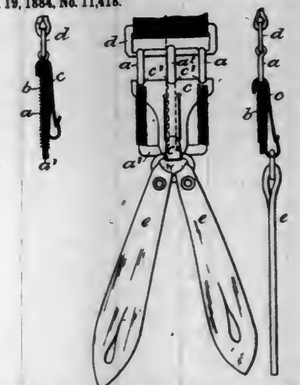
312,082. HORSE-COLLAR AND SWEAT-PAD CLAMP. RALPH BROWNSON, St. Paul, Minn., assignor of one-half to Peter R. L. Hardenbergh, same place. Filed July 7, 1884. (No model.)



Claim.—1. In combination with a horse-collar, a sweat-pad, A^2, having a plate, B, clamp D, and cam C, substantially as and for the purpose set forth.

2. The combination of the collar A' A^3, sweat-pad A^2, plate B, having lip *a* and slot *b*, and attached to said sweat-pad, cam C, having thumb-lever *d* and stop *g*, and the clamp D, substantially as and for the purpose specified.

312,083. SUSPENDERS. JOEL CADBURY and JOSEPH G. ROLLASON, Birmingham, County of Warwick, England; said Rollason assignor to said Cadbury. Filed Sept. 27, 1884. (No model.) Patented in England Aug. 19, 1884, No. 11,418.



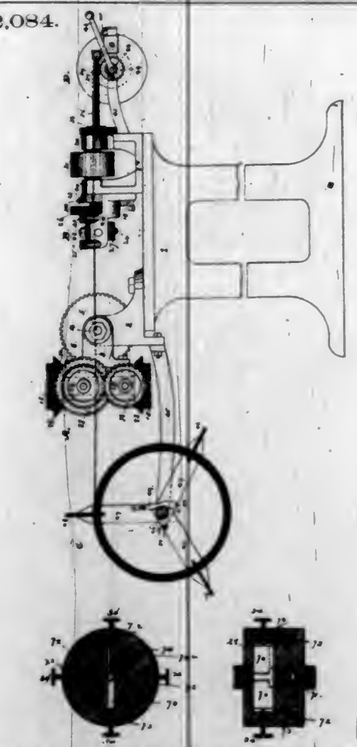
Claim.—1. In a suspender, the combination, with the bars *a* and spiral springs *b*, surrounding said bars, of the slide-plate *c*, having holes c^2 c^2 for the passage of said bars, whereby said plate is retained in position and guided in its movements, substantially as described.

2. In a suspender, the combination, with the link *d*, of the bars *a a* and a^3, joined together at one end and attached to said link at the other, the springs *b b*, surrounding the bars *a a*, and the slide-plate *c*, having its upper end turned over and provided with the holes c^2 c^2 c^2 for the passage of bars *a a* and a^3, all constructed and arranged substantially as described.

312,084. MACHINE FOR SCREW-THREADING WIRE. ANDREA CAVALLI, San Francisco, Cal. Filed Sept. 7, 1883. (No model.)

Claim.—1. In a machine for forming grooved cable-wire fastenings for use in boot and shoe work and similar purposes, as described, the combination of a head having a central aperture around which are arranged grooved revolving circular dies, and the mechanism by which uniform rotation is imparted to said dies, a set of feed-rollers having regular rotation and adapted to engage with and draw the wire forward through said head and between the revolving dies thereof, a revolving head or chuck carrying a set of finishing-dies and placed in line with the travel of the wire, so that the action of the feed-rollers shall move the

312,084.



wire regularly forward through said revolving head, and a winding-up drum having rotation regularly with respect to the feed-rollers, all substantially as hereinbefore described.

2. The combination, in a suitable head or frame, of a set of spindles, 17, carrying grooved circular dies, a set of intermediate idler-spindles, 13, and the series of bevel-gears and spur-gears 11 12 14 15, by which positive and uniform rotation of all the dies is effected.

3. The combination, in a suitable frame, of the spindles 17, carrying the grooved revolving dies, the intermediate spindles or studs, 13, the bevel-gears 11 14 and spur-gears 12 15, the driving-shaft 5, geared into one of said spindles, a reel in front of said revolving dies to hold a coil of wire, and a means, as the drum, spring, and winding-gears described, for drawing off the wire from the coil and through the said dies at suitable speed and tension, as hereinbefore described.

4. In a machine for threading wire, the combination, with the revolving spindle and chuck carried thereby, of the stationary flaring mouth-piece 60, held in the exit end of the spindle, and the winding-drum and operating mechanism, as described.

5. The combination, with the revolving chuck-carrying spindle 32, of the winding-up drum, and the coil-spring and winding mechanism, consisting of the gears and worm-shaft, constructed substantially as described, to operate as set forth.

312,085. SAFETY-BELT. EDWARD J. CLAGHORN, New York, N. Y., assignor to Mary A. Seitz, same place. Filed June 24, 1884. (No model.)

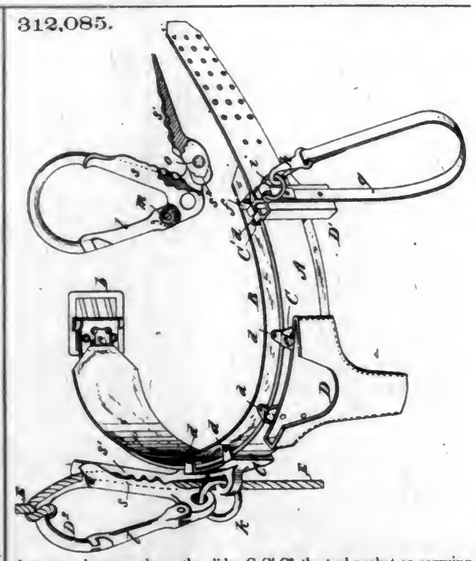
Claim.—1. In a safety-belt for tourists and others, the combination of the inner and outer belts, united to each other, as described, so as to form a space between them, and adjustable slides or bands fitted to move on and along said outer belt between its points of attachment to the inner belt, and provided with attachments for securing the person of the wearer of the belt, and for other purposes, substantially as specified.

2. The within-described compound safety-belt, which consists of a stout outer belt, A, having a fastening at its ends, an inner belt, B, any number of slides or sliding bands, C C' C², arranged for adjustment along the outer belt and between it and the inner belt, and a suspension-hook and tool-holding or other like attachments carried by said slides, essentially as described.

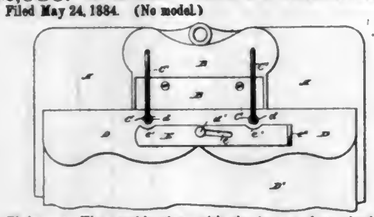
3. The combination, with the connected belts A B, arranged to leave a through space between them, of the slide C² and the spring snap suspension-hook D², having fixed and pivoted jaws s s', substantially as specified.

4. The combination of the outer belt, A, having a fastening at its ends, the broader inner belt, B, united to the outer belt, so as to leave a free space between them, the slides C C' C², the tool-pocket or carrying device D, the looping-strap *g*, and the spring snap suspension-hook D², essentially as described.

312,085.



312,086. PAPER-FILE. WILLIAM H. H. CLAGUE, Rochester, N. Y. Filed May 24, 1884. (No model.)



Claim.—1. The combination, with the base and standard of a paper-file, of a compressor and a fastening, substantially as described, which engages the standard, for the purposes set forth.

2. The combination, with the base and standard of a paper-file, of an apertured compressor fitted to said standard, and a movable slide constructed to clamp or release the standard, substantially as described.

3. The combination, with a file-base and two paper-holding wires or standards thereon, of an apertured compressor fitted to said wires, and a wedging-slide arranged to bear upon both said wires, and removably attached to the compressor at a point between its points of bearing on the wires, substantially as described.

4. The combination, with the base and two wires or standards, of a wedging centrally-guided slide provided with notches opposite the wires when said slide is in its retracted position, substantially as described.

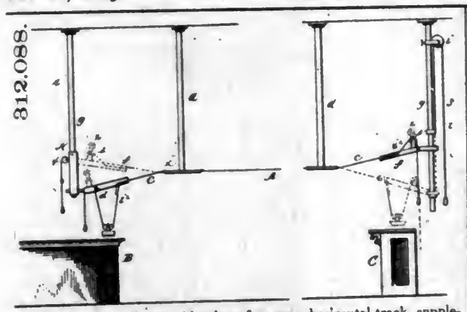
312,087. STORE-SERVICE APPARATUS. MILTON CLARK, New York, N. Y., and JAMES T. COWLEY, Baltimore, Md. Filed Jan. 10, 1885. (No model.)



Claim.—In combination, the track, the conveyer, and the apparatus by which the conveyer is both received from and restored to the track, all arranged and operating as set forth.

312,088. STORE-SERVICE APPARATUS. MILTON CLARK, New York, N. Y., and JAMES T. COWLEY, Baltimore, Md. Filed Jan. 10, 1885. (No model.)

312,088.



Claim.—1. The combination of a main horizontal track, supplemental portions at each end, automatic flexible receiving devices, and mechanism for inclining such supplemental portions and receiving devices from the main track at different angles, substantially as described.

2. The combination, with the main track, of a supplemental portion at one or both ends adapted to be raised and lowered out of line with said main track, the flexible portions, and mechanism, as described, whereby the parts are operated, substantially as described.

3. The combination, with the main horizontal track, of the supplemental portions *c*, flexible portions i², adjustable bar *f*, having jointed arm and bearing pulleys 1 2, the bar *g*, bearing pulleys i' and 3, and the cord *i*, all substantially as described.

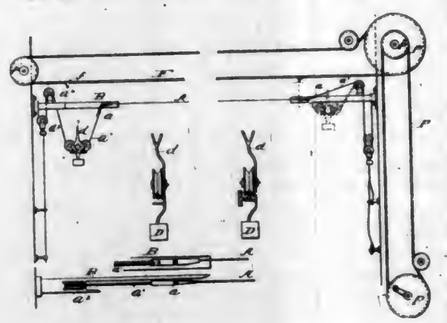
4. The combination of the main track, the supplemental portions, the flexible elevating and receiving devices, and the adjustable arm provided at its ends with an elongated hole, whereby it is free to be moved vertically, and mechanism for operating the same, substantially in the manner and for the purpose described.

5. The combination, with the main track and the supplemental portions thereof, of intermediate supports connecting the two, and tightening devices to which the ends of such main and supplemental tracks are secured, substantially as described.

6. The combination, with the main track and supplemental portions and flexible raising and lowering portions, of the bar *f*, provided with slotted head, the depending bar on which said head works, and means whereby the same is adjusted, substantially as described.

7. The combination, with the main track and supplemental and flexible portions, of the bar *f*, bearing the pulleys 1 2, and the cord i², substantially as described.

312,089. STORE-SERVICE APPARATUS. MILTON CLARK, New York, N. Y., and JAMES T. COWLEY, Baltimore, Md. Filed Jan. 10, 1885. (No model.)



Claim.—1. In combination, a carrier and main track, and two terminal tracks operating alternately to receive the carrier from and restore it to the main track, substantially as described.

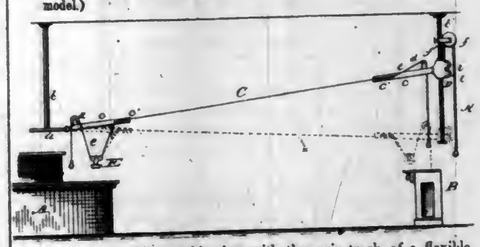
2. In combination, a main track, two terminal tracks, and means, substantially as shown, for operating the terminal tracks, substantially as described.

3. The combination, with a car adapted to be raised above and lowered beneath the main track A, of the main track, the cord F, and its knob *f*, arranged and operating substantially as described.

4. The combination, with the main track, car D, the cord F, and its knob *f*, of means for actuating said cord in causing contact of its knob with the car, whereby the latter is propelled, substantially as described.

5. The combination, with the main track, the terminal track, and the support sustaining one end of the main track, of the car D, and the means, substantially as herein described, whereby said car is caused to move upon the main track.

312,090. STORE-SERVICE APPARATUS. MILTON CLARK, New York, N. Y., and JAMES T. COWLEY, Baltimore, Md. Filed Jan. 10, 1885. (No model.)



Claim.—1. The combination, with the main track, of a flexible medium forming a continuation thereof at each end, and inclined at an angle greater than said main track, substantially as described.

2. The combination, with the main track adapted to be adjusted at one end, of a flexible section forming a continuation thereof at each end, and inclined at an angle greater than said main track, substantially as described.

3. The combination, with the main track fixed at one end and adjustable at the other, of the supports *c*, bearing pulleys *d*, jointed arms *c'*, attached to said supports, cords *e*, passing over said pulleys, and a car traveling the main track, substantially as described.

4. The combination, with the main track fixed at one end, supports *c*, and cords *e*, of the support *b*, block D, bearing pulleys *i i*, collar *f'*, pulley *f*, and cord *k*, all substantially as described.

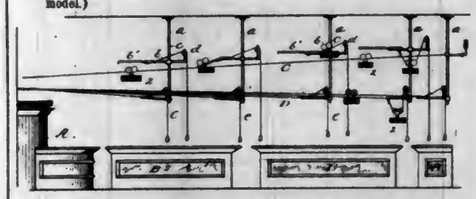
5. In combination, a main track, a terminal track, and means for raising and lowering the end of the main track to which the terminal track is attached, and other means for lowering the terminal track from and again raising it to an alignment with the main track, substantially as described.

6. The combination, with the main track, of the flexible section and adjustable support, whereby the inclination of the main track can be changed by moving the support up and down, substantially as described.

7. The combination, with the main track, of the flexible section *e*, support *c*, clamp E', bar E, and bifurcated extension, said support being joined or pivoted to the clamp, substantially as shown and for the purpose described.

8. The combination, with the main track, flexible section, support *c*, and hinged arm *c'*, of the curved arm O, extending outwardly from the said hinged arm *c'*, and through the end of which the main track passes, all substantially as described.

312,091. STORE-SERVICE APPARATUS. MILTON CLARK, New York, N. Y., and JAMES T. COWLEY, Baltimore, Md. Filed Jan. 10, 1885. (No model.)



Claim.—1. A store-service system consisting of a single forwarding-track for all the stations of a counter and individual return-tracks for each counter or station, substantially as described.

2. In a store-service system, the combination of a single forwarding-track for all the stations of a counter, supported at each station and inclining toward the cashier's desk, separate and individual return-tracks inclined oppositely to the forwarding-track, and a car adapted to travel such tracks, substantially as described.

3. In a store-service system, the combination, with a main forwarding-track, of suitable means whereby the car is elevated above the track, giving an initial impetus, and automatically transferred or delivered upon the track, substantially as described.

4. The combination of a main forwarding-track inclined toward the cashier, and individual return-tracks inclined oppositely thereto, suitable means whereby the car is elevated above the forwarding track and automatically delivered upon it, and also means at the end of the return-tracks whereby the car is automatically lowered to within reach of the operator, substantially as described.

5. The combination of a single inclined forwarding-track for all the stations of a counter, supports at each station to which it is attached, and automatic devices located on said supports above the track for elevating the car, giving it an initial impetus, and delivering it upon the track, substantially as described.

6. The combination of the inclined forwarding-track, individual

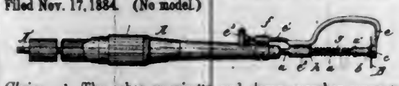
oppositely-inclined return-tracks, depending supports to which they are all attached, the elevating and delivering devices clamped to said supports, and consisting of the bar *b*, hinged jointed extension *b''*, spring *b'''*, cord *c*, and pulley *d*, and the receiving devices for the car at the end of the return-tracks, all substantially as described.

7. The combination, with the forwarding-track and supports *a*, of the bar *b*, hinged jointed extension *b''*, spring bearing against said extension, cord *c*, and pulley *d*, all substantially as described.

8. The combination, with the tracks or ways of a store-service, of a supporting-bar, the clamp E, a screw-threaded arm hinged to said clamp, the angle-arm carrying a pulley and adjusting-nuts, all substantially as described.

9. The combination, with the track or way of a store-service system, of adjustable devices for keeping them taut, the same bearing a pulley round which the terminal of the way is passed and then secured, substantially as described.

312,092. DENTAL TOOL. THOMAS COGSWELL, Wellesley Hills, Mass. Filed Nov. 17, 1884. (No model.)



Claim.—1. The arbor or spindle and clamp member connected to and rotating in unison therewith, combined with the support or bracket and co-operating member *c*, having its bearing held thereby in the line of the axis of the arbor or spindle, substantially as described.

2. The arbor and clamp member *b* thereon, combined with the co-operating clamp member *c* and supporting-bracket therefor, provided with a sleeve engaging the said arbor, substantially as described.

3. The arbor and clamp member *b* thereon, combined with the co-operating clamp member *c*, its supporting-bracket, and a spring, whereby the said clamp members are normally pressed toward one another, substantially as described.

4. The arbor and fixed and movable clamp members *b c*, co-operating as described, combined with a disk-engaging prong for positively connecting the disk with the arbor, substantially as described.

5. The arbor and clamp member fixed thereon, provided with a prong, combined with the hub or plate *c*, constituting the other clamp member, the latter having an annular groove to receive the said prong, substantially as described.

6. The arbor *a*, having a clamp member, *b*, fixed thereto, and provided with a recess, b^2, combined with the movable bracket provided with a pin to enter the said recess, and a hub or plate, *c*, free to rotate on said pin, substantially as described.

312,093. CORE ROCK-DRILL. LEWIS D. CONNER, Oberlin, and CHARLES F. PEEBLES, Berea, Ohio. Filed Aug. 26, 1884. (No model.)

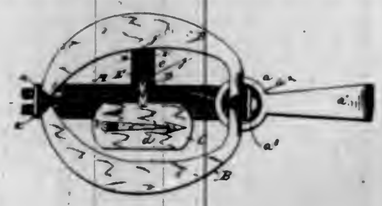


Claim.—1. A core-drill consisting, essentially, of a metal tube or drill proper secured to a smaller tube, which serves as a water-supply pipe and a spindle, and adjustable guide-blocks secured to said spindle, substantially as set forth.

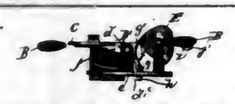
2. The combination, with the tube A, provided with the head *a* and one or more slots or openings, I^5, and secured to the tube B, of the rod or tube C, provided with the elastic blade *c*, bent and operated in the manner shown, substantially as set forth.

3. The combination, with a core-drill and a hollow spindle secured to one end of the core-drill, of the wooden guide-blocks and the collars adjustably secured to the spindle, substantially as set forth.

312,094. STEEL-TRAP. ENOS A. COOK, JAMES D. SHOOTS, and DEWITT STARING, Horseheads, N. Y. Filed Mar. 13, 1884. (No model.)



312,094.

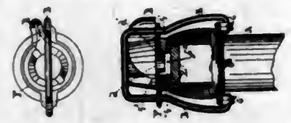


Claim.—1. In an animal-trap, the platform A, apertured studs *a a*, the pivoted jaws B, and spring *a'*, in combination with the tilting platform, the barbed bait-bar *d*, spring *f*, and cam E, substantially as shown, and for the purpose described.

2. In an animal-trap, the combination of the notched and shouldered cam, the clamping-jaws, one engaging with said cam, the spring *a'*, and the tripping-lever having the tilting platform and adapted to engage with the cam-shoulder, substantially as and for the purpose set forth.

3. The jaws B B, in combination with the spring *a'*, the tilting platform C, and shouldered cam E, substantially as shown and described.

312,095. BOTTLE-STOPPER. GEORGE D. COREY, Lowell, Mass., assignor to Woods, Sherwood & Co., same place. Filed Sept. 20, 1883. (No model.)

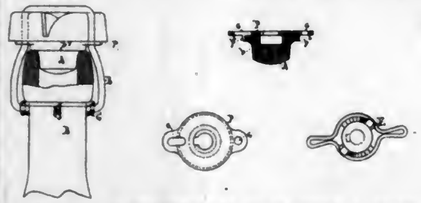


Claim.—1. The combination of the cam-plate D, provided with the pin *d* and projection *d'*, with the plate F, provided with the corresponding hole, f^2, and slot f^3, substantially as described.

2. The combination of the cam-plate D, provided with the pin *d*, the plate F, provided with the corresponding hole, f^2, the bail B, and the tubular projection *f*, adapted to receive the lower end of the pin *d* and allow the same to rotate therein, with the elastic piece E, fitted around the outside thereof, substantially as described.

3. In combination with the bail B, the cam-plate D, provided with the pin *d* and projection *d'*, and the plate F, provided with the hole f^2 and slot f^3, the latter being so placed as to prevent the pin from escaping from said hole when the plate F is slipped upon the bail, substantially as described.

312,096. BOTTLE-STOPPER. GEORGE D. COREY, Lowell, Mass., assignor to Woods, Sherwood & Co., same place. Filed Mar. 14, 1884. (No model.)

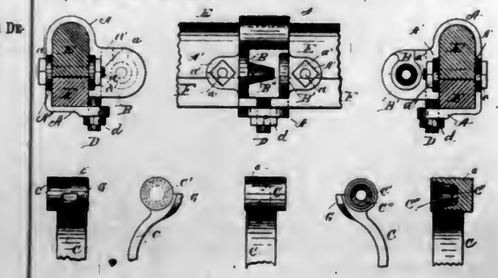


Claim.—1. In combination with the cork-stopper A, the cap-plate P and the tubular screw-threaded sleeve *p*, the cork taking a bearing upon the outer and inner surfaces of said sleeve and upon the lower surface of said cap-plate, substantially as described.

2. The combination of the cork-stopper A, the plate P, the tubular sleeve-bearing *p*, and the tubular sleeve-bearing p^2, the cork taking a bearing upon the outer and inner surfaces of the sleeve *p*, substantially as described.

3. In combination with the stopper A and bail B, the plate P, having one of its holes *c* elongated sufficiently to allow the end of the bail to pass through the same, substantially as described.

312,097. THILL-COUPLING. ALBERT A. DAILEY, Wilson, N. Y. Filed May 1, 1884. (No model.)

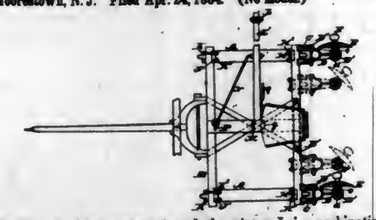


Claim.—1. In a thill-coupling, the clip A, having the solid lug B, provided with the conical-shaped lateral pivot B'', and the circular slotted lug B', in combination with the thill-iron C, having the cylindrical head *c*, provided with the conical recess C', and the conical washer C'', substantially as shown and described.

2. In a thill-coupling, the clip A, having the lug B, provided with the conical-shaped lateral pivot B'', and the lug B', in combination with the thill-iron C, provided with the shoulder G, and having the cylindrical head *c*, provided with the conical recess C', and the conical washer C'', all arranged substantially as shown and described.

3. In a thill-coupling, the clip A, surrounding the axle, and having the extension D, lateral extensions A' A'', and bolts *a*, and the solid lug B, provided with the conical-shaped lateral pivot B'' and the circular slotted lug B', in combination with the thill-iron C, having the cylindrical head *c*, provided with the conical recess C', and the conical washer C'', all arranged substantially as shown and described.

312,098. FURROWER, MARKER, AND COVERER. DAVID E. DARNELL, Masonville, assignor of one-half to Henry W. Doughten, East Moorestown, N. J. Filed Apr. 24, 1884. (No model.)



Claim.—1. The runners A and the plates J, in combination with the beams B, interposed between said plates and said runners, the bolts K, which pass through said runners and said plates above and below said beams, respectively, and the nuts K', whereby said plates may be tightened or loosened in their clamping action on said beams, substantially as set forth.

2. The beam B' and plate H at the front thereof, in combination with a bracket, C, provided with a shoulder, *a*, which passes under said beam and is bolted to said plate, an arm, D, which is pivoted to said bracket, a share which is carried by said arm, and a pin which passes through said arm and into any one of a segmental series of holes, *b*, in said bracket, for the purpose of regulating the vertical position of said share, substantially as set forth.

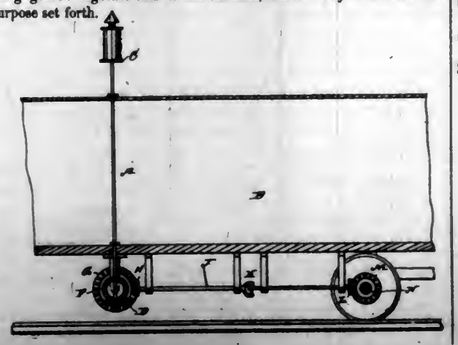
3. The front plate, H, and bracket C, in combination with the beam B', which is clamped between said plate and bracket and rests on said shoulder, an arm pivoted to said bracket, and a share carried by said arm, substantially as set forth.

4. The arm D, having the socket *c* formed in its end, in combination with a bracket clamped thereto, the share E, the axle F, the rotatable plate G, the eyebolt D', in which said axle is journaled, and the nut *d*, substantially as set forth.

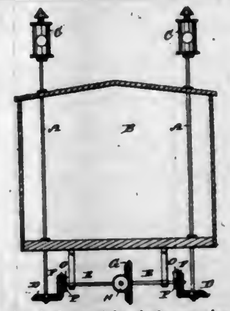
5. A rotary share connected with a stationary axle by means of a rotary sleeve which is interlocked with the hub of said share, the axle passing through both hub and sleeve, and having its head freely abut against the latter, substantially as and for the purpose set forth.

312,099. CAR-SIGNAL. FLORANCE P. DAY, Omaha, Nebr., assignor to himself and Thomas M. Van Court, same place. Filed May 5, 1884. (No model.)

Claim.—1. In a car-signal, the upright shafts carrying the light-flashing devices and driven by the car-axle through intermediate shafts, one carrying loose pinions or wheels geared to said upright shafts, and provided with means to permit their reverse engagement with and disengagement from one of said intermediate shafts, said intermediate shafts being geared together and to the car-axle, substantially as and for the purpose set forth.



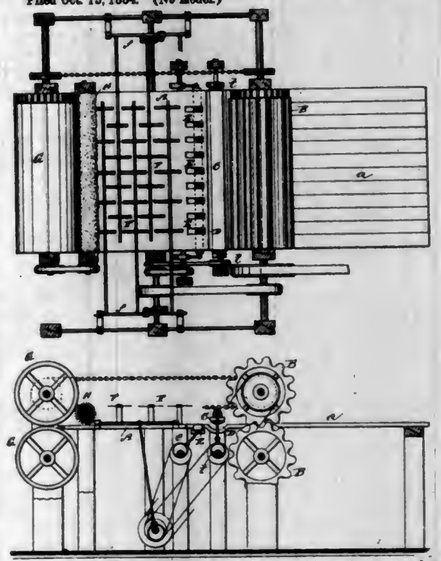
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2. In a car-signal, the upright shafts carrying light-flashing contrivances and driven by the car-axle through intermediate shafts, one carrying loose pinions or wheels geared to said upright shafts, and provided with reversely-acting pawls engaging ratchet-wheels fixed to said intermediate shafts, said intermediate shafts being geared together and to the car-axle, substantially as and for the purpose set forth.

3. The combination, with a car, of the vertical shafts A, the shaft E, gearing for operating the shafts A from the shaft E, the shaft J, having a universal joint, K, and cog-wheels H L, and the bevel cog-wheel M on one car-axle, substantially as herein shown and described.

312,100. JUTE-MACHINE. JOHN C. DELAVIGNE, New Orleans, La. Filed Oct. 15, 1884. (No model.)

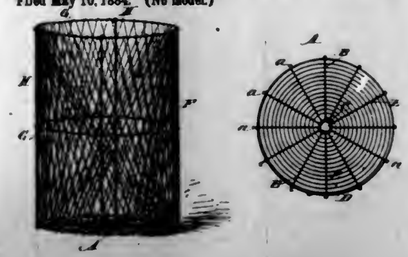


Claim.—1. The combination, in a jute-machine, of corrugated rollers B, reciprocating crusher C, beaters F, brush H, and delivery-roller G, substantially as described.

2. In a jute-machine, the reciprocating plate C, combined with crushing-rollers B and bed having depression D, substantially as and for the purpose specified.

3. In a jute-machine, the vibrating feeders E, formed with saw-teeth, combined with slotted bed A, for operation as specified.

312,101. WIRE BASKET. WILLIAM H. ELLIOTT, Texarkana, Tex. Filed May 10, 1884. (No model.)



Claim.—1. A wire basket formed of a circular bottom, B, and a cylindrically-bent wire frame, F, substantially as herein shown and described.

2. In a wire basket, the combination, with the circular bottom A, having hooks on the rim, of the cylindrically-bent wire frame held on the bottom by the hooks on the said bottom, substantially as herein shown and described.

3. In a wire basket, the combination, with the circular bottom B, of the wire frame F, having hooks *J* at one end and eyes K on the opposite end, substantially as herein shown and described.

4. In a wire basket, the combination, with the circular bottom A, formed of the ring C, the radial wires B, the hang-hooks *a* on their outer ends, the rim-wire D, and the wire E, of the wire frame F, substantially as herein shown and described.

5. In a wire basket, the combination, with the circular bottom B, of the wire frame F, formed of the horizontal wires G, each having a hook, J, at one end and an eye, K, at the opposite end, the vertical wires H, and the crossed wires L, substantially as herein shown and described.

312,102. NECKSCARF SHIELD AND PIN. LOUIS ESCHNER, Philadelphia, Pa. Filed Sept. 25, 1884. (No model.)



Claim.—1. A neckscarf shield or support having a pin constructed of a piece of wire bent at upper and lower places, as at *a b*, forming the right-lined parts *c d e*, substantially as and for the purpose set forth.

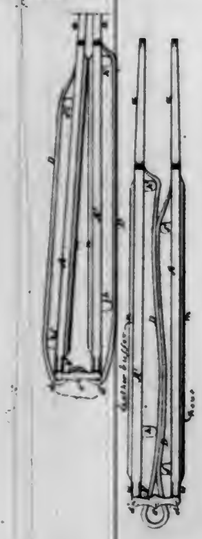
2. A neckscarf-shield formed with openings *f g*, in combination with a pin connected therewith, formed of the parts *c d e* and bends *a b*, the latter being respectively at the upper and lower parts of the pin, substantially as and for the purpose set forth.

312,103. METHOD OF BOXING LEAD PIPE. ALEXANDER EDSTON and JOHN P. NEVILLE, St. Louis, Mo. Filed May 29, 1884. (No model.)



Claim.—The improved method of putting up lead pipe for transportation or shipment, which consists in first coiling it into a flat or watch-spring form, and then putting it into a thin crate or case, which retains the coils in proper form, and from which it can be easily removed and uncoiled for use when it reaches its destination, as set forth.

312,104. RAZOR-STROP. WM. D. EVANS, Philadelphia, Pa. Filed Apr. 24, 1884. (No model.)



Claim.—1. The combination of the strips A A' with the link-hinge B, to which the said strips are hung, and the strap D, connected at its opposite ends to the strips, as specified.

2. The combination of the strips A A', having bridges, as specified, with the link-hinge B and strap D, as set forth.

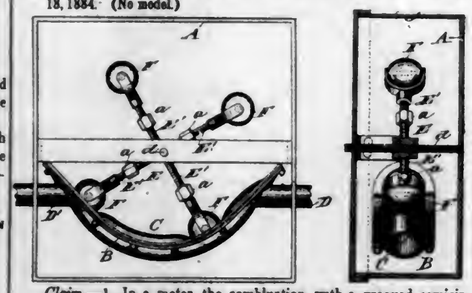
3. The combination of the strips A A', having razor sharpening or setting surface on one side, with the link-hinge B and strap D, the latter being arranged on the opposite sides of the strips, substantially as specified.

312,105. LINK FOR CLOTHES OR HARNESS. ALEXISE C. FAIVRE, Meadville, Pa. Filed Dec. 10, 1884. (No model.)



Claim.—The clasp herein described, consisting of the link bent to form end loops depressed to form the shoulders A B, pointed at E D, and provided with the coiled spring C, for covering the points, substantially as described.

312,106. GAS-METER. GUSTAV FAJEN, Milwaukee, Wis. Filed Mar. 13, 1884. (No model.)

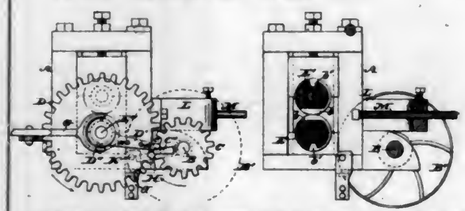


Claim.—1. In a meter, the combination, with a grooved semicircular plate and a flexible strip, the two forming together a curved passage-way the outer wall of which is inflexible, while the inner wall is yielding, of a wheel the spokes of which carry at their free ends rollers the contour of which is convex, corresponding to the concave contour of the inflexible wall of the passage-way, substantially as set forth.

2. In a meter, the combination of the case A, pipes D D', curved and grooved rigid plate B, flexible strip C, secured to plate B, and forming therewith a fluid-tight passage, and the wheel E, having arms E' and rollers F, substantially as set forth.

3. In a meter, the combination, with the fluid-passage B C, of the wheel E, having shaft *d*, screw-threaded arms E', and rollers F, and balancing-nuts *a*, adjustable upon the screw-threaded arms, substantially as set forth.

312,107. MACHINE FOR ROLLING IRREGULAR FORMS. LORENZO D. FARRA, Philadelphia, Pa., assignor of one-half to Horace F. McCann, same place. Filed May 29, 1884. (No model.)



Claim.—1. Rolls in combination with a mutilated spur-wheel and a spur-wheel meshed therewith, each wheel being provided with a finger which engages with the other, substantially as and for the purpose set forth.

2. Rolls in combination with the frame L and guides and stops M, adjustably connected therewith, said rolls having facets *b* and dies *b'*, substantially as and for the purpose set forth.

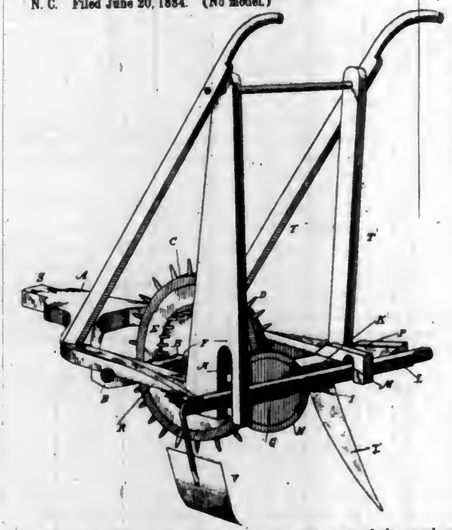
3. Rolls in combination with spur-wheels, a pin on one wheel, a wiper on the other wheel, and a spring-arm on the housing, said arm being adapted to engage with said pin and said wiper to move the spring-arm clear of the pin, substantially as and for the purpose set forth.

4. Rolls in combination with a clutch, a finger connected with said clutch, a mutilated spur-wheel, pins attached to said finger freely

entering openings in said spur-wheel, and a spur-wheel provided with a fixed finger, substantially as and for the purpose set forth.

5. Rolls in combination with spur-wheels, a finger movably connected with one of the spur-wheels, the latter wheel being mutilated, and a finger fixed to the other spur-wheel, a pin projecting from the spur-wheel, a wiper connected with the other spur-wheel, and a spring-arm attached to the housing, said pin and arm engaging and controlling the mutilated wheel, and said wiper disconnecting said pin and arm to release the mutilated wheels, substantially as and for the purpose set forth.

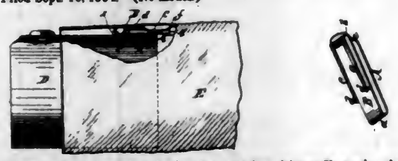
312,108. COTTON-CHOPPER. JAMES D. FAULKNER, Coburn's Store, N. C. Filed June 20, 1884. (No model.)



Claim.—1. The combination, in a cotton-chopper, of the carriage mounted on a transverse axle, the drive-wheel mounted on said axle and provided with peripheral projections, the crown-gearing and shaft operated thereby, the wheel mounted on said shaft and having projections on its face, the reciprocating beam and springs, and the hoe or chopping-blade secured to said beam, all arranged to operate substantially in the manner specified.

2. The combination, with the reciprocating notched beam carrying the hoe or chopping-blade, of the springs at each side of the carriage, the disk mounted on a suitable axle and provided with pins on its rear face, and the gearing whereby the said disk is rotated, the whole arranged to operate substantially in the manner set forth.

312,109. CUFF-FASTENER. JAMES J. FAY, New Bedford, Mass. Filed Sept. 10, 1884. (No model.)



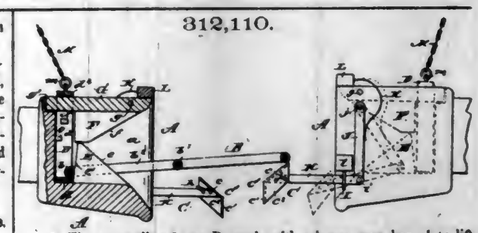
Claim.—In a fastening device for securing shirt-cuffs to the sleeve-linings of coats, the flat metal spring-fastener made of one and the same piece, and consisting of an inner spring-leaf, A, constructed or crooked to form a stop, *c*, at its back or free end, and looped at its forward end, as at *a*, an outer leaf, B, looped or folded over at its back end, *b*, the spring-pins C C, formed by side extensions of the looped end *b*, and the pin-point guards or catches *d d*, essentially as herein shown and described.

312,110. CAR-COUPLING. JOHN W. FERGUSSON, Sardis, Miss. Filed July 16, 1884. (No model.)

Claim.—1. In a car-coupling, the combination, with the draw-head A, provided with the stud E on the floor of its link-socket, of the cap-plate G, for closing the upper part of the socket, hinged to the forward end of the draw-head, and provided with the stud F on its under face, and the sliding frame D, adapted to engage with the hinged cap, substantially as herein shown and described.

2. The combination, with the draw-head A, provided with a stud, E, the hinged plate G, provided with the stud F, and the uncoupling-frame D, of the stops N O, substantially as shown and described.

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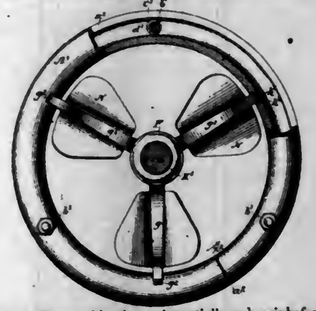


3. The uncoupling-frame D, made with a lower cross-bar, *d*, to lift the link, side bars, *d' d'*, having stops N to lift the plate G, and an upper cross-head resting on said plate, substantially as shown and described.

4. The link-carrier C, made with a cross-head, C', and arms H H, guided to move along the draw-head and pivoted to bars J J, which are pivoted to the draw-head, substantially as shown and described.

5. The combination, with the link-carrier consisting of head C', arms H H, and bars J J, pivoted to each other, and the draw-head, as specified of the springs K K, substantially as shown and described.

312,111. ARMATURE FOR DYNAMO-ELECTRIC MACHINES. FREDERICK K. FITCH, New York, N. Y., assignor to the Fitch Electric Lighting and Construction Company, same place. Filed Mar. 5, 1884. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, of a series of tubular rings placed side by side, magnetically separated and electrically insulated from each other and supported upon a shaft, substantially as described.

2. An armature for dynamo-electric machines, consisting of a series of rings magnetically separated and electrically insulated from each other, each of which rings is constructed with a circumferential opening or slot and a supporting-hub for said rings.

3. An armature for dynamo-electric machines, consisting of a series of tubular incomplete rings having circumferential openings formed in the same, a hub for supporting said rings, and a shaft upon which said hub is carried.

4. The combination, substantially as hereinbefore set forth, of a series of tubular rings, a hub formed in two sections, upon which said rings are supported, and means, substantially such as described, for insulating said rings from said hub-sections, a shaft upon which said hub-sections are supported, and nuts for binding said sections in their proper relative positions upon said shaft.

5. The combination, substantially as hereinbefore set forth, with an armature for dynamo-electric machines, consisting of an annular mass of inductive material and radial spokes for supporting the same, of a series of fans or webs attached to said spokes and extending within said rings at an angle to the axis of revolution of said armature.

6. The combination, substantially as hereinbefore set forth, with a tubular ring forming a section of an armature for a dynamo-electric machine, of a bolt extending through the same for binding it in its proper relative position with reference to the other sections, and an insulating-washer intervening between said bolt and said ring, and provided with a lateral enlargement for separating said ring from a succeeding ring, substantially as described.

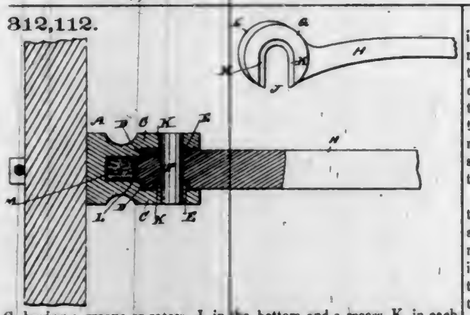
7. The combination, substantially as hereinbefore set forth, of the series of flattened rings A, the rods binding them together, the supporting-hub, and the shaft carrying said hub.

312,112. THILL-COUPLING. ERWIN A. GALATIAN and JOHN B. TARTS, South Westerlo, N. Y. Filed May 29, 1884. (No model.)

Claim.—1. In a shaft-coupling, the combination, with the jaws C, having circular projections on the inner sides, of the hook-eye G, having a groove or recess, J, in the bottom, and a recess, K, in each end, substantially as herein shown and described.

2. In a shaft-coupling, the combination, with the jaws C, having circular or annular projections E upon their sides, of the bolt F, the hook-eye

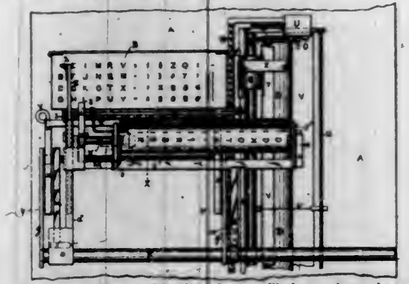
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G, having a groove or recess, J, in the bottom and a recess, K, in each end, and a cam or eccentric ridge, L, on its back, and of the rubber block M, substantially as herein shown and described.

3. In a shaft-coupling, the combination, with the jaws C, having circular or annular projections E upon their sides, and curved shoulders D, of the rubber block M between the jaws, the bolt F, and the hook-eye G, having a groove or recess, J, in the bottom and a recess, K, in each end, and a cam or eccentric ridge, L, on its back, substantially as herein shown and described.

312,113. TYPE-WRITING MACHINE. GEORGE C. GARRISON, Bennett, Pa. Filed Feb. 20, 1884. (No model.)



Claim.—1. The combination of an oscillating and rotating type-cylinder, having also a free axial motion, with an impression device, substantially as described, arranged at right angles to the type-cylinder, and a single operating-lever for communicating the required triple movement to the type-cylinder necessary to effect a printing-contact of the types thereof upon the impression device, substantially as and for the purposes described.

2. The combination of an oscillating and rotatory type-holder, having also a free axial motion, with an impression device such as described, arranged at right angles to the type-holder, and an operating-lever for communicating such movements to the type-holder, provided with a pointer for indicating on a letter-board the particular character on the type-holder which is thereby brought into printing-contact with the impression device.

3. The combination of the axially-moving frame of the impression device and a ratchet-rack mounted thereon, an oscillating frame extending at right angles to the impression device and carrying the type-holder, a pivoted space-bar which is held normally in a raised position by a spring, and is depressed at the downward movement of the oscillating frame, and a pawl actuated by the space-bar engaging the rack of the impression device, whereby a forward motion is communicated to the impression device by the space-bar after each printing-contact of the type-holder therewith, substantially as and for the purpose described.

4. The combination of a type-roller capable of longitudinal as well as rotary motion, bearing type or characters for printing arranged in parallel transverse and longitudinal rows, a letter-board bearing like characters in corresponding longitudinal and transverse rows, with mechanism, substantially as described, for communicating such rotary motion to the type-roller, and a lever for actuating such mechanism and communicating such longitudinal motion, and having a pointer or finger for indicating the character to be printed, substantially as described.

5. The combination of a type-roller having a sliding and pivotal connection with a shaft parallel thereto, and having raised types or characters for printing arranged in longitudinal and transverse rows thereon, a revolving impression-cylinder for carrying the paper to receive the impressions of the type, and having its axis at right angles to that of the type-roller, a letter-board bearing rows of characters corresponding in arrangement with those on the type-roller, but in reverse order, and devices, substantially as described, for simultaneously communicating a combined rotary, longitudinal, and oscillating motion to the type-roller and pointing to individual characters on the letter-board, substantially as described.

6. An impression device, in combination with a type-holder having a longitudinal row of type-characters and capable of longitudinal motion in the line of its axis, a lever for communicating such longitudinal motion to the type-holder and bringing the type into printing-contact with the impression device, and a comb having pointed teeth, the distance between the points of the teeth being equal to the longitudinal distance between the centers of the type, for the purpose of receiving the edge of the lever between two such teeth, and thus securing the exact alignment of successive impressions of the type on the impression device, substantially as described.

7. In combination with an impression device, a type-roller having type-characters arranged longitudinally and circumferentially in parallel rows, mechanism, substantially as described, for communicating a rotary and longitudinal motion to the type-roller, a pair of combs having pointed teeth, one comb arranged parallel to the type-roller, and the other connected with the operating-lever at right angles to the type-roller, and a beveled-edged plate, the distance between the points of the teeth on the combs being respectively equal to or corresponding with the distance from center to center of the type-characters circumferentially and longitudinally on the type-roller, for the purpose of securing simultaneously the accurate alignment of the impression device and the square presentation of the face of the type to the surface of the impression device, substantially as described.

8. The combination of the revolving type-roller C with the inking-roller G and concave cap H, substantially as described.

9. The combination of the revoluble type-holder C, mounted on an oscillating frame, with a concave inking-cap, H, also mounted on said frame, and capable of a longitudinal movement therein, whereby a new inking-surface may be exposed to the type, substantially as described.

10. The combination, with the impression device, of the toothed spring-rack W, beveled projection a', and space-bar X, for effecting an intermittent forward motion of the impression device, substantially as described.

11. In combination with the type-roller C, its operating-lever E, and space-bar X, the eccentric transverse shaft N, for limiting and adjusting the downward printing motion of the type-roller, substantially as described.

12. The impression device and longitudinal spacing-rack, and the oscillating type-holder arranged at right angles thereto, so combined and arranged, substantially as described, with the wire e that the latter extends across the impression device between the points of impression of the types thereon, substantially as and for the purposes described.

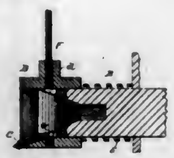
13. In combination with the impression-cylinder D, the adjustable guards Z Z′ and stop q', substantially as and for the purposes described.

14. The combination of the sliding carriage of the impression-cylinder with spring-toothed rack W, pivoted thereto, beveled projections a', spring-tongue b', and mechanism, substantially as described, for bringing the rack into operative contact with said tongue and projection for effecting the intermittent forward motion of the impression-cylinder, substantially as described.

15. The combination of rack W, having inclined teeth, with the projection a' and spring-tongue b', constructed and arranged substantially as and for the purposes described.

16. The combination, with an impression device, of a type-roller arranged at right angles thereto and capable of longitudinal motion, and a circular roller or disk arranged on the type-roller shaft for ruling continuous or dotted lines on the paper, substantially as and for the purposes described.

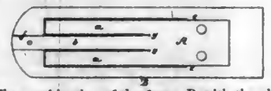
312,114. CAR-COUPLING. WILLIAM J. HADDEN, Danville, Ill. Filed June 13, 1884. (No model.)



Claim.—1. The combination, with a car draw-head, of the scoop-shaped guide C, hung within the mouth of the draw-head, and pivoted therein at c, the sleeve D, fitted around the draw-head and around the guide C, to raise the latter by forward movement, and the spring E, actuating the sleeve to such forward movement, substantially as described.

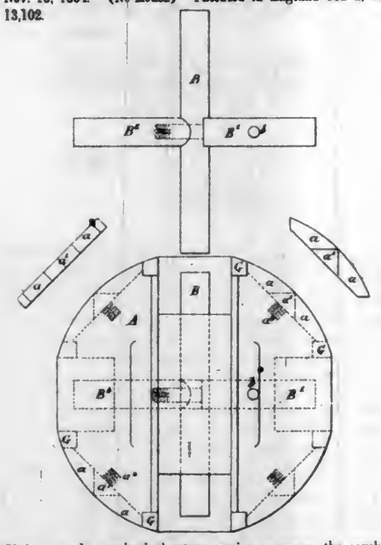
2. The combination, with a car draw-head, of the shackle-pin raiser consisting of the roller H, the shaft I, carrying the same, adapted to slide endwise, and provided with cranks J, the brackets L, supporting shaft I, and adapted to support the cranks J, to prevent the shaft from turning when slid endwise, as described, and the connecting-chains G, substantially as described.

312,115. REED. JAMES B. HAMILTON, Boston, Mass., assignor of one-third to E. Archibald Ramsden, New York, N. Y. Filed Apr. 2, 1884. (No model.)



Claim.—The combination of the frame B with the elastic plate A, secured near one end to the end portion e of the frame B, and having tongues a a, and a central strip, b, which is secured to the end f of the frame, and is united to the tongues between the outer free ends of the latter and the point where the plate is secured to the frame, all substantially as set forth.

312,116. ROTARY ENGINE OR PUMP. RICHARD H. HEENAN and RICHARD H. FROUDE, Manchester, County of Lancaster, England. Filed Nov. 18, 1884. (No model.) Patented in England Oct. 2, 1884, No. 13,102.



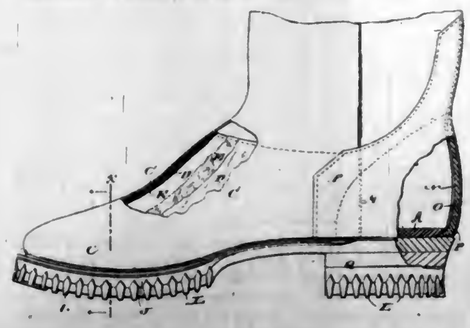
Claim.—1. In a spherical rotary engine or pump, the combination of the transversely-bored piston A, the joint-pins B, B′, and B^3, the bossed blades D D′, and their bushes C, as means of jointing the blades to the piston, substantially as described.

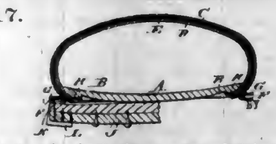
2. In combination with a spherical rotary engine or pump, a piston-head having a series of separate recesses located at intervals in its periphery, with a unitary packing composed of the pieces a a, and spring-actuated wedge-piece a', seated within each of the recesses, substantially as described.

3. In a spherical rotary engine or pump, in combination with the blades D D′, the packing-pieces d, their wedge-pieces d', and springs d^2, the horseshoe pieces G, and their springs g, substantially as described.

312,117. BOOT OR SHOE. JOHN HANSEN, Maryville, Mo. Filed Oct. 17, 1884. (No model.)

Claim.—1. A boot or shoe provided between its lining and upper-leather with a water-proof layer consisting of bladder treated with oil, substantially as herein shown and described.





2. A boot or shoe having its upper formed of three layers, of which the inner layer is folded under the inner sole, and the outer layer is extended outward to form a welt, substantially as herein shown and described.

3. In a boot or shoe, the combination, with the sole A, of an upper formed of three layers, of which the outer one is extended outward, and of the welt G, which welt and the out-turned layer are sewed to the sole, substantially as herein shown and described.

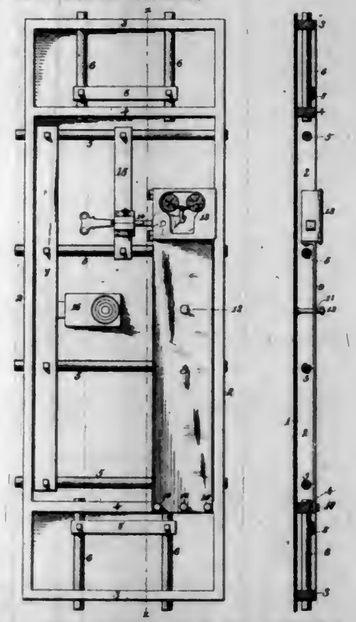
4. In a boot or shoe, the combination, with the sole A, of an upper formed of three layers, the bottom edge of the outer layer extending outward, the welt G, and the double sole J, the welt and upper being sewed to the inner sole, A, and the welt being sewed to the double sole J, substantially as herein shown and described.

312,118. NECKTIE. JOHN H. HAULENBEEK and GILBERT F. BROWN, Philadelphia, Pa. Filed Jan. 18, 1884. (No model.)



Claim.—A necktie or scarf provided on its inner side with a permanently-attached and inwardly-projecting pin adapted to engage with a collar-button having a hole or socket extending axially inward from its head, and also provided in the free end of its band or strap with eyelet-holes for engagement with said pin, substantially as herein described.

312,119. TIME-LOCK MOUNTING. WILLIAM B. HAYDEN, Columbus, Ohio. Filed Feb. 2, 1883. (No model.)



Claim.—1. The combination, with the time mechanism of a chronometer-lock, of a flexible or yielding support therefor, and means for maintaining the proper relative and operative position of the connection between the parts thus mounted and the adjoining parts, substantially as described, whereby the time mechanism of the lock is held at such a distance from the door-wall of the structure in which it is employed as to protect it from injury under the force of an explosion directed against

the exterior of the structure, and of a character to break the parts of the time movement of the lock.

2. The combination, with the door or wall of a safe or vault, of a metallic plate firmly attached at one end and otherwise unattached, and a chronometer-lock mounted on the free end of the plate, whereby it is held at a distance from the door or wall of the safe or vault and protected from injury by the force of an explosion or other shock, substantially as described.

312,120. CUT-OFF FOR CISTERNS. JOHN S. HEATON, Shelbyville, Ky. Filed Aug. 1, 1884. (No model.)



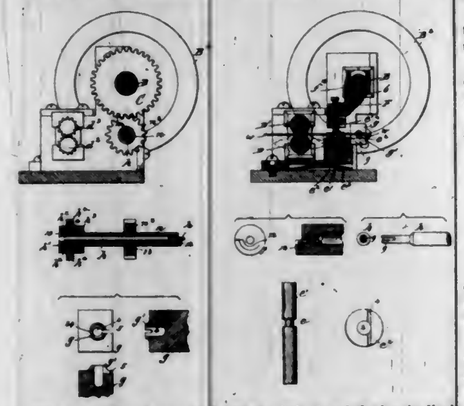
Claim.—1. In an apparatus for supplying cisterns with water from the roofs of buildings, the combination, with the case into which the water is run from the roof, and a rising and falling cup therein operated by the weight of the incoming water, and provided with an inclined apertured top and an apertured bottom, of a valve actuated by said cup, and a waste-pipe and a cistern-pipe connected with said case and automatically controlled or alternately opened and closed by said valve, substantially as and for the purposes herein set forth.

2. In an apparatus for supplying cisterns with water from the roofs of buildings, the combination, with the case A and its inlet aperture or pipe B, arranged to connect with said case at or near its top on one side thereof, of the rising and falling valve-operating cup C, arranged within said case in line with or beneath said pipe, and provided with an inclined apertured top and an apertured bottom, and the outlet D at the bottom of said case on the opposite side thereof to that occupied by the cup C, essentially as specified.

3. In an apparatus for supplying cisterns with water from the roofs of buildings, the combination, with the case A and its upper one-sided inlet aperture or pipe, B, and opposite-sided lower outlet aperture or pipe, D, of the rising and falling valve-operating cup C, provided with an upper inclined screen-top, *k*, and an aperture, *s*, in or near its bottom, substantially as described.

4. In an apparatus for supplying cisterns with water from the roofs of buildings, the combination of the case A, its upper one-sided inlet aperture or pipe, B, and lower opposite-sided outlet aperture or pipe D, the rising and falling cup C, provided with an inclined screen-top, *k*, and leak-aperture *s*, the rod *c*, the valve *f*, connected with said rod and controlled by an adjustable weight, *i*, and the waste and cistern pipes or branches D' D², controlled by said valve, essentially as and for the purposes herein set forth.

312,121. MACHINE FOR MANUFACTURING BUTTON-FASTENERS. HENRY N. HEMINGWAY, Auburn, assignor to Wm. H. Wood and Devalson G. Weaver, both of Rochester, N. Y. Filed Aug. 13, 1884. (No model.)



Claim.—1. The die provided with the hub *g'*, and the longitudinal reciprocating punch, in combination with a wire-coiling device having a rotary movement to bend the wire into a coil to form the base of the fastener, as shown and described.

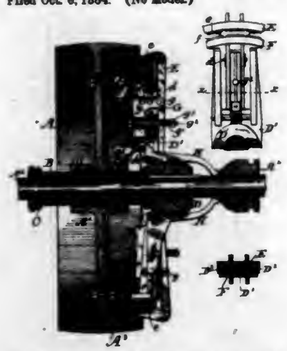
2. The die *g*, provided with the hub or projection *g'*, slotted, as shown, in combination with the punch and concentric wire-coiler, and means to operate the same, substantially as described.

3. The die and the punch and its connected sleeve and collar, in combination with the wire-coiler having a head at one end and placed between the said sleeve and collar, substantially as described.

4. The cutter member e^2, provided with a central opening and a cross-groove, 2, combined with a reciprocating cutter member, *e'*, provided with an annular groove, *e*, and with means, substantially as described, to operate the said parts to sever the wire placed in position between them.

5. The die having the hub provided with the groove 5 and recess 24, combined with the punch grooved at 9, to operate substantially as described.

312,122. FRICTION-CLUTCH PULLEY. HARRY W. HILL, Montgomery, Ala. Filed Oct. 6, 1884. (No model.)



Claim.—1. In combination with a pulley mounted loosely upon its shaft and provided with a concave and a convex frictional rim, A^2, the hub D, secured upon said shaft and provided with angular levers and radial arms, the inner member provided with convex frictional blocks and the outer member provided with concave frictional blocks, each series of blocks being adapted to simultaneously recede from said frictional rim, substantially as and for the purpose described.

2. In combination with a pulley and its rim, A^2, having concave and convex frictional surfaces, the hub D, secured upon its shaft and provided with radial arms, the angle-levers G, pivoted thereto, and clutch members E and F, pivoted to the latter and provided with concave and convex frictional surfaces, substantially as and for the purpose described.

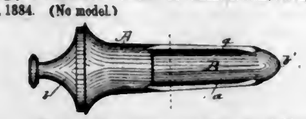
3. In combination with a pulley loose upon a shaft, the hub D, secured upon said shaft and provided with radial arms and lateral flanges, and between said flanges clutch members provided with concave and convex frictional blocks, substantially as and for the purpose described.

4. In combination with a pulley and conical clutch-sleeve loose upon a shaft, the hub D, secured upon said shaft and provided with radial arms, the bell-crank levers H and angle-levers G, pivoted upon said arms, and clutch members pivoted upon the levers G, to simultaneously advance with the lever G, toward the frictional rim of the pulley, substantially as described.

5. In combination with hub D and its arms D', the angle-levers G, their adjustable blocks g^4, and bell-crank levers bearing against the latter, substantially as and for the purpose described.

6. The combination of the hub D, having arms D', the angle-levers G, pivoted to the latter, and the clutch members E and F, with bolt g^2 and spring thereon, substantially as and for the purpose described.

312,123. RECTAL SPECULUM. FRANKLIN B. IVES, Chicago, Ill. Filed Oct. 27, 1884. (No model.)



Claim.—1. The rectal speculum consisting of a rigid tapering tube entirely open across the entering end, and slotted back from said end for a portion of its length, the edges of the slot being thickened or raised, substantially as and for the purpose set forth.

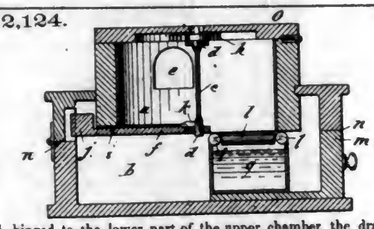
2. The rectal speculum consisting of a round rigid tapering tube entirely open across its entering end, and slotted back from said end for a portion of its length, substantially as and for the purpose specified.

3. The combination, with the rigid tapering circular tube entirely open across its entering end, and partially slotted, as shown of the circular plug filling the tube, and provided with a conical penetrating-point, substantially as specified.

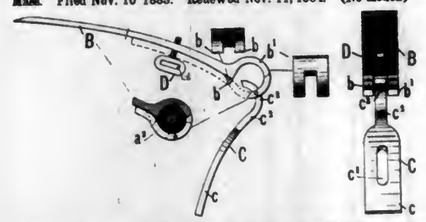
312,124. ANIMAL-TRAP. ROBERT JESSEE, Locust Lane, Va., assignor to William W. Nickels, William I. Culbertson, and William M. Pendleton, all of Scott County, Va. Filed Apr. 3, 1884. (No model.)

Claim.—An animal-trap consisting of the upper chamber, *a*, containing the rotary partition *c*, and pivoted floor or treadle *f*, for controlling the same, cover *o*, hinged to the top of said chamber, lower chamber, *b*, hinged to the lower part of the upper chamber, the drawer *m*, and tank *g*, mounted in said lower chamber, as shown, whereby the several parts may be readily opened for inspection, repair, and removal of the entrapped animals, as set forth.

312,124.

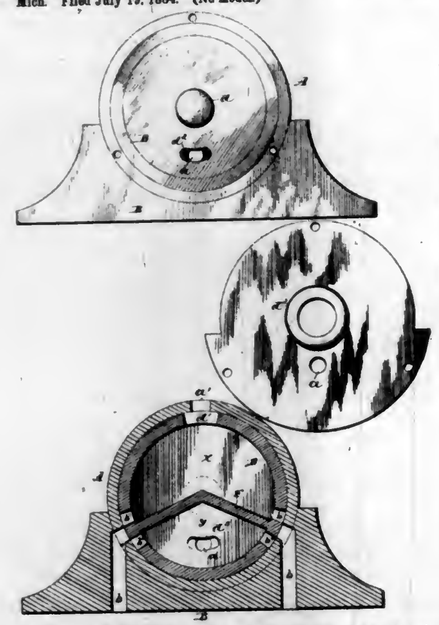


312,125. THILL-COUPLING. WALTER KATON, North Attleborough, Mass. Filed Nov. 10 1883. Renewed Nov. 11, 1884. (No model.)



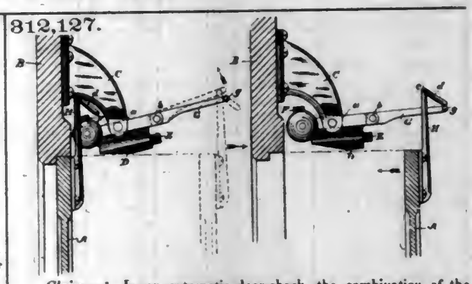
Claim.—The main shaft-iron B, having the shoulders *b b* and hook *b'*, with central slot, in combination with the auxiliary shaft-iron having the narrow portion c^2 terminating in the hook c^3, as shown, the auxiliary iron being pivoted to the main iron in such manner that no strain is borne by the pivot-bolt.

312,126. STEAM OSCILLATING VALVE. JACOB M. KELLS, Adrian, Mich. Filed July 19, 1884. (No model.)



Claim.—In an oscillating valve, the combination, with a cylindrical valve box or casing having a steam-inlet port and an exhaust-port, and ports *b*, connecting with a cylinder, of a hollow cylindrical valve provided with a steam-inlet port and an exhaust-port registering, respectively, with, and of greater size than, the corresponding ports of the valve-box, and with the ports *b* and b^2, arranged in pairs on opposite sides of the diaphragm, substantially as set forth.

312,127. DOOR-CHECK. THOMAS M. KENNEY, Cambridge, Mass., assignor to Charles A. Mason, same place. Filed Aug. 25, 1884. (No model.)

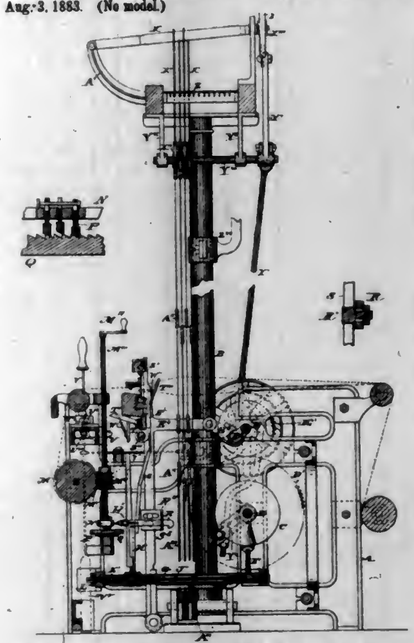


Claim.—1. In an automatic door-check, the combination of the following elements, viz: a bracket, C, fixedly secured to the door-jamb, a counterbalanced bunter, D, capable of a limited vertical movement pivotally on said bracket, as shown, and provided with a loosely-jointed arm, G, capable of a vertical upward movement independent of and greater than that of said bunter, as shown, and a finger-bar, H, attached to the door and adapted to engage the arm G, to oscillate the bunter D and bring it within the track of a swiftly-closing door to check its momentum, as shown and described.

2. In an automatic door-check, the combination of a counterbalanced bunter pivotally held above the track of an opening and closing door, with a finger-bar, H, attached to the door, and adapted to throw the bunter down into the track of a swiftly-closing door to check its momentum, as shown and described.

3. In a door-check, the combination of a bracket, C, a pivotally-acting bunter, D, provided with a counter-weight, a jointed arm, G, adapted for a yielding movement at one side of the jamb, and a finger-bar or similar attachment upon the door adapted to engage and actuate said arm G.

312,128. TAKE-UP MECHANISM FOR LOOMS. FRIEDRICH KESSELRING, Philadelphia, Pa., assignor to J. C. McCreery, New York, N. Y. Filed Aug. 3, 1883. (No model.)



Claim.—1. The combination of the cloth-beam M, worm-wheel M', worm M'', shaft M''', ratchet-wheel Q, pawl P, collar N, and hooked arm R, having stud R', with the lay and reed-frame of a loom, the reed-frame being pivoted on the lay, and having a device to hold it in position, and an arm, S, adapted to take against the stud R', and the lay being adapted to take against the hook of the arm R, substantially as and for the purposes set forth.

2. The combination of the cloth-beam M, worm-wheel M', worm M'', shaft M''', ratchet-wheel Q, pawl P, collar N, and hooked arm R, having stud R', with the lay and reed-frame of a loom, the arms S'', shaft S', torsional spring S''', plug S⁴, and the arm S, substantially as and for the purposes set forth

3. The combination of the cloth-beam M, worm-wheel M′, worm M″, collar N, shaft M‴, ratchet-wheel Q, pawl P, and hooked arm R, having stud R′, with the lay and reed-frame of a loom, the arms S″, shaft S′, torsional spring S‴, plug S⁴, ratchet S⁵, pawl S⁶, and the arm S, substantially as and for the purposes set forth.

312,129. COUNTER-STIFFENER FOR BOOTS OR SHOES. JOSEPH KIEFFER, Montreal, Quebec, Canada. Filed July 7, 1884. (No model.)



Claim.—As an improved article of manufacture, a heel-counter having a turned-up rigid rim formed between the vertical sides and heel and the crimped upturn, substantially as herein set forth.

312,130. LAND-MARKER. WILLIAM H. KING, Little Silver, N. J. Filed Apr. 7, 1884. (No model.)

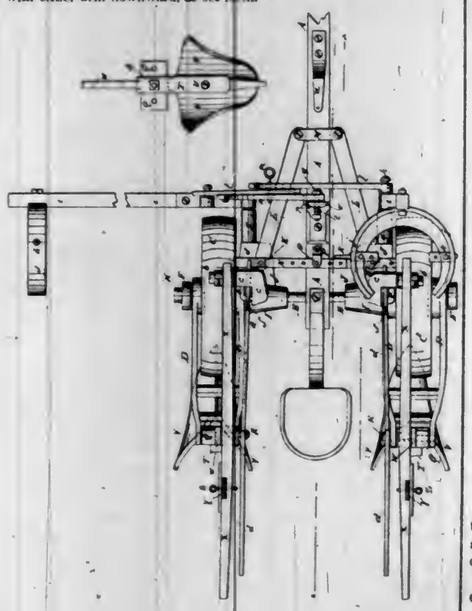
Claim.—1. In a land-marker, the combination, with the shaft B, roller C, marker-bar i, and tongue A, of the hub I, having arm c, lug J, and socket-bearing g, the brace-bar L, and the adjusting-bar N, substantially as herein shown and described, whereby the markers will be carried and the wheels and markers can be readily adjusted, as set forth.

2. In a land-marker, the combination, with the plow draw-frame D, the plow-raising lever X, and the arm c, of the hub I, having keeper e and the catch-lever d, substantially as herein shown and described, whereby the plow can be locked in place when raised from the ground, as set forth.

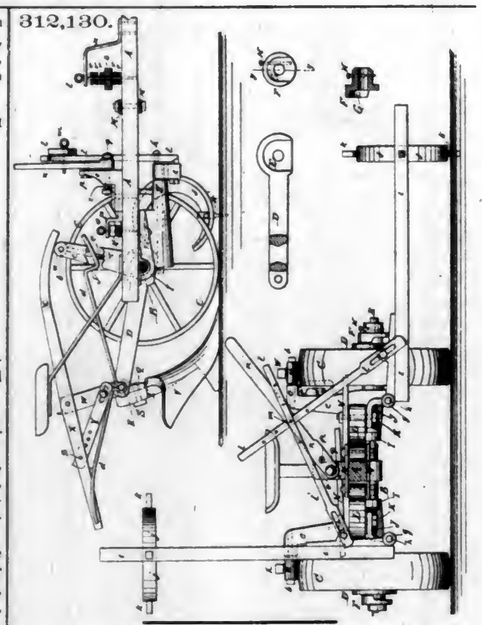
3. In a land-marker, the combination, with the marker-bar i and the tongue A, of the bracket o, secured to the tongue, the lever n, pivoted to said bracket, and provided with the catch p, the spring r on the pivot of said lever, and the slotted bar l pivoted to the marker-bar and adjustably pivoted to the lever n, substantially as herein shown and described.

4. In a land-marker, the combination, with the marking-plow V, the draw-frame D, and the lever X, of the apertured block Q, pivoted between the arms of the frame D, and provided with the arm W, the standard T, secured to the said plow and block, and the brace Y, pivoted to the arm W and to the lever X, substantially as herein shown and described.

5. In a land-marker, the marker-shoe j, made double, curved in the arc of a circle, and provided with a projecting marking-pin, k, substantially as herein shown and described, whereby the said shoe can be used with either arm downward, as set forth.



312,130.



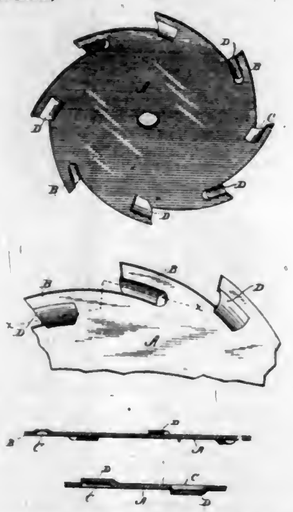
312,131. EYE-WATER. MARIE M. LAMONTAGNE, Montreal, Quebec, Canada. Filed Aug. 16, 1884. (No specimens.)

Claim.—The herein-described composition of matter to be used as a medical compound, consisting of water, sugar of lead, and castor-oil, in the above-stated proportions.

312,132. COUGH REMEDY. MARIE M. LAMONTAGNE, Montreal, Quebec, Canada. Filed Aug. 16, 1884. (No specimens.)

Claim.—The herein-described medical compound or composition of matter, to be used as a remedy for the diseases of the organs of respiration, consisting of honey, water, spruce-gum dissolved in alcohol, olive-oil, and spirit of peppermint, in the above-stated proportions.

312,133. SAW. JOSEPH LEDWARD, Westerly, R. I. Filed May 28, 1884. (No model.)

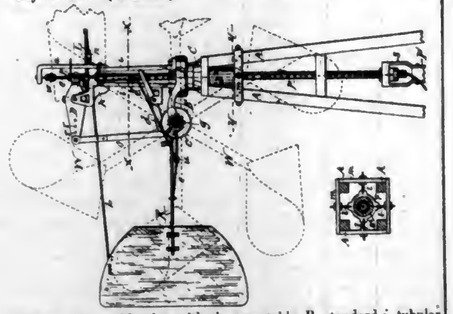


Claim.—1. A saw-blade having longitudinal slots C cut through the front end of the teeth and extending in the line of direction thereof, and planing-irons formed integral with the blade and covering the slots on either side of the blade, as set forth.

2. A saw-blade having longitudinal slots C cut through the front end of the teeth, and extending in the same line of direction, and curved planing-irons formed integral with the blade and extending from end to end of the slots, so as to cover the same on either side of the blade, as set forth.

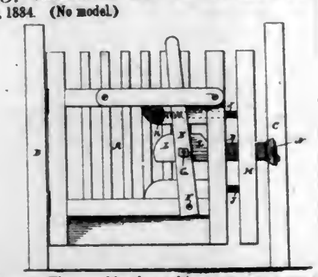
3. A saw-blade provided with longitudinal slots C directly under the teeth of the saw, and planing-irons formed integral with the blade and covering the slots, the front edge of the irons being arranged on the same line as the front edge of the teeth, as set forth.

312,134. WINDMILL. ELISHA F. LESTER, Chittenango, N. Y. Filed May 12, 1884. (No model.)



Claim.—In combination with the turn-table B, standard i, tubular plunger p, wheel W, rudder R, and the spring-restrained lever L, arranged to hold the rudder in its normal position, as shown, the brake-wheel c, rigidly attached to the axis of the wheel W, the brake-lever d, bearing with one end on the brake-wheel, the sheave v, connected to the opposite end of the brake-lever, the sheave w, hung above the plunger p, the sheave u, sustained in front of the lever d, and the rope or chain e, connected to the rudder and extended around the sheaves u, v, and w, and down through the plunger p, all combined substantially in the manner specified and shown.

312,135. GATE-LATCH. ROBT. MAGRUDER, Liberty Hill, Tex. Filed Dec. 10, 1884. (No model.)



Claim.—1. The combination, with a gate too narrow to fill the space between the gate-posts and a reciprocating latch therefor, of a vertical bar fixed to the latch at the edge of the gate, substantially as shown and described.

2. The combination, with a gate too narrow to fill the space between the gate-posts and a sliding latch therefor, of a block eccentrically and adjustably pivoted to the latch, to act against a fixed portion of the gate, substantially as described, whereby the amount of projection of the latch may be regulated.

3. The combination, with the gate A and the latch or bolt D, of the bar H, secured to the latch, and provided with the parallel guides J and springs K, substantially as shown and described.

4. The combination, with the gate A, the latch or bolt D, and the bar H, secured to the latch, and provided with the guides J and springs K, of the eccentric adjustable block L, hung to stop the projecting of the latch at fixed points, substantially as shown and described.

312,136. BUCKLE. CHARLES A. MANN, Buffalo, N. Y. Filed Dec. 10 1884. (No model.)

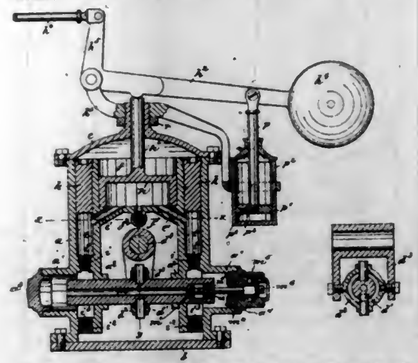


Claim.—1. The combination, with a buckle-frame composed of the loops A A′ and connecting-bars A^2, of a sliding tongue portion, B, attached to the connecting-bars A^2, and provided with a tongue, b′, and a thumb-piece, c, whereby the tongue can be moved toward and from the loop A′, substantially as set forth.

2. The combination, with a buckle-frame composed of the end loops, A A′, and connecting-bars A^2, of a sliding frame provided with a tongue, and a clasp or band, D, whereby the sliding frame is attached to the buckle-frame, substantially as set forth.

3. The combination, with a buckle-frame composed of the end loops, A A′, and connecting-bars A^2, of a sliding frame, B, provided with a tongue, b′, having a shoulder, f, adapted to engage with one of the end loops of the buckle-frame, substantially as set forth.

312,137. GOVERNOR. WILLIAM B. MASON, Boston, Mass., assignor to the Mason Regulator Company, same place. Filed Sept. 24, 1883. (No model.)



Claim.—1. In a governor, the case a, constituting a reservoir, provided with opposite chambers a′ and an upper chamber, f, and ducts connecting the said chambers a′ with the one f, combined with the plunger d, adapted to operate in both the said chambers a′, the valves in the said ducts, and actuating mechanism for the said plunger, substantially as described.

2. In a governor, the pump comprising two chambers from which the fluid is alternately forced, combined with a duct or passage connecting the said chambers, and a chamber to receive a portion of the fluid forced by the said pump, and mechanism actuated by the said fluid entering the said chamber for controlling the admission of steam to the engine, substantially as and for the purposes described.

3. The reciprocating pump adapted to be actuated by the engine to be governed, and comprising two chambers from which the pumped fluid is alternately forced, combined with a duct connecting the said chambers and controlling-valve therein, and the chamber connected with the said pump-chambers having an escape-passage and controlling-valve, and mechanism actuated by the pumped liquid for governing the valve of the engine, substantially as described.

4. The reciprocating pump comprising the chambers from which the pumped fluid is alternately forced, combined with the plunger working in both the said chambers and provided with a passage connecting the said chambers, and a valve controlling the flow of fluid through the said passage, substantially as described.

5. The reciprocating pump comprising two chambers from which the pumped fluid is alternately forced, combined with the plunger operating in both the said chambers and provided with a passage connecting them, and a valve controlling the flow of fluid through the said passage, and its key-piece adapted to be operated from the outside of the chamber, substantially as described.

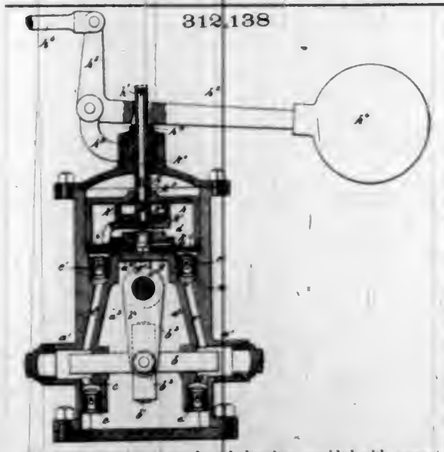
6. The main case constituting a reservoir provided with pump-chambers a′ in line with one another, combined with the plunger operating in both the said chambers, the crank connected with the said plunger and inclosed within the main case, and the rock-shaft extending from the interior to the exterior of the said case, adapted to be connected with the moving parts of the engine or motor to be governed, substantially as described.

7. The main case constituting a reservoir provided with pump-chambers a′ in line with one another, combined with the plunger operating in both the said chambers, provided with a guide-pin, the ring having a sliding movement thereon, and the crank pivotally connected with the said ring, and a rock-shaft connected with said crank and actuated from the exterior of the case, substantially as described.

312,138. GOVERNOR. WILLIAM B. MASON, Boston, Mass., assignor to the Mason Regulator Company, same place. Filed Aug. 12, 1884. (No model.)

Claim.—1. In a governor, a reservoir and chamber and pump actuated by the motor to be governed, producing a circulation of fluid from the said reservoir to the said chamber, combined with a valve whereby the outflow of fluid from the chamber is stopped when the inflow ceases, substantially as and for the purpose described.

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2. In a governor, a reservoir and chamber provided with connecting-passages, combined with a pump actuated by the motor to be governed, for forcing fluid from the said reservoir into the said chamber, a return-passage from the chamber to the reservoir, and a valve controlling the flow of fluid through the said return-passage, operated by the fluid forced by the pump in its passage into the chamber, substantially as described.

3. In a governor, a reservoir and chamber and pump for forcing fluid from the former into the latter, combined with a piston in the said chamber actuated by the fluid therein, and a secondary piston and co-operating dash-pot cylinder inclosed within the said chamber, substantially as described.

4. The main case provided with a partition separating it into a lower reservoir and upper chamber, and a pump for forcing fluid from the said reservoir to the said chamber, combined with the plate *i* in the said chamber, having passages g' and g^2 for the inflowing fluid, and a passage for the outflowing fluid, and the plug and valve *k*, actuated by the inflowing fluid and controlling the outflowing fluid, substantially as described.

5. The reservoir, chamber, and pump, and the piston in the said chamber operated by the pumped fluid, combined with the piston-rod adapted to actuate the motor-controlling valve or device, the secondary piston connected with the said rod, and the dash-pot cylinder co-operating therewith, inclosed within the said chamber, substantially as described.

6. The reservoir, chamber, and pump, and the piston in the said chamber operated by the pumped fluid, combined with the piston and hollow piston-rod provided with a lateral passage and the secondary piston, and dash-pot cylinder and device controlling the flow of liquid in the dash-pot cylinder through the said piston-rod, substantially as described.

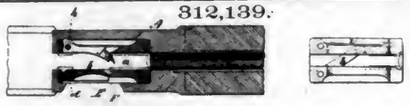
7. The main case divided by a partition into a lower reservoir and upper chamber, and the pump, causing a circulation of fluid from the former to the latter, combined with the piston in the said chamber, operated by the pumped fluid beneath it, and a return-passage from the chamber above the piston to the reservoir for the liquid leaking around or passing by the said piston, substantially as described.

8. The main case divided by a partition into a lower reservoir and upper chamber, and the pump causing a circulation of fluid from the former to the latter, combined with the piston in the said chamber, operated by the pumped fluid beneath it, and a return-passage from the chamber below the piston, and valve *l* therein, consisting of a longitudinally-slotted screw operating in a threaded passage and governing the flow of fluid in proportion to the length of the slotted portion outside the said passage, substantially as described.

312,139. MAGAZINE FIRE-ARM. WILLIAM MASON, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. Filed Dec. 15, 1884. (No model.)

Claim.—1. In a magazine fire-arm having a longitudinally-movable breech-piece, and in which the magazine is arranged beneath the barrel, a carrier arranged to move up and down to transfer a cartridge from the magazine to a position between the front face of the open breech-piece and the barrel, the receiver constructed with an opening, and the carrier with a corresponding opening into its chamber which receives the cartridges from the magazine for transfer to the barrel, and through which openings the cartridges may be introduced to the cartridge-chamber in the carrier, and thence to the magazine, the carrier provided with a check or stop to engage the head of each cartridge so

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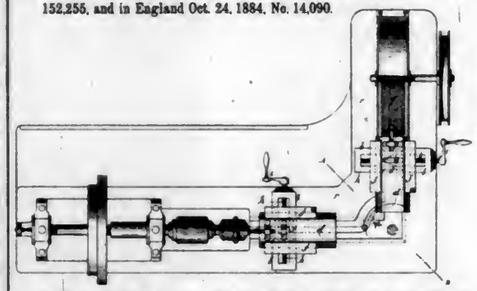
introduced through the opening in the receiver and carrier, substantially as described.

2. In a magazine fire-arm in which the magazine is arranged beneath the barrel and having a longitudinally-movable breech-piece, the combination therewith of a carrier arranged to transfer the cartridges from the magazine to a position between the front face of the breech-piece and the rear end of the barrel, the receiver constructed with an opening through one side, the carrier with a corresponding opening upon the same side but in rear of the front end of the carrier, the opening in the carrier provided with a cover arranged to turn inward into the cartridge-chamber in the carrier and serve as a guide for the introduction of cartridges through the opening in the receiver, and the opening in the carrier to the said chamber in the carrier, and thence to the magazine, substantially as described.

3. In a magazine fire-arm having a magazine arranged beneath the barrel, a longitudinally-movable breech-piece, and a carrier arranged to transfer cartridges from the magazine to a position between the front face of the open breech-piece and the rear end of the barrel, the receiver constructed with an opening through one side, the carrier with a corresponding opening leading into its chamber which receives the cartridges from the magazine, the said opening in the carrier provided with a cover opening inward, the said cover serving as a guide to conduct the cartridge through the opening in the receiver and opening in the carrier to the chamber in the carrier, thence to the magazine, and a stop arranged to engage the head of the cartridge so introduced into the chamber in the carrier, substantially as described.

4. In a magazine fire-arm having a magazine arranged beneath the barrel, a longitudinally-movable breech-piece, and a carrier arranged to transfer a cartridge from the magazine to a position between the front face of the open breech-piece and the barrel, the receiver constructed with an opening through one side, the carrier with a corresponding opening into the cartridge-chamber in the carrier, and through which opening in the receiver and opening in the carrier cartridges may be introduced to the chamber in the carrier, and thence to the magazine, a stop arranged to fall in the rear of the head of the last-inserted cartridge, and a second or auxiliary stop arranged in rear of the before-mentioned stop, substantially as and for the purpose described.

312,140. MACHINE FOR TURNING PEARL BUTTONS. ERNEST MAY, Paris, France, assignor to May Frères & Co., same place. Filed Nov. 17, 1884. (No model.) Patented in France Oct. 17, 1884, No. 152,255, and in England Oct. 24, 1884, No. 14,090.

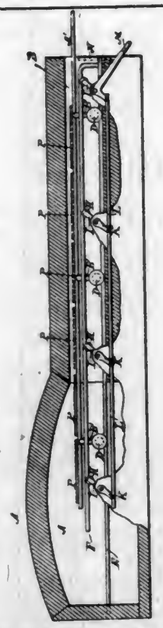


Claim.—The combination of the bed of the machine, the revolving mandrel *p*, supported thereon, the bed constructed with a guideway parallel with the axis of said mandrel, said guideway turning from said parallel direction into a direction at right angles thereto, the carriage *b*, arranged upon the bed, the bearing *k*, arranged in said guideway, a journal, *y*, extending from said carriage into said bearing *k*, the tool *a*, adjustably arranged upon said carriage, the grinding-wheel *q*, arranged on said bed in the plane of the right-angular guideway, its axis being parallel with the axis of the mandrel, the groove or recess *n*, parallel with each of the guideways, the one groove communicating with the other by a segment-shaped groove at the angle, a stud, *m*, on the carriage arranged to travel in said grooves, all substantially as and for the purpose described.

312,141. APPARATUS FOR CONVEYING SHEETS OF GLASS THROUGH THE ANNEALING-OVEN. BENEDICT MAYER, Durhamville, N. Y., assignor of one-half to Robert Andris, same place. Filed June 15 1883. (No model.)

Claim.—1. In devices for moving glass from the flattening hearth or table to and through the annealing arch or furnace, a car adapted to receive the glass from the flattening-table and be moved back a short distance therefrom, and a series of vertically-moving bars adapted to raise

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the glass from the car and hold the same in an elevated position until the car is run forward and another sheet of glass has been placed on the car, in substantially the manner described.

2. In a glass-annealing furnace or arch, a car composed of a series of parallel bars mounted on wheels, as set forth, and a series of parallel bars located beneath the bars of the car and adapted to be vertically raised up between and a short distance above the parallel bars of the car, as and for the purpose set forth.

3. In a glass-annealing furnace or arch, the combination of a car adapted to be moved to and fro within the arch, with a series of bars adapted to be raised vertically through and a short distance above the top of the car, as and for the purpose set forth.

4. The vertically-movable bars F, provided at their outer ends with the bent portions to enter the guiding-sockets G, in combination with the arms I, shafts J, arms K, connecting-rods L, and operating-lever M, whereby the bars F are raised and lowered in a vertical line, as set forth.

5. The vertically-moving parallel bars made of bar-iron cruciform in cross-section, and having the down-turned ends to enter the sockets or openings G in the floor or bed of the arch, as set forth.

6. The vertically-moving parallel bars F, constructed as described, having the upwardly-projecting flange 1 to enter between the parallel bars of the car, and the horizontally-projecting wings or flanges 2 2, against which the lifting devices impinge, as set forth.

7. The shafts J, having their bearings in the sides of the arch or tunnel, and extending therethrough, provided with the arms I, that are within the arch, and the arms K, that are on the ends of the shafts outside of the arch, in combination with the connecting-rods L and operating-lever M, as and for the purpose set forth.

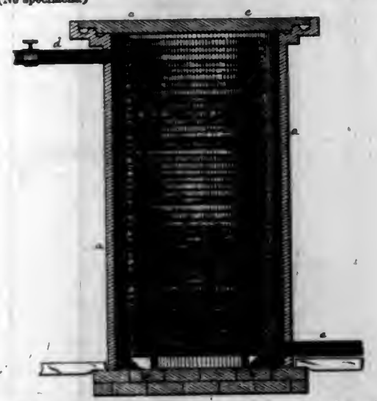
8. In a device for moving sheets of glass from the flattening hearth or table through the annealing-arch, the shafts J, having their bearings in the sides of the arch or tunnel and extending therethrough, provided with the arms I, which loosely support the parallel bars F, in combination with the arms K, connecting-rods L, and operating-lever M, whereby the bars F are raised and lowered in a vertical line, as set forth.

9. In a furnace for flattening and annealing sheet-glass, a series of parallel bars secured to shafts mounted on wheels, and a series of parallel bars adapted to be raised and lowered vertically between the first-mentioned series of parallel bars, the vertically-moving bars being operated by shafts and bars which extend beyond the influence of the heat of the annealing-chamber, as set forth, whereby the operating bars and shafts are prevented from being warped or bent by the heat of the furnace, as set forth.

10. A device for carrying sheets of glass through the annealing-arch, consisting of a car having a series of longitudinal parallel bars elevated above the axles of the car, said car being adapted to run on ways or tracks in the arch, and a series of longitudinal parallel bars adapted to be raised above and lowered beneath and between the parallel bars of the car, as set forth.

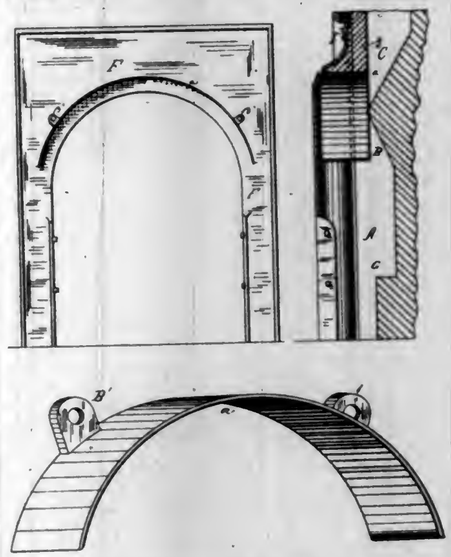
11. A car for conveying sheets of glass from the flattening-hearth through the annealing-arch, composed of a series of parallel bars secured to standards, which in turn are secured to the axles of the car, said axles being provided with wheels adapted to run on a track or way located within the arch or furnace, as set forth.

312,142. METHOD OF DEOXIDIZING THE SURFACE OF SHEET METAL. EDWARD V. MCCANDLESS, Pittsburg, Pa. Filed Dec. 6, 1884. (No specimens.)



Claim.—The method herein described of reducing the scale or oxidized surfaces of iron or steel to a metallic state, consisting in inclosing the articles in an air-tight receptacle, raising them to a reducing temperature, passing through the receptacle a current of natural gas or other deoxidizing-gas, and cooling the treated metals by passing through the receptacle a current of such gas in a cold state, substantially as set forth.

312,143. FIRE-FRONT. PATRICK MCCAULEY, Braddock, assignor of one-half to Thomas E. Neville, Pittsburg, Pa. Filed May 13, 1884. (No model.)

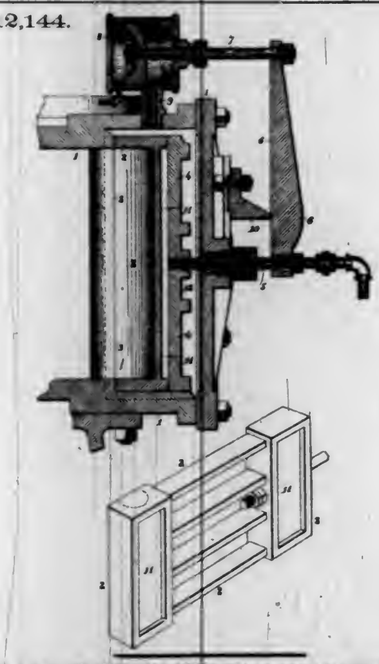


Claim.—The combination, with the fire-front F, of the removable flange *a*, having lugs B', and attached to the fire-front by bolts, substantially as shown and described.

312,144. BALANCED SLIDE-VALVE. PATRICK MCDERMOTT, Memphis, Tenn. Filed Aug. 20, 1884. (No model.)

Claim.—In combination, the steam-chest 10, the valve 2, the relief-plate 4, the cavity 11 between said valve and relief-plate, the balancing-engine 8, having the piston 7, the fulcrumed connecting-lever 6, and the hollow stem 5, communicating with the cavity 11 and the external atmosphere, as and for the purpose set forth.

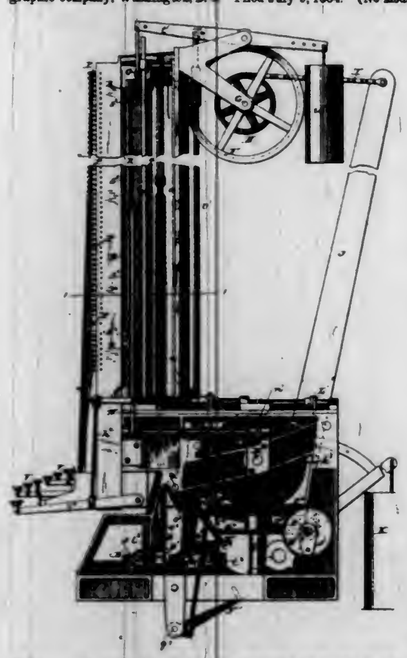
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312,145. MACHINE FOR PRODUCING STEREOTYPE-MATRICES.

OTTMAR MERGENTHALER, Baltimore, Md., assignor to the National Typographic Company, Washington, D. C.

Filed July 9, 1884. (No model.)



Claim.—1. A metal bar tapered continuously from end to end and provided with characters or letters in its tapered edge.

2. A series of independently-reciprocating parallel bars, each consisting of a single piece of metal tapered continuously from end to end and provided at its edge with a series of single characters in position to be read transversely of the bar.

3. The type-bar having the series of letters or characters on its edge and the automatic spacing device on its side.

4. The type-bar, as described, provided with the line of single characters at its edge and the spring *j* at its side.

5. The continuous type-bar having the characters formed on its edge and the reduced portion or neck *i* near one end.

6. A series of parallel independent bars movable independently in the direction of their length, and each provided with a series of letters or characters, in combination with stop devices, substantially as described, arranged in rows in front of the respective bars, whereby the various bars may be stopped at different points to bring different letters in line.

7. The reciprocating type-bar provided with type at its edge, combined with a series of stop-pins acting directly to arrest the bar at different points, adjusting-pins to set the stop-pins, and finger-keys to actuate the adjusting-pins, substantially as described.

8. The series of type-bars, the stop-pins arranged in rows adjacent to the respective bars, the adjusting-pins, and a laterally-movable support for the latter, combined substantially as described, whereby the adjusting-pins may be placed in position to actuate the stop-pins of the different printing-bars in succession.

9. The type-bars, the stop-pins acting directly upon the bars, the adjusting-pins, the rock-shafts to actuate the adjusting-pins, and the finger-keys to actuate the respective shafts, combined substantially as described and shown.

10. The type-bars, the stop-pins, and the frame to carry said pins, movable in a forward and backward direction, combined substantially as described, whereby the projected pins may be restored to their normal positions and disconnected from the bars.

11. In combination with a guide or support therefor, a type bar or carrier, a series of independent stops to arrest the motion of the bar at different points, and a dog or detent movable with the bar, to hold the same after the stop is disengaged.

12. In combination with a movable type-bar, a series of stop-pins arranged to slide to and from the same in a fixed support, and a dog or detent movable with the bar and arranged to engage a fixed plate, whereby the bar may be maintained in the position in which it is stopped after the stop-pin ceases to act thereon.

13. In combination with the independent type-bars, the stop-pins, the adjusting-pins, the frame sustaining the stop-pins, and mechanism, substantially as described, to impart three motions to the pin-frame, viz: first, a backward movement to place the previously-projected pins in position to stop the bars; second, a farther backward motion to restore all the pins to their normal positions in the frame; and, third, a forward motion to disconnect the pins from the bars and place them in position to begin operations.

14. The series of independently-reciprocating parallel type-bars with type at their edges, combined with clamps acting laterally to bind them together, and mechanism, substantially as described, for actuating the clamps.

15. A series of parallel independently-reciprocating bars or carriers, each having a series of type on its edge, in combination with two clamps extending across the edges of the series, and mechanism, substantially as described, to approximate said clamps, whereby they are caused to confine the dies and bring the type to a common plane.

16. In combination with the independently-movable type bars or carriers, the clamp extending across the back of the series, the two clamps extending across the front of the series, and operating devices, substantially as described, for approximating the front and rear clamps, and also approximating the front clamps.

17. The series of independently-movable type bars or carriers, each provided with a series of type at the edge, in combination with the front clamps to engage the upper and lower edges of the selected and aligned characters, and mechanism, substantially as described, to close the clamps upon the type and also urge them toward the edges of the bars.

18. In combination with the movable type bars or carriers, the clamps C C^2, constructed as described, to act on the front edges of the bars above and below the line of characters and to expose the faces of the characters between them.

19. In combination with the longitudinally-movable type-bars and their suspending devices, substantially as described, means, substantially as described, to hold the bars edgewise out of line, whereby the projecting characters in the edges of the respective bars are prevented from encountering each other.

20. In combination with the guiding-plates *a a'*, the series of type-bars and the spring-actuated pins mounted in the lower ends of the bars and arranged to throw the bars edgewise out of line.

21. In combination with the body portion of the type-bars, or bars proper, the suspending-links, the heads attached to said links, and the grooved guide-plates in which the heads slide.

22. In combination with the guide-plates and the vertically-sliding heads therein, the type-bars suspended from the heads, as described, to hang with their adjacent edges out of line.

23. In combination with the type bars or carriers, a beater to force the blanks thereon, and operating mechanism, substantially as described, to cause rapidly-succeeding actions of said beater, whereby the blank is gradually adapted to the surface of the type.

24. In combination with the series of type-bars, the two beaters, and mechanism, substantially as described, to actuate them alternately.

25. In a machine for taking impressions from type, and in combination with a series of movable type-bars, a beater of soft material, a beater of hard material, and mechanism, substantially as described, to actuate said beaters successively.

26. In combination with the type bars or carriers, the swinging beater F' and the pitman and crank connected with and driven by the operative parts of the machine, substantially as described and shown.

27. In combination with the type-bars, the beater F^v, the arm r^3, connected therewith, the spring s^3, and the notched wheel t^3.

28. In combination with the type-bars having the reduced ends or necks, a lateral clamp having a forked or divided end to straddle the necks of those bars which are not in action, as described.

29. In combination with the type-bars and the lateral clamps, the actuating-levers with jointed yielding ends and the cam for operating said levers.

30. The type-bars, the lateral clamp, the arm to actuate the clamp, and the adjustable connection between the arm and clamp, whereby the clamp may be adjusted to move inward a greater or less distance, according to the length of the lines to be printed.

31. The combination of the type and space bars, the finger-keys, the intermediate mechanism, substantially as described, to align the designated characters, and the indicating mechanism, substantially as described, actuated by the finger-keys, to indicate the aggregate width of the designated characters in advance of their assemblage, whereby the attendant is enabled to determine upon the necessary designation of the spaces.

32. The combination, substantially as hereinbefore set forth, of the type-bars, the stop-pins, the adjusting-pins, and the indicating mechanism, substantially as described, actuated by the adjusting-pins.

33. In combination with the series of type-bars, the indicating mechanism, substantially as described, the stop-pins, and the adjusting-pins, to cause the stoppage of the bars at different points, each pin representing a letter or character, and provided with an inclined surface proportioned to the width of the character to actuate the indicating mechanism.

34. In combination with a series of independently-movable type-bars diminishing in width from one end toward the other, a series of finger-keys, intermediate mechanism, substantially as described, whereby the keys are caused to stop the bars at different points, and thus present their designated characters in a common line, and the indicating mechanism, substantially as described, to show the aggregate width of the bars at the points where the designated characters are carried thereon.

35. In combination with the type-bars and the lateral clamp, the guide therefor, the adjustable stop to limit the motion of the clamp toward the bars, and the yielding arm to actuate the clamp.

36. The pendent type-bars having the heads thereon, in combination with the locking-dogs in said heads, and the notched guide-plate to receive and hold the dogs, whereby the bars may be sustained at different elevations.

37. The series of type-bars arranged to slide independently in a longitudinal direction, and provided with heads, in combination with the vertically-movable frame adapted to act beneath the heads, whereby the bars may be raised and lowered in unison and permitted to stop independently in their descent at different points.

38. The independently-movable type-bars and the locking dogs or detents carried thereby, in combination with the guide *a a'*, provided with shoulders or notches to engage the dogs, and a vertically-movable head or yoke, C, whereby the bars are raised and lowered and their dogs automatically actuated, as described, whereby the respective bars are permitted to stop, and are automatically suspended at different points when descending with the head, but lifted to a common elevation as the head ascends.

39. The sliding pins having inclines thereon, in combination with the bar Y, the indicator-rod, the intermediate lifting-dog, r^2, and the locking-dog t^2.

40. The combination, substantially as described and shown, of the finger-keys representing characters of different widths, the indicator connected therewith to show the aggregate width of the designated characters, and the alarm mechanism having its trip o^2 arranged to be actuated by the indicator-rod f^2, whereby said rod is caused to serve a double purpose.

41. In combination with the finger-keys representing characters of different widths, the smooth indicator-rod, the friction-dogs co-operating therewith, and devices, substantially such as shown, for imparting variable movements to one of said dogs from the respective keys, whereby characters of any width may be employed and the aggregate width of the designated characters accurately indicated.

42. In combination with the type-bars and stop-pins and the adjusting-pin frame movable laterally from one bar to another, the indicator or counting device p^2 q^2, to show the number of bars called into action.

43. In combination with the type-bars, the stop-pins, the adjusting-pins, the laterally-movable frame supporting the adjusting-pins, the escapement to control the lateral movement of said frame, the finger-keys, and connections, substantially as described, connecting the respective keys with the corresponding adjusting-pins and the entire series of keys with the escapement, whereby each key is enabled to designate a particular character and also cause the action of the escapement.

44. In a machine for producing matrices from type or dies assembled temporarily in line, the combination of the independent type bars or carriers, each bearing a plurality of characters, the finger-keys representing the respective characters, the stop devices to arrest the movement of the respective bars at proper points, connections, substantially as described, between the keys and stop devices, and a reciprocating suspending-head, C, substantially as described, to advance the type-bars simultaneously after the adjustment of the stop devices.

45. The series of upright gravitating independent type-bars, each bearing a number of characters, the series of stop-pins arranged in line with the bars to engage the individual bars and stop them at different heights, and the lifting-head, whereby the bars are raised and lowered simultaneously, but permitted to stop individually in their descent at different points.

46. The combination, substantially as described and shown, of a longitudinally-reciprocating type bar or carrier bearing a series of characters, with a series of stops corresponding with the respective characters, arranged to engage the bar one at a time and arrest the same with the desired character at the printing-point.

47. In an automatic machine for producing an impression from a line of temporarily-assembled types, the combination of the following elements: the independent type-bars, each bearing a number of characters, the corresponding finger-keys, the intermediate stop mechanism and connections, substantially as described, the mechanism, substantially as described, for advancing the type-bars to the stops, the clamps to confine the bars, the beater to force the blank material against the aligned characters, and the actuating mechanism, substantially as described, for causing the successive and automatic action of the several parts, as described.

48. The combination, substantially as hereinbefore described and shown, of the type-bars and the clamps acting thereon, the beater, and the driving mechanism acting to automatically close the clamps and subsequently actuate the beater.

49. The finger-keys, the adjusting-pins R, actuated thereby, the stop-pins R^2, the reciprocating type-bars, and the reciprocating lifting-head C, bearing beneath the heads or shoulders of the bars, said parts combined and arranged to operate as described.

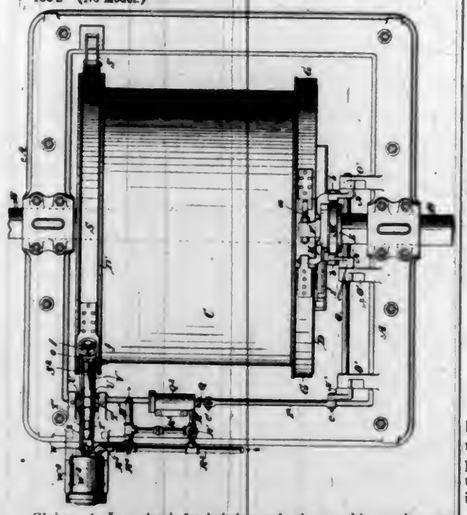
50. In a machine for securing impressions from independently-movable bars, each provided with a series of letters or characters, and in combination with said bars, a series of finger-keys representing the respective characters, stop devices and connections, substantially as described, actuated by the respective keys, to arrest the motion of the bars at suitable points to bring the designated characters into line, secondary locking devices, substantially as described, to hold the bars in the position in which they are arrested by the stop devices, and automatic means, substantially as described, whereby the stop-pins are disconnected from the bars and restored to their normal positions, whereby the operator is enabled to actuate the keys and designate the characters for a second line during the time that an impression is being taken from the first line.

51. In a machine for producing impressions from type bars or carriers, each bearing a number of characters, the combination of the said bars, the series of finger-keys, the stop devices and connections, substantially as described, actuated by said keys, to arrest the bars at different points, and thereby align the designated characters, the suspending devices, substantially as described, to retain the bars in their adjusted positions after the disconnection of the stop devices, the beating mechanism, substantially as described, to force the blank material against the aligned type, the mechanism, substantially as described, to restore the stop devices to their original position previous to the restoration of the bars, and the mechanism, substantially as described, to restore the bars after the action of the beater, said members being organized and arranged for joint operation as set forth, whereby the operation of the keys to designate the characters for one line is permitted during the taking of the impression from the preceding line.

52. In combination with a series of independent type-bars arranged to advance in unison, as described, and each bearing a series of characters, a series of finger-keys representing the different characters, intermediate connections and stop devices, substantially as described, acting to arrest the motion of the bars at different points, and automatic mechanism, substantially as described, acting to disconnect the stop devices from the various bars at one operation and restore them to their normal positions.

53. In a machine for producing impressions from type, the combination of a series of parallel bars movable independently in a longitudinal direction, each bar provided on its edge with a series of characters or type, and also provided at a suitable point in its length with a laterally-acting spring or equivalent spacing device, whereby every bar in the series is adapted for use in indenting or for spacing between the bars which are used to indent, as the operator may elect.

312,146. EXTERNAL FRICTION-BRAKE BAND FOR HOISTING MACHINERY. DANIEL H. MERRITT, Marquette, Mich. Filed Nov. 26, 1884. (No model.)



Claim.—1. In a clutch for hoisting and other machinery, the combination of a shaft, a drum mounted loosely thereon, a driver rigidly secured to said shaft, bell-crank levers pivoted to said driver, clutch-bands to encircle a part of said drum, connected at one end with said bell-crank levers, a sliding collar and arms connecting with one end of said bell-crank levers, a crank-shaft connecting with said collar, a piston-cylinder and its piston connected with said crank-shaft, and a pressure-supply pipe communicating with said cylinder to supply an agent to operate said piston, substantially as described.

2. The combination, with the drum and the brake-band, of the eccentric-lever connected with opposite ends of the brake-band, the brake-cylinder and its piston connected with said lever, and a pressure-supply pipe communicating with said cylinder to supply an agent to operate said piston, substantially as described.

3. The combination, with the drum and the brake-band, of the hinged link-bars, the block or shoe, and the eccentric-lever having opposite ends of the brake-band secured thereto, fulcrumed on said bars, the brake-cylinder and its piston connected with said lever, and the pressure-supply pipe communicating with said cylinder to supply an agent to operate said piston, substantially as described.

4. The combination, with the drum and the brake-band, of the eccentric-lever having opposite ends of the brake-band connected thereto, the brake-cylinder, the piston having its rod connected to said lever, the carriage for supporting the piston-rod, and the pressure-supply pipe communicating with the cylinder, substantially as and for the purpose described.

5. The combination, with the drum and the brake-band, of the hinged link-bars, the shoe, and the eccentric-lever fulcrumed thereto, the adjusting-bolts connecting opposite ends of the brake-band to said lever, the brake-cylinder, the piston and its rod connected to said lever, the carriage traveling with the piston-rod for supporting the same, and the pressure-supply pipe communicating with said cylinder to supply an agent to operate the piston, substantially as described.

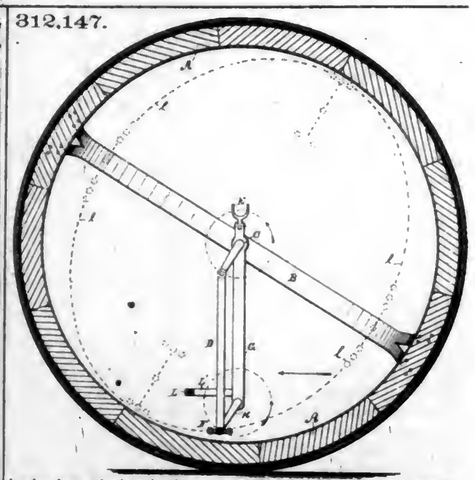
6. The combination, with the hoisting drum and clutch and brake-bands therefor, of the clutch and brake piston cylinders, the main pressure-supply pipe having communication with both cylinders, an exhaust-pipe for each piston-cylinder, and a three-way cock for each cylinder to apply the pressure to one cylinder while cut off and exhausted from the other, substantially as described.

7. The combination of the clutch and brake cylinders, the springs in each cylinder to restore the pistons to their normal positions after the fluid-pressure has been taken off, the main pressure-supply pipe connected with the brake-cylinder, the pipe for connecting the said supply-pipe with the clutch-cylinder, the exhaust-pipe leading from the main supply-pipe, and the three-way cock at their juncture, the pipe for connecting the clutch-cylinder pipe with the exhaust-pipe, and the three-way cock at the juncture of said connecting-pipe and clutch-cylinder pipe, substantially as described.

312,147. MONOCYCLE. FRANCIS E. MILLS, Pittsburg, Pa., assignor of one-half to William McMahon, same place. Filed Nov. 21, 1884. (No model.)

Claim.—1. In a one-wheel velocipede driven by means of pedals operating upon fixed cranks inside of and axial to the wheel, a wheel

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having but a single pair of transverse ribs or spokes in contact with the rolling rim, substantially as herein described, whereby the pedals can be placed nearer the ground, and the operator is enabled to walk or run upon the ground without impediment in starting, mounting, and alighting from the vehicle.

2. The wrist-yokes E E, attached to the pendent bars or frame G G, and projecting over the axial hand-holders H H so as to embrace the front and rear sides of the operator's wrists, substantially as described, whereby the operator is enabled to resist or check the oscillation of said hanging bars and their appendages.

3. In combination with the pendent bars, the jointed wrist-yokes E E, whereby the yokes may be turned up out of the way or dropped down into a horizontal position, as required.

4. In a one-wheeled velocipede driven by means of pedals working fixed cranks within the wheel, the combination, with the fixed cranks and pedals and their connecting-rods, of the hand-holders H H, placed on the axis of the wheel between the sides of the wheel and the arms of the fixed cranks, whereby the operator obtains a firm and unyielding fulcrum by which to support his body and control the movements of the vehicle.

5. The hanging bars G, having the lateral prolongation or extension of their journal-boxes to cover the spindles C, in order to form the hand-holders H, and also to prevent the lateral swaying of the frame.

6. In a one-wheeled velocipede, the combination, with the fixed spindles and cranks C, axial hand-holders H, wrist-yokes E, and the pendent bars G, with their connecting-bar L, bent forward sufficiently to clear the revolving pedals F, of the double crank K, pivoted in the lower ends of said pendent bars, and having its wrists connected with the wrist-pins of the fixed cranks C, substantially as and for the purpose herein described.

7. The combination, with a monocycle having a single pair of diametrical ribs, B, of a crank and pedal mechanism arranged to descend to its position of lowest throw at points on the periphery of the rolling rim intermediate to the connections of the diametrical ribs with the rim, as and for the purpose described.

312,148. SEEDING-MACHINE. GEORGE W. MISHIMEN, Newcomerstown, Ohio. Filed Oct. 18, 1884. (No model.)



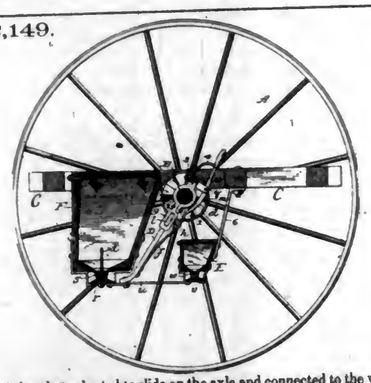
Claim.—The combination of the drill F, having rearwardly-projecting sockets G, provided with set-screws H, rod D, weighted wheel or roller A, having a concave rim, and forked bearing B, having an eye, C, provided with a set-screw, E, substantially as and for the purpose shown and set forth.

312,149. SEEDER. HALSEY H. MONROE, Thomaston, Me. Filed Sept. 11, 1884. (No model.)

Claim.—1. A bracket adapted to slide upon the axle and connected to the valve-bar of a seeder, in combination with means for giving it reciprocating lateral movement, substantially as set forth.

2. A bracket adapted to slide on the axle and connected to the valve-bar of a seeder, in combination with a zigzag wheel fixed to the axle.

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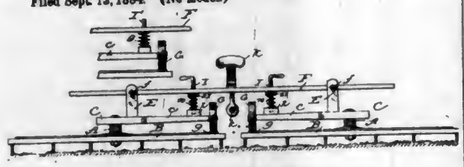
3. A bracket adapted to slide on the axle and connected to the valve-bar of a seeder, said bracket being provided with a sleeve and bar, *l*, sliding in said sleeve, in combination with a pin and mechanism for operating the same, and with a zigzag wheel fixed to the axle connected to the bar, all substantially as described.

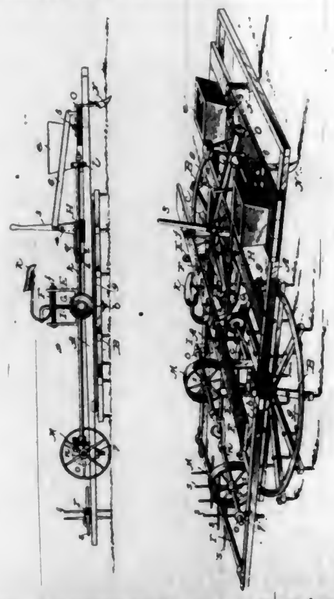
4. The bracket D, adapted to slide on the axle, having sleeve and bar *l*, provided with holes, and means for giving the bar reciprocating motion, the spring *f* and pin, and the lever *e*, all substantially as described.

5. In connection with the seed-box, a curved or beveled valve-bar provided with valve-blocks *s*, said bar being suspended below the box in straps, and combined with means for imparting to it reciprocating motion, all substantially as described.

6. The valve-bar and valve-block provided with holes and combined with the stirring-pin *t*, said pin serving to connect the block and bar, substantially as described.

312,150. ROTARY HARROW. HALSEY H. MONROE, Thomaston, Me. Filed Sept. 13, 1884. (No model.)





Claim.—1. In combination, a frame, a pair of rotary harrows straddling the row, fitted to turn between the rows, and pivoted under the frame, mechanism for causing the harrows to rotate, a seed-dropping mechanism located on the frame, and furrow-openers in line therewith, all substantially as described.

2. In combination, a frame, a pair of rotary harrows straddling the row, fitted to turn between the rows, and pivoted under the frame, mechanism for causing the harrows to rotate, a seed-dropping mechanism located on the frame, furrow-openers, and wheels in line with the openers, all substantially as described.

3. In combination, a frame, a pair of rotary harrows pivoted under said frame and fitted to work between the rows, and having space between adapting them to straddle a row, a seed-dropping mechanism and furrow-openers N N on a hinged bar, the rod 6, and hand-lever, all substantially as described.

4. In combination, a frame, a pair of rotary harrows pivoted under said frame, fitted to straddle one row and work between it and the adjacent rows, a seed-dropping mechanism, a shaft, *n*, and wheels M M, and shaft *k*, connected thereto by bevel-gears, and the wrist-pin connecting with the rods of the seed-dropping valves, all substantially as described.

5. In combination, a frame, a pair of rotary harrows pivoted under said frame, fitted to straddle one row and work between it and the adjacent rows, and a shaft, *r*, extending across the rear of the frame, provided with a series of teeth, *s*, set at right angles to each other, all substantially as described.

6. In the described machine, in combination with the axle *n* and its wheels M M, the shaft *k*, connected to the axle by bevel-gears, and to the seed-valve rods by wrist-pin, the seed-valve mechanism, and the openers on a pivoted bar, and the connections *q* and 6 to the lever 3, substantially as described.

7. In combination with the frame and harrows, and the seed-dropping mechanism, the vertically-adjustable shaft *n* and the horizontally-adjustable wheels M M, mounted on said shaft, substantially as described.

8. In combination, the side pieces, A A, suitably connected, harrows B B, arms carrying the wheels G G, the king-bolts, brackets E on the arms, and a frame F, fixed to said brackets, whereby the harrows are prevented from tipping, all substantially as described.

9. In the described machine, and in combination, the harrows B B, beams A A, king-bolts *b b*, arms C C, and supplemental arms *c c*, hinged to the arms C C, wheels G G, and connections, as described, between the arms *c c* and the frame F, all as set forth.

10. The detachable structure consisting of the arms C C and supplemental arms *c c*, hinged to the arms C, wheels G G, brackets and frame F, attached thereto, and screws I I, in combination with side pieces, A A, and harrows B B, and the king-bolts, all substantially as described.

11. In combination with the frame of a rotary harrow, an axle and supporting-wheels, combined with vertically-adjustable bearings, substantially as described.

12. The combination, with the frame F, secured to the brackets E, which are supported by the arms C, of the screws I, passing through frame F to a block, *i*, on the supplemental arm *c*, and the spring 10 upon the screw bearing on the block *i*, substantially as described.

13. In a double harrow, the rigid bar or frame, the screws I I, the arms *c c*, carrying the wheels that bear on the harrows, and the grooved blocks fitted to allow lateral movement of the ends of said screws, the parts being constructed to operate substantially as described.

312,151. HAY ELEVATOR AND CARRIER. ROBERT H. MORRIS, Janesville, Wis., assignor of one-half to Nels Carlson, same place. Filed Dec. 20, 1884. (No model.)

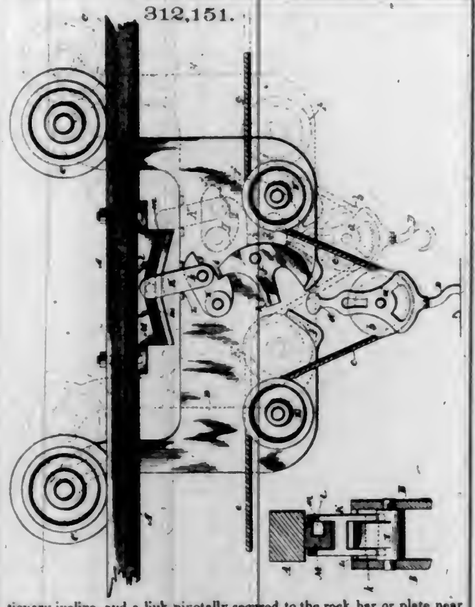
Claim.—1. In a hay elevator and carrier, the combination, with a grip-lever pivoted to a carriage and a projection rigidly secured to said carriage, of an eccentric bar or plate having two shoulders thereon, with which the lever engages, a stationary incline, and a link connected to the eccentric and adapted to engage the incline, thereby locking the lever in open adjustment and stopping the carriage, substantially as set forth.

2. In a hay elevator and carrier, the combination, with a carriage, a projection secured thereto, and a grip-lever pivoted to a carriage, and adapted to be closed by the action of a movable tackle, of an eccentric bar or plate having two shoulders thereon adapted to engage the lever and respectively hold the latter in closed and open adjustment, a stationary incline, and a link pivotally secured to the eccentric and adapted to engage the incline, whereby the lever is locked in closed adjustment and the carriage released, substantially as set forth.

3. In a hay elevator and carrier, the combination, with a carriage, a grip-lever pivoted thereto, and an eccentric bar or plate having shoulders thereon, which latter engage the upper end of the lever, of a sliding link connected with the eccentric and adapted to engage an incline secured to the carriage-way, whereby the reciprocating motion of the carriage imparts a positive rocking motion to the eccentric, substantially as set forth.

4. In a hay elevator and carrier, the combination, with a grip-lever adapted to be opened and closed by the downward and upward pressure of a movable tackle, of a notched or shouldered rock bar or plate located above the lever and adapted to engage the upper end of said lever, a sta-

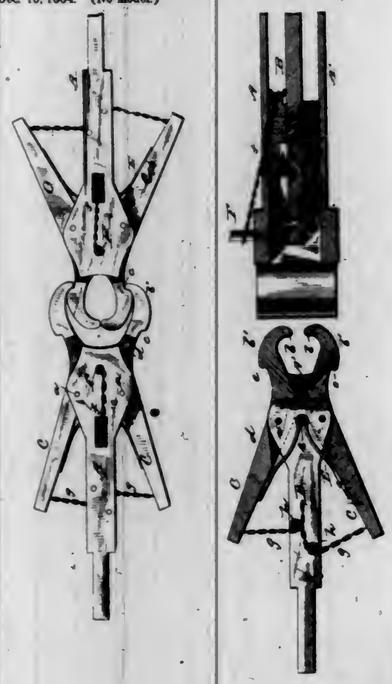
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tionary incline, and a link pivotally secured to the rock bar or plate near one end of the latter, the link being adapted to engage the said incline, and thereby operate the rock bar or plate, substantially as set forth.

5. In a hay elevator and carrier, the combination, with a carriage and a rock bar or plate located near the upper end of a grip-lever, and provided with two notches or shoulders on one side for engaging the end of the lever, the plate and lever being pivotally secured to the carriage, of an operating-link pivoted to the rock-bar near one end of the latter, said link being held against lateral motion by passing through a slot in the carriage and caused to move vertically in the slot by an incline, substantially as set forth.

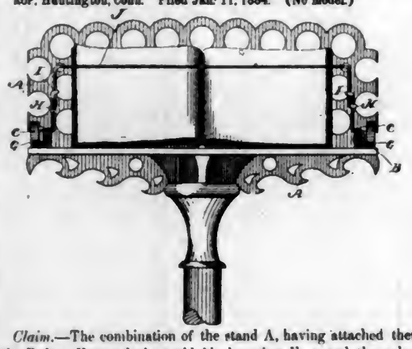
312,152. CAR-COUPLING. ADAM S. NEAL, Richmond, Tex. Filed Dec. 10, 1884. (No model.)



Claim.—1. The combination, in a car-coupler, of the pivoted coupling-hooks provided at their front ends with similarly-constructed jaws, having inwardly-turned ends *b*, outwardly-curved portions *b'*, and notches *c*, spring E, with rearwardly-diverging members, and plates A A' B, the parts being organized substantially as shown, and for the purpose set forth.

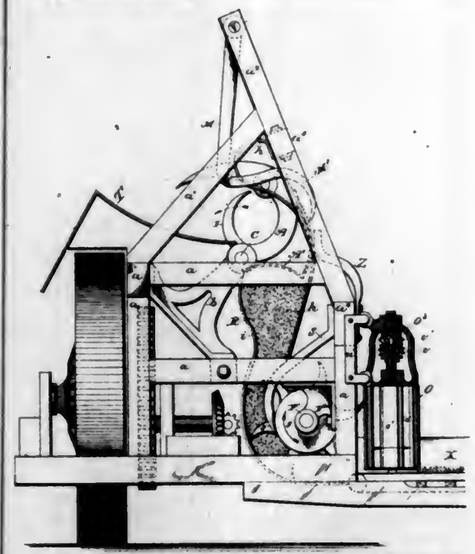
2. In a car-coupling, the combination of the pivoted coupling-hooks C C, with enlarged forward end portions, constructed substantially as shown, top and bottom plates, A A', and center plate, B, the top and bottom plates projecting beyond the center plate so as to form bumpers, the center plate having attached thereto a spring with rearwardly-diverging members, and means for drawing the ends of the coupling-hooks together, the parts being organized as shown.

312,153. DEVICE FOR HOLDING MUSIC, BOOKS, &c. GEO. H. NORTHROP, Huntington, Conn. Filed Jan. 11, 1884. (No model.)



Claim.—The combination of the stand A, having attached thereto blocks B, lugs E, attached to said blocks, wires F, passed through said lugs, and having short crank-arms G formed at their lower ends, flat springs C, secured to the blocks B at one extremity, and near the other extremity bearing upon the crank-arms, and binding-wire J, attached to said wires F by loop-connections, substantially as set forth and described.

312,154. GRAIN-BINDER. FERRIS OGDEN, Mansfield, Ohio. Filed Jan. 5, 1882. (No model.)



Claim.—1. In a grain-binder, the combination, with the grain-receiver and devices for forcing the cut grain into the same, of a binder-arm or cord-carrier arranged to be started into action by the direct pressure of the grain thereupon, substantially as set forth.

2. In a grain-binder, the combination, with a grain-conveying apron, and a grain-receptacle arranged to receive the cut grain directly from said apron, of a binder or cord-carrying arm arranged to receive pressure direct from said grain as the receptacle is filled, and to be started into action by a predetermined degree of such pressure, substantially as described.

3. The combination, with the binder-arm and its shaft, and means for giving said shaft a complete rotation, of the compressor-arm fixed upon a sleeve surrounding said shaft, and means for holding said compressor-arm stationary during the early part of the movement of the binder-arm, then rotating it with the binder-arm, and finally carrying it away from the gavel when the binder-arm stops, substantially as set forth.

4. The combination, with the binder-arm and its shaft, and the compressor-arm and its tubular shaft inclosing the binder-arm shaft, of the fixed gear-wheel on the binder-arm shaft, and loose gear-wheel also on said shaft, each provided with the cam-groove, substantially as described, a suitable latch operating in connection with said cam-grooves, and means for transmitting motion from the loose gear-wheel to the tubular shaft carrying the compressor-arm.

5. The combination, with the binder-arm shaft, the fixed and loose gear-wheels mounted on said shaft, and having the cam-grooves substantially as described, devices for engaging said wheels together, a suitable latch operating in connection with said cam-grooves, a gavel-ejecting mechanism, and intermediate devices for communicating motion to the same from said loose spur-wheel.

6. The combination, with the binder-arm arranged to stand normally athwart the exit-opening of the grain-receptacle, and fixed upon the shaft C, of the fixed and loose mutilated gear-wheels mounted on said shaft, and having the cam-grooves, substantially as described, means for engaging said wheels temporarily together, a suitable latch operating in direct connection with said cam-grooves, the pinion F, arranged to engage with both of said gear-wheels, and devices for transmitting motion from the loose gear-wheel to compressor-arm and gavel-ejecting devices.

7. In a grain-binder, a revolving binder-arm, and a revolving and vibratory compressor-arm arranged to move about the same center, said binder and compressing arms co-operating to form the gavel, substantially as described.

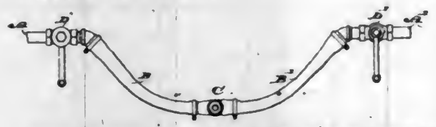
8. The combination, with the revolving binder-arm, of the cord-grasping spring A^3, suitable devices for throwing said spring outward at the proper time, and means for holding the cord in position to be grasped by said spring, substantially as set forth.

9. The combination, with the revolving binder-arm, of the short slotted shaft 1, carrying the fixed jaw 2, and flanged pinion 6, the spring-pressed movable jaw 3, pivoted in the slot of said shaft, the slide 5, arranged to operate the said pivoted jaw, substantially as described, and the rack-bar 10, provided with means for operating said pinion and slide.

10. The combination, with the revolving binder-arm and its cord-grasping spring A^3, of the finger 14, forming a cord-guide, the stationary cutter A^4, and the cord-jamming arm A^5, arranged to play between said lug and the cutter, substantially as and for the purpose set forth, and suitable means for operating said cord-jamming arm.

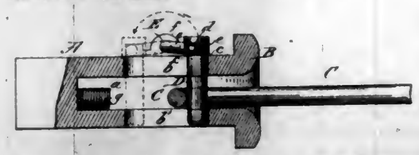
11. The combination, with the binder-arm revolving on a pivot and carrying the cord tying, holding, and cutting devices, as described, of the cord-holding arm pivoted on the binder-arm and having a laterally-projecting lug, and the stationary rack-bar provided with a cam-groove for engaging the lug of said arm for forcing said holding-arm in position to press the cord upon the cutter, and to simultaneously grasp said cord at one side of the point at which it is secured, substantially as set forth.

312,155. ATMOSPHERIC BRAKE. WILLIAM O'HERIN, Parsons, Kans. Filed Sept. 20, 1884. (No model.)



Claim.—The tubes A A', the flexible tubes B B', the coupling C, and the cut-off valves D D', having the passages d' d^5, combined and operated substantially as described.

312,156. CAR-COUPLING. PHILIP J. PATN, Washington, D. C. Filed Dec. 16, 1884. (No model.)

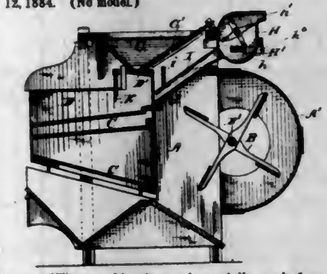


Claim.—1. In a car-coupling, the combination, with the socketed draw-head A, provided in its upper and lower faces with longitudinal slots *b b'*, of a crank-shank, E, journaled upon the draw-head, and having its centrally-cranked portion *e* arranged over the upper slot, the coupling-pin D, suspended from the crank *e*, and adapted to rest in either end of the slots *b b'*, and a link, C, for engaging the pin when suspended in the forward end of the slots, and capable of becoming disengaged by rotating the crank *e* backward, so as to carry the pin to the rear end of the slots, substantially as described.

2. The combination, with a draw-head having longitudinal slots *b b'* at top and bottom, of the shouldered coupling-pin D, suspended loosely from the cranked portion of a shaft, E, that is journaled upon the draw-head, said pin being adapted to hang in either end of the slots and have a bearing against the end of the slots and upon the edge of the upper slot, substantially as described.

3. The combination of the draw-head A, having longitudinal slots *b b'* and spring *g*, the cranked shaft E, and the coupling-pin D, suspended loosely from the cranked portion of said shaft, and provided with flattened sides, and an enlarged head having an eye, *d*, of greater lateral diameter than the crank, whereby the crank-shaft is relieved of strain and the pin made capable of being moved to either end of the slots *b b'*, substantially as described.

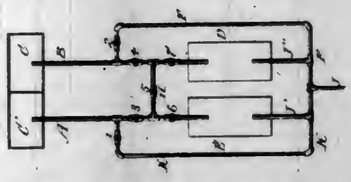
312,157. FANNING-MILL. EDWIN H. PEASE, Racine, Wis. Filed Nov. 12, 1884. (No model.)



Claim.—1. The combination, substantially as before set forth, of the hopper, the shaking sieves or riddles below the hopper, the blast-fan, the independent suction-fan, the suction or dust trunk, which is arranged, substantially as described, so that the grain falling from the hopper-bottom to the riddles passes across the mouth of said trunk, and is there subjected to a cross-draft, and the deflector on the dust-trunk in front of the riddles.

2. The combination, substantially as before set forth, of the hopper, the shaking sieves or riddles below the hopper, the blast-fan, and the independent suction-fan, with the dust-trunk having the deflector *i* in front of the riddles, and having its mouth reaching to and communicating with the space directly between the hopper-bottom and the riddles, a valve, K, suspended over the riddles and in front of the mouth of the dust-trunk, and suitable means for adjusting the valve.

312,158. MAIN FOR WATER-DISTRIBUTION. SAMUEL B. PEENEY, Evanston, Ill., assignor of one-half to Jones Patrick, same place. Filed Feb. 28, 1884. (No model.)



Claim.—In a system of water-distribution, the crib, pump, and suction and delivery pipes, combined, substantially as set forth, with an independent flushing-pipe connecting the suction and delivery pipes, and valves located in said independent flushing and suction pipes, whereby the current normally drawn through the crib may be reversed and the crib and suction-pipes cleared of obstructions, as specified.

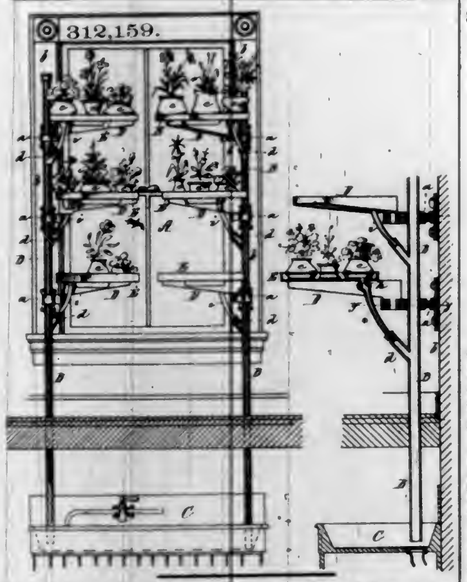
312,159. FLOWER-POT STAND. ALFRED H. PERKINS, Leominster, Mass. Filed Apr. 25, 1884. (No model.)

Claim.—1. The vertical pipe B, leading into the sink or drain C, one or more receptacles, E, and means for supporting the same, in combination with a flexible tube, *i*, leading from each receptacle into said pipe, for the escape of the waste water, as described.

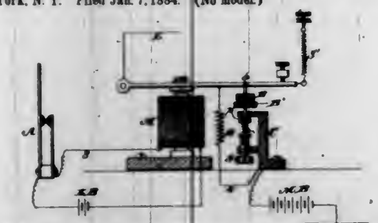
2. The combination of the vertical pipe B, one or more adjustable brackets, D, means for supporting the same, a flower-pot receptacle, E, for each bracket, and a flexible tube, *i*, leading from each receptacle into the pipe B, as and for the purpose set forth.

3. A flower-pot receptacle, E, having its bottom provided with an outlet-orifice, *h*, and one or more channels, *e*, leading thereto, in combination with a bracket, D, means for supporting the latter, a flexible tube *i*, and a waste-pipe, B, as specified.

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312,160. TELEPHONE-TRANSMITTER. CHARLES A. RANDALL, New York, N. Y. Filed Jan. 7, 1884. (No model.)



Claim.—1. In a telephone-transmitter, the combination, with a main battery, of a pair of circuit-controlling electrodes therefor, one of which is made concave upon its active or bearing surface, substantially as described.

2. In a telephone-transmitter, the combination, with a main battery, of a pair of circuit-controlling electrodes therefor of extended area or surface, one of said electrodes being concave and the other flat upon their active or bearing surfaces, substantially as described.

3. In a telephonic transmitter, the combination, with a main-line battery, of circuit-controlling electrodes, one of which is pivotally hung or swung from the armature-lever, controlling the relative positions of the electrodes to each other, so that it may be free to take evenly and firmly upon the other, a magnet controlling the armature-lever, a diaphragm, and circuit-connections for variably energizing the magnet, substantially as described.

4. In a telephone-transmitter, the combination of a main battery, a pair of circuit-controlling electrodes therefor, and two independent electro-magnets in one local circuit controlled by a diaphragm, each magnet controlling through its armature an electrode, so that both are simultaneously moved to or from each other, substantially as described.

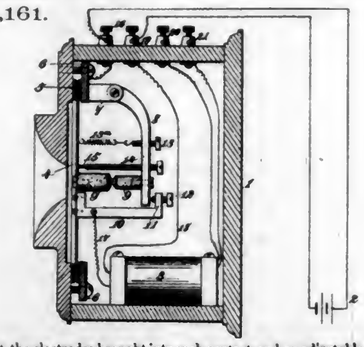
312,161. TELEPHONE-TRANSMITTER. CHARLES A. RANDALL, New York, N. Y. Filed Feb. 21, 1884. (No model.)

Claim.—1. In a battery telephone-transmitter, the combination, with the electrode-supports and the electrodes, of a spring adapted and adjusted to bring the electrodes into firm and strong contact normally, and an adjusting-screw for maintaining them normally in such relative position and limiting the movement of the electrodes toward each other upon vibration of the diaphragm, substantially as described.

2. In a battery telephonic transmitter, the combination of a battery, a vibrator, electrodes controlled thereby, a spring arranged and adjusted to bring the electrodes into firm strong contact, and an adjustable screw, controlling and maintaining the normal relation of the electrodes, and limiting the movement of the electrodes toward each other upon vibration of the diaphragm, substantially as described.

3. The combination, in a battery telephonic transmitter, of a spring for bringing the electrodes toward each other normally in firm strong

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contact, the electrodes brought into such contact, and an adjustable stop for limiting and controlling the action of the spring, and maintaining such normal contact during inaction, and limiting the movement of the electrodes toward each other upon vibration of the diaphragm, substantially as described.

4. The combination, with the electrodes of an electric battery transmitter, of a spring for bringing the electrodes toward each other to produce a firm strong contact, and an adjusting-screw limiting and regulating the action of the spring, whereby the normal relative position of the electrodes is adjusted and maintained, substantially as described.

5. In a battery transmitter, the combination of the electrodes independently insulated from each other, a spring for impelling the electrodes toward each other and bringing them into firm strong contact, and an adjustable screw for limiting the action of the spring, whereby the relative position normally of the electrodes is maintained and their movement toward each other limited, substantially as described.

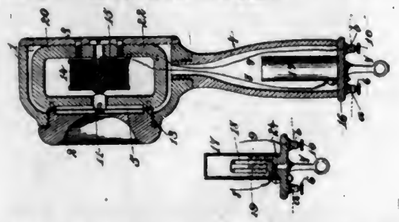
6. The combination, with the electrodes of a battery transmitter, of a spring acting to bring the electrodes into firm strong contact, and an adjusting-screw passing through one electrode-carrier and taking upon the other, whereby the electrodes are adjusted to and maintained in their normal relative positions, substantially as described.

7. The combination, with the electrodes of a battery, of a spring bringing the electrodes into firm strong contact, an adjusting device controlling and regulating the tension of the spring, and an adjusting-screw for determining and regulating the minimum distance apart of the electrode-carriers and maintaining the electrodes in their normal relative position, substantially as described.

8. In a battery telephonic transmitter, the combination, with the electrode-supports and the electrodes, of a spring for bringing the electrodes into contact, and an adjusting-screw for maintaining them normally in such relative position and limiting the movement of the electrodes toward each other upon vibration of the vibrator or diaphragm, and an adjustable stop for limiting the movement of the electrodes from each other upon vibration of the diaphragm or vibrator, substantially as described.

9. In a telephonic battery transmitter, the combination, with the electrode-supports and the electrodes, of a spring for bringing the electrodes into contact, and an adjustable point for limiting the movement of the electrodes from each other upon vibration of the diaphragm inwardly, substantially as described.

312,162. TELEPHONE-RECEIVER. CHARLES A. RANDALL, New York, N. Y. Filed Feb. 25, 1884. (No model.)



Claim.—1. In a telephone-receiver, the combination of four or more permanent magnets united at one end of each, the other ends being free and forming a magnetic field, the magnets being arranged longitudinally beneath the diaphragm, and having their similar poles facing each other, substantially as set forth.

2. In a telephone-receiver, the combination of four or more permanent magnets, the inclosed helix, its core united to the attached ends of the magnet, a vibrator or diaphragm, and an additional core attached to the vibrator or diaphragm and playing within the field formed by the free ends of the permanent magnets, substantially as described.

3. In a telephone-receiver, the combination of a series or number of permanent magnets united together at one end and to the core of an electro-magnet placed within them, a diaphragm, and an additional core attached thereto and placed within the field formed by the free ends of the permanent magnets, substantially as described.

4. In a telephone-receiver, the combination, with the operative and controlling magnets and diaphragm, of a containing-case made in three parts—a body, an ear-piece, and a detachable base—the magnets and diaphragm being attached to the latter, substantially as described.

5. In a telephone-receiver, the combination, with the case, of a hollow handle containing a switch consisting of two concentric metallic tubes, a mobile conductor, and circuit-connections, substantially as described.

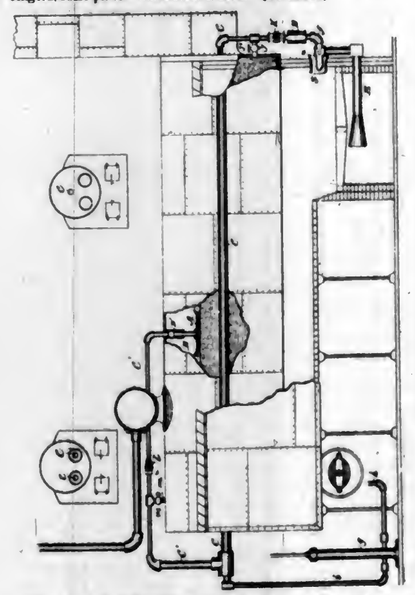
6. In a telephone-receiver, the combination of the permanent magnets, the helix for affecting their polarity, the case and attached hollow handle, the switch within the latter consisting of the two concentric metallic tubes, and a mobile conductor and circuit-connections, substantially as described.

7. An automatic switch consisting of an exterior tube, an interior slotted tube concentric thereto, and a mobile conductor for electrically connecting the two tubes in one position and disconnecting them in the reverse position, substantially as described.

8. In a telephone-receiver, the combination, with the diaphragm, of the series of radial permanent magnets recessed upon their tops to form a chamber over which the diaphragm or vibrator extends, substantially as described.

9. In a telephone-receiver, the combination of the permanent magnets, arranged as described, an interior electro-magnet having its core attached to the united ends of the permanent magnets, a diaphragm or vibrator attached to the permanent magnets, and an additional core attached to the diaphragm and playing in the field formed by the free ends of such permanent magnets, substantially as described.

312,163. STEAM-BOILER AND FURNACE. JAMES D. RANDALL and WILLIAM A. KING, Memphis, Tenn., assignors to themselves and W. T. Arrington, same place. Filed June 4, 1884. (No model.)



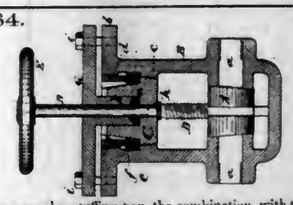
Claim.—1. The combination, with the steam-boiler and furnace, of the pipes C *i*, pump *g* and pipe *i'*, pipes C' and m^2, with valves *m* and *l*, and valve J, as and for the purpose described.

2. The combination, with the pipes C, C', and *i*, of the valve K, chamber D, with perforated pipe D', inspirator *f*, hot-air pipe E, and cold-air jacket *n*, as and for the purpose described.

312,164. VALVE. THOMAS L. RANKIN, New York, N. Y., assignor to Jacob W. Skinkle, Chicago, Ill. Filed Jan. 5, 1883. Renewed Dec. 26, 1884. (No model.)

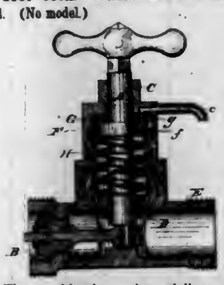
Claim.—1. The combination of the valve-box body, the chambered valve-stem guide C, the packing *e*, and rings *f g*, and the packing of the valve-stem confined by the follower of the cap G, all constructed and adapted to operate substantially in the manner and for the purposes described.

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2. In a gas-valve stuffing-box, the combination, with the valve-stem and the body B, of the screw-guide C, screw-ring *g*, metal ring *f*, and the packing *e*, adapted to operate substantially in the manner and for the purposes described.

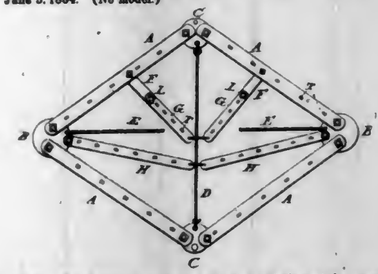
312,165. STOP-COCK. WILLIAM RICKETTS, Cincinnati, Ohio. Filed June 11, 1884. (No model.)



Claim.—1. The combination, substantially as before set forth, of the spindle of a stop-cock, provided with a collar having a waste-port, and a fixed ring-seat having a similar waste-port.

2. The combination, substantially as before set forth, of the spindle of a stop-cock, provided with a collar having a waste-port, the fixed ring-seat having a similar waste-port, and being arranged above the collar against the cap, and the spring which holds the collar in close contact with the ring-seat.

312,166. HARROW. THOS. W. ROBINSON, near Asheville, Ala. Filed June 5, 1884. (No model.)

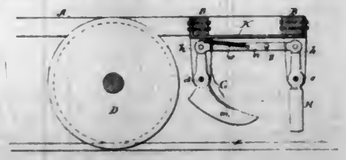


Claim.—The harrow herein described, consisting of the outer frame composed of the beams A and the plates B and C, connecting the same, the oblique beams G G, carrying teeth arranged within the main frame, and connected thereto by the bars F, as shown, the oblique transverse beams H H, carrying teeth, and also arranged within the main frame, with their outer ends pivotally connected to the circular plates B, and the ropes D and E, connecting the respective joints of the outer frame, whereby the same may be adjusted both transversely and longitudinally, substantially as shown and described.

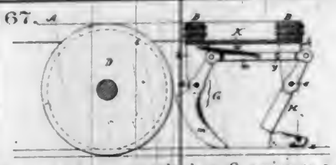
312,167. SAFETY DEVICE FOR CARS. WILLIAM L. ROBINSON, Philadelphia, Pa. Filed May 12, 1884. (No model.)

Brief.—A safety device for cars, consisting of two connected levers pivoted to the car-frame, the rear one of which forms a guard to the car-wheel.

Claim.—The combination of a car frame and wheel, D, with the two connected levers G and H, pivoted to any suitable attachment on

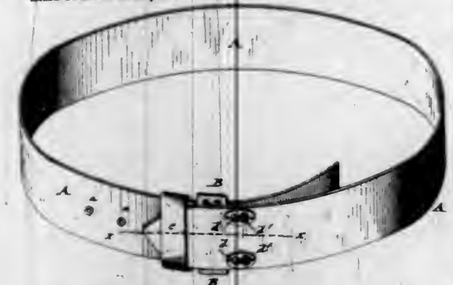


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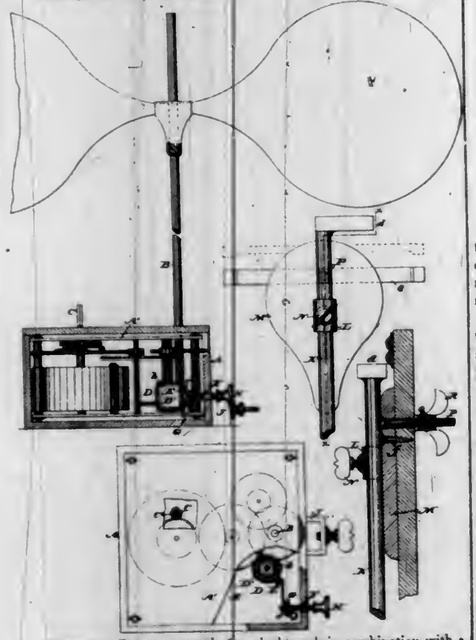
the frame, the lower arm, *m*, of the lever G serving as a shield or guard in front of the said wheel, all substantially as set forth.

312,168. WAIST-BELT. LOUIS SANDERS, Brooklyn, N. Y., assignor to Eliza Sanders, same place. Filed Mar. 8, 1884. (No model.)



Claim.—The combination of a belt, provided at its outer end with a fixed slotted metallic plate and at its inner end with a series of holes, and an adjustable buckle, consisting of a plate provided on its under side with a loop, through which the belt passes, at its rear edge with an inwardly-projecting hook, which grasps said belt through one of said holes, and on its face or front side with outwardly-projecting headed studs, which interlock with said fixed slotted plate, substantially as set forth.

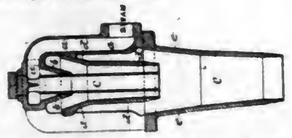
312,169. AUTOMATIC FAN. GOTTLIEB SCHMIDT, Philadelphia, Pa. Filed Apr. 18, 1884. (No model.)



Claim.—1. In an automatic fan, clock-work in combination with a brake, consisting of the piece or strap D', the roller or bearing E, and the screw F, substantially as and for the purpose set forth.

2. In an automatic fan, clock-work in combination with the fan-shaft B, the box A, having eye J, adjustable bar K, having a block, M, attached thereto, the block Q, and a screw or bolt, all of said parts being combined and arranged substantially as and for the purpose set forth.

312,170. STEAM-JET APPARATUS. LOUIS SCHUTTE, Philadelphia, Pa. Filed Sept. 8, 1884. (Model.)



Claim.—1. In a steam-jet apparatus, a central steam-admission nozzle provided with two or more annular discharge-openings at different points in its length, in combination with external nozzles discharging one into another, substantially as described and shown.

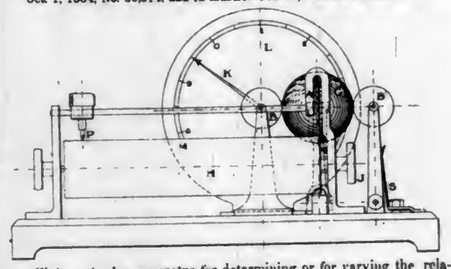
2. In a steam-jet apparatus, the central steam-admission nozzle having the annular discharge-openings of successively smaller diameter, in combination with the surrounding nozzles *d e*, &c.

3. In a steam-jet apparatus, a steam-admission nozzle with two or more concentric discharge-openings, in combination with external fluid or liquid admission nozzles, arranged as described, so that each of the external nozzles will deliver an annular fluid-jet between the preceding steam-jet and the succeeding fluid-jet.

4. In a steam-jet apparatus, the steam-inlet nozzle provided with two or more concentric discharge-openings all communicating with a single inlet, in combination with the external liquid or fluid admission nozzles, the first arranged to discharge in annular form between the steam-jet and the second fluid-jet, and so on throughout the series.

5. In a steam-jet apparatus, a series of successive annular concentric steam-discharge mouths combined with concentric successive fluid-inlet nozzles arranged each to deliver an annular jet around a steam-jet and within the next fluid-jet, whereby extended contact-surfaces are secured between the steam and the fluid.

312,171. APPARATUS WHEREBY THE RELATIVE MOTIONS OF TWO OR MORE BODIES MAY BE VARIED IN ANY REQUIRED MANNER INDEPENDENTLY OF THEIR ACTUAL MOTIONS. HENRY S. H. SHAW, Bristol, County of Bristol, England. Filed Aug. 5, 1884. (No model.) Patented in France June 17, 1884, No. 162,800; in Belgium June 17, 1884, No. 65,504; in Italy June 30, 1884, XXXIII, 482; in Canada Oct. 1, 1884, No. 20,314, and in Austria Oct. 27, 1884, No. 23,225.



Claim.—1. An apparatus for determining or for varying the relative motion of two or more bodies in any required manner independently of their actual motions, consisting of a sphere in combination with sets of rollers held in frictional contact with the said sphere, substantially as described.

2. In an apparatus of the character above described, the combination of the sphere and two sets of rollers in contact with the sphere, and having their axes of revolution in two diametral planes respectively perpendicular to each other, whereby the sphere can only revolve about the intersection of these diametral planes as axis, substantially as and for the purpose described.

3. In an apparatus of the character above described, the fixed frame provided with the roller or rollers, in combination with the movable frame provided with the roller or rollers and the sphere, substantially as and for the purpose described.

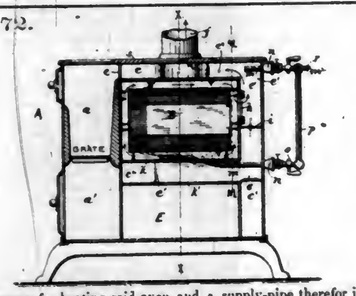
4. The combination of the sphere and the two sets of rollers, one roller in one set of which is a graduated wheel or disk, and a roller in the same set provided with a screw-axis, substantially as and for the purpose described.

5. The combination of the rods and swivel or cross joints, and screws suitably arranged in connection with one or more spheres and sets of rollers, so that numerical results are obtained with the sphere and the roller mechanism, substantially as hereinbefore set forth and illustrated.

312,172. REMOVABLE OVEN FOR COMBINED COAL AND GAS BURNING STOVES. HENRY H. SHELDON, Pawtucket, R. I., assignor to Phillip C. Sheldon, same place. Filed Nov. 28, 1884. (No model.)

Claim.—1. The combination, with the baking-oven of a fuel-burning stove, of the removable metal oven herein described within the same,

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and gas-burners for heating said oven, and a supply-pipe therefor introduced through the walls of the stove, substantially as shown, and for the purpose set forth.
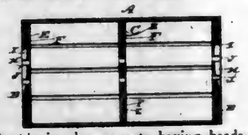
2. In a fuel-burning stove having one or more ovens, the damper *h*, opening *k*, the bottom flue, *c²*, rear flue, *c'*, and upper flue, *c*, the combination therewith of the damper *i*, located in the rear flue, substantially as described, and for the purposes set forth.

3. In a fuel-burning stove having one or more ovens, the bottom flue, *c²*, rear flue, *c'*, and upper flue, *c*, and damper *i*, the combination therewith of the register or damper *h*, opening into the stove-oven B' above the damper *i*, substantially as shown, and for the purpose set forth.

4. In a fuel-burning stove having one or more ovens provided with the top, rear, and bottom flues, *c c' c²*, and dampers *h i* herein described, and further provided with one or more apertures, *k k'*, opening into said oven and flues, the combination therewith of the oven B, detachably secured within the oven B', an air-space, *e*, around the exterior of the inner oven, whereby the latter is adapted to be heated by means of gas introduced through the walls of the stove, the whole arranged and adapted for use substantially as shown and set forth.

5. The sheet-metal oven B herein described, having the front exterior flange, *b*, and a ventilating-damper, in combination with a stove-oven and means for supporting said sheet-metal oven in the stove-oven, substantially as shown and set forth.

312,173. SHIPPING BOX OR CRATE. BENJAMIN SHUNK, Jacksonville, Fla. Filed Nov. 25, 1884. (No model.)



Claim.—1. A shipping box or crate having heads or ends and a central partition-piece, each of which is constructed of two or more pieces connected by transverse strips seated in grooves or recesses in the said pieces, substantially as and for the purpose herein set forth

2. In a shipping box or crate for fruit, vegetables, and the like, a head or end constructed of two or more pieces connected by means of transverse strips seated in grooves in the inner sides of the said pieces, substantially as and for the purposes herein set forth.

3. A head or end for shipping boxes or crates, provided with a semi-elliptical recess or hand-hold in its outer side, and having a series of transverse slots or openings extending through the said recess or hand-hold, substantially as and for the purposes herein set forth.

4. In a shipping box or crate, a head-piece or end constructed of two or more pieces joined by connecting-strips seated in transverse grooves in the inner sides of the said heads or ends, and provided on their outer sides with recesses or hand-holds, from which ventilating-slots extend through the said ends or heads, substantially as and for the purposes herein set forth.

312,174. SIDE SPRING FOR VEHICLES. JAMES H. SNODGRASS, Mifflinburg, Pa. Filed Oct. 25, 1884. (No model.)



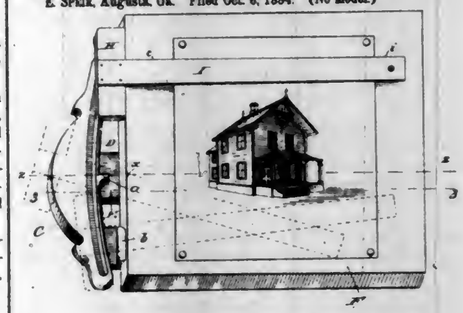
Claim.—1. The combination, with the end springs provided with an upwardly-projecting perforated lug at each end, of the side springs provided with C-extensions at the ends, which pass underneath, around, and over the end-springs, the ends of the extensions having perforated disks, and bolts and nuts for coupling the disks to the lugs, as and for the purpose set forth.

2. As an improvement in side springs, the combination, with the end springs provided with upwardly-projecting lugs at the ends, the heads of said lugs being cylindrical in form, of the side springs having their ends passing around and over the end springs, disks on opposite sides of the ends of the side springs, a portion of the latter being cut out between the disks, and a bolt for connecting each pair of disks to the lugs, as and for the purpose set forth.

3. As an improvement in side springs, the combination, with the end springs having perforated lugs at each end, of the side springs arranged below and having their ends passing underneath, around, and over the end springs, and bolts for connecting the ends of the side springs to the lugs, as and for the purpose set forth.

4. As an improvement in side springs, the combination, with the end springs, of the side springs arranged below the end springs, and having their ends passing underneath, around, and over the same, the extremities of the side springs being coupled to the top of the end springs, as set forth.

312,175. PERSPECTIVE DELINEATOR FOR DRAFTING. WILLIAM E. SPEER, Augusta, Ga. Filed Oct. 6, 1884. (No model.)



Claim.—1. A drafting appliance having an arc adapted to be engaged by a suitable ruler, and a projection constructed to be detachably clamped to a drawing-board at various points along the edge thereof, substantially as set forth.

2. A drafting appliance adapted to be attached to a drawing-board, and having a plurality of arcs constructed to be engaged by a suitable ruler, and arranged to have their centers fall at different points when the appliance is in place, substantially as set forth.

3. A drafting appliance having an arc adapted to be engaged by a suitable ruler, shoulders for bearing against the edge of the drawing-board, and a projection constructed to be detachably clamped to the surface of the board, substantially as set forth.

4. The combination, with a drawing-board, of a bar extending along one of its edges, and devices for compressing said bar against the board, whereby the arcs for perspective drawing may be secured to the board at various points along its edge, substantially as set forth.

5. The combination, with a drawing-board, of a detachable arc adapted to be engaged by a suitable ruler, and a clamp for securing said arc to the board at different points along the edge of the latter, substantially as set forth.

6. The combination, with a drawing-board, of two arcs adapted to be engaged by a suitable ruler, and arranged to have their centers fall at different points at each side of the drawing, the arcs being both situated upon the same side of the board, substantially as set forth.

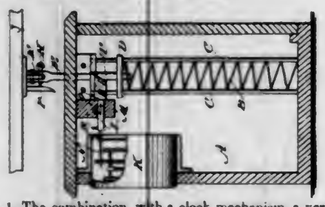
7. The combination, with a drawing-board, of a detachable arc adapted to be engaged by a suitable ruler, and having a projection, a bar extending along the side of the board, and devices for compressing said bar against the surface of the board to confine said projection between the board and bar and at various points of the length of the latter, substantially as set forth.

8. The ruler I, having a cross-piece, H, and projections *h*, arranged in a line at right angles to said ruler and upon each side thereof, whereby it may be used as a square or to draw vanishing lines, in combination with the board F, and an arc thereon having its center in the desired vanishing-point, substantially as set forth.

9. The combination, with a drawing-board, of an arc secured thereto, having its center within or beyond the opposite side of said board, and a ruler having projections for engagement with the arc, substantially as set forth.

10. The T-square H I, having the part H in a lower plane than the blade I, whereby said part H may engage with the edge of the drawing-board, while the blade I lies flat upon the surface of said board, the part H being provided with the projections *h*, substantially equidistant from and in a line at right angles to the blade I, as set forth.

312,176. TIME-REGISTER FOR SEATS. CHARLES W. ALLEN, Valentine, Nebr. Filed Mar. 31, 1884. (No model.)

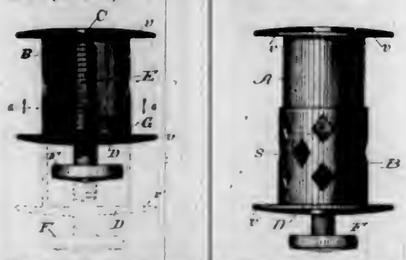


Claim.—1. The combination, with a clock mechanism, a vertically-sliding seat, and a spring for pressing the seat upward, of a horizontally-sliding pin alternately operated by pins on the seat, and springs for causing it to engage and to be disengaged from the clock mechanism, substantially as herein shown.

2. The combination, with a seat, of a spring for pressing it upward, and sliding bar provided with a pin adapted to be passed into the clock-casing to stop the works, a plate resting on the spring, a prong projecting upward from the said plate and adapted to press the bar toward the clock, and of a prong projecting down from the under side of the seat and adapted to press the said bar in the direction from the clock, substantially as herein shown and described.

3. The combination, with the seat J, of the spring B, the plate D, the bar L, having a beveled end and beveled shoulders O, the pin N, the clock K, the upwardly-projecting prong T on the plate D, and the downwardly-projecting prong P on the seat, substantially as herein shown and described.

312,177. VENTILATOR. JOHN M. AYER, Chicago, Ill. Filed May 17, 1884. (No model.)

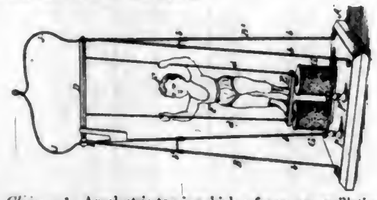


Claim.—1. In a ventilator, the combination of two hollow cylinders fitting one within the other, one open at both ends to serve as the air-passage, and to fit within an opening in a window-sash, wall, or the like, and provided with a socket or nut, G, and the other closed at one end, and provided with side apertures, and a screw, E, extending longitudinally through it and through the socket G, whereby the turning of the screw carries one cylinder back and forth with relation to the other, and opens and closes the apertures, substantially as described.

2. In a ventilator, the combination of a cylinder, A, open at both ends, socket or nut G within the said cylinder, cylinder B, closed at one end, and adapted to fit upon the said cylinder A, and provided with apertures *s*, and the screw E, secured to the head thereof and within the cylinder B, substantially as described.

3. A ventilator comprising in combination the cylinder A, provided with a flange, *v*, a screen, C, and a socket or nut, G, a cylinder or cap, B, provided with apertures *s*, and adapted to inclose the cylinder A, and closed at one end, a screw, E, extending longitudinally along the center of the said cap and secured thereto, and extending through the socket or nut G, and a handle, F, upon the cap B to permit the screw to be turned within the socket G, whereby the cap B shall be moved back and forth upon the cylinder A by means of the screw E and nut G, substantially as described.

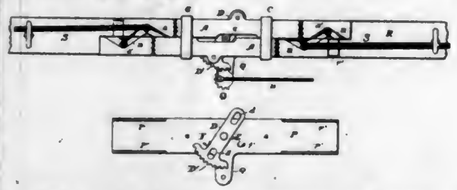
312,178. ELECTRO-MAGNETIC TOY SWING. MURRAY BACON, Philadelphia, Pa., assignor to the Novelty Electric Company, same place. Filed Dec. 10, 1883. (No model.)



Claim.—1. An electric toy in which a frame, an oscillating swing, an electro-magnet, and an armature, all arranged as set forth, so that the point of attraction is beneath the swing, are combined with a circuit-breaker, as described, whereby the circuit is broken on each oscillation, as set forth.

2. An electric swing in which are combined a frame one standard of which is connected to the positive pole and the other to the negative pole of the battery, a cross-bar mounted in the frame, but insulated from one standard thereof, an armature suspended from the cross-bar and carrying a figure, an electro-magnet located beneath the armature, and an automatic circuit-breaker whereby the current through the electro-magnet is completed only when the swing is at and near the limit of its movement, as set forth.

312,179. CHECK-ROWER. LORENZO D. BENNER, Peoria, Ill. Filed Mar. 14, 1884. (No model.)



Claim.—1. In a check-rower, the combination, with a hooked rod or equivalent device adapted to receive an intermittent reciprocating motion, of two bars, and means whereby the longitudinal reciprocation of one shall oppositely affect the other, and adapted to cause the said hooked rod to engage with first one and then with the other of the bars, for the purpose set forth.

2. The combination of two bars, means whereby the longitudinal reciprocation of one bar shall oppositely affect the other, and each having a groove whereby a hooked rod in either of said grooves shall, when pulled, engage therewith, but when oppositely moved shall slide from the groove in which it was to the groove of the other bar, substantially as and for the purpose specified.

3. Two bars provided with the bent grooves or channels *a*, having uneven or notched bottoms, as described, in combination with means, substantially as described, whereby the longitudinal reciprocation of one of said bars shall oppositely move the other, as and for the purpose specified.

4. In a check-rower, two bars having the bent grooves or channels *a*, the bottoms of which are uneven, as described, in combination with a centrally-pivoted lever pivotally connected with each of said bars, substantially as set forth.

5. In a check-rower, two bars having the bent grooves or channels *a*, in combination with a centrally-pivoted lever pivotally connected with each of said bars, and having means, substantially as described, whereby its oscillations may be transmitted to the feed-slide of the planter.

6. Two bars having the bent grooves or channels *a*, in combination with a centrally-pivoted lever pivotally connected with each of said bars, and having at one end thereof a segment of a gear meshing with a pinion, to which it imparts a reciprocatory semi-revolution, for the purpose set forth.

7. Two bars having the bent grooves or channels *a* therein, in combination with the centrally-pivoted lever, D, having slots *d* and segmental gear D', pins projecting into said slots from the said bars, the mutilated pinion G, and rod connected therewith, substantially as and for the purpose specified.

8. In a check-rower, two bars having the bent grooves or channels *a*, in combination with means, substantially as described, whereby the said bars are oppositely reciprocated and their motion transmitted in semi-revolutions to a pinion, from which the feed-slide of the planter is operated.

9. In a check-rower, two bars having grooves or channels *a* and the hooked rods *s*, in combination with the plate P, having pivotal pin E and friction-roller *e*, the lever D, pivoted about said pin E and pivotally connected with the said bars, and means, substantially as described,

for conveying the oscillatory movement of said lever to the feed-slide of the planter.

10. In a check-rower, the bars A, having grooves *a* and the hooked rods *s*, in combination with the plate P, having elevated rims P' and the pin E, the lever D, pivoted to said plate, pivotally connected to the said bars A, and means, substantially as described, whereby its oscillation is transmitted to the feed-slide of the planter.

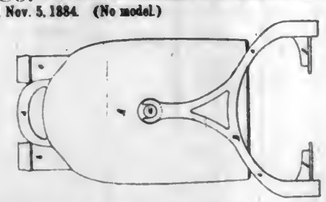
11. In a check-rower, the bars A, having grooves *a*, feet B, and centrally arched, as shown, in combination with the plate P, having rims P', the lever D, having slots *d*, friction-roller *e*, and pins projecting from said bars into said slots.

12. In a check-rower, the plate P, having rims P' and a pivotal pin, E, near the center thereof, in combination with two bars having feet B, adapted to slide between said rims P', and means, substantially as described, whereby said bars may be oppositely reciprocated, for the purpose set forth.

13. The combination, with the bars A, having grooves *a*, and means, substantially as described, whereby the reciprocation of one of said bars shall be oppositely communicated to its neighbor, the transverse beam R, hooked rods *s*, and the horizontally-elongated vertically-adjustable eyes T, for the purpose specified.

14. The transverse beam R of a corn-planter, the plate P, secured thereon, and the mutilated pinion G, having means of communication with the feed-slide of the planter, in combination with the lever D, centrally pivoted to said plate P, and having a segmental gear, D', formed at one end thereof, the bars A, pivotally connected with said lever, bent grooves or channels *a*, formed, as described, at the extremities of said bars, the rods *s*, hooked at one end of each and pivotally secured at their other ends to the bifurcated levers of the planter, the eyes T, for retaining said rods in place, and means for retaining said bars A upon the plate P, substantially as and for the purpose specified.

312,180. STONE JUG. JEFFERSON B. BRACKETT, Leeds Junction, Me. Filed Nov. 5, 1884. (No model.)



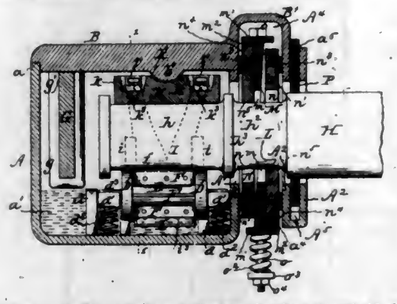
Claim.—1. A stone jug provided with trunnions extending from opposite sides of its body, a nozzle projecting upward from such body, and a handle to extend from such nozzle.

2. A stone jug provided with trunnions projecting from opposite sides of its body, and with two nozzles extending upward from such body, as represented.

3. A stone jug provided with trunnions projecting from opposite sides of its body, and with two nozzles extending upward from such body, and connected by a handle arranged between them, as set forth.

4. The jug provided with the trunnions, handle, nozzle, and vent, in combination with the stand, having not only bearings for supporting the trunnions, but girts curved inward, as and for the purpose as set forth.

312,181. CAR-AXLE BOX. J. GEORGE BRILL and EDWARD H. ZITTMAN, Philadelphia, Pa. Filed July 21, 1884. (No model.)



Claim.—1. The axle-box A, having chambers A^4 and A^5, dust shields or guards located in said chambers, and a removable top lid, B, with extension B', substantially as shown and described.

2. An axle-box having a rotating paddle-wheel located below the axle-journal and a vertical conduit leading from said wheel to the journal-brass, substantially as shown and described.

3. An axle-box having a rotating paddle or force wheel, spring-supports therefor, and a conduit having bifurcated or branched outlets leading into the axle brass or journal, substantially as shown and described.

4. In an axle-box, the combination of axle H, paddle-wheel D, conduit I, and bearing K, substantially as shown and described.

5. An axle-box having lugs *i* supporting removable conduit I, a paddle-wheel, D, brass K, and top lid, B, substantially as shown and described.

6. In an axle-box, the wheel D, having disks D', and blades *f'*, provided with adjustable sections f^2, substantially as and for the purpose set forth.

7. In an axle-box, the wheel D, having disks D', and perforated blades or paddles and spring-supported bearings, substantially as shown and described.

8. The axle-box A, having top lid, B, aliguing-openings *c'* in said box and lid, fastening-bolts C, and side brackets, Q, having openings *q*, substantially as shown and described.

9. A car-axle box having chamber A^4, in combination with a dust guard or shield composed of wedge-shaped followers and packing-plates connected by spring-acting bolts, substantially as shown and described.

10. A car-axle-box dust-shield composed of sliding wedge-shaped followers M M, packing-plates N N, and bolts or rods o, having springs o^2, and spring seat or bar o^3, substantially as shown and described.

11. A car-axle-box dust-shield composed of wedge-shaped followers M M, plates N N, gasket-rings n^2 n^3, and bolts o o, having springs o^2 o^3 and bar o^3, substantially as shown and described.

12. A car-axle having journal *h*, collar h^3, and reduced portion h^4, as and for the purpose set forth.

13. A car-axle box having two fixed chambers in its rear wall, one of which has an automatically-adjustable dust-shield and the other a single-plate shield, substantially as shown and described.

14. A car-axle box having chambers A^4 A^5 and dust-shields L and P, the former composed of longitudinally-moving sections, substantially as shown and described.

15. The box A, having removable oil-conduit I, paddle-wheel D, axle H, with reduced portion h^4, and collar h^3, brass K, and dust-shield L, substantially as shown and described.

16. In an axle-box, the brass K, having chambers *k* and ducts or outlets k^3, in combination with conduit I and spring-supported paddle-wheel D, substantially as shown and described.

17. The followers M M, having elongated openings *o'*, bolts o, springs o^2, plate o^3, and adjusting-nuts o^4, substantially as and for the purpose set forth.

18. The box A, having chamber A^4, open at its bottom a^4, in combination with a dust-shield, L, having sliding followers M M, bolts o, springs o^2, and plates o^3, substantially as shown and described.

312,182. BRIDLE-BIT. JOHN R. BROTT, East Medway, and MARTIN L. ANDREWS, Melrose, Mass. Filed Dec. 13, 1884. (No model.)



Claim.—1. A bridle-bit consisting of hooks adapted for insertion between the cheeks and teeth of a horse, and a curved bar connecting the same, and adapted to pass around the jaw, substantially as shown and described.

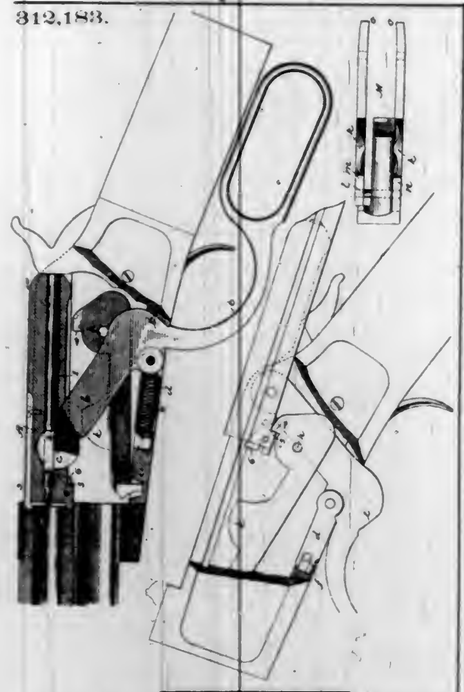
2. The improved bridle-bit formed of the curved jaw-bar B and the right-angular hooks A A, constructed in one rigid piece therewith and projecting parallel to each other at a right angle, or nearly so, to said bar, as shown and described.

312,183. MAGAZINE-GUN. JOHN M. BROWNING and MATTHEW S. BROWNING, Ogden, Utah. Filed Mar. 6, 1884. Renewed Dec. 13, 1884. (No model.)

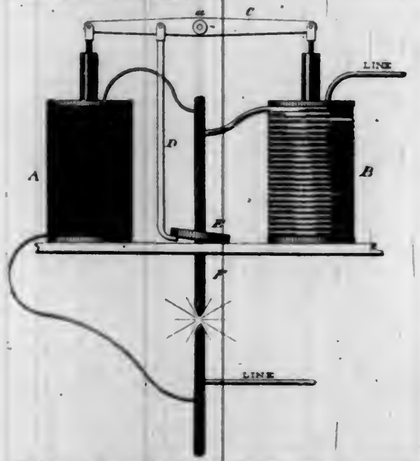
Claim.—1. In a breech-loading fire-arm, and in combination, a bolt for closing the breech and a lever connected to the bolt and pivoted on a sliding block provided with a spring, said lever having a seat in the receiver, whereby it locks the bolt, all substantially as described.

2. In a breech-loading fire-arm, and in combination with a horizontally-moving breech-closing bolt and operating-lever pivoted thereto, a carrier composed of two parts pivoted separately, for vertical and slight lateral movement, the front ends of which parts are provided with ears adapted to grip the cartridge, and the rear ends formed with inclines adapted to the lever which is located between the two parts, all substantially as described.

312,183.



312,184. ELECTRIC-ARC LAMP. CHARLES F. BRUSH, Cleveland, Ohio. Filed Aug. 7, 1880. (No model.)



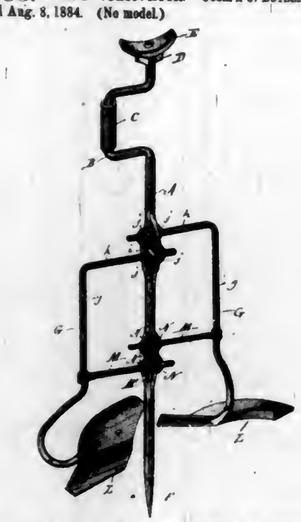
Claim.—1. In an electric lamp, the combination of solenoid or axial magnet helices or equivalent magnets, one helix located in the main circuit and the other helix located in a constantly closed shunt-circuit of comparatively high resistance, with the feeding-carbon of an electric lamp, and devices operated by the simultaneous coaction of said magnet-helices to move the feeding-carbon to establish the arc and regulate the length of the arc, substantially as set forth.

2. In an electric lamp, the combination, with the feeding-carbon, of solenoid or axial magnet helices or equivalent magnets, one helix located in the main circuit and the other helix located in a constantly closed shunt-circuit of comparatively high resistance, and devices operated by the simultaneous coaction of said magnet helices to move the feeding-carbon to establish the arc, regulate the length of the arc, and the feed of the carbon, substantially as set forth.

3. In an electric lamp, the combination, with the feeding-carbon, of solenoid or axial magnet helices or equivalent magnets, one helix located in the main circuit and the other helix located in a constantly closed shunt-circuit of comparatively high resistance, and devices actuated by the simultaneous coaction of said magnet-helices and adapted to grip and move the carbon-holder of the feeding-carbon to establish the arc and regulate the length of the arc, substantially as set forth.

4. In an electric lamp, the combination, with the feeding-carbon, of solenoid or axial magnet helices or equivalent magnets, one helix located in the main circuit and the other helix located in a constantly closed shunt-circuit of comparatively high resistance, and devices actuated by the simultaneous coaction of said magnet-helices and adapted to grip and move the carbon-holder of the feeding-carbon to establish the arc, regulate the length of the arc, and feed of the carbon, substantially as set forth.

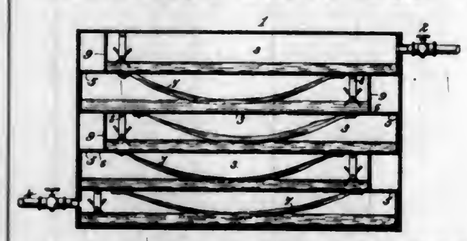
312,185. HAND-CULTIVATOR. JOSEPH J. BUTLER, Cromwell, Ky. Filed Aug. 8, 1884. (No model.)



Claim.—1. A hand-cultivator consisting of the combination, with a shaft having a pointed lower end and of hit-brace form at its upper end, of adjustable frames and shovels secured to said frames, substantially as set forth.

2. In a hand-cultivator, the combination, with a slotted shaft, of frames provided with shovels and parallel threaded arms, the latter projecting through the slots of the shaft, and being held adjustably by nuts, substantially as set forth.

312,186. APPARATUS FOR CARBURETING AIR AND GAS. JONATHAN S. BUTLER, Chicago, Ill. Filed May 21, 1884. (No model.)



Claim.—1. The combination, with the carburetor-case and air or gas forcing mechanism connected therewith, of a pan fitting the interior of the case, and a winged wheel journaled to revolve in a vertical plane with its wings in the fluid contained in the pan, substantially as described.

2. The combination, with the carburetor-case having an inlet for atmospheric air or coal-gas, of a series of pans fitting the case, one above the other, and provided with alternating end orifices, and the alternately-arranged agitating-wheels supported, respectively, in the end portions of the pans, and revolved by the ascending air or gas passing through the said end orifices, substantially as described.

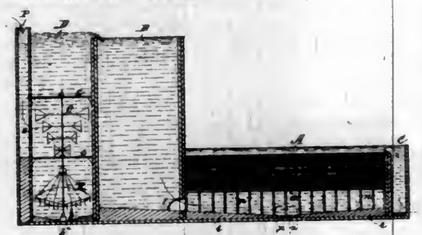
3. The combination, with the carburetor-case having an inlet for atmospheric air or coal-gas, of pans closely fitting the case, one above the other, and provided with end orifices, hangers suspended from the bottoms of the pans, and agitating-wheels suspended by the hangers in the pans respectively, and revolved by the ascending currents of air or gas passing through the end orifices, substantially as described.

4. The combination, in a gas-carburetor, of a case having an inlet for atmospheric air or coal-gas, a series of pans fitting the case, one above the other, and provided with alternating end orifices, absorbents drooping from the under sides of the pans, so that one extends into the pan below it, and revolving agitating-wheels supported alternately in the ends of the pans, substantially as described.

5. The combination, with the carburetor-case, the pans therein, the agitating-wheels, and suitable absorbents, of a cistern, a rising and falling air-holder therein provided with means to admit air therein, and pipes connecting the carburetor-case with the air-holder, for introducing air into the carburetor-case and revolving the agitating-wheels therein, substantially as described.

6. The combination, with the carburetor-case, the pans therein, the agitating-wheels, and suitable absorbents, of the cistern, the guide-standards, the rising and falling air-holder having an orifice in its top and a cross-bar carrying rollers, a valve for opening and closing said orifice, and a spring connected with the valve for throwing it closed, substantially as described.

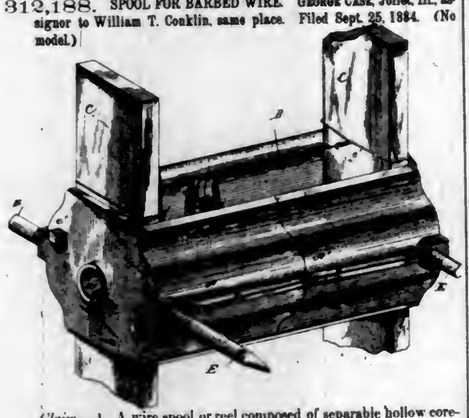
312,187. FILTER. ALONSO CARDOSO DE LOS RIOS, New Orleans, La. Filed June 9, 1884. (No model.)



Claim.—1. The combination of the tank D with agitating-wheel, the tank B, and the filtering-tank A, made of less altitude than B, and having a subjacent chamber communicating with chamber B at the bottom, as and for the purpose described.

2. The agitating chamber D, having water-conduit P, with obliquely-directed water-passages *e*, and the rotary agitator O, combined substantially as shown and described.

312,188. SPOOL FOR BARBED WIRE. GEORGE CASE, Joliet, Ill., assignor to William T. Conklin, same place. Filed Sept. 25, 1884. (No model.)



Claim.—1. A wire spool or reel composed of separable hollow core-sections A A′, provided with longitudinal ribs on their surfaces, in combination with locking devices and reel-arms, substantially as described.

2. The combination, with the core-sections and the reel-arms and locking devices, of the clamping-boards connected by wire ties, and confined by the reel-arms E, substantially as described.

3. The combination, with the separable core-sections and their locking devices, of endwise-adjustable clamping reel-arms, substantially as described.

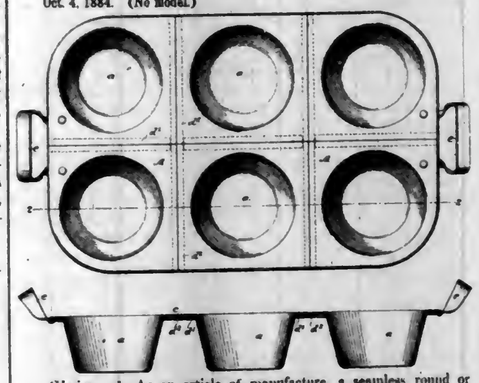
4. The combination, in a reel, of separable hollow ribbed and webbed sections tapered from their outer ends to their inner ends, and provided with a locking device, with the screw-threaded clamping-arms, the wire-coil clamping-arms, and their connecting-wires, all constructed and adapted to operate substantially in the manner and for the purposes described.

5. In a reel, two longitudinal separable sections tapered from the ends to the center, substantially as described.

6. In a wire-reel, two longitudinal ribbed sections having locking devices for connecting the sections endwise, substantially as described.

7. In a wire-reel, two hollow sections having longitudinal ribs and axial perforations, substantially as described.

312,189. PATTY-PAN. JULES CHAUMONT, Wood Haven, assignor to the Lalance & Grosjean Manufacturing Company, New York, N. Y. Filed Oct. 4, 1884. (No model.)



Claim.—1. As an article of manufacture, a seamless round or rounded patty-pan having a polygonal flange extending from the edges thereof and integral therewith, said flange being adapted to be joined to other and similar flanges, and thereby to close the spaces between the depressions of a cluster-pan, substantially as set forth.

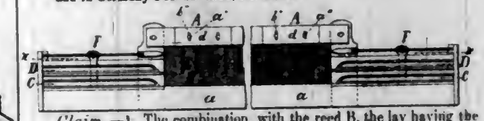
2. As an article of manufacture, a seamless round or rounded patty-pan having a polygonal flange extending from the edges thereof and integral therewith, the edges of said flange being turned and adapted to be joined to other and similar flanges, and thereby to close the spaces between the depressions of a cluster-pan, substantially as set forth.

3. As a new article of manufacture, a cluster of patty-pans, *a*, each having the square rectangular or polygonal flange *a′*, said flanges being united with the flanges of the adjoining pans at the edges of said flanges and on two of the sides of the corner pans, and on three or more sides of those in the interior of the cluster, substantially as described.

4. A patty-pan consisting of a group of pans having square rectangular or polygonal flanges and separate flanged strips interlocking with the edges of said flanges, and by means of which they are joined together, substantially as described.

5. A patty-pan consisting of the individual pans struck from rectangular blanks A, and having locking-edges *c* and the strips *d′* and *d²*.

312,190. LOOM FOR WEAVING DOUBLE PILE FABRICS. CHAS. COUPLAND, Seymour, Conn. Filed Nov. 7, 1882. (No model.) Patented in England Feb. 15, 1881, No. 650; in France Feb. 18, 1881, No. 141,236, and in Germany Feb. 22, 1881, No. 16,408.



Claim.—1. The combination, with the reed B, the lay having the lay-beam *a* and top rail, and the stationary upper skeleton race pendent from the top rail, and composed of vertical prongs or fingers E, formed with horizontal rearwardly-projecting lower ends, *e′*, terminating in front of and adjacent to the reed of the stationary upper and lower shuttle-boxes, placed at each end of the lay and with their bottoms coincident, respectively, with the plane of the ends *e′* of the prongs or fingers E and that of the lay-beam *a*, upper and lower shuttles, and means for impelling the shuttles, all substantially as and for the purpose herein set forth.

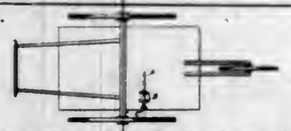
2. The combination of the stationary pendent skeleton raceway, formed of the prongs or fingers E, having tapered horizontal rearwardly-projecting lower ends, *e′*, with the reed B, the lay having the lay-beam and top rail, the stationary upper and lower shuttle-boxes placed at each end of the lay, the upper and lower shuttles, and means for impelling the shuttles, the whole arranged substantially as and for the purpose herein set forth.

3. The combination, with the reed B, the lay having the lay-beam *a* and top rail, the stationary upper and lower shuttle-boxes placed at each end of the lay, the upper and lower shuttles, and means for impelling the shuttles, of the pendent prongs or fingers E, having tapered horizontal rearwardly-projecting lower ends, *e*, the plates *d*, and means, substantially as described, for giving separate vertical adjustment to the said plates, all substantially as and for the purpose herein set forth

312,191. CARRIAGE-WHEEL LOCK. RUEL P. COWLES, New Haven, Conn. Filed Nov. 3, 1884. (No model.)

Claim.—1. As an article of manufacture, the herein-described carriage-wheel lock, consisting of the plate B, constructed with guides *a a*, the bar A, arranged in said guides, and constructed at its outer end in fork shape, substantially as described.

312,191.

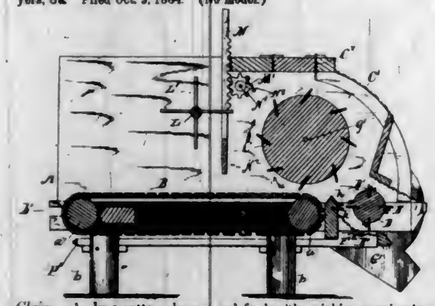


2. The bar A, its outer end fork-shaped, and arranged in guides upon the under side of a carriage-body substantially parallel with the axle, substantially as and for the purpose described.

3. In a carriage-wheel lock, the sliding bar A, its outer end forked, the prongs of the fork inclosed by an elastic or flexible jacket, substantially as described.

4. In a carriage-lock, the sliding bar A, constructed at its outer end of fork shape, the prongs of the fork constructed at their outer end with a tip, *b*, and the prongs inclosed by an elastic tube between said tip and base of the prong, substantially as described.

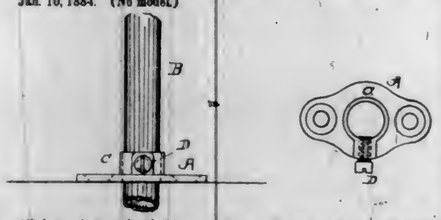
312,192. COTTON CLEANER AND FEEDER. JOHN S. DANIELL, Conyers, Ga. Filed Oct. 9, 1884. (No model.)



Claim.—1. In a cotton cleaner and feeder, the picking mechanism, the dust-box F, and the dust-flue P', having bar P^2 and door P'', in combination with the fan dust-box G', having opening G^2, slide-door G^3, and fan G, substantially as shown, and for the purpose described.

2. In a cotton cleaner and feeder, the receptacle A, provided with suitable screens, the adjustable fender N^2, fan-wheel L', cylinders C and D, and toothed bar *h*, all combined substantially as shown and described.

312,193. GAS-PIPE HOLDER. CHARLES G. DUFFY, Utica, N. Y. Filed Jan. 10, 1884. (No model.)



Claim.—A gas-pipe holder consisting of a plate having perforated wings, and a collar, C, provided with a set-screw, substantially as described.

312,194. EXTENSION-LAMP. JOHN A. EVARTS, Meriden, Conn., assignor to the Bradley & Hubbard Manufacturing Company, same place. Filed Sept. 1, 1884. (No model.)



Claim.—1. The combination of the central rod of an extension-lamp fixture, a weight movable on said rod as a guide, and a lever hung to said weight and constructed with a frictional surface to bear against said rod, and also for connection with the suspending cord or chain, substantially as described.

2. The combination of the vertical central rod of an extension-lamp fixture, the weight movable on said rod as a guide, cam-levers hung in said weight corresponding to the respective suspending-chains, and constructed for attachment to said chains, and also with a bearing-surface against said rod, substantially as described.

3. The combination of the central rod of an extension-lamp fixture, a weight arranged to move vertically on said rod, cam-levers hung in said weight corresponding to the suspending-chains, said levers constructed to bear upon said rod with frictional contact, and each lever carrying a pulley under which suspending cords or chains run, substantially as described.

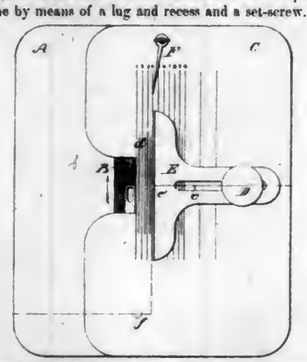
312,195. TRUNK-CATCH. JARVIS G. FORD, Hartford, Conn., assignor of one-half to Franklin R. Slocum, same place. Filed June 6, 1884. (No model.)



Claim.—In combination, the bolt-case *a*, having a curved bolt-socket, *a'*, a slot, a^2, with a locking-shoulder, a^3, and a lateral mortise, a^4, across the path of the bolt, a curved bolt, *b*, operating within the case, a spring, *c*, for actuating the same, said bolt *b* bearing an arm projecting through the slot a^2, and the hook or hasp *d*, all substantially as described.

312,196. GUIDE-SETTER FOR SEWING-MACHINES. CORNELIA T. FREEMAN, Elizabeth, N. J. Filed July 1, 1884. (No model.)

Brief.—A graduated plate provided with a pointer and an adjustable edge-guide are secured to each other and to the bed-plate of a sewing-machine by means of a lug and recess and a set-screw.

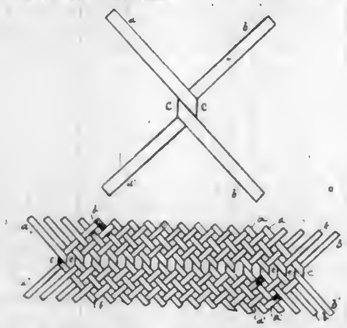


Claim.—1. The guide-setting plate C, formed with opening *e*, and having the graduations *d* formed upon its upper surface, in combination with the guide-plate E, having the slot *e*, and screw D for securing the plates C and E upon the cloth-plate A of a sewing-machine, substantially as described.

2. The combination, with the plate C, having the graduations *d*, of the pointer F, pivoted to the plate C, substantially as and for the purposes set forth.

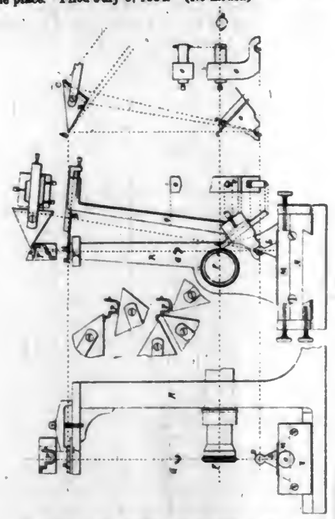
3. The plate C, formed with the stud *f* and graduated at *d*, in combination with the guide E and pointer F, arranged substantially as and for the purposes set forth.

312,197. SPLINT FOR BASKETS, &c. SAMUEL FRIEND, Decatur, Ill. Filed Oct. 27, 1884. (No model.)



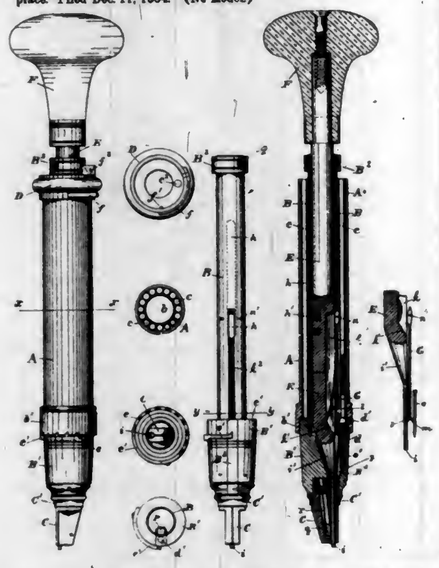
Claim.—The compound X-shaped splint for the manufacture of baskets, &c., herein set forth, consisting in a pair of interlocking U-shaped splints, all the flat surfaces of which are on substantially the same plane.

312,198. MACHINE FOR TURNING WATCH-CASES. JOSEPH FROSSARD, Porentruy, Switzerland, assignor to Dubail, Mounin, Frossard et Cie, same place. Filed July 9, 1884. (No model.)



Claim.—A machine for turning watch-cases of any form by means of plain gravers guided by a pantograph, consisting in the combination of a graver or cutter holder, O, mounted on a ball-and-socket joint, D, the stem of which is adjustable in all directions by the slide-rests M N, a feeler, A B C, mounted upon the graver-holder, of the same form as the graver, but being an enlargement thereof, and always remaining parallel therewith, a pattern, P, or enlarged half-section of the article to be turned, the enlargement of the pattern with regard to the half-section of the article being in the ratio of the relative dimensions of the feeler and of the graver, substantially as shown and described.

312,199. BRAD-DRIVER. WILLIAM P. GINTER, Hughesville, Pa., assignor of two-thirds to James K. Boak and William Strouse, both of same place. Filed Dec. 11, 1884. (No model.)



Claim.—1. A brad-driver having a brad-magazine with a central bore and chambers around the bore, and driving mechanism adapted to reciprocate within the bore, as set forth.

2. The combination of a nozzle, a tube, B, in connection with the nozzle, a brad-magazine with a bore to receive the tube and turn around the same, and a driver free to move like a piston in the said tube, as set forth.

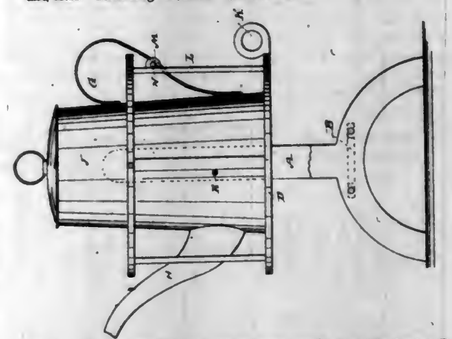
3. The combination of a cylindrical body, B', having a discharge-nozzle, and a pawl, a magazine having brad-chambers, and a collar to surround the body provided with ratchet-notches, whereby one of the brad-holding chambers is kept in coincidence with the bore leading to the discharge-nozzle, as set forth.

4. The combination of a drive-rod free to move endwise, like a piston, and a brad-magazine with a central bore, and chambers around the bore, the said magazine being free to turn, whereby the chambers will rotate around the drive-rod, as set forth.

5. In a brad-driver, the combination of a tube having an attached spring, G, provided with a branch, *l*, and a laterally-projecting nib, *m*, a drive-rod to move endwise in the tube, and having a recess, *k*, provided at one end with an incline, *k'*, a brad-magazine, and a body having a nozzle and provided with a discharge-bore communicating the magazine with the nozzle, as set forth.

6. The combination of a drive-rod free to move endwise, like a piston, a brad-magazine with a central bore and chambers around the bore, the said magazine being free to turn, a body having a nozzle, and a discharge-bore communicating one chamber in the magazine with the nozzle, and a spring to stop the brads from passing from the chamber to the nozzle, as set forth.

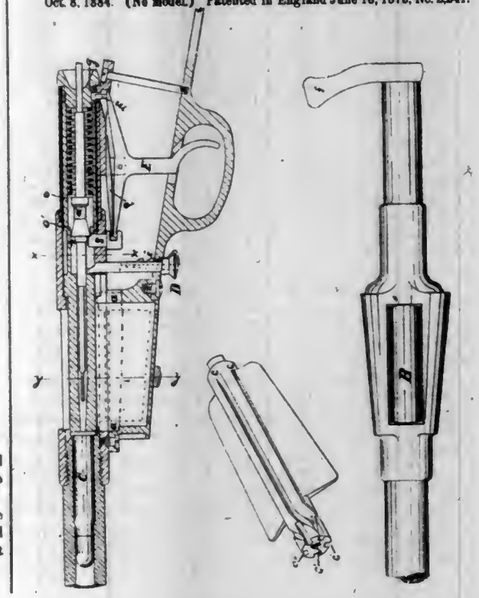
312,200. COFFEE AND TEA POT STAND. CHARLIE GRACEY, Summit, Miss. Filed Aug. 19, 1884. (No model.)



Claim.—1. The combination, with the standards A, of the basket D, pivoted between them, and provided with the front and rear upright slots or apertures, F, substantially as herein shown and described.

2. The combination, with the standards A, of the pivoted basket D, having front and rear slots, F, the apertured jaws M, and the pin N, substantially as herein shown and described.

312,201. MAGAZINE FIRE-ARM. J. DURELL GREENE, Ann Arbor, Mich., assignor of one-fourth to Victor A. King, New Haven, Conn. Filed Oct. 8, 1884. (No model.) Patented in England June 18, 1875, No. 2,241.



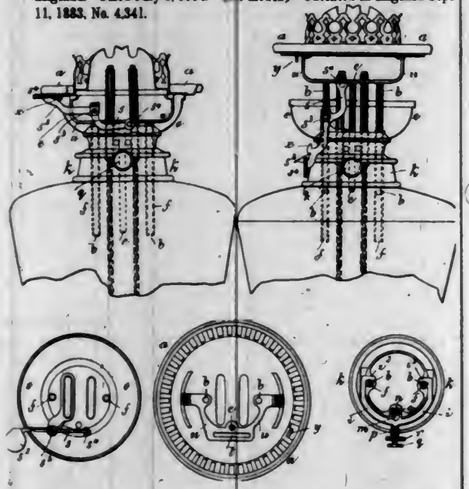
Claim.—1. In a breech-loading gun, the rotary cartridge holder or pannier A, consisting of a series of blades radiating from a central shaft, said central shaft being provided with a series of longitudinal grooves, *c*, each of the grooves *c* having a helical termination at the rear end of the axle, as shown, the pannier-axle also provided with a corresponding series of short graduated grooves, *c'*, the grooves *c* and *c'* operating in conjunction with the bolt B to rotate the pannier A by means of the lug or pin *b* upon the bolt B, substantially as and for the purpose described.

2. In a breech-loading gun, the combination of the rotary cartridge holder or pannier A, provided with the longitudinal grooves *c* and graduated grooves *c'*, as shown, and the lug or pin *b*, arranged in the reciprocating bolt B, so as to permit the firing-pin to pass through the same, as shown, and not impede the movement of the pin *b* when passing through the graduated grooves *c'* into the next groove *c* when the bolt B is being moved forward, substantially as and for the purpose described.

3. The combination, in a breech-loading gun, of the rotary cartridge holder or pannier A, provided with the grooves *c* and *c'*, as described, with a reciprocating bolt, B, having a longitudinal groove, *h*, and the adjustable stop-pin D, said stop-pin being arranged so that one end may be entered into the groove *h* in the bolt B to arrest the backward movement of said bolt B before the pin *b* shall enter the helical termination of the groove *c* to prevent the rotation of the pannier A, substantially as and for the purpose described.

4. In a breech-loading gun, in combination with the firing-pin and sear *s*, the reciprocating bolt B, provided with a recess, *g*, and the herein-described trigger-lever E, said trigger-lever E having one arm projecting forward and engaging with the sear *s*, and another arm projecting to the rear of the fulcrum upon which the trigger-lever operates, the rear arm having a lug, *m*, arranged to enter the recess *g* when the bolt B is in the proper position for a discharge of the gun, substantially as and for the purpose described.

312,202. **LAMP.** JOSEPH RIDER, Birmingham, County of Warwick, England. Filed July 5, 1884. (No model.) Patented in England Sept. 11, 1883, No. 4,341.



Claim.—1. In a lamp-burner, the combination, with a vertically-sliding gallery or chimney-holder, and means for guiding the movement of the latter, and the stationary bottom shell of the burner, of a pivoted lever fulcrumed in the lower shell of the burner, and having a finger-piece arranged on the outside of the latter, whereby the gallery or shade-holder can be elevated and held in such position by depressing the finger-lever, substantially as described.

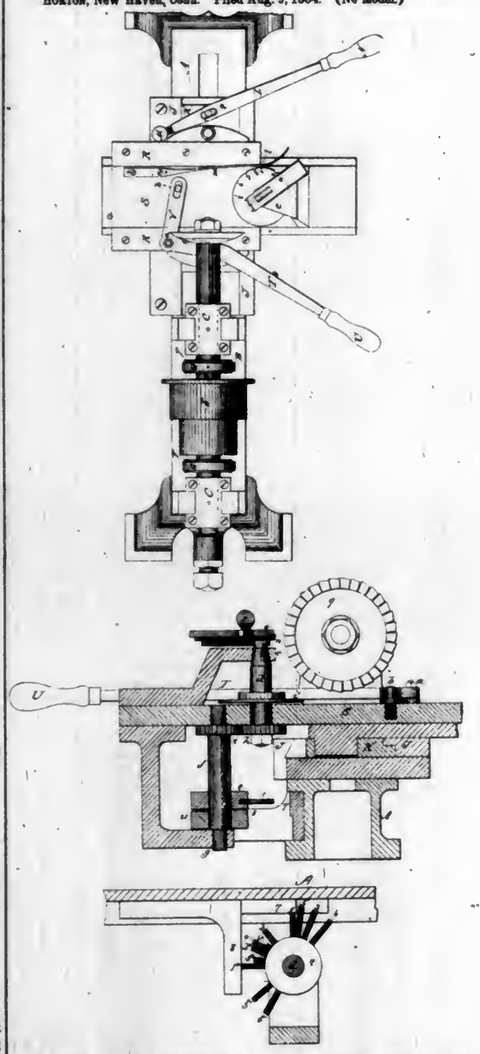
2. In a lamp-burner, the combination of the transverse axis or rock-shaft having lever-arms at its opposite ends, with the stationary burner-base and the vertically-movable gallery or chimney-holder for raising the latter from the base by said lever-arms and rock-shaft, substantially as described.

3. The combination, with the body of a lamp, of a sliding burner having two vertical tubes provided with top and bottom notches, and a semicircular spring-pressed bolt arranged on the lamp-body and adapted to lock the burner in its raised and lowered positions, substantially as described.

4. The combination, with the body of the lamp carrying a semicircular spring-bolt provided with a loop, *m*, and projection *n*, of the vertically-sliding gallery or shade having a pendent slotted tube, *c d*, substantially as described.

5. The combination of the semicircular bolt having the spring-encircled push-stem *q*, adjustable collar *r*, loop *m*, projection *n*, and cross parts i^3 i^3, with the vertically-sliding burner having the notched tubes *f*, and the gallery or shade-holder having the stems *b* and slotted tube *c d*, substantially as described.

312,203. **MACHINE FOR FINISHING CLOCK-PALLETS.** EVERETT HORTON, New Haven, Conn. Filed Aug. 9, 1884. (No model.)



Claim.—1. The combination of a revolving cutter, a slide movable parallel with the axis of the cutter, and a second slide arranged upon the first, movable at right angles thereto, a rotating shaft arranged upon said second slide, and carrying a holder to support the pallet, also provided with a disk constructed with notches corresponding to the respective edges of the pallet, and a dog arranged to engage said disk at its several positions and thereby locate the pallet with relation to the cutter, substantially as described.

2 The combination of a revolving cutter, 9, longitudinal slide K, transverse slide S, vertical shaft *d* on said slide S, carrying the pallet-holder, and also carrying a disk, i', constructed with a series of notches corresponding to the respective edges of the pallet to be dressed, a dog to engage said disk, two series of radially-projecting studs, the studs of one series at substantially right angles to the corresponding studs of the other series, and stops 7 and 8 corresponding, respectively, to said two series of studs, substantially as described.

3. The combination of the revolving cutter, the slide K, movable in a plane parallel with the axis of said cutter, the slide S, arranged upon said slide K, and movable at right angles thereto, a holder to receive the pallet to be dressed, and arranged to rotate in a plane parallel with the axis of the cutter, said holder provided with a series of notches corresponding to the respective edges of the pallet to be dressed, a dog to engage either of said notches, the arbor of said cutter arranged in bearings movable in guides parallel with the axis of rotation of said holder, and the mechanism, substantially such as described, to impart an up-and-down reciprocating movement to said arbor and cutter, substantially as described.

4. The combination of the revolving cutter, the slide K, movable in a plane parallel with the axis of the cutter, a slide, S, arranged on said slide K, and movable at right angles thereto, the pallet-holder arranged on said slide S, and so as to rotate upon an axis at right angles to the path of movement of said slide, said holder provided with a series of notches corresponding to the respective edges of the pallet to be dressed, a dog to engage either of said notches, said holder provided with two series of projections at right angles to the axis of rotation, and each projection of each series corresponding to the respective notches on the holder, corresponding projections in the two series at right angles to each other, and a stop against which the corresponding projections of each series will strike to arrest the movement of the two slides with relation to each other and to the cutter, the said cutter arranged in bearings movable in a plane parallel with the axis of rotation of said holder, and the mechanism, substantially such as described, to impart reciprocating movement to said bearings, substantially as described.

5. The combination of the cutting devices to dress the respective edges of the pallet, the holder *n*, provided with the stud *n'*, corresponding to the hole through the pallet, and the clamping-plate *o*, constructed with bearings o' o^2 for the back of the pallet at opposite ends, substantially as described.

312,204. **AUTOMATIC GREASE-CUP.** JOHN A. HOUCK, Detroit, Mich., assignor of one-half to John C. Grout, same place. Filed May 13, 1884. (No model.)



Claim.—1. The combination of a grease-cup, a cap adjustably secured thereon and provided with a movable partition, and additional mechanism for compressing the air above the partition, substantially as described.

2. A grease-cup provided with an air-pump adapted to pump air into the cup and compress the same above the contents of the cup, substantially as described.

3. The combination, with a grease-cup having a single reservoir, and an air-chamber above the contents of the cup, of an air-pump to compress the air above the contents of the cup, substantially as described.

4. The combination, with a grease-cup having a removable cap and an air-chamber above the contents of the cup, of an air-pump located in the cap to compress the air above the contents of the cup, substantially as described.

5. A grease-cup provided with an air-pump adapted to pump air into the cup and to compress the same above the contents of the cup, and a valve for regulating the outflow from the cup, substantially as described.

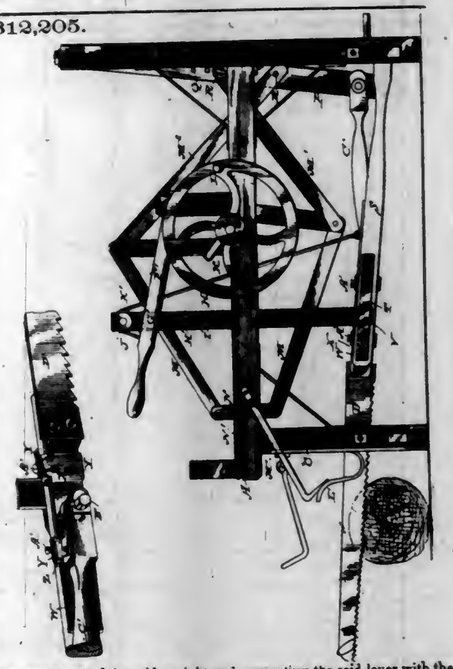
6. The combination, with a grease-cup, of a cap adjustably secured thereon, said cap provided with a movable plate having an air-tight connection in said cap, and in connection therewith a movable plate adapted to be located over the contents of the cup, said plates having a connection whereby the expansion of the air behind the plate in the cap will exert a pressure upon the contents of the cup, and mechanism for compressing air above the plates, substantially as described.

7. The combination, with a grease-cup, of a cap adapted to be adjustably secured thereon, said cap provided with a compressed-air chamber, said cup provided with a regulating-valve, substantially as described.

312,205. **DRAG-SAW.** JAS. H. HULBURT, Blanchard, Mich., assignor of one-half to Byron Winters, same place. Filed Sept. 29, 1884. (No model.)

Claim.—1. In a wood-sawing machine, the combination, with a suitable frame, of a double-crank shaft, a pivoted arm having a reciprocating slide, a pivoted rod connecting the said slide with the lower end of a swinging arm, toggle-bars connecting the said swinging arm with pitmen mounted upon the crank-shaft, and a saw secured to the reciprocating slide, substantially as and for the purpose set forth.

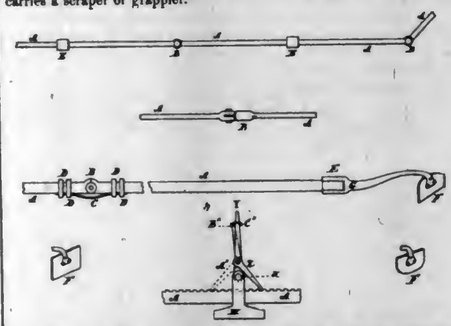
2. In a wood-sawing machine, the combination of a pivoted arm having a reciprocating slide carrying the saw, operating mechanism for the said slide, an upright having a series of ratchets, a lever having a tooth engaging the same, and a rope or chain passing over a pulley at the upper end of the said upright and connecting the said lever with the pivoted saw-carrying arm, which may thereby be raised to and retained at any desired elevation, substantially as and for the purpose set forth.



3. In a wood-sawing machine, the combination of a pivoted arm having a reciprocating saw-carrying slide, mechanism for raising and retaining the said arm, a pivoted rod connecting the slide adjustably with the lower end of a swinging arm or bar, adjustable toggle-bars connecting the said swinging bar with the ends of pitmen mounted upon a double-crank shaft, toggle-bars connecting the said pitmen with the ends of a lever pivoted at the front end of the frame of the machine, and hand-wheels or other mechanism for driving the said shaft, substantially as and for the purpose set forth.

312,206. **SEWER-CLEANSER.** WILLIAM JENKS, Newton, Mass. Filed Dec. 12, 1883. (No model.)

Brief.—Employs a jointed rod with spring-hinges operated by a lever and pawls on a frame engaging a rack on the rod. The latter carries a scraper or grappler.



Claim.—1. In sewer-cleaners, the jointed rod with the scraper or a grappler, in combination with the spring C and hinges B, all substantially as described and shown.

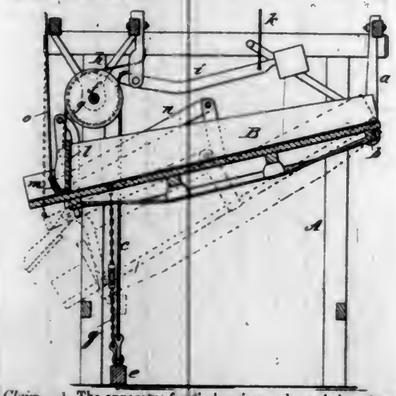
2. The shover and withdrawing apparatus consisting of the pedestal, the lever, and the pawls, in combination with the hinged rod and its rack, all constructed and arranged substantially as shown and described.

3. The combination of the hinged rod A A with its springs, the shover and withdrawing apparatus, and the scraper, all constructed and arranged substantially as described and shown.

4. The general combination of the hinged rod A A with its springs, the shover, and the withdrawing apparatus, with a device for holding

and carrying the substances to be removed from the sewer, all constructed and arranged substantially as described and shown.

312,207. COAL-CHUTE. MOSES D. JONES, Jackson, Ohio. Filed Dec. 18, 1884. (No model.)



Claim.—1. The apparatus for discharging coal, consisting of a chute, B, hinged at one end, and sustained at its outer end by a weight, and brake mechanism for releasing the weight, allowing the descent of the chute when filled, substantially as described.

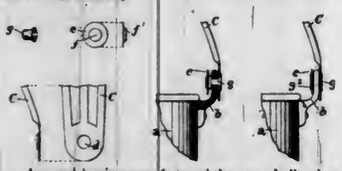
2. In coal-chutes, the combination of the hinged chute B, ropes *c*, weight *e*, the grooved wheels *d*, and the brake-wheel *g*, substantially as shown and described.

3. In a coal-chute, the combination, with the chute B, suspended by a weight, of the brake-wheel *g* and the lever *i*, substantially as described.

4. In a coal-chute, the hinged gate *l*, the pivoted bar *m*, and ropes *o*, combined with the chute B, substantially as described.
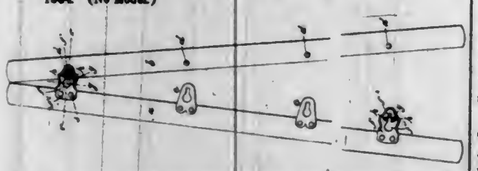
5. In a coal-chute, the combination of the ropes or chains *q* with the hinged chute B and its suspension-weight *e*, substantially as and for the purpose specified.

312,208. BUCKET-HANDLE. GEO. W. KNAPP, Baltimore, Md. Filed Oct. 30, 1884. (No model.)



Claim.—A vessel having ears fastened thereto, a bail or handle having in its end a hole, *d*, with a flange or burr around it entering one side of the ear, a perforated disk having a flange or burr, *f'*, entering the opposite side of the ear, and an eyelet passed through both of said flanges or burrs and ear, as set forth.

312,209. CORSET-STEEL FASTENING. PERLEY LAFLIN, Warren, assignor to Theodore C. Bates, North Brookfield, Mass. Filed Mar. 7, 1884. (No model.)



Claim.—A corset-steel provided with a headed stud, and a corset-steel having a plate provided with the usual elongated eye, combined with the superimposed spring, locking-plate attached at its inner end to the corset-steel, together with the inner end of the plate *e*, the said locking-plate being slotted and provided with locking projections which yield to the passage of the headed stud as the latter is made to travel in the slot *e* away from the steel with which the said plate is attached, the said locking projections rising behind the headed stud to retain it in the outer end of the slot of the eye-plate, substantially as described.

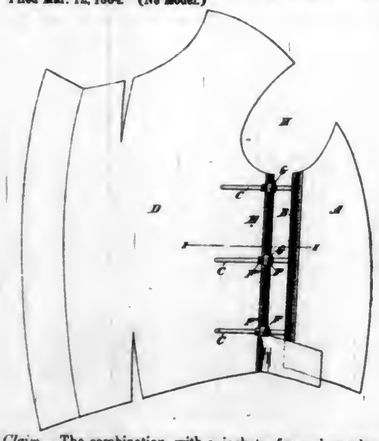
312,210. BUCKLE. JOHN LIBBY, Waterbury, Conn., assignor to the Scovill Manufacturing Company, same place. Filed Dec. 3, 1884. (No model.)

312,210.



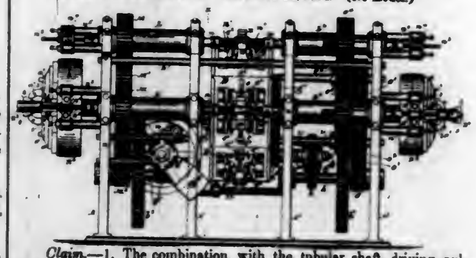
Claim.—In a buckle in which the tongue is composed of sheet metal doubled at the edge, the double tongue hung in the frame and so as to bring the doubled edge toward a bar in the frame to secure the free strap, the protuberances *b b* on the doubled edge of the tongue, produced by indentations on the face of the tongue adjacent to said double edge, substantially as described.

312,211. MEASURING-JACKET. HERMANN LINGEN, Wheeling, W. Va. Filed Mar. 12, 1884. (No model.)



Claim.—The combination, with a jacket, of a rod or tube secured to front edge of the side section, curved arms projecting from the same, a rod or tube held on the back edge of the front piece and provided with eyes or apertures for the curved arms, and with means for locking the curved arms on the said apertured rod or tube, substantially as herein shown and described.

312,212. MACHINE FOR TAPPING METAL PIPES AND FITTINGS. THOMAS G. MORSE, Erie, Pa. Filed Jan. 14, 1884. (No model.)



Claim.—1. The combination, with the tubular shaft, driving-pulleys, and frictional coupling devices for connecting the respective pulleys with the shaft, of the bar extending through the tubular shaft, and the wedges at the ends of such bar to act upon the friction-couplings, substantially as set forth.

2. The combination of the tubular shaft B^3, pulleys, and frictional couplings with the rod B^4, collar, shifting-block, cross-head, rack b^4, gear-wheel 9, shaft b^3, tubular sleeve *d'*, gear 8, worm-pinion, weight *d*, and heads d^3 and *e*, substantially as set forth.

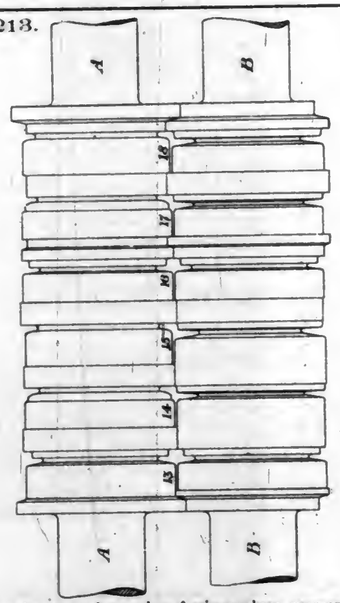
3. The combination, with the revolving drum and vises, of the stops *g*, stop-pawl *k*, shaft *k'*, arms and link, the catch-rod, and the lever k^3 and cross-head, substantially as set forth.

4. The combination, in a vise, of two jaws, a guide-bar attached to each jaw and passing through an opening in the other jaw, a screw having right and left hand threads for actuating the jaws, and a support for the jaws and screws, substantially as set forth.

312,213. ROLLING-MILL FOR RAILS. ARTHUR J. MOXHAM, Johnstown, Pa. Filed Aug. 16, 1884. (No model.)

Claim.—1. As an improvement in the art of rolling railroad-rails, the method or process of rolling girder-rails of different forms in the same roll-train, consisting in first rolling the hot blooms through the

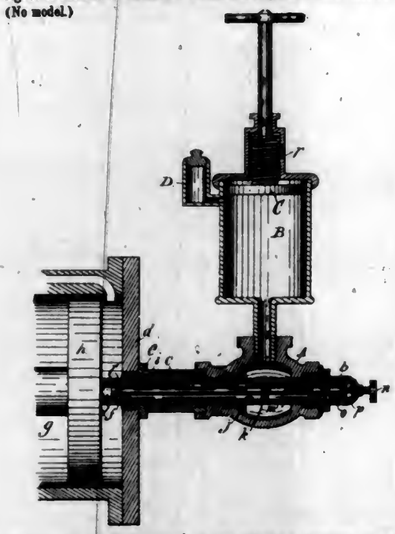
312,213.



same series of passes to form a bar of primary shape common for all the subsequently finished forms, and then rolling said bar in specially-grouped passes to form the finished shape of rail desired, whereby the labor and loss of time consequent upon change of rolls for rolling each several form of finished rail is avoided, while the several forms of rails may be delivered in close proximity to the hot bed or cambering mechanism, all substantially as and for the purposes set forth.

2. In the art of rolling girder-rails, a series of two or more rolls provided with finishing passes of the respective conformations shown at Nos. 16, 17, and 18, one or all, and with a series of leading passes therefor, shaped as shown at Nos. 13, 14, and 15, one or all, respectively, in combination with rolls provided with passes for suitably shaping the metal to enter either of said leading passes, whereby the rolling of either of three several forms of finished rails is provided for from the same bloom or bar, substantially as and for the purposes set forth.

312,214. LUBRICATOR. FRED L. MCGAHAN, Indianapolis, Ind., assignor of one-half to Gilbert W. Warren, same place. Filed June 23, 1884. (No model.)



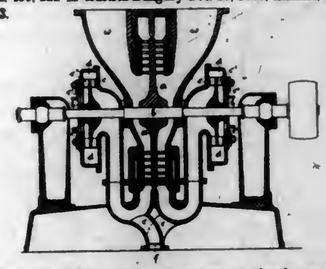
Claim.—1. The combination of the following elements, namely: a machine consisting of two parts, one of which parts is stationary, and the other part has a reciprocating movement within or upon said stationary part, an oil-chamber secured to said stationary part by a tubular connection, a tube having an interior valve-seat, and adapted to slide within said tubular connection and to come in contact with said reciprocating part, a valve fitted to said valve-seat, a valve-rod, a spring on said rod, and means for supplying oil under pressure to said oil-chamber, all combined and arranged to co-operate substantially as and for the purpose specified.

2. In a lubricator, the combination of oil-chamber A, extensions *b* and *c*, tube *f*, valve *l*, rod *m*, washer *p*, and spring *o*, all substantially as and for the purpose specified.

3. In a lubricator, the combination, with oil-chamber A, extensions *b* and *c*, tube *f*, valve *l*, rod *m*, washer *p*, and spring *o*, of regulating-screw *n*, for the purpose specified.

4. The combination, with oil-chamber A, extensions *b* and *c*, tube *f*, valve *l*, rod *m*, washer *p*, and spring *o*, of oil-reservoir B, piston C, and spring *r*, for the purpose specified.

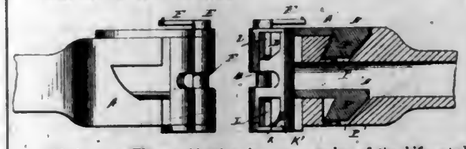
312,215. DISINTEGRATING APPARATUS FOR FLOUR-MILLS. AUGUST C. NAGEL, REINHOLD H. KAEMP, and ADOLF W. F. G. LINNENBRÜGGE, Hamburg, Germany, assignors to Nagel and Kaemp, same place. Filed July 23, 1884. (No model.) Patented in France Oct. 16, 1877, No. 120,755; in Germany Feb. 23, 1883, No. 26,904; in England Mar. 5, 1883, No. 1,160; in Belgium Mar. 10, 1883, No. 60,716; in Italy May 11, 1883, XXX. 459, and in Austria-Hungary Dec. 27, 1883, XXXIII. 2,613; XVII. 2,573.



Claim.—1. In disintegrating apparatuses acting by means of beating-pins on the material to be comminuted, the combination, with a rotating pin-disk, *a*, of fan-blades *c*, running in a housing that forms around the path of the blades a channel, *d*, and which housing is provided with one or more air-orifices, *e*, the blades *c* and the orifice or orifices *e* being so arranged in respect to each other and to the beating-pins as that the air-current produced by the blades will meet the grist after it has left the pins, and the channel *d* having a pipe connected thereto for the conveyance of the grist by the air-current to its place of destination, substantially as and for the purpose described.

2. In a disintegrating apparatus, the combination, with a disk, *a*, having beating-pins on one side and fan-blades *c* on the other, and a housing that forms a channel, *d*, around the disk, of the fan-blades *c*, attached to the disk on the same side as the pins, as and for the purpose set forth.

312,216. CAR-COUPLING. JOHN W. NUNAMAKER, Kansas City, Mo. Filed Nov. 12, 1884. (No model.)



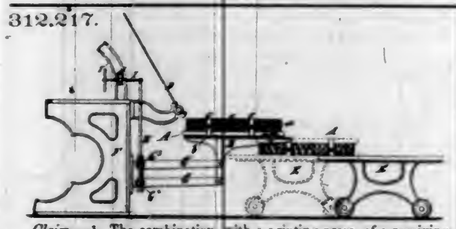
Claim.—1. The combination, in a car-coupler, of the bifurcated draw-head having a recess at one side with an inclined bearing at the bottom, and a lock-lever provided with a vertical locking-flange and lateral lugs, and a recessed pin or key adapted to engage said locking-lever to couple the parts and release it to uncouple the same, the locking-lever being arranged to move backward and upward on the inclined bearing in coupling and uncoupling, substantially as specified.

2. The combination, with the coupling-head, of the lock-lever adapted to move in a recess therein and assume its normal position by its own weight, and the lock bolt or key, the latter adapted to serve as a coupling-pin to hold the link, which passes through a recess in the forward part of the coupling-head, formed for the purpose substantially as specified.

3. The combination, with the draw-head, of the parallel rearwardly-extending plates having inclined pyramidal projections on their lower faces, and the draw-bar having correspondingly-shaped recesses, with which the pyramidal projections engage and interlock, substantially as and for the purposes specified.

312,217. RECEIVING-TABLE FOR PRINTING-PRESSES. ANDREW OVEREND, Philadelphia, Pa., assignor to Calvert B. Cottrell, Westerly, R. I. Filed Sept. 27, 1883. (No model.)

312,217.

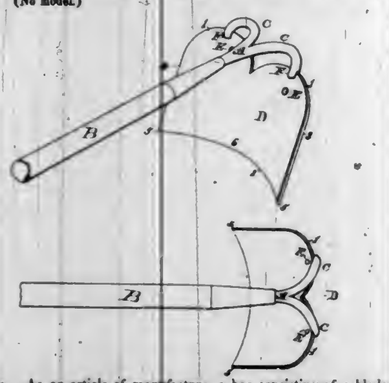


Claim.—1. The combination, with a printing-press, of a receiving-table provided with pivots or trunnions, brackets or frames comprising bearings for said pivots or trunnions, and means, substantially such as described, for raising and lowering said brackets or frames, and table for the delivery of printed sheets, substantially as and for the purpose specified.

2. The combination, with a printing-press, of a receiving-table, the frames B, supporting said table, the parallel bars G G', pivoted to the press and to said frames B, and means, substantially such as described, for holding said bars in different positions, substantially as set forth.

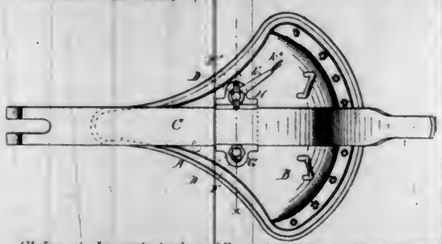
3. The combination, with a printing-press, of a receiving-table, frames B, whereby the said table is supported, the parallel bars G G' the rock-shafts G² G², the lever or arm H, and the adjusting-screw I substantially as described.

312,218. HOE. GEORGE W. PERRINE, Canton, Ohio. Filed Sept. 18, 1884. (No model.)



Claim.—As an article of manufacture, a hoe consisting of a blade concavo-convex from the top to the bottom edges, with the lower edge, 6, forming, in conjunction with the vertical sides, the rectangular corners, and a bifurcated shank, the bifurcations of which are secured to the transversely-curved top edge portion of the blade, substantially as shown and described.

312,219. VELOCIPEDE-SADDLE. CHARLES E. PRATT, Boston, Mass., assignor to the Pope Manufacturing Company, Hartford, Conn. Filed Nov. 3, 1884. (No model.)



Claim.—1. In a velocipede-saddle, and combined with mechanism for attaching the saddle to the spring or perch, a cam, K, constructed with eccentric *k*, handle *k'* *k²*, and slot *k³*, essentially as set forth.

2. In a velocipede-saddle, an adjustable or movable dog and screw or cam mechanism or equivalent, for actuating it upon the edge of the spring or other portion of the frame to adjust and hold the saddle in position, essentially as set forth.

3. In combination with a velocipede-saddle, a plate, E, constructed to afford a bearing upon the spring or other portion of the frame, and to form a bed for and take the strain of dogs or equivalent devices acting longitudinally upon it to adjust and hold the saddle in place, essentially as set forth.

4. The combination of saddle-plate B, bolts D D, dogs G H, cam K, nuts F F', and spring C, essentially as shown and described.

5. The combination, in a velocipede-saddle, of mechanism for connecting the saddle with a spring, and an eccentric device for tightening and securing said mechanism in position upon the spring, essentially as set forth.

6. In combination with the plate or frame of a saddle, a fixed dog and a movable dog, and a cam or its equivalent for operating the latter, essentially as set forth.

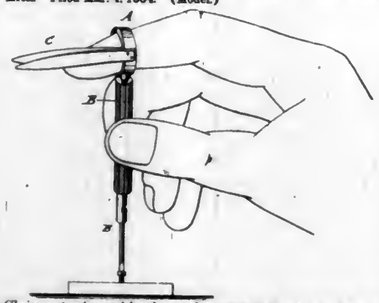
7. In combination with a saddle and mechanism for attaching it to a spring, a bolt, D, nut F, and an adjustable dog, G, constructed and adapted to co-operate with another dog or its equivalent on the opposite side of the spring to hold the saddle and spring together, essentially as set forth.

312,220. FABRIC FOR CARPETS AND OTHER PURPOSES. JOHN W. PRIESTLEY and ALBERT KUNKLER, Philadelphia, Pa. Filed Apr. 3, 1884. (No model.)



Claim.—A ribbed woven carpet or other fabric in which the body-warps and the filling-wefts are combined with binder-warps and binder-wefts, substantially in the manner hereinbefore set forth, whereby a fabric is produced with ribs on both of its faces formed by one and the same set of body-warps, the ribs on the one face being opposite to the grooves between the ribs on the other face.

312,221. WATCH-MAKER'S TOOL. HIRAM P. PRUTH, Grand Haven, Mich. Filed Mar. 4, 1884. (Model.)



Claim.—1. A combination-tool constructed substantially as herein shown and described, and consisting of a screw-driver and a tweezers attached to and connected by a ring adapted to be worn on the forefinger, as set forth.

2. In a combination-tool, the ring A, adapted to be worn on the forefinger, and a swiveled screw-driver, B, secured thereto, substantially as described.

3. In a combination-tool, the ring A, adapted to be worn on the forefinger, and a tweezers, C, secured thereto, as shown.

4. A combination-tool consisting of a ring, A, adapted to be worn on the forefinger, and a tweezers, C, and swiveled screw-driver B, secured to said ring at right angles to each other, as shown.

312,222. ILLUMINATING-TILING. CHRISTIAN H. ROSS, Chicago, Ill., assignor of one-half to L. Otis Dauchy, same place. Filed Nov. 12, 1884. (No model.)



Claim.—1. A lens, B, having its body portion *a* of conical form, tapering downward from its upper face, *b*, and provided with a flange, *c*, of larger diameter than its face *b*, substantially as and for the purposes herein set forth.

2. A lens, B, of conical form, provided with a flange, *c*, of larger diameter than its face *b*, and centering-lugs *d*, substantially as herein shown, and for the purposes set forth.

3. In illuminating-tiling, the combination, with a frame, A, provided with conical openings D, of a conical lens, B, provided with an enlarged flange, *c*, and projections or lugs *d*, and any suitable cement, E, substantially as and for the purposes herein shown.

312,223. LATHE-TOOL. THOMAS RYAN and THOMAS E. RYAN, Lockport, N. Y.; said Thomas Ryan administrator of said Thomas E. Ryan, deceased. Filed May 14, 1884. (No model.)

312,223.



Claim.—1. The combination, with a notched circular cutter having a central screw-threaded opening, of a screw-threaded supporting-shank, a screw-nut applied to said shank, a sleeve or collar surrounding said shank between the cutter and the screw-nut, and a pin which permits relative longitudinal movement of the sleeve or collar and screw-shank, but prevents relative rotative movement of these parts, substantially as set forth.

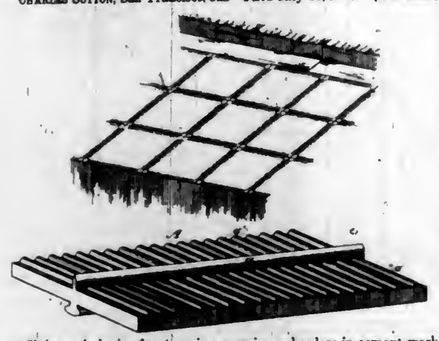
2. The combination, with the carrying-bar having a screw-shank, *a*, provided with a pin, *g*, of the notched cutter C, having a central screw-threaded opening, a screw-nut, E, and a sleeve, F, arranged on said shank between the cutter and the nut, and having a longitudinal slot, *f*, into which the pin *g* projects, substantially as set forth.

312,224. TRANSOM-OPERATOR. SUTTON STRONG, Harmony, Ind. Filed May 14, 1884. (No model.)



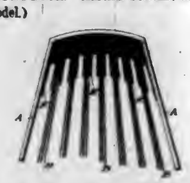
Claim.—The combination of the jamb-plate formed with a segmental grooved edge, a cogged rack inside the said groove, and a lug or pin concentric with the said edge and rack, the flanged sash-casing shaped similarly to the jamb-plate, formed with the curved slot and bearing, the V-shaped slot, the lugs at its segmental edge, and the spring-holding lugs, all as described, the springs held at their inner ends by the spring-holding lugs, and the locking-lever consisting of the handle, the central portion having the curved slots rocking upon the lugs at the edge of the casing, and having the rack-engaging lug, and the inner heart-shaped end provided with the lug sliding in the V-shaped slot and having the springs bearing against the shoulders formed by it, as and for the purpose shown and set forth.

312,225. STAMPING MARGINS FOR CEMENT PAVEMENTS, &c. CHARLES SUTTON, San Francisco, Cal. Filed July 26, 1884. (No model.)



Claim.—A device for stamping margins or borders in cement-work, consisting of a die, A, provided with a division-edge or blade, with corrugations upon one or both sides of the division-edge, and a suitable handle, substantially as herein described.

312,226. ACCOUNT-BOOK. ALFRED SYNOLD, Columbus, Ohio. Filed May 6, 1884. (Model.)



Claim.—1. An account-book consisting of ruled leaves which are narrower than the cover, and between which, at intervals, stubs are placed to receive inset leaves correspondingly ruled, substantially as and for the purposes set forth.

2. An account-book having leaves narrower than the cover, and stubs placed at intervals, as described, in combination with independent inserts of different widths, the widest of them, however, not to exceed the cover of the book, substantially as shown and described herein.

312,227. MACHINE FOR RULING DIALS. RYLAND L. TAFT, Springfield, Ill., assignor to the Illinois Watch Company, same place. Filed Dec. 26, 1883. (No model.)

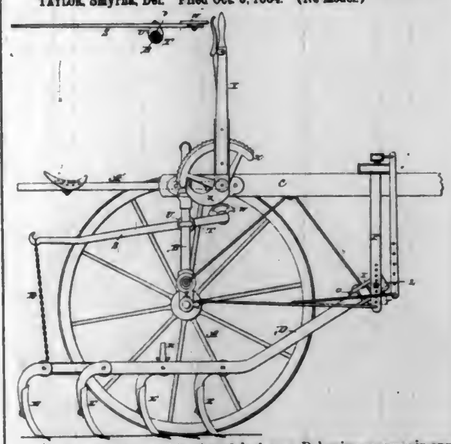


Claim.—1. A templet having a central perforation, *a*, and fourth hole, *b*, and a circular series of radial angular apertures, *c c*, adapted to correspond in position to the hour-marks, and to serve as guides for the cutter in ruling the marks, substantially as specified.

2. A templet having angular apertures *c*, arranged in circular series around the center, and separated by radial bars *n*, adapted to cover and protect the lines left for the hours in cleaning off the surplus paint, substantially as specified.

3. The combination, with a base-block having the posts *g* and *h*, of a templet, A, having a circular series of apertures, serving as guides in ruling the hour-marks, and a templet, V, having a circular series of apertures, separated by radial bars, adapted to cover the hour-marks when ruled, in cleaning off, substantially as specified.

312,228. WHEEL-CULTIVATOR. GEORGE W. TAYLOR and SAMUEL TAYLOR, Smyrna, Del. Filed Oct. 8, 1884. (No model.)

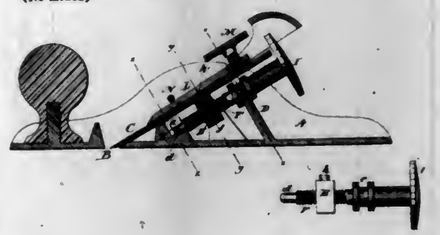


Claim.—1. The combination of the beams D, having recesses in opposite edges, the plates I, provided with the projections J K, the castings L, provided with the recesses Q, and the clamping-bolts O, substantially as described.

2. The combination of the axle, the pivoted levers S, and segment W, and the operating hand-lever Y, provided with the cam upon its lower end, the rear end of the lever being connected to the beam D by means of a chain, R, substantially as set forth.

3. The combination of the operating hand-lever Y, provided with a cam upon its lower end, the lever S, having cam W, the eyebolt T, and the casting U, provided with the projection V, substantially as specified.

312,229. PLANE. WILLIAM TIDGEWELL, Middletown, assignor to the Meriden Malleable Iron Company, Meriden, Conn. Filed Dec. 26, 1884. (No model.)



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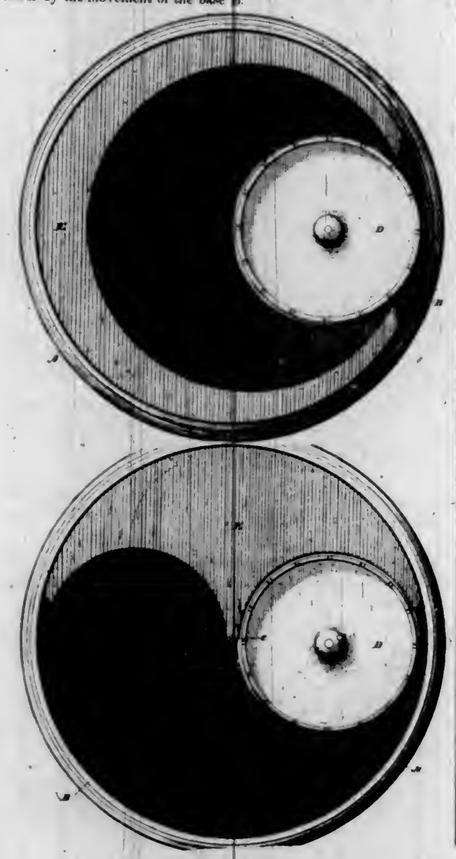
Claim.—1. A joiner's-plane stock having the bearing D in rear of the mouth, a lug, E, between said bearing and mouth, the bearing D constructed with a recess, *b*, opening upward, and the lug E with a recess, *a*, also opening upward, the said two recesses forming seats for the screw, the guides *f f* between said bearing and lug, the said bearing, lug, and guides cast as an integral part of the stock, combined with the screw F, constructed with an annular groove, *e*, corresponding to the recess *b* in the bearing D, its point arranged in the open recess in the lug E, and the nut H on said screw between said guides *f f*, the nut constructed to engage the cutter, substantially as described.

2. A joiner's-plane stock having the bearing D in rear of the mouth, a lug, E, between said bearing and mouth, the bearing D constructed with a recess, *b*, opening upward, and the lug E with a recess, *a*, also opening upward, the said two recesses forming seats for the screw, the guides *f f* between said bearing and lug, the said bearing, lug, and guides cast as an integral part of the stock, and the cross-bar N made as a fixed part of the stock, with the screw F, constructed with an annular groove, *e*, corresponding to the recess *b* in the bearing D, its point arranged in the open recess in the lug E, the nut H on said screw between said guides *f f*, the nut constructed to engage the cutter, with the clamp L arranged beneath the bar N, to take a bearing upon the cutter below said bar, and an adjusting-screw above said bar, substantially as described.

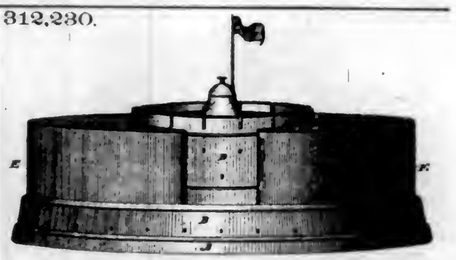
312,230. TOWER AND SHIELD SYSTEM OF FORTIFICATIONS. THEODORE R. TIMBY, Nyack, N. Y. Filed Dec. 5, 1884. (No model.)

Claim.—1. The combination of a revolving tower, a revolving or oscillating disk or base, on which said tower is mounted, and a shield mounted on the revolving disk so as to be adjustable in direction relatively to the tower, substantially as set forth.

2. The combination of the revolving or oscillating base B, revolving tower D, mounted thereon, and the shield E, adjustable relatively to the tower by the movement of the base B.



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312,231. SYSTEM OF FIRING BATTERY-GUNS IN TURRETS BY ELECTRICITY. THEODORE R. TIMBY, Nyack, N. Y. Filed Dec. 20, 1884. (No model.)



Claim.—1. In a revolving battery-tower having electrical conductors for discharging guns, the independently-revolving shaft 16 within the same, carrying circuit-closers 41, in combination with adjustable contact-surfaces 31 in the revolving tower, located in the path of movement of such circuit-closers and connected to the said conductors, as and for the purposes set forth.

2. In a revolving battery-tower having electrical conductors for discharging guns, the independently-revolving shaft 16, carrying separately-adjustable circuit-closers 41, in combination with contact-surfaces 31 on the revolving tower in the line of movement of the adjustable circuit-closers.

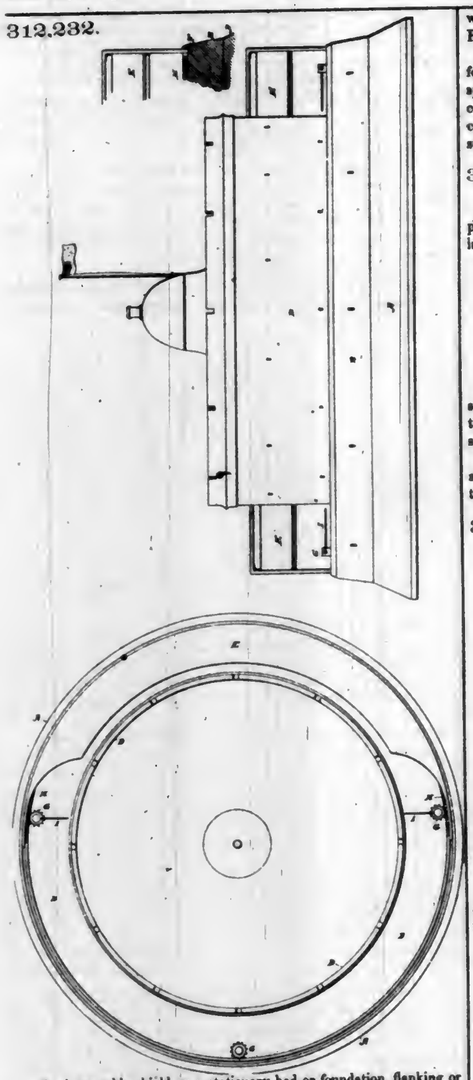
3. In a revolving battery-tower having electrical conductors for discharging guns, and contact-surfaces 31, connected with said conductors, the combination of the independently-revolving shaft 16 within the battery-tower, circuit-closers 41, carried thereby, springs 37, for forcing the circuit-closers against the contact-surfaces 31, located in the line of movement of such circuit-closers, and gaging devices for governing the movement of the circuit-closers relatively to their contact-surfaces, as herein shown and explained.

4. The combination, in a revolving battery-tower, of electrical conductors 30, having contact-surfaces 31, the sliding bars 36, and circuit-closers 41, carried by an independently-revolving shaft, 16, within the battery-tower, a spring, 37, bearing against the said sliding bar and pressing it radially outward, and the rollers 38, borne by the bar 36, for gaging the position of the circuit-closers 41 relatively to the contact-surfaces of the tower-conductors, as and for the purposes set forth.

312,232. REVOLVING TOWER AND SHIELD SYSTEM OF FORTIFICATIONS. THEODORE R. TIMBY, Nyack, N. Y. Filed Jan. 3, 1885. (No model.)

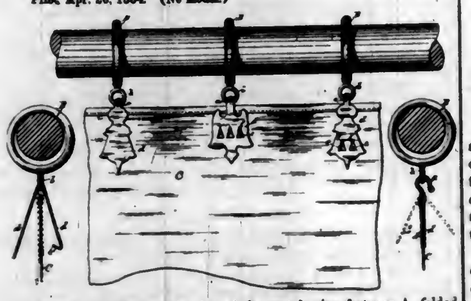
Claim.—1. The combination of a revolving or oscillating tower or battery and an independent protecting-shield adjustable relatively to said tower, substantially as herein set forth.

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2. A movable shield on a stationary bed or foundation, flanking or masking a revolving or oscillating tower in any direction, substantially as set forth.

312,233. CURTAIN-RING FASTENING. JAMES H. TUCKER and ANDREW GODFREY, Providence, R. I., assignors to James B. Allen, same place. Filed Apr. 26, 1884. (No model.)

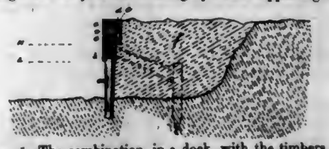


Claim.—1. The combination of the curtain-ring fastener A, folded upon itself, and having one of its extended end portions, *d*, provided with an inwardly-directed spur or spurs, with the separately-formed ring B, secured transversely of the fastener, substantially as described.

2. The improved curtain-ring fastening bent or folded upon itself to form a hook, and provided at one end with an inwardly-directed spur or spurs adapted for passing through the fabric of the curtain, and for becoming bent and closed down upon the back of the same by reason of contact with the inner face of the opposite end portion of the fastening, substantially as described.

312,234. DOCK. JACOB S. VANNESS, Newark, N. J. Filed June 23, 1884. (No model.)

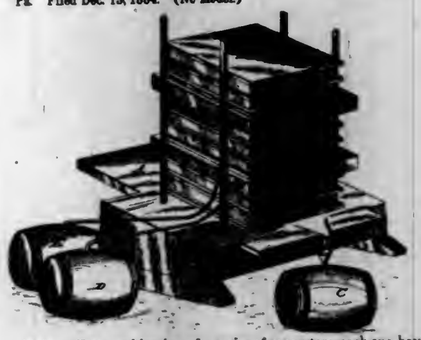
Brief.—An air-space is formed between a timber wall built on a piece capping a row of piles and a filling by cleats supporting a sheathing.



Claim.—1. The combination, in a dock, with the timbers *c c*, of a screen or guard secured on the inner side to form an air-chamber between said timbers and a filling, substantially as and for the purposes set forth and shown.

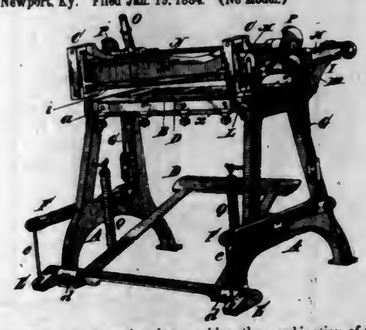
2. The combination, in a dock, of the piles *a*, cap *b*, timbers *c*, strips *d*, and a guard or screen, *e*, secured on the inside of said timbers to protect them from the filling, substantially as set forth.

312,235. WINE AND CIDER PRESS. GEBHARD WAGER, Union City, Pa. Filed Dec. 13, 1884. (No model.)



Claim.—The combination of a series of separators, each one having a solid bottom and side walls, and openings through the walls, with the tubes which conduct away the cider to the barrels, substantially as shown.

312,236. SHEET-METAL-CUTTING MACHINE. CHRISTIAN WAIS, Newport, Ky. Filed Jan. 19, 1884. (No model.)



Claim.—1. In a shearing-machine, the combination of the shear-arms H, fulcrumed at one end to the frame of the machine, the stock carrying the shear and connected to the free ends of the arms H, the treadle formed with the cranks E, the lever F, pivoted to the frame and connected at the rear of the latter to the cranks E of the treadle, and the adjustable links G, connecting the forward ends of the levers F to the arms H intermediate of their ends, substantially as described.

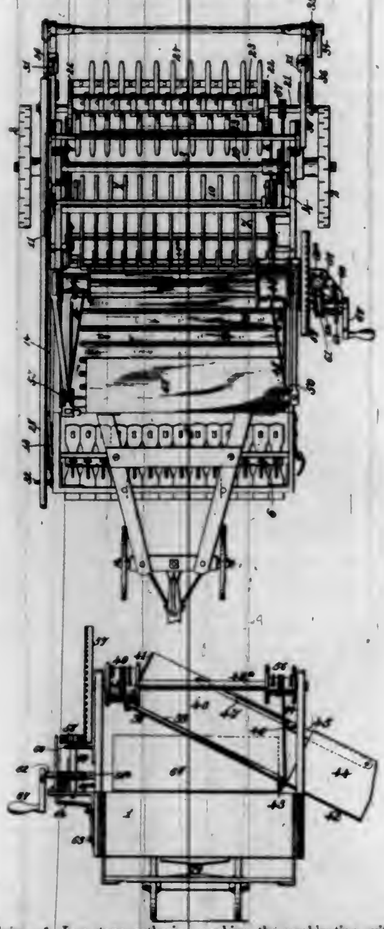
2. The shear-arms H, fulcrumed at one end to the frame of the machine and connected by a link at the other end with the shear-frame, in combination with the shaft N, provided with lever O and cams P to operate on the arms, and the links G, connecting the levers F of the treadle D with said arms, substantially as described.

3. In a shearing-machine, the combination, with the frame A, of the slotted horizontal lugs *c*, extending inwardly from the face of said frame at opposite ends thereof, the vertically-arranged lugs C', extending inwardly from the face of the same frame below lugs *c*, the adjustable table B, the bolts *b' c'*, for holding said table to its adjustment, and the screws *d'* and bolts *c''*, passed through lugs C' for adjusting said table, substantially as described.

4. In a shearing-machine, the table B, provided with a depression or receptacle, D, and a removable filling-plate, D', substantially as and for the purpose specified.

312,237. **MACHINE FOR GATHERING STONES.** BRAYTON A. WEATHERBEE, Warren, N. Y. Filed Sept. 10, 1884. (No model.)

Brief.—Ribs on bottom of receptacle to prevent discharge of stones when ascending a hill; receptacle having a hinged end wall that drops down when elevated and pressed by the stones, and forms a chute for the discharge of the stones; mechanism that raises one end of receptacle more rapidly than the other to dump the load.



Claim.—1. In a stone-gathering machine, the combination, with a stone-receptacle, of ribs or corrugations formed upon the bottom thereof transversely to the line of motion of the machine, substantially as described.

2. In a stone-gathering machine, the combination, with a stone-receptacle, of hoisting-drums of different diameters, whereby one end of said receptacle is elevated more rapidly than the other, substantially as described.

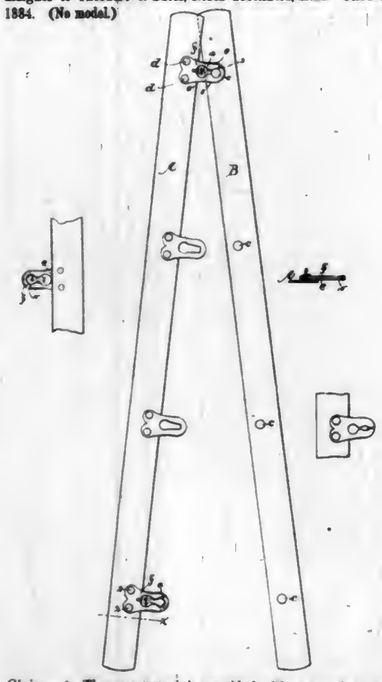
3. In a stone-gathering machine, the combination, with a stone-receptacle which is hoisted to dump the load, of a hinged end wall having an angular extension or apron covering a portion of the rear wall, and means, substantially as described, for supporting the hinged end when thrown down to form a chute, as set forth.

4. In a stone-gathering machine, the combination, with a stone-receptacle which is hoisted to dump the load, of a hinged end wall, an angular extension thereof covering a portion of the front wall, and a strip pivoted at one end upon said extension and having a pin upon its other end running in a slot in the front wall, substantially as described.

5. In a stone-gathering machine, the combination, with a stone-receptacle having a hinged end wall, 42, provided with an extension or apron, 44, of cords attached to the four corners of said receptacle and leading at one end to a large drum, 49, and at the other end to a small drum, 54, substantially as described.

6. In a stone-gathering machine, the combination, with a stone-receptacle having a hinged end wall, 42, an apron, 44, and a strip, 45, pivoted at one end to the apron, and having a pin upon the other end running in a slot, 47, of hoisting mechanism whereby the receptacle is raised into an inclined position and the weight of the load thrown partly against the hinged end wall, substantially as described.

312,238. **CORSET-FASTENING.** CHARLES H. WILLIAMS, Worcester, assignor to Theodore C. Bates, North Brookfield, Mass. Filed May 26, 1884. (No model.)



Claim.—1. The corset-steel A, provided with an attached eye-plate, and an open slotted jaw, *f*, placed at one side of it, and having a stud-holding projection, the outer end of the said jaw being carried out to the end of the eye-plate, combined with steel B, provided with a headed stud, the latter when in the outer end of the eye-plate being surrounded by the jaw, the said holding projection of the jaw at such time springing behind the said stud, substantially as described.

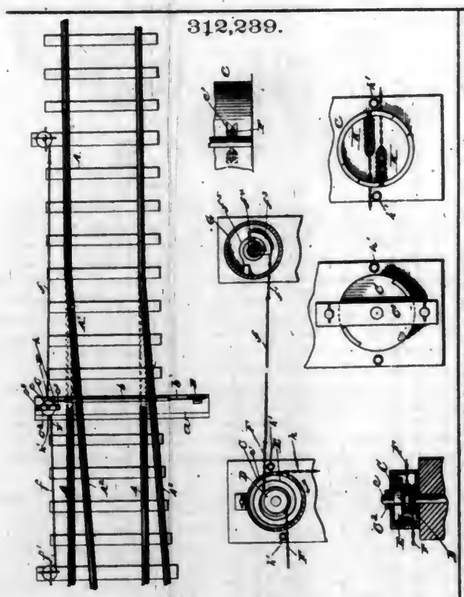
2. The corset-steel A, provided with an attached eye-plate having a slot and a projection, 6, and a jaw, *f*, extended to the outer end of the eye-plate to sustain the head of the stud, and provided with a projection, 8, opposite the projection 6, the projection 6 extending across the edge of the jaw, and the projection 8 extending across the edge of the plate *e*, to be acted upon by the headed stud, substantially as described.

3. The corset-steel A, provided with an attached eye-plate, and an open slotted jaw, *f*, placed at one side of it, secured at its inner end to the steel A, and having a stud-holding projection, the outer end of the said jaw being extended out beyond the stud projection substantially to the end of the slot in the eye-plate, combined with the steel B, provided with a headed stud, the under side of the head of the stud when in the outer end of the eye-plate resting upon the upper surface of the jaw, the holding projection thereof at such time springing behind the stud and retaining it in the outer end of the slot of the eye-plate, substantially as described.

312,239. **AUTOMATIC SWITCH-SIGNAL.** ALBERNON L. WILKINSON, Huntsville, Ala. Filed Feb. 6, 1884. (No model.)

Brief.—A device for compensating the expanding and contracting effects of varying temperature upon the pieces connecting the switch and signal. An interposed case rotated by means of a chain or rod pulled by the switch-rails as they move to the siding operates the signal while

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the case is in rotation by means of a tooth in an aperture in the shell of the case engaging a chain normally disengaged, which leads from the signal and passes through said aperture to an inclosed spiral spring or spring-drum of strength regulated to keep the chain taut without turning the signal against the resistance of a spiral spring upon the signal-shaft.

Claim.—1. In an automatic railroad-signal, the combination of the following elements: a signal mounted upon a shaft having a resetting-spring connected thereto, rods and chains connecting such signal with a compensating-drum, a rotating case inclosing said compensating-drum and connected to the switch, and means, substantially as described, for clamping the signal-chains and thereby displaying the signal when the case is rotated by the opening of the switch, as and for the purpose set forth.

2. In an automatic railroad-switch signal, the combination of a vertical signal-supporting shaft provided at its lower end, within an inclosing-case, with a resetting spring and segment, to which the chains and rods for operating the signal are attached, a compensating-drum provided with a spring, as E, whereby the turning of the signal by the expansion and contraction of the signal-rod is prevented, and a revolving case inclosing said compensating-drum and connected to the switch for operating the signals, substantially as herein set forth.

3. In an automatic railroad-switch signal, the combination of a revolving case mounted upon a suitable stud, upon which the signal and switch connecting chains are wound, said case having apertures in opposite sides thereof, as shown, through which the signal-connecting chains pass, with a revolving drum or cylinder placed within and mounted upon the shaft which carries said outer case, and a coiled spring connected at its opposite ends to the said revolving case and drum, respectively, whereby the turning of the signal by the expansion or contraction of the signal-connecting wires is avoided, substantially as herein described and set forth.

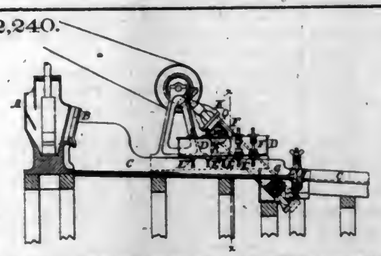
4. In an automatic railroad-switch signal, the combination of a hollow case upon which the chain leading to the switch-rod is wound, with a spring, as E, placed within said hollow case, and connected to the chains attached to the signal-connecting rods, and the described means for clamping said chain, substantially as and for the purpose set forth.

5. In an automatic railroad-switch signal, the combination of the following elements, to wit: the switch A', connected by chain *h* to the hollow case C, drum D, spring E, chains F, rollers *h'*, rods *f*, and chains *f'*, connecting said rods *f* with segments f^2, attached to the lower end of the vertical shafts f^3, and springs f^5, all constructed and arranged substantially as herein described and set forth.

312,240. **AMALGAMATOR.** ROWLAND J. ATCHERLEY, London, England. Filed Sept. 15, 1884. (No model.) Patented in England Mar. 14, 1884, No. 4,865.

Claim.—1. The combination, substantially as set forth, of an inclined sluice-box or launder adapted to convey the slime in a slowly-moving current, a mercury-chamber arranged above said sluice-box, and

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provided with a perforated bottom, through which mercury falls in a continuous fine shower upon the slowly-moving ore-containing current, and a collecting-chamber in said sluice-box or launder beyond said mercury-chamber, substantially as described.

2. The combination, substantially as set forth, of an inclined sluice-box or launder adapted to convey the slime in a slowly-moving current, a mercury-receptacle arranged over said sluice-box, and provided with a perforated bottom, through which the mercury flows in a continuous fine shower upon the slowly-moving ore-containing current, a collecting-chamber in said sluice-box beyond said mercury-receptacle, and an elevator for conveying mercury from said collecting-chamber to said mercury-receptacle, substantially as described.

3. The combination, substantially as set forth, of an inclined sluice-box or launder adapted to convey the slime in a slowly-moving current, a mercury-chamber arranged above said sluice-box, and provided with a perforated bottom, a collecting-chamber in said sluice-box beyond said mercury-receptacle, an Archimedean screw for carrying mercury from said collecting-chamber to said mercury-receptacle, and an inverted siphon connecting said elevator and reservoir, substantially as described.

4. The combination, substantially as set forth, of an inclined sluice-box or launder adapted to convey the slime in a slowly-moving current, provided with longitudinal grooves in its bottom, a mercury-receptacle arranged over said sluice-box, and provided with a perforated bottom, through which the mercury falls in a continuous fine shower upon the slowly-moving ore-containing current, a collecting-reservoir beyond said mercury-chamber, and means for conveying mercury from said collecting-reservoir to said mercury-receptacle, substantially as described.

5. The combination, substantially as set forth, of a sluice-box, a mercury-receptacle, provided with transverse perforated channels below its bottom, said chamber being provided with openings into said channels, and valves regulating the flow of mercury into said channels, substantially as described.

312,241. **FLEXIBLE SHAFT.** MOSES G. FARMER, Newport, R. I. Filed Jan. 8, 1885. (No model.)

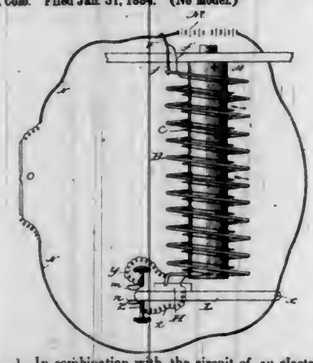


Claim.—1. A flexible shaft composed of two or more short spirals of metal wire united end to end by metal bars, to which the spirals are secured, substantially as set forth.

2. A flexible shaft composed of two or more short spirals of metal wire, in combination with metal bars the ends of which are inserted into the spirals and soldered or brazed to the surrounding convolutions thereof, as set forth.

3. A flexible shaft composed of two or more short spirals of metal wire, in combination with metal bars the ends of which are inserted into the spirals and soldered or brazed to the surrounding convolutions thereof, and end connections consisting of metal sockets provided with a pin that is inserted into and secured to the ends of the spirals in the manner set forth.

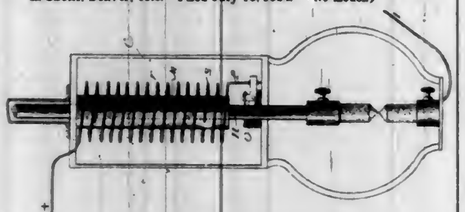
312,242. CUT-OUT FOR ELECTRIC APPARATUS. SIDNEY H. SHORT, Denver, Colo. Filed Jan. 31, 1884. (No model.)



Claim.—1. In combination with the circuit of an electric lamp or other electric receptive apparatus, a permanent magnet or magnetic bar forming a core, coil-springs, one of large and the other of smaller wire, surrounding said core, and both connected at one end of the coil to the main circuit and at the other end of the coil to suitable set-screws, and a lever connected to the main circuit and attached by insulating connections to the ends of the coils, whereby the passage of the current through the two coils is made to move the lever out of connection with one coil and into connection with the other, substantially as described.

2. In combination with the main circuit of an electric lamp or other electric receptive apparatus, the core A, the coils B C, connected to the main line by branches *f f'* and at the other end to the set-screws Y and Z, the lever L, connected to the lower ends of the coils by insulating-blocks H, the said lever having its connection with the circuit, as shown at X, and extending between the set-screws Y and Z, and the springs *s s*, all substantially as described.

312,243. FEED-REGULATOR FOR ELECTRIC-ARC LAMPS. SIDNEY H. SHORT, Denver, Colo. Filed July 15, 1884. (No model.)



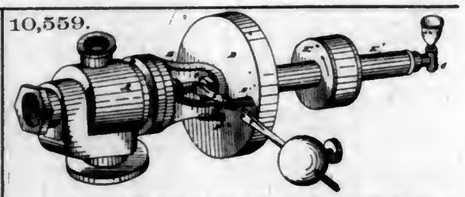
Claim.—In combination with the carbon-holder in an electric-arc lamp, the core M, a coil-spring, S, about the core, having its lower end connected with the clutch O, and the electrical connections, the parts being combined and operated substantially as described.

REISSUES.

10,559. STEAM-GOVERNOR. THOMAS MALCOLMSON, Oil City, Pa., assignor of one-half to Octavius B. Goodwin, same place. Filed Sept. 17, 1884. Original No. 239,427, dated Dec. 4, 1883.

Claim.—1. In a speed-governor for steam-engines, substantially as set forth, the combination of a valve-stem, a counter-balance connected with said stem and operating to hold the valve in one position, a friction-clutch, one part of which is rotated by the movement of the engine for moving said valve-stem in opposition to said counter-balance, and, finally, means, substantially as shown, whereby the degree of friction exerted by said friction-clutch is regulated by the speed of the engine.

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2. In a speed-governor for steam-engines, the combination, substantially as shown, of the following elements: a stem or part by which the valve is moved, a counter-balance connected with said stem and operating to hold the valve in one position, the receptive part or disk D of a friction-clutch, connected with said stem, for moving the valve in opposition to the said counter-balance, a part of which is rotated by the movement of the engine, the active part or disk E of said friction-clutch, mounted on said rotated part, and, finally, means, substantially as shown, for regulating the degree of friction exerted by said active part of said clutch from the degree of speed of said rotated part.

3. In a speed-governor for steam-engines, the combination of a shaft, a flanged disk loosely journaled thereon, connected to the valve-stem and inclosing a second disk, and interposed weights connected by springs to said inclosed disk, with a counter-balance or its described equivalent secured to the inclosing-disk, and means for revolving the inclosed disk, substantially as described.

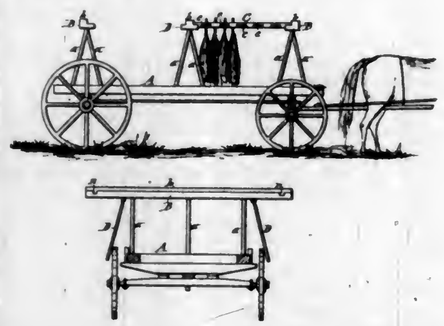
4. In a speed-governor for steam-engines, the combination of a shaft adapted to receive the end of the valve-stem, a bracket for its support, a flanged disk, D, journaled upon the shaft, and provided with an arm connected to the valve-stem, and a stop-post, F^2, with a sleeve provided with a flange-disk, E, means for revolving the disk E, and weights connected to the flange of said disk and adapted to be thrown therefrom by centrifugal impulse, substantially as specified.

5. In a speed-governor for steam-engines, the combination, with the valve-stem, of two flanged disks, one arranged within the other, interposed weights adapted to be forced by centrifugal impulse from one disk to the other, and a counter-balance or its described equivalent, substantially as specified.

6. The combination of the hollow shaft C, perforated as described, wooden plugs c^3, the elbow C', oil-cup C^2, sleeve E', and disk E, of a governor carrying weights secured to springs, substantially as specified.

7. The combination of the bracket B, shaft C, disks D and E, weights secured to springs between said disks, and adjustable counter-balance D^2, with the valve-stem G and suitable connections, substantially as specified.

10,560. TOBACCO-TRANSPORTING RACK. WILLIAM STERNBERG, Cicero, N. Y. Filed Aug. 15, 1884. Original No. 298,252, dated May 6, 1884.



Claim.—1. The combination, with a wagon-rack, of parallel horizontal skids carried elevated and transversely on the rack and projecting over the sides thereof, longitudinal guides on the skids, locking devices on the ends of the skids for retaining one of the tobacco-carrying bars, and bars adapted to ride on the skids, and provided with fastening devices for attaching thereto the tobacco-plants, substantially as described and shown.

2. In combination with the wagon and tobacco-rack mounted thereon, the apron D, suspended from the rack and hanging over the outside of the wheels, substantially in the manner specified and shown.

3. The combination, with the tobacco-carrying bar, of plant-fastening devices secured lengthwise thereon, and all arranged with their free ends pointing toward one and the same end of the bar, substantially as described and shown, for the purpose specified.

ANNUAL REPORT

OF THE

COMMISSIONER OF PATENTS

TO CONGRESS,

FOR THE YEAR ENDING DECEMBER 31, 1884.

Laid before the House of Representatives by the Speaker *pro tempore* January 31, 1885, referred to the Committee on Patents, and ordered to be printed.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, January 31, 1885.

To the Senate and House of Representatives of the United States of America in Congress assembled:

In compliance with the requirements of section 494 of the Revised Statutes, I have the honor to submit the following report of the business of this Office for the year ending December 31, 1884.

RECEIPTS.

Detailed statement of all moneys received for patents, for copies of records or drawings, or from any source whatever.

Applications:		
Cash received	$920,360 00	
Cash refunded	3,280 00	
Net cash	917,080 00	
Certificates of deposit	53,095 00	
Total cash and certificates		970,175 00
Copies:		
Cash received	67,096 95	
Cash refunded	1,908 45	
Net cash	65,188 50	
Certificates of deposit	642 80	
Total cash and certificates		65,831 30
Recording assignments:		
Cash received	25,161 90	
Cash refunded	1,659 90	
Net cash	23,502 00	
Certificates of deposit	502 00	
Total cash and certificates		24,004 00
Subscription to Official Gazette:		
Cash received	11,883 95	
Cash refunded	120 45	
Net cash	11,763 50	
Certificates of deposit	82 00	
Total cash and certificates		11,845 50
Registration of labels:		
Cash received	4,675 00	
Cash refunded	930 00	
Net cash	3,745 00	
Certificates of deposit	198 00	
Total cash and certificates		3,943 00
Aggregates.		
Cash received	$1,029,177 80	
Cash refunded	7,898 80	
Net cash	1,021,279 00	
Certificates of deposit	54,519 80	
Total cash and certificates		1,075,798 80

Statement showing the monthly receipts and number of applications, caveats, &c., filed during the years 1883 *and* 1884.

	Receipts.		Applications.	
	1883.	1884.	1883.	1884.
January	$99,754 10	$100,316 55	3,544	3,563
February	93,485 15	96,366 45	3,389	3,757
March	111,149 20	107,933 00	4,126	4,294
April	101,523 35	103,674 85	3,755	4,095
May	101,864 55	106,451 00	3,678	4,026
June	96,581 50	88,809 10	3,414	3,474
July	89,831 60	88,260 15	3,117	3,225
August	92,424 25	80,084 85	3,205	2,948
September	84,403 60	76,025 70	2,922	2,904
October	89,414 30	80,789 05	3,120	2,969
November	93,645 10	67,458 20	3,193	2,558
December	92,163 30	79,629 90	3,313	2,897
Total	1,146,240 00	1,075,798 80	*40,826	40,710

*By a clerical error the total number of applications received during 1883 was stated in the Annual Report for that year to be 39,724. It should have been 40,826.

EXPENDITURES.

Amount expended by this Office under the several appropriations from January 1, 1884, *to January* 1, 1885.

Salaries	$557,359 25
Official Gazette	34,520 58
Photolithographing	72,991 31
Copies of drawings	2,611 25
Scientific library	5,208 88
Defense of suits, &c.	65 20
Transportation of publications to foreign governments	726 00
Total	673,482 47

Approximate amount expended by the Department of the Interior on account of this Office from January 1, 1884, *to January* 1, 1885.

Stationery	$10,600 84
Postage on foreign matter	572 00
Printing and binding	224,917 13
Watch force	16,690 00
New furnaces and radiators, south wing	10,000 00
Coal-vaults, repairs of building, and east wing furnaces	6,966 90
Contingent expenses, (including furniture, hardware, carpets, ice, file-holders, desks, cases, washing towels, keeping of horse, &c., telephone, winding clocks, and sundries)	27,350 42
Total	297,097 29
Aggregate amount of expenditures	970,579 76

RECEIPTS OVER EXPENDITURES.

Total receipts	$1,075,798 80
Total expenditures	970,579 76
Receipts over expenditures	105,219 04

Statement of balance in the Treasury of the United States on account of the Patent fund.

Amount to the credit of the fund January 1, 1884	$2,676,476 24
Amount of receipts during the year 1884	1,075,798 80
Total	3,752,275 04
Deduct expenditures for year 1884	970,579 76
Balance January 1, 1885	2,781,695 28

SUMMARY OF THE BUSINESS OF THE OFFICE.

Number of applications for patents for inventions	34,192
Number of applications for patents for designs	1,230
Number of applications for reissues of patents	178
Total number of applications relating to patents	35,600
Number of caveats filed	2,582
Number of applications for registration of trade-marks	1,102
Number of applications for registration of labels	812
Number of disclaimers filed	9
Number of appeals on the merits	605
Total	5,110
Total number of applications requiring investigation and action	40,710
Number of patents issued, including designs	20,297
Number of patents reissued	116
Number of trade-marks registered	1,021
Number of labels registered	513
Total number of patents granted and certificates issued	21,947
Number of patents expired during the year	12,301
Number of patents withheld for non-payment of final fee	2,839

PATENTS ISSUED.

Patents issued to citizens of the United States, with the ratio of population to each patent granted.

States and Territories	Patents and Designs.	One to every—
Alabama	69	18,297
Arizona Territory	9	4,493
Arkansas	66	12,159
California	514	1,682
Colorado	110	1,766
Connecticut	896	694
Dakota Territory	33	4,096
Delaware	48	3,054
District of Columbia	207	858
Florida	17	15,852
Georgia	106	14,548
Idaho Territory	4	8,152
Illinois	1,650	1,855
Indiana	624	3,170
Indian Territory	3	
Iowa	408	3,981
Kansas	198	5,030
Kentucky	194	8,497
Louisiana	89	10,561
Maine	148	4,384
Maryland	254	3,680
Massachusetts	1,917	930
Michigan	662	2,472
Minnesota	213	3,665
Mississippi	73	15,500
Missouri	573	3,784
Montana Territory	10	3,915
Nebraska	71	6,370
Nevada	17	3,662
New Hampshire	120	2,891
New Jersey	955	1,184
New Mexico Territory	6	19,927
New York	3,924	1,295
North Carolina	58	24,133
Ohio	1,458	2,193
Oregon	42	4,161
Pennsylvania	1,863	2,298
Rhode Island	304	909
South Carolina	64	15,555
Tennessee	108	14,281
Texas	192	8,290
Utah Territory	24	5,998
Vermont	91	3,651
Virginia	101	14,975
Washington Territory	23	3,265
West Virginia	75	8,246
Wisconsin	399	3,296
Wyoming Territory	5	4,157
United States Army	5	
United States Navy	4	
Total	19,013	

Patents issued to citizens of foreign countries.

Of patents issued to foreigners there were granted to citizens of—

Austria-Hungary	31
Belgium	25
Bermuda	1
Brazil	1
British Guiana	1
Canada	220
Central America	1
Chili	1
Cuba	11
Denmark	6
England	438
France	161
Germany	253
Hawaiian Islands	3
Hayti	2
Holland	3
India	6
Ireland	5
Isle of St. Christopher, W. I.	1
Italy	2
Japan	1
Mexico	7
New South Wales, (Australia)	3
New Zealand	6
Norway	3
Porto Rico, W. I.	2
Portugal	1
Roumania	1
Russia	15
Scotland	20
Spain	4
Sweden	7
Switzerland	36
Venezuela	1
Victoria, (Australia)	5
Total	1,284

Comparative statement of the business of the Office from 1837 to 1884, inclusive.

Year.	Applications.	Caveats filed.	Patents and reissues.	Cash received.	Cash expended.	Surplus.
1837			435	$29,289 08	$33,506 98	
1838			520	42,123 54	37,402 10	$4,721 44
1839			425	37,260 00	34,543 51	2,716 49
1840	735	228	473	38,056 51	39,020 67	
1841	847	312	495	40,413 01	52,666 87	
1842	761	391	517	36,505 68	31,241 48	5,264 20
1843	819	315	510	35,315 81	30,776 96	4,538 85
1844	1,045	380	495	42,509 26	36,244 73	6,264 53
1845	1,246	452	504	51,076 14	39,395 65	11,680 49
1846	1,272	448	638	50,264 16	46,158 71	4,105 45
1847	1,541	553	569	63,111 19	41,878 35	21,232 84
1848	1,628	607	652	67,576 69	58,905 84	8,670 85
1849	1,955	595	1,068	80,752 98	77,716 44	3,036 54
1850	2,193	602	993	86,927 05	80,100 95	6,816 10
1851	2,258	760	872	95,738 61	86,916 93	8,821 68
1852	2,639	996	1,019	112,656 34	95,916 91	16,739 43
1853	2,673	901	961	121,527 45	132,869 83	
1854	3,328	868	1,844	163,789 84	167,146 32	
1855	4,435	906	2,012	216,459 35	179,540 33	36,919 02
1856	4,960	1,024	2,506	192,588 02	199,931 02	
1857	4,771	1,010	2,896	196,132 01	211,582 09	
1858	5,364	934	3,095	203,716 16	193,193 74	10,522 42
1859	6,225	1,097	4,504	245,942 15	210,278 41	35,663 74
1860	7,653	1,084	4,778	256,352 59	252,820 80	3,531 79
1861	4,643	700	3,329	137,354 44	221,491 91	
1862	5,038	824	3,532	215,754 99	182,810 39	32,944 60
1863	6,014	787	4,184	195,593 29	189,414 14	6,179 15
1864	6,932	1,063	5,025	240,919 98	229,868 00	11,051 98
1865	10,664	1,937	6,616	348,791 84	274,199 34	74,592 50
1866	15,269	2,723	9,458	495,665 38	361,724 28	133,941 10
1867	21,276	3,597	13,026	646,581 92	639,263 32	7,318 60
1868	20,420	3,705	13,410	681,565 86	628,679 77	52,886 09
1869	19,271	3,624	13,997	693,145 81	486,430 78	206,715 03
1870	19,171	3,273	13,333	669,456 76	557,149 19	112,307 57
1871	19,472	3,366	13,056	678,716 46	560,595 08	118,121 38
1872	18,246	3,090	13,613	699,726 39	665,591 36	34,135 03
1873	20,414	3,248	12,864	703,191 77	691,178 98	12,012 79
1874	21,602	3,181	13,599	738,278 17	679,288 41	58,989 76
1875	21,638	3,094	14,837	743,453 36	721,657 71	21,795 65
1876	21,425	2,897	15,595	757,987 65	652,542 60	105,445 05
1877	20,308	2,809	14,187	732,342 85	613,152 62	119,190 23
1878	20,260	2,755	13,444	725,375 55	593,082 89	132,292 66
1879	20,659	2,620	13,213	703,931 47	529,638 97	174,292 50
1880	23,012	3,400	13,947	749,685 32	538,865 17	210,820 15
1881	26,050	2,406	16,584	853,665 89	605,173 28	248,492 61
1882	31,592	2,553	19,267	1,009,219 45	683,867 67	325,351 78
1883	35,577	2,741	22,383	1,146,240 00	675,234 86	471,005 14
1884	35,600	2,582	20,413	1,075,798 80	*970,579 76	105,219 04

*The *apparent* increase in the "cash expended" column during 1884 is not such an increase *in fact*, as the items expended by the Department (amounting this year to $297,097.29) have not all heretofore been included, and hence do not appear in the above table in the preceding years. The Department has furnished me the *approximate* amounts expended on account of the Patent Office, and I have included them herein, as I desire to state *all* expenditures of every kind, character, and description.

While the Office is not in possession of a detailed statement of the amounts expended by the Department of the Interior, and the totals only are furnished me, and are spoken of as representing *approximately* the sums properly chargeable against this Office, I am clear that the amounts would not fall one cent *below* the expenditures, had they been rendered in detail. The contingent fund of the several bureaus was consolidated by the act of March 3, 1883, hence no part of that fund is disbursed by the Patent Office.

It will be observed that there has been a falling off in all the sources of revenue of the Patent Office during the calendar year 1884. It occurred in the field of invention, as in all other avenues of business, that the current became sluggish during the presidential election contest. This decrease was perceptible from the beginning to the end of the canvass. As shown, however, by the statement above, notwithstanding the business of the Office has fallen off there is still a net surplus to the credit of the Patent Office, after paying every expense incident to its maintenance, of over $100,000.

ROOM.

In my last report to Congress I had the honor to call attention to the utter inadequacy of room and facilities for conducting the business of the Patent Office. The Secretary of the Interior, by the act of July 7, 1884, was authorized to rent an additional building for the purpose of providing more room for the several bureaus of the Interior Department. A building was secured, and the clerks and records belonging to the Indian Bureau were transferred to it. The Patent Office thereby acquired nine additional rooms, which was about one-fifth of the additional number needed for the proper conduct of the business of the Bureau. The atmosphere of the rooms vacated by this Office was constantly foul, and the rooms were totally unfit for habitation. When the desks were removed, the walls immediately behind were found to be covered with green mold, indicating how utterly unsuited the apartments were for occupation by human beings. Several deaths have occurred by reason of disease contracted in these foul, damp rooms.

LABORATORY.

I again call attention to the insufficiency of facilities for conducting examinations. We have no suitable laboratory, although it would cost a very inconsiderable sum to secure the room and necessary appliances. The need for such facilities is especially felt in the electrical department, where proper tests of apparatus relating to that branch of invention are exceedingly desirable. It would be entirely practicable to build a basement room or cellar in the center of the court of the Patent Office building, with one light story above, place an engine therein, and provide every other needful facility and appliance for making all necessary tests and experiments. All this could be done at small expense, and there would still remain a very large balance of the net amount to the credit of the inventors, whose money the Government receives in trust for the uses and purposes suggested herein. I have the honor to recommend that a sufficient sum be appropriated to provide a laboratory and such other appliances and fixtures as are necessary, the purchases to be made by the Commissioner of Patents with the approval of the Secretary of the Interior.

INCREASE OF FORCE.

I have to repeat the recommendation of last year that the force of examiners be largely increased. That the present force is inadequate is beyond all question. That those having business with the Office have paid to the Government funds ample to provide everything essential to the prompt and proper dispatch of business, including increase of room, increase of force, and additional facilities, is certain, and I respectfully submit that it would be difficult to find a satisfactory reason for withholding the fund from the use for which the Government received it—to wit, to pay the expense of a prompt and proper disposition of the business brought to the Patent Office. I am urged every day by gentlemen of both houses of Congress to make cases special on the ground that irreparable loss will result from the delay incident to having cases take their turn, and am very severely criticised, and not unfrequently condemned, because I refuse to violate the plain provisions of the rule which prohibits me from complying with such requests. It is true that many important interests are lost or greatly damaged by reason of the inability of inventors to have their applications disposed of within a reasonable time. Since there is no lack of revenue, as hereinbefore shown, to provide every needed facility and adequate force, there is just cause for complaints that in many instances inventions are lost, or their value impaired, by the delays which could easily be avoided if the funds paid by inventors in the shape of fees were applied to the purpose for which they are received by the Government. Those having business with the Office do not ask a reduction of fees, but they do insist, and very properly, that the money collected from them to defray the expense of doing the work should not be withheld from that use, and the work left undone. This savors greatly of injustice. I am aware it is urged by some that the business could be disposed of much more rapidly than it is with the force at hand. There are doubtless a *few* who could dispatch the business of examining cases more rapidly than the gentlemen at the head of the several d visions; there are a *great many* who *think* they could do so. The fact is that in point of experience, ability, and diligence in the discharge of their duties the examining corps of the Patent Office will compare favorably with any equal number of employés in any branch of the service of this Government, or any other. The fault is not with the examining corps, but with the inadequacy of the force and the palpable lack of suitable facilities.

In the legislative bill passed July 7, 1884, there was an addition of one (1) principal examiner, two (2) first assistant examiners, two (2) second assistant examiners, four (4) third assistant examiners, and ten (10) fourth assistant examiners. The Office is just beginning to realize advantage from this slight increase of force. It will be observed that it was necessary to teach each new appointee his duties. During the course of instruction, at least at its inception, the appointee was of little use to the Office, and beyond that the time of the examiner was consumed in instructing him.

It is proper in this connection to refer a moment to the character of the work to be done. Each year the field of investigation and research broadens and be-

comes more intricate and difficult. To illustrate: On the 7th of March, 1876, less than nine years ago, the first patent on the telephone was granted. Prior to that date it was unknown in the field of invention. Since that time there have been issued over 1,000 American and over 500 foreign patents directly traceable to the parent invention. Ten years ago there were 168,000 American patents; to-day there are about 321,000 American, and over 500,000 European patents. This whole field of invention must be ranged over by the examiners in the Office, each one having a particular branch or section to explore. It will be observed that this requires a high degree of technical skill and familiarity with various sciences and arts, and such attainments as in almost any other vocation in life would enable the party possessing them to command a very much larger salary than is paid to members of the examining corps. The work of examination is so systematized (being divided into twenty-six (26) examining divisions, each under the charge of a principal examiner, with a corps of assistants) that frequently it can be conducted by means of drawings, which reveal at a glance, or after careful inspection, the state of the art. On the passage of the legislative bill providing for the increase of force it was proposed to establish three additional examining divisions. Two have been established; the other relates to a division of the class of electricity, and will be organized in a very short time.

On the 1st of July last the work in the Copying and Assignment Division was from three to six months in arrears. The increase of clerical force in the grades of skilled laborer and laborer enabled the Office to bring that work up to date, so that orders for records and copies can now be promptly filled. The increase of force required in the Office is in the examining corps. No additional clerks are needed. A great saving to the Office could be effected by the employment of boys at twenty-five or thirty dollars per month to act as messengers.

I have the honor to recommend that the examining force be increased as suggested in the report of the Secretary of the Interior—that is, that there be added three (3) principal, four (4) first assistant, eight (8) second assistant, eleven (11) third assistant, and fifteen (15) fourth assistant examiners. I also recommend that appropriation be made for ten (10) boys at $30 per month to act as messengers.

INCREASE IN SALARIES.

During the past year a number of the most efficient examiners in the corps have resigned, because of the inadequacy of salaries paid. The principal examiners should be paid not less than $3,000 a year; the first assistants, $2,400; second assistants, $2,000; third assistants, $1,600; and the fourth assistants, $1,200. Inasmuch as promotion in the Office is slow, and is generally earned before received, the pay should be graded according to the length of service and the efficiency of the officer, so that a fourth assistant could receive $1,400 the second year, and $1,600 the third year of service. As before stated, a high order of ability, a high order of attainment, and the strictest integrity are required in this service.

I desire to call special attention to the inadequacy of the salary of the Assistant Commissioner. It is required of him that he should have competent knowledge of law and be a skilled expert in mechanics, &c. He is called upon to hear important cases every day, involving valuable interests. I recommend that his salary be increased to $4,000 per annum.

OFFICIAL GAZETTE.

The OFFICIAL GAZETTE, which is issued on Tuesday of each week, contains the date and number of each patent, the name and residence of the patentee, a copy of the claims, and an accurate photolithographic reproduction of the invention. Representatives and Senators are each entitled to designate eight public libraries to which the GAZETTE is sent without charge. Thus mechanics and artisans and others interested may be advised each week of the growth of each and every particular art, so far as the same is reflected through the Patent Office. The number of GAZETTES published is very small, and the edition is quickly exhausted. There is a very earnest desire expressed by many members of Congress, especially those representing manufacturing districts, that the edition be increased, in order that a greater number of public libraries and associations may be supplied, thus enabling those interested to keep constantly posted in regard to the growth of invention in the several arts, such knowledge being of itself a great stimulant to the inventive genius of our people.

Since I have held the office of Commissioner I have been at some pains to learn why it is that an amount sufficient to properly conduct the business of the Bureau has not been appropriated from the sum received by the Government for that purpose. The mistake was first made some years ago in permitting the Commissioner to control the entire fund without suitable and proper checks. This led to some abuse. The result was a move to the other extreme, so that so far from controlling the fund that is indispensably necessary to the conduct of the business of the Bureau, at no time within ten years has there been a sufficient amount appropriated to meet the actual needs of the Office. As the business increased, instead of the room being extended, it was actually reduced, so that when the business of the Bureau was doubled the room was reduced nearly one-half.

Another difficulty in the way of securing proper appropriations has been a prejudice in the minds of many people of this country against patents and the patent system. It has been, certainly until very recently, a very common belief that the whole system was a humbug; that it was in fact an amiable way of permitting cranks to indulge their humors in regard to perpetual motion, &c., an inventive genius being regarded as one who was more or less erratic; and, as stated, there was and is to-day throughout the country an impression that the patent system in its practical operation levies a burdensome tax upon the people. It is also believed by a great many artisans, mechanics, and laborers that the system tends to abridge the opportunities for securing employment, and that it reduces wages.

Touching the first objection, I submit that careful investigation will show that the patent system is the foundation upon which the industrial interests of this country are based. We are, in fact, indebted for our unequalled growth and prosperity as a manufacturing people to its influence. Nor is its healthful influence confined to the shops and factories, but extends to the fields, mines, and forests. The mere desire which all our people naturally feel to secure increased comforts

and improved methods would never have resulted in even a distant approach to our present condition as a productive nation but for the great incentive found in securing to the inventor for a term of years the absolute ownership of the improved machine, method, process, or discovery which is the result of his efforts. It has been urged that the inventive genius of our people would have given to the world substantially all the improvements we have now without this incentive. Such a proposition seems so unreasonable that it is hardly worth while to combat it by argument. We sow not only to reap, but in the expectation of reaping an adequate harvest. No one would devote years of patient study, careful and profound thought and investigation, based on experiments, merely to produce a machine for his own individual use. The British Parliament a few years since appointed a committee to take testimony and to make full investigation to ascertain the influence of and necessity for a patent system. That investigation settled beyond all controversy, at least so far as the English nation is concerned, that without the patent system the inventive genius of that people would have remained inactive, and little progress would have been made during several centuries in the direction of developing the great industries which are now the source of English wealth and power.

While preparing the exhibits for the World's Industrial and Cotton Centennial Exposition at New Orleans, I endeavored by correspondence to gather what information I could touching the relation our patent system sustains to the growth of our own industries, and from the investigations I have made I feel safe in saying that to this system we are chiefly indebted for our present great industrial prosperity. The percentage of manufacturing establishments in this country which have not utilized the patent system in one way or another, as a means either of founding a business or building up and extending it, is very small. But, as suggested before, it is urged that this exclusive property in a patent imposes burdens upon our people. The exact reverse is true. In this connection one important fact in the matter of using articles or machines which have been patented seems to be generally overlooked, and that is that no one is compelled to use any patented invention. The blessed privilege of sticking to the old way abides with all of us, notwithstanding the patent system. Farmers are under no obligations whatever to lay aside the sickle, scythe, or cradle and use the reaper and mower. They may still, if they will, rake and bind wheat and oats with their hands, instead of doing it by machinery. There does not rest upon them the slightest obligation to use a thrasher or separator, since they are at perfect liberty to swing the flail or use the tramping-floor. The hand-loom may still be used, notwithstanding the inventions of Jacquard and Arkwright, supplemented and improved by modern inventions. The old spinning-wheel need not be thrown aside because the inventive genius of man has given us the spinning-jenny and its kindred aids in that art. There rests no obligation upon any of us to use the telephone, the telegraph, the locomotive, or the engine. In fact, in all things we may stick absolutely to the old way, and submit ourselves to all the inconveniences and discomforts of the olden time. Every farmer may continue to build a worm or post-and-rail or stone fence, instead of using barbed wire. In this connection it is proper to remark that he pays for his barbed-wire fence but little, if any, more than fifty per cent. of the cost of the old board or post-and-rail fence, and it has been demonstrated that the farmers of the country have in the last few years saved over sixty millions of dollars by the use of this valuable invention. In fact, all inventions are utilized not simply because they are more convenient, but because they are cheaper and better. Touching the statement that laborers are thrown out of employment and wages reduced by the use of patented devices, it is sufficient to say that the allegation is entirely at variance with the best information obtainable from the returns of the last census. The utilization of valuable inventions does not throw laborers out of employment, but redistributes labor, and opens up new avenues of employment, calls into requisition a higher order of skill, and secures an increase of wages. For example, take the boot and shoe industry, where a few hundred machines have changed the whole course of labor. The census of 1870 showed that there was an average of twenty-nine persons employed in every shoe-factory in this country, whereas in 1880 there were fifty-six persons so employed. The same number of persons in 1875 made *three times* as many shoes as in 1845. In a table prepared by Colonel Wright, chief of the Bureau of Labor, it is shown that in 1870 there were employed 91,702 men, women, and children, while in 1880 there were 111,152. In estimates based upon four hundred and sixty shoe-manufacturing establishments in Massachusetts it is shown that three millions of dollars more are paid in wages than the capital invested, and that the labor-saving machinery has given to the laborer in 1880 almost double the wages of 1850.

But for the growth of our industries due to the patent system there would have been no employment in this country, otherwise than in the fields, for ten per cent. of the immigrants who have come among us. While an important invention may result in utilizing a machine which will do the work of a dozen men, the result is to open up an avenue of employment which will give work to double the number. The comforts and conveniences of life are made more abundant and cheaper, the consumption larger.

When the advantages which our country derives from the patent system are considered, in connection with the fact that it does not cost the Government a farthing, the whole expense being paid by those having business with the Office, either as applicants for patents or otherwise, it would seem that there should be no hesitation in appropriating at least the money paid in and received by the Government in trust for the purpose of promptly and efficiently conducting the business of the Bureau. While the Patent Office has been more than self-sustaining, the cost to those having business to transact has been reduced and the facilities increased. A few years since it cost from $2.50 to $35 to obtain a copy of the drawings of a patent. Under the system of photolithographing now adopted the Office can supply copies of patents with perfect reproductions of the drawings at nominal cost—viz., twenty-five cents for single copies, or ten cents when twenty or more are ordered. Not only this, but the entire expense of producing these photolithographic copies is more than paid by the proceeds of the sales.

I take the liberty to refer to the speech delivered by Hon. O. H. Platt, chairman of the Senate Committee on Patents, in the Senate on the 31st of March, 1884, in which our patent system was carefully and ably discussed, and the needs of the Bureau fully considered.

Very respectfully, your obedient servant,

BENJ. BUTTERWORTH,
Commissioner.

Statement showing the number of the first patent, design patent, and reissued patent, and the number of the first certificate of registration of a trade-mark and a label issued in each calendar year since July 28, 1836, when the present series of numbers of letters patent commenced, together with the total number of each issued during the year. The number of patents granted prior to the commencement of this series of numbering (July 28, 1836) was 9,957.*

Year.	Number of first patent and certificate issued in each calendar year.					Number of patents and certificates of registration issued during each calendar year.						
	Patents.	Designs.	Reissues.	Trade-marks.	Labels.	Patents.	Designs.	Reissues.	Total patents.	Trade-marks.	Labels.	Total certificates.
1836 July 28	1					109						
1837	110					436						
1838	546		1			515		6				
1839	1,061		7			404		13				
1840	1,465		20			458		10				
1841	1,923		30			490		6				
1842	2,413		36			488		13				
1843	2,901	1	49			494	14	11	510			
1844	3,395	15	60			477	12	7	495			
1845	3,872	27	67			476	17	11	504			
1846	4,348	44	78			566	59	13	638			
1847	4,914	103	91			495	60	14	569			
1848	5,409	163	105			583	46	23	652			
1849	5,992	209	128			989	49	30	1,068			
1850	6,981	258	158			884	83	26	993			
1851	7,865	341	184			757	90	25	872			
1852	8,622	431	209			890	109	20	1,019			
1853	9,512	540	229			846	86	29	961			
1854	10,358	626	258			1,759	57	28	1,844			
1855	12,117	683	286			1,891	70	51	2,012			
1856	14,008	753	337			2,316	107	83	2,506			
1857	16,324	860	420			2,686	113	97	2,896			
1858	19,010	979	517			3,467	102	126	3,695			
1859	22,477	1,075	643			4,165	108	231	4,504			
1860	26,642	1,183	874			4,363	183	232	4,778			
1861	31,005	1,366	1,106			3,040	142	147	3,329			
1862	34,045	1,508	1,253			3,221	195	116	3,532			
1863	37,266	1,703	1,369			3,781	176	227	4,184			
1864	41,047	1,879	1,596			4,638	139	248	5,025			
1865	45,685	2,018	1,844			6,099	221	296	6,616			
1866	51,784	2,239	2,140			8,874	294	290	9,458			
1867	60,658	2,533	2,430			12,301	325	400	13,026			
1868	72,950	3,258	2,830			12,544	446	420	13,410			
1869	85,503	3,304	3,250			12,957	506	534	13,997			
1870	98,460	3,810	3,784	1		12,157	737	439	13,333	121		121
1871	110,617	4,547	4,223	122		11,687	965	464	13,056	486		486
1872	122,304	5,442	4,687	608		12,200	884	529	13,613	491		491
1873	134,504	6,336	5,216	1,099		11,616	747	501	12,864	492		492
1874	146,120	7,083	5,717	1,591	1	12,230	886	483	13,599	357	232	791
1875	158,350	7,969	6,200	2,150	233	13,291	915	631	14,837	1,138	232	1,370
1876	171,641	8,884	6,831	3,288	465	14,172	802	621	15,595	959	472	1,431
1877	185,813	9,686	7,452	4,247	937	12,920	699	568	14,187	1,216	392	1,608
1878	198,733	10,385	8,020	5,463	1,329	12,345	590	509	13,444	1,455	492	1,947
1879	211,078	10,975	8,529	6,918	1,821	12,133	592	488	13,213	872	355	1,227
1880	223,211	11,567	9,017	7,790	2,176	12,926	515	506	13,947	349	203	552
1881	236,137	12,082	9,523	8,139	2,379	15,548	565	471	16,584	836	202	1,038
1882	251,685	12,647	9,994	8,953	2,581	18,135	861	271	19,267	947	304	1,251
1883	269,820	13,508	10,265	9,920	2,885	21,196	1,020	167	22,383	902	906	1,808
1884	291,016	14,528	10,432	10,822	3,791	19,147	1,150	116	20,413	1,021	513	1,534
1885	310,163	15,678	10,548	11,843	4,304							

* Prior to this date and the present series of numbers, 9,957 patents were issued.

THE OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

VOL. 30---No. 7. TUESDAY, FEBRUARY 17, 1885. PRICE---$5 per year.

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Order No. 220.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, February 13, 1885.

The following sub-classes are added to Class 12, "Boots and Shoes," Division XI:

29. Heel-stiffener machines.
30. Boot-treeing machines.
31. Peg-floats.
32. Hand-nailing implements.

And to Class 54, "Harness," Division XI, the sub-class 7, Hametugs.

BENJ. BUTTERWORTH,
Commissioner.

Annual Report of 1870.

Volume 3 of the Annual Report of the Patent Office for the year 1870, never hitherto published, is now out and ready for delivery, without charge, upon application by letter or otherwise. This volume contains the drawings of all patents issued during the year 1870.

The Official Gazette.

The OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Indexes to Patents on Electricity.

Appendix No. 2 to the index to patents relating to electricity, covering the period of time from July 1, 1882, to June 30, 1883, has been issued, and is now for sale. These indexes, arranged alphabetically, numerically, and by classes, are completed to June 30, 1883, and comprise the following volumes:

Vol. 1. Index to patents relating to electricity granted by the United States prior to June 30, 1881, with an appendix, July 1, 1881, to June 30, 1882. One volume, 250 pages. In paper covers, $3; bound, $5.

Vol. 2. Appendix No. 2, July 1, 1882, to June 30, 1883. One volume, 50 pages. In paper covers, $1.50.

BENJ. BUTTERWORTH,
Commissioner.

30 O G—7—i

Issue of February 17, 1885.

Patents	356	No. 312,244 to No. 312,599, inclusive.
Designs	40	No. 15,810 to No. 15,849, inclusive.
Trade-Marks	16	No. 11,948 to No. 11,963, inclusive.
Labels	5	No. 4,346 to No. 4,350, inclusive.
Reissues	1	No. 10,561.
Total issue	418	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	2		Nebraska	2	
Arizona Territory			Nevada		
Arkansas	5		New Hampshire	2	
California	7	1	New Jersey	23	
Colorado	7		New Mexico Territ'y		
Connecticut	9		New York	109	4
Dakota Territory			North Carolina	2	
Delaware	1		Ohio	25	7
District of Columbia	2		Oregon		
Florida			Pennsylvania	47	
Georgia	1		Rhode Island	5	
Idaho Territory			South Carolina	1	
Illinois	20	2	Tennessee	4	
Indiana	10	1	Texas	5	1
Indian Territory			Utah Territory		
Iowa	4		Vermont		
Kansas			Virginia	2	
Kentucky	2		Washington Territ'y	1	
Louisiana	1		West Virginia		
Maine	3		Wisconsin	5	2
Maryland	4		Wyoming Territory		
Massachusetts	37	2	United States Army		
Michigan	14		United States Navy		
Minnesota	1				
Mississippi	2		Total to citizens of the United States	371	21
Missouri	6	1			
Montana Territory					

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Australia			Germany	7	
Austria-Hungary			Holland		
Barbadoes			Ireland		
Belgium	1		Mexico		
Bermuda			Norway		
Brazil			Russia		
Canada	3		Scotland		
Central America			Spain		
Colombia, U. S. of			Sweden	1	
Cuba			Switzerland		
Denmark	1				
Ecuador			Total to citizens of foreign countries	25	
England	7				
France	5				

DESIGNS.

15,810.—PARLOR OR HEATING-STOVE.—*Robert D. Andrews*, Boston, Mass. Application filed December 17, 1884. Term of patent 7 years.

15,811.—FONT OF PRINTING-TYPE.—*Charles H. Reeler, Jr.*, Philadelphia, Pa., assignor to *MacKellar, Smiths & Jordan*, same place. Application filed July 15, 1884. Term of patent 7 years.

15,812.—NEEDLE-WORK HOLDER.—*Frank Benjamin*, Lansingburg, N. Y. Application filed December 3, 1884. Term of patent 14 years.

15,813.—JAR OR BOTTLE.—*Samuel F. Scott* and *Samuel B. Bryar*, Pittsburg, Pa. Application filed November 21, 1884. Term of patent 7 years.

15,814.—PLOW-BEAM.—*Ozia A. Essig*, Canton, Ohio. Application filed June 17, 1884. Term of patent 14 years.

15,815 and 15,816.—UPHOLSTERY FABRIC.—*Joseph Ferguson*, Philadelphia, Pa., assignor to *Stead & Miller*, same place. Applications filed January 10, 1885. Term of patents 3½ years.

15,817 to 15,829, inclusive.—CARPET.—*Edwin Fisher*, Boston, assignor to *The Lowell Manufacturing Company*, Lowell, Mass. Applications filed January 10, 1885. Term of patents 3½ years.

15,830.—MADE-UP SCARF.—*Thomas J. Flagg*, New York, N. Y. Application filed September 29, 1884. Term of patent 7 years.

15,831.—SPOON-HANDLE.—*Charles T. Grosjean*, New York, N. Y., assignor to *Tiffany & Co.*, same place. Application filed December 31, 1884. Term of patent 14 years.

15,832.—CARPET-MOLDING.—*Isaac Holzmark*, Kansas City, Mo. Application filed October 4, 1884. Term of patent 7 years.

15,833 and 15,834.—UPHOLSTERY FABRIC.—*David B. Kerr*, Philadelphia, Pa., assignor to *Hoyle, Harrison & Kaye*, same place. Applications filed January 14, 1885. Term of patents 3½ years.

15,835.—BAS-RELIEF.—*Adolph Langenbahn, Oscar C. Evans*, and *Charles Hiby*, Hamilton, Ontario, Canada. Application filed December 12, 1884. Term of patent 3½ years.

15,836 to 15,838, inclusive.—FIRE-PLACE FRONT.—*Edward T. Schoonmaker*, New York, N. Y., assignor to *J. S. Conover & Co.*, same place. Applications filed December 5, 1884. Term of patents 7 years.

15,839.—FILAMENT.—*Marmaduke M. M. Slattery*, New York, N. Y. Application filed November 6, 1884. Term of patent 7 years.

15,840 to 15,846, inclusive.—CARPET.—*Charles W. Swapp*, New York, N. Y., assignor to *The Lowell Manufacturing Company*, Lowell, Mass. Applications filed January 10, 1885. Term of patents 3½ years.

15,847.—LARD-PAIL.—*Francis A. Walsh*, Milwaukee, Wis. Application filed January 12, 1885. Term of patent 7 years.

15,848.—CARPET.—*Edwin Fisher*, Boston, assignor to *The Lowell Manufacturing Company*, Lowell, Mass. Application filed January 10, 1885. Term of patent 3½ years.

15,849.—CANE OR UMBRELLA HEAD.—*Frederick J. Kaldenberg*, New York, N. Y., assignor to *The Novelty Manufacturing Company*, Waterbury, Conn. Application filed September 25, 1884. Term of patent 7 years.

TRADE-MARKS.

[Certificates of registration of Trade-Marks numbered 8,191 and upward are registered under the act of March 3, 1881.]

11,948.—PRINTED, DYED, COLORED, BLEACHED AND UNBLEACHED COTTONS.—*Jacob S. Bernheimer & Bro.*, New York, N. Y. Application filed January 22, 1885.

"The representation of two lions, a diamond-shaped shield bearing a cross-bar and three stars, surmounted by a crown, and a scroll bearing the words 'SELL AND REPENT.'"

11,949.—WRITING-PAPER.—*Chapin & Gould*, Springfield, Mass. Application filed January 19, 1885.

"The word 'CRESCENT.'"

11,950.—WHISKY, BRANDY, AND GIN.—*Childs & Co.*, New York, N. Y. Application filed January 15, 1885.

"The words 'MONTE CRISTO.'"

11,951.—RYE AND BOURBON WHISKY.—*Solomon C. Herbst*, Milwaukee, Wis. Application filed January 21, 1885.

"A colored field, a diagonal stripe of contrasting color running across the same, and the name 'JNO. E. FITZGERALD' arranged within said stripe."

11,952.—WATER-PROOF CLOTHING.—*Demetrius Jannopoulo*, St. Louis, Mo. Application filed January 17, 1885.

"The picture of a bull."

11,953.—TWINE USED FOR BINDER ATTACHMENTS FOR HARVESTING-MACHINES.—*I. J. Truman* and *A. H. Isham*, San Francisco, Cal. Application filed January 6, 1885.

"The representation of a sheaf of grain and the words 'GOLDEN SHEAF.'"

11,954.—REFLECTOR-LAMPS.—*Daniel R. Williams*, Dallas, Tex. Application filed January 23, 1885.

"The words 'MOTHER HUBBARD.'"

11,955.—LIQUID FOR BEAUTIFYING AND PRESERVING THE NAILS.—*Samuel Purdy Zacharie*, New York, N. Y. Application filed January 12, 1885.

"A design showing two hands in the act of applying the preparation."

11,956.—LAWN-TENNIS BATS.—*A. G. Spalding & Brothers*, Chicago, Ill. Application filed January 12, 1885.

"The word 'KENWOOD.'"

11,957.—BATS OF ALL KINDS, BALLS, INDIAN CLUBS, CROQUET-MALLETS, AND DUMB-BELLS.—*A. G. Spalding & Brothers*, Chicago, Ill. Application filed January 3, 1885.

"The word 'BROWN.'"

11,958.—SPECTACLES AND EYEGLASSES.—*Julius King*, Cleveland, Ohio. Application filed May 10, 1884.

"The word 'CITY.'"

11,959.—SOAP FOR LAUNDRY AND GENERAL PURPOSES.—*Procter & Gamble*, Cincinnati, Ohio. Application filed January 24, 1885.

"A parallelogram with a clover-leaf ground bearing the word-symbol 'LENOX,' and a nearly elliptical figure with star and profile device, and a ribbon to contain lettering."

11,960.—SOAP FOR LAUNDRY AND GENERAL PURPOSES.—*Procter & Gamble*, Cincinnati, Ohio. Application filed January 24, 1885.

"The arbitrary symbols 'No. 1' and 'GERMAN.'"

11,961.—SOAP FOR LAUNDRY AND GENERAL PURPOSES.—*Procter & Gamble*, Cincinnati, Ohio. Application filed January 24, 1885.

"Three similar circles, each containing an open hand."

11,962.—SOAP FOR LAUNDRY AND GENERAL PURPOSES.—*Procter & Gamble*, Cincinnati, Ohio. Application filed January 24, 1885.

"A parallelogram with a groundwork of curved lines interspersed with circular figures, with stars and crescents, bearing the word-symbol 'HALF MOON,' and a smaller parallelogram with a circular device and ribbons."

11,963.—SOAP FOR LAUNDRY AND GENERAL PURPOSES.—*Procter & Gamble*, Cincinnati, Ohio. Application filed January 24, 1885.

"A circular star-and-profile figure, a basket-work parallelogram and a ribbon, a horizontal band or ribbon, and a smaller parallelogram containing the word-symbol 'AMBER,' and the words 'SOAP,' 'PROCTER & GAMBLE,' and 'CINCINNATI.'"

LABELS.

4,346.—Title: "THE PEOPLE'S BENEFACTOR OR THE GREAT HOUSEHOLD REMEDY."—*Reason Drake*, La Grange, Ind. Application filed January 22, 1885.

4,347.—Title: "MRS. W. W. HADLEY'S INDIAN PREPARATION."—*Mrs. William W. Hadley*, Lynn, Mass. Application filed January 12, 1885.

4,348.—Title: "DR. BROOKS' DIPHTHERIA CURE."—*A. W. Hutchinson*, East Liverpool, Ohio. Application filed January 24, 1885.

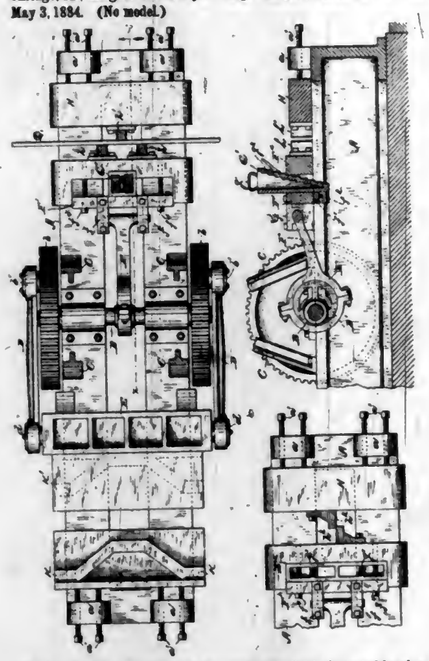
4,349.—Title: "KUHL'S DRAWING & HEALING SALVE."—*Anton Kuhl*, Merrill, Wis. Application filed December 30, 1884.

4,350.—Title: "BELLEVUE DISINFECTANT."—*The Trades Chemical Company*, New York, N. Y. Application filed January 8, 1885.

PATENTS

GRANTED FEB. 17, 1885.

312,244. **MACHINE FOR MAKING ARCH-BARS.** CHARLES ALKINS, Chicago, Ill., assignor to the Ajax Forge Company, same place. Filed May 3, 1884. (No model.)



Claim.—1. In a machine of the class described, the combination of a suitable bed having a driving-shaft placed at or near a point midway between its extremities, provided with crank-wheels, and an eccentric with pitmen extending in opposite directions therefrom, and connecting with cross-heads having suitable blocks and shears, with stationary counterparts upon the respective ends of the bed, and means for operating said shaft, substantially as and for the purposes specified.

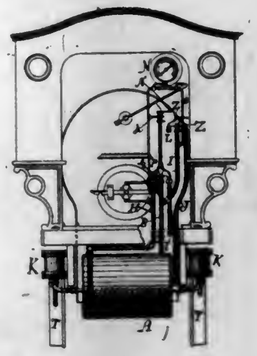
2. In a machine as above described, the combination of a bed with a horizontal driving-shaft between its extremities, said shaft having crank-wheels, and an eccentric with pitmen extending in opposite directions therefrom, and connecting with cross-heads having shears and bending-dies upon the respective ends of said machine, with suitable counterparts thereto, substantially as described, and for the purposes set forth.

3. In a machine as described, the combination of a bed having a driving-shaft located midway between its extremities, said shaft being provided with crank-wheels, and an eccentric with pitmen attached thereto, respectively, and extending in opposite directions therefrom, and cross-heads provided, respectively, with punching and bending dies having their counterparts removably secured to said bed, substantially as and for the purposes specified.

4. In a machine of the class described, the combination of a bed having a driving-shaft located midway between its extremities, said shaft being provided with crank-wheels, and an eccentric with pitmen attached thereto, respectively, and extending in opposite directions therefrom, each connecting in turn with cross-heads provided with shears, and punching-dies having suitable counterparts attached to said bed, substantially as described, and for the purposes set forth.

5. The combination, in the above-described machine, of the bed A, having a driving-shaft located midway between its extremities, said shaft being provided with crank-wheels, and an eccentric with pitmen attached thereto, respectively, the same extending in opposite directions therefrom, and connecting, respectively, with cross-heads provided with punching and bending dies, said dies having removable counterparts upon the respective ends of said bed, substantially as and for the purposes specified.

312,245. **AIR-BRAKE FOR LOCOMOTIVES AND RAILWAY-CARS.** CHARLES A. BASS, Cicero, Ill. Filed Jan. 11, 1884. (No model.)



Claim.—1. A railway-brake system comprising two separate sets of pressure-brakes, one applied to the wheels of the train, the other to wheels on the engine, each set being controlled by a valve independent of the other, and means, substantially as described, for applying a reserve power to the brake on the engine.

2. In combination with a three-way train-cock, the pipe B, leading from the reservoir to the three-way train-cock provided with a weighted valve, C, the pipe G, leading from the pipe B below the weighted valve C to the three-way train-cock, said cock being provided with the side-extending port *r* and plug C', said plug being provided with the long port *a* and port *c*, whereby the reserve power created by the weighted valve passes into the train-pipe when the side-extending port *r*, port *c*, long port *a*, and pipe G register and the end of pipe B is closed, as and for the purpose shown.

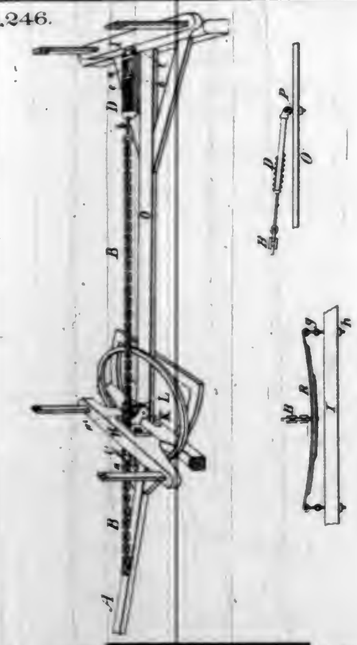
3. In combination with a three-way cock on an air-brake, the rod B', sleeve *e*, with a portion of the upper edge cut away and forming a corrugated surface, spring *k*, bracket *d*, and rest *l*, as and for the purpose shown.

4. The combination of the pipes B and J, three-way cock Z, and pipe J, for conducting the air from reservoir to cylinder, which works drive-wheel brakes independent of train-brakes, as and for the purpose shown.

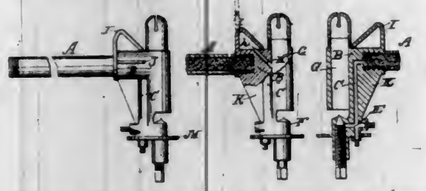
312,246. **TONGUE-SUPPORT FOR WAGONS.** WILLIAM BENCH, Auburn, N. Y. Filed May 10, 1884. (No model.)

Claim.—The combination of the lever L with the spring D and connecting-chain B, as shown in annexed drawings, by which the weight of the tongue is thrown back of the front bolster, so as to prevent friction on the reach, sway-bar, or other part of the wagon, all substantially as set forth.

312,246.



312,247. VAPOR-BURNER. CLARMONT V. BEST, Canton, Ohio. Filed Dec. 7, 1883. (No model.)



Claim.—1. In a vapor-burner, the combination, with the supply-tube A, the mixing-chamber G, the socket portion B, consisting of a knot of metal cast integral with the mixing-chamber, and the vapor-duct C, formed in the said metal and situated in proximity to the mixing-chamber, of the web I, connected with the socket-piece B at its inner end, and curved outwardly to a point inside of and in proximity to the mixing-chamber, and the inclined heating-duct H, formed in said knot of metal, said duct being formed independently of the shield I, and having its outer end within the space surrounded by said shield and arranged to throw the jet backward or inward toward the supply-duct A, substantially as set forth.

2. The combination of the mixing-chamber, a socket portion, B, at the inner or upper end of the mixing-chamber, and having a knot of metal between the end of pipe A and the mixing-chamber, a vapor-duct, C, running directly down by the side of the mixing-chamber and communicating with the socket in the portion B, the heating-vapor duct communicating with the mixing-chamber near its upper end and situated in said knot of metal by the side of the duct C, the heating-plate I, formed independently of the heating-vapor duct and bent or curved to surround the outer end thereof, and the shield J, substantially as and for the purposes set forth.

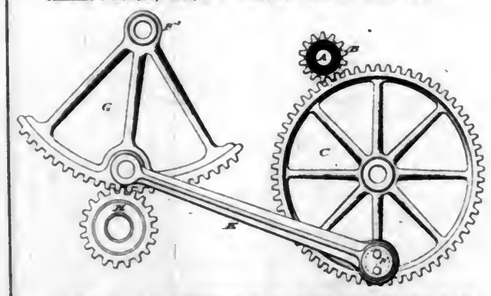
3. A vapor-burner adapted to be secured to a supply-pipe, A, having the socket portion B, the mixing-chamber G, the vapor-duct C by the side of the mixing-chamber, inclined duct H, for the heating-vapor, having its inner orifice at or near the upper end of the mixing-chamber and its outer orifice behind the mixing-chamber and in close proximity to the inner end of the supply-tube A, the shields J J behind the mixing-chamber integral with the socket portion B, and situated in a horizontal plane between the upper and lower portions of said socket portion, and the shield I, curved or bent, substantially as set forth, around the outer orifice of the heating-vapor duct, as described.

4. The combination, with the vapor-burner having the mixing-chamber G, provided at the lower end with an enlarged opening for the admission of air, the valve and valve-support F below said aperture, the shield M, carried by said valve-support, and the perforated or reticulated insect-guard secured at its lower edge to said plate M, and at its upper edge secured to the mixing-chamber above the air-opening, substantially as set forth.

312,248. MANUFACTURE OF FERRO-CYANIDE OF POTASSIUM. HENRY BOWER, Philadelphia, Pa. Filed June 6, 1884. (No specimens.)

Claim.—The improvement in the manufacture of ferro-cyanide of potassium, which consists in mixing nitrogenous animal matters, potassium carbonate and iron, heating the mixture, and treating the resultant cake or melt with water and carbon dioxide, substantially as set forth.

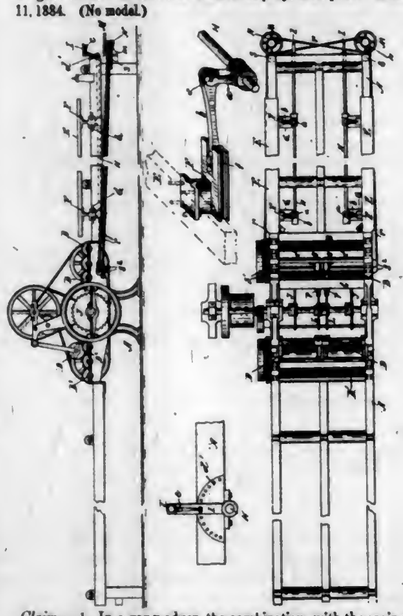
312,249. ALTERNATING REVERSING MECHANICAL MOVEMENT. CHARLES C. BURTON, Utica, N. Y. Filed Oct. 29, 1884. (No model.)



Claim.—1. The combination of the various parts described in the foregoing specification, all arranged and working together, as described, so as to produce an alternating reversing circular motion, substantially as described.

2. The reverse mechanical movement produced by the continuous revolution in one direction of a pinion-wheel meshing into the gear of a wheel, the latter connected near the circumference thereof with the gear-sector near its circumference, the gear-sector meshing into a wheel rigidly attached to the shaft, to which a reverse motion is imparted, as described.

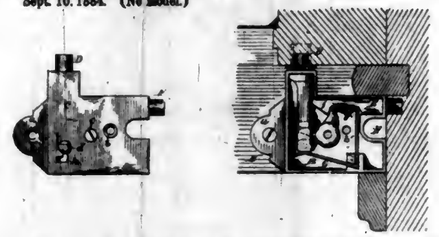
312,250. GANG-EDGER. WILLIAM A. CAMPBELL, Marinette, Wis., assignor to the Marinette Iron Works Company, same place. Filed June 11, 1884. (No model.)



Claim.—1. In a gang-edger, the combination, with the main frame, of two feed-rolls in front of the saws, two feed-rolls behind the saws, a work-supporting bar between the front feed-rolls and the saws, and a weighted presser-roll above the rear feed-rolls, substantially as shown and described, and for the purpose specified.

2. In a gang-edger, the combination, with a saw splined on its mandrel, of a forked guide embracing the same and secured to a cross-head mounted on suitable ways substantially parallel with the saw-mandrel, and a wire rope secured to the cross-head and passing over a sheave at each end of the ways, over suitable guiding-sheaves, and around a drum operated by a hand-wheel, substantially as and for the purpose specified.

312,251. SASH-FASTENER. FRANCIS M. CASE, Denver, Colo. Filed Sept. 10, 1884. (No model.)



Claim.—1. In a sash-fastener, the combination of the bolt D, having recess *e*, the bolt E, having projection *f*, the bell-crank F, one arm of which is constructed to engage with the walls of said recess, and the other with said projection, to operate the bolt E in one direction, and the spring G, constructed to operate said bolt in the opposite direction, substantially as and for the purpose specified.

2. The combination, with the bolt E, having projection *f*, and the bolt D, having recess *e*, of the bell-crank F, constructed to operate said bolts simultaneously, said bolt D also being provided with a recess, *e'*, thereby permitting the uninterrupted travel of said bolts on the same plane, and the spring G, operating on said bolts, substantially as described.

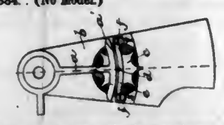
312,252. GUN FOR INSECT-POWDER. CHARLES CHINNOCK and EDGAR E. CHINNOCK, New York, N. Y., assignors to Jonathan L. Hyde, same place. Filed May 31, 1884. (No model.)



Claim.—1. As a new article of manufacture, a gun for insect and other powders, composed of a bottle divided into the two cups or portions *a b*, connected together by the piece of rubber, cloth, or other flexible fabric, C, and containing the spring B, and having a nozzle and the tube E, all arranged substantially as shown and described.

2. As a new article of manufacture, a gun for insect and other powders, composed of a bottle divided into the two parts *a* and *b*, connected together by the piece of rubber, cloth, or other flexible fabric, C, and containing the spring B, and having the cork D, tube E, and apron H, all arranged substantially as shown and described.

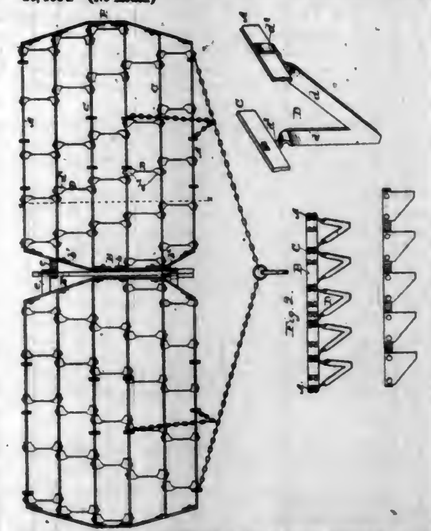
312,253. WATCH-REGULATOR. DUANE H. CHURCH, Waltham, Mass. Filed Mar. 21, 1884. (No model.)



Claim.—1. In a watch-regulator, the regulator-arm having a segmental edge or end, *a'*, combined with a star-wheel having a journal, *d*, placed on the balance-cock, and a spring whereby said journal is pressed against the segmental end of the regulator-arm.

2. In a watch-regulator, the combination of the regulator-arm having the segmental end *a'*, the star-wheel placed loosely on the balance-cock, and having a journal, *d*, and a notched spring whereby said journal is pressed against the segmental end of the regulator-arm and held in place, as set forth.

312,254. HARROW. EDWARD P. CLAY, Massillon, Ohio. Filed May 26, 1884. (No model.)



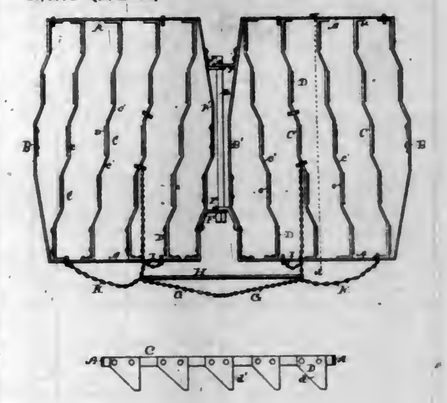
Claim.—1. The combination of the following elements: the front and rear bars, A, the intermediate tooth-supporting bars, C, the teeth arranged, substantially as described, to leave vacant spaces at the inner corners of each frame, the inner side bars, B, consisting of thin material formed to have the part *b* and the parts *b'* *b²* inclined to and integral with the part *b*, and arranged to leave open spaces between the inner corners of the frames, the plates *e*, projecting inwardly from the frame and below the top thereof, and the hinge-rod E, passing through said plates, substantially as set forth.

2. The combination, in a harrow, of two frames, each having a series of transverse tooth-supporting bars of thin flat material, the central bars of the series being longer than those in front and in rear thereof, the teeth arranged, substantially as set forth, to travel in different paths, the inner end bar B being bent or curved outwardly at its ends, and the outer end bar B bent or curved at its ends inwardly, substantially as described, whereby the transverse bars are braced together.

3. In a harrow, the combination of two tooth-frames, each having a front bar A and a rear bar A, intermediate tooth-supporting bars, C C, and end bars, B B, the central portion of each of the inner end bars projecting toward the corresponding portion of the opposing inner end bar, and the hinge-rod E, lying by the sides of the oppositely-projecting parts of the inner end bars and connecting the two frames, substantially as set forth.

4. The combination, with the transverse supporting-bars A and C, of the teeth, each formed of a V-shaped flat metal bar having its upper ends turned at right angles to the operative portion, whereby one end can be secured to one bar with a wide, flat bearing, and the other to a bar in front thereof to brace the frame, substantially as described.

312,255. HARROW. EDWARD P. CLAY, Massillon, Ohio. Filed May 26, 1884. (No model.)

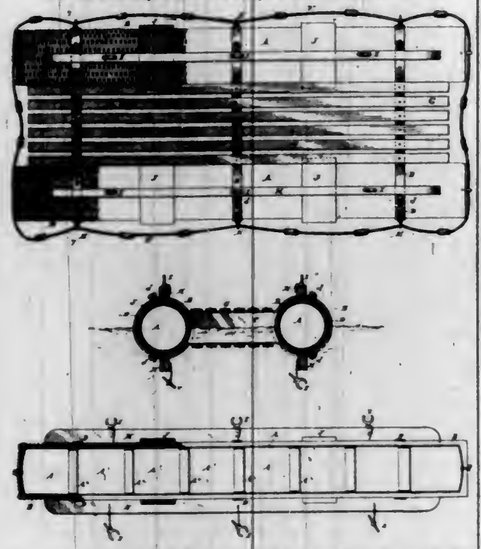


Claim.—1. In a harrow, the combination of two opposing frames, each frame being constructed with the front bars, A A, the outer and inner side bars, B B', forming with the end bars, A A, right angles approximately, and the intermediate bars, C C, inclined to the line of draft, those in one section being inclined oppositely to those in the other, said bars extending continuously from one end bar to the other, the side bars and the intermediate bars being zigzagged, and the two frames being united by a central hinge, substantially as set forth.

2. The combination, with the two-part harrow hinged together on a line parallel to the line of draft, of the flexible draft devices I, K, and G, attached to each part or frame of the harrow, the part G being secured to the harrow-frame nearly upon its central line, and the parts I and K secured near the corners of the frame, whereby the draft is applied to the central parts of the harrow when the latter is being drawn on straight lines, and whereby the draft can be applied more nearly at the corners when the harrow is being turned, substantially as described.

3. The combination, with a two-framed harrow having the frames hinged together on a line parallel to the line of travel, of draft devices consisting of chains G, attached to the frames upon nearly their central lines, the chains I and K, attached to the frames near their corners, and the rigid strut-brace H, whereby the draft is applied to the frames upon nearly their central lines and parallel with the travel of the harrow when it is being drawn on straight lines, and whereby the draft is applied to the frames near their corners when the harrow is being turned, substantially as set forth.

312,256. LIFE-RAFT. JONATHAN CONE, Bristol, and FREDERIC S. GROVES, Philadelphia, Pa. Filed Sept. 6, 1884. (No model.)



Claim.—1. A life-raft consisting of two metallic cylinders having flat ends, and provided with a covering of rattan or its equivalent, fitting closely to said cylinder and forming flat ends, the edges thereof being reenforced or made very strong by plating, in combination with the two decks supported a short distance below the tops of each of said cylinders, and bound together by suitable bracing, substantially as and for the purpose specified.

2. In a buoyant cylinder for a life-raft, the combination of a galvanized iron cylinder, formed in compartments, and having its seams soldered, and an inclosing-case of woven or plaited rattan or its equivalent, substantially as and for the purpose specified.

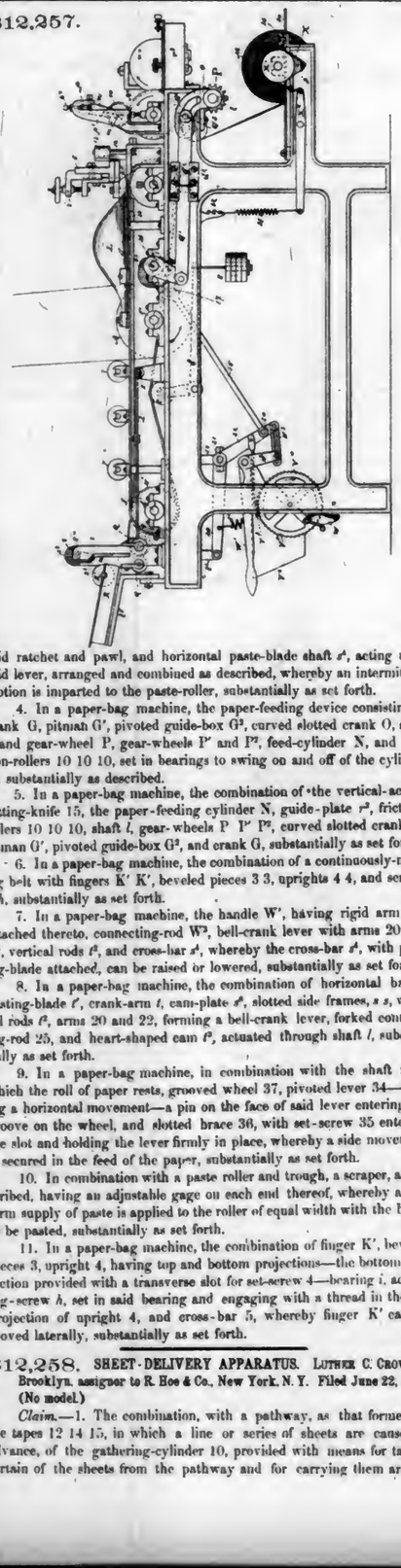
312,257. PAPER-BAG MACHINE. WILLIAM W. COTTON and ALFRED HEWES, Brooklyn, assignors, by mesne assignments, of one-half to the Fishkill Manufacturing Company, New York, N. Y. Filed Nov. 21, 1882. (No model.)

Claim.—1. In a paper-bag machine, in combination with a vertical-acting paste-blade, horizontal rod s^4, crank-arm t, slotted side plate, s, cam-plate s^5, vertical rods t^2, and mechanism, substantially as described, whereby said paste-blade is raised and lowered, and deflected against the paste-roller, substantially as set forth.

2. In a paper-bag machine, the combination of paste-box R, paste-roller R', scraper-plate n, and gages n^4, substantially as set forth.

3. In a paper-bag machine having a paste-box, the combination of paste-roller R', ratchet-wheel 28, pawl 29, weighted lever n' operating

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said ratchet and pawl, and horizontal paste-blade shaft s^4, acting upon said lever, arranged and combined as described, whereby an intermittent motion is imparted to the paste-roller, substantially as set forth.

4. In a paper-bag machine, the paper-feeding device consisting of crank G, pitman G', pivoted guide-box G^3, curved slotted crank O, shaft l, and gear-wheel P, gear-wheels P' and P^2, feed-cylinder N, and friction-rollers 10 10 10, set in bearings to swing on and off of the cylinder N, substantially as described.

5. In a paper-bag machine, the combination of the vertical-acting cutting-knife 15, the paper-feeding cylinder N, guide-plate r^3, friction-rollers 10 10 10, shaft l, gear-wheels P P' P^2, curved slotted crank O, pitman G', pivoted guide-box G^3, and crank G, substantially as set forth.

6. In a paper-bag machine, the combination of a continuously-moving belt with fingers K' K', beveled pieces 3 3, uprights 4 4, and screws h h, substantially as set forth.

7. In a paper-bag machine, the handle W', having rigid arm W^3, attached thereto, connecting-rod W^2, bell-crank lever with arms 20 and 22, vertical rods t^2, and cross-bar s^4, whereby the cross-bar s^4, with pasting-blade attached, can be raised or lowered, substantially as set forth.

8. In a paper-bag machine, the combination of horizontal bar s^4, pasting-blade t', crank-arm t, cam-plate s^5, slotted side frames, s s, vertical rods t^2, arms 20 and 22, forming a bell-crank lever, forked connecting-rod 25, and heart-shaped cam t^3, actuated through shaft l, substantially as set forth.

9. In a paper-bag machine, in combination with the shaft upon which the roll of paper rests, grooved wheel 37, pivoted lever 34—having a horizontal movement—a pin on the face of said lever entering the groove on the wheel, and slotted brace 36, with set-screw 35 entering the slot and holding the lever firmly in place, whereby a side movement is secured in the feed of the paper, substantially as set forth.

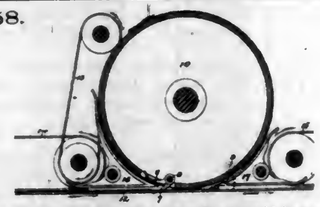
10. In combination with a paste roller and trough, a scraper, as described, having an adjustable gage on each end thereof, whereby a uniform supply of paste is applied to the roller of equal width with the blank to be pasted, substantially as set forth.

11. In a paper-bag machine, the combination of finger K', beveled pieces 3, upright 4, having top and bottom projections—the bottom projection provided with a transverse slot for set-screw 4—bearing i, adjusting-screw h, set in said bearing and engaging with a thread in the top projection of upright 4, and cross-bar 5, whereby finger K' can be moved laterally, substantially as set forth.

312,258. SHEET-DELIVERY APPARATUS. LUTHER C. CROWELL, Brooklyn, assignor to R. Hoe & Co., New York, N. Y. Filed June 22, 1883. (No model.)

Claim.—1. The combination, with a pathway, as that formed by the tapes 12 14 15, in which a line or series of sheets are caused to advance, of the gathering-cylinder 10, provided with means for taking certain of the sheets from the pathway and for carrying them around

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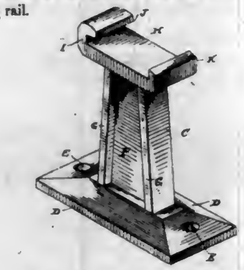
upon its surface, and carrying discharging-fingers, which are so located upon the cylinder as to act upon the leading ends of the sheets so taken and direct them back into the pathway in such position that they will be associated and pass forward together with the sheets not taken, all substantially as described.

2. The combination, with a pathway, as that formed by the tapes 12 14 15, in which a line or series of sheets are caused to advance, of a gathering-cylinder, as 10, provided with a sheet-grasping mechanism, as the grippers 7, and discharging mechanism, as the fingers 8, said grasping and discharging mechanisms being mounted upon the same shaft and operated by the same mechanism, all substantially as described.

3. The combination, with a pathway, as that formed by the tapes 12 14 15, in which a line or series of sheets are caused to advance, of a cylinder, as 10, carrying means, as the grippers 7, for taking and carrying sheets around upon its surface, and also carrying the discharging-fingers 8, mounted rigidly upon the gripper-shaft, all substantially as described.

312,259. STREET-RAILROAD CHAIR. BENJAMIN F. CURTIS, Atlanta, Ga. Filed July 10, 1884. (No model.)

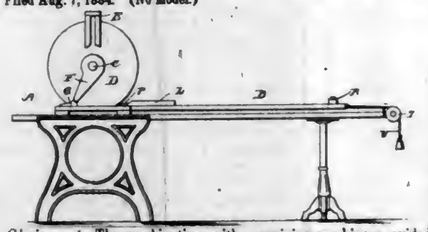
Brief.—A rail-chair consisting of the base-piece having holes for securing it to the tie, a vertical flanged web, and a top portion provided with a flanged cheek at one end and a shorter cheek at the opposite end for holding the rail.



Claim.—1. A railroad-chair comprising the base-piece with holes for securing it to the tie, the vertical flanged web, and the top portion provided with the flanged cheek I J at one end, and the shorter cheek K at the opposite end, substantially as specified.

2. The combination, with the tie and track-rail, of the cast railroad-chair consisting of the base-piece provided with holes for securing the chair to the tie, the flanged web, and the top portion provided with the flanged cheek I J at one end, and the shorter cheek K, with vertical inner face, at the other end, of said top portion, as set forth.

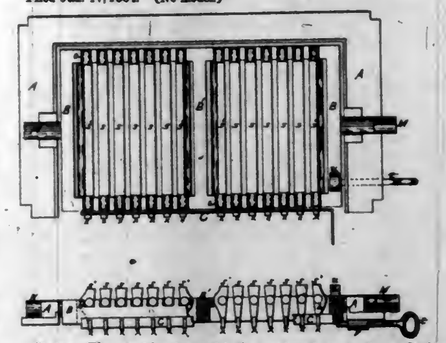
312,260. GRAINING-MACHINE. JOHN DEUKER, Nashville, Tenn. Filed Aug. 7, 1884. (No model.)



Claim.—1. The combination, with a graining-machine provided with cams on its drum-shaft, of the feeder-table provided with stationary side rails having grooved guide-rails, stops, track-rails, and pulleys, the movable side rails provided with projections and connected by the flanged carrier, and the weights connected by ropes to the movable side rails, substantially as specified.

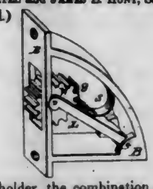
2. The combination, with a graining-machine provided with cams on its drum-shaft, of the feeder-table provided with stationary side rails having raised grooved guide-rails and stops, the movable side rails having lateral projections with tongues fitting the grooves of the guide-rails, projections on the movable rails, the adjustable flanged carrier connecting the movable rails, and the ropes and weights connected to the movable rails, substantially as specified.

312,261. FIRE-GRATE FOR STOVES. JAMES DOHERT, Geddes, N. Y. Filed Jan. 17, 1884. (No model.)



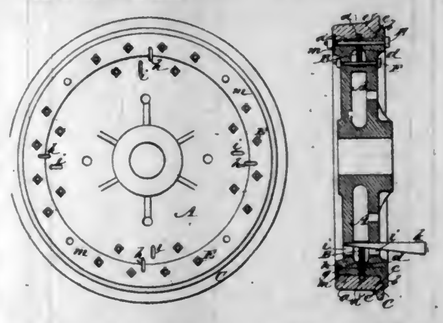
Claim.—The combination, with the socketed grate-frame B, having a broad central cross-piece, B', of the detachable grate-bars a a', the outer sides of the end bars and center end bars being rounded for the purpose of always preserving the same space between said bars and the grate-frame, and thereby prevent clogging while the grate is being shaken, substantially as described.

312,262. DEVICE FOR RAISING AND LOWERING WINDOW-SASHES. HENRY ETTEL and JAMES E. HUNT, San Francisco, Cal. Filed Feb. 5, 1884. (Model.)



Claim.—In a sash-holder, the combination of the lever L, pivoted at one end in the casing B, and carrying a cog-wheel, W, at its other end, with the spring S, located as described, and the rack D upon the frame of the sash.

312,263. CAR-WHEEL. THOMAS C. ELVIN, Huntington, Ind. Filed June 24, 1884. (No model.)

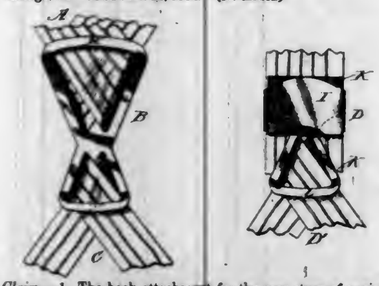


Claim.—1. A wheel consisting, essentially, of a body or central portion provided with an annular slot in the face of its rim, locking-plates within said slot, a tire provided with an interior annular slot registering with that of the body when in place and adapted to receive a part of said locking-plates, and bolts passing through said body portion and locking-plates, substantially as set forth.

2. The body or central portion, A, of the wheel, constructed with an annular slot, d, through its rim and key slots or openings h i through its sides, in combination with the blocks D, the sliding locking-plates B, the tire C, having a groove, d', in its inner periphery, and bolts passing through the locking-plates and sides of the wheel, essentially as described.

3. The ring m, in combination with the slotted rim a a of the body of the wheel and shouldered flange b thereof, the tire C, constructed to fit said rim and flange and grooved on its inner periphery, and the bolts E F, substantially as specified.

312,264. SUSPENDERS. ALVA M. FREEMAN and JOHN B. OVERMEYER, Chicago, Ill. Filed Mar. 24, 1884. (No model.)



Claim.—1. The back attachment for the rear strap of a suspender, consisting of a plate constructed with a loop at one or both of its ends and provided with two pairs of slots converging toward the middle portion of the plate, substantially as described, and arranged to form strap-passages, which admit of the shoulder and pantaloon straps crossing themselves after passing through a single plate common to both straps, and diverging in opposite directions from the ends of the same plate, substantially as set forth.

2. The back attachment for the rear strap of a suspender, consisting of the herein-described double triangular plate contracted at its middle and provided with two pairs of slots converging toward the said contracted middle portion of the plate, said slots being arranged to form strap-passages for the shoulder and pantaloon straps, and to admit of the said straps crossing themselves, substantially as described.

3. A back attachment for the rear strap of a suspender, consisting of a plate provided with two pairs of slots converging toward the middle of the plate, and having at one or both ends a loop, substantially as and for the purpose described.

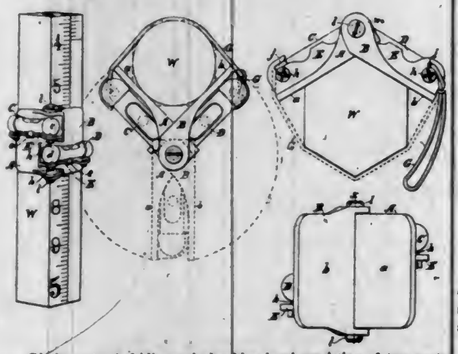
4. The combination, in a suspender, of a sleeve adapted to slide upon the web with a binding-plate adapted to hold the sleeve in its adjustment and made in one piece with the lower slotted extension with which the front pantaloon-strap is connected, substantially as described.

5. The combination, in a suspender, of a sleeve adapted to slide upon the web with the binding-plate adapted to hold the sleeve in its adjustment and formed with the lower extension, which is provided with a pair of upwardly-converging slots, substantially as described.

312,265. FLAKE RICE. JOSEPH F. GENT, Columbus, Ind. Filed Apr. 12, 1884. (No specimens.)

Claim.—As a new article of manufacture, flake rice, substantially as before set forth.

312,266. ROD-PLUMBING LEVEL. WILLIAM GURLEY, Troy, N. Y., assignor to himself and Lewis E. Gurley, same place. Filed Oct. 7, 1884. (No model.)



Claim.—1. A folding rod-plumbing level consisting of two parts secured together by a hinge or pivot joint, and having on one side faces in planes aside from and parallel to the axial line of said joint, and on the opposite side two spirit-levels arranged one above and higher than the other, and in planes at right angles to said axial line, substantially as described, so that the two parts when opened will fit against the rod and the two levels be exposed, and when closed will cover and protect the two spirit-levels.

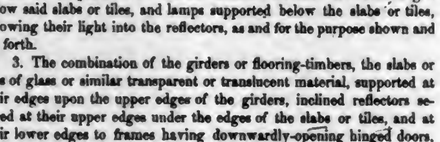
2. A folding rod-plumbing level consisting of two parts secured together by a hinge or pivot joint, and having on one side faces in planes aside from and parallel to the axial line of said joint and on the opposite side two spirit-levels, one above the other, in planes at right angles to said axial line, and with the adjacent end parts of said levels extending past each other and across the axial line of said joint, substantially as described.

3. A folding rod-plumbing level consisting of two parts secured together by a hinge or pivot joint, and having on one side faces parallel to the axial line of said joint and on the opposite side lateral projections, and two spirit-levels secured to said lateral projections by adjusting devices, substantially as described.

4. A folding rod-plumbing device consisting of two parts secured together by a hinge or pivot joint, and having faces parallel to the axial line of said joint, and two spirit-levels in planes at right angles to said axial line and furnished with means, substantially as described, for securing the device upon a rod, pole, or staff.

5. A folding rod-plumbing level consisting of two parts secured together by a hinge or pivot joint, and having two faces parallel to the axial line of said joint, and two spirit-levels in planes at right angles to said axial line, one of said parts being formed with a perforation and the other with a hook for receiving a clasping-band, substantially as set forth.

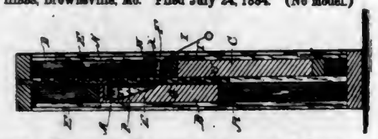
312,267. BURNER FOR LAMPS. ELIAS J. HALE, Foxcroft, Me. Filed June 17, 1884. (No model.)



Claim.—1. A lamp-burner provided with lips or deflectors projecting from the cone or body of such burner toward the wick-tube at opposite parts thereof and directly underneath the end portions of the flame-slot of the cone, and with a wick-tube greater in width or diameter than the width of the said slot, so as to extend in opposite directions beyond the sides of the slot, all being substantially as set forth.

2. The two deflectors *b b*, in combination with and fixed to a supporting-ring, *d*, the whole being for application to a burner, substantially as described.

312,268. FASTENING FOR MEETING-RAILS OF SASHES. JAMES C. HIBBS, Brownsville, Mo. Filed July 24, 1884. (No model.)



Claim.—The combination, with the frame and the upper and lower sashes thereof, and between said sashes the dependent bar D, provided with ratchets or apertures E, the locking-casing F, provided with the longitudinal sliding bolt G, having the spring I', the projection H on said bolt, provided with the cord, wire, or chain I, extending over the pulley K, of the lock-casing M, provided with a bolt, N, pressed normally forward by a spring, P, to engage the ratchets or apertures of the dependent bar, the key-hole T, adapted to receive a key, by means of which the bolt N may be drawn so as to permit the upper sash to be adjusted, and the shoulder U of the depending bar, engaging the bolt G, to lock the lower sash when down, as shown and described.

312,269. ILLUMINATED TILE. EBEN N. HIGLEY, Great Falls, N. H. Filed Oct. 9, 1884. (No model.)



Claim.—1. In a floor or pavement, the combination of slabs or tiles of glass or similar translucent or transparent material with means, substantially as shown, for illuminating the said tiles from below by reflected artificial light, as and for the purpose shown and set forth.

2. The combination, in a floor or pavement, of slabs or tiles of glass or similar transparent or translucent material, inclined reflectors arranged below said slabs or tiles, and lamps supported below the slabs or tiles, throwing their light into the reflectors, as and for the purpose shown and set forth.

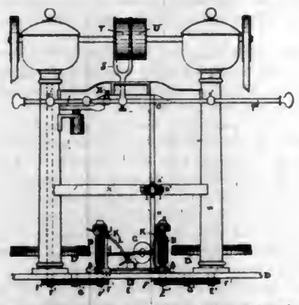
3. The combination of the girders or flooring-timbers, the slabs or tiles of glass or similar transparent or translucent material, supported at their edges upon the upper edges of the girders, inclined reflectors secured at their upper edges under the edges of the slabs or tiles, and at their lower edges to frames having downwardly-opening hinged doors, inclined braces supporting the reflectors, and lamps or similar producers of artificial light secured in the frames, as and for the purpose shown and set forth.

312,270. INSECTICIDE. JOHN B. HOAG, Judsonia, Ark. Filed Sept. 29, 1884. (No specimens.)

Claim.—The herein-described composition of matter, consisting of capsicum, (African,) (cayenne-pepper,) American hellebore-root, (*Veratrum viride*,) paris-green, sugar, and carbolic acid, to be used as an insecticide, in the proportions specified.

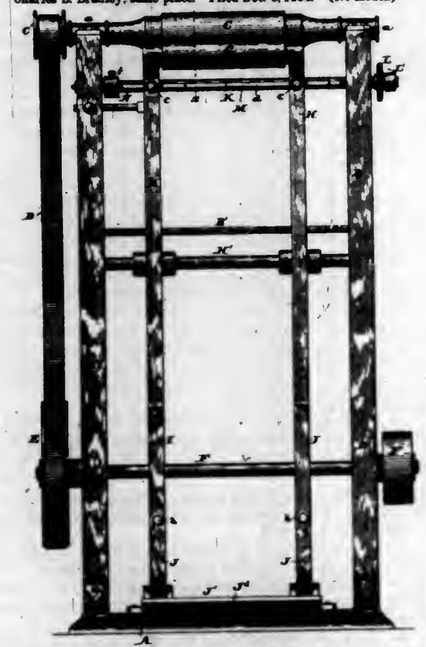
312,271. STOP-MOTION DEVICE FOR WOOL-COMBING MACHINES. JONATHAN HOLDEN, JAMES BURNLEY, and JOSEPH FAWELL, Bradford, County of York, England. Filed Dec. 14, 1883. (No model.) Patented in England Feb. 9, 1883, No. 711.

Brief.—On the breaking of the sliver a block falls between a cam on the bottom of one of the drawing-off rollers and a bent lever pivoted on the center of the combing-table. A catch-lever rests against the bent lever, and by its movement is made to release a spring-actuated belt-shifter.



Claim.—The combination, with the spindles of drawing-off rollers, of the cams or tappets C, stud E, bent lever G, standards I on the extremities of said bent lever, studs J, weighted levers L, provided with blocks or pieces M, catch-lever N, fulcrumed on a cross-stay, spring D'', sliding rod P, provided with a notch, O, spring Q, finger R, and strap-fork S, the combination being and operating substantially as shown and described, and for the purpose set forth.

312,272. MACHINE FOR REDUCING LEATHER TO UNIFORM THICKNESS. WILLIAM W. HUBBARD, Manchester, N. H., assignor to Charles B. Bradley, same place. Filed Dec. 6, 1884. (No model.)

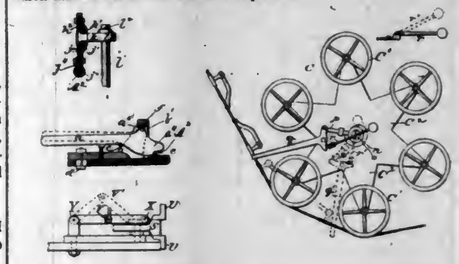


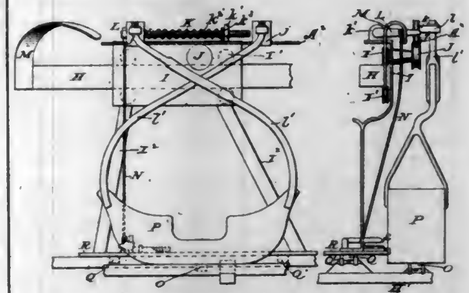
Claim.—1. The combination of an abrading-roll mounted in fixed bearings, a gage-roll mounted in bearings in the ends of pivoted levers, a treadle connected with said levers for moving said gage-roll away from the abrading-roll, a pair of set-screws set in said levers for adjusting said gage-roll parallel with the abrading-roll, and a pair of cam or wedge surfaces arranged to co-operate with said set-screws and to be simultaneously adjusted to vary the limit of movement of the gage-roll toward the abrading-roll, substantially as and for the purpose described.

2. The combination of an abrading-roll mounted in fixed bearings, a gage-roll mounted in bearings in the ends of pivoted levers, a treadle connected with said levers for moving the gage-roll toward the abrading-roll, the set-screws *c c*, the grooved shaft K, the bar M, provided with the wedges or cam-surfaces *g g* and the segmental threads *h*, and the nut L, all constructed and arranged to operate substantially as and for the purposes described.

312,273. CABLE TRAMWAY. CHARLES M. HUSON, South Pueblo, Colo. Filed Aug. 27, 1883. (No model.)

Brief.—The cable is guided around a bend or angle, whether in a vertical or horizontal plane, by means of an intermittingly-rotating guide having several radial projections carrying anti-friction devices to engage with the cable, the latter always engaging with the guide at two or more points. The guide is held intermittingly stationary by a lock, all of whose parts lie within the outermost circle of rotation. The locking devices are released by the hanger-supporting clips or by projections extending outwardly from the cable. The clips have journal-bearings formed directly therein for the journal portion of the pendants or hangers, and are fastened to the cable by wide thin clamping-bands. The continuously-traveling carriers coincide intermittingly with platforms or carriers which travel a limited distance, and while they coincide materials or passengers may be transferred from one to the other. The temporary uniting between the two carriers is effected by an arm carried by one and lying in the path of the other, the disengagement being accomplished when said arm is thrown out of said path.





Claim.—1. In a cable tramway, an elevated cable and a carrying-receptacle below the cable, in combination with a clamp rigidly secured to the cable, a depending support connected with the lower receptacle, and a joint between the cable-clamp and the said pendant, having two axes, arranged substantially as set forth.

2. In a cable tramway, the combination of an elevated cable, a carrying-receptacle below the cable, a clamp rigidly secured to the cable and projecting upwardly therefrom, means for supporting the carrying-receptacle, and a joint between the supporting means and the upwardly-projecting clamp, said joint having two axes arranged relatively to each other, substantially as set forth.

3. In a cable tramway, the combination of the elevated cable, an upwardly-projecting clamp or clip, a support extending downward from the clamp or clip and adapted to carry a receptacle or material below, and a joint between said support and the clamp or clip, having two axes arranged relatively to each other, substantially as set forth.

4. In a cable tramway, the combination of a cable, a clip or clamp firmly secured to the cable, a stud or shaft secured to the clip or clamp loosely, whereby it can rock relatively thereto, and a pendant loosely connected to said stud or shaft, whereby it is adapted to swivel relatively thereto, substantially as set forth.

5. In a cable tramway, the combination of the cable, the clip or clamp rigidly secured to the cable, an arm or shaft mounted in the said clamp or clip and having an expanded bearing in the clamp or clip, and

a pendant adapted to carry material or a receptacle below, substantially as set forth.

6. The combination of the cable, the clamp or clip secured rigidly thereto, the stud or shaft mounted within the clamp or clip, the wheel or disk secured to the stud or shaft, and situated within the clamp or clip, a plate arranged to bear against the rear face of the wheel, a plate arranged to bear backwardly upon the wheel to hold it in place, and a pendant secured to or formed with a stud or shaft, substantially as set forth.

7. In a cable tramway, the combination of the cable, the pendant for supporting material or a receptacle below, a plate having a loop which is clamped to the cable, a plate clamped to the aforesaid looped portion, a stud or shaft carrying the pendant, and passing through the second aforesaid plate, and the plate situated behind the inner end of the stud or shaft, the said three plates being arranged, substantially as set forth, to hold the stud or shaft firmly in position relatively to the cable, as described.

8. The combination of the loop or clamp secured to the cable, the stud or shaft *k*, the expanded bearing for said shaft, the sheet-metal plate which lies upon the front side of the said expanded bearing, and the sheet-metal plate which lies upon the rear side, substantially as set forth.

9. A guide for a cable tramway, having two or more independently rocking or rotating pulleys connected together and arranged, substantially as set forth, to rotate together around a common axis, in combination with means for intermittently stopping the rotation of the entire series of pulleys, substantially as set forth.

10. A guide for a tramway-cable having a main rotating frame, a series of two or more wheels arranged to rock or rotate independently upon the said main frame, one or more locks which prevent the rotation of the main frame, and releasing devices lying across the path of the cable for unlocking at intervals the locking devices, substantially as set forth.

11. The combination of a main frame or support adapted to be situated at a bend of a tramway-cable, a series of two or more cable-guides secured jointly to the said main frame or support, and arranged to rock or rotate independently of each other thereon, a stop which prevents the rotation of the main frame or support, means for releasing said stop, and projections secured to the cable for operating the stop-releasing devices, substantially as set forth.

12. A main frame or support adapted to be situated at a bend in a tramway-cable, and carrying a series of two or more projections, which in turn lie in the path of the cable, a shaft or axis about which the said main frame or support can rotate, a stop which prevents the rotation of said frame or support, and means operated by the cable for releasing the said stop, substantially as set forth.

13. A main frame or support adapted to be mounted at the bend of a tramway-cable on an axis transverse to the plane of the cable at that point, and carrying a series of two or more projections in turn lying in the path of the cable, a stop which prevents the rotation of the main frame or support, a lever situated between two of the aforesaid projections, and lying across the path of the cable, and a projection carried by the cable, substantially as set forth.

14. A guide and supporting devices adapted to be situated at a bend of a tramway-cable, it having a main frame mounted upon an axis transverse to the plane of the cable at that point, a stationary stop situated at the center of rotation of the main frame, a sliding bolt carried by the main frame or support, a lever pivoted to the main frame or support and engaging with the said sliding bolt, and having its end arranged to lie at intervals across the path of the cable, substantially as set forth.

15. The combination of the main frame or support adapted to be mounted at a bend in a tramway-cable on an axis transverse to the plane of the cable at that point, and carrying projections which in turn lie in the path of the cable, a stop which prevents the movements of the main frame or support, and a lever pivoted to the main frame or support, and provided with an anti-friction roller which at intervals lies in the path of the cable and engages therewith, substantially as set forth.

16. The combination, with the cable, of a pendant suspended therefrom, an arm secured to the pendant and adapted, substantially as set forth, to loosely support a carrier or receptacle, a lever connected with said arm, and a stationary stop adapted to move said lever, whereby when the latter impinges upon said stop it shall be swung or turned to drop the loosely-supported carrier, substantially as set forth.

17. The combination, with a tramway-cable, of a pendant secured to the cable, an arm connected with the pendant and movable relatively thereto, a carrier-support secured to said arm, and means for automatically turning the said arm to release the carrier or receptacle, substantially as set forth.

18. The combination of the tramway-cable, a carrier or carriage secured thereto, a movable platform, means for automatically uniting the movable platform with the carrier or carriage, and means automatically disconnecting them, substantially as set forth.

19. The combination of a tramway-cable, a car or carriage secured thereto, a movable platform, a stationary track which supports the movable platform, means for automatically connecting the movable platform with the cable car or carriage, and means for disconnecting them therefrom, substantially as set forth.

20. The combination of a tramway-cable, a car or carriage secured thereto, a stationary elevated track, a platform depending therefrom, an arm connected with said platform lying across the cable on one side of the way, a second arm lying across the path of the cable on the other side of the way, and means for disconnecting said arms alternately from the cable, whereby the movable platform is carried in alternate directions, substantially as set forth.

21. The combination of a tramway-cable, a car or carriage secured thereto, a movable platform in the same or nearly the same horizontal plane as the cable car or carriage, an arm carried by the platform and lying across the path of a projection extending outwardly from the cable, it being situated above the movable platform in proximity to the cable, means for automatically connecting the car or carriage with the platform, and means for automatically disengaging them, substantially as set forth.

22. The combination of the tramway-cable, the car or carriage carried thereby, a reciprocating platform, and a guide for the car or carriage, with which guide the latter engages while in proximity to the reciprocating platform, substantially as set forth.

23. The combination of the tramway-cable, the car or carriage secured thereto, a reciprocating platform adapted to be automatically connected with and disengaged from the said car or carriage, and means, substantially as described, for preventing any backward movement of the car or carriage relatively to the platform, substantially as set forth.

24. The combination of the tramway-cable, the car or carriage secured thereto, the movable platform, and a spring which receives the first impact upon the platform from the cable when the car or carriage and the platform are united, substantially as set forth.

25. The combination of a tramway-cable, the car or carriage secured thereto, the movable platform, the devices which connect the cable with the platform at points in proximity to the cable, the devices which effect a connection between the car or carriage and the platform at points below the cable, and means for simultaneously breaking the connection at both places, substantially as set forth.

26. The combination of the tramway-cable, the car or carriage secured thereto, the movable platform, an arm connected with the movable platform an lying across the path of a projection extending outwardly from the cable, the track upon which the movable platform is supported, and a supplemental track inclined relatively to the aforesaid track and lying across the path of the aforesaid arm to effect the disengagement of the platform from the cable, substantially as set forth.

27. The combination of the tramway-cable, the movable platform, a car or carriage secured thereto, the track which supports the movable platform, an arm connected with the movable platform and lying across the path of a projection extending outwardly from the cable, the supplemental locking devices which unite the platform and the car or carriage together, and a bar or rod intermediate between the aforesaid arm and the supplemental locking devices, and arranged, substantially as set forth, to be operated by the said arm to release the latter, as described.

28. The combination of the tramway-cable, a car or carriage secured thereto, a movable platform, a bar or arm carried by the movable platform and lying across the path of a projection extending outwardly from the cable, supplemental locking devices for uniting the car or carriage directly with the platform, and a track or guide for the aforesaid arm inclined relatively to the path of the platform, and connecting means between the said arm and the supplemental locking devices, whereby a simultaneous release of the arm and locking devices is effected.

29. The combination of the tramway-cable, the car or carriage secured thereto, the movable platform, a projection on the car or carriage extending toward the movable platform, a movable stop on the platform against which the said projection impinges, and a movable stop adapted to bear against the side of the projection opposite the first aforesaid movable stop, substantially as set forth.

30. The combination of the tramway-cable, the car or carriage secured thereto, the movable platform, a projection carried by the car or carriage and extending toward the movable platform, the movable stop against which the said projection impinges, a stop adapted to lie behind the said projection, and a yielding support for the last said stop, said support lying in the path of the projection and adapted to be moved thereby, substantially as set forth.

31. The combination of the tramway-cable, the car or receptacle secured thereto, and the movable platform, the stop S, adapted to be impinged upon by the car or receptacle, the toggle-levers for moving the said stop, the rod or link which opens the said toggle-levers, and means, substantially as described, for automatically moving the rod or link.

32. The herein-described means for uniting together the adjacent ends of the cable, it consisting of a block or blocks of metal provided with downwardly-extending loops through which the ends of the cable can be respectively passed inwardly toward each other, in combination with a key or supplemental block, *m*, adapted to be driven in between the ends of the cable and the block, substantially as set forth.

33. The combination, with the cable, of a guide mounted on a horizontal axis at a bend in the cable, and a stop which intermittingly holds the guide stationary, all of the parts of said guide being situated within the outermost circle described by the rotating parts, whereby an open unobstructed space downward from the cable is provided through which the pendants and carriers can pass freely, substantially as set forth.

34. The combination, with the cable, of a guiding device situated at the bend of the cable, it being a rotating main frame or support provided with a series of several lateral extensions, a stop which intermittingly prevents the rotation of the guide, and a stop-releasing mechanism, the aforesaid lateral extensions of the guide being related, substantially as set forth, to the cable, whereby the guide engages at all times at two or more points with the cable, substantially as set forth.

35. The combination, with the cable and the clip secured thereto, of the rotary guide at a bend in the cable, the lock which intermittingly holds the guide stationary, a lever or arm for opening the lock and moving in a plane parallel to that in which the said clip lies, and a lateral extension carried by said lever and situated transversely to the path of the clip, substantially as set forth.

36. The combination, with the cable, of the shaft *n*, the cam or stop *o*, secured to the shaft, the rotary guiding-frame mounted on the shaft *n*, the lever *q*, and the pin or bolt *p*, adapted to engage with said cam, substantially as described.

37. The herein-described clamp or clip for securing a rocking hanger to a cable, it having a main central plate provided with an aperture adapted to have a loosely-mounted rocking arm inserted therein, in combination with a thin clamping-band which surrounds the cable, and both ends of which are bolted or riveted to the said central plate, substantially as described.

38. The combination of a hanger, *l'*, an arm, *l²*, connected to the hanger and movable relatively thereto, the arm *l'*, connected to the said arm *l²*, and a spring, *l³*, which holds said arm *l²* in its normal position.

39. The combination of a hanger, *l'*, an arm, *l²*, connected to the hanger, and having a seat for a detachable freight-carrier, G, and an arm, *l'*, for imparting motion thereto relatively to the hanger, substantially as set forth.

40. The combination of the continuously-traveling carrier, a platform or carrier which intermittently coincides with the said continuously-traveling carrier, and the rising and falling arm L, which moves in planes transverse to the cable into and out of engagement with the traveling parts, substantially as set forth.

41. The combination of the continuously-traveling carrier, a platform or carrier which intermittently coincides with said continuously-traveling carrier, the plate S, the lock which intermittingly holds said plate in position, and the rod or bar N, for opening said lock, substantially as set forth.

42. The combination, with a continuously-traveling carrier, and a platform or carrier which intermittingly coincides with said continuously-traveling carrier, of the plate S, the spring S', the rod N, the bar L, and the cam track or bar M, substantially as set forth.

43. The combination of the continuously-traveling carrier, a carrier which intermittingly coincides with said continuously-traveling carrier, the clip *j*, the rising and falling arm L, moving in planes transverse to the path of the clip, and the cam track or bar M, substantially as set forth.

44. The combination, with the continuously-traveling carrier, and the platform or carrier which intermittingly coincides with the continuously-traveling carrier, of the locking-plate S, the toggle-levers V', and means, substantially as described, for moving the toggle-levers to release the plate, as set forth.

45. The combination, with the continuously-traveling carrier, and the platform or carrier which intermittingly coincides with the continuously-traveling carrier, of the locking-plate S, having an arm or projection, *s⁴*, the lock which intermittingly holds said plate in position to be engaged by the traveling carrier, and devices, substantially as described, for releasing the locking parts, as set forth.

46. The combination, with the continuously-traveling carrier, and the platform or carrier which intermittingly coincides with said continuously-traveling carrier, of the plate S, the toggle-levers which intermittingly hold said plate stationary, the spring S', which draws the plate into the locked position, and devices, substantially as set forth, which release the lock, as described.

47. The combination of the continuously-traveling carrier, the platform or carrier which intermittingly coincides with said continuously-traveling carrier, a lever or bar, L, permanently connected with one of the aforesaid carriers, and arranged, substantially as set forth, to intermittingly engage with the other carrier, and a cam track or guide, M, in the path of the said lever or bar L, substantially as set forth.

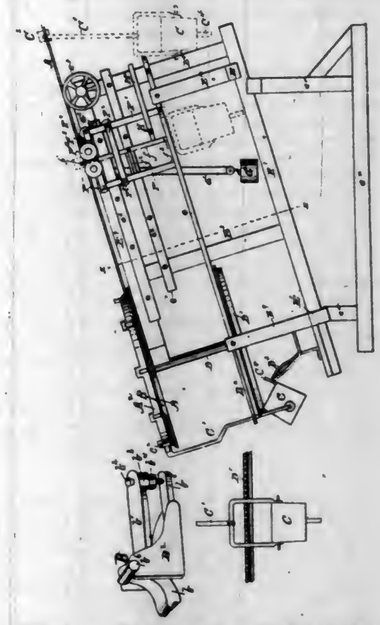
48. The combination of the continuously-traveling carrier, the platform or carrier which intermittingly coincides with the said continuously-traveling carrier, the lever or bar L, and a spring, *l³*, arranged, substantially as set forth, to resist the movement of the lever or bar L, as described.

49. The combination of a continuously-traveling carrier, the platform or carrier which intermittingly coincides with said continuously-traveling carrier, the connecting lever or bar L, arranged, substantially as set forth, to both rock and slide in the direction of the axis on which it rocks, and the spring *l³*, which resists the sliding motion, substantially as set forth.

50. The combination of the continuously-traveling carrier, the platform or carrier which intermittingly coincides therewith, a lever or bar, L, which intermittingly connects the two carriers, a movable frame connected to the second aforesaid carrier or platform, and a stationary frame having a bar, H, which engages on two lines with the movable frame, substantially as set forth.

312,274. DEVICE FOR LOADING AND UNLOADING TRAMWAYS.

CHARLES M. HUSON, South Pueblo, Colo. Filed Apr. 28, 1884. (No model.)



Claim.—1. In a cable tramway, the combination of a cable, a guide-wheel, a reciprocating carriage, and a guide for the reciprocating carriage, arranged substantially as set forth, whereby the carriers attached to the cable are by the carriage delivered to said guiding-wheel, substantially as set forth.

2. In a cable tramway, the combination of a cable, a guiding-wheel, a carrier secured to the cable, means, substantially as set forth, in proximity to said guiding-wheel for unloading said carrier, a reciprocating carriage which can be detachably connected with the carrier, and a guide for said carriage, which is arranged substantially as set forth, whereby the carriage remains connected with the carrier until the latter is brought into engagement with the devices which unload the carrier, substantially as set forth.

3. In a cable tramway, the combination of a cable, a carrier secured to the cable, means, substantially as set forth for automatically unloading said carrier, and means, substantially as set forth, for throwing the carrier out of its normal position relatively to the cable immediately before coming into engagement with the devices which unload it, substantially as set forth.

4. In a cable tramway, the combination of a cable, a carrier secured to the cable, mechanism, substantially as set forth, for unloading said carrier, having a wheel revolving about an axis inclined to the horizon, and devices, substantially as set forth, which, before the cable-carrier comes in contact with the mechanism which unloads it, throw said cable-carrier out of its normal position relatively to the cable, substantially as set forth.

5. In a cable tramway, the combination of a cable and guiding devices, substantially as set forth, which hold the cable in a position inclined to the horizon, a carrier secured to the cable, mechanism, substantially as set forth, for unloading the cable-carrier, and devices arranged, substantially as set forth, to throw the cable-carrier out of its normal position relatively to the cable before it is acted upon by the unloading devices, substantially as set forth.

6. In a cable tramway, the combination of the cable, a carrier secured to the cable by a support which can swing into a line inclined to the cable, means, substantially as set forth, for unloading the cable-carrier, and devices, substantially as set forth, which, before the cable-car-

rier is acted upon by the unloading mechanism, vary the line of inclination of the support of the cable-carrier relatively to the cable, substantially as set forth.

7. In a cable tramway, the combination of the cable, the carrier secured to the cable by a support adapted to move relatively to the cable, means, substantially as set forth, for unloading the cable-carrier, and a traveling carriage in the path of the carrier-support, and arranged substantially as set forth, whereby it temporarily engages with the carrier-support and remains connected therewith until the carrier-support comes into engagement with the unloading devices.

8. The combination of the cable, a carrier secured to the cable, a cam or track which turns the carrier relatively to its support to unload it, and mechanism, substantially as set forth, which throws the cable-carrier out of its normal position relatively to the cable before it is acted upon by the said cam or track of the unloading devices, substantially as set forth.

9. The combination of a cable, a carrier secured to the cable, a support for the cable, which holds it in a line inclined to the horizon, mechanism, substantially as set forth, for unloading the said carrier, and a movable carriage which travels on lines inclined to the horizon, and adapted, substantially as set forth, to throw the cable-carrier out of its normal position relatively to the cable before it is engaged with the unloading mechanism, substantially as set forth.

10. The combination of a cable, a carrier secured to said cable, mechanism, substantially as set forth, for unloading said carrier, and reciprocating devices, substantially as set forth, which throw the carrier out of its normal position relatively to the cable before coming into engagement with the unloading mechanism, and a weight or its equivalent for moving the said reciprocating devices in one direction, substantially as set forth.

11. The combination, with the cable, its carrier, and unloading devices, substantially as set forth, of a carriage, the anti-friction wheels upon the carriage, for supporting it, and anti-friction wheels for the cable, substantially as set forth.

12. The combination, with the cable, the carrier secured thereto, and mechanism, substantially as set forth, for unloading the carrier, of the carriage which intermittingly engages with the carrier, and supporting and guiding devices, substantially as set forth, on the carriage for receiving the cable and holding it properly relatively to the carriage, substantially as set forth.

13. The combination, with the cable, the carrier secured to the cable, and mechanism, substantially as set forth, for unloading said carrier, of the carriage which intermittingly engages with the carrier, it being provided with a stop which engages with the carrier, and means, substantially as set forth, for holding said stop across the path of the carrier, and arranged substantially as set forth, whereby said stop-holding devices are permitted to automatically release the carrier.

14. The combination, with the cable, the carrier secured to the cable, and means, substantially as set forth, for unloading the carrier, of the traveling support f', adapted to lie across the path of the carrier, and devices, substantially as set forth, for automatically throwing said traveling stop out of said path, substantially as set forth.

15. The combination, with a cable, a carrier secured to the cable, and mechanism, substantially as set forth, for unloading said carrier, of a traveling stop, f', lying across the path of the carrier in front thereof, and a stop adapted to lie across the path of the carrier in rear thereof, whereby it is held firmly in proper position, substantially as set forth.

16. The combination, with a cable, a support which holds the cable in a line inclined to the horizon, a carrier attached to the cable, substantially as set forth, whereby it can swing into several positions relatively thereto, and mechanism, substantially as set forth, for unloading said carrier, of an inclined traveling support, as at f, carrying two stops in different vertical lines, substantially as set forth, whereby the carrier-support can be thrown out of its normal position relatively to the cable.

17. The combination of a cable, a carrier secured to the cable, a traveling support lying across the path of the carrier, a hopper or receptacle moving with said traveling support, a movable holder for retaining material in said hopper or receptacle, and mechanism, substantially as set forth, for moving said holder when the carrier attached to the cable is in conjunction with the hopper or receptacle, substantially as set forth.

18. The combination of a cable, a carrier secured to the cable, a bin or receptacle which travels for a limited distance in proximity to the cable, a holder which prevents the material from escaping from said bin or receptacle, means, substantially as set forth, adapted to be temporarily engaged with the cable for moving the holder, devices for holding the carrier, which is secured to the cable properly relatively to the holder or receptacle, and devices, substantially as set forth, which are temporarily connected with the cable for moving the holder which retains the material in the bin or receptacle, whereby said material can escape therefrom into the carrier that is attached to the cable, substantially as set forth.

19. The combination of the cable, the carrier secured to the cable, a bin or receptacle adapted to be made intermittingly stationary, means, substantially as set forth, for automatically delivering the material from said bin or receptacle to the carrier secured to the cable, and a carriage to which said bin or receptacle is secured, said carriage lying partly upon one side of the cable and partly upon the other, substantially as set forth.

20. The combination of the cable, the carrier secured to the cable, a stop adapted to be impinged upon by the carrier secured to the cable, and to be intermittently moved thereby with the speed of the cable, a bin or receptacle which is connected with the said intermittingly-traveling stop, and mechanism, substantially as set forth, for automatically releasing the material in the bin or receptacle to permit it to pass to the carrier secured to the cable, substantially as set forth.

21. The combination of the cable, the bin or receptacle which while at rest initially receives the material, a stop connected with the said bin or receptacle and arranged to be impinged upon by the carrier which is secured to the cable, and a second stop which prevents any backward movement of the carrier secured to the cable during the transfer of the load from the bin or receptacle thereto, substantially as set forth.

22. The combination of the cable, the carrier secured to the cable, the bin or receptacle which initially receives the material, means, substantially as set forth, for automatically engaging said bin or receptacle with the cable, whereby it is compelled to travel with the cable, means, substantially as set forth, for disengaging it, and a weight or its equivalent for returning it to its normal position, substantially as set forth.

23. The combination of the cable, the carrier secured to the cable, a bin or receptacle which receives the material before it is transferred to the cable-carrier, and a frame which supports the said bin or receptacle and is adapted to travel, it having two tracks or two sets of guiding devices, whereby it is held properly in position, substantially as set forth.

24. The combination of the cable, the carrier secured to the cable, a bin or receptacle which receives the material before it is delivered to the carrier, a holder which retains the material in said bin or receptacle, and a cam or track which moves the said holder to release the material from the bin or receptacle, substantially as set forth.

25. The combination of the cable, the carrier secured to the cable, the bin or receptacle which initially receives the material, and which is adapted to travel from a limited distance, and the guiding mechanism for the carrier, which is provided with flaring bars or plates, one upon one side of the carrier and the other upon the other, whereby said carrier is held properly laterally, substantially as set forth.

26. The combination of the cable, the carrier secured to the cable, the guiding-bars, and a stop, m, on the front of the carrier, and to a stop behind the carrier, substantially as set forth.

27. The combination of the cable, the carrier secured to the cable, a bin or receptacle, and the movable frame which holds the bin or receptacle, said frame surrounding the cable and the carrier secured thereto, substantially as set forth.

28. The combination, with the traveling cable, of the traveling carriage having the bin or receptacle secured thereto, and means, substantially as set forth, operated by the cable, for releasing the material in the bin or receptacle, substantially as set forth.

29. The combination, with the cable and a traveling carrier or receptacle, C, of the bar f^3, arranged to lie across the path of the carrier, substantially as and for the purposes set forth.

30. The combination of the cable, a traveling carrier or receptacle, C, the bar f^3, which lies across the path of the carrier, and the bar f', substantially as and for the purposes set forth.

31. The combination of the cable, a carrier or receptacle, C, the bar f^3, the bar f', and an intermediate connecting device which joins said bars together, substantially as set forth.

32. The combination of the cable, a carrier or receptacle, C, the bar f^3, and the lock f^4, which intermittingly holds the bar f^3 in the path of the cable, substantially as set forth.

33. The combination of the cable, a carrier or receptacle, C, the bar f^3, which intermittingly lies across the path of the carrier, and a support for the bar f^3, which throws it to one side of the path of the carrier, substantially as set forth.

34. The combination of the cable, a traveling carrier or receptacle, C, the bar f^3, which intermittingly lies across the path of the carrier, and a stop or bar, H, which intermittingly lies behind the carrier, substantially as and for the purposes set forth.

35. In an unloading device for a tramway cable, the combination of the cable, a traveling carrier or receptacle, C, and the bar f', which intermittingly lies across the path of the carrier, and which is situated in proximity to the cable, substantially as and for the purposes set forth.

36. The combination of the cable, a traveling carrier or receptacle, C, a bar, f^3, which lies intermittingly in front of the carrier, a bar, as at e, which lies on one side of the carrier and prevents it from moving in that direction, and a bar, as at e', upon the other side of the carrier, which prevents it moving in the direction of the last said bar, whereby the carrier can be held properly in position, substantially as set forth.

37. The combination of the cable, a traveling receptacle or carrier, C, a hopper, O, and a bar which intermittingly lies in front of the carrier and is connected with said hopper, whereby it is adapted to hold the carrier and the hopper together intermittingly, substantially as set forth.

38. The combination of a cable, a carrier or receptacle, C, an intermittingly-movable hopper, O O', a stop or bar which intermittingly lies across the path of the carrier and is secured to the said hopper, and an opening and closing door for the hopper, substantially as set forth.

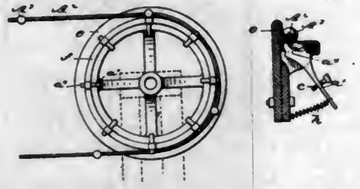
39. In a loading device for cable tramways, the combination of a cable, a traveling carrier or receptacle, an intermittingly-movable frame or carriage provided with a receptacle to hold the load which is to be transferred to the carrier, and a bar or stop connected with the frame or carriage, with which bar or stop the carrier or a traveling projection engages to effect a temporary engagement between the cable and the frame or carriage, substantially as set forth.

40. The combination, with a series of traveling buckets or carriers, of a series of two or more dumpers, I, said carriers and dumpers being constructed and arranged relatively to each other substantially as set forth, whereby certain of the carriers are dumped at one point and certain other carriers at other points.

41. The combination, with the series of traveling buckets or carriers, each having one or more pins or projections, of a series of dumpers, each having a portion lying in the path of the pins or projections on certain carriers and out of the path or paths of the projections on certain other carriers, substantially as set forth.

42. The combination of a dumper, a traveling bucket or carrier pivotally supported by one or more depending arms, and a bar or bars, as at e, which steady the said downwardly-depending arm while the carrier is passing the dumper, substantially as set forth.

312,275. WHEEL FOR BELTS OR CABLES AND MEANS FOR DRIVING THEM. CHARLES M. HUSON, Denver, Colo. Filed July 23, 1884. (No model.)



Claim.—1. In a cable tramway, the combination, with a terminal or other wheel for guiding the cable, of one or more levers movable relatively to the wheel, each provided with a guiding or engaging face for the cable, and situated, substantially as set forth, to be moved out of the path of the cable by projections carried by the latter, as described.

2. In a cable tramway, a terminal or other wheel having a lever movable relatively to the wheel, a portion of which lies in the path of the cable, and is provided with a face for engaging therewith, in combination with a cable having outwardly-extending projections adapted to press radially inward and move the said lever out of the path of the cable, substantially as set forth.

3. The combination, with the cable having upwardly-extending projections for supporting the receptacles or carriers, of a terminal or other wheel for guiding the cable, having a flange lying, substantially as set forth, parallel with the plane of the cable, and one or more levers shaped and adapted, substantially as set forth, to engage with the free portions of the cable without moving, and to yield when pressed by the aforesaid projections upon the cable, as described.

4. In a cable tramway, the combination of a cable, clips or projections carried thereby, a wheel in contact with which the cable passes, a flange or abutment thereon stationary relatively to the wheel, and which resists the inward pressure of the cable, and movable levers or abutments on the wheel against which the plain portions of the cable bear, but which at the approach of the aforesaid projections yield and are moved out of the way thereof, substantially as set forth.

5. In a tramway cable, the combination of a cable, clips or projections carried thereby, a wheel in contact with which the cable passes, movable levers on the wheel, each having a cable-gripping face or edge, and an opposing cable-gripping face, the gripping-faces being so situated relatively to each other as to form a throat for the cable, and the lever being arranged to swing toward the opposing gripping-face to permit the passage of the aforesaid projections carried by the cable, as set forth.

6. In a cable tramway, the combination of the cable, clips or projections carried thereby, a wheel in contact with which the cable passes, and gripping-levers on said wheel, each having its cable-engaging portion shaped, substantially as set forth, to form a recess for the cable, and adapted to swing in the direction of the plane of the cable when moving out of the path of the projections on the cable, substantially as set forth.

7. In a cable tramway, the combination of the cable, the clips or projections carried thereby, the wheel A, the flange or abutment f, and gripping-levers a a^4 projecting outwardly from the part f, and arranged to yield inwardly, substantially as set forth.

8. In a cable tramway, the combination of the cable, clips or projections carried thereby, a wheel in contact with which the cable passes, the gripping-levers, each having a part lying within the path of the said clips or projections, and a pivot for said levers situated to have the cable-engaging portion of the lever between the pivot and the cable, substantially as set forth.

9. In a cable tramway, the combination of the cable, clips or projections carried thereby, a wheel in contact with which the cable passes, the levers on the wheel, each having the cable-engaging surface, and the part a^4, which engages with the projections on the cable, and the pivot arranged to have the part a^4 lying between the pivot and the surface which engages with the cable, substantially as and for the purposes set forth.

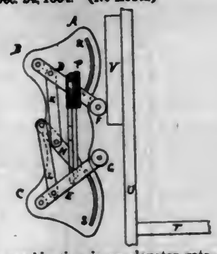
10. In a cable tramway, the combination of the cable, clips or projections carried thereby, a wheel in contact with which the cable passes, a series of gripping-levers, each carried by and moving upon the wheel, and a flange through which the said levers project, said parts being arranged substantially as set forth, whereby the plain portions of the cable are engaged by said levers, but the latter yield to permit the clips or projections on the cable to bear against the wheel-flange, as described.

11. The combination, with a power-wheel, of a friction-wheel connected with said power-wheel having two friction-faces, two friction-pinions bearing oppositely to each other against said friction-faces, and means, substantially as described, for drawing toward each other the friction-pinions and forcing them against the friction-wheel, substantially as set forth.

12. The combination, with a driven wheel, of the wheel m, having two opposite friction-surfaces, two friction-pinions, n n', bearing oppositely to each other against said wheel m, the power-transmission wheels p p', and means for drawing toward each other the pinions n n' and forcing them against the friction-wheel, substantially as set forth.

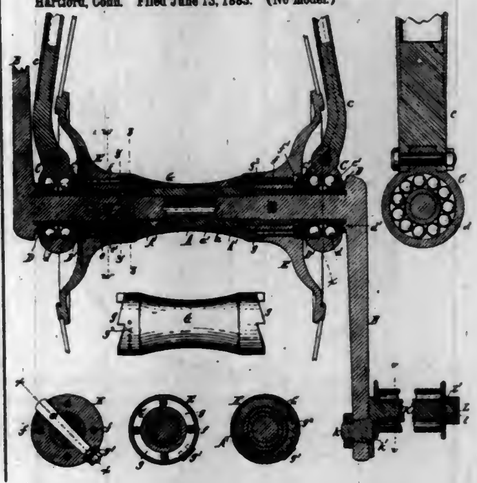
13. The combination, with a driven wheel, of a friction-wheel, m, a friction-pinion, n, and a threaded rod adapted, substantially as set forth, to force the pinion n more or less tightly against the wheel m, substantially as set forth.

312,276. AUTOMATIC ELEVATOR-GATE. ROBERT LADE, Holyoke, Mass. Filed Dec. 24, 1884. (No model.)



Claim.—The combination, in an elevator-gate, of the block V, rolls F and G, arms D and E, connecting-bars K and L, latch H, gate-lever N, bridge M, bar P, and bearing Q, substantially as and for the purpose set forth.

312,277. BICYCLE. EMMIT G. LATTA, Friendship, N. Y., assignor, by direct and mesne assignments, to the Pope Manufacturing Company, Hartford, Conn. Filed June 13, 1883. (No model.)



Claim.—1. A sectional axle for bicycle-wheels, composed of a tubular central portion and end portions secured in the central portion by screw-threads, and provided at their inner ends with notches *a'*, substantially as set forth.

2. The combination, with an axle, of a bearing-box, collars fitted loosely on the axle, and balls interposed between the collars and the grooved box, said collars being adapted to turn with the axle when the parts are in their normal condition, and to form a stationary bearing for the axle when the friction between the collars and the box becomes greater than that between the axle and the collars, substantially as set forth.

3. The combination, with an axle, of two bearing-boxes, a hub arranged on the axle between said bearing-boxes, collars mounted on the axle on both sides of the hub, and mechanism whereby both collars can be simultaneously adjusted lengthwise on the axle, substantially as set forth.

4. The combination, with an axle, of a bearing-box, collars fitted loosely on the axle, balls interposed between the collars and the box, and sliding pins or bolts bearing against one of said collars, and mechanism whereby said pins are adjusted, substantially as set forth.

5. The combination, with an axle, of a bearing-box, collars fitted loosely on the axle, balls interposed between the collars and the box, a perforated hub, sliding pins bearing against one of said collars, and a sleeve having cone-shaped or inclined ends whereby said pins are adjusted, substantially as set forth.

6. The combination, with a crank, of a pedal having a pin, K, and eccentric fastening-bolt *k*, and an automatic locking-lever, M, substantially as set forth.

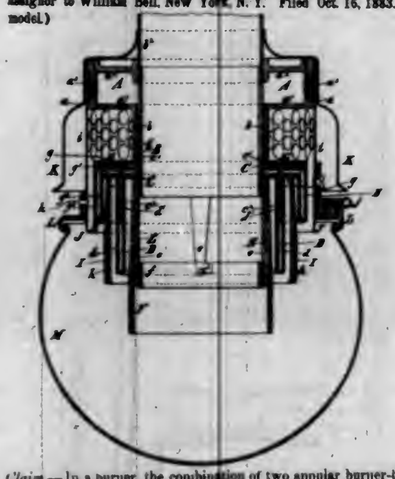
7. The combination, with a rotary main crank, of an auxiliary crank fulcrumed upon the main crank, and having a pedal mounted in its outer end, and a locking device for holding said auxiliary crank in the adjusted positions upon the rotary main crank, substantially as set forth.

312,278. CHURN-POWER. JOSEPH A. LAWRENCE, Sherman, Tex. Filed Nov. 26, 1884. (No model.)



Claim.—In a churn-power, the bars A A', the latter bar being curved at its upper end, and, in connection with the bracket D, forming guides for the shaft E, said bars forming journals for the shaft I, said shaft having secured to its inner and outer ends the crank-wheel H and fly-wheel J, respectively, in combination with the pitman K, for operating the dasher-shaft, having its ends suitably secured to said shaft and crank-wheel, and the gearing herein described for operating the same, substantially as set forth.

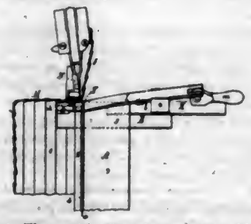
312,279. GAS-BURNER. ANDREW B. LIPSEY, West Hoboken, N. J., assignor to William Bell, New York, N. Y. Filed Oct. 16, 1883. (No model.)



Claim.—In a burner, the combination of two annular burner-tips or circular series of burner-tips, arranged in such manner that the inner burner-tip or series of burner-tips shall extend beyond the outer burner-tip or series of burner-tips a distance approximately corresponding to the length of the flame intended to be produced by the outer burner-tip or series of burner-tips, thereby forming one long flame approximate in length to the lengths of the two flames, and a deflector whose sides diverge, arranged between the burner-tip or series of burner-tips, so constructed that it will direct air and cause it to impinge against the inner side of the flame from the outer burner-tip or series of burner-tips and the outer side of the flame from the inner burner-tip or series of burner-tips, substantially as specified.

312,280. MECHANISM FOR SEWING LININGS OR SWEAT-BANDS INTO HAT-BODIES. JESSE A. LOCKE, Milford, Mass. Filed June 17, 1884. (No model.)

Brief.—The lower guide-arm passing under the sweat-band, the tipped part passing over its edge within the hat-body, is assisted by the coacting part of the fulcrumed lever, the cord of the sweat-band going directly between the two guides proper and directing the band along in the machine. After the sweat-band is stitched to the hat, it is turned or folded back within the hat-body.



Claim.—1. The combination of a sewing-machine and an arched bed-plate, B, applied thereto as described, with the stationary guide G, having the lip *w* projecting from the inner edge of the guide, and fulcrumed guide-lever I, provided with the cammed lever *m*, and applied to such bed-plate, all being arranged substantially and for the purpose as set forth.

2. The combination of a sewing-machine and an arched bed-plate, B, applied thereto, with the stationary guide G, having the lip *w* projecting from the inner edge of the guide, and the plate K, fixed to the said bed-plate, and with the guide-lever I, fulcrumed to such plate, and provided with the cammed lever *m*, all being substantially and to operate as and for the purpose set forth.

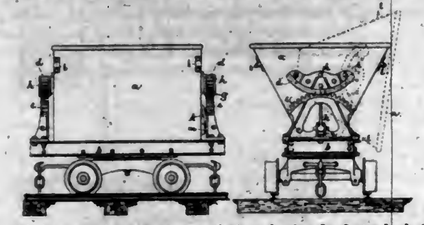
3. The combination of a sewing-machine, the arched bed-plate B, applied thereto as described, the stationary guide G, having the lip *w* projecting from the inner edge of the guide, the plate K, fixed to the bed-plate B, the guide-lever I, fulcrumed to plate K, the cammed lever *m*, fulcrumed to lever I, the guide G and the guide-lever I being at a fixed distance apart, whereby the various portions of the device bear upon and hold the parts to be sewed, as set forth.

312,281. FILTER. JULES MALLIÉ, Paris, France. Filed Nov. 1, 1884. (No model.)



Claim.—The filter F, rigidly connected with the cover A, having a seat, *s*, and supply-pipe leading to the interior of said filter, in combination with the loose valve B, the stem of which rests on the inner side of the filter, thereby holding said valve away from the seat, all arranged to let the valve down upon its seat in case the filter should break, substantially as herein shown and described, for the purpose specified.

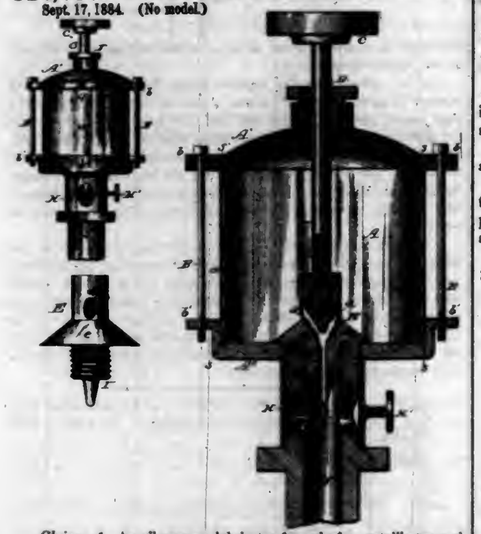
312,282. DUMPING-CAR. WILLIAM J. MARCH, Brooklyn, N. Y., assignor to himself and JUAN G. RIBON. Filed Sept. 8, 1884. (No model.)



Claim.—1. A wagon or car platform having fixed standards for supporting a tilting body, said standards being constructed with bearing-surfaces in the form of a segment of a circle, elevated above a portion of the load and provided with spur-teeth, in combination with a body having bearing plates or fixtures of corresponding form secured to the ends of said body, as described, whereby a continuous and secure bearing is obtained, that strengthens the adjacent parts and allows an extended tilting movement of the body, substantially as described.

2. In a dumping wagon or car having a tilting body, a locking attachment for securing the body in its upright position, consisting of a pivoted cam-lever and stop-plate, constructed and arranged to operate substantially as described.

312,283. LUBRICATOR. MICHAEL MCMULLIN, Denver, Colo. Filed Sept. 17, 1884. (No model.)



Claim.—1. An oil-cup or lubricator formed of a metallic top and bottom, attached to a cylindrical glass side by means of shoulders and screw-rods, as shown, and having an opening at top to admit oil, which opening is closed by a conical screw-threaded packing, said packing being perforated to allow the passage of the regulator, in combination with the flanged and channeled plug and pointed regulator, all substantially as described.

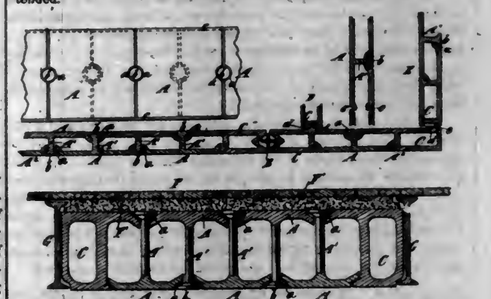
2. In an oil-cup, the combination of the arched top A', having an opening to admit oil, said opening being closed by the perforated conical screw-packing D, with the glass cylinder *a*, the bottom A^2, shoulders *b* and *b'*, the washers *s'*, the screw-rods B, the hollow plug E, and the regulator C, all constructed and operating as described.

3. In an oil-cup, the combination of the top A', having oil-opening and screw-plug D, the glass side or cylinder *a*, the bottom A^2, provided with opening to receive the screw-plug E, and pipe J, having flange *e*, channels *d*, and feed-pipe I, and the regulating device C, all substantially as shown and described.

4. The combination, in an oil-cup or lubricator, of the metallic bottom A^2, having a screw-threaded opening to receive the pipe J, and with side *a* integral with the bottom, and having an opening therein to inspect the state of the oil, closed by a strip of glass, L, with the regulator C, the top A', arranged to screw onto the side *a*, and the screw-plug E, the latter provided with flange or shoulder *e*, channels *d*, and feed-pipe I, all as shown and described.

312,284. FIRE-PROOF PARTITION AND CEILING. CHARLES METTAM, Bayonne, N. J. Filed May 8, 1882. (No model.)

Brief.—Ceiling is formed of tiles constructed with recesses in their edges receiving the heads of posts or ties extending from one face of the hollow partition or ceiling to the other, and longer than the thickness of the partition. Strengthening-posts extend through recesses in the adjacent edges of the tiles; provides also a hollow tile having one side extended.



Claim.—1. The hollow partition or ceiling herein described, composed of tiles each having a rearwardly-projecting post or tie greater in length than the thickness of the tile, and having notches in its opposite edges, the notches in adjacent tiles on each face of the hollow partition or ceiling forming holes or sockets to receive the ends of the posts or ties projecting from the tiles which form the opposite face of the hollow partition or ceiling, substantially as and for the purpose herein described.

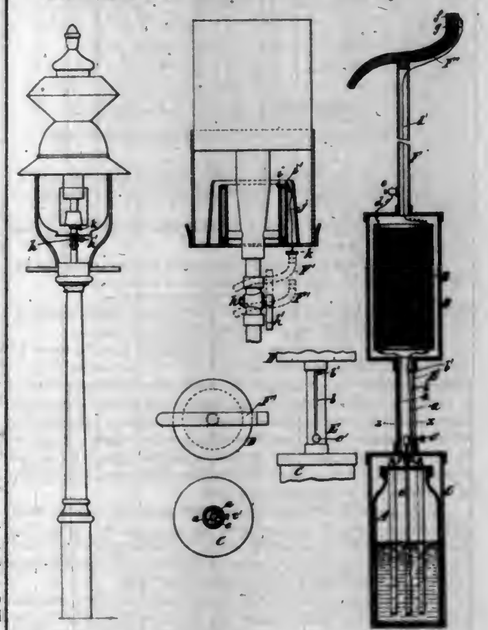
2. A tile, A, having a rearwardly-projecting post or tie, A', greater in length than the thickness of the tile, and also having notches in its opposite edges, substantially as and for the purpose herein described.

3. The tile having countersunk or recessed notches *a* in opposite edges, and provided with the rearwardly-projecting post or tie A', greater in length than the thickness of the tile, and having the head or flange *b*, substantially as and for the purpose herein described.

4. The hollow tile C, one side of which is extended, substantially as and for the purpose specified.

5. In a wall composed of tiles, the combination of adjacent hollow tiles C, having recesses in their vertical meeting edges, and an upright post or rod in the cavity or space formed between said tiles, substantially as herein described.

312,285. MEANS FOR LIGHTING LAMPS. SYLVANUS E. MILLER, Jersey City, N. J., assignor to William Bell, New York, N. Y. Filed Feb. 6, 1884. (No model.)



Claim.—1. In a portable lamp-lighting apparatus, the combination of a source of electricity, an induction-coil connected therewith, and an electric conductor or conductors having terminals insulated from each other, said apparatus being adapted for use in conjunction with a lamp having electrical conductors extending to the burner in such manner that a current of electricity may be conducted from the induction-coil to the burner, substantially as specified.

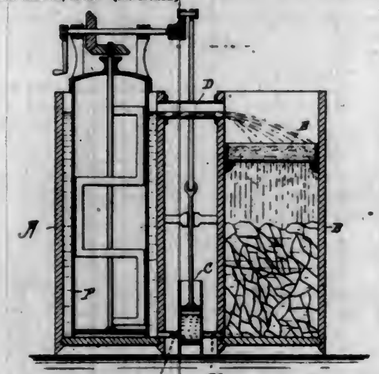
2. In a portable lamp-lighting apparatus, the combination of a source of electricity, and an electrical conductor or conductors having terminals insulated from each other, said apparatus being adapted for use in conjunction with a device for turning on gas to a lamp, said device having an electrical conductor or conductors extending to the burner, whereby when the gas is turned on a current of electricity will be conducted to the lamp, substantially as specified.

3. In a portable lamp-lighting apparatus, the combination of a battery and induction-coil arranged in separate cases connected by an intermediate tube, a tube or rod extending from the upper case, a device suitable for turning on the gas at the burner, an electrical conductor connecting said device with the induction-coil, and another electrical conductor extending from the induction-coil, and having a terminal insulated from the device for operating the gas-cock, all being so arranged that gas may be turned on and a current of electricity transmitted to ignite gas escaping from the burner, substantially as specified.

312,286. **PROCESS OF MANUFACTURING TARRED ROPES AND YARNS.** ALPHEUS W. MONTGOMERY, New York, N. Y. Filed Nov. 2, 1883. (No specimens.)

Claim.—The process herein described of treating rope with tar to cause it to absorb the more volatile portions thereof, which process consists of heating the tar to a temperature just high enough to render it fluid, but not high enough to expel its lighter oils, and of then introducing into the tar bath rope raised to a temperature higher than that of the tar, to produce a tarred rope which is limber and pliable at all temperatures, substantially as described.

312,287. **ICE-CREAM FREEZER.** THOMAS A. NAYLOR, Baltimore, Md. Filed Jan. 19, 1885. (No model.)



Claim.—1. The combination of tubs A and B with the pump C, overflow D, and salt-pan E, all arranged substantially in the manner shown and described.

2. The combination of tub A, stationary can F, and water-ingress G, substantially as set forth.

3. The combination of tub B, salt-pan E, arranged above the ice, and water-outlet H, substantially in the manner as set forth.

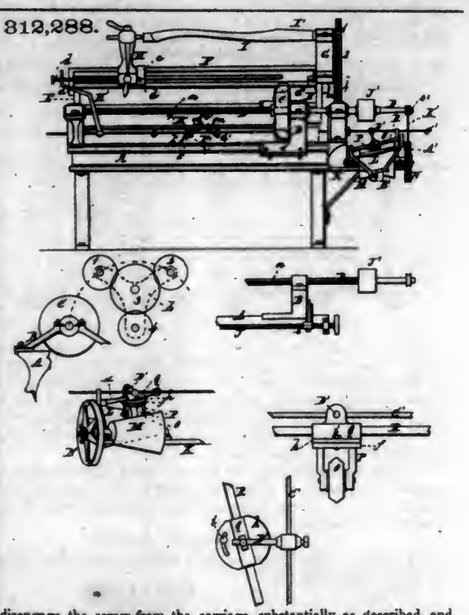
312,288. **LATHE FOR TURNING IRREGULAR FORMS.** GEORGE H. OSER, Chagrin Falls, Ohio. Filed July 16, 1884. (No model.)

Claim.—1. In machines or lathes for turning irregular forms, in combination with the feed mechanism thereof and mechanism for operating the pattern and stick, a pair of conical rollers arranged reversely in respect to each other, and having interposed between them and in tactual relation therewith a frictional transfer-wheel having its axial line of rotation parallel with the axial lines of said conical rollers, and held in in its relation to the said rollers by being suspended from a rod or bar arranged parallel with the approximated faces of the cones, substantially as described, and for the purpose set forth.

2. In a lathe for turning irregular forms, the friction transfer-wheel and vibratory frame A', and suspending the same from the bar R of the frame by means of the adjustable hanger, in combination with the rod C', trip, and carriage carrying the head of revolving cutters, substantially in the manner described, and for the purpose set forth.

3. In combination with the reciprocally-traversing carriage B, carrying the revolving head of cutters, the feed-screw J, attached to the carriage by a clamping two-part nut, and a trip for opening said nut to

312,288.

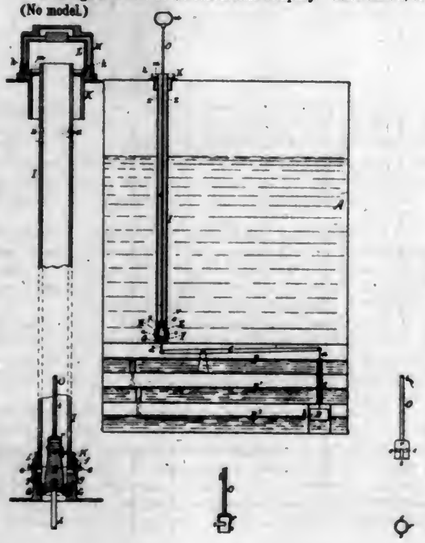


disengage the screw from the carriage, substantially as described, and for the purpose specified.

4. In a lathe for turning irregular forms, the reciprocally-moving carriage B, having journaled therein a head of cutters revolved by a shaft passing centrally through said head, and to which it is secured by a feather-key and groove, and upon which shaft the head of the revolving cutters traverse while being fed to the work or article revolving in the arms of the vibrating frame F, having no longitudinal movement, but stationary in its relation to the reciprocating traversing frame B and revolving cutters, substantially as set forth, and for the purpose described.

5. A pair of conical rollers arranged reversely in respect to each other, and having interposed between them and in tactual relation therewith a transfer friction-wheel having its axial line of rotation parallel with axial lines of the conical rollers and held in position relative to the rollers by being suspended from a rod or bar arranged parallel with the approximated faces of said rollers, in combination with a shifting bar or rod for changing the friction-wheel in its relation to the rollers, substantially as and for the purpose set forth.

312,289. **AIR OR GAS CARBURETOR.** JAS. M. PALMER, Cambridge, Mass., assignor to the Union Carburetter Company. Filed Mar. 3, 1884. (No model.)



Claim.—1. The combination of the key, substantially as described, consisting of the rod *t* and its socketed foot *r*, provided with the two slots, arranged as explained, with the valve-stem *d* and valve E, screw-threaded to engage with each other, and the valve having the tenon *o* and pin *p*, or means of connecting it with a key separable from it, and for revolving it in either of two opposite directions, or raising it out of the carburetor, all being substantially as set forth.

2. The combination of the carburetor A with the tube I, screwed into the valve-seat F, and extending therefrom to the top of the carburetor-tank, and with the said valve-seat F screw-threaded to engage with the neck G of the upper carbureting-chamber, all being substantially as represented.

3. The combination of the ring *m*, hoods L and M, and mouthpiece K, substantially as described, with the carburetor, and with the tube I, adapted to its valve-seat and extended through the tank and the ring, and into the inner of said hoods, essentially as set forth.

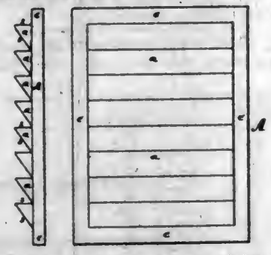
4. The valve-seat F, screw-threaded to engage it with the neck G of the upper carbureting-chamber, B, and provided with the perforated tubular extension H, and the strainer *k*, adapted thereto, in combination with the tank A, and the carbureting-chambers thereof, and with the tube I, extending upward from the said part H to the top of the said tank, all being substantially as represented.

5. The valve-seat F, screw-threaded to engage it with the neck G of the upper carbureting-chamber, B, and provided with the tubular extension H, and with the tube I and strainer *k*, arranged with and applied to such extension, as set forth.

6. The combination of the valve and its stem screw-threaded to engage with each other, the key having with the valve a "bayonet-connection," as described, the tube extending from the valve-seat to the top of the tank of the carburetor, and the valve-seat screw-threaded to engage with the neck of the upper carbureting-chamber, all being substantially and for the purpose as set forth.

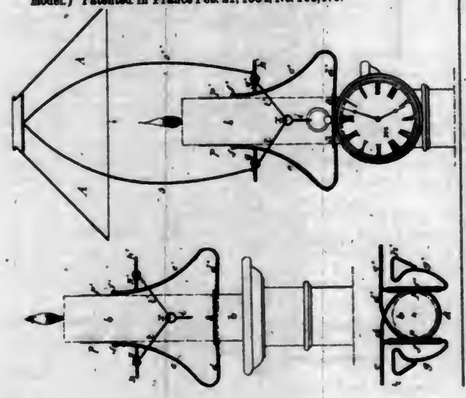
7. The combination of the tank A, and the series of carbureting-chambers arranged beneath it, as set forth, with the tube I, provided with one or more vent-holes, *x*, in its upper part, and screwed into the valve-seat projection, and extended up within the tank and the ring, and into the inner hood at the top of the tank, all being as explained.

312,290. **WINDOW-GLASS.** JAMES G. PENNYCUICK, New York, N. Y. Filed Aug. 12, 1882. (Specimens.)



Claim.—As a new article of manufacture, a window-glass one side of which has a plane surface, while the opposite side is formed with a series of ribs, each of which is formed on one side with a surface at practically a right angle to the body of the glass, while its opposite side is inclined at less than a right angle, substantially as set forth.

312,291. **APPARATUS FOR AUTOMATICALLY EXTINGUISHING CANDLES.** LÉON CORDIER PIDEL, Paris, France. Filed June 4, 1884. (No model.) Patented in France Feb. 21, 1884, No. 160,479.



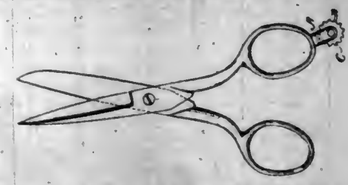
Claim.—1. The apparatus formed of a wire ring, *a*, arms *d d'*, spring branches *c c'*, and horizontal arms *f f'*, all made of one continuous wire, substantially as and for the purpose herein shown and described.

2. The ring *a*, arms *c c'*, horizontal parts *f f'*, ears *g g'*, and eyes *h h'*, combined with the suspenders *t t'* and hook *i*, substantially as herein shown and described.

3. The combination of the ring *a* and arms *c c'* and *f f'* with the ears *g g'*, eyes *h h'*, supports *s s'*, and shade A, substantially as herein shown and described.

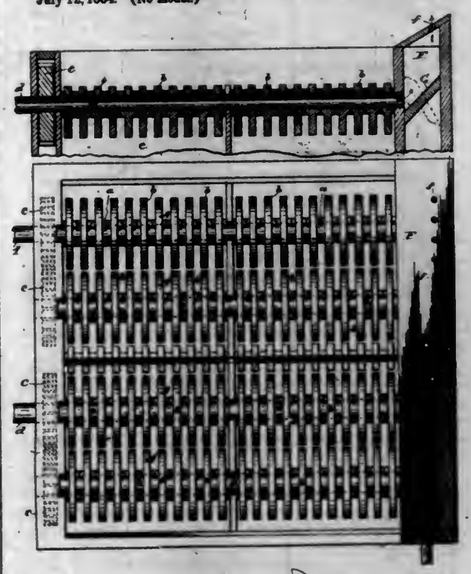
4. The combination of the ring *a* and arms *c c'* and *f f'* with the ears *g g'* and eyes *h h'*, substantially as and for the purposes herein specified.

312,292. **CONVERTIBLE IMPLEMENT FOR CUTTING AND MARKING.** IGNATIUS M. PRIBYL, Chicago, Ill. Filed May 17, 1884. (No model.)



Claim.—As a new article of manufacture, the herein-described convertible implement, the same consisting of the pair of shears having upon one of the handle-nibs a bearing carrying a revolving marker, as set forth.

312,293. **FURNACE-GRATE.** JOHN A. PRICE, Scranton, Pa. Filed July 12, 1884. (No model.)

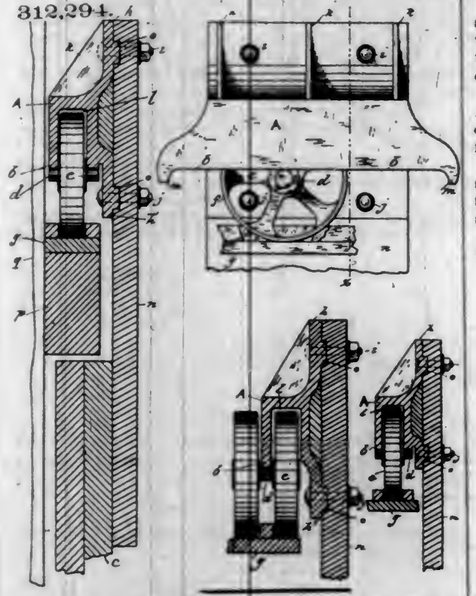


Claim.—The combination of the hollow shafts of the grate-sections, the hollow perforated bridge-wall, and the valve in the bridge-wall for directing the air entering through the hollow shafts, either directly out at the top of the bridge-wall, to mingle with the products of combustion from the fire, or down into the ash-pit and upward between the grate-bars, substantially as described.

312,294. **DOOR-HANGER.** EDWARD T. PRINDLE, Aurora, Ill. Filed Nov. 13, 1884. (No model.)

Claim.—A cross-head for door-hangers, having a rider-bar made integral therewith and made with upper and lower projections, substantially as shown and described, whereby it may be fastened to the pendant both above and below, as set forth.

312,294.



312,295. DUMPING-WAGON. GEORGE W. REED, East Bloomfield N. Y. Filed Nov. 4, 1884. (No model.)



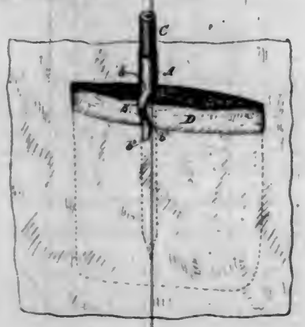
Claim.—1. In a dumping-wagon, the combination, with the pivoted boxes, of springs for returning said boxes to their normal position after being relieved of a load, as set forth.

2. In a dumping-wagon, the combination, with the pivoted boxes, of flat springs adapted to bear against the under sides of the same, locking-bars adapted to support the rear ends of the boxes, and means, substantially as described, for throwing said bars into and out of engagement with the said boxes.

3. In a dumping-wagon, the combination, with the pivoted dumping-boxes, of locking-bars pivoted in plates secured to the sides of the wagon, said bars having crank-arms formed integral therewith at one of their ends, and means, substantially as described, for throwing said locking-bars into and out of engagement with the rear ends of said dumping-boxes, as set forth.

4. The combination, in a dumping-wagon, with pivoted dumping-boxes, of locking-bars adapted to support the rear ends thereof, said locking-bars having integral crank-arms, and rods connected to said cranks, and having their forward ends bent to form seats *i* to engage boxes *j*, substantially as set forth.

312,296. PENCIL-CLASP. ROBERT P. SCOTT, Baltimore, Md. Filed Mar. 31, 1883. (No model.)



Claim.—1. A pencil-clasp consisting of a tube provided with a spring-arm projecting from it and extending beyond its end, whereby when the pencil is in position in the tube it will form one jaw of a clasp of which the projecting end of the spring-arm forms the other jaw, which clasp serves to retain the pencil in position in the pocket, as set forth.

2. The pencil-clasp herein described, consisting of the clasp-tube A, having the arm B, projecting at *b* from it and beyond the end thereof, and having an outward-projecting end, b^3, as and for the purpose set forth.

3. The spring pencil-clasp, consisting of clasp-tube A, having the spring-arm B formed integral therewith and projecting from and beyond the end thereof, said arm being bent outward at b' and b^2 and inward at b^3, as and for the purpose set forth.

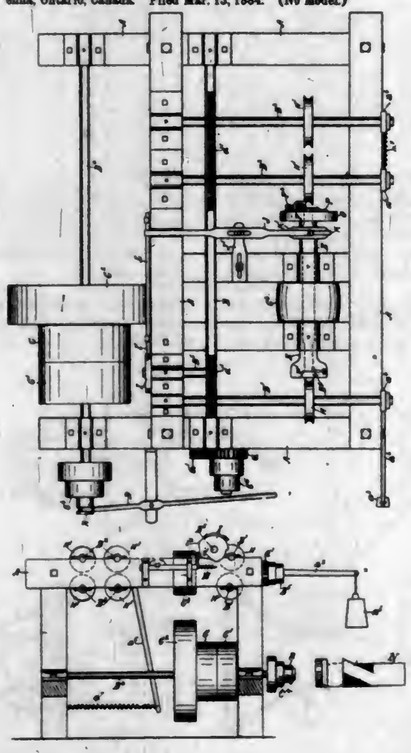
312,297. GARTER. CHRISTOPHER C. SHELBY, New York, N. Y. Filed May 29, 1884. (No model.)



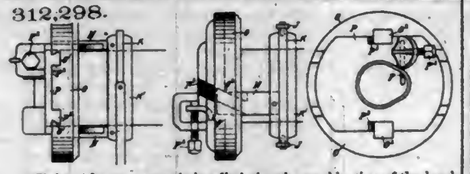
Claim.—1. The garter consisting of the main webbing and its slides and the pendent portion having the band applied to it to define the loop, and having also the clasp or stocking-holder applied to its lower end, substantially as described.

2. The garter consisting of the main webbing and its slides, the pendent portion made of tubular braid containing flexible though inelastic wire, and having the band for defining the loop and the clasp at the lower end, substantially as described.

312,298. LATHE FOR TURNING HANDLES. HENRY SHELDON, Vienna, Ontario, Canada. Filed Mar. 13, 1884. (No model.)

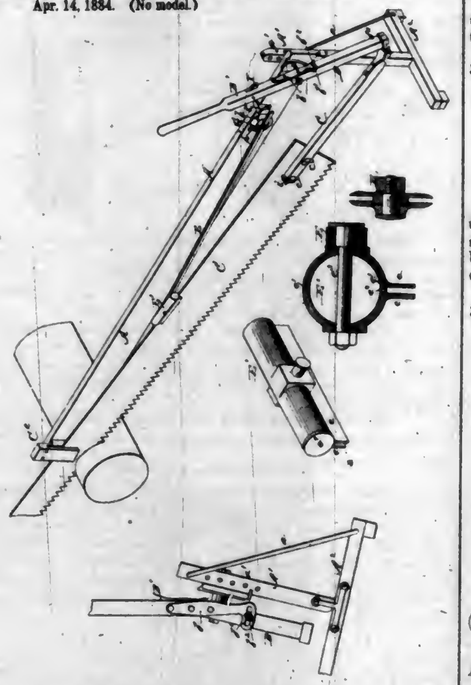


312,298.



Claim.—In an automatic handle-lathe, the combination of the head O, provided with dovetail grooves O' and slots O^2, with the slide P, provided with dovetail-flange runners P^2, and diagonal slots P^3, and grooved ring K', ring K, arms N N, provided with diagonal flanges N' N'' and the knife F, operated by suitable operating mechanism, substantially as shown and described, and for the purpose specified.

312,299. DRAG-SAW. MARVIN O. SMITH, New Buffalo, Mich. Filed Apr. 14, 1884. (No model.)



Claim.—1. In a drag-saw, the combination, with the saw-blade, of a hollow slide containing a lubricant, and provided with guide-flanges, and means, substantially as described, for pressing it down upon the back of the saw, substantially as shown and described.

2. In a drag-saw, the combination, with the saw and its operating-lever, of an arm pivoted upon the main frame, and provided with a slide upon its outer end bearing upon the saw, and at its inner end a coiled spring, and means for regulating the tension of the same, substantially as and for the purpose set forth.

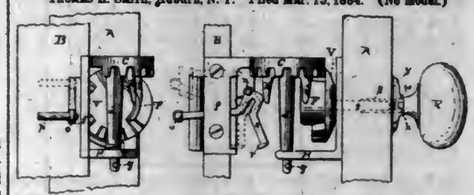
3. The slide E', cast hollow in two parts, having the flanges *e* and *e'*, one of which is chilled and formed with holes e^2, in combination with the spring-actuated arm E, adapted to press it down upon the saw, substantially as and for the purpose set forth.

4. The saw C', in combination with the lubricating-slide E', the arm E and its pivot *g*, the coiled spring G', connected to the arm and also to the ratchet-wheel H, and the pawl *h*, whereby the spring is readily wound up to exert the desired pressure upon the saw during its operation, substantially as shown and described.

5. In a drag-saw, the combination, with the main frame and its reciprocating saw-blade, of an operating-lever hinged on the main frame, and formed in two parts, one of which is adjustable at any desired angle with the other, whereby the operator is enabled to stand upright when the saw-frame is upon an incline, substantially as shown and described.

6. In a drag-saw, the main frame and its reciprocating blade, in combination with the two-part operating-lever B B', having plates *b*, secured to one part of the lever, and a slotted portion, *b'*, overlapping the other part, and the set-nut b^3, for securing the parts after adjustment, substantially as and for the purpose set forth.

312,300. COMBINED SHUTTER-WORKER AND SLAT-OPERATOR. THOMAS H. SMITH, Auburn, N. Y. Filed Mar. 15, 1884. (No model.)



Claim.—1. The combination, with a window or door frame and movable shutter, of the gear V, having the locking-lug F, shaft *t*, and knob R, the plate H, and the cogged segment C, having the locking-teeth *h* and *i*, as shown and described.

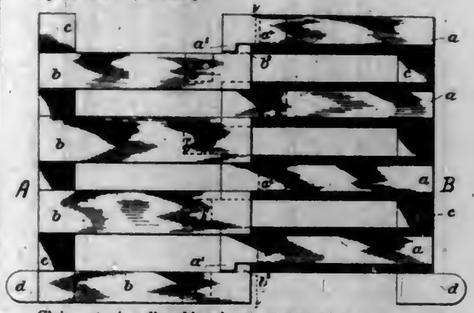
2. The combination, with a window or door frame and movable shutter, of the gear V, with its lug F, shaft *t*, knob R, and pin *z*, with the lever K and connecting-rod *p*, as shown and described.

312,301. METHOD OF MANUFACTURING SHEET-METAL PIPE. JOHN F. STARR, Jr., Camden, N. J. Filed Apr. 16, 1884. (No model.)



Claim.—The improvement in the method of manufacture of sheet-metal pipe, which consists in first bending a sheet of metal into a plane-sided tube, and thereafter forming ribs, flutes, or projections on said tube by the application of external pressure thereto while supported internally on detached longitudinal lines, substantially as set forth.

312,302. PRINTER'S RULE. AARON D. STERN, Chicago, Ill. Filed Apr. 25, 1884. (No model.)



Claim.—1. An adjustable printer's rule formed of parts or sections A B, whereof one of said sections is formed of bars *a* and *c* and the other of bars *b* and *c*, united as shown, and whereof the parts *a* and *b* are adapted to slide between each other, substantially as specified.

2. An adjustable printer's rule formed of bars *a*, *b*, and *c*, and blocks a^2 b', and whereof the parts *a* and *b* slide against each other upon their edges, substantially as specified.

3. An adjustable printer's rule formed of the parts A B, each of said parts formed of parts *c*, having a hook, *d*, and bars *a* or *b*, and whereof said bars *a* and *b* are arranged to slide upon each other upon their edges, and provided with hooks a' b^2, substantially as specified.

312,303. APPARATUS FOR BENDING METAL BARS. JOHN H. THOMAS, Springfield, Ohio. Filed May 31, 1884. (No model.)



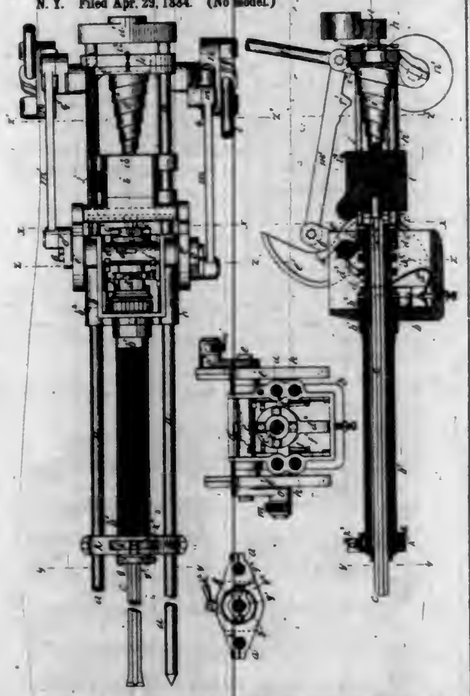
Claim.—1. In an apparatus for forming cranks or bends in rods or bars of metal, the combination, with the die and former for bending said bars, of a gage for setting and a clamp for holding the bars in the desired relation to said die and former, substantially as described.

2. The combination, with a die and former for bending or forming cranks in rods or bars of metal, of a shelf or support arranged at an angle to the crank to be formed in the bar, for gaging the angle of the latter and supporting the crank previously formed in said bar, substantially as described.

3. The combination, with a die and former for bending or forming cranks in metal bars or rods, of an adjustable gage or support for the cranks previously formed in said rods or bars, for gaging the angle of relation thereto of the crank to be formed therein, substantially as described.

4. The combination, with the die and former for bending or forming cranks in metal bars, of a gage for setting said bars in proper relation to the die and former, a clamp for holding said bars while the cranks are being formed, and a gage or support for the crank previously formed therein, substantially as and for the purpose described.

312,304. HAND-POWER ROCK-DRILL. LEWIS W. TRACY, Brooklyn, N. Y. Filed Apr. 29, 1884. (No model.)



Claim.—1. In a hand-power rock-drilling machine, in combination, a sliding body, a transversely-arranged shaft carried thereby, provided with cams and cranks secured to its ends, two hand-levers fitted to oscillate on the end plate of the sliding body, a spring-acting hammer sliding on the frame between the main portion of the body and the end plate, two connecting-rods by which they are connected to the cranks, and springs carried by the hand-levers and arranged to bear on the sides of the connecting-rods when the cranks are in their backward position and just after the cams have released the hammer, substantially as and for the purpose set forth.

2. In a hand-power rock-drilling machine constructed to have the drill-rod passed longitudinally therethrough, a hammer and its spring holding-plate, fitted to slide on the side bars by closed bearings on one bar and open bearings on the other bar, and means, substantially as described, for holding the said open bearings in position, in combination, as and for the purpose set forth.

3. The body *b*, plate *h*, secured thereto by the rods *h' h'*, the hand-lever holders *n n'*, pivoted to the plate *h*, the connecting-rods *m m'*, connecting the holders *n n'* to the cranks *o o'*, spring-acting plugs *q q'* in the holders *n n'*, and arranged to bear on the sides of the connecting-rods *m m'*, the cranks *o o'* on shaft *e*, carried by the body *b*, the cams *c' c'* and spring-acting hammer *i*, combined and arranged so that the hand-levers are alternately in their backward positions, with their respective cranks on their dead-centers just after the cams have released the hammer, substantially as and for the purpose set forth.

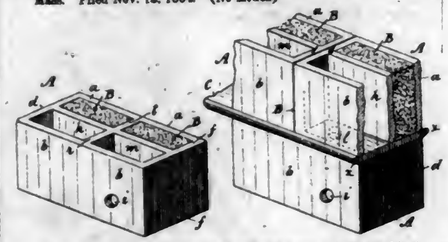
4. In combination, the side bars, *a a*, the hammer *i*, sliding thereon, with open bearings on one side, springs *i'*, located between the hammer and spring-plate *i²*, spring-plate *i²* fitted to turn on one of the bars *a*, body *b*, plate *h*, rods *h' h'*, and retaining-rod *j*, passing through the plate *h*, and arranged to hold the hammer and spring-plate in their normal positions, substantially as and for the purpose set forth.

5. In combination, the sliding hammer *i*, sliding on the bars *a a*, with an open bearing on one side, and provided with stud *i³*, the spring-plate *i²*, also sliding on the bars *a a*, with an open bearing on one side, the spring *i'*, located between the hammer and spring-plate, the chain *i³*, secured at one end to the spring-plate *i²*, and having its other end adapted to fit over stud *i³*, and the side bars, *a a*, substantially as and for the purpose set forth.

6. The drill-rod *c*, bush *c'*, fitting over the drill-rod and provided with side pins, split collar *c²*, located in the bush *c'*, hollow bolt *c³*, fitting in the end of the bush *c'*, for tightening the split collar on the drill-rod, and controlling-sleeve *d*, provided with bayonet-slots, in which the pins on the bush *c'* fit, substantially as and for the purpose set forth.

7. In combination, the hollow rotating sleeve *b'* and drill-rod *c* within the same, the centering-jaws *g* and *g'*, secured to the end of the sleeve *b'*, the centering guide-pin *g²*, and the spring-catch *g³*, substantially as and for the purpose set forth.

312,305. BUILDING-BLOCK. SOLOMON T. TRUMBULL, Gloucester, Mass. Filed Nov. 13, 1884. (No model.)



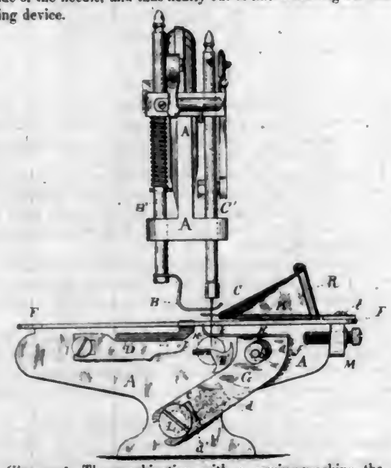
Claim.—1. As a new article of manufacture, a building-block composed of glass or similar vitreous material, having two or more rows of cells or compartments extending vertically through the same, one of the walls of said block being provided with suitable apertures opening laterally into one of its compartments, substantially as set forth.

2. A building-block composed of glass or similar vitreous material, and having two or more compartments extending vertically through the same, the outer of said compartments being filled with water or cement, and the inner being provided with suitable ventilating-apertures, substantially as described.

3. The blocks A, constructed substantially as described, in combination with the joint-plate C, substantially as and for the purpose set forth.

312,306. RUFFLER FOR SEWING-MACHINES. MELZAR G. TURNER, Westborough, Mass. Filed Mar. 19, 1884. (Model.)

Brief.—The main working parts of the device are attached to the sewing-machine below the work-plate. The construction secures room for the operation of the ruffling-plate, the work-plate being cut away to allow of this action, the working part of this ruffling-plate being wholly outside of the needle, and thus nearly out of line of the regular machine-feeding device.



Claim.—1. The combination, with a sewing-machine the work-plate of which is provided with an opening, of the ruffling feed-plate arranged beneath said work-plate and having its feeding portion wholly outside of the needle and working through said opening, means for pressing the fabric to be ruffled against the ruffling feed-plate, and means for reciprocating said ruffling-plate, substantially as set forth.

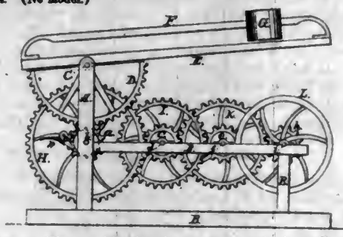
2. The combination, in a sewing-machine, of a ruffling feed-plate arranged beneath the work-plate thereof, means for pressing the fabric to be ruffled against said ruffling-plate, a block by which said ruffling-plate is carried, a main shaft, a stitch-forming mechanism operated thereby, a secondary shaft geared to rotate coincidently with said main shaft, and having an eccentric for operating said block, and a spring for effecting the return movements of the latter, substantially as set forth.

3. The combination, in a sewing-machine, of a main shaft, a stitch-forming mechanism operated thereby, a secondary shaft geared to rotate therewith and having an eccentric, a block operated by the latter and carrying a ruffling-plate, a spring for moving said block in opposition to said eccentric, means for regulating the movements of said block and its attached ruffling-plate, and means for pressing the fabric to be ruffled against the latter, substantially as set forth.

4. The combination, with a sewing-machine, of a ruffling feed-plate and its operating mechanism, all arranged beneath the work-plate thereof, of a separator-plate placed above said work-plate, and having an offset part by which its main portion is slightly raised above said work-plate, a presser-foot, and a binding-guide, also arranged above said work-plate, substantially as set forth.

5. The combination, with a sewing-machine, of the gears O, N, and P, shaft J, having eccentric-pin *b*, a separator-plate, a ruffling feed-plate, and means for moving the latter in opposition to the movements imparted thereto by said eccentric-pin, substantially as set forth.

312,307. MOTOR. JOHN A. VIRAN, Gainesville, Tex. Filed Sept. 24, 1884. (No model.)



Claim.—The combination, in a motor, of the lever E and beam F, supporting weight G, with segment D and a train of gearing, connected and arranged substantially as shown, and for the purpose specified.

312,308. EAR-TUBE. HENRY E. WAITE, New York, N. Y. Filed Nov. 4, 1884. (No model.)



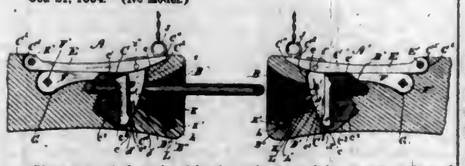
Claim.—The combination, with the flexible tube A, of flexible branches *a*, receivers B B, each of a cup shape, and adapted to fit to and inclose the main portion of the ear, and each secured to one of the branches *a*, a transmitter, C, connected to the end of the main body of the tube, and a three-way joint connecting the tube A and flexible branches, substantially as set forth.

312,309. BUTTON-FASTENER. HENRY J. WELDON, New York, N.Y. Filed Jan. 8, 1885. (No model.)



Claim.—In combination, the buttons, the washers, and the strip having loops fitted to the eyes of the buttons, all as and for the purpose set forth.

312,310. CAR-COUPLING. RANSOM S. WHEELER, Red Oak, Mo. Filed Oct. 21, 1884. (No model.)

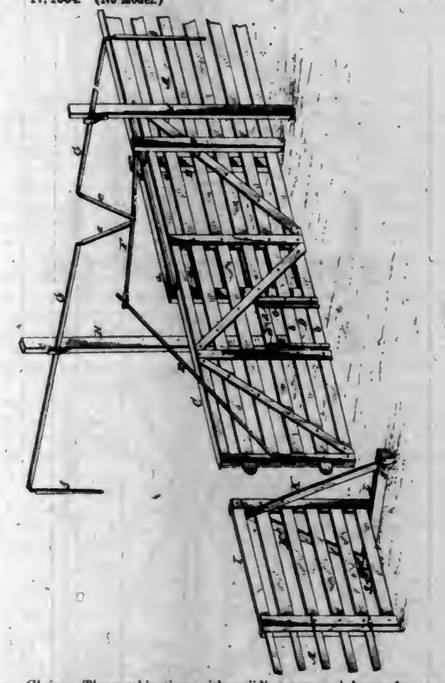


Claim.—1. A draw-head having a long receiving-aperture formed with the part B', and having a vertical aperture for a pin-holder formed with the part C and C' and the slot C^2, and the recess C^4 C^5 in the upper part of a link-holder, having the part D, the web or plate D', and the lifting-bar E, pivoted to the link-holder, and pivoted to the draw-head at its rear end, the front end thereof being permitted to rise and fall, substantially as set forth.

2. The combination, with the draw-head having the pin-receiving chamber and an aperture for a link-holder transverse thereto formed with the part C C', and the forwardly-projecting slot C^2, of the link-holder adapted to fit the said aperture and slot, the bar E, pivoted to the said holder, the lifter F, seated within the draw-head in a cavity having the bar E, and a lifting-lever, F^2, on the outside of the draw-head and connected with the lifter, substantially as set forth.

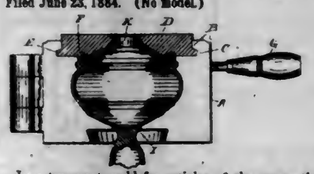
3. The combination, with the draw-head, and the devices for fastening the link, of the supporting-plate K, pivotally mounted in the mouth of the draw-head, and the rubbers situated between the draw-head and the plate and adapted to receive the downward thrust of the inner end thereof, substantially as set forth.

312,311. FARM-GATE. JAMES K. WILMOT, Ocmea, Ill. Filed May 17, 1884. (No model.)



Claim.—The combination, with a sliding gate and levers for operating the same, of a swinging gate in line therewith, angle-braces pivoted at their upper ends to said swinging gate, and a transverse sill secured to the ground, to which the lower ends of the braces are detachably connected, substantially as described.

312,312. MOLD FOR GLASS LAMPS, &c. JOSEPH M. WOOD, Bellaire, Ohio, assignor to the Ætna Glass and Manufacturing Company, same place. Filed June 23, 1884. (No model.)

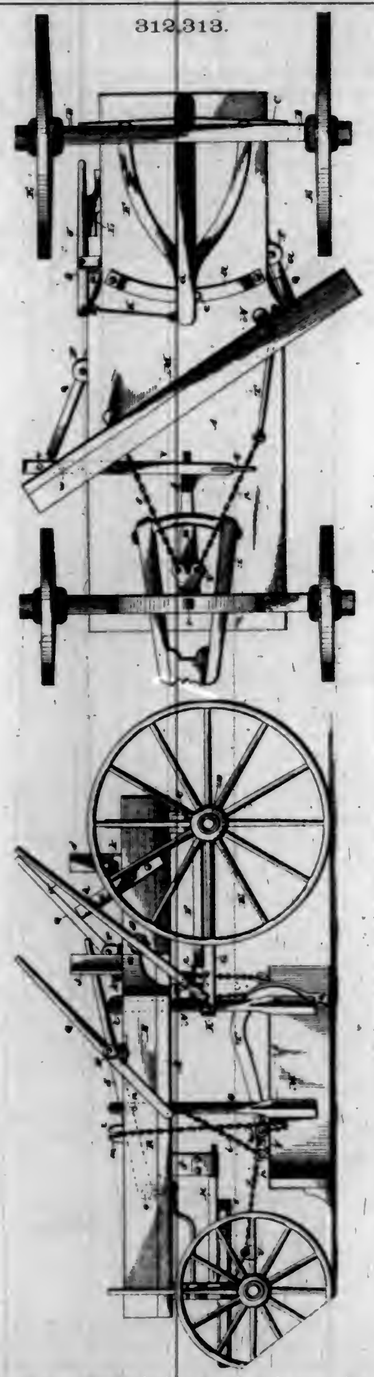


Claim.—In a two-part mold for articles of glassware, the combination, with the hinged parts forming the body of the mold, and provided with handles and undercut recesses near the top, of the divided annulus provided with handles and adapted to fit in the mold, whereby the parts may be closed upon the glass during the operation of blowing in to compact and solidify the article, substantially as for the purposes specified.

312,313. ROAD-SCRAPER. ALANSON WOOLSEY, Madison, Mich. Filed Feb. 1, 1884. (No model.)

Brief.—A scraper-body reduced in width at rear has a pivoted rear axle with an arm connected to a lever pivoted on the body and held by a notched standard. The scraper-bar has vertical posts passing through

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an arm rigidly secured to the axle, a lever pivoted to the side of the wagon body or bed, and a pitman connecting the lower end of the lever and the free end of the arm, substantially as set forth.

2. In a road-scraper, the combination, with the bed cut away at its rear end, of front and rear wheels pivotally secured thereto, a lever pivotally secured to the side of the bed or wagon-body and indirectly connected with the rear axle, thereby adapting said lever to turn the rear wheels at an angle with the wagon-body, substantially as set forth.

3. In a road-scraper, the combination, with the wagon-bed, of front and rear wheels secured thereto, a lever pivotally secured to one side of the wagon and indirectly connected with the rear axle, and a standard secured to one side of the wagon-body, and provided with a recess to receive the lever and hold the same in a locked position, substantially as set forth.

4. The combination, with a wagon-body mounted on wheels, a scraper, and posts rigidly secured at their lower ends to the scraper and passing upwardly through the body of the wagon, the levers Q, pivotally secured in swiveled bearings, chains connecting the levers and scraper, the chains *p* and *s*, and the beam T, substantially as set forth.

5. The combination, with the wagon-body, the scraper, and posts connected to the scraper and passing upwardly through the body, of the lever or levers swiveled to the body, and adapted to bear on projecting hooks of the posts, the slotted catches, and the chains secured to the scraper and engaging the catches, substantially as set forth.

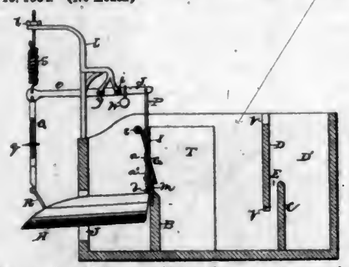
6. In a road-scraper, the combination, with the wagon-body, the rear portion of which is cut away, of front and rear wheels pivotally secured thereto, a lever, J, reach-bar G, and pitman K, all of the above parts being combined and adapted to operate substantially as set forth.

7. In a road-scraper, the combination, with the wagon-body, of a scraper secured to posts N O, bar T, chains *p s*, plate U, chains R, catches *l*, and levers Q, connected with the scraper by means of chains *i*, all of the above parts combined and adapted to operate substantially as set forth.

the body, and levers engaging hooks to force down the posts. It is raised by chains from levers pivoted in swivels, and held by chains the links of which hook into slots in plates on the body. A draw-bar curved over behind the scraper-bar is connected to one of two chains from a draft-plate which passes around to the end of a stay-bar secured to the upper edge of the forward end of the scraper-bar.

Claim.—1. In a road-scraper, the combination, with a bed and front wheels, of rear wheels mounted on an axle pivotally secured to said bed,

312,314. STUFF-REGULATOR FOR PAPER-MACHINES. CORNELIUS YOUNG, Sandy Hill, N. Y., assignor to Howland & Co., same place. Filed Apr. 15, 1884. (No model.)



Claim.—1. A stuff-box provided with two outlets, one having a pivoted gate and leading to a paper-machine and the other to the stuff-reservoir, in combination with said pivoted gate, a hinged spring-controlled chute which receives and transmits the stuff in its passage from said box to said machine, a pivoted sweep, and connecting-links by which said chute acts upon said gate, all substantially as described, and for the purposes set forth.

2. A stuff-box provided with one or more inlets, *e*, at or near its bottom, and an outlet, C', about midway between its top and bottom, in combination with fixed partition C, located between said outlet and inlets, extending upward to about the same level occupied by said outlet, the vertically-sliding partition D, slightly removed from partition C, and parallel therewith, and the channel E between said partitions, substantially as and for the purposes set forth.

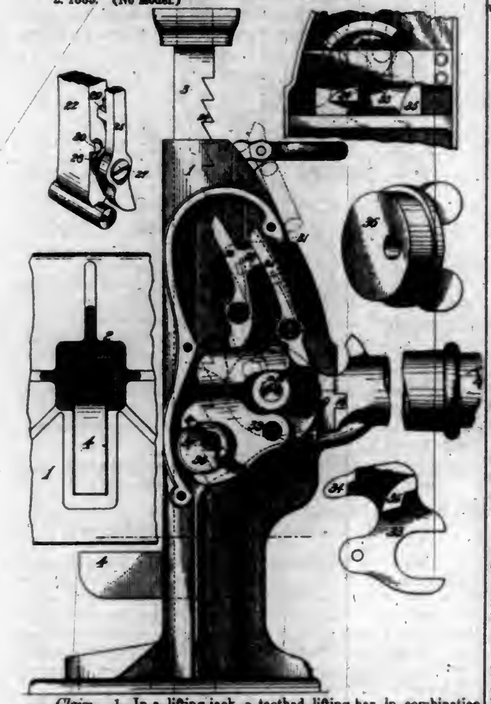
3. In a stuff-box, the combination of an adjustable sliding gate, G, adjustable gate I, a hinged spring-controlled chute, H, lever O, and connecting-links P and Q, substantially as and for the purposes set forth.

312,315. SASH-HOLDER. FRED AURAND and FREEMAN H. SHERER, Youngstown, Ohio. Filed July 14, 1884. (No model.)



Claim.—In a sash-holder, the combination of the back plate, A, provided with lugs a', perforations a^7, and stud a^8, the front plate, D, provided with lugs d', pins d^7, and stud d^8, and the bolt B, having a ring-shaped inner end, with the eccentric lever C, passing through said bolt, substantially as shown and described.

312,316. LIFTING-JACK. JOSIAH BARRETT, Allegheny, Pa., assignor to the Duff Manufacturing Company, (Limited,) same place. Filed Jan 2, 1885. (No model.)



Claim.—1. In a lifting-jack, a toothed lifting-bar, in combination with a pivotal lever, two pawls pivoted to said lever, one on each side of its fulcrum-pin, and spring-actuated levers pivoted to said pawls, and having their upper ends rigidly supported as against the action of their actuating-springs, substantially as set forth.

2. In a lifting-jack, a toothed lifting-bar, in combination with a pivoted operating-lever, pawls 22 and 23, spring-actuated levers 25 and 26, pivoted to said pawls, and a stationary abutment, 31, adapted to support the upper ends of the levers as against the action of their actuating-springs, substantially as set forth.

3. In a lifting-jack, a lever having its inner end composed of a stem provided with curved seats, and of side plates having openings in line with such seats, in combination with pawls 22 and 23, having their pivotal shafts formed integral with their lower ends, said shafts being constructed to fit in the openings in the side plates and in the seats in the stem and have a firm bearing therein, substantially as set forth.

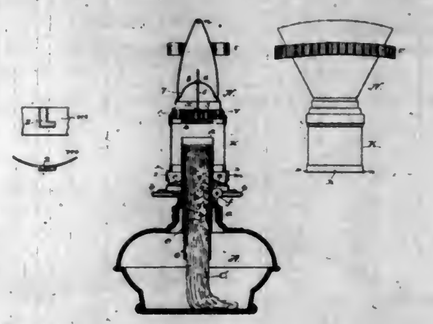
4. In a lifting-jack, a toothed lifting-bar, in combination with a pivotal lever, two pawls pivoted to said lever, one on each side of fulcrum-pin, spring-actuated levers pivoted to said pawls, and having their lower ends rounded, as described, and a movable tripping-plate having cam-lugs thereon, said lugs being adapted, in certain positions of the plate, to engage and shift the lower ends of the levers, substantially as set forth.

5. In a lifting-jack, a toothed lifting-bar, in combination with a pivotal lever, two pawls pivoted to said lever, one on each side of its fulcrum-pin, spring-actuated levers pivoted to said pawls, and a tripping-plate movable to and from the path of the lower ends of the spring-actuated levers, and adapted, in certain positions, to engage and shift said lower ends for the purpose of disengaging the pawls from the tooth-bar, substantially as set forth.

6. In a lifting-jack, a toothed lifting-bar, in combination with a pivotal lever, two pawls pivoted to said lever, one on each side of its pivotal point, spring-actuated levers pivoted to said pawls, a tripping-plate adapted to engage and shift the levers for the purpose of disengaging the pawls from the toothed bar, and an eccentric for moving said plate to and from the path of said spring-levers, substantially as set forth.

7. In a lifting-jack, a toothed lifting-bar, in combination with a pivoted operating-lever, two pawls pivoted to said lever, one on each side of its fulcrum-pin, and spring-actuated levers pivoted to said pawls, said levers being so arranged, as described, that when rigidly supported at their upper ends as against the action of their springs they will operate to hold the pawls against the lifting-bar, and when similarly supported at their lower ends they will cause the pawls to move away for the lifting-bar, substantially as set forth.

312,317. LAMP. WILLIAM W. BATCHELDER, New York, N. Y. Filed June 9, 1884. (No model.)



Claim.—1. The combination, with the base of a lamp having a wick-tube and a vapor-burner, of an interposed heat-non-conducting tube to prevent the passage of heat from the vapor-burner to the base, and provided with a bayonet-joint connection with the base, as set forth.

2. The combination, with the base provided with a wick-tube and contained wick and means to raise and lower them, of a vapor-burner and a disk or follower suspended therein and capable of a limited vertical movement with relation to the wick and wick-tube, substantially as and for the purpose described.

3. The combination, with a lamp having a wick-tube support and a wick-tube partly projecting above the support, of a vapor-burner adapted to be fitted on the support to surround the projecting portion of the wick-tube, and provided with an inclosed corrugated or fluted ring having a cap, as specified, and supported above the wick-tube, said ring being adapted to be lowered to encircle the end of the wick after it is projected beyond the top of the wick-tube, substantially as set forth.

4. The combination, with a lamp having a rim or seat, of a vapor-burner adapted to be detachably connected with the rim or seat, and provided with an inclosed corrugated or fluted ring closed at its upper interior diameter, as specified, and adapted to surround the end of the wick after the latter is projected beyond the top of the wick-tube and the vapor-burner is secured to its seat, substantially as set forth.

5. In a lamp, a wick-holding tube having a slot, *i*, combined with a wick-tube adapted to receive the wick-holding tube, and provided with a pin or tooth, *h*, projecting into the slot *i* of the wick-holding tube, substantially as specified.

6. The combination, with a base of a lamp provided with a wick-tube and contained wick, of a vapor-burner having a disk or follower arranged in the interior of said burner, and adapted to close the mouth of the wick-tube when the wick is lowered below the top of said wick-tube substantially as set forth.

7. In a vapor-burning lamp, a vapor-burner provided with a vapor-exit and a contracted neck having a slot crosswise of the vapor-exit, substantially as set forth.

8. The base provided with a rim or seat to support the burner in elevated position above the wick-tube while the burner is being heated, to operate substantially as described.

312,318. APPARATUS FOR THE CONVEYANCE OF FLUIDS. JOHN F. BENNETT, Pittsburg, Pa. Filed Dec. 3, 1883. (No model.)

Claim.—1. The tapping-pipes, in combination with the tanks having regulator-traps, substantially as described, attached thereto.

2. A pipe-line of blast-furnace slag or equivalent having regulator-traps disposed at suitable intervals for the purpose specified, in combination with the holders stationed along the line.

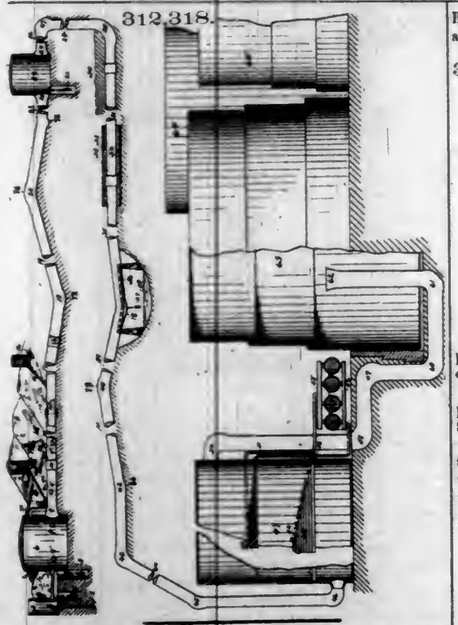
3. A pipe-line such as herein specified, in combination with the terminal receiver for the purpose described, and which may be drawn upon for consumption.

4. The tapping-pipes and tanks having regulator-traps attached thereto, in combination with holders stationed along the line.

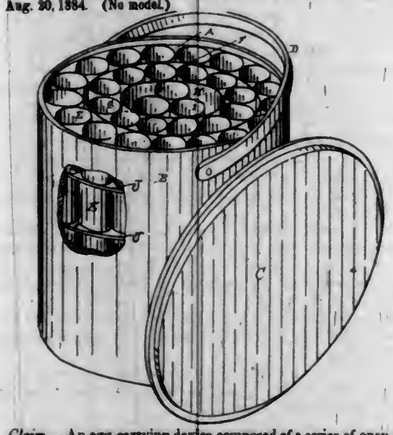
5. The combination, with the pipe-line, substantially as herein specified, and the terminal receiver, of terminal oscillatory gas-holders for the purpose described, which may be drawn upon for consumption.

6. The tapping-pipes and tanks or receivers, in combination with a glass or equivalent pipe-line in which each straight pipe has bell-mouthed ends which have areas at those points equal to twice that of the body of the main pipe, the length of conical frusta forming them being equal to two diameters of the body of the main pipe and each curved pipe, so that the cubical capacity from base to base of the curve equals that of a section of a body of the main pipe whose length is coterminous with the outer line of the curve.

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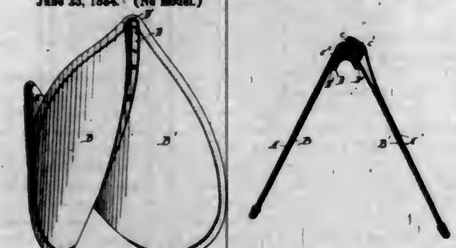


312,319. EGG-CARRIER. JOHN A. BERRY, Detroit, Mich. Filed Aug. 20, 1884. (No model.)



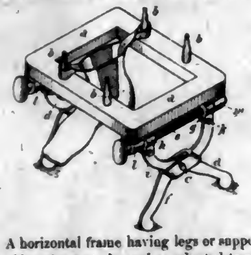
Claim.—An egg-carrying device composed of a series of open-ended cylinders arranged in concentric series, each series being surrounded by a concentric ring and adapted to fit into a cylindrical outside package, in combination with removable partitions by means of which the devices are separated from each other, substantially as described.

312,320. ARMPIT-SHIELD. WILLIAM BETTY, New York, N. Y. Filed June 23, 1884. (No model.)



Claim.—In armpit-shields, the combination of the secondary gusset D D', of cloth and gutta-percha, with the seam of the gusset A A' and B B' made and secured substantially as and for the purposes herein shown and set forth.

312,321. DEVICE FOR PUTTING ON BOOTS OR SHOES. CHRISTIAN BLOHM, Altona, Prussia, Germany. Filed Dec. 22, 1884. (No model.)



Claim.—1. A horizontal frame having legs or supports, and vertical pegs on opposite sides of a central opening, adapted to receive the straps of a boot or shoe, substantially as and for the purpose set forth.

2. A vertically-adjustable horizontal open frame having legs or supports, and pegs adapted to receive the straps of a boot or shoe, substantially as and for the purpose set forth.

3. In implements for putting on boots or shoes, the combination of the frame *a* with the screw *e*, nuts *h* and *g*, and levers *d* and *f*, hinged together by means of the bolt *c*, substantially as and for the purpose specified.

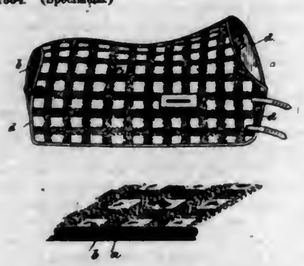
312,322. MANUFACTURE OF REED-PLATES AND REEDS. MELLEN BRAY, Newton, Mass. Filed May 1, 1884. (No model.)



Claim.—1. The method of forming a reed and reed-plate from a single piece of metal, which consists in separating the sides and an end of the reed or tongue from the plate and forming the throat by means of suitable dies, bending said tongue to raise it above the upper surface of the plate, subjecting said tongue to pressure to reduce its thickness and condense the metal to the required hardness and resiliency, trimming said tongue to the required width, and then depressing said tongue into its appropriate position in said throat, substantially as described.

2. The process of forming a reed and reed-plate from a single piece of metal, which consists in separating the sides and one end of the reed or tongue from the plate and forming the throat by means of suitable dies, cutting away a portion of the stock in the tongue and bending said tongue to raise it above the upper surface of the plate, subjecting the reduced tongue to pressure to reduce it to the desired variable thickness and condense the metal to the required hardness and resiliency, trimming said tongue to the proper width to fit the throat, and then depressing said tongue into its appropriate position in said throat, substantially as described.

312,323. BLANKET. JOSEPH BROADHEAD, Cornwall, N. Y. Filed Nov. 24, 1884. (Specimens.)

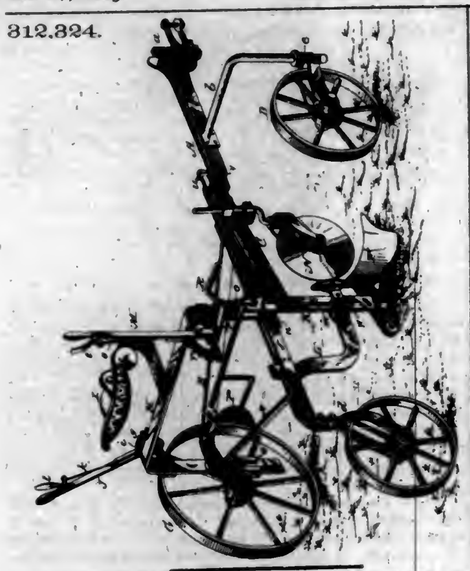


Claim.—The blanket having a woven jute foundation of different colors, and a back of wool felted into the jute foundation, the wool showing upon the face and mingling with the colors of the jute to form the outside or face of such blanket, substantially as set forth.

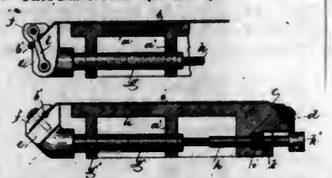
312,324. SULKY-PLOW. LEVI M. BROCK, Mackinaw, Ill. Filed Oct. 30, 1884. (No model.)

Claim.—In a sulky-plow, the beam thereof, bent as shown, and having connected to this angular bend by a coupling the braces which carry the colter, in combination with the slotted plow-standard connected to said braces, and the bifurcated end of an angular brace, which is attached to the rear end of the plow-beam, substantially as and for the purpose set forth.

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312,325. BED FOR ZINCOGRAPHIC PRESSES. JOHN BROOKS, Plainfield, N. J. Filed Mar. 3, 1884. (No model.)

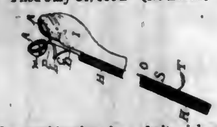


Claim.—1. In a zincographic press, the combination, with the bed *a*, of the bar *d*, for securing one edge of the sheet, the bars *e*, and clamping-bars *f*, for grasping the other edge of the sheet, and the guide-rods *g*, screw-rods *h*, collars *i*, and plate *k*, for stretching the metallic sheet, substantially as set forth.

2. The bed *a*, in combination with the bars *e*, clamping-bars *f*, wire or rod *b'*, guide-rods *g*, and means, substantially as described, for stretching the zinc plate, as set forth.

3. The combination, with the bed *a*, guide-rods *g*, and bars *e*, of clamping-bars *f*, links *l*, wire *b'*, and mechanism, substantially as described, for stretching the zinc plate, as set forth.

312,326. FRUIT-PICKER. JAMES BROWN and MARSHALL G. ALCORN, Los Angeles, Cal. Filed July 31, 1884. (No model.)



Claim.—1. The combination, in a fruit-picker, of two circular blades, A A', provided with cutting-edges, two levers, L L', attached to such blades, and pivoted to each other and to a handle, as shown, the connecting-rods C C', operating-rod O, trigger T, and the hose I, attached to one of the blades and to the handle of the picker, and having a slit, *x*, to admit the lever L, substantially as set forth.

2. In a fruit-picker, the combination, with the jaws and operating mechanism, substantially as described, of a hose for conducting the fruit from the jaws to the ground, having an opening or slit therein to admit the lever which operates one of the jaws, whereby the hose is adapted to be closely attached to the handle of the picker.

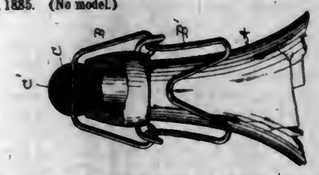
312,327. BED-LOUNGE. EBEN BURGESS, Chelsea, Mass. Filed Feb 16, 1884. (No model.)



Claim.—1. In a bed or folding lounge, the base A and top B, hinged together, the said base and top having each a hinged pillow-board, and each of said pillow-boards having the lifters or supports *b' c'* hinged or pivoted thereto, combined with the connections *f* for operating said lifters or supports, substantially as described.

2. In a bed or folding lounge, the base A and top B, hinged together, the said base and top having each a hinged pillow-board, and each of said pillow-boards having the lifters or supports *b' c'* hinged or pivoted thereto, and springs *m* and *k*, to operate said lifters or supports, combined with the connections *f*, also to operate said lifters, substantially as described.

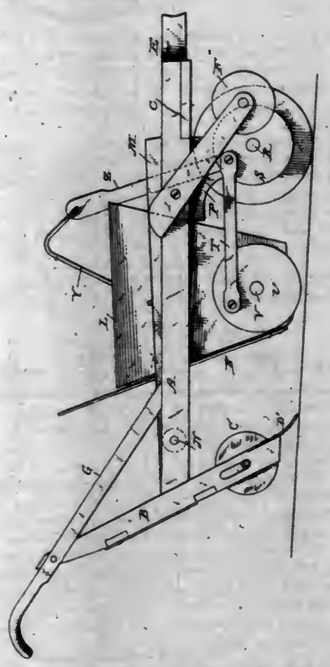
312,328. BOTTLE-STOPPER. FRANK BURNS, North East, Pa. Filed Jan. 8, 1885. (No model.)



Claim.—1. A spherical bottle-stopper adapted for use in combination with a stopper-fastener consisting of an internal sphere of hard material and a covering of elastic or packing material, the whole perforated to receive a spindle, substantially as described.

2. The combination, with the bail of a stopper-fastener, of a spherical stopper consisting of an internal sphere of hard material and a covering of elastic or packing material, substantially as described.

312,329. FERTILIZER-DISTRIBUTER AND CULTIVATOR. HUGH A. CAMPBELL, Antioch, assignor to A. and W. McQueen, Plainview, N. C. Filed May 3, 1884. (No model.)



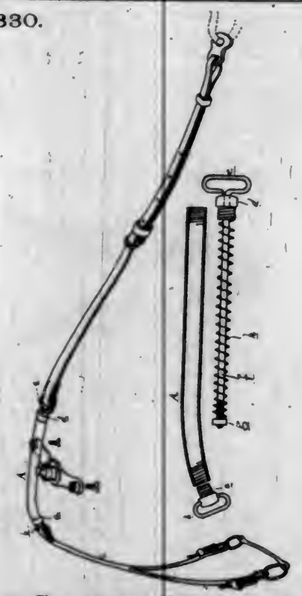
Claim.—1. The combination, with a plow or cultivator frame, of the inclosed pivoted frame, the fertilizer-hopper, the driving-wheel and distributing mechanism, and the rock-shaft and connection for operating the same, substantially as specified.

2. The combination, with the plow or cultivator frame provided with wheels F and C', and the transverse slotted board C, having set-screw D, and the rear slotted board or brace, H, of the inclosed pivoted frame, carrying the hopper I, provided with lever B', plate A', distributing-wheel U V W, and the wheel S, having pitmen T, and the link Z, operating the arm Y, secured to the rock-shaft X, substantially as shown and described.

312,330. CHECK-REIN SPRING. L. EUGENE CHAMPLAIN and GEORGE G. WINANS, Ypsilanti, Mich.; said Winans assignor to Lewis M. Miller, Detroit, Mich. Filed Oct. 22, 1884. (No model.)

Brief.—Improvement on Patent No. 279,707, dated June 19, 1883.

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Claim.—1. The combination, with the cylinder A, pivotally secured to the top of a bridle, and having a portion, *c*, of the check-rein secured to one end of said cylinder, of the rod *f*, sliding in said cylinder and provided with a loop, *e*, connected with another part of the check-rein, and the spring *h*, arranged around said rod, substantially as and for the purpose specified.

2. The combination, with the cylinder A, provided with a screw-plug, *a*, of the apertured screw-plug *d*, the threaded rod *f*, having loop *e* formed therein and passing through said plug *d*, the adjusting-nut *g*, and the coil-spring *h*, arranged around said rod and finding one point of resistance against said nut and the other against the plug *d*, which also serves to close the end of the cylinder and forms a guide for the rod *f*, substantially as described.

312,331. ASH PAN AND SCREEN FOR FURNACES. RICHARD S. T CREEL, Elizabeth, N. J. Filed Aug. 14, 1884. (No model.)



Claim.—1. A portable ash pan and screen composed of a wheeled carriage, an ash-pan supported thereon, and a vertically-reciprocating screen supported above the ash-pan on anti-friction bearings of the carriage, substantially as set forth.

2. The combination of a wheeled supporting-carriage, an ash-pan supported on inwardly-projecting lugs of said carriage, and a flanged screen supported on anti-friction bearings, said screen being guided between vertical flanges of said bearings, substantially as set forth.

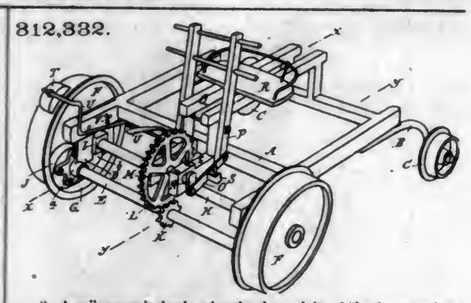
3. The combination of a wheeled carriage having inwardly-projecting lugs and anti-friction boxes, an ash-pan, a flanged screen above said ash-pan, and a forked handle swiveled to the front end of the carriage and having a roller at its lower end, said roller acting as a stop or break for the carriage when it is thrown into a position at right angles to the axis of the carriage, substantially as set forth.

312,332. RAILWAY-VELOCIPEDE. CHARLES H. COPP, Clyde, Mich., assignor to the Marks Automatic Car Coupler Company, Cleveland, Ohio. Filed Dec. 10, 1884. (No model.)

Claim.—1. In a wheel-vehicle, a traction-wheel provided with an internal annular tread, in combination with a rolling friction-wheel secured to a shaft journaled below and in advance of the drive-shaft and adapted to be brought into frictional contact with said internal tread, and means for imparting a rotating motion to said frictional wheels, substantially as and for the purposes described.

2. In a railway-velocipede, the traction-wheels of which are provided with an interior annular tread or face, the axle having a free vertical movement, in combination with rolling friction-wheels adapted to engage in frictional contact with the said interior treads of said traction-wheels, and located in advance of the vertical axial center of the traction-wheel and above said interior thereof, substantially as and for the purposes set forth.

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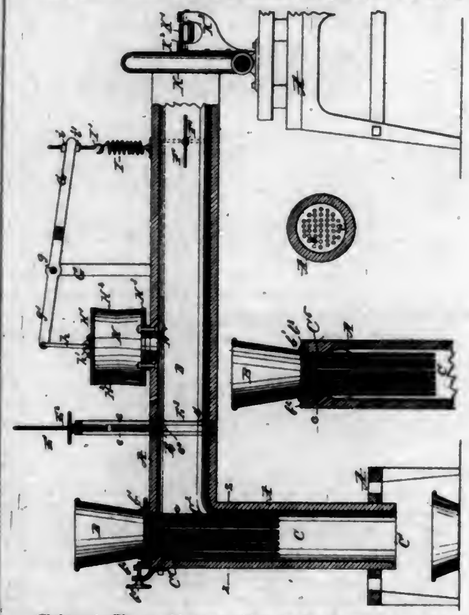


3. A railway-velocipede wherein the weight of the frame and operator is carried upon a drive-shaft journaled below and in advance of the main drive-shaft, and having secured to its ends friction-wheels which travel upon internal treads in the traction-wheels, substantially as and for the purposes specified.

4. In a railway-velocipede, the combination of the frame A, bearing-wheels C, hangers D, drive-shaft E, traction-wheels F, provided with internal treads, G, axle H, boxes I, rolling friction-wheels J, and the means for imparting a rotary motion to the shaft E, when constructed, arranged, and operating substantially in the manner and for the purposes described.

5. In a railway-velocipede, the combination of the frame A, bearing-wheels C, hangers D, drive-shaft E, traction-wheels F, axle H, boxes I, friction-wheels J, pinion K, gear-wheel L, shaft M, crank-arms N, rods O, levers P, seat R, and brake T, when constructed, arranged, and operating substantially in the manner and for the purposes specified.

312,333. APPARATUS FOR SEPARATING OR CONCENTRATING MATERIALS OF DIFFERENT SPECIFIC GRAVITIES. ALFRED E. CROW and WILLIAM L. CROW, New York, N. Y. Filed July 3, 1884. (No model.)



Claim.—1. The combination, with a regulated supply-hopper and a separating-chamber and vacuum-chamber, of a series of material-supply tubes opening into the supply-hopper and extending downward within the separating-chamber in position to discharge the material to be operated upon at considerable momentum against an opposing air-current entering the separating-chamber and passing up between and around the supply-tubes, and a suitable vacuum or draft mechanism for producing the said current, substantially as and for the purpose set forth.

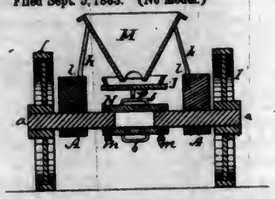
2. The combination, with a regulated supply-hopper, of a vacuum or draft mechanism, a vacuum-chamber having an automatic vacuum-regulating valve, and a vertical separating-chamber formed with tubular passages extending down within the said separating-chamber and opening into the material-supply hopper, substantially as and for the purpose described.

3. The combination, with a regulated supply-hopper, a vacuum or draft generating mechanism, a vacuum-chamber having a primary draft-regulating gate or valve, and a valve actuated automatically by the vacuum-pressure, of a vertical separating-chamber having tubular passages opening into the supply-hopper, and extending downward within the separating-chamber in position to discharge the material to be operated upon at a high momentum against an opposing air-current passing up through the separating-chamber and between and around the supply-tubes, substantially as shown and described.

4. The combination, with a regulated supply-hopper, a vacuum or draft generating mechanism, and a vertical separating-chamber having tubular passages opening at their upper ends into the supply-hopper and extending down within the separating-chamber, of a vacuum-chamber having a vacuum-regulating valve, a collapsible drum connected with the vacuum-chamber, and levers for actuating the vacuum-regulating valve, substantially as shown and described.

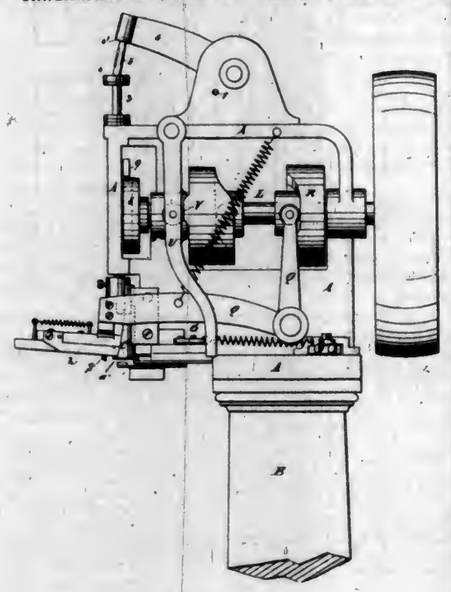
5. The combination, with a vacuum-chamber, vacuum or draft generating device, an automatic vacuum-regulating valve, a collapsible drum, and a series of connecting-levers, of a supply-hopper, and a vertical separating-chamber having tubular supply-passages opening into the material-supply hopper, and a regulating-valve for said hopper, the said supply-passages extending down within the vacuum-chamber, and discharging their material into an open space within and at the lower part of the separating-chamber at a considerable momentum, and in a direction directly opposed to the direction of a current or draft passing upward through the separating-chamber, substantially as and for the purpose described.

312,334. FERTILIZER-DISTRIBUTER. NEILL A. CURRIE, Laurinburg, N. C. Filed Sept. 5, 1883. (No model.)



Claim.—In a fertilizer-distributer, side beams, A A, each provided with two sets of adjusting-holes, *l l*, and mechanism, substantially as set forth, whereby the machine is adjusted in width, and the side beams, A A, are brought nearer together, or vice versa, in combination with a hopper, M, provided with legs *k k*, which fit in the said adjusting-holes *l l* on the side beams, substantially as set forth.

312,335. MACHINE FOR LASTING BOOTS OR SHOES. CHRISTIAN DANCEL, New York, N. Y., assignor to James Cavanagh, trustee of the Scott Laster Association, of New York. Filed Nov. 10, 1884. (No model.)



Claim.—1. In a lasting-machine, the curved crimper C, in combination with means, substantially as described, for operating the same, substantially as set forth.

2. In a lasting-machine, the curved crimper C, in combination with presser D and suitable operating means, substantially as set forth.

3. In a lasting-machine, curved crimper C, in combination with plate M, jaws N N, and suitable operating means to force said plate M downward and said jaws downward and inward, substantially as set forth.

4. In a lasting-machine, the downward presser composed of plate M and jaws N N, and suitable actuating means, substantially as set forth.

5. In a lasting-machine, the spear S, in combination with a presser composed of plate M and jaws N N, operating substantially as set forth.

6. In a lasting-machine, the pusher-plate I, in combination with crimper C and suitable actuating means, substantially as set forth.

7. In a lasting-machine, the pusher-plate I, in combination with presser-jaws N N and suitable actuating means, substantially as set forth.

8. In a lasting-machine, the presser-jaws N N, in combination with their actuating means, substantially as set forth.

9. In a lasting-machine, the curved presser D, in combination with cam-lever G and its operating means for releasing the grip on the upper, substantially as set forth.

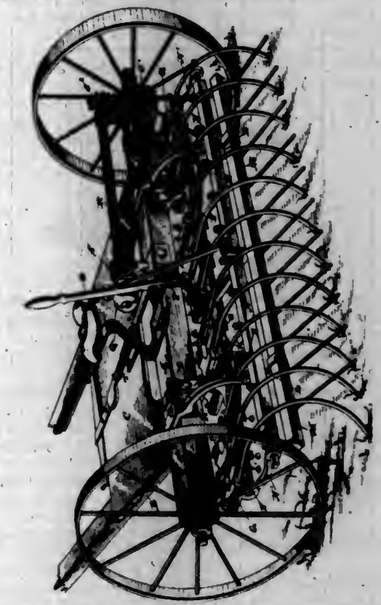
10. In a lasting-machine, the combination of side-pushers Y Y, pusher I, and their operating means, substantially as set forth.

11. In a lasting-machine, the side-pushers Y Y, provided with side wings, Z Z, as arranged, and provided with operating means, substantially as set forth.

12. In a lasting-machine, presser D and pusher I, in combination with crimper C and their actuating means, substantially as set forth.

13. In a lasting-machine, the combination of crimper C, presser D, pusher I, plate M, jaws N N, and side-pushers Y Y, provided with wings Z Z, substantially as set forth.

312,336. COMBINED HAY TEDDER AND RAKE. SAMUEL L. DENNEY, Strasburg, Pa. Filed Mar. 7, 1884. (No model.)



Claim.—1. In a hay-tedder, the combination, with a shaft, sectional teeth-heads each having a series of teeth removably secured therein, and arms projecting rearwardly from said heads and embracing said shaft, of a rotary shaft and tappets secured thereon and engaging the teeth-heads, substantially as set forth.

2. In a combined hay rake and tedder, the combination, with a frame, rigid bearings depending from the frame, a shaft adapted to be adjusted backward and forward in said bearings, and a series of teeth-heads carrying teeth and journaled on said shaft, of a shaft secured to the frame, and tappet-wheels secured on said shaft and adapted to raise and lower the teeth when the shaft carrying the teeth-heads is in forward adjustment.

3. In a combined hay tedder and rake, the combination, with a frame, brackets depending from the frame, and bearings formed, respectively, in the front and rear ends of said brackets and communicating with each

other, of a shaft supported by said brackets and adapted to be moved from one bearing to the other, teeth-heads journaled on said shaft and carrying teeth, and a shaft located in front of the brackets and carrying tappet-wheels adapted to engage the tooth-heads when the shaft is located in the front bearings of the brackets, substantially as set forth.

4. In a combined hay tedder and rake, the combination, with the axle and brackets secured thereto, the latter provided with elongated slots and semicircular bearings, of the shaft adjustable in said brackets, teeth-heads journaled to the shaft, and devices for elevating and lowering the teeth when the machine is used as a tedder, substantially as set forth.

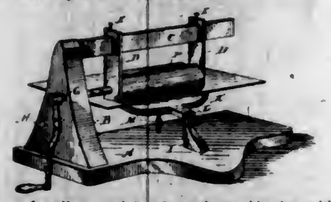
5. In a combined hay tedder and rake, the combination, with a series of teeth-heads and teeth secured to said heads, of a longitudinally-sliding bar situated under the teeth and provided with hooks or open staples, whereby the entire set of teeth can be locked together to adapt them for raking.

6. In a combined hay tedder and rake, the combination, with a series of teeth-heads, each of which is provided with teeth, of the bar N, situated under the teeth and provided with staples, whereby the whole set of teeth can be locked together, and a lever for elevating the bar, substantially as set forth.

7. In a combined rake and tedder, the combination, with an axle, bearings depending from said axle, a shaft adapted to be adjusted backward and forward in said bearings, teeth-heads loosely mounted on said shaft, and teeth secured to the heads, of a bar located below the teeth and adjustably secured to the axle, and provided with a series of rearwardly-projecting clearing-teeth, which latter rest between the tedder and rake teeth, substantially as set forth.

8. In a combined hay rake and tedder, the combination, with an axle, bearings depending from said axle, a shaft adjustable in said bearings, teeth-heads journaled on said shaft and provided with teeth, tappet-wheels for engaging the teeth-heads when the machine is operating as a tedder, and a bar located under the teeth, of a ground-wheel having a pinion thereon, a shaft provided at one end with a pinion engaging the pinion on the driving-wheel, and at its opposite end with a loose crank, a pitman connecting the bar under the teeth with the loose crank, a clutch for locking the crank to the shaft, and a foot-lever for operating the clutch, substantially as set forth.

312,337. PHOTOGRAPH-BURNISHER. CHARLES DOREY, Lock Haven, Pa. Filed July 29, 1884. (No model.)



Claim.—1. In a photograph-burnisher, the combination, with a horizontal arm, of a roller adjustably secured thereto, and a burnishing plate or table located below said roller, substantially as set forth.

2. In a photograph-burnisher, the combination, with a horizontal arm, and vertical supports adjustably secured thereto, of a roller journaled in said supports, and a burnisher-plate below said supports, substantially as set forth.

3. In a photograph-burnisher, the combination, with a standard provided with a horizontal arm, and adjustable supports depending therefrom, of a roller journaled in said supports, a burnisher plate or table located below said supports, and devices for vertically adjusting said plate or table, substantially as set forth.

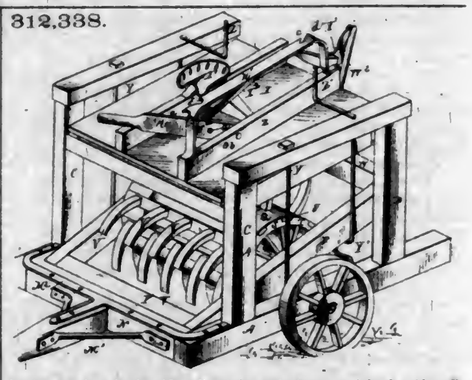
4. In a photograph-burnisher, the combination, with a frame open on one side, and consisting, essentially, of a base, a vertical standard, and a horizontal arm secured to said standard, of a bearing or bearings depending from the horizontal arm, a roller journaled in said bearings, and a plate or table located under the roller, substantially as set forth.

312,338. PULVERIZER. THOMAS C. D'SPAIN, Sherman, Tex. Filed May 3, 1884. (No model.)

Claim.—1. The combination, with the main frame provided with transporting-wheels of a diameter less than the diameter of the circle described by the points of the pulverizer-teeth, and a platform, I, of the auxiliary frame hinged within the main frame and provided with the toothed cylinder Q, the lever K, arm X², curved lever X, pivoted in the fulcrum X' on the platform I, rod W², pivoted to the rear end of curved lever X at its upper end, and in the bifurcated arm W' on the frame P at its lower end, and the notched rack K', secured to the beam Z on the platform I, substantially as specified.

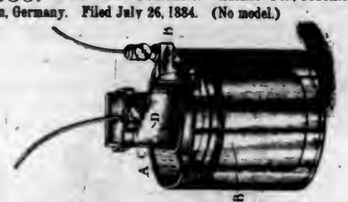
2. The combination, with the main frame and the auxiliary frame hinged within the same, as described, and provided with the toothed cylinder, of the crank-rods provided with bends near their lower ends, and

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having bearings in the side rails of the main frame and in the side rails of the platform-framing, substantially as specified.

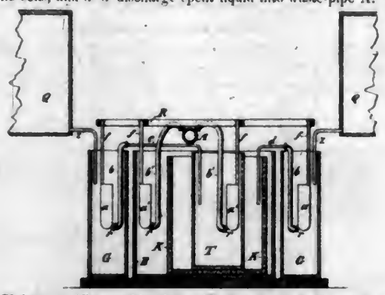
312,339. GALVANIC ELEMENT. ALFRED DUN, Frankfort-on-the-Main, Germany. Filed July 26, 1884. (No model.)



Claim.—A galvanic element consisting of two cells containing, respectively, the positive and negative electrodes, and in which the same exciting-liquid is in both cells, but in solution having different degrees of concentration, substantially as herein described.

312,340. APPARATUS FOR EMPTYING AND CHARGING GALVANIC ELEMENTS. ALFRED DUN, Frankfort-on-the-Main, Germany. Filed Aug. 7, 1884. (No model.)

Brief.—G G are supply-reservoirs, and B T the elements. When frame R is lowered, cups *a a a' a'* are filled—*a a* with new liquid and *a' a'* with spent liquid. When R is raised again, *a a* discharge fresh liquid into the cells, and *a' a'* discharge spent liquid into waste-pipe A.

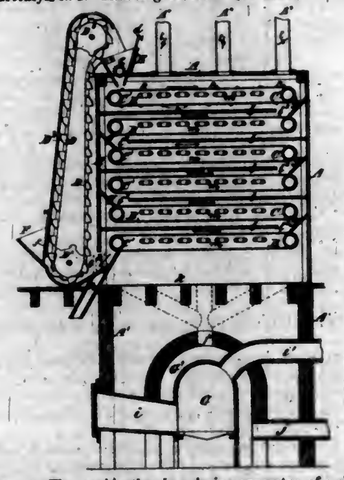


Claim.—1. The combination, with the vessels B, K, and T and the supply-troughs G, of dipping vessels *a*, and outlets therefor into the vessels K and T, and the vessels *a'*, and outlets therefor conducting from the vessels K and T, and a movable frame for said vessels *a a'*, whereby they may be raised and lowered with respect to the first-named vessels, substantially as described.

2. The battery-cell composed of the outer vessel, B, and the cylinder K, placed nearer one end thereof than the other, and containing the cylinder T, combined with the troughs G at opposite ends, the movable frame R, the dipping vessels *a*, suspended from said frame within the said troughs and discharging into the vessels K and T, and the dipping vessels *a'*, suspended in the vessels K and T and discharging into the waste-pipe A, substantially as shown and described.

3. The combination, with an electric battery, of adjacent supply-troughs containing the exciting liquid or liquids, dipping vessels suspended within said supply-troughs and connected with the battery cell or cells to supply the excitant thereto, other and independent dipping vessels suspended in or over said battery and connected with a discharge-pipe, and a frame supporting said dipping vessels and adapted by any suitable means to be raised and lowered to empty and fill or renew said battery, substantially as described.

312,341. APPARATUS FOR DRYING STARCH, &c. WRIGHT DURYEA, Brooklyn, N. Y. Filed Aug. 30, 1884. (No model.)



Claim.—1. The combination, in a drying apparatus, of a chamber, endless aprons or carriers arranged therein one above another, an air-heating furnace having its hot-air outlet communicating with said chamber, and a separate outlet for the products of combustion, deflectors extending alternately from opposite sides of the chamber nearly across the same, whereby the heated air is caused to pass directly across the drying-chamber and over the drying material, and steam pipes or heaters over and in contact with which the heated air passes and by which the temperature of the air is maintained nearly uniform during its passage through the chamber, substantially as and for the purpose herein described.

2. The combination, with a drying-chamber and endless aprons for moving material to be dried through said chamber, and arranged one above another, of a furnace for heating air having its air-outlet communicating with said chamber, and a separate outlet for the products of combustion, and an elevator for taking material from the bottom of said chamber or delivered from the lowermost apron and delivering it at the top of said chamber or upon the uppermost apron, substantially as herein described.

3. The combination, in a drying apparatus, of a chamber, endless aprons or carriers arranged therein one above another, an air-heating furnace having its hot-air outlet communicating with the chamber, and ventilators or escape-openings at different points in the height of said chamber, whereby the escape of air laden with moisture from the chamber may be controlled and regulated, substantially as herein described.

4. The combination, in a drying apparatus, of a chamber, endless aprons or carriers arranged therein one above another, an air-heating furnace having its hot-air outlet communicating with the chamber, deflectors extending alternately from opposite sides of the chamber nearly across the same, whereby the heated air is caused to pass directly across the drying-chamber and over the drying material, and ventilators or openings in the sides of the chamber at points opposite the deflectors, whereby provision is afforded for the escape of air after passing across the chamber and over the drying material on the several aprons or carriers, substantially as herein described.

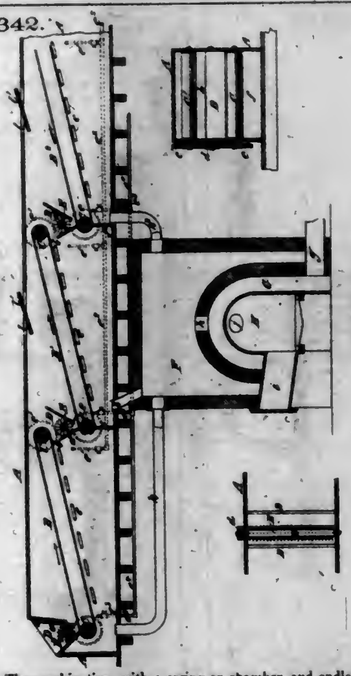
5. The combination, in a drying apparatus, of a drying-chamber having a floor of open construction, a lower chamber containing a hot-air furnace from which heated air rises through the said open floor, and endless aprons or carriers arranged in the drying-chamber one above another, and serving to convey through the drying-chamber the material to be dried, substantially as herein described.

312,342. APPARATUS FOR DRYING THE BY-PRODUCTS OF STARCH-MANUFACTURE AND OTHER VEGETABLE MATTERS. WRIGHT DURYEA, Brooklyn, N. Y. Filed Sept. 5, 1884. (No model.)

Claim.—1. The combination, with a closed chamber or casing and a series of endless aprons or carriers arranged therein, one in advance of another, as described, for conveying material through said chamber, of means for delivering hot or dry air into said chamber or casing, substantially as and for the purpose herein described.

2. The combination, with a closed chamber or casing and a series of endless aprons or carriers arranged, one in advance of another, as described, of means for producing a current of hot or dry air lengthwise of the apparatus, through the space between the head of each apron and the tail of the apron for delivering material upon it, substantially as and for the purpose herein described.

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3. The combination, with a casing or chamber and endless aprons or carriers arranged therein, one in advance of another, as described, the said aprons extending the entire width of the casing or chamber, of means for supplying hot or dry air to the casing or chamber below said aprons, and escape-openings for air in said casing or chamber above said aprons, whereby currents of air will be caused to pass between the overlapping ends of the aprons to intercept the material being delivered from one to another of the aprons, substantially as and for the purpose herein described.

4. The combination, with the chamber or casing and the endless aprons arranged therein, as described, the aprons extending the entire width of the chamber, of the partitions *f*, dividing the chamber below the aprons, the escape-openings *l* in the chamber above the aprons, and a furnace and pipes for supplying hot air to the chamber below the aprons, substantially as and for the purpose herein described.

5. The combination, with a chamber and endless apron arranged therein, one in advance of another, as described, of a feeding-hopper at the receiving end or head of each apron, into which material is delivered from the apron next behind, and a breaking and feeding cylinder in each hopper, substantially as and for the purpose herein described.

6. The combination, with a chamber and endless aprons arranged therein, one in advance of another, as described, of a feeding hopper and its contained breaking and feeding cylinder at the head of each apron, into which material is delivered from the apron next behind, and means for causing currents of hot or dry air to pass lengthwise of the apparatus and across the said hoppers, to intercept the material falling into the hoppers, substantially as and for the purpose herein described.

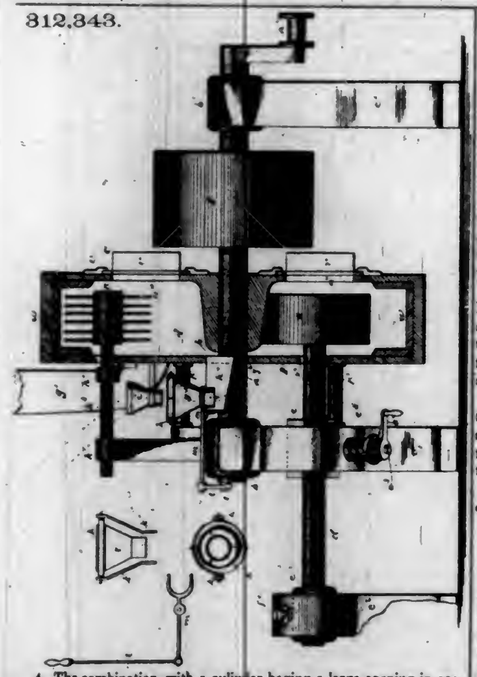
312,343. ROCK-PULVERIZER. DAVID C. EBAUGH, Charleston, S. C. Filed Aug. 4, 1884. (No model.)

Claim.—1. The combination, with a rotary cylinder having an open face, and dampers located opposite said open face, of a stationary plate closing the opening in said cylinder, exhaust-pipes connected with the interior of the cylinder, and crushing-rollers.

2. The combination, with a cylinder mounted on a shaft, and crushing-rollers located in said cylinder, of a clearing device for removing the adhering particles of rock from the perimeter of the cylinder and supported in bearings located outside of the cylinder, substantially as set forth.

3. The combination, with a cylinder open at one face or side and provided with a series of air-supply openings, stationary supports outside of the cylinder, and a plate for closing said open face rigidly secured to said supports, and provided with an oblong opening, of exhaust-pipes secured to the stationary plate and communicating with the cylinder, a shaft passing through said oblong opening in the stationary plate, and a crushing-roll secured to the shaft inside of the cylinder, substantially as set forth.

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4. The combination, with a cylinder having a large opening in one face thereof, a stationary plate closing said opening and a series of small air-supply openings in its opposite face, of an exhaust-pipe passing through the stationary plate, crushing-rollers located within the cylinder, and a scraper located above the crushing-rolls, substantially as set forth.

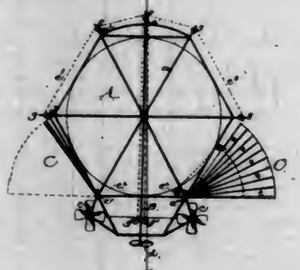
5. The combination, with a rotating cylinder having an open face, and a stationary plate for closing the opening in said cylinder, of standards located to one side of the cylinder, shafts journaled in bearings in said standards and passing through the stationary plate, and crushing-rollers secured to said shafts.

6. The combination, with a rotating cylinder having an open face, a stationary plate for closing the opening in said face, and crushing-rolls, of a stationary hopper, a movable hopper, and a spout leading from the movable hopper to the interior of the cylinder.

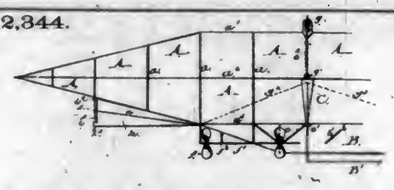
7. The combination, with a cylinder mounted on a shaft and having an open face, and hardened metallic plates lining the perimeter and a portion of the side faces of said cylinder, of a stationary plate closing the opening in said face, and crushing-rolls located within the cylinder, and journaled in bearings outside of said cylinder, substantially as set forth.

8. The combination, with the cylinder and the stationary plate forming one face of the cylinder, of the standards located to one side of the cylinder, the adjustable bearings e and e', the rods connected to said bearings, screw-threaded nuts secured on said rods, springs for forcing the bearings e downwardly, the shafts d, and the crushing-rolls, all of the above parts operating substantially as set forth.

312,344. VESSEL FOR AERIAL NAVIGATION. EUGENE F. FALCONNET, Nashville, Tenn. Filed Nov. 8, 1883. Renewed Nov. 19, 1884. (No model.)



312,344.



Claim.—1. In vessels for aerial navigation, adjustable fans secured in the sides of the vessel at fixed points by knuckle-joints, and opened, closed, and otherwise handled through cables or chains passing to within the vessel by internally-arranged machinery, substantially as and for the purpose described.

2. In vessels for aerial navigation, adjustable fans secured by knuckle-joints on the sides of the vessel, in combination with long fin-shaped rudder-blades arranged on the under side of the tapering ends of the hull, and secured in ways, and operated by tiller chains or cables for the purpose of lateral steering, substantially as and for the purpose shown.

3. In vessels for aerial navigation, adjustable fans arranged at intervals along the sides of the ship, and attached by suitable joints to a suitable fixed base, in combination with a laterally-adjustable end screw for laterally deflecting and changing the course of such vessel, substantially as shown and described.

4. A fan or sail consisting of a frame of thin blades severally jointed or hinged to a suitable frame at common points on the sides of the vessel, and covered with thin flexible material, in combination with cables or chains attached to the fan and passing into the vessel and with rudders at the bow and stern, substantially as shown and described.

5. In vessels for aerial navigation, long fin-shaped rudder-blades secured at the smaller ends by pivotal joints amidships to and ranged along and made to conform to the under side of the tapering ends of the vessel, the outer and larger ends extending to and resting in frames secured to, forming part of, and protruding from, the under side of the vessel, where they are secured and operated in ways for steering the vessel laterally, substantially as shown and described.

6. In vessels for aerial navigation, long fin-like rudder-blades secured and made to conform to the tapering body, and extending along the under side toward the ends of the vessel, their outer ends arranged to move laterally between or upon suitable guideways secured to the ship's body, in combination with adjustable fans secured to the sides of the vessel for the purpose of steering the latter, substantially as described.

7. In vessels for aerial navigation, long fin-shaped rudder-blades arranged and by pivotal joints secured amidships to and ranged along and conforming to the under side of the tapering ends fore and aft, in combination with adjustable end screws employed for laterally deflecting and changing the course of the vessel, substantially as shown and described.

8. In vessels for aerial navigation, long fin-shaped rudder-blades arranged and by pivotal joints secured amidships to and ranged along and conforming to the under side of the tapering ends fore and aft to a frame protruding from the vessel, in combination with projecting frame *i*, carrying horizontal ways at top and bottom in which the wheels on the outer end of the rudder have seats and move, vertical stanchions carrying pulley-wheels arranged for supporting the rudders employed in steering the vessel's course laterally, and cables or chains attached to the rudders passing over said pulleys to steering-gear, substantially as shown and described.

9. Long fin-shaped tapering rudder-blades provided with a journal-joint at one end, and carrying in suitable journals at the opposite end gearing-wheels, by which they are moved in their ways for steering vessels for aerial navigation, arranged substantially as shown and described.

10. Long fin-shaped tapering rudder-blades *h*, provided at one end with a pivotal journal-joint, *o*, by which they are secured in place, and at the other with suitable wheels, *i'*, by which they are moved in ways i^2, forming the segment of an arc in frame *i*, in combination with frame *i*, ways i^2, stanchions i^3, pulley-wheels *s*, steering-cables *n n'*, and drum *s'*, for laterally steering vessels for aerial navigation, substantially as shown and described.

11. In vessels for aerial navigation, end propelling and steering screws mounted between the end of the hull and a supporting-bracket on and actuated by a longitudinally-adjusted shaft intersected by a universal joint, and secured in bearings in an adjustable carriage arranged in ways in the end of the vessel's hull, and a pendent bracket with swivel-bearings, as shown, the whole constructed and arranged to be operated by mechanical power for propelling and laterally changing the course of such vessels, substantially as shown and described.

12. In vessels for aerial navigation, the combination of end screws, *f*, longitudinally-arranged horizontal shaft *f'*, universal joints f^3, journal *w*, movable carriage *p*, the latter having racked gear-bands *e e*, and tongues *e' e'*, pinions *p'*, and ways *o'* in aperture *q*, and bracket-supports f^2, for propelling and laterally steering vessels for aerial navigation, substantially as shown and described.

13. In vessels for aerial navigation, the combination of laterally-adjustable end screw, *f*, mounted in shifting ways, side fans, C, and adjustable side screw, *c*, for propelling and laterally deflecting and changing the course of the vessel, substantially as and in the manner described.

14. In vessels for aerial navigation, the combination of side fans, C, fin-shaped rudder-blades *h*, and laterally-adjustable end screws secured and operated, as shown, for laterally deflecting and changing the course of vessels for aerial navigation, substantially as and in the manner described.

15. In vessels for aerial navigation, the combination of adjustable side fans for laterally deflecting, and side adjustable fins, *b*, for vertically deflecting, the course of vessels for aerial navigation, substantially as shown and described.

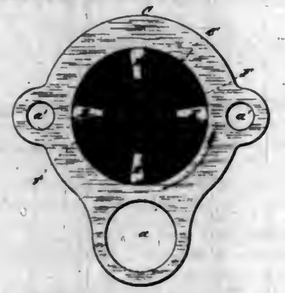
16. In combination, in vessels for aerial navigation, side fans, C, fin-shaped rudder *h*, and laterally-adjustable end screw, *f*, for changing the vessel's course laterally, side propelling and end screws for propelling the vessel forward, and adjustable side fins, *b*, for deflecting the vessel's course vertically in the process of navigating and handling vessels for aerial navigation, substantially as shown and described.

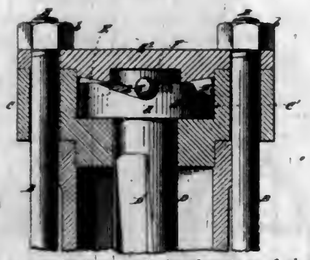
312,345. CAR-COUPLING. JOHN T. GILCHRIST, Knobel, Ark. Filed Dec. 22, 1884. (No model.)



Claim.—The combination, with the draw-heads of a railroad-car having grooves at their outer ends to form seats, and the usual coupling-pins, of a horizontal bar or rod cast with independent links, said bar or rod extending between the links and beyond each side thereof to form transverse handles, substantially as and for the purpose set forth.

312,346. ROTATING FEED FOR STEAM ROCK-DRILLS. JOSEPH C. GITHENS, New York, N. Y., assignor to the Rand Drill Company, same place. Filed May 2, 1884. (No model.)



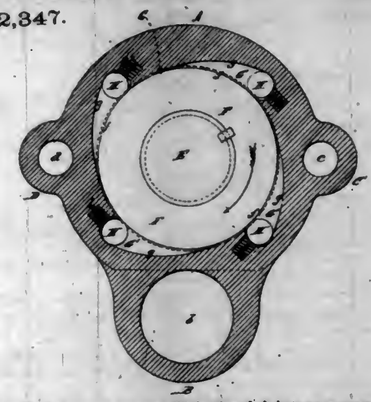


Claim.—In mechanism for effecting the rotatory feed of the piston in the cylinder of a steam rock-drill or other analogous engine, the combination, with the head D of the spiral bar and one of the walls of the chamber C' in which the head of the spiral bar is contained, of the springs F and conical rollers H, deposited in suitably-tapering recesses, formed either by recessing the face of the head B of the spiral bar or by recessing the opposed wall of the chamber in the head of the cylinder in which the head B of the spiral bar is contained, substantially as and for the purpose set forth.

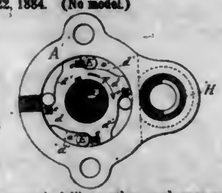
312,347. ROTATORY FEED FOR STEAM ROCK-DRILLS. JOSEPH C. GITHENS, New York, N. Y., assignor to the Rand Drill Company, same place. Filed May 2, 1884. (No model.)

Claim.—In mechanism for effecting the rotatory feed of the piston in the cylinder of a steam rock-drill or other analogous engine, the side wall of the chamber formed in the head of the steam-cylinder, and provided with the concave recesses G', having their bottoms *g* eccentric with the periphery of the spiral bar, in combination with the rollers H and the head F of the spiral bar E, and the piston I, substantially as and for the purpose set forth.

312,347.



312,348. STEAM ROCK-DRILL. JOSEPH C. GITHENS, New York, N. Y., assignor to the Rand Drill Company, same place. Filed Jan. 21, 1884. Renewed Oct. 22, 1884. (No model.)



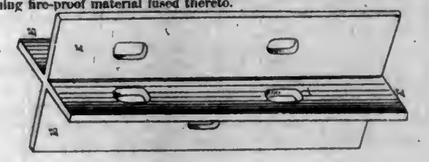
Claim.—1. In a rock-drill or other analogous engine in which the piston is liable, when the machine is in operation, to make strokes of variable length, and in which the rotatory feed of the piston is effected by means of a spiral bar loosely engaging a nut formed in or affixed to a longitudinally-recessed piston, the combination of the said spiral bar and piston with the herein-described mechanism for definitely varying the extent of the rotatory feed following different working-strokes of the piston proportionately to differences in the lengths of such different working-strokes, the said mechanism consisting of a rolling stop or stops deposited in a recess or recesses between the interior surface of a chamber formed in the head of the cylinder, and a portion of the head of the spiral bar, or of a wheel or collar affixed to the end of the spiral bar, and constituting the head thereof, and a spring or springs acting to force such rolling stop or stops, respectively, toward the narrower part or parts of the recess or recesses containing the said rolling stop or stops.

2. In a rock-drill or analogous engine, a longitudinally-recessed piston and a spiral bar journaled in the cylinder-head and loosely engaging a nut affixed to the piston, and provided near its journal with a wheel or hub having in its periphery a series of notches, the bottoms of which present eccentric faces, in combination with a cylindrical recess formed in the head of the cylinder, and a series of friction-rollers deposited, respectively, in the notches of the said wheel or hub, and a corresponding series of springs supported in said wheel or hub, and exerting their tension in such a direction as to force the rollers, respectively, toward the narrower parts of the spaces between the concentric wall of the recess and the eccentric faces which constitute the bottoms of the notches.

3. In combination with the herein-described spiral bar and piston, two or more rolling stops arranged upon opposite sides of the head of the spiral bar, and interposed between the head of the spiral bar and the interior surface of a chamber formed within the head of the cylinder, for the purpose of centralizing the spiral bar and preventing it from wearing its journal unevenly, substantially as described.

312,349. CAST-IRON COLUMN. P. HENRY GRIFFIN, Detroit, Mich. Filed Aug. 2, 1884. (No model.)

Brief.—Consists of concentric metallic shells, the inner strengthened by radial partitions of iron, and the partitions and shells having an intervening fire-proof material fused thereto.



312,349.



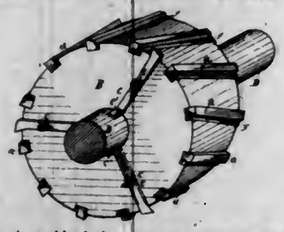
Claim.—1. A column consisting of three elements, two of which form the main strengthening members, and the third formed of fire-proof material and fused to the surface of one of the main members and uniting it with the other, substantially as described.

2. The metal casing D and a supplemental metallic support within the same, in combination with a fire-proof filling between the two fused to the shell and support, as and for the purposes set forth.

3. The concentric metallic shells A D, in combination with a fire-proof filling between the two fused into a solid mass and to the shells, as and for the purposes set forth.

4. The concentric shells A D, held together by a fire-proof material, C, fused between the two, in combination with radial partitions, as E, strengthening the shell A, and a fire-proof material, B, filling the spaces between said partitions and the shell, the said material B being fused to the partitions and to the shell A, as and for the purposes herein specified.

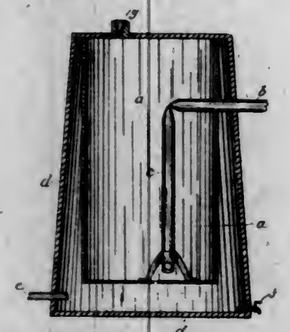
312,350. COMBINED BORING AND REAMING TOOL. WILLIAM E. HILL, Kalamazoo, Mich. Filed Feb. 28, 1884. (No model.)



Claim.—1. A combined pipe auger and reamer consisting of a revoluble shaft and head provided on the periphery of said head with cutting-points for boring a pipe, and with reamer-bars for reaming said pipe, all substantially as set forth.

2. The head provided with radial bars terminating in cutting-points, and adjustably secured to said head, and with diagonal reamers, substantially as described.

312,351. PROCESS OF OXIDIZING LINSEED AND OTHER OILS. JOHN W. HOARD and FREDERICK R. HOARD, Providence, R. I. Filed Aug. 9, 1884. (Specimens.)

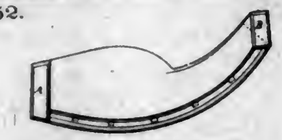


Claim.—The process of oxidizing linseed-oil and other liquids by passing and repassing the same by the agency of a blast of air through an atomizer within the vessel containing the liquid under treatment, substantially as above set forth.

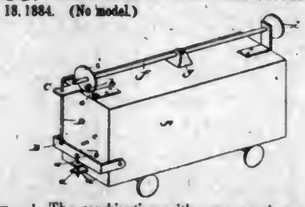
312,352. OX-SHOE. HENRY HOTCHKISS, Cheshire, Conn. Filed Jan. 8, 1883. (No model.)

Claim.—An ox-shoe having the toe-calk extend across the toe end obliquely to said end and substantially parallel with the heel-calk, substantially as described, and for the purpose specified.

312,352.



312,353. CAR-COUPLING. WM. J. HUTSON, Pineville, Ark. Filed Nov. 18, 1884. (No model.)



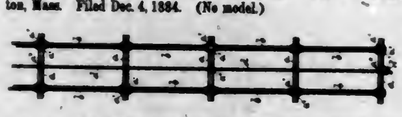
Claim.—1. The combination, with a car carrying a suitable draw-head, of a pivoted bracket carrying a pivoted pin, a stop, a rod attached to said bracket, a shaft journaled upon the upper side of the car, said rod having an angular upper end, and an angular arm attached to said shaft, substantially as set forth.

2. The combination, with a car carrying a draw-head and a pivoted bracket, and a coupling-pin pivoted to said bracket, of a rod attached to said bracket and having a bent upper end, a shaft journaled above the car, a weight on said shaft, a disk, an angular arm attached to said disk, and a stop for limiting the upward movement of the bracket, substantially as set forth.

3. The combination, with a car carrying a suitable draw-head, of a pivoted bracket carrying a pivoted coupling-pin, a rod attached to said bracket and having a bent end, a shaft journaled above the car, a weight on said shaft, and an angular arm attached to said shaft, as set forth.

4. The combination, with a car, of an outwardly-extending slotted plate and a hooked bar arranged above and to one side of said plate, as set forth.

312,354. FLEXIBLE EXTENSION-LADDER. JOHN I. IVESTER, Boston, Mass. Filed Dec. 4, 1884. (No model.)



Claim.—The herein-described flexible extension-ladder, consisting of the corner twin ropes, *b b*, passing through perforations in the rigid steps *a a a*, and secured above and below such steps, in combination with the hoisting-rope *d*, passing loosely through a perforation in each step and secured to the lowest one in the series, substantially in a manner and for the purpose set forth.

312,355. COMBINED TOILET-CASE AND SATCHEL. LOUELLA JOHNSTON, Columbus, Ohio. Filed Dec. 26, 1884. (No model.)



Claim.—1. The improved article of manufacture—viz., a combined toilet-case and satchel comprising suitable inside pockets, outside receptacle or frame for a toilet or looking glass on a stiff support, the outer flexible finishing material, and a flap-cover for the said glass, substantially as described.

2. The improved article of manufacture—viz., a combined toilet-case and satchel comprising suitable inside pockets, outside receptacles for cosmetics on a stiff support fastened to the outer finishing material, and a flap-cover for the said receptacles, substantially as described.

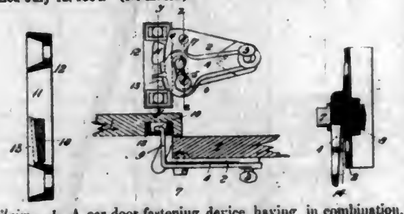
3. The improved article of manufacture consisting of the combined toilet-case and satchel, the same having suitable inside pockets, outside

frame, and suitable supports on the outside flexible finishing material for a toilet or looking glass, receptacles for cosmetics, and flap-covers for the glass and cosmetics, substantially as described.

312,356. ARTIFICIAL STONE. JOHN D. KING, Fairbury, Nebr., assignor of one-half to William P. Freeman, same place. Filed Jan. 12, 1885. (No specimens.)

Claim.—The herein-described composition of matter to be used in the manufacture of artificial stone, consisting of sand, cement, water, soluble glass, borax, saltpeter, dried alum, and salt, in the proportions specified.

312,357. CAR-DOOR FASTENING. JACOB KINZER, Pittsburg, Pa. Filed July 12, 1884. (No model.)



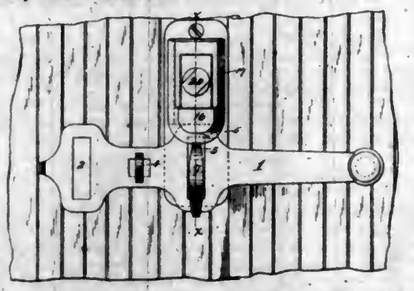
Claim.—1. A car-door-fastening device having, in combination, a pivoted hasp provided with a slot and bent portion adapted to project over the edge of the car-door, a slotted keeper secured in the side of the car and flush therewith, and adapted to receive the bent portion of the hasp, and a bolt for securing the hasp in a locked position, substantially as set forth.

2. In a car-door-fastening device, a hasp pivoted to the door and provided with a flanged bent portion, 9, in combination with a keeper secured in the side of the car and provided with the opening 11 and the slot 13, and a bolt for securing the hasp in a locked position, substantially as set forth.

3. In a car-door-fastening device, a hasp pivoted to the door and provided with the bent portion 9, having the inclined flange 10, in combination with the keeper secured in the side of the car, as described, and provided with the opening 11 and slot 13, and having its inner surface adjacent to the slot inclined, as described, and a bolt for securing the hasp in a locked position, substantially as set forth.

4. In a car-door-fastening device, a hasp slotted as described, and provided with the bent portion 9, having the inclined flange 10, in combination with the keeper secured in the sides of the car, as described, and having the opening 11 and slot 13, and having its inner surface adjacent to the slot beveled as shown, and a bolt adapted to fit in the slot of the hasp and lock the same in engagement with the keeper, substantially as set forth.

312,358. CAR-DOOR LOCK. JACOB KINZER, Pittsburg, Pa. Filed July 12, 1884. (No model.)

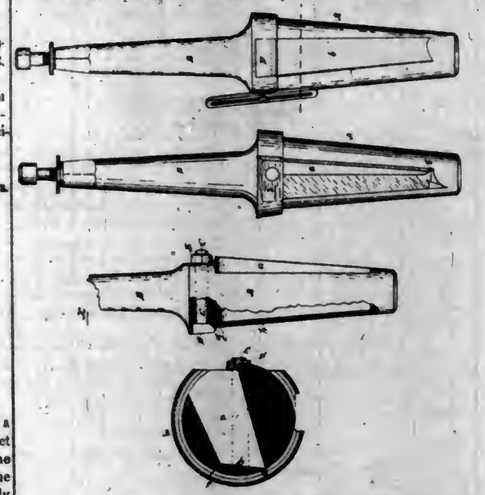


Claim.—1. In a car-door lock, a pivoted hasp provided with slots, as shown, in combination with a bolt having a flattened head adapted to fit in the slot in the hasp, a sliding bolt or catch for holding the hasp on the bolt-head, and a threaded bolt or screw for securing the sliding bolt in position, substantially as set forth.

2. In a car-door lock, a pivoted hasp having suitable slots or openings therein, in combination with a bolt having a head notched on its under side, as described, a sliding bolt or catch for holding the hasp in position on the bolt-head, and a threaded bolt or screw for locking the sliding catch in position, substantially as set forth.

3. In a car-door lock, a pivoted hasp, slotted as described, in combination with a bolt having its head portion constructed as shown, a slotted plate having flanges projecting into the slot, a flanged keeper-block fitting within the slot in the plate, a sliding bolt or catch, and a threaded bolt or screw for clamping the block and sliding bolt against the flanges of the plate, substantially as set forth.

312,359. BUNG-HOLE CUTTER. JOSIAH KIRBY, Cincinnati, Ohio. Filed Sept. 18, 1882. (No model.)



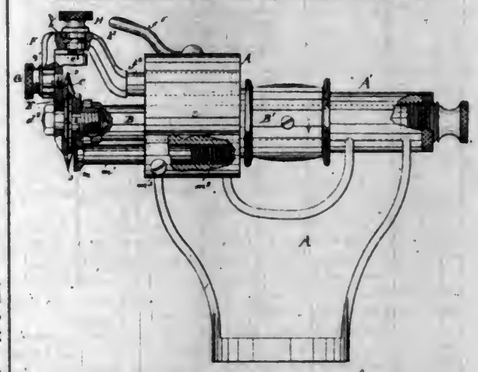
Claim.—1. The combination of the tubular body A, provided with notch *g*, and recess *f*, and opening *a*, bit *b*, and bolt entering the body A at the upper end of the latter, and securing the bit at its upper end to the body, and preventing the bit from coming up out of notch *g*, for the purposes set forth.

2. The combination of the tubular body, having notch *g*, and the bit *b*, having its lower end received in said notch, and a bolt arranged to overlap the upper end of the bit and to secure the latter in position to the body A, substantially as and for the purposes specified.

3. The combination of the body A, bit *b*, having a beveled upper end, and the bolt C, having a head, D, provided with a beveled edge, *d*, the bolt being retained in position by a nut, E, and the lower end of the bit being retained in position by the notch *g* in the body A, substantially as and for the purposes specified.

4. The combination of the tubular body, having notch *g* and depression *f*, and bit *b*, its lower end in notch *g* and its upper end in depression *f*, and the bolt C, having head D, provided with edge *d*, overlapping the upper end of the separable bit, and having shank, which passes through the body A and on its end receives a nut, E, substantially as and for the purposes specified.

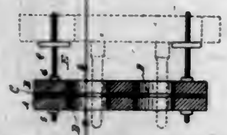
312,360. EDGE-TRIMMER FOR BOOTS OR SHOES. SANFORD K. ENOX, North Abington, Mass. Filed Apr. 17, 1884. (No model.)



Claim.—1. The rotating shaft, its attached disk-cutter provided with a series of blades, the bracket F, having a round shank and capable of being adjusted about its own axis, and its attached adjustable plate E, and guide connected with the said plate, combined with the screws G and H, whereby the guide may be adjusted with relation to the cutter, substantially as described.

2. The rotating shaft and its attached cutter provided with blades, and the guide D, combined with the wheel *m*, against which the sole of the shoe may be pressed, and the horizontally-sliding rod *m'*, to carry the said wheel, all substantially as described.

312,361. CAPSULE-CUTTER. JOHN KREHBIEL, Detroit, Mich., assignor to the Globe Capsule Company, same place. Filed Oct. 16, 1883. (No model.)

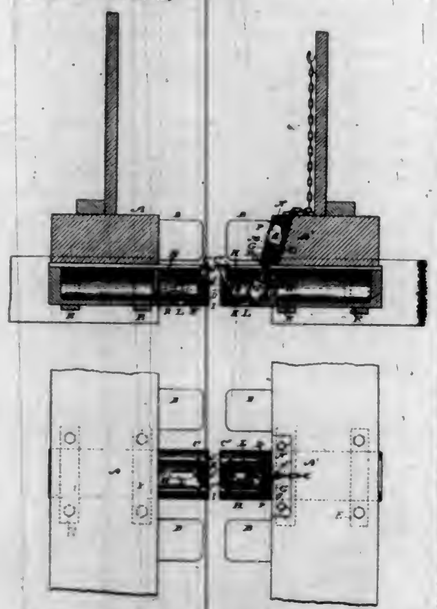


Claim.—1. The combination, in a capsule-cutting machine, of an annular cutter sharpened on the inner edge and held in a suitable holder, a mold-pin attached to a suitable holder, and an adjustable guide attached to one of said holders for regulating the position of the pin as to its length within said cutter, substantially as described.

2. In a capsule-cutter, a series of ring cutters set in a suitable holder, and a second holder carrying a series of mold-pins, one of said holders being provided with a series of guide-rods and the other holder with a corresponding series of guide-holes in which said guide-pins work, substantially as described.

3. A capsule-cutting-off device consisting of the following elements: rigid front and rear plates, inclosing a spring-plate, through all of which are coincident holes, those in the spring-plate inclosing ring cutters, stops, and guide-rods, the parts being constructed, arranged, and operating substantially as and for the purposes set forth.

312,362. CAR-COUPLING. JOHN F. LEECH, Allegheny, Pa. Filed Dec. 2, 1884. (No model.)



Claim.—1. The combination of a draw-head having a section of a sphere with a bar or bolt having a socket.

2. The combination of a draw-head having a section of a sphere, a bar or bolt having a socket, and a pocket placed immediately above the draw-head, for keeping the bolt in position preparatory for coupling.

3. A draw-head having a perpendicular slot in the head-plate for the admission of a bar or bolt, a section of a sphere upon such head plate, and a bolt having a socket to fit such section of a sphere.

4. A draw-head having a longitudinal slot on top and a perpendicular slot in the head-plate for the admission of a bar or bolt, and a hemispherical projection on the head-plate, substantially as and for the purpose hereinbefore set forth.

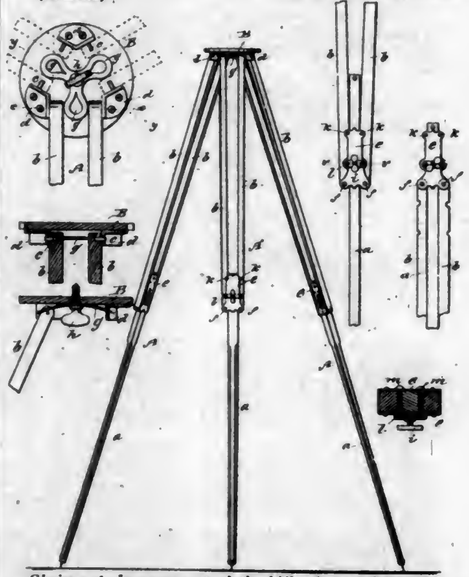
5. A coupling-bolt consisting of heads concave on the inside where they are connected by a shank.

6. The pocket for receiving the bolt, having the flaring sides and bottom, a top plate, a notch in the bottom plate, and an inclined face, substantially as hereinbefore set forth.

7. The combination of the cylindrical draw-head having slots for the admission and retention of the bolt, the head-plate, the section of a sphere on the head-plate, the socket in the bolt, and the pocket, substantially as hereinbefore set forth.

8. The combination of the car-body, the cylindrical draw-head, and the square braces for supporting the draw-head, substantially as hereinbefore set forth.

312,363. CAMERA-STAND. WILLIAM H. LEWIS, New York, N. Y., assignor to E. & H. T. Anthony & Co., same place. Filed Sept. 11, 1884. (No model.)



Claim.—1. In a camera-stand, the folding legs consisting of the portions *a b b*, connected by hinge-plates *e*, which allow the parts *b b* to be turned outward in opposite directions, substantially as described.

2. In a camera-stand, the plates *e*, combined with the leg portions *a b b*, so as to serve as hinges and as a lateral support to the joint, substantially as described.

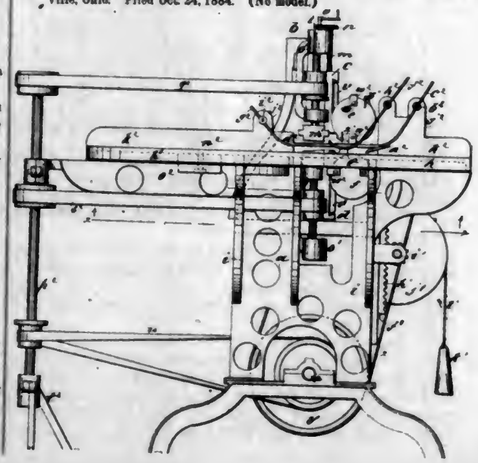
3. In a camera-stand, the spring-arms *g*, combined with the table B and the leg portions *b b*, substantially as and for the purpose specified.

4. In a camera-stand, the combination, with the table B and the leg portions *b b*, connected with pins *c* upon the table, of arms attached to the table and projecting between the parts *b b*, for retaining them in place, substantially as described.

5. In a camera-stand, the combination of the piece *l* and screw *i* with the hinge-plates *e*, substantially in the manner and for the purpose specified.

6. A leg for camera-stands, constructed so as to be folded, and adjustable in length by an endwise movement of the parts, two of the parts being adapted to be turned outward and folded against the opposite sides of the other part, substantially as described.

312,364. PANEL-RAISING MACHINE. JULIUS LOSNITZ, Madisonville, Ohio. Filed Oct. 24, 1884. (No model.)



Claim.—1. The combination, in a panel-raising machine, of the upper and lower cutter-heads, *e* and *f*, arranged on vertical slides *c d* and cross-slides *v*, also the upper and lower edge cutter-heads, *m'* and *n'*, mounted on the vertical slides *c d*, and being adjustable thereon vertically and toward and from the work with the work-holding table, substantially as described.

2. The combination, with the adjusting-screws *k m*, of vertical slides *c d*, having toothed wheels *l n* and slotted heads *s*, of the socket-crank *o*, having a toothed wheel, *p*, and pin *t*, substantially as described.

3. The combination, in a panel-raising machine, of the pulley *d'*, vertically-sliding support *f''*, disposed parallel with the toothed rack *k'*, spring-pawl g^2, connected to said support and engaging said rack, hand-lever h^2, and tripping-lever i^2, with the driving-belt *x* and the cutter-mandrel pulleys *a' b'*, said cutter-mandrels being differentially adjustable on the vertical frame *b*, substantially as described.

4. The T-shaped edge cutter-supports *o'*, having arms *p'*, adjustable into the slides *q'*, vertically adjustable on the ways *s'*, attached to the vertically-adjustable slide-rests *c d*, substantially as described.

5. The combination, in a panel-raising machine, of the upper and lower cutter-heads having the bits *x'*, arranged obliquely to said heads, and having the curved cutting-edges *y'*, said cutter-heads being disposed on vertical slides *c d* and cross-slides *v*, together with the upper and lower edge cutter-heads, *m'* and *n'*, mounted on the vertical slides *c d*, and adjustable thereon vertically and toward and from the work and the work-table, substantially as and for the purpose set forth.

6. The combination, in a panel-raising machine, of the upper and lower cutter-heads, *e* and *f*, arranged on vertical slides *c d* and cross-slides *v*, together with the upper and lower edge cutter-heads, *m'* and *n'*, having bits *w'*, provided with cutting-surfaces standing at an obtuse angle to their shanks, said upper and lower edge-cutters being mounted upon the vertical slides *c d*, and adjustable thereon vertically and toward and from the work and the work-table, substantially as and for the purpose set forth.

7. The combination, in a panel-raising machine, with the cutter-heads and work-table, of the chip-breaker located in advance of the cutter-heads, pressure-gage c^2, located at the sides of said cutter-heads, and the pressure-gage d^2, located back of the cutter-heads, substantially as described.

8. The work-gage k^2, having means for its connection to the work-table, and standards j^2, supporting the arms of the chip-breaker and pressure-gage, substantially as described.

9. The work-table *h*, arranged on the pivot n^2 and fitted on the supporting-bracket *i*, together with adjusting-screws and their slots for shifting away from the cutter-heads, substantially as herein shown and described.

312,365. TELEPHONE. JAMES LOWTH, Chicago, Ill. Filed June 2, 1883. (No model.)



Claim.—1. As an improvement in the art of telephony, the hereinbefore-described method of operating a telephone, which consists in communicating to the current-controlling elements thereof the disturbances or vibrations of the exterior parts of the human body which are induced by or accompany the exercise of the vocal organs.

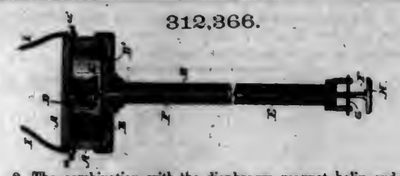
2. As an improvement in the art of telephony, the hereinbefore-described method of transmitting speech, which consists in communicating to the telephone-transmitter those disturbances or vibrations of the exterior portions of the body which are induced by or accompany the utterance of articulate sounds, producing changes in the current corresponding to said disturbances or vibrations, and reproducing in the receiver disturbances or vibrations that produce sounds similar to those uttered in causing the said exterior disturbances or vibrations of the body.

3. As an improvement in the art of telephony, the hereinbefore-described method of operating a telephone-transmitter, which consists in communicating to the current-controlling elements thereof, through the medium of a conductor connected therewith and placed in contact with the body of the speaker, those disturbances or vibrations of the exterior portions of the body which accompany the utterance of sound.

312,366. TELEPHONE. JAMES LOWTH, Chicago, Ill. Filed Aug. 8, 1884. (No model.)

Claim.—1. In combination with a telephonic transmitter, a vibratory rod arranged, substantially as shown, in operative contact at one end with the vibratory element or elements of the telephone, and projecting at its other end from the latter to receive the muscular vibrations of exterior portions of the speaker's body, as set forth.

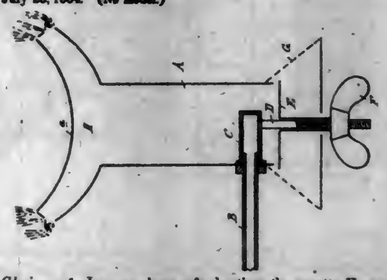
312,366.



2. The combination, with the diaphragm, magnet, helix, and other necessary parts of a transmitter, of a vibratory rod arranged and operating to move said diaphragm, and a cover, B, to protect the said diaphragm against any material influence upon it by sound-waves that might otherwise act perceptibly on it through the medium of the atmosphere.

3. The combination, with the case and other usually necessary parts of the transmitter, of a vibratory rod which bears directly on the diaphragm, as described, and a tubular extension, E, that serves the double purpose of a surrounding protection of and support to the said rod, and which also answers as a handle for the convenient use of the transmitter whenever said rod is to be placed in contact with the body of the speaker, all as set forth.

312,367. GAS-BURNER. BRUNO MARTIN, East Saginaw, Mich. Filed July 23, 1884. (No model.)

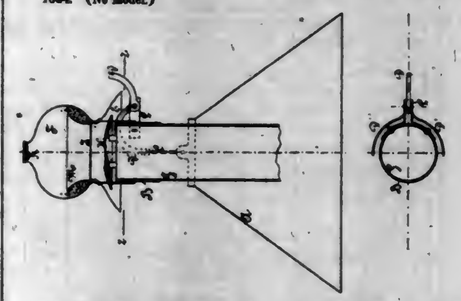


Claim.—1. In a gas-burner for heating, the rosette H, provided with the convex deflecting-face *a* over the mixing-tube, and concentrically apertured upon its outer rim, said apertures being upon different planes with different diameters, and with the apertures of the largest diameter upon the lowest plane, substantially as and for the purposes described.

2. In a gas-burner for heating, the valve E, centrally sleeved upon a guide-rod below the open end of the mixing-tube, and provided with a thumb-nut for adjusting it upon said guide-rod, substantially as and for the purposes described.

3. The gas-burner herein described, consisting of the mixing-tube A, provided with delivery-pipe B, nipple C, within said tube, guide-rod D, secured to said nipple, valve E, sleeved upon said rod, the rosette H, connected with the upper end of the tube A, and the shield G, surrounding the lower end of said tube, substantially as and for the purposes specified.

312,368. SMOKE-CONSUMING ATTACHMENT FOR LAMP AND OTHER CHIMNEYS. CHARLES MARTIN, Paris, France. Filed Sept. 29, 1884. (No model.)

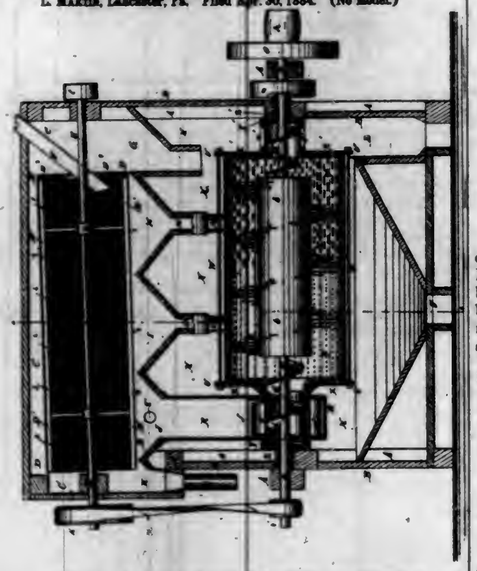


Claim.—1. The combination, with a lamp or other chimney, G, of a supporting-sleeve, B, deflectors H and E, a bulb-shaped cap, F, perforated diaphragms J and K, and an interior funnel-shaped shell, M, forming a pocket, *i*, filled with absorbent material, substantially as specified.

2. In a smoke-consuming attachment for lamp and other chimneys, the combination, with the chimney G, of a sleeve, B, deflectors H and E, and a bulb-shaped cap, F, having perforated diaphragms J and K, substantially as set forth.

3. The combination of a lamp-chimney, G, a supporting-sleeve, E, bracket L, forked lever D D', suspension-chains C C, and a shade, A, substantially as and for the purpose specified.

312,369. COMBINED GRAIN SEPARATOR AND SMUTTER. HARRY L. MARTIN, Lancaster, Pa. Filed Apr. 30, 1884. (No model.)



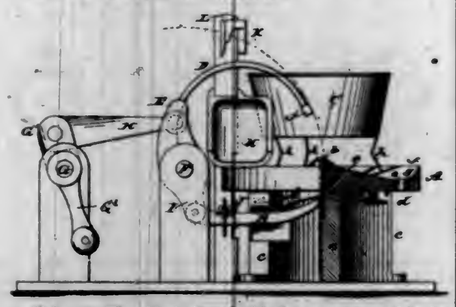
Claim.—1. In a grain separator and smutter, the combination, with the hollow cylinder U, having a perforated and slotted shell, and provided with the end chambers, Y Y', having openings *e e'* and buckets *f*, of the cylinder *b*, arranged within the cylinder U, and provided with the spirally-arranged teeth *c* and the spiral flanges *d d'* on its shaft *a*, substantially as herein shown and described.

2. In a grain separator and smutter, the combination, with the cylindrical chamber Y, having side openings, *e*, and the buckets *f*, of the grain-receiving well R, substantially as herein shown and described, whereby the grain will be fed into the smutter, as set forth.

3. In a grain separator and smutter, the combination, with the screen-chamber C and the smutter-chamber N, of the exhaust-fan Q, the dust-chamber P, and the spouts O T, substantially as herein shown and described, whereby the dust and screenings will be withdrawn from the machine, as set forth.

4. A grain separator and smutter comprising the screen-case C, the recesses G H I J K, the revolving screen D, the cylinder U V, provided with the chambers Y Y', the cylinder *b*, provided with the spirally-arranged teeth *c* and the spiral flanges *d d'* on its shaft *a*, and the exhaust-fan Q, all arranged and combined substantially as herein shown and described.

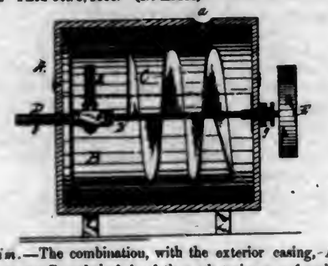
312,370. CHERRY-PITTING MACHINE. JAMES MCVICKAR, Caldwell, N. J. Filed Apr. 9, 1884. (No model.)



Claim.—1. The table A, formed with the apertures *a*, and having the hopper C held above it, said hopper being supported upon the rods *h*, secured to said table, substantially as and for the purposes set forth.

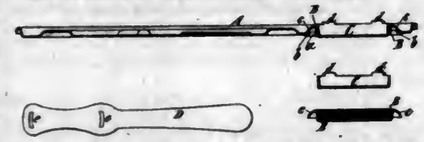
2. The apertured circular and centrally-pivoted table A, provided with ratchet *d*, the pawl B, and reciprocating arm D, attached, respectively, to the arms I E of the shaft F, in combination with the crank-shaft G and connecting-rod H, all arranged to operate substantially as and for the purposes set forth.

312,371. APPARATUS FOR FORCING AIR. ORSON MILLARD, Flint, Mich. Filed Oct. 3, 1883. (No model.)



Claim.—The combination, with the exterior casing, A, interior casing, B, screw C, and shaft *b*, of the socket-piece *e e f*, and the pipes D *d*, the shaft *b* finding a bearing in said socket-piece, and the pipe D being secured thereto and extending in a line with the shaft out through both casings, and the pipe *d*, also secured to the socket-piece, set at right angles to the pipe D and terminating inside the inner case, substantially as and for the purpose set forth.

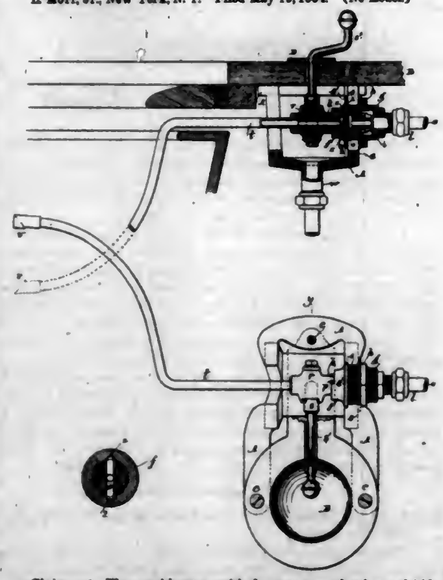
312,372. CLOSING KEROSENE AND OTHER CANS. HERMAN MILLER, New York, N. Y. Filed Feb. 13, 1884. (No model.)



Claim.—1. The combination, with the can top or head A, of the ring B, having a taper screw-threaded interior, and also having the downwardly-flaring flange *c*, extending from its upper part, and soldered to the can top or head, and a stopper or plug having a taper screw-threaded exterior, substantially as herein described.

2. The combination, with the can-top or can-head A, having a hole, *a*, of a ring soldered thereto around said hole, and having a taper screw-threaded interior, and the cup-shaped stoppér or plug C, having a taper screw-threaded exterior destitute of a shoulder, and provided with the lugs or ears *d*, to which a wrench may be applied, substantially as herein described.

312,373. BIDET ATTACHMENT FOR WATER-CLOSETS. JORDAN L. MOTT, Jr., New York, N. Y. Filed May 19, 1884. (No model.)



Claim.—1. The combination, with the water-supply pipe and bidet-pipe, of a swivel-coupling and turning-cock, and a crank-lever handle to the plug of the cock, whereby the cock and bidet-pipe can be turned into

place for use without turning on the water, and the cock can be opened or closed independently of the movement of the bidet-pipe, and by one handle, substantially as set forth.

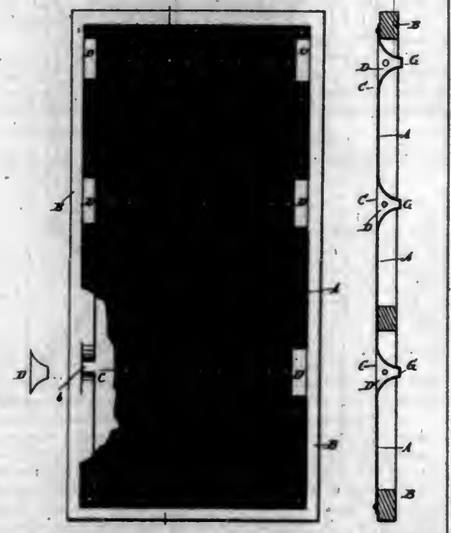
2. The combination, with the water-pipe, swivel-coupling, turning-cock, and the bidet-pipe, of a crank-lever handle to the plug of the cock, and a slotted cup, into which slot the lever-handle can be swung only when the water has been shut off, substantially as set forth.

3. The combination, with the water-pipe and the bidet-pipe, of two supply-cocks, one of which forms the swivel upon which the bidet-pipe is swung, the other being a turning-cock, and a lever-handle connected to the plug of the other cock, by means of which handle the bidet-pipe is moved and the water turned on and off by independent movements of the lever-handle, substantially as set forth.

4. The frame A, slotted cup D, and screws connecting the same, in combination with the plug *k*, having an operating stem or handle, barrel *f*, and head, the barrel *g*, and clamping-nut, the water-supply pipe, and the bidet-pipe extending in line with the plug *k* and then bent into the arc of a circle, substantially as set forth.

5. The combination, with the bidet-pipe, of the tubular plug *k*, having an operating stem or handle having two cross-holes, the barrel *g*, having recesses, and the stop-pin and stops on the plug and barrel, respectively, substantially as specified.

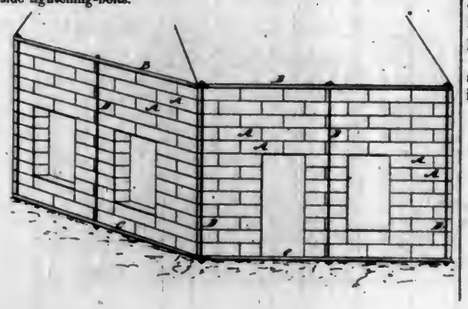
312,374. DOOR OR WINDOW SCREEN. ORAMAN G. NEWTON, Trenton, Mo. Filed July 26, 1884. (No model.)



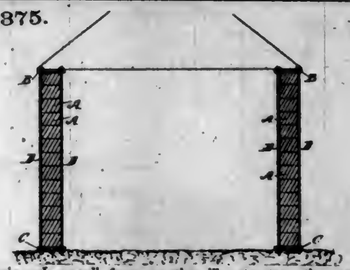
Claim.—In a door or window screen, the combination, with the frame B, provided with the recesses *b*, of the wire-netting A, provided with the grooves C, having apertures *a*, and secured to the frame with the grooves in the recesses of the frame, and the blocks D, for holding the netting in the said recesses, substantially as herein shown and described.

312,375. WALL OF BUILDINGS AND OTHER STRUCTURES. W. H. ORR, Carlisle, Ind., assignor to himself and John Rotramel, same place. Filed Sept. 4, 1884. (No model.)

Brief.—Formed of bales of fibrous material arranged to break joint with one another, and having plates and sills united by inside and outside tightening-bolts.

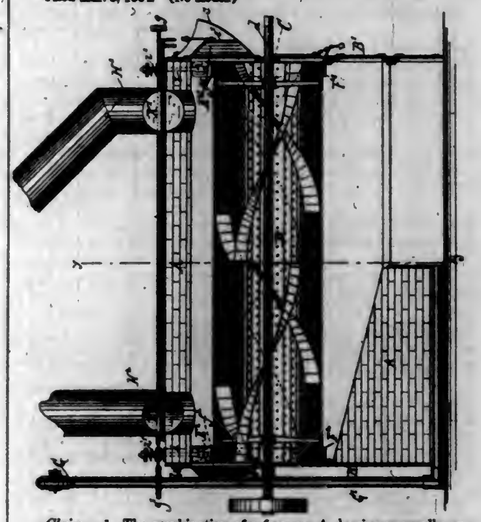


312,375.



Claim.—In a wall, fence, or other like structure, the combination of the bales A A, of hay, straw, or other fibrous bulkable material, arranged to break joint with one another, the plates and sills B C, and the inside and outside screw or tightening bolts, D, essentially as shown and described.

312,376. COFFEE-ROASTER. CHRISTIAN PALFINGER, New York, N. Y. Filed Mar. 8, 1884. (No model.)



Claim.—1. The combination of a furnace, A, having upwardly-extending flues H' H², face-plates B' B², a perforated rotating drum, D, blower G, and channels E' and E² in said face-plates, connecting the interior of said drum with the upper part of the fire-chamber, substantially as described.

2. The combination of a furnace, A, having upwardly-extending flues H' H², face-plates B' B², a perforated rotating drum, D, blower G, channels E' E² in said face-plates, connecting the interior of said drum with the upper part of the fire-chamber, and the hopper *c²* and slide *c'* in one of said channels, substantially as described.

3. The combination of a rotating cylinder or drum, face-plates having fixed segmental flanges above the drum and movable flanges extending around the lower parts of the drum, said flanges being suspended by rods from the top of the furnace, and means for guiding the movable flanges at their lower parts, substantially as set forth.

4. The combination of a roasting cylinder or drum, face-plates having fixed segmental flanges above the drum, and movable guide-flanges extending around the lower parts of the drum, suspended by rods on cushioning-springs, and guided at their lower parts in cheeks of the face-plates, substantially as set forth.

5. In a roasting-chamber, the combination of the face-plates B' B² and the perforated open-ended drum D, provided with inwardly-extending flange *d'* at one end, substantially as set forth.

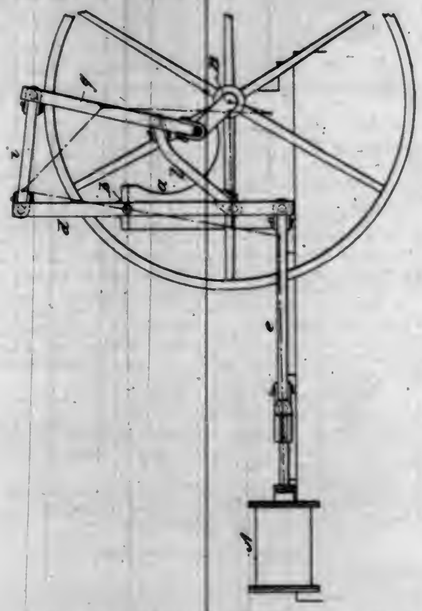
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312,378. MECHANISM FOR CONVERTING MOTION. JETHRO E. PENCILLE, Kendall, Pa., assignor of one-half to J. C. Cupler, same place. Filed Oct. 30, 1884. (No model.)

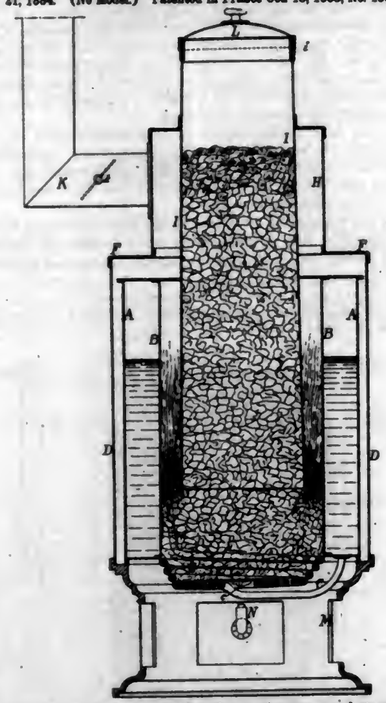


Claim.—1. The mechanism for converting motion, consisting of the levers *d g*, connected by the links *i* and *l*, combined with a pitman and crank-shaft, substantially in the manner shown and described.

2. In a mechanism for converting motion, the combination of the rock-shaft *b*, the lever *d*, pitman *e*, and lever *g*, being connected by the link *l* to the lever *d*, substantially as described.

3. The combination of the two levers *d g*, connected, respectively, to a pitman and a crank-shaft, and connected with the link *i*, substantially as described.

312,379. STEAM-BOILER. ABEL PIFRE, Paris, France. Filed Apr. 21, 1884. (No model.) Patented in France Oct. 13, 1883, No. 158,021.

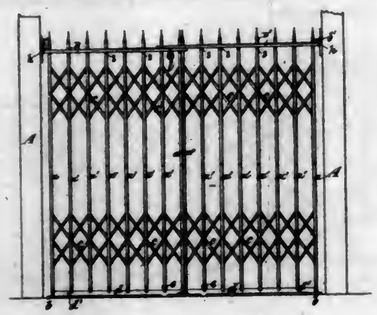


Claim.—1. In a steam-boiler, the annular water and steam vessel A B and spiral water-grate C, having a central aperture, *c*, and blower-nozzle N, combined and arranged for joint operation as herein specified.

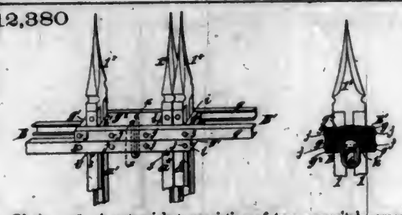
2. In combination with annular steam and water vessel, an interior combustion-chamber formed by the walls of said vessel, a water-grate arranged spirally across the bottom of said combustion-chamber and having both ends connected with the interior of the vessel and with a fuel-magazine, as I, having a downwardly-increasing diameter arranged to form an annular draft-flue, as shown, an annular gas-space formed by the walls A B, concentric with and outside of the water-vessel, and an annular chamber formed by the walls H I, having controlled discharge K, as and for the purpose set forth.

3. In combination with the boiler A B, grate C c, and magazine I, the walls D, arranged concentric with the boiler, to leave a space between, the walls H, arranged concentric with the magazine, to leave gas-chamber between, and the annular plate F, connecting the walls D H, and the whole adapted to serve with a blower, as N, as and for the purposes set forth.

312,380. GATE. WILLIAM R. PITT, Brooklyn, N. Y., assignor to Walter W. Bostwick, Cincinnati, Ohio. Filed June 9, 1884. (No model.)



312,380



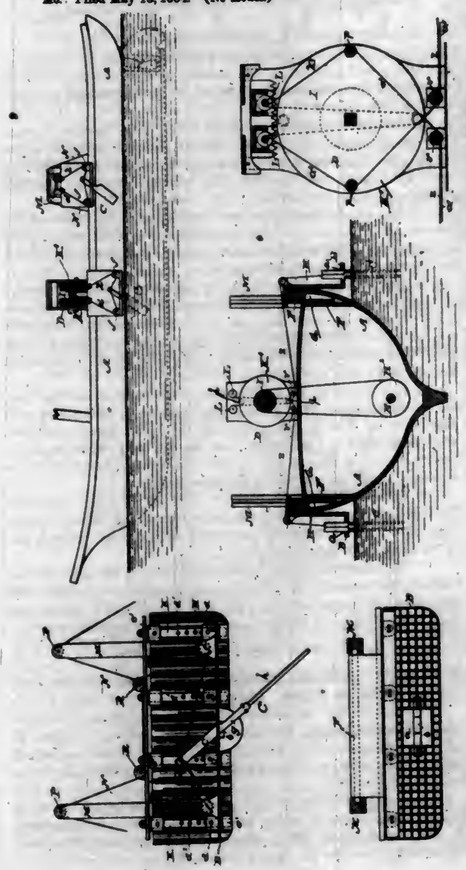
Claim.—1. A gate-picket consisting of two oppositely-arranged channel-bars with their flanges presented toward each other, and a spacing piece or block, *f*, having tongues *f'*, which fit the interior of the channel-bars, and shoulders °, which support the flanges thereof, substantially as herein described.

2. A gate-picket consisting of two oppositely-arranged channel-bars with their flanges presented toward each other, and a spacing block or piece, *f*, having tongues *f'*, which fit the interior of the channel-bars, shoulders °, which support the flanges thereof, and projections *f²*, which extend through the channel-bars and are riveted on the exterior thereof, substantially as herein described.

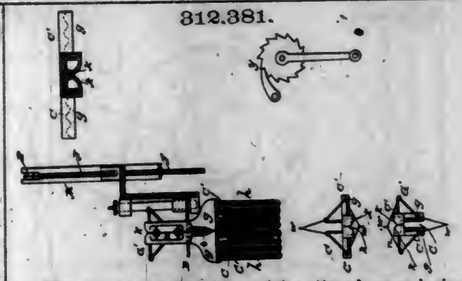
3. The combination, with the collapsible gate, constructed as herein described, of a hinged locking-bar, B, composed of oppositely-arranged channel-bars *g g* and interposed blocks or pieces *g' g²*, the said channel-bars being spaced to receive between them the pickets of the gate, substantially as herein described.

4. The combination, with two gates forming a double gate and capable of collapsing by movement in opposite directions, of the locking-bars B B', hinged at *h*, and each consisting of channel-bars *g g* and interposed block *g' g²*, the said channel-bars being spaced to receive between them the pickets of the gates and the locking-hasp *k*, substantially as herein described.

312,381. MARINE SPEED-PROPELLER. JUDSON S. POST, St. Louis, Mo. Filed May 13, 1884. (No model.)



312,381.



Claim.—1. The folding paddle consisting of lateral sections having disconnected blades and hinged or link-connected upper portions formed with upper and lower rounded bearings, fulcrum-shoulders, and arms extending outward in the planes of the blades at right angles to their length, substantially as specified.

2. The fulcrum-shelf having a longitudinal opening, provided with a fore and aft saddle-bar or fulcrum-bearing extending downward to keep the paddles true, and the transverse chucks in front and rear of said opening, substantially as specified.

3. The rotating triple wheel-transmitter having a middle pulley-bearing for a drive-belt, and on each side thereof a pair of guide-disks between which are diametrically-opposite pulleys near the rims thereof, the diameter connecting the pulleys of one wheel being at right angles to the diameter connecting the pulleys of the other wheel, substantially as specified.

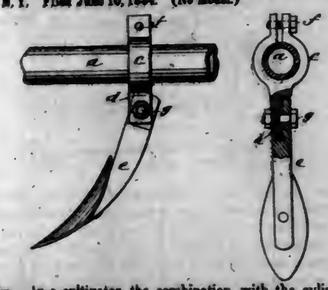
4. The combination, with the triple wheel-transmitter, of the ropes connecting the same to the paddle-arms, the paddles, and the fulcrum-shelves having fore and aft pulleys through which said ropes, called "reins," pass.

5. The combination, with a brace of folding paddles adapted to vibrate one on each side of a boat, of a rotary transmitter engaging by diameter-bearings the forward pulling ropes or reins, *a*, and the rearward pulling ropes or reins, *z*, to tighten these ropes alternately while paying out the loose ropes, to effect the vibration or oscillation of said paddles, substantially as specified.

6. The combination, with the rotary transmitter and the vertically-adjustable fulcrum-shelf, of a folding paddle, its front rope, *a*, and rear rope, *z*, and the take-up rollers seated in bearings of the frame of the transmitter, substantially as specified.

7. A boat provided with a brace or braces of adjustable fulcrum-shelves on its sides, detachable folding paddles working on fulcrum-bearings of said shelves, front pulling-ropes, *a*, and rear pulling-ropes, *z*, their take-up devices, and a transmitter or transmitters rotated by belt from the propeller-shaft or other motive power, and engaging said ropes or reins *a* and *z* to operate the same, substantially as specified.

312,382. CULTIVATOR. OLIVER S. PRESBREY and AARON NALL, Mohawk, N. Y. Filed June 16, 1884. (No model.)

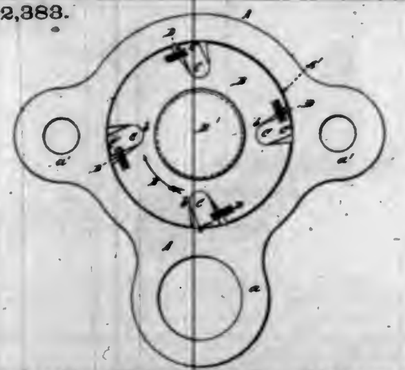


Claim.—In a cultivator, the combination, with the cylindric beam *a*, of the clamping band or collar *c*, with its flanged ends connected or screwed together, the lower side of said band or collar having a flange, *d*, with one side stepped and recessed to receive a beveled lug, *h*, of the standard *e*, said flange *d* and standard being connected together by a pivot-bolt, *g*, substantially as shown and described.

312,383. ROTATORY FEED FOR ROCK-DRILLS. EDWARD E. QUINBY, Orange, N. J., assignor to the Rand Drill Company, of New York. Filed May 2, 1884. (No model.)

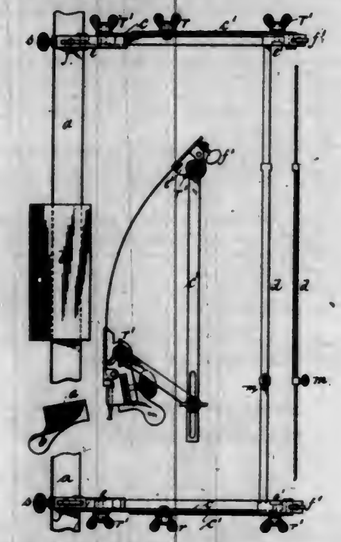
Claim.—In mechanism for governing the rotatory feed of the pistons of rock-drills or other analogous engines, the combination of the head of the spiral bar and the wall of the chamber in the head of the steam-cylinder in which the head of the spiral bar is contained with rocking stops which at one end are seated in bearings serving to fix the axes upon which the stops respectively rock, such bearings being formed by

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notching the periphery of the head of the spiral bar, and the free ends of the rocking stops being eccentric with relation to the axes upon which they rock, and to the curved surface upon which they are intended to bear, and each stop being provided with a spring, substantially such as described, by the action of which the rocking stop is maintained at one end in constant contact with the round-bottomed notch which constitutes the journal in which the stop rocks, and at the other end with the curved surface upon which the eccentric end of the stop is intended to bear.

312,384. STENCIL-PLATE HOLDER. HUGO E. RICHTER, Dresden, Saxony, Germany, assignor to Waldemar Langbein, same place. Filed Aug. 27, 1884. (No model.)



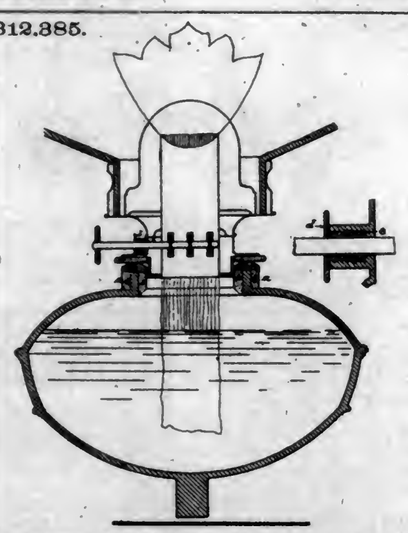
Claim.—An apparatus for holding stencil-plates for decorative painters and for placing the same under tension, consisting of the rail or rule *a*, jointed or articulated rod or rail *c c'*, the adjustable tension-rod *d*, and the hinges *e f'* on the rails *c c'*, which former are provided with suitable jaws, so that the said stencil-plate can be applied with one hand to the straight or other surface to be decorated and held firmly against the same, substantially as described, and shown in the drawings.

312,385. LAMP-COLLAR. AUGUST RINKLAKE, Brunswick, Germany. Filed Feb. 21, 1884. (No model.) Patented in Germany Jan. 8, 1884, No. 25,404.

Claim.—1. In a lamp, the combination of a lamp-reservoir having a neck or rim and a hollow collar or ring adapted to fit about said neck, and containing near its upper portion packing impermeable to oil, said collar or ring being secured to the neck or rim by plaster or similar substance, substantially as specified.

2. In a lamp, the combination of a lamp-reservoir having a neck or rim, the collar or ring *a*, adapted to be secured about said neck or rim, the packing *b*, impermeable to oil, and the plaster *c*, substantially as specified.

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312,386. BOB-SLEIGH. JOHN RORABACK, Washington, Conn., assignor of one-half to Orlando Brown, same place. Filed Oct. 16, 1884. (No model.)



Claim.—1. In a bob-sleigh, the combination, with the connecting-bars having side supports, G, with slots G^2, attached thereto, of curved arms projecting upward from the rear bob, which pass through said slots, as and for the purpose set forth.

2. The rear bob having inwardly-curved arms projecting upward therefrom, in combination with side supports both ends of which are secured to the connecting-bars, with their middle portions projecting downward and inward, and provided with bearing-surfaces G', and slots through which the arms project.

3. The rear bob having tie-bars to which plates H, with arms H', are secured, in combination with connecting-bars to which side supports having slots for the arms are bolted, cross-bars E, and braces F, secured to the cross-bar and to the side supports.

4. In a bob-sleigh, plate H, having projecting therefrom arms H', said arms being curved in an arc of a circle whose center is the point at which the other arm joins the plate, in combination with side supports secured to the connecting-bars, and having slots through which the arms pass, whereby the point at which the weight is supported is shifted as the bob passes over an obstruction.

5. In a bob-sleigh, the side supports secured to the connecting-bars, and having elongated bearings with slots, as shown, in combination with plates upon the bobs, having curved arms which pass through said slots, whereby as either end of the bob rises the side supports are caused to ride up one or the other of the curved arms, leaving the weight to be supported at one end only of the elongated bearing.

6. The front bob having a circle or fifth-wheel, and lugs N, to which the king-bolt is pivoted, in combination with cross-bar D, in which the king-bolt is swiveled, and rollers secured to said cross-bar, which travel on the circle as the bob is turned.

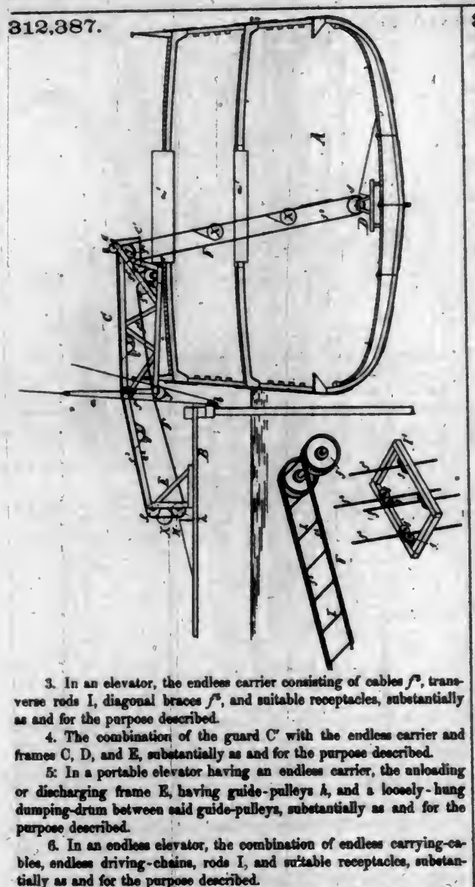
7. The cross-bars D and E, the former carrying the king-bolt and rollers O, and connecting-bars C, having side supports, in combination with the rear bob having curved arms which pass through slots in the side supports, and the front bob having a circle upon which the rollers travel.

312,387. PORTABLE ELEVATOR. SIDNEY W. ROWELL, New York, N. Y. Filed Dec. 10, 1883. (No model.)

Claim.—1. The combination of the operating-frame C, with its guide-pulleys and gearing, the frame D, with its pulleys, the frame E, with its guide-pulleys and device for discharging load, and an endless carrier, F, the whole constructed and operating substantially as and for the purpose described.

2. In a portable elevator having an endless carrier, the unloading or discharging frame E, having guide-pulleys *h*, and a dumping-drum, h^2, said drum revolving with a greater velocity than the guide-pulleys, substantially as and for the purpose described.

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3. In an elevator, the endless carrier consisting of cables f^5, transverse rods I, diagonal braces f^6, and suitable receptacles, substantially as and for the purpose described.

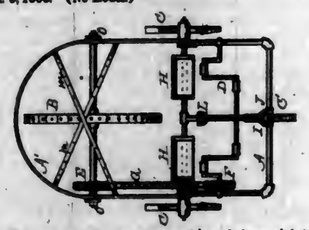
4. The combination of the guard C' with the endless carrier and frames C, D, and E, substantially as and for the purpose described.

5. In a portable elevator having an endless carrier, the unloading or discharging frame E, having guide-pulleys *h*, and a loosely-hung dumping-drum between said guide-pulleys, substantially as and for the purpose described.

6. In an endless elevator, the combination of endless carrying-cables, endless driving-chains, rods I, and suitable receptacles, substantially as and for the purpose described.

7. In an elevator, the two parallel cables united by cross-bars having pockets or continuous conveyer attached to and supported by said cross-bars, said cables being supported at suitable intervals upon pulleys on opposite sides of the supporting-frame, substantially as and for the purpose described.

312,388. SLED-PROPELLER. GEORGE T. SAMPSON, Dayton, Ohio. Filed Jan. 5, 1885. (No model.)



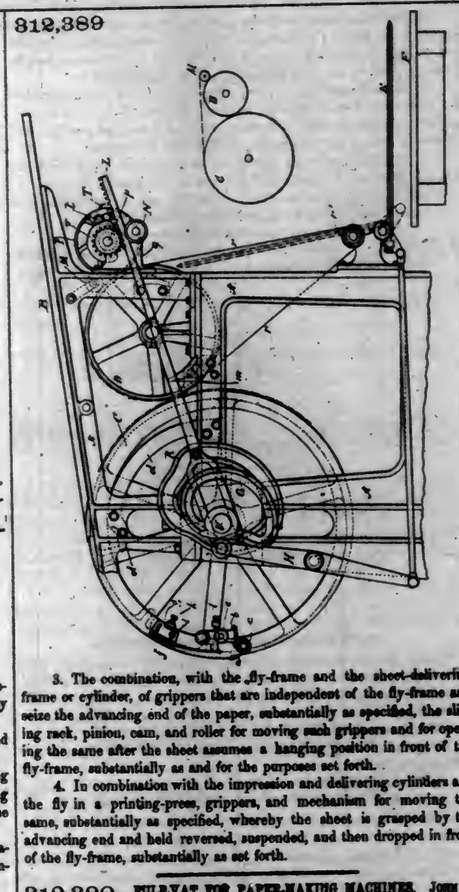
Claim.—The combination in a propelling sled or sleigh, substantially as set forth, comprising the ground-wheel B, pulleys E and F, endless chain G, treadle or crank shaft D, and frame A', pivoted to frame A, mounted on runners.

312,389. PRINTING-MACHINE. WALTER SCOTT, Plainfield, N. J. Filed Jan. 21, 1884. (No model.)

Claim.—1. The combination, with the impression-cylinder and its grippers, of a segment, *b*, and pinion *c*, a spring, *f*, having a pivoted stock, *g*, and a set-screw, *k*, to regulate the force with which the spring acts in closing the grippers, substantially as set forth.

2. In combination with the gripper-shaft and grippers, the spring *f*, segment *b*, and pinion for closing the grippers, and the adjusting-screws *k* and *l*, to regulate the pressure of the grippers upon the paper, substantially as set forth.

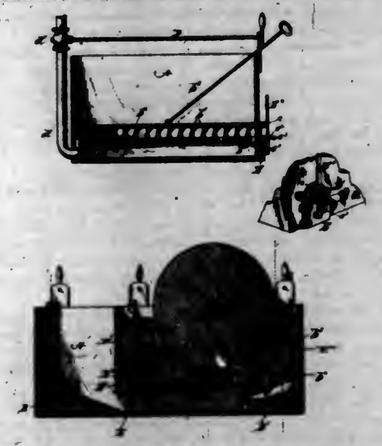
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3. The combination, with the fly-frame and the sheet-delivering frame or cylinder, of grippers that are independent of the fly-frame and seize the advancing end of the paper, substantially as specified, the sliding rack, pinion, cam, and roller for moving such grippers and for opening the same after the sheet assumes a hanging position in front of the fly-frame, substantially as and for the purposes set forth.

4. In combination with the impression and delivering cylinders and the fly in a printing-press, grippers, and mechanism for moving the same, substantially as specified, whereby the sheet is grasped by the advancing end and held reversed, suspended, and then dropped in front of the fly-frame, substantially as set forth.

312,390. PULP-VAT FOR PAPER-MAKING MACHINES. JOHN F. SHEERLING, Akron, Ohio. Filed Nov. 28, 1884. (No model.)



Claim.—1. The combination, with the pulp-vat or passage-way of a paper-making machine, of a receptacle for sediment provided with inlet and outlet openings at its ends or sides for the introduction and escape of water, for the purpose and substantially as described.

2. In a pulp-vat for paper-making machines, a sediment-receptacle provided with water supply and exhaust passages for flushing or cleansing the same, in combination with a cover composed of pivoted seats for opening and closing said receptacle, substantially as described.

3. The combination, with the pulp-vat, of the sediment-receptacle having water supply and discharge openings, the supply-pipe *d*, and the rod or shaft D, provided with a handle arranged in convenient position to be operated by the attendant, substantially as described.

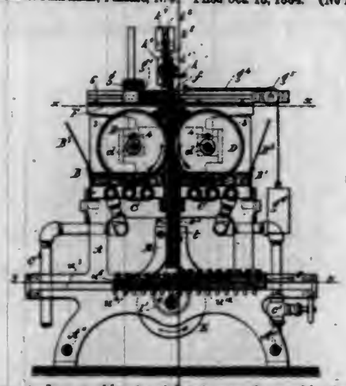
4. The combination, in a pulp-vat for paper-making machines, of the outer tank, vat, or passage, A, the inner tank, F, a series of sediment-receptacles provided with water supply and exhaust passages, and covers for closing said receptacles, substantially as described.

5. The combination, in a pulp-vat, of the gate E, the inclined ribs *e e'*, and the lever E^2, substantially as and for the purpose described.

6. The combination, in a pulp-vat, of the gate E, the inclined ribs *e e'*, lever E^2, and spring e^2, substantially as described.

312,391. MACHINE FOR GLUING SLATE AND OTHER FRAMES.

CHARLES C. SHEPHERD, Passaic, N. J. Filed Oct. 18, 1884. (No model.)



Claim.—1. In a machine for gluing frames, the combination, with the receptacles for glue and the wheels within the same, of the vertical guides *o o'*, through which the respective frame-pieces are made to pass, the platform F, upon which the pieces for the frames are laid, and means, substantially as specified, for moving the same along, and the reciprocating pusher for carrying the frame-pieces down in the vertical guides and between the wheels, substantially as set forth.

2. The combination, in a machine for gluing frames, of a platform for the reception of the frame-pieces, a fence against which the frame-pieces stop when moved, a cross-bar and cords and weights to move the said frame-pieces toward the fence, a pusher and means, substantially as specified, for moving the same up and down and operating upon the frame-pieces successively, vertical guides between which such frame-pieces pass, receptacles for glue, and wheels for applying glue from the same to the tenons of the frame-pieces, heating-pipes for keeping the glue hot, a grooved holder for receiving the frame-pieces, and means for moving the same along progressively, substantially as specified.

3. The combination, with the receptacles for glue, of glue-wheels in two ranges, and the two shafts for supporting such wheels, vertical guides between the glue-wheels between which the frame-pieces pass, and springs in said guides for applying a friction to the pieces of the frames while being glued, and mechanism, substantially as specified, for moving the frame-pieces downwardly and progressively in such guides and between the glue-wheels, as set forth.

312,392. ROLLER-MILL.

GEORGE T. SMITH and WILLIAM F. COCHRANE, Jackson, Mich. Filed June 23, 1883. (No model.)

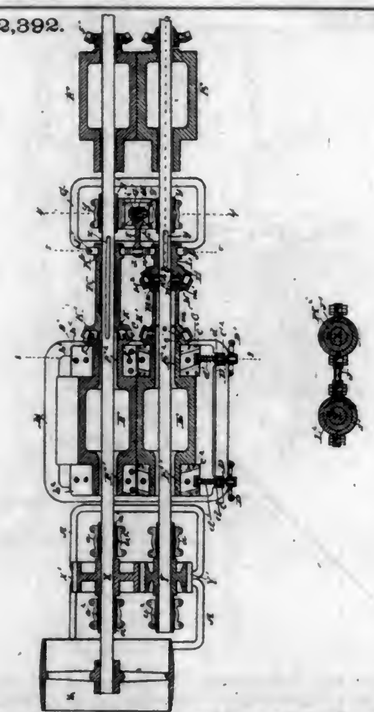
Claim.—1. In a grinding-mill, the combination of a shaft, a grinding-roll around the shaft supported independently thereof and arranged, substantially as set forth, to have an open space between the shaft and the roll, and means, substantially as set forth, for detachably connecting the shaft and roll.

2. The combination of the grinding-roll having an axial aperture, a driving-shaft extending through and having a diameter less than the aperture in the roll, means for supporting the roll independently of the shaft, means for connecting the shaft with the roll, and an adjustable bearing for the support of the roll, substantially as set forth.

3. The combination of a shaft, a grinding-roll around the shaft, and having an aperture of a diameter larger than that of the shaft, a power wheel or motor connected with the shaft at one end of the roll, and means, substantially as described, for connecting the roll and the shaft detachably together, and situated at the other end of the roll, substantially as described.

4. The combination of a grinding-roll having a through longitudinal aperture, a shaft extending through said aperture and of smaller diameter, whereby a lateral or transverse movement of one of the aforesaid parts is permitted relative to the other, and a coupler connected with the shaft and rotated thereby, but free to slide, for effecting a disengagement of the shaft from the roll, substantially as set forth.

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5. A hollow grinding-roll, in combination with a shaft extending through the roll, and a coupling surrounding the shaft and rotating therewith, but free to slide longitudinally thereon, and provided at one end with an opening of greater diameter than the shaft, whereby the coupling is at one end adapted to engage with the roll and move in a path eccentric to the axis of the shaft, substantially as set forth.

6. The combination of the grinding-roll having a longitudinal aperture, a shaft of shorter diameter than that of said aperture and situated therein, and a coupler made in two sections, one section being arranged to slide upon the shaft and adapted, substantially as set forth, at one end to engage with the roll and move in a path eccentric to the shaft, substantially as set forth.

7. The combination, with a shaft, of a series of hollow grinding-rolls mounted thereon, and couplers for connecting each of the rolls with the shaft, whereby one or more of the rolls may be disconnected from the shaft and remain at rest while the other rolls are connected with the shaft and rotate therewith, substantially as set forth.

8. The combination of a shaft, a grinding-roll surrounding the shaft, with a free space between the shaft and the roll, means for connecting the roll with the shaft, a second shaft parallel to that aforesaid, a roll surrounding the second shaft, and means, substantially as described, for adjusting the said second roll on a line at right angles to the axis of the shaft and independently thereof, as set forth.

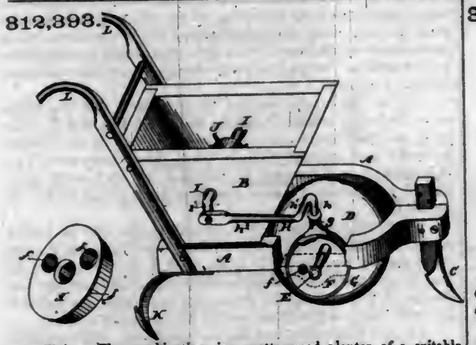
9. The combination of the shaft, a grinding-roll surrounding the shaft and having an aperture of greater diameter than the latter, whereby the roll is adapted to be rotated eccentrically to the shaft, and a coupler, one portion of which rotates concentrically with the shaft, and another portion of which rotates around the shaft eccentrically, whereby it is adapted to be connected to the roll to impart power thereto, substantially as set forth.

312,393. COTTON-SEED PLANTER.

ROBERT B. SMITH, Lafayette, Ala. Filed May 3, 1884. (No model.)



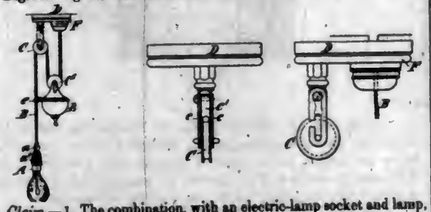
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Claim.—The combination, in a cotton-seed planter, of a suitable frame, a hopper mounted thereon, a shaft piercing said hopper, terminating at one end in a crank, and carrying the feeding devices, as described, a ground-wheel mounted upon a suitable axis at the front of said frame, a disk provided with a series of perforations, each adapted to engage the end of said axis, and devices for connecting said disk with the crank end of the feed-shaft, substantially as set forth.

312,394. HANGING BALANCED ELECTRIC LAMP.

THOMAS T. SMITH, London, England. Filed Oct. 17, 1884. (No model.) Patented in England Aug. 24, 1883, No. 4,104.



Claim.—1. The combination, with an electric-lamp socket and lamp, A, and a balance-weight, E, of a flexible cord, B, containing both the flow and return wires, suitably insulated, a pair of detachable pulleys, C C', and means for electrically connecting and disconnecting the wires in the said cord with the fixed overhead or lead wires, substantially as set forth.

2. The combination, with an electric-lamp socket and lamp, A, a detachable coupling, F, and a flexible cord, B, containing both the flow and return wires, suitably insulated, of the balanced weight E and pulleys C C', the uppermost pulley being detachable, whereby provision is made for raising and lowering the lamp without breaking the electric circuit, and for entirely disconnecting the lamp, with its flexible cord, pulleys, and balance-weight, from the ceiling when required.

3. In a hanging electrical lamp, the combination, with the lamp-socket and lamp A, and a single flexible cord containing both the flow and return wires, suitably insulated, and conveying the current thereto, of the detachable pulleys C C', locking-catches c' c^2, balance-weight E, and guides *a* and *e*, substantially as and for the purpose set forth.

4. The combination, with a detachable coupling or ceiling-connector, and a single flexible cord containing both the flow and return wires, suitably insulated, the said wires being respectively connected at one end with the insulated terminals forming part of the said ceiling-connector and at their other ends with the lamp-socket and lamp A, of the detachably-mounted pulley C and balance-weight E, fitted with a pulley, C', and a guide, *e*, substantially as and for the purpose set forth.

5. The combination, with the fixed overhead conductors, an electric-lamp socket and lamp, A, and a flexible cord, B, containing both the flow and return wires, suitably insulated, of a pair of pulleys and a balance-weight, E, as and for the purpose set forth.

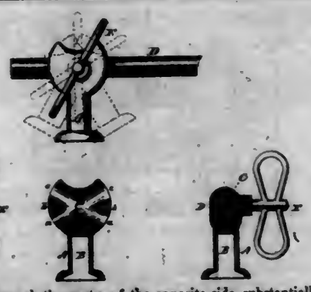
6. The combination, with an electric lamp or lamps, an insulated flexible conductor supporting and carrying the current to the said lamp or lamps, and a balance-weight, such as E, of pulleys over or around which the said flexible conductor passes, and a guide for said flexible conductor, attached to the lamp, and serving as a stop to the weight, for preventing injury to the lamp or lamps when they are raised to their highest position, substantially as herein described.

312,395. CANOPY-HOLDER FOR CHILDREN'S CARRIAGES.

ADOLPHUS G. SNELL, New Haven, Conn. Filed Dec. 15, 1884. (No model.)

Claim.—The herein-described canopy-holder for a child's carriage, consisting of the socket A, adapted to receive the stem of the canopy, and constructed with an opening, C, above, one side of said opening constructed with several seats radiating from the center, combined with a clamping-screw through the center of the opposite side, substantially as described.

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312,396. ARTIFICIAL-LEG CORD.

MENZO SPRING, San Francisco, Cal. Filed Aug. 29, 1884. (Model.)

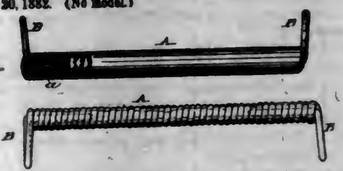


Claim.—1. An artificial-leg cord, A, having a loop, C, at one end, and the casing B, of leather or other suitable flexible material, said casing being made of a single strip slit longitudinally from each end toward the center, the uncut center being fitted around the loop C, and the slit ends braided or plaited around the remainder of the cord, substantially as herein described.

2. An artificial leg-cord, A, and the cross-pin E, around which its end is passed, in combination with the screw D, having a head, F, with bearings *f*, in which the cross-pin fits, substantially as herein described.

312,397. BRIDLE-BIT.

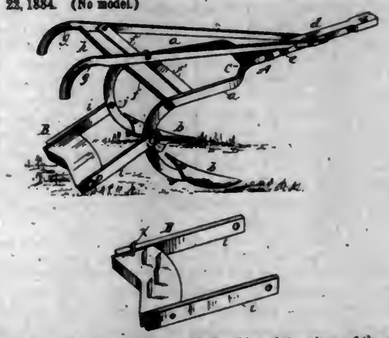
HORACE S. SQUIER, Newark, N. J. Filed July 20, 1882. (No model.)



Claim.—A wire bit having the helical mouth-piece, at the ends of which are formed rein-rings, which lie in planes at right angles to the said mouth-piece, as shown, the ends of the wire being confined within the helix, as set forth.

312,398. PLOW.

GEORGE O. C. STEGLEY, Barton, Ala. Filed July 22, 1884. (No model.)



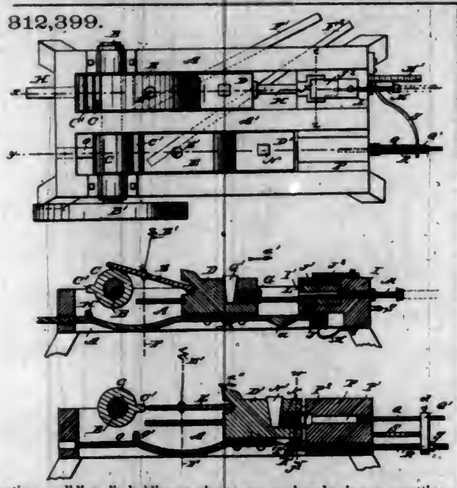
Claim.—The combination, with the sides of the plow, of the strips *i*, pivoted thereto, a block rigidly secured between said strips at their rear ends, and a series of knives or cutters secured to said block, said knives being arranged to form an arc of a circle, and the lower end of the block recessed as shown, substantially as set forth.

312,399. MACHINE FOR HEADING BOLTS.

JOHN STACKER, West Winsted, Conn., assignor to the Winsted Norway Bolt Company, same place. Filed Feb. 2, 1884. (No model.)

Claim.—1. In a bolt-making machine, the fixed die-holding blocks, one block having bolt clamping or holding dies, and the other block having a square or angular ended aperture, in combination with the recipro-

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eating or sliding die-holding carriages, one carriage having an upsetting-die and the other carriage having a heading-die, and the successively-actuated wings or cams acting upon the sliding or reciprocating die-holding carriages, substantially as and for the purpose set forth.

2. In a bolt-making machine, the fixed die-holding blocks, one block having bolt-clamping dies, and the other block having a square or angular ended aperture, in combination with the reciprocating or sliding carriages, one carriage having an upsetting-die and the other carriage having a heading-die, a sliding rod having a cross-head provided with a piston moving in the aperture of the heading-die, a pin pendent from one of the said carriages and acting upon said rod, and the successively-actuated wings or cams acting upon said carriages, substantially as and for the purpose set forth.

3. In a bolt-making machine, the combination, with a reciprocating carriage for holding the die for upsetting the wire, of a fixed die-holding block, two dies held therein, and a cam-slide actuated by the reciprocating die-carriage, and acting upon a clamp for pressing the dies together when the reciprocating die-holding carriage comes in contact with the fixed die-holding block, substantially as herein shown and described, and for the purpose set forth.

4. In a bolt-heading machine, the combination, with the reciprocating die-holding block D and the fixed die-holding block I, of the frame J, projecting vertically through and from the lower end of the fixed block I, the dies L within this frame, the bar H, attached to the bottom of the reciprocating die-holding carriage D, and the beveled projection *a* on the bar H, substantially as herein shown and described, and for the purpose set forth.

5. In a bolt-heading machine, the combination, with the reciprocating die-holding block D and the fixed die-holding block I, of the frame J, projecting vertically through and from the bottom of the fixed block I, the plate J^3, the dies L, held in the frame J', the bar H, attached to the under side of the carriage D, and the beveled projection *a* on the bar H, substantially as herein shown and described, and for the purpose set forth.

6. In a bolt-heading machine, the combination, with the reciprocating die-holding-carriage D and the fixed die-holding block I, of the frame J, projecting vertically through and from the bottom of the fixed block I, the plate J^3, the dies L, held in the frame J, the bar H, attached to the under side of the carriage D, the beveled projection *a*, and a spring pressing the frame J upward, substantially as herein shown and described, and for the purpose set forth.

7. In a bolt-heading machine, the combination, with a reciprocating die-holding carriage and a fixed die-holding block, of a reciprocating rod for pushing the completed bolt out of the fixed die-holding block, and a projection or pin carried by said reciprocating die-holding carriage, and an arm acted upon by a fixed inclined plate or cam for releasing the said rod when the bolt has been pushed out, substantially as herein shown and described, and for the purpose set forth.

8. In a bolt-heading machine, the combination, with a reciprocating die-holding carriage and a fixed die-holding block, of a reciprocating rod for pushing the completed bolt out of the fixed die-holding block, a projection or pin carried by said reciprocating die-holding carriage, and an arm acted upon by a fixed inclined plate or cam for releasing the said rod when the bolt has been pushed out, and a spring for drawing back the said rod after it has been released, substantially as herein shown and described, and for the purpose set forth.

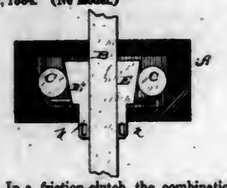
9. In a bolt-heading machine, the combination, with a reciprocating die-holding carriage and a fixed die-holding block, of a reciprocating rod for pushing the completed bolt out of the fixed die-holding block, a headed rod connected with a rod for pushing out the bolt, a vertically-movable pin in the reciprocating die-holding carriage, and a wedge-shaped track-plate attached to the frame of the machine, substantially as herein shown and described, and for the purpose of releasing the rod after pushing out the bolt, as set forth.

10. In a bolt-heading machine, the combination, with the reciprocating die-holding carriage D′ and the fixed die-holding block P, of the rod Q, projecting into an aperture, P′, in the block P, the rod R, having the head R′ and connected with the rod Q, the vertically-movable pin W in the reciprocating carriage D, the arm V, and the tapering guide-plate T, substantially as herein shown and described, and for the purpose set forth.

11. In a bolt-heading machine, the combination, with the reciprocating die-holding carriage D′ and the fixed die-holding block P, of the rod Q, entering the aperture P′ of the block P, the rod R, having the head R′, the arm Q′, connecting the rods Q and R, the vertically-movable pin W in the carriage D′, the tapering track-plate T, substantially as herein shown and described, and for the purpose set forth.

12. In a bolt-heading machine, the combination, with the reciprocating die-holding carriage D and the fixed die-holding block P, of the rod Q, entering the aperture P′ in the block P, the rod R, having the head R′, the arm Q′, held adjustably on the rods Q and R, the vertically-movable pin W in the block D, and the tapering track-plate T, substantially as herein shown and described, and for the purpose set forth.

312,400. FRICTION-CLUTCH. ARTHUR L. STAMFORD, Fort Hill, Ill. Filed Nov. 21, 1884. (No model.)



Claim.—1. In a friction-clutch, the combination, with a hollow metal body having a central opening through it for the passage of the bar to be clutched, of two movable clamping-rollers within the hollow body, one on each side of the central opening, and one or both resting in contact with a beveled surface, substantially as described.

2. A friction-clutch comprising, in combination, a hollow metallic body having the inner surfaces of its end walls beveled as shown, and having openings *t* for the passage through it of the bar, internal rollers between which the bar passes, and mechanism, substantially as described, for raising the rollers at will above their normal position to prevent gripping of the bar.

3. A friction-clutch and release comprising, in combination, a hollow metallic body having the inner surfaces of its end walls beveled as shown, and having openings *t* for the passage through it of the bar, and slots *q*, internal rollers, C, having trunnions *r*, extending through the slots, arms *p*, pivoted together and to the trunnions *r*, and yoke-lever D, pivoted to the arms *p* and fulcrumed to the body A, substantially as described.

4. The combination of the hollow metallic body A, having its inner end walls beveled and having a central opening through it for the passage of the lifting-bar, rollers C, bearing-blocks E, and mechanism, substantially as described, for raising the rollers at will above their normal position to prevent gripping.

312,401. MACHINE FOR MAKING TWIST-DRILLS. GEORGE R. STETSON, New Bedford, Mass., assignor to himself and the Morse Twist Drill and Machine Company, same place. Filed Oct. 25, 1883. (No model.)



Claim.—In a machine for making increased twist-drills, the combination of a mandrel to advance and rotate the drill-blank, and a suitably-formed cam acting directly against the mandrel, whereby the advance of the latter is accelerated as the cutting progresses to increase the pitch of the drill.

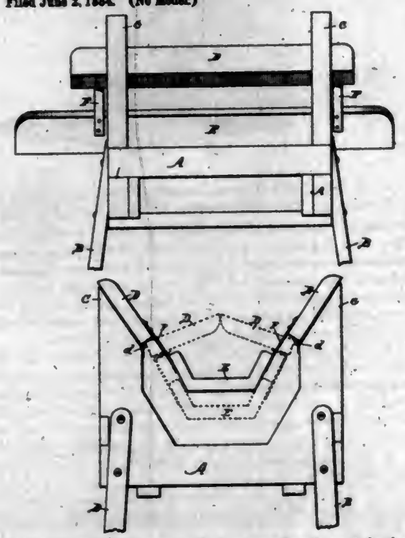
312,402. CARPET-FASTENER. MATILDA F. STRATHY, London, Ontario, Canada. Filed Nov. 21, 1884. (No model.)

Claim.—As an improved article of manufacture, a carpet-fastener composed of a stem, A, pointed at one end and screw-threaded at the other, a disk, B, threaded, driven, or shrunk on the stem, and a cap or head, C, screwed thereon, as set forth, for the purpose described.

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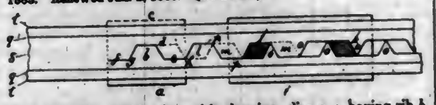


312,403. SHEEP-STOCK. FRANCIS M. SWARTZ, Jacksontown, Ohio. Filed June 2, 1884. (No model.)



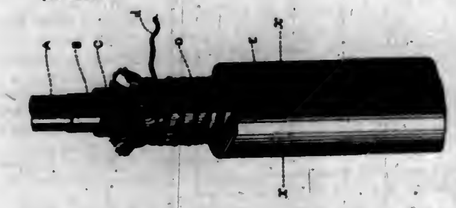
Claim.—The combination, with the supporting-frame A, having the horns C, of the side boards, D, hinged to the said horns, and the trough E, loosely hung to the inner faces of the side boards, substantially as shown and described, whereby the weight of the sheep will cause the side boards to close down, for the purpose specified.

312,404. DIE FOR MAKING BARBED FENCING. ARSON P. THAYER, Brooklyn, N. Y., assignor to Thomas W. Hall, same place. Filed Nov. 30, 1883. Renewed Jan. 2, 1885. (No model.)



Claim.—The combination, with shearing-dies *a c*, having rib *b*, groove *d*, and plain faces *e f*, for shearing the blank strip and forming rods therefrom, having alternate projections and notches, as described, of punching-die *i* and punches *j* and *k*, for cutting away the waste portions of said projections and completing the barbs.

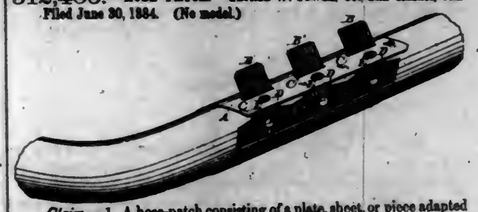
312,405. INSULATED ELECTRICAL CONDUCTOR. WILLIAM P. THOMAS and EDWARD J. PROST, Philadelphia, Pa. Filed Jan. 16, 1883. (No model.)



Claim.—1. The combination, with a conducting-wire, of an insulating-coating of japan baked directly thereon, and a coating of rubber applied around said japanned surface, substantially as set forth.

2. The combination, with a conducting-wire, of a japanned coating baked thereon, a rubber coating and asbestus wrapping applied around the japanned surface, and an exterior metallic pipe, substantially as and for the purposes specified.

312,406. HOSE-PATCH. GEORGE W. TOWLE, Jr., San Rafael, Cal. Filed June 30, 1884. (No model.)

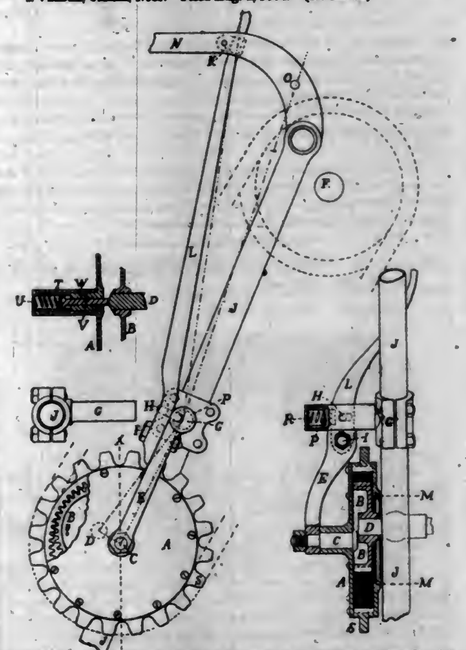


Claim.—1. A hose-patch consisting of a plate, sheet, or piece adapted to encircle the hose, and having a tongue or tongues on one side, and a corresponding slit or slits on the opposite side, through which the tongues pass, and holes in the plate between the slits and the edge of the plate for the engagement of the instrument to draw the edge of the plate toward the opposite edge to seat it on the hose, substantially as herein described.

2. In a hose-patch consisting of a plate, sheet, or piece adapted to encircle the hose, and having a tongue or tongues on one side and a corresponding slit or slits on the opposite side, through which the tongues pass, the holes D on the tongue side of the plate, and the holes E on the slit side between said slits and the edge of the plate, substantially as and for the purpose herein described.

3. The hose-patch consisting of the plate A, having tongues B B′ and slits C C′ and holes D and E, all arranged with relation to each other and operating together substantially as and for the purpose herein described.

312,407. VELOCIPEDE. CURTIS H. VERDIN, Bethlehem, Pa., and JOHN I. VERDIN, Omaha, Nebr. Filed Aug. 1, 1884. (No model.)



Claim.—1. The combination of annular gear A and pinion B with suitable means for changing their relative positions, so that they may revolve either concentrically together or eccentrically in gear, substantially as and for the purpose set forth.

2. The combination of the sprocket or gear wheel S with annular gear A and pinion B and pedal-shaft D, substantially as set forth.

3. The combination of the annular gear A and pinion B with the shifting mechanism consisting of the arm E, stud G, lever L, pin I, and catch K, substantially as and for the purpose set forth.

4. The combination of movable arm E, stud G, and spiral spring R, as set forth.

5. A shifting device consisting of arm E, stud G, lever L, pin H, and bolt I.

6. The combination of spring and plunger V, Fig. 4, with annular gear A, and pinion B on shaft D, substantially as and for the purpose set forth.

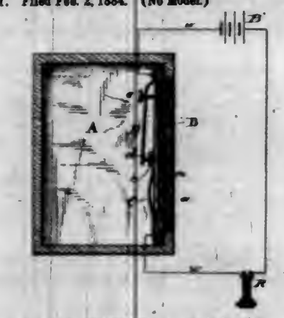
312,408. SURGICAL NEEDLE. GEORGE WACKERHAGEN, Brooklyn, N. Y. Filed Sept. 24, 1884. (Model.)



Claim.—1. The needle for sutures, formed with a lengthwise channel or groove, and with a depressed bridge, *b*, crossing the groove near the point of the needle, substantially as described.

2. The needle A, formed with groove *a* and depressed bridge *b*, and with an eye near its blunt end, as and for the purpose specified.

312,409. TELEPHONE-TRANSMITTER. HENRY E. WAITE, New York, N. Y. Filed Feb. 2, 1884. (No model.)



Claim.—1. A telephone-transmitter consisting of a case having a front perforated plate provided with a recess or ledge, a diaphragm supported in said recess, a spring-finger secured to said plate and holding the diaphragm in position and bearing upon its free end one of the electrodes, and an adjustable spring, also secured to the plate and supporting the other electrode in contact with the first, substantially as described.

2. The combination, with a recessed plate, of a diaphragm in said recess and a spring-finger secured to said plate, one face of its free end bearing upon and supporting and damping the diaphragm, and the other face carrying an electrode, substantially as described.

312,410. SWITCH-BOARD. HENRY E. WAITE, New York, N. Y. Filed Sept. 26, 1884. (No model.)



Claim.—1. The combination, in a switch-board, of a series of subscribers' lines, each provided with one or more circuit-opening devices, and a series of spring-supported pins normally out of contact with said devices, and a series of levers, each adapted to operate the pins to break the subscriber's ground-line, substantially as described.

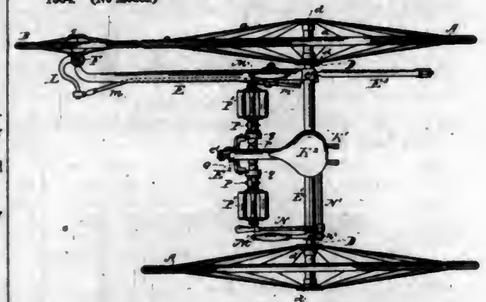
2. The combination, with a switch-board, of a series of circuit-breakers upon the rear of the board, a series of spring-supported pins passing through said board, a series of bars arranged opposite the pins, and a number of levers pivoted to the bars and adapted to bear against the pins and operate the circuit-breakers, substantially as described.

3. The combination, in a switch-board, of a number of spring-supported pins, and spring jacks or levers adapted to operate the pins, the levers being provided each with a curved spring upon the operating end, substantially as described.

4. The combination, with a switch-board, of a series of spring-supported pins, a continuous metal strip connected with the operator's instruments, a series of bars supported opposite the pins and strip, and a number of pendent spring-jacks supported on the bars, and adapted to make contact with the pins and strip, substantially as described.

5. A switch-board consisting of a board having a number of recesses in which are the annunciators connected to the several lines, a series of spring-supported pins, a series of horizontal bars in front of the board, and a number of spring jacks or levers supported upon each bar, said levers adapted to make contact with the pins and break the ground-connection of the subscribers' lines, and to place two subscribers in electrical connection through the bars, substantially as described.

312,411. VELOCIPEDE. ALBERT E. WALLACE, Hartford, Conn., assignor to the Pope Manufacturing Company, same place. Filed Nov. 28, 1884. (No model.)



Claim.—1. A tricycle-frame consisting in three tubular parts, E F' E², of which one, E', is substantially parallel with and shorter than the axial line between the two main wheels and adapted to take its support on the axles thereof, one, E, is substantially at right angles to and attached at or near one end of the last and bent both downward and outward to take its connection with the steering mechanism, and one, E², at or near the middle of the former and inclined downward so as to take near its lower end the support of a crank-shaft, and said parts being, as at *e' e' e²*, connected rigidly together, essentially as set forth.

2. In a velocipede, a dwarf steering-head, F, with a short single vertical standard, *f*, to receive the axle of the steering-wheel, and a cylindrical part with step and adjustable follower for the steering-spindle, and an opening to receive and permit partial rotation of the steering-spindle, and neck *s* of the connecting-frame, and an arm connected with said steering-head for the attachment of a steering-rod, essentially as set forth.

3. In a rack-and-pinion steering mechanism for a velocipede, a bent spiral rack, essentially as set forth.

4. In a velocipede, the inclined seat-rod K, bracket J, clamp *j'*, and bracket *k*, constructed, combined, and adapted to operate essentially as set forth.

5. The combination-bracket J *e² e² j j'*, constructed and adapted to hold a seat-rod, a brake-rod, and two parts of the frame together, essentially as set forth.

6. A bracket, *e² e²*, consisting of two cylindrical parts whose axial lines are at right angles to each other, and adapted to hold two cylindrical parts of the frame together tangentially to each other, essentially as set forth.

7. A sprocket-cylinder, H, having a peripheral row of teeth, A, a band-brake flange, *n²*, and an inward flange, *h'*, for attachment to the axle mechanism of a velocipede, essentially as shown and described.

8. The combination, in a velocipede, of a sprocket-wheel, H, or its equivalent, a balance-axle gear, G G I *i* D² D², or its equivalent, axles D' D', and extension-tubes G' G', constructed and adapted to operate essentially as set forth.

9. In a velocipede, a brake-drum, *n²*, located beneath the seat and connected with the driving mechanism, a band, *n'*, rod N', levers N *n*, and bearings and connections, constructed and combined to operate essentially as set forth.

10. In a velocipede, a tubular inner axle, D D', and a tubular outer axle, G', the former connected with a balance-axle mechanism and a main wheel, and the latter connected with the frame and the balance-axle mechanism and driving-gear, and a means for connecting and limiting the relative longitudinal motion of the two, essentially as set forth.

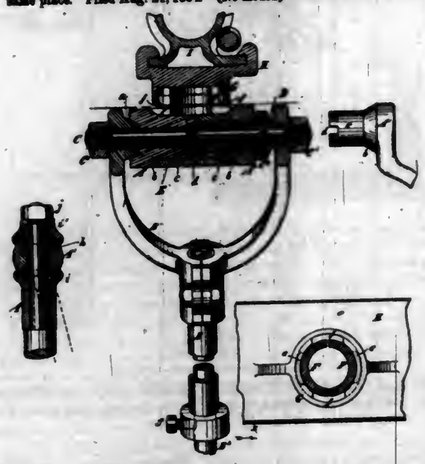
11. A combined axle and wheel hub consisting in a tubular part, D, bearing flanges for spokes, and extending beyond the wheel to take connections with the frame and the driving mechanism of a velocipede, essentially as set forth.

12. In a tricycle, a divided axle each part of which is constructed and adapted to be connected with the balance-axle gear and driving mechanism at one end, and at the other end has flanges for the spokes of a driving-wheel, essentially as set forth.

13. The combination of tube D, extension D', flanges *d d*, spokes *a a*, and a felly constructed and adapted to operate in a velocipede, essentially as and for the purposes set forth.

14. An improved tricycle consisting, substantially, of two driving-wheels abreast connected by a divided axle, each part of which forms an integral part of one of the said wheels, a balance-gear and its box and sleeve extensions having bearings for the divided axle and the frame, a three-part tubular frame, one part being transverse and carrying the seat and brake mechanisms, one part at right angles to the latter, centrally located, and bearing the driving mechanism, and one part, also at right angles to the first tube, located at one side and bent downward and outward and carrying the steering mechanism, a steering-wheel tracking with one of the driving-wheels and connected by a dwarf steering-head with the frame, pedal and crank driving mechanism, and seat, handle, and steering mechanisms, all constructed and combined to operate substantially as and for the purposes set forth.

312,412. SUPPORT FOR ROCK-DRILLING MACHINES. JOHN B. WARING, New York, N. Y., assignor to the Ingersoll Rock Drill Company, same place. Filed Aug. 21, 1884. (No model.)



Claim.—1. The combination, in a support for a drilling-machine, of a pair of legs having at their upper ends shanks provided at their meeting edges with interlocking teeth, a screw-threaded part, made integral with one of said shanks, and a nut engaging with the screw-threaded part for holding said teeth in engagement with each other, substantially as specified.

2. The combination, with a drilling-machine support, of a leg composed of the section A', adapted to be swung upward and downward relatively to the table of the drill, and provided with the socket *h*, having a convexed exterior, the section A, adjustable angularly relatively to the section A', and having a portion extending through the socket *h*, the flange *i*, made integral with the leg-section A, and fitting upon the convexed surface of the socket *h*, the loose flange *i*, also fitting about the convexed surface of the socket *h*, and the nut *j*, for securing the leg-sections A A' and the flange *i* together.

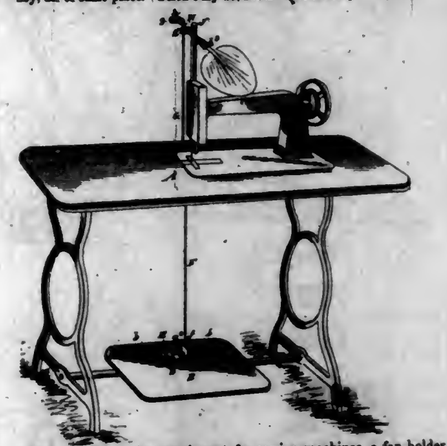
3. The combination, in a support for a drilling-machine, of a table provided with a stem, legs for supporting the table, a split sleeve fitting the legs, shanks on said sleeve fitting the stem of the table, shanks on said legs extending into the sleeve-surfaces on said shanks, serving to cause the shanks of the split sleeve to fit the stem of the table tightly, a screw-threaded part, made integral with one of the shanks on said legs, and a nut applied thereto for drawing the legs together, substantially as specified.

4. The combination, in a support for a drilling-machine, of a table provided with a stem, legs for supporting the table, a split sleeve fitting the legs, shanks on said sleeve fitting the stem of the table, interlocking lugs or recesses on said shanks or said stem, shanks on said legs extending into the sleeve, surfaces on said shanks serving to cause the shanks of the split sleeve to fit the stem of the table tightly, a screw-threaded part made integral with one of the shanks on said legs, and a nut applied thereto for drawing the legs together, substantially as specified.

5. The combination of the drill-table H, leg-sections A', serving to support the same, shanks on said leg-sections, spreaders *b* on said shanks, a split sleeve, E, fitting the shanks on said leg-sections between the spreaders, shanks F on said sleeve, provided with lugs *e*, the stem G on the table H, provided with the recesses *f*, a screw-threaded part, D, made integral with one of the shanks on said leg-sections A', and a nut, C', engaging with said screw-threaded part for drawing said sections together, substantially as specified.

6. The combination of the drill-table H, leg-sections A', serving to support the same, spreaders *b* on said leg-sections, the split sleeve E, fitting said leg-sections between the spreaders, shanks F on said sleeve, provided with lugs *e*, the stem G, extending from the table H, and provided with recesses *f*, a screw-threaded part, D, on one of the leg-sections A', a nut, C², for drawing said leg-sections together, the leg-section B', having the clamping-piece *a*, a bearing for said clamping-piece in one of the leg-sections A', the bolt C, and the nuts C', substantially as described, whereby the table may be secured in position, and the leg-sections A' and B' may also be secured in position.

312,413. FAN ATTACHMENT. HENRY P. WATTS, Lynchburg, Va., assignor of two-thirds to Matthew Duffner, T. M. Harwood, and S. B. Haney, all of same place. Filed July 14, 1884. (No model.)



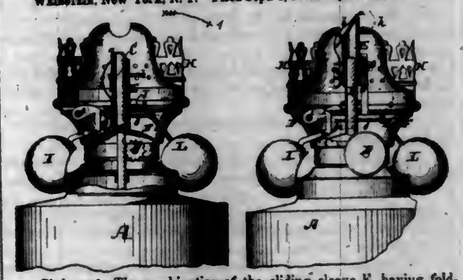
Claim.—1. In a fan attachment for sewing-machines, a fan-holder consisting of a wire coiled at each end to form a bearing, *h*, and a socket, *h²*, for holding the fan, and coiled at *h'* intermediately between the bearing and socket to form a fulcrum-bearing, substantially as shown and described.

2. In a fan attachment for sewing-machines, the combination of the wire E, for attachment to the treadle, the pitman F G, having bearings *e² h*, the fan-holder H, having a fulcrum-bearing, *h'*, and fan-socket *h²*, and the fulcrum-post J, having a clip, K, provided with the apertured stud *k*, through which the pitman operates, the said fan-holder being connected with the fulcrum-post, as shown, and for the purpose set forth.

3. In a fan attachment for sewing-machines, the combination, with the jointed pitman F G, which operates the fan-holder, of the wire E, having the bends *e'* and bearing *e²*, to adapt it to be used for connecting said pitman to the treadle, substantially as shown and described.

4. The combination, in a fan attachment for sewing-machines, of a plate, D, concaved at *d d*, a headed screw, C, and a thumb-nut, *c*, whereby the wire E may be secured to the treadle through the holes *b*, substantially in the manner and for the purpose specified.

312,414. LAMP-EXTINGUISHER. ISAAC WEINSTEIN and SAMUEL WEINSTEIN, New York, N. Y. Filed Sept. 1, 1884. (No model.)



Claim.—1. The combination of the sliding sleeve E, having folding lid *a*, spring *b*, pin *g*, and socket *d*, with the spring J, and weighted arm I, having ball *e*, all arranged for use on the wick-tube of a burner, substantially as shown and described.

2. The combination of the sliding sleeve E, having folding lid *a*, spring *b*, pin *g*, and socket *d*, with the spring J, weighted arm I, having ball *e*, and with the cord *n*, substantially as shown and described.

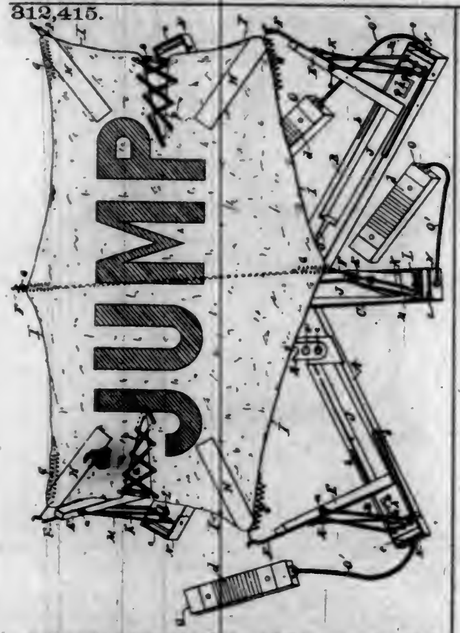
3. The combination of the sliding sleeve E, having folding lid *a*, spring *b*, pin *g*, and socket *d*, with the spring J, weighted arm I, having ball *e*, and pin *m*, and with the weighted arm L, having extension *j*, substantially as herein shown and described.

312,415. PORTABLE FIRE-ESCAPE. HERMANN WETTSTEIN, Harvard, Ill. Filed June 12, 1884. (No model.)

Claim.—1. The fire-escape herein shown and described, composed of a folding frame having hinged uprights E, in combination with the fabric or net-work I, attached to the uprights, substantially as set forth.

2. The bars A B C, bolted together in the center one upon the other, in combination with a holding or brace plate, R, arranged to hold the bars in the proper crossed position, substantially as set forth.

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3. The uprights E, hinged to the bars A B C, in combination with the braces K, substantially as set forth.

4. The braces M, hinged to the bars A B C, in combination with the hinged uprights E, substantially as and for the purposes set forth.

5. The braces M, hinged to the bars A B C, in combination with the hinged uprights E, provided with the braces K, substantially as described.

6. The hinged uprights E, provided with the hooks F, substantially as and for the purposes set forth.

7. The bars constituting the frame of the fire-escape, having the recesses J formed in them to receive the hinged uprights E, substantially as and for the purposes set forth.

8. The bars constituting the frame of the fire-escape, recessed at *b* to receive the hinged braces M, substantially as and for the purposes set forth.

9. The bars constituting the frame of the fire-escape, formed with the recesses J J' to receive the uprights E and hooks F, substantially as set forth.

10. The bars constituting the frame of the fire-escape, provided with the grip-plates N, in combination with the legs O, substantially as and for the purposes set forth.

11. The grip-plates N, provided with the teeth *c*, substantially as and for the purposes set forth.

12. The grip-plates N, provided with the teeth *c*, in combination with the legs O, provided with the serrated plates *d*, substantially as and for the purposes set forth.

13. The fabric or net-work I, provided with springs or elastics G H, in combination with the uprights E, having hooks F, substantially as and for the purposes set forth.

14. The fabric or net-work I, slotted, as P, and provided with the lacing-cords Q, substantially as and for the purposes set forth.

312,416. BREECHING ATTACHMENT FOR VEHICLES. JOHN C. WILLIAMS, Aurorahville, Wis. Filed June 11, 1884. (No model.)

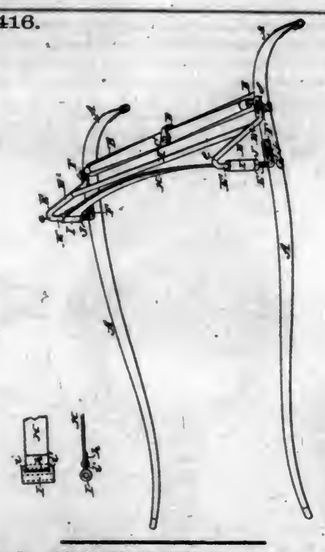
Claim.—1. As an improved article of manufacture, a breeching attachment to thills, consisting, essentially, of the angular standard E and a sliding collar on the vertical arm of said standard, said collar being provided with an eye or loop for attachment of the strap H, substantially as set forth.

2. The combination, with the thills A, of the standards E, fixed thereto, the breeching-strap H, fitted by collars I to slide on the vertical arms E' of the standards, and the nuts J, screwed upon the standards below the collars I, substantially as shown and described.

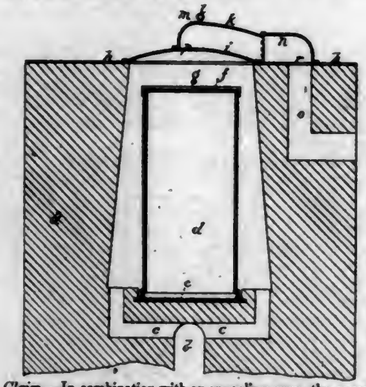
3. The standards E, constructed with a vertical arm, E', sliding collar I on said vertical arm, an inclined brace, E², and foot-flanges F, slotted at *f*, in combination with the thills A and bolts G, substantially as shown and described.

4. The combination, with the thill-bars A A and the standards E E, bolted thereto and supporting the breeching H, of the tie-bar K, connecting the opposite standards, substantially as shown and described.

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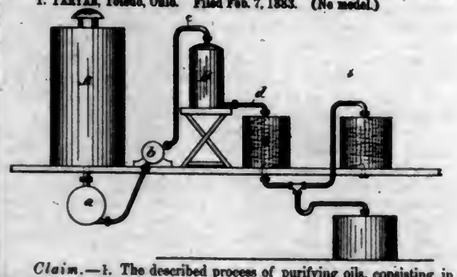


312,417. APPARATUS FOR ANNEALING WIRE. LEWIS WILLIAMS, Johnstown, Pa., assignor to Cambria Iron Company, same place. Filed Aug. 24, 1883. (No model.)



Claim.—In combination with an annealing-oven, the covering-plate *i*, the flue *k*, permanently attached thereto, the elbow *n*, and downward-acting flue *o*, substantially as and for the purpose set forth.

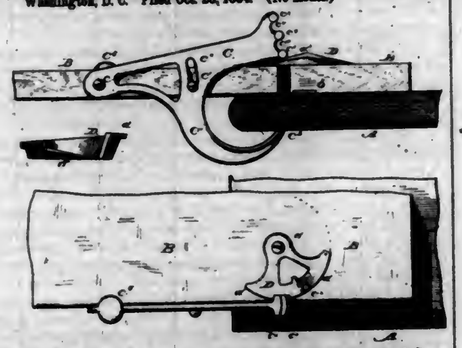
312,418. MANUFACTURE OF LINSEED AND OTHER OILS. HOMER T. YARYAN, Toledo, Ohio. Filed Feb. 7, 1883. (No model.)



Claim.—1. The described process of purifying oils, consisting in dissolving the same in a solvent and passing the solution while cold through a filter without the application of artificial heat, substantially as set forth.

2. The improvement in the manufacture of oils, consisting in extracting the oil by solution from the oil-bearing substances, and while in solution, and without the application of artificial heat, passing the solution through animal charcoal for the purpose of bleaching and deodorizing the oil, and afterward removing the solvent, substantially as set forth.

312,419. ADJUSTABLE CLAMPING DEVICE. GEORGE W. ZEHLER, Washington, D. C. Filed Oct. 28, 1884. (No model.)



Claim.—1. As a new article of manufacture, an adjustable clamp or lever provided with a curved projection to engage the under side of a table or shelf, and a straight arm projecting over the top of the article to be clamped, formed at its extremity with lateral pins and intermediate notches for engaging a clamping-wedge, substantially as described.

2. The pivoted clamp arm or lever C, having in its side the curved slot c^3, and formed with curved projection C', lateral pins c^4, and intermediate notches, c^4, in combination with a plate having a wedge-flange, substantially as described.

3. The pivoted adjustable arm or lever C, having laterally-projecting pins c^3 and notches c^4, knob c^5, extending on each side thereof, curved projection C', and curved slot c^3, as set forth.

4. The pivoted clamp having in its side a curved slot, by which it is adjustable on a pin, and formed with curved projection C' and pins c^4, in combination with pivoted plate D, having wedge-flange *d'*, substantially as described.

5. The combination, with board B, of arm C and plate D, pivoted to said board at *c* and *d*, respectively, the arm C having slot c^3, projection C', and pins c^4, and the plate D being provided with wedge-flange *d'*, to engage pins c^4, as set forth.

312,420. TOY-BLOCK. JOSIAH B. ANDERSON, Boston, Mass. Filed Sept. 22, 1884. (No model.)



Claim.—1. A toy block having on its several sides letters, figures, words, or pictures, and provided on one or more sides with a recess or cavity covered with glass, in which, behind the glass, is placed a picture, ornament, or other object, substantially as set forth.

2. A cubical toy block provided with a recess or cavity extending into it from one side, a picture, ornament, or other object supported by invisible means in the middle of said cavity, and a glass covering said cavity, substantially as set forth.

3. A cubical toy block provided with a recess or cavity extending into it from one side, a picture or other object placed in said cavity, a glass covering said cavity, and a frame holding said glass in place, sunk into the block flush with its surface, substantially as set forth.

4. A cubical toy block formed with a cylindrical cavity extending into it, and a rabbet at the opening of said cavity, and provided with a glass fitting into said rabbet, an annular frame conforming to and fitting into said rabbet flush with the surface of the block, and an object supported within the cavity beneath the glass, substantially as set forth.

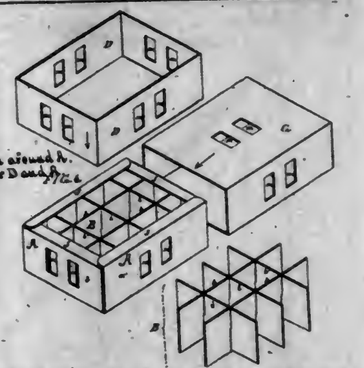
5. The block A, formed with recess or cavity B, containing object C, covered by glass D, and held in by annular frame E, sunk flush with the surface of the block, and having prongs *c c*, by which it is held in place, substantially as set forth.

6. The block A, formed with recess or cavity B, extending into but not through it from one side, with a post, *a*, projecting from the rear wall of the recess, a picture or other object, C, secured to this post and concealing the latter from view, and a glass, D, covering the recess, substantially as set forth.

312,421. PACKING-CASE. JACOB C. BAUER, Philadelphia, Pa. Filed Jan. 12, 1885. (No model.)

Claim.—1. The within-described box, the same consisting of the blank A, formed and creased as set forth, the cellular portion B, and the quadrangular band D, all being combined substantially as specified.

312,421.

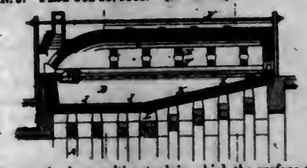


2. The combination of the parts A, B, and D of the box with the outer casing, G, as set forth.

3. The combination of the part A of the box and its edge folds, *f*, with the parts B and D.

4. The combination of the several parts of the box, each having openings *m m*, those of one part corresponding with those of the other parts, as set forth.

312,422. GLASS-MELTING FURNACE. GEORGE H. BENJAMIN, Short Hills, N. J. Filed Oct. 15, 1883. (No model.)



Claim.—1. A glass-melting tank in which the surface of the molten metal contained therein is preserved constantly level, having its bottom inclined downwardly from the charging end toward the gathering end, substantially as described.

2. A glass-melting tank in which the surface of the molten metal contained therein is preserved constantly level, having one portion of its bottom horizontal and the other portion inclined, the horizontal portion being adjacent to the gathering end and the inclined portion adjacent to the charging end, substantially as described.

3. Improvement in the art of subjecting a charge in a glass-melting tank to the gradual application of heat, consisting of treating said charge in a tank so arranged and adapted that the surface of the molten metal contained therein shall be preserved constantly level, and having a bottom wholly or partially inclined from the charging end toward the gathering end, whereby said charge, when melted, becomes of varying depth above said bottom and below the hot gases or other source of heat, substantially as described.

4. The combination, in a glass melting or fining tank in which the surface of the molten metal contained therein is preserved constantly level, of a bottom wholly or partially inclined downwardly from the charging end toward the gathering end, and air and gas flues opening into said tank above said bottom, substantially as described.

5. The combination, in a glass-melting tank in which the surface of the melted material contained therein is preserved level, of a bottom inclined from the charging end toward the gathering end, and arches gradually varying in height, arranged beneath and forming supports for said inclined bottom, substantially as described.

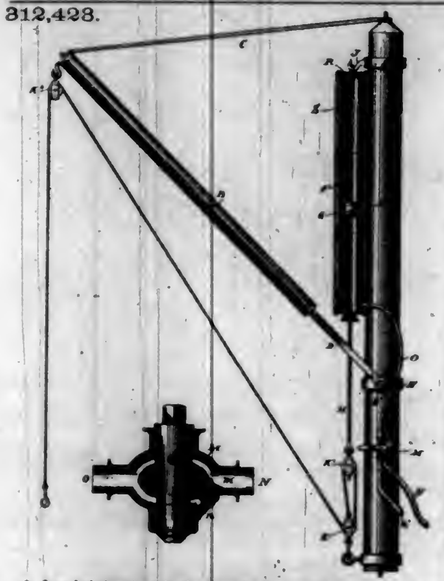
6. The combination, in a glass-melting tank in which the surface of the molten material contained therein is preserved level, of a bottom downwardly inclined, a charging-aperture arranged in the end of said tank and adjacent to the most elevated part of said bottom, a gathering-aperture arranged in the end of the tank adjacent to the most depressed part of said bottom, and flues for the admission of gas and air to be burned and for the escape of the products of combustion thereof, arranged in the wall of said tank and above said bottom, substantially as described.

7. In a glass-melting tank, and in the bottom thereof, the combination of the horizontal blocks J, junction-block L, inclined blocks K, and junction-block M, substantially as described.

312,423. STEAM-HOIST. CAMILLE BENARDON, New York, N. Y. Filed June 14, 1884. (No model.)

Claim.—1. The combination, with the hoisting-tackle in a derrick, of a steam-cylinder and single acting piston connected thereto to operate the same, substantially as and for the purpose set forth.

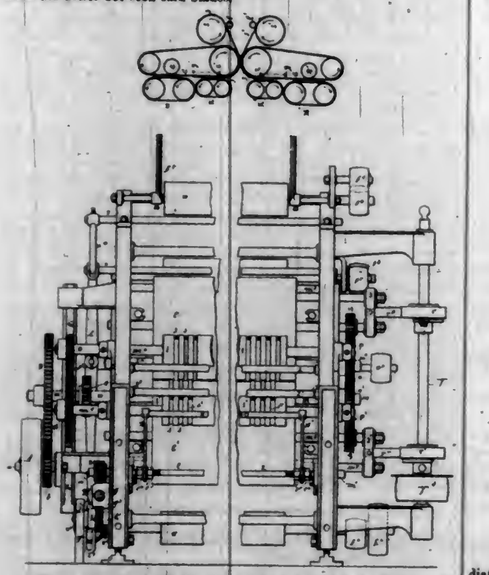
312,423.



2. In a hoisting-derrick, the combination, with its swinging boom and its hoisting-rope, of a double block and tackle for operating said hoisting-rope, actuated by a single acting piston working within a cylinder suspended upon or connected with the derrick-pole, and a two-way cock for controlling the admission and exhaust of the steam to and from said cylinder, substantially as and for the purpose herein set forth.

312,424. FLEECE-DIVIDING ATTACHMENT FOR CARDING-MACHINES. JEAN SEBASTIEN BOLETTE, Pepinster, Belgium. Filed Aug. 6, 1883. (No model.) Patented in Belgium Sept. 11, 1882, No. 58,993; in Germany Nov. 28, 1882, No. 22,779; in France Dec. 1, 1882, No. 152,357; in Austria Jan. 31, 1883, No. 48, and in England Apr. 5, 1883, No. 1,711.

Brief.—The free ends of the fleece-dividing blades are made to move alternately up and down between endless dividing-aprons and other aprons holding said blades against the dividing-aprons, and said blades are made to move more slowly than the dividing-aprons, to give the wool a proper travel. Means are provided for introducing the sheet of wool from the doffer between said blades.



Claim.—1. The combination of a pair of endless dividing-aprons and means for imparting rotary motion to the same with a pair of blade-holding aprons, two sets of dividing-blades crossing each other between the endless dividing-aprons, and means for imparting a reciprocating to-and-fro motion to said blades at a rate of speed slower than that of the said endless dividing-aprons, as set forth.

2. The combination of the fleece-introducing blade with the two sets of dividing-blades, means for operating them, a pair of endless dividing-aprons, means for operating them, the blade-holding aprons, means for operating them, and the endless rubbers and means for operating the same, as set forth.

3. The combination of two sets of dividing-blades, their rollers, and means for operating them, with the rods for holding said blades thereon, a pair of endless dividing-aprons, means for operating the same, and a pair of blade-holding aprons and means for operating them, as set forth.

4. The combination of two sets of dividing-blades and means for operating them with the endless dividing-aprons and their adjustable friction-rolls, means for operating said aprons, the blade-holding aprons and means for operating the same, the endless rubbers and their grease-rolls, and means for operating said rubbers, as set forth.

5. The combination of the friction-rolls R R′ with the slide *x*, having a nut and pin, x^3, and screw-bolt x^2, the guide x' on the end of the frame, the endless dividing-aprons C C′, means for operating them, and the endless rubbers M M′ and means for operating the same, as set forth.

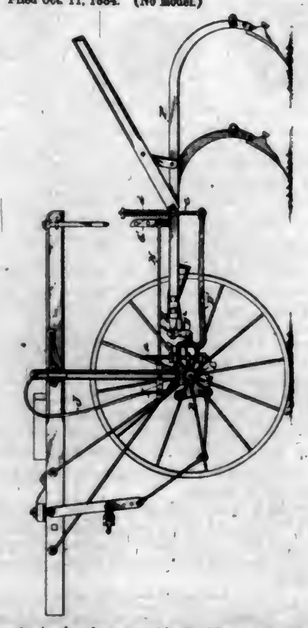
6. The combination of the curved levers N N′, having the tension-rod *t*, provided with nuts t^1 t^2, and the blade *o*, with the end of the frame, provided with brackets r^1, having slot t^3, nut t', and bolt t^3, the two sets of dividing-blades J J′, means for operating the same, and a pair of endless dividing-aprons, C C′, and means for operating them, as set forth.

7. The combination of the shaft A and its pulley *a* with the pinion *b*, the gear-wheel B, the shaft *m* and its roller, the endless dividing-apron C′, the shaft *m′* and its roller, the pinion *n′*, pinion *n*, shaft m^2 and its roller, the endless dividing-apron C, and the shaft m^2 and its roller, as set forth.

8. The combination of the pulley A and its shaft *a* with the gear-wheel B, the shaft *m* and its roller, the endless dividing-apron C′, the shaft *m′* and its roller, the worm D, worm-wheel *g* and its shaft, worm E, worm-wheel *h* and its shaft, the heart-cam F, having track *i*, the rack G, having pin *j*, pinions H H′, shafts m^4 m^3, rollers I I′, and the two sets of dividing-blades J J′, as set forth.

9. The combination of the pulley A and its shaft *a* with the pinion *b*, the gear-wheel B, the shaft *m*, pinion *n′*, pinion *o′*, the blade-holding apron K′, the pinion *p′*, pinion *q′*, the endless rubber M′, the pinion *n* on the shaft m^2, the pinion *o*, the blade-holding apron K, the pinion *p*, the pinion *q*, and the endless rubber M, as set forth.

312,425. WHEEL-CULTIVATOR. WILLIAM P. BROWN, Zanesville, Ohio. Filed Oct. 11, 1884. (No model.)



Claim.—1. A plow-beam combined with an axle and an intermediate coupling, which coupling is hung upon said axle to rock in a vertical plane, and which coupling and beam are also connected together by a joint permitting movement in a vertical plane, which joint is located above the level of the axle in order to rock the plow-beam down and increase the downward thrust of the plow-beam by the plow's own draft or friction, as and for the purpose described.

2. The combination, with the plow-beam and a rocking pipe-box or journaled connection, of the intermediate coupling jointed to the plow-beam above the level of the axle, and having an arm extending back under the plow-beam and fastened to the beam by an elastic or spring connection, as and for the purpose described.

3. The combination, with the plow-beams, of a rocking pipe-box or connection, and a coupling having vertical and horizontal pivot-bolt *a* and *b*, and an arm, D′, the stem *c*, cross-bar G, and spiral or elastic spring, as and for the purposes described.

4. The combination, with a vertically-moving plow-beam and its coupling in front having a single vertical pivot-bolt, of a lifting-spring connected to the plow in rear of its vertical pivot-bolt, and a guide or guides for causing the lift of spring to be in line with the pivot-bolt whether the plows are following in direct line or thrown to either side, as and for the purposes described.

5. In combination with the plow and its draft-coupling with single vertical pivot-bolt, the connecting link or rod H, guided to or over the pivot-bolt, and connected to the plow at one end in rear of the pivot-bolt and to a lifting-spring at the other, as and for the purposes described.

6. In a cultivator, the combination of a vertically and laterally moving plow-beam having a coupling with a single vertical pivot-bolt and a lifting spring and guide, and connecting link or rod H, for causing it to exert its lifting force on the plow in rear of its pivot-bolt, and in line with the pivot-bolt, regardless of the spring's location, as described.

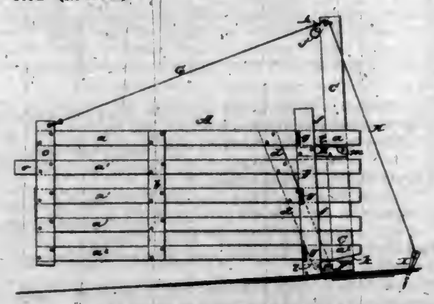
312,426. DOOR-SECURER. EDWARD A. BULLOCK, Du Bois, Pa. Filed Nov. 1, 1884. (No model.)



Claim.—1. In a combined door-fastener and key-holder, a cross-bar having a central screw-threaded opening and perforated ends, a spring-loop, and bar screw-threaded at one end and provided with a spur near the opposite end, substantially as shown.

2. In a combined door-fastener and key-holder, a cross-bar pivotally secured to a spring-loop, and provided with a central screw-threaded opening, in combination with a bar having a screw-threaded end, a spur, and a notched end for engaging with the loop, substantially as described, and for the purpose set forth.

312,427. GATE. CHARLES L. BURDEN, Gun City, Mo. Filed May 10, 1884. (No model.)

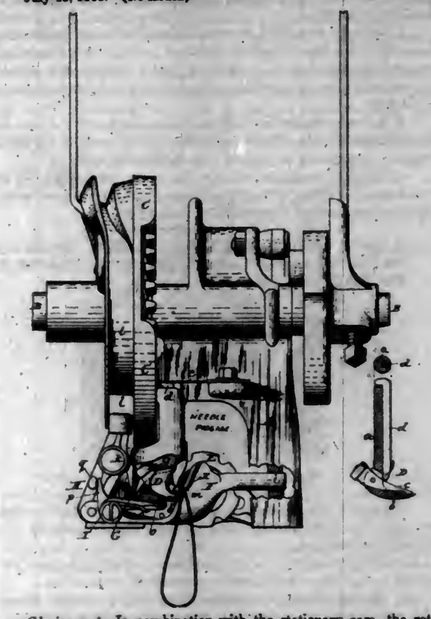


Claim.—1. The combination, with the posts C D, having a space, *f*, between them, and the cleats E F, connecting said posts, of the gate A, having its top and bottom rails resting on said cleats, and the inclined strip *d*, extending at its lower end beyond the post C, to form a toe, *n*, to bear on said post and cleat F, substantially as set forth.

2. A swinging gate consisting, essentially, of the posts C D, having a passage, *f*, between them, the connecting-cleats E F, staple *i* at the side of post C, the ring or staple *j* at the front face of the post C, and the stay G, secured at one end to the free end of the gate, and adapted to engage at its opposite end with the staple *i* or ring *j*, for the purposes described.

3. The combination of the hinge-posts C D, offset from each other to form a space, *f*, between them, the hinge-cleats E F, connecting the posts and having beveled edges *l m*, respectively, and the gate A, resting by its rails *a* a^3 on the cleats E F, said gate having a beveled edge at *k* on its lower rail, and an inclined upright, *d*, bearing against the faces of post C and cleat F, and being hung by a stay, G, from the post C, substantially as shown and described.

312,428. GRAIN-BINDING MACHINE. WILLIAM BUTTERFIELD, Auburn, N. Y., assignor to D. M. Osborne and Company, of New York. Filed July 13, 1883. (No model.)



Claim.—1. In combination with the stationary cam, the rotary tyer-bill having the pivoted jaw extended at the heel end to encounter said cam, the sliding rod extending lengthwise within the tyer-spindle and bearing at one end against the inside of the pivoted jaw, and the stationary spring acting against the opposite end of said rod.

2. In combination with a rotary tyer, a reciprocating cord-guide having a stripper movably attached thereto and arranged to act against the tyer, substantially as described.

3. In combination with the rotary tyer, the reciprocating cord-guide having the concave expanded central portion with the inclined edge *m*, whereby it is adapted to extend around and below the tyer and insure the delivery of the cord thereto, substantially as set forth.

4. The cord-guide, substantially as described, having one end mounted and arranged to slide in a fixed support, in combination with the swinging support at the opposite end, and means, substantially as described, for imparting a vibratory motion thereto.

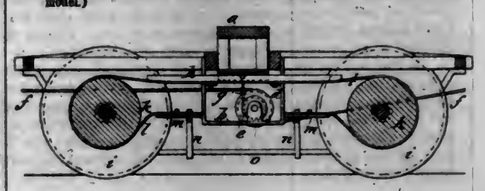
5. In a grain-binder, the combination, with the cord-severing knife, of the reciprocating carrier, sustained at one end by a sliding connection and at the opposite end by a swinging connection, substantially as described, whereby the knife is caused to act with a drawing or shearing cut upon the cord.

6. In combination with the rotary tyer, the reciprocating device F, provided at one end with a cord-guide, *m*, and at the opposite end with a knife, and with a stripper in rear of the edge of said knife.

7. In combination with the tyer and the reciprocating carrier or support, the stripper pivoted to said carrier, a spring acting to throw the stripper into contact with the tyer during its forward movement, and positively-acting means, substantially as described, to throw the stripper out of contact with the tyer as it recedes therefrom, whereby the rotation of the tyer is permitted without interference from the stripper.

8. In combination with the tyer, the pivoted stripper, its carrier, the spring acting to throw the stripper toward the tyer, and the operating-lever provided with a stud or projection adapted to engage the stripper and throw the same out of contact with the tyer, as set forth.

312,429. CAR-BRAKE. CHARLES E. CANDEE, New York, assignor of one-half to Albert G. Story, Little Falls, N. Y. Filed May 15, 1884. (No model.)



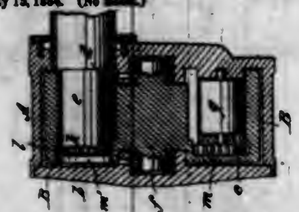
Claim.—1. The brake mechanism for cars, comprising friction-drums on the truck-axles and metallic elastic bands provided with the compression-bars and fitted to be clasped upon the drums by a tightener, substantially as described.

2. In brake mechanism for cars, the combination of friction-drums *k*, elastic friction-bands *l*, and the tightener *h*, connected to a drum, *e*, arranged in common with a second drum, *d*, upon a shaft, *c*, said drums being operated to act oppositely upon their encircling bands, substantially as set forth.

3. In brake mechanism for cars, the combination of the cross-shaft *c*, rope-drums *d e*, ropes *f g*, compression-bars *h*, bands *l*, and friction-drums *k*, substantially as described, for operation as specified.

4. In brake mechanism for cars, the elastic bands *l*, having their ends connected rigidly to the truck-frame or car, and provided with the rigid compression-bars *h*, substantially as described.

312,480. JOURNAL-BEARING FOR CAR-AXLES. CHARLES E. CARDER, New York, assignor of one-half to Albert G. Story, Little Falls, N.Y. Filed May 15, 1884. (No model.)



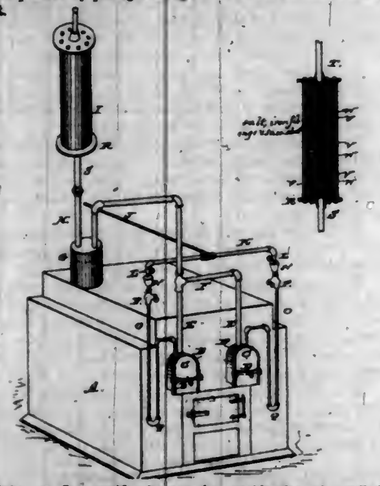
Claim.—1. The bearings for journals, consisting of friction-ring B and rollers *f g*, combined with a box having a central abutment, *c*, substantially as described.

2. In a journal-box, the spur *k*, combined with friction-ring B, having the toothed ring *l*, and journal *e*, substantially as described.

3. The friction-ring B, provided with cap *m*, and formed integrally with roller *f*, and also made with openings *m'*, substantially as and for the purpose specified.

312,481. GAS APPARATUS. WILLIS M. CARLES, Columbia City, Ind. Filed Sept. 20, 1884. (No model.)

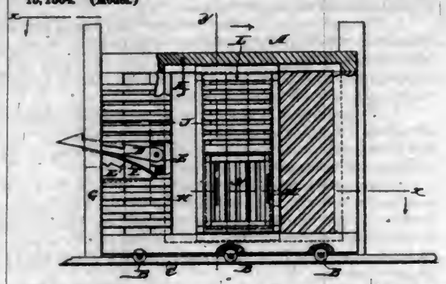
Brief.—Coal is distilled and the resulting gas is enriched or carbureted with the vapor of hydrocarbon oil, the oil being admitted to the retort containing the coal by a supply-pipe. The gas, after leaving the retorts, is purified by passage through a mixture of sawdust, iron filings, and salt.



Claim.—1. In a purifier for gas, the combination of a cylindrical vessel provided at its ends with an inlet and an outlet pipe, a number of spaced and perforated diaphragms placed within the vessel, and a packing of sawdust, iron filings, and salt interposed in layers between the said diaphragms, as and for the purpose shown and set forth.

2. The combination of the retorts, oil-supply pipes entering the same, and provided with bends or traps and with back-pressure valves, the exit-pipes connecting the retorts with a tank having a water-seal, and the purifier consisting of a tank provided with perforated diaphragms, between which is interposed a packing of sawdust, iron filings, and salt, the whole arranged and operating substantially as and for the purpose set forth.

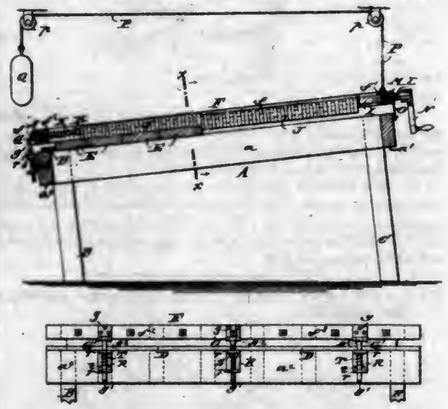
312,482. GATE. HARDEY H. CLEMENT, Hazel Dell, Miss. Filed May 15, 1884. (Model.)



Claim.—1. A farm-gate consisting of a movable gate having an opening therethrough, a horizontally-sliding gate mounted on the first-described gate, and adapted to close the opening therein, and a vertically-sliding gate mounted on the said horizontally-sliding gate, and adapted to close an opening therein, substantially as herein shown and described.

2. The combination, with the rolling gate A, having an opening, H, of the horizontally-sliding gate J, provided with an opening in its lower side, and adapted to close the opening H, a fastening for securing said gates together, and a vertically-sliding gate, N, mounted on the gate J and adapted to close its opening, substantially as set forth.

312,483. GLUING-TABLE. JAMES H. CLEMONS, Dolgeville, and JOSEPH W. BOWER, Stratford, N. Y. Filed Sept. 23, 1884. (No model.)



Claim.—1. A gluing-table constructed with a bed-frame to receive the work, and a clamp-frame held above the bed-frame and provided with one or more rods or bars carrying a series of presser-plates or washers to be swung to one side, and means for pressing the plates to the work, substantially as shown and described.

2. A gluing-table constructed with a bed-frame, a clamp-frame hinged to the bed-frame, and said clamp-frame having one or more rods or bars carrying series of presser-plates to be swung to one side, and means for pressing the plates to the work, substantially as shown and described.

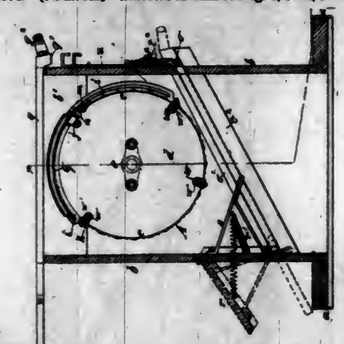
3. A gluing-table constructed with a bed-frame, a clamp-frame hinged to the bed-frame and adjustable at the hinges to and from the bed-frame, and said clamp-frame being provided with one or more rods or bars carrying series of presser-plates to be swung to one side, and means for pressing the plates to the work, substantially as shown and described.

4. The combination, in a gluing-table, of the work-bed A, clamp-frame F, provided with rods or bars H, carrying presser-plates J, the head-blocks I, screws L, and nuts M, substantially as shown and described.

5. The clamp-frame F, constructed with rods or bars H, carrying presser-plates J, to be swung upward, as specified, and said rods H having flat upper surfaces, substantially as shown and described.

6. In a gluing-table, the combination, with the work-bed A, provided with the flanged plates R, secured to one end thereof, and the clamp-frame F, of the hinges G', having the rods *g'*, passing through the flanges of the plate R, and provided with the springs T, surrounding the same, and the hinge G, having the screw-threaded rod *g'*, passing through the flanges of the said plates R, and provided with the nut S, substantially as herein shown and described.

312,484. ASH-SIFTER. BURTON R. COOK, Brooklyn, N. Y. Filed Oct. 1, 1884. (No model.) Patented in Canada Aug. 1, 1884, No. 19,877.



Claim.—1. In a rotary sieve provided with a peripheral opening, the arc-shaped guide-castings *i*, attached to and extending from the heads of the sieve and slotted in conformity to the circumference of the sieve, said slots in cross-section being inversely flared, in combination with a lid covering said opening and fitted to slide circumferentially within the slotted guides *i*, substantially as and for the purposes specified.

2. In combination with the sieve and its sliding lid, the curved slotted guides *i i*, formed with the lateral fastening-ears *j j*, substantially as herein set forth.

3. In a rotary sieve having a circumferential opening, frame A, encompassing said opening and carrying a meshed fabric, the two opposite sides of said frame conforming to the periphery of the sieve, and lugs *h'*, attached to and projecting outwardly from the said curved side of the frame, in combination with the slotted arc-shaped guides *i*, secured to the sieve, substantially as described, and arranged to receive and guide the lugs of the frame A in its peripheral movement, substantially as and for the purpose specified.

4. A cylindrical sieve having a peripheral opening, and a lid sliding peripherally on said sieve to open and close said opening, in combination with a spring attached to the sieve within the path of the sliding lid, and constructed to hold the lid in an open or closed position, substantially as set forth.

5. The combination, with the sieve-box, the rotary sieve and its crank, of the plate *v* and its pivoted catch *y*, and spring *v'*, arranged and operating substantially as and for the purpose set forth.

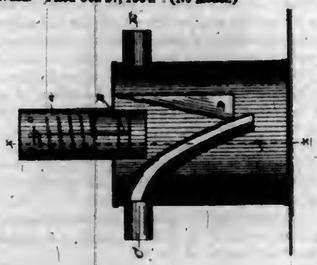
6. A sieve and sieve-box, the latter provided with a cinder-outlet, a gravitating door having arms *s*, said arms being attached, respectively, to the opposite ends of the said door, substantially as described, with their free ends projecting within the path of the chute, in combination with the chute having portions of its sides cut away to form abutments to press against said arms, substantially as and for the purpose specified.

7. The combination, with the sieve and sieve-box having the slot *o*, and a discharge-door on the side opposite said slot, of the movable chute-slide adapted to enter said slot and open said door, and the sliding valve *t*, adapted to fit over said slot against said slide, substantially as herein shown and described.

8. The combination, with the sieve A, the slide *g*, and the sieve-box *b*, having the ways *o'*, projecting out beneath slot *o*, with the slide *t*, covering said slot and resting on the ends of said ways, substantially as shown and described.

9. The combination, with the sieve-box and the rotary cylindrical sieve, of the guides *b'*, affixed to the ends of the box, each concaved on its lower edge to fit over the ends of the cylinder, with the upper edge straight and arranged to support the cover of the box, substantially as shown and described.

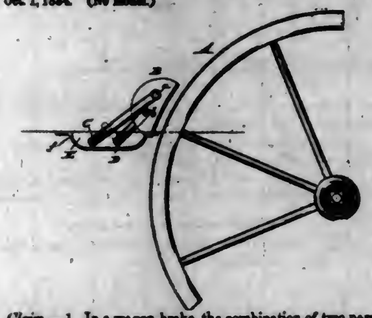
312,485. GAS-MIXER FOR INHALERS. LUTHER M. DAVIS, Walla Walla, Wash. Filed Oct. 27, 1884. (No model.)



Claim.—1. In an apparatus for mixing gas or air with chloroform, ether, or other similar substance, an air-tight receiver provided with a deflecting-diaphragm extending from the top of the receiver nearly to its bottom, and having supply and exhaust pipes located on opposite sides of said receiver and separated by the diaphragm, substantially as shown and described.

2. The receiver A, provided with the deflecting-diaphragm C, the valve B, the supply-pipe D, and exhaust-pipe E, separated by the diaphragm C, substantially as and for the purpose shown and described.

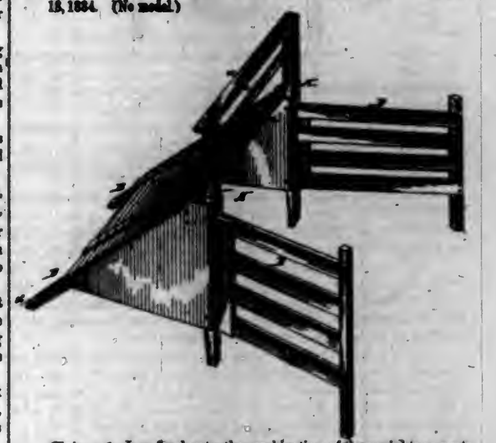
312,486. VEHICLE-BRAKE. FRANK C. DAY, Scranton, Pa. Filed Oct. 1, 1884. (No model.)



Claim.—1. In a wagon-brake, the combination of two parallel rock-shafts having rigid crank-arms on their ends and a brake-shoe mounted directly upon said arms, substantially as described and shown.

2. In combination with the brake-shoe, the rock-shaft C, having the crank-arm pivoted to the upper end of the shoe, and the rock-shaft D, having a relatively shorter arm pivoted to the lower end of the shoe.

312,487. FLOOD-GATE. HIRAM T. DAY, Fullerton, Ill. Filed July 15, 1884. (No model.)



Claim.—1. In a flood-gate, the combination of the uprights or posts A A, inclined braces B B, double walls filled with stone or other suitable material, connecting cross-bars *a a'*, and the hinged or pivotally-suspended gate C, all arranged substantially in the manner as and for the purpose herein shown and described.

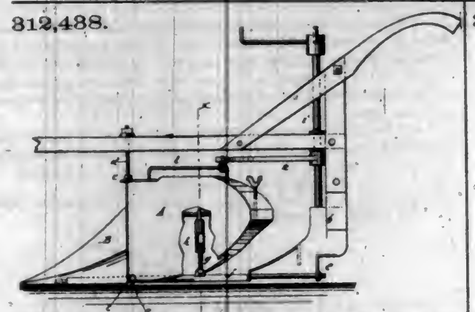
2. In a flood-gate, the combination of the vertical uprights or posts A A, inclined braces B B, double walls filled with stone or other suitable material, connecting cross-bars, hinged or pivotally-suspended flood-gate C, and the sections or wings D D, arranged at an angle to said gate, substantially as and for the purpose herein shown and described.

312,488. REVERSIBLE PLOW. JESSE L. DELANO, Northampton, Mass. Filed June 5, 1884. (No model.)

Claim.—1. In a reversible plow, the point B, with its lower edge in line with its apex, pivoted to swing upon a horizontal axis, in combination with the mold-board A, of an approximately A shape, pivoted centrally of its length to swing horizontally upon a vertical axis, whereby the point and board are adapted to turn the earth either to the right or the left, or to turn it both ways, substantially as described.

2. The combination, in a plow, of hinged mold-board A, post *d*, hinged point B, and horizontal bar *f*, said point being fixed to said bar at its apex, and said bar being connected to the mold-board by a swiveled

312,438.

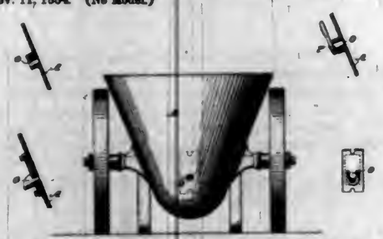


telescopic connection, together with means to shift the mold-board, substantially as shown and described.

3. The combination of point B, mold-board A, rock-bar *f*, arm *g*, and tubular rod *h*, substantially as described.

4. The combination, with the point B and mold-board A, connected for simultaneous reversal, of shaft *i*, arm *k*, and slide-rod *l*, substantially as described.

312,439. SLAG-BUGGY. WALTER B. DEVEREUX, Aspen, Colo. Filed Nov. 11, 1884. (No model.)



Claim.—1. In a slag-buggy, a receiving or slag pot having in its side walls a tap-hole in such position that the poor slag may be drawn off from the interior of the pot without carrying with it the rich slag, mattes, or metal in the bottom or on the sides of the pot.

2. In a slag-buggy, the combination, substantially as hereinbefore set forth, of the slag-pot, the tap-hole in the side walls of the same in such position that the poor slag may be drawn off at pleasure, and means, substantially as described, for closing said tap-hole.

3. In a slag-buggy, the combination, substantially as hereinbefore set forth, of the slag-pot, the tap-hole in the side walls of the same in such position that the poor slag may be drawn off at pleasure, a flange or collar surrounding said tap-hole, and an iron plug for closing the same.

4. In a slag-buggy, a receiving or slag pot having in its side walls an opening closed by interchangeable plates or sections, each provided with a tap-hole in different positions, whereby the contents of the pot can be drawn off at different points above the bottom according to the position of the tap-hole in the plate employed.

5. In a slag-buggy, the combination, substantially as hereinbefore set forth, of the slag-pot, the opening in the side walls of the same, the interchangeable plates or sections for closing the same provided each with a tap-hole in different positions, and means, substantially as described, for securing said plates and closing said tap-holes.

312,440. BARBED FENCE. GEORGE DE WALT, Keaton, Ohio. Filed June 10, 1884. (No model.)

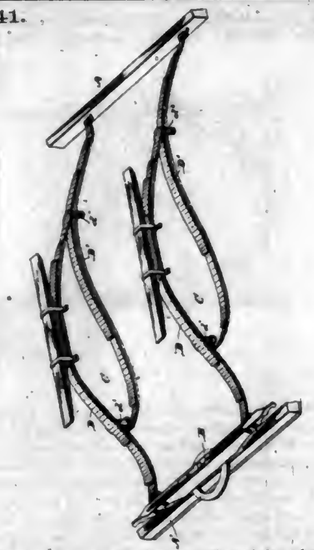


Claim.—A barb for wire fences made of sheet metal, bent as described, with holes for stringing it on the wire or wires in opposite sides of its bend, and its ends and corners forming the pricking-points, substantially as and for the purpose set forth.

312,441. VEHICLE-SPRING. ALEXANDER H. DICKEY, Connersville, Ind. Filed Aug. 18, 1884. (No model.)

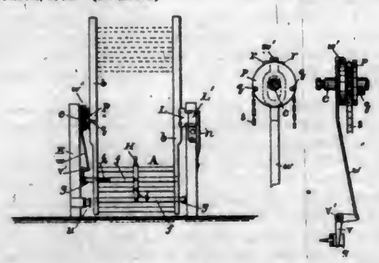
Claim.—1. The combination, with the front bolster and the rear axle, of the spring consisting of two sections, the upper section connected to the front bolster at one end and resting and sliding upon the lower section at the other end, and said lower section fastened at one end to the rear axle and supported at the other end between lugs depending from the upper section, substantially as described.

312,441.



2. The combination, with the rear axle and front bolster, of the spring consisting of the sections D and D', the section D having the lugs d^2 and d', and the section D' secured to the rear axle at one end and at the other supported between the lugs depending from the section D, substantially as described.

312,442. FARM-GATE. DAVID A. DICKINSON, Baltimore, Md. Filed June 4, 1884. (No model.)



Claim.—1. The combination of the gate-posts E, a gate having upright side bars, *b*, each provided with a trunnion, *c*, sitting in bearings on the post, two parallel latch-bars, *f*, each projecting through an opposite side bar and the two connected by a lever pivoted to a cross-bar between them, a lever, *v*, on the gate-post to retract the latch-bars, a lever, *s'*, mounted in a bearing set in the roadway, and means, substantially as described, connecting the retracting-lever on the gate-post with the lever in the roadway, as set forth.

2. The combination of the gate-posts, each having a bearing, *d*, a gate having two trunnions, one sitting in each bearing, whereby it may revolve in a vertical plane, and a spring-actuated retainer, I., having a hollowed or inward-curved face to press against the gate and hold it in a horizontal position, as set forth.

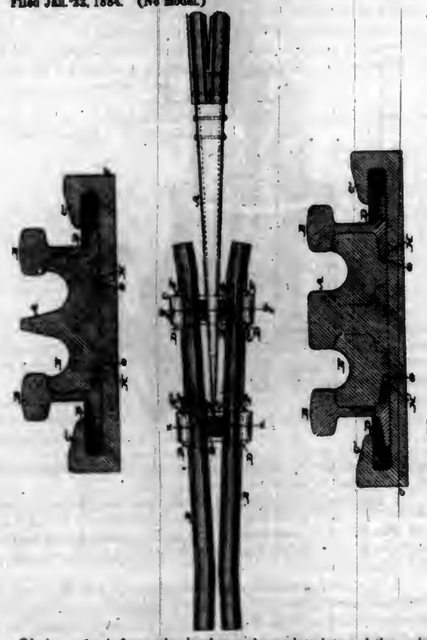
3. The combination of the gate-posts E, a gate having upright side bars, *b*, each provided with a trunnion, *c*, sitting in bearings on the posts, and means to hold the gate horizontal, consisting of a keeper, L', on the post, a retainer having a shank, *m*, adapted to slide in the keeper, and a spring, *n*, to keep the retainer normally toward the gate, as set forth.

4. The combination of the gate-posts E, a gate having upright side bars, *b*, each provided with a trunnion, *c*, sitting in bearings on the posts, a pulley, *p*, on one of the trunnions, two pulleys, S, mounted in suitable bearings set in the roadway at opposite sides of the gate, and an endless chain, *t*, having one part passed over the said trunnion-pulley and from thence over each of the two pulleys in the roadway, and the other part passed direct between the roadway-pulleys, as set forth.

5. The combination of the gate-posts E, a gate having upright side bars, *b*, each provided with a trunnion, *c*, sitting in bearings on the posts, a notched iron on the gate-post, a latch-bar, a bell-crank lever having one arm depending into the notched iron and adapted to bear on the latch-bar, and means, substantially as described, to press the depending arm against the latch-bar, as set forth.

6. The combination of the gate-post E, a gate having upright side bars, *b*, each provided with a trunnion, *c*, sitting in bearings on the posts, a pulley loose on one of the trunnions and provided with a pin, *q*, to bear against the upright bar, a latch-bar, and means, substantially as described, to retract the latch-bar and turn the gate, as set forth.

312,443. RAILWAY-FROG. WILLIAM H. DICKSON, Philadelphia, Pa. Filed Jan. 22, 1884. (No model.)



Claim.—1. A frog-point having a base-plate integral therewith, said base-plate extending only a portion of the length of the point and provided with cheeks on its ends and wedges which tighten against the cheeks and guard-rails, whereby the said point and the guard-rails are securely connected and strengthened, substantially as and for the purpose set forth.

2. A frog-point, in combination with guard-rails and filling-pieces, the said guard-rails and filling-pieces being provided with interlocking tongues, substantially as and for the purpose set forth.

3. A frog-point, in combination with filling-pieces and guard-rails provided with interlocking tongues and grooves preventing longitudinal motions of said guard-rails, substantially as and for the purpose set forth.

312,444. SHINGLE-PLANING MACHINE. THOMAS S. DIBSTON, Philadelphia, Pa. Filed Dec. 26, 1884. (No model.)

Claim.—1. The combination, in a shingle-planing machine, of a plate on which the shingles are placed, and mechanism for pushing the said shingles over the plate, with a rotary planer on one side of the plate, and an eccentric bed on the opposite side of the same, substantially as set forth.

2. A shingle-planing machine in which the following elements are combined, namely: first, a plate on which to place the shingles; second, an endless chain with pushers for moving the shingles over the bed; third, a rotary cutter; fourth, an eccentric bed for the shingles to bear against as they are acted upon by the cutter, and, fifth, driving mechanism whereby the said endless chain and bed are caused to operate in unison, substantially as specified.

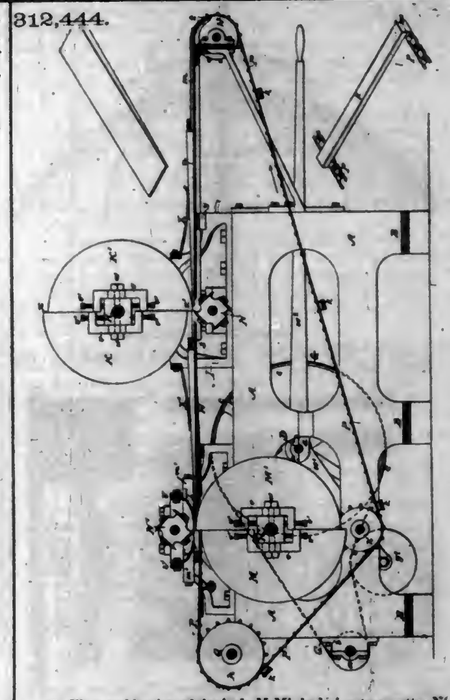
3. The combination of the plate, endless chains, and pushers for traversing the shingles over the plate, with a rotary cutter and a shaft, H, and two eccentric semi-cylindrical beds attached thereto, all substantially as specified.

4. The combination, in a shingle-planing machine, of beds *n n'*, endless chains and pushers for traversing shingles over the beds, a rotary cutter, N, below the bed, two semi-cylindrical beds above the same, a rotary cutter, N', above the bed, and two semi-cylindrical beds below the same, substantially as set forth.

5. The combination of the shaft H and its square portion *s* with the two semi-cylindrical beds adjustably secured to the shaft, substantially as specified.

6. The combination of the bed K K', rotary cutter N, plate *n*, and the endless chain and its pushers with the guide-bars *m m*, substantially as described.

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7. The combination of the beds M M', bed *n'*, rotary cutter N', the endless chain and its pushers, and the guide-bars *m' m'*, substantially as described.

8. The combination of the beds K K' and the rotary cutter N with the bed *n*, having an overhanging elastic portion, substantially as described.

312,445. DEVICE FOR RINGING HOGS. PETER DRAB and ALMER HEGLER, Washington Court-House, Ohio; said Drab assignor to said Hegler. Filed Aug. 20, 1884. (No model.)



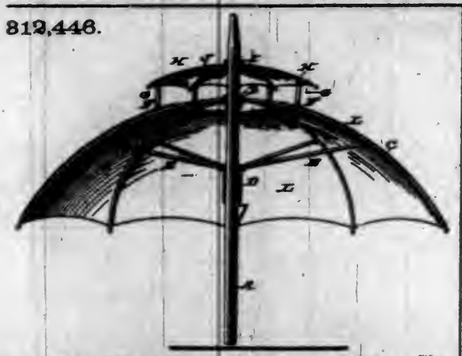
Claim.—1. A device for ringing hogs, consisting, essentially, of two handles pivoted together, each provided with a jaw, one of said jaws being curved and provided throughout its entire length with a groove, and the other or straight jaw provided on opposite side edges with ribs cut away at *e*, and with a recess or depression having inclined walls, substantially as set forth.

2. A device for ringing hogs, consisting, essentially, of two handles pivoted together, each provided with a recess, *h*, and with two jaws, one of said jaws being curved and provided with a groove running throughout its entire length, and the other or straight jaw provided with side ribs cut away, as shown, and with the recess *g*, substantially as set forth.

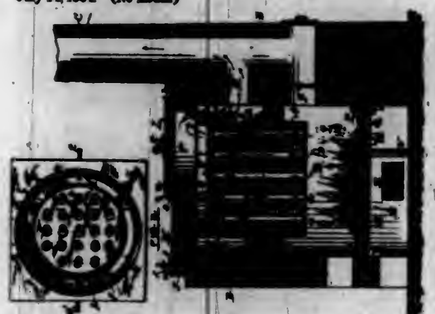
312,446. SUNSHADE AND UMBRELLA. CUNNINGHAM DRAKE, Philadelphia, Pa. Filed May 12, 1884. (No model.)

Claim.—In an umbrella of the class herein described, the combination of a staff or handle, pivoted ribs consisting of U-shaped plates having struck-up portions forming lips F, supplemental U-shaped ribs, pivoted connecting-rods arranged as herein described, an intact covering for the supplemental ribs, and a covering for the main ribs having a central opening adapted to be covered by the supplemental covering or deflector, substantially as herein set forth.

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312,447. STEAM-BOILER. JAS. O. DRAPER, Pawtucket, R. I. Filed July 14, 1884. (No model.)



Claim.—1. The combination of the upright boiler A, provided with the flues *a a*, and the sliding plates I I', provided with perforations *d d'*, which at one position of the sliding plates are made to register with each other and with the openings of the boiler-flues, and at other positions of the plates serving to form a contracted opening for the flues, with the revolving cover H, provided with a covered opening, *r*, and means for revolving the cover H, substantially as described.

2. The combination of the upright boiler A, provided with the flues *a a*, with an outer case, B, cover H, having an opening, *r*, and also a cover, I, adapted to the same, and means for revolving the cover H, substantially as described.

3. The combination of the boiler A, provided with the flues *a a*, outer case, B, and the plate J, provided with an annular groove, *f*, with the revoluble cover H, provided with a flange, *s*, adapted to enter the groove *f*, and with an opening, *r*, through which access may be had to the boiler-flues, and means for revolving the cover H, substantially as described.

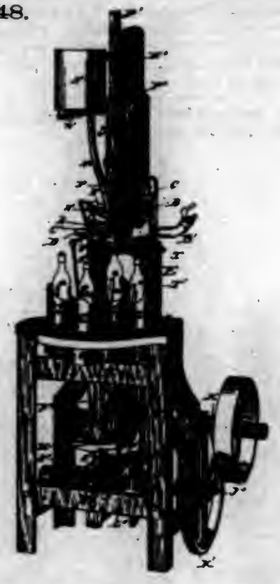
312,448. CORKING AND FILLING MACHINE. CHESTER H. DERBY, New York, N. Y. Filed Apr. 21, 1884. (No model.)

Claim.—1. In a bottling-machine, the combination, with its feeding-tubes and filling-cylinder, and with an intermittently-rotating table adapted to bring the bottles to be filled into position beneath said cylinder, of receptacles formed in the table, cases fitted in said receptacles to move vertically therein and receive the bottles, spring-clamps within each case to center the bottles therein, and a reciprocating plunger adapted to play through the bottom of the receptacle and force upward the bottle-case and bottle when the latter is in position beneath the filling-cylinder, substantially in the manner and for the purpose herein set forth.

2. In a bottling-machine, the combination, with its master-shaft J^4, and with a table mounted to rotate upon a vertical spindle under its filling-cylinder, of a cam upon the master-shaft, embraced by a forked lever so pivoted as to be oscillated by the rotation of the cam, a disk mounted to rotate loosely back and forth upon the spindle, a coupling-bar connecting the outer arm of the oscillating lever with the disk, to produce its reciprocation, and a lug upon the spindle adapted to engage notches on the loose disk, so that the reciprocating movement of the disk shall produce an intermittent movement of the spindle, all substantially in the manner and for the purpose herein set forth.

3. In a bottling-machine, the combination, with its intermittently-rotating table F, and with the frame encircling said table, the spindle upon which the table is mounted, and the oscillating lever H, by which the spindle is actuated, of a lever, E^3, pivoted to a bracket on the frame in position to be tripped by the movement of the cam actuating the oscillating lever H^3, and to engage and thereby unlock a spring-bolt, R,

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adapted, when free, to automatically lock the table, all substantially in the manner and for the purpose herein set forth.

4. In a bottling-machine, the combination, with its master-shaft J^4 and its intermittently-rotating table F, bottle-receptacles G G, and movable cases G', of the reciprocating plunger L, actuated by the weight L^2 and by cam L^3 on said shaft, substantially in the manner and for the purpose herein set forth.

5. In a bottling-machine, the combination, with its filling-cylinder, sirup-gage, and supply-valve, and with a master-shaft actuating an intermittently-rotating table adapted to carry the bottles beneath the filling-cylinder, of a cam upon said master-shaft, actuating a pivoted lever coupled at its free end to the sirup-valve, so that the rotation of the shaft shall operate said valve in unison with the movement of the table, substantially in the manner and for the purpose herein set forth.

6. In a bottling-machine, the combination, with its filling-cylinder A and the master-shaft J^4, actuating its intermittently-rotating table F, of a cam, P^3, upon said shaft, actuating a pivoted lever, P^4, coupled to a rack-bar, P^5, geared by an interposed pinion, P^2, to a sliding bar, P', actuating a plunger, P, to produce a reciprocating movement of said plunger into and out of the upper end of the filling-cylinder, substantially in the manner and for the purpose herein set forth.

7. In a bottling-machine, the combination, with the plunger P, rack-bars P' and P^5, intermediate pinion, P^2, vibrating lever P^4, actuating the rack-bar P^5, and the cam P^3, engaging said lever, of a second pivoted lever, P^7, coupled to the lever P^4 in position to be engaged by a wiper, P^8, upon the cam-shaft J^4, all substantially in the manner and for the purpose herein set forth.

8. In a bottling-machine, the combination, with the cork-feeding tube N^4, filling-cylinder A, and driving-plunger P, of the reciprocating jaws N N, interposed springs N^3 N^3, and converging ribs N^2 N^2, substantially in the manner and for the purpose herein set forth.

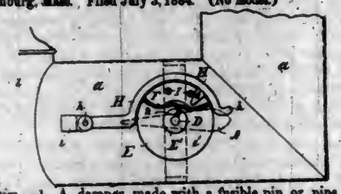
9. In a bottling-machine, the combination, with the sliding reciprocating jaws N N, reciprocating plunger P, intermittently-rotating table F, and master-shaft J^4, actuating the plunger and table, of a double cam, S^4, upon said shaft, and a pivoted oscillating lever, S', provided with a ring, S^5, to encircle the cam, and coupled at its free end to a bell-crank fitted to engage and actuate the jaws, substantially in the manner and for the purpose herein set forth.

10. In a bottling-machine, the combination, with its cork-feeding tube and with its reciprocating plunger-bar for driving the corks, of a cork-receptacle fitted with a rotating bottom plate having a series of apertures therein adapted to pass successively over the upper end of the feeding-tube, and of a vibrating lever, *n*, actuated by the reciprocating movement of the plunger-bar, and made to engage a ratchet connected with the rotating bottom plate of the cork-receptacle, to produce by its movement an intermittent rotation of said plate at each movement of the plunger-bar, substantially in the manner and for the purpose herein set forth.

11. The combination, in a bottling-machine, with its feeding-tubes and valves and its filling-cylinder, and with a cam-shaft, J^4, driven by a prime motor, of the intermittently-rotating bottle table or carrier F, a series of reciprocating bottle-cases, G' G', adapted to move up and down in

said table, a reciprocating plunger, L, driven mediately by the cam-shaft, and adapted by its movement to force up the bottle-cases when they are brought into line with the filling-cylinder, a locking device, R, adapted to lock the table when the plunger is moving a bottle-case, and which is unlocked mediately by the rotation of the cam-shaft, to allow the proper movement of the table, a cork-supply tube, N^4, reciprocating jaws N N, sliding under said tube and over the filling-cylinder and actuated by the cam-shaft, a plunger, P, reciprocating to and from the filling-cylinder to carry the corks into the same, and driven mediately by the cam-shaft, and a cork-receptacle, N^5, provided with a rotating bottom actuated by the plunger-bar P', and provided with delivery-apertures registering with the cork-tube N, all substantially in the manner and for the purpose herein set forth.

312,449. AUTOMATIC STOVE-DAMPER. DANIEL J. DUNN, West Fitchburg, Mass. Filed July 3, 1884. (No model.)



Claim.—1. A damper made with a fusible pin or pins connected with its pivot, and a detent acting on the pins to hold the damper-plate open and permit it to close when the pins fuse, substantially as described.

2. A damper made with a pivoted damper-plate A, made heavier at one side, a head, E, provided with fusible pins and fixed to the damper-plate pivot, and a detent for acting on the pins to hold the damper open, substantially as shown and described.

3. A damper made with a pivoted damper-plate, A, made heavier at one side, a head, E, fixed to the damper-pivot, and provided with fusible pins I, and a pivoted lever or pawl, H, having a tooth, G, adapted to engage the pins to hold the damper open, substantially as shown and described.

4. The head E, made with side flanges, *e e'*, a recess, F, to receive the detent, and fusible pins I crossing the recess, substantially as shown and described.

312,450. HARVESTER. RUFUS DUTTON and RUDOLF EICKEMEYER, Yonkers, N. Y. Filed Dec. 15, 1883. (No model.)



Claim.—1. In a two-wheeled harvester, the combination, substantially as hereinbefore described, of a suitable frame, a cutting apparatus, and a rod or bar rigidly connected to the cutting apparatus at its inner shoe, and projecting upward therefrom beneath the axle and between the wheels of the machine, as set forth.

2. The combination, substantially as hereinbefore described, of a rear side-cut mowing-machine frame, a draft-link, the cutting apparatus, and a rod or bar rigidly connected to said cutting apparatus at its inner shoe, projecting forward and upward to the draft-link and coupled thereto, as set forth.

3. In a two-wheeled harvester, the combination, with rear side-cutting apparatus, of the lifting mechanism embodying the rotative bar rigidly connected to the inner shoe and projecting forward and upward between the wheels and beneath the axle of the machine, and a hand-lever coupled to said rotative rod and located in front of the driver's seat, substantially as described.

4. In a two-wheeled harvester, the combination, substantially as hereinbefore described, of the cutting apparatus and the rotative bar or rod extending forward and upward beneath the axle and between the wheels of the machine and rigidly connected to the cutting apparatus, as set forth.

5. In a two-wheeled harvester, the combination, substantially as hereinbefore described, of the cutting apparatus, the rotative rod or bar rigidly connected thereto and extending beneath the axle and between the wheels of the machine, and a hand-lever coupled to said rod for first lifting it and then rotating it, whereby the cutting apparatus is first lifted bodily and then folded, as set forth.

6. In a two-wheeled harvester, the combination, substantially as hereinbefore described, of the cutting apparatus, the bar or rod rigidly connected thereto at its inner shoe, and projecting upward therefrom beneath the axle and between the wheels of the machine, and means for vertically adjusting the opposite or upper end of said rod or bar, for varying the height of cut, as set forth.

7. The combination, substantially as hereinbefore described, of a rear side-cut mowing-machine frame, the pendent draft-link having one or more holes for coupling with a whiffletree, the cutting apparatus, and the rod or bar rigidly connected to said cutting apparatus at its inner shoe, projecting forward and upward to the draft-link and coupled thereto, as set forth, whereby the draft of the team is applied in a direct line from the pendent link to the inner shoe.

8. The combination, substantially as hereinbefore described, of a rear side-cut mowing-machine frame, the vertically-slotted pendent draft-link, the cutting apparatus, and a rod or bar rigidly connected to said cutting apparatus at its inner shoe, projecting forward and upward into the slot of the draft-link and coupled thereto, as set forth, whereby the front end of said rod or bar is limited in its movements.

9. The combination, substantially as hereinbefore described, of a rear side-cut mowing-machine frame, the vertically-slotted pendent draft-link, the cutting apparatus with its rod or bar rigidly connected thereto and projecting forward and upward into the slot of said link, and a draft-hook extending from said link rearward along said rod and coupled thereto, as set forth, whereby the forward end of said rod can be freely raised or lowered, as set forth, for varying the height of cut.

10. The combination, with the cutting apparatus, of lifting mechanism, substantially as described, adapted to first rock the cutting apparatus on its longitudinal axis, then lift it vertically while it maintains a practically horizontal position, and then fold it up sidewise, as set forth.

11. The combination, with the shoe-rod located beneath the axle and between the wheels of the machine and rigidly connected to the cutting apparatus, and free to be lifted at its outer or forward end, of an adjustable support for said outer end for limiting the height of cut, substantially as described.

12. The combination, substantially as hereinbefore described, of the cutting apparatus, the rotative rod or bar located beneath the axle and between the wheels of the machine, and rigidly connected to the inner shoe, and vertically adjustable at its outer or forward end, and a hand-lever connected to said rod for lifting its outer end and varying the height of cut, and also for lifting and folding the cutting apparatus, as set forth.

13. In a harvester, the combination, substantially as hereinbefore described, of the cutting apparatus, the shoe-rod, the hand-lever for lifting the cutting apparatus, the jointed link pivoted to said lever and to said shoe-rod, and the fulcrum for said link at the end of said lever, said link adapted to operate as a mere link during a portion of the movement of said lever, and then during further movement to operate as a lever by engagement with its fulcrum at the end of the hand-lever, and thereby practically elongate said hand-lever beyond its fulcrum.

14. In a harvester, the combination of the hand-lever for lifting the cutting apparatus, the complex link, embodying a bar-link serving in part as a link and in part as a prolongation of the hand-lever, and a segment or quadrant notched to confine said hand-lever when said link operates as a link, and also when a part of said link serves as a lever, substantially as described.

15. The combination, with the pendent portion B' of the frame, the cutting apparatus hinged thereto, the shoe rod or bar, and the stop n^3 on said frame, which limits the upward movement of the cutting apparatus while in a practically horizontal position, substantially as described.

16. The combination of the cutting apparatus and its rotative shoe-rod rigidly connected thereto, the hand-lever and the lever or arm on said rod linked to said hand-lever, a stop for limiting the upward movement of said rod, and a second stop for engaging with the lever or arm on said rod, and thereby causing the latter to gradually rotate inwardly during its rising motion, substantially as described.

17. The combination of the cutting apparatus and its rotative shoe-rod rigidly connected thereto, the hand-lever, and the lever or arm on said rod linked to said hand-lever, a stop for limiting the upward movement of said rod, and a second stop for engaging with the lever or arm on said rod, and thereby limiting its inward rotation, substantially as described, when the cutting apparatus is in a folded position, and also for inducing the initial outward rotation of said rod when lowered to drop the cutting apparatus from its folded to its working position, as set forth.

18. The combination of the rocking gear, the vibrating arm, the pendent portion of the frame, and the bent swiveled rod *n*, hinged at its inner end to the frame upon a pivot-bolt, and at its outer end swiveled within a cylindrical housing on top of said arm in a line at right angles to the hub of said pivot-bolt, substantially as and for the purpose described.

19. The combination, with the cutting apparatus, rocking gear, and balance-crank, of a vibrating arm embodying the integral or jointless triangular truss *k*, connected at its base to the hub and the periphery of the rocking gear, and connected at its apex to the balance-crank, substantially as described.

20. The combination, with the cutting apparatus, rocking gear, and balance-crank, of a vibrating arm consisting of the integral or jointless triangular truss connecting the rocking gear with the balance-crank; and a second triangular truss provided with a ball-head for connection with the cutting mechanism, substantially as described.

21. The combination, with the rocking gear and balance-crank, of the skeletonized vibrating arm embodying the integral truss, coupled to the hub of the gear and also to the balance-crank, and the second truss composed of said integral truss and the side plates projecting therefrom, and the ball-head to which they are bolted, substantially as described.

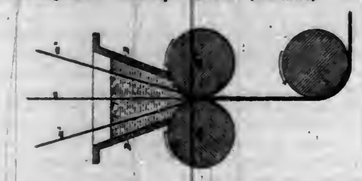
22. The combination, with the shoe-rod and shafts or thills hinged to the machine, as described, of the cross-brace connecting said shafts, and a link suspended from said cross-brace, serving the double purpose of a draft-link and a support for said shoe-rod, substantially as described.

23. The combination, with the shaft or thills, axle, frame, and wheels, of the pendent draft-link having one or more holes for whiffletree-connections at its lower end, and the cutting apparatus coupled to said link above said whiffletree-connection, substantially as described, whereby said link is fulcrumed at its point of coupling with the cutting apparatus, and made to operate as a lever for enabling the draft of the team to oppose the lifting tendency of the cutting apparatus when in service, as set forth.

24. The combination, with the shaft or thills hinged to the frame-sleeve, of the driver's seat mounted thereon and located centrally on the machine rearward of the axle, and the foot-stirrups, also mounted on said thill or shaft, substantially as described.

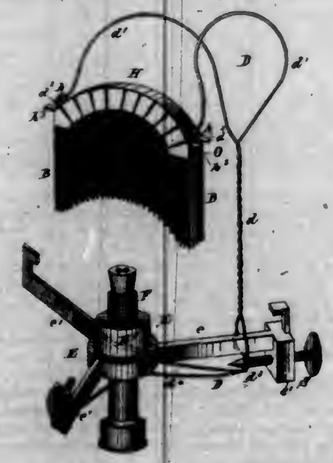
25. The detachable pendent frame-piece provided at its lower end with a hinge-connection for union with the inner shoe of the cutting apparatus, and provided with the stop-studs and the stud for mounting the lifting-lever, substantially as described.

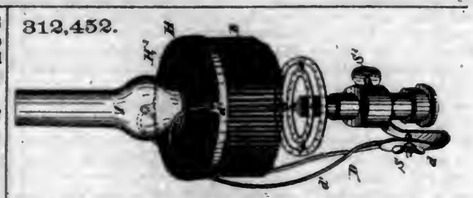
312,451. MANUFACTURE OF TARRED PAPER. MICHAEL EHRET, Jr., Philadelphia, Pa. Filed Apr. 14, 1884. (No model.)



Claim.—The mode herein described of producing paper tarred on one side only, the said mode consisting in passing two tarred webs and one intermediate untarred web through the coating material, pressing and cementing the three webs together, and finally dividing the compound three-ply web by pulling it apart, the line of separation being in the middle of the said intermediate web, all substantially as set forth.

312,452. INCANDESCENT LIGHT. OTTO B. FAHNEHJELM, Stockholm, Sweden. Filed Aug. 15, 1884. (No model.) Patented in Germany Nov. 17, 1883; in Belgium Nov. 30, 1883, No. 63,217; in England Dec. 12, 1883, No. 5,846; in Austria-Hungary Jan. 15, 1884; in France Feb. 5, 1884, No. 158,572; in Italy Feb. 10, 1884, No. 16,377, and in Sweden Mar. 20, 1884.



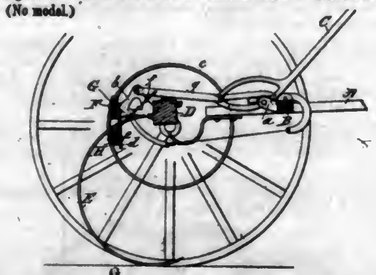


Claim.—1. The combination, substantially as herein described, of a gas-burner, an incandescing body, and means, substantially such as described, for holding or suspending said body above the burner and for adjusting the body vertically and horizontally relatively to the burner.

2. The combination, substantially as herein described, of a gas-burner, an incandescing body, and means for holding or suspending said body above the burner and adjusting the same vertically and horizontally relatively to the burner, consisting of a standard, D, to one end of which the body is connected, the opposite end thereof being constructed for connection with and vertical adjustment on the burner-pipe, and means, substantially as shown and described, for adjusting the standard in a direction at right angles to the vertical axis of said burner.

3. The combination, substantially as herein described, of a gas-burner, an incandescing body, a shade-bracket adjustable vertically on the burner, a support to hold the incandescing body above the burner, and means for connecting the support with the shade-bracket and adjusting the same horizontally thereon.

312,453. HORSE HAY-RAKE. ALBERT W. FORCE, Ithaca, N. Y., assignor to John W. Hallenback, Wilkes-Barré, Pa. Filed Feb. 9, 1884. (No model.)



Claim.—1. In a horse hay-rake, the teeth-lifting bar H, connected to the rider-bar and dumping mechanism, whereby an additional lift can be given to the rake-teeth in passing large windrows, substantially as described.

2. In a horse hay-rake, the combination, with the rake-head, rake-teeth, and rider-bar, of a tooth-lifting bar and its actuating mechanism, substantially as shown and described.

3. In a horse hay-rake, the combination of the rake-head D, teeth E E, the rider-bar F, connecting-plate *b*, teeth-lifting bar H, slotted straps *d d*, chain *f*, the connecting-bar *g*, and lever C, substantially as shown and described.

312,454. BARBED-WIRE FENCE. FRANKLIN D. FORD, Providence, R. I., assignor of one-half to Cornelius S. Sweetland, same place. Filed May 19, 1884. (No model.)

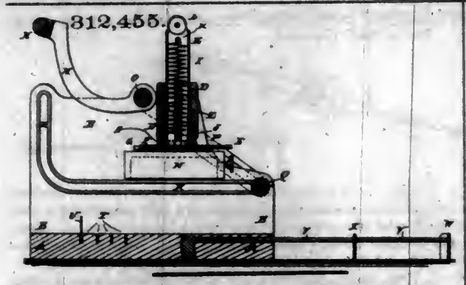


Claim.—The combination, with the fence-wire provided with a bend or offset, of the barb having coils or convolutions lying in said bend and closely embracing the fence-wire, and another coil or convolution passing obliquely over the coils that lie directly on the fence-wire, and the points of the barb extending in the same line, or nearly so, from the fence-wire, substantially as described.

312,455. RUBBER-STAMP HAND-PRINTING MACHINE. ROBERT GARNER, West Hoboken, N. J. Filed Jan. 7, 1884. (No model.)

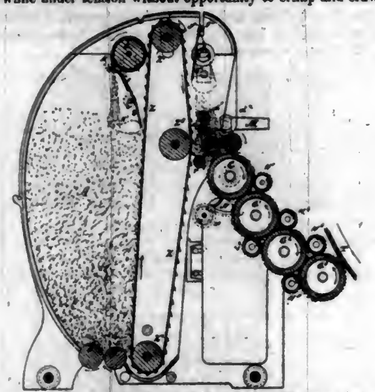
Claim.—1. The combination, with the shaft O, the cams M thereon, slotted end plates, B, inking-roller Q, journaled therein, and the slotted arms P, for operating the roller, of the spring-plunger E, carrying stamp H, all constructed and arranged substantially as set forth.

2. The combination, with the base-plate A, provided with sockets at its forward end, of the rods V, adapted to slide in said sockets, the cross-bar W, secured to the rods at their outer ends, and the intermediate cross-bar, X, mounted to slide on said rods, substantially as set forth.



312,456. FEEDING DEVICE FOR CARDING-MACHINES. ERNST GESSNER, Aue, Saxony, Germany. Filed Oct. 10, 1883. (No model.)

Brief.—The amount of wool taken from the bulk-box by the toothed apron is regulated by a peculiar eccentrically-moving comb. The apron is stripped by a similar comb, and the wool is fed to the cylinder of the carding-machine by a series of workers and strippers, which deliver it directly while under tension without opportunity to crimp and crawl.



Claim.—1. The combination, with the toothed lift-apron and means for operating it, of a comb-plate, S, a crank-shaft for operating said comb, means for rotating said shaft, and guides for controlling the movement of the upper edge of the comb-plate, substantially as and for the purpose described.

2. The combination, with the toothed lift-apron and means for operating it, of a toothed regulating-roll, A, located on the rising side of the lift-apron, and means for causing its side adjacent to the lift-apron to travel in the same direction with the lift-apron, but at a slower rate of speed, whereby a part of the stock is taken off of such teeth of the lift-apron that have too much and is delivered to the teeth of the lift-apron that have none or too little, as set forth.

3. The combination of the toothed lift-apron, the regulating-roll A, the double-acting comb-plate operating both on the lift-apron and the regulating-roll, and means for operating these parts, substantially as shown and described.

4. The combination of the bulk-box, a toothed lift-apron, a lap-roll, with rollers surrounding the same for forming the lap, located on the descending side of the lift-apron, and means for operating these parts, the said lift-apron being arranged in a definite relation to the lap-roll for a constant line of travel, and adapted to carry back to the bulk-box any excess of fiber over and above the normal feed, as described.

5. The combination, with the delivery-roll C, means for operating the same and feeding fibers thereto, of a series of toothed worker-rolls and means for operating them, the said rolls being arranged to take the stock from said delivery-roll and hold it stretched and under tension until delivered to the cylinder of the carding-engine, to prevent it from crawling up and regaining its crimped form, as and for the purpose described.

6. The combination, with the rolls D and *r*, of the movable arms M, rolls *d* and *b*, carried by said arms, means for supporting said arms, and means for rotating said rolls, substantially as shown and described.

7. The combination, with the delivery-roll C, of the series of constantly-accelerated rolls G' G² G³, the forwardly-feeding workers H⁷ H⁸ H⁹, and the backwardly-feeding workers H⁴ and H⁵, with means for operating said rolls and workers, substantially as shown and described.

8. The combination, with lap-roll *b*, feed-roll C, and the roll D, and means for rotating them, of the toothed segments N, means for supporting the same, and the shaft with gears 27, worm-wheel 28, worm 29, the shaft 30, and hand-wheel 31, and means for supporting the same, substantially as described.

312,457. BANJO. SAMUEL GIBBS, Knox, Pa. Filed Oct. 21, 1884. (No model.)



Claim.—1. In a banjo, the combination of the straining-hoop, a series of brackets hooked over the said hoop, and having hooks at their lower ends, a series of levers fulcrumed upon the lower edge of the banjo-body, and having hooks engaging the hooks at the lower ends of the brackets, and mechanism for operating the said levers simultaneously, substantially as and for the purpose set forth.

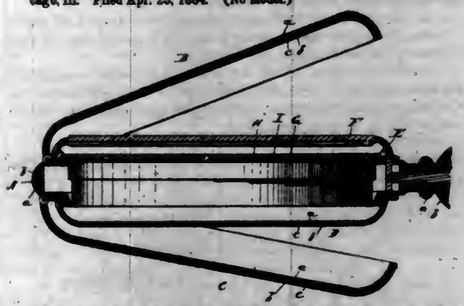
2. In a banjo, the combination, with the body having a metallic wire or band embedded or arranged at its lower edge, of a series of levers fulcrumed upon the said wire or band, and having hooks at their outer ends engaging the straining-hoop brackets, and mechanism for operating the said levers simultaneously, substantially as and for the purpose set forth.

3. In a banjo, the combination of the brackets, suitably connected with the straining-hoop, and provided at their lower ends with recesses or depressions and inturned hooks, with the levers fulcrumed upon the lower edge of the banjo-body, and having hooks and studs engaging the hooks and recesses of the brackets, and mechanism for simultaneously operating the said levers, substantially as and for the purpose set forth.

4. In a banjo, the combination of the body having a series of notches at its lower edge, and provided with a metallic ring or band, levers seated in the said notches, and fulcrumed upon the said metallic ring, straining-brackets suitably connected with the outer ends of the said levers, and mechanism for simultaneously operating the inner ends of the latter, substantially as and for the purpose set forth.

5. In a banjo, the combination of the body having a longitudinal arched brace provided with a screw having a washer and thumb-nut, the straining-hoop, a series of hooked brackets adjusted over the said hoop, and a series of levers fulcrumed upon the lower edge of the banjo-body, and having hooks at their outer ends engaging hooks at the lower ends of the brackets, and having their inner ends inserted or adjusted under the thumb-nut and washer, substantially as and for the purpose herein set forth.

312,458. ANTI-MAGNETIC WATCH-CASE. CHARLES K. GILES, Chicago, Ill. Filed Apr. 25, 1884. (No model.)



Claim.—1. A watch-case some or all parts of which are made either wholly or in part of highly-magnetic metal, whereby the case constitutes an anti-magnetic protector for the movement inclosed within, substantially as and for the purposes set forth.

2. A watch-case of hunter-type some or all the parts of which are made wholly or in part of a highly-magnetic metal, whereby the case, when closed, forms an anti-magnetic shield or protector to the movement within, substantially as and for the purposes set forth

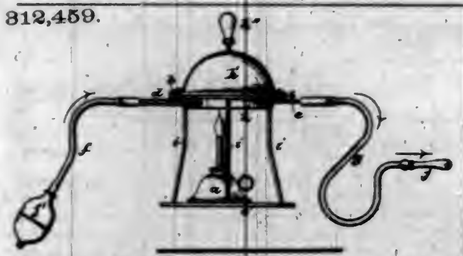
3. A filled watch-case wherein the filling of some or all the parts is composed of highly-magnetic metal, whereby the movement within the case is protected from the effects of magnets and magnetic currents, substantially as and for the purposes set forth.

312,459. VAPORIZER AND FUMIGATOR. GEORGE S. GOODHART, Louisville, Ky. Filed July 30, 1884. (No model.)

Claim.—1. In a fumigator or vaporizer, the combination, with a lamp, of a retort consisting of a shallow pan, as *h*, and dome *h'*, said pan having inlet and outlet pipes *d e*, said inlet being connected to said pan near its bottom, substantially as and for the purpose specified.

2. The retort *h*, provided with an annular flange, in combination with a detached cover, *h'*, having a corresponding flange, means, as *m'*, for preventing lateral motion, clasps *b*, attached to said cover on opposite sides and arranged to embrace the flanges of both parts and secure them together, substantially as shown.

312,459.

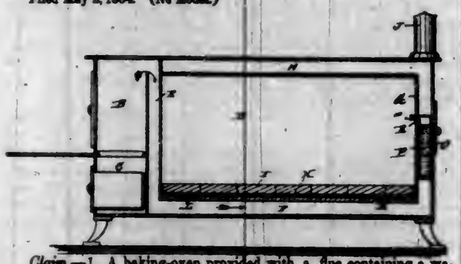


312,460. STAPLE. JONATHAN HARNEY, Pittsfield, Mass. Filed Oct. 20, 1884. (No model.)



Claim.—As an article of manufacture, the herein-described U-shaped staple having the inner surface of the bead serrated, substantially as described.

312,461. COOKING-STOVE. CHARLES F. HANNEMAN, Aknapee, Wis. Filed May 2, 1884. (No model.)

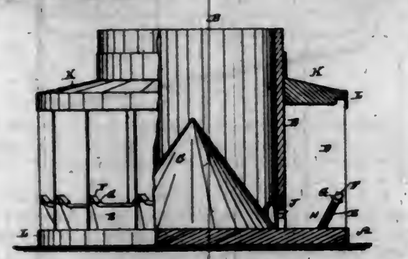


Claim.—1. A baking-oven provided with a flue containing a water-holding vessel provided with a neck projecting into the oven, substantially as herein shown and described.

2. The combination, with a stove provided with an oven and a door, O, in its rear, of the vessel P, having a neck, Q, projecting into the oven, substantially as herein shown and described.

3. The combination, with the vertically-adjustable oven-plate, of the bars which extend beneath it and have an oval cross-section, and also project through the side of the oven and are adapted for rotation, substantially as shown and described.

312,462. STOCK-FEEDER. ELIAS R. HARMAN, Lincoln, Nebr. Filed May 26, 1884. (Model.)



Claim.—1. In a stock-feeder, the combination, with a base, of the cylinder held on the same and provided on its bottom edge with a series of openings, J, the cone within the cylinder, the radial partitions D, and the upward and outward inclined boards between the lower ends of the outer edges of the partitions D, whereby a separate trough is formed in front of each opening J, substantially as set forth.

2. In a stock-feeder, the combination, with a base, of the cylinder B, held on the same, and provided in its bottom edge with openings J, the radial partitions D, the boards E, held between them, and provided with upwardly-projecting end lugs, F, and of wires G, passed through the partitions D and around the end lugs, F, substantially as herein shown and described.

3. In a stock-feeder, the combination, with the base A, of the hollow cylinder B, the radial upright partitions D, the circular top K, the bands L, and the boards E, held between the partitions D, substantially as herein shown and described.

312,463. BARBED WIRE. HUBERT C. HART, Unionville, Conn. Filed May 29, 1884. (No model.)

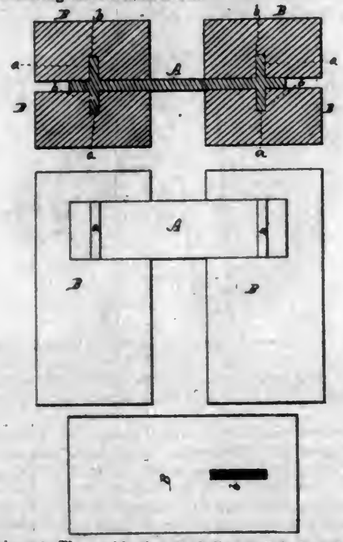


Claim.—1. As an improvement in barbed-wire fences, the combination, with a pair of wires twisted together, of a barb consisting of a piece of sheet metal bent at its middle in a V shape, having notched or pointed outer ends, and provided at its inner end or angle with a notch or indentation adapted to receive one of the wires, substantially as set forth.

2. The combination, with a pair of twisted wire strands, of sheet-metal barbs bent at their middles in a V shape, having prongs at their ends, and having portions cut away to receive the wire strands, said barbs being clamped and held in position by the said wires, as and for the purpose shown and set forth.

312,464. METHOD OF CONSTRUCTING HOLLOW BRICK WALLS. HENRY HARWOOD, Warren, Ohio. Filed Dec. 24, 1883. (No model.)

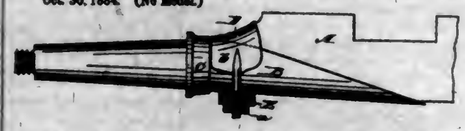
Brief.—Wall-ties arranged at intervals consist of horizontal flat plates having vertical lugs projecting from their upper and lower surfaces and entering recesses in the bricks.



Claim.—1. The combination of a hollow-wall tie formed of a horizontal flat plate, A, and vertical lugs *a a*, projecting from its upper and lower surfaces, and a brick, B, formed with a recess or mortise, *b*, in one side and adapted to receive one of the lugs of the wall-tie, substantially as and for the purpose herein specified.

2. A hollow brick wall constructed with bricks B B, each having a recess, *b*, in one side, and wall-ties formed of horizontal flat plates A A, having vertical lugs *a a* on its upper and lower surfaces, the said bricks and wall-ties being arranged at suitable intervals in the wall, substantially as and for the purpose herein specified.

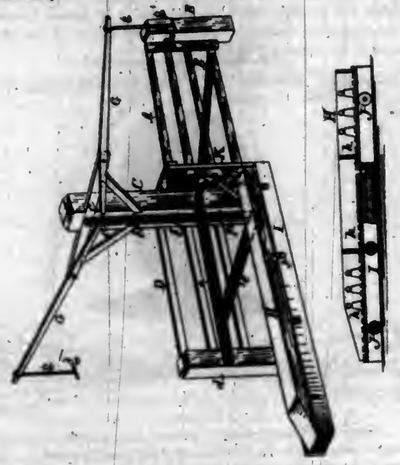
312,465. CLIP FOR VEHICLE-AXLES. EDMUND N. HATCHER, Columbus, Ohio, assignor to himself and Andrew C. Emmick, same place. Filed Oct. 30, 1884. (No model.)



Claim.—1. The combined hood and clip formed from sheet metal with an upper or outer concavity and an inner convexity, and with clip bolts or studs at its lower ends or edges, substantially as shown and described, and for the purpose set forth.

2. The combined hood and clip formed with an upper or outer concavity and an inner convexity, and with clip bolts or studs at its lower ends or edges, in combination with the skein or sleeve with the collar-band shrunk thereon, substantially as and for the purpose set forth.

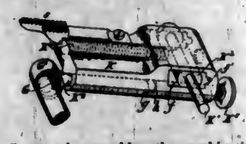
312,466. GATE. ADAM H. HATHAKER, Iuka, Ill. Filed May 13, 1884. (No model.)



Claim.—1. The combination of the gate, a frame, I, extended rearwardly from the gateway and provided with rollers J, and a counterbalancing device attached to the rear part of the gate and supported and movable on the rollers J, substantially as set forth.

2. In combination with the sliding gate A, opened and closed by proper actuating mechanism, the weighted counterbalancing-box H, attached to the rear part of the gate, frame I, and rollers J J, all constructed and arranged as shown and described, for the purpose specified.

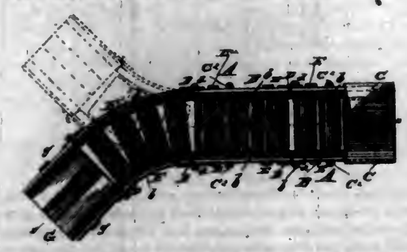
312,467. SEWING-MACHINE. ROBERT H. HAWTHORNE, New York, N.Y. Filed Feb. 6, 1884. (No model.)



Claim.—1. In a sewing-machine, the combination of a bar for effecting the feed of the work, a support on which the bar is hung near its forward end, a shaft, an eccentric or crank on said shaft, a rod connected to the eccentric or crank, fitted loosely into a socket in the end of said feed-bar and serving to impart motion to the bar in one direction, and a spring within the said feed-bar for imparting motion in the reverse direction, substantially as specified.

2. In a sewing-machine, the combination of a bar for effecting the feed of the work, a support on which the bar is hung near its forward end, a shaft, a crank or eccentric on said shaft, a rod connected to the crank or eccentric, fitted loosely into a socket in the end of the feed-bar and serving to impart motion to the bar in one direction, an adjustable abutment with which the bar is provided and against which the rod exerts its force, and a spring within the feed-bar for imparting motion to the bar in the reverse direction, substantially as specified.

312,468. PORTABLE CHUTE. ALFRED A. HINDS and LAMBERT E MACE, Lexington, Ind. Filed Jan. 2, 1885. (No model.)

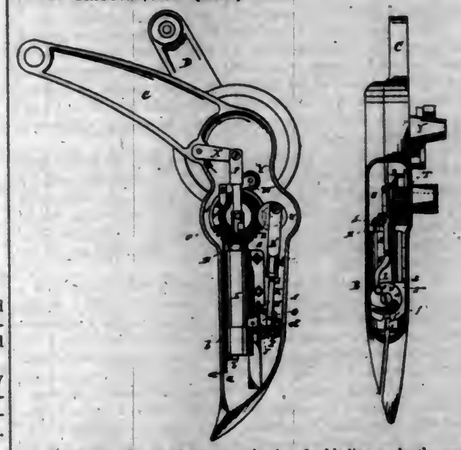


Claim.—1. A slideway for tiles, bricks, or other articles composed of sections coupled end to end by proper devices, and with its rear or delivering section curved and reversible end for end to deliver the articles to either side, substantially as specified.

2. The combination, with an adjustable inclined slideway, of an adjustable plane inclined in an opposite direction to the slideway and attached to its delivering end, in order to gradually lessen the momentum of the articles passing thereover and bring them to a stop, substantially as specified.

3. The combination, with the adjustable inclined way A, composed of the sections B, having their floors formed of rollers with opposite bearings in their sides, of the removable housings C, formed in sections and attached to the sections of the slideway by the rods C' and staples C², substantially as specified.

312,469. AUTOMATIC GRAIN-BINDER. PLINY F. HODGES, Chicago, Ill. Filed Dec. 2, 1880. (Model.)



Claim.—1. In a cord-tying mechanism for binding grain, the cord-catcher G, having a reciprocating vibrating movement at its free end, and located between the bundle and the knot-tying devices, and provided at its free end with a jaw or catch, between which and a stationary jaw or catch the strands will be caught and held during the process of tying the knot, substantially as and for the purpose specified.

2. In a cord-tying mechanism for binding grain, the cord-catcher G, having its free end located and operating between the bundle and the knot-tying devices, and provided with a jaw or catch operating, in conjunction with a stationary jaw or catch, to clamp and hold the strands of the cord, in combination with the crank X, having a reciprocating movement for projecting and withdrawing the free end of G, to allow the strands to pass between the jaws and be clamped and held, substantially as specified.

3. In a cord-tying mechanism for binding grain, the cord-catcher G, having its free end provided with the cam-slot *c* to receive the pin *c'*, and provided with the jaw *a*, operating, in conjunction with the jaw *b* on the piece *b'*, to clamp and hold the strands of the cord, in combination with the crank X, journal or pivot *x''*, crank *x*, roller *x'*, and cam *z z'* on the revolving head E, for reciprocating the bar G and giving its free end a swinging or vibrating movement to allow the strands to pass between the jaws *a b*, and caught and held, substantially as specified.

4. In a cord-tying mechanism for binding grain, the head H, having an oscillating or rocking movement and carrying the reciprocating plate I, having the point *h* and opening *h'*, in combination with the stationary plate J, provided with a slot, *l'*, having a cutting-edge, against which the cord will be drawn and severed by the return movement of the head and the end caught between the face of the point *h* and the adjacent face of the head H, substantially as specified.

5. In a cord-tying mechanism for binding grain, the combination and described arrangement of the head H, having an oscillating or rocking movement, the plate I, located in the recess *g* of the head H, and provided with the point *h* and opening *h'*, and having a reciprocating movement from the rock of the head, and the stationary plate J, provided with the slot *l'*, having a cutting-edge, and provided with the stud or projection *j*, located one side of the center of motion of the head and entering a recess, *i'*, in the plate I, to act as an eccentric to advance and recede the plate, the several devices acting to sever the main cord and catch the end thereof, substantially as specified.

6. In a cord-tying mechanism for binding grain, the head H, having an oscillating or rocking movement, and provided with a horn or hook, *f*, between which and the face of the head is an opening, *f'*, through which the cord will pass from the head, where its end is caught and doubled or passed around the horn *f* to furnish the necessary length of ends to form the loops, substantially as and for the purposes specified.

7. In a cord-tying mechanism for binding grain, the adjustable pitman K K', having a reciprocating movement, in combination with the

head H, plate I, having the point *h* and opening *h'*, and stationary plate J, provided with the eccentric *j'* for giving the head an oscillating or rocking movement and reciprocating the plate to sever and catch the end of the main cord, substantially as specified.

8. In a cord-tying mechanism for binding grain, the intermittingly-rotating wheel R, provided on its periphery with the gear-segment *s* and delay-flange *s'*, and the pinion T, provided with the delay-shoe *t'*, and carrying the cranked disk U, in combination with the pitman K K', rocking head H, reciprocating plate I, and stationary plate J, all constructed, arranged, and operating substantially as and for the purpose specified.

9. The combination, substantially as before set forth, of the cord-holder, the cutter, and the rotating looper whose rotation is momentarily interrupted while the cord is forced into the holder and severed.

10. In a cord-tying device for binding grain, the casing or barrel L and looper M, in combination with the pinion S and wheel R, having cogs *r* and a delay-surface, *r'*, on its face, and having an intermittent rotary movement for revolving the looper M to form the loop, and causing the looper to cease its revolution momentarily at the time the cord is being severed to prevent strain on the cord or the knotting mechanism, substantially as specified.

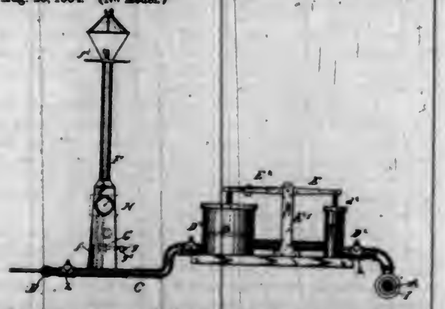
11. In a cord-tying mechanism for binding grain, the divided spindle N O, located and operating in the looper M, in combination with the pitman or rod P, crank X, journal *x''*, crank *x*, roller *x'*, and cam-groove *y'' y'''*, for rocking the crank X and advancing and receding the spindle as a whole, and also advancing and receding section O independently of the section N to open and close the jaws *n' o'*, substantially as and for the purposes specified.

12. In a cord-tying mechanism for binding grain, consisting of a head, H, having an oscillating or rocking movement, a plate, I, having a reciprocating movement from the rock of the head H, a stationary plate, J, a casing or barrel, L, a looper, M, located and operating in the casing L and provided with a hook, *m*, and a reciprocating divided spindle N O, a pinion, R, having its periphery provided with a cogged segment, *s*, and a delay-surface, *s'*, and its face provided with the cogs *r* and delay-surface *r'*, in combination with the pinion S, pinion T, provided with delay-shoe *t'*, eccentric or crank wheel U, and pitman K K' for driving the looper M and rocking the head H, substantially as described, and for the purposes specified.

13. In a cord-tying mechanism for binding grain, consisting of the reciprocating swinging cord-catcher G, the rocking or oscillating head H, reciprocating plate I, stationary plate J, casing or barrel L, looper M, provided with hook *m*, spindle N O, arranged and operating as described, the revolving head E, provided on its face with the cam-groove *y'' y'''* and cam *z z'*, and on its edge with the cogged segment *v* and delay-rim *v'*, in combination with the stop-pinion *u* and main driving-pinion R, constructed as described, cranks or arms *w* and *x*, provided with anti-friction rollers *w'* and *x'*, and cranks W and X for imparting movement to the several parts composing the tying mechanism at the proper time and in the proper relation to each other to do their respective work, substantially as set forth.

312,470. SYSTEM FOR DISTRIBUTING GAS UNDER PRESSURE.

WILLIAM A. HOEVELER and THOMAS J. MCTIGHE, Pittsburg, Pa. Filed Aug. 23, 1884. (No model.)



Claim.—1. In a system for distributing gas under pressure, the combination, with two separate conduits, one adapted to convey gas under higher pressure than the other, of a pressure-regulating device connected to both, and a visual signal consisting of a burner and a pressure-indicating gage attached to the low-pressure conduit and adapted to indicate an abnormal pressure and the amount of the same, substantially as described.

2. In a system for distributing gas under pressure, the combination, with a high-pressure conduit, A, and a low-pressure conduit, B, connected together by a pipe, C, furnished with a pressure-regulator, of a casing, I, surrounding the high-pressure conduit at its point of connection with the regulator-pipe C, and a pipe, *i*, connecting the casing I with the low-pressure conduit, substantially as described.

3. In a system of distributing gas under pressure, the combination, with two conduits, one adapted to convey gas under higher pressure than the other, and a regulating-valve adapted to regulate the relative degrees of pressure in the two, of a gage connected to the low-pressure conduit, and provided with a valve adapted to be opened by a pressure greater than that required to operate said regulating-valve, substantially as and for the purpose described.

312,471. MOSQUITO-NET.

FRANK H. HOLDEN, Chicago, Ill. Filed Feb. 26, 1884. (No model.)

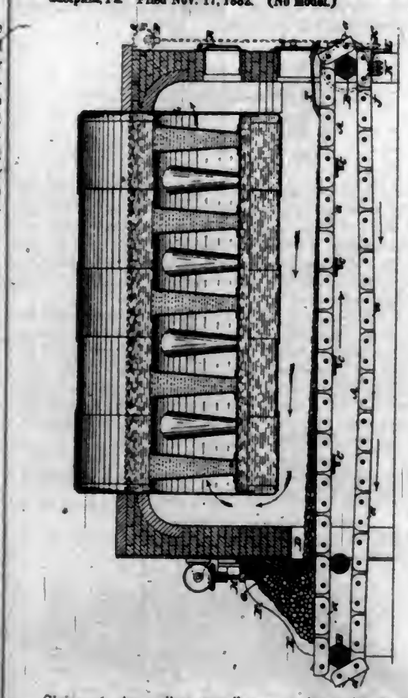


Claim.—1. The frame for a portable mosquito-net, consisting of a flexible neckband provided with the end clasp and the buttons, and the series of flexible ribs united by a central pivot, and each provided at the ends with an angular slotted foot.

2. The portable mosquito-net consisting of the removable covering or netting, the metallic band to encircle the neck, provided with an end clasp, and the flexible ribs united by a central pivot and fastening devices, the ribs removably locked to the neckband and preventing lateral motion thereof.

312,472. GRATE FOR BOILER-FURNACES.

CHARLES H. HOLT, Philadelphia, Pa. Filed Nov. 17, 1882. (No model.)

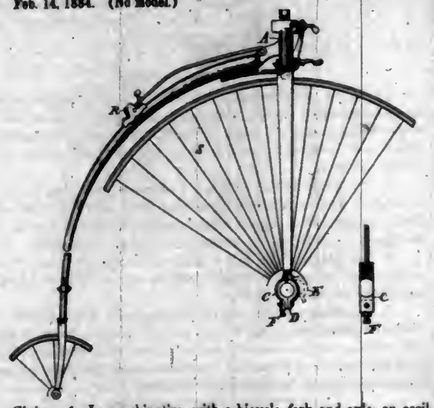


Claim.—1. An endless traveling grate, in combination with the inclined guide and scraper, a door above said scraper, and a draft-entrance below said grate, the scraper, door, and draft-entrance being at the rear of the traveling grate, substantially as and for the purpose set forth.

2. An endless traveling grate having one end extended in front of the furnace, forming a hearth, a supply-throat in front, a draft-entrance in the rear, and an inclined guide and scraper overhanging the rear end of said grate, substantially as and for the purpose set forth.

312,473. VELOCIPEDE.

THOMAS B. JEFFERY, Chicago, Ill. Filed Feb. 14, 1884. (No model.)



Claim.—1. In combination with a bicycle fork and axle, an oscillating bearing-box fitted to and clamped between opposite sides of the fork ends horizontally across the axle, near its center, for the purpose described, substantially as set forth.

2. The combination of the bearing-box fork end, adjusting-screw, and impinging screw, for the purpose described, substantially as set forth.

3. The bearing boxes or sleeves having their outer faces abutting against the crank-faces and their points of contact protected from injury by the flanged washer, substantially as described, for the purpose set forth.

4. The head having the inner side of the opening which admits the neck re-enforced by vertical ribs, substantially as and for the purpose described.

5. In combination with the wheel of a velocipede, having a rubber tire, the steel felly formed with a thin center where the spokes are placed and thicker material at the sides, substantially as described, for the purpose set forth.

6. In the head of a bicycle having a vertical center screw fastened by an impinging set-screw, the recess or guard covering the head of the impinging screw, substantially as and for the purpose described.

7. The head having the cavity in which the neck turns extended sidewise at the base, to diminish the amount of metal, for the purpose described, substantially as set forth.

8. The leather seat-cover, supported at the ends by a metal base, and having rubber cushions placed between the leather and the support, substantially as set forth.

9. The loop or attachment R, having the plate Q, provided with a notch on its under side, and resting on the under side of the opening in which it rocks, substantially as described, for the purpose set forth.

10. The attachment R, provided with a portion that extends backward, forming a hood covering the end of the spring, substantially as and for the purpose described.

11. The wire brake-spring bent spirally around the axis of the brake, having portions pressing on the head and brake, substantially as and for the purpose set forth.

12. The steel conical caps or covers secured on the inner conical ends of the rear fork, substantially as and for the purpose described.

13. In a bicycle-head formed of malleable iron by the casting process, the cavity in which the neck turns, provided with lateral cavities formed at the junction of the fork and head, substantially as described, for the purpose set forth.

312,474. TRANSFER-PAINT.

GEORGE KENYERLEY and BERNARD CREIGHTON, Paterson, N. J. Filed May 23, 1884. (No specimens.)

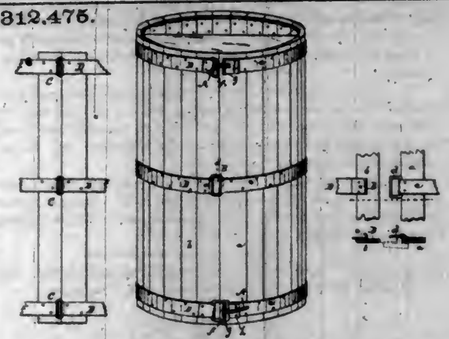
Claim.—A transfer-paper paint consisting of resin, melted in one gill of spirits of turpentine to every ounce of the resin, and mixed with a weight of coloring-matter about equal to that of the resin, substantially as described.

312,475. FOLDING BARREL.

GEO. F. KNAPP, St. Louis, Mo. Filed July 2, 1884. (Model.)

Claim.—1. The combination, in a folding barrel, of two sets of staves forming halves of a barrel secured to two parts of a hoop hinged together, a link loosely hung to one part of the hoop at the edge of one half of the barrel, and a hook permanently secured to the other half of the barrel at a distance from the edge thereof corresponding to the length of the link, substantially as described, whereby the two parts of the barrel will be held firmly together when the staves are in the same plane, and whereby the staves may be thrown out of plane, the one to pass over the other, for the purpose of engagement or disengagement, as set forth.

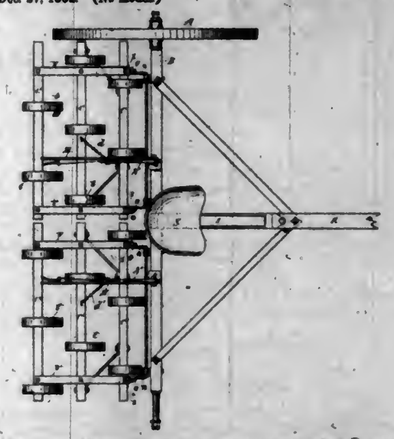
312,476.



2. The combination, in a folding barrel, of a lug, *h*, provided with a projecting shoulder, *g*, secured to one part of the barrel, and a link, *f*, hung loosely to the other part, a lever pivoted in the upper portion of the shoulder of the lug, one face of the lever being as far from the center of its pivot as the corresponding face of the shoulder, and a toe projecting angularly from the said face of the lever, substantially as described, whereby the link may be forced into engagement with the shoulder of the lug, or out of engagement therewith, and whereby the lever may be held down upon the barrel, as set forth.

312,476. SULKY-HARROW.

CHARLES LA DOW, Albany, N. Y. Filed Dec. 27, 1882. (No model.)



Claim.—1. The combination of a wheeled axle, a frame comprising a series of separated tooth-bars, duplex hinges connecting said frame and axle, spring-teeth mounted on the bars in a series of ranks across the line of draft, and each having a head circling in a volute curve around its tooth-bar, and all the teeth extending equally and uniformly from the tooth-bars, said duplex hinges enforcing the uniform penetration and vibration of all the ranks of teeth when rising and falling, substantially as described.

2. The combination of a wheeled axle, a frame comprising a series of separated tooth-bars, duplex hinges connecting the frame and axle, and vibrating spring-teeth secured to the series of bars in ranks across the line of draft—one rank for each bar—said duplex hinges enforcing the uniform penetration and vibration of all the ranks of teeth when rising and falling, substantially as described.

3. The combination of the wheeled axle, the duplex hinges, the frame attached thereto, composed of tooth-bars separated from each other and connected by cross-bars, and a series of spring-teeth on each tooth-bar, substantially as described.

4. The combination, with a wheeled axle, of angled brackets hinged to the axle and adapted to move in a vertical plane without tilting, parallel separated tooth-bars carried by the brackets, a series of vibratory spring-teeth connected with each tooth-bar, and means for lifting all the tooth-bars simultaneously, substantially as described.

5. The combination, with a wheeled axle, of angled brackets hinged to the axle and adapted to stand horizontal when raised and lowered, and each carrying a series of parallel separated tooth-bars, and spring-teeth arranged on each bar so that those on one alternate with those on the adjacent bar, substantially as described.

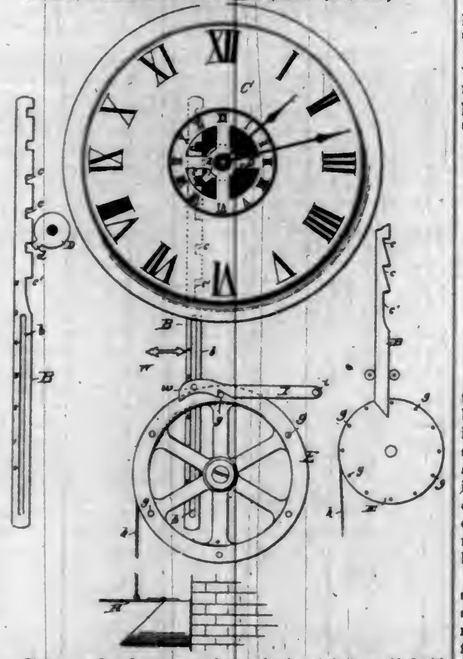
6. The combination, with a wheeled axle, of a pair of brackets connected by a series of parallel separated tooth-bars, duplex hinges con-

necting the brackets with the axle, and a series of spring-teeth mounted on each bar, and having heads which circle in a volute curve, the teeth on one bar alternating with those on the adjacent bar, substantially as described.

7. The combination of a series of parallel tooth-bars, spring-teeth mounted thereon, and brackets connecting the bars and extended vertically above the forward bar, with the wheeled axle and duplex-hinged arms connecting the vertical extensions of the brackets with the axle, substantially as described.

8. The combination of the wheeled axle with the brackets having upper and lower sets of eyebolts, and provided with a series of separated tooth-carrying bars, and the duplex hinges having bent ends detachably secured in the eyebolts of the brackets.

312,477. CLOCK FOR GOVERNING DAMPER MECHANISM. JAMES A. LAKIN, Westfield, Mass. Filed June 30, 1884. (No model.)

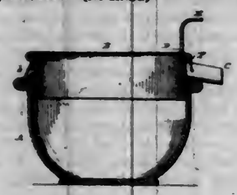


Claim.—1. In a damper-governing mechanism, a clock provided with a damper-dial adjustable independently of the hour-hand wheel, having an arm thereon projecting from its periphery, and a sliding bar having notches in its edge, located near the periphery of the dial and capable of being adjusted to different positions relative to the latter to permit said arm to engage therewith, whereby the bar is given an intermittent sliding motion, combined and operating substantially as set forth.

2. In damper-governing mechanism, a clock provided with a damper-dial adjustable independently of the hour-hand wheel, a sliding bar capable of being set at different positions relative to said dial and of engagement with the latter, a wheel, substantially as shown and described, having a cord-connection for dampers, and mechanism, substantially as shown and described, for connecting said bar and wheel.

3. In damper-governing mechanism, a clock provided with a damper-dial adjustable independently of the hour-hand wheel, a sliding bar capable of being set at different positions relative to said dial and to engage therewith, a cord-storing wheel, and a wheel-hook, substantially as shown and described, adapted to be operated by said bar to release the wheel.

312,478. KETTLE ATTACHMENT. WILLIAM W. LAMME, Austin, Tex. Filed Apr. 22, 1884. (No model.)





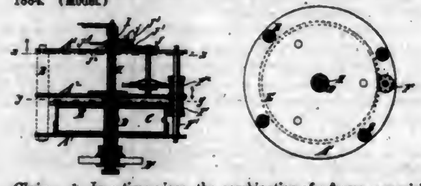
Claim.—1. An attachment for kettles of a shape corresponding to the general contour thereof, said attachment projecting above the walls of the kettle, around the edges of which it fits, having neither top nor bottom, and being provided with a spout, substantially as and for the purpose specified.

2. An attachment for kettles of a shape corresponding to the general contour thereof, said attachment projecting above the walls of the kettle, having neither top nor bottom, and provided with a spout below its upper edge, substantially as and for the purpose specified.

3. The ring provided with a spout and having a removable hinged piece to close or open the spout, the whole adapted to fit in a kettle, as and for the purpose specified.

4. An attachment for kettles, consisting of a ring provided with a wire strengthening-rim, and a spout projecting from a recess in the said ring, and a piece provided with spring-clamps which rest on and over a portion of the wire rim, and an extended continuation forming a handle, substantially as and for the purpose specified.

312,479. TIME-PIECE. CHARLES S. LEWIS, Waterbury, Conn., assignor to the Waterbury Clock Company, same place. Filed Jan. 26, 1884. (Model.)

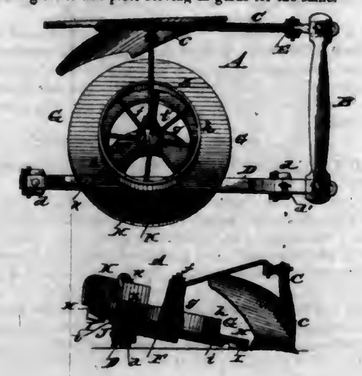


Claim.—1. In a time-piece, the combination of a frame comprising three plates rigidly secured together, a spring, a spring-barrel, said spring-barrel having its axis concentric with the centers of the plates, and being arranged between the back plate and center plate, a gear-wheel on said spring-barrel, a shaft arranged near the outer edges of said plates and bearing a pinion between the middle plate and back plate, engaging with said gear-wheel, another pinion on said shaft between the middle plate and front plate, engaging with a gear-wheel on a shaft located out of the center of the time-piece, and another gear-wheel on said last-mentioned shaft, actuating a gear-wheel for imparting motion to the hour-hand arbor, substantially as specified.

2. In a time-piece, the combination of a main shaft, a spring, a spring-barrel arranged loosely on said shaft, a gear-wheel forming one side of the barrel, a pinion engaging therewith and mounted on a primary shaft for a time mechanism, said time mechanism being arranged in front of the spring-barrel, a gear-wheel forming a cover for the spring-barrel affixed to the shaft first named, and a pinion engaging with the gear-wheel last named and mounted on a primary shaft for a strike mechanism, said strike mechanism being arranged in front of the barrel, substantially as specified.

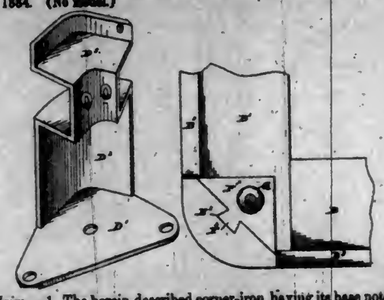
312,480. ROAD-GRADING MACHINE. RICHARD LOWE, Iowa City, Iowa, assignor of one-half to S. D. Pryce, same place. Filed Sept. 13, 1884. (No model.)

Brief.—A plow in combination with a revolving disk serving as a carrier, with device for discharging the dirt. The axle of the carrier is attached to a plate fastened to the lateral beam D, and is provided with a supporting-roller and plate serving as guide for the same.



Claim.—In a road-grading machine, the combination, with the rotating disk G and lateral beam D, of the offset F, rod or spindle *f*, plate *i*, and supporting-roller J, substantially as specified.

312,481. CORNER-IRON. THOMAS LUMSDON, Marion, Va. Filed Oct. 23, 1884. (No model.)



Claim.—1. The herein-described corner-iron, having its base notched or recessed, as described, and the locking-plate having a tongue fitting in the recess or notch, as set forth.

2. The combination, with a vehicle-body, of the inside iron having the flanged base, and the outside iron having the top and base flanges, and bolts passing through the bottom of the body and connecting the flanged base portions of the two irons, as set forth.

3. The combination, with a corner-iron having a top flange and a base provided with a dovetail recess, of a triangular locking-plate provided with a tongue, F^3, and bolts for securing them in place, substantially as specified.

4. The combination, with the vehicle-body, of the inside iron having the flanged base and seat D^2 near its upper end, and the outside iron having the upper flange and base-flange, a dovetail notch or recess provided in the base-flange, and a locking-plate provided with a dovetail tongue to fit the said notch or recess, as set forth.

5. The combination, with the inside corner-iron having the flanged base and seat D^2, of the outside corner-iron having the top flange, and the base-flange provided with a dovetail recess, the triangular locking-plate with tongue, and the bolts and nuts for securing said irons to place, substantially as specified.

312,482. APPARATUS FOR SYNCHRONIZING CLOCKS. JOHN A. LUND, London, England, assignor to the Standard Time Company, New Haven, Conn. Filed May 21, 1884. (No model.) Patented in England Jan. 1, 1884, No. 241, and in France Feb. 25, 1884, No. 160,543.

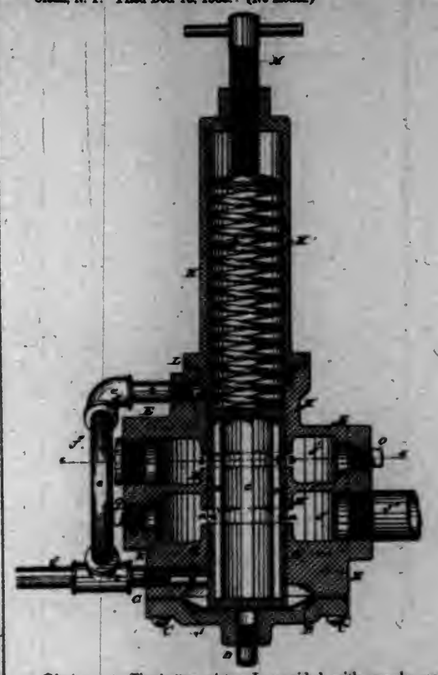


Claim.—1. A mechanism for synchronizing clocks, substantially such as described, consisting of a pair of fingers arranged to approach each other to turn the pointer at a predetermined time, one of said fingers projecting from an arm hung upon a pivot to swing in a plane substantially parallel with the plane of the dial, and provided with a counter-balance arranged to permit the said one finger to be turned toward the opposite extreme under the action of the pointer, and so that as it approaches the opposite extreme the pointer will escape therefrom, the said counter-balance serving to return said finger, and mechanism, substantially such as described, for turning said fingers at a predetermined time, substantially as specified.

2. In a clock-synchronizing mechanism, the combination of the two arms *a b*, hung upon a pivot to swing in a plane parallel with the plane of the dial, said arms carrying, respectively, synchronizing-fingers *f g*, and also provided with counterbalancing-weights, respectively, *i k*, and mechanism, substantially such as described, for turning said arms and fingers at predetermined times to operate upon the pointers of the clock, said counter-balance serving to return said fingers, substantially as specified.

3. In a synchronizing mechanism for clocks, the combination of the two arms *a b*, carrying, respectively, synchronizing-fingers *f g*, and each provided with counterbalancing-weights, respectively, *i k*, a magnet and its armature, the armature provided with fingers *o p*, arranged to bear upon said arms to operate the synchronizing-fingers when the circuit is closed and release said arms when the circuit is broken, substantially as described.

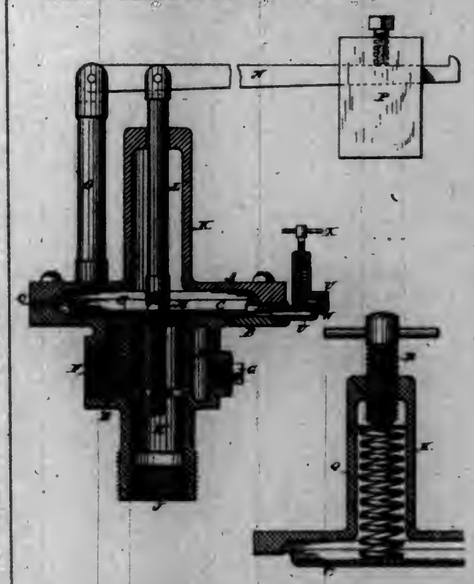
312,483. GAS REGULATOR OR GOVERNOR. JAMES H. LUTHER, Olean, N. Y. Filed Dec. 18, 1883. (No model.)



Claim.—1. The hollow piston I, provided with annular or circumferential inlet and outlet passages *a' b'*, arranged and adapted to reciprocate within the cylinder E, provided with annular or circumferential gas-chambers J J', provided with inlet and outlet tubes J'' J''', and communicating with the interior of the piston through circumferential passage *a b*, whereby the flow of gas or other fuel is controlled and the piston balanced axially, as hereinbefore set forth.

2. In combination with the cylinder E and piston I, arranged and operating as described, the relief-passages *d d*, for the escape of leakage, substantially as hereinbefore set forth.

312,484. GAS REGULATOR OR GOVERNOR. JAMES H. LUTHER, Olean, N. Y. Filed Dec. 18, 1883. (No model.)



Claim.—The hollow piston H, having the gas-passage in its head or upper end formed with a valve, *h*, substantially as described, to prevent sudden vibrations of the diaphragm and piston, as hereinbefore set forth.

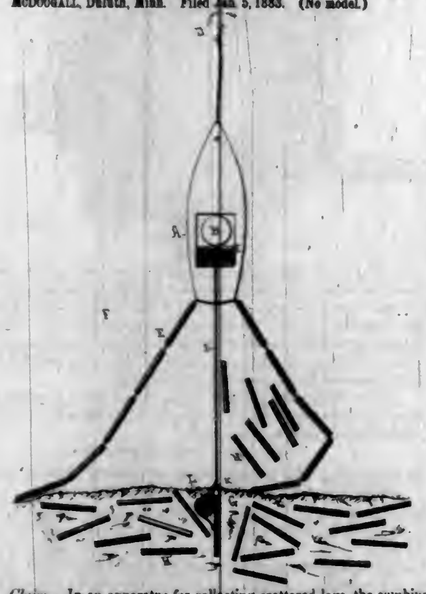
312,485. COMBINED LEAD AND IRON PLATE. JOHN MAKIN, Glossop, County of Derby, England. Filed Nov. 20, 1884. (No model.) Patented in Canada Nov. 29, 1884. No. 20,667.



Claim.—1. Coating iron, steel, or other metal with lead by first drilling, punching, or otherwise forming holes or perforations through the metal to be coated, then placing such perforated plates in a suitable mold and running in the molten lead, so as to coat one or both sides, as may be required, and at the same time fill in the perforations, so that the lead is firmly united to the iron, steel, or other metal by the plugs of lead which fill the perforations, and thus the necessity for bolts, rivets, or other extraneous means of fastening is dispensed with

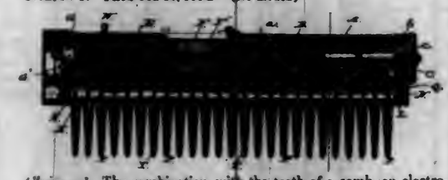
2. As a new manufacture, sheets or plates of perforated iron, steel, or other metal coated on one or both sides with molten lead, filling the said perforations, substantially in the manner and for the purposes hereinbefore described.

312,486. APPARATUS FOR COLLECTING SCATTERED LOGS. A. MCDOUGALL, Duluth, Minn. Filed Jan. 5, 1883. (No model.)



Claim.—In an apparatus for collecting scattered logs, the combination, with a boat provided with a flexible inclosing boom, of a windlass secured to said boat, and connected therewith one end of a line, the other end thereof extending to the logs on the shore, whereby said logs are drawn into the water and within the inclosing boom, substantially as described.

312,487. ELECTRO-MAGNETIC COMB. WILLIAM T. MCGINNIS, New York, N. Y. Filed Oct. 16, 1884. (No model.)



Claim.—1. The combination, with the teeth of a comb, an electro-magnetic machine adapted to support the comb and serve as a handle therefor, and external manual contact-plates connected by suitable electric conductors with one end of the electrodes of said machine, of electric conductors terminating at the extremity of each tooth in the comb and suitably connected with the opposite electrodes of the machine, substantially in the manner and for the purpose herein set forth.

2. The combination, with an electro-magnetic machine, external contact-plates connected to one of its electrodes, and a fluid-reservoir attached to the machine, of a series of hollow comb-teeth fitted to communicate each with said reservoir, and constructed each with a perforated end, through which a conducting-wire connected with the opposite electrode of the machine is made to project, substantially in the manner and for the purpose herein set forth.

3. The combination, in a comb whose handle contains an electro-magnetic machine, one of whose electrodes is connected with an external manual contact-plate on the handle, of conducting-wires terminating at the extremity of each tooth, and a spiral spring included in the length of each terminal wire to allow an elastic play of the wire through the end of the tooth, substantially in the manner and for the purpose herein set forth.

4. The combination, with a fluid-reservoir, of a series of hollow comb-teeth fitted thereto to communicate freely therewith, and an elastic wire adapted to move longitudinally within the tooth, to project exteriorly from the end thereof, and by its movement open and close the same, substantially in the manner and for the purpose herein set forth.

312,488. STEAM-VALVE. WILLIAM C. MCKINNIE, Red Bluff, Ark. Filed Sept. 1, 1884. (No model.)



Claim.—1. The chest A', subdivided into valve-chamber *a* and steam-chamber *a'*, having the flange *b* connected to plate *d* by screws *c*, and adjusting-screws *c' c'*, substantially as shown, and for the purpose described.

2. In a steam-valve, the plate *d*, having integral therewith valve-seat B and steam-ports *f f*, in combination with the chest A', having flange *b*, and screws *c* and *c' c'*, substantially as shown and described.

312,489. CULTIVATOR. THOMAS MEIKLE, Louisville, Ky., assignor to Thomas Meikle and Company, Corporation, same place. Filed Nov. 1, 1884. (No model.)



Claim.—1. A straddle-row cultivator the arch whereof is composed of two parts, combined with a coupler-block, J, provided with a groove or grooves wherein said arch parts may slide and lap past each other full size, to cause the cultivators to approach or recede from each other, a lever with which to move said parts, and a locking device whereby said axle parts may be fastened in the desired position.

2. A straddle-row cultivator the arch whereof is composed of two parts, combined with a coupler, J, provided with grooves, wherein said parts may move and lap past each other full size, to cause the cultivators to approach or recede from each other, and a lever whereby the parts of said axle may be coincidently moved, and a locking device whereby said arch parts may be fastened and held in the desired position.

3. A straddle-row cultivator the axle whereof is arched and composed of two parts capable of relative movement at the top of the arch, to cause the wheels and cultivators to approach or recede from each other, combined with a coupler, J, a lever, K, pivoted to said coupler at a point between said axle parts, and jointed to said parts, respectively, at each side of said pivot, and a locking device whereby said lever and axle parts are locked and retained in position.

4. A straddle-row cultivator having the arched axle D in two parts, the coupler J, with parallel grooves to receive said parts separately, the slotted lever K, pivoted to said coupler at a point between said grooves, and connected with said axle parts by pins which pass through said slots,

and the segment L, with a locking device, all combined substantially as set forth.

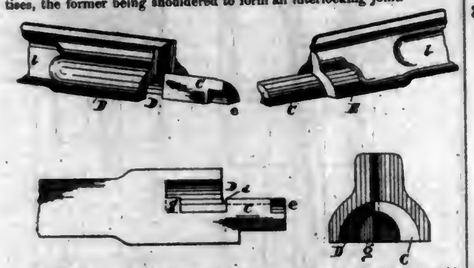
5. A cultivator supported upon wheels, and provided with a C-shaped spring rigidly attached to the axle at one end, and having a bend, *u*, near the free end, in combination with the drag-bar E, having the upturned arms *q* at its front end, provided with the bearings P, whereby the same spring acts to support the cultivator above the ground or to keep the same down upon the ground, substantially as set forth.

6. In a straddle-row cultivator, an axle provided with axle-spindles and cultivators, couplers adjustable thereon in a vertical plane, and locking devices whereby, when said spindles and couplers have been adjusted, they may be locked and retained in position, whereby the wheels may be set oblique to the axle and adapted to stand, with the cultivators, perpendicular to the surface on which they are working, substantially as set forth.

7. In a straddle-row cultivator, an arched axle combined with the spindle-boxes C, provided with a series of change-holes, *r*, arranged concentric as to the bolt *w*, so that by changing the bolt into one or another of said holes *r* the angular position of the wheel may be changed, substantially as set forth.

312,490. RAILWAY-RAIL JOINT. ISAAC J. MILLER, Jr., Cincinnati, Ohio. Filed Mar. 10, 1884. (No model.)

Brief.—Rail ends provided with segmental-shaped tenons and mortises, the former being shouldered to form an interlocking joint.



Claim.—1. A rail having a flanged mortise formed in the under side of one of its flanges, B, at the end of the rail, and a fitting tenon projecting from the base of the opposite flange and forming one-half of an interlocking rail-joint, substantially as described.

2. A rail having the tenon C projecting from the base of one of its flanges, and adapted to interlock with a flanged mortise formed in the flange of an abutting rail, substantially as described.

3. A rail having the flanged mortise D formed in one of its flanges at the end of the rail, and adapted to receive and interlock with a tenon projecting from the opposite flange of an abutting rail.

4. A rail-joint formed in the rails, consisting, essentially, of the tenons C and flanged mortises D, formed at the ends of the rails, and adapted to reciprocally interlock each with the other, substantially as described.

5. A rail-joint formed of tenons and mortises attached to and formed in the flanges of the rails, with the web and tread of the rail terminating in two reverse-curved abutting lines upon each side of the center in the tread, substantially as described.

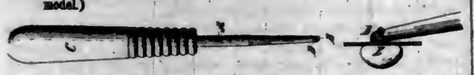
6. A rail-joint composed, substantially, of the tenons C and mortises D, formed upon the base of the flanges of the rails, of segmental shape, each chiefly outside of the central line of the tread of the rail, and forming an interlocking shoulder, *d*, to prevent the end removal of the rails, substantially as described.

7. A rail-joint composed, substantially, of the quadrant-shaped tenons C and mortises D and secondary supporting-tenons *g* and mortises *e*, or their described equivalents, substantially as described.

8. A rail-joint composed, substantially, of one or more tenons, C, having a secondary mortise, *e*, one or more mortises, D, and secondary tenons *g*, adapted to interlock, substantially as described.

9. A joint made by means of one or more mortises and one or more tenons, constructed as described, so that the parts will interlock by turning one rail at an angle to the other and introducing the tenon in the open side of the mortise, substantially as described.

312,491. AWL FOR ATTACHING BUTTONS. RUDOLPH MILLER, Orange, N. J., and OTTO MILLER, New York, N. Y. Filed July 30, 1884. (No model.)



Claim.—A shoe-button awl constructed with a flattened end terminating in a curved terminal cutting edge or blade, and with a lateral notch above the cutting-edge at a right angle to the length thereof, and adapted to hook into the eye or shank of a button, the upper and lower outer edges of the notch being in the same right line, substantially as and for the purpose herein set forth.

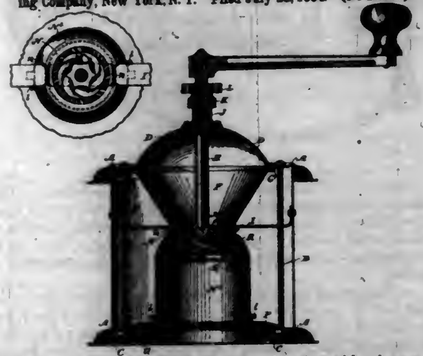
312,492. TELEPHONE. WILLIAM R. MILLER, Baltimore, Md. Filed June 16, 1884. (No model.)



Claim.—1. In combination with a telephone-receiver having the usual curved plate to cover the diaphragm and adapted to be brought in contact with the ear, a flexible sound-insulating cup attached to the said receiver of greater diameter than the said plate, and with its edge projecting beyond the end of the said receiver, substantially as and for the purpose specified.

2. In combination with a telephone-receiver having the usual curved plate to cover the diaphragm and adapted to be brought in contact with the ear, a flexible sound-insulating cup attached to the said receiver of greater diameter than the said plate, having a rigid edge which projects beyond the end of the said curved plate, substantially as and for the purpose specified.

312,493. COFFEE-MILL. JOHN C. MILLIGAN, Brooklyn, and JULES CHAUMONT, Woodhaven, assignors to the Lalance & Grosjean Manufacturing Company, New York, N. Y. Filed July 22, 1884. (No model.)



Claim.—1. In a coffee-mill, the combination, with a hopper and grinding mechanism located at the lower portion thereof, of a sheet-metal case consisting of top piece supporting said hopper, bottom, and side pieces, the rods B, and the strap I, said strap serving to support the grinder and the lower portion of the shaft, substantially as described.

2. A coffee-mill having a sheet-metal case formed of the top piece, the hopper, the side portions formed in a single piece, the suitably-apertured bottom P, a receptacle, N', extending through the aperture in the bottom, and the tie-rods B, substantially as described.

3. A coffee-mill having a hopper, a receptacle, a sheet-metal case consisting of the top piece formed with groove A for receiving the edges of the sides, side portions formed in a single piece, a bottom, P, apertured for the reception of said receptacle, and also provided with grooves A for receiving the edges of the sides, and suitable tie-rods, B, substantially as described.

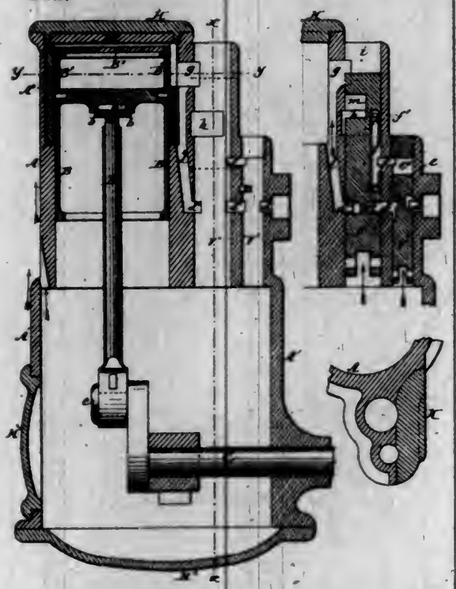
4. In a coffee-mill, the combination, substantially as hereinbefore set forth, with the grinder and case, of the removable receptacle N', adapted to be inclosed within said case, and having a narrow mouth encircling the grinding mechanism, and extending a suitable distance above the delivery, and a depending portion to receive and contain the ground coffee, as described.

5. In a coffee-mill, the combination, substantially as hereinbefore set forth, with the grinder and case, of the receptacle N', adapted to be inclosed within said case, and having a narrow mouth encircling the grinding mechanism, and extending a suitable distance above the delivery, and also extending downward to contain the ground coffee, and means, as described, for fastening said receptacle within the case, substantially as described.

6. In a coffee-mill, the combination, with the plate P, having an aperture in its center, and suitable slots at the edge of said aperture, of the receptacle N', having lugs *l*, adapted to pass through the slots in plate P, and a bead, O, for closing said aperture, as set forth.

7. In a coffee-mill, the combination, substantially as hereinbefore set forth, with the grinders and the case, of the receptacle N', the mouth of which is directly beneath and inclosing the discharge-opening of said grinders, and means, substantially such as described, for permitting such receptacle to be inserted and withdrawn through the bottom of said case.

312,494. GAS-ENGINE. LEWIS H. NASH, Brooklyn, assignor to the National Meter Company, New York, N. Y. Filed Feb. 6, 1884. (No model.)



Claim.—1. The method herein described of preventing the extinguishment of the lighter-jet by the inward suction of the piston of a gas-engine before the ignition of the charge, which consists in cutting off communication between the gas-main and the power-cylinder during the measuring function of the lighter-controlling supply, substantially as described.

2. The method herein described of isolating the lighter-jet from the forced draft of the cylinder caused by the inward suction of the piston, which consists in causing the valve V' to enter the chamber c^4 to supply the interior jet with a measured quantity of gas at the moment communication is cut off between the gas-supply and said chamber, and thereby prevent the filling of the lighter-chamber and the extinguishment of the lighter-jet before the ignition of the charge, substantially as described.

3. The combination, with the cylinder and the piston of a gas-engine, of the valves V V', the latter constructed and co-operating with the lighter-jet, the chamber c^4, the lighter-space *m*, and cylinder-port *g*, to prevent the piston from sucking gas and filling the lighter-space before the cylinder-port is opened sufficiently to ignite the charge, substantially as herein described.

4. The method herein described of preventing the dilution of the gas supplied to the engine caused by the back-pressure of waste gas leaking by the valves, which consists in diverting the waste gases of leakage from the gas-supply passage into an exhaust-passage controlled by a valve operated by the engine, substantially as described.

5. The method herein described of producing forced currents of air around and in contact with the exterior walls of a gas-engine, consisting in forcing air in jets in contrary directions along the external walls of the cylinder and casing, the said contrary jets being produced by the forced displacement of the air from the inclosing-case through jet-openings contiguous to the cylinder-walls, substantially as set forth.

6. The combination, in a gas-engine, of an interior lighting-jet, *f*, supplying gas to the igniter, with the plunger-valve V', the chamber c^4, and the main supply-valve V, the said valve V acting as a measuring device for the lighter-chamber, and also to close communication between the gas-main and the power-cylinder to prevent the piston from sucking a charge of gas and filling the lighter-chamber before the ignition of the charge, substantially as herein set forth.

7. In combination, in a gas-engine, the cylinder having port *g* and passages d^2 d^3, the main supply-valve V, having lighter-chamber *m*, port e^3, passage f^3 f^3, and lighter-jet f', operating in a chamber, V^3, having lighter-port *h*, and ports *f* and *d'*, and opening *i*, and the cut-off valve V', having the port e', operating in chamber V^3, having ports *d e*, and from which the gas is displaced in a definite quantity to the lighter-jet, substantially as described.

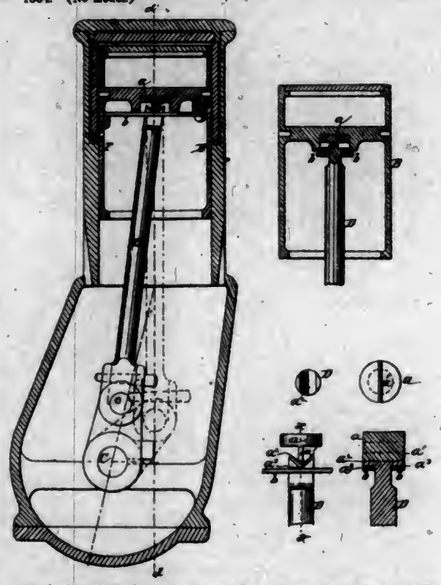
8. The combination, in a gas-engine, of the main valve, constructed substantially as described, with a gas-supply valve, V', and a chamber within which it operates, having an exhaust-port, *e*, operated by said valve V', whereby to divert the waste-gas leakage from the gas-supply passage, substantially as described.

9. In a single-acting gas-engine, the passages *k* around the open end of the cylinder, opening into the casing A' and outside of the cylinder-wall, for the purpose described.

10. The combination of the cylinder having its combustion-chamber lined with a loose cylinder, A^3, and a loose plate, H', with the air-jet passages *k* in the wall of the cylinder around its open end opening into the casing, as described, for the purpose of modifying the heat of the cylinder.

11. The combination, with the cylinder of a gas-engine, having its combustion-chamber formed of the loose cylinder A^3 and the loose plate H', of the piston having a thin cylinder, B', cast on its back end, for the purpose specified.

312,495. SINGLE-ACTING ENGINE. LEWIS H. NASH, Brooklyn, assignor to the National Meter Company, New York, N. Y. Filed May 2, 1884. (No model.)



Claim.—1. The combination of the cylinder, the piston, and the crank-shaft of a single-acting engine, with a piston-rod having an angular end bearing held freely upon an angular seat of the piston, whereby to reduce friction and to maintain the piston and piston-rod in central relation to each other and to the crank.

2. The combination, in a single-acting engine, with the piston, of the projecting blade or knife-edge *a*, seated centrally in said piston, and the piston-rod having a grooved or V-shaped bearing, a^2, adapted to form a bearing with and rock upon the piston-edge bearing, substantially as described.

3. The combination of the piston provided with a knife-edge or blade, *a'*, and the piston-rod having a grooved or V-shaped bearing, a^2, and a knife-edge or blade, a^3, with means, substantially such as described, whereby said piston-rod is maintained in proper bearing relation with the piston and to compensate for the wear of the bearing.

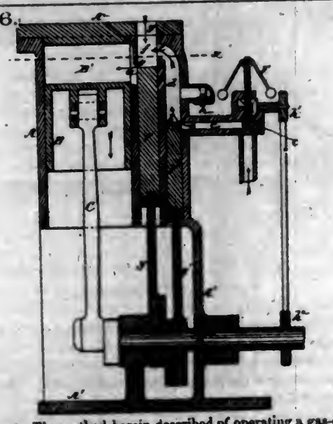
4. The bearing-connection of the piston and of the piston-rod, consisting of the piston-bearing blade *a'*, the piston-rod D, having a grooved or V-shaped bearing, a^2, and the side blades or knife-edges, a^3 a^3, and the separate springs *b b*, connected with the piston and forming an upward-pressing bearing upon the side knife-edges of the piston-rod, substantially as described.

5. The combination, with the piston having a knife-edge bearing and the piston-rod having a grooved or V-shaped bearing end, of the crank-shaft arranged to one side of the center line of the cylinder, substantially as described, for the purpose specified.

6. The combination, with the cylinder, the piston, and the crank-shaft of a single-acting engine, of a piston-rod having an angular end bearing held freely upon an angular bearing of the piston, and a yielding connection whereby to maintain the contact of the said angular bearings, substantially as herein set forth.

312,496. GAS-ENGINE. LEWIS H. NASH, Brooklyn, assignor to the National Meter Company, New York, N. Y. Filed May 8, 1884. (No model.)

312,496.



Claim.—1. The method herein described of operating a gas-engine, which consists in conducting the gaseous fuel into the entering stream of air before the air has passed the admission-valves, and drawing both the air and gas into the engine-chamber through a passage open to the atmosphere, substantially as described, for the purpose specified.

2. The method herein described of operating a gas-engine, which consists in admitting the gaseous fuel into the entering charge of air before the air has passed the admission-valves, controlling the gas-supply by a valve operated by the engine, and drawing both the air and gas into the engine-chamber through a passage open to the atmosphere, substantially as herein set forth.

3. The method herein described of operating a gas-engine, which consists in drawing into the cylinder the charge of air direct from the atmosphere, admitting the gas into the entering charge of air before the latter has passed the admission-valve, and controlling the gas-supply by a valve and governor operated as described, whereby the charge of gas is drawn into the cylinder through a passage open to the atmosphere, and the gas-supply passage isolated from the influence of the suction caused by the rapid running of the engine.

4. The method of supplying a gas-engine with fuel, which consists in admitting the fuel into a supply-passage having perpetual communication with a supply-passage open to the atmosphere, whereby the action of the piston will draw the air charge through said opening and the gas charge with it, and prevent the suction of the engine from extending to the gas-supply main, substantially as herein set forth.

5. The combination, with the cylinder and an inlet-valve, V, of a gas-supply pipe, *c*, an air-inlet passage open to the atmosphere communicating directly with said gas-supply pipe, and a gas-supply valve, V', arranged to operate free from the influence of the suction of the engine, substantially as described.

6. The combination, in a gas-engine, of a fuel-supply valve having no direct communication with the cylinder, with a separate passage for the fuel, having free communication with the external air and with an air-supply passage external to the inlet-valve of the cylinder, substantially as herein set forth.

7. The combination, with the cylinder having an air-inlet passage open to the outer air and a gas-supply passage opening into said open air-passage, of a valve for controlling the gas-supply, and a valve for admitting the air and gas into the cylinder through said open air-passage, substantially as herein set forth.

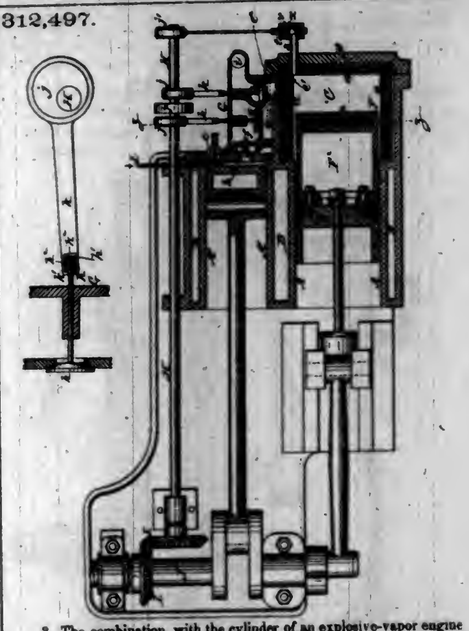
8. The combination, with the cylinder, of the valves V V', the gas-inlet port *b*, passage *d*, and the open air-inlet passage *f*, the said port *b* and air-passage communicating with each other outside of the cylinder inlet-valve, as and for the purpose set forth.

312,497. GAS-ENGINE. LEWIS H. NASH, Brooklyn, assignor to the National Meter Company, New York, N. Y. Filed Jan. 22, 1884. (No model.)

Claim.—1. The method substantially herein described of operating an explosive engine, which consists in dividing a charge of air compressed in a chamber independent of the engine, passing a portion of the air into and through a body of hydrocarbon, conducting the carbureted air into the power-cylinder, and completing the combustible charge by admitting the other portion of the compressed air into said cylinder direct from said independent compressor, substantially as described.

2. The method herein described of operating an explosive-gas engine, which consists in dividing a charge of air compressed in a chamber independent of the engine, passing a portion of the air into and through a body of hydrocarbon, conducting the carbureted air into the power-cylinder in quantities regulated by a governor, and completing the combustible charge by admitting the other portion of the compressed air into said cylinder, as described.

312,497.



3. The combination, with the cylinder of an explosive-vapor engine and an independent air-compressor, of an air-tight vessel for containing hydrocarbon, a pipe, *l*, connecting said independent compressor with the bottom of said vessel, the pipe *m*, connecting the top of said vessel with the engine-valves, the supply and exhaust valves *f g h*, and a governor, *n*, arranged upon the pipe connecting the engine with the top of said vessel, substantially as set forth.

4. The combination, with the power-cylinder of a gas-engine and a water-jacketed air-compression pump, A', of an air-tight vessel, K, for containing hydrocarbon, the pipes *d* d^2 *m l*, and the valves *f g h*, all constructed and arranged as described.

5. A gas-engine having the walls of its combustion-chamber and the face of the piston lined with a multiple of thin plates separated by air-spaces, as described, for the purpose specified.

6. The combination, with the cylinder of a gas-engine, of a non-conducting lining for the walls of the combustion-chamber thereof, composed of thin metal plates separated by air-spaces, so as to insulate the cylinder proper from the direct contact of the heat of the gases.

7. The combination, in a gas-engine, of an independent compression-pump having a water-jacket and means for injecting water into its compression-chamber with a power-cylinder having a water-jacket and a non-conducting lining, and a lighter device having a water-jacket, substantially as herein set forth.

8. The combination, with the cylinder of a gas-engine, of an external lighter composed of a shell, *t*, and a slide-valve, *u*, both having ports communicating with the air and with the combustion chamber, the shell-port v^2, for lighting the gas in the valve-port *v'* when the latter is closed to the combustion-chamber and open to the air, and the shell-port v^3, for maintaining the lighting-jet when the valve-port *v'* is closed to the air, and the permanent burner *x*, substantially as described.

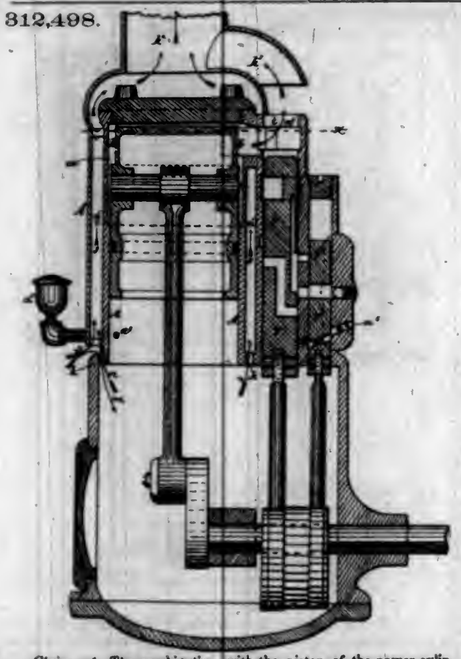
9. The combination, with the cylinder of a gas-engine, of the main inlet and exhaust valves *g h*, having a joint-connection with their eccentric connecting-rods, consisting of the hook-points *k' k'*, the valve-stem having a button, *k'*, and the spring k^2, substantially as described, for the purpose specified.

10. The combination, with the cylinder of a gas-engine, of the pipe c^3, entering the supply-port *c* of the cylinder, and a valve-lighter having its igniting-jets supplied independent of the valve system of the engine, substantially as set forth.

11. The combination, with the cylinder of a gas-engine, of a lighter having its igniting-jets supplied independent of the valve system of the engine, consisting of a case, *t*, having a suitable connection with the combustion-chamber, the ports *v w* and passages v^2 v^3, and the valve *u*, having the chamber *v'*, a permanent external burner, *x*, and suitable means for connecting the valve with the shaft H, substantially as described.

312,498. GAS-ENGINE. LEWIS H. NASH, Brooklyn, assignor to the National Meter Company, New York, N. Y. Filed July 22, 1884. (No model.)

312,498.



Claim.—1. The combination, with the piston, of the power-cylinder of a gas-engine, having a jacket open at each end, and the engine-casing having jet-openings arranged around its outer wall in the relation to the lower open end of the jacket and to the lower open end of the cylinder as described, whereby a continuous draft of outside-air currents is produced through said jacket in one direction only in contact with the outer cylinder-walls by the operation of the piston.

2. The method herein described of cooling the power-cylinder of a gas-engine, which consists in forcing a continuous draft of cool air in one direction through a jacket of said cylinder by means of jets of air forced by the operation of the piston from the engine-casing at points in the outer vertical wall of said casing, substantially as described.

3. The combination of the power-cylinder of a gas-engine, having a jacket for cooling-air currents, with a draft-chimney, into which the said jacket opens at its upper end above said cylinder, whereby to increase the draft and cooling effect of the jacket and carry off the heated air therefrom.

4. The combination, with the power-cylinder and the piston of a gas-engine, of a cooling-jacket for air-currents, open at both ends, and inclosing the sides and upper end of said cylinder, substantially as described.

5. The combination of an air-cooling jacket for the power-cylinder, open at both ends, with draft-producing jet-openings in the outer wall of the engine-casing, and the piston, for the purpose of causing a continuous forced circulation of air-currents through said jacket in one direction, as set forth.

6. The combination, with an air-cooling jacket for the power-cylinder, open at both ends, of a draft-chimney therefor, having a draft opening or pipe arranged to receive and carry off the products of combustion from the engine, substantially as described.

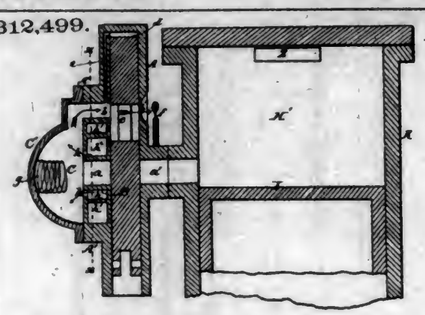
7. The combination, with the power-cylinder of a gas-engine, having the inner wall of its combustion-chamber recessed, as described, of a piston having its joint-forming bearing upon the lower end of said cylinder, and a cooling-air jacket for said cylinder, through which cooling-air currents are passed continuously in contact with the reduced cylinder-wall.

8. The combination, with the power-cylinder of a gas-engine, having its combustion-chamber recessed, as described, and a piston reduced in diameter at its acting end, of means whereby lubricating-oil is applied to the bearing portion of said cylinder and piston at the lower end of the former, as set forth, for the purpose specified.

9. The combination, in a gas-engine, of the slide-valves V V', made to fit their chamber-walls, with bearing-joints only at their lower cooler ends, and provided at their bearing ends with lubricating-ducts, for the purpose specified.

312,499. IGNITER FOR GAS-ENGINES. LEWIS H. NASH, Brooklyn, assignor to the National Meter Company, New York, N. Y. Filed July 22, 1884. (No model.)

312,499.



Claim.—1. The combination, with a gas-engine, of a separate ignition-chamber, a burner having an annular jet-orifice opening therein, and a valve operated to control the communication of said burner-jet with the charge in the power-cylinder, substantially as described, for the purpose specified.

2. The combination, with a gas-engine, of a separate ignition-chamber, an external burner-jet communicating therewith, an internal burner-jet having an annular jet-orifice opening into said ignition-chamber, and a valve operated to control the communication of said annular burner-jet with the power-cylinder, and also the communication of the ignition-chamber with the external burner-jet, substantially as described.

3. The combination of a gas-engine with a separate ignition-chamber, an annular burner-orifice opening therein, and a valve opening communication with the power-cylinder through said annular burner.

4. The combination, with a gas-engine, of an igniter having an ignition-chamber of circular form having a tangential inlet and an annular burner, whereby to produce a rotary motion of the lighter-jet issuing from said burner within said chamber, for the purpose specified.

5. The combination, with a gas-engine, of a separate ignition-chamber and an interior burner, through the center of which the ignition-chamber fires the cylinder-charge, substantially as described.

6. The combination, with a gas-engine, of an igniter having an interior annular burner for the charge-igniting jet, and a circular, spiral, or curvilinear conduit leading thereto, whereby a rotary movement is imparted to the issuing jet of said burner concentric with its center.

7. The herein-described method of retarding the flow of the gas to the charge-igniting burner of a gas-engine by making the current to said burner revolve and impinge upon and impede itself at one or more points in its passage to said charge-igniting burner.

8. The combination, with a gas-engine, of an igniter having a separate ignition-chamber divided into curved passages, an annular burner, a tangential gas-supply pipe opening into said chamber, and an exit-port for the charge-igniting flame in the center of said burner, substantially as described, for the purpose specified.

9. The combination, with a gas-engine, of an igniter having an interior burner having an annular jet-orifice for igniting the cylinder-charge, and an igniting-chamber inclosing said burner, having ports by which it communicates with the air and with the power-cylinder, so arranged that when the one is closed the other will be open, substantially as specified.

10. The herein-described method of preventing the current of inflowing gas to the igniter of a gas-engine from intermitting when its port to the air is closed, which consists in drawing the incoming gas within the chamber of the valve which controls the firing of the charge in the power-cylinder as the said valve moves to open the charge-firing port and to close said air-port.

11. The combination, with a gas-engine, of an igniter having an ignition-chamber, C, a burner-opening therein, the slide-valve B, and igniter-casing A, having a wall-passage opening into the ignition-chamber and into the valve-chamber *d* behind the upper end of said valve, substantially as described, for the purpose specified.

12. The combination, with a gas-engine, of an igniter having the valve B, a permanent external gas-burner, A retarding-chamber for the gas-supply, and an igniting-chamber having communication with the retarding-chamber, substantially as specified.

13. The combination, with a gas-engine, of an igniter having its inflow-passage provided with retarding vanes or partitions forming communicating passages for opposite currents, and a burner centrally arranged within said passages, substantially as described, for the purpose specified.

14. The combination, with a gas-engine, of an igniter having an internal burner of circular form, an inclosed communicating supply-passage, divided as described, and an ignition-chamber inclosing said burner, substantially as described, for the purpose specified.

15. The method of maintaining a continuous current of gas into the igniter-chamber of a gas-engine, which consists in drawing the gas from the igniter-chamber into an inclosed port of the valve-chamber by suction produced by the movement of the valve in opening communication of the igniter with the combustion-chamber of the power-cylinder, as described.

16. The combination, with the gas-engine, of a separate igniting-chamber, C, having an internal gas-jet adapted to be ignited by a permanently-burning exterior gas-jet when the air-port of said igniting-chamber is open, and a valve that alternately opens and closes the ports of the igniting-chamber leading, respectively, to the combustion-chamber of the engine and to said permanent burner, substantially as specified.

17. The combination, with a gas-engine, of an igniting-chamber provided internally with a body of platinum wire or other substance capable of becoming incandescent, an internal gas-jet, a permanently-burning gas-jet adapted to light said interior jet when the air-port of the igniting-chamber is open, and a valve adapted to open and close alternately the ports of the igniting-chamber that lead, respectively, to the combustion-chamber and to the air, substantially as specified.

18. The combination, with a gas-engine, of a chamber in which the gas is made to move in circular currents by entering tangentially, and an igniting-chamber having an annular opening from said current-directing chamber, whereby the gas-jet from the latter chamber will pass into the former chamber with a rotary or spiral motion, substantially as specified.

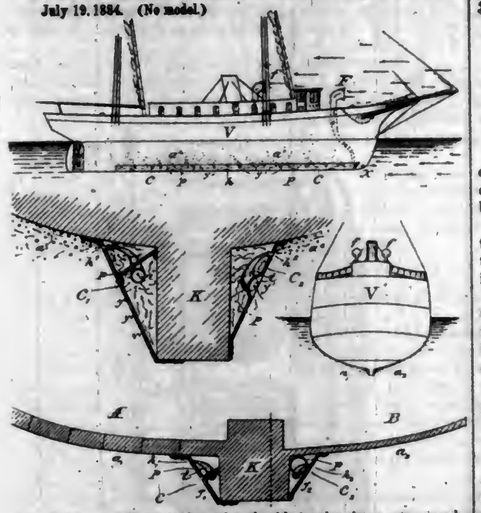
19. The combination, with a gas-engine, of an igniter having an incandescing platinum body and a burner arranged within an ignition-chamber, and a permanent burner arranged to communicate with said interior burner, substantially as described, for the purpose specified.

20. An igniting device consisting of a separate igniting-chamber, C, a retarding-conduit or supply-passage leading thereto, a burner interposed between said ignition-chamber and its supply-conduit, and an external burner combined with a gas-engine, and a valve operating to control the ignition of the cylinder-charge, substantially as described.

21. The combination, with the power-cylinder of a gas-engine, of an igniter having an annular burner, a separate ignition-chamber, and a charge-igniting port passing centrally through said burner, substantially as described.

22. The supply-conduit of a gas-igniter of circular form having curved vanes, and an annular burner, *k*, arranged centrally therewith, having a central port, *a*, in combination with an ignition-chamber inclosing said supply-conduit, the burner and its central port, the power-cylinder of a gas-engine, the permanent burner *f*, and a slide-valve interposed between said burner-port and its communication with the power-cylinder, substantially as described, for the purpose specified.

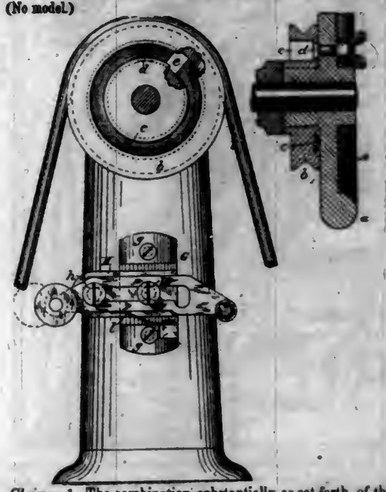
312,500. MEANS FOR DECREASING THE FRICTIONAL RESISTANCE TO VESSELS. FREDERICK D. OWEN, Washington, D. C. Filed July 19, 1884. (No model.)



Claim.—1. Means for lessening the frictional resistance to vessels, consisting of one or more inclosed longitudinal pipes or chambers located in close proximity to the keel of the vessel, open at their front ends, so that water may be admitted or forced into them, and provided with perforations, and one or more perforated air-pipes within the respective water pipes or chambers the front ends of which are open to the air above the water-line or into which pipes air may be forced, whereby air and water are simultaneously discharged through the perforations, forming bubbles, and producing a rolling film in close contact with the skin or exterior of the vessel, substantially as described.

2. In combination with the perforated air-pipe extending along the outside of the vessel and near the keel, and adapted to be supplied with air substantially as described, a series of curved conical nozzles or injectors adapted to receive and discharge water through the perforations of the air-pipe, substantially as and for the purposes set forth.

312,501. BOBBIN-WINDER FOR SEWING-MACHINES. JOHN H. PALMER, Philadelphia, Pa., assignor to the American Buttonhole, Overseaming and Sewing Machine Company, same place. Filed Mar. 8, 1884. (No model.)



Claim.—1. The combination, substantially as set forth, of the frame of the machine, the bobbin-winder supporting-bracket, the slotted bobbin-winder frame, which may be adjusted back and forth on the bracket, and the supporting or guide screws or pins *h i* on the bracket on which the slotted frame slides.

2. The combination, substantially as set forth, of the frame of the machine, the bobbin-winder bracket, the screws *h i*, the slotted bobbin-winder frame formed with an enlarged opening or socket at one end of the slot, and the spring.

312,502. WAGON-AXLE. ADELBERT E. PARKER, Dubuque, Iowa. Filed June 25, 1884. (No model.)



Claim.—1. The metal base A, provided with the spindles B B, the collars c c, and the two intermediate vertical flanges, C C, the upper edges of which incline from the collars down to points flush with said base A, substantially as described and shown.

2. The metal base A, provided with the spindles B B, collars c c, two intermediate vertical flanges, C C, inclining from said collars down to points flush with the base, and the two hollow inclines D D, adjoining the collars, substantially as described and shown.

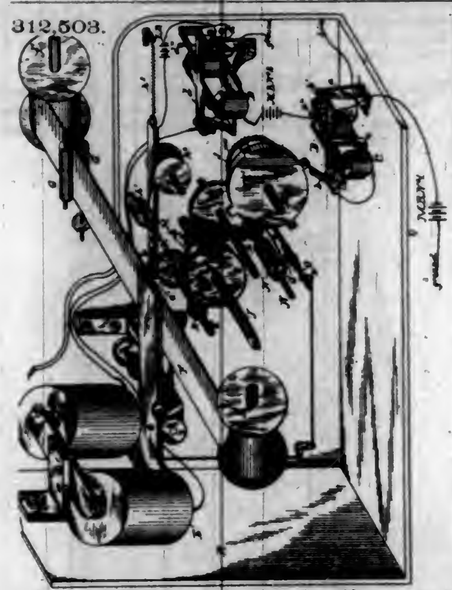
3. The combination, in an axle, of the metal base A, provided with the spindles B B, collars c c, one or more intermediate concave flange or flanges, C, and two hollow inclines, D D, and the grooved wooden top E, secured upon said base by means of the flange or flanges C and the clips, substantially as described and shown.

312,503. RECEIVING-INSTRUMENT FOR ELECTRICAL REPORTING. WILLIAM M. PEASE, Pittsburg, Pa., assignor of one-half to Lenox Simpson, same place. Filed Apr. 26, 1884. (No model.)

Claim.—1. In a receiving-instrument, the combination, with the contact-pins *a' a²*, said pins connected with opposite poles of two batteries, of the polarized magnet C, one end of whose coil is connected with the line-wire, the armature B, connected with the free end of said coil and provided with arm *b*, and the disk M', provided with teeth adapted to force—at intervals—the armature against pin *a'*, substantially as and for the purposes described.

2. In a receiving-instrument, the combination of contact-pins *a' a²*, said pins connected with opposite poles of two main batteries, magnet C, one end of whose coil is connected with armature B and the other end with the line-wire, armature B, magnet D, having armature *d*, contact-pin *d'*, a local battery having one pole connected with said pin, a magnet, E, one end of whose coil is connected with the free pole of said local battery, and the other end with the armature *d* and armature *e*, all arranged in the manner and for the purposes described.

312,503.

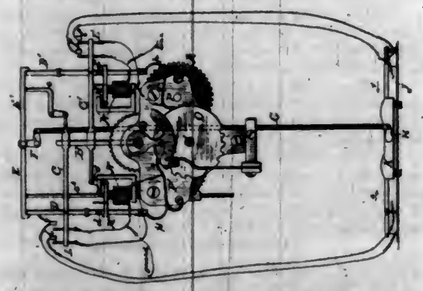


3. In a receiving-instrument, the combination, with armature *e*, of the paper ribbon F, the rack H, provided with stylus *h* and adapted to be retracted when released, and a toothed wheel, K', having a break in the continuity of the teeth, and adapted to be revolved in the manner and for the purposes described.

4. In a receiving-instrument, the combination, with the rollers G, the armature *e*, rack H, provided with stylus, and toothed wheel K', of the ribbon F, divided into spaces marked to represent the time of the day, and adapted to travel at right angles to the rack, as and for the purposes described.

5. The combination, with the stylus-bearing rack, armature B, provided with arms *b*, and armature *e*, of spring-actuated wheels and pinions *J' k l* K' L' *m n*, disk M', worm N', spring-actuated catch O, and the mechanism connecting the armature *e* with the catch O, substantially as described.

312,504. ALARM MECHANISM AND APPARATUS FOR OPERATING THE SAME. WILLIAM M. PEASE, Pittsburg, Pa., assignor of one-half to Lenox Simpson, same place. Filed Apr. 25, 1884. (No model.)



Claim.—1. The combination, with lever B, of bar C, lever D, bar E, crank F, rod G, crank-rod H, and lever K, substantially as and for the purposes described.

2. The combination, with lever B, of bars C C', levers D D', bars E E', crank F, rod G, crank-bar H, and lever K, as and for the purposes set forth.

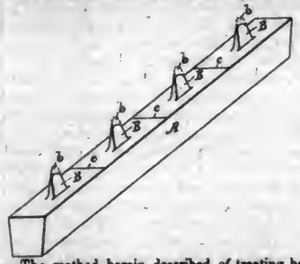
3. The combination, with the lever B and bar G, of the crank F, hook-bars E E', levers D D', bars C C', bent lever *c*, crank *c'*, and rod c^3, substantially as and for the purposes set forth.

4. The combination, with lever B, bars C C', and levers D D', of the disks O O', and tongues P P', provided with arms *p p'*, substantially as and for the purposes set forth.

5. The combination, with the clock-work provided with lever B and the insulated rails, of the points *l l'*, switch-levers L L', bars C C', lever *c*, crank *c'*, bar c^3, levers D D', provided with offsets *d d'*, magnets N N', armatures M M', hook-bars E E', crank F, rod G, crank-rod H, and lever K, substantially as described, whereby said clock-work will be wound up and locked by a car passing over said rails in either direction and released after the passage of said car, as set forth.

6. The combination of the insulated rails, the clock-work provided with lever B and disks O O', the tongues P P', provided with arms *p p'*, levers D D', provided with offsets *d d'*, bars C C', levers *c c'* c^3, switch-levers L L', contact-points *l l'*, magnets N N', armatures M M', hook-bars E E', crank F, rod G, crank-rod H, and lever K, substantially as and for the purpose described.

312,505. METHOD OF TREATING STOCK FOR HORSESHOE-CALKS. CHARLES H. PERKINS, Providence, R. I. Filed July 25, 1884. (No model.)



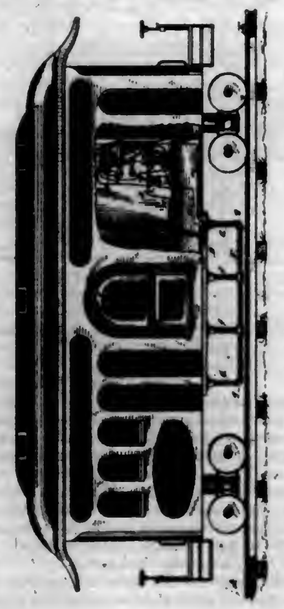
Claim.—The method herein described of treating horseshoe-calk stock, consisting in cold-rolling or swaging the bars having the tips for the purpose of hardening, lengthening, and pointing the tips, as described.

312,506. RAILWAY-CAR TELEGRAPH. LOUIS J. PHELPS, New York, N. Y., assignor to the Railway Telegraph Company, of New York. Filed Nov. 18, 1884. (No model.) Patented in England Dec. 20, 1884, No. 16,735; in France Dec. 20, 1884, No. 153,448, and in Belgium Dec. 22, 1884, No. 49,394.

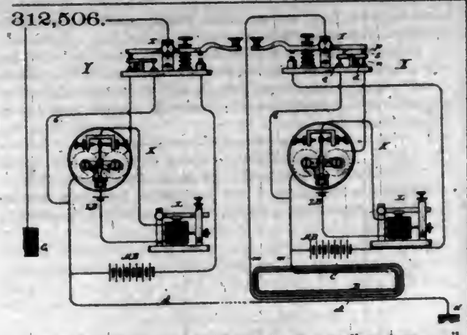
Claim.—1. The combination, substantially as described, of a line-conductor, a vehicle movable in a direction parallel with the same, and a conductor upon the vehicle substantially parallel with and in inductive proximity to the line-conductor, the ends of said vehicle-conductor being joined in closed electric circuit.

2. The combination, in a system of electric transmission or transfer to and from a moving vehicle, of a line-conductor, one or more strands of conductor placed upon the vehicle, and arranged substantially parallel with but in close inductive proximity to the line-conductor, and return connections of said strands removed as far as practicable from close inductive proximity to the line.

3. The combination, with a line-conductor extending along a track, of a coil of wire, as B C, carried upon a vehicle moving over said track, and having its portion B parallel or substantially parallel with the line-conductor.



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4. The combination, with a line-conductor extending along a railway, of a coil of wire suspended beneath a car or vehicle, and having one portion, as B, parallel or substantially parallel to the line-conductor.

5. The combination, substantially as described, of the line-conductor, the vehicle-conductor, and the containing pipe or conduit suspended beneath the car and connecting with depending pipes or conduits, as G G, as and for the purpose described.

6. The combination, with the line-conductor, of the vehicle-conductor, having its return portions carried to one side out of plane with the line-conductor.

7. In a system of electric induction transmission or transfer to and from a moving vehicle, the combination of a line-conductor, a vehicle-conductor, and a polarized relay in closed circuit in the vehicle-conductor.

8. The combination, substantially as described, of a line-conductor, a vehicle-conductor, a transmitting apparatus for sending currents through the closed circuit of the vehicle-conductor, and a polarized relay connected with the line-conductor.

9. The combination, with the line-conductor, of a closed circuit-conductor upon the vehicle, a generator and circuit-breaker upon the vehicle, and a polarized relay connected to the line-conductor.

10. The combination, in a system of transmission by induction to and from a moving vehicle, of a transmitter, a relay and contact-points controlled by the transmitter for momentarily closing a shunt around the relay when the circuit closed by the transmitter is broken.

11. The combination, in a system of transmission to and from a moving vehicle, of a transmitter for opening and closing the circuit from a suitable source of electricity, a polarized relay in a back contact-circuit for the transmitter, a shunt or branch around the relay, and a circuit-controller therefor, governed by the transmitter, and serving to close a circuit around the relay at the instant of breaking off the generator-circuit.

12. The combination, in a system of railway-telegraphing by induction, of a polarized relay or transmitter, and a supplemental circuit-closer and breaker having three points of closure, one controlling a shunt around the relay, and the other a circuit through the relay and transmitter, as and for the purpose described.

13. The combination, in a system of railway-telegraphing, substantially such as described, of a polarized relay, a Morse key, a supplemental circuit-closer playing between two contacts, one of which is on the key, and a third contact for said lever forming a portion of a shunt around the polarized relay.

312,507. CABLE-GRIP. JAMES H. POLHEMUS, Brooklyn, N. Y. Filed Nov. 15, 1884. (No model.)

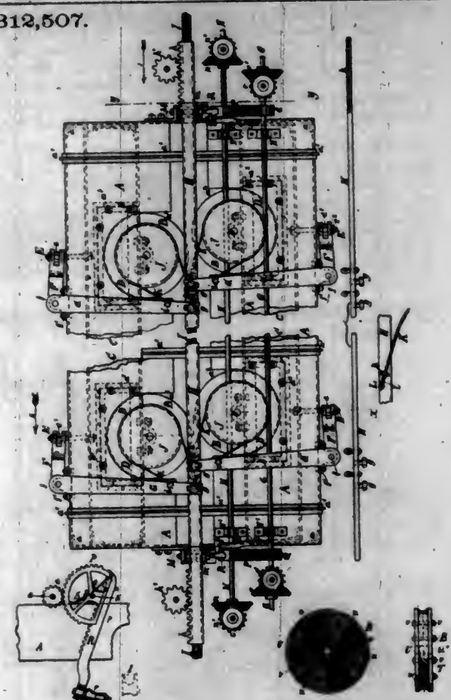
Brief.—Horizontal grip-pulleys carried by frames which reciprocate in a main box-frame. A longitudinally-reciprocating rack-bar controls band-brakes upon the pulley-shafts, and also, through lever-connections, reciprocates the pulleys. The cable is raised to the grip through a spring held vertically and a laterally-adjustable arm having a straight rack and a toother-sector, whereby it is raised and lowered and vibrated. The grip-pulleys consist each of two disks, one having a central hub, and lateral projections which enter recesses in the filling-blocks, the whole being secured by transverse bolts.

Claim.—1. In a cable-gripping device, the combination of the box-frame A, having longitudinally an opening for the cable, with the frames C, having grip-wheels B, and movable within the frame A simultaneously against opposite sides of the cable, substantially as specified.

2. The combination, with the box-frame A and cable I, of the frames C, having grip-wheels B and movable in the frame A simultaneously from opposite sides, to impinge, with the said grip-wheels, upon the cable at obliquely-opposite points, for the purpose set forth.

3. The combination, with a main frame, A, and cable I, of frames C, having grip-wheels B, and brakes J K upon the grip-wheel shafts and movable in the frame A simultaneously against opposite sides of the cable, the said brakes being also applied simultaneously with the said movement, substantially as specified.

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4. In combination with the main frame A and cable I, the slide-frames C, having grip-wheels B, and brakes J K upon the grip-wheel shafts, the longitudinally-movable bar H, and the elbow-levers G F, connected at one end to the frames C and at the other end to the bar H, the brake-bands K being fastened with one end to the stationary frame A and with the other end to the movable bar H, for the purpose of simultaneously gripping the cable and preventing the grip-wheels from turning, substantially as specified.

5. The combination, with the cable I and grip-wheels B, of the oscillatory sliding rack or bar R, provided with stud or roller *r*, for attaching and introducing the cable between the said wheels, substantially as specified.

6. The combination, with the grip-wheels B, cable I, and sliding rack R, carrying the roller *r*, of the stationary roller *m*, to gage the elevation of the cable, substantially as specified.

7. In combination with the oscillatory sliding rack R, for raising the cable to the grip-wheels, the spring S, tending to swing the rack out of range of the cable, for the purpose set forth.

8. The combination of the shafts N O, having pinions *q* Q secured upon them, respectively, the segment P, movable upon the shaft N, in gear with the pinion Q, and having guides or ways in its chord *p*, the rack R, having stud or roller *r*, and fitted to slide in the said guides in gear with the pinion *q*, the grip-wheels B, and cable I, all substantially as and for the purpose set forth.

9. The combination of the shafts N O, having pinions *q* Q secured upon them, respectively, the segment P, movable upon the shaft N in gear with the pinion Q, and having guides or ways in its chord *p*, and a pin or shoulder, *s*, the spring S, secured to the frame A and pressing with its free end upon the said pin or shoulder, the rack R, having stud or roller *r*, and fitted to slide in the said guides in gear with the pinion *q*, the grip-wheels B, and cable I, all substantially as and for the purpose set forth.

10. In combination with the frame A, sliding frame C, grip-wheel B, having brake-wheel J, lever G F, and slide-bar H, the band K, secured with its ends to the frame A and bar H, respectively, one end of the band projecting through an eye in the fastening-stud, and having a nut or stop-shoulder, L, and a spiral spring, *l*, interposed between the said stud and shoulder to take up the wear of the band, substantially as specified.

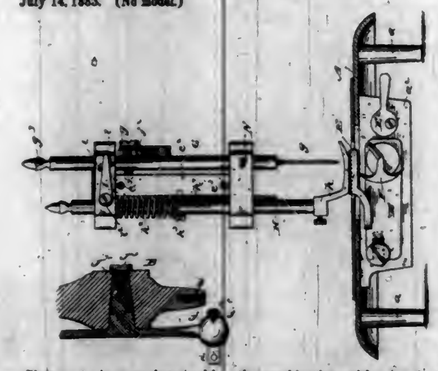
11. The cable or grip-wheels B, consisting of the disk T, the disk U, having hub *u'* and projections *u*, the notched sectoral blocks V, fitted, as shown, to the said hub and projections and interposed between the said disks, and the bolts *v*, passing through the said disks and interposed blocks simultaneously, for the purpose set forth.

312,508. BURGLAR-ALARM. FREDERICK POLITZ, Bridgeton, N. J. Filed Oct. 15, 1884. (No model.)



Claim.—In an alarm, the combination, with a suitable casing, of a cap or cartridge chamber, a cock or hammer, a mainspring, a trip, a spring for holding said trip in position, and a tumbler having a flat upper face, and reduced at its end, said tumbler also having a slot for the reception of a key, as set forth.

312,509. SEWING-MACHINE. JOHN W. POST, New York, N. Y. Filed July 14, 1883. (No model.)



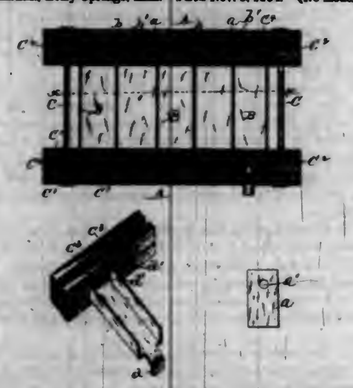
Claim.—1. In a sewing-machine, the combination, with a bracket-arm having a conical bearing, of a needle-lever having a conical fulcrum-stud formed integral therewith, said stud being slightly shorter than said bearing, and means arranged on the side of said bracket-arm opposite to the said lever for securing and adjusting said stud in said bearing, substantially as described.

2. The bracket-arm B, provided with a conical bearing, in combination with the needle-lever J, having a conical fulcrum-stud, J^2, formed integral with said lever, said stud being slightly shorter than said bearing, and the securing and adjusting screw J^3, arranged on the side of said bracket-arm opposite to the said lever, substantially as described.

3. The combination, with the head C, having a slot, of the needle and presser bars provided with pins entering said slot, and a single and adjustable device for compensating for the wear of said pins in said slot, substantially as described.

4. The combination, with the head C, having the slot *c*, of the needle and presser bars having pins entering said slot, and the adjustable and removable plate c^3, substantially as and for the purposes set forth.

312,510. SORGHUM-EVAPORATOR. DANIEL RATHER, JR., and SAMUEL RATHER, Holly Springs, Miss. Filed Nov. 5, 1884. (No model.)



Claim.—1. The combination of the pans B, having right-angular projections *d*, and the wooden troughs A, protected at bottom with asbestus and sheet metal, and the nutted bolts C, substantially as shown, and for the purpose described.

2. The combination of the wooden troughs A, protected at bottom with asbestus and sheet metal and partitioned with removable partitions *a*, having apertures *a'* and partitions *b*, pans B, having right-angular projections *d*, and nutted bolts C, substantially as shown, and for the purpose described.

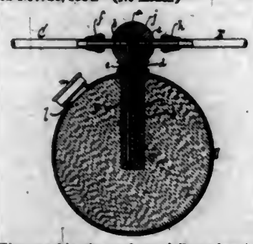
312,511. ELECTRO-MAGNET. ERNEST F. RECORDON, Paris, France. Filed Nov. 5, 1883. (No model.) Patented in France Aug. 31, 1883, No. 157,320; in Belgium Oct. 5, 1883, No. 62,796; in Italy Oct. 8, 1883, No. 15,974; in England Oct. 9, 1883, No. 4,800, and in Germany Nov. 30, 1883, No. 29,763.



Claim.—1. An electro-magnet provided with a tubular core, and at opposite ends iron cheek-pieces flattened at the side to form the acting polar faces, in combination with an armature adapted to lie parallel, or nearly so, with the core of the electro-magnet, substantially as set forth.

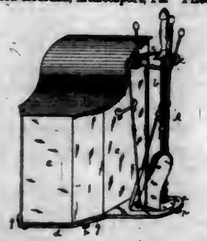
2. An electro-magnet having polar cheek-pieces composed of thin superposed plates, as set forth.

312,512. CAUTERIZING APPARATUS. FERNAND M. ROY, Jamaica, N. Y. Filed Nov. 26, 1884. (No model.)



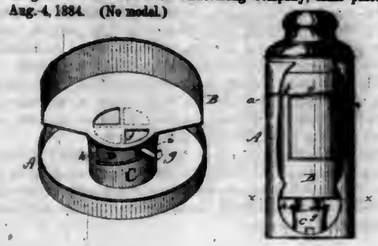
Claim.—The combination, substantially as hereinbefore described, with the carbureting-vessel, of a head from which extend two pipes down into the carbureting-vessel, a four-way cock fitted into said head, and two nipples extending from said head, one of said nipples being intended to connect with the air-supply pipe and the other forming the discharge for the carbureted air.

312,513. COMBINED FIRE-IRON STAND AND SUPPORT FOR COAL-VASES. GEORGE RUSSELL, McKeesport, Pa. Filed Mar. 26, 1884. (No model.)



Claim.—A base or support for a coal bucket or vase having an extension at one side thereof provided with a standard for supporting the fire-irons, substantially as and for the purposes set forth.

312,514. STUDENT-LAMP. STERRE RUSSELL, Waterbury, Conn., assignor to the Scovill Manufacturing Company, same place. Filed Aug. 4, 1884. (No model.)



Claim.—1. The combination of the receiver A, constructed with the spiral flange *a* upon its inner surface, with the fount B, constructed with a shoulder, *e*, inclined corresponding to the inclination of said spiral rib, substantially as and for the purpose described.

2. The combination of the tubular flange C at the bottom of the receiver constructed with an inclined recess in its upper edge, the fount provided with the valve *f* at its lower end, the arm *g*, extending from said valve into said recess in the flange C and so as to ride upon the said incline in turning the fount, substantially as described.

3. The combination of the receiver A, provided with the spiral flange *a* upon its inner surface, the fount B, constructed with a shoulder, *e*, upon its outer surface, inclined corresponding to the inclination of said spiral rib *a*, the tubular flange C in the bottom of the receiver constructed with the inclined recess in its upper edge, the valve at the bottom of the fount having an arm, *g*, extending therefrom into the said recess on the flange C and so as to ride on the inclined surface of the flange, substantially as and for the purpose described.

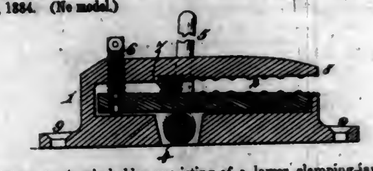
312,515. ROASTED COFFEE-BERRIES. AUGUST SCHILLING, San Francisco, Cal. Filed Aug. 14, 1884. (No specimens.)

Claim.—The herein-described product, which consists of roasted coffee-berries coated with a resinous varnish, substantially as described.

312,516. ROASTED COFFEE-BERRIES. AUGUST SCHILLING, San Francisco, Cal. Filed Aug. 14, 1884. (No specimens.)

Claim.—Roasted coffee-berries impregnated with an alkali, substantially as described.

312,517. REIN-HOLDER. CASPAR SCHOCH, Truckee, Cal. Filed July 18, 1884. (No model.)



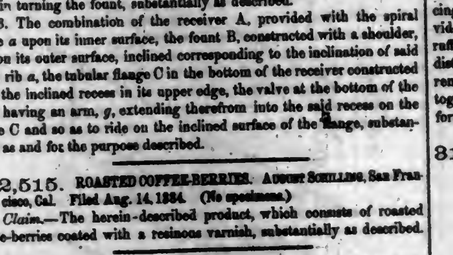
Claim.—1. A rein-holder consisting of a lower clamping-jaw laid within a casing, and resting upon a cam-shaft by which it is raised and lowered, a set-screw bearing upon the end of said jaw behind the cam-shaft, and a spring interposed between it and the upper or stationary jaw in front of the cam-shaft, the casing being slotted at one end just above the clamping-jaw to permit the insertion of the reins, and the upper part of the casing serving as the stationary jaw, substantially as described.

2. In a rein-holder, the combination, with a clamping-jaw resting upon a cam-shaft, of a set-screw bearing upon the end of said jaw behind the cam, substantially as described.

3. In a rein-holder, the combination, with a slotted casing the upper portion of which forms the stationary jaw, of a clamping-jaw laid in said casing, and resting upon a cam-shaft having bearings in the side walls of said casing, a set-screw bearing upon the rear end of the jaw, and a spring by which the end forward of the cam-shaft is thrown downward, substantially as described.

4. The combination, with the rein-holder casing 1, of lugs 10 and 12, by which the said casing may be applied to any suitable part of the wagon, substantially as described.

312,518. PANNIER AND BUSTLE. JACOB SCHOMBURG, New York, N. Y. Filed Dec. 10, 1884. (No model.)



Claim.—1. A pannier composed of ruffles provided each with distending-springs arranged in pockets in the free edges of the same, and capable of removal, and said springs connected together, as shown, by means of a strip of some suitable flexible material, whereby the springs, when removed, may remain attached to said strip in their relative positions, as set forth.

2. A pannier comprising a body fabric, a deep ruffle, *e*, at its top provided with a series of parallel distending-springs, a deep ruffle, *g*, at its bottom provided with a series of parallel distending-springs, and intermediate shallow ruffles, *h*, provided with distending-springs, all constructed and arranged substantially as described.

3. A pannier comprising a body fabric, a deep ruffle, *e*, at its top, a deep ruffle, *g*, at its bottom, intermediate shallow ruffles, *h*, and springs *a*, arranged substantially parallel to each other in said ruffles, as shown, made readily removable from their pockets, and connected permanently together by a flexible strip, *d*, substantially as and for the purposes set forth.

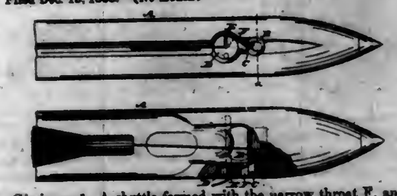
4. The combination, with a skirt, A, provided with an ordinary lacing device, *i*, of a pannier composed of a deep ruffle, *e*, at its top provided with a series of parallel and removable distending-springs, a deep ruffle, *g*, at its bottom provided with a series of parallel and removable distending-springs, and intermediate shallow ruffles, *h*, also provided with removable distending-springs, said springs being permanently connected together by a flexible strip, *d*, substantially as and for the purposes set forth.

312,519. SHIELD FOR SCARFS. GUSTAVE SELOWSKY, New York, N. Y. Filed Mar. 6, 1884. (No model.)



Claim.—The shield A, provided on its inner face with the central circular raised portion, B, integral with the body of the shield, and having the vertical key-hole slot C in the said circular raised portion, and the metal lining D, secured in the said slot, substantially as herein shown and described.

312,520. LOOM-SHUTTLE. JAMES C. SEVERSON, Philadelphia, Pa. Filed Dec. 13, 1883. (No model.)

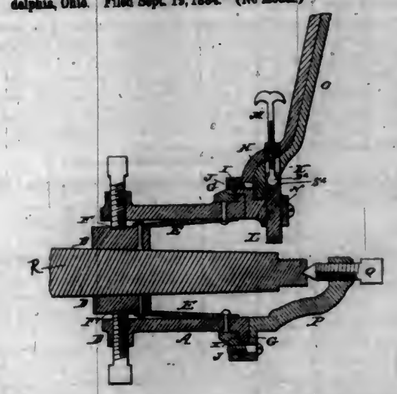


Claim.—1. A shuttle formed with the narrow throat F, and provided with a slotted eye and a slotted guide-plate, substantially as and for the purpose set forth.

2. A shuttle having a slotted eye, a narrow throat, F, and a vertically-slotted guide-plate, D, substantially as and for the purpose set forth.

3. A shuttle having a slotted eye, a narrow throat, F, and a slotted guide-plate, D, said throat leading from the slot in said eye to the slot in said plate, substantially as and for the purpose set forth.

312,521. AXLE-TRIMMING TOOL. WILLIAM R. SHARP, New Philadelphia, Ohio. Filed Sept. 19, 1884. (No model.)

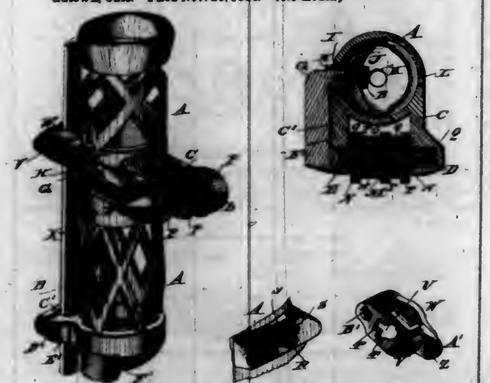


Claim.—1. In a device for trimming the spindles of vehicle-axles, a tubular sleeve or body having radial set-screws at its inner end bearing against clamping-blocks mounted upon springs that are secured interiorly near the front end of the said sleeve or body, substantially as and for the purpose set forth.

2. In a device for trimming the spindles of vehicle-axles, the sleeve or body having clamping-blocks mounted upon springs that are secured interiorly in the said sleeve or body near the front end of the same, said clamping-blocks being provided with recesses in their outer faces, in combination with the radial set-screws, the points of which bear in the recesses in the outer faces of the clamping-blocks, thereby preventing lateral displacement of the latter, substantially as and for the purpose set forth.

3. As an improvement in devices for trimming the spindles of vehicle-axles, the combination of a sleeve or tubular body having clamping-blocks mounted upon springs, and set-screws bearing against the said clamping-blocks, with a revolving cutter-head having a bracket provided with a centering-screw, a radially-sliding cutting-tool, a crank arm or handle, and a set-screw extending through the inner end of the latter and adapted to operate the cutting-tool, substantially as and for the purpose set forth.

312,522. WHIP-SOCKET. EDWARD SHORKEY and ABNER RUSH, Austintown, Ohio. Filed Nov. 20, 1884. (No model.)

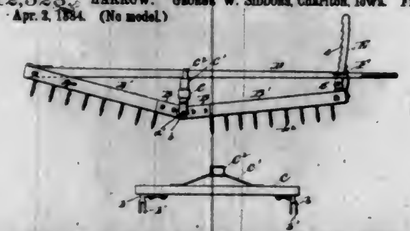


Claim.—1. The combination, with a whip-socket having an opening in one side, in which slides a socket having a clamp at its inner end, and provided with forwardly-extending ears or lugs, of a bail one arm of which is adjustable in the said ears or lugs, and provided with studs engaging a series of permutation-tumblers mounted upon the same, and the other arm of which is connected adjustably with the socket of the sliding clamp, substantially as and for the purpose set forth.

2. The combination of the whip-socket having forwardly-extending ears or brackets, the bail having one arm adjustable in the same, the permutation-tumblers arranged to lock the said bail in position, a socket sliding in an opening in one side of the whip-socket and having a clamping-plate at its inner end, and a screw inserted from the inside and accessible through an opening in the side of the whip-socket, and serving to secure the said clamping-socket adjustably to the inner or short arm of the locking-bail, substantially as and for the purpose set forth.

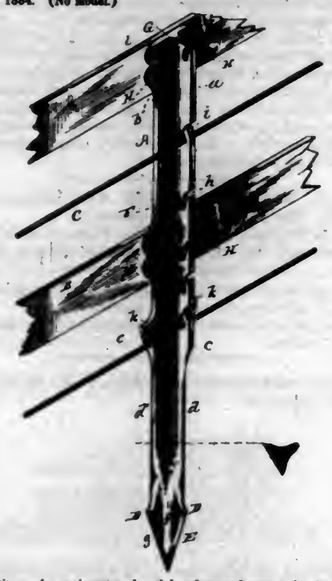
3. A whip-socket provided with means for locking the whip in position in the same, and provided with a downwardly-extending stud at its lower end, a rearwardly-extending stud having radial lugs or catches near its upper end, and perforated ears near its lower end, in combination with a clamping device for securing it to the dash-rail of a vehicle, the same consisting of a recessed block having radial notches, a plate secured to the same by means of a hook at one end and a screw inserted from the inner side of the other, and a plate adapted to be secured by screws to the perforated ears at the lower end of the whip-socket, substantially as and for the purpose herein set forth.

312,523. HARROW. GEORGE W. SIDDONS, Charlton, Iowa. Filed Apr. 2, 1884. (No model.)



Claim.—In a harrow, two sections, A' A², hinged together by plates B, and provided with teeth B², and cross-bar C, having brackets *b* and supports C', in combination with an inclined lever, D, secured to one of the sections, and provided with mortise *d'* and pin *d²*, curved rack-bar E *e*, pivoted at its lower end to the remaining section, and a spring, F, normally in contact with the rack-bar, whereby either of the harrow-sections may be raised and held at different heights from the ground and at different angles to each other, substantially as and for the purpose set forth.

312,524. FENCE-POST. JAMES L. SHOLLEY, Tipton, Ind. Filed June 27, 1884. (No model.)

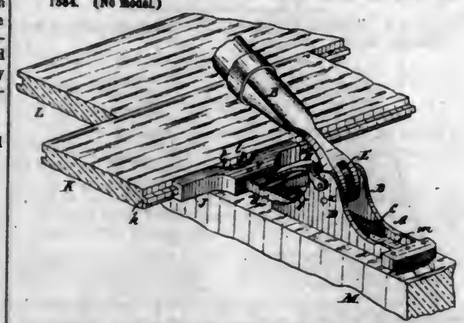


Claim.—As an improved article of manufacture, the fence-post described, formed of wrought-iron, having the rear vertical portion, G, provided with the lateral flanges, *b b*, perforated wings H, and shoulders *k*, and the forward vertical flange, *a*, having the transverse vertically-curved slots F, the respective flanges meeting each other in a greater angle from the point *c* to D to form cutting-edges, as shown and described, and the harpoon-point E, having the recesses *f f* and the straight bevel *g*, substantially as shown and described.

312,525. BLEACHING COMPOUND FOR JUTE PAPER-STOCK, &c. PETER SOUDERS, CHESTER SMITH, HORACE M. CRAIGHEAD, and NORTON SOUDERS, Riegleville, N. J. Filed Sept. 22, 1884. (Specimens.)

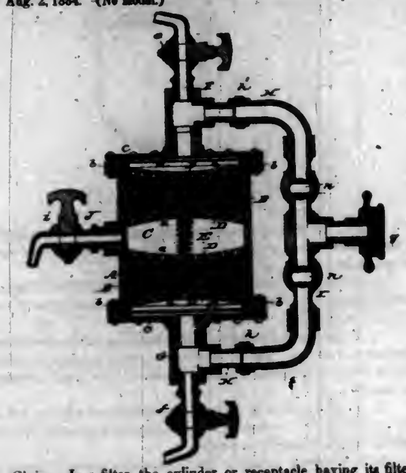
Claim.—The process of bleaching jute paper-stock which consists in mixing with the stock a composition of alum and clay raised to steam heat, and afterward adding a quantity of bleaching-powder, in the proportion and manner substantially as set forth.

312,526. FLOOR-CLAMP. THOMAS A. SOUTHWICK, Brockton, Mass., assignor to himself and M. Clair Alexander, same place. Filed Dec. 10, 1884. (No model.)



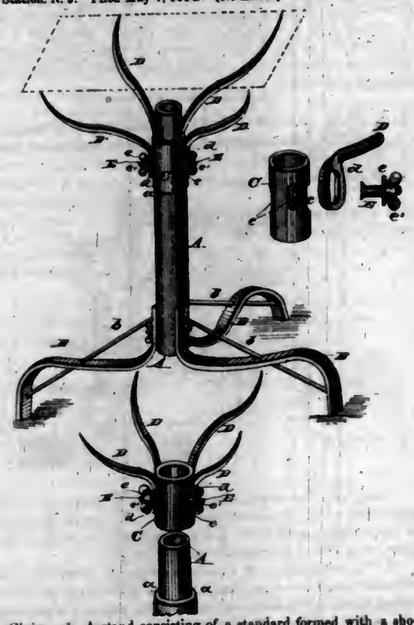
Claim.—The improved floor-clamp herein described, the same consisting of the body A, provided with the spurs *b*, ways *m*, and flanges D, the lever B, pivoted at *x* to said flanges, and provided with the pivoted pawl E, the bar C, provided with the upwardly-extending serrated flanges *d* at its edges, and the teeth *f* in its upper face, and the pivoted head-piece J, provided with the groove *z* and the scallop *t*, substantially as described.

312,527. FILTER. FRANK XAVER SPITZNAGEL, Buffalo, N. Y. Filed Aug. 2, 1884. (No model.)



Claim.—In a filter, the cylinder or receptacle having its filtering medium disposed in two masses, each being held between apertured plates, the intermediate ones of said masses being held forcibly apart by means of springs, substantially as and for the purpose set forth.

312,528. REVOLVING STAND. ELIJAH R. H. TESTER, White House Station, N. J. Filed May 7, 1884. (No model.)



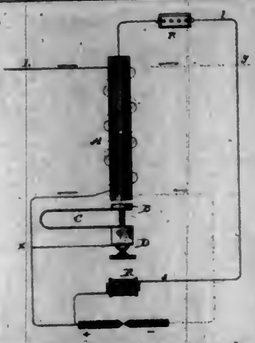
Claim.—1. A stand consisting of a standard formed with a shoulder, as described, a revolving sleeve, and independently-adjustable radial arms secured to said sleeve and projecting upwardly above the upper end of the standard, substantially as set forth.

2. A stand consisting of a standard supported upon adjustable legs and formed with a shoulder, as described, a revolving sleeve, and a series of radial upwardly-projecting arms secured to said sleeve, each of said arms being independently adjustable, substantially as set forth.

312,529. CUT-OUT FOR ELECTRIC LAMPS. WILLIAM M. THOMAS, Grand Rapids, Mich., assignor of one-half to the Grand Rapids Electric Light and Power Company, same place. Filed Apr. 17, 1884. (No model.)

Claim.—1. The combination, substantially as set forth, of a main line, the carbons of an electric lamp placed in a loop of the main line, an electro-magnet or core which is wound with both legs or branches of

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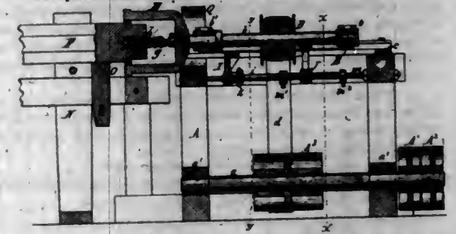
the loop in which the lamp is placed, an armature for said magnet, and a shunt-circuit which is automatically completed by the attraction of said armature when the arc length or resistance in the lamp exceeds a certain limit.

2. The combination, substantially as set forth, of a main line, the carbons of an electric lamp placed in a loop of the main line, an electro-magnet or core which is wound with both legs or branches of the loop in which the lamp is placed, an armature for said magnet, a shunt-circuit which is completed by the attraction of said armature, a suitable resistance in said shunt-circuit, and a second ordinary shunt-circuit of relatively high resistance, for the purpose set forth.

3. The combination, substantially as set forth, of a main line, the carbons of an electric lamp placed in a loop of the main line, an electro-magnet or core which is wound with both legs or branches of the loop, an armature for said magnet, a shunt-circuit which is completed by the attraction of said armature, and a resistance in said shunt-circuit.

4. The combination, substantially as set forth, of a main line, the carbons or an electric lamp placed in a loop of the main line, a shunt around the lamp, electro-magnetic cut-out devices included in both legs of the main line loop for completing the shunt when the arc length of resistance of the lamp has been abnormally increased, and means for adjusting the cut-out devices to act at a given length of arc in the lamp.

312,530. TENONING AND BORING MACHINE. RICHARD TRILLER, Buffalo, N. Y., assignor to the John T. Noye Manufacturing Company, same place. Filed Jan. 14, 1884. (No model.)



Claim.—The combination, with the clamp N, of the frame A, provided with horizontal guides *c*, the carriage B, provided with screw-nut J, the shaft *b*, provided with cutter-head E and auger *g*, the feed-screw *i*, the shaft *l*, arranged at right angles to the feed-screw, and provided with a hand-wheel, L, the bevel-wheels *k k'*, connecting the shaft *l* with the feed-screw, stops *m' m²*, driving-shaft *n*, and driving-belt *d*, substantially as set forth.

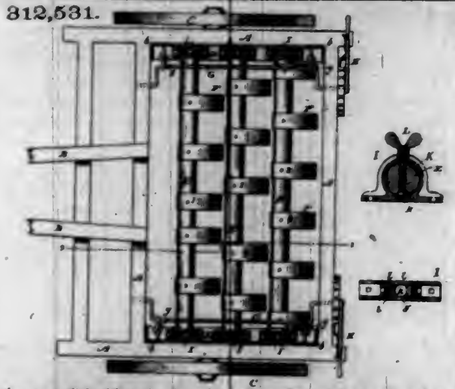
312,531. HARROW-CULTIVATOR. WILLIS H. TUTTLE and R. WATSON BENEDICT, Perry, N. Y., assignors to said Tuttle. Filed June 5, 1882. (No model.)

Claim.—1. The combination of the centrally-open main frame, the inside frame, mechanism for raising and lowering the inside frame into different horizontal working planes parallel with each other, and the vibratory spring-teeth carried by the inside frame, substantially as and for the purpose set forth.

2. The combination, substantially as hereinbefore set forth, of the main frame, the tooth-carrying frame supported within the main frame and having a series of teeth arranged in transverse rows thereon, and means for vertically and independently adjusting the tooth-carrying frame at its opposite ends, whereby the series of teeth may be secured in any desired horizontal or inclined position by the adjustment of the one frame within the other, as explained.

3. The combination of the main frame, a tooth-carrying frame, a series of vibratory spring-teeth carried thereby, mechanism for raising and lowering the tooth-carrying frame into different horizontal working

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planes parallel with each other, the rocking bars of the tooth-carrying frame which separate the teeth into independent rows or gangs, and mechanism for adjusting the rocking tooth-bars independently of the vertical adjustment by rolling them in their bearings, substantially as and for the purpose set forth.

4. The combination of the main frame, the tooth-carrying frame, consisting of the rocking tooth-bars and their supporting-bars, in which the tooth-bars have their bearings, vibratory spring-teeth carried by the rocking tooth-bars, and raising and lowering mechanism connected to the supporting-bars of the tooth-frame, for raising and lowering said frame to different parallel horizontal working planes, substantially as and for the purpose set forth.

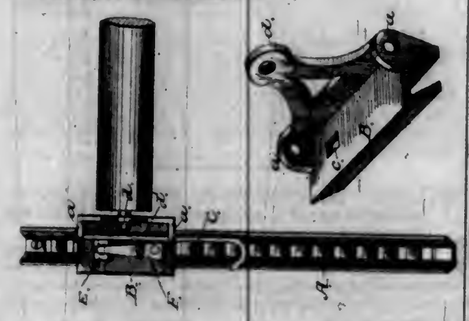
5. The combination, substantially as hereinbefore set forth, of the main frame, the tooth-carrying frame, the teeth mounted in independently-rocking gangs or rows, and means for vertically and independently adjusting the tooth-carrying frame at its opposite ends.

6. The combination of the centrally-open main frame, the vertically-adjustable tooth-carrying frame supported and guided in its movements within the main frame, the independent rock-shafts, their levers and detent devices for independently operating the shafts, and the connections between the rock-shafts and the ends of the tooth-carrying frame, substantially as and for the purpose hereinbefore set forth.

7. The combination of the centrally-open main frame, the independent rock-shafts, their levers and detent devices for independently operating the shafts, the guideways at the corners of the main-frame opening, and the tooth-carrying frame linked to the rock-shafts, vertically adjustable in the main-frame opening and guided by said guideways, substantially as hereinbefore set forth.

8. The combination of the rocking tooth-carrying bar, the supporting-bars, the slotted and recessed bones secured to the supporting-bars, the bolts secured to the ends of the rocking bars, and the thumb-nuts, substantially as hereinbefore set forth.

312,532. CURTAIN-FIXTURE. PETER VON LACKUM, Waterloo, Iowa. Filed July 24, 1884. (No model.)



Claim.—1. The strip A, V-shaped in cross-section and provided with a rack, in combination with a vertically-sliding block having converging sides and bearings for the curtain-roll and keys, and an opening, *c*, substantially as described.

2. The block B, constructed and arranged as described, in combination with a key provided with an arm, *f*, and a projection, *e*, and a spring for holding said arm in contact with the rack, substantially as set forth.

312,533. TELEPHONE. THOMAS WALLACE, New York, N. Y. Filed Jan. 8, 1885. (No model.)

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Claim.—1. A telephone-instrument consisting of a resonant body, a bar of carbon supported in carbon-bearings, and a weighted covering or casing for said bar, substantially as described.

2. A telephonic receiver consisting of a weighted bar of carbon supported in carbon-bearings, in connection with a resonating body, substantially as described.

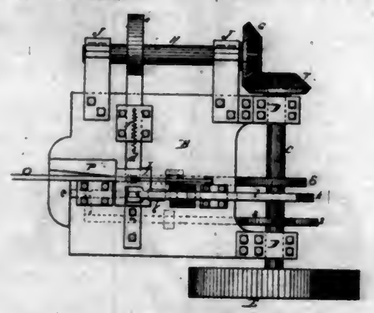
3. A combined transmitting and receiving telephone-instrument, consisting of a rod of carbon supported in carbon-bearings, in connection with a resonating body and suitable mouth and ear pieces, substantially as described.

4. A contact-piece for telephones, consisting of a bar or rod of carbon or similar low conducting material having a covering or casing of metallic foil, substantially as described.

5. A telephonic system or line embracing a galvanic circuit including two or more telephone-instruments, each consisting of a weighted carbon bar supported in bearings, in connection with a resonant body, and adapted to act both as a transmitter and receiver, whereby speech may be transmitted and received without the use of magnets, coils, or inductoriums, substantially as set forth.

6. The combination, with a charged line-circuit, of a transmitter consisting, essentially, of a carbon rod supported in carbon-bearings upon a resonant body arranged in the main galvanic circuit, and a receiver consisting of a similar carbon rod supported in carbon-bearings, and connected to a resonant body in a branch circuit around the transmitter, substantially as described.

312,534. MACHINE FOR MAKING CLIP-YOKES. WILLIAM S. WARD, Plantsville, Conn., assignor to H. D. Smith & Co., same place. Filed July 30, 1884. (No model.)



Claim.—1. The combination of the die M, having a cavity, N, upon its under side, shaped corresponding to the face of the clip-yoke, the reciprocating punch R, the slide *d*, abutment *n*, the slides *r t* at right angles to the slide *d*, substantially as described.

2. The combination, of the die M, having a cavity, N, upon its under side, shaped corresponding to the face of the clip-yoke, the reciprocating punch R, the slide *d*, abutment *n*, the slides *r t* at right angles to the slide *d*, and the vertically-reciprocating punches *h h*, substantially as and for the purpose described.

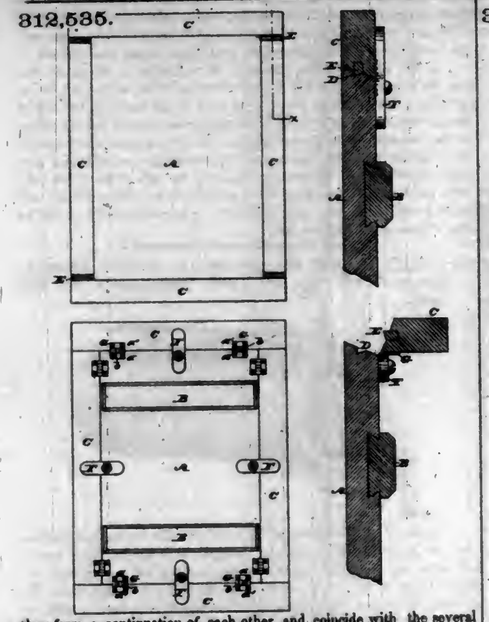
3. The combination of the die M, having a cavity, N, upon its under side, shaped corresponding to the face of the clip-yoke, the reciprocating punch R, the slide *d*, abutment *n*, the slides *r t* at right angles to the slide *d*, with the follower 7, substantially as described.

4. The combination of the die M, having a cavity, N, upon its under side, shaped corresponding to the face of the clip-yoke, the reciprocating punch R, the slide *d*, abutment *n*, the slides *r t* at right angles to the slide *d*, the follower 7, and the vertically-reciprocating punches *h h*, substantially as described.

312,535. DRAWING-BOARD. FREDERICK WEBER, Philadelphia, Pa. Filed Oct. 1, 1884. (No model.)

Claim.—1. A drawing-board having bars hinged to the sides thereof, so as to fold to the rearward, and of such length that when raised

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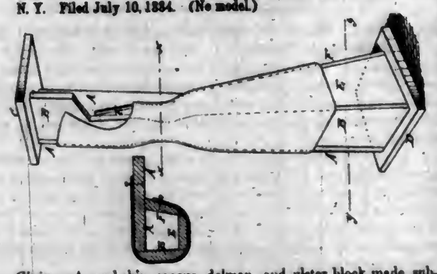
they form a continuation of each other and coincide with the several sides of the board, substantially as and for the purpose set forth.

2. A drawing-board having bars hinged to the sides and forming an extension thereof, the contiguous parts of the board and bars having tongues and grooves, whereby, when the paper is fitted to the board, the portion of the same over the sides thereof is forced by the tongues into the grooves, and the paper is thereby stretched, substantially as and for the purpose set forth.

3. A drawing-board having bars connected with the sides thereof by means of hinges, the butts whereof having their knuckles cut away, as stated, so as to permit the board to shrink without being resisted by the hinges, substantially as set forth.

4. The board A, having grooves D and pivoted buttons F, in combination with side bars, G, connected to said board by hinges and forming an extension thereof, the said hinges having the knuckles of one of the butts cut away, substantially as and for the purpose set forth.

312,536. SEAL-SKIN SACQUE, DOLMAN, AND ULSTER BLOCK. PHILIP WEINBERG, LOUIS CLARK, Jr., and EGBERT WINKLER, New York, N. Y. Filed July 10, 1884. (No model.)

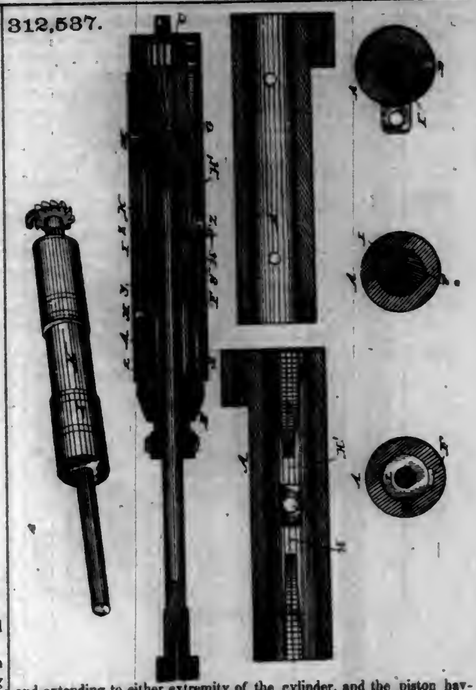


Claim.—A seal-skin sacque, dolman, and ulster block made substantially as herein shown and described, and consisting of three or more boards secured to each other at their adjacent edges and attached at their ends to end boards, the adjacent edges of two or more of the boards being tapered, one or more of the boards being inclined inward, and the part of the block that corresponds with the waist of the garment being concaved at the edges and sides of the boards to adapt the block to be used for forming a seal-skin garment without darts, as set forth.

312,537. ROCK-DRILL. CHARLES S. WHITEBROOK, Sprague ville, N. Y. Filed June 16, 1884. (No model.)

Claim.—1. In a valveless cylinder for use in rock-drills, steam-hammers, and other forms of engines, the hereinbefore-described combination, consisting of the cylinder, the inlet and exhaust ports, substantially as described, the feed-ports cut in the form of open grooves on the inner surface of the cylinder, and commencing near the inlet-port

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and extending to either extremity of the cylinder, and the piston having a recess at or near its middle, arranged to connect the port alternately with both of the feed-ports.

2. In a valveless cylinder for use in rock-drills, steam-hammers, and other forms of engines, the hereinbefore-described combination, consisting of the cylinder, the inlet-port, substantially as described, the feed-ports cut in the form of open grooves on the inner surface of the cylinder and extending from a point near said inlet-port to either end of the cylinder, the exhaust-port on the opposite side of the cylinder, and the piston with a recess at or near its middle, arranged to alternately connect the inner ends of the feed-port with the inlet-port and to uncover the exhaust-ports at the end of each stroke.

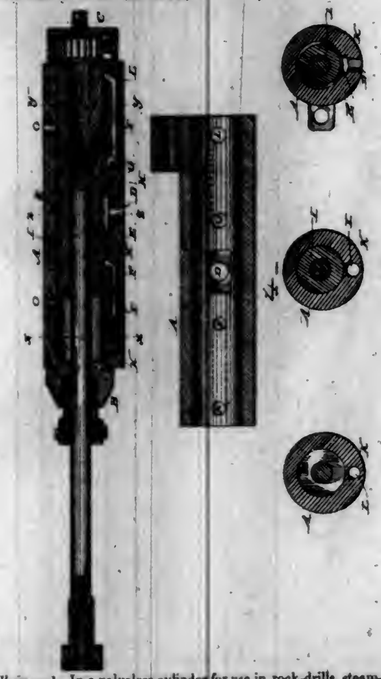
3. In a valveless cylinder for use in rock-drills, steam-hammers, and other forms of engines, the hereinbefore-described combination, consisting of the cylinder, the inlet port at or near its middle formed into a recess in its inner wall, the feed-port cut in the form of open grooves or channels in its inner walls, extending from a point near said recess, separated therefrom by shoulders or bridges to either end of the cylinder, the exhaust-ports, substantially as shown, and the piston having an annular recess at or near its middle, arranged to connect the feed-ports alternately with the inlet-ports and to alternately uncover the exhaust-ports at the end of each stroke.

4. In a valveless cylinder for use in rock-drills, steam-hammers, and other forms of engines, the hereinbefore-described combination, consisting of the cylinder, the inlet-port formed into a recess in its side walls at or near its center, the feed-ports cut in the form of open grooves or channels at its side walls, extending from a point near said recess, separated therefrom by bridges or shoulders to either end of said cylinder, and increasing in dimensions at either end, the exhaust-ports, substantially as described, and the piston with an annular recess at or near its middle, arranged alternately to connect the feed-ports with the inlet-ports and to uncover the exhaust-ports at the end of each stroke.

5. In a valveless cylinder for use in rock-drills, steam-hammers, and other forms of engines, the hereinbefore-described combination, consisting of the cylinder, the inlet-port formed into a recess in its inner wall, the exhaust-ports, substantially as shown, the feed-ports in the form of open channels or grooves cut in its inner wall, commencing near said recess and separated therefrom by bridges or shoulders, and extending toward either extremity of the cylinder, said feed-ports at the forward end being shorter and of smaller dimensions than that at the other end, and the piston having an annular recess at or near its center, arranged alternately to connect the feed-ports with the inlet-ports and to uncover the exhaust-ports at the end of each stroke.

6. In a valveless steam-cylinder, the herein-described cylinder-ports, in combination with the piston, said feed-ports increasing in area as they are uncovered by the piston throughout its stroke, admitting the impelling medium in gradually-increasing volume to act upon the piston, as and for the purpose shown and set forth.

312,538. ROCK-DRILL. CHARLES S. WESTBROOK, Sprague ville, N. Y. Filed June 16, 1884. (No model.)



Claim.—1. In a valveless cylinder for use in rock-drills, steam-hammers, and other forms of engines, the hereinbefore-described combination, consisting of the cylinder, the inlet-port formed into a recess in the inner wall of the cylinder, the feed-ports consisting of channels in the side walls of the cylinder the extremities of which open into its hollow interior at either end and on either side of the inlet and are separated therefrom by shoulders or bridges, the feed-port and channel at the rear end of said cylinder being of larger dimensions and of greater carrying capacity than the forward port and channel, and the exhaust-ports in the side walls of said cylinder.

2. In a valveless cylinder for use in rock-drills, steam-hammers, pumps, &c., the hereinbefore-described arrangement of the cylinder ports and piston, whereby a portion of the impelling medium will be admitted into the forward or lower end of the cylinder before the end of the forward or downward stroke of the piston, for the purposes set forth.

312,539. SUPPORT FOR ROCK-DRILLS. CHARLES S. WESTBROOK, Sprague ville, N. Y. Filed Oct. 20, 1884. (No model.)

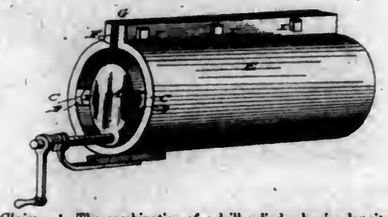


Claim.—1. In a support for rock-drills, the combination of the cradle or carriage constructed with the fixed guide-groove on one side and the flat-topped flanged ledge or lateral projection on the opposite side, having oblong bolt-holes, the laterally-adjustable guide-plate, the bolts connecting the same movably to the flanged projection, the wedge disposed between the adjustable guide-plate and the flange on the projection, and of a length approximating the length of the cradle, and the holding-plate which overlaps the wedge, substantially as and for the purpose shown and set forth.

2. The combination, in a support for rock-drills, of the saddle having transverse apertures adapted to receive the keys M, the trunnion-bolts, the keys fixing the same rigidly to the saddle, the collared yoke or fork of the back leg, the hips of the side legs having projections fitting into said collars, the centrally-perforated binding-plates having inclined planes on opposite sides of the central aperture, and the fixed keys, against which said inclined planes bear on diametrically-opposite sides of the central trunnion, substantially as and for the purpose shown and set forth.

3. The combination, in a support for rock-drills, of the saddle, the keys M, inserted transversely through the sides of the saddle and the inner ends of the trunnions, the collared yoke of the back leg, the hips of the side legs, the centrally-perforated binding-plates having inclined planes on opposite sides of the central aperture, the keys against which said inclined planes bear, the trunnions having a central screw-threaded bore and a transverse slot intersecting the same, the gibs inserted into said slots, and the screws working in the central recess in the trunnions and bearing with their inner ends against the gibs, substantially as and for the purpose shown and set forth.

312,540. SUPPORT FOR ROCK-DRILLS. CHARLES S. WESTBROOK, Sprague ville, N. Y. Filed June 19, 1884. Renewed Jan. 23, 1885. (No model.)



Claim.—1. The combination of a drill-cylinder having longitudinal ribs upon its sides with a shell inclosing the cylinder, having a longitudinal flanged slot extending from one to another, and having ways for the reception of the ribs of the cylinder upon its inside, and means for drawing the flanged edges of the slot closer together or farther apart, as and for the purpose shown and set forth.

2. The combination of a drill-cylinder, ribs secured upon the sides of the cylinder parallel with the axis of the same, a shell having a longitudinal slot having flanged edges, means for adjusting the said flanged edges closer together or farther apart, and ways secured upon the inner side of the shell registering with and receiving the ribs upon the sides of the cylinder, as and for the purpose shown and set forth.

3. The combination of a drill-cylinder, ribs upon the side of the same parallel to its axis and having convex faces, a shell having a longitudinal slot, means for drawing the edges of this slot closer together or farther apart, and ways secured upon the inner sides of the shell registering with the ribs upon the cylinder and having concave faces, as and for the purpose shown and set forth.

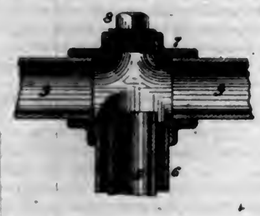
4. The combination of a drill-cylinder having longitudinal ribs parallel with its axis, a shell inclosing the said cylinder, having a longitudinal slot extending from one end to the other, and provided at its edges with outwardly-projecting flanges having perforations, and nutted bolts passing through the said perforations, as and for the purpose shown and set forth.

312,541. MEANS FOR DETECTING LEAKS IN GAS-MAINS. GEO. WESTINGHOUSE, Jr., Pittsburg, Pa. Filed Jan. 21, 1885. (No model.)

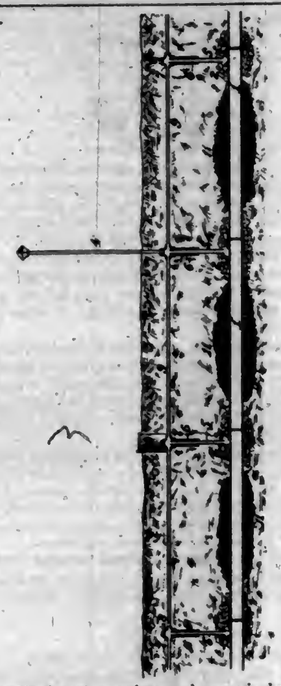
Claim.—1. The combination of an underground gas-main, a line of waste-gas-conducting pipe, a series of leakage-pipes extending from points adjacent to the main to the conducting-pipe, and a detector-pipe leading from the conducting-pipe to a point above the level of the ground, substantially as set forth.

2. The combination of an underground gas-main, a line of waste-gas-conducting pipe laid above said main, a series of leakage-pipes extending from points adjacent to the main to the conducting-pipe, a detector-pipe leading from the conducting-pipe to a point above the level of the ground, and a series of removable caps or plugs, each secured in an opening in the conducting-pipe adjacent to one of the leakage-pipes, substantially as set forth.

3. The combination, with the conducting-line, of a coupling, a downwardly-extending socket-pipe connected thereto, a leakage-pipe fitting freely within the socket-pipe, and a removable cap or plug secured in the coupling above the socket-pipe, substantially as set forth.

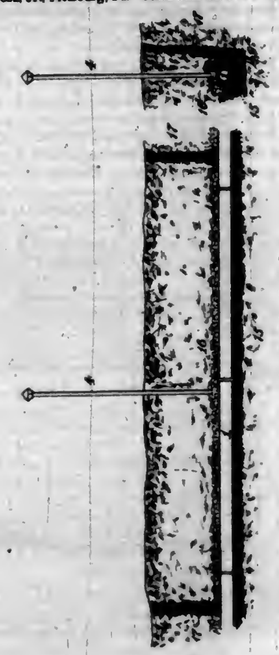


312,541.



4. The combination of an underground gas-main, bodies of loose packing having a series of intercommunicating recesses and surrounding joints or branch connections in the main, a series of leakage-pipes, each extending from one of said bodies of loose packing to a line of waste-gas-conducting pipe, a detector-pipe leading from said conducting-pipe to a point above the level of the ground, and a series of bodies of tight packing surrounding the sections of the main between the bodies of loose packing thereof, substantially as set forth.

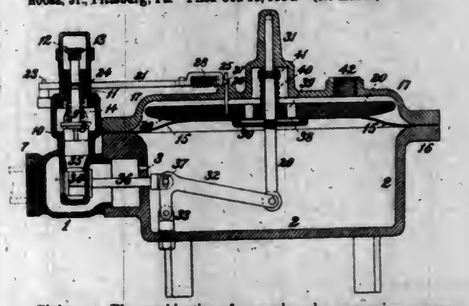
312,542. MEANS FOR DETECTING LEAKS IN GAS-MAINS. GEO. WESTINGHOUSE, Jr., Pittsburg, Pa. Filed Jan. 21, 1885. (No model.)



Claim.—1. The combination, with an underground gas-main, of a continuous bed or partial casing of material opposing a greater resistance to the passage of gas than the earth through which the main passes, and inclosing the lower and side portions of the main, a packing of material having intercommunicating interstices or spaces, said packing extending continuously for a determined length of the main and inclosing the main above the bed, and a detector-pipe leading from said packing to a point above the surface of the ground, substantially as set forth.

2. The combination, with an underground gas-main, of a continuous bed or partial casing of material opposing a greater resistance to the passage of gas than the earth through which the main passes, and inclosing the lower and side portions of the main, a packing of material having intercommunicating interstices or spaces, said packing extending continuously for a determined length of the main and inclosing the main above the bed, a leakage-guard of material of analogous character to that of the bed and extending vertically therefrom outside of the superposed packing, and a detector-pipe leading from the packing to a point above the level of the ground, substantially as set forth.

312,543. PRESSURE-REGULATOR AND CUT-OFF. GEO. WESTINGHOUSE, Jr., Pittsburg, Pa. Filed Oct. 18, 1884. (No model.)



Claim.—1. The combination of a supply-valve governing communication between a supply and a delivery pipe, a stop device adapted to maintain said valve in open position, and a movable abutment subject on opposite sides, respectively, to the pressure of fluid delivered past the supply-valve and to the action of a weight or spring, and adapted to release the stop of the supply-valve by movement of the abutment effected by cessation of the fluid-supply, substantially as set forth.

2. The combination of a supply-valve governing communication between a supply and a delivery pipe, a stop device adapted to maintain said valve in open position, a movable abutment subject to the pressure of fluid delivered by the supply-valve and to the action of a weight or spring, and provided with a bearing which holds the stop in engagement with the supply-valve during the continuance of fluid-supply, a regulating-valve governing communication between the supply-valve and delivery-pipe, and a stem actuated by the movable abutment and coupled to said regulating-valve, substantially as set forth.

3. The combination of a valve-casing having supply and delivery openings, a supply-valve governing communication between said openings, a stem fixed to said valve and passing through the casing, a latch-lever pivoted to the casing and carrying a stop-pin engaging a groove in the valve-stem, a movable weighted abutment working in a chamber communicating with the delivery-passage of the supply-valve, and a cut-off pin fixed to said abutment and bearing against the latch-lever, substantially as set forth.

4. The combination of a valve-casing having supply and delivery openings, a supply-valve governing communication between said openings, a regulating-valve seated in a chamber interposed between the supply-valve and delivery-openings, a pressure-chamber communicating with the space between the regulating-valve and delivery-chamber, a movable weighted abutment working in said chamber, a stop device adapted to maintain the supply-valve in open position and to be released therefrom by the movement of said abutment, and a stem connected to said abutment and coupled to the regulating-valve, substantially as set forth.

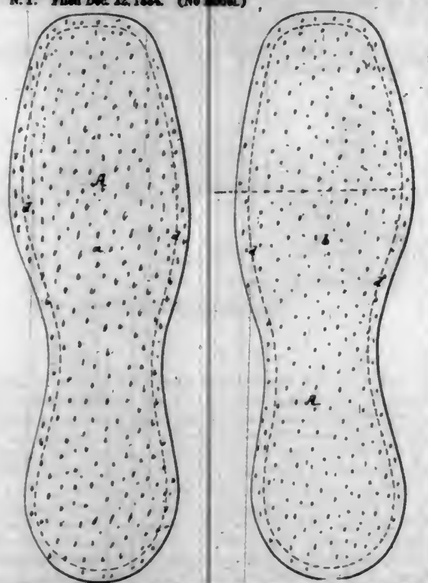
5. The combination of a valve-casing having supply and delivery openings, a pressure-chamber communicating with said casing, a flexible diaphragm fitted in said chamber and having one or more openings adjacent to its center, a pressure-plate resting upon the diaphragm and having passages corresponding with the openings thereof, a stem passing freely through the diaphragm and pressure-plate and carrying a disk adapted to cover the openings thereof, a spring interposed between the pressure-plate and a stop on the stem, and a lever pivoted to a support on the pressure-chamber and coupled to the stem and to the regulating-valve, substantially as set forth.

6. The combination of a valve-casing having supply and delivery openings, a supply-valve governing communication between said openings, a pivoted latch-lever carrying a stop-pin engaging a groove in the

stem of the supply-valve, and a latch fitted to slide upon said lever and to bear against a cut-off pin fixed upon an abutment which is movable perpendicularly to the lever, substantially as set forth.

7. The combination of a valve-casing, a supply-valve, and a regulating-valve fitting seats therein, a pressure-chamber communicating with the valve-casing, a movable weighted abutment perforated adjacent to its center and working in said chamber, a lever pivoted to the casing and carrying a stop-pin engaging a groove in the supply-valve stem, a cut-off pin fixed to the movable abutment and bearing against the free end of the lever, a stem connected to the abutment with the capacity of a limited degree of movement of the abutment independently of the stem, a plate fixed on said stem and adapted to cover the perforations of the abutment, and a double-armed lever coupled to said stem and to the regulating-valve, and pivoted to a fixed support, substantially as set forth.

312,544. REVERSIBLE CORK SOLE. DAVID S. YEOMAN, Brooklyn, N. Y. Filed Dec. 22, 1884. (No model.)



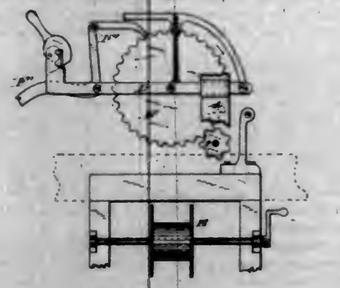
Claim.—The sole A, having two outer layers, *a b*, of cork and an intermediate layer, *c*, of felt or analogous substance, substantially as herein shown and described.

312,545. KEY. JOHN H. EMLEN, Philadelphia, Pa. Filed Nov. 6, 1884. (No model.)

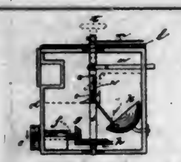


Claim.—As a new article of manufacture, a key having a detachable name-plate, all substantially as described.

312,546. TYPE-WRITING MACHINE. JOSEPH C. ALLEN, Plainfield, N. J. Filed Mar. 10, 1884. (No model.)



312,546.



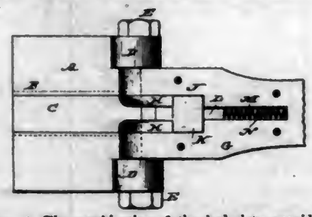
Claim.—1. In a type-writing machine, alarm mechanism, substantially as described, and means, substantially as described, adapted to actuate said alarm mechanism and to move the paper forward simultaneously, said parts being arranged and combined substantially as set forth.

2. In a type-writing machine, the combination of a wheel, F, connected with mechanism, substantially as described, adapted to move the wheel forward, a train of mechanism, substantially as described, connecting said wheel with a bell-hammer and a bell, said parts being arranged and adapted to operate substantially as and for the purposes set forth.

3. In combination, in a type-writing machine, the wheel F, connected with mechanism, substantially as described, adapted to move the paper forward, a train of mechanism, substantially as described, connecting said wheel with a bell-hammer, a bell, a dial, and an indicating-hand, all arranged and adapted to operate substantially as and for the purposes set forth and shown.

4. In a type-writing machine, the combination, with the ratchet or cog F, of the cog or pinion *e*, shaft *f*, gears *g h*, shaft *i*, mechanism, substantially as described, adapted to raise the hammer *j*, and said hammer, the bell *k*, the dial *l*, and indicating-hand *m*, all arranged and operating substantially as and for the purposes set forth and shown.

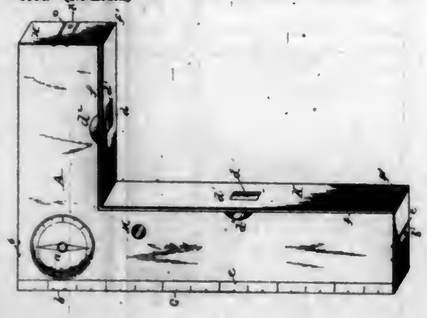
312,547. MACHINE FOR BENDING THE ENDS OF BARS. ANDERS ANDERSEN, Copenhagen, Denmark, assignor to the Kjöbenhavns Hestesko-fabrik, same place. Filed June 28, 1884. (No model.)



Claim.—1. The combination of the bed-plate provided with the perforated lugs or ears at one end, the vertically-reciprocating plunger or presser-foot, the bifurcated lever hinged with its ends between the perforated lugs upon the bed-plate, and having the longitudinal recess, and the spring-cushioned plunger or sliding block sliding in the said recess, as and for the purpose shown and set forth.

2. The combination of the bed-plate having the longitudinal groove or recess and the removable steel plate in the said recess, and having the transversely-perforated lugs or ears at one end, the vertically-reciprocating plunger or presser-foot having the longitudinal recess in its lower end, the block sliding in the said recess, means for adjusting the said block, as described, the bifurcated lever hinged with its ends between the perforated lugs of the bed-plate, having the steel blocks upon the inner faces of its ends, having the enlarged groove and the narrow groove at the inner end of the same, the removable plate covering the said grooves, the plunger having the reduced outer end, the enlarged middle portion, and the reduced inner end, and the spiral spring placed in the inner groove and bearing against the end of the plunger, as and for the purpose shown and set forth.

312,548. LEVEL. JOHN W. ATKINSON, Boston, Ark. Filed June 5, 1884. (No model.)

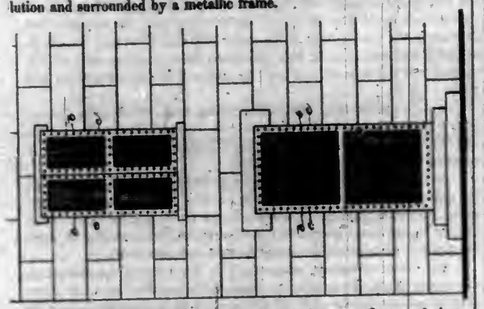


Claim.—1. A leveling and surveying instrument having an L-shaped body, A, with openings M and d^2, plate K, and measuring-rule G, north and south compass *a*, set in the face of said body A, graduated sliding sights *b b*, working up and down in slides *c*, and spirit-levels *d d*, substantially as shown and described.

2. A leveling and surveying instrument having the L-shaped body A, north and south compass *a*, set in the face of said body A, graduated sliding sights *b*, working up and down in slides *c*, spirit-levels *d d*, and face-plates *f'*, substantially as shown and described.

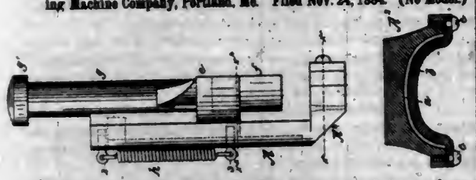
312,549. FIRE-PROOF SHUTTER. CHARLES F. BRESNAN, Boston, Mass., assignor of three-fourths to D. Austin Brown, trustee, same place. Filed May 12, 1884. (No model.)

Brief.—Consisting of panels of asbestus treated with fire-proof solution and surrounded by a metallic frame.



Claim.—As an improved article of manufacture, a fire-proof shutter or door composed of asbestus material rendered fire and water proof, and of a metal frame, substantially as set forth.

312,550. NAILING APPARATUS FOR LASTING BOOTS OR SHOES. MATTHIAS BROCK, Boston, Mass., assignor to the McKay & Copeland Lasting Machine Company, Portland, Me. Filed Nov. 24, 1884. (No model.)



Claim.—In a nailing apparatus for lasting boots and shoes, a frame or standard having an attached nose provided with an elongated curved throat, combined with an overhanging reciprocating driver having its lower end bent or curved to enter and fit the elongated curved throat, to thereby drive a fastener having an elongated head and two or more prongs, substantially as described.

312,551. LANTERN. EVAN F. CASE, Bellaire, Ohio, assignor of two-thirds to Rachel A. Mercer and David Rankin, same place. Filed June 20, 1882. (No model.)



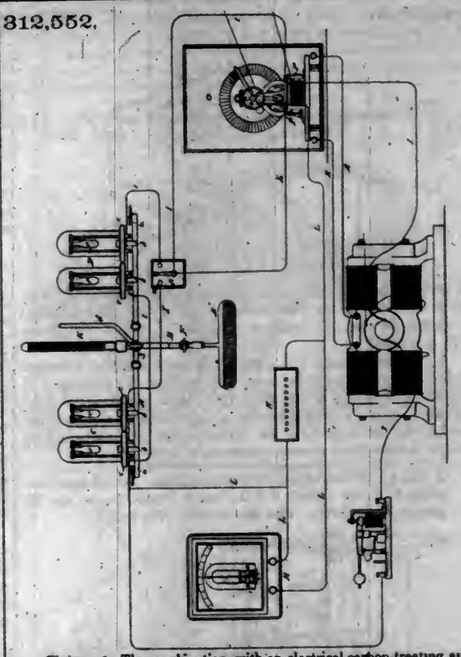
Claim.—1. In a lantern, the combination, with the globe-band C, globe D, and air-supply opening E between the same, of the unobstructed air-chambers K and K', separated by the perforated disk G, substantially as and for the purpose set forth.

2. In a lantern, the combination, with the base J, having the air-chamber K and jacket L, of the hinged globe-band C, perforated disk G, provided with jacket H, inclined deflector H', and air-opening E, substantially as described and shown.

3. In a lantern, in combination with the globe, the guard-extensions *d d d d*, upon which the globe rests, substantially as described.

312,552. APPARATUS FOR TREATING CARBONS FOR INCANDESCENT ELECTRIC LIGHTS. EDWARD A. COLBY, Newark, N. J., assignor to the United States Electric Lighting Company, New York, N. Y. Filed July 18, 1884. (No model.)

312,552.



Claim.—1. The combination, with an electrical carbon-treating apparatus and a generator for supplying current to the carbon-conductors under treatment, of mechanism for lowering the electro-motive force developed by the generator as the resistance of the carbons is reduced, the said mechanism being operated or controlled by the electric current of the generator, in substantially the manner herein set forth.

2. The combination, with an electrical carbon-treating apparatus and a dynamo-electric machine for supplying the current to the carbon-conductors under treatment, of a variable resistance in the field-circuit of the machine, and an electro-magnetic regulator for varying said resistance, as herein set forth, according to the resistance of the carbon-conductors, the regulator being operated or controlled by the electric current of the generator, in substantially the manner described.

3. The combination, with an electrical carbon-treating apparatus and a dynamo-electric machine for supplying current to the carbon-conductors under treatment, of means for varying the electro-motive force developed by the machine, and an electro-magnet and armature for controlling said means, the magnet being wound oppositely with two coils included, respectively, in the main circuit of the machine and in a shunt-circuit around the carbons, as and for the purpose herein set forth.

4. The combination, with a dynamo-electric machine, a circuit, and two or more carbon-conductors included in series in the circuit and surrounded by a hydrocarbon vapor, of a rheostat included in the field-circuit of the machine, and a differentially-wound electro-magnetic regulator operated or controlled by opposing action of the current in the circuit including the carbons and that in a shunt around them for varying or operating the rheostat, in substantially the manner herein specified.

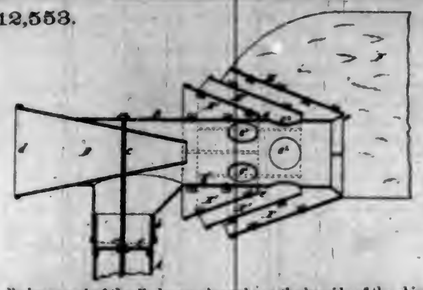
5. The combination, with a dynamo-electric machine, a circuit, and carbon-conductors included in the circuit and surrounded by a hydrocarbon gas or vapor, of mechanism for varying the electro-motive force developed by the machine, a differentially-wound magnet, the coils of which are included, respectively, in the circuit containing the carbons and in a shunt around them for controlling the said mechanism, and an electro-magnetic cut-out for interrupting the circuit through the carbons, all substantially as herein set forth.

6. The combination, with a dynamo-electric machine, a circuit, and carbon-conductors included in the circuit, of a rheostat in the field-circuit of the machine, a differentially-wound magnet with the coils included, respectively, in the circuit with the carbons and in a shunt around them, and a pivoted armature with retractile spring for operating or varying the rheostat, in substantially the manner described.

312,553. CHIMNEY-COWL. WILLIAM E. COOPER, Dunkirk, N. Y., assignor of one-half to Marshall L. Hinman, same place. Filed Nov. 23, 1883. (No model.)

Claim.—1. The combination, with a vertical chimney or flue, of a rotating cowl composed of a horizontal discharge-pipe open at its lee end, a horizontal air-jet pipe or cone fitted tightly in the windward end of the discharge-pipe, and a supplementary exhaust pipe or cone surrounding

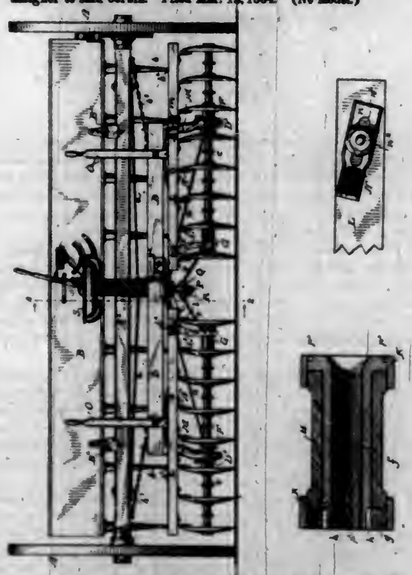
312,553.



the discharge end of the discharge-pipe only on the lee side of the chimney or flue, whereby the wind-pressure of the exhaust-pipe is utilized for turning the cowl and maintaining it in the proper position, substantially as set forth.

2. The combination, with a vertical chimney or flue, of a horizontal discharge-pipe open at its lee end and provided with openings c' c^2, a horizontal air-jet pipe or cone fitted tightly in the windward end of the discharge-pipe, and a series of supplementary exhaust pipes or cones surrounding the discharge end of the discharge-pipe, and communicating with the latter by said openings, substantially as set forth.

312,554. COMBINED HARROW AND SEEDER. JAY S. CORBIN, Governeur, N. Y., and ANDREW G. HILL, Prescott, Ontario, Canada; said Hill assignor to said Corbin. Filed Mar. 12, 1884. (No model.)



Claim.—1. The combination, substantially as set forth, of the harrow, the seeder-sulky, the laterally-swiveling pivoted draft-connection between the harrow and seeder frames, located in advance of the sulky and harrow proper, and the connections between the harrow and seeder frames for limiting the lateral play or vibration of the sulky and harrow relatively to each other.

2. The combination, substantially as set forth, of the harrow, the pole or tongue of the harrow, the seeder-sulky, the laterally-swiveling draft-connection between the pole of the harrow and the seeder-sulky, and the connections between the harrow and sulky for limiting the lateral play or vibration of the sulky and harrow relatively to each other.

3. The combination, substantially as set forth, of the harrow-frame, the disk-gangs carried thereby, and a lever for adjusting the gangs to vary their angle to the line of draft, located in the rear of the gangs and in front of the driver's seat.

4. The combination, substantially as set forth, of the seeder-sulky, the seed-box carried thereby, the harrow-frame, with which the seeder-sulky is connected, the disk-gangs arranged in rear of the seed-box, and a lever for varying the angle of the gangs relatively to the line of draft, also in rear of the seed-box in front of the driver's seat.

5. The combination, substantially as set forth, of the harrow-frame, the disk-gangs, the adjusting-lever pivoted at or about the rear of the draft-pole, the swinging link pivoted on the tongue, the rod connecting the adjusting-lever and link, and the rods which connect the link and the disk-gangs.

6. The combination, substantially as set forth, of the harrow-frame, the opposing disk-gangs carried thereby, arranged on opposite sides of the pole or central draft-line, a lever for adjusting the angle of the gangs relatively to the line of draft, located substantially between the adjoining ends of the opposing gangs, and the cultivating or harrow tooth, also operated by said lever to cut out the space between the gangs.

7. The combination, substantially as set forth, of the harrow-frame, the disk-gangs carried thereby and arranged on opposite sides of the central line, a lever pivoted on the frame, and a harrow or cultivating tooth carried on the end of the lever so as to be raised or lowered to cut out the space between the gangs.

8. The combination, substantially as set forth, of the harrow-frame, the disk-gangs arranged on opposite sides of the central line, the adjusting-lever pivoted at the rear of the frame or pole, the swinging link pivoted on the pole in front of the gangs, the rod connecting the adjusting-lever and said link, the rods connecting the disk-gangs and said link, and the cultivating or harrow tooth connected with and actuated by said lever.

9. The combination, substantially as set forth, of the pole, the opposing gangs, the cultivating harrow-tooth located between the gangs, and the lever to which the tooth is rigidly attached, and by which it is adjusted both vertically and horizontally.

10. The combination, substantially as set forth, of the harrow-frame, the disk-gangs carried thereby, scraper-beams carried above the disk-gangs, levers for operating the scraper-beams pivoted on the frame of the harrow in permanent relation to the driver's seat, and swiveling or yielding connections between the scraper-beams and said levers.

11. The combination, substantially as set forth, of the disk-gang, the scraper-beam, the supports on which it is mounted so as to move with the gang when its angle to the line of draft is changed, a lever for reciprocating the beam pivoted on the frame of the harrow in permanent relation to the driver's seat, and a swivel-connection between said lever and scraper-beam.

12. The conbination, substantially as set forth, of the frame, the disk-gang, the slotted scraper-beam, the scraper-beam support rigidly mounted upon the disk-gang, the scraper-beam supporting-bracket carried by the hanger, the adjusting-lever pivoted upon the frame, and the swivel-connection between said lever and the beam.

13. The combination, substantially as set forth, of the gang of cutting-disks, the scraper-beam, a series of scrapers (one for each disk) carried by said beam, and means for independently adjusting each scraper toward and from the disk and laterally thereto.

14. The combination, substantially as set forth, of the disks, the scrapers, the scraper-support, and devices for adjustably securing the scrapers to their support, whereby they may be adjusted toward and from the disks and laterally thereto.

15. The herein-described spacing-thimble, having an outwardly-projecting flange formed on one end, and an outwardly-projecting removable flange on the other end, for the purpose specified.

16. The combination, substantially as set forth, of the spacing-thimble, its removable flange or collar, and the sectionless journal-box that is held in position by the collars.

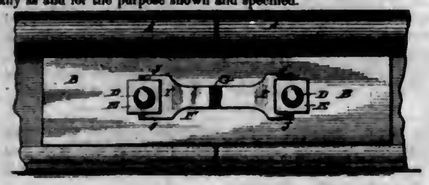
17. The herein-described spacing-thimble, formed with an outwardly-projecting flange on one end and a removable flange on the other end, formed of harder metal than the body of the thimble.

18. The combination, substantially as set forth, of the spacing-thimble, its removable flange or collar, the sectionless journal-box that fits over the thimble, and the sand-bands which fit on the flanges of the thimble and over the ends of the journal-box.

19. The combination, substantially as set forth, of a disk-gang, an endwise-moving scraper-beam or scraper-support which reciprocates in a uniform horizontal plane, and scrapers secured thereto so that they move bodily with the beam toward and from the disks in a uniform horizontal plane.

312,555. NUT-LOCK. PITSER M. CROCKER, McNairy, Tenn., assignor of one-half to John Crocker, Garland, Ark. Filed Apr. 11, 1884. (No model.)

Claim.—1. As an improved article of manufacture, the device for locking nuts in pairs herein shown and described, consisting of the flat bar F, having central transverse rib, G, and provided at opposite ends with the enlarged heads I, having parallel projecting arms J J, substantially as and for the purpose shown and specified.

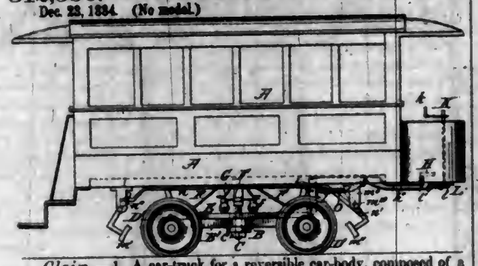


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2. As an improved article of manufacture, the device for locking nuts in pairs, consisting of the flat bar F, having central transverse ridge or bulge, G H, and provided at opposite ends with the enlarged heads I, formed with recesses having inner beveled sides, I', and parallel projecting arms J J, as and for the purpose shown and set forth.

312,556. STREET-CAR. MARTIN A. CUTTER, Galveston, Tex. Filed Dec. 23, 1884. (No model.)



Claim.—1. A car-truck for a reversible car-body, composed of a center hub, B, diagonally-radiating arms B', having axle-bearings at each end, and circle-track E thereon, with the axles D and wheels D', substantially as described.

2. A reversible car-body having springs F, connected at their outer ends with pairs of carrying-wheels f'' f''', and a center king-bolt, C, in combination with the circle-track E and truck composed of hub B, arms B', axles D, and wheels D', as described.

3. A car-truck frame consisting of the center hub, B, the diagonally-radiating arms B', having bearings at their outer ends in which the wheel-axles revolve, substantially as described.

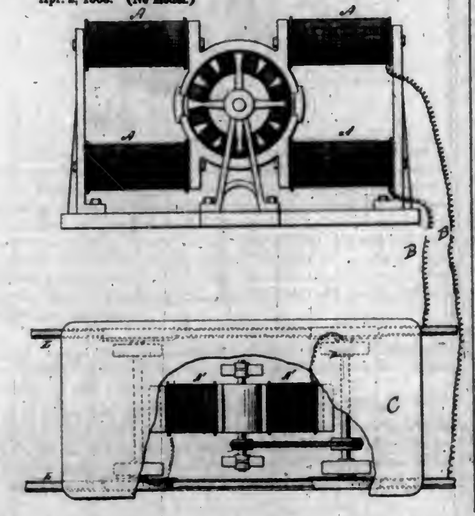
4. The springs F, connected at their outer ends with pairs of carrying-wheels f'', in combination with the keeper-springs G, secured to the under side of the reversible car-body A, substantially as described.

5. A reversible car-body, A, having attached thereto a foot-treadle, H, a spring-holding dog, I, the mechanism to operate the dog, in combination with the circle-track E, having catch-blocks E' thereon with slots e therein, substantially as described.

6. In combination with a reversible car-body, the brake mechanism consisting, essentially, of the brake-shaft K, gear-wheels k' and L, vibrating pivoted shaft m, with arms to which are attached brake-shoes m', and the intermediate devices to operate shaft m, substantially as described.

7. In combination with a reversible car-body, the brake mechanism for applying the brake-shoes to opposite pairs of wheels, consisting of the brake-shaft K and its connection with the vibrating pivoted shaft m, the bent and reciprocating rods n n, pivoted at one end to the downward-bent arms of shaft m, thence extending to shaft m^2 at the opposite end of the car, and there pivoted, as shown, to the downward-bent arms having brake-shoes at their extremities, substantially as described.

312,557. ELECTRIC RAILWAY. LEO DAFT, Greenville, N. J. Filed Apr. 2, 1883. (No model.)



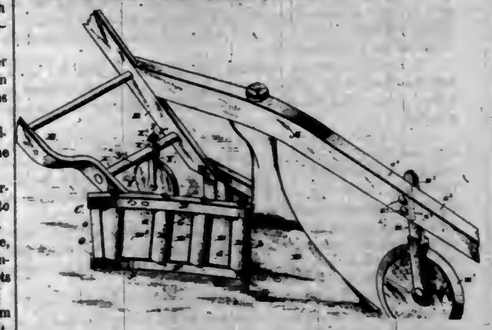
Claim.—The combination, in an electric-railway system, of a stationary dynamo adapted to generate currents of low tension, conducting-rails for such currents practically non-insulated, and cars provided with electric motors constructed to make electrical contact with said conductors and to be operated under currents of low tension.

312,558. LAST. EDWARD E. DUTTON, Natick, Mass., assignor of one-half to Joseph R. Atwood, same place. Filed Oct. 30, 1884. (No model.)



Claim.—In combination with a last, and projecting above the face thereof, a metallic clinching-rim having rounded indentations immediately adjacent to each other in its surface, as and for the purpose shown and set forth.

312,559. PLOW. WILLIAM A. ESTES, Vassalborough, Me. Filed Mar. 26, 1884. Renewed Jan. 7, 1885. (No model.)



Claim.—1. In a plow landside or mold-board, a series of upright separate detachable plates held at their upper and lower ends in a suitable frame, substantially as shown and described.

2. A plow having its landside and mold-board formed of detachable steel plates held in suitable frames with spaces between them, and rollers journaled in the frame and projecting between and beyond the plates, substantially as shown and described.

3. In combination with the steel plates forming the bearing-surface of the landside or mold-board of a plow, the bars provided with grooves to receive the upper and lower edges of the plates, and means for drawing the bars toward each other to clamp the plates between them, substantially as shown and described.

4. In combination with the plates forming the bearing-surface of a mold-board or landside, the bars provided with grooves for receiving and holding the upper and lower edges of the plates, bolt-rods passing through and connecting the bars, and tubular distance-pieces surrounding such rods between the bars, substantially as and for the purpose described.

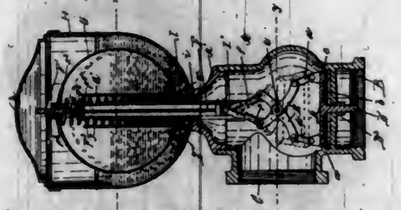
5. In combination with the series of steel plates forming the bearing-surface of the mold-board or landside of a plow, bars provided with grooves to receive the upper and lower edges of the plates, bolt-rods passing through the bars, tubular distance-pieces on the rods between the bars, and rollers journaled on such pieces and extending between and beyond the faces of the plates, substantially as shown and described.

6. In combination with the upper and lower bars and bolt-rod connecting the same, a tubular distance-piece or bushing around the rod, an anti-friction roller journaled on the bushing, and provided on its upper end with a projection extending up into a recess in the upper bar around the bushing, and at its lower end with a recess, into which fits a projection on the lower bar surrounding the lower end of the bushing, substantially as shown and described.

7. In combination with a roller, at one end made convex and provided with an axial cylindrical projection, and at the other made concave and provided with an axial cylindrical recess, a tubular bushing upon which the roller is journaled, extending through the roller and beyond its end, frame-bars recessed to receive the ends of the bushing, one of which has a concave and recess to receive one end of the roller, and the other a convex portion with a projection to fit the other end thereof, and a bolt-rod passing through the bars and bushing, substantially as and for the purpose described.

8. The supporting wheel-carrying fork, squared at its upper end and provided with a cylindrical shank, in combination with a hollow screw working in a fixed portion of the frame, a bushing within the screw, and a nut upon the upper end of the shank, which fits over the upper end of the bushing, and bears upon the upper end of the screw, substantially as and for the purpose described.

312,560. GAS-PRESSURE REGULATOR. LEWIS G. FRANCE, La Grange, Ill. Filed Oct. 6, 1884. (No model.)



Claim.—1. In a gas-pressure regulator, the combination, with the valve D and its seat, of the valve-stem F, float G, attached thereto, case H, and a toggle-connection between the said valve and valve-stem, substantially as and for the purposes specified.

2. In a gas-pressure regulator, the combination, with the valve D, arranged above its seat, of the case H, the float G, contained therein, the valve-stem F, connected to the float and working in the tube I, the said stem having a passage or passages to conduct the gas to the float, and a toggle-connection between the said valve and valve-stem, substantially as and for the purposes specified.

3. In a gas-pressure regulator, the combination, with the valve-stem and float, of the valve D, having links *d*, the levers E, mounted on a fixed pivot, *e*, and the links *f*, substantially as and for the purposes specified.

4. In a gas-pressure regulator, the combination, with the valve-stem and valve, of the levers E, connected thereto by links *d* and *f*, and mounted on a fixed pivot, *e*, and the tube I, forming a guide for the valve-stem, and having arms I', to support the pivot *e*, substantially as and for the purposes specified.

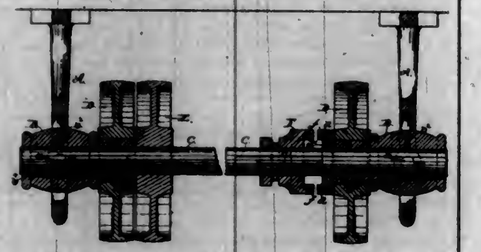
5. In a gas-pressure regulator, the combination, with the valve-casing A, of the removable screw-cap A', having attached thereto the case H, and the tube I, and the mechanism supported thereby, substantially as and for the purposes specified.

6. In a gas-pressure regulator, the combination, with the tube I, of the valve-stem F, X-shaped in cross-section, and having the float G connected to its upper and the valve D to its lower end, substantially as and for the purposes set forth.

7. In a gas-pressure regulator, the combination, with the valve-stem and the mechanism connected therewith, of the stop F^2, adjustable on the screw-threaded extension F', and having the arms f^2, to engage the end of tube I, substantially as and for the purposes specified.

8. In a gas-pressure regulator, the combination of casing H, float G, contained therein, valve-stem F, attached to said float and having a passage or passages to conduct the gas thereto, tube I, surrounding said valve-stem, and spring J, interposed between the float and case, said valve D arranged above its seat and connected to the valve-stem by toggles, substantially as and for the purposes specified.

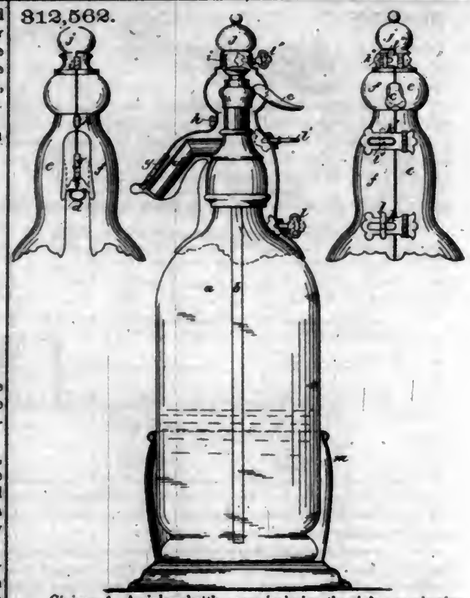
312,561. COMBINED SHAFT AND PULLEY BEARING. GREGORY GERDON, West Troy, assignor of one-half to John H. Reynolds, Troy, N.Y. Filed July 30, 1884. (No model.)



Claim.—The bearing B, having a longitudinal bore for receiving a shaft, and provided with a non-rotative sleeve, *b*, which forms a bearing for the pulley D, the said bearing also having in its upper part an oil-hole, b^3, and in its lower part the oil-holes b^4 and b^5 and oil-channel b^6, all being arranged in the manner and for the purpose herein specified.

312,562. SIPHON-BOTTLE COVER. CHAS. T. GROSJEAN, New York, N. Y., assignor to Tiffany & Co., same place. Filed Dec. 29, 1884. (No model.)

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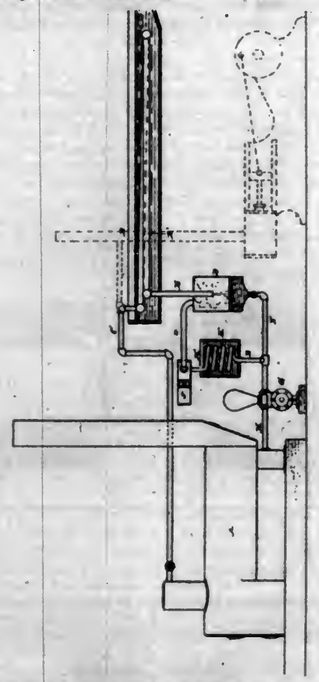


Claim.—1. A siphon-bottle cover inclosing the siphon mechanism, substantially as described.

2. A siphon-bottle cover made in half-sections and inclosing the siphon mechanism, substantially as described.

3. In a siphon-bottle cover, the sections *e f*, connected together by hinges *b b*, straps *c c*, and buttons *d d*, substantially as described.

312,563. SALT-GRAINER. RUDOLPH M. HUNTER, Philadelphia, Pa. Filed Apr. 12, 1884. (No model.)



Claim.—1. In salt-producing machinery, the combination of the salt grainer having heating-coils with a boiler from which steam is passed into said coils, and mechanism to create a partial vacuum at the other end of the salt-grainer coils, substantially as and for the purpose specified.

2. In salt-producing machinery, the combination of the salt-grainer having heating-coils with a boiler from which steam is passed into said coils, a pump and connecting-pipes for forcing the condensed steam back into the boiler, and mechanism to create a partial vacuum at the other end of the salt-grainer coils, substantially as and for the purpose specified.

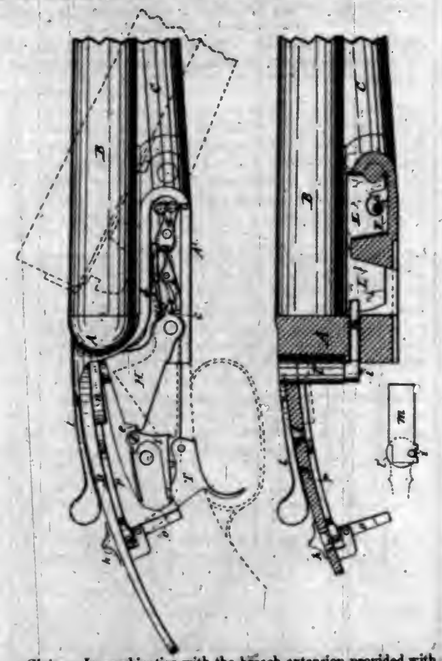
3. In salt-producing machinery, the combination of the salt-grainer having heating-coils with a boiler from which steam is passed into said coils, a pump and connecting-pipes for forcing the condensed steam back into the boiler, an exhauster or vacuum-creating device arranged to create a partial vacuum at the discharging end of said coils, and a condenser to condense the steam exhausted by said vacuum-creating device, substantially as and for the purpose specified.

4. In salt-producing machinery, the combination of the salt-grainer having heating-coils with a boiler from which steam is passed into said coils, a pump and connecting-pipes for forcing the condensed steam back into the boiler, an exhauster or vacuum-creating device arranged to create a partial vacuum at the discharging end of said coils, a condenser to condense the steam exhausted by said vacuum-creating device, and a connecting-pipe by which said condensed steam is fed into the boiler or its feed-pipe, substantially as and for the purpose specified.

5. The combination of boiler A, pipe C, grainer B, having coils B', pipe E, chamber D, pipe F, pump G, feed-pipe H, pipe I, and vacuum-pump J, substantially as and for the purpose specified.

6. The combination of boiler A, pipe C, grainer B, having coils B', pipe E, chamber D, pipe F, pump G, feed-pipe H, pipe I, vacuum-pump J, condenser K, and pipe L, substantially as and for the purpose specified.

312,564. BREECH-LOADING FIRE-ARM. JAKOB HURST and HERMAN SCHULTZ, Syracuse, N. Y. Filed Aug. 15, 1884. (No model.)

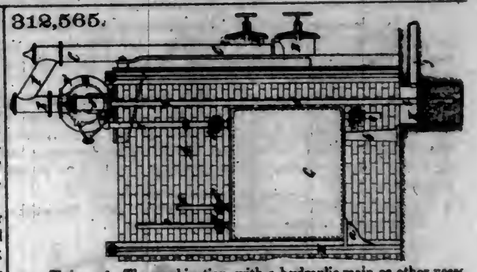


Claim.—In combination with the breech-extension provided with a longitudinal mortise and a barrel hinged on said extension, a hook-shaped lug on the barrel entering the mortise, a vertically-elongated channel extended horizontally through the breech-extension, a pin extended through said channel and engaging the hooked lug of the barrel, a lever pivoted on the lock-frame and having one arm connected with the aforesaid pin, a tumbler pivoted between the hammer and lever and connected with the latter, the hammer provided with a cam over the adjacent end of the tumbler, and a spring arranged to press upon said cam, substantially as shown and described.

312,565. MEANS FOR DISCHARGING TAR FROM HYDRAULIC MAINS IN GAS-WORKS. ANDREW HUTCHISON, Providence, R. I. Filed Apr. 12, 1884. (No model.)

Brief.—Tar as it accumulates in the main is discharged from the bottom part thereof into a tight box filled with water, and water at the same time flows from the box into the main to take the place of the tar. An overflow-gate is provided on the main for maintaining the proper level of liquid therein for sealing the dip-pipes.

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Claim.—1. The combination, with a hydraulic main or other vessel provided with an outlet-gate or overflow for maintaining a liquid-level therein, of a closed tank or receptacle arranged below said main or vessel, and a tar-pipe leading from the lower part of the main or vessel behind said gate to the tank or receptacle, substantially as and for the purpose herein described.

2. The combination, with the main D and tank or receptacle G, of the gate-casing and overflow valve and pipe J *g i*, the tar-pipe and valve I *f*, the water-supply pipe and valve *c c'*, and the discharge pipe and valve *e e'*, substantially as and for the purpose herein described.

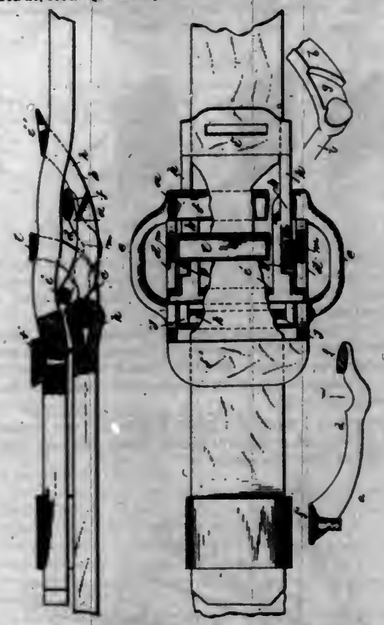
312,566. RAILROAD-TIE. WILLIAM H. KNOWLTON, Pottsville, Pa., assignor to himself and Amasa Jones, same place. Filed Feb. 27, 1884. (No model.)

Brief.—A vertical rib on top of a channel-tie is cut away to form rail-seats, and a channel-bar is fitted over the rib to secure the rails in position.



Claim.—The combination, with a channel-bar, A, having formed on it the rib D', cut away, leaving a space for the rail-flange and forming the outer points, *b*, of a channel-bar, D'', adapted to the rib of the bar A and to the rail-flanges, as specified.

312,567. TRACE-BUCKLE. WILLIAM LEECHER, Lake City, Colo. Filed Dec. 29, 1884. (No model.)

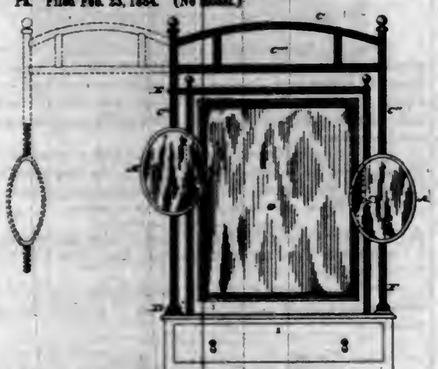


Claim.—1. In a three-part trace-buckle, the combination, with the frame *a*, having the end bars, *f f'*, and the tongue, of the frame *b*, having the end bars *i i'*, and provided with the recesses *y*, adapted to receive the side bars of the link, as shown and described.

2. In a three-part trace-buckle, the combination, with the frame *b*, having end bars, *f f'*, and lick, of the frame *a*, provided with the end bars, the tongue, and the depressions *m m*, adapted to receive the projecting ends of the end bar, *i*, as shown and described.

3. In a three-part trace-buckle herein described, consisting of the outer frame having curved side bars provided with the depressions *m*, the end bars, one of which having the tongue, the inner frame, *b*, having curved side bars, *h*, and end bars, and side notches or recesses, *g*, and the curved link, the whole adapted to operate as described, for the purpose specified.

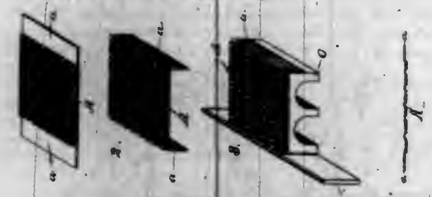
312,568. ADJUSTABLE MIRROR. THOMAS F. LYNCH, Philadelphia, Pa. Filed Feb. 23, 1884. (No model.)



Claim.—1. The looking-glass G and its supporting-frame, in combination with the mirror A, the swinging frame C, the step D, and the piece F, having a socket in its upper end, the piece C' of the swinging frame C being rested on the step D and connected with the frame of the looking-glass by the eye or hinge E, substantially as and for the purpose set forth.

2. The looking-glass G and its supporting-frame, in combination with the mirror A, the swinging frame C, the step D, and the socket and supporting-piece F, said mirror being vertically adjustable on one of the uprights of the frame C, substantially as and for the purpose set forth.

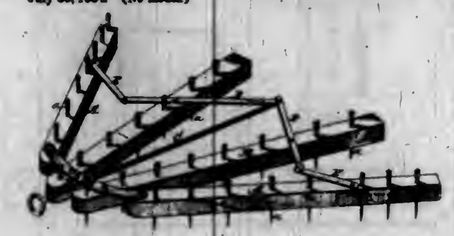
312,569. ELECTROTYPE-PLATE AND HOLDER. ALBERT W. MARSHALL, Indianapolis, Ind., assignor to the American Press Association, Chicago, Ill. Filed Jan. 12, 1884. (Model.)



Claim.—1. A flexible electrotype-shell without the usual backing, in combination with a base or block having a plain upper surface supporting the shell at the required height for printing therefrom, substantially as described.

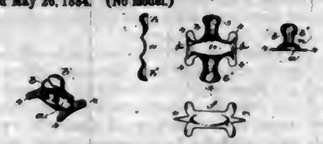
2. A shell having edges made of the same material and integral therewith, the said edges extending out beyond the line bounding the printing-surface a suitable distance to form flanges, whereby the shell may be adapted to a block for the purpose of printing therefrom, substantially as described.

312,570. HARROW. JOSEPH MCINDOO and JACOB MCINDOO, Lyons, Ind., assignors of one-half to Andrew Jackson Clark, same place. Filed July 25, 1884. (No model.)



Claim.—In a harrow, the combination, with the beams thereof pivoted at their front ends to suitable straps, and an adjustable draft-rod connected at its front end to the upper one of said plates, of a series of links pivoted to the beams, pivoted together and to the draft-rod, substantially as and for the purpose set forth.

312,571. SPRING-STUD FOR GLOVES, &c. ALBERT G. MEAD and EDWIN F. PIERCE, Boston, Mass., assignors to Milton A. Kent, same place. Filed May 26, 1884. (No model.)

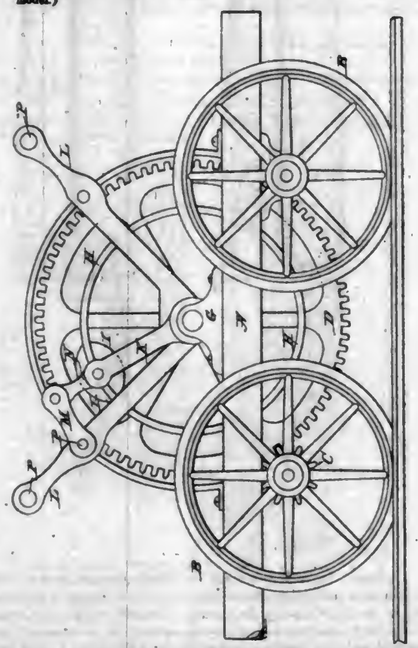


Claim.—1. A spring-stud composed of arms *b b'*, bent up from a base corrugated in the direction of its length and at right angles to the length of the said arms, the latter being corrugated or shaped to form each one half of a headed stud, substantially as shown and described.

2. The spring-stud composed of two arms, *b b'*, struck up from a sheet-metal base, the said arms being corrugated or bent to form each one half of the neck and head of a stud, one of the arms overlapping the other at the top or head of the stud, substantially as described.

3. The spring-stud composed of corrugated arms *b b'*, upturned from a corrugated sheet-metal base, *a*, to form a head and contracted neck below it, combined with a fastening-plate, and with an eyelet or button-head adapted to be slipped down over the head of and upon the neck of the spring-stud, the base having feet 4, all substantially as described.

312,572. HAND-CAR. JACOB MILLIRON, Jr., Nashville, Tenn., assignor of one-half to Sylvanus W. Steele, same place. Filed Oct. 20, 1884. (No model.)



Claim.—1. The combination, with the gear D, having driving-rings H H, of the levers K L, pitman M N, and pivoted clamps I I, substantially as described.

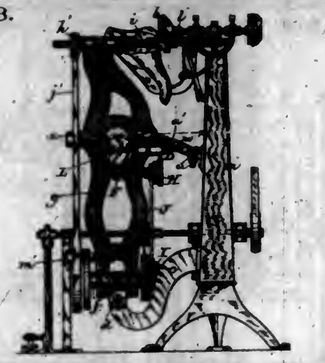
2. The combination of the gear D, having rings H H, the levers L L, connected by ropes Q Q, passed beneath sheaves R R, the levers K K, pitmen M N, and pivoted clamps I I, substantially as described.

312,573. HEEL-BURNISHING MACHINE. ALBION L. T. MITCHELL, Lynn, Mass., assignor to the Mitchell Heel and Edge Burnishing Company, Kittery, Me. Filed Dec. 30, 1884. (No model.)

Brief.—Improvement on Patent No. 310,532, dated January 6, 1885.

Claim.—1. The combination, with the burnishing-tool, of the jack pivoted to swing universally, as described, and provided with oscillatory

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heel-clamping devices, substantially as described, mechanism, substantially as described, whereby said clamping devices may be oscillated while the heel held thereby is being presented to the burnishing-tool, and mechanism, substantially as described, whereby the jack is automatically oscillated to present different portions of the heel-edge to the burnishing-tool, as set forth.

2. In a heel-burnishing machine, the combination of a supporting-standard, a burnishing-tool mounted thereon, a frame pivoted to said standard to swing universally, heel-clamping devices, substantially as described, mounted in the swinging end of said frame, mechanism, substantially as described, whereby said heel-clamping devices are oscillated, and mechanism, substantially as described, whereby the frame is oscillated antomatically to present different portions of the heel-edge to the burnishing-tool, as set forth.

3. The jack composed of the yoke or bearing *e*, pivoted to a fixed support to swing in a given plane, the frame *g*, pivoted to the yoke to swing in a plane at right angles to that in which the yoke swings, heel-clamping devices, substantially as described, mounted on the swinging end of said frame, and mechanism, substantially as described, whereby said heel-clamping devices are oscillated, combined with mechanism, substantially as described, whereby the frame is oscillated automatically, as set forth.

4. The combination of a supporting-standard, a burnishing-tool mounted thereon, a frame, *g*, pivoted to said standard to swing universally, heel-clamping devices, substantially as described, mounted in the swinging end of said frame, mechanism, substantially as described, whereby said heel-clamping devices are oscillated, the socket *w*, mounted to slide on a guide on the supporting-standard, the rotating arbor A, journaled in the frame *g*, and the connecting-rod D, connected to the socket *w* and to a disk on the arbor A, as set forth.

5. The combination of the standard *a*, having the guide-rod *v*, the sliding socket on said rod, the swinging frame *g*, having the rotating arbor A, and the connecting-rod D, connected at one end to the sliding socket, and adjustably connected at the other end to a disk on the arbor A, as set forth.

6. The combination of the frame *g*, the sliding sleeve *w*, the rotating arbor A, and the connecting-rod adjustable as to the length, as set forth.

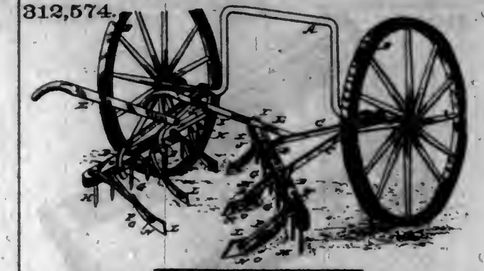
7. The combination of the standard *a*, having the guide-rod *v*, the frame *g*, having the arbor A, the connecting-rod D, connecting said arbor to a sliding sleeve on said guide-rod, the arbor E on said frame, connected, as described, to the arbor A, and provided with a series of pulleys, H, the arbor *f*, having the series of pulleys I, and a connecting-belt, J, as set forth.

8. The combination of the standard having the burnishing-tool and the guide-rod, the jack pivoted to swing in two directions, as described, the telescopic connection mounted to slide on the guide-rod, and the spring *f'*, whereby the jack is pulled toward the burnishing-tool, the spring-dog on the telescopic connection, and a notch in the guide-rod, whereby the jack may be held away from the burnishing-tool, as set forth.

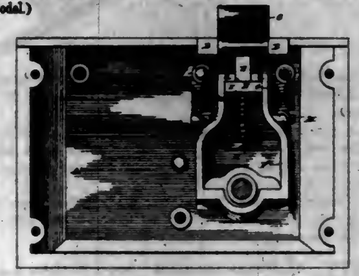
312,574. ATTACHMENT FOR CULTIVATORS. JOHN E. MITCHELL, Fowler, assignor of one-half to Adam D. Raub, Earl Park, Ind. Filed July 1, 1884. (No model.)

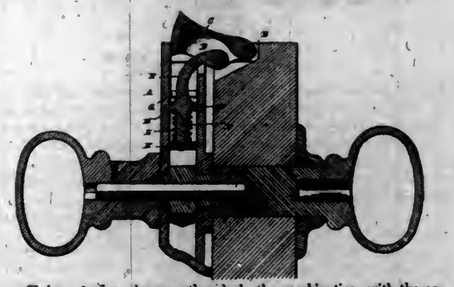
Claim.—In a cultivator attachment, the combination of the cultivator beams and standards, the beam attached to the lower ends of the standards obliquely to the line of draft, and having a series of teeth, one or more of which at the inner end of said beam are vertically adjustable, and a series of blades pivotally attached to brackets extending downwardly from the said beam, and connected adjustably to arms extending rearwardly from the beam, as and for the purpose shown and set forth.

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312,575. DOOR-LATCH. THOMAS J. MORGAN, Hyde Park, assignor of one-half to William McCombie, Chicago, Ill. Filed July 14, 1884. (No model.)





Claim.—1. In a door or other lock, the combination, with the operating mechanism thereof, of a pivoted swinging latch, and a latch-bar having a curved end pivoted to the said latch near its pivotal point, for the purpose specified.

2. The combination, with the operating mechanism of a latch, of a yoke having the end opposite the knob divided, and a spring-retained latch-bar having a movement independent of the said yoke, and passing through the said divided end thereof, for the purpose specified.

3. The combination, with a pivoted latch and a yoke having a divided end, of the latch-bar attached to the latch near its pivotal point, and within the yoke provided with retaining-shoulders, and a spring-surrounded continuation passing through and supported by a guiding-standard.

4. The combination of a pivoted latch, a yoke having a divided end and provided with springs and guides on each side, a connecting latch-bar pivoted to the latch near its pivotal point, and having a shoulder and a spring-surrounded continuation within the yoke, and supported and guided by a standard, and a casing inclosing the various parts and supporting and protecting them.

312,576. GRAIN-ADJUSTER FOR BINDERS. ANTHONY NICKLESS, Whitewater, Wis., assignor of one-half to I. Z. Merriam, same place. Filed Dec. 28, 1883. (No model.)

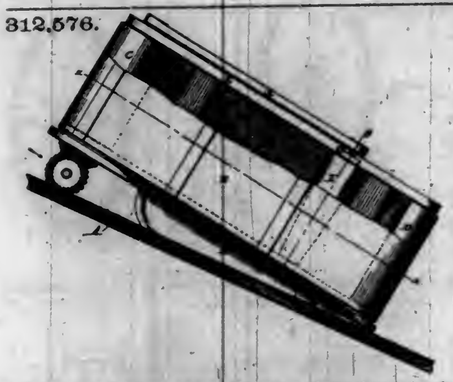
Claim.—1. A traveling grain-adjusting apron for a grain-binder and mechanism whereby the active surface of the apron is also moved rapidly to and fro in the direction of the length of the grain.

2. In a grain-binder, a butt-adjusting apron having an upright surface extended obliquely to the path of the grain to act on the butts thereof, combined with means whereby the surface of said apron is caused to move to and fro in the direction of the length of the grain.

3. An endless butt-adjusting apron combined with means for imparting a rotary motion thereto and means for imparting a vibratory motion to its active surface.

4. In a grain-binding machine, in combination with the grain-receiving table, the endless traveling apron extending obliquely to the path

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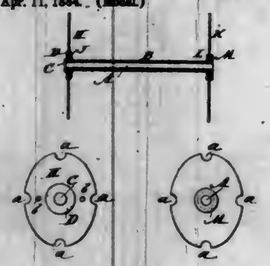


of the grain, and means, substantially such as shown, for moving the upper and lower edges outward alternately in the direction of the length of the grain.

5. In a grain-binder, in combination with the grain-receiving table, the endless butt-adjusting apron, the sustaining-rolls at its ends, the swinging frame, and the eccentric roll mounted in said frame to act on the apron.

6. In combination with the endless butt-adjusting apron and its supporting-rolls, an eccentric roll, I, and means, substantially as described, for imparting a positive rotation thereto.

312,577. ARTIFICIAL EAR-DRUM. JOHN H. NICHOLSON, New York, N. Y. Filed Apr. 11, 1884. (Model.)



Claim.—1. An artificial ear-drum made substantially as herein shown and described, and consisting of a magnetized steel rod on each end of which a rubber disk is held, as set forth.

2. In an artificial ear-drum, the combination, with the magnetized steel rod A, having a gold or silver covering, B, of a rubber disk held on each end of the rod, substantially as herein shown and described.

3. In an artificial ear-drum, the combination, with the magnetized steel rod A, having a flat head, C, of the rubber disks H and K on the ends of the rod, and the rubber washer D and the gold washer J on opposite sides of the disk H, substantially as herein shown and described.

4. In an artificial ear-drum, the combination, with the magnetized steel rod A, of the rubber disks H and K on the ends of the same, and the gold washers L and M on opposite sides of the disk, substantially as herein shown and described.

5. In an artificial ear-drum, the combination, with a magnetized steel rod, A, of rubber disks held on the ends of the same, which disks have notches in their edges, substantially as herein shown and described.

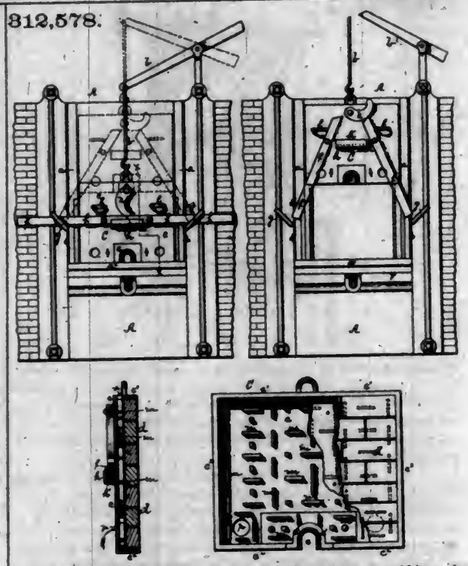
6. In an artificial ear-drum, the combination, with a magnetized steel rod, of the rubber disks H and K, held on the ends of the rod and provided with notches in their edges, the disk H being provided with apertures *b*, substantially as herein shown and described.

312,578. DOOR FOR FURNACES. WILLIAM O. NIGHTINGALE, McKeesport, Pa. Filed Apr. 2, 1884. (No model.)

Claim.—1. In combination with a furnace-door hung between guides, one or more bars pivoted thereon and extending through a loop or loops at the sides of the door, and a cam-wedge or equivalent device for holding down said pivoted bar or bars, substantially as and for the purposes set forth.

2. In combination with a furnace-door hung between guides on the furnace, one or more bars pivoted to said door and extending through a loop or loops at the side thereof, a rib or lug on said door for supporting said bars against downward pressure, and a cam-wedge or equivalent device for holding said bar against said lug, substantially as and for the purposes set forth.

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3. In combination with a furnace-door hung between guides on the furnace, and having one or more bars pivoted thereon, a loop or loops at the side of said door, said loops standing diagonally thereto, and a cam-wedge or equivalent device, substantially as and for the purposes set forth.

4. In furnace-doors, the combination, with the furnace A, having the loop or loops *g*, of the door C, having the rib or lug *h*, provided with a groove, *h'*, and the pivoted bar or bars *f*, extending through said loops and fitting within said groove *h'*, and the cam-wedge or equivalent device, substantially as and for the purposes set forth.

5. The combination, with a furnace, A, having the loops *g* and the door C, of the pivoted bars *f*, cam-wedge or equivalent device *k*, and loops *l*, substantially as and for the purposes set forth.

6. In furnace-doors, the combination of door-plate *c*, having surrounding-flanges, and brick lining *d*, fitting within said flanges, said door-plate having corrugations or projections *m* on its inner face, and openings at the base and top communicating with the space between the door-plate and lining, substantially as and for the purposes set forth.

7. The furnace-door having a series of corrugations or projections on the inner face of the door-plate *c*, in combination with an asbestus or other suitable sheet, *s*, fitting over said corrugations, and the brick lining *d*, substantially as and for the purposes set forth.

312,579. TORPEDO. THORSTEN NORDENFELT, Westminster, England. Filed Apr. 19, 1884. (No model.) Patented in England Sept. 20, 1883, No. 4,494, and Oct. 13, 1883, No. 4,837; in France Mar. 17, 1884, No. 160,907, and in Germany Mar. 21, 1884, No. 29,139.

Claim.—1. The herein-described torpedo-boat, consisting of the combination of the buoyant body, and a buoyant fin arranged lengthwise of the body and connected therewith at more than one point, so as to be permanently prevented from turning horizontally.

2. The herein-described torpedo-boat, consisting of the combination of the buoyant body, and a buoyant elongated vertical blade or fin arranged lengthwise over the body and connected therewith.

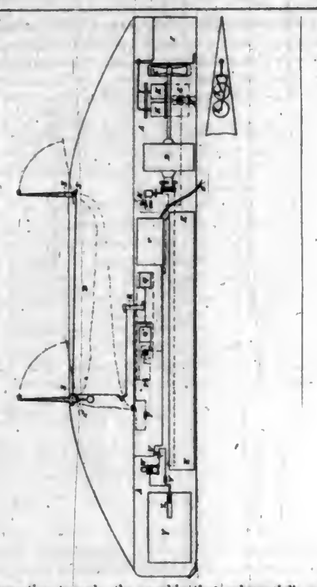
3. The combination, in a locomotive torpedo, of an electric motor, motor-controlling devices, and a source of electric energy for driving said motor, all carried by the torpedo itself, and an electric conductor connecting the motor-controlling devices of the torpedo with a controlling-station, whereby the electric motor may be stopped and started at will from the shore.

4. In a locomotive torpedo, the combination, substantially as set forth, of a local battery carried by the torpedo, the rudder, electro-magnetic steering devices in the circuit of said local battery for directly actuating the rudder, a relay which controls said local circuit to effect the steering of the torpedo, and an electric circuit connecting said relay with the controlling-station.

5. In a locomotive torpedo, the combination, substantially as set forth, of the sight-rods, electro-magnetic devices for raising and lowering the sight-rods, a battery within the torpedo for operating said devices, and an electric circuit connecting the electro-magnetic devices with a controlling-station.

6. In a locomotive torpedo, the combination, substantially as set forth, of a sight-rod, electro-magnetic devices for raising and lowering the sight-rod, a circuit-closer, and an electric circuit connecting the circuit-closer with a directing-station.

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7. In a locomotive torpedo, the combination, substantially as set forth, of the sight-rods, the electro-magnetic devices for raising and lowering the sight-rods, the electric lamps carried by the sight-rods, and devices for closing the electric current through the lamps while the rods are elevated.

8. The combination, in a locomotive torpedo, of rising and falling sight-rods, electric lamps on the sight-rods, their circuit and source of energy, and circuit-completing devices, which complete the lamp-circuit when the rods are raised.

9. In a locomotive torpedo, the combination, substantially as set forth, of the electric lamps, the battery carried by the torpedo, the circuit-closer controlling the lamp-circuit, and an electric circuit connecting said circuit-closer with a directing-station.

312,580. WIRE-SPLICER. PATRICK A. O'MALLEY, Brooklyn, N. Y., assignor to Henry L. Balley, same place. Filed Feb. 28, 1882. Renewed Nov. 22, 1883. (Model.)



Claim.—1. An improved wire-splicer consisting of the collar C, having the oblong aperture *a* and the screw-hole *b* through one of its sides and at right angles to the said aperture, and the conical pointed screw D, fitting into the said screw-hole, substantially as herein shown and described.

2. In a wire-splicer, the combination, with the overlapped ends of the wires A B, of the collar C, provided with the oblong aperture *a* and the screw-hole *b* through one of its sides, and the conical pointed screw D, substantially as herein shown and described, whereby the ends of the wires will be held within the collar and any strain upon them tend to clamp them more firmly, as set forth.

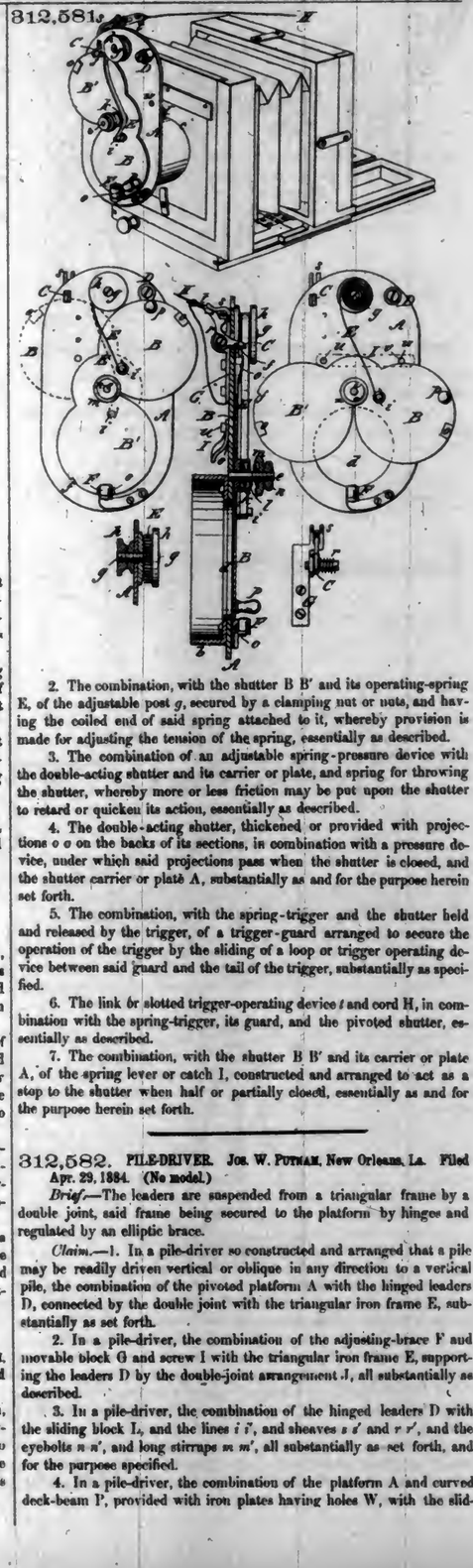
3. In a wire-coupling, the combination, with the body of the coupling, apertured to receive the wire or wires, of a conical pin or screw having its axis perpendicular to the plane of said wire-holes, the inclined surface of which pin or screw is adapted to clamp said wire or wires by deflecting the same laterally, substantially as set forth.

4. A wire-coupling provided with openings for receiving wires, a screw having a conical point adapted to bear angularly against the wire or wires, whereby the longitudinal strain exerted by the latter will tend to increase the pressure of the screw-point thereupon by causing the latter to turn.

312,581. SHUTTER FOR PHOTOGRAPHIC CAMERAS. C. PROSCH, New York, N. Y., assignor to E. & H. T. Anthony & Co., same place. Filed Jan. 21, 1884. (No model.)

Claim.—1. In shutters for photographic cameras, the combination, with the pivoted shutter, of a spiral spring for throwing the same, having one end secured to a stationary post and its other end connected to the shutter in eccentric relation with the pivot thereof, whereby the spring in the starting of the shutter is moved gradually and all jar is avoided, substantially as herein shown and described.

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2. The combination, with the shutter B B' and its operating-spring E, of the adjustable post *g*, secured by a clamping nut or nuts, and having the coiled end of said spring attached to it, whereby provision is made for adjusting the tension of the spring, essentially as described.

3. The combination of an adjustable spring-pressure device with the double-acting shutter and its carrier or plate, and spring for throwing the shutter, whereby more or less friction may be put upon the shutter to retard or quicken its action, essentially as described.

4. The double-acting shutter, thickened or provided with projections *o o* on the backs of its sections, in combination with a pressure device, under which said projections pass when the shutter is closed, and the shutter carrier or plate A, substantially as and for the purpose herein set forth.

5. The combination, with the spring-trigger and the shutter held and released by the trigger, of a trigger-guard arranged to secure the operation of the trigger by the sliding of a loop or trigger operating device between said guard and the tail of the trigger, substantially as specified.

6. The link or slotted trigger-operating device *t* and cord H, in combination with the spring-trigger, its guard, and the pivoted shutter, essentially as described.

7. The combination, with the shutter B B' and its carrier or plate A, of the spring lever or catch I, constructed and arranged to act as a stop to the shutter when half or partially closed, essentially as and for the purpose herein set forth.

312,582. PILE-DRIVER. JOS. W. PUTNAM, New Orleans, La. Filed Apr. 29, 1884. (No model.)

Brief.—The leaders are suspended from a triangular frame by a double joint, said frame being secured to the platform by hinges and regulated by an elliptic brace.

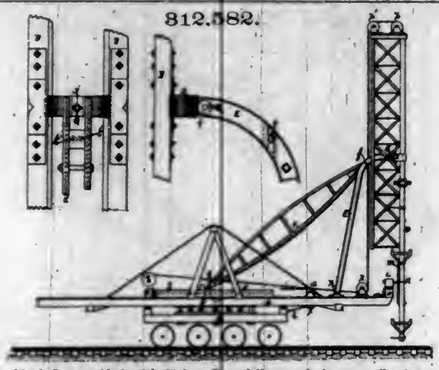
Claim.—1. In a pile-driver so constructed and arranged that a pile may be readily driven vertical or oblique in any direction to a vertical pile, the combination of the pivoted platform A with the hinged leaders D, connected by the double joint with the triangular iron frame E, substantially as set forth.

2. In a pile-driver, the combination of the adjusting-brace F and movable block G and screw I with the triangular iron frame E, supporting the leaders D by the double-joint arrangement J, all substantially as described.

3. In a pile-driver, the combination of the hinged leaders D with the sliding block L, and the lines *i i'*, and sheaves *s s'* and *r r'*, and the eyebolts *n n'*, and long stirrups *m m'*, all substantially as set forth, and for the purpose specified.

4. In a pile-driver, the combination of the platform A and curved deck-beam P, provided with iron plates having holes W, with the slid-

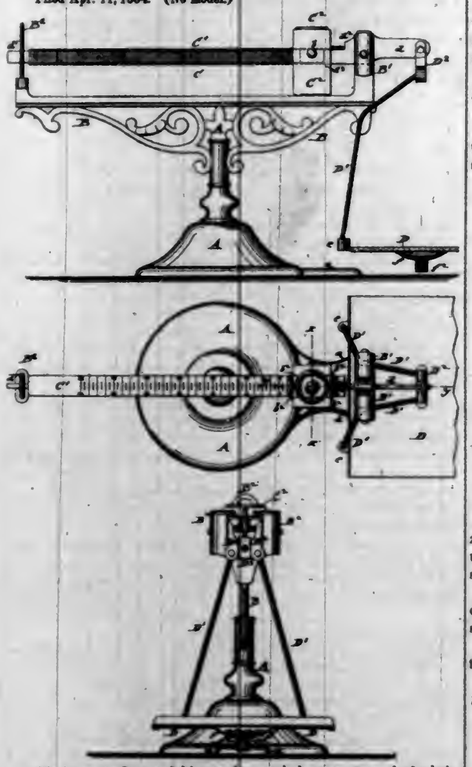
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ing block L, provided with T-iron O, and lines and sheaves, all substantially as set forth.

5. In a pile-driver, the combination of the hinged triangular iron frame E with the sheaves *t t'*, substantially as described, and for the purpose set forth.

312,583. WEIGHING-SCALE. CHARLES REICHMANN, Newark, N. J., assignor, by mesne assignments, to Richard R. Watson, New York, N. Y. Filed Apr. 11, 1884. (No model.)



Claim.—1. In a weighing-scale, a scale-beam composed of a hollow main piece of U-shaped cross-section and of a scale-plate secured to the top of the same, substantially as set forth.

2. A scale-beam composed of a hollow U-shaped main piece, a scale-plate secured to the top of the same, and end pieces secured to the ends of the beam, substantially as described.

3. The combination of a hollow U-shaped main piece, C, top scale-plate, C', rear piece, *d'*, and front end piece, *d*, having a top shoulder, *d²*, and a bottom shoulder, *d³*, substantially as set forth.

4. The combination of a fulcrumed scale beam made of a hollow U-shaped main piece and of a scale-plate secured to the top of the same, with a sliding weight, C², having inwardly-projecting stops *b b* and an index-tongue, *b'*, substantially as specified.

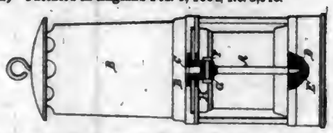
5. The combination of a fulcrumed scale-beam composed of a hollow U-shaped main piece and of a graduated scale-plate, the graduations of said scale-plate having depressed middle portions, with a sliding weight, C², having stops *b b* and an index-tongue, *b'*, with a downwardly-projecting lip, *b²*, that takes into the depressions of the scale-plate, substantially as set forth.

6. The combination, with a scale-beam having a scale-plate at the top, of a sliding weight, C², having guide-stops *b b* and an index-tongue, *b'*, said index-tongue having laterally projecting end shoulders, *b²*, and a bent lip, *b³*, substantially as specified.

7. The combination of the fulcrumed scale-beam C, having knife-edges at its front end, with a suspension-link, D', a scale-pan, D, secured thereto by arms D², and a stop, D³, whereby the detaching of the suspension-link from the beam is prevented, substantially as set forth.

8. A scale-pan having a central depression or cup, *f*, a downwardly-extending button-stud, *f'*, and an elastic covering-socket, *f²*, that acts as a cushion for the pan, substantially as set forth.

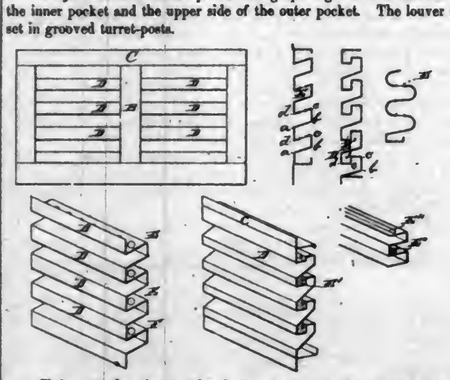
312,584. SAFETY-LAMP. WILLIAM J. H. RYDER, Newcastle-upon-Tyne, County of Northumberland, England. Filed June 21, 1884. (No model.) Patented in England Feb. 9, 1884, No. 3,040.



Claim.—The combination of the detachable parts of a safety-lamp with the connecting-pillars, one of said pillars, A, being movable and adapted to recesses in the parts of the lamp to lock them together, substantially as described.

312,585. SKYLIGHT. JOHN SEXTON and WILLIAM CONOLLY, Brooklyn, N. Y. Filed May 7, 1884. (No model.)

Brief.—A louver in one piece, having openings in the lower side of the inner pocket and the upper side of the outer pocket. The louver is set in grooved turret-posts.



Claim.—1. In a louver, the sheet so bent as to form nearly horizontal pockets or corrugations in which are provided perforations in the upper side of the outer pocket and lower side of the inner pocket, substantially as specified.

2. In a louver, the sheet so bent as to form nearly horizontal pockets or corrugations, the lower side of the outer pockets being made to slope downward and outward, as specified and set forth.

3. The combination of the bent and perforated sheet-louvers with the turret-posts, as specified and set forth.

312,586. PROCESS OF PREPARING ORES FOR AMALGAMATION AND DESULPHURIZING THE SAME. CHARLES R. SQUIRE, Brooklyn, N. Y., assignor of one-half to James F. Hotchkiss, Plainfield, N. J. Filed July 21, 1883. Renewed July 25, 1884. (No specimens.)

Claim.—1. The within-described process of preparing ores for amalgamation, which consists in immersing the ore in a solution of salt-cake, substantially as herein set forth.

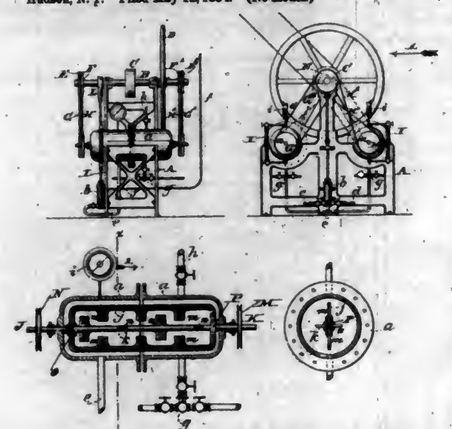
2. The within-described process of desulphurizing ores, which consists in immersing them in a solution of salt-cake, substantially as hereinbefore set forth.

312,587. TREATMENT OF ORES FOR AMALGAMATION. CHARLES R. SQUIRE, New York, N. Y., assignor of one-half to James F. Hotchkiss, Plainfield, N. J. Filed Apr. 10, 1883. Renewed Dec. 10, 1884. (No specimens.)

Claim.—1. The within-described process of preparing ores for amalgamation, which consists in subjecting the ore to a mixture of a solution of salt-cake and a solution of niter-cake, substantially as hereinbefore set forth.

2. The within-described process of desulphurizing ores, which consists in subjecting them to a mixture of a solution of salt-cake and a solution of niter-cake, substantially as hereinbefore set forth.

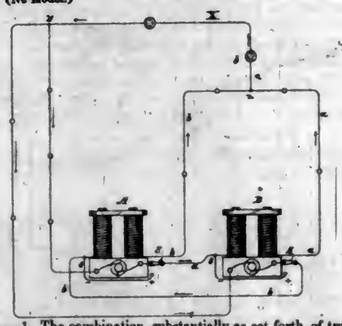
312,588. SODA WATER APPARATUS. FREDERIC R. H. THOMAS, Hudson, N. Y. Filed May 12, 1884. (No model.)



Claim.—1. In a fountain for mixing together compressed gas and liquid, the combination of the agitator-frames *j k*, provided with alternately-arranged fingers *m n*, substantially as described, the said frame *j* being journaled with its outer end through one end of the fountain, and with its inner end upon the shaft K of the frame *k*, and the said frame *k* being journaled with its outer end through the opposite end of the fountain, and with its inner end in an axial socket of the frame *j*, and the oppositely-projecting journals being provided outside of the fountain with end pulleys, N M, or their equivalents, for communicating opposite rotary motion to the said frame, as hereinbefore set forth.

2. The combination, with a feed-pump to a gas and liquid mixing fountain, of a pipe, *f*, entering the pump-cylinder between the stuffing-box and piston for maintaining a column of liquid above the piston, for the purpose set forth.

312,589. CIRCUIT FOR SYSTEMS OF ELECTRIC LIGHTING. WILLIAM M. THOMAS, Grand Rapids, Mich., assignor of one-half to the Grand Rapids Electric Light and Power Company, same place. Filed Apr. 11, 1884. (No model.)



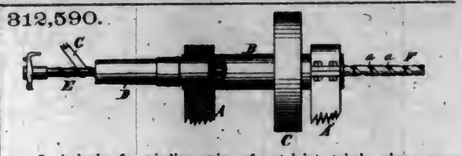
Claim.—1. The combination, substantially as set forth, of two electric generators, the independent circuit for each generator so arranged that the circuit of one generator traverses the field-magnet coils of the other, and a conductor common to the circuits of both the generators.

2. The combination, substantially as set forth, of two electric generators, their independent circuits so arranged that the circuit of one generator normally traverses the field-magnet coils of the other, a conductor common to both circuits, and a local branch circuit and switch for each machine, by which it may be connected for self-excitation should the other machine fail to act.

312,590. MACHINE FOR SPIRALLY WINDING METALLIC STRIPS. EDWARD TYRRELL and MORRIS S. SHIPLEY, Cincinnati, Ohio. Filed Apr. 5, 1884. (No model.)

Claim.—1. A tool for spirally winding metal, composed, substantially, of the spiral-threaded mandrel E, concentrically combined within the cylinder D, substantially as specified.

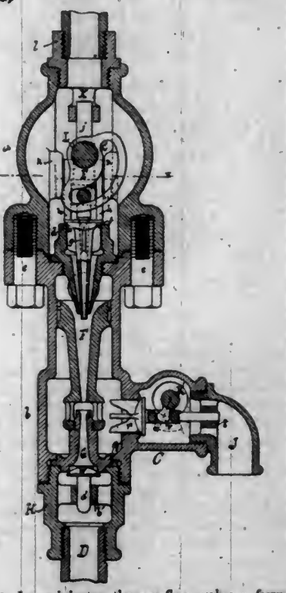
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2. A device for winding strips of metal into tubular shape, composed, substantially, of the cylinder D, revolving concentrically around a spiral-threaded mandrel, E, substantially as specified.

3. The combination of the revolving cylinder D, having the flaring mouth *d*, and the spirally-threaded mandrel E, concentrically held within the cylinder, substantially as specified.

312,591. INJECTOR. OTTO WESTPHAL, Buckau-Magdeburg, Prussia, Germany, assignor to Schäffer & Budenberg, same place. Filed Sept. 8, 1884. (Model.)



Claim.—1. In an injector, the overflow-valve *r*, formed integral with its stem, said stem being provided with a slotted hole, *n*, the ends of which form teeth engaged by the lobe *v*.

2. The combination, substantially as herein described, of the steam-valve *f*, the suction-valve *j*, and the overflow-valve *r*, of the lever M, which when moved back and forward causes the steam-valve *f* and the suction-valve *j* to open and to close once, and the overflow-valve *r* to open and close twice and to leave it closed whenever said lever is at either of its end positions.

3. The combination, substantially as hereinbefore described, in an injector, of the suction-nozzle *g*, the steam-valve *f*, formed at its top, the reciprocating non-rotating valve *j*, seated in the valve *f*, the uprights rising from the valve *f*, and the head *i*, formed with and connecting the upper ends of the upright and forming a guide for the stem of the valve *j*.

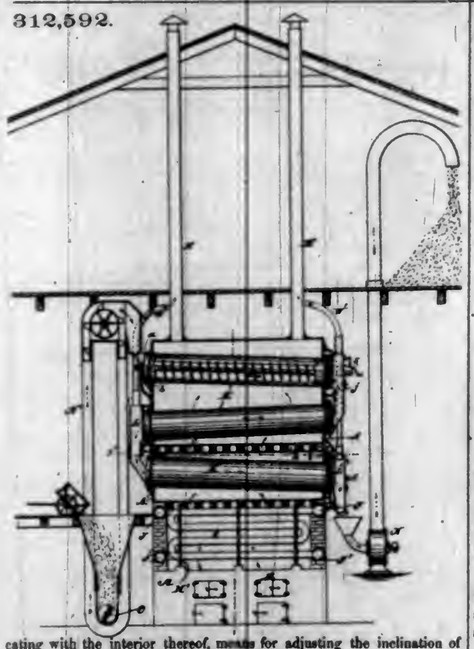
4. The combination, substantially as herein described, with the casing A, the steam-nozzle *d*, and the overflow-nozzle *r*, of the suction-nozzle *g*, the valves *f* and *j*, the block *m*, and slide-block *o*, the eccentric E, containing the slot *i*, the shafts L, the lever M, the connecting-rod N, the crank O, and the shaft K', provided with the lobe *v*.

312,592. APPARATUS FOR TREATING THE REFUSE FROM BREWERIES. FREDERICK W. WIEBUSCH, New York, N. Y., assignor of two-thirds to Samuel C. Shaeffer, Lancaster, Ohio. Filed Jan. 31, 1884. (No model.)

Claim.—1. In a drier, the combination, with the conveying-cylinder, a shaft within the same, and means for moving material through the cylinder, of a series of wings swung from this shaft, and means for adjusting the inclination of the same, whereby the passage of the material through the cylinder may be checked or accelerated by the adjustment of said wings, substantially as described.

2. In a drier, the combination of the revolving conveying-cylinder provided with agitators on its inner walls, a hollow shaft within the same, a series of hollow perforated wings swung from said shaft and communi-

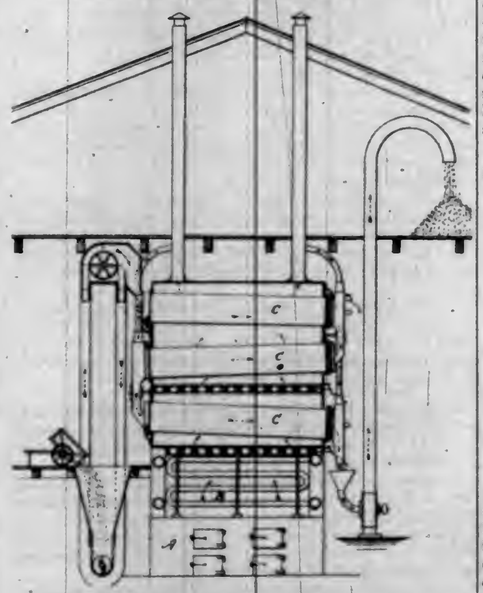
312,592.



cating with the interior thereof, means for adjusting the inclination of said wings, and means for passing the heating medium into said hollow shaft, substantially as described.

3. In a drier, the combination of the revolving conveying-cylinder provided with agitators on its inner walls, a hollow shaft within the cylinder to receive the heating medium, the series of hollow perforated wings swung from said shaft by hollow trunnions effecting a communication between the wings and shaft, the rod actuated by a lever from outside the cylinder, and the rods connecting said operating-rod with the wings, substantially as described.

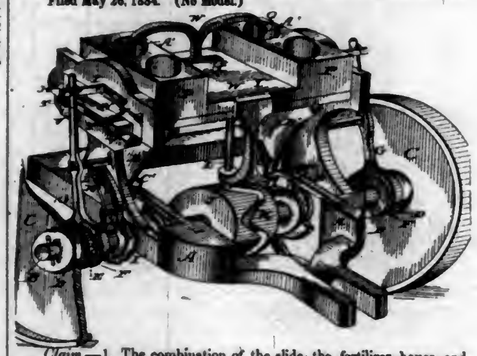
312,593. PRESERVING BREWERS' GRAIN. FREDERIK W. WIESEBROCK, New York, N. Y., assignor of two-thirds to Samuel C. Shaeffer, Lancaster, Ohio. Filed July 18, 1884. (No model.)



Claim.—1. The process of treating refuse from starch and glucose factories and breweries, consisting in first applying an antiseptic thereto and then drying by forced currents of air heated to a high temperature, substantially as set forth.

2. The process of treating refuse from starch and glucose factories and brewers' grains, consisting in subjecting the same when in wet or fresh state to a salting operation for the object set forth, then exposing the same in a close chamber from which the ordinary atmospheric air is excluded to the action of forced currents of air heated to a temperature ranging at or above 400° Fahrenheit, and expelling the vapors evolved in the drying-chamber by such forced currents of superheated air, substantially as described.

312,594. CORN-PLANTER. GEORGE M. WILLIAMS, Newark, Del. Filed May 26, 1884. (No model.)



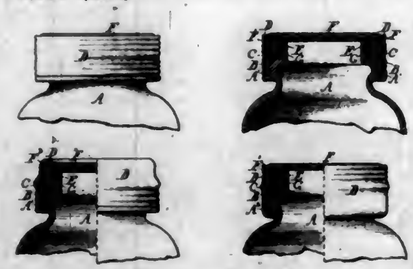
Claim.—1. The combination of the slide, the fertilizer-boxes, and the upright arm upon the slide having the cross-head and the pending arms projecting into the fertilizer-boxes, as and for the purpose shown and set forth.

2. The combination of the seed and fertilizer boxes, the funnels hinged at their forward sides under the apertures of the said boxes, the curved arms having the downwardly-projecting lugs, the seed-tubes having the shovels and the curved covering-wings, and the cam-disks secured upon the axle and engaging the lugs upon the arms, as and for the purpose shown and set forth.

3. The combination of the curved arms and seed-tubes, the openers or shovels hinged to the lower ends of the curved arms, and the laterally-curved covering-wings secured to the sides of the hinged shovels curved toward the outer sides of the planter, as and for the purpose shown and set forth.

4. The combination of the axle having the zigzag-grooved disk, the wheels having half-clutches upon their hubs, the sleeves having half-clutches and having means for operating them independently, the cam-disks secured upon the axle, the seed-slide having adjustable seed and fertilizer cups having the downwardly-projecting arm engaging the zigzag groove and having the upwardly-projecting arm provided with the cross-head and the fertilizer-stirrers, the seed and fertilizer boxes, the funnels hinged under the apertures of the said boxes, and the curved arms having the downwardly-projecting cam-engaging lugs, the seed-tubes and shovels and coverers, as and for the purpose shown and set forth.

312,595. FRUIT-JAR. JOSEPH B. WILSON, Clayton, N. J. Filed Apr 17, 1884. (Model.)



Claim.—In a fruit-jar, the combination of a jar-neck having located below the pouring-mouth a shoulder adapted to receive a gasket, helical lugs external to the neck, located between the shoulder and pouring-mouth, adapted to engage in corresponding helical projections inside of the cover, with said cover and an interposed gasket, and an elastic inclosing-band embracing and impinged by one or more circumferential shoulders or angles on the cover and neck, substantially as and for the purpose set forth.

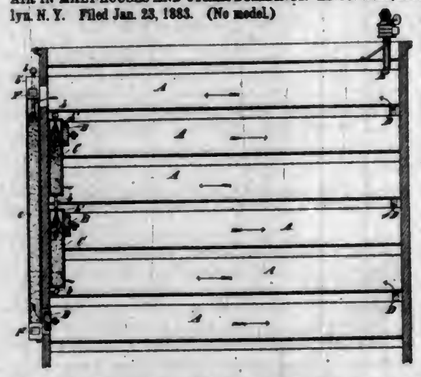
312,596. FRUIT-JAR. JOSEPH B. WILSON, Clayton, N. J. Filed May 15, 1884. (No model.)



Claim.—1. A fruit-jar provided with a series of circumferential ridges upon the neck, in combination with a cover provided with a similar series of ridges, and a contractible band surrounding said ridges and adapted by its contraction as strained upon such ridges to draw the cover and jar toward each other, substantially as and for the purpose set forth.

2. A fruit-jar provided with a series of circumferential ridges upon the neck, in combination with a series of circumferential ridges upon the cover, both series of ridges being adapted to receive and effect a seal when surrounded by a contractible band, substantially as set forth and described.

312,597. APPARATUS FOR CIRCULATING AND ATTEMPERING AIR IN MALT-HOUSES AND OTHER BUILDINGS. LEVI J. WING, Brooklyn, N. Y. Filed Jan. 23, 1883. (No model.)

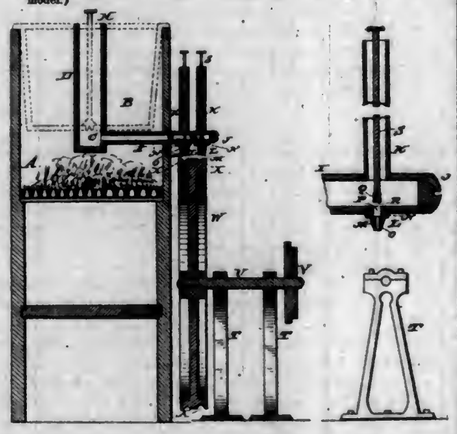


Claim.—1. In combination, the floors or spaces A, having openings D, fan-blowers B, tempering-pipes C and *c*, foul-air duct E, and fresh-air opening F, substantially as shown and described.

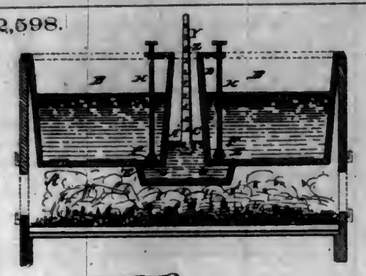
2. The combination of the floors A, having openings D for the passage of currents of air, the fans B for producing said currents, and the pipes or boxes C *c*, having openings for the passage of currents of air through sprays of water falling through said pipes, in order to cool or moisten said currents of air, as herein shown and described.

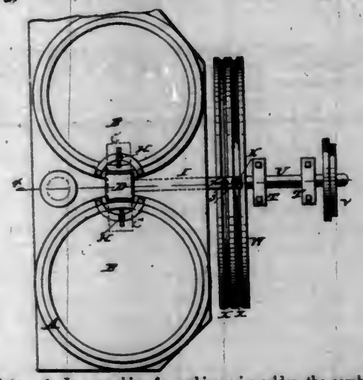
3. The combination of the floors A, having the openings D for the passage of currents of air, the fans B for producing said currents, and the pipes or boxes C *c*, having openings for the passage of currents of air through steam-coils or other heating apparatus, in order to heat said currents of air, as herein shown and described.

312,598. MACHINE FOR MAKING WIRE-SOLDER. EDMUND L. YOUNG and LUCIUS DYER, Millbridge, Me. Filed May 31, 1884. (No model.)



312,598.





Claim.—1. In a machine for making wire-solder, the combination, with a suitably-constructed furnace, of a pair of kettles or crucibles connecting with a central basin or receptacle having an upwardly-extending tube or flue and suitably-constructed valves, whereby the flow of molten metal from the said kettles into the said central basin may be controlled and regulated, substantially as and for the purpose set forth.

2. In a machine for making wire-solder, the combination, with a series of crucibles, of a central receptacle, suitably-arranged valves for controlling and regulating the flow of molten metal from either of the said crucibles into the central basin, and a gage or indicator arranged in a flue extending upwardly from the central basin and serving to indicate the height of molten metal in the latter, substantially as and for the purpose set forth.

3. In a machine for making wire-solder, the combination, with a series of crucibles, of a central basin or receptacle, and screw-threaded plugs or valves working in openings that connect the crucibles with the central basin, and provided with V-shaped incisions and with operating rods or handles that extend upwardly through the contents of the crucibles to a point at which they may be conveniently reached and manipulated, substantially as and for the purpose set forth.

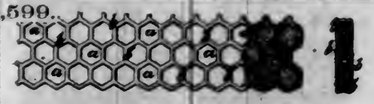
4. In a machine for making wire-solder, the combination, with a series of crucibles, of a central basin or receptacle connected with each crucible of the series, and an escape tube or passage extending from the said basin outwardly through the furnace, and provided at its outer end with spouts or nipples and with upwardly-extending tubes adapted to accommodate the operating rods or handles of valves serving to close or to regulate the flow of molten metal through the said nipples, substantially as set forth.

5. In a machine for making wire-solder, the combination with suitable melting devices and valves for regulating the flow of the molten metal, substantially as described, of an escape-tube extending through the furnace, and provided at its front end with flanged internally-threaded nipples and plugs or valves for the latter, having V-shaped incisions, and provided with operating-rods that extend upwardly through tubes upon the upper side of the escape-passage, substantially as set forth.

6. In a machine for making wire-solder, the combination of a smelting-furnace, a series of crucibles, a central basin or receptacle communicating with each crucible of the series, having an upwardly-extending flue, a gage or indicator placed in the said flue, means for regulating the flow of metal from the crucibles into the central basin, an escape-passage extending from the central basin outwardly through the furnace, escape-nozzles at the front end of the said passage, suitable regulating-valves, and a molding-wheel arranged under the said nozzles, and having suitably-shaped grooves corresponding therewith, substantially as and for the purpose set forth.

312,599. SECONDARY BATTERY. JOSEPH W. SWAN, Newcastle-upon-Tyne, County of Northumberland, assignor to the Electrical Power Storage Company, Limited, London, England. Filed Jan. 18, 1882. (No model.) Patented in England May 24, 1881, No. 2,272.

312,599.



Claim.—A perforated or cellular plate for secondary batteries having the perforations or cells extending through the plate and the active material, or material to become active, packed in the said perforations or cells, substantially as described.

REISSUES.

10,561. MEANS FOR DETECTING LEAKS IN GAS-MAINS. GEORGE WESTINGHOUSE, Jr., Pittsburg, Pa. Filed Jan. 27, 1885. Original No. 306,565, dated Oct. 14, 1884.

10,561.



Claim.—1. The combination of an underground gas-main and a detector-pipe leading from a point adjacent to said main to a point above the surface of the ground, substantially as set forth.

2. The combination of a gas-main, a packing of solid material having intercommunicating interstices and surrounding a joint of said main, said packing being inclosed by the ground in which the main is laid, and a detector-pipe leading from said packing to a point above the surface of the ground, substantially as set forth.

PHOTO LITH NORRIS PETERS WASHINGTON D.C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

Supreme Court of the United States.

MAHN *v.* HARWOOD *et al.*

Decided December 1, 1884.

1. OSGOOD—BALL-COVERS.

A patent for ball-covers issued to James H. Osgood, May 21, 1872, reissued April 11, 1876, *Held* invalid as to the new and enlarged claims, because there was unreasonable delay in applying for it, the only object of the reissue being to enlarge the claims.

2. SAME—REISSUE—ENLARGING CLAIMS.

The principles announced in the case of *Miller* v. *Brass Company* (104 U. S., 350) in reference to reissuing patents for the purpose of enlarging the claims reiterated and explained.

3. SAME—DECISION OF COMMISSIONER OF PATENTS.

It was not intended in that case to question, the conclusiveness in suits for infringement of the decisions of the Commissioner of Patents on matters of fact necessary to be decided before issuing the patent, except as the statute gives specific defenses; but those defenses are not the only ones that may be made. If it appears that the Commissioner has granted or reissued a patent without authority of law, this will be a good defense, as where the thing patented is not a patentable invention, or where a reissue is for a different invention from that described in the original patent, &c.

4. SAME—ENLARGEMENT OF CLAIMS IN REISSUE.

A patent cannot be lawfully reissued for the mere purpose of enlarging the claim, unless there has been a clear mistake inadvertently committed in the wording of the claim, and the application for reissue is made within a reasonably short time. Whether there has been such an inadvertent mistake is, in general, a matter of fact for the Commissioner to decide; but whether the application is made in reasonable time is matter of law, which the court may determine by comparing the reissued patent with the original, and, if necessary, with the records in the Patent Office when presented by the record.

5. SAME—APPLICATION WHEN MADE.

The application for a reissue in such cases must be made within a reasonable time, because the rights of the public, conceded by the original patent, are directly affected and violated by an enlargement of the claim; and the patentee's continued acquiescence in the public enjoyment of such right for an unreasonable time justly deprives him of all right to a reissue, and the Commissioner of lawful authority to grant it.

6. SAME—WHAT IS A REASONABLE TIME.

No invariable rule can be laid down as to what is a reasonable time within which the patentee must seek for the correction of a claim which he considers too narrow. It is for the court to judge in each case, and it will exercise proper liberality toward the patentee; but as the law charges him with notice of what his patent contains, he will be held to reasonable diligence. By analogy to the rule as to the effect of public use before an application for a patent, a delay of more than two years would, in general, require special circumstances for its excuse.

7. SAME—DELAY OF FOUR YEARS.

As in the present case, there was a delay of nearly four years, and the original patent was plain, simple, and free from obscurity, it was *Held* that the delay in seeking a correction by reissue was unreasonable, and that the Commissioner had, therefore, no authority to grant it; and the patent was *Held* invalid so far as the claims were broader than those in the original patent.

APPEAL from the Circuit Court of the United States for the District of Massachusetts.

Mr. Thomas Wm. Clarke for the appellant.

Mr. J. E. Maynadier for the appellee.

BRADLEY, *J.*:

This suit was brought on a patent relating to leather covers of base-balls and other similar articles. The patent was originally issued to one James H. Osgood, of Boston, under date of May 21, 1872. The bill states that Osgood afterward assigned this patent to Louis H. Mahn, the complainant below, appellant here. On the 11th of April, 1876, it was reissued, and the suit is brought on the reissue against the Harwoods, charging infringement. Except in stating the nature of the invention and the claims, the specifications of the original and reissued patents are precisely alike. The description and accompanying drawings are not changed. Briefly stated, the specification describes a leather ball-cover composed of two hemispherical parts, each being molded into form when in a wet state, and after being dried sewed together on to the ball by a peculiar stitch, called a "double herring-bone stitch." Then a second cover made in precisely the same manner and sewed on to the ball outside of the first cover in such manner that the stitches of the two covers may cross each other at right angles.

In the original patent it is stated that—

The nature of the invention consists, first, in the employment of a new stitch which I call the "double herring-bone secured stitch," whereby only one stitch of the covering can be broken at a time; second, in the employment of a binder of leather next the yarn of a base-ball, or as a first cover to other round articles, so stitched and put on, that the outer covering when applied shall have its seams at right angles or breaking joints with the seams of the said first cover; third, in making the leather covers of a hemispherical shape by compression and crimping in properly-shaped molds with plungers, while wet, after which they are dried in shape and then softened by moisture, stretched on, and sewed.

The claims of the original patent are the two following, namely:

1. A ball exterior, composed of two crimped hemispherical covers, A and B, having their respective seams *x* and *y* break joints, substantially as set forth.

2. In combination with a ball whose exterior is composed of two hemispherical covers, A and B, with their respective seams *x y* breaking joints, I claim the double herring-bone stitch formed of two threads, in the manner herein set forth.

The letters A and B in the drawings designate the two covers, one outside of the other, and the letters *x* and *y* designate the respective stitches of those covers. The whole invention claimed, therefore, in the original patent was, first, the two leather covers, (an outside one and an inside one,) with their respective seams crossing at right angles, and, second, the double herring-bone stitch in combination with the two covers.

In the reissue it is stated that—

The nature of my invention consists, first, in the cover of a base-ball formed of two pieces of leather suitably secured to each other; second, the seams of a base-ball united by the double herring-bone knotted lock-stitch; third, a base-ball covering consisting of an outer and an inner covering applied to the ball independently of

each other; fourth, a base-ball covering consisting of independent outer and inner coverings made of hemispherical sections, the seams of the inner and outer covers arranged relatively to each other to break joints.

And this reissue has the four following claims, namely:

1. A base-ball cover formed of two pieces of leather, secured to each other by a single seam, substantially as and for the purpose specified.
2. A base-ball cover having its seam united by the double herring-bone knotted lock-stitch, substantially as and for the purpose specified.
3. The covering of a base-ball consisting of an outer and an inner covering, each of which is composed of two pieces of leather, and applied to the ball independently of each other, substantially as and for the purpose specified.
4. A base-ball covering composed of independent inner and outer coverings, made up of hemispherical sections, the seams of the inner and outer covers arranged relatively to each other, to break joints, substantially as and for the purpose specified.

It is apparent that in the reissue the claim of invention is greatly enlarged. The patentee claims therein, first, any and every single base-ball cover formed of two pieces of leather fastened together by a single seam, substantially as and for the purpose described; secondly, any and every base-ball cover having its seam united by the double herring-bone stitch, substantially, &c.; thirdly, every and any use of two covers on a base-ball, each made of two pieces of leather, and applied to the ball independently of each other, substantially, &c. The fourth claim is nearly equivalent to the first claim of the original patent. The others are all new. It is clear, therefore, on the face of the patents that the only object of the reissue was to enlarge the claims. The description was not altered in the least. The claims in the original patent were clear and explicit, one of them being substantially retained in the reissue. Nothing was altered, nothing was changed, but to multiply the claims and to make them broader. And this was done, not for the benefit of the original patentee, but for that of his assignee, and was done after the lapse of nearly four years from the granting of the original patent. The case seems to come clearly within the principles laid down in *Miller* v. *Brass Company*, (104 U. S., 350,) and if we were right in the conclusions arrived at in that case, we do not see how we can sustain the patent sued on in this. The counsel for the appellant seems to be aware of this, and in his argument directs his efforts mainly to attack the principles there expressed, although they have been frequently reiterated in subsequent cases. We deem it proper, therefore, to say, once for all, that the views announced in *Miller* v. *Brass Company* on the subject of reissuing patents for the purpose of expanding and enlarging the claim were deliberately expressed and are still adhered to. As the reasons for those views were quite fully gone into at that time, it is unnecessary to repeat them at large. A few additional observations will suffice. It was not intended then, and is not now, to question the conclusiveness in suits for infringements of patents of the decisions of the Commissioner on questions of fact necessary to be decided before issuing such patents, except as the statute gives specific defenses in that regard; but the statutory defenses are not the only defenses which may be made against a patent. Where it is evident that the Commissioner, under a misconception of the law, has exceeded his authority in granting or reissuing a patent, there is no sound principle to prevent a party sued for its infringement from availing himself of the illegality, independently of any statutory permission so to do. This is constantly done in land cases where patents have been issued which the land officers had no authority to issue, as where the lands have been previously granted, reserved from sale, or appropriated to other uses. (*Stoddard* v. *Chambers*, 2 How., 318; *Easton* v. *Salisbury*, 21 How., 426; *Reichart* v. *Felps*, 6 Wall., 160; *Silver* v. *Ladd*, 7 Wall., 219; *Meader* v. *Norton*, 11 Wall., 442; *Best* v. *Polk*, 18 Wall., 112; *Morton* v. *Nebraska*, 21 Wall., 660; *Leavenworth R. Co.* v. *U. S.*, 92 U. S., 733; *Newhall* v. *Sanger*, Id., 761; *Sherman* v. *Buick*, 93 U. S., 209.)

In cases of patents for inventions, a valid defense, not given by the statute, often arises where the question is whether the thing patented amounts to a patentable invention. This being a question of law, the courts are not bound by the decision of the Commissioner, although he must necessarily pass upon it. (See *Brown* v. *Piper*, 91 U. S., 38; *Glue Co.* v. *Upton*, 97 U. S., 3; *Dunbar* v. *Myers*, 94 U. S., 187, 197, 199; *Atlantic Works* v. *Brady*, 107 U. S., 199; S. C., 2 Sup. Ct. Rep., 225; *Slawson* v. *Grand St. R. Co.*, Id., 652; S. C., 2 Sup. Ct. Rep., 663; *King* v. *Gallun*, 109 U. S., 101; S. C., 3 Sup. Ct. Rep., 85.) In this very matter of reissued patents it has also been frequently decided that it is a good defense in a suit on such a patent to show that the Commissioner exceeded his authority in granting it. Such a defense is established by showing that the reissued patent is for a different invention from that described in the original, inasmuch as the statute declares that it must be for the same invention. (*Burr* v. *Duryee*, 1 Wall., 531, 574; *Gill* v. *Well*, 22 Wall., 1; *Collar Co.* v. *Van Dusen*, 23 Wall., 530, 560; *Wood Paper Patent*, Id., 566, and many other subsequent cases.) The same defense may be established by showing from the record that there was no inadvertence, accident, or mistake in drawing up the specification of the original patent, for the statute only gives a reissue when the original is defective by inadvertence, accident, or mistake. Thus in *Leggett* v. *Avery* (101 U. S., 259) the reissued patent embraced a claim which had been presented on the application for the original patent and rejected. It was apparent, therefore, that the omission of that claim in the original was not, and could not have been, the result of inadvertence, accident, or mistake, but was the result of design on the part of the Commissioner and acquiescence on the part of the patentee, and so far as that claim was concerned the reissued patent was properly held to be void. (See, also, *James* v. *Campbell*, 104 U. S., 368.) The proper remedy of the patentee when a claim applied for is rejected is an appeal, and not an application for a reissue.

Such are some of the instances in which a patent issued contrary to law is held to be void. And it is no doubt a general rule that where the Commissioner has exceeded his authority in granting or reissuing a patent such fact furnishes a good defense to a suit brought for its infringement. There are stronger reasons for this defense against patents for inventions, which directly affect the citizen, than exist in the case of patents for land, which directly affect the government and only indirectly the citizen. Now, in our judgment, a patent for an invention cannot lawfully be reissued for the mere purpose of enlarging the claim, unless there has been a clear mistake inadvertently committed in the wording of the claim, and the application for a reissue is made within a reasonably short period after the original patent was granted. The granting of such reissues after the lapse of long periods of time is an abuse of the power, and is founded on a total misconception of the law. The Commissioner of Patents has evidently proceeded in these cases on the view that a patent may be reissued after any lapse of time for the purpose of making a broader claim by merely showing that the claim might have been broader than it was and that it was inadvertently made too narrow at the time. In this we think he has been entirely in error. Lapse of time may be of small consequence on an application for the reissue of a patent on account of a defective specification or description, or where the original claim is too broad. But there are substantial reasons, not applicable to these cases, why a claim cannot be enlarged and made broader after an undue lapse of time. The rights of the public here intervene, which are totally inconsistent with such tardy reissues; and the great opportunity and temptation to commit fraud after any considerable lapse of time, when the circumstances of the original application have passed out of mind, and the monopoly has proved to be of great value, make it imperative on the courts, as a dictate of justice and public policy, to hold the patentees strictly to the rule of reasonable diligence in making application for this kind of reissues.

Conceding that it is for the Commissioner of Patents to determine whether the insertion of too narrow a claim rose from inadvertence, accident, or mistake, unless where the matter is manifest from the record, the question whether the application for correction and reissue is or is not made within reasonable time is in most, if not all, of such cases a question which the court can determine as a question of law by comparing the patent itself with the original patent, and, if necessary, with the record of its inception. The reason for this was fully explained in the case of *Miller* v. *Brass Company*. The taking out of a patent which has, as the law requires it to have, a specific claim is notice to all the world of the most public and solemn kind that all those parts of the art, machine, or manufacture set out and described in the specification, and not embraced in such specific claim, are not claimed by the patentee, at least not claimed in and by that patent. If he has a distinct patent for other parts, or has made application therefor, or has reserved the right to make such application, that is another matter not affecting the patent in question. But, so far as that patent is concerned, the claim actually made operates in law as a disclaimer of what is not claimed, and of all this the law charges the patentee with the fullest notice. Then what is the situation? The public is notified and informed by the most solemn act on the part of the patentee that his claim to invention is for such and such an element or combination, and for nothing more. Of course what is not claimed is public property. The presumption is, and such is generally the fact, that what is not claimed was not invented by the patentee, but was known and used before he made his invention; but, whether so or not, his own act has made it public property, if it was not so before. The patent itself as soon as it is issued is the evidence of this. The public has the undoubted right to use, and it is to be presumed does use, what is not specifically claimed in the patent. Every day that passes after the issue of the patent adds to the strength of this right, and increases the barrier against subsequent expansion of the claim by a reissue under a pretense of inadvertence and mistake. If any such inadvertence or mistake has really occurred, it is generally easily discernible by an inspection of the patent itself, and any unreasonable delay in applying to have it corrected by a surrender and reissue is a just bar to such correction. If the specification is complicated and the claim is ambiguous or involved, the patentee may be entitled to greater indulgence, and of this the court can rightfully judge in each case. No precise limit of time can be fixed and laid down for all cases. The courts will always exercise a proper liberality in favor of the patentee. But, in any case, by such delay as the court may deem unnecessary and unreasonable, the right to a reissue will be regarded as having been abandoned and lost, and the Commissioner will be held to have exceeded his authority in granting it. Whenever it is manifest from the patent itself, compared with the original patent and cognate documents of record, or from the facts developed in the case, that the Commissioner must have disregarded the rules of law by which his authority to grant a reissue in such cases is governed, the patent will be considered as void to the extent of such illegality. It is, then, a question of law, not a question of fact. As before stated, the case is entirely different from that of a reissue by reason of a defective specification or description, or on account of the claim being too broad. In these cases the public interest is promoted by the change, while a reissue for the purpose of making a claim more broad and comprehensive is injurious to the public, since it takes from the public the use of that which it previously enjoyed, and which the original patent acknowledged its right to enjoy. We repeat, then, if a patentee has not claimed as much as he is entitled to claim, he is bound to discover the defect in reasonable time, or he loses all right to a reissue; and if the Commissioner of Patents, after the lapse of such reasonable time, undertakes to grant a reissue for the purpose of correcting the supposed mistake, he exceeds his power, and acts under a mistaken view of the law, and the court, seeing this, has a right, and it is its duty, to declare the reissue *pro tanto* void in any suit founded upon it.

The truth is (as was shown in *Miller* v. *Brass Company*) that this class of cases—namely, reissues for the purpose of enlarging and expanding the claim of a patent—was not comprised within the literal terms of the law which created the power to reissue patents; but since the purpose of the statute undoubtedly was to provide that kind of relief which courts of equity have always given in cases of clear accident and mistake in the drawing up of written instruments, it may fairly be inferred that a mistake in a patent whereby the claim is made too narrow is within the equity if not within the words of the statute. Yet no court of equity, considering all the interests involved, would ever grant relief in such a case without due diligence and promptness on the part of the patentee in seeking to have the error corrected. It is just one of those cases in which laches and unnecessary delay would be held to be a bar to such relief. And in extending the equity of the statute so as to embrace the case, the courts should not overlook or disregard the conditions on which alone courts of equity would take any action, and also on which alone the Commissioner of Patents has any power to grant a reissue. As we have already stated, no invariable rule can be laid down as to what is reasona-

ble time within which the patentee should seek for the correction of a claim which he considers too narrow. In *Miller* v. *Brass Company*, by analogy to the law of public use before an application for a patent, we suggested that a delay of two years in applying for such correction should be construed equally favorable to the public; but this was a mere suggestion, by the way, and was not intended to lay down any general rule. Nevertheless, the analogy is an apposite one, and we think that excuse for any longer delay than that should be made manifest by the special circumstances of the case.

In the present case there was a delay of nearly four years. The application for a reissue, though made in the name of the patentee and signed by him, was not made for his benefit, but for the benefit and apparently at the instance of his assignee, the present appellant. The specification is very plain and free from complexity, and, as we have already stated, the claims in the original patent were clear and explicit. There was no ambiguity and nothing to prevent the patentee from seeing at once, on inspecting his patent, whether his whole invention was claimed or not. We can see no possible excuse, and none has been attempted to be shown, for allowing the patent to stand the length of time it did without any attempt to have it amended. The reissue was made against law apparent on its face, and nothing is shown in the record to remove this illegality. The case is clearly within the principle laid down in *Miller* v. *Brass Company*, and the patent must be regarded as void so far as the new and expanded claims are concerned. As this leaves only the fourth claim to be considered, and as it is clear from the evidence in the case that the appellants did not infringe that claim, the decree of the circuit court must be affirmed.

Supreme Court of the United States.

MAHN *v.* HARWOOD *et al.*

Decided October Term, 1884.

APPEAL from the Circuit Court of the United States for the District of Massachusetts.

Mr. Justice MILLER, dissenting.

In this case I avail myself of the first occasion which has fairly required it to give expression to my views in opposition to those expressed by the court in several cases in which reissues of patents have been held invalid.

The principle on which the present case is decided, and which, if not the only ground of that decision, is emphasized in the opinion as the controlling ground, is that of laches in the application for the reissue. It is quite clear from the opinion that, if in all other respects the patentee had been entitled to the reissue of the patent on which he relies in this case, it would give him no protection, because this Court is of opinion that under the circumstances the application for it came too late. This proposition of the Court does not grow out of any statute of limitation governing such applications, nor because the original patent, and, of course, the reissue, does not have a considerable time to run before it expires by law, but because the Court, applying to the transaction as it came before the Commissioner of Patents the equitable doctrine of laches—of improper delay—holds that, on that principle, the party came too late and the reissue is invalid. The distinction between the instrument being void and merely voidable is so well known that it can hardly be supposed to have escaped the attention of the Court; and since the judgment in this case can bind no one but the parties to it, the patentee in another suit on the same patent against another party, by showing reasonable excuse for his delay, may prove his patent to be valid, and in that suit he must recover, though he fails in this. Thus every infringer will have the right to retry, when he is sued, the question of whether the Commissioner of Patents exercised a sound discretion in allowing the surrender and reissue of the patent. Such a doctrine renders the labor of the Patent Office, with its Commissioner and corps of trained examiners, of very little value, and subjects the final decision in favor of a patentee to the re-examination of any number of juries on the very facts which were passed upon by the officers appointed by law for the purpose of deciding the questions necessary to the validity of the patent.

The doctrine is well established that a grant by the government, within its lawful authority, evidenced by a patent under its seal and the signature of the Executive, cannot be impeached collaterally. It must be recognized as valid in all courts when it is introduced as evidence of the right which it confers, and can only be avoided by a direct proceeding by way of *scire facias* or bill in chancery to set aside the grant for some of the reasons which made its original issue a wrongful act. In such case the government which issued the patent, by its attorney-general or other proper officer, in a court of competent jurisdiction, obtains a decree setting the patent aside, whereby it is rendered of no avail against all persons interested in the matter as well as the government. For decisions which establish this doctrine, if there could be any doubt about it, I refer to the following cases: *United States* v. *Stone*, (2 Wall., 525;) *Same* v. *Throckmorton*, (98 U. S. R., 70;) *Mowry* v. *Whitney*, (14 Wall., 434,) which is the case of a patent for invention and where the whole subject is fully discussed. Undoubtedly there are cases of patents, with all the solemn formalities attesting their validity, which are properly rejected by the courts when offered in evidence, because they show upon their face that no authority existed for their issue. The power to grant the rights, which they profess to confer, did not exist. Either it did not exist at all, or it did not exist in the officers or tribunal which issued the patent. In such cases the court can see, from the face of the instrument, the nature of the grant, and the power which the law confers on the officer who issued it, that it is wholly void, and that no evidence to be now produced, or which could have been produced before that officer, could authorize the grant or make it valid. Such an instrument is void *ab initio*, is void always and everywhere, for want of power in those who made it. Can the present case come under this exception? Clearly not. The question of laches, of undue delay in making application to correct "a mistake, accident, or inadvertence," by reason of which the patentee does not get the full benefit of his invention, must depend on many circumstances which cannot appear on the face of the reissued patent. No mistake can be corrected until it is discovered. The period of this discovery is always a matter of proof, which may be of the most

varied character. If the discovery of the mistake was soon after the issue of the patent, and the delay defeated the right to the reissue, this was a matter into which the Patent Office should inquire. The duty to do so devolved on it, and the right to decide it necessarily followed. While the dates of the original patent and the application for a reissue might seem to show an unreasonable delay, this appearance might have been removed by evidence which afforded a full justification for it. Very long delays have been justified by the decisions of this court when set up as objections to patents. (See *Smith* v. *Goodyear Dental Vulcanite Company*, 93 U. S. R., 486.) That patents for inventions were intended by Congress to have this conclusive and unimpeachable character is manifest from the legislation on this very point. Section 4920 of the Revised Statutes, which was originally enacted in 1836, sets forth five distinct defenses which may be pleaded to an action for infringement of a patent-right. They are as follows:

1. That for the purpose of deceiving the public the description and specification filed by the patentee in the Patent Office was made to contain less than the whole truth relative to his invention or discovery, or more than is necessary to produce the desired effect; or,
2. That he had surreptitiously or unjustly obtained the patent for that which was in fact invented by another, who was using reasonable diligence in adapting or perfecting the same; or,
3. That it had been patented or described in some printed publication prior to his supposed invention or discovery thereof; or,
4. That he was not the original and first inventor or discoverer of any material and substantial part of the thing patented; or,
5. That it had been in public use or on sale in this country for more than two years before his application for a patent, or had been abandoned to the public.

The statute also requires the defendant in such cases to give the patentee notice with great particularity of the persons who are prior inventors or have knowledge of prior use of the invention and when and by whom it has been used.

It will be observed that while these defenses go to the validity of the patent, they all resolve themselves into want of novelty, or of priority of invention or discovery, except the first and the last. Neither laches nor fraud is here mentioned as a defense to the patent. Why were these five points made matter of defense by statute? And why were no others mentioned? The answers to these two questions are obvious, and they are conclusive of the question before us. The answer to the first question is that these defenses go to impeach the patent and destroy its value as evidence in that case; and by the law as it stood then and stands now this cannot be done without a special statute to authorize it. And the reason why no other grounds for impeaching the patent were allowed to be set up in defense was that Congress intended that all other causes for impeaching the patent should be prosecuted in the usual mode of *scire facias* or bill in chancery, brought by the proper law officers of the Government to set it aside and annul it. If Congress had intended that the patent issued with all the necessary formalities should be assailed collaterally for every reason that might have been urged against its issue originally, it would have said so in short terms, and not have enumerated particular or special reasons for which it may be so attacked. That laches is not one of these reasons is clear, and affords an unanswerable argument that it was not intended that it should be a ground of defense for its infringement in such actions. The careful and studied enumeration of matters going to impeach the patent, where a suit is brought to enforce rights granted by it, is the strongest affirmation that no others are admissible for that purpose in that kind of suit.

In the *United States* v. *Throckmorton* the court said that—

> in so important a matter as impeaching the grants of the Government under its seal, its highest law officer should be consulted and should give the support of his name and authority to the suit.

In *Mowry* v. *Whitney* (14 Wall., 441) it is said that a suit by an individual could only be conclusive in result as between the parties, and would leave the instrument valid as to all others, and the patentee might be subjected to innumerable vexatious suits to set aside his patent.

> It would seriously impair the value of the title which the Government grants after regular proceedings before officers appointed for the purpose if the validity of the instrument by which the grant is made can be impeached by any one whose interest may be affected by it, and would tend to discredit the authority of Government in such matters.

If the principles of the opinion in the present case are sound, then in every case where an action at law is brought the jury must sit in judgment on the action of the Commissioner of Patents as to the existence of laches where that is alleged, and as there may be a dozen jury trials in suits against that many different parties for infringing the same patent, each jury deciding on its own impression of the evidence before it, the question of the validity of the reissue can never be settled, nor the patentee or the public know whether his patent is valid or worthless. Such a departure from the settled rules of law as applicable to these instruments cannot be justified in a court until authorized by legislative power.

In several cases which have preceded this one, especially *Miller* v. *Bridgeport Brass Company*, (104 U. S. R., 350,) where this doctrine has been stated in the opinion, other grounds were also given as the foundation of the judgment. I had hoped, when we came to a case where the question must be decided, my brethren would not adopt it on full consideration. This must be my apology for any apparent acquiescence in it heretofore. I am of opinion that reissued patents are entitled to the same consideration as other patents issued by the Government.

U. S. Circuit Court—Western District of Michigan, Southern Division.

THE FARMERS FRIEND MANUFACTURING COMPANY *v.* THE CHALLENGE CORN PLANTER COMPANY.

Decided January 16, 1885.

Reissued Letters Patent No. 10,155 granted M. Runstetler, July 11, 1882, for improvement in corn-planters, *held* invalid, as being for a different invention from that described and claimed in the original letters patent.

Messrs. Wood & Boyd and *Mr. E. W. Withey* for the complainant.

Messrs. Stem & Peck and *Mr. Edward Taggart* for the defendant.

BAXTER, *J.*:

This is a bill to enjoin an alleged infringement of Reissued Letters Patent No. 10,155, issued to the complainant, as assignee of Michael Runstetler, on July 11, 1882. We have not the time to enter upon a full discussion of the facts of the case, and hence will content ourselves with a simple announcement of the con-

clusion to which we have arrived on one question made and relied on by the defendant.

In a former suit, prosecuted by the complainant in this court against the Waite Manufacturing Company for an alleged infringement of the same reissued letters patent, we rendered a decree in complainant's favor, affirming their validity, and ordered an account of the damages. This, of course, would be conclusive of this case on that point if the facts of the two cases were the same; but the defendant did not introduce in the former case any testimony in support of its defenses. The decree made therein was predicated upon the *prima facie* case made by the production of complainant's said reissued letters patent and proof of the alleged infringement; but here the defendant comes with full proof. Among other testimony, it has put in evidence a copy of the original letters patent, and insists that upon a comparison thereof with the reissued letters patent it will appear that the latter is not for the same invention covered by the former.

The first claim of the original patent is in these words:

1. In a corn-planter having the rear main frame mounted on supporting-wheels, the front runner-frame hinged or pivoted to the main frame and operated by an elevating and depressing lever pivoted to the main frame, having its front end slotted and connected to the runner-frame by a bolt passing through said slot, in combination with the shaft A and lifting hand-lever D, rigidly attached to said shaft, for elevating, depressing, and controlling the runner-frame, substantially as herein set forth.

A reissue was applied for and obtained, in which the foregoing claim was expanded into the four following claims:

1. In a corn-planter having the rear main frame mounted on supporting-wheels and the front runner-frame hinged or pivoted to the main frame, the combination of a foot-treadle and a hand-lever adapted to be used in conjunction or independently for the purpose of elevating or depressing the runners, substantially as herein set forth.
2. In a corn-planter having the rear main frame mounted on supporting-wheels and the front runner-frame hinged or pivoted to the main frame, a foot-treadle for elevating or depressing the runner-frame, in combination with a hand lock-lever, the foot-treadle and hand-lever adapted to be used in conjunction for forcing and locking the runners into the ground or lifting and locking them out of the ground, substantially as herein set forth.
3. In a corn-planter having the rear main frame mounted on supporting-wheels and the front runner-frame hinged or pivoted to the main frame, a foot-treadle for elevating or depressing the runner-frame, in combination with a hand-lever rigidly connected therewith, that either hand-lever or treadle may be used for forcing the runners into the ground or lifting them out of the ground, substantially as herein set forth.
4. The combination, in a corn-planter having the rear main frame mounted on supporting-wheels and a front runner-frame hinged or pivoted to the main frame, of a foot-treadle for elevating the runner-frame, and a hand-lever for elevating or depressing the same, both arranged to move simultaneously when either is acted upon by an operator.

The foregoing first claim of the original patent ought, in view as well of its own terms as of the correspondence relating thereto, which passed between the Office and the inventors' solicitors, shown by the file-wrapper, to be restricted to the specific combination therein described. This was all to which the inventor was entitled, (everything else having been anticipated by others.) Thus construed the defendant's planter is not an infringement of the original patent. This was conceded by complainant's expert in his testimony and by counsel in the argument of the cause. But defendant's planter is, as they contend and as the Court concedes, an infringement of the reissued patent. The reissue is not, as we think, for the same invention covered by the original letters, and is invalid. Complainant's bill will be dismissed, with costs.

U. S. Circuit Court---Southern District of New York.

THE INTERNATIONAL TOOTH CROWN COMPANY *v.* MILLS *et al.*

Decided December 1, 1884.

1. Preliminary injunction will not be granted when, upon the same proofs and allegations, final relief would be denied.
2. Matters not alleged in the bill of complaint cannot be urged as grounds for preliminary injunction.

Messrs Dickerson & Dickerson for the complainant.
Mr. S. J. Gordon for the defendant Berkowitz.

WALLACE, *J:*

The motion for a preliminary injunction to restrain the infringement by defendants of letters patent of the United States granted to Cassius M. Richmond, No. 277,941 and No. 277,943, and of letters patent to Alvan S. Richmond, No. 277,933, and of letters patent to J. E. Low, No. 238,940, must be denied. Whatever may be decided finally as to the validity of these patents, enough is shown in the opposing affidavits to suggest doubts which are fatal upon an application for an injunction *pendente lite*.

The complainant mainly relies upon the effect of certain conditions contained in licenses asserted to have been taken of complainant by the defendants under all the patents except the Low patent, whereby, in substance, the defendants covenant never to contest the validity of the patents and to consent to the issuing of an injunction in case of a violation of the license agreement, and never to encourage any infringements of the patents. There are no allegations in the bill of complaint that such licenses were ever granted by complainant or accepted by the defendants, or any to show that defendants are not ordinary infringers, and proof of such facts would not, therefore, be considered if the case were here upon final hearing. Preliminary relief will not be granted when upon the same proofs and allegations final relief would not be granted. There is nothing in the affidavits on the part of the complainant in regard to the licenses. Copies of licenses are annexed which purport to be signed by persons having the same name as the defendants; but there is nothing to show that licenses were ever delivered to or accepted by the defendants, or that there has been any breach, or that the licenses are not now in force. Enough may be spelled out from the affidavits of the defendants and from the answer to the bill to supply these omissions, though not without difficulty; but the court should not be asked to spend much time to find out whether the vital facts upon which the moving party relies, but which he has not taken the trouble to assert, can be exhumed from some other source.

Ordered accordingly.

THE OFFICIAL GAZETTE OF THE United States Patent Office.

[*BY AUTHORITY OF CONGRESS.*]

VOL. 30—No. 8. TUESDAY, FEBRUARY 24, 1885. PRICE—$5 per year.

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Amendment to Rule 53.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, February 19, 1885.

Rule 53 of the Rules of Practice is amended to read as follows:

The foregoing rules relating to drawings will be rigidly enforced. Every drawing not artistically executed in conformity thereto may be admitted for purposes of examination if it sufficiently illustrates the invention, but in such cases a new drawing must be furnished before the application can be allowed. The Office will make the necessary corrections at the applicant's option and cost.

BENJ. BUTTERWORTH,
Commissioner.

Approved.
H. M. TELLER,
Secretary of the Interior.

Indexes to Patents on Electricity.

Appendix No. 2 to the index to patents relating to electricity, covering the period of time from July 1, 1882, to June 30, 1883, has been issued, and is now for sale. These indexes, arranged alphabetically, numerically, and by classes, are completed to June 30, 1883, and comprise the following volumes:

Vol. 1. Index to patents relating to electricity granted by the United States prior to June 30, 1881, with an appendix, July 1, 1881, to June 30, 1882. One volume, 250 pages. In paper covers, $3; bound, $5.

Vol. 2. Appendix No. 2, July 1, 1882, to June 30, 1883. One volume, 50 pages. In paper covers, $1.50.

BENJ. BUTTERWORTH,
Commissioner.

Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., February 12, 1885.

SIR: I am directed by the Secretary to inform you that he has ordered that John McLean, of Crookston, Minnesota, be not recognized from and after this date as attorney in the prosecution of any claim or other matter before the Department of the Interior or any bureau thereof.

I am, sir, very respectfully, your obedient servant,
GEO. M. LOCKWOOD,
Chief Clerk.

The Commissioner of Patents.

Issue of February 24, 1885.

Patents	441	No. 312,600 to No. 313,040, inclusive.
Designs	31	No. 15,850 to No. 15,880, inclusive.
Trade-Marks	18	No. 11,964 to No. 11,981, inclusive.
Labels	11	No. 4,351 to No. 4,361, inclusive.
Reissues of patents	4	No. 10,562 to No. 10,565, inclusive.
Total issue	505	

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TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama			Nebraska	4	
Arizona Territory			Nevada		
Arkansas	1		New Hampshire	1	
California	8		New Jersey	35	
Colorado	5		New Mexico Territ'y		
Connecticut	23		New York	82	7
Dakota Territory			North Carolina	1	1
Delaware	1		Ohio	45	
District of Columbia	1		Oregon		
Florida	1		Pennsylvania	39	8
Georgia	3		Rhode Island	6	
Idaho Territory			South Carolina	1	
Illinois	48		Tennessee	3	
Indiana	21		Texas	5	
Indian Territory			Utah Territory		
Iowa	14		Vermont	1	
Kansas	2	2	Virginia	5	
Kentucky	3		Washington Territ'y		
Louisiana			West Virginia		
Maine	4		Wisconsin	4	
Maryland	5	4	Wyoming Territory		
Massachusetts	36	5	United States Army		
Michigan	17	1	United States Navy		
Minnesota	5				
Mississippi			Total to citizens of the United States	443	28
Missouri	13				
Montana Territory					

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Australia			Germany	9	1
Austria-Hungary	3		Hayti		
Barbadoes			Holland		
Belgium			Island of Trinidad		
Bermuda			Italy		
Brazil			Mexico	1	
Canada	4		New Zealand	1	
Chili			Scotland	2	
Colombia, U. S. of			Spain		
Cuba			Sweden		
Denmark			Switzerland		
Ecuador					
England	9		Total to citizens of foreign countries	29	1
France					

DESIGNS.

15,850.—PLAQUE-FRAME.—*William H. Brownell*, Brooklyn, N. Y. Application filed January 16, 1885. Term of patent 7 years.

15,851.—STICK-CANDY.—*Thomas E. Copelin*, Chicago, Ill. Application filed July 5, 1884. Term of patent 7 years.

15,852.—LAMP-CHIMNEY.—*Henry Dietrich*, Pittsburg, Pa. Application filed January 17, 1885. Term of patent 7 years.

15,853 to 15,858, inclusive.—CARPET.—*James L. Folsom*, Brooklyn, N. Y., assignor to *The Hartford Carpet Company*, Hartford, Conn. Applications filed January 14, 1885. Term of patents 3½ years.

15,859.—CARPET.—*Otto Heinigk*, New Utrecht, N. Y., assignor to *The Hartford Carpet Company*, Hartford, Conn. Application filed January 14, 1885. Term of patent 3½ years.

15,860 to 15,865, inclusive.—CARPET.—*Henry Hunt*, Greenville, N. J., assignor to *The Hartford Carpet Company*, Hartford, Conn. Applications filed January 14, 1885. Term of patents 3½ years.

15,866 to 15,876, inclusive.—CARPET.—*Winthrop L. Jacobs*, East Orange, N. J., assignor to *The Hartford Carpet Company*, Hartford, Conn. Applications filed January 14, 1885. Term of patents 3½ years.

15,877.—CURTAIN FABRIC.—*Ernest G. Nufer*, Philadelphia, Pa., assignor to *George Brooks & Son*, same place. Application filed January 23, 1885. Term of patent 3½ years.

15,878.—FAN.—*Nathaniel Plympton*, New York, N. Y. Application filed January 16, 1885. Term of patent 3½ years.

15,879.—WATCH-CHAIN.—*Robert F. Simmons*, Attleborough Falls, Mass. Application filed September 2, 1884. Term of patent 7 years.

15,880.—BADGE.—*Otto Wettstein*, Rochelle, Ill. Application filed December 4, 1884. Term of patent 7 years.

TRADE-MARKS.

[Certificates of registration of Trade-Marks numbered 8,191 and upward are registered under the act of March 3, 1881.]

11,964.—CIGARS.—*Burk, Rich & Co.*, Detroit, Mich. Application filed January 2, 1885.

"The words 'WASHINGTON'S CABINET' and an illustration of Washington and the members of his cabinet."

11,965.—ALLOYS USED FOR COATING METAL ARTICLES.—*Edmund C. Converse*, Pittsburg, Pa. Application filed January 7, 1885.

"The word-symbol 'SILVERINE.'"

11,966.—PERFUMERY AND TOILET-SOAPS.—*Eastman & Brother*, Philadelphia, Pa. Application filed January 20, 1885.

"The word 'ALOHA' and the picture of a swan inclosed by a triangle."

11,967.—CERTAIN PROPRIETARY MEDICINES.—*John E. Healy* and *Charles Bigelow*, Boston, Mass. Application filed December 15, 1884.

"The fac-simile signature of the firm-name 'HEALY & BIGELOW.'"

11,968.—SALVE.—*John E. Healy* and *Charles Bigelow*, Boston, Mass. Application filed September 13, 1884.

"A ring broken away at the bottom and surrounded by a border composed of lines crossing each other, forming a diamond field interspersed by dots, stars, and crosses."

11,969.—TOILET-WATER.—*Frank La Manna*, Brooklyn, N. Y. Application filed January 8, 1885.

"A picture of two branches of the késara plant growing upward from a root."

11,970.—FLOUR.—*Landes, Beall & Co.*, Arkansas City, Kans. Application filed January 17, 1885.

"The words 'OLD GOLD.'"

11,971.—FLOUR.—*Landes, Beall & Co.*, Arkansas City, Kans. Application filed January 17, 1885.

"The word 'CRESCENT.'"

11,972.—LEAF-TOBACCO.—*Loeb & Block*, Philadelphia, Pa. Application filed December 30, 1884.

"The arbitrary symbol-words 'DOMESTIC HAVANA.'"

11,973.—TOILET POWDERS, POMADES, WASHES, AND PERFUMES.—*Frank La Manna*, Brooklyn, N. Y. Application filed January 8, 1885.

"The words 'AUX BRISES DE FLORE.'"

11,974.—FILLED WATCH-CASES.—*H. Muhr's Sons*, Philadelphia, Pa. Application filed January 31, 1885.

"The word 'EXCELSIOR.'"

11,975.—EGG-FOOD FOR POULTRY.—*Simon S. Myers*, Philadelphia, Pa. Application filed January 31, 1885.

"The title 'CHICK-CHICK-ER-RE-KEE.'"

11,976.—CIGARS.—*Marvin R. Pearsall*, New York, N. Y. Application filed February 14, 1884.

"The arbitrarily-selected words 'WOODEN INDIAN.'"

11,977.—BASE-BALL BATS, INDIAN-CLUBS, AND DUMB-BELLS.—*Prior & Hilgenberg*, Baltimore, Md. Application filed January 30, 1885.

"A blue band bearing the arbitrary word-symbol 'EXCELSIOR.'"

11,978.—SPECTACLES AND EYEGLASSES.—*A. Schweizer*, Fürth, Bavaria, Germany. Application filed January 7, 1885.

"The representation of a globe or its equivalent—the word 'GLOBE.'"

11,979.—PRESERVE-JARS.—*Thomas W. Synnott* and *Charles D. Macqueen*, Philadelphia, Pa. Application filed January 24, 1885.

"The fanciful word or title 'LEADER.'"

11,980.—PLUG AND TWIST CHEWING AND SMOKING TOBACCO, CIGARS, AND CIGARETTES.—*William A. Whitaker*, Winston, N. C. Application filed January 10, 1885.

"The words 'TWIN CITY.'"

11,981.—CIGARS AND CIGARETTES.—*Loud, Claridge & Co.*, Baltimore, Md. Application filed December 9, 1884.

"The words 'WASHINGTON MONUMENT.'"

LABELS.

4,351.—Title: "GRANULATED SOFT SOAP."—*William C. Barnard*, Worcester, Mass. Application filed February 2, 1885.

4,352.—Title: "LIQUID CATHARTIC."—*Francis J. Carrall*, Baltimore, Md. Application filed January 31, 1885.

4,353.—Title: "SILVER STEEL." (FOR AXES, HATCHETS, AND SIMILAR EDGE-TOOLS.)—*W. H. Crossman & Bro.*, New York, N. Y. Application filed November 12, 1884.

4,354.—Title: "SOUTH AMERICAN PILE CURE."—*John Dougherty*, New York, N. Y. Application filed January 28, 1885.

4,355.—Title: "FAVORITE" (FOR BOYS', GIRLS', CHILDREN'S, & INFANT'S SHOES.)—*Thomas M. Harris & Co.*, Philadelphia, Pa. Application filed January 24, 1885.

4,356.—Title: "KICKAPOO INDIAN SALVE."—*John E. Healy* and *Charles Bigelow*, Boston, Mass. Application filed September 13, 1884.

4,357.—Title: "DREW'S YEAST POWDER."—*F. L. Hooper & Co.*, Baltimore, Md. Application filed January 28, 1885.

4,358.—Title: "GENUINE CONCORD WAGON COLORS."—*Jones & Co.*, Boston, Mass. Application filed December 30, 1884.

4,359.—Title: "LAUTZ BROTHERS AND CO'S ACME SOAP."—*Lautz Bros. & Co.*, Buffalo, N. Y. Application filed February 2, 1885.

4,360.—Title: "LAUTZ BROTHERS AND CO'S ACME SOAP."—*Lautz Bros. & Co.*, Buffalo, N. Y. Application filed February 2, 1885.

4,361.—Title: "DR. MCCOART'S WORLD RENOWNED SPECIFIC."—*James McCoart*, Philadelphia, Pa. Application filed January 26, 1885.

PATENTS

GRANTED FEB. 24, 1885.

312,600. SIPHON STOP-COCK AND BOTTLE-STOPPER. ISAAC M ABBOTT, Philadelphia, Pa. Filed Feb. 19, 1881. (Model.)

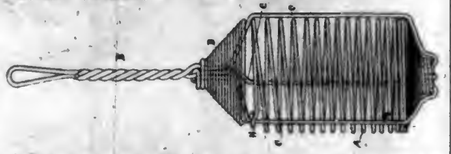


Claim.—1. The combination, with the siphon-tubes A H and plate D, of the screw-threaded tube I, perforated flanged stopper G, and nut E, substantially as shown and described.

2. The combination, with a bottle or similar vessel, of the siphon-tubes A H, plate D, having notches *b b*, perforated flanged stopper G, elastic ring F, and hinged clamp B', having set-screw C, and screw-studs *a a*, provided with thumb-nuts A' A', substantially as shown and described.

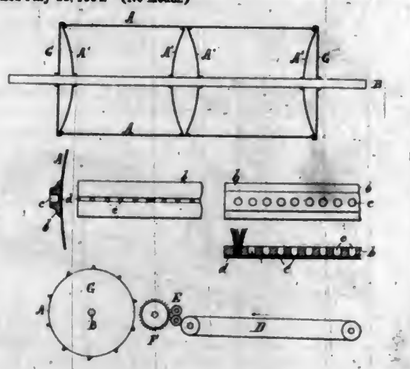
3. The combination, with a bottle having a siphon stop-cock and stopper, of the notched plate D, and hinged clamp B', having set-screw C, screw-studs *a a*, and thumb-nuts A' A', substantially as shown and described.

312,601. SOAP-HOLDER. GEORGE H. ALLEN, Ayer, Mass. Filed Nov. 6, 1883. (No model.)



Claim.—As a new article of manufacture, a soap-holder consisting of a handle provided with radial wires or arms spaced and bent apart as shown, and a helical spring located within said wires or arms, the said spring being of such length that when expanded it will extend from end to end of the wires, and when compressed will occupy a much less space, substantially as set forth.

312,602. HAT-FORMING MACHINE. DAVID ALMOND, Newark, N. J. Filed July 25, 1884. (No model.)

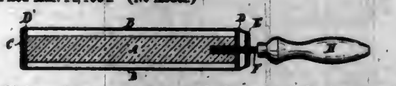


Claim.—1. The rotary brush for hat-forming machines, consisting in the sheet-metal shell A, secured to the drum-shaft B, as described, in combination with the metallic stripe *b*, having the tufts *a* wired therein and the stripe secured to the surface of the drum, substantially as herein set forth.

2. The combination, with the drum A, of metallic stripe *b*, provided with grooves *d* on the inner side, and with holes *c*, extending partly through the strip and communicating with the groove by small holes *e*, and having the tufts tied in the holes *c* by a wire laid in the groove, as and for the purpose set forth.

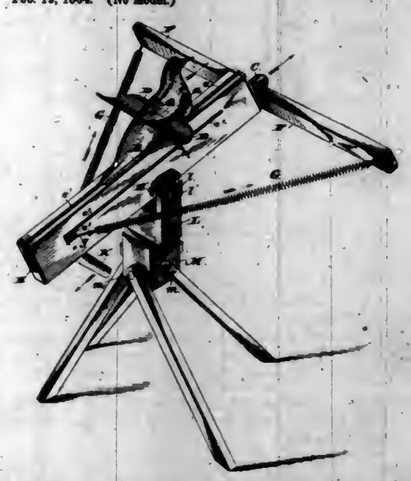
3. On a rotary brush for hat-forming machine, the combination, with the tin shell A, of the circular plates A' and heads G, constructed and secured upon the shaft B by solder, substantially as shown and described.

312,603. RAZOR-STROP. BENJAMIN F. BADGER, Charlestown, Mass. Filed Mar. 14, 1884. (No model.)



Claim.—A razor-strop composed of a body, A, having a cavity at the handle end, the bottom of which forms a bearing for the end of the screw F, the perforated band-bearing D, the nut E, the belt B, the screw F, and handle H, all as shown and described.

312,604. FLYING TARGET. JOHN L. BARKER, Racine, Wis. Filed Feb. 19, 1884. (No model.)



Claim.—1. A flying target shaped to resemble a bird, and provided with outstretched wings upwardly inclined from their front to their rear edges, substantially as set forth.

2. The combination, with a flying target shaped to resemble a bird, and provided with outstretched curved wings upwardly inclined from their front to their rear edges, of an arrow secured to the bird below its wings, substantially as set forth.

3. The combination, with a flying target shaped to resemble a bird, and provided with outstretched wings upwardly inclined from their front to their rear edges, of an arrow removably secured to the bird.

4. A flying target shaped to resemble a bird, and provided with removable outstretched curved wings upwardly inclined from their front to their rear edges, substantially as set forth.

5. In a flying target, the combination, with an arrow having an elongated slot, of an artificial paper bird removably secured in the slot.

312,605. ELIMINATING THE SMELL OF COAL-OIL.

LEON BLUMENTHAL, Minneapolis, Minn. Filed June 9, 1884. (No specimens.)

Claim.—1. The process of eliminating the odorous impurities from refined kerosene, which consists in, first, subjecting the liquid to the action of induced air-currents; second, adding about one dram of sulphuric ether to each gallon of the product; and, third, continuing the action of the air-currents, substantially as described.

2. The within-described process of eliminating the odorous impurities from refined kerosene, which consists in, first, subjecting the liquid to the action of induced air-currents for the period of about four hours; second, adding about one dram of sulphuric ether to each gallon of the product; third, continuing the action of the air-currents for the period of about ten minutes; fourth, changing the color of the product by adding thereto aniline, sulphuric ether, and linseed-oil, combined in about the proportions mentioned; and, fifth, imparting fragrance to the product by the addition of a fragrant extract oil combined with sulphuric ether in about the proportions stated, substantially as set forth.

312,606. BINDING BOOKS.

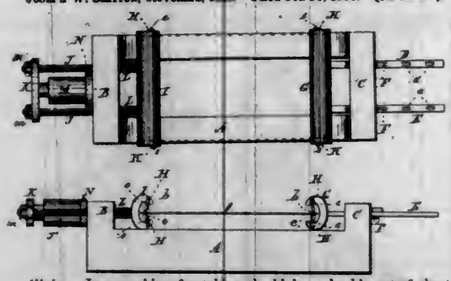
AUGUST BREHMER, Leipsic, Germany, and GAVIN BROWN, Glasgow, Scotland. Filed Mar. 18, 1884. (No model.) Patented in Belgium July 25, 1883, No. 62,126; in England July 31, 1883, No. 3,743, and in France Aug. 7, 1883, No. 156,911.



Claim.—A book sewed with three continuous threads so that the thread from the first section passes into the fourth section, the one from the second into the fifth, the one from the third into the sixth, and so on, substantially as set forth.

312,607. APPARATUS FOR STRAIGHTENING SHEET METAL.

JOSEPH W. BRITTON, Cleveland, Ohio. Filed Oct. 31, 1883. (No model.)



Claim.—In a machine for taking the kinks or buckle out of sheet metal, the frame A, having arranged thereon a retaining-head, G, provided with a pair of clamping-jaws, stay-rods, and keys arranged in relation to and co-operating with a movable clamping-head, I, and clamping-jaws corresponding to the clamping retaining-head G and its respective jaws, drag-rods J, springs, and cross-head, all constructed and arranged to operate in combination with a hydrostatic force-pump or other suitable and sufficient power, substantially as herein described.

312,608. METHOD OF REMOVING SWELLS IN SHEET AND PLATE METAL.

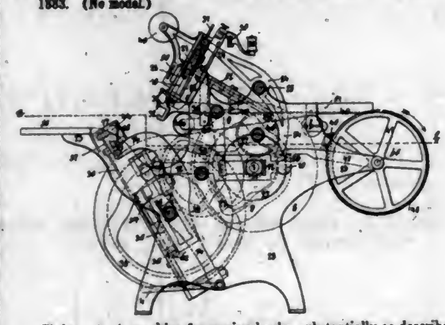
JOSEPH W. BRITTON, Cleveland, Ohio. Filed Nov. 10, 1884. (No model.)



Claim.—In the manufacture of sheet and plate metal, the herein-described method of leveling and flattening the swells, bulges, or buckle of the sheet and plate, by securing transversely the ends of one or more of said sheets or plates in clamping-heads, and while cold subjecting the sheet or sheets to a tensile strain, by which are stretched the short places thereof, attended by a flattening and leveling down of the swells and bulges and an elongation of the entire sheet or sheets more or less, thereby imparting to said sheets an evenly flat uniform surface, in the manner substantially as described.

312,609. MACHINE FOR BINDING BOOKS.

GAVIN BROWN, Glasgow, Scotland, and AUGUST BREHMER, Leipsic, Germany. Filed July 18, 1883. (No model.)



Claim.—1. A machine for sewing books, substantially as described, consisting of a swinging arm, 14, which serves to receive the sections for sewing, a shuttle-carrying mechanism, a needle mechanism, and a mechanism for cutting the ends of the sections, all substantially as described.

2. A signature-presenting mechanism, substantially as described, consisting of a swinging arm, 14, which serves to receive the sections before sewing, the grooved cams 8 on the driving-shaft, the rollers 10, and connecting-rods 12, whereby said swinging arm is operated, substantially as set forth.

3. The combination of the swinging arm 14 with the cam 33, the sliding rack 34, bell-crank 35, segment 62, and shuttle-throwing lever 36, substantially as set forth.

312,610. WEATHER-STRIP.

GEORGE W. CHINN, Bloomington, as signer of one-half to William T. Hale, Atlanta, Mo. Filed Nov. 22, 1884. (No model.)

Brief.—A weather-strip so hinged that it may be swung back against the door, and a swinging catch pivoted to the door a suitable distance above and adapted to engage said strip and hold it in raised position when desired.



Claim.—As an improvement in weather-strips, the combination, with the door, of the weather-strip hinged to the door, and a swinging catch pivoted to the door a suitable distance above the strip, so that when the latter is thrown up the catch may be turned or swung downward to engage the lower edge of the strip and support the same in a raised position against the door, as set forth.

312,611. DETACHABLE BRUSH-HANDLE.

SIMON C. COLLINS, Marietta, Pa. Filed Feb. 11, 1884. (No model.)

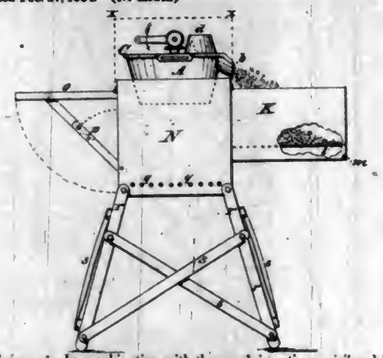


Claim.—1. The handle *a*, having spur *a'* and parts *i* and *f*, in combination with the movable clamp-pieces *b b*, and means, substantially as described, for securing the attachment in place on the back of a brush, substantially as shown.

2. The combination of handle-piece *a*, having spur end *a'*, and parts *i* and *f*, with clamping-pieces *b*, having diagonal slots *g*, piece *c*, having pin *h*, and set-screw *d*, all constructed and operating substantially as shown.

312,612. CORN-POPPER.

GEORGE T. COPELAND, Gloversville, N. Y. Filed Feb. 27, 1884. (No model.)

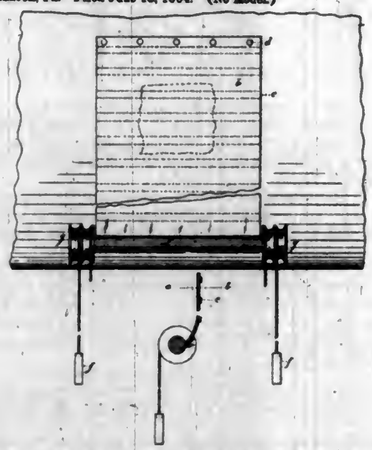


Claim.—1. In combination with the revolving stirrers *j j'* and hopper *d*, the delivery-spout *b*, as set forth.

2. The combination of a roasting-kettle, A, stirrers *j j'*, hopper *d*, and spout *b*, the corn-receptacle K, with perforated bottom *l* and salt-orifice *m*, substantially as set forth.

312,613. LEAK-STOPPER FOR VESSELS.

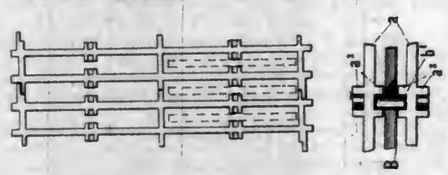
JAMES B. COREY, North Braddock, Pa. Filed June 13, 1884. (No model.)



Claim.—In devices for saving leaking vessels, a sheet composed of a layer of canvas or other textile fabric, and a layer composed of a metal sheet or netting supported and strengthened by lateral metal battens substantially as and for the purpose specified.

312,614. GRATE-BAR.

JOHN B. CRAWLEY, Brooklyn, N. Y. Filed Feb. 4, 1884. (No model.)



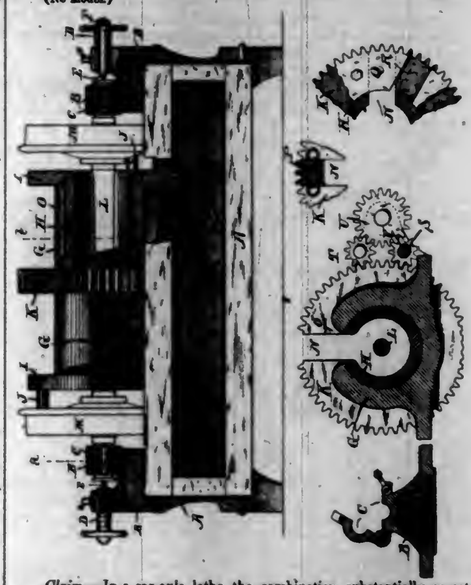
Claim.—1. In combination with the grate-sections having the open bearings, the independent grate-bars B, having the trunnions, as described.

2. In combination with the grate-sections having the open bosses and the rabbets, the rocking grate-bars B, having the trunnions, as described.

3. In combination with the removable grate-bars B, having the open slots b^3, the bar C, as described, secured at the ends only.

312,615. LATHE.

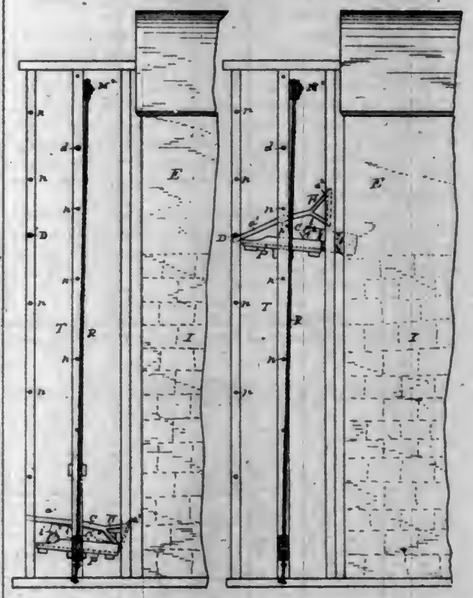
JAMES K. CULLEN and JAMES W. SEE, Hamilton, Ohio, assignors to the Niles Tool Works, same place. Filed June 18, 1884. (No model.)



Claim.—In a car-axle lathe, the combination, substantially as set forth, of a pair of head-stocks provided with bearings adapted to engage the journals of a car-axle, a center stock, and a tubular spindle provided with a driving-gear, and having a driving-plate at each end, the center stock, tubular spindle, driving-gear, and driving-plates being gapped for the admission of the car-axle.

312,616. ICE-ELEVATOR MECHANISM.

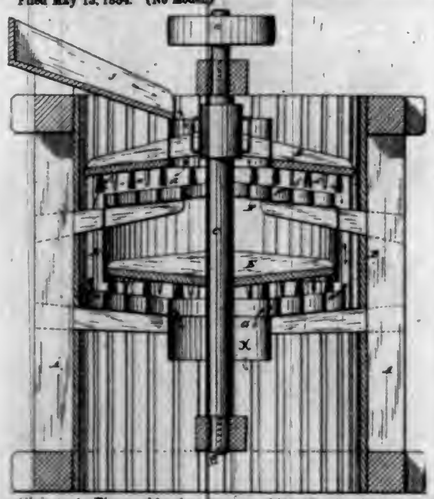
JOHN R. ECCLES, Waterford, N. Y. Filed Jan. 5, 1885. (No model.)



Claim.—1. The combination, with an ice-elevator car or jumper that is adapted to run in vertical guideways, of a platform inclining toward the delivery side of the car or jumper, a holder pivoted to the sides of the latter, and a detent or pin on the vertical guideway, said parts being constructed and arranged to operate substantially in the manner as and for the purposes set forth.

2. The combination, with an ice-elevator mechanism, of a car or jumper adapted to run on vertical guideways and having an inclined platform, a holder pivoted to the sides of the car or jumper, a detent-pin constructed to attach to the guideway at different vertical distances, and a detent made to arrest the ascent of the jumper or car, substantially as and for the purposes set forth.

312,617. PEANUT-CLEANER. LUTHER R. EDWARDS, Franklin, Va. Filed May 13, 1884. (No model.)



Claim.—1. The combination, in a machine for cleaning nuts and freeing them from their stems, of a rotary disk or disks provided with brushes and projections, a platform or platforms for holding the nuts during the time of their being operated upon by the cleaners, and means, substantially as described, for conveying the nuts from a point of receipt to a point of deposit.

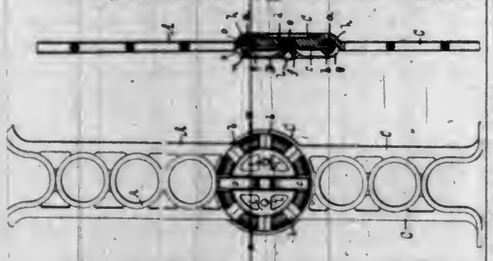
2. The combination, in a machine for cleaning nuts and separating them from their stems, of rotating disks provided with brushes and projections, and platforms for supporting the nuts while being scrubbed, and the cylinder B, substantially as described.

3. The combination, in a machine for cleaning nuts and freeing them from their stems, of the disk D, provided with brushes and points for freeing them from dust and stems, the table or platform F, provided with a spiral rib for conducting the nuts from the point of receipt to the edge, the disk E, provided with brushes and points, and the table or platform G, provided with means for conducting the nuts from the point of receipt to the center, where they are precipitated through the central opening.

4. The combination of the cleaning-brushes D and E, platforms F and G, cylinder B, and cylinder L, all constructed and arranged substantially as described.

5. The combination, in a machine for cleaning nuts, of the rotating disks provided with brushes and metal points, and the platforms for supporting the nuts, the latter being provided with the spiral ribs and having their upper surfaces inclined in the direction in which the nuts are to be conveyed, substantially as described.

312,618. CARRIAGE-STANDARD. CHARLES C. EGERTON, Baltimore, Md., assignor to Othello Jerome Flagg. Filed Oct. 2, 1884. (No model.)

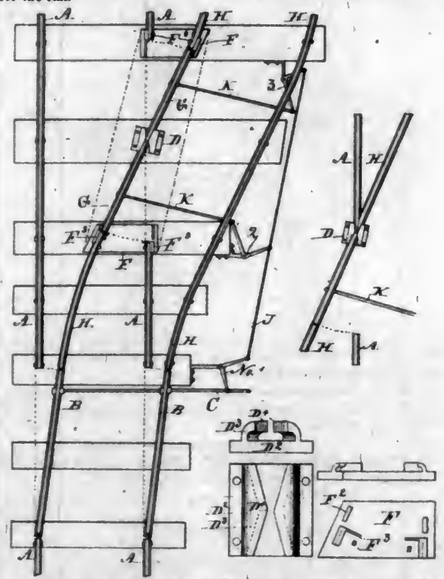


Claim.—1. The combination of the spring c, the cap B, provided with the cavity *g*, and the section A, for the purpose as herein specified.

2. The combination of the movable section A, provided with radial notches *b*, and means to engage with the same, whereby the spring c or its equivalent moves at right angles to the movement of the section A.

312,619. ADJUSTABLE RAILWAY FROG AND SWITCH COMBINED. JOSEPH W. ELDRIDGE and FRANK N. ELDRIDGE, Stuart, Iowa. Filed May 6, 1884. (No model.)

Brief.—This rail-chair has two vertical projections extending toward each other, overlapping the flange of the rail, their extreme points engaging the web of the movable rail-section, forming the pivotal point for the rail.

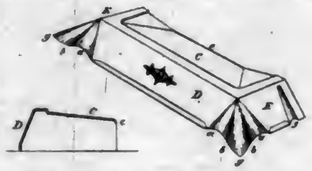


Claim.—1. A railway-chair composed of a base adapted to be fixed upon a cross-tie or other solid support, and two vertical projections that extend toward each other to overlap the flange of a rail, and that terminate in pivotal points to engage the web of an adjustable rail-section, as set forth, for the purposes specified.

2. The combination of a main railway-track, A A, a switch, B B C, a chair, D, two chairs, F, an adjustable rail-section, G, and a branch track, H H, to operate in the manner set forth, for the purposes specified.

3. The railway-track A A, the switch-rails B B, having an operating rod and lever combined therewith, the chair D D^2 D^3 D^4, the two chairs F F^2 F^3, the adjustable rail-section G, the branch track H H, the levers Nos. 1 2 3, and the rods J K K, arranged and combined substantially as shown and described, to operate in the manner set forth, for the purposes specified.

312,620. FIRE-FENDER. JOSIAH W. ELLS, Pittsburg, Pa., assignor to James W. Friend, same place. Filed Dec. 29, 1883. (No model.)



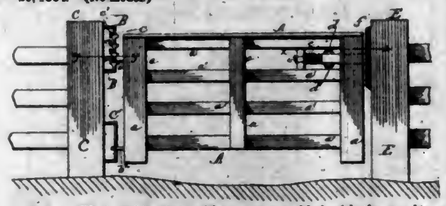
Claim.—1. As a new article of manufacture, a fire-fender having all its constituent parts comprising its front, together with its ends and pan or apron, formed in one piece and of a single piece of thin sheet metal stamped or pressed into complete and final shape, substantially as shown and set forth.

2. A fire-fender having all its constituent parts comprising its front, together with its ends and pan or apron, formed in one piece and of a single piece of thin sheet metal corrugated or wrinkled at its corners, substantially as shown and set forth.

3. A fire-fender having all its constituent parts comprising its front, together with its ends and pan or apron, formed in one piece and of a single sheet of metal, having the edge of the pan or apron turned downwardly a short distance, substantially as and for the purposes set forth.

4. A fire-fender having all its constitutent parts comprising its front, together with its ends and pan or apron, formed in one piece and of a single sheet of metal turned over and folded around its edges before and preparatory to being given its complete and final shape, as hereinbefore shown and set forth.

312,621. GATE. CHARLES W. ESTELLE, Valparaiso, Ind. Filed Mar. 29, 1884. (No model.)



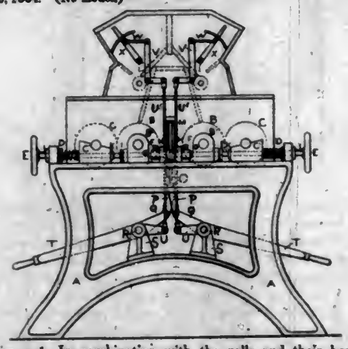
Claim.—The combination, with a gate provided with the staples or hinges *b b'*, of the bracket B, provided with a series of studs extending outwardly and upwardly therefrom, (said bracket being rigidly secured to a post,) and of the bracket C', substantially as and for the purpose set forth.

312,622. BUTTON-HOOK. LE ROY W. FAIRCHILD, New York, N. Y. Filed Dec. 31, 1883. Renewed Jan. 7, 1885. (No model.)



Claim.—As an improved article of manufacture, the herein-described button-hook, consisting of the oval case A, with the hook H, rigidly secured to the oval slide B, and the oval ring C, all constructed and arranged to operate as shown and described.

312,623. ROLLER-MILL. FRANCIS FERRIER, Vallejo, Cal. Filed Mar. 6, 1884. (No model.)

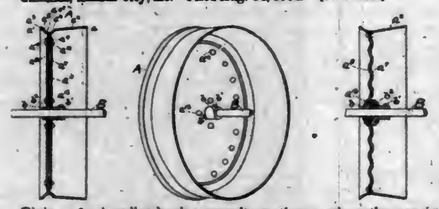


Claim.—1. In combination with the rolls and their boxes, the roller-spreading mechanism comprising the lever T, transverse shaft R, lever Q, link P, coupling O, rods N, levers M, sleeves G, screw-rods F, nuts I, and spindles J, substantially as described.

2. In combination with the rolls and their boxes, the roller-spreading mechanism comprising spindles J, stationary screw-nuts I, rods F, sleeves G and their set-screws, bearings H, and suitable mechanism for rotating the said sleeves and rods, substantially as described.

3. In a double-roller mill, the combination, with suitable roller-spreading mechanism, of the feed-controlling mechanism consisting of the gates having handles X, links W, bell-cranks V, connecting-rods U', levers U, and the rock-shaft R, substantially as described.

312,624. CARRYING-PULLEY FOR CABLE RAILWAYS. ROBERT GILLHAM, Kansas City, Mo. Filed Aug. 14, 1884. (No model.)



Claim.—1. A pulley having opposite sections, each section consisting of a web and a peripheral flange in a single piece, as shown and described.

2. A pulley having opposite sections, each section consisting of a web and a grooved peripheral flange in a single piece, as shown and described.

3. A pulley having opposite sections, each section consisting of a web and a peripheral flange in a single piece, and an intermediate shoulder, for the purpose specified.

4. A pulley having opposite sections, each section consisting of a web, a grooved peripheral flange, and an intermediate shoulder in a single piece, as described.

5. A pulley having a suitable web, a peripheral flange, a groove circumferentially in said flange, and a lateral extension of said flange, which is inclined, as and for the purpose specified.

6. A pulley having opposite sections, each section consisting of a web, a peripheral flange, and a shoulder on said web, in combination with a hub provided with a radial flange, for the purpose specified.

7. A pulley having opposite sections, each section consisting of a web having a corresponding irregular surface radially in respect to the web of an adjoining section, which are adapted to fay therein, and a peripheral flange, as shown and described.

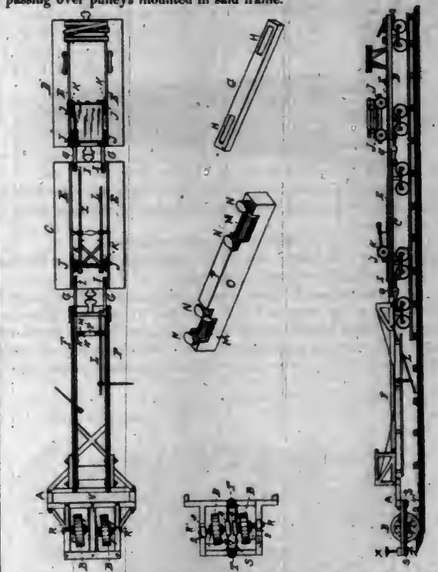
312,625. FOLDING BED. THOMAS P. GLODY, New York, N. Y. Filed Oct. 4, 1883. (No model.)



Claim.—The combination of the side rails, C C, of the cot-frame, provided with two sets of pins, *a a*, legs *h h*, abutting against the under sides of the rails, curved braces S S, secured to the legs and pivoted to the sides of the rails, and double hooks *d d*, catching on the pins *a a*, all substantially as described, whereby the legs support the rails upon their ends and are securely held both when extended and folded.

312,626. APPARATUS FOR LAYING RAILROAD-TRACKS. CHAS. R. GOODMAN, Hammond, Ind. Filed Mar. 29, 1884. (No model.)

Brief.—A track-laying device in which a rail-guide consisting of horizontal and vertical rollers is secured to the traction-truck for the ready unloading of the rails, and in which device the axles of the forward wheels of the traction-truck are mounted at their outer ends in the truck-frame, and have their inner ends connected to an endless chain passing over pulleys mounted in said frame.

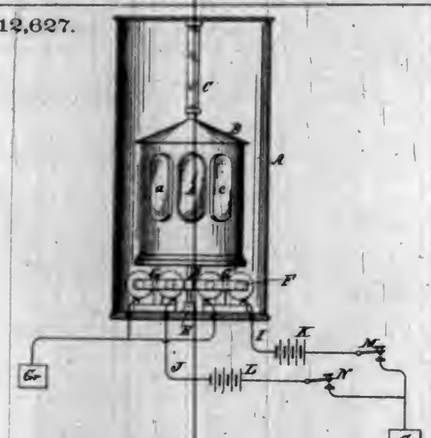


Claim.—1. The anti-friction rail-guide attached to the traction-truck, and composed of horizontal rollers M and vertical rollers N N, as and for the purpose specified.

2. The means for guiding the traction-truck, consisting of the wheels B B, axles R R', pivoted at their outer ends to the truck-frame, and their free inner ends connected, as shown, by chains, pulleys T T, and turning-gear X, as specified.

312,627. RAILWAY SIGNALING APPARATUS. WILLIAM HADDEN, Brooklyn, N. Y. Filed June 12, 1884. (No model.)

312,627.



Claim.—1. In signaling apparatus, the combination, with a rotating signal carrying two or more signaling surfaces, of a suspension-strap or bifilar suspension, as herein specified.

2. In signaling apparatus, the combination, with the lantern B, provided with windows *a b c*, of the strap C and means for turning the lantern from its normal position, as herein specified.

3. The combination, with the lantern B, provided with windows *a b c*, of the casing A, inclosing the said lantern, and provided with a funnel, H, adapted to display one of the windows *a b c*, as specified.

4. The combination, with a lantern provided with a strap or bifilar suspension, as described, of an armature and one or more electro-magnets adapted to turn the lantern, as described.

5. The combination, with the suspension-lantern B, of the armature F, electro-magnets G G', and two electric circuits including the said magnets, as specified.

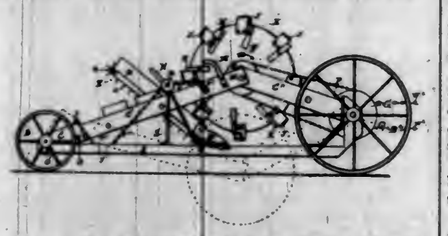
312,628. TUYERE-IRON. JOHN HADLEY, Alexandria, Va. Filed Aug. 1, 1884. (No model.)



Claim.—The tuyere-iron described, consisting of the outer shell, A, the inner shell, *a*, and intermediate shell, *a'*, united by the end plates, a^2 a^3, as described.

312,629. DITCHING-MACHINE. JOHN C. HARKER, Grand Junction, Iowa. Filed Dec. 30, 1882. (No model.)

Brief.—A wheel having excavating-scoops and levers tilted back in the filling of the scoops and thrown forward to discharge is mounted in a toggle-frame mounted at one end on a pivoted block to permit the toggle to be bowed up or down to raise or lower the wheel. A chute with a scoop or shoe and an elevator-belt is also mounted in the frame.

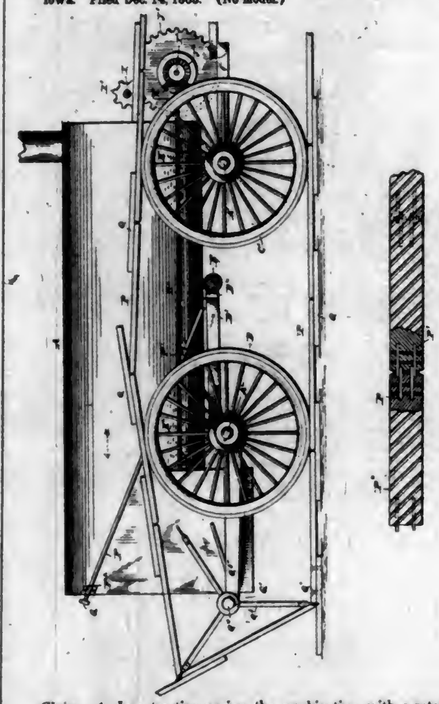


Claim.—1. In a ditching-machine, the combination of the parts C, C', and C'', constituting the frame with the chute D, having shoe D', and elevator-belt E, substantially as described, and for the purposes set forth.

2. In a ditching-machine, the combination of the wheel F, adapted to be raised and lowered by the parts C' C'', constituting the frame, with scoops J, and levers K, adapted to retain and discharge contents of scoop, as shown and described, and for the purposes set forth.

3. In a ditching-machine, the combination of wheel F, having scoops J, with the frame C' C'' and adjustable bearing C, substantially as described, and for the purposes set forth.

312,630. TRACTION-ENGINE. JOHN C. HARKER, Grand Junction, Iowa. Filed Dec. 14, 1883. (No model.)



Claim.—1. In a traction-engine, the combination, with a rotating shaft carrying a worm-screw, of the worm-gear carrying beveled pinions and mounted upon the axle, and the beveled gear-wheels mounted one upon the axle and the other upon the hub of one of the wheels.

2. In a traction-engine, the combination, with a rotating shaft carrying a beveled pinion and a worm-screw, and the beveled and cog face idler, of the combined worm-gear and face cog-wheel carrying beveled pinions, and the beveled gear-wheels mounted one upon the axle and the other on the hub of one of the wheels, the said beveled pinion and screw-worm being adapted to be thrown in and out of gear to change the speed and power of the engine.

3. In a traction-engine, the combination, with a rotating shaft having flexibly-connected sections capable of sliding in its bearings, and provided with a beveled pinion, of the beveled and cog face idler, the cog-wheel carrying beveled pinions, and the beveled gear-wheels mounted the one upon the axle and the other upon the hub of one of the traction-wheels, whereby speed may be applied to the guiding-axle.

4. In a traction-engine, the combination, with the rotating shaft having flexibly-connected sections capable of sliding in its bearings, and a worm-screw, of the worm-gear carrying beveled pinions engaging with beveled cog-wheels mounted the one upon the axle and the other upon the hub of one of the traction-wheels.

5. In a traction-engine, an endless track consisting of a series of elongated sections flexibly connected together, and provided with series of elongated supplemental sections attached to the main sections and extending across the joints sufficiently to prevent the depression of the track as the wheels pass over the joints.

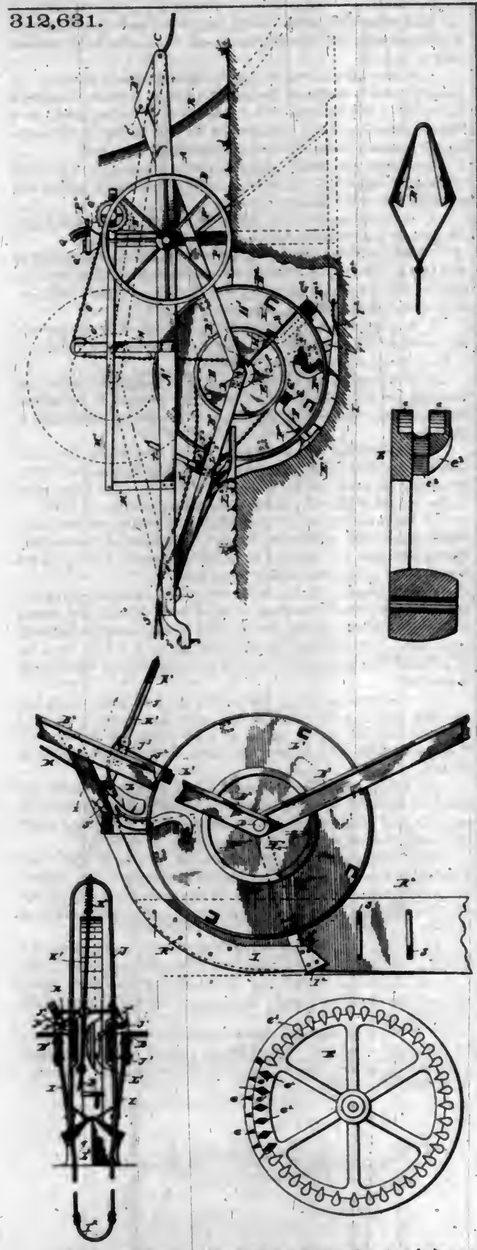
6. An endless track provided with supplemental sections which break the joints between the main sections, the said supplemental sections being pivoted to the main sections at the joints between the same.

7. In a traction-engine, the endless track provided with supplemental sections which break the joints of the main sections the latter being provided with obliquely-disposed cleats or ribs.

8. In a traction-engine, the combination, with the traction-wheels and the track-reel capable of moving with the guiding-axle, of the endless track having supplemental sections which break the joints of the main sections.

312,631. DITCHING-MACHINE. JOHN C. HARKER, Grand Junction, Iowa. Filed Dec. 14, 1883. Renewed Sept. 17, 1884. (No model.)

312,631.



Brief.—An excavator-wheel disk has cutting-shovels and plows arranged to yield to overpressure, and stirrup-lugs placed alternately on its opposite sides to throw two rock-shafts having arms to engage therewith, and arms connected to a vertical rod flexibly supported from a yoke on the wheel-frame. Such rod carries a scraper (having another rod running forward) reciprocated across the face of the cutter-tools. Wings pivoted to the rear of the plows are thrown forward by rock-shafts having crank ends to engage a cam fixed on the wheel-frame. A spreader carries the earth back from the ditch, while a coverer following directs it back into the ditch. Curved cutters in advance of the wheel extend back and carry a scoop. A grader-bar is drawn along the ditch and carries a standard with a pivoted lever at top, carrying a spirit-level and adjusted on an arc. In loose soil side fenders are carried rearward from the forward cutters. The driving sprocket-wheels are grooved and lugs project inward from the sides of the groove, while apertures are carried through from the bottom of the groove, and the rim is strengthened by lugs on its exterior face.

Claim.—1. In a ditching-machine, the combination, with a rotating excavating-disk, of a plow secured thereto, and provided with a wing which will automatically operate to prevent the soil from passing off behind the plowshare.

2. In a ditching-machine, the combination, with a rotating disk and a fixed cam, of a plow having its standard secured to one side of said disk, and adapted to free itself under extreme strain, and a wing mounted upon a rock-shaft journaled to said plow, and adapted to engage a fixed cam during the rotation of the disk, whereby the wing is automatically operated to prevent the soil from passing off behind the plowshare, and to free itself from said cam to discharge the soil from the wing.

3. In a ditching-machine, the combination, with an excavating-disk, the stirrups secured on opposite sides thereof, and the plows to the periphery thereof, of the automatically-operated scraper, the forwardly and upwardly extending rods, whereby the scraper is supported, and the rock-shafts actuated by said stirrups for operating the scraper in opposite directions.

4. In a ditching-machine, the combination, with an excavating-disk, the plows, and the stirrups secured thereto, of the scraper, the rock-shafts, and the intermediate devices actuated by said stirrups for operating the same.

5. In a ditching-machine, the combination, with the rotating disk having excavating-shovels, of the yielding and flexibly-mounted scraper I and the rock-shafts J^2, adapted to actuate the same, respectively, in opposite directions by the engagement of the disk therewith.

6. In a ditching-machine, the combination, with a rotating disk, of the yoke, the yielding and flexibly-mounted rod having a scraper at one end, and the rock-shafts and pitmen connected therewith, the said shafts being adapted to be operated by the rotating disk, so as to actuate the scraper in opposite directions.

7. In a ditching-machine, the combination, with a rotating disk having excavating-shovels, of the curved cutters secured to the excavating-frame, adapted to cut the soil at each side of the ditch, and provided with a scoop for evening the bottom of the ditch and clearing loose dirt.

8. In a ditching-machine, the combination, with a rotating disk and the excavating-shovels, of the automatically-operated scraper and the spreader adapted to spread the soil as it falls from the excavators.

9. A ditch-grader adapted to be drawn through the ditch, consisting of a base-strip provided with a rigidly-connected upright carrying a graduated plate, and a pivoted arm provided with a spirit-level, the arm and the graduated plate being adapted to be rigidly connected together, whereby the inclination of the ditch is predetermined and ascertained as it is being dug.

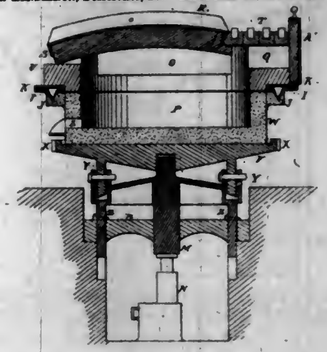
10. The combination, with a ditching-machine, of a spreader flexibly secured to the forward part of the machine in front of the excavating devices, and a coverer similarly secured to the rear part of the machine in the rear of said devices, whereby the soil is spread from the side of the ditch and returned to and thrown into the ditch.

11. In a ditching-machine, the sprocket-wheel for driving excavating devices, provided with a rim having a double series of lugs formed upon its periphery and an intermediate series of openings through the rim.

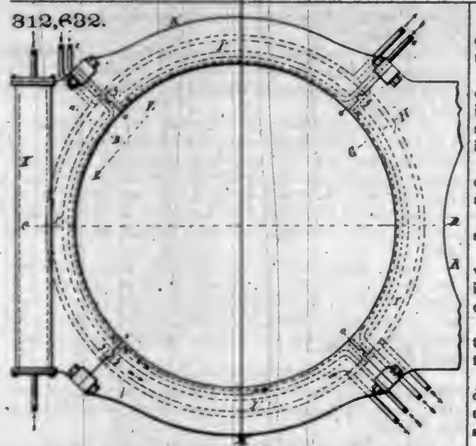
12. In a ditching-machine, the sprocket-wheel for driving excavating devices, having the hub, the spokes, and the rim flush on one side, and provided on its periphery with a double series of lugs, a series of strengthening-lugs on the outer side, and an intermediate series of openings through the rim.

13. In a ditching-machine, the combination, with a rotating excavator, of the curved cutters and the side fenders, to prevent sand and loose soil from filling in the ditch.

312,632. FURNACE FOR MANUFACTURING IRON AND STEEL. JAMES HENDERSON, Bellefonte, Pa. Filed Jan. 10, 1885. (No model.)



312,632.

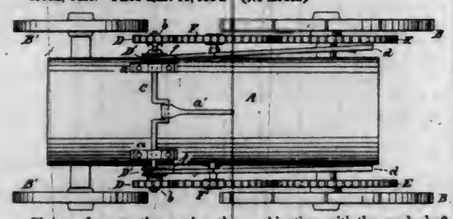


Claim.—1. The combination, substantially as before set forth, of the ring-plate divided into sections, which supports the walls of the reverberatory chamber separately from the hearth thereof, with a ring cooling chamber connected with said ring-plate and disconnected from said hearth.

2. The combination, substantially as before set forth, of the ring-plate, which supports the walls of the reverberatory chamber separately from the hearth thereof, and a ring cooling chamber within said ring-plate, with a hollow downwardly-projecting lip attached to said ring-plate, and the upper edge of the hearth provided with an annular groove containing a sealing material, in which the hollow downwardly-projecting lip on the ring-plate dips.

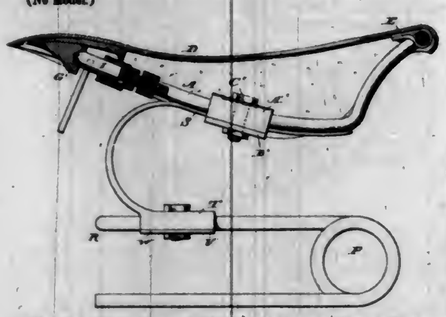
3. The ring-plate, with a ring cooling chamber made in sections, having the vertical joint between the sections, made substantially as set forth, for preventing the passage of gases.

312,633. TRACTION-ENGINE. JONATHAN HERSHBERGER, Walnut Creek, Ohio. Filed Mar. 19, 1884. (No model.)



Claim.—In a traction-engine, the combination, with the crank-shaft C, the grooved wheels C' C', the pinions D D, and the pivoted bifurcated levers *d d*, connected directly with the grooved wheels, of the intermediate wheels, F F, and the gear-wheels E E, attached to the traction-wheels of the machine, all constructed and arranged substantially as and for the purposes described.

312,634. VELOCIPEDE. SYLVESTER B. HILL, Chicopee, Mass., assignor to the Overman Wheel Company, same place. Filed Feb. 23, 1884. (No model.)



Claim.—1. A suspension-saddle having the forward ends of its frame and covering pivotally connected beneath the latter, substantially as set forth.

2. A suspension-saddle having the forward ends of its frame and covering pivotally and adjustably connected beneath the latter, substantially as set forth.

3. A suspension-saddle having the forward ends of its frame and covering pivotally connected beneath the latter by a set-screw mounted in the frame, and provided with a rounded head having bearing in a shoulder depending from a plate secured to the under face of the covering and located forward of the screw, substantially as set forth.

4. A suspension-saddle having the forward ends of its frame and covering connected by a set-screw provided with a nut for locking with and turning it, substantially as set forth.

5. A suspension-saddle having a frame made of wire, and shaped substantially as shown and described, substantially as set forth.

6. A suspension-saddle having a frame made of a single length of wire bent substantially as shown, and having its ends united by two bearings, in which a set-screw connecting with the forward portion of the covering of the saddle is located, substantially as set forth.

7. A suspension-saddle having a wire frame, to which the rear portion of the covering is attached by straps encircling the wire and riveted to the covering, substantially as set forth.

8. A seat-spring having substantially the form herein shown and described, and composed of two or more parts arranged to be adjusted upon each other for changing the pliancy of the spring, substantially as set forth.

9. A seat-spring having substantially the form herein shown and described, and made in two parts arranged to be adjusted upon each other for varying the pliancy of the spring, one of the said parts being made of wire and the other of flat spring metal, substantially as set forth.

10. A seat-spring having substantially the form herein shown and described, and made in two parts, one part being mounted upon and embracing the other and arranged to be adjusted upon it for varying the pliancy of the spring, substantially as set forth.

11. A seat-spring having substantially the form herein shown and described, and made in two parts, arranged to be adjusted with respect to each other for varying the pliancy of the spring, one of the said parts being made of wire and the other of flat spring metal, and the latter being provided with flanges to embrace the part made of wire, substantially as set forth.

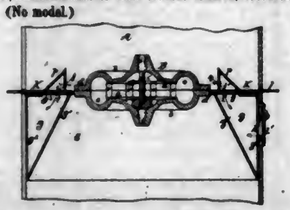
12. A seat-spring having substantially the form herein shown and described, and composed of two or more parts arranged to be adjusted upon each other for varying the pliancy of the spring, one or more parts of the spring being made of wire and coiled, as shown, substantially as set forth.

13. A seat-spring having substantially the form herein shown and described, and made in two or more parts arranged to be adjusted with respect to each other for varying the pliancy of the spring, and means for securing the said parts together, substantially as set forth.

14. A seat-spring having substantially the form herein shown and described, and composed of two or more parts arranged to be adjusted with respect to each other for varying the pliancy of the spring, and the described plate and bolt for securing the parts together, substantially as set forth.

15. A seat-spring having substantially the form herein shown and described, and composed of an upper and a lower part, respectively, made, as shown, of wire and of flat spring metal, and the latter being adjustable upon the former for varying the pliancy of the spring, substantially as set forth.

312,635. DAMPER. ROBERT HILLSON, Albany, N. Y.; John Hillson, same place, administrator of said Robert Hillson, deceased. Filed Nov. 2, 1883. (No model.)



Claim.—1. In a stove-pipe damper provided with an interior air-chamber, the combination of air-inlets connecting with the outside air, the inlet-ports through the periphery of the damper, the central ports, *s s*, and valve F, governing the same, substantially as and for the purposes set forth.

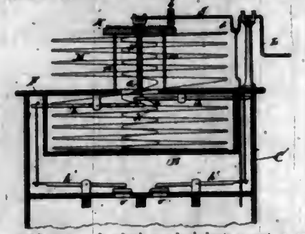
2. The combination, with a damper adapted to be turned from a horizontal to a vertical position and the reverse, and provided with chamber B', having an inlet-opening, B^2, exit-ports *v*, and central ports, *s s*, of door D and valve F, substantially as and for the purpose set forth.

3. The air-heating device G, having annular chamber *g* about a central opening, which is adapted to receive a damper, and formed with inwardly and upwardly projecting walls, and provided in its exterior wall with means for admission of air to said chamber, and in its top portion

of wall with a series of air-discharge perforations, *i i*, with register-plate *k*, adapted to be moved for opening or closing said perforations at will, substantially as and for the purpose set forth.

4. The combination, with pipe A and air-heating device G, provided with chamber *g*, having the upwardly and inwardly contracting wall *g'* and opening *h* communicating from said chamber to the outside air, and plates g^2 and *k*, provided with holes *i* and *i'*, respectively, one of the same being movable and registering with the other, of damper B, provided with an interior air-chamber communicating by an air-inlet with the outside air, and having outlet-ports through the periphery of the damper, and central ports, *s s*, and valve F, governing the same, all substantially as and for operations and purposes set forth.

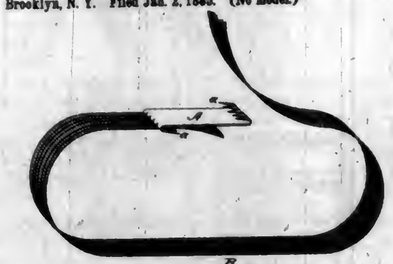
312,636. MECHANICAL MUSICAL INSTRUMENT. MARKET HOCK, Saar Louis, Germany. Filed Sept. 29, 1883. (No model.)



Claim.—1. In a mechanical musical instrument, a spiral-shaped music-band, M, provided with suitable perforations, *n*, arranged in combination with levers to operate the reed-valves of the instrument, substantially in the manner and for the purpose described.

2. In a mechanical musical instrument, the spiral music-sheet M, having holes *i*, in combination with the wheel K, carrying the pins *m*, in the manner and for the purpose substantially as set forth.

312,637. TIE FOR BALES AND PACKAGES. I. NEWTON HOPKINS, Brooklyn, N. Y. Filed Jan. 2, 1885. (No model.)



Claim.—1. As an improved article of manufacture, a tie-fastener consisting of a plate having formed on one or both of its ends series of hooks, as herein specified.

2. The combination, with a plate having hooks formed on one or both of its ends, of a tape or band adapted to receive the hooks in its meshes, as herein specified.

312,638. MODULATOR FOR BANJOS. JOHN B. HOWE, Danbury, Conn. Filed Aug. 12, 1884. (No model.)



Claim.—1. The combination, with a banjo, of a modulator adjustable both longitudinally, laterally, and on the arc of a circle, substantially as and for the purpose set forth.

2. The combination, with a rod provided with means for attaching it to the cross bar or brace of a banjo, of a modulator mounted upon said rod and adapted to slide thereon, substantially as and for the purpose specified.

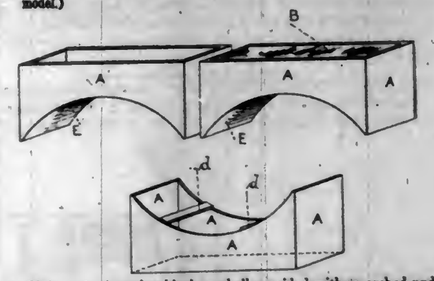
3. A rod adjustably connected to a clamp for attachment to the cross bar or brace of a banjo, in combination with a modulator mounted and adapted to slide on the rod, substantially as and for the purpose described.

4. The combination, with a clamp adapted for attachment to the cross bar or brace of a banjo, of a rod having mounted thereon a sliding modulator, said rod being connected to the clamp, substantially as described, whereby it may be adjusted both laterally and on the arc of a circle, for the purpose set forth.

5. The combination, with a rod and means for attaching it to the cross bar or brace of a banjo, of a modulator consisting of a slide having a bushing of wood and mounted on the rod, and provided with two rollers, substantially as and for the purpose specified.

6. A clamp having a longitudinal slot therein, and a plate provided with a block entering said slot, and caused to move therein by an adjusting screw-rod, in combination with a rod carrying a sliding or adjustable modulator pivoted to the plate and adjustable on the arc of a circle by an adjusting screw-rod, substantially as and for the purpose set forth.

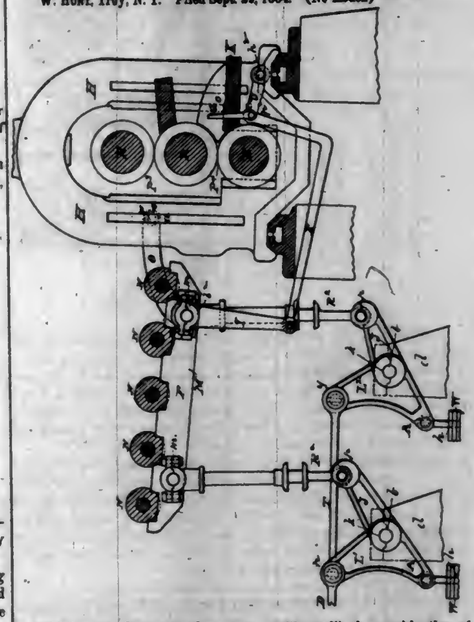
312,639. PAVING-BLOCK FOR STREETS. FREDERICK J. HOYT, Grand Rapids, Mich., assignor, by mesne assignments, to the Crescent Combination Pavement Company, same place. Filed Aug. 29, 1884. (No model.)



Claim.—1. A paving block or shell provided with an arched under face, E, extending under the entire surface of the block, so as to produce at the two ends of the arch knife-like edges, whereby the block may be pressed into the road-bed and over the packing within the arch and the packing of the bed beneath the block prevented, substantially as described.

2. The metallic shell A A, whether whole or in skeleton form, provided with the arched under face, E, and filled with any suitable filling, B, substantially as described.

312,640. FEEDING ATTACHMENT FOR ROLLING-MILLS. ROBERT W. HUNT, Troy, N. Y. Filed Sept. 29, 1884. (No model.)



Claim.—1. In an attachment to a rolling-mill, the combination of a platform that is operated to ascend and descend and to alternatingly stop opposite the upper and lower passes of the rolls, and vertical gates

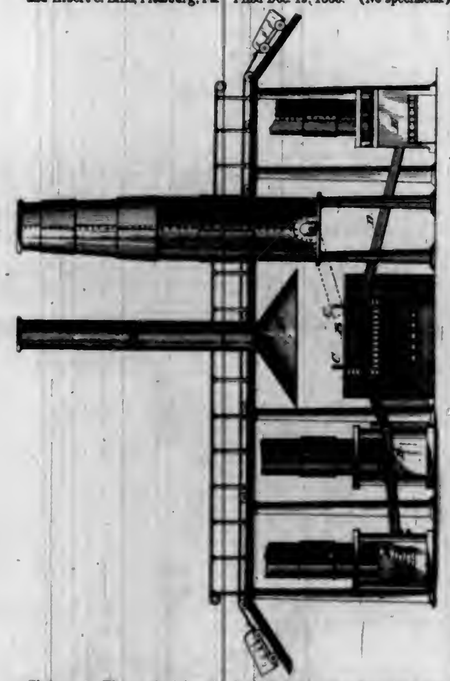
arranged below and opposite the lower passes of the rolls at the front, said gates being connected and constructed to be closed by the ascent of said platform and opened by the descent, substantially in the manner as and for the purposes set forth.

2. In an attachment to a rolling-mill, the combination of a platform operated to ascend and descend, so as to alternatingly stop opposite the upper and lower passes of the rolls, vertical gates arranged on a horizontal bar below and in front of the lower passes of the rolls, and an arm and pivoted lever at each side of the platform, connecting said bar with the platform, said parts being constructed and arranged to operate substantially in the manner as and for the purposes set forth.

3. In an attachment to a rolling-mill, the combination of the vertical gates G G G, arranged on the bar U with reference to the lower passes of the rolls as shown, the curved levers E E, hinged at their fulcrum ends to a support, and at their other ends hinged to an arm on each side of the platform M, with the said gate-bar U, arranged between and at its ends pivoted to said curved levers intermediately to the hinged ends of the latter, the said parts being constructed and arranged to operate substantially in the manner as and for the purposes set forth.

4. In an attachment to a rolling-mill, the combination of the platform M, constructed to be actuated as shown, the arm I, hinged to each side of the platform, the curved pivoted or hinged levers E E, and the rod U, the said parts being arranged and constructed to operate substantially in the manner as and for the purposes set forth.

312,641. **MANUFACTURE OF IRON.** JAMES J. JOHNSTON, Columbiana, Ohio, assignor of seven-eighths to William W. Gibbs, Philadelphia, and Albert C. Ellis, Pittsburg, Pa. Filed Dec. 19, 1883. (No specimens.)

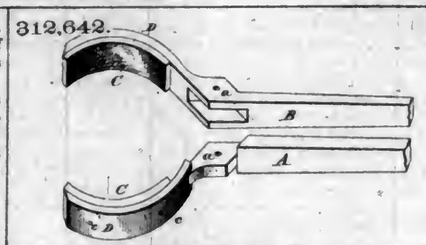


Claim.—1. The method herein described for manufacturing malleable iron, which consists in melting pig-iron, conveying it into a heated receiving-chamber, thoroughly mixing with it therein the compound herein described, consisting of iron ore, lime, and salt, and then transferring the metal into a balling-furnace, subjecting it to a high degree of heat in the latter, and finally forming it into balls, substantially as set forth.

2. The method herein described for manufacturing malleable iron, which consists in melting pig-iron, conveying it into a heated receiving-chamber, thoroughly mixing with it therein the compound herein described, consisting of iron ore, lime, and salt, such compound being charged in a heated state, then transferring the metal into a balling-furnace, subjecting it to a high degree of heat in the latter, and finally forming it into balls, substantially as set forth.

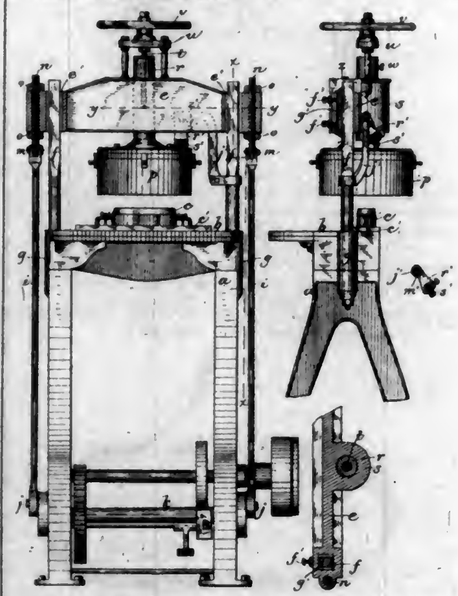
312,642. **MACHINE FOR HOLDING AND HANDLING FRUIT-JARS.** BENJAMIN F. JONES, Glenwood, Iowa. Filed July 12, 1884. (No model.)

Claim.—The combination, in pincers or tongs, of curved jaws D, of metal, with non-metallic pads or cushions C, attached thereto, with



mortise or lap-joint *a*, and rigid handles A B, connected together by a screw or rivet, all constructed substantially as described, and for the purposes specified.

312,643. **LEATHER-CUTTING MACHINE.** DAVID KNOX, Lynn, Mass. Filed Dec. 18, 1884. (No model.)



Claim.—1. The combination of the bed or support *b* for the cutting-die, the standards *f f*, square or equivalently formed, the cross-head having the platen *p*, and the sockets *e' e'*, wider than the standards, the plates *g'* and their adjusting-screws, whereby lateral movement of the cross-head is prevented and wear is compensated for, the adjustable bolts *n n* in the ends of the cross-head, the connecting-rods pivoted to said bolts, and means, substantially as described, whereby said rods are supported and reciprocated, as set forth.

2. The combination of the bed or support for the cutting-die, the fixed guiding-standards, the cross-head adapted to slide on the standards and adjustable thereon, as described, the dog *r'*, pivoted to a fixed support over the platen, and provided with a frictional or yielding end, and mechanism, substantially as described, for reciprocating the platen, as set forth.

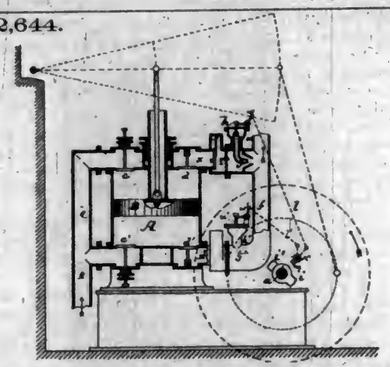
3. The combination, with the adjustable cross-head having the rotary platen, the guiding-standards, the arm *j'*, adjustably secured to one of the standards, and the dog *r'*, pivoted to said arm over the platen, as set forth.

312,644. **VACUUM-PUMP.** ADOLF KUX, Berlin, Germany. Filed July 19, 1884. (No model.) Patented in Germany Mar. 20, 1883, No. 24,344; in Belgium Apr. 16, 1883, No. 61,126; in France Apr. 17, 1883, No. 154,919, and in Austria Sept. 12, 1883, No. 28,919.

Claim.—1. In a vacuum-pump, the combination of the pump-cylinder and piston with the steam-ejectors *h h'*, their valves *v v'*, and the valve-gear mechanism, consisting of the shaft *a*, tappets *i i'*, levers *l l'*, shaft *k*, arms *m*, and bell-cranks *w w'*, substantially as described, for opening said valves at stated intervals to render the ejectors effective, as specified.

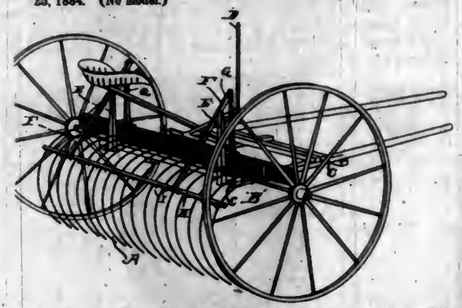
2. In a vacuum-pump, the combination of the steam-ejectors *h h'* with the valves *v v'*, shaft *a*, tappets *i i'* arms *m*, rock-shaft *k*, levers *l l'*, and elbows *w w'*, for moving said valves, and with the valves *v*, springs *n*,

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and outlet-valves *d d'*, substantially as shown and described, and for the purposes explained.

312,645. **HORSE-RAKE.** JOHN M. LONG, Hamilton, Ohio. Filed Jan. 25, 1884. (No model.)



Claim.—In a hay-rake, the combination of a frame-work, a rocking rake-head pivoted thereto, a series of curved teeth secured to the rake-head, a pair of standards or pivot-supports sustained by said frame-work, a pair of arms pivoted to said standards or pivot-supports, a clearer-bar attached to said arms and provided with studs or teeth, and links connecting said arms with said rake-head, substantially as and for the purpose specified.

312,646. **COASTING-SLED.** GEO. W. MARTIN, Medford, Mass. Filed Dec. 12, 1884. (No model.)



Claim.—1. The combination of a coasting-sled with a seat hinged at its rear to the sled and inclined to the top thereof, and supported on a spring or springs arranged between such top and seat at or near the front of the latter, all being substantially as set forth.

2. The combination of a coasting-sled with a seat having perforations or slots through it, and hinged at its rear to the top of the sled, and inclined to such top, and supported on a spring or springs arranged between it and the sled, all being substantially as represented.

3. The combination of a coasting-sled with a seat hinged thereto and inclined to the top thereof, and supported on a spring or springs arranged below such seat, all being substantially as set forth.

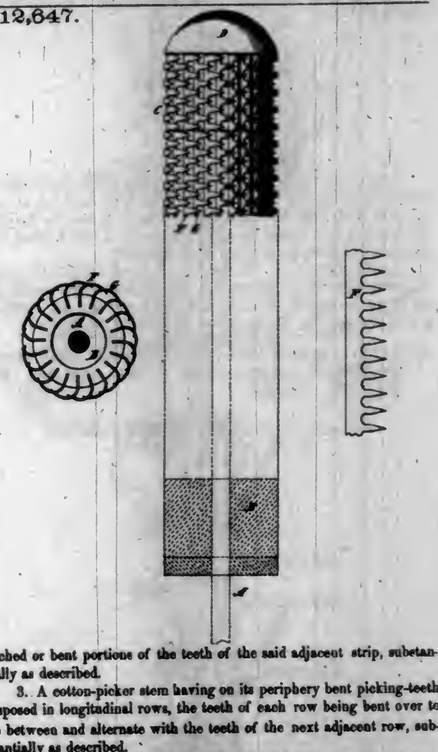
4. The combination of a coasting-sled with a seat hinged thereto, and supported on or by a spring or springs properly arranged relatively to or under such seat.

312,647. **COTTON-PICKER STEM.** CHARLES T. MASON, Jr., Sumter, S. C. Filed Jan. 5, 1884. (No model.)

Claim.—1. In a cotton-picker stem, two or more strips of metal secured to supports attached to a central rod, as set forth, the said strips having bent picking-teeth formed upon them, the said picking-teeth being so disposed that the teeth on one strip lie partially over the intervals between the teeth of the next adjacent strip, substantially as described.

2. In a cotton-picker stem, two or more strips of metal secured to supports attached to a central rod, the said strips having picking-teeth formed upon them, and the said teeth being bent over and disposed so that the teeth on one strip shall lie partially over the intervals between the teeth of the next adjacent strip, and so that the points of the teeth on the first-mentioned strip shall lie on a level with or a little below the

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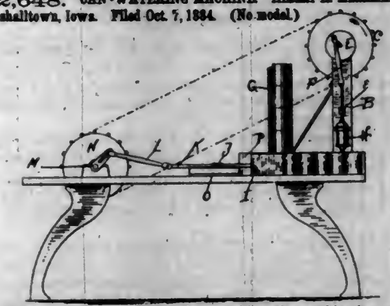
arched or bent portions of the teeth of the said adjacent strip, substantially as described.

3. A cotton-picker stem having on its periphery bent picking-teeth disposed in longitudinal rows, the teeth of each row being bent over to lie between and alternate with the teeth of the next adjacent row, substantially as described.

4. A cotton-picker stem having on its periphery bent picking-teeth arranged in longitudinal rows, the points of the teeth of each row being disposed at or below the level of the backs of the teeth of the next adjacent row, whereby said points are guarded by said backs, substantially as described.

5. A cotton-picker stem provided with bent picking-teeth, the upper sides or backs of the bent-over or arched portions of said teeth forming the outer periphery of the stem, substantially as described.

312,648. **CAN-WATERING MACHINE.** ALBERT R. MERRELL, Marshalltown, Iowa. Filed Oct. 7, 1884. (No model.)



Claim.—1. In a can-watering machine, the combination of the plunger I, the feed-pipe G, the guides P P, and the pump H, substantially as and for the purposes shown and described.

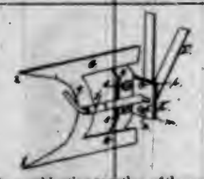
2. The combination of the table A, the wheel N, the crank M, the pitman L, the rod K, the cross-head J, the plunger I, the feed-pipe G, and the pump H, for the purposes shown.

3. The combination of the table A, the wheel N, the crank M, the pitman L, the cross-head J, the plunger I, the feed-pipe G, the wheels D, C, and E, the shaft *h*, the standards B B, the pitman F, and the pump H, substantially as and for the purposes shown and described.

312,649. **REVERSIBLE PLOW.** CHRISTIAN MYERS, San Francisco, Cal.; Mary A. Myers administratrix of said Myers, deceased. Filed Dec. 15, 1882. Renewed July 9, 1884. (No model.)

Brief.—The pivot or axle on which the plow-frame revolves is adjustable at the rear end by means of movable slotted blocks.

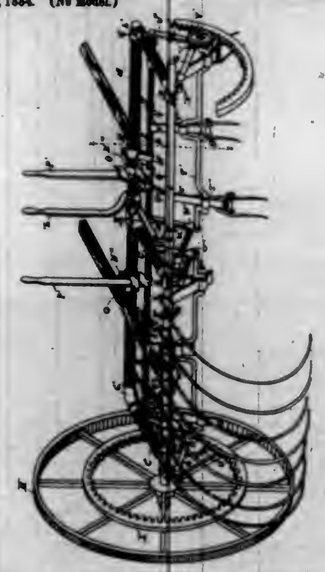
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Claim.—1. The combination together of the separately-formed rearwardly-extending axle *d*, secured to the beam at the front end and supported in the bracket at the rear end, the frame G *g*, carrying the points and breast or mold boards, the adjustable bearing K, and a spring locking device, substantially as hereinbefore described.

2. The combination, with the frame G *g*, of the adjustable bearing K, consisting of two plates, *n* and *m*, the adjustable plate *n* secured to the frame, the shifting plate *m* carrying the axle *d*, and the screw-bolts *p p*, applied together substantially as hereinbefore described.

312,650. COMBINED HAY RAKE AND TEDDER. JOSEPH E. OFFUTT, Springfield, Ohio, assignor to Joseph W. Thomas, same place. Filed July 9, 1884. (No model.)



Claim.—1. In a hay rake and tedder, the combination, with the supporting-axle and the main frame, of the rock-shaft, the tedder-shaft located below and forward of the supporting-axle, the arms and couplings connecting the tedder-shaft with the main frame and with the rock-shaft, and the means to actuate the rock-shaft.

2. In a combined hay rake and tedder, the combination, with the main frame and the supporting-axle and driving gear-wheel, of the rock-shaft, the tedder-shaft having pinions, the arms and the couplings connecting it to the rock-shaft, the tedder-arms carrying forks, and yieldingly connected with the rock-shaft, and the means to operate the rock-shaft.

3. In a combined hay rake and tedder, the combination, with the main frame, of the tedder-shaft situated below and forward of the supporting-axle, and divided into two or more sections, and the arms and the couplings for supporting said sections and connecting them with the main frame and with the rock-shaft.

4. In a combined hay rake and tedder, the combination, with the main frame and the supporting-axle, of the divided rock-shaft supported by the main frame, the divided tedder-shaft, and means for rotating the same, the arms and couplings supporting said shaft and connecting it with the supporting-axle and with the rock-shaft, the tedder-arms also connected to the rock-shaft, the segments, and the levers for operating the rock-shaft.

5. In a combined hay rake and tedder, the combination, with the main frame and the supporting-axle, of the two-part sleeves mounted on said shaft, the tines being pivoted to the upper of said parts, and the lower being provided with tubular tine-guides and pressure-springs.

6. In a combined hay rake and tedder, the combination, with the main frame and the supporting-axle, of the raking-tines, the two-part sleeves fitted upon said axle and provided with projections to which teeth are pivoted, the bifurcated lugs, the slotted tubular guides and pressure-springs, and the hand and foot lever mounted upon the main frame and connected with the supporting-shaft, whereby the tines may be elevated.

7. In a combined hay rake and tedder, the combination, with the main frame, the supporting-axle, and wheels carrying driving-gears, the sleeves fitted upon said shaft having slotted tubular guides and pressure-springs, the tines connected thereto, and the foot and hand lever connected to the main frame and with said shaft, of the divided rock-shaft, the segments and engaging levers, the tedder-shaft carrying pinions, and the arms and the coupling connecting the same with the rock-shaft and the supporting-axle, the tedder-arms carrying tedder-forks, and yieldingly connected with the rock-shaft sections.

8. In a combined hay rake and tedder, the combination, with the rock-shaft, of the thin flat yielding tedder-arms carrying the tedder-teeth, and the longitudinally-yielding connections connecting the upper ends of said arms with the rock-shaft.

9. In a combined hay rake and tedder, the combination, with the thin flat tedder-arms carrying tedder-teeth, of the sleeves mounted on the rock-shaft, the slotted bars pivotally connected with said sleeves, the spiral springs fitted within said slots, and the rods connecting with the tedder-arms and engaged by said springs.

10. In a combined hay rake and tedder, the combination, with the yielding or flexible tedder-arm, of the tedder-teeth pivotally connected therewith, and a yielding brace connected with the arm and the teeth.

11. In a combined hay rake and tedder, the combination, with the yielding tedder-arm having semicircular bends therein, and the strap having corresponding bends, of the tooth having a U-shaped body, eyes formed therein, and yielding prongs, and the brace and pin connecting with the arm and tooth.

312,651. STOVE. JOHN W. OWEN and WILLIAM H. OWEN, Onarga, Ill., and ARTHUR C. BOSWELL, Fowler, Ind. Filed Apr. 19, 1884. (No model.)



Claim.—The combination, in a horizontal stove, of an outer cylindrical casing formed with a longitudinal bulge at its top, having apertures for cooking-vessels and for the stove-pipe, with an inner casing opening at the top of the stove into the fire-place, passing around the inside of the outer casing parallel to the same, and formed into a longitudinal soot and drip receiving trough at the top of the stove under the bulge, secured to the outer casing at one side of the said bulge, as and for the purpose shown and set forth.

312,652. STEAM-GENERATOR. WILLIAM H. PAGE, Norwich, Conn. Filed May 9, 1884. (No model.)

Claim.—1. A steam-generator constructed substantially as described, consisting of the upper and lower sections or castings, held together by the smoke-conducting flues connected to said sections or castings by rust-joints, thereby dispensing with the use of bolts or rods, substantially as described, and for the purpose set forth.

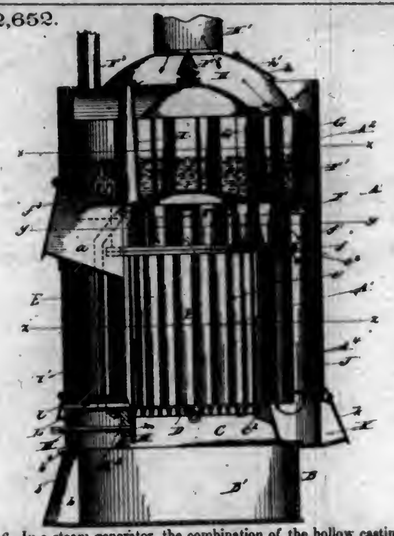
2. In a steam-generator, a boiler constructed as described, having concavo-convex top and bottom, safety-valves, and a series of depending tubes, F, provided at their lower ends with a perforated plate, in combination with the hollow casting E, smoke-flues G, extending through the steam-dome, and grate D, substantially as described.

3. In a steam-generator, the combination of the hollow casting E, having scalloped inner side walls, corrugated outer side walls, and perforated top and bottom, said casting being surmounted by a boiler, F', having depending tubes F, with a series of tubes, G, that pass through said hollow casting and boiler and are held in position therein by rust-joints, substantially as described, and for the purpose set forth.

4. In a steam-generator, a boiler constructed substantially as described, having a concavo-convex top and bottom and a series of tubes depending therefrom, in combination with a tube passing through said boiler from bottom to top thereof, for the passage of gas, hollow scalloped and corrugated casting E, and plate D, substantially as described.

5. In a steam-boiler, the combination of the hollow casting E, having scalloped inner walls and corrugated outer walls surrounded by the boiler F', having concavo-convex top and bottom, pipe I, depending tubes F, and safety-valve, with an inclosing-jacket, J, and pipes G, to conduct the products of combustion to the smoke-flue, substantially as described.

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6. In a steam-generator, the combination of the hollow casting E, having scalloped inner walls and corrugated outer walls, boiler F', having concavo-convex top and bottom, safety-valve, depending tubes F, pipe I, passing from top to bottom of said boiler and opening into the fire-box, and a smoke-cap, with an air-pipe, I', extending from the ash-pit to and opening into the pipe I, whereby air is mixed with escaping gas, causing it to ignite, substantially as described.

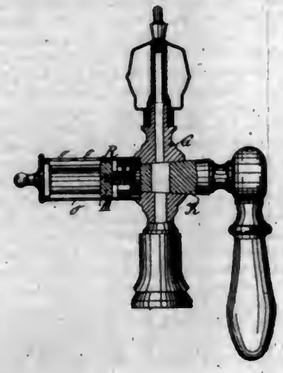
312,653. MITTEN. ABRAHAM B. PERLINSKY, Chicago, Ill. Filed Jan. 8, 1885. (No model.)



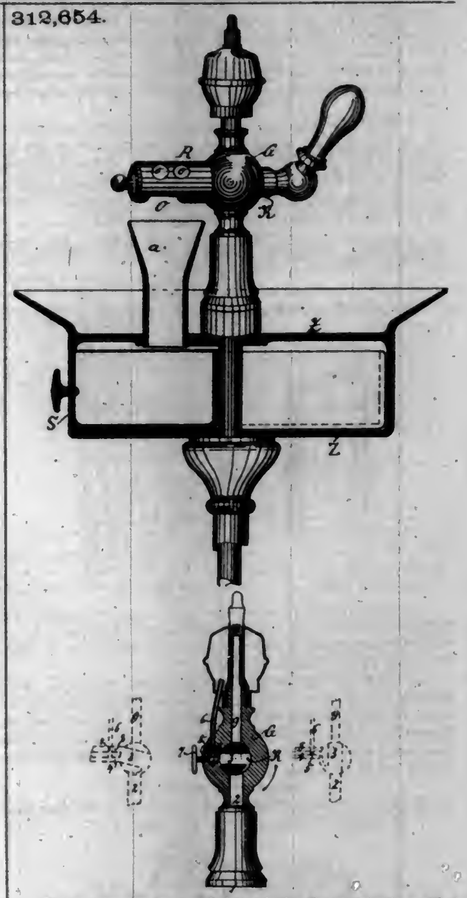
Claim.—The combination, with a mitten and strips secured thereto, of pins provided with heads, situated between the mitten and strips, and suitable disks on the pins above the strips, as described.

312,654. CIGAR LIGHTER AND CUTTER. ALEXANDER PESCHEL, Berlin, Germany, assignor to Wilhelm Fischbach, same place. Filed Aug. 7, 1884. (No model.) Patented in Germany Aug. 13, 1881, No. 18,152.

Claim.—1. The combination, with the lighting device, constructed substantially as described, of the cylinder R, provided with openings o and O, and the parti-cylindrical knife attached to the plug of the gas-cock, and all constructed and arranged to operate substantially as set forth.

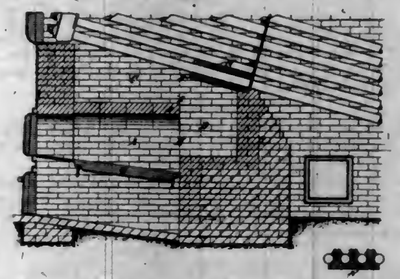


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2. In a cigar cutting and lighting device, the combination, with the gas-pipe which supplies gas to the lighter, of the ash-receptacle and tip-receptacle, constructed as shown, and mounted on said gas-pipe, as represented, the said tip-receptacle being provided with a hopper arranged to receive the tips from the cutter, substantially as and for the purposes set forth.

312,655. FURNACE FOR THE COMBUSTION OF BITUMINOUS COAL. NATHANIEL W. PRATT, Brooklyn, N. Y., and GEORGE E. PALMER, Chicago, Ill., assignors to the Babcock & Wilcox Company, of New Jersey. Filed Mar. 7, 1884. (No model.)

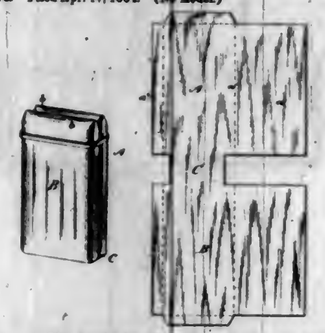


Claim.—1. In a boiler-furnace, the combination of combustion and distributing chambers, both arranged in the same vertical plane, an arch separating said chambers, a retarding-chamber arranged entirely rearwardly of the said combustion and distributing chambers, and having at its top a fire-brick crown sustained by the lower heating-surfaces of the boilers, the passage-way between the distributing-chamber and the retarding-chamber being smaller than the passage-way between the latter chamber and the combustion-chamber, substantially as set forth.

2. In a boiler-furnace, a combustion-chamber divided into several compartments by division-walls, and solid or imperforate arches supported by said division-walls and the side walls of the furnace, combined with retarding and distributing chambers arranged rearwardly of and above the combustion-chamber, respectively, substantially as set forth.

3. In a boiler-furnace, a combustion-chamber having several divisions or compartments, combined with a retarding-chamber arranged entirely rearwardly of the combustion-chamber, and a distributing-chamber arranged above the said combustion-chamber, said retarding and distributing chambers being both common to the several compartments of the combustion-chamber, substantially as set forth.

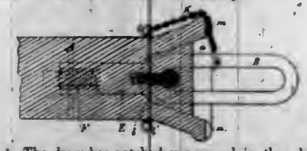
312,656. CIGAR AND CIGARETTE CASE. GEO. L. PRESTON, Scranton, Pa. Filed Apr. 17, 1884. (No model.)



Claim.—1. The herein-described blank for cigar and cigarette cases, consisting of the two body portions A B, connected by the portion C, and each having the broad side flap a, the narrow side flap a^2, and the narrow end flap, a^3, substantially as described.

2. The herein-described cigar-case, constructed of the blank having the portions A B, united by the portion C, and each having the broad side flap a, the narrow side flap a^2, and the end flap a^3, each of said broad side flaps being folded over on the line d', and said narrow end and side flaps folding over upon the broad flap and secured thereto, substantially as described, and for the purpose specified.

312,657. CAR-COUPLING. DAVID L. RICHARDS, St. John, New Brunswick, Canada. Filed Jan. 10, 1885. (No model.)

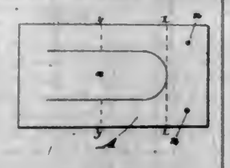


Claim.—1. The draw-bar notched or recessed in the abutment of its mouth and connected to the coupling-link by a chain attached thereto and to one side of the draw-bar, the notch or recess in the abutment of the mouth of the draw-bar being for the chain to pass through, and to prevent such chain from being jammed when the draw-bar may abut against another draw-bar in the process of shackling together their cars, all being substantially as explained.

2. The draw-bar notched or recessed in each of the opposite upright parts of the abutment of its mouth, and connected to the coupling-link by a chain attached thereto and to one side of the draw-bar, such draw-bar also having at its opposite side an eye for connecting the chain thereto when desirable.

312,658. SHEET-METAL ROOFING. L. LEWIS SAGENDORPH, Cincinnati, Ohio, assignor of one-half to Marian P. Lloyd, same place. Filed May 27, 1884. (No model.)

Brief.—A holding-cleat consisting of a strip of metal embodying one or more tongues detached at the sides and at one end from the surrounding metal, and adapted to be bent over the upturned edges of adjacent metal roof-sheets.



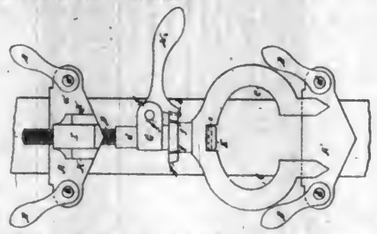


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Claim.—A holding-cleat consisting of a strip of metal embodying one or more tongues detached at the sides and at one end from the surrounding metal, and adapted to be bent over the upturned edges of adjacent metal roof-sheets, substantially as and for the purposes set forth.

312,659. BELT-TIGHTENER. HERBERT H. SAWTELLE, Lowell, Mass. Filed Nov. 28, 1884. (No model.)



Claim.—1. The clamp herein described, consisting of two jaws, one of which jaws is provided near one side thereof with a screw-threaded stud rigidly secured to the inner face thereof at right angles thereto, and with another screw-threaded stud pivoted to said jaw at the other side thereof, and the other of which jaws is provided with a hole to receive said pivoted stud, and is adapted to turn on said pivoted stud, and is also provided with a slot to receive said fixed stud, and nuts turning on said studs against the outer face of said last-named jaw, as and for the purpose specified.

2. The clamp herein described, consisting of two jaws transversely corrugated, one of which jaws is provided near one side thereof with a screw-threaded stud rigidly secured to the inner face thereof at right angles thereto, and with another screw-threaded stud pivoted to said jaw at the other side thereof, and the other of which jaws is provided with a hole to receive said pivoted stud, and is adapted to turn on said pivoted stud, and is also provided with a slot to receive said fixed stud, and nuts turning on said studs against the outer face of said last-named jaw, as and for the purpose specified.

3. The combination of the screw, the clamp swiveled to the end thereof, a nut turning on said screw and provided with wings, and another clamp provided with hooks adapted to engage with said wings, as and for the purpose specified.

4. The combination of the screw, a clamp swiveled to an end thereof, a nut turning on said screw and provided with wings, another clamp provided with hooks adapted to engage with said wings, a ratchet-wheel secured to said screw, a loose collar surrounding and turning on said screw, and a pawl-lever having a pawl adapted to engage with said ratchet, as and for the purpose specified.

5. The combination of the screw, a clamp provided with a yoke having a central opening as wide as the widest belt which said clamp is adapted to receive, said yoke being swiveled to said screw, a nut turning on said screw, and another clamp, said last-named clamp and the nut being adapted to engage with each other, as and for the purpose specified.

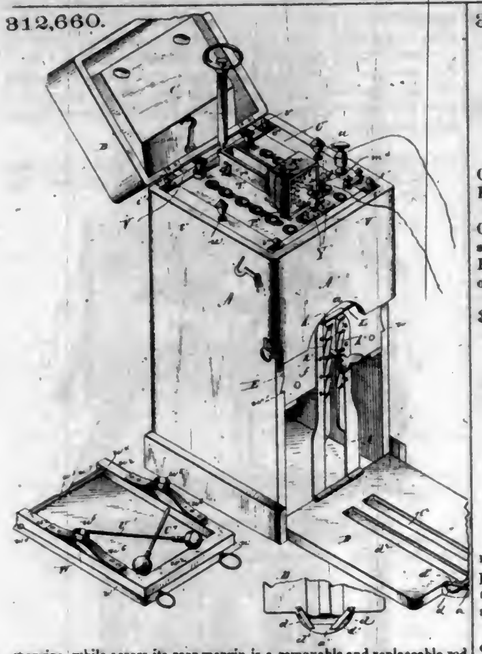
312,660. GALVANIC THERAPEUTIC APPARATUS. THEODORE SCHMAUSER, Allegheny, Pa. Filed Sept. 6, 1883. (No model.)

Claim.—1. In the galvanic therapeutic apparatus, as described, the combination, with the outer casing provided with a partial front wall having a recess in its lower edge, and the front plate for supporting the cell-casing, of a door having a projection on its upper edge to fit the recess in the lower edge of the wall, and provided with suitable catches, and the removable horizontal rod adapted to lock said door and support the upper end of said plate which supports the cell-casing, substantially as described.

2. In a galvanic therapeutic apparatus, the combination, with the cell-casing provided with the front supporting devices, as described, of the rear suspending-rod having its lower end pivotally connected with said casing and its length divided into alternate cylindrical flat portions, and a suitable rod-support and guide located at a point above the cell-casing and adapted to permit the rod to slide up or down in one position and to engage the flat portions of said rod when its flat portions are turned at right angles to such position, substantially as described.

3. The combination, with the cells and the outer casing having horizontal grooves in its side walls, of the cell-cover consisting of a single piece of hard rubber adapted to slide in said grooves, and provided with a raised rim formed integrally therewith on its upper front and side

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margins, while across its rear margin is a removable and replaceable rod or tube, forming the rear wall of a basin otherwise surrounded by said rim, and the devices, as described, for pressing said cell-cover firmly down upon the cell-casing, as set forth.

4. The combination, with the rear suspending-rod having its lower end pivoted to the cell-casing and its length divided into alternate cylindrical flat portions, of the rod-supporting device consisting of the two plates secured together flatwise, and the cylinder provided with an oblong passage for the rod arranged through the upper plate, and having a flange in a recess between the two plates, the lower plate being slotted for the passage of the rod, substantially as described.

5. The combination, with the battery and connections, as set forth, of the commutator composed of the non-conducting plates y y, arranged upon the supporting-bars T T, and having recesses in their adjacent edges, the oblique metallic strips attached to said plates with their inner ends flush with the edge walls of the recesses, and a circular pin or plug provided with segmental metallic surfaces, connected in pairs as described, said plug being arranged to turn in the recesses, as and for the purpose set forth.

6. The combination, with the battery-plate-supporting bars, the cleats for supporting the ends of said bars, and the side bars, U, of the bars V, arranged to confine the ends of said battery-plate-supporting bars upon the cleats, and provided with fastening-screws held in place by the forked metallic plates, and arranged to screw into the side bars, substantially as described.

7. The combination, with the rear supporting-rod having alternate flat and cylindrical sections, of the rod-guide and support consisting of the two plates r r', the lower plate provided with a slot, and the non-conducting cylinder S, having an oblong passage, and let into the upper plate so as to turn freely therein and be engaged thereby.

8. The combination, with the battery having the plate-supporting bars T, of the rheostat inclosing the resistance-coils, and provided with the series of screws or pins S^4, connected with said coils, the metallic shaft m^3, carrying the metallic pointer m^4, arranged to come in contact with the pin or screw-head successively, suitable means for connecting the screws with one of the battery-poles, means for connecting an electrode with the shaft m^3, and the worm mechanism for turning said shaft, substantially as described.

9. The combination, with the battery and rheostat having the pointer contacts and connections, as described, of the metallic strip j^4, arranged adjacent to the contacts and in connection with one of the same, substantially as described, and for the purpose set forth.

10. A battery positive plate partially covered by a coating of non-conducting material having a pulverized vitreous substance mixed therewith.

312,661. STRAW-CARRIER FOR THRASHING-MACHINES. CHAS. A. SCHOEN, Minneapolis, Minn., assignor of one-half to Adolf Olander, same place. Filed Sept. 5, 1884. (No model.)

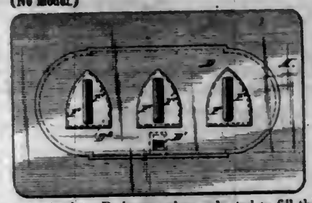
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Claim.—1. The combination, with the elevator-frame B and carrier C, of the box D, frame D^2, screen G, inclined bottom D' and gate d, links E, and separable links F, substantially as described.

2. The combination, with the elevator-frame B and straw-carrier C, of the box D, having screen G, said box being arranged with the screen flush with the surface of the floor of the elevator-frame B, links E and F, and means for moving the box transversely to the line of travel of carrier C, substantially as described.

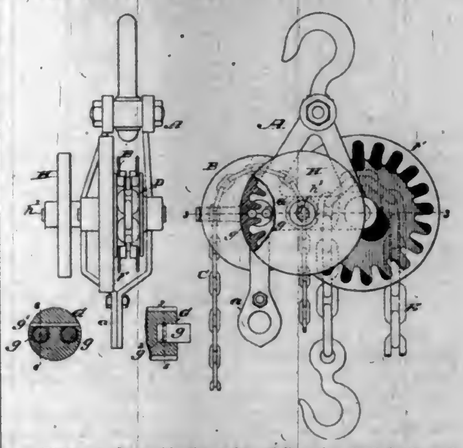
312,662. STOVE. JACOB SHAARER, Reading, Pa. Filed Sept. 3, 1884. (No model.)



Claim.—1. A plate, D, in one piece, adapted to fill the space ordinarily occupied by the two pot-hole covers and intervening detachable piece in a cook-stove, said plate being provided with a series of independent apertures for the reception of articles to be heated, substantially as set forth.

2. A plate, D, in one piece, adapted to fill the space ordinarily occupied by the two pot-hole covers and intervening detachable piece of a stove, said plate being provided with a series of openings having the form of the article to be heated, and a slight ledge to receive the same, and a series of covers adapted to fit on said openings, substantially as set forth.

312,663. HOISTING-BLOCK. FREDERICK SHICKLE, St. Louis, Mo. Filed Aug. 4, 1884. (No model.)



Claim.—1. In combination, substantially as described, the frame A, the sheaves B D, the chains C E, the pinions G I, and the gears H F.

2. In combination, substantially as described, the frame A, having the eye a, the sheaves B D, the chains C E, the pinions G I, and the gears H F.

3. The combination, in a hoisting-block, of the frame A, the sheave B, the shaft b^3, having the pinion G, constructed as described, and the gear H, substantially as set forth.

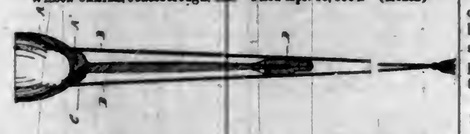
4. The combination of the shaft b^3, having the teeth g g, arranged as described, and the gear H, substantially as described.

5. The combination of the shaft b^3, having the teeth g g, arranged and held loosely in the shaft, as described, with the gear H, substantially as described.

6. In a hoisting-block, the combination of the frame A, having the eye a, with the sheave D and chain E, substantially as described.

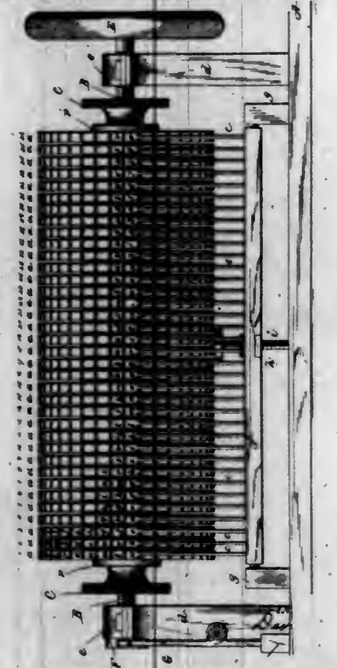
7. The combination of the pinion G, constructed with the two pins g g, as described, with the internal gear, H, substantially as described.

312,664. PESSARY. LEMON SIMPSON, FRANCIS M. LOTTRIDGE, and WILSON CARTER, Jonesborough, Ind. Filed Apr. 10, 1884. (Model.)



Claim.—The combination, in a uterine supporter, with the cup A, having cords B attached to its mouth, of the pedestal C, having a tenon, A', at one end adapted to be held by the cavity in the small end of the cup A, the tenon A' being surrounded by saucer-shaped cavity C', said pedestal having its lower end thin, flat, and of paddle shape, whereby it is adapted to enter between the two sides of a breech made of velvet or other soft material, D, and to be maintained in its proper position thereby, and the crescent-shaped breech D, made of velvet or other soft material having elastic straps E, adapted to be placed over the shoulders of the wearer, as described, and for the purposes set forth.

312,665. COMBINATION CIPHER-MACHINE. DAVID R. SMITH, Cohoes, N. Y., assignor to John McCreary, Edward McCreary, and Alva C. Smith, all of same place. Filed Sept. 12, 1884. (No model.)



Claim.—1. A combination cipher-machine having a series of adjustable coaxial disks or wheels, *a*, and supports or edges carrying or holding a line of letters, figures, characters, or symbols crossing the faces of said disks or wheels, substantially as described.

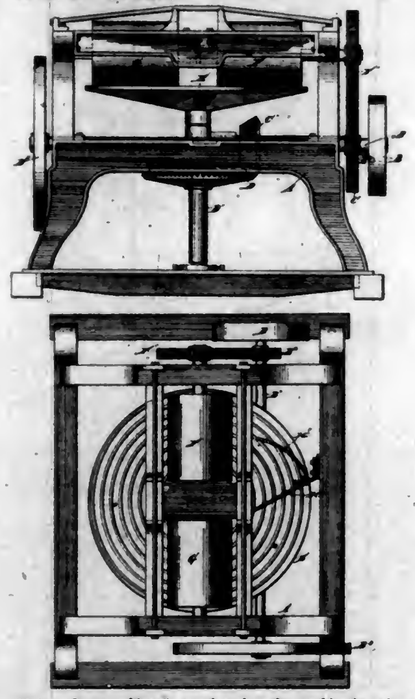
2. A combination cipher-machine having a series of adjustable coaxial disks or wheels, *a*, provided with suitable letters, characters, figures, or symbols on their faces, or near their periphery, and a line of suitable characters, letters, figures, or symbols arranged across the faces of said disks or wheels on suitable supports or edges, substantially as described.

3. In a combination cipher-machine, a series of adjustable coaxial disks or wheels, *a*, carrying suitable letters, figures, characters, or symbols, in combination with a suitable nut or nuts, C, on the threaded axle of said disks or wheels, for clamping the latter together for simultaneous adjustment, substantially as described.

4. In a combination cipher-machine, a series of notched and adjustable coaxial disks or wheels, *a*, carrying suitable letters, figures, characters, or symbols, in combination with a suitable nut or nuts for clamping said disks or wheels together on their axle for simultaneous adjustment, and a suitable yielding retaining pawl or pawls, *c*, engaging said disks or wheels and holding them at the desired adjustment, substantially as described.

5. In a combination cipher-machine, the combination of a series of adjustable coaxial disks or wheels for carrying the letters, figures, characters, or symbols to be used for the ciphers, a support or supports for conventional letters, figures, characters, or symbols arranged in a line or lines across the faces of said disks or wheels, a nut or nuts for clamping said disks or wheels together on a common axle, and a suitable pawl or pawls for holding said disks or wheels at the desired adjustment, substantially as described.

312,666. MACHINE FOR TREATING CLAY. JOHN S. SMITH, Jackson, Mich., assignor of one-half to Theodore G. Bennett, same place. Filed Nov. 10, 1884. (No model.)

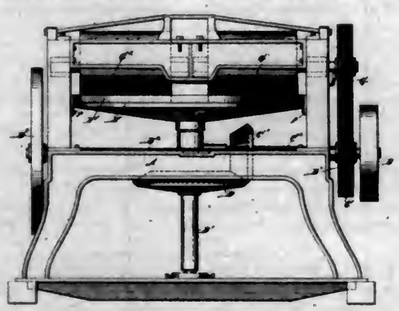


Claim.—In a machine for treating clay, the combination of a solid revolving plate and a roller or rollers rotating in proximity thereto for reducing the clay to a plastic condition and at the same time expelling the stones mixed with the clay over the periphery of the plate at one point while the clay is discharged over the periphery at another, substantially as set forth.

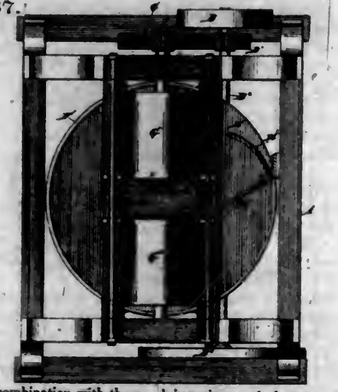
312,667. MACHINE FOR PREPARING CLAY. JOHN S. SMITH, Jackson, Mich., assignor of one-half to Theodore G. Bennett, same place. Filed Dec. 6, 1884. (No model.)

Claim.—1. In a machine for treating clay, the combination of a revolving plate, E, and a roller or rollers rotating in proximity thereto, for tempering the clay and bringing it to a plastic condition as it is ground between their surfaces, substantially as set forth.

2. In combination with the revolving plate E and roller or rollers rotating in proximity thereto, the scraper H, for clearing the clay from the plate and delivering it over the edge, substantially as set forth.



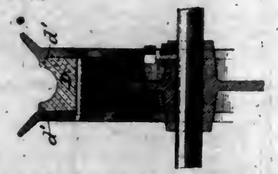
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3. In combination with the revolving plate and the roller G', the scraper or guide H', for directing the clay toward the center of the plate, substantially as set forth.

4. In combination with the revolving plate and roller or rollers, the scrapers H and H' and opening in the curb F, for reducing, detaching, and delivering the clay and stones, substantially as set forth.

312,668. PULLEY-SHEAVE. WILLIAM H. SNELSON, Chicago, Ill., assignor of seven-sixteenths to George Judge, same place. Filed July 1, 1884. (No model.)

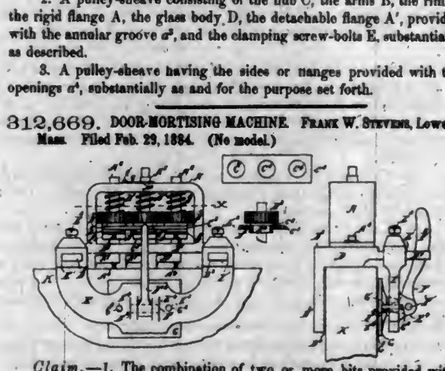


Claim.—1. A pulley-sheave having a body and bearing-face composed wholly of glass, substantially as described.

2. A pulley-sheave consisting of the hub C, the arms B, the rim *a*, the rigid flange A, the glass body D, the detachable flange A', provided with the annular groove a^2, and the clamping screw-bolts E, substantially as described.

3. A pulley-sheave having the sides or flanges provided with the openings a^4, substantially as and for the purpose set forth.

312,669. DOOR-MORTISING MACHINE. FRANK W. STEVENS, Lowell, Mass. Filed Feb. 29, 1884. (No model.)



Claim.—1. The combination of two or more bits provided with spindles arranged parallel with each other, the adjacent spindles having their centers nearer together than the sum of the radii of the circles described by them, respectively, the cutters of adjacent bits being arranged at different angles to the plane of the axes of their spindles, and each of said spindles being provided with spur-gears having an equal number of teeth, the adjacent gears engaging with each other, and a crank secured to one of said spindles, as and for the purpose specified.

2. The combination of two or more bits having spindles arranged parallel with each other, gears having an equal number of teeth secured to said spindles, and the gears of adjacent spindles engaging with each other, said gears being smaller in diameter than the circles described by their respective bits, the cutters of adjacent bits being arranged at unequal angles to the plane of the axes of their spindles, and a crank secured to one of said spindles, as and for the purpose specified.

3. The combination of two or more bits having spindles arranged parallel with each other, gears secured to said spindles at a uniform distance from said bits and provided with hubs, a plate provided with holes to receive said hubs, and collars surrounding said hubs and secured to the same on the opposite side of said plate from said gears, as and for the purpose specified.

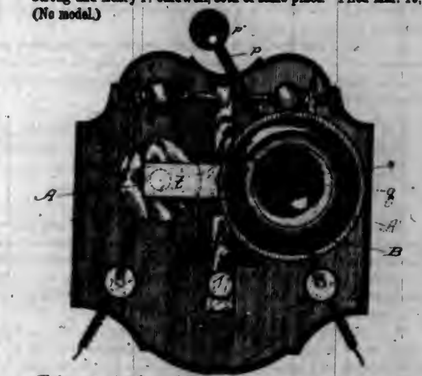
4. The combination of the frame, bits provided with parallel spindles turning in said frame, a latch pivoted to the top of said frame, one of said spindles being provided with an annular groove adapted to receive said latch, the gears secured to the spindles and provided with hubs having annular shoulders, a plate provided with holes adapted to receive said hubs up to the shoulders, and collars surrounding and secured to said hubs below said plate, as and for the purpose specified.

5. The combination of the clamp provided with parallel guides, a boring-machine provided with extensions having parallel end edges, and having slots parallel to said end edges, and screws adapted to pass through said slots into said clamp and to secure said machine thereto, as and for the purpose specified.

6. The combination of the clamp having a fixed jaw and provided with rails, the movable jaw slotted to receive said rails, and set-screws turning in said movable jaw and thrusting against said rails, the binder-plate, and the binder provided with an eccentric pivoted on said movable jaw, said movable jaw having another slot to receive said eccentric, as and for the purpose specified.

7. The combination of the clamp having a fixed jaw and provided with rails, the movable jaw slotted to receive said rails, and set-screws turning in said movable jaw and thrusting against said rails, the binder-plate provided with pins projecting outwardly through holes in the movable jaw and having heads, and the binder provided with an eccentric pivoted on said movable jaw, said movable jaw having another slot to receive said eccentric, as and for the purpose specified.

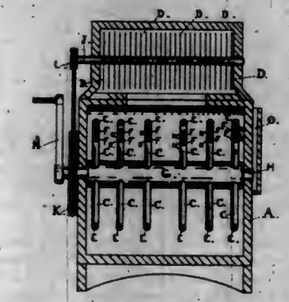
312,670. COMBINED TELEGRAPHIC RELAY AND TELEPHONE. HENRY C. STRONG, Chicago, Ill., assignor of eleven-fifteenths to David A. Strong and Henry P. Caldwell, both of same place. Filed Mar. 19, 1884. (No model.)



Claim.—1. A telegraphic signal-instrument having one pole of its electro-magnet connected up in a battery-circuit, and provided with an armature to constitute a signal-receiver, and having the other pole provided with a permanent magnet adjusted to its core, and with a diaphragm and cup to constitute a telephone receiver and transmitter, substantially as described.

2. A combined telegraph-instrument and telephone comprising the electro-magnet A A', armature *t*, diaphragm *s*, permanent magnet *q*, adjustable within the core so as to lie firmly against the under side of the diaphragm *s*, and cup B, the whole being constructed and arranged to operate substantially as and for the purpose set forth.

312,671. CHURN. WILLIAM H. TAMBLING, San Francisco, Cal. Filed Feb. 23, 1884. (No model.)

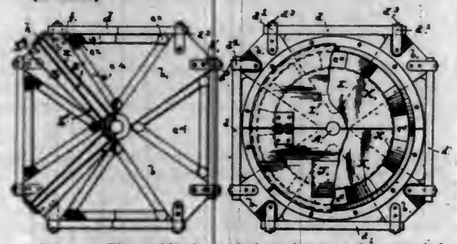


Claim.—1. In a churn, the combination, with the body A, having the cream-cutting chamber B arranged upon the upper side thereof and communicating therewith, and a slide, S, of the hollow main shaft G, having hollow journals H, a pulley mounted on one of said journals, a

shaft, J, journaled in box B, a series of cutters, D, arranged upon said shaft, the tubular dashers or beaters C, having inlet-openings F and scoops N, and an air-chamber, O, substantially as set forth.

2. In a churn, the combination, with a hollow shaft having hollow bearings, and with an air-supply chamber, O, arranged upon the outer side of the churn-body, of the tubular dashers or beaters having inlets F and scoops N, as set forth.

312,672. BOLTING-REEL. ANDREW J. TERRY, San Francisco, Cal., assignor of one-half to Edwin F. Adams, same place. Filed Jan. 19, 1884. (No model.)

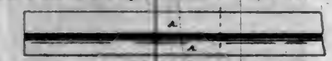


Claim.—1. The combination, with the reel-frame and separate bolting-compartments, of the beater-cloths E, applied to operate substantially as and for the purpose set forth.

2. The combination, with the bolting-frame and separate bolting-compartments, of the brackets d' d^2 and clamping-bars d, as and for the purpose set forth.

3. A bolting-reel having the separate bolting-compartments, and provisions for the independent feeding and discharging from each separately, the brackets d' d^2, and clamping-bars d, and the beater-cloths E, applied as herein set forth.

312,673. ELECTRICAL CONDUCTOR. COLIN M. THOMPSON AND CHARLES R. EDERLE, Brooklyn, N. Y. Filed Mar. 19, 1884. (No model.)



Claim.—1. A compound electrical conductor consisting of a core of copper or other metal of low electrical resistance and incased in a helically-wound strip of iron or steel with overlapping joints secured by solder, the said strip consisting of two equal parallel portions, one portion being raised the thickness of the metal above the other, substantially as shown and described.

2. A compound electrical conductor consisting of a core of copper or other metal of low electrical resistance, in combination with an insulating-coating and helically-wound outer armor of iron or steel with overlapping soldered joints.

3. A compound electrical conductor consisting of a core of copper or other metal of low electrical resistance and an outer armor of spirally or helically wound iron or steel stripe secured by solder, with an intermediate layer of asbestus or other insulating material uninjured by heat.

312,674. PROCESS OF TREATING OLEAGINOUS SEEDS FOR THE EXTRACTION OF OIL. ALBERT E. THORNTON, Atlanta, Ga. Filed Nov. 19, 1884. (No specimens.)

Claim.—1. The process of treating oleaginous seed, the meal, or refuse thereof, which consists in subjecting it to the heat of steam by direct and indirect contact therewith, cutting off the steam applied directly thereto, and continuing the indirect or external application of the steam until it is properly cooked or dried, substantially as described.

2. The process of treating oleaginous matter—such as seed, the meal, or refuse thereof—which consists, first, in applying steam directly and indirectly to said matter; second, in cutting off the direct supply, and, third, in maintaining the temperature of the matter by continuing the indirect supply of heat until the matter is properly cooked or dried, substantially as described.

3. The process of treating oleaginous matter preparatory to extracting the oil therefrom, which consists in conducting steam simultaneously into and around a mass or body of said matter, cutting off the supply of steam into the body of the matter, and uninterruptedly continuing the supply of steam around the matter until it is properly cooked or dried, substantially as described.

4. The process of treating oleaginous matter—such as seed, the meal, or the refuse thereof—which consists, first, in gradually warming the meal as it is being placed in the vessel in which it is treated by the heat of steam surrounding said vessel; second, in heating and moistening the meal by the direct and indirect application of steam thereto, and, third, in cutting off the direct supply and continuing uninterruptedly the indirect or external supply until the meal is properly cooked or dried, substantially as described.

312,675. BOOT OR SHOE. JAMES B. TURNER, Brockton, Mass. Filed May 10, 1884. (No model.)



Claim.—1. A boot or shoe having in its front opening the elastic gore D, provided with the longitudinal central non-elastic stay, E, and the strap K, substantially as described.

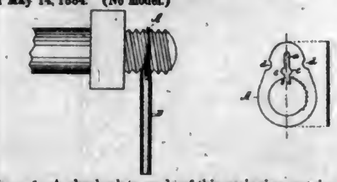
2. In a boot or shoe, the combination of the button-flaps f and the strap H with the elastic gore D, having longitudinal central non-elastic stay, E, and the strap K, substantially as described.

312,676. WAGON-AXLE TRUSS. FREDERICK ULRICH, Peru, Ind. Filed Dec. 27, 1884. (No model.)



Claim.—A truss for axles, consisting of a rod or rods passing between lugs depending from the under side of the axle and afterward bent around the same, substantially as and for the purpose set forth.

312,677. NUT-LOCK. AARON C. VAUGHAN, Shane's Crossing, Ohio. Filed May 14, 1884. (No model.)

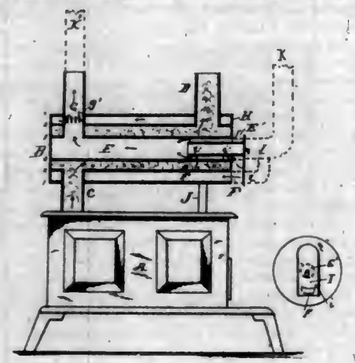


Claim.—1. A check-plate made of thin springing metal with a central bolt-opening and a slot leading therefrom, the inner periphery of which plate is made thin enough to lie between the threads of the bolt and normally occupies a single flat plane, but is adapted to be twisted into a spiral to conform to the wind of the bolt-thread and bind thereagainst, as described.

2. The spring check-plate A, having a central opening with its inner periphery in the same plane, and a slot, a, with notches c and d, as and for the purpose described.

3. A check-plate made of thin springing metal with a central bolt-hole and a slot leading therefrom, the inner periphery of which plate is made thin enough to lie between the bolt-threads and is serrated, as shown, and normally occupies a flat or single plane, but is adapted to be twisted to conform to the wind of the bolt-thread and bind thereagainst, as described.

312,678. ATTACHMENT TO STOVES FOR HEATING AIR. GEORGE A. VAUGHAN, Locksburg, Ark. Filed Mar. 11, 1884. (No model.)



Claim.—1. In a heating-drum, the combination of cylinders 1 2 3, with head B, secured to each at its rear end and completely closing the end thereof, head H, secured to each at its front end, closing the end of cylinder 2 and partly closing the front end of cylinder 1; heat-pipe C, passing up through cylinder 1, near its rear end, and terminating in cylinder 2, pipe D, connected to cylinder 2 on its upper side, near its front end, and passing up through cylinder 1, and pipe C, having slots G', said pipe being connected to the upper side of cylinder 3, and passing up through cylinders 2 and 1, all as substantially shown and described, and for the purposes set forth.

2. In a compound drum for heating air, as above described, door or slide I, having head i, large enough to cover and close openings E' and F, and feet i' i', to hold it in the center of cylinder 3, substantially as shown and described.

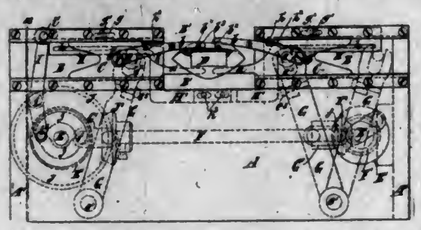
3. In a heating-drum, the combination of cylinders 1 2 3, with head B, secured to each at its rear end, and completely closing the end thereof, head H, secured to each at its front end, closing the end of cylinder 2 and partly closing the front end of cylinder 1, heat-pipe C, passing up through cylinder 1 near its rear end, and terminating in cylinder 2, pipe D, connected to cylinder 2 on its upper side near its front end, and passing up through cylinder 1, pipe G, having slots G', said pipe being connected to the upper side of cylinder 3, and passing up through cylinders 2 and 1, and door or slide I, having head i, large enough to cover and close openings E' and F, and feet i' i', all substantially as shown and described, and for the purposes set forth.

312,679. HARNESS-LOOP CLAMP. JULIUS WAGNER, Reading, Pa. Filed Dec. 5, 1884. (No model.)



Claim.—As an improvement in the construction of harness and the attachment of buckles, rings, &c., thereto, a clamp of suitable form, as shown, provided with one or more studs integral therewith upon its interior face whose length is equal to one-half the height of the inclosed space, in combination with said harness or portions thereof, whereby attachment therewith may be made and broken without change of form, substantially as and for the purpose set forth.

312,680. SHUTTLE-MOTION FOR LOOMS. THEODORE A. WEBER, New York, N. Y., assignor to Katie Faulkner, Jersey City, N. J. Filed Sept. 3, 1883. (No model.)

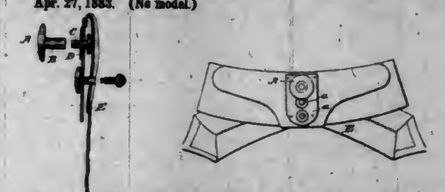


Claim.—1. The combination, with a shuttle-carrier, C, of a lever, G, fulcrumed at one end, c', and connected at the other end with the carrier, a crank, E', and means for rotating it, and a connecting-rod, G', the length of which is less than the throw or stroke of the crank, and which forms a direct and inflexible connection between the crank-pin and said lever G between its ends, substantially as herein described.

2. The combination, with the forked shuttle-carriers C, each having a hinged side, b, provided with a pin, b', and mechanism for reciprocating said carriers, of the plate or frame H, arranged approximately parallel with the line of movement of said shuttle-carriers, and provided with cam-slots h h^2, receiving the pins b', means for reciprocating said plate or frame to alternately engage and release the hinged sides of said shuttle-carriers with and from a shuttle, and guides for said reciprocating plate or frame, substantially as herein described.

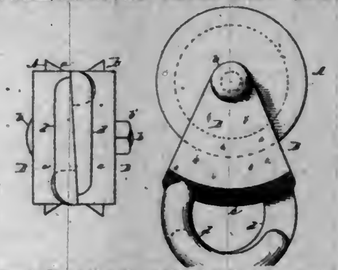
3. The combination, with the forked shuttle-carriers C, each having a hinged side, b, provided with a pin, b', and mechanism for reciprocating said carriers, of the plate or frame H, arranged approximately parallel with the line of movement of said shuttle-carriers, and provided with cam-slots h h^2, receiving the pins b', the lever I, connected at one end with the said plate or frame, the cam and wheel J, for acting on the other end of said lever, means for rotating said cam and wheel, and thereby reciprocating said plate or frame, to alternately engage and release the hinged sides of said shuttle-carriers with and from a shuttle, and guides for said reciprocating plate or frame, substantially as herein described.

312,681. NECKTIE-FASTENING. JOS. WEIL, New York, N. Y. Filed Apr. 27, 1883. (No model.)



Claim.—The combination, with a necktie bow or scarf having an attaching-plate secured to its rear portion, and a button-shank projecting therefrom, of a removable button-head and tube adapted to co-operate with said shank, all substantially as set forth.

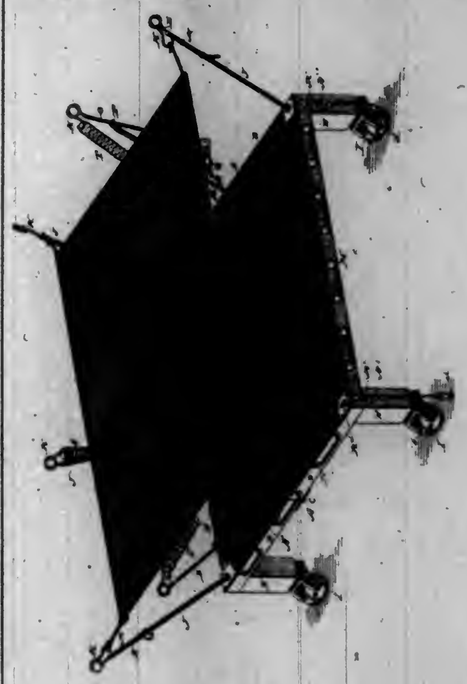
312,682. PULLEY. PHILIP WERUM, Stryker, assignor to Charles Allen Werum, Sherwood, Ohio. Filed Dec. 15, 1884. (No model.)



Claim.—1. In a pulley, the combination of a sheave, and two cheek-plates pivoted to the axis of the pulley, and provided with flanges and hooks cast integral therewith, the hooks being arranged in the plane of their movement when opened and closed, substantially as described.

2. As a new article of manufacture, a pulley consisting of the following elements in combination, to wit: a sheave, two cheek-plates having flanges c c and hooks d d cast in one piece therewith, the hooks d being arranged in the plane of their movement and made tapering on their meeting adjacent surfaces, and a pivotal bolt or pin, as set forth.

312,683. FIRE-ESCAPE. HERMAN WETTSTEIN, Harvard, Ill. Filed May 9, 1884. (No model.)



Claim.—1. In a fire-escape, the combination of the frame A and series of pins H H with the open supporting-fabric F, secured to said pins H H, and the canvas or net-work G', supported on and overlying said fabric F, substantially as and for the purpose set forth.

2. The combination of the frame A, provided with rope fabric F, secured to the frame by series of pins or buttons H, legs E, and caster-rolls I, provided with pin-holes *b* and pin *d*, said pin being adapted to prevent said caster-rolls from turning and the escape from rolling, as set forth.

3. The combination, in a fire-escape, of the frame A, having legs E, fabric F, cushions D, standards J, and fabric G, as set forth.

4. In a fire-escape, the combination of the folding frame A, formed in two parts, B B, secured together by hinges C, legs E, cushions D, standards J, and fabrics F and G, as set forth.

5. The combination, in a fire-escape, of the frame A, formed in two parts, B B, secured together by hinges C C, cushions D, fabric F and G', legs E, detachably secured to said frame A by pins *a a*, and caster-rollers I, provided with holes *b* and fastening-pins *d*, as set forth.

6. The combination, in a fire-escape, of the frame A, legs E, fabric F, standards J, fabric G, and shields D' D', as set forth.

7. In a fire-escape, the combination, with the upper ends of the supporting-standards J, of the adjustable rods L, provided with series of notches N, retaining-clasps M, hooks K, and fabric G, as set forth.

8. In a fire-escape, the combination, with the frame A, of the standards J, lever O, secured to the standard by pivotal bolt P, fabric G, chain Q, and hook R, as set forth.

9. In a fire-escape, the combination of frame A, formed in two parts secured together by hinges C C, fabric F, detachable legs E, secured to the frame by pins *a a*, casters I, provided with holes *b*, fastening-pin *d*, cushions D, standards J, fitted to semicircular holes K, provided therefor in frame A, fabric G, secured to said standards by adjustable rods L, having notches N, adapted to engage in clasps M, end standard, J', lever O, chain Q, and hook R, all substantially as and for the purpose specified.

312,684. FIRE-ESCAPE. HERMAN WEITSTEIN, Harvard, Ill. Filed June 25, 1884. (No model.)
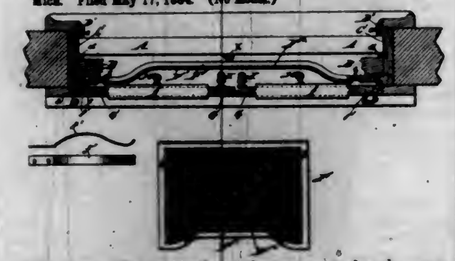


Claim.—1. In a fire-escape, the combination of two or more pairs of cross-pieces, B, connecting-rod C, side rods, D D, connecting-rod P, canvas or net-work A, braces G, and standards J J and K K', as set forth.

2. In a fire-escape, the combination of two or more pairs of cross-pieces, B B, connecting-rod C, side rods, D D, braces G G, canvas or net-work A, retaining cords or straps F F, and brace-rods O O, as set forth.

3. In a fire-escape, the combination of two or more pairs of cross-pieces, B B, pivotal rod C, side rods, D D, canvas or net-work A, braces G G, permanently attached side standards J, connecting-rod P, and adjustable side standards K, all substantially as and for the purpose set forth.

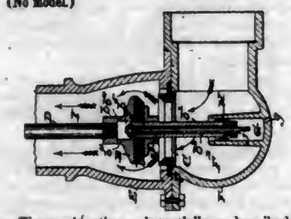
312,685. WINDOW-SCREEN. MARCELLUS L. WHITCOMB, Muskegon, Mich. Filed May 17, 1884. (No model.)



Claim.—1. The combination of the screen-covering, the screen-frame consisting of the tongued stiles S S, the transverse inwardly-curved cross-rail F, the tension-spring, and the blind-stops, grooved, substantially as and for the purposes specified.

2. As a new article of manufacture, the herein-described window-screen, consisting of the screen-covering, the stiles S S, tongued, as specified, and the inwardly-curved cross-rail F', substantially as and for the purposes set forth.

312,686. HYDRANT. PETER WHITE, St. Louis, Mo. Filed May 31, 1884. (No model.)



Claim.—The combination, substantially as described, of the casings E F, the stem D, the valves B J, the perforated stem *b'*, the chambers I F' G *b²*, and the leather H, said chamber G having the perforation *g*, and said chamber *b²* having the perforation *b⁴*.

312,687. WATER-CLOSET VALVE. PETER WHITE, St. Louis, Mo. Filed July 11, 1884. (No model.)



Claim.—1. The combination, substantially as described, of the casing A, the chamber B, the inlet C, the outlet D, the cup-leather valve E, the stem F, the flange H, and the seat G.

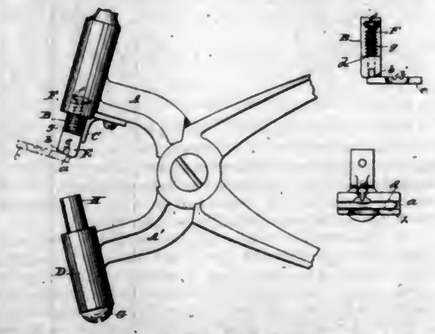
2. The combination, substantially as described, of the chamber B, the plug I, the casing A, the seat G, the stem F, the flange H, and the cup-leather valve E.

3. The combination, substantially as described, of the casing A, the chamber B, the inlet C, the outlet D, the stem F, the cup-leather valve E, the flange H, and the plug I, having the perforated extension I'.

4. The combination, substantially as described, of the casing A, the chamber B, the inlet C, the outlet D, the stem F, the cup-leather valve E, the flange G, the flange H, the projection or projections J, the cup-leather valve K, and the plug I, having the perforated extension I'.

312,688. APPARATUS FOR ATTACHING BUTTONS TO FABRICS. ALEXANDER G. WILKINS, Meadville, Pa., and JAMES B. MILLER, Kent, Ohio, assignors to the Wilkins Shoe Button Fastener Company, Meadville, Pa. Filed May 9, 1884. (No model.)

Brief.—Improvement on Patent No. 297,895, dated April 29, 1884.



Claim.—1. The jaw A' and barrel D, in combination with the central fixed anvil, *k*, sleeve H, having on its upper end the receptacle or socket *n*, and the spring I, all constructed, arranged, and operated as set forth.

2. In a button-securing apparatus, the spring-sleeve H and fixed anvil *k*, combined with such comparative length, substantially as described, that when the sleeve is at its lowest point of depression its upper end will be in a plane slightly above the upper end of the anvil, as specified.

3. In a button-securing apparatus, the spring-bolt B, in combination with a button-holding latch having both a vertical and horizontal movement, substantially as described.

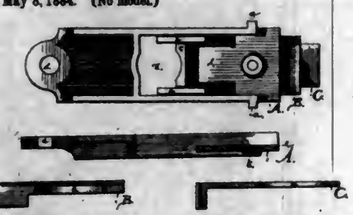
4. In combination with the jaws of a button-securing device, a button-holding latch, substantially as described, having a limited independent yielding movement as the jaws are closed to finish the upsetting of the fastening-pin, substantially as set forth.

5. In a button-securing device, the spring-bolt B, having its lower face cut away at *b*, and a groove or recess, *a*, in combination with latch *e*, substantially as and for the purpose set forth.

6. In a button-securing apparatus, the spring-bolt B, having its head E, having the rear portion of its lower face projecting below the latch *e* when in its normal position, in combination with said button-holding latch *e*, substantially as described.

7. In a button-securing apparatus, the spring-bolt B, provided with the head E, having a cylindrical opening, *d*, at one side, in combination with pin F, having head *f* at one end and latch *e* at the other, and spiral spring *g*, all constructed, arranged, and operated as set forth.

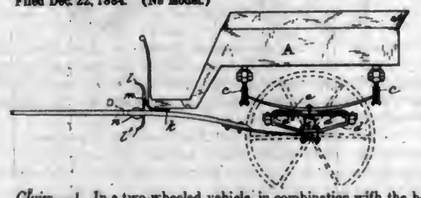
312,689. SEED-PLANTER. FREDERICK T. WILLIAMS, Jamestown, N. Y. Filed May 8, 1884. (No model.)



Claim.—1. In seed-planters, a seed-slide having two or more adjustable gages within the main slide, and one within another, so the opening or aperture through which the seed passes may be increased or diminished in breadth as well as length, substantially as shown, and for the purpose set forth.

2. In seed-planters, a seed-slide having two or more adjustable gages within the main slide, said gages being provided with projections extending to the bottom of the slide and forming a portion of sides of the seed-cup, substantially as shown, and for the purpose set forth.

312,690. TWO-WHEELED VEHICLE. OSBORN WILLSON, Aurora, Ill. Filed Dec. 22, 1884. (No model.)



Claim.—1. In a two-wheeled vehicle, in combination with the bow or its chord and pier, the wooden rocker *e*, extending the whole length of the chord, and serving the twofold purpose of a rocker and of a governor, all substantially as set forth.

2. The pier *i*, combined with and clipped to the axle or springs beneath it, and also to the chord, rocker, and springs (or spring-bar) above it, and serving to strengthen the truss and the chord, and to preserve the proper mutual relations of the chord and rocker under the changing conditions of the load, as set forth.

3. The described device consisting of the bow, chord, rocker, and pier, arranged under and crosswise of the cart-body, and between the body and the side springs, and clipped to the middle of the cross-springs and secured to the body, as set forth.

4. In combination with the cart-body, the brake *k k'*, secured to its front, and the roller secured to the cross-bar of the shafts, the combination being and operating substantially as set forth.

5. The combination of the described brake *k k'* and the roller with the devices consisting of the described bow, chord, rocker, and pier.

312,691. TACK-STRIP. ERASTUS WOODWARD, Somerville, and GEORGE W. COPELAND, Malden, assignors to I. M. Harmon, Boston, Mass. Filed Dec. 24, 1883. (No model.)

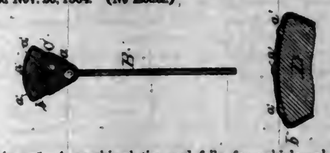


Claim.—1. A tack-strip cut from a flat plate and having the portion which constitutes the connected heads bent at a right angle to the shanks of the tacks, all substantially as and for the purposes described.

2. A tack-strip having the head-forming portion *b* bent at right angles to the shanks, the shanks *b'*, and the notches *c* in one edge of the head-forming portion, all substantially as and for the purposes described.

3. The method of making a tack-strip, consisting in forming from a flat plate a comb or strip of connected nails, and then in forming a continuous head thereon by turning the connecting edge of the strip at a right angle to the shank, all substantially as and for the purposes described.

312,692. VEHICLE-WHEEL. JOSEPH L. YOST, Wallingford, Conn. Filed Nov. 20, 1884. (No model.)

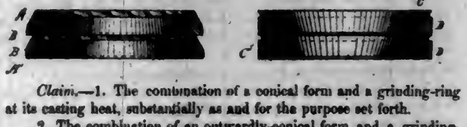


Claim.—1. A combined tire and felly for vehicle-wheels, which consists, essentially, of a hollow annulus provided with an internal compressed or elastic packing, substantially as and for the purpose herein set forth.

2. A combined tire and felly for vehicle-wheels, consisting of the following elements, to wit: an inner part, *a*, and outer part, *b*, brazed or otherwise suitably secured together, and an internal compressed or elastic packing, D, inclosed within said parts, all substantially as and for the purpose herein set forth.

3. A combined tire and felly for vehicle-wheels, composed of an outer part, *b*, having openings *a'*, an inner part, *a*, brazed or otherwise secured to the part *b*, and an internal compressed or elastic packing, D, all substantially as and for the purpose herein set forth.

312,693. MEANS FOR TRUING CASTINGS. OSCAR J. ZIEGLER, Freeport, Ill., assignor to the Stover Manufacturing Company, same place. Filed Mar. 10, 1884. (No model.)



Claim.—1. The combination of a conical form and a grinding-ring at its casting heat, substantially as and for the purpose set forth.

2. The combination of an outwardly-conical form and a grinding-ring at its casting heat, arranged upon and outside of said form, substantially as and for the purpose set forth.

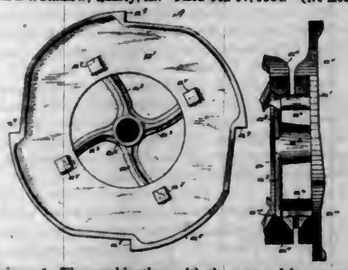
3. The combination of suitable superposed forms, each form carrying a conical grinding-ring in its casting heat, the weight of the superior forms being arranged to bear upon the inferior rings, as and for the purpose set forth.

312,694. TYMPAN-SHEET AND COMPOUND FOR SAME. JOSEPH P. BARRINGTON, Shelby, N. C. Filed Aug. 26, 1884. (No specimens.)

Claim.—1. A compound for coating tympan-sheets, consisting of oil of lavender, oil of lemon, oil of sassafras, castor-oil, and glycerine, in substantially the proportions specified.

2. An improved tympan-sheet consisting of suitable paper coated with a compound composed of oil of lavender, oil of lemon, oil of sassafras, castor-oil, and glycerine, in substantially the proportions named, and adapted to be applied to the tympan, as set forth.

312,695. CHECK-ROWER ATTACHMENT FOR CORN-PLANTERS. JOSEPH C. BARLOW, Quincy, Ill. Filed Oct. 17, 1884. (No model.)



Claim.—1. The combination, with the rotary driver provided with shoulders or abutments to engage the knots, of a detent arranged to drop behind said shoulders or abutments, and thereby limit the backward motion of the driver, a second detent connected to said first-named detent and arranged to be withdrawn by the passage of the knot, said first-named detent being provided with the slotted end for the passage of the rope or wire, and the inclined or tangential shoulders to engage the knots, substantially as described.

2. In combination with the knotted rope or wire, the rotary driver provided with the abutments or shoulders, and the incline located in ad-

vance of the said shoulders to direct the wire or rope into the narrow space between the abutments, substantially as described.

3. In combination with the rotary driver provided with abutments, as described, the pivoted lever or detent engaging said abutments, and provided with the slotted extremity and flaring walls, substantially as described.

4. In combination with the rotary driver provided with abutments or shoulders and a groove for the rope or wire, the pivoted arm or lever and the detent, the said arm or lever engaging the said detent on one side of its pivot, but having a slight movement independent thereof, substantially as and for the purpose set forth.

5. In combination with the rotary driver, its abutments and ratchet, the two detents pivoted upon the same bolt and operating together to stop and release the driver, substantially as described.

6. As an improved attachment for communicating motion from the knotted cord or wire to the feeding or dropping mechanism of a planter, the detachable frame provided with suitable guiding-pulleys, the rotary driver, automatic locking and unlocking detents, and a mechanism connected to said driver, and operating thereby to actuate the feeding devices, substantially as described.

7. In combination with a rotary driver which receives motion from the knotted cord or wire, the driving-cam provided with two series of inclines, as described, and a vibratory lever provided with rollers which alternately make contact with one series of inclines and drop beside the inclines of the next series, substantially as and for the purpose set forth.

8. The combination, in a driving attachment for corn-planters, of the frame, the driver centrally supported and carrying the operating cams or inclines, the detents, and the lever pivoted to one side of the axis of the driver and carrying rollers to co-operate alternately with the cams or inclines, substantially as described.

9. A rotary driver for attachment to check-row corn-planters, constructed, substantially as described, in two sections, *a a'*, the one provided with a hub and spokes carrying abutments a^4, and the other in the shape of an annulus or disk with spacing blocks or studs, the said sections being united by bolts or rivets, substantially as described, whereby a wheel is formed having a groove for the reception of the rope or wire and abutments for engaging the knots thereon.

10. The combination, in a check-row corn-planter and with the feeding or dropping mechanism thereof, of two independent rotary driving mechanisms, located the one on either side of the machine, both of said driving mechanisms being independently connected to the feeding mechanism by a detachable locking-bolt, whereby either can be operated without affecting the other, substantially as described.

11. As a means for detachably connecting the actuating mechanism to the reciprocating members of the feed-operating mechanism, and in combination therewith, the notched or perforated bar, the frame or bracket applied to the feed-operating mechanism and provided with a slot to receive and guide the said bar, and the movable locking-bolt whereby the said bar may be locked to the feed-actuating mechanism, and when unlocked may be supported and guided in position to be again locked, substantially as described.

12. In a feed-driving attachment for corn-planters, the combination of the frame provided with arms or brackets for the guiding-rollers and pulleys, a central opening, and the bridge-piece or saddle located within or extending across said opening, and carrying a pin or journal, substantially as described, with the rotary driver and its attached cams mounted upon the aforesaid pin or journal, and the vibrating lever located and pivoted within the saddle or bridge piece, substantially as described.

13. In combination with the rotary driver, the pawl B, provided with shoulders and ears, as described, and the arm or lever C, adapted to fit between the ears and make contact with the shoulders on the pawl B, both said pawl B and arm or lever C being supported upon the same bolt or pivot, substantially as described.

14. As a means for intermittently operating the feeding mechanism from or by means of a knotted rope or wire, and in combination with the latter, a rotary wheel or drum provided with shoulders or abutments to engage the knots, a detent or locking device for limiting the rotation of the said wheel or drum, and a trip mechanism actuated by the passage of the knots to release the detent, substantially as and for the purpose described.

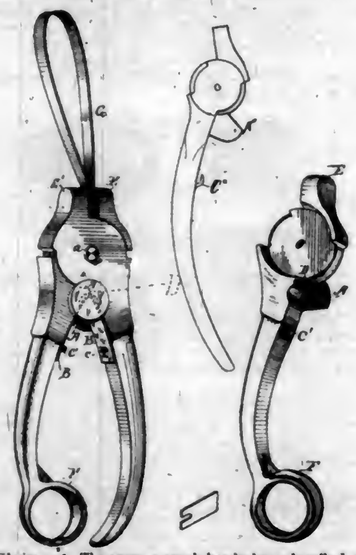
15. In combination with a rotary drum or wheel provided with shoulders or abutments to engage the knots on the rope or wire, a detent normally held in engagement with said rotary drum or wheel, and a trip actuated by the knots in advance of their application to the wheel or drum and operating to disengage the detent and permit the wheel to revolve, substantially as described.

16. In a check-row corn-planter, and in combination with the feeding or dropping mechanism thereof, a rotary driver adapted to engage the knots or protuberant portions of a rope or wire, a detent or locking device limiting the movement of the driver, and a trip for releasing the detent by the action of the knots thereon, substantially as described.

17. A rotary driver for check-row corn-planters, constructed, substantially as described, with a rotary wheel or drum provided with abutments to engage the knots, a detent for limiting the throw of the wheel, and a second detent for limiting the back motion of the wheel, said last-named detent located in the path traversed by the wire or rope, and being actuated thereby to raise or release the first detent, substantially as described.

18. In combination with a rotary driver adapted to co-operate with and be driven by knots or projections on a rope or wire, an automatic locking and unlocking device or mechanism operated by the knots to release the driver, substantially as described.

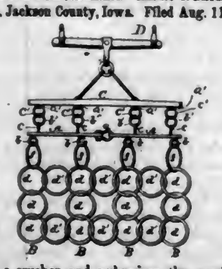
312,696. HAND PUNCH OR PRESS. ANDREW B. BARNARD, St. Joseph, Mo. Filed June 2, 1884. (No model.)



Claim.—1. The press or punch hereinabove described, consisting of two substantially identical parts, which are separated by a spring secured between the handles thereof, substantially as described, and having within the housing for the spring the stops D, to limit the movement toward each other of the jaws.

2. The press or punch hereinabove described, consisting of two substantially identical parts, which are separated by a spring confined in a housing, which housing is constructed, as described, to also operate to limit the movement of the jaws.

312,697. LAND-PULVERIZER. HENRY C. BATES, Miles, and GEORGE BRYANT, Iowa, Jackson County, Iowa. Filed Aug. 11, 1884. (No model.)

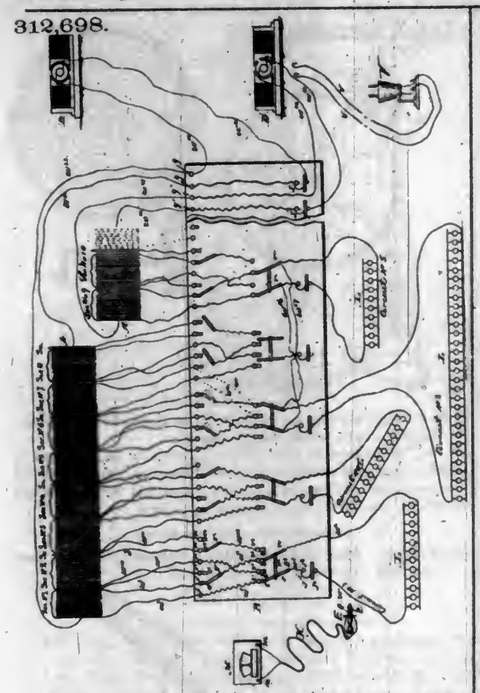


Claim.—In a crusher and pulverizer, the combination, with the jointed bars A, of a series of sections, B, of circular rings *d*, interlocked together, the sections of rings being connected laterally at the front and rear by the interlocking rings *d'*, and attached at the front to the jointed bars, substantially as and for the purpose described.

312,698. SYSTEM OF ELECTRIC LIGHTING BY SECONDARY BATTERIES. ALEXANDER H. BAUER, Baltimore, Md., assignor to the Viaduct Manufacturing Company of Baltimore, same place. Filed Feb. 27, 1884. (No model.)

Claim.—1. The combination, with a number of consumers' electric-lighting circuits centering at a common station, and a suitable number of secondary or accumulating electric-battery cells located at said station, of means for charging said cells at the station and for connecting the same in sections of suitable numbers of cells to the respective consumers' circuits, substantially as described.

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2. The combination, with a number of consumers' electric-lighting circuits centering at a common station, and a suitable number of secondary or accumulating electric-battery cells located at said station, of means for connecting said cells in sections of suitable numbers to the respective consumers' circuits, and switching devices arranged for adding additional cells to normal sections or cutting off cells from a series of cells connected to particular circuits, substantially as described.

3. The combination, with a number of consumers' electric-lighting circuits centering at a common station, and a suitable number of secondary or accumulating electric-battery cells located at said station, of means for connecting said cells in sections of suitable numbers to the respective consumers' circuits, and switching devices for interchanging sections of cells upon circuits, substantially as described.

4. The combination, with any number of consumers' electric-lighting circuits centering at a common station, and a suitable number of secondary or accumulating electric-batttery cells located at said station, of means for connecting said cells in sections of suitable numbers of cells to different consumers' circuits, and switching devices for disconnecting sections from circuits and connecting other sections in lieu of said disconnected sections, substantially as described.

5. The combination, with a number of consumers' electric-lighting circuits centering at a common station, and a suitable number of secondary or accumulating electric-battery cells divided into a plurality of series, of means for connecting sections of cells from different series in parallel or multiple arc to any consumer's circuit, substantially as described.

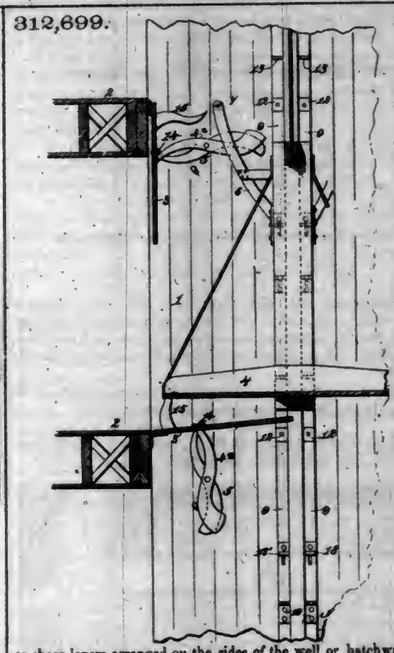
312,699. MACHINERY FOR OPENING AND CLOSING AUTOMATICALLY SAFETY-COVERS FOR ELEVATORS. ALEXANDER J. BLAIKIE, Rochester, N. Y. Filed June 30, 1884. (No model.)

Claim.—1. In combination with an elevator well or hatchway and safety covers or doors fitted in the same, and an elevator-car traveling in said well, a system of curved or shear levers arranged on the sides of the elevator-well, and adapted for engagement with projections or cams on the elevator-car and the safety-covers, substantially as herein set forth.

2. The combination of the well or hatchway, the covers or doors fitted therein, the elevator-car having the attached diverging arms provided with end rollers or cams, and a system of curved or shear levers arranged on the sides of the well or hatchway for engagement with the said rollers or cams and with the covers or doors, substantially as described.

3. The combination of the well or hatchway, the covers or doors hinged therein, and provided with attached projecting lever arms or horns the elevator-car having attached cams or projections and diverging arms, provided with end rollers or cams, and the system of curved

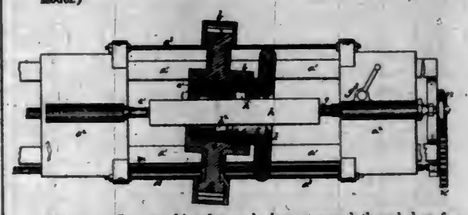
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or shear levers arranged on the sides of the well or hatchway, substantially as described.

4. The combination of the vertical pivoted spring-pressed bars having projections with an elevator-well, an elevator-cage having inclines at top and bottom, and pivoted doors or covers arranged in the elevator-well, and adapted to be retained and elevated by said pivoted bars and their adjuncts, substantially as herein set forth.

312,700. MACHINE FOR MAKING TAPERED THREADED SOCKETS. MILDRED BLAKEY, Allegheny City, Pa. Filed July 11, 1884. (No model.)



Claim.—1. In a machine for producing a tapered threaded surface on the inside of pipe-sockets, the combination of a hollow rotatory chuck for supporting the socket during the threading operation in an angling position to the cutter-bar, with a cutter-bar extending through said chuck and provided with one or more threading-bits, the said chuck or cutter-stock having an axial movement, substantially as and for the purposes described.

2. In a machine for producing threaded tapered surfaces on the inside of sockets, a cutter-bar having an axial movement, and carrying the cutters, in combination with a rotatory head which supports the socket in an angling position to the stock, and means for communicating an axial movement to the tool-stock and a rotatory movement to the socket-holder, substantially as and for the purposes described.

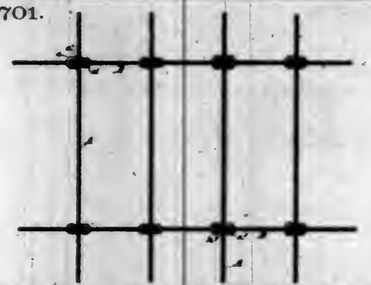
312,701. WIRE-WORK. WUNIBALD R. BOERNER, Chicago, Ill. Filed Dec. 22, 1883. (No model.)

Claim.—1. As a new article of manufacture, a wire having a number of loops arranged opposite each other in pairs formed throughout its length, substantially as described.

2. As a new article of manufacture, a wire having a number of loops arranged opposite each other in pairs throughout its length, and having cross-wires passing through said loops, substantially as described.

3. As a new article of manufacture, a wire having a number of loops arranged opposite each other in pairs, said loops being inclined from the plane of the wire to permit the insertion of transverse wires, substantially as described.

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4. The improved wire lattice-work, which consists of a series of main wires each having a number of loops therein arranged in pairs opposite each other, and a series of cross-wires passing through said loops, the series of main and cross wires being thus held together, substantially as described.

5. As a new article of manufacture, a wire having a number of S-shaped loops formed therein, substantially as described.

312,702. PAPER HOLDER OR FILE. THEODORE F. BOURNE, Bloomfield, N. J. Filed July 7, 1884. (No model.)

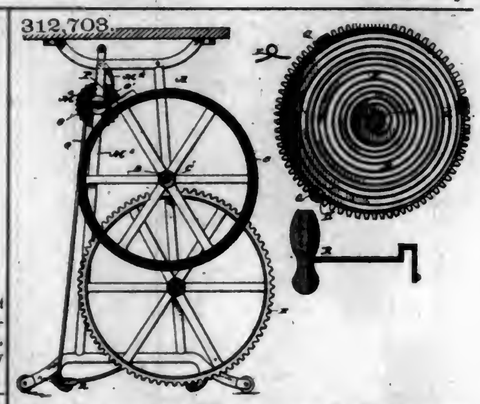


Claim.—1. In a file or rack for holding legal or other papers, the combination, substantially as hereinbefore set forth, of the file-back B, the edge or rim *f'*, forming a hinge or support for the clip, and the edge or rim *f*, placed at either side thereof.

2. In a file or rack for holding legal or other papers, the combination, substantially as hereinbefore set forth, of the file-back B, the buckle-shaped clip C, with the opening O, and the springs *s' s'*, and the elongated opening O' in the file-back opposite the opening O in the clip C, through which the papers can be sewed or fastened together while still held by the clip.

3. In a file or rack for holding legal or other papers, the combination, substantially as hereinbefore set forth, of the file-back B, the holding-edges *f* and *f'*, the buckle-shaped holding-clip C, with the opening O, and the springs *s' s'*, and the elongated opening O' in the file-back opposite the opening O in the clip C, through which the papers can be sewed or fastened together while still held by the clip.

312,703. SPRING-MOTOR. PATRICK BYRNE, Nashville, Tenn. Filed Jan. 12, 1885. (No model.)



Claim.—1. The combination, with the frame A, of the driving-shaft provided with the shell D, having the integral gear-wheel E, the coil-springs secured to the driving-shaft and to the shell D, the drive-wheel on the main shaft outside of the frame, the gear-wheel L, pinion-wheel M on shaft M', and winding-crank, substantially as specified.

2. The combination, with the main frame A, the driving-shaft, with its driving-wheel and spring-actuated gearing, substantially as described, of the pivoted brake-shoe engaging the driving-wheel, the brake-rod, and the weighted treadle, substantially as specified.

3. The combination, with the main frame A, of the driving-shaft, with the winding mechanism, driving-wheel, the cylinder with the integral gear-wheel, and springs connecting the cylinder and driving-shaft, and the treadle, brake-lever, and brake-shoe, as set forth.

312,704. BALE-BAND TIGHTENER. STEVEN L. CARPINTER, Rossville, Tenn. Filed Dec. 6, 1884. (No model.)



Claim.—As an improvement in bale-band tighteners, the combination, with the handle or lever A, of the pike B, provided with an arm, F, secured within the lever, the eyebolt J, also fitted in the lever in rear of the arm, and the hook-arm C, interlocked with the eye of the bolt, arranged and operating so that the hook-arm and pike will draw the band on a common straight line, as set forth.

312,705. EXPLOSIVE SHELL. WILLIAM T. CHAMBERLAIN, Norwich, Conn., assignor of two-thirds to Benjamin M. Prince, same place, and William Crossley, Randolph, Mass. Filed May 28, 1884. (No model.)

Claim.—1. The body of a shell containing an explosive, and a hollow or perforated base connected with said body having a fuse-chamber, said base being formed in sections, one section carrying a nipple and provided with a flange whereby by means of the fastening-pin e the sections are connected, substantially as and for the purpose set forth.

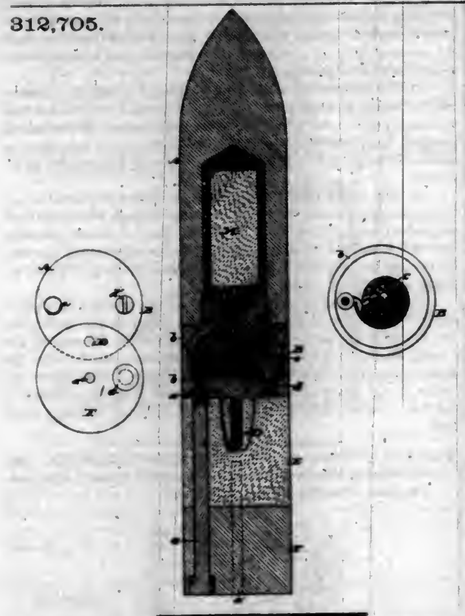
2. A shell having a block of dynamite within its body, the same being incased in non-explosive material, a base connected with said body having a fuse-chamber, a fuse-opening, and a nipple, and a plug connected with the base having a firing-pin, substantially as and for the purpose set forth.

3. A shell having a nipple on its base, in combination with a sabot connected therewith by the eccentrically-arranged pin D, and the pin *d'* said sabot having a firing-pin, substantially as and for the purpose set forth.

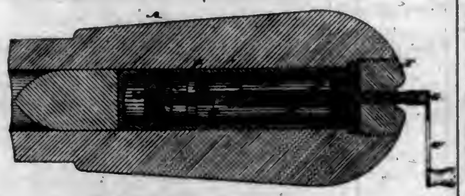
4. A shell having in its base a fuse-chamber, a nipple, and vent, in combination with a sabot covering said nipple and vent, and connected with the base by an eccentrically-arranged pin, substantially as and for the purpose set forth.

5. An explosive shell having a fuse-chamber and a cap or fulminate-holder, a sabot or pad of flexible material connected with the base of the shell, and a block carrying the firing-pin secured to said pad, substantially as and for the purpose set forth.

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312,706. PNEUMATIC CARTRIDGE. WILLIAM T. CHAMBERLAIN, Norwich, Conn., assignor of two-thirds to Benjamin M. Prince, same place, and William Crossley, Randolph, Mass. Filed June 18, 1884. (No model.)



Claim.—1. A cartridge-shell adapted to be charged with air, consisting of a shell having a tubular head and base, a screw-plug removably fitted to said head, and a rod or plunger passing through the base into the shell and connected with said plug, whereby by rotating said rod the plug is unscrewed and the air is released from the shell at the front end thereof, substantially as and for the purpose set forth.

2. In a cartridge-shell, a shell with a tubular head and base at opposite ends, a removable plug fitted to the head, and a rod or plunger passing through the base into the shell and connected with said plug, in combination with rubber tubing closing the joint between the rod or plunger and tubular base, substantially as and for the purpose set forth.

312,707. TILL-ALARM. GEORGE A. COLTON, Syracuse, N. Y. Filed Aug. 7, 1884. (Model.)



Claim.—1. In a till-alarm, a bolt having a latch, in combination with a latch-bar arranged at right angles to the bolt, and means for reciprocating the latch-bar, substantially as specified.

2. In a till-alarm, the combination of a bolt having a pivoted latch and a rigid standard projecting from the bolt, a latch-bar, and a series of recessed tumblers arranged at right angles to the bolt, and means for reciprocating the latch-bar and tumblers, substantially as specified.

3. In a till-alarm, the combination of a vertically-operating bolt provided with a pivotal latch and a horizontally-operating series of tumblers, a pivotal pull, and a series of permutation latches or spindles adapted to operate the tumblers, substantially as specified.

4. In a till-alarm, the combination of a bolt having a latch, a series of tumblers, and a latch-bar arranged at right angles to the bolt, and a series of permutation latches or spindles arranged at right angles to the tumblers and to the latch-bar, and devices for throwing the bolt, substantially as specified.

5. The combination of a recessed bolt having a latch, a latch-bar, and a pull having an arm projecting into the recess of the bolt, and means for reciprocating the latch-bar, substantially as specified.

6. The combination of a bolt having a standard or projection arranged at right angles to its face, and having a latch operating laterally within the body of the bolt, a pivoted pull having an arm operating in the direction of the length of the bolt, a series of slotted tumblers, and a series of permutation-latches, substantially as specified.

7. In a till-alarm, the combination of an alarm and a pivoted pull having an alarm-operating lever and a bolt-throwing device connected therewith, substantially as specified.

8. The combination, with a pivoted pull having projecting arms at its ends near its pivots, of a bolt and an alarm operatively connected with said arms, substantially as specified.

9. An alarm-lock for doors or drawers provided with a pivoted pull having a bolt-operating arm and a swinging bell-lever, substantially as specified.

10. An alarm-lock having a pivoted pull provided with a bell-lever, a permutation latch-bar and latches or spindles between the alarm and latch-bar, and connecting mechanism for throwing the bell-lever out of action, substantially as specified.

11. In a till-alarm, a bolt, a latch-bar, and a series of parallel notched tumblers arranged at a right angle to the bolt, and an independent lock adapted to take into the notches of the tumblers, substantially as specified.

12. In a till-alarm, the combination of an independent lock, a series of notched and slotted tumblers, a bolt having a pivoted latch and a rigid projection thereon, a latch-bar having an arm for preventing an alarm, and a pivoted pull having a bolt-operating arm and a bell-lever, substantially as specified.

13. In a till-alarm, the combination of a bolt and a pivoted pull having a bolt-operating arm, substantially as specified.

14. In a till-alarm, an alarm in combination with a pivoted pull having a bell-lever, substantially as specified.

15. In a till-alarm, a base-plate having an opening therethrough, in combination with a longitudinally-grooved latch or spindle retaining cap, and with permutation keys, latches, or spindles having T-heads, substantially as specified.

16. A permutation key, latch, or spindle having a T-head and a cylindrical body portion enlarged to V shape on one side and flattened on the other, in combination with a diagonally-slotted tumbler, substantially as specified.

17. A permutation key, latch, or spindle having a T-head and cylindrical body enlarged to V shape on one side and flat upon the opposite side, and having a projecting flange and a flat end, in combination with a diagonally-slotted tumbler, a T-slotted cap, and base, substantially as specified.

18. The base-plate having the standards B^3 B^4, the guides B', and the opening K, substantially as shown and described.

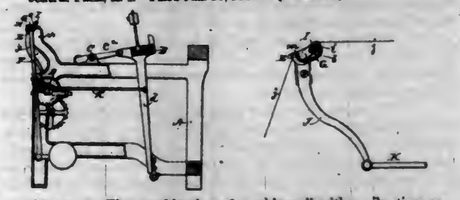
19. The combination, with the base B, having the standards B^4 B^3, of the cap L and the pull D, substantially as shown and described.

20. The combination of the bolt C, having the latch C^3 and the standard C', of the tumblers E, having the slots E' and inclined walls E^2, the springs E^3, and the latch-bar F, having the inclined walls F^2 and the slot F^4, substantially as shown and described.

21. The combination of the bolt C, having the latch C^3, the bar F, having the arm F^3, the pull D, having the bell-lever G, and the hammer H, having the projection H' and the spring F^5, substantially as shown and described.

22. The combination of the tumbler E, having the inclined walls E^2, with the latch-bar F, having the inclined walls F^2 and the latches or spindles J, substantially as shown and described.

312,708. LET-OFF MECHANISM FOR LOOMS. JESSE D. COTTRELL, Central Falls, R. I. Filed Jan. 30, 1884. (No model.)



Claim.—1. The combination of a whip-roll with a vibrating support adapted to support the whip-roll against the increased tension of the

warp-threads at the forward beat of the lay, and means for vibrating the whip-roll support, substantially as described.

2. The combination of a loom let-off mechanism with a vibrating support adapted to support the whip-roll against the increased tension of the warp-threads at the forward beat of the lay, and means for vibrating the whip-roll support, substantially as described.

3. The combination of the whip-roll I with the recessed bar G, provided with the protecting-edge *m* and the supporting-edge *i*, and means for vibrating the bar G, substantially as described.

312,709. VARIABLE CRANK OR ECCENTRIC. WILLIAM H. DE VALIN, San Rafael, Cal. Filed Nov. 22, 1884. (No model.)



Claim.—1. The combination of the crank-shaft, the wrist-plate or eccentric connected therewith, and means, as specified, whereby the longitudinal movement of a hub or similar device along said shaft will shift said wrist-plate or eccentric in a curved line, substantially as described.

2. The combination, with the shaft and the pivoted wrist-plate or eccentric, of the adjusting-plate engaging a projection of said wrist-plate or eccentric, and means, as specified, whereby the longitudinal movement of a device along said shaft will turn said adjusting-plate on its center, substantially as described.

3. The combination, with the shaft and the wrist-plate or eccentric connected therewith, of the adjusting plate having a slot or groove engaging a projection of said wrist-plate or eccentric, and means, as specified, for turning said adjusting-plate to any desired position, so as to vary the eccentricity of said wrist-plate or eccentric, substantially as described.

4. The combination of the pivoted wrist-plate or eccentric, the sleeve mounted on the crank-shaft and having a spiral groove, the hub movable lengthwise of said shaft, and the pin entering said groove, said sleeve being connected with said wrist-plate or eccentric in such manner that the movement of the former turns the latter on its center, substantially as described.

5. The combination, with the shaft and the pivoted wrist-plate or eccentric, of a hub movable lengthwise of said shaft, but prevented from turning independently thereof, said hub being connected with said wrist-plate or eccentric by devices substantially as described, so that its longitudinal movement on said shaft turns said wrist-plate or eccentric on its center, as set forth.

6. The combination of the shaft, the disk fixed thereon, the wrist-plate or eccentric pivoted to said disk, the adjusting plate or device mounted loosely on said shaft and having a slot or groove which receives a pin or projection on said wrist-plate or eccentric, and means, as specified, for turning said adjusting plate or device to shift said wrist-plate or eccentric, substantially as described.

7. The combination of the shaft, the disk rigidly fixed thereon, the wrist-plate or eccentric in contact with said disk, and having a projection working in a slot therein, the slotted or grooved adjusting-plate mounted loosely on said shaft and engaging a projection on said wrist-plate or eccentric, whereby the latter may adjusted, substantially as described.

8. The combination, with the shaft and the pivoted wrist-plate or eccentric, of an adjusting-plate loosely mounted on said shaft, and a sliding block working in a slot in said plate and connected with said wrist-plate or eccentric, substantially as and for the purpose set forth.

9. The combination of the shaft, the disk fixed rigidly thereon, the wrist-plate or eccentric pivoted to and in contact with said disk, the adjusting device mounted loosely on said shaft and having a spiral groove, a loose hub movable lengthwise only of said shaft, and a pin thereon taking into said spiral groove, so that the longitudinal movement of said hub acts through the devices specified to shift said wrist-plate or eccentric, substantially as described.

10. The combination of the shaft, the disk fixed thereon, the pivoted eccentric or wrist-plate, the adjusting-plate connected therewith by a slot and pin, and means, as specified, for regulating the position of said plate, substantially as described.

11. The combination of the shaft, fixed disk, wrist-plate or eccentric, adjusting-plate connected therewith by a slot and pin, loose sleeve secured to or in one piece with said plate and having a spiral groove, hub movable lengthwise only of said shaft and sleeve, and a pin carried by said hub and working in said spiral groove, substantially as described.

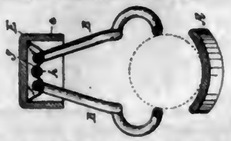
12. The combination, with the shaft and wrist-plate or eccentric adjustably connected therewith, of an adjusting plate or device capable of turning on said shaft, and means for automatically moving said wrist-plate or eccentric through said adjusting plate or device from or toward the center of said shaft as the power operating the latter increases or decreases, substantially as described.

13. The combination of the shaft, the pivoted wrist-plate or eccentric, the slotted adjusting-plate engaging a projection of said wrist-plate or eccentric and carried by a sleeve turning on said shaft, and means, as specified, for automatically regulating the position of said wrist-plate or eccentric through said adjusting-plate and sleeve, substantially as described.

14. The combination, with the shaft and the wrist-plate or eccentric adjustably connected therewith, of the hub through which said shaft is operated, capable of movement lengthwise of said shaft, and connected with said wrist-plate or eccentric through devices substantially as specified, so that the longitudinal movement of said hub acts to shift said eccentric or wrist-plate, as set forth.

15. The combination, with the shaft and the pivoted wrist-plate or eccentric, of the hub adapted to move longitudinally on said shaft in one direction when the power transmitted increases above the normal, and a spring tending to move said hub in the opposite direction when the power diminishes, said hub being connected with said wrist-plate or eccentric through devices substantially as specified, so that the motion of said hub automatically adjusts the said wrist-plate or eccentric, as set forth.

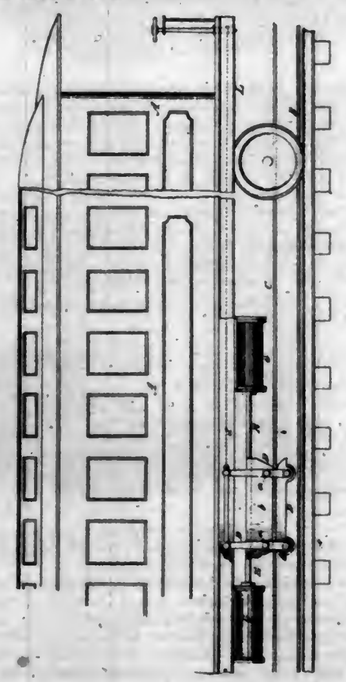
312,710. BOBBIN-SUPPORTER FOR SPOOLING-MACHINES. GEO. W. DICKERSON, New Castle, Del., assignor to George Draper & Sons, Hopedale, Mass. Filed Feb. 23, 1884. (No model.)



Claim.—The carrier E and the gravitating arms B B, combined with the cap *g*, and the pin extended across the same to hold it in place with relation to the carrier, the cap holding the arms to the carrier, substantially as set forth.

312,711. GRIP ATTACHMENT FOR RAILWAY-CARS. JOHN J. ENDRES, Hoboken, N. J. Filed Dec. 26, 1883. (No model.)

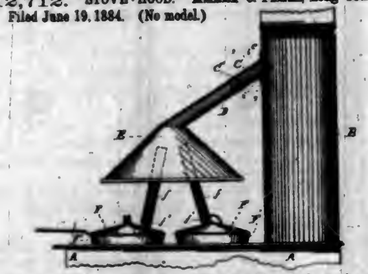
Brief.—The grip is carried upon a piston-rod having plungers at each end, which work in cylinders secured to longitudinal beams which extend the length of the car.



Claim.—1. The combination of the grip attachment D with the rod E, plungers F, cylinders G, rod J, pistons I, and cylinders H, substantially as and for the purpose described.

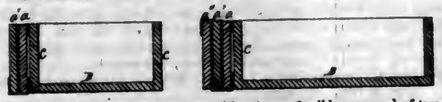
2. The combination of the car A and longitudinal beams L L, which are attached to the bottom of the car and extend from end to end thereof, with the cylinders G, plungers F, rod E, and grip attachment D, substantially as herein shown and described.

312,712. STOVE-HOOD. MELISSA C. FISHER, Long Prairie, Minn. Filed June 19, 1884. (No model.)



Claim.—In a cooking-stove, the pipe B and short pipe C, having lugs *c*, whereby it is secured thereto by rivets *i*, said pipe C having a damper, C', the funnel-shaped hood E, having receptacle *e*, and straight pipe D, adapted to enter the pipe C and be supported thereby, in combination with cooking utensils F', having covers F, provided with short pipes *f'* and detachable pipes *f*, as shown and described, and for the purposes set forth.

312,713. BOX. JOHN FLYNN, Omaha, Nebr. Filed Nov. 22, 1884. (No model.)

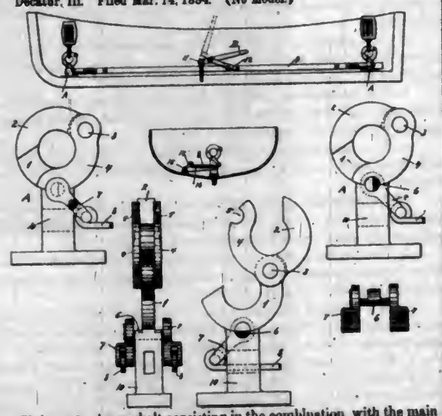


Claim.—1. The combination, with a box, of a lid composed of two or more sections hinged together, one of said sections being hinged to the box, whereby the sections can be folded upon each other and against the side of the box, substantially as and for the purposes specified.

2. The combination, with a box, of a lid composed of two or more sections hinged together, the width of one section being substantially equal to the depth of the box, and said section being hinged to the box, substantially as and for the purposes specified.

3. The combination, with a box, of a box-lid composed of two or more sections united by the double-acting strap-hinges *b b'*, substantially as and for the purposes specified.

312,714. BOAT-DETACHING APPARATUS. HERMAN E. FOSTER, Decatur, Ill. Filed Mar. 14, 1884. (No model.)



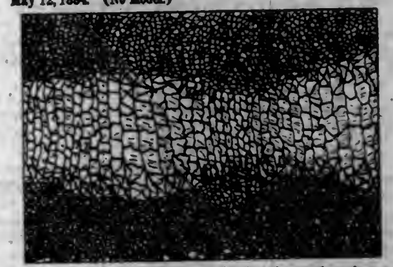
Claim.—1. An eyebolt consisting in the combination, with the main standard, of the pivot-section provided with a curved extension and of a rotating lock-bolt journaled in said main standard and directly engaging the curved extension, to dog the pivot-section in closed position, substantially as described.

2. The combination, with the main standard 1 and with the pivot-section 2, having curved extension 4, of the rotating lock-bolt 6, journaled in said main standard, and provided with a cut-away to engage the notch or seat 5 of said extension, substantially as described.

3. The combination, with main standards 1 and pivot-sections 2, having curved extensions 4, of the rotating lock-bolts 6, journaled in said standards and directly engaging said curved extensions, and intermediate mechanism, substantially as described, whereby said lock-bolts may be shifted in unison, substantially as set forth.

4. The combination, with the eyebolts A, each consisting of a main standard, 1, and pivot-section 2, having curved extension 4, of the rotating lock-bolts 6, engaging said curved extensions, the crank-arms 7, and the reciprocating bar 9, joined pivotally thereto, substantially as described.

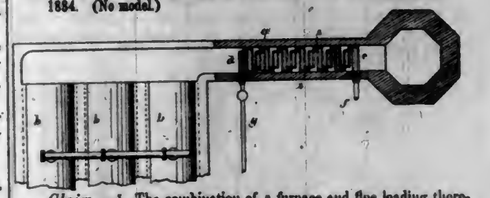
312,715. SHEET-METAL TRUNK-COVERING AND METHOD OF ORNAMENTING THE SAME. WILLIAM B. GOULD, Newark, N. J. Filed May 12, 1884. (No model.)



Claim.—1. A metallic sheet having its surface impressed or wrinkled, crystallized, and covered with suitable transparent and colored varnish, substantially as and for the purposes herein set forth and shown, as a new article of manufacture.

2. The process herein described of producing trunk-coverings—to wit, impressing sheet-tin with suitable dies or rolls, and thereby producing a corrugated or wrinkled surface, submitting said sheets to the action of acids to secure a mottled surface, and then covering said surface with a suitable varnish or paint, substantially as and for the purposes herein set forth.

312,716. FEED-WATER HEATER. JOSEPH A. GRANT, Everett, assignor to the Jarvis Engineering Company, Boston, Mass. Filed May 26, 1884. (No model.)



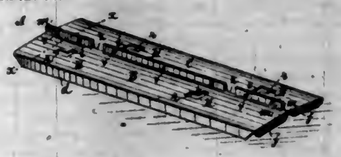
Claim.—1. The combination of a furnace and flue leading therefrom with a feed-water heater comprising two pipes, each having a series of U-shaped loops passing transversely around the walls of the flue, the side portions of the loops being nearer one side wall of the flue than the other, and the loops of one pipe being nearer to one wall, and those of the other pipe nearer the opposite wall, substantially as and for the purpose described.

2. In a feed-water heater, the combination, with the pipes bent into a series of loops, of the bracing-bars A A', provided with corresponding recesses to engage and hold the said pipes between them, substantially as described.

3. In a feed-water heater, the combination, with a series of pipes, each bent into a series of loops, of the bracing-bars A A', having sockets for embracing the said pipes, the socket portions being offset, substantially as and for the purpose described.

312,717. RAILWAY-TIE. EBEN N. HIGLEY, Somersworth, N. H. Filed June 21, 1884. (No model.)

Brief.—A sheet-metal railway-tie made in two sections longitudinally bolted together by their upper flanges, and slightly inclined to form a spring-rest for the rail, and provided with downwardly-extending flanges for engaging the earth. The tie is slotted for the insertion of fastening devices, and the rail rests upon a slotted bed-plate or chair placed upon the tie.



312,717.



Claim.—1. In a railway-tie substantially such as described, the slot N, having the enlarged section *r* and the smaller section *i*, the smaller section standing at an angle to the larger section, substantially as and for the purpose set forth.

2. The bed-plate or chair K, provided with the slots *t*, in combination with the tie A, substantially as described.

3. As a new article of manufacture, the railway-chair or bed-plate K, provided with the slots *t* and side slots, *a*, substantially as set forth.

4. In a railway-tie, the bed-plate K, provided with the slots *t* and the side slots, *a*, in combination with the tie A, provided with the slots N, having the sections *r i*, and the bolts H, having the shoulders *b*, substantially as described.

5. In a railway-tie, the bed-plate K, provided with the slots *t* and the side slots, *a*, in combination with the tie A, provided with the slots N, having the sections *r i*, the bolts H, having the shoulders *b*, the nuts J, the clamps E, and the rails, substantially as described.

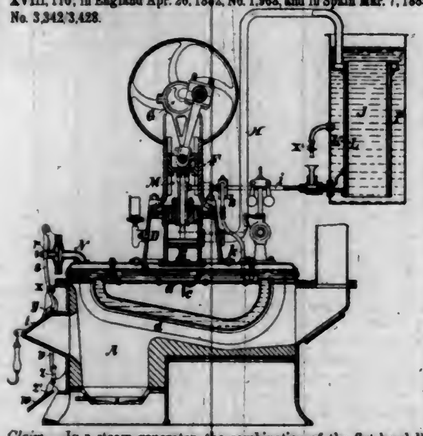
6. The improved railway-tie herein described, the same consisting of the sections B C, provided with the flanges *m f d*, having the apertures *z*, and slots N, having the sections *r i*, substantially as described.

7. The improved railway-tie herein described, the same consisting of the sections B C, provided with the longitudinal flanges *m d* and the transverse flange *f*, said flange *m* being provided with the aperture *z*, and the slots N, substantially as set forth.

8. The improved railway-tie herein described, the same consisting of the sections B C, provided with the longitudinal flanges *m d* and the transverse flange *f*, said flange *m* being provided with the aperture *z*, and the slots N, having the sections *r i* at an angle to each other, substantially as set forth.

9. As a new article of manufacture, a sheet-metal railway-tie having its sides inclined to form a spring-rest for the rails, and provided with flanges adapted to engage the earth and hold the tie in position when in use, substantially as described.

312,718. STEAM-BOILER. HERMANN C. HOFFHEISTER, Meidling, near Vienna, Austria-Hungary. Filed Apr. 5, 1884. (No model.) Patented in Germany Mar. 1, 1882, No. 19,874; in France Mar. 9, 1882, No. 147,804; in Belgium Mar. 9, 1882, No. 57,303; in Italy Apr. 12, 1882, XVI, 14,103; XVIII, 110; in England Apr. 26, 1882, No. 1,963, and in Spain Mar. 7, 1883, No. 3,342 3,428.

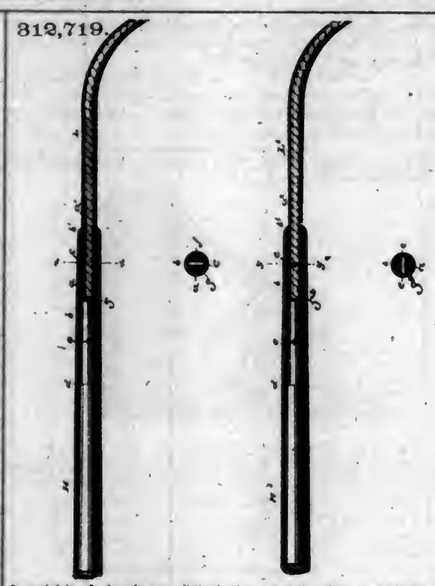


Claim.—In a steam-generator, the combination of the flat hood B, with its surrounding angle-iron bolted to an entirely flat bottom plate, *a*, provided with angle-irons *b b'*, having suitable stays attached to the top of the hood B, the angle-iron *c*, attached at right angle to the angle-irons *b b'*, for strengthening the flat boiler, and the descending tubes *d*, substantially as and for the purpose described.

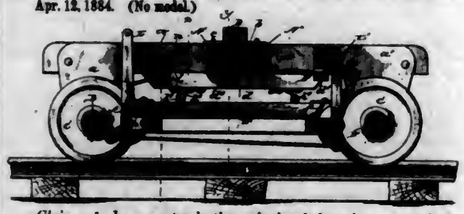
312,719. WHIP. JOSEPH HOLDING, Manchester, County of Lancaster, England. Filed July 11, 1884. (No model.)

Claim.—1. The combination, with a whip handle and lash, of a ferrule, *a*, secured on the large end of the lash, and having a round neck and a relatively large portion beyond the same, and a ferrule, *b*, having a contracted outer end to embrace said neck, and a larger end fitted to the small end of the handle, the same forming a swiveling butt-joint, substantially as and for the purpose hereinbefore described.

2. In a whip having a swiveling butt-joint between its handle and its lash, an inner ferrule, *a*, having a round neck, and a pair of circumferential beads forming a relatively large portion beyond said neck, in combination with an outer ferrule, *b*, having a contracted outer end to coact with the outermost of said beads, and a rivet-pin, *c*, passing through said inner ferrule, and having projecting beads at both ends between said beads, substantially as and for the purpose hereinbefore described.



312,720. CAR-TRUCK. MOSES G. HUBBARD, Norristown, Pa. Filed Apr. 12, 1884. (No model.)



Claim.—1. In a car-truck, the swinging bolster hung upon links inclined outward at their lower ends, in combination with the truck-frame supported by recurved torsion-springs upon equalizing-bars, substantially as described.

2. In a car-truck, the bolster hung upon outwardly-inclined links, in combination with the truck-springs resting upon the equalizing-bars outside of the truck-wheels, substantially as described.

3. The combination, with the truck-frame, bolster, and crank-arm, of the supporting-links, inclined outward, for regulating the lateral movement of the car-body, substantially as described.

4. In a car-truck, the bolster suspended on links, in combination with the crank-arm and spring connected therewith, substantially as described.

5. The combination, with the car-truck, of the long horizontal recurved torsion rods or bars, and the equalizing-bars connecting the two axles, for the purpose and substantially as described.

6. The torsion-springs, in combination with short crank arms or levers the ends of which are supported by the equalizing-bars connecting the two axles, substantially as described.

7. In a car-truck, the torsion rods or springs provided with crank-arms having friction-rollers on their free ends, in combination with the equalizing-bars mounted upon the axles, substantially as described.

8. In a car-truck, the torsion-springs provided with crank arms or levers inclining outward and downward each toward the wheel directly upholding it, and supported on the equalizing-bars connecting the axles, substantially as described.

9. In a railroad car-truck, the elongated torsion rods or springs composed of similar longitudinal sections united by metallic socket-couplings, substantially in the manner specified and shown.

10. The brake-bars, in combination with links connecting them with and suspending them from the equalizing-bars, substantially as described.

11. The combination, with the brake-bars, of the torsion rod or spring and its crank-arm, arranged to operate in the manner substantially as and for the purpose described.

12. The combination of the brake-bar spring with the brake-bar links, for holding the brake-bar up against the equalizing-bar when the brakes are not in action, substantially as described.

13. The combination of the brake-bars with the equalizing-bars connecting the truck-axles, and the connecting-link suspending said brake-bars from the equalizing-bars, whereby they are adapted to operate in the manner substantially as described.

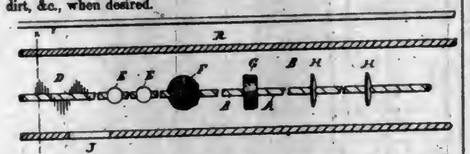
14. The combination, with the truck of the equalizing-bars and the brake-bars suspended therefrom, substantially as described, whereby the action of the brakes is made independent of the truck-frame and its supporting-spring.

15. The combination, with the truck-frame and the equalizing-bars connecting the axles, of the brake-bars, and the safety-bars extending beneath said brake-bars and joining the axle-brackets, substantially as specified.

16. The combination, with the truck-frame and the bolster suspended thereon, of the safety-bars attached to the truck-frame underneath the bolster, substantially as described.

312,721. CABLE RAILWAY. JOHN P. HUNT, Philadelphia, Pa. Filed May 7, 1884. (No model.)

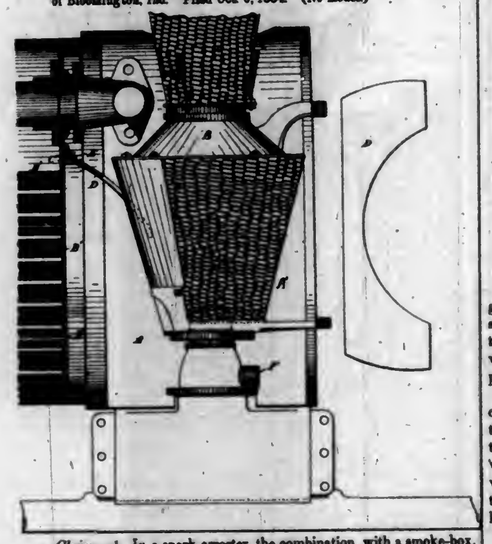
Brief.—In the tube which carries the propelling-cable is a supplemental cable having cleaning devices attached, whereby to remove dust, dirt, &c., when desired.



Claim.—1. In a cable railway, the combination, with the cable-trough, of a traction-cable and of a supplementary cleaning-cable below the traction-cable, substantially as herein shown and described.

2. In a cable railway, the combination, with the trough and traction-cable, of a supplementary cable, and brushes, balls, disks, or other projections secured on the said supplementary cable, for the purpose of cleaning the conduit or trough and removing dust, dirt, and other like matter from the same, substantially as herein shown and described.

312,722. SPARK-ARRESTER. GEORGE D. HUNTER, Terre Haute, assignor of two-thirds to Thomas C. Van Nuys and Morton C. Hunter, both of Bloomington, Ind. Filed Oct. 6, 1884. (No model.)



Claim.—1. In a spark-arrester, the combination, with a smoke-box, a drum therein, and an exhaust-nozzle having a side discharge, of a deflector arranged with such relation to the drum as to direct the products of combustion downwardly in the smoke-box.

2. In a spark-arrester, the combination, with the smoke-box and a drum therein having a perforated and an imperforated portion, of a deflector arranged in a downward and forward position, and with such relation to the drum as to direct the products of combustion downwardly in the smoke-box.

3. In a spark-arrester, the combination, with the smoke-box and drum having a rear imperforated portion, of a deflector secured to the boiler-head, extended in a downward and forward direction, and having a space between its inner edge and the drum, and arranged to downwardly direct the products of combustion in the smoke-box.

4. In a spark-arrester, the combination, with the smoke-box and the drum therein, of the deflector extending in a downward and forward direction, having a space between it and the rear portion of the drum, the remainder of the inner edge being in contact with the drum.

5. In a spark-arrester, the combination, with the smoke-box and the drum having an imperforated and a perforated portion, of the deflector secured to the boiler-head, extended in a downward and forward direction, having a space between it and the rear portion of the drum.

312,723. SHOE-FASTENER. FREDERICK JACOB, Newark, N. J. Filed Aug. 4, 1884. (No model.)

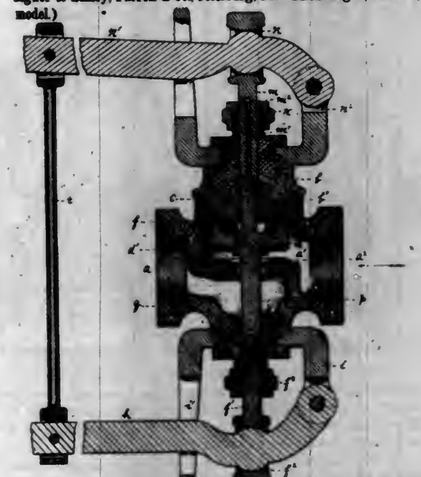


Claim.—1. The improved fastener, essentially composed of a central spring and oppositely-extending arms *e f*, having eyes *c c*, substantially as and for the purposes set forth.

2. The improved fastener, essentially composed of the spring *a*, arms *e f*, and the abutment *g*, all said parts being arranged and operating substantially as and for the purposes set forth.

3. As an improved article of manufacture, the fastener composed of spring-wire centrally bent to form the coil or helix *a* outwardly extending, as at *b b*, coiled to form the eyes *c c*, returned, as at *d d*, and bent through the helix, all substantially as set forth and shown.

312,724. SAFETY-VALVE. WALTER S. JARDON, Allegheny City, assignor to Bailey, Farrell & Co., Pittsburg, Pa. Filed Aug. 9, 1884. (No model.)



Claim.—1. In an automatic safety-valve for shutting off the flow of gas, the combination of a valve-chamber and a puppet-valve, arranged, substantially as described, that the pressure of the gas shall be exerted to retain the valve away from the seat or port leading to the service-pipe when the valve is open, and shall retain the valve against the seat or port when the valve is shut, as and for the purpose specified.

2. In an automatic safety-valve for shutting off the flow of gas, the combination of a valve-chamber and a puppet-valve, arranged, substantially as described, that the pressure of the gas shall be exerted to retain the valve away from the seat or port leading to the service-pipe when the valve is open, and shall retain the valve against the seat or port when the valve is shut, a weight or spring for closing the valve when the pressure of gas is lessened, and a rod or lever for opening the valve by external pressure, substantially as and for the purpose specified.

3. In an automatic safety-valve for shutting off the flow of gas, the combination of a valve-chamber having a port leading to the service-pipe and an exit for confined gas, a double-seated valve arranged within the chamber, substantially as described, to open and close the exit when the port is opened, as and for the purpose specified.

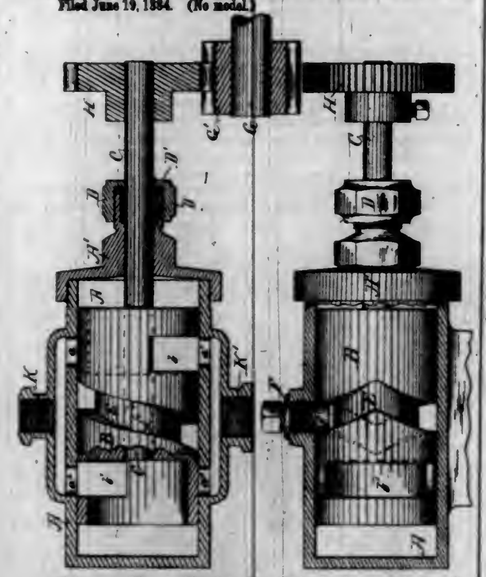
4. In an automatic safety-valve for shutting off the flow of gas, the combination of a valve-chamber having a port leading to the service-pipe, and an exit for confined gas, a double-seated valve arranged, substantially as described, to open and close the exit when the port is opened, and a valve for closing the exit when the port is shut, substantially as and for the purpose specified.

312,725. VALVE. WALTER S. JARDON, Allegheny City, assignor to Bailey, Farrell & Co., Pittsburg, Pa. Filed Aug. 9, 1884. (No model.)



Claim.—A natural-gas valve provided with a packing of vulcanized fiber, substantially as and for the purposes described.

312,726. PUMP AND ENGINE. ALLEN JOHNSTON, Ottumwa, Iowa. Filed June 19, 1884. (No model.)



Claim.—1. The combination of a cylinder having ports in its cylindrical surface with a rotary and reciprocating piston having openings or cut-away portions, whereby said ports are opened and closed by the rotation of said piston, while the fluid is received and discharged by the reciprocation of said piston, substantially as specified.

2. The combination of a cylinder provided with ports in its cylindrical surface with a rotary and reciprocating piston having openings registering with said ports, whereby they are opened and closed, and a cam for communicating to said piston one of its motions, substantially as specified.

3. The combination of a cylinder having diametrically-opposite ports near each end with a rotating and reciprocating piston having openings near each end diagonally opposite each other, substantially as specified.

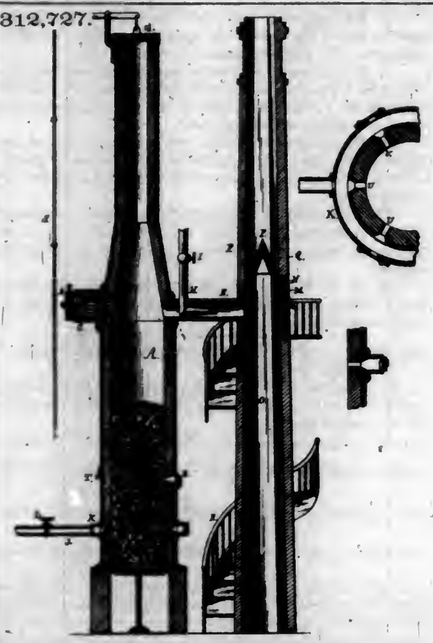
4. The combination of cylinder A, provided with ports a a' a^2 a^3, and having an interiorly-projecting pin, F, furnished with friction-roller f, with a rotating and reciprocating piston, B, having diagonally-opposite openings b b', and provided with grooved cam E, substantially as specified.

312,727. CUPOLA-FURNACE. JAMES J. JOHNSTON, Columbiana, Ohio, assignor of seven-eighths to William W. Gibbs, Philadelphia, and Albert C. Ellis, Pittsburg, Pa. Filed Dec. 13, 1883. (No model.)

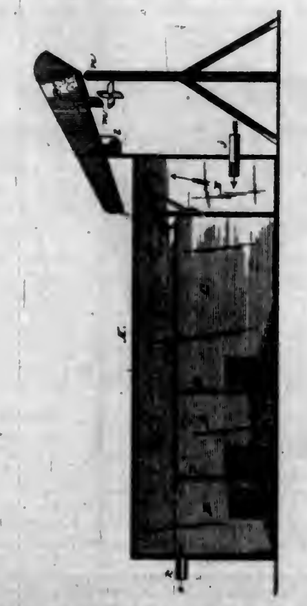
Claim.—1. In a cupola or melting furnace, the combination, with the stack, of an exit-flue leading therefrom and provided with a central steam-jet pipe and a charging-chamber, the steam-jet pipe and charging-chamber being arranged opposite each other in the same horizontal plane, whereby outflow of heat and gaseous products during the charging operation is obviated, substantially as shown and described.

2. The combination of the cupola A, having a charging-chamber, C, cap or damper G, pipe E, steam-jet pipe H, and stack F, having spark-arrester P, substantially as herein described, and for the purpose set forth.

312,727.



312,728. COMPOSITION OF MATTER FOR THE MANUFACTURE OF GAS. JAMES J. JOHNSTON, Columbiana, Ohio, assignor to the Light and Fuel Company, same place. Filed July 26, 1884. (No specimens.)



Claim.—1. The composition of matter hereinbefore described for the manufacture of gas, consisting of pulverized and desulphurized coal, water, and oil, forming the homogeneous mixture herein specified.

2. In the manufacture of the composition of matter hereinbefore described, the process which consists in mechanically desulphurizing pulverized coal, then heating the same to increase its water-absorbing capacity, sprinkling it with water, and finally with oil, thereby forming a homogeneous mixture wherein the water is retained by the surrounding oil-particles, substantially as shown and described.

312,729. APPARATUS FOR MANUFACTURING GAS. JAMES J. JOHNSTON, Columbiana, Ohio, assignor to the Light and Fuel Company, same place. Filed July 26, 1884. (No model.)

Brief.—Coal or a suitable composition of matter is placed in a vessel or retort within a larger closed chamber, exposed to the heat of the furnace and distilled. In order to dilute the rich gas from the coal or composition, oil and water are supplied in drops to the inner retort on the surface of the coal or composition, and the gas evolved therefrom is mingled with the gas from such coal or composition of matter.



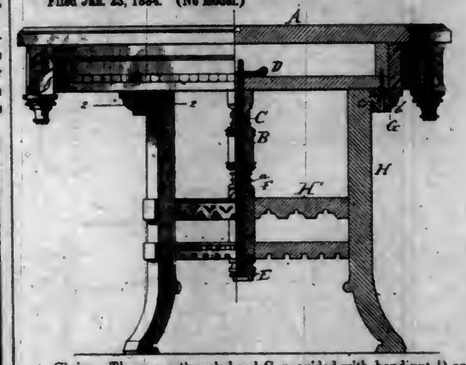
Claim.—The hereinbefore-described apparatus for the manufacture of gas, consisting of the furnace A, the inclosed chamber D, above said furnace, the encircling flue B B, the stack C, and the open retort E, resting upon the bottom of chamber D and having a lesser bottom area and height than said chamber, the retort being so located as to leave an intermediate space between its outer surface and the inner walls of the chamber, substantially as shown and described.

312,730. METHOD OF MANUFACTURING GAS. JAMES J. JOHNSTON, Columbiana, Ohio, assignor to the Light and Fuel Company, same place. Filed July 26, 1884. (No model.)



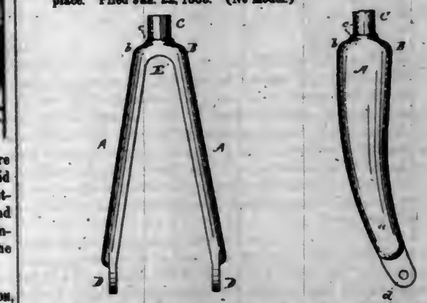
Claim.—The method hereinbefore described of manufacturing gas, consisting in pulverizing bituminous coal, mechanically separating the sulphur therefrom, adding to said coal oleaginous matter and water, thereby forming a homogeneous composition of matter, subjecting the said composition to conducted heat, and permitting the resulting gases to expand and come in direct contact with the heat-conducting medium, thereby fixing them, substantially as described.

312,731. TABLE. NICHOLAS KIES and DOMINICK KIES, Chicago, Ill. Filed Jan. 23, 1884. (No model.)



Claim.—The screw-threaded rod C, provided with hand-nut D and knob E, in combination with rings F, legs H H', provided with grooves d and pins c, and frame A, provided with blocks G and depending arm B, as described.

312,732. BICYCLE-FORK. JOHN KNOUS and ALBERT E. WALLACE, Hartford, Conn., assignors to the Pope Manufacturing Company, same place. Filed Jan. 22, 1885. (No model.)



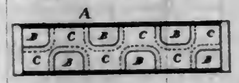
Claim.—An improved bicycle rear fork in one integral piece of metal, having a substantially cylindrical shoulder, from which branch two arms formed into lugs at their free ends for the wheel-pin, and having a substantially cylindrical tenon for the perch, essentially as set forth.

312,733. CASTER. WILLIAM KOCH, Lawrenceburg, Ind. Filed Nov. 24, 1884. (No model.)



Claim.—In a furniture-caster, the wheel or roller A, having a circumferential groove, B, and a series of concealed retaining devices, D, or their described equivalents located therein, in combination with the elastic tire or rim E, the latter being provided with an inwardly-projecting tongue, F, that enters said groove and engages with said retaining devices, in the manner herein described, and for the purpose explained.

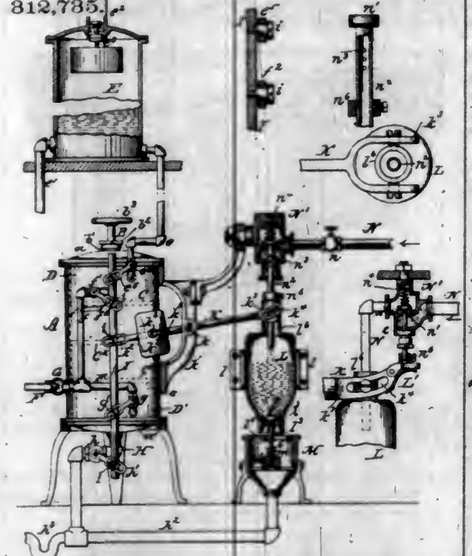
312,734. BRAKE-SHOE. JOHN JOSEPH LAFFIN, Toronto, Ontario, Canada. Filed Nov. 20, 1884. (No model.)



Claim.—A brake-shoe, A, with chilled portions B on each side in the face of the shoe, each chilled portion B being opposite to an unchilled portion, C, the soft metal being on each side and around the inner edge of the chilled portion, thereby providing a continuous waved rib of soft metal running along the middle of the shoe and thereby strengthening the shoe, substantially as shown and described, as a new manufacture.

312,735. FILTERING DEVICE. WILLIAM E. LINDSLEY, Philadelphia, Pa. Filed Mar. 15, 1884. (No model.)

312,735.



Claim.—1. A filter having chambers D D', inlet-pipe F, having check-valve G, cock *g*, and branch *f*, having cock *f''*, the pipe *e*, having cock *e'*, pipe H, having cock *h*, and a single controlling sliding bar in gear with cocks *g*, *f''*, *e'*, and *h*, substantially as shown and described.

2. A filter having a bottom chamber, D', provided with a valved wash-out pipe, H, and a valved inlet or water-supply pipe, F, and a top chamber, D, having an outlet-pipe, *e*, for the filtered water, in combination with a single controlling sliding bar in gear with the valves in said pipes, and operated by automatically-acting devices, substantially as shown and described.

3. A filter provided with automatically-operating devices for effecting a cleansing of the filter at predetermined intervals and independently of the direction of the flow of liquid through the filter or the hydrostatic pressure in the filter supply-pipe, substantially as shown and described.

4. A filter having a separate supply-pipe, automatically-operating devices for changing the direction of flow through the filter, and separate supply-pipe for said automatic devices, substantially as shown and described.

5. A filter provided with a bottom inlet-pipe, operating devices for changing the direction of the flow through the filter, and a separate supply-pipe independent of the filter for said devices, substantially as shown and described.

6. In combination, a filter, inlet and outlet pipes therefor, having valves connected to a single controlling operating-bar, an oscillating lever having at one end a bar or connection which is secured to the cocks of the filter and at its opposite end a suspended vessel, and a water-supply for the latter, substantially as shown and described.

7. In combination, a filter, an oscillating lever having at one end a bar or connection for engagement with the valves of the filter and a shifting weight or counter-balance, and at its other end a suspended vessel, and a water-supply for the latter, substantially as shown and described.

8. The combination of filter A, having valved inlet and outlet pipes, sliding bar I, pivoted lever, connecting devices between one end of said lever and the valves of said pipes, a suspended vessel at the opposite end of said lever, and means independent of the filter and its water-supply for raising and lowering said vessel and moving said lever, substantially as and for the purposes set forth.

9. The combination, with a filter having valved inlet and outlet pipes, of a pivoted lever having a shifting weight or counterpoise, connecting devices between one end of said lever and the valves of said pipes, a suspended vessel at the opposite end of said lever, and means for producing a descent of said vessel, substantially as and for the purpose set forth.

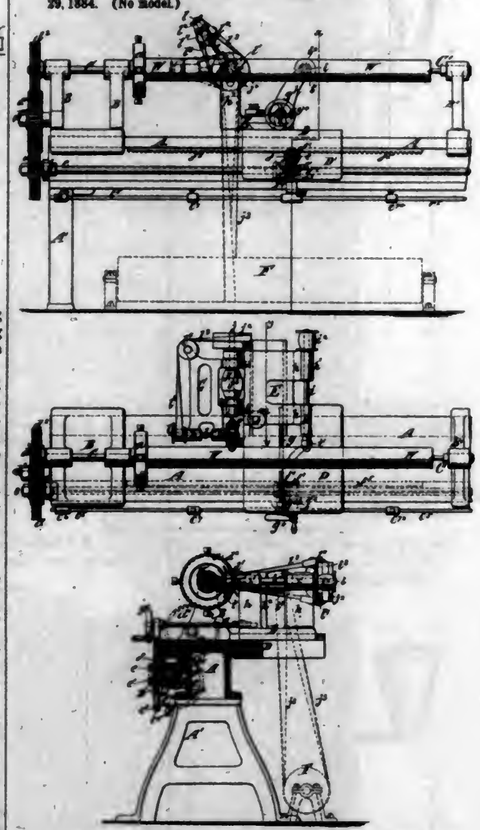
10. The combination of filter A, pipe *e*, inlet-pipe F, having cock *g*, and branch *f*, with cock *f''*, the outlet-pipe H, having cock *h*, lever K, bar I, shifting or movable weight k^2, and vessel L, with supply-pipe N, substantially as shown and described.

11. A filter provided with a valved waste-pipe at its bottom, a valved water-inlet pipe, and an outlet-pipe for the filtered water, a single controlling sliding bar in gear with the valves in said pipes, in combination with an automatically-acting pivoted lever and bucket or vessel in gear with said sliding bar, and a water-supply for said bucket, substantially as and for the purpose set forth.

12. A filter provided with a valved waste-pipe, a valved inlet-pipe for the unfiltered water, an outlet-pipe for the filtered water leading to a reservoir, a single controlling sliding bar in gear with the valves in said pipes, in combination with automatically-acting pivoted lever and bucket in gear with sliding bar, and a water-supply for said bucket, substantially as shown and described.

13. The combination, with filter A and its supply and outlet pipes, having suitable valves, of the bar I, lever K, shifting weight k^2, vessel L, having valve l^2, and receiver M, having pipe h^2, connected with the waste-pipe of the filter, substantially as shown and described.

312,736. LATHE FOR TURNING SPIRALS. EDWARD D. MACKINTOSH, Brooklyn, assignor to Paul Pryibil, New York, N. Y. Filed Sept. 29, 1884. (No model.)



Claim.—1. The combination, with the bed, work-spindles, saddle, and a cutter-spindle journaled in bearings supported by the saddle, and arranged transversely to the work, of the rotary feed rod or shaft and bevel-pinion sliding thereon, and the bevel and spur pinions carried by the saddle and engaging with a rack on the bed for moving the saddle, substantially as herein described.

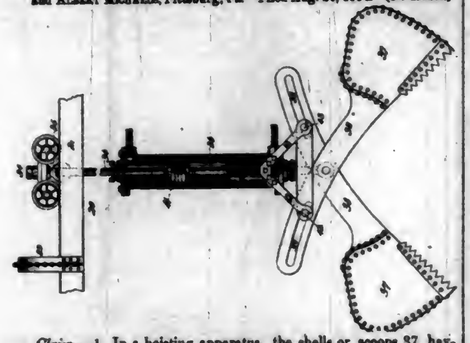
2. The combination, with the bed and work-spindles, saddle, and cross-carriage, of the swinging frame pivoted transversely to the work, and a spindle journaled in said frame in a plane parallel with the work and carrying a fly-cutter for spirally grooving the work, substantially as herein described.

3. The combination, with the bed, work-spindles, saddle, and carriage, of a shaft journaled in said cross-carriage transversely to the work, a swinging frame pivoted concentrically with said shaft, a spindle journaled in the swinging frame in a plane parallel with the work, and a belt and guide pulleys for transmitting motion from a pulley on the said shaft to a pulley on the spindle, substantially as herein described.

4. The combination, with the bed, work-spindles, saddle, and cross-carriage, of a spindle and cutter journaled in the said carriage transversely to the work, the swinging frame pivoted on said carriage transversely to the work, and a spindle journaled in said frame in a plane parallel with the work and carrying a fly-cutter, substantially as herein described.

5. The combination, with the bed, work-spindles, saddle, and cross-carriage, of a spindle and cutter journaled in said carriage transversely to the work, a transverse shaft, also journaled in the carriage, a swinging frame pivoted concentrically with the said shaft, and a spindle journaled in said frame in a plane parallel with the work and carrying a fly-cutter, substantially as herein described.

312,737. HOISTING APPARATUS. WILLIAM H. MADDOCK, Allegheny, and ALBERT MICHAELS, Pittsburg, Pa. Filed Aug. 20, 1884. (No model.)



Claim.—1. In a hoisting apparatus, the shells or scoops 37, having a suspension and fulcrum bar, in combination with a cylinder moving along said suspension-rod and connected with scoop, whereby said shells or scoops are opened and closed by the movement of the cylinder, substantially as set forth.

2. In a hoisting apparatus, the shells or scoops having a suspension and fulcrum bar and provided with handles, in combination with a cylinder moving along said suspension-rod and connected to the handles of the grapple or scoop, whereby the movement of said cylinder will effect the opening and closing of the shells or scoops, substantially as described.

3. In a hoisting apparatus, the combination of the shells or scoops 37, a cylinder, and a piston, these members being combined for joint operation to effect the opening and closing of the scoops by the reciprocation of the cylinder or piston, substantially as set forth.

4. In a hoisting apparatus, the combination of the shells or scoops 37, a suspension or fulcrum bar, a cylinder for operating said scoops, and a trolley supporting the suspension-rod and adjustable along a vertically-movable boom, substantially as set forth.

5. In a hoisting apparatus, the combination of the shells or scoops 37, a suspension and fulcrum bar, a cylinder for operating said scoops, a horizontally-adjustable trolley for supporting the scoops and their operating mechanism, a boom supporting the trolley, and a ram for raising and lowering the boom, substantially as set forth.

6. In a hoisting apparatus, the mast 11, having angular plates 30 secured to its sides, in combination with friction-rollers mounted in the apices of the angular plates, and the supporting-ring 32, connected by suitable braces to the bed or foundation 1, substantially as set forth.

7. In a hoisting apparatus, the combination of the boom, the vertical mast having inwardly-projecting flanges 26, a supporting-truck, 25, bearing against said flanges, braces or tie-rods 24, extending from the boom to the truck, and the thrust-receiving rollers 28, secured to the boom and bearing against the mast, substantially as set forth.

312,738. TONGUELESS CULTIVATOR. PHINEAS P. MAST, GEORGE W. STARTZMAN, and DEVOLSON L. CLARK, Springfield, Ohio, assignors to P. P. Mast & Company. Filed Sept. 8, 1884. (No model.)

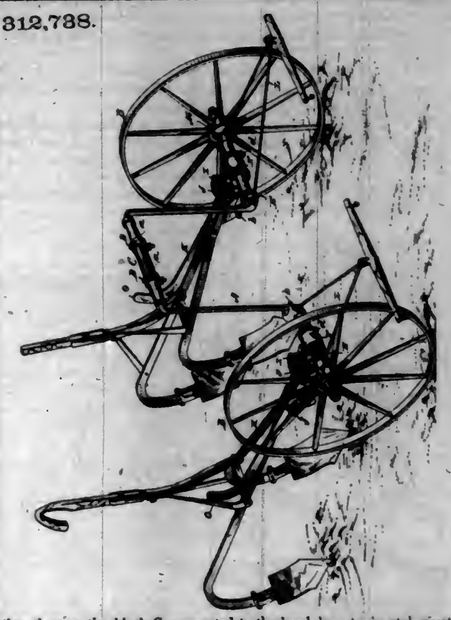
Claim.—1. In a tongueless cultivator, the divided arched axle, in combination with the coupling adapted, as described, to permit a limited independent motion of the two parts, and the arms *b*, connected with the plow-beams, and adapted, as described, to limit the rocking motion of the axle both in a forward and a backward direction, whereby the axle is maintained in an upright position.

2. In a tongueless cultivator, the arched jointed axle and its sustaining-wheels, in combination with the shovel-beams, and the coupling-sleeves provided with the arms *b*, permitting a limited independent motion of the axle, and the knuckle-joints connecting the sleeves and beams, as described.

3. The arched jointed axle and its sustaining-wheels, in combination with a sleeve, E, having arms *b*, the block G, connected with said sleeve through the medium of a knuckle-joint limiting its downward motion, and the draft-head J, connected with the block G by a vertical pivot, whereby the beams are permitted to swing both vertically and laterally, but caused to limit the swinging motion of the axle.

4. The arched jointed axle and its sustaining-wheels, in combination with the sleeve E, having arms or shoulders to loosely engage the axle, the head F, movable lengthwise upon the sleeve, but fixed against rotation thereon, the block G, connected to the head by a horizontal pivot, and the draft-head J, connected to the block by a vertical pivot.

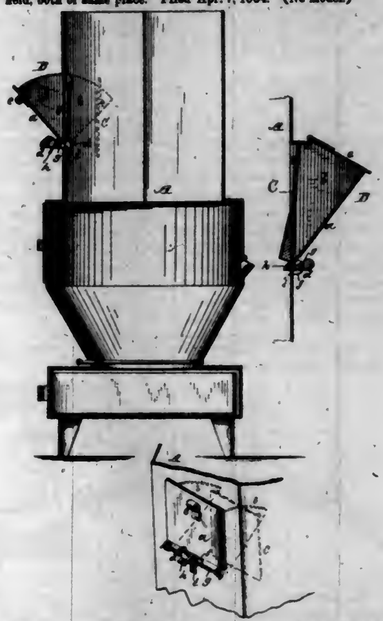
312,738.



5. In a tongueless cultivator, the arched jointed axle and its sustaining-wheels, combined with the drag-bars, arms *b*, connected with the drag-bars and engaging the axle to limit the tipping motion of its upright portion, and collars fixed rigidly upon the axle and arranged to sustain the draft devices clear of the ground, substantially as described.

6. In combination with the plow-beam and the supporting arm or runner therefor, the plate provided with the lips or shoulders at its upper and lower edges to engage the runner.

312,739. FEEDING-CHUTE FOR STOVES. WILLIAM D. MAYFIELD, Fort Worth, Tex., assignor to William Frank Mayfield and Isaac T. Mayfield, both of same place. Filed Apr. 7, 1884. (No model.)



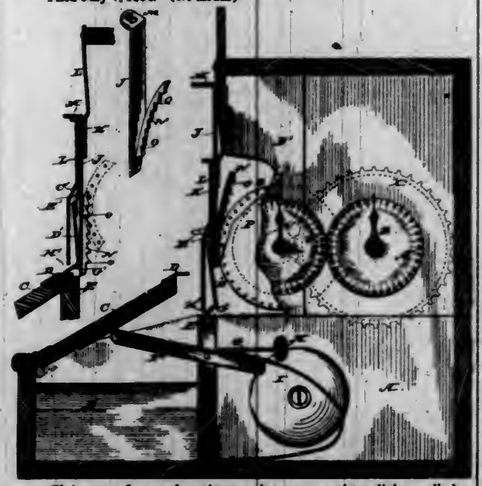
Claim.—1. A feeding-chute for stoves, provided with a swinging door and a pivoted latching device constructed to act automatically in

locking the door in a closed position, substantially as and for the purpose set forth.

2. A pivoted feeding-chute for stoves, provided with a swinging door to close the opening in the stove after the fuel has been discharged, substantially as and for the purpose specified.

3. A pivoted feeding-chute for stoves, provided with a swinging door and an automatic or self-acting latching device to lock the door in a closed position, substantially as and for the purpose described.

312,740. CASH-REGISTER. WILLIAM C. MCGILL, Washington, D. C. Filed July 7, 1884. (No model.)

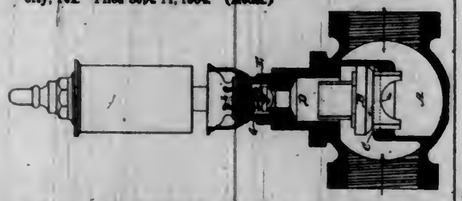


Claim.—1. In a cash-register, a drawer, a register-dial, a cylinder having a number of equidistant rounds, its axis being provided with an index, a series of plates having ratchet-bars, and provided with numbers corresponding to the numbers on the index of the cylinder, and a movable bar or plate arranged to be operated by any one of said series of plates for the purpose of locking the drawer, all in combination, substantially as set forth.

2. The combination of the lid of the cash-box, provided with the strip at its free edge, the locking-plate having its lower end bent outward, adapted to engage the strip of the lid, the spring forcing the lower edge of the locking-plate inward, and the slides bearing with their lower ends against the back of the locking-plate, as and for the purpose shown and set forth.

3. The combination, in a cash-register, of the casing having slots in its front plate, and having the said front plate formed with a bulge at its lower edge and with a slot between the lower edge and the sill of the cash-box of the casing, the hinged cover of the cash-box having the strip upon its free edge, adapted to rest upon the sill of the box, the lever pivoted in the rear side of the box, the double-curved spring secured to the bottom of the casing, bearing with its forward end against the rear end of the lever, and provided with the hammer at the said end, the bell or gong, the locking-plate having its lower edge bent outward, projecting through the slot of the front plate, and secured in the bulge of the front plate, forced inward at its lower end by its securing-springs, and the cash-registering slides bearing with their lower ends against the rear side of the locking-plate, adapted to force its lower edge outward when pushed down, as and for the purpose shown and set forth.

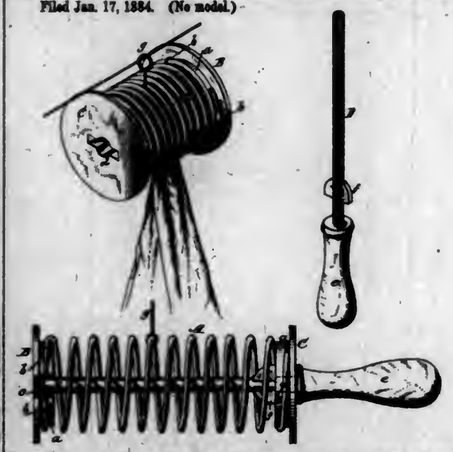
312,741. SIGNAL-VALVE FOR BOILERS. REED A. MCLANE, Queen City, Tex. Filed Sept. 11, 1884. (Model.)



Claim.—1. The combination, with a signal-valve having a chamber and a valve-seat, of a check-valve for opening and closing said seat, and a valve which is located above said check-valve, and which is adapted to be opened when the check-valve is closed by the backward pressure of the water or steam and permit the escape of the same, substantially as described.

2. The combination, with a chamber having a seat, C, an extension D, and a seat, E, formed in said extension, and openings I, (one or more,) of the valve B, for opening and closing the seat C, and the valve F, for opening and closing the seat E, for the purpose set forth, substantially as described.

312,742. MERCHANDISE-HOLDER. HENRY MEINHARDT, Peru, Ind. Filed Jan. 17, 1884. (No model.)



Claim.—1. A merchandise-holder consisting of a spiral closely-coiled wire, in combination with a device for holding distended the coiled wire, substantially as and for the purpose specified.

2. A merchandise-holder consisting of a closely-coiled wire having suitable heads connected thereto, in combination with means, substantially as described, for holding distended the wire coil, substantially as and for the purpose set forth.

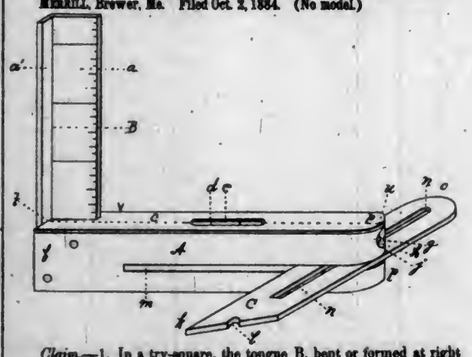
3. A merchandise-holder consisting of a closely-coiled wire provided at its ends with suitable heads, in combination with a device for holding the wire coil distended, consisting of a rod and key, substantially as and for the purpose specified.

4. A merchandise-holder consisting of a closely-coiled wire having connected to its ends suitable heads, one of which is provided with a key-hole, in combination with a suitable device for holding the coiled wire distended, substantially as and for the purpose described.

5. A merchandise-holder consisting of a closely-coiled wire having connected to its ends suitable heads, one of which has a key-hole, in combination with a device for distending said wire coil, consisting of a rod provided with a key, substantially as and for the purpose set forth.

6. A merchandise-holder consisting of a closely-coiled wire connected at its ends with shouldered heads, one of which has a key-hole, in combination with a device for distending the coiled wire, consisting of a rod provided with a key, substantially as and for the purpose specified.

312,743. COMBINED SQUARE, BEVEL, AND LEVEL. BUBER B. MERRILL, Brewer, Me. Filed Oct. 2, 1884. (No model.)



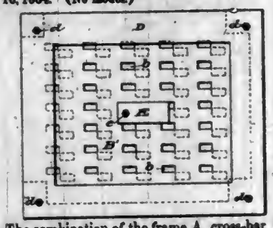
Claim.—1. In a try-square, the tongue B, bent or formed at right angles longitudinally, forming two sides or plates, *a a'*, at right angles to each other, whether formed integral or in two pieces rigidly united and united and attached to the head A, as shown and described.

2. In a try-square, the bevel-blade C, fixed in the lateral slot *m* in the head A in such a manner as to swing and operate laterally across the head A in a plane at right angles to the tongue B, as shown and described.

3. In a try-square, the level-tube *f*, having the level-bulb *e*, supported in the channel *j*, formed in the head A, and supported and held in place by the plates or other device, *i i*, connected to and rotated by the rod *g* and flanged head *h*, as and for the purpose shown and described.

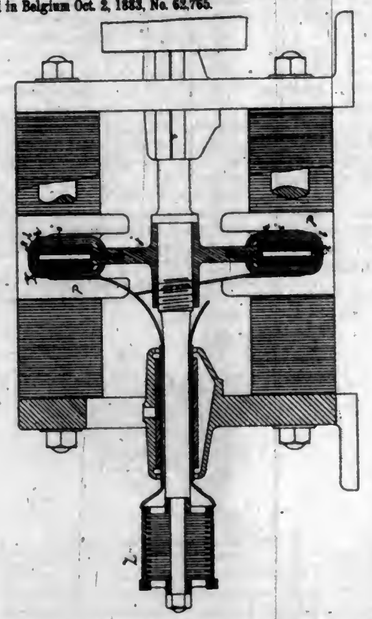
4. A combination-tool consisting of the head A, formed with the lateral slot *m* and channel *j*, the bevel-blade C, formed with the slot *n* and notch *l*, the rotating level-tube *f*, having the rod *g* attached, and the tongue B, formed or bent at right angles longitudinally and inserted and fixed in the head A, as shown and described.

312,744. GRAIN-SCREEN. DANIEL D. MOOK, North Pembroke, N. Y. Filed Sept. 10, 1884. (No model.)



Claim.—The combination of the frame A, cross-bar A', perforated plates B B', and securing-plates E D, all arranged and operating substantially as described.

312,745. DYNAMO-ELECTRIC MACHINE. WILLIAM M. MORDEY, Putney, County of Surrey, England. Filed Nov. 5, 1883. (No model.) Patented in England Jan. 24, 1883, No. 400, and Sept. 15, 1883, No. 4,419, and in Belgium Oct. 2, 1883, No. 62,765.



Claim.—1. In a dynamo-electric machine in which the armature revolves in a magnetic field or fields resulting from the influence of four or some greater even number of poles, the combination of electrical connections between the terminals of the coils that are in a state of equal potential, electrical connections between the bars or segments of the commutator which are in a state of equal potential, and electrical connections joining each of the first-mentioned connections to the corresponding one of the second set, substantially as and for the purposes set forth.

2. In a dynamo-electric machine, an armature composed of a number of coils having electrical connections joining the coils of equal potential, in combination with the conductors *i*, rings *c*, and bars or segments, such as shown, whereby the current from those coils which are in the same phase of excitement is conveyed to the commutator through one lead, substantially as described and set forth.

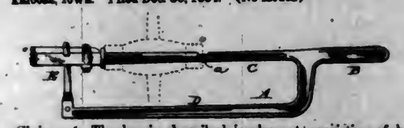
3. In a dynamo-electric machine, the combination of an armature-core formed of a number of magnetic plates, disks, rings, or hoops held together in such a way that they are insulated from each other both electrically and magnetically, and forming part of an armature which revolves in a magnetic field or fields resulting from the influence of four or some greater even number of poles and electrical connections between the terminals of those coils of the armature that are in a state of equal potential, substantially as and for the purposes set forth.

4. In a dynamo-electric machine, the combination of an armature-core formed of a number of magnetic plates, disks, rings, or hoops held together in such a way that they are insulated from each other both electrically and magnetically, and constituting part of an armature which revolves in a magnetic field or fields resulting from the influence of four or some greater even number of poles, and electrical connections between those bars or segments of the commutator that are of equal potential, substantially as and for the purposes herein set forth.

5. In a dynamo-electric machine, the combination of an armature-core formed of a number of magnetic plates, disks, rings, or hoops held together in such a way that they are insulated from each other both electrically and magnetically, and constituting part of an armature, which revolves in a magnetic field or fields resulting from the influence of four or some greater number of poles, electrical connections between the terminals of the coils that are in a state of equal potential, electrical connections between the bars or segments of the commutator which are in a state of equal potential, and electrical connections joining each of the first-mentioned connections to the corresponding one of the second set, substantially as and for the purposes set forth.

6. In a dynamo-electric machine, coils, in combination with the ring-disk provided with holes near its outer circumference, and the pegs inserted in said holes for the purpose of separating and convenience in winding the coils and for obtaining increased air-circulation between the coils on the withdrawal of said pegs, substantially as described.

312,746. WAGON-JACK. ALDEN MOTT and JAMES B. BREWSTER, Oskaloosa, Iowa. Filed Dec. 30, 1884. (No model.)



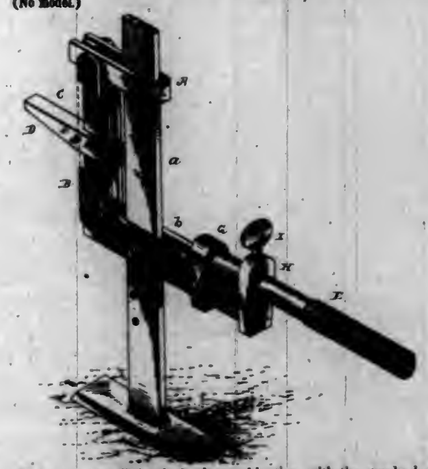
Claim.—1. The herein-described implement, consisting of handle B, spindle C, provided with lip *a*, and bent arm D, provided with hook E, all substantially as shown.

2. An implement for use in removing wheels from vehicles, consisting of a spindle to receive the wheel, provided with a lip to fit beneath the end of the axle-spindle, and with a handle, and a bent arm extending downward beneath the handle, thence forward beyond the end of its spindle, thence upward above said spindle, and then terminating in a lateral hook, substantially as described and shown.

3. The implement herein described, consisting of handle B, spindle C, provided with lip *a*, bent arm D, and hook E, adjustable upon said arm, substantially as and for the purpose explained.

4. An implement, substantially such as described and shown, consisting of handle B, spindle C, provided with lip *a*, and arm D, having its outer end bent inward to rest upon or be supported by the axle, as set forth.

312,747. LIFTING-JACK, LEVER, WRENCH, AND OIL-HOLDER COMBINED. WILLIAM K. MOTTRAM, Ottawa, Kans. Filed Nov. 15, 1884. (No model.)



Claim.—1. In a lifting-jack, the combination, with the standard, of a vertically-moving horizontal arm connected with a fulcrum or power

lever by one or more hinged arms as to become locked with relation to the standard when the said fulcrum-lever has been depressed, substantially as specified.

2. In a lifting-jacket, the combination, with the standard, of the vertically-moving arm, and a horizontal vertically-suspended arm adapted to co-operate with the power-lever, so as to assume a locked position with relation to the standard when the said fulcrum-lever is depressed, substantially as specified.

3. The combination, with the standard, of the vertically moving or sliding horizontal arm, the fulcrum-lever pivoted to the standard, and the arm connecting the forward end of the fulcrum-lever with the forward end of the said horizontal arm, whereby the same may be locked with relation to the standard when the said lever has been depressed, substantially as specified.

4. The combination, with the standard, of the upper horizontal vertically-moving arm, the fulcrum-lever, the bars connecting the forward end of the said arms with the forward end of the said lever, and the vertically-suspended bar carrying the horizonal arm, substantially as specified.

5. The combination, with the standard, of the horizontal arm having a sliding engagement therewith, the arm suspended from the forward end of the said moving arm, the horizontal arm vertically adjustable on the suspended arm, and means for operating the same, substantially as specified.

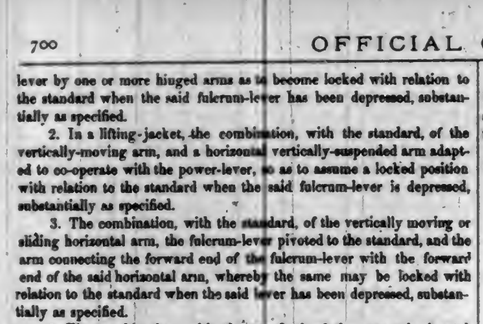
6. The combination, with the standard and horizontal vertically-moving arm, the fulcrum-lever, and means for connecting the said arms with the fulcrum-lever, of the removable extension handle or lever adapted to serve the additional functions of a lubricant-receptacle and wrench, substantially as specified.

7. In a lifting-jack, the combination, with the standard and fulcrum-lever, of the hollow removable handle having one end provided with the fixed loop-jaw to engage the said fulcrum-lever, and a sliding jaw adjacent thereto, whereby the same is adapted to serve the functions of a hand-lever and wrench, substantially as specified.

8. The hollow extension-handle having one end closed by a screw-cap and the opposite end closed and provided with a fixed loop-jaw, and adapted to receive a sliding adjustable jaw, whereby the same may serve the functions of an extension for the fulcrum-lever, a wrench, and a lubricant-receptacle, substantially as specified.

312,748. BUTTON-ATTACHING MACHINE. LUTHER V. MOULTON.

Grand Rapids, Mich., assignor to Edward O. Ely, John B. Parker, and George G. Briggs, all of same place, and George E. Parker, Boston, Mass. Filed June 6, 1884. (No model.)



Claim.—1. The rotating disk D, provided with the grooves or slots *a a a*, for receiving and holding the button, in combination with the arm B, provided with the jaw E, and arm A, provided with die C, the said disk acting as guide and button-holder, while the die C and jaw E set the button, substantially as described.

2. The combination of the shaft F, the arms A and A', rigidly attached thereto, the disk D, and arm B, provided with jaw E, for the purpose specified.

3. The combination of the lever R, pivoted at the base of the machine, with the disk D, provided with the grooves J J, &c., for the purpose of giving the intermittent rotary motion to the disk, and for locking it in position to receive the jaw E into the slots *a a a*, respectively, substantially as described.

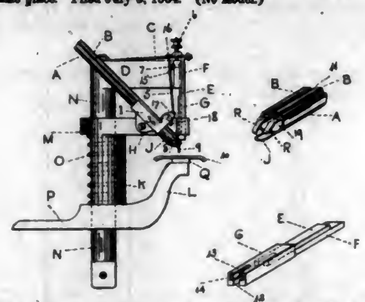
4. The following parts in combination, viz: the disk D, arms A A', shaft F, cylinder P, and arm B, all substantially as and for the purpose specified.

5. The combination of the set-screw *d* with the arms A and A' and disk D, for the purpose of adjusting the arm A and die C, substantially as described.

6. In a button-attaching machine, the combination of the rotating disk D, the arms A A', and lever R, the disk carrying the buttons and moved with intermittent rotary motion, for the purpose of bringing the buttons separately in position for setting, substantially as described.

7. In a button-attaching machine, the intermittingly-rotating disk D, carrying the buttons H, in combination with the die C, supported by an arm or jaw, and with means, substantially as described, for operating the said parts, as set forth.

312,749. MACHINE FOR ATTACHING BUTTONS. LUTHER V. MOULTON, Grand Rapids, Mich., assignor to the Peninsular Novelty Company, same place. Filed July 3, 1884. (No model.)



Claim.—1. In a machine for attaching buttons, the following instrumentalities, viz: a chute to receive and guide the staples, with buttons loosely connected therewith, the staple carrier or guide G to take the staple and connected button from the end of the chute, a staple-driver to act upon the crown of and drive the staple from the guide, which holds it with its prongs directed toward the material, and an anvil or die to turn the legs or points of the staple, substantially as described.

2. In a machine for attaching buttons, the staple-guiding chute slotted at its lower side for the passage of the shanks of the buttons supported by the staples, and provided with projecting fingers R, turned downwardly, as shown, combined with the staple carrier or guide G, slotted at its rear side at 13, and adapted to descend upon and embrace the crown of the staple, and hold it with its prongs at right angles to the material, substantially as described.

3. In a machine for attaching buttons, the chute to receive the staple with its attached button, the spring-pressed staple carrier or guide, and the staple-driver, combined with the movable arm D and with the anvil, to operate substantially as described.

4. The button-attaching machine, the plunger-bar and spring to support it, the anvil, the staple-chute, and let-off device to control the delivery of the connected staples and buttons, combined with the spring-held staple carrier or guide, and the staple driver or former, to operate all substantially as described.

312,750. FAUCET FOR TOYS. WENZEL NEWMAN, Brooklyn, N. Y. Filed Oct. 8, 1884. (No model.)



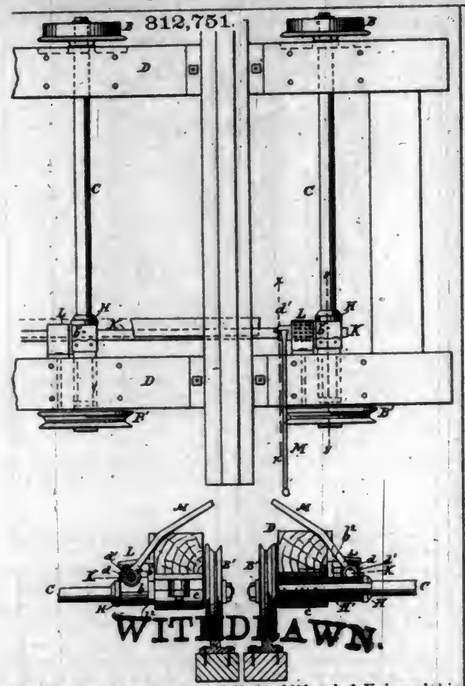
Claim.—1. A faucet for toy barrels and other liquid-receptacles, composed of a faucet-barrel having a conical valve-seat at its inner end, a conical valve, a valve-spindle guided in a hole of the faucet and extended through the valve, and a bent-spring portion made in one piece with the spindle, substantially as and for the purpose set forth.

2. The combination of a barrel or other liquid-receptacle having a valve-seat, a faucet attached to the barrel or receptacle, a conical valve, a valve-spindle extending through the faucet to the outside, and having a handle at its outer end, said spindle being extended through the valve, and provided with a bent-spring portion, the end of which is attached to the head of the barrel, substantially as set forth.

312,751. SAW-MILL-CARRIAGE MECHANISM. GEORGE WASHINGTON NICHOLS, Clinton, Iowa. Filed Dec. 24, 1884. (No model.)

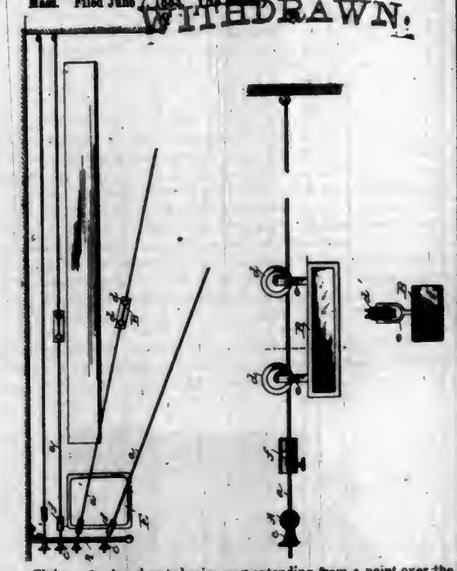
Claim.—1. The combination, with a saw-mill-carriage frame adapted to be shifted by hand to and from the saw on the carriage-axles, of the shifting-shaft K, the rack-bar L, attached to the frame, the pinion *d*, and the hand-lever M, attached to the shaft, substantially as and for the purposes described.

2. The combination of the wheels B B', the axles C, provided with the collars H, the sleeves H', constructed to fit loosely over the axles and



provided with the two-part boxes *b b'*, the shifting-shaft K, journaled in the bearing-boxes *b b'*, the lever M and pinion *d*, keyed on the shaft K, the carriage-plates D, provided with and resting on the bearing-boxes *c c'*, constructed to slide back and forth on the axles and sleeves, and the rack-bar L, attached to the plates D, substantially as and for the purposes described.

312,752. STORE-SERVICE APPARATUS. EDWIN P. OSGOOD, Malden, Mass. Filed June 7, 1883. (No model.)

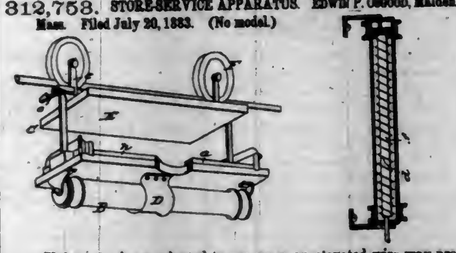


Claim.—1. An elevated wire way extending from a point over the salesman's counter to the cashier's desk, in combination with a freely-moving car mounted upon wheels on the wire way, and adapted to be impelled from one end to the other, in either direction, by an impulse imparted to it by the cashier or salesman.

2. A series of elevated wire ways extending from the various salesmen's counters, and converging to the cashier's desk, combined with a freely-moving car mounted on wheels upon each of said ways, the said cars being adapted to be impelled from one end to the other of the ways, in either direction, by impulses imparted by the cashier or salesmen.

3. An elevated wire way extending from a point over the salesman's counter to the cashier's desk, a freely-moving car mounted upon wheels thereon, and adapted to be impelled from one end to the other, in either direction, by an impulse imparted by the cashier or salesman, combined with buffers secured to the way, at each end thereof, substantially as described.

312,753. STORE-SERVICE APPARATUS. EDWIN P. OSGOOD, Malden, Mass. Filed July 20, 1883. (No model.)



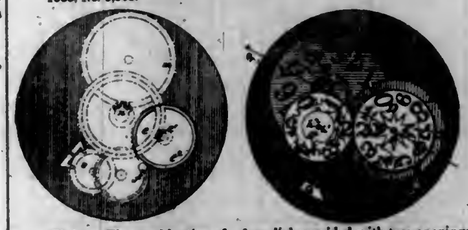
Claim.—1. A car adapted to run upon an elevated wire way provided with a tray or lower part connected to the upper by flexible spring-supports, and adapted to be drawn down within convenient proximity to the cashier or salesman and to return to its elevated position when released, substantially as described.

2. In a carrier for cash systems, the combination of a body, E, supporting-wheels F, a tray, *a*, roller B on the tray, and springs connecting the roller and tray to the body E, as described.

3. A carrier for store cash systems, consisting of a body and supporting-wheels, a platform connected to such body by extensible supports, and a spring-roller, all substantially as described.

4. In a carrier for store cash systems, the combination of a body, supporting-wheels, a tray to receive the goods, a spring or springs connecting the body and tray, and a handle, D, substantially as described.

312,754. TIME-PIECE. JOSEF PALLWEBER, Salsburg, Austria-Hungary. Filed Sept. 10, 1883. (No model.) Patented in England July 2, 1883, No. 5,863.



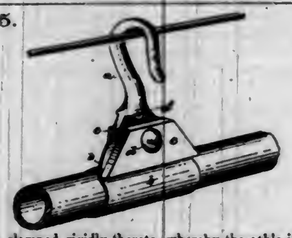
Claim.—The combination of a face-dial provided with two openings or slots, through which respectively the hours and minutes may be exhibited, a rotary hour-disk actuated intermittently at intervals of one hour each, and provided near its circumference with figures arranged to indicate the hourly divisions of a day, which figures are displayed consecutively through the hour-opening to indicate the hour, a rotary tens minute disk actuated intermittently at intervals of ten minutes each, provided near its periphery with figures from 0 to 5, which figures are displayed consecutively through the minutes-opening to indicate the tens of minutes, a rotary units minute disk actuated intermittently at intervals of one minute each, provided with figures near its periphery from 0 to 9, inclusive, which figures are also displayed consecutively through the minutes-opening to indicate the units of minutes in connection with the figures of the tens minute disk, a time-movement, and motion-transmitting mechanism consisting of a gear-wheel, e^2, having toothed sections; pinion *f*, spur-wheel f^2, star-wheel *g*, minute-dial D, having tooth g^2, minute-dial C, gear-wheel *h*, disk h^2, having a tooth, h^3, and hour-dial B, having a gear-wheel, *i*, substantially as described.

312,755. CABLE-HANGER. WILLIAM R. PATTERSON, Chicago, Ill., assignor to the Western Electric Company, same place. Filed June 9, 1884. (No model.)

Claim.—1. In a cable-hanger, the combination, with the hook provided with the single rounded bearing for the suspending-wire, of the clamp *b*, attached rigidly to said hook, said clamp being clasped about the pipe of the cable and secured rigidly thereto by a bolt and a washer, said washer being of the width required to make the clamp fit the pipe.

2. In a cable-hanger, the combination, with the hook for suspending the hanger on the suspending-wire, of a clamp of zinc or similar sheet metal rigidly secured to said hook, said clamp passing about the pipe of

312,755.



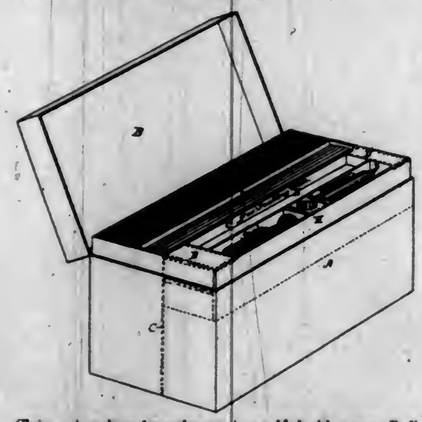
the cable and clamped rigidly thereto, whereby the cable is supported, substantially as and for the purpose specified.

3. The combination, with the telegraph-cable and the suspending-wire, of a rigid hanger, said hanger consisting of the hook *a*, to which the clamp *b* is riveted, and the bolt *d*, washer *c*, and nut *e*, substantially as shown and described.

4. In a cable-hanger, the combination, with the clamp which passes around the cable, of a bolt passing through the ends of the clamp, and a washer under the head of the said bolt outside the clamp whereby the clamp may be fitted and secured rigidly to the cable.

5. The combination, in a cable-hanger, of the hook and clamp attached thereto, and sanded on the inner surface, with the bolt, washer, and nut, whereby the clamp may be rigidly secured about the pipe, substantially as and for the purpose specified.

312,756. PACKAGE FOR STATIONERY. EDWARD S. PECK, Brooklyn, assignor to the New York Stationery and Envelope Company, New York, N. Y. Filed Nov. 14, 1884. (Model.)



Claim.—A package for stationery, A, provided with a cover, B, division-plate C, shelf D, receptacle E, for sealing-wax, receptacle F, for a seal, receptacle G, for a candle, and candle-support H, constructed as and for the purposes indicated.

312,757. OSCILLATING ENGINE. JOSEPH A. POWERS, Lansingburg, N. Y. Filed May 5, 1884. (No model.)

Claim.—1. The combination, with the shaft and crank, of two oscillating engines, each engine-cylinder being provided with a valve-chest open at the ends, a valve within the valve-chest, mechanism for operating the same, and trunnions for the cylinder, one of which is hollow to form the exhaust-pipe, and a steam-chest inclosing the engines and crank, and provided with bearings for the crank-shaft and the trunnions, substantially as set forth.

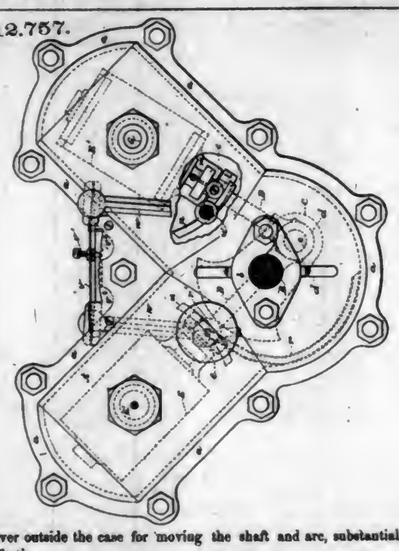
2. The oscillating steam-cylinder and trunnions, and a valve-chest open at both ends, in combination with piston-valves within the chest, one of which is of larger diameter than the other, a roller at the end of the valve, an arc to give motion to such valve, and a steam-case surrounding the engine and its valve-chest, substantially as set forth.

3. The combination, with an oscillating steam-engine cylinder, of a valve-chest open at both ends, a hollow trunnion extending out from such chest, a steam-chest inclosing the cylinder and valve-chest, a valve within the chest, and mechanism for moving such valve, substantially as set forth.

4. The combination, with the cylinder in an oscillating engine, of a valve-chest open at the ends, a piston-valve within that chest, a valve-moving arc, and a steam-case inclosing the cylinder, valve-chest, and valve-moving mechanism, substantially as set forth.

5. The combination, with the oscillating engine and valve, of a steam-chest inclosing the engine, a valve-moving arc within the steam-chest, a shaft passing through the steam-chest for supporting the arc, and

312,757.

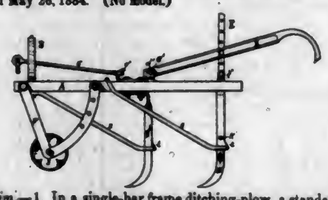


a lever outside the case for moving the shaft and arc, substantially as set forth.

6. The combination, with the oscillating engines, and the case inclosing the same, of arcs to move the engine-valves within the steam-case, shafts from such arcs extending through the case, levers upon the shafts, and a connection between the levers, substantially as set forth.

7. The combination, with the oscillating engine, of a steam-case surrounding the engine and crank, bearings for the trunnions and engine-shaft, such bearings passing through the case and pressing at their ends against the metal around the shaft and trunnions, respectively, and a screw to set up the bearings, substantially as set forth.

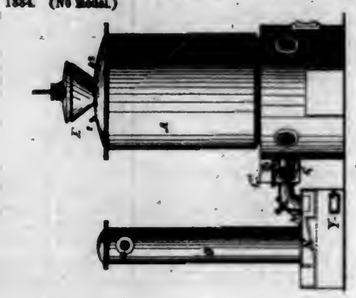
312,758. DITCHING-MACHINE. WILLIAM PULVER, Italy Hill, N. Y. Filed May 26, 1884. (No model.)



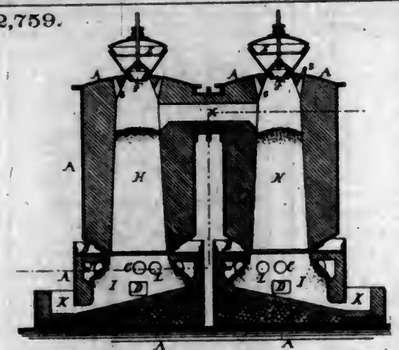
Claim.—1. In a single-bar frame ditching-plow, a standard, B, composed of two similar parts hinged together at their upper ends, having corresponding indentures and horizontally-slotted attaching ends, the whole arranged to be supported and clamp a draw-bar, C, within the indentures by means of vertical bolts passing through the slots and frame A in the manner substantially as shown and described.

2. In a single-bar frame ditching-plow, the standard B, made of two similar parts hinged together at their upper ends, each having circular indentures in them, and horizontally-slotted attaching ends, in combination with the frame A, the teeth, and the adjustable gage-wheel, substantially as shown and described.

312,759. FURNACE FOR REDUCING ZINC AND OTHER METALS. JULIUS QUAGLIO, Frankfort-on-the-Main, Prussia, assignor to himself, Julius Pintsch, Berlin, and August Lentz, Stettin, Germany. Filed Apr. 9, 1884. (No model.)

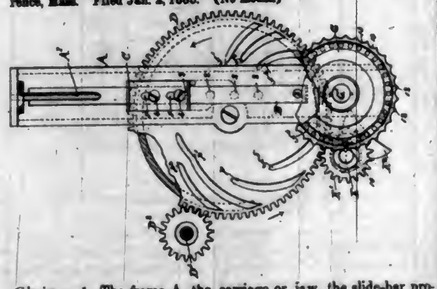


312,759.



Claim.—The combination of the symmetrically-arranged ore-smelting furnaces H H, connected at their upper parts by a transverse channel, X, pipes L L, connecting with openings of the crucibles I I of the furnaces, a valve-chest, G, and slide-valve G', a gas-conducting pipe, M, condenser N, cooler O, and suction-pipe P, substantially as described.

312,760. MECHANICAL MOVEMENT. WILLIAM H. RANKIN, Lawrence, Mass. Filed Jan. 3, 1885. (No model.)



Claim.—1. The frame A, the carriage or jaw, the slide-bar provided with a series of pins, 2 2, and a rotating wheel provided with cam projections to engage the said pins 2 and move the slide-bar, combined with slowly-moving pattern-cam to act upon the said slide-bar and place it in position to have its pin 2 engaged by the said cam projections, or in a position in which the said cam projections will pass above the pins 2 and leave the slide-bar at rest, substantially as described.

2. The continuously-rotating wheel D, provided with a series of cams to engage the pins or projections of and reciprocate a slide-bar out and in at each rotation of the said wheel, combined with a slowly-moving pattern-cam shaped to cause the pins of the slide-bar to be placed in position to be engaged by the cam projections to move the slide-bar, or to pass by the said pins and leave the said slide-bar at rest, substantially as described.

3. The continuously-rotating wheel D, provided with a series of cam projections to engage pins or projections from a slide-bar, and a carriage or jaw slotted as described and connected with the slide-bar loosely by means of screws, to permit a certain amount of lost motion between the carriage or jaw and the slide-bar, combined with a slowly-rotating pattern-cam shaped to cause the pin of the slide-bar to be placed in position to be engaged by the cam projections to move the slide-bar, or to pass by the said pins and leave the slide-bar at rest, substantially as described.

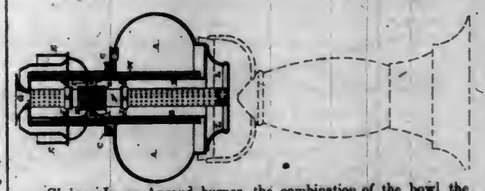
312,761. ARTICLE OF CONFECTIONERY. WILHELM REINHARDT, New York, N. Y., assignor of one-half to Ernst Kaufmann, same place. Filed Aug. 11, 1884. (No model.)



Claim.—1. An article of confectionery consisting of a mussel or other shell the inner surface of which is covered with a layer or ground of suitable color, and designs in relief placed on said ground, substantially as set forth.

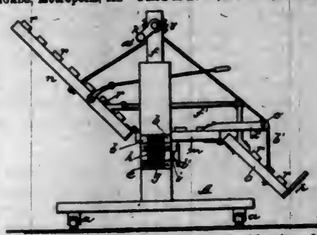
2. An article of confectionery consisting of a mussel or other shell the inner surface of which is covered with a layer or ground of suitable color, and with designs in relief, and of a suspension device attached to the middle part of its thicker edge, substantially as specified.

312,762. LAMP. FRANK RHIND, Brooklyn, N. Y. Filed June 4, 1884. (No model.)



Claim.—In an Argand burner, the combination of the bowl, the central tube, B, and the perforated tube F, which serves as an air-conductor, a support for the spreading device, and as a means for operating the ratchets, substantially as specified.

312,763. INVALID-SUPPORTER. SOLOMON J. RHOADS and MORTON G. RHOADS, Metropolis, Ill. Filed Mar. 27, 1884. (No model.)

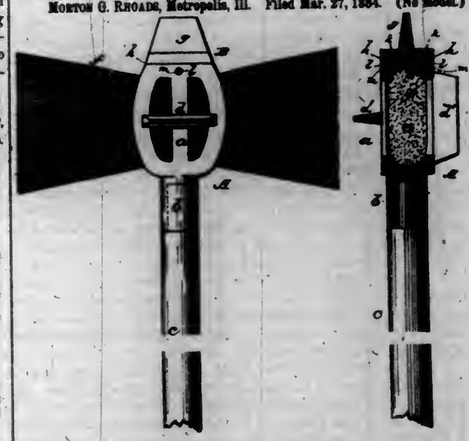


Claim.—1. In an invalid-supporter, the combination of the platform A, mounted on caster-wheels and provided with standards *b b*, the bar *m*, having standard *l* and hinged arms *n* and *o*, the said bar *m* and wings *n* and *o* being provided with adjustable fingers, the crank-shaft *j*, pulley *u*, cords *a' b'*, and pawl and ratchet *v*, all operating substantially as described.

2. A portable support for invalids, consisting of a platform mounted upon caster-wheels, standards *b b*, bar *m*, having hinged wings *n* and *o*, the vertically-sliding rack-bar *f*, secured to said bar *m*, the said bar *m* and arms *n* and *o* being provided with adjustable fingers, hand-lever *i'*, pinion *h*, and pawl, all operating substantially as described.

3. In an invalid-supporter, the combination of the platform A, mounted on caster-wheels and provided with standards *b b*, the bar *m*, having standards *l* and hinged arms *n* and *o*, said bar *m* and arms *n* and *o* being provided with adjustable fingers, the rack-bar *f*, pinion *h*, crank-shaft *j*, pulley *u*, and ropes *a'* and *b'*, all operating substantially as and for the purpose set forth.

312,764. BOOT AND SHOE CLEANER. SOLOMON J. RHOADS and MORTON G. RHOADS, Metropolis, Ill. Filed Mar. 27, 1884. (No model.)



Claim.—The herein-described shoe-cleaner, consisting of the bifurcated head *a*, cast in skeleton form, and provided with the longitudinal scraper *d'*, transverse scraper *d*, socket *h* to receive the handle *e*, the cap or block B, having the transverse groove or channel *i*, scraper *g*, and screw-threaded perforations *k k*, to receive the screws *l l*, by means of which the same is secured to the head, said bifurcated head adapted to receive the straw *f*, as shown, described, and for the purpose specified.

312,765. AXLE-SKEIN. JACOB R. SANDAGE, South Bend, Ind., assignor of one-half to Joshua Sandage, same place. Filed July 3, 1884. (No model.)



Claim.—1. A wagon-skein made of plate metal and formed with a rib on its upper side, in combination with a sleeve embracing the skein and projecting inwardly over the rib.

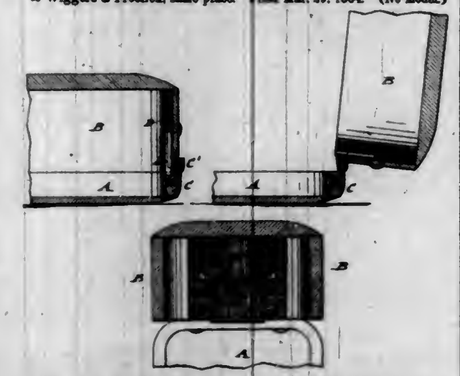
2. A wagon-skein made of plate metal and formed with a rib on its upper side, in combination with a sleeve embracing the skein and provided with a flange to engage said rib, the said sleeve projecting inwardly over the rib, substantially as set forth.

3. A wagon-skein made of plate metal and provided with a rib, in combination with a sleeve larger at one end than at the other, secured on said skein against the rib.

4. A wagon-skein made of plate metal and provided with a rib, the portion of the skein inside of the rib being open on its upper side, in combination with a sleeve secured on the spindle and projecting inwardly, substantially as set forth.

5. In a wagon-skein, the combination, with a plate-metal skein provided with a rib on its upper side, of a sleeve provided with a flange to engage said rib, and with grooves to receive ribs on the under side of the skein, substantially as set forth.

312,766. JEWEL-BOX. WILLIAM SCHOTT, New York, N. Y., assignor to Wiggurs & Froelick, same place. Filed Mar. 29, 1884. (No model.)



Claim.—A jewelry-box provided with a hinge the body-leaf of which is provided with a triangular knuckle, the lid-leaf being provided with a band-spring which rests against different sides of the triangular knuckle in the different positions of the lid, whereby the latter is automatically held open or closed, substantially as described.

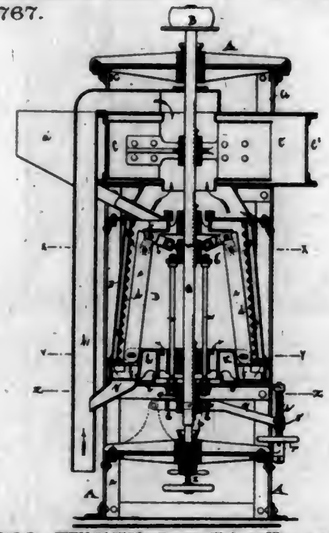
312,767. COFFEE-HULLING MACHINE. JULIUS SCHULTZ, Hamburg, Germany. Filed July 3, 1884. (No model.)

Claim.—1. The combination of a fixed exterior drum, a suction-fan arranged above the same and communicating therewith, an interior concentric screen provided at its inner side with convex projections and intermediate slots or holes, rotating beaters, and means, substantially as described, whereby the beaters may be adjusted to different inclinations toward the interior screen, substantially as set forth.

2. In a centrifugal machine for cleaning coffee and other beans, the combination of the fixed exterior drum, a fixed interior screen having convex projections and intermediate slots or holes, rotating beaters, and means whereby the beaters are adjusted to different angles of inclination toward the screen, substantially as set forth.

3. The combination of the exterior drum, D, distributing-disk *b*, interior screen, *d*, having convex projections and intermediate slots, supporting-frame *k*, rotating beaters *c c*, pivoted to the said frame, fulcrumed elbow-levers *l l*, sleeve *m*, rods *n n*, sleeve *o*, having ring *p*, forked lever *q*, screw-nut *a'*, and adjusting screw-bolt *s*, substantially as set forth.

312,767.



312,768. WHIP-SOCKET. ERASTUS W. SCOTT, Wauregan, Conn. Filed Nov. 17, 1884. (No model.)



Claim.—1. A whip-socket having its upper end or cap and the elastic diaphragm thereof inclined to the axis of the bore of such socket, and also having in the diaphragm a circular aperture for reception of a whip when introduced into the socket.

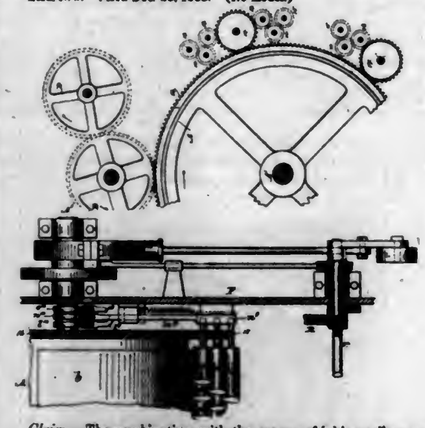
2. The elastic-diaphragm holder, substantially as described, consisting of the annular cap and the studded annulus arranged in such cap, and with the elastic diaphragm therein, as set forth.

3. The diaphragm elliptical annular cap provided with the fastening-holes, arranged in it as represented, and held to the upper clamp by hooked wires applied to such holes and clamp, as set forth.

4. The lower clamp composed of the two duplex jaws, their fastening-screw, and rocker-nut, arranged as shown, one of such jaws having in it a slot to receive the screw, as represented.

5. The nut-carrying duplex jaw chambered or recessed to receive the nut, and provided with ears, as represented, to hold it in connection with it, (the said jaw,) as explained.

312,769. CHROMATIC-PRINTING MACHINE. WALTER SCOTT, Plainfield, N. J. Filed Dec. 23, 1883. (No model.)



Claim.—The combination, with the groups of inking-rollers geared together, of a gear-wheel upon the shaft of the form-cylinder, and an intermediate gear-wheel to the inking-rollers, and mechanism, substantially as specified, for raising the inking-rollers from contact with portions of the form-cylinder without the rotation of the inking-rollers being stopped, substantially as set forth.

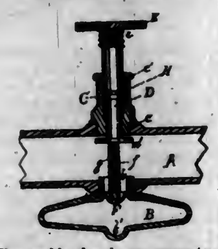
312,770. BUTTON. THOMAS W. F. SMITTEN, Brooklyn, N. Y. Filed Oct. 9, 1884. (No model.)



Claim.—1. A stud or button having an elongated fixed back which lies across the center of the head, and a fixed flat post the sides of which are transverse to the length of the back, and which is contracted near the head, substantially as herein described.

2. A stud or button having a fixed back consisting of a bar, and a fixed post which is wider than the said bar at the part next thereto, which is contracted near the head of the button or stud, substantially as herein described.

312,771. INHALER. GEORGE B. SNOW, Buffalo, N. Y., assignor to the Buffalo Dental Manufacturing Company, same place. Filed Dec. 20, 1884. (No model.)

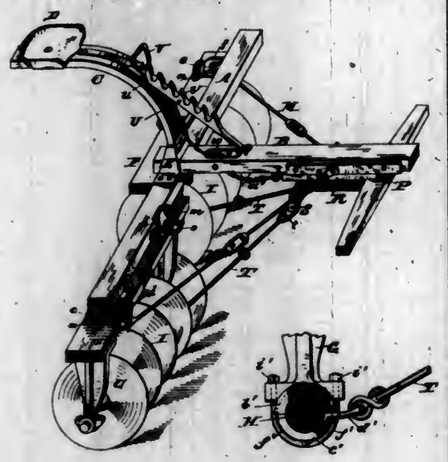


Claim.—1. The combination, in an apparatus for administering anæsthetics, of a horizontal inhaling-tube, a reservoir for an anæsthetic fluid depending therefrom, and a capillary feeder leading from the reservoir below to the inhaling-tube above, whereby a regular quantity of anæsthetic fluid is continuously supplied to the inhaling-tube for evaporation therein, substantially as described.

2. The combination, in an apparatus for administering anæsthetics, of an inhaling-tube, a reservoir for an anæsthetic fluid depending therefrom, a valve closing said reservoir, a capillary feeder depending therefrom, and a plunger for opening the valve and exposing the feeder to the aerial currents in the inhaling-tube, substantially as described.

3. The combination, in an apparatus for administering anæsthetics, of a horizontal inhaling-tube, a reservoir for an anæsthetic fluid depending therefrom, a plunger having a vertical motion to and from the reservoir, a valve for closing the reservoir when the plunger is depressed, a valve for closing the reservoir when the plunger is elevated, and a feeder of fibrous material interposed between the two valves, the whole being so arranged that a certain definite quantity of the anæsthetic fluid may be separated from that in the reservoir and submitted to evaporation in the inhaling-tube, substantially as described.

312,772. WHEEL-HARROW. E. FOWLER STODDARD, Dayton, Ohio. Filed June 23, 1884. (No model.)



Claim.—1. In a wheel or disk harrow, the combination, with the main frame and the wheel-gangs pivoted thereto, of an independently backwardly and forwardly movable double-tree, with connecting mechanism, whereby the movement of said double-tree backward or forward causes the simultaneous shifting of the relative positions of both the wheel-gangs from a straight line or parallel position to an angling position, or vice versa.

2. In a wheel or disk harrow, the combination, with the main frame and the wheel-gangs pivoted thereto, of an adjustable and independently backwardly and forwardly movable double-tree, with connecting mechanism, whereby the movement of said double-tree backward or forward causes the simultaneous shifting of the relative position of both the wheel-gangs from a straight line or parallel position to any angle desired, or vice versa.

3. In a wheel or disk harrow, the combination, with the main frame and the wheel-gangs pivoted thereto, of a sliding double-tree, with connecting mechanism, whereby the sliding of said double-tree backward or forward causes the simultaneous shifting of the relative position of both the wheel-gangs from a straight line or parallel position to an angling position, or vice versa.

4. In a wheel or disk harrow, the combination, with the main frame and the wheel-gangs pivoted thereto, of a sliding adjustable double-tree, with connecting mechanism, whereby the sliding of said double-tree backward or forward causes the simultaneous shifting of the relative position of both the wheel-gangs from a straight line or parallel position to any angle desired, or vice versa.

5. In a wheel or disk harrow, the combination, with the main frame and the wheel-gangs pivoted thereto, of an independently backwardly and forwardly movable double-tree for causing the simultaneous shifting of the relative position of both the wheel-gangs, and mechanism for moving and regulating the extent of the adjustment of said double-tree backward or forward.

6. In a wheel or disk harrow, the combination, with the main frame and the wheel-gangs pivoted thereto, of an independently backwardly and forwardly movable double-tree connected by jointed draft-links to the wheel-gangs, whereby the resistance of the earth effects the shifting of the gang-beams in one direction as the machine is drawn forward.

7. In a wheel or disk harrow, the combination, with the main frame, of the wheel-gangs pivoted thereto at points between the centers and ends of said gangs, and an independently backwardly and forwardly movable double-tree connected to the wheel-gangs, whereby the resistance of the earth effects the shifting of the gang-beams.

8. In a wheel or disk harrow, the combination, with the main frame and the wheel-gangs pivoted thereto, of a forwardly and backwardly adjustable double-tree connected by draft-links to the disk-gangs, and mechanism for operating and limiting the movement of said double-tree, substantially as described.

9. In a wheel or disk harrow, the combination, with the main frame and the wheel-gangs pivoted thereto, of the sliding double-tree connected to the disk-gangs, and mechanism for operating and limiting the forward movement of the double-tree.

10. In a wheel or disk harrow having a double-tree for regulating the adjustment of the disk-gangs, the combination, with the double-tree, of a chain, a rack, and engaging link, whereby the forward movement of the double-tree can be adjusted at will.

11. In a wheel or disk harrow, the combination, with the main frame, of the wheel-gangs pivoted thereto by universal joints, and provided with coupling-shackles adapted to engage with hooks upon the main frame to form a rigid connection, and at the same time permit the gangs to be shifted in perfectly horizontal planes, substantially as described.

12. In a wheel or disk harrow, the coupling composed of the parts *a b c e f g h*, constructed and arranged substantially in the manner and for the purpose specified.

13. In a wheel or disk harrow, the combination, with the pivoted shackles *o*, of the plate *i*, provided with stop-lugs *j k l*, hook *m*, and the pivoted locking-dog *n*, the parts constructed and arranged in the manner and for the purpose specified.

14. In a disk-harrow, the combination and arrangement of the engaging link *u*, rack-bar U, chain *a'*, sheave *w*, and sliding double-tree, substantially as and for the purpose specified.

15. In a disk-harrow, the combination, with a forwardly and backwardly adjustable double-tree for causing the simultaneous shifting of the wheel-gangs, of draft-links connected at their forward ends to said double-tree, and connected at their rear ends to the wheel-gangs at points in the plane of their revolving axes, substantially as described.

16. In a disk-harrow, the combination, with a forwardly and backwardly adjustable double-tree for causing the simultaneous shifting of the wheel-gangs, of separately-adjustable draft-links connected at their forward ends to said double-tree and connected at their rear ends to the disk-gangs, substantially as described.

17. In a wheel-harrow, the combined box and draft couplings composed of the parts *b'*, *c'*, and *d'*, fitted to each other and to the hanger G, and united and secured by the clip *f'*, substantially as and for the purpose specified.

312,773. DEVICE FOR CONVERTING MOTION. JOHN STURGE, Pittsburg, Pa., assignor to H. B. Scott & Co., (Limited,) same place. Filed Jan. 8, 1885. (No model.)



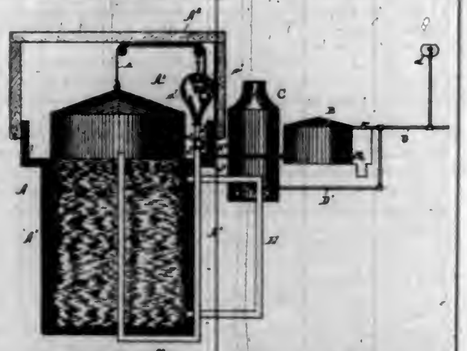
Claim.—1. As a device for converting motion, the combination of a rotatory stud, a rotatory shaft having lever-arms, and lugs or blocks connected with said lever-arms and capable of being moved into and out of the path of revolution of the said stud, and a cam for imparting such motion to said lugs or blocks, substantially as and for the purposes described.

2. The combination, with the stud of a rotatory disk, of a rotatory shaft having lever-arms, and lugs or blocks connected with said lever-arms and capable of being moved into and out of the path of revolution of the stud, whereby the said stud is alternately engaged with and disengaged from the said lugs or blocks, and a catch for securing and locking the said lever-arms when the said stud is disengaged, substantially as and for the purposes described.

3. The combination, with the stud of a rotatory disk, of a rotatory shaft having lever-arms affixed thereto, and lugs or blocks connected with said lever-arms and capable of being moved into and out of the path of revolution of the stud, whereby the said stud is alternately engaged with and disengaged therefrom, a cam capable of engaging the said blocks during their revolution and of moving them into the path of revolution of the stud, a cam for moving the blocks out of the same, and a catch for engaging and confining one of the said blocks when the stud is disengaged, substantially as and for the purposes described.

4. The combination of two revolving shafts, each provided with lever-arms having lugs or blocks capable of motion toward or from the axis of revolution, with an interposed driving-disk having driving-studs on each side, and cams for throwing the lugs or block into and out of the path of revolution of the studs, whereby an intermitteut rotation is imparted to the shafts, substantially as and for the purposes described.

312,774. CARBURETOR. ELBERT J. VAUGHAN, Louisville, Ky., assignor of two-thirds to Thomas J. Guthrie and Jessee P. Owens, same place. Filed June 12, 1884. (No model.)



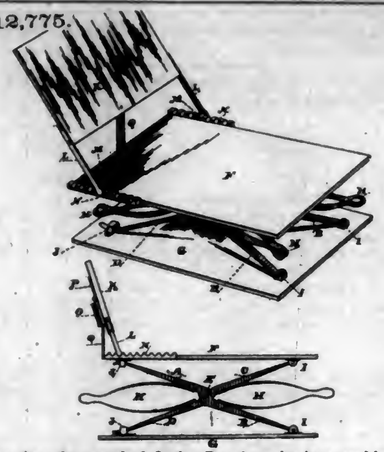
Claim.—The combination, with an air-tank and a carburetor, of a pipe, A^4, forming the sole inlet and outlet for said tank, and having a branch pipe, A^5, of less bore than itself attached below the cock and connecting it with the carburetor, and means, substantially as described, attached to the outer end of pipe A^4, for the purpose set forth.

312,775. SPRING-SEAT. ROBERT WALKER, Oakland, Cal. Filed Oct. 9, 1884. (No model.)

Claim.—1. An improved seat comprising an upper and lower set of arms united by a single central joint, springs fixed between said arms, a seat-surface with racks upon its edges, a back-board with arms having lugs to engage the racks, and a spring attached to the rear of the back-board and connected with a standard on the seat-surface, substantially as herein described.

2. The seat-surface F, provided with racks N upon its edges, in combination with a back-board, K, having arms L, with lugs adapted to

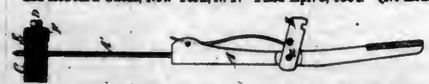
312,775.



engage the racks, a standard, Q, plate P, and a spring interposed between the standard and plate, substantially as described.

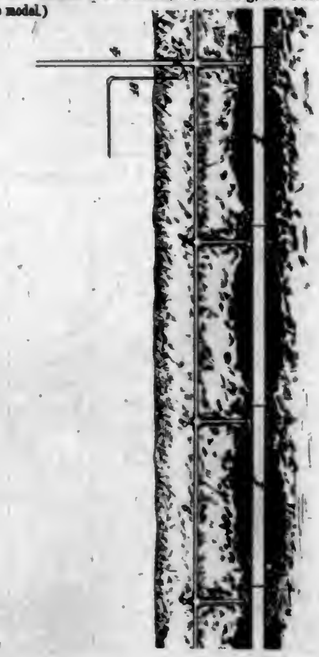
3. In a seat, the upper and lower boards, F and G, each provided at one end with lugs I and at the opposite end with slotted guides J, in combination with the arms A, B, C, and D, united by a central hinge, with one of each pair of arms passing loosely through the slotted guides, and the elliptical continuous springs placed between the arms and in the same vertical plane, as herein set forth.

312,776. PIANO-FORTE DAMPER. OTTO WESSELL, ADAM NICKEL, and RUDOLPH GROSS, New York, N. Y. Filed Apr. 5, 1884. (No model.)



Claim.—The combination, with a damper-lever and a block receiving said lever through it in a direction transverse to the grain of the wood, of a nut inserted into the block, a set-screw engaging with said nut and bearing against the lever, and a cap or ferrule applied to that end of the block at which the screw is inserted, substantially as and for the purpose herein described.

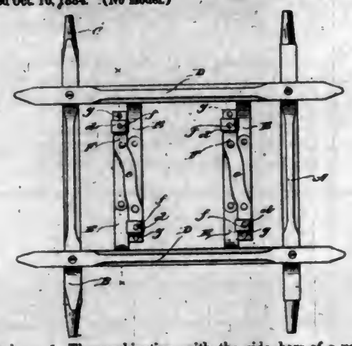
312,777. MEANS FOR CARRYING OFF LEAKAGE FROM GAS-MAINS. GEORGE WESTINGHOUSE, Jr., Pittsburg, Pa. Filed Jan. 26, 1885. (No model.)



Claim.—1. The combination, with an underground gas-main, of a leakage-pipe leading from a point adjacent to the main to an escape-pipe having its discharge-opening at a point above the surface of the ground, and an exhauster connected with the escape-pipe and adapted to induce an upward current therein, substantially as set forth.

2. The combination, with an underground gas-main, of a line of conducting-pipes, a series of leakage-pipes, each leading from said conducting-pipe to a body of loose packing surrounding the main, an escape-pipe leading from the conducting-pipe to a point of discharge above the surface of the ground, and an exhauster connected with the escape-pipe and adapted to induce an upward current therein, substantially as set forth.

312,778. VEHICLE-SPRING. FRANK L. WHARTENBY, Hopewell, Ohio. Filed Oct. 10, 1884. (No model.)
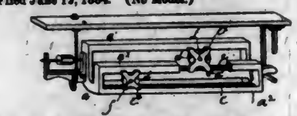


Claim.—1. The combination, with the side-bars of a vehicle, of leaf-springs connected at their upper ends by a bar, and bracing-plates connecting the ends of said bar with the leaf-springs, as set forth.

2. The combination, with the side-bars of a vehicle, having brackets secured to their under sides, of leaf-springs hinged therein at their lower ends, a bar connecting the other ends of said leaf-springs by a hinge-joint, and bracing-plates secured to the leaf-springs and to the ends of the said bar, as set forth.

3. The herein-described vehicle-spring, consisting of the leaf-springs having a compound curve, bracing-plates connected with said leaf-springs, and a bar rigidly connected with the bracing-plates and hinged to the leaf-springs by clips, substantially as set forth.

312,779. SCALE BEAM AND POISE. MEYER H. WIENER, Buffalo, N. Y. Filed June 19, 1884. (No model.)



Claim.—1. The combination, with a scale-beam consisting of an open frame on the inner and upper face of which are centrally arranged a line of teeth or cogs, of a circular toothed poise having thereon the weight-indicating figures, and adapted to engage with the teeth or cogs, and a covering-disk provided with a slot or opening therein, through which only the proper weight appears, substantially as shown and described.

2. The combination, with a scale-beam consisting of an open frame on the inner and upper face of which are centrally arranged a line of teeth or cogs, of a circular toothed poise having thereon the weight-indicating figures, and adapted to engage with the teeth or cogs, a covering-disk provided with a slot or opening therein, through which only the proper weight appears, and a carriage in which the revolving poise and disk are mounted, substantially as shown and described.

3. In combination with the beam or frame a', with its teeth or cogs b, the circular toothed poise d d', the slotted disk or cover g g', and the carriage e e, substantially as shown and described.

4. In combination with the beam or frame a', with its teeth or cogs b and sockets h^2, the circular toothed poise d d', the slotted disk or cover g g', the carriage e e, and the catch h h^2 h^3, located upon the carriage, substantially as shown and described.

312,780. FRICTION-GEAR. STEPHEN WILCOX, Brooklyn, N. Y. Filed Oct. 25, 1883. (No model.)

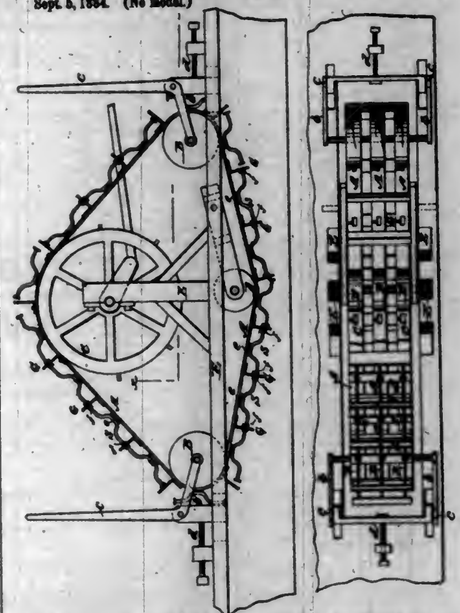
Claim.—1. The combination, with the solid metal periphery F and the solid hub F^2, of the section-blocks F^3, of hard rubber or wood, arranged equidistantly between the parts and adapted to serve as set forth.

2. The gear described, consisting of the solid parts F F^2, the section-blocks F^3, arranged between said parts, and the locking-key F^4, all combined and adapted to serve with shaft F^1 and a fellow gear, as O^2, as set forth.

312,780



312,781. PROPELLER. JOHN J. WILLIAMS, Point Pleasant, Mo. Filed Sept. 5, 1884. (No model.)



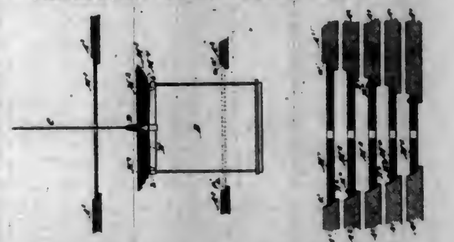
Claim.—1. In an endless flexible propeller, the combination, with the endless belts or bands and their buckets G, of the drive-wheel C, the two end wheels, B B, the pivoted rocking frame b', within which the wheels B B are mounted, and the lever c for operating the same, substantially as set forth.

2. The combination, with the fixed upper drive-wheel, C, adjustable end wheels, B B, and the wheel D, mounted below the wheel C in an adjustable swinging frame, of the band A and the buckets G thereon, substantially as set forth.

3. The combination, with the endless belt and its buckets, of the end wheels, B B, rock-frames b, and set-screws d for adjusting the said rock-frames and wheels B B, carried thereby, in a horizontal direction, whereby said wheels are afforded a horizontal and vertical adjustment, substantially as set forth.

4. The endless belt or band A, buckets G, secured thereto, and the braces S, secured at their centers e to the band, and engaging the backs and faces of the buckets, substantially as set forth.

312,782. ELEVATOR-HATCH. PETER M. WILSON, New York, N. Y. Filed June 20, 1884. Renewed Jan. 23, 1885. (No model.)

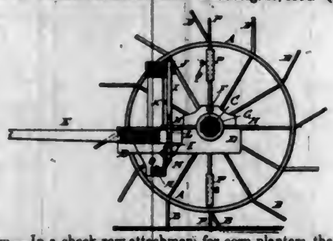


Claim.—1. The series of hatches M' M^2, differing in size, in combination with corresponding seats having flaring rabbets a a' at the several floors, and with an elevator-car, B, and means for operating it, all arranged for joint operation, as herein specified.

2. The hatches M′ M², differing in size, in combination with the floors A′ A², having rabbets with flaring edges *a*′, and with an elevator-car, B, operating-rope C, and bellow tapering casing D, arranged for joint operation, as herein specified.

3. The hatches M′ M², differing in size and provided with recesses N° and tapering spurs M°, arranged out of line, in combination with the floors A′ A², having rabbets *a*′, with an elevator-car, B, carrying a platform, B′, having spurs *b*, and suitable means for operating the car, substantially as herein specified.

312,783. CHECK-ROWING ATTACHMENT FOR CORN-PLANTERS. JOSEPH A. WITHROW, Scranton, Iowa. Filed Aug. 27, 1884. (No model.)

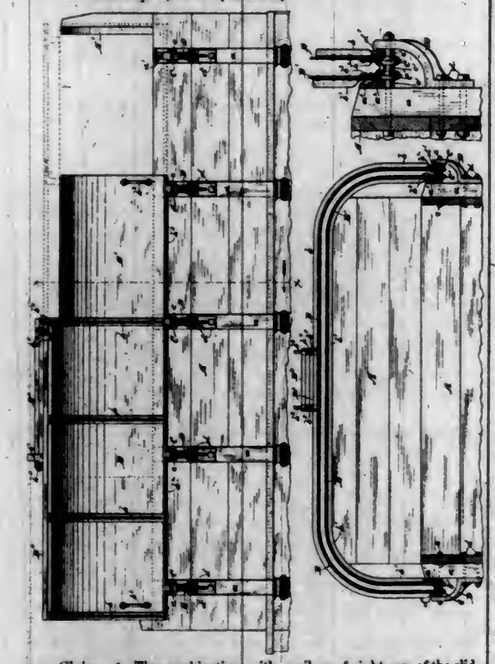


Claim.—In a check-row attachment for corn-planters, the combination, with the axle C, the horizontal frame D, the vertical frame K, and the seed-slide N, of the collars G, secured to the axle, and provided with the arms H, and the vibrating lever I, pivoted at its ends to the frame K and the seed-slide, respectively, and provided with the inclined projections L on opposite sides, substantially as herein shown and described.

312,784. MIXED PAINT. JOHN B. WOOD, Brooklyn, N. Y., assignor to Mary Manross Wood and William Lawrence Quinn, both of same place. Filed Aug. 25, 1884. (No specimens.)

Claim.—The above-described composition for paint, consisting of creosote or dead-oil, coal-tar, spirits of turpentine, and plumbago, in the proportions substantially as set forth.

312,785. RAILWAY-CAR COVER. RICHARD H. WYMAN, Evanston, Ill. Filed Sept. 3, 1884. (No model.)

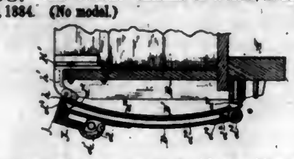


Claim.—1. The combination, with a railway freight-car, of the sliding and telescoping sectional covers B B′, provided with suitable ways or rollers secured to the sides of the car for mounting the same, and means for locking said sections in position when closed, substantially as and for the purposes specified.

2. The combination, with a railway freight-car, of the sliding covers B B′, mounted upon suitable ways or rollers secured to the sides of the car, and a folding or jointed running-board, B³ B³, substantially as set forth.

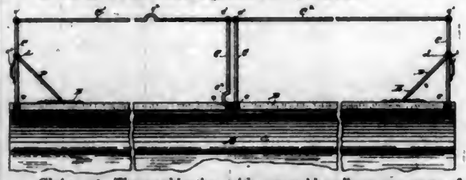
3. The combination, with a railway freight-car, of the sliding telescoping covers B B′, provided with flanges *b*³ *b*³, and cone-shaped rollers C C′, with suitable bearings therefor, secured to the side of the car, substantially in the manner and for the purposes specified.

312,786. CAR-COVER. RICHARD H. WYMAN, Evanston, Ill. Filed July 3, 1884. (No model.)



Claim.—In a railway-car provided with movable sectional covers, the combination of the removable supports H, bent as shown, friction-rollers A, and sockets H′, with said car and covers, substantially as and for the purposes set forth.

312,787. GUARD FOR FREIGHT-CAR COVERS. RICHARD H. WYMAN, Evanston, Ill. Filed Aug. 27, 1884. (No model.)



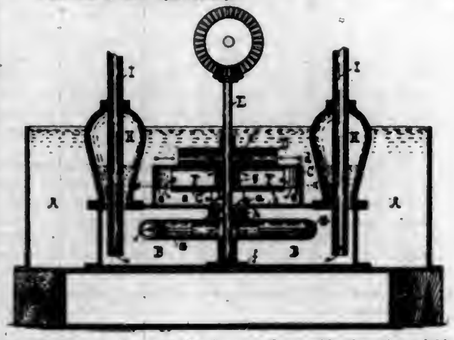
Claim.—1. The combination, with a movable railway-car cover, of a guard upon one or both sides of the running-board, substantially as described.

2. The combination, with a movable railway-car cover, of a folding or detachable guard upon one or both sides of the running-board, substantially as and for the purposes specified.

3. The combination, with a movable railway-car cover, of a folding guard-rail made in two or more sections supported upon posts pivoted or hinged at the side of the runway, and means for locking and bracing said posts, whereby the same may be supported in an upright position, or the rails moved longitudinally toward each other and folded flatly upon said cover, substantially in the manner and for the purposes specified.

4. The combination of a guard consisting of rails C′ C², pivotally secured to posts C C C C, hinged or pivoted upon one or both sides of the running-board of a movable sectional car-cover, with braces D D, or their equivalents, and said movable covers, substantially as described.

312,788. CENTRIFUGAL PUMP. GEORGE YELLOTT, Towson, Md. Filed June 2, 1884. (No model.)



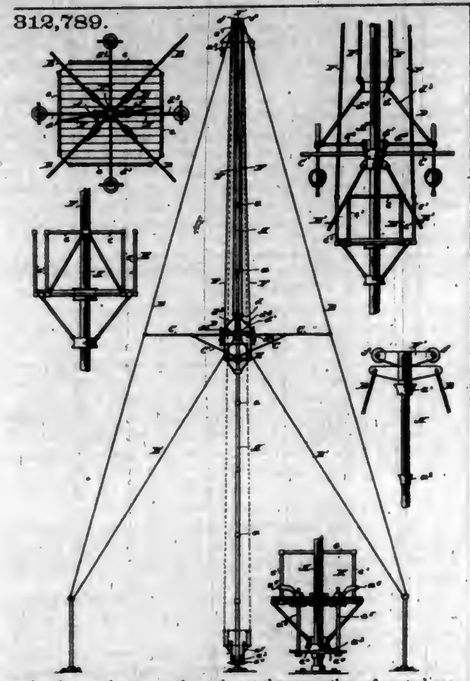
Claim.—1. In a centrifugal pump, the combination of revoluble vanes and a reaction-wheel adapted to revolve in separate chambers, having a communicating aperture to admit water forced from the said vanes to the interior of the reaction-wheel, substantially as specified.

2. The box B, having discharge-pipes I, and the revoluble reaction-wheel G, in combination with the chamber C and the vanes F, substantially as specified.

312,789. ELECTRIC-LAMP SUPPORT. FREDERICK U. ADAMS, Chicago, Ill., assignor, by direct and mesne assignments, to the Adams Electric Mast Company, same place. Filed June 9, 1884. (No model.)

Brief.—A lamp-carriage and a passenger-cab are connected by a tackle passing over pulleys at the top of a mast, to be drawn to and from each other on the mast and meeting at the connections of central guys. The lamp-carriage has a greater and lesser ring surrounding the mast, which rings engage corresponding stops at the top of the mast. Openings are provided in the railing of the cab for the guys. Means to draw and hold the cab consist of arms on the mast near its base, having vertical rods passing through openings in the cab-platform and provided with hand-nuts.

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Claim.—1. The combination, with a lamp-mast, of a lamp-carriage and a passenger-cab, together with means for raising and lowering said cab and carriage, substantially as described.

2. The combination, with a lamp-mast having a pulley or pulleys at the top, of a lamp-carriage, a passenger-cab, and a rope or ropes leading from the carriage to the cab, whereby the lamp-carriage descends as the cab rises, substantially as and for the purposes set forth.

3. The combination, with a mast and guys or other attachments connected therewith at a point between its ends, of a lamp-carriage, a cab, and connections, substantially as described, whereby the lamp-carriage and the cab may be brought into juxtaposition on opposite sides of said guys or attachments.

4. The combination, with a mast, of a conical stop thereon, a traveling carriage or cab provided with a ring surrounding the mast and fitted to bear on the conical surface of said stop, and means for drawing the cab or carriage into bearing with said stop, substantially as described.

5. The combination, with a mast, of two conical stops, *a*′ *a*², the uppermost of which is the larger, a lamp-carriage provided with two correspondingly-unequal rings surrounding the mast and fitted and arranged to engage said stops, and means for forcing the carriage into engagement with said stops, substantially as described.

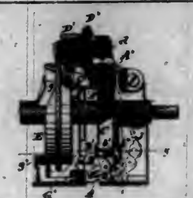
6. The combination, with a mast provided with a stop or stops at the top, of a lamp-carriage constructed to engage said stop or stops, a cab, a suitable tackle connecting said cab and carriage, and means for holding the cab, whereby tension is applied to or maintained upon the tackle, substantially as and for the purposes set forth

7. The combination, with a mast having a pulley or pulleys at the top and inclined guys joined to the mast between its ends, of a lamp-carriage, a cab, ropes trained over the pulley or pulleys and connecting the cab and carriage, the cab being provided with a rail having openings to admit the guys, substantially as described.

312,790. KNOTTING MECHANISM FOR GRAIN-BINDERS. JOHN F. APPLEBY, Minneapolis, Minn., assignor to the Minneapolis Harvester Works, same place. Filed Oct. 16, 1883. (No model.)

Claim.—1. The combination, substantially as before set forth, of the knotter-shaft, the pivoted bearing therefor constructed with a projecting arm, and the cam-wheel provided with a cam-groove which engages the arm of the said pivoted bearing.

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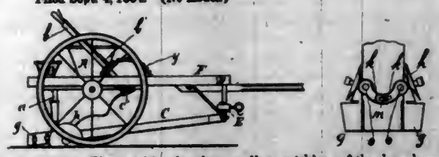


2. The combination, substantially as before set forth, of the cam-wheel provided with a cam-groove, the knotter-shaft and its pivoted bearing constructed with a projecting arm which is engaged by the said cam-groove, the cord-holder, and mechanism, substantially such as described, actuated by the same cam-groove, for independently operating the cord-holder.

3. The combination, substantially as before set forth, of the intermittingly-rotating bevel-wheel D³, the knotter-shaft provided with the bevel-pinion A³, the knotter-shaft bearing pivoted to the knotter-frame on an axis transverse to the axis of the bevel-wheel D³, and a cam for swinging said pivoted bearing, whereby the swinging of the knotter effects practically no disengagement and no rotation of the said bevel-gearing.

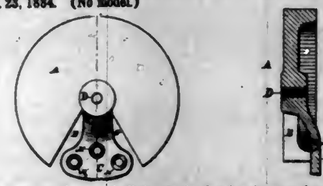
4. In a grain-binder, the combination, with the knotter and the cutter, of mechanism for disengaging the knotter from the loop and severing the binding-cord, the gripping-disk H, the impelling-pawl K, and a single cam for actuating both said pawl and said disengaging and cord-severing mechanism, as described.

312,791. SEEDING-MACHINE. WILLIAM D. ARNETT, Morrison, Colo. Filed Sept. 4, 1884. (No model.)



Claim.—The combination, in a seeding-machine, of the drag-bars C, the adjustable disk-axles *k k*, the cap-bearing *l*, the bolt *l*′, the flanges *g g*, the guide-bars *j*, the springs *d*, the beam *e*, and the lever *b*, substantially as set forth, and for the purpose described.

312,792. CLOCK-BELL. HARRY W. BARNES, Bristol, Conn. Filed Oct. 23, 1884. (No model.)



Claim.—1. A gong-bell for clocks, having its sounder and standard cast in one piece, and the latter located within an opening formed by breaking the outline of the former, substantially as set forth.

2. A gong-bell for clocks, having its sounder and standard cast in one piece, and the latter located within an opening formed by breaking the outline of the former, and joining the same at its center, substantially as set forth.

3. A gong-bell for clocks, having its sounder and standard cast in one piece, the former being circular in general contour and having a sector-shaped opening, and the latter being located within such opening, substantially as set forth.

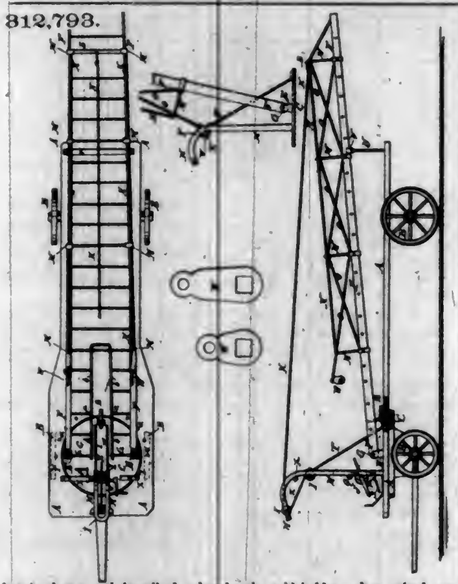
4. A gong-bell for clocks, having its sounder and standard cast in one piece, the former being circular in general contour and having a sector-shaped opening in which the latter is located, and a scalp fitting over the sounder and concealing it and the standard, substantially as set forth.

312,793. FIRE-ESCAPE LADDER. JOSEPH HARNETT, New York, N.Y. Filed Sept. 1, 1884. (No model.)

Claim.—1. In a fire-escape ladder, the combination, with a base-frame, a turn-table, and a ladder hinged to said turn-table of standards secured to the turn-table, a windlass and rope for raising and lowering the ladder, a catch on the turn-table engaging the base-frame for locking the turn-table in position, and catch-plates on the ladder engaging the standards for holding the ladder elevated, substantially as herein shown and described.

2. In a fire-escape ladder, the combination, with the standards H, attached to the turn-table, and the ladder F, hinged to the said turn-table, of the cross-bar X, and the hinged catch-plates W, substantially as

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herein shown and described, whereby the said ladder, when raised, can be firmly secured in place, as set forth.

3. In a fire-escape ladder, the combination, with the turn-table C, the hinged ladder F, and means for locking the turn-table in position, of the standards H, the guide-pulleys I, the windlass J, the cross-bar X, and the hinged plates W, substantially as herein shown and described.

4. In a fire-escape ladder, the combination, with the standards H, the hinged ladder F, the rope or chain K, and the windlass J, of the brake R S, substantially as herein shown and described, whereby the said ladder can be readily and quickly lowered, as set forth.

5. In a fire-escape ladder, the combination, with the lower rounds of the ladder F, having their middle parts cut away, of the bars *b*, substantially as herein shown and described, whereby the ladder, when lowered, can be moved forward and better balanced for transportation, as set forth

312,794. GAME-COUNTER. NELSON M. BEACH, Bridgeport, Conn., assignor to the Bridgeport Brass Company, same place. Filed Oct. 4, 1884. (No model.)

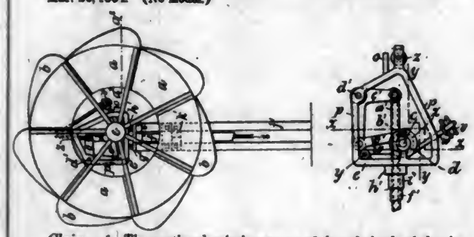


Claim.—1. A game-counter consisting of a strip of metal having an elongated slot cut therein, a button adapted to be inserted within numbered pockets formed therein, whereby the units may be counted, and a pointer with numbers arranged opposite thereto to denote the tens, substantially as shown and described.

2. In a game-counter, the combination of a strip of metal having therein an elongated slot provided with lateral pockets, with a button adapted to travel in said slot and to be dropped within said pockets, substantially as set forth.

3. In a game-counter, the combination of a strip of metal having therein an elongated slot cut in the body of the device, provided with numbered lateral pockets therein, and a button adapted to travel in said slot and be dropped within said pockets, with a pivoted pointer adapted to be retained in different radial positions by the interlocking of a teat on the under side of said pointer, with depressions in the body of the device, a series of numbers being arranged in the arc of a circle opposite to each radial position of the pointer, substantially as shown and described.

312,795. WINDMILL. JOSEPH BENOIT, New Braunfels, Tex. Filed Mar. 26, 1884. (No model.)



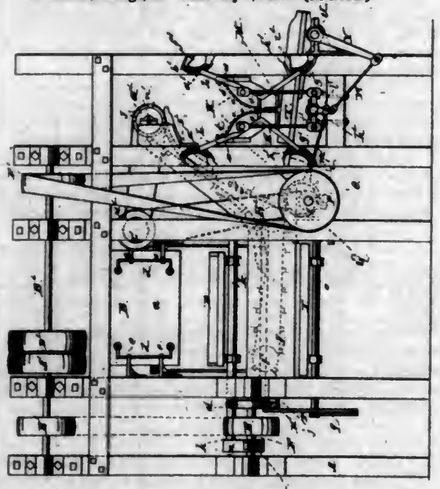
Claim.—1. The sectional spiral vanes *a* of the wind-wheel, having a flange, *b*, on the outer edge, widest at the end of the vane on which the wind first takes effect, and inclined to the plane of the vane for deflecting the wind thereon, substantially as described.

2. The brake *w*, having guide-pulley *v*, and combined with the pull-cord *t*, tail-vane *h*, and the wheel-shaft *c*, said shaft having a friction-wheel, *x*, substantially as described.

3. In a windmill, the turn-table frame and the wind-wheel journaled therein, in combination with the hollow pivot *g*, headed pin *i j*, passing through said pivot into the frame, a set-screw, *l*, for adjusting said pin, and a vane mounted on the hollow pivot, substantially as set forth.

4. A windmill consisting, essentially, in a turn-table frame, *p*, wind-wheel *a*, having a horizontal shaft, *c*, journaled in the frame, the vertical headed pin *i j*, pivot *v* on the frame above the pin *i*, the vane *h*, having a jointed arm, *k*, mounted on the headed pin, the connecting-rod *n*, the friction-wheel *x* on shaft *c*, the brake-lever *w*, pivoted at *y* below the friction-wheel, the pulley *v* on the outer end of said lever, the pulley *z* on the upper part of the frame, the rope *t*, passing from the arm *k* around the said pulleys, the bell-crank *c'*, pivoted at *d'* to the frame, the rod *e*, connecting said lever with a crank-pin on the shaft *c*, and the pump-rod *a'*, pivoted to the bell-crank lever, substantially as set forth.

312,796. MACHINE FOR DRESSING FINE-CUT TOBACCO. WILLIAM H. BENSON, Chicago, Ill. Filed May 5, 1884. (No model.)



Claim.—1. In a machine for dressing tobacco, a hopper or receiver made in two parts, each part movable vertically independently of the other part, and each part provided with teeth or fingers upon the inside, and mechanism for moving them, substantially as and for the purpose specified.

2. In a machine for dressing tobacco, a hopper or receptacle made in two parts, each moving vertically independently of the other, and provided with teeth or fingers upon the inside, in combination with supporting-rods C C', cross-bars *h*, and rock-shaft *i*, substantially as and for the purposes specified.

3. In a machine for dressing tobacco, a cradle or rocker, K, composed of two movable parts, *s t*, substantially as and for the purpose specified.

4. In a machine for dressing tobacco, a cradle or rocker, K, composed of two parts, *s t*, in combination with bars L L, the ends of which are supported and move in curved slots, supporting-rods M N, cross-bar *j''*, and rock-shaft *k'*, substantially as and for the purposes specified.

5. In a machine for dressing tobacco, the hopper or receptacle consisting of two movable parts, each provided with teeth or fingers upon the inside, in combination with a sieve, D, supported upon a rock-shaft, substantially as and for the purposes specified.

6. In a machine for dressing tobacco, the combination of a hopper or receptacle made in two parts, each movable independently of the other, and provided with teeth or fingers upon the inside, a sieve, D, beneath the hopper and supported upon a rock-shaft, and a cradle or rocker, K, consisting of two movable parts, and mechanism, substantially as described, for carrying the tobacco as it falls from the sieve to the cradle, substantially as and for the purposes specified.

7. In a machine for dressing tobacco, a sieve, D, supported upon a rock-shaft, in combination with an eccentric upon a driving-shaft, and a frame, *n*, having one arm or part thereof secured to such rock-shaft, substantially as and for the purposes specified.

8. In a machine for dressing tobacco, the combination of a hopper or receptacle made in two parts, each moving independently of the other, and provided with teeth or fingers upon the inside, a sieve, D, carrier J, and cradle or rocker K, substantially as and for the purposes specified.

9. In a machine for dressing tobacco, the combination of a hopper made in two parts, provided with teeth or fingers upon the inside, supporting-rods C C', cross-bar *h*, shaft *i*, crank *j*, sieve D, supported on a rock-shaft, *k*, sieve I, supported upon a rock-shaft, *o*, driving-shaft F, eccentric G, connecting-rod H, arm *q*, connecting-rod *r*, cam *m*, and frame *n*, substantially as and for the purposes specified.

312,797. PLOW. THELUS M. BISSELL, South Bend, Ind. Filed June 30, 1884. (No model.)



Claim.—The combination, with the standard B, having a straight edge, a beveled recess, and apertures *f f* at one side, of the jointer-standard C, flanged at one edge, as indicated by the letter *g*, and provided with a hook, *h*, adapted to hook into the beveled recess *e* and hold the flange to the straight edge, the said jointer-standard being provided with apertures *f' f'*, to permit the two standards to be adjustably bolted together, substantially as specified.

312,798. DRAWER-PULL. ELI J. BLACKMAN, Bridgeport, assignor to Benedict & Burnham Manufacturing Company, Waterbury, Conn. Filed Nov. 24, 1884. (No model.)

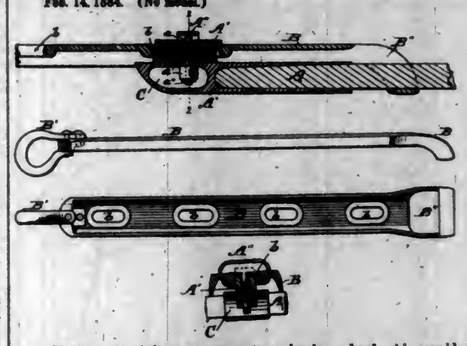


Claim.—1. The herein-described improvement in drawer-pulls, consisting of the knob-shank E, made from sheet metal, constructed with ears *a a*, by which it may be hung to the socket, the bottom of the shank constructed to rest upon the inner end of the knob, and secured thereto through an opening in the shank, substantially as described.

2. A drawer-pull consisting of a knob with a shank, E, constructed with ears *a a*, the tubular socket A, the ears of the shank arranged one at each side the socket, the socket and ears perforated at diametrically-opposite points, and an eyelet through each ear and corresponding side of the socket, the said eyelets forming pivots on which the knob will swing, substantially as described.

3. The combination of the shank E, made from sheet metal, of cup shape, having an ear, *a*, upon opposite sides, the knob D, spindle F through the knob and bottom of the shank, whereby said shank and knob are secured together, and a socket, the ears of the said shank hung to said socket, substantially as described.

312,799. TUG FOR HARNESS. LYDIA A. BLOOD, Chicago, Ill. Filed Feb. 14, 1884. (No model.)

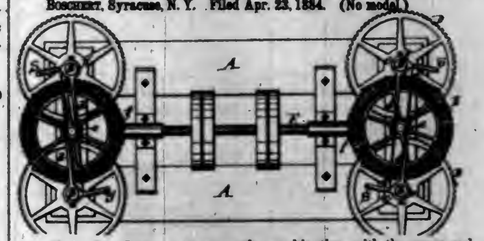


Claim.—1. A harness tug or trace having a hook, A', provided with a swivel-button, A'', and notch or depression *a*, and spring *a'*, in combination with the hame-tag provided with slots *b*, as and for the purpose specified.

2. A harness tug or trace having a hook, A', provided with a swivel-button, A'', and notch or depression *a*, and spring *a'*, as and for the purpose specified.

3. The harness-tag provided with a hook, A', having a depression, *a*, and swivel-button A'', with spring *a'* within a chamber, as C, substantially as and for the purpose specified.

312,800. STRAIN-INDICATOR FOR SCREW-PRESSES. RUFUS E. BOSCHERT, Syracuse, N. Y. Filed Apr. 23, 1884. (No model.)



Claim.—1. In a screw-power, the combination, with the screw and nut working thereon, of a pointer rigidly attached to and extended laterally from said screw to indicate by the vibration of the free end of said pointer the degree of torsion exerted on the screw, substantially as set forth.

2. The combination, with a set of co-operating screws, of a graduated scale extended laterally from each of said screws, and a pointer extended from each of said screws to the scale of the other screw, substantially as described and shown.

3. The combination, with a set of co-operating screws, of the collars C C, fixed to the respective screws, and each provided with the scale *c*, rigid arm *a*, terminating with rack *r*, pivoted pinion *b*, and the pointer *d*, fastened to said pinion and extended to the scale of the collar on the other screw, substantially as described and shown, for the purpose set forth.

312,801. RAILWAY-FROG. NATHANIEL W. BOYD, Steelton, Pa. Filed Feb. 21, 1884. (No model.)

Brief.—The front spacing-blocks are secured in position by the cross-bolt and point, and the rear ones by cross-bolt and rivet-heads. One end of the securing-bolts enters countersunk blocks and the other is secured by a split wedge-key, which enters grooves in blocks outside the wing-rail.

Claim.—1. The combination, with the rails C D, pointed and bolted or riveted together, of the space-blocks E E', side rails, A B, and bolts F, the blocks E being in front of the rear bolt and the blocks E' in rear of the front bolt, substantially as and for the purposes set forth.

2. In a railway-frog, the separate blocks E, held in place by one of the bolts F and one of the rivets *d*, substantially as described.

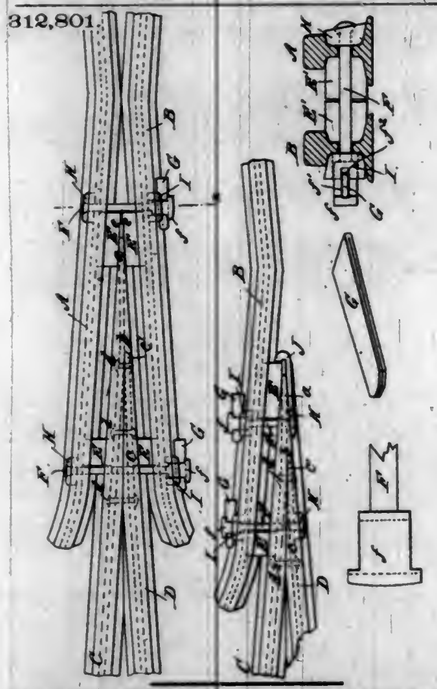
3. The blocks E', formed with the offsets *e*, for engaging with the pointed end of the rail C, substantially as and for the purposes set forth.

4. In a frog, the combination, with the rails thereof and the bolts F, of the blocks H, having countersunk openings, in which one end of the bolts are secured, substantially as and for the purposes set forth.

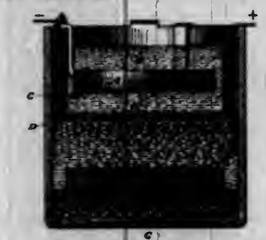
5. In a frog, the key-bolts F, having key G, in combination with the brackets I, substantially as and for the purposes set forth.

6. In a frog, the key-bolts F, provided with the split keys G, in combination with the rails of the frog, space-blocks E E', and the blocks H I, placed at the outside of the side rails, substantially as described.

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312,802. SECONDARY BATTERY. CHARLES S. BRADLEY, Yonkers, assignor to the Bradley Electric Power Company, New York, N. Y. Filed Apr. 19, 1884. (No model.)



Claim.—1. A secondary electric battery in which the electrolyte is a solution of a metallic bromide which is decomposed when the battery is charged, the metal being deposited upon one electrode and the bromine being set free at the other electrode, substantially as described.

2. A secondary electric battery in which the electrolyte is a solution of zinc bromide which is decomposed when the battery is charged, the zinc being deposited upon one electrode and the bromine being set free at the other electrode, the bromine thus liberated being taken up by the solution and any excess accumulating in the free state, substantially as described.

3. A secondary electric battery in which the electrolyte is a solution of a metallic bromide which is decomposed when the battery is charged, the metal being deposited upon one electrode and the bromine being set free at the other electrode, the two electrodes being separated by a porous cell or diaphragm, which prevents the bromine from coming in contact with the metal deposited upon the first electrode, substantially as described.

4. A secondary electric battery in which the electrolyte is a solution of a metallic bromide which is decomposed when the battery is charged, the metal being deposited upon one electrode and bromine being set free at the other, the electrode upon which the metal is deposited being placed above the one on which the bromine is set free, whereby the free bromine tends to remain near the lower electrode and to keep away from the electrode upon which the metal is deposited, substantially as described.

312,808. ELECTRICAL CONDUCTING MATERIAL. CHARLES S. BRADLEY, Yonkers, assignor to the Bradley Electric Power Company, New York, N. Y. Filed Nov. 14, 1884. (No specimens.)

Claim.—1. The herein-described electrical conducting material, consisting of gas-retort carbon or other carbon which has grit, and gutta-percha or india-rubber.

2. The herein-described electrical conducting material, consisting of gas-retort carbon or other carbon which has grit, and gutta-percha or india-rubber, said gutta-percha or india-rubber being vulcanized.

3. The herein-described electrical conducting material, consisting of gas-retort carbon or other carbon which has grit, and gutta-percha or india-rubber, said gutta-percha or india-rubber being vulcanized with bromine.

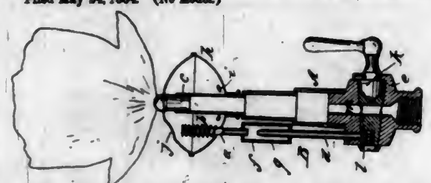
4. The herein-described electrical conducting material, consisting of ground gas-retort carbon or other carbon which has grit, and gutta-percha or india-rubber, said ingredients being mixed together by rolling.

312,804. DRUM-COVER. GEO. W. BROWN, New York, N. Y. Filed Apr. 15, 1884. (No model.)



Claim.—The drum-cover A, adapted to be placed over the drum, in combination with the ring B, for holding the cover in close proximity to the head *b*, substantially as and for the purposes set forth.

312,805. SAFETY GAS-BURNER. GEO. W. BROWNE, Brooklyn, N. Y. Filed May 24, 1884. (No model.)



Claim.—1. In a gas-burner, the main burner connected to the stock or shank, having the plug provided with a two-way passage, in combination with the supplementary burner communicating with one arm of said passage, and having at its upper end a helix or piece of platinum metal, said supplementary burner comprising two tubes connected to an intermediate apertured chamber, substantially as and for the purpose set forth.

2. In a gas-burner, the combination of the main burner, the supplementary burner having at its upper end a helix or piece of platinum metal, and comprising two tubes connected to an intermediate apertured chamber, and the plug constructed to effect the simultaneous turning on of the supply of gas and the cutting off of the same from the main and supplementary burners, substantially as and for the purpose set forth.

3. The burner A, combined with the attachment B, consisting of the tube *d*, perforated shell *f*, and upper tube, *a*, to which the platinum metal *b* is applied, substantially as and for the purposes set forth.

4. In a gas-burner, the main burner connected to the stock or shank, having the plug provided with a two-way passage, in combination with the supplementary burner communicating with one arm of said passage, and having at its upper end a helix or piece of platinum metal surrounded by an apertured case or inclosure, said supplementary burner comprising two tubes connected to an intermediate apertured chamber, substantially as and for the purpose set forth.

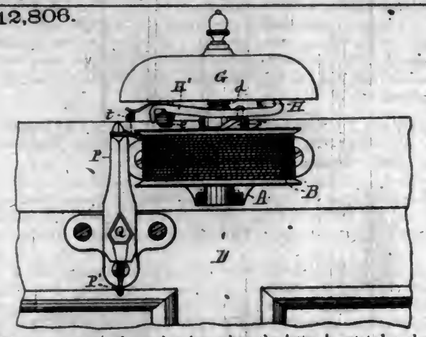
312,806. COMBINED DOOR SPRING AND BELL. WILLIAM BRIEN and STEPHEN A. WALL, Newark, N. J. Filed Mar. 10, 1884. (No model.)

Claim.—1. The combination, with the spindle carrying the gong and rotating spring-box, of the hammer pivoted eccentrically to the gong, and the tappet upon the spring-box to operate the hammer, substantially as and for the purpose set forth.

2. The spring-box consisting of the cylindrical shell constructed with lugs to fit holes in one of the heads, and the heads provided with the holes for the cylinder-lugs, and with studs to fit the outer eye of the spring, substantially as herein shown and described.

3. The combination, with a door-spring bracket, of a spindle carrying a rotating spring-box adapted to close the door by means of suitable connections, a bell or gong mounted upon said spindle, a hammer actuated by tappets upon the spring-box when the latter is rotated, and a connection between the hammer and a bell-pull upon the door or frame, substantially as and for the purpose set forth.

312,806.



312,807. ARMATURE FOR DYNAMO-ELECTRIC MACHINES. C. F. BRUSH, Cleveland, Ohio. Filed May 13, 1884. (No model.)

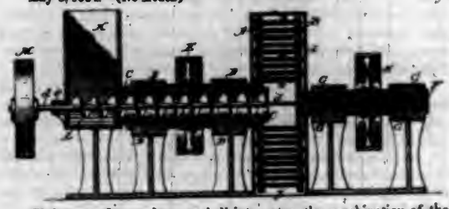


Claim.—1. An armature formed of superposed layers of band-iron having interposed between them laterally-projecting cross-pieces that form the side walls of the bobbin-spaces, and separable filling-in strips interposed between the cross-pieces, substantially as set forth.

2. An armature-ring formed of superposed layers or convolutions of band-iron, with laterally-projecting cross-pieces interposed between the same, said cross-pieces forming the side walls of the bobbin-spaces, and rivets or bolts extending through both bands and cross-pieces, and insulated in whole or in part therefrom, substantially as set forth.

3. An armature-ring having its central part made up of superposed layers of band-iron, and having lateral extensions forming the bobbin-spaces, said extensions consisting of interposed cross-pieces extending from bobbin to bobbin the full thickness of the ring, substantially as set forth.

312,808. CLAY REDUCER AND DISINTEGRATOR. WALFRID BURKMAN, Chicago, Ill., assignor to Charles H. Frost, same place. Filed May 5, 1884. (No model.)



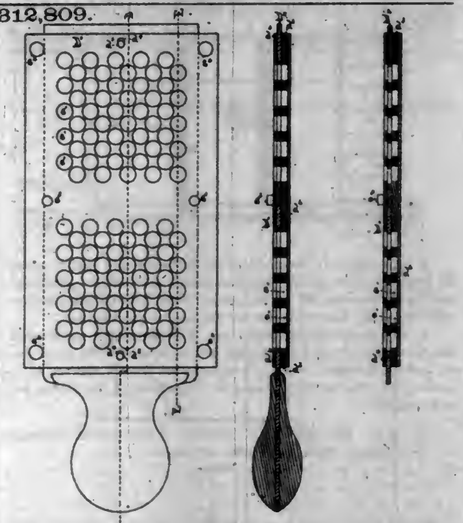
Claim.—1. In a reducer and disintegrator, the combination of the two disks provided each with solid or perforated rings or rows of pins concentrically arranged and supported at the end next to the opposite disks by rings secured to the perforated rings or rows of pins, a shaft carrying one of said disks, a separate hollow shaft carrying the other disk and adapted to feed material to the center of the disks, and a screw-feed within said hollow shaft, revolving independently of said shafts, substantially as described.

2. In a reducer and disintegrator, the combination of two disks provided each with a series of concentric rows of teeth or rings, the teeth or rings of one disk operating independently of those of the other disk, a solid shaft carrying one of said disks, a hollow shaft carrying the other disk, and a screw-feed within said hollow shaft, having one end bearing in the solid shaft, but rotating independently thereof, for feeding material to the center of said disks, substantially as described.

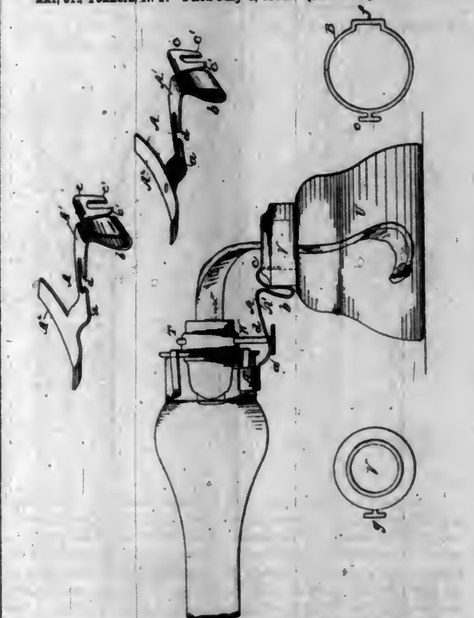
312,809. IMPLEMENT FOR PACKING CARTRIDGES. PAUL BUTLER, Lowell, Mass. Filed Jan. 15, 1883. (No model.)

Claim.—In combination with the holder D', having a series of holes or cavities, *c'*, adapted to receive the cartridge-heads, the sliding plate or gripper D², provided with a corresponding series of holes, substantially as described.

312,809.



312,810. LAMP ATTACHMENT. CHARLES P. BYRON and JAMES STEWART, Jr., Yonkers, N. Y. Filed July 1, 1884. (No model.)



Claim.—1. As an improved article of manufacture, a lamp attachment consisting of a bar having a lip at one end for securing it to a lamp and a burner-support at its other end, as set forth.

2. The attachment A, composed of the slotted arm *a*, lip *c*, and bow A^3, substantially as described.

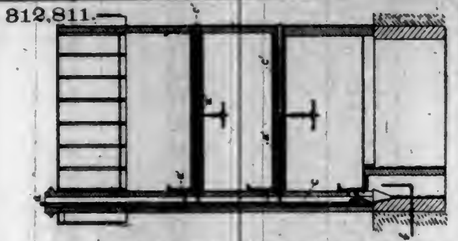
3. The attachment A, composed of the arm *a*, fold *b*, lip *c*, and bow A^3, substantially as described.

4. The attachment A, formed with the claws *c'*, in combination with a stud formed upon or attached to the collar of the lamp, substantially as and for the purposes set forth.

312,811. SYSTEM OF CONVEYING AND DISTRIBUTING GAS. ALEXANDER W. CADMAN, Edgewood, Pa. Filed Sept. 1, 1884. (No model.)

Claim.—1. In a system for distributing gas to buildings, the combination, with a service-pipe having delivery branches for supplying the several stories of a building, of a rising leak and draft flue which incloses the service-pipe and opens above the building at its upper end, substantially as and for the purposes specified.

312,811.



2. In a system for distributing gas to buildings, a conduit or leak and draft flue which opens above the building, and a service-pipe which enters the upper open end of the leak and draft flue and extends down within the same, substantially as and for the purposes specified.

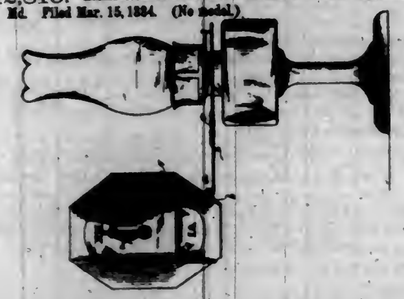
3. In a system for distributing gas to buildings, the combination, with the draft and leak flue *c*, having branch pipes *c'*, which open at one end into the draft-flue *c* and at the opposite end into the open air, of the service-pipe *a*, having branch pipes *a'*, substantially as and for the purposes specified.

312,812. PEN AND PENCIL HOLDER. ALFRED CARTER, Wellington, New Zealand. Filed July 2, 1884. (No model.)



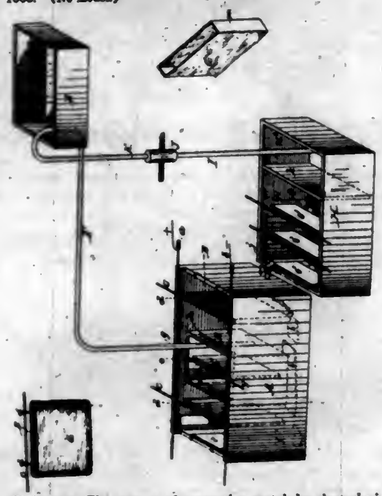
Claim.—The combination, with a tubular holder, A, of an independent pen-carrier, C, secured therein, said carrier being provided with a stop, F, for limiting the movement of the carrier within its holder, a spring, D, for maintaining said carrier in its extended position, and an adjusting-screw extending through the handle for varying the tension of the spring and the pressure of the carrier against its stop, and thereby increasing or diminishing the longitudinal or endwise flexibility of the pen, substantially as described.

312,813. LAMP-SHADE HOLDER. THOMAS D. CASHIN, Hagerstown, Md. Filed Mar. 15, 1884. (No model.)



Claim.—A lamp-shade holder consisting of a single piece of wire the ends of which are bent rearwardly and twisted to form clamping-arms, the front or looped end being bent upwardly, then downwardly, and upwardly again to form two spring shade-holders, substantially as set forth.

312,814. APPARATUS FOR TREATING METALS BY MEANS OF ELECTROLYSIS. HENRY R. CASSEL, New York, N. Y. Filed June 18, 1883. (No model.)



Claim.—1. The process of separating metals by electrolysis, which consists in subjecting the anodes and cathodes while separated by a partition of dialysing material to the action of an electric current in an acidulated solution, said solution being in continuous circulation, substantially as set forth.

2. The combination of anode and cathode cells for containing an acidulated solution separated by a partition of dialysing material provided with holes or slots near its top, or with a siphon, and anode and cathode suspended, respectively, in said cells, suitable electric connections, and means for effecting a continuous circulation of the solution, substantially as set forth.

3. The combination of a dissolving-tank containing an acidulated solution provided with a dialysing partition and electric conductors, an anode and cathode suspended in said tank on opposite sides of said partition, a precipitating-tank containing copper scraps or plates, a pipe or siphon connecting said dissolving and precipitating tanks, a reservoir, pipes connecting said reservoir with said tanks, and means for inducing a circulation of the solution through said tanks and reservoirs, substantially as set forth.

4. In an apparatus for separating metals, a dissolving-tank having separate anode and cathode cells formed by partitions of dialysing material, the anode-cell containing copper for precipitating the silver, substantially as set forth.

5. In an apparatus for separating metals by electrolysis, an anode composed of the metals to be separated, provided with a covering or bag of asbestus or its described equivalent for retaining the free gold, substantially as described.

6. In an apparatus for separating metals by electrolysis, an anode composed of the metals to be separated, provided with a covering or bag having a metallic frame, substantially as described.

7. The process of separating compounds of metals or alloys, which consists in placing said alloys within an anode-cell constructed in part of porous material and in part of non-porous conductive material charged with a solution which is a solvent of the baser metals of the ores or alloys, and subjecting them to electrolytic action, whereby the insoluble metals are precipitated or deposited within said anode-cell, while the soluble metals are dissolved and withdrawn in the form of a solution, substantially as described.

8. An anode-cell for containing material to be subjected to electrolytic action, constructed in part of porous material and in part of non-porous conductive material, substantially as described.

9. An anode-cell for containing material to be subjected to electrolytic action, the body of which is composed in part of porous material, and the bottom of non-porous conductive material.

312,815. MACHINE FOR OPENING AND CLEANING COTTON AND OTHER FIBERS. ALFRED CLARKE and HAVEN C. PERHAM, Lowell, Mass., assignors to the Kitson Machine Company, same place. Filed June 18 1883. (No model.)

312,815.



Claim.—1. A beater provided with a hollow shaft having one or more perforations, said shaft being open at one or both ends, and means, substantially as described, for supplying a continuous current of air to said perforations through said hollow shaft, as and for the purpose specified.

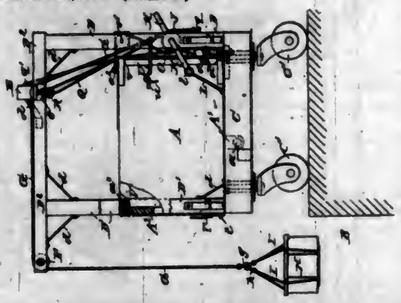
2. The combination of the beater provided with a hollow perforated shaft open at one or both ends, means, substantially as described, for supplying a continuous current of air to said perforations through said hollow shaft, and a set of lap-collecting cages, as and for the purpose specified.

3. The combination of the beater provided with a hollow perforated shaft open at one or both ends, means, substantially as described, for supplying a continuous current of air to said perforations through said hollow shaft, and a set of lap-collecting cages, and the fan for exhausting said cages, as and for the purpose specified.

4. The combination of the perforated hollow shaft open at one or both ends, the arms secured to said shaft, and beater-blades secured to the outer ends of said arms, and outwardly-extending pipes communicating with the interior of said shaft and open at their outer ends, and means for rotating said beater, as and for the purpose specified.

5. The combination of a beater provided with a perforated hollow shaft and outwardly-extending pipes, the outer ends of said pipes being bent in a direction contrary to the direction of the rotation of said beater, and means for rotating said beater, as and for the purpose specified.

312,816. BURIAL APPARATUS. MARSHAL CHAPMAN, Moulton, Iowa. Filed Dec. 20, 1884. (No model.)



Claim.—1. A burial apparatus consisting of a movable frame provided with a tilting earth-box having a removable or hinged side, a windlass, and operating-ropes, substantially as herein set forth.

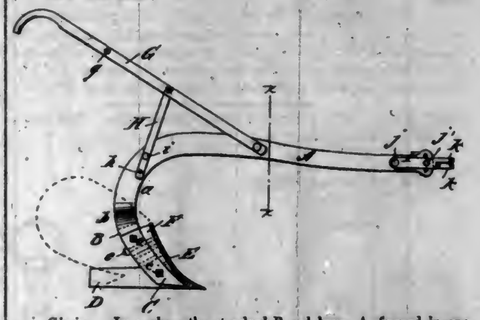
2. A burial apparatus constructed with an earth-box, A, having a hinged front side, A^2, and pivoted on a movable frame which has opposite transverse end beams, D^2, projecting beyond the box-front and carrying a roller, F, and a head-beam, E, a windlass, J K, at the rear side of the box A, the ropes G, passing over roller F and through guides on beam E and adapted to support the coffin, the rope O, connected at o^2 to the upper part of box A, and the rope Q, connected to the head of the frame at q' and to the lower part of the earth-box, said ropes G O Q being adapted for connection to the windlass-shaft J, substantially as herein set forth.

3. A burial apparatus constructed with an earth-box, A, having a hinged front side, A^2, and pivoted on a movable frame having beams D^2 projecting beyond the front of box A and carrying a roller, F, provided with a series of grooves, *f*, the head-beam E, having rollers *e*, the windlass J K, journaled at the rear side of box A, and provided with eyes or staples M M N P, the ropes G G, adapted to hang from roller F and beam E and to support the coffin by connection to the eyes M M on the windlass-shaft J, the rope O, connected at o^2 to the upper rear part of the box A, and adapted for connection to the eye N on shaft J, the rope Q, connected to the head-beam E at q' and passing over a lower pulley, S, connected to the lower rear part of the box A and over a pulley, R, held to the head-beam E, and said rope Q adapted to be connected to the eye P of the windlass-shaft J, all substantially as herein set forth.

4. In a burial apparatus, the combination, with an earth-box pivoted to a movable frame and having a hinged front side, substantially as specified, of the adjustable partition V, having a hook, *v*, and the extensible frame W, constructed of crossed frames *w w'*, and a chain or adjustable tie, *x*, substantially as herein set forth.

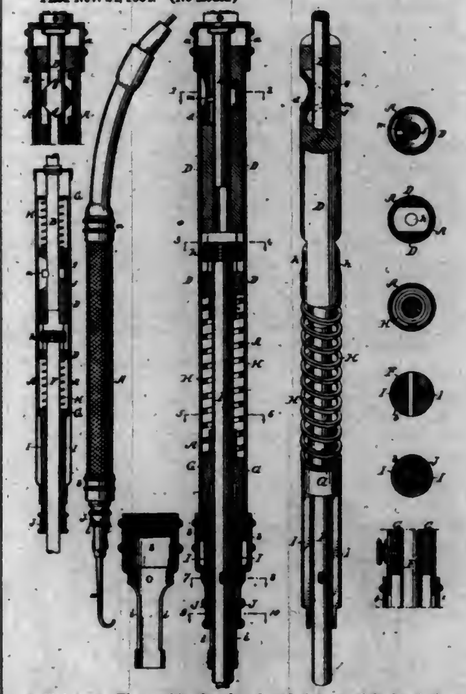
5. In a burial apparatus, the combination, with the tilting earth-box A, and partition V, having a hook, *v*, of the extensible frame W, provided with a pin entering the box, as at X, substantially as herein set forth.

312,817. PLOW. SIMEON H. CLAWSON, Quitman, Ga. Filed Aug. 13, 1884. (No model.)



Claim.—In a plow, the standard B and beam A, formed in one piece and bent at *b*, block C, provided with grooves on its face and with a series of holes, *d*, horizontal bolts *c*, securing the block to standard B directly below the beam A, the wedge F, grooved on its face and provided with holes *f*, adapted to be placed in alignment with the holes *d*, mold-board E, and bolts *e*, passing through the holes *d e* of the plate C and the wedge, and also through the mold-board, substantially as set forth.

312,818. DENTAL PLUGGER. JOHN F. CLEMENT, Philadelphia, Pa. Filed Nov. 24, 1884. (No model.)



Claim.—1. The combination, in a dental plugger, of the hand-piece, a driving-shaft, a tool-spindle, a hammer for acting thereon, reverse cam mechanism for actuating the hammer, a spring-support, H, for the hammer, and an adjustable spring-carrier, G, all substantially as specified.

2. The combination of the hand-piece, the driving-shaft, the tool-spindle, the hammer, reverse cam mechanism for actuating said hammer, an adjustable spring-carrier, and a spring, H, connected at one end to the carrier and at the opposite end to the hammer, as set forth.

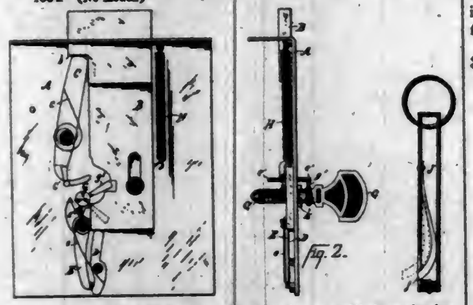
3. The combination of the hand-piece, the driving-shaft, the tool-spindle, the hammer, reverse cam mechanism for actuating said hammer,

a supporting-spring, H, for the hammer, and an adjustable spring-carrier having an exposed ring, J, at the lower portion of the hand-piece, as set forth.

4. The combination of the hand-piece, the driving-shaft, having a pin, *m*, the tool-spindle, the hammer having a recess, *d*, and cams *f* and *g*, the supporting-spring H, and the adjustable spring-carrier G, as set forth.

5. The combination of the hand-piece, the driving-shaft, the hammer recessed near the end, reverse cam mechanism for actuating the hammer, a hammer-supporting spring, an adjustable spring-carrier, and a tool-spindle passing through the end portion of the hammer, and having a head, *k*, contained in the recess of said hammer, as set forth.

312,819. LOCK. EDWARD J. COLBY, Cincinnati, Ohio. Filed July 3, 1884. (No model.)



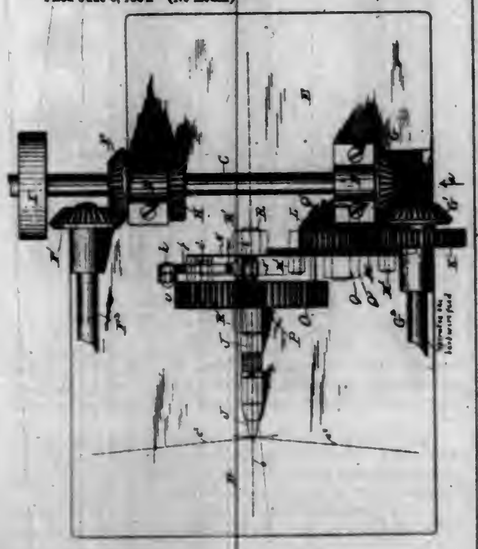
Claim.—1. In combination with the lock-case and bolt mechanism, the screw-threaded key-post and hollow internally-screw-threaded key having within it an arm to be protruded by the key-post when the key is turned to place upon its post, said arm being adapted when protruded from the key to disengage a dogging-lever, substantially as described.

2. In combination with the lock-case A, the detachable screw-threaded key-post and internally-screw-threaded key, said key-post having projections to throw the bolt and bolt-dogging devices, substantially as specified.

3. The combination, substantially as specified, of the bolt B, having a shoulder or offset, and the dogging-lever C, pivoted to the case and held under said offset by a spring, and having the pin *c'* at its opposite end projecting from each side, with the key-post having an arm at the rear to engage the pin, and the hollow key having an internal spring-arm to engage the pin in the dogging-lever and disengage said lever from the bolt.

4. In combination with a lock having a key-post projecting through the case, a hollow key having an internal spring-arm adapted to be forced out by the key-post when the key is inserted for the purpose of releasing the bolt or bolt-dogging devices, substantially as specified.

312,820. BARB-FENCE MACHINE. LEROY COOK, Worcester, Mass. Filed June 6, 1884. (No model.)



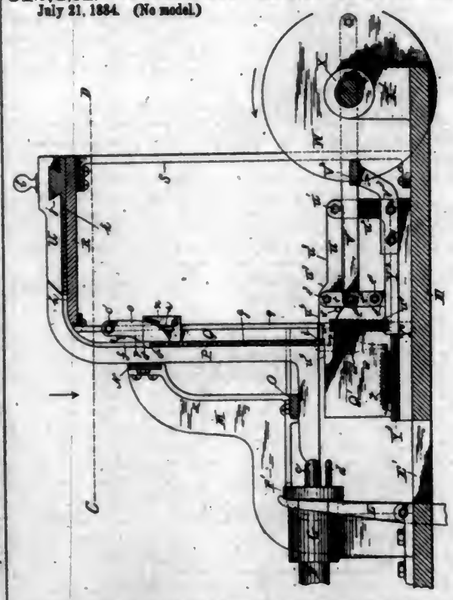
Claim.—1. In a barb-fence machine, a star-wheel, N, in combination with means for operating the same, and the barb-winding spindle J, substantially as and for the purposes set forth.

2. The combination of the shaft G^2 with spur-gear K, secured on said shaft, spur-gear L_1, disk M, provided with one or more friction-rolls M', and fitted to turn with gear L_1 in suitable bearings, large spur-gear O, star-wheel N, provided with grooves N' and recesses *l*, and arranged to turn in suitable bearings with gear O, locking-roll *i*, mounted on hinged lever *j*, and depressed or drawn down by spring *m*, and pinion P, fastened to the inner end of the barb-winding spindle J, all constructed and arranged to operate substantially as and for the purposes set forth.

3. The combination of the star-wheel N and means for operating the same with means for operating the barb-winding spindle from said star-wheel, substantially as shown and described.

4. The combination of the star-wheel N and means for operating it with the barb-winding spindle J and means for operating said spindle from the star-wheel, substantially as shown and described.

312,821. BALE-TIE MACHINE. LEROY COOK, Worcester, Mass. Filed July 21, 1884. (No model.)



Claim.—1. In a machine for making bale-ties automatically, means for guiding forward the blank ties laterally or sidewise, yielding means for holding each succeeding bottom blank tie in position preparatory to its being fed forward, and means for pushing or feeding forward the bottom blank ties laterally or sidewise as they leave the guiding-slots, with means for bending and twisting one or both ends of said blank ties to form the finished bale-ties, substantially as shown and described.

2. The combination of the bending and twisting devices of a bale-tie machine with the hinged levers *u*, means for operating the same, and yielding means for holding the bottom blank tie in position preparatory to being fed forward, substantially as shown and described.

3. The combination of the hinged levers *u*, means for operating said levers *u*, and yielding means for holding the blank ties in position preparatory to being fed forward, with means for guiding and feeding said blank ties through suitable slots to the point at which said levers *u* take the bottom wire to feed it forward to the bending and twisting devices, substantially as shown and described.

4. The combination of the bending and twisting devices of a bale-tie machine with the levers *u*, provided with shoulders u^3, and means for forcing up their forward ends, carriages Y Y' Y^2, working on suitable ways on bed E and provided with standards u^3, link parts t t^6, and means for locking the same when the feeding devices are moved forward, crank-levers V V V', and means for operating the same forward and back, and pivots t^6, t', t^5, and u', substantially as and for the purposes set forth.

5. The combination of the levers *u*, means for operating said levers *u*, the frame parts P, and frame parts Q, provided with the base parts Q' and stop-pins *x*, with the hinged levers *w* and springs *y*, substantially as and for the purpose set forth.

6. The combination of the frame parts P and frame parts Q, provided with the ribs *q*, with weights *n*, provided with springs *r* and ears *p*, which latter are in turn provided with stops *s*, and hinged latches *o*, provided with shoulders o^3 and curved parts o^2, substantially as and for the purpose set forth.

7. The combination of the parts P and U with the parts Q and R, placed at a short distance apart from each other, so as to form the guiding-slots *f*, and the gage *m*, substantially as and for the purpose set forth.

8. The combination of the table R, provided with tongue *j*, shoulder *k*, and suitable supports, with the sliding parts U, substantially as and for the purpose set forth.

312,822. SHAFT-LUBRICATOR. WILLIAM DANE, Woonsocket, R. I. Filed Jan. 5, 1885. (No model.)



Claim.—The combination, with the bearing and the cap having a recess in its upper portion, of the reservoir below the bearing, the suction-pad in said recess having an oil-passage and a suction-recess in its concave bearing-pad, the elevating-tube connected to said pad and having its lower inlet end bent upward, and the spring operating in the pad, substantially as specified.

312,823. THILL-COUPLING. WILLIAM DANNER and JACOB M. BELLING, Canal Fulton, Ohio. Filed Mar. 17, 1884. (No model.)



Claim.—1. As a new article of manufacture, a thill-coupling composed of the thill-iron E, provided with hooks projecting therefrom, the bar D, provided with slots to receive said hooks, and means, as set forth, for retaining the hooks in engagement with the slotted bar, substantially as described.

2. The combination of the thill-iron E, provided with hooks *e*, with the bar D, provided with slots *d* and an eye, D', at one end, and the wedge F, substantially as and for the purpose described.

3. The combination, with the draft-plate or axle-clip or a vehicle and the bolt *b*, of the plate D, provided with slots *d*, the thill-iron E, having hooks *e* projecting from its flat side, and the wedge F, passing through the thill-iron and the plate D, substantially as and for the purpose described.

4. The combination of the thill-iron E, provided with hooks *e*, and the bar D, provided with slots to receive said hooks, with the wedge F and spring wire key G, substantially as and for the purpose described.

312,824. GRAIN-BINDING HARVESTER. JOHN S. DAVIS, Toledo, Ohio. Filed Nov. 9, 1883. (No model.)

Claim.—1. The combination of the binder-frame sills having upturned ends, and the brace-bar by which the inner sill is stiffened, substantially as and for the purpose hereinbefore set forth.

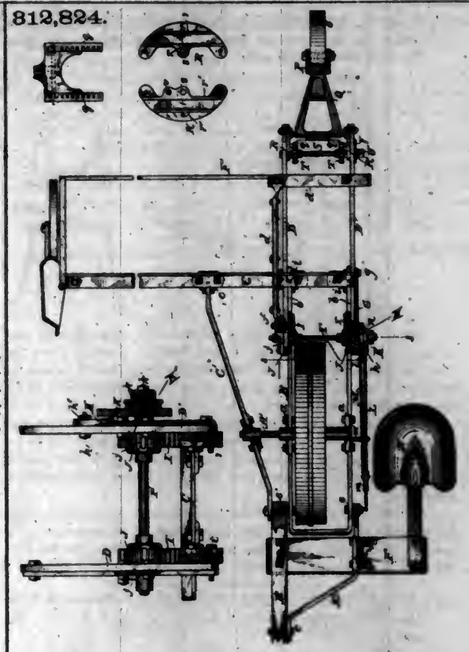
2. The combination of the binder-frame sills having upturned ends, and the inclined brace connecting the upturned front end and horizontal portion of the outer sill, substantially as and for the purpose hereinbefore set forth.

3. The combination of the main frame, the rigidly-united grain-platform frame, finger-beam, and binder-frame having jointed connection with the main frame directly and at its rear and the caster-wheel at the rear of the binder-frame, substantially as and for the purpose hereinbefore set forth.

4. The combination of the driving-wheel, the main frame, the rigidly-united grain-platform, finger-beam, and binder-frame having jointed connection with the main frame at its rear, and the caster-wheel at the rear of the binder-frame following directly in the path of the driving-wheel, substantially as and for the purpose set forth.

5. The combination, substantially as hereinbefore set forth, of the main frame, the freely-pivoted tongue, the rigidly-united binder-frame, grain-platform frame, and finger-beam having jointed connection with the main frame at its rear, the caster-wheel supporting the binder-frame at rear, and means for vertically adjusting the grain-platform frame, binder-frame, and finger-beam by rocking them about their jointed connection with the main frame and rendering them rigid therewith against downward flexure while admitting of their upward flexure, for the purpose described.

312,824.



6. The combination of the main frame, its rearwardly-projecting arms, the racks secured to said arms, the binder-frame having jointed connections with the main-frame arms in rear of the racks, the pinions engaging the racks, their shaft supported by the binder-frame, and means for turning and dogging the shaft, substantially as and for the purpose hereinbefore set forth.

7. The combination of the main frame, the rearwardly-projecting arms, the racks secured to said arms, the rigidly-united binder-frame and finger-beam having jointed connection with the main-frame arms, the pinions engaging the racks of the main-frame arms, their shaft supported by the binder-frame, the ratchet on the shaft, the dogging-pawl, and the lever and its pawl for actuating the ratchet, substantially as and for the purpose hereinbefore set forth.

8. The combination of the binder-frame sills upturned at their front ends, the main frame with the rearwardly-projecting arms with which the sills have pivotal connection, the adjusting-shaft, its ratchet, the dogging-pawl, and the inclined brace by which the end of the outer sill is relieved of strain by the thrust of the dogging-pawl, substantially as and for the purpose hereinbefore set forth.

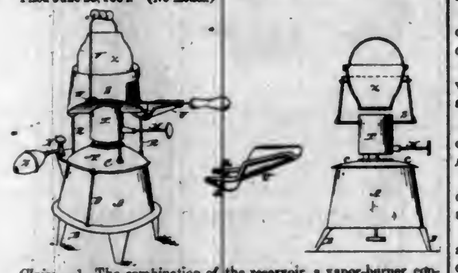
9. The combination, substantially as hereinbefore set forth, of the driving-wheel, the axle, the rocking main frame, the freely-pivoted tongue, the binder-frame having jointed connection at its front directly with the main frame at its rear, the caster-wheel supporting the rear end of the binder-frame, and adjusting mechanism by which to rock the binder-frame about its jointed connection with the main frame and render it rigid therewith against downward flexure while leaving it free to flex upward, for the purpose described.

10. The combination, substantially as hereinbefore set forth, of the rocking main frame, the binder-frame having jointed connection at front with the rear of the main frame, adjusting mechanism for raising and lowering the binder-frame at front and rendering it rigid with the main frame against downward flexure, the caster-wheel at the rear of the binder-frame, and means for vertically adjusting the binder-frame at rear, for the purpose described.

11. The combination, substantially as hereinbefore set forth, of the main frame, the rigidly-united finger-beam, platform-frame, and binder-frame having jointed connection with the main frame at its rear, adjusting mechanism for rocking the finger-beam, platform-frame, and binder-frame about their jointed connection with the main frame and rendering them rigid therewith against downward flexure, and means for supporting and vertically adjusting the binder-frame at rear, for the purpose described.

12. The combination of the binder-frame sills having upturned rear ends, the guideway bracket-plates, the caster-wheel support having guide-ribs and racks, the pinions engaging the racks, their shaft, the ratchet thereon, and its dogging-pawl, substantially as and for the purpose hereinbefore set forth.

312,825. TINNER'S AND PLUMBER'S FURNACE. ZEBULON DAVIS, Canton, Ohio, assignor to the Standard Lighting Company, same place. Filed June 28, 1884. (No model.)

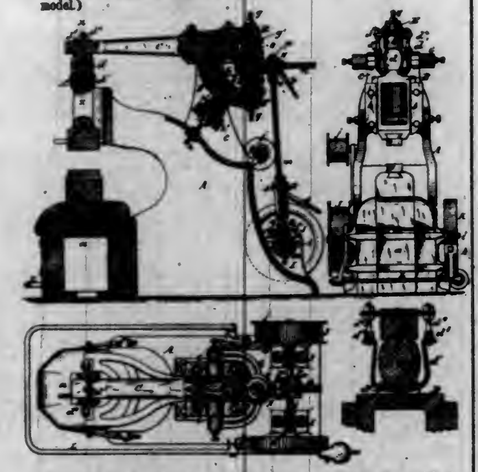


Claim.—1. The combination of the reservoir, a vapor-burner connected thereto, the furnace frame or shell, which is mounted above the reservoir, and a detachable pot, which is adapted to be used as such, or be inverted and fit upon the shell, so as to form a cover or roof to the furnace, substantially as shown.

2. The combination of the furnace frame or shell, a vapor-burner, a hinged door, U, and a reversible pot, X, which is adapted to be inverted and fit upon the shell, so as to form a cover while the door is open, to form a support for the tools that are being heated, substantially as described.

3. The combination of the furnace shell or frame with the bail, which has its lower ends extended down below the point of suspension, so as to engage with suitable projections on the side of the frame, for the purpose of holding the bail in a vertical position, substantially as specified.

312,826. POWER-HAMMER. MICHAEL DEERING, Syracuse, N. Y., assignor to Christopher C. Bradley, same place. Filed Jan. 29, 1884. (No model.)



Claim.—1. In a dead-stroke hammer, the combination, with the hammer, of straight guides between which the hammer moves in a rectilinear reciprocating movement, a pivoted helve connected with the hammer, a yoke to which the actuating mechanism is connected, and springs interposed between the yoke and the helve, whereby the movement of the helve in either direction is cushioned, substantially as set forth.

2. The combination, with the hammer B, of a helve, C, having rearwardly-extending arms E F, a pivoted yoke, G, arranged between said arms, and springs *e f*, arranged, respectively, on the upper and lower sides of the yoke, between the latter and the arms E F of the helve, substantially as set forth.

3. The combination, with the stationary frame A and hammer B, of a helve, C, having rearwardly-extending arms E F, a pivoted yoke, G, arranged between said arms, and springs *e f*, arranged, respectively, on the upper and lower sides of the yoke between the latter and the arms E F of the helve, and a reversing-spring, H, secured to the frame, substantially as set forth.

4. The combination, with the hammer, of straight guides between which the hammer moves in a rectilinear reciprocating movement, a helve flexibly connected with the hammer and provided with rearwardly-extending arms, a yoke arranged between the arms of the helve, springs interposed between the yoke and the arms of the helve, and the actuating mechanism connected with the yoke, substantially as set forth.

5. The combination, with the hammer and the helve, of a spring interposed between the same, and a flexible band or strap whereby the hammer is attached to the helve, substantially as set forth.

6. The combination, with a hammer-head, B, provided with an opening, d^2, of the helve C, spring *d*, strap d', clamp-bolts d^3, and plate d^5, substantially as set forth.

7. The combination, with the hammer and helve, of a yoke provided with a rearwardly-extending shank or rod, and a connecting-rod attached adjustably to said shank or rod, substantially as set forth.

8. The combination, with the yoke G, having a shank, *n*, of the connecting-rod *m* and divided sleeve N, attached adjustably to the shank *n*, substantially as set forth.

9. The combination, with the yoke G, having a shank, *n*, of the divided sleeve N, attached adjustably to the shank *n*, and the connecting-rod *m*, pivoted to the divided sleeve N, substantially as set forth.

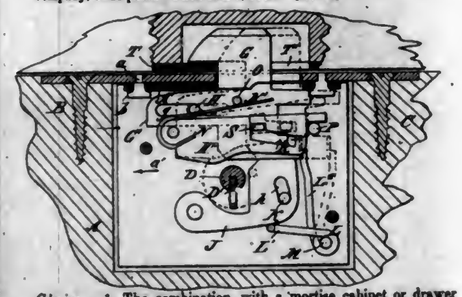
10. In a power-hammer, the combination, with the eccentric M and rod *m*, of the divided sleeve R, attached to the eccentric, and a clamp by which the end of the rod *m* is adjustably secured, substantially as set forth.

11. In a power-hammer, the combination, with the eccentric M and rod *m*, of the divided sleeve R, pivoted to the strap of the eccentric, substantially as set forth.

12. The combination, with the yoke G and eccentric M, of the rod *m*, sleeve R, pivoted to the strap of the eccentric, and the sleeve N, pivoted to the upper end of the rod *m* by a pivot standing at right angles to the pivot at the lower end of the sleeve R, substantially as set forth.

13. In a power-hammer, the combination, with the eccentric M of the strap Q, provided with jaws *q q*, pivot-bolts *r*, secured in said jaws and a connecting-rod clamped by said pivots between said jaws, substantially as set forth.

312,827. LOCK. THOMAS DONAHUE, JAMES ROCHE, WILLARD T. GOODWIN, and WILLIAM W. CONE, Terryville, Conn., assignors to the Eagle Lock Company, same place. Filed Jan. 7, 1884. (Model.)



Claim.—1. The combination, with a mortise cabinet or drawer lock provided with apertures in its rear and front, of a removable key-guide fitting loosely in said apertures, and having a smooth outer surface throughout its entire length, and provided with a longitudinal slot for the key, substantially as herein shown and described, whereby provision is made for adjusting the lock on the key-guide to adapt the same to different thicknesses of wood, as set forth.

2. The combination, with a mortise cabinet or drawer lock, of a removable cylindrical key-guide having a longitudinal slot for receiving and guiding the key, and provided at its front end with a head, and an escutcheon-plate provided with an inwardly-projecting neck in which the head of the key-guide revolves freely, the inner end of the key-guide projecting from the back of the lock, substantially as described.

3. The combination, with a mortise cabinet or drawer lock provided with apertures in its rear and front, and suspended in the mortise from the selvage, of a removable key-guide fitting loosely in said apertures, and having a smooth outer surface throughout its entire length, and provided with a longitudinal slot for the key, substantially as herein shown and described, whereby provision is made for allowing the lock-casing to adjust itself in the mortise and on the key-guide, as set forth.

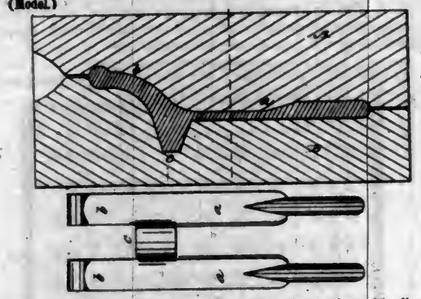
4. The combination, with a mortise cabinet-desk or drawer lock, of a key-guide having a longitudinal groove in the stem, and having a disk on its outer end, an escutcheon-plate provided with a tube for receiving the said disk, and of prongs formed of the said tube and pressed over the disk on the key-guide, substantially as herein shown and described.

5. In a lock, the combination, with a sliding catch-bolt, of a pivoted L-shaped piece or plate adapted to swing toward and from the outer edge of the casing, and on which piece the bolt is adapted to slide in the direction of its length, substantially as herein shown and described.

6. In a lock, the combination, with a sliding catch-bolt, of a pivoted L-shaped piece or plate on which the catch-bolt rests, tumblers pivoted on the lock-casing and resting on a stud of the lock, and of a stud projecting through the L-shaped slots in the tumblers, substantially as herein shown and described.

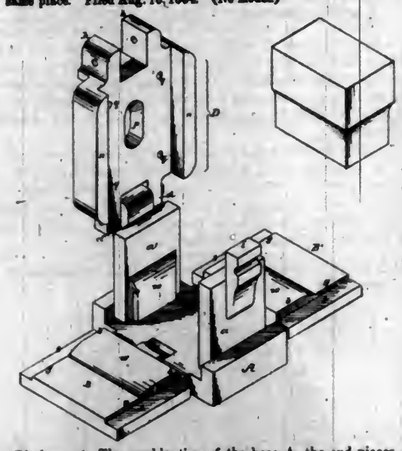
7. In a lock, the combination, with a sliding catch-bolt provided with a longitudinal slot, of a pivoted L-shaped piece provided with an upwardly-projecting slot, through which slots in the bolt and L-shaped piece pins project from the lock-casing, tumblers pivoted on the lock-casing and provided with L-shaped slots, a pin projecting from the casing, on which pin the tumblers rest, and of a pin or stud projecting from the bolt through the L-shaped slots in the tumblers, and of springs acting on the bolt and on the L-shaped piece, substantially as herein shown and described.

312,828. DIE FOR FIFTH-WHEEL HEADS. NICHOLAS ECCLES, Auburn, N. Y., assignor to R. & N. Eccles, same place. Filed Aug. 5, 1884. (Model.)



Claim.—The dies A B, formed to produce the forging with clips *a* and ends *b* straight with the grain of the metal, as specified.

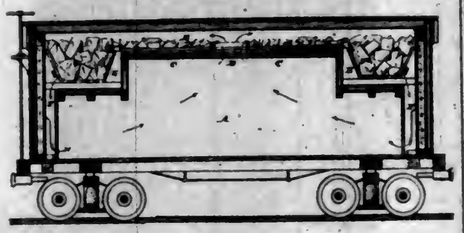
312,829. MOLD-BOX FOR PAVING AND OTHER BLOCKS. JONATHAN EISENHOWER, Philadelphia, Pa., assignor to Frank B. Eisenhower, same place. Filed Aug. 16, 1884. (No model.)



Claim.—1. The combination of the base A, the end pieces, *a a'*, forming permanent parts of the base, and the side pieces, B B', hinged to the said base, with the lid D, hinged to one end piece and constructed for attachment to and detachment from the other end piece, all substantially as set forth.

2. The combination of the base, permanent end pieces, *a a'*, of the same, hinged side pieces, and lid D, provided with ribs *n n*, arranged to overlap and retain the said side pieces, substantially as specified.

312,830. REFRIGERATOR-CAR. THEODORE N. ELY and JOHN W. CLOUD, Altoona, Pa. Filed Dec. 24, 1884. (No model.)

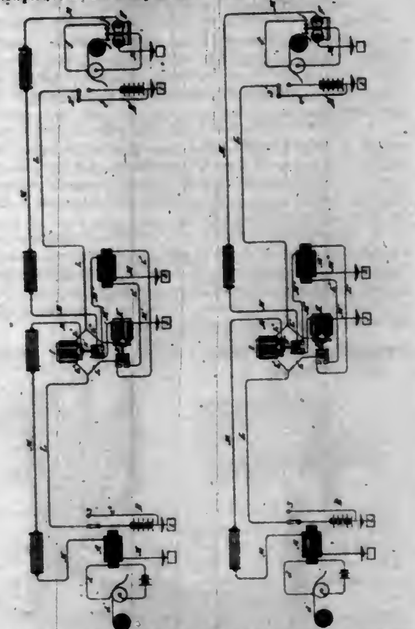


Claim.—1. In a refrigerating-car substantially as described, the ice-box B, situated at the top of the car, and having an opening, D, for the admission of air, in combination with the ice-box G, connecting with it, as and for the purpose specified.

2. In a refrigerating-car substantially as described, the ice-box B, situated at the top of the car, and having an opening, D, for the admission of air, in combination with the ice-box G, connecting with it, and the flue F, as and for the purpose specified.

3. In a refrigerating-car substantially as described, the ice-box B, situated at the top of the car, and having an opening, D, for the admission of air, in combination with the ice-box G, having notting H on its sides and bottom, and surrounded with an air-space, E, forming a continuation of the flue F, as and for the purpose specified.

312,831. REPEATER FOR SUBMARINE CABLES. MORSE G. FARMER, Newport, R. I. Filed July 29, 1884. (No model.)



Claim.—1. The combination, with a cable containing a continuous line and a sectional main line or wire, of one or more devices for repeating signals from one section of the main to another, each consisting of a primary coil in the continuous line, means for reversing the direction of current through the coil connected with and operated by one section of the main and a secondary coil in the next succeeding section, all substantially as set forth.

2. The combination, with a cable containing a continuous line and a sectional main line or wire, of one or more devices for repeating signals from one section to another, each consisting of a primary coil in the continuous line, means for reversing the direction of current through the coil included in one section of the main, a secondary coil in the next succeeding section, and apparatus operated by the local for transferring the circuit-reverser and secondary coil from one section of the main to the other, all substantially as set forth.

3. A repeater for submarine electric cables, consisting of the following instrumentalities, to wit: an induction-coil, means for reversing the direction of the current through its primary, an electro-magnet for controlling the same independent of the primary coil, and an electro-magnetic switch or director in a branch of the primary circuit for connecting the said magnet and the secondary coil with either of two circuits, respectively, all as set forth.

4. The combination, with a cable containing a continuous line and a sectional main wire or line, of one or more devices for repeating signals from one section of the main to the next, consisting of a primary coil in a branch of the continuous line, means for reversing the direction of current in said branch included in one section of the main, a secondary coil in the next succeeding section, and an electro-magnetic switch or director included in a second branch of the continuous line for transferring the circuit-reverser and secondary coil from one section of the main to the other, all substantially as set forth.

5. The combination, with an electrical cable containing a continuous line and a sectional main wire or line, of one or more devices for repeat-

ing signals from one section of the main to the next, each consisting of a primary coil in a branch of the continuous line, a device for reversing the current through said branch, a magnet in one section of the main for controlling said device, a secondary coil in the next succeeding section, and an electro-magnetic switch or director for grounding the sections through the secondary and the circuit-reverser, respectively, as and for the purpose specified.

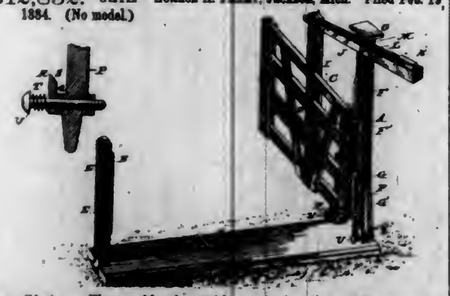
6. The combination, with an electrical cable containing a continuous line, and a sectional main wire or line, of one or more repeaters consisting of a primary coil in a branch of the continuous line, a device for reversing the current through said branch, a magnet in one section of the main for controlling said device, a secondary coil in the next, an electro-magnet with a polarized armature in a second branch of the local, and a switch or director for grounding the sections through the secondary and the circuit-reverser, respectively, all as set forth.

7. The combination, with a cable containing a continuous line and a sectional main line or wire, of one or more repeaters consisting of a primary coil in the continuous line, a circuit-reverser for changing the direction of the current in the primary, and connected with one section of the main, a secondary coil included in the next succeeding section, and condensers inserted in the sections of the main, as and for the purpose specified.

8. The combination, with a grounded section of a main line, M, a magnet, K, included therein, and a circuit-reverser operated by the said magnet, of a primary coil in a circuit coextensive with the main line, the current in which is sent through the primary in opposite directions by the circuit-reverser, and a secondary coil in the next branch of the main line M, all substantially as set forth.

9. The combination, with a cable containing a continuous line and a sectional main line, of a primary coil in the continuous line, means for reversing the direction of current through the coil, an electro-magnet for controlling said means included in one section of the main line, and a secondary coil in the next section, the sections being grounded through the magnet and secondary, respectively, as set forth.

312,832. GATE. HORACE A. FELLEY, Jackson, Mich. Filed Feb. 19, 1884. (No model.)



Claim.—The combination, with a swinging gate of the described class, of the gate-stops or gate-rests consisting of shouldered standards P Q, having planks R, connected movably to their projecting shoulders by a bolt, and a spring operating to press the part R against the bottom rail of the gate so as to clamp the same and hold it firmly in position when resting in the recess S, substantially as and for the purpose shown and set forth.

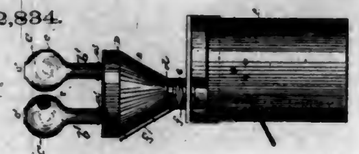
312,833. JEWELRY MANUFACTURE. THEODORE W. FOSTER, Providence, R. I. Filed Oct. 7, 1884. (No model.)



Claim.—1. In an article of jewelry, the combination of the rim of the front face, having an inwardly-projecting flange on its front edge, and the ornamental lining-plate having an upwardly-turned edge which extends to close proximity to the under side of the flange of the rim, and a fastening attachment beneath the lining-plate, substantially as described.

2. The combination of the rim having an inwardly-projecting flange on its front edge, the lining-plate having an upwardly-turned edge which extends to close proximity to the under side of the flange of the rim, the back plate, and the ornamental piece or pieces arranged in front of the lining-plate, substantially as described.

312,834. DEVICE FOR MILKING COWS. GUY S. FRASEY, Jersey City, N. J. Filed June 16, 1882. (No model.)

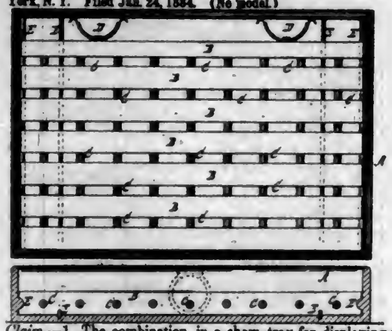


Claim.—1. The spherical tubes or bulbs C, having openings *c* and *c'* and necks *b'*, substantially as and for the purpose set forth.

2. The combination, with the tubes or bulbs C, having openings *c* and *c'* and necks *b'*, of a milk-receiver adapted to receive the lower ends or necks of said tubes or bulbs and support said bulbs in operative position during the operation of milking.

3. The combination, with the tubes or bulbs C, of the strainer B, having tubes *a'*, strainers D *d*, and eccentrically-mounted cup-valve *e*, substantially as and for the purpose set forth.

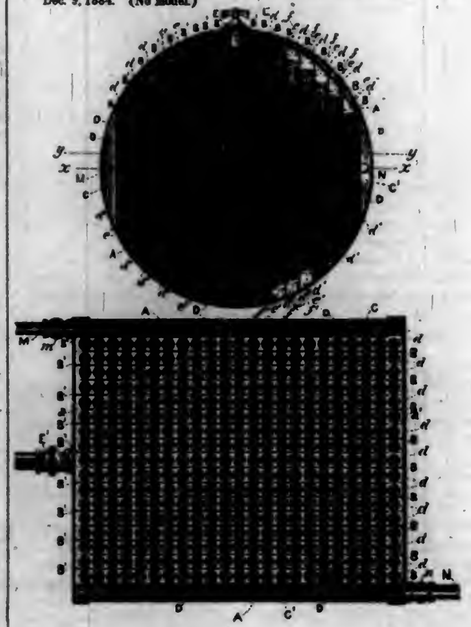
312,835. SHOW-TRAY FOR RINGS. ALBERT FRIEDENTHAL, New York, N. Y. Filed Jan. 24, 1884. (No model.)



Claim.—1. The combination, in a show-tray for displaying rings, of a series of strips, all having their ends unattached, so as to permit them to move laterally, and each provided with a series of attached lateral pins to enter the shanks of the rings and bear against the side of the adjacent strip, with a spring or springs acting on a single one of the strips to press all of the same toward one side of the tray, substantially as described.

2. The combination of a tray having guide-rails, a series of strips having their ends loosely engaging the rails to move along the same, and each provided with a series of attached lateral pins to enter the ring-shanks and bear against the side of the adjacent strip, and a spring or springs acting on a single one of the strips to press all of the same toward one side of the tray, substantially as described.

312,836. CARBURETOR. EDWARD J. FROST, Philadelphia, Pa. Filed Dec. 9, 1884. (No model.)

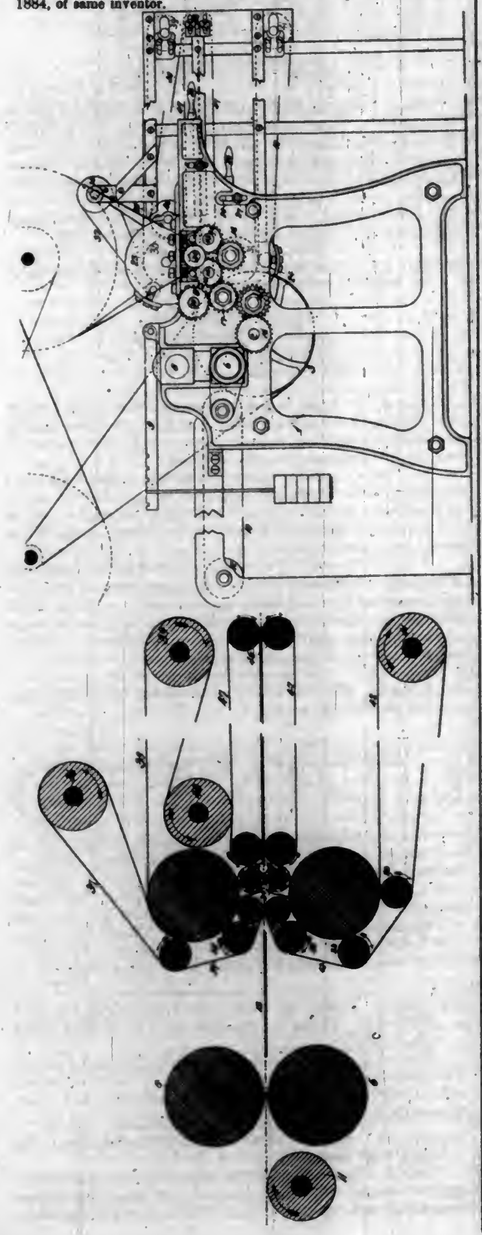


Claim.—1. The combination of an inclosing-cylinder, a series of vertical partitions arranged longitudinally in said cylinder in the alternating manner described, and a series of horizontal plates arranged near the tops and bottoms of said partitions and extending the entire length of the cylinder, said plates being provided with holes to receive and sustain the porous filling, substantially as set forth.

2. The combination of an inclosing-shell, a series of vertical partitions arranged in the alternating manner described, a series of horizontal plates arranged near the tops and bottoms of said partitions and extending the entire length of the shell, and a series of perforated feed-pipes which extend laterally across said partitions between the top plates and the inclosing-shell, substantially as set forth.

312,837. DECORTICATING-MACHINE. GEORGE GIBSON, Pittsburg, Pa. Filed Sept. 29, 1884. (No model.)

Brief.—Improvement on application No. 137,521, filed July 12, 1884, of same inventor.



Claim.—1. In a decorticating-machine, a pair of crushing or fiber-loosening rolls, in combination with a pair of fiber-lifting rolls and continuous carriers for catching and feeding the freed bark or fibers as delivered by the lifting-rolls, substantially as set forth.

2. In a decorticating-machine, a pair of crushing-rolls, in combination with a pair of feeding-belts, a pair of fiber-lifting rolls, and continuous carriers for catching and feeding the fibers or bark as delivered by the lifting-rolls, substantially as set forth.

312,838. LATHE-CHUCK. CARLOS W. GLOVER, Boston, Mass. Filed Nov. 30, 1883. (No model.)



Claim.—1. A chuck for drills, &c., formed of two parts, B and C, arranged to slide the one across the other, and having a screw, G, substantially as and for the purpose specified.

2. A chuck for drills, &c., formed of two parts, B and C, arranged to slide the one across the other, having a screw, G, and a screw, P, substantially as and for the purpose specified.

3. A chuck for drills, &c., formed of two parts, B and C, arranged to slide the one across the other, having a screw, G, a scale, M, and index-pointer N, substantially as and for the purpose specified.

4. A chuck for drills, &c., formed of two parts, B and C, and arranged to fit and to be secured together by a joint, F, and screw G, for the purpose specified.

5. A chuck for drills, &c., formed of two parts, B and C, arranged to slide the one across the other, and having a screw, G, one of said parts having a V-shaped bearing, J, and set-screw L, substantially as and for the purpose specified.

312,839. CENTERING-CHUCK. CARLOS W. GLOVER, Boston, Mass. Filed July 7, 1884. (No model.)



Claim.—1. A chuck for drills, &c., made in two parts, B and C, one part, B, being adapted to be attached to a lathe, &c., and provided with a central conical socket, and the other part, C, having a V-shaped socket and screw to receive and hold a drill or other tool, and connected together by a dovetail joint and screw, substantially as and for the purpose described.

2. A chuck for drills, &c., made in two parts, B and C, one part, B, being adapted to be attached to a lathe, &c., and the other part, C, to receive and hold a drill, &c., and connected together by a tongue-and-groove joint, a screw, and washers having hollow or concave faces, substantially as and for the purpose specified.

3. In a chuck for drills, &c., made in two parts, B and C, one part, B, being adapted to be attached to a lathe, &c., and having a conical socket, and the other part, C, having a V-shaped central socket, Q, and a screw, R, to receive and hold a drill, &c., said parts B and C being connected together by a tongue-and-groove joint, substantially as and for the purpose specified.

312,840. SPIKE-BLANK. HOWARD GREER, Chicago, Ill. Filed Apr. 4, 1884. (No model.)



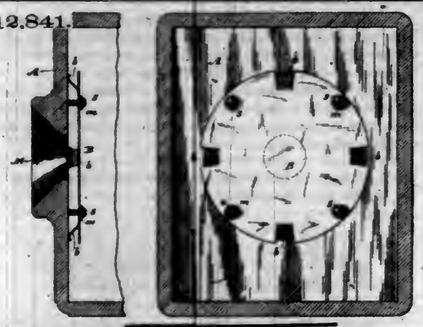
Claim.—A bar or blank, R, for the production of separate spike-blanks therefrom by transverse cuts in parallel lines, such bar having the double-beveled edge *n*, the body *r*, a rib, *s*, and a bead, *u*, in the plane of the body *r*, substantially as set forth.

312,841. TELEPHONE. WILLIAM HADDEN, Brooklyn, N. Y. Filed June 18, 1884. (No model.)

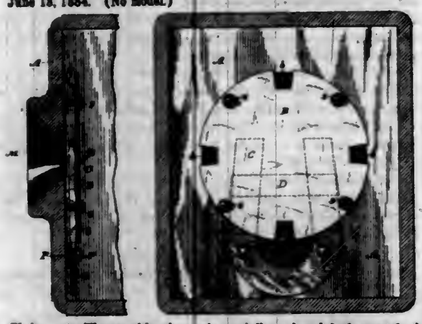
Claim.—1. In a telephonic instrument, a diaphragm secured to the case and separated therefrom by lips formed of partially-separated portions of the diaphragm, substantially as described.

2. The combination, in a telephonic instrument, of the supporting-case, a diaphragm secured to said case, and intervening yielding supports integral with the diaphragm, whereby the edge of said diaphragm is left free.

312,841.



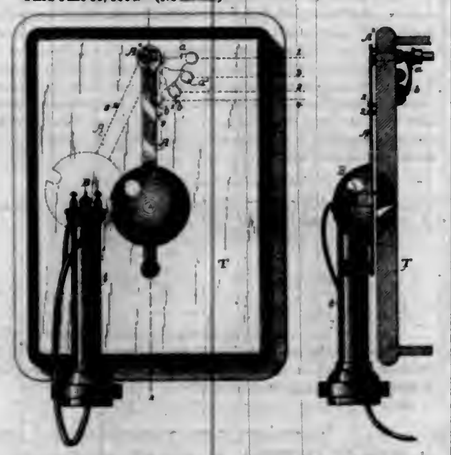
312,842. TELEPHONE. WILLIAM HADDEN, Brooklyn, N. Y. Filed June 18, 1884. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, with the diaphragm of a telephonic transmitting-instrument, of a permanent magnet having both its poles presented to said diaphragm at points away from its center of vibration, and means, substantially such as described, for varying the attraction normally exerted by said magnet upon said diaphragm.

2. The combination, substantially as hereinbefore set forth, in a telephonic transmitting-instrument, with the diaphragm of inductive metal, of a permanent magnet having both its poles in proximity thereto, and an adjustable keeper for said magnet, whereby the attraction normally exerted by said magnet upon the diaphragm may be varied.

312,843. TELEPHONE-SWITCH. WILLIAM HADDEN, Brooklyn, N. Y. Filed June 18, 1884. (No model.)



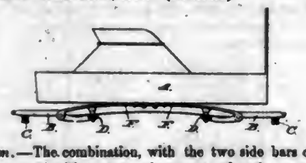
Claim.—1. The combination, in a telephonic instrument, of a movable cover for the mouth-piece aperture of the transmitter and a support for the receiver, so placed that the said receiver when supported thereby prevents the movement of said cover.

2. The combination, with a telephonic transmitter and receiver, of a movable cover applied to the mouth-piece aperture of the transmitter, a support for the receiver, so placed that the said receiver when supported thereby shall prevent the removal of said cover, and a circuit-changing device, substantially such as described, operated by the movements of said cover.

3. The combination, substantially as hereinbefore set forth, with a telephonic transmitter, of a movable cover for the mouth-piece aperture, and a support for the receiver in the path of the cover, so that the cover can only be removed from its normal position when the receiver is away from its support, and a stop serving to prevent said cover from being moved beyond said support when it is moved from its normal position.

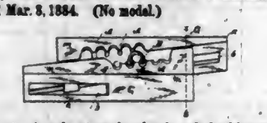
4. The combination of the telephonic instrument T, the movable cover A, the support B, the stops *a a*, and the switch-arms *a* and *b*.

312,844. SIDE SPRING FOR VEHICLES. CONRAD HAENDLE, New York, N. Y. Filed Dec. 4, 1884. (No model.)



Claim.—The combination, with the two side bars of a side-bar spring-wagon, and with two cross-bars connecting the same about midway between the center thereof and the axles to which they are secured, of arms projecting rigidly from the outer side of each cross-bar near each end thereof, and springs hinged to the outer end of each arm, and which, extending thence inwardly parallel with the side bars and above the cross-bars, are secured to the under side of the wagon-bed for its support, substantially in the manner and for the purpose herein set forth.

312,845. PRINTER'S QUOIN. JOHN N. O. HAWKINSON, Harrisburg, Pa. Filed Mar. 3, 1884. (No model.)
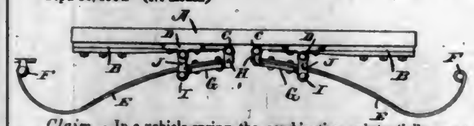


Claim.—1. A pair of quoins having their thinner ends provided with longitudinal slots *b*, and with lugs *a* on their butt-ends for guiding and limiting the movement of the quoins upon each other, substantially as and for the purposes shown and described.

2. A pair of quoins having parts, substantially as described, adapted for guiding their movement upon each other, and provided with notches or holds therein, in combination with a check-piece adapted to apply in said holds and positively lock the quoins against undoing, substantially as and for the purposes set forth.

3. A pair of quoins, G G, provided with limiting-guides *a b*, with teeth A for holds, whereby a flat bit of key, K, may advance and retract the quoins upon each other, and with co-operating notches or holds S, in combination with a check-piece, B, of suitable form to apply in said notches to stop the movement of the quoins, and to be readily seized by a hooked instrument, D, for removal, substantially as set forth.

312,846. VEHICLE-SPRING. JACOB HANSER, Oxford, Ohio. Filed Sept. 15, 1884. (No model.)



Claim.—In a vehicle-spring, the combination, substantially as set forth, of a pair of springs rigidly held at their butts and set in the same line, with their free ends pointing inward into near proximity with each other, a pair of levers disposed alongside the said springs, and having their inner ends pivoted to the free ends of the springs and their outer ends adapted to be pivoted to the side bar of the vehicle, fulcrums D, secured to the spring-bar over the levers, a pivot-eye upon each lever below said fulcrums, and links connecting said pivot-eyes with said fulcrums.

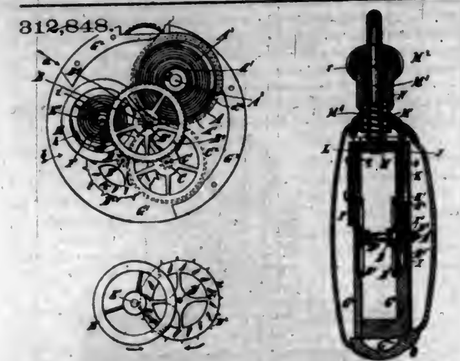
312,847. PROCESS OF EXTRACTING GOLD, SILVER, AND LEAD FROM ORES. WILLIAM E. HARRIS, New York, N. Y. Filed Feb. 5, 1884. (No specimens.)

Claim.—The process of extracting gold, silver, and lead from ores, which consists in mixing finely-pulverized oxides of iron or copper with gold, silver, or lead ores, and then smelting the mixture on a bath of lead, substantially as described.

312,848. WATCH. HIRAM W. HAYDEN, Waterbury, Conn. Filed Feb. 6, 1884. (No model.)

Claim.—1. In a time-piece, the combination of a rotary shaft or arbor, B', actuated from the motive agent of the time-piece, the gear-wheel B^3, affixed to the shaft or arbor B', so as to derive motion from it,

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the shaft or arbor C', the pinion C, affixed to the shaft or arbor C' and deriving motion from the gear-wheel B^3, the gear-wheel C^3, affixed to the shaft or arbor C', the pinion B^4, deriving motion from the gear-wheel C^3, the gear-wheel B^3, rigidly connected to the pinion B^4 and with it loosely mounted on the shaft or arbor B', the escapement-wheel shaft or arbor D', and the pinion D, affixed to the latter and deriving motion from the gear-wheel B^3, substantially as specified.

2. In a time-piece, the combination of the rotary shaft or arbor B', actuated from the motive agent of the time-piece, the gear-wheel B^3, affixed to the shaft or arbor B', so as to derive motion from it, the shaft or arbor C', the pinion C, affixed to the shaft or arbor C', and deriving motion from the gear-wheel B^3, the gear-wheel C^3, affixed to the shaft or arbor C', the pinion B^4, deriving motion from the gear-wheel C^3, the gear-wheel B^3, rigidly connected to the pinion B^4 and with it loosely mounted on the shaft or arbor B', the escapement-wheel shaft or arbor D', affixed to the latter and deriving motion from the gear-wheel B^3, the gear-wheels B^3, C^3, and B^3 being made alike, substantially as specified.

3. As a new article of manufacture, a time-piece escapement-wheel having a circular peripheral portion, one set of teeth extending beyond said peripheral portion, and a second set of teeth extending from the side inward of the peripheral portion, formed by making V-shaped or analogous shaped cuts in it and bending out the portions of metal which are within these cuts, substantially as specified.

4. In a time-piece, the combination, with a balance-wheel, of a screw constituting a bearing for one of the journals of its arbor, capable of a rotary adjustment, and having the recess for the journal arranged eccentrically to the axis about which the said bearing is adjustable, substantially as specified.

5. In a time-piece movement, the combination, with a gear-wheel for winding a spring and a gear-wheel for setting the hands, arranged upon the opposite side of the movement, and having its teeth out of line with the teeth of the gear-wheel for winding the spring, of an intermediate gear-wheel, a rod carrying the latter at the inner end and fitted in a stem, so that it can be moved longitudinally to shift the gear-wheel which it carries into direct engagement either with the gear-wheel for winding the spring or the gear-wheel for setting the hands, substantially as specified.

6. In a time-piece movement, the combination, with a gear-wheel for winding a spring and a gear-wheel for setting the hands, arranged upon the opposite side of the movement and having its teeth out of line with the teeth of the gear-wheel for winding the spring, of an intermediate gear-wheel, a rod carrying the latter at its inner end and fitted with a stem, so as to be capable of being longitudinally moved to engage directly with either of the other of said gear-wheels, and a spring for keeping the intermediate wheel normally in engagement with the wheel for winding the spring, substantially as specified.

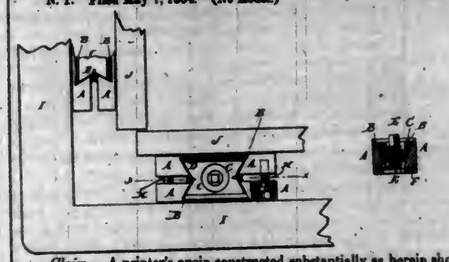
7. In a time-piece, the combination, with dial-work and a rod fitted in a stem and carrying a gear-wheel at its inner end, of a wheel having peripherical teeth engaging with one of the wheels of the dial-work, and side or crown wheel teeth engaging with the wheel which is carried by the said rod, substantially as specified.

8. In a time-piece, the combination, with a case having a stem, of a winding and a setting mechanism arranged upon opposite sides of a watch-movement, a gear-wheel adapted to act in conjunction with either, and a rod arranged in the stem and having the said gear-wheel secured to it by screw-threads, substantially as and for the purpose specified.

312,849. WOOD ORNAMENTATION. LEWIS S. HAYES, Cortland, N. Y. Filed Jan. 15, 1885. (Specimens.)

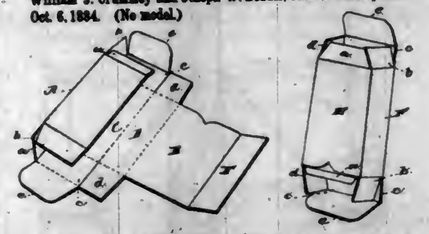
Claim.—The process of ornamenting wood, which consists in imparting directly to its surface a color-contrasting with that of the main body thereof, and carving through said surface and upon the underlying stock the desired ornamentation, substantially as shown and described.

312,850. PRINTER'S QUOIN. WILLIAM HENDRICKSON, Brooklyn, N. Y. Filed May 7, 1884. (No model.)



Claim.—A printer's quoin constructed substantially as herein shown and described, and consisting of the side pieces, A, having inclined dovetailed side grooves, B, the wedge C, having inclined angular end grooves, D, and the swiveled screw E, whereby the said quoin can be readily expanded and contracted, as set forth.

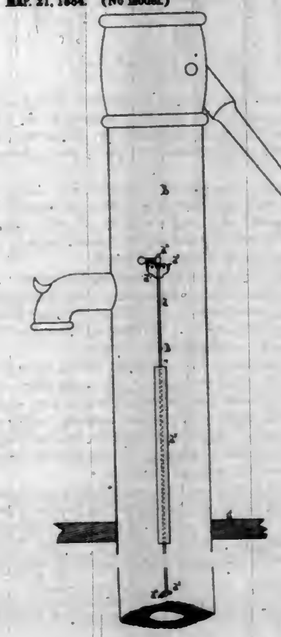
312,851. PAPER BOX. JOHN HERON, Evansville, Wis., assignor to William J. Crumney and Joseph W. Beadle, both of same place. Filed Oct. 6, 1884. (No model.)



Claim.—1. A paper box composed of a blank cut and creased to form a row of six contiguous body-sections, of which four adjoining sections have end flaps, and the two remaining sections have no flaps, substantially as described.

2. A paper-box blank having an end section, A, provided with end flaps, *a*, three adjoining sections, B C D, provided, respectively, with end flaps, *b c d*, and tucking-flaps *e e*, an adjoining flapless section, E, and an adjoining flapless end and joining section, F, all to constitute a box having its top and one of its sides of double thickness, substantially as and for the purpose set forth.

312,852. PUMP. GEORGE H. HOLT, West Chelmsford, Mass. Filed Mar. 21, 1884. (No model.)



Claim.—1. In a pump, in combination with the let-off pipe d^3, the stopper d^3 and the revolving rod d, substantially as described.

2. In a pump, in combination with the let-off pipe d^3, the stopper d^3, rod d, and lever d^2, substantially as described.

3. In a pump, the combination of the pipe d^3, stopper d^3, rod d, lever d^2, and catch d^7, substantially as described.

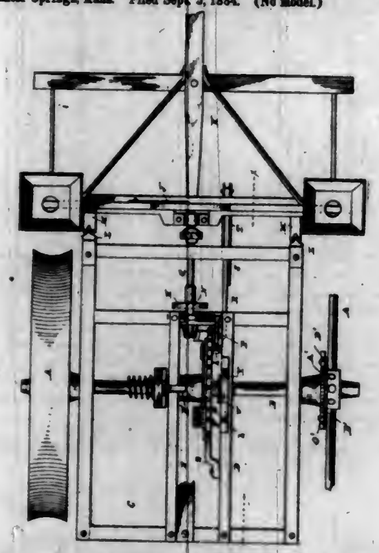
4. In a pump, the combination of the pipe d^3, stopper d^3, rod d, lever d^2, and catches d^7 d^7, substantially as described.

5. In combination with the pump B and platform C, the let-off pipe d^3, its stopping device d^3, and the rod d, adapted to revolve to open and close the let-off, and to act as a spring to bear upon said closing device with pressure, substantially as described.

6. The combination of the pump B, the platform C, and the let-off mechanism located below the platform, and controlled by a rod, d, and swinging lever d^2 above the platform, the said lever and rod being provided with suitable letters or signs to indicate the open or closed position of the let-off mechanism, substantially as described.

7. In combination with the pump B, the platform C, the revolving rod d and its lever d^2 above the platform, the let-off mechanism controlled thereby below the platform, and the casing of said rod d^3, substantially as described.

312,853. CORN-PLANTER. William H. Hornor and Al. Crotchett, Baxter Springs, Kans. Filed Sept. 5, 1884. (No model.)



Claim.—1. In a corn-planter, an operating-wheel having cog-segments on one side for operating the dropping mechanism, and pins on the other side, said pins being a continuation of the bolts or devices securing the segments, and operating the marking mechanism, substantially as set forth.

2. The combination, with an operating-wheel having ratchet-teeth on its periphery, of a lever having on it a short spring-actuated lever, a pawl engaging with the said wheel, and a bolt engaging in a segmental bracket, the shorter lever being connected to and operating both pawl and bolt, substantially as and for the purpose specified.

3. The combination, with an operating-wheel having section of cogs, and the dropping mechanism, of two shafts connected by a knuckle-joint, one of the shafts being provided with a cog-wheel, the other having a wheel mounted thereon and connected to the dropping mechanism by an arm, all arranged to operate substantially as described.

4. The combination, with an operating-wheel having cog-segments on one side or surface, of a shaft carrying a gear-wheel which intermeshes with and receives intermittent rotation from the said cog-segments, and also a notched wheel, a shorter shaft connected to the other shaft and carrying a wheel which connects to and operates the dropping mechanism, and a spring-actuated pawl engaging normally in the notched wheel, substantially as and for the purpose specified.

5. The combination, with an operating-wheel having cog-segments on one side or surface and projecting pins on the other side or surface, of a shaft carrying a gear-wheel and a notched wheel, and a combined spring-actuated pawl and lever, said lever engaging with the pins and lifting the pawl from the notches, substantially as and for the purpose specified.

6. The combination, with an operating-wheel having cogs on one side and pins on the other, of a shaft carrying a gear-wheel, and a notched wheel, a spring-actuated pawl pivoted to the frame and having an extended lever-arm, and a marker pivoted to the frame and connected to the said lever by an arm pivoted at the connecting-points, the whole operating substantially as and for the purpose specified.

312,854. COVER FOR VARNISH-KETTLES. David R. Hostetter, Cleveland, Ohio. Filed Feb. 6, 1884. (No model.)



Claim.—1. A cover for a caldron or other vessel, provided on its upper surface with a drum, a pipe or tube passing through the cover and extending upwardly into the drum, and a condenser secured to the upper end of the tube, substantially as set forth.

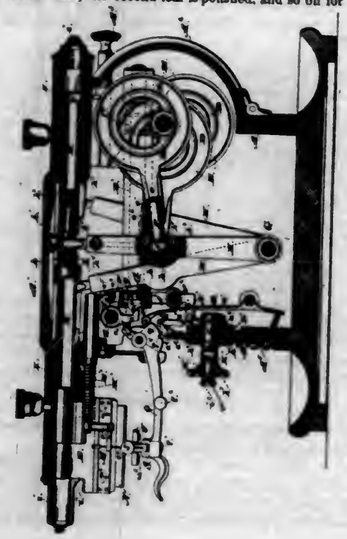
2. A cover for a caldron or other vessel, provided on its upper surface with a drum, a coiled pipe located in the drum, the lower end of said pipe passing through the cover and forming a vent, water-pipes in communication with the drum, a funnel-shaped condenser connected to the upper end of the coiled pipe, and a cap located over the condenser, substantially as set forth.

3. In a cover for a caldron, a coiled pipe that is in open relation with the caldron and located in a chamber that is separated from the cover by an air-chamber, and provided with means for surrounding the coil with air or water, in combination with the funnels E and E', and the condensing-cups F and G, substantially as set forth.

4. The combination, with a cover, of a drum secured to the cover and provided with a bottom, C', air-openings in the body of the drum between said cover and bottom C', and a coiled pipe connected to the cover and passing upwardly into the drum, all of the above parts arranged as described.

312,855. MACHINE FOR POLISHING PINIONS. George Hunter and Frank Leman, Elgin, Ill. Filed Aug. 24, 1883. (No model.)

Brief.—Watch-pinions are placed by hand one in each of the holders, and each holder is separately lifted by hand until a leaf of the pinion in it is in the path of its reciprocating soft-metal polisher. All the pinions are then in process of polishing. The machine performs all the rest of the movements. Each holder is caught, when moved up, by hand, and is held up by spring-pressure until one leaf of its pinion has received a predetermined number of strokes from its polisher. Then the holder drops a little way, the pinion is rotated to bring the next leaf up, the holder rises, the second leaf is polished, and so on for all of the



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leaves, when the holder drops low and is locked there. The pinion is removed by hand. A setting mechanism for each pinion-holder determines the final dropping of the holder, according to the number of leaves on the pinion to be polished. Extra holders and polishers are provided to be applied in the stead of holders whose polishers are worn by use.

Claim.—1. As an improvement in machines for polishing pinions, the combination, in one organization, of several independently-operating polishing mechanisms, each including a polishing and a holding device, means for operating such mechanisms independently, and means for automatically throwing each one of them out of operation when each leaf of the respective pinion placed in it has been acted upon a predetermined number of times, substantially as and for the purpose described.

2. A machine for polishing pinions, in which are combined the following elements, to wit: means for holding two or more pinions in position to be operated upon, a longitudinally-reciprocating polisher arranged to engage with and move lengthwise of one leaf of each pinion, mechanism whereby the leaves of said pinion are automatically and successively brought into contact with said polisher, and mechanism whereby each pinion-holder is automatically moved away from its polisher whenever the predetermined number of polishing operations have been performed, substantially as and for the purpose shown and described.

3. As an improvement in pinion-polishing machines, the holder M, adapted to receive and support the polisher N, and to engage with and be detached from the reciprocating head L, substantially as and for the purpose set forth.

4. As an improvement in pinion-polishing machines, adjustable mechanism, substantially as shown and described, whereby each leaf of a pinion may be automatically presented to the action of the polisher any predetermined number of times, substantially as and for the purpose specified.

5. In combination with the bars K, the shaft B, provided with the eccentrics D, the straps E, having the arms e, and longitudinally-adjustable rods F, and the bars H, pivoted at their lower ends, connected at or near their longitudinal centers with said rod F, and having their upper ends connected with said bars K, substantially as and for the purpose specified.

6. The lever Q, pivoted at its rear end and held upward with a yielding pressure, the head S, pivoted within the end of said bar, adapted to turn in a horizontal plane, and provided with the pivotal screws s', the block U, suspended from and between said screws, and capable of motion thereon in a vertical plane corresponding to the line of motion of the polisher, and the angle-pieces V, secured to and made adjustable lengthwise of said block, and having each a V-shaped notch for the reception of the pivot of a pinion, substantially as and for the purpose shown and described.

7. In combination with the pinion-holding lever Q, constructed to have its outer end moved automatically downward from and then upward toward the polisher, and means whereby said lever may be thus operated, the shaft E', provided at its front end with the arm e^3, carrying a needle, e^4, and having at its rear end the arm e^5, and the bar F', arranged at a right angle to said shaft, connected with the lower end of said arm e^5, and adapted to be moved longitudinally by mechanism, substantially as shown, whereby said needle is automatically moved into engagement with a pinion as the same is being moved upward into contact with the polisher, and is afterward returned to its normal position, substantially as set forth.

8. In combination with the lever Q, pivoted at its rear end, and provided at such point with a cam-face, q, arm q^3, and notch q^4, the spring R, the shaft Z, having the tappet-arms z and z', the cam A', provided with the projection a, the pivoted barrel L', containing the spring M', and having the central hub, l', ratchet-teeth l^3, and notch l^4, the pivoted catch O', having the hooked arm o^2 and vertical arm o^4, and the bar P', having the arm p and spring-pawl p', and adapted to be moved longitudinally within its bearings, substantially as and for the purposes shown and described.

9. In combination with the spring-barrel L', provided with ratchet-teeth l^3, radial arm l^2, and notch l^4, and with the reciprocating pawl p' and spring-catch O' o^4, the journaled spindle I', carrying the collar N' and arm n', substantially as and for the purpose specified.

10. In combination with the spindle I', having the collar N' n^2, and journaled within the frame A, which is provided with the annular ring of radial teeth a^3, the sleeve K', journaled upon said spindle, and having at its rear end an indexed plate, k^4, and radial teeth k^3, and means, substantially as shown, whereby said sleeve is adapted to be moved slightly lengthwise of said spindle, and is held with a yielding pressure at the inner limit of its motion, with said teeth k^3 and a^3 in engagement, substantially as and for the purpose set forth.

11. In combination with the pivoted bar H, provided at its upper end with the head h^1, having curved front and rear faces, the bar K, provided with the fixed block k, movable block k', and set-screw k^2, substantially as and for the purpose shown.

312,856. STEM-WINDING AND HAND-SETTING ATTACHMENT FOR WATCHES. George Hunter, Elgin, Ill., assignor, by mesne assignments, to Royal E. Robbins, Boston, Mass., and Thos. M. Avery, Chicago, Ill., trustees. Filed Aug. 23, 1884. (No model.)

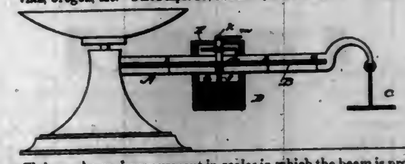


Claim.—1. As an improvement in stem-winding and hand-setting watches, a push-pin which is adapted at its inner end to engage with the winding and hands-setting train, and is provided with a retaining-spring that is attached directly to, is adjustable lengthwise of, and moves with, said push-pin, in combination with the chambered stem or pendant of a watch-case, substantially as and for the purpose specified.

2. In combination with the chambered stem or pendant of a watch-case, a ring of hard metal which is secured within said chamber and is adapted to engage with the retaining-spring of a removable push-pin, substantially as and for the purpose shown.

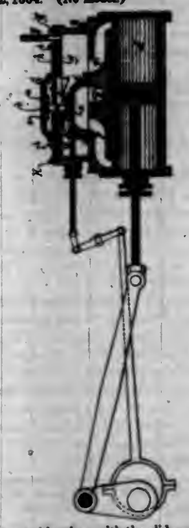
3. The combination of the push-pin, the adjustable retaining-spring, the chambered stem or pendant, and the engaging-ring, substantially as and for the purpose set forth.

312,857. INDICATING-POISE FOR LEVER-SCALES. Louis C. Irvine, Oregon, Mo. Filed Apr. 18, 1884. (No model.)



Claim.—As an improvement in scales in which the beam is provided with a longitudinal rack to engage a gear-wheel upon a shaft to operate a pointer over a graduated dial, the combination of the beam A, having the rack B let into the said beam longitudinally thereof, the slide-weight D, having the recess e, open at opposite ends, the vertical shaft g, carrying the gear h, to engage the said rack, and the pinion to engage the gear-wheel at the upper portion of the shaft k, which shaft has a pointer, m, whereby the said pointer may be moved over the indicating-dial F on the upper face of the said slide-weight, substantially as shown and described.

312,858. BALANCED SLIDE-VALVE. Alonzo Jackson, New York, N. Y. Filed Oct. 2, 1884. (No model.)

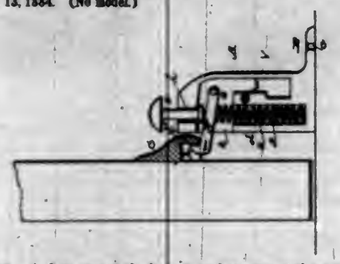


Claim.—1. The combination, with the slide-valve C and the exhaust-port E, situated beneath said slide-valve, and with the counterbalance-plate, which is firmly connected to the slide-valve, of a yielding seat for said counterbalance-plate arranged on the outside of the valve-chest, substantially as and for the purpose described.

2. The combination, substantially as hereinbefore described, with the slide-valve, and with the counterbalance-plate firmly connected to the slide-valve, of the metallic plate h, secured to the valve-chest and form-

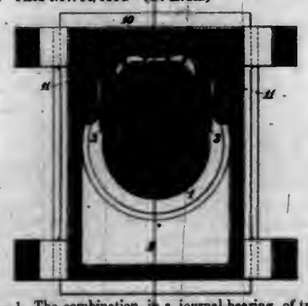
ing the seat for the counterbalance-plate, and of the elastic support *g*, placed beneath said metallic plate.

312,859. DOOR-CHECK. DANIEL JENNINGS, Centreburg, Ohio. Filed Sept. 13, 1884. (No model.)



Claim.—A door-stop made in two sections separated on a vertical central plane and secured together by a screw having a projecting spring-supported arm formed with an upwardly-turned hook end, and a depressing-stud, substantially as specified.

312,860. JOURNAL-BEARING. FRANCIS W. JOHNSTONE, Mexico, Mexico. Filed Nov. 14, 1884. (No model.)



Claim.—1. The combination, in a journal-bearing, of two or more separate and independent sections, and hinge-connections by which said sections are coupled one to another in planes longitudinal to the bearing, substantially as set forth.

2. The combination of a supporting-box or pedestal, a longitudinally-articulated sectional journal-bearing, and a hinged or pivotal connection through which the pressure of the weight sustained by the box or pedestal is transmitted to the journal-bearing in a plane transverse thereto, substantially as set forth.

3. The combination, in a journal-bearing, of a center section having a tongue or rib on each of its sides, which is rounded or segmental on its outer face, and two lateral or wing sections each having a lip or socket engaging one of the tongues of the center section, substantially as set forth.

4. The combination, in a journal-bearing, of a center section having a segmental-faced tongue or rib on each of its sides, said tongues being transversely recessed or mortised, a pair of lateral or wing sections having lips or sockets engaging the tongues of the center section, and tenons fitting the recesses thereof, and a stop fixed to the center section and adapted to limit the degree of movement of the sockets upon the tongues, substantially as set forth.

5. The combination of a longitudinally-articulated sectional journal-bearing having a segmental rocker bearing on each of its outer sections, and a journal-bearing key having upon each of its sides a downwardly-projecting segmental-faced rocker fitting one of the bearings of the journal-sections, substantially as set forth.

6. The combination of a journal, a longitudinally-articulated sectional journal-bearing fitting thereon, a journal-bearing key supported by lateral rockers bearing on sockets in the outer sections of the journal-bearing, and a journal-box supported on the upper face of the journal-bearing key, substantially as set forth.

312,861. CAR-COUPLING. ROBERT JOD, Roanoke, Va. Filed Oct. 24, 1884. (No model.)



Claim.—1. The combination, with a draw-bar and a coupling-hook, of a pivot-pin carrying a locking-bar for locking the hook in its coupling position, substantially as described.

2. The combination, with a draw-bar and a pivoted coupling-hook, each having a shoulder, of a locking-bar pivoted at its upper end to fall by gravity between the shoulders on the hook and draw-bar, substantially as described.

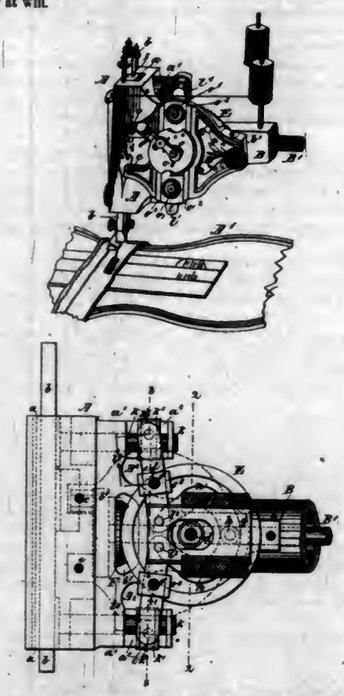
3. The combination, with a draw-bar and a coupling-hook, of the pivot-pin, and the locking-bar pivoted to the upper end of the pin, substantially as described.

4. The combination, with the draw-bar having the angular seat, and the coupling-hook, of the pivot-pin having an angular head, and the locking-bar pivoted to the pin, substantially as described.

5. The combination of the draw-bar, the coupling-hook, the pivot-pin, the locking-bar pivoted to the pin, and a device connected with the bar for operating it, substantially as described.

312,862. SEWING-MACHINE. JOHN KAYSER, Kaiserslautern, Bavaria, Germany. Filed May 9, 1884. (No model.) Patented in Germany Mar. 16, 1882, No. 20,879, and July 25, 1883, No. 22,071; in Austria-Hungary May 25, 1882, No. 11,799 and No. 21,009, and in England Aug. 12, 1882, No. 3,860, and Apr. 2, 1884, No. 5,847.

Brief.—Devices are arranged for horizontally reciprocating the needle-bar through a needle-bar guide, varying the amplitude of the reciprocation of said needle-bar, and for throwing the mechanism in or out of gear at will.



Claim.—1. The combination, with the overhanging arm and head of a sewing-machine, the shaft B', carrying pinion F, and the needle-bar guide *a*, of a lever connected with the guide, the bevel-wheel E, mechanism, substantially such as shown and described, connecting the lever with the wheel, for converting the rotary motion of said wheel into reciprocating motion, to oscillate the lever on its fulcrum and reciprocate the needle-bar guide, and a supporting-plate for said devices, detachably connected with the arm and head of the machine, for the purposes specified.

2. The combination, with the overhanging arm and head of a sewing-machine, the shaft B', carrying pinion F, and the needle-bar guide *a*, of a lever adjustable on its fulcrum, connected with the guide, the bevel-wheel E, mechanism, substantially such as described and shown, connecting the lever with the wheel, for converting the rotary motion thereof into reciprocating motion to oscillate the lever on its fulcrum and reciprocate the needle-bar guide, and a supporting-plate for said devices detachably connected with the arm and head of the machine, for the purposes set forth.

3. The combination, with the overhanging arm and head of a sewing-machine, the shaft B', carrying pinion F, and the needle-bar guide *a*, of a lever connected with the guide, the bevel-wheel E, a cam operated

from the wheel, to oscillate the lever on its fulcrum and reciprocate the guide, and a supporting-plate for said devices, detachably connected with the head and arm of the machine, for the purposes set forth.

4. The combination, with the overhanging arm and head of a sewing-machine, the shaft B', carrying pinion F, and the needle-bar guide *a*, of a lever connected with the guide, a bevel-wheel, E, the shaft whereof is adjustable longitudinally in its bearings, a cam connected with the lever and operated from said wheel, for converting the rotary motion thereof into reciprocating motion and oscillating the lever on its fulcrum, and a supporting-plate for said devices, detachably connected with the arm and head of the machine, for the purposes specified.

5. The combination, with the overhanging arm and head of a sewing-machine, the shaft B', bevel-pinion F, and the needle-bar guide *a*, of a lever connected with the guide, the bevel-wheel E, adjustable longitudinally in its bearings, mechanism, substantially such as described, connecting the lever with the wheel, for converting the rotary motion of the latter into reciprocating motion to oscillate the lever on its fulcrum, a stop to lock the wheel E in position when adjusted, and a supporting-plate for said devices, detachably connected with the overhanging arm and head of the machine, for the purposes specified.

6. The combination, substantially as herein described, with the overhanging arm and head of a sewing-machine, the shaft B', carrying bevel-wheel F, and the needle-bar guide *a*, having studs *b*, of the levers *l l*, the slotted slide *g*, carrying stud or pin *h*, the bevel-wheel E, provided with a cam-groove, *n*, and the supporting-plate D, for the purposes specified.

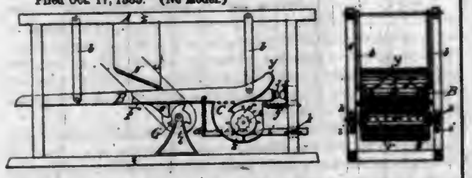
7. The combination, substantially as herein described, with the overhanging arm and head of a sewing-machine, the shaft B', bevel-pinion F, and the needle-bar guide *a*, having studs *b*, of the slotted levers *l*, adjustable fulcra therefor, the slotted slide *g*, its stud or pin *h*, the bevel-wheel E, its cam-groove *n*, and the supporting-plate D, for the purposes specified.

8. The combination, substantially as herein described, with the overhanging arm and head of a sewing-machine, the shaft B', bevel-pinion F, and the needle-bar guide *a*, having studs *b*, of the slotted levers *l*, slotted slide *g*, its stud or pin *h*, the bevel-wheel E, adjustable longitudinally on its shaft and having a cam-groove, *n*, and the supporting-plate D for said devices, for the purposes specified.

9. The combination, substantially as herein described, with the needle-bar guide *a*, the slotted levers *l*, and the described mechanism for oscillating said levers, of the rack-bars *o'*, the fulcrum-pins *o*, pinion o^4, and means, substantially such as described, for operating the pinion, for the purposes specified.

10. The combination, substantially as herein described, with the needle-bar guide *a*, the slotted levers *l*, and the described mechanism for oscillating said levers, of the rack-bars *o'*, the fulcrum-pins *o*, pinion o^4, means, substantially such as described, for operating the pinion, and a stop for locking the pinion and parts operated therefrom, for the purposes specified.

312,863. ORE-CONCENTRATOR. ARTEMAS A. KENT, Denver, Colo. Filed Oct. 17, 1883. (No model.)



Claim.—1. In an ore-concentrator, the combination, with a reciprocating concussion-table having a discharge-opening and an open depending receiver, of a movable discharging-regulator arranged to operate below the receiving end of said receiver, whereby the receiver is kept in a packed condition with the concentrates, and its removal effected and regulated by a positive rasping or picking-away action of the regulator under the co-operating movement of said table, substantially as described, for the purpose specified.

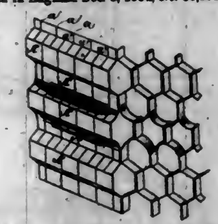
2. The combination, in a ore-concentrator, of a reciprocating concussion-table having a discharge-opening, and an open depending receiver with a rotary toothed discharging-regulator arranged to operate within the receiver below its receiving end to allow the latter to pack with the concentrates, and connections whereby said regulator is operated by the movement of the table to effect the discharge of the concentrates from the filled receiver by a positive regulating action, substantially as described, for the purpose specified.

3. In combination, a concentrating-table having a concussion movement and a discharge-opening, a feeder for the ore and water, an open receiver, S, depending from the table, a movable discharging-regulator arranged to operate below the receiving end of said receiver, suspension-mountings for said table, and connections by which said regulator is operated to effect a gradual and regulated discharge of the concentrates from a packed receiver, substantially as described, for the purpose specified.

4. The combination, with a reciprocating concentrating concussion-table having a discharge-opening, and an open depending receiver, S, with a movable discharging-regulator arranged to operate within the discharging end of said open receiver, and operating-connections for said regulator controlled and adjusted to regulate the discharge and to maintain a packed condition of said receiver, substantially as described, for the purpose specified.

5. In combination, in an ore-concentrator, a reciprocating concentrating concussion-table having a discharge-opening, an open depending chamber forming a receiver, a rotary toothed discharging-regulator arranged below the receiving end of said receiver, the ratchet-wheels *h*, and the adjustable yielding ratchet-bars *i*, all constructed and arranged substantially as described, for the purpose specified.

312,864. METALLIC FENCING. ISRAEL KINNEY, Windsor, Ontario, Canada. Filed Jan. 23, 1885. (Model.) Patented in Canada Oct. 9, 1884, No. 20,339, and in England Dec. 5, 1884, No. 16,003.

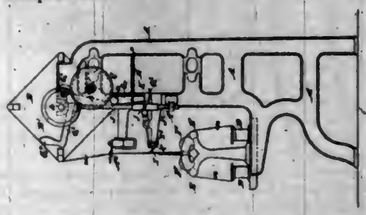


Claim.—1. A sheet-metal fabric formed of a single integral plate of metal, said fabric having openings which are substantially polygonal, and the metal being bent or doubled upon itself in opposite directions alternately in lines coinciding with successive series of slits, to present the edges of the metal toward the faces of the fabric, substantially as described.

2. A sheet-metal fabric formed from a single integral metallic plate having a number of series of transverse slits, the slits of one series breaking joints with those of the adjacent series, said plate having longitudinal corrugations and being bent or folded upon itself alternately in opposite directions, substantially as described.

312,865. MACHINE FOR REELING SILK. CHARLES H. KNAPP, Paterson, N. J. Filed Mar. 28, 1884. (No model.)

Brief.—The motion of the reel is arrested, when a thread breaks, by means of a lever which is released by the breaking of said thread and caused to engage with the reel-shaft, lifting the same and removing the pulley thereon from contact with the driving-drum. The said lever, when released, by reason of its contact with the reel, also serves as a brake to stop the same.



Claim.—1. The reel B, and its frictional driving means, the lever G G' G^2, having pocket *g*, and the spring H, in combination with the lever K, having arm K', adapted to engage in the pocket *g*, and devices, substantially as described, for vibrating lever L, for detecting the breakage of a thread, and for arresting the vibrations of lever L opposite the arm K', and thereby disengaging said arm from the pocket *g* when such breakage occurs, to stop the reel, all arranged for joint operation, as set forth.

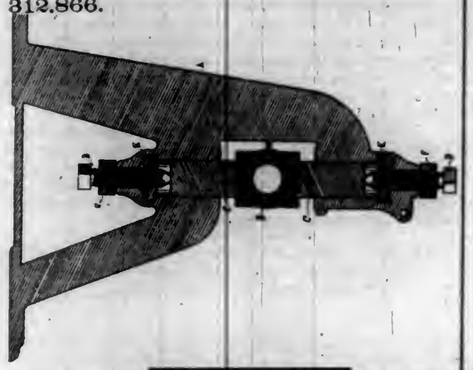
2. The lever K and arm L', in combination with the lever *l*, arms L^2, strip L, tumbling levers I I, strap J, rod J', eccentric B^2, the lever G, having lifting-surface G', the spring H, reel B, and means for frictionally rotating it, all arranged and operating substantially as set forth.

312,866. SHAFT-HANGER. VICTOR KNIGHT, Cincinnati, Ohio. Filed Dec. 3, 1884. (No model.)

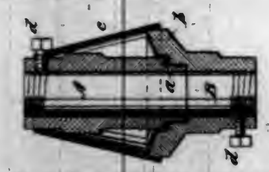
Claim.—1. The bracket A, cast with the bores to receive plugs C and bolts D, and having nuts E cast with it, in combination with the box B, plugs C, and screw-bolts D, substantially as specified.

2. In a shaft-hanger, the combination, substantially as specified, of bracket A, box B, plugs C, bolts D, nuts E and F, and set-screws G, constructed and arranged substantially as and for the purpose set forth.

312,866.



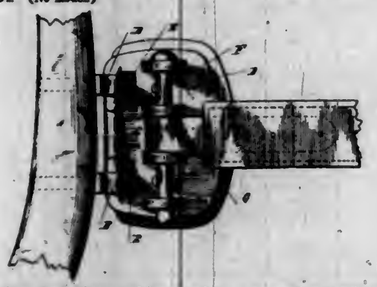
312,867. COUPLING DEVICE FOR SAND-POINTS IN DRIVE-WELLS. CHARLEY F. LANG and ORLANDO C. STAFFORD, Rising City, Nebr. Filed Aug. 2, 1884. (Model.)



Claim.—1. The coupling device for drive-wells, consisting of the parts A B, having right-hand screw-threads at their outer ends and connected by a left-hand screw, substantially as described.

2. The combination of the tube A, tube B, formed with flanges *b*, and the shield *c*, substantially as described, forming a coupling for use between a pump and sand-point in driven wells, as specified.

312,868. HAME. HEZEKIAH LATHAW, Buffalo, N. Y. Filed July 14, 1884. (No model.)



Claim.—1. An improved hame and trace connection, consisting of a plate having hinged connections to a hame and also adjustable hinged connections to the clip of a trace.

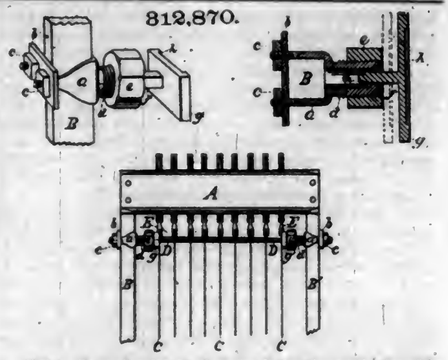
2. The combination, with the hame of a harness, of the eyebolts secured therein, the plate having slots for receiving the heads of the bolts, and a hinge-bolt formed integral with it and passing through the eyebolts, the said plate also having formed on its surface a series of lugs adapted to secure a bolt which passes through the clip of the trace, to adjust the same for the relief of the horse's neck and shoulders.

312,869. METHOD OF PREPARING EXTRACTS FROM CEREALS. HERMANN LEUERKRAUSS, Stuttgart, Würtemberg, Germany. Filed Nov. 13, 1884. (No specimens.)

Claim.—The process herein described of making from cereals and pulse an extract containing the nutritious portions of the grain without the coarse fiber, which consists in first cleaning and soaking the grain sufficiently long to soften the bran coating, then removing such coating in flakes, then boiling the bran deprived of starch to extract the nutritious portions thereof, then straining the mixture to remove the coarse fibers, and finally condensing the glutinous extract, for the purposes set forth.

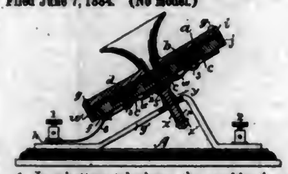
312,870. DEVICE FOR ADJUSTING SAW-FASTENINGS. ALBERT J. LINTON, South Saginaw, and ROBERT D. STEWART, Saginaw, Mich. Filed Dec. 20, 1884. (No model.)

312,870.



Claim.—In an adjusting saw-fastening device, the combination of the externally-threaded tube *d*, having an adjusting threaded nut, *e*, thereon, for operating the face-plate *g*, and affixed to the outer end of the tube *d*, the clamping-clip *a*, for gripping the stile B, and the movable bar *f*, extending from the center of the inner end of the tube *d*, and provided on its inner end with the flange *m* and on its outer end with the face-plate *g*, for operating with the saws C, all substantially as described and shown, and for the purpose hereinbefore set forth.

312,871. BATTERY-TELEPHONE. THOMAS D. LOCKWOOD, Malden, Mass. Filed June 7, 1884. (No model.)



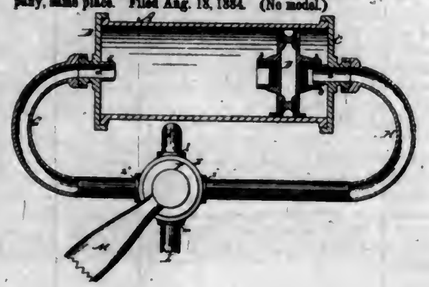
Claim.—1. In a battery-telephone, the combination of a diaphragm or vibrating plate constituting one electrode of an electric circuit, a carbon plate constituting the complementary electrode of said circuit, and a mass of loose finely-divided conducting material held between the said plates to form a variable resistance, substantially as specified.

2. A transmitting-telephone comprising a metal vibrating plate and a fixed carbon plate, forming or adapted to form the opposing electrodes of a battery-circuit, and mounted in a suitable case, so that they are maintained separate from one another, whereby a close chamber is formed between them, and a mass of loose finely-divided conducting material, substantially as hereinbefore described.

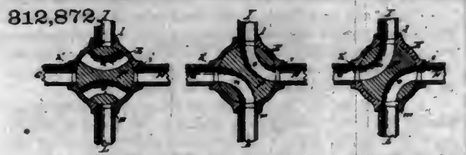
3. In a battery-telephone, two or more variable resistances, each consisting of a fixed carbon plate, a metal vibrating plate, said plates being maintained a suitable distance apart, so as to form a closed chamber, and a granulated or powdered conducting material held between said plates in said chamber, each of the resistances so constituted being in a derivation or branch of the main circuit or in multiple arc with one another, substantially as described.

4. A transmitting-telephone consisting, substantially as hereinbefore described, of the following elements: a non-conducting case, a fixed carbon plate embedded in a cavity in said case, a metal-foil vibrating plate or diaphragm maintained a suitable distance in front of the fixed plate and supported in said case by a rabbet or offset of said case, a mass of loose or granulated conducting material confined between the metal and carbon plates, and a suitable mouth-piece whereby the impact of the sound-waves may be directed upon the vibrating plate, all combined for the purposes specified.

312,872. ATTACHMENT FOR WATER-SUPPLY COCKS. HENRY S. LORD, Hartford, Conn., assignor to the Hartford Glass Water Closet Company, same place. Filed Aug. 18, 1884. (No model.)



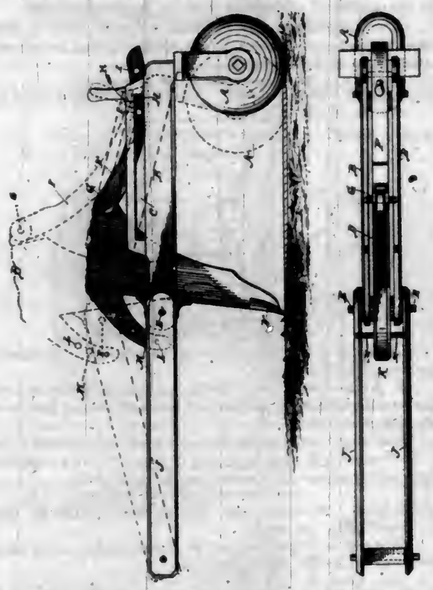
312,872.



Claim.—1. The combination of the cylinder A, having an opening, *a*, at one end and *b* at the opposite end, each of the openings constructed with an internal tubular projection, the piston D, provided with a cushion upon its opposite faces corresponding, respectively, to the internal projections on the heads of the cylinder, and so as to seat thereon in the arrest of the piston, at the extreme of its stroke, a two-way cock with passages from the openings *a* and *b* thereto, and with an inlet, I, and outlet L to said cock, whereby the inflow may be turned to either end of the cylinder, at the same time opening an exit from the opposite end, substantially as described.

2. The combination of the cylinder A, having a central opening, *a*, at one end and *b* at the opposite end, the tubular projection extending into the cylinder around each of said openings, the piston D, provided with a cushion upon opposite sides corresponding to said tubular extension, and the piston constructed with a tubular flange, *h*, around said cushion, less in length than the said tubular extension, a two-way cock with a passage leading thereto from the respective ends of the cylinder, and an inlet and an outlet to and from said cock, substantially as described.

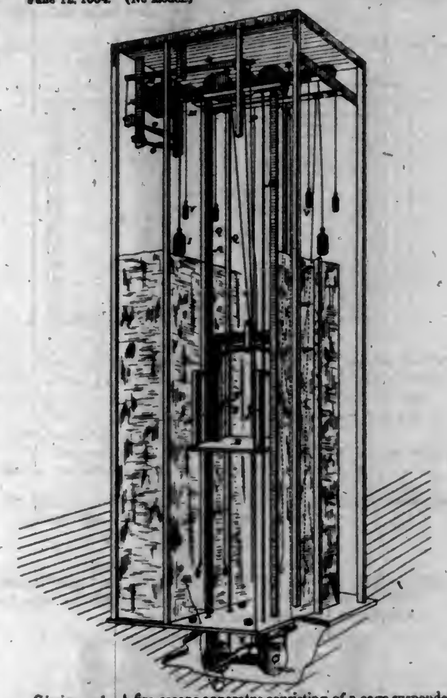
312,873. DRILL-TOOTH REGULATOR AND COMPRESSOR FOR SEEDERS. ROMULUS P. LUDWIG, Sardisville, assignor of one-half to Samuel M. Lantz, Edenburg, Va. Filed Oct. 4, 1884. (No model.)



Claim.—1. The combination, with an earth-roller, a pair of horizontal slotted bars supported at their rear ends upon the journal thereof, and a seed-drill tooth hung vertically between the forward ends of the said bars on a horizontal pivot, of a brace pivoted at its forward end to an upward arm of the drill-tooth, and provided with a series of pin-holes at its rear end, a pin to be placed in any one of the said holes and through the slot in the said bars, a pair of connecting-links pivoted at their rear ends on the same pivot on which the drill-tooth is hung and extending forward to be attached to a seeding-machine, and a brace extending forward from the upper arm of the drill-tooth, and a pin through the brace adapted to rest on the forward links, substantially as described, for the purpose set forth.

2. The combination, with the roller A, the bars B, supported thereon, and provided with the slots C, of the drill-tooth D, pivoted at E between the bars B, the brace F, pivoted to the drill-tooth at G, and provided with the holes I, and pin H, engaging the slots C and said holes I, the links J, pivoted at their rear ends at E, and the brace K, attached to the tooth D, and provided with a series of holes, L, and the pin M, adapted to engage said holes and to rest on the links J, as and for the purpose specified.

312,874. FIRE-ESCAPE. ZACHARIAS LUDWIG, Oakland, Cal. Filed June 12, 1884. (No model.)



Claim.—1. A fire-escape apparatus consisting of a cage suspended by ropes from a horizontal drum or shaft journaled above the elevator-well, counterbalance-weights suspended from ropes coiled around the shaft in opposite direction, an inclosed well within which the cage travels, and a surrounding chamber or space between the elevator-well and the other portions of the building, as herein described.

2. A fire-escape apparatus consisting of a well with a surrounding open space, a cage or platform suspended from the horizontal shaft above so as to travel within the well, counterbalance-weights I, together with the cheeks or regulator consisting of ropes Q, passing around pulleys at the top and bottom, and the levers S, with arms U, adapted to press against the ropes, as herein described.

3. A fire-escape consisting of a well having a surrounding air chamber or space, a cage or platform suspended from a horizontal shaft above, so as to move up and down the well, counterbalance-weights I, suspended from the shaft by ropes coiled around it in opposite directions from those which support the cage, and supplemental weights V, with the ropes W, and hooks or attachments by which they may be connected with the cage to assist in raising it, as herein described.

4. A fire-escape consisting of a well with the surrounding air chamber or space, a platform or cage suspended from a horizontal shaft above, and having counter-weights and regulating devices and brakes, as shown, together with the brake-lever Y, adapted to be applied to the lower shaft, as herein described.

312,875. BOILER FOR PAPER-PULP. JAMES F. MARSHALL, Rehoboth, R. I. Filed Sept. 1, 1884. (No model.)

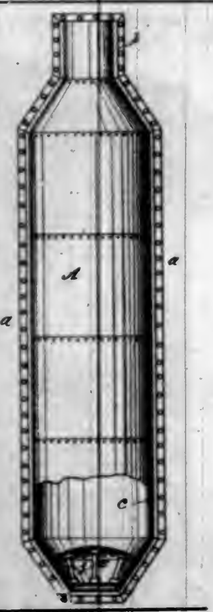
Claim.—1. The boiler A, provided with lining *c*, and formed of two sections united by flanges *a* lengthwise of the boiler, as shown and described.

2. The packing *d*, combined with boiler-flanges *a*, and lining *c*, having corrugated edges, as specified.

3. The boiler having its lower end drawn inward and with a space formed between its bottom and lining, as and for the purpose specified.



312,875.



312,876. SALOON-HOPPER TUBE FOR KEEPING CLEAN SALOON HOPPERS IN RAILROAD-CARS, &c. JAMES MARTIN, Louisville, Ky. Filed May 29, 1884. (No model.)



Claim.—1. The combination, with a closet-hopper, of a flexible removable lining therefor, substantially as shown and described.

2. The combination of a closet-hopper and a paper lining adapted to fit itself loosely to the interior thereof, substantially as shown and described, for the purpose specified.

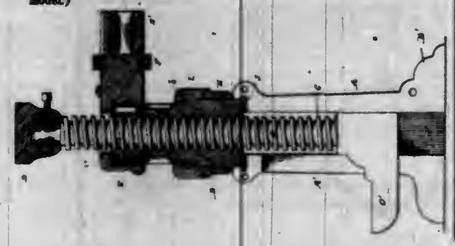
312,877. FOOT-BAR FOR STOVES. HENRY A. MATTHEWS, Waterbury, Conn. Filed Jan. 2, 1885. (No model.)



Claim.—1. The herein-described metal bar, consisting of the tubular body A and the sheet-metal covering B, folded around the said body, combined with a cap at the ends to inclose the end of the covering, the ends terminating in a tip, D, substantially as described.

2. The combination of the tubular body A, the sheet-metal covering B, folded around said body, the caps *d*, applied at the ends of the bar, and so as to inclose the covering at the ends, the rod C, longitudinally through said bar and concentrically through the caps, and tips D, applied to the ends of the said rods and against the said caps, substantially as described.

312,878. LIFTING-JACK. THOS. MAXON, Dayton, Ohio, assignor of one-half to James W. Carpenter, same place. Filed Sept. 5, 1884. (No model.)

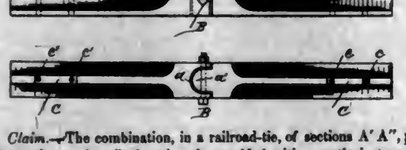


Claim.—1. In a lifting-jack, the combination of a shouldered nut provided with recesses with a ratchet-frame provided with spring-actuated pawls, said frame resting on a flanged ring on the shoulder of the nut, and surrounding and covering the recessed portion, the whole surrounding a jack-screw, substantially as and for the purpose specified.

2. A right and left ratchet-frame for lifting-jacks, having spring-actuated pawls, and a retaining-ring notched on one side, so as to disengage only one of the pawls at one time, substantially as and for the purpose specified.

3. A lifting-jack consisting of a standard supporting a shouldered nut provided with recesses and surrounded by a collar and a flanged ring, and resting on a washer, a ratchet-frame surrounding and covering the recessed part of the nut, and provided with spring-actuated pawls, and a notched retaining-ring, and a jack-screw, all the parts operating substantially as and for the purpose specified.

312,879. TOBOGGAN. JOHN R. MCLAREN, Jr., Montreal, Quebec, Canada. Filed Dec. 27, 1884. (No model.)



Claim.—1. A toboggan constructed from narrow strips or battens laid side by side and held by cross-bars, the under sides of said strips or battens being shaped so as to lessen their frictional surface or area, substantially as specified.

2. A toboggan made up of side strips or battens, A, shaped strips B, and cross-bars C, substantially as and for the purpose set forth.

3. The combination, in a toboggan, of the side strips, A, shaped strips B, cross-bars C, side rails, D, and suitable fastening devices, substantially as and for the purpose specified.

312,880. HORSE-BLANKET. ANDREW G. MCPHERSON, Quinton, N. J. Filed Dec. 22, 1884. (No model.)



Claim.—1. A horse-blanket having side flaps, *a*, and belly-protecting flap or flaps *b*, as set forth.

2. A horse-blanket having side flaps, *a*, and opposite belly-protecting flaps, the latter being provided with means for securing their meeting edges, as set forth.

3. A horse-blanket having side flaps, *a*, and belly-protecting flaps *b*, the latter being of equal length and furnished with means whereby their meeting edges may be secured together, as set forth.

312,881. RAILROAD-TIE. WILLIAM MCVEY, Hopkins, Mo. Filed May 12, 1884. (No model.)

Brief.—A railroad-tie made in two pivoted sections and a central perforated and recessed strengthening-rib.

Claim.—The combination, in a railroad-tie, of sections A′ A″, pivoted together as described, and each provided with a vertical strengthening rib or web transversely recessed near its outer end to receive the rail-base, and vertical perforations *c c′* formed in said ribs, substantially as set forth.

312,882. WATER-HAMMER PREVENTIVE. FERDINAND L. MENTEL, Cincinnati, Ohio. Filed Aug. 14, 1884. (No model.)

Brief.—The hammer is provided with three screw-threaded sections, forming two elastic cushions and two air-chambers.

Claim.—1. A water-hammer consisting of the screw-threaded tubular section A, the screw-threaded hollow cap L, the intermediate screw-

312,882.

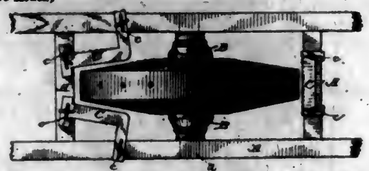


threaded hollow section, H, and the two elastic cushions confined in said sections and forming two air-chambers, substantially as described.

2. A water-hammer composed of three screw-threaded sections connected together, as described, the elastic diaphragms therein, and the two air-chambers, as specified.

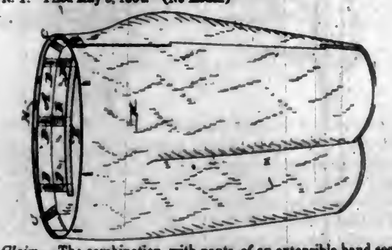
3. In a water-hammer, the combination of the tube A, adapted to be attached to a water-pipe having at its opposite end of the attachment, within a suitable recess, an elastic cushion, the intermediate tube, H, having an air-chamber, N, and the cap or head L, having a secondary chamber or air-space, M, with the elastic cushions G K, as and for the purposes substantially as herein set forth.

312,883. HARVESTER-WHEEL. JOHN F. MERTZ and BRITTON LORTON, Uniopolis, Ohio; said Mertz assignor to said Lorton; said Lorton assignor of one-half to Nathan Stout, Sidney, Ohio. Filed Oct. 21, 1884. (No model.)



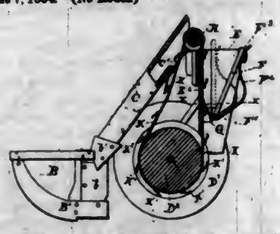
Claim.—The combination, with the frame A of a harvester or the like, and with the spider B, having alternate spokes inclined in opposite directions, as shown, of the side plates, D, secured upon said spokes and inclined to resist gravity, the wide periphery E, and the scrapers C, arranged adjustably upon the frame A, and adapted to serve with the sides and tread of the wheel, as set forth.

312,884. ATTACHMENT FOR PANTS. JOHN J. NEUBERT, Rochester, N. Y. Filed May 5, 1884. (No model.)



Claim.—The combination, with pants, of an extensible band secured to the inner side of the waist by a series of elastic strips secured to the said band and to the seat of the pants, substantially as herein shown and described.

312,885. POTATO-PLANTER. WILLIAM F. NEWBOLD, Cedar, Iowa. Filed June 7, 1884. (No model.)

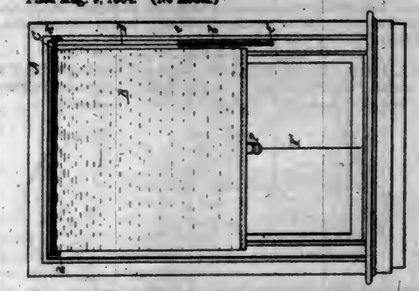


Claim.—1. The combination, with the hopper and the carrying-belt moving therethrough, of the presser-board arranged in the hopper, having a tension toward and adapted to force the potatoes against the belt, substantially as set forth.

2. The combination, with the conveyer, the vertically-adjustable guide-pulley, the operating-pulley, and the hopper, of the belt passed around the operating and guide pulleys and through the hopper, and a presser-board arranged in said hopper, having a tension toward and adapted to force the potatoes against the carrying-belt, substantially as set forth.

3. The combination of the hopper having opening E′, and provided with presser-board F, pivoted at its lower end, the belt moving upward through said hopper, and a spring, F″, engaging the rear upper end of the presser F, whereby said presser is given a tension toward the belt, substantially as set forth.

312,886. CURTAIN-FIXTURE. JULIUS M. NICKEL, Baltimore, Md. Filed Aug. 9, 1884. (No model.)

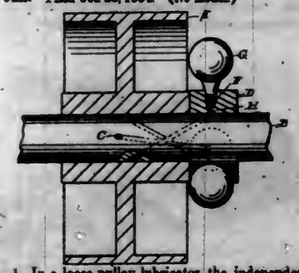


Claim.—1. The combination, with a curtain and a roller provided with a retaining-catch, of a reel on the roller, a cord attached to the reel, and a spring connecting the cord to the window-frame, as set forth.

2. The combination of roller C, curtain A, stop device, cord D, and rubber tube E, as and for the purpose set forth.

3. The combination, with curtain A, of roll C, reel C′, stop device, cord D, and rubber tube E, having rings *e e′*, as set forth.

312,887. LOOSE-PULLEY LUBRICATOR. WILLIAM J. ORMSBY, Cincinnati, Ohio. Filed Oct. 20, 1884. (No model.)



Claim.—1. In a loose-pulley lubricator, the independent collar secured in position by means of a set-screw provided with openings having therein oilers communicating with a series of veins opening beneath the pulley on the opposite side of the shaft from the oiler, substantially as herein set forth.

2. The combination of the collar having therein threaded openings provided with oilers, the said collar secured in position upon the shaft by means of a set-screw, with the veins opening on the shaft on the opposite side from the oiler, with the shaft and pulley, the whole arranged as and for the purpose substantially as herein set forth.

312,888. NECK-YOKE. JOHN H. OSBORNE, Union City, Ind. Filed Nov. 11, 1884. (No model.)



Claim.—1. As an article of manufacture, a skeleton neck-yoke center formed of rings which embrace the yoke-bar, downward projections which embrace the pole-leather, cross-pieces which connect the downward projections, and belt plates or bars formed integral with the yoke and exterior to the said downward projections, substantially as and for the purpose specified.

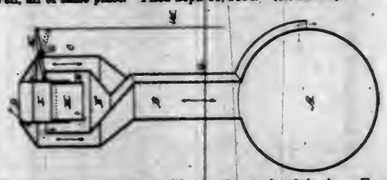
2. As an article of manufacture, a skeleton neck-yoke having belt-plates formed on it exterior to its plane of contact with the pole-leather,

and spurs on the leather bearing-surface and on the portion embracing the yoke-bar, substantially as and for the purpose specified.

3. The combination, with a neck-yoke center or clip, of an annularly-recessed yoke-bar and a leather embracing the same and connected to the clip, substantially as and for the purpose specified.

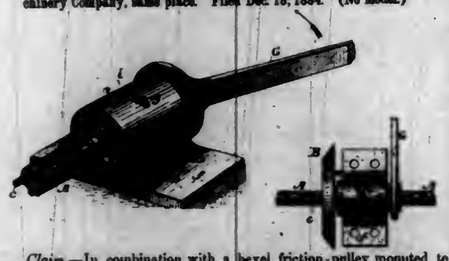
4. The combination, with a neck-yoke clip having bolt bars or plates exterior to the leather bearing-surface, of a leather filling placed substantially as and for the purpose specified.

312,889. SPARK-ARRESTER. JOHN S. PARK, Rockport, Ind., assignor of one-half to John W. Graham, Taylor C. Basye, and Ferdinand Weil, all of same place. Filed Sept. 11, 1884. (No model.)



Claim.—The combination, with a smoke-stack, of the drum E, which is located therein, and provided with the discharge-pipe G, a cylinder or drum, H, which is located in the drum E, and a cylinder or drum, I, which slides vertically on the drum H, for the purpose of opening or closing the opening D, and thereby causing the smoke and steam to pass either directly out of said opening or to be deflected downward and caused to pass upward through the drums H I, and means for raising and lowering said drum I, substantially as described.

312,890. SHIPPER DEVICE FOR BEVEL FRICTION DRIVING-WHEELS. FRANK I. PEARCE, Chicago, Ill., assignor to the Link Belt Machinery Company, same place. Filed Dec. 18, 1884. (No model.)



Claim.—In combination with a bevel friction-pulley mounted to slide on a shaft and adapted for engagement and disengagement with a similar pulley, a rotating and sliding bushing or collar provided with a pin or lug engaging with an inclined or helical groove in the journal-box in which said rotating and sliding bushing is arranged, the combination being such, as described, that by a partial rotation of said bushing through the medium of an ordinary lever or handle the said pin or lug, acting within an inclined slot, will cause said bushing to simultaneously move longitudinally and force the bevel friction-pulley into engagement with the pulley to be driven, substantially as set forth.

312,891. ENDLESS OR PAN CONVEYER. FRANK I. PEARCE, Chicago, Ill., assignor to the Link Belt Machinery Company, same place. Filed Dec. 18, 1884. (No model.)

Claim.—1. In combination with the chain or other carrier, a series of pans, each one of which is attached to said chain or carrier at such a point in rear of the middle of the pan lengthwise that while the series of pans overlap when in line to form a continuous pan or trough, as shown, the leading end of each pan will substantially overhang and project beyond the rear end of the pan immediately in front of it whenever the series of pans is passing over the chain wheel or pulley at that end of the conveyer at which the material is to be dumped or discharged, all substantially as hereinbefore set forth.

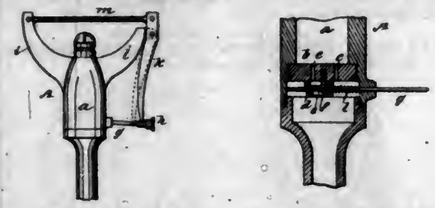
2. The combination, with a series of overlapping pans, of a series of supporting wheels or trucks, one pair of wheels only to each pan, but the arrangement of each pair of wheels relatively to the overlapping ends of every two pans being such, as described, that each pair of wheels operate practically as a direct support to the rear end of one pan and to the forward end of the pan next in rear of it, thus effecting in substance the support of the load in each pan of two pairs or four wheels, substantially as hereinbefore set forth.

3. In a conveyer composed of a series of pans mounted on an endless carrier chain or belt, the combination, with said series of pans, of a series of supporting or truck wheels located on each side of and entirely outside of the pans, and a return-track for the inverted pan truck-wheels to travel on, all substantially in the manner hereinbefore set forth.

312,891.



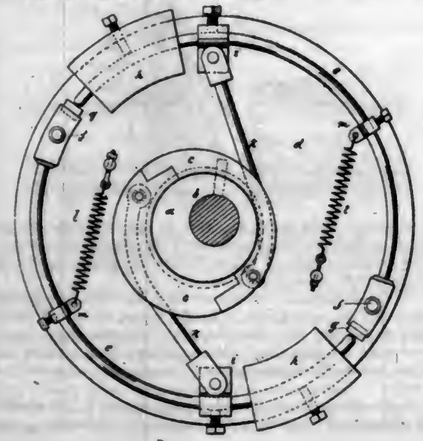
312,892. SAFETY GAS-BURNER. MERRY L. PRICE, Lexington, Ky. Filed June 26, 1884. (No model.)



Claim.—1. The combination, with a gas-burner provided with an apertured diaphragm, an expansion rod or piece above the burner, and a lever pivoted to the burner and one end of the said rod, of a slide-valve held to the under surface of the diaphragm, and a rod secured to the valve and projecting through the burner, and provided with a nut on its end, substantially as herein shown and described.

2. In a gas-burner, the combination, with lever *k*, that is fitted for movement by an expansion-piece, of stem *g*, nut *h*, spring *l*, and slide-valve *d*, substantially as described.

312,893. GOVERNOR FOR STEAM-ENGINES. THOMAS N. PERRINE, Anna, Ill. Filed July 8, 1884. (No model.)



Claim.—1. In a governor, the combination, with the two-part eccentric, of the segmental weighted levers, with the free end of one abutting against the pivoted end of the other, substantially as and for the purpose set forth.

2. In a governor, the combination, with the two-part eccentric, of the disk, and the weighted segmental levers, with their pivoted ends provided with buffers, and the free end of one lever abutting against the buffer of the other lever, substantially as and for the purpose specified.

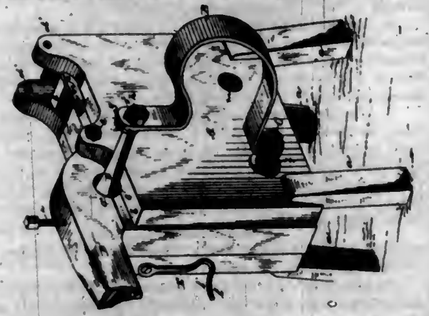
3. In a governor, the combination, with the two-part eccentric, of the segmental weighted levers constituting a complete circle in their inward position, and the arms eccentrically connected to eccentrics and said levers, substantially as and for the purpose set forth.

4. In a governor, the combination, with the disk and the two-part eccentrics, of the segmental levers, with the pivoted end of one abutting against the free end of the other, springs connecting the levers to said disk, and arms connected eccentrically to said levers and eccentrics, substantially as and for the purpose set forth.

312,894. MANUFACTURE OF ALUMINA BY PAPER-MILL SLUDGE. CARL V. PETRAEUS, Camden, N. J. Filed Oct. 13, 1884. (No specimens.)

Claim.—The manufacture of alumina free of iron from ferruginous aluminous material by mixing such impure material with the spent soda-liquor from manufacture of wood or straw paper-pulp, and evaporating and burning this, as described.

312,895. FLUE-WELDING DEVICE. JOSEPH RADELMEIER and RICHARD A. LEMON, Clinton, Ill. Filed June 14, 1884. (No model.)



Claim.—1. The combination, in a machine for welding boiler tubes and flues, of a supporting frame or body recessed upon its upper side, a lever pivoted on its upper side and recessed to form, in conjunction with the first-mentioned recess, an aperture, a cylindrical mandrel or expander passing through said aperture and connected at one end to an adjustable support secured on the side of the frame or body, and capable of rotation in said support, substantially as set forth.

2. The combination, in a machine for welding boiler tubes or flues, of a body or frame recessed at two or more points on its upper side, a recessed lever adapted to be pivotally secured adjacent to either of said recesses, for the purpose specified, said body being perforated below each of said recesses, a bolt in one of the said perforations carrying a support, and a mandrel extending through one of the apertures presented by the lever and recessed body, and secured at one end to the said support, substantially as set forth.

3. The combination, in a machine for welding boiler tubes and flues, of a supporting frame or body recessed upon its upper side, a lever pivoted on its upper side and recessed to form, in conjunction with the first-mentioned recess, an aperture, a cylindrical mandrel or expander passing through said aperture and connected at one end beyond said recess with a bent spring-support secured to the side of the frame or body and capable of rotation on said support, substantially as set forth.

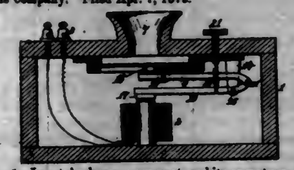
4. The combination, in a machine for welding boiler tubes and flues, of a supporting frame or body, A, recessed as described, a bolt, *e*, passing through the same and provided with a shoulder, *f*, a bent spring, B, the lower end of which is clamped against said shoulder *f*, and provided with a head, *g*, at its upper end, a mandrel, D, having the disk *i* clamped against the head *g*, and pivoted lever, substantially as set forth.

5. The combination, in a machine for welding boiler tubes and flues, of a supporting frame or body, recessed as described, spring-support secured to said body carrying mandrel D, recessed lever pivoted on said body, and thumb-screw passing through the same, substantially as set forth.

6. The combination, in a machine for welding boiler tubes and flues, of a supporting frame or body, recessed as described, bent spring secured to said body, a mandrel, D, secured to said spring, a lever pivoted on the upper side of said body, and a hook pivoted on the front of said body, substantially as specified.

7. The combination, in a machine for welding boiler tubes and flues, of a supporting frame or body provided with a central rib or projection, *b*, recessed as described, a plate, *n*, secured at one end of said recess, and a lever pivoted adjacent to said recess, substantially as set forth.

312,896. TELEPHONIC APPARATUS. CHARLES A. RANDALL, Brooklyn, N. Y., assignor, by mesne assignments, to the National Improved Telephone Company. Filed Apr. 7, 1879.

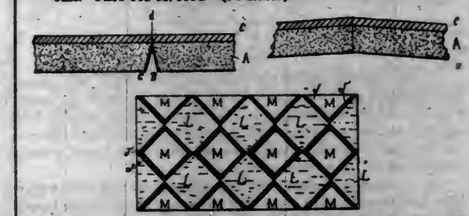


Claim.—1. In a telephone, a magnet and its armature, a diaphragm, and a mechanical device for increasing movement connected with said diaphragm and armature, whereby a vibratory movement in the said diaphragm may impart a movement of greater amplitude to the armature, substantially as described.

2. A telephone embodying in combination the magnet, diaphragm, and lever, with its fulcrum nearer to the diaphragm than to the poles of the magnet, said lever carrying at one end an armature in front of the magnetic poles, and being in contact at the opposite end with the diaphragm, substantially as described.

3. A telephone embodying in combination a diaphragm, an armature, and a lever having its fulcrum between the center of the diaphragm and the poles of the magnet, and operating to communicate the movement of the armature to the diaphragm, and vice versa, substantially as described.

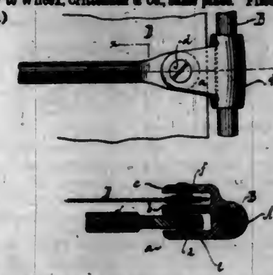
312,897. CONCRETE PAVEMENT. CHRISTIAN F. RAPP, Cincinnati, Ohio. Filed Oct. 13, 1884. (No model.)



Claim.—1. A concrete pavement laid in detached blocks on the place where it is to remain, and having the open joints below the upper wearing-surface to admit of the blocks heaving or settling without injury to the blocks, substantially as specified.

2. The method of laying concrete pavements in the plastic state and in separate blocks, which consists in placing a frame-work of separate strips having spaces for forming one-half of the blocks, then filling in the spaces, and after the blocks so formed are set then removing the strips and filling in the remaining spaces to form the pavement.

312,898. AWNING-FRAME. JAMES READ, Middletown, Conn., assignor to Wilcox, Crittenden & Co., same place. Filed Oct. 22, 1884. (No model.)

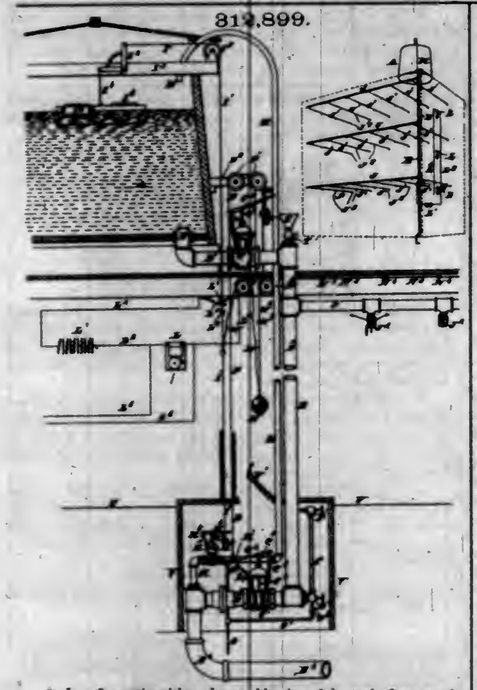


Claim.—The slide A, perforated, as shown and described, provided with the lugs *a b*, the fulcrum-pin *d* in said lugs, and the extra lug *c*, having an opening to admit the end of the fulcrum-pin, substantially as described.

312,899. FIRE-EXTINGUISHING APPARATUS. WILLIAM A. REID, St. Louis, Mo., assignor to the N. O. Nelson Manufacturing Company, same place. Filed June 25, 1884. (No model.)

Claim.—1. The combination of the tank, float, supply-pipe, valve in the supply-pipe, weight to close the valve, wire connecting the valve to the float to lift the former when the latter falls, and block L[3] on the wire to operate an alarm, as set forth.

312,899.

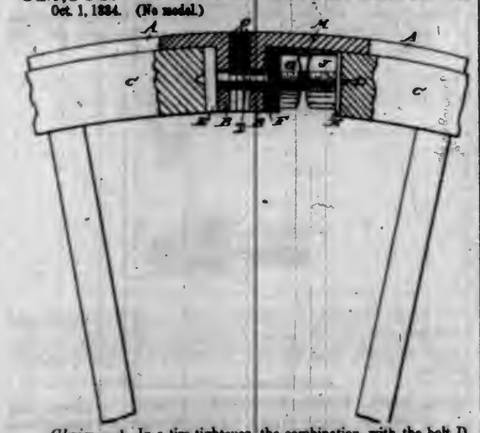


2. In a fire-extinguisher, the combination of the tank, float, supply-pipe, discharge-pipe, wire connecting the float to a valve in the supply-pipe, pipe B, provided with valves connected by a wire, wire for holding the lower valve closed and the upper valve open, and weight for closing the upper valve automatically when the lower one is opened, substantially as and for the purpose set forth.

3. In a fire-extinguisher, the combination of the tank, float, supply-pipe, discharge-pipe, wire connecting the float to a valve in the supply-pipe, and pipe B, provided with valves, arranged and operating substantially as set forth, and with a valve and funnel at its upper end and a gage and valved drain-pipe at its lower end, for the purpose specified.

4. The combination of the tank, float, supply-pipe, valve in the supply-pipe, weight to close the valve, wire connecting the valve to the float to lift the former when the latter falls, wire sections connected by fusible solder, weight supported by the sections, and wire connecting the weight to the valve and float-wire, as set forth.

312,900. TIRE-TIGHTENER. TYREE RODES, Wales, Tenn. Filed Oct. 1, 1884. (No model.)



Claim.—1. In a tire-tightener, the combination, with the bolt D, held in one end of the tire, and passed through the other end, of two nuts mounted on the bolt between the latter end of the tire and the adjacent end of the felly, substantially as herein shown and described.

2. In a tire-tightener, the combination, with the bolt D, held in one end of the tire, and passed through the other, of the nut G, through which the bolt D passes, and of the nut J, into which the end of the bolt is screwed, the free end of the nut J resting against one end of a felly, substantially as herein shown and described.

3. In a tire-tightener, the combination, with the tire A, having bent ends B, of the screw-bolt D, having a head, E, between one bent end B of the tire and the adjacent end of the felly, the U-shaped washers O, between the ends of the tire, and the nuts G J on the bolt between one end of the tire and the adjacent end of a felly, substantially as herein shown and described.

4. In a tire-tightener, the combination, with the tire A, having bent ends B, of the screw-bolt D, having a head, E, the U-shaped washers O, the washer F, the nuts G J, and the plate K, having a stud, L, substantially as herein shown and described.

312,901. WHIP AND REIN HOLDER. JOHN J. ROSE, Elmwood, Ill. Filed Nov. 1, 1884. (No model.)



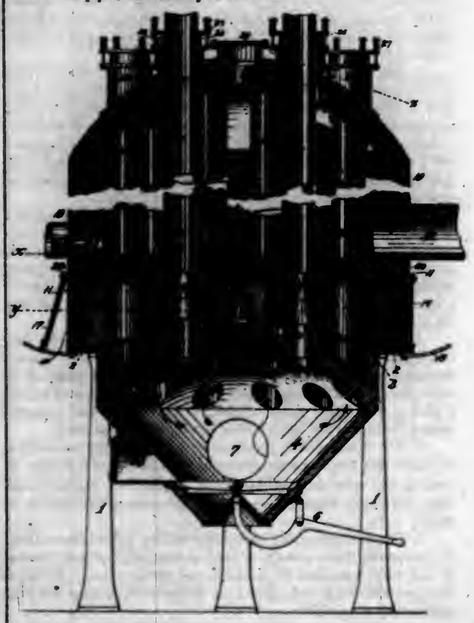
Claim.—1. In a whip-socket, the sections A A', having pivoted between the same a holding-bar adapted to bear at both ends against the upper and lower portions of the handle, a lock-case formed integral therewith and provided with a sliding bar, E, and dog D, for locking the holding-bar upon the whip, substantially as shown, and for the purpose set forth.

2. In a whip-socket, the parts A A', having a lock-casing formed integral therewith, and a pivoted holding-bar having its outer upper end inclined for engagement with a sliding locking-bar, which is held in position by a spring-actuated dog which engages with serrations formed thereon, substantially as shown, and for the purpose set forth.

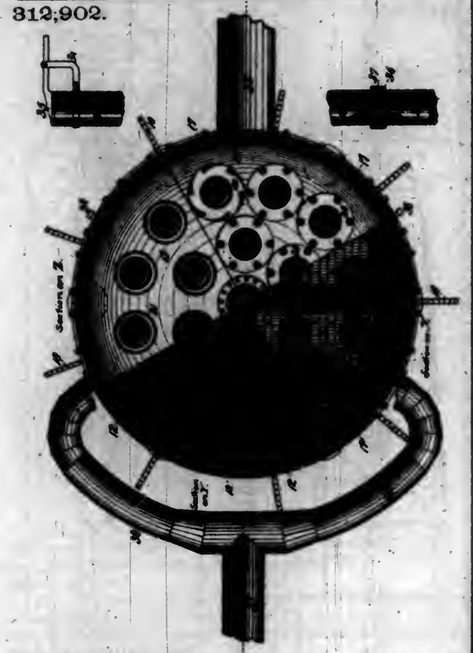
3. In a combined whip-socket, lock, and rein-holder, the section A', having the portion C', lugs $g\,g$, arm g', and horizontal arm g^2, formed integral therewith, and adapted to support the pivoted spring-actuated arm h, having transverse arms h', completing the rein-holder, in combination with the section A with lock-casing C, and pivoted holding-bar B, and locking mechanism, the parts being organized substantially as shown, and for the purpose set forth.

312,902. HOT-BLAST STOVE. WILLIAM ROTHHOFF, Pittsburg, Pa. Filed Oct. 23, 1884. (No model.)

Claim.—1. In a hot-blast stove, a heating-chamber, having a wall passing transversely across said chamber, in combination with a series of open-ended pipes passing through the chamber, said pipes being separated from each other, so as to allow of a free circulation of the air around each, and a like series of gas-burners having their tips within the ends of the pipes, substantially as set forth.



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2. In a hot-blast stove, the combination of a heating-chamber, having a series of open-ended pipes passing therethrough, and a like series of gas-burners located in line with said pipes, each of said burners passing through separate pockets or chambers in the base of the heating-chamber, substantially as set forth.

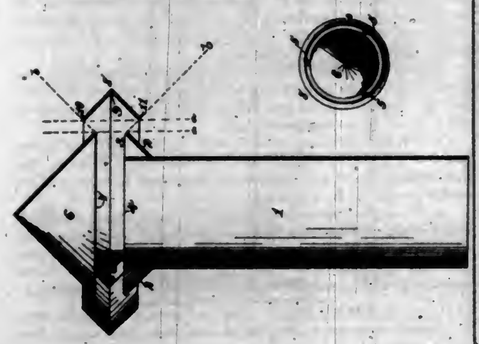
3. In a hot-blast stove, the combination of a heating-chamber, a series of pockets formed on the under side of the bottom plate of the heating-chamber, and a series of gas-burners passing through said pockets, and projecting through openings in the bottom plate of the heating-chamber, substantially as set forth.

4. In a hot-blast stove, a heating-chamber, having a base provided with series of open-ended pockets, in combination with a series of gas-burners passing through the pockets, and a series of doors for regulating the admission of air to said pockets, substantially as set forth.

5. In a hot-blast stove, a gas-supply chamber, in combination with an air-heating chamber, having a series of open-ended pipes passing therethrough, and a series of burners for conducting the gas from the supply-chamber into the pipes in the heating-chamber, substantially as set forth.

6. In a hot-blast stove, a heating-chamber, having a base provided with a series of open-ended pockets, in combination with a series of gas-burners passing through the pockets, means for obstructing or closing the open ends of the pockets, a series of pipes passing through the heating-chamber and arranged with their axes in line with the axes of the gas-burners, and dampers located at the top of said pipes, substantially as set forth.

312,903. VENTILATOR. LA FAYETTE SCHANCK, Rochester, N. Y. Filed June 24, 1884. (No model.)



Claim.—The combination of the ventilating-flue having at its exit-mouth the upward and outward projecting straight and flangeless rim, the cone supported above the rim and having its base edge in the same vertical line as the upper edge of the rim, and the surrounding angular shield having its upper and lower flanges arranged parallel to the planes of the cone and the rim, respectively, the adjacent edges of the rim and the cone being at right angles to the edges of the shield, and the edges of the rim and cone separated from the lower and upper edges of the shield to create the unobstructed vertical passage-way between the said adjacent edges of the rim, the cone, and the shield, substantially as shown and described.

312,904. PROCESS OF TREATING PHOSPHATIC SLAG. CARL SCHEIBLER, Berlin, Germany. Filed Nov. 11, 1884. (No specimens.)

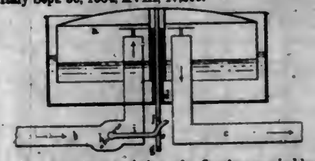
Claim.—The described method of concentrating the phosphoric acid contained in the phosphatic slag on the one part, and the iron and manganese on the other part, so as to permit of the same being removed separately, this method consisting in exposing the fluid slag to slow cooling, whereby a transposition of the constitutents forming the slag takes place.

312,905. CORSET. GUSTAV SCHILLING, Detroit, Mich., assignor to Alexander Schilling, Chicago, Ill. Filed June 14, 1884. (No model.)



Claim.—In a corset, an elastic section, B, consisting at its upper and lower ends of elastic parts, and an inelastic part, C, said parts being formed of the continuous material $a\,a'$, formed into puckered tubes throughout and filled with springs c, and a cord, c', substantially as specified.

312,906. GAS-GOVERNOR FOR GAS-ENGINES. EMIL SCHRABETZ, Vienna, Austria-Hungary. Filed June 2, 1884. (No model.) Patented in Belgium May 16, 1884, No. 65,171; in England May 17, 1884, No. 7,875; in France May 17, 1884, No. 162,192; in Germany May 17, 1884, No. 29,628; in Austria-Hungary Sept. 13, 1884, No. 30,580 and No. 41,378, and in Italy Sept. 30, 1884, XVIII, 17,309.



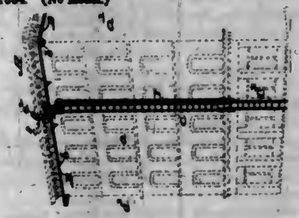
Claim.—An apparatus consisting of a floating gas-holder with thin vertical sides, in combination with a gas-feed regulator which within certain limits allows a free play of the holder, substantially as and for the purpose set forth.

312,907. WATCH-CASE. CHARLES SCHUETZ, Newark, N. J. Filed Apr. 19, 1884. (No model.)



Claim.—The combination, with the watch-case, of the attached tubular stem G, the cylinder I, arranged to rotate in this said pendant, having at its inner extremity a cam or cams, and being provided with ratchet-teeth n, and a shank, a, extending through the cylinder I and carrying the knob or ball F, the shank a being provided with ratchet-teeth n, substantially as described.

312,908. FIRE-ESCAPE. FREDERICK SHEKLE, St. Louis, Mo. Filed June 6, 1884. (No model.)



312,908.



Claim.—1. The combination, with a ladder which is swung from a wheel, E, of an endless rope or chain applied directly to the ladder, and the means in connection therewith, substantially as described, for moving the ladder.

2. The combination, with a fire-escape ladder which depends from a rail and is sustained by a pulley, of gearing connected to the shaft of said pulley, and an endless rope or chain connected directly to and susceptible of being operated by a person on the ladder, substantially as described.

3. The combination of a rail which is mounted on a building, a ladder sustained thereby by a single wheel, and means, substantially as described, for moving the ladder applied directly to the same, as specified.

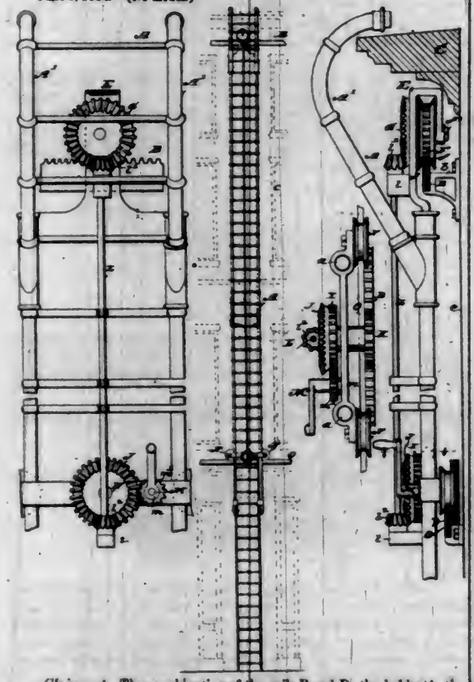
4. The combination of a ladder, as described, with a swivel-connection, the eyes *i i*, arranged as described, and an endless rope or chain applied directly to the ladder, for the purpose specified.

5. The combination of a suspended traveling and swinging ladder with an anti-friction roller applied at or near its lower end and arranged to bear against a building, substantially as described.

6. The combination of a horizontally-movable and swinging or pendulum ladder suspended from a single wheel, and a roller-bearing near the lower end of the ladder, substantially as described.

7. A ladder having one or more tubular uprights, a suspension traveler therefor, an intermediate swivel between the top of the ladder and said traveler, and the means for moving the ladder, substantially as described.

312,909. FIRE-ESCAPE. FREDERICK SHEKLE, St. Louis, Mo. Filed June 9, 1884. (No model.)



Claim.—1. The combination of the rails B and D, the ladder A, the hanger E, the shaft H, and the wheels F K, adapted to be applied to a building, substantially as described.

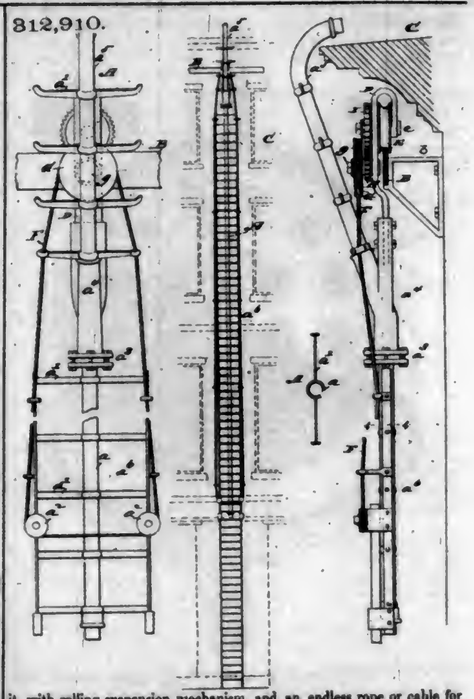
2. The combination, as described, of the racks B D, the ladder A, the hanger E, the shaft H, the wheels F K, the gears G I J *n'*, the shafts L M, the rail O, and pulleys N N, adapted to be applied to a building, substantially as described.

312,910. FIRE-ESCAPE. FREDERICK SHEKLE, St. Louis, Mo. Filed June 9, 1884. (No model.)

Claim.—1. The combination of a ladder suspended from a pulley mounted on a rail, and provided with gears, and an endless rope or cable, with a central tube having rounds projecting from both sides of the said tube, as described.

2. The combination of a swiveled tube having rounds *d'* secured to

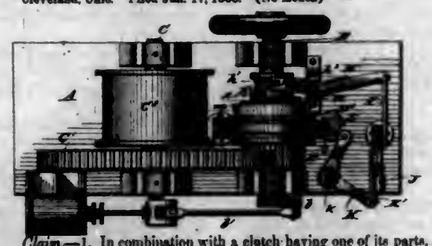
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it, with rolling suspension mechanism, and an endless rope or cable for actuating the same, substantially as described.

3. The combination of the rail B, the hanger D, and the ladder A, swiveled at a^3, as and for the purpose described.

312,911. COMBINED CLUTCH AND BRAKE. ALBERT N. SHERERLY, Cleveland, Ohio. Filed Jan. 17, 1885. (No model.)



Claim.—1. In combination with a clutch having one of its parts, as D, mounted loosely upon the shaft B, having a sleeve, D', provided with a friction-rim and connected with a drum mechanism, as C' C^2, a brake-band embracing the said friction-rim and connected with the shipping-lever, as J, and clutch mechanism, as set forth.

2. In combination with the drum mechanism, as described, and with the clutch-sleeve D', having friction-rim D^2, the brake-band L, embracing the said friction-rim D^2, the clutch-shipping mechanism, and the lever J, and connections whereby the brake is applied by the movement of the lever which disengages the clutch, and the brake may be adjusted to unwind the drum at will, as set forth.

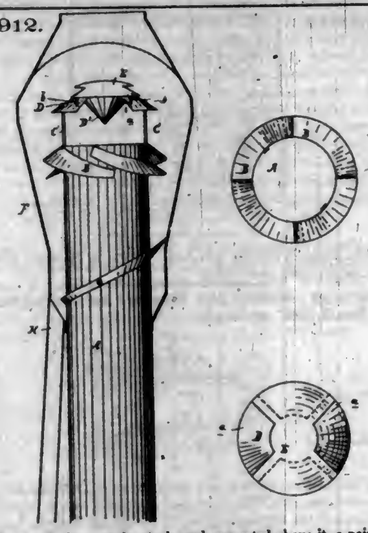
3. The combination, with the drum mechanism and the clutch mechanism comprising the parts D' D^2 E, as described, of the lever H, elbow-lever K, brake-band L, and rigid links K' I, and the single operating-lever J, as and for the purposes set forth.

4. The gear D, having sleeve D', brake friction-rim D^2, friction-surface *f'* and locking-apertures f^2, and the clutch portion E, having friction-surface *e'*, pins e^2, and springs G, the brake-band L, the lever J, and connections, as and for the purposes set forth.

5. In combination with the sleeve D', having gear-connections with a winding-drum, a brake friction-rim and friction and locking seats, and with the clutch portion E, having friction-surface and locking-pins controlled by springs G, the levers H K, links I K', brake-band L, and operating-lever J, as and for the purposes set forth.

312,912. SMOKE-STACK. HENRY C. SIMPSON, East Saginaw, Mich., assignor of one-half to Peter Willox, same place. Filed Aug. 20, 1884. (No model.)

312,912.



Claim.—1. In a smoke-stack, and supported above it, a pair of inverted-saucer-shaped deflectors with notches cut out of their opposite edges, and arranged one above the other, substantially as and for the purposes described.

2. In a smoke-stack having the deflectors constructed and arranged as described, the combination therewith of the inverted cone pendent from and supported by the lower of the two deflectors, substantially as and for the purposes specified.

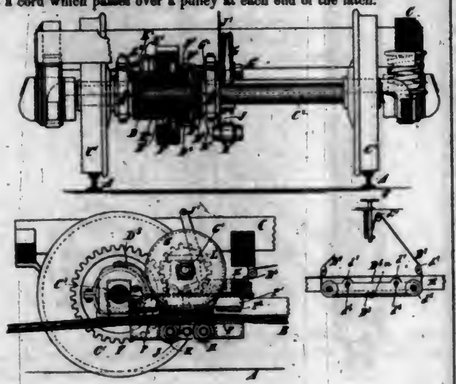
3. In a smoke-stack having the two deflectors and cone constructed and arranged as described, and in combination therewith, the segmental spirals surrounding the upper end of such stack, substantially as and for the purposes set forth.

4. In a smoke-stack having deflectors arranged above the upper end thereof, and in combination therewith, the guide surrounding such stack and filling the space between it and its shell, substantially as and for the purposes described.

5. A smoke-stack having the two deflectors and inverted cone supported above its top, and arranged with relation to each other as described, segmental spirals surrounding its top, and a guide filling the space between it and its surrounding shell, and leading to a discharge-pipe which projects through such shell, and which leads to a place of safe deposit, substantially as and for the purposes specified.

312,913. ENDLESS-ROPE RAILWAY. WILLIAM H. H. SIBUM, Brooklyn, N. Y. Filed June 18, 1884. (No model.)

Brief.—The car is gradually started through a gear-wheel frictionally held on the shaft of one of the grip-pulleys, said gear meshing with a loose gear upon one of the car-axles, and to which axle the latter gear is connected by clutch devices, which are automatically disengaged when the maximum speed of said loose pulley has been reached, at which time further movement of the grip-lever causes the cable to be firmly grasped between the fixed jaws of the grip. The clutch-lever is locked by a notched latch-bar which hangs on pins in slots, (one near each end,) and it is raised and lowered by a hand-wheel, around the shaft of which is a cord which passes over a pulley at each end of the latch.



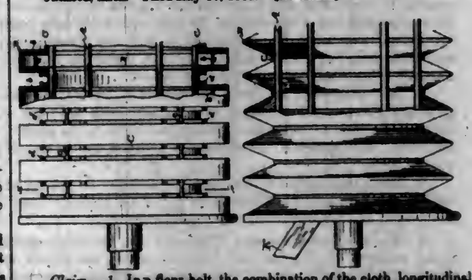
Claim.—1. In a car adapted to be propelled by an endless rope or cable, the combination of pulleys for gripping the rope or cable, a gear-wheel deriving motion from one of the grip-pulleys and having a frictional connection with its shaft, and a gear-wheel on one of the axles, deriving motion from the gear-wheel first named, substantially as specified.

2. In a car adapted to be propelled by an endless rope or cable, the combination of a grip-pulley and a non-rotary grip-piece arranged at one side of the rope or cable, a grip-pulley and a non-rotary grip-piece arranged at an opposite side of the rope or cable, a gear-wheel deriving motion from one of the grip-pulleys, and a gear-wheel on one of the axles, deriving motion from the gear-wheel first named and transmitting it to the axle, substantially as specified.

3. The combination, with the lever D^3, of the latch-bar D^4, substantially as specified.

4. The combination, with the lever D^3, of the latch-bar D^4, and a cord or equivalent device fastened to the lever, and extending from one end thereof to a device whereby it may be pulled and relaxed, substantially as specified.

312,914. FLOUR-BOLT. GEORGE T. SMITH and WILLIAM F. COCHRANE, Jackson, Mich. Filed May 17, 1883. (No model.)



Claim.—1. In a flour-bolt, the combination of the cloth, longitudinal bars, peripheral rings supported from said longitudinal bars, and alternately arranged inner rings supported by the longitudinal bars and situated upon the outside of the bolt-cloth, substantially as set forth.

2. In a flour-bolt, the combination of the reel-heads, longitudinal supporting-bars arranged concentrically with the axis of the reel, a series of peripheral rings, standards connecting the bars and rings, a series of inner rings supported upon the horizontal bars, and the cloth which passes outside the peripheral rings and inside the inner rings, substantially as set forth.

3. In a flour-bolting reel, the combination of the reel-heads through one of which the meal is fed into the interior of the reel, the bolting-cloth, a series of inner cloth-supporting rings, and a series of peripheral cloth-supporting rings, substantially as set forth.

4. In a flour-bolt, the combination of the cloth, a series of peripheral rings, and inner adjustable rings situated upon the outside of the cloth, substantially as set forth.

5. In a flour-bolt, the combination of the cloth, a series of peripheral rings, inner rings, C, and screws engaging with the ends of said inner rings to regulate their length and adjust the tension upon the bolt-cloth, substantially as set forth.

6. In a flour-bolt, the combination of the longitudinal bars, peripheral rings arranged in pairs and supported from the longitudinal bars, inner rings arranged in pairs and supported by the longitudinal bars, and the cloth supported upon said rings and arranged upon the outside of the pairs of peripheral rings and inside of the pairs of inner rings, to form a series of circumferential chambers, substantially as set forth.

7. In a flour-bolt, the combination of the cloth, a series of peripheral rings, radial supporting-standards, and spacing-bars interposed between two adjacent rings, substantially as set forth.

8. In a flour-bolt, the combination of the cloth, the longitudinal bars, peripheral rings, standards upon which said rings are supported, inner rings arranged in pairs upon the outside of the bolting-cloth, and spacing-bars between the adjacent inner rings, substantially as set forth.

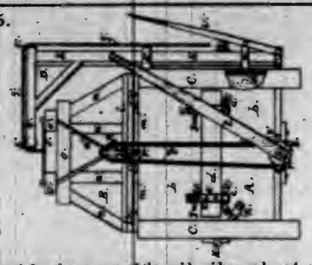
9. In a flour-bolt, the combination of the cloth, a series of peripheral rings and interposed spacing-bars arranged inside the bolt-cloth, a series of inner rings, and interposed spacing-bars arranged outside of the bolting-cloth, substantially as set forth.

312,915. BALING-PRESS. GEORGE W. SMITH, Bay City, Mich. Filed Dec. 22, 1884. (No model.)

Claim.—1. In a baling-press, a case composed of the bottom *a*, sides *b*, provided, as described, with the doors *d*, the end A, and the end A', provided with the door A' and the legs C, all in combination, substantially as set forth.

2. In a baling-press, a case for receiving the material to be packed, constructed to form a chamber of greater width at one end than the other or opposite end, the wider end being provided with a door for the removal of the bale, in combination with a rigid portion located above

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the said door and forming a part of the said wider end, and a support for the sides of the said case, substantially as described, and for the purpose set forth.

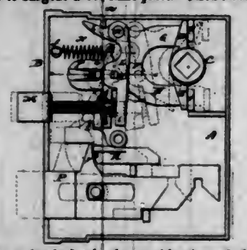
3. In a baling-press, a case for receiving the material to be packed, having a chamber of greater width at one end than the other, the wider end being provided with a door for the removal of the bale of pressed material, in combination with a push-bar which passes through the narrower or opposite end of the said case, the inner end of the said push-bar having a plate adapted to bear against the bale, and means, as described, for propelling the said push-bar and plate against the bale, substantially as described, and for the purpose set forth.

4. In a baling-press, the case A and follower B, provided with the projecting pieces *a'*, and stirrups *a''*, in combination with the ropes or chains *g'*, the pulleys *p*, the roller *r*, the ratchet-wheels S, the pawls *t'*, the levers *t*, and supports S', substantially as described, and for the purpose set forth.

5. The combination, in a baling-press, of the case A and the follower B with a crane, D, provided with the rope *g'* and pulleys *f'* and *f''* and hook *i'*, substantially as and for the purpose set forth.

6. In a baling-press, the roller *r*, provided with the ratchet-wheel S, and the lever *t*, having the pawl *t'* pivoted thereto, and adapted to engage with the ratchet-wheel S, in combination with the supporting-piece S', arranged and located substantially as described, and for the purpose set forth.

312,916. REVERSIBLE LATCH. WILLIAM E. SPARKS, New Haven, Conn., assignor to Sargent & Co., same place. Filed Nov. 24, 1884. (No model.)



Claim.—1. In a knob-latch, the combination of the slide F, the latch-bolt M, the lever L, hung to said slide, extending down in rear of the latch-bolt, a second lever, *b*, hung to said lever L between the tail of the latch-bolt and the fulcrum of the lever L, the latch-bolt engaged with one arm of said lever *b* below its pivot, and a spring applied to said lever *b*, substantially as described.

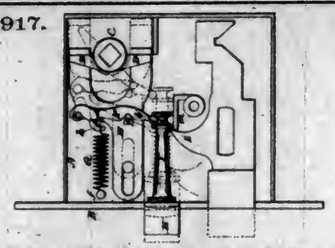
2. In a knob-latch, the combination of the slide F, the latch-bolt M, the lever L, hung on said slide and extending in rear of the latch-bolt, and constructed with an arm, *l*, extending forward, and with an upwardly-inclined bearing-surface, a lug, *m*, in the case, against which said inclined surface will strike, the lever *b*, hung to said lever L, the latch-bolt engaged with one arm of said lever *b*, and a spring applied to said lever *b*, substantially as described.

3. In a knob-latch, the combination of the slide F, latch-bolt M, a lever one arm of which extends into connection with the bolt forward of a shoulder on the bolt, and a spring in connection with said lever arranged to turn said arm rearward against the shoulder on the bolt, the lock-bolt P, constructed with a projection, *r*, and the slide E between the said projection on the lock-bolt and the lever to which the latch-bolt is hung, substantially as described.

312,917. REVERSIBLE LATCH. WILLIAM E. SPARKS, New Haven, Conn., assignor to Sargent & Co., same place. Filed Dec. 15, 1884. (No model.)

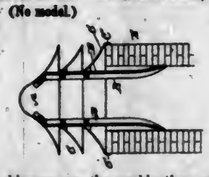
Claim.—In a knob-latch, the combination of the two-armed hub C, the slide E, adapted to engage with the arm of said hub, and constructed with the fulcrum *a*, and a second fulcrum or bearing, *e*, above said fulcrum *a*, the lever F, hung upon said fulcrum *a*, one arm extending upward, and so as to take a bearing upon the fulcrum *e*, the other arm extending downward below the fulcrum, a spring applied to said lever

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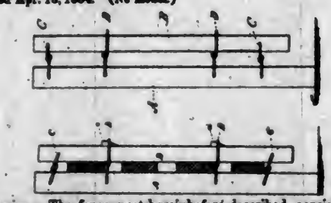


between its fulcra and the latch-bolt swiveled to the lower arm of said lever, substantially as described.

312,918. CHIMNEY-CAP. THEODORE J. STERN, Oakland, Nebr. Filed June 18, 1884. (No model.)



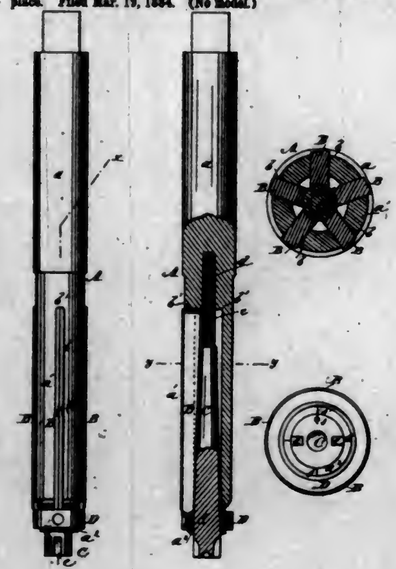
Claim.—In a chimney-cap, the combination, with the bars B, having their upper ends bent, of the hood A, riveted to the upper ends of the bars, and the deflecting-plates C, having the corners beveled and riveted to the bars B, substantially as herein shown and described.

312,919. FENCE-POST. ALVIN E. STEPHENSON, Charlestown, Ohio. Filed Apr. 18, 1884. (No model.)



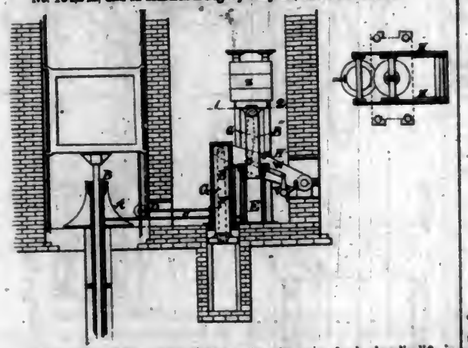
Claim.—The fence-post hereinbefore described, consisting of the main post or bar A, the clamping-bar B, the hangers C, arranged at opposite ends of and pivoted to the clamping-bar and to the main bar A, a locking bail or bails, D, arranged intermediate the hangers, having one end pivoted to the main bar A and its other end extended around and moving freely upon the clamping-bar, and a clamping-wedge, *d*, substantially as set forth.

312,920. REAMER. GEORGE R. STETSON, New Bedford, Mass., assignor to himself and the Morse Twist Drill and Machine Company, same place. Filed Mar. 19, 1884. (No model.)



Claim.—The combination of the reamer-body A, having its rear portion, *a*, of elongated cylindrical shape and standard size or diameter suited to the work to which the reamer is adapted, and having its forward slotted portion, *a'*, in which the cutters are arranged, of reduced diameter, and terminating in an outer externally-screw-threaded end portion, *a²*, the radial cutters B, of square and tapering shape at their opposite ends, as described, the concave cutter-holding nut D, arranged to fit over the screw-threaded end portion, *a²*, and the adjustable conical device C, constructed to only partly enter at its screw-threaded end the body of the reamer in rear of the cutters, and of smooth cylindrical construction at its outer end portion, *c'*, for guidance within and through the outer end portion, *a²*, of the body, substantially as shown and described.

312,921. HYDRAULIC LIFT. JOHN S. STEVENS and CHARLES G. MAJOR, Battersea, County of Surrey, and THOMAS W. BARBER, Ulverstone, County of Lancaster, England. Filed June 5, 1884. (No model.) Patented in England Sept. 14, 1882, No. 4,375; in Germany Mar. 8, 1883, No. 24,963; in Belgium Mar. 12, 1883, No. 60,726; in France Mar. 12, 1883, No. 154,242, and in Austria-Hungary July 29, 1883, No. 29,945.

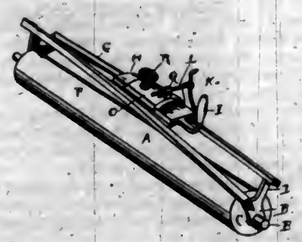


Claim.—1. The main cylinder and main ram of a hydraulic lift, in combination with a balance-ram and balance-cylinder, a tube connecting said cylinders below said rams, a driving-ram and driving-cylinder having connection with the water supply and drain, a beam or lever connected by rods to said balance-ram and driving-ram, and a sliding block which makes the attachment between said lever and the connecting-rod of said balance-cylinder, whereby the leverage exerted on and by said balance-ram is increased or decreased to compensate for the varying relative resistance of the main ram and the water in the main cylinder, substantially as set forth.

2. The combination, in a hydraulic lift, of a balance and driving cylinder, such cylinders being coupled by connecting-rods and beams, the latter being provided with a slot in which the block connected to the connecting-rod travels, substantially as described.

3. The combination of a main ram-cylinder and pipes leading therefrom with the reversely-arranged cylinders E F, the reversely-operating rams B'', B''', the connecting-rods G G', attached to these latter rams, respectively, the lever H, pivoted to a fixed point at one end, having pivoted connection at the other end to connecting-rod G', and provided at an intermediate point with a longitudinal slot, U, in which slides a pivot-block, to which the lower end of connecting-rod G is attached, and a bell-crank lever, V, pivoted to a fixed point, and linked at one end to said sliding pivot-block and at the other to said lever or beam, so that the rocking of the latter will cause said bell-crank lever to shift the said pivot-block toward the pivoted end of said lever, thereby automatically changing the leverage, as stated.

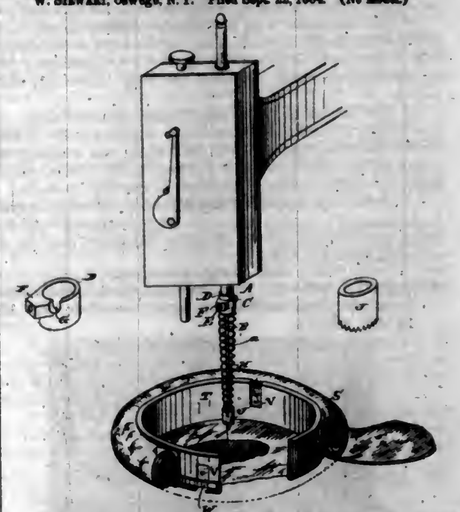
312,922. TOOL FOR CORRUGATING ROLLS. THOMAS H. STEVENSON, Crawfordsburg, Ind. Filed May 17, 1884. (No model.)



Claim.—1. In a device for dressing corrugated rolls, a winding guideway carrying thereon an adjustable carriage having bits, substantially as herein set forth.

2. In a device for dressing corrugated rolls, a winding guideway, as shown, having a carriage carrying a lateral adjustable tool-holder and removable bit-holder, substantially as and for the purposes herein described.

312,923. DARNING ATTACHMENT FOR SEWING-MACHINES. F. W. STEWART, Oswego, N. Y. Filed Sept. 22, 1884. (No model.)



Claim.—1. In a darning attachment for sewing-machines, the ring T, having notches V in its top and bottom edges, in combination with the needle and bed-plate, substantially as herein shown and described.

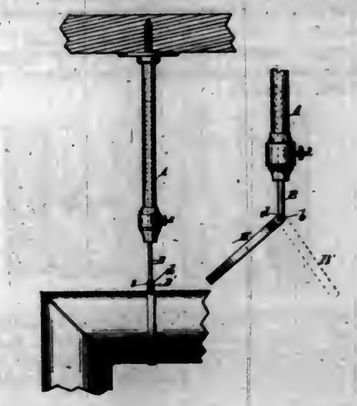
2. In a darning attachment for sewing-machines, the combination, with the needle, its collar, and the sleeve or ring T, of the spiral spring attached to said collar and sleeve, the aggregate length of the sleeve and spring (when the latter is normally extended) being greater than the portion of the needle which they encircle, as shown and described, whereby said sleeve is held normally projected slightly below the point of the needle, as specified.

3. The combination, with the needle-bar, of a collar held on the same, a spring surrounding the needle and secured to the collar, and a sleeve or ring secured to the lower end of the spring and having its bottom edge toothed, substantially as herein shown and described.

4. The combination, with a needle-bar, of the collar D, having a boss projection, F, the spring H, secured to the collar D, and the toothed ring or sleeve J, secured to the lower end of the spring, substantially as herein shown and described.

5. In a stocking-darning attachment for sewing-machines, the combination, with the needle-bar, of a spring held on the same, a ring held on the lower edge of the needle-bar and having its bottom edge toothed, a flanged ring adapted to be placed in the stocking to be darned, and a band surrounding the ring and stocking, substantially as herein shown and described.

312,924. ADJUSTABLE STOVE-PIPE HANGER AND FASTENER. JAMES STEWART, Detroit, Mich. Filed Jan. 22, 1884. (No model.)



Claim.—1. The combination, with a tube, of an extensible rod therein and means for holding said rod in the tube at any desired point of adjustment, said rod provided with a band engaging the pipe, and adapted to be set at any desired angle to the rod and tube, substantially as described.

2. The combination of the longitudinally-adjustable hanger with the angularly-adjustable pipe-supporting band, substantially as described.

3. The combination of the longitudinally-adjustable hanger, the angularly-adjustable pipe-supporting band, and the screw or bolt, substantially at right angles to the length of the hanger, for attaching the band and adjusting it in angular relation to the hanger, substantially as described.

4. The combination of the longitudinally-adjustable hanger, one part of which is provided with a flat tongue projecting in the direction of the length of the hanger, with the band having ears embracing the tongue, and the adjusting screw or bolt for attaching the band and adjusting it in angular relation to the hanger, substantially as described.

5. A stove-pipe hanger consisting of the tube, the sliding rod therein, the set-screw for holding the rod, the angularly-adjustable pipe-supporting band, and the screw or bolt passing through the band and the rod, substantially as described.

312,925. **TIME-LOCK.** ERNST STOCKWELL, Stamford, Conn., assignor to the Yale & Towne Manufacturing Company, same place. Filed Aug. 15, 1884. (Model.)



Claim.—1. In a time-lock, the combination, with the plates A and B, of the time mechanism and dog-operating mechanism, all attached complete to the plates, and the bolt or dog whereby the plates, time mechanism, and dog-operating mechanism may be removed from the lock-case in a body, and replaced without disturbance or disarrangement of the operating parts in their proper relation to the dog or bolt, substantially as set forth.

2. The combination, with a lock-case having a bolt-recess, of a dog, D, provided with slots I and L, and a screw or stop, H, substantially as set forth.

3. In a time-lock, the combination, with a lock-case having a bolt-recess, F, of a slotted dog, D, having a screw-stop, H, and a lifting-lever, M, and arm K, substantially as set forth.

4. The combination of the lever M, the weighted lever O, the arm K, and the projection P with the dog D, substantially as set forth.

5. In a time-lock, the combination of the dial, the lever O, provided with inclined projection R, the lever M, the projection P, arm K, and dog D, substantially as set forth.

6. The combination of the time mechanism, the seventh-day cam S, the sleeve T, the spring V, and the lever M and arm K, substantially as set forth.

7. The combination, with the winding-post of a time mechanism, of a cam, W, the wheel X, adapted to engage therewith, a sliding bar, *c*, the bell-crank lever *d*, adapted to engage therewith, and the lever M, all substantially as set forth.

8. A lock-case with a bolt-recess or pocket integral therewith, and adapted to receive a bolt from the outside of the case, substantially as set forth.

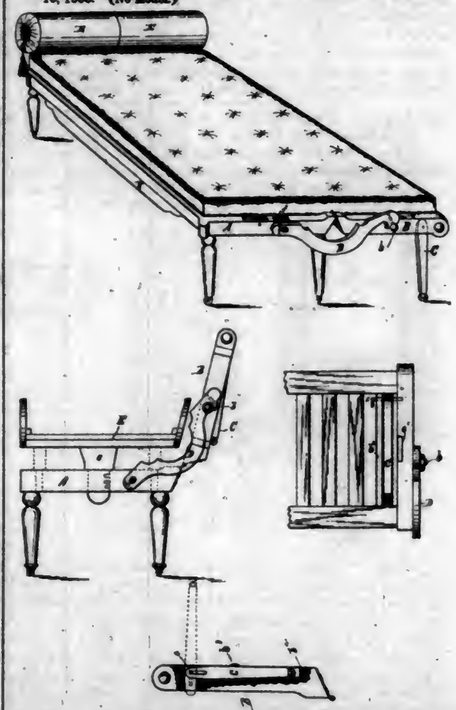
312,926. **COMBINED LOCK-LATCH AND HASP.** HIRAM C. STOUFFER, Cortland, Ohio, assignor to Carver C. Trout, Sharon, Pa. Filed June 12, 1884. (No model.)



Claim.—1. The combination, with a latch-bar, E, provided with a slot, *g*, and a spring tumbler-lock, C, of an independent latch-keeper bolt, D, provided with hook projections for engagement with said tumbler-lock and with the latch-bar, substantially as and for the purpose set forth.

2. The combination, with the lock spring hooked tumblers *b b* and a latch-bar, E, having a slot, *g*, of an independent latch-keeper bolt, D, formed with the hooks *h h*, hook projection *i*, and beveled shouldered keeper *k k'*, substantially as and for the purpose set forth.

312,927. **SOFA-BED.** CHARLES STREIT, Cincinnati, Ohio. Filed Aug 10, 1883. (No model.)



Claim.—1. In a folding bed, the combination of the seat and back frames, having the meeting ends of their end rails downwardly and reversely beveled, the hinges for uniting said frames, legs pivoted to the back frame for supporting it in a horizontal position, and brace-arms pivoted to the ends of the seat-frame to engage studs projecting from the ends of the back frame and sustain it in an upright position, substantially as described.

2. In a sofa-bed of the character described, the combination of the seat and back frames, hinged together, as shown, the brace-arms provided at one end with a hook and at the other end with an elongated slot, pins passing through said slots to pivot the arms to the ends of the seat-frame, pins projecting from the back frame to engage the hooked ends of said arms, and folding legs pivoted to the back frame to support it in a horizontal position, substantially as specified.

3. A sofa-bed consisting, substantially as before set forth, of the seat and back frames, hinged together at their meeting longitudinal edges, and each having the end rails slotted, as shown, the folding legs pivoted to the back frame, the bolsters provided with tenons shaped to fit the slots in the end rails of the frames, and the braces curved, as described, to avoid contact with the bolsters when supporting the back frame.

312,928. **CAR-TRUCK.** GEORGE S. STRONG, Philadelphia, and ALEXANDER MITCHELL, Wilkes-Barré, Pa. Filed Nov. 6, 1884. (No model.)

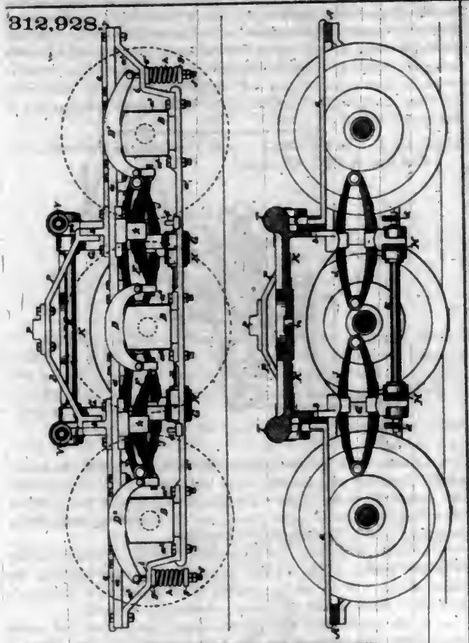
Claim.—1. The combination of the truck-frame, the bolster K, longitudinal supporting-springs J therefor, and a laterally-swinging support for said springs, as set forth.

2. The combination of the truck-frame having transverse bars *b*, the bolster K, the longitudinal supporting-springs J therefor, the transverse bars H, carrying said springs, and the links G, whereby said bars H are suspended from the bars *b*, as set forth.

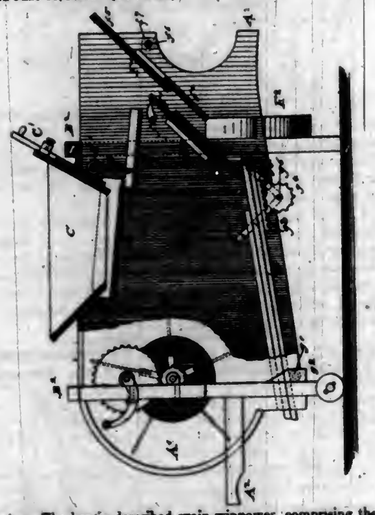
3. The combination of the truck-frame, the axles and axle-boxes, a system of equalizing-levers and springs therefor, the bolster K, longitudinal supporting-springs J therefor, and a laterally-swinging support for said springs, as set forth.

4. The combination of the truck-frame, the bolster K and its swinging support, the bumpers S, the sockets V, and the springs *w*, as set forth.

312,928.



312,929. **GRAIN-WINNOWER.** ADAM STROTT, New Brunswick, N. J. Filed June 18, 1884. (No model.)



Claim.—The herein-described grain-winnower, comprising the casing, the hopper, the inclined bottom D, hinged to said hopper, the adjustable shaking screen D', the lower screen, G, provided with a rack near one end, the anti-friction roller *g'*, supporting the opposite end of said screen, the inclined adjustable board F, leading from the lower end of said screen D' to the upper end of said screen G, the blower E, the shaft of which is provided with two cranks, the vertical crank-shaft e^2, connected to the upper screen, D', the transverse shaft g^6, supporting one end of the lower screen, and provided with a pinion, g^4, which takes into the rack thereof, the slotted arm g^7, attached to said transverse shaft, and the pitmen connecting, respectively, said vertical crank-shaft e^2 and said slotted arm g^7 with the cranks of the blower-shaft, whereby, simultaneously, laterally-reciprocating motion is imparted to said upper screen, D', and vertically-reciprocating motion to said lower screen, G, substantially as described.

312,930. **BICYCLE.** CHARLES G. THAYER, Fredonia, N. Y., assignor of one-half to O. M. Gawne, same place. Filed Dec. 27, 1884. (No model.)

312,930.



Claim.—1. A device for preventing headers and other accidents to bicycle-riders, consisting of a block of rubber forming a non-rotative clutch secured to the fork of the machine, close to the periphery of the wheel, as set forth, whereby the fork and backbone are automatically clamped to the wheel by the forward movement of the fork.

2. A device for preventing headers and other accidents in bicycle-riding, consisting of a case or shell having a rubber block or packing secured therein, said case being secured to the front part of the fork, and close to the periphery of the main driving-wheel, as set forth.

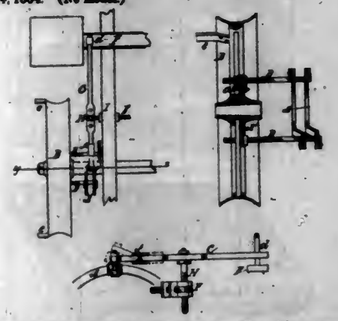
3. In a bicycle, the fork B, provided with the lug C, in combination with the case or shell D, rubber packing G, and friction-roller H, as and for the purpose set forth.

4. A device for preventing headers and other accidents in bicycle-riding, consisting of a cam-shaped metallic shell or case provided with a similarly-shaped rubber block or packing which projects beyond the edge of the shell, said shell being secured to lugs formed on the front portion of the fork, and close to the periphery of the main driving-wheel, as set forth.

5. In a device for preventing headers and other accidents in bicycle-riding, the shell or clutch D, provided with the pin *d*, in combination with the roller H, movable pin *e*, and lock-nut f_4, as and for the purpose set forth.

6. The shell D, pivoted, as described, to the yoke B, provided with the handle I, in combination with the spring K, and bolt-head *g*, whereby the clutch is raised and kept from contact with the wheel, as set forth.

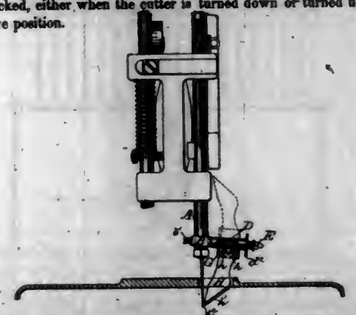
312,931. **CORN-PLANTER.** CHAS. THOMPSON, Allison, Iowa. Filed Oct. 14, 1884. (No model.)



Claim.—In a corn-planter, the cam A, adjustably connected with the flange or ring A' by stirrup-bolts D D, in combination with covering-wheel B, having markers *e e*, the jointed arm C, having sleeve *f*, the adjustable pivot H and bracket E, and the slide-bar F, substantially as shown and described.

312,932. **BUTTON-HOLE-CUTTING ATTACHMENT.** JOHN D. ULRICH and JOSEPH S. COLLINS, Philadelphia, Pa. Filed July 12, 1884. (No model.)

Brief.—The stock has a laterally-projecting arm, which has a tube swiveled thereon carrying a wing, to which is secured a cutter. The tube and stock are provided with a clutch-joint and a spring for holding the same locked, either when the cutter is turned down or turned up out of operative position.



Claim.—1. The button-hole-cutting device consisting of stock B, having opening *b* for the needle-bar, arm C, tube or sleeve D, having wing G, nut or head E, spring F, and cutter H, substantially as shown and described.

2. In a button-hole-cutting device designed and adapted for attachment to the needle-bar of a sewing-machine, the combination, with a stock, B, having an opening for the reception of said needle-bar and a laterally-projecting arm, C, of a sleeve or tube, D, swiveled on said arm and carrying a cutter, and a spring which encircles said arm and presses the sleeve toward the stock, said sleeve and stock having a clutch-joint, substantially as shown and described.

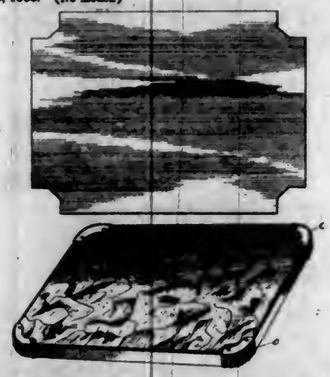
3. The combination, with the needle-bar A, of stock B, having a laterally-projecting arm, C, on which is a swiveled sleeve or tube, D, carrying a cutter, said arm and sleeve forming an obtuse angle with said needle-bar on their upper side, whereby when said cutter is turned down its point is brought close to the needle, and when it is turned up said point is thrown out from the needle-bar clear of the head of the machine, substantially as shown and described.

4. In a button-hole-cutting attachment comprising a stock, a projecting arm, and a swiveled sleeve carrying a cutter, a hole in said stock for the passage of the needle-bar of the machine at an angle different from a right angle with said arm and sleeve, substantially as set forth.

5. A button-hole-cutting attachment for sewing-machines comprising a stock and sleeve or tube carrying a cutter, said sleeve being swiveled on an arm projecting from said stock, and said stock and sleeve having a clutch-joint, whereby the cutter is held in position, substantially as shown and described.

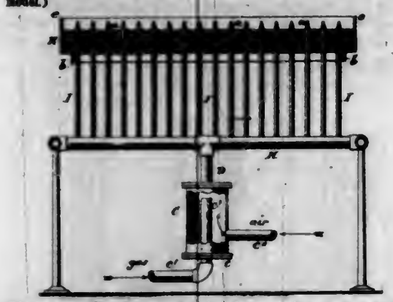
6. The combination, in a button-hole-cutting attachment for sewing-machines, of a stock having a laterally-projecting arm terminating in a nut or head, and a sleeve swiveled on said arm and capable of endwise movement thereon, with a spiral spring encircling said arm and fitting inside said sleeve, the latter and the stock having a clutch-joint between them, substantially as shown and described.

312,933. STOVE-PLATFORM. ISAAC VAN HAGEN, Chicago, Ill. Filed Jan. 23, 1883. (No model.)



Claim.—In a stove-platform, a base of suitable material, and a top composed of a sheet of crystallized tin having its corners removed and its remaining edges turned in the shape of a double right angle over and upon the edges and vertical sides of the base, combined with corner-pieces, substantially as set forth.

312,934. HEATER FOR THE CRYSTALLIZATION OF STOVE-PLATFORMS. ISAAC VAN HAGEN, Chicago, Ill. Filed Jan. 9, 1884. (No model.)



Claim.—1. In an apparatus for the manufacture of crystallized sheet metal, an air and gas mixing cylinder, a series of burner-pipes communicating therewith, a guard or plate formed of a material having poor heat-conducting qualities, and through which the burners project, combined with a support adapted to hold the sheet of metal to be treated above said guard or plate, substantially as set forth.

2. In an apparatus for the manufacture of crystallized sheet metal, an air and gas mixing cylinder, a series of burner-pipes communicating therewith, a guard or plate formed of a material having poor heat-conducting qualities, and through which the burners project, combined with a support extending above the burners, and having closed sides, whereby when the sheet is placed upon said support the flames will burn under the sheet unaffected by external air currents or drafts, substantially as set forth.

312,935. SAW-GUMMER. HAZEN VAN NOSTRAND, Gloversville, N. Y. Filed May 10, 1884. (No model.)

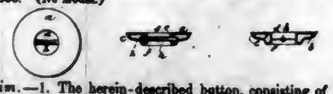


Claim.—1. In the saw-gummer, the combination, with the crank-shaft F, provided with the arm f' and with the threaded arm f, which has a bearing in a nut properly attached to the frame of the device, of the cylindrical cutter H, guide-post G, and the supporting-frame having dovetailed groove b^4, substantially as specified.

2. In a saw-gummer, the combination, with a crank-shaft having a proper bearing at one end, and provided at the other end with the threaded arm f, of the nut E, composed of the parts e and e', the box e^3, and rod I, provided with the cam z', substantially as specified.

3. The combination, with the main frame, reamer-shaft, and means for operating the same, of the nut E, co-operating with the threaded section of the shaft, the rod I, and cam z', substantially as specified.

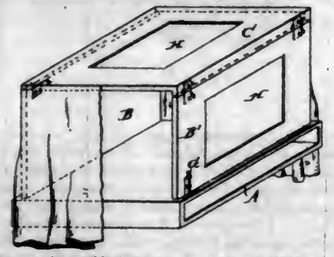
312,936. BUTTON. JOHN H. WALKER, Waterbury, Conn. Filed Jan. 12, 1885. (No model.)



Claim.—1. The herein-described button, consisting of the metal front a and back b, each constructed with a concentric opening, and with an internal flange around the opening in each part to form a wall around the central opening when the two parts are set together, combined with a bar diametrically across the opening and between the two parts, substantially as described.

2. A bar-button composed of the front A and back B, each constructed with a concentric opening, and with an internal flange around the opening in each part to form a wall around the central opening when the two parts are set together, the bar arranged diametrically across the said opening, and constructed to take a bearing against the inner side of the flange, substantially as described, and whereby longitudinal movement of the bar will be prevented.

312,937. PORTABLE DARK-ROOM FOR PHOTOGRAPHERS. WM. W. WALKER, Williamsport, Pa. Filed Aug. 12, 1884. (No model.)



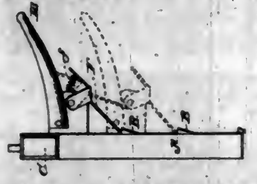
Claim.—1. A portable dark-room consisting of a flat box, and hinged sides and top provided with colored glass and adapted to be secured to the said box, substantially as herein shown and described.

2. In a portable dark-room, the combination, with a flat box, of hinged sides and top adapted to be secured to the said box, and provided with curtains, sleeves, or bags at their ends, substantially as herein shown and described.

3. In a folding dark-room, the combination, with a flat box, of a top and of two sides hinged to the same, adapted to be held erect on the box, or to be placed into the box when folded, substantially as herein shown and described.

4. In a folding dark-room, the combination, with a box in one side of which slotted plates are secured, of a top, two sides hinged to the same, headed studs projecting from the bottom edges of the sides and adapted to be passed through the slotted plates, and bolts on the hinged sides, substantially as herein shown and described.

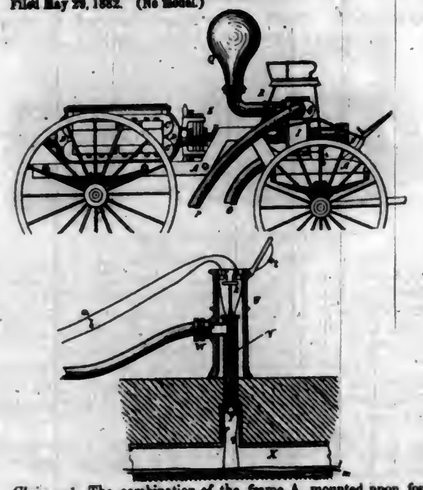
312,938. HARNESS-RACK. GEORGE F. WALTER, Caledonia, Iowa. Filed July 12, 1884. (No model.)



Claim.—1. The combination of the standard or upright provided with teeth B, the rack held to and movable vertically on the standard, the arms E E, extended from the rack and projecting outward in opposite directions, and a pawl secured to the rack and engaging the teeth B, substantially as set forth.

2. The combination of the standard provided with a slot, a, and having teeth B, the harness-rack having a plate, d, made wider than slot a, and arranged in rear thereof, and a bracket, d', projected through said slot, the pawl F, supported on the bracket d', a spring, f, and the arms E E, secured to and projecting outwardly from the bracket d', substantially as set forth.

312,939. ELECTRIC FIRE-ENGINE SYSTEM. SCHUYLER S. WHEELER, New York, N. Y., assignor to Charles A. Cheever, trustee, same place. Filed May 29, 1882. (No model.)

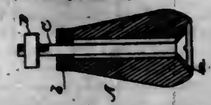


Claim.—1. The combination of the frame A, mounted upon four wheels, the electric motor B, supported upon the said frame over the rear axle and fixed thereto, with its armature-shaft extending lengthwise, and the rotary pump I, fixed to the front part of the frame, and having one of its revolving pistons mounted upon an extension of the armature-shaft, substantially as described, whereby the weight of the electric motor is supported by and equally distributed between the rear wheels, and a suitable electric motor is enabled to be used and connected direct with one of the pump-pistons without requiring a wide carriage.

2. The herein-described electric fire-engine system, comprising electric fire-engines, substantially such as described, a system of stationary electric conductors for conveying motive power in the form of electric current from a stationary generator to the said fire-engines, and provided with suitable means for forming electrical connections with the fire-engines at fixed points accessible from the streets, and a system of water-supply pipes constructed with suitable hydrants or fire-plugs, to supply water to the said fire-engines, the said means for making electrical connection with the system of conductors being arranged within or in close proximity to the said hydrants, so that both the water and the electric current required for pumping may be immediately obtained at the same point, substantially as described.

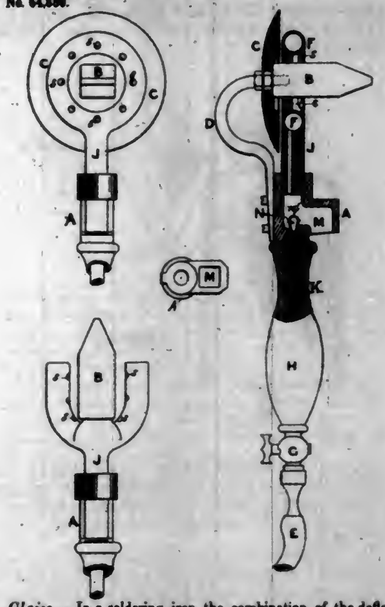
3. The combination, with a hydrant or fire-plug, of electrical conductors electrically connected at one end to a system of current-supplying conductors connected with an electric generator, and terminating at the other end within the said hydrant, and being provided with suitable means within the hydrant for connecting and disconnecting at pleasure wires or other conductors, substantially as described.

312,940. STOVE-DOOR HANDLE. JAMES G. WHITLOCK, Richmond, Va. Filed May 10, 1884. (No model.)



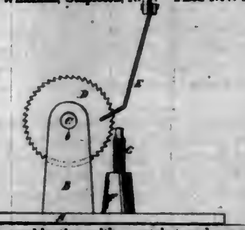
Claim.—The combination of the insulated handle A, the connecting screw-bolt C, having its head countersunk in the outer end of the handle, and its shank properly centered and slightly smaller in diameter than the bore in the handle, and the layers of asbestus a and b under the head of the bolt and under the inner end of the handle A, substantially as and for the purpose set forth.

312,941. SOLDERING-IRON. GEORGE W. WILKINSON, Kensington, County of Middlesex, England. Filed Aug. 5, 1884. (No model.) Patented in England Apr. 3, 1884, No. 6,073, and in Belgium Apr. 30, 1884, No. 64,899.



Claim.—In a soldering-iron, the combination of the deflector C, burner F, and bit B with the front pipe, J, and the back pipe, K, the latter having a nozzle, N, which discharges through a perforation, n', and an air-passage, M, into which the gas from the back pipe is discharged to mingle with the air before entering the front pipe, J, substantially as set forth.

312,942. STOP AND LOCK FOR PAWL-AND-RATCHET MECHANISM. JOHN N. WILLIAMS, Stapleton, N. Y. Filed Nov. 19, 1884. (No model.)



Claim.—1. In combination with a ratchet and a pawl adapted to operate the same, a stop or projection arranged to engage the said pawl at the desired limit of its stroke, substantially as set forth.

2. In combination with a ratchet and its operating-pawl, an adjustable stop for limiting the stroke of said pawl, substantially as set forth.

3. In combination, a pawl-and-ratchet mechanism and a stop or projection terminating at a point near the periphery of the ratchet for simultaneously stopping the pawl and locking the ratchet.

4. The combination of the pawl, the ratchet-wheel, and the standard having an adjustable extension, as set forth

312,943. BUTTON. THOMAS J. WINANS, Binghamton, N. Y., assignor to Joseph P. Noyes & Co., same place. Filed July 30, 1884. (No model.)



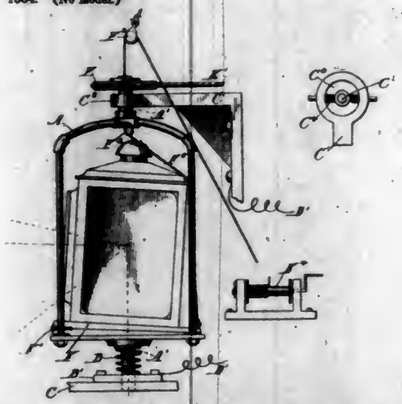
Claim.—1. A button-head provided with multiplex spring-arms projecting in different horizontal planes, and adapted to be used with a suitable attaching-shank, substantially as described.

2. The combination, with a button-head, of a spring plate or disk of lesser diametrical dimensions than the said head, and held concentrically therein by the tension of its multiplex spring-arms projecting in different horizontal planes, substantially as described.

3. The combination, with a button-head having multiplex spring-arms projecting in different horizontal planes, of an attaching-shank, substantially as described.

4. The combination, with a button-head having multiplex spring-arms projecting in different horizontal planes, and a collet with a central bearing, of an attaching-shank, substantially as described.

312,944. LAMP-CONTROLLING MECHANISM. EDWARD H. AMET, Chicago, Ill., assignor to Herbert A. Streeter, same place. Filed May 24, 1884. (No model.)



Claim.—1. The combination of a lamp frame or support, a bracket, a trunnion mounted in the bracket and connected with the lamp-frame, and a pivoted lamp-support and devices, substantially as shown and described, for inclining the lamp and rotating the lamp-frame or support, substantially as specified.

2. The combination of a bracket, a lamp-frame having a pivot or trunnion mounted in bearings in the bracket, a lamp-holder pivotally supported in the frame, a pulley secured to the pivot or trunnion, and means for rotating the pulley, substantially as specified.

3. The combination of a bracket, a lamp-frame pivotally mounted therein, a lamp pivotally supported in the frame, means for inclining the lamp, and means for rotating the lamp-frame, substantially as specified.

4. The combination of a lamp-bracket, a lamp-frame supported therein by a vertical pivot or shaft, a lamp vertically supported in said frame for inclination, and a cord arranged for inclining the lamp or its pivotal support, and a cord for rotating the frame, substantially as specified.

5. The combination, with a lamp-frame having vertical trunnions or pivots, of horizontally-pivoted lamp-supporting devices, a pulley mounted upon one of the vertical trunnions, and cords arranged to operate said pulley and to incline said lamp-supporting devices, substantially as specified.

6. In combination with a lamp-supporting frame having a vertical pivot, a bracket provided with a bearing for said pivot, yieldingly supported in lateral directions to said pivot, substantially as specified.

7. The combination of the frame A with the vertical pivot A', the bracket C' with the collar C^3, and springs C^4, substantially as shown and described.

8. The combination of the frame A, provided with the vertical pivot A', of the brackets C and C', inclined hinged lamp-support F, cord F^2, pulleys E F^3, and cord E', substantially as shown and described.

9. The combination, with a lamp-frame provided with vertical pivots, of cushioning mechanism surrounding said pivots, substantially as shown and described.

312,945. MANUFACTURE OF PARCHMENT-PAPER OR LEATHEROID. EMERY ANDREWS, Kennebunk, Me., assignor to the Leatheroid Manufacturing Company, same place. Filed Sept. 24, 1884. (No model.)

312,945.



Brief.—Improvement on the invention described in Patent No. 198,382, dated December 18, 1877, granted to T. and T. S. Hanna, for the manufacture of parchment-paper.

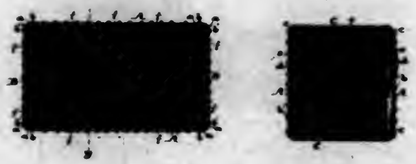
Claim.—1. The process of manufacturing parchmentized paper board by first treating the paper with acid, forming a laminated board by winding said acid-treated paper around a cylinder or drum until the material is of the desired thickness, cutting longitudinally through one side of the paper tube thus formed and flattening out the material to form a sheet, and then subjecting said flat sheet to a bath of refrigerated liquid, substantially as described.

2. That improvement in the art of making leatheroid or parchmentized paper board which consists in subjecting the laminated sheets, after being laid up, to a bath of refrigerated liquid, substantially as and for the purposes described.

3. The combination of the tanks A and B, racks or frames F F, the pump C, and pipes D, E, and G, all arranged and adapted to operate substantially as described.

4. In an apparatus for washing out sheet material, the combination of the tank B and a series of racks or frames, F F, arranged and adapted to operate substantially as and for the purpose described.

312,946. TRUNK. EMERY ANDREWS, Kennebunk, Me., assignor to the Leatheroid Manufacturing Company, same place. Filed Sept. 24, 1884. (No model.)



Claim.—1. A trunk composed of a series of sheets or plates of flexible material, each having flanges bent at right angles to the main body thereof, each pair of said sheets being arranged with their main bodies at right angles to each other, and the flange of one sheet overlapping a portion of the main body of another sheet, and secured thereto by riveting, or by cementing and riveting, substantially as described.

2. A trunk made of parchmentized paper board or other thin flexible material, and provided with the strengthening hoops or bands *d* and *e*, arranged to break the joint between the lid and main body, substantially as described.

3. A trunk made of parchmentized paper board or other thin flexible material, and provided with the bands or hoops *d* and *e* and the vertical stay-pieces *f f*, substantially as described.

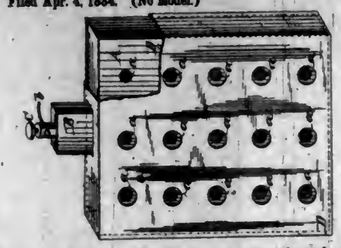
312,947. TRUNK-HINGE. EMERY ANDREWS, Kennebunk, Me., assignor to the Leatheroid Manufacturing Company, same place. Filed Sept. 24, 1884. (No model.)



Claim.—1. A hinge composed of the leaves A and B, connected together by the ears *a b b* and pin C, said leaves being made considerably wider than the aggregate width of the ears *a b b*, and having their outer surfaces curved or rounded down to their under surfaces, substantially as and for the purpose described.

2. A hinge the two leaves of which for a considerable portion of their lengths are made of a thickness equal to the thickness of the pivotal ears by which they are connected together, and have their outer faces curved or rounded and their inner faces chambered, substantially as described.

312,948. APPARATUS FOR RECTIFYING SPIRITS AND SPIRITUOUS LIQUORS BY ELECTRICITY. THOMAS E. ATKINSON, San Francisco, Cal. Filed Apr. 4, 1884. (No model.)



Claim.—1. An electrode formed of wood and perforated with transverse holes, and charred over its entire exposed surface, as described.

2. The combination, with an electrode, of one or more carbon rods inserted therein and adapted to receive the electric current, as described.

3. The combination, with a charred wooden electrode, of a canvas covering, as described.

4. The combination, with the charred wooden electrode A, having transverse perforations *a*, of a canvas covering, D, having apertures coinciding with the perforations *a*, as described.

312,949. COMBINED SCREEN AND STORM DOOR. GEORGE F. BARBER, De Kalb, Ill. Filed Nov. 25, 1884. (No model.)

Brief.—Permanent panels of wire screening having rubber stripe entirely around the edges of the same are secured in the door-frame, and imperforate detachable panels engage grooves in the outer stiles and fit in a rabbeted vertical stile provided with turn-buttons extending over both edges.



Claim.—In a combined screen and storm door, the herein-described door-frame, having outer stiles provided with grooves, and rabbeted center stile provided with turn-buttons adapted to extend over both edges of the same, in combination with the screens secured permanently in the openings thus formed, the rubber strips or cushions K, secured entirely around the edges of the permanent screening, and the detachable panels, the outer edges of which are beveled to engage the grooved outer stiles, substantially as and for the purposes herein set forth.

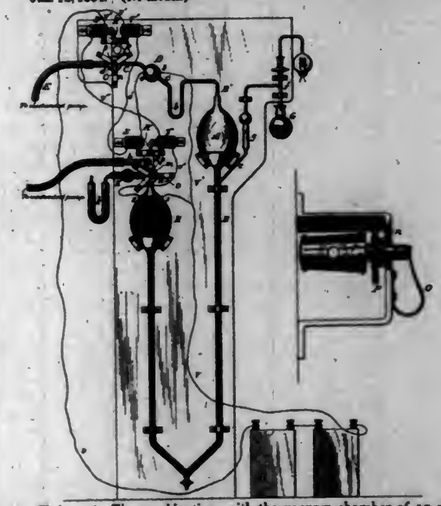
312,950. PISTON. THOMAS BARBER, Flatbush, N. Y. Filed June 5, 1884. (No model.)



Claim.—1. The combination of the piston-body A, the follower B, the axial screw-bolt C on the piston-rod, the cross-cut packing-rings D D, having their adjacent sides beveled inwardly, the cross-cut expansion-ring F, having its opposite sides beveled outwardly, the packing-rings having recesses G opposite their cross-cuts, and the tongues I, arranged in the recesses, the said axial screw-bolt, by its adjustment, serving to move the follower on the head for expanding or contracting the packing-rings, substantially as herein shown and described.

2. The combination, substantially as hereinbefore described, with the body and follower connected together by an axial screw-bolt, of the cross-cut packing-rings D D, having the inner sides beveled in an inward direction, and the outer sides provided with recesses, the break-joint tongues fitted into the recesses of the packing-rings, and constructed to overlap the inner edges of such rings, the washer K, resting on the inner portions of the tongues, the spring acting on the tongues through the medium of the washer, and the expansion-ring F, having both sides beveled in an outward direction.

312,951. VACUUM-PUMP. RAYMOND F. BARNES, Brooklyn, assignor to the United States Electric Lighting Company, New York, N. Y. Filed Jan. 12, 1884. (No model.)



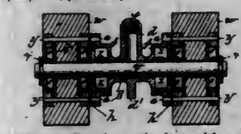
Claim.—1. The combination, with the vacuum-chamber of an air-pump of the kind described, of a mercury-reservoir connected therewith, devices for varying the pressure of air in said reservoir, electro-magnets for operating said devices, and circuits controlled by the movements of the mercury, as set forth.

2. The combination, with the vacuum-chamber of an air-pump of the kind described, a mercury-reservoir, and tube connecting the same, of devices for admitting air to and withdrawing it from said reservoir, electro-magnets for operating the said devices, and circuits controlled by the movements of the mercury, as set forth.

3. The combination, with the vacuum-chamber of an air-pump, a mercury-reservoir, and tube connecting the same, of a tube for the escape of air from the vacuum-chamber, and a cock or valve therein, an air-inlet tube and exhaust-tube connected to the mercury-reservoir, a two-way cock for controlling the same, electro-magnets for operating the valves, and circuits controlled by the movements of the mercury, all as set forth.

4. The combination, with the valves or cocks *d m*, of electro-magnets and intermediate mechanism for operating the same, circuits including said magnets, and connected with contact-points extending into the pump, so as to be brought into contact with the mercury, as and for the purpose specified.

312,952. ROLLER-SKATE. EVERETT H. BARNEY, Springfield, Mass. Filed Jan. 5, 1885. (No model.)



Claim.—1. In a roller-skate, the journal-box D, having a roller-socket at each end thereof, and provided with the post *d*, a series of parallel rollers arranged around the axle in said socket, and a cap covering the latter, in combination with the axle *v*, substantially as set forth.

2. In a roller-skate, the journal-box D, having thereon the post *d*, and having a roller-socket at each end thereof, the axle *v*, a series of parallel rollers arranged around the axle in said socket, and a cap covering the latter, in combination with the wheels *w*, each of which has two rollers-cups secured thereto, having arranged therein around the axle two separate series of parallel rollers, substantially as set forth.

3. In combination, the journal-box D, having the perforated post *d*, the screw-plug *e*, and the axle *v*, substantially as set forth.

4. A journal for roller-skates, having a central passage for the axle, and provided with sockets in the ends thereof for the reception of rollers and the posts *d*, and having those portions thereof between the post and the adjoining sides of the socket-cases *f* of less diameter than the latter, substantially as set forth.

5. The wheel *w*, having on opposite sides thereof the recess w^2, of greater diameter than the axle-passage through it, the metallic disk i^2, the roller-cup *i*, having perforated ears on its border, and the screws *y*, passing through the wheel and said ears, and the rollers *o*, combined and operating substantially as set forth.

6. The wheel *w*, having on opposite sides thereof the recess w^2, of greater diameter than the axle-passage through it, the roller-cup *i*, having perforated ears on its border, and the screws *y*, passing through the wheel and said ears, and the rollers *o*, combined and operating substantially as set forth.

312,953. MEDICAL COMPOUND. ROBT. BAUMANN, Cincinnati, Ohio, assignor of one-half to Emil Schmid, same place. Filed June 18, 1884. (No specimens.)

Claim.—A balsam composed of the following ingredients, namely: alkanet, gum-aloes, (Socotrine,) Spanish saffron, gum-olibanum, gum-myrrh, gum-benzoin, gum-camphor, oil of lavender, cologne, grain-musk, tincture of cinnamon, and alcohol, combined in the proportions described, and for the purpose herein set forth.

312,954. PROCESS OF PREVENTING TARNISHING IN SILVER-WARE. FRANK J. BLAIR, Cincinnati, Ohio, and EVERETT RARDON, Newport, Ky. Filed May 10, 1884. (No specimens.)

Claim.—The herein-described process of preserving silver from tarnishing, which consists in wrapping or surrounding the wares with fibrous material impregnated with a solution of the acetates of lead dissolved in water, substantially as herein specified.

312,955. STAVE AND CASK. ALEXANDER C. BLOUNT, Pensacola, Fla. Filed Oct. 5, 1881. (Model.)



Claim.—1. A complement of exteriorly and interiorly planed staves for a bilge tight-joint barrel, all of the staves having the same thickness, and each having an inner transversely-concave and an outer transversely-convex surface, both of gradually-diminishing radii from the center to the ends of the stave, the surfaces being parallel and plane longitudinally, and running with the longitudinal grain of the wood, and having jointed edges beveled radially and curved lengthwise on equal radii centered equidistant from the ends of the stave, substantially as and for the purpose described.

2. The new article of manufacture herein described, consisting of planed unbent staves for bilged tight-joint barrels, every one of a given complement of which staves is made of equal thickness and width, and with an inner surface which is concave and an outer surface which is convex in a transverse direction, the two surfaces being parallel and straight and in a longitudinal direction, and with joint edges which are beveled radially and curved equally on opposite sides of the center of the respective staves, and with a croze-channel at their respective ends equidistant from the center of the bilge of the barrel, substantially as described.

3. The new article of manufacture herein described, consisting of planed unbent staves for bilged tight-joint barrels, every one of a given complement of which staves is made of equal thickness and width, and with an inner surface which is concave and an outer surface which is convex in a transverse direction, the two surfaces being parallel and straight in a longitudinal direction, and with joint edges which are beveled radially and curved equally on opposite sides of the center of the respective staves, and with a croze-channel at their respective ends equidistant from the center of the bilge of the barrel, and with a chamfer at each of their ends, substantially as described.

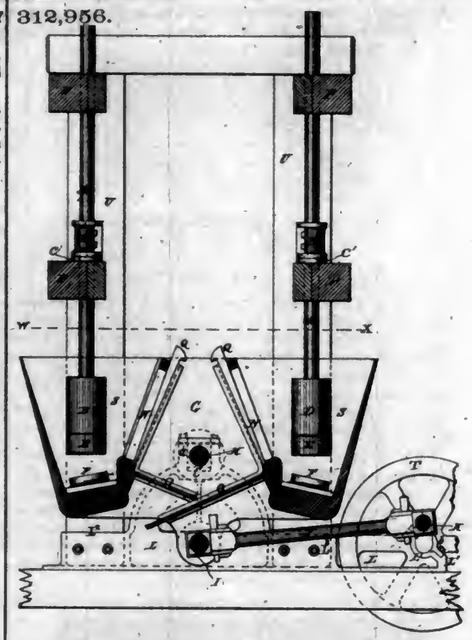
4. The article of manufacture, to wit: a tight-joint bilged barrel having outwardly-planed bent staves, every one of the staves being of the same thickness and width, and having an inner surface which is transversely concave and an outer surface which is transversely convex, the two surfaces being parallel in a longitudinal direction and running with the grain of the wood, and with joint edges which are beveled radially and curved lengthwise on equal radii centered equidistant from the ends of the stave, and with a croze-channel at their respective ends, equidistant from the center of their length, substantially as described.

312,956. STAMP-MILL. HENRY BOLTHOFF, Denver, Colo., assignor of one-half to Charles F. Hendrie, same place. Filed Apr. 25, 1883. (No model.)

Claim.—1. In a stamp-mill, an oscillating or vibrating mortar, in combination with suitable means for operating it, and a suitable stamp or stamps, substantially as and for the purpose described.

2. In a stamp-mill, the combination, with the suspended stamps, of a mortar adapted to be oscillated to bring its dies upward against the

312,956.



material between them and the shoes of said stamps, substantially as and for the purpose set forth.

3. In a stamp-mill, the combination, with the suspended stamps A D E and a mortar, G, having two compartments, S S, provided with dies F, screens N N, and discharging-aprons O O, of the shaft H^4, the pin or shaft I, connecting-rod J, and crank K, substantially as and for the purpose set forth.

4. An oscillating mortar for stamp-mills, constructed of two compartments, S S, the screens N N, and the discharge-aprons O O, substantially as and for the purpose set forth.

5. In a stamp-mill, the combination, with the frame and an oscillating mortar, of the stamps provided with collars B, and interposed cushions, C', upon the girt of said frame, substantially as and for the purpose described.

6. In a stamp-mill, the combination, with the frame and an oscillating mortar, of the stamps provided with adjustable collars B B, and interposed cushions C' C' upon the girt of said frame, substantially as and for the purpose described.

7. In a stamp-mill, the combination, with an oscillating mortar and the stamps, of the shaft H, boxes *a a*, the interposed cushions C C' and the bed-plate extension G', substantially as and for the purpose set forth.

8. In combination with a mortar having a discharge-opening, a stamp, and mechanism for enabling the mortar to be oscillated curvilinearly, whereby the reduced stuff is passed to one side of the mortar for automatic delivery during the reducing operation.

9. In combination with a mortar having a screened discharge, the stamp, and mechanism for enabling the mortar to be operated to pass the reduced stuff to the said screened opening for discharge from the mortar during the reducing operation.

10. A curvilinearly-reciprocating mortar, in combination with a pestle or stamp operating therein.

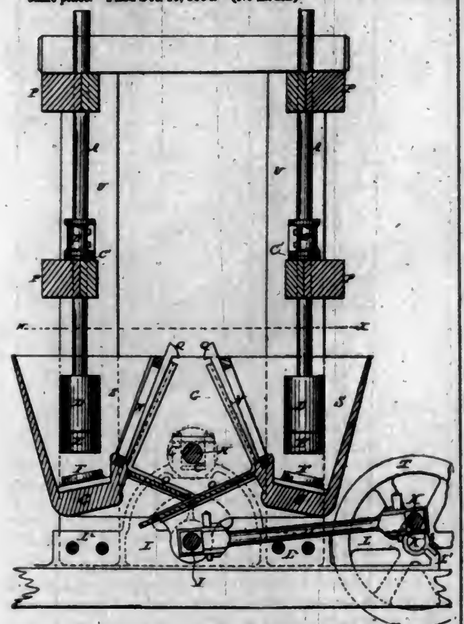
11. The combination of a stamp, a mortar with a side pivotal support, and a pitman-connection for oscillating the mortar, substantially as described, for the purposes specified.

12. The combination, with a curvilinearly-reciprocating mortar having a discharge at one side of a vertical line passing through the stamp, and a stamp operating therein, of a receiving-apron for the reception and delivery of the contents of the mortar as discharged therefrom.

13. In a stamp-mill, the combination of an oscillating or vibrating mortar and a stamp or stamps, with independent power-connections for positively operating said mortar, substantially as described.

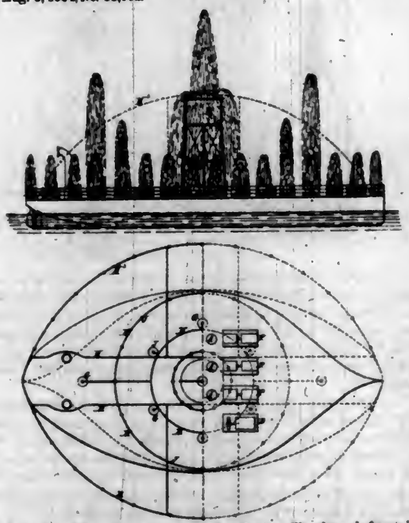
14. In a stamp-mill, a vertically-oscillating mortar having a pounding-compartment at each side of its pivot-bearings, each compartment having a side discharge-opening, in combination with a stamp or stamps operating within said compartments at one side of said discharge-opening, and power-connections for positively operating said mortar, substantially as set forth.

312,957. METHOD OF REDUCING AND DISCHARGING ORES, &c. HENRY BOLTHOFF, Denver, Colo., assignor of one-half to C. F. Hendrie, same place. Filed Dec. 19, 1884. (No model.)



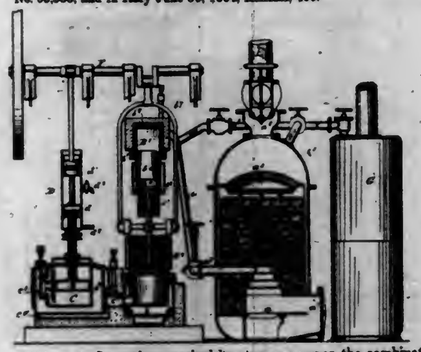
Claim.—The method herein described of reducing material and discharging the material so reduced from a stamp-mill, which consists, first, in reducing the material between an oscillating mortar and a stamp; second, throwing the mass of material at intervals from the point of reduction to the point of discharge, and then throwing the coarser material back again to the point of reduction, whereby the mass of material is reduced and agitated, or thrown laterally in opposite directions in alternate succession, and the finely-reduced material is discharged at intervals from the mortar on a line aside from the stamp, the coarser material being returned by an opposite sudden throw beneath the stamp for further reduction, substantially as set forth.

312,958. FLOATING APPARATUS FOR PRODUCING ILLUMINATED FOUNTAINS. FRANCIS J. BOLTON, Westminster, County of Middlesex, England. Filed Nov. 17, 1884. (No model.) Patented in England Aug. 8, 1884, No. 11,062.



Claim.—Floating apparatus for producing illuminated fountains, consisting of a floating vessel provided with pumps, water-mains, and jet-nozzles, and illuminating apparatus sheltered by glass from the water and spray of the jets.

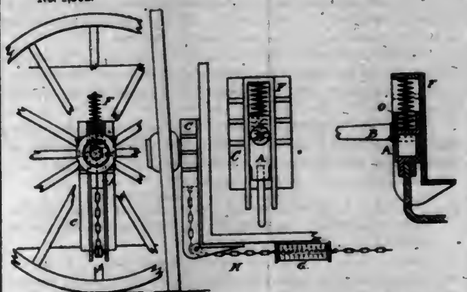
312,959. SUPERHEATED-STEAM ENGINE. MATTHEW P. W. BOULTON, Tow Park, County of Oxford, and EDWARD PERRETT, Westminster, County of Middlesex, England. Filed June 12, 1884. (No model.) Patented in England Dec. 18, 1883, No. 5,797; in France June 12, 1884, No. 162,704; in Germany June 15, 1884, No. 30,069; in Belgium June 19, 1884, No. 65,533, and in Italy June 30, 1884, XXXIII, 490.



Claim.—1. In engines worked by steam or vapor, the combination of a boiler or generator with a heater containing fire-brick or suitable refractory material disposed with numerous interstices, the whole arranged and operating in such manner that the heater at one time is heated by fire under ordinary pressure, and afterward it is put in communication with the boiler and engine, so that the steam or vapor on its way from the boiler to the engine passes through the interstices of the heater, becoming thereby superheated, and enters the cylinder in this superheated state.

2. The combination of a high-pressure steam-boiler, G, a heater or heaters, A' A^2, a pair of hot-steam cylinders, B' B^2, and an ordinary steam-cylinder, C, with their pipes, valves, and connections, arranged and operating substantially as described.

312,960. ROAD-VEHICLE. WILLIAM J. BREWER, London, England. Filed Apr. 15, 1884. (No model.) Patented in England Apr. 12, 1883, No. 1,962.



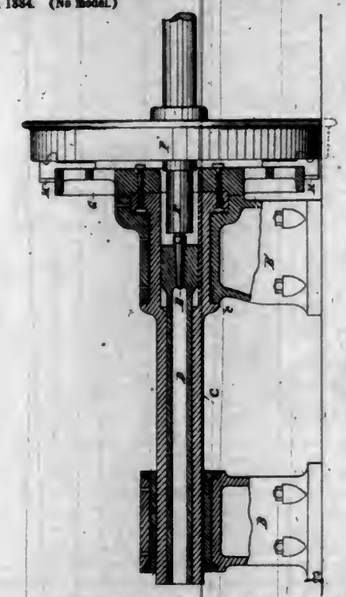
Claim.—1. The combination, with the body of a road-vehicle, of flanged angle-braces closely embracing the lower angles of the body, and forming vertical guides for slides from which the axle-spindles project and to which the spring or springs are applied, substantially as herein specified.

2. The combination, in a road-vehicle, of a body provided with flanged angle-braces closely embracing the lower angles of the body and forming vertical guides for slides from which the axle-spindles project and to which the spring or springs are applied, and a connection between said slides extending horizontally across below the body and out of contact therewith, substantially as herein specified.

3. The combination, in a road-vehicle, of a body provided with flanged angle-braces closely embracing the lower angles of the body and forming vertical guides for slides from which the axle-spindles project, and a connection between said slides in the form of a chain working over rollers in said angle-braces and extending horizontally across below the body and out of contact therewith, substantially as herein specified.

4. In a road-vehicle, a vertical slide, A, having a stud-spindle, B, projecting therefrom, and constructed with a recess, O, in its upper part connected by a duct with the surface of the said spindle for retaining a spiral spring above said slide and supplying the spindle with lubricant, substantially as herein specified.

312,961. CAR-WHEEL LATHE. JOHN J. BREWER, Minneapolis, Minn., assignor to the North Star Iron Works Company, same place. Filed Oct. 18, 1884. (No model.)



Claim.—1. The combination, in a lathe for turning car-wheels, of a movable head-stock having a hollow spindle turning in bearings therein, and a supplementary hollow spindle adapted to receive the lathe-center, substantially as and for the purpose specified.

2. The combination, with the movable head-stock B' and its hollow spindle, of the stationary head-stock B, having a bearing in which the hollow spindle may be moved longitudinally to center the axle, substantially as specified.

3. The combination, with the movable head-stock and the hollow spindles and lathe-center, of the face-plate and clutches, whereby the wheel is chucked in the lathe, substantially as set forth.

4. The combination, with the movable head-stock, its hollow spindle, center, and face-plate, of the stationary stock having a bearing wherein the outer hollow spindle may be moved longitudinally, substantially as specified.

5. The combination, in a lathe, of the movable head-stocks having hollow spindles and centers, and the face-plate with the stationary head-stocks having bearings in which the spindles may move longitudinally, substantially as and for the purposes set forth.

312,962. LASTING-MACHINE. MATTHIAS BROCK, Boston, Mass., assignor to the McKay & Copeland Lasting Machine Company, Portland, Me. Filed Jan. 2, 1885. (No model.)

Claim.—1. In a lasting-machine, a crimping-jaw and a gage below it for the reception against it of the toe of the upper on the last, and a circularly-movable toe-carriage and toe-rest carried thereby, and combined with a circular track, the course of which is described from at or near the upper end of the said gage, substantially as described, whereby the toe-carriage may be adjusted in the arc of a circle, and always place the bottom of the last from its toe to its ball, substantially in the plane of movement of the crimping-jaws, as and for the purpose set forth.

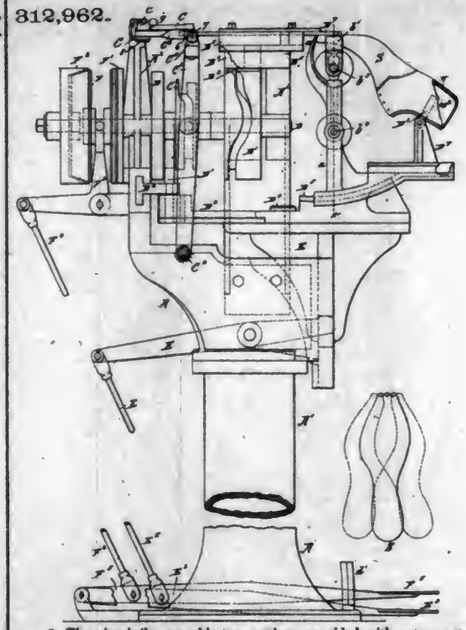
2. The pivoted horizontally-swinging toe-carriage and jack thereon to support the last and the crimping-jaw and the slide to move it forward, combined with means, substantially as described, to turn the said jaw on its pivot and retain it in position to enable but one arm of the said jaw to operate against and turn over upon the inner sole of the last but one half of the toe of the upper, substantially as described.

3. In a lasting-machine, the vibrating lever having the curved track for the toe-carriage, and the toe-carriage mounted thereon, combined with the vertically-movable slide E, on which the said lever has its fulcrum, as and for the purpose set forth.

4. In a lasting-machine, the lever having upon it the track for the toe-carriage, combined with the toe-carriage, and with means, substantially as described, to vibrate the said lever to place the toe-carriage in central position and in positions at each side of the said central position, substantially as set forth.

5. In a lasting-machine, the circularly-movable toe-carriage provided with the adjustable toe-rest, and suitable means for supporting a boot or shoe, to operate substantially as described.

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6. The circularly-movable toe-carriage provided with a toe-rest, combined with the independently-movable standard D' thereon, to support the heel-pin, substantially as described.

7. The circularly-movable carriage and its attached gage, combined with the adjustable toe-rest, substantially as described.

8. In a lasting-machine, the toe-carriage and the toe-rest composed of the standard and blocks b' b^2, combined with the right and left threaded screw to adjust the said blocks, substantially as described.

9. In a lasting-machine, the toe-carriage and the toe-rest composed of the standard and blocks b' b^2, combined with the right and left threaded screw to adjust the said blocks, substantially as described.

10. The horizontally-movable slide and the toe-crimping jaw pivoted thereon and having a backwardly-extended shank, combined with the elbow-lever, the lever C^2, and with means, substantially as described, to adjustably connect the said levers, as and for the purposes set forth.

312,963. SEAL. EDWARD J. BROOKS, East Orange, N. J., assignor to E. J. Brooks & Co., New York, N. Y. Filed Oct. 21, 1884. (No model.)

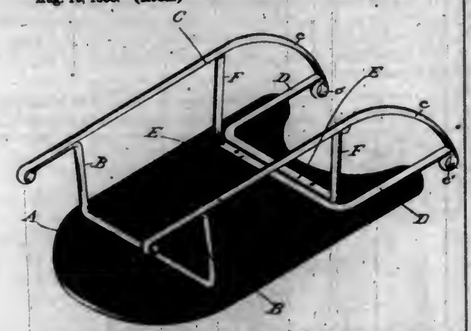


Claim.—1. The combination, in a self-fastening seal, of a flexible shackle, a brittle hollow seal part having an inwardly-tapering mouth and internal catch-shoulders, an elastic securer attached to one or both shackle ends, and a rigid pusher carried by the shackle in contact with said securer, for thrusting the securer through said mouth of the seal part into effective position behind said internal shoulders, substantially as herein specified.

2. The combination, in a self-fastening seal, of a flexible shackle, a brittle hollow seal part having an inwardly-tapering mouth and internal catch-shoulders, an elastic securer attached to one or both shackle ends, and a combined pusher and cap-disk carried by the shackle in contact with said securer and secured against separation from the latter, whereby it is caused to be held by said securer within and over the mouth of the seal part in the fastened seal, substantially as herein specified.

3. In a self-fastening seal, a flexible shackle of cord or twine, in combination with a brittle hollow seal part of plaster-of-paris molded fast on one end of said shackle, an elastic securer attached to its other end, and a rigid pusher carried by said shackle in contact with said securer, whereby the latter may be thrust into said seal part to fasten the seal, substantially as herein specified.

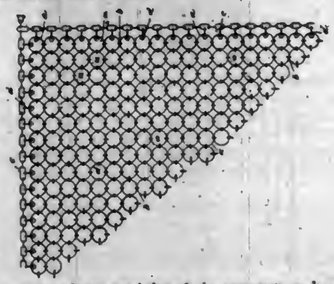
312,964. IRON SLED. WILLIAM L. BROWN, Fennimore, Wis. Filed Aug. 16, 1883. (Model.)



Claim.—1. In a sled, the combination, with the seat or bottom, of a pair of runners and braces of a single piece of bent metal, the middle portion of which constitutes a cross-bar for sustaining the seat at one end, intermediate portions of which form uprights B B, runners C C, curved supporting-braces c c, and duplicate portions E E, crossing and sustaining the seat, and the ends of which constitute uprights F F, secured at their extremities to the runners, and forming intermediate supports between the parts c and B, substantially as set forth.

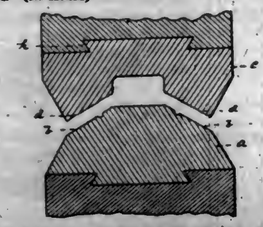
2. In a sled, the combination, with the seat or bottom, of a pair of runners and braces of a single piece of bent metal, the middle portion of which constitutes a cross-bar for sustaining the seat at one end, intermediate portions of which form uprights B B, runners C C, curved supporting-braces c c, and duplicate portions E E, crossing and sustaining the seat, and the ends of which constitute uprights F F, secured at their extremities to the runners, and forming intermediate supports between the parts c and B, said piece of metal being bent between the parts c and D to form the eyes c' c', substantially as set forth.

312,965. TORPEDO-NET. WILLIAM M. BULLIVANT, London, County of Middlesex, England. Filed Apr. 1, 1884. (No model.) Patented in England June 20, 1878, No. 2,466.



Claim.—A torpedo-net consisting of wire grommets, each connected with the adjacent grommets by loose rings without seizings or rigid connections, substantially as hereinbefore described.

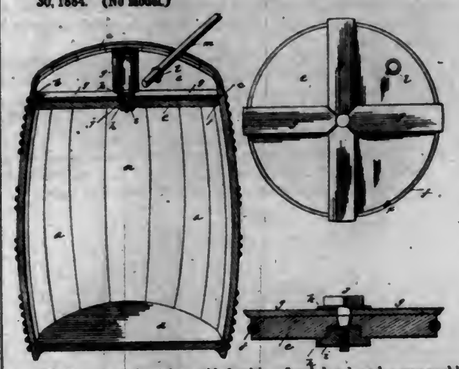
312,966. DIE FOR SINGLE-TREE STRAPS. IRVIN K. CAMPBELL, Pittsburg, Pa., assignor to Oliver Brothers & Phillips, same place. Filed Oct. 13, 1884. (No model.)



Claim.—1. In apparatus for forming single-tree clips and like articles, an upper and lower die having faces inclined at an angle to the direction of the blow of the die, substantially as and for the purposes described.

2. In apparatus for manufacturing single-tree clips and like articles, an upper and lower die, each having two separate operating-faces at opposite angles to each other and inclined at an angle to the direction of the line of movement of the upper die, substantially as and for the purposes described.

312,967. BARREL. AUGUSTUS C. CAREY, Boston, Mass. Filed Dec. 30, 1884. (No model.)



Claim.—1. A barrel provided with a fixed head and a removable head, the latter comprising a circular disk provided with a peripheral packing, to engage the chine of the barrel below the croze, battens superposed upon such head and engaging the croze and having their inner ends matched, and a screw-bolt and nut to fasten the battens and head together, substantially as described.

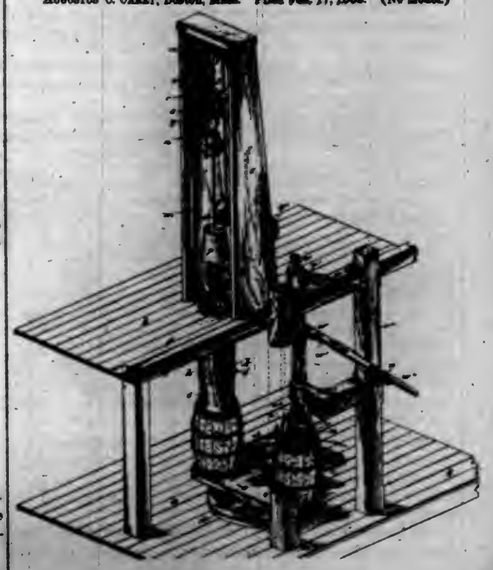
2. The combination, with a crozed barrel, of the removable head having peripheral packing, battens having undercut outer ends and matched or mitered inner ends, a nut fast in said head, and a screw-bolt engaging such nut and the battens, substantially as described.

3. The combination, with a crozed barrel, of the removable head having peripheral packing, battens radiating from a central bolt-hole in the head and having undercut outer ends and matched or mitered inner ends, a nut fast in said head, and a screw-bolt engaging such nut and the battens, substantially as described.

4. The combination, with a crozed barrel, of the removable head, battens superposed on such head and engaging the croze, a tapering screw-bolt, and a nut therefor to hold the battens to the head and in the croze, substantially as described.

5. The combination, with a barrel-head secured in the barrel by superposed battens, and a bolt and nut applied thereto, of a series of crozed staves equal in number to the number of battens and engaged by such battens, and crozeless adjacent staves, substantially as described.

312,968. APPARATUS FOR FILLING AND HEADING BARRELS. AUGUSTUS C. CAREY, Boston, Mass. Filed Jan. 17, 1885. (No model.)



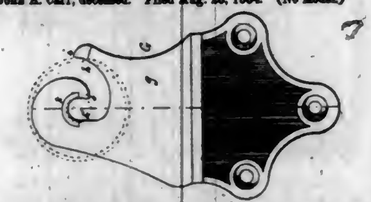
Claim.—1. An apparatus for filling and heading barrels, comprising a drop-press, a filling-chute, a heading-plunger, and a swinging stand for supporting two barrels, one under the drop-press for filling, and the other under the heading-plunger for heading, and for conveying the filled barrel to the heading-plunger, the headed barrel to a place of discharge, and an empty barrel to the filling-chute, substantially as described.

2. In a barrel-filling apparatus, the stand for supporting the barrel to be filled, having a block to receive the lower head of the barrel, and support the barrel on such head, rather than on its staves' ends, substantially as described.

3. In an apparatus for filling barrels, comprising a drop-plunger, a filling-chute vertically movable within its holder to permit its insertion in and removal from a barrel, substantially as described.

4. The heading-plunger comprising a notched annulus, *u*, arms *u'*, and a collar, u^2, substantially as described.

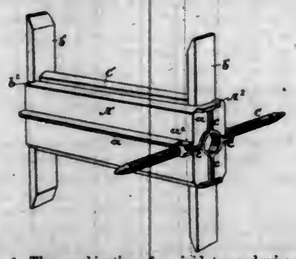
312,969. DOOR-HANGER. JOHN A. CARR, Walden, assignor of one-half to Sarah M. Disney, Brooklyn, N. Y.; Julia Carr administratrix of said John A. Carr, deceased. Filed Aug. 28, 1884. (No model.)



Claim.—1. A hanger for doors having a slot curved downward and upward and terminating in a bearing for its rollers, substantially as set forth.

2. A door-hanger having an entrance-slot of substantially quadrant shape, the journal end of which is provided with a detachable bearing, as set forth.

312,970. SPOOL FOR BARB-WIRE. GEORGE CASE, Joliet, Ill., assignor to William T. Conklin, same place. Filed Nov. 15, 1884. (No model.)



Claim.—1. The combination of a rigid tapered wire-spool core constructed with adjustable clamping-arms and a rigid removable spool binding-frame, substantially as described.

2. The U-shaped tapered coil-core, closed at one end, open and notched at the other end, and provided with ribs *a*, in combination with binding-frame B, substantially as described.

3. A wire-coil spool having a U-shaped coil-core, the adjustable clamping-arms, the shoulders b^2, and the binding-frame B, substantially as described.

312,971. PNEUMATIC PROJECTILE. WILLIAM T. CHAMBERLAIN, Norwich, Conn., assignor of two-thirds to Benjamin M. Prince, same place, and William Crossley, Randolph, Mass. Filed June 18, 1884. (No model.)

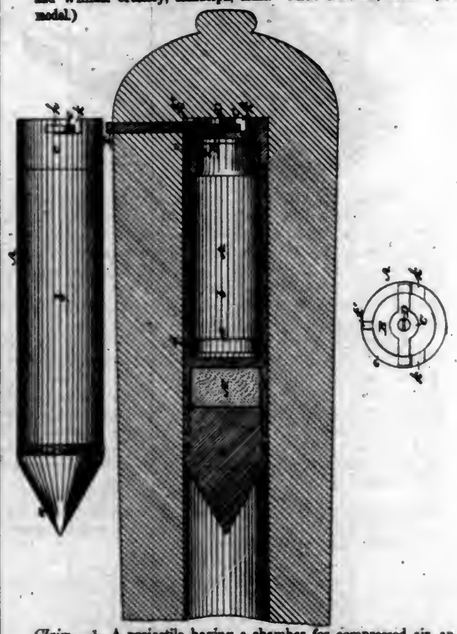


Claim.—1. A projectile having a chamber for compressed air, an inlet for the same, a valve closing said inlet, an air-outlet, and a rotary plug removably connected with said outlet, whereby when the plug is operated the air-outlet is opened or uncovered, substantially as and for the purpose set forth.

2. An air-charged projectile, in combination with a fire-arm having a rotary head which is fitted to the base of the bore thereof and provided with a suitable handle, said head being connectible with a rotary plug at the discharge end of the projectile, so as to operate the same and thus open the air-outlet of the projectile, substantially as and for the purpose set forth.

3. An air-charged projectile having a tubular base, and a removable plug fitted to said base, said base and plug having each an opening on its outer face, in combination with a rotary head fitted to a fire-arm provided with a lug, and a pin to engage with the openings, respectively, of the base and plug of the projectile, for preventing rotation of the projectile and removing the plug thereof, substantially as and for the purpose set forth.

312,972. PNEUMATIC PROJECTILE. WILLIAM T. CHAMBERLAIN, Norwich, Conn., assignor of two-thirds to Benjamin M. Prince, same place, and William Crossley, Randolph, Mass. Filed June 21, 1884. (No model.)

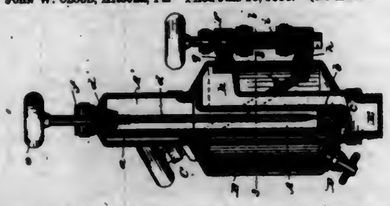


Claim.—1. A projectile having a chamber for compressed air, an inlet in the wall thereof, a valve within the chamber for closing said inlet, a removable plate at the rear of said chamber for closing the same, and a removable bar connected with the base for holding said plate, said bar being controlled by the firing-pin of the fire-arm or weapon, the parts being combined and operating substantially as and for the purpose set forth.

2. An air-charged projectile having at the base of its air-chamber a closing-plate and a cross-bar for holding the same, said base being provided with an annular face, which is recessed to receive the ends of said cross-bar and secure the cross-bar, substantially as and for the purpose set forth.

3. An air-charged projectile having a closing-plate at the base of its air-chamber, an annular flange projecting from said base, a cross-bar fitted in recesses in said flange, and a screw connected with the cross-bar tightening against the closing-plate, substantially as and for the purpose set forth.

312,973. LUBRICATOR FOR LOCOMOTIVE OR OTHER ENGINES. JOHN W. CLOUD, Altoona, Pa. Filed Jan. 10, 1885. (No model.)

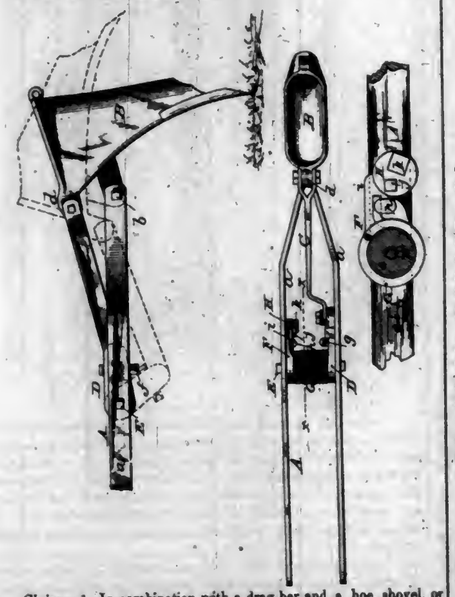


Claim.—1. The condensing-chamber opening at its lower end into the lower part of the oil-chamber, and provided at that point with a valve-seat, and a valve carried by a spindle extending the length of said chamber, from the valve below to the operating-handle above, in combination with the oil-chamber surrounding the lower portion only of said condensing-chamber, substantially as hereinbefore set forth.

2. The combination of the condensing-chamber, the oil-chamber surrounding the lower portion only of the same, the upwardly-extending steam-passage inside of said condensing-chamber, the valve-seat at the lower end of said condensing-chamber, and the valve-spindle extending through said chamber from the valve-seat below to the operating-handle above, substantially as and for the purposes hereinbefore set forth.

3. The condensing-chamber provided with steam-inlet pipe and valve for controlling escape of condense-water, arranged within it substantially as described, the oil-chamber surrounding the lower portion only of said condensing-chamber, and the sight-feed tube arranged upon the exterior of the oil-chamber, in combination with passages or ducts inside of said oil-chamber, which conduct the oil from the top of the oil-chamber to the bottom of the sight-feed tube, and from the top of the sight-feed tube down into the discharge neck or outlet of the lubricator, substantially as and for the purposes hereinbefore set forth.

312,974. SPRING-HOE FOR SEEDING-MACHINES. JAMES B. COTTON, Dayton, Ohio, assignor to D. E. McSherry & Co., same place. Filed July 9, 1884. (No model.)



Claim.—1. In combination with a drag-bar and a hoe, shovel, or tooth pivoted to the rear end thereof, a block pivoted to said drag-bar and having a stop to limit its upward movement, a spring acting to raise said block, and a link or bar extending from the upper end of the hoe, shovel, or tooth to the pivoted block and jointed thereto, substantially as described and shown, whereby an excessive resistance to the advance of the shovel is caused to throw the shovel backward and depress the block against the force of the spring.

2. The combination, substantially as herein set forth, of drag-bar A, composed of two metal rods, *a a*, shovel B, block D, pivoted to the drag-bar and provided with a stop to limit its rise, link C, connecting the shovel and block D, and spring G, having one end made stationary and the other end acting to raise block D, all of said parts being located within the drag-bar, substantially as described and shown, whereby they are protected and the device is rendered more compact.

3. In combination with drag-bar A, shovel B, link C, block D, and spring G, all constructed and arranged to operate substantially as described and shown, block F, having arm *i* and carrying one end of the spring, and cam or eccentric H beneath arm *i*, substantially as and for the purpose explained.

312,975. AGITATOR FOR GRAIN-DRILLS. JAMES B. COTTON, Dayton, Ohio, assignor to D. E. McSherry & Co., same place. Filed July 9, 1884. (No model.)

Claim.—1. The herein-described agitator for seeding and distributing machines, consisting of shaft F, eccentric G, and agitator H, provided with fingers or projections to agitate the material, and with a guide-arm to prevent the overturning of the agitator, substantially as set forth.

2. In combination with a feed device, an agitator consisting of a revolving eccentric located within the supply-hopper, and a band encircling said eccentric and provided with projections to agitate the matter in the hopper.

3. In combination with a seed-hopper, a seed-cup beneath the hopper, and a feed-wheel within said cup, a revolving eccentric within the hopper, and an agitator carried by said eccentric, consisting of an encircling band provided with projections to agitate the material, and an arm or finger extending down into the seed-cup and serving to loosen the material within said cup and to prevent the overturning of the agitator, substantially as explained.

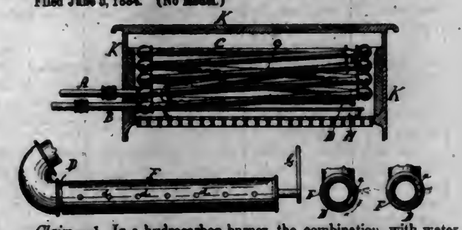
4. In combination with hopper A, having outlet B, seed-cup C beneath said outlet, and feed-wheel within said cup, a driving-shaft, E, for the feed-wheel, a shaft, F, within the hopper, an eccentric, G, carried by said shaft, an agitator, H, carried by said eccentric, and gearing connecting shafts E and F, substantially as described and shown.

5. In combination with hopper A, seed-cup C, and feed-wheel D, rotary eccentric G, provided with studs or projections and mounted within the hopper A over the discharge-opening B, substantially as shown and described.

6. The herein-described agitator, consisting of eccentric G, provided with projections *g*, and encircling band *e*, provided with fingers *f f g*.

7. In a seeding or distributing machine, an agitator consisting of an eccentric composed of flanged eccentric *a* and disk *b*, and encircling band *e*, provided with fingers *f f g*, all constructed, combined, and arranged to operate substantially as explained.

312,976. HYDROCARBON-BURNER. JAMES A. COWLES, Chicago, Ill. Filed June 5, 1884. (No model.)



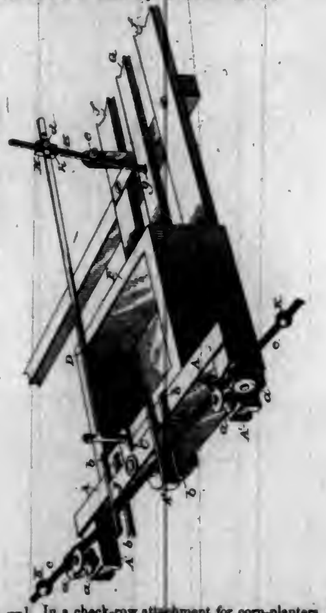
Claim.—1. In a hydrocarbon-burner, the combination, with water and oil reservoirs, of parallel pipes formed into a helical coil and merging into a single pipe or gas-chamber, which extends within the coil and terminates in a perforated burner, and a perforated sleeve-valve for controlling the burner, substantially as described.

2. In a hydrocarbon-burner, the combination of parallel pipes merging into a single pipe whose extremity is provided with perforations, and a sleeve-valve provided with a slot and perforations which register with those of the pipe, said parallel pipes being so turned as to form a combustion-chamber, into which the perforated end or burner of the single pipe is located, substantially as described.

3. In a hydrocarbon-burner, the combination of a centrally-located perforated burner and an annular combustion-chamber with water and oil inlet pipes connecting with the burner, and a perforated sleeve-valve surrounding the same and having a handle, all substantially as and for the purposes described.

4. In a hydrocarbon-burner, the combination of two parallel pipes describing a helical coil, and forming thereby an inner combustion-chamber, said pipes merging into a single pipe or gas-chamber, which extends within the combustion-chamber and terminates in a perforated burner, substantially as described, and for the purposes set forth.

312,977. CHECK-ROWER FOR CORN-PLANTERS. NOBLE E. CROTHERS, Paxton, Ill. Filed Sept. 15, 1884. (Model.)



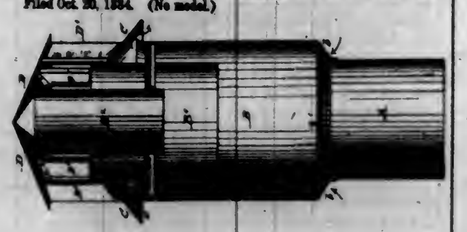
Claim.—1. In a check-row attachment for corn-planters, the revoluble driver centrally pivoted to the planter-frame, the outer ends of the main arm of said driver being provided with bifurcated right-angled projections, said arm being also provided with an arm extending centrally at right angles to the longitudinal plane thereof, in combination with the rod D, pivoted lever E, and the slide G, substantially as described, and for the purposes set forth.

2. In a check-row attachment for corn-planters, the revoluble driver centrally pivoted to the planter-frame, the outer ends of the main arm of said driver being provided with bifurcated right-angled projections, said arm being also provided with an arm extending centrally at right angles to the longitudinal plane thereof, said centrally-extending arm being provided with an opening on its outer end, in combination with the rod D, lever E, and slide G, the outer end of said rod being provided with a T-head adapted to engage in the opening in the centrally-extending arm, and removable therefrom at pleasure, substantially as described and set forth.

3. In a check-row attachment for corn-planters, the driver having the arms and bifurcated ends, substantially as herein specified, in combination with the rod D, pivoted on its outer end to the driver, and also pivoted at its inner end to the slide H, said slide being longitudinally adjustable on the slide-actuating lever E, substantially as described, and for the purposes set forth.

4. In a check-row attachment for corn-planters, the driver having the arms and bifurcated ends, substantially as herein specified, in combination with the rod D, pivoted on its outer end to the driver, and also pivoted at its inner end to the slide H, and provided on said end with a series of openings, substantially as described, and for the purposes set forth.

312,978. CHIMNEY-COWL. THEODOR CROSER, New York, N. Y. Filed Oct. 20, 1884. (No model.)

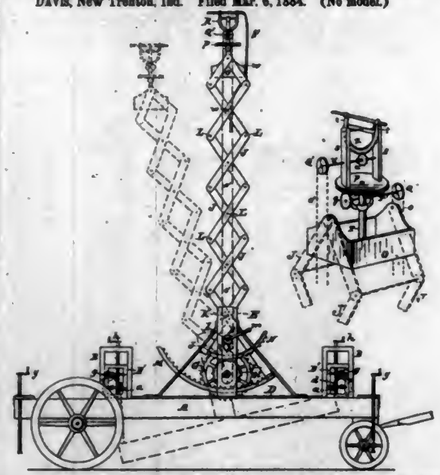


Claim.—1. A chimney-cowl composed of a cylindrical base, A, an outer cylinder, B, of larger diameter than the base, and provided with slots *b' b'* at the lower end, an intermediate cylinder, B', having a cap, C, extending over the edge of the outer cylinder, an interior cylinder, B^2, and a top cap, D, supported by vertical stays D', substantially as set forth.

2. The combination of an outer cylinder, B, an intermediate cylinder, B', having a cap, C, extending over the upper edge of the outer cylinder, an interior cylinder, B^2, a top cap, D, and radiating vertical stays D', substantially as set forth.

3. The combination of an outer cylinder, B, an intermediate cylinder, B', having a cap, C, extending over the upper edge of the outer cylinder, an interior cylinder, B^2, having a cap, D, and radiating vertical stays D', connecting the caps C and D, said stays having curved flanges at their inner ends, substantially as and for the purpose set forth.

312,979. EXTENSION-LADDER AND FIRE-ESCAPE. JOHN P. T. DAVIS, New Trenton, Ind. Filed Mar. 6, 1884. (No model.)



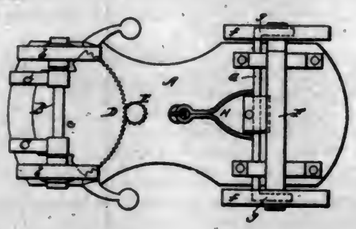
Claim.—1. In combination with an extension-ladder and fire-escape having its side parts formed of pivoted bars J, and carrying a swinging cage or platform at the top, the segment racks M and N, attached to the lower bars J of each side part of the ladder, a pinion, H, placed between and engaging with both of said racks, whereby the ladder is extended or contracted, an adjustable base-frame, D, and suitable operating mechanism, the parts being constructed substantially as shown, for the purpose set forth.

2. In combination with an extension-ladder, a segment rack, R, carrying a discharge-pipe, a pinion engaging with the rack, and a wheel, Q', with a chain or cord passing over it, the parts being properly supported at the top of the ladder, and constructed substantially as shown, for the purpose set forth.

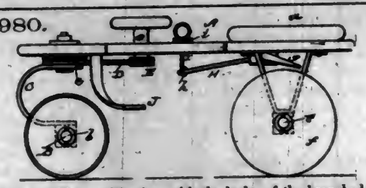
3. In an extension-ladder supported by a suitable frame, a swinging cage or platform secured to the top of the ladder and carrying gear-wheel *p*, shaft *r* with pinion *q*, and wheel Q with chain *o*, shaft *v* with pinion *u*, and wheel Q' with chain *o'*, the posts *s*, and adjustable segment rack R, constructed and operating substantially as and for the purpose set forth.

4. In combination with frame A, the vertical frames B, movable frames B', with rocking shafts *a* and *b*, forming journal-bearings, the screws *k*, the windlasses provided with gearing, and an inner frame, D, carrying an extension-ladder, substantially as and for the purposes set forth.

312,980. SLED. ADOLPH DELKESCAMP, Waterbury, Conn., assignor to the Metal Wheel Company, same place. Filed Sept. 29, 1884. (No model.)

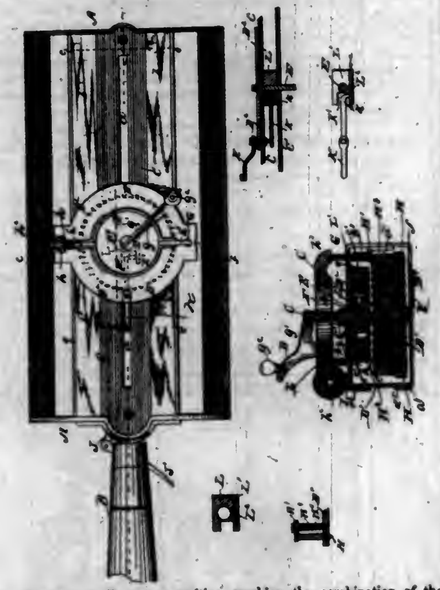


312,980.



Claim.—The combination, with the body, of the branched brake-lever H, the transverse brake-bar G, having its opposite ends bent rearwardly at right angles to extend above the rear wheels, as at *g*, and the lift-rod I, connected at its lower end to the brake-lever, whereby the brake may be applied by lifting the said rod, substantially as specified.

312,981. TYPE-WRITING MACHINE. MANLY C. DODGE, Charlotte, Mich. Filed Dec. 26, 1883. (Model.)



Claim.—1. In a type-writing machine, the combination of the type-wheel, and the type-wheel carriage D, having disk or dial D^2, said disk or dial having lateral and downwardly-bent or flanged extensions D^3, one forming the lower bar, D^4, having slot *f* for passage of the type when depressed, with the central vertical rotating shaft, E, having pointer *g* and lever *g'*, constructed substantially as described, and arranged to operate as specified, and for the purpose set forth.

2. In a type-writing machine, the combination of the type-wheel D', carriage D, having central vertical shaft, E, block L, having recesse, L' and *k'*, and tooth L^2, the longitudinally-slotted centrally-recessed type-wheel carriage-support, composed of the plates C C', side bar, *b*, rabbeted side bar, *b'*, and slotted end pieces, C^2 and C^3, chain-belt I, sprocket-wheels I^2 I^3, ratchet-wheel I^3, pawl J, thumb-lever J', and spring *j'*, all constructed and arranged to operate substantially as specified, for the purpose set forth.

3. In a type-writing machine, the combination of the type-wheel carriage, the actuating-chain, and the lever K, pivoted to the dial D^2, and having a tooth, *k*, designed to either place the chain I in or out of engagement with the tooth L^2 of the block L, substantially as specified, and for the purpose set forth.

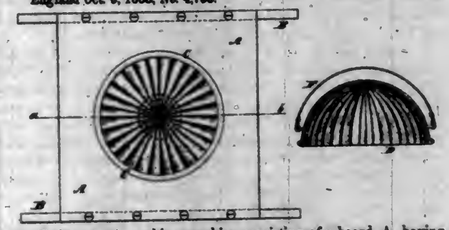
4. In combination with the type-wheel carriage, the type-wheel D', having types H, studs H^2, springs H^4, extensions H', and the ring-lever F, having arm *h'* and perforated disk h^2, sandwiched between two disks, *h*, of the bracket c^2, spring *i*, and spring-plunger G, arranged to operate substantially as specified, and for the purpose set forth.

5. The studs H^2, having springs H^4, and types H, having perforated right-angled extensions H', in combination with the type-wheel D' and the type-wheel carriage, all constructed and arranged to operate as specified, and for the purpose set forth.

6. In a type-writing machine, the combination of the handle B, provided with thumb-lever J', having spring *j''*, and stop j^3, and pawl J, ratchet-wheel I^3, chain-belt I, grooved and toothed block L, shaft E, and the type-wheel carriage D, substantially as specified, and for the purpose set forth.

7. In a type-writing machine, the combination of the type-wheel carriage having the lower bar or plate, D^4, spring L, supporting-bar M', and the two inking pads or disks M, journaled thereto for supplying ink to the type H, all constructed and arranged to operate substantially as shown and described.

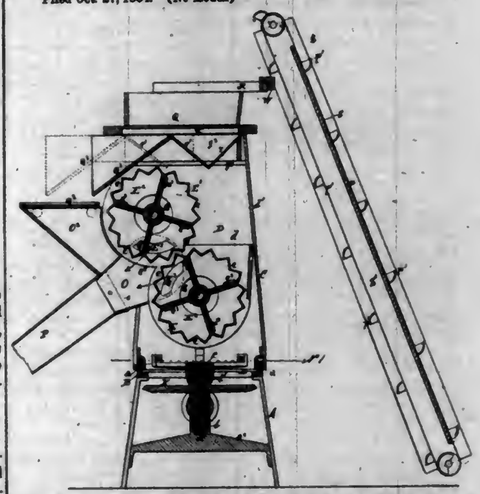
312,982. WASHING-MACHINE. JAMES DONALD, Glasgow, County of Lanark, Scotland. Filed Nov. 7, 1883. (No model.) Patented in England Oct. 6, 1883, No. 4,753.



Claim.—1. A washing-machine consisting of a board, A, having a basin, C, and a vessel, D, having a handle, by which a rectilinear, circular or eccentric circular, or a compound reciprocating and eccentric circular motion may be imparted to the vessel, the vessel forming a receptacle into which the articles to be cleansed are placed.

2. A washing-machine consisting of a board, A, having a basin, C, formed with a ribbed interior, and a clothes-receptacle, D, formed with a ribbed interior, and having a handle, by which a rectilinear, circular or eccentric circular, or a compound reciprocating and eccentric circular motion may be imparted to the vessel, as set forth.

312,983. SAND-MOLDING MACHINE FOR RUNNING RIDDLED SAND INTO MOLDS FOR CASTING. WILLIAM DOYLE, Albany, N. Y. Filed Oct. 27, 1884. (No model.)



Claim.—1. In a machine for filling and packing foundry-sand into molds, the combination, with a sand-chamber, of revolving corrugated drums, a spout into which the sand is discharged, and mechanism for revolving the said drums in opposite directions for mutual operations to carry the sand from the said chamber into the discharge-spout, substantially as and for the purposes set forth.

2. In a machine for filling and packing sand into molds, the combination, with revolving chambered drums which are provided with external and internal corrugations and revolving between the sides of a sand-containing chamber, of openings through said sides to the interior of said drum-chamber for admission of outside air, and exit-openings for the discharge of air into a spout arranged in front of the neighboring portions of said drums, substantially as and for the purposes set forth.

3. The combination, with chambered drums E E', having each a series of external corrugations, which are unitedly adapted to carry sand from a sand-containing chamber, and a spout arranged opposite the neighboring portions of said drums, of a casing having air-inlet openings which admit air to the interior of said drums, and exit-openings which communicate from the chambers of said drums to passage-ways along the inner sides of the spout, and corrugations and fan-bars arranged within the chambers of said drums so as to revolve with the same, substantially as and for the purposes set forth.

4. In a machine for filling and packing molds with sand, the combination, with a sand-containing chamber, and a pair of revolving drums which are corrugated on their periphery so as to adapt them to carry sand from said chamber to a discharge-spout, of mechanism for driving an air blast or current into the sand-spout at the same time sand is being discharged from the same by the operations of the revolving drums, substantially as and for the purposes set forth.

5. In a machine for filling and packing sand into molds, the combination, with a reciprocating riddle, a pair of revolving corrugated drums, and a revolving fan, of a casing having openings E^2 E^3, spout O, and hose P, substantially as and for the purposes set forth.

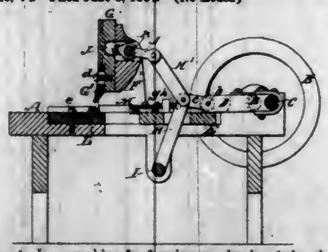
6. In a machine for filling and packing sand into molds, the combination, with a structure which contains a chamber, revolving corrugated drums, an air-blowing mechanism, and discharge-spout, and which supports a reciprocating riddle, and which are adapted to be together turned horizontally in either direction, of a base frame or support which is stationary, and gear mechanism supported by said stationary frame or base coacting with mechanism supported from the sides of the movable structure above, and communicating motion to said drums and air-blowing mechanism and riddle, substantially as and for the purposes set forth.

7. In a machine for discharging sand into molds, the combination, with revolving drums and an air-blast, of hose P, connected with spout O, substantially as and for the purposes set forth.

8. In a machine for filling and packing sand into molds, the combination, with the structure containing the revolving drums, of hopper O and reciprocating riddle Q', substantially as and for the purposes set forth.

9. The combination, with hopper Q, reciprocating riddle Q', and a structure which contains an air-blowing mechanism, of the sieve Q^2, adapted to be operated in a reciprocating manner by mechanism, movable inclined sand-board Q^3, and conducts O^2, communicating with spout O, through which the air-blast is driven, substantially as and for the purposes set forth.

312,984. FORK-FORMING MACHINE. PHILIPPE D. DUPONT, Summerville, Vt. Filed June 5, 1884. (No model.)



Claim.—1. In a machine for forming or shaping forks, the combination of the raised stationary U-shaped former L, made either with or without one or more grooves, *f*, in it, the bed or table A, and the concave-shaped reciprocating former M, having a centering hole or recess, *m*, for the shank of the fork-blank, substantially as specified.

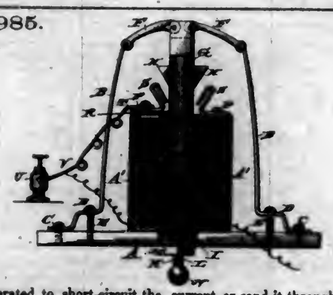
2. In a machine for forming or shaping forks, the combination, with the table A, of the presser or die G', having an up-and-down motion, as described, the raised stationary former L, arranged upon the table or bed, and the concave reciprocating former M, for operation in relation with each other, essentially as and for the purposes herein set forth.

3. The combination of the sliding die or presser carrier G, the adjustable die or presser G' thereon, the slide or reciprocating plate E, with its adjustably-attached former M, the toggle-levers H H', and arm or lever J, connected therewith, one or more links, *c*, the stationary raised former L, and the bed or table A, essentially as specified.

4. In combination with the stationary raised former L, reciprocating former M, and presser or die G', the moving side die, N, and stationary side die, N', substantially as and for the purposes specified.

5. The combination, with the presser or die carrier G and its attached die or presser G', of the rock-shaft K, with its attached crank *e*, the reciprocating side die, N, stationary die N', the arm or lever J, the slide E, and the toggle-levers H H', essentially as shown and described.

312,985. AUTOMATIC CUT-OUT FOR ELECTRIC APPARATUS. JAMES DU SHANE, South Bend, Ind. Filed May 15, 1884. (No model.)



Claim.—1. The combination, in an electric switch, of stationary contact-pieces forming part of a short circuit connecting with the line-circuit maker and breaker, and the flat springs and lever-arm to hold the contact maker and breaker away from or against the contact-pieces when initially started in proper direction, substantially as specified.

2. The combination, with the springs secured to a suitable support, of the arms pivoted to the same, the vertical bar pivoted to said arms and extending into a vertical guide-tube, the contact-pieces secured to said tube and connecting with the line-circuits, the beveled lugs on the bar, and the operating-rod having an adjusting-nut, the whole arranged to be operated to short-circuit the current or send it through the carbons, substantially as specified.

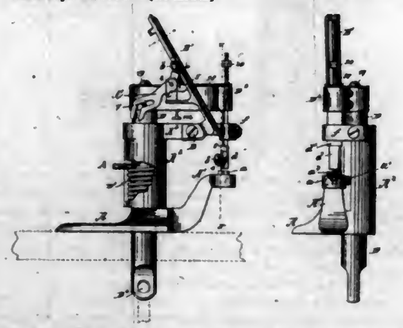
3. The combination, with the springs, the pivoted arms, and the dependent bar and adjusting-rod and its lugs, of the tube, its contact-pieces connected with the line-circuit, and the solenoid or helix surrounding the tube and connecting with the line-circuit, whereby the rod is initially moved and operated in connection with the springs to short-circuit the current when the resistance at the carbons becomes excessive, substantially as specified.

312,986. BUTTON-FASTENER. EDWARD O. ELY, Boston, Mass., assignor to the Peninsular Novelty Company, Grand Rapids, Mich. Filed Sept. 10, 1884. (No model.)



Claim.—The herein-described button-fastener, composed of a staple having a crown, 2, and a V-shaped head, 3, and legs 4, the fastener having preliminary inward bends at 6, the points of the legs being inwardly beveled to insure the inward turning of the legs, while the preliminary bends insure like and measured bends in the legs and determine the size of the eye in the head of the fastener, all substantially as described.

312,987. BUTTON-SETTING MACHINE. EDWARD O. ELY, Boston, Mass., assignor to Peninsular Novelty Company, Grand Rapids, Mich. Filed Sept. 10, 1884. (No model.)



Claim.—1. In a button-setting machine, the raceway to guide staples, combined with the guide or carrier located at the end of the raceway, and adapted to receive the staple with its connected button, substantially as described.

2. In a button-setting machine, the staple-raceway to guide the staples with their connected buttons, combined with the slotted guide or carrier into which the eye of the button, with its attached staple, is directed from the raceway, the anvil-block and die, and with means, substantially as described, to move and force the guide or carrier against the material upon which the button is to be attached, substantially as described.

3. In a button-setting machine, a raceway to guide the staples with their connected buttons, and the clinching-die, and the movable guide or carrier adapted to receive the staple with its connected button from the said raceway, combined with a driver to drive the staple through the guide or carrier into the material and clinch its prongs, substantially as described.

4. In a button-setting machine, the guide or carrier having inclined inner walls for the reception of the staple, and slotted at d^2 for the reception of the shank of the button, substantially as described.

5. In a button-setting machine, the guide or carrier slotted at d^2, and having its shank recessed at 3, combined with the raceway to conduct the staple into the guide or carrier and direct the legs of the staple downward, substantially as described.

6. The raceway for the staples and their connected buttons, and the guide or carrier located at its end, and the support A', and anvil-block and die, combined with the driver, and with means, substantially as described, to press or force the guide or carrier against the material preparatory to driving the staple from the guide or carrier, as set forth.

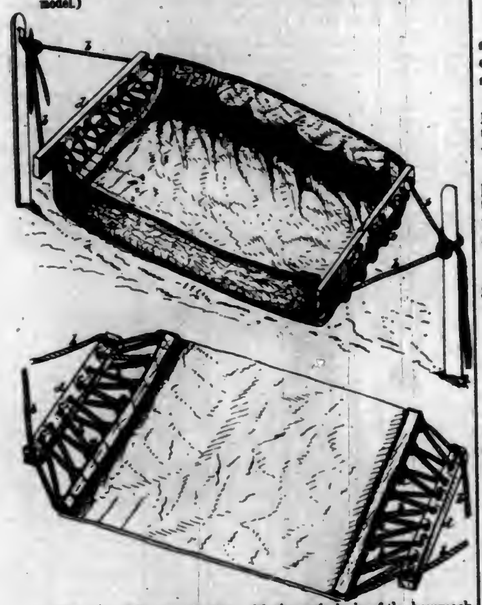
7. In a button-setting machine, the support A', the spindle, its arm and the driver, combined with means to regulate the extent of the descent of the driver, to thus leave more or less of the staple undriven or projecting above the material, as set forth.

8. The support A', the anvil-block and clinching-die, the guide or carrier located at and extended below the end of the raceway, and the staple-raceway to discharge the staples into the said guide or carrier, combined with the driver having beveled faces 14, and slotted at 15 to act upon the V-shaped head of the staple and leave the shank of the button free, substantially as described.

9. In a button-setting machine, the support A', the anvil-bed and its clinching-die, and the spindle and its attached arm, combined with the guide or carrier opened at its side, above its end, to receive the staple, and slotted at d^3, and raised or lowered by the said arm with relation to the said die, and with a driver to drive the said staple down into and out from the lower end of the said guide or carrier, substantially as described.

10. In a button-setting machine, the raceway to support the attached staples and buttons, the separator having the toe 5 and head 6, and the guide or carrier open at one side, above its end, to receive the points of the staple, and slotted vertically for the reception of the eye of the button, combined with the driver and a clinching-die, to operate substantially as described.

312,988. HAMMOCK. MARY R. EWING, Pataskala, assignor of one-half to Sarah J. McCord, Portsmouth, Ohio. Filed Apr. 4, 1884. (No model.)



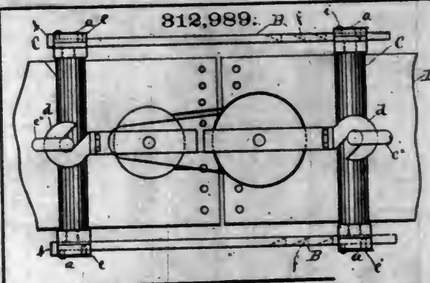
Claim.—1. The combination, with the main body of the hammock, of the perforated suspension-bars, and the single suspension-cords interlaced with the main body of the hammock-loops and with the suspension-bars, substantially as herein described, for the purpose specified.

2. The combination, with the main body of the hammock, of the adjustable suspension-bars *d d*, each provided with holes *c* along its length, the distance between the end holes in each bar being less than the width of the hammock, and the single suspension-cords interlaced with the main body of the hammock-loops and with the suspension-bars, substantially as described, whereby the bars may be adjusted to spread and maintain the hammock in flat position, as a couch, or made narrower with raised sides, as herein set forth

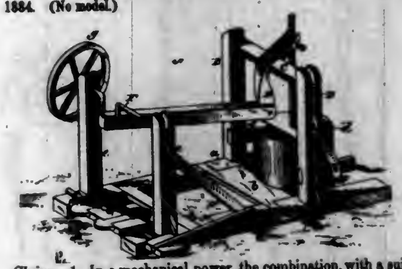
312,989. BELT-TIGHTENER. JOHN T. FERTIG, Denver, Colo. Filed Jan. 5, 1885. (No model.)

Claim.—The combination, in a belt-tightener, of the eccentric rollers C C, the blocks A A, with the springs *e* and *e'*, and the guide-rods B B, together with a chain-fall or its equivalent, all acting in conjunction substantially in the manner and for the purpose herein described and set forth.

312,989.



312,990. MOTOR. JOHN H. FORSTER, Flatonia, Tex. Filed Dec. 3, 1884. (No model.)



Claim.—1. In a mechanical power, the combination, with a suitable supporting-frame, of a shaft carrying an angular arm journaled at one end thereof, and a crank-shaft journaled at its other end, substantially as set forth.

2. In a mechanical power, the combination, with a suitable supporting-frame, of a shaft carrying an angular arm journaled at one end thereof, a crank-shaft journaled at its other end, and a treadle connected with said crank-shaft for operating the same, as set forth.

3. In a mechanical power, the combination, with a suitable supporting-frame, of a shaft carrying an angular arm journaled at one end thereof, a crank-shaft journaled at the other end of the frame, an arm or rod connecting said angular arm and crank-shaft, and a treadle for operating the same, as set forth.

312,991. EJECTOR FOR VACUUM-BRAKES. JAMES GRESHAM, Manchester, County of Lancaster, England. Filed June 30, 1884. (Model.) Patented in England Nov. 23, 1881, No. 5,109; in France Mar. 6, 1883, No. 154,136; in Belgium Mar. 7, 1883, No. 60,676; in Italy Mar. 14, 1883, No. 15,231, and in Austria-Hungary July 11, 1883, No. 9,791 and No. 29,725.

Claim.—1. The combination of a small and large ejector with steam and air valves, the steam-valve for the large ejector and air-valve for the train-pipe being both simultaneously actuated by the same handle, substantially as and for the purpose specified.

2. The combination of a small ejector within a large ejector having steam-valves, with a disk-valve for steam for the large ejector and a disk-valve for air to the train-pipe, both actuated by the same handle, substantially as and for the purpose specified.

3. In apparatus for actuating and controlling vacuum-brakes, the combination of the following parts: a small ejector within a large ejector, a valve for controlling steam to the small ejector, a disk-valve for controlling steam to the large ejector, and a disk-valve for controlling air to the train-pipe, the disk-valves for steam and air being connected and actuated by the same handle, substantially as and for the purpose specified.

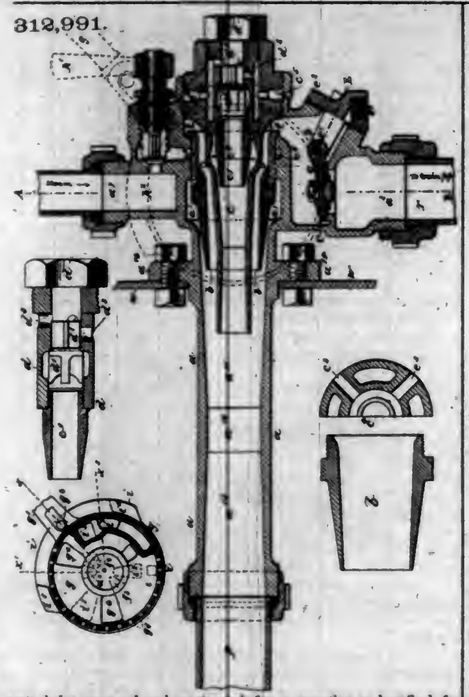
4. In an apparatus for actuating and controlling vacuum-brakes, the combination of a combined injector and ejector with a steam-valve for the ejector and an air-valve for controlling air to the train-pipe, both operated simultaneously by the same handle.

5. The combination, substantially as described, of the injector-casing, the air-branch a^2, the large ejector and the small ejector arranged therein, the valve *e*, and the lid e^3, having a passage, e^3, formed therein leading to the valve-chamber, for the purpose specified.

6. The combination, substantially as described, with the casing *a*, steam-branch a^1, the air-branch a^2, the large ejector *c*, and the small ejector *c'*, of the disk-valve *f*, the valve-seat *i*, disk-valve *g*, and suitable communication between said valves and the ejectors, and the handle *g'*, said valves being arranged for simultaneous operation by means of said handle, for the purpose set forth.

7. The combination, with the casing *a*, its air and steam branches a^2 a^1, and the ejectors *c c'*, of the valves *e* and *f*, the disk-valve *g*, and valve-seat *i*, interposed between said valves *f* and *g*, and the handle *g'*, said

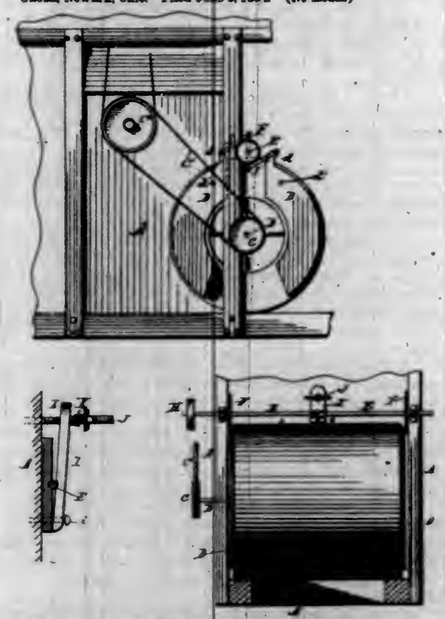
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parts being arranged and constructed for co-operation as described, for the purpose specified.

8. The combination, with the casing *a*, its air and steam branches a^2 a^3, the ejectors *c c'*, and the valve *d'*, of the valves *h*, *f*, and *g*, and the valve-seat *i*, interposed between valves *f* and *g*, and a lever for operating the latter valves simultaneously, substantially as and for the purpose specified.

312,992. BLAST-REGULATOR FOR GRAIN-SEPARATORS, &c. J. GRUBE, Newark, Ohio. Filed June 6, 1884. (No model.)



Claim.—1. In a fan-draft regulator, the combination, with the pivoted wind-boards arranged in pairs and having extending arms, as *d*, of a rock-shaft common to all said wind-boards, the said shaft being connected to the extending arms, and the pivots of the wind-boards being between the points of such connection and the draft-apertures, as and for the purposes set forth.

2. The separator A, shaft B, wind-boards D, having arms *d*, pivots *d''*, the rock-shaft E, levers F, links *f*, friction-cap I, rod or arm J, and spring K, all combined and arranged to serve as and for the purposes specified.

312,993. WITHDRAWN.

312,994. CHAIN BRACELET. FRANCIS F. HEILBORN, Plainville, Mass., assignor to Lincoln, Bacon & Co., same place. Filed Sept. 8, 1884. (No model.)



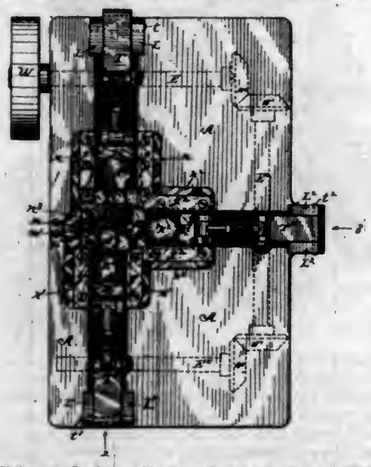
Claim.—In a clasp for chain bracelets, the combination of the sliding plate forming the upper side of the clasp-box, and adapted to slide over the end of the bracelet-chain, with the upwardly-projecting catch adapted to engage with the lower face of the chain, substantially as and for the purpose specified.

312,995. PROCESS OF PRESERVING MEATS. GEORGE HOLGATE, Philadelphia, Pa. Filed Jan. 10, 1885. (No specimens.)

Claim.—1. The mode of treating meats to simultaneously cool and preserve the same, consisting in introducing them while retaining the animal heat into a chamber, exhausting the air therefrom, then introducing gaseous preservative in a liquefied or crystalline form into the chamber, and allowing it to expand therein and at one and the same time cool and preserve the meat, then removing the meat to the external atmosphere, substantially as set forth.

2. In the preservation of meats, subjecting the same immediately after slaughter, in a chamber from which the air has been withdrawn, to the action of liquefied or crystalline sulphurous anhydride expanded in the presence of the meat, and to carbonic-acid gas, and then removing the meat after it is cool and exposing it to the atmosphere until desired for use, substantially as specified.

312,996. NAIL-MACHINE. WILLIAM J. HUTCHINS, Joliet, assignor to William M. Clow, East Wheatland, Ill. Filed May 24, 1884. (No model.)



Claim.—1. In the machine described for making nails, the combination, with the bed A, of the dies *d* and *a*, punches d^2 *a'*, and means for operating them and feeding in the nail-strip N, as and for the purpose set forth.

2. In the machine described for making nails, in combination with the bed A, the sliding head H, arranged to hold the cutting-punch *d'* by means of the chuck *c*, toggle-joint T, having the slot B in its outer link, cam F', having the pin *p*, spring S^2, shaft E, bell-crank B^3, link B^2, strap B', and die *d*, all adapted to operate as and for the purpose set forth.

3. In the machine described for making nails, in combination with the bed A, the sliding head H', arranged to hold the punch *a'*, toggle-joint T', cam F, shaft E^2, spring S^4, and die *a*, all adapted to operate as and for the purpose set forth.

4. In the machine described for making nails, in combination with the bed A, the toggle-joint T^2, sliding head H^2, arranged to hold the punch P, punch *a'*, die *a*, cam F^2, shaft E', and spring S^3, all adapted to operate as and for the purpose set forth.

5. In the machine described for making nails, the combination of the dies *a d*, punches *d'* *a'*, spring *v'*, and dowel-pin D'', as and for the purpose set forth.

6. In the machine described for making nails, the combination of the punch *a'*, having the shoulder D' and groove *r'*, die *a*, having the shoulder D and groove *r*, punch P, and means for operating said punches and dies, as and for the purpose set forth.

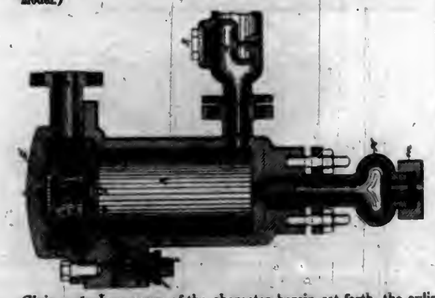
7. In the machine described for making nails, the spring S, for holding the cut-off nail until it is delivered to the formers, in combination with the punch *d''*, die *d*, chuck *c*, and means for operating said parts, as and for the purpose set forth.

8. The combination of the bed A, shafts E, E', and E^2, drive-pulley *w*, toggle-joints T T' T^2, having the sliding heads H H' H^2, friction-rollers *c c'* c^2, and screw-threaded shafts 10 respectively, punches *d''*, *a'*, and P, dies *d* and *a*, coil-springs S^2 S^4 S^5, cams F F' F^2 F^3, bell-crank B^2, connecting-shaft P', lever *y*, ratchet R^2, pawl *x*, rack R, feed-rollers M M', and means for securing said punches and dies, as and for the purpose set forth.

9. In the machine described for making nails, the combination of the toggle-joints T T' T^2, friction-rollers *c c'* c^2, shafts E E' E^2, and bed A, all adapted to operate as and for the purpose set forth.

10. In the machine described for cutting and forming nails, the toggle-joint, constructed substantially as shown, consisting of a rear joint hinged to the bed-frame at its outer end and to an inner joint at its inner end, and having a pair of downwardly-projecting ear-lugs for the support of a friction roller, and an inner joint hinged at one end to the inner end of the outer joint and at the other end to a working sliding head, and having an intermediate screw-threaded shaft for the adjustment of the working-head, as and for the purpose set forth.

312,997. PUMP. ARTHUR H. HUTCHINSON, Philadelphia, Pa., assignor to the I. P. Morris Company, same place. Filed Jan. 15, 1884. (No model.)

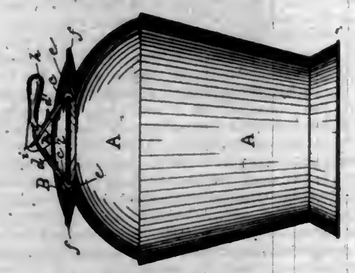


Claim.—1. In a pump of the character herein set forth, the cylinder, the piston, displacement-valve, ejection-valve, oil-inlet, and oil-inlet valve, combined and arranged substantially as shown, and for the purposes set forth.

2. The combination, with the pump-cylinder, of the oil-inlet to said cylinder, the valve located therein, the spring operating in conjunction with the valve, and the pump-piston, combined and arranged to operate substantially as set forth.

3. In a pump of the character herein set forth, having an inlet for air or gas and inlet for oil, and a common outlet for both oil and air or gas, the combination, with the valve governing the oil-inlet and operating as explained, of the removable screw-plug and adjustable or regulating spring, substantially as shown and described.

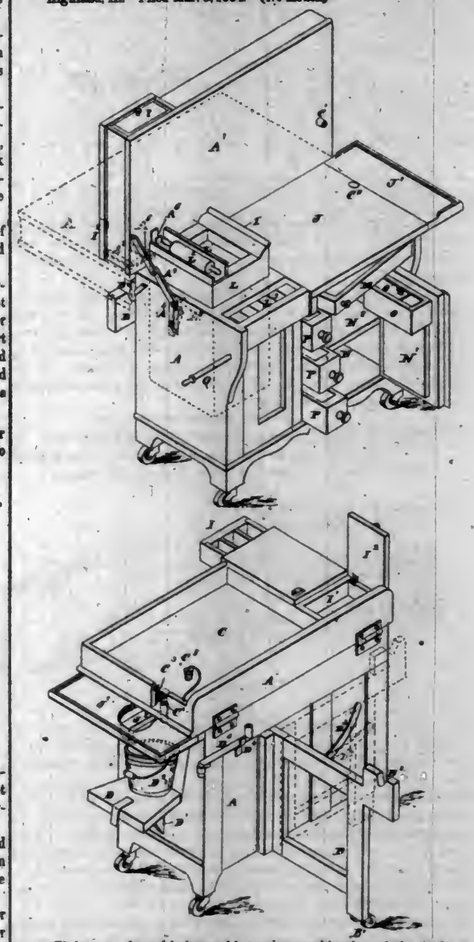
312,998. COVER FOR CHAMBER-PAILS, &c. AGUR JUDSON, Newark, N. J., assignor of one-half to Frank M. Kummer, same place. Filed Dec. 15, 1884. (No model.)



Claim.—1. In combination with the cover B, the guide-eyes *c* on its top, and the hooked bent rods *d d'*, arranged to slide through such eyes, and means for actuating them to force the hooks inward or outward, as set forth.

2. In combination with the cover, the hooked and bent wires *d d'*, guide-eyes *c*, and lever-cam *h k*, the hooks being arranged to clasp the rim of a vessel to which the cover is applied.

312,999. COMBINED SINK, SIDEBOARD, &c. ALFRED H. JUNOD, Highland, Ill. Filed Mar. 5, 1884. (No model.)



Claim.—1. In a kitchen-cabinet, the combination of the body A, having table J, formed with a hole, C'', a hinged top, A', having sink C, provided with waste-pipe C', the drawer I, receptacle I', and cover I^2 to the receptacle, and the frame B, having notch B^2, to receive the front board of the top, and hinged to fold against the body, as set forth.

2. The combination of the body A, the top A', hinged thereto, swinging frame B, the jointed brace A^3, the pivoted keeper A^4, the removable pin A^5, and the bracket A^6, as set forth.

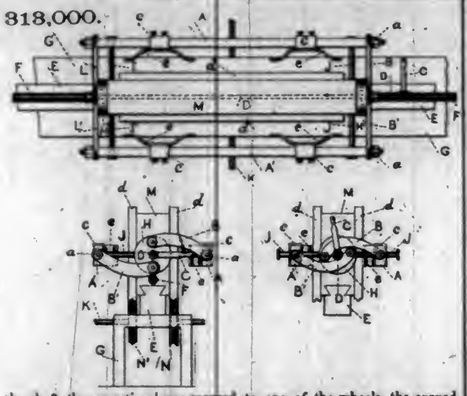
3. The combination of body A, top A', sink C, waste-hole C', and perforated movable plate C^3, substantially as and for the purpose set forth.

313,000. TONGUING AND GROOVING MACHINE. FRANK B. KEARNEY, Grand Rapids, Mich., assignor of one-half to David E. Spencer, and Gershom Powers, same place. Filed May 24, 1884. (No model.)

Claim.—1. The combination, with the main guide-block forming a support for the boards to be tongued and grooved, of the longitudinal shaft passing through said block, the wheels attached to the ends of said shaft, the connecting-rods, and the compression-rods provided with springs adapted to bear against the boards and press them against the sides of the main guide-block, substantially as specified.

2. The combination, with the main guide-block, of the shaft passing longitudinally through the same, the wheels attached to the ends of

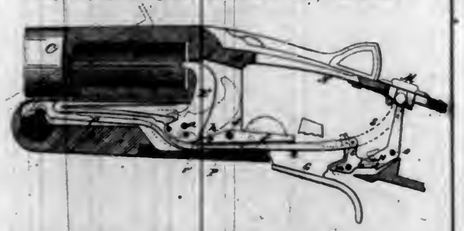
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the shaft, the operating-lever secured to one of the wheels, the curved connecting-rods pivoted to said wheels, the compression-rods and their guide-rods, and the clamping-springs, all arranged to operate substantially as specified.

3. The combination of the main guide-block, against which the boards are clamped, the shaft extending longitudinally through said block, the wheels secured to the ends of said shaft, the curved rods connecting the compression-rods with said wheels, the springs secured to said compression-rods and adapted to bear against the boards, and the dovetailed track on which the main block travels, the whole arranged to operate substantially as specified.

313,001. SAFETY-LOCK FOR CONCEALED-HAMMER GUNS. F. F. KNOBS, Hartford, Conn., assignor to the Colts Patent Fire Arms Manufacturing Company, same place. Filed Dec. 26, 1884. (No model.)

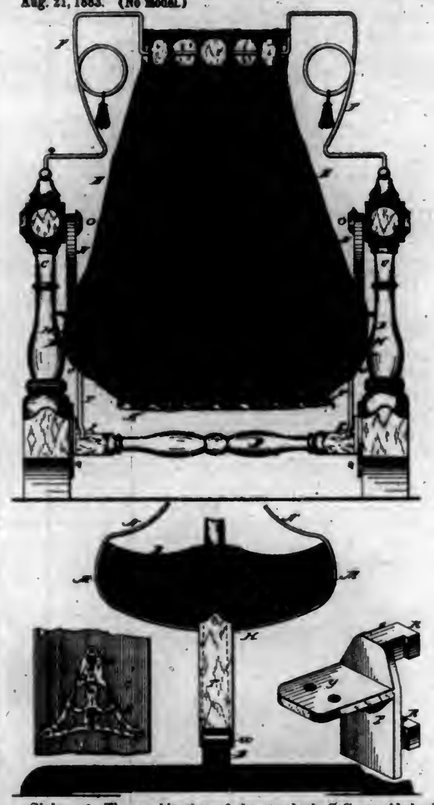


Claim.—1. In that class of breech-loading fire-arms in which the barrel is hung to the receiver so as to turn downward and forward in opening, and in which the hammer is hung concealed within the frame, the combination therewith of a connection between the hammer and barrel, whereby the hammer is thrown to full-cock in the opening of the barrel, a sear hung in rear of the barrel, the nose extending forward to engage the shoulder on the hammer at full-cock, and a slide arranged beneath the nose of the sear, the rear end of the connection between the hammer and the barrel constructed to form a wedge in connection with said slide to lock the sear when engaged with the shoulder on the hammer, substantially as described.

2. In a fire-arm in which the barrel is hung to the receiver to turn forward and downward, and in which the hammer is hung concealed within the receiver, with a connection between the barrel and hammer, whereby the hammer is thrown to full-cock in opening the barrel, the combination therewith of a sear hung in rear of the hammer, its nose extending forward to engage a shoulder on the hammer in the full-cocked position, and a slide arranged beneath the nose of the sear and extended rearward to an opening in the tang of the receiver, and through which opening the said slide may be moved backward and forward, the rear end of the connection between the hammer and the barrel constructed to form a wedge in connection with said slide, substantially as described, and whereby when said slide is in its forward position the said connection serves as a wedge to lock the nose end of the sear in engagement with the hammer, substantially as described.

3. In a fire-arm in which the barrel is hung to the receiver so as to be turned downward and forward in opening, and in which the hammer is hung concealed within the receiver, and a connection between the hammer and barrel, whereby in the opening movement of the barrel the hammer will be turned to full-cock, the combination therewith of a sear hung in rear of the hammer, the forward or nose end of the sear arranged to engage a shoulder on the hammer when at full-cock, the slide P, arranged beneath the nose of the hammer and extended rearward, and a lever arranged to engage and lock the trigger, the said extension from the said slide in connection with said lever, and whereby in the act of locking the trigger the said slide will be moved forward and in unlocking will be drawn rearward, the connection between the hammer and the barrel constructed with a bearing, *r*, to engage the forward end of the slide when in its forward position, and so as to lock the nose of the sear in engagement with the hammer, substantially as described.

313,002. HAMMOCK AND CRADLE STAND. SAMUEL KOPS, Milwaukee, Wis., assignor to Rebecca Messenger, New York, N. Y. Filed Aug. 21, 1883. (No model.)



Claim.—1. The combination of the standards C C, provided with pins O O, hangers N N, detachable cross-bar D D, end pieces, H H, provided with series of holes M M, and arms T T, hinged at their lower ends to said bar D, and provided with pins to engage in the holes in the ends H H, as and for the purpose specified.

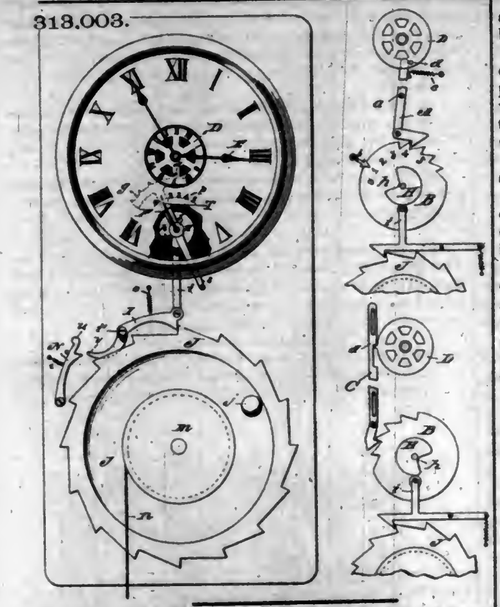
2. The combination of the end pieces, H H, having grooves K K and series of holes M M, communicating from the inner surface of said end pieces with said grooves, retaining rods or wires L L, hammock A, and hangers N N, the supporting-meshes of the hammock being inserted through the holes of said series, and retained therein by said rods or wires, substantially as set forth.

313,003. TIME DAMPER MECHANISM. JAMES A. LAKIN and CYRUS J. EMERSON, Jr., Westfield, Mass., assignors to said James A. Lakin. Filed Sept. 1, 1884. (No model.)

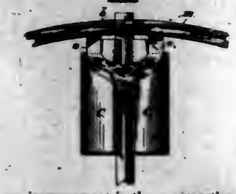
Claim.—1. The improved time mechanism for discharging a weight-revolved ratchet-wheel, consisting of a discharge-dial adapted to move with the hour-hand of a clock and be adjustable relative thereto upon its arbor, a wheel, H, having a peripheral bearing-surface, substantially as shown, and provided with an indentation, as *h*, therein, means, substantially as shown, for converting the rotation of dial D to a rotation of wheel H, a weight-actuated ratchet-wheel, as J, and a pawl arranged to engage wheel J, provided with an arm bearing upon the periphery of wheel H, and adapted to, at a predetermined time, enter the indentation *h* and release the ratchet-wheel J, as and for the purpose set forth.

2. In a time mechanism for releasing a weight-revolved ratchet-wheel, the combination, with a pawl adapted to release a ratchet-wheel at a predetermined time, of a pawl adapted to hold the ratchet when engaged therewith, and to clear said wheel when released from the weight thereof, the two pawls being combined and arranged as described, to cause the act of bringing the time-pawl into operative position to throw out the other, as and for the purpose set forth.

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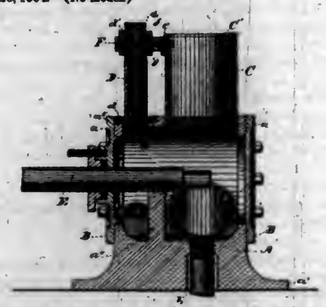


313,004. MANUFACTURE OF METAL WHEELS. JAMES R. LITTLE, Quincy, Ill., assignor, by mesne assignments, to the Quincy Metal Wheel Company, same place. Filed June 3, 1884. (No model.)



Claim.—As an improvement in the construction of metal wheels, the method of securing the spokes to the rim and of centering said rim, consisting in first clamping a spoke between jaws at a point near the inner side of the rim, then springing said rim upward above said jaws, and, finally, compressing said spoke longitudinally from its outer end until it closely fills the opening or mortise within said rim, substantially as specified.

313,005. STEAM-ENGINE. MIRABEAU N. LYNN, Rising Sun, assignor to the American Electric Headlight Company, Indianapolis, Ind. Filed May 20, 1884. (No model.)



Claim.—1. In a steam-engine, and in combination with the main frame or casing for the operating mechanism, the piston, and valve-cylinders removably secured to the main casing and communicating with the interior thereof, the said valve-cylinders being perforated and communicating, through an intermediate support, with the piston-cylinders, substantially as and for the purpose described.

2. In a steam-engine, the main frame or casing for the operating mechanism, provided with screw-threaded openings, the piston-cylinders constructed of tubing and provided with screw-threaded extremities for attachment to the casing, and removable heads united to the cylinders by screw-threaded connections, substantially as described.

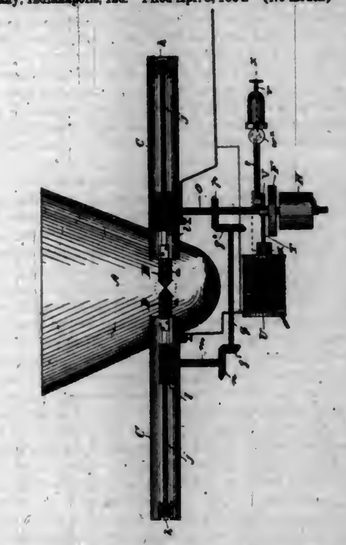
3. In a steam-engine, and in combination with the main inclosing-casing and piston-cylinders applied thereto, the casting F, applied to the piston-cylinders, and provided with the opening or port communicating with the interior of said cylinders, and the valve-cylinders removably attached to the casing and extending into and through said casting F, substantially as described.

4. In a steam-engine such as described, the valve-cylinder removably attached to the main casing, and casting F, substantially as described.

5. In a steam-engine such as described, the combination of the main casing A, cap-plate *d*, valve-cylinder D, casting F, and the piston-cylinder C, the said valve-cylinder being screwed into the cap-plate and casting, as and for the purpose specified.

6. The herein-described main frame or casting A, for the reception of the operating mechanism of a steam-engine, provided with the removable cylinders C, having threaded heads C′, the valve-cylinders D, cap-plate *d*, and casting F, uniting the cylinders C and D, as and for the purpose set forth.

313,006. ELECTRIC-ARC LAMP. MIRABEAU N. LYNN, Rising Sun, assignor, by mesne assignments, to the American Electric Headlight Company, Indianapolis, Ind. Filed Apr. 3, 1884. (No model.)



Claim.—1. In an electric lamp, the combination of carbon-carriers with mechanism tending to feed said carriers toward each other, mechanism tending to feed said carriers from each other, and the herein-described mechanism for acting in positive opposition to both the forward and backward feeding mechanisms, consisting of the slotted arm connected to the backward-feeding mechanism, the pivoted spring-seated rod and its guide, and the pin or roller working in the slot of the lever, the spring connected to the rod or its guide, and the electro-magnet acting in opposition to said spring, substantially as described.

2. The combination, with the main shaft of the gearing by which the carriers are given simultaneous though unequal motions, of the wheel mounted on the said shaft, the spring-cone and intervening mechanism for rotating said shaft in one direction, and the loosely-mounted arm, the clutch, and the solenoid operating upon the wheel to impart motion to the shaft in the opposite direction, substantially as described.

3. The combination of the driving-shaft of the carbon-carrier-feeding mechanism with the wheel or disk secured to said shaft, the arm loosely mounted on said shaft, the clutch, and the solenoid in the main light-circuit, substantially as described.

4. The combination, with the main shaft of the carbon-carrier-feeding mechanism, of the mechanical devices acting upon the said shaft to feed the carriers forward, the wheel secured to said shaft, the arm mounted loosely on the shaft, the clutch and solenoid in the main circuit, the slotted arm connected to the arm on the shaft, the pivoted spring-seated rod having the pin or roller, and the spring and solenoid, acting in opposition to each other, substantially as described.

5. The combination, with a reflector, of a gas or oil light arranged in the focus of said reflector, and an electric lamp having its carbon pencils projecting through openings in the chimney of the oil or gas lamp so as to bring the arc within the focus of the reflector, substantially as described.

6. In an electric lamp, and in combination with the carbon-carriers and mechanism for causing their simultaneous movement in opposite directions to feed the carbons, mechanism for limiting and controlling such feed, and an independent mechanism acting in conjunction with said controlling mechanism to augment or decrease its resistance to the feeding mechanism, substantially as described.

7. In an electric lamp, and in combination with the carbon-carriers, feeding mechanism for effecting their simultaneous approach, and mechanism for acting in opposition to said feeding mechanism to control the latter, and a governing mechanism acting upon the regulating mechanism to increase or decrease its power in proportion to the resistance of the arc, substantially as described.

8. In an electric lamp, and in combination with the carbon-feeding mechanism thereof, mechanism actuated by a solenoid in the main circuit for controlling the feed, and a spring and intermediate mechanism connected to the controlling mechanism and actuated by the differential power of a spring and solenoid in a branch circuit to apply the force of said first-mentioned spring in unison with or opposition to the solenoid of the feed-controlling mechanism, substantially as described.

9. In an electric lamp, the combination, with the carbon-feeding and feed-controlling mechanism thereof, of an auxiliary governing mechanism acting in conjunction with the feed-controlling mechanism to increase or diminish its resistance to the feed mechanism in proportion to the strength of the current in a branch circuit, substantially as described.

10. In an electric lamp, the combination, with the mechanism tending to feed the carbon continuously in one direction, of a solenoid acting to control the rate of feed in proportion to the strength of current passing through its coils, and an auxiliary spring-governor acting in conjunction with said feed-controlling solenoid to increase or diminish its power, the application of said auxiliary governor being determined by a solenoid in a branch circuit and an opposing spring, substantially as described

11. In an electric lamp, the combination of carbon-carriers with mechanism tending to feed such carriers toward each other, and independent mechanism acting in positive opposition to the forward-feeding mechanism, and a spring acting in positive opposition to the backward-feeding mechanism, said spring being actuated and controlled by an electro-magnet or solenoid in a derived circuit, substantially as described.

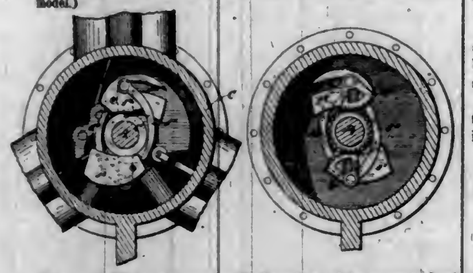
12. In an electric lamp, and in combination with the mechanism for feeding the carbons, a clutch and an actuating electro-magnet or solenoid for resisting and controlling the forward feed of the carbons in proportion to the strength of the current traversing said solenoid, a lever connected to said controlling mechanism, a spring attached to said lever by a movable connection, and an electro-magnet and opposing spring operating to shift the point of attachment of said first-mentioned spring upon the said lever, whereby the leverage exerted by the spring is made proportional to the strength of the current, and the power of the feed-controlling mechanism is increased or diminished, substantially as described.

13. In an electric lamp, the combination, with the carbon-carriers, of a mechanism operating to feed the carbons together with a uniform power, an electro-magnet and mechanism acting in opposition to the feeding mechanism to restrain and control the latter, an electro-magnet in a shunt circuit, and an auxiliary spring-governor controlled thereby and acting in conjunction with the feed-controlling mechanism to increase or diminish its opposition to the feed, substantially as described.

14. In combination with a gas or oil lamp provided with a chimney, an electric lamp whose carbons are projected through openings in said chimney and above the burner, substantially as described.

15. In combination with an oil or gas lamp whose flame occupies a focal position within a reflector, an electric lamp the carbons whereof are projected from opposite sides of the reflector, and terminate at one end within the chimney of the gas or oil lamp and in proximity to the burner thereof, substantially as described.

313,007. **VALVE-GEAR FOR STEAM-ENGINES.** MIRABEAU N. LYNN, Rising Sun, assignor, by mesne assignments, to the American Electric Headlight Company, Indianapolis, Ind. Filed Apr. 10, 1884. (No model.)



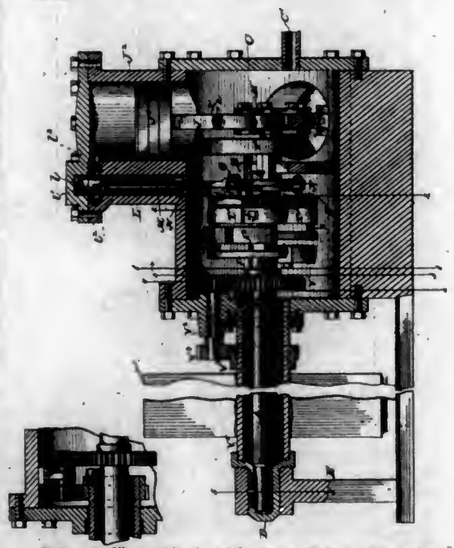
Claim.—1. The combination, with the valves, of the eccentric fixed to the main shaft, the movable eccentric, and means for changing the position of the movable eccentric when the speed of the main shaft increases above the normal rate, so as to move said eccentric to operate independently upon the valves and cause them to cut off the steam in the cylinders and allow it to work by expansion only, substantially in the manner described.

2. The combination, with the main shaft and valve-rod, of the movable eccentric mounted on the sleeve, the pinion on the sleeve, the gear-sectors and their shafts and shaft-supports, and the weighted arms, substantially as described.

3. The combination of the gear-sectors, their shafts and shaft-supports, and the curved arm, and weights, one of said weights being slotted to accommodate one of the gear-sector shafts, substantially as described.

4. The combination of the gear-sectors, their shafts and shaft-supports, the weighted arms, and the grooved conical pulley, spring, and chain, constituting a means for decreasing the resistance offered to the outward movement of the weighted arms in proportion to the extent of such outward movement, substantially as described.

313,008. **STEAM ENGINE.** MIRABEAU N. LYNN, Rising Sun, assignor, by mesne assignments, to the American Electric Headlight Company, Indianapolis, Ind. Filed Jan. 10, 1884. Renewed Dec. 3, 1884. (No model.)



Claim.—1. The combination of the three cylinders and their pistons, the main shaft and its crank, the pitmen connected to the pistons and the yoke connected to the crank of the main shaft by roller-bearings, substantially as described.

2. The combination of the three cylinders and their pistons, the main shaft and its crank, the yoke and the pitmen connecting the pistons to the yoke, one of said pitmen being rigidly connected to said yoke, and serving as a guide to the same, substantially as described.

3. The combination of the three cylinders, their pistons and pitmen, the yoke, the main engine-shaft and its crank and counter-weight, substantially as described.

4. The combination, with the main engine-shaft, of the tubular shaft supported by frictional bearings upon the said main shaft, and the gearing by which one shaft is driven from the other, substantially as described.

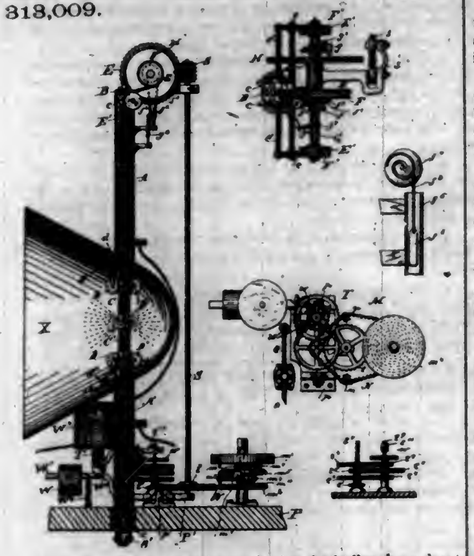
5. The combination, with the main casing into which the exhaust-steam is taken, of the main shaft and the tubular shaft having frictional bearings which are subject to the lubricating effect of the exhaust, substantially as described.

6. The combination, with the pistons and the yoke, of the pitmen, the straps about both their ends, and the means for simultaneously adjusting both straps, substantially as described.

313,009. **ELECTRIC LAMP FOR LOCOMOTIVES.** MIRABEAU N. LYNN, Rising Sun, assignor, by mesne assignments, to the American Electric Headlight Company, Indianapolis, Ind. Filed Jan. 12, 1884. Renewed Dec. 3, 1884. (No model.)

Claim.—1. In an electric lamp, and in combination with the mechanism for feeding the carbons, the balanced carbon-holders, substantially as described.

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2. In an arc lamp containing mechanism for feeding the carbons, and in combination with the carbon-carriers, the compensating-balances for the carbons, substantially as described.

3. In an arc lamp containing mechanism for feeding the carbons, and in combination with the latter, the balanced carbon-holders and the compensating-balances, substantially as described.

4. In an arc lamp, and in combination with the movable carbon-holder, the rotating shaft and intermediate connecting-cord, the compensating-balance acting in opposition to the weight of the carbon with a force decreasing in proportion to the consumption of the carbon, as set forth.

5. In an arc lamp containing mechanism for effecting the movement of the carbons, and in combination with the latter, the balanced carbon-holders and independent counter-balances for each carbon, whereby the carbons and their holders are at all times balanced and their movements derived from an independent source, substantially as described.

6. In an arc lamp for locomotives, and in combination with the mechanism for feeding and separating the carbons, the rotating and reciprocating worm, and mechanism for operating the same, substantially as described.

7. In an electric lamp, the combination of two carbon-holders arranged to balance each other, mechanism for causing their simultaneous approach and recession to feed and form the arc, and a compensating-balance for the carbon applied to each holder, substantially as described.

8. The balanced carbons and mechanism for causing their approach and recession, in combination with the reciprocating worm-shaft, and mechanism for effecting the rotation thereof, mounted upon a balanced platform, substantially as described.

9. In combination with the balanced holders, movable carbons and compensating devices applied to the carbon-holders, the carbon-feeding and arc-forming mechanism supported upon a balanced platform, substantially as described.

10. In combination with the balanced holders, movable carbons, and compensating devices therefor, the carbon-feeding and arc-forming mechanism consisting of a gear-train and worm-shaft supported and balanced upon a pivoted platform, and mechanism for tilting said platform to form the arc and release the gear-train, substantially as described.

11. In an arc lamp for locomotives, and in combination with the movable focusing carbons, the balancing holders and compensating mechanism, and the balanced feeding mechanism controlled by the electro-magnet, substantially as described.

12. In combination with the shaft carrying the pulleys, and mechanism for rotating the same to feed the carbons, the fixed guides, movable carbon-holders, guide-pulleys, and the connecting-cords, the latter being located in the same plane as the carbons, substantially as described.

13. The combination, in an arc lamp, of the rotating shaft, the differential pulleys, the connecting-cords, and the dependent carbon-holders differing in weight in proportion to the diameters of their respective pulleys to maintain a running balance, substantially as described.

14. In combination with the lower carbon and its holder, the connecting-cords and pulleys, the reversely-wound cord, and attached tension-spring, substantially as described.

15. In combination with the upper carbon and its holder, the connecting-cord and pulley, the conical pulley, the reversely-wound cord and tension-spring adapted and arranged to compensate for the shortening of the carbon and its diminution in weight, substantially as described.

16. In a focusing arc lamp for locomotives, the combination of the movable carbons, balanced holders, connecting-cords, and differential pulleys mounted upon the same shaft, the compensating mechanism consisting of the conical and plain pulleys, reversely-wound cords, and attached adjustable springs, substantially as described.

17. In combination with the worm-wheel, the rotating shaft to which it is attached, the movable carbons, and intermediate mechanism for causing the approach and recession of the carbons by the movements of the worm-wheel, and the rotating and reciprocating worm, and mechanism for operating the same, substantially as described.

18. The movable carbons, worm-wheel, and intermediate mechanism, substantially such as described, the vertical worm-shaft and worm, the balanced platform supporting said shaft and the gear-train, in combination with the fixed electro-magnet and its pivoted core carrying the detent, substantially as described.

19. In combination with the movable carbons and intermediate mechanism, the pivoted and counterbalanced platform carrying the gear-train and worm-shaft, and the spring-motor connected to the vibrating gear-train by a chain or belt, substantially as described.

20. In combination with the carbons of an electric lamp and the intermediate mechanism for effecting the movements of the carbons, the pivoted platform carrying the gear-train and scape-wheel, and the reciprocating core carrying the detent and pivoted to the platform, substantially as described.

21. In combination with the worm-wheel and mechanism, substantially as described, connected thereto for controlling the movements of the carbons, the worm-shaft supported in roller-bearings and mounted upon a vibrating support, substantially as described.

22. In combination with the movable carbons and intermediate mechanism, the platform and its supporting-pivots, the gear-train located nearly in line with and between said pivots, the vertical shaft at one end and the counter-balance and core at the other, substantially as described.

23. In an electric lamp, and in combination with the movable carbons, worm-wheel, and intermediate mechanism, the pivoted platform, gear-train, counter-weight, core, vertical worm-shaft, electro-magnet, and opposing spring, substantially as described.

24. In an electric lamp, and in combination with the rotating shaft to which the carbons are connected, the pivoted platform carrying the gear-train, counter-weight, core, and worm-shaft, the electro-magnet, and opposing spring acting upon the said pivoted platform, and the motor mounted upon a fixed support, substantially as described.

25. In an electric lamp, as a means for controlling the feed of the carbons, and in combination with carbon-carrying devices substantially such as indicated, the improved gear-train for driving the main shaft, which consists of the several pinions and gears mounted upon the two fixed stud-axles, the arm supporting the scape-wheel and the movable detent, substantially as described.

26. In an electric lamp, the gear-train for moving the carbon-holders mounted upon a pivoted platform and vibrating in the arc of a circle, in combination with the detent mounted upon a reciprocating support pivoted to the platform, whereby as the platform and gear-train vibrate the detent will be brought in contact or removed from the path of the scape-wheel, substantially as described.

27. The combination, in an arc lamp, and with the movable carbon-holders and connecting-cords, of the pulleys adjustably mounted upon the driving-shaft, substantially as described.

28. In an arc lamp, and in combination with the movable carbon-holders and the connecting-cords, the driving-shaft carrying the fixed pulleys, adjustable pulley, and adjustable driving-wheel, substantially as and for the purpose set forth.

29. In an arc lamp wherein the carbons are moved by mechanism acting directly upon the carbon-holder, and in combination with the latter, a compensating-balance acting in opposition to the weight of the carbon with a force decreasing in proportion to the weight of said carbon, substantially as described.

30. In combination with the carbon of an arc light, and with the mechanism for effecting the movements of the same to feed and form the arc, a compensating-balance acting in opposition to the weight of the carbon with a force decreasing in proportion to the consumption of the carbon, substantially as described.

31. The upper-carbon holder suspended directly from the large pulley by a cord, in combination with the lower-carbon holder provided with lateral arms, the vertical cords attached to said arms passing over guide-pulleys, and connected to the smaller pulleys, substantially as described.

32. The movable carbons, operating-pulleys, and connecting mechanism, substantially as described, in combination with the compensating-springs, and pulleys mounted upon the same shaft with the operating-pulleys, the worm-wheel fastened to said shaft, and the reciprocating and rotating worm, substantially as and for the purpose set forth.

33. The balanced holders, movable carbons, and compensating-bal-

ances, all connected to and applied upon a single shaft, in combination with a separate feeding mechanism controlled by the current and operating through suitable connecting mechanism, such as described, to rotate said shaft to form the arc or feed the carbons.

34. In an arc lamp for locomotives, and in combination with the carbon-carrying mechanism thereof, the balanced feeding devices mounted upon pivots transverse to the length of the bed-plate.

35. In an arc lamp for locomotives, and in combination with the feeding mechanism thereof, the platform carrying the gear-train, counterbalanced and mounted upon pivots transverse to the direction of the engine, substantially as described.

36. In an arc lamp for locomotives, the mechanism for supporting and carrying the carbons mounted in a frame above the carbons, in combination with a balanced feeding mechanism pivoted to the base-plate, the two mechanisms being put in operative connection by means of the vertical rotating and reciprocating worm-shaft, substantially as described.

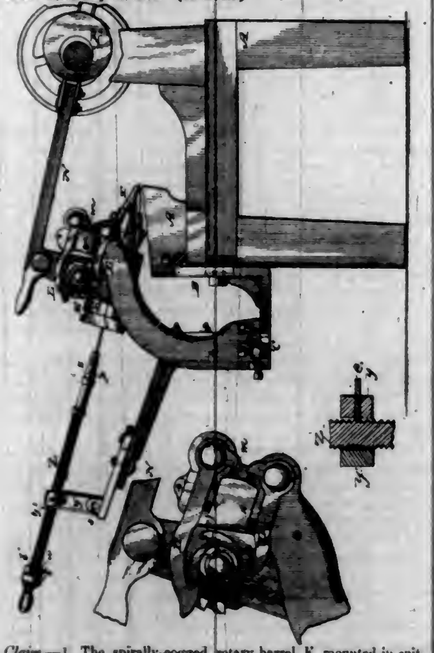
37. In an arc lamp, and in combination with the movable carbons thereof, suspended from differential pulleys, means, substantially as described, whereby either or both pulleys may be adjusted upon their shaft with respect to each other and the operating worm-gear, substantially as described.

38. In an arc lamp for locomotives, the combination of counterbalanced holders, movable carbons, compensating-balances for the carbons, supporting-cords, differential pulleys, worm-gear, reciprocating rotary worm, counterbalanced platform carrying the gear-train and worm-shaft, and stationary electro magnet and motor, substantially as described.

39. In an arc lamp, and in combination with the pivoted and counterbalanced platform carrying the feeding mechanism, the spring-motor located near one end of the platform and mounted on a fixed bearing, a chain connecting the motor with the gear-train, an electro-magnet fixed to the frame at the opposite end of the platform, and a core pivoted to the platform, substantially as described.

40. In an electric lamp, and in combination with mechanism for effecting the movements of the carbon-holders proportionately to the movements of a shaft with which they are connected by suitable intermediate devices, the driving and controlling mechanism consisting of the spring-motor, the counterbalanced platform, the gear-train mounted upon said platform, and the electro-magnet and its core, the latter pivoted to the platform and carrying the detent for engagement with the scape-wheel of the gear-train, substantially as described.

313,010. NAIL-PLATE FEEDER. GEO. W. MCKIM, Martin's Ferry, Ohio. Filed May 10, 1884. (No model.)



Claim.—1. The spirally-cogged rotary barrel F, mounted in suitable bearings on an oscillating arm, D, in combination with the spirally-cogged pinion *j*, mounted on a shaft at right angles to the axial line of the barrel, and intergearing with said barrel, the ratchet having four points mounted on said shaft, and the pawls for operating the said ratchet, whereby the barrel is caused to travel in the ratio of two to one with the pinion, substantially as and for the purpose specified.

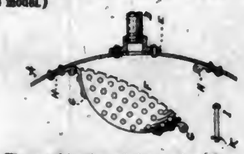
2. In a nail-machine, the combination, with the barrel which revolves the nose-piece, of the feed-screw passing between a stationary and a pivoted jaw, the threads of the feed-screw being rounded or beveled at such an angle as to slip backward past the jaws when any obstruction is met with in the nail-machine, substantially as and for the purpose set forth.

3. The combination of the feed-screw and feed-jaws, with the beveled stop-nut on the feed-screw adapted to abut against a bevel on the stationary jaw and throw feed out of operation when the plate is used up, substantially as specified.

4. The combination of the nose-piece provided with rabbets, the inflexible guide-fingers T, and the flanged plates U, substantially as set forth.

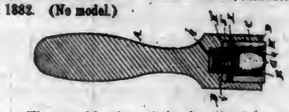
5. The combination, with the screw feed-rod Z, carrying the plate-nippers, which latter are provided with guide-lugs P, of the nose-piece, grooved as shown, whereby the nose-piece, nippers, and nail-plate are made to turn together, substantially as set forth.

313,011. SCREEN OR STRAINER FOR THE BLOW-OFF OF PAPER-STOCK BOILERS. BENJ. F. MULLIN, Holyoke, Mass. Filed May 17, 1884. (No model.)



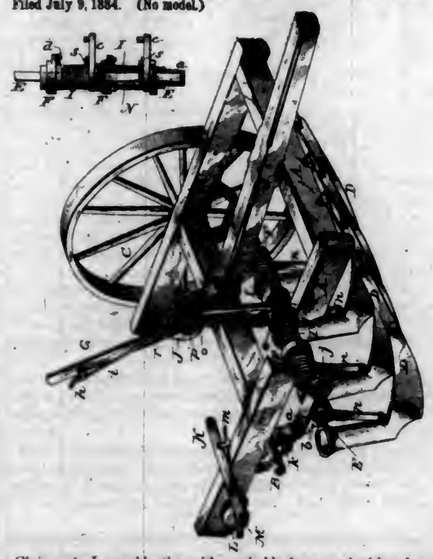
Claim.—The combination of the strainer F, ears G G, ears H H H, and pins I I, substantially as described, and for the purpose set forth.

313,012. HAND-STAMP. LAURENCE MYERS, Philadelphia, Pa. Filed Oct. 13, 1882. (No model.)



Claim.—The combination of the handle A, provided with the double socket C *b*, with the cup-piece I *i*, cutter E, pads H G, and spring J, substantially as shown.

313,018. SEEDING-MACHINE. ANDREW G. MYERS and JAMES B. COTTON, Dayton, Ohio, assignors to D. E. McSherry & Co., same place. Filed July 9, 1884. (No model.)



Claim.—1. In combination with a suitable frame, and with a drag-bar, a rock-shaft carried by said frame, a collar secured upon the rock-shaft, a sleeve encircling said rock-shaft and provided with a radial arm, a link connecting said arm with the draw-bar, and a spring having its ends attached respectively to the collar and the sleeve and acting to keep the radial arm and link in line, substantially as described and shown.

2. In combination with a suitable frame, and with drag-bars hinged or jointed thereto, a rock-shaft mounted in the frame, and provided with a series of spring-pressed toggles connected with and serving to depress the drag-bars, a lever connected with the rock-shaft, and arranged to rotate the same to increase the pressure of the springs and hold the shaft against the force of the springs, and an independent lever connected with and adapted to rotate the shaft when not held by the depressing-lever.

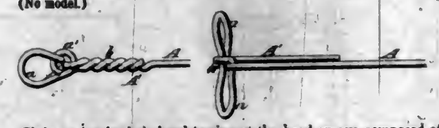
3. The combination, substantially as described and shown, of a wheeled frame, A, rock-shaft E, collars F, secured upon said shaft, sleeve N, encircling the shaft journaled in the collars F, and provided with an arm, *c*, having a locking-stop to engage with a stop on the collar, drag-bars D, attached to the frame A, and connected with the arms *c* by links *n*, springs I, coiled about the sleeve N, and having their ends engaged, respectively, with the collar and sleeve, and a lever connected with the collar and serving to rotate the same and the shaft.

4. In a seeding or planting machine, the combination, with gravitating drag-bars, a rock-shaft carrying fixed collars, sleeves journaled in said collars and provided each with a radial arm and with a stop to limit their rotation, links connecting the radial arms and the drag-bars, and springs coiled about the sleeves, and serving to turn the sleeves in a direction to bring the arms and links into alignment, all substantially as described as shown.

5. In a seeding-machine, the combination of a wheeled frame, drag-bars hung thereto, toggles or jointed braces attached to the drag-bars and serving to depress the same, springs acting upon the toggles and tending to straighten or bring their members into alignment, and a rock-shaft acting upon said springs, substantially as described and shown, and serving to regulate the force of their action, substantially as described and shown.

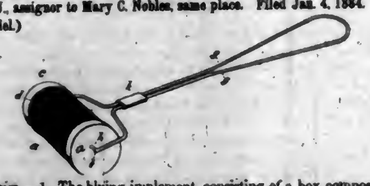
6. The combination, substantially as herein shown and described, of a wheeled frame, A, a series of drag-bars, D, attached thereto, a rock-shaft E, provided with collars F, sleeves N, journaled in said collars and provided with radial arms *c* and stops to engage with like stops on the collars, springs I, encircling the sleeves N, having one end made fast to the collar and their other end acting against the arms *c*, links *k*, connecting said arms with the drag-bars, lever H, provided with a locking-bolt and connected by a link, *f*, to one of the collars F, lever K, provided with a locking-bolt, chain, or connection, *k*, extending from the lever to an arm, *j*, on one of the collars F, and a rack, L, adapted and arranged to receive the locking-bolt of the lever K.

313,014. ADJUSTABLE BALE-BAND. GRANVILLE NICHOLSON, New York, N. Y., assignor to John L. Clark, same place. Filed Jan. 10, 1885. (No model.)



Claim.—A wire bale-band having at the head an eye composed of two approximately-parallel loops, connected at their inner ends or root, and there confined by the end portion of the wire, which is bent around and between them and intertwisted with the main portion of the wire band, substantially as and for the purpose herein described.

313,015. BLUING-HOLDER. JOHN C. NOBLES, Atlantic Highlands, N. J., assignor to Mary C. Nobles, same place. Filed Jan. 4, 1884. (No model.)



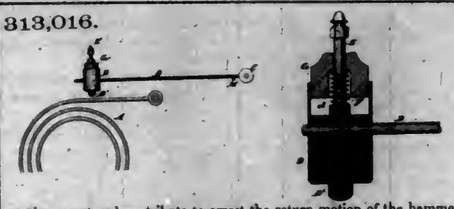
Claim.—1. The bluing implement consisting of a box composed of the perforated metal or wire-cloth body *a*, a closed bottom and closed removable top, and detachable spring-arms holding said box and cover together, and forming a handle upon which the box is allowed to rotate, substantially as specified.

2. In a bluing implement, the combination, with a perforated metal or wire-cloth box having in its end a central recess or perforation, and a centrally-recessed cover therefor, of the spring-arms having inwardly-turned projections to engage said perforations or recesses, and the slide *k*, for securing the branches to the box, substantially as specified.

313,016. CLOCK-BELL HAMMER. CHARLES H. NORTON, Thomaston, Conn., assignor to the Seth Thomas Clock Company, New York, N. Y. Filed Oct. 28, 1884. (No model.)

Claim.—1. The clock-hammer described, having a loose weight, G, in combination with the head D, arranged substantially as described, so that when the blow is struck the loose weight will, by its continued

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motion, meet and contribute to arrest the return motion of the hammer, and thus prevent chattering on the bell, as herein specified.

2. In a clock-hammer, the spring F, in combination with the loose weight G, loose holding and guiding bolt E, and hammer-head D, as herein specified.

3. In a clock-hammer, the loose weight G, in combination with a hammer-head, D, having a cavity, *d*, arranged to allow the cushioning of air under the loose weight at each blow, so as to aid in preventing the chattering motion of the hammer, as herein specified.

313,017. BUTTON. JOSEPH P. NOYES, Binghamton, N. Y., assignor to Joseph P. Noyes & Co., same place. Filed July 30, 1884. (No model.)



Claim.—1. A button having an unbroken tubular neck provided with a number of spring-arms, 2, secured within the interior of said neck and projecting upward therein, substantially as described.

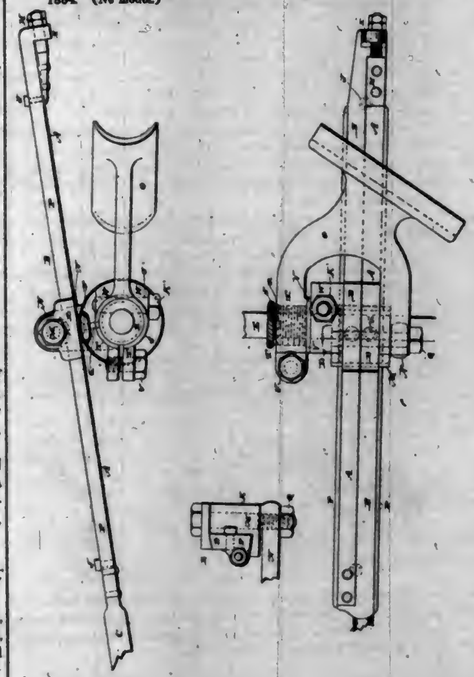
2. The combination, with a button having an unbroken tubular neck provided interiorly with a number of spring-arms projecting upward therein, of an attaching-shank, substantially as described.

3. A button composed of a suitable head, a tubular neck, Y, spring-arms 2, secured within its interior, a plate, E, and a shank, P, substantially as described.

4. A button having a tubular neck provided interiorly with a number of spring-arms, and having a bottom plate, E, that embraces the shank P, substantially as described.

5. A button having a tubular neck provided interiorly with a number of spring-arms, and having an upper end contracted to embrace the shank P, substantially as described.

313,018. STEERING DEVICE FOR TRICYCLES. ALBERT H. OVERMAN and CHARLES F. HADLEY, Chicopee, Mass., assignors to the Overman Wheel Company, same place. Filed Feb. 23, 1884. Renewed Dec. 26, 1884. (No model.)



Claim.—1. A tricycle having a steering-handle post and a steering rod arranged substantially as shown, and a flexible connection between the said post and rod, substantially as set forth.

2. A tricycle having a steering-handle post and a steering-rod arranged substantially as shown, and metallic ribbons for connecting the said post and rod, substantially as set forth.

3. A tricycle having a steering-handle post and a steering-rod arranged substantially as shown, the former being provided with a drum, and a flexible connection between the said drum and rod, substantially as set forth.

4. A tricycle having a steering-handle post and a steering-rod arranged substantially as shown, the former being provided with a drum and the latter with a bearing, and ribbons attached to and connecting the said drum and bearing, substantially as set forth.

5. A tricycle having a steering-handle post and a steering-rod arranged substantially as shown, a flexible connection between the said post and rod, and means for controlling the tension of the said flexible connection, substantially as set forth.

6. A tricycle having a steering-handle post and a steering-rod arranged substantially as shown, ribbons for connecting the said post and rod, and an adjustable plate mounted in the steering-rod, and having the outer end of one of the ribbons attached to it, substantially as set forth.

7. A tricycle having a steering-handle post and a steering-rod arranged substantially as shown, the former being provided with a drum and the latter with a flat bearing, ribbons for connecting the said drum and bearing, and means for holding the bearing virtually against the periphery of the drum, substantially as set forth.

8. A tricycle having a steering-handle post and a steering-rod arranged substantially as shown, a flexible connection between the said post and rod, and means for limiting the play of the latter, substantially as set forth.

9. A tricycle having a steering-handle post and a steering-rod arranged substantially as shown, a flexible connection between the post and rod, and stops located upon the latter for limiting its play, substantially as set forth.

10. In the steering apparatus of a tricycle, a recessed guide-block and a beveled plate pivotally and adjustably secured by a bolt to an arm offsetting from the hanger in which the lower end of the steering-handle post is journaled, and arranged to embrace a beveled bearing located at the rear end of the steering-rod, substantially as set forth.

11. In the steering apparatus of a tricycle, a threaded bushing located in the hanger in which the lower end of the steering-handle post is journaled, and arranged to be screwed down to take up the wear of the drum mounted in the said hanger and having the said post secured to it, substantially as set forth.

12. In the steering apparatus of a tricycle, a threaded bushing located in a split bearing formed in the hanger in which the lower end of the steering-handle post is journaled, and arranged to be screwed down to take up the wear of the drum mounted in the hanger, and having the said post secured to it, and means for closing the said bearing for preventing the bushing from working loose, substantially as set forth.

13. In the steering apparatus of a tricycle, the tiller set to form a right angle with the steering-rod when the steering-wheel is in position for steering straight ahead, substantially as set forth.

14. In the steering apparatus of a tricycle, a threaded bolt provided with a cone for connecting the steering-rod and the tiller, one of the said parts being provided with a conical aperture to receive the cone of the bolt, and the other with a threaded opening to receive its threaded end, substantially as set forth.

15. In the steering apparatus of a tricycle, means located in the arm in which the upper end of the steering-handle post is journaled for locking the said post in its bearing, substantially as set forth.

16. In the steering apparatus of a tricycle, a recessed bolt located in a shoulder formed integral with the drum, through which the lower end of the steering-handle post passes, and arranged to engage with the said post and hold it in any desired position of vertical adjustment, substantially as set forth.

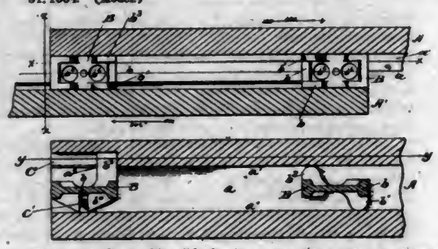
313,019. **CLAMPING DEVICE.** JOHN F. PACKER, Chicago, Ill., assignor to David Bradley Manufacturing Company, same place. Filed Oct. 28, 1884. (No model.)



Claim.—1. The block or plate D, provided with the recess *b* and engaging projections or edges *c*, in combination with the eyebolt C, adapted to encircle the object to be clamped and draw the same against the said block or plate D, substantially as described.

2. The block or plate D, provided with the recess *b* and engaging projections or edges *c*, and perforated, as shown, in combination with the eyebolt C, the shank of which passes through the perforation in the block or plate D, and is held therein by means of a nut, substantially as described.

313,020. **TABLE-SLIDE.** EZRA PLEUKHARP and TOWNSEND SHILLING, Columbus, Ohio; said Shilling assignor to said Pleukharp. Filed Mar. 31, 1884. (Model.)



Claim.—1. In a table-slide having a stop-pin, *c*, the combination of the casting B, having the web provided with recesses and apertures, rounded flanges, long arm or flange b^3, parallel with the greater transverse diameter of the slide, and slotted flange b^4, with slides having grooves *a* C, and a connecting-mortise to receive said arm b^3, substantially as described, and for the purpose set forth.

2. In a table-slide, a casting, B, having a long arm or flange, b^3, in combination with the slides A A′, having grooves *a* and C, mortise a^4, and stop-pin *c*, substantially as described, and for the purpose set forth.

3. In a table-slide, the section A, having groove *a*, a mortise, a^4, and groove C for the reception of the stop-pin *c*, a casting, B, provided with a long arm, b^3, projecting through said mortise, in combination with the section A′, having a central groove that engages with flanges formed upon said casting, and a stop-pin, *c*, that enters groove C and abuts against the long arm b^3 of the casting, substantially as described, and for the purpose set forth.

313,021. **BOOK HOLDER AND CARRIER.** JAMES POTT, Jr., New York, and EDWIN S. GORHAM, Brooklyn, N. Y. Filed Dec. 16, 1884. (No model.)



Claim.—A book-holder consisting of the strap D, having the handle F and the steadying-leaf G, substantially as and for the purposes described

313,022. **ANTI-FRICTION BEARING.** DAVID J. POWERS, Chicago, Ill. Filed Jan. 12, 1885. (No model.)



Claim.—1. An anti-friction roller whereof the peripheral diameter is greater than the axial diameter, the cross-section presents diverging surfaces from the periphery toward the axis, and the outer side convex, whereby said roller is adapted to traverse a circular groove whose cross-section corresponds with the bearing-surface of said roller without ability to shift its plane or axis of revolution as to its own mass.

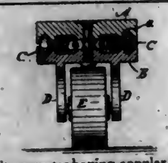
2. An imperforate anti-friction roller, the peripheral diameter greater than the axial diameter, and the bearing-surfaces near the periphery converging to the line of greatest diameter, whereby said roller is adapted to traverse a groove of corresponding cross-section without an axial spindle, and without ability to shift the plane or axis of revolution as to its own mass.

3. An anti-friction roller in cross-section approximately oblate-spheroidal, whereby it is adapted to traverse a groove trackway of corresponding cross-section without ability to change the position of its plane or axis of rotation as to its own mass, and having the sprue *s* still adherent.

4. An anti-friction roller, A, greater in equatorial than in axial diameter, convex on its outer side, combined with bearing-plates B C, each provided with a circular groove, *d*, having a transverse sectional figure corresponding with the axial sectional form of said roller, as set forth.

313,023. **CASTER.** DAVID J. POWERS, Chicago, Ill. Filed July 28, 1884. (No model.)

313,023.

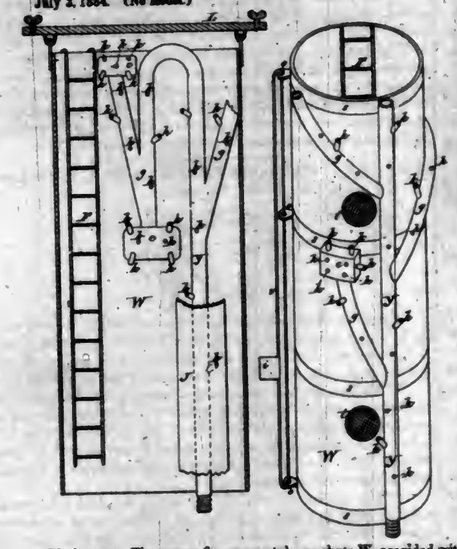


Claim.—1. A furniture-caster having annular corresponding grooves upon the inner faces of its top and bottom plates, of elliptical or V-shaped form in cross-section, in combination with anti-friction rollers with peripheries corresponding with the grooves in the plates, all arranged and operating substantially as and for the purpose specified.

2. A furniture-caster having grooved plates for anti-friction rollers, with the inner ledges of the grooves lower than the outside ones, substantially as and for the purpose specified.

3. A furniture-caster having annular corresponding grooves in the opposing faces of the upper and lower plates, said grooves being elliptical or V-shaped in transverse section, and having their ledges on one side more widely separated than their ledges on the other side, combined with cast-metal rollers having an elliptical or V-shaped cross-section in the plane of the axis corresponding with the cross-section of said grooves, and having the axial sprues still adhering, whereby cast-metal rollers may be employed without dressing, and the form of the roller conform to the form of the groove without possibility of shifting its axis of revolution or encountering friction on the side to destroy the figure of the bearing-surface.

313,024. **FIRE-ESCAPE.** GEORGE W. PUTNAM, Malden, Mass. Filed July 3, 1884. (No model.)



Claim.—1. The canvas fire-escape tube or chute W, provided with one or more flexible pipes or water-conductors, Y, having branches *g g*, provided with perforations, orifices, or nozzles *k k*, for the purpose of conveying water from a fire-engine or hydrant to all portions of said tube or chute W, and instantly wetting every part of the same, substantially in the manner shown and described.

2. The combination, with the chute W and its pipes or water-conductors Y, of the shields or lining J, placed over the pipes Y, substantially as and for the purpose described.

3. The flexible ladder F, in combination with the fire-escape chute W, substantially as and for the purpose described.

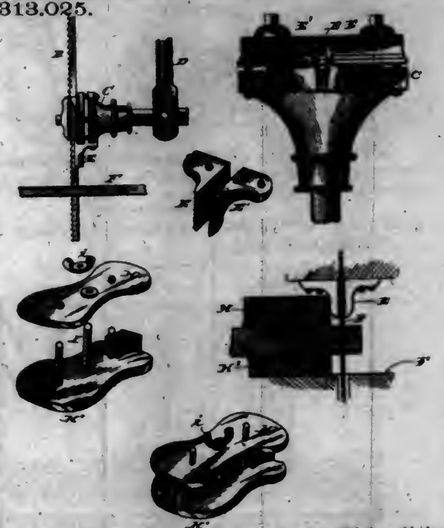
4. The chute W, provided with ventilating-spaces *i*, substantially as and for the purpose described.

5. The combination, with the chute W, of the rings *o o*, the endless band *v*, and parchment *i*, attached thereto, substantially as and for the purpose described.

6. The combination of the pipes or hose Y Y, provided with branches *g g*, and water-receptacles *c*, having perforations, orifices, or nozzles *k k*, with the fire-escape tube or chute W, all constructed and arranged to operate substantially in the manner and for the purpose set forth.

313,025. **BAND SAWING MACHINE.** JACOB V. ROWLETT, Richmond, Ind. Filed Sept. 1, 1884. (No model.)

313,025.

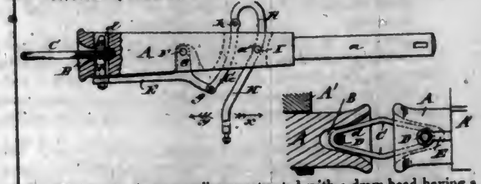


Claim.—1. In a band-saw mill, the combination, with the guide-head, of depending guide-lugs, between which the saw runs, and an independent clamp-form, holding the work and adapted to bear against either guide-lug, whereby the line of cut is caused to follow the conformation of the clamp-form, substantially as and for the purpose set forth.

2. In a band-saw mill, the combination, with the guide-head C, of the detachable guide-lugs E E′, depending from the guide-head upon each side of the saw, and a form holding and guiding the work, substantially as and for the purpose set forth.

3. The combination, with the guide-head C, having the depending guide-lugs E E′, of the saw B, running between said guide-lugs, and the independent clamp-form H and H′, all substantially as and for the purpose described.

313,026. **CAR-COUPLING.** EDGAR RYE, Albany, Texas. Filed Nov. 29, 1884. (No model.)



Claim.—1. A car-coupling constructed with a draw-head having a vertically-ranging and inwardly-tapering link-socket and a horizontal hole to receive the coupling-pin, in combination with a coupling-link tapering from the middle toward the end, substantially as herein set forth.

2. The combination, in a car-coupling, of a draw-head, A, having a vertically-ranging link-socket, a horizontal hole, *d*, crossing the socket, and a coupling-pin, D, adapted to said hole and to the coupling-link C, and connected to a lever, E, link G, and lever H, and said lever H extending to the side of the car, substantially as herein set forth.

3. The combination, in a car-coupling, of a draw-head, A, having a vertically-ranging link-socket, a horizontal hole, *d*, a coupling-pin, D, lever E, link G, lever H, extending to the side of the car, lever J, connecting with lever H and extending to the top of the car, and means for locking the lever J at the top of the car, substantially as herein set forth.

4. The combination, in a car-coupling, of a draw-head, A, having a vertically-ranging link-socket, a horizontal hole, *d*, a coupling-pin, D, lever E, link G, levers H J, and a frame, K, having a series of holes, *l*, and a lock lever or latch, M *m*, substantially as herein set forth.

313,027. **CONDUCTOR'S PUNCH.** BENJAMIN C. SMITH, Salem, assignor of one-fourth to James G. Crawford, Boston, Mass. Filed Nov. 13, 1884. (No model.)

Claim.—1. A conductor's punch provided with a box or receptacle for cuttings, a movable end or side for said box, and a spring whereby said end is normally held against the box, as set forth.

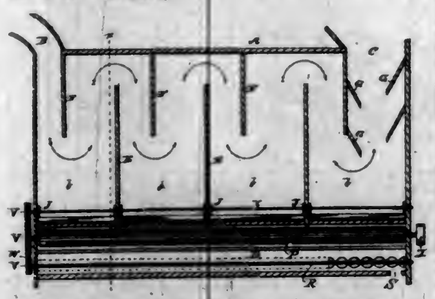
2. The combination, with a conductor's punch, of a box or receptacle for cuttings provided with a movable end or side having a closing-spring and an operating lever or handle, as set forth.

313,027.



3. The cutting box or receptacle formed to be attached to one of the jaws of a punch, and provided with a movable end or side having a closing-spring and an operating-handle, as set forth

313,028. DUST-COLLECTOR. JOE. M. SPRINKEL, Sterling, Ill. Filed Oct. 10, 1884. (No model.)



Claim.—1. The combination of the box A, provided with the inlet B, outlet C, opening O, and partitions E and F, placed so as to progressively increase the intervals between such partitions, the chains L, means for propelling such chains, the scrapers M, and the roller P, having a longitudinally-fluted periphery, substantially as described.

2. The combination of the box A, having partitions E and F, chains L, means for propelling such chains, scrapers M, roller P, having a fluted periphery, and shaft R, substantially as described.

3. The combination of the box A, having partitions E and F, the chains L, means for propelling such chains, and the scrapers M, substantially as and for the purpose described.

313,029. METHOD OF MAKING ORNAMENTAL AND OTHER DESIGNS IN RELIEF. MAX SUESS, Chicago, Ill. Filed May 17, 1884. (No specimens.)

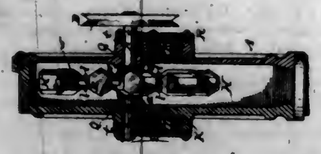
Claim.—1. The method of making ornamental or other designs in relief, which consists in embossing the fabric between male and female pattern-dies, then removing the male die, and, while the fabric is within the female die, cutting away the unembossed portions, and subsequently mounting the embossed portions on a suitable backing, substantially as described.

2. The method of making ornamental or other designs in relief, which consists in embossing the fabric between male and female pattern-dies, then removing the male die, and, while the fabric is within the female die and with its reverse side uppermost, removing the superfluous portions by cutting with a sharp instrument along the outer edges of the embossed portions, and subsequently mounting the embossed portions upon a suitable backing, substantially as described.

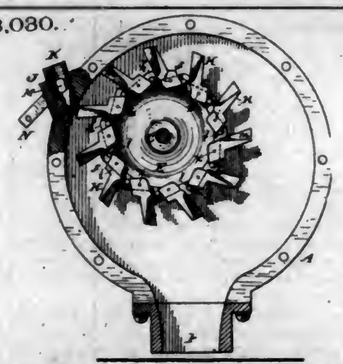
3. The method of making ornamental or other designs in relief, which consists in embossing the fabric between male and female pattern-dies, then removing the male die, and, while the fabric is within the female die with its reverse side uppermost, removing the superfluous portions, then filling the deeply-embossed portions with suitable padding, and finally applying the embossed design to a suitable backing, substantially as described.

313,030. WATER-MOTOR. JAMES P. SULLIVAN, Fitchburg, Mass. Filed June 6, 1884. (No model.)

Claim.—In a water-motor, the combination, with the case A and shaft C, of a bucket-wheel composed of a disk provided with shoulders *h* and studs *l*, and buckets pivoted between said shoulders and studs, substantially as described.



313,030.



313,031. DIE FOR MAKING BARBED FENCING. ANSON P. THAYER, Brooklyn, N. Y., assignor to Thomas W. Hall, same place. Filed Dec. 20, 1884. (No model.)



Claim.—The combination of shearing-dies *a b*, each having a conversely-oblique-sided rib, *c*, and groove *d*, adapted to slit the blank strip apart and form two rods, each having projections *g*, containing the material for two barbs, and the waste to be cut away between them, with punching-die *j*, having two die-sockets, *k*, and two punches, *l*, said die sockets and punches having conversely-oblique sides, and being adapted for and arranged and organized with and in relation to dies *a b*, to slit the strip apart and form said projections *g*, and cut away the waste from said projections *g*, successively, substantially as described.

313,032. WHIP-SOCKET FASTENER. JAMES W. TILLYER, Newark, N. J. Filed June 17, 1884. (No model.)



Claim.—1. The whip-socket fastener consisting in the seat having the lever *c*, pivoted thereto, and provided with the nut *c'*, and the strap C, provided with the screw *d*, and adapted to wrap around the whip-socket A and rail B, substantially in the manner herein set forth.

2. The combination, with the whip-socket A and rail B, of the seat fitted to both rail and socket, the lever *c*, pivoted within the seat, and provided with the nut *c'* and loop *c²* near the nut, and the strap C, attached to the stud *a* at one end, and carried around the socket, through the loop *c²* behind the lever, and over the rail B to the screw *d*, substantially as shown and described.

3. The combination, with the seat having the plates *b b*, formed in one piece with the studs *a a*, of the strap C, the screw *d*, and the lever *c*, formed with the lugs *c'*, adapted to bend around the stud *a* and retain the lever thereon, substantially as shown and described.

313,033. CYLINDER-LUBRICATOR. SAMUEL TOWNSEND, Detroit, Mich. Filed Nov. 30, 1882. Renewed Aug. 23, 1884. (No model.)

Claim.—1. The combination, in a lubricator, of an oil-cup, *f*, drop-sight feed-tube *g*, and condenser *a*, the arrangement being such that the oil, regulated by a valve between the cup *f* and the feed-tube *g*, drops through said tube and passes thence to the condenser, substantially as described.

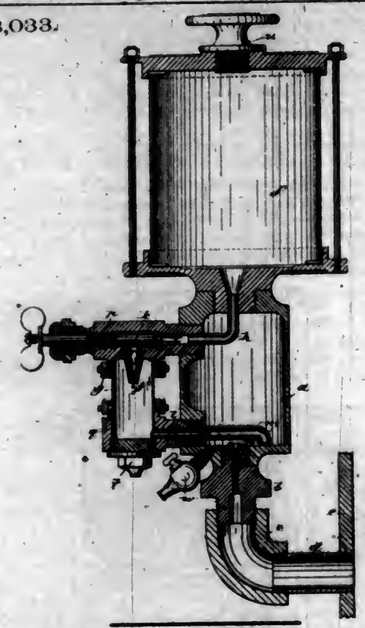
2. The combination, in a lubricator, of condenser *a*, attached to the steam-pipe or other part to be lubricated, oil-cup *f*, mounted on the top of the condenser, and drop-sight feed-tube *g*, attached to the side of the condenser, substantially as described.

3. The oil-cup *f*, mounted on the top of the condenser *a*, and connected through the top of said condenser with the glass drop-sight feed-tube *g* by the pipe *h*, passage *i* in fitting *p*, and the nipple *j*, substantially as described.

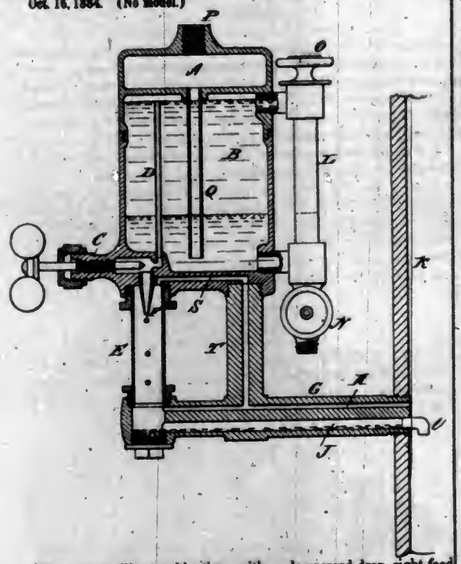
4. The combination of nipple *n* or steam-passage *o*, and siphon-pipe *m* of feed-tube *g*, with the condenser *a*, the arrangement and operation being substantially as described.

5. The combination of regulating-valve *k* with sight-feed tube *g* and oil-cup *f*, said valve being located in passage *i* of the fitting *p*, and regulating the flow of oil from the cup *f* to said drop-sight feed-tube, substantially as described.

313,033.



313,034. LUBRICATOR. SAMUEL TOWNSEND, Detroit, Mich. Filed Oct. 16, 1884. (No model.)



Claim.—1. The combination, with a downward-drop sight-feed tube, of the arm G and branch T, provided with the passages H J S, substantially as described, whereby a circulation of steam is caused to carry the oil out of the bottom of the sight-tube, as specified.

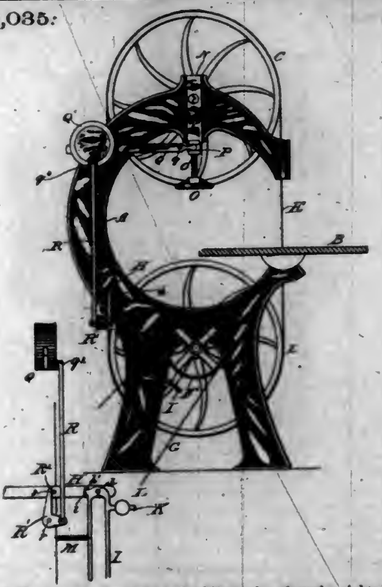
2. The combination, with sight-tube E, of arm G, having two passages H J, connecting with the sight-tube, one passage having a branch entering behind the drop-jet F, so as to insure an even circulation of steam, as specified.

313,035. BELT-SHIFTER. WILLIAM G. VERNON, Philadelphia, Pa. Filed Aug. 8, 1884. (No model.)

Claim.—1. In a belt-shifting device, the combination, with the shifting-lever, of a depending weighted fork pivoted thereto and adapted to shift the belt by its gravity when the shifting-lever is reciprocated.

2. The combination, with a band-saw, of an automatic belt-shifter adapted and designed to be brought into play by the abnormal upward movement of one of the band-wheels, substantially as described.

313,035.

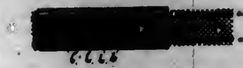


3. The combination, in a belt-shifter, of a pivoted weighted fork adapted to shift the belt gradually to one side by the gravity of said fork and to shift said belt positively in the other direction, substantially as described.

4. The combination, with sliding block N, supporting-lever Q, and weight Q', of depending lever R, lever R', shifting-lever H, and fork I, all constructed and arranged substantially as described.

5. The combination, with reciprocating lever H, with stop h', of weighted fork I, pivoted to said lever and provided with the toe i, substantially as and for the purpose set forth.

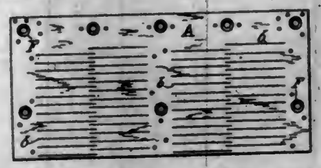
313,036. BRACELET. ADOLPH VEITER, Providence, R. I. Filed June 17, 1884. (No model.)



Claim.—A bracelet having a body formed of woven wires, and provided with short sections of hollow wire placed over the edges thereof, substantially as set forth.

313,037. SCREEN-PLATE OR PULP-STRAINER FOR PAPER-MAKING MACHINES. FRANK WILLIAMS, Newark, N. J. Filed Dec. 16, 1884. (No model.)

Brief.—Improvement on the invention of Patent No. 288,126, dated February 22, 1881.



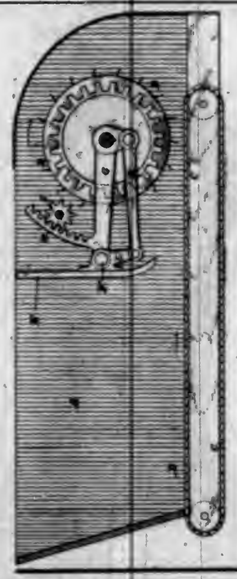
Claim.—The pulp-strainer plates described, as made not only of thin metal having the described overlapping slits, but having also the strengthening-strip secured thereto, as and for the purposes set forth.

313,038. COTTON-GIN FEEDER. GEORGE WINSHIP, Atlanta, Ga., assignor to the Winship Machine Company, same place. Filed Nov. 17, 1884. (No model.)

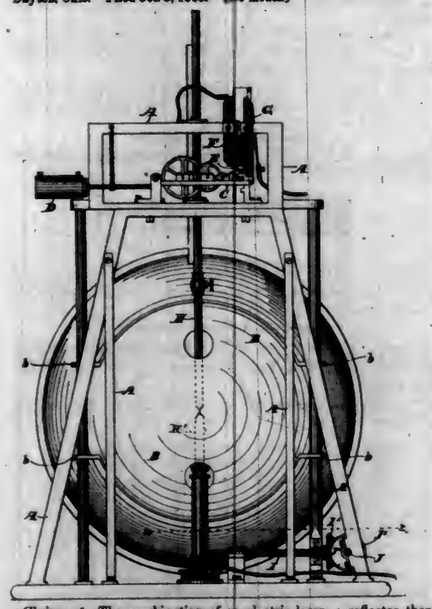
Claim.—1. The combination, with the hopper of a cotton-gin feeder and a spiked feeding-cylinder, of a vibrating partition, E, pivoted near its middle, and vertically adjustable, substantially as and for the purpose set forth.

2. The combination, with the hopper, of the spiked cylinder B, the pivoted arm G, provided with the segmental rack, the pinion, the links K and L, and vibrating partition E, substantially as set forth.

313,038.



313,039. FOCUSING ELECTRIC-ARC LAMPS. LEONIDAS G. WOOLLEY, Indianapolis, Ind., assignor to the Ohio Power and Light Company, Dayton, Ohio. Filed Oct. 3, 1883. (No model.)



Claim.—1. The combination of an electric lamp, a reflector therefor, means for adjusting one in relation to the other to compensate for the changing position of the arc due to the burning away of the carbons, and a rod or shaft running to a position convenient to the operator, whereby the light can be focused, substantially as set forth.

2. In combination with the carbons of an arc lamp, an adjustable reflector, and means, substantially as described, whereby the relative position of the reflector with respect to the arc can be changed to compensate for the unequal consumption of the carbons and preserve the proper focal position, substantially as described.

3. In combination with the carbons of an electric lamp, a focusing-reflector, and mechanism for adjusting said reflector with relation to the arc, substantially as described.

4. In combination with the reflector of a locomotive head-light, and with mechanism for adjusting the same with respect to the electric arc, a shaft extending back to the cab for actuating the adjusting mechanism, whereby the engineer is enabled to maintain the arc at the proper focal position within the reflector, substantially as described.

5. In combination with the electric lamp located within the head-light and having its carbons projected within the reflector, the operating-shaft extending from the cab of the locomotive to the head-light, and intermediate mechanism for adjusting the reflector, substantially as described.

6. In combination with the electric lamp supported upon a fixed frame and within the head-light, the reflector mounted to slide upon ways, and the adjusting mechanism operating upon the reflector and manipulated from the cab of the locomotive, substantially as described.

7. In combination with the electric lamp, the reflector mounted to slide upon ways, the attached rack, and operating-gears, all located within the head-light, and arranged to be operated from the cab of the locomotive, substantially as described.

313,040. FIRE-ALARM SIGNAL-BOX. JOHN YOUNG, Chicago, Ill., assignor to Western Electric Company, same place. Filed Mar. 1, 1884. (No model.)

Brief.—A device for detecting a false signal sent in by a simple accidental closure of the circuit.

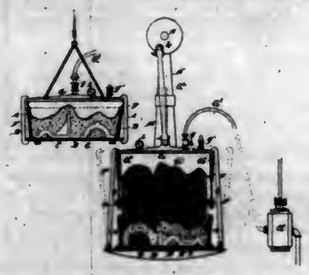


Claim.—1. In a fire-alarm circuit, a break-wheel provided with characters repeated thereon two or more times, the circuit-spring, clock-work, and starting mechanism, in combination with automatic ground-circuit-closing mechanism, whereby the circuit is always closed to ground through the break-wheel during a portion of the revolution of the break-wheel, substantially as and for the purpose specified.

2. The combination, substantially as hereinbefore set forth, with the break-wheel provided with characters repeated thereon, the fire-alarm-circuit spring, the clock-work, and starting mechanism, of a normally-open ground-connection, and switching apparatus, whereby the fire-alarm circuit is automatically closed to said ground-connection during a portion of each revolution of the break-wheel, whereby the number of the box will be sent in once only when the circuit has been momentarily closed so as to start the break-wheel accidentally.

REISSUES.

10,562. MACHINERY FOR MAKING MOLDS FOR CASTINGS. MATTHEW R. MOORE, Indianapolis, Ind., assignor to the Pneumatic Company, same place. Filed Oct. 11, 1884. Original No. 302,349, dated July 22, 1884.



Claim.—1. A flexible presser, backed by a fluent or plastic substance and adapted to compress sand, in combination with a flask and a pattern, substantially as and for the purposes set forth.

2. In machinery for making molds, a flexible bag or diaphragm containing air or other fluid, and connections for supplying pressure thereto, combined with a flask and a pattern, as and for the purposes set forth.

3. In machinery for making molds, the combination, with a bag or diaphragm containing a fluid or plastic substance, and with a flask and pattern, of a sectional presser, each section of which is adapted to yield, as and for the purposes set forth.

4. As a means for making molds for castings, a flask, mold-board, and pattern, in combination with each other and with a yielding bag or diaphragm, subject to the pressure of the water or other fluid, arranged to apply a practically uniform pressure on all parts of the sand in the mold, substantially as herein specified.

5. In combination with the flask A and mold-board B, the platen G, having flexible diaphragm G', means, as G^2 G^4 g, for supplying fluid to said diaphragm, and means, as g', for carrying off such fluid, as herein specified.

6. The combination, with the platen G, having a flexible diaphragm containing fluid, of the shaft H, crank-pin h, frame M, and rod G^3, and connecting-pitman, substantially as set forth.

7. In a machine for making molds for castings, the combination, with a flask, A, and support or bed E, of a platen, G, hooks or locking means F, flexible diaphragm G', and provisions, as G^2 G^4 g g', and connected means for applying fluid-pressure between the diaphragm and the piston, as herein specified.

10,563. ELECTRIC CONDUCTOR. WILLIAM R. PATTERSON, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Nov. 24, 1884. Original No. 306,513, dated Oct. 14, 1884.



Claim.—1. The combination, with a flexible core or conducting-wire, of a fibrous covering, a lead-tape covering, and the fire-proof serving, substantially as and for the purpose specified.

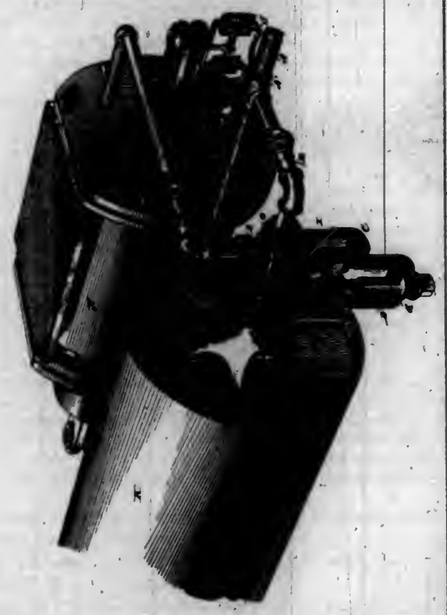
2. The telegraph-cable which consists of a central core of one or more conductors and the covering of fibrous material b, the lapped lead tape, the joints being protected by shellac or paint, and the fire-proof serving, combined substantially as and for the purpose specified.

3. The combination, with a flexible core or conducting-wire, of a fibrous covering, the spirally-wound flexible lead-tape covering, the different convolutions of said lead-tape covering being lapped upon one another so as to break joints, and the serving, substantially as and for the purpose specified.

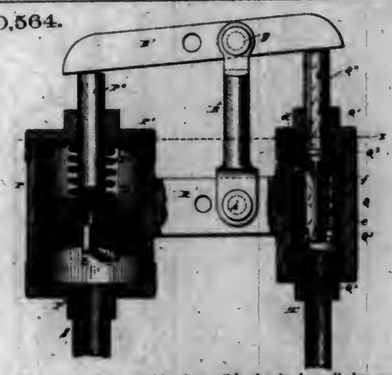
4. The telegraph-cable which consists of a central core of one or more conductors, the covering of fibrous material b, the lapped lead tape, the joints of the lead tape being protected by shellac or paint, and an outside serving to protect the lead tape, combined substantially as and for the purpose specified.

5. The combination, with a flexible core or conducting-wire, of a fibrous covering, the double spirally-wound flexible lead-tape covering, and the serving, substantially as and for the purpose specified.

10,564. STEAM AND AIR BRAKE. COLUMBUS PHILLIPS, Atlanta, Ga., assignor of two-thirds to Green J. Foreacre and Joseph B. Travis, same place. Filed Feb. 3, 1885. Original No. 307,492, dated Nov. 4, 1884.



10,564.



Claim.—1. The combination, with the brake-cylinder and main brake-pipe, of a pressure-chamber communicating with the main pipe to receive air therefrom, a release-chamber communicating with the brake-cylinder, valves within the two chambers, and means for transmitting motion from one valve to the other, to unseat the latter and allow the exhaust of air from the brake-cylinder, substantially as set forth.

2. The combination, with the brake-cylinder and main brake-pipe, of a pressure-chamber communicating with the main pipe to receive air therefrom, a release-chamber communicating with the brake-cylinder, valves within the two chambers, and a beam for transmitting motion from one valve to the other, to unseat the latter and allow the exhaust of air from the brake-cylinder, substantially as set forth.

3. The combination, with the brake-cylinder and main brake-pipe, of a pressure-chamber communicating with the main pipe to receive air therefrom, a release-chamber communicating with the brake-cylinder, valves within the two chambers, springs acting on said valves to restore them to their normal positions after movement therefrom, and a beam for transmitting motion from one valve to the other, to unseat the latter and allow air to exhaust from the brake-cylinder, substantially as set forth.

4. The combination, with the main brake-pipe, the brake-cylinder, and means for controlling the passage of air from the main pipe to the brake-cylinder, of a pressure-chamber communicating with the main pipe, a release-chamber communicating with the brake-cylinder, valves within the two chambers, and means for transmitting motion from one valve to the other, to unseat the latter and allow the exhaust of air from the brake-cylinder, substantially as set forth.

5. The combination, with the main brake-pipe, the auxiliary reservoir, the brake-cylinder, and means for controlling the passage of air from the main pipe to the auxiliary reservoir and thence to the brake-cylinder, of a pressure-chamber communicating with the main pipe, a release-chamber communicating with the brake-cylinder, valves within the two chambers, and means for transmitting motion from one valve to the other, to unseat the latter and allow air to exhaust from the brake-cylinder, substantially as set forth.

6. The combination of the release-chamber provided with a valve and escape-port, and constructed to receive air from the brake-cylinder, and a pressure-chamber provided with a valve connected with the valve in the release-chamber, and constructed to receive an inflowing agent to actuate its valve to transmit its movement to the valve in the release-chamber to unseat the same to open the escape-port, substantially as and for the purpose set forth.

7. The combination of the pressure-chamber provided with the valve having a stem sliding through the end of the chamber, the release-chamber connected to the pressure-chamber without communicating therewith, and provided with the valve having a stem sliding through the end of the chamber, and the beam fulcrumed upon a suitable support and connecting the stems of the two valves, substantially as set forth.

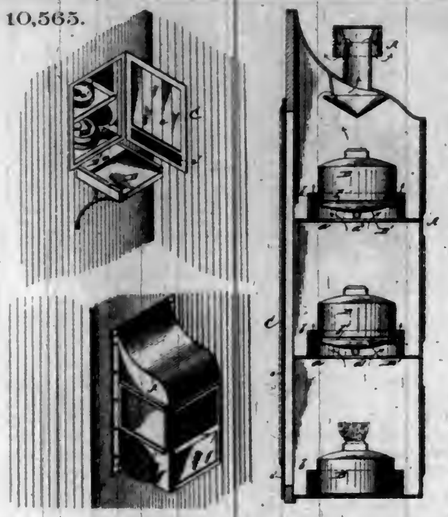
8. The combination of the pressure-chamber and release-chamber, each provided with the detachable caps, the valve to each chamber provided with a stem passing through the end of the chamber, and the cross-beam fulcrumed on a suitable support, and having its opposite ends over the ends of the valve-stems, and adapted to receive momentum therefrom, substantially as set forth.

9. The combination of the pressure-chamber, the release-chamber, the valves within the two chambers having stems sliding through the ends of the chambers, the springs acting on the valves, and the beam connecting the stems of the valves, substantially as set forth.

10. The combination, with the pressure-chamber and the release-chamber and their valves, of the adjustable post or support, and the beam adapted to be adjusted on said post or support, substantially as set forth.

10,565. SIGNAL-LIGHT. CHARLES WATTS, Logansport, Ind. Filed Dec. 20, 1884. Original No. 303,900, dated Aug. 19, 1884.

10,565.



Claim.—1. In a signal device, a case divided into a series of compartments, each provided with one or more panels of colored glass, in combination with a series of independent removable lamps adapted to be placed in any of the compartments, whereby any desired colors or combinations of colors may be had in signaling, substantially as shown and described.

2. In a signal device, a case divided into a series of compartments, one above the other, by partitions having air-openings therein, and a series of glass panels of various colors in the sides of the compartments, in combination with a lamp having a shield arranged below its body, with an air-space between, substantially as and for the purpose set forth.

3. In a signaling device, a case divided into a series of vertically-arranged compartments separated by partitions having air-openings therein, in combination with a series of removable lamps and a guard or flange secured to the partitions around said openings, adapted to both retain the lamp in position and prevent the reflection of the light in a lower compartment from showing through the panels of an upper one, substantially as shown and described.

4. In a signaling device, a room or car having an opening in its side, in combination with a signal-case secured over this opening, and means for projecting it through or withdrawing it within the side of the car, room, or cab, substantially as and for the purpose set forth.

5. In a signaling device, the car or room having an opening in its side, and the grooved bracket D', secured below it, in combination with a signal-case divided into compartments having colored-glass panels and a series of removable lamps, and secured upon the slide D, and the white-glass door C, all constructed and arranged to operate substantially as and for the purpose set forth.

6. In a signaling device, a signal-case having two or more independent compartments, each provided with one or more glass panels, in combination with a single lamp adapted to be removed from one compartment to the other to alter the signal, substantially as described and shown, and for the purpose set forth.

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DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

Supreme Court of the United States.

THE UNION METALLIC CARTRIDGE COMPANY *v.* THE UNITED STATES CARTRIDGE COMPANY. THE UNITED STATES CARTRIDGE COMPANY *v.* THE UNION METALLIC CARTRIDGE COMPANY.

Decided December 22, 1884.

1. Letters Patent No. 27,094 were issued to Ethan Allen, February 14, 1860, for fourteen years, for an improvement in machine for making percussion cartridge-cases. The patent was reissued in two divisions, No. 1,948 and No. 1,949, May 9, 1865. No. 1,948 embraced that part of the invention which concerned the mechanism for striking up the hollow rim at one stroke. The original patent and drawings showed such mechanism to be a moving die and a fixed bunter. In No. 1,948 the description was altered so as to state that the bunter might be carried against the die, and its two claims each contained the words "substantially as described." An extension of No. 1,948 having been applied for it was opposed, on the ground that such arrangement of a fixed die and a moving bunter was a new invention interpolated into the reissue. The Commissioner of Patents so held, and required such new matter to be disclaimed, as a condition precedent to the extension. A disclaimer was filed disclaiming the movable bunter as of the invention of Allen. No. 1,948 was then extended by a certificate which stated that a disclaimer had been filed to that part of the invention embraced in such new matter. In a suit in equity afterward brought on No. 1,948 against machines having a fixed die and a moving bunter for infringements committed both before and after the extension, *Held* that the effect of the disclaimer was to exclude those machines from the scope of any claim in No. 1,948 without reference to the question whether they contained mechanical equivalents for the moving die and the fixed bunter.
2. Allen had not, before the granting of the original patent, made any machine in which the die was fixed and the bunter movable, and it was never lawful to cover by the claims of a reissue an improvement made after the granting of the original patent.
3. Under section 54 of the act of July 8, 1870, chapter 230, (16 Stat., 205,) a disclaimer could be made only by a patentee who had claimed more than that of which he was the original or first inventor or discoverer, and he could make a disclaimer only of such parts of the thing patented as he should not choose to claim or hold by virtue of the patent.
4. In so disclaiming or limiting a claim, descriptive matter on which the disclaimed claim was based might be erased; but if there was merely a defective or insufficient description, the only mode of correcting it was by a reissue.
5. The decision in *Leggett* v. *Avery* (101 U. S., 256) cited and applied.
6. An acquiescence and disclaimer on a decision requiring the disclaimer as a condition precedent to an extension are as operative to prevent the afterward insisting on a recovery on the invention disclaimed as to prevent a subsequent reissue to claim what was so disclaimed.

APPEALS from the Circuit Court of the United States for the District of Massachusetts.

Mr. Causten Browne and *Mr. Edmund Wetmore* for the Union Cartridge Company.

Mr. B. F. Butler and *Mr. Frederick P. Fish* for the United States Cartridge Company.

Mr. Justice BLATCHFORD delivered the opinion of the Court.

Letters Patent of the United States No. 27,094 were issued to Ethan Allen, February 14, 1860, for fourteen years, for an improvement in machine for making percussion cartridge-cases. A reissue of this patent was granted in two divisions, No. 1,948 and No. 1,949, May 9, 1865, the application for the reissue having been filed April 7, 1865. The specification of No. 27,094 set forth two improvements: (1) an arrangement or mechanism to trim the open end of the case of the cap-cartridge to make the articles all alike and true; (2) striking up or forming the swelled end to form the recess for the priming, as shown at Z, from that of Y at one stroke in distinction from spinning them. There were two claims in No. 27,094: (1) the trimming mechanism; (2) striking or forming the hollow rim at one stroke or operation. In reissuing the patent the trimming mechanism was made the subject of No. 1,949, and the other improvement (the subject-matter of claim 2 of No. 27,094) was made the subject of No. 1,948. This suit is brought for the infringement of No. 1,948 alone. So much of the specification and claims of No. 27,094 as relates to the subject of No. 1,948 is copied below on the left hand, and the specification and claims of No. 1,948 are copied below on the right hand, the parts of each not found in the other being in italic:

Original No. 27,094.

Be it known that I, ETHAN ALLEN, of the city and county of Worcester, State of Massachusetts, have invented certain new and useful Improvements in Machinery for Making Loaded Caps or Cap-Cartridges; and I hereby declare the following to be a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a top view or plan, and Fig. 2 a side view, *the same letters indicating the same parts in both.*

My improvements relate to the construction or formation of the case of *the cap* cartridge *in the form shown at Z, or nearly so*, and consist * * * in *striking up* or *forming* the swelled end to form the recess for the priming, as shown at Z, from that of Y at one stroke, in distinction from spinning them, as has heretofore been done.

The construction of my improvements, as shown in the drawings, is as follows:

J *is* the driving-pulley *to receive motion, and its shaft is* provided with *cranks or eccentrics at each end*, to which the *rods H and* H' *connect, the shaft turning in suitable bearings in the frame or base K.* * * * F is a slide receiving motion by H' and moving in *the* ways G G, carrying the mandrel B, which passes through the *movable* die D, *which* has a

Reissue No. 1,948.

Be it known that I, ETHAN ALLEN, of the city and county of Worcester, and State of Massachusetts, have invented certain new and useful Improvements in Machinery for Making Loaded Caps or Cap-Cartridges; and I hereby declare the following to be a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a top view or plan, and Fig. 2 *is* a side view, *and pertains to a machine which is the subject of another reissue of these Letters Patent.*

My improvements relate to the construction or formation of the case of *a metallic* cartridge, and consist in *an arrangement of mechanism for forming* or *striking up* the swelled end to form the recess for the priming, as shown at Z, from that of Y at one stroke or *operation*, in distinction from spinning them, as has heretofore been done.

The construction of my improvements, as shown in the drawings, is as follows:

K is the base of the machine; J, the driving-pulley, *which* is provided with *a crank or eccentric* to which the *rod* H' *is connected.* F is a slide receiving motion by H', and moving in ways G G, carrying the mandrel B, which passes through the die D. *The die D* has a spring to keep or move it back toward F,

spring to keep or move it back toward F, and *an enlargement* in *its center* to facilitate placing the case A' to be taken by B. *The end of D next to E has a hole fitting on the outside of the case A.* E is a die with an *adjusting*-screw. *Y is a case as it comes from the press, and* Z *shows the same after being trimmed and set, or, in other words, gone through the following operation, to wit:*

* * * * * * *

It (the case or shell) *is placed in D or A' to be* taken on B, and carried *forward* until *its* end projects (sufficiently to form its rim) *out of D*, when F, meeting D, carries it with A in that position up against E, which flattens the end, and forms the hollow rim, as shown in section at Z, Fig. 2; and the motion of J continuing, the parts all return to their respective places, ready for another, which, during the same time, has been *prepared* as before described, *the finished case dropping* between the dies D and E, *or, if sticking in D, is punched out by the first motion of the next one and falls out of its way.*

Having thus fully described my invention, what I claim therein as new, and desire to secure by Letters Patent, is—

* * * * * * *

2. *I claim striking or forming the hollow rim at one stroke or operation, as above set forth and described.*

and *a hopper-like opening* in *the upper side* to facilitate placing the case A to be taken by B *and carried into the die D. The mandrel B has a shoulder, a sufficient distance from the end to allow it to enter the cartridge-shell just the right distance, and leave enough metal to be pulled into the head of the cartridge. The die D is just the right size to be filled by the shell A when pressed into it by the punch or mandrel B.* E is a die with an *adjustable* screw, *and the case may be carried against it to form the head or rim, or that may be carried against the die D by similar mechanism to F and H'. Z is a case or shell after being headed, forming the cavity for the fulminating powder.*

The operation is as follows, viz: Motion being given to pulley J is communicated through H' to F and B, and the cases or shells are placed in the recess or in an inclined tube, which feeds them to the punch B. The shell is taken on *the punch* B, and carried *through the die D* until *the* end projects sufficiently to form its rim, when F, meeting D, carries it with A in that position up against E, which flattens the end and forms the hollow rim, as shown in section at Z, Fig. 2; and the motion of J continuing, the parts all return to their respective places, ready for another *shell*, which, during the same time, has been *placed in position* as before described, *and the punch B, taking on another shell, is carried into the die D, and presses out the one before headed, which drops* between the dies D and E, *when the operation is repeated as before.*

1. *I claim the mandrel which carries the cartridge-shell, in combination with the die D, which admits the same, and against which the closed end of the cartridge-shell is headed, substantially as described.*

2. *I claim the die D, constructed and operating for the heading of cartridge-shells, substantially as described.*

The following are the drawings of the original and of the reissue:

Fig. 1.

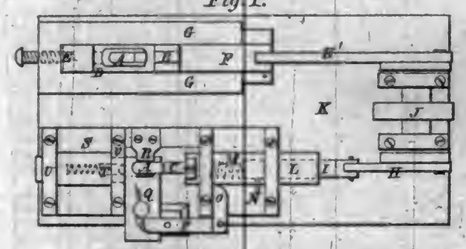
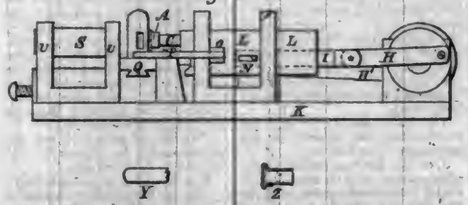


Fig. 2.



The Allen machine as organized for heading and making a flange upon cartridge-shells consists, mainly, of a mandrel, a die, and a bunter, which are combined together in order to operate. The mandrel is a rod with a shoulder upon it, the rod beyond the shoulder being of such diameter as to enter the cartridge-shell, which is to be headed, with a pretty close fit, and the shoulder being at right angles to the rod, and formed to support the edge of the shell at the open end of the cartridge during the operation of heading. The die is a block of metal with a hole in it, of just the size of the outside of the shell, and the axes of the die and mandrel are in the same line. The bunter is a piece of metal so located that it is opposite one end of the die. The machine is also provided with a gutter, which is a prolongation of the hole in the die, but open on top, into which shells are to be introduced prior to being acted upon by the machine. When an unheaded shell is placed in this gutter, with the mandrel as far retracted from the die as possible, the mandrel advances, inserts itself into the shell, and shoves the shell into the die with its closed end projecting beyond the die a sufficient distance to afford metal from which the flange may be formed. In this position, the outside of the shell is supported by the die, the inside of the shell by the mandrel, and the edges at the open end of the shell by the shoulder on the mandrel. The die, mandrel, and shell then advance together, and the closed end of the shell is forced against the bunter, the shell being thus squeezed down so as to form the flange of the cartridge. The mandrel then retreats, and, as it retreats, slips out of the shell, leaving the headed shell in the die, and when the mandrel is fully out of the shell the die is in its old position. The shell cannot follow the mandrel, owing to the fact that it is now headed, and that its head is on that side of the die which is farthest from the mandrel. After the mandrel has retreated sufficiently far from that end of the die which is nearest the mandrel, a second unflanged shell may be placed in the gutter. The mandrel then advances and enters the shell as before, and the advance of this shell on the end of the mandrel drives out the shell which has just been headed and was sticking in the die. After this second shell has been driven far enough into the die, it is headed as the first shell was, and is in turn pushed out by a third shell; and so on in succession. In the operation of the machine, the shell is forced into one end of the die and expelled at the other end, so that the shell moves in the same line and in the same direction from the time it is first acted upon by the mandrel until it is completely expelled from the die. The end of the die farthest from the mandrel is the anvil or rest against which the shell is headed, by the conjoint action of the die and the bunter, the flange being formed fully at the time when the die and bunter are as near as possible the one to the other.

The description in the original patent of the mechanism for striking up or forming at one stroke the swelled end to form the recess for the priming describes the die D as movable, and as being carried, with the case or shell and the mandrel B in it, against the stationary die E. This is the description to which the second claim of the original patent refers when it claims "striking or forming the hollow rim at one stroke or operation, as above set forth and described." The drawings represent that arrangement and no other.

In the reissue it is stated that the case or shell may

be carried against the die E to form the rim, or the die E may be carried against the die D by similar mechanism to the slide F and the rod H'. It is also stated that the cases or shells are placed in the recess or gutter, or in an inclined tube, which feeds them to the punch or mandrel B. Nothing was said in the specification of the original patent about carrying the die E against the die D, or about feeding the cases or shells by an inclined tube.

Allen having died, Sarah E. Allen was duly appointed his executrix, in February, 1871. In November, 1873, she applied to the Commissioner of Patents for an extension of No. 1,948 and of No. 1,949. The application was opposed by E. Remington & Sons. Much testimony was taken on both sides. The day of hearing was February 4, 1874. The Commissioner of Patents decided to grant the extension, and rendered the following decision, (5 *Off. Gaz.*, 147:)

This is an application by the executrix of the estate of Ethan Allen for the extension of Reissued Patents Nos. 1,948 and 1,949, granted May 9, 1865. The original patent was granted to Ethan Allen, February 14, 1860, and comprehended a combined apparatus for trimming the open ends, and then heading the closed ends, of blanks for forming metallic cartridge-shells. These operations are each performed automatically, but independently, by different portions of the machinery. Reissue No. 1,948 comprehends the mechanism for heading the shell, and No. 1,949 that for trimming it. No testimony is presented relating to the latter, and it may be dismissed from consideration. Some interpolations of new matter appear in the former, but they have been disclaimed, rendering the scope of the patent unequivocally that of the invention originally described, and illustrated in drawing and model. The device in question consists of a hollow recessed sliding die, a reciprocating mandrel having a shoulder permitting it to enter a shell the proper distance for heading, and a stationary bunter, organized into a machine which operates as follows: The mandrel being withdrawn into the back portion of the die, which serves merely as a guide for it, a shell with its open end to the rear is placed in the recess of the die in the path of the mandrel. As the mandrel advances, it enters the shell, and carries it into the die until its closed end projects a little in front for heading. At this point the stock of the mandrel strikes the rear of the die and carries it forward until the projecting end of the shell strikes a fixed anvil, and is headed. The mandrel and die then retreat, carrying the headed shell, the die being forced back by a spring to its original position, and the mandrel continuing until it has withdrawn from the shell and passed the feeding-recess. The headed shell remains in the die until it is forced out by the advance of the next shell. This is the machine patented, and the claims of the patent are as follows:

"1. The mandrel which carries the cartridge-shell, in combination with the die D, which admits the same, and against which the closed end of the cartridge-shell is headed, substantially as described.

"2. The die D, constructed and operating for the heading of cartridge-shells, substantially as described."

This was the first successful organized automatic machine for heading cartridge-shells. It has undergone various improvements, however, and, as built and (according to the testimony of the witness Cook) used by the inventor, it is not now in use. It, however, furnished the essential principle of construction which has been maintained in all succeeding heading-machines of its class. The hollow die and reciprocating mandrel to receive and carry forward the shell to be headed, and at the same time force out the preceding headed shell, are the chief elements of the machines which have produced the vast quantity of shells that have come into market since the date of this invention. The rear or guide portion of the die is omitted in the present machines; and, instead of a recess in the die, a special feeding device is employed; also, instead of advancing the die against the anvil, it is now made stationary, and the anvil is advanced, the die-spring being transferred to it. Whether this latter modification, which is the principal one, and is admitted to effect materially superior results in heading the larger sizes of shells, is in legal contemplation an equivalent construction mechanically improved or a substantive invention, has been the subject of much contention in this application. I am, however, so entirely convinced that the matter introduced into the reissue describing the holding-die as stationary, and the bunter as movable, was new matter, describing a substantially different invention from the original, possessing different functions, that I have required, as a condition precedent to extension, that this new matter, together with that of the inclined tube for feeding, should be absolutely disclaimed. With such disclaimer, the patent is extended.

With a view to the extension the following disclaimer was filed on the 4th of February, 1874:

To the Commissioner of Patents:

Whereas reissued letters patent of the United States were, on the ninth day of May, A. D. 1865, granted to Ethan Allen, of Worcester, in the county of Worcester, State of Massachusetts, numbered 1,948; and whereas the Union Metallic Cartridge Company are now the sole owners of said reissued letters patent; and whereas Sarah E. Allen, of said Worcester, as the executrix of the goods and estate of said Ethan Allen, is the sole owner of any extended term of said letters patent which may hereafter be granted; and whereas the Union Metallic Cartridge Company aforesaid have an equitable interest in the extended term of said letters patent: now, therefore, the said Union Metallic Cartridge Company and the said Sarah E. Allen, executrix as aforesaid, respectfully show to the honorable Commissioner of Patents that through inadvertence, accident, or mistake the words "or that may be carried against the die D by similar mechanism to F and H'" were inserted in the descriptive part of said Reissued Letters Patent No. 1,948, which words were not in the descriptive part of the original letters patent of said Ethan Allen; and thereupon your petitioners disclaim the said movable die E as being of the invention of said Ethan Allen, except in so far as the same by fair construction may be deemed the mechanical equivalent of the die E described and shown in said original letters patent and the drawing thereof; and whereas the said Reissued Letters Patent No. 1,948, in the descriptive part thereof, contain the words "or in an inclined tube," which words are not found in the descriptive part of the original letters patent of said Ethan Allen, but said words were introduced into the specification of said reissued letters patent by inadvertence, accident, or mistake, your petitioners disclaim such inclined tube as being of the invention of the said Allen.

SARAH E. ALLEN, *Executrix.*
UNION METALLIC CARTRIDGE CO.,
M. HARTLEY, *President.*

The following additional disclaimer was filed on the 13th of February, 1874:

To the Honorable the Commissioner of Patents:

Whereas reissued letters patent of the United States were, on the ninth day of May, A. D. 1865, granted to Ethan Allen, of Worcester, in the county of Worcester and State of Massachusetts, numbered 1,948; and whereas the Union Metallic Cartridge Company, of Bridgeport, State of Connecticut, are now the sole owners of said reissued letters patent; and whereas Sarah E. Allen, of said Worcester, as the executrix of the goods and estate of said Ethan Allen, is the sole owner of any extended term of said letters patent which may be granted: now, therefore, the Union Metallic Cartridge Company and Sarah E. Allen, executrix as aforesaid, respectfully show to the honorable Commissioner of Patents that through inadvertence, accident, or mistake the words "or that may be carried against the die D by similar mechanism to F and H'" were inserted in the descriptive part of said Reissued Letters Patent No. 1,948, which words were not in the descriptive part of the original letters patent of said Ethan Allen; and thereupon your petitioners disclaim the said movable die E (called a "bunter") as being of the invention of said Ethan Allen, thus leaving the description of said die E the same as shown in the original letters patent and the drawings thereof; and whereas the said reissued letters patent, numbered 1,948, in the descriptive part thereof contain the words "or in an inclined tube," which words are not found in the descriptive part of the original letters patent of said Ethan Allen, but said words were introduced into the specification of said reissued letters patent by inadvertence, accident, or mistake, your petitioners disclaim said inclined tube as being of the invention of said Ethan Allen. This disclaimer is absolute, and is filed as an additional disclaimer to that filed February 4, A. D. 1874, in which certain reservations were made.

UNION METALLIC CARTRIDGE CO.,
M. HARTLEY, *President.*
SARAH E. ALLEN, *Executrix.*

New York, February 9, 1874.

The certificate of extension of No. 1,948 was as follows:

Whereas, upon the petition of Sarah E. Allen, of Worcester, Massachusetts, executrix of the estate of Ethan Allen, deceased, for the extension of the patent granted to said Ethan Allen, February 14, 1860, and reissued May 9, 1865, numbered 1,948, for "machine for making cartridge-cases," the undersigned, in accordance with the act of Congress approved the 8th day of July, 1870, entitled "An act to revise, consolidate, and amend the statutes relating to patents and copyrights," (the said Sarah E. Allen, executrix, having filed a "disclaimer" to that part of the invention embraced in the following words: "or that may be carried against the die D by similar mechanism to F and H';" also, the words "or in an inclined tube,") did, on this thirteenth day of February, 1874, decide that said patent ought to be extended: now, therefore, I, Mortimer D. Leggett, Commissioner of Patents, by virtue of the power vested in me by said act of Congress, do renew and extend the said patent, and certify that the same is hereby extended for the term of seven years from and after the expiration of the first term, viz., from the fourteenth day of February, 1874; which certificate being duly entered of record in the Patent Office, the said patent has now the same effect in law as though the same had been originally granted for the term of twenty-one years.

In testimony whereof, I have caused the seal of the Patent Office to be hereunto affixed this thirteenth day of February, 1874, and of the Independence of the United States the ninety-eighth.

[SEAL.] M. D. LEGGETT,
Commissioner.

Sarah E. Allen, executrix, having, on the 21st of February, 1874, assigned her title to the extended term of No. 1,948 to the Union Metallic Cartridge Company, it brought this suit in equity against the United States Cartridge Company on the 18th of March, 1874, for the

infringement of No. 1,948. The bill alleged an assignment by the executrix to the plaintiff of her title to No. 1,948 on the 10th of February, 1871, an assignment by the plaintiff to her on the 7th of February, 1874, of all of its title to No. 1,948, the extension, and the assignment of the extended term. The assigments above mentioned have been duly proved. The bill makes no reference to any disclaimer.

The machine of the defendant has the die D stationary and the die E, or bunter, movable, and it has an inclined tube for feeding. The die D, the mandrel B, and the bunter E are, as tools, the same as those in the plaintiff's machine. The mandrel enters the shell, pushes it into the die D, supports it on the inside while it is being headed, and the unheaded shell expels the headed shell from the die D, as in the plaintiff's machine. The die D supports the outside of the shell while it is being headed, and the end of that die acts as an anvil against which the flange is formed by the joint operation of such anvil and the bunter, as in the plaintiff's machine. The flange is fully formed at the time when the end of the die D and the bunter are as close together as the operation of the machine will permit them to be, which is true also of the plaintiff's machine. In the defendant's machine, as in the plaintiff's, the unheaded shell enters at one end of the die D and is expelled from the other end, and moves always in the same direction with relation to the die D from the time that the mandrel first takes charge of it until, after being headed, it is expelled from the die. But in the defendant's machine the die D stands still and the bunter moves toward it to head the shell, while the drawings of No. 27,094 and of No. 1,948 show a stationary bunter and the die D moving toward it to head the shell.

The answer denies that the reissue was lawful, and avers that the original patent was surrendered to claim inventions not made by Allen; that the Reissue No. 1,948 is not for the same invention as was the original patent; that as the reissue was void the extension also was void; that the Commissioner granted the extension only on the express condition precedent that certain new matter unlawfully introduced into the reissue (as decided by him) should be absolutely disclaimed, and that only upon such disclaimer should the patent be extended, and that said condition has not been complied with. It denies infringement.

Proofs having been taken, the case was heard before Judge Shepley, and he decided it in favor of the plaintiff on the 13th of April, 1877, and entered a decree holding No. 1,948 to be valid and to have been infringed, and awarded an account of profits and damages before a master from February 10, 1871, except as to the period from February 7, 1874, to February 21, 1874, and a perpetual injunction restraining the defendant from making, using or vending machines for heading cartridge-shells, having a die, mandrel, and bunter, excepting five machines specially named, the question as to the use of which was reserved till the master should make his report. The decision of Judge Shepley (2 Bann. & A., 593, and 11 O. G., 1,113) says:

In the machine admitted to be used by the defendant are found substantially the same die, mandrel, and bunter, operating in the same manner to form the flanged head of the cartridge and to expel the shell after being headed, except that in defendant's machine the bunter moves toward the die to head the shell, while in the Allen machine the die moves toward the bunter to head the shell. The fact, as proved, that, especially in the case of cartridges of larger sizes, there is an advantage in having the die stationary while the bunter moves toward it is not sufficient alone to show that this latter form of the machine is not an equivalent of the other, all the elements of the combination existing alike in both and acting alike in combination. It is contended on the part of the defendant that the action of the Commissioner of Patents in requiring a disclaimer of so much of the reissued patent as claimed in specific terms the use of the movable bunter and the stationary die as an equivalent for the movable die and the fixed bunter before granting an extension is conclusive upon the complainant; but we do not so regard it. The patentee, without describing equivalents, is entitled to use equivalents and to treat the use of equivalents by others as an infringement, and this, upon the evidence in the record, appears to be a clear case of such a use.

The master made a report as to profits, to which exceptions were filed by both parties. On the hearing of the exceptions the case was reheard before Judge Lowell on the question as to whether the original decree should be reversed. He rendered a decision (7 Fed. Rep., 344) in which he said:

Allen's original patent described a machine organized to move a die against a bunter, and by their contact to form a flange or head upon the metallic cartridge which was carried by the die. The defendant's machines brought a movable bunter against a fixed die. This was an improved form of the machine, and was, perhaps, a patentable improvement; but it was the same machine and was an undoubted infringement. This improvement was invented by Allen himself, but after he had obtained his patent, and when he asked for a reissue he inserted in his description of the mechanism this modified and improved form. The Commissioner required him to disclaim this part of his description, as a condition precedent to granting the reissue. Judge Shepley held that the disclaimer did not prevent the patentee from enjoining the use of machines having this improvement. It is now argued, and certainly with much force, that *Leggett* v. *Avery* (101 U. S., 256) holds the patentee to this disclaimer as an estoppel. I appreciate the argument, but do not consider myself bound to reverse Judge Shepley's decision, which I should not feel at liberty to do unless my mind were entirely satisfied that he was wrong. No one can doubt that if a patentee obtains a patent upon his solemn admission of certain facts he shall never thereafter be permitted to controvert them. This is *Leggett* v. *Avery*. Judge Shepley, though giving his opinion before that case was decided, could not have overlooked this point. I understand him to decide that the admission in this case was not of a fact of invention, but of the propriety of inserting a certain clause in the descriptive part of the specification, and, if this were not so, still, if the patentee's invention and his patent rightly included this form as an equivalent it was a mere nullity, like an admission of law, to confess that it did not include it. This is the idea shortly expressed by Judge Shepley, and I do not see any necessary conflict between it and the decision of the Supreme Court.

The exceptions of both parties were overruled, and a decree was entered for the plaintiff for $40,367.26 profits to April 23, 1877, without damages. From this decree both parties have appealed to this Court, but the plaintiff waived its appeal at the bar.

Many questions were discussed at the hearing which we deem it unnecessary to consider, because we are of opinion that the disclaimer made has the effect to so limit the construction of the claims of the reissue that the defendant's machine cannot be held to infringe those claims. The opposition to the extension proceeded, among other things, on the ground that Reissue No. 1,948 was so worded as to cover a machine having a stationary die and a movable bunter—one not within the language or the scope of the original patent, not indicated therein as the invention of Allen, and not described, and a substantially new and different invention. That the Commissioner intended that the extension should not be granted unless there should be a disclaimer of all claim to have No. 1,948 cover a machine with a stationary die and a movable bunter, and that the second disclaimer filed was such a disclaimer, and that the patent extended cannot be held to be one which covers by any claim the defendant's machine, is, we think, entirely clear.

The Commissioner, in his decision, says that the "interpolations of new matter" in No. 1,948 "have been disclaimed," and that such disclaimer renders "the scope of the patent unequivocally that of the invention originally described, and illustrated in drawing and model."

The disclaimer is referred to as limiting the scope of the patent—that is, the extent of its claims—and as reducing such scope and extent to what the drawings and model illustrated, namely, a movable die and a stationary bunter, to the exclusion of a stationary die and a movable bunter. The Commissioner adds that it had been the subject of much contention in the application for the extension whether the modification of having a stationary die and a movable anvil, which, he said, it was admitted, effected materially superior results in heading the larger sizes of shells, was, in legal contemplation, an equivalent construction mechanically improved or a substantive invention, and that he is so entirely convinced that the matter introduced into the reissue, describing the holding-die as stationary and the bunter as movable, was new matter describing a substantially different invention from the original, possessing different functions, that he had required, as a condition precedent to extension, that this new matter should be absolutely disclaimed. The new matter introduced into the reissue in respect to the moving of the bunter or die E was introduced into the descriptive part by inserting the words "or that" (the die E) "may be carried against the die D by similar mechanism to F and H'," but it was also introduced into the two claims by the use of the words "substantially as described" in those claims. This reissue took place under section 13 of the act of July 4, 1836, chapter 357, (5 Stat., 123,) which provided for a surrender and the issuing of a new patent "for the same invention * * * in accordance with the patentee's corrected description and specification." This provision was repeated in section 53 of the act of July 8, 1870, chapter 230, (16 Stat., 205,) now section 4916 of the Revised Statutes, with the additional enactment that "no new matter shall be introduced into the specification." But where new matter was, even before the act of 1870, introduced into the description, and in such manner as to enlarge the claim and cause the patent to be not "for the same invention," the reissue was invalid to the extent that it was not for the same invention.

It is quite clear that Allen had not, before the granting of the original patent, made any machine in which the die D was stationary and the bunter movable. If that arrangement was a "new improvement of the original invention," and was invented by Allen, and after the date of the original patent, he could, under section 13 of the act of 1836, have had a "description and specification" of it "annexed to the original description and specification," on like proceedings as in the case of an original application, and it would have had "the same effect in law" from "the time of its being annexed and recorded, * * * as though it had been embraced in the original description and specification," or he could have applied for a new patent for the improvement. Such last-named provision of section 13 of the act of 1836 was repealed by the act of 1870, and was not re-enacted therein, nor is it found in the Revised Statutes; but it was never lawful to cover by the claims of a reissue an improvement made after the granting of the original patent.

The statute in force in regard to disclaimers when the disclaimers were filed in this case was section 54 of the act of 1870, which provided—

That whenever, through inadvertence, accident, or mistake, and without any fraudulent or deceptive intention, a patentee has claimed more than that of which he was the original or first inventor or discoverer, his patent shall be valid for all that part which is truly and justly his own, provided the same is a material or substantial part of the thing patented; and any such patentee, his heirs or assigns, whether of the whole or any sectional interest therein, may, on payment of the duty required by law, make disclaimer of such parts of the thing patented as he shall not choose to claim or hold by virtue of the patent or assignment, stating therein the extent of his interest in such patent; said disclaimer shall be in writing, attested by one or more witnesses, and recorded in the Patent Office, and it shall thereafter be considered as part of the original specification, to the extent of the interest possessed by the claimant and by those claiming under him after the record thereof.

This word "claimant" is an evident error for "disclaimant," as "disclaimant" is the word used in section 7 of the act of March 3, 1837, chapter 45, (5 Stat., 193,) which was the first statute providing for a disclaimer. This error is perpetuated in section 4917 of the Revised Statutes.

It is a patentee who "has claimed more than that of which he was the original or first inventor or discoverer," and only "such patentee," or his assigns, who can make a disclaimer; and the disclaimer can be a disclaimer only "of such parts of the thing patented as he shall not choose to claim or hold by virtue of the patent or assignment." A disclaimer can be made only when something has been claimed of which the patentee was not the original or first inventor, and when it is intended to limit a claim in respect to the thing so not originally or first invented. It is true that in so disclaiming or limiting a claim descriptive matter on which the disclaimed claim is based may, as incidental, be erased, in aid of or as ancillary to the disclaimer; but the statute expressly limits a disclaimer to a rejection of something before claimed as new or as invented when it was not new or invented, and which the patentee or his assignee no longer chooses to claim or hold. It is true that this same end may be reached by a reissue, when the patentee has claimed as his own invention more than he had a right to claim as new; but if a claim is not to be rejected or limited, but there is merely "a defective or insufficient specification"—that is, description, as distinguished from a claim—the only mode of correcting it was and is by a reissue.

It is apparent that the Commissioner, when he said that the disclaimer affected "the scope of the patent," and that the matter introduced into the reissue was "new matter, describing a substantially different invention from the original, possessing different functions," and that he had required it to be absolutely disclaimed, "as a condition precedent to extension," meant that he had required such new matter—that is, the arrangement of a stationary die and a movable bunter—to be disclaimed, as an invention of Allen covered by the reissue. What was done was in accordance with this view. In the first disclaimer, that of February 4, 1874, it is said that by inadvertence, accident, or mistake the words "or that may be carried against the die D by similar mechanism to F and H'" were inserted in the descriptive part of No. 1,948, and were not in the descriptive part of the original patent. Thereupon the petitioners disclaim not such descriptive words as a description merely, but they disclaim "the movable die E as being of the invention of" Allen, but with this limitation or reservation "except in so far as the same, by fair construction, may be deemed the mechanical equivalent of the die E described and shown" in the original patent and its drawings. It was sought to reserve the question of the mechanical

equivalency of the stationary die and movable bunter with the movable die and stationary bunter, and not have the disclaimer absolutely reach and cover the former, but still leave the claims to cover it. But this was evidently not satisfactory to the Commissioner, and he required a further disclaimer. So the one of February 13, 1874, was filed, which states on its face that it "is absolute, and is filed as an additional disclaimer" to the first one, "in which certain reservations were made." In this second disclaimer the language as to the inserted words is the same as in the first, and the statement of disclaimer is that the "petitioners disclaim the said movable die E (called a 'bunter') as being of the invention" of Allen, "thus leaving the description of said die E the same as shown in the" original patent and drawings. The reservation was expunged. The effect of the disclaimer was to limit the claims of the reissue to a machine with the stationary die E, shown in the original patent and drawings, and to prevent their any longer covering, even if they had before covered, a movable die E or bunter. Such was the effect of the disclaimer on the reissue, without reference to the extension. But the certificate of extension itself states that the executrix had "filed a disclaimer to that part of the invention embraced in the following words: 'or that may be carried against the die D by similar mechanism to F and H','" and what is extended is No. 1,948, with such disclaimer. After an extension has been obtained on the condition precedent of making such disclaimer, the disclaimer cannot be held inoperative as respects the extended term.

We regard this case as falling within the principles laid down in *Leggett* v. *Avery*, (101 *U. S.*, 256.) There the original patent was issued in October, 1860. It was surrendered and reissued in June, 1869, and extended in October, 1874. As a condition of obtaining the extension, the patentee disclaimed the specific claims which the defendants in the suit were charged with infringing, the extension having been opposed, and the Commissioner having refused to grant it unless the patentee would abandon all but one of the six claims of the reissue, there having been but one claim in the original patent. This was done, and the extension was granted for only one of the six claims, which one the defendants had not infringed. Three days after the extension was granted a reissue was applied for, including substantially the claims which had been thus disclaimed. The reissue was granted, two of the claims in it being for substantially the same inventions which had been so disclaimed before the extension, and for different inventions from the invention secured by the patent as extended. A reference to the record of the case in this Court shows that the Commissioner decided that the extension would be granted provided the disclaimer should be filed, and that the disclaimer concluded with the words, "reserving right to reissue in proper form." This Court held that the Commissioner erred in allowing in the second reissue claims which had been expressly disclaimed, because the validity of such claims had been considered and decided with the acquiescence and express disclaimer of the patentee; and that this was a fatal objection to the validity of the second reissue. The acquiescence and disclaimer must be regarded as equally operative to prevent those who hold the reissue in suit, whether in respect to the time before or after the extension, from being heard to allege that persons who use machines with a stationary die D and a movable bunter E infringe the claims of the reissue. The disclaimer was one of the fact of invention. It could not lawfully be anything but a disclaimer of the fact either of original invention or of first invention. It was not merely the expunging of a descriptive part of the specification, involving only the propriety of inserting such descriptive part in the specification, but it was a disclaimer of all claim based on such descriptive part, because the claims were made to cover such descriptive part, by the words "substantially as described," in the two claims. The question of fact is not open now as to whether Allen invented at any time the stationary die D and movable bunter E, or as to whether it was, or is, or could be, a mechanical equivalent for the movable die D and stationary bunter E, because those questions are concluded by the disclaimer.

It is conceded by the plaintiff, that if, by the operation of the disclaimer, it is estopped to say that a stationary die D and a movable bunter E are the equivalent of the movable die D and the stationary bunter E, the defendant does not infringe.

The decree of the Circuit Court is reversed, with costs to the United States Cartridge Company, on both appeals, and the case is remanded to that court, with direction to dismiss the bill, with costs.

U. S. Circuit Court—Southern District of New York.

THAYER v. HART, JR., *et al.*

Decided November 17, 1884.

When testimony is taken to be used in two cases, its cost should be equally divided between them.

Mr. J. P. Fitch for the complainant.

Messrs. Betts, Atterbury & Betts for the defendant.

WHEELER, *J.*:

The testimony in question was taken in two cases—this one and another. The expenses of its taking were incurred as much in one case as the other, although the original testimony was filed in this case and a copy in the other. As it was taken for each equally, its cost belongs to each equally, and should be taxed in each equally. To tax the whole in either would be taxing costs there which belonged to the other. If the same party should prevail in both, it would make no difference where it was taxed, for it would be taxable but once; but that may not be, and if one party should prevail in one and the other in the other, and it all should be taxed in favor of one, he would recover costs he was not entitled to and for which the other was not liable.

Taxation to be made accordingly.

THE OFFICIAL GAZETTE OF THE United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

VOL. 30—No. 9. TUESDAY, MARCH 3, 1885. PRICE—$5 per year.

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Order No. 221.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., February 16, 1885.

The practice of returning drawings on account of informalities, such as being on tinted paper, lines light or rough, will be discontinued. The application, if complete in other respects, will be sent to the Examiner, and if the invention is found to be patentable a new drawing will be required.

Recently many drawings have been presented on tinted paper. In this connection attention is directed to section 1 of Rule 50 of Office Practice, which requires that drawings must be made on pure white paper. Drawings not made on such paper will be considered as informal.

After the completion of an application a drawing cannot be withdrawn for any purpose whatever, unless a model has been filed and accepted by the Examiner as a part of the application; and no drawing can be withdrawn for the purpose of filing it with a divisional application. The drawings filed in an original application must remain with it, as they form a part of the record of the case.

BENJ. BUTTERWORTH,
Commissioner.

Order No. 223.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, February 20, 1885.

The title of Sub-class
"Ore and Coal—
"Separators,
"Electric,"
of Class 83, "Mills," Division XXV, is hereby changed to
Ore and Coal—
Separators,
Magnetic.

BENJ. BUTTERWORTH,
Commissioner.

Attorneys.

DEPARTMENT OF THE INTERIOR,
Washington, February 20, 1885.

SIR: I am directed by the Secretary to inform you that the order dated September 26, 1876, disbarring J. H. Foxworthy, of Lincoln, Nebraska, from practice before this Department and its bureaus has this day been rescinded.

Very respectfully,
GEO. M. LOCKWOOD,
Chief Clerk.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
Washington, February 26, 1885.

SIR: I am directed by the Secretary to inform you that the order dated April 16, 1884, disbarring Lindsay Steele, of Chester, Illinois, from practice before this Department and the bureaus thereof has this day been rescinded.

Very respectfully,
GEO. M. LOCKWOOD,
Chief Clerk.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., February 26, 1885.

SIR: I am directed by the Secretary to inform you that he has ordered that Edwin P. Treat, of Frankfort, Maine, be not recognized from and after this date as attorney in the prosecution of any claim or other matter before the Department of the Interior or any bureau thereof.

I am, sir, very respectfully, your obedient servant,
GEO. M. LOCKWOOD,
Chief Clerk.

The Commissioner of Patents.

Issue of March 3, 1885.

Patents	425—	No. 313,041 to No. 313,465, inclusive.
Designs	43—	No. 15,881 to No. 15,923, inclusive.
Trade-Marks	8—	No. 11,982 to No. 11,989, inclusive.
Labels	14—	No. 4,362 to No. 4,375, inclusive.
Reissues	2—	No. 10,566 to No. 10,567, inclusive.
Total issue	492	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	4	.....	Nebraska	.....	.....
Arizona Territory	.....	.....	Nevada	.....	.....
Arkansas	.....	.....	New Hampshire	7	.....
California	15	.....	New Jersey	15	.....
Colorado	2	.....	New Mexico Territ'y	.....	.....
Connecticut	22	.....	New York	115	7
Dakota Territory	1	.....	North Carolina	2	.....
Delaware	1	.....	Ohio	33	1
District of Columbia	1	.....	Oregon	.....	.....
Florida	.....	.....	Pennsylvania	35	6
Georgia	7	.....	Rhode Island	2	.....
Idaho Territory	.....	.....	South Carolina	4	.....
Illinois	32	.....	Tennessee	7	.....
Indiana	11	1	Texas	8	1
Indian Territory	.....	.....	Utah Territory	.....	.....
Iowa	10	.....	Vermont	3	.....
Kansas	5	.....	Virginia	2	.....
Kentucky	4	.....	Washington Territ'y	.....	.....
Louisiana	.....	.....	West Virginia	2	.....
Maine	3	4	Wisconsin	16	.....
Maryland	4	.....	Wyoming Territory	.....	.....
Massachusetts	30	1	United States Army	1	.....
Michigan	16	.....	United States Navy	.....	.....
Minnesota	4	.....			
Mississippi	2	.....	Total to citizens of the United States	437	22
Missouri	11	1			
Montana Territory	.....	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Australia			Germany	6	
Austria-Hungary	1		Holland		
Barbadoes			Ireland	2	
Belgium	1		Mexico		
Bermuda			Norway	1	
Brazil			Russia		
Canada	9		Scotland		
Central America			Spain		
Colombia, U. S. of			Sweden		
Cuba			Switzerland	1	
Denmark			Total to citizens of foreign countries	31	
Ecuador					
England	7				
France	3				

DESIGNS.

15,881.—PLAQUE.—*William H. Brownell*, Brooklyn, N. Y. Application filed January 10, 1885. Term of patent 7 years.

15,882 to 15,909, inclusive.—CARPET.—*James L. Folsom*, Brooklyn, N. Y., assignor to *The Hartford Carpet Company*, Hartford, Conn. Applications filed January 20, 1885. Term of patents 3½ years.

15,910.—BOTTLE OR SIMILAR VESSEL.—*John M. Giblin*, Sheboygan, Wis. Application filed December 24, 1884. Term of patent 7 years.

15,911.—CARPET.—*Otto Heinigke*, New Utrecht, N. Y., assignor to *The Hartford Carpet Company*, Hartford, Conn. Application filed January 14, 1885. Term of patent 3½ years.

15,912.—FURNITURE-GIMP.—*Charles William Jackson*, Chicago, Ill. Application filed November 24, 1884. Term of patent 14 years.

15,913.—NECKTIE.—*James R. Keiser*, Brooklyn, N. Y. Application filed December 12, 1884. Term of patent 3½ years.

15,914.—COVERED DISH.—*Isaac W. Knowles, John N. Taylor*, and *Homer S. Knowles*, East Liverpool, Ohio. Application filed December 11, 1884. Term of patent 3½ years.

15,915.—NECKLACE.—*Fredrick W. Moore*, Providence, R. I. Application filed January 13, 1885. Term of patent 3½ years.

15,916.—BORDER-FRAME FOR REGISTERS.—*Auguste Namur*, New York, N. Y., assignor to *The Tuttle & Bailey Manufacturing Company*, same place. Application filed January 8, 1885. Term of patent 14 years.

15,917.—HANGER.—*David Nickel*, Morris, Ill. Application filed January 20, 1885. Term of patent 7 years.

15,918.—BOTTLE-STAND.—*Frederick A. Ohrenschall*, Baltimore, Md., assignor to *John H. Winkelmann*, same place. Application filed November 7, 1884. Term of patent 3½ years.

15,919.—CURTAIN FABRIC.—*William Hyde Roberts*, Philadelphia, Pa., assignor to *George W. Annis & Co.*, same place. Application filed January 23, 1885. Term of patent 3½ years.

15,920.—ORNAMENTATION OF A NECKSCARF.—*Rufus Waterhouse*, New York, N. Y. Application filed December 24, 1884. Term of patent 3½ years.

15,921.—NECKSCARF.—*Rufus Waterhouse*, New York, N. Y. Application filed December 24, 1884. Term of patent 3½ years.

15,922.—BADGE.—*James H. Whitehouse*, Brooklyn, assignor to *Tiffany & Co.*, New York, N. Y. Application filed January 24, 1885. Term of patent 7 years.

15,923.—FONT OF PRINTING-TYPE.—*James West*, Brooklyn, N. Y. Application filed January 31, 1885. Term of patent 7 years.

TRADE-MARKS.

[Certificates of registration of Trade-Marks numbered 8,191 and upward are registered under the act of March 3, 1881.]

11,982.—MEDICINE FOR THE CURE OF TOOTHACHE.—*William W. Freeman, Charles E. Freeman*, and *William I. Newlove*, Columbus, Ohio. Application filed February 4, 1885.

"A shield with figures thereon, and the word 'THYMOLINE.'"

11,983.—SHIRTS, COLLARS, AND CUFFS.—*Holmes & Ide*, Troy, N. Y. Application filed March 24, 1884.

"A double-headed eagle having a crown on each of the heads, and grasping in one talon a sword and in the other holding a sphere, and a shield supported against the breast of the eagle, the field of the shield being vertically barred or divided."

11,984.—KID GLOVES.—*Charles T. Jones*, New York, N. Y. Application filed January 29, 1885.

"The representation of a pair of kids harnessed and attached to a delivery-wagon with a driver."

11,985.—MEDICINAL BITTERS.—*Nikolas Kiefer*, San Antonio, Tex. Application filed December 1, 1884.

"The word 'UNIVERSAL,' in combination with the figure of a woman."

11,986.—PREPARATION OF COD-LIVER OIL.—*George W. Laird & Co.*, New York, N. Y. Application filed November 15, 1884.

"The name 'OLEO-CHYLE.'"

11,987.—WINE OF A DARK-RED COLOR.—*Julius Muench*, Lake Creek Farm, Mo. Application filed July 23, 1884.

"The words 'BLACK ROSE.'"

11,988.—SOLUTION FOR THE REMOVAL OF CORNS, BUNIONS, AND WARTS.—*John H. Myers*, Philadelphia, Pa. Application filed September 17, 1884.

"The word 'CHINESE' printed in the English and Chinese languages."

11,989.—CANNED SHELLED FISH.—*J. & E. A. Wyman*, Millbridge, Me. Application filed January 29, 1885.

"The words 'ISLAND BRAND.'"

LABELS.

4,362.—Title: "AHLSTROM'S HAND FIRE-EXTINGUISHER."—*Charles Nicolaus Ahlstrom*, New York, N. Y. Application filed February 9, 1885.

4,363.—Title: "AYDELOTT'S BASE BALL CARDS."—*Jacob S. Aydelott*, Xenia, Ind. Application filed November 21, 1884.

4,364.—Title: "BLACKBERRY BRANDY."—*Cook & Bernheimer*, New York, N. Y. Application filed February 7, 1885.

4,365.—Title: "CANTON BLACK" (FOR A WATER-PROOF OIL DRESSING.)—*Canton Paint and Oil Company*, Saco, Me. Application filed January 28, 1885.

4,366.—Title: "CANTON BLACK" (FOR A WATER-PROOF OIL BLACKING.)—*Canton Paint and Oil Company*, Saco, Me. Application filed January 28, 1885.

4,367.—Title: "CANTON WATER-PROOF OIL DRESSING FOR BOOTS & SHOES."—*Canton Paint and Oil Company*, Saco, Me. Application filed January 28, 1885.

4,368.—Title: "HOP SARSAPARILLA" (FOR A MEDICINE.)—*W. Hiscox & Co.*, New York, N. Y. Application filed February 2, 1885.

4,369.—Title: "MARINE BRONZE" (FOR PAINT.)—*Charles H. Howell & Co.*, Philadelphia, Pa. Application filed February 4, 1885.

4,370.—Title: "HOWELL'S DECK" (FOR PAINT.)—*Charles H. Howell & Co.*, Philadelphia, Pa. Application filed February 4, 1885.

4,371.—Title: "MARINE WHITE" (FOR PAINT.)—*Charles H. Howell & Co.*, Philadelphia, Pa. Application filed February 4, 1885.

4,372.—Title: "MARINE FRENCH." (FOR PAINT.)—*Charles H. Howell & Co.*, Philadelphia, Pa. Application filed February 4, 1885.

4,373.—Title: "MARINE CEMENT."—*Charles H. Howell & Co.*, Philadelphia, Pa. Application filed February 4, 1885.

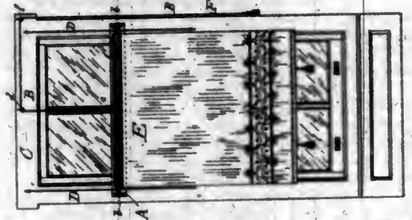
4,374.—Title: "L. C. THOMAS, PINE TAR AND WILD CHERRY COUGH DROPS."—*Lewis C. Thomas*, New York, N. Y. Application filed January 31, 1885.

4,375.—Title: "DR. CHANDLER'S HEMLOCK PLASTER."—*E. M. Valentine & Co.*, South Abington, Mass. Application filed February 5, 1885.

PATENTS.

GRANTED MAR. 3, 1885.

313,041. WINDOW-SHADE ATTACHMENT. NELSON F. ACKES, Iola, Kans. Filed July 11, 1884. (No model.)

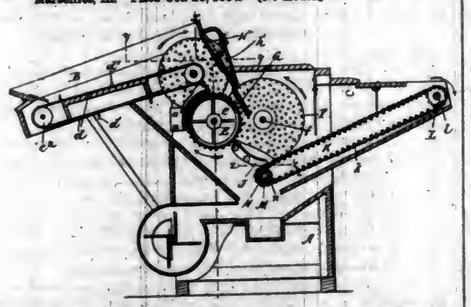


Claim.—1. The combination, with a window-shade, as E, of a wooden strip, as A, carrying a shade-roller and bearings, and having vertical face-grooves, as *a*, for the reception of guide-rods, as set forth.

2. The combination, with a window-frame, as C, of vertical guide-rods, as D, secured thereto, window-shade-supporting strip, as A, provided with vertical face-grooves, as *a*, for engaging the guide-rods, roller-shade, and bearings E *b*, respectively, and cord B, all arranged as set forth.

3. In a window-shade attachment of the character substantially as herein shown and described, a shade-supporting strip, as A, provided with vertical face-grooves, as *a*, and adapted to be raised and lowered, as set forth.

313,042. CORN-SHELLER. JOHN Q. ADAMS and OLIVER R. ADAMS, Marseilles, Ill. Filed Oct. 20, 1884. (No model.)



Claim.—1. In a corn-sheller provided with an open throat, the picker-wheels, in combination with an inclined elevator running directly to the picker-wheels, bevel-runners arranged below the picker-wheels, and straight runners, also arranged below the picker-wheels, whereby the corn is delivered directly to the picker-wheels, and thence into a descending open throat divided into feed-holes by moving surfaces, substantially as and for the purposes set forth.

2. In a corn-sheller, the picker-wheel shaft, in combination with positive gearing for communicating motion thereto, the sprocket-wheels fastened on the picker-wheel shaft between the picker-wheels, and elevator-chains running over said sprocket-wheels, and provided with upright projections at intervals, whereby a positive motion is given to the picker-wheel shaft, and a similar motion from said shaft to the elevator-chains, substantially as and for the purposes set forth.

3. In a corn-sheller, the picker-wheels mounted at suitable intervals on a shaft, in combination with sprocket-wheels secured to the shaft between the picker-wheels, the elevator-chains running over the sprocket-wheels, the bevel and straight runners on shafts somewhat below the picker-wheel shaft, and the rag-irons, substantially as and for the purposes set forth.

4. In a corn-sheller, the picker-wheels *c c'*, of different sizes and arranged alternately on their shaft, in combination with the bevel-runners arranged almost directly below the picker-wheels, substantially as and for the purposes set forth.

5. The picker-wheels *c c'*, of different sizes, in combination with the bevel-runners arranged almost directly below the picker-wheels, and a guard arranged in the space between the bevel-runners and the picker-wheel shaft, substantially as and for the purposes set forth.

6. The picker-wheels, in combination with the bevel-runners, the guard I, curved and notched, substantially as described, the sprocket-wheels D on the picker-wheel shaft, and the elevator-chains *d*, provided with upright projections *d'*, substantially as and for the purposes set forth.

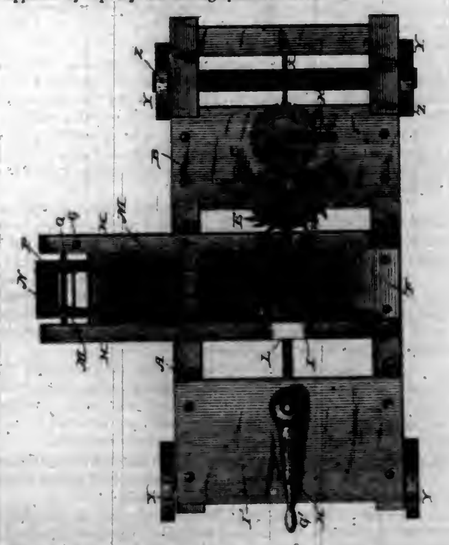
7. The smaller picker-wheels, *c*, and larger picker-wheels, *c'*, in combination with the nose-piece H, in a continuous piece from side to side of the machine, and provided with recesses *h h'*, adapted to receive and cover the said picker-wheels at the rear portions thereof, substantially as described.

8. The box-sleeve *n*, provided with annular grooves *n'*, and collars *n²*, in combination with the cob-chain K, constructed as described, substantially as and for the purposes set forth.

9. The sprocket-wheel on the main shaft, in combination with a sprocket-wheel on the picker-wheel shaft, the drive-chain O, running over these sprocket-wheels, the chain-tightener P, sprocket-wheels arranged between the picker-wheels, and elevator-chains running over said sprocket-wheels, whereby a positive and certain motion is given to the picker-wheels and elevator-chains, substantially as and for the purposes set forth.

313,043. DITCHING-MACHINE. ORSON M. ALLABEN, Margaretville, N. Y. Filed July 16, 1883. (No model.)

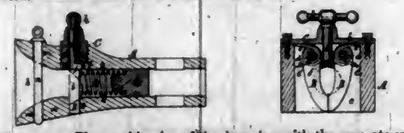
Brief.—A conical ditcher with curved shovels delivers into a side-extending receiver supported by a hanger, and cleared by a scraper-chain supported by a pulley and driving sprocket-wheels.



Claim.—1. In combination with the conical ditcher provided with curved parallel ditching-shovels, the receiver extending to one side of the machine, and the hanger supporting the receiver, substantially as specified.

2. In combination with the conical ditcher provided with curved blades or shovels, the receiver extending to one side of the machine, and the hanger supporting the receiver, the scraping-belt mounted upon a pulley and provided with a series of scrapers, the driving sprocket-wheels, and the gearing, the whole arranged to operate substantially in the manner specified.

313,044. CAR-COUPLING. JOHN S. ANDREWS, Milltown, New Brunswick, Canada. Filed Nov. 10, 1884. (No model.)



Claim.—1. The combination of the draw-bar with the separate support-piece C, arranged within it above its chamber, and with the beveled jaws and their closing-springs, and the mechanism for moving such jaws apart, applied to such support-piece, all being substantially as set forth.

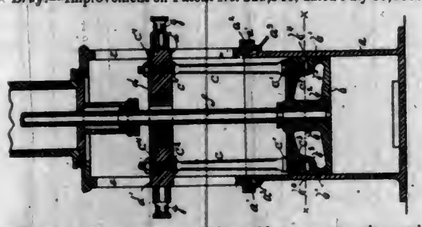
2. The shackle, substantially, and for use with the jawed coupler, as explained, such shackle consisting of the two conically-headed bodies and their connecting-chain and spiral spring, arranged as set forth.

3. The shackle composed of the two connected conically-headed bodies, provided with holes extending diametrically through them, such heads and holes being for shackling either of such bodies to a draw-bar by a pin, or by jaws arranged therein, as set forth.

4. The combination of the draw or buntor bar provided with a spiral spring and a narrow chamber, and a tapering mouth in advance thereof, and with a pin-passage extending down through such mouth, as described, with a pair of beveled jaws arranged in such chamber, and having springs for closing them upon a shackle, and also having mechanism, as specified, for opening them for the discharge from them of such shackle, all being substantially as set forth.

313,045. COMPRESSOR FOR ICE-MAKING APPARATUS. ALEXANDER T. BALLANTINE, Geneva, Ohio, assignor to Ella B. Ballantine, same place. Filed June 2, 1884. (No model.)

Drivy.—Improvement on Patent No. 229,940, dated July 13, 1880.



Claim.—1. In a compressor for ice-making apparatus, the combination, with the cylinder having a single head, and provided with an annular chamber in its upper or open end, such chamber opening into the interior of the cylinder, and having an exterior outlet or outlets, of the piston provided with an annular chamber opening into the cylinder, by means of which the condensed steam is removed from the cylinder and prevented from overflowing its open end, substantially as shown and described.

2. In a compressor for ice-making apparatus, a piston adjustably secured by rods to a separate annular cross-head working in ways in the frame, such cross-head carrying the journals, which are connected by pitmen to the working-shaft, substantially as shown and described.

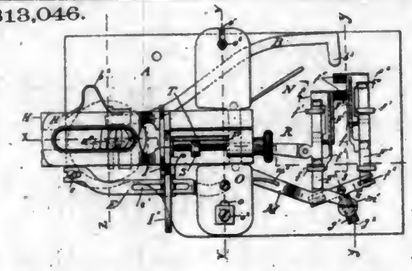
3. In a compressor for ice-making apparatus, the combination, with the cylinder *a*, having a single head, and provided with the annular chamber a^3 in its upper or open end, and the exterior outlet, a^2, of the piston *b*, provided with the annular chamber b^2, having openings b^1, substantially as and for the purpose stated.

4. In a compressor for ice-making apparatus, the combination, with the piston *b*, of the cross-head *d*, such cross-head being adjustably connected with the piston by the screw-threaded rods *c c*, the cross-head having the journals *g g*, substantially as shown and described.

313,046. BUTTON-HOLE ATTACHMENT FOR SEWING-MACHINES. CHARLES S. BATDORF, Chicago, Ill., assignor of one-half to John W. Batdorf, same place. Filed Mar. 14, 1884. (Model.)

Claim.—1. In an attachment for sewing-machines, the combination comprising a movable work-holding device, a pivoted lever for vibrating said work-holding device, located in the path of travel of the machine-feed, and suitable connecting mechanism, substantially as described.

313,046.



2. In an attachment for sewing-machines, the combination comprising a movable work-holding device, a pivoted lever having its shorter end located in the path of the machine-feed, and suitable connecting mechanism, substantially as described.

3. In an attachment for sewing-machines, the combination, with a work-holding clamp, of a pivoted lever for operating said clamp, arranged to extend in the path of the machine-feed, so as to be struck by the feed in its forward movement, a spring for holding said lever pressed forward, and connecting mechanism, substantially as described.

4. In an attachment for sewing-machines, the combination, with the base-plate and the work-holding clamp, of mechanism for imparting vibratory movement to said clamp, comprising two reciprocating pawls movably mounted in horizontal position on the base-plate and in suitable connection with the work-holding clamp, and means suitable for alternately operating said pawls, substantially as described.

5. The combination, with a work-holding clamp, of mechanism for vibrating the same, comprising a vibrating lever connected with said clamp, two reciprocating pawls in connection with said lever and movably held in horizontal position, and a driving-lever for alternately operating said pawls, substantially as described.

6. The combination, with the work-holding clamp, of mechanism for vibrating the same, comprising a vibrating lever connected with said clamp, two reciprocating pawls in suitable connection with said lever, a rocking bar suitably connected with said pawls, and mechanism for operating said pawls, substantially as described.

7. In a button-hole attachment for sewing-machines, the combination, with the work-holding clamp, of mechanism for imparting vibratory movement thereto, comprising two reciprocating overriding pawls, a vibrating lever connected with the work-holding clamp and with said pawls, and a suitable device for operating said pawls, substantially as described.

8. In a button-hole attachment for sewing-machines, the combination, with the work-holding clamp, of the vibrating lever, the reciprocating pawls, the sliding bars for said pawls, means—such as the driving-lever—for operating said pawls, and suitable connecting mechanism, substantially as described.

9. In a button-hole attachment for sewing-machines, the combination, with the work-holding clamp, of the vibrating lever, the reciprocating pawls, the sliding bars, the rocking bar connecting said sliding bars, and the driving-lever, substantially as described.

10. In a button-hole attachment for sewing-machines, the combination, with the work-holding clamp having upper and lower slotted portions, of the vibrating lever having a part adapted to fit within the lower slotted portion, reciprocating pawls for operating said lever, a fixed pinion projecting through said lower slotted portion, and a rack-bar plate held within the upper slotted portion of the work-holding clamp, a ratchet-wheel for operating said pinion, a pawl for said ratchet-wheel, and a sliding rod connected to said pawl, substantially as described.

11. In an attachment for sewing-machines, the combination, with the reciprocating work-holding clamp, of mechanism for moving said clamp, comprising a single rack-bar plate having a continuous rack upon its opposite faces, a fixed pinion, and means for imparting motion to said pinion, substantially as described.

12. The combination, with the work-holding clamp and mechanism—such as a lever—for vibrating said clamp, of mechanism for reciprocating said clamp, comprising a movable double-faced rack-bar plate, a fixed pinion, a ratchet-wheel, and a sliding rod and pawl for operating said ratchet-wheel, substantially as described.

13. In an attachment for sewing-machines, the combination, with a fixed base-plate and a work-holding clamp movably mounted thereon, of operating mechanism for said clamp, comprising a pinion fixed to said base-plate, means for operating said pinion, and a removable rack-bar plate having a continuous rack around the same, substantially as described.

14. In a button-hole attachment for sewing-machines, the combination, with a work-holding clamp, of mechanism for reciprocating said clamp, comprising a fixed pinion, a vertical rack-bar plate having teeth upon each face thereof, and adapted to move around the fixed pinion, and a clamp for holding the rack-bar plate in vertical position, substantially as described.

15. In a button-hole attachment for sewing-machines, the combination, with the work-holding clamp, of mechanism for reciprocating the same, comprising a continuous removable rack-bar plate, a fixed pinion, a clamp for holding the rack-bar plate in position, and an adjustable guard for holding the pinion in gear with the rack-bar plate, substantially as described.

16. In a button-hole attachment for sewing-machines, the combination, with the work-holding clamp, of mechanism for reciprocating said clamp, comprising a fixed pinion and suitable operating mechanism, and a double-faced reversible rack-bar plate, substantially as described.

17. In a button-hole attachment for sewing-machines, the combination, with the work-holding device, of the vibrating lever and the rack-bar and pinion for vibrating and reciprocating said device, and mechanism—such as the adjusting-bar and suitable connections with the rack-bar—whereby the distance between the rows of stitches of the button-holes may be varied, substantially as described.

18. In a button-hole attachment for sewing-machines, the combination, with the work-holding clamp, the rack-bar carried by said clamp, and the pinion for said rack-bar, and a vibrating lever for said clamp, of an adjusting-bar carrying the fulcrum for said lever, substantially as described.

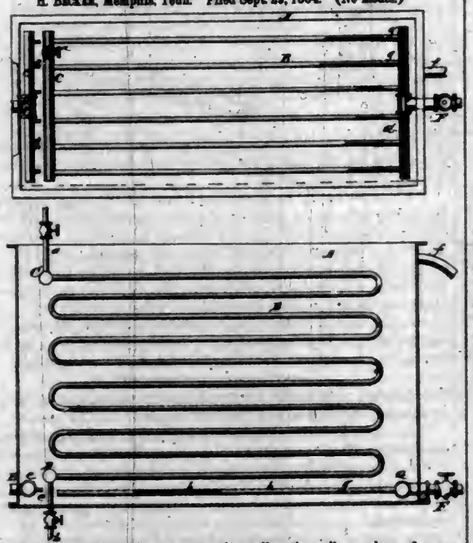
19. In a button-hole attachment for sewing-machines, the combination, with the work-holding device, of a rack-bar, a pinion, suitable means—such as a ratchet-wheel and lever—for operating said pinion, and means—such as a rocking bar—for operating said lever, said lever and rocking bar being adjustably connected together, substantially as described.

20. In a button-hole attachment for sewing-machines, the combination, with the work-holding device, of the vibrating lever C and suitable operating mechanism therefor, the pivoted lever E, the adjusting-bar D, and the guard-plate O, substantially as described.

21. The combination, with the work-holding clamp, of the vibrating lever C, the slide-bars F F^2, the pawls F' F^3, pivoted thereto, rocking bar G, and driving-lever B, substantially as described.

22. The combination, with the work-holding clamp, of the vibrating lever C, the slide-bars F F^2, the pawls F' F^3, the rocking bar G, the sliding rod M, the pawl M', ratchet-wheel L, pinion K, rack-bar T, and clamp for holding said rack-bar, substantially as described.

313,047. METHOD OF COOLING COILS OF GAS-CONDENSERS. V. H. BECKER, Memphis, Tenn. Filed Sept. 29, 1884. (No model.)

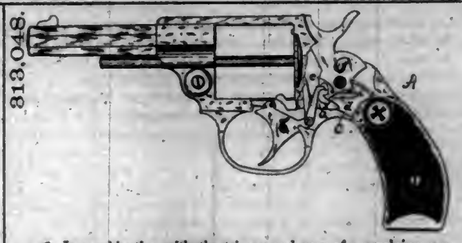


Claim.—As an improvement in cooling the coils or pipes of a gas-condenser, the process which consists in introducing air into the fluid which surrounds the coils or pipes, substantially as described.

313,048. REVOLVING FIRE-ARM. WILLIAM H. BLISS, Norwich, Conn. Filed Feb. 14, 1884. (No model.)

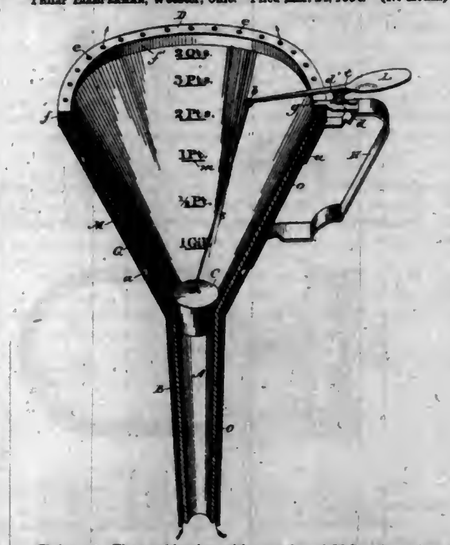
Claim.—1. In combination with the hammer and trigger, a suitably-pivoted tilting piece having formed on its rear end a hook or sear to engage the hammer-notches, and on its forward end an upward extension to engage the cylinder-slots to retain the cylinder in a given position, said tilting piece being cut away near its central portion, and so located relative to the trigger that said trigger as it trips the sear shall also force the bolt end upward into the cylinder-slot, as and for the purpose specified.

313,048.



2. In combination with the trigger and sear of a revolving arm, a hammer having pivoted in its lower portion a spring-pressed fly or lever, as at *d*, having formed on its outer side half and full cock notches, and adapted to yield under proper pressure from the sear, all of said parts (trigger, sear, and hammer) being so formed and pivoted in the frame of the arm that they may operate substantially as and for the purpose specified.

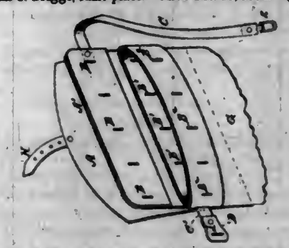
313,049. VENTILATING MEASURE-FUNNEL. LEWIS BOLIN and PHILIP ELLSPERMAN, Wooster, Ohio. Filed Mar. 24, 1884. (No model.)



Claim.—1. The combination, with outer funnel, M B, of inner funnel, G A, separated from each other by an air-space, *o*, and annular connecting-rim D, having perforations *e* and connecting-flanges *f f'*, substantially as and for the purpose specified.

2. A funnel in which are combined and arranged an outer sheet-metal funnel, M B, and an inner glass funnel, G A, the perforated connecting-rim D, and the valve, located and operated as described, substantially as and for the purpose specified.

313,050. MAIL-BAG. JOHN A. BRIGGS, Philadelphia, Pa., assignor to Susannah T. Briggs, same place. Filed Dec. 11, 1884. (No model.)

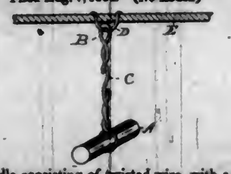


Claim.—1. The combination of the flap A' and the safety-strap C, provided with the swivel-hasp E, and riveted to the front edge of the inside flap, A', attached to the mouth of the mail-bag G.

2. The combination of the mail-bag G, provided with slots B' and B^2, outer flap, A, re-enforced with a leather strip on the inside face of said flap A, short strap H, and buckle I, flap A', provided with vertical slots B, safety-strap C, swivel-hasp E, and padlock F, substantially as shown and described.

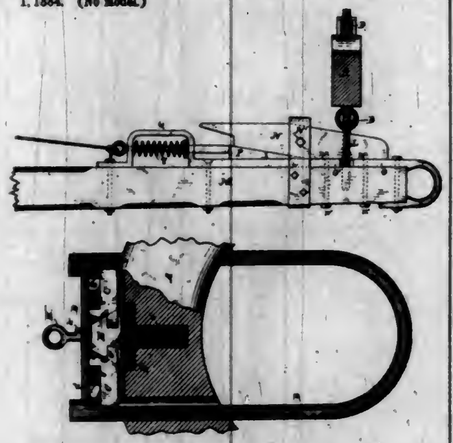
3. The mail-bag G, combined with the outer flap, A, inner flap, A', safety-strap C, swivel-link E, and short strap H, all substantially as set forth.

313,051. HANDLE FOR ORANGE-BOXES, &c. CARTER W. BRYAN, Kansas City, Mo. Filed Aug. 7, 1884. (No model.)



Claim.—A handle consisting of twisted wire, with a wooden handhold or its equivalent in one end and an eye formed in the opposite end, loosely interlocked with a fastener capable of piercing the material of the article to be carried, whereby the handle may be attached and a decided hold obtained substantially as and for the purposes described.

313,052. OX-YOKE. HAYS BURNS, Double Springs, Ala. Filed Oct. 1, 1884. (No model.)



Claim.—1. The combination of the yoke-bar, the bow having the shouldered ends, sliding locking-bolts, and the wedge-block.

2. The combination of the yoke-bar, the bow having shouldered ends, the sliding locking-bolts, the wedge-block, and the springs which act on the bolts.

3. The combination of the yoke-bar, the bow having the shouldered ends, the sliding locking-bolts, the springs which act thereon, the wedge-block, the spring which acts on the wedge-block, and the key swiveled in the block.

4. The combination of the yoke, the vehicle-pole, the pivoted securing-latch, and the bolt which locks the latch.

5. The combination of the pole, the pivoted latch M, and the wedge-shaped locking-bolt P.

6. The combination of the pole, the pivoted latch M, the wedge-shaped locking-bolt P, the bracket in which it is mounted, and the coil-spring which normally thrusts it forward.

7. The combination of the pole, the pivoted latch M, the locking-bolt P, and a rope for operating said bolt from the vehicle.

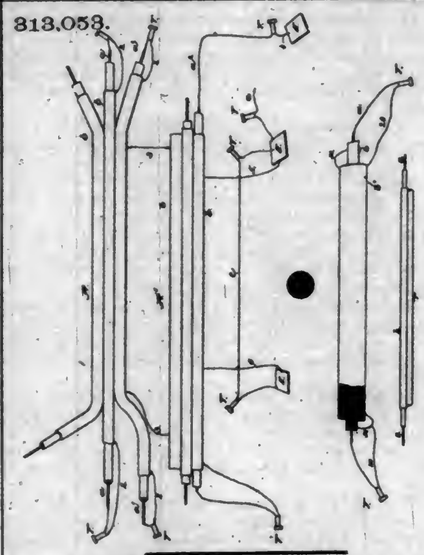
313,053. ELECTRIC CIRCUIT. HENRY P. CAMPBELL, Concord, N. H. Filed Feb. 2, 1884. (No model.)

Claim.—1. The combination of two or more separate cables each having outside of the insulating material of its inclosed conductor or conductors a shield or covering composed mainly of para-magnetic material with conductors connecting the shields or coverings together, substantially as and for the purpose specified.

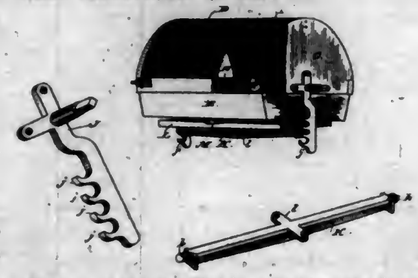
2. An electrical conductor insulated and provided with a shield or covering composed mainly of para-magnetic material combined with a telephone or other electrical instrument connected in circuit between the said conductor and shield, substantially as described.

3. An electric cable having an anti-inductive outer covering composed mainly of para-magnetic material combined with a wire, *r*, connecting the ends of said covering, substantially as described.

313,053. [illegible]



313,054. CINDER-SIFTER. JAMES CARMICHAEL, Oshawa, Ontario, Canada. Filed June 23, 1884. (No model.)



Claim.—1. A sifter comprising the semicircular ends C, the netting D, bottom F, and the slanting pieces of netting H, arranged substantially as and for the purpose specified.

2. A sifter having the ends C, the netting D, and netting F, having the hole G made in the center of the latter, in combination with the brackets J, having notches *j*, the bar K, board L, the wedge M, and the ash-pan E, substantially as and for the purpose specified.

3. The sifter provided with the brackets J, having the notches *j*, in combination with the bar K, having projecting lips *k* formed on its end to prevent the said bar from completely revolving in the notches.

4. The sifter provided with the brackets J, having notches *j*, in combination with the board L, fixed to the cross-bar *l*, and the bar K, having the cross-bar *l*, substantially as and for the purpose specified.

313,055. REVERSIBLE ROTARY ENGINE. CHARLES P. CASE, Horseheads, N. Y. Filed May 17, 1884. (No model.)

Claim.—1. The combination, in a reversible rotary engine, of the main and cut-off valves and the reversing-valves, substantially as described.

2. The combination, in a rotary engine, of the main cut-off valves, the reversing-valves, and the movable cylinder-lining having steam-ports therein, and means for operating the said valve and lining, substantially as described.

3. The combination, in a rotary engine, of the valve-gears C C, levers H H, and connecting-rod D with the reversing-valves, whereby the engine may be reversed from either end of the engine, as described.

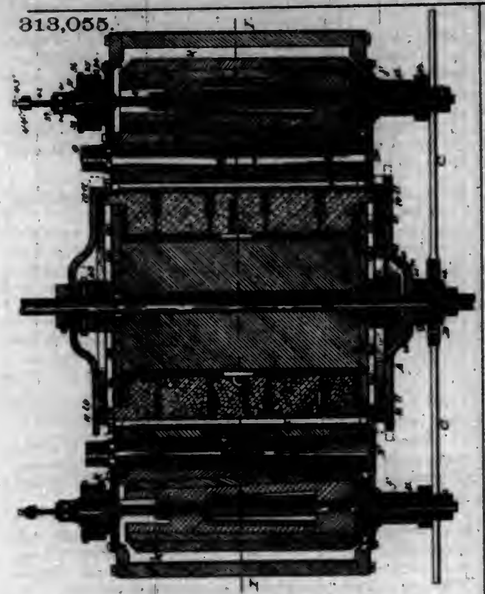
4. The combination, in a rotary engine, of the gears C C and their connecting mechanism with the segmental pinions F F, rack G, and pinion-lever H, substantially as described.

5. In a rotary engine, the combination of the pinions F F and rod G, having rack-teeth on each of its bottom ends and centrally on its top, with the lever segmental gear H and with the reversing-valves Q Q, substantially as shown.

6. The combination, in a rotary engine, of the main cut-off valves, the reversing-valves, and the relief-valve, substantially as set forth.

7. The combination, in a steam or gas engine, of the button-valve and the relief-valve, as set forth.

313,055.



8. The combination, in a rotary engine, of the cut-off valve and the relief-valve, the latter communicating with the exhaust side of the piston by means substantially as shown and described.

9. The combination, in a rotary engine, of the main valve and its cut-off, the reversing-valve, and the movable cylinder-lining having steam-ports therein, substantially as set forth.

10. The combination, in a rotary engine, of the main valve and cut-off, the valve having two or more ports, the reversing-valve, and the live-steam and exhaust ports, each being adapted to be used alternately, as and for the purpose set forth and described.

11. The combination, in a reversible rotary engine, of the central piston head or hub, the pistons, and cylinder-lining, a portion of which is stationary and a portion movable, the said movable portion being provided with steam-ports for alternate exhaust or live steam, as set forth.

12. The combination, in a rotary engine, of fixed pistons and sliding abutments, each being suitably packed, the abutments having steam-ports on each of their sides, whereby they are balanced, and an equilibrium-valve in their cylinder end, whereby the pressure on the live-steam side of the piston is transferred to the opposite side when the engine is reversed.

13. A rotary engine having a central hub, with shaft secured thereto, and a series of pistons suitably packed, in combination with sliding abutments adapted to be set out with steam at a less pressure than that of the working pressure of the engine, whereby their friction is reduced, substantially as shown and described.

14. In a rotary engine having fixed pistons and sliding abutments, the combination therewith of a button-valve, 27, and a double-seated valve, 28, whereby steam is admitted behind the piston, to set out the packing by a predetermined pressure, substantially as set forth and shown.

15. A sliding abutment for rotary engines, having a steam-chamber with a double-seated valve adapted to open or close to either live-steam or to the exhaust side of the abutment, and a relief-valve, the pressure of which is controlled by springs, substantially as set forth.

16. A sliding abutment for rotary engines, adapted to have its packing set out by steam-pressure, said pressure being predetermined by a spring-valve, a button-valve for admitting steam thereto, and spring mechanism for acting against the steam-pressure, and which draws the abutment-packing back against its own steam-pressure, as described.

17. A rotary engine having a central hub and sliding abutments with controlling-valves for admitting pressure to set out the packing, the said abutments having projections on each of their ends which work in an eccentric-shaped groove and in combination therewith, substantially as set forth.

18. In a rotary engine such as described, the steam-packed sliding abutments having projecting arms adapted to work in an eccentric groove, the said arms having anti-friction devices, substantially as described.

19. The combination, with the sliding abutment of a rotary engine, of the packing divided to break joints, and extending over and around the end of said abutment, and the end retaining-spring for holding the packing in a longitudinal adjustment, in the manner set forth and described.

20. The combination, in a rotary engine, of the central hub, the sliding abutments having pressure-controlled packing and relief-valves, the springs for holding the packing in place transversely, and the longitudinal adjusting-spring 57, substantially as set forth.

21. A rotary engine having sliding abutments provided with arm-extensions, which are adapted to carry anti-friction devices, and a recess in the face of said abutments for the reception of packing, and recesses in the ends of said abutments for like packing, the packing thereof having recesses for the heads of bolt-rods upon which springs are placed for holding it in place, and packing over said springs in a countersunk cavity, and springs at the end of said abutment for holding the packing in position, in the manner set forth and described.

22. In a rotary engine having a central hub secured to a shaft which passes entirely through the engine, the combination therewith of the cylinder-heads having tapering gland-like sockets 43, screw-threaded on their outer side and parallel on their inner side, with a hollow screw-box for retaining said bearings in position, substantially as shown.

23. The combination, with the cylinder-head having the socket 43, formed as shown, of the bearing, the revolving box, and the set-screw holding devices, as set forth.

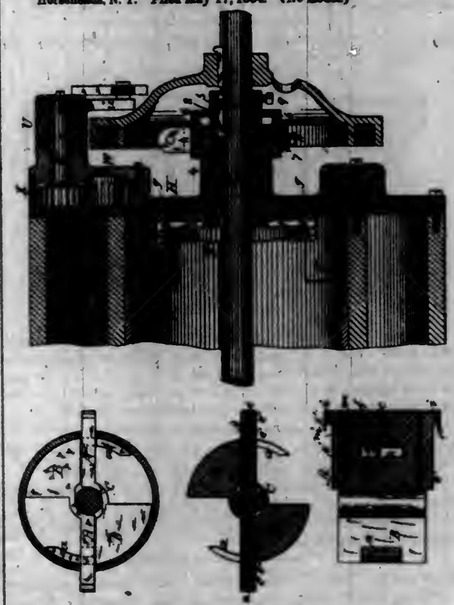
24. The combination, in a rotary engine, of the central hub mounted loosely on the main shaft, the cylinder-heads and bearings, and the shaft with the eccentric disk and abutments, operating together as shown and described.

25. A rotary engine such as described, in combination with the hub mounted loosely on the main shaft, the eccentric disk, and main shaft, and with main-valve gear adapted to work on said shaft, and to be secured thereto by means of an elastic gasket on each side of said gear, in the manner and for the purpose set forth, whereby should the valve-gear or valves stick the main gear will remain stationary while the shaft turns, thus preventing the valve or gearing from being broken or injured.

26. The combination, with the levers E and rod D, of the tapering compensating-joint consisting of the pin tapering at its center and screw-threaded to a shoulder at both ends, and having at the junction of the levers a draw portion, and a draw portion at the other end, with lock-nuts, whereby any lateral wear can be compensated for, substantially as set forth.

27. The combination, in a rotary engine, of a hollow hub, a hollow shaft, and a central shaft connected in such manner that should the shaft get out of line the engine mechanism will remain true to its bearings, as shown.

313,056. REVERSIBLE ROTARY ENGINE. CHARLES P. CASE, Horseheads, N. Y. Filed May 17, 1884. (No model.)



Claim.—1. In a rotary engine, the combination of the cylinder with the main piston, provided with a counter-weight, and the shell piston-wheel, all as shown, and for the purpose described.

2. In a rotary engine, the combination of the cylinder with the main piston passing around the shafts, and provided with a counter-weight, and the shell-wheel, all substantially as shown and described.

3. In a rotary engine, the combination of the cylinder, the shell piston-wheel, with the pistons extending around each side of the shaft, and provided with a counter-weight and slots, and the extensions passing into the slots, all substantially as shown and described.

4. In a rotary engine, the combination, with the main pistons provided with counter-weights and extensions, of the balancing-pistons, substantially as shown and described.

5. In a rotary engine, the combination of main pistons provided with counter-weights and extensions, the balancing-pistons, and the relief-valves, substantially as shown and described.

6. In a rotary engine, the combination of the main pistons having counter-weights with the spring-rod, the shaft, the nuts on the ends of the rod, and the springs, substantially as shown, and for the purpose described.

7. In a rotary engine, the combination of the main piston with the two-part shell piston-wheel, and the heads provided with guides upon their inner face, substantially as shown and described.

8. In a rotary engine, the combination of the main piston with the two-part shell piston-wheel, the heads, and the main shaft, substantially as shown and described.

9. In a rotary engine, the combination of the main pistons, the shell piston-wheel, the heads, and the packing-strips fitting in the heads, having a steam-space between them, and the shell, substantially as shown.

10. The combination of the exhaust-valve with the cog-wheels, the clutch having lost motion, and the actuating-lever, substantially as shown and described.

11. The combination of the exhaust-valve with the cog-wheels, the clutch, the actuating-lever, and the segmental reversing-valve, substantially as shown.

12. The combination of the actuating-levers with the connecting-bar provided with a compensating-bearing for the clutch-arm and the clutch, substantially as shown.

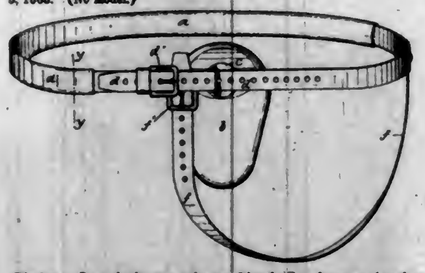
13. The combination of the cam-wheel with the abutment, the connecting-link, and its guide, substantially as shown and described.

14. The combination of the main shaft with the conical sleeve feathered thereon, the conically-bored cover-extension, and the gland, substantially as shown.

15. The combination of the main shaft with the conical sleeve feathered thereon, and provided with a peripheral groove, the two-part gland provided with a flange, the cover-extension, and the clamp, substantially as shown.

16. The combination of the main shaft with the conical sleeve feathered thereon, and provided with a peripheral groove and a set-screw, the two-part gland provided with a flange, the cover-extension, the clamp, and the dowel-screw, substantially as shown and described.

313,057. BODY-TRUSS. ORVILLE CASE, Hartford, Conn. Filed July 5, 1883. (No model.)

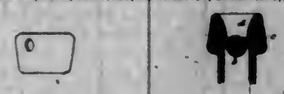


Claim.—In a body-truss, in combination, a clamp, *a*, bearing a strap, *d*, and a pad, *b*, with means near its upper end for attachment to the strap, a removable button, *c*, attached to the inner side of the pad, the latter having a downward and inward projecting portion below the point of attachment of the button, all substantially as described.

313,058. ELECTROLYTIC LIQUID FOR STORAGE-BATTERIES. W. E. CASE, Auburn, N. Y. Filed Apr. 23, 1884. (No specimens.)

Claim.—In a secondary or storage cell, and in combination with the electrodes thereof, neither of said electrodes being of zinc, an electrolytic liquid normally containing zinc sulphate and aluminum hydrate, substantially as described.

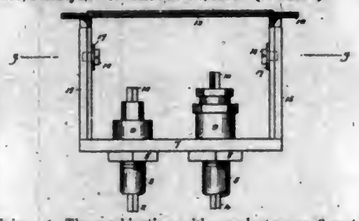
313,059. BOTTLE AND STOPPER. HENRY COCHRANE and JOSEPH M. DAY, Dublin, Ireland. Filed Sept. 12, 1884. (No model.) Patented in England June 3, 1884, No. 8,519, and June 30, 1884, No. 9,566.



Claim.—1. A bottle having an external screw-thread upon its neck and a plane upper surface, combined with a cap having an internal thread and a shoulder, a rubber ring clamped in place between said plane surface and shoulder by the act of placing the cap upon the bottle, and a vent applied to reduce pressure as the cap is withdrawn, the whole adapted to serve with a marble, as set forth.

2. The bottle having an external thread, the marble *b*, and flexible ring *c*, combined with the screw-cap *d*, having vent *e* and internal shoulder, as and for the purposes set forth.

313,060. CASING FOR COCKS AND HYDRANTS. PATRICK CONNOLLY, Brooklyn, N. Y. Filed June 6, 1884. (No model.)

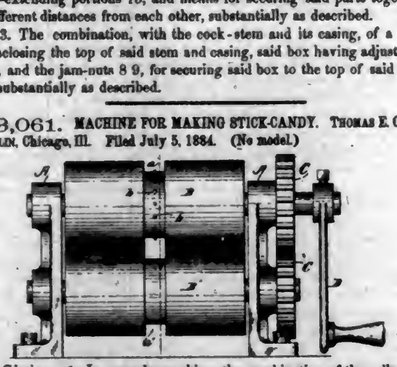


Claim.—1. The combination, with a cock-stem, as 2 or 4, and the tubular casing thereof, of a box or casing for inclosing and protecting the upper end of said stem, and means for adjusting the top of the said box with relation to its bottom, substantially as described.

2. In a box or casing for protecting the cock-operating apparatus of a water-pipe, the combination, with the frame 11, provided with downwardly-extending portions 14, of the bottom 7, provided with upward-extending portions 15, and means for securing said parts together at different distances from each other, substantially as described.

3. The combination, with the cock-stem and its casing, of a box for inclosing the top of said stem and casing, said box having adjustable sides, and the jam-nuts 8 9, for securing said box to the top of said casing, substantially as described.

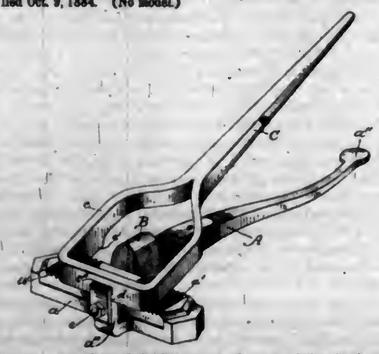
313,061. MACHINE FOR MAKING STICK-CANDY. THOMAS E. COPELAND, Chicago, Ill. Filed July 5, 1884. (No model.)



Claim.—1. In a candy-machine, the combination of the rollers B and B', having corresponding grooves, *a* and *a'*, to form a square, as and for the purposes specified.

2. In a candy-machine, the combination of the rollers B and B', having corresponding grooves, *a* and *a'*, the face of one or both of said grooves having pins or projections *b*, as and for the purposes described.

313,062. TIRE-UPSETTER. WASHINGTON CROSS, Pulaski, Tenn. Filed Oct. 9, 1884. (No model.)



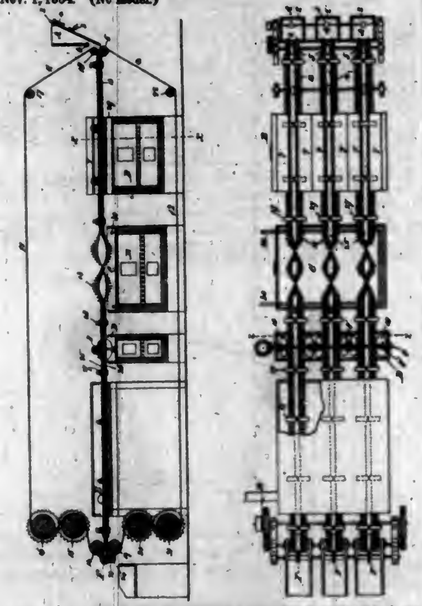
Claim.—A tool for shrinking wagon-tires, consisting in the combination of the levers A and C with the core B, said lever C being suitably hinged to the lever A, and said tool being in all respects constructed, arranged, and operated substantially in the manner and for the purposes herein shown and described.

313,063. ART OF SEWING. ALFRED A. CUMINS, Hingham, assignor of one-half to Edward Arnold, Marblehead, and Francis S. Whitman, Cambridge, Mass. Filed July 23, 1884. (No specimens.)



Claim.—The improvement in the art of sewing which consists in the following steps in the formation of a stitch with two threads: A loop of the first thread is passed through the fabric and slightly opened after it has passed through, a loop of a second thread is passed through the loop of the first thread, the loop of the second thread is positively held from retraction while the loop of the first thread, through which it has been passed, is drawn tight, and the loop of the first thread is drawn tight upon the loop of the second thread before the bight of the loop of the second thread is released, and the bight of the second thread is released after the loop of the first thread has been drawn tight on the loop of the second thread, substantially as described, and for the purpose stated.

313,064. APPARATUS FOR DIPPING MATCHES. EZRA R. EDDY, GEORGE H. MILLER, and EDWARD MOUSSEAU, Hull, Quebec, Canada. Filed Nov. 1, 1884. (No model.)



Claim.—1. In a match-machine, the combination, with the hopper and the drying, dipping, heading, and cooling devices, arranged in alignment, as set forth, of the feed-roller 5 and endless belts or aprons 11 12, traveling contiguously in a horizontal parallel plane for a portion of their length between guides 25 26, adjustable in frames 27 by set-screws 28, as set forth, for the purpose described.

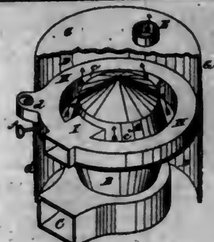
2. In combination with the furnace-block, the roof 7 to cover the ends of the splints, and having an opening to permit the belts 11 12 to be raised out of influence of heat from the furnaces, as set forth.

3. The combination, with the phosphorizing-pan D, of shaft 8, bevel gear-wheels 8' 9', and inclined spindles 9, provided with bevel-edged wheels 10, to adjust the splints uniformly endwise simultaneously with transferring the phosphorizing compound to the ends of the splints, whereby the splints may be subsequently cut by a rotary knife to make two matches of equal length, as set forth.

4. In feed-hoppers for match-dipping machines, substantially as described, the movable side 2, operated reciprocally by the revolving trip 3 and spring 4, to shake the splints compactly together, as set forth.

5. In a match-dipping apparatus, substantially as herein set forth, and in combination with the belts 11 12, the clamp-frames 27, set-screw 28, and guides 25 26, to cant, guide, and regulate the closeness of the belts to carry the splints, as described.

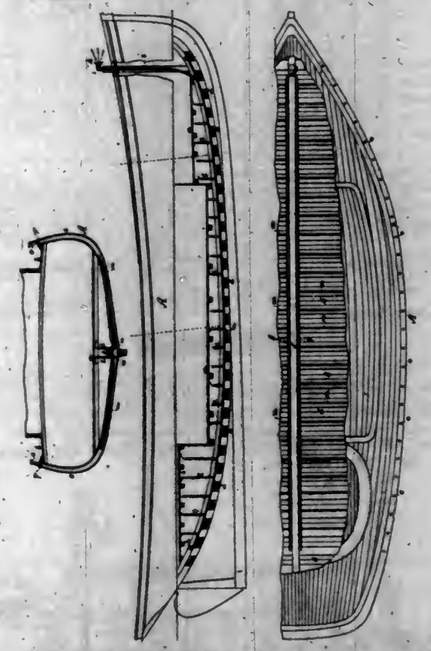
313,065. HOT-AIR FURNACE. BENJAMIN W. FELTON, Boston, Mass. Filed Mar. 31, 1884. (No model.)



Claim.—1. In a hot-air furnace, the combination, with the combustion-chamber, of an annular radiator adapted to lie closely against the outer casing, in such manner as to prevent the passage of air between the outer circumference of said radiator and the casing, substantially as and for the purpose herein described.

2. In a hot-air furnace, the combination, with the combustion-chamber A, of the annular radiator H, communicating therewith, and encircling the same below the level of its top, and extending to and lying closely up against the outer casing, G, in such manner as to prevent the passage of air between the two, and having an annular space, *c*, between its inner periphery and the combustion-chamber, through which all of the upward currents of air are compelled to pass on their way to the hot-air pipes, substantially in the manner and for the purpose described.

313,066. MEANS FOR VENTILATING THE HULL OF A NAVIGABLE VESSEL. EATON E. FERRIN, Beverly, Mass. Filed Oct. 11, 1884. (No model.)



Claim.—In combination with the hull of a navigable vessel, two main pipes arranged along the keelson, closed or having stop-cocks at their rear ends and opening into each other at their front ends, two series of branch pipes leading out of such main pipes into spaces between the ribs, ceiling, and planking, an induction-pipe leading from the junction of the two main pipes to, through, and above the deck or rail, and having at its upper end a suitable mouth-piece or means of introducing air into it, (the said induction-pipe,) and a series of openings leading from the aforesaid spaces through the deck or plank sheer, each of such main pipes having in its lower part a faucet, and all being substantially and for use as set forth.

313,067. RAIL-JOINT. CLARK FISHER, Trenton, N. J. Filed Nov. 1, 1884. (No model.)

Brief.—An improvement on what is known as the "Fisher rail-joint," Patent No. 19,555, dated March 9, 1858, which consists in placing a plate-spring between the sole-plate and the cross-head of the U-bolt.

313,067.

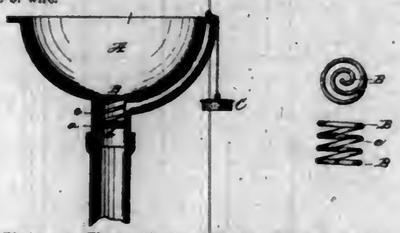


Claim.—1. A steel spring bearing-piece interposed between the under face of the sole-piece and the cross-head of the U-bolt of the Fisher rail-joint, substantially as and for the purposes set forth.

2. The combination of the sole-piece, rails, forelocks, U-bolt, nuts, and spring bearing-piece, substantially as and for the purpose set forth.

313,068. DISCHARGE AND WASTE PIPE PROTECTOR. WELLESLEY W. GAGE, Yonkers, N. Y. Filed Oct. 20, 1884. (No model.)

Brief.—Several coils of wire, in combination with a spiral spring connecting said coiled-wire surfaces, all constructed of one continuous piece of wire.



Claim.—1. The combination, with the waste-pipe of a lavatory-basin, bath-tub, or other basin, of two surfaces, each forming a circle, and composed of several coils of wire, in combination with a spiral spring connecting said coiled wire surfaces, all constructed of a continuous piece of wire placed within said pipe, by means of which all non-liquid substances are excluded from said pipe, as set forth.

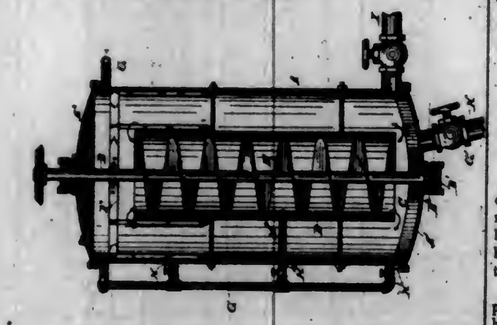
2. In a lavatory-basin, bath-tub, wash-tub, or other basin having a discharge or waste pipe, a coiled-wire flat, concave, or convex surface composed of several coils, forming a circle, inserted within the discharge or waste pipe thereof, in combination with a connecting spiral spring being constructed of a continuous and unbroken piece of wire, as set forth.

313,069. BELT FOR DRIVING MACHINERY. MAURICE GANDY, Liverpool, England. Filed July 17, 1884. (No model.)

Brief.—The edges of the textile-fabric belt are saturated with a suitable cement.

Claim.—An improved woven-fabric belt having its edges saturated with cement, whereby the interstices of the fabric are filled and the edges made hard and smooth, substantially as set forth, for the purpose stated.

313,070. APPARATUS FOR WASHING. JOSEPH F. GIST, Columbus Ind. Filed Apr. 12, 1884. (No model.)

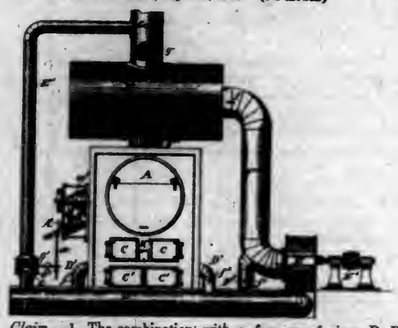


Claim.—1. The combination, substantially as before set forth, of the upright tank, the upright open-ended tube within the tank, the rotating screw within the tube, and the rotating spider secured to the lower end of the screw-shaft so as to operate in the bottom of the tank.

2. The combination, substantially as before set forth, of the upright tank, the upright open-ended tube within the tank, the rotating screw within the tube, the rotating spider secured to the lower end of the screw-shaft so as to operate in the bottom of the tank, and the rotating stirrer in the upper end of the tank.

3. The combination, substantially as before set forth, of the tank, the open-ended tube, and rotating screw within the same, and steam service-pipes leading, respectively, into the tank and into the said tube.

313,071. SMOKE-CONSUMING FURNACE. FRANKLIN B. GIESLER, Milwaukee, Wis. Filed Sept. 26, 1884. (No model.)

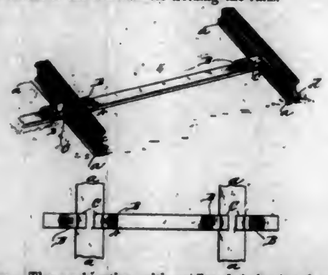


Claim.—1. The combination, with a furnace, of pipes D, D', F', F², and F³, the reservoir and blower, pipe E and its valve, and mechanism for lifting the latter at set intervals, substantially as described.

2. In a smoke-consumer, in combination with the furnace A, the horizontal flue D, and branches D' D', of a chamber or flue formed above the grate-bars in the center and the whole length of the furnace, and having its closed bottom resting on the grate-bars, suitable perforations on each side near its top, and an adjustable door opening in the furnace-front, substantially as and for the purpose set forth.

313,072. RAILROAD-TIE. ALFRED A. HARRON, Elmore, Ohio. Filed May 17, 1884. (No model.)

Brief.—The ties are constructed with oppositely-extending wings, on which the rails rest, and brackets integral therewith. Rail-clamping plates are bolted to the brackets for holding the rails.



Claim.—The combination, with a railroad-tie having the oppositely-extending wings a, and the brackets B, having seats, as shown, of clamping-plates C, adapted to be secured in the seats of said brackets B, substantially as set forth.

313,073. ROLLING-COLTER. CHARLES R. HARTMAN, Vincennes, Ind. Filed June 23, 1884. (No model.)



Claim.—1. The combination, with a plow-beam, two clamping-cheeks, each provided with an oblong closed slot and a transversely-serrated face, and draw-bolts passing through the slots above and below the beam, of a colter or other standard formed independently of and rigidly held in any desired vertical adjustment by said clamping-cheeks, substantially as set forth.
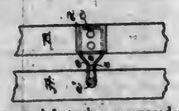
2. The combination, with a plow-beam, two clamping-cheeks, each provided with an oblong closed slot and a transversely-serrated face, caps having serrated faces and lips which engage the edges of the cheeks, and draw-bolts—one above and one below the beam—passing through the slots and caps, of a colter or other standard formed independently of and rigidly held in any desired vertical adjustment by said clamping-cheeks, substantially as set forth.

3. The combination, with a plow-beam and a standard, of a single and a double clamping-cheek, each provided with an oblong closed slot, the double clamping-cheek embracing the standard, and draw-bolts passing through the slots, whereby the standard is locked to the beam in different angular adjustments, substantially as set forth.

4. The combination, with a plow-beam and a standard, said standard being semicircular, semi-oval, or semi-polygonal in cross-section, of a single and a double clamping-cheek, each of said cheeks being provided with an oblong closed slot and with transverse serrations on their outer faces, the double cheek embracing the standard, caps having serrated faces and lips which engage the edges of the cheeks, and draw-bolts passing through the slots and caps, whereby the standard is securely locked to the beam, substantially as set forth.

5. The combination, with a plow-beam and a standard, of a single and a double cheek, the double cheek being provided with recesses on the contiguous faces of its parts for receiving the standard, and with transverse serrations on its opposite faces, and the single cheek being provided with transverse serrations on its outer face, serrated caps adapted to engage the outer faces of the cheeks, and draw-bolts passing through the cheeks and caps, thereby locking the standard to the beam, substantially as set forth.

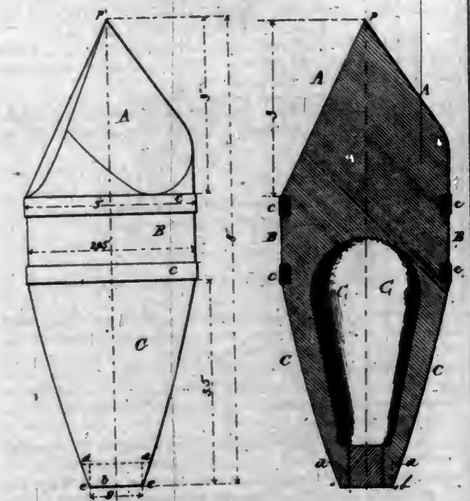
313,074. CORSET-STEEL FASTENING. LUCIAN HILL, North Brookfield, Mass., assignor to Theodore C. Bates, same place. Filed Apr. 4, 1884. (No model.)



Claim.—1. A corset-steel fastening composed of a wire eye-piece bent to form a closed loop beyond the edge of the steel to which it is attached, the said loop presenting a contracted space for the passage of the stud of the opposed steel, the portions of the said wire loop at its most contracted part acting after the passage of the said stud to close behind and hold the stud, substantially as described.

2. The combination, with a corset-steel, B, and a cap or plate grooved at its under side, of an eye-piece composed of wire bent to form a loop with the contracted space or passage for the stud of the opposed steel, the said loop at or near its ends being interposed between the said stud and cap or plate, and the latter being attached to the steel, substantially as described.

313,075. PROJECTILE. LUCIEN HOPSON, Lampasas, Tex. Filed Sept. 6, 1884. (No model.)



Claim.—1. A projectile with a solid triangular head and conoidal-shaped rear end, in combination with an expansible driver attached at the rear, substantially as set forth.

2. A projectile having a solid triangular head and hollow rear end conoidal in form, in combination with an expansible metallic driver, substantially as described.

3. A projectile having a solid triangular steel-faced head and conoidal rear extremity united by a cylindrical section, substantially as described.

313,076. CASE FOR PRESERVING FOOD. JONATHAN J. HOTT, Chelmsford, Mass., assignor to Edward P. Richardson, same place. Filed July 15, 1882. (No model.)

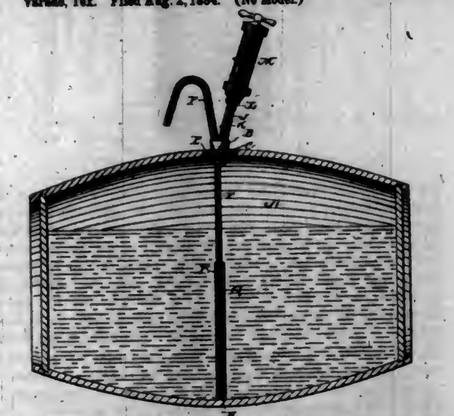
Claim.—1. The combination of the sheet-metal sleeve-nut D and three or more vertical stays, D², secured to the outside of said nut, as and for the purpose specified.

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2. The combination of the sheet-metal sleeve-nut D, provided with an internal flange, D', and three or more vertical stays, D², secured to the outside of said nut and to the top of said flange, as and for the purpose specified.

313,077. APPARATUS FOR EMPTYING BARRELS OR OTHER RECEPTACLES CONTAINING LIQUIDS. BENJAMIN FRANKLIN HUDSON, Alvarado, Tex. Filed Aug. 2, 1884. (No model.)



Claim.—1. The combination, with a vessel for containing liquids, provided with a bung-hole, of a bung provided with an integral annular flange, a packing secured to the flange, a delivery-tube fitted in the bung, and having a telescoped section extending down into the vessel, an injecting-tube provided with a removable plug, and suitable air-injecting apparatus detachably secured to the tube, as and for the purpose set forth.

2. The combination, with air-injecting apparatus connected to a packed bung, of a telescoped delivery-tube, the upper portion of which passes through and is connected to said packed bung, and the lower portion sliding loosely in a vertical line over the other, so as to drop by its own weight to the bottom of the vessel, and thus automatically accommodate or adjust itself to the various depths, as specified.

313,078. BARBED-WIRE SHOE-NAIL. HORACE K. JONES, Hartford, assignor to the Russell & Erwin Manufacturing Company, New Britain, Conn. Filed Apr. 14, 1884. (No model.)



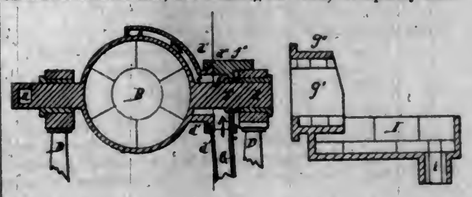
Claim.—1. A headed and pointed round cut nail composed of spirally-barbed wire, substantially as described.

2. A headed and pointed round-wire nail having a shank spirally barbed throughout its length, substantially as described.

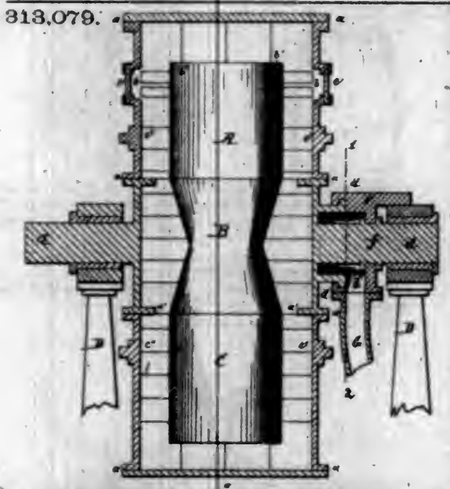
3. A headed round-wire nail having a shank spirally barbed throughout its length, and an angular point, substantially as described.

313,079. MANUFACTURING IRON AND STEEL. BENJAMIN BAYLES, Jr., Boltzhoover, Pa. Filed Oct. 8, 1884. (No model.)

Claim.—1. In the manufacture of crude iron into iron of higher grade or steel, the process herein described, which consists in introducing fuel to the converter through a suitable inlet when the annular tuyere-chamber is at the bottom, then inverting the vessel, subsequently admit-



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ting an air-blast, maintaining this condition until the pressure of the flame inside exceeds that of the atmospheric air surrounding the said inlet, cutting off the air-blast, then inverting the vessel to allow the automatic exit of the fuel through the same aperture to yield the entire space for the metal, reversing the angle of the vessel, charging the liquid metal with or without the addition of heated scrap-iron, again admitting the air-blast, again inverting the vessel so that the metal comes in contact with the tuyeres, maintaining this condition until the color of the flame evidences the completion of the blowing operation, charging any desired alloy, again admitting the air-blast, inverting the vessel several times to secure perfect commixture, finally inclining the vessel, and discharging the mass therefrom so that in its course to the pig-bed or casting-molds it shall traverse perpendicular paths, for the purpose specified.

2. The sections A C, provided both with flanges at the respective ends, in combination with the section B, having flanges on both ends projecting in either direction from the shell, for the purpose set forth.

3. The section B, lined so as to form a central contracted area, as shown, having flanges *a' a' a'* for the purpose set forth, and provided with rim *d''* and recess *e*, in combination with the section A, having air-chamber *b''*.

4. The section C, having mouth *g'*, surrounded by wall *g''*, from which lugs A A project, and flanges *a a*, in combination with the runner I and sections A B.

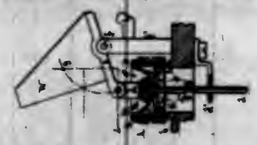
5. The chamber F, composed of counterpart halves having projection *f'*, fitting in groove *f''*, formed by two annular collars around the trunnions, in combination with the section B, having annular rim *d''*, sliding in groove *d'* in the chamber F, and pipe G.

6. The runner I, having lugs *h' h'* and perpendicular outlet *i'*, in combination with connections *h'' h''* and lugs A A.

7. The section A, having flanges at both ends and provided with an annular tuyere-chamber, *b''*, in combination with the section B, having flanges at both ends projecting in either direction beyond the shell having a contracted central area, and trunnions *d d* radiating from its surface, section C, having flanges at either end, and a mouth, *g'*, and standards D D, forming bearings for the trunnions.

8. The standards D D, constituting bearings for the converter, in combination with the section B, having flanges *a a a' a'* on both ends, projecting beyond the shell in either direction, provided with trunnions *d d*, on one of which are two annular collars, forming a groove, *f''*, between them, and the end of the other serving for the reception of rotary motion from suitable mechanical media, chamber F, pipe G, passages *e e'*, and chamber *b''*, the whole co-operating in the manner shown, and for the purpose specified.

313,080. DIFFERENTIAL-PRESSURE VALVE. ALEXANDER KAISER, Freiberg, Switzerland. Filed Nov. 10, 1883. (No model.)



Claim.—1. A differential-pressure valve consisting of a valve-seat, a valve-body having a bottom opening, a flexible diaphragm attached to the valve-body, a valve-spindle attached to the diaphragm, and a fulcrumed and weighted balance-lever connected to the upper end of the valve-spindle, whereby the same is free to move through a fixed distance before the valve is raised from its seat by the difference of pressure above and below the same, substantially as set forth.

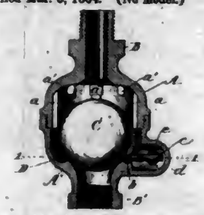
2. A differential-pressure valve composed of a valve-seat, *b*, a valve-body, *a*, provided with an opening in its bottom, a flexible diaphragm, D, connected to the valve-body, a valve-spindle, *d*, connected to the diaphragm, and provided with a collar, d^2, a fulcrumed lever, *e*, pivoted to the valve-spindle, and provided with a balance-weight above its fulcrum, and a stop, *h*, for the balance-lever *e*, substantially as set forth.

3. The combination of a differential-pressure valve, consisting of a valve-seat, a valve-body having a bottom opening, a flexible diaphragm attached to said valve-body, a valve-spindle attached to the diaphragm, and a fulcrumed weighted balance-lever connected to the upper end of the valve-spindle, a vessel inclosing said differential valve, a receiver or storage-chamber, and pipes connecting said vessel and storage-chamber, substantially as described.

4. The combination of a differential-pressure valve, a vessel inclosing said valve, a storage-chamber provided with a plunger, pipes connecting the ends of said storage-chamber with the ends of said inclosing-vessel, and valved conduit-pipes communicating with said connecting-pipes, substantially as described.

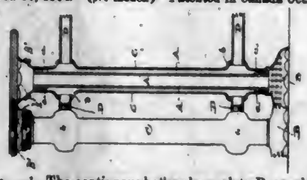
5. The combination, with a valve having a flexible diaphragm attached to a movable part thereof, of a fulcrumed and weighted balance-lever adapted to oscillate under the varying pressures of the diaphragm, so as to throw its center of gravity alternately on opposite sides of a vertical plane passing through the fulcrum of said lever, and a stop for controlling the movement of said lever.

313,081. WATER-COCK AND AIR-VENT. JOHN KELLY, Chicago, Ill., assignor of two-thirds to Thomas Kelly and James Kelly, both of same place. Filed Mar. 8, 1884. (No model.)



Claim.—The combination, with two-part casing A A', provided with ribs *a* and feet *a'*, of ball-valve C, ring D, and means for operating said ring, as and for the purpose set forth.

313,082. RADIATOR. WILLIAM KIRKWOOD, Guelph, Ontario, Canada. Filed Oct. 16, 1884. (No model.) Patented in Canada Oct. 24, 1884, No. 20,422.



Claim.—1. The continuous hollow base-plate B, provided with air-inlets above its bottom, the outer tubes, C, supported and connected by said base-plate, and provided with enlargements *b*, and the inner tubes, A, suspended concentrically within said tubes C, said inner tubes, A, being formed independent of each other, and the supply or connecting pipes D connecting the outer tubes at their enlargements, substantially as and for the purpose specified.

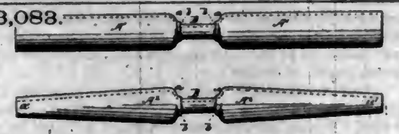
2. The hollow perforated base-plate B, the outer tube, C, supported thereby, the tube A, placed within said tube, and having collars *a*, said tube C having annular enlargement *b*, and provided with a flaring cap, B', having air-outlets *b'*, in combination with a slab or covering, and the supply-pipes D, substantially as and for the purpose specified.

3. In combination with the perforated base-plate B, the flaring cap B', and a slab or covering supported by said cap, the tube C, supported by said base-plate, and the tube A, placed within said tube C, and provided with collars *a*, the space between the collars and the outer end of the pipes being filled with a cement, substantially as and for the purposes specified.

313,083. MAKING BICYCLE-FORKS. JOHN KNOUS and ALBERT E. WALLACE, Hartford, Conn., assignors to the Pope Manufacturing Company, same place. Filed Nov. 28, 1884. (No model.)



313,083.



Claim.—The described art of producing said bicycle rear fork out of metallic tubing by shaping the tenon B and shoulders *a* and *b* thereon, tapering and thickening the opposite end, removing portions of the metal, and shaping to required form, essentially as set forth.

313,084. FINGER-RING. ROBERT A. KULLMANN, Jersey City, N. J. Filed June 3, 1884. (No model.)



Claim.—1. The initial C, held to the ring by the bolt *b*, passing through the face of the initial from the front, substantially as described.

2. The ring A, having the screw-threaded stud *a* formed upon it to receive the bolt *b* from the front of the ring, substantially as shown and described.

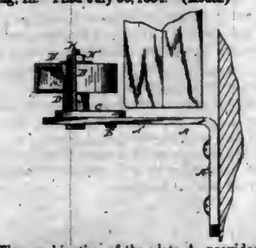
3. The separate ornament or initial C, formed with the apertured shank *c* upon its under surface, substantially as and for the purposes set forth.

4. The setting D, having the passage *d* made through it, in combination with bolt *b*, the ring formed with the stud *a*, and the ornament or initial C, formed with the shank *c*, substantially as and for the purposes set forth.

5. The initial C, held upon the ring by the centrally-placed screw-bolt *b*, passing through it from the face of the initial, substantially as described.

6. The ring A, formed with the gem-box B and screw-threaded stud *a*, in combination with the setting D, formed with passage *d*, the initial C, formed with the shank *c*, and the headed screw-bolt *b*, arranged substantially as described.

313,085. STAY-ROLLER FOR SLIDING DOORS. JOHN H. LAWRENCE, Sterling, Ill. Filed July 30, 1884. (Model.)



Claim.—The combination of the plate A, provided with the hole F and curved slot G, arm C, having the stud E and hollow post D, the roller B, and bolt H, provided with the nut H', substantially as shown, and for the purpose described.

313,086. ARTIFICIAL FUEL. GEORGE LEDER, Demopolis, Ala. Filed May 2, 1884. (No specimens.)

Claim.—A fuel for kindling fire, consisting of a mixture of resin and cotton-seed hulls, in substantially the manner and proportions stated.

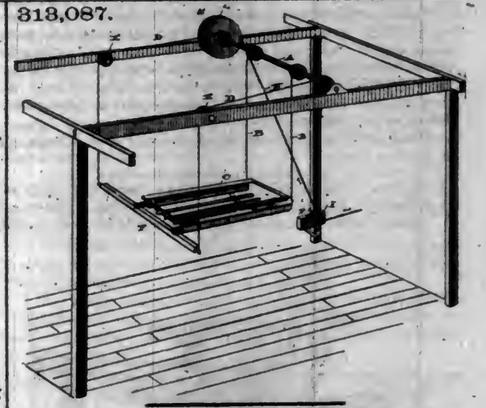
313,087. LOAD-LIFTER. WILLIAM LUCAS, Markdale, Ontario, Canada. Filed Oct. 30, 1884. (No model.)

Claim.—1. A shaft, A, carried in suitable bearings at an elevated point in a barn or other building, and having attached to it the ropes B and D, the sheave-pulleys E, and bar or scantling F, in combination with the grooved pulley G, having wound upon it the rope H, which is carried round the grooved rollers J and K, and the pivoted block L, contained within the box I, the whole being arranged and operating substantially as and for the purpose specified.

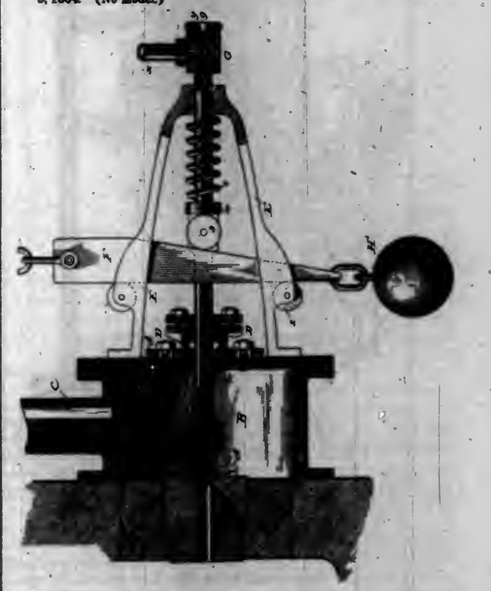
2. As an improved clutch, the rollers J and K, having ratchet-teeth *m*, in combination with the pivoted block L, carried on the pawls M, the whole being arranged and operating substantially as and for the purpose specified.

3. The ropes B, wound around sheaves on the shaft A, and arranged to be connected at their ends to the body C, and the ropes D, also wound around sheaves on the shaft A, and connected to the scantling F, which is longer than the width of the body C, in combination with the rope H, wound around the pulley G, and controlled by a frictional device, substantially as and for the purposes described.

313,087.



313,088. TUYERE. WILLIAM I. MANN, Benwood, W. Va. Filed May 5, 1884. (No model.)



Claim.—1. In combination with the tuyere of a converter or other furnace, the plug provided with the stem, a spring and wedge, and a suitable bridge, substantially as described, and for the purpose set forth.

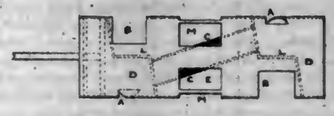
2. The combination, with the tuyere, of the plug and its stem, connected to the pipe *x*, and suitable mechanism for operating the plug, as set forth.

3. In combination with the tuyere, the perforated plug and stem, the coupling having the sight-opening *g* and transparent diaphragm *y*, with mechanism, substantially as described, for operating the plug.

4. The combination, with the wind-box, of the plug and its stem, and means for operating the same, and an adjustable stuffing-box, substantially as described.

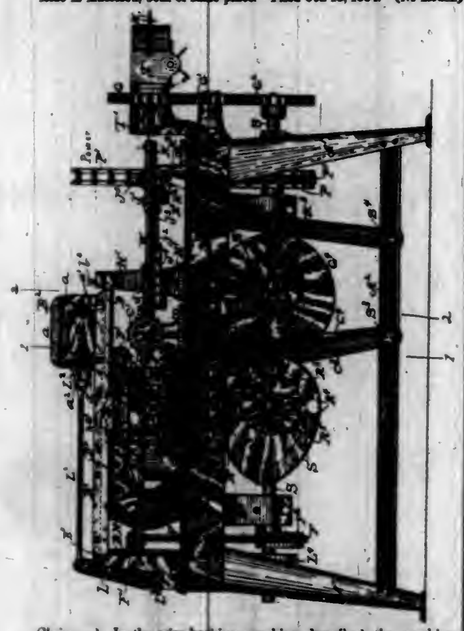
5. The combination, with the tuyere and the wind-box, of the perforated plug and stem, the bridge E, provided with anti-friction rollers, a collar and rollers upon the stem, the spring 5, and the wedge F, all substantially as described.

313,089. CUT-OFF VALVE. BENJAMIN G. MARTIN, Cork, Ireland. Filed July 10, 1884. (No model.)



Claim.—The described construction or arrangement of parts forming a valve for the control or regulation of the steam supplied to steam-engine cylinders, said valve consisting of an inner cylindrical body or part divided into steam and exhaust chambers by dividing-walls, and provided with suitably-shaped apertures or ports for passage of steam, the steam-chambers being connected by a passage, and of an outer cylindrical case or cover, also provided with suitable passages or ports adapted to operate with those of the inner cylinder or valve proper, substantially as shown and set forth.

313,090. WIRE-BARBING MACHINE. EUGENE R. MATTESON and WILLIAM J. HUTCHINS, Joliet, Ill., assignors to William H. Hunter and Rose E. Matteson, both of same place. Filed Oct. 13, 1884. (No model.)



Claim.—1. In the wire-barbing machine described, the combination of the strand-wire coiling-shafts *c c*, each having strand-wire apertures passing through their length at one side from their center out through the nipples *n n*, the integral ratchet-teeth *t'*, toothed heads *e*, spring-pawls *t* and m^3, and lugs *m'*, with the segment-racks c^2 and cams G^2 G^3, as and for the purpose set forth.

2. In a wire-barbing machine, the means described and shown for holding a barb while it is being severed from the barbing-wire, the means described for conveying a barb from the cutters to the strand-wire coilers, and the means described for holding the barb between the strand-wire coilers while the strand-wires are being coiled around the barb, substantially as and for the purpose set forth.

3. In the wire-barbing machine described, the combination of the cam L^4, lever L^2, link L', sliding plate L^3, toggles *a a'*, bar D, arm D^2, having the roller D', spring M, sliding head H, and jaws P^3 P^4, with the cutting-dies in heads E and *z*, feed-rolls *o o'*, and the means, substantially as shown and described, for operating said parts, as and for the purpose set forth.

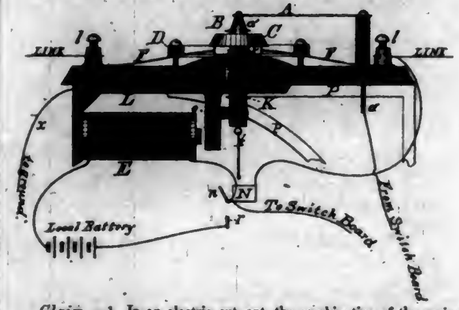
4. In the wire-barbing machine described, the combination of the reciprocating heads K and K^3, having the barb-guides J' J' and jaws J J, respectively, slotted plate J^3, studs *r'*, dog J^5, link K^3, arm K^2, and eccentric *y*, as and for the purpose set forth.

5. In a wire-barbing machine, the combination of the mechanism described for holding the barb, with the mechanism described for coiling the strand-wires around the barb, substantially as and for the purpose set forth.

6. In a wire-barbing machine, the combination of the means for intermittently feeding forward the barbing-wire between a pair of corrugated reciprocating jaws, means for closing said jaws upon the barb to crimp its center, means for severing the barb from the barbing-wire while it is held between said jaws, means for operating said jaws while they are holding a barb to convey it from the barb-wire feed to and between a pair of oppositely-located strand-wire coilers, means for intermittently rotating said strand-wire coilers to coil a pair of strand-wires, as described, around the barb, one on either side of its central crimp, means for operating said jaws to release the barb when it is within the coils of the strand-wires and for returning them to their former position while they are open, and means for intermittently taking up the strand-wires as they are supplied with barbs by pulling them through the apertures in the strand-wire coilers, so that barbs may be placed on said strand-wires at suitable distances apart, as set forth.

7. In a wire-barbing machine, the means, substantially as shown and described, for closing the barb-grasping jaw P^3 on a barb, to hold it while it is being conveyed from the cutters to the coilers, for releasing the barb after the strand-wires have been coiled around it, and for holding the barb-grasping jaws open until they are returned to the feed and cutters and receive another barb, as set forth.

313,091. AUTOMATIC CUT-OUT FOR ELECTRIC CIRCUITS. JOHN B. MAY, Watertown, Wis. Filed May 6, 1884. (No model.)



Claim.—1. In an electric cut-out, the combination of the spring branches F, the disk C, with stem K, the spring *k'*, and the cord *k*, substantially as shown and described.

2. In an automatic electric cut-out, the combination of the spring branches F, the disk C, with stem K, the lever O, and electro-magnet E, substantially as shown and described.

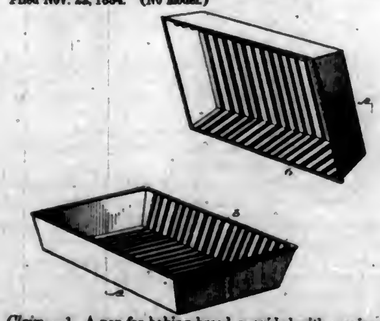
3. In an automatic electric cut-out, the combination of the spring branches F, the disk C, with the stem K, the helical spring *k'*, the lever O, and the electro-magnet E, substantially as shown and described.

4. An electric cut-out having a circuit-maker common to branches from two or more electric lines, in combination with means common to all the branches by which the distances between the contact-points of the branches and the circuit-maker may be adjusted at one operation.

5. An electric cut-out having a circuit-maker common to branches from two or more electric lines, in combination with a ring of insulating material in contact with all the branches, and which serves by its pressure thereon to preserve a uniform distance between the contact-points of the branches and the circuit-maker.

6. The combination of the spring-contact branches F F, &c., with the ring D and means—such as the set-screws *d*—for ranging the spring-contact branches in one plane by pressure of the ring D

313,092. BAKING PAN AND COVER. THOMAS MAYER, Albany, N.Y. Filed Nov. 22, 1884. (No model.)



Claim.—1. A pan for baking bread, provided with a series of transverse corrugations or projections, substantially as described.

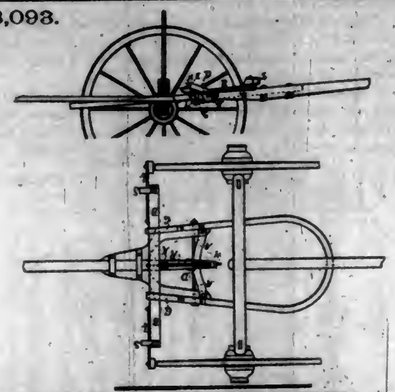
2. A pan for baking bread, provided with a series of transverse corrugations or projections, in combination with a cover having like projections corresponding in location with those of the pan, and with vent-openings, substantially as described.

313,093. WAGON-BRAKE. ROBERT E. MCCLELLAND, Williamsville Ill. Filed Nov. 29, 1884. (No model.)

Claim.—1. The bar B B, the arms *b b*, the supports S S, and the slides G G, combined and used on or underneath the wagon-tongue and hounds, substantially as set forth.

2. The castings D, C, and K and the lever L, constructed and combined substantially as described, for the purposes specified.

313,093.



313,094. CORD-HOLDER FOR HARVESTER-BINDERS. JOHN C. MCLACHLAN, Patterson, Ontario, Canada, assignor to Peter Patterson, same place. Filed May 22, 1883. (No model.) Patented in Canada Oct. 22, 1883, No. 17,937.



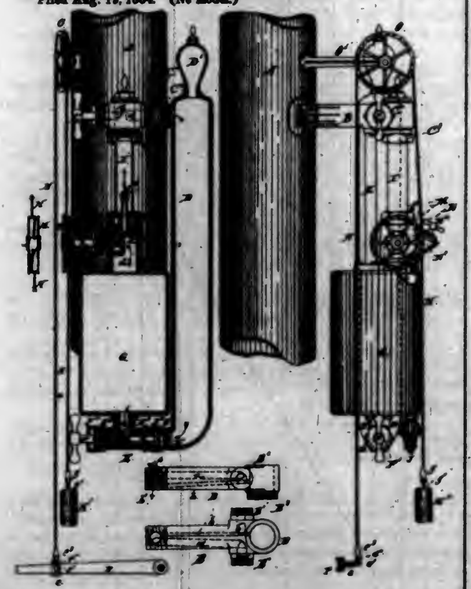
Claim.—1. In a harvester-binder in which the cord is carried into a notch in a holding-wheel, the combination of said wheel with a holder having flaring jaws and held toward the wheel by a spring.

2. In a harvester-binder in which the cord is carried into a notch in a holding-wheel arranged to carry the cord between jaws for gripping the said cord, the combination, with the jawed holder, of a wedge-shaped notched wheel, the taper extending from a little below the notches to the periphery of the wheel, substantially as and for the purpose specified.

3. In a harvester-binder in which the cord is carried into a notch in a wheel arranged to carry the cord between jaws for gripping the said cord, a holder having flaring jaws, in combination with a wedge-shaped notched wheel, the taper of the wedge extending from a little below the notches to the periphery, and corresponding with the taper of the flaring jaws.

4. In a harvester-binder in which the cord before knotting is gripped between a notched wheel and a flanged holder, a holding-wheel having one side of each notch chamfered off so as to form a hook on one side of the notch.

313,095. AUTOMATIC LUBRICATOR. GEORGE MCNEIL, Chicago, Ill. Filed Aug. 19, 1884. (No model.)



Claim.—1. The combination, with a pressure oil-cup, of a valve or stem, L, wheel M, and cord N, substantially as and for the purpose specified.

2. The combination, with a pressure oil-cup, of a valve or stem, L, wheel M, cord N, and the means for reversing the engine, substantially as and for the purpose specified.

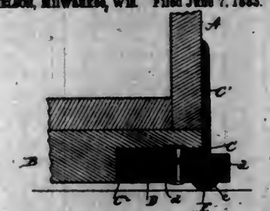
3. The combination, with a pressure oil-cup, of a valve or stem, L, wheel M, cord N, weight N', and reversing-lever P, substantially as and for the purpose specified.

4. The combination, with an oil pressure-cup, of a valve or stem, L, wheel M, cord N, reversing-lever P, and an adjustable connection between the cord and lever, substantially as and for the purposes specified.

5. The combination, with a steam-pipe, of a pressure oil-cup automatically controlled as to the feed of the lubricant from the cup, substantially in the manner and for the purposes specified.

6. The combination, with a steam-pipe and a pressure lubricating-cup, of automatically-operating devices acting to open and close the passage for the oil from the cup, substantially in the manner and for the purposes specified.

313,096. COMBINED TRUNK BUFFER AND CASTER. SIGMUND M. MICHELSON, Milwaukee, Wis. Filed June 7, 1883. (No model.)



Claim.—1. In combination with a corner-iron, a solid revolving metallic bumper pivoted thereto and projecting therefrom beyond the edges of the corner-irons, and provided with a recess within which revolves a spherical roller, substantially as set forth.

2. In combination with a trunk-body beveled, or cut away, vertically at the corners, and recessed at the corners of the bottom, the corner-irons C, having downward-projecting partly-circular walls whose lower edges are flush with the bottom of the trunk, and which form recesses within which revolve solid metallic bumpers, projecting beyond the corner-irons, and each bearing a roller revolving within a recess in said solid bumper, the journal of the said roller being above the lower surface of the said bumper, substantially as set forth.

3. In combination with a trunk, the solid revolving metallic corner-bumpers D, pivoted to corner-irons and projecting therefrom beyond the edges of the corner-irons and the corner edges of the trunk, and flush with the bottom of the trunk, and bearing the rollers E, substantially as set forth.

4. In combination with a trunk, having vertically-beveled or cut-away corners, the corner-irons C, having horizontal flat plate, upward-extending wings C' *c'* C' and downward-projecting partly-circular walls C^3, flush with the bottom of the trunk, and forming recesses to receive revolving bumpers, the said bumpers projecting beyond the edges of the corner-irons and the corner edges of the trunk, substantially as set forth.

313,097. CASTER. SIGMUND M. MICHELSON, Milwaukee, Wis., assignor of one-third to George Sylvester, same place. Filed May 27, 1884. (No model.)

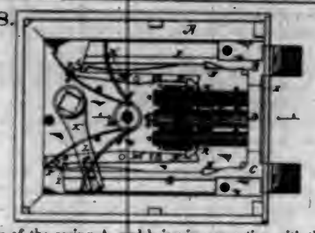


Claim.—In a revolving caster, the combination of the shell A, having central and vertically-perforated axle *a'*, plate D, having the holes *d* d^2 and grooves d^3 d^3, and lugs D' D' on its upper face, hub G, with arms *g g*, roller F, with journal *f*, and pivot or rivet E, substantially as set forth.

313,098. LOCK. BENJAMIN MOSER, Brooklyn, N. Y. Filed May 1, 1884. (No model.)

Claim.—1. In a lock, the bolts B C, connected at their front portion by a cross-bar, D, having an elongated slot, E, in combination with the oscillating levers M, whose rear ends are adapted to engage the rear ends of the said bolts, the sliding bar R, arranged transversely between and to engage the front ends of the levers M, the slide S, located upon

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the outer face of the casing A, and being in connection with the bar R, and a combination of pieces, *e*, arranged over the bar R and in line with the bolts B C, and adapted, when tilted, to permit the slot E to pass over them, substantially as set forth.

2. In a lock, the bolts B C, connected by a cross-bar, in combination with the oscillating levers M, the rear ends of which are adapted to engage the rear ends of the said bolts, and with the sliding bar R, whose ends engage the front ends of the oscillating levers M.

3. In a lock, the bolts B C, connected by the bar D, and having upon their rear ends the lugs I, in combination with the oscillating levers M, (one adjacent to each bolt,) having upon their rear ends lugs P, adapted to engage the lugs I on said bolts, and upon their front ends notches N, the sliding bar R, arranged transversely between the levers M, and whose ends engage the notches N, and springs J Q, the former arranged to exert a tension forward on the bolts B C and the latter to throw the rear ends of the levers M into engagement with the rear ends of the bolts B C, substantially as set forth.

4. In a lock, the bolts B C, connected by the bar D, and having upon their rear ends the lugs I, and forward thereof the shoulders B', in combination with the oscillating levers M, the rear ends of which are adapted to engage the lugs I, the front ends of the levers being provided with notches N, and adapted to engage the shoulders B', and the sliding bar R, arranged transversely between the levers M and in position to engage the notches N, substantially as set forth.

5. In a lock, the bolts connected at their front portion, in combination with a series of tilting locking-pieces, *e*, arranged in line with the bolts, and a portion of the same being beyond the sides of the key-hole, and a key a portion of which will move outward when inserted into the key-hole and reach those pieces *e* beyond the sides thereof, substantially as set forth.

6. In a lock, the bolts B C, connected by a bar, D, having a slot, E, in combination with the oscillating levers M, the rear ends of which are adapted to engage the rear ends of said bolts, the sliding bar R, transversely arranged between and adapted to engage the forward ends of the levers M, the combination of pieces *e*, arranged over said bar R, and a portion of which are beyond the sides of the key-hole, and a key having wings *a a*, which spread apart after entering the lock and engage said pieces *e* beyond the sides of the key-hole, substantially as set forth.

7. In a lock, the bolts B C, connected by a bar, D, in combination with the oscillating levers M, having lugs Z beyond the sides of the key-hole, the rear ends of the levers being adapted to engage the rear ends of said bolts, the sliding bar R, arranged transversely between, and whose ends engage the front ends of the levers M, and the key *b*, having wings *a a*, which spread apart after entering the lock and strike the lugs Z, substantially as and for the purpose set forth.

8. In a lock, the bolts, in combination with a series of locking-pieces, *e*, a portion of which are beyond the sides of the key-hole, and a key having wings *a a*, which spread apart when inserted into the lock and reach those pieces *e* beyond the sides of the key-hole, substantially as set forth.

9. In a lock, the connected bolts B C, levers M, bar R, and slide S, in combination with the button W, as described.

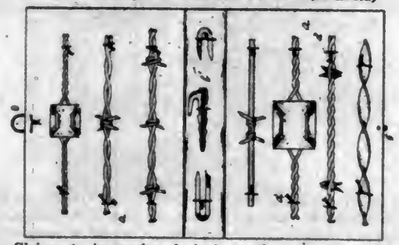
313,099. GLASS MOSAIC FOR DECORATING ROOMS AND OTHER PURPOSES. RUDOLPH NIELSEN, New York, N. Y. Filed Apr. 29, 1884. (No specimens.)



Claim.—1. The within-described process of making glass mosaics, which consists in cementing pieces of glass to a suitable back, and then filling the interstices between such glass pieces with a plastic material, substantially as described.

2. As an article of manufacture, a glass mosaic consisting of the flexible and absorbent backing of fibrous or textile material, the glass pieces united directly to the backing, and the filling of plastic material between the glass pieces, substantially as shown and described.

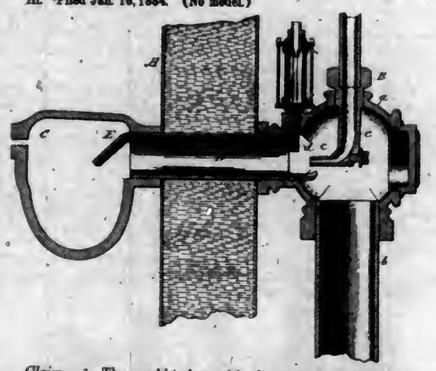
313,100. ENVELOPE FOR MAILING BARBED ARTICLES. JAMES B. OLIVER, Sewickley, Pa. Filed Mar. 19, 1884. (No model.)



Claim.—1. An envelope for barbs or other pointed articles, having metallic sheets hinged together and capable of folding on each other, said sheets being provided with fastenings for securing the barbs thereto, substantially as and for the purposes specified.

2. An envelope for barbs or other pointed articles, consisting of sheets or leaves of metal covered with card-board or other flexible material, said sheets or leaves hinged to and capable of folding on each other, and provided with fastenings for securing the barbs thereto, substantially as and for the purposes specified.

313,101. HYDROCARBON-FURNACE. ORLAND D. ORVIS, Chicago, Ill. Filed Jan. 16, 1884. (No model.)



Claim.—1. The combination, with the retort and the supply-passage thereto, of a deflector projecting downwardly into the retort from the upper edge of said passage, substantially as described.

2. The combination, with the supply-passage and the deflector projecting downwardly from the upper portion of said passage, of a retort provided with an outlet, and with an expansion-chamber extending below said outlet, and between the outlet and the opening of the supply-passage into the retort, substantially as described.

3. The combination, with the injector, the oil-supply nozzle, and the passage D, of the air-pipe and a drip-cup, formed, substantially as described, below the oil-nozzle, as and for the purpose set forth.

313,102. LINING FOR THE GROOVES OF PIPE-WELDING FURNACES. EDGAR PECKHAM, Syracuse, N. Y. Filed Mar. 4, 1884. (No specimens.)

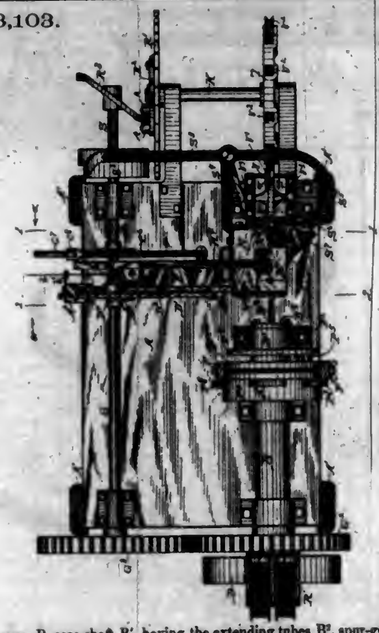
Claim.—1. The improved lining for the groove of a pipe-welding furnace, consisting of biscuit or unglazed burned white or C C ware, or its equivalent—viz., burned compound of feldspar, kaolin, and china-clay reduced to small particles.

2. For the lining of the groove of a pipe-welding furnace, a compound of biscuit or unglazed burned white or C C ware and comminuted raw kaolin, substantially as specified.

313,103. WIRE-BARBING MACHINE. MARCELLUS H. PITTS and ISRAEL R. WHITEMAN, Marseilles, Ill. Filed Oct. 13, 1884. (No model.)

Claim.—1. In the wire-barbing machine described, the mechanism, substantially as shown and described, for supporting and intermittently twisting the strand-wires, consisting of the head I², spring-pawl I³, annular gear P, core-shaft B', having the extending tubes B², spur-gear P', and intermediate idler-pinions, P⁵ P⁶, as and for the purpose set forth.

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2. In the wire-barbing machine described, the mechanism, substantially as shown and described, for holding and cutting off the barbs from the barbing-wire, consisting of the die *d'*, punch *d*, lever H⁴, and cam H⁵, arranged as set forth.

3. In the wire-barbing machine described, the mechanism, substantially as shown and described, for feeding the barbing-wire in the machine and between the cutting-dies and strand-wires, consisting of the reciprocating head *c*, having the spring-dogs *c²*, and grip-rolls *c'*, pitman *c⁴*, lever *c⁵*, having the upturned arm *c⁶*, and cam S', in combination with the grooved friction-blocks *c³ c³*, spring and cushion *c⁴*, supported on the post *c⁸*, as and for the purpose set forth.

4. In the wire-barbing machine described, the means, substantially as shown and described, for intermittently taking up the strand-wires after they have been barbed, consisting of the wheel T, having the inserted forked lugs V², ratchet-wheel R', cam R², and lever R³, having a spring-pawl to engage with ratchet-wheel R', and a pair of friction-rollers, *r r*, to engage cam R², in combination with the means for compressing the barb and strand wires, and for bending one of the barb-prods, consisting of the roller V and plate V', substantially as set forth.

5. In the wire-barbing machine described, the means, substantially as shown and described, for intermittently twisting the strand-wires by rotating them one-half way around each time in the same direction, consisting of the head P², spring-pawl P⁴, annular gear P, core-shaft B', having the extending tubes B², spur-gear P', and intermediate idler-pinions, P⁵ P⁶, whereby the barbs may be interwoven between each of three consecutive twists of the strand-wires, in combination with the hooked barbing-fingers Z Z' and their operating mechanism, as set forth.

6. In the wire-barbing machine described, the means, substantially as shown and described, for holding the strand-wires in a fixed position within their guides in head H while they are being supplied with barbs, consisting of the punch S⁴, connecting-link S⁵, lever S³, and cam S², arranged to operate in the manner specified.

7. In the wire-barbing machine described, the mechanism, substantially as shown and described, for feeding the barbing wire in the machine and between the cutting-dies and strand-wires, consisting of the reciprocating head *c*, having the spring-dogs *c²*, and grip-rolls *c'*, pitman *c⁴*, lever *c⁵*, having the upturned arm *c⁶*, and cam S', arranged as set forth.

8. In the wire-barbing machine described, the hooked barbing-fingers Z Z', in combination with the oscillating heads X X' and their shafts, and pinions J J' and racks D⁵ D⁶, and their operating mechanism, arranged as and for the purpose set forth.

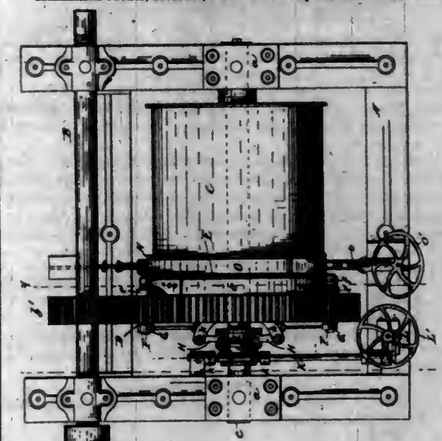
9. In a wire-barbing machine, the combination of the hooked barbing-fingers Z and Z', to weave the barbs between consecutive twists of a pair of strand-wires, means, substantially as shown and described, for oscillating them, and the means for intermittently crossing the strand-wires and holding them in a fixed position while the barbs are being applied, as set forth.

10. In the wire-barbing machine described, the head H, having the hinged portions H' H³, and arranged to support the cutting-off dies *d d'*, racks D⁵ D⁶, pinions J J', oscillating heads X X', having the hooked fingers Z Z', and the guides Z² Z³ Z⁴ Z⁵, in the manner and for the purpose set forth.

11. In the wire-barbing machine described, the combination of the stationary head H, having the die *d'*, and parts H' H³, sliding head H³, having the punch *d*, wedge-block *d²*, and screws *d³*, for securing said punch to said sliding head, barbing-fingers Z and Z', and the means, substantially as shown and described, for operating said punch and die and barbing-fingers, as and for the purpose set forth.

12. In a feeding mechanism for wire-barbing machines, the combination of the rollers *c' c'*, spring-dogs *c³ c³*, and reciprocating head *c*, and their operating mechanism, as set forth.

313,104. HOISTING APPARATUS. DE WITT C. PRESCOTT, Marinette, Wis., assignor to the Marinette Iron Works Company, same place, and Maximilian Jacker, Florence, Wis. Filed July 14, 1884. (No model.)



Claim.—1. In a machine of the character described, the combination, with the lever-shaft and the devices operated thereby, of a pitman connected with a bell-crank lever engaging an adjustable sleeve on the drum-shaft, substantially as and for the purpose specified.

2. In a hoisting-machine, a drive-wheel fixed to the drum-shaft, a drum loose on said shaft, a friction-wheel attached to said drum, and a friction-band thereon attached to and carried by the drive-wheel, in combination with a lever-shaft mounted in the drive-wheel, and having an inner arm to tighten and loosen the friction-band, and an outer arm connected by a pitman with a bell-crank lever mounted on the drive-wheel, and engaging an adjustable sleeve on the drum-shaft, substantially as and for the purpose set forth.

3. In a machine of the character described, the combination, with lever-shafts and the devices operated thereby, of pitman-rods connected with bell-crank levers on the drive-wheel engaging a sleeve splined on the drum-shaft and grooved to receive a yoke connected with the arms of a rock-shaft for adjusting the said sleeve on the drum-shaft, substantially as and for the purpose specified.

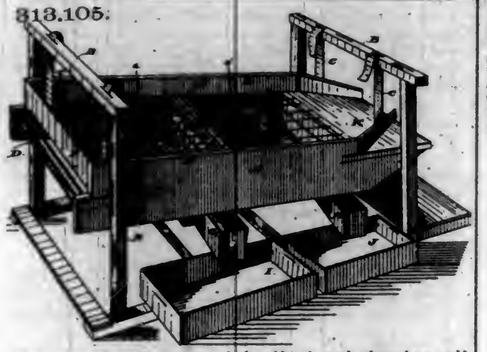
4. The combination, in a hoisting-machine, of the rock-shaft K, having the arm *k'*, carrying the nut *l*, and the threaded shaft L, having hand-wheel L', and swiveled in the hinged bracket M, substantially as and for the purpose set forth.

5. In a hoisting-machine, the combination of a drive-wheel fixed to the drum-shaft, a drum loose on said shaft, a friction-wheel attached to the drum, a friction-band thereon attached to and carried by the drive-wheel, and lever-shafts mounted in the drive-wheel, and having each an inner arm to tighten and loosen the friction-band, and an outer arm connected by a pitman with one arm of a bell-crank lever, the other arm of which enters a groove in a sleeve splined on the drum-shaft, and having another groove to receive a yoke pivoted to the crank-arms of a rock-shaft, having another arm carrying a nut traveling on a screw-shaft provided with a hand-wheel and swiveled in a hinged bracket, substantially as and for the purpose specified.

313,105. MACHINE FOR CLEANING AND GRADING POTATOES. ISAAC V. PUTTERBAUGH, Vaughan, Ontario, Canada. Filed July 7, 1884. (No model.) Patented in Canada June 25, 1884, No. 19,643.

Claim.—The herein-described machine for cleaning and grading potatoes, consisting of the main frame B, shoe A, flexibly supported on said main frame, the partition E, dividing said shoe into two separate compartments, the sieve-frames *a a'*, carrying netting graded as described, and resting on the top of the shoe and extending in the same

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plane over each compartment, and the sides L, projecting above said sieve-frame, and inclined toward each other at the end to form a spout, K, as set forth.

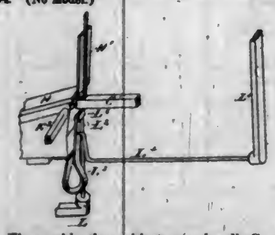
313,106. PRODUCING TRANSFERS OF DRAWINGS, ENGRAVINGS, &c. ILDO RAMSDELL, Atlanta, Ga. Filed June 23, 1884. (No specimens.)

Claim.—The process herein described of producing transfer prints, the same consisting in treating the paper having the design in printing or other suitable ink with a solution of glycerine and sulphuric acid properly diluted, rolling or inking up the surface of the design, and transferring the design to a lithographic stone or plate, substantially as specified.

313,107. PROCESS OF TREATING PAPER TO PRESERVE IT AGAINST THE CORROSIVE ACTION OF ACIDS. ILDO RAMSDELL, Atlanta, Ga. Filed July 19, 1884. (No specimens.)

Claim.—The process of preparing paper to resist the action of corrosive acids, the same consisting in treating it with glycerine or glycerine solution, substantially as specified.

313,108. NAIL-MACHINE. PORTER C. REED, Kingston, Mass. Filed Feb. 27, 1884. (No model.)



Claim.—1. The combination, with the moving die C and bed-die F, of the nipper L^2, its adjustable base-piece, spring-lever L^3, link L^4, and cam-lever L^5, substantially as and for the purpose herein described.

2. In a machine for making edge-gripped nails, the combination of a vertical nipper, its adjustable base-piece, and moving die C with a single thick die adapted to take the place of a die and back piece, substantially as and for the purpose set forth.

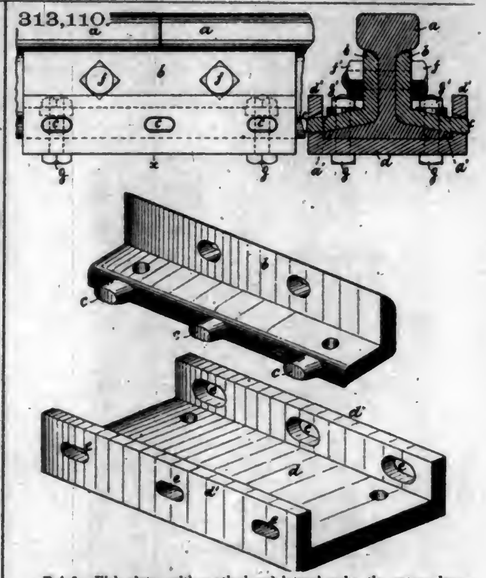
3. In a nail-machine for making edge-gripped nails, a single thick die, F, provided with a groove in its working-face for holding the blank, and having a portion of its face beveled, substantially as described.

313,109. ASH-SIFTER. MICHAEL REDER, Buffalo, N. Y. Filed Nov. 21, 1884. (No model.)



Claim.—An ash-sifter consisting of the casing *a*, having the hinged sections a' and a^2, the hinged hopper *d*, with its extension *e* and chute *f*, the frustum-shaped drum *h*, the shaft *g*, the hangers g' g', the chute e', and its apron e^2, all arranged substantially as shown and described.

313,110. RAILWAY-RAIL JOINT. EDWARD A. G. ROULSTONE, Boston, assignor to Alphonso J. Libby, Cambridge, Mass. Filed Feb. 4, 1884. (No model.)

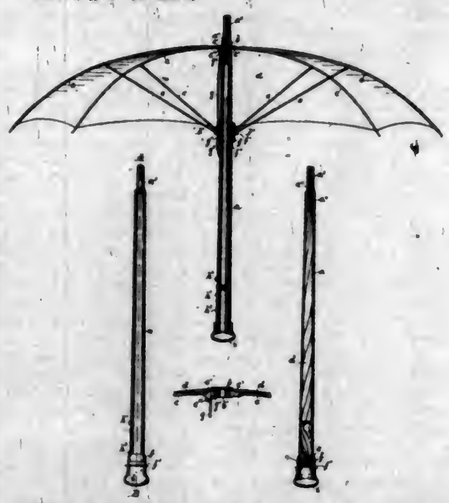


Brief.—Fish-plates with vertical and lateral webs, the outer edges of the latter having lugs which enter perforated vertical flanges of a base-plate.

Claim.—1. A fish-plate, *b*, having lugs *c c* projecting from the outer line of its base, in combination with the perforated upright sides of the base-plate, as and for the purpose set forth.

2. The combination, with the rails *a a*, of the base-plate having perforated upright flanges, the fish-plates *b*, having projecting lugs on their lower edges, and the bolt and nut *f f'*, substantially as and for the purpose set forth.

313,111. UMBRELLA. HENRY F. SAWTELLE, Leominster, Mass. Filed Jan. 18, 1884. (No model.)



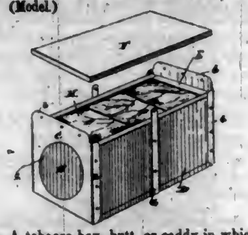
Claim.—1. In a folding umbrella, the cover *d* and ribs *c c*, in combination with ring *b* and intermediate duplex joints, *c' c'*, as and for the purposes set forth.

2. In a folding umbrella, the cover *d*, ribs *c c*, and stays *e e*, having their lower ends connected by means of an expansive joint, *c' c''*, in combination with the ferrule *f* and its annular groove *f''*, as and for the purpose set forth and described.

3. The hollow handle *a* and detachable cover *d*, with its ribs *c c*, ring *b*, and duplex joints *c' c'*, stays *e e*, in combination with the flexible joint *c' c''*, connecting the lower ends of stays *e e*, the ferrule *f*, having annular groove *f''*, notches *f'''*, and the spring-locking device *g g' g'' g²*, as and for the purpose set forth.

4. The hollow umbrella handle *a*, having yielding locking projections h'' h^2 near its lower end, in combination with the sliding ferrule *f*, as and for the purpose set forth.

313,112. TOBACCO-BOX, &c. CHARLES H. SCALES, Covington, Ky., assignor of one-half to James Richard Silliman, Toronto, Canada. Filed Oct. 16, 1884. (Model.)



Claim.—1. A tobacco box, butt, or caddy in which the ends and sides are secured together by sheet-metal caps fitted at each end and flanged, so as to cover entirely the joints between the ends and sides, the nails for securing the metal caps being used for fastening the sides and ends together.

2. A tobacco box, butt, or caddy in which the ends and sides are secured together by sheet-metal caps fitted at each end, and having annular holes cut in them and flanged, so as to cover entirely the joints between the ends and sides, the nails for securing the metal caps being used for fastening the sides and ends together.

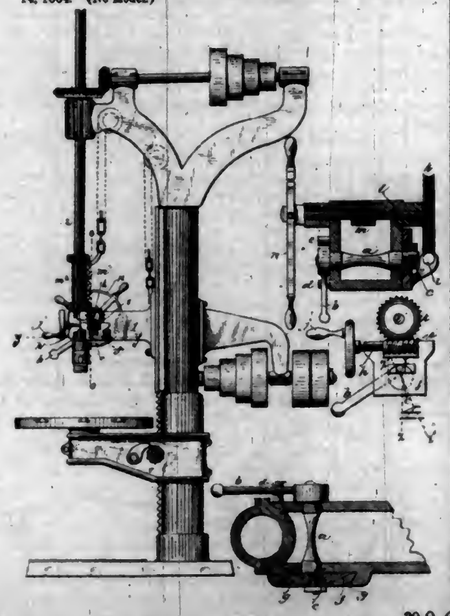
313,113. DOUBLE-ACTING LOCK. MORRIS SCHWERIN, Newark, N. J. Filed Oct. 6, 1884. (Model.)



Claim.—1. In a lock, a plate or casting having two bolts of unequal length formed as a part thereof, in combination with a spring-actuated locking device which engages with the plate or casting, whereby the key must be operated twice in order to bring both bolts into use, substantially as shown.

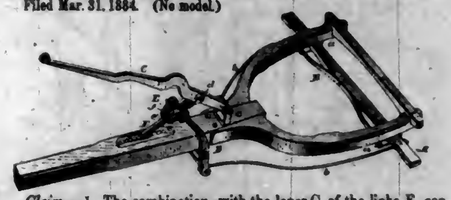
2. The combination, in a lock, of the plate or casting having two bolts formed as a part thereof, and which bolts are of unequal length, with the locking-plate J, provided with a projection to catch in notches in the plate or casting, and the spring, substantially as set forth.

313,114. VERTICAL DRILL. EDWIN SHEDLEY, Dubuque, Iowa, assignor to the National Iron and Brass Works, same place. Filed Mar. 14, 1884. (No model.)



Claim.—As a means for effecting a variable feed and permitting a quick return-feed in vertical drills, the sliding head *f*, constructed as described, and arranged to be moved in fixed vertical guideways *g*, and provided with two shaft-bearings and a horizontal slot, and having the worm-shaft supported in said bearings, and having a handled shaft, *a*, provided with an eccentric-pin working in such slot, these parts being constructed, arranged, and operating as and for the purpose set forth.

313,115. WAGON-BRAKE. WARREN S. SMITH, Hainesburg, N. J. Filed Mar. 31, 1884. (No model.)



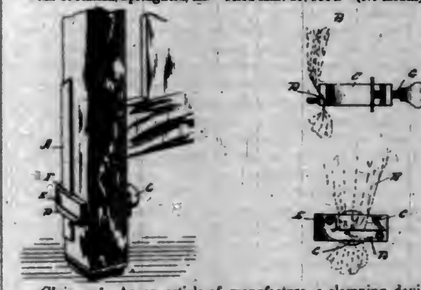
Claim.—1. The combination, with the lever C, of the links E, constructed substantially as described, and the pawl F.

2. The combination, with the operating-lever C, of the links E, having the pin *f*, and circular openings near their lower ends, and the pawl F, mounted on the pin *e*, having its bearing in said openings, substantially as described.

3. The combination, with the cross-bar A, mounted in hangers, and the spring B, of the connections B and *d*, operating-lever, and pawl, the whole operating substantially as described.

4. The combination, with the brake-bar, of the spring B, connecting-rods *b*, levers D, links E, and operating-lever C, the said links being provided with the connecting-pin *f*, and having circular openings for the reception of the pin carrying the notched pawl F, substantially as described.

313,116. ADJUSTABLE FASTENER FOR MOSQUITO-BARS. JESSE SPURRIER, Springfield, Ill. Filed Mar. 29, 1884. (No model.)



Claim.—1. As an article of manufacture, a clamping device consisting of a frame having three sides, one of the opposite sides being provided with an adjustable screw, and the other with a movable bar or jaw, D, said jaw being pivotally attached thereto and closing upon said frame, as shown in drawings, so that the strain on the material keeps it closed, substantially as set forth.

2. As an article of manufacture, a clamping device consisting of a frame having three sides, one of the opposite being provided with an adjustable screw, and the other with a groove opening on the inner side of said frame, and a movable bar or jaw, D, said bar or jaw being pivotally attached thereto and closing upon said frame, as shown in drawings, so that the strain on the material keeps it closed.

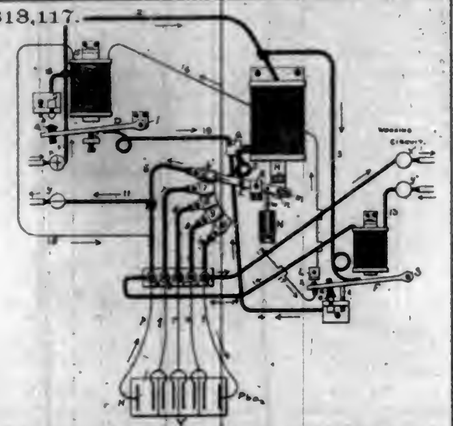
313,117. APPARATUS FOR CHARGING AND DISCHARGING SECONDARY BATTERIES. WM. STANLEY, Jr., Englewood, N. J. Filed Jan. 26, 1884. (No model.)

Claim.—1. The combination, with a generator of electricity, a main or charging circuit connected therewith, a secondary battery, a working-circuit, and a magnet located in the working-circuit, of a magnet and switch mechanism controlled by the magnet in the working-circuit and adapted to switch the battery and working-circuit into and out of the charging-circuit, substantially as set forth.

2. The combination, with a generator of electricity, a main or charging circuit connected therewith, a secondary battery, and a working-circuit containing translating devices, of a magnet located in the working-circuit, and a magnet and switch mechanism controlled by the magnet in the working-circuit and adapted to connect the battery and working-circuit with the charging circuit when one or more of the translating devices are put in operation, substantially as set forth.

3. The combination, with a generator of electricity, a main or charging circuit connected therewith, a secondary battery, and a working-circuit containing translating devices, of a magnet located in the working-

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circuit, and a magnet and switch mechanism controlled by the magnet in the working-circuit, and adapted to switch the current in the charging-circuit around the battery and working-circuit when the translating devices are thrown out of operation, substantially as set forth.

4. The combination, with a suitable generator of electricity, a main or charging circuit, two or more secondary batteries or groups of batteries, and a working-circuit connected with each of such batteries or groups of batteries, of a magnet in each of the working-circuits, and a magnet and switch mechanism controlled by the magnets in the working-circuits, and adapted to independently and automatically connect each battery or group of batteries and its working-circuit with the charging-circuit when the path through the working-circuit is electrically complete with the battery, substantially as set forth.

5. The combination, with a suitable generator of electricity, a main or charging circuit, two or more secondary batteries or groups of batteries, and a working-circuit connected with each of such batteries or groups of batteries, of a magnet located in each of the working-circuits, and a magnet and switch mechanism controlled by the magnets in the working-circuits, and adapted to automatically and independently disconnect each battery and its working-circuit from the charging-circuit whenever the circuit from the battery through the working-circuit is broken, substantially as set forth.

6. The combination, with a suitable generator of electricity, a main or charging circuit, two or more secondary batteries, and a working-circuit connected with each of such batteries, of a magnet located in each of the working-circuits, and a magnet and switch mechanism controlled thereby, and adapted to automatically and independently switch each of the batteries and its working-circuit into the charging-circuit when current is established in the working-circuit, and out of the charging-circuit when the working-circuit is opened, substantially as set forth.

7. The combination, with a generator of electricity, a main or charging circuit, a secondary battery, and a working-circuit adapted to receive its current from the battery when the latter is charged up to a predetermined point, of a magnet located in the working-circuit, and a magnet and switch mechanism controlled thereby, and adapted to connect the battery and working-circuit with the main circuit when the charge of the battery falls below a predetermined point and the path from the battery through the working-circuit is electrically complete, and then only, substantially as set forth.

8. The combination, with a suitable generator of electricity, a main or charging circuit, a secondary battery, and a working-circuit, of an electro-magnet, A, of high resistance, located in a shunt around the terminals of the battery, a solenoid, B, and an electro-magnet, C, located in the working-circuit, the whole so constructed and arranged that when the circuit from the battery through the working-circuit is electrically complete the magnet C and solenoid B shall operate to connect the battery and working-circuit with the charging-circuit, and when the charge of the battery reaches a predetermined point the magnet A shall operate to disconnect the battery and working-circuit from the charging-circuit, substantially as set forth.

9. In an apparatus for charging and discharging secondary batteries, the combination, with a solenoid, B, adapted to form part of a circuit connecting the battery with the charging-circuit, of a series of contact-plates and wires leading therefrom to the cells of the battery, and a movable lever, E, adapted to make contact with the contact-plates, the whole so constructed and arranged as to cut the battery into and out of the charging-circuit cell by cell, or a part at a time, substantially as set forth.

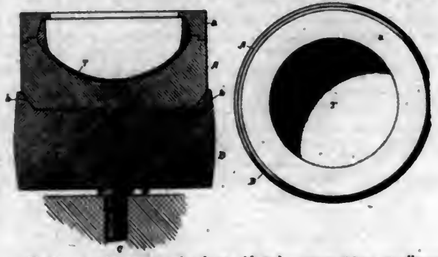
10. In an apparatus for charging and discharging secondary batteries, the combination, with a battery having a series of wires leading from the cells thereof to corresponding contact-plates, of a movable lever forming part of the circuit connecting the battery with the main or charging circuit, and an electro-magnetic device adapted to bring the lever in contact with the contact-plates successively, the whole so constructed and arranged as to cut the battery into and out of the charging-circuit cell by cell, or a part at a time, substantially as set forth.

11. In an apparatus for charging and discharging secondary batteries, the combination, with a battery having a series of wires leading from different cells thereof to corresponding contact-plates, of an electro-magnetic device and a movable lever operated thereby and adapted to connect the battery with and disconnect it from the charging-circuit cell by cell, or a part at a time, substantially as set forth.

313,118. RED COLORING-MATTER. JAMES H. STEBBINS, Jr., New York, N. Y. Filed Oct. 8, 1884. (No specimens.)

Claim.—The red coloring-matter having the formula and characteristics set forth, and which is denominated "benzole-azo-sulphonate of soda-azo-diethylaniline."

313,119. APPARATUS FOR THE MANUFACTURE OF FLYING TARGETS. CHARLES F. STOCK, Peoria, Ill. Filed July 5, 1884. (No model.)



Claim.—1. A concave circular mold and a removable centrally-apertured cover therefor, in combination with means for rotating said mold upon a vertical axis, whereby liquid solutions or fusions poured into said mold are made to conform thereto by centrifugal force until sufficiently hardened to retain the impressed shape, substantially as set forth.

2. The mold A and its removable centrally-apertured cover D, in combination with a pulley adapted to hold removably said mold, and a vertical axis for said pulley, substantially as and for the purpose specified.

3. The mold A, having conical lower edges, in combination with the pulley B, having conical flanged edges *b*, adapted to fit the conical edge of said mold, and a vertical axis for said pulley, substantially as and for the purpose specified.

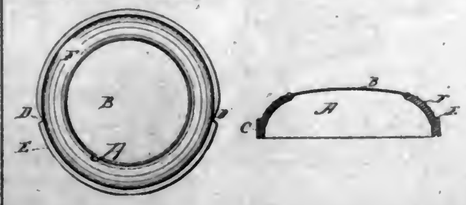
4. The mold A, having conical lower edge, and the removable centrally-apertured cover D for said mold, in combination with the pulley B, suitably recessed in its upper face to receive the conical edge of said mold, and an axis and means for revolving said pulley, as set forth.

5. A horizontal table, a central vertical axis or shaft for said table, and molds arranged upon said table equidistant from said axis or shaft, and adapted to revolve upon individual vertical axes, in combination with mechanism arranged to keep all but one or more of said molds in rotation, and, as said table is turned, to release the revolving molds one at a time and set in motion those previously quiet, for the purpose described.

6. A horizontal table, a central vertical axis or shaft for said table, and molds arranged upon said table equidistant from said axis or shaft, and adapted to revolve upon individual vertical axes, in combination with a pulley situated without said table, and an endless cord or belt passing about said pulley and all but one or more of said molds, substantially as and for the purpose specified.

7. The table M, a central axis or shaft for said table, pulleys B, arranged upon said table equidistant from its said axis or shaft, and the molds A, adapted to be held removably by said pulleys, in combination with a pulley having bearings without said table, and an endless cord or belt passing about said pulley and all but one or more of said pulleys B, as and for the purpose described.

313,120. FLYING TARGET. CHARLES F. STOCK, Peoria, Ill. Filed Oct. 13, 1884. (No model.)



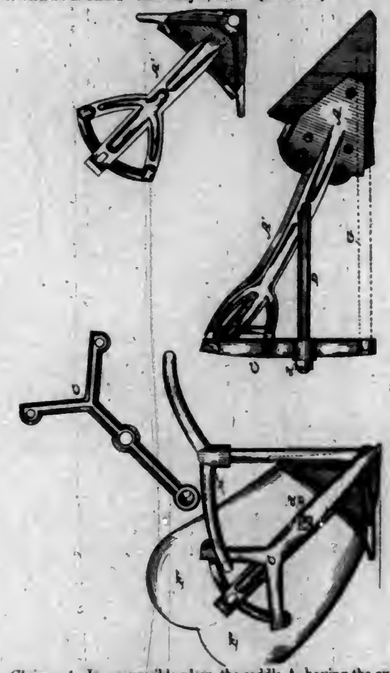
Claim.—1. The circular convex target made of fragile material, having its thickest portion in cross-section at its periphery, and provided with two or more lugs or notches on said periphery, as and for the purpose specified.

2. The fragile flying target A, when provided with thin central portion, B, convex portion F, ridges G, lugs or notches D on the periphery of the target, and ledge or shoulder E, substantially as shown, and for the purpose specified.

313,121. HAIR-DYE. DAVID STOLTZ, San Francisco, Cal. Filed Nov. 30, 1883. (No specimens.)

Claim.—A hair-dyeing cosmetic consisting of nitrate of silver, ammoniated extract of walnut, and beeswax, in combination with some fatty substance, as set forth.

313,122. HILLSIDE-PLOW. WILLIAM STRAIT, Elmira, N. Y., assignor to Celestia L. Strait. Filed May 7, 1884. (No model.)



Claim.—1. In a reversible plow, the saddle A, having the extension A', to receive the attachment of the rear end of the mold-board, substantially as set forth.

2. In a reversible plow, a saddle, A, adapted to receive the mold-board, and capable of being reversed and locked independently thereof, substantially as and for the purposes set forth.

313,123. ART OF PREPARING COLORED YARN FOR FILLING. HERMAN F. STRAW, Manchester, N. H. Filed July 11, 1883. (No model.)

Claim.—The improvement in the art or method of preparing colored yarn for filling, which consists in forming the filling into chains, then dyeing and drying the chains and winding the dyed yarn upon a beam, and subsequently rewinding it upon filling-bobbins for use in loom-shuttles, substantially as described.

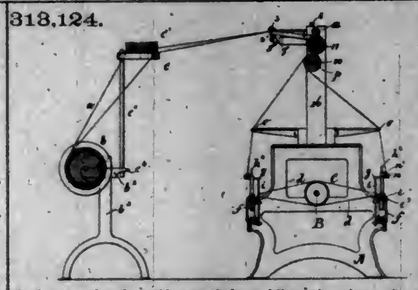
313,124. MECHANISM FOR WINDING YARNS UPON SHUTTLE BOBBINS OR QUILLS. HERMAN F. STRAW, Manchester, N. H. Filed Aug. 8, 1883. (No model.)

Brief.—The several threads are drawn from the beam by suitable feed-rollers extended lengthwise of the machine under the guidance of a curved raddle and a reciprocating bar. The said threads then pass over a suitable rest and through the eyes of a traverse-rail, and are then wound upon bobbins driven by friction.

Claim.—1. The combination, substantially as shown and described, of the yarn-beam, the curved raddle arranged above the beam, its adjusting devices, the reciprocating eye-bar 3, feed-rollers to draw the thread from the beam under the guidance of the raddle and the reciprocating bar, and the spindles and means to drive them.

2. The combination, substantially as shown and described, of the yarn-beam, the curved raddle arranged above the beam, its adjusting devices, the reciprocating eye-bar 3, feed-rollers to draw the thread from

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the beam under the guidance of the raddle and reciprocating bar, the guides *o*, traverse-rail *g*, and the spindles and means to drive them.

3. The combination, substantially as shown and described, of the yarn-beam, the curved raddle arranged above the beam, its adjusting devices, the reciprocating eye-bar 3, feed-rollers to draw the thread from the beam under the guidance of the raddle and reciprocating bar, the guides *o*, the traverse-rail *g*, the spindles, means, as set forth, to drive them, and friction-washers interposed between the spindles and their driving means to hold the spindles frictionally, as set forth.

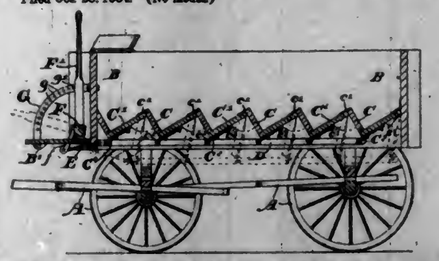
4. The combination, substantially as shown and described, of the yarn-beam, the curved raddle arranged above the beam, its adjusting devices, the bar 3, its eyes 2, rod 4, crank 5, shaft 6, and means to rotate said shaft to reciprocate said bar, feed-rollers to draw the thread from the beam under the guidance of the raddle and the reciprocating bar, and the spindles and means to drive them.

5. The bobbin-carrying spindles and means to rotate them, and the traverse-rail and means to actuate it, and the feed-rolls located above the tops of the spindles and arranged lengthwise of the machine, and with relation to the rows of spindles and bobbins, and means to rotate the feed-rolls, combined with a raddle and a warp-beam, the longitudinal axis of latter being extended in the direction of the length of the machine and feed-rolls, substantially as described.

6. The bobbin-carrying spindles arranged in rows at each side the center of the machine, and traverse-rail, combined with feed-rolls having their longitudinal axes arranged in the direction of the length of the rows of spindles, and at a point above or higher than the tops of the spindles, and between the rows of spindles at opposite sides of the machine, and with means to rotate the spindles and feed-rolls and reciprocate the traverse-rail, the arrangement of the feed-rollers with relation to the spindles being such as to enable the threads to be led from the feed-rolls in opposite directions down to the traverse-rail and spindles, substantially as described.

7. The combination, with the feed-rolls of a machine to wind yarn upon filling-bobbins, of spindles provided with flanges, bolster-cases, loose whirls, intermediate friction-washers, means to rotate the said whirls, the traverse-rail, means to actuate it, the feed-rolls being located above the tops of the spindles and arranged lengthwise of the machine, as described, with relation to the row of spindles, and means to rotate the feed-rolls, and a raddle and yarn-beam, the longitudinal axis of the latter extending in the direction of the axes of the feed-rolls, all substantially as and for the purpose set forth.

313,125. DUMPING-WAGON. WILLIAM P. SUMNER, Mooresville, Ind. Filed Oct. 28, 1884. (No model.)



Claim.—1. A wagon-box the bottom of which is formed in ridges, and composed in part of hinged sections connected together by being pivoted to connecting or operating bars, and means for operating the same, substantially as set forth.

2. The combination, in a wagon-box, of the walls, a bottom formed in ridges, and composed in part of hinged sections, operating-bars connected to each of said sections by a pivot-connection, a rock-shaft for operating said bars, connected thereto by connecting-rods, and means for operating said rock-shaft, substantially as set forth.

3. In a wagon-box for dumping gravel, sand, &c., the combination of the walls thereof, the bottom formed in sections arranged in ridges,

one section of each ridge being hinged, and operating-bars connected to each of said hinged sections by a pivot-connection, whereby they may be operated simultaneously, substantially as set forth.

4. The combination, in a wagon-box, of the bottom composed of the fixed sections C and hinged sections C', said hinged sections being provided with ears or half-hinges C^2, the operating-rods D, secured in said ears C^2 by pivot-connections, thereby connecting said several hinged sections, the rock-shaft F, provided with arms *f*, connecting-rods E, connecting said operating-rods D to the arms on said rock-shaft F, the lever F' for operating said rock-shaft, and the segment G, provided with holes *g*, and a pin, *g'*, whereby said lever is secured in position, substantially as set forth.

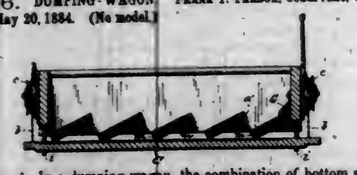
5. A bottom for wagon-boxes, composed of alternate fixed and hinged sections arranged in ridges, one section of each ridge being hinged, and said several hinged sections being pivotally connected to an operating bar or bars, whereby they are operated simultaneously, substantially as set forth.

6. A bottom for wagon-boxes, composed of sections arranged in ridges, one section of each ridge being hinged and the other fixed, and said fixed section being at a steeper incline than the other, whereby when the hinged section is open the load will dump with equal rapidity from each side, and means for operating the same, substantially as set forth.

7. The combination, in a bottom for wagon-boxes, of the fixed sections C, the hinged sections C', one of which is provided with a bumper, c^2, on its under side, and an operating-bar connecting said hinged sections, with means for operating the same, substantially as set forth.

8. A wagon-box the bottom of which is composed of alternate hinged and fixed sections, the hinged sections of which are connected together by pivot-connection, and means for operating the same, substantially as set forth.

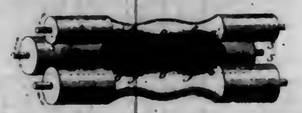
313,126. DUMPING-WAGON. FRANK T. TARBOX, Cedarville, Ohio. Filed May 20, 1884. (No model.)



Claim.—1. In a dumping-wagon, the combination of bottom slats, B, respectively provided with end journals, *a*, located in the longitudinal line of one of their edges, as described, said journals faced on their bearings with metal, the metal-lined sockets *a'*, the cross-bar C, faced with metal on its upper side, the metal plates *m*, located on such portions of said bottom slats as impinge on said cross-bar, and mechanism to lock and unlock said bar, substantially as set forth.

2. In a dumping-wagon, the combination, with the series of bottom slats, B, adapted to tilt automatically on their journaled ends, and provided with locking and unlocking mechanism, as described, of the dirt-guard G, located longitudinally on one of the sides of the wagon-box and over the hinge-edge of one of said series of slats, substantially as set forth.

313,127. MACHINERY FOR SCALDING AND FELTING HAT-BODIES. JAMES S. TAYLOR, Danbury, Conn. Filed Feb. 25, 1884. (No model.)

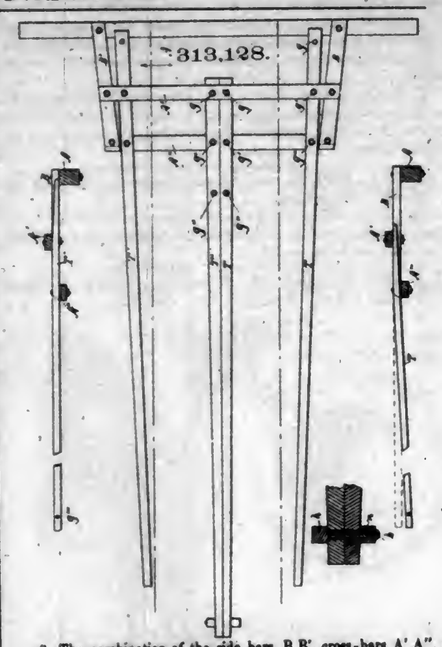


Claim.—In a hat scalding and felting machine, the combination of a series of rollers arranged to form a pocket or chamber, two or more of said rollers being provided with a central enlargement connecting at either end with a depression or depressed portion, each of said depressed portions in turn connecting by a gradual ascent with the end or cylindrical portions, substantially as set forth.

313,128. POLE AND SHAFT FOR VEHICLES. HARVEY N. TIBBS, Stephenson County, Ill. Filed Oct. 20, 1884. (No model.)

Claim.—1. The combination of two cross-bars connected with the axle of a rake or other agricultural implement, in front thereof and preferably parallel thereto, two thills adapted to be fastened to said cross-bars at suitable distances on either side of the center thereof and to extend back from the rear cross-bar when so attached, and also adapted to be brought together at the center of said cross-bars and moved forward to form a pole, and to be bolted to said cross-bars in either of the positions described, substantially as and for the purpose set forth.

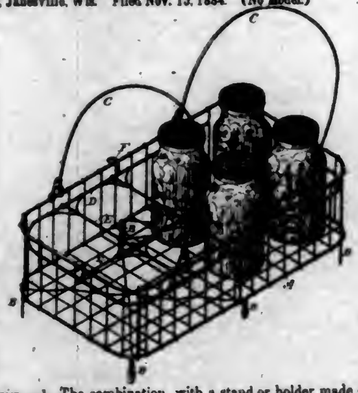
2. The combination of the side bars, B B', cross-bars A' A'', and the thills T T', provided with bolt-holes *g g' g''*, substantially as shown and described, and for the purpose set forth.



3. The combination of the side bars, B B', cross-bars A' A'', and the thills T T', having their rear ends reduced in thickness, substantially as shown and described, whereby when moved forward to form a pole their front ends are depressed, substantially as and for the purpose set forth.

4. The combination, with the cross-bars A' A'', of the pole formed of the thills T T', each of said thills being bolted to both of said cross-bars, and the front ends of said thills being rigidly connected, whereby the pole is rigidly braced to the cross-bars, substantially as shown and described, and for the purpose set forth.

313,129. DEVICE FOR PRESERVING FRUITS, &c. MARY A. TIPPET, Janesville, Wis. Filed Nov. 15, 1884. (No model.)



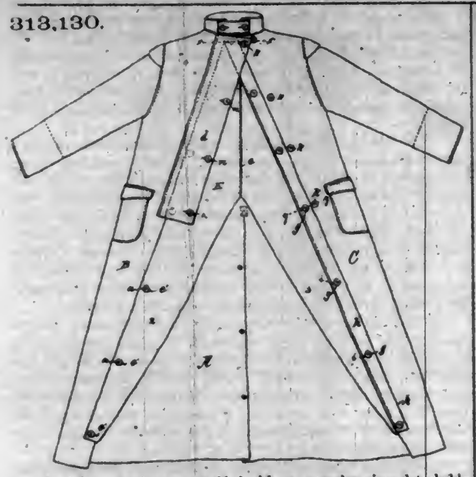
Claim.—1. The combination, with a stand or holder made of wire, of a removable partition secured to the top thereof, adapted to separate a set of jars, substantially as set forth.

2. The combination, with a stand or holder made of wire, of a removable frame secured to the top thereof, and divided by partitions to receive and separate jars placed in the holder, substantially as set forth.

313,130. HORSEMAN'S COAT. ABNER J. TOWER, Boston, Mass. Filed July 28, 1884. (No model.)

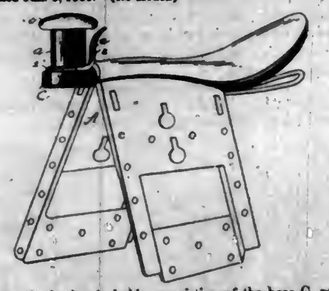
Claim.—1. A horseman's coat provided with the usual buttons and button-holes along the edges of the front portions, combined with an extension-piece adapted to be detachably secured to said front portions, the said extension-piece increasing in width from its apex, where it is attached to the coat at its collar, to a point about in line with the wrist-line of said coat, and then divided with the bifurcations tapering from the crotch downward, and provided with the buttons and button-holes on opposite edges, substantially as set forth.

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2. A horseman's coat provided with an extension-piece detachably secured to the edges of the front portions of said coat, the said extension of an increasing width from the collar to the waist-line of the coat, and bifurcated at the waist-line, with the bifurcations or ends tapering from the crotch, substantially as described.

313,131. CHECK-REIN HOLDER. JOSHUA W. TRUESELL, Rockland, Me. Filed Jan. 8, 1885. (No model.)



Claim.—A check-rein holder consisting of the base C, projecting from the front apex of the saddle-tree of which it forms a part or is directly connected thereto, the said base having a screw-threaded opening, a post provided with the head *c* and neck *a*, and having its lower end adapted to the opening in the said base, and a guard-plate extending approximately parallel with the upright post and held between the post and the upper surface of the base, all substantially as described.

313,132. CAPSULE-CUTTING MACHINE. WILLIAM A. TUCKER, New York, N. Y. Filed Apr. 16, 1884. (No model.)

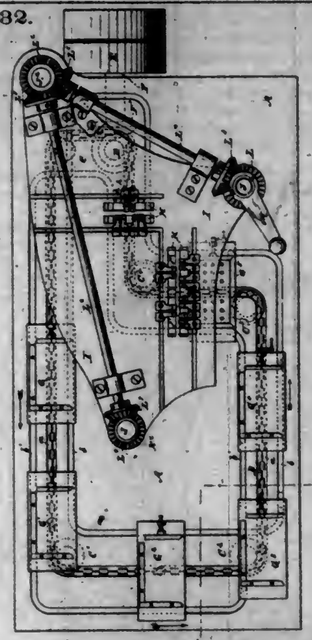
Claim.—1. In a capsule-cutting machine, the combination, with an endless chain, of one or more molds suitable for forming capsules, mounted upon and detachably secured to said chain, as and for the purpose specified.

2. In a capsule-cutting machine, an endless carrying-chain swiveled thereto, one or more plates in which are secured suitable pins or molds for forming capsules, and the described driving-wheels and supporting-pulleys for giving movement and direction to said chain, the said plates being severally provided with two steady-pins projecting from their under faces at diagonally-opposite corners into the groove *b* in the table A, whereby the said plates are caused to move around the said table in different directions, and yet with their sides constantly parallel with the sides of the table, as and for the purpose described.

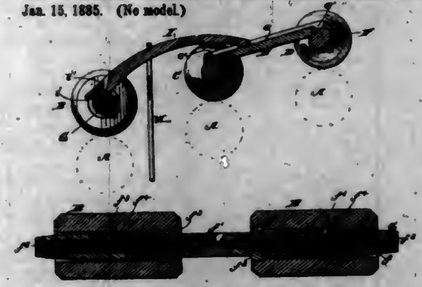
3. In a capsule-cutting machine, the combination, with the described capsule molds and cutters, of the described spring-scrapers A, located relatively to the said molds and cutters, as described, so that the molds, after passing between the cutters, pass between the springs, forming severally the scrapers whereby the scrap severed from the capsules by the cutters is removed sidewise from the molds by the said spring-scrapers.

4. In a capsule-cutting machine, the combination of the described capsule molds and cutters with the movable plate I, carrying said cutters, the described sleeves, shafts, and gears mounted on pillars J J' J², as shown and described, whereby the said cutters may be vertically adjusted to cut capsules of different lengths.

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313,133. DEVICE FOR OILING THE ARBORS OF SHELL-ROLLERS. CHARLES S. TUTTLE and FRANKLIN TWITCHELL, Nashua, N. H. Filed Jan. 15, 1885. (No model.)



Claim.—1. In a spinning-frame or other mechanism, an arbor for a shell-roller, having the diameter of its bearing portion increased from each end toward an intermediate point, where it may be greatest, and provided with an aperture at or near such point, and with longitudinally downwardly-inclined channels opening into said aperture, an axial chamber being formed communicating with said aperture, and with small perforations cut at a suitable distance upon each side of the latter, substantially as described.

2. In a spinning-frame or other mechanism, an arbor for a shell-roller having an axial chamber, a central aperture opening into it, collars upon each side of said aperture, bearing portions between said collars and the ends of the arbor, each having a tapered or diminished diameter from a point at or near the center toward each end, apertures formed in each bearing portion at or near such point of greatest diameter, longitudinal channels downwardly inclined toward and opening into said apertures, and small oil-openings upon each side of said apertures, substantially as described.

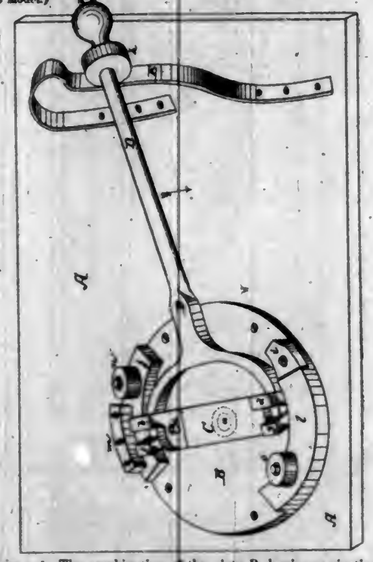
3. In a spinning-frame or other mechanism, the combination, with an arbor having a central packing-chamber filled with suitable fibrous packing, of shell-rollers mounted upon said arbor near its ends, which are tapered in two directions, and a saddle having a perforated nipple seated in a central aperture which enters the packing-chamber, said arbor being provided at or near its points of greatest diameter with a longitudinal channel downwardly inclined from each end toward its center, and opening into an aperture which enters the packing-chamber, oil-openings being formed at a suitable distance upon each side of such aperture, substantially as described.

4. In a spinning-frame or other mechanism, the combination, with the arbor G, having the collars f^2, the doubly-tapered bearing portions provided with channels *f* and apertures f^3, of a packing contained in a

central chamber, *f*, the shell-rolls B, the saddle I, having a perforated nipple, *i*, seated in an aperture, *f'*, in the arbor, and the saddle E, upon which its other end rests, oil-openings f^3 being formed in the arbor, substantially as described.

5. In a spinning-machine, an arbor carrying a shell roll or rolls, said arbor having an axial oil-chamber provided with a contraction at the central portion, and a feed-opening located in the center of the contracted part, substantially as specified.

313,134. MACHINE FOR BENDING BARS. ALWILL URBAHN, Paterson, N. J., assignor to Jacob May, Brooklyn, N. Y. Filed June 10, 1884. (No model.)



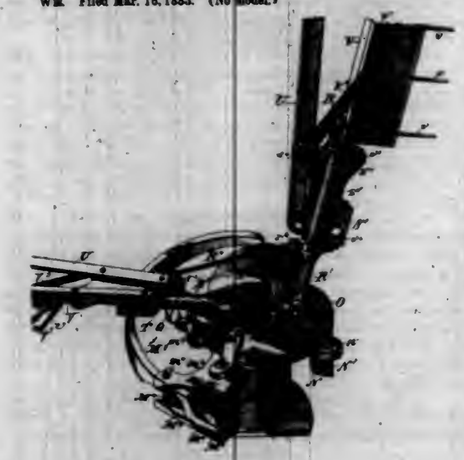
Claim.—1. The combination of the plate B, having projections *j l* and the roller *n*, with the swiveled bar C, having the lugs *b d*, and with the lever D, having the lugs *f* and *g*, said lever being carried by the horizontal pivot *e*, which joins it to the bar C, substantially as herein shown and described.

2. The combination of the plate B, having projections *j l* and rollers *n o*, with the swiveled cross-bar C, having lugs *b d*, forked lever D, having lugs *f g*, and with the horizontal pivot *e*, which joins the lever D to the bar C, substantially as herein shown and described.

3. The combination of the lever D, having lugs *f g*, with the pivot *e*, swiveled cross-bar C, bending-blocks *n o*, and abutting-piece *m*, substantially as herein shown and described.

4. The combination of the spring E with the lever D, swiveled cross-bar C, and one or more bending-blocks, *n o*, substantially as herein shown and described.

313,135. HARVESTER-RAKE. MARSE VAN MATTESON, Milwaukee, Wis. Filed Mar. 16, 1883. (No model.)



Claim.—1. In a harvesting-machine, the combination, with the platform and rake, of the rake-post M, plate M', having projection m^2, provided with the housing M^2, the yielding curved and bent rake-rail M^3, having slots m^3 m^3 in its inner end, the bolts m^4 m^4, securing said rail within said housing, and the coiled springs M^4 M^4 around said bolts, and located, respectively, above and below said rail, substantially as set forth.

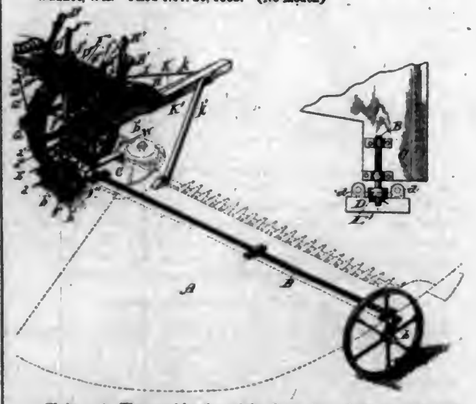
2. In a harvesting-machine, the combination, with the rake, of a plate on the rake-post, the trip-holder Q', bolted thereto, and having curved guides q^4 q^4, ears q^5 q^5, and lug q^{10}, integral therewith, the bell-crank Q^8, pivoted to said lug, and having pin q^{12}, the trip-wire q^{11}, connected to said pin, the shaft q^3, carried in said ears q^5 q^5, the trip Q, having backward-extending arms *q q*, provided with the slot q^6, to receive the ends of the shaft q^3, nipples q^9 q^9, adapted to slide between the guides q^4 q^4, and rear connecting-plate, q^7, having nipple q^9, under corresponding nipple, q^9, on the under side of the rake-post plate, and the spring Q^2, all combined and adapted to operate substantially as set forth.

3. In a self-raking harvesting-machine, the combination, with the rake-post, the plate M', trip Q, rake-wheel O, and attachments, of the shank R R', having groove r^4, the spring R^2, rake-arm V, sleeve S, provided with the housing S', dog T', having shank t', projections t^2 t^2, recess t^4, having vertical beveled or dovetailed groove t^5, the sliding dog-block T^2, provided with the mortise t^6, the pivoted thumb-piece T^3, provided with the pin t^7, and the spring t^8, all combined and adapted to operate substantially as set forth.

4. In a harvesting-machine, the combination of the platform and rake with the rake-post M, plate M', rake-rail M^3, rake-guide M^5, trip Q, pinion N', bevel rake-wheel O, provided with flange or collar *o'* and ears o^2, cam or cap P, the rake-arm shanks R R', pivoted to the ears o^2, and having lugs r^3, stops r^2, grooves r^4, and springs R^2, the links R^4, sleeves S, provided with projecting plates connected to the rakes, and housings S', carrying the trip-dogs, all combined and adapted to operate substantially as set forth.

5. In combination with a harvester rake-trip, the movable dog T', having shank t', projections t^2 t^2, recess t^4, with vertical beveled or dovetailed grooves t^5, sliding dog-block T^2, with mortise t^6, pivoted thumb-piece T^3, with pin t^7, and spring t^8, all combined and adapted to operate substantially as set forth.

313,136. ONE-WHEEL HARVESTER. MARSE VAN MATTESON, Milwaukee, Wis. Filed Nov. 26, 1883. (No model.)

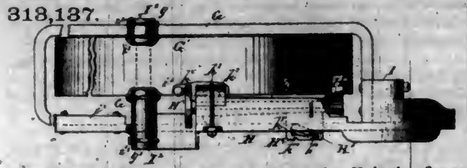


Claim.—1. The combination of the finger-bar, platform, rock-shaft, and grain-wheel of a harvesting-machine with the standard D, having the eyebolts *d' d'*, upright rods *d' d'*, double sleeves E E, sliding upon said rods, and connected by a web bearing a depending bracket, E', perforated to receive the ends of the rock-shaft, and chain d^4, seat-board D', and angle-plate D^4, rod D^2, bearing grooved windlass-sector d^3, notched plate d^3, and lever D^3, lever B', notched plate b^2, link *k'*, and crank *b'*, whereby both ends of the platform and finger-bar may be raised equally and simultaneously, substantially as set forth.

2. The combination of the standard D, seat-board D', and angle-plate D^4, with curved slot d^5, and rock-shaft B and its bearings, with the platform A and finger-bar C, connected by pivoted brace to the tongue-bracket F, having depending ends pivoted to the sides of the inner end of the finger-bar, and vertical sleeve F', extending from the top of said bracket and rigid therewith, vertical rod *f'*, with key f^4, link *f*, tilting-crank F^3, with arm f^2, notched plate f^2, and tilting-lever F^3, whereby finger-bar and platform may be rolled or tilted forward or back, substantially as set forth.

313,137. ONE-WHEEL HARVESTER. MARSE VAN MATTESON, Milwaukee, Wis. Filed Nov. 26, 1883. (No model.)

313,137.



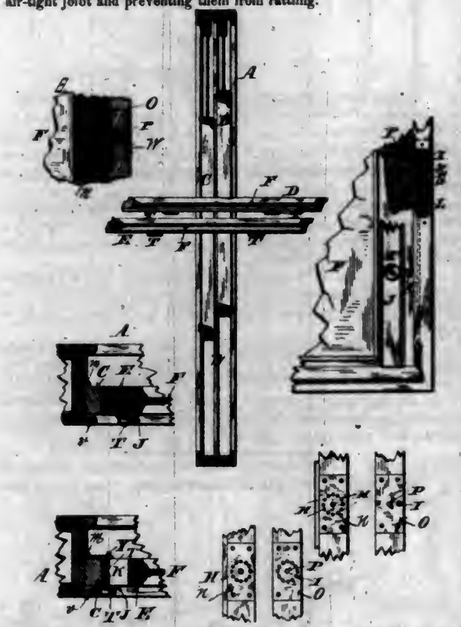
Claim.—1. The combination of the frame-plate H, having flanges A A, with guides *h' h'* at one end, and box or housing H^2, secured by stirrup H^3, at the other end, the tapering sleeve H', whose forward end is adapted to move between the guides *h' h'*, while its rear end is furnished with the lugs h^4 h^4, fitting within corresponding depressions in the frame-plate, and the crank-shaft H^2, having the pinion H^3, and means for moving said sleeve and pinion laterally, substantially as set forth.

2. The frame-plate H, having flanges A A, guides *h' h'*, housing h^2 stirrup h^3, slot h^5, and lugs H^6 H^6, with straight slots h^7 h^7, in combination with the sleeve H', carrying the crank-shaft H^2 and pinion H^3, and having lugs h^4 h^4 at one end and lug H^5, with diagonal slot h^8, at the other end, and the shifting-lever H^7, passing through the slots h^7 h^8 h^7, and pivoted to the frame-plate near its lower edge, substantially as set forth.

3. In a harvesting-machine, the combination of the drive-wheel, a metal frame-plate provided with indentations or perforations and suitable supporting-guides, a crank-shaft, a sleeve for said crank-shaft, supported by said guides and having projections adapted to engage said perforations, and means for moving said sleeve toward and from the drive-wheel, substantially as set forth.

313,138. WINDOW. EMIL WAGNER, Cincinnati, Ohio, assignor to the Patent Revolving Window Sash Company, same place. Filed June 21, 1884. (No model.)

Brief.—A sash pivoted in an inclosing outer frame, and means for operating, holding, and locking it at any angle. Laterally-adjustable slats are employed to cover the line between the two frames, making an air-tight joiot and preventing them from rattling.



Claim.—1. The combination, substantially as herein set forth, of an outer sliding sash-frame, an inner sash pivoted in said frame, a series of holes or depressions arranged in the edge of the sash concentrically about the pivot, a spring-arm provided with a pin to enter said notches and secured in the outer frame, and a bar or lever seated in the outer frame and adapted to withdraw the locking-pin from its hole in the inner frame when moved.

2. In combination with outer frame, C, inner frame, E, pivoted to the outer frame, plate O, applied to frame E, and provided with perforations H, spring S, provided with pin I to enter said perforations, and slide L, arranged, substantially as shown, to press back said spring and withdraw the pin from the perforations, said locking-pin being wholly independent of the pivots of the sash.

3. In combination with a reversible window-sash, the plates N and O, provided with tubular bearings, in which the pivot P works, when arranged as shown and described, and for the purpose set forth.

4. An interior sliding slat, J, adapted to cover and uncover the joint between the sliding window-frame and its sash, and whose side edge is beveled so as to admit of its passage between said sliding frame and its retaining-slat, in combination with the screw T, and a nut incased within a slot in the sash, so as to fasten or unfasten said slat J, substantially as shown and described.

5. In combination with an outer sliding sash-frame, a sash pivoted therein, a spring locking-pin mounted in the sliding frame and adapted to enter a recess in the pivoted frame, and a slide or releasing device mounted in the sliding frame and adapted to control the locking-pin, substantially as set forth, whereby the releasing device is retained within easy reach during the adjustment of the pivoted frame.

6. In combination with a sliding sash-frame and with a sash pivoted therein, a laterally-adjustable slat or strip adapted to cover the line between the two frames and to be removed from over said line, as set forth.

7. In combination with an outer sliding frame and a sash pivoted therein, a laterally-movable slat applied to the face of one of said frames, and adapted to lap upon the other when adjusted for that purpose, a nut seated and laterally adjustable within the frame to which the slat is applied, and a bolt or screw passing through the slat and entering the nut, substantially as and for the purpose set forth.

313,139. COTTON-PICKER. MARY C. WALLING, Brenham, Tex. Filed Nov. 26, 1884. (No model.)



Claim.—1. A cotton-picker consisting of a main rod, auxiliary rods or arms extended from the forward portion of the same, and wire teeth connected to said rods, and arranged in the manner substantially as and for the purpose set forth.

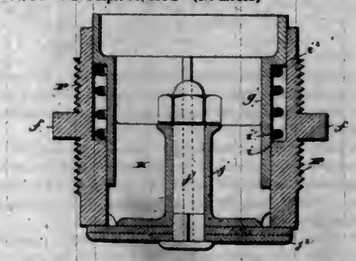
2. A cotton-picker consisting of a main rod, auxiliary rods or arms extended from the forward portion of the former in an oblique direction, and wire teeth connected to said rods and arranged in the manner and for the purpose specified.

3. A cotton-picker consisting of a main rod, auxiliary rods or arms extended from the former in an oblique direction, and two series of sharp-pointed wires passed through said rods at right angles to each other and the adjacent teeth in each series, then bent and twisted together to form forks, substantially as and for the purpose described.

4. A cotton-picker consisting of a main rod having the upper and under faces of its forward portion channeled or grooved, auxiliary rods or arms, also channeled or grooved upon their upper and under faces and extended in an oblique direction from the main rod, and sharp-pointed wires passed through perforations in the rods, then twisted together in pairs and bent in the manner and for the purpose specified.

5. The cotton-picker herein described, consisting of a main rod, its rear portion forming a handle and its forward portion a body piece of the picker, auxiliary rods or arms joined to and extending in an oblique direction from the forward portion of the main rod, said main and auxiliary rods being channeled upon their upper and under faces and provided with two series of perforations at right angles to each other, and sharp-pointed wires secured in the perforations and their extended portions twisted together in pairs, those passing vertically through the rods bent up at their lower extremities to form hooks, and those horizontally arranged bent beyond the twist to a position parallel with those upon a vertical plane, substantially as shown and described.

313,140. VALVE FOR BLOWING-ENGINES. PETER L. WEIMER, Lebanon, Pa. Filed Apr. 10, 1884. (No model.)



Claim.—The combination, with an external screw-threaded valve-casing provided with a continuous shoulder on its inner side, a hollow valve-stem constructed to rest snugly within said casing and having a continuous shoulder on its outer side, and provided centrally with a hub, the valve-casing and stem and their shoulders forming an inclosed chamber, and a spiral spring located within said inclosed chamber, of a valve-plate removably secured to the hub of the stem and bearing against one end of the casing and holding or locking said stem within the casing, substantially as set forth.

313,141. BRIDLE. MONROE WERKHEISER, Phillipsburg, N. J. Filed Jan. 15, 1885. (No model.)

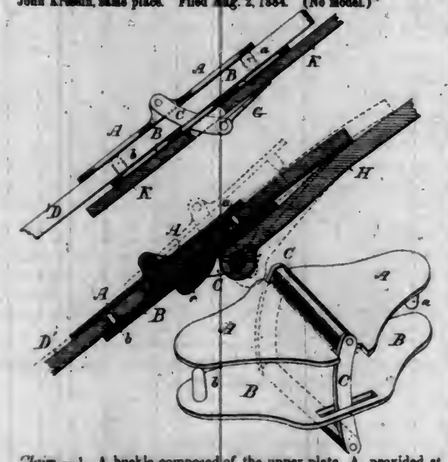


Claim.—1. In a cheek-piece for a bridle, the combination of a cheek-strap doubled at its upper end to form a slot or loop having registering perforations in its sides, a blinker having perforations in its inner flange registering with the perforations in the sides of the slot, the said flange fitting in the slot, and screws fitting in the perforations of the slot and blinker, and having means, as shown, for securing them, as and for the purpose shown and set forth.

2. In a cheek-piece for a bridle, the combination of a cheek-strap doubled at its upper end for the retention of a buckle, and formed with a slot or loop at that end having registering perforations in its sides, a blinker having its inner flange fitting in the slot and having perforations registering with the perforations in the sides of the slot, headed screws fitting in the perforations with their heads bearing against the inner side of the cheek-strap, loops having a perforation in one side fitting upon the threaded ends of the screws, and the billet of the crown-piece secured in the buckle at the upper end of the cheek-strap and passing through the loops upon the screws, as and for the purpose shown and set forth.

3. The combination, in a cheek-piece for bridles, of the cheek-strap doubled to form a loop or slot at its upper end, having registering perforations in its sides, a block or piece of strap having perforations registering with the perforations in the sides of the slot and fitting within the said slot, headed screws fitting in the perforations of the slot and block, loops having perforations in one side fitting upon the threaded ends of the screws, and the billet of the crown-piece passing through the loops, as and for the purpose shown and set forth.

313,142. BUCKLE. CLARK W. WHEELER, Kenosha, Wis., assignor to John Kressin, same place. Filed Aug. 2, 1884. (No model.)



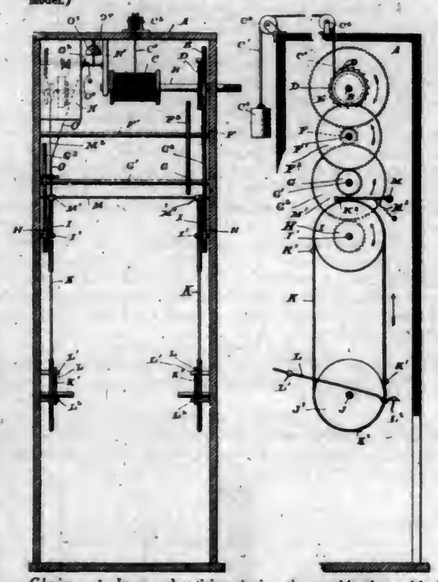
Claim.—1. A buckle composed of the upper plate, A, provided at one end with the pin or stud *a*, the lower plate, B, provided at its opposite end with the stud *b*, and the link or bail C, substantially as and for the purposes set forth.

2. A buckle composed of the upper plate, A, provided with a stud, *a*, the lower plate, B, provided at its opposite end with the stud *b*, and having near each side a slot through which an arm of link C passes, and link C, pivoted transversely to the middle of plate A, substantially as and for the purposes set forth.

3. A buckle composed of the two metallic plates A and B, provided at opposite ends upon their adjacent faces with the studs *a* and *b*, the bail or link C, and the boss *c* upon the lower face of plate B, substantially as and for the purposes set forth.

4. A buckle composed of the two metallic plates A and B, provided upon their adjacent faces with the studs *a* and *b*, and the bail or link C, pivoted transversely to the upper plate, A, substantially as and for the purposes set forth.

313,143. AUTOMATIC ADVERTISING DEVICE. CHAS. M. WHEELER and EDWARD B. HINDES, San Francisco, Cal. Filed Jan. 10, 1884. (No model.)



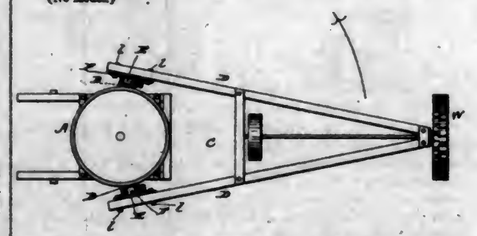
Claim.—1. In an advertising device, the combination, with the automatically-operated card-carrying belts K, having pins K', of intermittently-operated hooked arms M' M', and an alarm-sounding mechanism operated by the movement of the card-carrier, substantially as shown and described.

2. In an automatic advertising apparatus, the combination, with the card-carrying belts K, provided with outwardly-projecting lugs K^2, of the holding hooked arms M' M', operated by clock mechanism, substantially as shown and described.

3. In an advertising apparatus, the combination, with the automatically-operated card-carrying belts K K, having lugs K^2 and pins K', of the inclined card-sustaining guides or rods L L, substantially as shown and described.

4. An automatic advertising device comprising the card-carrying belts K K, having pins K' and lugs K^2, adapted to carry cards P P, having hooks or hangers P', the inclined card-sustaining guides or rods L L, the intermittently-operated hooked arms M' M', and an alarm-sounding mechanism actuated by the movement of the card-carriers, substantially as shown and described.

313,144. SWEEP-COUPLING FOR GRINDING-MILLS. EDWARD M. WILCOX and WILLIAM J. HOPKINS, Whitewater, Wis. Filed July 26, 1884. (No model.)

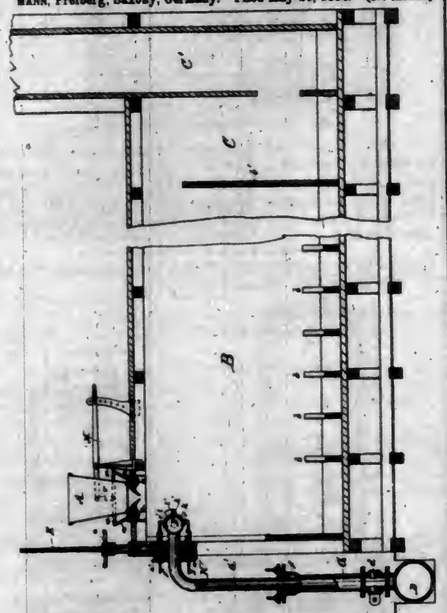


Claim.—1. The sweep-coupling plate E, having the outwardly-turned marginal flanges G, to engage the edges of the sweep-arm, and the socket-bearing H, cast on its inner face, to engage the coupling lug or pin of the mill, and having an interval or opening, *v*, in its lower front portion for the passage of said pin or lug, substantially as specified.

2. The combination, with a grinding-mill having coupling lugs or pins, of a sweep having on the inner ends of its arms inside coupling-plates, E, marginally flanged to engage said arms, and provided with inside sockets, H, formed with openings *m* in their forward under portions, and rear concave seats, *v*, substantially as specified.

3. An iron socket attachment on the inner end or arms of the sweep, adapted to engage the lugs or pins of a grinding-mill in order to provide for the ready connection and disconnection of the sweep and mill, substantially as specified.

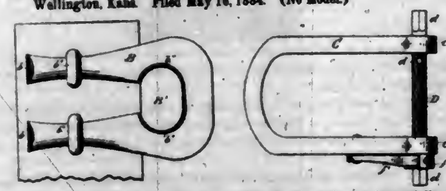
313,145. ORE-CONCENTRATOR. KARL F. WILLKOMM and CARL SCHUMANN, Freiberg, Saxony, Germany. Filed May 26, 1884. (No model.)



Claim.—1. The herein-described ore-concentrator, comprising the chamber B, the lower part of which is divided into suitable bins by partition-walls *b*, and the end chamber, C, the receiver or hopper A, the regulating-valves or gates *a a* at the under side of the receiver A, the air-pipes G G', sliding block H, regulating-screw E, and end nozzle, F, with segments *k* and *l*, and means of operating the regulating-valves *a a* and segments *k l*, the whole being arranged to operate in the manner and for the purpose substantially as described.

2. In an ore-concentrator, the herein-described discharge-nozzle F, consisting of the cylindrical chamber *h*, with longitudinal opening *p*, segments *k* and *l*, with straight flanges *k' l'*, and side flanges, *k''*, on one of said segments, and projections *r r'*, in combination with screw-rods *s s'*, and suitable hand-wheels, *x x'*, for operating the same, substantially as and for the purpose set forth.

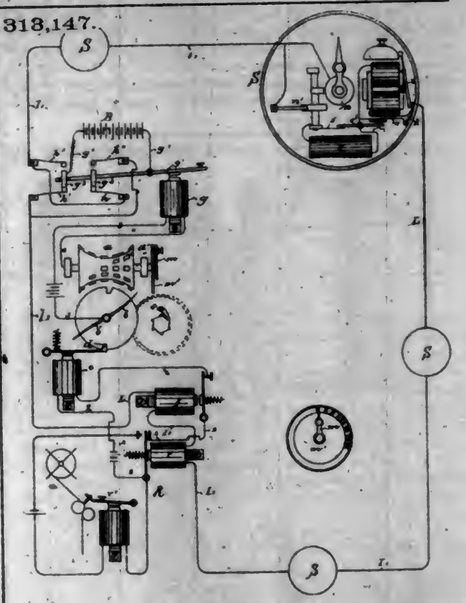
313,146. WIRE STRETCHER AND SUPPORT. CHARLES WILLIS, Wellington, Kans. Filed May 16, 1884. (No model.)



Claim.—1. The combination, with the stretcher, substantially as described, of the supports having arms *b b* and elongated opening B', with beveled edges, *b°*, adapted to be secured to the post by means, as *b²*, and to serve as and for the purposes set forth.

2. The combination of a wire-stretcher consisting of a clevis having a curved part to embrace the post, and two arms, as C, having journals *c'*, a windlass or shaft, D, ratchet *f*, and pawl *f'*, with supports having arms *b b*, and elongated opening B', with beveled edges *b°*, adapted to be secured to posts by suitable means, as *b²*, substantially as described.

313,147. MUNICIPAL TELEGRAPH. JOHN C. WILSON, Boston, Mass., assignor to the Municipal Signal Company, Portsmouth, N. H. Filed Jan. 28, 1884. (No model.)



Claim.—1. A main station containing signal-receiving apparatus and a multiple signal device, combined with a main line or circuit leading from said station, and signal-boxes or sub-stations thereon containing signal-transmitting and signal-receiving devices whereby different definite signals may be automatically transmitted from the main to the sub stations, and the reverse, substantially as and for the purpose described.

2. The main and sub stations and line or circuit connecting them, the said main station containing a multiple signal-transmitting device, combined with an actuating-motor for said transmitting device, and detent for said motor, and controlling devices for the said detent located at the sub-stations, whereby a person at a sub-station may cause a signal the character of which has been determined at the main station to be automatically transmitted to him at the sub-station, substantially as described.

3. A main station, line, and sub-stations, the said main station containing a multiple signal-transmitting device, actuating-motor therefor, and detent for the said motor, combined with signal-receiving apparatus at the sub-stations, resistance, and devices controlling the introduction of the said resistance into the main circuit and its removal therefrom, substantially as described.

4. An electric circuit connecting a main and sub stations, combined with relays at the main station, one adjusted to respond to changes in current strength, and the other to total interruptions in the current, and signal-transmitting apparatus at the main station for sending signals over the circuit to the sub-stations, the said transmitting apparatus being controlled by the said relays, as described, whereby the said transmitting apparatus is set in operation upon a change in current strength, but not upon a total interruption thereof, substantially as described.

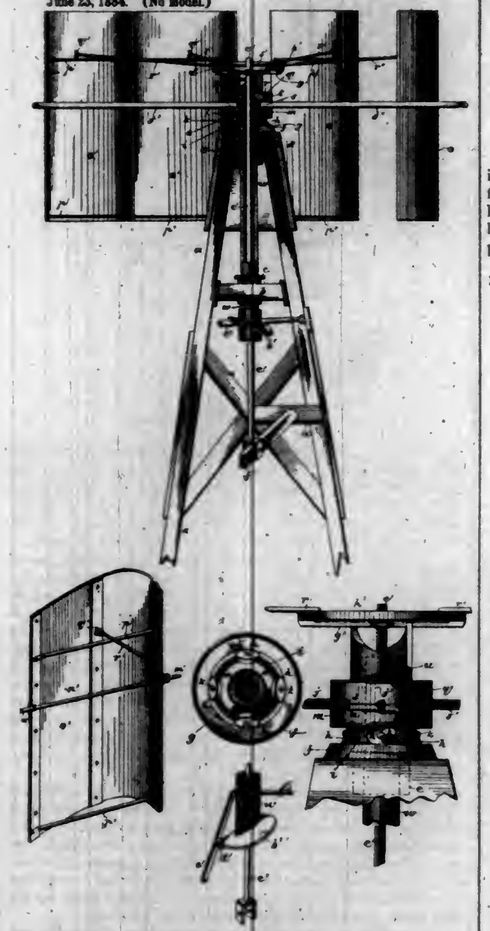
5. An electric circuit and main and sub stations therein, the said main station containing a multiple signal-transmitting apparatus adapted to transmit any desired one of a series of definite signals, combined with controlling devices for the said transmitting apparatus located at the sub-stations, whereby an operator at a sub-station may call into operation the transmitting device at the main station in order to receive at the sub-station a signal the nature of which is determined at the main station, substantially as described.

6. A system of electrical signaling between a main and sub station, comprehending a multiple signal-transmitting apparatus at the main station and a series of signal-boxes constituting the sub-stations in electrical circuit therewith, the signal-transmitting apparatus at the main station containing an index which may be set to indicate the signal it is desired to subsequently deliver or produce at the sub-station, the said signal being made effective at the sub-station by or through mechanism located at the box of the sub-station, substantially as described.

7. The main electric circuit, and two relay-magnets therein having their armatures adjusted to respond to currents of different strength, combined with two independent local circuits, one controlled wholly by the relay having the weaker retractor, and the other controlled by both relays, as described, and independent electro-magnets in the said local circuits, operated independently of one another by different changes in the current in the main circuit, substantially as and for the purpose set forth.

8. An electric circuit and main and sub-stations therein, the said main station containing a variable signal-transmitting apparatus controlled as to the character of the signal by an operator at the said main station, combined with a controlling device for the said transmitting apparatus, located at a sub-station governing the transmission of the signal which has been previously determined by the operator at the main station, substantially as described.

313,148. WINDMILL. GEORGE W. WINTERS, Knoxville, Iowa. Filed June 23, 1884. (No model.)



Claim.—1. In a windmill, the combination, with a hub provided with spokes, and vanes pivoted to the spokes, of a double cam-flange secured to the upper end of the hub, a cross-bar resting on the double cam, and devices connecting the cross-bar and upper portions of the vanes, substantially as set forth.

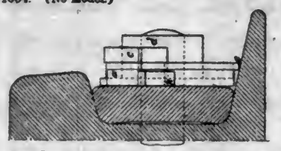
2. In a windmill, the combination, with a hub provided with spokes, and vanes secured to the spokes, of a double cam-flange secured to the upper end of the hub, a cross-bar engaging the double cam, a wheel secured to said cross-bar, and rods connecting the wheel and upper portions of the vanes, substantially as set forth.

3. In a windmill, the combination, with a hub provided with a double cam-flange, and further provided with spokes bent at their outer ends, and having recesses adapted to receive the pivotal rods of the vane, of involute or irregular vanes rigidly secured to said pivotal rods, and a cross-bar resting on the cam, a ring or wheel secured to said bar, and rods connecting the vanes and ring, substantially as set forth.

4. In a windmill, the combination, with a supporting-frame, a flanged head or sleeve resting on said frame, a shaft passing through said head or sleeve and provided with a hub, a truck located between said flanged head or sleeve and hub, spokes radiating from the hub, vanes pivoted to the spokes, and a double cam secured to the hub, of a cross-bar resting on said cam, and devices connecting said cross-bar and vanes, substantially as set forth.

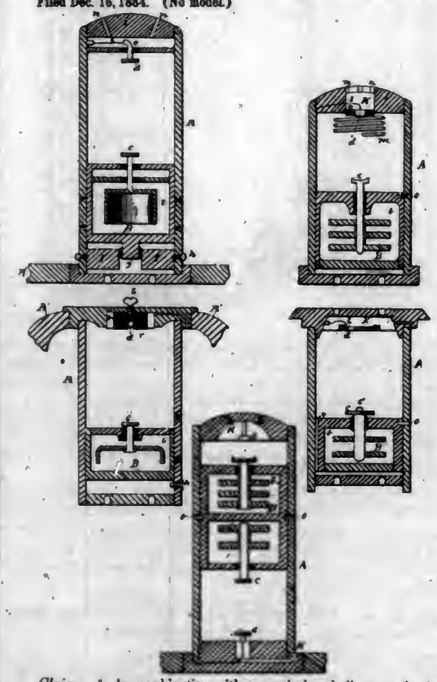
5. In a windmill, the combination, with a hollow shaft journaled in suitable bearings in the head of a supporting-frame, of a wind-wheel the hub of which is secured to the upper portion of said shaft, said wheel having on its upper face a double cam, and an operating-rod passing through said hollow shaft, the lower end of said rod being pivotally secured to a lever, and the upper end thereof being rigidly secured to a cross-bar in contact with said double cam, substantially as set forth.

313,149. NUT-LOCK. ARTEUR T. WOODS, Champaign, Ill. Filed June 14, 1884. (No model.)



Claim.—In a nut-lock, the combination of the locking-plate *c*, having the neck J, and bent at right angles to the neck in a direction away from its forward end, with the washer *a*, bent as shown, and having a hole near one of its ends for the accommodation of the bolt *b*, and the hole *h*, for the reception of the locking-plate, substantially as and for the purpose set forth.

313,150. ELECTRIC SHELL-FUSE. EDMUND L. ZALINSKI, U. S. Army. Filed Dec. 16, 1884. (No model.)



Claim.—1. In combination with an explosive shell, a contained electric battery therein, and electrical connections from the same in contact with the fuse-charge.

2. In combination with the casing of a shell-tube, a contained electric battery therein, an electric circuit in contact with the fuse-charge, and a movable contact-piece which closes circuit when the projectile strikes the target, as set forth.

3. In a shell-fuse, the combination of percussion-striker and an electric battery, both contained in the shell, and arranged to explode the fuse-charge when the projectile strikes its target.

4. In a shell-fuse, a time-charge, and an electric battery contained in the shell, and arranged to close circuit and ignite the time-charge on the firing of the gun.

5. In a shell-fuse, the combination of a time-charge, a percussion-charge, and an electric battery contained in the shell, and arranged to close circuit through and ignite the exploding charges.

6. In an electrical shell-fuse wherein an electric battery is contained within the shell, the combination, with the movable pole of the battery, of adjustable mechanism, substantially as described, whereby the movement may be made greater or less, and the time of explosion after contact thus regulated.

7. In a shell-fuse, a contained battery therein, and an electric circuit some portion of which is in contact with the fuse-charge, and a safety device which holds the poles of the battery apart against slight shocks, as described.

313,151. TORPEDO FOR RAILWAY-SIGNALS. SAMUEL F. ALLEN, Chicago, Ill., assignor of two-thirds to Thomas R. Freeman and James S. Toppan, both of same place. Filed Nov. 26, 1883. (No model.)



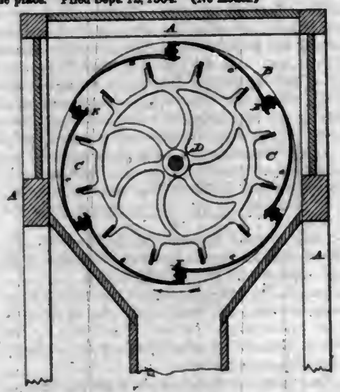
Claim.—1. A torpedo having a permanent magnet for securing it in position, substantially as described.

2. As a new article of manufacture, a railway torpedo-signal provided with spring clamping or attaching arms that are magnetized, substantially as set forth.

3. The combination, with a railway torpedo-signal, of the magnetized spring clamping-arms having a roughened contacting surface, whereby said torpedo is adapted to be securely attached to a railway-track from a moving train, substantially as set forth.

4. The combination, with a railway torpedo-signal, of the magnetized attaching-arms C C', having the inner or frictional contacting surfaces roughened, and the track-rail B, thereby attaching the torpedo to said rail in such a manner as to prevent the same from being accidentally misplaced, substantially as set forth.

313,152. FLOUR-BOLT. JAMES B. ALLPRESS, Cumberland, Md., assignor of one-half to Robert Shriver and Harrison Swartzwelder, both of same place. Filed Sept. 12, 1884. (No model.)



Claim.—1. In a flour-bolt, the combination of the horizontal ribs and the cloth sections stretched from the upper edge of one rib to the lower edge of the adjacent rib, the said ribs being provided with grooves on their inclosed faces, for the purpose set forth.

2. A flour-bolt comprising the ribs having the external grooves and the cloth stretched upon said ribs from the top of one to the bottom of the adjacent rib, in combination with an adjustable clamp for retaining the edges of the cloth sections in the said groove, substantially as described.

3. In a flour-bolt, the combination of the cloth sections, the rib E, and means for fastening the cloth, the rib E having the internal channels for elevating the material to be bolted, and the outer channels in which the cloth sections are confined.

4. The combination of the ribs having the outer channel, and the cloth sections having corded edges, the said ribs being provided with screw-threaded holes, and the confining-strips extending parallel with the rib contained in the said outer groove and holding the edge of the cloth sections.

5. A centrifugal reel comprising the ribs, the cloth sections attached thereto and extending from the upper edge of one rib to the lower edge of the adjacent rib, and the stretchers whereby the meshes of the cloth are held in a position best adapted for the passage of the flour, in combination with internally-arranged beaters.

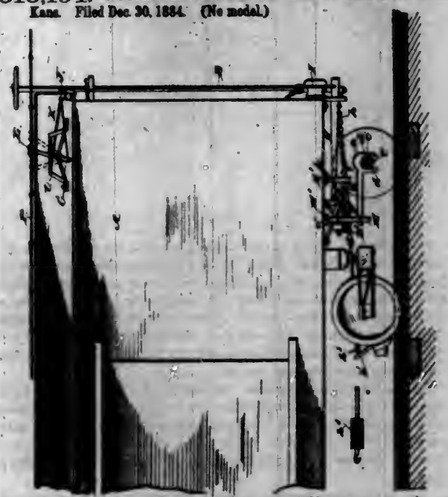
313,153. HARNESS-SADDLE. BENJAMIN F. ARCHER, Marietta, Miss. Filed June 2, 1884. (No model.)



Claim.—1. The combination, with the harness-saddle comprising the curved frames A A', having their ends slotted at I I', and side pieces, K, provided with stripe J, the slotted ends of the frames fitting around the stripe and pivoted thereto so as to give a swinging motion to the side pieces, of triangular frames M, secured to the frames A A' above the pivot-point, and the crupper-strap having its forward end formed with two branches, each of which connects with one of the triangular frames, arranged and operating so that the crupper-strap will hold the saddle down in position and prevent upward movement, as set forth.

2. The combination, with the saddle having frames secured thereto, of the crupper-strap having its forward end formed with two branches to connect with each of the frames, as set forth.

313,154. AUTOMATIC CAR-BRAKE. MARTIN ARMSTRONG, Milan, Kans. Filed Dec. 30, 1884. (No model.)



Claim.—1. In combination with a cam rigid upon a car-axle, and with a ratcheted brake-bar and connected brake mechanism, a continually-acting operating-pawl and suitable connections with said cam, and a holding-pawl adapted to hold the slack taken up by the operating-pawl, as set forth.

2. In combination with ordinary brake mechanism, and with a cam, as *c*, a ratcheted brake-bar, an operating-pawl connected with said cam, and a pawl for holding the slack taken up, as set forth.

3. The combination, with a brake-bar, as described, and with a cam, as *c*, an operating-pawl, connections between said pawl and cam, and a holding-pawl, of a trip-lever having a weighted end and adapted to hold both pawls out of engagement by gravity, as set forth.

4. In a brake mechanism, substantially as described, the combination of the cam c and jawed dog D with the lever E, the pawl F, pivoted thereto, and the pawl G, guided loosely in said lever, as set forth.

5. In a brake mechanism, substantially as described, the knuckle-pawls F and G, hinged as shown, the brake-bar having ratchets, the trip-lever, and connections between said lever and the pivots of the pawl-hinges and springs, as and for the purposes specified.

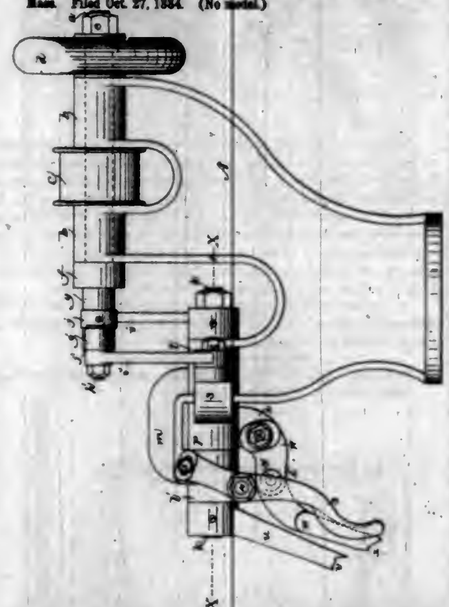
6. In combination with the ratcheted brake-bar B', the pawls F G, and trip-lever H, means, as L, and connections whereby the said pawls may be thrown into operation with the brake-bar, singly or in series, by hand or automatically, as set forth.

7. The combination, with the brake mechanism described, the trip-lever H, and cramp-lever L and connections, of the rope P, as and for the purposes specified.

8. In a car-brake, substantially as described, the combination, with the trip-lever, elbow-lever J, and connections, of the cramp-lever L, having a pivotal connecting-point upon either side of its fulcrum, and the tie-rod K, as set forth.

9. The combination, with the brake mechanism described, of the cramp-lever L, having connecting-points *l* and *l'*, the tie-rod K, and rope P, as and for the purposes set forth.

313,155. EDGE-BURNISHING-MACHINE. ROBERT ASHE, Somerville, Mass. Filed Oct. 27, 1884. (No model.)



Claim.—1. In an edge-burnishing machine, the combination of a finger-rest and two burnishing-irons arranged to simultaneously vibrate in opposite directions, but singly operative, in planes one behind the other, and each formed with an operative face adapted to burnish a portion of the sole unlike the other, and each constantly in position to co-operate at the will of the operator with said rest, whereby either of said tools may at will be conjointly employed with said rest without adjustment in relation thereto, substantially as specified.

2. In a burnishing-machine, two burnishing-irons arranged to simultaneously vibrate in opposite directions, but singly operative, in planes one behind the other, combined with means, substantially as described, to adjust one of said irons toward or from the other, whereby its plane of vibration may be varied relatively to that of the other, substantially as specified.

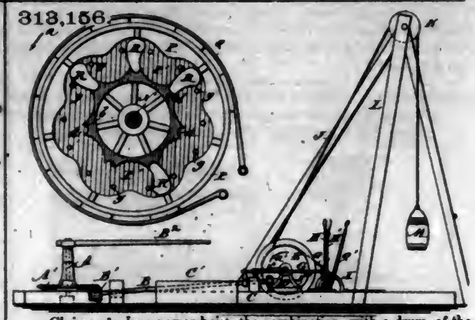
3. In an edge-burnishing machine, the combination of two burnishing-tools arranged to simultaneously vibrate in opposite directions, but singly operative, in planes one behind the other, and a finger-rest in permanent co-operative relation to both, one of said tools and said rest being capable of adjustment toward or from the other tool, substantially as specified.

4. In an edge-burnishing machine, two burnishing-tools formed with different operative faces, each adapted to burnish a portion of the sole unlike the other, and arranged to simultaneously vibrate in opposite directions, but singly operative, in planes one behind the other, combined with means, substantially as described, to impart to said tools a differentiated extent of vibratory movement, substantially as specified.

5. In an edge-burnishing machine, the combination of two burnishing-irons arranged to simultaneously vibrate in opposite directions, but singly operative, in planes one behind the other, and each formed with an operative face adapted to burnish a portion of the sole unlike the other, and each constantly in position for use at the selection of the operator, substantially as specified.

6. In an edge-burnishing machine, the combination of arbor *a*, having the crank-like wrist-pins *j j'*, pitmen *g g'*, arms *i i'*, rock-shaft *k*, an sleeve *p*, burnishing-irons *x w*, and finger-rest 3, all combined to operate substantially as specified.

313,156. POWER-HOIST. CHARLES W. BALDWIN, Denver, Colo., assignor to himself, Arthur A. Webb, same place, and Artemus J. Smith, Central City, Colo. Filed July 31, 1884. (No model.)



Claim.—1. In a power-hoist, the combination, with a drum, of the friction or cog wheel D, adapted to be engaged with one end of the drum, the shaft B, on which the friction or cog wheel D is mounted, means for revolving the shaft B, and means for moving the shaft B in such a manner as to engage the friction-wheel or cog-wheel, with the end of the drum or cog wheel on the end of the shaft N, or disengage the friction-wheel or cog-wheel from the drum, substantially as herein shown and described.

2. In a power-hoist, the combination, with a drum, of the shaft A, adapted to be revolved by means of any suitable power, means for communicating the rotary motion from the shaft A to the drum F, and means for connecting or disconnecting the said means with or from the drum F, substantially as herein shown and described.

3. The combination, with a hoisting-drum mounted loosely or keyed on a shaft, of a brake-pulley mounted loosely or keyed on the same shaft, and provided with a brake-band, and pawls held on the brake-pulley, and adapted to engage with one head of the hoisting-drum, substantially as herein shown and described.

4. The combination, with a hoisting-drum mounted loosely or keyed on a shaft, of a brake-pulley mounted loosely or keyed on the same shaft, and surrounded by a brake-band, which brake-pulley is provided with a series of projections, *b*, in the points of which recesses *d* are formed for holding the inner ends of loose pawls R, substantially as herein shown and described.

5. The combination, with a hoisting-drum provided in the outer surface of one head with an annular shoulder, of a brake-pulley on the shaft, the plate P', secured on the inner side of the said brake-pulley, and provided with projections *b*, having notches *d* for receiving the inner ends of loose pawls R, resting against the plate P', and of a brake-band surrounding the brake-pulley, substantially as herein shown and described.

6. The combination, with a hoisting-drum having an annular shoulder formed in the outer surface of one of its heads, of the brake-pulley P, the plate P', secured on the same, and provided with projections *b*, having notches or recesses *d*, the pins *g*, the pawls R, held loosely on the brake-wheel, and having convex outer ends, and of a brake-band surrounding the pulley, substantially as herein shown and described.

313,157. FOOD FOR INFANTS AND INVALIDS. WILLIAM R. BARKER and ARTHUR L. SAVORY, New Bond Street, County of Middlesex, England. Filed July 25, 1884. (No specimens.)

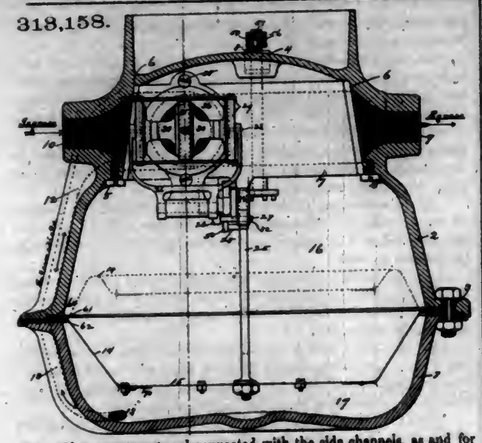
Claim.—1. The herein-described dry granulated or powdered food preparation for infants and invalids, containing all the solid constituents of milk and flour or meal of wheat or other cereals in a cooked state in admixture, in about the proportions herein set forth, with malt possessing unimpaired diastatic properties.

2. The method herein described of preparing food for invalids and infants, consisting in, first, mixing flour or meal with fresh milk; secondly, subjecting the mixture to a temperature not less than 220° Fahrenheit for a sufficient time to thoroughly dry and cook the mass; thirdly, reducing the mass to powder, and, finally, adding malt in a powdered state, substantially as herein specified.

313,158. COMBINED PISTON AND DIAPHRAGM METER. CHARLES C. BARTON, New York, and JOHN THOMSON, Brooklyn, N. Y. Filed Apr. 26, 1884. (No model.)

Claim.—1. The combination, with the upper compartment or casing of a fluid-meter having ingress and egress openings for the passage of the fluid, of a detachable valve-casing having sluices open at their ends, and adapted to fit into said compartment and connect with said ingress and egress openings directly, the operating apparatus of the meter being secured to and detachable with said casing, substantially as described.

2. The combination, with the upper compartment or casing of a fluid-meter having side ingress and egress openings for the passage of the fluid, of a detachable valve-casing having sluices open at their ends and a valve or valves operating therein, said casing having secured or connected therewith the operating parts of the meter, and adapted to fit



into said compartment and connected with the side channels, as and for the purpose set forth.

3. A detachable valve-casing having interior and exterior ports and valves adapted to be placed in one of the cylinders or compartments of a fluid-meter, said valve-casing having secured or connected with it the operating parts of the meter, and being provided with a system of sluices open at the opposite ends of the casing, arranged to connect directly with a corresponding system of water-ways, substantially as described.

4. A detachable valve-casing, upon which is secured or connected the operating mechanism of the meter, adapted to a tapered bearing within the cylinder, and clamping devices holding the casing upon said bearing, substantially as set forth.

5. The combination, with the outer casing of a fluid-meter, having channels and ports and a diaphragm, of a detachable valve-casing provided with channels and ports, and an interior valve constructed to direct the fluid from the inlet alternately to opposite sides of the diaphragm and from opposite sides of the diaphragm alternately to the outlet, substantially as described.

6. The combination, with the detachable valve-casing, of the valve, the face-plates forming bearings for said valve, the spring-carriage and springs mounted thereon, the bell-crank, the piston-rod, and means for operating the same, substantially as specified.

7. The combination, with the detachable valve-casing, of the register-shaft, the ratchet, a system of gearing connecting the said shaft and ratchet, the register-arm carrying a pawl, the piston-rod, and means for operating the same, all of said elements being mounted upon the said valve-casing within the cylinder, substantially as specified.

8. The combination, in operative position and connection, of the bell-crank, the spring-carriage, and toggle-acting V-springs, said carriage and bell-crank directly and pivotally connected, for the purpose set forth.

9. The combination, with the valve, the thrust-block and carriage, and means for operating the latter, of the toggle-acting double spring, formed in the manner and for the purpose herein shown and described.

10. In a fluid-meter, the built-up spring-carriage consisting of a pair of bearing-blocks united by a pair of yokes, substantially as specified and shown.

11. In a fluid-meter, the combination, with the stops and spring-motor apparatus, of a built-up puppet-valve constructed of disks of pliant packing material and an interposed flexile disk of spring metal, whereby the said valve is relieved from excessive impact upon the valve-seat.

12. In a fluid-meter, the combination, with a spring-motor apparatus, of a built-up valve-spindle consisting of a sleeve the ends of which form stops, a pivotal portion consisting of a wire forced through the sleeve, and clamping-nuts adapted to be screwed upon the sleeve to secure the valve, substantially as shown and set forth.

13. The combination, with a meter, of a registering mechanism having a packed shaft extending through the outer casing, and connections, substantially as described, between the shaft and measuring appliances, whereby said shaft is normally stationary, and is moved but once to a number of movements of the measuring appliances, substantially as described.

14. In a fluid-meter, the combination, with the displacing means, as the piston and diaphragm, of a system of direct-acting gear-wheels, the construction and arrangement being such that a multiple of displacements is registered as one unit upon the register by a single movement of the register-shaft, which is normally stationary, substantially as specified.

15. In a fluid-meter, a pliant frustum-of-cone-shaped diaphragm connecting the piston and cylinders, to the smaller end of which is attached the piston, and to the larger end of which are attached the separate clamping-rings of non-corrosive metal, substantially as shown and described.

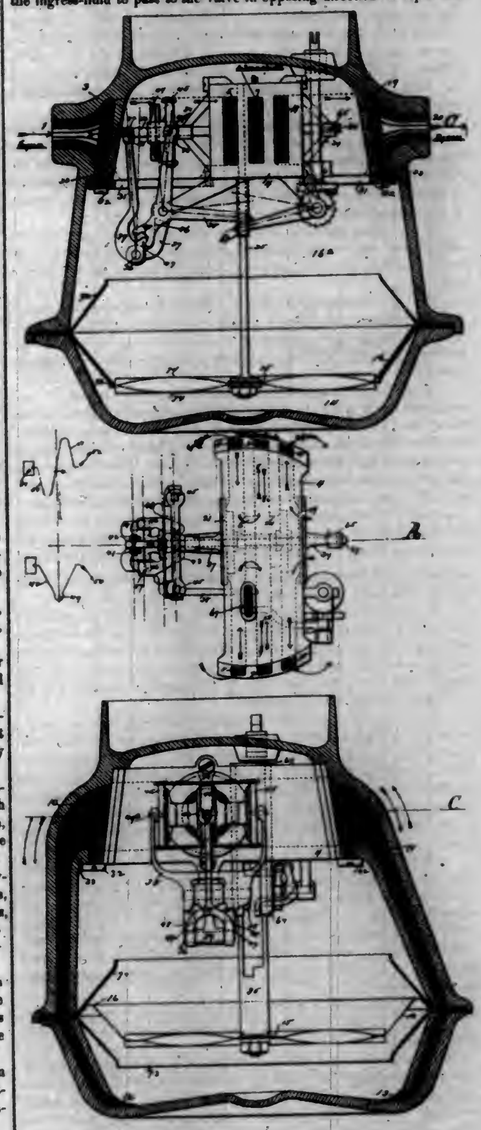
16. The combination, with the upper cylinder of a fluid-meter, having a grooved bearing or recess, of the diaphragm and two separate non-corrosive rings, between which the diaphragm is clamped, and the whole, as one, contained within the grooved bearing or recess in the upper cylinder, substantially as set forth.

17. The combination, with the smaller rim of the diaphragm, of the piston and an annulus riveted or screwed thereto, said piston and annulus having grooves which act to center the one upon the other, substantially as set forth.

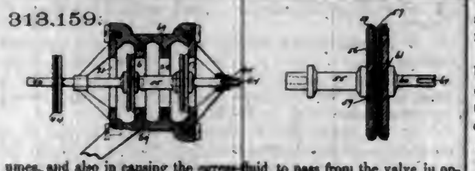
18. In a fluid-meter, a piston consisting of light sheet metal, having within its circumference a number of radial grooves or ribs, all of which are tangent to a common circle concentric with the circumference of the piston, substantially as shown and set forth.

313,159. FLUID-METER. CHARLES C. BARTON, New York, and JOHN THOMSON, Brooklyn, N. Y. Filed Apr. 26, 1884. (No model.)

Claim.—1. The method of controlling the direction of fluid in a meter for the purpose of neutralizing the dynamic force of the currents upon the valve during the time of its transit, which consists in causing the ingress-fluid to pass to the valve in opposing directions of equal vol-



313,159.



umes, and also in causing the egress-fluid to pass from the valve in opposing directions of equal volumes, substantially as described.

2. The double ingress water-way and ingress-sluice, the double intermediate water-ways and intermediate sluice, the double egress water-way and egress-sluice, said water-ways being formed in the cylinder and said sluices in the valve-casing, a valve operated within the valve-casing, and apparatus for alternating the position of said valve, all in combination substantially as set forth.

3. In a fluid-meter, the combination of the semicircular ingress and egress water-ways formed in a horizontal plane of a cylinder, a pair of intermediate water-ways formed in a vertical plane of a cylinder, the common termini of which are connected with sluices formed in an internal valve-casing containing valve-ports, a valve, and means for alternating its position, said water-ways and sluices being so disposed that any current passing to the valve comes from opposing directions, and any current passing from the valve leaves it in opposing directions, for the purpose of eliminating any effect upon the action of said valve due to the force or direction of currents through the meter, substantially as specified.

4. The double ingress, intermediate, and egress water-ways, in combination with a valve-casing containing valve-ports and a valve, and means for actuating the valve to alternate positions, whereby the currents are subjected to equal deflections in equal volumes through passages of equal areas of cross-section, for the purpose of reducing the velocity of flow through the said water-ways.

5. In a fluid-meter, the within-described outer casing, provided with semicircular water-ways, consisting of an open portion formed in the casing, as from 26 to 27, closed by plates or covers, for the purpose specified.

6. The valve-casing having an ingress, an intermediate, and an egress sluice and valve-ports, each and all of said sluices passing longitudinally through the valve-casing and parallel with each other, and adapted to connect with corresponding openings in the main cylinder, substantially as set forth.

7. In a fluid-meter, in combination with a valve, a piston, a rod connected to the piston, and a positive valve-actuating mechanism and double-acting valve-springs, all of which are interposed between the rod and the valve, the construction being such that at a point near the extreme part of the movement of the piston and rod they will coact with the springs to reverse the position of the valve at a greater ratio of movement than that of the said piston and rod, substantially as described.

8. The combination, with a valve and a piston and rod, of a positive valve-actuating mechanism and double-acting valve-springs, the construction being such that a small portion of the movement of the piston coacts with the springs at a multiplied ratio to impel the valve during the time of its reversal, substantially as specified.

9. In combination, the valve-spindle, upon which is mounted a valve, the multiplying-lever connected to the valve-stem, the bell-crank, and means for operating the same, said bell-crank and multiplying-lever being connected in such manner that any motion imparted by the bell-crank to the multiplying-lever will be multiplied in its action upon the valve-stem, substantially as specified.

10. In combination, the valve-spindle, upon which is mounted a valve, the multiplying-lever connected to the valve-stem, the bell-crank, upon which is a carriage pivotally mounted, carrying toggle-springs, which act upon a thrust-block secured to the valve-spindle, and means for actuating the bell-crank, the construction of the parts being such that the toggle-springs will be brought nearly or quite to their dead-centers before motion is imparted to the multiplying-lever, substantially as specified.

11. In combination, the bell-crank, upon which is formed a slotted arm, the multiplying-lever having a tooth or spur engaged by the said slotted arm, the valve-spindle connected with the multiplying-lever, and operating means, the relation of the said slotted arm and tooth being such that a certain degree of motion may be imparted to the bell-crank without actuating the multiplying-lever, but thereafter the continued movement of the bell-crank will impel the said multiplying-lever, substantially as specified.

12. The combination, with a valve and a lever for operating it, of the [illegible]-spring, formed in the manner shown and described, and for the purpose specified.

13. In a fluid-meter, the combination, with a valve-casing having fluid ways or passages, of a built-up valve consisting of two flexile metal disks the perimeters of which are cupped or flanged, and within which are placed disks of pliant packing, which form the contact-faces of the valve, and a washer of less diameter than and interposed between the said metal disks, whereby the flexure of the disk is permitted, as and for the purpose set forth.

14. The combination, with a valve-chamber of a fluid-meter, of a built-up valve-spindle consisting of a central or main body having shoulders, and two end pivotal portions, each having a shoulder, and adapted to be screwed to the central portion upon an interposed valve, a portion of one or both of said pivotal portions being slotted longitudinally, said slot or slots engaging a projection in the bearing of the spindle, whereby the structure is locked against the accidental dislocation of its component parts, substantially as specified.

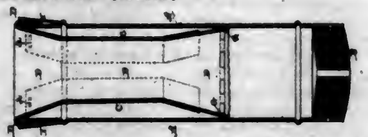
15. In a fluid-meter, the upper cylinder having a crown adapted for the reception of a valve-casing, of less diameter than the main portion (of which it is an integral part) and set eccentric to the same, for the purpose set forth.

16. The combination, with a valve-casing having valves operating therein, of a piston for operating the valves, a piston-rod, and a bearing for the rod, consisting of non-corrosive material embedded in the casing, substantially as described.

17. In a fluid-meter, a valve-casing formed of iron, having interior and exterior ports, of the inner valve-seats, being constructed of brass or bronze composition and embedded in the iron, the valve-casing and valve-seats having interlocking parts, substantially as described.

18. In a fluid-meter having a frustum-of-cone-shaped diaphragm of pliant material, the combination, with said diaphragm, of a piston constructed of two metal disks, the central portions of which, in their normal condition, are "dished" outward from each other, and means for securing the disks together at their centers, whereby when the said dished portions are brought together and secured the smaller rim of the diaphragm is held between the outer surfaces of the disks with a uniform compression of its substance, substantially as specified.

313,160. WHIP-SOCKET. FREDERICK BAUMGARTNER, Brooklyn, N.Y. Filed Dec. 3, 1884. (No model.)



Claim.—1. The combination of the socket, the lining applied thereto, the band I, for securing the lining in place at the top of the socket, the springs C, and the metal block B, applied to the lower end of the socket, substantially as shown.

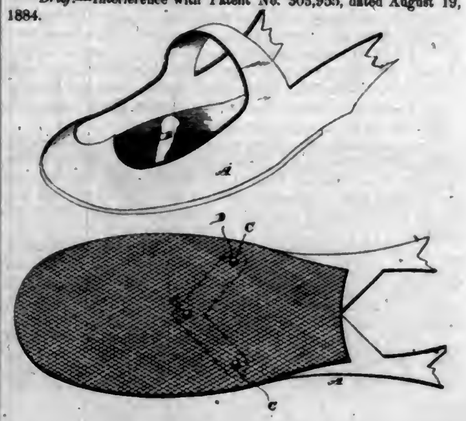
2. The combination of the socket A, the springs C, rigidly secured to the socket inside of its top, the lining applied to the socket and extending down below the ends of the springs, and a ring for expanding the lining at its lower end, substantially as described.

3. The combination of the socket A, the springs secured to it inside of its upper end, the lining which has its upper end turned down over the top of the socket, and a ring or band for securing this turned-down end in place, substantially as set forth.

4. The combination of the socket A, the springs secured to the inside of the top of the socket, the lining having its upper end turned down over the top of the socket and its lower end extending down below the springs, the band for securing the upper end of the lining in place, and a ring for expanding its lower end below the springs, substantially as specified.

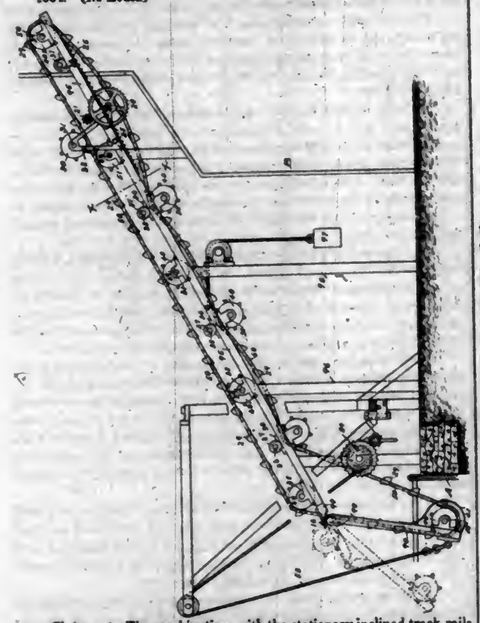
313,161. OVERSHOE. SAMUEL C. BELKNAP and THEODORE H. FYE, Zanesville, Ohio. Filed July 23, 1883. (No model.)

Brief.—Interference with Patent No. 303,955, dated August 19, 1884.



Claim.—The combination, with a rubber overshoe, of a removable ice-creeper consisting of a plate provided with depending points arranged to project through holes formed in the sole or heel of the shoe, substantially as set forth.

313,162. ELEVATOR. THOMAS BELL, Catskill, N.Y. Filed Nov. 26, 1884. (No model.)



Claim.—1. The combination, with the stationary inclined track-rails 95, of the movable inclined frame supported thereon, and extending from the point of supply to the point of discharge of the elevator, the endless chains 50, carrying the buckets, and passing around wheels mounted upon the movable frame, and adjusting mechanism for moving the frame carrying the chains and buckets along the track-rails, so as to raise and lower the receiving and discharging ends of the elevator, substantially as described.

2. The combination, with the stationary inclined track-rails 95, of the movable inclined frame supported thereon, and extending from the point of supply to the point of discharge of the elevator, the endless chains 50, carrying the buckets, and passing around wheels mounted upon the movable frame, and adjusting mechanism for moving the frame carrying the chains and buckets along the track-rails, so as to raise and lower the receiving and discharging ends of the elevator, and the counterbalancing weight or weights 97, substantially as described.

3. The combination, with the stationary inclined track-rails 95, of the movable inclined frame supported thereon, and extending from the point of supply to the point of discharge of the elevator, the endless chains 50, carrying the buckets, and passing around wheels mounted upon the movable frame, and adjusting mechanism for moving the frame carrying the chains and buckets along the track-rails, so as to raise and lower the receiving and discharging ends of the elevator, and the stationary driving-wheels 51, substantially as described.

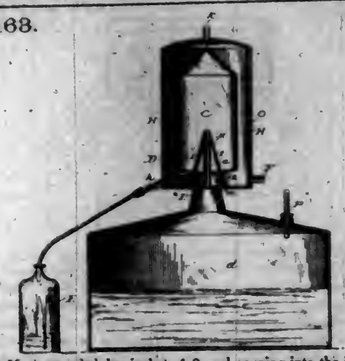
4. The combination, with the stationary inclined track-rails 95, of the movable inclined frame supported thereon, and extending from the point of supply to the point of discharge of the elevator, said movable frame extending at its lower end beyond the ends of the track-rails, and being jointed, so that the receiving end of the elevator can be swung to different positions, the endless chains 50, carrying the buckets, and passing around wheels mounted upon the movable frame, and adjusting mechanism for moving the jointed frame carrying the chains and buckets along the rails, so as to raise and lower the receiving and discharging ends of the elevator, substantially as described.

5. The combination, with the movable inclined frame carrying the chains and buckets, said frame being jointed, so as to permit the receiving end of the elevator to be swung to different positions, of the guard plates or bands 41, substantially as described.

313,163. PHARMACEUTICAL STILL. JOHN BERRY, Biddeford, Me. Filed May 9, 1884. (No model.)

Claim.—1. A boiler, *d*, provided with an extension, L, connected directly to the bottom of the condensing apparatus, in combination with the tube M, surrounded by jackets 1 2, and opening into the interior of the condensing-chamber, substantially as described.

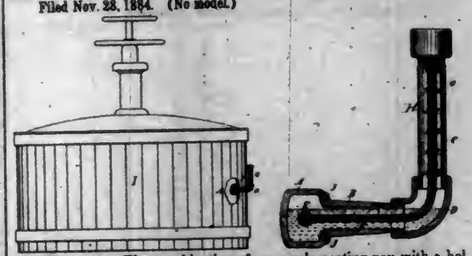
313,163.



2. The boiler *d*, provided with the threaded extension L and the pipe M, combined with the condensing-chamber C and jacket O and jackets 1 and 2, substantially as described.

3. The combination, with the chambers C and jackets O, of tube M, jackets 1 2, and the pipe *h*, substantially as described.

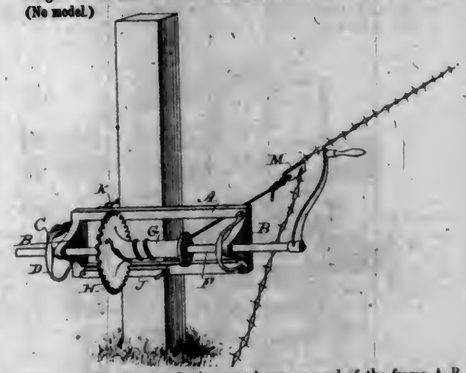
313,164. AMALGAMATING-PAN. JULIUS A. BIDWELL, Ivanpah, Cal. Filed Nov. 28, 1884. (No model.)



Claim.—1. The combination of an amalgamating-pan with a hollow chamber within which quicksilver is contained, a pipe or tube connected therewith and extending to the exterior of the pan, and a thermometer fixed so that its bulb is contained within the receiver while the stem extends to the outside of the pan, substantially as herein described.

2. A closed hollow chamber containing quicksilver, fixed within an amalgamating-pan, and having a tube extending outwardly from it, in combination with a thermometer the bulb of which lies within the quicksilver in the chamber while its stem lies within the tube and has a scale placed exterior to the pan, substantially as herein described.

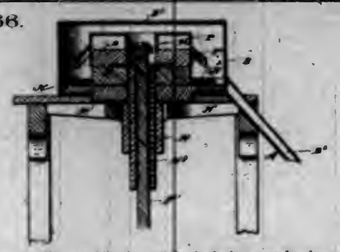
313,165. WIRE-STRETCHER. JOHN E. BLACKMORE, Walnut, Iowa, assignor of one-half to O. M. Bruce, same place. Filed Apr. 21, 1884. (No model.)



Claim.—The improved wire-stretcher composed of the frame A B C, having a chain, K, attached, and a pin or spike on the end of the chain, a rotating and sliding shaft, F, a drum having an annular flange and notches in the periphery of its flange, a pivoted locking-bar, J, and a rope or chain having a wire-clamping device on its end, substantially as shown and described, to operate in the manner set forth.

313,166. GRIST-MILL. CHRISTIAN J. BLUM, Salem, N.C. Filed Oct. 15, 1884. (No model.)

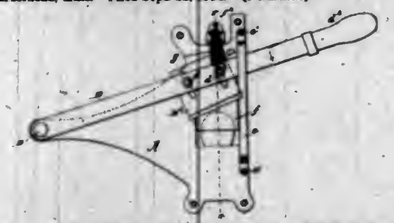
313,166.



Claim.—1. The combination of the inclosing-case having an opening in the upper side and a discharge-opening, the upper runner, and the lower runner, said runners being adapted to revolve in opposite directions, the said upper runner being provided with wings for forcing a current of air upwardly through and out of the case, and the lower runner being provided with an extended annular ring having tangentially-arranged sweeps for forcing the flour outwardly through the discharge-opening in the case, substantially as described.

2. The combination of the inclosing-case having a discharge-opening, the upper runner, and the lower runner, said runners being adapted to revolve in opposite directions, the lower runner being provided with an extended annular ring having tangentially-arranged sweeps for forcing the flour outward through the discharge-opening in the case, substantially as described.

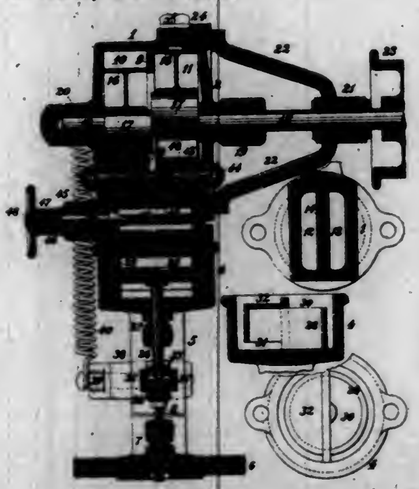
313,167. MACHINE FOR SKIVING LEATHER. RUSSELL BOWDEN, Marblehead, Mass. Filed Sept. 22, 1884. (No model.)



Claim.—1. In a leather-skiving machine, a slotted bed or support and a knife adapted to be moved over the said bed or support, and an adjustable inclined table having its forward end arranged in the slot and substantially flush with the plane surface of said bed, combined with a clamp to clamp or retain on such table the material to be cut, as and for the purpose set forth.

2. In a leather-skiving machine, a slotted bed or support, the pivoted knife-lever, and an attached knife adapted to be moved over the surface of the bed as described, and the adjustable table inclined with relation to the bed, one end of the table being arranged in the slot of said bed, combined with the sliding clamp to retain the leather to be skived on the inclined table, substantially as set forth.

313,168. GOVERNOR FOR ENGINES. BENJ. BRAKELL, St. Louis, Mo. Filed May 24, 1884. (No model.)



Claim.—1. In an engine-governor, the combination of a cylindrical pump-case having a supply-opening closed by a movable plug, a pair of pistons mounted upon a shaft fitted to rotate in bearings in said case, and a division plate or ring fitting freely in the case between the pistons, said plate having a central opening communicating with each of the piston-spaces, substantially as set forth.

2. In an engine-governor, the combination of a double-chambered pump-case, a pair of coincidently-operating pump-pistons, each moving in one of the chambers or compartments of said case, an abutment extending transversely to each of the chambers across the space between the bore thereof and its piston, and passages which establish communication for a liquid medium from one side to the other of said abutments, substantially as set forth.

3. In an engine-governor, the combination of a double-chambered pump-case, a shaft mounted in bearings in the ends of said case, two eccentrics fixed one axially in advance of the other upon said shaft, a pair of cylindrical pistons, each mounted freely upon one of said eccentrics, two abutments, each extending across the space between the bore of the case and one of the pistons, and passages establishing communication for a liquid medium from one side to the other of said abutments, substantially as set forth.

4. In an engine-governor, the combination of a pump-case, a pump-piston moving therein and acting to force a liquid medium through passages communicating therewith, a valve-piston adapted to receive the fluid-pressure maintained in said passages by the movement of the pump-piston, and a rod connected at one end to said valve-piston and bearing at the other upon a governor-valve stem, substantially as set forth.

5. In an engine-governor, the combination of a valve-piston fitting freely in a cylinder, a pump adapted to induce fluid pressure upon said piston, a rod secured to said piston and bearing upon a governor-valve stem, a rock-shaft having an arm which is coupled to the governor-valve stem, and a spring, the tension of which acts in opposite direction to the pressure upon the valve-piston, and which is connected at one end to an arm on the rock-shaft and at the other to a fixed support, substantially as set forth.

6. In an engine-governor, the combination of a pump-case, a shaft carrying one or more pistons within said case, said shaft being mounted in a bearing in one of the heads of the case and passing through a stuffing-box in the other, and an end bearing supporting said shaft exterior to the stuffing-box thereof, substantially as set forth.

7. In an engine-governor constructed substantially as shown, the combination of a pump-case, a pump-piston mounted upon an eccentric on a shaft therein, and a transverse abutment journaled upon a shaft therein, said abutment bearing at one side of its journal on the bore of the pump-case, and fitting freely on the opposite side of its journal in a radial slot in the pump-piston, substantially as set forth.

8. In an engine-governor constructed substantially as shown, the combination of a valve-piston casing, a cylinder therein having upper and lower openings, each communicating with the top of the casing, and a valve-piston fitting said cylinder and secured upon a rod which passes through a stuffing-box in the casing, substantially as set forth.

9. In an engine-governor constructed substantially as shown, the combination of a valve-piston casing, and a removable cylinder having upper and lower openings communicating with the top of the casing, and circumferential ribs or wings fitting against the bore thereof, substantially as set forth.

10. In an engine-governor constructed substantially as shown, the combination of a channel-way, a regulating-valve governing an opening in a division or partition therein, a shouldered stem passing through a bearing in the wall of the channel-way, and having a squared projection to engage a hand-wheel or handle, and a tightening-screw bearing against the hand-wheel and engaging a thread in the stem of the regulating-valve, substantially as before set forth.

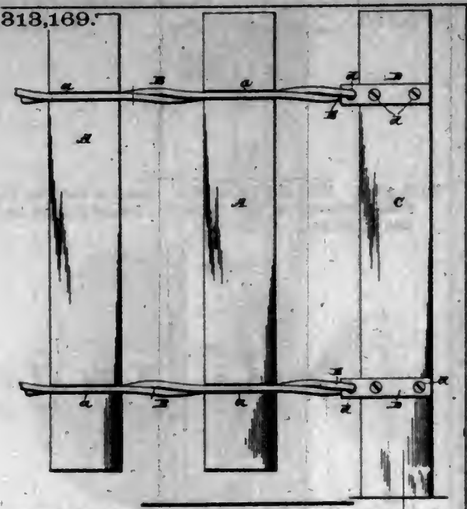
11. In an engine-governor constructed substantially as shown, the combination of a valve-stem, a cross-head or block secured thereto, a cylindrical pin fitting freely in said cross-head, and having flattened bearings on its ends, and an arm having slots in its end engaging the end bearings of the cross-head pin, substantially as set forth.

12. In an engine-governor constructed substantially as shown, the combination of a pump-case and a pump adapted to work therein, a channel-way divided by a partition into two passages, which communicate with a valve-piston cylinder, and a regulating-valve governing an opening which establishes communication through said partition between the passages of the channel-way.

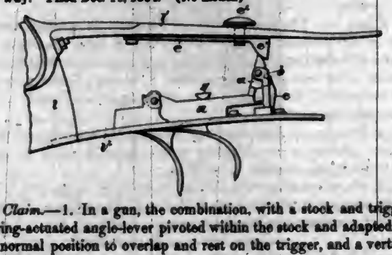
313,169. FENCE. FREDERICK BRENNEMAN, Indianapolis, Ind. Filed Nov. 23, 1883. (No model.)

Claim.—In a fence, the combination, with a series of pales provided with two or more sets of transverse grooves, of two or more horizontal lines of wire embracing the pales in the groove, and crossing between each two successive pales and terminating in loops, and perforated straps loosely secured in the loops, substantially as set forth.

313,169.



313,170. LOCK FOR FIRE-ARMS. JACOB B. BULL, Christiania, Norway. Filed Dec. 11, 1884. (No model.)



Claim.—1. In a gun, the combination, with a stock and trigger, of a spring-actuated angle-lever pivoted within the stock and adapted when in a normal position to overlap and rest on the trigger, and a vertically-movable button for moving the end of the angle-lever off or away from the trigger.

2. In a gun, the combination, with a stock and trigger, of a spring-pressed hook or angle lever pivoted within the gun-stock and adapted to engage the trigger and lock it against action, a spring-bar provided at its free end with a projection adapted to engage the upper end of the angle-lever, and a button engaging said spring-bar, substantially as set forth.

313,171. FASTENER FOR NECKTIES, &c. HARTLEY A. CARLES, Philadelphia, Pa. Filed June 17, 1884. (No model.)



Claim.—1. A fastener for neck-wear, consisting of a button having a flat shank terminating in a round stem and cross-piece, and a plate dished at the center and having an opening and slots, substantially as set forth.

2. The combination, in a fastening device, of a button having a flat shank terminating in a round stem and cross-piece, and a plate slotted to receive said cross-piece, and with elastic portions on opposite sides of the slot, substantially as specified.

3. The combination, in a fastening device, of a button having a shank and terminal cross-piece, and a slotted plate adapted for the passage of the cross-piece, and with indentations *y* at opposite sides of the slot, for the purpose set forth.

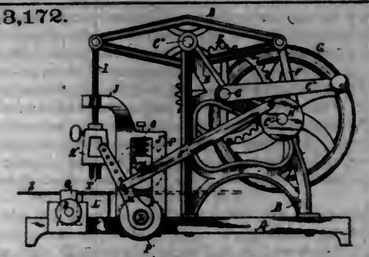
4. The combination, with the stem of a fastening device, of the socket-piece consisting of a plate with recesses adapted to receive said stem, and provided with eyes *u*, adapted to receive spring-pins I, substantially as set forth.

5. The combination, with the shield or other piece J, of a recessed socket, B, provided with eyes *u*, extending through openings in the shield, and spring-pins I, extending through said eyes, substantially as set forth.

313,172. LEATHER-PUNCHING MACHINE. NOAH W. CALHOUN and JOHN G. CHAMBERS, Lena, Ill.; said Calhoun assignor to said Chambers. Filed May 12, 1884. (No model.)

Claim.—1. The combination of the block L, reciprocating head K, punches T, set in said head, lateral guides Q Q', and regulating-screw V', feed-rolls P P', and means, substantially as shown and described, whereby intermittent rotation is imparted to said feed-rolls.

313,172.



2. The combination of the feed-rolls P P', mounted on shafts Z' Z, respectively, the flanged plate N' N'', rigidly mounted on the shaft Z, the plate *c*, sleeve Z'', and lever M, rigidly connected and rotating freely on the shaft Z, the retaining-plate N, rollers *e*, lying in wedge-shaped pockets *d*, and means, substantially as shown and described, for imparting reciprocal motion to said lever M, substantially as and for the purpose set forth.

3. The combination of the cranked shaft C', pitman F, lever D, shaft I, head K, and punches T with the feed-rolls P P', lever M, pitman F', crank-plate H, and pawl-and-ratchet mechanism connecting said lever M and said feed-rolls, whereby the rotation of the shaft C' imparts vertical reciprocation to said punches and intermittent rotation to said feed-rolls, substantially as shown and described, and for the purpose set forth.

313,173. STOCK-CAR. JAS. E. CANTRILL, Georgetown, Ky., assignor of two-thirds to John R. Welling and Justice Webb, both of same place. Filed Oct. 11, 1884. (No model.)



Claim.—1. In a stock-car, the combination of longitudinal rails secured at the top and bottom of the car, parallel with the sides of the same, said rails being plain and smooth or having notches respectively in their upper and lower edges, with slides traveling upon the rails, and having hooks engaging the rails or the notches in the same, and partitions secured between the said slides, as and for the purpose shown and set forth.

2. The combination, in a stock-car, of longitudinal rails secured parallel with the upper and lower edges of the sides of the car, and being either plain and smooth or having notches respectively in their upper and lower edges, flanged slides traveling upon the rails, and having hooks engaging the said rails or the notches, flexible partitions having strips at their ends, snap-hooks secured at one end of the said strips and engaging eyes upon the lower slides, stirrups swiveled at the upper ends of the strips and having screw-threaded perforations at their upper ends, and snap-hooks engaging eyes upon the upper slides, and having screw-threaded shanks fitting in the threaded perforations in the stirrups, as and for the purposes shown and set forth.

3. In a stock-car, the combination of longitudinal rails secured parallel with the upper and lower edges of the sides of the car, and having the edges at one end cut away to form a reduced portion, with slides traveling upon the said rails, and having bent flanges clamping over the edges of the rails, the said flanges being of the same width as the cut-out portions of the rails, as and for the purpose shown and set forth.

4. The supports for the removable feed and water buckets, consisting of the bucket-supporting rings, and the plate having its upper edge doubled to form a flat hook, and having its lower edge bent at a right angle, in a stock-car having slat sides, as and for the purpose shown and set forth.

5. The combination, with the longitudinal slats in the sides of a stock-car, of the bucket-support consisting of a plate having its upper edge bent to form a flat hook, and having its lower edge bent out at a right angle, and provided upon its inner side with means for the attachment of the bucket, as and for the purpose shown and set forth.

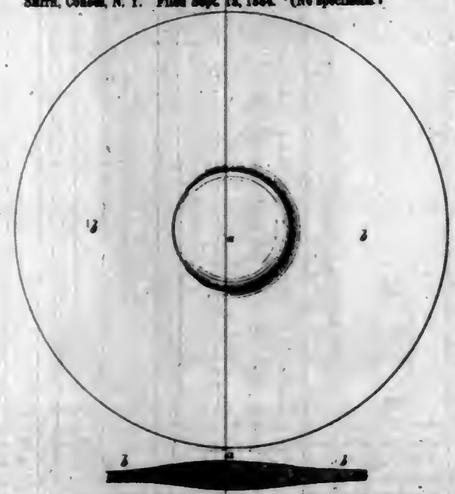
6. A stock-car having removable water-buckets arranged along the insides of its sides, having narrow platforms along the lower edges of its sides, and having a water tank or receptacle at one end provided with hose reaching along each side of the car, constructed and arranged as and for the purpose shown and set forth.

7. The combination, in a stock-car, of the car-body having open slat sides, with a platform hinged at its inner edge to the lower edge of the side of the car, and provided with transverse bars secured upon its under side, and having their inner ends projecting beyond the hinge-edge of the platform, bearing against the bottom of the car when the platform is folded down, as and for the purpose shown and set forth.

8. The combination, in a stock-car, of the body of the car having partly-open sides, platforms secured at the lower edges of the sides, feed-receptacles attached to the inner sides of the car, longitudinal rods secured at the edges of the roof of the car at a distance from the same, and a flexible chute having a hook at its upper end traveling upon the rails at the top of the car, and provided at its lower end with a mouth-piece having a cut-off slide, as and for the purpose shown and set forth.

9. The combination of the mouth-piece having a slot in one side, near its end, and formed with pivots at two of its sides, a spring secured to the upper portion of the slotted side, a slide fitting in the slot and attached to the lower end of the spring, and a bell-crank-shaped bail having its fulcrum upon the pivots at the sides of the mouth-piece, bearing with its short end against the inner side of the lower end of the spring, and having its longer end projecting out, forming a handle, as and for the purpose shown and set forth.

313,174. FILTERING-PAPER. EZRA W. CARTER and DAVID R. SMITH, Cohoes, N. Y. Filed Sept. 18, 1884. (No specimens.)

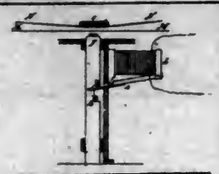


Claim.—As an article of manufacture, a sheet of filtering-paper thicker at and near its center than near its circumference, substantially as described.

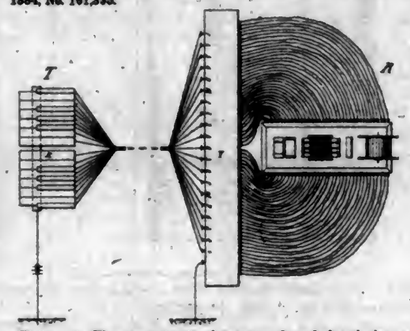
313,175. PRINTING-TELEGRAPH. GILBERT A. CARMAGNES, Paris, France. Filed May 9, 1884. (No model.) Patented in France Apr. 5, 1884, No. 161,395.

Claim.—In a machine for reproducing phonetic sounds with the aid of electricity, the combination of the phonetically-marked keys *k* with the conductor V, electro-magnets A and L L, armatures *b a a*, printing-styles F F, having notched portions b^2 d^2, plate *s*, and mechanism, substantially as described, for feeding the paper, as set forth.

313,175.



313,176. PRINTING-TELEGRAPH. GILBERT A. CARMAGNES, Paris, France. Filed May 10, 1884. (No model.) Patented in France Apr. 7, 1884, No. 161,395.



Claim.—1. The apparatus for the automatic and electrical transcriptions of conventional signs or combinations of signs forming a stenographic alphabet into ordinary letters, which apparatus embraces the combination of the keys K, line L, combiner Y, having printing electro-magnets and styles P, and batteries B B', all arranged substantially as herein shown and described.

2. The hereinbefore-described combiner Y, consisting of the conductors, printing electro-magnets, relays, circuit-breakers E° and E', and styles P, substantially as described.

3. In combination with series of keys K K, conductors L L, and electro-magnets E E, the divided sectional contact-plates H, arranged for joint operation in prearranged series, as specified.

313,177. MANUFACTURE OF TANNING EXTRACT. THEODORE F. COLES, Bedina, Pa. Filed July 8, 1884. (No specimens.)

Claim.—The process of making tanning extracts which consists in passing carbonic-acid and sulphurous-acid gases and steam through the bark-liquor contained in a common vacuum-pan, thereupon shutting off the steam, and at intervals introducing small quantities of steam, as and for the purpose shown and set forth.

313,178. TRIPLE THERMIC MOTOR. WILLIAM S. COLWELL, Pittsburg, Pa., assignor to the Triple Thermic Motor Company, New York, N. Y. Filed July 26, 1884. (No model.)

Claim.—1. The method of operating a bisulphide-of-carbon engine, which consists in evolving vapor from liquid bisulphide of carbon by applying heat thereto, and superheating the vapor under an increased temperature, which is maintained until the power thereof has been applied to the engine, substantially as described.

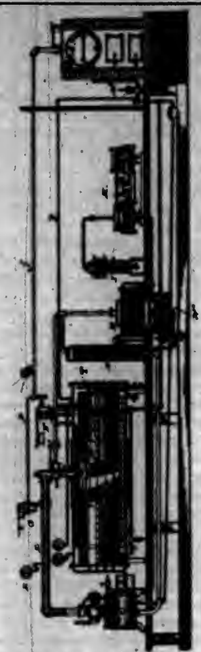
2. The method of operating a bisulphide-of-carbon engine, which consists in evolving vapor from liquid bisulphide of carbon by the application thereto of a low degree of heat, and then superheating the vapor by the application of a higher degree of heat applied thereto before it is admitted to the engine, and continuing the same throughout the power-stroke of the piston, substantially as described.

3. The method of operating a bisulphide-of-carbon engine, which consists in evolving a vapor from liquid bisulphide of carbon by applying thereto a low degree of heat, and automatically controlling the supply of heat at a higher degree of temperature to superheat the vapor, substantially as described.

4. The method of operating a bisulphide-of-carbon engine, which consists in evolving vapor from liquid bisulphide of carbon by the application of a low degree of heat thereto, controlling the supply of vapor from the generator to the conduit leading to the engine, and applying a higher degree of heat to the vapor contained in said conduit for superheating the same, substantially as described.

5. The method of operating a bisulphide-of-carbon engine, which consists in evolving vapor from liquid bisulphide of carbon by the application thereto of heat at a low degree of temperature, regulating the supply of vapor from the generator to the conduit leading to the engine, and automatically controlling the supply of heat at a higher temperature to the vapor contained in said conduit, substantially as described.

313,178.



6. The method of operating a bisulphide-of-carbon engine, which consists in evolving vapor from liquid bisulphide of carbon by applying thereto heat at a low temperature, controlling the supply of vapor from the generator to the conduit leading to the engine, superheating the vapor under a higher temperature before it is admitted to the engine, and continuing the expansion throughout the stroke of the piston, and automatically controlling the supply of said vapor to the engine, substantially as described.

7. The method of operating a bisulphide-of-carbon engine, which consists in evolving a vapor from liquid bisulphide of carbon by applying thereto heat at a low temperature, regulating the supply of vapor from the generator to a conduit leading to the engine, and automatically controlling the supply of heat at a higher temperature to the vapor contained in said conduit and the supply of vapor to the engine-cylinder, substantially as described.

8. The method of operating a bisulphide-of-carbon engine, which consists in evolving vapor from liquid bisulphide of carbon by applying heat thereto at a low temperature, superheating the vapor under a higher temperature, automatically controlling the supply of vapor to the engine-cylinder, and maintaining the vapor under a degree of expansion greater than its initial expansion until the piston has completed its power-stroke, substantially as described.

9. In a bisulphide-of-carbon engine, the method of controlling the supply of heat to the vapor-evolving chamber, which consists in automatically operating or controlling a valve which regulates the supply of heat to said evolving-chamber by the pressure of the vapor contained in the generator operating upon one end of a column of water and the gravity of a suspended weight upon the opposite end of said column, substantially as described.

10. In a bisulphide-of-carbon engine, the method of controlling the supply of heat to the vapor-superheating chamber, which consists in operating the valve which controls said supply by the pressure of the heated fluid in said expanding-chamber moving the valve in one direction and the gravity of a weight in the opposite direction, substantially as described.

11. The method of operating a bisulphide-of-carbon engine, which consists in evolving vapor from liquid bisulphide of carbon under a low temperature, controlling the supply to a conduit, where the vapor is superheated under a higher temperature, and conducting the excess of vapor to the condenser, substantially as described.

12. The method of operating a bisulphide-of-carbon engine, which consists in evolving vapor from liquid bisulphide of carbon by applying thereto heat at a low temperature, superheating the vapor under a higher temperature, applying the power of said vapor in an engine, condensing the vapor after it leaves the engine, and finally returning the condensed liquid to the generator, substantially as described.

13. The method of operating a bisulphide-of-carbon engine, which consists in evolving a vapor from liquid bisulphide of carbon by applying heat thereto at a low temperature, superheating the vapor under a higher temperature, applying the energy or power thereof in an engine, condensing the exhaust-vapor, returning the condensed liquid to the generator, and the air which may be in the condenser charged with vapor to a vessel containing water, substantially as described.

14. The method of operating a bisulphide-of-carbon engine, which consists in evolving vapor from liquid bisulphide of carbon by applying heat thereto, superheating the vapor under a higher temperature, which is maintained until it reaches the engine, applying the power thereof in an engine, condensing the exhaust-vapor, and reheating and returning the liquid to the generator at nearly the temperature at which it was evolved into vapor, substantially as described.

15. The method of operating a bisulphide-of-carbon engine, which consists in evolving vapor from liquid bisulphide of carbon under a low temperature, expanding the vapor under an increased temperature, applying the power thereof to an engine, conducting the exhaust-vapor by gravity to a condenser, and finally returning the liquid to the generator, substantially as described.

16. The method of operating a bisulphide-of-carbon engine, which consists in evolving vapor from liquid bisulphide of carbon under a low temperature, expanding the vapor under an increased temperature, conducting it to an engine, where the power is applied, and the exhaust to a condenser, reheating the liquid, and finally returning the liquid to the generator under pressure and at a temperature nearly at the boiling-point, substantially as described.

17. The method of operating a bisulphide-of-carbon engine, which consists in evolving vapor from liquid bisulphide of carbon under a low temperature, expanding the vapor under an increased temperature maintained until its energy or power has been applied as a motor, condensing the exhaust-vapor in a chamber *in vacuo*, reheating the liquid, and finally returning it to the generator, substantially as described.

18. The method of operating a bisulphide-of-carbon engine, which consists in generating steam in a suitable generator, conducting a portion thereof at a reduced pressure to a chamber surrounding a vessel containing liquid bisulphide of carbon for evolving vapor, and then expanding the vapor by the heat of steam under a higher pressure applied directly from the generator to the vapor, substantially as described.

19. The method of operating a bisulphide-of-carbon engine, which consists in generating steam in a suitable generator, conducting a portion thereof at a reduced pressure to a chamber surrounding a vessel containing liquid bisulphide of carbon for evolving vapor, and then expanding the vapor by the heat of steam under a higher pressure applied directly from the generator to the vapor in automatically-regulated quantities, substantially as described.

20. The method of operating a bisulphide-of-carbon engine, which consists in generating steam in a suitable generator, conducting a portion thereof at a reduced pressure to a chamber surrounding a vessel containing liquid bisulphide of carbon for evolving vapor, and then expanding the vapor by the heat of steam under a higher pressure applied directly from the generator to the vapor in automatically-regulated quantities before it is admitted to the engine-cylinder, substantially as described.

21. The method of operating a bisulphide-of-carbon engine, which consists in generating steam in a suitable generator, conducting a portion thereof at a reduced pressure to a chamber surrounding a vessel containing liquid bisulphide of carbon for evolving vapor, superheating the vapor by the heat of steam under a higher pressure applied directly from the generator to the vapor in automatically-regulated quantities before it is admitted to the engine-cylinder, and continued until the piston has completed its power-stroke, substantially as described.

22. The method of operating a bisulphide-of-carbon engine, which consists in generating steam in a suitable generator, conducting a portion thereof under a reduced pressure to a chamber surrounding a vessel containing liquid bisulphide of carbon for evolving vapor, and then superheating the vapor by the heat of steam under higher pressure drawn directly from the generator, conducting the vapor to the engine, and automatically controlling the supply of steam for evolving the vapor as variations in the work performed by the engine require, substantially as described.

23. The method of operating a bisulphide-of-carbon engine, which consists in generating steam in a suitable generator, applying the heat thereof to evolve vapor from liquid bisulphide of carbon and to expand the same, utilizing the energy of the vapor in an engine, and returning the water of condensation to the steam-generator with a volume of steam from the chamber which surrounds the vapor-generator, substantially as described.

24. The method of operating a bisulphide-of-carbon engine, which consists in generating steam in a suitable generator, applying the heat thereof to evolve vapor from liquid bisulphide of carbon and to expand the same, utilizing the energy of the vapor in an engine, and returning the water of condensation from the chamber surrounding the vapor-generator, the supply-conduit, and the engine-cylinder, to the steam-generator with a volume of steam from the chamber which surrounds the vapor-generator, substantially as described.

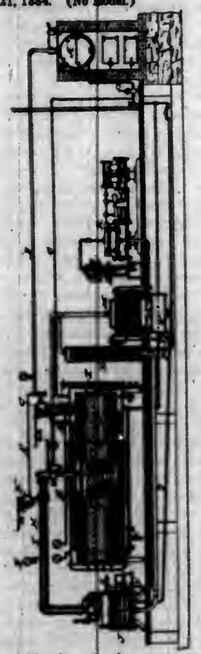
25. In a bisulphide-of-carbon engine, the method of condensing the exhaust-vapor, which consists in conducting it to a chamber in which the

major portion is liquefied and the air charged with the uncondensed vapor to a secondary vessel, in which the escape vapor from the primary vessel is condensed and the liquid bisulphide precipitated, substantially as described.

26. In a bisulphide-of-carbon engine, the method of condensing the exhaust-vapor, which consists in conducting it from the engine to a chamber in which the major portion is liquefied and the air charged with uncondensed vapor to a secondary vessel containing water, through which the escape vapors from the primary vessel pass, the liquid bisulphide precipitated, and withdrawn therefrom, substantially as described.

27. In a bisulphide-of-carbon engine, the method of relieving the air which may be contained in the condenser of the noxious odors of the vapor, which consists in conducting said air charged with vapor from the condenser through a body of water contained in a vessel, precipitating the liquid bisulphide, and discharging the air into the open atmosphere, substantially as described.

313,179. TRIPLE THERMIC MOTOR. WILLIAM S. COLWELL, Pittsburg, Pa., assignor to the Triple Thermic Motor Company, New York, N. Y. Filed Aug. 21, 1884. (No model.)



Claim.—1. The combination of a heat-generator, a vapor-generator, means, substantially as described, for applying heat to the vapor-generator, a vapor-conduit, and a superheating or expandiug chamber in which a higher degree of heat is applied to the vapor and continued until the vapor has been utilized in an engine-cylinder, substantially as described.

2. The combination of a steam-generator, a vapor-generator, a chamber surrounding the vapor-generator, a conduit for supplying steam to said chamber at a low temperature, and an automatic pressure-reducing valve operated by the vapor acting upon one end of a column of liquid and the gravity of a suspended weight upon the other end, substantially as described.

3. The combination of a steam-generator, a vapor-generator, means, substantially as described, for applying heat thereto at a low temperature, a vapor-superheating conduit, and a valve for controlling the supply of steam at a higher temperature to the chamber surrounding said conduit, substantially as described.

4. The combination of a steam-generator, a vapor-generator, means, substantially as described, for applying steam at a low pressure to liquid bisulphide of carbon to evolve vapor, a conduit for conducting the vapor to the engine and superheating the same, and a valve for controlling the supply of steam at a higher pressure to a chamber surrounding the conduit and a jacket around the working-cylinder, substantially as described.

5. The combination of a steam-generator, a vessel containing liquid bisulphide of carbon, means, substantially as described, for applying steam thereto at a low temperature for evolving vapor, a superheating-chamber, and an automatic valve for supplying steam at a higher temperature to said expanding-chamber and to a jacket around the working-cylinder, substantially as described.

6. The combination of a steam-generator, a vapor-generator, means, substantially as described, for applying steam at a low pressure to evolve vapor from liquid bisulphide of carbon, a conduit for superheating the vapor with steam direct from the steam-generator, and a relief-valve for returning any excess of vapor to the condenser, substantially as described.

7. The combination of a steam-generator, a vapor-generator containing liquid bisulphide of carbon, means, substantially as described, for evolving vapor therefrom by applying steam at a low pressure, a conduit for conveying the vapor to an engine and superheating the same, a valve for controlling the supply of vapor to the conduit, and a steam-supply-valve for controlling the steam from the generator to the chamber surrounding the conduit, substantially as described.

8. The combination of a steam-generator, a vapor-generator containing liquid bisulphide of carbon, means, substantially as described, for evolving vapor therefrom, an automatic pressure-reducing valve, a conduit for conducting the vapor to the engine and superheating the same, an automatic valve for controlling the supply of steam to the chamber surrounding the conduit, and a valve for controlling the supply of vapor to the conduit, substantially as described.

9. The combination of a steam-generator, a vapor-generator, and means for applying heat thereto at a low temperature to evolve a vapor from liquid bisulphide of carbon, a conduit for conducting the vapor to the engine, a chamber surrounding the conduit, a pressure-reducing valve for supplying steam to the vapor-generator operated by the vapor contained in the generator acting upon one end of a column of liquid and the gravity of a weight upon the other end, and a valve for controlling the supply of steam direct from the generator to the superheating-chamber at a higher temperature operated by the pressure of steam in said chamber and the gravity of a suspended weight, substantially as described.

10. The combination of a steam-generator, a vessel in which liquid bisulphide of carbon is evolved into vapor by the application of heat at a low temperature, a conduit in which it is superheated under heat of a higher temperature automatically supplied and continued throughout the working stroke of the engine, a valve for controlling the supply of vapor to the conduit, and an automatically-operated valve for supplying the engine and cutting off the supply, substantially as described.

11. The combination of a steam-generator, a vapor-generator containing liquid bisulphide of carbon evolved into vapor at a low temperature and superheated under a higher temperature by the application thereto of steam direct from a steam-generator, an engine in which the energy of the vapor is applied, and a condenser to which the exhaust is returned, substantially as described.

12. The combination of a steam-generator, a vapor-generator containing liquid bisulphide of carbon evolved into vapor at a low temperature and superheated at a higher temperature by steam from the generator, said expansion being maintained above its initial expansion until its power has been applied to an engine, a condenser, and a washer into which the air which may be contained in the condenser charged with uncondensed vapor is conducted, substantially as described.

13. The combination of a steam-generator, a vapor-generator containing liquid bisulphide of carbon, means, substantially as described, for evolving vapor therefrom under a low degree of heat and superheating the vapor under a higher degree of heat automatically controlled and maintained during the stroke of the engine-piston, a condenser, and a vacuum-pump whereby the exhaust-vapor is returned to the condenser by gravity, substantially as described.

14. The combination of a steam-generator, a vapor-generator containing liquid bisulphide of carbon evolved into vapor by the application of heat at a low temperature and superheated by heat at a higher temperature automatically supplied and maintained until the power thereof has been applied to an engine, a condenser, a reheater, and a pump for returning the liquid bisulphide to the vapor-generator at nearly the temperature at which it is evolved into vapor, substantially as described.

15. In a bisulphide-of-carbon engine, the combination of the condenser, the vacuum-pump, and the washer partly filled with water, substantially as described.

16. In a bisulphide-of-carbon engine, the washer partly filled with water, a dip-pipe projecting into the water, a receptacle for the precipitated liquid bisulphide of carbon, an outlet for said liquid, and an escape-pipe for the air into the open atmosphere, substantially as described.

17. In a bisulphide-of-carbon engine, the combination of the condenser, the well, the washer, the vacuum-pump, and the liquid-pump for returning the liquid bisulphide to the vapor-generator, substantially as described.

18. In a bisulphide-of-carbon engine, the combination of a steam-generator, a vapor-generator, and conduit for conducting the vapor to the engine, the chambers surrounding the vapor-generator, the conduit, and the cylinder, and means, substantially as described, for conducting steam to said chambers and returning the water of condensation with a volume of steam from the chamber surrounding the vapor-generator to a pump for returning said water to the steam-generator, substantially as described.

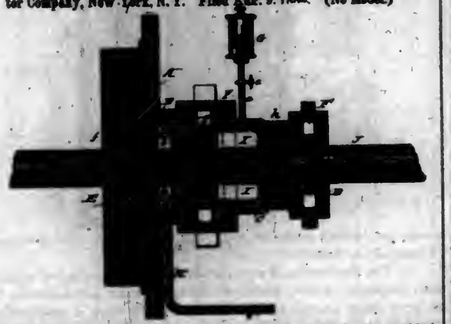
19. In a bisulphide-of-carbon engine, the combination of the engine, its exhaust-ports, the chamber surrounding the piston and valve-rods, the condenser, and a vacuum-pump, substantially as described.

20. In a bisulphide-of-carbon engine, the combination of the chambers surrounding the piston and valve rods, the condenser, and a vacuum-pump, substantially as described.

21. In a bisulphide-of-carbon engine, the valve for controlling the supply of steam to the vapor-generator, which consists of a balanced valve, a piston and diaphragm, suitable intermediate connections, and a suspended weight, in combination with a pipe containing a column of water interposed between the diaphragm and the vapor contained in the vapor-generator, substantially as described.

22. In a bisulphide-of-carbon engine, the valve for controlling the supply of steam in regulated quantities and at a predetermined pressure to the chamber surrounding the vapor-conduit, which consists of a balanced valve, a piston, a diaphragm, and suitable intermediate connections, in combination with a pipe connecting with said chamber to admit steam to the diaphragm to move the valve in one direction, and a lever and a suspended weight to return the valve to its normal position, substantially as described.

313,180. MEANS FOR PACKING PISTON AND VALVE RODS. WILLIAM S. COLWELL, Pittsburg, Pa., assignor to the Triple Thermic Motor Company, New York, N. Y. Filed Aug. 9, 1884. (No model.)



Claim.—1. In a rod-packing, the combination of a head provided with a packing-chamber and a ring interposed between the strata of packing material, and a separate chamber containing a liquid packing, substantially as described.

2. In a rod-packing, the combination of a head provided with a chamber for containing a solid packing, a ring interposed between the strata of the solid packing, and a gland provided with a liquid-packing chamber, substantially as described.

3. In a rod-packing, the combination of a head provided with a chamber for containing a solid packing, and a gland having two chambers, one for a body of liquid in which the rod reciprocates and the other for solid packing, substantially as herein described.

4. In a rod-packing, the combination of a head provided with a chamber for containing a solid packing, a ring interposed between the strata thereof, and a gland provided with a liquid and a solid packing chamber, substantially as herein described.

5. In a rod-packing, the combination of a head provided with a chamber containing packing material, and a ring interposed between the strata of packing, provided with chambers surrounding the rod and adapted to be put in communication with a vacuum-producing device, substantially as herein described.

6. In a rod-packing, the combination of a head provided with a chamber containing packing material, and an interposed ring provided with a chamber or chambers adapted to be put in communication with a vacuum-producing device, and an oil-chamber surrounding the rod, substantially as herein described.

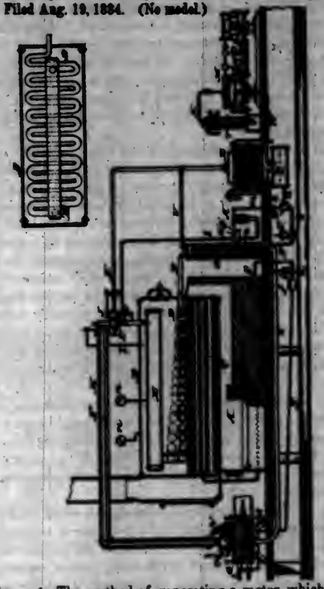
7. In a rod-packing, the combination of a head provided with a chamber containing packing material, and a chamber adapted to be put in communication with a vacuum-producing device, with a gland provided with an oil-chamber surrounding the rod, and a reservoir, substantially as herein described.

8. In a rod-packing, the combination of a head provided with a chamber containing packing material, a ring interposed between the strata of the packing, a separate oil-chamber surrounding the rod, and a packing-chamber beyond the oil-chamber, substantially as herein described.

9. In a rod-packing, the combination of a head provided with a chamber containing suitable packing material, a ring interposed between the sections of packing, and having chambers adapted to be put in communication with a vacuum-producing device, a gland provided with a chamber for containing a liquid packing, and a solid packing beyond said liquid-chamber, substantially as herein described.

10. In a rod-packing, the combination of a head provided with a chamber containing a packing in two sections, a ring interposed between said sections, a gland having two packing-chambers, and suitable connections for securing the gland to the head and the outer gland to the main gland, substantially as herein described.

313,181. TRIPLE THERMIC MOTOR. WILLIAM S. COLWELL, Pittsburg, Pa., assignor to the Triple Thermic Motor Company, New York, N. Y. Filed Aug. 19, 1884. (No model.)



Claim.—1. The method of generating a motor which consists in conducting liquid bisulphide of carbon into a generator of varying capacity, subjecting the liquid to the heat of water or steam to evolve vapor and expand the same, and conducting the vapor to an engine, substantially as described.

2. The method of generating a motor which consists in conducting liquid bisulphide of carbon into a generator of varying capacity contained within a steam-boiler, subjecting the liquid to the heat of the water or steam in the boiler to evolve vapor and expand the same, and conducting the vapor to an engine through a conduit surrounded by steam from the boiler, substantially as described.

3. The method of generating a motor which consists in conducting liquid bisulphide of carbon into a generator of varying capacity, subjecting the liquid to the heat of water or steam to evolve vapor and expand the same, superheating the vapor in a chamber surrounded by steam, and conducting the vapor to an engine, substantially as described.

4. The method of generating a motor which consists in conducting liquid bisulphide of carbon into a generator of varying capacity, subjecting the liquid to the heat of hot water or steam to evolve vapor and expand the same, superheating the vapor in a chamber subjected to the heat of steam, and maintaining the tension of the vapor until it reaches an engine, substantially as described.

5. The method of generating a motor which consists in conducting liquid bisulphide of carbon into a generator of varying capacity contained within a steam-boiler, subjecting the liquid to the heat of the water or steam in the boiler to evolve vapor and expand the same, superheating the vapor in a chamber, also contained within the boiler and exposed to the steam thereof, and maintaining the heat and tension of the vapor until it has performed its office upon the piston of an engine, substantially as described.

6. The method of generating a motor which consists in conducting liquid bisulphide of carbon into a generator of varying capacity, heated by hot water or steam, gradually evolving vapor, expanding the vapor in increasing volume until it leaves the generator, and superheating the vapor in a chamber connected to the generator and subjected to heat, substantially as described.

7. The method of generating a motor which consists in conducting liquid bisulphide of carbon into a generator of varying capacity contained in a steam-boiler and subjected to the heat of the water or steam, gradually evolving vapor, and expanding the same in increasing quantities until the vapor leaves the generator, substantially as described.

8. The method of generating a motor which consists in conducting liquid bisulphide of carbon into a generator of varying capacity contained in a steam-boiler and subjected to the heat of boiling water or steam, gradually evolving vapor, expanding the same in increasing quantities until it leaves the generator, superheating the vapor in a separate chamber, also contained in the boiler and surrounded by steam, substantially as described.

9. The method of generating a motor which consists in conducting liquid bisulphide of carbon into a generator of varying capacity contained

in a steam-boiler and subjected to the heat of the water or steam, gradually evolving vapor, and expanding the same in continually-increasing quantities until it leaves the generator, substantially as described.

10. The method of generating a motor which consists in conducting liquid bisulphide of carbon into a generator of varying capacity contained in a steam-boiler and subjected to the heat of boiling water or steam, gradually evolving vapor, expanding the same in continuously-increasing quantities until it leaves the generator, and superheating the vapor in a chamber also contained in the boiler and surrounded by steam, substantially as described.

11. The method of generating a motor which consists in conducting liquid bisulphide of carbon into a generator of varying capacity contained in a steam-boiler and surrounded by water or steam, gradually evolving vapor, expanding the same in continuously-increasing volume until it leaves the generator, superheating the vapor in a chamber also contained in a boiler and surrounded by steam, and conducting the vapor to an engine through a conduit surrounded by steam, substantially as described.

12. The method of generating a motor which consists in conducting liquid bisulphide of carbon into a generator of varying capacity, subjected to the heat of boiling water or steam to gradually evolve vapor, expanding the vapor in increasing volume before it leaves the generator, and superheating the vapor in a reservoir communicating with the generator, but separated from the liquid bisulphide of carbon, substantially as described.

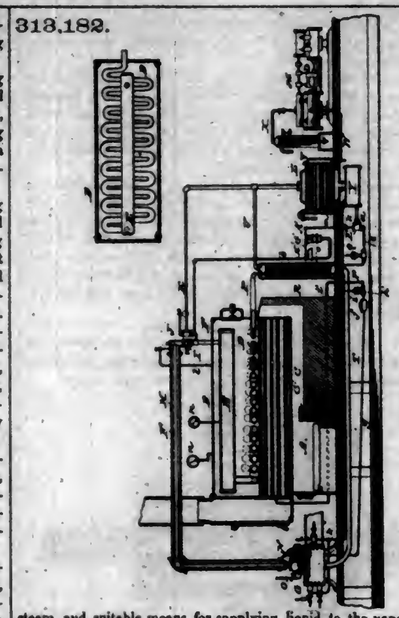
13. The method of operating a vapor-engine which consists in conducting liquid bisulphide of carbon into a generator of varying capacity, evolving vapor therefrom by the application of heat, expanding the vapor before it leaves the generator, condensing it to an engine, condensing the exhaust-vapor, and returning the liquid to the generator, substantially as described.

14. The method of operating a vapor-engine which consists in conducting liquid bisulphide of carbon into a generator of varying capacity, evolving vapor therefrom by the application of heat, expanding the vapor before it leaves the generator in increasing volume, superheating the vapor and maintaining the tension thereof until it reaches the engine, condensing the exhaust-vapors, reheating the liquid resulting from condensation of the exhaust-vapor, and returning said heated liquid to the vapor-generator, substantially as described.

15. The method of operating a vapor-engine which consists in conducting liquid bisulphide of carbon into a generator of varying capacity, evolving vapor and expanding the same before it leaves the generator, superheating the vapor and maintaining the tension thereof until it has performed its work on the piston of an engine, condensing the exhaust-vapor from the engine, utilizing said exhaust to reheat the liquid, and returning the liquid to the generator at nearly its boiling-point, substantially as described.

16. The method of operating a vapor-engine which consists in conducting liquid bisulphide of carbon into a generator of increasing capacity, evolving vapor and expanding the same before it leaves the generator, superheating the vapor in a separate chamber, conducting the vapor required to an engine, and any excess from the supply-pipe to a condenser, substantially as described.

313,182. TRIPLE THERMIC MOTOR. WILLIAM S. COLWELL, Pittsburg, Pa., assignor to the Triple Thermic Motor Company, New York, N. Y. Filed Jan. 13, 1885. (No model.)



Claim.—1. The combination of a steam-boiler, a vapor-generator of varying capacity heated by the water or steam of the boiler, and suitable means for supplying volatile liquid to the vapor-generator, substantially as described.

2. The combination of a steam-boiler, a vapor-generator of varying capacity, and a superheating-chamber, the former heated by water or steam and the latter by the steam of the boiler, substantially as described.

3. The combination of a steam-boiler, a vapor-generator of varying capacity heated by water or steam, a superheating-chamber, and a vapor-conduit surrounded by steam from the boiler, substantially as described.

4. The combination of a steam-boiler, a vapor-generator of varying capacity heated by water or steam, a superheating-chamber surrounded by steam, an engine, a condenser, a heater, and suitable means for returning the liquid to the generator, substantially as described.

5. The combination of a steam-boiler, a vapor-generator of varying capacity heated by water or steam, a superheating-chamber surrounded by steam, an engine, a condenser, a washer, and a well from which the liquid is returned to the vapor-generator, substantially as described.

6. The combination of a steam-boiler, a vapor-generator of varying capacity contained within the boiler, and heated by the water or steam to evolve vapor, and suitable means for supplying liquid to the vapor-generator, substantially as described.

7. The combination of a steam-boiler, a vapor-generator of continuously-increasing capacity contained within the boiler, and heated by the water or steam to evolve vapor and expand the same, and suitable means for supplying liquid to the vapor-generator, substantially as described.

8. The combination of a steam-boiler, a vapor-generator of varying capacity contained within the boiler, and heated by the water or steam, a superheating-chamber, also contained in the boiler, and surrounded by steam, and suitable means for supplying liquid to the vapor-generator, substantially as described.

9. The combination of a steam-boiler, a vapor-generator of continuously-increasing capacity contained within the boiler, and heated by the water or steam to evolve vapor and expand the same, a superheating-chamber, also contained within the boiler, and a vapor-conduit surrounded with steam, substantially as described.

10. The combination of a steam-boiler, a vapor-generator of varying capacity arranged transversely of the boiler, above the tubes thereof, and surrounded by the water or steam to evolve vapor and expand the same, substantially as described.

11. The combination of a steam-boiler, a vapor-generator of continuously-increasing capacity arranged transversely of the boiler, and surrounded with water or steam to evolve vapor and expand the same in continuously-increasing quantities, a superheating-chamber above the generator, surrounded by steam, and a vapor-conduit leading to an engine, provided with a steam-jacket supplied from the boiler, substantially as described.

12. The combination of a steam-boiler, a vapor-generator of varying capacity arranged transversely of the boiler, supported by the tubes thereof, and subjected to the heat of the water or steam to evolve vapor and expand the same in continuously-increasing volume, and suitable means for supplying liquid to the generator, substantially as described.

13. The combination of a steam-boiler, a vapor-generator of varying capacity arranged transversely of the boiler, supported by the tubes thereof, and subjected to the heat of water or steam to evolve vapor and expand it in continuously-increasing volume, a superheating-chamber above the vapor-generator, connected therewith, but separated therefrom by an interposed connection, and surrounded by the steam of the boiler, and a vapor-conduit, also surrounded by steam from the boiler, substantially as described.

14. The combination of a steam-boiler, a vapor-generator of varying capacity, and a superheating-chamber contained within the boiler, an engine, a condenser, and a pipe provided with a safety-valve connecting the superheating vapor-chamber and the condenser, substantially as described.

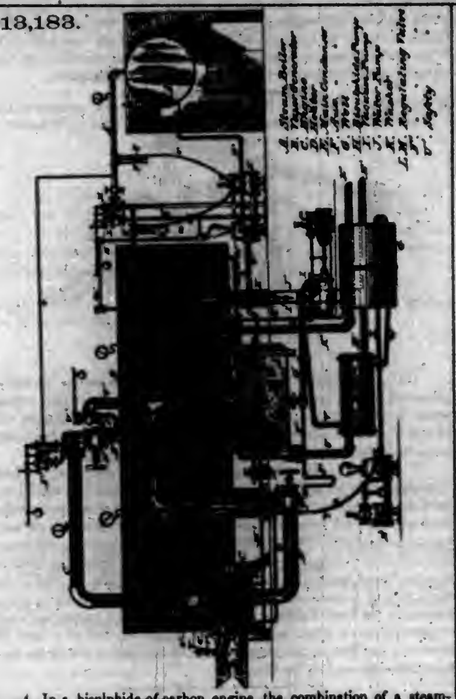
313,183. TRIPLE THERMIC MOTOR. WILLIAM S. COLWELL, Pittsburg, Pa., and ANDREW J. DAVIS, New York, assignors to the Triple Thermic Motor Company, New York, N. Y. Filed Jan. 13, 1885. (No model.)

Claim.—1. In a bisulphide-of-carbon engine, the combination of a steam-boiler, a vapor-generator, a main and an auxiliary condenser, and a well to collect the liquid bisulphide of carbon resulting from condensation of the exhaust-vapors from the engine, substantially as described.

2. In a bisulphide-of-carbon engine, the combination of a steam-boiler, a vapor-generator, a main and an auxiliary condenser, a supply-pipe conducting water to the auxiliary condenser, from which it passes to the main condenser, a water-overflow pipe, and a well, substantially as described.

3. In a bisulphide-of-carbon engine, the combination of a steam-boiler, a vapor-generator, a heater, a main and auxiliary condenser, a well, and a vacuum-pump, substantially as described.

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4. In a bisulphide-of-carbon engine, the combination of a steam-boiler, a vapor-generator, a heater, a main and auxiliary condenser, a well, a washer, and a vacuum-pump, substantially as described.

5. In a bisulphide-of-carbon engine, the combination of a steam-boiler, a vapor-generator, a heater, a main and auxiliary condenser, a well, a vacuum-pump, and a pump for returning the liquid bisulphide of carbon to the vapor-generator, substantially as described.

6. In a bisulphide-of-carbon generator, a pipe communicating with the space between the inner and outer vessels, and adapted by means of suitable connections to relieve the generator of air preparatory to introducing steam to evolve vapor, substantially as described.

313,184. ARGAND LAMP-BURNER. JAMES A. COWLES, Chicago, Ill. Filed Oct. 18, 1883. (No model.)

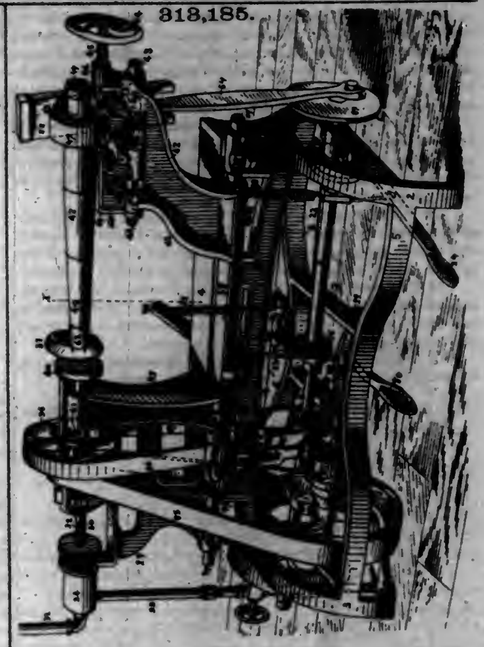


Claim.—1. In combination with an Argand lamp-burner, a wick-raising tube and means for raising and lowering the same and a pressure-ring, substantially as and for the purpose shown.

2. In an Argand lamp-burner, the combination of a wick-raising tube and means for raising and lowering the same, a pressure-ring located within said wick-raising tube, an inner air-tube, and an outer tube, and a flame-spreader located above the air-tube, substantially as and for the purpose shown.

313,185. HEEL-BURNISHING MACHINE. OLIVER G. CRITCHETT, Belfast, Me. Filed Nov. 19, 1884. (No model.)

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Claim.—1. In a heel-burnishing machine, the combination, with a burnishing-disk, of devices, substantially as specified, adapted and arranged to lock and support the shoe, and to reciprocate the same both in a lineal direction parallel to the axis of said disk and in the arc of a circle coincident, or nearly so, with the length of the arc of the heel-edge, substantially as specified.

2. The combination of the rotary burnishing-disk 31, shoe-carrying arm 49, and the heel-abutting disk 40, the crank-driven rack 52 and pinion 51, for imparting a rotary reciprocation to said arm, the vibrating jack carrying said arm on the rack and pinion, with means for rocking said jack to insure contact between disk 31 and the shoe-heel, and rotary cam 87 and its coacting lever 88, arranged to lineally reciprocate said arm 49 and the shoe thereon secured, substantially as specified.

3. The combination, with the vibrating shoe-supporting jack, with its lever 70, spring 72, and rocking lever 73, of rotary cam 76, formed with a higher and lower arc, whereby the tension upon said spring is alternately increased and decreased as the action of rack 52 upon said jack is successively reversed, substantially as specified.

4. The combination, with the vibrating jack provided with means for holding and reciprocating the shoe, of hinged bracket 45, with means for locking and releasing the same, substantially as specified.

5. The combination, with the vibrating and lineally-reciprocating jack having the rotary shoe-carrying arbor mounted thereon and provided with its actuating-pinion, of rack 52, adjustable crank-disk 57, and pitman 54, connected with said rack and disk by universal joints to allow the lineal and vibratory movement of said jack, substantially as specified.

6. In a heel-burnishing machine, a jack adapted and arranged to be reciprocated in a direction parallel with the axis of the burnishing-disk, to be vibrated toward and from said disk to make and break contact of the shoe-heel therewith, and also carrying a shoe-supporting arm, with combined devices, substantially as described, adapted to impart a rotary reciprocation to said arm and the shoe thereon supported, substantially as specified.

7. The combination of burnishing-disk 31, the pivoted jack, its heel-abutting disk 40, the shoe-carrying arm 49, with its pinion 51, rack 52, with means for reciprocating the same, and arm 70, spring 72, lever 73, and rotary cam 76, for imparting pressure of the shoe-heel upon the burnishing-disk, all substantially as specified.

8. The combination, with the rotary burnishing-disk, the jack, and its shoe-carrying arm, of driving-shaft 9, the pulley and coacting clutch thereon mounted, a crank or crank-disk mounted on said shaft, with coacting devices to rotate said shoe-carrying arm, the treadle 24 and disk 26, arranged and adapted to interlock, and the clutch-actuating devices arranged to be actuated by said treadle to release or lock said clutch with its coacting pulley, substantially as specified.

9. The combination, with the vibrating jack, its rocking lever 70, the tension-spring 72, and means for adjusting the action thereof, of treadle 80, duly pivoted, and its rod 81, connected with said lever 70, and adapted through the action of the treadle to rock said jack and break contact between the shoe-heel and burnishing-disk, substantially as specified.

10. The combination of the rotary burnishing-disk, the vibrating and lineally-reciprocating jack, its shoe-carrying arm and pinion thereon, the driving-shaft, its pulley and coacting clutch devices, the shipping and stopping treadle, with the coacting devices whereby it actuates said clutch, the cam and its coacting lever, whereby the jack is lineally reciprocated, and the treadle and tension devices, whereby the jack is vibrated toward or from the burnishing-disk, all substantially as specified.

11. The combination, with the rotary burnishing-disk, of the rotary heel-abutting support 40 and the shoe-supporting arm 49, both said heel-support and arm being arranged and provided with means, substantially as described, whereby they are coincidently reciprocated in the direction of the axis of the burnishing-disk, and are coincidently vibrated toward and from said disk, substantially as specified.

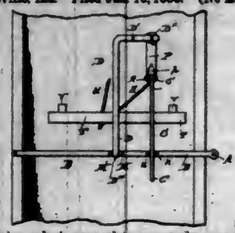
12. The combination, with rotary burnishing-disk 31, of the rotary heel-abutment 40 and arm 49, with means, substantially as described, for both clamping the shoe between the same and imparting thereto a rotary reciprocation coincident in extent with the length of the arc of the shoe-heel, substantially as specified.

13. The combination of the rotary burnishing-disk, the rotary heel-abutment, the shoe-carrying arm 49 and its hinged bracket arranged to slide upon its supporting-rod, a locking device, and an actuating device to force said arm toward the heel-abutment, all substantially as specified.

14. The combination, with rotary cam 87, slotted cam-lever 88, and jack-rod 37, of the vertically-adjustable fulcrum or pivot adapted to be locked in position to impart the required reciprocation to said rod and the jack thereon mounted, substantially as specified.

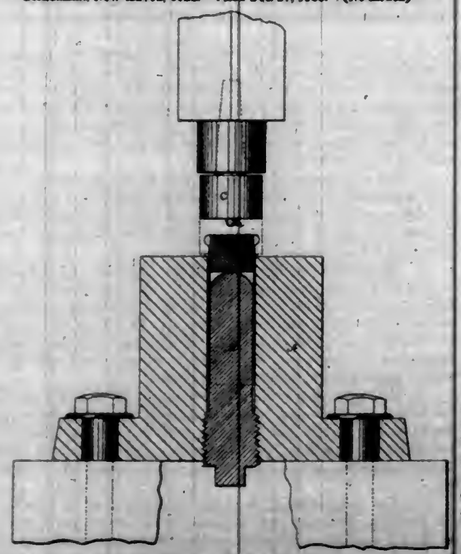
15. The combination, with arm 49, with its spurs 60, of sliding cap 61 and its expanding spring 164, substantially as specified.

313,186. CAR-BRAKE. PAUL H. CURTNER, Hazleton, and CHARLES C GEHONS, Evansville, Ind. Filed Jan. 15, 1885. (No model.)



Claim.—A brake-rod, A, curved transversely over the roof of a car, passing through a plate, G, having ratchet-teeth, and spring H, attached to the side of a car, said rod A being pivotally attached to a curved plate, F, by means of a bolt, F', in combination with bar B, having lugs K and M, the bar D, having curved portion D''', adapted to fit over said bar B between lugs M, the said bar D being curved at the other end and pivoted to the bottom of a car, the bar P, bolted thereto, having fork *p*, the bar C, pivotally connected therewith at one end, and having fork C' at the other end adapted to slide over bar B, between the lugs K and the rod S, attached to bar P at one end and to the brake-beam T at the other, substantially as described, and for the purposes set forth.

313,187. ART OF MAKING METALLIC CARTRIDGE-SHELLS. A. DICKERMAN, New Haven, Conn. Filed Dec. 27, 1883. (No model.)



Claim.—The herein-described improvement in the art of making metallic cartridge-shells, consisting, essentially, in punching from sheet metal and forming the cup at one and the same operation, in drawing the cup into the form of a shell, in forming a hollow flange in the head of the shell, in inserting the base, and in forcing the base into the hollow flange, clamping the hollow flange onto that part of the base within the flange, and forming the pocket at one and the same operation, all the aforesaid several operations in the order and manner described.

313,188. MOTOR. THOMAS DODDS, Cedartown, Ga., assignor of one-half to Joseph H. Dodds, same place. Filed Jan. 9, 1885. (No model.)



Claim.—1. In a motor, the combination, with a pair of pivotally-connected frames, each of which has a transverse shaft carrying a band wheel or pulley, of a spacing-rod pivoted to one of the said frames, and having a pawl end adapted to enter any one of a series of notches in the other frame, substantially as and for the purpose herein set forth.

2. In a motor, the combination of an upright frame, an inclined frame connected pivotally to the upper end of the same, a shaft journaled transversely in the upright frame, and having a crank and a large band-wheel, a shaft journaled transversely in the inclined frame, and having a fly-wheel and a band-pulley, a belt or band connecting the latter with the main or large band-wheel, a lever upon the connecting-shaft of the upright and inclined frames, and a pitman connecting one end of the said lever with a crank on one end of the shaft in the inclined frame, a belt connecting the band-wheels of the upright and inclined frames, and a rod or pawl pivoted to latter, and adapted to engage any one of a series of notches in one side of the upright frame, substantially as and for the purpose herein shown and specified.

313,189. HARNESS-TRIMMING. JOHN G. EBERHARD, Akron, Ohio. Filed Aug. 29, 1884. (No model.)



Claim.—1. A harness-terret provided with a glass or porcelain collar, *s*, loosely retained on the shank of the terret by and in combination with screw-nut *n* on the screw-threaded part of the terret-shank, substantially as described.

2. A harness-terret consisting of metal, in combination with glass or porcelain, the metallic part *a* being formed with a split shank, *a'*, substantially as described.

313,190. FOLDING PAPER BOX. CHARLES W. ELLIOTT, Moncton, New Brunswick, Canada, assignor of one-half to George E. Mackintire, Melrose, Mass. Filed Oct. 3, 1884. (No model.)



Claim.—1. In a folding paper box, the combination, with the body of the box, of inwardly-folding end flaps, and pliable false ends external to said flaps permanently attached to and adapted to fold up with the body of the box, substantially as and for the purposes hereinbefore set forth.

2. The body strip A, creased to form the sides 1 3 and top and bottom 2 4, in combination with the folding end flaps, *b*, and the pliable false ends *c*, as herein shown and described.

313,191. MEASURE-SPOUT. FREEMAN ETHERIDGE, Bradford, Pa. Filed Dec. 5, 1884. (Model.)

Claim.—1. A measure-spout provided with an elastic shank, *a a' a'*, adapted to be held automatically in or to the top of a measure, as and for the purpose described.

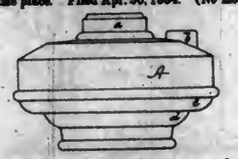
313,191.



2. A measure-spout having guide-lip a^3 and one or more inwardly-turned lips, a^3, arranged substantially as and for the purpose set forth.

3. A new article of manufacture consisting of a measure-spout constructed with a spring-shank, *a a' a'*, and lips a^3 a^3, substantially as shown and described.

313,192. LAMP. THOMAS EVANS, Pittsburg, Pa., assignor to Thomas Evans & Co., same place. Filed Apr. 30, 1884. (No model.)



Claim.—A lamp-body, A, having the seats *c* and *d* suitably spaced and constructed to fit the different standard sizes of rings or cups of a chandelier or bracket, substantially as set forth.

313,193. DEVICE FOR LOCKING JOINTS. EDWARD L. GAYLORD, Bridgeport, Conn. Filed Sept. 3, 1884. (No model.)

Brief.—The meeting surfaces of a joint are provided with open recesses, in which is located the wrench-hold of a mutilated double-ended right-and-left-hand screw.



Claim.—1. In combination with the two portions of a joint, a right-and-left-hand mutilated screw, constructed and adapted as hereinbefore set forth.

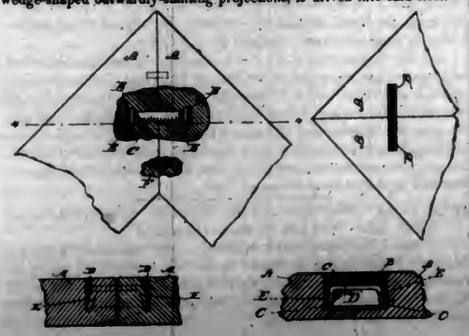
2. The combination, with a mutilated screw, as described, provided at its central portion with a wrench-hold, of the two portions of wood forming a joint, having recesses therein corresponding to one another, at right angles to the surfaces to be joined, conformed in cross-section to the shape of the locking device, and adapted to receive the respective ends of the screw, substantially as set forth.

3. The combination, with the screw, as described, of the two portions of wood provided with recesses, as described, and having their meeting edges cut away at right angles to said recesses, whereby the wrench-hold upon the screw may be readily reached, substantially as described.

4. In a device for securing the meeting surfaces of a joint, the joint having the said surfaces cut away and recessed, as described, in combination with the double-ended screw having right and left threads, mutilated, as described, and adapted to be inserted within said recesses and cam against the walls thereof, thereby drawing and holding said surfaces tightly together, substantially as hereinbefore shown and specified.

313,194. DEVICE FOR LOCKING JOINTS. EDWARD L. GAYLORD, Bridgeport, Conn. Filed Sept. 3, 1884. (No model.)

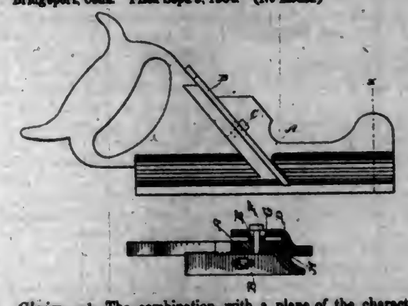
Brief.—Portions of wood forming a joint have cut therein slots, one-half formed in each portion, and a locking device of cast metal, provided with a flange extending around three sides thereof, and at either end with wedge-shaped outwardly-slanting projections, is driven into said slots.



Claim.—1. In combination with the portions of wood forming a joint, and having cut therein slots, as described, the locking device having upon three edges thereof a flange, and at either end thereof the outwardly-projecting wedge-shaped projections, substantially as hereinbefore set forth and specified.

2. In a joint-lock, the body D, having flange C, and provided at either end with the wedge-shaped outwardly-slanting projections E, arranged as described, and for the purpose set forth.

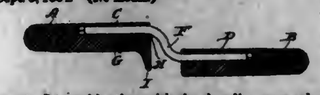
313,195. PLANE FOR PICTURE-MOLDINGS. EDWARD L. GAYLORD, Bridgeport, Conn. Filed Sept. 3, 1884. (No model.)



Claim.—1. The combination, with a plane of the character described, of a guide extending more or less over the plane-sole, and a metal strip extending along the cutting-edge of the iron next the gage, whereby stock of greater or less thickness may be accommodated and planed and the edge preserved intact, substantially as set forth.

2. The combination of stock A, iron B, slotted guide D, secured to the stock by bolts F, having washers G, and strip H, lying along the edge of the iron next the guide, all arranged as described, and for the purpose set forth.

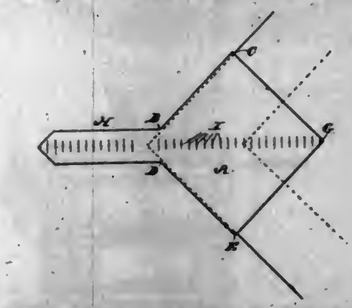
313,196. TOOL FOR BEVELING AND FINISHING THE EDGES OF WOODEN PICTURE-MATS. EDWARD L. GAYLORD, Bridgeport, Conn. Filed Sept. 3, 1884. (No model.)



Claim.—1. In combination with the handle, recessed as described, and having secured therein the blade, a metal strip lying in the recess and against the lower side of the blade, whereby the latter is prevented from cutting the edge of the wood next the gage, substantially as described.

2. The combination of handles A B, constructed and recessed as described, blade F, plates C D, adapted to clamp the blade to the handles, and strip H, lying in the recess of the handle and against the bottom of the blade, all arranged as described, and for the purpose specified.

313,197. MAT-GAGE FOR PICTURE-FRAMES. EDWARD L. GAYLORD, Bridgeport, Conn. Filed Sept. 3, 1884. (No model.)



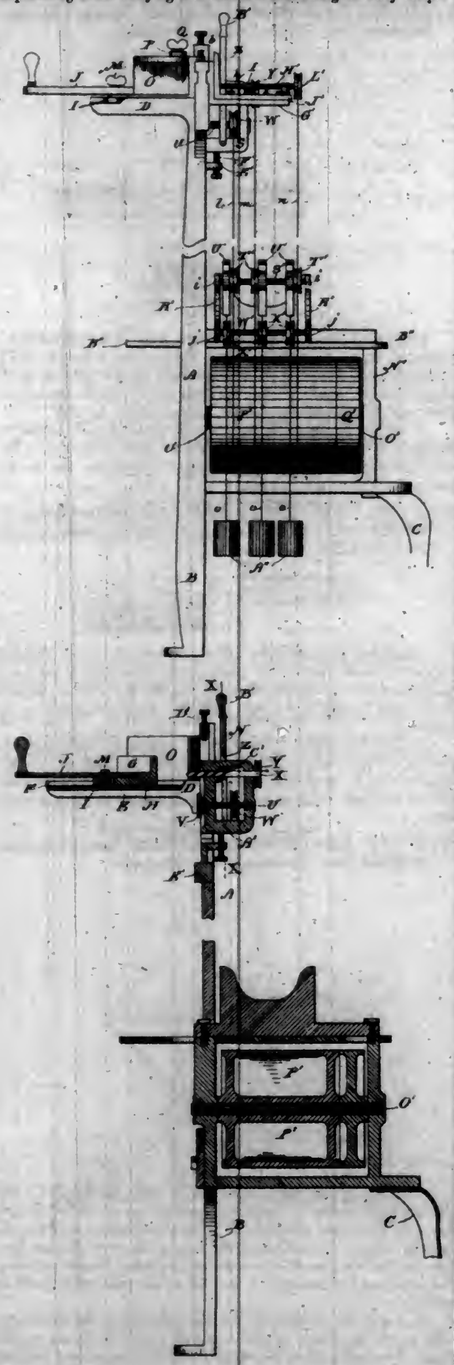
Claim.—1. The gage as described, the same consisting of a flat sheet of metal having an outward projection from one corner thereof, and in the same plane provided with a line of perforations extending diagonally across its face and along the center of the projection, and having upon the two sides contiguous to said projection flanges extending downward and at right angles to the body of the gage, substantially as set forth.

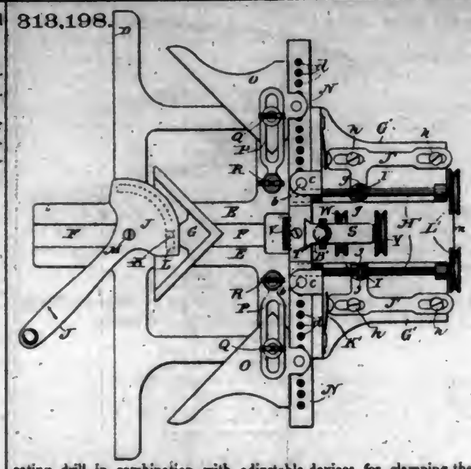
2. A gage for picture-mats, the same consisting of the sheet-metal body A, having formed integral therewith projection H, and having flanges F extending along the sides B C and D E thereof, and provided

with a line of perforations, l, extending diagonally across the face and out upon the projection H, substantially as set forth.

313,198. MACHINE FOR PREPARING MITER-JOINTS FOR FASTENINGS. EDWARD L. GAYLORD, Bridgeport, Conn. Filed Sept. 8, 1884. (No model.)

Claim.—1. In a machine for preparing the meeting edges of miter or other joints for the accommodation of fastening devices, a vertically-reciprocating frame carrying a circular saw and a longitudinally-reciprocating drill, in combination with adjustable devices for clamping the moldings in position, substantially as set forth.





2. In a machine for preparing the meeting edges of miter and other joints for the accommodation of fastening devices, the frame adapted to reciprocate vertically within dovetailed bearing in the stand, and carrying the saw and slotting-drill, and pulleys for rotating the same, in combination with the gripping devices which hold the said edges against the abutment-rail within the field of operation of said saw and drill, substantially as set forth and shown.

3. In a machine as described, the platform having the abutment-rail extending transversely thereon, perforated and slotted as described, in combination with the guide-blocks resting on said platform and adjustable along said rail, and having attached thereto leveling-links, adjustable brackets arranged to slide on said platform and rail, and supporting-bars adapted to reciprocate longitudinally and carrying the dowel-drills, and the frame adapted to reciprocate vertically within the stand which supports the platform, and carrying the saw and slotting-drill, substantially as shown and described.

4. The guide-blocks O, resting upon the platform and adjustably secured to the abutment-rail N, and having adjustably atttached thereon the leveling-links P, in combination with the gripping devices, substantially as and for the purpose set forth.

5. The block G, adapted to slide within dovetailed bearings in the platform D, and provided with pin K, in combination with the cam-lever having curved elongated slot L, and pivoted to the block I, adapted to slide in said bearings, the abutment-rail, and the guide-blocks adjustably secured thereto, substantially as and for the purpose specified.

6. In combination with the block G, constructed and arranged as described, and the cam-lever J, provided with a curved longitudinal slot, L, engaging with a pin, K, projecting upward from the block, the set-screw M, passed through said lever through the block I, arranged to slide in dovetailed bearings, said screw adapted to bear against the platform and thereby clamp the block, abutment-rail N, and guide-blocks O, adjustably attached to said rail, substantially as shown and described.

7. The abutment-rail having at its upper surface perforations *d*, and with central longitudinal openings, *f*, extending through the same from side to side, in combination with the brackets G', supporting the bars carrying the dowel-drills, capable of a longitudinal reciprocation, the guide-blocks O, carrying the leveling-links, and the gripping devices arranged to slide in dovetailed bearings in the platform, substantially as set forth.

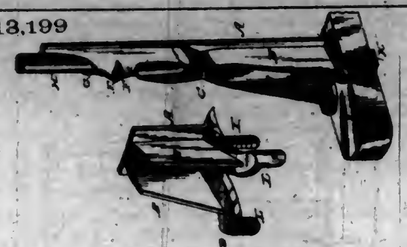
8. The vertically-reciprocating frame S, carrying the drill X and circular saw V, in combination with the set-screws D' F', placed above and below the frame, respectively, whereby the drill and frame may be limited in their movement, substantially as set forth.

9. The forked lever Z, pivoted to the frame S, capable of a vertical reciprocation and connected to the drill X by means of pins extending within a groove in a collar, C', secured on said drill, whereby the drill may be thrown inward, in combination with the guide-blocks O, adjustable along the abutment-rail N, and carrying the leveling-links P, and the gripping devices arranged to slide in dovetailed bearings in the platform, and adapted to clamp the molding against the said blocks and rail, substantially as and for the purposes set forth.

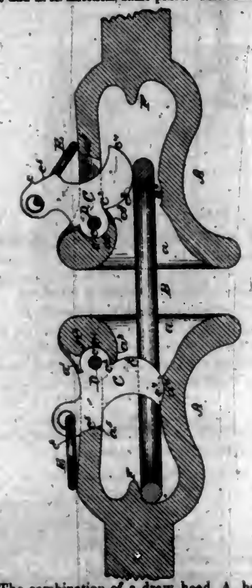
313,199. BOLSTER-STAKE FOR VEHICLES. RICHARD GERNER, Port Clinton, Ohio. Filed Sept. 27, 1884. (No model.)

Claim.—The bolster-stake consisting of the body-plate A, having flanges B B, converging at C, and formed into a socket, G, having reenforcing rib E, and the base-plate D, having lugs L and notted bolt I K, in combination with the bolster J and extension-stake H, as and for the purpose shown and set forth.

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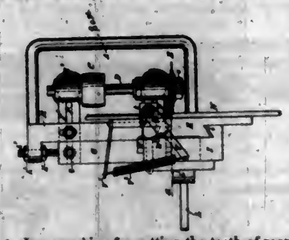


313,200. CAR-COUPLING. JOSEPH GILKEY, Brunswick, Ga., assignor to W. R. Kline and E. R. Mitchell, same place. Filed Mar. 17, 1884. (No model.)



Claim.—The combination of a draw-head, A, having the slot *a'* and projection F through its top, seat a^3, shoulder a^3, and bearings a^4 a^5, with the latch C, having the bearings c' c^2 c^3 c^3 c^4, the parts being constructed and arranged to operate substantially as shown and described.

313,201. MACHINE FOR CUTTING TEETH OF RACK-BARS. ALBERT S. GRANGER, Brooklyn, N. Y. Filed Apr. 29, 1884. (No model.)



Claim.—1. In a machine for cutting the teeth of racks, the combination of a sliding table for supporting the bar to be cut with a rotary cutter, and a blade which is capable of being pressed between two teeth already cut, and withdrawn to allow of the bar being fed forward another space, substantially as shown and described.

2. In a machine for cutting the teeth of racks, the combination of a rotary cutter with a reciprocating carriage having a shelf for supporting the bar to be cut, and a pinion which gears with the teeth already cut in the rack, and acting to feed it forward by means of a lever-arm, pawl and ratchet, and cam-plate on carriage, substantially as set forth.

3. In a machine for cutting the teeth of racks, the combination of a blade automatically held in the space between two teeth and removed therefrom when the bar is fed forward, with a reciprocating carriage, a cam and pin for operating the blade, and a pinion-shaft gearing with the already-cut teeth of the rack and acting to feed it forward, the said pinion-shaft being operated by the reciprocating motion of the carriage by means of a cam-plate acting against a lever-arm connected by a pawl-and-ratchet movement with the aforementioned pinion-shaft, substantially as shown and described.

4. In a machine for cutting the teeth of racks, the combination of a spring and cam-actuated blade for securing the even spacing of the teeth by entering the groove or space last cut, with a reciprocating table upon which the metal to be cut is placed.

5. In a machine for cutting the teeth of racks, the combination of a blade which enters the space between two teeth, a rotary cutter, a reciprocating table for carrying the metal to be cut, and a toothed roller or pinion-shaft gearing with the teeth already cut and feeding the metal forward as required.

6. In a machine for cutting the teeth of racks, the combination of the blade P, the rods o o, springs S, cam-plate R, and stud or roller r r^3, affixed to the sliding table I.

7. The combination of the blade P, sliding table K, block I, cutter E, with the adjustable bar G and the fixed bar H, screw h^2, and jam-nuts h^2 h^3, substantially as described.

8. The combination of the pinion-shaft T, ratchet w^2, pawl w^3, lever V, spring V^2, arm V^3, and cam-plate W^2, all for the purpose of feeding forward automatically the metal to be cut, substantially as shown and described.

9. In a machine for cutting the teeth of racks, the combination of the cam-plate W^2 with the lever V, pawl w^3, ratchet-wheel w^2, and pinion-shaft T, substantially as shown and described.

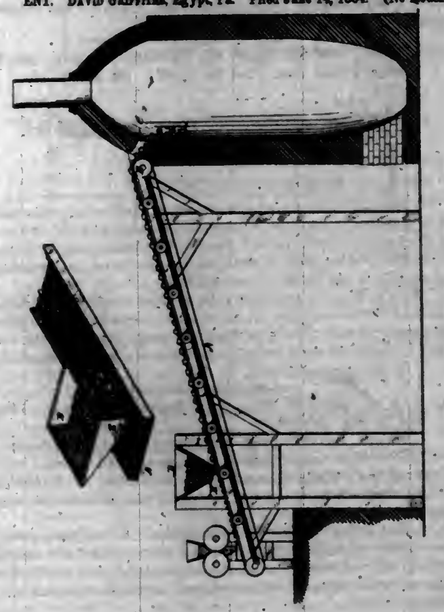
10. The combination of the base A, supports B, shaft D, driving-pulley C, cutter E, guide I, reciprocating table K, adjustable plate G and its accessory parts, blade P, cam-plate R, stud r, shelf M, pinion-shaft T, pawl w^3, ratchet w^2, lever V, and cam-plate W^2, operating substantially as shown and described.

313,202. STAIR-PAD. THOMAS GRIFFITH, near Manchester, County of Lancaster, England. Filed Apr. 24, 1884. (No model.) Patented in England Aug. 1, 1883, No. 3,761.



Claim.—A stair-pad consisting of a single uncovered thickness of felt stitched along the edges, substantially as herein described.

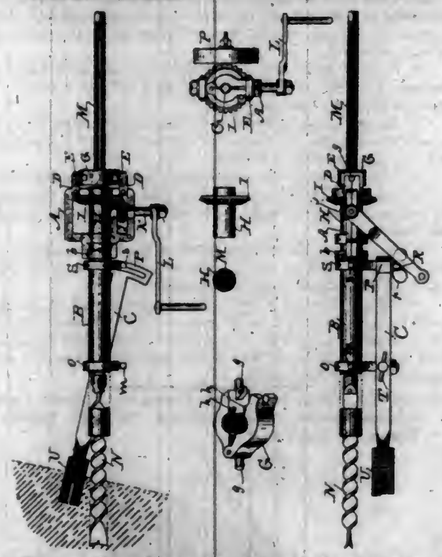
313,203. MACHINERY FOR MANUFACTURING PORTLAND CEMENT. DAVID GRIFFITHS, Egypt, Pa. Filed June 14, 1884. (No model.)



Claim.—1. The hopper D, with the adjustable mouth-piece E, in combination with the conveyer A, substantially as described.

2. The hopper D, with the adjustable mouth-piece E, in combination with the conveyer A and the kiln C, substantially as described.
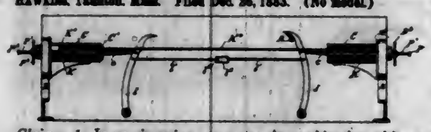
313,204. COAL-DRILLING MACHINE. JAMES M. GROOMS, Avery, Iowa, assignor of one-half to William A. J. Thompson, same place. Filed Oct. 16, 1884. (No model.)



Claim.—1. In a drilling-machine, the combination of the frame A with the tube B, secured thereto, and having adjustable collars at its ends, and the standard C, pivoted to one of the collars and secured to the other collar by a segmental slotted arm and screw, and having a tapering screw at its lower end, substantially as and for the purposes shown and described.

2. The improved coal-drilling machine composed of the following elements, to wit: the frame A, (formed in two parts,) the sleeve B, secured thereto, having adjustable collars at its ends, the standards C, pivoted to one collar and secured to the other collar by a segmental slotted arm and screw, and having a tapering screw at its lower end, a feathered and screw-threaded drill-stock, a tubular shaft, H, having a fixed wheel, I, and a shaft, K, having a fixed wheel, J, and a crank, L, substantially as shown and described.

313,205. BUFFER-SPRING FOR PRINTING-PRESSES. JOHN T. HAWKINS, Taunton, Mass. Filed Dec. 26, 1883. (No model.)



Claim.—1. In an air-spring apparatus, in combination with a pair of air chambers or cylinders and plungers for compressing the air therein, a yoked rod connected to said plungers by vibrating arms or levers, in the manner substantially as described, whereby the same are operated, substantially as and for the purposes set forth.

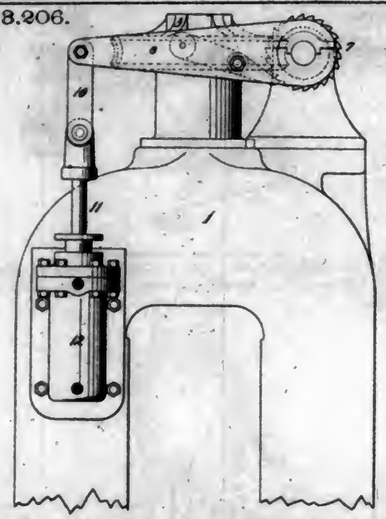
2. In an air-spring apparatus, an air chamber or cylinder having an adjustable bottom consisting of a piston, as P, provided with a threaded rod passing through a rotary nut fixed in a circular guide, whereby said piston is moved in a right line by the revolution of said nut, substantially as and for the purposes set forth.

313,206. ROLLING-MILL. JAMES HEMPSELL, Pittsburg, Pa. Filed Aug. 29, 1884. (No model.)

Claim.—1. In a rolling-mill, the housing-screws 2, in combination with worm-wheels secured thereto, a horizontal shaft provided with worms meshing with the worm-wheels, and mechanism, independent of the usual shaft-rotating mechanism, for rotating the horizontal shaft, substantially as set forth.

2. In a rolling-mill, the horizontal screws 2, in combination with worm-wheels secured thereto, a horizontal shaft provided with worms meshing with the worm-wheels, and an operating-cylinder having its piston connected with said shaft, and adapted to rotate the same, substantially as set forth.

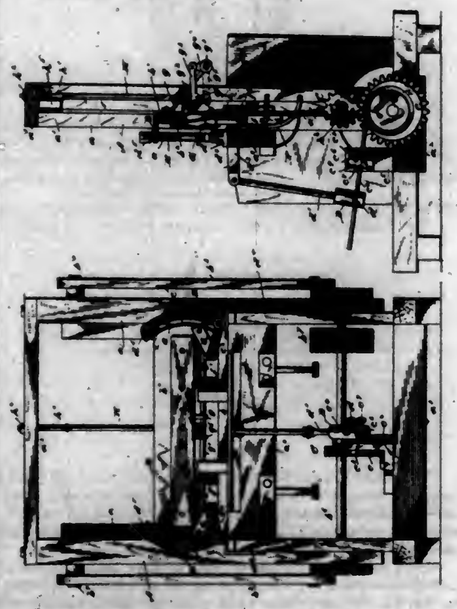
318,206.



3. In a rolling-mill, the housing-screws 2, in combination with the worm-wheels secured to said screw, a horizontal shaft provided with worms having oppositely-arranged threads and meshing with the worm-wheels, and a cylinder having its piston connected to the shaft, and adapted to rotate the same, substantially as set forth.

4. In a rolling-mill, the housing-screws 2, in combination with worm-wheels secured thereto, a horizontal shaft provided with worms meshing with worm-wheels, and a cylinder having its piston detachably connected to said shaft, and adapted to rotate the same, substantially as set forth.

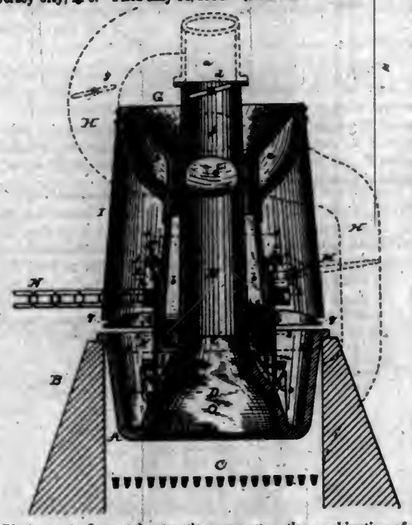
313,207. BARREL-HOOP MACHINE. ALBERT HITZERT, East Saginaw, Mich. Filed Jan. 3, 1885. (No model.)



Claim.—1. In a hoop-machine, the combination, with the main frame A, having the slideways, and the vertically-sliding frame B, carrying the strip-knife b^2 and lapping-knives and operated as described, of the pivoted tilting frame d^2, its adjustable connecting-rod d', lever c^4, fulcrumed to the standard, gear-wheel c, pinion C, cam-groove c^3, spring-dogs d^3, cutters b^4, and means, as described, for operating the same, the rods F, curved at their lower ends, adjustable rods f^2, and spring-clamping arms f', the whole operating as set forth, and for the purpose specified.

2. The herein-described machine for cutting, lapping, and pointing hoops, consisting of the main frame A, the sliding frame B, carrying the cutting-knives, gear-wheel c, pinion crank-shaft and pitmen b^2, the groove eccentric c^3, fulcrumed lever c^4, adjustable rod d', tilting frame d^2, curved arms F, pivoted to the frame A, adjustable arms f^2, against which they bear, the spring-clamping arms, sliding block carrying the pointing-knives and pivotally connected to the crank-arms of the shaft g', the slotted crank-arm secured to this shaft, and the adjustable rod H, connected to the top cross-bar of the main frame, substantially as described, and for the purposes specified.

313,208. METAL-EXTRACTING APPARATUS. JULIUS L. HORNIG, Jersey City, N. J. Filed May 14, 1884. (No model.)



Claim.—1. In metal-extracting apparatus, the combination of an annular kettle for containing the amalgamating-liquid, the same having a central flue, a cylinder or sleeve surrounding said flue and extending beneath the surface-line of the liquid in the kettle, forming an annular feeding-passage, and a heating-chamber external to said feeding-passage, substantially as set forth.

2. In metal-extracting apparatus, the combination of the kettle with central flue, the ore-feeding passage surrounding said flue, and the external heat-retaining chamber, open at its lower end and closed at its upper end, substantially as set forth.

3. In metal-extracting apparatus, the combination of the kettle having a central flue, the ore-feeding passage surrounding said flue, and the external heat-retaining hood situated above the kettle, with its lower end open, a space being left between the kettle and hood for the discharge of refuse from said kettle, substantially as set forth.

4. In metal-extracting apparatus, the combination, with the kettle and the central heating-flue and ore-feed, of the additional furnace-flue through the feeding-head, substantially as set forth.

5. In metal-extracting apparatus, the combination, with the kettle having a straight central flue, of the tapering ore-feeding cylinder surrounding the same, whereby the ore is fed toward the kettle in a gradually-spreading annular body, substantially as set forth.

6. In metal-extracting apparatus, the combination, with the kettle, of inclined blades or buckets revolving on an axis parallel to the height of the kettle, for commingling the ore and extracting metal, substantially as set forth.

7. In metal-extracting apparatus, the combination, with a kettle, of a series of blades or buckets for submerging the ore and a series of blades or buckets for assisting it to rise, substantially as set forth.

8. In metal-extracting apparatus, the combination, with the kettle, of a revolving cylindrical gate carrying internal buckets for forcing the ore down through the lead, and external buckets acting on the ore as it rises from beneath the lower edge of said gate, substantially as set forth.

9. In metal-extracting apparatus, the combination, with a kettle, of a cylindrical gate vertically adjustable therein, and means for forcing the ore down through the lead and under such gate, substantially as set forth.

10. In metal-extracting apparatus, a revolving cylindrical gate carrying internal and external buckets, in combination with stationary buckets and a feeding-passage entering the interior of the said gate, substantially as set forth.

11. In metal-extracting apparatus, the combination, with the kettle and horizontally-revolving buckets in such kettle, of stationary buckets assisting the action of the revolving buckets on the ore and preventing the rotary movement of the extracting metal, substantially as set forth.

12. In metal-extracting apparatus, the combination, with the annular feeding-chamber, of the revolving gate, with buckets turning upon such feeding-chamber and supported therefrom, substantially as set forth.

13. In a metal-extracting apparatus, the annular feeding-chamber having the vertical partitions with turned lower ends, substantially as set forth.

14. In metal-extracting apparatus, the combination, with the annular feeding-chamber having vertical partitions with turned lower ends, of the series of blades or buckets for submerging the ore, substantially as set forth.

313,209. VEHICLE-WHEEL. RUDOLPH F. H. HÖVET, Hamburg, Germany. Filed Dec. 15, 1884. (No model.)

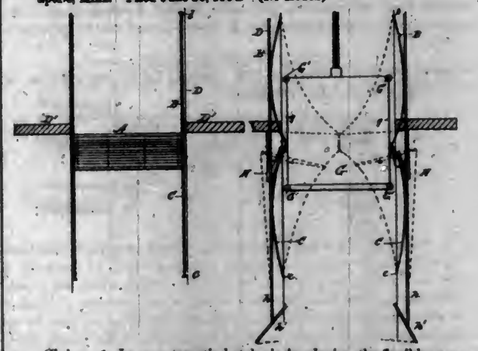


Claim.—1. The combination, with a wheel for cars and other vehicles having fixed tires and a circumferential groove between the tires, of a loose tire guided in the groove between the fixed tires, and mechanism, substantially as described, applied to the lower part of the loose tire, and adapted for raising or lowering the same, substantially as set forth.

2. The combination of a wheel for cars and other vehicles having fixed tires and a circumferential groove between said tires, a loose tire guided in said groove, a finger or fingers applied to the lower part of the loose tire, and mechanism for raising or lowering said finger or fingers, substantially as set forth.

3. The combination of a wheel for cars and other vehicles having fixed tires and a circumferential groove between said tires, a loose tire guided in said groove, an inclined arm or arms attached to the axle, a finger or fingers pivoted to the lower ends of said arm or arms and applied to the lower part of the loose tire, and mechanism for raising or lowering the finger or fingers, substantially as set forth.

313,210. SELF-CLOSING HATCHWAY. THOMAS H. HULBERT, Minneapolis, Minn. Filed June 20, 1884. (No model.)



Claim.—1. In an automatic hatch-closing device, the flexible covers A A, supported at their forward and rear edges, adapted to loop or fold at the sides of the opening, with provisions for extending the same across, substantially as described.

2. In an automatic hatch-closing device, the levers B B and C C, supporting and controlling covers A A, and adapted to be operated by the moving car, as and for the purposes herein specified.

3. In an automatic hatch-closing device, the lock H and operating parts, in combination with the levers C, and adapted to be tripped by the elevator, as and for the purposes herein specified.

4. The supporting and operating levers B and C, of such curved outline that the elevator in its motion will impinge on a slight and gradually-increasing angle, in combination with such elevator and with the folding covers A A, as and for the purposes described.

5. In an automatic hatch-closing device, the combination of the closing means E with the looping-covers A A' A^2 and levers B and C, the whole operating together, as and for the purposes herein specified.

313,211. VALVE-LOCK. MORGAN JONES, New York, N. Y. Filed Mar. 26, 1884. (No model.)

Claim.—1. The combination, with a plate or block formed with a lateral recess therein to embrace a fixed lug projecting from the casing of the valve, and provided with a lateral pin projecting therefrom parallel with the recess to enter an aperture in the valve-key, of a bolt moving transversely into the recess to engage the lug entering the same, all substantially in the manner and for the purpose herein set forth.

313,211.



2. The combination, with a plate or block, E, carrying a lateral lock-pin, E', and provided with a recess parallel with said pin, of a bolt, H, fitted within a chamber to move transversely to and from the recess, a spring, K, adapted to keep the bolt within its chamber, with its end projecting into the recess, and a key, L, adapted to enter the chamber and engage the bolt, to facilitate its retraction, substantially in the manner and for the purpose herein set forth.

313,212. SIGHT-PROTECTOR FOR FIRE-ARMS. JOHN C. KELTON, San Francisco, Cal. Filed June 16, 1883. (No model.)



Claim.—1. The sight protector or cover consisting of an arched upper portion and sides of sufficient width, length, and height to protect the sight from abrasion and wear, and slotted, so as not to interfere with the bayonet-stud, and having cheek-pieces, the lower sides of which are curved to fit the top of the barrel, and a transverse bar upon the cheek-pieces in the rear end of the arched portion, substantially as herein described.

2. The arched sight cover and protector fitted to the barrel of the gun over the front sight, as shown, and slotted, so as not to interfere with the bayonet-stud, and having cheek-pieces with curved lower sides to fit the barrel, a transverse bar with straight upper edge located in the rear of the cover, and a screw or pin passing through the cheek-pieces to hold the cover in place, substantially as described, and for the purpose set forth.

313,213. MAGAZINE-GUN. JOHN C. KELTON, San Francisco, Cal. Filed June 23, 1884. (No model.)



Claim.—1. In a gun, the receiver A, hinged swinging breech-block B, with arms pivoted upon each side and eccentrically to the pivot of the breech-block, together with the firing-pin sliding within the breech-block containing a mainspring, and having a transverse bar, c', the ends of which engage slots in the arms G, so that the firing-pin may be retracted and the spring compressed by the opening of the breech-block, as herein described.

2. In a gun, the receiver A, hinged swinging breech-block B, the tubular firing-pin contained within the breech-block, and itself containing the mainspring, with a means for retracting the firing-pin and compressing the mainspring, together with the sear E, pivoted below its center, and having sear-noses e, adapted to engage notches c in the slotted rear end of the firing-pin, as herein described.

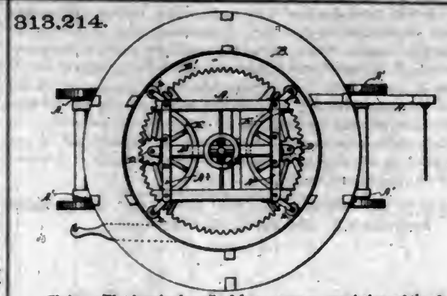
3. In a gun, the receiver A, hinged swinging breech-block B, with its contained hollow firing-pin, and mainspring contained within the breech-block, and the sear E, pivoted and having noses or catches, as shown, together with the ejector-stud f, connected with the trigger F, substantially as herein described.

4. The receiver A, swinging breech-block, with the arms G turning upon different centers, the contained firing-pin, mainspring, and holding mechanism within the breech-block, in combination with the cam-latch located within the rear end of the breech-block, to hold the same within the receiver, a thumb-piece A, and safety-notch H, substantially as described.

5. In a gun, the receiver A, hinged swinging breech-block B, with its contained firing-pin, spring, and actuating mechanism within the breech-block, and the arms G, in combination with the segmental magazine I, extending beneath the receiver, and the lid i', substantially as herein described.

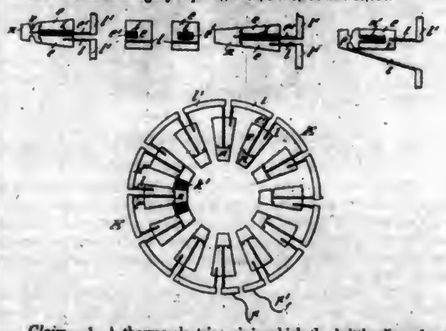
313,214. HORSE-POWER. KNUT S. KNUTSON, Denver, Dak. Filed Nov. 21, 1884. (No model.)

313,214.



Claim.—The herein-described horse-power, consisting of the frame A, provided with cross-frames A^2 A^3 and axles A', driving-wheel B, secured in place upon said frame between the friction rollers or wheels a and b, vertical shafts C C', provided with cog-wheels D and bevel-gears E E', power-shaft F, provided with bevel-pinions e e' and friction-wheel F', and the gripping mechanism G, all substantially as and for the purpose specified.

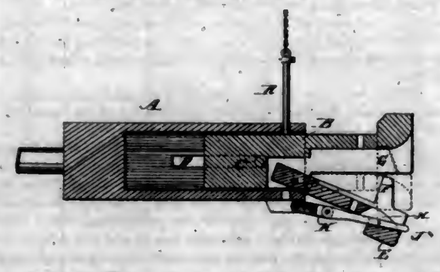
313,215. THERMO-ELECTRIC BATTERY. DANIEL LAUTENSACK, Vienna, Austria-Hungary, assignor of two-thirds to Adolf Kohn and Oskar Laska, both of same place. Filed Apr. 2, 1884. (No model.) Patented in England Feb. 29, 1884, No. 4,158; in Germany Mar. 11, 1884, No. 29,772; in France Mar. 11, 1884, No. 160,863; in Belgium Mar. 11, 1884, No. 64,467; in Russia Mar. 25, 1884, No. 2,274; in Italy Mar. 31, 1884, XVII, 16,555; XXXIII, 22; in Spain Aug. 8, 1884, No. 6,007; in Denmark Sept. 10, 1884, and in Austria-Hungary Sept. 28, 1884, No. 8,364 and 43,936.



Claim.—1. A thermo-electric pair in which the brittle alloy of antimony forming the positive electrode surrounds the insulated negative electrode having projecting ends, and a piece of neutral-metal destined to be heated is cast over one end of both electrodes, having either convenient length or a contracted or reduced portion, to prevent too strong heating of the electrodes, substantially as set forth.

2. In thermo-electric batteries the pairs of which are arranged around the heat-generator, a wire-cloth casing surrounding the whole battery and serving to increase the heat-radiating surface of the same, substantially as specified.

313,216. CAR-COUPLING. CLEMENT LEIDY and CHARLES E. GREEN, Angus, Ohio. Filed Aug. 26, 1884. (No model.)



Claim.—1. The combination, with the draw-head A, of the sliding block B, the hinged part E, and a tripping-pin pivoted in the free end of the hinged part and connected by a link with the draw-head, substantially as herein shown and described.

2. The combination, with the draw-head A, of the sliding block B, the hinged part E, having a slot, H, in its free end, the pin J, passed through the slot H and pivoted in the same, and the link K, connecting

the lower end of the pin J with the draw-head, substantially as herein shown and described.

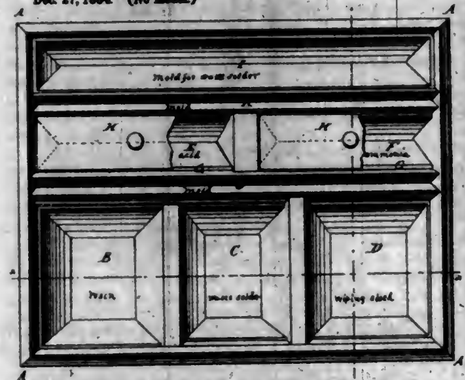
3. The combination, with the draw-head A, having longitudinal side slots, D, of the sliding block B, provided with side pins, C, the hinged part E, the pin J, passed through and pivoted in the slot H in the piece E, and the link K, connecting the lower end of the pin J with the draw-head, substantially as herein shown and described.

313,217. MANUFACTURE OF PORTLAND CEMENT. ROBERT W. LESLEY, Philadelphia, Pa. Filed June 14, 1884. (No specimens.)

Claim.—1. The hereinbefore-described improvement in the manufacture of hydraulic cement, which consists in incorporating with calcined cement rocks or hydraulic limestones—such as are used in the manufacture of hydraulic cements—black chalk, substantially in the manner and proportions set forth.

2. The hereinbefore-described improvement in the manufacture of Portland cement, which consists in incorporating with the cement material after calcination black chalk, substantially in the proportions and in the manner set forth.

313,218. SOLDERING-PAN. THOMAS LESLIE, Brooklyn, N. Y. Filed Dec. 27, 1884. (No model.)

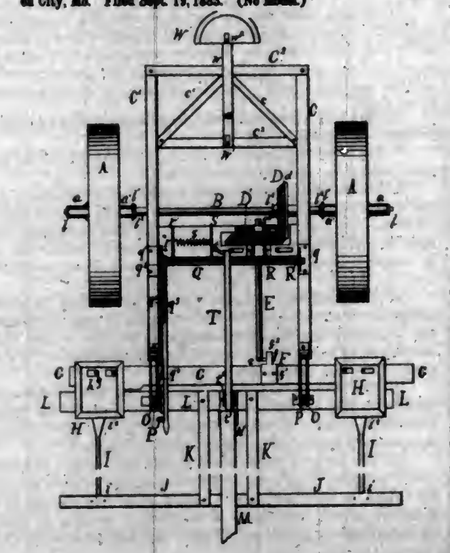


Claim.—1. A soldering-pan made, substantially as herein shown and described, with compartments B C D and E F, and mold-channels J K in the tops of the partition-walls, as set forth.

2. A soldering-pan made, substantially as herein shown and described, with compartments B C D and E F, a mold-compartment, I, and mold-channels J K in the tops of the partition-walls, as set forth.

3. A soldering-pan made, substantially as herein shown and described, with mold-chambers L M formed in the wide partition-walls of its compartments, and with their open sides at the bottom of the pan, as set forth.

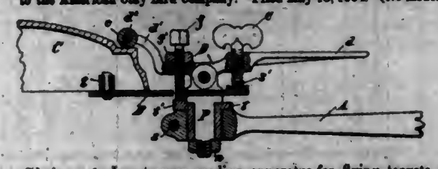
313,219. SELF-DROPPING CORN-PLANTER. LUDWIG LIEDK, Golden City, Mo. Filed Sept. 19, 1883. (No model.)



Claim.—1. The combination of a rocking shaft, Q, having a ratchet-lever, q^3, and bar T, a piece, t, having a beveled edge, t^2, and a frame, S, supporting the bearings of a shaft, E, substantially as shown and described.

2. A bar, T, having a slot, t^2, and a hole, t^1, in combination with a clevis, t^3, rocking shaft Q, having a ratchet-lever, and a piece, t, all arranged so as to throw the machine out of gear when the front part of the machine is raised the desired height, substantially as set forth.

313,220. BALL-TRAP. PHILIP MARQUA, Cincinnati, Ohio, assignor to the American Clay Bird Company. Filed May 13, 1884. (No model.)



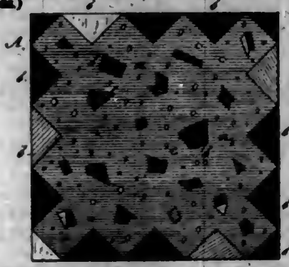
Claim.—1. In a trap or sending apparatus for flying targets, in combination with a main pivoted sending-arm, a supplemental pivoted target-carrier, B, provided with a pivoted holding and releasing arm, D, the latter provided with an adjustable spring, d^1, and a tripping-finger, f, constructed and arranged substantially as and for the purpose set forth.

2. In a target-sending apparatus, in combination with a supplemental pivoted carrier and spring-actuated holding-arm provided with a tripping-finger, an adjustable thimble, T, having a tripping-block, t', which by means of such adjustment is brought into proper relation with the carrier, as and for the purpose set forth.

3. In a target-sending apparatus employing a main spring-impelled sending-arm, a supplemental target-carrier, B, pivoted thereto, in combination with a pivoted arm, D, constructed with a front extension, d^2, arranged to rest upon and hold the target to the carrier by pressure, and a rear extension, d, forming a manipulating-handle for elevating the catch to adjust the target in position, and means, substantially as described, for the automatic release of the catch in the movement of the main sending-arm, substantially as set forth.

4. In a target-sending apparatus, in combination with the sending-arm A, and the supplemental pivoted carrier B, a spring-catch or holding-arm, D, provided with a rubber pad, c, arranged to rest upon the target and retain the same upon the carrier, substantially as and for the purpose set forth.

313,221. COMPOSITE TILING, PAVING, AND FLOORING SLAB OR BUILDING-BLOCK. ROBT. MARSH, Brooklyn, N. Y. Filed May 24, 1884. (Specimens.)



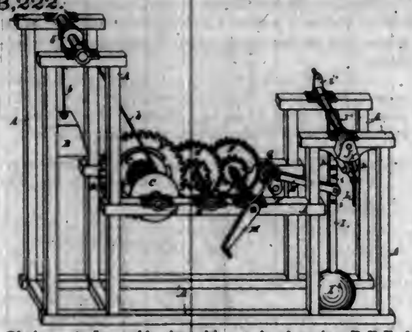
Claim.—1. As an improved article of manufacture, a composite tiling or flooring slab consisting of a body formed of a cement, asphaltum, or other composite material, and pieces of tiling, glass, or other suitable hard substance embedded therein flush with the surface of the same, substantially as set forth.

2. The combination, with the body of cement or analogous composition having pieces of tiling, glass, or other hard ornamental substance embedded therein flush with its surface, of gravel or small pieces of other hard substance embedded in said body portion between the said pieces of tiling or glass for the purpose of equalizing the wear of the body and the tiles, substantially as set forth.

3. The process of forming composite tiling, which consists in first placing pieces of tiling or other hard substance on the bottom of a mold, spaces being left between said pieces, then placing gravel or small pieces of other hard substance in the spaces between the pieces of tiling, and finally filling the mold with a cement or asphalt composition and pressing the same between the spaces of the pieces of tiling and gravel flush with their exposed surfaces to embed the same firmly therein and to form a wearing surface of cement, tiling, and gravel, substantially as set forth.

313,222. MOTOR. CHARLES W. MCGREGOR and LORENZO H. CORDRY, St. Louis, Mo.; said McGregor assignor to said Cordry. Filed Aug 4, 1884 (No model.)

313,222.

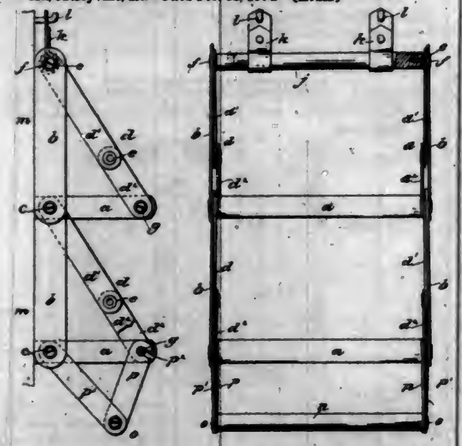


Claim.—1. In combination with a train of gearing, D E F, &c., operated by a weight or equivalents, the pendulum I, having a large weight, P, and operated by said train of gearing through means of the pinion G on the shaft *g*, crank *g'*, and pitman H, the whole contained in a suitable frame, A, as herein shown and described, and for the purpose set forth.

2. In a motor, the train of gearing D E F, &c., operated by a weight or equivalents, in combination with a pendulum, I, having weight P, holes *i i*, a crank, *g'*, attached to the shaft *g*, pitman H, and pinion G, said pendulum being swung from a shaft, I, to which is attached one or more cranks for operating one or more pumps or like machines, all as herein shown and described.

3. In combination with a train of gearing operated by weight or equivalents, the pendulum I, having its shaft provided with a cam, J, having U-shaped groove *j*, and the crank-lever *k' k²*, for connecting with a pump-rod, &c., as herein shown and described, the whole to form a new and improved motor, as set forth.

313,223. FOLDING BOOK AND PAPER RACK. MARION E. MCMASTER, Shelbyville, Mo. Filed Feb. 11, 1884. (Model.)



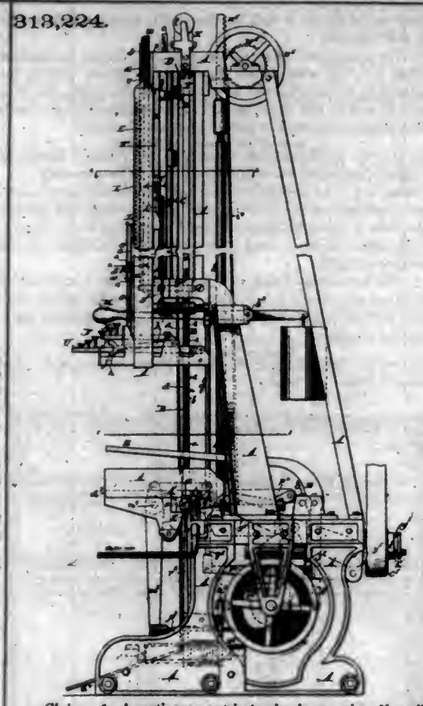
Claim.—1. The combination, with supports, a shelf pivoted to said supports, and jointed braces pivoted to said supports and to the outer edge of the shelf, of the bar *n*, and the plates *p p'*, secured at each end to the pivots of the shelf and pivoted to the ends of the bar *n*, substantially as herein shown and described.

2. The combination, with supports, a shelf pivoted to said supports, and braces pivoted to said supports and to the outer edge of the shelf, of the bar *n*, and the plates *p p'*, secured at each end to the pivots of the shelf and pivoted to the ends of the bar *n*, the plate *p* being provided with a slot, p^2 at its upper end, substantially as herein shown and described.

3. A book-rack bracket constructed with a rear plate, *b*, provided with the slot *r'* in its upper end, an inclined front brace-plate, *d*, consisting of two parts, *d' d²*, jointed to each other, and at *f* to the plate *b*, and a lower plate, *i*, jointed to the plates *b d²*, substantially as shown and described.

313,224. MACHINE FOR PRODUCING PRINTING-BARS. OTTMAR MERGENTHALER, Baltimore, Md., assignor to the National Typographic Company, of West Virginia. Filed Aug. 30, 1884. (No model.)

313,224.



Claim.—1. A continuous matrix-bar having a series of intaglio characters formed in its edge to be read transversely thereof, as contradistinguished from a series of matrices united by a flexible band or cord.

2. The improved matrix-bar for use in a stereotyping-machine, consisting of a continuous bar having in its edge a series of transverse grooves or notches each with an intaglio character therein, substantially as described and shown.

3. An improved matrix-bar for use in a stereotyping-machine, consisting of a continuous bar tapered on its side faces, and provided in its edge with intaglio characters arranged in the order of their width, and with intervening surfaces raised above the characters.

4. The improved matrix-bar for use in stereotyping consisting of a tapered bar having at its edge intaglio characters arranged in the order of their width, and blank spacing-surfaces of different widths also arranged in the order of their width at suitable points between the characters.

5. A matrix-bar or strip provided at its edge with a line or series of intaglio characters, and with a series of spacing-surfaces of different widths distributed between the characters, substantially as described and shown, whereby all the bars may be moved in the same direction and each bar caused to present a character or a space at the aligning-point, as demanded.

6. The matrix-bar containing the intaglio characters, and the notches to receive an aligning device.

7. The matrix-bar containing the intaglio characters and the transverse perforations, substantially as shown.

8. The combination, substantially as described and shown, of a series of bars each tapered endwise and in the opposite direction from the bar or bars next adjacent thereto, and each provided at the edge with a series of characters whereby single characters on the several bars may be brought to a common line without being thrown from a vertical position.

9. In a machine for producing type-bars and the like, the series of parallel bars or carriers, each provided with a line of intaglio characters, and intervening spacing-surfaces arranged in the order of their width, said bars being combined and adapted for independent motion in a longitudinal direction, substantially as described.

10. In a machine for producing printing-bars, the combination of a plurality of independently-movable bars, arranged side by side, tapered alternately in opposite directions, and provided at one edge with intaglio characters and spacing-surfaces, substantially as described.

11. The series of longitudinally-moving bars tapered alternately upward and downward, and provided with intaglio characters and spacing-surfaces, in combination with a series of finger-keys to designate the characters, devices, substantially as described, for arresting the individual bars at different points, and the connecting mechanism, substantially

as described, between the keys and stop devices, whereby the designated characters and spaces may be assembled in a common line to form a matrix.

12. A temporary or convertible matrix for type bars or lines, consisting of a series of parallel independently-movable bars provided at their edges with intaglio characters and intervening blank surfaces rising above the characters.

13. The matrix-bars B, tapered in one direction and connected to heads D, and the intermediate matrix-bars tapered in the reverse direction and connected with slides E by intermediate devices, substantially as described, causing them to move in the opposite direction from said slides, in combination with stop-pins engaging, respectively, the heads of bars B and the slides of bars B'.

14. In combination with the series of matrix-bars alternately tapered upward and downward, and each having characters arranged therein in the order of their width, the heads attached to all the bars, the reversely-moving slides connected to the alternate bars, the stop-pins arranged in rows extending at right angles to the length of the bars, and the laterally-movable frame provided with adjusting-pins each arranged to act upon the corresponding stop-pins of all the bars.

15. The combination, substantially as described, of the sliding heads D, having the tapered matrix-bars attached, the grooved guide-plates for said heads, the slides F, the cords or chains E, passing over pulleys from slides F to the alternate matrix-bars, and the two series of stop-pins extending rearward different distances to engage the heads and slides, respectively, as shown.

16. In combination with the matrix-bars and stop-pins, the adjusting-pins slotted at one end, and the crank-shafts extended through said slots, as shown.

17. The vertically-grooved guide-plates *i i*, the latter provided with shoulders or notches, in combination with the sliding heads D, having the matrix-bars attached, the dogs Q, pivoted to said heads and provided with the two shoulders at the lower end, the springs to actuate said dogs, the lifting-head P, and the stop-pins.

18. In combination with the stop-pins G G', their sustaining-frame H, the retracting-plate I, the supporting-studs *n*, on which said frame and plate move forward and backward, and the vertically-movable frame *o*, seated in grooves in the frame H, and provided with the sinuous slots connected with the retracting-plate and the studs *n*, as described and shown, whereby the longitudinal motion of the frame *o* is caused to affect the joint and independent motion of the pin-frame and retracting-plate, and thereby the various adjustments of the stop-pins.

19. In combination with the gravitating matrix-bars and their sustaining-heads, the transverse sustaining-bar, the stop-pins, the laterally-movable frame K, the adjusting-pins therein, and the connection, substantially as described, between said frame and the bar, whereby support is afforded for those bars not called into action.

20. The combination, substantially as described and shown, of the matrix-bars, finger-keys to designate the characters, the intermediate stop mechanism, substantially as described, whereby the keys are enabled to arrest the advance of the respective bars, and the bar or support to prevent the advance of those bars which are not called into action.

21. The series of matrix-bars, combined, substantially as described and shown, with the finger-keys, the laterally-movable frame provided with adjusting-pins, the stop-pins, the lifting-head P, the dogs Q, and the sliding bar, whereby designated characters of the respective bars may be brought to a common line and those bars not called into use retained in their normal position.

22. The tapered independently-movable matrix-bars, each provided with intaglio characters and two or more spacing-surfaces differing in width, in combination with finger-keys designating the respective characters and spaces, and intermediate stop devices, substantially as described and shown, acting directly to arrest the respective bars with their predetermined characters and spaces in a common line.

23. The adjusting-pins, slotted as shown, in combination with the crank-shafts passing through the slots, the springs applied to rock said shafts, the finger-keys, and the rods extending from the keys to the shafts, whereby the springs are caused to retract the adjusting-pins and lift the keys.

24. The matrix-bars, the finger-keys to designate the characters, mechanism, substantially as described, to arrest the advance of the individual bars, the rods O, to actuate said mechanism, the cam-slides a^2, attached to said rods, and the indicating mechanism, substantially as described, connected to and operated by said slides, whereby the aggregate width of the designated characters is automatically shown.

25. In combination with the slides a^2 and d^2, the dogs f^2 and f^3, the indicator-rod and its returning-spring, provided with the projection s^2, the detent r^2, and the spring-actuated arm, whereby the indicator is automatically operated and restored to the starting-point.

26. The alarm-bell and its spring-actuated striker having the arms to release the dogs, in combination with the slide d^2, dogs f^2 and f^3, indicator-rod g^2, with the stud u^2, and detent r^2, whereby the alarm is operated to indicate the completion of the line, and the indicator automatically restored to the starting-point.

27. The bell and its spring-actuated striker bearing two trip-arms, in combination with the indicator-rod bearing studs v^2 t^2, its restoring-spring, the detent r^2, bearing the shoulder s^2, the dogs f^2 f^3, plate d^2, and slides a^2, connected to the respective finger-keys.

28. In combination with the bell and spring-actuated striker, the detent having both the extremity and the shoulder to engage the striker, and the indicator-rod provided with the two studs t^2 and u^2, whereby the alarm is caused to sound twice, as and for the purpose described.

29. In combination with the stop-pins arranged in horizontal rows, as described and shown, the laterally-movable frame K, having adjusting-pins J mounted therein, the two weights tending to move the frame K in opposite directions, and mechanism, substantially as described, for throwing said weights into action alternately at will, whereby the series of adjusting-pins may be carried backward past the successive stop-pins to effect the justification or correction of the spacing.

30. The independent tapered matrix-bars, each provided with a plurality of spacing-surfaces, the row of stop-pins for each bar, the series of adjusting-pins mounted in the laterally-movable frame, the finger-keys and connections whereby they are enabled to project the adjusting-pins, the bar V, provided with the slides to arrest the backward movement of the adjusting-pin frame, the space-indicating bar and its connections to project the slides, and the device, substantially as described, to restore said slides connected with all the spacing-keys, whereby the operator is enabled to first adjust the stop-pins for all the characters in a line and subsequently adjust the intermediate stop-pins for the spaces.

31. In combination with the matrix-bars and stop-pins, the laterally-movable adjusting-pin frame K, the rack-bar V, the slides *l'* therein, the shaft provided with the pinion and the two escape-wheels *k' r'*, the detent *e'*, the lever *u'*, to project the slides rearward, the arm *l'*, to restore the slides and engage the detent-wheel *r'*, and devices, substantially as described, connecting the lever *u'* with the spacing-bar U, and the arm *l'* with the space-keys, as described, whereby the operator is enabled at will to set the machine for the use of spaces of any desired width.

32. In combination with the matrix-bars provided with spacing-surfaces, the finger-keys and intermediate mechanism whereby the keys are enabled to arrest the bars with the designated characters or spaces at the aligning-point, the counting or indicating mechanism, substantially as described, to show the aggregate width of the selected characters and spaces, a connection between said mechanism, substantially as described, and those finger-keys which represent characters, and a separate connection, substantially as described, between said indicating mechanism and the independent space-bar U, as described, whereby the aggregate width of the selected characters and intermediate spaces of minimum width may be indicated and the devices adjusted to bring the characters in position previous to adjusting the devices for bringing the spaces in position, so that the operator may effect the spacing or justification of each line after the designation of the characters therein.

33. In combination with the perforated matrix-bars, the aligning-rod arranged to be projected through the series of bars.

34. In combination with the series of perforated matrix-bars, the aligning-rod, and automatic mechanism, substantially such as described and shown, for advancing and retracting the same.

35. The perforated matrix-bars, in combination with the laterally-acting clamp and the aligning-rod attached to one of said clamps, as described.

36. In combination with the perforated matrix-bars, the aligning-rod, and the clamps having the rod attached, the stripper-plate y^3, as described and shown, to prevent the bars from moving laterally and biting upon the rod.

37. In combination with the matrix-bars, the aligning-rod, the clamp, and the stripper, the stripper-retracting rod connected with the clamp and having a limited independent motion, as described.

38. In combination with the notched matrix-bars, the aligning-blade arranged to enter the notches, as described.

39. In combination with the perforated and notched matrix-bars, the aligning-rod, the aligning-blade, and automatic mechanism, substantially as described, for advancing the rod and the bar in the order named.

40. In combination with the matrix-bars and finger-keys, and intermediate mechanism, substantially as described, for bringing into action a larger or smaller number of bars, the slide to sustain those bars which are not called into action, and lateral clamping devices acting only on those bars which are in action.

41. The series of independent movable matrix-bars, the head P, to lift said bars to a common height and lower them in unison, the finger-keys to designate the characters, intermediate mechanism, substantially such as described and shown, adjusted by the keys to arrest the descent of the individual bars, and a lateral clamp acting below the points to which the lower ends of the bars are raised by the lifting-head, whereby the clamp is enabled to act upon those bars which are called into action and permitted to pass beneath those bars which are not called into action without acting thereon.

42. The laterally-acting clamps, in combination with the independently-movable matrix-bars, and mechanism, substantially as described,

for lifting the bars above the level of the clamps, whereby the clamps are permitted to pass beneath the bars which remain elevated to act upon those which have been called into use.

43. In a machine for producing printing-bars, the combination, substantially as described and shown, of a changeable matrix composed of independent movable lines or series of intaglio characters and a casting mechanism to co-operate with the selected and aligned characters, whereby the matrix may be caused to present any desired characters in line and a cast be then taken of all the aligned characters at a single operation.

44. In a machine for producing printing-bars, the combination, substantially as hereinbefore described and shown, of the series of independently-movable matrix-bars, the series of finger-keys to designate the characters, the stop mechanism, substantially as described, actuated by the keys to arrest the individual bars with their designated characters in a common line, the mold extending transversely across the series of bars, and the mechanism for supplying the mold with molten metal.

45. The mold, in combination with the series of matrix-bars to close the same on one side, and the melting-pot having a delivery-mouth to close the same on the opposite side.

46. In a machine for producing printing-bars, the combination, substantially as hereinbefore described and shown, of the independently-movable matrix-bars, the finger-keys to designate the characters, the intermediate stop mechanism, substantially as described, connected with the keys to arrest the motion of the individual bars, the clamps to hold the adjusted bars, the mold extending across the bars, and the melting-pot and force-pump, said members organized for joint operation, as described.

47. In a machine for producing stereotype-bars, the combination, substantially as hereinbefore described, of the changeable or convertible matrix, the mold co-operating therewith, and appliances, substantially such as shown, for melting metal and forcing the same into the mold.

48. The matrix-bars, in combination with the clamping-bar across their rear edges, the sectional mold across their front edges, the lateral clamps, and the melting-pot closing the mold on one side and arranged to deliver molten metal therein.

49. In combination with the movable melting-pot and movable clamping-bar A', the intermediate matrix-bars, and mechanism, substantially such as shown, to close said members against the bars.

50. The matrix-bars, the sliding clamping-bar, the movable melting-pot, combined with the levers and links connecting the clamp and pot, as shown.

51. In combination with the matrix-bars, the clamping-bar A', the aligning-bar mounted therein, and the actuating devices, substantially as described, whereby the aligning-bar is advanced previous to the advance of the clamp.

52. The separable sliding mold, as described, having one of its parts provided with the longitudinal rib to prevent lateral displacement of the casting and with the stud to carry the casting endwise as the mold is opened.

53. In combination with the mold having the sliding top, the ejector e^4, to detach the casting therefrom.

54. In combination with the two-part separable mold, as described, the vibrating ejector e^4, to detach the cast from the open mold, and the reciprocating rod to deliver the detached cast in an endwise direction.

55. In combination with the matrix-bars, the shouldered mold-sections, and the clamps o^3 p^3, connected to said sections, whereby the width of the assembled matrix-bars is caused to determine the length of the mold.

56. In a machine for the production of printing-bars, the combination, with automatic driving mechanism, substantially as described, of the independently-movable matrix-bars, the finger-keys to designate the characters, the stop-pins to arrest the respective bars, devices, substantially such as shown, connected with the keys to set the stop-pins, the mold, the melting-pot, and force-pump, and the movable frame whereby the stop-pins, previously adjusted by the key connections, are first moved into position to arrest the bars, and subsequently restored to their original positions, whereby the casting of one bar and the designation of the characters for another one are permitted to take place at the same time.

57. In combination with the matrix-bars and the clamping-bar A', movable to and from the same, the lateral clamps mounted on slides on the bar A', as shown.

58. In combination with the melting-pot, the movable mold-section provided with a wiper to traverse the mouth or delivery-port of the pot.

59. In combination with the movable mold-section adapted, as described, to carry the cast, the fixed knife to dress the edge of the cast, whereby the casts are rendered uniform in height and straight on the base.

60. In combination with the matrix-bars, the pivoted melting-pot provided with the face to close the mold, and with the delivery-orifice in said face, and mechanism, substantially as described, to effect the rocking motion, whereby it is caused to serve the additional purpose of a clamp to hold the bars in position.

61. In combination with the laterally-movable pin-frame K, the indicating mechanism, and the stop-pin frame movable forward and backward, the hand-lever M, connected therewith by means, substantially as described, whereby the various parts may be instantly restored to their initial positions to permit the commencement of a new line in the event of an error having been committed.

62. In combination with the indicator-rod g^3 and dogs f^2 j^3, the striker provided with arms to trip the dogs, the detent r^3, and the slide q^3, having inclined surfaces to trip the detent and striker and subsequently reset the striker.

63. In combination with a mold open on two sides, a series of movable matrices grouped in line against one side of the mold, a pot or reservoir acting against the opposite side of the mold, and a pump to deliver the molten or plastic material into the mold, as described and shown.

64. In combination with the matrix-bars, mold, and melting-pot, the finger-keys to designate the characters, the stop mechanism, substantially as described, between the keys and bars to arrest the motion of the latter, the dogs to sustain the adjusted bars independently of the stop mechanism, and the automatic mechanism, substantially as described, for moving the adjusted stops into the path of the bars, and subsequently restoring them to their normal position, whereby the two operations of forming one bar and designating the characters for another may be carried on simultaneously.

65. The matrix-bar having therein transverse grooves with intaglio characters in the bottom, said grooves being of uniform width at the edge of the bar, but of different widths at the bottom corresponding to the heights of the respective characters.

66. In combination with the adjusting-pins J, terminating in different vertical planes, the crank-shafts L, arranged in two vertical rows, as described.

67. The series of bars provided with spacing-surfaces of different widths, in combination with stops, substantially as described, adapted to arrest the bars with any one of the spaces at the aligning-point, whereby the particular space to appear in the line may be positively determined.

68. A series of independently-reciprocating bars each provided with a series of characters and a series of spacing-surfaces, in combination with a series of stop-pins for each bar, one for each character, and one for each space, substantially as described and shown, whereby each bar may be positively stopped to present a character or a space at a point of alignment to the series.

69. The combination of the series of parallel matrix-bars, and the mold having its parts mounted, substantially as described, to move transversely of the bars, whereby the removal of the casting is facilitated.

70. In combination with the elongated mold, the series of independent matrix-bars lying transversely across the face of the mold, and a clamp or pressure device, substantially as described, to urge the bars edgewise toward the mold, whereby they may be released for adjustment and then clamped tightly to the mold.

313,225. CASTER AND INSECT-GUARD COMBINED. LEWIS A. MICHALSON, Dallas, Tex. Filed Jan. 8, 1885. (No model.)
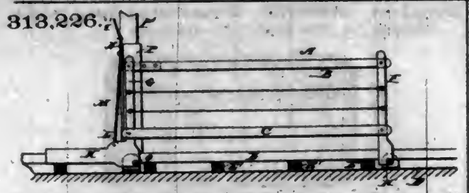


Claim.—1. In a combined caster and insect-guard, the combination, with a suitable spindle, of a segmental cup or vessel having a central upwardly-extending bearing for such spindle, and provided on its under side with a recess the edges of which are provided with bearings for a wheel or caster, substantially as and for the purpose herein set forth.

2. In a combined caster and insect-guard, the herein-described cup or vessel, segmental in shape, having an interior flat bottom, with a central upwardly-extending tubular cylindrical bearing, and a laterally-extending horizontal spout or nipple provided with a suitable cap or plug, and formed with a recess in its under side adapted to receive a caster-wheel, substantially as and for the purpose herein set forth.

3. In a combined caster and insect-guard, the combination, with a suitable cup or vessel having a caster-wheel journaled in a radial recess in its under side, and provided with a horizontal outlet and with a central upwardly-extending tubular cylindrical bearing, of a stem or spindle adapted to fit the said bearing, and having an annular collar and an upwardly-extending stem or spike, substantially as herein described, for the purpose set forth.

313,226. GATE. GEORGE C. MILGATE, Folsom, Cal. Filed Jan. 22, 1884. (No model.)

313,226.

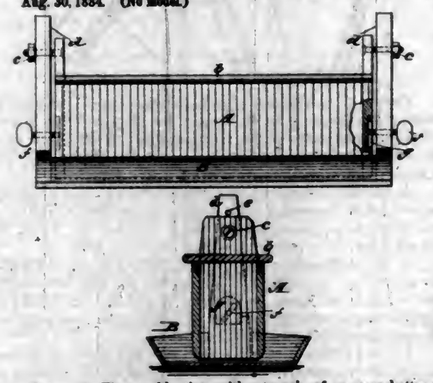


Claim.—1. The combination, with the gate A, base E, and arm K, all substantially as set forth, of the connections M, M', and M^2, plates or angle-levers N N', levers Q, and posts P P', substantially as described, and for the purposes set forth.

2. The combination, with the base E, having recess D, of the pivoted end pieces, F G, the latter being provided with the arm K, the top and bottom bars, B C, pivoted to opposite sides of the said end pieces, the operating-levers Q, and intermediate connections for connecting the said lever to one of the end pieces, substantially as herein shown and described.

3. In a gate, the combination of the base E, having the recess D, a folding gate, A, having the end pieces, F G, the end F being pivoted to the base E, and the end G secured to a weighted arm, K, which arm is pivoted by its inner end to the base E, the posts P P', levers Q, and connections M M' M^2 and N N', the connections M being attached to the arm K at a point above and out of the line of the pivot O and the pivots of the gate-base, and said arm K being also weighted at L, substantially as shown and described.

313,227. FEEDING-TROUGH. JAMES S. MOODY, Fillmore, Ill. Filed Aug. 30, 1884. (No model.)



Claim.—1. The combination, with a trough, of an open-bottomed box or hopper extending within the trough and hung to swing therein, substantially as set forth.

2. The combination, with the trough B, of the pendent open-bottomed hopper A, carried by upper end pivots, *c*, connected with the trough, and adjustable up or down in uprights *d*, to vary the distance apart of the bottom of the hopper with the upper surface of the bottom of the trough within which the hopper swings, essentially as and for the purposes described.

3. The combination of one or more stop-pins, *f*, with the swinging open-bottomed hopper A and the trough B, substantially as specified.

313,228. FASTENING FOR METAL LATHS. AARON B. MOORE, Mount Vernon, Ohio, assignor to the Cooper Manufacturing Company, same place. Filed Feb. 10, 1882. (No model.)

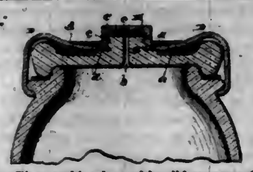
Brief.—A clamp or fastening for metal laths, consisting of a shank with a T-head, the latter being bent down flat upon the lathing and embracing the furring.



Claim.—The fastening for sheet-metal laths, consisting of the shank *c* and head *b*, the head *b* being bent at right angles to the plane of the shank, substantially as described.

313,229. GLASS CAN-CAP. THOMAS G. OTTERSON and CORNELIUS C. VOORHEES, Woodbury, N. J. Filed Dec. 29, 1884. (No model.)

313,229.



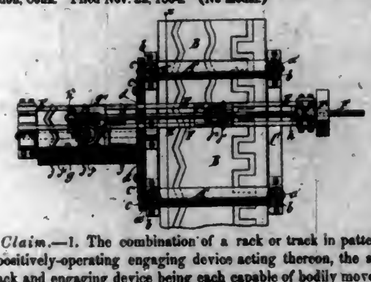
Claim.—1. The combination, with a lid or cover for jars, having an externally-screw-threaded stud, the latter being provided with a longitudinal perforation, of a valve resting on and closing the perforation in said stud, and a screw-threaded cap for holding the valve in place, substantially as set forth.

2. The combination, with the perforated stud and a yoke pivoted thereon, of a valve closing the perforation in the stud, and a cap fitting on the stud and performing the double function of protecting the valve and securing the yoke, substantially as set forth.

3. The combination, with a lid or cover for jars, having an externally-screw-threaded stud, the latter being provided with a longitudinal perforation, of a valve resting on and closing the perforation in said stud, a screw-threaded cap, and a cushion located within the cap and resting on the valve, substantially as set forth.

4. The combination, with the lid provided with a depressed central portion and a threaded perforated stud located centrally therein, of the clamping-yoke journaled on the stud, a valve closing the perforation in the stud, and a cap screwed on the stud and securing the valve and yoke in position, substantially as set forth.

313,230. MECHANICAL MOVEMENT. FRANK L. PALMER, New London, Conn. Filed Nov. 22, 1884. (No model.)



Claim.—1. The combination of a rack or track in pattern form, and positively-operating engaging device acting thereon, the said rack or track and engaging device being each capable of bodily movement in a direction transverse to the plane or direction of movement of the other, whereby provision is afforded for producing change at uniform speed in the relative position of said parts by the action of the engaging device upon the rack or track, substantially as herein described.

2. The combination, with two carriages capable of bodily movement independently of each other, and each in direction transverse to the direction of movement of the other, of a rack or track in pattern form on one carriage, and a positively-operating engaging device acting upon said rack or track and mounted on the other carriage, substantially as herein described.

3. The combination, with a rotary carriage or cylinder, and a rack or track in pattern form thereon, of a carriage capable of movement in a plane parallel with the axis of said rotary carriage or cylinder, and a positively-operating engaging device mounted on the last said carriage and acting upon said rack or track, substantially as herein described.

4. The combination, with feed-rollers for work, and a carriage geared therewith and bearing upon it a rack or track in pattern form, of a second carriage movable in a plane parallel with the axis of said feed-rollers, a tool or implement supported by the last-mentioned carriage, and a positively-operating engaging device mounted on the last-mentioned carriage and acting upon said rack or track, substantially as herein described.

5. The combination, with a rack or track in pattern form, and a positively-operating engaging device acting thereon, the said rack or track and engaging device being each capable of bodily movement in a direction transverse to the direction of movement of the other, a guide arranged adjacent to the rack or track, and a pin or tracker connected with the engaging device and engaging with the guide, substantially as herein described.

6. The combination of a rack or track in pattern form, and a positively-rotated wheel engaging therewith, said rack and wheel being each capable of bodily movement in a direction transverse to the direction of movement of the other, whereby provision is afforded for producing change at uniform speed in the relative position of said parts by the action of the wheel on the rack or track, substantially as herein described.

7. The combination of a toothed rack in pattern form, and a positively-rotated spur-pinion engaging therewith, said rack and pinion being

each capable of bodily movement in a direction transverse to the direction of movement of the other, whereby provision is afforded for producing change at uniform speed in the relative position of said parts by the action of the pinion on the rack, substantially as herein described.

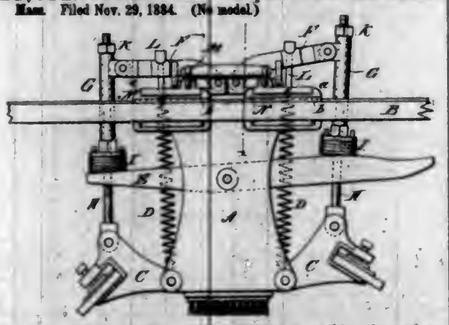
8. The combination, with two carriages capable of bodily movement independent of each other, and each in a direction transverse to the direction of the other, of a rack or track in pattern form on one carriage, and a positively-rotated wheel on the other carriage engaging with said rack or track, substantially as herein described.

9. The combination, with two carriages capable of bodily movement independently of each other, and each in a direction transverse to the direction of movement of the other, of a rack or track in pattern form on one carriage, and a guide extending adjacent to said rack or track, a positively-rotated wheel on the other carriage engaging with said rack or track, and a pin or tracker connected with said wheel and engaging with said guide, substantially as herein described.

10. The combination, with steel-rollers for work, and a pattern-cylinder geared therewith and bearing upon its surface a rack or track in pattern form, of a positively-operating engaging device acting upon the rack or track and movable in a direction lengthwise of the cylinder, and a tool or implement movable with said engaging device and in the same direction, substantially as herein described.

11. The combination, with a rack or track in pattern form, and a support or carriage therefor, of feed-rollers geared with said support or carriage, and a positively-operating engaging device acting upon the pattern rack or track, and serving by its operation on said rack or track to produce a variable rotary movement of the feed-rollers, substantially as herein described.
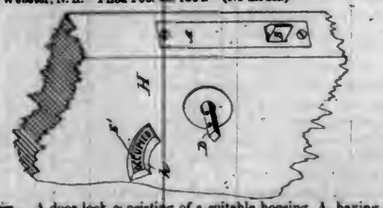
313,231. LEATHER-WORKING MACHINE. JOHN A. PANTON, Quincy, Mass. Filed Nov. 29, 1884. (No model.)



Claim.—1. In a leather working and scouring machine, the carriage with the tool-carriers connected thereto and to rods passed through an oscillator, through cushions resting upon said oscillator, and through sleeves having levers, the inner or opposite ends of said levers being pivoted to the carriage, in combination with the two-part gib, having one part provided with a shoulder at each end to receive between them the top of said carriage, the other part of said gib being composed of hard vulcanized fiber, and secured to the aforesaid part of gib, substantially as and for the purpose set forth.

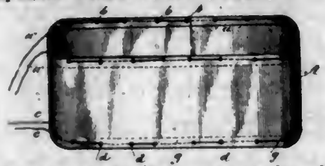
2. In a leather working and scouring machine, the combination, with the carriage, of the two-part gib, having one part provided with a shoulder at each end to receive between them the top of said carriage, the other part of said gib being composed of hard vulcanized fiber, and secured to the aforesaid part of gib, substantially as and for the purpose set forth.

313,232. INDICATOR-LOCK. CHARLES PEARSON and WILLIAM PEARSON, Webster, N. H. Filed Feb. 18, 1884. (No model.)



Claim.—A door-lock consisting of a suitable housing, A, having on either side thereof holes for the knob-spindle, and curvilinear slots, as shown, and containing the latch-bolt B, rocker C, through which passes the knob-spindle D, and the right-angled weighted lever J, for projecting said latch-bolt, and the annunciator-fastening E', pivoted on screw *e*, which may be rotated by aid of the thumb-piece F, acting in one of said curvilinear slots, and prevent the movement of said latch B, all constructed and operating substantially in the manner described.

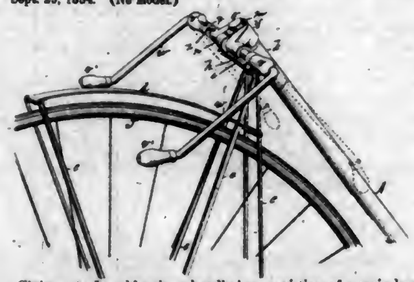
313,233. BROOM-COVER. WILLIAM PERRY and JAMES A. PRINCE, Indianapolis, Ind. Filed Dec. 31, 1883. (No model.)



Claim.—1. A cover for brooms, consisting of a sack open at both ends, and provided with draw-strings at each end, substantially as set forth.

2. A cover for brooms, consisting of an open-ended sack having turned-in portions and perforations at each end, and draw-strings passing through said perforations, whereby the ends are adapted to be drawn in around the brooms at the top and bottom, substantially as set forth.

313,234. VELOCIPEDE. FRANK B. POWERS, Springfield, Mass. Filed Sept. 29, 1884. (No model.)



Claim.—1. In a bicycle, a handle-bar consisting of a main bar attached at right angles to the steering-bar, and provided with a handle-extension at each end projecting toward that part of the vehicle where the seat is located, capable of being swung toward and from the rider of the machine, substantially as described.

2. The combination, with the steering-bar of a bicycle, of a handle-bar attached at right angles to the steering-bar, provided with swinging end extensions, and means, substantially as described, for limiting the upward swing of said extensions, substantially as set forth.

3. The combination, with the steering-bar of a bicycle, of a handle-bar attached at right angles to the steering-bar, provided with swinging end extensions, and means, substantially as described, for limiting the upward swing of said extensions, and for swinging the same away from the rider, substantially as set forth.

4. The combination, with the steering-bar of a bicycle, of the bearing *y* and the reciprocally-rotating bar *h*, provided with the swinging extensions *w*, substantially as set forth.

5. The combination, with the steering-bar of a bicycle, of the bearing *y*, the reciprocally-rotating bar *h*, provided with the swinging extensions *w*, and the cam *n*, substantially as set forth.

6. The combination, with the steering-bar of a bicycle, of the bearing *y*, the reciprocally-rotating bar *h*, provided with the swinging extensions *w*, the cam *n*, and the spring *i*, substantially as set forth.

7. The combination, with the bearing *y*, the handle-bar *h*, and the cam *n*, of the leaf *m*, substantially as set forth.

8. In combination with a main handle-bar of a bicycle having swinging extensions, means, substantially as described, for locking the latter in their upward position, substantially as set forth.

9. In a bicycle, a swinging handle-bar provided with handles on the ends of its extensions parallel with the length of the bicycle, substantially as set forth.

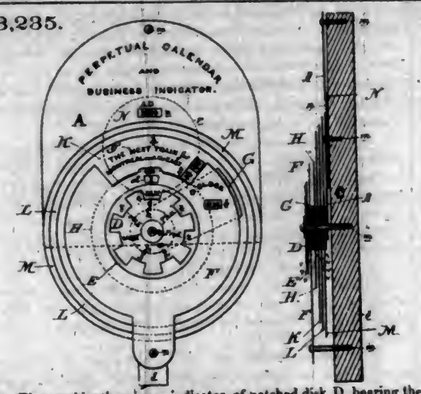
10. In a bicycle, a main handle-bar having handles thereon, and having end extensions provided with handles on the extremities thereof, substantially as set forth.

313,235. INDICATOR. GEORGE H. PRESTON, Ottawa, Ontario, Canada. Filed Mar. 6, 1884. (No model.)

Claim.—1. The herein-described indicator, consisting of a backing or board, a series of disks, D E H K L M N, and guards A F, constructed and inscribed, and arranged one behind another, substantially as described and shown, whereby they are adapted to show simultaneously the day of the week, the month, the year, a coming event, and a predetermined hour or time of the day, substantially as set forth.

2. The combination, in an indicator, of notched disk D, bearing names of days in line with the notches, guard F, provided with openings *b* and *d*, slide G, provided with inscriptions indicating divisions of the day, and disk H, bearing figures indicating the days of the month; said slide and disk G and H being placed behind the guard F, substantially as described and shown.

313,235.

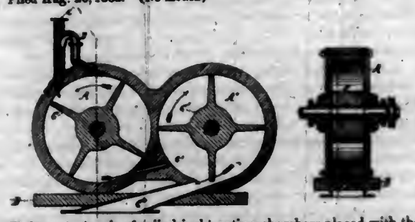


3. The combination, in an indicator, of notched disk D, bearing the names of the days in line with the notches, disk E, placed behind disk D, and bearing the names of the month, guard F, having openings *b*, *d*, and *h*, slide or plate G, bearing inscriptions indicating divisions of the day, disk H, bearing figures indicating days of the month, and disk K, bearing inscriptions indicating coming events, said parts F G K being arranged substantially as shown to permit their inscriptions to be brought opposite the respective openings of guard F.

4. The combination of notched disk D, having the names of the days of the week in line with the notches, guard F, having openings *b*, *d*, and *h*, plate G, bearing inscriptions indicating divisions of the day, disk H, bearing inscriptions indicating days of the month, disk K, bearing inscriptions indicating coming events, and having radial slots or openings, and disk L, behind disk K, bearing figures indicating hours of the day, all arranged to operate substantially as set forth.

5. The combination of notched disk D, having names of days in line with the notches, disk E behind disk D, and bearing the names of the months, guard F, having openings *b d h*, plate G, bearing inscriptions indicating divisions of the day, disk H, bearing figures indicating days of the month, disk K, bearing inscriptions indicating coming events and provided with slots or openings in its face, disk L, bearing figures indicating hours of the day, and openings, both arranged to register with the openings in the disk K, and disk M, bearing figures indicating the minutes of an hour, stations, or like matter arranged to register with the openings of disks K and L, all substantially as set forth.

313,236. APPARATUS FOR AGING AND PRESERVING DISTILLED AND FERMENTED LIQUIDS. CHARLES W. RAMSAY, Brooklyn, N. Y. Filed Aug. 20, 1883. (No model.)

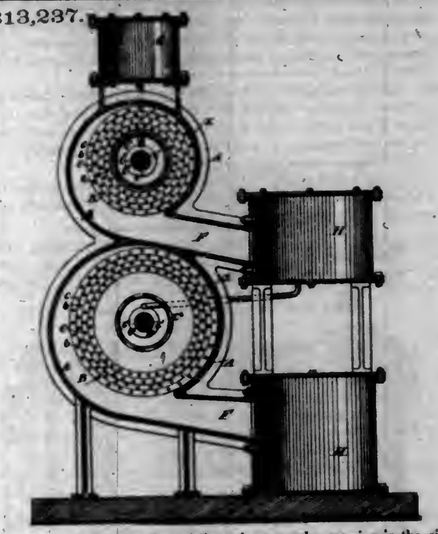


Claim.—1. A pair of cylindrical treating-chambers placed with their peripheries contiguous to each other, and connected by a lateral duct leading from near the bottom of the first chamber to near the central part of the second chamber, each chamber provided with a rotary beater consisting of radial or nearly radial arms, and the said treating-chambers entirely closed, except as to their inlet and outlet ducts, the outlet-duct from the last of the treating-chambers opening downwardly from near the bottom of the last of the said treating-chambers and enlarging outwardly therefrom.

2. The vent-pipe D, attached to the upper part of the first cylinder, and leading therefrom to the inlet-pipe *c*, the said vent-pipe to be constructed and arranged as shown and described.

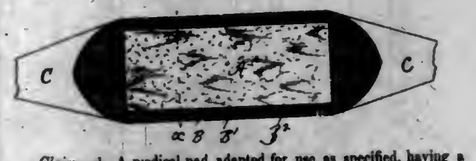
313,237. APPARATUS FOR TREATING FERMENTED, FERMENTABLE, OR DISTILLED LIQUIDS. CHARLES W. RAMSAY, Brooklyn, N. Y. Filed Mar. 31, 1884. (No model.)

Claim.—In combination with a closed chamber of helical or nearly helical formation having its enlargement downwardly, and an outwardly-enlarging eduction-pipe taken as nearly as possible from the lowest part of said chamber, a pair of rotating disks revolved in opposite directions, and their adjacent faces armed with interlocking teeth for striking with sharp blows the atoms of fluid passing through the machine, and an induction-pipe leading from a reservoir above and without the treating-



chamber to the interior thereof through an annular opening in the side of the hub of one of the revolving disks.

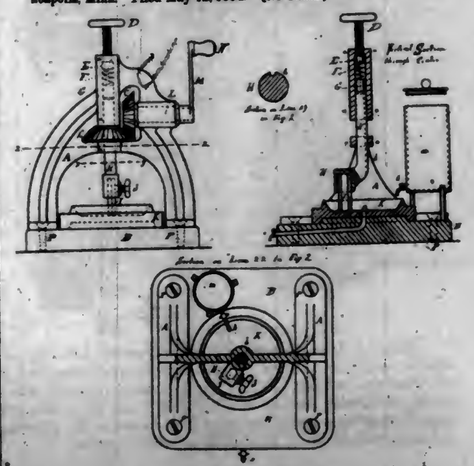
313,238. PAD FOR MEDICAL PURPOSES. WM. W. RAY, Springfield, Ky. Filed June 5, 1883. (No model.)



Claim.—1. A medical pad adapted for use as specified, having a non-absorbent back, an absorbent face, and a non-absorbent strip surrounding the absorbent face, whereby evaporation from the edge of the pad is prevented, the said pad being provided with means, substantially as described, whereby it may be secured to the wearer, substantially as and for the purposes specified.

2. The medical pad composed of the flattened elongated flexible tube made of non-absorbent material and provided with the opening B^2 in one side, the absorbent piece A, made larger than the opening B^2, and having its edges slipped under the stripe B', whereby the said piece is removably held in place and surrounded by non-absorbent stripe, and the tapes C C, secured to the opposite ends of the non-absorbent tube, all substantially as and for the purposes specified.

313,239. DRAFTSMAN'S INK-MIXER. WILLIAM W. REDFIELD, Minneapolis, Minn. Filed May 12, 1884. (No model.)

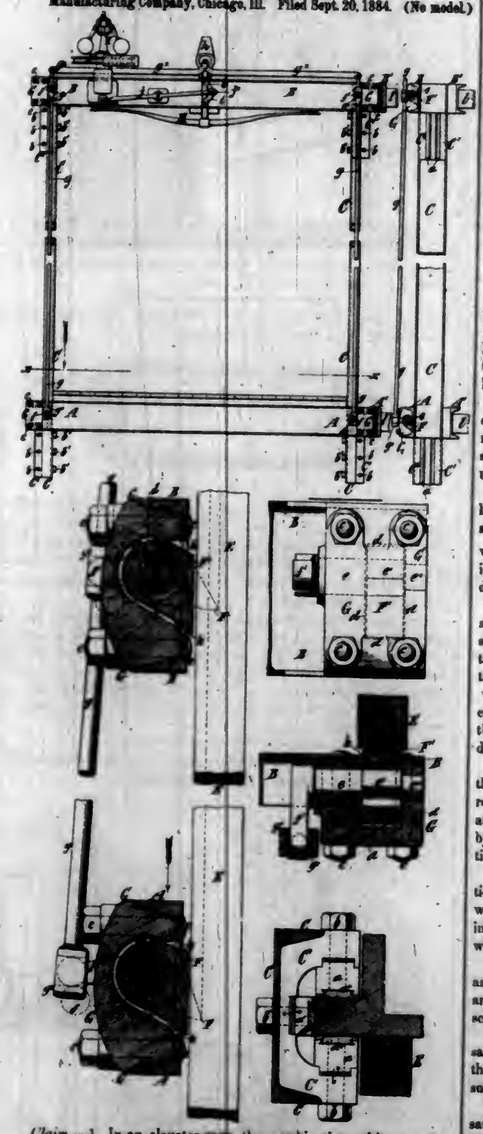


Claim.—1. In a draftsman's ink-mixer, the combination of the frame A, the screws P P, and the base-piece B, said base-piece having a relieved boss on top of same for the purpose of receiving an ink-cup, K, thereon, and all arranged substantially as and for the purposes herein-before set forth.

2. In a draftsman's ink-mixer, the combination of the frame A with the shaft H, having its slot *h* and bearing the bevel gear-wheel C, the pieces E and G, the spring F, the set-screw D, the crank-shaft L, bearing the bevel gear-wheel C', and the set-screw J, all substantially as and for the purposes hereinbefore set forth.

3. In a draftsman's ink-mixer, the shaft H, having its slot *h* and a recess at end for retaining a piece of india-ink, I, substantially as described.

313,240. **ELEVATOR-CAGE AND SAFETY ATTACHMENT.** GEORGE H. REYNOLDS, New York, N. Y., assignor of one-half to Crane Brothers Manufacturing Company, Chicago, Ill. Filed Sept. 20, 1884. (No model.)



Claim.—1. In an elevator-cage, the combination, with a top portion and uprights, of a bottom portion composed of two channel-bars, A A', placed back to back, with their flanges presented outward and receiving the uprights between them, the ends of the bar A being prolonged beyond the uprights, and safety-dogs carried by the projecting end portions of said bar A, substantially as herein described.

2. In an elevator-cage, the combination, with a top and bottom portion, each consisting of parallel bars or pieces, of uprights C C, consisting of channel-bars having their flanges presented outward, and secured at their lower ends between the parallel bars or pieces of the bottom portion, and at their upper ends between the parallel bars of pieces of the top portion, the whole forming a rigid and unyielding structure, substantially as herein described.

3. In an elevator-cage, the combination of the bottom portion composed of channel-bars A A', having their flanges presented outward, the top portion composed of channel-bars B B', also having their flanges presented outward, and the uprights consisting of channel-bars C C, having their flanges presented outward and secured at their lower ends between the channel-bars A A', and at their upper ends between the channel-bars B B', all substantially as herein described.

4. In an elevator-cage, the combination, with the top and bottom, of uprights consisting of channel-bars having their flanges presented outward, and guiding gibs or shoes arranged on the outer sides of said channel-bars and between the flanges thereof, substantially as herein described.

5. The combination, with an elevator-cage, of guiding gibs or shoes, a block or holder having seats to which said gibs or shoes are fitted, and bolts inserted through said block or holder and entering said gibs or shoes, whereby provision is afforded for clamping and holding said gibs or shoes tightly to their seats, substantially as herein described.

6. The combination, with an elevator-cage having uprights consisting of channel-bars with their flanges presented outward, of blocks or holders fitting the exterior faces of said uprights between their flanges, gibs or shoes fitting seats in said blocks or holders, and bolts inserted through said blocks or holders and into said gibs or shoes, and serving to hold said gibs or shoes tightly in their seats, substantially as herein described.

7. The combination, with the uprights C and the blocks or holders C', fitting between the flanges thereof, of the gibs or shoes *a' a*, the bolts *b'*, inserted through the back of the uprights and the blocks or holders and entering the gibs or shoes *a'*, and the bolts *b*, inserted through the blocks or holders and entering the gibs or shoes *a*, substantially as herein described.

8. The combination, with an elevator-cage, of safety-dogs and holders therefor secured to the top and bottom portions of the cage, rods connecting the dogs which are at the top and bottom of the cage, and a single safety apparatus at the top of the cage, whereby said rods and both the upper and lower dogs are controlled, substantially as herein described.

9. The combination, with an elevator-cage, of safety-dogs and their holders secured to the bottom portion of the cage, and other safety-dogs and their holders at the top portion of the cage, and safety-strips with which both upper and lower dogs engage, the dogs and their holders being constructed to permit the upper dogs to engage the safety-strips more deeply than the lower dogs, substantially as herein described.

10. The combination, with an elevator-cage, of safety-dogs pivoted at the top and bottom of the cage, arms projecting from the pivots of the safety-dogs, the arms on the pivots of the lower dogs being longer than those on the pivots of the upper dogs, and rods connecting the upper with the lower arms, substantially as herein described.

11. The combination, with an elevator-cage, of safety-dogs and holders therefor, comprising cavities within which the dogs are pivoted, and the backs of which are closed and conform in shape to the backs of the dogs, substantially as herein described.

12. The combination, with the dog-holder G, of the dog F, fitting therein and having an eye to receive its pivot, and the pin *e*, having round portions of different diameter fitted to bearings in the holder, and an intermediate portion, *e'*, adapted to lock into the eye of the dog, whereby the pin and dog are caused to turn together in the holder, substantially as herein described.

13. The combination, with an elevator-cage having horizontal portions comprising a channel-bar the flanges of which are presented outward, of a safety-dog and a holder therefor, consisting of a block or casting fitting and secured in the flanged face of the channel-bar, and within which the said dog is pivoted, substantially as herein described.

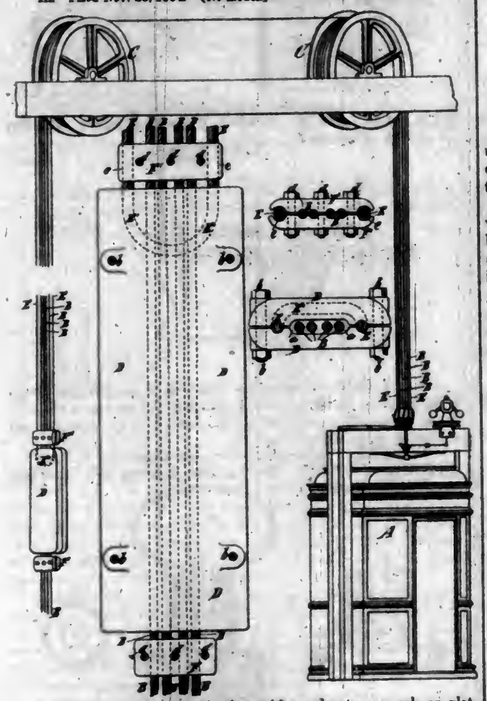
14. The combination, with the dog-holder G, having a closed back and a cavity, *d*, of the channel-bar A, slotted opposite the said cavity, and the safety-dog F, pivoted in said cavity, substantially as herein described.

15. The combination, with an elevator-cage and guides therefor, of safety-dogs upon the cage and multiple safety-strips severally composed of sections with the edges of which said dogs are arranged to engage, substantially as herein described.

16. The combination, with an elevator-cage and guides therefor, of safety-dogs upon the cage, and multiple safety-strips severally composed of sections with the edges of which said dogs are arranged to engage, substantially as herein described.

17. The combination, in an elevator-cage, of the bottom and top channels, A A' B B', having their flanges presented outward, the upright channel-bars C, also having their flanges presented outward, the blocks or dog-holders G, fitting in and secured to the flanged faces of the channel-bar A, the safety-dogs F, contained in said holders, and guiding gibs or shoes contained in the flanged faces of the upright channel-bars C, all substantially as herein described.

313,241. **ELEVATOR.** GEORGE H. REYNOLDS, New York, N. Y., assignor of one-half to Crane Brothers Manufacturing Company, Chicago, Ill. Filed Nov. 28, 1884. (No model.)



Claim.—1. The combination, with an elevator car, cab, or platform and its hoisting and counterbalance cables, of a weight suspended by the counterbalance-cable and a stop or abutment upon the hoisting-cable below the weight and in the path thereof, whereby the weight will be sustained by said stop or abutment and hoisting-cable in case the counterbalance-cable parts, substantially as and for the purpose herein described.

2. The combination, with an elevator car, cab, or platform and its hoisting and counterbalance cables, of a weight suspended by the counterbalance-cable and a stop or abutment on the hoisting-cable above the weight and in the path thereof, whereby the counterbalance-cable will be transformed into a hoisting-cable in the event of the hoisting-cable proper parting, substantially as and for the purpose herein described.

3. The combination, with an elevator car, cab, or platform and its counterbalance cable and weight, of a hoisting cable or cables received through said weight, and provided below the weight with a stop or abutment to sustain the weight on the parting of the counterbalance-cable, substantially as herein described.

4. The combination, with an elevator car, cab, or platform and its counterbalance cable and weight, of a hoisting cable or cables received through the said weight, and provided above the weight with a stop or abutment which will arrest the rising movement of the weight if the hoisting cable or cables part, substantially as and for the purpose herein described.

5. The combination, with the car, cab, or platform, of the hoisting and counterbalance cables, a hollow weight suspended by the counterbalance-cable and receiving the hoisting-cable through it, and stops or abutments on the hoisting-cable above and below said weight, substantially as and for the purpose herein described.

6. The combination, with the car, cab, or platform, of a counterbalance cable or cables consisting of a single cable doubled upon itself and having its ends secured to the car, cab, or platform, and a counterbalance-weight suspended from the bight of the double cable, substantially as herein described.

7. The combination, with the car, cab, or platform and its hoisting and counterbalance cables, of a hollow weight to which the counterbalance-cable is attached and through which the hoisting-cable depends, whereby the weight is guided by the hoisting-cable, substantially as herein described.

8. The combination, with the car, cab, or platform and its hoisting and counterbalance cables, of sheaves common to both cables, and a hollow weight to which the counterbalance-cable is attached and through which the hoisting cable depends, substantially as herein described.

313,242. **THILL-COUPLING BOLT.** IRA M. RICHARDSON, Littleton, N. H. Filed Sept. 24, 1884. (No model.)

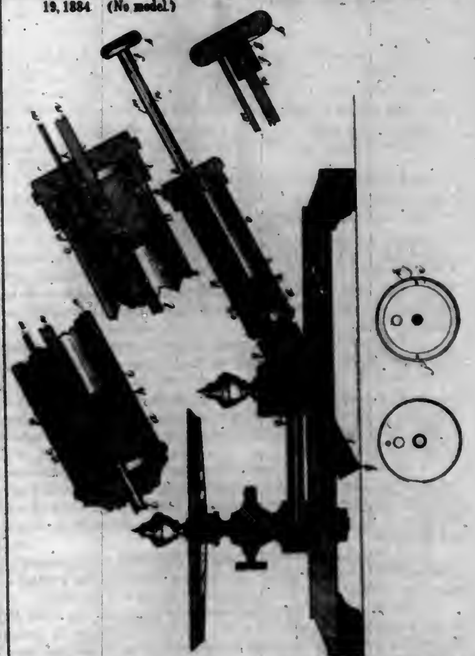


Claim.—1. The combination, with a bolt, of a strip made of spring material and pivoted to one end of the bolt, the said strip having its spring end bent up and provided with an aperture for receiving the free end of the bolt, substantially as herein shown and described.

2. The combination, with the bolt A, having a head, B, provided with a tongue, C, projecting from the end of the head parallel with the bolt, of the strip D, made of spring material and pivoted to the tongue C, and having its free end bent up and provided with an aperture for receiving the free end of the bolt, substantially as herein shown and described.

3. The combination, with the bolt A, having at one end a head, B, provided with a tongue, and having a notch or groove, I, in the opposite end, of a spring-strip pivoted to the tongue and having its free end bent up and provided with an aperture, substantially as herein shown and described.

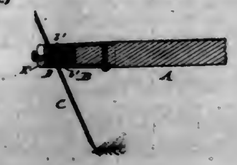
313,243. **AIR-PUMP.** ALFRED L. ROBBINS, Chicago, Ill. Filed May 19, 1884. (No model.)



Claim.—1. The combination, in air-pumps, of the piston *a*, provided with the orifice *p* and ports *d* and *e*, with the valve *c*, rod *m*, and tubular rod *l*, substantially as described, and for the purpose specified.

2. The combination of the sleeve *f*, valve-rod *m*, and handle *b*, to operate with the piston-rod *n* and collar *g*, substantially as described, and for the purpose specified.

313,244. **HOE.** LORENZ SAUER, Napa City, Cal. Filed Oct. 25, 1884. (No model.)



313,244.

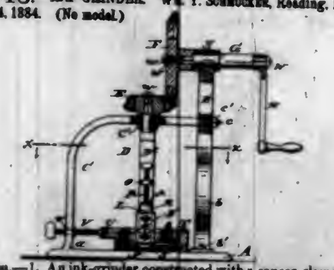


Claim.—The combination of a handle, a ferrule having an inclined face and a threaded shank, a hoe-blade, a washer inclined at one side to correspond to the inclination of the face of the ferrule, and a fastening screw-nut for attaching the washer and hoe to the ferrule, substantially as set forth.

313,245. METHOD OF MANUFACTURING CLOCK AND WATCH DIALS. FRANCOIS SCHMALZ, New York, assignor to Charles V. Peyn, Brooklyn, N. Y. Filed Aug. 13, 1884. (No specimens.)

Claim.—The method herein described of manufacturing watch and clock dials, consisting in printing upon a sensitized surface the divisions and figures, developing the same by a vitreous pigment in a finely-powdered form, pouring upon such sensitized surface collodion which adheres to the pigment, removing the collodion and pigment, transferring the same to the dial with the pigment directly upon the dial, and vitrifying the pigment and removing the collodion by heat, substantially as set forth.

313,246. INK-GRINDER. WM. Y. SCHNUCKER, Reading, Pa. Filed Oct. 4, 1884. (No model.)



Claim.—1. An ink-grinder constructed with a saucer-clamp, a chuck adapted to hold the solid ink-cake and fitted to revolve above the clamped saucer, and having means to feed the ink-cake downward as it wears by friction on the saucer, and means to rotate the chuck, substantially as herein set forth.

2. The combination, in an ink-grinder, of a base-plate, A, frame B C, saucer-clamp T U V, ink-holding chuck D, gear-wheels E F, shaft G, and handle H, all substantially as shown and described.

3. In ink-grinders, the ink-holding chuck D, constructed with a foot-piece, D', apertured at I, a clamp-block, L, screws M, and a screw, P, adapted to feed the ink through the aperture I, substantially as shown and described.

4. In ink-grinders, the ink-holding chuck D, constructed with a foot-piece, D', apertured at I, a clamp-block, L, and screws M, and said foot-piece and clamp-block having opposite rounding recesses J K and flat faces *j k*, as specified, and a feed-screw, P, substantially as shown and described.

5. In ink-grinders, the clamp-block L, made with an upper flange, *l*, to suspend the block within the aperture I of the chuck, and a rounded recess, K, and flat faces *k k*, substantially as shown and described.

6. In ink-grinders, the combination, with the ink-holding chuck D, having a foot-piece, D', apertured at I, and the clamp-block L, screws M, and feed-screw O, of the block R, interposed between the feed-screw and the ink-cake N, substantially as shown and described.

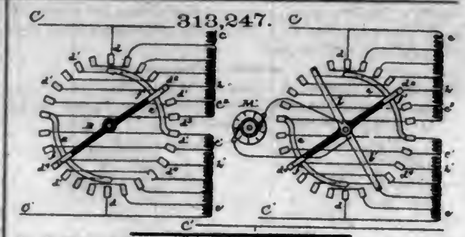
7. In ink-grinders, the saucer-clamp constructed with a fixed jaw, T, a movable jaw U, and a swiveled screw, V, and arranged below the ink-holding chuck D, substantially as shown and described.

313,247. REGULATOR FOR ELECTRO-DYNAMIC MOTORS. FRANK J. SPRAGUE, New York, N. Y. Filed Feb. 21, 1884. (No model.)

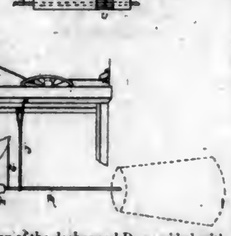
Claim.—1. The method of regulation for an electro-dynamic motor whose main field-coils are in shunt relation to its armature, which consists in strengthening the magnetizing effect of the field-magnet coils of the motor to decrease the mechanical effects, as speed or power, or both, and, vice versa, weakening such magnetizing effect to increase the said mechanical effects, substantially as set forth.

2. The method of maintaining constant under varying loads the speed of an electro-dynamic motor whose main field-coils are in shunt relation to its armature, which consists in strengthening the magnetizing effect of the field-magnet coils as the load is diminished, and, vice versa, weakening the said magnetizing effect as the load is increased, substantially as set forth.

313,247.

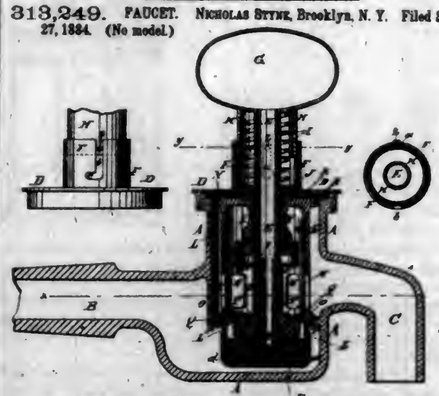


313,248. CHURN. WESLEY H. STEWART, Louina, Ala. Filed May 5, 1884. (No model.)



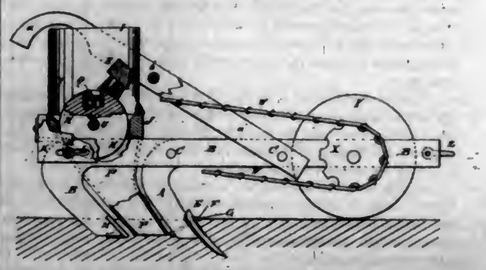
Claim.—The combination of the dasher-rod D, provided with sleeves F, the straps G, the pivoted lever B, provided with the arm or wheel H, and an opening through its end for the dasher-rod, the guides J, and standard A, substantially as set forth.

313,249. FAUCET. NICHOLAS STYNE, Brooklyn, N. Y. Filed Sept. 27, 1884. (No model.)



Claim.—In a faucet, the combination, with the stock A, the cap D, the hollow valve-stem E, having shoulder V, and the valve R S, of the apertured hollow cylinder I, provided with the perforated tube X, having thickened lower end, and the tube U, having an annular flange, T, at its lower end and a cup-flange, W, at its upper end, substantially as herein shown and described, whereby the valve-packing will be held in place and the valve made to close slowly, as set forth.

313,250. SEED-DRILL. JAMES J. SWEATT, GEORGE H. SWEATT, and FRANCIS V. SWEATT, Conyersville, Tenn. Filed Sept. 12, 1884. (No model.)



Claim.—In a seed-drill, the combination, with the seed-box I, the seed-dropping wheel N, the plow-beam B, and the chain and chain-wheels W V X, of the platform J, having slotted flange K, and the bolt M, carrying the pendent beam B, provided with a laterally-projecting

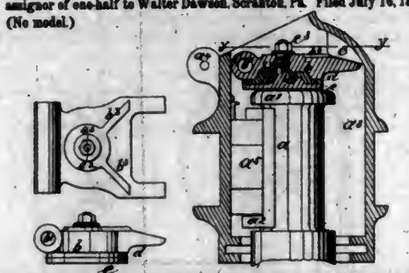
coverer disposed in rear of the spout P, substantially as herein shown and described.

313,251. SPRING-PACKING FOR PISTONS AND OTHER ANALOGOUS USES. ROBERT H. TAYLOR, Sheffield, County of York, England. Filed July 24, 1884. (No model.) Patented in England Jan. 28, 1884, No. 2,252; in France June 27, 1884, No. 163,002, and in Germany June 29, 1884, No. 30,178.



Claim.—In a spring-packing, the combination of the double-acting spring 6, having opposing angular bearing-faces, with corresponding spring-rings, 5, having ribs 7, substantially as and for the purpose set forth.

313,252. CAR-AXLE END-BEARING. THOS. THATCHER, Utica, N. Y., assignor of one-half to Walter Dawson, Scranton, Pa. Filed July 16, 1884. (No model.)



Claim.—1. The herein-described axle end-bearing having a stationary and removable seat with a depression therein, provided on the upper surface with an aperture for bolting the same rigidly to the oil-box, the lower surface resting against stationary supports in the oil-box, and one or more revolving disks to fit into the depression in the seat, combined and arranged substantially as stated.

2. The herein-described axle end-bearing having a stationary and removable seat with a depression therein, provided on the upper surface with an aperture for bolting the same rigidly to the oil-box, the lower surface resting against stationary supports in the oil-box, and one or more revolving disks to fit into the depression in the seat, with a shank thereon to fit into an aperture in the seat, as described.

3. The herein-described axle end-bearing having a stationary and removable seat with a depression therein, provided on the upper surface with an aperture for bolting the same rigidly to the oil-box, the lower surface resting against stationary supports in the oil-box, a revolving disk with offset and depression, with an aperture in the center for fitting into the depression in the seat, and a revolving disk with a projecting surface to fit the depression in the circular disk, and provided with a central shank to fit the aperture in said circular disk and seat, and to secure the same together by nut or rivet, combined and arranged as described.

313,253. BOTTLE-STOPPER. FREDERICK B. THATCHER, Bridgeport, Conn., assignor to the Astna Stopper Company, Pawtucket, R. I. Filed Sept. 11, 1884. (No model.)



Claim.—1. As an improved article of manufacture, an elastic bottle-stopper plug having a socket for a stem, valve-ports, and a valve re-enforced by a rigid material supported by the valve, all substantially as described.

2. As an improved article of manufacture, an elastic bottle-stopper plug having a socket for a cap-plate stem, also a series of grooves in the inner walls of the plug that open in ports near the lower side of the plug, and a valve supported by the straps between the grooves, all substantially as described.

3. As an improved article of manufacture, an elastic bottle-stopper plug having a central socket for a cap-plate stem, inner grooves terminating in ports, and a valve re-enforced by a disk of rigid material supported by the valve, all substantially as described.

4. In combination, an elastic bottle-stopper plug having a stem-socket and a valve, and a re-enforce of rigid material cast within the valve all substantially as described.

5. In combination, in a bottle-stopper, a cap-plate having a stem tapered below the shoulder, an elastic plug having a socket whose wall conforms to the outline of the stem, grooves in the walls that terminate in ports, and a re-enforced valve closing the bottom of the stem, all substantially as described.

313,254. DEVICE FOR PREVENTING HORSES GETTING THEIR TAILS OVER THE LINES. JASPER THOMPSON, Forest City, Iowa. Filed Nov. 6, 1884. (No model.)



Claim.—A flexible bail, D, formed with line-supports H H, attached to the harness, as specified, and supported above the tail by an adjustable strap, F, substantially as and for the purpose specified.

313,255. SHOE-CLASP. JUDSON L. THOMSON, Syracuse, N. Y. Filed Sept. 4, 1884. (No model.)



Claim.—1. A shoe-clasp consisting of the combination, with a slotted plate having an opening for attachment to one of the flaps or quarters of a shoe, of a tongue-plate having an opening for attachment to the other quarter of said shoe, and a tongue hinged on said plate and provided below the axis of its hinge with a cam-bearing adapted to press against the slotted plate when interlocked with said tongue, substantially as set forth.

2. A shoe-clasp comprising a tongue-plate of a single thickness of material, adapted for attachment to one of the quarters of the shoe, and provided with bearings for the pivot of the tongue, and with an opening between said bearings, and the tongue hinged in said bearings, and a cam on the tongue playing freely in the aforesaid opening of the tongue-plate, substantially as described and shown.

3. A shoe-clasp consisting of the combination, with the slotted plate A, of the plate B, formed with the raised eyes *e*, and the opening *a* between said eyes, and the tongue T, having integral therewith the pintle *b* and cam *c*, said cam playing in the opening *a*, and having a bearing on the slotted plate when interlocked with the tongue, as set forth and shown.

4. In combination with the slotted plate A, the springless clasp composed of the plate B, formed with raised eyes *e e*, and having between said eyes the opening *a* for the attachment of the shoe-flap, and the tongue T, hinged in the eyes *e e*, and having a bearing in the slotted plate when interlocked, substantially as described and shown.

5. The blank B', consisting of the cross-bar *m*, and parallel arms *n n*, projecting from the ends of the cross-bar and having plain straight edges, as shown, the whole formed in one piece stamped out of sheet metal.

313,256. ATTACHING SHOE-CLASPS. JUDSON L. THOMSON, Syracuse, N. Y. Filed Sept. 23, 1884. (No model.)



Claim.—The within-described method of securing a shoe-clasp to the strap or quarter of an overshoe, consisting in passing the end of the strap through an opening in the attaching-plate near its free or forward end, then folding it back upon itself to embrace the rear portion of said plate, and uniting the twofold portions of the strap within an opening in the embraced portion of the plate, substantially as set forth.

313,257. SPRING-CLASP. JUDSON L. THOMSON, Syracuse, N. Y. Filed Nov. 26, 1884. (No model.)

Claim.—A spring-clasp composed of an attaching-plate provided with a longitudinally-deflected pintle, and a tongue having a sleeve of elongated or angular form in cross-section embracing said pintle, substantially as described and shown.

313,257.

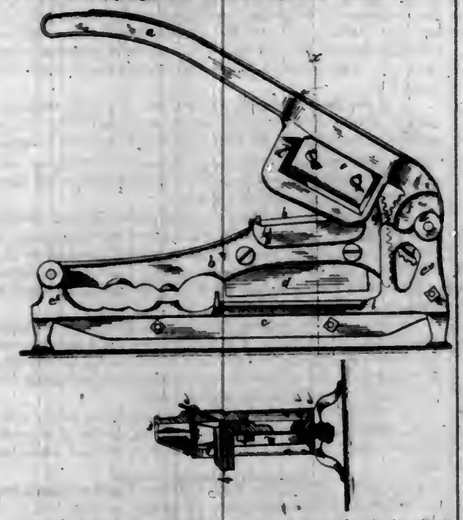


313,258. FASTENING FOR MEETING-RAILS OF SASHES. GEORGE THURSHIRN, Branford, Conn., assignor to the Branford Lock Works, same place. Filed Dec. 26, 1884. (No model.)



Claim.—The herein-described sash-fastener, consisting of the combination of the base A, constructed with openings *h i* and with a segment-shaped slot, *l*, the bolt C, hung upon a pivot on the base, and constructed with the stud *m* to work in the segment-shaped slot in the base, the lever F, constructed with arms to extend each side the hub of the bolt, the said arms and the bolt constructed, the one with a seat and the other with a pivot to rest in said seat, and upon which the said lever may turn in a vertical plane, the said lever also constructed with a downwardly-projecting stud, *f*, corresponding to the two openings *h i* in the base, and a shell, G, surrounding the pivot, and having an opening therein for the bolt, and a second opening, *e*, through which the lever F will work, substantially as described.

313,259. COMBINED TOBACCO CUTTER AND SHAVER. GEORGE W. D. UPTON, Springfield, Mass. Filed July 5, 1883. (No model.)



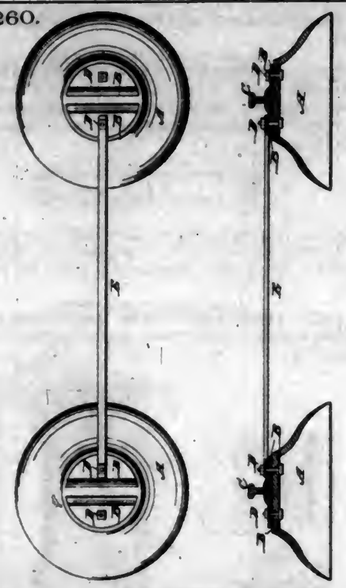
Claim.—The improved tobacco cutter and shaver herein described, consisting of a bed or frame, *c*, formed with a knife bed or shelf, *i*, and lever-bearings at each end, the lever *b*, pivotally secured in the bearings at c^3, and formed with a knife-seat carrying the knife *d* in its lower side, and also formed with a shelf or board seat in the upper part, provided with a detachable and adjustable shelf or plate, *h*, and the lever *a*, pivotally secured to the frame at *c'*, and formed with a knife-frame, d^2, provided with a knife or shaver, *e*, said levers being operatively connected by gearing, as shown, all combined substantially as and for the purpose set forth.

313,260. RAILROAD-TIE. LEE O. VANDERBILT and MILTON E. CARPENT, Muskegon, Mich. Filed Mar. 5, 1884. (No model.)

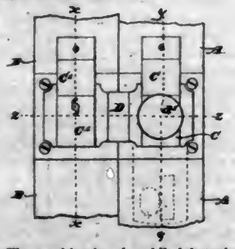
Brief.—Inverted bowls with flat tops receive thereon the bases of the rails, clips thereon securing the same. The gage is maintained by tie-bars secured by the bolts that secure the inside clips.

Claim.—As an improved article of manufacture, a railroad-tie formed of two inverted bowls having plane upper surfaces, two fastening-clips secured to the plain surface of each bowl by bolts, and a bar connecting the two bowls and secured by the fastening-bolts of the inner clips, as described.

313,260.



313,261. SHUTTER-FASTENER. AVERY VAN WIE, Indianapolis, Ind. Filed Apr. 19, 1884. (No model.)

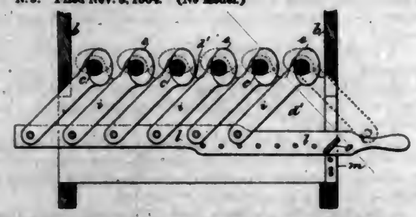


Claim.—1. The combination, in a blind-fastening, of a housing attached to each blind, a catch-bar, D, mounted on the pivot-shaft *d* in one housing, and provided with a notch in its free end, and a spring-catch, E, secured in the other housing, with which the catch-bar, when brought into contact therewith, will engage, substantially as set forth.

2. The combination, in a blind-fastening, of a housing attached to each blind, a catch-bar pivoted in one housing and adapted to swing into engagement with the other, a spring-catch in the other housing, with which said catch-bar is adapted to engage, said housing and said spring each having a key-hole extending through them, and a key adapted to pass down though said key-holes and engage with and raise said spring-catch, substantially as set forth.

3. The combination, in a blind-fastening, of a housing attached to each blind, a catch-bar mounted on a pivot, *d*, in one of said housings, a spring, d^3, interposed between said bar and said housing for engaging with and holding said catch-bar, and a key for disengaging said catch from said catch-bar, substantially as set forth.

313,262. SCREEN FOR COAL, &c. SAMUEL T. VARIAN, East Orange, N. J. Filed Nov. 3, 1884. (No model.)



Claim.—1. The screen for coal and other material, having an inclined range of bars, each bar having pivots at the ends that are eccentric to the bars, in combination with a frame receiving the pivots, an arm to each bar, and a connecting-bar, by means of which all the bars can be

partially turned to vary the openings between the bars, substantially as set forth.

2. The bars *e*, having eccentric pivots c at the ends, and the arms *i*, projecting from such bars, in combination with the bar *l*, pivoted to the arms, the chute, and the bars *d d'*, that receive the pivots at the ends of the bar, the surface of the bar *d'* being undulating to include the pivots, but not to obstruct the material passing off the bars *e*, as set forth.

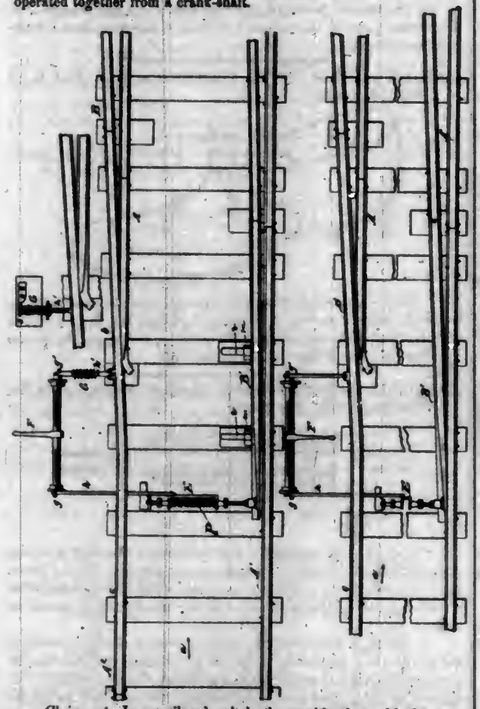
313,263. PAPER-SMOOTHING COMPOUND. CHARLES WALPUSKI, New York, N. Y. Filed Aug. 1, 1884. (No specimens.)

Claim.—1. A composition of matter for smoothing paper, consisting of a suitable resin and a base or binding medium, substantially as set forth.

2. A paper-smoothing composition consisting of finely-pulverized clay, a suitable resin, and a binding medium, substantially as set forth.

313,264. RAILWAY-SWITCH. CHARLES D. WALTERS, Harrisburg, assignor of three-fourths to Alexander H. Ege, Mechanicsburg, Pa. Filed Feb. 12, 1884. (No model.)

Brief.—A pivoted switch-rail, which, by means of a spring, is rendered yielding to the wheel-flanges and self-returning, in connection with an outside springing switch-rail upon the opposite side of the track, fished at opposite ends to abutting rails of main and siding and centrally movable to and from the end of a fixed main rail. The springing rail may be provided with an auxiliary spring. The switch-rails may be operated together from a crank-shaft.



Claim.—1. In a railroad-switch, the combination, with the main-line rails, of a spring-actuated self-returning tapering switch-rail and a spring-actuated spring switch-rail, substantially as described.

2. The combination, with the permanent rails of a main track, of spring-actuated siding or switch rails, the arrangement being such that each rail is actuated independent of the other to return to its normal position, substantially as described.

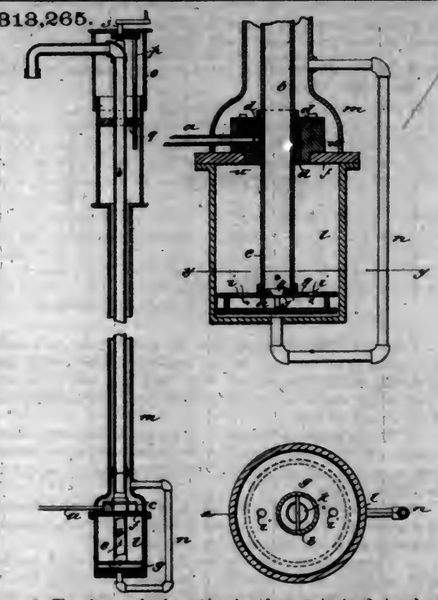
3. The combination, with the permanent rails of a main track, of a spring-actuated siding or switch rail and a self-returning spring switch-rail, substantially as described.

4. The combination, with the main-line rails, of a tapering switch-rail and a spring switch-rail, and a double-crank shaft and connection for actuating the same, substantially as described.

313,265. HYDRANT. GEORGE A. WARNER, Des Moines, Iowa. Filed May 23, 1884. (No model.)

Claim.—1. The combination of the metallic ring *u* with the pipes *a* and *b*, stuffing-box *c*, and the elastic packing-rings *d*, said ring having an opening through it coincident with the pipe *a*, substantially as described.

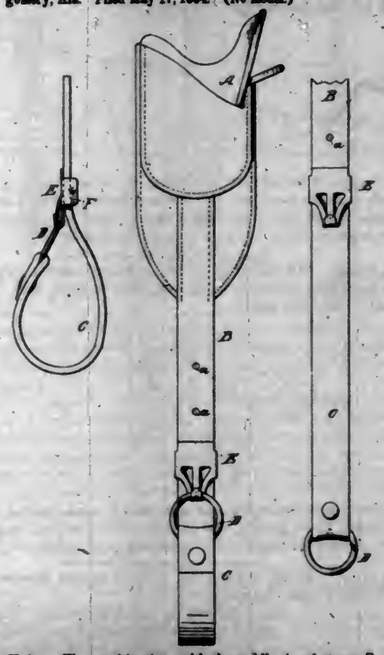
313,265.



2. The piston *g*, having a chamber, *h*, passages *i* and *j*, and valve *k*, in combination with cylinder *l* and pipe *b*, having passage *e*, and fitted in the stuffing-box *c*, having the service-pipe *a* attached, substantially as described.

3. The combination of the adjusting-screw *p*, swiveled and cranked pivot *s*, and the shifting cap *o*, with the hydrant-pipe *b*, and the hydrant-case *m*, having a head, *q*, provided with a threaded bearing for the screw *p*, said pipe *b* being arranged in the stuffing-box *c*, having the service-pipe *a* attached for opening and closing the water-passage, substantially as described.

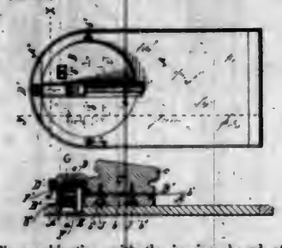
313,266. THILL-HOLDER FOR HARNESS. JOHN W. WATTS, Montgomery, Ala. Filed May 17, 1884. (No model.)



Claim.—The combination, with the saddle A, of straps B, secured thereto and provided with rings D at their lower ends, apertures *a*, and a sliding snap-hook constructed to engage said apertures, whereby

the strap may be wrapped around the thill to form a loop, C, after the animal has been placed within a thill, substantially as set forth.

313,267. BOSOM-BOARD. JACOB WENGLE, Cincinnati, Ohio. Filed Mar. 3, 1884. (Model.)



Claim.—1. The combination, with the ironing-board, of a neck-piece consisting of one fixed and one adjustable section or block, said blocks being provided, respectively, with a gage and with a disk having an opening adapted to register with said gage, substantially as and for the purpose set forth.

2. The combination of the base A, neck-piece B, consisting of blocks or sections B' B^2, overlapping rims b^9 b^{10}, secured, respectively, to said blocks or sections, and an adjusting device, D, substantially as and for the purpose set forth.

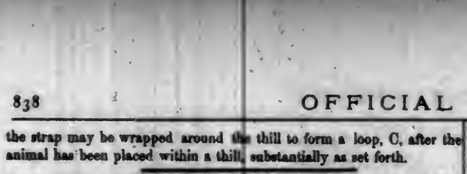
3. The combination, with the base A, of the neck-piece B, consisting of sections B' B^2, screw D, adjustably securing said blocks together, standard E, pin F, and yoke G, substantially as set forth.

4. The combination, with the base A, of the neck-piece B, consisting of sections B' B^2, one of which is provided with a slotted disk, b', and pins b^4, and the other with a gage, b^{13}, and openings b^{14}, to receive said pins, adjusting device D, and overlapping rims b^7 b^{10}, secured, respectively, to said sections of block B, substantially as set forth.

5. The combination, with the base A, of the neck-piece provided with loops fitting recesses in said base, and locking-pins p, engaging said loops, substantially as set forth.

6. The combination, with the base A, of the neck-piece provided with loops fitting recesses in said base, locking-pins p, engaging said loops, and end piece, A^2, provided with holes p' to receive the ends of pins p, and secured to the base, substantially as set forth.

313,268. SEAL-SKIN SACQUE, DOLMAN, AND ULSTER BLOCK. PHILLIP WEINBERG, LOUIS CLARK, JR., and ROBERT WITKLER, New York, N. Y. Filed June 28, 1884. (No model.)



Claim.—A seal-skin sacque, dolman, and ulster block made substantially as herein shown and described, and consisting of the boards A B, secured to each other at an angle at their forward edges and recessed at their angle and at the rear edge of the board B, as set forth.

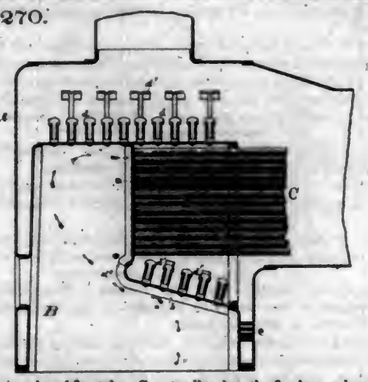
313,269. CAR-COUPLING. FRANK R. WILKIN, Lawrence, assignor to the Wilkins Locomotive Car Coupling Company, Boston, Mass. Filed Jan. 7, 1885. (No model.)

Claim.—In a car-coupling, the main plate A, having formed upon it the bunter E, the guard a, and the two plates a' a^2, supporting the hook D and its connecting-pin d, all substantially as set forth.

313,270. STEAM-GENERATOR. WILLIAM ZELLNER, Paterson, N. J. Filed Oct. 9, 1884. (No model.)

Claim.—1. In combination with the crown-sheet of a fire-box and the outer shell of the boiler, a series of strengthening-bars, d, attached both to said crown-sheet and shell, and two or more diverging braces, d^9 d^3, attached to said strengthening-bars at their inner ends and to said boiler-shell at their outer ends, substantially as and for the purpose set forth.

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2. A series of fire-tubes, C, extending into the fire-box and provided with a plane inclined inclosing-sheet, b, in combination with strengthening-bars d', arranged above said inclined sheet, and braces b^3, which connect said bars with said sheet, substantially as set forth.

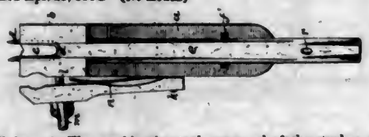
3. The tubes C, fire-box B, and tube-sheet a, in combination with inclined sheet b, curved at d^4, where it is joined to said tube-sheet, substantially as set forth.

313,271. SHOE. EDWARD ANGLIN, Brockton, Mass. Filed Aug. 7, 1884. (No model.)



Claim.—The herein-described improved shoe, provided with the quarter A, vamp B, and top C, including the button-hole flap, all cut and made in a single piece and crimped into the shape shown, and the quarter D, substantially as and for the purpose set forth.

313,272. COMBINATION-TOOL. ROGER W. ARCHER, Beeville, Tex. Filed Apr. 25, 1884. (No model.)



Claim.—1. The combination-tool composed of the stock a, having a longitudinal slot, f, and a grooved transverse shoulder, i, and a driver-bar, e, having a chisel, g, arranged to operate within the stock-slot to cut the wire placed against said cross-shoulder, substantially as herein set forth.

2. The stock formed with an enlarged head, b, having a longitudinal side groove, c, adapted to receive and hold a staple, the cross-shoulder i, and the longitudinal slot f, having a cross-slot, f', and a sliding driver, e, provided with a chisel, g, extending through said stock-slot, having the cross-pins g', serving as a guide for said driver, and operating in conjunction with the staple-holding groove c and the cross-shoulder i, substantially as and for the purpose described.

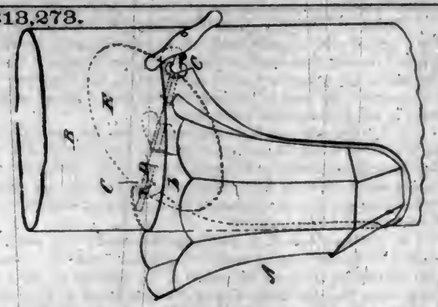
3. A combination-tool consisting, essentially, of the stock a, having the staple-holding side groove, c, the longitudinal slot f, and the cross-shoulder i, the driver e, having the chisel g and the opening r, and the vise j, all constructed and arranged for use as herein shown and described.

313,273. WATER-CUP FOR STOVE-PIPES. SAML. T. ATKIN, Georgetown, Tex., assignor of one-half to Oliver Steele, same place. Filed July 29, 1884. (No model.)

Claim.—1. In water cups or receptacles for stove-pipes, the cup or receptacle constructed to partly encircle and hug the pipe on its one side and with slotted ears or hooks on opposite sides of it, whereby the cup may be securely suspended on or connected with the pipe and be readily attached and detached therefrom as required, substantially as specified.

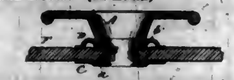
2. The combination, with the stove-pipe or stove-pipe section B and its damper-spindle D, arranged to project through said pipe-section on its opposite sides, of the outside water cup or receptacle constructed to partly encircle and hug said pipe-section, and with slotted ears or

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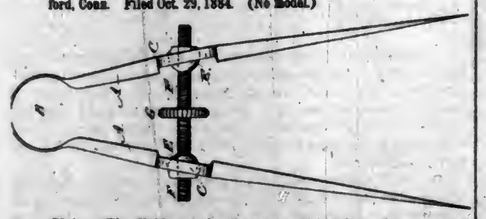
hooks C on opposite sides of it arranged to engage with or over the protruding ends of the damper-spindle, essentially as described.

313,274. BUTTON-FASTENING. FRANK M. BAKER, Birmingham, Conn. Filed Jan. 2, 1885. (No model.)



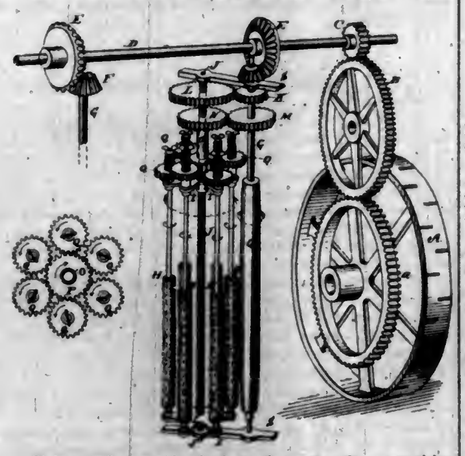
Claim.—The herein-described button-fastening, consisting of the tubular body B, constructed at one end with a head, C, the said head having a concentric groove, a, on its inner face around the body, combined with the disk D, having a central opening corresponding to the tubular portion of the rivet, with a rib, b, upon its inner face around said opening and corresponding to the groove a in the head and adapted to be applied to the button, substantially as described.

313,275. DIVIDERS AND CALIPERS. CHARLES S. BARBER, Hartford, Conn. Filed Oct. 29, 1884. (No model.)



Claim.—The dividers and calipers comprising the spring-connected legs or limbs having sp'erical nuts seated in concaved sockets formed in said limbs and the right and left hand threaded screw working in said nuts and provided with a fixed central disk having a milled surface, substantially as and for the purpose set forth.

313,276. PICKING MECHANISM FOR COTTON-HARVESTERS. G. BEEKMAN, New York, N. Y. Filed May 13, 1884. (No model.)



Claim.—1. In a machine for harvesting cotton, the orrery picker consisting of the frame I I, containing separately-rotating vertical pickers, the whole revolving on its main vertical axis, and each separate picker revolving on its own axis, substantially as described.

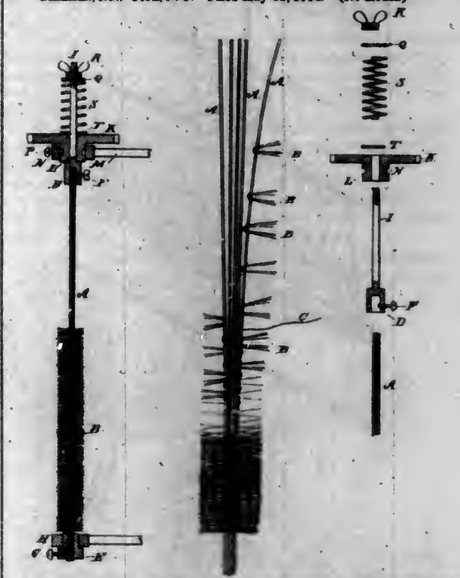
2. In a cotton-harvester, the orrery picker consisting of the vertical shaft J, provided with the gear-wheel L, the sleeve O, loosely mounted on said shaft and provided with the gear-wheel N and pinion P, the frame I I, secured to said shaft, and two or more picking-rods, H, carried by said frame and provided with pinions Q, gearing with said pinions P, substantially as described.

3. In a machine for harvesting cotton, one or more vertical picker-rods, each revolving on its own axis, in combination with means to impart to each axis a motion backward through the machine at substantially the same speed as that of the machine over the ground, and always at substantially the same distance from the ground, substantially as described.

4. The herein-described device for harvesting cotton, consisting of the heads I, suitably connected at a distance apart, and means for rotating them about a central axis, in combination with a series of pickers, H, mounted in said heads substantially parallel to the axis of the heads, and means for giving said pickers an independent rotary movement in said heads, as and for the purpose set forth.

5. In a machine for harvesting cotton, the heads I, adapted to revolve about a vertical axis, pickers H, mounted vertically in said heads, and means for independently revolving said pickers about their own axes, in combination with actuating mechanism connected, substantially as described, with the drive-wheel of the machine, to impart a rotary movement to the heads I and successively carry the pickers H rearwardly on the acting side of the picker at the same rate of speed as the forward movement of the machine, substantially as specified.

313,277. PICKING ROD OR BURR FOR COTTON-HARVESTERS. G. BEEKMAN, New York, N. Y. Filed May 13, 1884. (No model.)



Claim.—1. In a machine for harvesting cotton, a picking-rod composed of stout flexible wires, with wisps of fine wire looped around them, and the whole bound together, substantially as described.

2. In a machine for harvesting cotton, the reversible picking-rod A B, secured in clamps D E, adapted to revolve in a suitable frame, and provided with picking-points through a portion of its length, substantially as described.

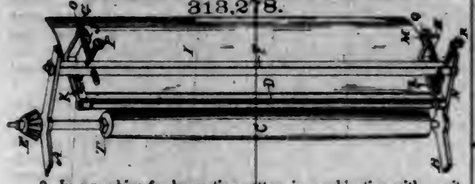
3. In a machine for harvesting cotton, the combination of a picking-rod, and a continuously-rotating driving-wheel adapted to rotate said rod by frictional contact therewith, whereby the rod is capable of being revolved in either direction independently of said wheel by any force sufficient to overcome the friction between the two, substantially as described.

4. In a machine for harvesting cotton, the picking-rod A B, rotating at its lower end in a suitable frame, and attached at its upper end to the rod I, which rotates in said frame, in combination with the spring S, regulating-screw R, and the wheel K, substantially as described.

313,278. CLEANING MECHANISM FOR COTTON-HARVESTERS. G. BEEKMAN, New York, N. Y. Filed May 13, 1884. (No model.)

Claim.—1. In a machine for harvesting cotton, in combination with suitable picking devices, a pair of cleaning-rollers arranged in contact with one another and rotated in opposite directions, and means for adjusting them to and from one another, substantially as described.

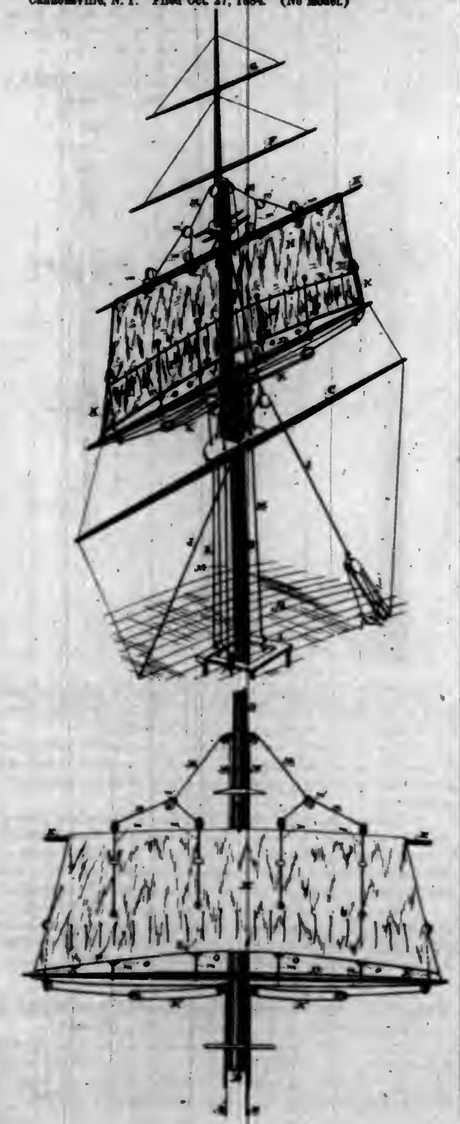
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2. In a machine for harvesting cotton, in combination with a suitable picking device, a pair of cleaning-rollers arranged in contact with one another and rotated in opposite directions, means for adjusting them to and from one another, and means for adjusting one of said rollers to and from the picking device, substantially as described.

3. In a machine for harvesting cotton, in combination with a suitable picking device, the cleaning-rollers C D, the brackets G H, the bar F, the screws P R, for adjusting the roller D to and from the roller C, and the screws O Q, for adjusting said roller D to and from the picking device, substantially as described.

313,279. REEFING UPPER TOP-SAILS. ROBERT M. BELFLAGE, Canonsville, N. Y. Filed Oct. 27, 1884. (No model.)

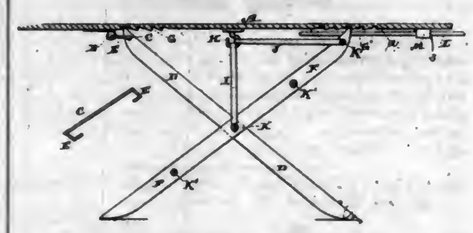


Claim.—1. The upper top-sail, H, adapted to be reefed down to the lower top-sail yard, in combination with the spilling-lines M, the fall of which is on deck, their upper portions being guided by suitable blocks, and having legs *m* passing down to and traversing and interlacing the sail vertically, and secured to the lower top-sail yard, as shown, substantially as and for the purpose herein described.

2. The upper top-sail, H, in combination with the upper top-sail reef-tackles K, the pendants of which are made fast to the leech of the sail below its longitudinal or horizontal center, and the spilling-lines M, having legs *m* traversing and interlacing the sail vertically, and secured to the lower top-sail yard, all arranged and operating substantially as and for the purpose herein described.

3. The upper top-sail, H, having the ridge-band or false foot I, extending horizontally across it below its longitudinal center, in combination with the upper top-sail reef-tackles K, the pendants of which are made fast to the leech of the sail at or about the ends of the ridge-band, and the spilling-lines M, having legs *m* traversing and interlacing the sail vertically, and secured to the lower top-sail yard, substantially as and for the purpose herein described.

313,280. IRONING-TABLE. WILLIAM H. BELL, Cloverdale, Cal. Filed Mar. 1, 1884. (No model.)



Claim.—1. An ironing-board having a double set of toothed racks formed in its lower surface, near the ends, as shown, the pairs of pivoted legs turning upon a central bar and having their upper ends formed to engage the racks, one pair being loosely hinged to the board by means of a swivel-bar, C, in combination with elastic holding-straps I and J, extending from the board to the legs, substantially as and for the purpose herein described.

2. An ironing-board having the pivoted legs D and F, and a double set of toothed racks formed in its lower surface, near the ends, to receive the upper parallel ends of the pivoted legs and adjust its height, in combination with the open hooks B, secured to the under side of the board, and the bent swivel-rod C, uniting the upper ends of the legs D and connecting them with the hooks, substantially as herein described.

3. The board A, having a hook at its center, and with hooks B, of flat coiled metal, near one end, and the pivoted folding legs D and F, with the bars K K', in combination with a loose swivel-bar, C, by means of which the upper ends of one pair of legs are detachably connected with the coiled ends of the hooks B and the elastic straps I and J, as herein described.

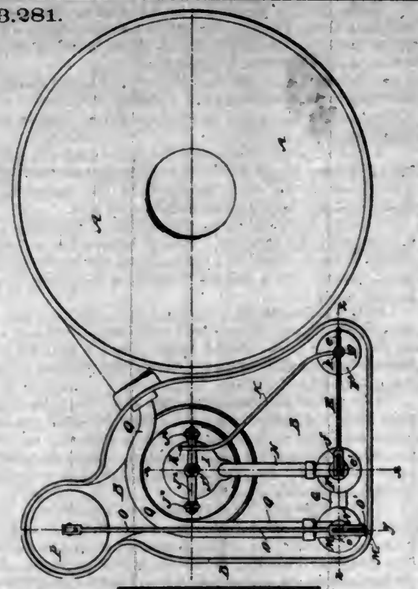
313,281. WATER-CLOSET. AUGUST F. BLESCH, Columbus, Ohio. Filed Feb. 23, 1884. (No model.)

Claim.—1. The combination, with a water-closet having a bowl, A, communicating water-chamber B, valve C, and the valve E and rod D, for operating the same, of a float, P, and the compound flushing-valve N, connected to said float, and arranged between the supply and flushing pipes G Q, said flushing-valve being formed of two independent parts, one of which is operated to be closed by the main flow of water and partially shut off the water, and the other of which parts is operated by the float P, to gradually and entirely shut off the flow of water to the bowl, substantially as set forth.

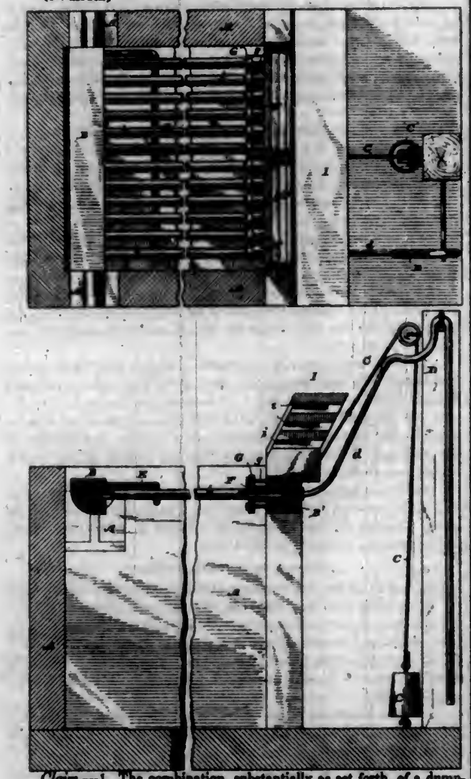
2. In a water-closet, the combination, with the float P, lever O, and the flushing and supply pipes Q G, of the compound flushing-valve N, composed of parts N^3 N^4, the latter being connected with the float, and the seats R n^2, whereby the part N^3 will be forced against seat R by the main flow of water, and the part N^4 forced gradually against its seat n^3 by the rise of the float after the closing of part N^3, substantially as set forth.

3. In a water-closet, the combination, with the supply and flushing pipes G Q and casing M, of the valve N, having a shouldered stem, N' n', auxiliary valve N^4, part N^3, mounted to slide on the spindle between shoulder n' and valve N^4, and provided with a face, n^3, and apertures n^2 n^3, leading from the supply-pipe to the flushing-pipe, whereby when the force of water from pipe G against the lower face of part N^3 has closed it the auxiliary valve N^4 on stem N' may have an independent movement to close the passages n^3 n^2, substantially as set forth.

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313,282. GRATE. PETER E. BLOW, Joplin, Mo. Filed June 10, 1884. (No model.)



Claim.—1. The combination, substantially as set forth, of a dumping hollow grate, a flexing tube or water-supply pipe connected with the grate so as to accommodate itself to the rising and falling of the grate, and a discharge-pipe.

2. The combination, substantially as set forth, of a hollow grate, water-supply connections, and a discharge-pipe for the exit of the steam and water arranged below the grate.

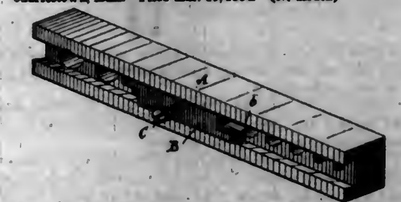
3. The combination, substantially as set forth, of the hollow grate, the water-supply connections which permit the dumping of the grate and maintain a constant circulation of water therein, and the discharge-pipe arranged below the grate, as set forth.

4. The combination, substantially as set forth, of the hollow grate-bars, the hollow end sections, the water-supply connections, and the water-discharge pipe connected with the end section of the grate above the level of the grate-bars and carried down so as to discharge the steam and water beneath the grate, as set forth.

5. The combination, substantially as set forth, of the hollow grate-bars, the end section, B', the packing-boxes, and the securing-glands.

6. The combination, substantially as set forth, of the dumping-grate and the frame or shelved support arranged above the rising and falling end of the grate, substantially as and for the purpose set forth.

313,283. DEVICE FOR REDUCING THE DIAMETER OF METAL RODS OR WIRE. JAS. F. BOGAN, East Boston, Mass., assignor to George E. Marvin, Boston, Roselle F. Pratt, Everett, and William E. Carleton, Charlestown, Mass. Filed Mar. 15, 1884. (No model.)

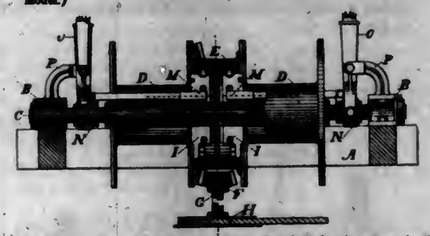


Claim.—1. A milling device consisting of the longitudinally-grooved block A, having a series of perforations of different sizes formed in the grooved portion thereof, and the adjustable cutter-bar B, secured in the groove and adapted to reduce the diameter of a wire passed through one of said perforations, substantially as described.

2. The combination of the longitudinally grooved and perforated block A, the sliding cutter-bar B, provided with a cutting-edge, *b*, at each end, and the screw C, for adjustably securing the cutter-bar in the grooved portion of the block, substantially as shown and described.

3. The combination of the grooved and perforated block A, the cutter-bar B, the plate D, and screw C, substantially as and for the purpose set forth.

313,284. FRICTION-CLUTCH. GEORGE W. BOWDS, San Francisco, Cal., assignor to Byron Jackson, same place. Filed Aug. 29, 1884. (No model.)



Claim.—1. In a hoisting apparatus, the shaft having the wheel or rim upon it, a winding-drum turning loosely upon the shaft and having frictional blocks upon the opposite sides of the shaft, together with a wedge which may be drawn between these blocks, so as to force them outward into contact with the rim, substantially as herein described.

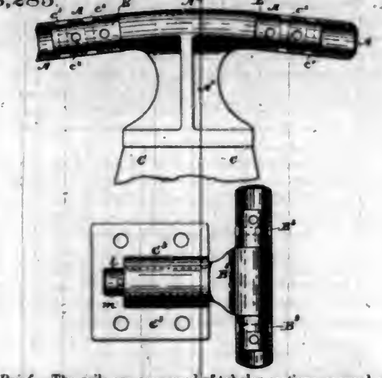
2. In a hoisting apparatus, the winding-drum turning loosely upon the shaft, with one end adjacent to a wheel which is upon said shaft, friction-blocks hung upon the end of the drum, so that their faces are in proximity with the interior of the wheel-rim, and a wedge which may be moved between these friction-blocks or their supporting-hangers, together with an operating-lever and collar, substantially as herein described.

3. In a hoisting apparatus, the rope-winding drums, with an intermediate friction-wheel mounted upon a shaft, and a peripheral gear upon the friction-wheel, by which the latter is driven, substantially as described.

4. In a friction-clutch, a wheel or rim upon the shaft and having suitable driving-gear, a drum or drums turning loosely upon said shaft and having one end adjacent to the wheel, friction blocks or shoes supported upon the end of the drum, so that their faces may be forced outward against the rim of the wheel, a wedge-shaped block moving between these shoes or their supports, together with an actuating-lever, by which it may be moved, and the retracting-spring L, substantially as herein described.

313,285. TUBULAR TRAMWAY. ALEXANDER E. BROWN, Cleveland Ohio. Filed Dec. 29, 1884. (No model.)

313,285.



Brief.—The rails are composed of tubular sections secured at their meeting ends and upon the supports to solid core-pieces, which pieces may be horizontally pivoted.

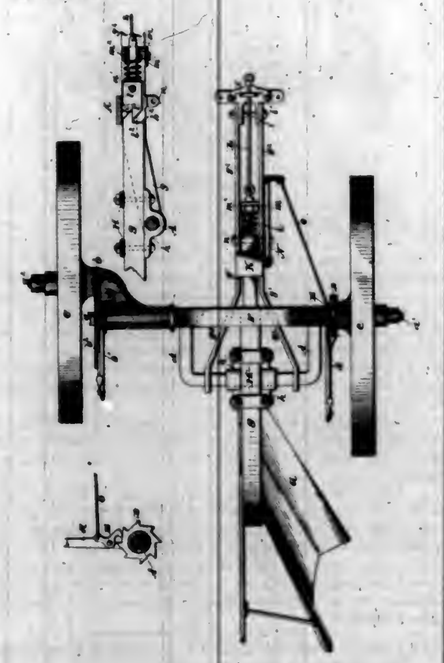
Claim.—1. An elevated tramway composed of tubular sections coupled together and arranged in spans suitably supported by piers, substantially as and for the purposes set forth.

2. In a tubular tramway or elevated railway, the combination, with the tubular spans, of coupling and supporting metallic stands formed or provided with core-like devices which enter and are secured to the adjacent ends of the tubular spans, and which are securely mounted on the tops of the road-piers, substantially as and for the purposes set forth.

3. In combination with the tubular rails or railway-sections, the metallic stands secured to the piers, adapted to support the adjacent ends of said tubular railway-sections, and made curved in vertical profile to correspond substantially with the natural bend of the track, all substantially as hereinbefore set forth.

4. In a tubular elevated tramway, metallic supporting-stands adapted to support the adjacent ends of the tubular spans, as specified, and combined with supporting bearing-boxes secured to the tops of piers, and turning freely within said bearing-boxes, substantially as and for the purposes herein set forth.

313,286. WHEEL-PLOW. WILLIAM L. CASADAY, South Bend, Ind., assignor of one-half to South Bend Iron Works, same place. Filed Nov. 22, 1884. (No model.)



Claim.—1. In a wheel-plow, the combination, with a sectional plow-beam having one section mounted on a pivotal support, of a yielding jaw connected with the draft-rod and adapted to lock the two beam-sections together, substantially as set forth.

2. In a wheel-plow, the combination, with a crank-axle and a sectional plow-beam pivoted thereon, of a yielding jaw connected with the draft-rod and adapted to lock the two beam-sections together, substantially as set forth.

3. In a wheel-plow, the combination, with a crank-axle and a sectional plow-beam pivoted thereon, of a yielding jaw connected with the draft-rod, and provided with a shouldered end that engages the shouldered end on the plow-beam, substantially as set forth.

4. In a wheel-plow, the combination, with a crank-axle, a plow-beam secured to the plow, and a skeleton beam-section secured at its rear end to the crank-axle, of a spring-actuated jaw for locking the two sections together, and a draft-rod connected to the yielding jaw, substantially as set forth.

5. In a wheel-plow, the combination, with a crank-axle and a plow-beam pivoted thereon, said plow-beam constructed in sections, of a yielding jaw adapted to be actuated by the draft and disengage the two beam-sections and allow the plow to be tilted and ride over an obstruction, substantially as set forth.

6. In a wheel-plow, the combination, with a crank-axle and a sectional plow-beam pivoted thereon, of a yielding draft-connection adapted to lock and release the beam-sections, devices connecting the yielding connection, crank-axle, and supporting-wheel, whereby the plow meeting an obstruction is automatically elevated and tilted by the draft of the team, substantially as set forth.

7. In a wheel-plow, the combination, with a crank-axle, a sectional plow-beam pivoted thereon, and devices for locking the crank-axle to the supporting-wheel, of a yielding jaw secured to the draft-rod, and devices connecting the yielding jaw and the said locking devices, whereby the beam-sections are automatically unlocked and the crank-axle locked to the wheel when the plow meets an obstruction, substantially as set forth.

8. In a wheel-plow, the combination, with a beam-section consisting of two rails, bars, or rods secured together and pivoted on the axle, and a beam-section secured to the plow and pivoted on the axle, of a spring-actuated plunger or slide supported on the first-named beam-section, and adapted to sustain the draft and automatically release the beam-section attached to the plow when the plow meets an obstruction, substantially as set forth.

9. In a wheel-plow, the combination, with a sectional plow-beam pivoted on the axle, of a plunger or slide attached to the draft-rod and actuated by a spring, the tension of which is adjustable, said plunger or slide being provided with a jaw which takes under one of the beam-sections and locks the two sections together when the draft is normal, substantially as set forth.

10. In a wheel-plow, the combination, with a skeleton plow-beam section consisting of two side rails secured together at the front end and spread apart and sleeved on the axle at its rear end, and a plow-beam section pivoted on the axle between the branches of the skeleton section, of a yielding draft-connection secured to the skeleton section and adapted to automatically lock and release the second-named beam-section, substantially as set forth.

11. In a wheel-plow, the combination, with a plow-beam section consisting of two rails united by the clevis at the front end and journaled on the axle at the rear end, and a plow-beam section attached to the plow and journaled on the axle, of a combined cross-brace and stop secured to the first-named beam-section, and a yielding jaw attached to the draft-rod, whereby the beam-sections are securely locked to one another, substantially as set forth.

12. In a wheel-plow, the combination, with a sectional plow-beam, of a spring-actuated lock and means for adjusting the tension of the spring, whereby the beam-sections are released or held locked to suit different strains, substantially as set forth.

313,287. FEED-WATER HEATER AND PURIFIER. DAVID COCHRANE, Philadelphia, Pa. Filed Sept. 18, 1884. (No model.)

Claim.—1. In a feed-water heater and purifier, a tray having a lip and a skimming-bar, substantially as and for the purpose set forth.

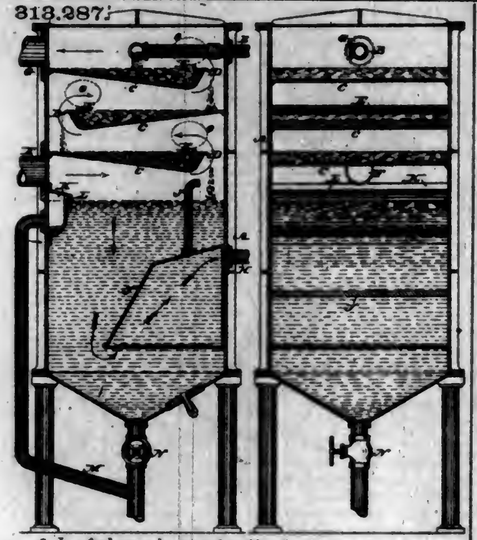
2. In a feed-water heater and purifier, a tray having a lip and a skimming-bar, said lip being corrugated, substantially as and for the purpose set forth.

3. In a feed-water heater, a tray having its lower portion of a wedge shape and provided with a lip and a skimming-bar, substantially as and for the purpose set forth.

4. In a feed-water heater and purifier, a tray having a wedge-shaped form, a corrugated lip, and a plain-edged bar, substantially as described.

5. In a feed-water heater, and purifier, a hood partially covering within the heater the water-outlet pipe, and having an opening in its side corresponding with the opening of the outlet-pipe, substantially as and for the purpose set forth.

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6. In a feed-water heater and purifier, the skimmer-box K, having a side opening, L, the said skimmer K being directly attached to the side of the vessel A, and having an outlet-pipe, M, substantially as and for the purpose set forth.

7. The vessel A, in combination with the trays C C C, having skimming-bars, and hood J, having pipe J', substantially as and for the purpose set forth.

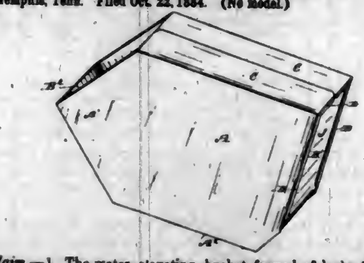
8. The vessel A, in combination with the trays C C C, hood J, having pipe J', and skimmer-box K, the opening at the upper part of said pipe J' being above the opening L of the skimmer K, substantially as and for the purpose set forth.

9. In a feed-water heater and purifier, the combination of the vessel A with trays C C C, having corrugated lip D, and plain edge bar E, substantially as and for the purpose set forth.

10. The combination of the vessel A, hood J, and air and vapor discharge pipe J', substantially as and for the purpose set forth.

11. The combination of the vessel A, having inlet-pipes B and F and outlet-pipes G and H, trays C C C, hood J, pipe J', skimmer-box K, and waste-pipe M, substantially as and for the purpose set forth.

313,288. WATER-ELEVATING BUCKET. CHRISTOPHER C. COFFEE, Memphis, Tenn. Filed Oct. 22, 1884. (No model.)



Claim.—1. The water-elevating bucket formed of body-blank B and side blanks, A, having rings projecting inward toward each other, and secured together at their inner edges, as specified.

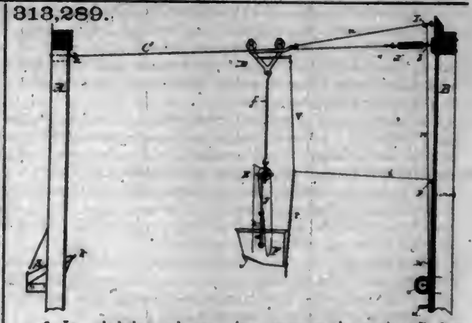
2. A water-elevating bucket formed of a body-blank and two side blanks, the side blanks having wings, on the lower edges of which, as also on the lower edges of the side blanks proper, inwardly-projecting flanges are formed, substantially as herein shown and described.

3. In a water-elevating bucket, the combination, with the body-blank B, of the side blanks, A, having wings C, flanges D and F, and the wings C, having flanges E, substantially as herein shown and described.

313,289. APPARATUS FOR HOISTING AND CONVEYING ICE BY HAND-POWER. HENRY R. CONGER, Burlington, Vt. Filed Jan. 26, 1885. (No model.)

Claim.—1. In a hoisting and conveying apparatus, the cable C, in combination with the adjustable hook *b*, grooved bracket H, and pin *l*, substantially as and for the purpose described.

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2. In a hoisting and conveying apparatus, the carriage D, from which the bucket F is suspended, in combination with the hauling-rope *n*, drum J, controlled by the brake M and block L, the drum being revolved by means of an adjustable bevel gear-wheel, N, substantially as described.

3. The movable hook *b*, having shoulders provided with wheels *v*, constructed and arranged so as to slide within the grooved bracket H, substantially as set forth.

4. The bevel gear-wheel N, in combination with the worm-gear W, crank *x*, and bevel-wheel *o* on the shaft *m*, substantially as specified and described.

5. In a hoisting and conveying apparatus, the combination of the carriage D, bucket F, dumping-rope *i*, connected with the drum R, swinging rod *q*, and chain *t*, substantially as and for the purpose set forth.

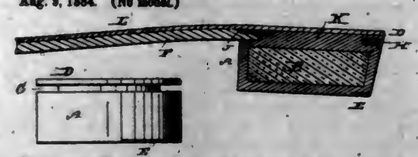
6. The bucket F, having the forward portion of its bottom turned up and stiffened, substantially as described, and for the purposes specified.

313,290. PENDULUM-LEVEL. ELIJAH D. CRAMER, Youngstown, Ohio. Filed June 5, 1884. (No model.)



Claim.—In an instrument for obtaining perpendiculars, the straight-edge or timber B', having a rectangular box, A, with a transparent front, the pivot-pin *b*, extending through the upper part of the said box, and enlarged at its center, as shown, and the pendulum mounted upon said pivot and adapted to swing laterally as well as back and forth, the instrument being provided with a center-mark, *c*, to center the free end of the pendulum, substantially as specified.

313,291. RUBBER HEEL. HENRY V. DEEHAR, St. Charles, Mo. Filed Aug. 9, 1884. (No model.)



Claim.—1. The combination, with the sole F, having the aperture G in its heel portion, of the heel A, provided with the annular groove C, to receive the sole, and the tongue D, resting on the upper surface of the sole, substantially as herein shown and described.

2. The combination, with the sole F, recessed at its heel portion to form the shoulder J, and having the aperture G, of the heel A, grooved to form the tongue D, substantially as shown and described.

3. The combination, with the sole F, having an aperture, G, in its heel part, of the heel A, having a groove, C, forming a tongue, D, and the strip L, cemented on the sole and heel, substantially as herein shown and described.

313,292. PENDULUM-LEVEL. JAMES G. DOHERTY, Waterbury, Conn. Filed Aug. 28, 1884. (No model.)



Claim.—1. A carpenter's level in which the indications are made by a weighted needle suspended in universal bearings, and having a gage located above its point, substantially as set forth.

2. A carpenter's level in which the indications are made by a weighted needle suspended in universal bearings, and having a gage located below its weight, substantially as set forth.

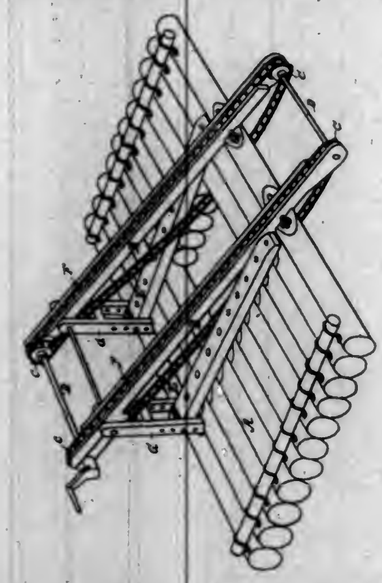
3. A carpenter's level in which the indications are made by a weighted needle suspended in universal bearings, and having a gage located above its point, and consisting of a wire stretched across an opening formed in a plate set into the frame of the device, substantially as set forth.

4. A carpenter's level in which the indications are made by a weighted needle suspended in universal bearings, and having a segmental gage situated below its weight and located, as shown, in an opening formed in the frame of the level, substantially as set forth.

5. A carpenter's level in which the indications are made by a weighted needle suspended in universal bearings in an open chamber formed in the frame of the level, which is also adapted to expose the point and weight of the needle from its sides, substantially as set forth.

6. A carpenter's level provided with a weighted needle suspended in universal bearings, a gage located above the point of the needle, and a gage located below its weight, substantially as set forth.

313,293. FLOATING LOG-LOADER. COLUMBUS C. BARKER and THOS. CRANEY, Bay City, Mich. Filed Dec. 10, 1884. (No model.)



Claim.—1. In a floating log-loader, the combination of a float or raft with inclined skids supported by said float or raft and extending transversely across the same, with their lower ends extending below the bottom of said float and into the water and their upper ends projecting above and beyond the float, substantially as described.

2. In a floating log-loader, the combination of a float or raft supporting inclined skids, which at one end extend into the water and at the other end project beyond the float, of elevating devices, such as endless chains, and of suitable devices, such as the adjustable standards G, for changing the incline of the skids, substantially as described.

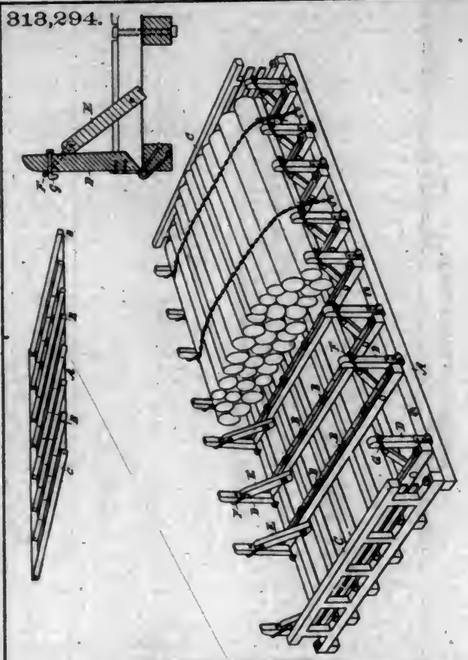
313,294. LOG-CRIB. COLUMBUS C. BARKER and THOMAS CRANEY, Bay City, Mich. Filed Dec. 10, 1884. (No model.)

Claim.—1. A raft-crib consisting of a collapsing grillage made of buoyant timber, the two layers of which are connected together at their points of intersections by bolts passing loosely through the timbers, and having suitable bulwarks, stanchions, or binding-chains constructed to confine the logs thereon in transportation, substantially as described.

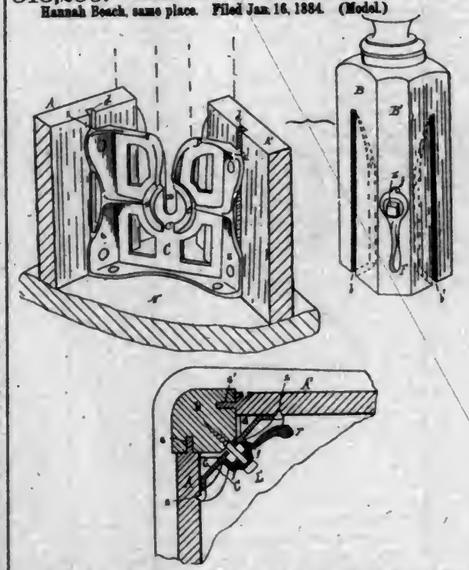
2. In a raft-crib, a grillage made of buoyant timber, one lay of which runs lengthwise and the other sidewise, in combination with bulwarks secured to the end of the raft and removable stanchions secured to the sides of the raft, substantially as and for the purpose described.

3. In a raft-crib, the combination of the stanchion D, hinged to the frame thereof, inclined hinged brace E, swinging bail F, and loose pin G in the head of the stanchion, all combined and operating substantially as and for the purposes described

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313,295. TABLE. THADDEUS C. BEACH, Detroit, Mich., assignor to Hannah Beach, same place. Filed Jan. 16, 1884. (Model.)



Claim.—1. A table provided with side rails and detachable legs, in combination with the brace c, attached to said side rails, and having an open-ended slot, D, and inclined annulus C', and a lever, F, pivotally secured to a leg for removably securing it to the said rails, substantially as described.

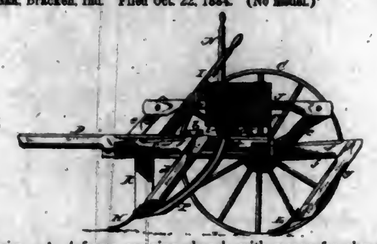
2. As a means for removably securing the legs to a table and firmly bracing the side rails thereof, the casting C, having an open end slot, D, and an annulus, C', extending on either side of said slot the parts having oppositely-inclined faces, in combination with a lever, as F, and a bolt for pivotally securing it to a leg, substantially as specified.

3. In a table, the side rails thereof, the casting C, provided with an open-ended slot, D, and an inclined annulus, C', attached to and bracing the said side rails, in combination with the leg and the lever F, pivoted to the leg and provided with the projections *f*, as and for the purposes herein set forth.

4. A table provided with side rails and a removable leg, an angular brace, C, attached to said rails, and having an inclined annulus, C', in combination with the leg, the adjustable bolt E, screwed into the leg, and the lever F, mounted on said bolt, the parts being constructed, arranged, and operating substantially as and for the purpose set forth.

5. The rails A A', provided with the tenoned ends *a a'*, leg B, having grooves *b b'*, the brace C, having the open-ended slot D, annulus C', extending on either side of said slot, the parts having oppositely-inclined faces, and braces G, the lever F, and bolt E, all combined, arranged, and operating substantially as described.

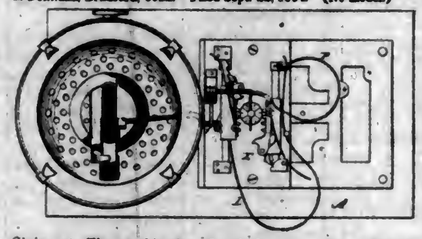
313,296. COMBINED CORN PLANTER AND PLOW. JOSEPH BOLLINGER, Bracken, Ind. Filed Oct. 22, 1884. (No model.)



Claim.—1. A frame carrying shovels, with means for elevating them, a guide connected to the frame, and seed-boxes connected to the axle by metal braces, in combination with a feed-slide operated by cam-blocks on one of the drive-wheels, and flexible discharge-tubes for the seed, said tubes being rigidly secured to the slide and to the standards carrying the furrow-shovels, substantially as and for the purpose described.

2. A frame carrying shovels, with means for raising and lowering them, and seed-boxes supported over the axle of the machine by bracket, in combination with a seed-slide, and cam-blocks adjustably connected to one of the drive-wheels, and a spring connected to the end of one of the seed-boxes for acting on the slide, and flexible tubes for the discharge of the seed connected to the slide and moving with it and also to the standards of the furrow-shovels, substantially as and for the purpose set forth.

313,297. AUTOMATIC LAMP LIGHTER AND EXTINGUISHER. B. B. BUNNELL, Branford, Conn. Filed Sept. 22, 1884. (No model.)

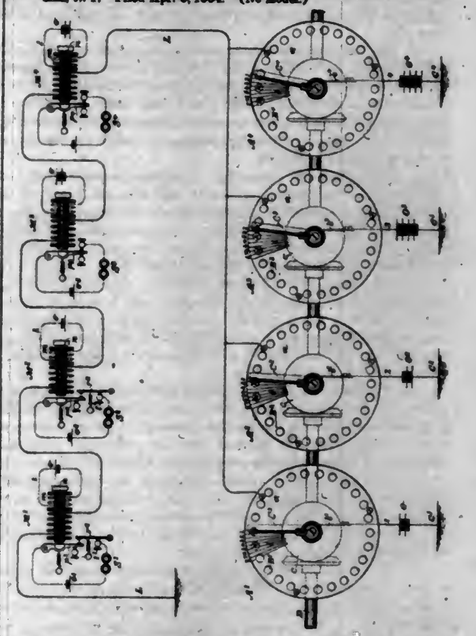


Claim.—1. The combination of a clock-movement, a pair of fixed parallel toothed bars, F G, one arranged each side the shaft D, the slides H M, arranged, respectively, on said toothed bars, their adjacent faces provided with teeth, the spring-pawls I N, hung, respectively, to the said slides, the said pawls carrying, respectively, levers T U, the shaft D, the arm R, arranged thereon, and so as to revolve between said slides and to engage the teeth of the respective slides at each revolution, the crank *f*, extending from the shaft of the burner, one of said slides carrying a dog and the other a shoulder or stud in the path of said crank, the shaft D, provided with studs to engage the said levers T U at predetermined times and release the said slides from their pawl engagement with the respective bars, and springs arranged to return said slides, substantially as described, and whereby under the return of the respective slides and at predetermined times one will produce the lighting and the other extinguish the light.

2. The combination of a clock-movement, the parallel fixed toothed bars F G, toothed slides H M on said bars, pawls I N, hung to the respective slides, levers T U, attached to said pawls, the shaft D of the clock-movement, carrying an arm, R, between and so as to engage with the teeth of the said slides, the said shaft provided with studs *a d*, to respectively engage the said levers T U at predetermined times, each of said levers constructed with a shoulder, *o*, and provided with a spring, *m*, to engage said shoulders, fixed studs *t*, to trip said springs and release said levers, a burner to which a crank, *f*, is fixed, dog *h* on one of said slides, and a stud, *l*, on the other, and springs to return said slides, substantially as and for the purpose described.

3. The combination of a clock-movement, the shaft D, arranged to receive rotation from said movement, the parallel fixed toothed bars F G, the toothed slides H M, respectively on said bars, the pawls I N, hung to the respective slides, the levers T U, fixed to the respective pawls, an arm, R, on said shaft, and arranged to work in the teeth of the respective slides, whereby a step-by-step movement will be imparted to said slides, a fixed shoulder, *o*, arranged to trip one of said levers, and an adjustable stud, *d*, on the shaft, arranged to trip the other lever, the dog *h* on one of said slides, and stud *l* on the other, a burner having a crank, *f*, extending therefrom, and springs to return said slides, substantially as and for the purpose described.

313,298. MULTIPLEX TELEGRAPH. CHARLES G. BURKE, Richmond Hill, N. Y. Filed Apr. 3, 1884. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, of a series of transmitting-instruments, each of which is organized to transmit currents or impulses having a distinctive characteristic, means, substantially such as described, for causing such instruments to be successively and at regularly-recurring periods placed in condition to transmit, and a series of receiving-instruments respectively responding to the currents transmitted by the several transmitting-instruments.

2. The combination, substantially as hereinbefore set forth, of a series of transmitting-instruments, a series of receiving-instruments respectively responding to the currents or impulses transmitted by said transmitting-instruments, and means, substantially such as described, for placing said transmitting-instruments successively and at regularly-recurring periods in condition to transmit.

3. The combination, substantially as hereinbefore set forth, of a main line, a series of transmitting-instruments, a series of receiving-instruments normally included in the circuit of said main line, and respectively organized to respond to the currents or impulses occasioned by said transmitting-instruments, and means for placing said transmitting-instruments one at a time and successively in condition to transmit.

4. The combination, substantially as hereinbefore set forth, of two or more series of transmitting-keys, a circuit-closing arm applied to each of said series, means for causing said circuit-closing arms to pass across the paths of the individual keys in the corresponding series in succession, and across the paths of the keys of the different series at different times, and a series of receiving-instruments respectively responding to the different series of transmitting-keys.

5. The combination, substantially as hereinbefore set forth, of two or more series of transmitting-keys, two or more circuit-closing arms moving in unison with each other and passing across the paths of the keys of said series respectively at different times, means for causing such keys when forced into the path of the corresponding circuit-closing arm to transmit an impulse, current, or group of the same having a distinctive characteristic, and a series of receiving-instruments respectively responding to the currents, impulses, or groups of the same having such distinctive characteristics.

6. The combination, substantially as hereinbefore set forth, of a series of transmitting-instruments, each of which is constructed with a series of transmitting-keys which are respectively constructed to transmit

an electric current, impulse, or a group of currents or impulses designed to respectively correspond to the characters designated by an arbitrary code, a series of receiving-instruments respectively designed to respond to the currents or impulses transmitted by the respective series of transmitting-keys, and means, substantially such as described, for placing said series of transmitting-keys successively in connection with said receiving-instruments.

7. A telegraphic transmitter consisting of a circuit-closing arm, a series of keys, one or more contact-pins applied to each of said keys, which pins are caused to be projected into the path of said circuit-closing arm by actuating said key, and means for causing said circuit-closing arm to force each of said pins out of its path independently of the other pins.

8. The combination of a circuit-closing arm, a series of keys respectively corresponding to different letters, figures, or other characters, and contact-pins applied to said keys, which pins are constructed to be forced into the path of said circuit-closing arm by the action of the key to which they are applied, and are arranged to transmit by the contact of the arm therewith a signal representing the character assigned to the key, according to a prearranged code.

9. The combination, substantially as hereinbefore set forth, of a circuit-closing arm, contact-pins applied to said arm, and which are arranged in groups adapted to transmit electric currents, or impulses or groups of currents or impulses designed to represent different characters according to a prearranged code, and means applied to each of said groups for forcing the same into the path of said arm.

10. In a transmitter for electric telegraphs, a circuit-closing arm, a key designed to represent a given character, and a series of contact-pins adapted to be forced into the path of said arm by said key, which pins, by the contact of said arm therewith, act to transmit a signal representing the character assigned to the key, and which are independently moved out of the path of said arm.

11. The combination, substantially as hereinbefore set forth, of a revolving circuit-closing arm and a transmitting-key consisting of a series of independently-movable contact-pins, certain of which are so arranged that the circuit-closing arm will pass across the path of one of the pins before it is out of the path of the preceding pin, substantially as described.

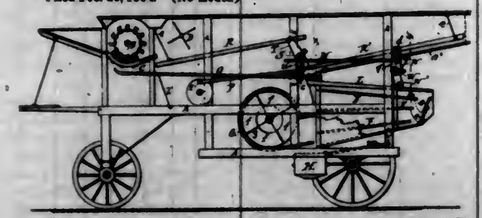
12. In a transmitter for electric telegraphs, the combination, substantially as hereinbefore set forth, with a circuit-closing arm, of a movable key and one or more independently-movable contact-pins, and a friction-spring applied to each of said pins for normally retaining the same out of the path of said circuit-closing arm.

13. The combination, substantially as hereinbefore set forth, of two or more independently-movable contact-pins, *g*, having the grooves *h'*, the springs *h* applied to said pins, and means for actuating said pins simultaneously.

14. The combination, substantially as hereinbefore set forth, with a series of transmitting-instruments each having a series of transmitting-keys and a circuit-closing arm, of means, substantially such as described, for moving each of said circuit-closing arms across the paths of the individual keys in the series to which it is applied successively, and at a moment when the remaining circuit-closing arm or arms are passing across the space intervening between two keys.

15. The combination, substantially as hereinbefore set forth, with a main line, a series of transmitting-instruments, means, substantially such as described, for placing them in condition to transmit in succession, and means, substantially such as described, for causing said instruments, when actuated, to transmit currents or impulses having particular characteristics, and representing by number, duration, and frequency characters as organized in the Morse or other equivalent alphabet, of a series of receiving-instruments respectively corresponding to said transmitting-instruments, and means, substantially such as described, for causing each of said receiving-instruments to respectively respond only to the currents having the characteristics assigned to the corresponding transmitting-instrument.

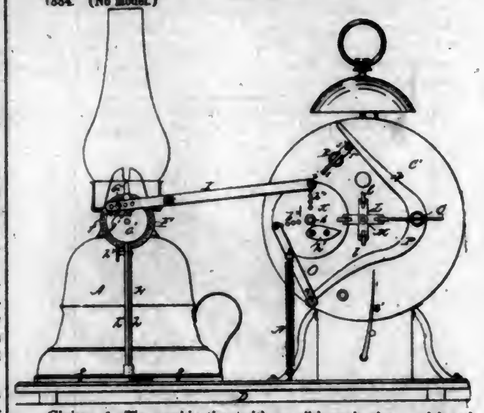
313,299. THRASHING-MACHINE. RILEY H. COOK, Canastota, N. Y. Filed Feb. 20, 1884. (No model.)



Claim.—1. In combination with the racks R R', grain-tables O O', sieve-shoe L, and rock-arms T and U, the rock-arm V, rod M, and the rock-arms N and N', connected, respectively, with the grain-table and sieve-shoe, substantially as described and shown.

2. The combination, with the fan-wheel, of the diaphragms *f f*, arranged equidistant from the center of the length of the wheel, and formed with central apertures, substantially as described and shown.

313,300. COMBINED ALARM-CLOCK AND LAMP-REGULATING MECHANISM. JOHN M. CRAWFORD, Philadelphia, Pa. Filed May 2, 1884. (No model.)



Claim.—1. The combination, with an oil-lamp having a wick and a shaft for raising the same, of a clock and an intermediate shaft connected with the wick-shaft and the works of the clock, whereby the movement of said works will produce an elevation of said wick, substantially as shown and described.

2. The combination, with the wick-shaft B and crank-shaft G, of a disk, F, having a series of openings for the reception of the wrist-pin *g*, substantially as shown and described.

3. In combination with the crank-shaft G, the vertically-adjustable standard H, substantially as shown and described.

4. The combination of wick-shaft B, disk F, crank-shaft G, carrying disk G', pitman I, and disk K, journaled on the clock-case C, substantially as shown and described.

5. The combination, with cross or lever L on the minute-hand arbor of the clock, of the disk or lever K, having projection or lug *k'*, substantially as shown and described.

6. The combination, with the lamp A, having wick-shaft B, with disk F, and clock C, having a cross or lever, L, on its minute-hand arbor, of the intermediate mechanism consisting of crank-shaft G, pitman I, disk K, with lug *k'*, and spring N, whereby the lamp-wick is raised and lowered, substantially as and for the purpose set forth.

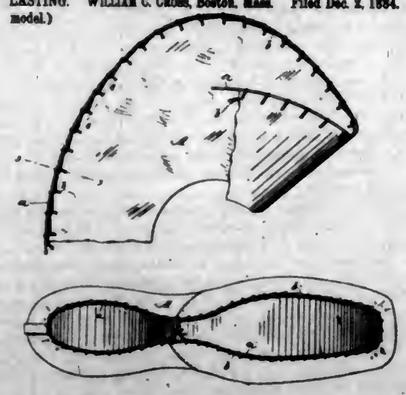
7. The combination, with disk or lever K, of levers O and P, substantially as shown and described.

8. The combination, with alarm-arbor R, of nut S, having a pivoted dog or latch, s^2, substantially as shown and described.

9. The combination, with alarm-arbor R, having nut S, of levers P and O and disk K, substantially as shown and described.

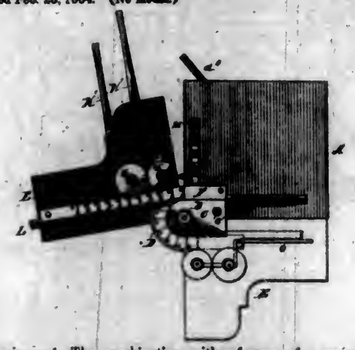
10. The combination, with levers O and P and disk K, of rock-shaft T, having crank-handle *t* and arm *t'*, substantially as shown and described.

313,301. PREPARING THE UPPERS OF BOOTS OR SHOES FOR LASTING. WILLIAM C. CROSS, Boston, Mass. Filed Dec. 2, 1884. (No model.)



Claim.—The combination, with the upper, of the loop-thread *b*, applied to the edge of the upper in the form of a connected series of loops, each of which straddles the edge of the upper and is locked in place therein so as to be unaffected by others, and the draw-cord *a*, passing through and held in said loops along and around the edge of the upper, as hereinbefore shown and described.

313,302. PIPE-BENDING MACHINE. EDWARD DEVINE, Detroit, Mich. Filed Feb. 23, 1884. (No model.)



Claim.—1. The combination, with a former, of a series of connected former-links, movable to and from said former, a support rotatable about the former, and one or more reciprocating disks located upon said rotatable support and adapted to be brought to bear against said links, substantially as and for the purpose described.

2. The combination, with the table provided with suitable standards, of a former, C, secured thereto, a series of connected former-links secured at one end to said table and free to be moved to and fro, a rotatable support hinged upon one of said standards and movable about said former, and one or more reciprocating disks attached to said support and adapted to be brought to bear against said links, substantially as described.

3. The combination, with a table, of a former constructed with a grooved edge, a support rotatable about said former, one or more reciprocating disks secured to said support, and a series of former-links constructed with grooved edges and adapted to be carried about the former and forced against the latter as the support is rotated, substantially as described.

4. The combination, with a table, of a stationary former, adjustable former-links movable around said former, the levers described for moving said links, a support rotatable about said former and provided with one or more movable disks, and a toggle-lever for moving said disks, substantially as described.

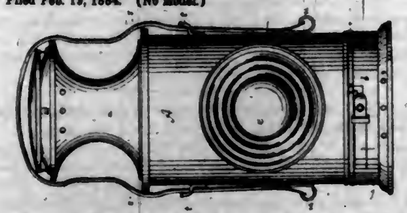
5. The combination, with a removable former, of a removable annular bed, D, a series of former-links movable about and against said former, and a hinged support provided with one or more reciprocating disks, substantially as and for the purpose described.

6. The combination of a former having a plate, N, secured thereto, a series of connected links movable about and against said former, and a hinged support provided with one or more reciprocating disks, substantially as and for the purpose described.

7. The combination, with a stationary former, of automatically-reciprocating former-links, and a hinged support provided with one or more reciprocating disks for moving said links against said stationary former, substantially as described.

8. The combination, with a supporting-table provided with an orifice, *a*, of a removable former, former-links movable about and against said former, and removable blocks M, located in said orifice, substantially as and for the purpose described.

313,303. SIGNAL-LANTERN. GEORGE C. DRESSEL, New York, N. Y. Filed Feb. 19, 1884. (No model.)



Claim.—1. The combination of case A, having convex bull's-eyes *c*, with the revolving frame B, carrying straight panes of different colors, and with lamps placed on base of case A, substantially as specified.

2. The combination of case A with perforated cross-rod *d*, frame B, suspending shaft *l*, and friction-rollers *i*, substantially as specified.

3. The combination of case A with frame B, having arms *f*, uprights *g*, and cross-rods *h*, and with lever *l*, substantially as specified.

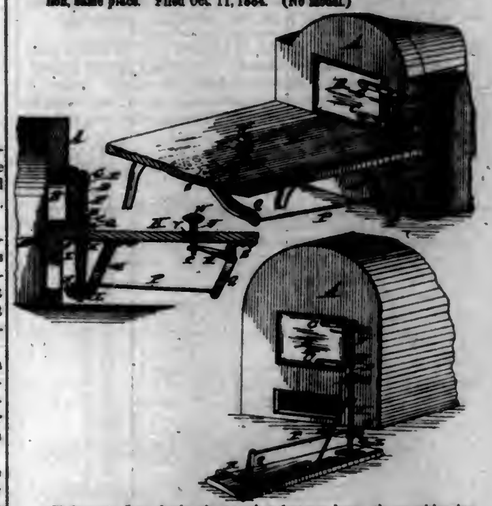
4. The combination of case A, shaft *e*, having shoulders *j j'*, and lugs *k k'*, forming a zigzag passage between them, and revolving frame B and lever *l*, substantially as specified.

5. The combination of case A, revolving frame B, shaft *e*, having lugs *k k'*, forming the zigzag groove, lever *l*, and spring *m*, substantially as specified.

6. The combination of case A, frame B, shaft *e*, having shoulders *j j'*, and lugs *k k'*, forming the zigzag groove, spring *m*, lever *l*, and friction-rollers *i*, the frame B being unsupported solely from its top, substantially as specified.

7. The combination of case A, having perforated lugs *l*, with swinging handle *s*, having outwardly-turned snap-hooks *u*, the handle passing through the lugs when the snap-hooks are disengaged, substantially as herein shown and described.

318,304. DEVICE FOR OPENING AND CLOSING FURNACE-DOORS. HERMAN H. DREYER, Genoa, Ohio, assignor of one-half to John H. H. Uthoff, same place. Filed Oct. 11, 1884. (No model.)



Claim.—1. In a device for opening furnace-doors, the combination of the pintle of the door, having the door secured to it, with a vertical shaft having means, as described, for turning it, and formed at its upper end into a socket provided with a set-screw, as and for the purpose shown and set forth.

2. In a device for opening and closing furnace-doors, the combination of the furnace-door, the pintle turning in bearings upon the furnace-front and secured to the door, means, substantially as described, for closing the door, a vertical shaft formed with a socket at its upper end adjustably secured to the lower end of the pintle by means of a set-screw, an arm secured projecting laterally from the lower portion of the said shaft and having a series of perforations, a connecting-rod secured adjustably in one of the perforations in the said arm, and a bell-crank having one arm pivoted to the connecting-rod and having the other arm adapted to be depressed, as and for the purpose shown and set forth.

3. In a device for opening and closing furnace-doors, the combination of the door having ears upon its hinge edge, the furnace-front having vertical bearings, the pintle secured in the ears of the door and turning in the bearings of the furnace-front, the spring forcing the door closed, the platform forming a vertical bearing registering with the bearings of the front and having a vertical sliding bearing, the vertical shaft formed with a socket at its upper end having a set-screw, the perforated arm projecting from the lower end of the said shaft, the connecting-rod pivoted in one of the perforations at one end, the bell-crank fulcrumed upon the under side of the platform and having one end pivoted to the other end of the connecting-rod, and the treadle sliding with its shank in the vertical bearing in the platform, having a plate at its upper end and fitting loosely with its lower reduced end in a perforation in the other arm of the bell-crank, as and for the purpose shown and set forth.

318,305. ELECTRIC CABLE. WILLIAM H. ECKERT, JOHN A. SEELY, and EDMOND A. ECKERT, Cincinnati, Ohio, assignors to the American Bell Telephone Company, Boston, Mass. Filed Jan. 28, 1881. (No model.)

Claim.—1. In combination with a supporting-wire of conducting properties grounded at each end, a hanger, also of conducting material, in contact with the induction-wire of an electric cable, and serving both to support said cable and ground said induction-wire, substantially as described.

2. In combination with an electric cable, a rod or wire of conducting material, grounded at both ends, and connected at intervals with the

313,305.

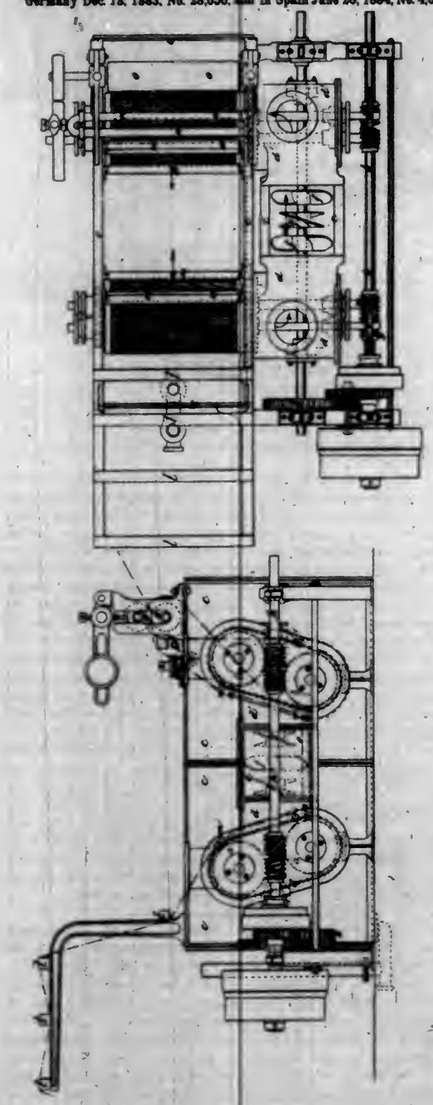


induction-wire of said cable, serving both to support said cable and to furnish a ground for said induction-wire.

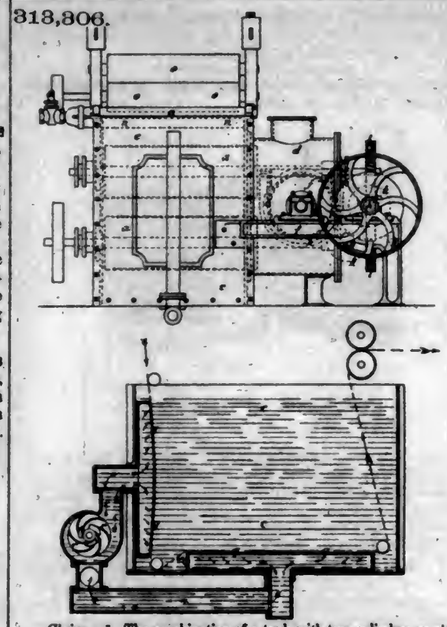
3. The combination, with an electric cable, of a wire of conducting material, extending substantially parallel therewith, grounded at both ends, and having at intervals electric connections with the induction-wire of said cable, for the purposes described.

4. The combination of an electric cable, a series of pliable metallic hangers bent into position to snugly clasp the cable, and secured in permanent contact with the induction-wire thereof, and a supporting-wire of conducting material grounded at each end, said hangers embracing said supporting-wire at their upper ends, substantially as described.

313,306. APPARATUS FOR BLEACHING AND DYEING. JAMES FARRER, Salford, County of Lancaster, England, and AUGUSTE LALANCE, Mülhausen, Germany. Filed Jan. 5, 1884. (No model.) Patented in England June 8, 1883, No. 2,871; in France Dec. 7, 1883, No. 159,040; in Germany Dec. 18, 1883, No. 28,050, and in Spain June 20, 1884, No. 4,047.



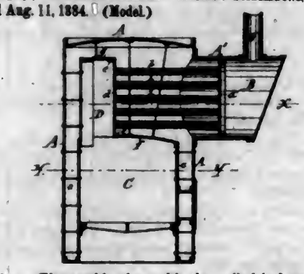
313,306.



Claim.—1. The combination of a tank with two cylinders or chambers therein having perforated surfaces, a conduit forming a direct communication between and opening directly into the interiors of both cylinders or chambers, and a propeller or pump in said conduit, substantially as described, adapted to force the liquor through the perforations from the inside to the outside of one cylinder or chamber, through the tank, and from the outside to the inside of the other, all substantially as set forth.

2. The combination of a tank and two pairs of rotary cylinders therein, closed at one side of the tank and open at the other, with a conduit, *d e d'*, opening directly into the interior of both pairs of cylinders, and a propeller or pump in said conduit, as and for the purpose described.

313,307. STEAM-BOILER. PATRICK FITZGIBBONS, Oswego, N. Y. Filed Aug. 11, 1884. (Model.)



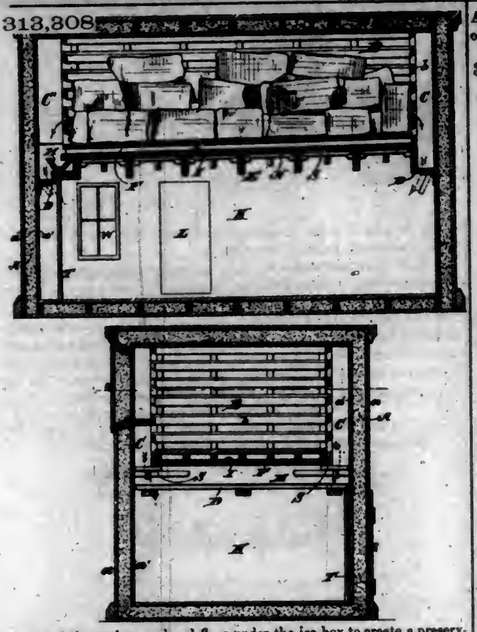
Claim.—The combination, with the cylindrical upright boiler A, provided with the horizontal extension A' and horizontal flues *b b*, as shown, of the fire-box consisting of a cylindrical shell set concentric in the boiler-shell under the flues and formed with the crown-sheet *f*, the combustion-chamber D, rising from one side of the fire-box, and the fire-door arranged at the opposite side of the fire-box, all constructed and combined substantially in the manner specified and shown.

313,308. REFRIGERATOR, ICE-BOX, AND COOL STORAGE-ROOM. JACOB FOLGER, Toledo, Ohio. Filed Sept. 4, 1884. (No model.)

Claim.—1. In a refrigerator, the combination of a casing, a skeleton ice-box supported in the upper portion thereof to create vertical air-spaces at the opposite sides and ends of the ice-box, a closed flooring under the ice-box to create a preserving-apartment thereunder, and independently-adjustable doors at the lower ends of the vertical air-passages to control communication between the latter and the preserving-apartment, substantially as described.

2. In a refrigerator, the combination of a casing, a skeleton ice-box comprising longitudinal slats and supported in the upper portion of the casing to create vertical air-passages at opposite sides of the ice-box, the vertical studs arranged in the side air-spaces between the longitudinal

313,308

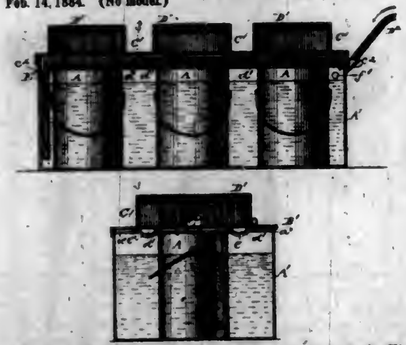


slats and the casing, a closed floor under the ice-box to create a preserving-compartment thereunder, and a series of doors arranged at each side of the ice-box for controlling the lower ends of the vertical air-passages, substantially as described.

3. In a refrigerator, the combination of a casing, a skeleton ice-box comprising slats and arranged in the upper portion of the casing, a series of studs arranged vertically at each side and end of the ice-box and creating vertical air-passages at all sides and ends thereof, a closed flooring under the ice-box to create a preserving-compartment thereunder, an open ice-supporting floor above the closed floor, a series of doors along each side of the ice-box, and doors at the ends thereof for controlling the communication of the lower ends of the vertical air-passages with the preserving-compartment, substantially as described.

4. In a refrigerator, the combination of the preserving-apartment, the skeleton ice-box above the same, the vertical air-passages at each side and end of the ice-box, the series of doors along each side of the ice-box, and the doors at the ends of the latter for controlling communication between the lower ends of the air-passages and the preserving-compartment, substantially as described.

313,309. MILK-COOLER. GUY S. FRAZEY, Jersey City, N. J.. Filed Feb. 14, 1884. (No model.)

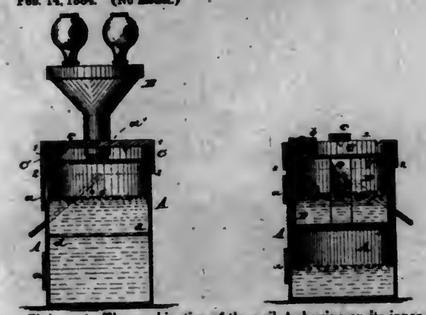


Claim.—1. The box A', having gutters c^2, strips $a^\times$, tube E', and a water entrance and exit at one end thereof, in combination with the cover B', provided with tubes d', substantially as and for the purpose set forth.

2. The box A', having gutters c^2, strips $a^\times$, tube E', and a water entrance and exit at one end thereof, in combination with the cover B', provided with ice-boxes C' and tubes d', substantially as and for the purpose set forth.

3. The combination of a milk can or pail provided with a cover having suitable overflow-openings, cover B', having tubes d', and the box A', having gutters c^2, strips $a^\times$, tube E', and water entrance and exit at one end, substantially as described.

313,310. CREAMING-CAN. GUY S. FRAZEY, Jersey City, N. J. Filed Feb. 14, 1884. (No model.)

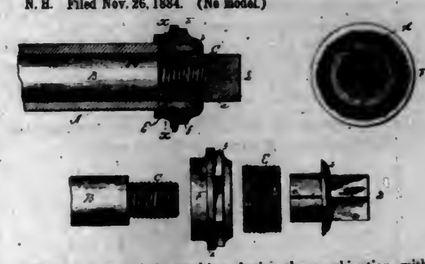


Claim.—1. The combination of the pail A, having on its inner side a flange or rim, *d*, and a cover having an upwardly-extending tube, *a'*, a perforated cap, *b*, adapted to fit said tube, and a rotatable disk pivotally connected with said cap, and having ventilating-openings therein adapted to register with the perforations in the cap, and the pan D, having loops or handles *g*, flat face *e*, and orifice *f*, substantially as and for the purpose set forth.

2. The combination of the pail A, having a flange or rim, *d*, window *a*, and a cover having a ventilating-opening provided with a perforated cap, *b*, and a disk pivotally connected with said cap, and having a series of perforations adapted to register with the perforations in said cap, and the pan D, having loops or handles *g*, flat face *e*, orifice *f*, and transparent strip *h*, substantially as and for the purpose set forth.

3. The combination of a pan, D, having loop *g*, flat face *e*, and orifice *f*, and a pail, A, having suitable means for supporting said pan therein, substantially as set forth.

313,311. ADJUSTABLE AXLE-NUT. FRANK L. FRENCH, Meriden, N. H. Filed Nov. 26, 1884. (No model.)



Claim.—1. In a hub-attaching device, the combination, with the tubular portion of the axle-nipple nut, having its periphery without screw-threads, of a cylindrical washer without internal screw-threads, and adapted to lock with the tubular portion of the axle-nipple nut, so as to have a longitudinal movement only thereon, and the external nut adapted to adjust the washer by engaging with the screw-threads on its periphery, as set forth.

2. In a hub-attaching device, the combination, with the tubular portion of the axle-nipple-nut, having its periphery without screw-threads, of a cylindrical washer of chemical bronze without internal screw-threads, and adapted to lock with the said tubular portion of the axle-nipple nut, so as to slide thereon without turning, and the external nut adapted to adjust the washer by engaging with the screw-threads on its periphery, as set forth.

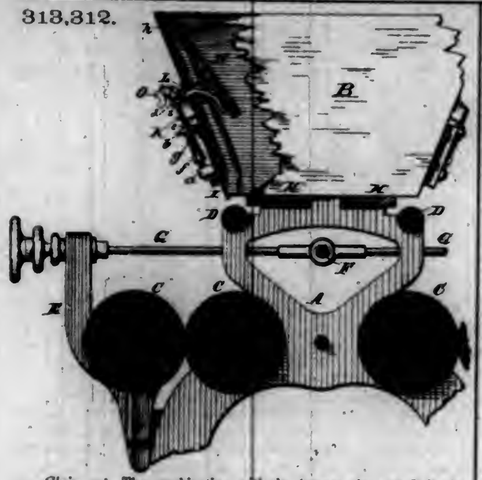
3. As a hub-attaching device, the compound adjustable nut composed of the tubular nipple-nut D, having groove *c*, the lock-pin H, the adjustable externally-threaded washer E, having groove *d*, and the outside adjusting-nut, F, as set forth.

4. As a hub-attaching device, the compound adjustable nut composed of the nipple-nut D, having a left-hand thread, and an external groove, *c*, the cylindrical washer E, having an external screw-thread and the internal groove, *d*, the lock-pin H, and the adjusting-nut F, having a right-hand screw-thread, all combined as set forth.

5. The combination of the nipple-nut D with the axle-nipple C, the lock-pin H, the adjustable washer E, the adjusting-nut F, and the axle-box A, as set forth.

313,312. ROLLER-MILL. JAMES W. GALLOWAY, Dayton, Ohio, assignor to Stout, Mills & Temple, same place. Filed May 29, 1884. (No model.)

313,312.



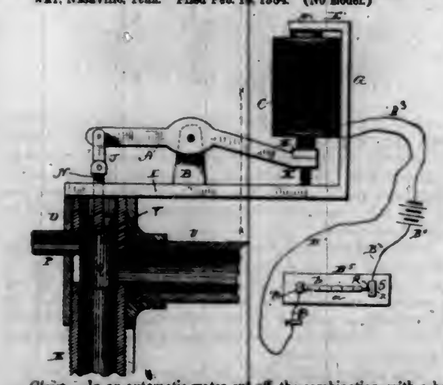
Claim.—1. The combination, with the hopper, the gate I, having ears or lugs *a*, and the frame J, having ears *b*, of the bolts K, threaded at their lower ends and engaging with said lugs upon the gate, and having collars engaging with said ears upon the frame and upper collars, the lifting-levers, and a hinged pressure-board within the hopper, substantially as described.

2. The combination, with the pressure-board N, lifting-levers M, gate I, and its frame J, of the bolts K, having enlarged lower threaded ends for engagement with the gate, and upper double collared ends, each terminating in a thumb-head, springs *g* surrounding the bolts, and tension-regulating nuts *f* upon the enlarged lower threaded ends of the bolts, substantially as described.

3. The combination, with the hinged pressure-board N, gate I, frame J, and actuating-bolts K, of the curved fulcrumed levers M, having their outer ends engaging with the bolts K and their inner ends with the pressure-board N, substantially as described.

4. The combination of the hinged pressure-board N, levers M, bolts K, gate I, and frame J, of a check-screw or adjustable stop, O, passed through the hopper and adapted to engage with the pressure-board at any point desired, substantially as described.

313,313. AUTOMATIC ELECTRICAL CUT-OFF. EDWARD GANNAWAY, Nashville, Tenn. Filed Feb. 16, 1884. (No model.)



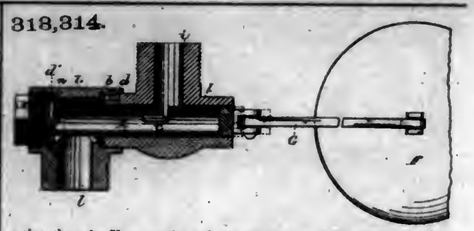
Claim.—In an automatic water cut-off, the combination, with a hydrant-pipe, a service-pipe, and a waste-pipe connected by a T-joint, the pivoted lever supporting the valve and the armature, of the perforated valve within the T-joint, the electric battery, and the thermal gage connected in circuit therewith, substantially as specified.

313,314. VALVE FOR WATER-CLOSETS AND OTHER RECEPTACLES. WILLIAM H. GANTS, San Francisco, Cal., assignor of one-half to George E. Herrick, same place. Filed Mar. 1, 1884. (No model.)

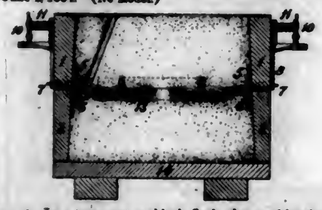
Claim.—1. A valve for admitting and checking a flow of water to a water-closet or other device or receptacle, consisting of the tube K, having an open and closed end, and a side port, *c*, the T-pipe I, in which said tube is seated, and the T-pipe L, by which it is loosely encircled, said pipes being connected with the water-pipes J M, as described, the nut N in the end of the pipe L, against which the open end of the tube K is adapted to be forced to close it, and the means, as set forth, for reciprocating the tube K to seat its end against the nut N or withdraw it therefrom, substantially as herein described.

2. A valve mechanism for admitting and checking a flow of water to a water-closet or other device or receptacle, consisting of the T-pipe I, the T-pipe L, having shoulders *b n*, the end plug, N, and washers *d d'*, by which the ends of pipe L are rendered water-tight, the inner valve-tube, K, having an open inner end, a closed projecting end, and a port, *c*, and the elbow rod or lever G, pivoted to the pipe I and to the projecting end of the valve-tube, and the vertically-moving float F on the end of the rod G, all arranged and operating substantially as herein described.

313,314.



313,315. MOLDER'S FLASK. HENRY H. GARRETT, Pittsburg, Pa. Filed June 4, 1884. (No model.)



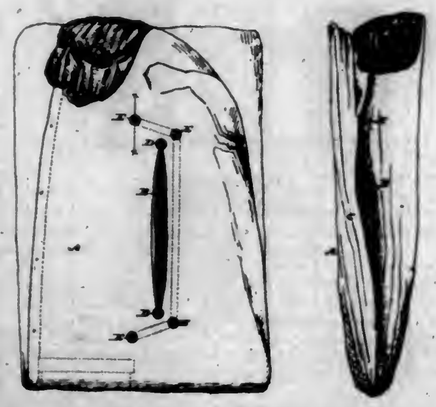
Claim.—1. In a two-part molder's flask, the combination of a cope, a sand-retaining band fitting freely therein, and movable clips sliding in guides in the cope below the sand-retaining band, acting as rests for the support of the sand-retaining band therein, substantially as set forth.

2. The combination of a cope, a sand-retaining band fitting therein, movable clips supporting said band, and rock-shafts journaled on the outside of the cope and having arms connected to the clips, substantially as set forth.

3. The combination of a finished mold, consisting of cope and nowel portions, a bottom board adapted to support said mold, a cap plate or frame adapted to rest upon the top of said mold, and clamps for connecting the bottom board and cap-plate, substantially as set forth.

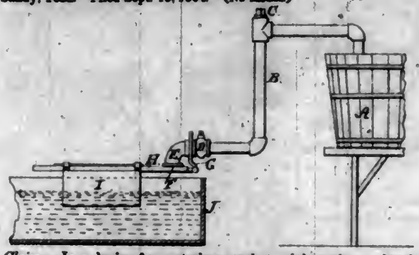
4. The combination of a bottom board and a cap-plate adapted, respectively, to fit against the bottom and the top of a mold, clamps for connecting said board and plate, and a pair of sand-retaining bands adapted to inclose the mold adjacent to its plane of parting, substantially as set forth.

313,316. GOSSAMER-CLOAK. P. CHARLES GETZ, Philadelphia, Pa. Filed Feb. 27, 1884. (No model.)



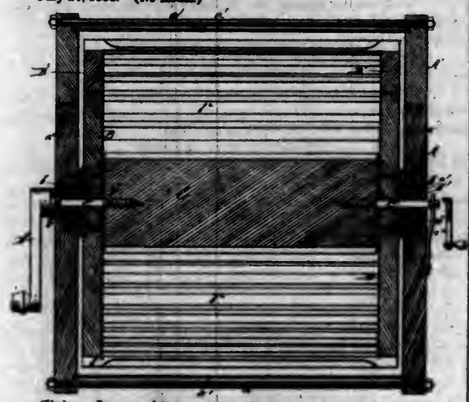
Claim.—A gossamer having armholes B and sleeve-pieces C therefor provided with patches D, connected with the body and walls of the upper and lower terminations of the armholes, and patches E, connected with the body and sleeve-pieces at places coincident with the corners of said pieces, substantially as and for the purpose set forth.

313,317. DEVICE FOR WATERING STOCK. JABUS H. GILBERT, Big Sandy, Tenn. Filed Sept. 15, 1884. (No model.)



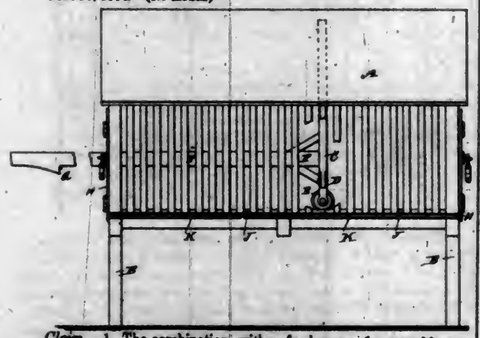
Claim.—In a device for watering stock, a siphon-pipe, a bracket located thereon having an elongated opening or adjusting-slot, as described, with means for clamping the same to the siphon, and an automatically-operating float-valve hinged to the bracket, the whole arranged to act in combination, substantially as set forth.

313,318. WASHING-MACHINE. JAS. GILLESPIE, Lincoln, Ill. Filed July 26, 1883. (No model.)



Claim.—In a washing-machine, the combination of an outer cylindrical case, an inner cylindrical cage having longitudinal slats alternately beveled in opposite directions, and a central corrugated roller journaled in the journals of the cage and adapted to move independently thereof and to be locked, substantially as described.

313,319. FOWL-COOP. RODNEY W. GODDARD, Wellston, Ohio. Filed June 28, 1884. (No model.)

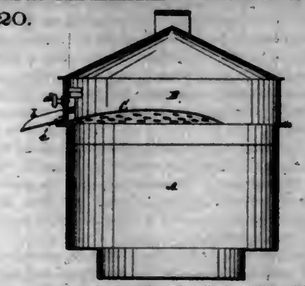


Claim.—1. The combination, with a fowl-coop, of a movable partition and a rod rigidly attached to the said partition and projecting through the coop, substantially as herein shown and described, whereby the rod is made to serve the double purpose as a means for operating the partition and as a roost, as set forth.

2. The combination, with a coop provided with track-strips on its bottom, of the movable partition C, provided with the wheels E, and the rod or bar F, rigidly secured to the partition and projecting through the coop, substantially as herein shown and described.

313,320. COVER FOR COOKING KETTLES AND UTENSILS. LAURA M. GOODALE, Marshalltown, Iowa, assignor to herself and Peter Gerdes, same place. Filed Apr. 10, 1884. (No model.)

313,320.



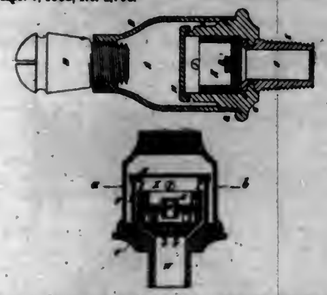
Claim.—1. A cover for cooking utensils provided with a strainer in its lower portion, forming a steaming-chamber between it and the top of the cover, and having combined with it a slide for closing one or more outlets, substantially as herein shown and described.

2. A cover for cooking kettles or utensils, having combined with it an internal strainer or drainer for draining the contents of the kettle through the cover while on the utensil, and forming a steaming-chamber between it and the top of the cover, and having provision for escape of the drained water, or steam and water, from the cover above the drainer, substantially as specified.

3. The kettle-cover B, provided with a drainer, C, extending any desired distance backward in its lower portion or front part of its base, and constructed or provided with one or more outlets, *e*, over the drainer in the front side of the cover, and with a slide, D, controlling the same, essentially as and for the purposes herein set forth.

4. The combination of the spout *b* with the cover B, having an outlet-aperture, *e*, in it over the spout, the slide D, controlling said outlet, and the internal strainer or drainer, C, the whole forming a combined kettle-cover and drainer, substantially as specified.

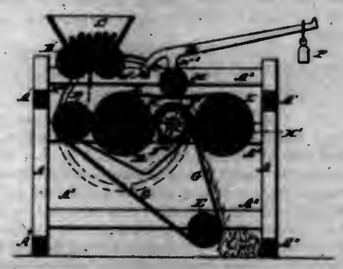
313,321. GAS-REGULATOR. JOHN GOODSON and WILLIAM GOODSON, London, England. Filed Sept. 18, 1884. (No model.) Patented in England Apr. 7, 1883, No. 1,766.



Claim.—1. In a gas-regulator, the combination of the upper and lower sections, B and C, the latter having an interior chamber and a lateral orifice, I, a cover, H, closing the top of the chamber, an inverted cup, K, arranged to rise and fall in the chamber, and provided with a perforation, and the slotted screw O, adjustable in the said perforation, substantially as described.

2. The combination, in a gas-regulator, of the upper and lower sections, B and C, the latter having an interior chamber, perforations I and S, and conduits U, the tube R, surrounding the lower section and perforated at its base, and an inverted cup, K, arranged to rise and fall in the chamber of the lower section, and having a perforation and adjusting-screw, substantially as described.

313,322. CIDER-PRESS. JACOB GORGAS and GEORGE E. MOELLER, Ephrata, Pa. Filed Sept. 17, 1884. (No model.)



Claim.—1. As an improvement in continuous juice-extracting presses, as described, the fixed imperforate roll D, adjustable imperforate tension-roll E, and movably-adjustable perforate roll F, with the porous-fabric endless apron G, in combination with the fixed imperforate roll H, and movable adjustable imperforate roller H', the non-porous apron L, gear H^3, pinion B^3, and crank B^2, substantially as shown, and for the purpose set forth.

2. In a continuous juice-extracting press, as described, the fixed imperforate roll H, and adjustably-movable imperforate roll H', with the non-porous endless apron L, in combination with the perforate roll F, apron G, imperforate rolls D E, gear-wheel H^3, pinion B^2, crank B^3, rolls B, springs I, adjusting-screw J, and tightener M N, substantially as and for the purpose specified.

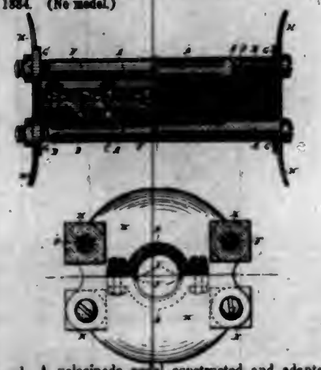
3. In combination with the rolls D, E, F, H, and H', aprons G L, the roll M, with its lever N, arms N^2, fulcrum N', and weight P, whereby a variable tension is produced upon the apron L, and the pomace held between the aprons G L is correspondingly compressed, as and for the purpose specified.

4. In combination with a juice-extracting press-frame, as described, and the series of imperforate and perforate rolls mounted therein, the movable rails A^2, whereby the aprons G and L may be introduced and applied to their respective rolls without dismantling the machine, in the manner and for the purpose set forth.

5. In a continuous juice-extracting press, as described, the perforate roll F, with perforations F^2, in combination with a porous-fabric endless apron, G, and a non-porous endless apron, L, so arranged relative to said roll that the aprons G L shall cover the upper half-circumference of said roll, the lower half being free, whereby the juice expressed from the pomace held between said aprons will pass through the porous apron G and the perforations F^2 within the roll, and by the perforations F^2 from the interior of the roll upon the gutter R, and be discharged by pipe S, substantially as and for the purpose specified.

6. In a press, as described, provided with the rolls H' F and bearings F' H^3, the spring-stem I', having a spring-seat, and recess I^2, in combination with the adjusting-screw J, its tenon J', hand-wheel J^2, nut K, helical or gum spring I, and post A, whereby the pressure upon the rolls is adjustable and unusual strains provided for, substantially as shown, and for the purpose hereinbefore set forth.

313,323. PEDAL FOR VELOCIPEDES. CHARLES F. HADLEY, Chicopee, Mass., assignor to the Overman Wheel Company, same place. Filed Aug. 25, 1884. (No model.)



Claim.—1. A velocipede-pedal constructed and adapted to be structurally elongated, substantially as set forth.

2. A velocipede-pedal made of sections which are adjustable for elongating it, substantially as set forth.

3. A velocipede-pedal made of two long and two short sections, the opposite long and short sections of which are firmly secured together with their outer ends coinciding, and the inner ends of the long sections being adjustably secured together, substantially as set forth.

4. A velocipede-pedal constructed and adapted to be structurally elongated, and provided with adjustable bearings for its rubbers, substantially as set forth.

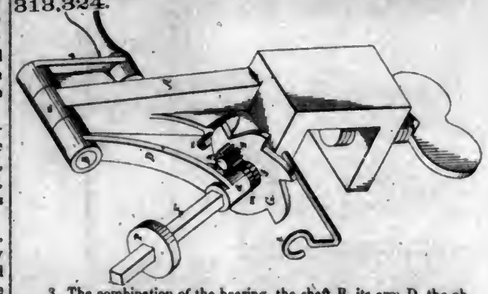
5. A velocipede-pedal composed of adjustable sections adapting it to be structurally elongated, the opposite sections being interlocked to prevent lateral diplacement, substantially as set forth.

313,324. MECHANICAL MOVEMENT. S. ASHTON HAND, Toughkenamon, Pa. Filed Jan. 19, 1885. (No model.)

Claim.—1. The combination of a bearing, a shaft, B, adapted thereto, and an arm thereon carrying a shaft or bar, the axis of which is at an oblique angle to the axis of the shaft B, as set forth.

2. The combination of the bearing, the shaft B, its arm D, the oblique shaft F, carried thereby, and means for rotating the said shaft F on its own axis as it is carried around by the arm, as set forth.

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3. The combination of the bearing, the shaft B, its arm D, the oblique shaft F, carried thereby, the disk G, and the pin *n*, as set forth.

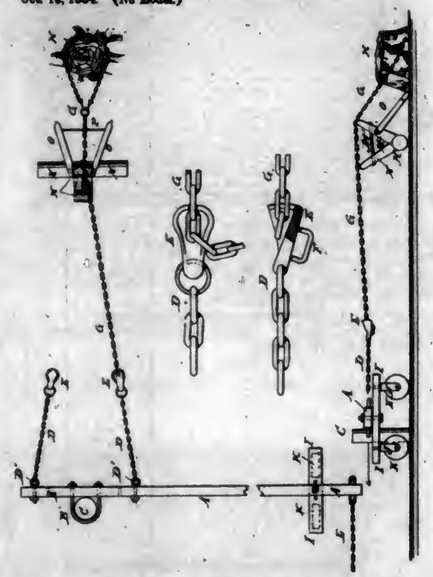
4. The combination of the bearing, the shaft B, its arm D, the oblique shaft F, carried thereby, and differential gearing for rotating the shaft, as set forth.

5. The combination of the bearing, the shaft B, its arm D, the oblique shaft F, carried thereby, the toothed disk G, the pin *n*, the differential spur-wheels *f* and *m*, and the pinion *g*, carried by the disk and gearing into the wheels *m* and *f*, as set forth.

6. The combination of the standard A, the shaft B, the arm D, the oblique shaft F, carried thereby, and the guide-eye *t*, as set forth.

7. The combination of the standard A, the shaft B, the arm D, the oblique shaft F, carried thereby, the core-block *p* on said shaft, and the guide-eye *t* in line with said block, as set forth.

313,325. STUMP-PULLER. PETER HANSEN, Waupaca, Wis. Filed Oct. 18, 1884. (No model.)



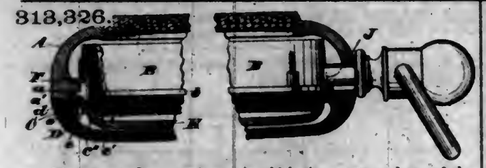
Claim.—1. In a stump-puller, the combination, with the lever A, the bow or chain B, the chains D, having clutches E, and the chain G, of the bar I, swiveled to the lever A, and swiveled wheels J K on said bar I, substantially as herein shown and described, whereby the free end of the said lever will be supported while being operated, as set forth.

2. In a stump-puller, the combination, with the lever A, the bow or chain B, the chains D, having clutches E, and the long chain G, of the bent lever M, the cross-bar N, and the hinged braces O, substantially as herein shown and described, whereby the part of the long chain next the stump will be made to take an inclined position when put under tension, as set forth.

3. In a stump-puller, the clutches E, made, substantially as herein shown and described, with a slot in one end to engage with a link of the chain, and a recess in one side to receive the adjacent links, whereby the said clutches can be readily applied and detached and will keep their places securely, as set forth.

313,326. WATCH-CASE. C. WESLEY HARMAN, New York, N. Y. Filed July 19, 1884. (No model.)

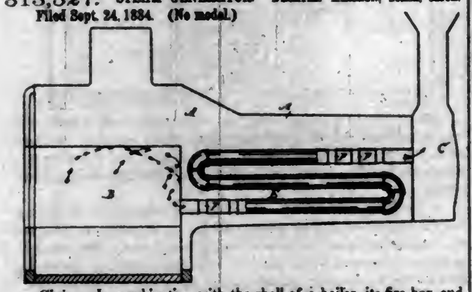
313,326.



Claim.—1. In a watch-case in which the center and one of the caps are formed in one piece, the other cap secured to the movement-ring and seating upon the case-center, substantially as set forth.

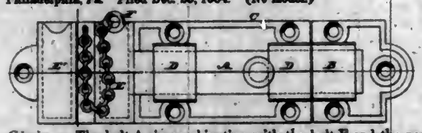
2. In a watch-case in which the center and bezel are formed in one piece, the back screwing onto the movement-ring and seating upon the case-center, substantially as set forth.

313,327. STEAM-GENERATOR. DELATER HARMON, Ionia, Mich. Filed Sept. 24, 1884. (No model.)



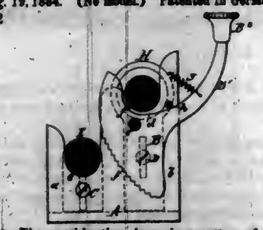
Claim.—In combination with the shell of a boiler, its fire-box and smoke-jacket, arranged at opposite ends thereof, and its front and rear flue-sheets, the flattened flue E, in the form of a flattened letter S, connected with the lower part of the fire-box at one end, and after returning upon itself twice discharging at a point higher than its connection with the fire-box through the rear flue-sheet into the smoke-jacket, the discharge end of said flue being substantially in line with the top of the fire-box, said flue having rounded sides to withstand steam-pressure, and having its top and bottom stayed against the same by the vertical tubes F, set staggering, as shown, thereby furnishing a means for the more rapid discharge of the caloric, and a complete circulation of the water within the boiler, substantially as and for the purposes specified.

313,328. BOLT FOR DOORS OR SHUTTERS. ANNIE W. HARRIS, Philadelphia, Pa. Filed Dec. 20, 1884. (No model.)



Claim.—The bolt A, in combination with the bolt F and the parallel pockets E and E', said pocket E having side openings which permit the passage of the bolt A, and a top opening to receive the bolt F, said pockets E and E' being connected with the back plate, C, all the parts being constructed and operating as herein set forth.

313,329. CIGAR-BUTT CUTTER. CARL H. HAUCK, Brooklyn, N. Y., assignor of two-thirds to Carl Vogt and Charles Vogt, both of same place. Filed Aug. 19, 1884. (No model.) Patented in Germany Jan. 27, 1883, No. 23,382



Claim.—1. The combination, in a cigar-cutter, of two fixed knives in the same vertical plane and an oscillatory knife having cutting-edges on its opposite sides, pivoted between said fixed knives nearer to one than to the other, and adapted to operate in conjunction with both said fixed knives simultaneously, with a draw-cut as to one and a direct cut as to the other, substantially as described.

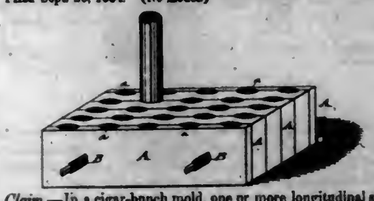
2. The combination, in a cigar-cutter, of two fixed knives in the same vertical plane and an oscillatory knife having a serrated cutting-edge on one side and a plain cutting-edge on its opposite side, said oscillatory knife being pivoted between said fixed knives nearer to one than to the other, and adapted to operate in conjunction with both said fixed knives simultaneously, with a tearing draw-cut as to one and a direct cut as to the other, substantially as described.

3. The combination, in a cigar-cutter, of a bed-plate provided with upright standards at its opposite ends, two fixed knives attached to one of said standards, and provided with curved edges adapted to receive the butts of the unfinished cigars to be operated upon, gages in line with said fixed knives and adjustable toward or from said fixed knives, and an oscillatory knife pivoted between said fixed knives, and having cutting-edges on its opposite sides, whereby it is adapted to operate in conjunction with both said fixed knives simultaneously, substantially as described.

4. The combination, in a cigar-cutter, of a bed-plate provided with upright standards at its opposite ends, two fixed knives attached to one of said standards, and provided with curved edges adapted to receive the butts of the unfinished cigars to be operated upon, gages in line with said fixed knives and adjustable toward or from said fixed knives, and an oscillatory knife pivoted between said fixed knives, and having cutting-edges on its opposite sides, one of said edges being serrated, whereby it is adapted to operate in conjunction with both said fixed knives simultaneously to cut the wrapper of the wrapped bunch and to impart to the unwrapped bunch a spongy butt, substantially as described.

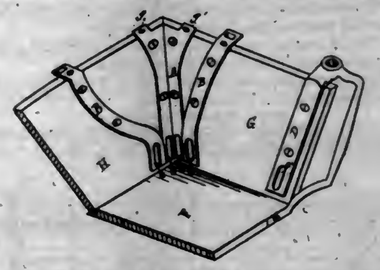
5. The combination of a bed-plate having supporting end standards, one standard being provided with two fixed knives, a fulcrumed knife provided with a serrated lower edge and smooth upper edge, an adjustable gage arranged in line with one of said fixed knives, and a second adjustable gage provided with a detachable socket for the head of the cigar arranged in line with the other fixed knife, substantially as described.

313,330. CIGAR-BUNCH MOLD. CARL H. HAUCK, Brooklyn, N. Y., assignor of two-thirds to Carl Vogt and Charles Vogt, both of same place. Filed Sept. 20, 1884. (No model.)



Claim.—In a cigar-bunch mold, one or more longitudinal strips provided on each edge with a series of concave depressions extending downward from the top of the strip and having at their lower ends semi-cylindrical air-outlet grooves, two longitudinal strips having similar depressions and grooves in one face only, adapted to form the outer members of said mold, said depressions and grooves registering with each other when the parts are assembled, and forming cigar-bunch head-shaping apertures with air-outlet openings at their apices, in combination with transverse screw-bolts passing through suitable apertures in the strips for securing the parts in position, substantially as described.

313,331. CARRIAGE-SEAT IRON. ELLIS S. HAWKINS, Columbus, Ohio. Filed Sept. 4, 1883. Renewed June 23, 1884. (No model.)

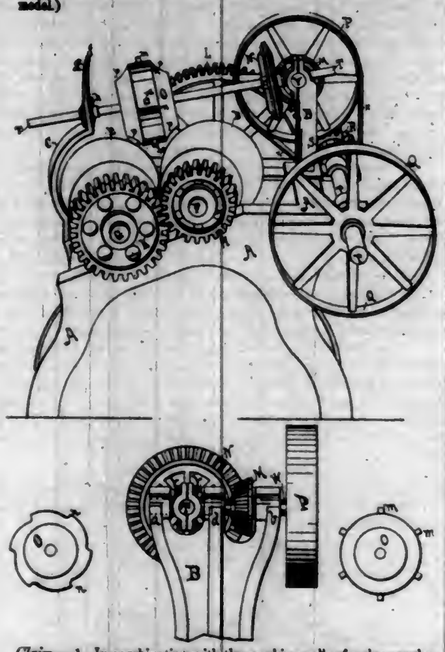


Claim.—1. The herein-described adjustable carriage-seat irons, consisting of the angle-plate A, having lugs *g g'*, a slotted lower portion, *e e*, the adjustable slotted arms B B', and separable foot C, in combination with the carriage-seat and the adjustable iron D, having slot *e'* and a separable foot, *d*, substantially as described.

2. The angle-plate A, having lugs *g g'* and slots *e e*, the curved adjustable arms B B', in combination with a separable foot, C, having two lower branches for connection with the seat-bottom, and an upper branch provided with holes corresponding in number to slots in A and B B', adapted for adjustment substantially as and for the purposes specified.

3. The herein-described hand-iron D, having slotted portion *e'*, in combination with the independent separable foot *d*, substantially as shown.

313,332. CLAY-CRUSHER. HENRY HERRIN, Tecumseh, Mich., assignor to himself, Albert L. Brewer, Hudson W. Conklin, Charles J. Brewer, and Herbert Stout, all of same place. Filed Dec. 11, 1884. (No model.)



Claim.—1. In combination with the crushing-rolls of a clay-crusher, a transverse roll situated over the delivery end of the crushing-rolls, adjustable and driven with its upper surface moving toward the center of the machine, substantially as and for the purposes set forth.

2. The combination, with the crushing-rolls of a clay-crusher, of a transverse roll situated over the ends of the crushing-rolls at which stones are delivered from the crusher, having its center over the opening between the crushing-rolls, and hung on a shaft which is at one end journaled in a swinging box and at the other end is hung in a sliding box, substantially as and for the purposes set forth.

3. The combination of the rolls D E with the roll O, secured on shaft T, swinging box V, and sliding box b, held by the guides *g f*, substantially as shown and described.
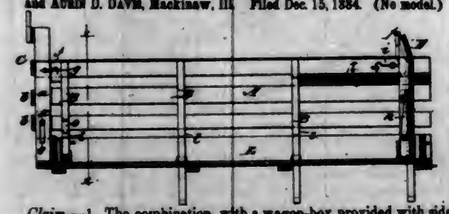
4. The combination of the standard B, having bearings *a d b* thereon, with the shaft W, carrying belt-pulley P and bevel gear-wheel M, and shaft T, hung in box V, adapted to swing on trunnion Y, substantially as shown and described.

5. The combination, with the rolls D E, of the roll O, having thereon the teeth *n*, substantially as shown and described.

6. The combination, with the rolls D E, of the roll O, having thereon the spurs *m*, substantially as shown and described.

7. The combination, with the rolls D E, of the transverse roll O, substantially as and for the purposes described.

313,333. COMBINED HAY AND STOCK RACK. JONAS H. HITTLE and AUBIN D. DAVIS, Mackinaw, Ill. Filed Dec. 15, 1884. (No model.)



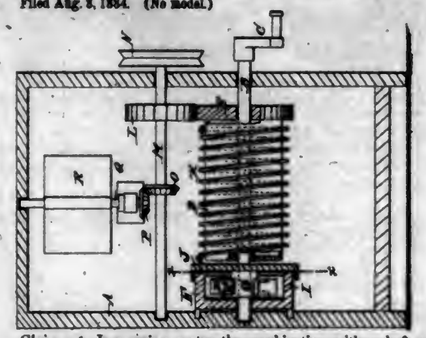
Claim.—1. The combination, with a wagon-box provided with side racks, of the front end-gate, C, provided with slots *e* and hung upon the sides of the box by cross-rod *d*, substantially as specified.

2. The combination, with a wagon-body and side racks, of the rear end-gate, D, provided with hooks and legs A, whereby it is adapted for use as a bridge, substantially as described.

3. The combination, with a wagon-body and side racks, of the block *n* and hooks *m*, for connection to the front strips of the racks, as specified.

4. In a combined hay and animal rack, the cleats *l*, combined with the strips B of the racks, as and for the purpose specified.

313,334. SPRING-MOTOR. MATTHIAS H. HOWELL, Jersey City, N. J. Filed Aug. 8, 1884. (No model.)



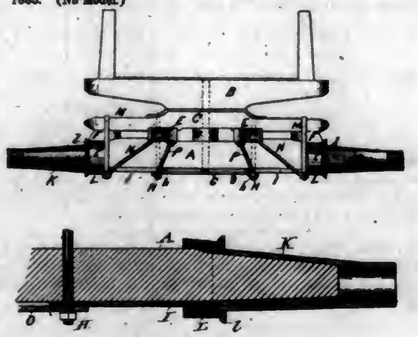
Claim.—1. In a spring-motor, the combination, with a shaft, of a drum loosely mounted on said shaft, a spiral spring wound on the drum and having its ends connected to said drum and shaft, and means for preventing the uncoiling of the spring, substantially as herein shown and described.

2. In a spring-motor, the combination, with a shaft and a disk rigidly mounted thereon, of a drum loosely mounted on the shaft and provided with a cog-wheel at one end, a spiral spring wound on the drum and having its ends connected to the disk and drum, and a clutch for preventing the uncoiling of the spring, substantially as herein shown and described.

3. In a spring-motor, the combination, with a drum, of a spiral spring wound on the same, and having one end connected with the said drum, and the other end connected with a disk mounted on a shaft for turning it, and provided with clutch dogs or pawls for locking it in place, substantially as herein shown and described.

4. In a spring-motor, the combination, with the drum D, of the spiral spring K, secured to one end of the drum, the shaft B, passing loosely through the drum, the disk J on the shaft, with which disk the spring is connected, and the clutch dogs or pawls H on the collar G on the shaft end of the fixed recessed disk or wheel F, substantially as herein shown and described.

313,335. WAGON. JOHN C. HUGGINS, Racine, Wis. Filed July 26, 1883. (No model.)



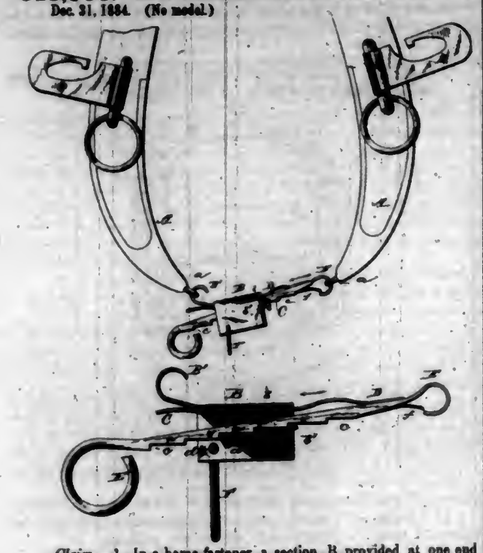
Claim.—1. A sleeveless axle-skein having its seam upon the bearing side and re-enforced by a plate welded above said seam, substantially as set forth.

2. A sleeveless axle-skein cut from a plate of steel or iron and bent into shape with the seam on the under or bearing side, and there re-enforced by a plate welded above said seam, and extending from the point of the skein through and beyond it, to strengthen the gear and secure the skein thereto, substantially as set forth.

3. In a wagon-gear, the combination, with the axles fitted with collars, and the sand-board or bolster supported on hounds above the axles, of the independent solid plain-surfaced blocks F F', resting upon axle and collars, and extending to the under side of the sand-board or bolster, but without attachment to either, the whole secured rigidly together by the clips M M', substantially as set forth.

4. In a wagon-gear, the combination of the axles, skeins K K, with re-enforced plates I I, and collars L L, the sand-board or bolster and the hounds with blocks F or F', clips M or M', and bolts H or H', substantially as set forth.

313,336. HAME-FASTENER. OLE T. JENSEN, Cresco, Tex. Filed Dec. 31, 1884. (No model.)



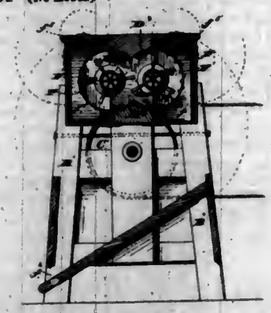
Claim.—1. In a hame-fastener, a section, B, provided at one end with a hook, and below the plane of said hook with a cross-bar, which is attached to the depending side pieces, in combination with the serrated sliding bar C, having a hooked end, and a spring adapted to bear against the under side of the section B so as to throw said serrated bar in engagement with the cross-bar attached thereto, substantially as shown, and for the purpose set forth.

2. In a hame-fastener, a sliding section, B, having a hook formed integral therewith and provided with depending side pieces, between which are located a catch-bar, *d*, in combination with a sliding serrated bar having a spring, D, attached thereto, the ends of said bar being bent upon themselves, substantially as shown, and for the purpose set forth.

3. In a hame-fastener, a section, B, provided at one end with a hook, B', and side pieces *b'*, said side pieces being provided with rigid cross-bars *d e*, as shown, in combination with the sliding bar C, having on its under side serrations *c*, and on the opposite side therefrom a spring, D, one end of said sliding bar being bent upon itself so as to form a hook, the opposite end being bent so as to form a ring, E', for the purpose set forth.

4. The combination, in a hame-fastener, of a section, B, having the hook B' and depending side pieces formed integral therewith, a section, C, adapted to play through the section B between the said side pieces, hooks formed on each end of said section C as described, a series of teeth formed on the under face of said section C, a cross-bar projecting upward from between the side pieces so as to engage with the said teeth, and a spring, D, interposed between the sections B C, substantially as set forth.

313,337. HOMINY-MILL. CAJUS C. JESSE, Charleston, S. C. Filed June 12, 1884. (No model.)



Claim.—1. In a hominy-mill, the knife-shafts made of gas pipe or tubing and provided with journals screwed onto their ends, substantially as shown and described.

2. In a hominy-mill, the knife-shafts made of gas-pipe, in combination with journals screwed thereon and provided with flanges adapted to protect the journal-bearings from the contents of the concaves, substantially as and for the purpose described.

3. In combination with the knife-shafts, the concaves hinged at their lower sides to the frame and provided with means for locking them when swung up into place, substantially as shown and described.

4. The concave provided with side and top doors to give access to the back of the concave-facing, substantially as shown and described.

5. The concaves faced with perforated sheet metal and provided with side and top doors to give access to the back of the casing, and with an open bottom to allow the chops and siftings passing through the perforated concave facing to fall down and be discharged below, substantially as shown and described.

6. In combination with the knife-shaft, knives provided with shanks passing entirely through the shaft, and wedges passing through slots in such shanks at or near their outer ends and bearing against the outer or peripheral surface of the shaft, substantially as shown and described.

7. In combination with the rocking-shoe provided with a projection on its side, the damsel, the shaft on which the damsel is carried, the pulley on the damsel-shaft, the main driving-shaft, the pulley on this shaft, and the band or belt passing over the two pulleys, substantially as and for the purpose described.

8. In combination with the casing having a discharge-opening, the slide adapted to close or regulate the size of such opening, a rod pivotally attached to the slide, a screw nut or disk through which the rod is tapped, and means, substantially as described, adapted to hold the nut from longitudinal movement while allowing it to be rotated, all substantially as shown and described.

9. In combination with the screw-threaded rod, the discharge-regulating slide, the nut or disk on the rod, means for preventing the longitudinal movement of the nut or disk while allowing it to turn, and means for locking it, substantially as shown and described.

10. The facing for the concave of a hominy-mill, formed of sheet metal having holes punched through it alternately from opposite sides, substantially as shown and described.

11. A facing for the concave of a hominy-mill, consisting of a sheet of metal having square holes punched through it from opposite sides alternately, substantially as and for the purpose described.

313,338. SHOE-LACE FASTENER. CHARLES J. JOHNSON, Lone Pine, Cal. Filed Dec. 6, 1884. (No model.)



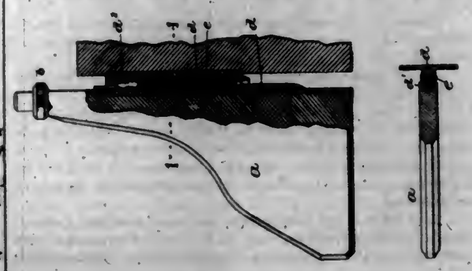
Claim.—1. In a lace-fastener, the combination, with a plate adapted to be fastened on the shoe, of a lever pivoted on the plate and provided with one or more apertures, through which the lace can be passed, and a pivoted latch for holding the free end of the lever to the said plate, substantially as herein shown and described.

2. In a lace-fastener, the combination, with the plate A, of the lever C, pivoted on the same, and provided with an aperture, J, and with a hook, D, on the free end, and of the link E, pivoted on the plate A, substantially as herein shown and described.

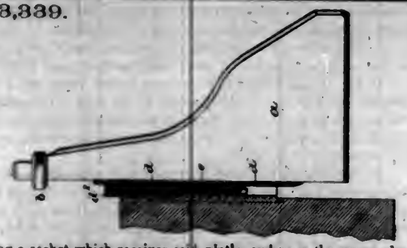
3. In a lace-fastener, the combination, with the plate A, having the transverse rib F, of the pivoted lever C, having an aperture, J, hook D, and the ribs G, and of the link E, substantially as herein shown and described.

313,339. RUDDER ATTACHMENT. WILLIAM JOHNSON, East Moulsey, County of Surrey, England. Filed Sept. 24, 1884. (No model.) Patented in England June 26, 1884, No. 9,445.

Claim.—In a rudder attachment, the concaved plate formed with a headed pintle, said pintle being disposed, from its head downward, intact with the concaved surface of said plate, in combination with the plate

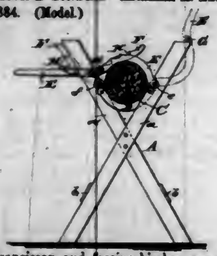


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having a socket which receives said pintle, and upon the upper edge of which socket rests the head of said pintle, said socket-plate having an upper and lower extension to receive means to effect the fastening of the same in place, substantially as and for the purpose set forth.

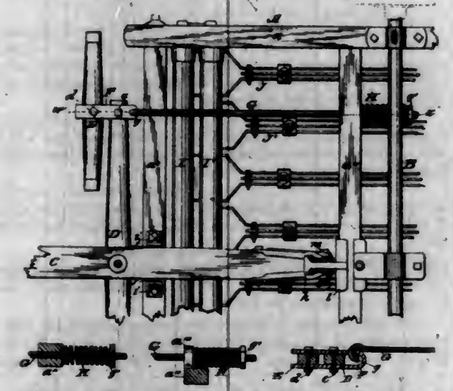
313,340. FASCINE-BINDER. ABRAHAM M. KANTERS, Buffalo, N. Y. Filed Dec. 31, 1884. (Model.)



Claim.—1. A sancisson and fascine binder comprising a series of horses having bars D to support the brush, and clamping devices consisting of a lever, E, pivoted to one side of the horse, and a clamping-bar, F, pivoted to the opposite side of the horse, and provided with notches H in its upper edge, and said lever E having a pin or stud adapted to work over the bar F and enter and lock into its notches, substantially as herein set forth.

2. The combination, in a sancisson and fascine binder, of a series of horses, A, having brush-supporting bars D, the clamping-levers E, pivoted at *e* to one side bar of the horses, and forked beyond their pivots, and provided with rollers G, and the clamping-bars F, pivoted at *f* to the opposite side bars of the horses, and provided with notches H, into which the rollers G may enter and lock, substantially as herein set forth.

313,341. DRAFT MECHANISM FOR GRAIN-DRILLS. JOHN F. KELLER, Shepherdstown, W. Va. Filed Nov. 12, 1884. (No model.)



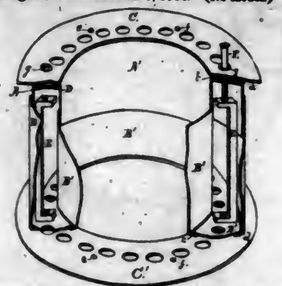
Claim.—1. The combination, with the double-tree D and with the rear cross-bar, *a''*, of the draft-rod G, connecting such double-tree and cross-bar.

2. The combination, with the double-tree D and the rear cross-bar, *a''*, of the draft-rod G and the relieving-spring H.

3. A frame, A, consisting of side bars, *a*, and cross-bars *a'* and *a''*, an axle-tree, B, journaled upon the frame, a pole, C, connected to the cross-bars *a'* and *a''*, a double-tree, D, connected to the pole, and a draft-rod, G, connected at its front end to the double-tree and at its rear end to the rear cross-bar at a point near the outer extremity of the same, in combination.

4. A frame, A, consisting of side bars, *a*, and cross-bars *a'* and *a''*, an axle-tree, B, journaled upon the frame, a pole, C, connected to the cross-bars *a'* and *a''*, a double-tree, D, connected to the pole, and a draft-rod, G, provided with a relieving-spring, H, upon its rear portion, and connected at its front end to the double-tree and at its rear end to the rear cross-bar at a point near the outer extremity of the same, in combination.

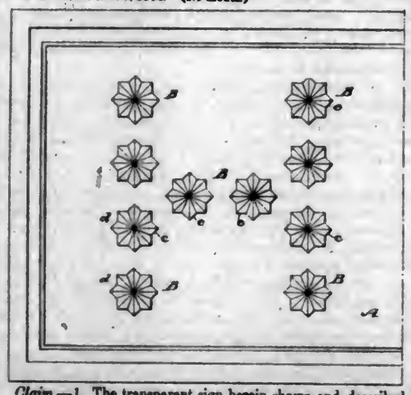
313,342. ADJUSTABLE STOVE-PIPE THIMBLE. AILAN B. KNOWLAND, Burlington, Vt. Filed Dec. 6, 1884. (No model.)



Claim.—1. In a stove-pipe thimble or sleeve, the combination of the exterior and interior cylinders having inwardly-bent flanges at their ends, ventilating-rims which bear against the ends of the cylinders, and interior plates which rest against the inwardly-projecting flanges of the cylinders and which are bolted to the rims, substantially as and for the purposes set forth.

2. The combination of the rims C C', the two sets of cylinders A A' B B', having inwardly-projecting flanges at their inner ends, the plates D, bolts F, and the irons E, substantially as shown.

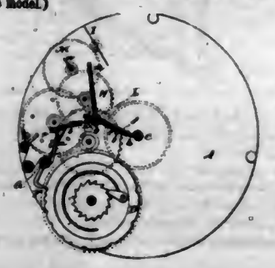
313,343. TRANSPARENT SIGN. GEORGE H. KITCHEN, New York, N. Y. Filed Jan. 3, 1884. (No model.)



Claim.—1. The transparent sign herein shown and described, consisting of the body A, formed with the openings *d*, of a size and shape to correspond to the shouldered outline portion *c* of the bull's-eyes B, in combination with the said bull's-eyes passed through said apertures from the rear, and formed with said shouldered outline portion *c* on its front face, and with the circumferential flange or lip *b* in rear of and at right angles to the shouldered portion *c*, to form a bearing to rest against the rear face of the body A, as described.

2. As a new article of manufacture, the ornamental bull's-eye B, formed with the shouldered outline portion *c* on its front face, circumferential flange or lip *b* in rear of and at right angles to the shouldered portion *c*, and shallow recess *a* in the rear face, as described.

313,344. CLOCK-STRIKING. FREDERIC A. LANE, New Haven, Conn., assignor to the New Haven Clock Company, same place. Filed Nov. 24, 1884. (No model.)

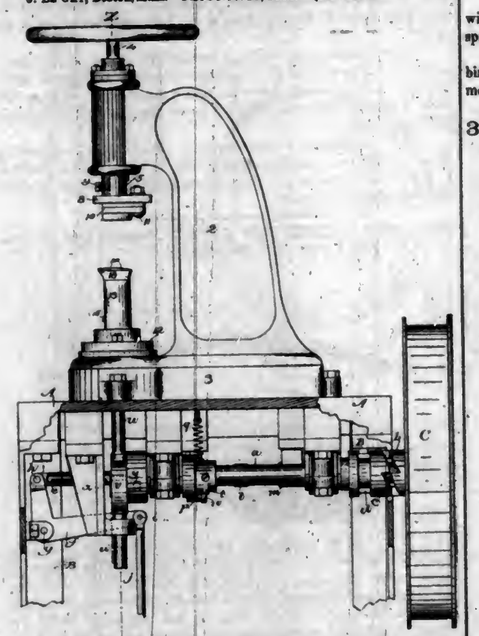


Claim.—1. The combination of the strike-wheel D, the strike-finger F, arm *a*, the stop-stud *d*, the hour-shaft, cam *h* thereon, and a lever arranged upon a stud between the hour and strike-finger shafts, one arm, *e*, extending toward the hour-shaft and into the path of the cam *h* thereon, the other over an arm or projection, *l*, from the shaft of the strike-finger, substantially as described.

2. The combination of the strike-wheel D, strike-finger F, arm *a*, extending from the strike-finger shaft and into the path of the stud *d* on the wheel H, the hour-shaft provided with a cam, *h*, and a lever arranged between the hour-shaft and the shaft of the strike-finger, one arm, *e*, of said shaft extending toward the hour-shaft and carrying a spring, *f*, which projects from the arm into the path of the cam *h*, the said spring arranged to engage the arm in the forward movement of the cam *h*, but free from the arm in the reverse movement of the cam, the second arm, *i*, of said lever extending over an arm, *l*, projecting from the strike-finger shaft, substantially as described.

3. The combination of the strike-wheel D, strike-finger F, arm *a*, extending from the strike-finger shaft into the path of the stud *d* on the wheel H, the hour-shaft provided with a cam, *h*, and a three-armed lever arranged upon a stud projecting inward from the plate of the movement, one of said arms extending toward the hour-wheel and into the path of the cam *h* thereon, the second of said arms extending over a projection, *l*, from the shaft of the strike-finger, the third arm extending toward one of the shafts in the train, near the fly, the said one shaft provided with a finger, *n*, substantially as described, and whereby under the movement of the said three-armed lever, produced by the rotation of the hour-shaft, the count-wheel will be first released by the second arm and the train immediately arrested by said third arm engaging the said finger *n*.

313,345. BOOT OR SHOE HEEL NAILING MACHINE. EDWARD J. LE GAY, Boston, Mass. Filed Nov. 15, 1884. (No model.)



Claim.—1. In a boot and shoe nailing machine, the combination of toothed pulley C, its crank-shaft *a*, clutch *c*, sliding rod *e*, carrying an arm, *d*, engaging with said clutch, the spring-actuated arm *n*, arranged to engage shoulder *s* of said rod, a cam on shaft *a* to disengage said arm *n*, the angle-lever pivoted to said rod, a treadle arranged to actuate the angle-lever, rod *u*, arranged to be reciprocated by crank-shaft *a*, and a nail-driving mechanism arranged to be actuated by rod *u*, all substantially as specified.

2. The combination of tubular standard 13, provided with a suitable supporting-base, the plunger 14, arranged therein, the drivers 21, interlocked in said plunger, and cap 18, seated upon and secured to standard 13 and formed with coincident passages 20, adapted to receive the heel-fasteners and the reciprocating drivers, all substantially as specified.

3. In combination with the nail-driving devices, the screw 4, and heel-carrier 10, thereto secured and arranged to seat and confine the heel upon its seat, substantially as specified.

4. The combination, with plunger 14, of cap 23, thereto secured, and provided with a series of slots, 24, both upper and under cut or flared toward the top and bottom of said cap, and drivers 21, necked near their lower end to loosely interlock in said slots, substantially as specified.

5. The combination, with hollow standard 13, cap 18, therein secured, and plunger 14, carrying drivers 21, of helical spring 19, arranged between said head and plunger and to depress the latter, substantially as specified.

6. In a boot and shoe heel nailing machine, the combination, with a suitable carrier and a perforated convex head corresponding to the concavity in the heel portion of the insole, of drivers interlocked in said carrier and arranged radially, or nearly so, in said head, and having their upper or end face cut oblique to their axis to conform to the upper face of said head at their respective positions therein, substantially as specified.

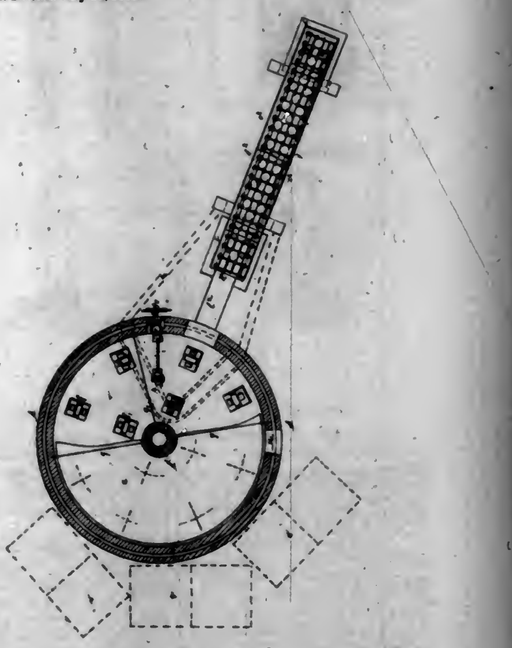
313,346. DEVICE FOR HOLDING AND SHAPING GLASSWARE. GEORGE LEUFFEN, Berlin, assignor to Christian August Wilhelm Schön, Hamburg, Germany. Filed June 25, 1881. (No model.) Patented in England Apr. 26, 1881, No. 1,795; in Belgium May 25, 1881, No. 54,730; in Italy June 30, 1881, No. 13,111; in Sweden July 20, 1881; in Spain Sept. 19, 1881, No. 1,667; in Austria Oct. 7, 1881, No. 14,917; in Denmark Oct. 7, 1881, No. 875; in France Nov. 25, 1881, No. 146,029, and in Norway Dec. 16, 1881.



Claim.—1. In combination with the rod *c*, having cross-head *h*, with slots, and the divergent arms *e*, having rollers *f*, the inclines *g*, and springs *l*, as and for the purposes set forth.

2. The inclines *g* and rollers *g'*, having annular grooves g^2, combined with the arms *e*, having rollers *f*, the shaft *c*, having former *w*, and means for operating said arms *e*, as set forth.

313,347. GLASS-ANNEALING FURNACE. GEORG LEUFFEN, Berlin, Germany. Filed May 6, 1882. (No model.) Patented in Germany Sept. 17, 1880, No. 19,207; in England Apr. 26, 1881, No. 1,795; in Belgium May 25, 1881, No. 54,730; in Italy June 30, 1881, No. 13,111, and in Sweden July 30, 1881.



Claim.—1. In an annealing-furnace, the combination, with the turn-table and means for rotating the same, of trucks for containing the articles to be annealed, adapted to be rolled from one part of the turn-table to another, or to be rotated therewith, and movable partitions in the furnace, whereby said furnace may be divided into different sections, and the trucks placed as desired in relation thereto, as set forth.

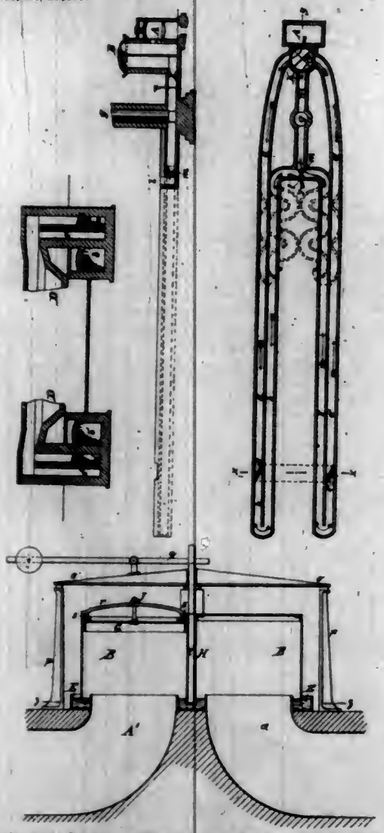
2. The combination, with the main annealing-furnace A, of the auxiliary annealing-chambers or galleries V, placed beside the main furnace, substantially as set forth.

3. The combination, with an annealing-furnace, of a heated conveyer for bringing the glass goods from the forming-room to said annealing-furnace, as set forth.

4. The conveyer described, consisting of the inclosing-trough *a*, pulleys *c*, and endless belt d^3, all combined for joint operation with an annealing-furnace, as set forth.

5. The combination, with an annealing-furnace, of a conveyer for carrying the glass goods, and canals situated in close proximity to the conveyer for conducting the heating gas or other fluid along the conveyer and to the annealing-furnace, as set forth.

313,348. REGENERATIVE FURNACE. GEORG LEUFFEN, Braunhausen, near Stade, Prussia, Germany. Filed Sept. 25, 1882. Renewed Oct. 1, 1884. (No model.) Patented in Germany Aug. 4, 1882, No. 22,390; in France Aug. 12, 1882, No. 150,615; in Belgium Aug. 14, 1882, No. 58,768; in England Aug. 24, 1882, No. 4,064, and in Austria Oct. 8, 1882, No. 27,263.



Claim.—1. In a regenerative furnace, the combination, with the gas-generator located at one end of the structure, of two sets of air and gas passages, each set constructed to lie side by side, and provided with an oblique wall in the gas-passages, so that the air will travel round the end of the passages before meeting an obstruction and then mingle with the gas, as herein set forth.

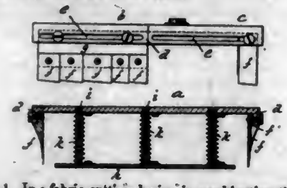
2. In a regenerative furnace, the combination, with a generator, A, and a double set of air and gas passages, and a valve for directing the gases into either, of an intermediate passage, K, communicating at one end with the gas-passages and controlled by the same valve, so as to be brought into connection with one or the other, and communicating with the air-passages at the other end, and being made to connect with either by means of a valve, *m*, and a chimney, *g*, in communication with the passage K, substantially as set forth.

3. In a regenerative furnace, the combination, with the generator A and double set of gas-passages, of the valve B, located at the junction of the generator and the passages, and having the partition H, adapted to be manipulated to cut off the communication between one or the other gas-passage and the generator, as herein set forth.

4. In a regenerative furnace, the herein-described valve having a body or circular chamber, B, and a partition, H, in combination with the valve-seat, consisting of a circular trough, E, and diametrical canals F F, said trough and canals containing sealing-water, as set forth.

5. In a regenerative furnace having a generator and gas-passages communicating through the medium of a valve, the combination, with said generator and valve, of a supplemental valve or cap, G, forming a part of the main valve under ordinary circumstances, and having provisions for detaching it from said main valve and dropping it over the generator-opening, as herein set forth.

313,349. FABRIC-CUTTING DEVICE. FREDERIQUE R. LEWIS, Troy, N. Y. Filed Apr. 12, 1883. (No model.)



Claim.—1. In a fabric-cutting device, in combination, the expansible form *a* and laterally-adjustable blades *f*, attached to the form, all substantially as described.

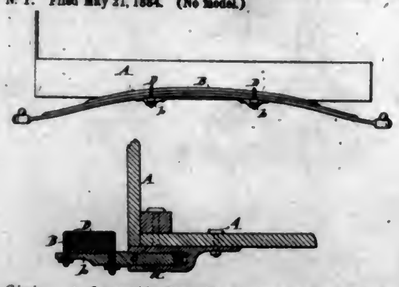
2. In a fabric-cutting device, in combination, form *a*, having flange *d*, with slot *e*, and laterally-adjustable blades *f*, all substantially as described.

3. In a fabric-cutting device, an expansible form having blade-supports, in combination with a bearer, *g*, and blades *f*, adjustable along the form, with means for securing them to the form, all substantially as described.

4. In a fabric-cutting device, in combination, a form, *a*, and removable blades fastened to the form and supporting each other against lateral play, one or more of said blades having a transverse slot, whereby that blade is laterally adjustable without removal from the form, all substantially as described.

5. In combination, a cutter-form, *a*, having a blade-supporting flange, *d*, with slot *e*, and the series of blades *f*, having each a shoulder, *f'*, and a transverse slot, and means for attaching the blades to the form, all substantially as described.

313,350. VEHICLE-BODY SUPPORT. THOMAS D. LINES, Syracuse, N. Y. Filed May 21, 1884. (No model.)



Claim.—1. In combination with the body and side springs, the sockets *a a*, secured to the central portion of the body, clips D D on the central portion of the side spring, and clip-bars *b b*, formed with trunnions *c c* entering the sockets *a a*, substantially as described and shown.

2. In combination with the body and side springs, the sockets *a a*, secured to the central portion of the body and screw-threaded internally, clips D D on the central portion of the side spring, and clip-bars *b b*, formed with screw-threaded trunnions entering the sockets *a a*, substantially as specified and shown.

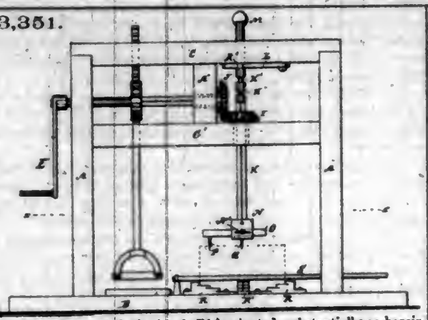
313,351. CAN-OPENER. CALEB S. LORDELL, Stormville, Miss. Filed Apr. 19, 1884. (No model.)

Claim.—1. The combination, with the supporting-frame provided with an operating-shaft and gear-wheel, of the shaft K, provided with a cutting-blade at its lower end, gear-wheel I, through which shaft K freely slides, but within which it cannot rotate, and a locking device secured to the frame, and adapted to engage the shaft K, to hold it at various heights, substantially as set forth.

2. The combination, with the shaft K, having annular grooves K' K', of means for revolving the said shaft, the latch L, pivoted on the bar C, the block N, the bar O, and the blade P on the bar O, substantially as herein shown and described.

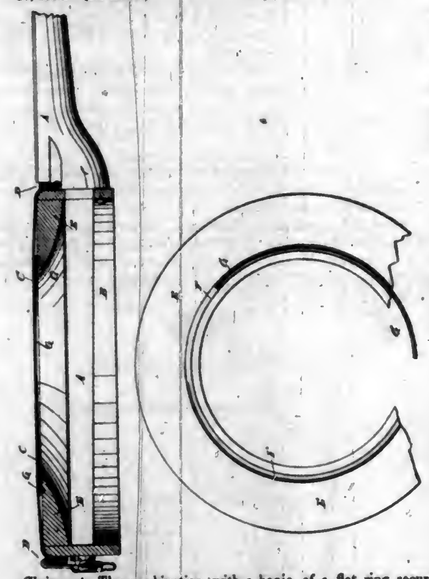
3. The combination, with a revolving shaft carrying means for cutting a can-top, of the fixed stepped blocks R, the movable step-block R',

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and the lever S, to which the block R' is pivoted, substantially as herein shown and described.

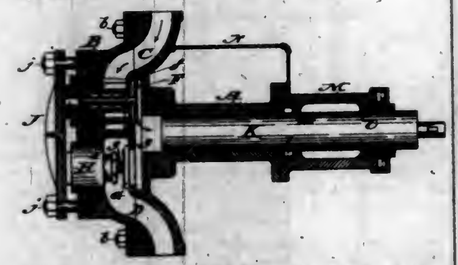
313,352. BANJO. WILLIAM B. LOMAS, Brooklyn, N. Y. Filed June 17, 1884. (No model.)



Claim.—1. The combination, with a banjo, of a flat ring secured within the top of its circular frame, a circular wire on the said flat ring, the said circular wire being placed under the head of the banjo, and about one-sixth of the diameter of the said head from the clamped edge of the head, substantially as herein shown and described.

2. A banjo having a flat ring secured in the top of its circular frame, which ring has a circular groove in its top, and in which groove a circular wire is placed to project from the upper surface of the ring, substantially as herein shown and described.

313,353. PUMP. JAMES C. MACK, St. Louis, Mo. Filed Dec. 24, 1883. (No model.)



Claim.—1. The combination, substantially as described, of the valve-stem holder H, having the grooves *h h h* and the series of balls *h'*, with the valve-stem *f*, said grooves and said stem being parallel with each other, and each groove having its own series of balls, as described.

2. The combination, substantially as described, of the cylinder A, the head B, together forming the passages C D, the plugs H H', the valves F G, and the cross-bar J, as described.

3. The plug H, having a chamber provided with balls, in combination with the valve F, having the stem *f*, said chamber and said series of balls being extended in the direction of the length of the valve-stem, as and for the purpose described.

313,354. WHEEL-HARROW. BENJAMIN MALTBY, Cleveland, Ohio. Filed Aug. 2, 1884. (No model.)

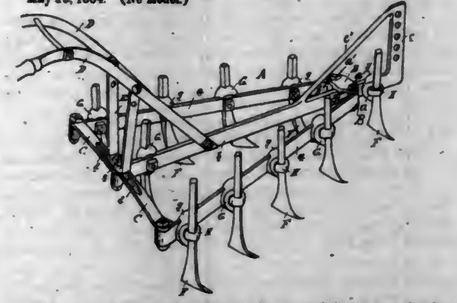


Claim.—1. In a wheel-harrow, supporting-bars from which the tooth-beams are supported and arranged in front and rear diagonally with the wheel-axle, and jointed in the center, as shown, in combination with draft-rods forming independent connections between each supporting-beam and the wheel-frame, substantially as set forth.

2. In a wheel-harrow, the combination, with a series of supporting-bars and one or more tooth-bars yieldingly secured to each supporting-bar, of draft-rods forming independent connections between each supporting-beam and the wheel-frame, substantially as set forth.

3. In a harrow, the combination, with a series of beams, each provided with teeth twisted or bent in the same direction, and a series of supporting-bars, of flat springs, each of which is secured at one end to a tooth-beam and at its opposite end to one of the bars, and draft-rods forming independent connections between each supporting-beam and the draft-frame, substantially as set forth.

313,355. CULTIVATOR. WILLIAM G. MARTIN, Ypsilanti, Mich. Filed May 15, 1884. (No model.)

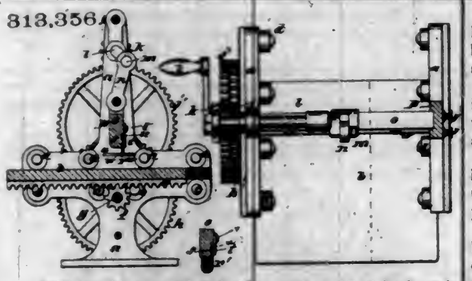


Claim.—A cultivator consisting of the central bar, *b*, terminating at one end in a clevis-head, *c*, provided with the brace *c'*, the side bars, *a*, provided with a loop at each end, the heads B and the bolts *a'*, securing the bars *a* and *b* together between the clevis-head and the junction of the brace with the bar *b*, the handles D, slotted spreader-bars C, U-shaped riser E, the bolt *e* securing said bars *b* and C and riser E together, and the teeth F, secured to said bars *a* and *b*, one of said teeth being between the clevis-head and the heads B, all the parts being combined, arranged, and operating substantially as described.

313,356. MEAT-CHOPPER. WILLIAM McC. MATHEWS, Gatesville, Tex. Filed May 21, 1884. (No model.)

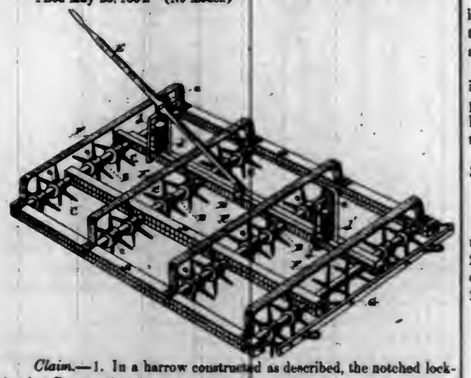
Claim.—1. The combination of the frame having horizontal slots *x*, a shaft having interchangeable cutting and tendering blades, devices for operating the sash, and wires or rods *w*, adjustable in said slots to accommodate either blade, as set forth.

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2. The combination of shaft i' with spur-wheels *j j'*, pinion *k*, crank-shaft *l*, pitman *n*, sash *o*, removable blade *r*, shaft *g*, carrying spur-wheel *h* and pinions *f*, and meat board or table *b*, with racks *s*, substantially as and for the purpose set forth.

313,357. HARROW. CHRISTOPHER W. MCKELVEY, Los Angeles, Cal. Filed May 23, 1884. (No model.)



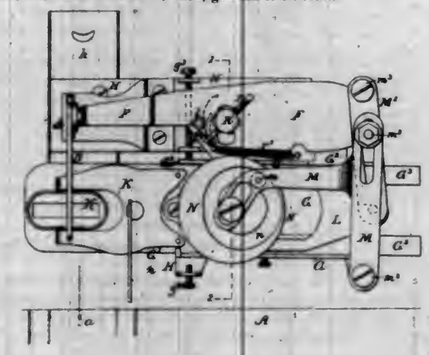
Claim.—1. In a harrow constructed as described, the notched locking-bar D, engaging the rocker-shafts, in combination with the guides *d*, in which the bar is fitted, the springs for holding down said bar, and the lever for raising and lowering said bar, substantially as herein set forth.

2. In a harrow, the frame-bars A, rocker-shafts B, the teeth C, secured in hubs on the rocker-shafts, a locking-bar having a vertical movement in guides *d*, springs for holding the bars down, a lever for operating said bars, and shield-plates secured to the frame, and extending over each rocker-shaft, all constructed to operate as and for the purpose herein set forth.

3. In a harrow, the frame-bars A, rocker-shafts B, journaled therein, and the teeth C on shafts, in combination with the notched locking-bar D, engaging with the rocker-shafts, the vertical guides *d*, in which said bar is fitted, the springs *d'* for holding down said bar to its engagement, and the pivoted lever E for raising it, substantially as herein described.

313,358. BUTTON-HOLE SEWING-MACHINE. DANIEL MILLS, Philadelphia, Pa., assignor to the United States Automatic Buttonhole Sewing Machine Company, of New Jersey. Filed Aug. 6, 1883. (Model.)

Brief.—Improvement upon the construction shown in Reissued Patent No. 9,962, dated December 6, 1881, and Patent No. 249,411 dated November 8, 1881, both granted to F. Simmons, and Patent No 266,044, dated October 17, 1882, granted to D. Mills.



Claim.—1. The combination of the vibrator and slide of a button-hole-sewing mechanism and cloth-clamp carried thereby with a cam, N, levers M M', and rod L, connecting the lever M' with the slide, substantially as set forth.

2. The combination of the vibrator and slide of a button-hole-sewing mechanism and cloth-clamp with spring-arms E E', carried by the vibrator, and a cam adapted to act on said arms alternately, substantially as described.

3. The combination of the base of a button-hole-sewing mechanism, a slide carrying a cloth-clamp, and a plate or vibrator, G, pivoted to the base, with a rotary stop-cam, spring-arms E E', carried by the plate G, and a cam adapted to act alternately on said arms.

4. The combination of the base-plate and rotating stop-cam of a button-hole-sewing mechanism with vibrator and slide and cloth-clamp carried thereby, the said vibrator having a projection, *s'*, and an adjustable pivoted lever, s^2, substantially as specified.

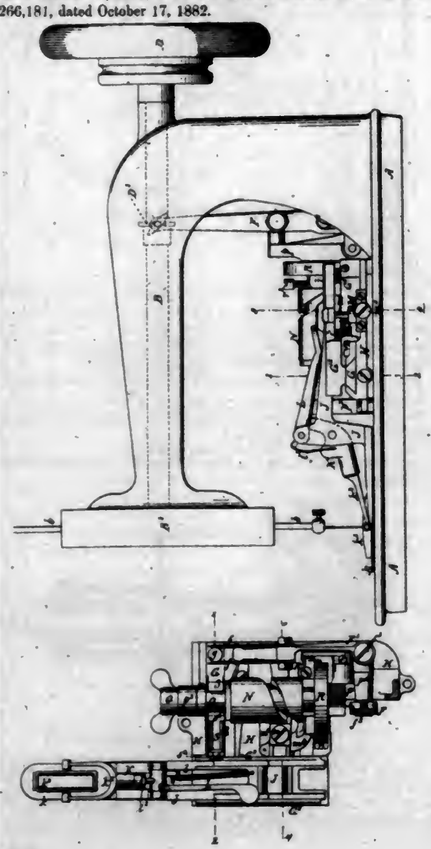
5. The combination of the vibrator and slide of a button-hole-sewing mechanism and cloth-clamp carried thereby with spring-arms E E', carried by said vibrator, a triangular cam, P, to act on said arms, and devices, substantially as set forth, for imparting an intermittent rotary motion to the cam.

6. The combination of the vibrator and slide of a button-hole-sewing mechanism and cloth-clamp carried thereby with arms E E', pivoted to the vibrator, a connecting-spring, *e*, and a cam to act on said arms alternately, substantially as set forth.

7. The combination of the vibrator and slide of a button-hole-sewing mechanism and cloth-clamp carried thereby, the said vibrator having projections *s s'*, with a rotary disk and sleeve, N', carrying a cam, T, having a limited motion thereon under the pull of a spring, s^2, substantially as described.

313,359. BUTTON-HOLE-SEWING MECHANISM. DANL. MILLS, Philadelphia, Pa. Filed Mar. 5, 1883. Renewed Nov. 3, 1883. Again renewed June 17, 1884. (Model.)

Brief.—Improvement on constructions shown in patents of F. Simmons, to wit: Reissue No. 9,962, dated December 6, 1881, and No. 249,411, dated November 8, 1881, and patents to D. Mills, No. 265,850, dated October 10, 1882, No. 266,044, dated October 17, 1882, and No. 266,181, dated October 17, 1882.



Claim.—1. In a button-hole-sewing mechanism, the combination of a base-plate and primary slide carrying a cloth-clamp with a movable stop-cam and projections mounted on said slide, one or both of said projections having an adjustable face or faces, as and for the purpose set forth.

2. The combination of the base-plate of a button-hole-sewing mechanism, and a primary slide having lugs g' g^2, with independent set-screws g^3 g^4.

3. The combination of a feed wheel and arm, R', with a two-armed rock-shaft, Q, and a vibrating lever, F, carrying cams acting on one of the arms of said shaft.

4. The combination of a cam-shaft, feed-wheel, and an arm, R', having a stop-pin, with a lever, M, and adjustable pivot-block therefor, carrying a wedge-piece on which said pin may rest, substantially as and for the purpose set forth.

5. The combination of a cam-shaft with a slide carrying a cloth-clamp, a slotted lever, M, and an adjustable pivot-block carrying an index-finger, m^5, substantially as specified.

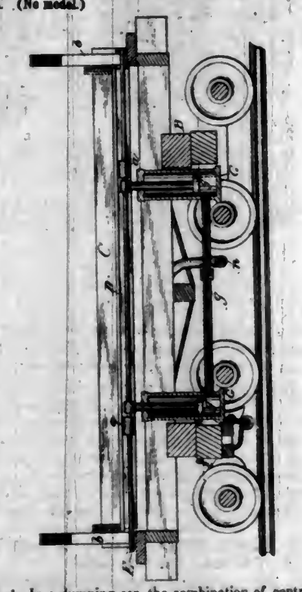
313,360. WATCH-CASE. DANIEL O'HARA, Waltham, Mass. Filed June 7, 1884. (No model.)



Claim.—1. In a watch-case, a movement band or ring, A, and a central shell, B, constituting one piece, left open at one side, and the ring A, made with risers K L, through which to attach other parts of the case, substantially as described, for the purpose specified.

2. In a watch-case, a movement band or ring, A, and a central shell, B, constituting one piece, left open at one side, closed by a separate plate, M, and the ring A, made with risers K L, through which to attach other parts of the case, substantially as described, for the purpose specified.

313,361. DUMPING-CAR. ARTHUR O'HARA, Hawley, Pa. Filed Dec. 15, 1884. (No model.)



Claim.—1. In a dumping-car, the combination of centrally-hinged platform-sections, a steam-pipe extending beneath the car, one or more steam-cylinders having pistons connected to the hinged sections, so as to operate them positively in both directions, and a controlling-valve having inlet and exhaust ports, whereby steam may be admitted to the cylinders to raise the platform, or exhausted therefrom to lower it, substantially as described.

2. The combination, with the platform-sections hinged upon a central longitudinal rod, of steam cylinders and pistons beneath the car, such pistons being connected to the said rod, substantially as described.

3. The combination, with the platform-sections hinged upon a longitudinal rod having a vertical movement in guides *b*, of steam cylinders and pistons connected to such rod, substantially as described.

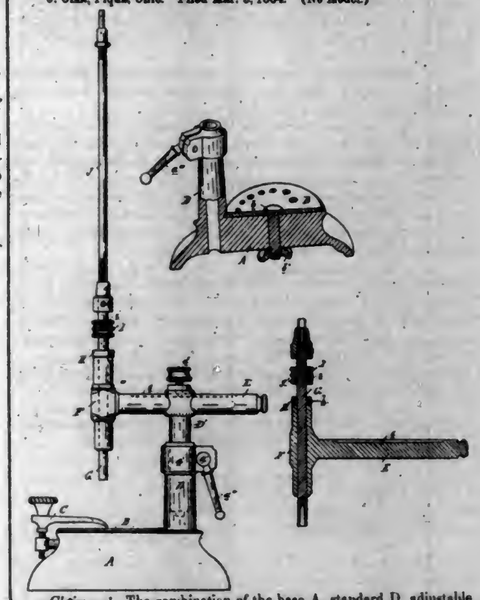
313,362. TAG ATTACHMENT FOR MAIL-BAGS. WM. P. O'HARA, Cincinnati, Ohio. Filed Jan. 5, 1885. (No model.)



Claim.—1. The combination of looped cord A and doubly-perforated button B with the tag C, having the oval orifice *c*, whose major axis is lengthwise of the tag, substantially as and for the purpose designated.

2. As a new article of manufacture, the oblong retainer or button B, having the two holes *b b* and the recurved lip or protector *b'*, as and for the purpose set forth.

313,363. ADJUSTABLE STAKING AND JEWELING TOOL. CHAS. J. OLIN, Piqua, Ohio. Filed Mar. 5, 1884. (No model.)



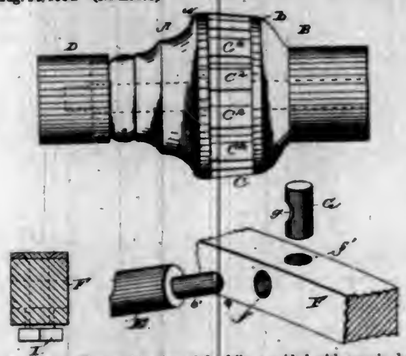
Claim.—1. The combination of the base A, standard D, adjustable standard D', and spindle G, supported on a bearing carried by said standard D, with the plate B centrally journaled to the said base A, and provided with a series of gradated openings, the said plate being free to turn around its journal to bring the proper opening in conjunction with the spindle G, substantially as and for the purpose specified.

2. As a means for supporting the standard carrying the spindle and firmly holding the same in place, the base A, provided with the extension D, made integral therewith and projecting above the same, said extension having a vertical opening therein and slotted at the side, and the clamp *a* on its upper end constructed to contract said slot and thus clamp the standard, substantially as described.

3. In a combined staking, drilling, milling, jeweling, and uprighting tool, the adjustable base-plate secured to the base, the clamps for securing the work thereto, a hollow spring-standard provided with a clamp, a vertically-adjustable standard rotating upon its own axis within said hollow standard, an arm with a reciprocating adjustment in the top of said standard, such adjustment being controlled by a set-screw and slot, a hollow guide, F, and spindle G, and connecting-rod J, the parts being constructed and operating substantially as and for the purpose described.

4. In a staking, jeweling, and drilling implement constructed substantially as described, a spindle having a rotary motion in a vertical guide and a vertical adjustment in said guide, and provided with suitable means for holding drills, jeweling-tools, &c., while it may also be made to incline, while it has, also, like adjustment, in combination with the flexible connecting-rod adjustably secured thereto by means of a collar and screw, substantially as and for the purpose set forth.

313,364. CARRIAGE-WHEEL. FREDERICK ORAM, Ilion, N. Y. Filed Aug. 14, 1884. (No model.)



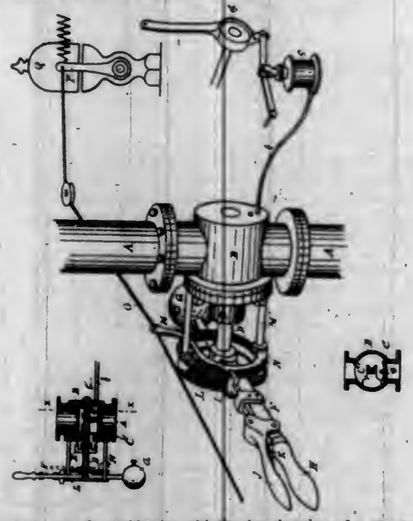
Claim.—1. The combination of the felly provided with a spoke hole or mortise and with an opening formed at the head of and transverse the said mortise, a pin inserted in said transverse opening and formed with a notch or recess, and the spoke provided with tenon inserted in the spoke-hole and bearing directly in the notch or recess in the transverse pin, substantially as set forth.

2. A wheel-felly provided with radial spoke-mortises and having bearing-pin inserted in them at the head of and transverse to said mortises and across the felly, substantially as set forth.

3. The combination of the hub-body provided with a bearing or shank, the spoke-ring placed on said bearing and provided with mortise fitted to receive the base of the spokes, the spokes having their base end fitted to said ring, the hub cap-piece, the felly provided with a spoke hole or mortise and having an opening formed at the head of and transverse the said mortise and across the felly, pins inserted in said transverse openings through the felly and adapted to serve as bearings for the outer end of the spokes, substantially as set forth.

4. A vehicle-wheel consisting of a hub having the threaded end B and the spoke-ring C C' C², the hood or cap D, covering the end of the hub and provided with the threaded opening *d*, the spokes formed to fit in the ring C C' C² and tenoned at their outer ends, and the felly having radial openings for the tenoned ends of the spokes and transverse opening cut across the felly, and pins provided with holes for reception of the tenoned ends of the spokes placed in said transverse openings, all substantially as and for the purpose set forth.

313,365. DEVICE FOR THROTTLING STEAM-ENGINES. GEORGE PARKER, Bay City, Mich. Filed July 23, 1884. (No model.)



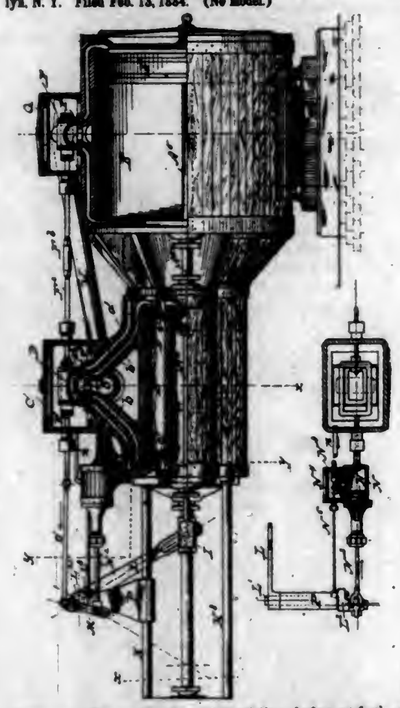
Claim.—1. In combination with the throttle-valve of a steam-engine the valve-stem of which is provided with a counter-balance and detent, a retaining-point for the same connected to and carried by the valve-case, and an oscillating lever, as N, also connected to and carried by the valve-case, and constructed and arranged to disengage the detent from the retaining-point, as and for the purposes specified.

2. In a throttle-valve the case of which has pipes, as A, branching therefrom, and provided with a supplementary port, as *a*, the combination of a brake-cylinder connected with said valve-case, with the valve-stem D, valve C, and gate C', attached thereto, substantially as shown and described, to open a passage-way through the pipes A and simultaneously close the port *a*, as and for the purposes specified.

3. The combination of the case B, throttle-valve C, and stem D with the lever F, carrying the weight G, the latch I, disk L, cam-lever N, and connection O, the parts being constructed, arranged, and operating substantially as and for the purposes described.

4. The combination of the case B, throttle-valve C, and stem D with the lever F, carrying the weight G, the latch I, disk L, cam-lever N, connection O, port *a*, pipe *b*, and brake-cylinder *c*, the parts being constructed, arranged, and operating substantially as and for the purposes specified.

313,366. COMPOUND STEAM-ENGINE. H. LANSING PERRINE, Brooklyn, N. Y. Filed Feb. 13, 1884. (No model.)

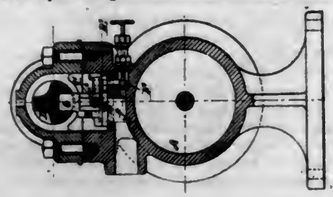


Claim.—1. The combination, substantially as before set forth, of two initial steam-cylinders, an expansion steam-cylinder, the piston-rods of said three cylinders coupled to a single cross-head, and a second expansion steam-cylinder, the piston of which is secured to two rods projecting, respectively, from the pistons of the two initial steam-cylinders.

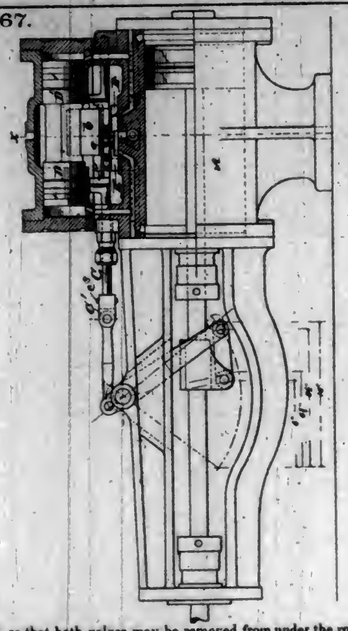
2. In a compound steam-engine, the combination, substantially as before set forth, of two initial steam-cylinders, an expansion steam-cylinder between them, a single valve for controlling the ports of said three steam-cylinders, a second expansion steam-cylinder at one end of the said other three steam-cylinders, and a valve coupled to the first-mentioned valve for controlling the ports of the second expansion-cylinder.

313,367. STEAM-ACTUATED VALVE. H. LANSING PERRINE, New York, N. Y. Filed June 7, 1884. (No model.)

Claim.—The combination, substantially as before set forth, of the main slide-valve, the controlling-valve, and a single valve-rod engaging both valves, the parts being constructed and connected, substantially as



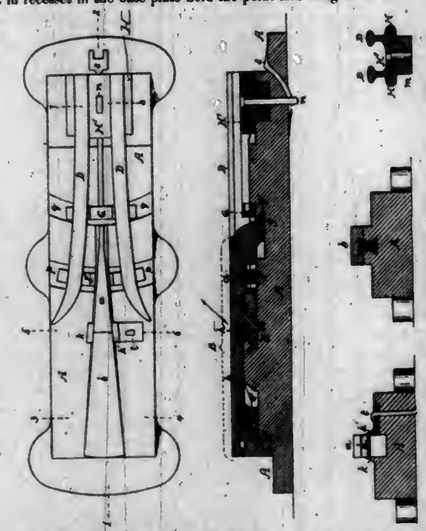
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described, so that both valves may be removed from under the rod without sliding them either longitudinally or transversely.

313,368. RAILWAY-FROG. ISAAC A. PERRY, Wilmington, Del. Filed July 7, 1884. (No model.)

Brief.—The point is made in two parts fitting into recesses in the base-plate, and held therein by a transverse key retained by a projection on the base-plate and a detachable plate secured thereto. Clamp-bars set in recesses in the base-plate hold the point and wing-rails.



Claim.—1. The combination of the base with the point made of two parts, *a* and *b*, having projections adapted to undercut recesses in the base, and with a transverse key, *k*, adapted to recesses in the two parts of the point, as set forth.

2. The combination of the base, the two parts *a* and *b* of the point, the transverse key *k*, retaining projection *k*, and detachable plate *k'*, as set forth.

3. The combination of the wing-rails with the transverse clamp-bars F, G, and H, as set forth.

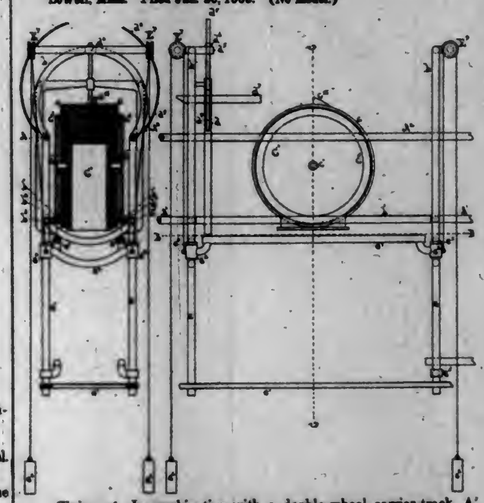
4. The combination of the base having a recess, *m'*, the wing-rails D, and the clamp-bar H, having a projection, *m*, adapted to the recess, and a central confining-bolt, *n*, as set forth.

5. The combination of the point B, having a recess, *w*, with the wing-rail structure having a bar, F, adapted to said recess, as set forth.

313,369. SOLUTION OF ACID PHOSPHATES. CARL V. PETRASH, Camden, N. J., assignor to the United States Chemical Company, same place. Filed June 27, 1884. (No specimens.)

Claim.—As an improved solution of acid phosphates, the combination of phosphate of soda and phosphoric acid, consisting of dihydrogen, sodic phosphate, phosphoric acid, and water, in about the proportions herein stated.

313,370. APPARATUS FOR CASH-CARRIERS. DAVID HALL RICE, Lowell, Mass. Filed Jan. 30, 1885. (No model.)



Claim.—1. In combination with a double-wheel carrier-track, A' A', two track-sections, *b' b'*, suspended upon pivots b^3 b^3, placed parallel to the track, and adapted to be revolved thereon to remove or replace the carrier upon the track, substantially as described.

2. In combination with the double-wheel carrier-track A' A', the two track-sections *b' b'*, suspended upon pivots b^3 b^3, placed parallel to the track and with relation to the carrier-wheels, to permit the weight of the carrier to withdraw said rail-sections from beneath it, substantially as described.

3. The combination of the track A' A', the rail-sections *b' b'*, pivoted therein, the supplemental rising and falling transferring-rails e^3 e^3, and the track A^4 A^4, substantially as described.

4. In a cash-carrier, the combination, with the wheel c^3, of the body provided with an annular projecting flange, *c*, overlapping and protecting the flange of the wheel all around the same, substantially as described.

5. The combination, with the track A' A', of the track-sections *b' b'*, pivoted longitudinally therein, the bent pivoted levers *d d*, supporting said track-sections at one end and projecting toward each other at the other, and the key-block d^3, fitting between said adjacent ends, substantially as described.

6. In combination with the track A' A', the rail-sections *b' b'*, pivoted therein parallel to said track, movable bars or shelves d^7 d^7, placed thereunder, the bar d^7, placed within the carrier-path and in position to be struck and moved by the carrier, and intervening mechanism connecting said bar to said shelves, whereby its movement will release the latter from beneath said rail-sections and permit them to revolve out of or into line with the track, substantially as described.

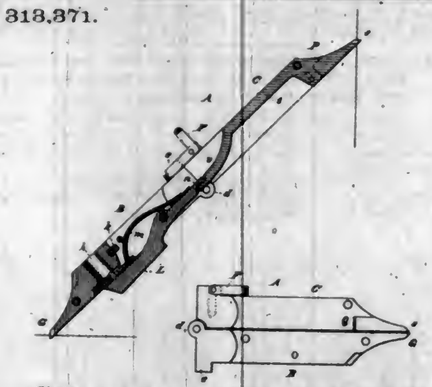
7. The combination of the track A' A', the track A^4 A^4, the transferring-rails *e e*, registering with the latter, and the yielding sections *b' b'*, acting as spring-pressure guides to transfer the carrier from track A' A' to track and rails e^3 e^3, substantially as described.

8. The combination of the track A' A', the rail-sections *b' b'*, pivoted parallel thereto, their supporting pivoted levers *d d*, and the spring d^8, said levers having cam-shaped faces bearing against said sections, whereby the same are returned to a position in line with said track, substantially as described.

9. The combination of the track A' A' and the yielding sections or rails *b' b'*, acting upon the sides of the carrier as spring-pressure guides or checks as it drops from the tracks A' A' and passes downward between them, substantially as described.

313,371. ALARM DOOR-FASTENING. MARION M. ROBERTS, Norris City, Ill. Filed July 30, 1884. (Model.)

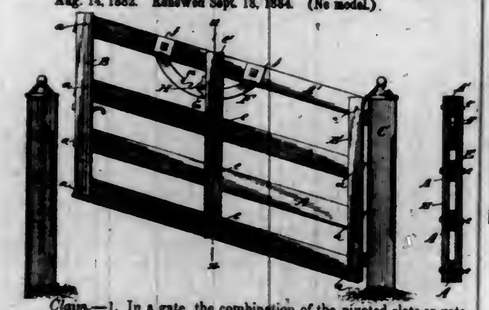
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Claim.—1. An alarm door-fastener having at one end a point and cartridge-chamber and a spring-hammer, and at the other a trigger-lever having a point extending outwardly and a tail extending inwardly and engaging the tail of the hammer, substantially as specified.

2. A sectional alarm-brace hinged at its middle portion and provided with end points, a cartridge-chamber, a hammer and spring, a loop or center catch, and a trigger-lever terminating at one end in a point, and at the other in a tail to engage that of the hammer, substantially as specified.

313,372. FARM-GATE. ELISHA S. ROBISON, Fremont, Ind. Filed Aug. 14, 1882. Renewed Sept. 18, 1884. (No model.)

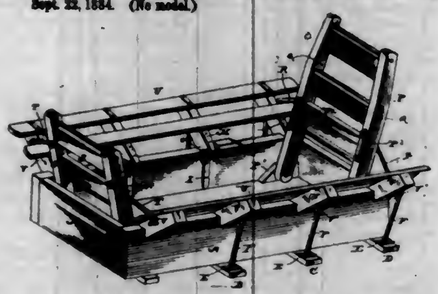


Claim.—1. In a gate, the combination of the pivoted slats or gate-bars A' A, notched half-circle F, end bars, B B', middle bars, E E, and bolt H, substantially as and for the purpose herein shown and set forth.

2. In a gate, the combination of the pivoted slats or gate-bars A' A, notched half-circle F, end bars, B B', middle bars, E E, having keepers G, and bolt H, sliding in said keepers and adapted to engage the notched half-circle F, substantially as and for the purpose herein shown and specified.

3. The half-circle F, having forked ends *f f* and notches *n*, in combination with the gate-panel composed of the pivoted slats A' A, end bars, B B', middle bars, E E, and the removable bolt H, substantially as and for the purpose herein shown and described.

313,373. STOCK-RACK. MURRAY L. ROBINSON, Adrian, Mich. Filed Sept. 22, 1884. (No model.)



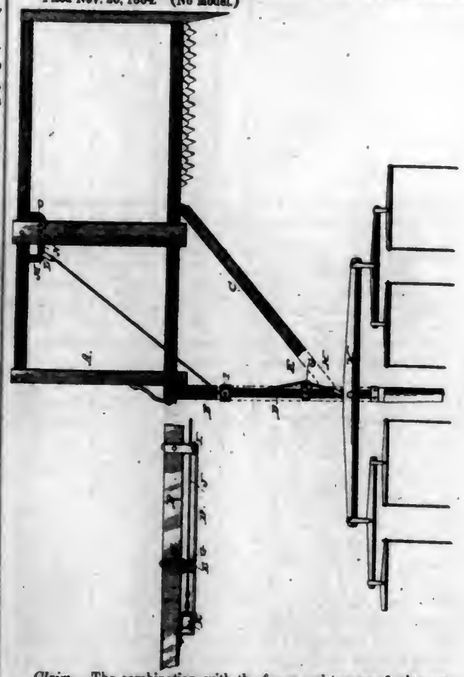
Claim.—1. The combination, with the wagon-box having side straps with eyes at their upper ends, of the longer hinged ladder at the front of said box, provided with longer hook-rods and shorter hook-rods, and the shorter hinged ladder at the rear of said box, provided also with longer hook-rods and shorter hook-rods, and the side racks provided with the strap-hooks engaging the eyes of the straps, and also provided with staples for the rods, substantially as specified.

2. The combination, with the wagon-box provided with the side stakes, I, and the projecting bottom strips, of the ladders at the front and rear ends of the box, the side racks, U, having their connecting-cleats or cross-bars V notched at the inner end to fit snugly over the box and provided with strap-hooks M, turning in the eyes of the stakes I, and the swinging brace-rods F, having their lower ends stepped in the projecting ends of the said bottom strips, as set forth.

3. The combination, with the wagon-body, of the end ladders, P S, both hinged within the body so as to be capable of folding down, and the side ladders journaled to the sides of the body, and means, substantially as described, for detachably connecting both end ladders to the side ladders to cause the latter to rest in an inclined position, forming the hay-rack, or in a vertical position to form the stock-rack, as set forth.

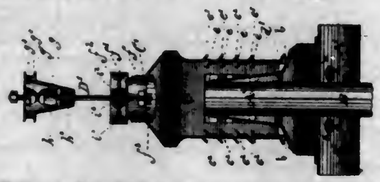
4. The combination, with the wagon-body, of the end ladders, both hinged within the body at the ends thereof, and the side ladders journaled to the sides of the body, and short and long hooked rods provided on the end ladders, whereby the long rods serve to hold the side racks in an inclined position and the short rods to support the same in a vertical line, as and for the purpose set forth.

313,374. DRAFT-EQUALIZER. GEORGE C. ROTH, Big Springs, Kans. Filed Nov. 20, 1884. (No model.)



Claim.—The combination, with the frame and tongue of a harvesting-machine, of the oblique brace secured to the tongue and to the frame, the laterally-projecting perforated bars, the sheave journaled adjustably between the said bars, the sheave journaled upon the tongue to the rear of the former sheave, the perforated transverse bar at the rear portion of the machine-frame, and the rope or chain having the double-tree at one end and the clip and bolt at the other end and passing over opposite sides of the pulleys, as and for the purpose shown and set forth.

313,375. CHIMNEY CAP AND VENTILATOR. KONRAD RUETSCHI, Battle Creek, Iowa. Filed Apr. 12, 1884. (No model.)

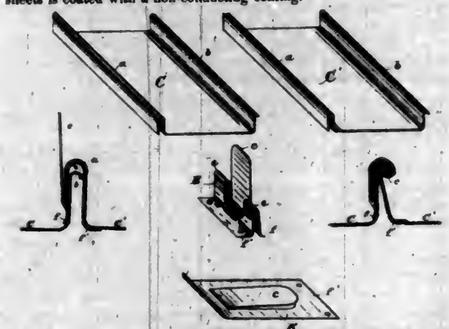


Claim.—1. The combination of a square base, A, having a tapering upper portion, A^2, a central smoke-pipe, B, an exterior cap, C, supported by brackets at some distance from the base A, said cap having an inclined flange at its lower edge, and side slots with inclined exterior and interior flanges, substantially as set forth.

2. In a chimney cap and ventilator, the combination of the smoke-pipe B, the cap C, surrounding the smoke-pipe, and having openings for the admission of air, and the fixed spindle D', supported by said cap, with the ventilator D, composed of curved serpentine blades adapted to revolve on a vertical axis, substantially as set forth.

313,376. METAL ROOF. L. LEWIS SAGENDORPH, Cincinnati, Ohio, assignor of one-half to Harlan P. Lloyd, same place. Filed Aug. 18, 1884. (No model.)

Brief.—Consists of metallic sheets having their adjacent edges provided with full and half standing V-crimps held together and to the rafters by cleats having a standing tongue and bent in contact with the inner leg of the full standing V-crimp over, under, and around the unchanged half standing V-crimp to form a hook-joint. The under surface of the sheets is coated with a non-conducting coating.

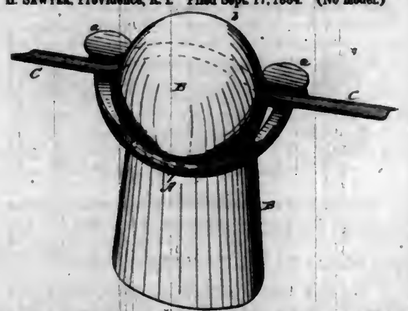


Claim.—1. A metallic roofing-sheet with a plain or corrugated surface, provided at one edge with full standing V-crimp and at the other edge with a half standing V-crimp of same height, and with under surface coated with a non-conducting material, substantially as and for the purpose set forth.

2. The combination of roofing-sheets C C', crimped at one edge with a full standing V-crimp and at the other edge with a half standing V-crimp, and with under sides coated as described, with cleats E, adapted to lock and hold the sheets together in a standing seam, substantially as and for the purpose specified.

3. A metallic roof consisting of metallic sheets C C', provided at adjacent edges with full and half standing V-crimps, as described, with or without coating on the under sides, held in contact with each other and to the rafters by cleats E, having standing tongues *c* and adapted to be fastened to the rafters as described, and further adapted to be bent in contact with the inner leg of the full standing V-crimp over, under, and around the unchanged half standing V-crimp for the purpose of forming a hook-joint to hold the sheets together, the whole arranged and combined substantially as described.

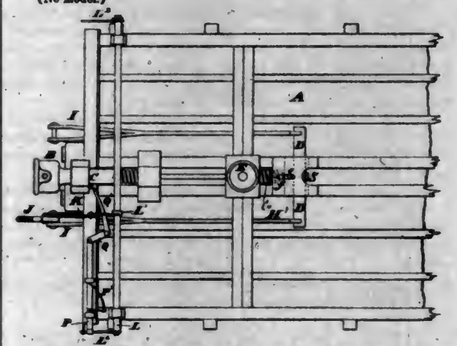
313,377. CLAMP FOR BINDING WIRES TO INSULATORS. WM. H. SAWYER, Providence, R. I. Filed Sept. 17, 1884. (No model.)



Claim.—1. The arched elastic clamp having its tips provided with wire seats, and separated by a slightly less distance than are the portions of its opposite limbs immediately adjacent to said tips, whereby said clamp may be sprung upon a suitable insulator, and will maintain its hold upon the same, essentially as set forth.

2. The combination, with the insulator and conductor, of the stiff spring arched clamp having its tips provided with wire seats and separated by a slightly less distance than are the portions of its respective limbs immediately adjacent to said tips, the said clamp being sprung upon and embracing somewhat more than one half the circumference of the insulator, while the conductor embraces the remaining portion and lies behind and against the wire seats of the clamp, substantially as shown and described.

313,378. CAR-COUPLING. JEREMIAH F. SCOTT, Jefferson City, Mo., assignor of three-fourths to John N. Humphrey and Phillip W. Lorenz, both of same place, and James McGuire, Fulton, Mo. Filed Aug. 4, 1884. (No model.)



Claim.—1. The combination of the two draw-rods, an equalizer-bar having trunnions, and to which the draw-rods are connected, the plates having slots in which the trunnions play, the king-bolt block, and a spring located between the equalizer-bar and the king-bolt block, as set forth.

2. The combination of a draw-head, two draw-rods, equalizer-bar, king-bolt block, spring between the equalizer-bar and the king-bolt block, and a rod extending through the equalizer-bar, the spring, and the king-bolt block to the draw-head, as set forth.

3. The combination of a draw-head, two draw-rods, equalizer-bar having trunnions, slotted trunnion-plates, block, king-bolt, spring between equalizer-bar and block, and a rod extending from the draw-head through the block, spring, and equalizer-bar, as set forth.

4. The combination of a coupling-hook supported on a horizontal pintle, downwardly-extending arm thereon, connected to the arm of a rock-shaft extending transversely beneath the end of the car-body, and a stud upon the car-body, arresting the backward movement of the arm of the rock-shaft, and consequently the downward movement of the coupling-hook, substantially as and for the purpose set forth.

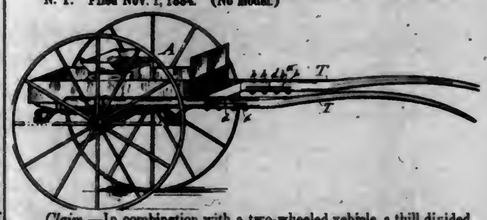
5. The combination, in a car-coupling, of a coupling-hook with an arm depending therefrom, and an oscillatory arm connected by a rod with the arm of the coupling-hook, and a stud upon the car-body, arranged to arrest the backward movement of the oscillatory arm and sustain the coupling-hook in coupling position.

6. The combination of a coupling-hook having an arm depending therefrom, a rock-shaft having two arms, a rod connecting a rock-shaft arm with the hook-arm, and a spring-bolt engaging beneath the other arm of the rock-shaft, to sustain the hook.

7. The combination, in a car-coupling, of a coupling-hook with an arm depending therefrom, a rock-shaft with an arm connected with the former arm, a spring-catch engaging an arm upon the rock-shaft, a lever connected with the spring-catch, and a spring-bumper or draw-head having a projection or shoulder engaging the lever, to withdraw the spring-catch and allow the coupling hook to descend, substantially as and for the purpose set forth.

8. The combination of a coupling-hook having an arm depending therefrom, a rock-shaft having arms, a rod connecting an arm of the rock-shaft with the arm of the hook, a lever fulcrumed to the car-body, and a rod connecting the other arm of the rock-shaft with the lever.

313,379. TWO-WHEELED VEHICLE. DENNIS P. SHARP, Ithaca, N. Y. Filed Nov. 1, 1884. (No model.)



Claim.—In combination with a two-wheeled vehicle, a thill divided transversely at a point between the attachment of the thill to the vehicle and the support of its free end, horizontal longitudinal slits in the adjacent ends of the thill-sections, a spring-plate inserted in said slits, and fastenings for holding said plate in place and tying the same to the thill, substantially as described and shown, for the purpose set forth.

313,380. ELECTRICAL CONDUCTOR. SIDNEY F. SHELBOURNE, New York, N. Y. Filed Mar. 24, 1884. (No model.)

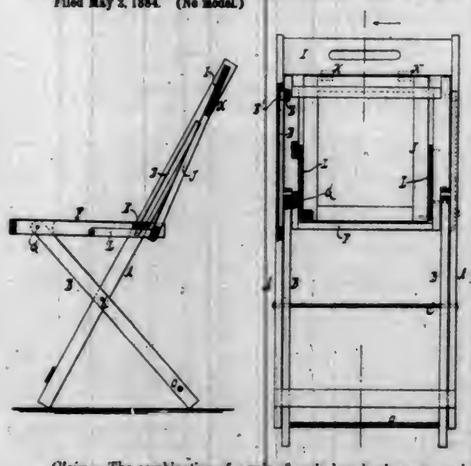


Claim.—1. A flexible electric conductor composed of the following elements: a copper core of several small wires forming a rope conductor, an insulation about the same formed of multiple windings in bulk, of jute or other fiber saturated with a melted insulating material, a braiding of fiber inclosing such insulation, and a jacket or tubing of lead inclosing and protecting the whole, substantially as described.

2. An insulation for electric conductors built up around such conductors with multiple windings of fiber, in combination with a saturation of solidifying insulating material and a braiding surrounding and inclosing the same, as set forth.

3. As a new article of manufacture, an electric conductor consisting of a rope-wire core, a multiple fiber winding in bulk with saturation of melted insulating material about said core, and a braiding inclosing such insulation, with a jacket or outer shield of lead, as and for the purpose set forth.

313,381. FOLDING CHAIR. LEVI K. SHEDDEN, Mount Vernon, N. Y. Filed May 2, 1884. (No model.)
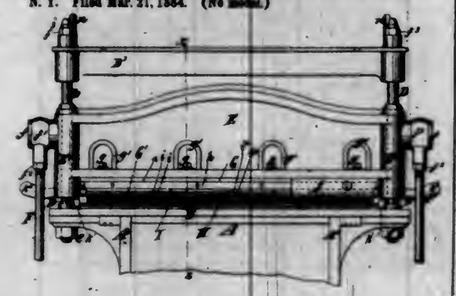


Claim.—The combination of a pair of main legs having grooves in their upper portions, a pair of secondary legs pivoted to the main legs, a seat-frame pivoted to the secondary legs and having pins engaging the grooves of the main legs, a back pivoted between the main legs, and pivoted links connecting the lower end of the back with the set-frame, substantially as described.

313,382. DENTAL TOOL-RACK AND CASE. ALBERT A. STILLMAN, Syracuse, N. Y. Filed June 26, 1884. (No model.)



Claim.—The combination of the tube C C', provided with a partition and with a slot, *l*, the cap *n*, removably applied to one end of the tube, the cap *g*, removably applied to the opposite end of the tube and provided with the aperture *d*, and the spool *m* and rod *f*, respectively, in opposite ends of the tube, all constructed and combined substantially in the manner set forth and shown.

313,383. PERFORATING-MACHINE. EDWIN B. STIMPSON, Brooklyn, N. Y. Filed Mar. 21, 1884. (No model.)



Claim.—1. In a punch-holder, the combination, with a bar or body having a rabbet in its side, of a plate secured to the under side of the bar or body, and receiving headed punches through it, and packing-pieces fitted to said rabbet and serving to prevent upward movement of the punches, substantially as herein described.

2. The combination, with the headed punches H, of the punch-holder consisting of the plate G' and the bar or body G, to the under side of which the said plate is secured, and in the point of which is a rabbet, , of such depth that the punches may be withdrawn entirely from the plate G' by an upward movement, and packing-pieces fitted to said rabbet and serving to prevent the rising of the punches, substantially as herein described.

3. The combination, with the punch-holder composed of the bar or body G, having a rabbet, °, in the front, and the plate G', secured to the bottom of said bar or body, of the punches H, a continuous packing-strip fitted to the rabbet, and a packing strip or strips fitted between said continuous strip and said plate, and composed of separately-removable sections, substantially as herein described.

4. The combination, with a punch-holder composed of the bar or body G, rabbeted at the front, and the plate G', secured thereto, of the punches H, a continuous packing-piece fitted in said rabbet, and a packing piece or pieces, *i*, fitted between said continuous piece and the said plate, and composed of separately-removable sections of different lengths, substantially as herein described.

5. The combination, with the punch-holder composed of the bar or body G and the plate G', of the bunches H, of different lengths, a packing-piece, *h*, provided in its edge with recesses or depressions *h'*, opposite the longer punches, and a packing piece or pieces removably fitted between said piece *h* and the punches, substantially as herein described.

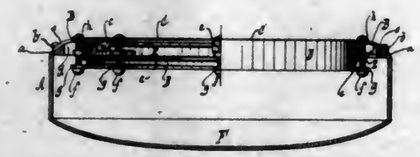
6. The combination, with a punch-holder and stripper capable of being removed together from the perforating-machine and inverted, of a support upon which said punch-holder may be secured when inverted, and supports for the inverted stripper capable of adjustment to bring the stripper to a position in which it will serve as a gage for sharpening the punches, substantially as herein described.

7. The combination, with the cross-head and vertical guides of a perforating-machine, of a cross-bar connecting said guides at their upper ends, a punch-holder and stripper capable of being together removed from the machine and inverted, the punch-holder being supported on said cross-bar, and the latter having supports for the stripper capable of vertical adjustment to bring the stripper into position to serve as a gage for sharpening the punches, substantially as herein described.

8. The combination, with the cross-head E, guides D, and cross-bar D', provided with studs or pins *n* and nuts *o*, of an invertible punch-holder, and invertible stripper and stripper-beam provided with eyes *k'*, removable together from said machine, substantially as herein described.

9. The combination, with a punch-holder provided with punches of different lengths, a packing-piece provided in its under side with recesses or depressions opposite the longer punches, and a stripper fitted to the punches, said punch-holder and stripper being together removable from the perforating-machine and capable of being inverted, of a support for the punch-holder when inverted, and supports for said stripper capable of adjustment to raise and lower the stripper relatively to the ends of the punches, substantially as herein described.

313,384. BANJO. GEORGE TEED, New York, N. Y. Filed Dec. 18, 1884. (No model.)



Claim.—1. The combination, with the rim A and parchment head C of a banjo or similar musical instrument, of an annular arched brace, B, secured to the rim, and provided with the openings *d* between the outer edge of the brace and the rim, substantially as and for the purpose described.

2. The combination, with the rim A and the parchment head C of a banjo or similar musical instrument, of an annular arched brace, B, having a series of ears, *c*, projecting from its outer edge and attached to the rim, substantially as and for the purpose described.

3. The combination, with the rim A and the parchment head C of a banjo or similar instrument, of an annular arched brace, B, having the ears *c* projecting from its outer edge and secured to the rim, and provided with the openings *d* between the outer edge of the brace and the rim, substantially as described.

4. In a banjo or similar musical instrument, the combination of the rim A, having the arched and thickened edge *a*, the annular arched brace B, having ears *c* secured to said edge, and the parchment head C, substantially as described.

5. The combination of the rim A, the parchment head C, the annular brace B, the drum D, having ears *g*, the ring E, sliding on the drum and provided with a flange or lugs, and the screws *f*, passing through the ears of the drum and the flange or lugs on the sliding ring, and also through the annular brace, substantially as described.

313,385. SHOE-CLASP. JUDSON L. THOMSON and JACOB J. UNDERHILL, Syracuse, N. Y.; said Underhill assignor to said Thomson. Filed Oct. 16, 1884. (No model.)



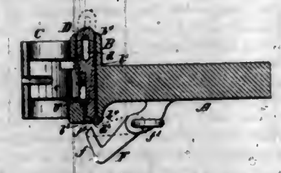
Claim.—1. The improved shoe-clasp having the tongue connected to its supporting-plate by a duplex pintle, one over the other, as set forth.

2. A spring-clasp comprising a base-plate carrying two pintles sustained yieldingly one over the other and normally apart from each other, and a tongue having an eye of angular or elongated form in cross-section embracing the two pintles.

3. In a spring-clasp, the combination of two plates lying one upon the other and united at one end, each at its free end carrying a pintle held normally apart one above the other, and a tongue having an eye of angular or elongated form in cross-section embracing the two pintles, as set forth and shown.

4. The combination of the base-plate provided with a pintle, the spring-plate attached to the base-plate and carrying a supplemental pintle over the pintle of the base-plate and normally apart from the same, and the tongue provided with an eye of angular or elongated form in cross-section and standing with its largest diameter nearly at right angles to the plane of the tongue, substantially as shown and set forth.

313,386. CAR-COUPLING. WILLIAM H. THURMOND, Forsyth, Ga. Filed Dec. 13, 1884. (No model.)



Claim.—1. In a car-coupler of the class described, the combination, with a vertically-movable coupling-bolt provided with a projecting shoulder at a point intermediate of its extremities, of a horizontally-movable coupling-jaw provided with a seat, d^4, in its shank, for the purpose specified.

2. In a car-coupler of the class described, the combination, with the draw-head having openings b^2, and a vertically-movable coupling-bolt extending into said openings and provided with a shoulder, d^3, at its lower end, of an actuating-lever adapted to lift the bolt clear of one of the openings and move it forward, with its shoulder resting on the edge thereof, and a horizontally-oscillating locking-jaw adapted to move clear of the coupling-bolt when it is in the position specified, simultaneously therewith move said bolt rearwardly, and cause it to drop back into the position from which it has been moved by the lever, as described.

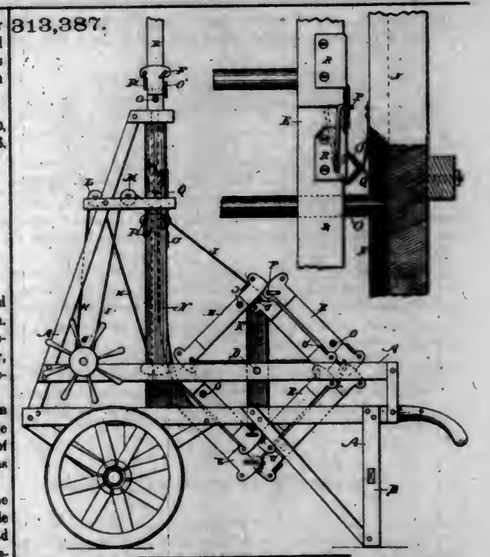
3. The combination, substantially as herein described, with the draw-head, the horizontally-oscillating coupling-jaw provided with the inclined surface c^7, and the vertically-movable gravity-bolt provided with the beveled surface d^6 and shoulder d^3, of the gravity-lever F, the arm f^3 of which has a correspondingly-beveled face, f^4, for the purpose specified.

313,387. LADDER. JAMES M. TRIMBLE, Sedan, Kans. Filed Sept. 8, 1884. (No model.)

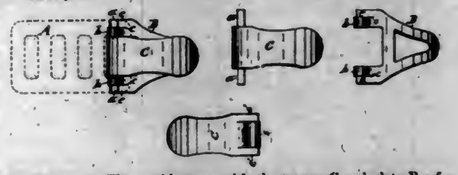
Claim.—1. The combination, with a truck and a reel journaled thereon, of a hinge-jointed ladder to be wound upon the reel, a windlass, two ropes to be wound in opposite directions upon the windlass and upon the reel, side guides and arms on the sides of the sections of the ladder to run therein, hooks and perforated projections on the hinge-plates to secure the joints, an arm on each hook, and a spring-stop in the path of the arm, as and for the purpose specified.

2. The combination, with a supporting-frame, a reel journaled therein, and a ladder made in hinged sections to wind upon the reel, of a windlass consisting of a single winding-drum journaled in the frame, a rope attached at one end to wind upon the reel, and at the other end to wind upon the windlass, and another rope attached at one end to the reel, and at the other end to the windlass, to wind upon both in the direction opposite to the first-mentioned rope, substantially as shown and described.

313,387.



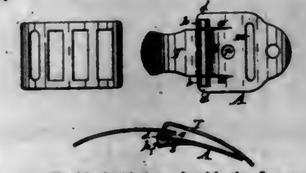
313,388. SHOE-CLASP. JACOB J. UNDERHILL, Syracuse, N. Y., assignor to Judson L. Thomson, same place. Filed Aug. 12, 1884. (No model.)



Claim.—1. The combination, with the tongue C and plate B, of a flattened or angular pintle, by which the tongue is hinged on said plate, and spring-lips on either the tongue or plate bearing on the aforesaid pintle to receive the impingement of the angles thereof when swinging the tongue back and forth on the plate, substantially as set forth and shown.

2. The combination, with the tongue C, of the plate B, provided with eyes *b b*, and with elastic lips *e e* at the outside of said eyes, and the pintle *a*, flattened or angular in cross-section, projecting from opposite edges of the tongue and through the eyes *b b*, and across the elastic lips *e e*, substantially as described and shown.

313,389. SHOE-CLASP. JACOB J. UNDERHILL, Syracuse, N. Y., assignor to Judson L. Thomson, same place. Filed Sept. 4, 1884. (No model.)



Claim.—1. The blank A', formed with the fingers *b' b'*, incisions *a a* between the fingers, and slits *c c* at the outside of the fingers, substantially as described and shown.

2. The plate A, provided with sockets *b b*, and with incisions *a a*, extended through the end of the plate, in combination with the tongue T, hinged in said sockets, and provided with a bearing on the plate A between the incisions, as shown and set forth.

3. The plate A, provided with sockets *b b*, incisions *a a* between the sockets, and extending through the end of the plate, and lips *d d* across the outer end of the sockets, in combination with the tongue T, hinged in the sockets, and provided with a bearing on the plate between the incisions *a a*, substantially as described and shown.

4. In combination with the tongue T, provided with the cam *r*, the tongue-plate A, of a single thickness of stock, having the spring *s* formed integral therewith, and provided in said spring with the eye *n*, for the reception of the rivet by which to attach the plate A to the strap or quarter of the shoe, substantially as herein specified.

313,390. SPRING-CLASP. JACOB J. UNDERHILL, Syracuse, N. Y., assignor to Judson L. Thomson, same place. Filed Jan. 3, 1885. (No model.)



Claim.—1. The plate A, formed with the divided pintle *a* and with the forward extensions, *e e*, in combination with the tongue T, formed with the sleeve *s*, embracing the pintle, and with the forwardly and upwardly curved portion *b* and lateral projections *c c*, adapted to impinge the inner edges of the extensions *e e*, substantially as described and shown.

2. In combination with the plate A, provided with the extensions *e e*, the tongue T, hinged between said extensions and bifurcated longitudinally, and formed with the forwardly and upwardly curved portion *b*, and with the projections *c c* on the edges of said curved portion, substantially as described and shown.

313,391. BARBED WIRE. ANDREW J. UPHAM, Sterling, Ill., assignor to the Washburn & Moen Manufacturing Company, Worcester, Mass., and Isaac L. Ellwood, De Kalb, Ill. Filed July 14, 1882. (No model.)



Claim.—The combination, with two main fence-wires, A A, provided with loops C C, of a barb, B, inserted through said loops or eyes, substantially as shown and described.

313,392. RUNNING-GEAR FOR VEHICLES. JAMES W. VAUGHN, Greenville, Pa. Filed Nov. 11, 1884. (No model.)



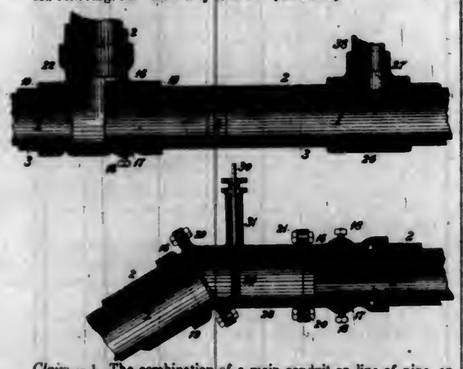
Claim.—1. The spring C, having boxes *d'*, in combination with the bails and body having boxes *d*, whereby said spring and body may be connected, as described.

2. In a vehicle running-gear, the combination of springs B C and bails D, as and for the purposes set forth.

3. A bearing which consists of the plate d^2, flanged at d^3, and having extremities d^4, the cap d^5, flanged at d^6 d^7, and a tubular rubber, as shown and described.

4. The combination, with bolster, front axle, king-bolt, and spring B, of eye E, having the two arms E', the clips E^2, having orificed ears, the spiral springs E^3 *f*, and the nuts E^4 *f'*, whereby vertical play may be allowed to the bolster, as described.

313,393. CONNECTION FOR PIPE-LINES. GEORGE WESTINGHOUSE, Jr., Pittsburg, Pa. Filed July 1, 1884. (No model.)



Claim.—1. The combination of a main conduit or line of pipe, an outer casing surrounding said conduit, and a coupling secured at each of its ends to a section of the outer casing, and forming a closed end or head thereon, and fitting closely around two adjacent sections of the main conduit, substantially as set forth.

2. The combination of an outer casing or line of pipe, couplings secured at their ends to sections of said casing and forming independent chambers or compartments therein, and a main conduit or inner line of pipe, formed in detached sections fitting closely at each of their ends in said couplings, and one at least of said sections having the capacity of longitudinal movement relatively thereto, substantially as set forth.

3. The combination of an outer casing or line of pipe, a tubular coupling secured at its ends to two adjacent sections of said casing, a main conduit or inner line of pipe, two adjacent and detached sections of which fit closely at their ends within said coupling, with the capacity of longitudinal movement of at least one of said sections relatively to the coupling, and packing interposed between the movable section or conduit and the body of the coupling, substantially as set forth.

4. The combination of an outer casing or line of pipe, a tubular coupling connected at its ends to adjacent sections of said casing, a main conduit or inner line of pipe having detached sections fitting closely in said coupling, packing interposed between said conduit and said coupling, and a compressing screw or screws engaging the body of the coupling and bearing on said packing, substantially as set forth.

5. The combination of an outer casing or line of pipe, a tubular coupling connected at its ends to adjacent sections of said casing, an expansion-joint composed of two dish or bowl formed plates, secured together adjacent to their peripheries, and connected toward their centers to two adjacent and detached sections of the casing, and a main conduit or inner line of pipe formed in detached sections fitting closely in each end of the coupling, with the capacity of longitudinal movement relatively thereto, substantially as set forth.

6. The combination of an outer casing or line of pipe, a tubular coupling secured at its ends to two adjacent sections of said casing, a main conduit or inner line of pipe having detached sections fitting closely in said coupling, a branch conduit communicating with the coupling, and connected to a lateral socket or nozzle thereon, and an outer casing surrounding said branch conduit, and secured to and having one of its ends closed by said lateral socket or nozzle, substantially as set forth.

7. The combination of a main conduit or line of pipe, an outer casing surrounding said conduit, and a coupling connecting two detached sections of said casing and having a lateral socket or nozzle for the attachment of a pipe communicating therewith, substantially as set forth.

8. The combination of an outer casing or line of pipe, a tubular coupling divided transversely into two main sections, each secured to a section of said outer casing, a main conduit or inner line of pipe having detached sections fitting closely within the main sections of the coupling, and a supplemental coupling-section having one or both of its ends inclined relatively to its axis, and adapted to be interposed between and secured to the main sections of the coupling, substantially as set forth.

9. The combination of a tubular coupling formed of two main sections, each fitted to receive the ends of an inner and an outer line of pipe, and a supplemental section fitted with a gate or open-way valve, and connected at its ends to the main sections of the coupling, substantially as set forth.

10. The combination of an outer casing or line of pipe, a tubular coupling secured at its ends to two adjacent sections of the casing and closing the ends thereof, a main conduit or inner line of pipe having detached sections fitting closely in the coupling and communicating with the bore thereof, and a lateral socket or nozzle formed upon the coupling, and affording attachment for a pipe communicating with the main conduit or inner line of pipe, substantially as set forth.

11. The combination of an outer casing or line of pipe, a tubular coupling secured at its ends to two adjacent sections of the casing and closing the ends thereof, a main conduit or inner line of pipe fitting closely in the coupling, and a lateral socket or nozzle formed upon the coupling and affording attachment for a pipe communicating with a section of the outer casing, substantially as set forth.

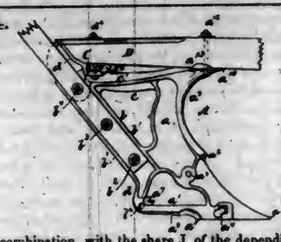
12. The combination of an outer casing or line of pipe, a tubular coupling secured at its ends to two adjacent sections of the casing and closing the ends thereof, a main conduit or inner line of pipe fitting closely in the coupling, and an equilibrium-pipe connected to the coupling and establishing communication between the sections of the casing on each end thereof, substantially as set forth.

13. The combination of an outer casing or line of pipe, a tubular coupling secured at its ends to two adjacent sections of the casing and closing the ends thereof, a main conduit or inner line of pipe fitting closely in the coupling, an equilibrium-pipe connected to the coupling and establishing communication between the sections of the casing on each end thereof, a delivery-pipe communicating with said equilibrium-pipe, and valves or cocks connected to each end of the equilibrium-pipes, each of said valves controlling communication between the equilibrium-pipe and the adjacent casing-section, substantially as set forth.

313,394. PLOW. LEWIS B. WHITE, Norfolk, Va. Filed May 4, 1882. (No model.)

Claim.—1. The combination, with the beam, the seat C, provided with a vertical bolt-opening, and the bolt for holding the beam to the seat, of an adjustable bolt provided with adjusting-nuts on its opposite ends, arranged transversely to and adapted to engage the beam-holding bolt, whereby the rear end of the beam may be adjusted laterally, substantially as set forth.

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2. The combination, with the share J, of the depending wing *f* and wedge-shaped brace *f'*, formed or turned laterally upon the lower edge of the wing *f*, having its forward end resting against the share and its rear end extended back on the lower edge of said wing *f*, whereby a socket open at its side is provided for the point of the standard-base, substantially as set forth.

3. The improved share for plows, consisting of the body J, the depending wing or lug *f*, the brace *f'*, fixed or formed on the lower edge of the wing *f*, and having its forward end resting against the under surface of the body of the share, and its rear end extended back along the lower edge of said wing *f*, and the feather or brace f^4, arranged parallel with the wing *f*, whereby a lateral side brace or support and a socket, open at its side, are provided for the point of the standard, as set forth.

4. The removable landside or heel *g*, constructed with the outer and inner flanges, g^3 g^4, and adapted to fit in the base *a'*, substantially as set forth.

5. The combination, with the standard-foot having a curved or semicircular recess or seat, a^2, formed intermediately its point and heel, of a removable landside having a seat on its upper side for the standard-foot, and a curved flange projected upward and fitting into the recess or seat a^2, and means whereby the landside or heel is held to the standard-foot and adjusted vertically at its rear end, substantially as set forth.

6. In a plow, the removable landside *g*, having on its upper side a seat for the base or foot of the standard, and having the rear part of its under or wearing face made V shape, and the forward part of said wearing-face made flat or horizontal, as and for the purposes set forth.

7. The combination, with the standard, of the share having the depending wing *f*, arranged to fit snugly against the side of the forward end of the base of the standard, and having its rear edge, f^3, inclined downward and forward, and the removable landside *g*, placed below the base *a'*, and having the end g^2 snugly abutted against the edge f^3 on the wing of the share, as set forth.

8. The combination, with the standard A, having a side recess, a^3, of the landside *g*, constructed with the flange g^3 and extension g^3, and suitable fastening, substantially as set forth.

9. In a plow, the removable landside *g*, placed under the standard, and having a seat on its upper side for the standard-base *a'*, a heel-spur, g^3, placed at the rear end of the standard-seat and extending upward behind the heel of the standard, a slotted lug, *l*, extended upward against the side of the standard-base, and means whereby the landside is secured and held adjustably in its position, as set forth.

10. In a plow, the combination, substantially as hereinbefore set forth, of the main stem *a*, having a seat for the beam on its top, the rear stem or arm, *b*, arranged in rear of stem *a* and inclined backward, and having a channel or mortise on its side to receive the lower ends of the handles, and having its upper end arranged opposite to the support or seat for the rear end of the beam, the handles B B', secured in the mortise in the side of the arm *b*, a support or seat for the rear end of the beam, placed between the handles, and the bolt b^4, put through the handles, the rear beam-seat, and the upper end of the arm *b*, as described.

11. In a plow, a share having a depending wing or lug and a lateral brace or wing extended from the lower edge of the depending wing, whereby a socket open at one side is provided to receive the point of the base of the standard, as set forth.

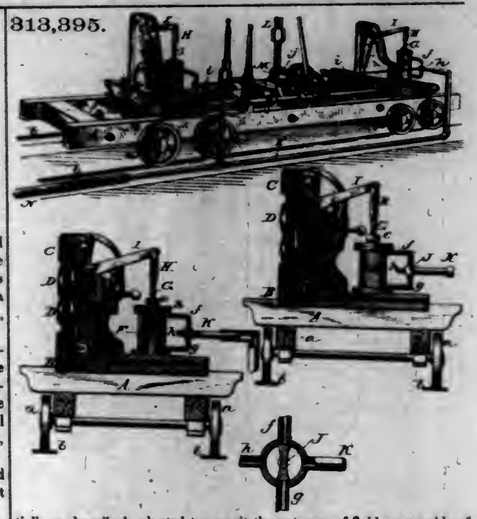
12. The combination, substantially as hereinbefore set forth, of the standard, the two mold-boards K K, having their adjacent edges snugly jointed together and covering the front edge of the standard, and having rear lugs extended back alongside of and on opposite sides of said standard, and a retaining-bolt, substantially as and for the purposes specified.

13. In a plow, the combination, with a landside or heel pivoted at its forward end, and provided at its rear end with means for vertical adjustment, of a beam and means for the vertical adjustment of the rear end of the beam, whereby the draft end thereof may be raised or lowered, substantially as and for the purposes set forth.

313,395. SAW-MILL DOG. THEODORE S. WILKIN, Milwaukee, Wis. Filed July 7, 1884. (No model.)

Claim.—1. In combination with a saw-mill dog, mechanism for actuating the same, consisting of a piston connected with the operating-lever of the dog, a cylinder containing said piston, and adapted to hold a fluid under pressure, and a valve or controlling mechanism, substantially as described, adapted to permit the entrance of fluid on one side of the piston and the escape thereof from the other side alternately in opposite directions.

313,395.



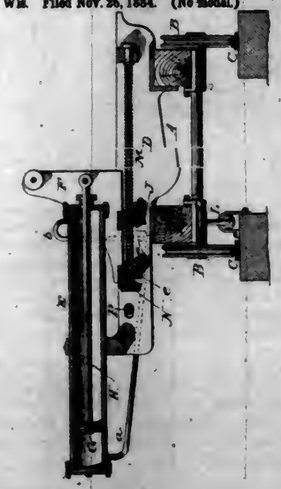
2. In combination with a saw-mill dog and its operating-lever, a steam-cylinder, a piston within the cylinder, connected with the operating-lever of the dog, and a reversing-valve for admitting steam to opposite sides of the piston.

3. In combination with a saw-mill carriage, a head-block mounted upon the carriage, a knee movable upon the head-block, and a dog carried by the knee, and provided with an operating-lever, a cylinder carried by the movable knee, a piston fitting within said cylinder and connected with the operating-lever of the dog, and a pipe for supplying steam to the cylinder, connected to and movable therewith, substantially as set forth.

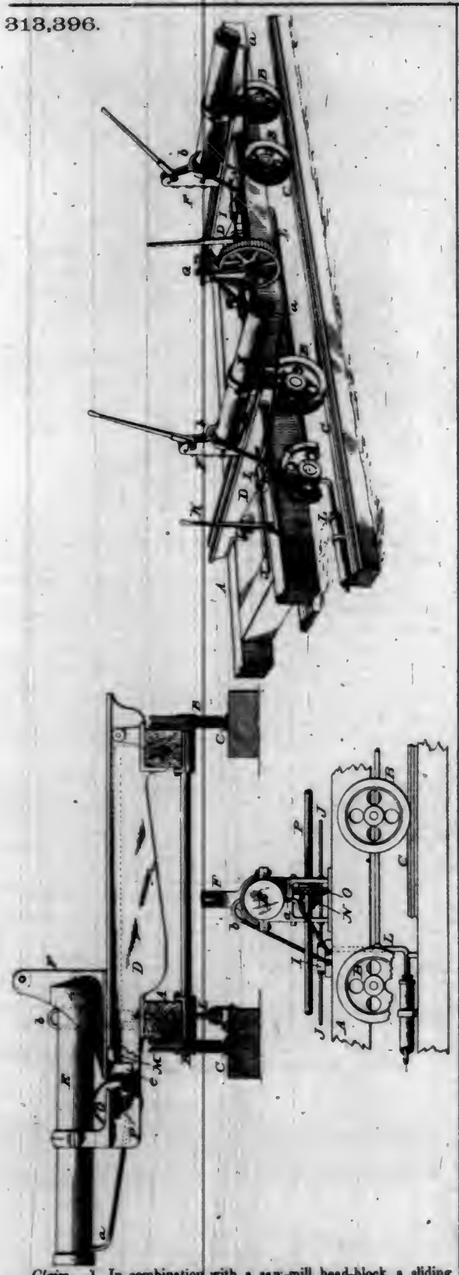
4. In combination with a longitudinally-movable saw-mill carriage, a head-block mounted upon the carriage, a knee movable upon the head-block transversely of the carriage, and a dog carried by the knee, and provided with an operating-lever, a cylinder mounted upon the knee, a piston fitting within the cylinder and connected with the operating-lever of the dog, and a steam-pipe connected with the cylinder and movable in lines parallel with and at right angles to the length of the carriage.

5. In combination with a saw-mill carriage, two head-blocks mounted thereon, and each carrying a sliding knee provided with a dog and an operating-lever therefor, and with a cylinder, pistons fitting within said cylinders and connected with the operating-levers of the dogs, pipes for conducting steam or fluid to the cylinders, valves controlling the supply and exhaust of the steam or fluid, and independent rods or operating devices extending from the valves to a point intermediate between the two head-blocks, whereby both dogs may be controlled from the same point.

313,396. SAW-MILL SET-WORKS. THEODORE S. WILKIN, Milwaukee, Wis. Filed Nov. 26, 1884. (No model.)



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Claim.—1. In combination with a saw-mill head-block, a sliding knee mounted thereon, a stationary fluid-cylinder, a piston movable within said cylinder and connected by a piston-rod to the sliding knee, a valve adapted to admit fluid to one end of the cylinder and permit the escape of fluid from the other alternately in reverse directions, whereby the fluid-pressure is caused to move the knee both forward and backward, and a mechanically-operated feed mechanism independent of the motor, for controlling the movements of the knee, substantially as set forth.

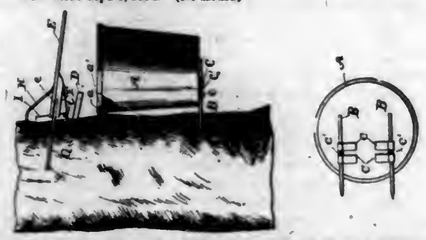
2. In combination with a saw-mill head-block, a sliding knee mounted thereon and provided with a projecting arm or lug, a screw journaled in the head-block and passing through a threaded opening in said arm or lug, a stationary fluid-cylinder, a piston within said cylinder, and a rod connecting the piston and the sliding knee, substantially as described and shown.

3. In combination with a saw-mill carriage, a head-block mounted thereon, a sliding knee mounted upon the head-block, a fluid-cylinder, and a piston connected with the sliding knee, substantially as described, a fixed rotary screw passing through a threaded opening in a lug on the sliding knee, and a valve for controlling the supply and exhaust of fluid to and from the cylinder, all substantially as described and shown.

4. The combination of a series of head-blocks, a sliding knee mounted upon said head-blocks, a stationary cylinder for each knee, a piston within each cylinder connected with its sliding knee, a screw journaled in each head-block and passing through a threaded opening in a lug or arm of the sliding knee thereon, a bevel-pinion secured upon each screw, a set-shaft extending past all the screws, and provided with a bevel-pinion to mesh with the pinion of each screw, and mechanism, substantially such as described and shown, for imparting rotary motion to the pinion-shaft, whereby all the screws may be rotated synchronously and equally and the knees caused to move in unison.

5. In combination with a series of head-blocks and knees, each provided with a fluid-cylinder and piston for advancing and receding said knees, and with a controlling-screw for each knee and a common shaft for rotating all the screws, a series of valves for controlling the induction and eduction of fluid to and from the respective cylinders, a connecting-rod extending from one valve to another throughout the series, and a lever connected with said rod, whereby all the valves may be moved simultaneously, and a simultaneous movement of the knees be secured.

313,397. SAP-BUCKET AND COVER. EDWARD S. WILKINS, Stowe, Vt. Filed Sept. 3, 1884. (No model.)



Claim.—1. A sap-bucket having attached to its bottom plate keepers and springs, in combination with supporting-rods held by such keepers and springs, whereby they may be adjusted beyond said bucket and held at any desired point of adjustment, substantially as set forth.

2. The combination, with the covering-plate, of the supporting-hooks pivoted at one end to and capable of being swung in the plane of the cover-plate and the brace-bar or hook pivoted at one end on the plate and adapted at its other end to engage the tree, substantially as set forth.

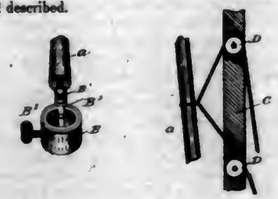
3. A cover-plate provided with means for securing it to a tree, combined with a guard-plate, I, supported on said cover-plate and curved downward toward its opposite ends, the inner edge of said guard-plate being sharpened, substantially as set forth.

4. The combination, with a cover-plate, of a guard, I, curved downward toward its opposite ends and sharpened on its inner edge, the said guard I being pivotally connected to the cover, whereby its upper end may be swung toward and from the tree, substantially as set forth.

5. The herein-described cover, consisting of plate E, provided with slots *e*, the lugs F, the curved guard I, pivoted to the plate, the supporting-rods G, pivoted at one end to plate E in slots *e* and provided at their other ends with points *g*, and the brace-bar I, substantially as set forth.

6. The combination, with the covering-plate provided at its inner edge with slots *e*, of the hooks G, pivoted to the covering-plate within the slot *e*, whereby the motion of said hooks is confined to the plane of the covering-plate, substantially as set forth.

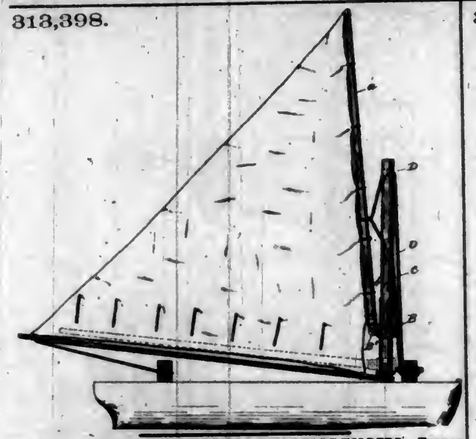
313,398. RIGGING FOR BOATS. CHARLES F. WINSOR, San Quentin, Cal. Filed June 24, 1884. (No model.)



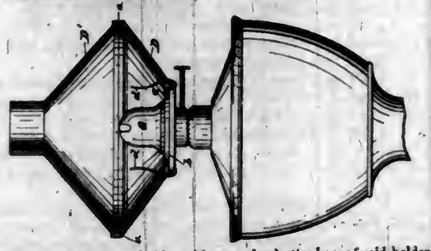
Claim.—1. The combination of the boom A and the collar B, provided with the slot B^2, with the mast C, provided with the guide C', substantially as and for the purpose set forth and described.

2. The combination of the boom A and the collar B, provided with the slot B^2, with the mast C, provided with the guide C', pulleys D D, and ropes for hoisting the boom A, substantially as and for the purpose set forth and described.

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313,399. MANUFACTURE OF GLASS SHADE-HOLDERS. THOMAS B. ATTERBURY, Pittsburg, Pa. Filed Jan. 2, 1885. (No model.)



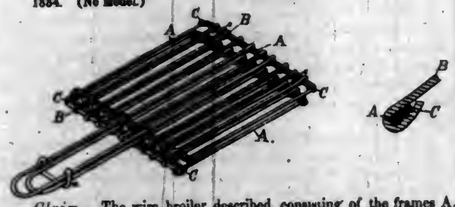
Claim.—1. A shade-holder without a shank, the base of said holder being provided with a flat surface to rest on the base of the burner, as set forth.

2. A shade-holder of the character described, having a flat surface to rest on the base of the burner and provided with suitable openings or indentations, *c*, to permit the prongs or springs of the burner to pass inside of the shade-holder and hold the same in position on the lamp, as set forth.

3. A shade-holder provided with a flat base and openings or indentations *c*, in combination with the burner G, having the ledge *b* and prongs *d* or other suitable devices for retaining the shade-holder in position, as set forth.

4. A shade-holder adapted to rest on and be supported by the burner of the lamp, said burner being provided with springs to hold and retain the chimney of the lamp, whereby the shade-holder can be used with or without a chimney, as set forth.

313,400. WIRE BROILER. SAMUEL AYRES, Worcester, Mass., assignor to the Ayres Manufacturing Company, same place. Filed Mar. 29, 1884. (No model.)



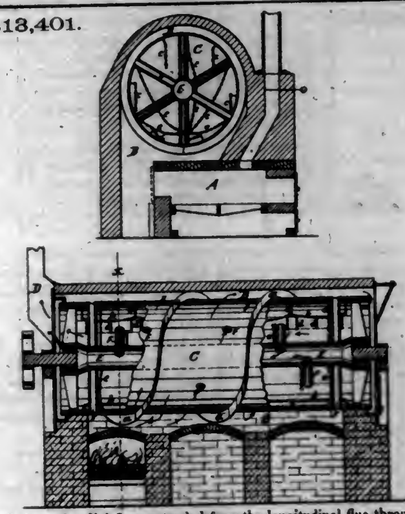
Claim.—The wire broiler described, consisting of the frames A, having the supplemental guard provided with swells, as described, between which the bends of the bars are pressed when clasped around the frame, and by which they are retained in place, all constructed substantially as and for the purposes above described.

313,401. APPARATUS FOR DRYING FERTILIZERS. HENRY BREER, De Witt, N. Y., assignor to Caroline H. Breer, same place. Filed June 19 1884. (No model.)

Claim.—1. In combination with the combustion-chamber, a rotary desiccating-cylinder and a smoke-flue extended longitudinally through said cylinder, adapted to carry the products of combustion from the furnace to the chimney.

2. In combination with the combustion-chamber and the rotary desiccating-cylinder, a smoke-flue extended longitudinally through the

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cylinder and radial flues extended from the longitudinal flue through the side of the cylinder, substantially as set forth and shown.

3. In combination with the combustion-chamber and the desiccating-cylinder arranged in said chamber, spiral partitions between the exterior of the cylinder and interior of the combustion-chamber, as and for the purpose specified.

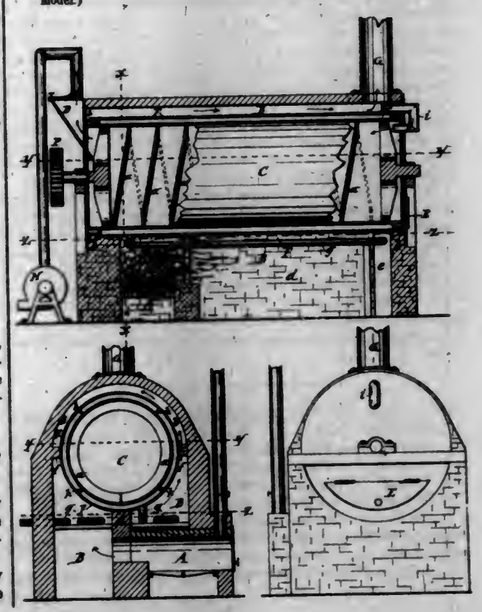
4. The combination, with the rotary desiccating-cylinder, of scouring-chains connected to the cylinder and adapted to drag on the internal surface thereof, substantially as specified.

5. The combination, with the rotary desiccating-cylinder, of chains extended longitudinally through the cylinder and suspended from the interior thereof, substantially as and for the purpose specified.

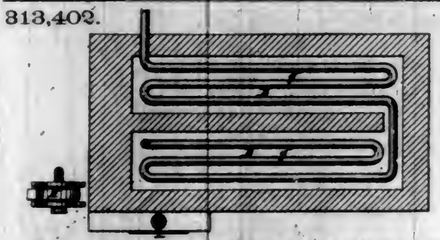
6. The combination, with the rotary desiccating-cylinder, of chains extended longitudinally through the cylinder and suspended from the interior thereof, and chains suspended from the longitudinally-disposed chains, substantially as described and shown, for the purpose set forth.

7. The combination, with the rotary desiccating-cylinder, of pipes extended across the interior of the cylinder and chains hung slack across the cylinder at the side of said pipes, substantially as described and shown, for the purpose specified.

313,402. DESICCATING APPARATUS. HENRY BREER, De Witt, N. Y., assignor to Caroline H. Breer, same place. Filed Aug. 7, 1884. (No model.)



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Claim.—1. The combination, with the desiccating-cylinder and furnace, of an air-jacket surrounding said cylinder, an air-duct communicating at one end with the exterior of the apparatus and at the opposite end with the air-jacket, and a passage for products of combustion around the exterior of the air-jacket, as set forth.

2. The combination, with the desiccating-cylinder and furnace, of an air-jacket surrounding said cylinder and communicating with the interior thereof at one end, an exhaust-fan communicating with the interior of the cylinder at the opposite end, and a passage for products of combustion around the exterior of the air-jacket, all combined and arranged in the manner set forth and shown.

3. The combination, with the desiccating-cylinder and furnace, of an air-jacket surrounding said cylinder, and an air-duct exposed to the heat from the furnace and communicating with the air-jacket, as and for the purpose specified.

4. The combination, with the desiccating-cylinder and furnace, of an air-jacket surrounding said cylinder, an air-duct exposed to the heat from the furnace and communicating with the air-jacket, and sinuous or tortuous air-passages in the said jacket, substantially as and for the purpose set forth.

5. In combination with the combustion-chamber, a stationary cylinder arranged therein, with a passage for the products of combustion around it, the desiccating-cylinder arranged to rotate in the stationary cylinder, and an air-duct extended through the combustion-chamber and communicating with the interior of the stationary cylinder, substantially as described and shown.

6. In combination with the furnace and combustion-chamber, a stationary cylinder arranged horizontally in said chamber, with a space around the convex side of the cylinder, and with the interior of the cylinder incommunicative with the combustion-chamber, a partition extending lengthwise the combustion-chamber under the stationary cylinder, with an opening through said partition at the end farthest from the furnace, partitions at the sides of the stationary cylinder, with an opening in one of said partitions at the end nearest the furnace, a chimney at the opposite end of the combustion-chamber, and the rotary desiccating-cylinder arranged in the stationary cylinder, substantially as shown and described.

7. In combination with the combustion-chamber, a stationary cylinder arranged horizontally in said chamber and having its interior incommunicative therewith, partitions between the cylinder and combustion-chamber extended alternately from opposite ends of the combustion-chamber part way the length thereof, the rotary desiccating-cylinder arranged in the stationary cylinder, and an air-duct extended through the lower passages of the combustion-chamber and communicating with the interior of the stationary cylinder at the bottom thereof, an air-duct extended from the top of the stationary cylinder to the end of the desiccating-cylinder, and partitions between the two cylinders extended alternately from opposite ends part way the length thereof, all constructed and combined substantially in the manner specified and shown.

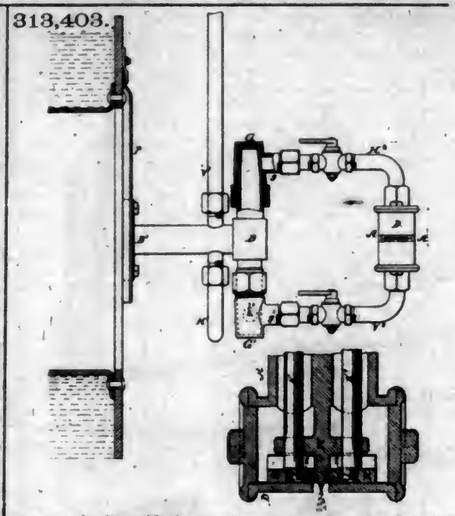
8. In combination with the combustion-chamber, a stationary cylinder arranged horizontally in said chamber and having its interior incommunicative therewith, the rotary desiccating-cylinder arranged in the stationary cylinder, with a space between them, an air-duct extended through the combustion-chamber and into the stationary cylinder, an air-duct extended from the stationary cylinder into the desiccating-cylinder, a spiral flange around the inner surface of the desiccating-cylinder, and feed and discharge openings, respectively, at opposite ends of said cylinder, all constructed and combined substantially as described and shown.

313,403. FURNACE FOR BURNING LIQUID HYDROCARBONS. JULES BUFFET, Paris, France. Filed May 24, 1884. (No model.) Patented in France Feb. 19, 1884, No. 160,362; in Belgium Apr. 17, 1884, No. 64,851; in England Apr. 18, 1884, No. 6,513; in Spain Apr. 21, 1884, No. 6,167; in Italy Apr. 25, 1884, No. 16,781; in Germany May 3, 1884, No. 19,062, and in Austria Oct. 24, 1884, No. 30,217.

Claim.—1. The combination of the heater B and oil and steam supply pipes therefor with the vaporizer A, hinged to the said heater, as and for the purpose set forth.

2. The combination of the heater B and its branches and oil and

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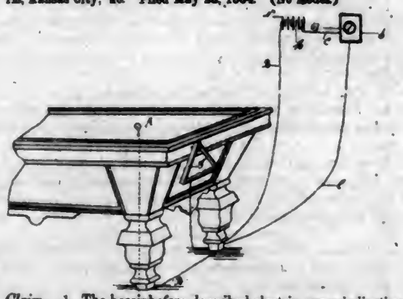
steam supply pipes with the vaporizer A, connecting-pipes H^2 and V^2, and hinging caps, substantially as described.

3. The combination of the furnace, the base-plate B', secured to the said furnace, and the heater B, carried by said base, with the vaporizer A, hinged to the said heater, substantially as described.

4. The herein-described hydrocarbon-vaporizer, consisting of a slotted box having separate inlets for steam and hydrocarbon, a partition opposite the slot in the box, and regulating-slides, substantially as specified.

5. The combination of the slotted box D, having separate inlets for steam and hydrocarbon, and a central partition opposite the slot in the box, with regulating-slides R R', having notches *d*, substantially as described.

313,404. ELECTRIC INDICATOR FOR POOL-TABLES. ELIAS CURTIS, Kansas City, Mo. Filed May 23, 1884. (No model.)



Claim.—1. The hereinbefore-described electric game-indicating apparatus for pool-tables, consisting of a metallic contact point or spot fixed at a suitable place upon the surface of the table, and placed in circuit with a metallic triangle and with an indicating device, said triangle adapted to be suspended at or near the head of the table and out of contact with said point or spot whenever the table is not in use, substantially as shown and described.

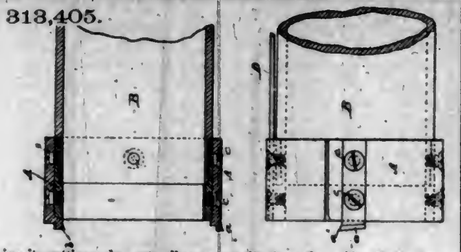
2. In combination with a pool-table having a metallic contact point or spot that is fixed in a suitable position upon its surface and placed in battery-circuit with an indicator-hand, a metallic triangle in circuit with said spot and adapted to be suspended at or near the head of such table and out of contact with the before-mentioned spot when the table is not in use, and so arranged when a game is contemplated that it may be placed in contact with such point or spot to close the battery-circuit, as and for the purposes set forth.

313,405. BORING DEVICE. JAS. B. DAVIS, Washington, D. C. Filed Mar. 21, 1884. (No model.)

Claim.—1. A tool for boring cannon and the like, consisting of a hollow shaft having the detachable collar carrying the removable tools, one of said tools cutting the inner and the other the outer portion of a circular channel into which the hollow shaft and tools enter.

2. A tool for boring cannon and the like, consisting of a hollow shaft having the detachable collar carrying the removable tools, one of said tools having its cutting-edge extending inwardly and the other having its cutting-edge extending outwardly from the said collar, substantially as and for the purpose set forth.

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3. A boring-instrument consisting of a hollow shaft having mounted upon the end thereof a detachable collar carrying the cutters, the said collar being provided with grooves of a width to receive the cutter and leave a space for the escape of the chips separated in the operation of boring.

4. A tool for boring cannon and the like, consisting of a hollow shaft having removably secured to the end thereof the tools *a b*, one cutting the inner and the other the outer portion of a circular channel in which the tool enters, in combination with the tube D, extending from a suitable oil-reservoir to the point at which the boring takes place.

313,406. EXTENSION-TABLE. LOYAL M. DODDRIDGE, Stanton, Mich., assignor of one-half to Leon J. Weatherwax, same place. Filed Jan. 9, 1884. (No model.)

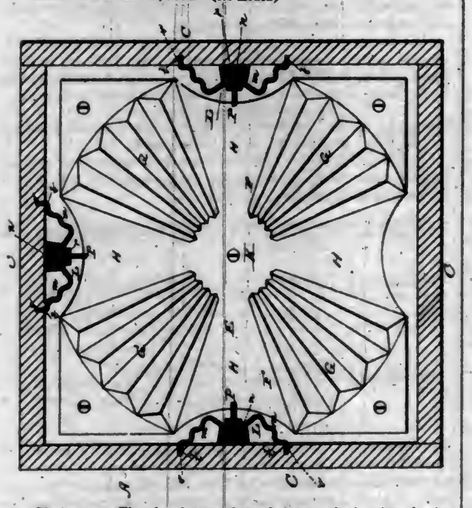


Claim.—1. The combination of an extension-table having hinged top and sides, the said top A having its central section rigid with the central side section, and having grooves, as a^2, with the legs D, having projections *d*, and with brackets E, as and for the purposes set forth.

2. In combination with the hinged top and hinged sides, the legs D *d*, brackets E, and section a^2, rigid with the bracket and having inclined side, as set forth.

3. The combination, with an extension-table having hinged top and sides, of the bracket E, having securing lugs or plates e^3 and e^4 and leg e^5, combined with the legs D, top section, a^2, leaf a^4, and support G, as and for the purposes set forth.

313,407. WASHING-MACHINE. LEANDER K. DUTTON, Oskaloosa, Iowa. Filed Jan. 31, 1884. (No model.)



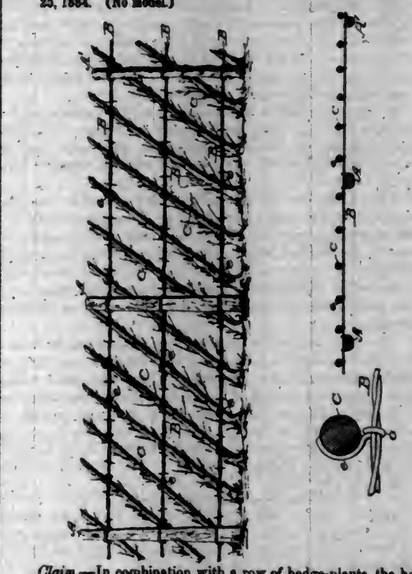
Claim.—1. The zinc bottom formed from a single plate having stamped therein alternate sector-shaped series of corrugations tapering toward the center, and smooth sector-shaped intervals, substantially as specified.

2. The combination of the corrugated zinc side rubber having a central vertical dovetail recess and adapted to be secured to a tub, and the brush having a dovetailed body, substantially as specified.

3. The combination, with a corrugated zinc side rubber having lateral marginal flanges extending backward, and a central dovetailed recess, of the detachable brush having a body of dovetailed form, and the tub having the vertical gains, substantially as specified.

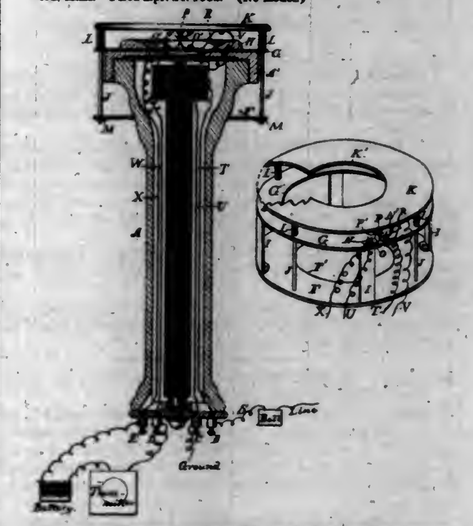
4. As an organized element of machines of the character set forth, the corrugated zinc rubber having a central dovetail recess, with the vertical corrugations on opposite sides thereof, and their ends bent backwardly to be secured in the side walls of a tub, substantially as specified.

313,408. HEDGE. REID M. DUVALL, Nashville, Tenn. Filed Aug. 25, 1884. (No model.)



Claim.—In combination with a row of hedge-plants, the horizontal fixed wires B, and the open-ended hooks *c*, having one end attached to the wires and the other or open end passed partly around the plant, substantially as shown and described.

313,409. COMBINED TELEPHONE-RECEIVER AND CIRCUIT-BREAKER. WILLIAM H. ECKERT, JOHN A. SEELY, and EDWARD A. ECKERT, Cincinnati, Ohio, assignors to the American Bell Telephone Company, Boston, Mass. Filed Apr. 21, 1882. (No model.)



Claim.—1. The combination, with a telephone-station apparatus, of a switch consisting of a movable plate carried by the receiver and supported in front of the ear-piece thereof, and contacts and connections ar-

ranged so that said switch is shifted to connect in the telephone apparatus by application of said receiver to the ear, substantially as described.

2. The combination, with a receiving-telephone, of a movable switch or plate supported in front of the ear-piece thereof, and means, such as a spring, for holding said switch in position to cut out the telephone until shifted by pressure, substantially as described.

3. The combination, with a telephone-station apparatus comprising a receiver, transmitter, battery, and electrical connections therefor, of a switch carried by the receiver in front of the ear-piece, so as to be operated by the pressure thereof to the ear to connect in said telephone apparatus, and a spring for returning the switch to its normal position when the pressure is relaxed, substantially as described.

4. The combination, with a telephone-station apparatus comprising a receiver, transmitter, and battery in one branch, and signal apparatus in another branch, of a switch carried by the receiver and supported in front of the ear-piece thereof, so as to be operated by the application thereof to the ear for transferring the main line from one branch to the other, substantially as described.

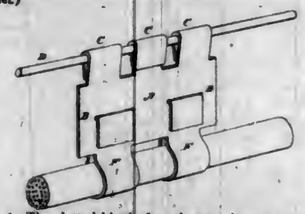
5. A telephone-receiver having over or on the mouth thereof a movable plate, disk, or its equivalent, as shown, connected with suitable mechanism whereby the receiver, transmitter, and battery may be thrown in or out of the circuit, substantially as and for the purpose herein set forth.

6. The combination, with a telephone-station apparatus comprising a receiver, transmitter, battery, and electrical connections therefor, of a movable plate supported at the head of the receiver and adapted to be depressed by the pressure of the receiver against the ear, a spring for restoring said plate to its normal position, electrical contacts on said plate, and corresponding contacts on the receiver, whereby the depression of the plate connects the said telephone apparatus in circuit, substantially as described.

7. The within-described permanent disks F G, having the central apertures, F' G', secured on the head A' of a telephone, and provided with the movable disk K, legs J, and springs L, in combination with a telephonic receiver, substantially as and for the purpose herein set forth.

8. A telephone-receiver having a movable head, plate, or disk, K, as shown, provided with the wedge-button P and curved spring R, and the contact-springs N N' Q on the permanent disk G, with the telephone A, having within the connecting-wires T U V W X, substantially as herein set forth.

313,410. HANGER FOR ELECTRIC CABLES. WILLIAM H. ECKERT, JOHN A. SEELY, and EDWARD A. ECKERT, New York, N. Y., assignors to the American Bell Telephone Company, Boston, Mass. Filed Oct. 13, 1884. (No model.)



Claim.—1. The slotted blank for a hanger having supporting and receiving arms, one or more each, sufficiently pliable to be bent into position for use and sufficiently rigid to retain such position, substantially as described.

2. In combination with the receiving-arms of the hanger, a locking device for securing the same rigidly in position, substantially as described.

3. The hanger having two or more receiving-arms embracing the cable, and secured in position by being passed through slots, and supporting-arms bent around the sustaining-rod in opposite directions to each other, substantially as described.

4. The pliable hanger-blank provided with slots B G H, the last two serving to lock the arms after being passed through the first, substantially as described.

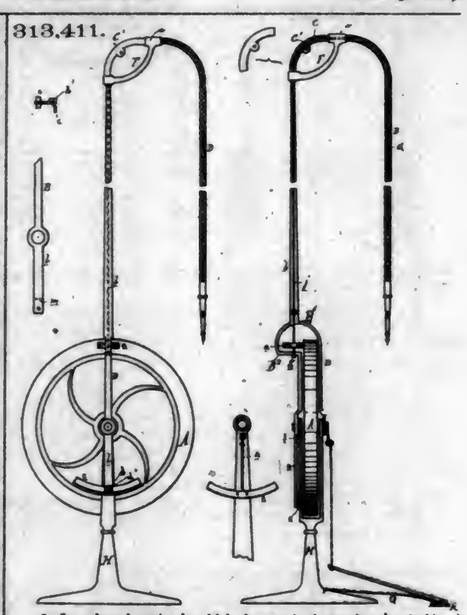
5. The cable-hanger having arms for embracing the cable, said arms being locked by a backward bend after passing through slots in the body of the hanger, substantially as described.

313,411. DENTAL ENGINE. ALONZO W. ELDREDGE, Big Rapids, Mich. Filed Oct. 10, 1884. (No model.)

Claim.—1. In a dental engine, the combination of the stand H, the turning-wheel A, and the yoke B, pivoted on the axle of wheel A, and having a bow, B, and offset B^2, with the tube *b* and shaft F, said shaft having bearings in the tube *b* and in the offset B^2, and provided with a horizontal friction-wheel, *a*, bearing on the side of the wheel A, substantially as described and shown.

2. In a dental engine, the oscillating standard *b*, with its yoke B pivotally secured upon the shaft of the drive-wheel, in combination with the arm *l* of the yoke extending beyond its pivotal point, lock-bolt *h'*, nut A and the segmental plate c^2, all arranged substantially as described.

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3. In a dental engine in which the standard carrying the shafting is provided with a yoke pivotally supported on the shaft of the drive-wheel, the combination of pins, as *m*, attached to an extension of the yoke, with a spring, *n*, fixedly attached to the drive-wheel support, as and for the purposes set forth.

4. In a dental engine, the combination of the continuous line of shafting *j* C G, which conveys the motion from the drive-wheel to the hand-piece, with the straight tube *b*, having bearings for the shaft *j*, and the elbow-tube C', serving to sheath, deflect, and support the shaft C, and the flexible sheath D, which envelops and protects the flexible shaft G, substantially as and for the purpose described.

5. In a dental engine, the combination of the friction-pulley *a* and oscillating standard pivoted on the shaft of the drive-wheel, with a continuous line of shafting between said friction-pulley and the hand-piece, consisting of the rigid shaft *j*, flexible shaft C, spindle *i*, and flexible arm G, substantially as described.

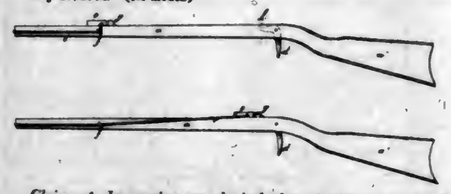
6. In a dental engine, the combination of its continuous line of shafting *j* C G and its supporting-standard *b* with the swivel-bracket F, having a curved tubular portion, C', supporting and guiding the intermediate shaft-section, C, substantially as described.

7. In a dental engine, the tube C' of the swiveled bracket F of the standard, made in halves, one half serving as a removable cap, in combination with the flexible intermediate shafting, C, inclosed in said tube and having bearings near the ends of said tube, substantially as described.

313,412. WATER-PROOF COMPOUND. JOHN T. ELLIOTT, Grand Rapids, Mich. Filed June 21, 1884. (No specimens.)

Claim.—The above-described compound, consisting of coal-tar, Portland cement, calcined gypsum, iron ore, ground slate, and resin, in substantially the proportions specified.

313,413. TOY SPRING-GUN. GEO. ELSEY, Springfield, Mass. Filed May 15, 1884. (No model.)



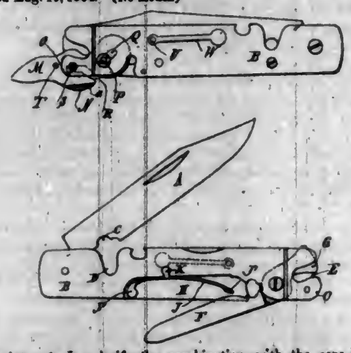
Claim.—1. In a spring-gun, the body formed with a groove in its upper surface, a projector adapted to travel in said groove, and a contractile rubber spring fixed to the muzzle end of the body and to the projector, in combination with stationary guides or stops exteriorly projecting from the sides of the body near the muzzle end, and adapted to bear upon the spring, substantially as and for the purpose set forth.

2. In a spring-gun, the body formed with a groove in the upper surface and provided with stationary guide-stops projecting from the sides of the body, a projector provided with a trigger loop or catch in the rear

and adapted to travel in said groove, a contractile spring fixed to the muzzle end of the body and fastened to the projector and passed through or around the stationary stops on the sides of the body, in combination with a trigger formed to engage the trigger-catch on the projector, substantially as described, and for the purpose stated.

3. In a spring-gun, the body, the contractile spring thereof, and the projector fixed to the contractile spring and traveling in a groove formed in the upper surface of the body, in combination with stationary guide-stops fixed in and projecting exteriorly from the sides of the body and bearing on the strands of the contractile spring, whereby the progress of the projector is gradually retarded, substantially as set forth.

313,414. KNIFE FOR MINERS. GEORGE FREUND, Durango, Colo. Filed Aug. 19, 1884. (No model.)



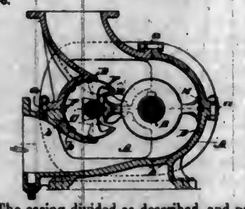
Claim.—1. In a knife, the combination, with the case B, of the blade M, having the slots Q and R, and of the pins P and S in the knife case, substantially as herein shown and described.

2. In a knife, the combination, with the case B, having its end portion, O, serrated or roughened, of the can-opener blade M, having part of its back edge roughened, substantially as herein shown and described.

3. In a knife, the combination, with a handle-case having a recess in one side, of a blade adapted to be folded within the said recess, and of a spring secured in the bottom of the recess and having both ends free, one end being provided with a head having a longitudinal groove to receive the point of the blade, substantially as herein shown and described.

4. In a knife, the combination, with the case B, having a recess, H, of the spring J, having both ends free, and provided with a projection, K, for holding it in place, and the blade F, pivoted in the case, substantially as herein shown and described.

313,415. ROTARY PUMP. GUSTAVE GRENDL, Brussels, Belgium. Filed Mar. 7, 1884. (No model.) Patented in France Apr. 4, 1883, No. 154,670; in Belgium Apr. 7, 1883, No. 61,015, and in England Apr. 12, 1883, No. 1,868.



Claim.—1. The casing divided as described, and provided with the removable and renewable lining, substantially as set forth.

2. The casing divided as described, in combination with the inclosed winged and recessed wheels, the winged wheels being provided with removable and renewable shoes or facings, substantially as set forth.

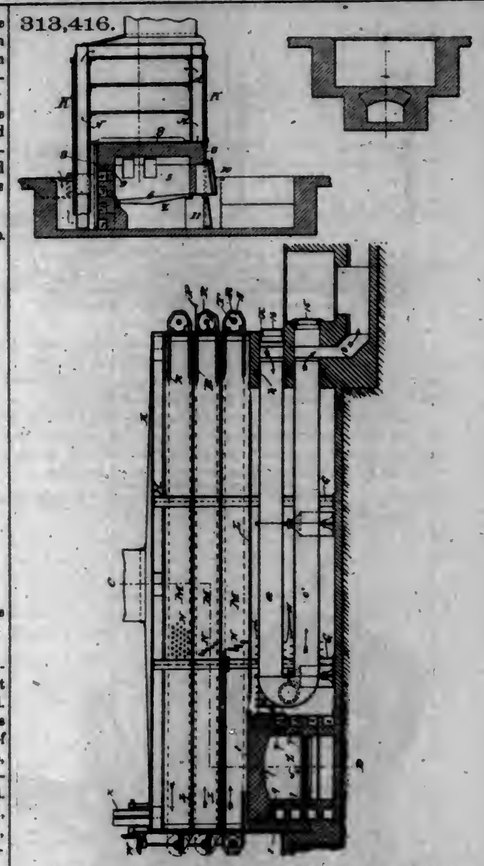
3. The casing divided as described, in combination with the inclosed winged and recessed wheels, the recessed wheels being provided with the detachable and renewable facings, substantially as set forth.

4. The divided casing having a removable and renewable lining, in combination with the wheels provided each with detachable and renewable shoes or facings, substantially as described.

313,416. DRIER. DAVID GROVE, Berlin, Germany. Filed Feb. 28, 1883. (No model.) Patented in Germany Jan. 29, 1883, No. 23,722; in England Jan. 29, 1883, No. 469; in Belgium Feb. 7, 1883, No. 60,375, and in France Feb. 15, 1883, No. 153,731.

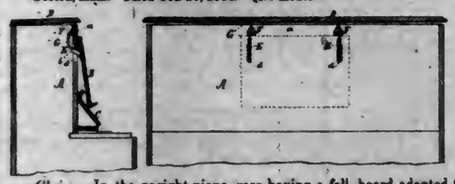
Claim.—1. The combination and arrangement, substantially as shown and described, of the sieves or shelves and means to move them, the heating-chamber in which they move provided with the foraminous walls N and outer close walls, K, and the stationary inclined or slanting knives V, as and for the purpose set forth.

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2. The combination and arrangement of the drying or arefying chambers M and the spaces or passages A and B, for the introduction and escape of the heated air, with the canals provided with suitable gratings for the admission of cold air, and with the canals 1 2 3 4 of the heating apparatus, substantially as described.

313,417. MUSIC-RACK FOR UPRIGHT PIANOS. GEORGE M. GUILD, Boston, Mass. Filed Oct. 21, 1884. (No model.)



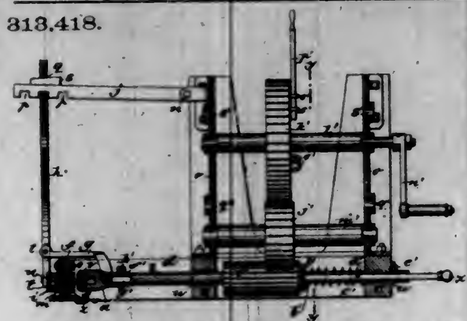
Claim.—In the upright piano-case having a fall-board adapted to support the music-rack when drawn out into an inclined position, the combination of the bent or curved arms projecting rearward and upward from the music-rack and hinged to the piano-case or to brackets fixed thereto, with a pin extending from the upper edge of one or each of such arms to the hinged lid of the case, the whole being so that on the music-rack being drawn forward the lid shall be opened or forced upward, as explained, such lid descending and closing the opening in the top of the case on the music-rack being moved back to its normal or upright position.

313,418. FISH-PLATE-FASTENING MACHINE. JOSEPH H. N. GUILFORD, Whigham, Ga. Filed Jan. 7, 1884. (Model.)

Claim.—1. In a fish-plate-fastening machine, the combination, with a frame carrying wrenches, of a clamping device consisting of the links *g*, yoke-lever *h*, bearing-bar *i*, and holding-pawl *j*, substantially as herein shown and described.

2. In a fish-plate-fastening machine, the combination, with the frame consisting of the bars *c d* and uprights O, of the shafts *l' m'*, the gears *i' j' k'*, the spindles *b b*, the wrench-sockets *a a*, and the springs *a'*, substantially as herein shown and described.

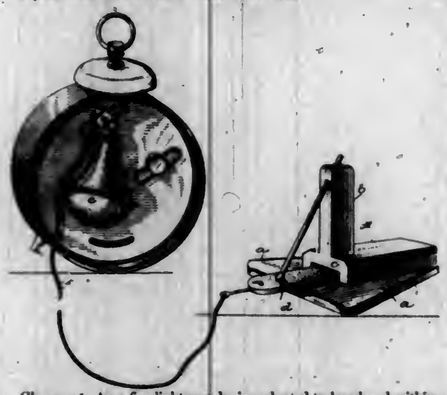
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3. In a fish-plate-fastening machine, the combination, with a supporting-frame and the sliding spindles *b*, provided with wrenches *a* on their ends, of the long gear-wheels *i'*, mounted on said spindles, and the gear-wheels *j' k'*, substantially as herein shown and described.

4. In a fish-plate-fastening machine, the combination, with the spindles *b b*, having wrench-sockets *a a* and pins *b'*, of the bar *c'*, having handle *x* and cross-bar *y*, and provided with the notch *d'*, the springs *a'*, and the latch *e*, substantially as herein shown and described.

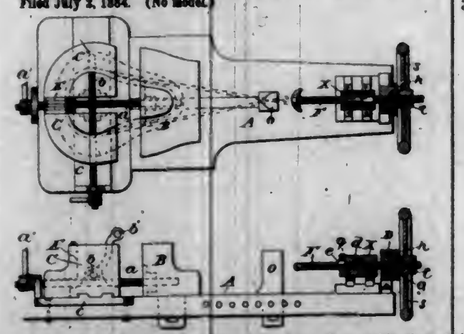
313,419. AUTOMATIC FIRE-KINDLER. PEDER T. HANSORG, Grand Rapids, Mich. Filed Dec. 17, 1883. (No model.)



Claim.—1. In a fire-lighter, a device adapted to be placed within a stove, or made as part thereof, consisting of a match-holder, a match held thereby in an inclined position, and a slide for igniting the same, and connections between such slide and an alarm-clock, whereby said slide is drawn from beneath the match at stated time, for the purpose set forth.

2. In a fire-lighter, a match-holder, a slide containing roughened surface beneath the same, and a weighted connection with the hooked or screw-threaded end of the key of an alarm-clock, whereby when said key is revolved when an alarm is sounded said weight is made to fall and ignite the match in the holder by the withdrawal of the slide, as described.

313,420. APPARATUS FOR FORMING HORSE-COLLARS. THOMAS HARRIS, Sacramento, Cal., assignor to A. A. Van Voorhies, same place. Filed July 2, 1884. (No model.)



Claim.—1. In horse-collar-making apparatus, the combination of the three adjustable jaws or blocks and the two adjusting-screws, whereby the block may be adjusted to various-sized collars, as described.

2. In horse-collar-making apparatus, the combination of the three adjustable jaws or blocks, and one or more additional plates, as described, and for the purpose specified.

3. In horse-collar-making apparatus, the combination of an expansible collar-block an adjustable rope-divider, a roping apparatus, and means, independent of the roping apparatus, for securing the said divider in its adjustments, substantially as described, and for the purposes specified.

4. In horse-collar-making apparatus, the combination of a drive-wheel having a hub provided with a groove, grip-plates, as *h*, adapted to fit into said groove, a bearing, as D, to which said plates are secured, and a screw-hook, F, as described, and for the purposes specified.

5. In horse-collar-making apparatus, the combination of a drive-wheel secured to the bearing, as described, the screw-hook provided with a slot, and the slide-block provided with a spline to fit said slot, whereby said hook is permitted to advance and recede without rotating, as described, and for the purpose specified.

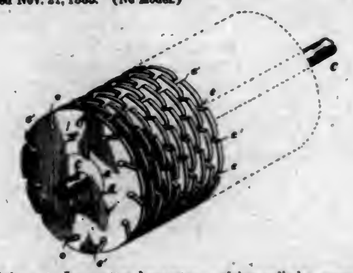
6. The combination of the jaws or blocks B C C', their operating-screws, the bed-plate provided with track *c*, and slot for jaw B, the adjustable rope-divider, and the roping apparatus, as described.

7. In horse-collar-making apparatus, the combination of the jaws B C C', their several adjusting-screws, the additional plates E E, the bed-plate provided with suitable track and slot for the several jaws, and the roping apparatus consisting of screw-hook, made as described, the bearings therefor, and the drive-wheel, all as described, and for the purpose set forth.

8. In horse-collar machines, the combination of a drive-wheel provided with a hub having a groove, a grip-plate adapted to fit into said groove, a bearing to which said plates are secured, a screw-hook provided with a slot, and the slide-block provided with a spline to fit into said slot, substantially as described, and for the purposes specified.

9. In horse-collar-making machines, the combination of the collar-blocks, means for adjusting the same to and from each other, the roping apparatus, rope-divider, and means, substantially as described, for vertically adjusting the said rope-divider and roping apparatus, as and for the purposes specified.

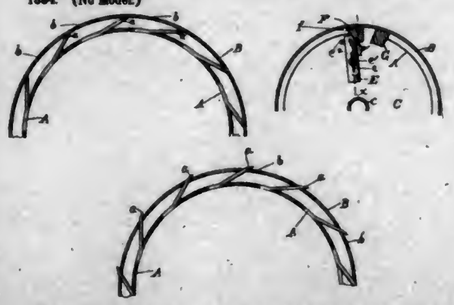
313,421. COTTON-HARVESTER. DANIEL B. HASELTON, Charleston, S. C., assignor to the Southern Cotton Picking Company, of South Carolina. Filed Nov. 21, 1883. (No model.)



Claim.—1. In a cotton-harvester, a picker-cylinder composed of a series of washers and toothed disks alternately arranged upon a central shaft, the points of the teeth on one disk being in line with the heels of the teeth on adjacent disks, as and for the purpose set forth.

2. In a cotton-harvester, a series of saws of uniform diameter mounted on a common shaft, with a series of intervening washers, the whole arranged to form a picker-cylinder in which the depressed points of the teeth of one saw will be in line with the raised heels of the teeth of the adjacent saw, as and for the purpose set forth.

313,422. COTTON-HARVESTER. DANIEL B. HASELTON, Charleston, S. C., assignor to the Southern Cotton Picking Company. Filed Apr. 8, 1884. (No model.)



Claim.—1. In a cotton-harvester, a picking device consisting of an inner cylinder provided with a series of spring-teeth and an exterior cylinder having a series of openings through which said teeth project, as and for the purpose set forth.

2. In a cotton-harvester, a toothed cylinder arranged concentrically within a perforated outer cylinder, and provided with means, substantially as described, whereby its position relative to the outer cylinder may be changed, for the purpose set forth.

3. In a cotton-harvester, a toothed cylinder provided with a series of spring-teeth, in combination with an exterior perforated cylinder adapted to have a limited motion with reference to said toothed cylinder, whereby the spring-teeth on the inner cylinder may be alternately projected and withdrawn through the perforations in the outer cylinder, as and for the purpose set forth.

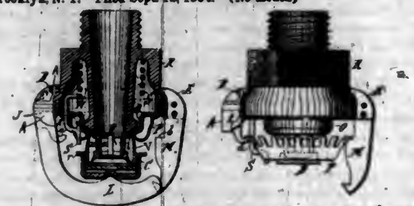
4. The combination of the exterior perforated cylinder, B, having the stop F, and the interior toothed cylinder, A, having the adjustable bar E and rigid stop G, as and for the purpose set forth.

5. The combination, with the exterior perforated cylinder, B, having the rigid stop F, provided with a beveled face, *f*, of the interior toothed cylinder, A, provided with the bar E, having beveled face *f'* and slot *e*, the stud or pin e^3, bolt *e'*, and rigid stop G, as and for the purpose set forth.

6. The combination, with the stationary driving-plate H, having mutilated rubber track I and arms M M', of the cylinder B and the inner cylinder, A, having pulley *d*, as and for the purpose set forth.

7. The combination, with the stationary driving-plate H, having mutilated track I, arms M and M', and bracket N, of the spindle D, upon which are mounted the cylinder B and the cylinder A, having the pulley *d*, as and for the purpose set forth.

313,423. AUTOMATIC FIRE-EXTINGUISHER. CHARLES L. HORACE, Brooklyn, N. Y. Filed Sept. 12, 1884. (No model.)



Claim.—1. In a distributer for fire-extinguishing purposes, the casing R, in combination with the spiral spring S and the cap O, having an opening therein, as explained, substantially as set forth.

2. The casing R and cap O, in combination with the spiral spring S and the lead seat *l*, substantially as set forth.

3. In a distributer for fire-extinguishing purposes, the casing R and cap O, in combination with the spiral spring S, one end of which extends through an opening in said casing, and the deflector P, soldered at *y*, substantially as set forth.

4. A fluid-distributer for fire-extinguishing purposes provided with a detachable lug for the main fusible joint, whereby said joint may be temporarily removed without breaking the same, substantially as and for purposes set forth.

5. A fluid-distributer, in combination with a valve closing the outlet thereof, a lever supporting said valve, and a detachable lug to which said lever is secured by a fusible joint, substantially as set forth.

6. A fluid-distributer, in combination with a cap-shaped valve screw-threaded on its outer surface, and an auxiliary cap screw-threaded on its inner surface and attached to the valve by said screw-threads, substantially as set forth.

7. The casing R, spring S, and cap O, in combination with the valve V, lead joint *l*, and lever secured by a fusible joint, substantially as set forth.

8. The casing R, spring S, and cap O, in combination with the valve V, deflector P, lead joint *l*, and lever secured by a fusible joint, substantially as set forth.

9. A distributer for fluids provided with an annular deflector the edges of whose central opening are turned upward, substantially as set forth.

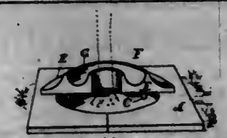
10. In an automatic fire-extinguisher, a valve held by a fusible solder joint and a spring held by an independent solder joint, a seat for said spring being provided on said valve in the path of said spring, substantially as set forth.

313,424. TREE-PROTECTOR AND LAWN ORNAMENT. JASPER S. HUGHES, Dayton, Ohio. Filed Dec. 31, 1883. (No model.)

Claim.—1. In a tree-protector and lawn ornament, two or more base-sections, constructed and united together, as described, and having



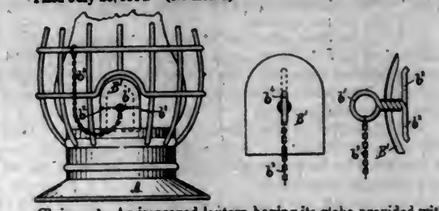
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a central aperture, combined with two or more upper sections, constructed and united as described, and having a central opening and an annular groove about it, substantially as described.

2. The combination, in a tree-protector, of two or more base-sections, two or more upper sections, each having depending lugs, and the metal locking-loops D, substantially as described.

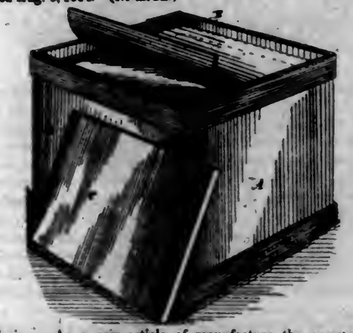
313,425. LANTERN. RICHARD L. HULL, Meriden, Conn., assignor to Addison H. White and Henry L. Fairbrother, both of Providence, R. I. Filed July 25, 1884. (No model.)



Claim.—1. An improved lantern having its globe provided with an aperture, in combination with a cover for said aperture provided with a wire fastening bent to form a handle and catch for securing the cover in closed position, as described.

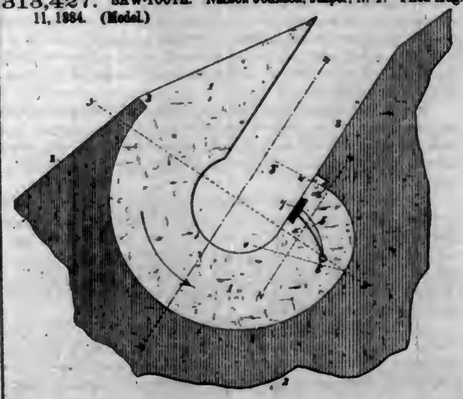
2. The combination, with the globe B, having the aperture *b*, of the cover B', having the catch *b'*, constructed of wire bent to form the handle, and the arms b^2, as set forth.

313,426. BOX FOR PACKING BUTTER. GEORGE HUNGERFORD and SAMUEL H. STILES, Genoa, Ill.; said Stiles assignor to said Hungerford. Filed Aug. 5, 1884. (No model.)



Claim.—As a new article of manufacture, the angular wooden packing-box bound about its upper and lower edges with metallic bands, the upper band projecting above the sides of the box and forming a depressed seat for the removable cover, the said box and cover being coated inside and out with a water-proof composition, substantially as set forth.

313,427. SAW-TOOTH. NELSON JOHNSON, Jasper, N. Y. Filed Aug. 11, 1884. (Model.)



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Claim.—1. The combination, with a saw-plate having a circular seat therein extending more than one hundred and eighty degrees in length, terminating in a circular abutment of less radius than the said circular seat, extending more than ninety degrees in length, and having a notch at its extremity, substantially as described, of an insertible tooth formed with edges complementary to those of the seat having a lug projecting from its heel, and a spring-slot, as and for the purpose set forth.

2. The combination, with a saw-plate having a circular seat therein extending more than one hundred and eighty degrees in length, terminating in a circular abutment of less radius than the said circular seat, extending more than ninety degrees in length, and having a notch at its extremity, substantially as described, of an insertible tooth formed with edges complementary to those of the seat having a lug projecting from the heel thereof, a spring-slot, and a key inserted in said slot, in the manner and for the purpose set forth.

3. The combination, with a saw-plate having a seat therein, of an insertible tooth having a spring-heel, a tapering or wedge-shaped key for expanding said heel, and a groove for the reception of said wedge formed transversely of the tooth and flared or countersunk on one side thereof, as and for the purpose set forth.

4. An insertible saw-tooth having a spring-slot in its heel terminating at its outer extremity in a dovetail groove or mortise flared at one end, in combination with a dovetail key made tapering toward one end, as and for the purpose set forth.

5. An insertible saw-tooth having a spring-slot terminating at its opening in a transverse groove, in combination with a key inserted in such groove and expanding said slot, as and for the purpose set forth.

313,428. RUFFLING AND GATHERING ATTACHMENT FOR SEWING-MACHINES. ALLEN JOHNSTON, Ottumwa, Iowa. Filed Apr. 19, 1884. (Model.)



Claim.—1. In a ruffling attachment, the combination, with the ruffler-frame provided with means for detachably securing the same on a sewing-machine, of the ruffler-blade, the movable pressing-finger under which the ruffler-blade slides, and the mechanism carried by said frame for operating said ruffler-blade and said pressing-finger, said mechanism being constructed to receive movement from a reciprocatory part of the sewing-machine when the attachment is secured thereon, substantially as described.

2. The combination, with the ruffling device or blade, two levers for operating the same, and contacts through which motion is communicated from one lever to the other, of a cam for adjusting one of said contacts to vary the stroke of the ruffling device or blade, substantially as described.

3. The combination, with the ruffling device or blade and two levers for operating the same, said levers turning on a common center or pivot, of one or more pins or projections on the side of one of said levers, and contacts at the ends or edges of one or more recesses or slots in the other, said pins or projections extending into said recesses or slots, substantially as described.

4. The combination, with the ruffling device or blade and two levers for operating the same, of contacts formed by one or more pins or projections on the side of one lever, contacts at the ends or edges of one or more recesses or slots in the side of the other lever, and a cam for adjusting one of said contacts, to vary the stroke of the ruffling device or blade, said pins or projections extending into said recesses or slots, substantially as described.

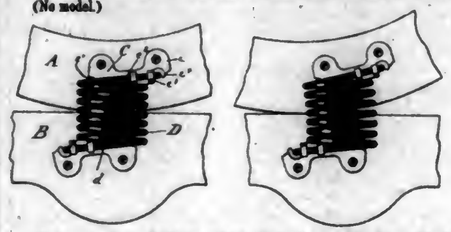
5. The combination, with the reciprocating ruffler-blade and the movable pressing-finger under which the ruffler-blade reciprocates, of a lever forming part of the mechanism to operate said blade, and a cam movable with said lever to operate said pressing-finger, substantially as described.

6. The combination, in a ruffling attachment, with the ruffler-frame provided with means for detachably securing the same on a sewing-machine, and the ruffler-blade, of the two levers fulcrumed on said frame and connected with said ruffler-blade, the movable pressing-finger under which the ruffler-blade slides, and the reciprocating cam for operating the said finger to bear upon the ruffler-blade during its forward movement, substantially as described.

7. The combination of the ruffler-frame, ruffler-blade, two levers turning upon horizontal axes, contacts on said levers formed by one or more pins or projections on one lever extending into one or more recesses or slots in the other, and a regulating-cam turning also about a horizontal axis and carried by one of said levers, the same operating to vary the amount of lost motion between the levers, substantially as described.

8. A ruffling attachment comprising in combination the following elements: a ruffler-frame, a ruffler-blade, two levers, contacts, a cam for regulating the stroke imparted to the ruffler-blade through said levers and contacts, a pressing-finger for bearing upon the ruffler-blade during its forward movement, and a cam for actuating said finger, substantially as described.

313,429. PLATFORM ROCKING-CHAIR. JOSEPH W. KENNA, Chicago, Ill., assignor, by direct and mesne assignments, to William I. Bunker and Charles L. Miller, both of same place. Filed Apr. 9, 1884. (No model.)



Claim.—1. In a platform rocking-chair, the combination, with the base-rails and rockers, of two broad short spiral springs, one at each side of the chair, and each having end portions extended beyond one side thereof, and connectors for securing such extended end portions directly to the base-rails and rockers, said springs being placed vertically at the side of the rockers and base-rails and in or near the center of oscillation, and forming the main or only connection between the upper and lower parts of the chair, substantially as described.

2. In a platform rocking-chair, the combination, with the base-rails and rockers, of two broad short spiral springs, one at each side of the chair, and each having straightened end portions extended beyond one side thereof, and connectors for securing the springs directly to the base-rails and rockers, said springs being placed vertically at the side of the rockers and base-rails and in or near the center of oscillation, and forming the main or only connection between the upper and lower parts of the chair, substantially as described.

3. In a platform rocking-chair, the combination, with the base-rails and rockers, of two broad short spiral springs, one at each side of the chair, and each having straightened end portions extended beyond one side thereof, and bracket-plates for attaching said portions directly to the base-rails and rockers and holding the ends of the springs, said springs being placed vertically at the inside of the rockers and base-rails and in or near the center of oscillation, and forming the main or only connection between the upper and lower parts of the chair, substantially as described.

4. The spring mechanism for a platform rocking-chair, comprising broad short spiral springs having their end portions straightened and extended, and bracket-plates for securing said extended portions directly to the rockers and base-rails, such bracket-plates being provided with seats, and with stops for the ends of the springs, substantially as described.

5. The spring mechanism for a platform rocking-chair, comprising two broad short spiral springs, each having extended straightened end portions, in combination with bracket-plates for securing said extended portions directly to the rockers and base-rails, the bracket-plates having seats for such extended portions, and stop-seats for the ends of the springs substantially as described.

313,430. BEER-MASH TUB. LEO S. KUHN, Cincinnati, Ohio, assignor of one-half to George F. Ahlers and Isaac A. Hoffman, same place. Filed May 29, 1884. (No model.)

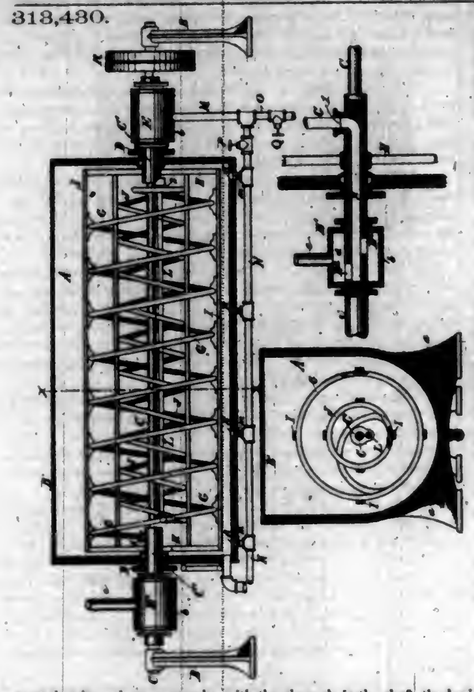
Claim.—1. The combination, with a mash-tub, of an inner and outer coil of pipe, the coils of which extend in reverse directions, with connections for passing a fluid through the coils, and means for revolving the same on their horizontal axes, so that said coils act on the material to move it longitudinally in reverse directions, substantially as described.

2. The combination, with a mash-tub, of two connected coils of pipe arranged one within the other, and the coils extending in reverse spiral lines, a horizontal shaft, heads secured thereto, wings carried by the heads and connected with the outer coil, connections for passing a fluid through the coils, and means for revolving the coils, substantially as described.

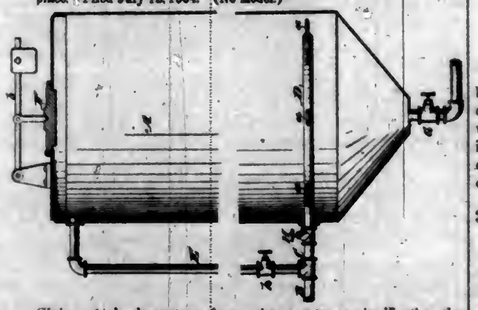
3. The combination, with the mash-tub, of the horizontal shaft, the outer coil, G, the inner reverse coil, J, the longitudinal pipe L, encircled by the inner coil, and connections for passing a fluid through the coils and pipe, substantially as described.

4. The combination with a mash-tub, of the revolving horizontal shaft having channeled end portions, the stationary union-joints having interior annular chambers in communication with the channels, the inlet and outlet pipes connected with the chambers, respectively, the coiled pipe arranged horizontally around and revolving with the shaft, and connected at its ends, respectively, with the channels in the shaft, the horizontal pipe connected with the outlet-pipe of one of the chambers, and branch pipes connecting the horizontal pipe with the interior of the mash-tub, substantially as described.

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313,431. PROCESS OF PREPARING MAIZE FOR MASHING. LEO S. KUHN, Cincinnati, Ohio, assignor of one-half to Hoffman & Ahlers, same place. Filed July 12, 1884. (No model.)



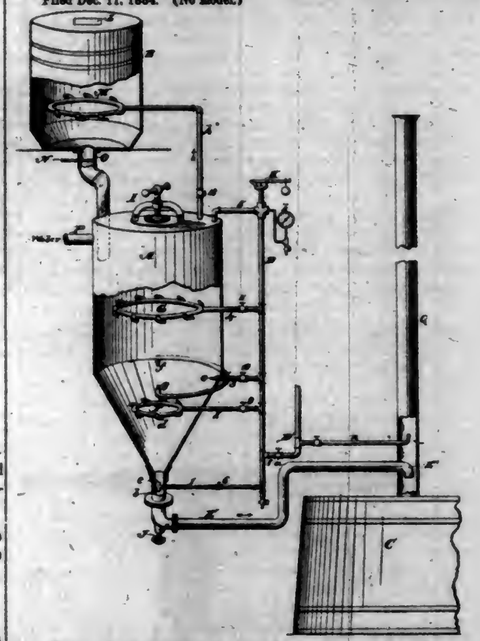
Claim.—1. In the process of preparing corn for saccharification, the art of parboiling the grain by gradually introducing it into a whirling body of water heated in an open vessel by steam, which keeps the charge in a whirl, and continuing the heat at or somewhat below the boiling-point until the kernels have absorbed the maximum amount of water without bursting them, substantially as described.

2. The process of preparing grain for saccharification, consisting in first parboiling the grain in a body of heated water kept in a whirling motion and at a temperature not above the boiling-point, then in subjecting the grain to the action of high-pressure steam in a closed vessel in quantity sufficient to suddenly raise the temperature and expand the water in the grain absorbed in parboiling to disintegrate the kernels, and continuing the cooking and a whirling motion of the charge under the high pressure of the steam until it is cooked and dissolved, substantially as described.

3. The process of cooking maize consisting in placing the same in a small body of water in an open vessel, admitting steam therein, inducing a whirling motion of the water and maize, parboiling the latter, then further treating the charge in a closed vessel with steam under a high pressure admitted in jets which will effect a whirling of the mass, whereby the grain is disintegrated by the rapid expansion of the water of absorption assisted by the attrition of the whirling mass, substantially as described.

4. The process of preparing grain for saccharification consisting in first parboiling the grain in a small body of water kept in a whirling motion by jets of low-pressure steam, then completing the cooking process by subjecting the parboiled grain, without the further addition of water, to the action of high-pressure steam in a closed vessel in sufficient quantity to continue the whirling motion, and to suddenly raise the temperature and pressure to disintegrate and finish the cooking below the scorching-point, then discharging the mass into the mash-tub and adding cold water to cool the charge down to the mashing temperature, substantially as described.

313,432. MACHINERY FOR COOKING MASHES. LEO S. KUHN, Cincinnati, Ohio, assignor of one-half to Hoffman & Ahlers, same place. Filed Dec. 11, 1884. (No model.)



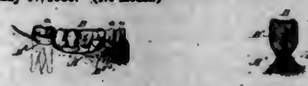
Claim.—In an apparatus for preparing grain for mashing, the combination of the vessel B, having interior steam-discharge pipes for producing a whirling motion of the grain, and water introduced into said vessel and parboiling said grain, a high-pressure steam-cooker having interior steam-jet pipes for producing a whirling of the mass while being cooked, and a mash-tub for receiving the charge from the cooker and cooling the same by water added thereto, substantially as described.

313,433. DOUBLE-TREE. WALTER L. LONG, Melrose, Va. Filed Dec. 10, 1884. (No model.)



Claim.—The spring double-tree having the movable central loop-hitch engaging the inner ends of adjustable levers, the single-tree hitch-bolts connected to the outer ends of said levers and working through perforations in the main bar, and the springs S on the hitch-bolts between said main bar and said levers, substantially as specified.

313,434. ARTIFICIAL DENTURE. JAS. E. LOW, Chicago, Ill. Filed May 17, 1883. (No model.)

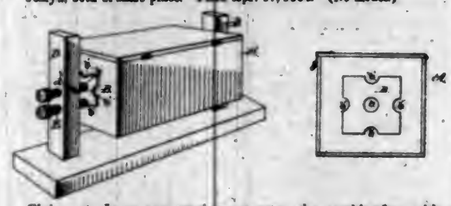


Claim.—1. In combination with a natural tooth or teeth, a denture provided with a band or bands permanently connected to said natural tooth or teeth, and having a narrow bearing-surface fitted to rest upon the hard ridge of the jaw, whereby said denture is supported both by its bearing upon the said ridge and by its attachment to the natural tooth or teeth, substantially as described.

2. In combination with the permanently-secured denture having its lower surface contracted to oppose the ridge of the jaw, the metal-

lic plate *b'*, fitted accurately to the jaw-surface and secured to the denture and to the band or bands by which the denture is permanently held in place, substantially as described.

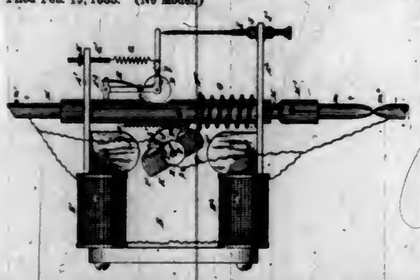
313,435. ROTATING EGG-PRESERVER. JOHN MAGUIRE, Richmondville, N. J., assignor of three-tenths to Ambrose R. Stevens and James W. Joslyn, both of same place. Filed Apr. 17, 1884. (No model.)



Claim.—1. In an egg-turning apparatus, the combination, with a crate, A, having journal-plates B and C, respectively provided with central holes, *b c*, and secured to opposite ends of said crate, of the supports D, as herein described, one of said supports being provided with a fixed stud, *d*, and the other with an adjustable trunnion, *d'*, the whole being constructed and arranged to operate as and for the purpose specified.

2. The combination, in an egg-turning apparatus, with a revolving crate, A, having secured to opposite ends journal-plates B and C, provided with central holes, *b* and *c*, as herein described, of the supports D, one of said supports being provided with a fixed stud, *d*, and the other with an adjustable trunnion, *d'*, and a sliding pin, E, adapted to engage in openings *b'*, so as to lock said crate at any required point of its rotation, as and for the purpose herein specified.

313,436. ELECTRIC-ARC LAMP. C. ODILON MAILLOUX, New York, N. Y., assignor to the Thomson-Houston Electric Company, Boston, Mass. Filed Feb. 19, 1883. (No model.)



Claim.—1. In an electric-arc lamp, the combination of a feed-controlling circuit of high resistance around the arc, an electrode supported in proper relative position to the opposite electrode by the action of the current in said circuit, a retractor acting in opposition to said current; a starting coil or circuit, an electric switch controlling the starting coil or circuit, and means for holding said switch in proper position during operation of the lamp, to permit the regulation to be effected by the controlling action of current in the derived circuit without the intervention of the current in the starting-circuit.

2. The combination, in an electric-arc lamp, of a high-resistance derived circuit, a carbon-supporting and feed-regulating mechanism actuated by the current in said derived circuit acting in opposition to a suitable retractor, a starting coil or circuit closed when the lamp is out of action or at the moment the current is turned on, and an automatic switch for putting the circuits into their normal or feed-regulating condition as soon as the lamp starts into action, so that the electrode may be supported or suspended and its feed controlled thereafter by the influence of the current in the high-resistance derived circuit, as and for the purpose described.

3. The combination, in an electric lamp, of a feed-controlling derived circuit of high resistance around the carbons, an electrode suspended and adjusted in position by the varying influence of the current in said derived circuit acting in opposition to a suitable retractor, a starting coil or circuit for bringing the lamp mechanism into normal or feed-regulating position, and a circuit-controller controlling the connections of the starting coil or circuit, and adapted to maintain the same condition while the lamp is in action, so that the carbon may be held in position, and the ordinary feed-regulating operations may progress under the controlling action of the current in the ordinary derived circuit, as and for the purpose described.

4. The combination, in an electric-arc lamp, of a feed-controlling coil or magnet of high resistance in a branch around the carbons, an electrode held thereby in proper relative position to the opposite electrode, an auxiliary starting-coil acting on the same lever with the feed-controlling coil and placed in a second branch closed at the time the lamp starts in action, and means for cutting out or open-circuiting the branch containing said coil when the lamp begins to act, and holding it out out, so that the feed-regulating action may go on under the control of the high-resistance derived circuit.

5. The combination, in an electric lamp, of a high-resistance derived-circuit magnet, a feed-controlling mechanism and electrode supported thereby, an assisting coil or circuit, and means for switching out said coil or circuit when the lamp starts into action and holding the same switched out while the lamp continues to burn.

6. The combination, in an electric lamp, of an auxiliary or starting circuit in a branch around the carbons, closed when the lamp is out of action, a derived circuit of high resistance controlling the separation and the feed of the carbon, and means for open-circuiting the starting-circuit after the lamp begins to act, as and for the purpose described.

7. The combination, in an electric lamp, of a high-resistance derived-circuit magnet, an electrode and feed-controlling mechanism supported thereby, an assisting-coil in an auxiliary branch for assisting said magnet in bringing the lamp into action, and means for open-circuiting the charging-circuit of said assisting-coil and holding it open-circuited, so that the lamp may continue to act under the control of the current in the derived circuit of high resistance.

8. The combination, in an electric-arc lamp, of a high-resistance derived circuit, a starting-circuit controlled by the regulating devices of the lamp, and in operative condition only when said devices are in an extreme retracted position, and means whereby said starting-circuit may be rendered inoperative while the feed-regulating devices move in normal feed-regulating range, as and for the purpose described.

9. The combination, in an electric lamp, of a high-resistance derived-circuit magnet, feed-regulating mechanism controlled thereby, an auxiliary coil in a branch around the carbons for assisting said magnet in bringing the feed mechanism to the feed-point when the current is turned on, a lever or support for said feed mechanism upon which both the derived-circuit magnet and the auxiliary coil act, a circuit-controller which normally or at the start completes the circuit of the auxiliary coil, and means for actuating said circuit-closer to open the auxiliary circuit or branch when the lamp mechanism has been brought to a determinate position.

10. In an electric lamp, the combination of an electro-magnet and an armature wound with a coil or coils of wire whose convolutions are joined in closed or short circuit while the lamp is in action, as and for the purpose described.

11. In an electric-arc lamp, the combination, with the high-resistance derived-circuit magnet, of an armature provided with a magnetizing-coil, and a commutator operated by said armature for opening and closing the circuit of the coils, as and for the purpose described.

12. In an electric-arc lamp, the combination of the lamp-magnet B in a derived circuit of high resistance, the rocking armature therefor, the sleeve for the carbon-carrier connected with said armature, and a clamping device borne by the sleeve.

13. In an electric-arc lamp, a sleeve surrounding the carbon rod, an opening in the sleeve through which pressure may be exerted upon the carbon rod, a clamp adapted to act through such opening, the armature operating a toothed segment, and a toothed rack on the external surface of the sleeve, as and for the purpose specified.

14. In an electric-arc lamp, a lever supported on a sleeve inclosing a carbon-carrier, a wheel supported by the lever and pressing against the carrier, and means for releasing the pressure of the wheel upon the carrier when the sleeve is moved.

15. The double electric lamp having the two carbon-holders M, the sleeve surrounding said holders, the common shaft provided with means for engaging with the sleeves, the oscillating armature upon said shaft, and clamp devices carried by the sleeves, and adjusted to release and engage with the respective carbon-holders at different points, as and for the purpose described.

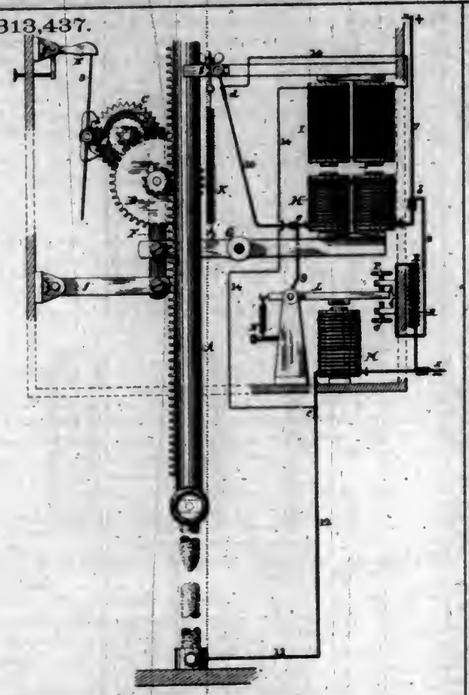
16. The combination, with the controlling mechanism for an electric lamp, of an electro-magnet acting, when energized, in said mechanism so as to cause or permit the carbons to come together, and a commutator or circuit-controller operated by said magnet for stopping the flow of current in all the coils of the magnet simultaneously with the operation of the lamp mechanism or devices that serve to effect contact of the carbons, as and for the purpose described.

17. The combination, in an electric lamp, of a high-resistance derived-circuit magnet, mechanism controlled by said magnet for causing a feed of the carbons; an assisting or auxiliary magnet-coil for assisting said derived-circuit magnet, and means for automatically removing said coil from circuit, as and for the purpose described.

313,437. ELECTRIC-ARC LAMP. C. ODILON MAILLOUX, Brooklyn, N. Y., assignor to the Thomson-Houston Electric Company, Boston, Mass. Filed Sept. 15, 1883. (No model.)

Claim.—1. The combination, in an electric-arc lamp, of a feed-regulating armature or lever supporting the electrode, and actuated in opposite directions by current in a derived circuit of high resistance and by a suitable retractor, a starting coil or circuit, and a circuit-controller for throwing said starting-coil out of action and holding it out of action while

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the lamp continues in operation, said controller being energized by reason of the circuit established by the coming together of the carbons.

2. The combination, in an electric-arc lamp, of a feed-regulating armature or lever supporting the electrode, and actuated in opposite directions by current in a derived circuit of high resistance and by a suitable retractor, a starting-coil in an auxiliary branch around the carbons, a circuit-controller whereby said auxiliary branch may be broken, and an electro-magnet or coil in the circuit established by contact of the carbons, as and for the purpose described.

3. The combination, in an electric lamp, of a feed-regulating armature or lever supporting the electrode, and actuated in opposite directions by current in a derived circuit of high resistance and by a suitable retractor, an auxiliary or starting coil in a branch around the carbons, an electro-magnet in the carbon-circuit, and a circuit breaker or controller for throwing out the starting coil or circuit and holding it out so long as current flows through the carbons.

4. The combination, in an electric lamp, of a derived-circuit feed-controlling magnet and auxiliary assisting-coil for assisting the same in acting upon the feed-regulating lever, means for throwing said auxiliary coil out of action, and an electro-magnet in the carbon-circuit for holding said coil out of action so long as current flows.

5. The combination, in an electric lamp, of a high-resistance derived-circuit magnet, feed mechanism controlled thereby, an electrode suspended from said feed mechanism, a lever carrying the feed mechanism and actuated in opposite directions by the influence of current in a high-resistance derived circuit and by a suitable retractor, an assisting-coil in a branch around the carbons, and a magnet in the arc branch for operating the circuit-controller, as and for the purpose described.

6. The combination, in an electric lamp, of feed-controlling mechanism normally tending to separate the carbons, a derived-circuit coil acting on said feed-controlling mechanism so as to tend to draw the carbons together, an electro-magnet or coil in circuit when the carbons are separated for bringing the carbons together, a circuit-controller whereby said coil may be rendered inactive, and an electro-magnet acting on the circuit-controller and in a circuit with the carbons, as and for the purpose described.

7. In an electric lamp, the combination of a derived-circuit magnet of high resistance, feed mechanism mounted on a lever controlled by said magnet, a supplemental coil through which the current flows when current is turned upon the circuit for bringing the lever and its supported feed mechanism into operating position, and means for cutting off the flow of current in said coil and holding it cut out, said means being controlled by the flow of current through the carbons, whereby the lamp may continue its operation under the control of the high-resistance derived-circuit magnet only.

8. The combination, in an electric lamp, of a feed-controlling mechanism normally tending to separate the carbons, a high-resistance magnet acting upon said mechanism to cause the carbons to come together, a supplemental magnet or coil in circuit when the lamp is out of action and the carbons are separated for assisting the high-resistance magnet, and a commutator or switch electro-magnet for controlling the flow of current in said supplemental electro-magnet or coil, as and for the purpose described.

9. The combination, in an electric lamp, of a feed mechanism normally tending to separate the carbons, a controlling-magnet in a derived circuit of high resistance, an armature therefor wound with a coil through which the current flows when the carbons are separated, and a magnet in circuit with the carbons for controlling the flow of current in said coil.

10. The combination, in an electric lamp, of an electro-magnet for causing an approach of the carbons when separated, a switch or commutator that normally closes a branch for the main circuit through said magnet, and an electro-magnet in circuit with the carbons for operating said switch so as to interrupt the branch as soon as the carbons come together, and at the same time to complete a short circuit around the electro-magnet that causes the carbons to come together.

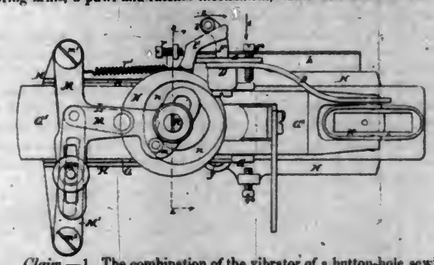
11. The combination of the derived-circuit magnet I in a shunt of high resistance, the armature-magnet H, the switch-lever having two contacts, one controlling a branch around the lamp and through the coils of H, the other controlling a shunt around said coils and electro-magnet M in the main circuit from the negative carbon.

12. The combination, in an electric lamp, of a feed-regulating derived-circuit coil and retractor acting in opposition to the pull of said coil, an electrode supported in proper relative position to the opposite electrode by said coil, a starting-coil in an auxiliary branch around the electrodes, a circuit-controller for said branch, and an electro-magnet or coil in a circuit established by contact of the carbons.

13. The combination, in an electric lamp, of an electrode supported in proper relation to the opposite electrode by the influence of current in a derived-circuit coil, a retractor acting in opposition to said coil to determine the degree of separation of the two electrodes, feed-regulating devices controlled by the action of the increased current forced into the high-resistance derived circuit on lengthening of the arc, a starting coil or circuit, and a circuit-controller for throwing said starting coil or circuit out of action, said controller being energized for such purpose by reason of the circuit established by the coming together of the carbons.

313,438. BUTTON-HOLE SEWING-MACHINE. DANIEL MILLS, Philadelphia, Pa., assignor to the United States Automatic Button Hole Sewing Machine Company, same place. Filed Apr. 5, 1884. (No model.)

Brief.—The cloth-clamp slide is vibrated by means of a cam and spring-arms, a pawl-and-ratchet mechanism, and a bell-crank lever.



Claim.—1. The combination of the vibrator of a button-hole sewing mechanism, carrying spring-arms E E', with a rotary cam for acting on said arms and a stop-cam to limit the extent of motion of the said vibrator, the two cams being mounted on the same pivot-post, substantially as set forth.

2. The combination of the vibrator and slide of a button-hole sewing mechanism, the said vibrator carrying spring-arms E E', with a rotary cam for acting on said arms, a stop-cam to limit the extent of motion of the vibrator, and a disk with a cam-groove for imparting feed motion to the slide, the two cams and the feed-disk all being mounted on the same pivot-post, substantially as described.

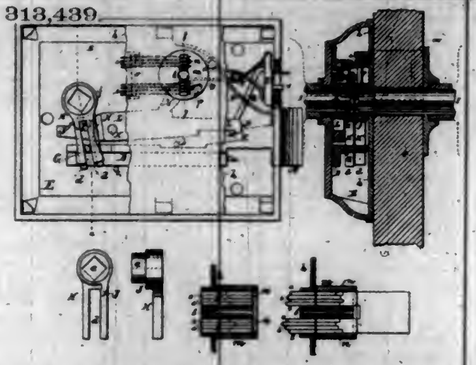
3. The combination of the vibrator and slide of a button-hole sewing mechanism and cloth-clamp carried thereby with the needle-bar of a sewing-machine, bell-crank lever D, transverse lever F, pivoted to the base, and carrying a pawl and a ratchet-wheel operated thereby, to impart motion to the said vibrator and slide, substantially as set forth.

4. The combination of the vibrator and slide of a button-hole sewing mechanism and cloth-clamp carried thereby with a friction feed-disk, N, for imparting a longitudinal feed motion to the slide, arm *f*, lever F, carrying a pin, *l*, bell-crank lever D, and needle-bar of the sewing-machine, substantially as set forth.

313,439. LOCK. BENJAMIN ROSER, Brooklyn, N. Y. Filed Sept. 10, 1884. (Model.)

Claim.—1. In a lock, the bolt A, having a shoulder, in combination with the oscillating lever L, provided with an arm, one end of said lever

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being adjacent to said shoulder on the bolt, a finger-piece by which the lever L may be freed from the bolt independent of the key, and a rotating casing, *m*, having a pin projecting in proper relation to the lever L, to secure its movement from the bolt when the casing is rotated by the key, substantially as set forth.

2. In a lock, the bolt having a shoulder, in combination with the oscillating lever L, one end of which is adjacent to the said shoulder, a spindle, and the vibrating lever H thereon, engaging the bolt-shank, and having a lug, J, which enters a receiving-notch in the lever L, whereby the lever L may be freed from contact with the bolt and the bolt withdrawn into the casing, substantially as set forth.

3. In a lock, the bolt having a shoulder, in combination with the oscillating lever L, one end of which is adjacent to said shoulder, the knob-spindle made in two sections connected by a swiveled joint, the vibrating lever H, arranged upon one of the said sections, and having a lug, J, which enters a receiving-notch in the lever L, and the vibrating lever H', arranged upon the other one of the sections of the knob-spindle, and having its outer end in engagement with the bolt-shank, substantially as set forth.

4. In a lock, the pivotally-secured casing *m*, containing the sets of stop-pins *n o*, which vary in length, and are arranged one upon the other, the lower set of stop-pins being supported by springs *s*, in combination with a pin connected with the casing *m*, the bolt A, and lever L, provided with an arm, the arrangement of the pin, bolt, and lever being such that upon the rotation of the casing by the key the pin will serve to free the lever from the bolt, substantially as set forth.

5. In a lock, the bolt having a shoulder upon its forward portion, in combination with the oscillating lever L, the front end of which is adjacent to the said shoulder, and the rear end of which is supplied with a notch, P, the vibrating lever H, connected with the knob-spindle, and provided with a lug, J, which meshes with the notch P, the post G, formed upon the bolt-shank, and entering the slot *d* in the lever H, whereby when the knob-spindle is turned the lever L is freed from contact with the bolt and the latter is drawn into the casing, substantially as and for the purposes set forth.

313,440. PROCESS OF EXTRACTING OIL FROM FORMED OIL-CAKE. JOHN L. MOSS and NORRIS LITTELL, Rome, Ga. Filed Apr. 14, 1884. (No specimens.)

Claim.—The herein-described process of extracting oil from formed oil-cake, consisting in first forming the oil-cake in an oil-cake former, placing the formed oil-cakes in a press between highly-polished metal plates, and subjecting the oil-cakes to pressure between the plates, substantially as specified.

313,441. FIRE-PLACE AND CHIMNEY. THEODORE C. NATIVEL, Oakland, Cal. Filed May 20, 1884. (No model.)

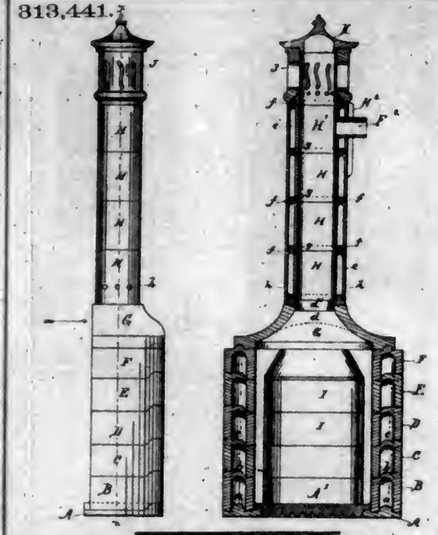
Claim.—1. A fire-place composed of hollow horizontal sections of material of semicircular form, connected detachably by tongue-and-grooved joints, substantially as shown and described.

2. A fire-place composed of a base-plate, A, with flange *a* and detachable plate A', and a top plate, G, with subjacent groove and two or more semicircular sections, B C, made hollow to form air-spaces, and connected by tongue-and-grooved joints to form the walls of the fire-place, substantially as shown and described.

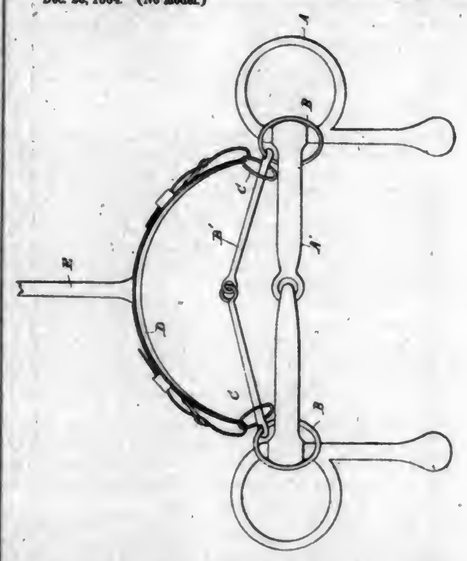
3. The chimney composed of sections H, formed with a central opening and an annular chamber open at the bottom and provided with perforated flanges *f* at the top, adapted to enter and fitted into the open bottoms of the annular chambers, having a smooth continuous central opening, substantially as and for the purpose described.

4. The combination of the hollow semicircular sections B C D, connected by flanges, the base-plate sections A and A', the inner lining, I, the converging cap-plate G, and the chimney composed of sections H, constructed substantially as shown and described.

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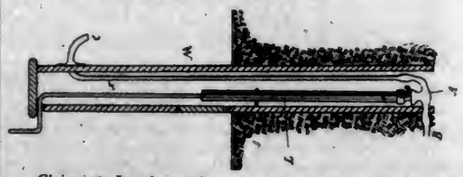


313,442. BRIDLE-BIT. SYLVANUS NORTON, Sinclairville, N. Y. Filed Dec. 26, 1884. (No model.)



Claim.—In a bridle-bit, the strap E, attached to the central portion of nose-strap D, said strap D having rings C, loosely fitted to slide over the hinged links of bit B', in combination with rings B, loosely fitted over the hinged links A' of the bit A, as described, and for the purposes set forth.

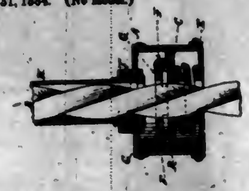
313,443. FAUCET. HERRON H. ORBITS and MICHAEL WILLET, Detroit, Mich. Filed Aug. 20, 1884. (No model.)



Claim.—1. In a faucet, the removable plug F, carrying the valve-stem H, and surmounted by the stuffing-box G, in combination with the tube I, coupling J, and set-screw K, the parts being constructed and arranged substantially as shown, and for the purposes specified.

2. In combination with the valve-shell A, provided with the diaphragm D and annular flaring flange E, directly attached thereto, the removable plug F, carrying the valve-stem H, and surmounted by the stuffing-box G, and provided with the passage-way *b*, communicating with the interior of the shell A, its discharge end terminating within the annular space between the plug F and the annular flange E, substantially as shown.

313,444. FRICTION-SLIDE. CHARLES F. OXLEY, Brooklyn, N. Y. Filed May 31, 1884. (No model.)



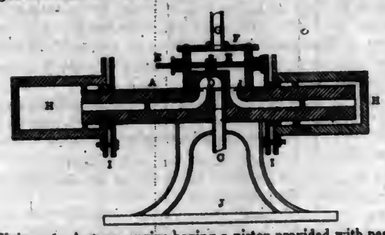
Claim.—1. The combination, with a rod having a spiral rib upon it, of a friction device surrounding said rod, and carrying one or more pawls pivoted thereto and adapted to engage with the spiral rib in one direction, thereby rotating the friction device, and to be disengaged from the spiral rib in the opposite direction, thereby leaving the friction device at rest, substantially as described.

2. The combination, with a rod provided with spiral ribs upon it, of a friction-disk surrounding said rod, and pawls movable toward and from and adapted to engage with the ribs on said rod in one direction, thereby rotating the friction-disk, and to be disengaged therefrom in the opposite direction, thereby leaving the disk at rest, substantially as described.

3. The combination, with a spirally-twisted rod having four opposite spiral ribs upon it, of a friction-disk surrounding said rod and carrying two horizontal pivoted pawls adapted to surround said rod and engage therewith when the rod is depressed, thereby rotating the friction-disk, but to be elevated and disengaged from the rod when said rod is elevated, thereby leaving the friction-disk at rest, substantially as described.

4. The combination, with the spiral tube B, sliding vertically, but prevented from rotation, of the tube H, carrying supporting-drum A, likewise prevented from rotation, and friction-disk C, held against the drum A by spring D, and provided with pawls G G, forming substantially a rectangular inner opening when depressed, substantially as described.

313,445. STEAM-ENGINE. GEORGE W. PEKE, Baltimore, Md., assignor to Bernard N. Baker, same place. Filed Feb. 7, 1884. (No model.)



Claim.—1. A steam-engine having a piston provided with passage-ways extending to opposite ends thereof, and a valve located in the longitudinal center of the piston and controlling the passage-ways, in combination with two separate cylinders located upon opposite ends of the piston, substantially as described.

2. A steam-engine having a piston provided with passage-ways extending to opposite ends thereof, a valve controlling said passage-ways, and separate reciprocating cylinders connected by arms or braces, substantially as described.

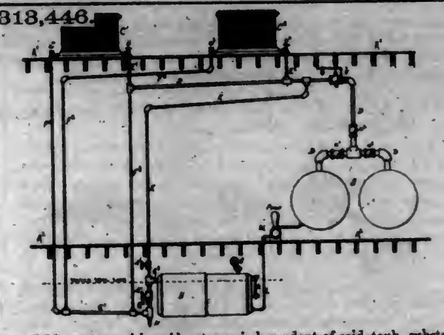
3. In a steam-engine, the stationary piston A, provided with the passage-ways B B, the cylinders H H, valve D, exhaust C, and steam-inlet G, substantially as and for the purposes set forth.

4. In a steam-engine, the stationary piston A and reciprocating cylinders H H, joined together by the braces K K, and provided with the trunnions M M, substantially as described.

313,446. STEAM-HEATING APPARATUS. STEPHEN H. PURDY, St. Paul, Minn. Filed May 22, 1884. (No model.)

Claim.—1. In a steam-heating apparatus, the combination, with the steam-supply pipe or pipes, the return-pipes and drip-pipes, and an equalizing-pipe whereby an equal pressure is preserved throughout the whole circuit, of a surplus-water tank having the said return and equalizing pipes connected with it at or near its top and at a point sufficiently high above the lowest point of said returns to maintain a uniform and

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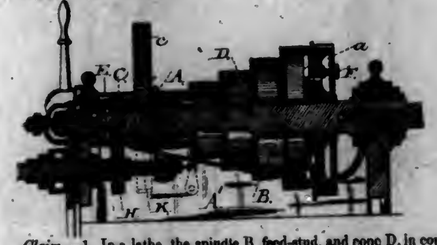


invariable water-seal in said returns independent of said tank, substantially as and for the purpose set forth.

2. The combination of the main steam-pipe D, adapted to supply steam to the radiators, &c., return main G', having upright branch G^2, and connected to said radiators and main steam-pipe, equalizing-pipe K, and tank H, connected to said upright branch G^2 and equalizing-pipe K at or near its top, and means for removing the surplus water from said tank without affecting the water-seal in said return main and its connections, substantially as described.

3. In a steam-heating apparatus, a surplus-water tank, H, adapted to be supplied with water at or near its top, and provided with means for the removal of the water therefrom at or near its bottom, and an inclined chute, R, substantially as and for the purpose specified.

313,447. LATHE. SALMON W. PUTNAM, Fitchburg, Mass. Filed May 19, 1884. (No model.)



Claim.—1. In a lathe, the spindle B, feed-stud, and cone D, in combination with the cone-pinion A, feed-gear C, and sliding gear H, the said gears being of the same diameter, or with their teeth formed on the same pitch, substantially as herein set forth.

2. In a lathe, and in combination with the gears A and C, as described, the means herein set forth whereby the revolution of feed-stud K is temporarily stopped by means of a sliding gear or clutch, substantially as described.

3. In a lathe, the feed-stud K, in combination with a sliding gear, H, or its equivalent, and means, substantially as described, for increasing the velocity of the stud, for the purpose herein set forth.

4. In a lathe, the combination of the spindle B, feed-gear C, cone-pinion A, and sliding gear H, substantially as herein set forth.

5. In the head-stock of a lathe, the combination of a feed-stud, K, and sliding gear H, substantially as described.

6. In a lathe, the spindle-gear C and cone-pinion A, of such size and pitch as to permit the sliding of a stud-gear from one to the other, for the purpose set forth.

7. In combination with a lathe, the back rest formed in two sections, the upper section having an inclined or cam face, and a locking-bolt having a handle adapted to engage the face of the upper section, substantially as and for the purpose described.

313,448. WATCH-CASE HINGE. FREDERICK RAPP, Chicago, Ill. Filed Aug. 28, 1884. (Model.)



Claim.—1. A hinge for watch-cases in which the pivotal pin is constructed in two sections that are contained within the axial opening of the center lug, and may be moved longitudinally outward from the same until their outer ends enter into and engage with the axial openings of the adjacent outer lugs, substantially as and for the purpose specified.

2. A hinge for watch-cases in which the pivotal pin is constructed in two sections that are contained within the axial opening of the center

lug, and by means of a screw, which is arranged to pass between their inner contiguous ends, may be forced longitudinally outward until their outer ends enter into and are contained within the axial openings of the adjacent outer lugs, substantially as and for the purpose shown.

313,449. WATCH-CASE HINGE. FREDERICK RAPP, Chicago, Ill. Filed Aug. 28, 1884. (Model.)

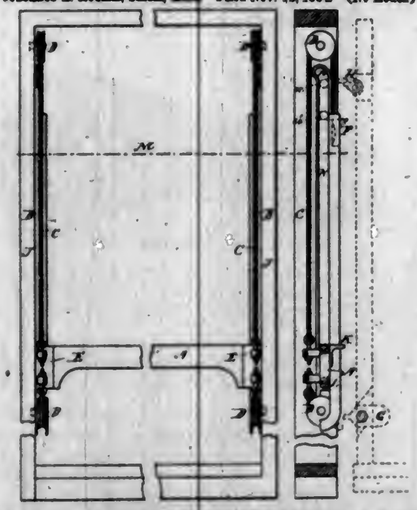


Claim.—1. A hinge for watch-cases in which are employed two pivotal pins that are each caused to engage with the adjacent lug by an endwise movement, and when thus engaged are locked in place by a screw or other equivalent means, substantially as and for the purpose specified.

2. A hinge for watch-cases in which each outside lug is provided with an axial opening that contains a pivotal pin which by an endwise movement may be caused to project beyond the end of said lug and to enter into and engage with an axial opening in the adjacent end of the center lug, substantially as and for the purpose shown.

3. A hinge for watch-cases in which each outside lug contains a pivotal pin that is adjustable endwise for the purpose of engagement with the center lug, and is locked in position by means of a set-screw which passes inward through said outside lug, substantially as and for the purpose set forth.

313,450. AUTOMATIC HATCHWAY-GUARD FOR ELEVATORS. COLUMBUS K. ROGERS, Salem, Mass. Filed Nov. 12, 1884. (No model.)

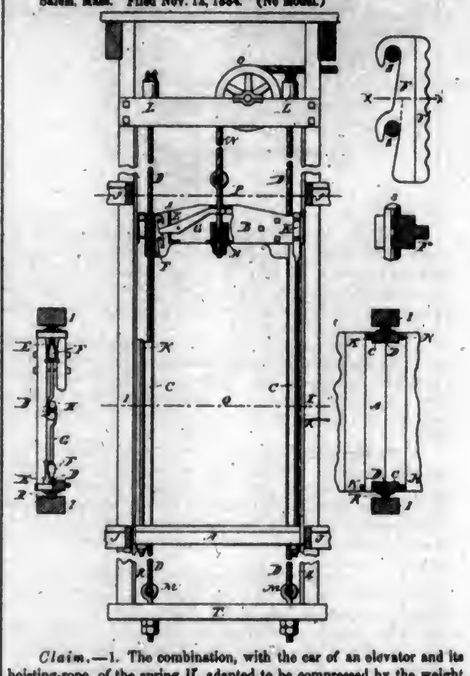


Claim.—1. An uncounterpoised automatic hatchway-guard consisting of a gate guided in ways which curve away from the elevator-shaft at their upper ends by two pins on a side—one near the upper and one near the lower edge of said gate—which gate carries on its elevator-shaft side dogs, K, suitably located to engage with pawls on the elevator-car, and which gate is suspended at each end by a lathe-chain passing over chain-pulleys at top and bottom of the ways and made fast at both ends to the gate, whereby the gate is made to descend, when released, evenly at each end, in combination with gravity-pawls on the upper part of the elevator-car, substantially as described.

2. An uncounterpoised elevator hatchway-guard consisting of a gate guided in ways by pins, which gate is suspended by lathe-chains passing over chain-pulleys at top and bottom of the ways, and each made fast at both ends to the gate, each of said lathe-chains being provided with a dog on the elevator-shaft side, in combination with a gravity-pawl on the elevator-car near its bottom, suitably located to engage with said chain-dogs, substantially as described.

3. In an uncounterpoised automatic elevator hatchway-guard, the combination of a gate guided in ways which terminate upwardly in a switch inclined away from the elevator-shaft, lifting-dogs on said gate, lathe-chains, one at each end of said gate, both ends of each of which chains are fast to the gate, a depression-dog on each of said chains, chain-pulleys for the lathe-chains on each side of the gate above and below the ways, an elevator-shaft, and ascending and descending car by means of gravity-pawls on said car near its top and bottom, whereby the gate may be lifted when the car passes its hatchway, either up or down, held up when the car stops at its hatchway, and the rate of descent of the gate is regulated by the rate of motion of the elevator-car, substantially as described

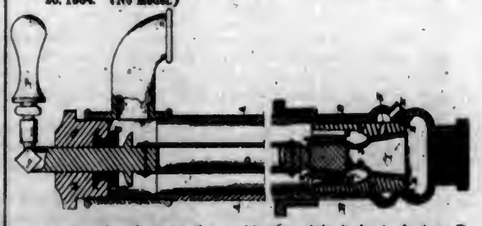
313,451. AUTOMATIC ELEVATOR-BRAKE. COLUMBUS K. ROGERS, Salem, Mass. Filed Nov. 12, 1884. (No model.)



Claim.—1. The combination, with the car of an elevator and its hoisting-rope, of the spring H, adapted to be compressed by the weight of the car when suspended by the hoisting-rope and to extend when the hoisting-rope gives way, in combination with levers G, wedges F, and pins S, arranged in the box E at either end of the head-beam, and in further combination with brake-rods D, extended from one end to the other of the elevator-shaft, whereby on the parting of the hoisting-rope the brake-rods D are seized by the brake F' and box E, substantially as described.

2. In combination with the box E at the end of the head-beam of an elevator-car, the transverse pins S and wedge F, adapted in its vertical motion to be driven toward the end of the box E, substantially as described.

313,452. HYDRANT. HENRY RUPPEL, Cleveland, Ohio. Filed Oct. 20, 1884. (No model.)

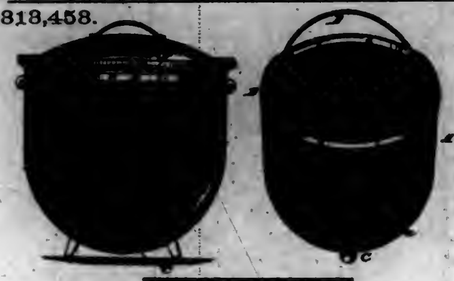


Claim.—In a hydrant, the combination of the body A, the base B, provided with an outlet, H, the valve-seat C, removably secured in the base, and provided with the passages F G, and a conical valve-seat, the valve I, operating-rod, and the projections L N, whereby the valve and valve-seat can be removed without disturbing the body or the base, substantially as shown and described.

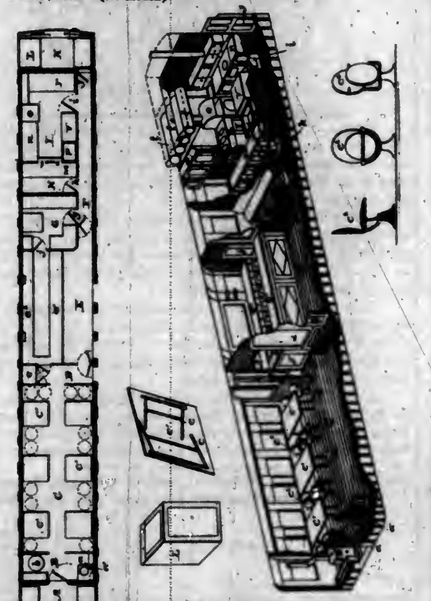
313,453. COOKING-VESSEL. HANNAH JANE RUTTER, Oakland City, Ind. Filed July 21, 1884. (No model.)

Claim.—The combination, with a cooking-vessel, of a receptacle formed of a single piece of wire-cloth having a dished bottom, *a*, provided with a short leg, C, and a suitable bail or handle, as and for the purposes set forth.

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313,454. HOTEL-CAR. JOSEPH J. STROUD, St. Paul, Minn. Filed Dec. 13, 1884. (No model.)



Claim.—1. A restaurant or hotel railway-car having a lobby, B, provided with a heater and wash-stand, a dining-saloon provided with movable folding chairs and tables, a transverse passage, D, a lunch-room, and a kitchen, arranged substantially as described.

2. A restaurant or hotel railway-car having a lunch-room at or near the middle of the length of the car, and a dining-saloon on one end and a kitchen on the other, and communicating with each other, substantially as described.

3. A restaurant or hotel car having a pantry and a wine or smoking room on one end of a lunch-room, in combination with a side hall, F, and a dining-saloon, arranged substantially as described.

4. The combination and arrangement, in a hotel railway-car, of a lunch-room midway of the car, having a longitudinally-arranged counter, and windows at each end of the space behind the counter, the transverse passage D, the dining-saloon, the wine-room, the hall F, and the outlet-door J, substantially as described.

5. In a restaurant railway-car, the arrangement of the lunch-room, the wine-room, the pantry, and the kitchen with relation to the hall F and the outlet-door J, substantially as described.

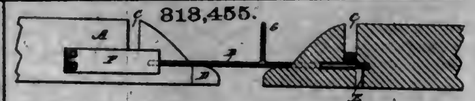
6. In a restaurant railway-car, the combination, with a lunch-room at or near the middle of the car, a kitchen at one end thereof, a side communicating hall, F, and a dining-saloon at or near the opposite end of the car, all arranged substantially as described.

7. A railway-car having a lobby, B, a dining-saloon, C, a cross-hall, D, a lunch-room, E, a side hall, F, a wine-room, G, a pantry, H, and a kitchen, I, all furnished and arranged substantially in the manner and for the purposes specified.

8. A hotel-car having a dining-room provided with folding tables and folding chair-seats, substantially as described.

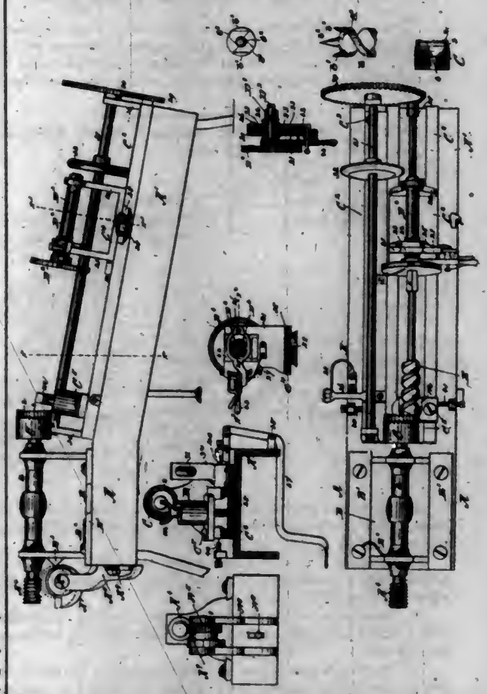
313,455. CAR-COUPLING. JOHN T. SUTTLES, Matthews, assignor of one-half to James E. Black, Mecklenburg County, N. C. Filed Dec. 9, 1884. (No model.)

313,455.



Claim.—In a car-coupling, the combination of an open loop-shaped link and a draw-head combining the following elements in one and the same piece: the top portion of the forward end thereof being of a width to enter the said loop as a hook and slanted forward on top, projections beside and at the base of said slanting portion, giving the draw-head a T shape, and a notch in the top side at the rear of the slanting portion and above the level of the side projections, the said notch having a vertical and a horizontal portion, the vertical portion being the mouth thereof, and the horizontal portion extending to the rear of the said mouth beneath the solid stock of the draw-head, substantially as shown and described.

313,456. MACHINE FOR THE MANUFACTURE OF AUGER-BITS. JAMES SWAN, Seymour, Conn. Filed June 23, 1884. (No model.)



Claim.—1. In a machine for the manufacture of auger-bits, a hollow rotating cutting-tool and a carriage to support it, combined with the chuck-holding carriage and a frame to support it, one of the said parts being pivoted—as, for example, the frame at C^3—out of line with relation to the other, as described, whereby the inner side of the spur and the floor-lip of the bit at its junction with the spur may be quickly relieved from the action of the cutting-tool, and the annular series of internal teeth of the said tool be brought into position to cut into the base of the screw, substantially as described.

2. The rotating cutting-tool and its carriage, combined with the chuck-holding carriage and chuck and sleeve to receive it, mounted in vertically-movable bearings in the said chuck-holding carriage, to operate substantially as described.

3. The rotating cutting-tool, the chuck-holding carriage, the threaded sleeve, and the threaded nut to receive it, combined with the bit-holding chuck connected with the said sleeve, and with means, substantially as described, to partially rotate the said chuck and sleeve, the latter, when partially rotated, moving longitudinally and carrying the chuck and bit with it, substantially as described.

4. In a machine for the manufacture of auger-bits, the rotating cutting-tool, the frame C^3, the chuck-holding carriage thereon, and the rest for the end of the bit to be milled, combined with the sleeve, the chuck therein, and the vertically-movable bearing for the sleeve, whereby the sleeve and chuck may be lowered as the bit is partially rotated, to operate substantially as described.

5. The rotating cutting-tool, its carriage, the chuck-holding carriage, and bit-holding chuck, threaded sleeve, and threaded vertically-movable bearing-nut therefor, combined with means to rotate the said chuck and sleeve, substantially as described.

6. The rotating cutting-tool, its carriage, the chuck-holding carriage, and the chuck thereon, combined with a screw to engage and move the latter carriage, substantially as described.

7. The rotating cutting-tool, its carriage, the pivoted frame, the rest for the bit, the chuck to hold the bit, and the chuck-holding carriage mounted on the said frame, combined with means, substantially as described, to change the relative positions of the said rest and tool, as described, to enable its rim 4 to cut into the base of the leading-screw.

313,457. LOCK-HINGE. SAMUEL TUREK, Chicago, Ill., assignor to himself, Moses Rabel, Isaac Hirsch, and James B. Galloway, all of same place. Filed Sept. 3, 1884. (No model.)



Claim.—In combination with the leaves of a hinge, an arm, E, hinged to one leaf and passing through an opening in the other leaf, and a spring, *e*, located either in the door or casing, with which spring the free end of the arm E engages, substantially as and for the purpose specified.

313,458. FISH-INCLOSURE. WILLIAM H. TURNER, Martinsville, Ohio. Filed Apr. 15, 1884. (No model.)



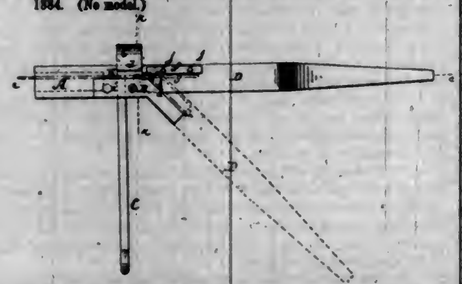
Claim.—1. The pond A, provided with an inclosing-wall and adjacent gutters *a a*, in combination with connecting-openings and controlling-gates, for the purpose described.

2. The pond A, in combination with a supplemental inclosure, B, provided with a cut-off gate, *f*, pivoted lever *g*, and spout E, all constructed and arranged to operate as set forth.

3. The inclosure A and supplemental inclosure B, in combination with a hinged foraminous bottom, *h i*, and hoisting devices, for the purpose specified.

4. The false bottom, jointed at *i* and hinged at *k*, having one free end, and the hoisting devices, in combination with posts *n n'* and cross-bar *m*, to force the edge of the false bottom to hug the wall, as set forth.

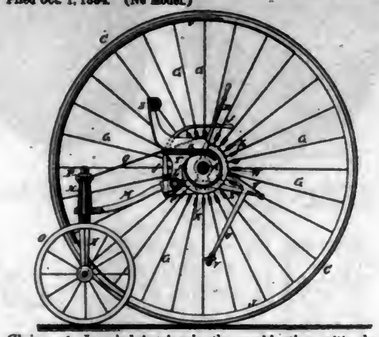
313,459. MACHINE FOR BENDING METAL. ALWILL URBAHN, Paterson, N. J., assignor to Jacob May, Brooklyn, N. Y. Filed June 10, 1884. (No model.)



Claim.—1. The combination of the block A, having rigid projection B and bending-face *a*, with the clamping-lever C, which is pivoted to the block A and carries the head *d*, and with the bending-lever D, which is also-pivoted to the block A, and provided with the rigid projection *f*, substantially as herein shown and described.

2. The combination of the block A, having rigid projection B, with the spring *m*, pin *l*, lever C, and lever D, the lever D having the projection *f*, substantially as described.

313,460. LADY'S TRICYCLE. LOUIS P. VALIQUET, Mount Kisco, N.Y. Filed Oct. 1, 1884. (No model.)



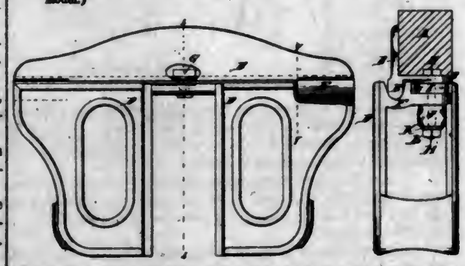
Claim.—1. In a lady's tricycle, the combination, with the axle A and a clutch thereon, of the frame L, having side arms in which the axle is journaled, and the three-armed foot-levers connected to the side arms of the said frame and to the clutch, substantially as herein shown and described.

2. In a lady's tricycle, the combination, with the rigidly-connected clutch-casing *a*, axle A, and wheels C, and the frame L, of the brake strap and lever *e f*, substantially as herein shown and described, whereby the advance of the tricycle can be checked by pressure applied to the said clutch-casing, as set forth.

3. In a lady's tricycle, the combination, with the clutches X, having spring-held pawls, the clutch-casings *a*, and the frame L, of the chains W and the three-armed foot-levers U, substantially as herein shown and described, whereby the said clutches can be readily operated to give motion to the tricycle, as set forth.

4. In a lady's tricycle, the combination, with the clutches X and the frame L, of the cords or chains *c* and the springs *d*, substantially as herein shown and described, whereby the said clutches will be brought back to their former positions after each forward movement, as set forth.

313,461. CAR-PEDESTAL. JACOB VOLK, St. Louis, Mo., assignor of one-half to Charles Wendemuth, same place. Filed Aug. 9, 1884. (No model.)



Claim.—1. A car-pedestal hinged to the body or frame at or near its outer side, and having a bearing-shoulder within the hinge-bearing constructed to limit the inward movement of the pedestal upon its hinge-bearing.

2. A car-pedestal hinged to the body or frame at or near its outer side, and having a bearing-shoulder within the hinge, with a cushion-spring between the bearing-shoulder and the car body or frame, for the purpose set forth.

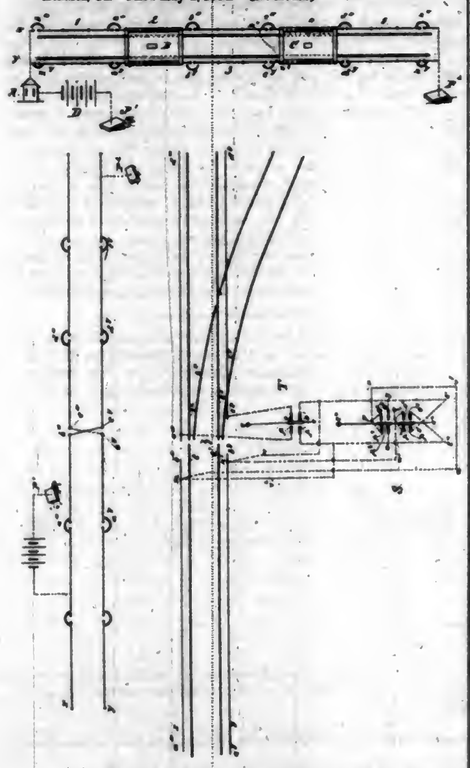
3. The combination, with a car-body sill or timber, of a car-pedestal, a rocking or hinge bearing between them, and a stay-bolt limiting the outward movement of the pedestal, for the purpose set forth.

4. A car-pedestal having a rocking bearing beneath a car body or frame, a shoulder within the hinge arresting the inward movement of the pedestal, a cushion-spring between the shoulder and the timber of the car body or frame to which the pedestal is hinged, and a stay-bolt connecting the car or frame with the pedestal, for the purpose set forth.

5. The combination of a car body or truck, a pedestal having rocking bearing beneath the same, with shoulder extending inward from the hinge, and a stay-bolt securing together the pedestal-shoulder and car body and truck, and passing through springs bearing upon the upper and under side of the shoulder, for the purpose set forth.

6. The sill-plate secured to the timber of a car or truck and having bearing-ribs, a pedestal having bearing-recesses therein receiving the ribs upon the sill-plate and working thereon, bearing-shoulders upon the sill-plate and pedestal within the line of the hinge, a stay-bolt connecting the shoulders, and springs upon the bolt between the shoulders and beneath the pedestal-shoulder, respectively, for the purpose set forth.

313,462. TELEGRAPHIC APPARATUS. CHARLES W. WILLIAMS, Cave City, Ky., EDWARD B. IVIE, New York, N. Y., and GEORGE S. BARNUM, Atlanta, Ga. Filed May 2, 1884. (No model.)



Claim.—1. The two main-line wires X and Y, branching from the same pole of a local galvanic battery, D, and grounded at the opposite end to complete the circuit, said wires running along parallel to the rails of a railway-track and divided into suitable sections, as described, and provided at each intersection with a switch-connection for breaking and closing the circuit at such intersections, and a railway-car on the track, with suitable means for establishing and maintaining constant electrical connection between said wires through an instrument on the car, also with suitable means, as described, for automatically operating said switches by the movement of the car to open an existing closed connection and close an existing open connection at the intersections passed over by the car, whereby the current is conducted through the car from one wire to the other constantly as the car moves along the track, as and for the purpose specified.

2. The combination, with two sections of the main conductors X and Y, of the described switch, comprising the contact-posts *o o'* and *p p'*, the vibrating contact-piece *e*, and wire-connections between one pair of said posts and the adjacent ends, respectively, of two sections of one of said main conductors, and between the other pair of said posts and the adjacent ends, respectively, of two sections of the other main conductor, as and for the purpose described.

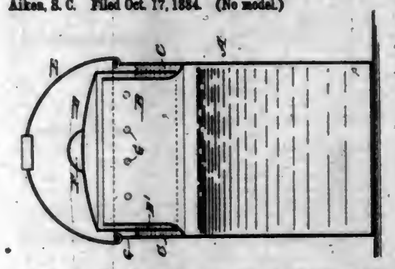
3. The combination, with two sections of the wires X Y, of the described switch, comprising the contact-points *o o' p p' p^2 p^3 p^4 p^5 o^2 o^3 o^4 o^5*, and the vibrating contact-pieces *e* and e^2, together with the circuit-connections connecting e^2 with b^2, and also e^2 with b^3, through the said switch, as and for the purpose described.

4. The combination of the described main conductors X and Y and a railway-track divided into insulated sections, a railway-car on said track carrying an independent battery, with wire-connections running from opposite poles of the battery to opposite trucks of the car, an electro-magnet in a line-wire, the opposite ends of which are connected one to each of two adjacent insulated sections of the railway-track, with the described switch-block, whereby, when said car passes a switch-point, said magnet is charged and actuates said switch-block to change the existing main-line circuit at that point, all as and for the purpose specified.

5. The combination, with the electro-magnet M, of an armature, to which is connected a vibrating lever, *k'*, provided with a spiral spring, which acts to withdraw the armature from the magnet, a ratchet-wheel, *d'*, on the shaft of which is the cam *g*, the lever *k'* and said ratchet being arranged, as described, so that the end of said lever engages the teeth of said ratchet, the spring *k* acting to insure such engagement, detent *l'*, engaging with the ratchet to prevent its reverse movement, and the lever *c'*, carrying the contact-piece *e*, arranged, as described, in relation to the cam *g*, so that the said lever and contact-piece are vibrated by the rotation of the said cam to make and break connection between the contact-points *o o'* and between *p* and *p'*, as and for the purpose described.

6. The combination of the described circuit-breaker W, resting upon the wheel of a railway-car, and a battery on said car, one pole of which is connected to said circuit-breaker and the other pole being in electrical connection with the track, said track being divided into insulated sections and connected to the magnet M, all as and for the purpose described.

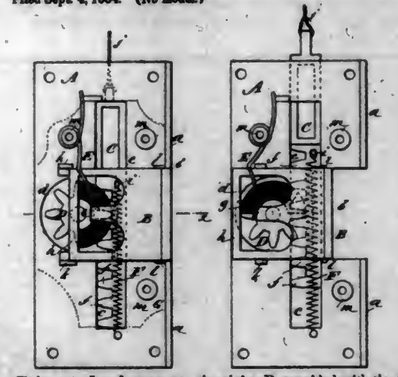
313,463. SANITARY ICE-CHEST PAIL. WILLIAM W. WOOLSEY, Aiken, S. C. Filed Oct. 17, 1884. (No model.)



Claim.—1. The flat pail A, provided on its inner surface with a cup, B, at the top, whereby a trough for receiving water to form a seal is provided, the top edge of the cup projecting slightly above the top edge of the pail, substantially as herein shown and described.

2. The combination, with the pail A, having apertures G directly below the top edge, of the cup B, secured on the inner surface of the pail and projecting above the top edge of the same, substantially as herein shown and described.

313,464. DOOR-OPENER. EDWARD G. WORLEY, New York, N. Y. Filed Sept. 4, 1884. (No model.)



Claim.—1. In a door-opener, the pinion D, provided with the flange *g*, in combination with the keeper B and toothed bar C, substantially as described.

2. In a door-opener, the sliding bar C, held by the spring F, in combination with the keeper B, spring E, and pinion D, provided with the segmental flange *g*, substantially as and for the purposes set forth.

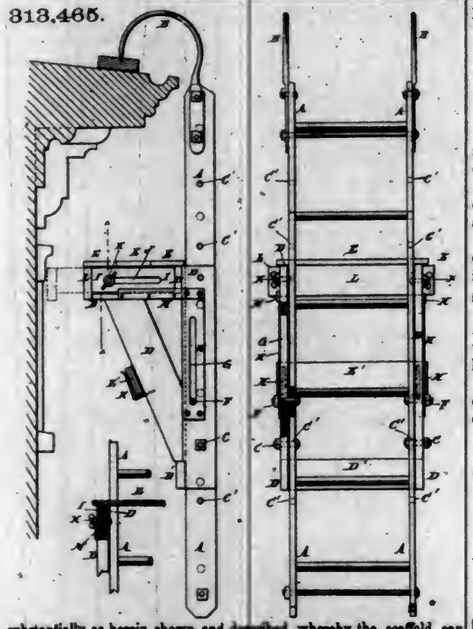
3. In a door-opener, the main plate A, formed with the recess *c*, for the pull, and the cavity *d*, for the pinion D, substantially as described

313,465. SUSPENDED SCAFFOLD. JOHN WORSLEY, Chester, Pa. Filed Jan. 23, 1885. (No model.)

Brief.—A ladder having end hooks is provided with brackets carrying platform-boards. The horizontal bars of said brackets are provided with sliding bars connected by a cross-bar which supports an additional platform-board.

Claim.—1. In a suspended scaffold, the combination, with the ladder A, having end hooks, B, of the brackets D and platform-boards E,

313,465.



substantially as herein shown and described, whereby the scaffold can be readily suspended from the cornice of a building, as set forth.

2. In a suspended scaffold, the combination, with the ladder A, having end hooks, B, the brackets D, and the platform-boards E, of the sliding bars I, the connecting cross-bar L, and the platform-board E', substantially as herein shown and described, whereby the scaffold can be readily widened, as set forth.

REISSUES.

10,566. WATCH-CASE CENTER. JOHN C. DUNNER, Newport, Ky. Filed Apr. 17, 1884. Original No. 290,870, dated Dec. 25, 1883.

10,566.



Claim.—1. A watch-case center consisting of two annular parts or zones, each part having a lip, and one lip being spun or upset into the other lip, for the purpose described.

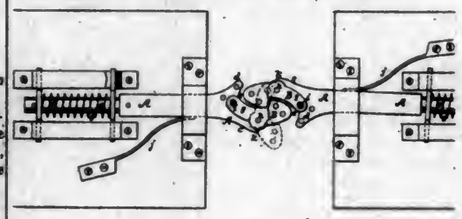
2. A watch-case center consisting of two annular parts or zones, each part having a lip, and one lip being spun or upset into the other lip and secured with a solder joint, as F, for the purpose described.

3. A watch-case center consisting of two annular parts or zones, one part having a lip, *b'*, projecting therefrom, and the other part having a lip, *a'*, spun or upset into said lip *b'*, said zones being soldered together, as at F, and further secured by the locking-piece D, as set forth.

4. A watch-case center consisting of two annular parts or zones, as A B, one of said parts being provided with an undercut lip, *b'*, wherewith the lip *a'* of the other part or zone is interlocked, in the manner herein described, and for the purpose stated.

5. A watch-case center consisting of two annular parts or zones, each zone having a lip, and the lip of one zone being slipped into the lip of the other zone and secured with solder, substantially as described.

10,567. CAR-COUPLING. EUGENE M. VAN HOUSEN, Preble, and NELSON H. BROWN, Syracuse, N. Y. Filed Apr. 30, 1884. Original No. 119,431, dated Sept. 26, 1871; Reissue No. 7,922, dated Oct. 23, 1877; Reissue No. 8,412, dated Sept. 10, 1878; Reissue No. 9,525, dated Jan. 4, 1881.



Claim.—The swing-head B, shaped as shown, and applied to the finger *c* of the draw-head to constitute a coupling, substantially as set forth.

PHOTO LITH. NORRIS PETERS WASHINGTON D.C.

DECISIONS
OF THE
COMMISSIONER OF PATENTS
AND OF UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

Supreme Court of the United States.

COON *et al. v.* WILSON.

Decided January 26, 1885.

Reissued Letters Patent No. 8,169, granted to Washington Wilson, as inventor, April 9, 1878, on an application therefor filed March 11, 1878, for an improvement in collars, the original patent (No. 197,807) having been granted to him December 4, 1877, are invalid as to claims 1 and 4.

The original patent described and claimed only a collar with short or sectional bands—that is, a band along the lower edge of the collar, made in parts or sections, and having a graduated curve. The reissued patent and claims 1 and 4 thereof were so framed as to cover a continuous band with a graduated curve, but not in sections. The defendant's collars were brought into the market after the original patent was issued and before the reissue was applied for, and the reissue was obtained to cover those collars; and, although it was applied for only a little over three months after the date of the original patent, there was no inadvertence or mistake so far as the short or sectional bands were concerned, and it was sought merely to enlarge the claim. Claim 2 of the reissue was substantially the same as the single claim of the original patent, and claim 3 had as an element short bands. As the defendant's collars had a continuous band with a graduated curve, and not short or sectional bands, and did not infringe the claim of the original patent or claims 2 and 3 of the reissue, and claims 1 and 4 thereof were invalid, the bill was dismissed.

APPEAL from the Circuit Court of the United States for the Southern District of New York.

Mr. W. F. Cogswell for the appellants.

Mr. Hamilton Wallace and *Mr. Edmund Wetmore* for the appellee.

Mr. Justice BLATCHFORD delivered the opinion of the Court.

This is a suit in equity brought in May, 1878, in the Circuit Court of the United States for the Southern District of New York, for the infringement of Reissued Letters Patent No. 8,169, granted to the plaintiff, Washington Wilson, as inventor, April 9, 1878, on an application therefor filed March 11, 1878, for an improvement in collars, the original patent (No. 197,807) having been granted to him December 4, 1877. The specifications and claims of the original and reissued patents are as follows, the original being on the left hand and the reissue on the right hand, and the parts of each which are not found in the other being in italics:

Original.

Be it known that I, WASHINGTON WILSON, of the city, county, and State of New York, have invented a new and Improved Collar, of which the following is a specification:

In the accompanying drawings, Figure 1 represents a side elevation of my improved collar, and Fig. 2 a perspective view of the same.

Similar letters of reference indicate corresponding parts.

Reissue.

Be it known that I, WASHINGTON WILSON, of the city, county, and State of New York, have invented a new and Improved Collar, of which the following is a specification:

In the accompanying drawings, Figure 1 represents a side elevation of my improved collar, and Fig. 2 a perspective view of the same.

Similar letters of reference indicate corresponding parts.

This invention refers to an improved standing collar, that retains all the advantages of the old-style curved band without the objection of springing the collar too far from the neck, so as to come in contact with the coat and soil the collar. The collar also hugs the neck-band in such a manner that the collar is prevented from overriding it, resulting in a more comfortable fit.

The invention consists of a standing collar, having *sectional* bands *starting* from center of collar, or any other point between center and ends, *and continuing with a graduated curve* to and beyond the ends of the collar.

Referring to the *drawing*, A represents a standing collar of my improved construction, and B the *short or sectional* bands which *start* from the center of collar, or any other point between the center and ends, and continue along the lower part of the *same*, with a graduated curve and increasing width, to and beyond the ends of the collar, in the same manner as in ordinary bands.

The bands B are made either to overlap the collar proper, or the collar is made to overlap the bands, or one part of the bands laps over the collar ends while the remaining part is overlapped by the collar, so as to obtain smoothly-covered joints at both meeting ends of collar and *sectional* bands.

The bead formed by the connection of collar and band may also be continued, if desired, along the lower edge of that part of the collar between the bands, and thereby a more ornamental appearance *imparted* to the *same*.

The *use of the short or sectional* bands *produces* a saving of material, as compared to the old style of continuous band, *and furnishes a collar that hugs the neck-band in superior manner, without springing back so as to come in contact with the collar.*

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

This invention refers to an improved standing collar, that retains all the advantages of the old-style curved band without the objection of springing the collar too far from the neck, so as to come in contact with the coat and soil the collar. The collar also hugs the neck-band in such a manner that the collar is prevented from overriding it, resulting in a more comfortable fit.

The invention consists of a standing *or other* collar, having *curved and graduated* bands *that extend along the lower edge of the collar, either* from the center of the collar or *from* any other point between center and ends to and beyond the ends of the collar. *The rear button-hole is thrown into the top or body of the collar above the band or binding of the same.*

Referring to the *drawings*, A represents a standing *or other* collar of my improved construction, and B the *curved and graduated* bands which *extend* from the center of *the* collar, or any other point between the center and ends, and continue along the lower part of the *top or body of the collar*, with a graduated curve and increasing width, to and beyond the ends of the collar, *the ends being curved* in the same manner as in ordinary bands.

The bands B are made either to overlap the collar proper, or the collar is made to overlap the bands, or one part of the bands laps over the collar ends, while the remaining part is overlapped by the collar, so as to obtain smoothly-covered joints at both meeting ends of collar and *graduated* bands.

The bead *or binding* formed by the connection of collar and band may also be continued, if desired, along the lower edge of that part of the collar *body* between the bands, *so as to connect the graduated bands* and *impart* thereby a more ornamental appearance to the *collar*.

The rear button-hole a is arranged in the top or body of the collar above the bead or binding at the lower edge of the same, which position of the button-hole, in connection with the graduated bands, produces a collar that hugs the neck-band in superior manner without springing back, so as to come in contact with the coat-collar. The *shorter graduated* bands *produce also a considerable* saving of material, as compared to the old style of continuous band *that extends at uniform width along the lower part of the collar.*

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. *A collar provided with a band composed of the parts B B, curved and tapered, or decreasingly graduated from the ends toward the middle, as shown and described.*

A collar, *A*, having sectional bands *B*, starting from the center of the collar, or any point between the center and ends thereof, and continuing with a graduated curve to and beyond the ends of the same, substantially as *described and shown*, and for the purpose set forth.

2. A collar having *short or* sectional bands starting from the center of the collar, or any point between the center and ends thereof, and continuing with a graduated curve to and beyond the ends of the same, substantially as and for the purpose set forth.

3. *The combination, with a collar having short bands graduated on a curve and decreasingly toward the middle, of a band-connecting bead or binding along the lower edge, as set forth.*

4. *A collar having curved and graduated bands that extend along the top or body of the collar from the center, or any other point between the center and ends thereof, to and beyond the ends of the collar, and having the rear button-hole placed above the band or binding into the top or body of the collar, substantially as shown and described.*

The following are the drawings of the reissue, those of the original patent being the same, except that the button-hole is not lettered in the original:

Fig. 1



Fig. 2



The answer sets up as defenses (1) that the reissue was obtained for the purpose of covering a style or form of collar not intended to be covered by the original patent, the original covering a short or sectional band collar only, and the reissue being intended to cover a different style of band, subsequently adopted by the plaintiff, and not having been procured for the purpose of correcting a mistake in the claim of the original; (2) that the plaintiff was not the original and first inventor of the thing patented; (3) non-infringement.

The case was heard on pleadings and proofs, and a decision rendered (18 Blatchf. C. C. R., 532) in favor of the plaintiff, on which an interlocutory decree was entered January 8, 1881, adjudging the reissued patent to be valid, and to have been infringed by the defendants by the manufacture and sale of four collars: Exhibit F, Delhi; Exhibit G, Orion; Exhibit H, Zenith, and Exhibit I, Spy, and awarding an account of profits and damages, to be taken by a master, and a perpetual injunction. On the report of the master, a final decree was entered July 28, 1881, in favor of the plaintiff, for $8,355.32, which included costs. The defendant appealed to this Court.

The defendant's collars have bands which are continuous from end to end of the collar, and are not in two parts, nor divided by any vertical or other seam at the center of their length or elsewhere. They have no short or sectional bands which start from the center of the collar or from any point between the center and the ends. The band is not shorter than the length of the collar. In the original patent the invention is stated to be a collar having short or sectional bands—that is, the collar has not a continuous band of one piece of cloth as long as the collar, and extending from end to end of the collar, but has its band made in two sections, and each of those sections starts or begins to run from the center of the length of the collar or from a point between the center and the end to and beyond the end. The bands have a graduated curve and increasing width from their starting points to and beyond the ends of the collar; but that is only one feature in the claim of the original patent. The other feature—the sectional bands—is made equally important in that claim, and a collar is not the collar of that claim unless it has both of those features. That claim is limited to a collar with those features, "substantially as described and shown."

The circuit court adopted the view that a band composed of two sectional bands starting from the center and proceeding with a graduated curve and increasing width would not make the whole band any less a continuous band with a graduated curve and increasing width toward each end; that the use of a continuous band of the latter description would not make the parts of it each side of the center any the less sectional bands; that neither would be a continuous band of uniform width, and as compared with that there would be a saving of material by the use of either arrangement, and that it made no difference in the Wilson invention whether there was a vertical seam in the center of the band or not, provided the other features of the collar existed; that if there existed before Wilson's invention a collar having those features, the fact that it had not such vertical seam would not distinguish it from the Wilson invention; that the real invention shown in the original specification was that claimed in the reissue, and that the reissue was therefore valid.

The defendant's collars have a band of continuous material from end to end of the collar, and the back button-hole in the body of the collar, but the band is not of uniform width throughout, being narrowed in the center. It has, as a whole, the same style of graduated curve which the Wilson collar has. The defendant's collars were first made and sold after the original patent of Wilson was granted, and after the defendant's had seen sectional-band collars made under it. The first of the defendant's four collars was made and sold in February, 1878, and the other three in March or April or May, 1878. The reissue was applied for March 11, 1878, and Wilson testifies that his impression is that he had previously heard of the defendant's collars. It is evident that the reissue was obtained because the defendant's collar, with a continuous band, had been put on the market, and for the purpose of obtaining claims which would certainly cover such a collar. The changes made in the specification and claims show this. The specification of the reissue, in stating what the invention consists of, omits the statement that it is a collar having sectional bands, and states that it is a collar having curved and graduated bands. It also omits the statement that the bands start from the center, or from a point between the center and the ends, and states that the curved and graduated bands extend along the lower edge of the collar from the center, or from a point between the center and the ends. The statement of the invention in the original patent did not cover the defendant's collars, nor did the claim

of that patent. The second claim of the reissue is substantially the same as the claim of the original patent; but the first and fourth claims of the reissue, corresponding with the changes made in the description, ignore the short or sectional bands, and refer only to a curved and graduated band. The third claim preserves the short bands curved and graduated. As the defendant's collars do not have the short or sectional bands, and so do not infringe the second and third claims of the reissue, the question arises as to the validity of the first and fourth claims, which it is alleged are infringed.

The final decree in this case was entered July 28, 1881. The decisions of this Court in *Miller* v. *Brass Company* (104 U. S., 350) and *James* v. *Campbell* (Id., 356) were made January 9, 1882. Under those decisions and many others made by this Court since, the first and fourth claims of the reissue cannot be sustained. Although this reissue was applied for a little over three months after the original patent was granted, the case is one where it is sought merely to enlarge the claim of the original patent by repeating that claim and adding others, where no mistake or inadvertence is shown, so far as the short or sectional bands are concerned, where the patentee waited until the defendants produced their continuous-band collar, and then applied for such enlarged claims as to embrace the defendant's collar, which was not covered by the claim of the original patent, and where it is apparent from a comparison of the two patents that the reissue was made to enlarge the scope of the original. As the rule is expressed in the recent case of *Mahn* v. *Harwood*, (112 U. S., 354,) a patent—

cannot be lawfully reissued for the mere purpose of enlarging the claim, unless there has been a clear mistake, inadvertently committed in the wording of the claim, and the application for a reissue is made within a reasonably short period after the original patent was granted.

But a clear mistake, inadvertently committed in the wording of the claim, is necessary, without reference to the length of time. In the present case there was no mistake in the wording of the claim of the original patent. The description warranted no other claim. It did not warrant any claim covering bands not short or sectional. The description had to be changed in the reissue to warrant the new claims in the reissue. The description in the reissue is not a more clear and satisfactory statement of what is described in the original patent, but is a description of a different thing, so ingeniously worded as to cover collars with continuous long bands and which have no short or sectional bands. The drawings show no continuous band, and the statement in the original patent that "the use of the short or sectional bands produces a saving of material, as compared to the old style of continuous band," shows that the patentee was drawing a sharp contrast between the only bands he contemplated—short or sectional bands—and a continuous band of one piece of material as long as the collar. The original patent industriously excluded from its scope a continuous band. In the reissue, to cover a continuous graduated band, the two bands B B are converted into a single band composed of the parts B B, and while that is described as extending along the top or body of the collar, the "shorter graduated bands" are described as saving material, as compared with an old style continuous band of uniform width.

While we are of opinion that the views of the circuit court, as before recited, were erroneous, we presume that if this case had been decided after January, 1882, the decree would not have been for the plaintiff.

The decree of the circuit court is reversed, and the case is remanded to that court, with a direction to dismiss the bill, with costs.

U. S. Circuit Court—Western District of Pennsylvania.

WILLIAMS *v.* STOLZENBACH *et al.*

Decided February 6, 1885.

1. Letters Patent No. 206,514, granted July 30, 1878, to complainant, examined and construed.
2. To eliminate what is a plainly-declared element of a combination is beyond the power of judicial construction.

Mr. D. F. Patterson for the complainant.
Mr. George H. Christy for the defendants.

ACHESON, *J.*:

The plaintiff's invention relates to apparatus for obtaining and washing sand, and, as described in his specification and illustrated by the accompanying drawings, consists of a cylindrical riddle or screen, D, "the lower portion of which is immersed in a vessel of water," C, through which riddle or screen and vessel flows a stream or currents of water, in combination with an ordinary dredging-boat having elevators for supplying the interior of the screen with unwashed sand, a receptacle, F, for receiving the washed sand, and elevators for removing it therefrom. As the screen rotates the sand becomes separated from the coarser materials by the revolving movement, and, passing through the meshes, drops into the vessel C, from which it is removed and thrown into the receptacle F by means of wings or projecting longitudinal flanges attached to the outside of the screen.

The specification states that the riddle or screen D in its "construction and operation" is substantially the same as that described in a previous patent granted April 23, 1867, to David Furnier. That this is so is evident upon comparing the two patents, and it may be added that in the Furnier apparatus the cylindrical screen is provided with exterior wings or longitudinal flanges like those above mentioned, and performing the same function. The vessel C and the receptacle F are partly sunk below the surface of the stream in which the dredging-boat is operating, and the inflowing supply of water to the vessel C (to take the place of that swept out of it with the washed sand) is obtained by means of openings or holes in the side of the vessel below the water-line. Of this feature of the apparatus the specification thus speaks:

The riddle or screen D is placed in a vessel C, into which is constantly flowing, through openings *x*, currents of water, whereby the lower portion of the riddle D is always immersed in water and a current of water is constantly flowing through the riddle, thereby keeping the meshes of it clean.

There are four claims. The first is as follows:

1. A screen or riddle immersed in a vessel of water, and through which is flowing a stream of water, in combination with an ordinary dredging-boat for supplying the said screen with unwashed sand, substantially as herein described, and for the purpose set forth.

The second claim is for the same combination, with the addition of elevators for supplying and charging into the interior of the screen unwashed sand. The third claim is for the same combination as the second, with the addition of a receptacle for receiving the washed sand and elevators for conveying it therefrom. In each of these claims occurs the language "a cylin-

drical screen immersed in a vessel of water." The fourth claim is for the combination of the screen D, the vessel C, the receptacle F, two elevators, and four designated chutes.

It is quite clear to me from the descriptive portion of the specification that the inventor regarded it as essential to the desired end that the water in which the screen rotates should be segregated by an inclosing vessel. The riddle or screen, he instructs us, is to be "placed in a vessel into which is constantly flowing through openings *x* currents of water," &c. He, perhaps, thought that unless the water was thus cut off from the body of the stream the sand would be washed out of the screen by the action of the natural current, or by reason of the agitation of the water; but with his conjectures we need not concern ourselves. It is enough that by his explicit language "a riddle or screen immersed in a vessel of water" is a constituent of the several combinations claimed. (*Tate* v. *Thomas*, 30 O. G., 345.) Now, indisputably, the defendant's screen is not immersed in a vessel of water, nor placed in any vessel whatsoever. On the contrary, it rotates and performs its work in the open river. The defendants, therefore, do not use the plaintiff's patented invention, unless the immersion of the screen directly in the river is the same thing as its immersion in a vessel containing water let in from the river by means of the openings described in the plaintiff's specification or other equivalent means. But who will affirm this? It is in vain to urge that the use of a vessel being, in fact, unnecessary, the claim should be read as if they called broadly for the immersion of the screen in the water of the river. To eliminate what is a plainly-declared element of a combination is beyond the province of judicial construction. (*Water Meter Co.* v. *Desper*, 101 U. S., 332.) Besides, from first to last the specification contains no hint that the inclosing vessel could be dispensed with, and I think it manifest that it had not occurred to the inventor that the screen could successfully perform its work in the open stream. It is, indeed, true that underneath the defendants' screen there is a pan or vessel, which catches the screened sand. Their screen, however, is not immersed or placed therein, but rotates and does its whole work above it in the unconfined water of the river. The outside wings move therein, but they are no part of the screen, and their work is distinct from and follows the screening.

The prior state of the art here was such that the plaintiff's claims were necessarily very narrow. Dredging and sand-washing boats equipped with cylindrical screens, elevators to feed the screens, receptacles to hold the washed sand, and elevators to carry it away were old. How much the plaintiff borrowed from Furnier we have already seen. Moreover, Furnier's first claim calls for a hollow screen revolving on an axis, with one portion always immersed in a vessel through which a stream of water constantly flows from some convenient reservoir. Now, what more has the plaintiff done than devise his vessel C with sides raised above the water-line, so as to embrace the screen and provided with its water-supply openings? Within the restricted limits of his claims his patent may well stand; but as the defendants do not use the plaintiff's vessel or any equivalent therefor they do not infringe his rights.

Let a decree be drawn dismissing the plaintiff's bill, with costs.

U. S. Circuit Court—District of Indiana.

GOTTFRIED *v.* CRESCENT BREWING COMPANY. SAME *v.* GAFF *et al.* SAME *v.* HACK *et al.*

Decided December 5, 1884.

1. Evidence of settlements for infringements of a patent, or of licenses for the future given wholly or partially in consideration of such settlements, is not competent to show an established royalty or license-fee.
2. The price at which sales have been made, licenses granted, &c., under a patent, being in the nature of admissions, is competent evidence against a plaintiff in respect to the value of the patented invention; but the plaintiff is not necessarily concluded thereby.
3. In these cases the court holds that a contract or license between the co-patentees and sales of machines made at an early day and at varying prices were not sufficient to show an established royalty or license-fee, and confirms a master's report based on general evidence as to the value of the invention.

Messrs. Banning & Banning for the complainants.

Messrs. Parkinson & Parkinson for the defendants.

EXCEPTIONS TO MASTER'S REPORT.

WOODS, *J.*:

The exceptions filed are needlessly numerous and prolix. The question to be considered is whether the damages awarded the plaintiff for the infringement of his patent are excessive. In so far as the master has found that the proof showed an established royalty or license-fee, within the meaning of *Seymour* v. *McCormick*, (16 How., 485,) I think he erred. I am still of the opinion declared in *National Car-Brake Shoe Company* v. *Terre Haute, &c., Company* (19 Fed. Rep., 514) and *Westcott* v. *Rude* (Id., 830) that evidence of settlements for infringements is not competent to show a license-fee or royalty, and upon the same principle a license (for the future) given wholly or partially in consideration of a settlement for infringements is not admissible in evidence against a stranger. There are other minor points concerning which I find it unnecessary to form an opinion. Like those stated, they are eliminated from the case by the final position upon which the master rests his conclusion.

> There is a square conflict [says the report] in the evidence of the plaintiff and defendant as to the value of the invention. * * * In my judgment, the evidence of the complainant on this point is entitled to the greater weight, and *irrespective of any supposed license-fee or royalty*. I regard fifteen cents per keg and one dollar and fifty cents per cask for each pitching a fair and reasonable rate for estimating complainant's damages.

There is nothing in the record to justify a disturbance of this conclusion, although the contrary evidence, standing by itself, is undeniably strong.

It is shown that soon after the issue of the patent the patented machine was offered to the public, and in some instances sold, at prices varying from one hundred dollars at first to eighty dollars, sixty dollars, and forty dollars at later dates, and that in a contract between the patentees, whereby one of them was to manufacture and sell the machines, it was stipulated that the other should be entitled to a royalty of ten dollars only upon each machine. While I am of opinion that these facts constitute competent evidence against the plaintiff in respect to the value of the invention, being in the nature of admissions, I do not agree with counsel for defendants that the plaintiff is concluded thereby, since sales were not made in such numbers and at such uniform prices as to constitute an established license-fee.

Exceptions overruled, and judgment on report for the several amounts therein named for the respective cases.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 30—NO. 10. TUESDAY, MARCH 10, 1885. PRICE—$5 per year.

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Order No. 231.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, March 5, 1885.

Class 36, "Electricity," as it at present exists, is hereby abolished, and in lieu thereof nine classes are established.

The classes will be designated and named as follows, and will contain the sub-classes designated and named under the respective heads:

CLASS 171.—ELECTRICITY. GENERATION.
Sub-class 6. Batteries. Galvanic.
" 72. " Secondary.
" 74. " " applications.
" 73. " Thermal.
" 23. Friction-generators.
" 27. Induction-coils.
" 33. Magneto-electric.
" 76. " hand-machines.
" 40. Regulators.

CLASS 172.—ELECTRICITY. MOTIVE-POWER.
Sub-class 36. Motors.
" 75. Locomotors.
" 83. Transmission of power.
" 8. Steering and Propulsion.
" 9. Car-brakes.
" 15. Dental Instruments.

CLASS 173.—ELECTRICITY. CONDUCTORS.
Sub-class 13. Conductors.
" 81. " Anti-inductive.
" 70. " Underground.
" 14. Connectors.
" 31. Lightning-rods.
" 86. Telegraph-poles (now with Division 11, Class 39, Sub-class 2.)
" 28. Insulators.
" 43. Rheostats.

CLASS 174.—ELECTRICITY. MEDICAL AND SURGICAL.
Sub-class 87. Baths.
" 88. Body-wear.
" 89. Electrodes.
(Now with Division XX, Class 128, Sub-classes 30, 31, and 39.)

CLASS 175.—ELECTRICITY. SPECIAL APPLICATIONS.
Sub-class 4. Applications. General.
" 5. " Tools and machines.
" 21. Electro-magnets.
" 90. Separators.
(Now with Division XXV, Class 83, Sub-class 35.)

CLASS 176.—ELECTRIC LIGHTING.
Sub-class 17. Lights. Arc
" 18. " Incandescent.
" 19. " Systems and appliances.
" 34. Meters.
" 78. Cut-outs. Thermal.
" 80. " Electro-magnetic.
" 79. " Mechanical.

CLASS 177.—ELECTRIC SIGNALING.
Sub-class 1. Alarms.
" 2. " Burglar.
" 3. Annunciators.
" 7. Bells.
" 26. Indicators.
" 38. Railway-signals.
" 39. Recorders.

CLASS 178.—TELEGRAPHY.
Sub-class 45. Circuits and Systems, (new title.)
" 46. Automatic.
" 47. Dial.
" 48. Duplex.
" 49. Dynamo.
" 50. Fire.
" 51. Multiplex.
" 52. Perforating.
" 54. Printing.
" 55. Quadruplex.
" 56. Railway-car.
" 10. Circuit-closers.
" 12. Condensers.
" 29. Keys.
" 30. Lightning-arresters.
" 35. Morse registers.
" 41. Relays and Sounders.
" 42. Repeaters.
" 69. Transmitters.

CLASS 179.—TELEPHONY.
Sub-class 82. Anti-induction devices.
" 57. Telephones. Calls.
" 58. " Details.
" 59. " Electric.
" 60. " Magneto.
" 61. " Mechanical.
" 62. " Radiophones.
" 63. " Reed.
" 77. " Relays and repeaters.
" 64. " Systems.
" 71. " Switches.
" 85. " Switch-boards.

R. G. DYRENFORTH,
Acting Commissioner.

Attorneys.

DEPARTMENT OF THE INTERIOR,
Washington, February 26, 1885.

SIR: The order of the Secretary of the Interior dated September 4, 1876, disbarring R. H. Steele, of this city, from practice as attorney before this Department and the bureaus thereof is hereby rescinded.

Very respectfully,

H. M. TELLER,
Secretary.

The Commissioner of Patents.

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DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., March 5, 1885.

SIR: I am directed by the Secretary to inform you that he has ordered that George Hazen, of Minneapolis, Minnesota, formerly of Oxford, Maine, be not recognized from and after this date as attorney in the prosecution of any claim or other matter before the Department of the Interior or any bureau thereof.

I am, sir, very respectfully, your obedient servant,

GEO. M. LOCKWOOD,
Chief Clerk.

The Commissioner of Patents.

Issue of March 10, 1885.

Patents	377	No. 313,466 to No. 313,842, inclusive.
Designs	43	No. 15,924 to No. 15,966, inclusive.
Trade-Marks	25	No. 11,990 to No. 12,014, inclusive.
Labels	4	No. 4,376 to No. 4,379, inclusive.
Reissues of patents	4	No. 10,568 to No. 10,571, inclusive.
Total issue	453	

To citizens of the United States: Patents and Designs—401. Trade-Marks and Labels—26.
To citizens of foreign countries: Patents and Designs—19. Trade-Marks and Labels—3.

DESIGNS.

15,924.—MOHAIR PLUSH.—*Georg Böttcher*, Wurzen, Saxony, Germany. Application filed September 17, 1884. Term of patent 3½ years.

15,925.—MEDAL.—*Frederick H. Chase* and *William E. Colladay*, Washington, D. C. Application filed February 4, 1885. Term of patent 3½ years.

15,926.—CURTAIN FABRIC.—*Joseph Ferguson*, Philadelphia, Pa., assignor to *Stead & Miller*, same place. Application filed January 10, 1885. Term of patent 3½ years.

15,927 to 15,949, inclusive.—CARPET.—*James L. Folsom*, Brooklyn, N. Y., assignor to *The Hartford Carpet Company*, Hartford, Conn. Applications filed January 20, 1885. Term of patents 3½ years.

15,950 to 15,952, inclusive.—CARPET.—*James L. Folsom*, Brooklyn, N. Y., assignor to *The Hartford Carpet Company*, Hartford, Conn. Applications filed January 26, 1885. Term of patents 3½ years.

15,953.—RUG.—*William Gilmour*, Philadelphia, Pa., assignor to *George W. Ennis & Co.*, same place. Application filed December 18, 1884. Term of patent 3½ years.

15,954.—CURRY-COMB.—*William P. Kellogg*, Troy, N. Y. Application filed October 30, 1884. Term of patent 14 years.

15,955.—COFFIN-HANDLE.—*William R. McComas*, Oakley, assignor to *The Crane & Breed Manufacturing Company*, Cincinnati, Ohio. Application filed December 27, 1884. Term of patent 3½ years.

15,956.—CARPET.—*Julius Pegel*, Philadelphia, Pa., assignor to *John H. Bromley*, *Joseph H. Bromley*, and *Edward Bromley*, all of same place. Application filed January 2, 1885. Term of patent 3½ years.

15,957.—BAG, POCKET-BOOK, &c., FRAME.—*Louis B. Prahar*, Brooklyn, N. Y., assignor to himself and *Charles S. Shepard*, same place. Application filed January 24, 1885. Term of patent 7 years.

15,958 to 15,964, inclusive.—CARPET.—*Oscar Righter*, Philadelphia, Pa., assignor to *Dornan Bros. & Co.*, same place. Applications filed January 23, 1885. Term of patents 3½ years.

15,965.—FONT OF PRINTING-TYPE.—*John West*, Brooklyn, N. Y. Application filed February 6, 1885. Term of patent 7 years.

15,966.—FONT OF PRINTING-TYPE.—*James M. Conner*, New York, N. Y. Application filed February 6, 1885. Term of patent 7 years.

TRADE-MARKS.

[Certificates of registration of Trade-Marks numbered 8,191 and upward are registered under the act of March 3, 1881.]

11,990.—KID-SKINS OF A PECULIAR FINISH AND BOOTS AND SHOES MADE THEREFROM.—*William T. Ash*, Lynn, Mass. Application filed January 23, 1885.
"The word 'BOKARA.'"

11,991.—PERFUME.—*Bean & Hurlbut*, Philadelphia, Pa. Application filed February 5, 1885.
"The fanciful title or words 'PEEP O' DAY.'"

11,992.—ASTRINGENT EXTRACTS.—*Lyman Brown*, New York, N. Y. Application filed November 10, 1884.
"The word 'QUEBASCHO.'"

11,993.—LOZENGES OR OTHER MEDICINAL PREPARATIONS IN SOLID FORM.—*Burroughs, Wellcome & Co.*, London, England. Application filed February 12, 1885.
"The word 'TABLOIDS.'"

11,994.—DISINFECTANT AND MOTH-DESTROYER IN CAKE, POWDER, AND LIQUID FORM.—*William H. H. Childs*, New York, N. Y. Application filed February 9, 1885.
"The word 'CARBOLCRYSTAL.'"

11,995.—TOILET-SOAP.—*Colgate & Co.*, New York, N. Y. Application filed January 16, 1885.
"The word-symbol 'DERMAL.'"

11,996.—BRANDY.—*Cook & Bernheimer*, New York, N. Y. Application filed February 7, 1885.
"The representation of a lion."

11,997.—SATINETS OR WOOLEN CLOTHS OR CLOTHING MADE THEREFROM.—*A. G. Dewey & Co.*, Hartford, Vt. Application filed February 4, 1885.
"The words 'VERMONT GREYS.'"

11,998.—MALT WHISKY.—*The Duffy Malt Whiskey Company*, Baltimore, Md. Application filed February 13, 1885.
"A pictorial representation of an old chemist testing and analyzing a liquor."

11,999.—VELVETS, VELVETEENS, CORDUROYS, MOLE-SKINS, SILESIAS, AND LININGS.—*J. & R. Edmondson*, Manchester, county of Lancaster, England. Application filed November 25, 1884.
"The words 'THE PRESIDENT.'"

12,000.—SMALL MECHANICAL ORGAN OR ORGANETTE AND MUSIC THEREFOR.—*Merritt Gally*, New York, N. Y. Application filed January 27, 1885.
"The letters and word 'CLARIONA.'"

12,001.—FRONTED TINSEL ON SMALL SPOOLS.—*Klein, Baer & Co.*, Chicago, Ill. Application filed February 4, 1885.
"The word 'KISMET.'"

12,002.—CIGARS.—*Kuttnauer & Co.*, Detroit, Mich. Application filed March 17, 1884.
"The arbitrarily-selected word 'ELEPHANT.'"

12,003.—PLUG-TOBACCO.—*P. McNamara & Co.*, Covington, Ky. Application filed August 27, 1883.
"The word 'GLOBE.'"

12,004.—LINIMENT.—*Adolph C. Meyer*, Baltimore, Md. Application filed February 9, 1885.
"The representation of a Benedictine nun in a sitting posture, holding a bottle in her upraised right hand and a rosary in her left."

12,005.—CHEWING AND SMOKING TOBACCO, CIGARS, AND CIGARETTES.—*Pace & Sizer*, Richmond, Va. Application filed August 5, 1884.
"The words and letters 'THE FAVORITE' imprinted above a picture and autograph of General Robert E. Lee."

12,006.—WHITE BEER AND CONDENSED WHITE BEER.—*Reichenbron & Mielke*, Charlottenburg, Prussia, Germany. Application filed September 13, 1884.
"The picture of Gambrinus sitting on a globe and holding a vessel of beer in his hand."

12,007.—ALL KINDS OF FINE-CUT CHEWING, GRANULATED AND OTHER KINDS OF SMOKING TOBACCO, AND CIGARS AND CIGARETTES.—*J. Schriber & Co.*, Cleveland, Ohio. Application filed January 2, 1885.
"The design of a veteran soldier, with left arm gone and right leg wooden, sitting under a spreading oak smoking and indulging in a day-dream, which is represented above his head in the clouds, and the words 'OLD VET.'"

12,008.—COTTON-SEED OIL.—*Seitz & Goold*, New York, N. Y. Application filed June 14, 1884.
"The word 'MISSISSIPPI.'"

12,009.—CARPETS, RUGS, MATS, AND CURTAIN FABRICS.—*William T. Smith*, Philadelphia, Pa. Application filed January 23, 1885.
"The legend 'ORIANNA.'"

12,010.—KID AND LAMBSKIN GLOVES.—*Stern Brothers*, New York, N. Y. Application filed January 19, 1885.
"The word-symbol 'LUPIN.'"

12,011.—SPIRAL HAIR-PINS.—*Henry G. Thompson & Sons*, New Haven, Conn. Application filed December 15, 1884.
"A picture of the head of a girl."

12,012.—BOTTLED BEER.—*Joseph Wassmer*, New York, N. Y. Application filed January 10, 1885.
"The figure of a bottle upon the figure of a star."

12,013.—CEMENT.—*F. G. Williams*, Erin, Tenn. Application filed August 31, 1883.
"The word 'ARLINGTON.'"

12,014.—PLOWS AND PLOW-CASTINGS.—*Wrenn, Whitehurst & Co.*, Norfolk, Va. Application filed January 28, 1885.
"The word 'BOSS.'"

LABELS.

4,376.—Title: "THE PREVENTIVE CAPSULE."—*Emil Gutmann*, New York, N. Y. Application filed February 14, 1885.

4,377.—Title: "F. ARNOLD ROBERT'S PRUNE JUICE."—*F. Arnold Robert*, New York, N. Y. Application filed February 14, 1885.

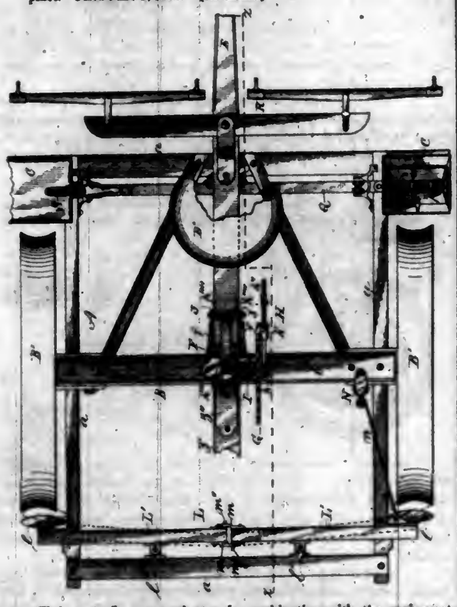
4,378.—Title: "F. ARNOLD ROBERT'S FRENCH VINOUS ESSENCE."—*F. Arnold Robert*, New York, N. Y. Application filed February 14, 1885.

4,379.—Title: "BALSAM OF WINTERGREEN."—*A. M. Robinson, Jr.*, Bangor, Me. Application filed February 13, 1885.

PATENTS

GRANTED MAR. 10, 1885.

313,466. CHECK-ROW CORN-PLANTER. ABRAHAM ANDERSON, Galesburg, Ill., assignor to C. S. Colton, G. D. Colton, and F. Colton, all of same place. Filed June 2, 1883. (No model.)



Claim.—1. In a corn-planter, in combination with the reciprocating seed-slide and cut-off, a swinging valve in the seed-tube, and a link, Z, connecting the seed-slide and the upper end of the said swinging valve, and adapted to oscillate said valve rearward and forward, or two full throws, at each throw of the seed-slide in one direction, substantially as described.

2. The scraper-bar L, formed in two parts, each part hinged to the rear transverse bar of the planter, and the parts hinged at their adjacent ends to each other, whereby operating one of said parts will simultaneously operate the other, substantially as and for the purpose specified.

3. In a corn-planter, in combination with the main frame and supporting-wheels, a scraper-bar formed in two parts, L' L', hinged to each other and to the main frame, substantially as described, a lever and connecting-rod connected with one part L' and adapted to operate both parts L', substantially as and for the purpose specified.

4. In a corn-planter, in combination with the frame A and tongue, hinged thereto substantially as described, the axle B, formed in two parts, *b b*, the plate F, having a plate, *f''*, extending into and between the parts *b*, and secured therein by a bolt, substantially as and for the purpose specified.

5. In a corn-planter, in combination with the frame A and tongue, hinged thereto substantially as described, the axle B, formed in two parts, *b b*, the plate F, having the plate *f''*, extending into and between the parts *b*, and the part *z*, secured to the seat-bar, and also extending into and between the parts *b*, and secured by a bolt, substantially as and for the purpose specified.

6. In a corn-planter, in combination with a main frame supported on wheels, and carrying the seeding devices and furrow-openers at its forward end, and a tongue pivoted to the forward end of said frame and extending rearwardly to near the axle, a hand-lever fulcrumed on the axle, and adapted to raise and lower and depress the forward end of the planter, substantially as and for the purpose specified.

7. In a corn-planter, in combination with a main frame supported on wheels, and carrying the seeding devices and furrow-openers at its forward end, a hand-lever fulcrumed on the axle and adapted to raise and lower and depress the forward end of the planter, and a tongue pivoted to the forward end of said frame and extending rearwardly to near the axle, a plate, F, provided with guard-flanges *f*, which permit of vertical flexure of the tongue and frame, but hold the parts securely in a lateral position, substantially as and for the purpose specified.

8. In a corn-planter, in combination with a main frame supported on wheels, and carrying the seeding devices and furrow-openers at its forward end, and a tongue pivoted to the forward end of said frame and extending rearwardly to near the axle, a hand-lever fulcrumed on the axle and adapted to raise, lower, and depress the forward end of the frame, and to engage with a rack-bar, whereby the seeding devices may be locked into or out of the ground, substantially as and for the purpose specified.

9. In combination, the frame A and seeding devices, tongue E, hinged to forward end of frame A and projecting rearwardly to near the axle, lock-lever H, shaft *h*, having arm *h'''*, stirrup J, hinged to tongue and to arm *h'''*, and plate F, having tongue-guards *f*, substantially as and for the purpose specified.

313,467. PULLEY. ERSKINE L. BABCOCK, Cuyahoga Falls, Ohio, assignor to the Falls Rivet Company, same place. Filed Sept. 27, 1884. (No model.)



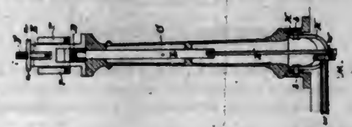
Claim.—1. The hub *h*, spokes *b*, and rim *a*, formed with lugs *a'* in alternate order on opposite sides of the rim, narrower at their outer ends than at their base, where they are wider than the space between them, in combination with the outer rim, *a*, substantially as described.

2. The hub *h*, spokes *b*, and rim *a*, formed with lugs *a'* in alternate order on opposite sides of the rim, narrower at their outer ends than at their base, where they are wider than the space between them, and with an inner circumferential flange, *a²*, in combination with the outer rim, *a*, substantially as described.

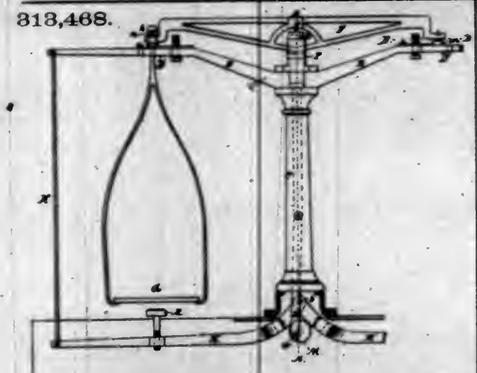
3. The outer rim, *a*, formed with the diagonal joint *a'*, in combination with hub *h*, spokes *b*, and rim *a*, formed with lugs *a'* on opposite sides of rim *a*, substantially as described.

313,468. WEIGHING-SCALE. CHRISTOPHER BEKER, New Rochelle, N. Y. Filed Sept. 30, 1884. (No model.)

Claim.—In combination with a balance-beam, F, and scale-pans G, and projections *n n* at the sides of the suspending-strap *h*, the beam D, with central frame, P, bearings *m m*, rods K K, levers H H, turning on fixed centers *b b* and screw-buttons R R, crank-shaft M, connecting-

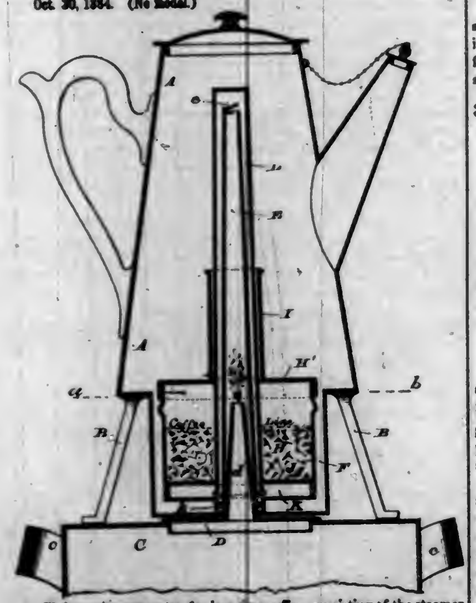


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rod N, and rod L, substantially in the manner and for the purpose described.

313,469. COFFEE-POT. TYRE A. BYLER, San Francisco, Cal. Filed Oct. 30, 1884. (No model.)



Claim.—An apparatus for brewing coffee, consisting of the steamer C and brewing-pot A, having the tubes E and L, chamber F, and chamber H, with the perforated bottom J and perforated lid H', constructed, arranged, and operating substantially as herein described, and for the purpose set forth.

313,470. STENCIL-HOLDER. JOHN J. CALLOW, Cleveland, Ohio. Filed Sept. 27, 1883. (Model.)

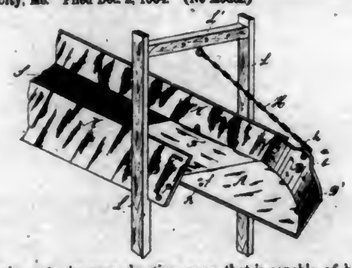


Claim.—1. A holder for a graining stencil-plate, consisting of a handle-piece having a clamping lip or flange for seizing one edge of the plate only and holding the plate out bodily thereby, substantially as shown and described.

2. The combination of the handle-piece, the metal plate having a finger guard and lip, and attached to the handle-piece by a sliding connection, and a spring for holding the lip out of contact with the handle-piece, substantially as shown and described.

3. The combination of the handle-piece, the sliding clamping-plate, the spring, and the roller, all arranged and adapted to operate in the manner herein specified, and for the purpose set forth.

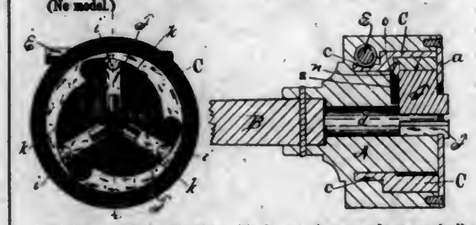
313,471. REVERSIBLE COAL-CHUTE. ARIATHER CHADWICK, Kansas City, Mo. Filed Dec. 2, 1884. (No model.)



Claim.—1. An open shunting-apron that is capable of being reversed or swung around in a horizontal plane, for the purpose of deflecting the descending current of material to either side of the chute, substantially as specified.

2. The combination, with the delivery end of a coal-chute, of a shunting-apron attached thereto by a sliding hinge in such a manner that it may be reversed in a horizontal plane and securely locked in position, for the purpose of deflecting the material to either side of the chute, substantially as described.

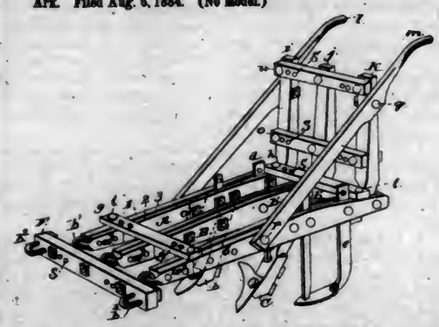
313,472. CHUCK. BENJAMIN F. CHAPPELL, South Windham, Conn., assignor of one-half to Martin Card, same place. Filed June 19, 1884. (No model.)



Claim.—1. In combination with the case A, grooved concentrically and slotted radially, as described, a series of jaws fitted movably in said radial slots, a rotatable collar, as at C, located within said concentric groove and provided with a series of internal cams, and the rocking pieces *i*, located between the jaws and cams *k*, as and for the purpose specified.

2. In combination with the case A, grooved concentrically and slotted radially, as described, the rotatable collar C, with cams *k*, a series of jaws fitted movably in said radial slots, the pieces *i*, intervening between the cams *k* and the jaws of the chuck, means for rotating the cam-collar C, and the springs *s*, so located within the jaws and case A that they tend to force the jaws outward when the cams are withdrawn, substantially as and for the purpose specified.

313,478. COMBINATION-PLOW. JAMES L. CLOWER, Plantersville, Ark. Filed Aug. 6, 1884. (No model.)



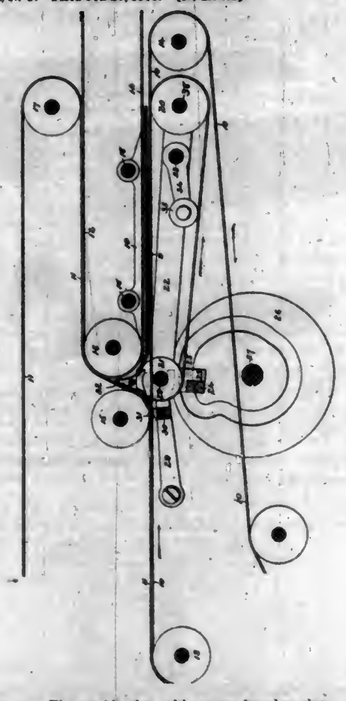
Claim.—The combination of double-tree F, having hooks *b'* and clevis-irons b^2, beams *g h n o*, having bolt-holes *s*, standards *i j k*, side beams, A C, and middle beam, B, running under cross-beams *g k*, its front end hinged to double-tree F, and its rear end pivoted to standard *j*, all being held together by loosely-fitting bolts L, substantially as shown and described, and for the purposes set forth.

313,474. HARROW. BENJ. F. CROW, Nebraska City, Nebr. Filed Sept. 27, 1884. (No model.)



Claim.—In a reversible harrow, the combination of angle-bar *a*, having perforations *f*, with tooth *d*, having shoulder d', resting against the under face of the horizontal flange of the said angle-bar *a*, and having neck d^2, passing through said perforations *f*, and its upper end or head, d^3, resting on the upper face of said flange, and strap *e*, having a raised center, *e'*, secured to the perpendicular flange of said angle-bar by nuts and bolts or rivets *g*, substantially as shown and described, and for the purposes set forth.

313,475. SHEET-DELIVERY APPARATUS FOR PRINTING-MACHINES. LUTHER C. CRIDWELL, Brooklyn, assignor to R. Hoe & Co., New York, N. Y. Filed Oct. 29, 1883. (No model.)



Claim.—1. The combination, with means for advancing a series of sheets, of means for arresting and reversing the movement of alternate sheets of said series, and means for causing the rear (now leading) ends of said reversed sheets and the advance ends of the following sheets to enter together into a common pathway, whereby the sheets become associated and pass forward in pairs, all substantially as described.

2. The combination, with a main pathway in which the sheets follow each other in succession, of a second or branch pathway leading therefrom, and means for causing the rear end of one sheet and the advance end of the following sheet to pass from said main pathway into said branch pathway, so that the two sheets will be associated and pass forward together, all substantially as described.

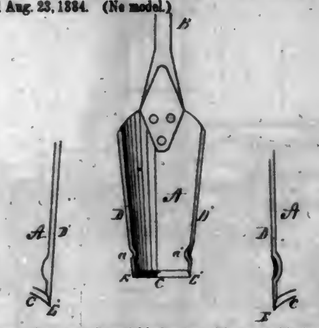
3. The combination, with a main pathway in which the sheets follow each other in succession, of a second or branch pathway leading therefrom, means for arresting, reversing, and causing the rear (now leading) end of one sheet to enter said branch pathway, and means operating simultaneously therewith to direct the leading end of a following sheet into said branch pathway, whereby the two sheets will be associated and pass forward together, all substantially as described.

4. The combination, with the tapes 10 11 12, arranged to form one main and one branch pathway, of the pulleys 15 16, switches 31, and the oscillating tapes 9, substantially as described.

5. The combination, with the tapes 10 11 12, arranged to form one main and one branch pathway, of the pulleys 15 16, the oscillating tapes 9, and the switches 31, arranged to move with said tapes, substantially as described.

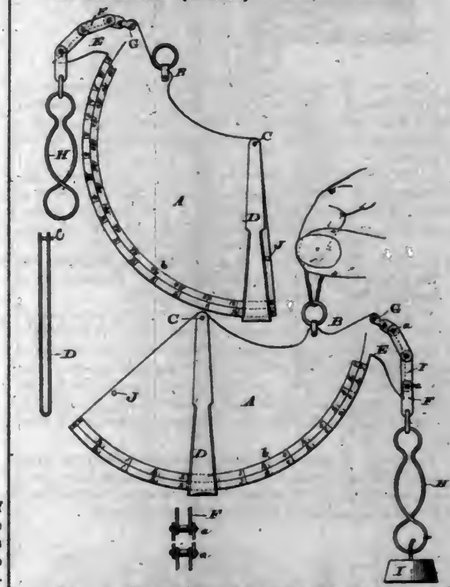
6. The combination, with the tapes 10 11 12, arranged to form one main and one branch pathway, of the pulleys 15 16, the oscillating tapes 9, the switches 31, arranged to move with said tapes, and the oscillating fingers 41, substantially as described.

313,476. POST-HOLE DIGGER. ROCKWOOD CUMMINGS, Palmetto, Ga. Filed Aug. 23, 1884. (No model.)



Claim.—A gouge-shaped blade, A, with a suitable handle, B, having a cutting-edge, C, and side edges, D D', the latter being constructed with inward projections *a a'*, the whole being arranged and combined substantially as set forth.

313,477. BENT-LEVER SCALE. HENRY S. DAVIS, Oakland, Cal. Filed June 21, 1884. (No model.)



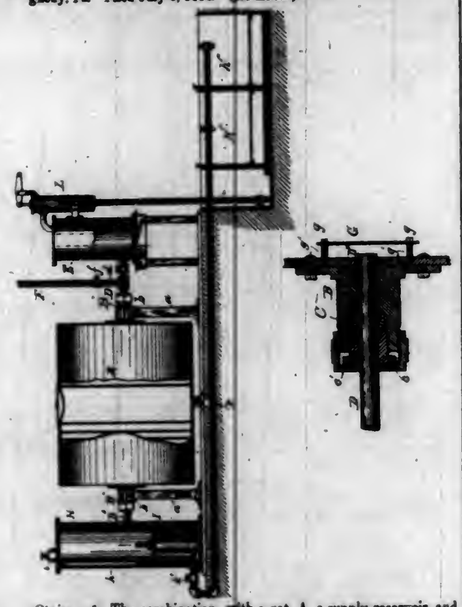
Claim.—1. The weighing-scale composed of a plate, A, provided with a circling graduated edge and with a suspension fulcrum-point at B, and having at one side of said fulcrum-point a horn, E, a suspending-support connected at one end to the plate and resting on said horn, to be wound and unwound thereon, and a pendulous indicator connected to said plate on the other side of the fulcrum-point and extending to the graduated scale, substantially as described.

2. In a weighing-scale, the combination, with a plate having scale-graduations thereon, and a fulcrum-point at B, and provided with a horn, E, to one side of the fulcrum-point, extending from one side of the plate, of a suspension-support to be wound and unwound upon said horn, and a pendulous bifurcated indicator pivoted to said graduated plate on the opposite side of the fulcrum-point, and lying opposite both sides of the plate, substantially as and for the purposes described.

3. In a weighing-scale, the combination, with a plate having a graduated scale thereon and a fulcrum-point at B, and provided with a horn, E, to one side of the fulcrum-point, extending from one side of the plate,

of a suspension-chain to be wound and unwound on said horn, and overlap the edges thereof, and a pendulous indicator pivoted to the said plate on the other side of the fulcrum-point, substantially as described.

313,478. APPARATUS FOR TANNING HIDES. JOHN DAVIS, Allegheny, Pa. Filed July 9, 1884. (No model.)



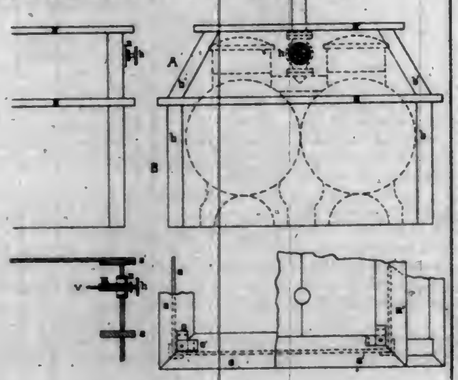
Claim.—1. The combination, with a vat, A, a supply-reservoir, and hollow trunnions B, of a brass pipe, D^2, extending from the packing-chamber to the inside of head, a non-corrosive pipe, D, and a packing C, whereby said trunnions may be prevented from contact with the acid, as described.

2. The combination of the vat A, reservoirs E H, air-pump I, pipe *k*, leaching-vats K, and suitable pipe-connections provided with cocks, whereby the tannic liquid may be transferred back and forth between the vats A K, so as to increase in strength as the operation progresses.

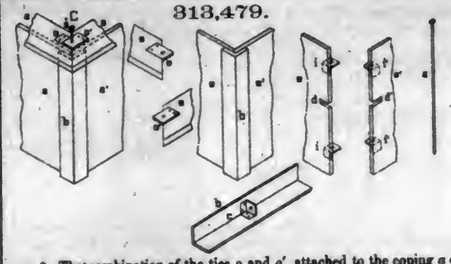
313,479. CONSTRUCTION OF COVERINGS OR HOUSINGS FOR THE STEAM-CYLINDERS OF PUMPING-ENGINES. CHARLES P. DEANE, Springfield, Mass. Filed June 16, 1884. (No model.)

Brief.—A housing secured together at its corners by perforated metallic ties, which enter slots in the side and end pieces. To the inside of said pieces are attached ties arranged with reference to said corner-ties, and to the upper side of the coping are ties arranged in line and a securing-rod passed through them. An extended neck is provided with an enlargement so adjusted as to fill an opening in the housing, through which the hand-wheel and stuffing-box of a valve pass, and whereby it is accessible.

Claim.—1. In coverings or housings for steam-cylinders of pumping-engines, the combination, with a side and end or two sides, as *e* and *e'*, of the corner-piece *b*, the tie or ties *c*, the slots *d* and *d'*, the ties *i* and *i'*, and the rod *s*, substantially as and for the purpose described.



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2. The combination of the ties *c* and *c'*, attached to the coping *a* or other superimposed part, with the side and end or two sides, as *e* and *e'*, the corner-piece *b*, the tie or ties *c*, the slots *d* and *d'*, the ties *i* and *i'*, and the rod *s*, substantially as and for the purpose described.

3. The extended neck *m* of the valve-shell provided, as shown, with an enlargement at *n*, so gaged and adjusted as to fill the hole in the housing through which, when the latter is set up, the hand-wheel A and the stuffing-box are allowed to pass so as to be accessible on the outside, all substantially as and for the purpose described.

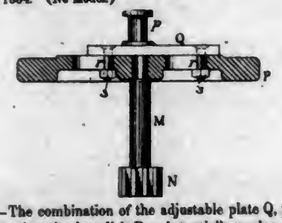
313,480. BRICK, TILE, DRAIN-PIPE, &c. HENRY DICKSON, Pittsburg, Pa. Filed Aug. 11, 1884. (Specimens.)



Claim.—1. A brick, tile, or pipe made of slate.

2. A method of treating slate in making brick, tile, or piping, which consists, first, in pulverizing; secondly, tempering; thirdly, molding; and, finally, burning it, substantially as described.

313,481. CRANK-PIN. WILLIS G. DODD, San Francisco, Cal. Filed Aug. 19, 1884. (No model.)



Claim.—The combination of the adjustable plate Q, pin *p*, bolts *s s*, and slots *r r* in the wheel or disk P, substantially as described.

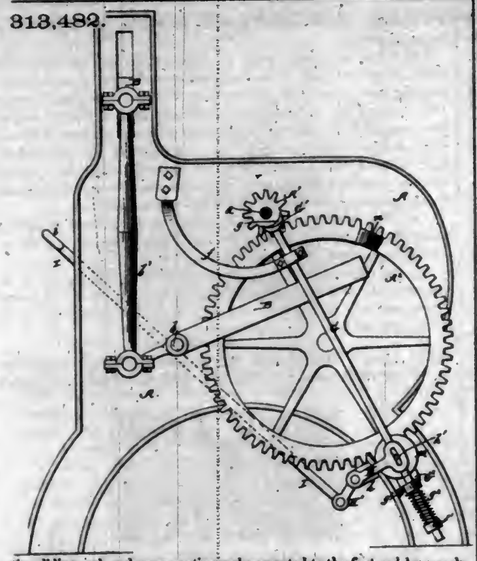
313,482. CLUTCH FOR PAPER-CUTTING MACHINES. EDWARD P. DONNELL, Chicago, Ill. Filed Aug. 5, 1884. (No model.)

Claim.—1. In a paper-cutting machine, a main driving-shaft provided with a notched disk secured upon it, in combination with a loose driving-pulley having its hub provided with a spring-bolt engaging said disk, and a spring-catch in the hub engaging the bolt, to hold it when drawn back, substantially as and for the purpose set forth.

2. In a paper-cutting machine, a main driving-shaft provided with a fixed notched disk and a loose driving-pulley, the latter having a spring-bolt for engaging the disk and a spring-catch for engaging the bolt, in combination with a sliding rod provided with a crescent-shaped shoe engaging and forcing back the catch when slid in one direction and the bolt in the opposite direction, substantially as and for the purpose set forth.

3. In a paper-cutting machine, a loose belt-pulley provided with a clutch-bolt for engaging and disengaging it with the driving-shaft, the large knife-operating gear having a cam upon its edge, and a clutch-operating rod sliding in guides upon the frame, and having a spring and an adjustable L-shaped arm upon its lower end, in combination with a disk having a spring-actuated shank socketed in the main frame and lying in close proximity to the face of said gear and in contact with the arm of

313,482.

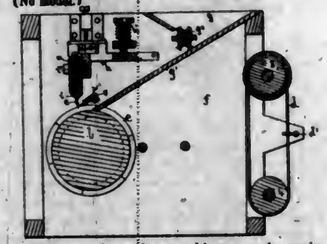


the sliding rod, and an operating-rod connected to the first rod by a rocking lever, substantially as and for the purpose set forth.

4. The main frame A, driving-shaft *a*, having a pinion, A', and a fixed disk, C, with notch *c*, and the large gear A^2, having a cam, *n*, in combination with the pulley D, having a spring-bolt, D', formed with groove d^2 and beveled notch *d'*, and a spring-catch, E, with projecting lug *e*, the spring-actuated rod G, having on its upper end a crescent-shaped shoe, G', formed with beveled notch *g*, and on its lower part an L-shaped arm, G^2, a spring-actuated disk, M, acting as a stop to hold the rod G in position, a rocking lever, H H', connected to said rod by slotted connections, and a rod, I, lying in convenient reach of the operator, substantially as and for the purpose shown and described.

5. In a paper-cutting machine, a spring-stop upon the main frame to engage and hold the clutch-operating rod during the action of the machine, in combination with a starting-rod connected with the clutch-rod, and provided with a cam of incline contacting with the spring-stop, whereby the movement of the operating-rod in one direction will withdraw the clutch-rod and engage it with the spring-stop, and the movement in the other direction will throw out the stop to release the clutch, substantially as and for the purpose set forth.

313,483. GRAIN-CUTTING MACHINE. WILLIAM EBERHARD, Akron, Ohio, assignor to himself and George T. Ford, same place. Filed Aug. 20, 1884. (No model.)



Claim.—1. In a grain-cutting machine, a grain-carrier, in combination with a knife having a reciprocating motion to and from the surface of the carrier, substantially as described.

2. In a grain-cutting machine, a grain-carrier formed with grooves, in which the kernels are conducted to the knife, in combination with a knife arranged crosswise of said grooves, and having a reciprocating motion in and out of them, substantially as described.

3. In a grain-cutting machine, a grain-carrier formed with grooves, in which the grain is carried to the cutters, in combination with a series of cutters, each of which has a reciprocating motion in and out of one of said grooves, substantially as described.

4. The rotary carrier *b*, formed with segmental rings *c*, driven into the periphery of the carrier, in combination with a knife consisting of the series of cutters *c*, having reciprocating motion to and from the carrier, substantially as described.

5. The rotary grooved carrier *b*, in combination with the strike *o*, formed of leather or its equivalent, and the series of reciprocating cutters *c*, substantially as described.

6. The reciprocating clamp *a*, formed with strip *i*, the series of cutters *c*, separating-strips *s*, follower *c'* and bolts *v*, in combination with the grooved rotary carrier *b*, substantially as described.

7. The lever A, in combination with knife-clamp *a* and pin and spring *h'*, substantially as described.

8. The knife-clamp *a* and crank-shaft *a'*, in combination with pulleys 1 and 2, cone-pulleys 3 and 4, rod d^3, fork d^3, pulleys 5 and 6, pinions *x x'*, wheels 7 and 8, and carrier *b*, substantially as described.

313,484. STIRRUP. JOSEPH P. ELLACOTT, Chicago, Ill. Filed May 16, 1884. (No model.)



Claim.—A safety-stirrup composed of a frame having side pieces and a forwardly-arched connecting-piece at their lower ends, and a pivoted foot-rest having a forward foot-shield and an elastic foot-pad, the foot piece being so arranged as to be capable of turning backward through the frame.

313,485. ROAD-CART. EZRA EMMERT, Dixon, Ill. Filed June 19, 1884. (No model.)



Claim.—1. The combination of the axle C, provided with the recess *a*, the springs G, rollers H, seated therein, the body D, provided with the slots *d*, and the posts I, whereby the body D is connected to the running-gears of the vehicle solely at the rollers H, and the vertical oscillation of such running-gears is not communicated to such body at either end of the latter, substantially as shown, and for the purpose described.

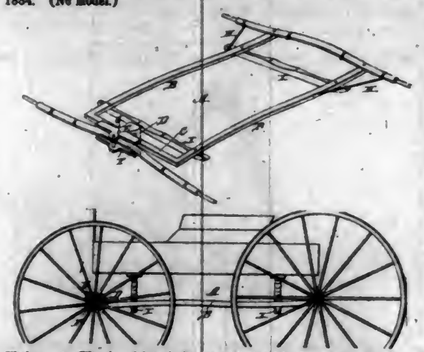
2. In a sulky or road cart, the posts I, seated on the running-gears of the vehicle, and inserted loosely in slots *b* in the body of the vehicle, whereby such posts may have a vertical movement without communicating the same to such body, substantially as shown, and for the purpose named.

3. The combination of the running-gears of the vehicle provided with the posts I, and the body D, provided with slots *b*, such body being pivotally seated at or near its center upon such running-gears, for the purpose named.

4. The combination of the bars F F, suitably supported from the axle C, the springs G, posts I, rollers H, body D, and axle C, substantially as shown, and for the purpose specified.

5. The combination of the scraper P, suitably attached to the frame of the vehicle, and provided with scraper-edge *g* and fender *h*, and the wheel A, substantially as shown, and for the purpose described.

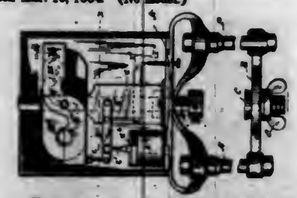
313,486. VEHICLE RUNNING-GEAR. MOSES FREAR, Rosendale, N. Y., assignor of one-half to Rufus Snyder, same place. Filed Sept. 26, 1884. (No model.)



Claim.—1. The head-block D, provided with the plates E F, and made in a single piece with the cross-bar C, substantially as set forth.

2. The combination of the bars B C, head-block D, having the upper and lower plates, E F, and the front axle, which is pivoted between the plates, substantially as shown.

313,487. ELECTRIC-ARC LAMP. WARREN P. FREEMAN, New York, N. Y. Filed Mar. 10, 1884. (No model.)



Claim.—1. The rectangular vibrating frame H, the side bars of which are made to form armatures for a pair of local magnets, G, placed transversely between them and supported independently of the said frame, which is pivoted to a stationary central support, and in combination with said vibrating frame, and articulated to it by a suitable connecting-rod, a transverse lever, connected with and operating by means of a suitable connecting-rod, a grip-rod for clamping and moving the sliding carbon-holder rod, and, in connection with said actuating-lever and suitably attached to it by a connecting-rod, the piston of a dash-pot for governing and equalizing the movement of the working parts, substantially as described.

2. The vibrating frame H, electro-magnets G G, lever I, connecting-rods i, i', and i^2, and grip-rod I', combined and arranged as described.

313,488. DYNAMO-ELECTRIC MACHINE. WARREN P. FREEMAN, New York, N. Y. Filed Mar. 10, 1884. (No model.)



Claim.—1. In a dynamo-machine, two groups or sets of cores of field-magnets placed on opposite sides of a revolving armature, divided by central polar pieces into two sections each, respectively, and combined with annular end keeper-plates, to which the said field-magnet cores are attached, the said annular keeper-plates rabbeted to receive and hold end bearing-plates, in which is supported the central shaft of the centrally-located revolving armature.

2. A pair of annular keeper-plates holding between their adjacent faces two sets of field-magnet cores placed, respectively, on opposite sides of a central revolving armature, the said annular keeper-plates combined with and rabbeted or housed to receive and hold concentrically with them central disks or supporting-plates for the journal-bearings of the revolving armature-shaft.

3. A pair of circular plates or disks holding concentrically with them and perpendicular to their adjacent faces the journal-bearings of a shaft for the revolving armature of a dynamo-machine, in combination with the shaft and its rotating armature, and a pair of annular keeper-plates arranged to hold between them the field-magnet cores of the machine, and rabbeted or housed to receive and hold in place the said circular plates or journal-bearing disks, the said disks and their supported axle and rotating armature being removable from the rabbeted annular keeper-plates by removing the assembling-screws therefrom.

4. The rabbeted annular keeper-plates A A', the central bearing-plates, B B', supported therein, the field-magnet cores D, and the revolving armature-shaft F, combined as described.

5. In combination with the rabbeted annular keeper-plates A A', supporting the field-magnet cores D and their pole-pieces E, the central bearing-plates, B B', carrying the shaft F, removably attached to the said keeper-plates by the assembling-screws *b b'*.

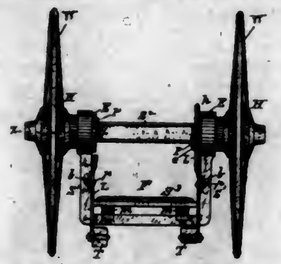
313,489. COMMUTATOR FOR DYNAMO-ELECTRIC MACHINES. WARREN P. FREEMAN, New York, N. Y. Filed Mar. 10, 1884. (No model.)



Claim.—1. A commutator for a dynamo-electric machine, having the commutator-strips placed transversely on the periphery of the commutator drum or cylinder, and secured thereto by means of retaining-screws passing radially through peripheral flanges at the sides of the said drum, the screws threaded in the said commutator-strips, and placed with their heads toward the hub of the said drum or cylinder.

2. A commutator for a dynamo-electric machine, consisting of a drum or cylinder, A, peripheral commutator-strips B, secured thereto by insulated screws C, passing radially outward through side flanges, *a'*, at the periphery of the drum or cylinder A, and threaded in the said commutator-strips, and insulating-strips E and F, respectively separating the commutator-strips from the drum or cylinder and from each other.

313,490. BICYCLE. JOHN GIBBONS, West Troy, N. Y., assignor to the Menesly Hardware Company, same place. Filed Oct. 30, 1884. (No model.)

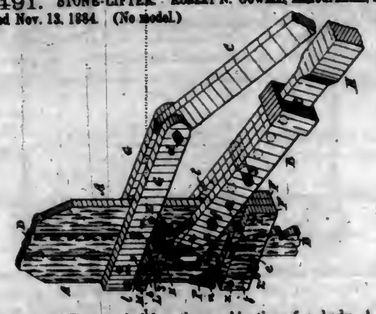


Claim.—1. In a bicycle, the combination of two wheels of equal size, arranged side by side, and each wheel connected to move with its axle, a rider's seat that is pendant from the side bearings of the latter and arranged below the said axles, an annular bearing for each hub and axle, made as shown, and a flange-wheel on the inner end of each axle constructed to move with the latter and adapted to receive a crank-arm or pitman, substantially in the manner as and for the purposes set forth.

2. In a bicycle having two wheels of equal size arranged side by side, with an intermediately-placed seat that is below the wheel-axles, the combination of the annular bearings a' and a^2, formed in and at the sides of the seat-frame, the axles A and hub H, connected to move together, as shown, and the flange-wheel E, arranged on the inner end of each of the said axles and adapted to receive a crank-arm or pitman, said parts being constructed and arranged to operate substantially in the manner as and for the purposes set forth.

3. In a bicycle having two wheels of equal size arranged side by side, with an intermediately-placed seat that is below the wheel-axles, the combination of the bearings a' and a^2 for each wheel, the axles A and hubs H, constructed to move together, the flange-wheels F, arranged on the inner ends of each of the said axles, the treadle-levers L L, each pivoted to an arm on the seat-frame, and the pitmen P P, each connecting one of the treadle-levers with the perimeter of one of the said flange-wheels, the said parts being constructed and arranged to operate substantially in the manner as and for the purposes set forth.

313,491. STONE-LIFTER. ROBERT N. GOWELL, Ashburnham, Mass. Filed Nov. 13, 1884. (No model.)



Claim.—1. In a stone-lifter, the combination of a body, A, provided with a vertical slot, a vertically-movable serrated bar within said slot, a slide movable vertically within said slot, a lever pivoted to said body, the inner end of which projects under said slide to lift it, a horizontally-sliding pawl on said slide, and springs for actuating said pawl, substantially as described.

2. In a stone-lifter, the combination of a body, A, provided with a vertical slot, a vertically-movable serrated bar within said slot, a slide movable vertically within said slot, a lever pivoted to said body, the inner end of which projects under said slide to lift it, a horizontally-sliding pawl on said slide, springs for actuating said pawl, a horizontally-sliding pawl supported on said body, and springs for actuating said pawl, substantially as described.

3. In a stone-lifter, the combination of a body, A, provided with a vertical slot, a vertically-movable serrated bar within said slot, a slide movable vertically within said slot, a lever pivoted to said body, the inner end of which projects under said slide to lift it, a horizontally-sliding pawl on said slide, springs for actuating said pawl, a horizontally-sliding pawl supported on said body, a spring for actuating said pawl to cause it to engage said bar, a bell-crank lever for actuating said pawl to release it from said bar, and a spring-hook adapted to connect said pawl with said vertically-movable slide, substantially as described.

4. In a stone-lifter, the combination of a body, A, provided with a vertical slot, a vertically-movable serrated bar within said slot, a slide movable vertically within said slot, a lever pivoted to said body, the inner end of which projects under said slide to lift it, a horizontally-sliding pawl on said vertically-movable slide, provided with pins *a* and *b*, and a spring adapted for adjustment in connection with either of said pins for moving said sliding pawl in either direction, substantially as described.

5. In a stone-lifter, the combination of a body, A, provided with a vertical slot, a vertically-movable serrated bar within said slot, a slide movable vertically within said slot, a lever pivoted to said body, the inner end of which projects under said slide to lift it, a horizontally-sliding pawl on said vertically-movable slide, provided with an inclined face, a cam-bar on said body adapted to engage said inclined face to move said pawl in one direction, and a spring for moving it in the opposite direction, substantially as described.

6. The improved stone-lifter herein described, the same consisting of the body A, provided with the cam *l*, arms G, and bars F, the levers B C H, the pawl Q, provided with the stud *w* and spring *e*, the pawl M, provided with the cam-mortise *i*, studs *a b*, the spring N, the lever P, provided with spring J, having the hook *z*, the slide L, provided with the stud *y* and link *r*, and suitable ways for the slide and pawls, all constructed, combined, and arranged to operate substantially as described.

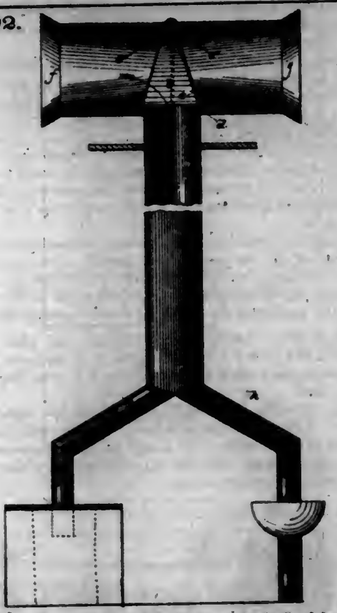
7. The combination of the body A, provided with a vertical slot, the serrated bar D, movable in said slot, the vertically-movable slide L within said slot, the pawls for engaging said serrated bar, the mechanism, substantially as herein described, for actuating said pawls, the arms G, attached to said body, the lever B, pivoted to said body, and the auxiliary lever C, pivoted to said arms.

313,492. VENTILATOR. CHARLES E. GRAHOME, New Haven, Conn. Filed Apr. 29, 1884. (No model.)

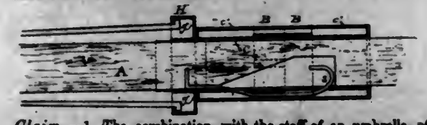
Claim.—The combination, with a car or steamboat, of a flue-pipe, *a*, passing through the roof of the same, a double funnel, *b*, at the top of the flue-pipe, formed with the branches *f g*, said branches having inner smaller pipes, *e e'*, arranged within the same, which taper or decrease in diameter inward, the inner or smaller ends of the pipes being cut off obliquely, and the swinging valve *c*, hinged or pivoted in the funnel between the inner pipes and adapted to close over the inclined inner ends of the same, as and for the purpose set forth.



313,492.



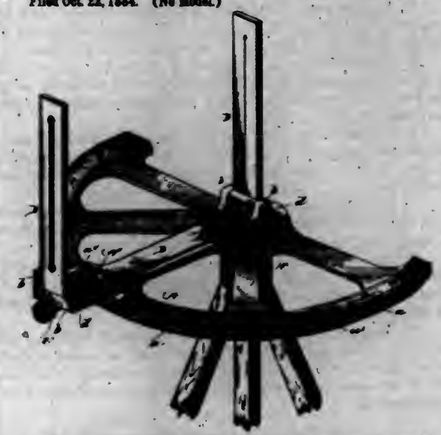
313,493. UMBRELLA-LOCK. E. HARRISON GRIFFIN, New York, N.Y. Filed Jan. 9, 1884. (No model.)



Claim.—1. The combination, with the staff of an umbrella, of a movable tube, C, provided with fixed rings C' and movable double rings B, each formed of a complete outer ring and a slotted inner ring firmly fastened thereto, having letters or figures on their outer surface, substantially as and for the purposes set forth.

2. The combination, with the retaining-spring of an umbrella or parasol and the runner-tube thereof, of one or more double rings, B, formed of a complete outer ring and a slotted inner ring, the inner ring being adapted to engage under the spring and prevent its being pressed down, substantially as set forth.

313,494. SURVEYING-INSTRUMENT. JOHN HALE, Scranton, Pa. Filed Oct. 22, 1884. (No model.)



Claim.—1. In a surveying-instrument of the class described, the combination, with the graduated compass-plate, of the movable arm having its inner end pivoted centrally in relation thereto, and vertical sights

provided at the pivotal and outer ends of said arms, substantially as and for the purpose set forth.

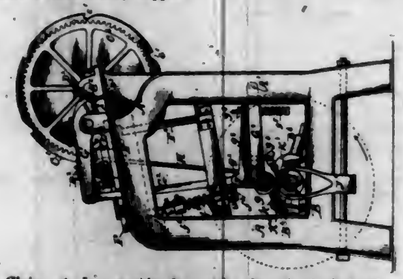
2. In a surveying-instrument of the class described, the combination of the graduated compass-plate, the movable arm moving around a fixed center in relation thereto, and provided with the vernier, and the folding sights provided at the pivotal and outer ends of the arm, substantially as set forth.

3. The combination of the graduated compass-plate, the movable arm pivoted at its inner end thereto and moving around a fixed center, and provided with the vernier and with the set-screw, and the folding sights provided upon the arm at its pivotal and vernier ends, substantially as set forth.

4. The combination of the graduated compass-plate provided with the grooved edge, the movable arm centrally pivoted in relation thereto and provided at its outer end with the vernier and the downwardly-projecting lug, the set-screw working through the latter, and the folding sights provided at the ends of the arm, substantially as set forth.

313,495. MACHINE FOR SECURING THE ENDS OF SPIRAL SPRINGS. HIRAM S. HALL, Jamestown, N. Y., assignor to Alanson Cary and Edward F. Moss, both of New York, N. Y. Filed May 8, 1884. (No model.)

Brief.—The jaws close on and hold the two largest coils of the spring. A finger then enters the slot in the pinion and bends the end of the wire at a right angle. The slotted pinion then revolves, coiling the end so bent about the other coil. At the completion of the operation the machine is automatically stopped.



Claim.—1. In a machine for securing the ends of spiral springs, the combination of the parallel plates D^2, and between said plates the gear D^3, pinion d', mutilated pinion d, and the slotted head within said pinion, substantially as and for the purpose described.

2. The combination of the slotted pinion d, finger f, arm f^2, and two disks having crank-pins connected with said arm, substantially as and for the purpose described.

3. The combination of the arm f^2, crank-pin f^1, connected therewith, the shaft F', and side projecting pin, f^3, with the revolving arm B^2, substantially as and for the purpose described.

4. The combination of the arm f^2, carrying finger f, disks F, having crank-pins connected with said arm, the shaft F', and means for giving thereto a part of a revolution in one direction, with adjustable collar thereon, and spring f^4, secured thereto, substantially as and for the purpose described.

5. The combination of the slotted pinion d, the clamping-jaws G G', pivoted together alongside thereof, the rod G^2, pendent from the jaw G', and the cam B^4, for operating said jaws, substantially as described.

6. The combination of the jaws G G', the pendent rod G^2 of the latter, and its operating-cam, with the arm G^3, having the fulcrum-pin g^3, the lever g^2, and the spring-connection, substantially as and for the purpose described.

7. The combination of the slotted pinion d and its operating-gears, the shaft D', and projecting pin d^3, secured thereto, with the vertical bar H, lever K, and its operating-cam, substantially as and for the purpose described.

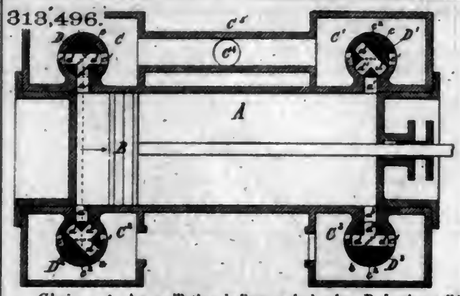
8. The combination of the slotted pinion d and its operating-gears with the shaft D', collar D^4, and pin d^4 thereon, the vertical bar H, rod I, and treadle J, substantially as and for the purpose described.

9. The combination of the slotted pinion d and its operating-gears with the shaft D', collar D^4, pin d^3 thereon, the bar H, rod I, lever K, lever J', and its clutch, with the controlling-cam K', substantially as and for the purpose described.

10. The combination of the main shaft B, its crank, connecting-rod, and slotted link C, carrying the rolling pin c^3, with the ratchet-wheel C', slotted pinion d, its head E, and the intermediate mechanism between said ratchet-wheel and slotted pinion, substantially as and for the purpose described.

313,496. VALVE FOR STEAM-ENGINES. DEWITT C. HARLOW, Chippewa Falls, Wis. Filed Jan. 23, 1884. (No model.)

313,496.

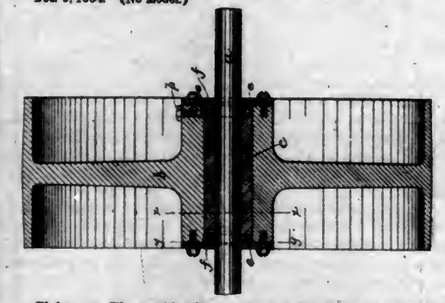


Claim.—1. An oscillating hollow conical valve, D, having solid closed ends, passages d d' d^5, and a stem, d^6, at one end, in combination with a suitable valve-seat having open ends, a passage, a^4, a depression, c^3, and ports a a' a^3 and c c' a^3, and with brackets e e', and central outside set-screws, E, for longitudinal adjustment of the valve, substantially as described.

2. An oscillating valve receiving steam by means of two diametrically-opposite ports and delivering it by means of one port standing at a right angle to the receiving-ports, in combination with a valve-seat having three similar ports, two diametrically opposite and communicating with the steam-chest and one at a right angle communicating with the steam-cylinder, substantially as described.

3. The combination of an oscillating valve having two diametrically-opposite receiving-ports and one delivering-port at a right angle thereto, with a suitable valve-seat having similar ports, and an automatic balancing steam-chamber opposite its delivering-port, said balancing steam-chamber having alternate connection with the valve-ports and the steam-cylinder, substantially as and for the purpose described.

313,497. LOOSE PULLEY. JAMES A. HORTON, Reading, Mass. Filed Dec. 9, 1884. (No model.)

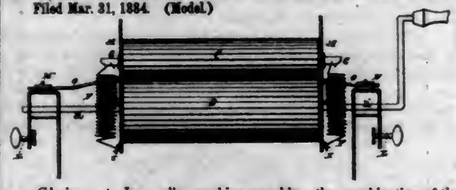


Claim.—1. The combination of a loose pulley having a covered oil-receiving orifice, a shaft on which said pulley is mounted, and one or more pockets communicating with the bearing-surfaces of the shaft and pulley and with the oil-receiving orifice of the pulley, as set forth.

2. The combination of the shaft having the fixed collar or enlargement c, the pulley mounted on said enlargement and having flanges bearing against the ends thereof, and an oil pocket or pockets communicating with the bearing-surfaces of the enlargement and pulley and with an oil-receiving orifice in the pulley, as set forth.

3. The shaft having the fixed collar or enlargement reduced at one or both ends to form an annular space or spaces, and provided with one or more longitudinal pockets communicating with said spaces, combined with the loose pulley having the covered oil-receiving orifice communicating with one of the annular spaces, and the end flanges and packings bearing against the ends of said collar, as set forth.

313,498. WASHING-MACHINE. JOSIAH K. HUNT, Baldwin, Iowa. Filed Mar. 31, 1884. (Model.)



Claim.—1. In a roller washing-machine, the combination of the rollers, the end pieces, A, having the slots E, the springs F, the boxes, the braces, and the journal a of the lower roll, the boxes being adjustable upon the braces and journal, substantially as shown.

2. The combination of the rollers, the end pieces, the braces, and the boxes which serve both as a means for clamping the machine to the tub and as bearings for the lower roll, substantially as specified.

3. The combination of the rollers, the slotted end pieces, the springs, the slotted braces, and the boxes provided with clamping-screws whereby the boxes can be adjusted back and forth upon the braces, substantially as shown.

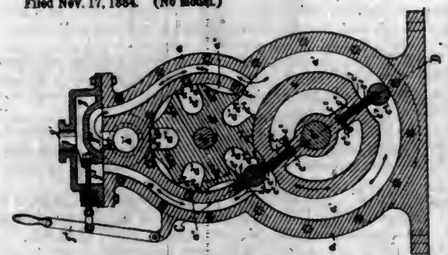
313,499. KNIFE-HANDLE. CHARLES INGERSON, Sheffield, County of York, England. Filed Aug. 25, 1884. (No model.) Patented in England Feb. 16, 1884, No. 3,414.



Claim.—1. The combination of a foundation adapted to receive the tang of a knife or other article of cutlery with a flange, B, in a separate piece or pieces, inclosing the said foundation except at the sides thereof, and shells C, which cover the sides of said foundation and are held in place by the overlapping side edges of said flange, substantially as shown.

2. The interlocking foundation E F, forming a foundation to receive the tang, in combination with the flange B, which incloses the said foundation except at the sides thereof, and the scales C, which cover the sides of said foundation and are held in place by the overlapping edges of the flange, substantially as shown.

313,500. ROTARY ENGINE. CARL F. JANSSON, Manchester, N. H. Filed Nov. 17, 1884. (No model.)



Claim.—1. In a rotary engine, the shell a, having cylindrical piston-chamber a' and abutment-chamber a'' opening into each other, combined with piston-cylinder c, its pistons c^2 c^3, and their cylindrical heads c^4 c^4, the abutment-cylinder d, with its recesses d'', surface concavities d^3, and intermediate projections, d^4, and in and out let passages e e' f f', leading to piston-chamber a', as and for the purpose set forth.

2. The piston-cylinder c, having pistons c^2 c^3 c^4 c^4 and concave recesses c^5 c^5 on each side of said pistons, in combination with abutment-cylinder d, having recesses d'', outer concavities, d^3, and intermediate projections, d^4, for the purpose of preventing escape of steam or water during the revolution of the engine, in a manner as herein set forth and described.

3. In combination with the piston-cylinder c, its pistons c^2 c^3, and the abutment-cylinder d, constructed in a manner as described, the inlet and outlet e and f, with their respective transverse channels e' and f', as and for the purpose set forth.

313,501. FIRE-PROOF BUILDING MATERIAL. JOHN C. KERNER, St. Louis, Mo. Filed Nov. 10, 1884. (No specimens.)

Claim.—1. A fire-proof building material composed of sawdust treated with a fire-proof substance, as described, and afterward bonded with plaster-of-paris or lime, or both plaster-of-paris and lime, as described.

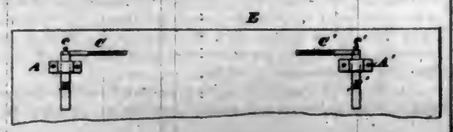
2. In a fire-proof building material, sawdust treated with a fire-proof solution, as and for the purpose described.

3. In a fire-proof building material, sawdust treated with hyposulphite of soda and alum, as and for the purpose described.

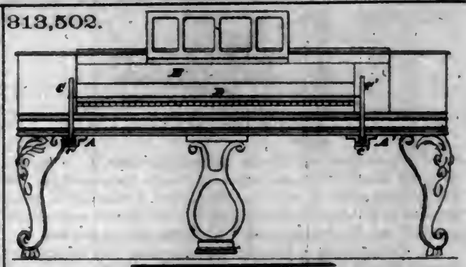
4. The combination of sawdust treated, as described, with a fire-proof substance, with plaster-of-paris and alum, as described.

313,502. PIANO-PUPIL'S MONITOR. JOHN A. KIESELHORST, St. Louis, Mo. Filed Dec. 29, 1883. (No model.)

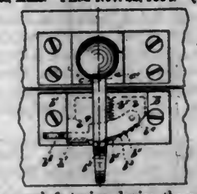
Claim.—The combination, with a piano-forte or other key-board musical instruments, of the blocks A A', sliding arms B B', provided with slots a b, standards C C', screws c c', and cord D, as and for the purposes set forth.



313,502.



313,503. FASTENING FOR MEETING-RAILS OF SASHES. EDWD. O. LADD, Everett, Mass. Filed Nov. 22, 1884. (No model.)



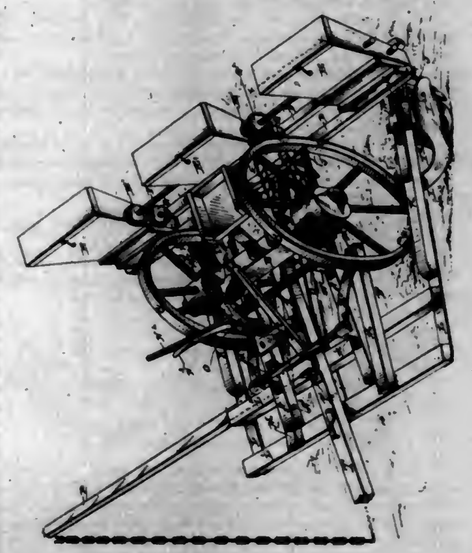
Claim.—1. In a sash-fastening device, the combination of an edge cam-bearing plate and hinged edge ratchet-plate, the plates or edge surfaces being independent of each other but coincident in curvature, and adapted to operate in connection with the locking bar or arm, substantially as and for the purposes described

2. The sash-fastening device consisting of the plate a, provided with the locking-bar or arm a', pivoted thereto, and having the tongue a^4, having the bearing-surface a^5 and tooth or latch a^6, in combination with the plate b', provided with the circular edge cam-plate b, circular edge ratchet-plate b^3, formed coincident with each other, the ratchet-plate being movable, as described, and provided with a thumb-piece, b^4, and adapted to operate in combination with the locking bar or arm a', all substantially as specified.

313,504. FURROWER, MARKER, AND FERTILIZER-DISTRIBUTER COMBINED. WILLIAM A. LAWRENCE, Flushing, N. Y. Filed Sept. 12, 1884. (No model.)

Claim.—1. The combination, with the main frame and the pivoted auxiliary frame carrying the plows and distributers, of the rock-shaft provided with a foot-lever and the springs connecting the ends of said rock-shaft to the rear ends of the intermediate rails of the auxiliary frame, substantially as specified.

2. The combination, with the main frame and the pivoted auxiliary frame, as described, of the plows connected by spring-connections to the parallel bars of the auxiliary frame, and the levers, spring-pawl and ratchet, and rock-shafts, substantially as specified.



313,504.

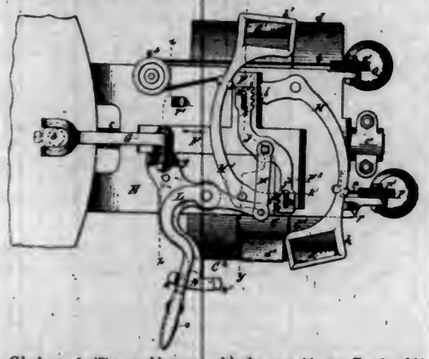


3. The combination, with the sectional plow-beam K, having the spring K^3, secured thereto and projecting over the rear end of said section K, of the section K', pivoted to the rear end of the section K by the metal straps K^2, and the break-pin interposed between the section K, the spring K^3, and the strap-connections K^2, substantially as specified.

4. The combination, with the hoppers provided with the vibrating serrated droppers I' in their discharge-openings, of the fluted or grooved feed-rollers G', and the toothed rollers for actuating the droppers, as set forth.

5. The combination, with the main frame, the axle, driving-wheels, and the transverse bars D D', carrying the hoppers, and arranged in rear of the wheels, of the auxiliary frame pivoted to the main frame, and arranged outside of the wheels, and carrying the plows and distributers on each side of said wheels, the shaft F, for operating the seeding devices, and gearing connecting the driving-wheel with said shaft, as and for the purpose set forth.

313,505. AUTOMATIC BELT-SHIPTER. HENRY W. LEONARD, Syracuse, N. Y., assignor to the Syracuse Paper Ware Company, same place. Filed July 21, 1884. (No model.)



Claim.—1. The combination, with the movable bar F, of a shifting-bar, J, provided with gear-racks, and shifting-levers H H', provided with gear-segments, substantially as set forth.

2. The combination, with the tight pulley C and loose pulleys C' C^2, of a straight belt, *d*, and crossed belt *d'*, movable bar F, shifting-bar J, provided with gear-racks, and shifting-levers H H', provided with gear-segments, substantially as set forth.

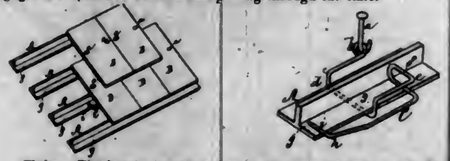
3. The combination, with the shifting-levers H H', provided with gear-segments, of the movable bar F, shifting-bar J, provided with gear-racks, hand-lever L, and link M, substantially as set forth.

4. The combination, with the movable bar F, of the shifting-bar J, movable transversely to the bar F, shifting-levers H H', adapted to be operated by the bar J, and a hand-lever, L, whereby the bar J is shifted, substantially as set forth.

5. The combination, with the movable stops b' b^2, of the lever G, sliding bar F, shifting-bar J, shifting-levers H H', adapted to be operated by the bar J, and hand-lever L, whereby the bar J is shifted, substantially as set forth.

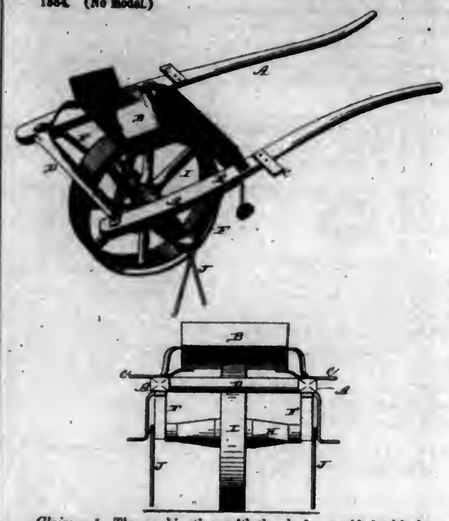
313,506. METHOD OF ATTACHING SLATES TO ROOFS. GEORGE MARTIN, Boston, Mass. Filed Oct. 6, 1884. (No model.)

Brief.—Employs a spring fastening device, one end of which is adapted to catch over a purlin, while its opposite end has an eye, which engages the upturned end of a nail passing through the slate.



Claim.—The herein-described means of securing slates to roofs, the same consisting of a spring fastening device, one end of which is adapted to catch over the purlin, while its opposite end is provided with an eye, which holds the upturned end of the nail which passes through the slate, all combined and operating substantially as set forth.

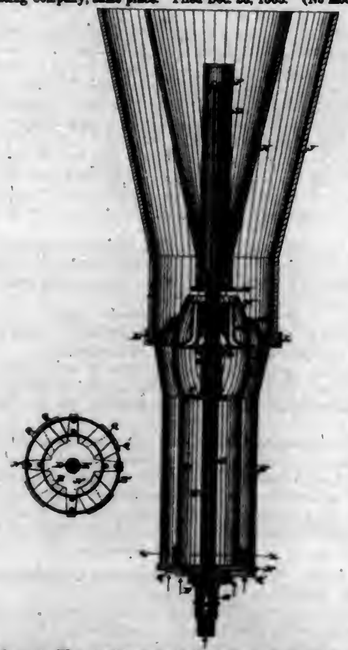
313,507. VEHICLE. JOHN L. MATHER, Tomah, Wis. Filed Dec. 19, 1884. (No model.)



Claim.—1. The combination, with the shafts provided with the seat and hangers, of the single wheel having its shaft journaled in the hangers, and the swinging supports secured to the ends of the axle, as set forth.

2. The combination, with the shafts provided with the spring-seat and hangers, of the shaft provided with the single wheel, and the diverging swinging supports connected to the ends of the axle, as set forth.

313,508. GAS-BURNER. OSCAR D. MCCLELLAN, Philadelphia, Pa., assignor, by direct and mesne assignments, to the Solar Gas Light and Heating Company, same place. Filed Dec. 26, 1883. (No model.)



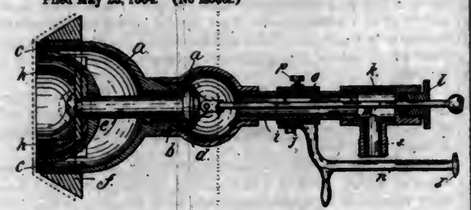
Claim.—1. The combination of the concentric gas-pipes D and E with the tube or retort F, which is closed at top and attached at bottom to the upper end of the outer gas-pipe, E, said tube or retort extending above the top of the inner gas-pipe, D, and surrounding the same, so as to afford a passage for the gas downward from said inner pipe, D, to said outer pipe, E, substantially as set forth.

2. The combination, with the inner gas-pipe, D, and the outer gas-pipe, E, of a retort or tube, F, which is attached to the upper end of said outer pipe, and affords a passage between the two pipes, said retort or tube F being provided at its lower end with a flange which forms a deflector, M, arranged above the burner, substantially as set forth.

3. An inner gas-pipe and an outer gas-pipe, in combination with a retort or tube closed at the top, which is attached to the upper end of said outer pipe and affords communication between said pipes, a deflector formed on the lower end of said retort, and a reflector supported on said deflector, substantially as set forth.

4. A gas burner and pipes for supplying the same, in combination with a deflector, M, supported by one of said pipes above said burner, and a conoidal deflector, K, which tapers downward to a neck that rests upon said deflector, substantially as set forth.

313,509. FLUE-CLEANER. FRED L. MCGARAN, Indianapolis, Ind. Filed May 23, 1884. (No model.)



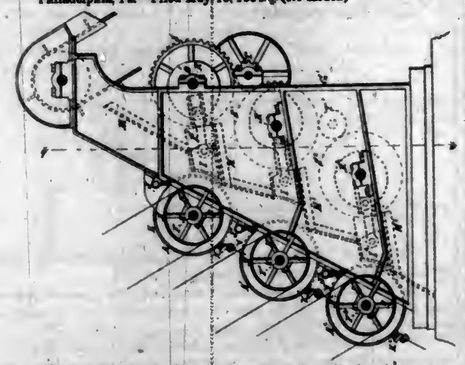
Claim.—1. A flue-cleaner consisting of the following elements, namely: a tube having an inlet for steam, a hollow discharge-jet secured to one end of said tube, a plate adapted to cover the open end of a flue and to slide over the exterior of said jet, and a valve seated within said discharge-jet and connected with said plate, all combined substantially as and for the purpose specified.

2. In a flue-cleaner, the combination of discharge-jet *a*, having annular openings *c*, valve *d*, and plate *f*, substantially as specified.

3. In a flue-cleaner, the combination, with discharge-jet *a*, tube *i*, and valve *d*, of stuffing-box *l* and rod *m*, whereby said valve is operated in the manner and for the purpose set forth.

4. In a flue-cleaner, the combination, with tube *i* and jet *a*, of sleeve *o*, having a handle, *n*, arranged as described, substantially as and for the purpose specified.

313,510. MACHINE FOR REDUCING BAGASSE TO PULP TO EXTRACT THE SACCHARINE MATTER THEREFROM. SIMON C. MEYER, Philadelphia, Pa. Filed May 15, 1884. (No model.)



Claim.—1. In a machine or apparatus for reducing bagasse to a fine pulp or pomace, the combination of the cylinders A, A', and A^2, toothed bars D, D', and D^2, wooden block L, and segmental bands E, substantially as shown and described.

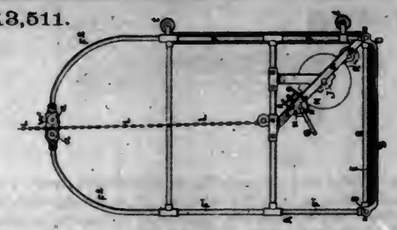
2. The combination of the cylinders A, A', and A^2, provided with the flanges B B', rib C, and teeth *g*, *h*, *i*, and *k*, substantially as and for the purpose shown and described.

3. The combination of the cylinders A, A', and A^2, housings G and G', inclined platforms H, H', and H^2, plungers I, I', and I^2, water-jets J, J', and J^2, and brushes K, K', and K^2, substantially as and for the purpose shown and described.

4. The combination of the cylinders A, A', and A^2, shafts F, F', and F^2, pulleys N, N', and N^2, housings G and G', plungers I, I', and I^2, shafts R, R', and R^2, heart-cams O O', levers P P', spur-wheels S, S', and S^2, and pinions T T', substantially as shown and described.

313,511. BALCONY AND FIRE-ESCAPE COMBINED. CLEOPHAS MONJEAU, Middletown, Ohio. Filed Mar. 16, 1883. (No model.)

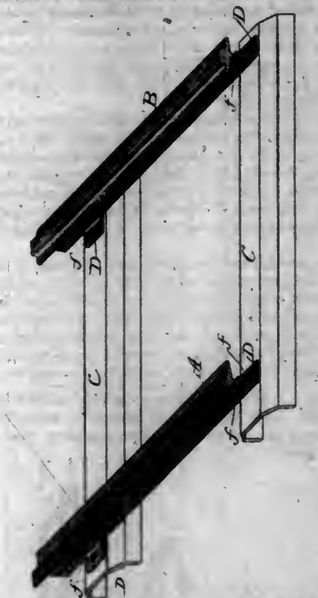
Claim.—1. A balcony suspended by chains adapted to be wound upon a shaft or unwound therefrom by a crank-and-gear mechanism and provided with a double iron back having doors adapted to open outwardly and inwardly, substantially as described, and for the purposes set forth.



2. A balcony suspended by chains adapted to be wound upon a shaft or unwound therefrom and provided with a double iron floor having air-spaces, substantially as described, and for the purposes set forth.

313,512. MEANS FOR SECURING GIRDER-RAILS IN TRACK. ARTHUR J. MOXHAM, Johnstown, Pa. Filed June 14, 1884. (No model.)

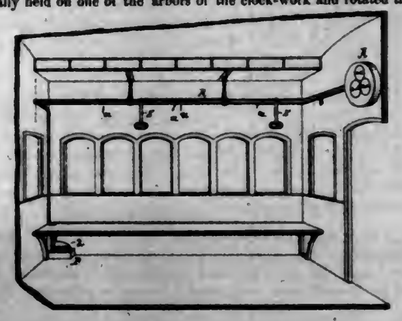
Brief.—The rails are secured to the ties by rolled-metal angle-plates bolted to them on alternate sides thereof, and bolted to the ties.



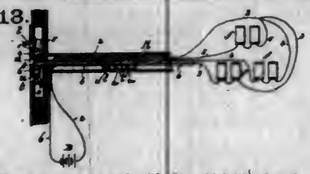
Claim.—In combination with a railroad girder-rail of either center-bearing or side-bearing head and devoid of wide lower flanges, a series of L-shaped or angle chairs of rolled metal secured to the web of said rail on alternate sides thereof, and connecting the same to the cross-ties or stringers of the track through a bottom flange only, substantially as and for the purposes set forth.

313,513. FARE-REGISTER. CHAS. A. NEUERT, Boston, Mass. Filed Mar. 7, 1884. (No model.)

Claim.—1. In an indicating apparatus for railway-cars, a clock-work or motor terminating in an escapement, and an electro-magnet controlling the said escapement, combined with an indicating device frictionally held on one of the arbors of the clock-work and rotated there-



313,513.



hy, a mutilated gear connected with the said indicating device, a pinion normally disengaged from the said gear, and an actuating-shaft for the said pinion, whereby it may be engaged with and operate the said gear and indicating device, substantially as described.

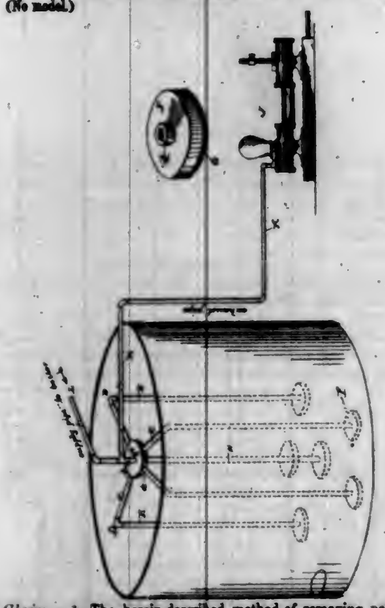
2. In an indicating device for railway-cars, a clock-work or motor terminating in an escapement, combined with an indicating device frictionally held on one of the arbors of the said clock-work and rotated thereby, mechanism for turning the said indicating device independently of the clock-work, a worm connected with an arbor of the clock-work, and worm-gear and pointer actuated thereby for indicating the amount of movement of the clock-work independently of the indicating device, substantially as described.

3. The clock-work or motor and escape-wheel and ratchet fixed on the arbor thereof, and indicating device frictionally connected with the said arbor, combined with an escapement-anchor controlling the escape-wheel and electro-magnet, and armature for actuating the said anchor, and a pawl engaging the said ratchet, and device for turning the said indicating device independently of the arbor upon which it is supported, substantially as described.

4. In an indicating apparatus for street-railway cars, an indicating device visible from the car, and an electro-magnet and circuit controlling the operation of the said indicating device, combined with mechanism for moving the said visible indicator to the zero-point independently of the mechanism controlled by the magnet, and a second indicating device operating continuously to indicate the total number registered by the visible indicator during several periods of operation, substantially as described.

5. A fare-indicator for railway-cars, comprising an indicating device and an electro-magnet controlling its operation, combined with circuit-wires and circuit-controlling devices for said magnet, and a tube inclosing the said wires and circuit-controlling devices and protecting them from improper operation, the said tubes having openings corresponding with the different controlling devices which are operated by a device inserted through the said openings, substantially as described.

313,514. APPARATUS FOR REMOVING PARAFFINE FROM OIL TANKS. JAMES W. NORTON and FRANKLIN H. ROOSE, Kiersa, Pa., assignors of one-third to Jacob C. Fuller, same place. Filed Sept. 1, 1884. (No model.)



Claim.—1. The herein-described method of removing paraffine, sedimentary, or B. S. oil from the bottom of oil-tanks, consisting, first, in forcing steam, hot air, or hot water through pipes to the bottom of the tank and beneath the oil in the same to liquefy the sedimentary deposits, and finally causing the withdrawal of the liquefied solution up through the said pipes and out from the tank to a suitable receptacle without removing the oil, as set forth.

2. The herein-described method of removing paraffine, sedimentary, or B. S. oil from the bottom of oil-tanks without emptying the latter of their contents, consisting, first, in heating the body of oil, causing the heavier particles to gravitate to the bottom of the tank and also giving a lateral motion to the oil so as to liquefy the sedimentary deposits, and finally withdrawing the liquefied solution from under the oil and out to a suitable receptacle, as set forth.

3. The herein-described process or method of removing paraffine, sedimentary, or B. S. oil from the bottom of oil-tanks without emptying the latter of their contents, consisting in forcing steam, hot air, hot water, or its equivalent through pipes to the bottom of the tank, so as to heat the oil in its passage through the pipes and give a lateral motion to the body of oil as it issues from the pipes, thereby causing the sedimentary deposits to be liquefied, and then withdrawing the liquefied solution from under the oil and out through the said pipes to a suitable receptacle, as set forth.

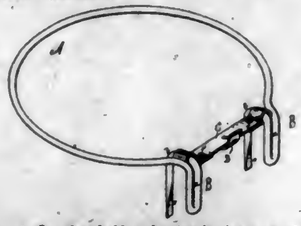
4. The herein-described apparatus, comprising the drum having a series of pipes radiating therefrom, disks or their equivalents on the ends of the pipes, and means for supplying the drum with hot air, hot water or steam, as set forth.

5. The herein-described apparatus for the purposes mentioned, consisting of a drum provided with a series of radiating pipes, said drum being arranged to be supplied with steam or its equivalent, as described, from a suitable supply source, and having an exhaust-pipe connecting with a suitable exhaust power, such as a force-pump, for withdrawing the liquefied deposits through the said exhaust-pipe, arranged and operating as set forth.

6. The herein-described apparatus for the purposes mentioned, consisting of a drum provided with a series of pipes disposed within the oil-tank, having disks or their equivalents at their lower ends, said drum communicating with a boiler to receive a supply of steam, hot air, or hot water, and a force-pump connected by a pipe with the drum and operated to exhaust the supply and cause the removal of the liquefied sedimentary deposits, as set forth.

7. The herein-described apparatus, consisting of a drum provided with a series of radiating pipes which have disks or their equivalents at their lower ends, said drum being arranged to be supplied with steam, hot air, or hot water from a suitable source, and having a main exhaust-pipe connecting with a force-pump or other exhausting apparatus, as set forth.

313,515. BAG-HOLDER. JAMES E. PARKER, Whiting, Vt. Filed Nov. 22, 1884. (No model.)



Claim.—1. In a bag-holder, the ring having each of its free ends bent to form a spring-clutch, substantially as set forth.

2. The combination of the ring, having each of its free ends bent to form a spring-clutch, with the cross-bar provided with a post or catch, as set forth.

3. The combination of the ring A, having the spring-clutches B B, consisting of the loops *a a* and *b b*, the free end of the latter being cut away to form one side of a wedge, and the cross-bar C, provided with the post D, as set forth.

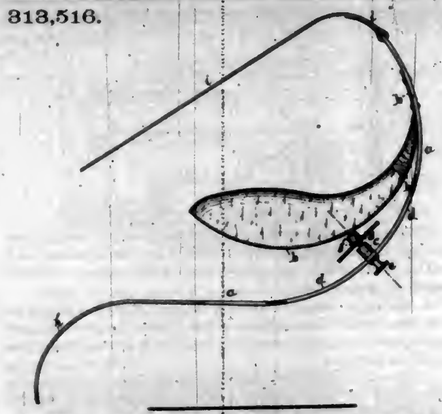
313,516. DEVICE FOR INDUCING SLEEP. FANNY W. PAUL, New York, N. Y. Filed Apr. 28, 1884. (No model.)

Claim.—1. As an article of manufacture, the above-described sleep-inducing device, composed of a collar-like band provided with an adjustable and padded spring, and a strap or equivalent device for retaining the band in position, substantially as and for the purposes set forth.

2. The combination of the band *a*, the padded spring *b*, adjustable relative to the band *a*, the handle *h*, and the strap *i*, substantially as and for the purposes set forth.



313,516.



313,517. TUBULAR AXLE. EDGAR PECKHAM, Syracuse, N. Y., assignor to Lake Shore Tubular Axle Company, Cleveland, Ohio. Filed Apr. 29, 1884. (No model.)

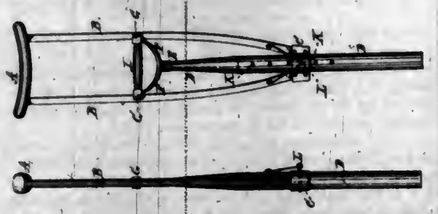


Claim.—1. The within-described tubular axle, consisting of a plain wrought-metal tube of uniform dimensions internally from end to end thereof, and having the exterior of its end portions turned off or cut down gradually to a uniform taper and smooth surface, substantially as specified.

2. A tubular axle composed of a plain wrought-metal tube of uniform dimensions internally from end to end thereof, and having the exterior of its end portions cut down gradually to a uniform taper and reenforced by bushings inserted in the ends of the tube, substantially as described and shown.

3. An axle composed of a metal tube having its interior of uniform dimensions from end to end thereof and its spindles tapered externally, lubricating-ports in the spindles, a dam at the inner end of the interior of the spindles, a dam at the outer end of the spindles, and provided with a lubricant-induction port or channel, and a wheel-retaining nut attached to said dam and closing the channel thereof, all constructed and combined substantially in the manner specified and shown.

313,518. CRUTCH. FRANCIS A. PEEBLES, Hinckley, Ohio, assignor of one-half to Alfred Boulden, same place. Filed Aug. 11, 1884. (No model.)



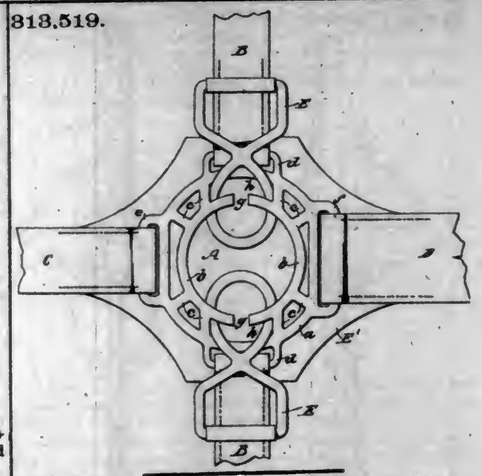
Claim.—In a crutch, the combination of the side braces, B B, the arm-rest A, clip C, the staff D, passing through said clip and secured in the same at various heights by the pin L, and the hand-piece I, sliding upon said braces, constructed and arranged substantially as and for the purpose set forth.

313,519. TRACE-CARRIER. JAMES H. PHILPOTT, Rising City, Nebr. Filed July 21, 1884. (No model.)

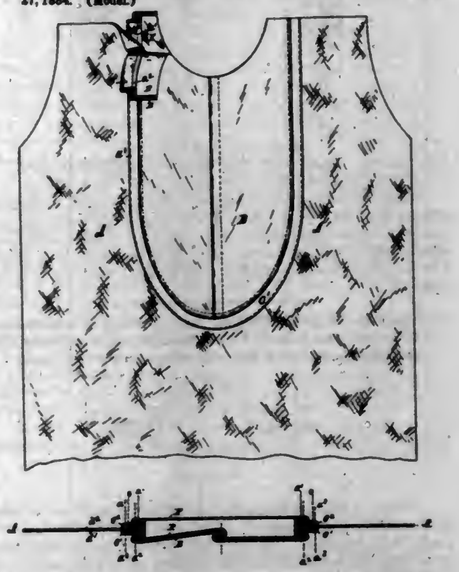
Claim.—As an improved article of manufacture, the trace-carrier A, composed of the base-ring *a*, the elevated inner semicircular rims, *b b*, and supports *c*, arranged to form the spaces *g h*, said rims being disposed in a concentric plane with the base-ring *a*, substantially as and for the purposes set forth.



313,519.



313,520. BOSOM-SHIRT. GEORGE W. PINE, Troy, N. Y. Filed May 27, 1884. (Model.)



Claim.—1. In combination with the shirt and the attached bosom thereof, the folded border-strip O^2, attached to the inner side of the shirt, and the folded border-strip O', attached to the outer side of the shirt and to the inner side of the bosom, substantially as described, and for the purpose set forth.

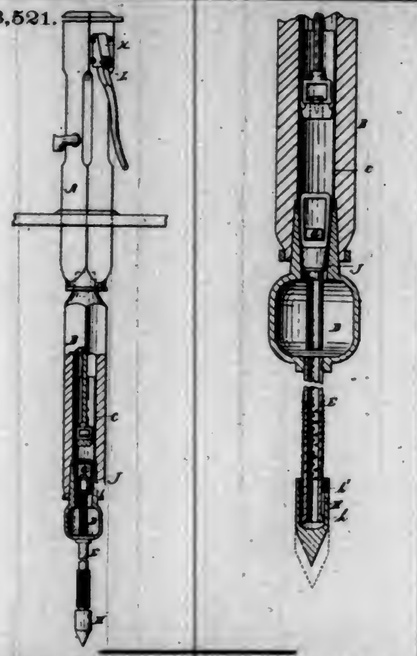
2. In combination with the shirt, the shirt-bosom, and the inside lining, F, the folded border-strip O^2, interposed and secured between the lining F and the inner side of the shirt, and the border-strip O', secured to the outer face of the shirt and to the inner side of the bosom, substantially as described, and for the purpose set forth.

313,521. WELL-PUMP. WILLIAM P. POWERS, La Crosse, Wis. Filed Mar. 24, 1883. (No model.)

Claim.—1. The point H, provided with a cylindrical extension, and the interior shoulder, *h'*, therein, combined with a drive-well pipe, E, provided with the exterior shouldered flange, *h*, substantially as set forth, whereby a driving-rod may be inserted to drive the point independently of and without movement on the part of the pipe while the point is moving, as set forth.

2. The mode of sinking well-tubes herein described, which consists in driving the point and tube separately and alternately, substantially as set forth.

313,521.



313,522. HARDENING AND COLORING SERPENTINE ROCK. J. J. PRATT, Wakefield, Mass. Filed Mar. 17, 1884. (No specimens.)

Claim.—The hereinbefore-described method of treating natural rock which is free from lime for hardening and developing the color thereof, which consists in exposing blocks of the material to a gradually-increasing temperature of from 100° to 1,000° while the blocks are protected from cold air, and then gradually cooling the same, substantially as described.

313,523. ELECTRIC THERMOSTAT. FREDERICK H. PRENTISS, Cambridge, and JAMES A. TILDEN, Hyde Park, assignors to the Automatic Fire Alarm Association, Boston, Mass. Filed May 18, 1883. (No model.)

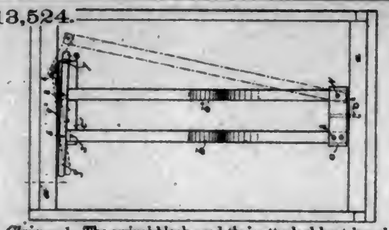


Claim.—A thermostat for making an electrical connection in an open circuit suddenly and not gradually, which consists of the following elements, viz: a sealed metallic Bourdon tube containing an expansible fluid of the properties hereinafter set forth, the fixed end of which tube is in constant electric connection with one branch of the open circuit, an insulated electrode connected with the other branch of the open circuit and placed and set in the path of the movement of said Bourdon tube as it straightens under internal pressure produced by the expansion of its contents, and a fluid contained in said Bourdon tube of a character and in a condition to be converted if free at the temperature desired to be signaled by the passage of the current, and at no lower temperature, from a liquid to a gas, whereby the internal pressure on the tube is greatly enhanced at this moment of increment, a greater range of motion is given to the tube, and the closing of the circuit is suddenly effected, substantially as described.

313,524. CATTLE-FASTENER. EDWIN PRESCOTT, Arlington, and CHARLES H. T. MANN, Methuen, Mass. Filed June 9, 1884. (Model.)



313,524.



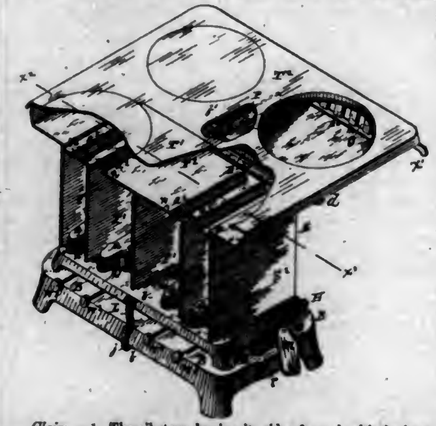
Claim.—1. The swivel-blocks and their attached bent bars *b b'*, one of the said bars being movable with relation to the other, combined with a locking device to hold the movable bar in closed position, to operate substantially as described.

2. The swivel-blocks and attached bars, one of which is pivoted on one of the swivel-blocks, combined with a locking device for the said bars composed of a lever, *f*, and link *e*, having their pivots arranged substantially as described.

3. The swivel-blocks and attached bars and lever *f*, and link *e*, to operate one of the bars, combined with a catch to prevent the rotation of the swivel-blocks, substantially as described.

4. In a cattle-fastener, a lower swivel-block and two attached bent bars, one of which is made movable toward and from the other, combined with an upper swivel-block arranged at one side of the central pivot of the lower swivel-block, and having a laterally-extended ear, which is pivoted in the line of the pivot of the lower swivel-block, to operate substantially as described.

313,525. OIL-STOVE. JULIUS F. QUIMBY, Troy, N. Y., assignor to Swett, Quimby & Co., same place. Filed Feb. 15, 1884. (No model.)

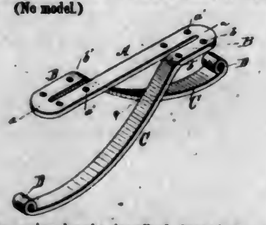


Claim.—1. The oil-stove having its sides formed with the incurved portion I, in combination with the oil-reservoir formed with the outcurve *r*, and the top opening, M, provided with a pivoted cover, *m*, substantially as described, and for the purpose stated.

2. In combination, the top and bottom plates forming the horizontal flue F^2, the partition-plate P, and the damper D, substantially as described, and for the purpose stated.

3. The combination, in an oil-stove, of the vertical flame-flues F', made as shown, the top horizontal flue, F^2, with which the said vertical flame-flues connect separately, the partition-plate P, and the damper D', as and for the purposes set forth.

313,526. VEHICLE-SPRING. PATRICK QUINN, St. Louis, Mo. Filed July 22, 1884. (No model.)



Claim.—The spring herein described, formed of a single bar of steel, and consisting of the straight central part, A, having bolt-holes *a'*, the bearings B, formed by bending or doubling the bar upon itself, and having bolt-holes *b*, and the curved spring-arms C, extending in opposite directions to cross the plane of each other at *x*, the said curved arms being continuations of the bearings B and lying well under the body, as set forth.

313,527. CAR-COUPLING. JOHN RADDIN, Lynn, Mass. Filed Apr. 28, 1884. (No model.)



Claim.—In a car-coupling, the combination of the weight-lever D, the front end of which is hollowed out in horizontal section and curved in vertical section, constructed and pivoted, as shown, with the pin H and link L, all adapted to operate together substantially as described, and for the purpose set forth.

313,528. THILL-COUPLING. TIMOTHY P. RANDALL, Scofield, Mich., assignor of one-fourth to Elisha W. Randall, same place. Filed Nov. 29, 1884. (No model.)



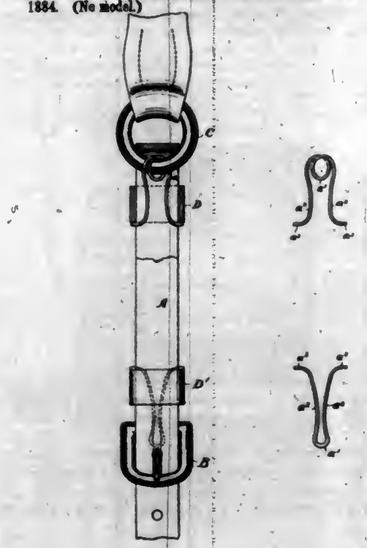
Claim.—1. In a thill-coupling, the combination, with a draw-iron, of a detachable plate carrying a journaled thill-iron, and a spring-plate for holding said plate against accidental detachment, as set forth.

2. The combination, with a draw-iron having a dovetailed recess, of a dovetailed plate carrying a journaled thill-iron, and a spring-plate for holding the parts in position, substantially as set forth.

3. In a thill-coupling, the combination, with a draw-iron having a dovetailed recess upon its upper side, of a dovetailed plate carrying a journaled thill-iron, and a spring-plate carrying a lug adapted to lock said draw-iron and dovetailed plate in position, as set forth.

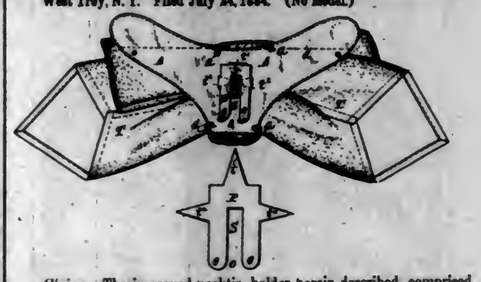
4. In a thill-coupling, the combination, with a draw-iron having a dovetailed recess upon its upper side near the forward end thereof, and an opening communicating with said recess near the forward end thereof, of a dovetailed plate carrying a journaled thill-iron, and having a recess on its under side, and a spring-plate secured to the under side of the draw-iron, said plate having an upwardly-projecting lug, as set forth.

313,529. HARNESS. JOHN W. REGAN, Boston, Mass. Filed Dec. 15, 1884. (No model.)



Claim.—The combination, with a strap provided with a slide-loop, of a locking device having spring-arms, with end projections to pass through the loop and engage one edge thereof, substantially as described.

313,530. NECKTIE-HOLDER. JAMES H. RILEY and JOHN J. WALSH, West Troy, N. Y. Filed July 24, 1884. (No model.)



Claim.—The improved necktie-holder herein described, comprised of the flat plate P, formed with side clasping-arms integrally united at their upper ends to form a slot between their inner edges, and having outwardly-curved lower ends, *e e*, and side prongs, *f*, projected directly from the outer side edges of the clasping-arms, substantially as described, and for the purpose stated.

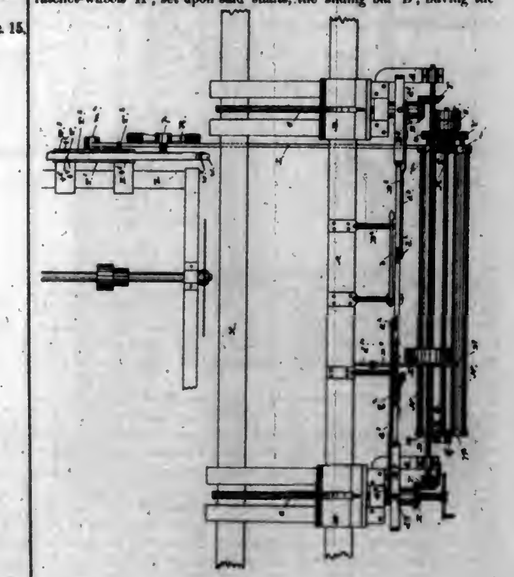
313,531. SAW-MILL HEAD-BLOCK. HERBERT C. ROSS, San José, Cal. Filed Dec. 26, 1883. (No model.)

Claim.—1. In a saw-mill set-works, the combination, with a rod or lever connected with and forming part of mechanism by which the setting-gear is thrown into and out of action as required, of an extensible stop-bar placed with relation to the saw or line of cut and the travel or forward movement of the head-blocks upon their ways, as described, whereby the setting-gear is thrown off and the feeding up of the head-blocks automatically arrested by contact of the face of the log with the head of the stop-bar, substantially as set forth.

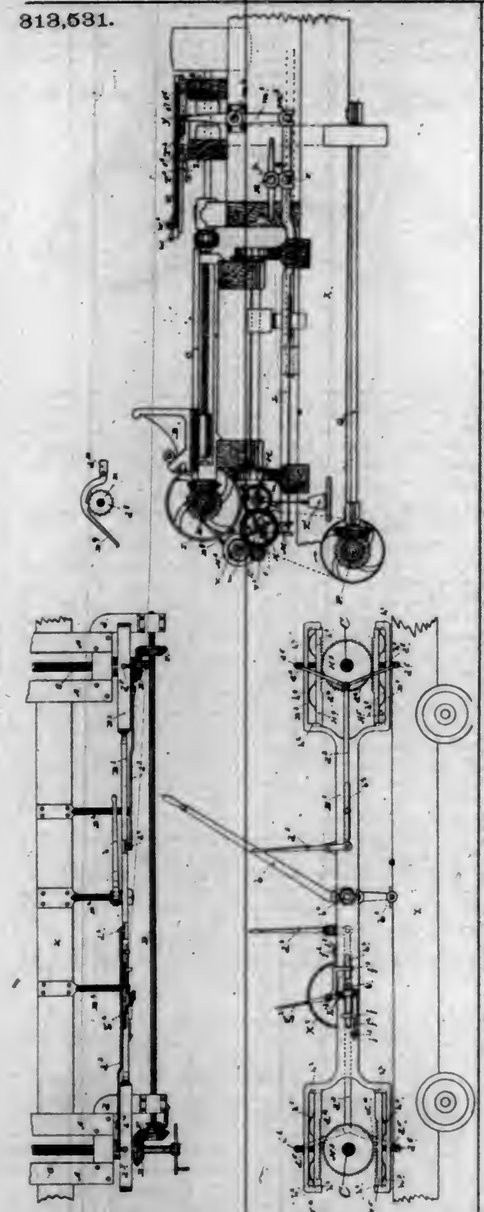
2. In a saw-mill set-works, the combination, with the head-blocks and setting mechanism arranged for operation upon one side of the saw, of a stop-bar placed upon the opposite side or in front of the saw, and mechanism connecting said stop-bar with the setting-gear, whereby the extent of movement of the log is automatically controlled and the amount of feed required to produce a plank of given thickness is determined by the said stop-bar without making any allowance for the kerf, substantially as set forth.

3. The combination, with the swinging frames and power-driven rollers carried thereby, of the lever L, connected to the swinging frames and extended across the machine, the upright lever *m'*, connected therewith, the extensible lever T T', connected with or operated by the upright lever *m'*, and the adjustable point *w*, secured upon the lever T T', substantially as and for the purpose set forth.

4. The combination, with the head-blocks and set-shafts, of the ratchet-wheels H^3, set upon said shafts, the sliding bar B', having the



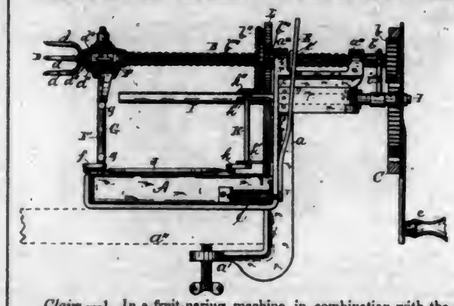
313,531.



jaws B^3, with yielding ratchet-plates H^1, which are capable of being made to engage alternately with the wheels H^2, the hand-lever *b*, for operating the bar B', a fixed stop, *i*, for limiting the movement of the bar, and the adjustable stops *f f'*, adjusting-lever g^2, upon which they are placed in such manner as to both be moved apart or toward each other by one movement of the lever, and a segment-bar, K^2, for fixing the lever g^2 at any point, substantially as set forth.

5. A power setting mechanism or apparatus for saw-mills, consisting of a long shaft geared into the head-blocks set-shafts, and having a friction-wheel, a pair of drums or rollers, and means of imparting to them simultaneous rotation in opposite directions, mechanism whereby either of said rollers can be brought, when required, into contact with the rim of the friction-wheel, a stop-bar capable of adjustment as to length to bring its head to or from the line of cut or the plane in which the saw travels, a means of ascertaining and determining this length and of setting the said bar, and mechanism connecting said bar with the revolving drums or rollers, substantially as and for the purpose set forth.

313,532. FRUIT-PARING MACHINE. WILLIAM ROSS, Conklingville N. Y., and CHARLES S. ROSS, Boston, Mass. Filed July 23, 1883. (Model.)



Claim.—1. In a fruit-paring machine, in combination with the reciprocating fork-shaft, the knife secured to a swinging spring-actuated knife-arm, and a sliding shaft adapted to be operated by the fork-shaft and provided with a cam, and an arm connected with the spring-actuated knife-arm shaft, on which arm said cam acts, substantially as and for the purpose specified.

2. In combination with the frame A, fork-shaft B, knife-arm secured to a spring-actuated shaft, arm L, projecting from said shaft, sliding rod I, with cam I', driving-wheel journaled on the rod I, and bar connecting the rod I and the fork-shaft, whereby they slide together, substantially as and for the purpose specified.

3. In combination with a knife secured to a swinging arm carried on a spring-actuated shaft, from which an arm, L, projects, a sliding cam adapted to swing the knife-arm rearward to permit the fruit-carrying fork to pass it, for the purpose specified.

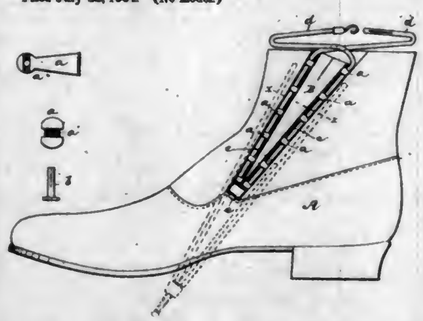
4. In a fruit-paring machine, in combination with the frame A, screw-threaded fork-shaft having endwise movement, and the swinging knife-arm, a shaft, K, geared with the fork-carrying shaft and with the swinging knife-carrying arm, whereby an oscillating movement on its axis may be given to the knife, substantially as set forth.

5. In combination with the screw-threaded fork-carrying shaft adapted to carry the impaled fruit past a yielding knife-carrying arm, a pinion carried on said shaft, a shaft, K, pinion *k''*, crank-arm *k*, connecting-rod J, and shaft F'', carrying the paring-knife, and a crank-arm, *f*, substantially as and for the purpose specified.

6. In combination with the screw-threaded fork-carrying shaft and yielding knife-arm, a knife, means for oscillating the same, substantially as described, and the sliding rod I, provided with a cam, I', adapted to act on an arm, L, which projects from the shaft that carries the knife-arm, substantially as set forth.

7. In a fruit-paring machine of the general class herein described, in combination with the fork-carrying shaft having a pinion on its outer end, and with a cam-carrying sliding rod, I, adapted to act on an arm projecting from the same shaft which carries the knife-arm, the drive-wheel journaled on the sliding rod I and geared with the pinion on the fork-shaft, substantially as described.

313,533. SHOE-FASTENING. HENRY H. RODMAN, Wilkes-Barré, Pa. Filed July 22, 1884. (No model.)

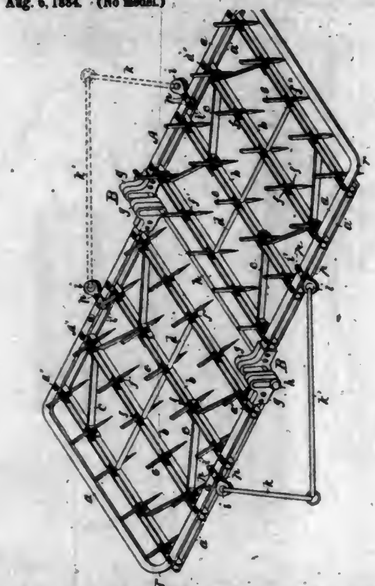


Claim.—1. As a new article of manufacture, the tongue A, made of a single piece of leather of uniform thickness, and having grooves *c c* cut near its edges, with said edges continued to form extension-cords *d d*, as shown and described.

2. The tongue A, made of a single piece of leather of uniform thickness, and having grooves *c c* cut near its edges, with its edges extended to form cords *d' d*, in combination with a shoe having lacing-eyes *a*, with square or right-angular edges at its slot or opening *a'*, as shown and described.

3. The combination, with the sliding tongue, of the button e and cord *f*, substantially as shown and described, and for the purpose set forth.

313,534. HARROW. TIMOTHY ROGERS, Springfield, Ohio, assignor, by mesne assignments, to the Rogers Fence Company, same place. Filed Aug. 6, 1884. (No model.)



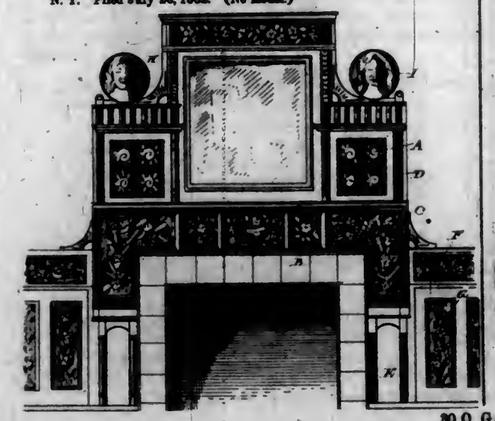
Claim.—1. In a harrow having its sections flexibly connected, the U-shaped bar forming the top of the frame of each section, bent edgewise, said bent part extending beyond the outer ends of the frame proper of the sections, to form runners for supporting the harrow in an erect position, as set forth.

2. In a harrow having sections flexibly connected, the combination, with the parallel frame-bars notched at their ends, of a flat U-shaped top bar engaging said notches, with its bent portion extending beyond the end bar of the frame proper of said sections, said U-shaped top bar being bent edgewise to form runners for supporting said harrow in an erect position when folded, as set forth.

3. In a harrow, the sections hinged together, each with its top frame-bar bent edgewise, the bend extending beyond the end of the section to form runners for supporting the same, said runners lying in the same plane with said top frame-bar, and made operative by elevating said sections on their outer ends, as set forth.

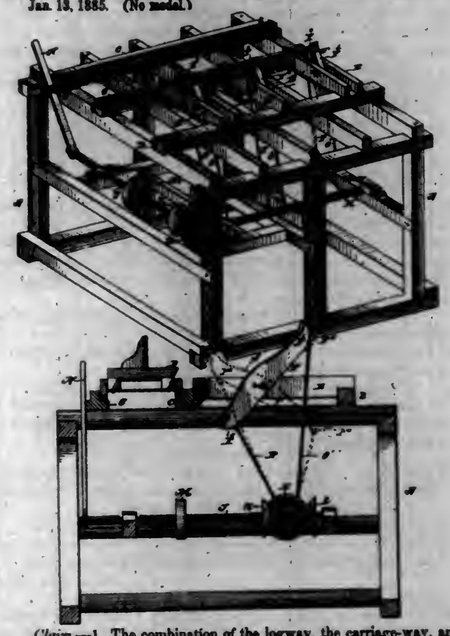
4. In a harrow, the ring-clamps for the attachment of the draft-links, consisting of two plates horizontally divided, one above and the other below the frame-bar *a*, and clamped together by a bolt on either side of the latter, said plates being cast with a gain or recess in each to admit said frame-bar, and made adjustable thereon, as set forth.

313,535. WOOD ORNAMENTATION. WILLIAM H. ROTSTONE, Corona, N. Y. Filed July 26, 1882. (No model.)



Claim.—A wooden article having on its face or upper surface a raised design in relief, of the natural color of the wood, and representing the design to be illustrated, the entire background charred or burned below said surface, substantially as described.

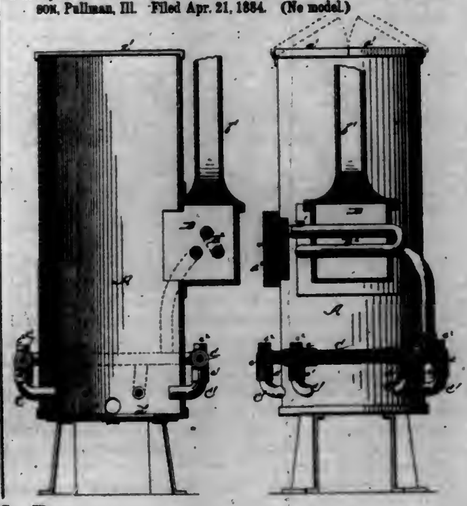
313,536. LOG-LOADER. DANIEL J. SALTZMAN, Browton, Ala. Filed Jan. 13, 1885. (No model.)



Claim.—1. The combination of the logway, the carriage-way, and the carriage with the arms F, that are pivoted in the logway, said arms having the extensions F' and the shorter extensions F^2, shaft H, which is journaled below the logway, and ropes O' and P, which are attached to the extremities of the pivoted arms and coiled upon the shaft H in opposite directions, substantially as described.

2. The combination of the logway, the carriage-way, and the carriage with the arms F, that are pivoted in the logway, said arms having the extensions F' and the shorter extensions F^2, shaft H, which is journaled below the logway and provided with the miter-wheel I, ropes O' and P, which are attached to the extremities of the pivoted arms and coiled upon the shaft H in opposite directions, sliding shaft J, that is journaled at right angles to the shaft H, and having miter-wheels K and L and pulley M, and lever N, for operating the sliding shaft, for the purpose set forth, substantially as described.

313,537. BLAST-FURNACE. DANIEL SANDSTROM and JOHN H. ANDERSON, Pullman, Ill. Filed Apr. 21, 1884. (No model.)



Claim.—1. The furnace A and its auxiliary chamber B, lined with fire-brick, in combination with the coil B^2, distributing-pipe C, and its connections C', all constructed and arranged to operate substantially as and for the purpose set forth.

2. In a blast-furnace, the main body A, having hinged doors a' at the upper end, in combination with a chamber secured at one side and opening into the main body, and provided with a stack or chimney, whereby the draft is directed through this chamber in a greater or less degree, as may be desired, substantially as and for the purpose set forth.

313,538. FOLDING LUNCH-BOX. GEORGE F. SCHNEIDER, Chicago, Ill. Filed Apr. 26, 1884. (No model.)

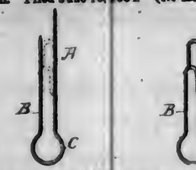


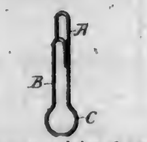
Claim.—1. The combination, with a folding lunch-box constructed in several telescoping sections, of a series of jointed braces hinged together at their center joints, and having their ends also hinged to the adjoining sections of the box, whereby the box is held rigidly in position when extended and readily folded when desired, substantially as described, and for the purpose set forth.

2. A lunch-box formed in sections telescoping one within the other, each of which is provided with raised ribs, which prevent the main body of the sections from contact, and thereby protects the paint, substantially as shown and described.

3. The box A, formed in several telescoping sections provided with the ribs *a a*, and lid C, in combination with the hinges B, jointed at their center and hinged to the sections at their ends, substantially as shown and described.

313,539. TAG-FASTENER. SAMUEL S. SENCENBAUGH, Aurora, Ill., assignor of one-half to George V. Harvey and Charles O. Boring, both of Chicago, Ill. Filed June 16, 1884. (No model.)

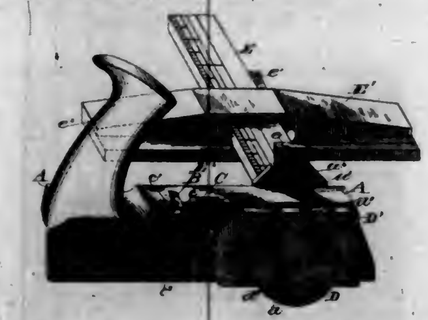




Claim.—1. An improved tag-fastener consisting of a wire bent to form two parallel shanks or arms which terminate in hooks, each bent inwardly, the points of the said hooks resting, respectively, against the body portion of the other shank or arm, all substantially as shown and described.

2. An improved tag-fastener consisting of a wire bent to form two parallel shanks or arms of unequal length, each terminating in hooks, each bent inwardly, the point of the hook of the longer arm resting against the body portion of the hook of the shorter arm, all substantially as shown and described.

313,540. BENCH-PLANE. ROSCOE S. SHELDON, North Greenfield, Wis. Filed June 5, 1884. (No model.)

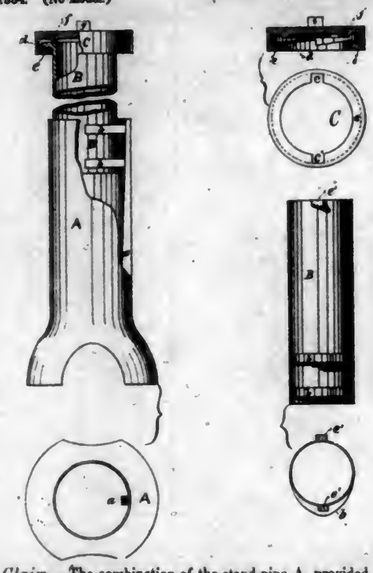


Claim.—1. In a combined wood-working tool, in combination with the stock A, having notch a' and guide-plate a^3, the gage-bar E, having angle-iron *e*, and the cross-head E', having detachable sole E^3, substantially as shown and described, and for the purpose set forth.

2. In a grooving-plane, in combination with the stock A, having the throat *a*, with beveled side, and plate C, having the beveled notch *c* and beveled inner face, *c'*, with tightening-screw c^3, the bit B, having beveled edges b^2 b^3, substantially as shown and described, and for the purpose set forth.

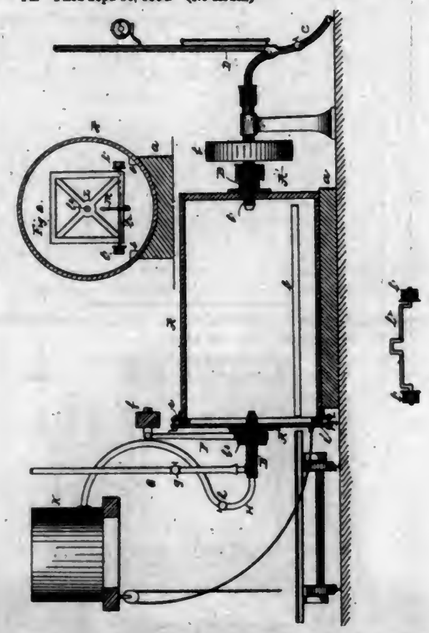
3. In a combined wood-working tool, in combination with the stock A, having a bearing for the bolt d^3, the sleeve *d*, and supporting-plate D', having flanges d^2 d^4, substantially as shown and described, and for the purpose set forth.

313,541. STOP-VALVE BOX FOR WATER OR OTHER MAIN AND SERVICE PIPES. DANIEL H. SHERMAN, Buffalo, N. Y. Filed July 5, 1884. (No model.)



Claim.—The combination of the stand-pipe A, provided with the rib *a*, with the adjustable tube B, provided with the cams *b*, all arranged and operating substantially as and for the purpose shown and described.

313,542. APPARATUS FOR TANNING. LENOX SIMPSON, Pittsburg, Pa. Filed Sept. 16, 1884. (No model.)

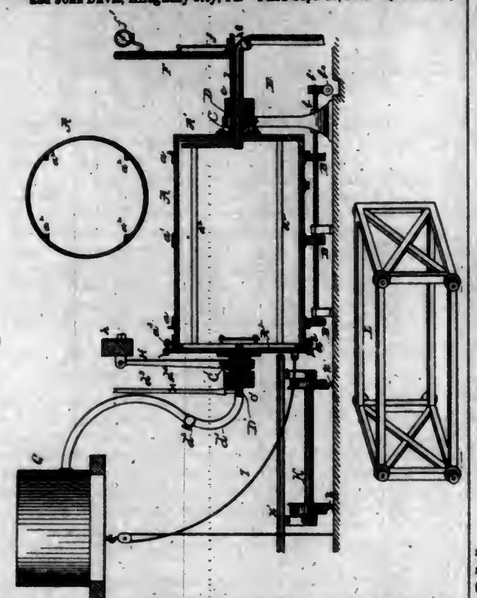


Claim.—1. An exhaust tanning-vat provided with a removable hide-frame having the cranks l^2, carrying wheels l^3 l', substantially as and for the purposes described.

2. The combination, with the vat A and hide-frame L, of the revolving pipe B, provided with lateral orifices *b'*, and having squared inner end, substantially as and for the purposes set forth.

3. The combination, with the vat A and hide-frame L, of the revolving pipe B, having squared inner extremity, and the immovable pipe B', having conical inner extremity, as set forth.

313,543. APPARATUS FOR TANNING. LENOX SIMPSON, Pittsburg, and JOHN DAVIS, Allegheny City, Pa. Filed Sept. 16, 1884. (No model.)



Claim.—1. The combination, with the removable head A^3, provided with neck C', of the hinged arm H, loosely embracing said neck, substantially as described, whereby the head may be swung out, for the purpose set forth.

2. In tanning-vats, the combination, with a supply-tank, G, and a vat having a hollow neck, C', of a feed-pipe, D', and a flexible pipe, d', as and for the purpose specified.

3. The combination, with head A^3 and pipe D', of the flexible pipe d', whereby the head may be swung outward without affecting the connection, as set forth.

4. The combination, with the cylinder A and wheels B, of the angled hoops *a*, whereby the cylinder is at the same time strengthened and prevented from longitudinal displacement, as set forth.

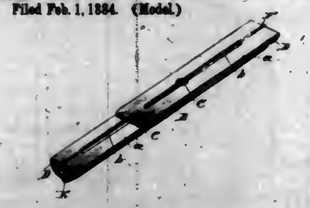
5. The combination of the pipe E, having cock *e* situated beneath the median line of the cylinder, and the exhaust-pipe F, as and for the purpose set forth.

6. The combination, with the pipe E, having cock *e* situated beneath the median line of the cylinder, of the pipe F, connected with pipe E below said median line, and provided with a fluid-gage, substantially as described, for the purposes described.

7. The combination of the pipe E, having cock *e* situated beneath the median line of the cylinder, of the pipe F, provided with an exhaust-gage, substantially as described.

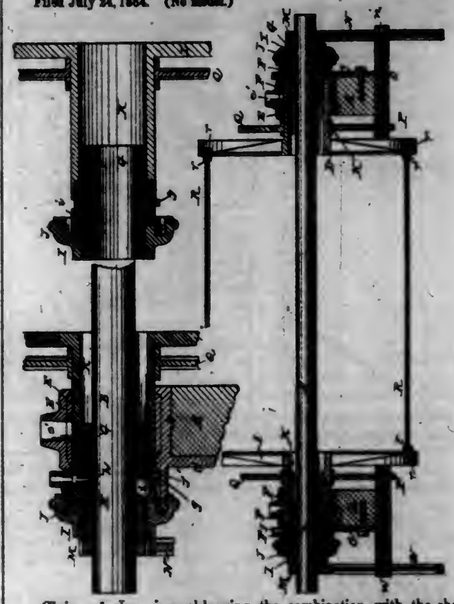
8. The combination of the cylinder A, provided with tracks a^2, and the hide-frame L, provided with upper and lower wheels adapted to roll upon said tracks and secure the frame while the cylinder is revolved, substantially as described.

313,544. ADJUSTABLE CHECK-CUTTER. FRANK E. SMITH, Toledo, Iowa. Filed Feb. 1, 1884. (Model.)



Claim.—As an improved article of manufacture, the check-cutter consisting of the strips *a a*, connected together by studs C and having the central longitudinal slots, *b*, the vertical end flanges having the guide-loops, and the elastic band or strap, all adapted to operate substantially as specified.

313,545. JOURNAL-BEARING. GEORGE T. SMITH, Jackson, Mich. Filed July 24, 1884. (No model.)



Claim.—1. In a journal-bearing, the combination, with the shaft and the sleeve provided with an expanded bearing, of a boxing having an adjustable two-part bearing divided upon a vertical plane, substantially as set forth.

2. In a journal-bearing, the combination, with a shaft, of the sleeve having an expanded external bearing, a boxing or casing provided with a shoulder-bearing, and the follower adapted to support the sleeve, substantially as set forth.

3. In a journal-bearing, the combination of the shaft, the sleeve provided with an expanded bearing, the trunnion, and the casing having a shell adapted to support the trunnion, and also the divided bearing for the sleeve, substantially as set forth.

4. In a journal-bearing, the combination of the shaft, the sleeve, the boxing or casing adapted to receive the trunnion and support the end of the trunnion against thrust, and a two-part bearing for the sleeve divided upon a vertical plane, substantially as set forth.

5. In a journal-bearing, the combination of the shaft, the sleeve, the boxing or casing adapted to receive the trunnion and support the end of the trunnion against thrust, and provided, also, with the externally-threaded shell, and the follower adapted to engage with the threaded shell, and also with the bearing of the sleeve, substantially as set forth.

6. The combination, with the shaft, of the sleeve, the two boxings, and the trunnions supported in the boxings and connected with each other, whereby the boxings are adapted to prevent longitudinal movement of the trunnions relative to the shaft, substantially as set forth.

7. The combination of the shaft, the sleeves, the boxings, the trunnions, and means, substantially as described, for adjusting the trunnions longitudinally upon the shaft, substantially as set forth.

313,546. ELECTRO-DYNAMIC MOTOR. FRANK J. SPRAGUE, New York, N. Y. Filed Nov. 4, 1884. (No model.)

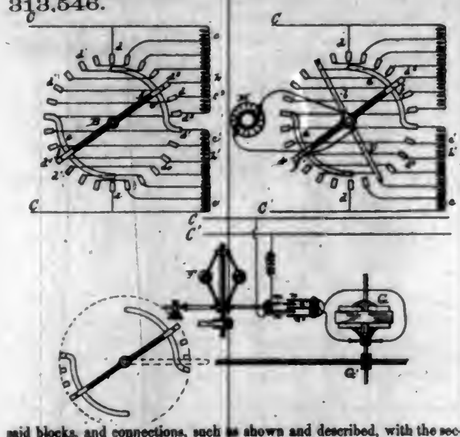
Claim.—1. The combination, with an electro-dynamic motor having field-magnet coils wound in sections, and in shunt relation to the armature, of a commutator and connections, whereby the sections may be progressively thrown into or out of multiple-arc relation with one another, substantially as set forth.

2. A field-magnet having two ranges of sectionally-wound coils, each having one end connecting with the supplying-circuit, in combination with a commutator, connections from the bights of the sections to contact-blocks of said commutator, and movable arms making contact with said blocks, and forming the free ends of the ranges, substantially as set forth.

3. The combination, with an electro-dynamic motor having its field-magnet wound in sections, of means for changing the relation between the number of sections in series with the armature and the number in shunt-relation thereto, and means for varying the strength of the field-magnet, substantially as set forth.

4. The combination, with a field-magnet having sectionally-wound coils, of the commutator consisting of the circular range of contact-blocks, the two contact-arcs, movable conductors connecting said arcs with

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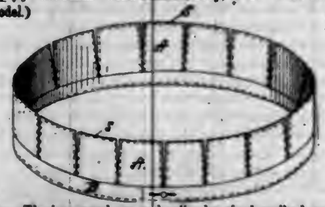
said blocks, and connections, such as shown and described, with the sections of field-magnet coils, substantially as set forth.

5. The combination of the circular range of contact-blocks, the contact-arcs, and the pivoted arm consisting of an insulating center and metallic extensions bearing on the arc and blocks, substantially as set forth.

6. The combination, with an electro-dynamic motor having its field-coils in sections and its armature in a shunt around a variable number thereof, of the commutator consisting of the circular range of contacts, the two arcs, the arm having metallic extensions bridging the arcs and contacts, the two arms bearing on the contacts, and the armature and field connections, such as described and shown, substantially as set forth.

7. The combination, with an electro-dynamic motor, of circuit-controlling devices for varying the magnetizing effect of the field-magnet coils, and apparatus connected with said motor, whose speed varies with the load, and which affects said circuit-controlling devices, whereby the said magnetizing effect is increased when the load is decreased and decreased when the load is increased, to maintain a practically constant speed, substantially as set forth.

313,547. COLLAR. JOHN SCHIRES, Troy, N. Y. Filed Feb. 18, 1884. (No model.)



Claim.—The improved apparel-collar herein described, consisting of a base-band and a series of independent pieces set in the band side by side, with their vertical or adjacent edges disjoined, and having their bases secured to the band by a line of stitches, substantially as described.

313,548. CAR-COUPLING. JAS. M. STALEY, Womelsdorf, Pa. Filed Oct. 28, 1884. (No model.)



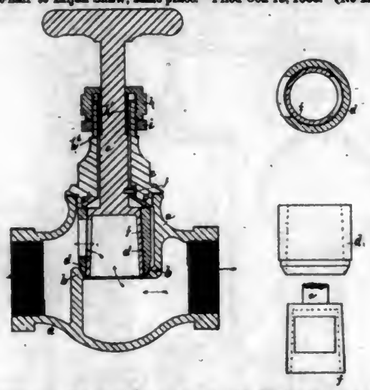
Claim.—1. In car-couplings, a lever, D, having a front bend, *d*, adapted to be pressed down by an incoming link, and thus raise the rear end, in combination with a pin-bar, B, pivoted at *b* and resting with its front arm on the rear of said lever, for the purpose described.

2. In car-couplings, the combination of a lever, *D*, having the bend *d*, and a pin, C, arranged to drop beside said bend, the pin thus being relieved of a part of the draft-strain, as described.

3. In car-couplings, the combination, with a rear pivoted pin-bar, B, of an angular spring or plate, F, having a bifurcated end adapted to keep the pin in a perpendicular and the link in a horizontal position, as described.

4. The combination, with the pivoted pin-bar B and the plate or spring F, of the rod G, arranged to move up and down in a hole of said pin-bar, as and for the purpose specified.

313,549. VALVE. NATHAN M. STEBBINS, Wales, Mass., assignor of one-half to Elijah Shaw, same place. Filed Oct. 15, 1883. (No model.)

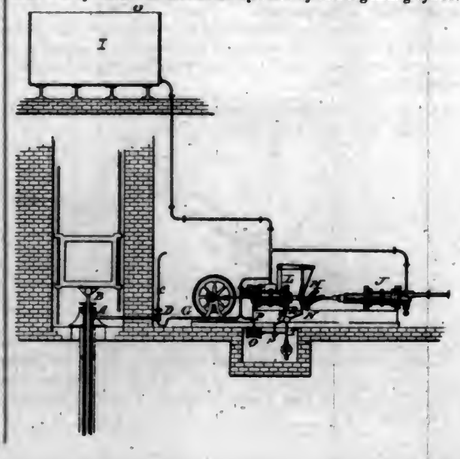


Claim.—1. The valve-box *a*, formed with the diaphragm *b*, having the upper inner edge beveled, the removable circular hollow valve-seat *d*, having its lower outer edge beveled to fit the bevel on the diaphragm, and the walls of its vertical orifice inclined from bottom to top inwardly, and a steam-port in its side, the screw-threaded cap *c*, to lock the valve-seat in position, and vertically cored to receive the valve-stem, the valve *f*, fitted to the inclined valve-seat, and having the shouldered stem passed through the locking-cap, and the screw-cap *h*, fitted to the upper end of the locking-cap *c*, all combined substantially as described, and for the purpose set forth.

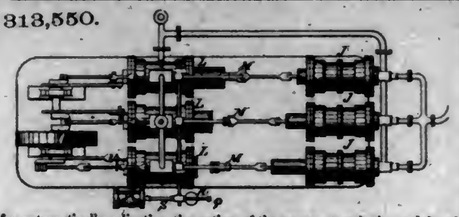
2. The valve-box *a*, formed with the diaphragm *b*, having its upper inner edge beveled, the removable circular hollow valve-seat *d*, having its lower outer edge beveled to fit the bevel on the diaphragm, and its inner walls inclined from bottom to top inwardly, and a steam-port in its side, the screw-threaded cap *c*, to lock the valve-seat in position, and vertically cored to receive the valve-stem, and having a turn-stop slot formed in the inner surface, and the valve *f*, formed to fit the inclined valve-seat, and having a shouldered stem passed through the locking-cap, and provided with a projecting stud, *j*, to limit the movement of the valve, and an adjustable cap, *h*, formed with a depending sleeve, all combined substantially as described, and for the purpose set forth.

313,550. HYDRAULIC LIFT. JOHN S. STEVENS and CHARLES G. MAJOR, Battersea, County of Surrey, and THOMAS W. BARBER, Ulverston, County of Lancaster, England. Filed Oct. 3, 1883. (No model.) Patented in England Sept. 14, 1882, No. 4,375, and Nov. 13, 1882, No. 5,398; in Germany Mar. 8, 1883, No. 24,983; in Belgium Mar. 12, 1883, No. 60,726; in France Mar. 12, 1883, No. 154,242, and in Austria-Hungary July 29, 1883, No. 29,945.

Claim.—1. The combination of a hydraulic cylinder with a ram moving therein, a set of hydraulic pumping-engines driven by the discharge from said cylinder, a set of pumps operated by said engines, an automatic regulating-cylinder communicating independently with the main ram-cylinder, and mechanism operated by said regulating-cylinder



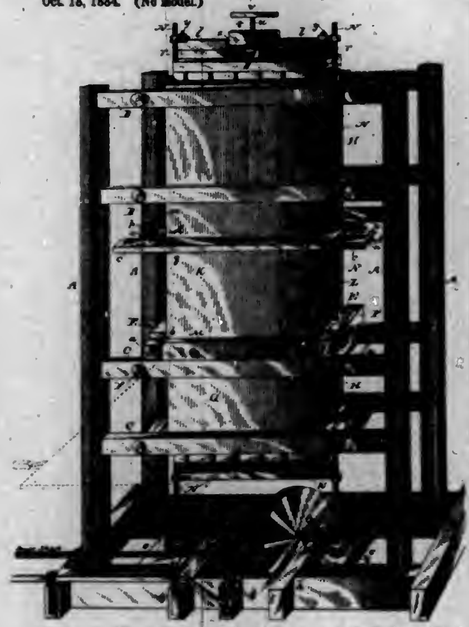
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for automatically adjusting the action of the pumps to suit the weight of the cage and load irrespective of the elevation of the supply-tank, substantially as set forth.

2. The combination of ram-cylinder A and ram B with the driving-barrels L, the pump-barrel J, the rams in said barrels L J, the slotted link-blocks M, forming connection between each pair of said rams, the regulating-cylinder O, communicating directly with the main ram-cylinder, and the piston-rod S, lever Q, weight R, and guide block and link T, whereby varying pressure in the main cylinder is enabled to adjust the link M and correspondingly vary the stroke of the piston in order to compensate by varying supply of water to the accumulator for the varying weight of the load, substantially as set forth.

313,551. BALING-PRESS. CHARLES M. STONE, Belton, Tex. Filed Oct. 18, 1884. (No model.)



Claim.—1. The combination of the horizontal shaft, the vertical screw-rods having reversed threads, as described, the blocks carrying the platens with the box of a press, substantially as described, and for the purpose set forth.

2. The packing-box of a baling-press having at its center the horizontally-adjustable parts K on the broader sides and the removable ends L, substantially as described.

3. The combination of the pieces *c c* and *d d*, notched into *c c*, with a locking device, substantially as described.

4. The combination, with the pieces *c c* and *d d*, notched into *c c*, of the slotted piece *p*, bolted to *d*, latches *n* and *o*, and cam-lever *m*, substantially as described.

5. The combination, with the vertical screw-rods N N, of the flexible arms *l r* and the upper platen, substantially as described.

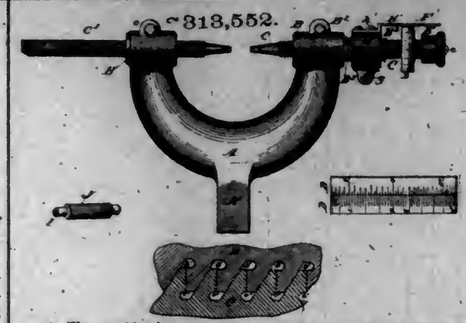
6. The combination, with the flexible arms, of the clamping device consisting of screw-bolt *u*, journaled in block *s*, and clamp *t*, having overlapping edges *z*, substantially as described.

313,552. MICROMETER-GAGE. JOHN E. SWEET, Syracuse, N. Y., assignor to Thomas Hooker, same place. Filed Mar. 26, 1884. (No model.)

Claim.—1. A measuring-screw provided with clearance-channels, substantially as specified.

2. In a micrometer, a head for the measuring-screw having a ratchet-thread provided with clearance-channels, substantially as specified.

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3. The combination of a measuring-screw, the threads of which have clearance-channels, with a split head or bearing for the same having clearance-channels, substantially as specified.

4. The combination of the measuring-screw C, the rigid disk D D', the rotatably-mounted thumb-piece E, the textile washer F, the metallic washer F', and the screw *e*, substantially as shown and described

5. A frame having a split bead or bearing provided with a concentric extension, in combination with an index-bar mounted thereon, whereby the latter may be rotated concentrically with the measuring-screw operating in said bearing, substantially as specified.

6. In a micrometer, an index-bar mounted to rotate concentrically with its measuring-screw, substantially as specified.

7. In a micrometer, an index-bar, an edge of which is arranged at an angle to the axis of the measuring-screw, substantially in the manner and for the purpose as specified.

8. In a micrometer, an index-bar mounted upon a collar or part which is mounted upon a frame-work, and adapted to be rotated concentrically with the measuring-screw thereof, substantially as specified.

9. In a micrometer, an index-bar-supporting collar or part mounted upon a screw-thread formed on the frame and of a pitch agreeing with that of the measuring-screw, substantially as specified.

10. In a micrometer, a compound scale arranged upon a disk rigidly secured to the measuring-screw and indicating at one side of a circumferential line decimals of an inch, and at the opposite side of the line binary fractions of an inch, substantially as specified.

11. A double-index disk having a circumferential line and scale upon one side thereof to indicate decimal fractions, and a scale at the other side thereof to indicate binary fractions of an inch, proportioned to the pitch of the thread of the screw upon which said disk is mounted, substantially as specified.

12. In a micrometer, a fixed index-bar adjusted and arranged at an angle to the axis of the screw, substantially as specified.

13. An index-bar mounted on a screw-threaded projection of the frame, the thread being of the same pitch as and concentric with the measuring-screw, in combination with a longitudinally-adjustable tail-spindle and with said measuring-screw, substantially as specified.

14. In a micrometer, the combination of the measuring-screw and adjustable tail-piece and a distance-piece of predetermined length, whereby substantially the same portion of the measuring-screw is employed for gaging long and short pieces, substantially as specified.

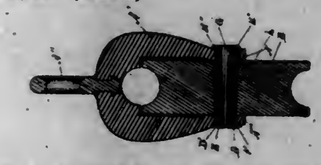
15. A distance-piece provided with a cover adapted to prevent expansion or contraction by contact with the hand to expose the ends of the piece, substantially as specified.

16. A distance-piece provided with a rubber cover, substantially as specified.

17. In a micrometer, a disk mounted on the measuring-screw and provided with a double scale, one indicating decimal fractions and the other binary fractions, substantially as specified.

18. In a micrometer, the measuring-screw having a ratchet-thread, in combination with the head having a similar thread, the threaded portions of each being of equal length, substantially as specified.

313,553. PULLEY-BLOCK. FRANCIS S. TAGGART, Freeport, Ill. Filed Nov. 24, 1884. (No model.)



Claim.—1. In a pulley-block, the combination, with the block and sheave, of a hollow spindle passing through and forming the axle of the sheave, and supported by the cheek-pieces of the block.

2. In a pulley-block, the combination, with the block and sheave, of a hollow spindle passing through and forming the axle of the sheave,

and supported by the cheek-pieces of the block, said hollow spindle being perforated at a point within the bearing-surface of the sheave to permit the lubrication of the sheave through such perforation, substantially as shown and described, and for the purpose set forth.

3. The combination, with a pulley block or hanger having suitable openings in its cheek-pieces, and a groove or depression in the outer face of one of said cheek-pieces, of a spindle adapted to enter said openings, and a key or its equivalent formed upon or attached to one end of said spindle, and adapted when the spindle is in working position to lie in said groove or depression and thereby to prevent the turning of the spindle.

4. In a pulley-block, the combination, with a block or hanger having suitable openings in its cheek-pieces, of a spindle adapted when out of working position to be inserted in said openings and after being so inserted to be brought into working position, the cheek-pieces of the block being sprung together to permit the bringing of the spindle into working position, but allowed to resume their normal distance when the spindle reaches such working position.

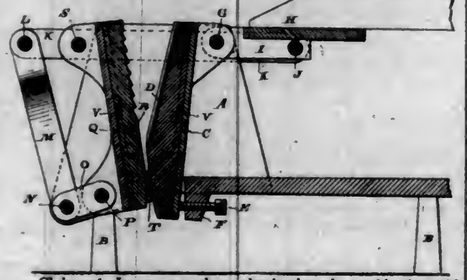
5. In a pulley-block, the combination, with a block or hanger having suitable openings in its cheek-pieces, of a spindle adapted when not in working position to be inserted in said openings and after such insertion to be rotated into working position, the cheek-pieces of the block being sprung together during the rotation of the spindle, but resuming their normal distance when the spindle reaches its working position.

6. In a pulley-block, the combination, with a block or hanger having suitable openings in its cheek-pieces, of a spindle adapted when not in working position to be inserted in said openings and after such insertion to be rotated into working position, springing the cheek-pieces of the block together during such rotation, but allowing them to resume their normal distance upon reaching its working position.

7. In a pulley-block, the combination, with a block or hanger having circular openings in its cheek-pieces and a notch or slot at the margin of one of said openings, of a spindle provided with a peripheral lug or feather at one end, said spindle being adapted when said lug is brought into coincidence with said notch to be inserted in said openings and after such insertion to be rotated, carrying said lug away from said notch, thereby guarding against accidental displacement.

8. The combination of the block or hanger A, having circular openings in its cheek-pieces, and in one of said cheek-pieces a slot, D′, on the margin of the circular opening, and a cam, C, and depression F on the face thereof, with the spindle shown and described, and consisting of the head E″, body E′, reduced portion E, and feather D, all combined and operating substantially as shown and described, and for the purpose set forth.

313,554. ORE CRUSHER AND PULVERIZER. HENRY R. TAYLOR, Oakland, Cal. Filed Aug. 7, 1884. (No model.)



Claim.—1. In an ore crusher and pulverizer, the combination, with the movable jaw Q, having pivots S and P, of the short horizontal levers O O, the vertical levers M M, the side lever-arms, K K, the operating-lever H, and the pivoted bolts of said levers, substantially as shown and described.

2. The side lever-arms, K K, and operating-lever H, having a foot W, in combination with the jaws C Q and the floor or base of the machine having a rubber cushion, X, substantially as described.

3. An ore-crushing jaw having a removable facing connected to said jaw by a longitudinal dovetail, a transverse slot, U, formed across said dovetail, and a transverse key, V, substantially as described.

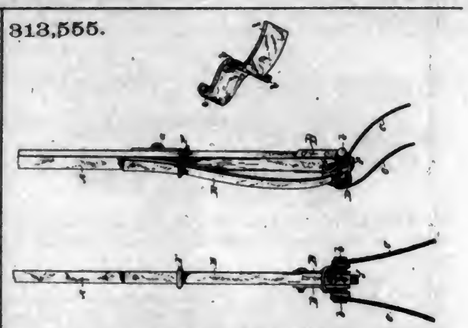
313,555. HAY-TEDDER. JOHN D. TRACY, Sterling, Ill. Filed June 10, 1884. (No model.)

Claim.—1. In a hay-tedder, the stop-plate D, provided with trunnions *d*, substantially as shown, and for the purpose described.

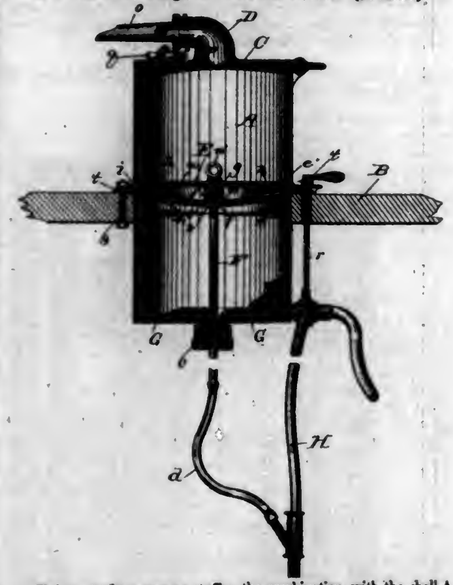
2. The combination of the plates B B, provided, respectively, with the hollow studs *b*, tedder-arm A, stop-plate D, spring E, and tooth C, substantially as shown, and for the purpose specified.

3. In a hay-tedder, the combination of the tedder-arm A, spring E, and collar F, substantially as shown, and for the purpose mentioned.

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313,556. HYDRAULIC SAUSAGE-STUFFING MACHINE. FREDERICK W. TUERK, Jr., Chicago, Ill. Filed Feb. 27, 1884. (No model.)



Claim.—1. In a sausage-stuffer, the combination, with the shell A, of a piston-head, E, and hollow piston-rod F, extending through the bottom of the shell, the said piston-head having a groove formed upon its circumference, and passages leading from the said groove to the interior of the piston-rod, substantially as described, and for the purpose set forth.

2. In a sausage-stuffer, the combination, with the shell A, of a hollow piston-head, E, provided with a cover, *n*, and having a groove, *i*, formed upon its circumference, and passages *h*, which lead into the hollow portion of the piston-head and into openings e^3 in the hub *g*, and a hollow piston-rod, F, extending through the bottom of the shell, and provided with openings *f*, substantially as described, and for the purpose set forth.

3. In a sausage-stuffer, the combination, with the shell A, having the flange *t*, of a hollow piston-head, E, provided with a cover, *n*, and having a groove, *i*, formed upon its circumference, and oblique passages *h*, leading into the hollow portion of the piston-head provided with an oblique bottom, e^2, and into oblique passages e^3 in the hub *g*, and a hollow piston-rod, F, extending through the bottom of the shell, and provided with openings *f*, registering with the passages e^3, substantially as described, and for the purpose set forth.

4. A sausage-stuffer, comprising in combination the following elements, viz: a shell, A, having the hinged cover C adjustably secured upon the said shell by means of swinging eyebolts *q*, and provided with the elbow-shaped outlet D, and means for adjusting a spout, o, thereon, hollow piston-head E, provided with a cover, *n*, and having a groove, *i*, formed upon its periphery, oblique passages *h*, leading into the hollow portion of the piston-head provided with an oblique bottom, e^2, and into oblique passages e^3 in the hub *g*, a hollow metallic piston-rod, F, provided with openings *f*, and passing through the bottom of the shell A, means for admitting and releasing the medium for operating the piston-head, and a tube, *d*, connecting the piston-rod F and discharge-tube H, all being constructed and arranged to operate substantially as described.

313,557. SAW-SET. JOHN R. TUPPER, Petaluma, Cal. Filed May 12, 1884. (No model.)



Claim.—1. In a saw-set, the combination, with the horizontally-adjustable anvil D, having both its ends ∨-shaped, of a set-screw, *d*, whereby said anvil may have a horizontal movement, substantially as herein set forth.

2. In a saw-set, the combination of handle A, having the slotted head *a*, the horizontally-adjustable and beveled anvil D therein and projecting from its face, and the handle C, having a beveled hammer-head, *c*, pivoted in the slotted head *a* under the anvil and projecting beyond said anvil, substantially as and for the purpose described.

3. In a saw-set, the handle A, having slotted head *a*, and the horizontally-adjustable and beveled anvil D, projecting from the face of the head, in combination with the handle C, having the hammer-head *c*, pivoted in slotted head *a* under the anvil, said hammer-head projecting beyond the anvil and having a downwardly-beveled top from its inner to its outer edge, substantially as and for the purpose herein described.

313,558. HANDLE-CLAMP. CALVIN G. UDELL, Indianapolis, Ind. Filed Nov. 10, 1884. (No model.)



Claim.—1. The clamp formed of malleable metal having the web *l* and one or more lugs on each side, substantially as described.

2. The clamp formed of malleable metal having web *l* and one or more lugs on each side, in combination with a wooden handle, substantially as and for the purpose described.

313,559. ADJUSTABLE ROOF. LOUIS D. VOGEL, Boone, Iowa. Filed June 21, 1884. (No model.)

Brief.—Consists of sliding sections having at one end a shoulder with a slot and beveled on its under side, and at the other end a correspondingly-beveled shoulder with a pin engaging the slot. Projections on the sides of the sections move in slots in the rafters. The sections are operated by endless chains connected to the lower section by a rod and pendants, and passing over pulleys on the shafts and connected to a central windlass.

Claim.—1. In a roof, the sections A, provided at their ends with the pieces or shoulders B B′, and a projection on their sides to engage the slot C′ in the rafter C, substantially as and for the purpose set forth and described.

2. In a folding roof, the combination of the slotted pendants I, the connecting-rod H, and the endless chains E, substantially as and for the purpose set forth and described.

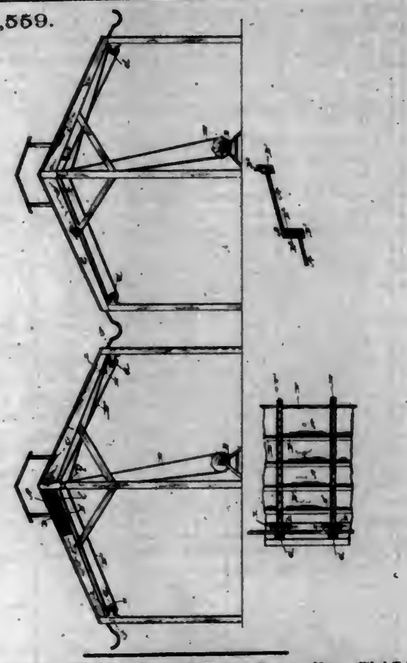
3. The combination of the windlass D, the chains E E E, pulley-shaft F, and pulleys G with the roof-sections A, having the pendants I and connecting-rod H, substantially as and for the purpose set forth and described.

4. The combination of the sections A, having at their ends the shoulders B B′, and projections at their sides to engage the grooves C′ in rafter C, with the windlass D, chains E E E, pulley-shaft F, and pulleys G, substantially as and for the purpose set forth and described.

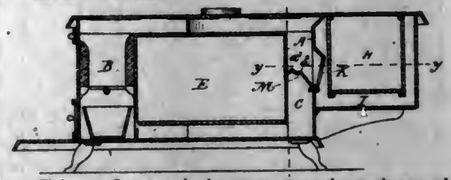
5. In a folding roof, the combination of the end piece or shoulder, B, provided with the slot B^2 and beveled on its under side, with the end piece or shoulder, B′, provided with the pin B^3 on its upper surface to engage slot B^2, and having its upper side beveled to coincide with shoulder B of section above it, substantially as and for the purpose set forth and described.



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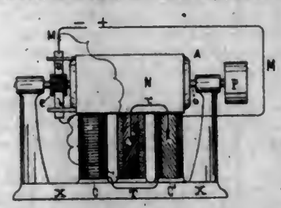
313,560. STOVE. WILLIAM E. WALKER, Taunton, Mass. Filed Feb. 23, 1884. (No model.)



Claim.—1. In a stove having a water reservoir or tank surrounded by a flue or space, I, the combination of the flue-plate A, separating the down and up take flues C F from said space I, the two openings K therein, one of which connects the downflue and the other the upflue with the space I, each of which openings is surrounded by the inclined ledge *a′*, with the hinged dampers M N, each of which has the projecting edge or flange a^3, which rests upon the ledge *a′* when the openings are closed by the dampers, all substantially as and for the purposes described.

2. The combination of the plate A, having the recesses *a*, the walls of which support a rod or bar carrying the dampers M N, with said rod or bar, all substantially as and for the purposes described.

313,561. REGULATOR FOR DYNAMO-ELECTRIC MACHINES. F. G. WATERHOUSE, Sacramento, Cal. Filed May 17, 1884. (No model.)



Claim.—1. A dynamo-electric machine or motor in which one or both of the pole-pieces of a field-magnet are connected to the neutral part of the yoke of the field-magnets by means of a set of two or more parallel magnetic arms carrying exciting-coils, so that the magnetic strength of each pole-piece will be equal to the aggregate strength of all the arms, and means for varying the current in one or more coils, so that if the magnetism of any one arm is lowered or destroyed it will weaken the magnetism in the pole-piece by offering a return magnetic path from the pole-piece back to the neutral part of the magnet, through which the magnetism caused by the other arms in the same set may pass without passing through the armature, substantially as described.

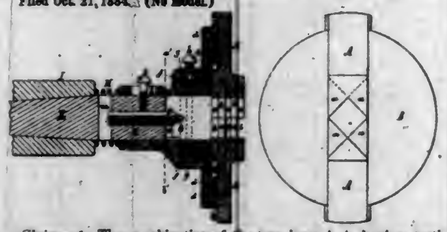
2. A dynamo-electric machine or motor in which the pole-pieces are connected to the neutral part or parts of the field-magnet by means of a set of magnetic arms, consisting of two or more in each set, with means for varying the magnetic strength of one or part of the arms in each set, so that the magnetic strength of the pole-piece to which they are connected will be raised or lowered, substantially as and for the purposes set forth.

3. A dynamo-electric machine or motor in which the pole-pieces are united to the neutral parts of the field-magnets by sets of magnetic arms having two or more arms in each set, part of the arms of each set being magnetized with one branch of the main current, while the other part of the arms of the same set are magnetized by the other branch of the main current, with means for reducing the current in one branch, so that the magnetism of part of the arms is decreased, and with it the magnetic strength of the pole-piece to which they are united, substantially as and for the purposes set forth.

4. A dynamo-electric machine or motor in which the field-magnets are composed of the pole-pieces, one of which is marked N, the bed *x*, composing the neutral part of the magnets, and the set of magnetic arms C, T, and C′ which connect the bed *x* and pole N together, the arms C C′ being magnetized by the main current or a branch of the main current, and the arm T being magnetized by a shunt-current or a branch of the main current, substantially as and for the purposes set forth.

5. A dynamo-electric machine or motor the field-magnets of which consist of the pole-pieces N and S, the bed *x*, and two sets of magnetic arms, F and C, composed of two or more arms in each set provided with exciting-coils, in combination with means for shifting or changing the amount of current in part of the coils in a set, substantially as and for the purposes set forth.

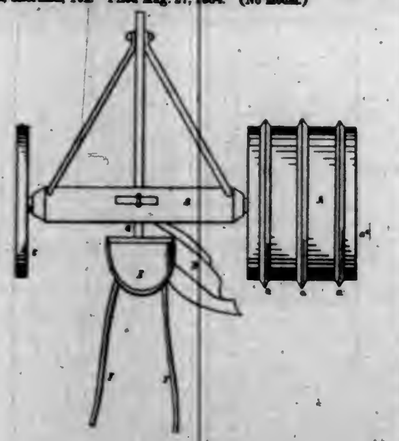
313,562. CENTERING-CHUCK. JEREMIAH M. WATSON, Sharon, Mass. Filed Oct. 21, 1884. (No model.)



Claim.—1. The combination of the two jaws A A, having teeth notched and arranged as described, and their operative scroll-ring C, applied to them, the said jaws, as set forth, with the head B and its tubular shank D, and with the spring H and the shank E, the latter extending within the shank D, and being provided with a tool or tools for countersinking, as explained, all being substantially and to operate as and for the purpose as specified.

2. The combination of a turning-lathe and a centering-chuck, substantially as described, applied to the arbor of the tail-stock of such lathe, and for use as and for the purpose specified, such chuck consisting of the two jaws A A, having teeth notched and arranged as described, the operative scroll-ring C, the head B, its tubular shank D, the spring H, and the shank E, such being applied substantially and to operate, and provided with a centering tool or tools, as set forth.

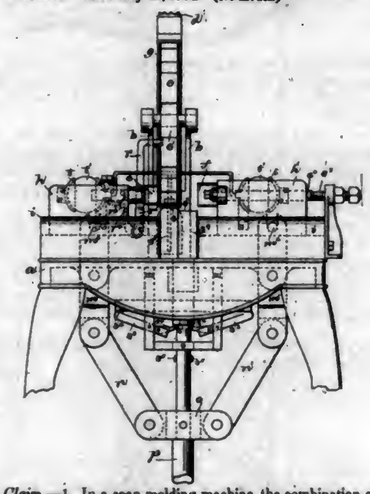
313,563. COMBINED LAND-ROLLER AND PLOW. HENRY WEDDLE, Sherman, Tex. Filed Aug. 27, 1884. (No model.)



Claim.—1. In combination with a sulky-plow, a roller, A, having a wide rim, a^6, to which are attached cutting-bands *a*, long and short spokes a^4 a^5, and a small hub, a^3, substantially as shown and described.

2. The combination of a sulky with a light roller, A, composed of a wide rim, a^6, to which are bolted cutting-bands *a*, said rim being made smaller in diameter than the other sulky-wheel, and secured to a small hub, a^3, by long and short spokes a^4 a^5, substantially as shown and described.

313,564. SOAP-MOLDING MACHINE. CLARENCE E. WHITAKER, Hyde Park, Mass. Filed May 12, 1884. (No model.)



Claim.—1. In a soap-molding machine, the combination of the following elements, namely: the molding-dies for shaping the cakes singly, a feeding device or carrier operating to present the pieces to be molded one at a time to the said molding-dies, and actuating mechanism for the said dies, substantially as described.

2. The rotary feeding device or carrier having recesses in its periphery, combined with the dies and actuating mechanism therefor, and devices controlling the movement of the carrier, substantially as described.

3. The feeding device or carrier and dies, combined with the spraying devices and actuating mechanism, substantially as described.

4. The feeding device and dies, combined with the detaching and discharging devices and actuating mechanism, substantially as described.

5. The feeding device or carrier consisting of a wheel or disk provided with recesses which receive the pieces to be molded, combined with the shield inclosing a portion of the periphery of the said carrier, the bed upon which the pieces are supported, and the dies and actuating mechanism, substantially as described.

6. The feeding device or carrier having recesses in its periphery, and adapted to be rotated by the weight of the material in the said recesses, combined with the dies and a stopping device for the said carrier, substantially as described.

7. The feeding device consisting of a disk or wheel having recesses in its periphery, combined with the movable bed below the said feeding device, and the dies and actuating mechanism whereby the dies are moved toward one another and then separated, and the bed raised after the dies are separated, substantially as described.

8. The feeding device or carrier consisting of a disk or wheel having recesses in its periphery, combined with the bed below the said carrier, the dies movable laterally toward and from the said carrier, the spring-pressed stopping device for the said carrier, and disengaging device therefor connected with one of the said dies, and operated to release the carrier in the movement of the die away therefrom, substantially as described.

9. The feeding device or carrier, combined with the dies and their supporting-carriages, movable in guides toward and from one another, one of the said carriages being provided with a box, and the corresponding die being movable therein, and a stopping device for arresting the said die in the movement of the carriage in which the dies are separated, substantially as described.

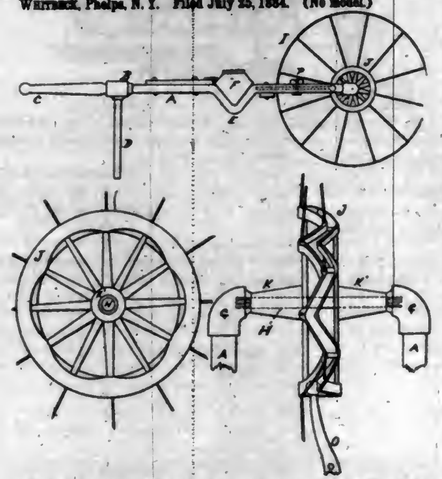
10. The feeding device or carrier and the movable bed, combined with the dies and their supporting-carriages, movable toward and from one another, the actuating-rod, and connecting devices between it and the said dies and bed, whereby the dies are moved together and separated and the bed moved to detach a molded cake from the said separated dies, substantially as described.

11. The feeding device and dies movable toward and from one another, combined with the bed for supporting the piece to be molded by the dies, the said bed having inclined portions for discharging the molded cake, substantially as described.

12. The carrier or feeding device having recesses in its periphery, combined with detachable boxes for the said recesses, enabling pieces of material of different sizes to be fed thereby, and the dies and actuating mechanism therefor, whereby the said pieces are molded, substantially as described.

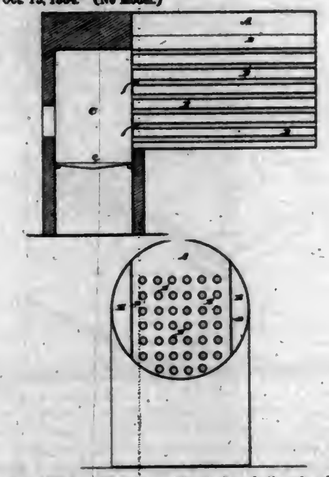
13. In a machine for molding soap, a bed to support the piece to be molded, combined with the dies *e e′* and actuating mechanism, substantially as described, whereby the said dies are moved toward each other to simultaneously strike with a blow the piece to be molded, as and for the purposes set forth.

313,565. WHEELBARROW GRASS-SEED SOWER. GEORGE V. H. WHITBECK, Phelps, N. Y. Filed July 25, 1884. (No model.)



Claim.—In a wheelbarrow grass-seed sower, the double skeleton cam-hub J K K′, made in one single casting placed on one side of the wheel, with which also the spokes of the wheel I are cast, forming a stiff and durable wheel, upon which the machine runs, and by which said double skeleton cam the shake-lever O is operated, all in combination with the axle H, elbow-connectors G G and side bars, A A, substantially as described.

313,566. STEAM-BOILER. CHRISTOPHER WILLIAMS, Adrian, Mich. Filed Oct. 15, 1884. (No model.)

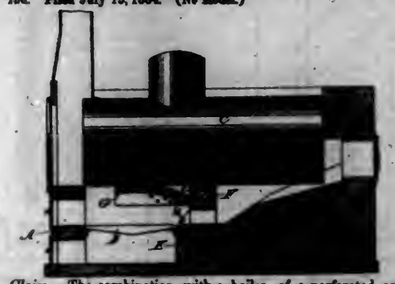


Claim.—1. The combination, with a boiler-shell and a fire-flue located within the same, of a partition-wall located between the flue and shell and forming with the shell an air-chamber, substantially as set forth.

2. The combination, with a boiler-shell and a group of fire-flues located therein, of partition-walls located between the group of flues and the shell and forming with the shell air-chambers, substantially as set forth.

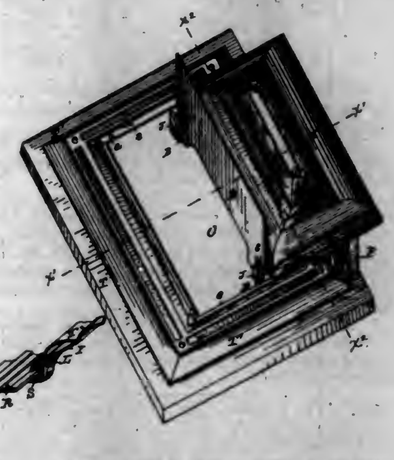
3. The combination, with a boiler-shell and a group of fire-flues located therein, of two partition-walls, one located on each side of the group of flues between the flues and shell, forming with the shell air-chambers, substantially as set forth.

313,567. BOILER-FURNACE. HENRY C. WILLIAMSON, Michigan City Ind. Filed July 15, 1884. (No model.)



Claim.—The combination, with a boiler, of a perforated arch, G, abutting against said boiler, spaces *c*, formed by the arch, the boiler, and the side walls of the furnace, and a suitable arch adapted to form communication between the outer air and the interior of the furnace, as set forth.

313,568. STOVE. GURDON G. WOLFE, Troy, N. Y., assignor to the Fuller & Warren Company, same place. Filed Mar. 18, 1884. (No model.)



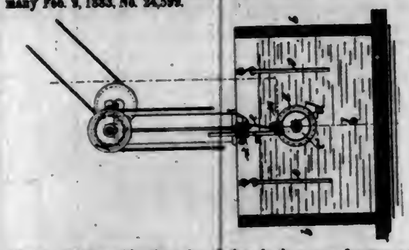
Claim.—1. In a heating-stove, the combination of the stationary part of the stove-top T′, having the opening O, and made with passage-way *a* in one side of the latter, and the movable part of the top T², having its side edges made to overlap the side edges of said opening, and constructed with the slotted lugs L on the side edges of its under surface, which lugs are constructed to embrace the side edges of said opening, substantially in the manner as and for the purposes set forth.

2. In a heating-stove, the combination of the stationary part of the stove-top T′, made with the opening O, the latter having parallel sides, the movable stove-top T², making a sliding connection with the sides of said opening, and the posts P P, arranged on said stove-top at the rear thereof, and adapted to support said movable top when moved rearwardly over said posts, substantially in the manner as and for the purposes set forth.

3. In a stove, the combination of the slides *e* on two sides of the central opening, one of said slides having a vertical slot, *a*, in its edge, the sliding top T², provided with lugs L, having slots *s*, working on said slides, and the posts P at the rear of the fixed portion of the top, for the purpose of supporting the movable cover when pushed back over said posts, substantially as described.

4. In a heating-stove, the combination of the stationary part of the top T′, made with the opening O, the movable part T², made with the incline I on its under side, and at its sides having a sliding connection with the sides of the opening, as shown, the posts P on the stationary part of the top adapted to support the said sliding top when moved rearwardly over said posts, the hinged guard D, made with the posts H, adapted to engage with the incline I on the sliding top, substantially in the manner as and for the purposes set forth.

313,569. APPARATUS FOR ELECTROPLATING. DAVID APPLETON, Manchester, England. Filed Jan. 22, 1884. (No model.) Patented in England Jan. 6, 1883, No. 82, and Oct. 22, 1883, No. 5,011; in France Jan. 30, 1883, No. 153,419; in Belgium Jan. 31, 1883, No. 60,314, and in Germany Feb. 9, 1883, No. 24,599.



Claim.—The combination of a plating-bath, means for suspending the hollow printing-roller from the cathode-bar, means for imparting rotary motion to the roller, and a brush supported adjustably on the cathode-bar and arranged in contact with the revolving roller, substantially as specified.

313,570. TOP-PROP BLOCK FOR CARRIAGES. GEORGE L. ARTZ, Columbus, Ohio. Filed Sept. 12, 1883. Renewed June 23, 1884. (No model.)



Claim.—1. The combination, with the grooved prop-block and sheath or covering C, of the tubular piece E, substantially as and for the purpose specified.

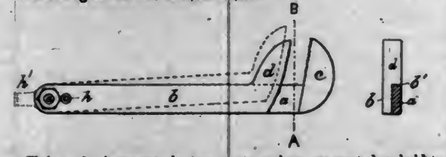
2. The combination, with the grooved prop-block, of the recessed independent elastic removable cushion or molding F and the pin or plug D, substantially as and for the purpose specified.

3. The combination, with the grooved prop-block and sheath or covering C, of the recessed independent elastic removable cushion F and pin or plug D, substantially as and for the purpose specified.

4. The combination of the grooved prop-block, sheath or covering C, tubular piece E, recessed independent elastic removable cushion or molding F, and the pin D, substantially as and for the purpose specified.

5. The prop-block composed of the longitudinal vertical sections A B, having the prop-iron groove *a* and groove or recess *b*, in combination with the cushion or molding F, substantially as and for the purpose herein shown and described.

313,571. SPANNER. JOHN C. BAUER, London, England. Filed Nov. 1, 1883. (No model.) Patented in England June 14, 1883, No. 2,968; in Germany Oct. 21, 1883, No. 27,623; in France Oct. 26, 1883, No. 158,235, and in Belgium Oct. 27, 1883, No. 62,011.



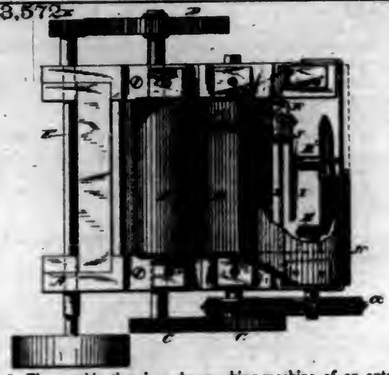
Claim.—1. A spanner in two parts or bars, connected or held together at their extremities as swinging bars or levers, and having at their other extremities jaws at or approximately at right angles to such levers, as shown and described.

2. The improved spanner described and represented in Figs. 1, 1ª, and 2 of the drawings, consisting of the lever *a*, provided with a grasping-jaw, *c*, projecting at or approximately at a right angle thereto, combined with the lever *b*, provided with a grasping-jaw, *d*, and shoulder *b'* at or approximately at right angles to such lever, and a pivot connecting these two levers at one end and serving as their common center of motion.

313,572. CLAY-PULVERIZING MACHINE. THOMAS BIRCH, WILLIAM BIRCH, and JAMES BIRCH, Crawfordsville, Ind. Filed Sept. 3, 1884. (No model.)

Claim.—1. The pulverizing-rollers of equal diameters rotating at different rates of speed, in combination with the reciprocating arm M, carried by the sliding head K, and means for actuating said head automatically, substantially as described.

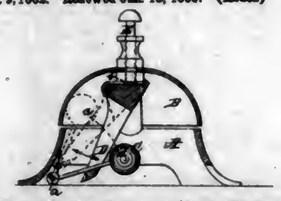
313,572.



2. The combination, in a clay-crushing machine, of an automatically-reciprocating arm or arms, with crushing-rollers having unequal surface velocities, as and for the purpose set forth.

3. The combination, with the hopper provided with the outlet-passages in its side walls, of the reciprocating arm or arms, and means for automatically actuating said arm or arms, substantially as and for the purpose described.

313,573. CALL-BELL. ELLIS S. BLOOMFIELD, Jr., Jersey City, N. J. Filed Nov. 9, 1883. Renewed Jan. 13, 1885. (Model.)



Claim.—In a call-gong, the combination, with the striking-pin E and the striker C, secured to the base of the stand, of the lever D, having in its longer arm a suitable opening for the support and free movement of the striker, and pivoted to the stand so as to be operated by the striking-pin, substantially as described.

313,574. TEMPORARY BINDER. FRANK BOWMAN, New York, N. Y. Filed Nov. 3, 1883. (No model.)



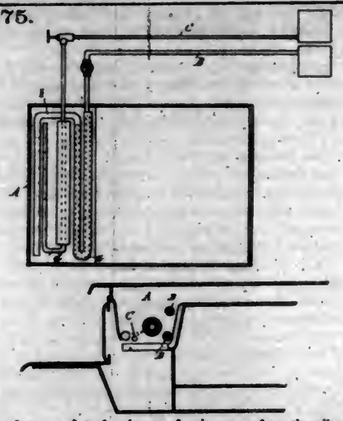
Claim.—1. A temporary binder having apertures at its fold and notches at the sides thereof, through which a cord or tape may be passed to secure a filler or recruit to it, as and for the purpose specified.

2. In combination with a pocketed cover, a temporary binder having its sides or flaps contained in the pockets of the cover, the said binder also being provided with secret pockets, and adapted to have removably secured to it a filler or recruit.

313,575. DEVICE FOR GENERATING AND BURNING GASES. R. A. BURT and ROBERT M. RIDELMAN, Adrian, Mich. Filed Dec. 26, 1883. (No model.)

Claim.—1. In a device for the purposes described, the oil-pipe C, a portion of which is wound or incased with asbestus or other refractory

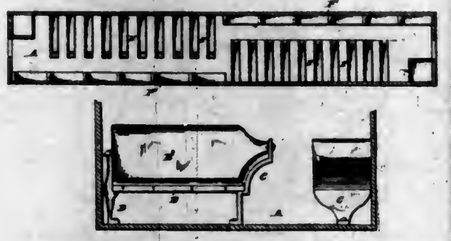
313,575.



material to form a point of resistance for the gases from the oil and water pipes after they are discharged through the jets in the same, substantially as and for the purposes set forth.

2. In a device for the purposes described, the combination of a water-heater, as B, and an oil-heater, as C, a portion of said oil-heater being incased with asbestus or other refractory material to form an incombustible point of resistance, the said heaters being constructed and arranged substantially as herein shown and described, whereby the combustion of the oil furnishes the necessary initial heat to convert the oil into gas on its passage from the source of supply to the jets, and the gas and steam mingle, after issuing from the jets in the pipes in which they are generated, and are thrown against said incombustible point of resistance, substantially as and for the purpose specified.

313,576. SLEEPING-CAR. JAMES F. COLBY, Buffalo, N. Y. Filed Mar. 20, 1884. (No model.)



Claim.—1. In a railway-car, the sets of transverse seats arranged so that one set will occupy more than one-half the width of one portion of the car, and the other set will occupy more than one-half the width of the other portion of the car, and the sets of longitudinal seats arranged each to occupy the portion of the car opposite the respective transverse seats.

2. In a railway-car, the combination, with the sets of transverse seats so arranged that one set will occupy more than one-half of the width of one portion of the car, and the other set will occupy more than one-half the width of the other portion of the car, the respective seats of each set being provided with overhanging upwardly-curved head-rests, of the sets of longitudinal seats, the seats of the respective sets being contiguous one to the other, and each provided with upwardly-curved overhanging head-rests, and each set arranged to occupy the portions of the car opposite the respective sets of transverse seats.

3. In a railway-car, the sets of longitudinal seats arranged so that one set will occupy one side of one portion of the car, and the other set the other side of the other portion of the car, the seats of the respective sets being contiguous one to the other, and each provided with an upwardly-curved overhanging head-rest.

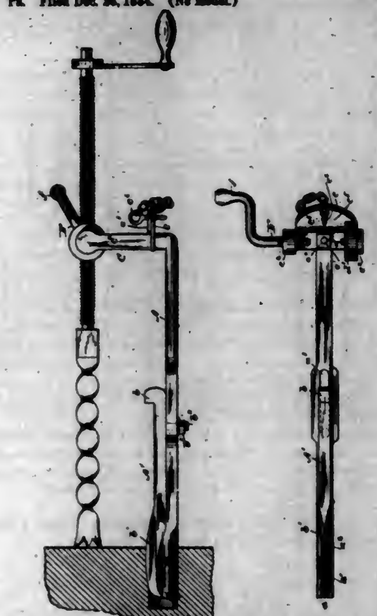
4. In a railway-car seat, the combination, with the frame proper, of the combined head-rest and supporting-legs constructed of one piece.

5. In a railway-car seat, the combination, with the frame proper, having a series of transverse springs secured thereto, of the combined head-rest and supporting-legs, having an offset to which the frame is secured, and a series of transverse springs secured thereto.

6. In a railway-car seat, the combination of the seat proper with the upwardly-curved overhanging head-rest, forming an elongation of the seat.

7. In a car-seat, the combined head-rest and supporting-legs constructed of one piece, and having a part adapted to receive and sustain the seat.

313,577. COAL-DRILLING MACHINE. ALFRED J. COOPER, Dunyea, Pa. Filed Dec. 26, 1884. (No model.)



Claim.—1. In a coal or rock drilling machine, and as a means for securing the supporting bar or post A, and in combination with the longitudinally grooved or dovetailed end of the latter, the angular wedge sliding in the said groove and provided with a biting-edge, substantially as described.

2. In combination with the bar or post A, rounded and grooved as described, the wedge A', having the bolt b^2 and head *b*, said wedge sliding in the groove in post A, substantially as described.

3. The combination, with the supporting bar or post A, provided with the pivot and face-plate, as described, of the turret having the flange or face-plate c^2, and the arms c^3 c^3, and the adjustable feed-nut secured between the arms, said turret being applied to the pivot and held in adjusted position by the pin c^6, passing through the perforations c^5 in the face-plate, substantially as described.

4. The combination, in a coal or rock drilling machine, and with the supporting bar or post, of the turret provided with the arms c^3 c^3, the one carrying the stud or pin and a series of projections, and the other a screw, and the feeding-nut with bearings in each end to receive the said stud and screw, and a series of projections interlocking with those on the turret-arm, substantially as described.

5. In combination with the nut D, for carrying the feeding-screw or drilling-bar as described, and provided with a recess at either end and interlocking projections on one end, the arms c^3 c^3, provided the one with a stud or pin and interlocking projections engaging those on the nut, and the other with a screw entering the opposite end of the nut, whereby the said nut can be released, removed, or locked firmly in position by turning the said screw, substantially as described.

313,578. SHUTTLE-BOX-OPERATING MECHANISM FOR LOOMS. JOHN H. CROWLEY, Philadelphia, Pa. Filed June 18, 1883. (No model.)

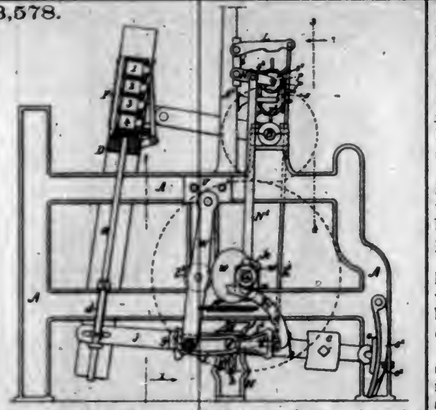
Claim.—1. Drop-box mechanism in which are combined a drop-box lever, an arm, *f*, pivoted in line with the fulcrum of the lever, a pin or equivalent device controlling said arm, means for vibrating or reciprocating the pin, and mechanism whereby the arm *f* is adjusted and locked to or released from the drop-box lever, as set forth.

2. The combination of the drop-box lever J, an arm, *f*, pivoted in line with the fulcrum of the lever, a pivoted arm, W, having a pin adapted to a groove in the arm *f*, a cam for vibrating said arm W, and means, substantially as described, for adjusting the arm *f* and for locking the same to and releasing it from the lever J, as set forth.

3. The combination of the drop-box lever J, the lever M, fulcrumed in line with the same, the catch-lever K, hung to the lever J and adapted to engage with the arm *f'* of the lever M, a cam for actuating said lever K, means for adjusting the lever M, a pin or equivalent device controlling the arm *f* of the lever, and mechanism for vibrating or reciprocating said pin, as set forth.

4. The combination of the drop-box lever J, the lever M, fulcrumed in line therewith, the arm L, connected to said lever M, the pattern-chain for acting on said arm L, a pin or equivalent device controlling the lever

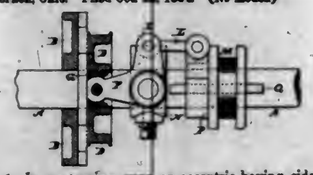
313,578.



M, and means, substantially as described, for vibrating or reciprocating said pin for operating the pattern-chain and for locking the lever M to and releasing it from the lever J, as set forth.

5. The combination of the drop-box lever, the lever M, mechanism for locking the latter to and releasing it from the drop-box lever, the arm L, connected to the lever M, the pattern-chain wheel, and mechanism for rotating, raising, and lowering the latter, as set forth.

313,579. REVERSING-GEAR FOR ENGINES. JULIUS C. DERR, Mount Vernon, Ohio. Filed Oct. 22, 1884. (No model.)



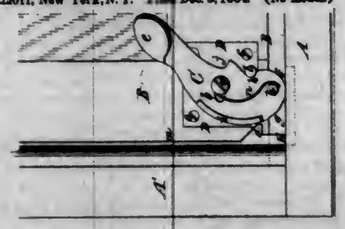
Claim.—1. In a reversing-gear, an eccentric having side grooves in the center thereof, a double-armed bell-crank or lever having pivotal bearing in a fixed collar capable of longitudinal adjustment upon the engine-shaft, and sliding blocks connected to the inner ends of the bell-crank or lever arms, and having straight outer faces to adapt them to fit the side grooves in the eccentric, and curved inner faces to receive and permit the free movement therein of the lever-arms, substantially as and for the purpose set forth.

2. In a reversing-gear, an eccentric having a central opening and side grooves in the center of the axis thereof, a double side lever or bell-crank, blocks adapted to fit within the side grooves in the eccentric and to connect with the inner ends of the lever or bell-crank, and means, substantially as described, for operating said bell-crank.

3. In a reversing-gear, the combination, with the engine-shaft, of a grooved disk, an eccentric adapted to engage therewith, and having side grooves in the center of its axis, a bell-crank or lever adapted to engage said side grooves, and a collar rigidly secured to said shaft, and having journals or bearing-pins for said lever, and also having capability of longitudinal adjustment upon the shaft, substantially as and for the purpose set forth.

4. In a reversing-gear, the combination, with the shaft A and disk B, of a shifting eccentric having central side grooves, a double bell-crank or lever adapted to engage said grooves, a longitudinally-sliding non-rotatable collar mounted upon the shaft, and a suitable link and pin for connecting said clutch and double bell-crank, substantially as and for the purpose set forth.

313,580. COMBINED SASH-FASTENER AND SASH-LIFT. GEORGE L. ELLIOTT, New York, N. Y. Filed Dec. 3, 1884. (No model.)



Claim.—1. The combination, with a window sash and frame, of a lever pivoted to the sash near its lower edge, having a finger-piece or handle at the inner end, and a cam-like head which by raising the finger-piece or handle is caused to act upon the sill to start the sash, substantially as herein described.

2. The combination, with a window-sash and a frame provided with a strip, *m*, of a starting-lever pivoted to the sash near its lower edge, having a finger-piece or handle at the inner end, and a cam-like head for acting upon the sill to start the window, and having above the cam-like head a clamping-surface for engaging with the strip *m* to hold the sash up, substantially as herein described.

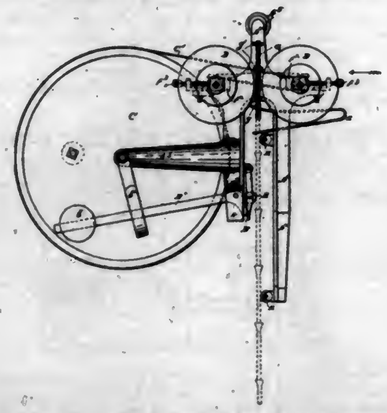
3. The combination, with the starting-lever C, provided with the locking pin or projection *h*, adapted to engage with a lug or stop upon a window-frame, and having a shoulder, *j*, of the plate D, with which the lever is connected by a slot and pivot, and which is provided with the pin or projection *l*, substantially as herein described.

4. The combination, with the starting-lever C, provided with the locking pin or projection *h*, adapted to engage with a lug or stop upon a window-frame, and having shoulders *k j*, of the plate D, with which the lever is connected by a slot and pivot, and having the pin or projection *l* for the engagement of said shoulders, substantially as herein described.

5. The combination, with the lever C, constructed to operate as a starting-lever and lock, and the plate D, with which said lever is connected by a slot and pin, of the wearing-plate E and its lug or stop *d*, substantially as herein described.

6. The combination, with a window-sash and a frame provided with the strip *m*, of the lever C, pivoted to the sash near its lower edge, and adapted to bear against the sill of the frame to operate as a starting-lever to start the sash open and a clamp for holding the sash open, and the spring *n* for throwing said lever into clamping engagement with the said strip *m*, substantially as herein described.

313,581. MACHINE FOR DRESSING SAW-TEETH. HARLEY FAIRBROTHER, Conneaut, Ohio. Filed Jan. 19, 1884. (No model.)



Claim.—1. In a saw-tooth-dressing machine, the combination, substantially as herein shown, of a frame-work adapted to span or straddle the saw, a clamping device thereon for binding or clamping said frame upon the saw, and friction-rollers R, arranged at the places of bearing of said frame and clamp, substantially as shown, and for the purposes set forth.

2. In a saw-tooth-dressing machine, the combination, substantially as shown, of the following elements: a frame-work which spans or straddles the saw, a spring rest or bearing for supporting said frame upon said saw, and a clamping device for binding said frame laterally on said saw.

3. In a saw-tooth-dressing machine, the combination, substantially as shown, of the following elements: a frame-work which spans the saw, a clamping device for binding said frame on said saw, a spring-rest for supporting said frame on the edge of said saw, and finally friction-rollers at the lateral bearing-points of said frame.

4. In a saw-tooth-dressing machine, the combination, substantially as shown, of the following elements: a frame-work which spans or straddles the saw and supports a driving-wheel at right angles to said saw, grinding-wheels mounted on said frame at right angles to said saw and geared to be operated from said driving-wheel, a yielding rest for supporting said frame vertically on the edge of said saw, a clamp for binding said frame against lateral movement on said saw, and finally friction-rollers at the lateral bearing-points of said frame.

5. In a saw-tooth-dressing machine wherein the tooth is dressed by two rotating grinding-wheels set at right angles to the saw, or substantially so, on opposite sides thereof, the combination, with said grinders, of a vertically-movable saw-tooth gage and guide, substantially as shown, and for the purposes mentioned.

6. In a saw-tooth-dressing machine, the combination, substantially as shown, of the supporting-frame, the grinders D D, and the vertically-movable notched guide-bar G, arranged with relation to each other and operating together, substantially as and for the purposes set forth.

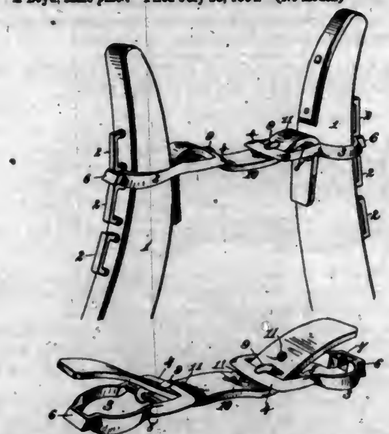
7. In a saw-tooth-dressing machine, the combination, substantially as shown, upon a supporting frame-work, of the grinders D D, the spring-support E, and the vertically-movable guide G, for the purposes mentioned.

8. In a saw-tooth-dressing machine, the combination, substantially as shown, of the following elements: a frame-work which spans the saw and supports the grinding-wheels and the necessary gearing for operating the same, a spring support or rest for said frame on the edge of the saw, by which the machine may be given a vertical movement, and finally a vertically-movable saw-tooth guide, substantially as and for the purpose described.

9. In a saw-tooth-dressing machine, the combination, substantially as set forth, of the following elements: a frame-work which spans and clamps the saw, so as to be held against lateral movement, but is free to move vertically, grinding-wheels adjusted on said frame, so as to act against the sides of the saw-teeth, and a vertically-movable guide and gage, substantially as and for the purpose described.

10. In a saw-tooth-dressing machine, the combination of the frame A, A', A^2, A^3, A^4, A^5, and A^6, the adjustable spindles F F, the grinding-wheels D D, the guide G, the spring E, the clamp B B', the rollers R R R R, the drive-wheel C, and belt C', as shown, and for the purposes set forth.

313,582. STRAP-LOOP CONNECTION FOR HAMES. HERMAN A. FONTAINE and THEODORE A. KOSTERS, Auburn, N. Y., assignors to Hayden & Boyd, same place. Filed July 28, 1884. (No model.)



Claim.—1. A hame-fastener composed of the adjustable top loop and buckle, substantially as described, adjustably and detachably connected with a strap, and adapted to slip over and move vertically on the hame end, said loop provided with an inwardly-projecting lug for engaging between two of the studs on the hame end, as set forth.

2. A hame-fastener composed of an adjustable top loop and buckle, substantially as described, in one structure, as set forth.

3. A hame-fastening combining in its construction a single strap-layer and two adjustable top loops, each having an attached buckle, substantially as described, for adjustably connecting the loops with the opposite ends of the strap-layer, as set forth.

313,583. MANUFACTURE OF WALL-COPING. JOHN FRANCY, Toronto, Ohio. Filed Aug. 23, 1884. (No model.)



Claim.—1. The improved method herein described of manufacturing coping, the same consisting of molding two complete coping-sections together in a single article, drying and baking said article, and finally severing into two complete coping-sections, substantially as set forth.

2. The improved method herein described of manufacturing coping, the same consisting of molding two complete coping-sections together in a single article, having reduced end portions for the purpose specified, drying and baking said articles, and finally severing at said reduced end portions into two complete coping-sections, substantially as set forth.

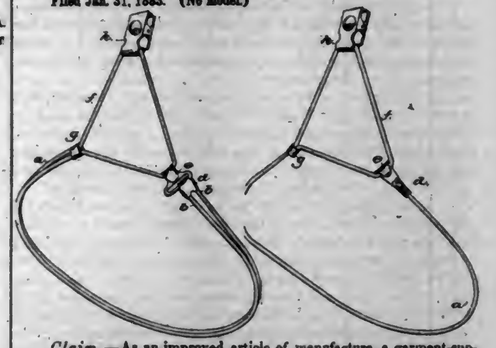
3. The combination, in a mold for the manufacture of coping, of a central core of a shape adapted at each side to form the inner portion of a coping-section and outer clamp-sections interiorly shaped each to form the outer portion of a coping-section, substantially as set forth.

4. The combination, in a mold for the manufacture of coping, of a core of a shape adapted at each side to form the inner portion of a coping-section, outer clamp-sections interiorly shaped, each to form the outer portion of a coping-section and a head or former, substantially as and for the purpose set forth.

5. The combination, in a mold for the manufacture of coping, of a core shaped to form at each side the inner portion of a coping-section, and having angular ribs *a* at each end, and outer clamp-sections interiorly shaped each to form the outer portion of a coping-section, substantially as set forth.

6. The combination, in a mold for the manufacture of coping, of core B, sections C D, hinged together at one end, shaped as described, and devices for locking the free ends of said sections, in the manner and for the purpose specified.

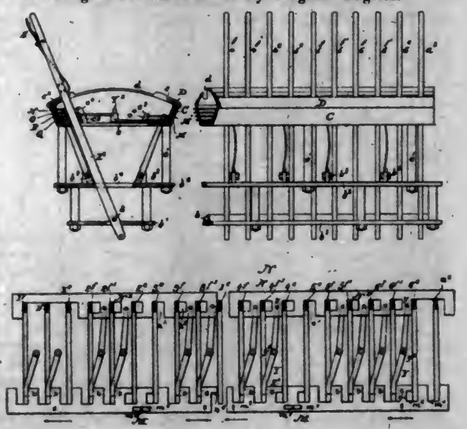
313,584. SLEEVE-SUPPORTER. GEORGE FROST, Newton, Mass., assignor of two-thirds to George A. Phelps and George A. Frost, same place. Filed Jan. 31, 1883. (No model.)



Claim.—As an improved article of manufacture, a garment-supporter composed of a cord bent on itself, a metal clasp to fasten one end of the cord to itself to form a loop, a hook connected with one end of the said cord and adapted to engage the said loop, and a garment-engaging clasp suspended by or connected with the looped part of the said cord, substantially as described.

313,585. APPARATUS FOR INTERLOCKING SWITCHES AND SIGNALS. GEORGE FULLMAN, Denver, Colo. Filed Apr. 3, 1884. (No model.)

Brief.—Spring-held recessed locking-plates arranged one above another in two sets, one set at each extremity of the throw of the switch and signal levers. The plates of the two sets have connections through levers which lie across the path of the hand-levers, whereby the throwing of the proper levers to open a track, and the signal-lever to indicate that condition, will automatically lock every other switch and signal lever until the last signal-lever thrown to "safety" is again "dangered."



Claim.—1. In combination with a series of switches and their operating-levers, and with a series of signals and their operating-levers, arranged as described, a series of locking-plates having recesses arranged one above another in two sets, one set at either end of the throw of the levers, and the several plates, connected, as described, by arms or links which lie across the path of the levers, whereby the throwing of the proper levers from one set of plates to the other to open any track, and the signal to denote that condition, will automatically lock every other switch and signal lever until the last signal-lever thrown is again placed at "danger," as set forth.

2. In combination with a series of switches and their operating-levers, as 1^a 2^a, &c., and with an "in" and an "out" signal for each switch-lever, a series of recessed locking-plates, as N O P Q, for locking the levers not thrown, and a series of recessed auxiliary locking-plates, as M, for locking the levers which have been thrown, as set forth.

3. In combination with a series of switches and their operating-levers, as 1^a 2^a, &c., and with a series of signals and their operating-levers, 1^f $1^{f'}$, &c., arranged as described, the locking-plates M and M', the levers Y, connecting the plates M and N, and the levers W, as and for the purposes set forth.

4. In an interlocking signal apparatus, substantially as described, the combination, with a series of switches and signals and with their operating-levers, of a series of locking-plates, as P Q, having slots, as p^3 and q^3, respectively, a series of springs, o^3, passing through such slots to operate plates, as O, above, and a series of levers, as T, with inclined arms t, all combined and operating as and for the purposes specified.

5. In combination with a series of switches and their operating-levers, a main switch-lever controlling a number of tracks upon either side, and a locking-plate, as Q, operated by such main lever to lock all the switch-levers upon one side or the other, according to the direction the said main lever is thrown, as set forth.

6. In combination with a series of switches, as 1^a 5^a, &c., and with a series of signals, as 1^g 5^g, and their operating-levers, as 1^b 5^b, and 1^f $1^{f'}$ 5^f $5^{f'}$, respectively, arranged as shown, the single plate Q, having central recess, q, and locking-recesses q' q^2, arranged reversely on opposite sides of the recess q, and the lever R, having reverse inclines r^4 r^5, all arranged and operating in relation to the main switch-lever 1^c, as set forth.

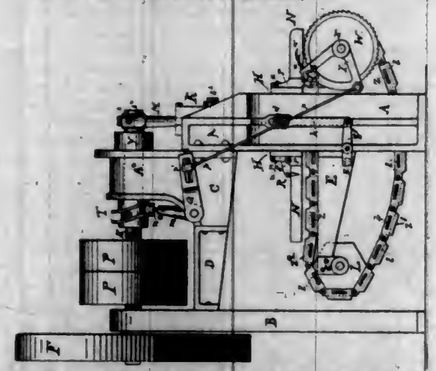
7. In combination with the levers 1^a 2^a, &c., switches, signals, and signal-levers 1^f $2^{f'}$, &c., the locking-plate Q, having recess q and locking-recesses q' q^2, arranged as shown, the main switch-lever 1^c, controlling a number of tracks on either side of the main switch, and the plate P^2, having locking-recess p^2, adapted to lock the said lever 1^c, as set forth.

8. The locking-plate Q, having locking-recesses, arranged as shown, combined with the lever 1^c, the lever R, having inclines r^4 and r^5, and with a series of switch and signal levers, substantially as set forth.

9. The combination of the locking-plates M and M' with the levers Y, links W, a series of locking-plates, and switch and signal mechanism, substantially as set forth.

10. The plates O' and O^2 and plate M', combined with the lever U, link W, and switch-levers 2^a and 3^a, substantially as set forth.

313,586. WOOD-SPLITTING MACHINE. DARWIN A. GREENE, New York, N. Y. Filed Oct. 29, 1881. (No model.)



Claim.—1. The combination, with the main shaft S, having cam T, the bell-crank lever, and the segment I, connected to said lever by the rod p and to the cam by said rod and lever, of the ratchet W, operated by pawls carried on the segment, the chain-carrier, and the vertically-adjustable bed-plate E, as set forth.

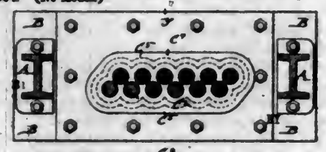
2. The adjustable clearing-plate with its chisel-pointed pawls, and the yielding side guides carried thereon, in combination with each other and with the knives and feed-chain, as and for the purpose specified.

3. In a machine for splitting wood, the combination, with the bed-plate E, of the endless carrier l z, composed of the iron plate z and links l, the former being held in place by the latter, which are provided with the lateral flanges z^3, and are held together by the angular headed bolts b, substantially as specified.

4. The combination of the carrier, as described, and the vertically-adjustable bed-plate E, with the main shaft S, having cam T, the bell-crank lever m Q, and rod p, connecting said cam with the segment I, the said segment carrying pawls which engage the ratchet W, to impart intermittent motion to the carrier, and the clearing-plate H, as set forth.

5. In a machine to split wood, the combination of the knives v v, actuated by proper mechanism from the main shaft, the clearing-table H, the adjustable bed-plate E, the chain-carrier l z, and the bearing-block A", provided with the journal-boxes o^2 o^3, controlled by the set-screws q' q', substantially as specified.

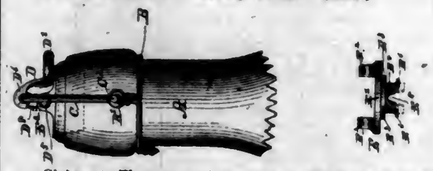
313,587. STAMP-MILL. WILLIAM GROSCH, Verona, N. J. Filed June 21, 1884. (No model.)



Claim.—1. The combination of a bed-frame, B, anvil C, inclosing-plates C', trough C^2, having inclined interior ribs, door C^3, top C^4, having stuffing-boxes C^5, vertically-guided stamps D, having disks D', shafts E', having cams or toes E, which engage the disks at one side of the stamps, substantially as and for the purpose set forth.

2. In a stamp-mill, a cutting-bit provided with radial cutting-edges, intermediate upwardly-tapering clearing-recesses, and bottom grooves extending at both sides of a diametrical cutting-edge for connecting the adjoining clearing-recesses, substantially as set forth.

313,588. BOTTLE AND JAR STOPPER AND FASTENER. EDWIN HAAS, Philadelphia, Pa. Filed Sept. 26, 1884. (Model.)

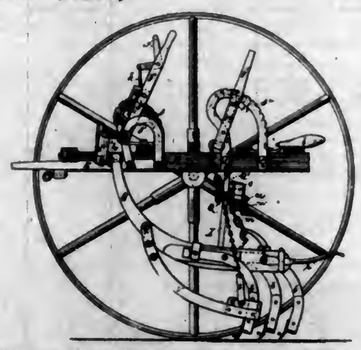


Claim.—1. The cast-metal cap-piece or plug having pivot-lugs capable of being bent to form eyes and a notched depending hollow cylinder formed in one piece or casting, substantially as specified.

2. A plug or cap-piece for bottle-stoppers, consisting of a single casting having upwardly-projecting pivot-lugs and a downwardly-projecting cylinder having prongs, the lugs and prongs being capable of being bent, substantially as specified.

3. The combination of the bail C, pivotally secured to the bottle, the lever D, having the lugs D^2, the cast-metal cap-piece E, comprising a cylinder having the bent prongs E^2, and the rubber stopper F, substantially as shown and described.

313,589. CULTIVATOR. JOHN A. HAHN, Mascow, Iowa. Filed Sept. 15, 1884. (No model.)



Claim.—1. The combination of the share-beams B B', the drag-bar C, shackled to said beams and to cross-bar c', and cranks A A', connected to the said drag-bar and provided with lever F, for actuating the said cranks, as and for the purpose described.

2. The combination of the share-beams B B', the drag-bar C, shackled thereto and to the frame A, the cranks A A', connected to said drag-bar, the lever F, connected to said cranks, the notched support f,

the dog g, and the connected bell-crank lever j, pivoted in the lever F, all as and for the purpose described.

3. The combination, with the fenders G G', pivoted to the share-beams B B', of the windlass u, journaled on cross-bars Q Q', the chain J, a notched disk, v, attached to the cross-bar Q, the crank-arm t, fitted loosely on the axle of said windlass and provided with an arm fitted to engage the notches on said disk, and a spring, w, adapted to effect such engagement, all as and for the purpose described.

313,590. HASP-LOCK. EPHRAIM HAMBURG, Detroit, Mich., assignor of one-fourth to Martin Maier, same place. Filed Oct. 10, 1884. (No model.)



Claim.—1. A hasp-lock wherein the locking of the same is obtained by means of two screws, the thread of each running in an opposite direction from that of the other, one of said screws being operated by a key and the other by means of a milled flange, substantially as described.

2. In a hasp-lock, the combination of the plates D and E, constructed substantially as described, the former being provided with a rotating and interiorly-threaded hollow plug, b, and the latter with an exteriorly-threaded rigid stud, g, the parts arranged and operating substantially as and for the purposes specified.

3. In a hasp-lock, the combination of the plates D and E, constructed substantially as described, the former being provided with a hollow plug, b, interiorly threaded, and having within it a screw, and the latter having a hollow stud, g, exteriorly and interiorly threaded, arranged and operating as and for the purposes set forth.

4. In a hasp-lock, the plate E, having the exteriorly and interiorly threaded stud g and the screw h, both formed integral with said plate, in combination with the flange-nut G, plug b, and screw e, substantially as and for the purpose specified.

5. A hasp-lock consisting of the hasp A B and joint C, the plates D and E, the hollow plug b and stud g, the screw e, the screws h k, and nuts G H, the parts being constructed, arranged, and operating substantially as and for the purposes set forth.

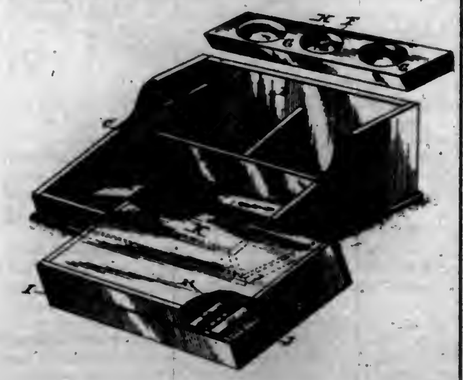
313,591. CARRIAGE-BODY. JAMES A. HEALEY, Wakefield, Mass. Filed Dec. 3, 1883. (No model.)



Claim.—1. A child's carriage the body of which is constructed of pieces of a material formed of split reeds of rattan secured side by side on a flexible foundation by means of glue or other adhesive substance, said pieces being fastened on a suitable frame, substantially as specified.

2. A child's carriage the sides A A and ends B B of which are formed of a material consisting of split reeds of rattan having their flat sides fastened by glue or other adhesive substance on paper or other flexible foundation, substantially as specified.

313,592. COIN-CABINET. CLARENCE EMERSON HOWE, Marlborough, Mass. Filed Sept. 11, 1884. (No model.)

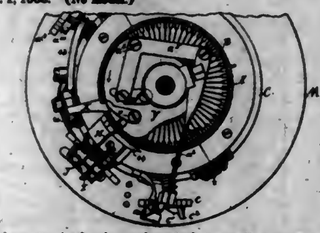


Claim.—1. A coin cabinet or case comprising the box or base portion having compartments, over which is placed the upper tray having cup-shaped receptacles, and a lower tray having a series of grooves of various sizes, substantially as described.

2. The combination, with a base or receptacle, of a removable tray having graduated grooves with a correspondingly-grooved cover adapted to be secured thereto, substantially as described.

3. A coin-cabinet consisting of the base A, ends B C, inclined sides connecting the ends, ribs arranged inside the sides, a cupped tray, and a grooved and covered coin-holder supported thereon, substantially as described.

313,593. KNITTING-MACHINE. WARREN D. HUME, Laconia, assignor to O. Twombley, Lake Village, N. H., and T. S. Newell, Boston, Mass. Filed Nov. 1, 1883. (No model.)



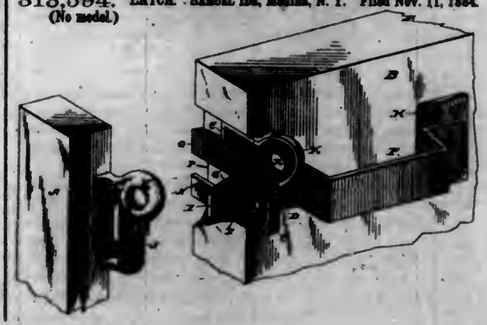
Claim.—1. A circular series of plate-needles, a cam-plate, Y, provided with movable cams, a bed for the plate-needles, a bed for cylinder-needles, a series of cylinder-needles, a cam-cylinder, and means to rotate the said cam-cylinder and cam-plate, a cam-disk, c, actuating devices between it and the cams of the plate-needle cam-plate, and means to move the said cam-disk, combined with a cam-disk, k, means to move it, and two thread-guides and intermediate devices connected therewith and actuated by the said disk to effect the introduction to or removal from the path of the cylinder-needles of the thread carried by either of the two thread-guides, substantially as described.

2. The cam-plate, the cams, the lever a, and a support therefor carried by the cam-cylinder, the cam-cylinder, and toothed cam-disk c, pivoted thereon, and means between the said lever a and the cams of the cam-plate to move the said cams, and means to move the said cam-cylinder and cam-plate, combined with two rods, c^3 c^4, the lever upon which they are mounted, the pattern chain or surface, and means to move it, the said rods being adapted each to be struck in succession by two successive teeth of the said cam-disk during one rotation of the cam-cylinder, to operate substantially as described, and permit the cams which control the position of the dial-needles to be moved partially and then fully back, as set forth, during one complete rotation of the cam-cylinder, and insure the retention of but a single row of loops in the hooks of the plate-needles while the welt-course is being knitted, substantially as and for the purpose described.

3. The cylindrical needle-bed, cylinder-needles, cam-cylinder, means to move it, disk k, provided with teeth, as described, and two thread-guides and connecting means between them and the said disk and operated by the latter, combined with two rods and means to place them in position to be struck in succession during one rotation of the cam-cylinder by two successive teeth of the said cam-disk, whereby the said disk is permitted to rest between the first and second movements or while the incoming thread is being lapped over two or more needles, substantially as and for the purpose described.

4. The cylindrical needle-bed, cylinder-needles, cam-cylinder, two thread-guides, the cam-disk provided with teeth, and means between the said thread-guides and cam-disk whereby the latter actuates the thread-guides at the proper time, combined with means to actuate the said cam-disk twice in quick succession during a part of rotation of the cam-cylinder, to operate substantially as described.

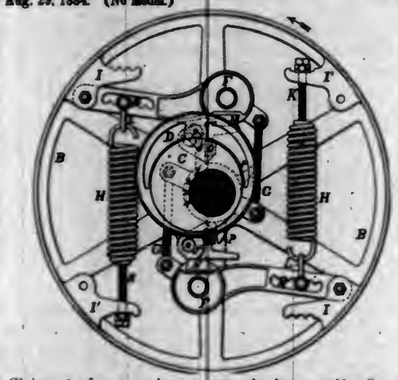
313,594. LATCH. SAMUEL IDE, Medina, N. Y. Filed Nov. 11, 1884. (No model.)



Claim.—1. The combination, with the pivoted latch and handle, of a casting, C, having a slot for the passage of the head of said handle, a keeper adapted to receive said head, a lever, and a thumb-piece, substantially as set forth.

2. The combination, with the pivoted latch and handle having head I, of the casting C, having a slot for the passage of said head, thumb-piece N, lever Q, a keeper, and lugs on the keeper and casting, said lugs having openings for the reception of a padlock, as set forth.

313,595. GOVERNOR. STUART JACKSON, San Francisco, Cal. Filed Aug. 29, 1884. (No model.)



Claim.—1. In an engine-governor having centrifugally-acting weights, with arms and centripetally-acting springs, the adjustable bearing or seats extending from near the point of suspension of said arms toward the weights, and by which the springs may be connected with the weight-levers, the tension-screw connected with the opposite ends of the spring, and the adjustable bearing or seats on the lugs 1', with which the tension-screw is connected, substantially as herein described.

2. In an engine-governor having a movable eccentric, centrifugally-acting weights, and return-springs within the wheel or case secured to the shaft, the elastic buffers N and O, secured in the weight F, and boss J, substantially as herein described.

3. In an engine-governor having movable eccentrics, centrifugally-acting weights, and return-springs within a wheel or case secured to the shaft, and a crank-arm with its ends journaled in the exterior eccentric, and the projecting boss J, and the elastic buffers O and N, substantially as herein described.

4. In an engine-governor, an eccentric movable about the engine-shaft, the centrifugal operating weights by which said eccentric is moved, a second eccentric fitted to and movable about the first, together with a crank or link, one end of which is journaled in the driving disk or wheel and the other end is journaled or loosely connected to a crank-pin in the exterior eccentric, whereby it is driven directly from the shaft and independently of the adjusting eccentric, substantially as herein described.

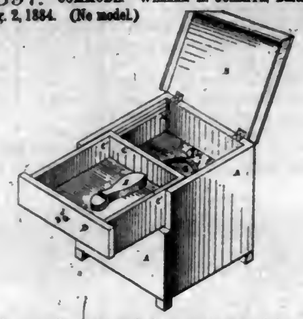
313,596. CORN-PLANTER. WILLIAM F. JOHNSON, Rock Falls, assignor to Thomas A. Galt and George S. Tracy, Sterling, Ill. Filed Dec. 15, 1883. (No model.)



Claim.—1. In an agricultural implement, the combination of the pawls P, levers L, and lever K, such pawls being respectively pivoted to the levers L eccentrically to the fulcrum of the latter, and such levers L being respectively provided with the lugs or stops *a*, substantially as shown, and for the purpose described.

2. In an agricultural implement, the combination of an oscillating ratchet-disk, M, stationary ratchet-disk N, pawls P P, respectively pivoted eccentrically to the fulcrum of the levers L L and arranged, respectively, to engage such disks, lever K, and levers L L, the levers L being provided with the stops *a* and being independently fulcrumed to the lever K and adapted to be respectively withdrawn and to hold the pawl P from engagement with its adjacent ratchet-disk, substantially as shown, and for the purpose mentioned.

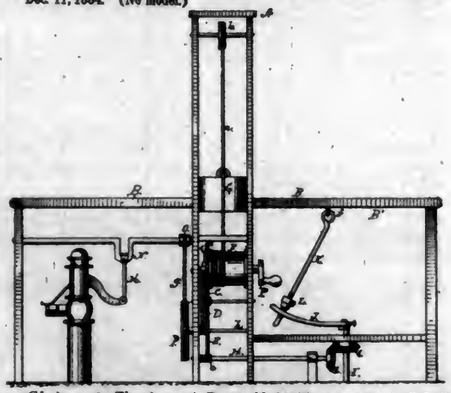
313,597. COMMODE. WILLIAM H. JOLLIFFE, Baltimore, Md. Filed Aug. 2, 1884. (No model.)



Claim.—1. In a commode-box, an upper and lower slide, in combination with a removable and interchangeable commode-seat and concealing attachment, substantially as and for the purpose described.

2. The hereinbefore-described combination of handle I, arms K K, eccentric L, plate M, and bolts *m m*.

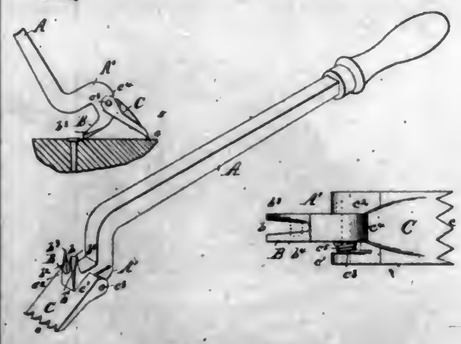
313,598. MECHANICAL MOTOR. FRANKLIN D. JONES, Burlington, Kans., assignor of one-fourth to Hamilton M. Hart, Perry, Iowa. Filed Dec. 11, 1884. (No model.)



Claim.—1. The frame A B, provided with gear-wheels C D E, drum F, weight G, cord *a*, band-wheel P, pulley O, crank-shaft N, shafts H I, provided with bevel-gear *d e*, arm J, and pendulum K, having weight or ball L, substantially as shown and described.

2. The herein-described mechanical motor, consisting of the frame A, provided with the weight G, pulley *b*, cord *a*, and drum F, gear-wheels C, D, and E, band-wheel P, pulley O, and belt *g*, in combination with the frame B, provided with crank-shaft N, pitman M, shafts H I, having bevel-gearing *d* and *e*, pendulum K, and arm J, all arranged as and for the purpose set forth.

313,599. NAIL-EXTRACTOR. PHINEAS F. KING, St. Louis, assignor to himself and Alfred S. Wolf, Kansas City, Mo. Filed Dec. 30, 1884. (No model.)



Claim.—1. The combination, with the hand-lever having the crook or offset A', terminating in claws B, the pivoted fulcrum-plate C, and interposed spring c^3, substantially as and for the purposes set forth.

2. In a tool for extracting nails, &c., a hand-lever having the crook or offset A', terminating with claws B, made to have the bevel or tapering faces at b b' b^2 b^3, the fulcrum-plate C, pivoted at c^2, the shoulder at c^4, and spring c^3, all combined to operate in the manner and for the purposes set forth.

313,600. SHAFT-SUPPORT. JOSEPH H. KLAPPINGER, Cherryville, Pa., assignor of two-thirds to Stephen Newhart and Chas. Kuntz, same place. Filed May 21, 1884. (No model.)



Claim.—1. A shaft-fastener consisting of a plate secured to the thill-coupling and projecting upward therefrom, and a right-angle plate having one end slightly beveled and the other slotted and secured to the shaft by a bolt, substantially as and for the purpose specified.

2. A shaft-fastener consisting of an upwardly-projecting plate secured to the thill-coupling, a right-angle plate having one end slightly beveled and the other slotted and secured to the shaft by a bolt, and a recessed shaft-iron, into which recess the right-angle plate sets, substantially as and for the purpose specified.

3. The combination of the L-shaped plate secured to the coupling by the coupling-bolt, the shorter end of the plate having lugs which rest above and below on the thill-coupling, with a right-angled plate beveled on one end and slotted at the other, and a shaft-iron recessed to receive the said plate, a bolt holding the shaft-iron and the plate to the shaft, and all the parts arranged to operate substantially as and for the purpose specified.

313,601. CAPSULE-CUTTER. JOHN KREMPEL, Detroit, Mich. Filed Mar. 26, 1884. (No model.)



Claim.—1. In a hand-tool for cutting off gelatine capsules, a series of straight knives, each adjustably secured to its own shaft, such shafts being secured in a circular plate at regular intervals and having a rotary motion in such plate, such plate having means, substantially as described, for giving it an eccentric motion, whereby the cutting-edge of each knife is compelled to cut around the periphery of the mold-pins, substantially as described.

2. In a hand-tool for the purposes described, the rotating shaft carrying a straight knife longitudinally adjustable in the lower end of said shaft, said shaft being provided with means for a vertical adjustment in its carrying-plate, substantially as specified.

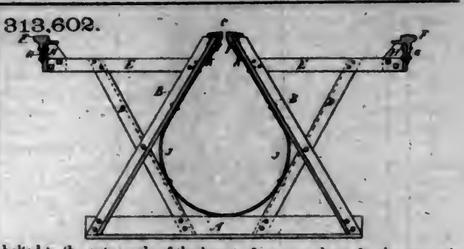
3. A hand-tool for the purposes described, consisting of the plate B, shafts C, journaled therein, springs *c*, acting on said shafts, nuts *b*, washers *d*, and knives D, all on said shafts C, crank-shafts E, cranks F, secured thereto, the bar G, connecting said cranks F and provided with handles H, all constructed, combined, and operating substantially as set forth.

313,602. CABLE RAILWAY. JOEL B. LOW and ABRAHAM K. GRIM, San Francisco, Cal. Filed Dec. 13, 1884. (No model.)

Brief.—Horizontal transverse base-pieces and parallel horizontal bars, which support the rails, are connected by inclined brace-bars, which are riveted together where they cross. The inner surfaces of the brace-rods form the tube outline. The outer lower faces of the slot-irons are offset to receive the upper edges of the tubing proper.

Claim.—1. In a cable railway, a horizontal transverse base with parallel horizontal bars, upon which the rails are supported, and inclined bracing-bars bolted to the base and the rail-supports, said bars crossing and being bolted or riveted to each other, substantially as herein described.

2. In a cable railway, transverse frames composed of a base-plate having upright bars secured to it upon each side of the tube-opening, said bars crossing each other, and having horizontal bars secured to their upper ends parallel with the base, in combination with longitudinal rails



bolted to the outer ends of the bars to form a roadway for the cars, substantially as herein described.

3. In a cable railway, transverse supporting-frames composed of a horizontal base plate or bar, upright bars riveted to said base-plate, crossing each other, so as to form the tube outline, the upper ends of the inwardly-converging bars approaching each other and having the longitudinal slot-irons secured to them, substantially as herein described.

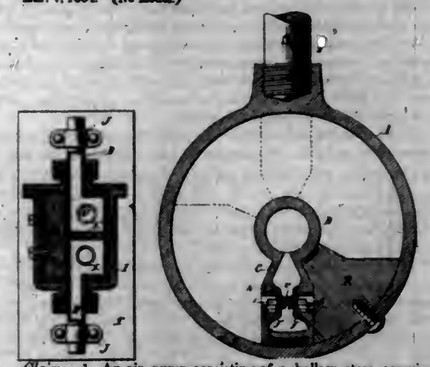
4. In a cable railway, transverse supporting-frames composed of upright bars having their lower ends bolted or riveted to a base plate or bar, the said upright bars crossing each other diagonally, so as to form the tube outline between them, and having the horizontal rail-supporting bars fastened at or near their upper ends, in combination with rails fastened to the outer ends of these upper bars, and slot-irons fastened to the upper ends of the inwardly-converging arms, so as to form a continuous frame-work and road-bed, substantially as herein described.

5. In a cable railway, transverse frames composed of horizontal base plates or bars and upright bars crossing each other diagonally, fastened together, so as to form a tube outline between them, in combination with a metal, wooden, or other suitable lining extending longitudinally between the frames and bolted or otherwise secured thereto, substantially as herein described.

6. In a cable railway, transverse supporting-frames composed of horizontal base plates or bars and parallel horizontal rail-supporting bars suited to the base-plates and supported by diagonal bars crossing each other and bolted or riveted to the horizontal bars, in combination with angle-plates H, riveted to the outer ends of the bars E, and the rails F, with flanges G, substantially as herein described.

7. The slot-irons C, having the diverging flanges, and secured to the converging upright bars of the transverse frames, said flanges having the offsets or channels in their lower ends to receive the upper edges of the tube, substantially as herein described.

313,603. AIR-PUMP. FRANK D. MALTBY, New York, N. Y. Filed Mar. 7, 1884. (No model.)



Claim.—1. An air-pump consisting of a hollow stem carrying a radial chambered abutment provided with outlet and inlet valves, a casing inclosing said abutment and provided with a radial piston, the sides of the latter and of the abutment conforming to each other, so as to expel all the air from the casing, substantially as set forth.

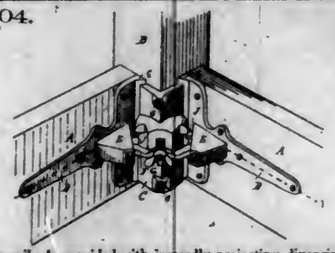
2. The combination of the casing carrying a radial piston and the stem carrying a radial chambered abutment having side openings, and valves and springs fitted to recesses in the faces of the abutment, so as to present flat uninterrupted sides, substantially as set forth.

3. The combination, with the chambered abutment, of valves having tubular slotted stems with heads or disks at their inner ends and provided with detachable bushings, whereby the valves may be removed, substantially as described.

313,604. TABLE. ALBERT M. MAXWELL, Detroit, Mich., assignor of one-half to Lewis H. Vedder, same place. Filed Mar. 5, 1884. (No model.)

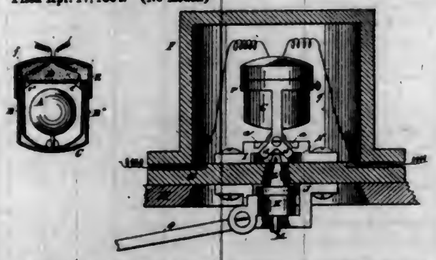
Claim.—1. A locking device for table-legs, consisting of the castings C, plates D, provided with guides E, cross-bar F, and bolt G, substantially as and for the purposes set forth.

313,604.



2. The rails A, provided with inwardly-projecting diverging guides E, in combination with the leg B, plate C, bolt G, connected with the plate C and provided with a nut, as shown, and a sliding bar, F, by means of which the leg and rails of a table are secured together, all constructed, arranged, and operating substantially in the manner and for the purposes set forth.

313,605. ELECTRIC CONTACT-BREAKER. GEORGE S. MAXWELL, Louisville, Ky., assignor to the Cromey Meter Company, same place. Filed Apr. 17, 1884. (No model.)



Claim.—1. In an electric contact-breaker, the combination, with two contact-points, of a pivoted weight, a conducting-piece extending from one contact-point to the other and adapted to be operated by said weight, and devices operated by a meter or other source of power for moving the pivot of the weight, thereby causing the latter to oscillate and operate said conducting-piece relative to the contact-points, substantially as set forth.

2. An oscillating ball or break-piece, A, in combination with the springs B B' and contact points or wires *e e'*, for breaking and renewing a circuit in such a manner that the circuit can never remain closed for more than an instant at a time, as set forth, and for the purpose specified.

3. The combination, with a case containing electrical conductors adapted to be connected or interrupted by the oscillation of the case, of the collar and shaft P, having on its lower end the lugs *d d*, and the lug-wheel N, for holding and transmitting to the said case an oscillating motion, as set forth, and for the purpose specified.

4. The combination, with a case containing electrical conductors adapted to be connected or interrupted by the oscillation of the case, of the wheel N, having on its face the lug *b*, engaging the lugs *d d* on collar-shaft P, and the valve-rod M, rock-piece K, and oscillating rod O, for transmitting to said collar-shaft P, and through it to said case, an oscillating motion, for the purpose of breaking and renewing a circuit, as set forth, and for the purpose specified.

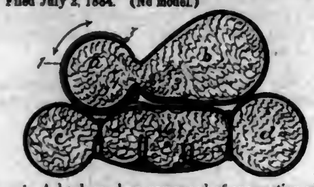
5. In an electric contact-breaker, the combination, with two contact-points, of a pivoted weight for making and breaking the circuit between said points, and a hermetically-sealed casing inclosing the contact-points and weight and carrying the pivot of the latter, whereby the circuit may be made or broken by moving the casing, substantially as set forth.

6. In an electric contact-breaker, the combination, with the contact-points, the conductors leading thereto, a swinging weight, and a conducting-piece between said points operated by the weight, of a surrounding cup or casing carrying the pivot of the weight, whereby the making and breaking of the circuit may be effected by moving said casing bodily, substantially as set forth.

7. The combination, with a meter, of an electrical contact-breaker situated outside of the meter-casing, devices whereby the meter may operate said breaker, a removable case inclosing the breaker, and the valve L between said meter and space inclosed by the removable casing, substantially as set forth.

8. The combination, with a meter-case, of a bell-shaped hood attached thereto, an electric contact-breaker, and devices extending from within the meter to operate said breaker, the breaker being situated within the hood, whereby any leakage of water from within the meter through the aperture through which said operating devices pass is prevented from rising in the hood to reach said breaker by the compressed air in the hood, substantially as set forth.

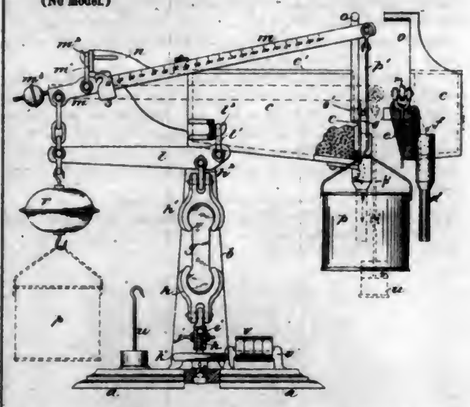
313,606. HORSE-COLLAR PAD. EDWARD L. MCCLAIN, Greenfield, Ohio. Filed July 2, 1884. (No model.)



Claim.—1. A hook or clasp composed of one section adapted to be attached to the pad and another section provided with the curved spring-hook adapted to clasp the fore roll of a horse-collar, and thus secure the pad to the collar, the two sections being hinged substantially as set forth.

2. In combination with a horse-collar pad, a hook or clasp composed of one section adapted to be attached to the pad and another section provided with the curved spring-hook adapted to clasp the fore roll of a horse-collar, and thus secure the pad to the collar, the two sections being hinged substantially as set forth.

313,607. TESTING-MACHINE. CHARLES C. MILLER, Brooklyn, N. Y., assignor to E. and T. Fairbanks, St. Johnsbury, Vt. Filed Mar. 17, 1884. (No model.)



Claim.—1. In a testing-machine of the kind described, the combination, with the holder or clamp in which the specimen is seized, of a straining-lever operatively connected therewith, a weighting-pan hanging thereto, and a reservoir of shot arranged to deliver into the pan, with means for shutting off the flow of shot on the breakage of the specimen and falling of the pan, the said pan being changeable from one end of the lever system to the other, and the said lever being graduated and provided with a sliding poise, whereby the strain exerted at the breakage of the specimen may be subsequently weighed through the same mechanism employed to apply the strain, substantially as herein set forth.

2. In a testing-machine, the combination, with suitable clamps in which the specimen is held, of the combined weighing and straining lever *m*, graduated and provided with a sliding poise, and operatively connected at one end with the specimen-clamp, with the changeable weight-pan *p*, adapted to be hung on either end of the lever, the counter-balance *u*, adapted to be hung on the long end of the lever in place of the weight-pan, and a reservoir of mobile weighting material arranged to discharge into the said pan, substantially as and for the purpose set forth.

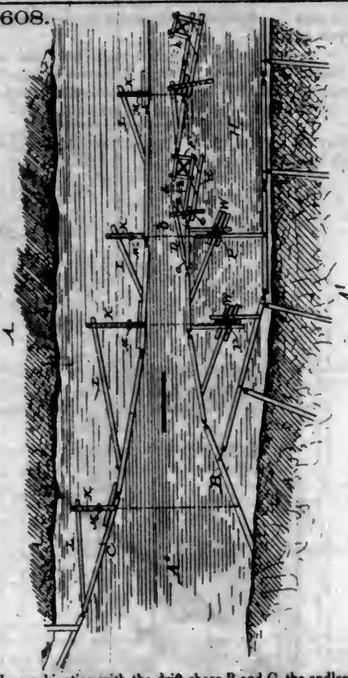
3. The combination, in a testing-machine of the character described, with clamps holding the specimen, and with the reservoir *c*, spout *d*, and valve *e*, of the lever *l*, connected with the clamp, and the graduated lever *m*, coupled to the lever *l*, the poise *s*, reversible weight-pan *p*, and counter-balance *u*, arranged and operating substantially as and for the purpose set forth.

313,608. LUMBER-BOOM. URIAS R. NEBOLE, New River, Tenn. Filed June 30, 1884. (No model.)

Claim.—1. A lumber-boom having a converging drift-sheer, B C, the combination of a pivoted adjustable sheer, D, and a bar, E, and the means, as described, for holding the bar in any desired position, substantially as and for the purpose set forth.

2. In a lumber-boom, the combination of the sections B C, the adjustable sheer D, the bar E, the means, substantially as described, for holding said bar in position, and a pocket, H, all arranged to operate substantially as and for the purpose set forth.

313,608.

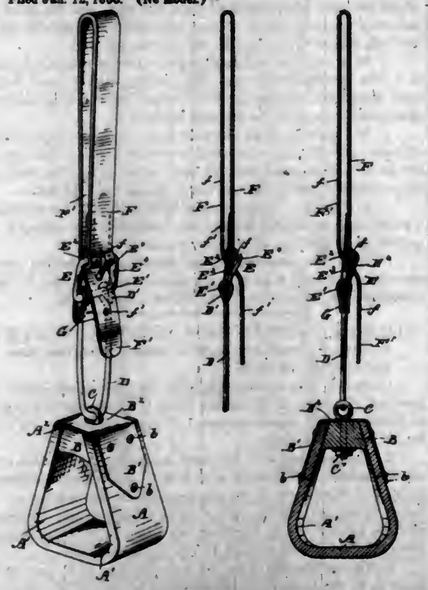


3. In combination with the drift-sheer B and C, the endless pockets H, provided with inlets *h*, and suitable bridges over the inlets, substantially as herein set forth.

4. In combination with a lumber-boom having two or more bridges at the inlets to an endless pocket, adjustable drift-sheers and bars secured to suitable frame-work, substantially as herein set forth.

5. A lumber-boom consisting of the sections B C, suitably secured to the shore, the adjustable sheer D, bar E, and the means, substantially as described, for holding said bar, the bridge F, opening *h*, and pocket H, all constructed to operate substantially as and for the purpose set forth.

313,609. SADDLE-STIRRUP. STEPHEN A. NOLEN, Searcy, Ark. Filed Jan. 12, 1885. (No model.)



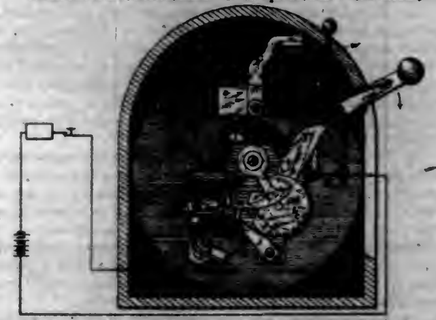
Claim.—1. A stirrup, A, composed of a bent strip of wood, a tapering block, B, between the ends of said strip, a cap-piece, B', on the outside, and nails or screws *b*, passing through said block and cap-piece, in combination with a bolt, C, having a round eye at one end and a washer and nut, C', at the other, substantially as and for the purpose described.

2. A stirrup composed of a bent strip, A, a block, B, between the ends thereof, a cap-piece, B', and a bolt passing through the center of the block B and cap-piece B', and retained connected thereto by a washer and nut, C', in combination with a wire loop, D, passing through the eye C and provided with eyes D at the ends, substantially as and for the purpose described.

3. The combination of a stirrup, A, provided with a round eyebolt, C, and nut C', a wire loop, D, having eyes D', a shield, G, the buckle E, and the saddle-strap F, substantially as and for the purpose described.

4. In combination with a stirrup, a wire loop, D, attached thereto, and provided with eyes D' at its upper ends, a buckle having its tongue-bar passing through the eyes of said loop, and a strap having one end looped around and secured to the end bar of the buckle, and its free end passed through said buckle and in engagement with the tongue thereof, substantially as and for the purpose described.

313,610. MESSENGER-SIGNAL AND FIRE-ALARM APPARATUS. JAMES J. O'NEILL, Boston, Mass. Filed Apr. 23, 1884. (No model.)



Claim.—1. The combination, substantially as described, of a signaling mechanism connected to a line-circuit, an electro-magnet in a shunt-circuit having the part bearing its armature interposed to form part of the line-circuit, and a device, substantially such as described, operated by the signaling mechanism, and actuating the armature, to direct the current from the line-circuit through the shunt-circuit, and cause the electro-magnet in the latter to hold the armature.

2. The combination, substantially as described, of a signaling mechanism connected to a line-circuit, an electro-magnet in a shunt-circuit, having the part bearing its armature interposed to form part of the line-circuit, and a device, substantially such as described, operated by the signaling mechanism, and actuating the armature to divert the current from the line-circuit through the shunt-circuit, and cause the electro-magnet in the latter to hold the armature, and a device for breaking the main-line circuit.

3. The combination, substantially as described, of the signaling mechanism connected to a line-circuit, an electro-magnet in a shunt-circuit, the armature and its co-operating contact in the line-circuit, and the vibrating lever operated by signaling mechanism for raising the armature after the signal has been sent.

4. The combination, substantially as described, of the signaling mechanism connected to the line-circuit, the electro-magnet in the shunt-circuit, the armature, and its co-operating contact in the line-circuit, the vibrating lever for raising the armature, and the cam of the signaling mechanism for operating said lever.

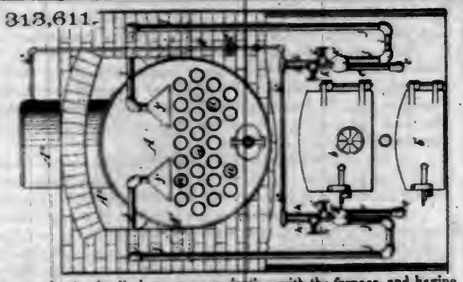
5. The combination, substantially as described, of a signaling mechanism connected to the line-circuit, an electro-magnet in a shunt-circuit, having the part bearing its armature interposed to form part of the line-circuit, a device, substantially such as described, operated by the signaling mechanism, and actuating the armature, to divert the current from the line-circuit through the shunt-circuit, and cause the electro-magnet in the latter to hold the armature, and an indicator for indicating the position of the armature.

313,611. SMOKE-CONSUMING FURNACE. ORIL D. ORVIS, New York, N. Y. Filed Oct. 21, 1884. (No model.)

Claim.—1. The combination, with a steam-boiler having heating tubes or flues extending through it and a furnace, of an air-heater arranged in the furnace, a pipe for supplying cold air to the heater, a steam-injecting apparatus having a discharge-outlet entering the furnace above the fire, an air-suction pipe leading from said air-heater to the injecting apparatus, and a suction-pipe for combustible gases leading from the breeching or end connection of the boiler, into which the smoke and gases enter after passing through the tubes or flues, and communicating with the injecting apparatus, substantially as herein described.

2. The combination, with a furnace, of an air-heater arranged in the furnace, a pipe for supplying cold air to the heater, a steam-injecting ap-

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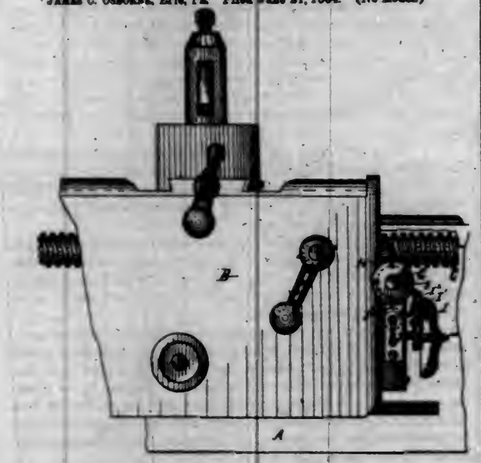
paratus having its discharge communicating with the furnace, and having two steam jets and valves for separately controlling them, an air-suction pipe leading from the air-heater to the injecting apparatus, and a suction-pipe for gases leading from an escape flue or passage of the furnace to the injecting apparatus, substantially as herein described.

3. The combination, with a furnace, an air-heater arranged therein, and a pipe for supplying cold air to the heater, of a steam-injecting apparatus comprising a vacuum drum or casing and a partition therein, and steam-jets on opposite sides of said partition, a single discharge-pipe leading from the vacuum-drum into the furnace, and suction-pipes leading, respectively, from the air-heater and an escape flue or passage of the furnace, and entering said vacuum-drum on opposite sides of the partition therein, substantially as herein described.

4. The combination, with a furnace, an air-heater arranged therein, and a pipe for supplying cold air to the heater, of a vacuum-drum, F, having a partition, *f*, and steam-jets and supply-ducts *g g'*, on opposite sides of said partition, steam pipes and valves A A' for separately supplying said jets, an air-suction pipe, *e*, leading from said heater to the vacuum-drum on one side of said partition, a suction-pipe, *j*, for gases, provided with a collector or funnel, *f'*, and connected with a vacuum-drum on the other side of said partition, and a discharge-pipe, G, common to both steam-jets *g*, substantially as herein described.

5. The combination, with the vacuum-drum F, having a dividing-partition, *f*, and steam-jets and supply-ducts *g g'* on opposite sides thereof, of the discharge-pipe G, the drum being open at the end opposite the discharge-pipe, and the swinging cover F', for closing the open end of the vacuum-drum, substantially as herein described.

313,612. INDICATOR FOR FEED-SCREWS OF ENGINE-LATHES. JAMES C. OSBORNE, Erie, Pa. Filed June 21, 1884. (No model.)



Claim.—1. In the tool-carriage of an engine-lathe, a worm-wheel intermeshing with the feed-screw of said lathe, in combination with a gong-bell or alarm operated thereby, substantially as and for the purpose set forth.

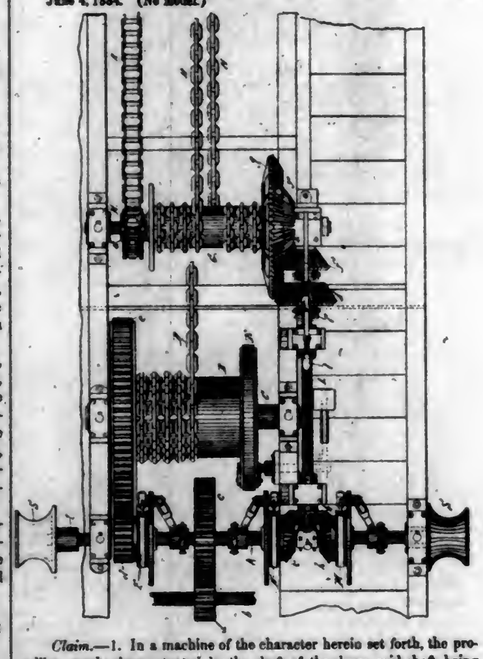
2. In the tool-carriage of an engine-lathe, a worm-wheel intermeshing with the feed-screw of said lathe, in combination with a scale or indicator, and a gong-bell or alarm operated thereby, substantially as and for the purpose set forth.

3. In the tool-carriage of an engine-lathe, a worm-wheel intermeshing with the feed-screw of said lathe, in combination with a revolving scale operated thereby, and an adjustable indicator for said scale, substantially as and for the purpose set forth.

4. The combination, in an engine-lathe, of the tool-carriage B and the feed-screw C with the worm-wheel F and its shaft E, operating the revolving scale G, and the adjustable pointer H, substantially as and for the purpose set forth.

5. In an engine-lathe, the tool-carriage B, the feed-screw C, the worm-wheel F, mounted on the shaft E, the circular scale G, operated thereby, and pins *g* therein, in operative combination with the gong-bell I, substantially as and for the purpose set forth.

313,613. EXCAVATOR. RALPH R. OSGOOD, Albany, N. Y. Filed June 4, 1884. (No model.)



Claim.—1. In a machine of the character herein set forth, the propelling mechanism actuated by the shaft of the drum, said shaft being arranged to be turned independently of the drum, substantially as and for the purposes set forth.

2. In combination with the shaft carrying the propelling-chain wheel, the drum loosely mounted upon said shaft, and the bevel-gears and bevel-wheels serving to connect said drum and shaft with the driving-shaft, substantially as and for the purposes set forth.

3. In an excavator, the combination, with the swinging chain-drum, of a shaft passing through said drum arranged to be turned independently thereof, and carrying the driving-wheel for the driving mechanism, substantially as and for the purposes set forth.

4. In a machine of the character herein set forth, the combination, with the main or driving shaft, of a removable capstan applied upon the end thereof and provided with the neck for supporting the shaft within the journal-box, substantially as and for the purposes set forth.

5. In a machine of the character herein set forth, the combination, with the main or driving shaft, of the removable cap arranged to be applied, substantially as and for the purposes set forth.

6. The herein-described capstan having the projecting neck, the same being arranged to be mounted upon and removed from its support, substantially in the manner and for the purposes set forth.

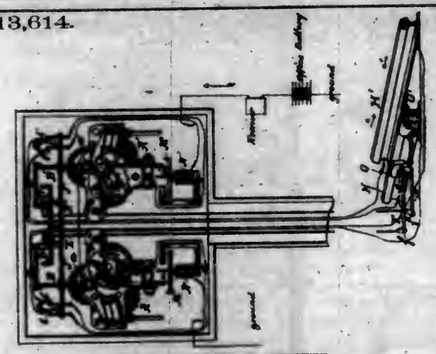
313,614. RAILWAY-ALARM MECHANISM. WILLIAM M. PEASE, Pittsburg, Pa., assignor of one-half to Lenox Simpson, same place. Filed Apr. 24, 1884. (No model.)

Claim.—1. The combination, with the alarm mechanisms A A', provided with levers B B', and the hooks C C', adapted to be operated as described, of the transverse bars J J' and crank-levers K K', as and for the purposes set forth.

2. The combination of the alarm mechanism A, provided with lever B, insulated rails provided with lever G, mechanism connecting said levers B G, the magnet N, having armature M, the switch-lever L, attached to said lever B, the contact-points *l*, a circuit, and electrical connections, substantially as described, whereby said alarm mechanism is wound up, locked, and released, in the manner set forth.

3. The combination of the alarm mechanisms A A', provided with levers B B', the hooks C C', bell-cranks D D', rods E E', cranks *f f'*, rods F F', levers G G', bars J J', levers K K', switch-levers L L', points *l l'*, magnets N N', armature M M', the circuit, and its connections, substantially as and for the purposes described.

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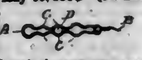


313,615. AMALGAMATING ZINC PLATES OR BARS FOR VOLTAIC BATTERIES. WILLIAM S. PLATT, Waterbury, Conn. Filed Aug. 23, 1884. (No model.)



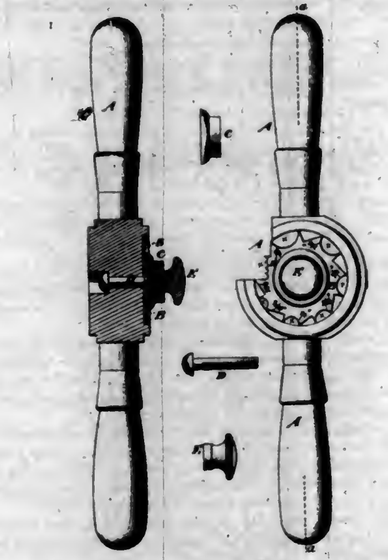
Claim.—In combination with a zinc bar or plate to be used in a voltaic battery, an amalgam or alloy of mercury applied to said bar in the form of a button or strip, substantially as set forth.

313,616. CLAMP FOR ELECTRICAL PURPOSES. WILLIAM S. PLATT, Waterbury, Conn. Filed May 15, 1884. (No model.)



Claim.—A clamp for electrical purposes, consisting of a thin strip of sheet spring metal of good conductivity doubled upon itself and adapted to be loosely connected at its free ends to the line-wire and to receive and retain the current-wire between its sides, whereby a closer and more rigid connection with the line-wire may be established, substantially as set forth.

313,617. TOOL FOR MAKING BEADINGS OR MOLDINGS. LAWRENCE V. POOLE and ORLANDO E. WILLIAMS, Windsor, Vt. Filed Nov. 28, 1884. (No model.)

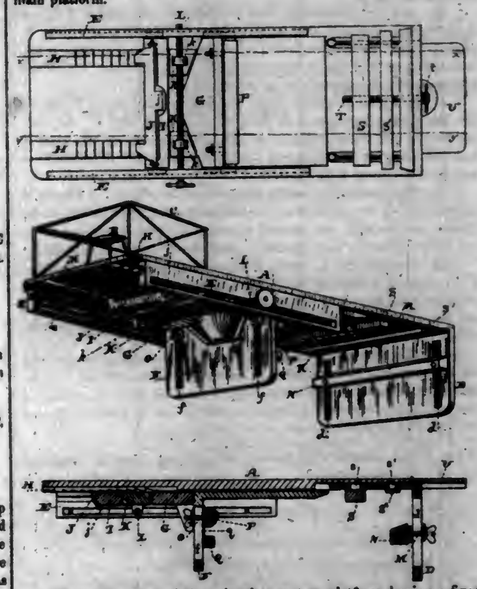


Claim.—1. In a hand-beader, the tool-stock perforated centrally for a screw-clamp, having the tool-seat around said perforation, and provided with an angular recess, A', the latter arranged in a plane at right angles to the plane of the seat, as shown, and for the purpose described.

2. A hand-beader having two diametrically-opposite handles, an intermediate centrally-perforated stock provided with recess A', and a suitable screw-clamp, the tool-seat being arranged around said perforation, as shown, and for the purpose set forth.

313,618. WINDOW-CLEANING SEAT. CHARLES B. PORTER, San Francisco, Cal. Filed Dec. 1, 1884. (No model.)

Brief.—A platform is secured to a window-sill by a fixed and a movable clamp, each being provided with adjustable binding-cleats, and the top of the sill is protected by adjustable and removable cross-bars on the bottom of said platform, and a platform-extension is secured to the main platform.



Claim.—1. In a window-cleaning seat or platform having a fixed and a movable clamp, the means for adjusting said movable clamp, consisting of a wedge-block operating behind the said clamp, substantially as herein described.

2. In a window-cleaning seat or platform having a fixed and a movable clamp, the means for adjusting said movable clamp, consisting of oppositely-moving wedge-blocks operating behind the movable clamp, substantially as herein described.

3. In a window-cleaning seat or platform having a fixed and a movable clamp, the means for adjusting said movable clamp, consisting of wedge-blocks bearing against the back of the clamp, and a screw with right and left hand threads passing through the blocks, whereby they are moved in opposite directions, substantially as herein described.

4. The platform A, having the fixed clamp D and the movable clamp F, with the wedge seat-piece G on its back, in combination with the buttress-strip I, the wedge-blocks K between the seat-piece and the buttress, and the right-and-left-hand screw L, by which said blocks are operated to set up or relieve said clamp, substantially as herein described.

5. The platform A, having the fixed clamp D and the movable clamp F, with the wedge seat-piece G on its back, in combination with the adjustable buttress-strip I, the wedge-blocks K, having threaded sockets *k*, and the right-and-left-hand screw L, all arranged to operate substantially as herein described.

6. The platform A, having the fixed clamp D and the movable clamp F, with the wedge seat-piece G on its back, and the ratchet-strips H on the bottom of the platform, in combination with the sliding buttress-strip I, having swinging pawl J, adapted to engage the ratchet-strip, the wedge-blocks K between the buttress-strip and the wedge seat-piece, and having the threaded sockets *k*, and the right-and-left-hand screw L passing through said sockets, whereby the wedge-blocks are operated, substantially as and for the purpose herein described.

7. The platform A, having on its bottom the ratchet-strips H, and the channeled and slotted guides E on each edge, and the fixed clamp D on its inner end, in combination with the movable clamp F, confined and adapted to slide within the channeled guides, and having the wedge seat-piece G on its back, the buttress-strip I, confined and adapted to slide within said guides, and having the swinging pawl J for engaging the ratchet-strips, the wedge-blocks K, having threaded sockets *k*, and the right-and-left-hand screw L, passing through said sockets and confined and guided by the slotted guides, substantially as herein described.

8. In a window-cleaning seat or platform, the inner clamp, D, having vertical slots *d*, in combination with the binding-cleat N on its inner face, and the bolts M, passing through the slots and into the cleat, whereby said cleat is adjusted to its seat, substantially as herein described.

9. In a window-cleaning seat or platform, the inner clamp, D, having the vertically-adjustable binding-cleat N on its inner face, adapted to find a bearing under the bead, molding, or panel on the inside of the window-sill, in combination with the outer clamp, F, having the vertically-adjustable binding-cleat P on its inner face, adapted to bear on the upper surface of the outside of the window sill or ledge, substantially as herein described.

10. In a window-cleaning seat or platform, the clamps D F, and the vertically-adjustable binding-cleat Q on the inner face of clamp F, adapted to find a bearing under the outer edge of the window sill or ledge, in combination with the platform-extension U on the inner end of the main platform, substantially as herein described.

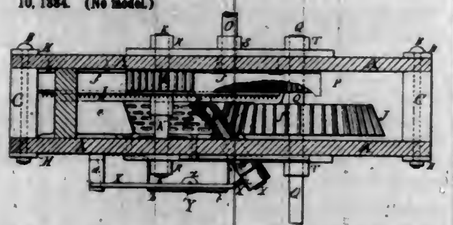
11. In a window-cleaning seat or platform, the clamp F, having the slots *f*, in combination with the binding-cleat P, bolts M, the binding-cleat Q, and the slotted arms or brackets *g*, secured to the cleat Q and embracing the bolts between the clamp and cleat P, substantially as and for the purpose herein described.

12. The platform A, having clamps D F, by which it is secured to the window-sill, in combination with the horizontally-adjustable cross-bar S under the platform, and adapted to protect the strip or molding on the top of the sill and to bind against it, substantially as herein described.

13. The platform A, having the grooves R, and the clamps D and F, by which it is secured to the window-sill, in combination with the cross-bar S, having studs *s*, adapted to fit and to slide in the grooves, and the screw T, by which said cross-bar is horizontally adjusted, substantially as herein described.

14. The platform A, having the grooves R in its under side, and the clamps D and F, by which it is secured to the window-sill, in combination with the leveling cross-strips S', having studs *s'*, sliding in grooves R, said strips being adapted to bear on the sill inside of the top molding strip or cleat, substantially as herein described.

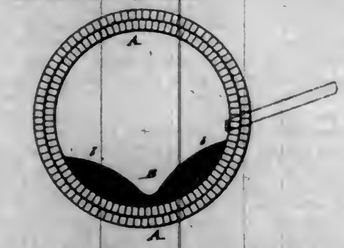
313,619. CORN-SHELLER. NICHOLAS POTTER, Troy, Pa. Filed Oct. 10, 1884. (No model.)



Claim.—1. A corn-sheller of the character described, consisting, essentially, in the frame, the shafts K O Q, journaled in the sides of the frame, the shelling-wheel I inside of the frame, secured to the shaft K and formed with peripheral teeth L, the shelling-teeth on its inner face and the small gear M on its outer face, the pinion N, secured to the inner end of shaft O and meshing with the gear M, the pinion P on shaft Q, meshing with the teeth L, the feed-wheel J on the shaft Q within the frame and having inclined peripheral teeth, and a weighted holding-arm, substantially as set forth.

2. In a corn-sheller of the character described, the combination, with the shelling and feed wheels, of the pivoted holding-arm U, its shaft V, the lever X, having a series of perforations, the weight Z, having a hook, Y, the guide *b*, and the stop *a*, substantially as set forth.

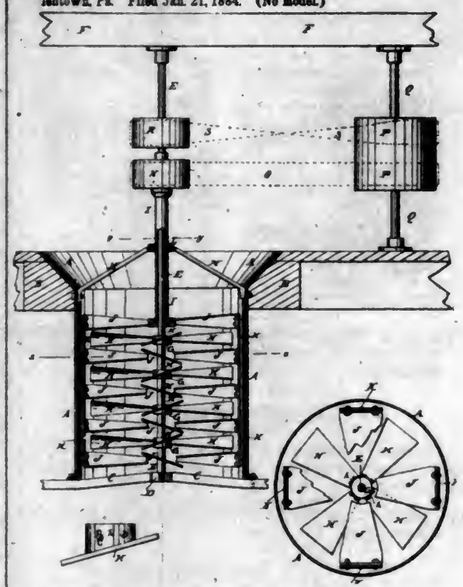
313,620. GUTTER FOR SEWERS. GUSTAVUS W. RADER, New York, N. Y. Filed Dec. 8, 1884. (No model.)



Claim.—1. The combination of a sewer of round or oval cross-section, a V-shaped auxiliary gutter located at the bottom of the same, and fillings of concrete between the sides of the gutter and the bottom of the sewer, substantially as set forth.

2. The combination, with a sewer of round or oval cross-section, of a V-shaped auxiliary gutter the sides of which are set into concrete at the bottom of the sewer and extended to abut against the wall of the same, substantially as described.

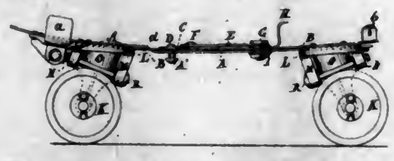
313,621. DOUBLE-ACTING WATER-WHEEL. CHARLES W. RAU, Allentown, Pa. Filed Jan. 21, 1884. (No model.)



Claim.—1. The combination, with the shaft E, of a series of inclined blades, H, and flanges A at the inner ends of said blades, said flanges being slotted, as shown, and pivotally secured to said shaft, and a set-screw passing through the slot into the shaft, substantially as set forth.

2. The improved water-wheel herein shown and described, the same consisting, essentially, of the open cylinder A, having arms M C secured to the opposite ends thereof, hollow shaft I, provided with series of imperforate inclined blades J, vertical bars K, to which the outer ends of said blades are connected, internal shaft, E, and a series of imperforate blades, H, secured thereto, said blades being arranged to project between the blades J, substantially as described.

313,622. ROLLER-SKATE. CADWALLADER M. RAYMOND, Boston, Mass., assignor to Samuel R. Raymond, same place. Filed Oct. 13, 1883. (No model.)



Claim.—1. In a roller-skate, a longitudinally-adjustable heel and toe plate lapped together, the end of one plate passing through a transverse slot in the other plate, as and for the purpose set forth.

2. In a roller-skate, a longitudinally-adjustable heel and toe plate lapped together and the end of one plate passing through a transverse slot in the other plate, in combination with a lever connected with both plates, and adapted to lengthen or contract the skate by drawing said plates longitudinally, as and for the purpose set forth.

3. In a roller-skate, a fastening which consists of an adjustable toe-clamp and an adjustable heel-clamp, connected, respectively, with longitudinally-adjustable toe and heel plates, in combination with a lever or its equivalent for contracting or expanding the skate longitudinally and fastening the clamps to the boot, as and for the purpose described.

4. The recessed plates L L, in combination with the heel and toe plates A B, the rubber block O, and hanger Q, substantially as and for the purpose specified.

5. The toe-plate A, constructed with a curved portion and a slot, as shown at *d*, in combination with the heel-plate B, as and for the purpose set forth

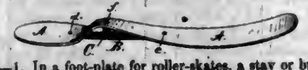
6. In a longitudinally-adjustable roller-skate, a fastening consisting of a lever pivoted to the heel-plate, in combination with a bar pivoted at one end to the toe-plate and at the other end to the lever, whereby the heel and toe plates are drawn together and the boot is clamped between the heel and the toe clamps, as and for the purpose set forth.

313,623. NUT-LOCK. SILAS H. RAYMOND, Grand Rapids, Mich., assignor to Franklin L. Raymond, Cleveland, Ohio. Filed May 26, 1884. (No model.)



Claim.—A nut-lock consisting of the bolt provided with a flattened side near its screw-threaded end, an elastic washer encircling the bolt, a rigid washer provided on its inner face with a lug, *d*, that engages the flattened side of the bolt, and on its outer face with inclined flanges, and a nut engaging the outer face of said washer, the parts being constructed and combined substantially as and for the purpose set forth.

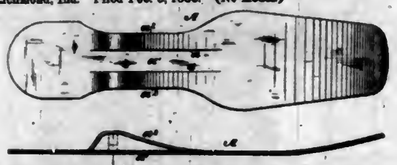
313,624. FOOT-PLATE FOR SKATES. JACOB V. ROWLETT, Richmond, Ind. Filed Aug. 29, 1884. (No model.)



Claim.—1. In a foot-plate for roller-skates, a stay or brace underlying the upwardly-curved instep portion and attached to the plate at its ends, substantially as specified.

2. In a foot-plate for roller-skates, a stay or brace underlying the upwardly-curved instep portion, in combination with the strut or post interposed between said stay and the plate, substantially as specified.

313,625. FOOT-PLATE FOR ROLLER-SKATES. JACOB V. ROWLETT, Richmond, Ind. Filed Feb. 5, 1885. (No model.)



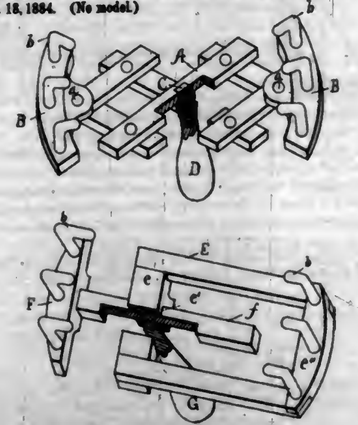
Claim.—1. In a foot-plate for roller-skates, a stay or brace underlying the upwardly-curved or arched instep portion and integral with said plate at its ends only, substantially as specified.

2. A foot-plate for a roller-skate having the instep portion divided into three longitudinal parts or sections, whereof the two outer form the arched instep, and the central part forms a tie or brace which stiffens and strengthens said instep, substantially as specified.

3. In a foot-plate for a roller-skate, the combination, with the arched instep portion having a tie or brace underlying the same and integral with the plate, of a post or strut resting upon said tie and supporting the arched portions, substantially as specified.

4. As a new article of manufacture, a foot-plate blank having the instep portion divided by parallel longitudinal cuts into separate parts or sections, whereof the arched instep portion and a tie or brace underlying and strengthening the same may be formed, substantially as specified.

313,626. HAND-EASEL. HARRIET A. SAWYER, St. Louis, Mo. Filed Sept. 18, 1884. (No model.)

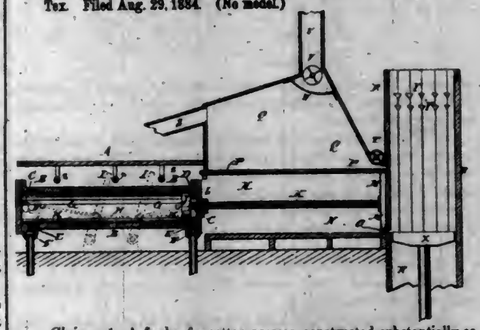


Claim.—1. As an article of manufacture, a clamp for the use of artists, adapted to be instantly adjusted and fastened so as to grasp the edges of plaques or panels of various sizes, and provided with a handle by which it may be grasped and held in any desired position, substantially as described.

2. A hand-easel adapted to be extended or contracted, as described, and provided with a handle, which also serves as a means for clamping the movable parts in any position, substantially as set forth.

3. The combination of the lazy-tongs A, the cross-heads B, provided with hooks or lips, the central pivot, C, and handle D, operating together in the manner described.

313,627. FEEDER FOR COTTON-PRESSES. HENRY SELX, Pilot Point, Tex. Filed Aug. 29, 1884. (No model.)

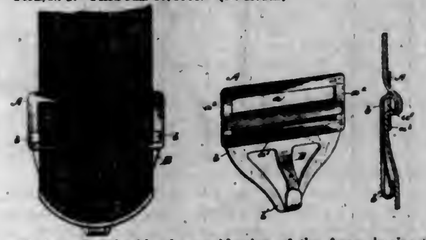


Claim.—1. A feeder for cotton-presses, constructed substantially as herein shown and described, and consisting of a receiving-box and a feed-box separated by a plate attached to a follower secured to the piston-rod of a steam-cylinder, to adapt the said feeder to be interposed between a cotton-gin and a baling-press and feed the cotton into the said press, as set forth.

2. The combination, with the chute S of a cotton-gin, the baling-box of a press, R, and the piston-rod K of a steam-cylinder, of the receiving-box Q, the feed-box N, the follower M, and the sliding plate P, substantially as herein shown and described, whereby the cotton from the gin will be fed into the said box, as set forth.

3. In a feeder for cotton-presses, the combination, with the inlet and exhaust valves of a steam-cylinder, of the two pairs of connecting-rods G H and the two levers I, substantially as herein shown and described, whereby the movements of the piston can be readily controlled, as set forth.

313,628. SUSPENDER-BUCKLE. CHRISTOPHER C. SHELBY, New York, N. Y. Filed Jan. 19, 1885. (No model.)



Claim.—In a buckle, the combination of the frame having the elongated opening or slot, and the sliding part having means for the attachment of a suspender-end mounted upon and guided by the frame, and having the flange adapted to overlap and embrace one of the side bars of the frame and a double fold of the webbing, when applied in the manner described.

313,629. MANUFACTURE OF CREAM OF TARTAR. RUDOLF SILBERBERG, Brooklyn, assignor to Henry William Heop, Sr., New York, N. Y. Filed Nov. 19, 1884. (No specimens.)

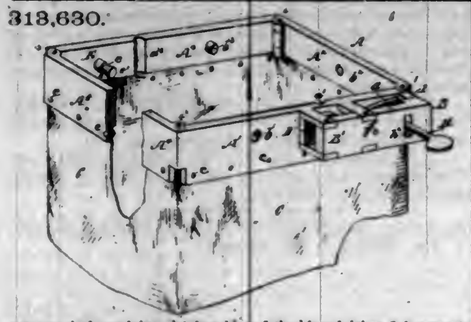
Claim.—The process herein described of making cream of tartar, which consists in separating tartaric acid from argols by any approved method, and then treating the mother-liquors obtained thereby with soda and potassium chlorate, substantially as set forth.

313,630. MAIL-BAG. MICHAEL F. STELLWAGEN and ALTON A. LITTLE, St. Ignace, Mich. Filed July 31, 1884. (No model.)

Claim.—1. A mail-pouch fastening consisting of a four-part folding frame, A, adapted to be fixed to the mouth of the pouch, and said frame having the grooves *a'* *a²*, which engage the knuckles of the hinge-joints 3 1, respectively, substantially as shown and described.

2. A mail-pouch fastening consisting of a four-part folding frame, A, adapted to be fixed to the mouth of the pouch, and said frame having the

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grooves a' a^3, receiving the knuckles of the hinged joints 3 1, respectively, and the pins b^2 b^4, entering the holes b^2 b', respectively, substantially as shown and described.

3. The combination, with the stud E on the frame A, having the notches *c e*, of the lock B, having the spring-jaws D D and the sliding block F, entering by its part f' between the jaws as the stud E is withdrawn in opening the pouch, and having a lug, f^2, against which the stud E strikes as the pouch is closed, to force the block F clear of the jaws, to permit the jaws to enter the notches *c e* of the lock-stud, substantially as shown and described.

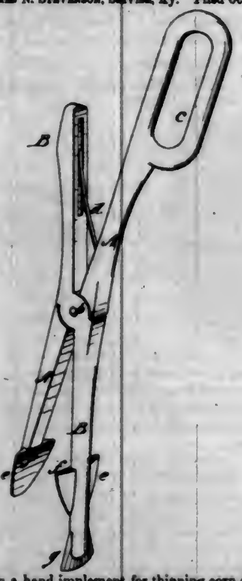
4. The combination, with the frame A, stud E, spring-jaws D, and the block F, guided to enter between the jaws, of the spring G, substantially as shown and described.

5. The combination, with the spring-jaws D D, of the sliding block I, provided with locking-shoulders i^2 i^2, substantially as shown and described.

6. The combination, with the spring-jaws D D and the sliding block I, having locking-shoulders i^2 i^2, of the spring J, substantially as shown and described.

7. The combination, with the spring-jaws D D and the sliding block I, having locking-shoulders i^2 i^2, of the key H, having flat end bits adapted first to push the block I back clear of the ends of the jaws D D, and then to enter between the jaws for separating them to release the stud E, substantially as shown and described.

313,631. WEEDING AND THINNING DEVICE FOR GROWING PLANTS. JAMES N. STEVENSON, Selvins, Ky. Filed Oct. 14, 1884. (No model.)



Claim.—1. In a hand implement for thinning corn and other weeding purposes, the combination of pivoted crossing limbs or levers A B, retracting-spring *d*, and lips *e*, the limb B extending below the lips and provided with a cutting-blade, substantially as and for the purpose set forth.

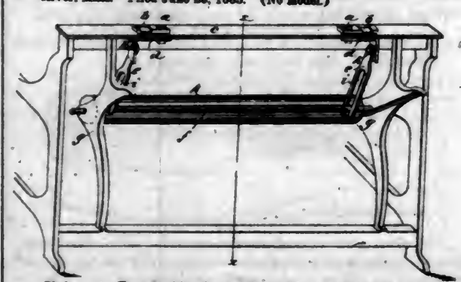
2. In a hand implement for thinning corn and other weeding or thinning purposes, in which pivoted crossing limbs are used, the lips *e e* of said limbs fitted with a soft or yielding covering, *f*, on their faces, one of said limbs also having a cutter, *g*, disposed in advance of said lips, substantially as and for the purpose specified.

313,632. FOLDING TABLE. JOHN W. STOWELL, Putney, Vt. Filed Mar. 4, 1884. (No model.)



Claim.—A folding table consisting of the top A, transverse parallel cleats B B, extending across the under surface of the top, notches H J in the ends of the said cleats, legs F D and round E, connecting them at a point the same distance from round C as one of the notches H J, round C, passing through the ends of the cleats opposite the notches into the ends of legs D, round G, connecting the upper ends of legs F, and pivoted latch-plates I K at the notched ends of each cleat, whereby when the table is unfolded the round G will enter notches H, and when folded the round E will enter the notches J and be held by the latches K from swinging out therefrom, substantially as set forth.

313,633. CLOTH-GUIDE FOR LOOMS. CORNELIUS J. SULLIVAN, Fall River, Mass. Filed June 25, 1883. (No model.)



Claim.—1. The combination of the guides *e*, having slots *i* for the cloth-roll, with the cloth-roll, the brackets *d*, to which the guides are pivoted, and the breast-beam of a loom, substantially as described.

2. The combination, with the breast-beam *c* and the cloth-roll *f*, of the brackets *d*, adjustably attached to the breast-beam, and the guides *e*, pivoted to said brackets to shift with the cloth-roll, and having slots embracing said cloth-roll, substantially as described.

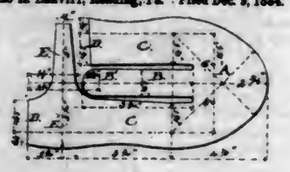
313,634. DEVICE TO BE USED IN CONSTRUCTING FENCES. JACOB ULRICH, Huntington, Ind. Filed Feb. 9, 1885. (No model.)



Claim.—1. The post A, base B, and diagonal braces D, in combination with wheels G, having openings *g* and *g'*, and bolts F, having heads f' and pins *f*, as described, and for the purposes set forth.

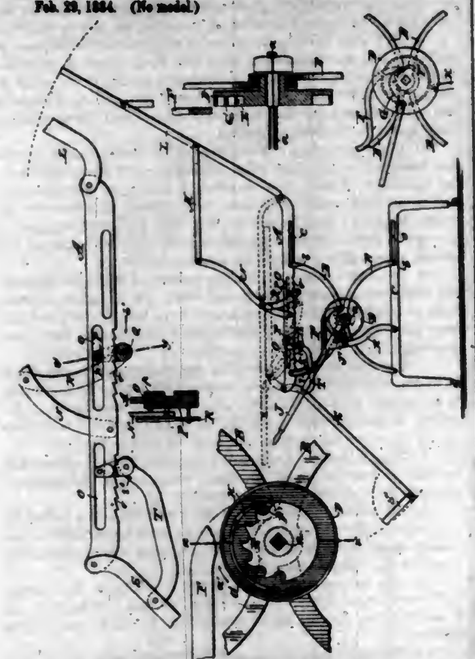
2. The combination of a post and runner, of bolts secured thereto, of wheels adapted to revolve thereon, provided with openings whereby the wires of a fence may be secured thereto, and a twister provided with openings to receive said wires, as described, and for the purposes set forth.

313,635. PATTERN FOR BOOT OR SHOE UPPERS. OLIVER J. WALP and ALONZO R. LEAVITT, Reading, Pa. Filed Dec. 9, 1884. (No model.)



Claim.—As an improved manufacture, a shoe-pattern consisting of the vamps and quarters, one of the quarters longer than the other, a front stay and back stay, all of a single piece, and adapted for an upper having a single seam upon the inside face of the boot or shoe near the heel, all substantially as shown, and for the purpose set forth.

313,636. SURGICAL CHAIR. GEO. WEBER, Brooklyn, N. Y. Filed Feb. 23, 1884. (No model.)



Claim.—1. In a chair, the combination, with a seat and a base, of crossed pivoted legs, a segmental rack held on the pivots of the legs, a pawl pivoted on the seat, and a lever connected with the pivot or cross-rod of the legs for raising the same, and a fulcrum-connection between said lever and base, substantially as herein shown and described.

2. In a chair, the combination, with a seat and base, of crossed pivoted legs, a segmental rack held on the pivot of the legs, a curved track-bar held above the rack, a switch or tongue pivoted at the end of the track-bar, and a pawl pivoted to the seat, a lever secured to pivot-rod *a*, and a fulcrum-connection between said lever and the base, substantially as herein shown and described.

3. In a chair, the combination, with the base C and seat A, of the crossed pivoted legs B, the disk D on the pivot of the legs, the ratchet-disk E on the disk D, the lever J, having an arm, J', the connecting-rod K, pivoted to the arm J', and the base C, substantially as herein shown and described.

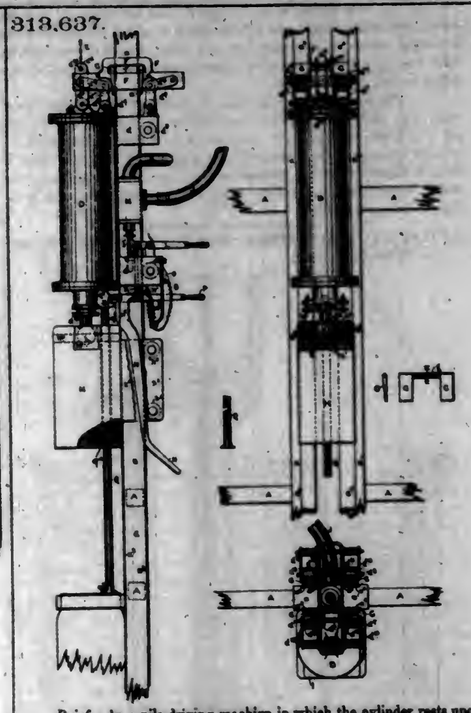
4. In a chair, the combination, with the seat side bar, A, having a longitudinal slot, O, and a rack, *o*, in the bottom edge, of the clip P, having the catch Q on the lower end of the same, and the wedge *p* in the upper end of the same projecting into the slot O, and of a brace-bar pivoted to the lower end of the clip P, substantially as herein shown and described.

5. In a chair, the combination, with a seat side bar having a longitudinal slot, and below it a rack on the bottom edge of the bar, of a clip-plate provided at its upper end with a projection extending into the slot in the seat side bar, and a catch on its lower end, which catch is adapted to engage with the rack, and of a brace-bar pivoted to the lower end of the clip and connected with a back-rest or equivalent moving part, substantially as herein shown and described.

6. In a chair, the combination, with a seat side bar, A, having a longitudinal slot, O, and rack *o*, of the leg-rest B, pivoted to the side bars, clip P, provided on its upper end with a projection extending into the slot O, and a catch on its lower end engaging the rack *o*, the brace-bar T, pivoted to the leg-rest and to the lower end of the clip, and a pin, t^4, on said brace-bar in front of the lower part of the clip, substantially as and for the purpose set forth.

313,637. PILE-DRIVING MACHINE. THOMAS WESTAKER, Horsforth, County of York, England. Filed Jan. 5, 1885. (No model.) Patented in England Feb. 9, 1884, No. 3,037.

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Brief.—In a pile-driving machine in which the cylinder rests upon the pile through a leg and descends with it, the combination of a frame, links, and wedges, so arranged that the piston falls freely, but all rebound is prevented by the wedging of the frame tightly against the leaders. The monkey is attached to the piston-rod by a ball-and-socket joint, and is provided with flanges extending between the leaders and rollers running on their rear side.

Claim.—1. A pile-driving machine in which the cylinder rests by means of a support on the pile-head, and is double acting, the upward pressure of the steam in the cylinder-head being taken up by wedge apparatus, substantially as described.

2. The combination, in pile-driving engines, of a double-acting cylinder, D, capable of sliding freely downward as far as allowed by the pile upon which it rests, but prevented from rebounding upward by wedging apparatus with the piston-rod and monkey H, substantially as described.

3. The leg Q, supported on the pile-head and having a splayed end, q^3, in combination with the monkey H, bored or cored out to allow the leg to pass through, and having a recess, q^4, cut out to avoid the splayed end of the leg when the monkey falls upon the pile.

4. The combination of the cylinder D with the flange q^2 and the leg Q, pivoted to it as near as practicable in the vertical axis of the center of gravity of the cylinder, and its appurtenances sliding with it, by which means the minimum of unbalanced pressure is brought to bear on the lateral supports of the cylinder.

5. The combination of the piston-rod d^{16}, having the spherical end A and the spherical bearing A' A^2, with the monkey H, by which means the monkey is free to hang and strike slightly out of the perpendicular without bringing a severe cross-strain on the rod.

6. The combination of the spherical piston-rod end A, bearings A', and side blocks, A^2, with the cotters A^3, binding them to the monkey, all substantially as described.

7. The combination of the monkey H, bearing against the front of the vertical iron-shod guides *a*, the flange A^4, bearing against the side of the guides, the rollers A^5, bearing against the back of the guides, and the piston-rod ball A, attached to the top of the monkey, whereby the monkey is guided in every direction laterally, and forced down by a steady guided force vertically, substantially as described.

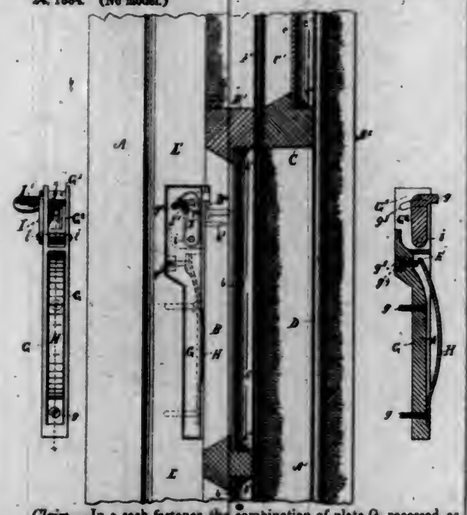
8. In combination, a double-acting steam or other motive-power hammer forming a pile-driver resting on the head of a pile, a wedging device, G, preventing the cylinder from rising, yet leaving it free to sink with the pile, substantially as described.

9. The combination of the frame F cut away to admit of the wedges G, with the wedges G cut away in the center to pass through and be held in place by the frame F, substantially as and for the purposes described.

10. The combination of the wedges G, with the rollers d^{13}, and the sustaining-link d^{11}, d^{9}, d^{12}, and d^{10}, by means of which a heavy pressure is brought to bear on the wedges by any rising motion of the cylinder while the wedges are deprived of pressure and are free to slip by any falling motion of the cylinder.

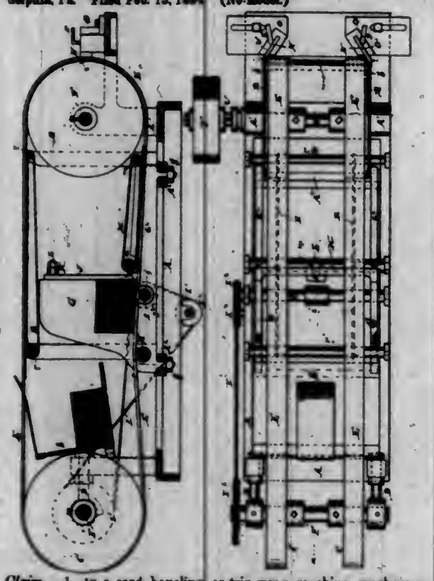
11. The combination of the plate F, levers d^{12} d^{13}, sloping downward at an oblique angle from F, and levers d^{7} d^{11}, linked to the cylinder D with the wedge G and abutment *a*, by which means, when the cylinder falls the strain is taken off the wedge and it and the plate F fall, but when the cylinder attempts to rise a strain is brought upon the wedge, at the same time holding stationary the wedge and with it the plate F and cylinder D.

313,638. SASH-FASTENER. NELSE WILSON, Hutto, Tex. Filed Nov 24, 1884. (No model.)



Claim.—In a sash-fastener, the combination of plate G, recessed as described, and provided with a set-screw, g^{3}, the spring H, and latch G^{2} having an outer plate, I, provided with rectangular extension I', all constructed and arranged to operate as specified, for the purpose set forth.

313,639. CARD-BEVELING MACHINE. CHARLES A. WRIGHT, Philadelphia, Pa. Filed Feb. 13, 1884. (No model.)



Claim.—1. In a card beveling or trimming machine, mechanism substantially as described, to bend or curve the card, in combination with a cutter arranged at an angle to said card, substantially as and for the purpose specified.

2. In a card beveling or trimming machine, mechanism, substantially as described, to bend or curve the card, in combination with a stationary cutter arranged at an angle to said card, and devices, substantially as set forth, to feed said card to said cutting and bending device, substantially as and for the purpose specified.

3. In a card beveling or trimming machine, the combination of endless feed-bands, wheels about which said bands travel, and stationary cutters arranged at an angle to said bands and arranged close to the outer edges of said wheels, substantially as and for the purpose specified.

4. In a card beveling or trimming machine, the combination of endless feed-bands, wheels about which said bands travel, an automatic feeding mechanism, substantially as described, to deliver the cards in succession to said bands, and stationary cutters arranged at an angle to said bands and arranged close to the outer edges of said wheels, substantially as and for the purpose specified.

5. In a card beveling or trimming machine, the combination of endless feed-bands, wheels about which said bands travel, an automatic feeding mechanism, substantially as described, to deliver the cards in succession to said bands, a delivering mechanism, substantially as described, by which the beveled cards are stacked, and stationary cutters arranged at an angle to said bands and arranged close to the outer edges of said wheels, substantially as and for the purpose specified.

6. In a card beveling or trimming machine, a wheel, in combination with a cutter arranged close to said wheel, and mechanism, substantially as described, to hold the cards against the face of said wheel and carry them up and around with said wheel and against the cutter, substantially as and for the purpose specified.

7. In a card beveling or trimming machine, a wheel having chilled or hardened beveled edges, in combination with a cutter arranged close to the beveled edge of said wheel, and mechanism, substantially as described, to hold the cards against the face of said wheel and carry them against the cutter, substantially as and for the purpose specified.

8. The combination of wheels B and C with bands E, means, substantially as described, to put said bands under tension, and cutters N, substantially as and for the purpose specified.

9. The combination of wheels B and C with bands E, a feeding device, substantially as described, to deliver the cards to said bands in succession, cutters N, bands R, and receiving plate or box S, substantially as and for the purpose specified.

10. The combination of wheels B and C with bands E, a feeding device consisting of plates G, shaft I, band *i*, and bar J, cutters N, bands R, and receiving plate or box S, substantially as and for the purpose specified.

11. The combination of wheels B and C with bands E, a feeding device, substantially as described, consisting of plates G, shaft I, band *i*, roller H, and bar J, cutters N, bands R, and receiving plate or box S, substantially as and for the purpose specified.

12. The combination of wheels B and C with bands E, a feeding device, substantially as described, to deliver the cards to said bands in succession, cutters N, bands R and M, and plate or box S, substantially as and for the purpose specified.

313,640. AUTOMATIC SHUNT FOR TELEPHONE-LINES. CHARLES D. WRIGHT and CHARLES A. FISHER, Petersburg, Ill.; said Fisher assignor of part of his right to said Wright. Filed June 21, 1884. (No model.)

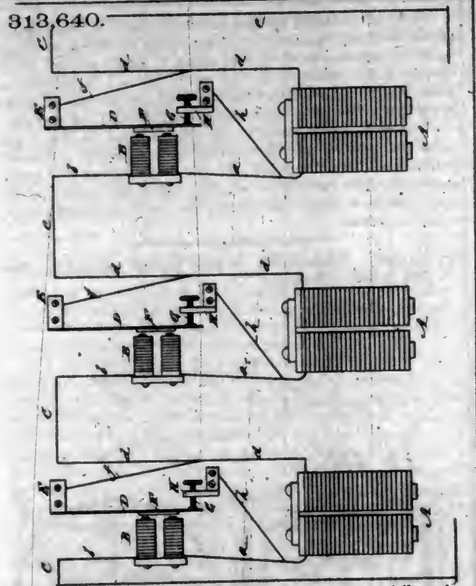
Claim.—1. In a telephone-line, an automatic resistance and retardation reducer consisting of an electro-magnet placed in the line and connected with the large signaling-magnet, of a spring placed opposite the ends of the cores of the electro-magnet, and carrying the armature of said magnet, and of a binding-screw against which the end of the spring rests, the binding-screw and the spring being connected with the line-wires, or wires leading to the line-wires, at opposite sides of the signaling-magnets, substantially as herein shown and described.

2. The combination, with a telephone-line, of the signaling-magnet A, the electro-magnet B, connected with the signaling-magnet, the spring D, and armature attached thereto, connected by a wire with the line leading from the corresponding magnet, A, to the next magnet, B, and of the screw G, against which the end of the spring D rests, which screw is connected with the wire *a*, connecting the corresponding magnet, B, with the corresponding magnet, A, substantially as herein shown and described.

3. The combination, with the signaling-magnet A, of the magnet B, the spring D, the armature F on the same, the blocks H, the screw G, held in the same, the wire *h*, connecting the block H with a wire leading to one end of the magnet A, and the wire *f*, connecting the spring D with the wire leading to the other end of the magnet A, substantially as herein shown and described.

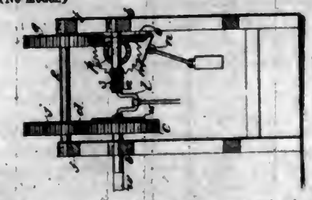
4. The combination, with a telephone-line, of a signaling-magnet for each station, and an electro-magnet and a spring for each signaling-magnet, which magnet and spring automatically cut out the signaling-magnet when the reverse current does not pass through the said electro-magnet, by reason of the retraction of its armature against a back stop to close a short circuit around the signaling-magnet, and automatically bring the said signaling-magnet in circuit when the reverse current of

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unusual length passes through the electro-magnet, substantially as herein shown and described.

313,641. MOTOR. WILLIAM J. ALLEN, Norborne, Mo. Filed Aug. 18 1884. (No model.)



Claim.—The improved weight-and-drum motor having the drum-shaft *a* and crank-shaft *l*, arranged on the lower beams, *b*, and gearing with intermediate shafts, *e* and *i*, arranged on the upper beams, *f*, of a supporting-frame, as described, the crank-shaft geared with the pendulum-escapement *m n*, and the drum-cord *s*, extended over the elevated pulley *t*, said drum being connected to the main wheel of the driving-train by the usual ratchet-and-pawl connection, *u v*, substantially as described.

313,642. BACK FOR PIANO-STOOLS. JEANNETTE D. BALDWIN, Moore's Hill, Ind. Filed Aug. 11, 1884. (No model.)

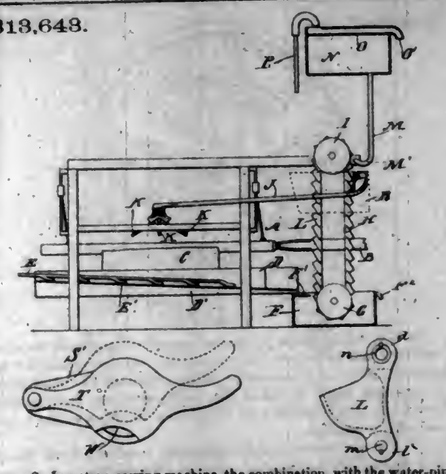


Claim.—As an improved article of manufacture, a piano-stool back consisting, essentially, in the curved bar A, having a fork, B, at its lower end, said fork being screw-threaded at its ends and provided with a cross-plate, E, and nuts F F, the upper rear face of the bar having notches J, and the back-rest cushion-frame having a pocket, K, and a set-screw, M, substantially as set forth.

313,643. STONE-SAWING MACHINE. R. LESTER BARNEY, Swanton, Vt. Filed Aug. 14, 1884. (No model.)

Claim.—1. In a stone-sawing machine, the combination, with the water-pipe, of the tank having a screen in its upper part and an overflow-spout discharging above and at one side of said screen, said tank having a pipe connecting with its bottom and ejecting water into the relatively upper buckets of a chain or series of buckets whose relatively lower buckets are disposed in a return water and sand tank, said buckets discharging into a gutter with its lower end overhanging the saw-frame, substantially as and for the purpose set forth.

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2. In a stone-sawing machine, the combination, with the water-pipe, of the tank into which it empties, said tank having a pipe connecting with its bottom and provided with a nozzle ejecting water into the relatively upper buckets of a series or chain of buckets whose relatively lower buckets are disposed in a return water and sand tank, said buckets discharging into a gutter with its lower end emptying into a trough leading to said latter tank, substantially as and for the purpose set forth.

3. In a stone-sawing machine, the combination, with the water-pipe, of the tank having a pipe connected to its bottom and ejecting water into the relatively upper buckets of a chain or series of buckets whose relatively lower buckets are disposed in a return water and sand tank, said buckets discharging into a gutter with its lower end overhanging a trough leading to the return water and sand tank, said latter tank having a tube provided with a gate having a notch in its bottom edge, substantially as and for the purpose set forth.

4. In a stone-sawing machine, the chain or series of buckets having prongs or jaws at their upper and lower ends, a tube being held transversely in the upper prongs or jaws and a pin or bolt in the lower prongs or jaws, the upper end of one bucket being passed between the prongs or jaws of the next higher bucket, and the bolt of the upper bucket being passed through the tube of the lower bucket, in combination with the supply-tank having connection with said buckets by a pipe, said buckets discharging into a gutter overhanging the saw-frame, substantially as and for the purpose set forth.

5. In a stone-sawing machine, the water-tank having a screen in its upper part and an overflow-pipe above said screen, said tank also having a nozzled pipe, in combination with the chain of buckets juxtaposed to the said nozzled pipe, and with its relatively lower buckets disposed in a return water and sand tank and its relatively upper buckets discharging into the gutter, said gutter having its lower end discharging upon inclined swing-boards overhanging the saw-frame, the double inclined platform having a central inclined groove or trough emptying into said return water and sand tank, substantially as and for the purpose set forth.

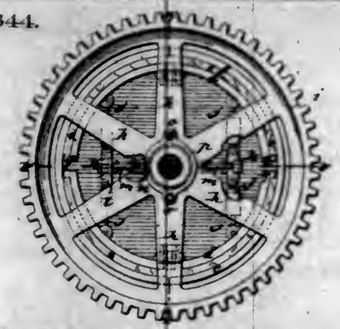
6. In a stone-sawing machine, the water-tank having a screen in its upper part and an overflow-pipe above said screen, said tank also having a nozzled pipe, in combination with the chain of buckets juxtaposed to the said nozzled pipe, and with its relatively lower buckets disposed in a return water and sand tank and its relatively upper buckets discharging into a gutter, the lower end of said gutter discharging upon inclined swing-boards overhanging the saw-frame, the double inclined platform having a central inclined trough or groove emptying into said return sand and water tank having a screen and overflow-pipe, substantially as and for the purpose set forth.

7. In a stone-sawing machine, the water-tank having a screen in its upper part and an overflow-pipe above said screen, said tank also having a nozzled pipe, in combination with the chain of buckets juxtaposed to the said nozzled pipe, and with its relatively lower buckets disposed in a return water and sand tank and its relatively upper buckets discharging upon inclined swing-boards overhanging the saw-frame, the double inclined platform having a central inclined trough or groove emptying into said return sand and water tank having a screen and overflow-pipe, and the pipe having branch pipes and arranged upon the said inclined platform, substantially as and for the purpose set forth.

313,644. FRICTION-CLUTCH. STOCKTON BARTRON, Portland, Pa. Filed Aug. 22, 1884. (No model.)

Claim.—1. In a friction-clutch, the expanding segmental sections having at their ends outwardly-projecting flanges or stops, whereby the frictional face-strips are held thereon, substantially as and for the purpose set forth.

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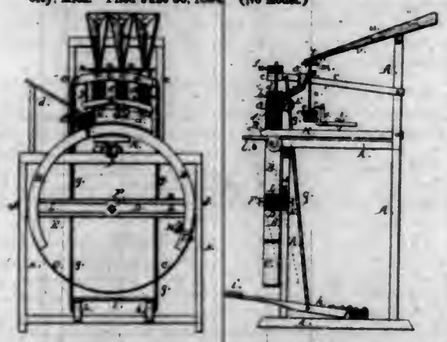


2. The toggle devices *j k*, having support on the arms of the wheel *i* by bars *l*, said devices or levers *k* and the bars *l* being tongued and grooved together, and said levers sliding or moving in a plane transversely to the length of said bars, in combination with the expanding friction-rims *d*, also mounted on wheel *i*, and the shipper-collar *n*, substantially as described.

3. The combination of the shipper-collar *p* and rods *o* with the collar *n*, located between the loose wheel *i* and the fast pulley *a*, and connected with the friction-rims *d* by toggle mechanism *m* and *j k*, said rods *o* extending through the wheel *i*, substantially as described.

4. In a friction-clutch, the friction-rims *d*, combined with the rims *c* of the fast pulley, and connected to the loose wheel *i* by the radially tongued and grooved lugs *f g*, said tongued lugs being formed upon levers *k*, and said grooved lugs being made in bars *l* of the connection, and said friction-rims having means for expanding and contracting them, substantially as described.

313,645. HOOP-NAILING MACHINE. ANDREW C. BATCHELLER, Bay City, Mich. Filed June 30, 1884. (No model.)



Claim.—1. In a hoop-nailing machine, an adjustable circular form consisting of a portion, B, of a circle, constructed of suitable size to retain rigidly its circular shape, and adjustably connected with a thinner and flexible portion, C, substantially as shown, and for the purpose specified.

2. The combination of a stationary press-block, *a*, having, as described, the nail-channels *f'* and staple-channel *g'*, and means, substantially as described, of driving nails or staples through the same into the lapped ends of the hoop, with a circular form located vertically below the said press-block, and properly arranged, as described, to allow its upper portion to be tilted forward from beneath the said press-block to admit of the easy adjustment of the hoop thereon, substantially as described, and for the purpose specified.

3. In a hoop-nailing machine, the combination of the circular form B, and the cross-piece D, and the bolts L, which pivotally connect the form B to the said cross-piece D, with the bolt F and frame A, substantially as and for the purpose set forth.

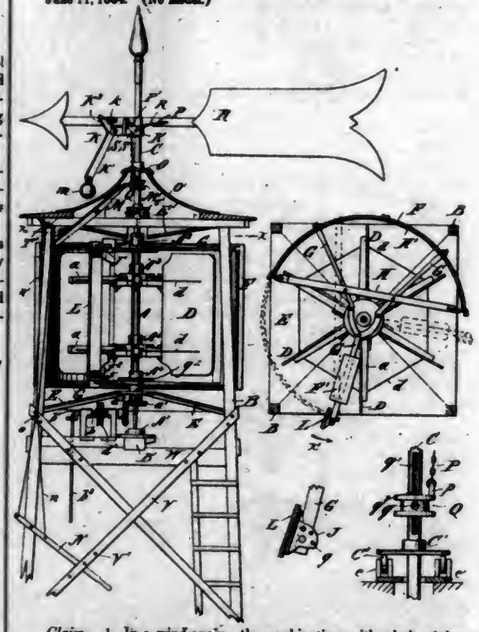
4. In a hoop-nailing machine, the stationary press-block *a*, provided with the nail-guiding channels *f'*, the stationary guide-block *b*, the vertically-reciprocating drivers *d* and head *c*, and mechanism, substantially as described, for operating the same, in combination with the adjustable form B, the rest K, and cam *j*, having the arm *l*, substantially as described, and for the purpose set forth.

5. In a hoop-nailing machine, the combination, with the form B, pivoted in a vertical position to the front part of the frame A, of a rest or lever, K, having its front end placed beneath the upper part of the form, and its opposite or rear end pivoted to the back part of the frame A, and the cam *j*, placed beneath the front part of the rest K and provided with the arm *l*, substantially as and for the purpose specified.

6. In a hoop-nailing machine, the combination of the press-block *a*, provided with the channels *g'* and *f'*, for guiding the staples and nails to be driven, with the curved retaining-spring *b'*, having one end rigidly attached to the outside of the said press-block, and the opposite end passed into the said channels, and adapted to retain the nails or staples in a proper position to be driven, substantially as shown and set forth.

7. In a hoop-nailing machine, the combination of the slide *u*, provided with the slot *v*, with the toothed wheels *m*, located horizontally just below the lower end of the slide *u*, in such a position as to receive a nail in the space between the projecting teeth of the wheels *m* as they rotate, and the mechanism for rotating the wheels, substantially as described and shown.

313,646. WIND-ENGINE. DAVID H. BAUSMAN, Lancaster, Pa. Filed June 11, 1884. (No model.)



Claim.—1. In a wind-engine, the combination, with a hub, of three arms, G, arranged in the shape of a letter Y on the said hub, a cross-piece secured on two of the arms, and a segmental rim secured on the ends of the cross-piece and on the ends of the arms crossed by the cross-piece, and of a shield secured to top and bottom rims, substantially as herein shown and described.

2. In a wind-engine, the combination, with a segmental shield, of arms projecting from the open side of the shield at the top and bottom, and a wing, L, pivoted to the said arms, which wing L is provided at the bottom with a lug, J, having a series of apertures, *g*, arranged in a circular line, and of a pin or bolt adapted to be passed through one of the apertures *g*, and through an aperture in the corresponding arm, for the purpose of locking the wing in the desired position and at the desired inclination to the arms, substantially as herein shown and described.

3. In a wind-engine, the combination, with a tower or other suitable structure, of a vertical shaft, a vane mounted on the shaft, a shield connected with the said shaft and partly surrounding a horizontal wind-wheel on an independent shaft, two arms rigidly mounted on the vane-shaft and projecting from the same, a lever pivoted in one arm and carrying a weight at one end and having the other end connected with the vane, a chain connected with the vane and passing over a pulley on the end of the other arm, and means for moving the chain up and down, substantially as herein shown and described.

4. In a wind-engine, the combination, with the shaft C and the shield F, connected with the same, of a horizontal wind-wheel partly surrounded by the shield, the vane R, mounted loosely on the shaft C, the arms 8 8', mounted rigidly on the shaft, the elbow-lever K, having one end connected by a link, *k*, with the vane R, and having a weight, *m*, on the opposite end, the pulley P' on the end of the arm S', the chain P, connected with the vane and passed over the pulley P', the sliding collar Q on the shaft C, and means for moving the sliding collar up and down, with which sliding collar the chain P is connected, substantially as herein shown and described.

5. In a wind-engine, the combination, with the shaft C and the shield F, connected with the same, of a horizontal wind-wheel partly surrounded by the shield, the vane R, mounted loosely on the shaft C, the arms 8 8', mounted rigidly on the shaft, the elbow-lever K, having one end connected by a link, *k*, with the vane R, and having a weight, *m*, on the opposite end, the pulley P' on the end of the arm 8', the chain P, connected with the vane and passed over the pulley P', the sliding collar Q on the shaft C, to which sliding collar the chain P is connected, and the pivoted lever M, having a fork the prongs of which are in the groove of the collar Q, substantially as herein shown and described.

6. In a wind-engine, the combination, with the shaft C and the shield F, connected with the same, of a horizontal wind-wheel partly surrounded by the shield, the vane R, mounted loosely on the shaft C, the arms 8 8', mounted rigidly on the shaft, the elbow-lever K, having one end connected by a link, *k*, with the vane R, and having a weight, *m*, on the opposite end, the pulley P' on the end of the arm 8', the chain P, connected with the vane and passed over the pulley P', the sliding collar Q on the shaft C, to which sliding collar the chain P is connected, the pivoted lever M, having a fork the prongs of which are in the groove of the collar Q, the wires or ropes *n n'*, the chain T, and the pulley T', substantially as herein shown and described.

7. In a wind-engine, the combination, with the shaft C and the shield F, connected with the same, of a horizontal wind-wheel partly surrounded by the shield, the vane R, mounted loosely on the shaft C, the arms 8 8', mounted rigidly on the shaft, the elbow-lever K, having one end connected by a link with the vane R, and having a weight, *m*, on the opposite end, the pulley P' on the end of the arm 8', the chain P, connected with the vane and passed over the pulley P', the sliding collar Q on the shaft C, to which sliding collar the chain P is connected, the pivoted lever M, having a fork the prongs of which are in the groove of the collar Q, the wires or ropes *n n'*, the chain T, the pulley T', and the lever N, to which the chains *n n'* are secured on opposite sides of the pivot, substantially as herein shown and described.

8. In a wind-engine, the combination, with a tower or other structure, the shaft C, and the shield F, secured on the same, of a horizontal wind-wheel partly surrounded by the shield F, the vane R, loosely mounted on the shaft C, the arms 8 8', the elbow-lever K, pivoted on the arm 8, the link *k*, the weight *m*, the pulley P' on the end of the arm 8', the chain P, secured to the vane R and passed over the pulley P', the sliding annularly-grooved collar Q on the shaft C, the pin or stud *q*, passing from the collar Q into a vertical groove, *g'*, in the shaft C, the lever M, engaged with the collar Q, and means for moving the outer end of the lever M up or down, substantially as herein shown and described.

9. In a wind-engine, the combination, with a tower or other suitable structure, of a vertical shaft projecting from the top of the same, a vane loosely mounted on the shaft and connected with a lever pivoted in an arm rigidly mounted on the shaft, which lever carries a weight, a segmental shield held on the vane-shaft, and of a wing held on arms of the shield opposite the opening of the said shield, substantially as herein shown and described.

10. In a wind-engine, the combination, with a tower or other suitable structure, of a vertical shaft projecting from the top of the same, a vane loosely mounted on the shaft and connected with a lever pivoted in an arm rigidly mounted on the shaft, which lever carries a weight, a segmental shield held on the vane-shaft, a wing held on the arms of the shield opposite the opening of the said shield, and of means for adjusting the inclination of the plane of the wing to the arms on which the wing is pivoted, substantially as herein shown and described.

313,647. MUSIC-RACK FOR PIANOS. CHARLES BAUMEISTER, New York, N. Y., assignor to Augustus Baus & Co., same place. Filed May 26, 1884. (No model.)

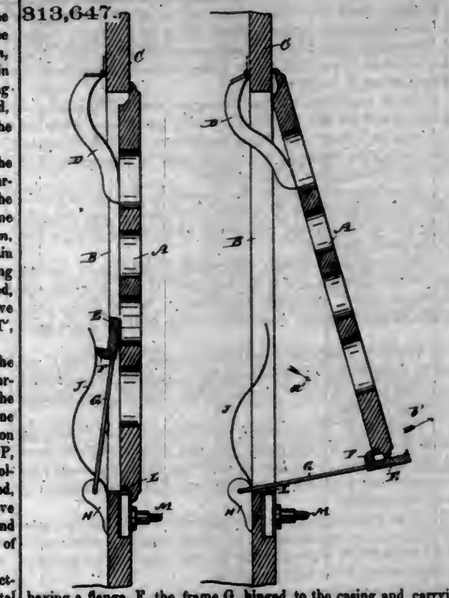
Claim.—1. The combination, with the casing C of an upright piano, provided with an opening, B, of a music-rack hinged at the upper edge to the upper side of the opening to swing outward, and a slat having arms hinged at their lower ends to the lower wall of the opening, separate from and in rear of the rack, the said slat being constructed to support the music in the rack when said rack and slat are swung outward, substantially as set forth.

2. The combination, with the casing C of an upright piano, having an opening, B, of a music-rack hinged at its upper edge to the upper side of the opening to swing outward, a music-supporting slat having arms hinged at their lower ends to the lower side of the opening in rear of the rack, and a spring secured to the casing below and in rear of the rack for throwing the same outward, the said slat being adapted to hold engaged the rear lower edge of the rack when thrown outward and hold the same in position, substantially as set forth.

3. The combination, with a piano-casing having an opening, B, in its front, of the desk or rack A, the arms D, hinged to the rear surface of the front of the casing, the slat E in rear of rack and hinged at the lower ends of its arms on the bottom edge of the opening, a spring for throwing the rack and slat outward, and means for locking the rack in place in the opening of the piano-casing, substantially as herein shown and described.

4. The combination, with the casing of a piano, having an opening, B, in its front, of the music desk or rack A, the arm D, secured to the top of the rack and hinged on the inner surface of the front, the slat E,

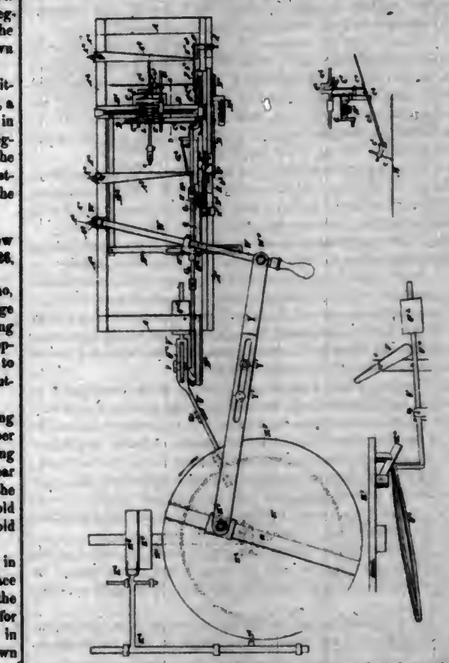
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having a flange, F, the frame G, hinged to the casing and carrying on its free ends the slat E, the spring J, and a latch for holding the rack within the opening B, substantially as herein shown and described.

5. The combination, with a piano-casing, of a music-rack hinged at its top to the front of the casing, a slat in rear of the rack, hinged at the lower ends of its arms to the front of the casing to swing downward, and adapted to be held behind the rack when the same is closed, and of a latch for locking the rack in place when the same is closed, substantially as herein shown and described.

313,648. RULING AND ENGRAVING MACHINE. RICHARD W. BENTLEY, Brooklyn, N. Y. Filed Sept. 8, 1884. (No model.)



Claim.—1. The segment B', differentially notched, in combination with a variably-rotating rocking shaft, E, connecting-link F", rack *f'*, and gear-wheel D', as means for operating the feed-screw controlling the spaces between the lines in an engraving-machine, as herein specified.

2. The movable stop H and locking key or dog H^3, in combination with the differentially-notched segment B^5, variably-rotating rocking shaft E, connecting-link F', rack f', and gear-wheel D', as means for operating the feed-screw controlling the spaces between the lines in an engraving-machine, as herein specified.

3. In an engraving-machine, the toggle-lever or lifting-link J, in combination with the dog H^3, stop H, rocking arm E', and sliding segment I, with its inclined plane I', and mechanism, substantially as specified, for moving the segment I to a limited extent by a movement of the arm E', all substantially as herein specified.

4. In an engraving-machine, the vibrating lever N, connecting-link N^3, shaft E, with its arms E' E^3, connection F', rack f', and pinion D', carrying one or more pawls, and ratchet-wheel H', combined and arranged as herein specified.

5. In an engraving-machine, the adjustable split ring D^3, carrying a pawl, D^4, in combination with the feed-wheel D' and gear-screw D, and with means, as f', and suitable connections to the arm E', for giving a variable reversely-rotating intermittent motion to D', as herein specified.

6. The double-rack slide F, with its two sets of teeth, f' and f^2, and means for reciprocating it to variable extents, as specified, in combination with the two pawls D^2 and D^7, double ratchet-wheel D', and feed-screw D, as herein specified.

7. The levers F^2 F^3, connecting-link F^4, and means, as F^5, for holding them in position, in combination with each other and with the gear-wheel D', feed-screw D, and means, as F' and its connections, for inducing reciprocating motions in the rack-frame F, with its two racks, f' f^2, as herein specified.

8. In an engraving-machine, the rack-frame F, with its two racks, f' f^2, and means for reciprocating it to variable extents, in combination with the levers F^2 F^3, connecting-link F^4, and supporting or partially-supporting springs F^7, as herein specified.

9. In an engraving-machine, the reversible spring F^9 and its reversing-studs F^9 F^9, in combination with the double rack F, with its two sets of rack-teeth f' f^2, and reciprocating mechanism E' and its connections, and with the feed-screw D, and means, as E', for transmitting variable motion, as herein specified.

10. In an engraving mechanism, the extension-piece B^4 on the carriage B, in combination with the notched segment B^5 b^2, and its connecting-frame B^3, and with the rocking shaft E and its connections, adapted to serve substantially as herein specified.

11. In an engraving-machine, the lever K, adjustable motion-piece K', and ratchet K^4, in combination with the arm E', and means for vibrating the latter to variable extents, and with the notched segment B^5, sliding toothed segment I, toggle or lifting link J, dog H', and adjustable stop H, arranged for joint operation as herein specified.

12. In an engraving-machine, the carriage B, operating-lever W, turning on an adjustable center, w, roller W^2, and slotted swing-bar B^8, pivoted on an arm, B^9, from the carriage B, in combination with each other and with a link, Q, variably-oscillating shaft E, with its arms E' E^2, and connections therefrom to the feed-screw D, arranged to give by the vibration of W both the reciprocating motion of the carriage and the variable feed motion of the tool, as herein specified.

13. In an engraving-machine, the combination, with the reciprocating carriage B, vibrating arm E', and means, as W and its connections, for giving a reciprocating motion to said carriage, of the screw D, having variable feed motion, as herein specified.

14. In an engraving-machine, the double stop A^8, in combination with the reciprocating carriage B and lever N, as herein specified.

15. In an engraving-machine, the continuously-rotated shaft Z, carrying a crank-pin, Z^2, in combination with the connecting-rod of adjustable length, as shown, and with the lever W and suitably-connected mechanism, as shown, for reciprocating the carriage B and raising and lowering the stylus and effecting the feed movement of the carriage C and its attachments, substantially as herein specified.

16. The longitudinal hook-lever G', carried on the carriage B, in combination with the adjustable rod carried on the carriage C, and with the lever V and its connections, arranged to stop the action so soon as the engraving has progressed to the required distance, as herein specified.

17. In an engraving-machine actuated by power, the obliquely-slotted slide c^4, carried on the carriage C, in combination with the transverse adjustable arms or stops A^4 A^5, the lever C', and suitable connections, c^3 c^4, to stylus c, arranged to effect the raising and lowering of the latter at the proper period, as herein specified.

18. In an engraving-machine, the brake-block X^3, carried on the lever X and arranged to serve with the lever W and its connections for aiding to arrest the motion of the stylus and its carrying parts, as herein specified.

19. In an engraving-machine, the pair of semi-nuts, in combination with the carriage B C and feed-screw D, arranged to serve as herein specified.

20. In an engraving-machine, the carriage B and extension B', in combination with the feed-screw D and means for operating it, the carriage C and stylus c, and a pair of semi-nuts, L L, capable of being connected and disconnected at will, as herein specified.

21. In an engraving-machine, a pair of semi-nuts, L L, operating-levers T T, and links T' T' to a single operating part, T^2, in combination with an adjustable return-arm connected to one of the said links, arranged to allow the positions and motions of the semi-nuts to be varied, as herein specified.

22. In an engraving-machine, the rollers B^{14} B^{16} and carriage B^{15}, in combination with the way A' and carriage B, to relieve the carriage of a portion of the friction, while leaving a sufficient direct bearing to maintain steadiness, as herein specified.

23. In an engraving-machine as described, the combination, with the carriage, the lever N, and stops A^6, of the cushioning-spring, as N', adapted to soften the concussion, while not disturbing the certainty of the action of the stop, as herein specified.

24. In an engraving-machine, the friction-spring H^7, in combination with the arc B^6, carried on the main carriage, and with the stop H and arc H', and mechanism, as shown, for automatically shifting the latter, as herein specified.

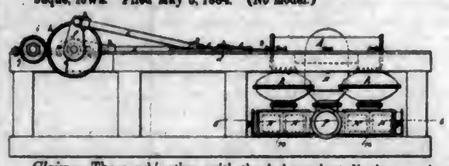
25. In an engraving-machine, the spring C^5, in combination with the lever C' and its connection c^2 to the stylus c, arranged to offer a gentle friction to hold the stylus in the raised and lowered position alternately, as herein specified.

26. In an engraving-machine, the hook-stop N^5, in combination with the carriage B, and mechanism, as shown, for effecting the traversing movement, raising and lowering the stylus c and imparting the feed, arranged to arrest the carriage at a certain point in each traverse and allow the stylus to descend with certainty at the point to commence the lines uniformly, as herein specified.

27. In an engraving-machine, the lever C', clamp C^3, and operating-rod C^5, in combination with the carriage B C, and mechanism, as shown, for allowing the tool-lifting to be properly effected for right-hand working, as herein specified.

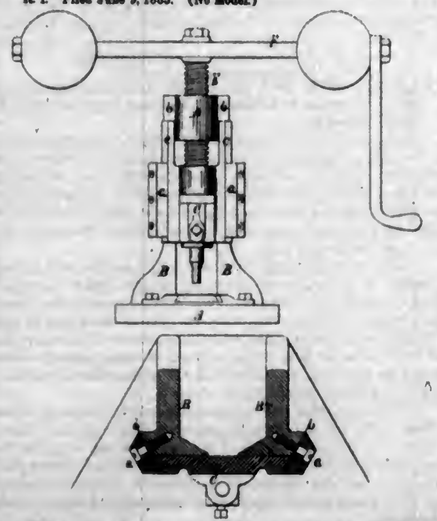
28. In an engraving-machine, the supporting roller or wheel b^5, in combination with the lever B^2 and its connections to the carriage B and with the framing A, having an extension, A^{11}, adapted to serve as a track for said wheel, as herein specified.

313,649. ANTI-FRICTION DREDGING-PUMP. CALEB H. BOOTH, Dubuque, Iowa. Filed May 5, 1884. (No model.)



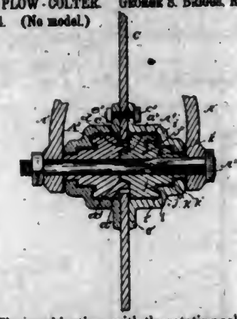
Claim.—The combination, with the independent diaphragm-chambers K, of a single flexible diaphragm semi-spherical in cross-section and introduced between the valve-chests of a pump, and moving pistons or plungers, substantially as and for the purpose set forth.

313,650. JEWELER'S PRESS. LORENZO P. BOSWORTH, Pawtucket, R. I. Filed June 9, 1883. (No model.)



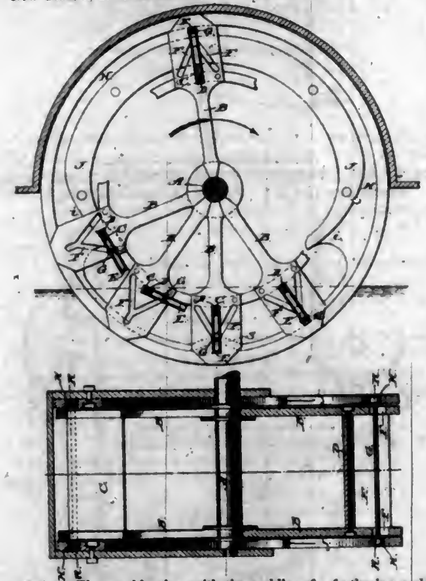
Claim.—As an improvement in the construction of jewelers' presses, the frame B, having the edges of its flanges beveled, as at b, and the cross-head C, having its edges beveled in directions corresponding to the bevels b, and provided with the guide-extensions c c, jointly with the cheek-pieces G, covering the said beveled edges, and fastened to frame B by screw-bolts, all substantially as shown and described.

313,651. PLOW-COLTER. GEORGE S. BRIGGS, Rockford, Ill. Filed Mar. 15, 1884. (No model.)



Claim.—The combination, with the rotating colter C and the combined hubs and disks i c', of the non-rotating sleeves or journals A^3 A^4, having S-shaped shoulders, substantially as set forth.

313,652. FEATHERING PADDLE-WHEEL. WILLIAM C. BURNE, New York, N. Y. Filed Dec. 27, 1884. (No model.)



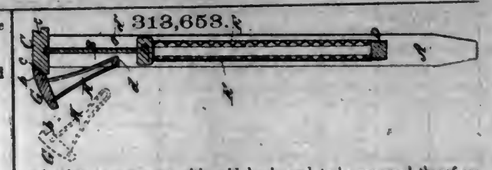
Claim.—The combination, with the paddles of a feathering paddle-wheel, which are so pivoted at each end of their inner edges to and between the arms of the wheel as that their outer edges may swing in and out between said arms, of a movable rod extending through a longitudinal slot or recess in the free outer edge of each paddle, to project at each end through a bifurcated slot cut in each wheel-arm outside of the pivotal bearing of the paddle, and to enter and, during the revolution of the wheel, travel in a cam-groove in an outer fixed frame at each end of the wheel, whereby a radial reciprocating movement of the rod is obtained to determine and to vary the angle of inclination of the paddle during the revolution of the wheel, substantially in the manner and for the purpose herein set forth.

313,653. WASH-BOARD. HENRY C. CARTER, Montclair, N. J. Filed Apr. 5, 1884. (Model.)

Claim.—1. A removable protector for wash-boards, consisting, essentially, of a cross-piece provided with two depending slotted or open spring-arms, substantially as set forth.

2. In a removable protector for wash-boards, a cross-piece provided with two open or slotted spring-arms, said arms being formed with bends to cause said arms to exert a pulling-strain when under tension, substantially as set forth.

3. The combination, with a reversible wash-board provided with hooks or studs d d' below its guard C, of a removable protector having the cross-piece G, provided with slotted or open spring-arms adapted to

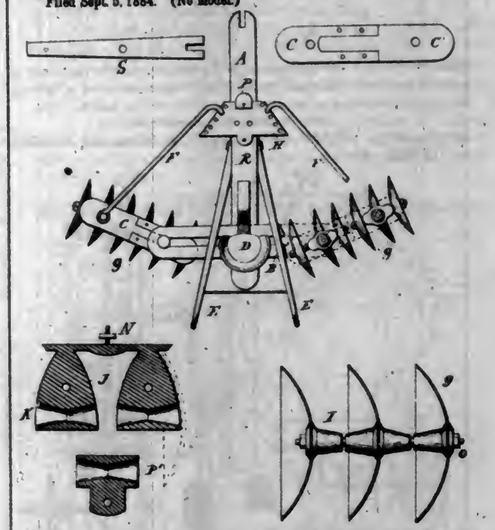


spring into engagement with said hooks and to be removed therefrom, substantially as set forth.

4. The combination, with a reversible wash-board provided with hooks or studs d d' below the guard C, of a removable protector consisting of the cross-piece G, having open or slotted spring-arms H, the members of said spring-arms being bent toward each other, as shown, whereby, when the arms engage the hooks d or d', and one longitudinal edge of the cross-piece G overlaps one longitudinal edge of the guard C, a downward pressure will be exerted by said arms to hold said cross-piece to the guard, as set forth.

5. In a reversible wash-board, the combination, with the guard C, grooved at c c, and the sides A, provided with hooks d d' on opposite sides of the cross-piece G, grooved at b to fit one of the grooves c, and the bent slotted spring-arms H, secured to said cross-piece G, and adapted to engage the hooks d or d' and hold the grooved edges of cross-piece G and guard C in contact to present an unbroken surface, as set forth.

313,654. WHEEL-HARROW. MOSES CHANDLER, East Corinth, Me. Filed Sept. 5, 1884. (No model.)



Claim.—1. In a wheel or disk harrow, the combination, with pole A and slotted cross-bar B, of the spliced separable caps C C, perforated stay-plate H, and rods F, all constructed and adapted to operate substantially as described.

2. In combination with pole A, slotted cross-bar B, rods F, and plate H, the spliced separable caps C C, each carrying two separate gangs of disks, one of which may be removed with the detached portion of the cap to convert the harrow into a straddle-row cultivator, substantially as described.

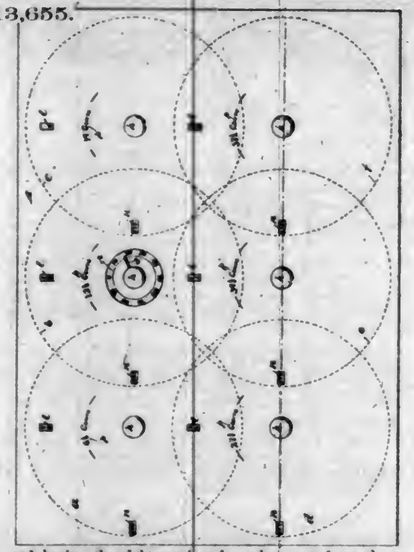
3. The double standard J, cast integral with boxes K, and having convexed edges adapted to operate as scrapers for the disks in turning the soil either to the right or the left, in combination with the tapering double hub I, for the purpose fully described and set forth.

313,655. TABULAR CALCULATOR. FREDERICK W. CHILD, Greenwich, Conn. Filed July 5, 1884. (No model.)

Claim.—1. The herein-described calculating or displaying apparatus, composed of the series of revolving disks a b c, &c., arranged to overlap each other, as described, and provided with the concentric rows of numbers k m, bearing the described relation to each other, and the plate A, arranged to cover said disks, and having the sight-openings l n, one for each row of numbers upon the disks, and provided with the numbers p, bearing the described relation to the numbers in the rows k m.

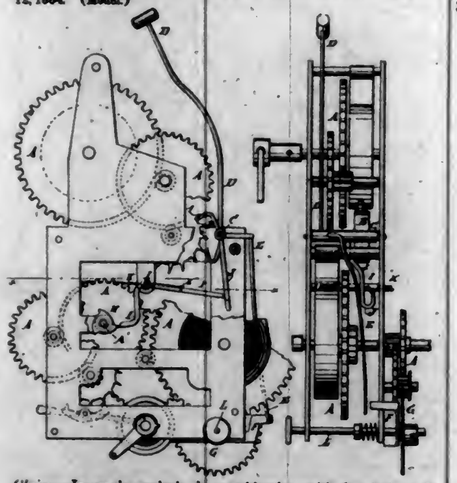
2. The herein-described calculating or displaying apparatus, composed of the series of revolving disks a b c, &c., arranged to overlap each other, as described, and provided upon their opposite sides with the concentric rows of numbers k m and t v, bearing the described relation to each other, and the plates A B, arranged upon opposite sides of said

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disks and having the sight-openings *l n* and *y z*, one for each row of numbers upon the disks, and provided with the numbers *p w*, bearing the described relation to the numbers in the rows *k m* and *t v*.

313,656. ALARM-CLOCK. SAMUEL S. COLT, Orange, N. J. Filed Sept. 12, 1884. (Model.)



Claim.—In an alarm-clock, the combination, with the clock-works A and the alarm-escapement shaft C, of the cam-wheel H, having tripping-points and mounted on the shaft A' of said clock-works, the bent lever I, the stop-hook J, and the spring K, substantially as herein shown and described, whereby the alarm will be made to sound intermittently at regular intervals of time, as set forth.

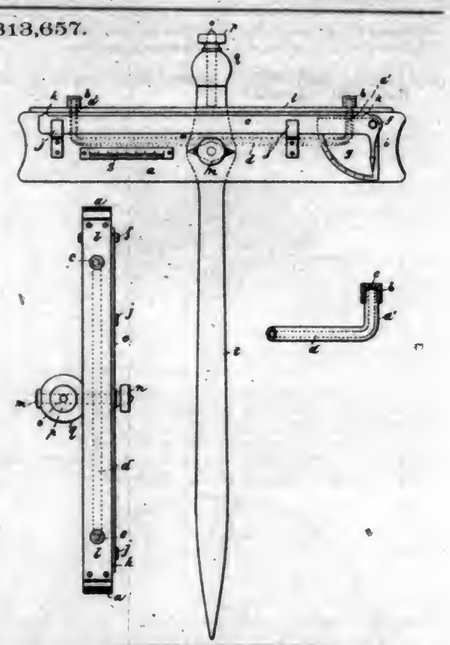
313,657. SURVEYING-INSTRUMENT. WILLIAM L. CURTIS, Forest Grove, Oreg. Filed May 27, 1884. (Model.)

Claim.—1. In a surveying-instrument, the combination, with the grooved bar *a*, of the plate *l*, the cups *a'*, provided with the caps *b* and secured in the plate *l*, and the tube *d*, connecting the said cups, substantially as herein shown and described.

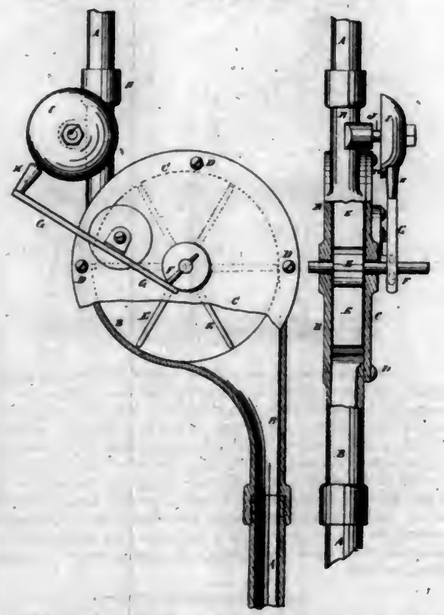
2. In a surveying-instrument, the combination, with the staff *t*, of the cups *a'*, provided with the caps *b*, and connected by the tube *d* and the bar *a*, in which said cups and tube are secured, pivoted to said staff, substantially as herein shown and described.

3. In a surveying-instrument, the combination, with the staff *t* and the bar *a*, carrying a spirit-level and pivoted to said staff, of the graduated quadrant *g* and the angle-gage *e*, pivoted to the bar *a*, and provided with the index *i* and the sight-points K, substantially as herein shown and described.

313,657.



313,658. OVERFLOW-ALARM FOR WATER-TANKS. FRANK A. CUSHING, New York, N. Y. Filed Apr. 5, 1884. (No model.)

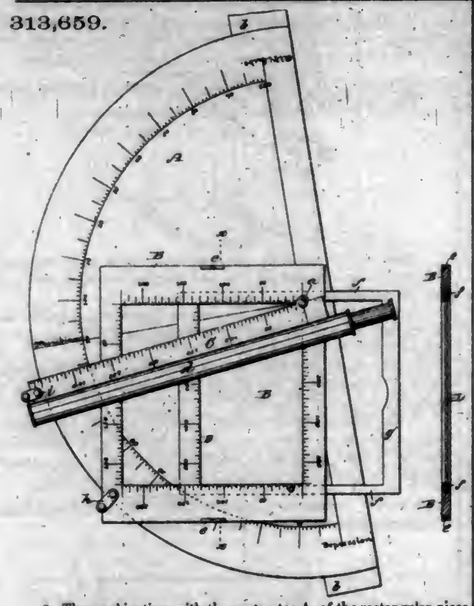


Claim.—The combination, with the tell-tale pipe of a water-tank, of the enlarged section B, with wheel E journaled therein, pin F on the journal of said wheel, outside of the section B, lever-hammer G H, pivoted to the outside of the section B, and the gong I, also outside of the pipes, substantially as set forth.

313,659. SURVEYOR'S INSTRUMENT. JOHN H. DOLMAN, Albany, Tex. Filed June 6, 1884. (Model.)

Claim.—1. The instrument for surveying and analogous purposes, consisting of protractor A, right-angled piece B, and piece C, the two latter pivoted to move independently on the protractor, substantially as described, for use in the manner specified.

313,659.



2. The combination, with the protractor A, of the rectangular piece B, pivoted at one corner to the protractor, as shown at *a*, and straight piece C, also pivoted at *a*, and provided on its under edge with a telescope, *d*, substantially as set forth.

3. The combination, with the protractor A, of the rectangular frame B, pivoted at *a*, and the sliding frame D *g f* within the frame B, substantially as set forth.

4. The combination, with the protractor A, of the rectangular frame B, pivoted at one corner to the protractor at *a*, levels *e* on the upper and lower edges of said frame, and piece C, pivoted at one end to the protractor at *a*, substantially as set forth.

5. A surveying or analogous instrument consisting of the protractor A, rectangular open frame B, sliding frame D within frame B, levels *e* on opposite edges of frame B, and piece C, pivoted to the protractor at *a*, and provided with a telescope, *d*, along one longitudinal edge, substantially as set forth.

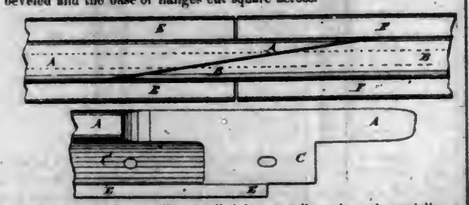
313,660. COMBINED CIGAR-CUTTER AND MATCH-BOX. HARRY B. EGGERT, Bethlehem, Pa. Filed Sept. 20, 1884. (No model.)



Claim.—The combination, with the body A of the match-box and its hinged spring-lid B, having opening *d d*, formed by notches in the meeting edges of the lid and body of the box, of the internally-arranged concave side shearing-blades, C C, made to close said opening *d d* when the lid is shut and to project beyond the meeting edges of the body and lid, substantially as specified.

313,661. RAILROAD-RAIL JOINT. JOHN A. FOLEY, New York, N. Y., assignor to himself and SAUL DOMROE, same place. Filed Aug. 8, 1884. (No model.)

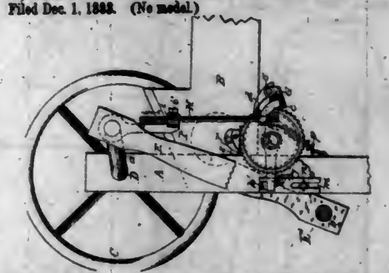
Brief.—The treads and webs of the meeting ends of the rails are beveled and the base or flanges cut square across.



Claim.—1. In a railroad-rail joint, a rail made, substantially as herein shown and described, with the ends of the base square and the ends of the web and head beveled and projecting beyond the ends of the base, as set forth.

2. The combination, with the adjacent ends of rails having the ends of their bases square, and the ends of their webs and heads beveled and projecting beyond the ends of the said bases, of the fish-plates G and the bolts and nuts H I, substantially as herein shown and described, whereby a smooth surface will be provided for the wheels of the engine and cars to travel upon, as set forth.

313,662. FEED-CUTTER. ABRAHAM M. FORRESTER, Racine, Wis. Filed Dec. 1, 1883. (No model.)

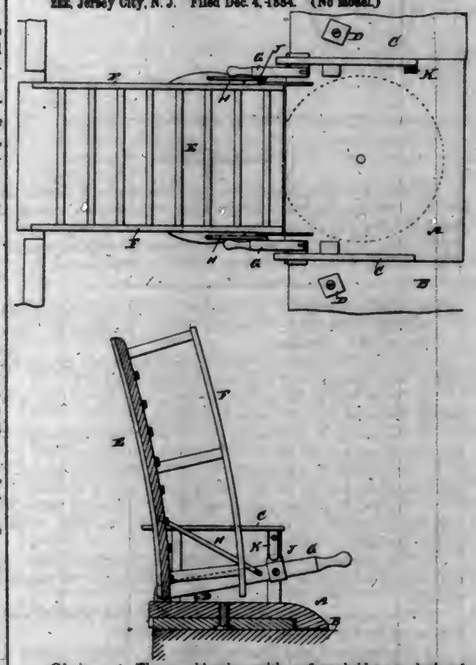


Claim.—1. In a feed-cutter, the lifting-rod H and devices connected thereto, ratchet-wheel *f*, roller-shaft F', and carrier G, having finger *k*, in combination with the graduated plate J, having lug *k'* and an open slot, *m*, and with bolt *n*, nut *o*, and the pawl *r*, as set forth.

2. In a feed-cutter, the combination, with the ratchet-wheel *f*, shaft F', and the carrier G, pivoted on said shaft, and having a slot, *e*, of pawl *d*, finger *k*, link I, sleeve *i*, set-screw *i'*, lifting-rod H, provided with stop-pin *h*, plate J, having the slot and securing devices, pawl *r*, and spring *p*, as set forth.

3. A feed-roller for a straw-cutter, consisting of the staves or sections N N N, the shaft F', carrying the hubs M, slotted at *z z*, fastening screw-bolts *z z*, and nuts *z' z'*, all constructed as shown and described, and for the purpose set forth.

313,668. GANG-PLANK FOR FERRY-BOATS. LAWRENCE F. FRAZER, Jersey City, N. J. Filed Dec. 4, 1884. (No model.)

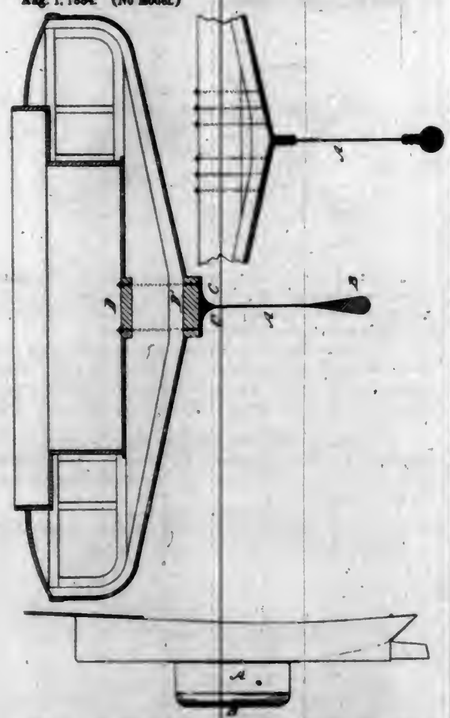


Claim.—1. The combination, with a ferry bridge or dock, of a turning platform on the same provided with side rails, and a gang-plank pivoted to the turning platform and provided with side rails, substantially as herein shown and described.

2. The combination, with a turning platform, of a gang-plank pivoted on the same, handle-levers pivoted on the platform, connecting-rods connecting the handle-levers with the pivoted gang-plank, and means for locking the gang-plank in a raised position, substantially as herein shown and described.

3. The combination, with the revolving platform A, having side rails C, of the gang-plank E, pivoted to the said platform and having side rails F, the pivoted hand-levers G, the braces H, connected to the gang-plank and levers, and the stops J K, secured, respectively, to the hand-levers and side rails of the platform, substantially as herein shown and described.

313,664. SAIL-BOAT. ISRAEL GARRARD, Frontenac, Minn. Filed Aug. 1, 1884. (No model.)



Claim.—In a vessel or boat, the continuous flexible or yielding fin or plate secured to the bottom of the vessel or boat, said plate or fin having at its lower longitudinal edge a solid enlargement of approximately conical form, with its convergent surface uniting and forming one piece with said plate or fin, substantially as and for the purpose set forth.

313,665. PROCESS OF EXTRACTING THE OIL AND ALBUMINOID MATTER FROM CORN. FRANCIS V. GREENE, Philadelphia, Pa. Filed Nov. 20, 1884. (Specimens.)

Claim.—1. The process of extracting the oil from corn through the medium of an emulsion of it with the albuminoid matter.

2. The process of extracting the albuminoid matter from corn through the medium of an emulsion of it with the oil.

3. The process of precipitating the oil and albuminoid matter of corn from an emulsion by the use of heat, for the purpose specified.

4. The process of precipitating the oil and albuminoid matter of corn from an emulsion by the use of acids, for the purpose specified.

5. The process of precipitating the oil and albuminoid matter of corn from an emulsion by the use of common salt or sea water, for the purpose specified.

6. The process of precipitating the oil and albuminoid matter of corn from an emulsion by the use of a salt of alumina, for the purpose specified.

7. The process of separating the oil and albuminoid matter of corn from an emulsion by filtration, for the purpose specified.

8. The process of extracting the oil from the albuminoid matter of corn by means of solvents, for the purpose specified.

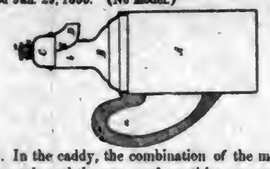
9. The process of extracting the oil from the albuminoid matter of corn by means of pressure, for the purpose specified.

10. The process of separating the emulsion of the oil and albuminoid matter of corn into a creamy portion and a precipitate by fermentation, for the purpose specified.

11. The herein-described process of extracting the oil and albuminoid matter of corn from distillery refuse in the form of an emulsion, for the purpose specified.

12. The herein-described process of extracting the oil and albuminoid matter from corn by obtaining them in the form of an emulsion, freeing them wholly or partially from water, and then separating them.

313,666. TEA OR SUGAR CADDY. GEORGE H. HAZELTON, Boston, Mass. Filed Jan. 29, 1885. (No model.)



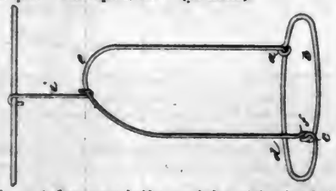
Claim.—1. In the caddy, the combination of the measuring-dome with the tubular neck, and the nose and partition arranged with such neck, as represented.

2. The combination of the can with the tubular neck provided with the nose and partition, and with the measuring-dome surmounting such neck, all being substantially as set forth.

3. The combination of the open-mouthed vessel A with the inverted tunnel B, the partition E, nose D, and the measuring dome or cap C, arranged substantially as set forth.

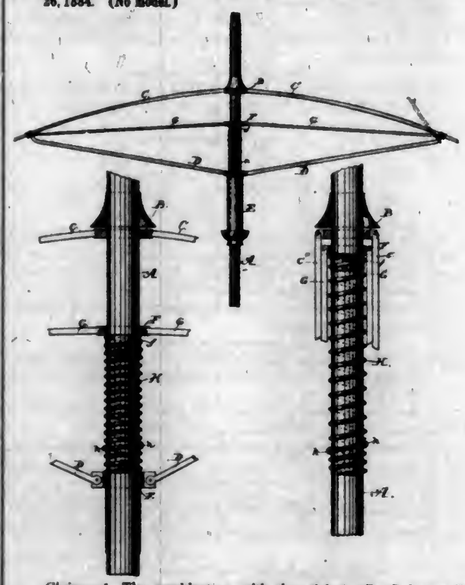
4. The measuring dome or cap C, provided with the nose-plug-receiving socket, in combination with the can having to its discharging-neck the partition and nose, as described, such dome being arranged with such neck, nose, and partition, substantially as represented.

313,667. WIRE FLOWER-POT HOLDER. WILLIAM J. HESSER, Plattsmouth, Nebr. Filed Apr. 1, 1884. (No model.)



Claim.—A flower-pot holder consisting of the ring *b d*, provided with the eyes *a c* at opposite sides, and the yoke *e*, having eye *f*, the whole formed from a single piece of wire, substantially as herein shown and described.

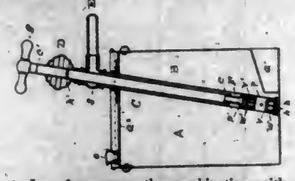
313,668. UMBRELLA. CHARLES R. HICKS, Troy, N. Y. Filed Apr. 26, 1884. (No model.)



Claim.—1. The combination, with the stick A, ribs C, braces D, and lower runner, E, of the upper runner, F, auxiliary braces G, and spring H, the upper end of said spring being permanently secured to the upper runner, F, and the lower end being secured to the stick A, the parts being arranged so that the contractile power of the spring will draw down the runner F to effect the distension of the ribs C, as herein specified.

2. In a self-opening umbrella, the spring H, having its lower end secured to the stick A, as at *h*, for the purpose of forming an elastic bumper for the lower runner, E, as herein specified.

313,669. FORCE-PUMP. GUSTAF L. HOLMBERG, Minneapolis, Minn., assignor of one-half to Andrew Charles and Carl E. Carlson, same place. Filed July 31, 1884. (No model.)

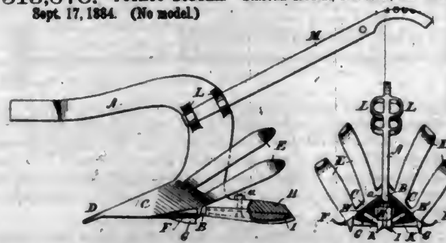


Claim.—1. In a force-pump, the combination, with an exterior fixed tube having a lifting-valve at the bottom, and at the top a collar provided with an opening for a plunger-rod and a water-outlet, of a smaller interior plunger-tube having a close-fitting plunger-head provided with a lifting-valve and an opening into the larger tube, an enlarged air-chamber on said plunger-tube near its top, and small holes in the tube within said chamber.

2. A force-pump consisting of a barrel having a valve at its lower end and a collar at its upper end provided with an opening for a plunger-rod and a water-outlet, a hollow plunger smaller than the bore of said barrel, having a tight-fitting plunger-head provided with a valve and an opening above the valve, a closed top, and an enlarged air-chamber near its top with small holes connecting said tube and chamber.

3. The combination, with a pump-barrel secured to the top and bottom of a suitable water-vessel, and having a valve and openings near its lower end, and a collar with water-outlet above said vessel, of a hollow plunger provided with an auxiliary air-chamber near its top and small holes communicating therewith, and a close-fitting plunger-head at its lower end, provided with a valve and openings into the pump-barrel.

313,670. POTATO-DIGGER. SAMUEL HUBER, Danville, Pa. Filed Sept. 17, 1884. (No model.)



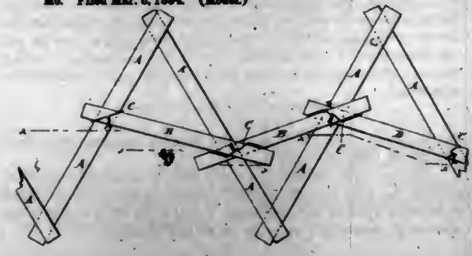
Claim.—1. In a potato-digger, the standard having the side plates braced to a central shoe, in combination with the shares secured to said side plates, and having lugs upon their lower sides and upwardly-curved rear corners, substantially as and for the purpose set forth.

2. The potato-digger herein shown and described, having the shares curved at F, and formed with the lugs G, in combination with the heel H, having the grooved shoe I secured to it, substantially as and for the purposes set forth.

313,671. ART OF DECORATING GLASS. WILLIAM HYLAND, New Haven, Conn. Filed Dec. 6, 1884. (Specimens.)

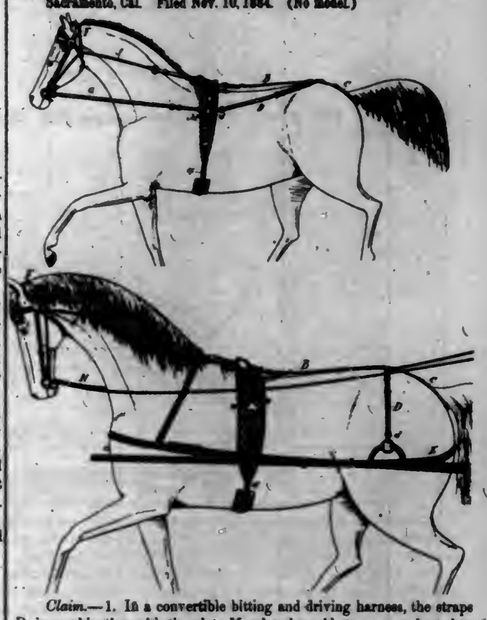
Claim.—As a new process for decorating glass and other transparent articles, consisting of, first, painting or printing an outline design having required shade-lines upon the back of the article to be decorated; second, that of filling in said outlined design with appropriate colored lacquers; third, by coating the back of said colored design with a bright reflectent metal, all being arranged and combined substantially as and for the purpose set forth.

313,672. LOCK FOR WORM-FENCES. JOSEPH J. IGLEHART, Columbia, Mo. Filed Mar. 6, 1884. (Model.)



Claim.—The combination, with the panels A of a worm-fence, of the binding-rails B and the wires C, the said wires being passed beneath all the rails, then crossed between two of the intermediate rails, and having their ends secured together above the binding-rails, substantially as herein shown and described.

313,673. BITTING AND DRIVING HARNESS. REINARD C. IRVINE, Sacramento, Cal. Filed Nov. 10, 1884. (No model.)



Claim.—1. In a convertible bitting and driving harness, the straps D, in combination with the plate M, whereby said straps are adapted to be used for either hip-straps or side straps, substantially as herein described.

2. In a convertible bitting and driving harness, the side back-straps, D, of the bitting-harness secured to the turn-back strap and to the saddle, adapted to be employed for the hip-straps of a driving-harness, substantially as herein described.

3. In a convertible bitting and driving harness, the straps D, secured by one end to the turn-back strap, and provided with means whereby it is adapted to be secured by their other ends to either the saddle or the breeching, substantially as and for the purpose herein described.

4. In a convertible bitting and driving harness, the hip-straps D of the driving-harness, in combination with the saddle provided with a suitable connecting device to engage said straps when freed of the breeching, whereby they form the side back-straps of the bitting-harness, substantially as herein described.

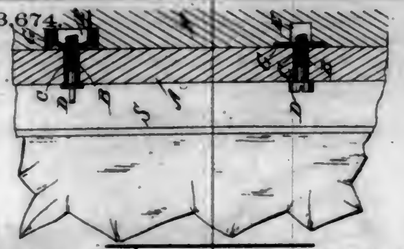
5. In a convertible bitting and driving harness, the hip-straps D of the driving-harness, having suitable fastenings by which they are attached to the breeching, in combination with the saddle A, having a loop or ring, *m*, upon each side, whereby the hip-straps, when freed from the breeching, may engage the saddle to form the side back-straps of the bitting-harness, substantially as herein described.

6. In a convertible bitting and driving harness, the combination of the saddle A, provided with the three-looped plates M, one on each side, the straps D, provided with snap-hooks, and adapted to engage the breeching or the rear loop of the plates M, and forming, according to their engagement, the hip-straps of a driving-harness or the side back-straps of a bitting-harness, the side check-straps, G, provided with snap-hooks engaging the bit-rings and the forward loop of the plates M, and the shaft-bearers and tugs I, provided with snap-hooks engaging the lower loops of said plates, substantially as herein described.

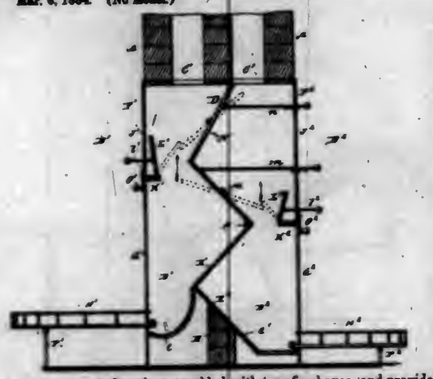
313,674. WINDOW-BEAD FASTENER. EDWIN A. JOHNSON, Allegheny City, Pa. Filed Aug. 13, 1884. (Model.)

Claim.—A window-bead fastener consisting of the screw D, passed through the bead A, and the slotted plate G, secured to the frame behind the bead and having the edges of the slot formed as described, whereby the screw may be allowed a longitudinal movement in the slot to adjust the bead toward or from the sash, and the edges of the slotted plate serve as a nut, thereby combining the functions of the well-known key-hole slotted plate and screw having removable nut, substantially as set forth.

313,674.



313,675. FIRE-PLACE. REUBEN R. JONES, Sprague, Wash. Filed Mar. 6, 1884. (No model.)



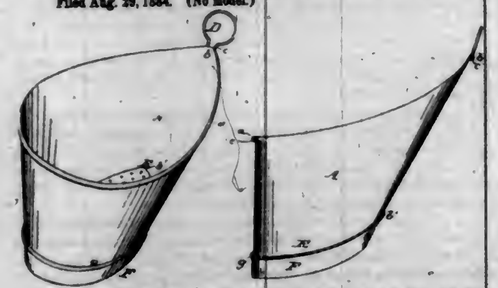
Claim.—1. A fire-place provided with two fire-boxes, and provided with dampers for conducting the heat from either fire-box into the space over the other fire-box, substantially as herein shown and described.

2. A fire-place provided with two fire-boxes and two separate flues, and with dampers for conducting the products of combustion of the fire in either fire-place into the flue of the opposite fire-box, substantially as herein shown and described.

3. The combination, with a fire-place having two separate fire-boxes, of the damper-valves L', L², M, and N, substantially as herein shown and described.

4. The combination, with a fire-place having two separate fire-boxes, of the swinging fenders H' H², adapted to close the openings in the two faces of the fire-place, and of the damper-valves L', L², M, and N, substantially as herein shown and described.

313,676. CULINARY STRAINER. LAZARUS KOHN, New York, N. Y. Filed Aug. 29, 1884. (No model.)



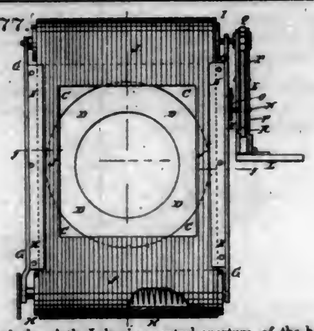
Claim.—The culinary strainer consisting of the funnel-shaped body A, having the upwardly-curved edge *a*, terminating or converging to the angle *b*, and the coincidentally-curved straining-diaphragm E, said edge *a* being provided with the strengthening-wire *c*, bent to form the ring D, substantially as shown and described.

313,677. INSTANTANEOUS SHUTTER FOR PHOTOGRAPHIC LENSES. AUGUST LOEFFLER, Tompkinsville, N. Y. Filed Dec. 2, 1884. (No model.)

Claim.—1. In an instantaneous shutter for photograph-lenses, the combination, with the plate C, having opening to receive the lens-tube, of the spring-roller H, the plain roller I, and the flexible material J, attached to the said rollers, and a mechanism for revolving and releasing the rollers, substantially as herein shown and described.

2. In an instantaneous shutter for photograph-lenses, the combination, with the plate C, having aperture, the spring-roller H, the plain

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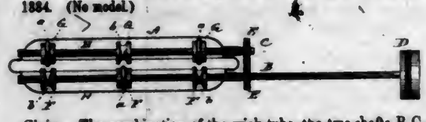


roller I, and the cloth J, having central aperture, of the handle L, the ratchet-wheel Q, and the spring lever-pawl P R, substantially as herein shown and described, whereby the said rollers can be readily turned and released, as set forth.

3. In an instantaneous shutter for photograph-lenses, the combination, with the plate C, having aperture, the spring-roller H, the plain roller I, the cloth J, having opening, and the handle, ratchet-wheel, and spring lever-pawl L Q P R, of the pin M, the pivoted latch N, and the stop-pin O, substantially as herein shown and described, whereby the said handle will be automatically caught and held against the draft of the spring-roller, as set forth.

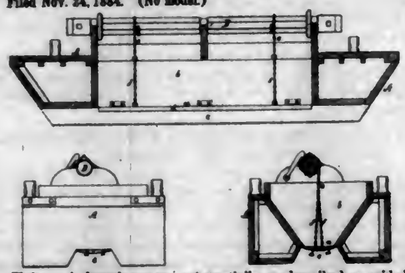
4. In an instantaneous shutter for photographic lenses, the combination, with the plate C, having aperture, and provided with keepers E, of the plate D, having aperture, and the clamping-screw F, substantially as herein shown and described, whereby the shutter can be readily applied to lens-tubes of different sizes, as set forth.

313,678. WICK-ADJUSTER. MARION A. MORRIS, Waterbury, Conn., assignor to Scovill Manufacturing Company, same place. Filed Oct. 13, 1884. (No model.)



Claim.—The combination of the wick-tube, the two shafts B C, arranged transversely across said wick-tube, one upon each side the wick and parallel therewith, the two shafts geared together, one provided with the head D, combined with two or more pairs of cylinders, F G, fixed to said shafts, one cylinder of each pair constructed with an annular rib, and the other with a corresponding annular groove, *b*, substantially as described.

313,679. DUMPING-SCOW. JAMES MURPHY, Boston, Mass., assignor, by mesne assignments, to himself and Charles H. Souther, same place. Filed Nov. 24, 1884. (No model.)

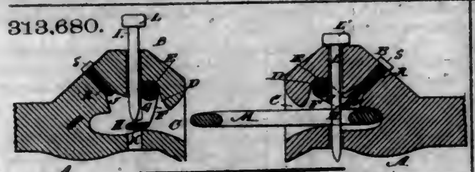


Claim.—A dumping-scow, substantially as described, provided not only with a hold open at its bottom and there furnished with doors, but with one or more air-chambers extending entirely around such hold, and with a passage going entirely through it (the said scow) from end to end thereof between the side and under the end air-spaces or chambers, the side air-spaces alongside of the said passage being deeper than the end ones immediately over it, and such scow having mechanism for closing the doors of the educt of the hold, and all being to operate essentially as represented.

313,680. CAR-COUPLING. THOS. NICHOLAS, Ishpeming, Mich. Filed Dec. 26, 1884. (No model.)

Claim.—The combination, with a draw-head having an inclined aperture, R, in the rear, of the plate F, pivoted in the draw-head, which plate has an aperture, G, and a flange, H, and of the screw S, held in the aperture R, substantially as herein shown and described.

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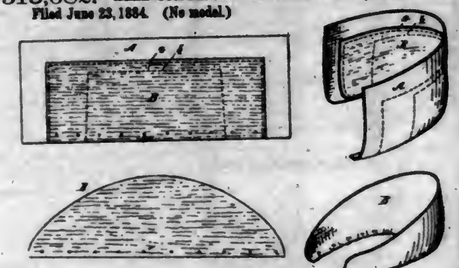


313,681. NAIL. JOSEPH M. OVERELL, Evansville, Ind., assignor of one-fourth to George R. Pyne, same place. Filed Sept. 2, 1884. (No model.)



Claim.—A double-pointed nail enlarged on any two of its opposite sides to form a head anywhere between its two points, as described, and for the purposes set forth.

313,682. HEEL-STIFFENER. HENRY PELANT, Wyandotte, Mich. Filed June 23, 1884. (No model.)

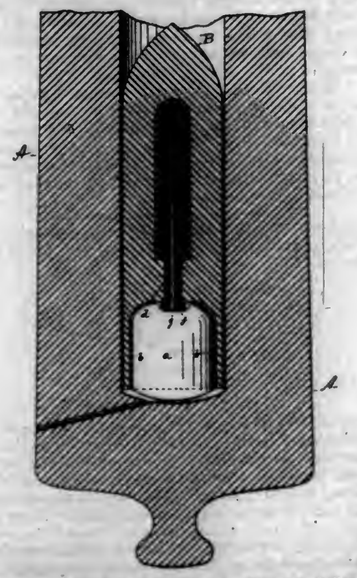


Claim.—1. As a new article of manufacture, a heel-stiffening made of the inner bark of the spruce tree or other bark having similar qualities, as set forth.

2. As a new article of manufacture, a heel-stiffening made of the inner bark of any suitable tree, as specified, and pressed into the usual form of a boot or shoe counter, as set forth.

3. As a new article of manufacture, a heel-stiffening made of any suitable bark, as specified, and stuffed or filled with an oily substance or compound, as and for the purpose set forth.

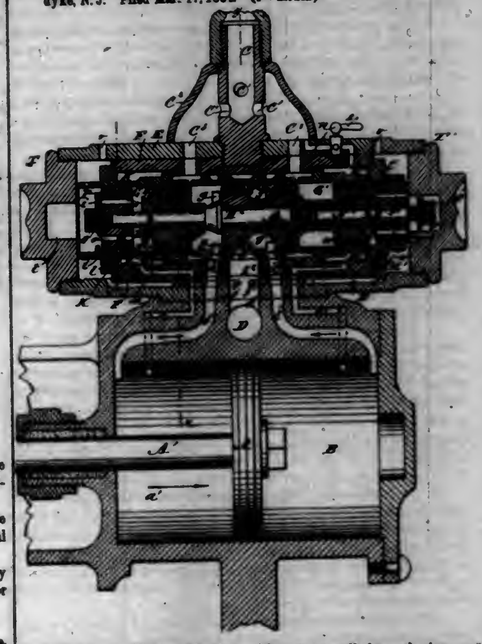
313,683. SHELL. JOHN S. PENNYCOOK, Brooklyn, assignor of one-fourth to William P. St. John, New York, N. Y. Filed Oct. 20, 1884. (No model.)



Claim.—1. A projectile consisting of a solid outer shell or body having an interior chamber for the bursting-charge, an open-ended chamber at its base for the propelling-charge, and a fuse connecting the two chambers and extending to the head of the propelling-charge chamber, substantially as described.

2. A projectile consisting of a solid outer shell or body having an interior chamber for the bursting-charge, an open-ended chamber at its base for the propelling-charge, a contracted neck connecting the two chambers, and a hollow plug fitting said neck, carrying a fuse, and having a head to which the propelling-charge may be secured, substantially as described.

313,684. STEAM-ACTUATED VALVE. WALTER S. PHELPS, Wortendyke, N. J. Filed Mar. 17, 1884. (No model.)



Claim.—1. The combination, with a steam cylinder and piston, of a steam-chest connected by channels with a steam-cylinder, and containing a piston-rod on which are mounted three fixed pistons and two loose pistons at the ends, substantially as herein shown and described.

2. The combination, with a steam-cylinder, of a steam-chest adjustable at any angle on the cylinder, and connected at its central part or face with suitable openings or channels in the same, said openings being semicircular in form on the face, and adapted to suit any position in which the steam-chest may be placed thereon, said openings in steam-cylinder to connect with corresponding openings or apertures leading from or near the ends of the steam-cylinder, and between these openings a circular exhaust-opening, all corresponding with similar openings in the face of the steam-chest, of a longitudinal piston-rod, M, in said steam-chest, working through the central cylinder into two end cylinders separate and distinct from each other, said rod being mounted with a piston-valve upon its central part working in the central cylinder, and adapted to work alternately and connect the two opposite openings or chambers leading from the central cylinder to the ends of the main steam-cylinder with the exhaust-port of the same in connection, and having two pistons on each end of the piston-rod M, working in separate and distinct end cylinders, said pistons being comprised of a tight piston fitted upon the rod and secured on the same, and provided with a cylindrical outside surface having an annular groove, said surface fitting and covering perforated openings that pass through the loose piston, said loose piston secured by nut, key, pin, or otherwise at the extreme end of rod M" of said pistons, each working alternately over a steam and exhaust port in said end cylinders, substantially as herein shown and described.

3. The combination, with the steam cylinder and piston, of a steam-chest connected by channels with the cylinder, a piston-rod in the steam-chest, a piston mounted on the center of the said piston-rod, and adapted to alternately open and close the two channels leading from the opposite ends of the cylinder into the exhaust-port, pistons mounted on the said piston-rod at each side of the middle piston, and adapted to be acted upon by steam from the main cylinder, and of sliding pistons mounted loosely on the ends of the piston-rod, and adapted to open and close the ports for the exhaust-steam that has acted on the pistons mounted on the piston-rod in the chest, substantially as herein shown and described.

4. The combination, with a steam cylinder and piston, of a steam-chest connected with the cylinder by suitable channels, a piston-rod held to move longitudinally in the steam-chest, a piston mounted on the cen-

tral part of the said piston-rod, and adapted to alternately connect the channels extending from opposite ends of the cylinder with the exhaust-port, pistons mounted on the piston-rod in the chest at each side of the central piston, and adapted to be acted upon by steam from the main cylinder, pistons mounted loosely on the ends of the piston-rod in the steam-chest, and adapted to open and close the exhaust-ports for the steam that has acted upon the above-mentioned pistons on the piston-rod in the chest, and of nuts secured on the ends of the piston-rod in the chest for the purpose of operating the sliding pistons in either direction, substantially as herein shown and described.

5. The combination of a steam-cylinder constructed with openings and channels leading from the face or central port where steam-chest is secured to cylinder, said openings all being semicircular in form around the exhaust-opening, and in a proper position and of sufficient length to allow the chest to be placed on longitudinally crosswise or any angle from the above position, and yet retain their proper relative openings with each other for the free passage of fluids or steam back and forth, substantially as herein shown and described.

6. The combination, with a steam cylinder and piston, of the steam-chest E, the piston-rod M in the same, the central piston, H^2, and end pistons, N and N', provided on their outer end surfaces with cylindrical projections, substantially as herein shown and described.

7. The combination, with a steam cylinder and piston, of the steam-chest E, the piston-rod M in the same, the central piston, H^2, and end pistons, N and N', provided on their outer end surfaces with cylindrical projections, which projections are provided with annular grooves in their cylindrical surfaces, substantially as herein shown and described.

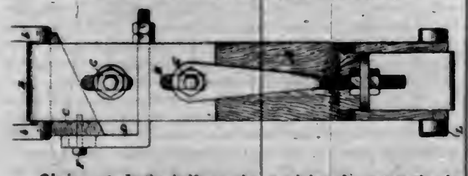
8. The combination, with the steam cylinder and piston, of the steam-chest on the same, the cylinders G, G', and G^2 in the steam-chest, of which cylinders G and G' are connected with the opposite ends of the cylinder F, and G^2 is connected within the cylinder F, and in connection with the steam-ports and exhaust-pipe, the piston-rod M, the piston H^2, mounted on the piston-rod, within the cylinder G^2, the pistons N and N', mounted on the piston-rod M, within the cylinders G and G', and the loosely-mounted pistons P and P' on the piston-rod M, within the cylinders G and G', substantially as herein shown and described.

9. The combination, with the steam cylinder and piston, of the steam-chest E, the cylinder F in the same, the cylinders G, G', and G^2 in the cylinder F, the cylinders G and G' being provided with the slots or apertures *l* and *i* and *l'* and *i'*, and the cylinder G^2 being provided with the slots *g*, *g'*, and g^2, the piston-rod M, the pistons H^2, N, and N', mounted rigidly on the same, and the pistons P and P', mounted loosely on the same, substantially as herein shown and described.

10. The combination, with the steam cylinder and piston, of a steam-chest connected with the cylinder by suitable channels, the piston-rod held to reciprocate in the steam-chest, a central and two side pistons fixed on the said piston-rod, which steam-chest is provided with a valved channel, *n*, for admitting the live steam direct from the supply-pipe, to act on one of the fixed end pistons on the piston-rod in the steam-chest, and with apertures C^2, also communicating with the supply-pipe, substantially as herein shown and described.

11. The combination, with the steam cylinder and piston, of a steam-chest, the cylinder F in the same, the cylinder G^2, between which and the cylinder F a steam-chamber is formed which is in communication with channels leading to the opposite ends of the main cylinder, the cylinders G and G', between which and the cylinder F steam-chambers K and K' are formed, which are in communication by steam-channels with the opposite ends of the main cylinder, and between which cylinders G and G' and the walls of the steam-chest steam-chambers are formed which are in communication with the exhaust-pipe, the piston-rod M in the steam-chest, the piston H^2, mounted rigidly on the center of the piston-rod and within the cylinder G^2, and the pistons N, P, N', and P', mounted on the piston-rod M, on the opposite sides of the piston H^2 and within the cylinders G and G', substantially as herein shown and described.

313,685. KNIFE-CARRYING CRANK-LEG FOR COTTON-GINS. M. POLLITZER, Beaufort, S. C. Filed Nov. 20, 1884. (No model.)



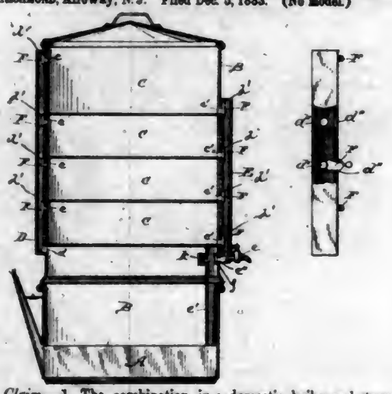
Claim.—1. In the knife-carrying crank-leg of a cotton-gin, the combination, with the shaft A and slotted cap B, of an interposed wedge, C, having suitable adjusting devices, whereby the position of the cap on the shaft, and so the effective length of the crank-leg, is adjusted, substantially as and for the purposes set forth.

2. In the knife-carrying crank-leg of a cotton-gin, the combination, with the shaft A and slotted cap B, of an interposed wedge, C, and adjusting-bolt D, whereby the position of the cap on the shaft, and so the effective length of the crank-leg, is adjusted, substantially as and for the purposes set forth.

3. In the knife-carrying crank-leg of a cotton-gin, the combination, with the shaft A and cap B, of an interposed wedge, C, and a slotted adjusting-bolt, D, and connecting-bolt F, substantially as and for the purposes set forth.

4. In the knife-carrying crank-leg of a cotton-gin, the combination, with the shaft A and slotted cap B, of an interposed adjustable wedge, C, having suitable adjusting devices, and securing-bolts G G, substantially as and for the purposes set forth.

313,686. BOILER AND STEAMER FOR DOMESTIC PURPOSES. E. RICHMOND, Alloway, N. J. Filed Dec. 5, 1883. (No model.)



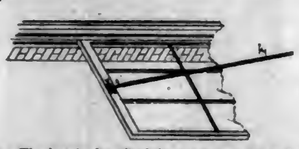
Claim.—1. The combination, in a domestic boiler and steamer, of the steam-chest B and the steam-pipe D, said steam-pipe being separate from and independent of the boiler, all in the manner and for the purposes hereinbefore set forth.

2. The combination, in a domestic steamer, of the pipe E, having a faucet, *e*, an offset-pipe, *e'*, and inlets *d''*, with the compartments C, having outlets *c'*, said pipe E being further provided with a vertical sliding valve, as at *f*, inserted and working at the junction of said pipe and offset-pipe, all in the manner hereinbefore described, whereby condensed steam may be withdrawn from said compartments and either discharged or returned to the boiler, as may be desired.

3. The combination, in a domestic steamer, of the pipe D, having an inlet, *d*, and outlets *d''*, with the compartments C, having inlets *c* and outlets *c'*, the pipe E, having a faucet, *e*, an offset-pipe, *e'*, inlets *d''*, and a vertical sliding valve, *f*, like the valves F, inserted at the junction of said pipes E and *e'*, all in the manner hereinbefore described, whereby steam may be simultaneously supplied to and withdrawn from said compartments.

4. The combination, in a domestic steamer, of the pipe E, having a faucet, *e*, orifices *d''*, and an offset-pipe, *e'*, provided with an inlet, *k*, with the compartments C, having orifices *c* and *c'*, and the valves F, said pipe E having slots *d''*, and said inlet *k* being closed, as desired, by a suitable slide-valve or screw-cap, all in the manner hereinbefore described, for the purpose of supplying steam to said compartments through the pipe E when rapid steaming is required.

313,687. WINDOW-SASH PULL. HENRY B. SARGENT, New Haven, Conn., assignor to Sargent & Co., same place. Filed Nov. 24, 1884. (No model.)

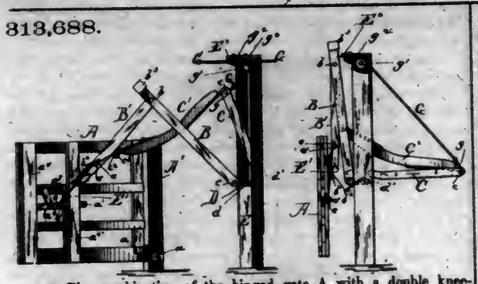


Claim.—The herein-described improvement in sash-pulls, consisting of the plate A, having an opening, B, therein, the said opening constructed with a projection from one side extending into the opening, combined with a tip, D, fitted for attachment to the staff, and constructed with a loop, C, at its upper end, the said loop in a plane at substantially at right angles to the tip, substantially as described.

313,688. APPARATUS FOR OPENING AND CLOSING GATES. W. SCHULTE, La Porte, Ind. Filed Apr. 26, 1884. (No model.)

Claim.—1. The combination of a hinged or swinging gate with a double knee-jointed lever consisting of the arms B B', pivoted together at their ends, and the arms C C', pivoted together at their ends, said arm C' having its other end pivoted to the arm B', the arms B and C having their other ends pivoted to a plate, D, substantially as specified.

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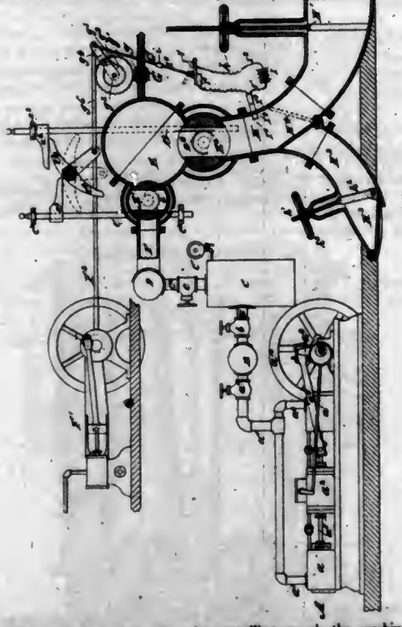


2. The combination of the hinged gate A with a double knee-jointed lever having one end attached to the gate, and the other to the post for opening and closing said gate, said double knee-jointed lever consisting of arms B B', hinged together at one end, and arms C C', hinged together at one end, said arm C' having also one end hinged to arm B', and a latch bolt or bar connected by a rod, E', to the double knee-jointed lever, so as to withdraw the latch-bar when the gate is opened, substantially as specified.

3. The combination, with the gate A, provided with latch-bar *a'*, connected to said gate by a pivoted link or strap, a^6, of the double knee-jointed lever consisting of the arms B B', pivoted together at their ends, and the arms C C', pivoted together at their ends, said arm C' having its other end pivoted to the arm B', the arms B and C having their other ends pivoted to a plate, D, and cords G and G', for operating said lever, substantially as specified.

4. The combination, with the gate A, of the pivoted arms B B', adapted to shut down past the straight line to hold the gate closed, and the pivoted arms C C', connected to said arms B B', and a cord for operating the same to open and close the gate, substantially as specified.

313,689. MEANS FOR PROPELLING VESSELS. SAMUEL SHOR and JOHN A. SHOR, Brooklyn, assignors of one-fourth to Richard Poillon, New York, N. Y. Filed Aug. 19, 1884. (No model.)



Claim.—1. In an apparatus for propelling vessels, the combination of a combustion-chamber, a conduit extending from the combustion-chamber to the water, a valve controlling the admission of air to the combustion-chamber, a valve controlling the admission of gas or suitable hydrocarbon into the combustion-chamber, a valve for controlling the passage of the contents of the combustion-chamber into the said conduit, and mechanism for igniting the contents of the combustion-chamber and conduit, substantially as specified.

2. In an apparatus for propelling vessels, the combination of a combustion-chamber, a valve controlling the admission of air into the combustion-chamber, a valve controlling the admission of gas or suitable hydrocarbon into the combustion-chamber, a conduit leading from the combustion-chamber to the water, a valve controlling communication between the combustion-chamber and the conduit, a branch conduit extending from the main conduit, valves whereby either conduit may be adapted for use and the other rendered useless, and mechanism for igniting the contents of the conduit and combustion-chamber, substantially as specified.

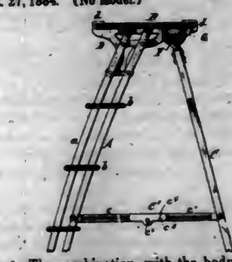
3. In an apparatus for propelling vessels, the combination of a combustion-chamber, a valve controlling the admission of air into the combustion-chamber, a valve controlling the admission of gas or suitable hydrocarbon into the combustion-chamber, a conduit leading from the combustion-chamber to the water, a valve controlling communication between the combustion-chamber and the conduit, means for igniting the contents of the conduit and combustion-chamber, and a mechanism whereby the said valves and the igniting mechanism will be operated at the proper times, substantially as specified.

4. In an apparatus for propelling vessels, the combination of an air-compressor, a combustion-chamber, a valve controlling the admission of compressed air to the combustion-chamber, a valve controlling the admission of gas or suitable hydrocarbon into the combustion-chamber, a conduit leading from the combustion-chamber to the water, a valve controlling communication between the combustion-chamber and the conduit, and a mechanism for igniting the contents of the conduit and combustion-chamber, substantially as specified.

5. In an apparatus for propelling vessels, the combination of air-compressors A, pipes a^5, cock a^{11}, chamber B, pipes B', valves *b*, chambers C, pipes C^2, valves *c*, chamber D, pipes F, combustion-chambers E, valves E', valves G', conduits H, and valves E^2, substantially as specified.

6. In an apparatus for propelling vessels, the combination of a combustion-chamber, E, valve E', toothed sector *e*, toothed rack-bar *e'*, toe e^3, rocker e^4, valve E^2, toothed sector e^6, toothed rack-bar e^7, toe e^8, pipe G, valve G', pinion *g*, toothed gear-wheel *g'*, shaft g^2, ratchet-wheel g^3, and arm g^4, carrying pawl g^5, substantially as specified.

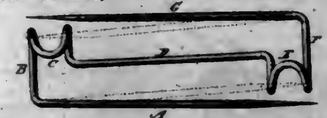
313,690. STEP-LADDER. HENRY P. SPENCER, Forestville, N. Y. Filed Oct. 27, 1884. (No model.)



Claim.—1. The combination, with the body A and platform B of a ladder, of brackets D, secured to the body A, and provided with lugs or ears *d*, adapted to be bent over the top of the platform, substantially as set forth.

2. The combination, with the body of the ladder and standard C, provided with a socket, F, having an extension, f^3, of the metallic bracket D, secured to the body and provided with a pin, *g*, over which the socket F engages, and a hood or cap, G, adapted to engage over the extension f^3, substantially as set forth.

313,691. SAFETY-PIN. HENRY ST. JOHN, Hartford, Conn. Filed Sept. 22, 1884. (No model.)



Claim.—1. The herein-described safety-pin, consisting of a body and two pins formed from a single piece, the pin portions bent to bring them into substantial parallelism with the body, the end of the body corresponding to the points, provided with a guard for each pin, substantially as described.

2. A safety-pin made from a single piece of wire, consisting of the central body, D, bent at one end to form the guard C, and continued to form the spring-pin A, substantially parallel with the body D, the body bent to form the guard E at the other end, and extended to form the pin G, substantially parallel with the pin A and the body D, said pins arranged to engage the said guards, substantially as described.

313,692. DOOR-KEY. THOMAS TAYLOR, Norwalk, Conn., assignor to the Norwalk Lock Company, same place. Filed Oct. 20, 1884. (No model.)

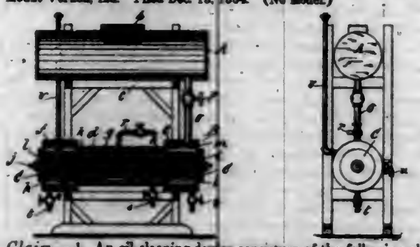
Claim.—The herein-described door-key, consisting of the body A, provided with the bit B, combined with the nut C at the end of said

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body, fixed as to longitudinal movement, but free for rotation, the body constructed with an angular longitudinal recess corresponding with the opening through the nut, and the handle D constructed with the spindle E corresponding in shape to the non-cylindrical recess in the body of the key, and the said spindle externally screw-threaded corresponding to the nut, substantially as described.

313,693. APPARATUS FOR CLEANING OILS. JOHN C. THORNTON, Mount Vernon, Ind. Filed Dec. 15, 1884. (No model.)



Claim.—1. An oil-cleaning device consisting of the following elements, namely: an elevated receiving-tank having a pipe-connection with a filtering-tank placed below said receiving-tank, said filtering-tank having a central cylinder with perforated extensions of said cylinder at each end thereof, and closed annular chambers surrounding said perforated extensions, filtering material filling said central cylinder and its extensions, and suitable waste-pipes, as shown and described, all combined and adapted to co-operate substantially as specified.

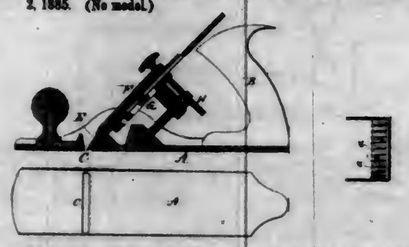
2. An oil-cleaning device consisting of the following elements, namely: an elevated receiving-tank having a pipe-connection with a filtering-tank placed below the receiving-tank, said filtering-tank having a central cylinder with perforated extensions of said cylinder at each end thereof, and closed annular chambers surrounding said perforated extensions, a steam-jacket surrounding said central cylinder, and filtering material filling said cylinder and its extensions, all combined and adapted to co-operate substantially as specified.

3. In an oil-cleaning device, the combination, substantially as specified, of cylinder *d*, annular chambers *m* and *n*, perforated tubes *h* and *i*, rod *j*, disks *k k* and *l l*, filtering material embraced between said disks, and covers C C.

4. In an oil-cleaning device, the filtering device consisting of a central rod, two inner and two outer retaining-disks mounted on said rod, alternate layers of wool and wood sawdust wrapped about the middle portion of said rod between said inner retaining-disks, and wool alone wrapped about the ends of said rod and between said inner and outer disks, all combined substantially as specified.

5. In an oil-cleaning device, the combination, with an elevated receiving-tank, a filtering-tank placed below said receiving-tank and having a pipe-connection therewith, and filtering material in said filtering-tank, of an open pipe connected with the interior of said filtering-tank and extending above said receiving-tank, substantially as and for the purpose specified.

313,694. JOINER'S PLANE. WILLIAM TIDSWELL, Middletown, assignor to the Meriden Malleable Iron Company, Meriden, Conn. Filed Feb. 2, 1885. (No model.)

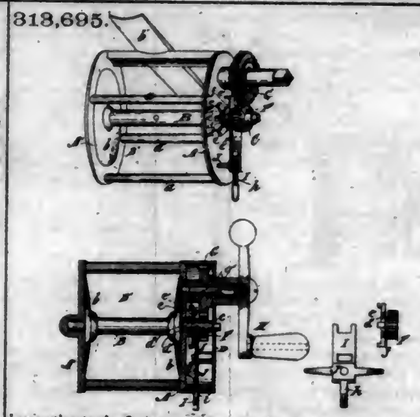


Claim.—In a joiner's plane in which the stock is of cast metal, and in which the cutter is made adjustable, the bearing D in the rear of the mouth, and which supports the cutter, constructed to form a series of ribs upon its face and upon which ribs the cutter will rest, substantially as described.

313,695. FISHING-REEL. EUGENE F. TREFT, Jersey City, N. J. Filed July 24, 1884. (No model.)

Claim.—1. In a fishing-reel, the combination of a rotary bobbin, a clutch one portion of which is affixed to said bobbin or an appurtenance thereof, and the other to a gear-wheel, another gear-wheel for imparting motion to the first-named gear-wheel, a lever for engaging and disengaging said clutch, and a catch for retaining said lever in different positions, substantially as specified.

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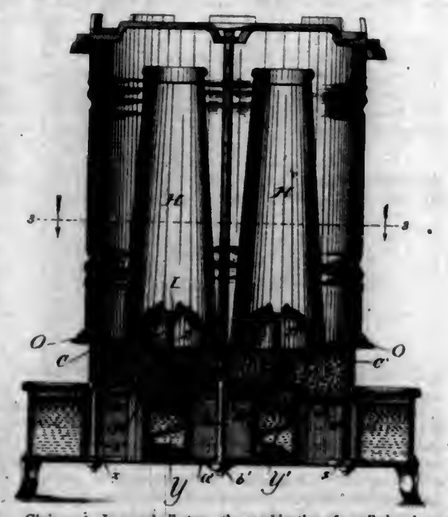
2. In a fishing-reel, the combination of a rotary bobbin, a shaft on said bobbin, a clutch having one portion fitting loosely about said shaft and another portion affixed thereto, a gear-wheel rigidly affixed to said first-named portion and adjustable into different positions on said shaft, another gear-wheel engaging with said adjustable gear-wheel for imparting motion thereto, and a lever for engaging and disengaging the clutch, substantially as specified.

3. In a fishing-reel, the combination of a rotary bobbin, a clutch, gear-wheels for imparting motion to said clutch, a lever for engaging and disengaging the clutch, a catch for retaining said lever in different positions, a spring acting in conjunction with said catch, and a pin for limiting the movement of the lever in one direction, substantially as specified.

4. In a fishing-reel, the combination of a bobbin, B', having the spindle B, with the outwardly-extending portion C, the clutch E, composed of the portions *d d'*, provided with arms *e e'*, the adjustable gear-wheel F, the gear-wheel G, the crank H, and the lever I, substantially as specified.

5. In a reel, the combination of a bobbin, the clutch E, the lever I, having the outwardly-extending end *h*, the spring J, and the cap D, having the slot *i*, substantially as specified.

313,696. OIL-STOVE. EUGENE R. WALKER, Chicago, Ill., assignor to the Michigan Stove Company, Detroit, Mich. Filed July 5, 1883. (No model.)



Claim.—1. In a coal-oil stove, the combination of an oil chamber or reservoir forming a hollow square, one or more wick-reservoirs located within said hollow square, and connected therewith by oilways, the sides and bottom of the oil chamber or reservoir, the sides, ends, and bottoms of the wick reservoir or reservoirs, and the oilways connecting the latter with the oil chamber or reservoir, being formed in one piece and provided with projecting lugs, and a top for said chamber or reservoir provided with corresponding lugs, whereby the top may be firmly and securely bolted to the reservoir, substantially as described and shown.

2. In a coal-oil stove or range, the combination of an oil-reservoir forming a hollow square, wick-reservoirs located within said hollow square, and connected therewith by oilways, burner-carrying covers for the wick-reservoirs, a cross-brace joining the latter, a fastening-plate resting upon the covers, and screw-bolt connection between the cross-brace and fastening-plate, whereby the latter may be clamped down upon the covers, securing them firmly in position, substantially as shown and described.

3. In a coal-oil stove or range, the combination, with a burner or burners, each burner provided with an independent wick-reservoir placed in the inside of and connected by oilways with an oil chamber or reservoir surrounding said wick-reservoirs, of a flange or lugs on the top of said oil chamber or reservoir, and a diaphragm of one thickness of perforated metal resting thereon, having a slot cut therein for said burner or burners, and a cast-iron box or frame provided with an opening or openings cast therein, in which are also placed a diaphragm or diaphragms of a single thickness of perforated metal, provided with a slot for the burner, the said cast-iron box or frame also resting upon the said flange or lugs on the top of the oil chamber or reservoir, the whole substantially as described, and for the purpose specified.

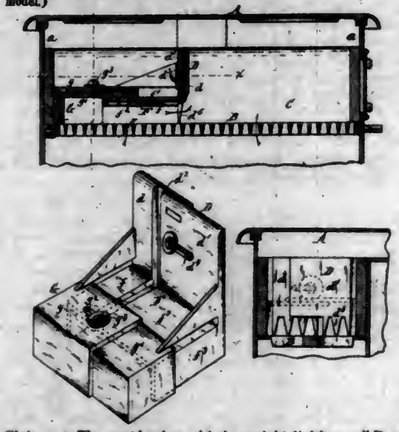
4. In an oil-stove, the combination of a double diaphragm composed of two single diaphragms, each one of but one thickness of perforated metal, one of said diaphragms resting upon a suitable lug or lugs cast on the top of the oil chamber or reservoir, and the other of said diaphragms resting upon a cast-iron frame, also supported by said flange or lugs on the top of said oil chamber or reservoir, with a flame cone or cones placed on said cast-iron box or frame and fitting over one of said diaphragms, the whole substantially as described, and for the purpose specified.

5. The combination, in an oil-stove, of a drum or casing having a door or doors placed in the front thereof by means of cast-iron door-casings, with a chimney or chimneys placed therein, and held in proper position by the said door-casings, through an intermediate cast-iron box, the said chimneys extending from a bed-bottom plate fitting over and surrounding the flame cone or cones of the burner or burners of said stove to near the top plate of said drum, the whole substantially as described, and for the purpose specified.

6. In an oil-stove or range, the combination of a drum having a top and a bottom casting fastened thereto, and flanged burner-cones resting upon a basal supporting-plate with perforated countersunk seats, and extending upwardly through openings in the bottom casting, said bottom casting resting upon the flanges of the cones, and being itself provided with upwardly-extending flanges for the reception of the burner-chimneys, substantially as shown and described.

7. In an oil-stove or range, the combination, with the wick-reservoirs, of a burner-cone-supporting plate having openings above the said reservoirs, and provided with perforated countersunk seats, the flanged burner-cones resting upon said seats, and the superjacent drum-bottom plate above which the cones project, said bottom plate resting upon the flanges of the cone, substantially as shown and described.

313,697. STOVE-GRATE. RICHARD WALKER, Batavia, N. Y., assignor of one-half to Charles Blumrick, same place. Filed Mar. 18, 1884. (No model.)

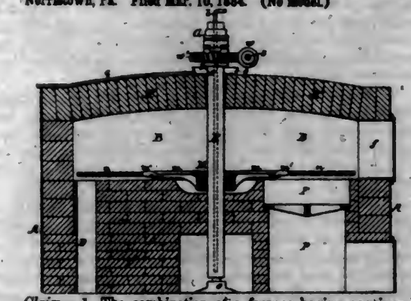


Claim.—1. The combination, with the upright division-wall D, of the horizontal deflecting-plate F and side and end supports, f^3 f^3 d^3, whereby the plate is held above the grate, thereby forming an air-passage underneath the horizontal plate F, by which the air entering below said plate is conducted to the fire, substantially as set forth.

2. The combination, with the division-wall D and deflecting-plate F, each composed of two parts adjustably secured together, of the adjustable extension G, composed of two parts adjustably secured together, substantially as set forth.

3. The combination, with the division-wall D, composed of two parts, *d d'*, both secured adjustably together, and each provided with a deflecting-plate, *f f'*, and overlapping tongue and supports f^2 f^3, of the extension G, composed of two parts, *g g'*, which overlap the deflecting-plate F, and which are adjustably secured together, substantially as set forth.

313,698. FURNACE FOR BLUING TACKS. CHARLES P. WEAVER, Norristown, Pa. Filed Mar. 10, 1884. (No model.)



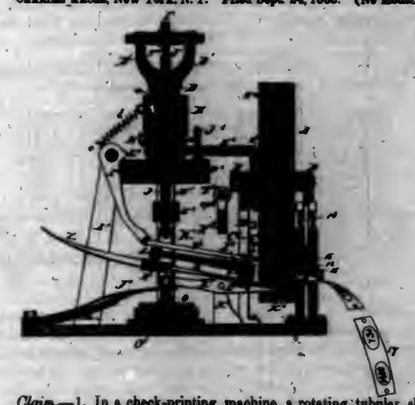
Claim.—1. The combination of a furnace having openings in the side walls of the combustion-chamber, a vertical rotating shaft carrying a horizontal table within the said combustion-chamber, pans supported on the table and removable through said openings, and a fire-place below the table, all substantially as set forth.

2. The combination of the fire-place and combustion-chamber of a furnace with an open rotary table built up of detachable sections.

3. The combination of the furnace with a rotary table consisting of radial arms, extension-pieces *m'*, and segmental gratings *n*, supported thereon.

4. The combination of the furnace with vertical hollow shaft, inlet-pipe *t*, outlet *r*, receiving-pan, and waste-pipe, substantially as set forth.

313,699. AUTOMATIC CHECK-MACHINE. CHARLES W. WEBB and CHARLES KRUSE, New York, N. Y. Filed Sept. 24, 1883. (No model.)



Claim.—1. In a check-printing machine, a rotating tubular shaft, D, a rod, J, reciprocating within said shaft, upheld by a spring, J^3, and depressed by a lever pivoted to the rotating shaft D, a toothed segment, H^3, secured to the shaft D, and a pin, J^4, secured mediately to the rod V and playing through the segment H^3, so as to communicate its movement to the rod J without interfering with the independent longitudinal movement of said rod, all combined with each other and with a reciprocally-rotating type-wheel, A, geared by a beveled pinion, H^2, to the segment H^3, and a reciprocating platen adapted to move to and from the periphery of the wheel and to be actuated mediately by the movement of said rod J, all substantially in the manner and for the purpose herein set forth.

2. The combination, with the rod J and a disk, J^3, carried thereby, a sleeve, L^2, sliding to and from the platen K^3 upon a rod, L', fixed to a cross-bar upon the oscillating arms K' K', which support at one end said platen, and are pivoted at the other to a frame supporting the rod J, a slotted yoke, L^2, carried by said sleeve, and a cam, *b*, within said yoke, of the spring-actuated lever L^4, pivoted at one end to a fixed support in line with the disk J^3, and at the other to a link, *d*, connecting it with said sleeve, and fitted with a toe, L^5, to engage said disk, substantially in the manner and for the purpose herein set forth.

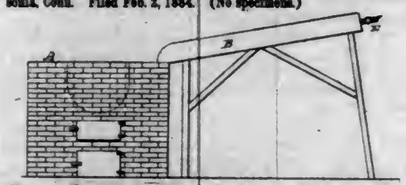
3. The rock-shaft T^2 and segment-rack T, carried thereby, in combination with a reciprocating rod, J, spring J^3, frame K, arm K', rod U, and spring *t*, and with a pinion geared to the segment-rack, which, rotating loosely in one direction upon the spindle or shaft P^2 of a registering device, is adapted, when reversed, to engage the same by means of an intervening pawl and ratchet-wheel, substantially in the manner and for the purpose herein set forth.

4. In a check-machine, the combination, with a type-wheel, an impression-plate, and a shaft operating by its reciprocation and rotation to actuate the type-wheel and impression-plate, of the paper-feeding mechanism, consisting of the guide-tube N, adapted to prevent a retrograde movement of the paper, and the reciprocating yoke L^3, adapted to automatically engage and push forward the paper and return loosely thereon, and to be operated by a lever, L^4, actuated by the reciprocating movement of the operating-shaft, substantially in the manner and for the purpose herein set forth.

5. In a check-machine, the combination, with its check printing and delivering mechanism, of independent punching or imprinting devices adapted to mark, preparatory to the issue of the printed check, the contiguous edges of said printed check and of the blank remaining for the next check, substantially in the manner and for the purpose herein set forth.

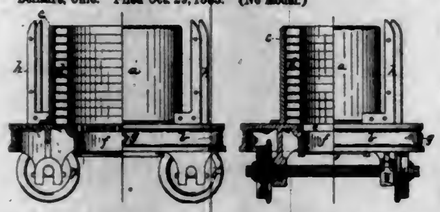
6. In a check-machine, the combination, with a cutting-knife adapted to sever the check printed in the machine from the blank yet to be printed, of devices moving in unison with the knife, one on either side thereof, adapted to mark simultaneously with the severance of the printed check from the blank check the contiguous edges of the check and blank on each side of the line of severance, substantially in the manner and for the purpose herein set forth.

313,700. PROCESS OF COATING METAL. WILLIAM J. WILDER, Ansonia, Conn. Filed Feb. 2, 1884. (No specimens.)



Claim.—The process herein described for tinning sheet metals, consisting in applying a blast of cold air to the reverse side while the hot tin is being applied to the first side, substantially as described.

313,701. STEEL-LADLE-DRYING FURNACE. DAVID H. WILLIAMS, Bellaire, Ohio. Filed Oct. 29, 1883. (No model.)



Claim.—1. A portable furnace for drying steel-ladles, composed of an open-mouthed movable fire-box adapted to enter the ladle, and provided with a blast-chamber or wind-box arranged beneath the grate of the fire-box, whereby the products of combustion may be forced into and through the ladle, substantially as and for the purposes specified.

2. A furnace for drying steel-ladles, consisting of an open-mouthed fire-chamber mounted on a wheeled platform and provided with a blast-chamber or wind-box arranged below the grate of the fuel-chamber and delivering thereinto, substantially as and for the purposes specified.

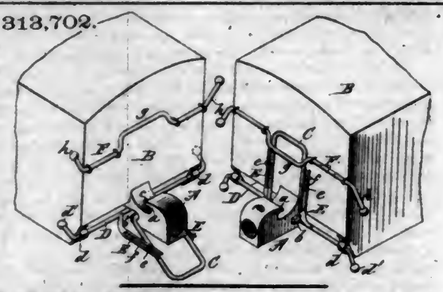
3. In a furnace for drying steel-ladles, the combination, with a wheeled platform having a central wind-box or blast-chamber, of an open-mouthed fire-chamber arranged over the blast-chamber of the platform, and ladle-guides concentric with the fire-chamber, substantially as and for the purposes specified.

313,702. CAR-COUPLING. JOHN C. AVERILL, Traer, Iowa. Filed Aug. 22, 1884. (No model.)

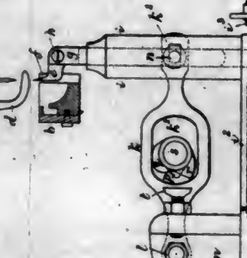
Claim.—1. The combination of the draw-head A, having hook *a*, notch *b*, and pin *c*, the swinging link C, provided with lugs *e*, and the hand-lever D, provided with bent arms E, having slot *f*, all substantially as shown and described.

2. The combination, with the swinging link C, of the transverse pivoted rod or lever F, having handles *h h*, and a central cranked portion, *g*, substantially as shown and described.

313,702.



313,703. STUFFING-BOX. THOMAS BARBER, Flatbush, N.Y. Filed June 5, 1884. (No model.)



Claim.—The combination, substantially as hereinbefore described, with the body of the box having an internal screw-thread, of the main gland having an external screw-thread to engage the thread of the body and the auxiliary gland having an internal screw-thread to engage the thread of the main gland.

313,704. PISTON-PACKING. THOMAS BARBER, Flatbush, N.Y. Filed Oct. 30, 1884. (No model.)

Claim.—The combination, substantially as hereinbefore described, with the piston B and the follower C, of the expanding ring D, composed of a number of wedge-shaped sections, *a*, the spring *d*, inclosed thereby and acting upon the same, the expanding cone E, which projects into the expanding ring, the spring F, situated between the expanding cone and the piston, and acting upon the expanding cone, and the packing H on the expanding ring.

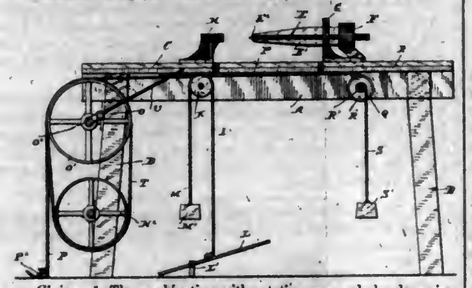
313,705. LOCK-STITCH SEWING-MACHINE. WM. BARNEY, King's Heath, County of Worcester, England. Filed Dec. 5, 1884. (No model.) Patented in England Feb. 1, 1884, No. 2,629.

Claim.—1. The combination, in a sewing-machine, of the shuttle-box *b*, having the needle-plate provided with the vertical needle-groove *f*, the awl *e*, moving in said groove, the horizontally-reciprocating lever pivoted to swing upward and downward, and connected with the awl, the cams, and a spring for imparting the said reciprocating and swinging movements to the awl, and the needle c, arranged above the shuttle-box, substantially as described.

2. The combination, in a sewing-machine, of the shuttle-box *b*, the needle c, arranged above the same, the awl *e*, the horizontally-reciprocating lever connected with the awl, and arranged below the shuttle-box, and pivoted to swing upward and downward, and the cams, and a spring for imparting the said reciprocating and swinging movements to the lever, substantially as described:

3. In a lock-stitch sewing-machine, the combination of the horizontally-movable slide-plate, the oscillating lever, the vertical post, and movable awl-carrier fitted therein, the cam mechanism for reciprocating the slide-plate and operating the awl-carrier, and the spring for returning the slide-plate to its normal position, with the grooved shuttle-box and the needle arranged above the same, substantially as described.

313,706. MACHINE FOR SETTING SPIRAL SPRINGS. HUGO BORCHARDT, Bridgeport, Conn. Filed Aug. 4, 1884. (No model.)



Claim.—1. The combination, with a stationary mandrel and a spring-carrying plate adapted to slide over said mandrel, of a bumper adapted to be moved against the point of the mandrel, and mechanism for moving said plate against the bumper, whereby the spring may be compressed until its coils are in the same plane.

2. The combination, with a stationary mandrel having a point which is adapted to rotate, and a spring-carrying plate adapted to slide over said mandrel, of a bumper adapted to be moved against the mandrel, and provided with a plate which is free to rotate and is adapted to engage the point of the mandrel, and mechanism for moving said plate against the bumper.

3. The combination, with a stationary mandrel consisting of radial wings which taper toward the apex and are firmly joined together at the center of the mandrel, and a plate adapted to slide over said mandrel, and provided with radial slots corresponding with said wings, and solid bearing-points between said slots, of a bumper adapted to be moved against the point of the mandrel, and mechanism for moving said plate against the bumper, whereby when a spring is compressed the inner as well as the outer coils are supported by said plate.

4. The mandrel and a bumper adapted to slide against its apex, in combination with a movable slide carrying a plate which slides over the mandrel, a belt attached to said slide, which passes over a loose pulley journaled on a crank-shaft and is attached to the floor, a belt passing over the driving-pulley and said loose pulley, and an operating-rod attached to the crank-shaft, which is adapted to raise the loose pulley and tighten the driving-belt, whereby said slide and plate are moved forward against the bumper.

5. The mandrel, the bumper, the spring-carrying plate, and slide D, in combination with belt P, pulleys N^2 and O', the crank-shaft, belt T, and strap and weight S S'.

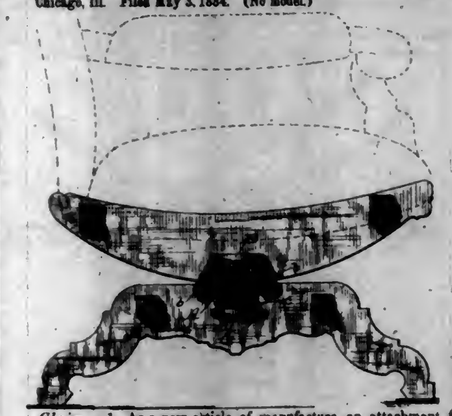
6. The mandrel having wings E', the plate carried by slide D, and having slots corresponding with said wings, and the bumper carried by slide C, in combination with belts P and I, and mechanism acting in connection with said belts to actuate the slides.

7. In a spring-setting machine, slide D, carrying plate G, and belt P, attached to said slide, to pulley O', as at P', and adjustably attached to the floor by a clamp, P^2, and bumper H, in combination with a pulley on the driving-shaft, a belt connecting said pulley with pulley O', and mechanism for raising pulley O' to tighten the belt.

8. In a spring-setting machine, slide D, carrying plate G, said slide being actuated by belt P, as described, and returned to its normal position by belts Q and S and a weight, in combination with slide C, carrying the bumper, which is actuated by belt I and a foot-lever, and returned to its normal position by belt M and weight M'.

9. Slide D, carrying plate G, and actuated by belt P, shaft R', carrying pulley R, belts Q S, and weight S', in combination with slide D, carrying bumper H, pulley K, belts I M, weight M', and the foot-lever.

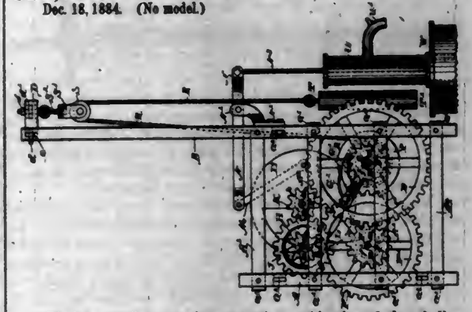
313,707. ROCKING-CHAIR ATTACHMENT. WILLIAM I. BUNKER, Chicago, Ill. Filed May 3, 1884. (No model.)



Claim.—1. As a new article of manufacture, an attachment for platform rocking-chairs, comprising two attaching-brackets and a compressible connecting spiral spring, the bracket at the upper end of the spring having a downwardly-projecting portion or flanges to be connected to the base-rail, and the bracket at the lower end of the spring having an upwardly-projecting portion or flange to be connected to the rocker, substantially as described, and for the purpose set forth.

2. The combination, with the rockers and base-rails of a platform rocking-chair, of two spiral springs, A, one at each side of the chair, attached to the rockers and base-rails by brackets B C, each bracket B having a downwardly-projecting portion or flanges connected to the base-rail, and each bracket C having an upwardly-projecting portion or flange connected to the rocker, whereby the spring is compressed by the rocking of the chair, substantially as described.

313,708. WEIGHT-MOTOR. EDWIN S. CAIN, Hillsdale, Ill. Filed Dec. 18, 1884. (No model.)



Claim.—1. In a weight-motor, the combination of the windlass-shaft E', provided with a loosely-fitted gear-wheel, E, having a ratchet, G, pawl G', and spring G^2, secured to its side, as shown, and with a rigidly-connected ratchet, Z, and loosely-connected lever X X', provided with a pawl, Y y, at its outer end for winding the rope R, with the multiplying-gear F F' H J K, the pitman M, lever N, and swivel-pulley S S', the whole constructed and arranged to operate as specified.

2. In combination with a weight-motor constructed and arranged to operate as specified, the tripod Q Q' Q^2, provided with a swivel-pulley, S S', as and for the purpose set forth.

313,709. FIRE-ESCAPE. HENRY CHAMBERLAIN, Waupaca, Wis., assignor of one-half to Garret J. Vanes, same place. Filed Feb. 28, 1884. (No model.)

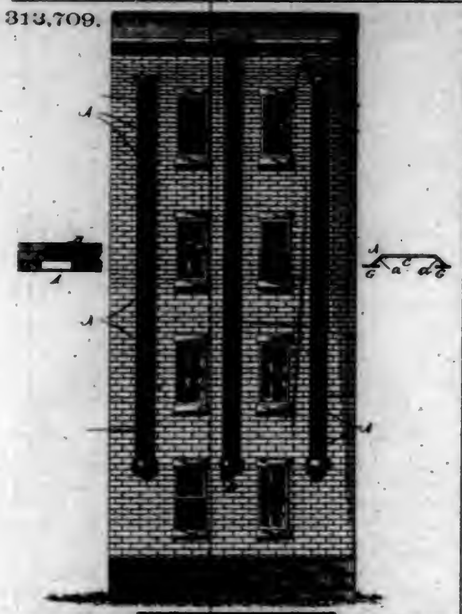
Claim.—1. A fire-escape consisting of a vertical recess formed in a wall of a building, and transverse bars or rounds secured therein, substantially as specified.

2. A fire-escape consisting of a vertical recess formed in a wall of a building, and transverse rounds or bars secured therein, so as to set flush, or nearly so, with the surface of the building, substantially as specified.

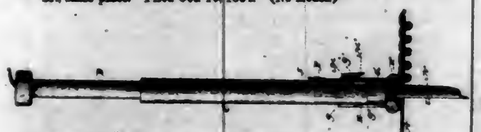
3. A fire-escape consisting of a vertical recess formed in the wall of a building, and transverse bars or rounds having oblique ends, provided with short bars or plates adapted to be secured within the said wall, substantially as specified.

4. A fire-escape consisting of a continuous vertical recess formed in a wall of a building, and a series of transverse bars arranged at intervals therein, substantially as specified.

313,709.



313,710. MACHINE FOR TURFING FABRICS. MATTHEW F. CONNETT, Jr., Springfield, Ill., assignor of one-third to Matthew F. Connett, Sr., same place. Filed Oct. 16, 1884. (No model.)



Claim.—1. In a machine or apparatus for turfing fabrics, in combination with the needle for carrying the yarn down through the fabric, means, substantially as described, moving in the same direction with the needle, adapted to hold the yarn at a point between the needle and the loop last formed, so that such loop shall not be pulled out by the movement of the needle, substantially as shown and described.

2. In combination with the needle adapted to carry the yarn through the fabric to form loops, the supplemental needle adapted to impale and hold the yarn between the needle and the last-formed loop as the needle passes through the fabric, substantially as and for the purpose described.

3. In combination with the tubular needle for turfing fabrics, having the yarn fed through it, the supplemental needle carried with the tubular one, and adapted to impale the yarn between the loop last formed and such tubular needle, substantially as and for the purpose described.

4. In a machine or apparatus for turfing fabrics, a needle for carrying the yarn through the fabric, in combination with the impaling-needle, arranged parallel to the other and traveling in the same direction with it, substantially as shown and described.

5. In combination with the hollow needle-bar adapted to allow of the passage and feed of the yarn or thread down through it, the hollow needle attached to the bar, having its bore connecting with or forming a continuation of the bore of the needle-bar, and at its lower end cut away at an angle to form a penetrating-point, substantially as and for the purpose described.

6. The hollow needle-bar provided at its lower end with a slot substantially at right angles to its axis, in combination with the hollow needle provided with the flange adapted to fit the slot in the needle-bar, substantially as shown and described.

7. The hollow needle-bar provided at or near its lower end with a slot substantially at right angles to its axis, and open at one side of the bar, and the needle having at its upper end a flange adapted to fit in such slot and be flush with the outside of the bar, in combination with the tubular sheath surrounding the bar, substantially as shown and described.

8. In combination with the tubular sheath provided with the longitudinal slot, the needle-bar within the sheath, provided with a lug guided in the slot, the needle carried by the bar, having the lug extending out through the slot in the sheath, and the stop-sleeve around the latter, substantially as and for the purpose described.

9. In combination with the slotted sheath and the needle carried by the bar, within the sheath, and provided with a lug projecting through the slot, the rotary sleeve on the sheath, cut away to form steps of different heights for engagement of the lug on the needle, to limit the movement of the latter, substantially as and for the purpose described.

10. In a machine or apparatus for turfing fabrics, in combination with the needle, means for regulating its throw, consisting of a lug or stud on the needle and an adjustable stop for engaging the same, substantially as and for the purpose described.

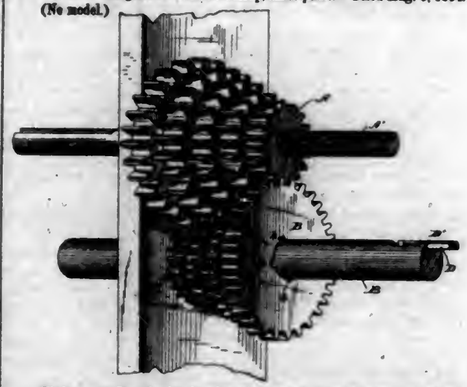
11. In combination with the needle, the lug thereon provided with a projection or lip inclined on its inner side, and a fixed lug or stop on the machine, adapted to be struck and engaged by the lip and lug at the lower end of the stroke of the needle, substantially as and for the purpose described.

12. In combination with the needle-bar, the needle attached thereto, so as to be capable of swinging thereon, and means, as a lug and stop, adapted to swing the needle to the rear at the lower end of its stroke, substantially as and for the purpose described.

13. In combination with the needle-bar, the needle carried thereby, so as to be capable of a swinging motion thereon, a spring attached to the needle, and bearing against the inclined face of a lug on the bar, and adapted to keep the needle normally in one position, and the inclined lip or projection carried by the needle, adapted to come in contact with and ride over the upper edge of the sleeve on the needle-bar sheath as the needle approaches the lower end of its throw, substantially as and for the purpose described.

14. In combination with the slotted needle-bar sheath, the needle having a lug projecting out through the slot in the sheath, and the stop-sleeve on the lower end of said sheath, provided with a longitudinal slot adapted by rotation of the sleeve to be brought into coincidence with the slot in the sheath, to allow the needle to be removed, substantially as and for the purpose described.

313,711. GEARING FOR CHANGING SPEED. E. JAY CORSER, Macedon, N. Y., assignor to Silas N. Gallup, same place. Filed Aug. 8, 1884. (No model.)



Claim.—1. In a device for changing speed, two cone-gears mounted on parallel shafts and in gear one with the other, one of said gears being solid, or having its gears rigidly connected and moving together, and the other made up of separate gears mounted directly upon the same shaft and adapted to move independently of each other thereon, and any one of which may be coupled directly to its shaft by an adjustable pin or key let into the same for actuating or being actuated by said shaft, substantially as and for the purpose described.

2. The combination, with the gears of the divided cone and the shaft on which said cone is mounted, of the adjustable pin or key for locking said gears to the shaft, and the slide for operating said pin or key, substantially as described.

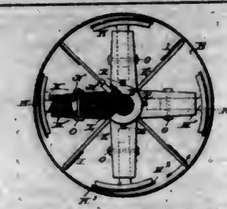
3. The divided cone, in combination with the grooved shaft, the wedge-pointed slide adjustable in the groove of the shaft, and the pin or key operated by said slide to engage the gears of the cone with the shaft, substantially as described.

4. The combination of the divided cone, the grooved shaft, the slide working in the groove of said shaft, the pin or key for locking the gears of said cone to the shaft, and a spring for actuating the slide and pin or key, substantially as described.

313,712. GRAIN-SCOURER. GEORGE A. DAWSON, Cardington, Ohio, assignor to the Hercules Manufacturing Company, same place. Filed Sept. 19, 1884. (No model.)

Claim.—1. The combination of a perforated cylinder, a shaft passing through it, the two sets of perforating scouring devices which are arranged at right angles to each other, and means for permitting the curved scouring devices to automatically adjust themselves toward or from the inner side of the cylinder, substantially as described.

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2. The combination of the perforated cylinder, the shaft which passes through it, the spiders L, which are secured to said shaft, and which are provided with hollow arms K, scouring devices H, which are provided with arms H', for entering the arms of the spiders, said scouring devices being arranged obliquely upon their arms, so as to have one of their ends farther from the cylinder than the opposite end, and means for permitting an endwise adjustment of said scouring devices in the arms of the spiders, substantially as described.

3. The combination of the perforated cylinder, the shaft which passes through it, spiders which are secured upon said shaft, and which are provided with hollow arms having slots N, the scouring devices H, provided with arms H', for entering the arms of the spiders, the bolts O, for securing the arms in place, and springs P, which are adapted to keep the arms pressed normally outward, substantially as described.

4. The combination of the perforated cylinder, the shaft which passes through it, the spiders L, which are secured to said shaft, and which are provided with hollow radial arms, scouring devices H, having arms which enter the arms of the spiders, and means for retaining them therein, and springs for keeping them normally pressed outward, said arms also having openings R near the hub, for the purpose set forth, substantially as described.

313,713. LAMP-BURNER. DAVID L. DURAND, Derby, Conn. Filed Oct. 11, 1884. (No model.)

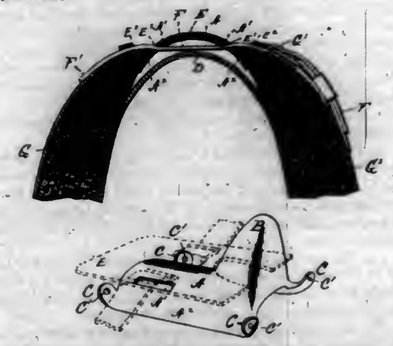


Claim.—1. In a lamp-burner, the combination, with the wick-tube, of a gas-tube having one or more openings engaging with a teat or projection formed upon the disk or disks through which said tube passes, substantially as described.

2. In a lamp-burner, the combination, with a gas-tube having one or more openings cut in its wall, of a teat or teats formed upon one or more of the parts against which said tube has lateral support, substantially as described.

3. In a lamp-burner, the combination, with the gas-tube 5, having openings 6, of a teat, 7, formed upon one, two, or more of the disks 2, 3, and 4, substantially as described.

313,714. PAD FOR HORSE-COLLARS. JOHN EVANS, New Berlin, Ohio, assignor to William H. Hoover, same place. Filed May 29, 1884. (No model.)



Claim.—1. The combination of the cap-piece having slots A' and wings A^2, the pad secured to and under the cap-piece, the housing slotted at E' E^2 and fitted on the cap-piece, the collar having its ends lapped on the supporting-wings A^2, and the fastening-strap secured at one end to the collar and passed through slots E' E' A', substantially as set forth.

2. As an improved article of manufacture, the herein-described cap-piece, consisting of the plate having at its opposite corners longitudinally-extended upward-turned lugs, and slotted at A' A', and provided with a peak, B, constructed and arranged substantially as set forth.

313,715. HORSE-COLLAR. JOHN EVANS, New Berlin, Ohio, assignor to William H. Hoover, same place. Filed May 29, 1884. (No model.)



Claim.—1. In a horse-collar, the combination, with the throat end of the fore wall and the body-facing, of the metal throat-piece having flange and depression at the center, and flaring inwardly and forming part of the collar at its lower or throat end, substantially as set forth.

2. In a collar, the combination, with the metallic throat-piece provided with depressions or grooves *b b*, and the leather sides lapped on the said throat-piece over the grooves *b*, of the rivets driven through the leather and through openings *b'*, formed through the base of grooves *b*, whereby the heads of the rivets will lie flush with or below the surface of the leather, substantially as set forth.

313,716. WELDING COMPOUND. CHARLES C. FIELDS, Bristol, Tenn. Filed Aug. 26, 1884. (No specimens.)

Claim.—A welding compound consisting of the following ingredients or constituents in about the proportions named: sulphate of baryta, one part; prussiate of potash, one sixteenth part; sal-ammonia, one-eighth part, the same being ground and mixed together for use, substantially as specified.

313,717. INK-ERASER. WILLIAM L. FINLEY, Washington, D. C. Filed Jan. 24, 1885. (No model.)



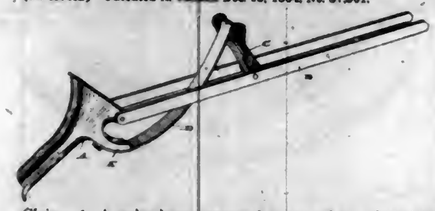
Claim.—As an article of manufacture, an ink-eraser consisting of a blade curved to give convexity to one of its flat surfaces, and provided with knife-like edges arranged transversely upon said convex surface and close together, the end of the blade being rounded and polished upon its edge to form a glazing-surface, substantially as set forth and specified.

313,718. SPRINKLING-BOX. CLARENCE A. FOWERDEN, New York, N. Y. Filed Dec. 31, 1884. (No model.)



Claim.—The herein-described powder-box, consisting of the body A, having the shoulder A', the lid B, fitting upon the shoulder A' and provided with a thickened center, as shown, with the opening B' cut through it, and the plug C to fit in the opening B', whereby greater security is given to the plug, and the liability to spill when upset with the plug out is obviated, substantially as and for the purpose set forth.

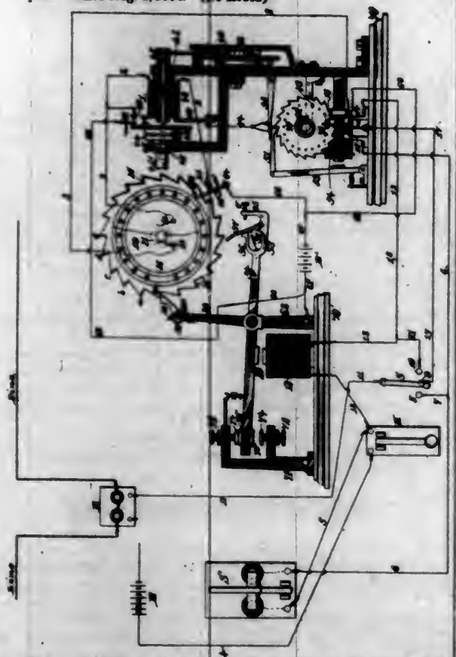
313,719. SPRING-HOE ATTACHMENT FOR SEEDING-MACHINES. THOMAS D. GALLOWAY, Oshawa, Ontario, Canada. Filed Dec. 11, 1884. (No model.) Patented in Canada Dec. 13, 1884, No. 37,561.



Claim.—1. A spring-brace connected at one end to a pivoted hoe, the said spring-brace extending diagonally to and connected with the free end of a locking-stud pivoted to the drag-bar, the line of the draft when the hoe is set for work being substantially on a center line through the pivot-points of the locking-stud, substantially as and for the purpose specified.

2. A pivoted hoe, A, provided with a projection or horn, E, in combination with the spring-brace D, rigidly fastened at one end to the horn E, and pivotally connected at its other end to a locking-stud, C, pivoted to the drag-bar B, substantially as and for the purpose specified.

313,720. AUTOMATIC ELECTRIC SIGNAL-CONTROLLING APPARATUS. EDWIN R. GILL, Jr., Pleasant Hill, Mo., assignor of one-half to John T. Russell, William A. Symington, and James M. Chaney, all of same place. Filed Aug. 2, 1884. (No model.)



Claim.—1. In an automatic switching apparatus, the combination of an escapement-wheel, a magnet controlling its rotation and located in the relay-circuit, and a second escapement-wheel, a magnet controlling it and located in a circuit controlled by the first escape-wheel, and controlling in turn the cutting in or out of the relay-circuit of such magnet and the signaling apparatus, substantially as set forth.

2. The combination of a ratchet-wheel, 19, a motor, 49, a clutch connecting the motor to the wheel, a magnet, 1, controlling the clutch, a magnet, 18, controlling and regulating the movement of the wheel 19, and circuit-connections therefor, substantially as set forth.

3. The combination of the wheel 19 and its magnetic escapement, a wheel, 70, and its magnetic propeller, and a magnet, 1, controlling the engagement or disengagement with or from the wheel 70 of its escapement and stop mechanism, substantially as set forth.

4. The combination of the magnetic escapement consisting of the wheel 19, magnet 18, and armature-lever with its releasing and stopping pawls, the wheel 70, and its magnetic escapement controlled by wheel 19, the magnet 1, and its armatures 42 and 50, and the circuit-connections shown, whereby a sounder or signaling instrument is thrown into circuit only upon passage through 18 of the proper sequence of impulses and the wheels are restored to their initial or starting point whenever a wrong signal or call is given, substantially as set forth.

5. The combination, with a ratchet-wheel, of a magnetic escapement having one of its anchor or pallet pawls pivotally or resiliently mounted and provided with stops therefor and determining the amount of movement of such pawl to permit the wheel to rotate step by step a determinate number of teeth at will at one impulse, substantially as described.

6. The combination, with a ratchet-wheel, of a magnetic escapement having one of its engaging pawls arranged to move within certain limits by a ratchet-tooth, and means for determining the limit of motion thereof, whereby the escapement can be used to permit one tooth or two or more teeth to escape at one impulse through the controlling-magnet, substantially as described.

7. In a magnetic escapement, the combination, with the ratchet or escapement wheel, of a magnet, 18, an armature-lever, 29, having arm 30 and pawl 31 seated thereon, and arm 34, insulated from the body of the lever, substantially as set forth.

8. In a magnetic escapement, the pawl-arm 34, constructed with two arms, 35 and 36, and having a pawl, 37, pivotally or resiliently mounted between the two arms, whereby the pawl is permitted to have a determined degree of movement, substantially as set forth.

9. In a magnetic escapement, the combination of an escapement or ratcheted wheel, an electro-magnet, an armature-lever therefor, and two escapement-pawls mounted thereon, one of which is insulated from the other and from the body of the lever, and circuit-connections, as described, from the insulated pawl, substantially as described.

10. An escapement-wheel of insulating material having the active faces of its teeth faced with a conducting material, substantially as set forth.

11. An escapement-wheel of insulating material having the active faces of its teeth faced with a conducting material which extends into the body of the wheel, substantially as set forth.

12. An escapement-wheel made of insulating material and having the active faces of its teeth faced with conducting material extending into the body of the wheel, and having two concentric conducting-rings upon one of its plane surfaces and plug-connections to the teeth-facings, whereby any tooth-facing may be connected to either ring, substantially as set forth.

13. An escapement-wheel formed of insulating material, and having conducting material placed upon the active faces of its teeth, and extending into its body and provided with rings 25 26, and pins 27, connecting with the metal tooth-facings, plug-holes 27' being formed one for each tooth adapted to receive switch-plugs, so as to connect any one tooth-facing with either ring, substantially as described.

14. An escapement-wheel formed of insulating material and having the active surface of its teeth faced with conducting material extending into its body, and having a switch-board formed upon one of its sides, whereby any desired combination or permutation of connections of the metal tooth-facings may be made, substantially as set forth.

15. The combination, with an escapement-wheel and its motor 49, of the clutch 43 44, an electro-magnet, 1, and a circular armature therefor fastened to the shaft, conveying motion from the motor to the wheel and controlling the clutch, substantially as set forth.

16. The combination, with the relay and a signaling-instrument adapted to be controlled by the relay and its local circuit, of a mechanism, substantially as described, for automatically cutting into circuit the signaling-instrument and cutting out the controlling-magnet of such mechanism, a three way or point switch and circuit-connections, as shown and described, whereby by operation of the switch either the signaling or the switching mechanism may be placed normally in circuit or the switching mechanism restored to a normal condition after use, substantially as described.

17. The combination of the wheel 19, having pin 80, lever 64, contact 63, lever 86, contact 83, magnet 1, battery B,' and circuit-connections, as shown, whereby an independent circuit is established through 1 to permit the complete restoration of the switching apparatus to its normal position, which circuit is then immediately broken, substantially as described.

18. The combination, with wheel 70, of pins 72 73, lever 16, contacts 14 15, battery B, and circuit-connections, as shown and described, whereby the cutting in or out of circuit of the magnet 18 and the signaling-instrument is controlled, substantially as set forth.

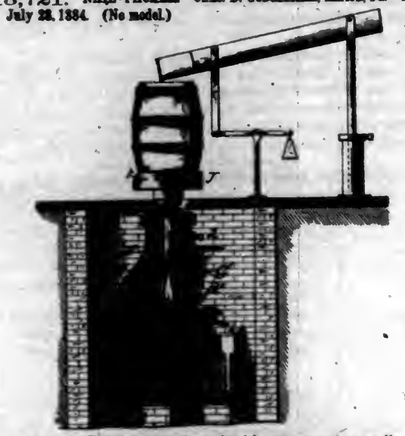
19. The combination, with a controlling escapement-pawl, of an escapement-wheel of insulating material, with the faces of its teeth faced with conducting material, and a switch-board upon one of its sides, as described, whereby determinate combinations of circuits may be formed by the contacts of the pawl and wheels, substantially as set forth.

20. The combination, in a magnetic escapement, of an escapement-wheel constructed as described, the commutator or contact-rings 21 22, and the commutator springs or brushes 23 24, whereby the circuits formed by the use of the switch-board 25 26 may be connected with the exterior circuits, substantially as set forth.

21. The combination of the ratchet or escapement wheel 19, its magnetic escapement, the wheel 70 and its magnetic escapement, the prime motor 49, clutch 42 43, magnet 1, with armatures 42 50, substantially as set forth.

22. The combination of the escapement-wheel 19, its magnetic escapement, the wheel 70 and its magnetic escapement, the magnet 1 and its armatures, a relay, R, signaling apparatus S', switch S, batteries B B', and circuit-connections, substantially as set forth.

313,721. NAIL-PACKER. CHAS. D. GODCHARLES, Milton, Pa. Filed July 28, 1884. (No model.)



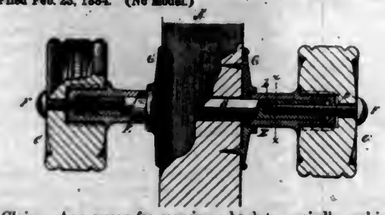
Claim.—1. The keg-seat formed with an upward-extending annular flange and turning-way and a vertical depending arm having a tapered end, substantially as described, and for the purpose set forth.

2. The base formed with the box, the curved standard terminating in the upright neck-piece formed with a vertical passage, substantially as and for the purpose set forth.

3. The base formed with the box C, curved standard chambered, as set forth, and formed with a passage provided with adjustable guide-plates, the brake-wheel having its shaft journaled on the sides of the box and operatively connected to the power, and the keg-seat arranged with its depending arm in the vertical adjustable guide-bearings and impinging the face of the brake-wheel, the whole arranged and combined substantially as and for the purpose set forth.

4. In combination, the base provided with journal-bearing boxes and formed with a standard having its upper end formed with a vertical passage provided with adjustable guide-plates, a cam-wheel having its shaft journaled on bearings on the base and operatively connected with the power, and the keg-seat having its depending arm in the vertical adjustable guideways and impinging the face of the cam-wheel, substantially as described.

313,722. KNOB ATTACHMENT. JOHN J. GORDON, Detroit, Mich. Filed Feb. 23, 1884. (No model.)



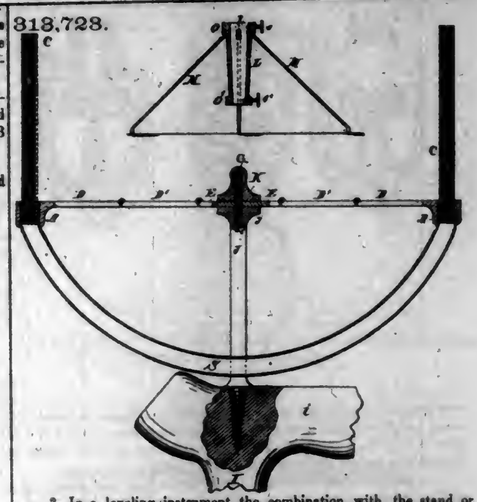
Claim.—As a means for securing a knob to a spindle, and in combination with such knob and spindle, a single screw adapted to operate in connection with threaded portions of both knob and spindle, substantially as and for the purposes set forth.

313,723. LEVELING-INSTRUMENT. CHRISTIAN C. GOTH, Cothen Germany. Filed Sept. 30, 1884. (No model.) Patented in France Nov. 22, 1883, No. 158,719; in Belgium Nov. 29, 1883, No. 63,377, and in Austria-Hungary Jan. 6, 1884, No. 43,110 and No. 57,669.

Claim.—1. In a leveling-instrument, the combination, with the stand or level glasses, of a flexible tubular connection, a brace-rod for supporting the glasses in the proper relation to each other, and a staff to which said rod is detachably secured, as described.

2. In a leveling-instrument, the combination, with the stand or level glasses, of a flexible tubular connection and an extensible brace-rod for supporting the glasses in proper relation to each other, as described.

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3. In a leveling-instrument, the combination, with the stand or level glasses, a flexible tubular connection therefor, and an extensible brace-rod having bearing-sleeves at its extremities, of a flexible packer or gasket for the glasses, interposed between the latter and the bearing-sleeves of the brace-rod, for the purpose specified.

4. In a leveling-instrument, the combination, with the stand or level glasses, a flexible tubular connection therefor, a brace-rod for holding the glasses in proper relation to each other, and a staff for supporting said glasses in proper position, of a pivotal connection between the brace-rod and staff, and a clamping device whereby said glasses are rotatably connected with and may be clamped to said staff, said parts being detachably connected together, as described, for the purpose specified.

5. In a leveling-instrument, the combination, with the stand or level glasses, a flexible tubular connection therefor, an extensible brace-rod to support said glasses in proper relation to each other, and a staff for supporting the brace-rod and glasses in an upright position, of a tripod secured to the staff, said parts being detachably connected with one another, as described, for the purpose specified.

6. A leveling-instrument consisting of stand or level glasses, a flexible tubular connection therefor, an extensible brace-rod for holding the glasses in proper relation to each other, a spindle and clamping device for securing the brace-rod to a staff, a tripod, said parts being constructed to be folded into compact form, and an inclosing-case, as described.

7. A leveling-instrument consisting of stand or level glasses, a flexible tubular connection therefor, an extensible brace-rod for holding the glasses in proper relation to each other, a spindle and clamping device for securing the brace-rod to a staff, and a tripod, said parts being constructed to be folded in compact form, and, in combination therewith, of an inclosing-case having pockets for the stand or level glasses, and a chamber for containing the other parts of the instrument, substantially as described, for the purpose specified.

8. The combination, substantially as described, with the stand-glasses, their flexible connecting-tube, and the extensible brace-rod for holding said glasses in proper relation to each other, and provided at a point intermediate of its extremities with a perforation, of the spindle J, the screw G, and nut K, for the purpose specified.

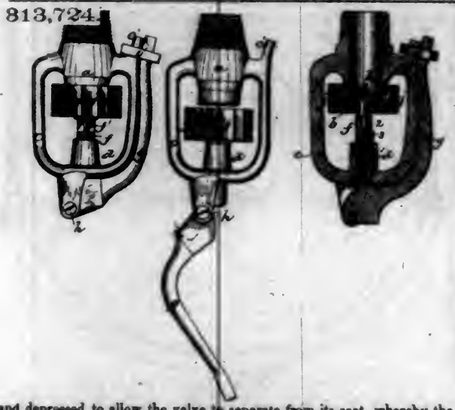
9. The combination, substantially as described, with the stand-glasses, their flexible connecting-tube, and the extensible brace-rod for holding said glasses in proper relation to each other, and provided at a point intermediate of its extremities with a perforation, of the spindle J, the screw G, nut K, and cane I, into which said spindle is screwed, for the purpose specified.

10. The combination of the stand or level glasses, their flexible connecting-tube, the extensible brace-rod to hold the glasses in proper relation to each other, the spindle J, and the screw G and nut K, for securing the brace-rod to the spindle of the cane I, and a tripod consisting of a sleeve, legs hinged thereto, and binding-screws, said parts being arranged for co-operation substantially as and for the purposes specified.

313,724. AUTOMATIC FIRE-EXTINGUISHER. ALNON M. GRANGER, Medford, Mass. Filed July 29, 1884. (No model.)

Claim.—1. In an automatic sprinkler, a nozzle, a frame supported thereby, a valve in front of the nozzle, and a lever pivoted to the frame, said lever having a cam-surface which stands in the line of movement of the spindle both when the lever is raised to hold the valve to its seat

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and depressed to allow the valve to separate from its seat, whereby the valve may be not only held against its seat when the outer end of the lever is connected to the frame by a fusible device, but also moved to its seat by a movement of the lever, as set forth.

2. The valve and distributer having the central boss containing a socket extending above the upper surface of the valve, combined with a supporting-stud entering said socket, as set forth.

3. The combination, in an automatic sprinkler, of a nozzle, a winged rotating valve in front of said nozzle, a longitudinally-movable spindle supporting said valve, a frame secured to the nozzle, and a lever pivoted to the frame and supporting the spindle, the winged valve being entirely separated from the nozzle when released by the lever, so that a laterally-unobstructed space is formed between the nozzle and valve for the free escape and distribution of water, as set forth.

4. The valve and distributer having tangential wings or blades separated by slots, and having a socket in its lower surface, in combination with a loosely-fitting spindle, substantially as described.

5. In an automatic sprinkler, the combination, with the nozzle, of the supporting-frame, a vertically-movable spindle in the frame, a lever pivoted in the frame and serving as a support for said spindle, and a rotating valve having a socket in its central lower surface resting on said spindle, all substantially as described.

313,725. MILLSTONE-PICK. JOHN GRANGER, Dunbarton, Ontario, Canada. Filed June 3, 1884. (No model.) Patented in Canada Apr. 7, 1884, No. 19,078.



Claim.—The herein-described millstone-pick, consisting of the head A, end extension, *c*, integral therewith, forming the offset *c'*, dovetailed socket *a'*, formed in said offset, removable blade B, having dovetailed end *a''*, retaining-cap C, having offset *c''*, and the bolt D, passing through the cap, the blade, and the end extension, thereby binding all three parts together, and all constructed and arranged substantially as shown and described.

313,726. ELECTRIC JEWELRY. ALFRED HAIM, Rahway, N. J. Filed July 18, 1884. (No model.)



Claim.—1. A jewel or ornament consisting in the combination of two parallel pins insulated from each other, a frame or cage supported by the pins, an incandescent lamp contained within the cage, and circuit-connections from the lamp to the pins, substantially as herein set forth.

2. A jewel or ornament consisting in the combination of two parallel pins insulated from each other and held in position by insulating cross-pieces, a metal frame or cage to which one of the pins is connected, an incandescent lamp inclosed in said frame or cage, and circuit-connections from the lamp to the pins, substantially as herein set forth.

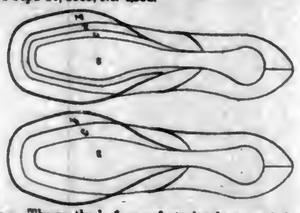
3. The combination, with an electric jewel or ornament having two pins that form the terminals of the electrical device, of a flexible strip of insulating material containing two or more metallic eyelets to which the circuit-wires are connected, these parts being constructed for application and use in substantially the manner set forth.

4. The combination of the pins C D, one having a flattened portion, *c*, the insulating cross-pieces E F, the metal cage or frame to which pin C is connected, an incandescent lamp contained in the frame, and circuit-wires *g*, connected to the pins, substantially as shown.

5. The combination of the parallel pins C D, cross-pieces of insulating material, E F, the cage or frame supported by said pins, and having a perforated top and bottom, an incandescent lamp contained in said frame, and circuit-connections from the lamp to the pins, substantially as herein set forth.

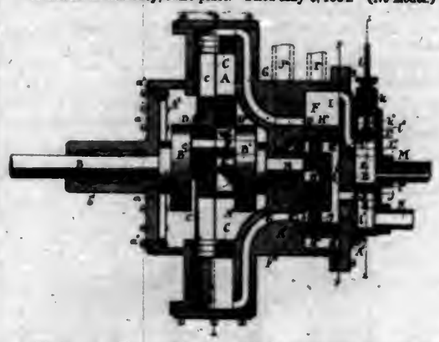
6. The combination, with a jewel or ornament consisting of two parallel pins insulated from each other, a frame or cage supported by the pins, an electric incandescent lamp contained in the cage or frame, and circuit-connections from the lamp to the pins, of a flexible strip provided with eyelet-holes, and eyelets therein that form the terminals of circuit-wires, all substantially as and for the purpose specified.

313,727. MANUFACTURE OF BOOTS OR SHOES. ALFRED HAMMBALL, London, England. Filed June 12, 1884. (No model.) Patented in England Sept. 10, 1883, No. 4,332.



Claim.—The method of manufacturing boots and shoes, consisting in first laying the inner sole upon the last, then placing the upper with the lining partially attached thereto on the last and drawing the lining over the lower face of the sole and securing it thereto with the upper turned back and the heel-stiffener in place between the lining and upper, then applying a fabric around the toe and along the edges of the sole to form the side lining and toe-puff, then drawing the upper down over the lining and cementing or pasting it to the inner sole, and then attaching the outer sole, which has been blocked or shaped before being applied, substantially as described.

313,728. STEAM-ENGINE. DEXTER D. HARDY, Chicago, Ill., assignor to Robert H. Cowdrey, same place. Filed May 1, 1884. (No model.)



Claim.—1. The combination, with the crank-shaft of a steam-engine, and a cylinder provided with a suitable piston and piston-rod, of a valve-chamber, an annular gyratory valve, H, located within said chamber, driving-connections for actuating the valve from the crank-shaft, ports in the said valve-chamber communicating by suitable passages with the said cylinder, and located at equal distances from the center of motion of the valve, an auxiliary valve-chamber, K, a centrally-open slide-valve within said chamber K, ports *i* and *j* in said chamber K, communicating by suitable passages with said valve-chamber F in its portion inside of and exterior to the said annular valve, and suitable steam inlet and exhaust passages communicating with the said chamber K, substantially as and for the purpose set forth.

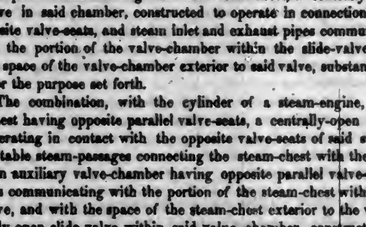
2. The combination, with a steam-engine crank-shaft, of two or more radially-arranged steam-cylinders provided with suitable pistons and piston-rods having operative connection with the crank-pin of the shaft, a valve-chamber provided with opposite parallel valve-seats arranged parallel with the axes of the cylinders, steam-ports *g* and *g'* in said chamber, located at equal distances from the axis of the crank-shaft and communicating with the said cylinders, steam inlet and exhaust passages communicating with the said valve-chamber, and an annular gyratory valve, H, constructed to operate in connection with the said ports, the said crank-shaft being arranged to extend through one wall of the valve-chamber only, and having upon its end a crank-pin, B^2, engaged with and constructed to actuate the said valve, substantially as and for the purpose set forth.

3. The combination, with a steam-engine cylinder and crank-shaft, of a valve-chamber, F, having opposite parallel valve-seats, and provided with ports *g*, communicating with the cylinder, a shaft, B, provided with an eccentric or crank pin, B^2, and a valve, H, comprising a central hub, H^2, having an aperture, A', engaged with the pin B^2 and annular portion H', and arms A, connecting said annular portion with the said hub, substantially as and for the purpose set forth.

4. The combination, with a steam-engine cylinder and a crank-shaft provided with a cylindrical crank-pin, B^2, of a valve-chamber, F, having opposite parallel valve-seats and provided with ports communicating with the cylinder, and an annular gyratory valve, H, constructed to work in contact with the opposite valve-seats, and provided with an aperture, A', fitted to the crank-pin, whereby the valve may freely rotate on said pin, substantially as and for the purpose set forth.

5. The combination, with the steam-cylinder and crank-shaft of a steam-engine, of a valve-chamber, F, having opposite parallel valve-seats, and provided with ports communicating with the cylinder, an annular gyratory valve, H, constructed to work in contact with the opposite valve-seats and provided with a suitable packing, and driving-connections between the crank-shaft and the said valve constructed to actuate the latter, substantially as and for the purpose set forth.

313,729. STEAM-ENGINE VALVE. DEXTER D. HARDY, Chicago, Ill., assignor of two-thirds to Robert H. Cowdrey, same place, and Mary J. Perry, Downer's Grove, Ill. Filed May 10, 1884. (No model.)



Claim.—1. The combination, with a steam chest and valve of an engine, of an auxiliary valve-chamber having opposite parallel valve-seats, and ports communicating with the steam-chest, a centrally-open slide-valve in said chamber, constructed to operate in connection with the opposite valve-seats, and steam inlet and exhaust pipes communicating with the portion of the valve-chamber within the slide-valve, and with the space of the valve-chamber exterior to said valve, substantially as and for the purpose set forth.

2. The combination, with the cylinder of a steam-engine, of a steam-chest having opposite parallel valve-seats, a centrally-open slide-valve operating in contact with the opposite valve-seats of said steam-chest, suitable steam-passages connecting the steam-chest with the cylinders, an auxiliary valve-chamber having opposite parallel valve-seats, and ports communicating with the portion of the steam-chest within the slide-valve, and with the space of the steam-chest exterior to the valve, a centrally-open slide-valve within said valve-chamber, constructed to operate in contact with the opposite valve-seats of the said valve-chamber, and steam inlet and exhaust pipes communicating with the space of the valve-chamber inclosed by the slide-valve, and with the space of the chamber exterior to said slide-valve, substantially as and for the purpose set forth.

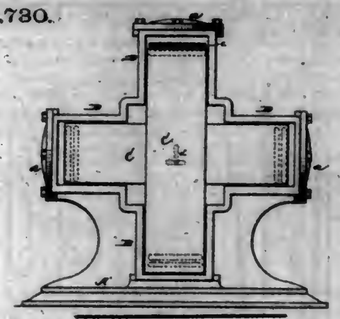
3. The combination, with the cylinder of a steam-engine, of a steam-chest having opposite parallel valve-seats, a centrally-open slide-valve of less width than the space between the walls of the steam-chest, constructed to work in contact with the opposite valve-seats, and guides *d'* within the steam-chest, for retaining the said valve in position, substantially as described.

313,730. MULTIPLE-CYLINDER ENGINE. DEXTER D. HARDY, Chicago, Ill. Filed Aug. 21, 1884. (No model.)

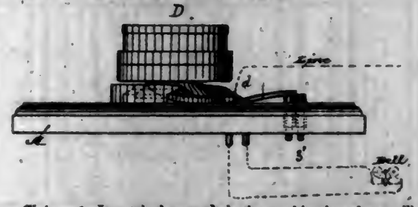
Claim.—1. In a multi-cylinder engine, a series of valves lying one across the other and formed with transverse slots at their centers, in combination with the main shaft having a crank-pin working in said slots, substantially as and for the purpose set forth.

2. The radiating cylinders A, having steam-chests B, formed with an exhaust-chamber, B', having a journal, B^2, passing through it, in combination with the cranked shaft D, passing through the axial centers of the cylinders and the journal B^2, and provided with the crank-pin *d''* upon its end, and the valves C, each formed with a transverse slot, *d*, at its center, the outer of which does not pass entirely through the valves, substantially as and for the purpose set forth.

313,730.



313,731. TELEPHONIC CONNECTION. JAMES A. HARLAN, Washington, D. C. Filed Mar. 28, 1884. (No model.)



Claim.—1. In a telephone-switch, the combination of an oscillating forked lever, inwardly-moving contact-buttons, and springs operating said buttons to make and break the circuit, substantially as described.

2. In a telephone-switch, the combination, with an oscillating forked lever carrying the instrument, of inwardly-moving contact-making buttons or posts, springs operating said buttons or posts to make and break the circuit, and a segmental guard, substantially as set forth.

313,732. SAND-DRIER. ABRAHAM V. HARTWELL, Chicago, Ill. Filed Feb. 27, 1884. (No model.)



Claim.—1. In a drier, a heater combined with a surrounding hopper having an inner wall constructed of perforate material, an open-bottomed hot-air chamber and discharge being formed between the wall of the heater and said inner wall of the hopper, substantially as set forth.

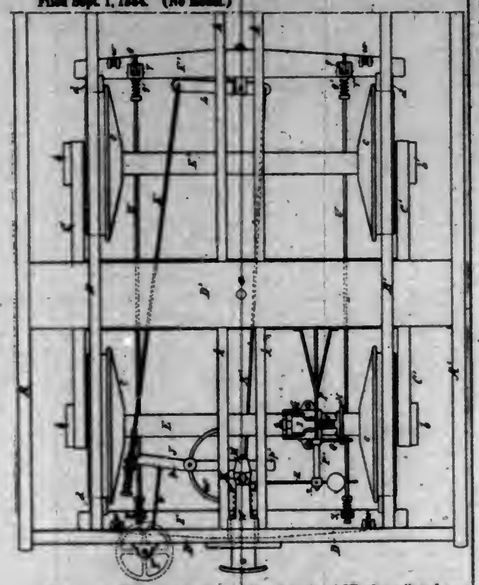
2. In a drier, a heater combined with a surrounding hopper having an inner wall constructed of perforate material, and with hot-air chambers of like material extending radially from the inner wall of the hopper, an open-bottomed hot-air chamber and discharge being formed between the heater and the said inner wall of the hopper, and having communication with the radial hot-air chambers, substantially as set forth.

313,733. STEERING APPARATUS. LEONHARD HEYDT, Strasburg, Alsace, Germany. Filed Aug. 25, 1884. (No model.) Patented in Germany May 16, 1884, No. 30,276; in France Aug. 12, 1884, and in England Dec. 31, 1884, No. 17,101.



Claim.—The herein-described rudder for screw-propellers, said rudder consisting of a cylinder having two bent tangential wings, C C, secured in a vertical position on opposite sides to the outer surface, substantially as set forth.

313,734. AUTOMATIC CAR-BRAKE. PHILLIP HIRB, Rock Island, Ill. Filed Sept. 1, 1884. (No model.)



Claim.—1. The combination of the draw-head W of a railroad-car, the brake-operating lever J, carrying the block M, the gravity-block N, arranged to rise and fall in the said block M, with a governor on the axle of the car, and with mechanism, substantially as described, whereby the rising and falling of the block is due to the governor, substantially as specified.

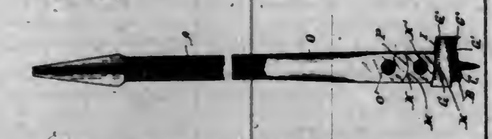
2. The combination of the draw-head, the brake-operating lever J, the gravity-block N, the rod P, secured to the car-frame, the tube P', pivoted to the rod and carrying the lever R, and the lever Q, secured to the said tube, with a governor for acting on the said lever Q, all substantially as set forth.

3. The combination of the rod P, tube P', and lever R with a box, R', adjustably secured to the tube and carrying the said lever R, substantially as set forth.

4. The combination of the beams F F' of the braking mechanism with a rod or rods, U U, and a rack, U', with the bracket V, secured to the said beam, and having a pawl, *g*, adapted to the rack, substantially as specified.

5. The combination of the axle E, castings G G', clamped to the axle, levers I I', guided racks *e e'*, with the pivoted lever Q, the shaft P, carrying the said lever, and the lever R, projecting beneath the gravity-block N, all substantially as set forth.

313,735. EXPANSIBLE BIT. GEORGE H. HILL, Derby, assignor of one-half to William J. Welsh, Birmingham, Conn. Filed Jan. 23, 1885. (No model.)



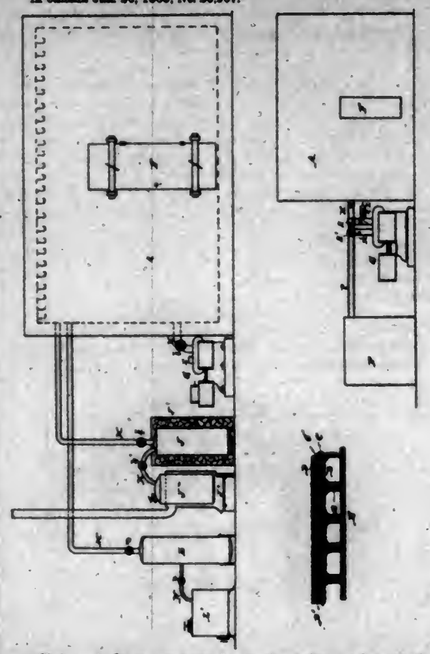
Claim.—1. The combination, with the bit and an adjustable cutter, of a sliding block above the cutter and in contact therewith, and a cam adapted to engage the block, whereby the latter is caused to lock the adjustable cutter in any desired position.

2. A bit of ordinary construction having its shank cut away upon one side, leaving an undercut shoulder, E', and an adjustable cutter having a corresponding shoulder engaging therewith, and an outwardly-inclined upper edge, in combination with a sliding block which engages the cutter, and a cam which acts upon the block to lock the cutter in any desired position.

3. A bit having one side of its shank cut away, substantially as shown, and an undercut shoulder, E', and an adjustable cutter having a shoulder corresponding therewith, and an inclined upper edge, in combination with a sliding plate having a slot for a retaining-screw, an undercut lower edge and a curved upper edge, and a lever whose lower edge acts as a cam upon the sliding block, whereby the adjustable cutter is locked in place.

4. The bit having its shank cut away, as shown, and rounded, as at E', and an adjustable cutter, in combination with a sliding block, and a lever whose lower end acts as a cam upon the sliding block, and whose upper end is provided with a hollow or recess, O', which engages the rounded portion E', to hold the lever in place.

313,736. APPARATUS FOR PRESERVING BY GASES. GEORGE HOLBATE, Philadelphia, Pa. Filed June 14, 1884. (No model.) Patented in Canada Jan. 26, 1885, No. 20,967.



Claim.—1. In an apparatus for treating animal and vegetable substances in the preservation thereof, the combination, with an air-tight treating-chamber having an opening for the insertion and removal of the articles to be preserved, of a vacuum-pump, a generator, condensing-cylinder and cooler for sulphurous acid, and connecting-pipes, substantially as described.

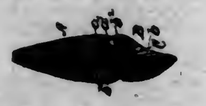
2. In an apparatus for treating animal and vegetable substances in the preservation thereof, the combination of a vacuum-pump, a generator for sulphurous acid, a condensing-chamber with cooler or refrigerator for same, a generator for carbonic acid, and pipes and connections therefor, substantially as described.

313,737. ARTIFICIAL TOOTH-CROWN. WOODBURY S. HOW, Philadelphia, Pa., assignor to the S. S. White Dental Manufacturing Company, same place. Filed Jan. 26, 1884. (No model.)



Claim.—An artificial tooth-crown having a vertical opening therein, said vertical opening being surrounded by a channel, groove, or recess of undercut or retaining form, with a projecting wall between said opening and said channel, groove, or recess, substantially as described.

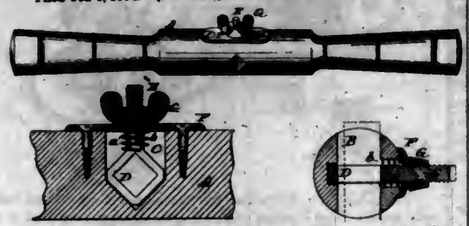
313,738. ARTIFICIAL TOOTH-CROWN. WOODBURY S. HOW, Philadelphia, Pa., assignor to the S. S. White Dental Manufacturing Company, same place. Filed Jan. 26, 1884. (No model.)



Claim.—1. An artificial tooth-crown provided at its base with a tubular boss projecting beyond the outer walls of said base, the body of the crown and said boss being united by baking them together, substantially as described.

2. An all-porcelain tooth-crown provided at its base with a tubular boss projecting beyond the outer walls of said base, and with an independent channel or groove surrounding said boss, substantially as described.

313,739. AUGER-HANDLE. WILLIAM A. IVES, New Haven, Conn. Filed Oct. 6, 1884. (No model.)



Claim.—1. The combination of the yoke D, constructed with an angular opening through it, and with a screw-threaded shank, E, the thumb-nut G, applied to said shank, and the spring *b*, these parts combined being adapted to be introduced into a recess in one side of a wood auger-handle transversely across the opening for the shank, substantially as described.

2. The combination of the yoke D, constructed with an angular opening through it, and with a screw-threaded shank, E, the plate F, having an opening therethrough for the shank, and the thumb-nut G, applied to said shank upon the plate, the said socket and plate being adapted, the socket to be introduced into a mortise in one side of a solid wood auger-handle, and the plate to the surface of the handle as a bearing for the nut, substantially as described.

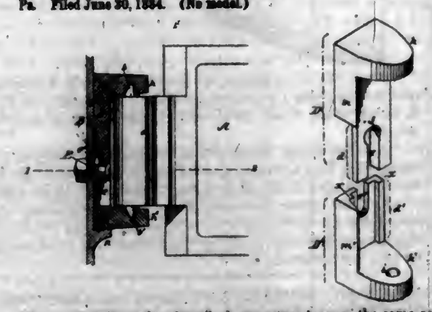
3. The combination of the yoke D, constructed with an angular opening through it, with a screw-threaded shank, E, a plate, F, constructed with an opening through which the shank of the yoke passes, a thumb-nut, G, fitted to the screw-threaded shank, and a spring, *b*, between said plate and yoke, substantially as described.

4. The combination of the solid wood handle A, having an opening, B, through it to receive the shank of the auger, and also constructed with a recess, C, from one side transversely across said opening B, the yoke having an angular opening through it, constructed with a screw-threaded shank, E, and arranged in said recess, the shank extending outside the handle, and the nut G upon the said shank, substantially as and for the purpose described.

5. The combination of the solid wood handle A, having an opening, B, through it to receive the shank of the auger, and also constructed with a recess, C, from one side transversely across said opening B, the yoke D, having an angular opening through it arranged in said recess, and constructed with a screw-threaded shank, E, extending through said recess, a plate, F, arranged to cover said recess, and with an opening through it for the said shank, and the nut G upon said shank, substantially as and for the purpose described.

6. The combination of the handle A, constructed with an opening, B, to receive the shank of the auger, and with a recess, C, opening from one side of the handle transversely across said opening for the shank, the yoke D, arranged in said recess and constructed with an angular opening, and with a screw-threaded shank, E, extending outward through said recess, a plate, F, having an opening through it through which said shank passes, a nut, G, upon said screw-threaded shank outside the plate, and a spring, *b*, between the plate and the yoke, substantially as described.

313,740. STOVE-DOOR HANGER. WILLIAM JAQUES, Royer's Ford, Pa. Filed June 30, 1884. (No model.)



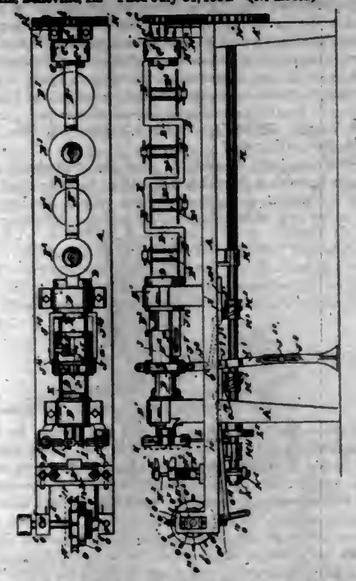
Claim.—1. The within-described stove-door hanger, the same consisting of the casting D, having a lug, *h*, and slotted portion *d*, and the casting D', having a lug, *h'*, and slotted portion *d'*, the two castings being combined with and adapted to each other, and constructed substantially in the manner set forth.

2. The combination of the stove-plate B, having a bolt-hole and a supporting-lug, *n*, the hanger-castings D D', having lugs *h h'* and slotted portions *d d'*, and the securing-bolt E, as set forth.

3. The combination of the portion D of the hanger, having a lug, *h*, and projecting portion *d*, with the portion D', having a lug, *h'*, and a portion, *d'*, with opposite ribs *x x*, as set forth.

4. The combination of the two portions D D' of the hanger, having lugs *h h'*, and side plates, *w w'*, as set forth.

313,741. BARB-WIRE MACHINE. WILLIAM H. KIME, St. Louis, Mo. assignor of one-half to William L. Reynolds, same place, and John Tunnicliff, Belleville, Ill. Filed July 31, 1884. (No model.)



Claim.—1. A flier for barb-wire machines, consisting of a bent bar formed with longitudinal parts B' and transverse parts B'', providing open spool-recesses and spools secured to the longitudinal parts.

2. In combination with the flier-shaft having a cog-wheel, main shaft having a cog-wheel, and a frame in which the shafts are mounted, the extension A^2, having a slot, H^4, and a pinion, H^3, having arbor H^5, adjustable in said slot.

3. The combination of the flier-spindle having perforations for the main and barb wires, boxes in which the spindle is mounted, a carriage sliding on said spindle, having means for grasping the barb-wires in its forward movement, and means by which the carriage is reciprocated on the spindle.

4. In a barb-wire machine, the combination of the non-circular spindle, collar fitting thereon, and provided with dogs adapted to engage with and carry the barb-wires forward, and means for reciprocating the collar, consisting of an arm made fast to a ring on the collar, a standard to which the arm is hinged, a slide connected to the bed-plate by suitable brackets, a link connecting the slide to said arm, a cam on an operating-shaft and eccentrically grooved, and a pin on the slide fitting in the groove in the cam, substantially as set forth.

5. In a barb-wire machine, the combination of the spindle, reciprocating collar, dogs secured to the collar and adapted to engage and carry the barb-wires forward, arms secured to the spindle, and having slots to receive the outer ends of the dogs, and set-screws in the arms to disengage the dogs from the wires, substantially as and for the purpose set forth.

6. A former and cutter frame consisting of a suitable support having pins I^2 I^2, rectangular frame having four pieces, I' I' I' I', bolts connecting the ends of the pieces, the end pieces being supported on the pins, suitable knives and formers secured to the pieces, and means by which the frame is swung sidewise on the pins to advance and withdraw the formers and cutters.

7. The combination, with a supporting-frame, of a compressor consisting of a table supported on the frame, platen, springs to support the platen, rods connected to the platen, and cross-bar connecting the rods, and means by which the platen is operated.

8. A compressor for barb-wire machines, consisting of a table, N, platen N', rods N^2, guide-tubes N^3, spiral springs N^4, nuts N^5, and cross-bar.

9. In a barb-wire machine, the compressor consisting of a table, platen, rods connected to the platen, tubes through which the rods pass, spiral springs between the upper ends of the tubes, and nuts on the rods,

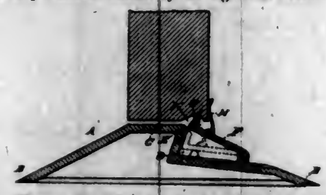
and a cross-bar connecting the lower ends of the rods, in combination with a cam on an operating-shaft, substantially as and for the purpose set forth.

10. In a barb-wire machine, a sprocket feed-wheel consisting of a disk having an interior opening, and a slot in its face communicating with the opening, and notched arms with square portions fitting in the slot in the disk, and held therein by bolts the heads of which fit in the opening in the disk, substantially as set forth, the wheel being supported on a suitable shaft, and having suitable means for operating it.

11. In a barb-wire machine, the sprocket-wheel, constructed as specified, in combination with a ratchet-wheel secured to the back of the sprocket-wheel, arm fitting loosely on the shaft of the wheel, pawl pivoted to the arm and engaging the ratchet-wheel, link or pitman connected to the lower end of the arm, slide to which the link is connected, and which is secured by brackets to the bed-plate of the machine, eccentrically-grooved cam secured to an operating-shaft, and a pin on the slide fitting in the groove in the cam, substantially as set forth.

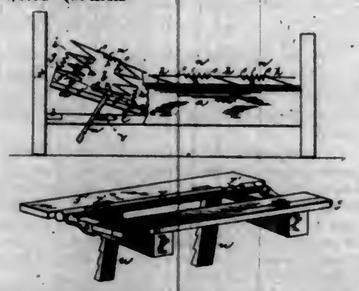
313,742. THRESHOLD. SIMON A. KEITHER, Hoy, Ohio. Filed June 26, 1884. (No model.)

Brief.—A metal threshold, its outer side provided with a rectangular recess in which is pivoted a strip having its inner edge turned upwardly to engage a recess in the bottom edge of the door through a finger on the strip which is actuated by the edge of the door.



Claim.—The combination, with the door having its under edge longitudinally grooved, of the threshold formed from a single piece of metal having its opposite longitudinal edges terminating in acute angles, and an elevated plain intermediate portion, C, having its outer side provided with a rectangular recess, the weather-strip pivoted at its outer edge to lugs arranged in the horizontal portion of the said recess, and having its inner end turned upwardly and provided with an arm, H, extending over the said upturned edge, and adapted to engage the outer side of the door to bring the upturned edge of the strip into the groove of the door, substantially as specified.

313,743. HEAD-SECTION. JOHN R. LARIEW, Elmira, N. Y. Filed Feb. 6, 1884. (No model.)

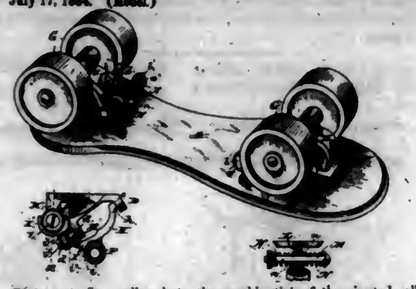


Claim.—1. The combination, with the body-section of the bed-bottom, of the hinged head and back rest section, the transverse rock-shaft journaled to the head and back rest section, and having operating handles or arms at its ends, the ratchet-arms provided on the rock-shaft near the ends thereof, and the detent-slat, as set forth.

2. The combination, with the body-section of the bed-bottom, of the hinged head and back rest section, the transverse rock-shaft journaled thereto, the ratchet-arms provided on the rock-shaft near the ends, the detent-slat, and weighted arms or handles projecting out from the ends of the rock-shaft at right angles to the ratchet-arms, whereby the weight of the arms or handles serves to force the ratchet-arms into engagement with the slot, as and for the purpose set forth.

3. The combination, with the body-section of the bed-bottom, of the hinged head and back rest section, comprising the inclined strips *q*, with slats fixed thereto, the transverse rock-shaft *r*, journaled to the upper face of the strips, and having its ends beyond the strips provided with weighted operating handles or arms *s*, the ratchet-arms *u*, attached to the rock-shaft within the strips, at right angles to the handles or arms *s*, and the detent-slat *c*, arranged, combined, and operating as and for the purpose set forth.

313,744. ROLLER-SKATE. LEVI M. LAWLESS, Geneseo, Ill. Filed July 17, 1884. (Model.)



Claim.—1. In a roller-skate, the combination of the pivoted roller-truck provided with a central arm or tongue, the center lug, and a rod passing loosely through the lug and having independent springs on each end adapted to force the tongue inward into line with the center lug, substantially as shown and described.

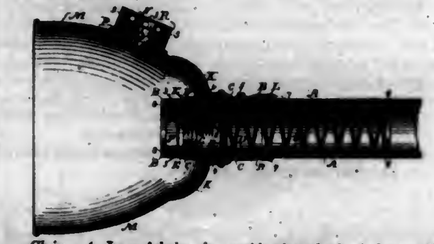
2. In a roller-skate, the combination of the pivoted roller-truck, the fixed center lug, the tongue on the truck, forked at its upper end to embrace the lug, the rod passing loosely through an opening in the lug, and the springs on the rod on each side of the lug and fork of the tongue, bearing at their outer ends against limiting devices, substantially as described, on the rod, substantially as and for the purpose set forth.

3. In a roller-skate, the combination of the stationary center lug projecting downward from the foot-plate, the pivoted roller-truck provided with a tongue having a fork, the arms of which extend in front and rear of the lug, a transverse rod passing loosely through the lug, washers on the rod on each side of the lug, and springs on the rod between such washers, and limiting devices, substantially as set forth, on the ends of the rod, substantially as and for the purpose described.

4. In a roller-skate, the combination of the pivoted roller-truck having the tongue and fork thereon, the fixed stationary lug extending between the arms of the fork, the transverse sliding rod passing through the lug, and having the head on one end and the adjustable nut on the other, the springs on the rod on each side of the lug and fork, and suitable washers for protecting the ends of the springs, substantially as shown and described.

5. In a roller-skate, in combination with the pivoted truck having the forked arm, the fixed center lug extending down from the foot-plate and situated between the arms of the fork on the tongue, the transverse rod passing loosely through the lug, having a fixed head on one end and an adjustable nut on the other, the washers on the rod bearing against the sides of the center lug and fork, washers on the outer ends of the rod, and the springs on the rod between the outer and inner washers, substantially as shown and described.

313,745. INHALER. AMOS M. LOWE, Monroe, Mich. Filed Jan. 8, 1885. (No model.)



Claim.—1. In an inhaler, the combination of tube A, intermediate tube, B, having slots 4 4 therein, inner tube, D, outer tube, C, pin H, valve F, springs G and 9, and thumb-catch L, substantially as set forth and described.

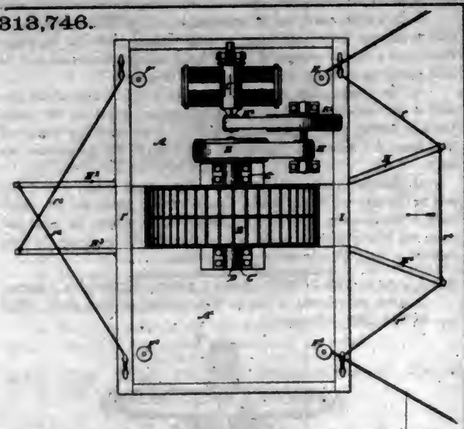
2. In an inhaler having a hood, the combination of outer tube, C, intermediate tube, B, having slots 4 4 therein, inner tube, D, pin H, and valve F, attached to said pin by spring G, substantially as set forth.

3. In an inhaler, the combination of tube A, intermediate tube, B, having slots 4 4 therein, pin H, valve F, attached to pin H by spring G, outer tube, C, inner tube, D, spring 9, and thumb-catch L, substantially as set forth and described.

313,746. APPARATUS FOR UTILIZING THE CURRENT FORCE OF FLOWING WATERS IN PRODUCING ELECTRIC CURRENTS. ALSON MAN, Brooklyn, N. Y., assignor to the River and Rail Electric Light Company, Ohio County, W. Va. Filed Jan. 9, 1885. (No model.)

Claim.—1. A portable mechanism for utilizing the current force of flowing water for purposes of illumination, consisting of a current-wheel,

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a floating support therefor, anchoring or attaching devices for said support, a dynamo-electric machine connected by motion-multiplying apparatus to said wheel, an electric circuit containing lamps or other illuminating devices, and longitudinal and transverse warping apparatus whereby the position of the floating support may be readily adjusted up and down or across the stream.

2. A mechanism for utilizing the current force of rivers and the ebb and flow of tidal waters for purposes of illumination, consisting of a current-wheel mounted upon a floating support, anchoring or attaching devices for said support, a dynamo-electric machine suitably geared to said current-wheel, electric lamps suitably placed upon the shore or otherwise located in the vicinity of objects or places dangerous to navigation, an electric circuit connecting the dynamo with the lamps, and longitudinal and transverse warping apparatus, whereby the position of the floating support in the stream may be readily varied up and down or across said stream.

3. A mechanism for utilizing the current force of flowing water for purposes of signaling and illumination, consisting of a current-wheel, a floating support therefor, anchoring or attaching devices for said support, a dynamo-electric machine suitably geared to said wheel, an electric circuit containing electric lamps fed by said dynamo, and suitably-colored signal-globes for said lamps located at selected points along the river course, whereby suitable danger or navigation signals may be given.

4. A mechanism for utilizing the current force of flowing water for purposes of signaling and illumination, consisting of a current-wheel, a floating support therefor, anchoring or attaching devices for said support, a dynamo-electric machine suitably geared to said wheel, electric lamps in circuit with said dynamo and located upon said support, and suitably-colored signal-globes for said lamps, whereby danger, navigation, or other signals may be transmitted from the float.

5. A mechanism for utilizing the current force of flowing water for purposes of illumination, consisting of a current-wheel, a floating support therefor, anchoring or attaching devices for said support, a dynamo-electric machine connected by motion-multiplying apparatus with said wheel, electric lamps in the circuit of the dynamo, deflecting surfaces for concentrating the flow of water upon the wheel, and longitudinal and transverse warping apparatus whereby the position of the floating support in the stream may be readily varied up and down or across said stream.

6. A mechanism for utilizing the current force of flowing water for purposes of illumination, which consists of a current-wheel, a floating support therefor, anchoring or attaching devices for said support, a dynamo-electric machine connected by motion-multiplying apparatus with said wheel, electric lamps in the circuit of said dynamo, deflecting surfaces attached to said support and held in place by ropes or stays, and longitudinal and transverse warping apparatus whereby the position of the float in the stream may be readily varied up and down or across said stream.

7. A portable mechanism for utilizing the current force of flowing water for the generation of electricity, which consists of a current-wheel mounted upon a floating support, anchoring or attaching devices for said support, a dynamo-electric machine connected in any suitable manner with said current-wheel and driven thereby, a circuit fed by the dynamo, lights or other electrical translating devices in said circuit, and longitudinal and transverse warping apparatus whereby the position of the float in the stream may be readily varied up and down or across said stream.

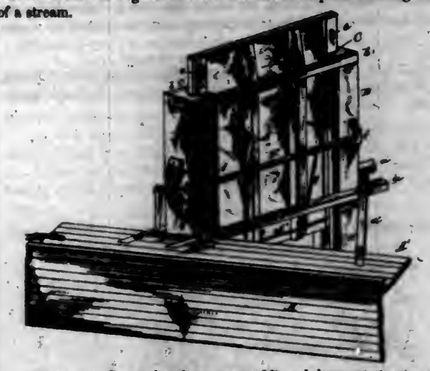
8. A portable mechanism for utilizing the current force of flowing water for the generation of electricity, which consists of a current-wheel mounted upon a floating support, anchoring or attaching devices for said support, a dynamo-electric machine connected in any suitable manner with said current-wheel and driven thereby, a circuit fed by the dynamo, lights or other electrical translating devices in said circuit, and longitudinal and transverse warping apparatus consisting of rope shortening and lengthening devices located upon and operated from the float, whereby the position of the latter in the stream may be readily varied lengthwise and transversely of said stream.

9. A portable mechanism for utilizing the current force of flowing water for purposes of illumination, consisting of a current-wheel, a floating support therefor, anchoring or attaching devices for said support, a dynamo-electric machine operated by said current-wheel, an electric circuit containing lamps or other illuminating devices, and longitudinal and transverse warping apparatus, consisting of rope shortening and lengthening devices located upon and operated from the float, whereby the position of the float in the stream may be readily changed lengthwise and transversely of said stream.

10. A portable mechanism for the generation of electricity by means of the current force of navigable rivers and for simultaneously scouring the river-bed, which consists of a current-wheel mounted upon a floating support, a dynamo-electric machine connected with said wheel by a motion-multiplying apparatus, circuit-connections for said dynamo, anchoring or attaching appliances whereby the floating support may be held stationary in the stream, and warping appliances for adjusting its position longitudinally, whereby the dynamo will be operated by the revolution of the wheel, and at the same time a channel will be scoured in the river-bed as the floating support is warped up stream.

313,747. FLOATING WING-DAM. HENRY P. MARVIN and ALLEN ARNOLD, Chippewa Falls, Wis. Filed June 14, 1884. (No model.)

Brief.—Horizontal projections from a portable floating structure support an adjustable wing-dam or gate-piece controlled by a windlass and connections to regulate the flow and the consequent scouring action of a stream.

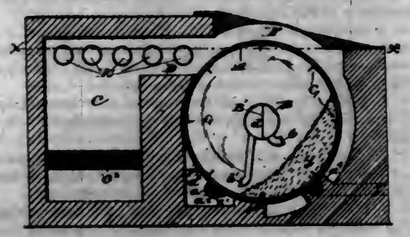


Claim.—1. In a wing-dam, a portable and buoyant structure provided with laterally-horizontal projecting supports, to which is attached a movable section or wing, flexible connections secured near the end of the wing and to the drum of a windlass located near or upon the structure for adjusting the wing, the parts being constructed and combined substantially as shown, and for the purpose set forth.

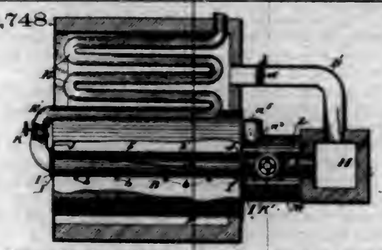
2. In a wing-dam, the buoyant and portable structure A A', provided with brace-beams *a a a'*, and vertically-recessed beams B B, a vertical adjustable gate, D, the gate and beam having rollers *c c'* and connected by a flexible connection to a windlass, the parts being combined and organized substantially as set forth.

313,748. APPARATUS FOR TREATING ORES WITH SUPERHEATED STEAM. JOSEPH H. MATHEWS, Canton, Ohio. Filed May 29, 1884. (No model.)

Claim.—1. The combination, with a revolving cylinder for treating ores and a furnace for heating the cylinder, of a chamber partially surrounding the cylinder and a flue leading from the furnace to the said chamber, and the parts so arranged that the products of combustion first come in contact with the top part of the cylinder, and pass from thence on and down around the ascending side thereof, substantially as set forth.



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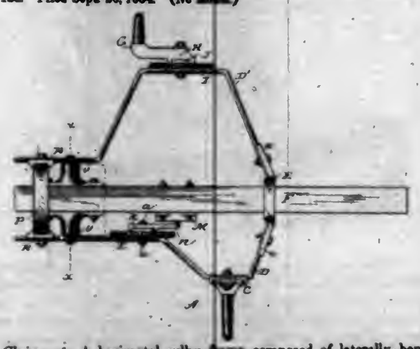
2. The combination, with the chamber F, of the piers *f*, or equivalent devices, adapted to obstruct the hot-air current, to the end that the said chamber will be evenly heated, substantially as set forth.

3. In a revolving cylinder for treating ores, a central steam-pipe provided with a diagonal partition-wall dividing the pipe into two parts, and arranged in such a manner that the two parts may be used, respectively, as an induction and eduction pipe, substantially as set forth.

4. In a revolving cylinder for treating ores, a central tube arranged to operate as an induction and eduction pipe, and with suitable openings for discharging steam into the cylinder, and a series of eduction-pipes connected with the main eduction or discharge pipe, and so arranged that the discharged steam and gases enter this eduction-tube near the bottom of the cylinder, substantially as set forth.

5. The combination, with a central stationary tube extending longitudinally through a revolving cylinder, of the collars I and I', the former secured with a tight fit to the central tube, and the latter fitting the tube loosely, and connected by the diaphragm J to the head of the revolving cylinder, substantially as set forth.

313,749. SULKY-PLOW. EDMUND D. MEAGHER and CALEB E. TOWER, South Bend, assignors to the Economist Plow Company, St. Joseph County, Ind. Filed Sept. 26, 1884. (No model.)



Claim.—1. A horizontal sulky-frame composed of laterally-bent side bars rigidly connected to each other at front and rear, combined with suitable supporting-wheels connected directly to the said bars, and with a plow-beam connected to said bars by horizontal pivots or trunnions at the rear end thereof, substantially as described.

2. A horizontal sulky-frame composed of laterally-bent side bars rigidly connected to each other at the rear by the horizontal trunnions or pivots of the plow-beam and at the front by a vertical guide for the end of the plow-beam, substantially as described.

3. A vertically-rigid frame composed of side bars having connections at its rear end, with a plow-beam adapted to permit vertical movement only of the front end of the plow in relation to the frame, and suitable guide for the front end of the beam, connecting it with the frame, and adapted to the vertical movement, suitable supporting-wheels for the frame, and means for holding the front end of the beam at any desired height, all substantially as described.

4. In combination, the bent side bars, D D', the supporting-wheels, and the casting E on said bars, connected to the plow-beam by horizontal trunnions or pivots, as set forth.

5. A sulky-frame composed of the laterally-bent side bars, D D', and rigid connections between these bars in front and rear, in combination with a vertically-adjustable supporting-wheel, G, and a laterally-adjustable supporting-wheel, A, substantially as described.

6. In combination with a side bar, D, of the sulky-frame, the spindle B, the curved and slotted block C, and the connecting-bolt, as described.

7. In combination with the side bar, D, of the sulky-frame, the flanged sector L, lever K, foot-piece N, plow-beam F, having a slotted casting, and a connecting-bolt, as described.

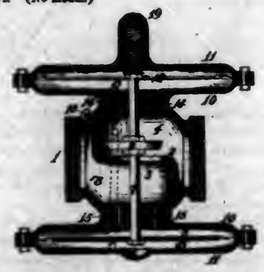
8. In combination with the side bars, D D', of a sulky-frame, the bent bar P, flanged castings R, and connecting-bolt, as described.

9. In a sulky-plow, and in combination, a rigid frame, a plow pivoted to the rear end of said frame, a front vertical guide for the plow-beam, and a loosely-connected furrow-lever whereby the beam may be held rigidly up or down, all substantially as described.

10. In a sulky-plow, and in combination, a rigid frame, a plow pivoted to the rear end of said frame, a front vertical guide for the plow-beam, a furrow-lever, and a recessed lever-foot connecting frame and plow-beam and loosely pivoted to the lever, as and for the purpose set forth.

11. In a sulky-plow, and in combination, a rigid frame, a plow pivoted to the rear end of said frame, a front vertical guide for the plow-beam, a furrow-lever, and a recessed lever-foot connecting the beam and frame and loosely pivoted to the lever, and means for rendering the loose connection rigid, all substantially as described.

313,750. GAS CUT-OFF. EDWIN C. MERRILL, Pittsburg, Pa., assignor, by mesne assignments, to George Westinghouse, Jr., same place. Filed Sept. 13, 1884. (No model.)



Claim.—1. In a gas cut-off, the combination of a case provided with inlet and outlet passages separated by a perforated diaphragm, a valve, 6, for opening and closing the perforation in the diaphragm, a flexible diaphragm connected to one side of the valve 6 and operated by the pressure of the gas in the inlet-passages to close said valve, a valve-opening diaphragm connected to the opposite side of the valve 6, and operated by the pressure of gas in the outlet-passage to open the valve, and a pipe to conduct the gas from the outlet-passage to the under side of the valve-closing diaphragm, substantially as set forth.

2. In a gas cut-off, the combination of a case provided with inlet and outlet passages separated by a perforated diaphragm, a valve, 6, for opening and closing the perforation in said diaphragm, a valve-closing diaphragm connected to one side of the valve 6 and operated by the gas-pressure in the inlet-passage 3, a valve-opening diaphragm connected to the opposite side of the valve 6 and operated to open the valve by the gas-pressure in the outlet-passage 4, a pipe to conduct the gas from the out-passage 4 to the under side of the valve-closing diaphragm, and a port for permitting a slight flow of gas from the inlet 3 to the outlet 4, substantially as set forth.

3. An automatic cut-off valve-case containing a valve tending to seat itself by mechanical agency, a supply-port, a discharge-port, a reduced or leakage port in direct line of main supply from one to the other of said supply and discharge ports, combined and suitably proportioned, substantially as set forth, whereby on an abnormal reduction of the pressure of supply the valve will be automatically closed and remain closed until the cock or cocks at the place or places of use are all closed.

4. A valve-case, a supply-port, a discharge-port, an interposed valve mechanically seated on an abnormal reduction of supply-pressure, and a leakage-port around or through the valve in a direct line of main supply from one to the other of said supply and discharge ports, whereby the valve can be automatically opened by and only by an accumulation of pressure through the leakage-port, substantially as set forth.

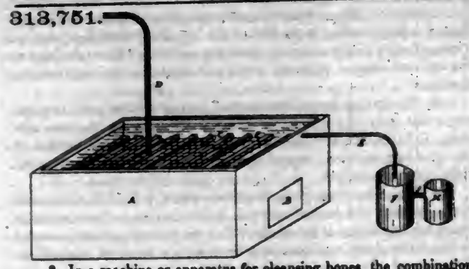
5. In combination with the user's stop-cocks of a gas-supply system, a valve-case, a diaphragm therein, a cut-off valve governing a port in said diaphragm arranged in the line of supply to the user's stop-cocks, said valve being clear of its seat under normal gas-pressure, mechanical means tending to move said valve to its seat on an abnormal reduction of pressure on its supply side, and a port leading from its supply to its discharge side of suitable capacity to accumulate a pressure on its discharge side when and only when the user's stop-cocks are closed, substantially as set forth.

313,751. MACHINE FOR CLEANING AND WASHING BONES. C. MEYER, Jr., Mascoth, N. Y. Filed Dec. 11, 1884. (No model.)

Claim.—1. In apparatus for cleansing bones, a tank with a grating below the surface, with a grating for supporting the bones to be cleansed, and a chamber below the grating provided with a man-hole, as set forth.

2. In a machine or apparatus for cleansing bones, the combination of a tank provided with a grate and man-hole, substantially as described, with grease and oil collector and separator, substantially as shown and described.

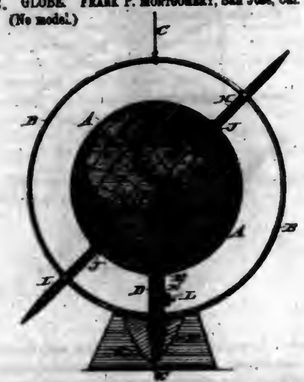
313,751.



3. In a machine or apparatus for cleansing bones, the combination of a tank with a grate and man-hole, and with a steam-pipe, substantially as shown and described.

4. The combination of the tank A, grating C, and man-hole B with tanks F and H, all substantially as shown and described.

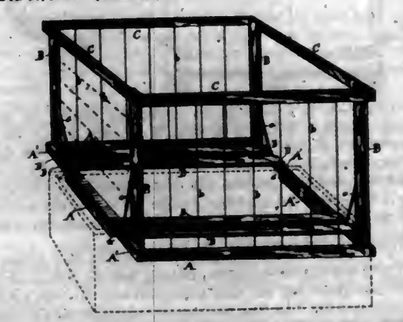
313,752. GLOBE. FRANK P. MONTGOMERY, San José, Cal. Filed Oct. 21, 1884. (No model.)



Claim.—1. A terrestrial or celestial globe suspended or pivoted to turn, and having magnets at its poles pointing north and south, as and for the purpose shown and set forth.

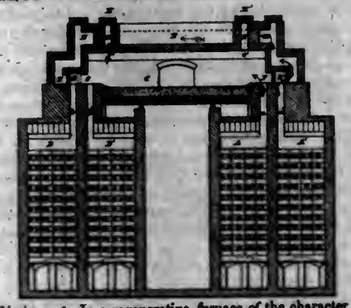
2. In a terrestrial or celestial globe, the combination of a spherical bag of air-tight material having the map of the earth or of the celestial sphere inscribed or otherwise illustrated upon it, and having screw-caps at its poles and a threaded sleeve at nadir, a ring suspended at its upper side upon a suitably-supported cord above the zenith of the globe, two magnets secured with their inner ends in the screw-caps at the poles secured detachably to the corresponding points of the ring, and having their respective north and south poles projecting from the corresponding poles of the globe, a tubular pivot fitting with its inner end into the threaded sleeve at nadir of the globe, having means for closing and opening its bore, and passing with its lower pointed end detachably through the ring, and the base of the globe having a cup for the reception of the point of the pivot, as and for the purpose shown and set forth.

313,753. WAGON-RACK. WALTER A. MOORE, Charleston, S. C. Filed Dec. 18, 1884. (No model.)



Claim.—A rack or frame for wagons, the two end sills of which have the middle part wider than the ends thereof to fit inside of the wagon-bed, the side planks, D D, on the cross-sills, extending horizontally over and beyond the wheels of the wagon to support part of the contents, all substantially as and for the purpose described.

313,754. REGENERATIVE FURNACE. THOMAS T. MORRELL, Johnstown, Pa. Filed Mar. 10, 1884. (No model.)



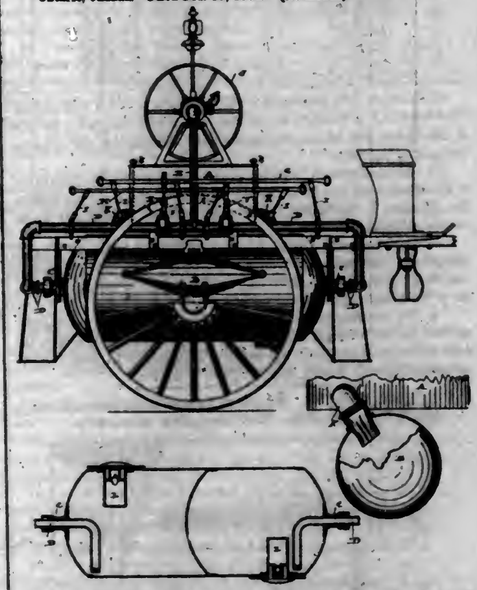
Claim.—1. In a regenerative furnace of the character described, the air-regenerators of which are provided with a valve or valves at their top near the melting tank or chamber, as set forth, and conduits or flues leading directly to the melting-chamber, and conduits leading around the melting-chamber and opening into the opposite end of the same, whereby the air can be mingled with the gas before entering the melting-chamber or at a point where the gas leaves the melting-chamber, as set forth.

2. A regenerative furnace in which the air-regenerators are provided with valves, as described, to form communication with suitable ducts located within the walls or arch of the furnace, which convey the heated air around and mingle it with the gas at the point where the gas leaves the melting-chamber, whereby a complete combustion of the gas is effected to heat the regenerators, as set forth.

3. In a regenerative furnace, the gas-generators A and B', opening into the combustion or melting chamber, in combination with the ports or flues D and E, whereby the external air is admitted at either end of the combustion-chamber, as set forth.

4. In a regenerative gas-furnace, the combination of the air-regenerators A' and B, provided with the valves F and G, with the flues D and E, whereby the heated air is mingled with the gas and the point of combustion placed beyond the hearth and near to the other set of regenerators.

313,755. CHEMICAL FIRE-ENGINE. WILLIAM HOLBROOK, Toronto Ontario, Canada. Filed Feb. 19, 1884. (No model.)



Claim.—1. In a chemical fire-engine in which the recharging-tank or water-reservoir is located above the cylinder, the hollow trunnion C, fixed to either end of the divided cylinder B, and arranged to support it horizontally, in combination with the discharge-pipe D, passing through the trunnions into the chambers at either end of the cylinder, and connected at their outer ends to a discharge-pipe common to both.

2. In a chemical fire-engine in which a recharging-tank or water-reservoir is located above the cylinder, the hollow trunnion C, fixed to each end of the divided cylinder B, and fitting into bearings formed on

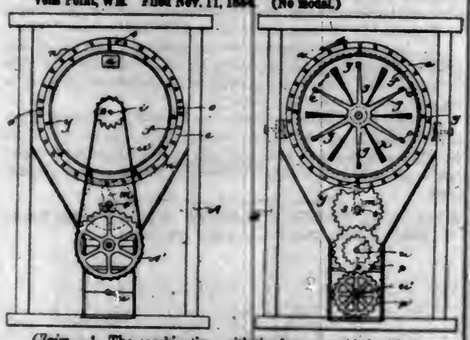
the main frame of the machine, so that the said cylinder may be revolved on the bearings with the trunnions as pivot-points, holes being made in the side of the cylinder leading into each chamber, and designed to hold the acid-pots L, in combination with the pipes K, provided with suitable cut-off valves through which the contents of the recharging-tank are conveyed into the cylinder, substantially as and for the purpose specified.

3. In a chemical fire-engine, the combination of a horizontal cylinder divided into two chambers and pivoted in suitable bearings formed in the frame and arranged to support hollow trunnions fixed to the ends of the cylinder, the discharge-pipes D, extending through the hollow trunnions C into the chambers formed within the cylinder to a point near the bottom side of the said cylinder, with a discharge-pipe, E, common to both discharge-pipes D, and provided with a suitable outlet, to which a hose or pipe may be connected for the purpose of forming the discharge-pipe D into siphons, substantially as and for the purpose specified.

4. In a chemical fire-engine having a horizontal cylinder divided into two chambers and pivoted in suitable bearings formed in the frame and arranged to support hollow trunnions fixed to the ends of the cylinder, the discharge-pipes D, extending through the hollow trunnions C and arranged to connect with the discharge-pipe E, in combination with cut-off valves F, by which the communication between the pipes D and E may be regulated at pleasure.

5. In a chemical fire-engine, the combination of the divided cylinder B, the pipes D, connecting with the discharge-pipe E and the ends of the cylinder, and provided with cut-off valves F, and the horizontal rods G and H, supported by the pivoted links I, all arranged substantially as and for the purpose specified.

313,756. CENTRIFUGAL FLOUR-BOLT. CHARLES R. MOYER, Stevens Point, Wis. Filed Nov. 11, 1884. (No model.)



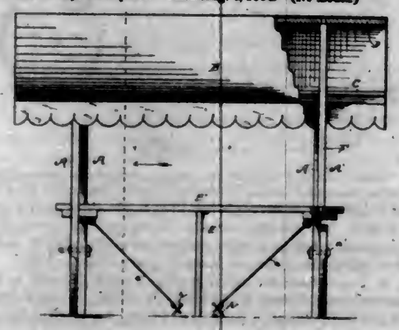
Claim.—1. The combination, with the frame provided with the outside flanges, *f f*, of the silk-covered reel-frame having flanges *e e*, the pins *n*, the cam *m*, and mechanism, substantially as described, for operating the cam, as set forth.

2. The combination, with the frame provided with the flanges *f f*, of the silk-covered reel-frame having flanges *e e*, the revolving beaters, the deflectors *h*, the cam *m*, pins *n*, and gearing, substantially as described, for operating the parts, as set forth.

3. The combination, with the frame having the flanges *f f*, of the silk-covered reel-frame, the revolving beaters and deflectors, and the feed and discharge openings located outside of the circle of the inner diameter of the beaters, substantially as set forth.

4. The combination, with the frame having flanges *f f* and the silk-covered reel with flanges *e e*, of the revolving beaters and deflectors, the cam *m*, the conveyers *u u'*, and gearing, substantially as described, for operating the reel, beaters, and deflectors, as set forth.

313,757. AWNING. WILLIAM A. NEASON, Omaha, Nebr., assignor to John D. Tully, same place. Filed Aug. 4, 1884. (No model.)

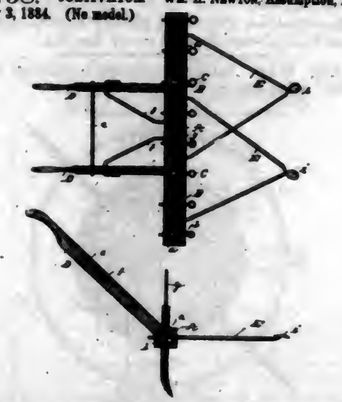


Claim.—1. The combination, with two pairs of crossed and hinged legs, of a board resting in the fork of the legs above the hinge-joint, an awning having a ridge-pole, and vertical posts located above the joint of the legs and stepped upon said board and distending the ridge-pole, as described.

2. The awning formed of a piece of canvas, with inclined sides and two gable ends, in combination with the ridge-pole D, the two side stripe, C C, the hinged cross-bars A A', a board resting in the fork of the cross-bars, and posts stepped upon the said board and distending the ridge-pole, as described.

3. The combination of the hinged cross-bars A A A' A', the hooked rods connecting the legs of each pair below the hinge-joint, the table-board having notches at its ends to receive the crossed bars and arranged in the forks of the cross-bars, and the cords *c c*, arranged beneath the table, as and for the purpose described.

313,758. CULTIVATOR. WM. H. NEWTON, Assumption, Ill. Filed July 3, 1884. (No model.)



Claim.—1. In a cultivator, the combination, with the standard-beam, of the draft attachment comprising the approximately-triangular frames E, with their outer bars connected at their inner ends to said beam near its ends, and their inner bars crossing each other about at the middle, and also connected to said beam, substantially as shown and described.

2. The cultivator comprising the single beam having intersecting series of apertures, the shovel or tooth standards having transverse apertures connected to said beam by the eyebolts or pins, the handles connected and braced to said beam, and the approximately-triangular draft-frames, with the divergent ends of their outer bars connected to said beam near its ends, and their inner bars crossing each other and also connected to said beam, substantially as shown and described.

313,759. STOCK-CAR. ROBERT G. PACE, Danville, Va. Filed Nov. 18, 1884. (No model.)



Claim.—1. In a stock-car, the combination, with the car proper, having water-tanks built in or supported at the ends thereof, and provided with the feed and water troughs arranged entirely within the car and extending to the door-spaces, of the main water-pipes secured on the outside of the body, and provided with short branches secured to the studding or frame-work and extending through the car and communicating with the troughs, the ends of the main water-pipes connecting with the water-tanks, as and for the purpose set forth.

2. In a stock-car, the combination, with the car-body proper, provided with feed and water troughs extending from the ends of the body to the door-spaces, and the main water-pipes secured on the outside of the body, provided with short branches communicating with the troughs and terminating at the doors, of the said doors having trough-sections secured to the inside thereof, perforated pipe-sections hinged to one of the branches of the main water-pipes, and chutes communicating with the trough-sections, and adapted to support the pipe-sections, as set forth.

3. In a stock-car, the combination, with the car-body proper, provided with feed and water troughs G, and the main water-pipes K, having short branches L, of the doors having trough-sections H secured thereto, pipe-sections M, hinged or otherwise attached to the main water-pipes, and socket-plates N, for supporting the pipe-sections when thrown up out of the way, as and for the purpose set forth.

4. A stock-car having water-tanks built in or supported at the ends of the car, and provided with the feed and water troughs arranged within the same, in combination with the main water-pipes located on the outside, and having curved ends which pass through the corners of the cars, said water-pipes communicating with the troughs, as set forth.

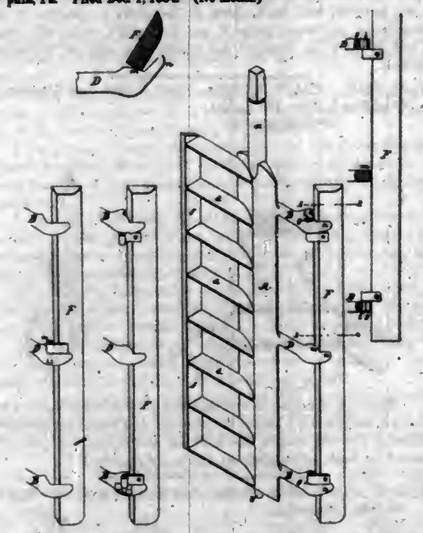
5. In a stock-car, the doors provided with trough-sections on the inside, inclined chutes or boards passing through the doors from the outside to the trough-sections, and pipe-sections connected to the main water-pipes, and adapted to be supported by and deliver water to the chutes or inclined boards, from whence it is supplied to the trough-sections, as set forth.

6. In a stock-car, the doors provided with trough-sections secured thereto, and inclined chutes or boards arranged to deliver or carry the water discharged from the water-pipes down to the trough-sections, as set forth.

7. A stock-car having the water and feed troughs arranged within the same, in combination with the main water-pipes located on the outside, and having curved ends which pass through the corners of the car, said water-pipes communicating with the troughs, and pipe-sections hinged to the main pipe at the doors, and adapted to be thrown up out of the way and supported in that position, as set forth.

8. A stock-car having its doors hinged to swing upward, in combination with a set of ropes running over pulleys above the roof and connecting with the doors on opposite sides of the car, said ropes being operated from the ends of the car to open and close the doors, as set forth.

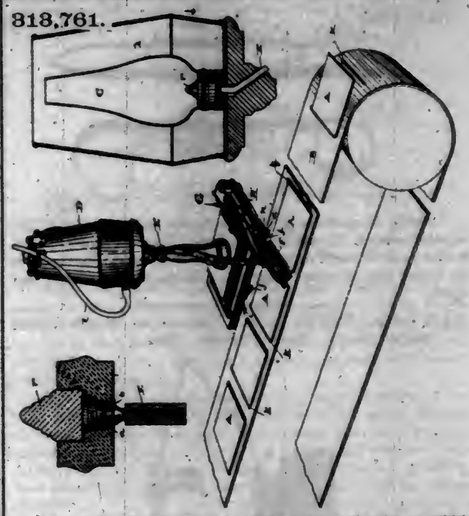
313,760. ICE-CREAM FREEZER. CHARLES W. PACKER, Philadelphia, Pa. Filed Dec. 1, 1884. (No model.)



Claim.—1. The combination of the dasher and its arms with the scraper pivoted so as to be free to swing in advance of the dasher-arms, and having a bearing upon the central arm, whereby a longitudinal tilt of the scraper is permitted, and its opposite ends are free to move in and out independently of the pivotal movement, as set forth.

2. The combination of the dasher having central arm, D, and recessed or slotted end arms, B, with the scraper having a bearing upon the central arm, and provided with pivot-pins adapted to the recesses or slots of the end arms, whereby the dasher is free to swing in advance of the dasher-arms, and also to move in and out at each end independently of the pivotal movement, as set forth.

313,761. MACHINE FOR APPLYING PHOTOGRAPHIC EMULSION TO PHOTOGRAPHIC PLATES. ELI J. PALMER, Toronto, Ontario, Canada, assignor of one-third to Theodore Scull, same place. Filed July 7, 1884. (No model.)



Claim.—1. In a device for applying emulsion, a narrow vessel made substantially of a length to correspond with the width of the plate on which the emulsion is to be applied, and provided with a porous apron or its equivalent designed to receive the emulsion and distribute it on the plate, substantially as and for the purpose specified.

2. In a device for applying emulsion, a narrow vessel made substantially of a length to correspond with the width of the plate on which the emulsion is to be applied, and having a longitudinal slot made at or near its bottom to permit the escape of the emulsion onto a porous apron through which the emulsion is applied to the plate.

3. A distributing-vessel, F, journaled on the rod *g*, and having an arm, *k*, attached to it, in combination with the bridge *i*, attached to the traveling belt B, substantially as and for the purpose specified.

4. The distributing-vessel F, journaled or pivoted on the rod *g*, and provided with an arm, *k*, the spring-pinchers G, arranged to grip the end of the flexible tube E, and the lever H for operating the said pinchers, in combination with the bridges *i* and *j*, connected to the traveling belt B, substantially as and for the purpose specified.

5. The spring-pinchers G, arranged to grip and close the end of the flexible tube E, and connected, as described, to the pivoted lever H, in combination with the bridge *j*, connected to the traveling belt B, substantially as and for the purpose specified.

6. The distributing-vessel F, journaled, as described, and supplied with emulsion from a flexible tube, E, closed by the pinchers G, in combination with a traveling belt, B, having plates A held on its surface, as described, and bridges *i* and *j*, arranged to operate the vessel F and pinchers G, substantially as and for the purpose specified.

7. An emulsion-reservoir, C, placed within a hot-water urn, D, and having a flexible tube, E, connected with the bottom thereof, and arranged to convey emulsion to the distributing-vessel F, in combination with the sponge *r*, inserted in a recess in said reservoir C, over the mouth of said tube, substantially as and for the purpose specified.

8. A soft-rubber plug arranged to close holes in the bottoms of the reservoir C and urn D, a hard-rubber tapered ferrule, *a*, inserted in a correspondingly-formed hole in the said plug, in combination with a flexible tube, E, having a hard-rubber tapered ferrule, *b*, inserted in its mouth and forced into the ferrule *a*, substantially as and for the purpose specified.

9. In combination with a device for distributing photographic emulsion on plates, an endless traveling belt, B, having projecting lips *k* and bridges *i i*, placed on the surface, substantially as and for the purpose specified.

10. A horizontal endless traveling belt, B, having projecting lips *k*, placed on its surface for holding the plates A, in combination with a traveling shelf placed at the turning-point of the endless apron, and arranged substantially on a level with the top of the belt to receive the plates A, substantially as and for the purpose specified.

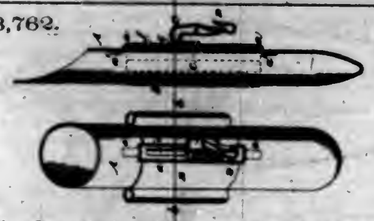
11. An endless apron, B, having projecting lips *k*, to retain in position the plates A, in combination with a rack, K, arranged to hold a series of shelves, and automatically operated so as to bring an empty shelf before each plate, substantially as and for the purpose specified.

12. In a machine for applying photographic emulsions, the combination of a distributing-vessel, as F, refrigerator, as A', rack K, and a traveling belt, B, arranged to convey the photographic plates under the distributing-vessel, and from thence through said refrigerator, and deliver them to said rack, substantially as and for the purpose specified.

13. The combination of an endless traveling belt, movable plate-rack, and a reciprocating conveyer-table situated intermediate of said belt and rack, substantially as described.

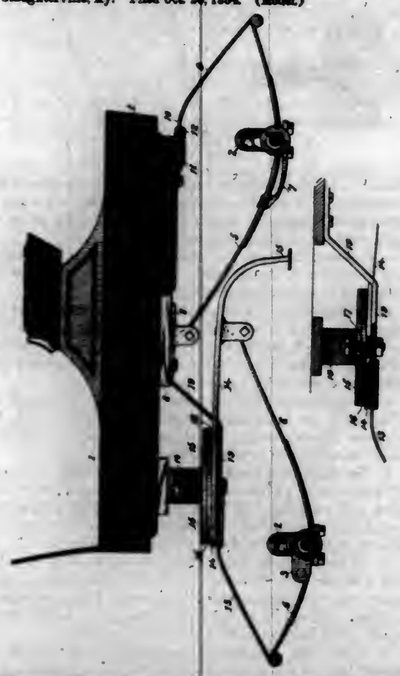
313,762. SPECTACLE-CASE. JOHN A. PATTEE, Lamar, Mo. Filed May 17, 1884. (No model.)

313,762.



Claim.—In combination with case A, provided with jacket B, having attachments *b*, the slotted strip *c*, having tongues *a'*, and secured to the case, as shown, and a clamping-loop, C, carrying hook D, and secured to the slotted strip by means of the lips *c*, substantially as set forth and shown.

313,763. VEHICLE. JOHN W. PATTERSON and NICHOLAS R. JONES, Slaughterville, Ky. Filed Oct. 20, 1884. (Model.)



Claim.—1. In combination with the body 1, the braces 18 19, and the upper wear-iron, 15, supported thereon, the half-elliptic springs 6, clipped to the front axle, the springs 13, having the overlapping transverse portions, the platform 14, to which the springs 6 and 13 are attached, and the lower wear-irons, 16, all constructed and arranged substantially as and for the purpose set forth.

2. In combination, the body 1, the transverse brace 18, and the longitudinal brace 19, the wear-irons 15 16, and the platform 14, located between said braces, the king-bolt 17, passed through the whole, as described, and springs supporting said platform, as set forth.

3. In combination with a spring having a transverse portion fixed directly to the wagon-body, as shown, a rear axle and half-elliptic springs connected at their ends to the upper spring and at their forward ends to the wagon-body.

4. In combination with the fore and aft springs fixed to the axle, side rods also fixed to said axle at one end and to the said springs at the other for bracing the same, substantially as set forth.

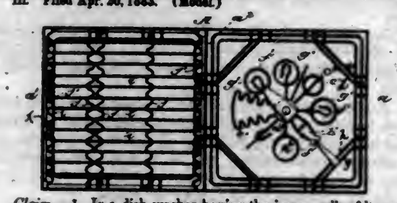
5. The front axle, 2, the half-elliptic springs 6, secured thereto, and the quarter-elliptic springs 13, secured at their forward extremities to the springs 6, and having the horizontal transverse portions, as described, in combination with the platform 14, of A form, having the transverse portions of the springs 13 secured to its united end and the rear extremities of the springs 6 secured to its divergent arms, and the wear-irons 15 16, substantially as set forth.

6. In a spring-wagon, a platform of A form having the rear extremities of the upper quarter-elliptic members of the front springs connected with its united ends and the rear extremities of the lower half-elliptic members of said springs secured to its divergent arms, in combination with said springs of three-quarter-elliptic form and the wear-irons supported thereby, as explained.

7. The combination, with the bottom half-elliptic member of a spring, of the upper quarter-elliptic member secured to said bottom member at one end and having at the other a rigid horizontal transverse arm secured to the bottom or platform of the wagon, as set forth.

8. In a platform spring-wagon, the combination, with the platform, the lower wear-iron supported thereby, and the upper wear-iron secured to the body of the wagon, or a bolster secured thereto, of a king-bolt passing through said wear-irons and platform, and a brace extending from the floor of the wagon and embracing said king-bolt below the platform, substantially as set forth.

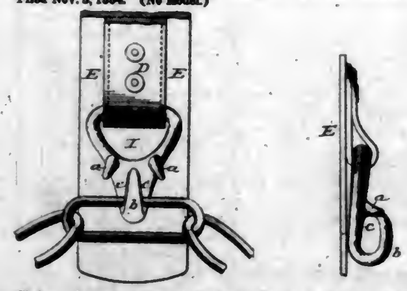
313,764. DISH WASHER AND DRIER. JOHN J. W. PLAGE, Rantoul, Ill. Filed Apr. 20, 1883. (Model.)



Claim.—1. In a dish-washer having the inner walls of its washing-chamber provided with supports fitted to receive and hold plates and similar dishes, the vertical shaft operating in said chamber, and provided with means for supporting the smaller dishes, and with a brush arranged to brush the plates, &c., as and for the purposes specified.

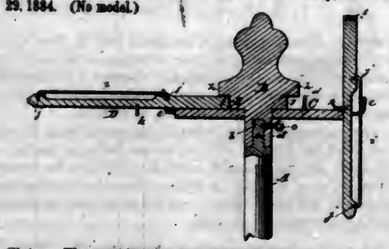
2. In a dish-washer, the combination of the washing-chamber provided with dish-supporting rods *c d e f g h*, the shaft a^3, journaled therein and provided with cup-supports *f'*, dish-racks *c'*, splashers *d'*, goblet-holders *g'*, and brush-clamps *h'*, and the brush *b'*, removably secured in said clamps *h'*, all arranged and operating as and for the purposes specified.

313,765. TRACE-HOLDER. HENRY A. POTT, Cape Girardeau, Mo. Filed Nov. 3, 1884. (No model.)



Claim.—A trace-carrier consisting of a piece of metal having a hook formed in one end and a loop in the other end, and having prongs or studs projecting from the body on the hook side thereof near the sides of the point of the hook, substantially as shown and described.

313,766. CLOTHES-DRIER. JOHN H. PRESS, Olney, Ill. Filed Apr. 29, 1884. (No model.)

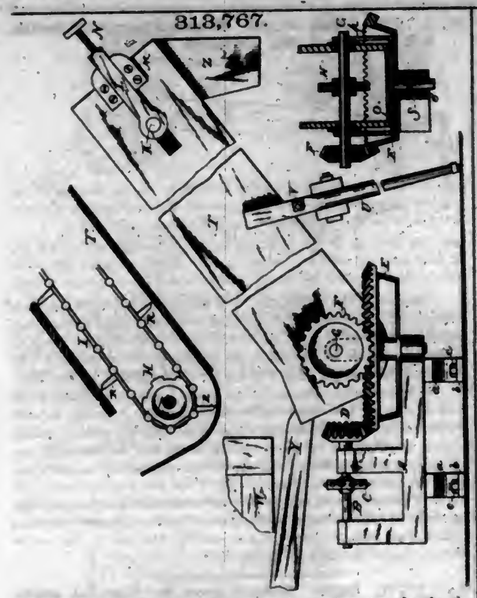


Claim.—The combination, in a clothes-drier, of a supporting-standard, a head, B, mounted and rotating thereon, a disk, C, secured to said head and provided peripherally with a series of loop-brackets, a series of arms, D, passing through said brackets and bearing beneath an annular shoulder of the head B, and cut away as described, and a series of rods, *i*, spanning said cut-away portion, substantially as set forth.

313,767. ELEVATOR FOR THRASHING-MACHINES. ALSON E. PRESTON, Battle Creek, Mich. Filed July 14, 1884. (No model.)

Claim.—1. A grain-conveyer essentially of a frame or jack, a driving-gear supported thereon, a driven gear for operating the elevator-chain,

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also supported on the frame, the elevator-leg, and means whereby the elevator-leg is made adjustable vertically and horisontally, substantially as set forth.

2. In a grain-conveyer, the combination, with the elevator-leg, of the dished elevator gear-wheel for allowing freedom of vertical adjustment to the elevator-leg, substantially as set forth.

3. In a grain-conveyer, the combination, with the elevator-leg and the shaft supporting the same, of the dished elevator gear-wheel for allowing freedom of vertical adjustment to the elevator-leg, substantially as set forth.

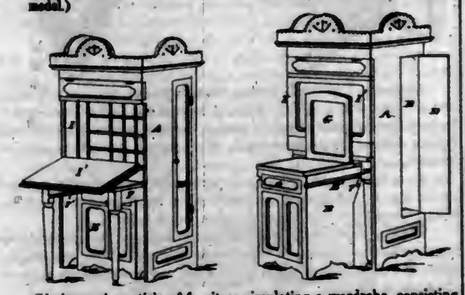
4. In a grain-conveyer, the combination, with the elevator-leg, of the dished elevator gear-wheel and the adjustable support, whereby the elevator-leg may be adjusted vertically to any desired position and supported in place, substantially as set forth.

5. In a grain-conveyer, the combination of the dished wheel E, pinion F, shaft G and elevator-leg T, sprocket-wheels H H, sprocket-chain I, and flights or buckets R R, as and for the purpose set forth.

6. In a grain-conveyer, the elevator-leg, the shaft supporting the same, and the vertical pivoted yoke, whereby the elevator-leg is made capable of horizontal adjustment, substantially as set forth.

7. In combination, the elevator-leg, the shaft supporting the same, the pivoted yoke, and the dished elevator gear-wheel, whereby the elevator-leg is made capable of vertical and horizontal adjustment, substantially as described.

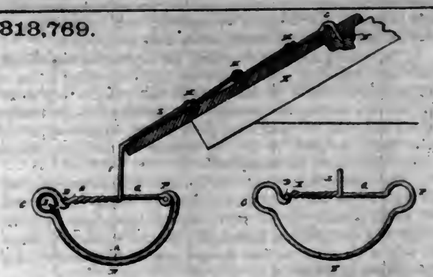
313,768. COMBINED ARTICLE OF FURNITURE. JAMES C. PRINGLE and JOHN W. HOLDSWORTH, St. Louis, Mo. Filed Mar. 12, 1884. (No model.)



Claim.—An article of furniture simulating a wardrobe, consisting of main closet B, occupying the rear portion, a table, F, having legs and nested in the front portion, box wash-stand E, nested beneath the table between the legs, and the upright-desk top formed in the upper front portion, the whole constructed to form at option a wardrobe, upright desk, dressing-table, or wash-stand, as set forth.

313,769. EAVES-TROUGH HANGER. GEORGE REDSOR, Mercer, Pa., assignor to John W. Bell and Joseph C. Brockenridge, same place. Filed May 21, 1884. (No model.)

313,769.

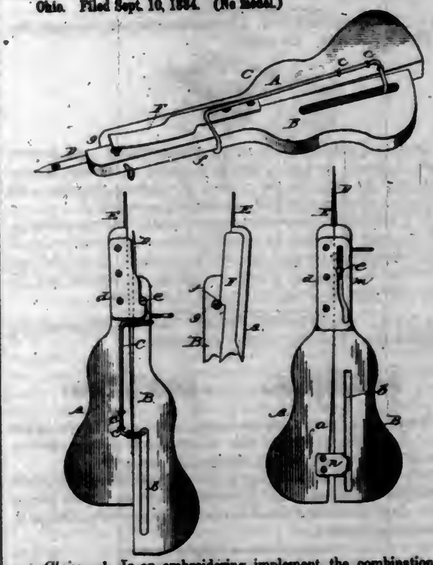


Brief.—Consists of one piece of wire bent to the contour of the trough, the outer end formed into a hook, then continued under the trough, embracing the inner edge thereof, then extending across the trough, and formed into a loop engaging the hook, and, returning, formed into a suspension-piece having loops and a pointed right-angled continuation, with a bent open portion.

Claim.—1. A suspensory eaves-trough hanger consisting of one piece of wire formed into the general contour of the trough, the outer end being bent into a hook, the said wire passing under the said trough, embracing and retaining the inner edge of the same, and continued across the trough, formed into a loop to engage with the hook, and, returning, bent upward and secured to a roof, substantially as and for the purpose specified.

2. An eaves-trough hanger formed of one piece of wire embracing, and removably securing the said trough and having a single suspensory piece bent to the angle of the roof and there having loops and a pointed right-angle continuation first bent into a slight upward curve, the parts being arranged to hold the trough and secure it to a roof, substantially as and for the purpose specified.

313,770. EMBROIDERING IMPLEMENT. JOHN C. ROBBE, Warren Ohio. Filed Sept. 10, 1884. (No model.)



Claim.—1. In an embroidering implement, the combination, with the sliding blocks provided, respectively, at their forward ends with a needle and the rigid loop-holder E, of a plate having a sinuous edge attached to the upper surface of one block and a projection on the other moving against such edge, whereby the forward ends of the blocks are moved apart when operated, substantially as described.

2. In an embroidering implement, the combination, with the sliding blocks provided, respectively, at their forward ends with a needle and rigid loop-holder, E, of a spring attached to the sides of one block and embracing the other, whereby their forward ends are forced together and the plate *d* and pin *e* attached to the top surfaces of said blocks at corresponding ends, substantially as described.

3. In an embroidering implement, the combination, with the sliding blocks provided, respectively, at their forward ends with a needle and the rigid loop-holder E, of a spring for holding the forward ends of the blocks normally against each other, devices for moving such ends apart when operated, as described, and a spring, F, and pin *g*, attached to the

bottom surfaces of said blocks at corresponding ends for guiding or directing the movement of the needle, substantially as described.

4. The combination, with the sliding blocks provided, respectively, at their outer ends with a needle and the rigid loop-holder E, one of which blocks is beveled at its rearward end and provided with guide-loops, as shown, and the other provided at its corresponding end with an elongated slot, *b*, of the plate *d* and pin *e*, located, respectively, at the forward ends of the blocks on their top surfaces, and the spring formed to embrace said blocks, all as described.

5. The combination, with the sliding blocks provided with the needle D and the rigid loop-holder E, of a spring for holding the outer ends of the blocks normally against each other, the plate *d* and pin *e*, and upwardly-bent spring F, and headed pin *g*, located, respectively, on opposite sides of the blocks at their forward ends, all substantially as and for the purpose described.

6. The combination, with the blocks A B, provided, respectively, with a needle and loop-holder, of the spring F, attached to one side of the former at or near its forward end and formed with the shoulder *f*, and the pin *g*, attached to the corresponding side of the latter at such point as to be brought behind the shoulder when the needle has been drawn back to its fullest extent, substantially as described.

313,771. TOP-PROP NUT. ERNESTE ROTHLISBERGER, Cincinnati, Ohio.
Filed Apr. 25, 1884. (No model.)



Claim.—1. A prop-nut composed, substantially, of the nut B, having a flanged head, *b*, and the leather covering A *a*, having the overlapping flange *d*, turned upon the under side of the head *b* and secured by metallic projections, substantially as specified.

2. In combination with the leather covering A *a*, metallic nut B, having the flanged head *b* and downwardly-projecting tongs *t*, for securing the leather to the head, substantially as specified.

313,772. TOP-PROP NUT. ERNESTE ROTHLISBERGER, Cincinnati, Ohio.
Filed May 29, 1884. (No model.)



Claim.—1. A bolt-head for carriage-tops combining in its structure a shank, A, having the head *a*, the disk D, resting on the head, the covering C upon the disk, and the molding B, overlying the edge of the covering and secured to the head, substantially as described.

2. A bolt-head for carriage-tops consisting of the following elements, to wit: the shank A, having the circular head *a*, concavo-convex disk D, resting at its edge on the head, the flexible covering C on the disk, and the molding B, having the flanges *b* overlying the covering and the flange *c* underlying the head, substantially as described.

313,773. WASHER FOR TOP-PROPS. ERNESTE ROTHLISBERGER, Cincinnati, Ohio. Filed Aug. 2, 1884. (No model.)



Claim.—1. A carriage-top washer composed, substantially, of the plates A E, covering C, pierced with the shank-hole *a*, and united together by means of cup-flange D, substantially as specified.

2. A washer for a carriage-top prop, composed, substantially, of the metallic plate A, convex plate B, enameled covering C, each pierced with the shank-hole *a*, and united together by the annular cup-flange D, substantially as specified.

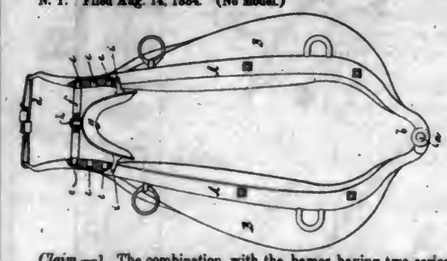
313,774. TOP-PROP NUT. ERNESTE ROTHLISBERGER, Cincinnati, Ohio.
Filed Oct. 6, 1884. (No model.)



Claim.—1. A carriage-top-prop nut combining in its structure the headed shank A B, a supporting-plate, D, having a horizontal annular flange, *d*, resting upon the top and exterior surface of the head, and a covering-plate confining the supporting-plate in position, substantially as described.

2. The combination, in a carriage-top-prop nut, of the internally-threaded shank A, having a head, B, the supporting-plate D, having an annular flange, *d*, resting upon the head, and the covering-plate C, having the flange *c* underlying the head to confine the supporting-plate in position, substantially as described.

313,775. HORSE-COLLAR. WOODMAN F. SCANTLEBURY, Brooklyn, N. Y. Filed Aug. 14, 1884. (No model.)

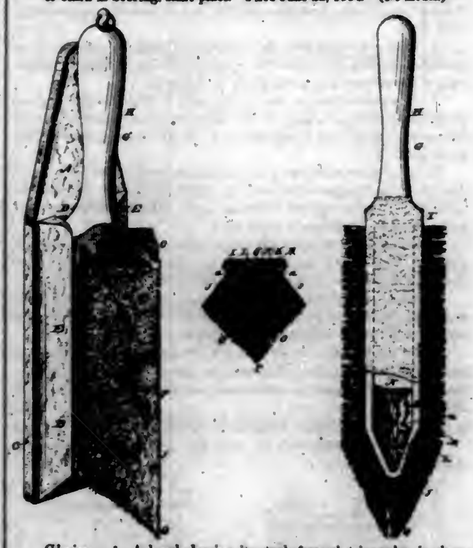


Claim.—1. The combination, with the hames having two series of orifices, *e*, of the rocking bar *f*, supported in the orifices and vertically adjustable, the top piece, *g*, and the vertical pivot *h*, swiveling the top piece centrally to the bar for permitting the top piece to swing vertically with the bar and horizontally on or with the pivot, substantially as described.

2. A horse-collar consisting of the hames A, connected at their lower ends by a pivot, *b*, combined with the rocking bar *f*, having its ends mounted in the hames at the upper ends thereof, the top piece, *g*, and the pivot *h*, swiveling the top piece centrally to the bar for permitting the top piece to swing vertically with the bar and horizontally on or with the pivot, substantially as described.

3. The combination, substantially as hereinbefore described, with the top piece and with the bar *f*, which supports the same, of hames connected at their lower ends by a pivot, *a*, and provided with two or more sets of holes to receive the gudgeons of the bar *f*.

313,776. BRUSH. THOMAS V. SEBRING, Fort Wayne, Ind., assignor to Clara E. Sebring, same place. Filed June 23, 1884. (No model.)



Claim.—1. A brush having its stock formed triangular in shape and provided with a series of slanting perforations, and bristles suitably secured therein and trimmed to assume the form of the stock, the said bristles slanting toward the point Q, which projects beyond the stock, as set forth.

2. A brush formed triangular in shape, and provided with a pointed center edge extending along the length of the brush, and flat sides O, inclining inwardly toward the center edge, as set forth.

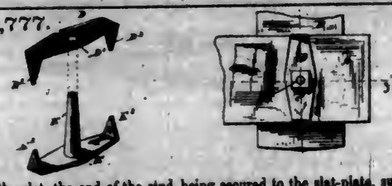
3. In a brush, the stock rectangular in length and triangular in cross-section, and having its front end formed with a triangular-shaped point, and the bristles attached to the stock and assuming the shape of the same, as set forth.

4. A brush having flat sides, pointed center edge, and a projecting point, Q, as set forth.

313,777. SLAT-FASTENER FOR BELTS. SUMNER J. SELLS, Bloomington, Ill. Filed Oct. 14, 1884. (No model.)

Claim.—1. The combination of a slat and bolt, each provided with an opening, a plate secured to the under side of the belt and having a stud fixed thereto, and a plate provided with an opening resting on the face of the slat, the end of the stud being secured to the slat-plate, substantially as described, and for the purposes set forth.

313,777.

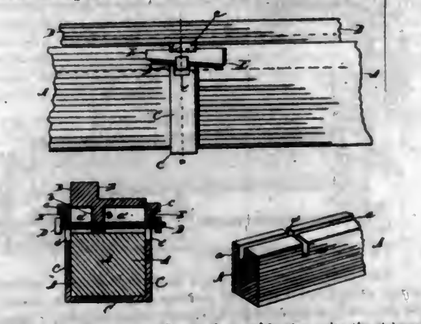


2. The combination of a slat and belt, each provided with an opening, a plate transversely secured to the under side of the belt and provided with clamp-spurs and stud, as specified, a plate provided with an opening resting on the face of the slat, the end of the stud being secured to the slat-plate in the manner and for the purposes specified.

3. The combination of a slat and belt, each provided with an opening, a plate on the under side of the belt having a stud fixed thereto, and a plate provided with an opening and end clamp-spurs, said plate being secured to the face and sides of the slat in the manner and for the purposes specified.

313,778. RAILWAY-CHAIR. CHARLES M. SELTZER and OTTO T. MOOCK, Philadelphia, Pa. Filed Nov. 12, 1884. (No model.)

Brief.—The stringers are formed with longitudinal grooves, in which the webs of the rails rest, and transverse grooves, which contain the bolts which pass through the webs of the rails, and through the ends of straps or binders having hooked ends and which pass around the stringers.



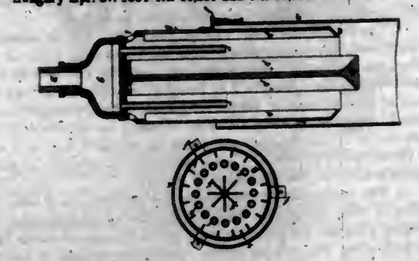
Claim.—1. In a street-railway, the combination, with the stringers having longitudinal and transverse grooves, of the rails provided with downwardly-projecting flanges having slots, straps, or binders C, and transverse securing-bolts, substantially as described.

2. In a railway-chair, the combination of grooved stringers having rails provided with downwardly-projecting flanges, with a strap or binder, a transverse bolt, and a wedge, substantially as described.

3. In a railway-chair, the combination of the following elements, to wit: stringers having longitudinal and transverse grooves, rails provided with downwardly-projecting slotted flanges adapted to fit in the longitudinal groove of the stringers, straps or binders adapted to embrace said stringers, and having flanges and slots at their upper ends arranged coincidently with the transverse groove of the stringers, transverse securing-bolts D, and tightening-wedges E, all arranged as herein described.

4. In a railway-chair, and in combination with the stringers and rails, a strap or binder having at its upper ends downwardly-projecting flanges, a transverse securing-bolt, and wedges fitted between said flanges of the binder and bolt, substantially as herein shown and described.

313,779. GAS-LAMP. FREDERICK SIEMENS, Dresden, Saxony, Germany. Filed Jan. 25, 1884. (No model.) Patented in Germany Oct. 16, 1883, No. 23,105; in England Nov. 26, 1883, No. 5,530; in France Dec. 3, 1883, No. 158,939; in Belgium Dec. 4, 1883, No. 63,491, and in Austria-Hungary Apr. 27, 1884 No. 10,259 and No. 18,518.



Claim.—1. In a gas-lamp, the combination of a number of gas-jets with a relatively high central ribbed stem and a ribbed cylindrical casing, as and for the purposes described.

2. The combination of a number of gas-jets, a relatively high central stem, a cylindrical casing surrounding the tubes or jets and extending above them, and a chamber located above the gas-tubes and within the cylindrical casing in which the flames of the gas issuing from the jets are partially shrouded and the heat thereof is radiated to the casing.

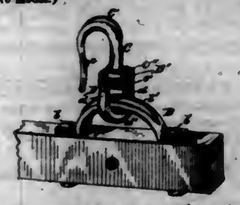
3. The combination of the chamber communicating with the gas-pipes from which rise a number of small tubes or jets, a perforated casing surrounding the tubes and extending some distance above them, and a chamber located above the gas-tubes and within the cylindrical casing in which the flame of the gas issuing from the jets is partially shrouded and radiated to the casing.

4. In a gas-lamp, the combination of a number of gas-jets, a relatively high stem terminating with a conical head, a relatively high cylindrical casing, and a chamber located above the gas-jets and between the stem and the casing in which the flame of the gas issuing from the jets is shrouded and radiated to the casing.

5. In a gas-lamp, the combination of a number of gas-jets, a relatively high stem terminating with a conical head, a relatively high cylindrical casing terminating at its upper part with a turned-in lip and having in its lower part a number of slits, and a chamber located above the gas-jets and between the stem and the casing in which the flame of the gas issuing from the jets is shrouded and radiated to the casing.

6. In a gas-burner in which the gas issues in a series of small jets, a metal casing inclosing the lower part of the flame which serves to take up the heat of the flame and impart it to the gas and air supply, in combination with a chamber in which the flame of the gas issuing from the jets is shrouded.

313,780. WHIFFLETREE-HOOK. MARION H. SIMMONS, Kansas City, Mo., assignor of one-half to Martin T. Simmons, same place. Filed Nov. 26, 1884. (No model.)



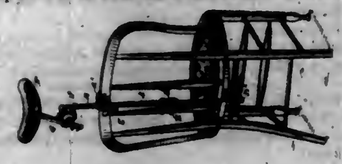
Claim.—1. The combination, in a whiffletree-hook, of an arched bar perforated for attachment to the tree, a yoke, D, having at its upper end a central perforation, a hook, C, adapted to be passed through the perforation of said yoke and to be removed therefrom, as specified, and provided with a cylindrical portion to bear in said perforation, and an enlarged head to prevent its withdrawal therefrom, the said arched bar being designed to pass through said yoke, and thereby prevent the reverse removal of said hook, substantially as set forth.

2. The combination, in a whiffletree-hook, of an arched bar having a graduated rim, *b'*, and perforated for attachment to the tree, a yoke, D, having at its upper end a central perforation, a hook, C, adapted to be passed through the perforation of said yoke and to be removed therefrom, as specified, and having an angular stop, *c*, rib C', and a cylindrical portion, C'', to bear in said yoke-perforation, and headed to prevent withdrawal from said yoke, the said arched bar being designed to pass through the said yoke, and thereby prevent the reverse removal of said hook, substantially as set forth.

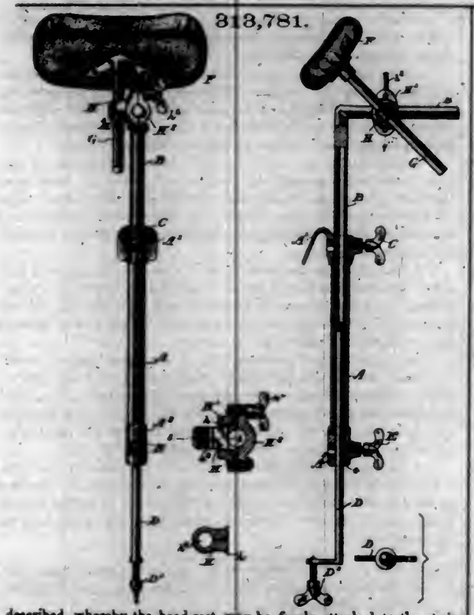
313,781. HEAD-REST FOR CHAIRS. ELI T. STARR and LEVI TRAL, Philadelphia, Pa., assignors to the S. S. White Dental Manufacturing Company, same place. Filed Oct. 21, 1883. (No model.)

Claim.—1. The clamp or set screw of the portable head-rest having a central projecting point and a surrounding depression or groove, whereby a firm bite or hold of the screw is effected, substantially as described.

2. The combination of the tubular rod provided with the hook-frame at one end and the clamp-frame at the other, the tubular head-rest bar fitted to move endwise in the upper end of said tubular rod and be clamped by a clamp-screw carried by said rod, and an adjustable rod fitted to slide in the lower end of said tubular rod and be clamped therein by a clamp-screw at the lower end of said tubular rod, substantially as

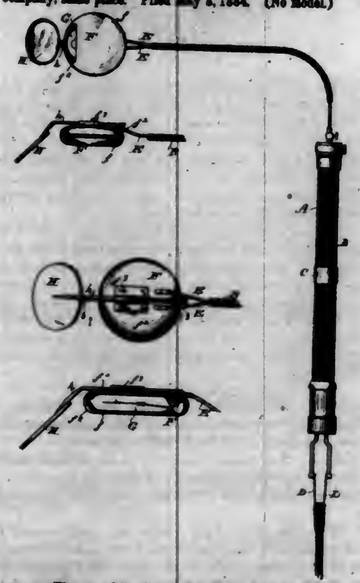


313,781.



described, whereby the head-rest may be firmly attached to the chair-back and the head-rest pad be elevated or lowered, and this with a simple, compact, and strong arrangement of parts affording a wide range of adjustment.

313,782. ELECTRIC MOUTH AND THROAT ILLUMINATOR. ELI T. STARR, Philadelphia, Pa., assignor to the S. S. White Dental Manufacturing Company, same place. Filed May 8, 1884. (No model.)

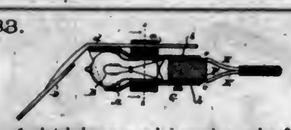


Claim.—1. The combination, with the substantially flat electric-lamp globe, of a substantially flat casing surrounding it, said casing consisting of two cup-shaped pieces held together at their edges, substantially as described.

2. The combination, with an electric lamp and its guard or casing, of a mirror or reflector arranged at an angle to and fitted directly upon said casing by a sliding connection, substantially as described.

313,783. ELECTRIC ILLUMINATOR FOR THE MOUTH AND SIMILAR PURPOSES. ELI T. STARR, Philadelphia, Pa., assignor to the S. S. White Dental Manufacturing Company, same place. Filed Dec. 15, 1884. (No model.)

313,783.

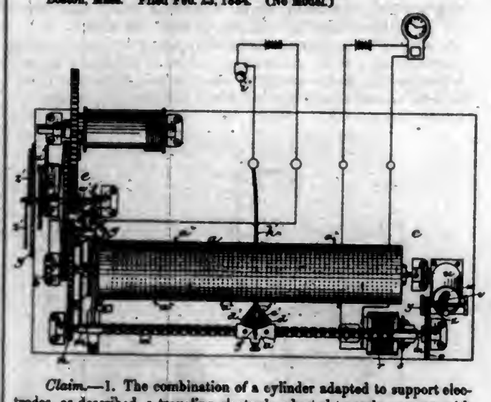


Claim.—1. A tubular open-ended guard or casing fitted with, containing, and surrounding the body of an electric lamp, said lamp and casing being firmly united together by means of a hardened or set cement or filling and the rays of the lamp being emitted at the open end of said guard or casing, substantially as described.

2. A tubular casing or holder fitted with and containing an electric lamp rigidly secured therein, said casing being enlarged or provided with an obstruction at its front end to shield the eyes of the operator from the direct rays of the lamp, substantially as described.

3. The combination, with the conducting-connections of the handle of a mouth or similar lamp, of an electric lamp having a surrounding guard or casing by means of a slip-joint conducting-connection and a set-screw or clamp device which locks the parts of the slip-joint together, substantially as described.

313,784. ELECTRIC SIGNALING APPARATUS. JACOB P. TERRELL, Boston, Mass. Filed Feb. 23, 1884. (No model.)



Claim.—1. The combination of a cylinder adapted to support electrodes, as described, a traveling electrode adapted to make contact with the electrodes on the cylinder, an electric circuit including a signal, contact of the traveling electrode with either of the cylinder-electrodes, mechanism whereby the traveling electrode is caused to travel step by step along the cylinder alternately in opposite directions, and is automatically reversed at each end of its movement, and mechanism whereby the cylinder is rotated one step at each reversal of the movement of the traveling electrode, whereby a different series of cylinder-electrodes is presented to the traveling electrode after each reversal of the movement of the latter, as set forth.

2. The combination of a cylinder adapted to support electrodes, as described, a traveling electrode adapted to make contact with the electrodes on the cylinder, an electric circuit, including a signal operated by said contact, a motor and a let-off mechanism, whereby the traveling electrode is caused to travel step by step along the cylinder alternately in opposite directions, and the cylinder is rotated one step at each reversal of the movement of the traveling electrode, as set forth.

3. The combination of a cylinder adapted to support electrodes, as described, a mechanically-impelled shaft arranged parallel with the cylinder and containing a double spiral groove, a carriage adapted to move on said shaft and engaged with the groove thereof, an electrode on said carriage adapted to make contact with the cylinder-electrodes when moved along the cylinder by the rotation of the shaft, contact-points on the carriage adapted to make contact with said electrode, and a motor and let-off mechanism, substantially as described, whereby said shaft is rotated step by step and caused to move the traveling electrode alternately in opposite directions along the cylinder, as set forth.

4. The combination of the cylinder having two sets of electrodes or electrode-holders arranged in alternating longitudinal rows, as described, the traveling electrode, mechanism for moving the electrode back and forth along the cylinder and for rotating the cylinder at each reversal of the movement of the traveling electrode, and automatic mechanism whereby the traveling electrode is caused to coincide with the week-day set of cylinder-electrodes during six successive days, and with the Sunday set on the next day, and is automatically restored to its week-day position at the close of Sunday, as set forth.

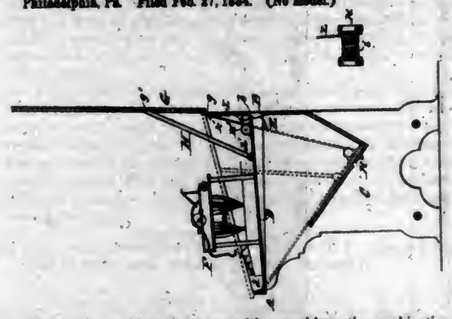
5. The combination of the cylinder having two sets of electrode holders or holes arranged in alternating parallel longitudinal rows, the traveling electrode, mechanism for moving the traveling electrode back and forth along the cylinder and for rotating the cylinder at each reversal of the rotation of the traveling electrode, and mechanism whereby the traveling electrode is held in position during six successive days to coincide with cylinder-electrodes of the week-day set, and is automatically moved at the end of the sixth day to cause it to coincide with the electrodes of the Sunday set, and automatically restored to its former position at the close of Sunday, as set forth.

6. The combination of the cylinder having two sets of electrodes or electrode-holders arranged in rows extending longitudinally of the cylinder, as described, the traveling electrode, the carriage supporting said electrode, the spirally-grooved shaft arranged parallel with the cylinder, and adapted to move said carriage, the drum f', having the projection k', mechanism for moving said drum one step each day, and intermediate mechanism, substantially as described, whereby the drum is caused to control the position of the traveling electrode during six successive days, and the projection k' is caused to control the position of said electrode during the seventh day, as set forth.

7. The combination, with the cylinder having electrodes or electrode-holders, as described, of the slide or carriage having the pivoted electrode held normally in a given position, and adapted to be moved in either direction from its normal position by contact with the cylinder-electrodes, and one or more contact-points at each side of the rear or inner end of the electrode, adapted to make contact with the latter when it is moved from its normal position, said contact-points having electrical connections whereby a signal is given when the pivoted electrode makes contact with either of them, as set forth.

8. The combination, with the cylinder having longer and shorter electrodes, of the slide or carriage having the pivoted electrode held normally in a given position, and adapted to be turned on its pivot from its normal position by contact with any one of the cylinder-electrodes a distance determined by the length of the cylinder-electrode, and two or more contact-points at each side of the rear end of the pivoted electrodes having electrical connections, as described, said pivoted electrode being adapted to make contact with one of said contact-points when actuated by a shorter cylinder-electrode, and with more than one when actuated by a longer cylinder-electrode, as set forth.

313,785. STAND FOR TYPE-WRITERS, &c. WILLIAM H. TRUEMAN, Philadelphia, Pa. Filed Feb. 27, 1884. (No model.)



Claim.—In a cabinet for type-writing machines, the combination, with the platform D, hinged to the front of the cabinet, and the desk-top G, hinged to the back of said cabinet, of hinged braces H, connecting said platform and desk-top, and a counterbalancing device attached to the platform and to the back of the cabinet, substantially as described, and arranged to sustain or counterbalance both the platform and desk-top, as set forth.

313,786. PRINTING-TELEGRAPH. HENRY VAN HOEVENBERGH, Elizabeth, N. J., assignor to the Baltimore and Ohio Telegraph Company, Baltimore, Md. Filed Apr. 30, 1883. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, of two independently-movable type-wheels and an epicyclic gearing mechanically uniting said type-wheels.

2. The combination, substantially as hereinbefore set forth, of two independently-movable type-wheels, two scape-wheels, respectively attached thereto, an escapement device engaging the teeth of both of said scape-wheels, and an epicyclic gearing uniting said type-wheels.

3. The combination, substantially as hereinbefore set forth, of two type-wheels, two scape-wheels, respectively attached thereto, an escapement device engaging the teeth of both said scape-wheels, two parallel gear-wheels applied to and moving with said type-wheels, a movable pinion engaging the teeth of both of said gear-wheels, and having its axis of revolution perpendicular to the axis of said gear-wheels, and means, substantially such as described, for revolving said pinion about the axis of revolution of said wheels.

4. The combination, substantially as hereinbefore set forth, of the type-wheels A' and A^2, the gear-wheels b' and b^2, the arbor a', the arm c, the pinion d, engaging the teeth of both of said gear-wheels, and means, substantially such as described, for arresting the movement of either of said type-wheels, and continuing the movement of the remaining type-wheel.

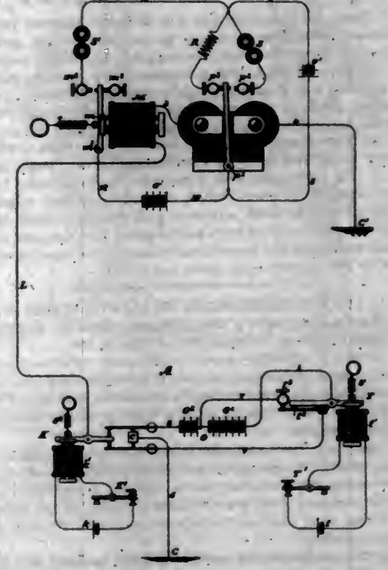
5. The combination, substantially as hereinbefore set forth, of two type-wheels, means for revolving either or both of said type-wheels in a given direction, two detents, respectively applied to said type-wheels, an electro-magnet, and a polarized armature extending between said type-wheels and acting to arrest the movement of one or the other of the same, according to the direction of a current transmitted through said electro-magnet, by intercepting the path of the corresponding detent.

6. The combination, substantially as hereinbefore set forth, of a type-wheel, a gear-wheel concentric therewith, an arbor supporting said gear-wheel, means for revolving said arbor, a pinion caused by the revolution of said arbor to revolve in a plane perpendicular to the axis of revolution of said arbor, a second type-wheel and a second gear-wheel mounted upon an independent arbor, and means, substantially such as described, for rotating one or both of said type-wheels through the instrumentality of said pinion and gear-wheels.

7. The combination, substantially as hereinbefore set forth, of two type-wheels, two scape-wheels, respectively attached thereto, a single escapement-anchor applied to both of said scape-wheels, and means, substantially as described, for controlling the movements of said escapement-anchor.

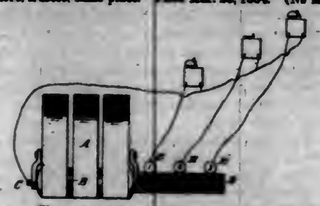
8. The combination, substantially as hereinbefore set forth, of two type-wheels, two scape-wheels, respectively applied thereto, and a single escapement-anchor applied to both of said scape-wheels.

313,787. MEANS FOR PREVENTING FALSE SIGNALS UPON REVERSALS IN QUADRUPLEX TELEGRAPHS. HENRY VAN HOEVENBERGH, Elizabeth, N. J. Filed Nov. 22, 1884. (No model.)



Claim.—In a quadruplex telegraph, the hereinbefore-described method of preventing false signals upon the receiving-instrument controlled by the armature of the neutral relay upon the reversal of the main-line current, which consists in momentarily neutralizing the local current actuating said receiving-instrument by means of an opposing electro-motive force.

313,788. APPARATUS FOR OPERATING ELECTRIC BELLS. H. E. WAITE and S. H. BARTLETT, New York, N. Y., assignors to Charles F. Livermore, trustee, same place. Filed Mar. 28, 1884. (No model.)



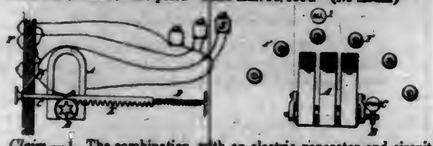
Claim.—1. The combination, with a magneto-electric generator, of a series of draw-pulls, each mechanically and electrically connected to the armature, and adapted to complete the electric circuit through a signal upon being operated, substantially as described.

2. The combination, with the armature of an electric generator, of a longitudinally-grooved extension connected therewith, and a series of rack-bars, each adapted to engage with said extension to operate the generator, substantially as described.

3. The combination, with an armature of an electric generator, of a longitudinally grooved or toothed extension mechanically and electrically connected therewith, and a series of rack-bars, each adapted to engage with said extension to operate the generator, and circuits and connections, substantially as described, whereby when any one of the rack or pull bars is operated the signal connected therewith will be operated, to the exclusion of the others, as set forth.

4. The combination, with an armature of an electric generator, of a longitudinally-grooved extension mechanically and electrically connected therewith, a series of rack-bars, each adapted to engage with said extension to operate the generator, the insulating-pieces attached to said bars, having a contact-arm bearing thereon, and circuits and connections, substantially as described.

313,789. APPARATUS FOR OPERATING ELECTRIC BELLS. H. E. WAITE and S. H. BARTLETT, New York, N. Y., assignors to Charles F. Livermore, trustee, same place. Filed Mar. 31, 1884. (No model.)



Claim.—1. The combination, with an electric generator and circuit therefrom, of a pull-bar to operate the generator, forming part of the said circuit, having two circuit-breaking points, substantially as described.

2. The combination, with a magneto-electric generator, and means for operating it, of a series of signals, a corresponding series of push-buttons each connected to its proper signal, and another button connected to a number of the signals, the arrangement being such that any one of the signals may be operated, to the exclusion of the others, or all or any number thereof may be operated simultaneously from a single button.

3. The combination, with a magneto-electric generator having a pinion secured to its armature-shaft, of a pull-bar or rack normally out of engagement therewith, a series of push-buttons or circuit-breakers each connected to a signal, and a general push-button connected to all the signals and circuits and connections, substantially as described, whereby there are two breaks in each circuit, as set forth.

813,790. CLEARER-HOLDER FOR DRAWING-FRAMES, &c. JOHN WALKER, Hyde, County of Chester, England. Filed Dec. 20, 1883. (No model.) Patented in England Dec. 24, 1881, No. 5,645.

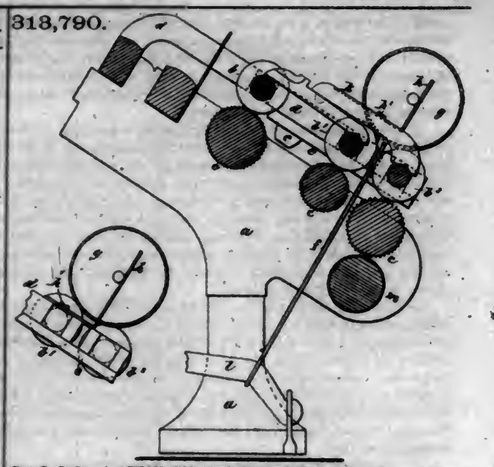
Brief.—A cylindrical clearer is made to rest on the two front upper drawing-rolls of a spinning-frame, most of its weight being upon the rear one of the two. Said clearer is held in that position by an upright bearer, which bearer is secured to the saddle or frame by a screw through a slot in its C-shaped end.

Claim.—1. The combination, substantially as herein described, with the top rollers, b' b^2, arranged in an inclined position, of a self-adjusting clearer arranged to bear chiefly on the slow roll b' and merely contact with the periphery of the fast roll b^2, and a bearing for the journals of said clearer, along which said journals are free to move vertically, for the purposes specified.

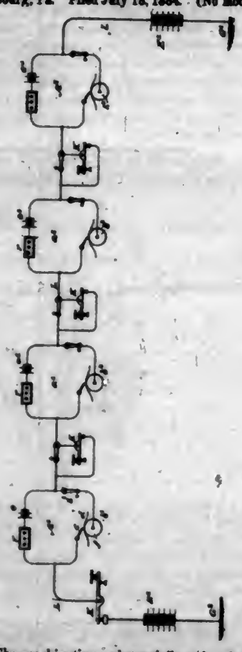
2. The combination, substantially as herein described, with the rolls b' b^2 and the clearer g, of a bearer on which the journals of the clearer rest, said bearer being adjustable relatively to the rolls and clearer in a plane at right angles to their axes, for the purpose specified.

3. The combination, substantially as herein described, with the rolls b' b^2, the clearer g, stand a, and the saddle k, of the bearer h, adjustable on said saddle in a plane at right angles to the axis of the rolls and clearer, for the purpose specified.

313,790.



313,791. AUTOMATIC CHEMICAL TELEGRAPH. CHERRICK WESTBROOK, Harrisburg, Pa. Filed July 18, 1884. (No model.)

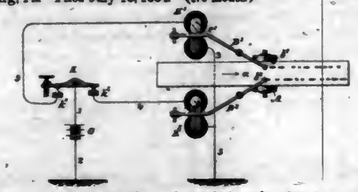


Claim.—1. The combination, substantially as hereinbefore set forth, with a telegraphic main line, and means, substantially such as described, for causing an electric current to normally traverse the same, of a series of chemical receiving-instruments included in the circuit thereof, the connections of said receiving-instruments being such that main-line currents traverse the same in the opposite directions from that required to produce impressions, a branch circuit through each of said receiving-instruments, and a local battery included in each of said branch circuits, the current from said local battery through the respective receiving-instruments being in the direction opposite to that of the currents normally traversing the main line.

2. The combination, substantially as hereinbefore set forth, with a telegraphic main line and one or more main-line batteries for producing currents in a given direction, of a series of chemical receiving-instruments responding to currents in the direction opposite to that of the currents normally traversing the main line, a series of local batteries connected through said receiving-instruments, respectively, the connections of said local batteries being opposed to those of the first-named batteries, and means, substantially such as described, for interrupting the circuit-connections of the main line.

3. The combination, substantially as hereinbefore set forth, with a telegraphic main line and two batteries located at the receiving-terminals thereof, which batteries have opposite poles presented to the main line, of a series of local batteries included in branch circuits of the main line, a series of chemical receiving-instruments included in corresponding branch circuits, respectively, the connections of said receiving-instruments being such that they will respond to the currents from the corresponding local batteries, respectively, when not opposed by main-line currents, and the currents from said local batteries being opposed to said receiving-instruments to the currents from said main-line batteries, and means, substantially such as described, for interrupting the circuit-connections of the main-line batteries.

313,792. AUTOMATIC TELEGRAPHY. CHERRICK WESTBROOK, Harrisburg, Pa. Filed July 18, 1884. (No model.)



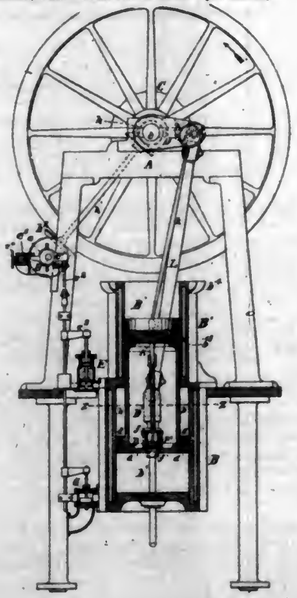
Claim.—1. The combination, substantially as hereinbefore set forth, with two embossing-pens, of an electro-magnet applied to each of said embossing-pens, a battery and a transmitting-key having a front and a back contact-stop, and circuit-connections, substantially such as described, from the front contact-stop through one of said electro-magnets, and from the back contact-stop through the other of said electro-magnets.

2. The combination, substantially as hereinbefore set forth, of a transmitting arm or lever, means, substantially such as described, for passing an embossed transmitting-slip beneath one end of said lever, a contact-point carried upon said lever, and a revolving contact-surface against which said point is caused to impinge through the agency of the embossments upon the transmitting-slip, substantially as described.

3. The combination, substantially as hereinbefore set forth, of a transmitting arm or lever, means, substantially such as described, for actuating said lever through the agency of an embossed transmitting-slip, a yielding contact-spring carried upon said lever, and a revolving contact-roller against which said contact-spring is caused to impinge when said lever is actuated.

4. The combination, substantially as hereinbefore set forth, of a transmitting arm or lever, means, substantially such as described, for actuating said lever through the agency of an embossed transmitting-slip, a yielding contact-spring carried upon said lever, and means, substantially such as described, for adjusting the position of said contact-spring, a contact-roller against which said contact-spring is caused to impinge when said lever is actuated, and means, substantially such as described, for revolving said roller.

313,793. COMPOUND STEAM PUMPING-ENGINE. CHARLES A. WILSON, Cincinnati, Ohio. Filed Oct. 10, 1884. (No model.)



Claim.—1. The combination of the stationary cylinder B, the steam-inlet valve E, attached to the upper end thereof, the exhaust-valve G, attached to the lower end of the same and connected with the steam-inlet valve, and the piston D, arranged in the cylinder to form the annular space b, with the valve F, working through the piston for connecting the annular space b with the space b' below the piston, the crank-shaft c of the engine connected with the piston, an eccentric, K, connected with the crank-shaft, and a connection between the eccentric and the valve F, substantially as described.

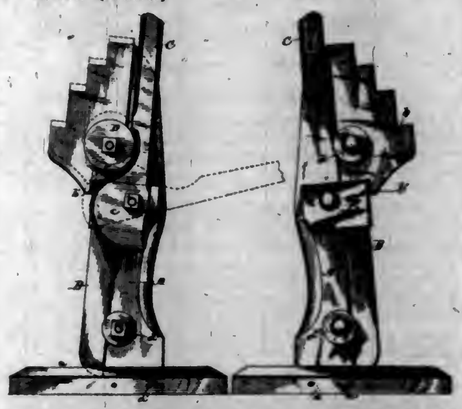
2. The combination of the stationary cylinder B and the piston D, arranged to form the annular space b between the cylinder and piston, the engine crank-shaft c, connected with the piston, the equalizing-valve F, seated in the piston, for connecting the annular space b with the space b' under the piston, an eccentric, K, connected with the engine crank-shaft, and a connection between the eccentric and the equalizing-valve, substantially as described.

3. The combination of the stationary cylinder B, having the trunk-guide B', the piston D, having the trunk D', and arranged in the cylinder to form the annular space b, the steam inlet and outlet valves E and G, connected together, and attached, respectively, to the upper and lower ends of the stationary cylinder, the engine crank-shaft c, connected with the piston and also with the steam-inlet valve, an eccentric, K, connected with the engine crank-shaft, an equalizing-valve, F, seated in the piston, for connecting the annular space b with the space beneath the piston, and a connection between the eccentric and the equalizing-valve, substantially as described.

4. The combination of the stationary cylinder B, the piston D, having the annular upper surface, d, the annular space b, between the cylinder and piston, the valve F seating in the piston, the steam-inlet valve E, connecting with the annular space, the engine crank-shaft c, and a connection between the piston and the crank-shaft, and an independent connection between the valve F and the said crank-shaft, substantially as described.

5. The combination of the stationary cylinder B, the piston D, having the lower surface, d', and arranged in the cylinder to form the circular space b' below the piston, the valve F seating in the piston, the steam-outlet valve G, attached to the stationary cylinder and connecting with the space b', the engine crank-shaft c, a connection between the piston and crank-shaft, and an independent connection between the valve F and the said crank-shaft, substantially as described.

313,794. LIFTING-JACK. GEORGE C. WIMPEE, Rome, Ga. Filed Jan 24, 1885. (No model.)



Claim.—1. A wagon-jack having a standard, A, attached to a sill, a, provided with guide-disks d' d^2, and a pivoted cam-headed lever, C, in combination with a stepped post, B, provided with a pivoted pulley, D, arranged as described, as and for the purpose intended, substantially as described.

2. In a wagon-jack, the pivoted cam-headed lever C, in combination with a pivoted fulcrum-pulley, D, arranged at one side of the movable post B, said pulley partly overlapping one side of the standard A, substantially as described.

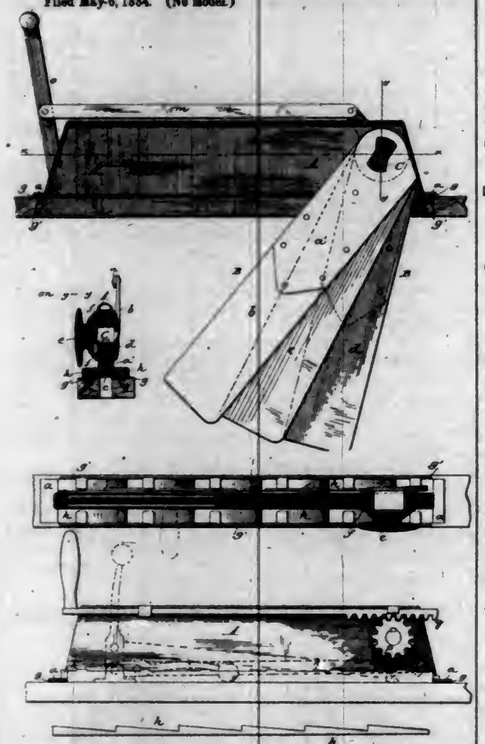
3. In a wagon-jack, the movable post B, having its leg embraced within a stirrup, E, attached to a standard, in combination with guide-disks d' d^2, attached to said standard and overlapping the sides of said post, and pivoted pulley D, and rotatable disk d, attached to said post and overlapping said standard, substantially as described.

4. A wagon-jack consisting of the following combined elements: a sill, a, attached to standard A, having pivoted thereto a cam-ended lever, C, and guide-disks d' d^2, and stirrup E, a movable post, B, stepped at its upper part and provided with pivoted fulcrum-pulley D and guide-disk d, as and for the purpose intended, substantially as described.

313,795. GAS-FLUID. AUGUST F. ZIMMERLING, Milwaukee, Wis. Filed Feb. 18, 1884. (No specimens.)

Claim.—A gas-fluid compound of fusel-oil, carbon-oil consisting of petroleum distillate at a gravity of about 74° Baumé, and wood-naphtha, substantially as described.

313,796. CENTER-BOARD. MONTRAVILLE W. ATWOOD, Clayton, N. Y. Filed May 6, 1884. (No model.)



Claim.—1. In combination with the well, the center-board consisting of the sheet-metal sections *b*, *c*, and *d*, the outer sections, *b d*, being provided at the forward end with re-enforcing plates *a'* applied to the outer side, whereby the sections are permitted to close readily within the well.

2. In combination with the vertically-swinging center-board pivoted at its forward end, the operating-lever located at the rear end of the board, and the operating devices, substantially such as described and shown, connecting the lever with the forward end of the board.

3. The combination of the well, the center-board, the pivot adapted to actuate the board and provided with an extending arm, the reach-bar jointed to said arm and extending backward, and the hand-lever located adjacent to the rear end of the well and jointed to the reach-bar, as described.

4. In combination with the well, the series of center-board sections mounted on a horizontal pivot at the forward end of said well, the forward ends of the respective sections being beveled at different angles, as described, whereby they are adapted to descend one below another.

5. In combination with the flanged well, the boat, the plate fixed within the boat and provided with lips overhanging the flange, and wedges inserted between the lips and flange, substantially as described.

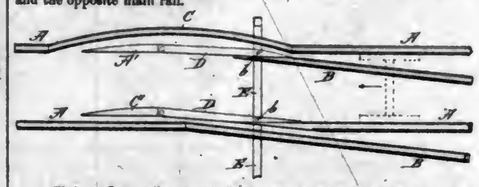
313,797. MANUFACTURE OF METALLIC NEEDLE-CASES. WILLIAM AVERY, Redditch, County of Worcester, England. Filed Apr. 26, 1884. (No model.) Patented in England Jan. 16, 1884, No. 1,534.



Claim.—The method herein described of making sheet-metal needle-boxes, which consists in cutting a blank in a single piece of sheet metal, with a central flangless contracted neck, *c*, to form the two sides *a b* and one end of the box, with one side, *b*, of a less width than and integral with the other side, then bending the longitudinal edge of both of said sides to form the flanges a^2 b^2, then bending the blank at the contracted neck to bring the sides *a* and *b* parallel to each, other with the edge of the flange b^2 resting against the surface of the side *a*, inside its flange a^2, and finally pressing the two flanges one upon the other, substantially as shown.

313,798. RAILWAY-SWITCH. ANDREW E. BACH, Ottawa, Ill. Filed Apr. 10, 1884. (No model.)

Brief.—A switch in which cars approaching it from main or siding are continued on the main irrespective of the position of the switch, consisting of a fixed curved rail forming a part of one of the main rails, two fixed point-rails, and two switch-rails located between the curved and the opposite main rail.



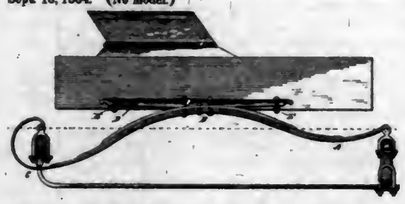
Claim.—In a railroad-switch, the combination of the main track A A, side track, B B, fixed curved rail C, interposed in one side of the main track, the fixed point-rails A' C', switch-rails D D, and switch-bar E, substantially as shown and described.

313,799. FABRIC FOR WINDOW-SHADES, BOOK-COVERS, &c. S. BANCROFT, Jr., Rockford, Del. Filed Jan. 2, 1885. (Specimens.)

Claim.—1. The method herein specified of preparing colored fabrics for window-shades, book-covers, &c., consisting in covering the surface of and filling in the interstices of the fabric with a mixture of earthy material, starch, and dye, substantially as and for the purposes set forth.

2. The colored fabric having its surface covered and filled with a mixture of earthy material, starch, and dye, substantially as specified.

313,800. VEHICLE-SPRING. WM. L. BAY, Columbus, Ohio. Filed Sept. 18, 1884. (No model.)



Claim.—1. A spring having its front and rear pivotal points in the same plane, then being curved downward from the front pivotal point, then upward till the highest point reached is twice the distance above the plane as the first curve is below it, then curved downward till it reaches a point three times as far below the plane as is the said first curve, and finally ending in a C-curve which passes back of and above the rear pivotal point before reaching it, the said spring having rigid connection to a vehicle-body, substantially as and for the purpose specified.

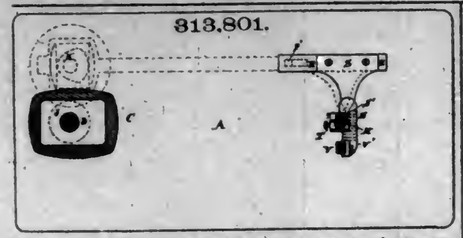
2. A spring having its pivotal points in the same plane and curved from front to rear, first downward, then upward, and then downward in the respective proportions of one, two, and three relative to said plane, and finally ending in a C-curve, one leaf at least of the spring extending the entire length from one pivotal point to the other, substantially as and for the purpose specified.

313,801. MECHANISM FOR MAKING ZIGZAG OR IRREGULAR STITCHES. JOHN BIGELOW, Philadelphia, Pa. Filed Apr. 19, 1882. (No model.)

Brief.—The device is designed to make zigzag stitches. The presser-foot is cut away on the under side in front of the needle. The tongue that reciprocates to the right and left in front of the needle is designed to draw a light, flexible material, like knit fabrics, with it, while the regular feeding device moves the material forward.



313,801.

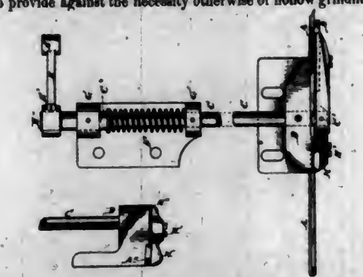


Claim.—1. The combination of the under-feed device, the pressure-foot, and the stitch-forming mechanism of a sewing-machine, with a tongue arranged entirely in front of the needle, and means for reciprocating the same at right angles to the line of feed, substantially as set forth.

2. A tongue arranged entirely in front of the needle and means for reciprocating the same at right angles with the line of feed, in combination with a pressure-foot cut away on its under side in front of the needle, whereby the tongue can be reciprocated in close proximity to the needle, substantially as described.

313,802. TRIMMING ATTACHMENT FOR SEWING-MACHINES. J. BIGELOW, Philadelphia, Pa. Filed Apr. 19, 1882. (No model.)

Brief.—The stationary blade is bodily adjustable lengthwise. Its lengthwise position on the bed-plate is at an acute angle to the vertical plane of movement of the vibrating blade, and is so related thereto as to have its entire cutting-edge practically in said vertical plane. The top of the stationary blade is inclined over or tipped toward the vibrating blade, to provide against the necessity otherwise of hollow grinding.



Claim.—1. A stationary seam-trimmer blade having its body set at an acute angle to a vertical plane, within said blade's cutting-edge and the vibrating blade are located, in combination with a vibrating blade and the work-plate and stitch-forming mechanism of a sewing-machine, substantially as described.

2. In combination with the stitch-forming mechanism of a sewing-machine, a shear trimming device consisting of a vibrating blade and a stationary blade, the latter arranged to be adjusted forward in a direction at an acute angle with a vertical plane, within which said blade's cutting-edge and the cutting-edge of the vibrating blade are located, substantially as described.

3. In combination with the stitch-forming mechanism of a sewing-machine, a trimming device consisting of a vibrating blade, and a stationary blade which is a long plate having both lateral and longitudinal inclinations to a vertical plane, within which its cutting-edge and the cutting-edge of the vibrating blade are located, whereby hollow grinding of the said stationary blade can be dispensed with, substantially as described.

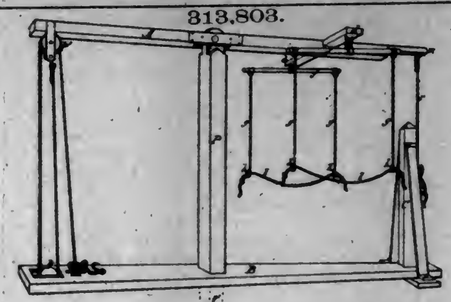
4. In combination with the work-plate of a sewing-machine, a trimming device having a rock-shaft which carries the vibrating blade supported above said work-plate by suitable bearings, and a stationary blade arranged beneath said rock-shaft at an acute angle to a vertical plane, within which said blade's cutting-edge and the cutting-edge of the vibrating blade are located, substantially as described.

313,803. WAGON-HOISTING APPARATUS. JAMES E. BIRD, La Monte, Mo. Filed Nov. 24, 1884. (No model.)

Claim.—1. The combination, with the lever A, the standard P, and the sill B, of the intercrossing and suspensory bar *d*, supplied with the swing-bars *f*, the pendulous and hook-eyed rods *g*, and the knotted lashers *l*, and made adjustably co-operative with the lifting-tackle *p* and *p'*, and the counter-working rope *r*, substantially as and for the purposes herein specified.

2. The combination of the lever-beam A with the standard P, having the pivot-tenon *t* and the supporting-tenon *t'*, and with the sill B, having the counter-braced post C, substantially as and for the purposes herein specified.

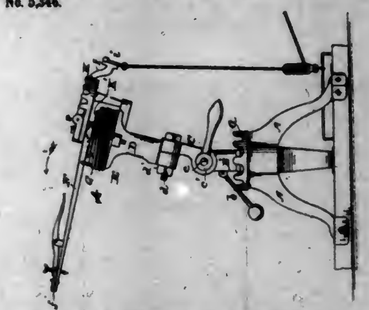
313,803.



3. The combination, with the intercrossing and suspensory bar *d* upon the lever-beam A, of the suspended swing-bars *f*, the pendulous and hook-eyed rods *g*, and the knot-catching lashers *l*, substantially as and for the purposes herein specified.

4. The combination, with the lever A, the pivot-standard P, and the sill B, of the lifting-tackle *p* and *p'*, and the counter-working rope *r*, substantially as and for the purposes herein specified.

313,804. BALL-TRAP. JACOB E. BLOOM, Cincinnati, Ohio, assignor to the Ligowsky Clay Pigeon Company, same place. Filed Mar. 22, 1882. Renewed Aug. 6, 1883. (No model.) Patented in England Dec. 7, 1881, No. 5,346.



Claim.—1. The combination, in a target-trap, of a standard head or support, a throwing arm or lever pivoted thereto, a coiled spring arranged to actuate said arm in its throwing movement, and an oppositely-coiled spring arranged to meet and gradually check the lever when it is at about its throwing-point.

2. The combination, with the pivoted throwing-lever in a target-trap, of two concentric springs wound in opposite directions, and arranged one to actuate the lever in its throwing movement and the other to receive its impact when it is at or near the discharging-point and gradually check it.

3. The combination, with the pivoted throwing-lever in a target-trap, of two concentric springs wound in opposite directions, and acting in the manner set forth, and a shield or partition which separates the coils of one spring from contact with the coils of the other.

4. The combination, in a target-trap, of a head or support adjustable as set forth, a throwing-lever pivoted to such head and carrying at its outer end a holder for the target, an independent coiled spring seated at one end against the head and at the other bearing against the lever, to actuate it, and a trip-latch to which the lever may be connected at varying distances from its position of rest to give greater or less tension to the actuating-spring.

5. The combination, in a target-trap, of a standard head or support, a lever pivoted thereto, a collar rising from the head and inclosing an annular pocket around the lever-pivot, an actuating-spring wound about the exterior of the collar and urging the lever in its throwing movement, and a recoil or check spring seated in the annular pocket and receiving the impact of the lever at about the moment it is to discharge the target.

6. The combination, substantially as described, with the pivoted throwing-lever and with the check-spring coiled around its pivot, of the thimble placed within the coils of said spring, and flanged or grooved circumferentially next to the lever-arm to confine the adjacent coil of the spring when it is wound.

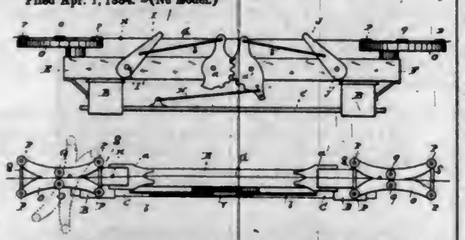
7. The combination, substantially as described, with the pivoted throwing-lever and with the coiled actuating-spring by which it is given its sweep, of the support or core around which said spring is coiled, flanged circumferentially at its upper edge to confine the adjacent coil of the spring when the lever is set.

313,805. PROCESS OF MANUFACTURING PERFORATED METALLIC GOODS. JOHN J. CALLOW, Cleveland, Ohio. Filed Apr. 30, 1884. (Specimens.)

Claim.—1. The method herein described of manufacturing perforated or other open-work metal goods—such as stencils, patterns, &c.—which consists in forming a non-conducting plate with an intaglio surface representing the pattern to be produced, then rendering the intaglio surface a conductor of electricity, substantially as described, then immersing the plate in an electroplating solution, and depositing metal upon the conductive intaglio surface, and finally removing the pattern of deposited metal, as and for the purpose described.

2. The method herein described of manufacturing metal goods—such as stencils, patterns, &c.—which consists in forming a non-conducting surface or plate in whole or part with an intaglio surface representing the pattern or form to be produced, then rendering the said intaglio surface a conductor of electricity, substantially as described, and finally immersing the plate or form in an electroplating solution and depositing metal upon the said conductive or engraved surface, as described.

313,806. CHECK-ROW PLANTER. JOHN CARDEN, Jr., Afton, Iowa. Filed Apr. 1, 1884. (No model.)



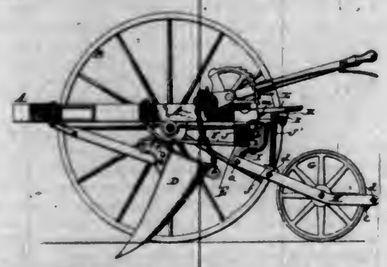
Claim.—In a check-row attachment for corn-planters, the cross-bar E, having the four-armed bars O, pivoted thereto, provided with pulleys P Q, in combination with vertical pivoted segmental levers *a a'*, the lever *a'* being extended and provided with a series of vertical perforations for the adjustable connection of the foot-operating devices, rods *b*, forked levers I J, rod N, and slide C, substantially as described, and for the purposes set forth.

313,807. NECKTIE-FASTENER. ANDRE CIFER, Plaistow, N. H. Filed Feb. 14, 1884. (No model.)



Claim.—The combination, in a necktie-fastener, of a shield cut to form integrally a vertical loop, a metallic catch having a vertical portion passing through said loop so as to be centrally supported by said loop, such metallic catch having its upper end bent and spread or looped and its lower end bent to pass through an opening in the shield to prevent vertical displacement of said catch, substantially as set forth.

313,808. GRAIN-DRILL. ALFRED D. CLARK, Springfield, Ohio, assignor to George W. Startzman, same place. Filed Sept. 23, 1884. (Model.)



Claim.—1. The grain-drill, in combination with the vertically-swinging cross-bar jointed thereto, the vertically and laterally swinging arms jointed to said bar, and the rolls carried by said arms.

2. The combination, substantially as described, of the grain-drilling machine, the cross-bar jointed thereto to swing vertically, the driver's seat mounted on said bar, the pressure-rolls, the roll-carrying arms jointed to the cross-bar to swing both laterally and vertically, and the pressure-springs acting on the individual arms.

3. In combination with the grain-drill, a vertically-swinging cross-bar jointed thereto, a series of pressure-rolls in rear of the drill-teeth, roll-carrying arms jointed to said bar to swing both laterally and vertically, pressure-springs acting on the individual arms, and a cross-bar connecting said arms to cause the simultaneous lateral motion of the rolls.

4. In combination with the cross-bar E, jointed to a grain-drill, the pivoted brackets I, having their ends extended forward, and the roll-carrying arms pivoted to the said ends, as described and shown.

5. In combination with the bar E, hinged to a grain-drill, the laterally and vertically swinging roll-carrying arms H, jointed to the cross-bar, the connecting-bar K, and the locking device to prevent lateral motion of the rolls.

6. In combination with the plate J and roll-carrying arm H, the bracket or hinge I, having its ends extended forward and backward, respectively, and the connecting-pivots *a* and *b*.

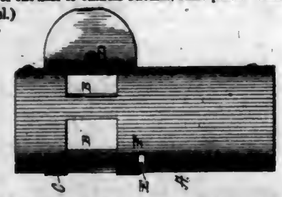
7. In combination with the pivoted bracket I, having its ends extended forward and backward, as described, the roll-carrying arm H, pivoted thereto, the sliding rod J', and the spring on said rod.

8. In a grain-drill, the main frame and the hoes jointed thereto, in combination with the series of pressure-rolls, each mounted in a laterally and vertically swinging arm jointed to the frame independently of the hoes, and each provided with a pressure-spring.

9. In combination with a grain-drill, a rear seat-supporting bar hinged thereto to swing vertically, and a series of independently rising and falling pressure-rolls attached to said bar by jointed arms and springs, substantially in the manner described and shown.

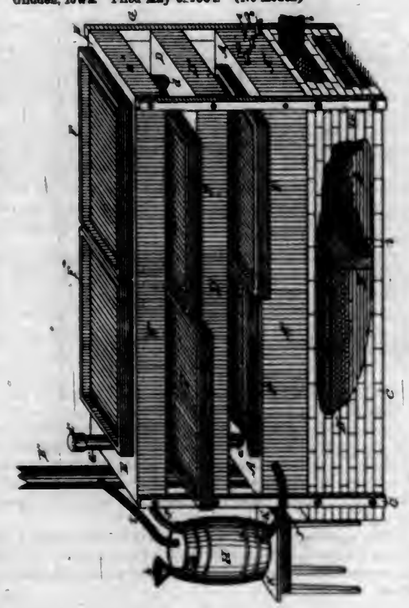
10. The roller attachment for application to grain-drills, consisting of the cross-bar provided with carrying-arms and the driver's seat, the arms H, jointed to said bar to swing both vertically and laterally, the rollers mounted in said arms, and the springs acting to depress said arms.

313,809. STOVE-PIPE VENTILATOR. JOHN COMBS, Rushville, Ohio, assignor of one-half to Charles Thomas, same place. Filed Feb. 18, 1884. (No model.)



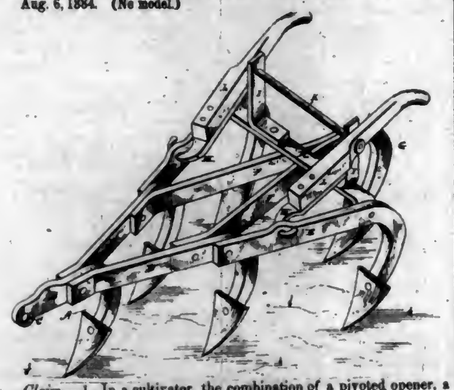
Claim.—The improved stove-pipe ventilator consisting of a section of stove-pipe formed with a series of apertures, B, and a horizontal slot, F, and a movable band or register, C, formed with a series of apertures, G, and having an inwardly-projected lug or ear, E, and finger-hold D, all arranged and combined substantially as shown and described.

313,810. FRUIT-DRIER. PETER D. CORYELL and JOE H. CORYELL, Gliddon, Iowa. Filed May 6, 1884. (No model.)



Claim.—The combination, in a fruit-drier, of a supporting-frame, a series of superposed steam-boxes supported therein and communicating with each other by means of circulating-pipes, a steam-generating boiler and furnace, an uptake or flue, a supply-tank communicating with said boiler, and a pipe, I, connecting said tank with the uptake, substantially as set forth.

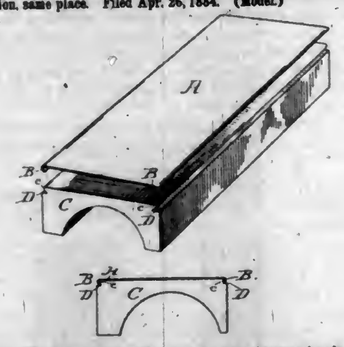
313,811. CULTIVATOR. ANDREW J. CRAIG, Hickory, Miss. Filed Aug. 6, 1884. (No model.)



Claim.—1. In a cultivator, the combination of a pivoted opener, a series of diverging plows having their beams pivoted to the opener and to each other, respectively, and a central plow projecting to the rear, said central plow having a divided beam, the divisions being pivoted to the side beams near the front of the cultivator, substantially as and for the purpose specified.

2. The conibination, in a cultivator, of a pivoted opener, with an extended end formed into an eye, a diverging series of plows pivoted to the opener and to each other, respectively, a central plow with a divided beam pivoted to the forward end of the cultivator, and pivoted handles supported on a frame, substantially as and for the purpose specified.

313,812. ELECTROTYPE SHELL AND BASE. GEORGE W. CUMMINGS and JOHN R. CUMMINGS, Chicago, Ill., assignors to the American Press Association, same place. Filed Apr. 26, 1884. (Model.)



Claim.—The block having the upper outer edges or beads formed by grooves parallel and adjacent to the said upper edges, in combination with an electrotype-shell having its edges turned downward and inward past the edges or beads on the block to fit into said grooves, substantially as set forth.

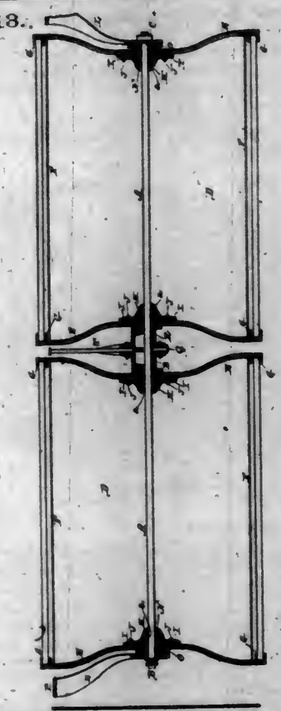
313,813. LAND-ROLLER. HENRY A. CURRIER, Almont, Mich. Filed June 23, 1884. (No model.)

Claim.—1. In a land-roller, the combination of two or more sections, D, a rod which passes through all of the sections, the end frames, L, provided with the gudgeons or bearings, the hubs, and the frames E, substantially as described.

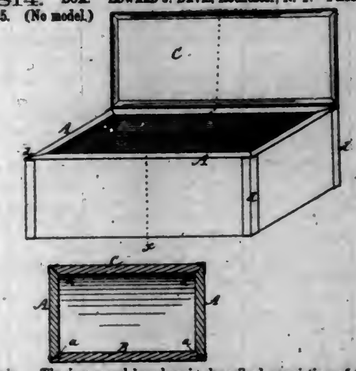
2. In a land-roller, the combination of the rod A, the two sections D, each one of which is provided with the end frames, L, and gudgeons N, the castings E, and hubs H, with the central casting, Q, and suitable gudgeons secured thereto, substantially as described.

3. In a land-roller composed of two or more sections, D, the combination of the frame Q, the two hollow gudgeons R, which are secured thereto, the hubs H, the frames E, and the rod A, the gudgeons being adapted to be filled with oil through the pipe T, substantially as specified.

313,813. [illegible]

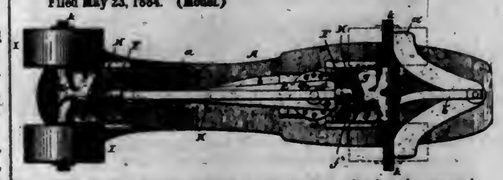


313,814. BOX. EDWARD J. DAVIS, Rochester, N. Y. Filed Jan. 21, 1885. (No model.)



Claim.—The improved box herein described, consisting of the body portion A, made from a single piece beveled on its edges and grooved crosswise where the bends are made, the pasted strips of cloth at the corners covering the joints, and the beveled top and bottom pieces, C B, fitting in the beveled edges of the body portion, as herein set forth.

313,815. ROLLER-SKATE. PATRICK J. DOHERTY, Chelsea, Mass. Filed May 23, 1884. (Model.)

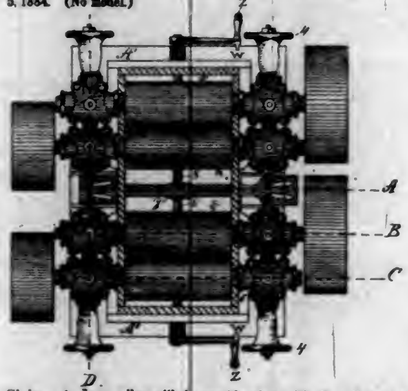


Claim.—1. The combination of the handle c, having the spurs *c'*, with the disk D, perforated at *d*, the cog and rack bars, and clamps, substantially as described.

2. A V-shaped casting fixed to the foot-plate and having a second V-shaped casting pivoted to it at right angles, with an elastic bearing between the two, combined with the axle and rollers, substantially as described.

3. In a roller-skate, the combination of the axle-sleeve G and V-shaped casting *g*, cast entire, with the V-shaped casting F, rigidly secured to the foot-plate and adapted to receive the end of a bar, K, and an elastic bearing, H, between said castings, said castings being connected at right angles to each other by a longitudinally-inclined pivot, substantially as described.

313,816. ROLLER-MILL. JOHN M. FINCH, Jackson, Mich. Filed May 5, 1884. (No model.)



Claim.—1. In a roller-mill, in combination with the rolls and their bearings, the sleeves placed within said bearings, rods within said sleeves, the hand-wheels, and the springs within said wheels, whereby a movable roll is adjusted to and from a stationary roll, substantially as described.

2. In a roller-mill, the slotted bar, in combination with a rack, pinion, and shaft, the rods connected with said slotted bar, the bearings of the rolls, and sleeves for said bearings to slide upon, whereby the movable rolls of separate pairs are adjusted to and from the stationary rolls, substantially as described.

3. In a roller-mill, the combination of the roll-bearings, the sleeves extending through said bearings, and the adjusting-screws, whereby the rolls are leveled, substantially as described.

4. In a roller-mill, the movable rolls, in combination with the sleeves on which they slide, the rods within said sleeves, the springs, and the wheels containing said springs, whereby the said rolls are rendered self-adjusting, substantially as described.

5. In a roller-mill, the frame A, adapted to support in pairs the rolls *a a' b b'*, in combination with the bearings of said rolls, and the sleeves 2, pivoted to said frames, substantially as described.

6. In a roller-mill, the combination of the movable rolls and bearings, the slotted bar U, the means for reciprocating said bar, consisting of the rack, pinion, and shaft, and rods which at one end engage with said bar, and at their opposite ends are connected with the bearings of said rolls, substantially as described.

313,817. CORK SOLE FOR BOOTS OR SHOES. ROLON E. FOSTER, Milford, Mass. Filed Dec. 13, 1884. (No model.)

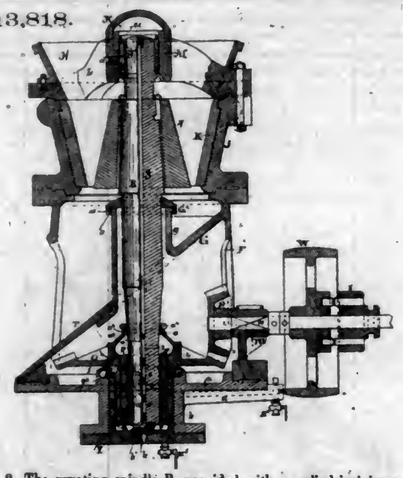


Claim.—As an article of manufacture, a boot or shoe having interposed between its inner and outer soles the cork sole A, beveled upon its upper face edge, and adapted to the coincident taper C in the counter, substantially as shown, and for the purpose described.

313,818. ROCK AND ORE CRUSHING MACHINE. DAVID R. FRASER, Chicago, Ill. Filed Oct. 29, 1884. (No model.)

Claim.—1. The frame-section F of a gyrating stone-breaker, provided with the inclined partial diaphragm G, having the sleeve *g*, and cast integral with said frame-section, combined with the removable plate T, whereby the chute is completed and the wheel O made easily accessible.

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2. The gyrating spindle R, provided with a cylindrical journal or wrist at each end, and the wheel O, having the eccentric bearing for the lower end of said spindle, combined with the box M, and the bearing-box *u*, fitted to the upper end of said spindle, and adapted to gyrate in said box M, as set forth.

3. The stationary box M, combined with the box *u*, having the interior cylindrical bearing, and adapted to gyrate in said box M, the pin *d* to prevent rotation of said box *u*, and the gyrating spindle R, substantially as set forth.

4. The box M and spindle R, combined with the box *u*, provided with a cylindrical perforation fitted to the cylindrical wrist of the spindle R, its upper edges extended upward to constitute an oil-cap, as set forth, and with its diameter slightly smaller at its upper than at its lower end, and thereby adapted to rock and gyrate in the box M, as set forth.

5. The wheel O, provided with the oil-chamber *o'*, and the internal bushing, P, provided with an eccentric bearing for the lower end of the spindle R, combined with the oil-chamber B in the upward extension of the hub A, and the spindle R, with a longitudinal perforation, S, and transverse outlets 1 2 3 4 5 6 7 8 9, whereby oil received at the top of the spindle is delivered to the wearing-surfaces at and near its bottom.

6. The wheel O, combined with the hub A, provided with a hollow flange, *f*, fitted at its upper end to the side of said wheel O, and thereby constituting an oil-chamber, B, substantially as and for the purpose set forth.

7. Combined with the spindle R, the wheel O, provided with the cap o^3, collar *c*, and clamp o^3, to constitute a tight oil-chamber, *o'*, around said spindle, as set forth.

313,819. COFFIN-HANDLE. GEORGE C. FRAZIER, Allegheny, assignor to Hamilton, Lemmon, Arnold & Co., Pittsburg, Pa. Filed Sept. 6, 1884. (Model.)



Claim.—1. As an improvement in coffin-handles, the combination of a rigid bar, two or more separate securing-plates, and two or more universal joints connecting the bar to the plates, so that the plates may be secured on the same or different planes without affecting the position of the bar, substantially as specified.

2. A coffin bar-handle having two or more hinge-balls, said balls having one or more projections formed thereon, in combination with an ellipsoidal socket having a depression at one end thereof, substantially as and for the purpose specified.

313,820. BURIAL-CASKET DRAPERY. ALFRED FRISCHL, Detroit, Mich. Filed Mar. 10, 1884. (No model.)



Claim.—1. A casket-drapery provided with one or more upright plaits adapted to be released and opened out to lengthen the drapery,

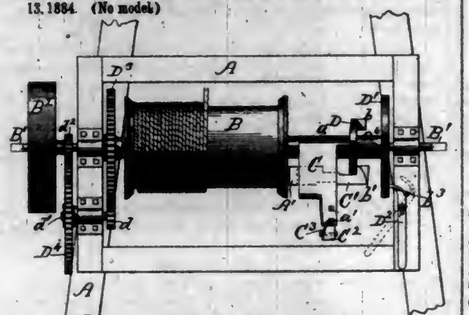
and fastenings for securing said plaits together in an upright position, substantially as described.

2. A drapery made extensible by one or more upright plaits adapted to be released and opened out, and adapted to be secured upon a background of various lengths, said drapery made in sections, and in combination therewith one or more bands securing the different sections of said drapery together, substantially as described.

3. A drapery made extensible by one or more upright plaits adapted to be released and opened out, and adapted to be secured upon a background of various lengths, said drapery made in sections, one or more bands securing the different sections of said drapery together, and in combination therewith suitable joint-covers, substantially as described.

4. A drapery for surrounding a casket provided with one or more upright plaits adapted to be released and opened out to effect extensibility of the drapery, in combination with fastenings for securing said plaits together, and an extensible support to which said drapery is connected, substantially as described.

313,821. WELL-DRILLING APPARATUS. JOHN GARDNER, Bloomingdale, Ill., assignor of one-half to Rodger Ryan, same place. Filed Nov. 13, 1884. (No model.)



Claim.—1. The combination, with the winding-drum B, provided on the inner end with the catch A', of the rotating arm C, the dog C', and the cam-wheel D, substantially as and for the purpose set forth.

2. The combination, with the rotating arm C, of the dog C', the post C^3, and the spring C^2, substantially as and for the purpose set forth.

3. The combination, with the cam-wheel D, of the disk-wheel D', provided with a number of apertures, b^3, and the locking-lever D^2, substantially as set forth.

4. In a well-drilling apparatus, the combination, with the gear-wheel D^4, rigidly mounted on the shaft B', of the pinion *d*, the shaft *d'*, the gear-wheel D^4, the pinion d^2, and the fly-wheel B^2, the two latter being loosely mounted on the main shaft B', substantially as and for the purpose set forth.

313,822. DEVICE FOR CLEANING SHIP-BOTTOMS. NELS A. GUSTAFSON, Leadville, Colo. Filed Oct. 21, 1884. (No model.)

Claim.—1. In a ship-bottom cleaner, a means to utilize the relative inertia of the water when said ship is in motion to drive the cleaning mechanism, consisting of a wheel with feathering blades which engage with the water, said wheel having connection with said mechanism.

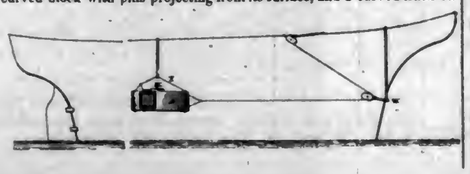
2. In a ship-bottom cleaner, a driving-wheel connected to a cleaning mechanism, said wheel consisting of a drum with longitudinal shoulders, and a series of hinged blades longitudinally arranged coincident with said shoulders, substantially as and for the purpose specified.

3. In a ship-bottom cleaner, the combination, with a box containing a cleaning mechanism, of a driving-wheel with feathering blades, and a coincident shield within the box, separating the wheel from the cleaning mechanism, substantially as and for the purpose specified.

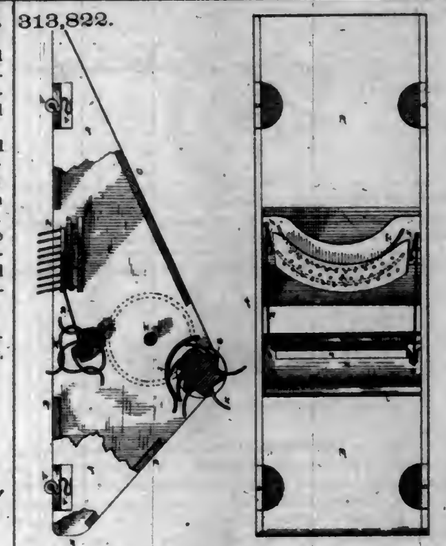
4. In a ship-bottom cleaner, a wheel with feathering blades engaging with the water when the ship is in motion, in combination with a shaft carrying spring-blades with scraping-heads, the said wheel being connected to and driving the shaft, substantially as and for the purpose specified.

5. In a ship-bottom cleaner, a curved block having pins projecting from its surface, said block being within the frame of the cleaner coincident with the ship, and operating as a loosener, substantially as and for the purpose specified.

6. In a ship-bottom cleaner, a loosening-scraper consisting of a curved block with pins projecting from its surface, and a curved track on



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which it travels, in combination with a driving or actuating mechanism, substantially as and for the purpose specified.

7. In a ship-bottom cleaner, a cleaning mechanism consisting of a loosening-scraper formed of a curved block with projecting pins, and provided with a curved track on which it travels, and a shaft carrying spring-blades with scraping-heads, the parts being connected to each other and to an actuating mechanism, substantially as and for the purpose specified.

8. In a ship-bottom cleaner, the combination, with a curved loosening-scraper traveling on curved ways, of a shaft carrying one or more spring-arms, and having cranks at each end and a jointed rod and short connecting-rod, the rods connecting the scraper and shaft, substantially as and for the purpose specified.

9. In a ship-bottom cleaner, the combination, with a feathering propelling-wheel, of a cleaning mechanism consisting of a shaft having cranks at each end, and carrying spring scraping arms or blades, and a curved loosening-scraper provided with a curved track or way, the several parts being connected and operated substantially as and for the purpose specified.

10. In a ship-bottom cleaner, rollers with curved flat spring-bearings pivoted in recesses at the forward and rear ends of the main box, so as to yield when pressed against the bottom of the ship, substantially as shown and specified.

11. A ship-bottom cleaner consisting of a box pointed at the forward end and carrying a feathering propelling-wheel at its outermost point, and at the bearing-surface a shaft carrying spring scraping-arms, and a curved loosening-scraper traveling on curved ways, the box having also rollers provided with pivoted spring-bearings, the entire device operating and the parts connected substantially as and for the purpose specified.

12. In combination with a ship-bottom cleaner, a line or lines for suspending and sustaining the same, said line having foot-marks or the like for indicating the position of the device, substantially as and for the purpose specified.

13. In combination with a ship-bottom cleaner, a device for operating the same consisting of a clevis straddling the cut-water of the ship, a line or lines graduated to indicate the position of the cleaner, and connected to a reversible bail on the said cleaner and to the clevis, and a suitable connecting-tackle, substantially as and for the purpose set forth.

313,823. COMPOSITION FOR CURING PAVING BLOCKS OR BRICKS. THOMAS A. HUGUENIN, Charleston, S. C. Filed Nov. 28, 1884. (No specimens.)

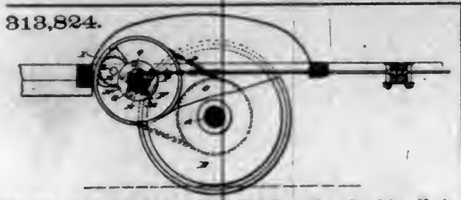
Claim.—1. The herein-described compound, consisting of coal-tar, bitumen, pine-gum, and alum, combined in substantially the manner and proportions and for the purpose stated.

2. A brick or block cured by immersion in a mixture of coal-tar, bitumen, pine-gum, and alum, substantially as described.

313,824. CAR-STARTER. CHRISTIAN A. IVERSEN, Copenhagen, Denmark. Filed Jan. 27, 1885. (No model.)

Claim.—The combination, in a car brake and starter, of the axle having the chain-pulley C, the pulley F, having ratchet-wheel H and cogged rim I, the shaft G, having the pinion J, and the chain-drum M,

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provided with pawls P, the shifting shaft L, having the pinion K, the chain P, secured to the drum, and the power-storing spring having the chain attached to it, as and for the purpose shown and set forth.

313,825. IRON FENCE. HENRY L. JONES, Buffalo, N. Y. Filed Apr. 11, 1884. (No model.)



Claim.—In a metallic fence, the combination, with the picket B and the stringer A, provided with an opening, *a*, to receive the picket, said opening having recesses *a' a'* on opposite sides of the picket, of a fastening device composed of the flanges *c c*, arranged above and below the stringer, and connecting-ribs *c'*, seated in the recesses *a'* of the stringer and held thereon against turning, said flanges *c c* and connecting-ribs *c'* being made in one piece and secured to the stringer and picket by being cast thereon, substantially as set forth.

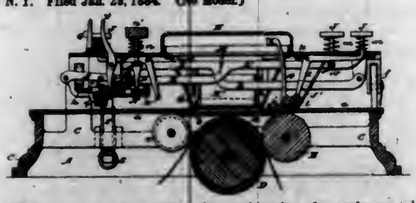
313,826. VENTILATOR FOR STOVE-PIPES. JOHN P. KRABILL, Shawtown, Ohio. Filed Oct. 23, 1884. (No model.)



Claim.—1. The combination, in a stove-pipe section, of an aperture formed therein, a supplemental receptacle arranged on said section and communicating through the opening with the interior of the section, and a tube located in said receptacle and forming a communication through said chamber for the atmosphere to the interior of the pipe-section, substantially as set forth.

2. The combination, in a stove-pipe section having an aperture, *c*, formed therein, of a receptacle secured on said section and contracted toward its upper end, where it communicates with the pipe-section through said aperture, and a vertical tube, D, located in said receptacle and contracted toward its upper end, and communicating at its lower end with the atmosphere through a funnel-shaped mouth-piece, *d*, substantially as set forth.

313,827. TYPE-WRITING MACHINE. GEORGE LUCAS, New York, N. Y. Filed Jan. 29, 1884. (No model.)



Claim.—1. In a type-writer, the combination of a stationary table, a rack extending longitudinally along the same, a carriage adapted to travel over said table longitudinally, guided by said rack, and capable of being turned back on the pivotal axis thereof, the type-levers and keys borne by said carriage and printing downward, and a feed mechanism, substantially as described, borne by said carriage, engaging said rack, and adapted to cause the carriage to move the space of one tooth after each depression of any key, substantially as set forth.

2. In a type-writer, the combination, to form a type-action, of a series of type-levers arranged to strike downwardly all at one point, the keys for operating them arranged circularly, a series of intermediate levers arranged radially and connected at opposite ends to said keys and type-levers, and a series of retracting-springs adapted to raise said keys and levers, substantially as set forth.

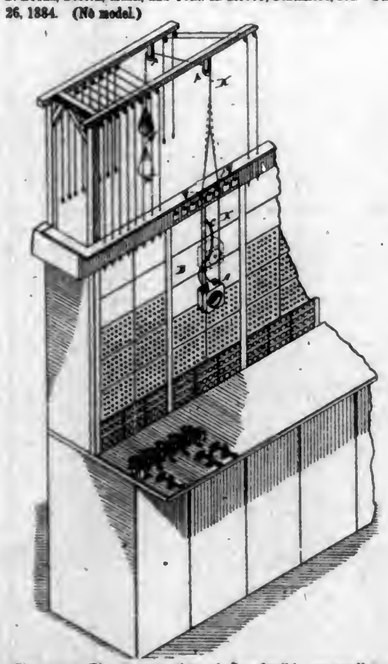
3. A type-action for a type-writer, consisting of a series of type-levers, G G, arranged to strike downward all at one point, and formed each with a slot, *l*, a series of levers, I I, arranged radially and one end of each engaging said slot in the corresponding type-lever, a series of keys, J J, connected with the opposite ends of said levers I I, respectively, and a series of springs, *m m*, adapted to retract said levers and keys, substantially as and for the purposes set forth.

4. The combination of a stationary table, A, rack *h* thereon, type-carriage B, the type-action borne by said carriage, with the type-levers arranged to print downward all at one point, annular spacing-lever L, and an escapement-feed engaging said racks, and consisting of feed-lever N, vibrated by said lever L, and having fixed tooth *g*, elastically-mounted tooth *r*, borne by said lever, and spring *o*, for retracting said lever, substantially as set forth.

5. In a type-writer, the combination, with a traveling type-carriage and its type-action, and a stationary rack, of an escapement-feed engaging said rack and operated from said type-action, a sliding frame, N', mounted in slideways in the carriage and bearing said escapement-feed, and a spring normally pressing said frame toward the rack, substantially as set forth.

6. In a type-writer, the combination of a stationary table, a traveling type-carriage, and ink-ribbon carried upon spools borne by said carriage upon opposite sides thereof, a traction-wheel adapted to be connected to either of said spools, and thereby to rotate the same to wind up the ribbon as the carriage advances, and a ratchet and pawl interposed between said wheel and spool, to free the wheel from the spool while the carriage is being moved back, thereby preventing the unwinding of the ribbon, substantially as set forth.

313,828. SUPPORT FOR TELEPHONIC TRANSMITTERS. HENRY B. LITTLE, Boston, Mass., and JOHN A. MCCOY, Baltimore, Md. Filed Apr. 26, 1884. (No model.)

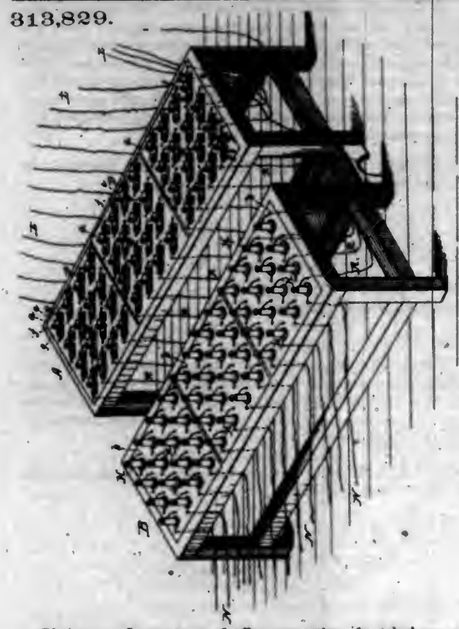


Claim.—1. The combination of the flexible suspending cord or cords or the equivalent thereof with a variable-contact telephonic transmitter suspended freely thereby out of contact with rigid guides or supports, substantially as described, whereby jarring of the electrodes of the transmitter is prevented.

2. The combination, with the flexible longitudinally-adjustable cord or cords or the equivalent thereof, of the variable-contact telephonic transmitter suspended freely thereby out of contact with rigid guides or supports, suitable guides over which said cord or cords pass above the transmitter, and counter-weight arranged upon said cord or cords for balancing said transmitter, as set forth.

313,829. OFFICE-CONNECTION FOR TELEPHONE AND TELEGRAPH CENTRAL OFFICES. HENRY B. LITTLE, Boston, Mass., and JOHN A. MCCOY, Baltimore, Md. Filed June 10, 1884. (No model.)

313,829.



Claim.—1. In a system of office-connections for telephone-exchanges, a series of fixed terminals connected with incoming line-wires, and adapted for connection with other wires, a series of fixed terminals corresponding with those of the first series, and connected with office-instruments, and intermediate detachable short conductors connecting the terminals of the two fixed series, substantially as described, and for the purpose set forth.

2. In a telephone central-office system of connections, the combination, with a series of separable two-part terminals, a series of incoming line-wires connected each to one part of said terminals, respectively, a series of fixed terminals corresponding to those of said two-part terminals, and connected by intermediate conductors to office-instruments, and intermediate detachable short conductors connecting with the other fixed terminals those parts of the two-part terminals which are not connected directly with the line-wires, substantially as described.

3. In a telephone central-office system of connections, the combination, with a series of separable two-part terminals and a series of conductors connected each to one part of said terminals, respectively, of a series of fixed terminals corresponding to those of said two-part terminals, and intermediate detachable conductors connecting with the other fixed terminals those parts of the two-part terminals which are not directly connected with other conductors, substantially as described.

4. The combination, with the series of insulated separable two-part terminals mounted on a suitable support, and the series of insulated connections mounted on a separate support, of the detachable intermediate conductors connecting said insulated connections, respectively, with one part of the respective two-part terminals.

5. In a system of telephone central-office connections, the combination, with a series of two-part terminals mounted on a suitable support, and having their parts arranged for electric connection and disconnection, a series of line-wires, each connected to one part of said terminals, respectively, and a series of conductors connected to the other parts, respectively, a series of fixed connections connected with the other end of said conductors, and a series of office-instruments connected to said fixed connections by intermediate conductors, substantially as described.

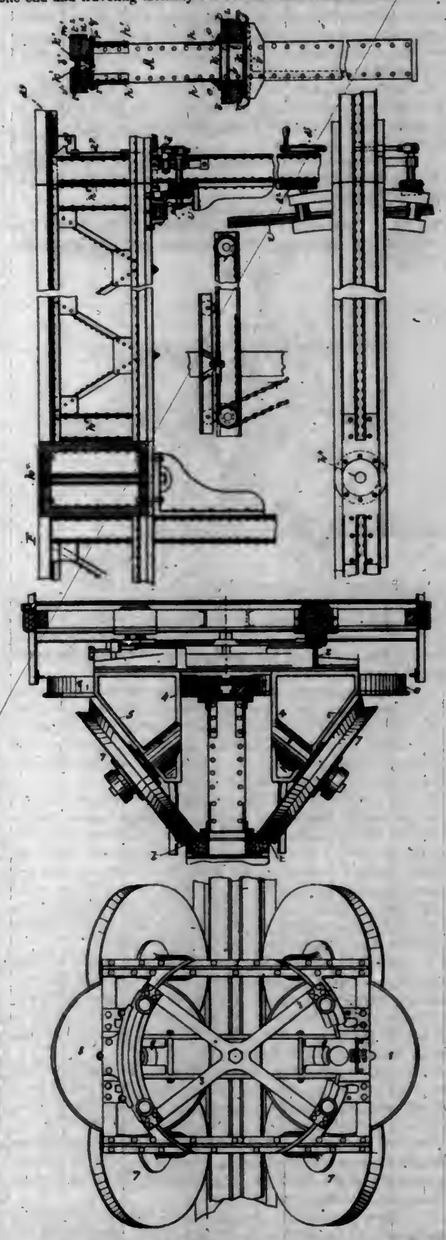
6. The combination, with the table A, having the insulated metal brackets provided with screws *f*, the plates *g*, arranged under said screws, the table B, provided with the insulated binding-posts, and intermediate short wires connecting the plate *g* with said binding-posts, respectively, substantially as described.

7. In a telephone central-office system, the combination, with a series of two-part terminals having their parts arranged for electric connection and disconnection, and a series of line-wires each connected with one part of said terminals, respectively, of a series of conductors connected to the other parts, respectively, and to office-instruments, and testing apparatus arranged for connection to either part of any of the two-part terminals, substantially as described, and for the purpose set forth.

8. The combination, with the table A, having the two-part terminals, the table B, having the insulated binding-posts, and the gangway C, arranged between the two tables, of the conducting-wires leading from said binding-posts under the gangway to one part of each of the two-part terminals, respectively, substantially as described.

313,830. RAILWAY. JOE V. MEIGS, Lowell, Mass. Filed Jan. 30, 1884. (No model.)

Brief.—A single elevated line of girders carries a supporting-rail on each side of its lower chord, and a friction and balance rail on each side of its upper chord. The car is supported on lower bearing-wheels inclined and balanced and propelled and controlled by upper horizontal balancing, braking, and driving wheels. A section of girder hinged by one end and traveling laterally at the other end forms a switch.



Claim.—1. In a post-supported railway, a girder carrying four tracks at two different levels, the two which support the carrying-wheels at or near the upper horizontal and outer vertical surfaces of the lower boom, and two which take the bearing and grip of the driving-brake and

balancing-wheels at or near the vertical outer surface of the upper boom, substantially as and for the purposes described.

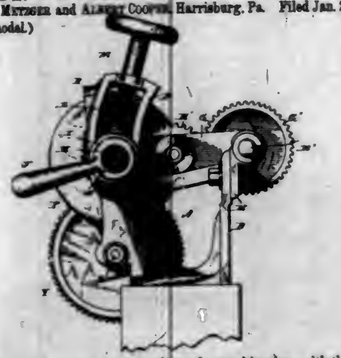
2. A truck for a post-supported railway provided with two sets of wheels, each set severally at different levels and revolving in different planes—viz., carrying-wheels which support the load at the low level and friction-wheels at the high level—whereby the load rests on a low plane of support, and draft or brake power is applied horizontally on a higher plane and nearer the load to sustain, balance, and move the carriage, substantially as described.

3. A post-supported railway and railway-track, having the combination of lower rails which carry the load bearing-wheels which roll upon said lower rails, upper vertical rails for the application of draft and braking power and to receive side thrusts, horizontal wheels to bear against said upper rails, and a truck which straddles the frame-girder and carries such wheels and also supports the body of the carriage upon its upper platform, substantially as described.

4. The combination of the horizontal wheels having a peripheral flange at their lower side with the vertical rails of the upper boom of the girder made to project over said flanges, substantially as and for the purposes described.

5. The combination of a straddling truck, inclined carrying-wheels, and a girder carrying outside bearing-rails low down on the girder, substantially as described.

313,831. VARIABLE FRICTIONAL POWER-TRANSMITTER. MARTIN L. METZGER and ALBERT COOPER, Harrisburg, Pa. Filed Jan. 21, 1885. (No modal.)



Claim.—1. In a power-transmitter, the combination, with the frame, the power-shaft, its gear-wheel, and the idler-pinion meshing with said gear, of the two disks to one of which is secured a gear-wheel meshing with said pinion, and a third disk constructed to extend between and be engaged by said two disks.

2. In a power-transmitter, the combination, with the frame having a slot, the pivoted arm having a tubular extension adjustable within the slot, the sleeve within the extension, the disks mounted upon said sleeve, the gear carried by one of said disks, the power-shaft and its gear, and the interposed idler-pinion, of the disk mounted on a separate shaft, and constructed to be engaged by the said two disks.

3. In a power-transmitter, the combination of the frame having a slot formed therein, the arm, the tubular extension and collar fitted to said slot, the adjusting-screw and the hand-wheel, the sleeve within the extension, the disks with divergently-disposed faces, one rigidly and the other slidingly mounted on the sleeve, the binding-rod connected with the sliding disk, the jam-nut, and the spring between the sleeve and an enlargement on the rod, and the disk mounted on the separate shaft, and provided with a narrow annular surface on each side and adapted to extend between and be engaged by the said two disks.

4. A power-transmitter constructed of two disks capable of being adjusted one from the other, and mounted upon an adjustable shaft, and a third disk constructed to extend between and be engaged by the said two disks, in combination with a pointer movable with the adjustable shaft, and a fixed graduated plate whereby the speed which the two disks impart to the third disk may be accurately regulated.

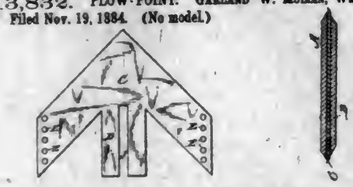
5. The combination, in variable frictional power-transmitter consisting, essentially, of the engaging frictional disk with a pointer and a fixed graduated plate, whereby the speed may be predetermined.

6. In a power-transmitter, the combination of the sleeve, the hollow shaft, and the two disks having divergently-disposed faces, the one rigidly and the other slidingly mounted on said sleeve, with the binding-rod connected with the sliding disk, the jam-nut, and the spring between the sleeve and an enlargement on the rod.

7. In a power-transmitter, the combination, with the frame having the curved slot, of the pivoted arm having a tubular extension, the collar fitted over said extension and within said slot, the adjusting-screw, the hand-wheel, and the jam-nut fixing the extension, whereby the position of the arm with respect to the slot in the frame may be adjusted and held.

8. In a power-transmitter, the combination, with the frame having a slot, the pivoted arm having a tubular extension adjustable within such slot, the sleeve within the extension, the two disks mounted upon said sleeve, the gear carried by one of said disks, the power-shaft and its gear and the interposed idler-pinion, and the disk mounted on a separate shaft and constructed to be engaged by the said two disks, of a pointer movable with the sleeve, and a fixed graduated plate, whereby the speed may be predetermined.

313,832. PLOW-POINT. GARLAND W. MULLIN, Washington, Ga. Filed Nov. 19, 1884. (No model.)



Claim.—The combination of the upper and lower plates, A and B, provided with bolt-holes at F, G, and H, and the middle plate, C, provided with a series of holes, E, at each side edge, and with the central slot, J, all three plates being similar in their general outline, substantially as shown and described.

313,833. TOBACCO-PIPE. THOMAS MURPHY, Cincinnati, Ohio. Filed Aug. 11, 1884. (No model.)



Claim.—In a tobacco-pipe, the combination, with bowl A, having the funnel-formed throat B and attached sleeve D, of the sliding stem or mouth-piece C, the prod or needle F, and the retracting-spring E, substantially as and for the purpose set forth.

313,834. GAS-BURNER. WILLIAM M. NOEL, Warren, Pa. Filed Dec. 5, 1884. (No model.)



Claim.—1. A superheating gas-burner consisting of a deflecting-disk and a cylindrical chambered casing, upon which it is mounted, and which is divided into an inner and an outer annular space, substantially as described.

2. In a superheating gas-burner, the combination, with a casing having an inner gas-chamber and an outer annular space communicating with it, of a burner having apertures opening from the outer space, and a deflecting-disk, substantially as described.

313,835. LAMP-BRACKET. CHARLES L. PIERPONT, Red Wing, Minn. Filed Mar. 1, 1884. (No model.)

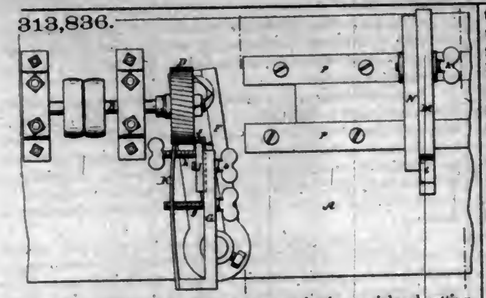


Claim.—The herein-described lamp bracket or support, consisting of a board or support, A, shelf B, bent tubular rod C, connected with the board, rod D, having one end inserted and arranged to slide within the upper end of said tubular rod, yoke c, formed upon the other end of the rod D, latch F, applied to said yoke, and set-screw G, adapted and arranged to clamp and hold rod D at any desired adjustment, substantially as set forth.

313,836. MACHINE FOR FORMING FERRULE-SEATS ON UMBRELLA-STICKS. HIRAM PLUMB, Philadelphia, Pa., assignor to William A. Drown & Co., same place. Filed Nov. 17, 1884. (No model.)

Claim.—1. The combination of a rotary cutter having peripheral cutting-teeth, with a gage, J, adjacent to the side or flat face of the cutter, whereby it serves to regulate the depth of cut of the teeth on a stick presented to the cutter parallel with the axis of the same, as set forth.

313,836.



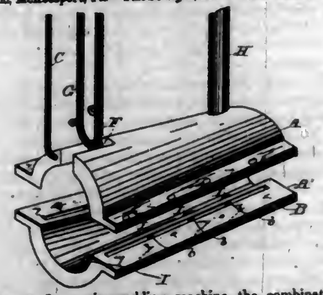
2. The combination of a rotary cutter having peripheral cutting-teeth, with a gage, J, having a segmental face, said gage being adjacent to the side of the cutter, as set forth.

3. The combination of a rotary cutter having peripheral cutting-teeth, a gage, K, projecting beyond the periphery of the cutter and serving as a stop for the end of a stick, and a gage, J, adjacent to the side of the cutter and serving to determine the depth of cut of the latter, as set forth.

4. The combination of a rotary cutter having peripheral cutting-teeth, a gage, J, adjacent to the side of the cutter and governing the depth of cut, and a gage, M, located at a distance from the cutter, whereby it serves, in connection with said gage J, to govern the taper of the cut, as set forth.

5. The combination of a rotary cutter having peripheral cutting-teeth, a gage, J, adjacent to the side of the cutter and regulating the depth of cut, and a distant gage, M, adjustable laterally in respect to the axial line of the cutter, as set forth.

313,837. FORMING-TUBE FOR PIPE-WELDING MACHINES. GEO. RUSSELL, McKeesport, Pa. Filed July 1, 1884. (No model.)



Claim.—1. In a pipe-welding machine, the combination, with a welding-tube having a surrounding water-space, of the spiral partition *b*, dividing said space, as and for the purpose set forth.

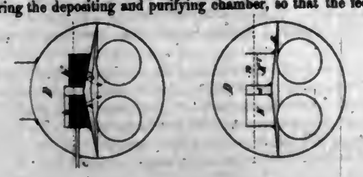
2. In a pipe-welding machine, the combination, with a forming-tube having a surrounding water-space and pipes for conveying water to and from said water-space, of a gas-pipe opening into the interior of said tube, substantially as described.

3. In a pipe-welding machine, the combination, with a forming-tube having a surrounding water-space and pipes for conveying water to and from said water-space, of a gas-pipe opening into the interior of said tube at or near the top thereof, and a chimney opening out of the top of said tube, substantially as described.

4. The combination of a tube, A, having water-space B, holes I I I for the passage of scale, and chimney H, with gas-pipe G and welding-ball E, all constructed and arranged substantially as described, and for the purpose set forth.

313,838. PURIFYING FEED-WATER IN STEAM-BOILERS. HEINRICH STOLLWERCK, Cologne, Prussia, assignor to Gebr. Stollwerck, Cologne-on-the-Rhine, Germany. Filed Aug. 30, 1884. (No model.)

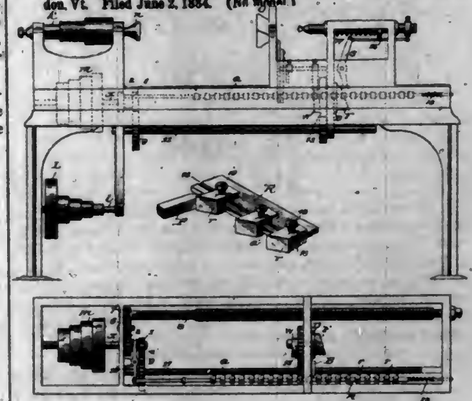
Claim.—1. The combination, with the boiler D, of the feed-water depositing and purifying chamber containing perforated plates, and arranged within the boiler, and having communication with the water and steam spaces thereof, and a feed-water pipe passing through the boiler and entering the depositing and purifying chamber, so that the feed-water entering the chamber through the feed-water pipe is met by a mixture of steam and water from the boiler and forced through the perforated plates for delivery from the chamber to the water-space of the boiler, substantially as described.

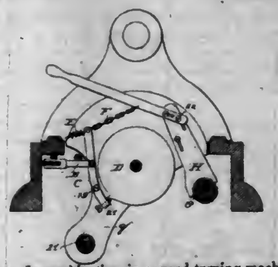


2. The arrangement of the depositing-chambers having perforated plates or other suitable means for retaining the impurities on top of the partition-plate *x*, arranged in an inclined position within the steam and water space of the boiler, and having openings, as at *b*, which arrangement causes the steam-bubbles generated in the boiler below the said partition-plate to move to one or more definite points and to enter the said depositing chamber or chambers opposite to the feed-water, so as to force the latter through the said plates or other means for retaining the impurities, substantially as and for the purpose specified.

3. The depositing-chambers having the perforated plates or other suitable means for retaining the impurities, and being open above the water-level so as to communicate freely with the steam-space of the boiler, while only the open rear end of the last of the said chambers communicates with the water-space, the feed-water entering one chamber from the preceding chamber by means of a connecting-pipe, *d*, so as to be repeatedly met by the steam-bubbles, and passed through the said perforated plates or other means for retaining the impurities, substantially as and for the purpose specified.

313,839. WOOD-TURNING LATHE. MARCELLUS E. TUCKER, Brandon, Vt. Filed June 2, 1884. (No model.)





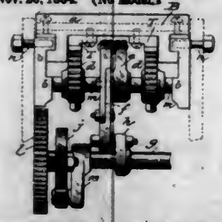
Claim.—1. In combination, in a wood-turning machine, a threaded shaft connected to and adapted to move forward the carriage, gearing connecting said shaft to the main driving-shaft, a grooved shaft carrying pulleys adapted to operate the mechanism on the carriage, as described, gearing connecting the grooved shaft to a loose pinion on the main driving-shaft, a clutch between this loose pinion and a pinion on the main driving-shaft, connected to the gearing of the threaded shaft, a lever adapted to throw said clutch into gear with either of the pinions specified on the main shaft, said lever being connected to a rack-bar having adjustable teeth, a pawl, B, connected to a lever, C, pivoted on the frame of the carriage, said pawl being arranged with relation to the adjustable teeth of the rack-bar, a cam-wheel, D, on the carriage, having a cam projection adapted to operate the lever C, said wheel D being operated by the mechanism as described, and the spring for returning said lever, the parts operating as set forth.

2. In combination, in a wood-turning machine, a threaded shaft connected to and adapted to move forward the carriage, gearing connecting said shaft to the main driving-shaft, a grooved shaft carrying pulleys adapted to operate the mechanism on the carriage, as described, gearing connecting the grooved shaft to a loose pinion on the main driving-shaft, a clutch between this loose pinion and a pinion on the main driving-shaft, connected to the gearing of the threaded shaft, a lever adapted to throw said clutch into gear with either of the pinions specified on the main

shaft, said lever being connected to a rack-bar having adjustable teeth, a pawl, B, connected to a lever, C, pivoted on the frame of the carriage, said pawl being arranged in relation to the adjustable teeth of the rack-bar, a half-nut, H, pivoted on the center-board and engaging with the feed-screw S, a hand-lever, pivoted as described, connected to the half-nut H, and lever C, for operating the same, and a spring for returning the said lever, the parts operating in the machine as set forth.

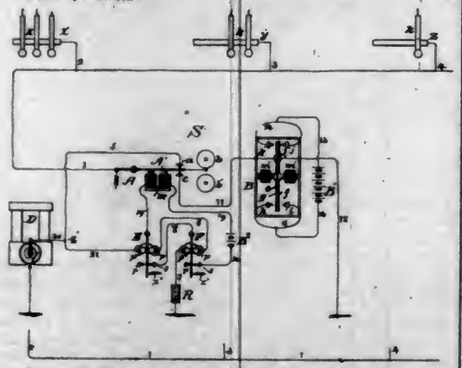
3. In combination, in a wood-turning machine, a threaded shaft for moving forward the carriage, gearing connecting said shaft to the main driving-shaft, a grooved shaft carrying pulleys adapted to operate the mechanism on the carriage, as described, gearing connecting the grooved shaft to a loose pulley on the main driving-shaft, a clutch between this loose pinion and a pinion on the main driving-shaft, connected to the gearing of the threaded shaft, a lever adapted to throw said clutch into gear with either of the pinions specified on the main shaft, a rack-bar, R, connected to said lever, provided with a groove, 18, the teeth *r*, slotted to fit over the edge of the bar and having set-screws for holding the teeth upon the bar, a pawl, B, connected to a lever, C, pivoted on the frame of the carriage, said pawl being arranged with relation to the adjustable teeth of the rack-bar, mechanism for operating the lever C, and the spring for returning said lever, the parts operating as set forth.

313,840. **WOOD-TURNING MACHINE.** MARCELLUS E. TUCKER, Brandon, Vt. Filed Nov. 26, 1884. (No model.)



Claim.—In a wood-turning machine, the combination of a tool-block, *a*, adapted to slide in the frame B to and from its work, with the racks T, the segments gearing therewith fixed to the shaft *m*, the arm *e*, attached to said shaft, the two-part link *f*, connecting the arm *e*, through the sliding arm A, to the shaft *g*, the arm 18, fixed to the said shaft and carrying the roller bearing against the cam *j*, the spring connected to the arm A, the gear-wheel *l*, and the pinion 10 of the rod *e'*, all substantially as described.

313,841. **AUTOMATIC CIRCUIT-CHANGER AND ALARM.** WM. B. VANNER, Boston, and THOMAS D. LOCKWOOD, Malden, Mass. Filed Sept. 6, 1884. (No model.)



Claim.—1. In a system of electric signaling, the combination of a generator, a main circuit therefor, a separate source of electrical energy, a circuit-changer controlled by a local circuit for transferring the main line from one source of energy to the other, and means, as indicated, for automatically opening and closing said local circuit, substantially as described.

2. The combination of a magneto or dynamo electric generator, a main circuit therefor, a separate and alternate source of electrical energy, an electro-magnetic switch or circuit-changer in a local-battery circuit, and means, substantially as described, actuated by the magneto-electric generator for opening and closing said local circuit.

3. The combination of a generator, a main circuit with a number of normally-open branches, a separate source of electrical energy, a circuit-changer in a local circuit for transferring the main line from one source of energy to the other, and devices, as indicated, in a closed branch of said main circuit adapted to open and close said local circuit, and thereby to actuate said circuit-changer, substantially as described.

4. In a signaling system, the combination of two generators of electricity, an automatic circuit-changing device operated by one of said generators, circuit-connections, substantially as described, and a series of normally-open branches.

5. In combination with a closed circuit and two reversely-connected polarized relays included therein and adapted to vibrate their armatures under the influence of alternating currents, a local circuit governed by said relays, an electro-magnetic switch or circuit-changer actuated in one direction by the closure and in the other direction by the opening of said local circuit, and a bell-alarm actuated by said circuit-changer, to give an audible signal upon a change in either direction, substantially as described.

6. In a signaling system, the combination of two separate sources of electrical energy, a main circuit, an electric switch or circuit-changer comprising a magnet and armature adapted to transfer the main circuit from one source of electrical energy to the other, a bell-hammer constituting an extension of the armature-lever, and a bell for giving an audible alarm when a change of the circuit-connections takes place, substantially as described.

7. The combination, substantially as hereinbefore set forth, in a system of electric signaling, of a magneto-electric machine, a main circuit therefor, a battery adapted to act alternatively with said magneto-machine, an electro-magnetic switch or circuit-changer controlled by a local circuit and adapted to transfer the said main circuit from the magneto-machine to the battery or oppositely, a branch circuit from the magneto-generator to earth including electro-magnetic devices controlling the switch local circuit and adapted to actuate the said switch by closing or opening the said local circuit, for the purposes specified.

8. The combination, substantially as hereinbefore set forth, in a system of electric signaling, of a magneto-electric machine, a battery adapted to act as an alternative to said machine, a main circuit capable of being connected with either source of electricity, an electro-magnetic switch or circuit-changer controlled by a local circuit and adapted to transfer the said main circuit from the magneto-machine to the battery or oppositely, a bell-alarm actuated by the movement of said switch in either direction, a branch circuit from the magneto-generator to earth including electro-magnetic devices controlling the switch local circuit and adapted to actuate the said switch by closing or opening the said local circuit, for the purposes specified.

9. The combination, in an electrical-signaling system, of a magneto-electric generator and a normally-open main circuit therefor, with a normally-closed branch circuit including one or more relays and a resistance, a battery or other electrical source capable of acting as a relief for the magneto-generator, a local circuit controlled by the branch-circuit relays, and an electro-magnetic switch included in said local circuit and adapted to transfer the main circuit to the battery when the generator ceases to move or to emit electricity and to restore the same to the generator upon the resumption of the functions thereof, as hereinbefore specified.

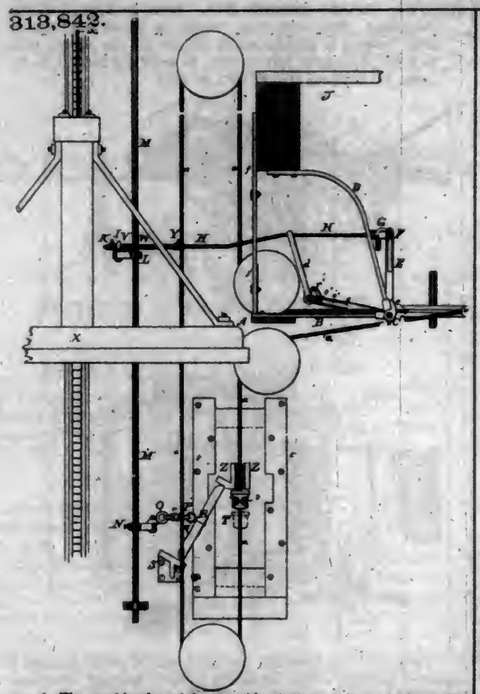
10. The combination, substantially as hereinbefore described, of a normally-closed circuit, two polarized relays included therein but connected reversely with respect to one another and provided with armatures biased to deflect in a given direction when the relays are quiescent, a source of electricity connected with the said circuit and adapted to transmit electrical pulsations of successively-alternating direction through said relays, a local circuit passing through the contact-points of said relays and controlled thereby, whereby it may be maintained open so long as the armatures under the influence of the alternate currents vibrate oppositely to one another and caused to close when the said armatures come to rest, and an electro-magnetic switch included in said local circuit and actuated in one direction by the closure and in the opposite direction by the opening thereof.

11. In combination with a magneto-electric generator adapted for continuous operation, a battery, and a normally-open main circuit capable of being connected to either, a branch circuit from said generator to earth including a suitable resistance, two polarized relays connected reversely with respect to one another in said branch circuit, a local circuit passing through the contact-points of both relays, whereby it is maintained open during the passage of currents through the relays and is closed when such current ceases, and a switch or circuit-changer included in and controlled by said local circuit and adapted to maintain the main circuit in contact with the magneto-generator when the said generator is furnishing a current, and transfer the main circuit to the battery upon the failure of the generator so to do, as and for the purposes specified.

313,842. **DEVICE FOR PREVENTING ACCIDENTS IN ELEVATORS.** MARCUS L. WRIGHT, Newton, N. J. Filed Nov. 18, 1884. (No model.)

Claim.—1. The combination of the movable platform or the equivalent with the shaft turned by the former, devices, substantially as described, for transmitting the action of the platform and its shaft to release a weight, the said weight, suspended by a hinged trip in guides and adapted in falling to pull directly on the guide-rope, and the said guide-rope, adapted to receive the action of the weight, as set forth.

313,842.



2. The combination of the movable platform or its equivalent with the shaft turned by the former; devices, substantially as described, for transmitting the action of the platform and its shaft to release a weight, the said weight, suspended by a hinged trip in guides and adapted in falling to pull directly on the guide-rope, the said guide-rope, adapted to receive the action of the weight, and devices, substantially as shown, for transmitting the pull of the guide-rope to shut off the action of the motor from the hoisting-rope, as set forth.

3. The combination, with the movable platform and its shaft, of devices, substantially as shown, for breaking the connection between the main shaft and the lever on the platform-shaft when the platform has moved sufficiently to release the weight, as set forth.

4. The combination, with the movable platform A, of the arms B B, the hangers D D, the shaft C, lever E and its adjustable pin F, the hook G and rod H, the collar K, ring I, lever L, shaft M, lever N, the eyes and chain O *r r* P, the trip R, weight T, having lugs Z Z, guides *t t*, and the guide-rope *a*, having shelf *b*, as set forth.

5. The sliding screen *f*, having arms *h h*, combined with the platform A and the guides *g g*, as set forth.

6. The combination of the platform A and its shaft C with the slotted lever *e*, screw-bolt *f'*, forked arm *d*, having slotted extension *r'*, and the rod H, having hook G, as set forth.

7. The rod H, combined with the collar Y, spring W, loose collar V, ring I, lever L, and shaft M, as set forth.

8. The combination of the inclined bracket S with the trip R, weight T, having lugs Z Z, the guides *t t*, and the rope *a*, as set forth.

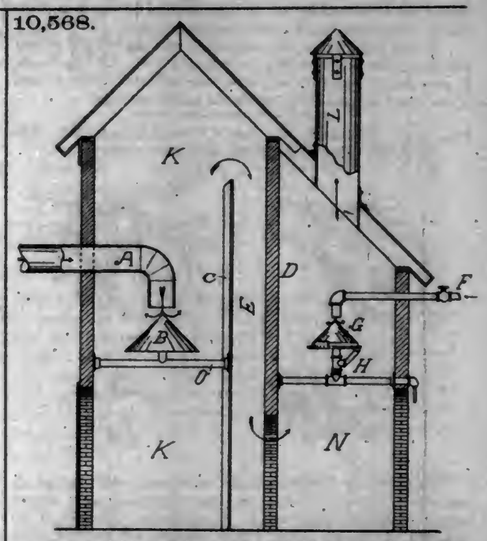
9. The combination, with the weight T and guide-rope *a*, operated substantially as described, of the cam-pulley B', roller L' and shifter-rod C', the shifters D' and bolts E', the fixed pulley J' and loose pulleys K', the shaft F' and worm G', the cog-rim H' and drum H², and the hoisting-rope X', as set forth.

REISSUES.

10,568. **DEVICE FOR CONVEYING AND PRECIPITATING DUST ARISING FROM WOOD-WORKING MACHINERY.** DAVID D. DRUMMOND, Chicago, Ill., assignor of one-half to Robert A. Drummond. Filed Nov. 5, 1884. Original No. 301,223, dated July 1, 1884.

Claim.—1. A receiving room, box, or other suitable structure for a settling-chamber combined with a wood-working or analogous machine, and an imperforate pipe or conduit to convey air with shavings and other débris from said machine and discharge said débris into said chamber, an outlet-pipe for the escape of said air from said chamber, and a distributer of steam within said chamber and near said outlet, whereby steam may be distributed in the atmosphere of said chamber prior to its exit therefrom, and the floating dust wetted and caused to precipitate separate from the heavier shavings, &c.

10,568.



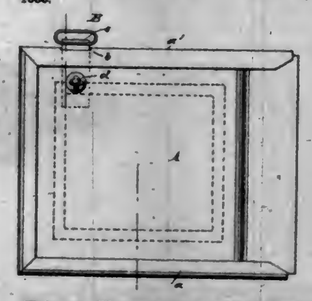
2. A receiving room, box, or other suitable structure for a settling-chamber combined with a wood-working or analogous machine, an imperforate pipe or conduit to convey air and débris from said machine and discharge the same into said chamber, an outlet-pipe for escape of said air from said chamber, a distributer of steam to wet and precipitate the floating dust within said chamber, and a secondary chamber connected with said outlet and steam-distributer to inclose and confine the steam to the immediate vicinity of said outlet, for the purpose set forth.

3. A receiving room, box, or other structure suitable for a settling-chamber, having a perforated partition to divide said chamber into two parts, combined with a wood-working or analogous machine, an imperforate pipe or conduit to convey air and débris away from said machine and discharge the same into said chamber on one side of said partition, an outlet-pipe for the final escape of said air, and a distributer of steam within said chamber at the other side of said partition, to wet and precipitate the floating dust within said steam-chamber on the outlet side of said partition.

4. In a dust-controlling apparatus, an air and shavings inlet pipe, A, settling-chamber K, and shavings-distributer B therein, in front of said pipe, to cause an even distribution of the shavings and dust, combined with a screen, C, and partition D, constituting a channel, E, and a steam-chamber, N, and a steam-distributer located in said steam-chamber, for the purposes set forth.

5. A shavings-inlet pipe discharging into a chamber having in front of said pipe a distributer to distribute the shavings and break up the current of air, a secondary chamber connected with said first-named chamber by a passage which communicates with the top of the first-named chamber and with the bottom of said secondary chamber, and an air-vent in said secondary chamber combined with a steam-discharging pipe in said secondary chamber and a distributer for the discharged steam, whereby the coarser shavings, &c., will be deposited dry in the first-named chamber and the fine dust be precipitated in said secondary chamber before the blast-air escapes through said air-vent.

10,569. **BLINDER FOR BRIDLES.** DOMINIK KALTENBACHER, Shelbyville, Ky. Filed Aug. 29, 1884. Original No. 281,060, dated July 10, 1883.

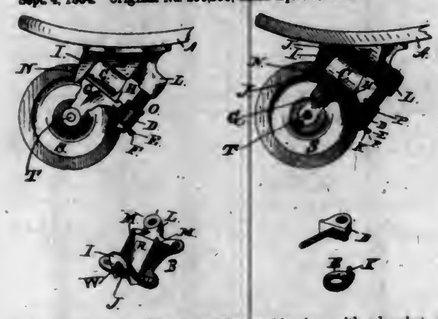


Claim.—1. The combination, with a blinder having a slotted binding, of the metallic stay-loops B, provided with a securing-plate passing

through the slotted binding into the space between the two parts of the blinder, substantially as and for the purposes set forth.

2. In a bridle-blinder, the combination, with the two-part blinder and the metallic binding having a slot therein, of the stay-loop having its plate inserted through the said slot and secured between the two parts of the blinder, substantially as and for the purpose set forth.

10,570. ROLLER-SKATE. JACOB V. ROWLETT, Richmond, Ind. Filed Sept. 4, 1884. Original No. 296,358, dated April 8, 1884.



Claim.—1. In a roller-skate, the combination, with a bracket attached to the foot-plate and having a boss or projection upon one end and a post upon the other, both in substantially the median line of the foot-plate, of a hanger having a pivot engaging with the post, and a post engaging with the boss upon said bracket, the latter post being adjustable in a direction substantially at right angles with the axis of the hanger-pivot, and a spring-cushion interposed between said bracket and hanger, substantially as specified.

2. In a roller-skate, the combination, with the oscillating hanger, the rigid post I, and the eye-pivot D, of the spring-cushion C, interposed between said hanger and a bracket mounted upon the foot-plate, and means, substantially as specified, for adjusting the eye-pivot to vary the tension of the spring-cushion, substantially as set forth.

3. In a roller-skate, the combination, with the bracket B, having a boss, L, and provided with flanges M M, of the post I, the hanger G, having a flange, H, and a pivot, N, and the adjustable post O, having an eye-pivot, D, engaging with the hanger, substantially as specified.

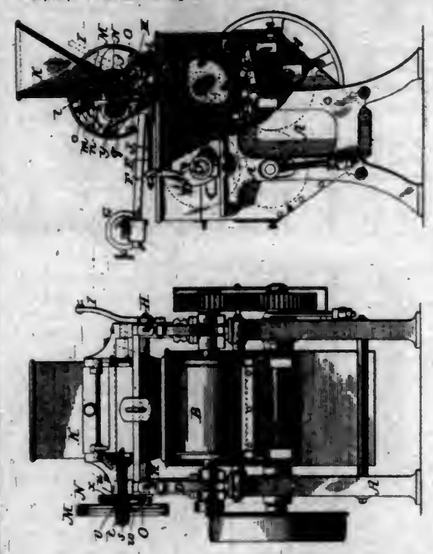
4. In a roller-skate, the combination, with the adjustable post O, having pin F, of the bracket B, supporting one end of the hanger, the eye-pivot D, and the hanger G, substantially as specified.

5. In a roller-skate, the combination, with the adjustable post O and pin F, of the bracket B, supporting one end of the hanger, the eye-pivot D and washer E, the latter having a lug, K, and the hanger G, having a pivot on one end and an opening in the other, substantially as specified.

6. In a roller-skate, the combination, with a foot-piece, A, and a bracket, B, having a post, I, and flanges M M, of the adjustable post O, having pin F, the eye-pivot D, having a pin-bearing, the washer E, having a lug, K, and the hanger G, having a flange, H, pivot N, and opening P, substantially as specified.

7. In a roller-skate, the combination, with an adjustable hanger having a spring-cushion interposed between it and the bracket, of an eye pivotally connected with one end of said hanger, and an adjustable post engaging with said eye and with the bracket mounted upon the foot-plate, substantially as specified

10,571. ROLLER GRINDING-MILL. FRIEDRICH WEBMANN, Zurich, Switzerland. Filed Oct. 24, 1884. Original No. 276,104, dated Apr. 17, 1883. Patented in England Jan. 15, 1879, No. 180, and June 23, 1879, No. 2,513; in Germany June 19, 1879, No. 9,926, and Dec. 4, 1879, No. 10,304, and in Austria Sept. 23, 1879, No. 2,982.



Claim.—1. In a roller-mill, the combination of a roller mounted in stationary bearings, a roller mounted in movable bearings, a feed-regulating device, and mechanism adapted and arranged to simultaneously stop the feed and separate the rolls.

2. In combination with a fixed roll and an adjustable roll, a feed-regulating mechanism, a roll-spreading mechanism, and a lever or hand-piece common to both the spreading mechanism and the feed-regulating mechanism, whereby the stopping and starting of the feed may be effected simultaneously with the spreading apart and drawing together of the grinding-rolls, and by a single operation.

3. In a roller-mill, the combination of feed-roll shaft *s*, band-pulley M, arranged to turn loosely upon said shaft, sliding wheel N, and cross-shaft H, provided with arm O, adapted to separate the hubs of band-wheel M and wheel N, as and for the purpose set forth.

4. In a roller-mill, the combination of feed-rolls *p q*, one provided with pinion *z* and the other with internally-toothed gear-wheel N, and loose band-wheel M, the gear-wheel being pressed toward the band-wheel by a spring, *x*, and prevented from turning on its shaft, and the cross-bar H, provided with arm O, as and for the purpose explained.

5. In a roller-mill, the combination of rolls B C, movable and fixed supports for said rolls, respectively, weighted levers F, connected with said movable supports, substantially as shown, shaft *s*, band-pulley M, loosely mounted upon said shaft, wheel N, free to slide, but held against rotation upon shaft *s*, the feed-roll and cross-shaft H, provided with the hand-lever I, eccentrics *j*, and arm O.

PHOTO LITH NORRIS PETERS WASHINGTON D.C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

Supreme Court of the United States.

THE CONSOLIDATED SAFETY VALVE COMPANY *v.* THE CROSBY STEAM GAGE AND VALVE COMPANY. THE CONSOLIDATED SAFETY VALVE COMPANY *v.* THE CROSBY STEAM GAGE AND VALVE COMPANY.

Decided January 19, 1885.

1. Letters Patent No. 58,294, granted to George W. Richardson, September 25, 1866, for an improvement in steam safety-valves, are valid.
2. Under the claim of that patent—namely, a safety-valve, with the circular or annular flange or lip *c c*, constructed in the manner or substantially in the manner shown, so as to operate as and for the purpose herein described—the patentee is entitled to cover a valve in which are combined an initial area, an additional area, a huddling-chamber beneath the additional area, and a strictured orifice leading from the huddling-chamber to the open air, the orifice being proportioned to the strength of the spring, as directed.
3. Richardson was the first person who made a safety-valve which, while it automatically relieved the pressure of steam in the boiler, did not in effecting that result reduce the pressure to such an extent as to make the use of the relieving apparatus practically impossible, because of the expenditure of time and fuel necessary to bring up the steam again to the proper working standard.
4. His valve was the first which had the strictured orifice to retard the escape of the steam and enable the valve to open with increasing power against the spring and close suddenly with small loss of pressure in the boiler.
5. The direction given in the patent that the flange or lip is to be separated from the valve-seat by about one sixty-fourth of an inch for an ordinary spring, with less space for a strong spring, and more space for a weak spring, to regulate the escape of steam as required, is a sufficient description as a matter of law, and it is not shown to be insufficient as a matter of fact.
6. Letters Patent No. 85,963, granted to said Richardson, January 19, 1869, for an improvement in safety-valves for steam boilers or generators, are valid.
7. Under the claim of that patent—namely, the combination of the surface beyond the seat of the safety-valve with the means herein described for regulating or adjusting the area of the passage for the escape of steam, substantially as and for the purpose described—the patentee is entitled to cover the combination, with the surface of the huddling-chamber and the strictured orifice, of a screw-ring to be moved up or down to obstruct such orifice more or less, in the manner described.
8. The patents of Richardson are infringed by a valve which produces the same effects in operation by the means described in Richardson's claims, although the valve proper is an annulus, and the extended surface is a disk inside of the annulus, the Richardson valve proper being a disk and the extended surface an annulus surrounding the disk; and although the valve proper has two ground joints, and only the steam which passes through one of them goes through the stricture, while in the Richardson valve all the steam which passes into the air goes through the stricture; and although the huddling-chamber is at the center instead of the circumference, and is in the seat of the valve, under the head, instead of in the head, and the stricture is at the circumference of the seat of the valve, instead of being at the circumference of the head.
9. The fact that the prior patented valves were not used, and the speedy and extensive adoption of Richardson's valve, supports the conclusion as to the novelty of the latter.
10. Suits in equity having been begun in 1879 for the infringement of the two patents, and the circuit court having dismissed the bills, this Court in reversing the decrees, after the first patent had expired but not the second, awarded accounts of profits and damages as to both patents, and a perpetual injunction as to the second patent.

APPEALS from the Circuit Court of the United States for the District of Massachusetts.

Mr. Thos. Wm. Clarke and *Hon. Benj. F. Butler* for the Consolidated Safety Valve Company.

Mr. B. F. Thurston and *Mr. J. H. Millett* for the Crosby Steam Gage and Valve Company.

Mr. Justice BLATCHFORD delivered the opinion of the Court.

On the 27th of May, 1879, the Consolidated Safety Valve Company (a Connecticut corporation) brought a suit in equity in the Circuit Court of the United States for the District of Massachusetts against the Crosby Steam Gage and Valve Company (a Massachusetts corporation) for the infringement of Letters Patent No. 58,294, granted to George W. Richardson, September 25, 1866, for an improvement in steam safety-valves. The specification of the patent is as follows:

Be it known that I, GEORGE W. RICHARDSON, of the city of Troy, in the county of Rensselaer, in the State of New York, have invented a new and useful Improvement on a Safety-Valve for Steam-Generators; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

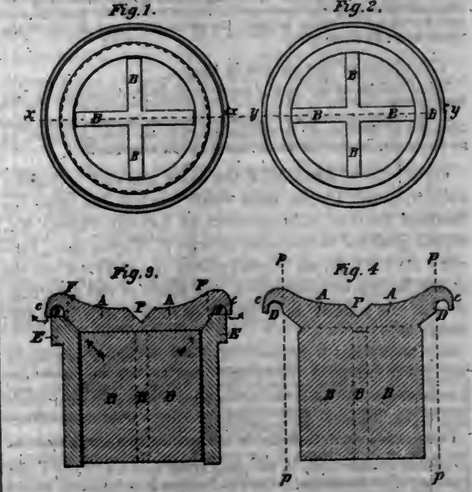


Figure 1 is an end view of my improved safety-valve and its seat as seen from the bottom. Fig. 2 is an end view of the valve alone

as seen from the bottom. Fig. 3 is a vertical section at *x x*, Fig. 1, of the valve and seat in position. Fig. 4 is a vertical section at *y y*, Fig. 2, of the valve alone.

Similar colors and letters of reference indicate corresponding parts in the several figures.

A A is the head of the safety-valve. B B B B are wings to guide the valve into its seat E E. *c c* is a circular or annular flange or lip extending over, slightly below, and fitting loosely around the outer edge of the valve-seat E E. D D is a circular or annular chamber, into which the steam immediately passes when the valve lifts from its seat at the ground joint F F. E E is the valve-seat. F F is the ground joint of the valve and seat. P is the countersink or center upon which the point of the stud extending from the scale-lever rests in the usual manner.

The nature of my invention consists in increasing the area of the head of the common safety-valve outside of its ground joint and terminating it in such a way as to form an increased resisting-surface, against which the steam escaping from the generator shall act with additional force after it has lifted the valve from its seat at the ground joint, and so, by overcoming the rapidly-increasing resistance of the spring or scales, insure the lifting of the valve still higher, thus affording so certain and free a passage for the steam to escape as effectually to prevent the bursting of the boiler or generator, even when the steam is shut off and the damper left open.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

To the head of the common safety-valve, indicated by all that portion of Fig. 2 lying within the second circle from the common center, I add what is indicated by all that portion lying outside of the said circle, in about the proportion shown in the figure. A transverse vertical section of this added portion is indicated in Fig. 4 by those portions of the figure lying outside of the dotted lines *p p p p*, while all that portion lying within the dotted lines *p p p p* indicates a transverse vertical section of the common safety-valve alone. This increased area may be made by adding to a safety-valve already in use or by casting the whole entire. I terminate this addition to the head of the valve with a circular or annular flange or lip *c c*, which projects beyond the valve-seat E E, Fig. 3, and extends slightly below its outer edge, fitting loosely around it, and forming the circular or annular chamber D D, whose transverse section, shown in the figure, may be of any desirable form or size. This flange or lip *c c*, fitting loosely around the valve-seat E E, is separated from it by about one sixty-fourth of an inch, for an ordinary spring or balance. For a strong spring or balance this space should be diminished, and for a weak spring or balance it should be increased, to regulate the escape of the steam, as required. Instead of having the flange or lip *c c* project beyond and extend below and around the outer edge of the valve-seat, as shown in Fig. 3, a similar result may be obtained by having the valve-seat itself project beyond the outer edge of the valve-head, and terminating it with a circular or annular flange or lip, extending slightly above and fitting loosely around the outer edge of the flange or lip *c c* of the valve-head; but I consider the construction shown in Fig. 3 preferable.

With my improved safety-valve, constructed as now described, and attached to the generator in the usual way, the steam, escaping in the direction indicated by the arrows in Fig. 3, first lifts the valve from its seat at the ground joint F F, and then, passing into the annular chamber D D, acts against the increased surface of the valve-head, and by this means, together with its reaction produced by being thrown downward upon the valve-seat E E, it overcomes the rapidly-increasing resistance of the spring or balance, lifts the valve still higher, and escapes freely into the open air until the pressure in the generator is reduced to the degree desired, when the valve will be immediately closed by the tension of the spring or balance.

The escape of the steam by means of this safety-valve is so certain and free that the pressure of the steam in the generator or boiler will not increase beyond the point or degree at which the valve is set to blow off.

The claim of the patent is this:

What I claim as my improvement, and desire to secure by Letters Patent, is—

A safety-valve with the circular or annular flange or lip *c c*, constructed in the manner or substantially in the manner shown, so as to operate as and for the purpose herein described.

On the 2d of June, 1879, the same plaintiff brought a suit in equity in the same court against the same defendant for the infringement of Letters Patent No. 85,963, granted to the same George W. Richardson, January 19, 1869, for an improvement in safety-valves for steam boilers or generators. So much of the specification of the patent as is involved in this suit is as follows:

Be it known that I, GEORGE WILLIAM RICHARDSON, of Troy, in the State of New York, have invented certain new and useful Improvements in Safety-Valves for Steam Boilers or Generators; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a vertical section of the safety-valve and its connections, taken in the plane of the axis of the valve-stem; Fig. 2, a horizontal section taken in the plane of the line A *a* of Fig. 1, and Fig. 3 another horizontal section at the line B *b* of Fig. 1. Fig. 4 is a vertical section taken in the plane of the axis of the valve, representing a modification of my said invention; and Fig. 5, a horizontal section thereof taken in the plane of the line C *c* of Fig. 4.

My said invention relates to improvements in the invention described in Letters Patent granted to me, and bearing date the 25th day of September, 1866, which said patented invention relates to a means for providing a more free escape for the steam than could be obtained by safety-valves as constructed prior thereto, and to insure the keeping of the valve open until the pressure of the steam in the boiler or generator falls below the pressure which was required to open it, the said means so patented consisting in forming the valve with a surface outside of the ground joint for the escaping steam to act against, the said surface being surrounded by a projecting or overlapping lip, rim, or flange, leaving

Fig. 1.

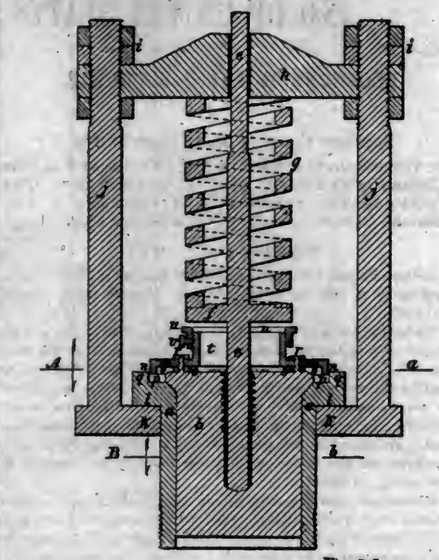


Fig. 5. C. c.



Fig. 2. A. a.

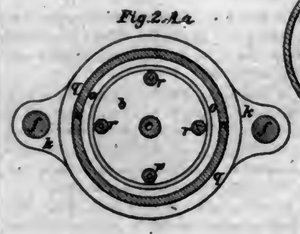


Fig. 4.

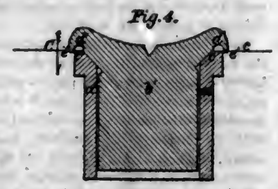


Fig. 3. B. b.



a narrow escape for the steam when the valve is opened, but which, although of greater diameter than the valve-seat, by reason of the said lap, presents a less area of opening for the escape of steam than is produced at the valve-seat, so that the steam which escapes through the area between the valve shall exert pressure against the said surrounding surface, and thereby not only open the valve completely, but hold it up until the pressure of the steam in the boiler falls below the pressure by which the valve was opened.

One part of my present invention relates to a means for regulating or adjusting the area of the aperture for the escape of the steam after acting on the said surface outside of the valve-seat, so that the valve may be set to close at any desired pressure below the pressure which will open it; and this part of my invention consists in making the aperture or apertures for the escape of the steam, after it has acted on the said surface outside of the valve-seat adjustable. * * *

I will first describe the preferred mode of application of my said invention, as represented in Figs. 1, 2, and 3 of the accompanying drawings.

In the said figures, *a* represents the valve-seat, which is to be attached to a steam boiler or generator in the usual or any other suitable manner, and which is formed, in the usual manner, with a beveled seat from the valve *b*, fitted thereto by what is well known as a "ground joint." * * *

It is desirable that so soon as the pressure of the steam in the boiler or generator reaches the pressure at which it should be relieved the safety-valve should open wide for the free escape of steam, and that the valve should remain open until the pressure in the boiler is reduced below the pressure by which the valve was opened, and that it should be so organized that the engineer may be able to adjust it so that it will close at any desired number of pounds pressure below the pressure at which it was opened. To accomplish these results was the main object of my said invention.

To the upper surface of the valve I secure a cap-plate or annulus, *m*, formed with a downward-projecting flange, *n*, at its outer periphery, leaving an annular space, *o*, all around between the outer periphery of the valve and the inner periphery of the flange *n* of the said cap; and the upper surface of the valve-seat *a* is extended all around a little beyond the outer periphery of the flange *n* of the cap, leaving an annular surface, *p*, surrounded by an upward-projecting rim, *q*, the plane of the upper edge of which, when the valve is closed, extends a short distance above the plane of the lower edge of the flange *n* of the cap. The said cap-plate *m* is connected with the top of the valve by studs *r r*, or cast with it, in such manner as to leave an open space, *s*, between the two for the passage of steam to the central aperture, *t*, in the cap, through which steam can escape when the valve is lifted from its seat. This central aperture is surrounded by a projecting cylindrical flange, threaded on the outside, to which is fitted a threaded ring, *u*, that can be turned up or down to any desired elevation and there secured by a set-screw, *v*. The disk-like projection *f* on the valve-rod or stem *e* extends over the said central aperture, *t*, in the cap-plate *m*, and at such an elevation that the upper edge of the adjustable ring can be set in contact with it or let down so far below it as to leave sufficient space for the free escape of steam.

From the foregoing it will be seen that when the pressure of steam in the boiler or generator becomes sufficient to lift the valve from its seat it acts against the surface of the annular space *o* between the bevel of the valve-seat and the downward-projecting flange *n* of the cap, to assist in lifting and holding up the valve, particularly when the valve is borne down by the tension of a spring which presents an increasing resistance as the valve is lifted. If the projecting rim *q* were in the same plane with the lower edge of the flange *n*, the diameter of these parts being greater than that of the valve-seat, on the lifting of the valve and cap the area of the opening between the flange *n* of the cap and the projecting rim *q* would be greater than the area of the opening between the valve and its seat, just in proportion as the diameter of the one is greater than the other, and the steam escaping from the valve would pass unchecked between the flange *n* and rim *q* and would not exert any force against the surface of the annular space *o*; but as the rim *q* extends above the lower edge of the flange *n* of the cap-plate it follows that the aperture between the valve and its seat, by the lifting of the valve, is always greater than the aperture between the flange *n* and the rim *q*, and hence the escaping steam, by its elastic force, will act against the surface of the annular space *o*, to assist in lifting and holding up the valve until the pressure in the boiler or generator falls below the pressure by which the valve was first opened. The difference between the pressure against which the valve will close and the pressure by which it will be opened will depend upon the distance between the outer periphery of the flange *n* of the cap-plate and the inner periphery of the projecting rim *q*. To render this adjustable the area of the aperture for the escape of steam beyond the valve-seat must be adjustable. This is effected by the raising or lowering of the ring *u*. If it be set to its lowest position, the steam escaping from the valve will be free to escape between the top of the valve and the cap, through the central aperture, and thence between the upper edge of the ring *u* and the disk *f* without materially aiding to lift or hold up the valve; but by setting the ring *u* nearer to the under surface of the disk *f*, and thereby reducing the space for the escape of steam, it will be caused to act by its elastic force against the annular space *o* of the cap-plate, and thus assist in lifting the valve and holding it up.

I have described and represented this as the simplest mode of adjusting the area of the aperture for the escape of the steam after it passes the valve-seat; but it will be obvious that the same result may be attained by equivalent means, such, for instance, as making the ring *q* in adjustable segments so that its diameter can be increased or diminished; but this would be more complicated than the mode first and fully described; and it will also be obvious that the devices for holding up the valve may be inverted, as represented in Figs. 4 and 5 of the accompanying drawings, in which *a'* is the valve-seat and *b'* the valve with its beveled ground joint, the valve-seat *a'* having a flat annular surface, *c'*, beyond the bevel, and the valve and annular surface *d'*, with a downward-projecting flange, *e'*, the lower edge of which, when the valve is closed, extends a little below the plane of the surface *c'* of the valve-seat, and a narrow annular space being left for the escape of steam between the inner periphery of the said flange and the outer periphery of the valve-seat *a'*, as set forth in my patent of September 25, 1866.

The claim of the patent is as follows:

What I claim as new, and desire to secure by Letters Patent, is—

The combination of the surface beyond the seat of the safety-valve with the means herein described for regulating or adjusting the area of the passage for the escape of steam, substantially as and for the purpose described.

The answers in the two suits set up want of novelty, and cite, as anticipating patents, three English patents—one to Charles Ritchie, No. 12,078, August 3, 1848; one to James Webster, No. 1,955, July 12, 1857; and one to William Hartley, No. 2,205, August 19, 1857; also an English publication made in 1858, called "The Artizan." Infringement is denied, and it is averred that the valves which the defendant makes and sells are the inventions of George H. Crosby, and are described in two patents granted to him and owned by the defendant—one No. 159,157, dated January 26, 1875, and the other, No. 160,167, dated February 23, 1875. The same proofs were taken in the two suits, and they were heard together in the circuit court. In each suit that court made a decree dismissing the bill, (7 Fed. Rep., 768,) and from each decree the plaintiff has appealed.

When Richardson applied for his patent in 1866 his claim read thus:

What I claim as my improvement, and desire to secure by Letters Patent, is—

Increasing the area of the head of the common safety-valve outside of the ground joint F F, and terminating this addition with the circular or annular flange or lip *c c*, constructed in the manner or substantially in the manner shown, so as to operate as and for the purpose herein described.

This claim was rejected as defective because not for a device, and it was amended to read as granted.

In the application for the patent of 1869 there were two claims. The second related to means for preventing the guides and stem of the valve from binding, and was rejected as not new, and stricken out, though the descriptive matter on which it was founded was retained. The first claim, as applied for, was this:

What I claim as new, and desire to secure by Letters Patent, is—

Combining with surface beyond the beveled or equivalent seat of a safety-valve the means herein described, or the equivalent thereof, for regulating or adjusting the area of the passage for the escape of steam beyond the bevel or equivalent seat, substantially as and for the purpose described.

This claim was amended, on suggestions made by the Patent Office, to read as granted.

The view taken by the circuit court in dismissing the bills was that some valves had been made before 1866 which embodied the same general principles as Richardson's, and were of some value, operating through the expansive power of steam exerted upon an additional chamber outside the ground joint; and that what Richardson did was to so regulate the action of the chamber outside of the ground joint by a crack or opening between the lip of the valve and its main body that the steam would be confined or huddled when it sought to escape from the chamber, and so the valve would be held up just long enough, and could fall rapidly before too much steam was lost. But the cases went off on the question of infringement, and the circuit court found that while the defendant's valve employed an additional surface to lift the valve as soon as it began to blow and the pressure was regulated in part by a stricture, it differed from the plaintiff's in that the additional area was not outside of the ground joint, but inside, and was not acted on independently of the valve itself, but was a part of it, and the escaping steam did not act at all by impact, but wholly by expansion. The conclusion was that as Richardson was not the first to apply the idea of an additional area or of a stricture, he could not enjoin a

valve which resembled his only in adopting such general ideas, and that his claims did not cover a valve having the mode of operation of the defendant's.

Edward H. Ashcroft, as assignee of William Naylor, obtained Reissued Letters Patent of the United States No. 3,727, dated November 9, 1869, on the surrender of Letters Patent No. 58,962, issued to said Naylor, October 16, 1866, for an improvement in safety-valves. Ashcroft brought a suit in equity in the Circuit Court of the United States for the District of Massachusetts against the Boston and Lowell Railroad Company for the infringement of Reissue No. 3,727. The infringement consisted in the use of valves constructed according to the patent of 1866, to Richardson. The court dismissed the bill, (5 O. G., 725, and 1 Holmes, 366, and 1 Bann. & A., 215,) and on appeal to this Court by the plaintiff the decree was affirmed. (97 U. S., 189.) In view of an English patent, No. 1,038, granted to Charles Beyer, April 25, 1863, it was held by this Court that Naylor was not the first person who devised means for using the recoil action of steam to assist in lifting the valve, or who invented the combination, in a spring safety-valve, of an overhanging downward-curved lip, with an annular recess surrounding the valve-seat, into which steam is deflected as it issues between the valve and its seat. In speaking of the invention of Richardson, as described in his patent of 1866, this Court said:

> His invention, as he describes it, consists in increasing the area of the head of the common safety-valve outside of its ground joint, and terminating it in such a way as to form an increased resisting-surface, against which the steam escaping from the generator shall act with additional force, after lifting the valve from its seat at the ground joint, and so, by overcoming the rapidly-increasing resistance of the spring or scales, will insure the lifting of the valve still higher, thus affording so certain and free a passage for the steam to escape as effectually to prevent the bursting of the boiler or generator, even when the steam is shut off and the damper left open. Safety-valves previously in use were not suited to accomplish what was desired, which was to open for the purpose of relieving the boiler, and then to close again at a pressure as nearly as possible equal to that at which the valve opened. Sufficient appears to show that Richardson so far accomplished that purpose as to invent a valve which would open at the given pressure to which it was adjusted and relieve the boiler, and then close again when the pressure was reduced about two and one-half pounds to the inch, even when the pressure in the generator was one hundred pounds to the same extent of surface, which made it, in practice, a useful spring safety-valve, as proved by the fact that it went almost immediately into general use. * * * When the valve opens, the steam expands and flows into the annular space around the ground joint. Its free escape, which might otherwise be too free, is prevented by a stricture or narrow space formed by the outer edge of the lip and the valve-seat. By these means the steam escaping from the valve is made to act by its expansive force upon an additional area outside of the device as ordinarily constructed, to assist in raising the valve.

On these views it was held by this Court that although important functions, not very dissimilar in the effect produced, were performed by the two valves there in controversy, the means used and the mode of operation were substantially different in material respects.

In the present case the defendant has introduced in evidence the before-named English patents to Ritchie, Webster, and Hartley, and the English patent to William Naylor, No. 1,830, granted July 1, 1863, and also Letters Patent of the United States No. 10,243, granted to Henry Waterman, November 15, 1853, and the reissue of the same, No. 2,675, granted to him July 9, 1867.

In view of all these patents and of the state of the art, it appears that Richardson was the first person who described and introduced into use a safety-valve which, while it automatically relieved the pressure of steam in the boiler, did not in effecting that result reduce the pressure to such an extent as to make the use of the relieving apparatus practically impossible, because of the expenditure of time and fuel necessary to bring up the steam again to the proper working standard. His valve, while it automatically gives relief before the pressure becomes dangerously great, according to the point at which the valve is set to blow off, operates so as to automatically arrest with promptness the reduction of pressure when the boiler is relieved. His patent of 1866 gave a moderate range of pressure, as the result of the proportions there specified, and his patent of 1869 furnished a means of regulating that range of pressure, by a screw-ring, within those narrow limits which are essential in the use of so subtle an agent as steam.

In regard to all of the above patents adduced against Richardson's patent of 1866, it may be generally said that they never were in their day, and before the date of that patent or of Richardson's invention, known or recognized as producing any such result as his apparatus of that patent produces, as above defined. Likenesses in them in physical structure to the apparatus of Richardson in important particulars may be pointed out, but it is only as the anatomy of a corpse resembles that of the living being. The prior structures never effected the kind of result attained by Richardson's apparatus, because they lacked the thing which gave success. They did not have the retarding stricture which gave the lifting opportunity to the huddled steam, combined with the quick falling of the valve after relief had come. Taught by Richardson and by the use of his apparatus, it is not difficult for skilled mechanics to take the prior structures and so arrange and use them as to produce more or less of the beneficial results first made known by Richardson; but prior to 1866, though these old patents and their descriptions were accessible, no valve was made producing any such results. Richardson's patent of 1866 states that the addition to the head of the valve terminates in an annular lip, which fits loosely around the valve-seat, and is separated from it by about one-sixty-fourth of an inch for an ordinary spring, and a less space for a strong spring and a greater space for a weak spring, forming an annular chamber and regulating the escape of the steam; that the steam when the valve is lifted passes beyond the valve-seat and into the annular chamber and acts against the increased surface of the valve-head, and thus overcomes the increasing resistance of the spring due to its compression and lifts the valve higher, and the steam escapes freely into the open air until the pressure is sufficiently reduced, when the spring immediately closes the valve. It is not shown that before 1866 any known valve produced this result. On the contrary, Richardson testifies that for about twenty years before 1866 he was acquainted with safety-valves in practical use by working in the locomotive repair-shops of railroad companies, part of the time as foreman and as a locomotive engineer, and that he never before his invention knew in practical use or on sale of any spring-loaded safety-valve capable of opening to relieve the boiler when the working-pressure was exceeded and of automatically closing with a small loss of working-pressure. He also says that he was in England for about four months in 1873, bringing his valve to the notice of officials in the shops of some of the largest railroad companies, his valve being one especially useful on locomotive-engines on railroads; that while he was in England he found no man who professed to be acquainted with or to have heard of a safety-valve

which would automatically open and relieve the boiler at a predetermined working-pressure and automatically close when such working-pressure had been slightly reduced, or who admitted that such a valve could be made until he had seen Richardson's valve work; that the master-mechanics at the shops named did not believe he could make a valve close within twenty-five pounds of the blowing-off point; that he showed them the working of his valve with no excess beyond working-pressure, and with but three to five pounds reduction from a pressure of one hundred and thirty pounds per square inch in the boiler; that he did not hear in England of any of the Ritchie, Webster, or Hartley valves, but heard the Naylor valve blow, and that when it blew the steam rose several pounds above the point where it commenced to blow and it did not close promptly, tightly, or suddenly. There is no evidence to contradict or vary the effect of this testimony.

Thomas Adams, of Manchester, England, who has spent a lifetime in the manufacture and practical working of safety-valves, testifies that the Ritchie and Webster valves have never been in use practically in England, and the Hartley only in two or three cases, when it was a failure; that he himself has made and applied in England about fifteen thousand of Richardson's valves; that if loaded at one hundred and twenty pounds per square inch his valve returns to its seat with a very small loss of pressure; that the Beyer valve loaded at one hundred and twenty pounds reduces the pressure thirty pounds before returning to its seat, and that Naylor's has been superseded by Richardson's.

It appears to have been easy enough to make a safety-valve which would relieve the boiler; but the problem was to make one which, while it opened with increasing power in the steam against the increasing resistance of a spring, would close suddenly and not gradually by the pressure of the same spring against the steam. This was a problem of the reconciliation of antagonisms, which so often recurs in mechanics and without which practically successful results are not obtained. What was needed was a narrow stricture to hold back the escaping steam and secure its expansive force inside of the lip, and thus aid the direct pressure of the steam from the boiler in lifting the valve against the increasing tension of the spring, with the result that, after only a small but a sufficient reduction in the boiler pressure, the compressed spring would, by its very compression, obtain the mastery and close the valve quickly. This problem was solved by Richardson, and never before. His patent of 1869 describes the arrangement and operation of the whole apparatus with the adjustable ring, thus: When the pressure of the steam lifts the valve, the steam acts against the surface of an annular space between the bevel of the valve-seat and the downward-projecting flange of the cap-plate to assist in holding up the valve against the increasing resistance of the spring. The aperture between the valve and its seat is always greater than that between the flange and the upward projecting rim, and thus the steam in the annular space assists in holding up the valve till the boiler pressure falls below that at which the valve opened. The difference between the closing pressure and the opening pressure depends on the distance between the flange and the rim. There is a central aperture in the cap, through which the steam escapes when the valve is lifted, which is surrounded by a projecting cylindrical flange, threaded on the outside, to which is fitted a threaded ring, which can be turned up or down and secured by a set-screw. By this means the area of the aperture for the escape of steam beyond the valve-seat is adjustable, the space being largest when the ring is down and smallest when the ring is up.

Ritchie's patent, in speaking of his valve, says:

> This valve is weighted by a helical spring, *i*, (shown at Fig. 2,) of sufficient power according to the required pressure of the steam, and when it is intended to be used as a reserve safety-valve I place the spring around that part of the stem below the valve—that is to say, within the boiler, as shown at Fig. 2. The advantage of this form of construction of valve over the ordinary valve is as follows: As soon as the pressure of the steam raises the valve from its seat the flange *h*, being exposed to the pressure of the steam, presents an increased surface, which compensates for the increasing resistance of the helical spring *i* until the valve has been raised to a height equal to the area of the steamway, when it allows the steam or vapor to escape freely.

In an article in "The Artizan," published in England, in July, 1858, signed by Ritchie, and referring to his patent of 1848, it is said of his valve:

> The top area being made double that of the under side or steamway, such a valve would quickly reduce the pressure in the boiler to half that at which the valve lifted, and so also of other proportions. Hence it is chiefly suited for a reserved valve.

This shows the existence of the very evil which Richardson remedied. Ritchie's patent and publication say nothing about any stricture.

The evidence in the present case shows satisfactorily that valves made in conformity with the measurements of the drawing of Ritchie's patent do, in practice, reduce the pressure in the boiler to such an extent after that pressure is properly relieved and before they close as to involve great loss of time and consumption of fuel before the initial pressure is restored. The experimental valves produced by the defendant as structures made according to Ritchie's patent vary from the dimensions of his drawing, and the variations are those which result from the instructions given by Richardson in his patents. Ritchie gives no information how to make a valve work at a predetermined pressure, or how to make it work with a small range of difference between the opening and closing pressures, or how to proportion the strength of the spring and the size of the stricture to each other. The same thing is true of the Webster and the Hartley patents.

The Webster patent shows a huddling-chamber and a stricture; but the evidence shows that valves made with the proportions shown in the drawings of Webster work with so large a loss of boiler pressure before closing as to be practically and economically worthless. Webster's patent describes a means of making the area for the escape of steam adjustable, consisting in adjusting up and down on a smooth valve-stem a sliding collar or flange and fixing it in place by a set-screw; but it does not show the screw-ring of Richardson, with its minute delicacy of adjustment and action. Nothing further need be said as to the Hartley valve or the Beyer valve.

The original patent to Waterman was issued in 1853. His attention had been turned to the subject of safety-valves for locomotive-engines. He invented what is described in that patent, but he testifies that before 1866 he never saw a safety-valve capable of keeping the pressure at a point not above working pressure and of relieving the boiler with but a small loss of press-

ure; that his valve would let the steam down about fifteen pounds, and was not practical for an ordinary locomotive; and that the Richardson valve when introduced went at once into general use. The Waterman valve had a supplemental surface on which the steam acted to aid in the raising of the valve; and this was shown in the drawing of Waterman's original patent, but the specification did not describe it. Waterman's original patent did not show the use of a spring, and prior to its reissue his valve had not been made with a spring. After Richardson obtained his patent of 1866 and Waterman knew of Richardson's valve they combined the interests in their two patents, and the reissue of Waterman's was obtained with the co-operation of Richardson, he signing as a witness the specification of the reissue. That specification, granted in 1867, describes an overhanging part of the valve as increasing its area outside of and beyond the ground joint and a concentric rim or ledge, which directs the steam upward against such overhanging part of the valve, so that the valve is assisted in rising. The specification was drawn in view of Richardson's patent and valve, and for the purpose of making a claim, which was then made, and which was not in Waterman's original patent, to a combination of the concentric rim or ledge with the overhanging part of the valve. The specification states that the valve and its seat are so constructed that the escaping steam will act on an increased area of the valve after it has risen from its seat and strike the overhanging or projecting annular surface above and outside of and beyond the ground joint. It also states that a proper modification of the overhanging or projecting annular surface will modify the force of the steam; that if such surface be large the valve will be opened suddenly and discharge so much steam that the pressure in the boiler will be considerably reduced before the valve closes; that such surface may be made so small that but little more than the surplus steam will escape; that the success or efficiency of the valve will depend on a proper proportion between the overhanging annular surface and the concentric rim or ledge, because if a free discharge of steam between them is allowed the valve will not be assisted in rising, and if the escape of steam is too small the valve will rise too easily and remain open too long, and the steam will be so much reduced in pressure as seriously to impair the economical and efficient action of the apparatus; and directions are given as to the sizes of the overhanging part and of the ledge or rim and of the opening for a valve of a specified diameter acting with a specified pressure of steam. Nothing of all this was found in the specification of the original Waterman patent. It therefore has no effect as against Richardson's patent of 1866 to destroy the validity of that patent. If anything which Richardson did in respect to reissuing the Waterman patent could in any event affect the rights of the present plaintiff under either patent sued on, as to which we express no opinion, it is sufficient to say that the present defendant claims in its answers no benefit from any action of Richardson's in respect to the Waterman patent as operating in its favor or inuring to its benefit, as an equitable defense in these suits. Richardson is therefore entitled to cover, by the claim of his patent of 1866, under the language "a safety-valve with the circular or annular flange or lip *e e* constructed in the manner or substantially in the manner shown, so as to operate as and for the purpose herein described," a valve in which are combined an initial area, an additional area, a huddling-chamber beneath the additional area, and a strictured orifice leading from the huddling-chamber to the open air, the orifice being proportioned to the strength of the spring, as directed. The direction given in the patent is that the flange or lip is to be separated from the valve-seat by about one-sixty-fourth of an inch for an ordinary spring, with less space for a strong spring, and more space for a weak spring, to regulate the escape of the steam, as required. As matter of law, this description is sufficient within the rule laid down in *Wood* v. *Underhill*, (5 How., I,) and it is not shown to be insufficient, as a matter of fact. Richardson is also entitled to cover by the claim of his patent of 1869, under the language, "the combination of the surface beyond the seat of the safety-valve, with the means herein described, for regulating or adjusting the area of the passage for the escape of steam, substantially as and for the purpose described," the combination, with the surface of the huddling chamber and the strictured orifice, of a screw-ring, to be moved up or down to obstruct such orifice more or less, in the manner described.

The Richardson patents have a disk-valve, an annular huddling-chamber, an annular stricture at the outer extremity of the radii from the center of the valve, an additional area which is radially beyond the disk-valve, and a cylindrical steamway; but before 1866 an annular form of safety-valve was well known. Such a valve necessarily requires an annular steamway. In the defendant's valve, complainant's exhibit A, the same effects in operation are produced as in the Richardson valve by the means described in Richardson's claims. In both structures the valve is held to its seat by a spring so compressed as to keep the valve there until the pressure inside of the boiler is sufficient to move the valve against the pressure of the spring, so that the steam escapes through the ground joint into a chamber covered by an extension of the valve, in which chamber the steam acts expansively against the extended surface and increases the pressure in opposition to the increasing pressure of the spring and assists in opening the valve wider. This chamber in the defendant's valve has at its termination substantially the same construction as Richardson's valve, namely, a stricture, which causes the steam to act by expansive force against the extended surface of the valve; and in both valves, after the pressure of the steam has been somewhat reduced in the boiler, the closing movement is quickened as the valve nears its seat, in consequence of the reduced pressure of the steam on the extended surface, and the valve comes suddenly to its seat. In the Richardson valve the valve proper is a disk and the extended surface is an annulus surrounding the disk, while in the defendant's valve the valve proper is an annulus and the extended surface is a disk inside of the annulus; but this is a mere interchange of form between the valve proper and the extended surface, within the skill of an ordinary mechanic.

There is one structural difference between the two valves, which is now to be mentioned. In the Richardson valve all the steam which escapes into the open air escapes from the huddling-chamber through a stricture which is smaller than the aperture at the ground joint. In the defendant's valve the valve proper has two ground joints, one at the inner periphery of the annulus and the other at its outer periphery, and only a part of the steam—namely, that which passes through one of the ground joints—passes into the huddling-chamber and then through the stricture, the other part of the steam passing directly from the boiler into the air through the other ground joint; but all of that part of the steam which passes into the huddling-chamber and under the extended surface passes through the constriction at the extremity of such chamber in both valves, the difference being only one of degree, but with the same mode of operation. In the Richardson patent of 1869 the stricture is regulated as to size by an adjustable screw-ring. In the defendant's valve there is a screw ring or sleeve which closes the escape-orifices from the central chamber more or less. In the defendant's valve, the huddling-chamber is at the center instead of the circumference, and is in the seat of the valve under the head instead of in the head, and the stricture, instead of being at the circumference of the head, is at the circumference of the seat of the valve; but this is only the use of means equivalent to those shown by Richardson, while the mode of operation of the parts of the mechanism is the same in their relation to each other, and the result is the same. Richardson's invention brought to success what prior inventors had essayed and partly accomplished. He used some things which had been used before; but he added just that which was necessary to make the whole a practically valuable and economical apparatus. The fact that the known valves were not used and the speedy and extensive adoption of Richardson's valve are facts in harmony with the evidence that his valve contains just what the prior valves lacked, and go to support the conclusion at which we have arrived on the question of novelty. When the ideas necessary to success are made known, and a structure embodying those ideas is given to the world, it is easy for the skillful mechanic to vary the form by mechanism which is equivalent, and is, therefore, in a case of this kind an infringement.

It follows from these views that the decrees of the circuit court must be reversed and each case be remanded to that court, with a direction to enter a decree sustaining the validity of the patent sued on, and decreeing infringement, and awarding an account of profits and damages, as prayed for, and to take such further proceedings as may be proper and not inconsistent with this opinion, and with the further direction, as to the suit brought on the patent of 1869, to grant a perpetual injunction, according to the prayer of the bill.

U. S. Circuit Court—District of Massachusetts.

SPAETH *v.* BARNEY.

Decided January 22, 1885.

1. In a suit for infringement of a reissued patent, on demurrer to the bill for failure to specify the ground of surrendering the original patent, it is held that the reissued patent is *prima facie* evidence that it is founded on sufficient cause and is in accordance with law.

2. The action of the Commissioner in accepting the surrender and granting the reissue is final and conclusive in such a suit, unless it is apparent on the face of the patent that he has exceeded his authority; that it must be held, as a matter of legal conclusion from the repugnancy between them, that the reissued patent is not for the same invention as that embraced in the original patent.

Mr. Arthur v. Briesen counsel for the complainant.
Mr. Benjamin F. Thurston counsel for the defendant.

COLT, *J.*:

The demurrer to the bill is based on two grounds: First, that it does not allege with sufficient certainty that a proper cause existed for surrendering the original patent and taking out the reissue; and, second, that it does not allege facts necessary to show that the Commissioner of Patents had jurisdiction to entertain the application for the reissue.

Section 4916 of the Revised Statutes provides as follows:

> Whenever any patent is inoperative or invalid by reason of a defective or insufficient specification, or by reason of the patentee claiming as his own invention or discovery more than he had a right to claim as new, if the error has arisen by inadvertence, accident, or mistake, and without any fraudulent or deceptive intention, the Commissioner shall, on the surrender of such patent and the payment of the duty required by law, cause a new patent for the same invention, and in accordance with the corrected specification, to be issued to the patentee.

The bill alleges—

> That said Charles T. Day, having for good and lawful cause, and with the consent and approbation of your orator, surrendered said letters patent to the Commissioner of Patents, and having made due application therefor, and having in all things complied with the acts of Congress in such case made and provided, did, on the eighteenth day of February, 1879, obtain new letters patent, being reissued letters patent for the same invention for the residue of said term, and which were marked "Reissue No. 8,590," and were issued in due form of law to your orator, as assignee, under the seal of the Patent Office of the United States, signed by the Secretary of the Interior and countersigned by the Commissioner of Patents, and bearing date the day and year aforesaid, as by the last-mentioned reissued letters patent, ready here in court to be produced, will appear.

We think the allegations in the bill are sufficient. It is not necessary to aver, specifically, the ground on which the original patent was surreadered. The reissue of letters patent by the Commissioner is *prima facie* evidence that such reissue is founded on sufficient cause and is in accordance with law. It is also presumed that the Commissioner acted within his authority under the statute until the contrary is proved. The authorities are numerous and conclusive to the effect that where the Commissioner accepts the surrender of an original patent and grants a new patent his decision is final and conclusive in a suit for infringement, unless it is apparent on the face of the patent that he has exceeded his authority; that there is such a repugnancy between the old and the new patent that it must be held as matter of legal construction that the new patent is not for the same invention as that embraced in the original patent. (*Seymour* v. *Osborne*, 11 Wall., 516, 543; *Allen* v. *Blunt*, 3 Story, 742; *Collar Co.* v. *Van Duzen*, 23 Wall., 530, 558; *Metropolitan Washing Machine Co.* v. *Providence Tool Co.*, 1 Holmes, 161; *Russell* v. *Dodge*, 93 U. S., 460; *Ball* v. *Langles*, 102 U. S., 128; *Smith* v. *Merriam*, 6 Fed. Rep., 713; *Selden* v. *Stockwell Gas Burner Co.*, 9 Fed. Rep., 390; *Giant Powder Co.* v. *Safety Nitro Powder Co.*, 19 Fed. Rep., 509; *Philadelphia & Trenton R. R. Co.* v. *Stimpson*, 14 Peters, 448; *Wilder* v. *McCormick*, 2 Blatch., 31.)

Demurrer overruled.

U. S. Circuit Court—Western District of Pennsylvania.

INNIS *v.* THE OIL CITY BOILER WORKS.

Decided January 29, 1885.

PUBLIC USE.

In case of a sale and public use of a machine subsequently patented, such sale and use being more than two years before the date of the application, it being shown that such sale was for experimental purposes, then upon the question of the reasonableness of the use in point of duration every presumption should be made in favor of the inventor.

Mr. James C. Boyce for the complainant.

Mr. Geo. H. Christy and *Mr. J. K. Hallock* for the defendants.

ACHESON, J.:

Doubtless a single sale by an inventor in the ordinary course of business of a machine embodying his completed invention more than two years before his appilcation for a patent will defeat his right thereto and may be shown in bar of a suit for infringement; and it may well be that such consequence will not be averted by the mere condition in the contract of sale that the purchaser shall have the right to return the machine and take back the price should it fail to work satisfactorily. *Henry* v. *The Francestown Soapstone Stove Company*, 17 O. G., 569. But the proofs here show that the one sale relied on to support the plea was not only characterized by that condition, but was otherwise exceptional. It was made at an under price and without profit to the seller. Moreover, I am persuaded that the sale was made for the purpose of securing a fair test of the invention.

The plaintiff's improved engine was designed especially for drilling and operating oil-wells. The one he sold to Rosenfield & Guyer was the first of the kind he had built, and the only one up to that time. "Running light"—doing no work—at his shop, it was apparently a success; but it could not be satisfactorily tested there. Experienced machinists and oil producers who there examined it were doubtful of its practical working in drilling, and they expressed the opinion that the piston-valve would soon work loose (resulting in a leak of steam and loss of power) by the cutting and wearing away of the valve and valve-bore; and so firmly convinced of this defect were they that they would not give the engine a trial, even at the plaintiff's expense. The objection went to the practical efficiency of the engine to perform the service for which it was mainly designed. Now, obviously, the only way to determine whether or not the objection was well founded was to put the engine to work at an oil-well and keep it at work there a sufficient length of time. Mr. Hamor, a member of the purchasing firm, was an expert in sinking oil-wells and in the care of machinery, and it was one of the terms of sale that he would give his personal attention to the running of the engine and thoroughly try it at the well, and report to the plaintiff if he found anything wrong with it. To secure such thorough trial was the principal inducement with the plaintiff to make the sale. Upon the whole evidence it is plain that the transaction was altogether experimental. Therefore the invention was not "in public use or on sale" within the meaning of the statute. *Birdsall* v. *McDonald*, 1 B. & A., 165; *Elizabeth* v. *Pavement Company*, 97 U. S., 126; *Campbell* v. *The Mayor, etc.*, 9 Fed. R., 503; *Graham* v. *Geneva Lake Mfg. Co.*, 11 Fed. R., 138; *Graham* v. *McCormick*, Ibid 859. Nor am I prepared, under the proofs, to accept the view that the trial was unreasonably prolonged. The inventor swears that he regarded a year's actual use as necessary to obviate the objection that had been raised to his invention. The sequel shows that he was right, for even after more than a year's use of the engine at Rosenfield & Guyer's well he experienced great difficulty in effecting other sales on account of a lack of confidence among oil operators in the durability of the engine. The fact that at the end of about ten months he began patterns for the engines he built in the fall of 1875 is a circumstance too equivocal to justify the conclusion that the success of the engine was then fully assured, even in his mind. It being once shown that the use was experimental, then upon the question of its reasonableness in point of duration every presumption should be made in favor of the inventor.

The plea must be overruled, and it is so ordered.

THE

OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

VOL. 30—No. 11. TUESDAY, MARCH 17, 1885. PRICE—$5 per year.

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The Official Gazette.

The OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months Terms: To all subscribers within the United States and Canada $5 per annum; to foreign subscribers, $7; single copies, 10 cents, bound semi-annual volumes, (prior to June 30, 1883,) full sheep $4 per volume; bound quarterly volumes, (subsequent to July 1 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissione of Patents, Washington, D. C."

Indexes to Patents on Electricity.

Appendix No. 2 to the index to patents relating to electricity covering the period of time from July 1, 1882, to June 30, 1883, ha been issued, and is now for sale. These indexes, arranged alphabetically, numerically, and by classes, are completed to June 30, 1883, and comprise the following volumes:

Vol. 1. Index to patents relating to electricity granted by the United States prior to June 30, 1881, with an appendix, July 1, 1881, to June 30, 1882. One volume, 250 pages. In paper covers, $3; bound, $5.

Vol. 2. Appendix No. 2, July 1, 1882, to June 30, 1883. One volume, 50 pages. In paper covers, $1.50.

BENJ. BUTTERWORTH,
Commissioner.

Issue of March 17, 1885.

Patents	373	No. 313 843 to No. 314,215, inclusive.
Designs	14	No. 15,967 to No. 15,980, inclusive.
Trade-Marks	17	No. 12,015 to No. 12,031, inclusive.
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Reissues	2	No. 10,572 to No. 10,573, inclusive.
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Florida	1	.....	Pennsylvania	32	2
Georgia	4	.....	Rhode Island	4	.....
Idaho Territory	.....	.....	South Carolina	1	.....
Illinois	38	1	Tennessee	6	.....
Indiana	11	.....	Texas	4	.....
Indian Territory	.....	.....	Utah Territory	.....	.....
Iowa	5	.....	Vermont	.....	.....
Kansas	4	.....	Virginia	2	.....
Kentucky	1	.....	Washington Territ'y	.....	.....
Louisiana	2	.....	West Virginia	.....	.....
Maine	.....	.....	Wisconsin	7	.....
Maryland	5	2	Wyoming Territory	.....	.....
Massachusetts	27	5	United States Army	.....	.....
Michigan	14	3	United States Navy	.....	.....
Minnesota	1	.....			
Mississippi	2	1	Total to citizens of the United States	357	26
Missouri	28	.....			
Montana Territory	.....	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Australia	.....	.....	Germany	3	.....
Austria-Hungary	2	.....	Holland	.....	.....
Barbadoes	.....	.....	Ireland	.....	.....
Belgium	.....	.....	Mexico	.....	.....
Bermuda	.....	.....	Norway	.....	.....
Brazil	.....	.....	Russia	.....	.....
Canada	8	.....	Scotland	.....	.....
Central America	.....	.....	Spain	.....	.....
Colombia, U. S. of	.....	.....	Sweden	.....	.....
Cuba	.....	.....	Switzerland	.....	.....
Denmark	.....	.....			
Ecuador	.....	.....	Total to citizens of foreign countries	30	.....
England	11	.....			
France	6	.....			

DESIGNS.

15,967.—CARPET.—*Edward D. Chandler*, Cambridge, Mass. Application filed January 29, 1885. Term of patent 3½ years.

15,968 to 15,971, inclusive.—CARPET.—*James L. Folsom*, Brooklyn, N. Y., assignor to *The Hartford Carpet Company*, Hartford, Conn. Applications filed January 26, 1885. Term of patents 3½ years.

15,972.—GLASS SHEET OR PANE.—*Louis Heidt*, Brooklyn, N. Y. Application filed October 16, 1884. Term of patent 3½ years.

15,973 to 15,975, inclusive.—CARPET.—*Otto Heinigke*, New Utrecht, N. Y., assignor to *The Hartford Carpet Company*, Hartford, Conn. Applications filed January 14, 1885. Term of patents 3½ years.

15,976.—CLOCK-CASE.—*Alexander S. Locke*, New York, N. Y., assignor to *The New Haven Clock Company*, New Haven, Conn. Application filed February 16, 1885. Term of patent 7 years.

15,977 and 15,978.—CARPET.—*William McCallum*, Yonkers, N. Y., assignor to *Bigelow Carpet Company*, Clinton, Mass. Applications filed February 7, 1885. Term of patents 3½ years.

15,979.—BLUING-STRAINER.—*John C. Nobles*, Atlantic Highlands, N. J. Application filed February 7, 1885. Term of patent 7 years.

15,980.—RUG.—*William T. Smith*, Philadelphia, Pa. Application filed December 4, 1884. Term of patent 3½ years.

TRADE-MARKS.

[Certificates of registration of Trade-Marks numbered 8,191 and upward are registered under the act of March 3, 1881.]

12,015.—OILED CLOTHING.—*Adler Bros. & Co.*, Baltimore, Md. Application filed February 5, 1885.

"The words 'SAILING VESSEL.'"

12,016.—SADDLE-BLANKETS, FLY-NETS, HORSE-SHEETS, LAP-ROBES, AND LAP-DUSTERS.—*William Ayres & Sons*, Philadelphia, Pa. Application filed February 12, 1885.

"A monogram consisting of the figure '5' and the letter 'A' on a black ground in a red field."

12,017.—PLUG-TOBACCO.—*Bostic Bros. & Wright*, Shelby, N. C. Application filed January 29, 1885.

"The words 'OLD JACK NANCE.'"

12,018.—DRESS-SHIELDS.—*The Canfield Rubber Company*, Middletown, Conn. Application filed January 12, 1885.

"The figure of a lady with arms raised, showing the dress soiled beneath the arm; and the figure of a lady with arms raised, showing the dress unsoiled beneath the arm."

12,019.—MEDICINE FOR CHOLERA, DIARRHEA, COLIC, AND LIKE DISEASES.—*Charles R. Harrington*, Norwich, Conn. Application filed February 10, 1885.

"The letters 'E. C. V. C.'"

12,020.—WASHES, WHITE OR COLORED, FOR USE ON WALLS, FENCES, &c.—*Albert A. Hasson*, Baltimore, Md. Application filed February 19, 1885.

"The word-symbol 'PLASTIC.'"

12,021.—WHEAT-FLOUR.—*H. A. Hayden*, Jackson, Mich. Application filed January 17, 1885.

"The word 'AMBROSIAL.'"

12,022.—WHEELED VEHICLES FOR CARRYING PASSENGERS.—*Peter Herdic*, Williamsport, Pa. Application filed February 12, 1885.

"The word-symbol 'HERDIC.'"

12,023.—HAIR-DYE.—*Marie Louise Kellogg*, New York, N. Y. Application filed February 9, 1885.

"The picture of a shield surmounted by a crown, and with the words 'SANS DISSIMULATION' written across the face of the shield."

12,024.—WASHING-LIQUID.—*Louis Kuhlmann & Bro.*, Brooklyn, N. Y. Application filed February 19, 1885.

"The words 'GOLDEN STAR.'"

12,025.—SILICA CLEANING AND POLISHING PREPARATIONS.—*Plymouth Silica Company*, Plymouth and Chiltonville, Mass. Application filed February 9, 1885.

"The words 'I POLISHED UP THE HANDLE OF THE BIG FRONT DOOR' and the representation of a door-knob."

12,026.—MEDICINE FOR CERTAIN NAMED DISEASES, TO BE USED EXTERNALLY OR INTERNALLY.—*Columbus A. M. Pulliam*, Okolona, Miss. Application filed November 11, 1884.

"The words 'SPANISH LIGHTNING RELIEF,' in connection with the picture or representation of a stag."

12,027.—VARNISHES OF ALL KINDS.—*John A. Shephard*, Wooster, Ohio. Application filed February 2, 1885.

"A pictorial representation of the head of a horse in connection with a horseshoe."

12,028.—BUTTER.—*John Thallon*, Brooklyn, N. Y. Application filed February 9, 1885.

"The words 'SOLID GOLD.'"

12,029.—VALVES AND HYDRANTS.—*Chapman Valve Manufacturing Company*, Indian Orchard and Boston, Mass. Application filed February 16, 1885.

"The letters 'C V' in monogram."

12,030.—FLUID EXTRACT TARAXICUM, OLIVE-OIL, TINCTURE OF LAUDANUM, AND INSECT-POWDERS.—*Weimann & Muellenbach*, New York, N. Y. Application filed November 20, 1884.

"The representation of a bee and a crown."

12,031.—PAPER BAGS.—*The Western Paper Bag Company*, Batavia, Ill. Application filed January 12, 1885.

"The words and letters 'WESTERN CHALLENGE W. P. B. CO.'"

LABELS.

4,380.—Title: "NOVELTY POP CORN WORKS" (FOR POP CORN.)—*Charles A. Andrews*, Lynn, Mass. Application filed February 24, 1885.

4,381.—Title: "THE 8 SHILLING COILED SPRING HEALTH PRESERVING CORSET."—*Detroit Knitting & Corset Works*, Detroit, Mich. Application filed February 20, 1885.

4,382.—Title: "DR. SCHILLING'S HEALTH PRESERVING CORSET."—*Detroit Knitting & Corset Works*, Detroit, Mich. Application filed February 20, 1885.

4,383.—Title: "GALLAGHER'S LIQUID POLISH" (FOR STOVES.)—*Peter Gallagher*, Randolph, Mass. Application filed February 24, 1885.

4,384.—Title: "EATON'S CELEBRATED VEGETABLE CORDIAL."—*Charles R. Harrington*, Norwich, Conn. Application filed February 10, 1885.

4,385.—Title: "STANDARD QUALITY" (FOR COTTON GOODS.)—*Rhode Island Lining Manufacturing Company*, New York, N. Y. Application filed February 19, 1885.

4,386.—Title: "CORSET FINISH" (FOR SILESIAS AND UMBRELLA CLOTHS.)—*Rhode Island Lining Manufacturing Company*, New York, N. Y. Application filed February 19, 1885.

4,387.—Title: "RICE'S NO RUBBING WASHING FLUID."—*William A. Rice*, Boston, Mass. Application filed February 20, 1885.

4,388.—Title: "CEREAL ACID PHOSPHATES."—*Martin Kalbfleisch's Sons*, New York, N. Y. Application filed February 18, 1885.

DISCLAIMERS.

128,925.—*Charles Asa Taylor*, Chicago, Ill. Patent dated July 9, 1872. IMPROVEMENT IN TRUNKS. Disclaimer filed March 7, 1885, by the present assignee, *A. A. L. Smith*, Milwaukee, Wis.

Enters his disclaimer to that part of the claims in said specification which is in the following words, to wit:

"1. The yielding roller for trunks, consisting of the socket having the flat spring mounted therein and provided with the roller in its end, when constructed and arranged as described, so that it may be applied entirely to the outside of a trunk, as set forth.

"2. The offset slotted plate L, applied to the outside of the body, in combination with the locking-brace M, pivoted to the top, and arranged to fold down inside of the plate, as described.

"4. The spring-arm P, secured to the end of the body, in combination with the plate or catch Q on the tray, when arranged as described, for the purpose of holding the tray up."

No. 5,174, (Reissue.)—*Balthasar Kreischer*, New York, N. Y. Originally patented March 21, 1871. Reissued December 3, 1872. IMPROVEMENT IN HOLLOW-TILE FLOORINGS. Disclaimer filed March 12, 1885, by William J. Fryer, Jr., the present assignee.

Enters his disclaimer to any intention whatever of claiming as new and original a hollow-tile flat arch in combination with a flooring material of cement when the space above the arch-tiles is filled with cement and no sleepers and wooden flooring are used, and he hereby enters his disclaimer to any and all parts of the claims in said specification which claim or seem to claim a hollow-tile flat arch in combination with a flooring material of cement when the space above is filled with cement and no flooring or sleepers are used, but limits his claims to sectional hollow tiles placed between supporting beams or girders combined with wooden flooring and with wooden floor beams or joists or sleepers which rest directly upon the tile of the arch, substantially as described in the specification of said letters patent.

PATENTS

GRANTED MAR. 17, 1885.

313,843. COMBINED RAKE AND PITCHFORK. ASA ALDERMAN, Calvary, Ga. Filed Oct. 22, 1884. (No model.)



Claim.—1. The combination, in a convertible rake and fork, of a handle-rod having a projecting arm provided at its end with a transverse bearing-eye, and with the opening b^2 extending therefrom, a rake-head passing through said eye and bearing therein, and provided with the notches c^1, registering with the opening b^2, and a lever fulcrumed upon the under side of the handle, and having a point, d, passing through the opening b^2, and adapted to engage said notches, substantially as and for the purpose set forth.

2. The combination, in a convertible rake and fork, of a rod or handle, a rake-head having a transverse bearing at the end thereof and provided with the notches, an opening, b^2, being arranged to extend from the bearing, and the lock-lever fulcrumed upon the rod or handle, and comprising a point, d, entering the opening b^2, and a bowed spring portion, d^2, extending longitudinally of the handle-rod, and adapted to be compressed by the hand grasping the rod to disengage its point d, substantially as set forth.

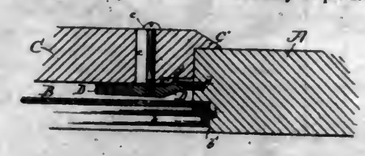
3. The combination, in a convertible rake and fork, of the handle-rod, the two-part separable bearing-arm formed with the transverse bearing-eye at its end, an adjustable rake-head received by said eye, the clamping-bolt passed through the sections of the arm in rear of the bearing to secure the rake-head therein, and a lever fulcrumed upon one section of the arm, substantially as set forth.

313,844. COMBINED SCREEN AND STORM DOOR. CHARLES ANDERSON, Downer's Grove, Ill., assignor to himself and Eugene W. Farrar, same place. Filed Jan. 2, 1885. (No model.)

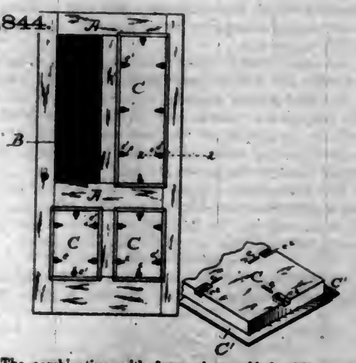
Brief.—The door-frame has its panel-openings provided with screens and removable panels secured to the frame by sliding clamps, which fit in mortises in said frame and clamp the panels, and are tightened by screws inserted through slots in the panels.

Claim.—1. The combined screen and storm door consisting of the door-frame A, screens B, and removable panels C, provided with sliding clamps D, for removably securing said panels in place, substantially as specified.

2. The combination, with door-frame A, provided with mortises d, of wire screens B, removable panels C, provided with slots c, and sliding clamps D, provided with screws c', substantially as specified.



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3. The combination, with frame A, provided with mortises d, of removable panels C, provided with slots c, recesses c^3, and shoulders C', and clamps D, provided with shoulders or bends d'', fitting in recesses c^3, and screw c', substantially as specified.

4. The combination, with door-frame A, provided with shoulder b and mortises d, of screens B, moldings b', for securing said screens in place, removable panels C, provided with shoulders C', slots c, and recesses c^3, and sliding clamps D, fitting in said recesses and engaging said mortises, and provided with screws c', substantially as specified.

313,845. BATHING-GARMENT. SIGMUND ABRNER, New York, N. Y. Filed July 3, 1884. (No model.)

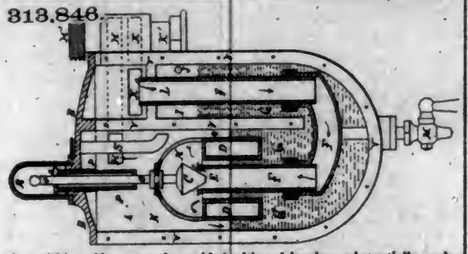


Claim.—The combination of garment A with pocket a, bag d, tube e, and ring f, substantially as specified.

313,846. GAS-PRESSURE REGULATOR. JOHN D. AVERILL, Brooklyn, assignor of two-thirds to Sumner T. Dunham, New York, N. Y. Filed Oct. 14, 1884. (No model.)

Claim.—1. In a pressure-regulating governor, the combination of the two-compartment or siphon case containing a fluid with a siphon gas-

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pipe within said case, and provided with a drip-pipe, substantially as described.

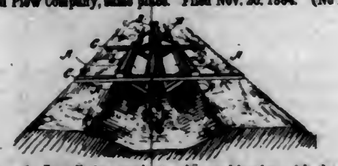
2. In a pressure-regulating governor, the combination of the two-compartment or siphon case containing a fluid with a siphon gas-pipe within said case and a float-valve for regulating the outlet of said pipe, substantially as described.

3. In a fluid-pressure regulator, the combination of the valve-rod provided with a stud with the slotted guide, substantially as shown.

4. In a fluid-pressure regulator, the combination of the two-compartment or siphon case containing a fluid, the outer one of which connects with the atmosphere and the inner one with the delivery-pipe, with a siphon gas-pipe within said case, the drip-cock, float, and valve, substantially as and for the purpose set forth.

5. In a fluid-pressure regulator, the combination of the two-compartment or siphon case containing a fluid with a siphon gas-pipe within said case, the drip-cock, the float, the valve, and rod, the guide, and the two caps, substantially as and for the purpose described.

313,847. CULTIVATOR. JOSEPH P. BLACK, Alton, Ill., assignor to Hapgood Plow Company, same place. Filed Nov. 20, 1884. (No model.)



Claim.—1. In a listing-cultivator, in combination with the center and side beams, two swinging plank swinging inwardly, provided with blades or teeth and a hinged joint connection to the side bars of the frame, in combination with the adjusting-lever connected with and adapted to swing said plank, substantially as and for the purpose set forth.

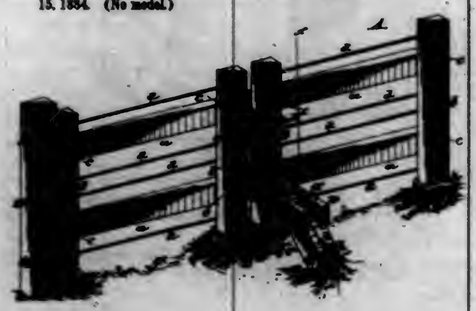
2. In a listing-cultivator, two swinging plank swinging inwardly and downwardly from the outside beams provided with blades or teeth and a hinged joint and adapted to be used as sled-runners on which to transport the machine, in combination with a lever adapted to swing said plank, substantially as and for the purpose set forth.

3. In a listing-cultivator, two swinging plank swinging inwardly provided with blades or teeth, a hinged joint connecting to the side bars of the frame, said plank adapted to be swung upward to elevate said blades or teeth above the ground, in combination with a lever adapted to swing said plank, substantially as and for the purpose set forth.

4. In a listing-cultivator, the lever B, provided with the lock, in combination with the frame and the two swinging plank provided with blades or teeth, said lever adapted to swing and adjust said plank, and serving as a handle by which the operator may lift and guide the cultivator, substantially as specified.

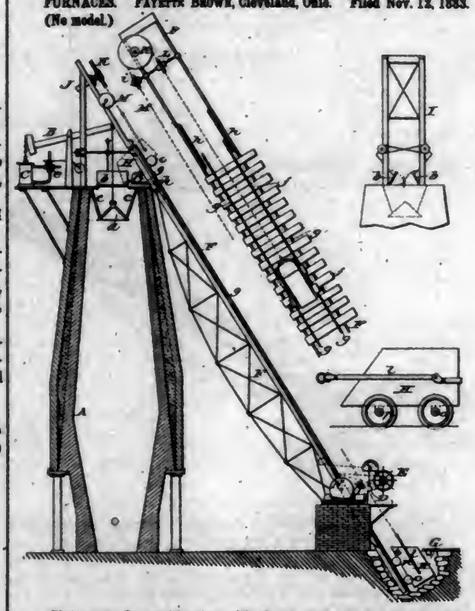
5. The combination of the frame, the two swinging plank A, provided with blades or teeth *a*, hinged joint *c*, lever B, standard S, rods or links *n n*, and draft-rod D, substantially as and for the purpose set forth.

313,848. FENCE. WILLIAM H. BOGGS, Covington, Ohio. Filed Aug. 15, 1884. (No model.)



Claim.—The combination, with the fence-sections and the posts permanently fastened in the ground, of the braces C, secured to the uprights *b* by the draw-bars E, and bolted to the heads of the stakes G, and the braces D, secured against the uprights *b* by the pins E' and shoulder *i*, and having their outer parallel arms connected to the braces C by the pins G', substantially as specified.

313,849. HOISTING AND TOP-FILLING APPARATUS FOR BLAST-FURNACES. PAYETTE BROWN, Cleveland, Ohio. Filed Nov. 12, 1883. (No model.)

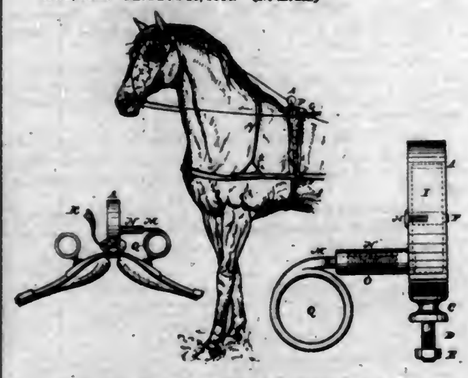


Claim.—1. In combination with the furnace, the hoisting-machine and the two sets of tracks, a car or truck constructed substantially as described—that is to say, with a bail pivoted at the rear end of the truck and extending forward, and two sets of wheels, the hind ones located farther from the body of the truck than the fore wheels, whereby when the car has been hoisted to the furnace-top its rear end may be elevated beyond its forward end and the load thus automatically dumped.

2. In combination with the furnace, the hoisting-machine, and the roadway, a car or truck provided with a bail or handle pivoted at the rear of the truck, as and for the purposes set forth.

3. In combination with the furnace, the hoisting-machine, and the roadway, constructed substantially as described, a car or truck provided with a bail or handle pivoted at its rear, and with two sets of wheels, the rearmost wheels being wider than the foremost, as and for the purposes set forth.

313,850. HARNESS FOR HORSES. JULIUS W. CONRADT, Middletown, Conn. Filed Dec. 18, 1884. (No model.)



Claim.—In a check-rein holder, the combination of the case I, having the socket L, with the dog M, the spring O, and the plate C, provided with the projection N, all substantially as described.

313,851. MAGAZINE FOR FIRE-ARMS. ROSWELL F. COOK, Ilion, N. Y., assignor to E. Remington & Sons, same place. Filed Nov. 15, 1884. (Model.)



Claim.—1. In combination with a cartridge-box, substantially such as shown, the wire spring, B, composed of a series of coils or folds made to conform to the shape of the box transversely, substantially as shown and described.

2. A spring for magazine-boxes, composed of a piece of spring-wire coiled or folded to correspond to the interior of the box and having its terminal or bearing ends arranged at the front, whereby its pressure is brought to bear upon the front portion of the follower, and thus keep the front end of the cartridges elevated, substantially as shown and described.

3. In combination with a cartridge-box, substantially such as shown, the spring B, composed of spring-wire bent or folded into a series of coils or folds, with the front end of each coil or fold overlapping or projecting beyond the one next below it, whereby the ends of said coils or folds are caused to move in a line parallel with the front or inclined end of the box, substantially as shown and described.

313,852. ROOFING FINISHING. LEWIS D. CONTRIGHT, Hyde Park, Ill. Filed July 23, 1884. (No model.)

Brief.—A convertible ridge or valley provided with longitudinal laps or bends for the reception of the roofing material.



Claim.—1. A ridge or valley constructed of metal bent longitudinally at A, B, and C, substantially as described, and for the purpose set forth.

2. A ridge or valley constructed of metal bent longitudinally at A, B, and C, and provided with strip D, substantially as described, and for the purpose set forth.

3. A ridge or valley provided with longitudinal laps or bends for the reception of the roofing material, whereby it is adapted to be placed in position on the roof of the building before the roofing material is applied, substantially as described.

4. A ridge or valley provided with longitudinal laps or bends for the reception of the roofing material, whereby such material will cover one portion of the ridge or valley and in turn be covered by another portion of the ridge or valley, substantially as described.

5. A ridge or valley provided with longitudinal laps or bends for the reception of the roofing material, constructed substantially as described, whereby it is made convertible from one into the other, substantially as described.

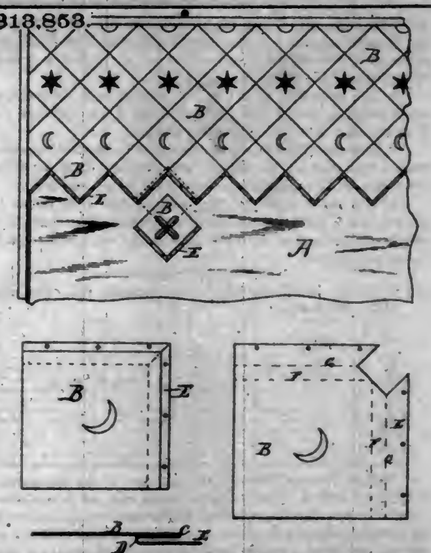
313,858. ROOFING FOR BUILDINGS. LEWIS D. CONTRIGHT, Hyde Park, Ill. Filed Sept. 15, 1884. (No model.)

Brief.—The roofing-plates have a pentangular piece cut from one corner. Two of the adjacent edges of each plate are folded inwardly and then outwardly to a point, and the other two are straight. The plates laid in series have the straight edges inserted in the bends or laps of the folded edges, the corresponding folded edges of the several plates lying in lines parallel to each other. The first row of plates is laid at the comb of the roof, and so on.

Claim.—1. A metallic roofing-plate or shingle-blank having a pentangular piece cut from one of its corners and the side approaching such corner thereby pointed, whereby the sides of the space may be folded to each other in the completed shingle, substantially as described.

2. A metallic roofing plate or shingle having two of its sides approaching one of its corners bent or folded inwardly and then outwardly to a point, and two of its sides approaching the diagonally-opposite corner straight or unfolded, whereby in laying the roof the straight or unfolded edges may be inserted in the bent or folded edges of its fellows, substantially as described.

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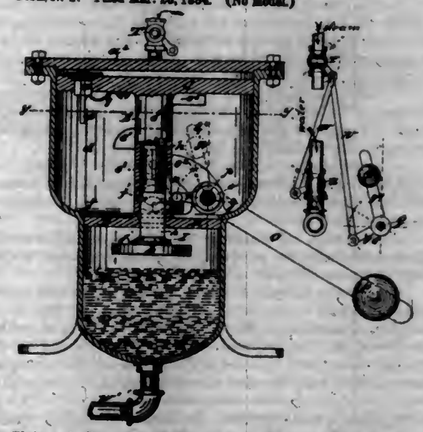
3. A metallic roofing plate or shingle having two of its contiguous sides or edges bent or folded inwardly and then outwardly to a point, both the folds being on the under side of the shingle, and two of its contiguous sides or edges straight or unfolded, whereby in laying the roof the bent or folded edges will overlap and cover the straight or unfolded edges of adjoining shingles, substantially as described.

4. A roof for buildings consisting of a series of metallic plates, each provided with laps or folds, as described, on its two sides or edges extending from a point at the lowest corner, and with straight or unfolded edges on its two sides extending from the highest corner, whereby the upper and unfolded edges are inserted into the bends or laps in the lower and folded edges of the plates forming the next upper series, substantially as described.

5. A roof for buildings consisting of a series of metallic plates, each provided with laps or folds, as described, on two of its sides or edges adjacent to each other, and with straight or unfolded edges on two of its sides, also adjacent to each other, the corresponding folded edges of the several plates lying in lines parallel to each other, whereby the said unfolded edges are inserted into the bends or laps in the folded edges of its fellows, substantially as described.

6. A roof for buildings consisting of a series of interlocking or interlapping plates in which the first row of plates is laid at the comb or apex of the building and each successive row farther down, substantially as described, and for the purpose set forth.

313,854. STEAM FEED-WATER TRAP. HENRY CREAMER, New York, N. Y. Filed Mar. 28, 1884. (No model.)



Claim.—1. In a steam feed-water trap, the combination of the pistons C and D, joined together by hollow tube E, which is provided with openings *f'*, with the water-cylinder B, the steam-cylinder A, joined as shown, and the valve *a*, substantially as and for the purpose set forth.
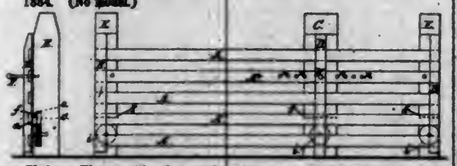
2. In a steam feed-water trap, the combination of the pistons C and D, joined together by hollow tube E, with the lever O, weight P, hollow shaft *p*, short arm o^2, roller o', arm *e*, and cylinders A and B, substantially as and for the purpose set forth.

3. In a steam feed-water trap, the combination of the float *k* with arm *r*, weight *g*, stem *h*, tube E, valves U and T, and cylinders A and B, substantially as and for the purpose set forth.

4. In a steam feed-water trap constructed as described, the exhaust-valve *a*, with stem *e*, in combination with the piston C, spring *c'*, ledge *f*, and cylinder B, substantially as and for the purpose set forth.

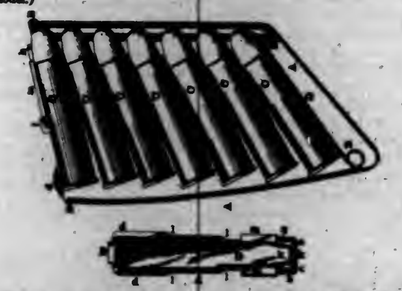
5. In a steam feed-water trap, the cylinders A B, pistons C D, valve *a*, float *k*, valve I, arms $r\ o^2\ g^2$, with weight g^3, lever-arm O, with weight *p*, arms *v w*, and valves T U, all arranged substantially as and for the purpose set forth.

313,855. GATE. RICHARD I. DAVIS, Sandusky, Tex. Filed May 12, 1884. (No model.)



Claim.—The combination, with a gate, one of the rails whereof is about thrice as thick as the remainder of said rails, and is provided with a central groove along its upper face, of three supporting-posts, each having a recess furnished with a roller in its lower part, upon which the aforesaid rail may travel, a tongue projecting from the upper edge of said recess into the groove of said rail, and an upright attached to the central post, so as to form a guide retaining the gate in an erect position, substantially as described.

313,856. MAGAZINE FOR FIRE-ARMS. LOUIS P. DIEH, Ilion, N. Y., assignor to E. Remington & Sons, same place. Filed May 9, 1884. (No model.)



Claim.—1. A cartridge box or magazine, A, provided with the coiled springs B B, secured to the box at its opposite ends, for the purpose of feeding the cartridges out sidewise, substantially as described.

2. The cartridge box or magazine A, provided with the internal vertical ribs, *n*, in combination with a follower, D, provided with laterally-projecting ears *k*, arranged in front of said ribs, whereby the follower is prevented from sliding backward when its rear end is depressed, as set forth.

3. In combination, the box A, provided with the inwardly-projecting lips *e* at its front end, and the follower D, having its front end arranged to engage under said lips when elevated, for the purpose of preventing the follower from being forced out of the box.

4. In combination with the box A, the retainer *h*, mounted in the longitudinal tubes or eyes *m*, and provided with the locking-shoulder *i*, said device being constructed and arranged to operate substantially as shown and described.

5. A cartridge box or magazine, A, having its top and bottom both left open, and having the bottom edges of its side walls turned inward to form flanges *o*, substantially as shown and described.

6. In combination with a cartridge-box substantially such as shown, a spring-sustained follower, D, of slightly greater length than the interior space of the box on a horizontal line from its front to its rear wall, the forward end of said follower being elevated above its rear end when inserted, whereby the front end of the follower and the cartridges are prevented from being depressed below their rear ends, as set forth.

313,857. BOX-FASTENER. SOLA B. DUNN, Chicago, Ill. Filed Jan. 5, 1885. (No model.)

Claim.—As a new manufacture, the box for toys, paints, &c., closed by a sliding cover and provided with a shouldered spring secured to the under side of the cover and adapted to engage with the end of the box, the spring projecting to the outside, so it may be released, substantially as specified.



313,858. STOVE-PIPE ELBOW. THOMAS S. EVANS and EDWIN H. BISSETT, Winnipeg, Manitoba, Canada. Filed Sept. 20, 1884. (No model.)



Claim.—A sheet-metal elbow crimped on the inside, having the surplus metal of the crimps distributed on both sides of the seam and flattened over the joint, as set forth.

313,859. BLIND-TENON. JOHN FORHAN, New York, N. Y. Filed Oct. 11, 1884. (No model.)

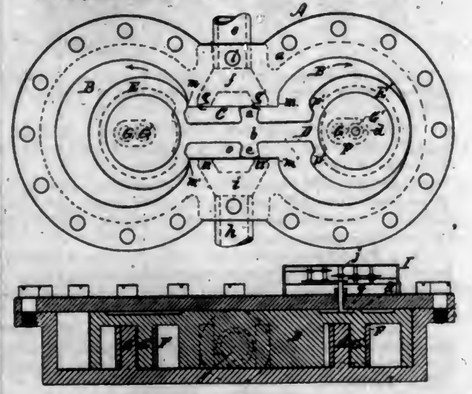
Brief.—A blank composed of a supporting-plate is provided with wings severed from said plate at their side edges inward and adapted to be formed into a blind-tenon.



Claim.—1. A sheet-metal blank composed of the supporting-plate *a*, provided with the wings *a' a'*, severed from the said plate *a* from their side edges inward for a portion of their width and adapted to be formed into a blind-tenon, as and for the purpose specified.

2. As a new article of manufacture, a blind-tenon composed of the supporting-plate *a* and wings *a' a'*, formed of a single piece of sheet metal, as described, and for the purpose specified.

313,860. LIQUID-METER. HARVEY F. GASKILL, Lockport, N. Y. Filed Sept. 1, 1884. (No model.)



Claim.—1. In a liquid-meter, the combination of a casing provided with supply and discharge ports, and having two or more similar cylindrically-curved interior surfaces, and a piston having two or more similar curved surfaces capable of moving in tangential contact in a plane at right angles to the axes of the cylinders with the curved surfaces of the casing, for forming alternately enlarged and contracted chambers for receiving and discharging liquids in uniformly-measured quantities, as herein specified.

2. In a liquid-meter, the combination, with a casing provided with supply and discharge ports, and having two connected cylindrical chambers, of a piston formed of two cylindrical ends, said ends moving in tangential contact with the curved surface of the casing in a plane at right angles to the axes of the cylinders, and a bar connecting the said ends and provided with lateral projections adapted to stop the passage connecting the two cylindrical chambers, as herein specified.

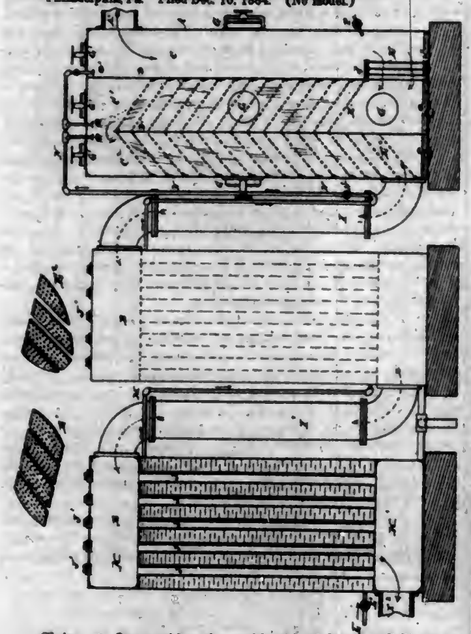
3. In a liquid-meter, the combination of the casing A, having cylindrical chambers B B', connected by the passage C, and provided with supply and discharge ports and studs G, the piston D, formed of cylindrical ends E E', connecting-bar *b*, and projections *c c*, and the studs G', substantially as specified.

4. The combination, with the piston D, having chambered cylindrical ends E E' and studs G', and the casing A, having cylindrical chambers B B', provided with studs G, of links for connecting the said studs G' and G, as herein specified.

5. The combination, with a casing containing a piston with cylindrical ends capable of turning in opposite directions, of registering mechanism, and means for communicating motion thereto from one of the cylindrical ends of the piston, as specified.

3. In a liquid-meter, the combination, with the casing A, having supply-ports $g^3\ g^3$ in the plane side thereof and in the path of the piston, of the piston D, having passages $f'\ f^3$, and capable of covering and uncovering the supply-ports $g^3\ g^3$ in alternation, as herein specified.

313,861. APPARATUS FOR PURIFYING GAS. ARTHUR O. GRANGER, Philadelphia, Pa. Filed Dec. 10, 1884. (No model.)



Claim.—1. Two-speed-gear mechanism for tricycles, consisting in the combination, with a sprocket-wheel and a driven gear, each being loosely mounted upon the crank-shaft of the vehicle, of an internal gear secured to the said shaft, pinions secured to the sprocket-wheel and meshing with the driven and internal gears, and means for connecting and disconnecting the sprocket-wheel and the driven gear and for sustaining the latter in a fixed position, substantially as described.

2. Two-speed-gear mechanism for tricycles, consisting in the combination, with a sprocket-wheel and a driven gear, each being loosely mounted upon the crank-shaft of the vehicle, of an internal gear secured to the said shaft, pinions secured to the sprocket-wheel and meshing with the driven and internal gears, means for connecting and for disconnecting the sprocket-wheel and the driven gear, and an operating-lever for actuating the said disconnecting mechanism and for sustaining the driven gear in a fixed position, substantially as set forth.

3. Two-speed-gear mechanism for tricycles, consisting in the combination, with a sprocket-wheel and a driven gear, each being loosely mounted upon the crank-shaft of the vehicle, of an internal gear secured

Claim.—1. In a scrubber, the combination of chambers C C', screens E and E', substantially as and for the purpose specified.

2. In a scrubber, the combination of chambers C C', screens E and E', and steam-pipe P, substantially as and for the purpose specified.

3. In a scrubber, the combination of chambers C C', screens E and E', and spraying-nozzles O O', substantially as and for the purpose specified.

4. The combination of the condensers, two or more in number, gas-passages from the bottom of one opening into the top of the next, a water-supply pipe to the bottom of the condenser from which the gas finally escapes, and water-overflow pipes connecting the top of the said condenser with the bottom of the next, and so on, whereby the warmest water discharges where the gas enters, and the coldest water enters where the gas escapes, a scrubber provided with spraying-nozzles and connecting-pipes, by which said nozzles receive their supply from the overflow from the condensers, substantially as and for the purpose specified.

5. The combination of shell A, chambers C, C', and C^2, screens E, E', and E^2, nozzles O O', steam-pipe P, inlet A, and outlet I, substantially as and for the purpose specified.

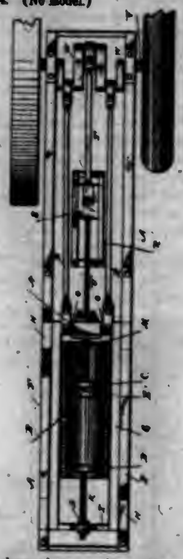
6. A scrubber having perforated plates through which the gas must pass, supported in guides and adapted to be withdrawn for cleansing without opening the scrubber, substantially as and for the purpose specified.

7. A scrubber having perforated plates through which the gas must pass, the said plates being formed in sections of different areas and shapes, so that when placed side by side they shall conform to the curved walls of the scrubber.

8. In a scrubber, the combination of compartments C' and C^2, dividing-wall D', and inclined perforated plates E' and E^2, substantially as and for the purpose specified.

9. In a scrubber, the combination of compartments C C' C^2, dividing-plates D D', inclined perforated plates E' E^2, screens E, water-spraying nozzles O O', inlet A', and outlet I, substantially as and for the purpose specified.

313,862. STEAM-ENGINE. SANFORD I. GUESS, Hazlehurst, Miss. Filed May 28, 1884. (No model.)

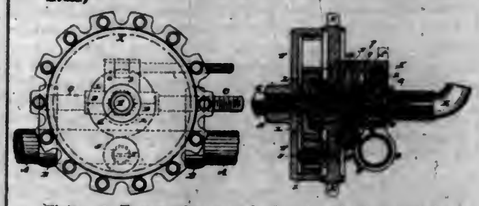


Claim.—1. In a three-piston engine, a frame surrounding the cylinder and sliding in bearings on the bed, its rear end being connected to one of the pistons, the other end containing a packing-box which is connected to one of the pistons by a hollow piston-rod, the third piston operating a rod passing through the hollow piston-rod, substantially as and for the purpose specified.

2. The combination of the frame surrounding the cylinder and having sliding bearings, and the guide placed in front of the said frame, with a cylinder having three pistons, the outer ones being connected, respectively, to the ends of the frame, and the central one having a piston-rod connecting with a cross-head sliding in the guide-frame, the parts operating substantially as and for the purpose specified.

3. The combination, with the cylinder containing three pistons, of the sliding frame surrounding it and connected with the outer pistons, and carrying at one end two pitmen, the guide-frame in front the cylinder carrying a cross-head, which is connected at one end with the central piston and at the other with a pitman, and the shaft having a triple crank to which the three pitmen are connected, the parts connected to operate substantially as and for the purpose specified.

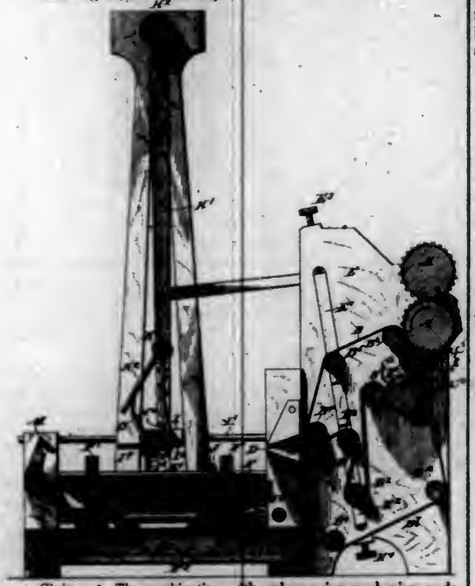
313,863. TRICYCLE. CHARLES F. HADLEY, Chicopee, Mass., assignor to the Overman Wheel Company, same place. Filed Apr. 14, 1884. (No model.)



to the said shaft, pinions secured to the sprocket-wheel and meshing with the driven and internal gears, a disk located upon the hub of the driven gear, a pawl mounted upon the sprocket and arranged to engage with the disk, means for disengaging the pawl from the disk, and an operating-lever for operating the said disengaging mechanism and for sustaining the driven gear in a fixed position, substantially as set forth.

4. Two-speed-gear mechanism for tricycles, consisting in the combination, with the sprocket-wheel and a driven gear, each being loosely mounted upon the crank-shaft of the vehicle, of an internal gear secured to the said shaft, pinions secured to the sprocket-wheel and meshing with the driven and internal gears, a disk located upon the hub of the driven gear, a pawl mounted upon the sprocket and arranged to engage with the disk, the described movable and fixed segments associated with the disk, and an operating-lever for operating and engaging with the said segments, substantially as set forth.

313,864. MECHANISM FOR LAYING OFF SHEETS FROM A PAPER-CUTTER. LUCIUS HARLOW and GUSTAVUS PARKER, Holyoke, Mass. Filed Aug. 26, 1882. (Model.)



Claim.—1. The combination, with web-severing mechanism as described, of a series of guiding-tapes, a guide-chute, a receiving-table mounted upon vertical screws, means, as described, for operating said screws, a gripper-bar constructed to reciprocate over the table, and means substantially as described, for opening and closing the grippers at the end of each reciprocation of the gripper-bar, substantially as shown and described.

2. The combination, with a reciprocating gripper-bar carrying an oscillating gripper-shaft provided with a projecting lever, of a rock-shaft having a depending rod passing through the gripper-bar, and a projecting arm arranged to be operated by the lever of the gripper-shaft, whereby a positive ejectment of the leading end of the sheet from the gripper is secured, substantially as shown and described.

3. The combination of the swinging frame H', the gripper-bar I, the gripper-shaft I², having the arms I⁸ I', the cam M, the pivoted latch J, the connecting-rod H, the lever G⁴, the pawl G', the disk G³, connecting-rod G⁴, the ratchet G, the counter-shaft F⁶, provided with bevel-gears F', the worm-shafts F⁵, provided with bevel-gears F⁶, the gear-screws F', and the table F, substantially as shown and described.

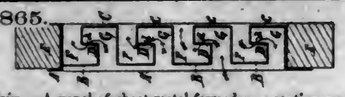
4. The combination of the swinging frame H', the shaft K, having the rods K' K², the gripper-bar I, having the gripper-shaft I², provided with the arms I⁸ I', and the lever L, and the fixed cam M, and pivoted latch J, substantially as shown and described.

5. The combination of the reciprocating gripper-bar I and the bent lever N, pivoted to the frame-work and extended over said bar, and adapted to fall by gravity upon the rear end of the table, substantially as shown and described.

6. The combination of the swinging frame H', the reciprocating gripper-bar I, the gripper-shaft I², having the arms I⁸ I', and the bent lever N, substantially as shown and described.

313,865. VENTILATING-LOUVER. GEORGE HAYES, New York, N. Y. Filed Mar. 29, 1884. (No model.)

313,865.



Claim.—A panel of sheet metal formed as a continuous sheet bent outwardly and inwardly at intervals to constitute a series of double-chambered louvers, one chamber, F, open to the interior of the structure, and the other chamber, G, open to the exterior, and the partition D between said chambers provided with apertures *d* for air-passage, substantially as shown and described.

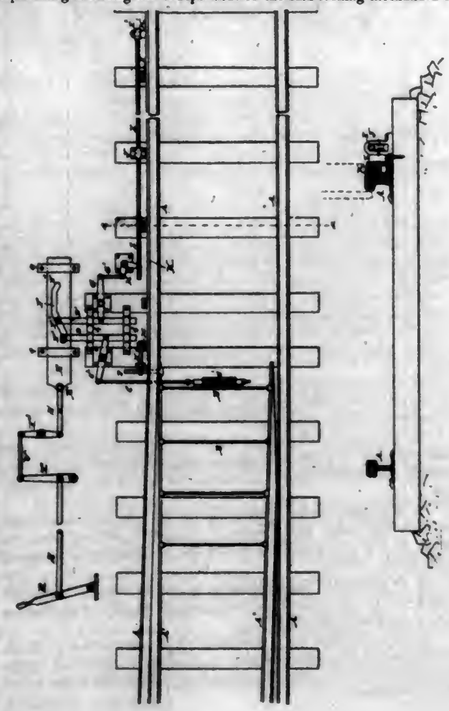
313,866. RAILWAY-SWITCH. JOHN W. HENDERSON, Philadelphia, Pa. Filed Nov. 12, 1883. (No model.)

Brief.—A switch operating and locking device so arranged that when the switch-rail is shifted and locked it cannot be unlocked or shifted while a train is passing over the same. The switch-lever is connected to a cam bar or plate through a series of rods and levers, and the cam bar or plate is connected through a system of rods and levers to both the switch-rod and locking-pin, and is so constructed as to compensate for the contraction and expansion of its connecting parts. A detecting-bar is located parallel with the rail, and is prevented from movement while a train is passing by a cam projection coming in contact with a roller.

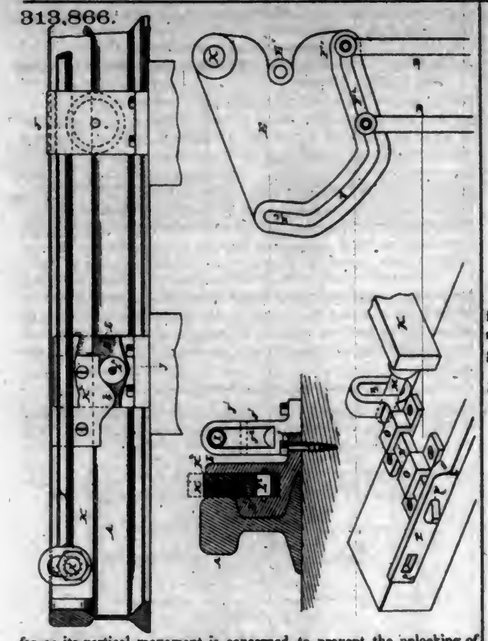
Claim.—1. In a railroad-switch, the combination of a switch proper, locking mechanism to lock said switch in its open or closed positions, a vertically and horizontally reciprocating detecting-bar to prevent opening and closing of said switch during the passage of a train, double cam-plates K³, secured to said detecting-bar, rollers L², journaled in stationary bearings, a cam-plate having an irregularly-shaped slot therein, a single operating-lever, and connecting mechanism by which a single movement of said lever and plate actuates all of said parts, substantially as and for the purpose specified.

2. In a railroad-switch, the combination of the switch proper, locking mechanism loosely connected to the detecting-bar, and actuated therefrom in a manner to follow its horizontal reciprocations, but not its vertical movements, to lock said switch in its open or closed position, a vertically and horizontally moving detecting-bar to prevent the opening or closing of said switch during the passage of a train, and a pivoted plate having an irregularly-shaped cam-slot with a single operating-lever, and connecting mechanism by which a single movement of said lever and plate actuates all of said parts, first unlocking the switch and actuating the detecting-bar, then shifting the switch, and finally locking the same, substantially as and for the purpose specified.

3. A switch for railroads, combined with locking mechanism to lock said switch in its open or closed positions, a vertically-moving and reciprocating detecting-bar independent of the said locking mechanism so



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far as its vertical movement is concerned, to prevent the unlocking of said switch during the passage of a train, the detecting-bar being connected to and arranged to actuate said locking mechanism, a slotted plate, and connecting mechanism to actuate said detecting-bar, substantially as and for the purpose specified.

4. A switch for railroads, in combination with locking mechanism to lock said switch in its open or closed positions, a reciprocating detecting-bar independent of said locking mechanism so far as its vertical movement is concerned, to prevent the shifting of the switch during the passage of a train, and arranged to reciprocate the bolt of the locking mechanism during its reciprocations, a movable plate provided with a single slot, and connecting mechanism by which said slot actuates both the lock and detecting-bar, substantially as and for the purpose specified.

5. The combination of rails A A, switch-rails A' A', detecting-bar K, plate E, having slot F F' F² F³, locking-plate P, secured to rail A', bolt N, actuated by bar K, and connecting levers and bars, substantially as and for the purpose specified.

6. The detecting-bar K, provided with cam-plates K³, in combination with blocks L, rollers L², rails A, and means to move said bar longitudinally, substantially as and for the purpose specified.

7. The detecting-bar K, provided with cam-plates K² and pin K', in combination with blocks L, rollers L², rails A, rod I, supports J, having rollers J², and means to move said rod longitudinally, substantially as and for the purpose specified.

8. The detecting-bar K, provided with pin M, in combination with means to move said bar longitudinally and vertically, bolt N, having slot *s*, rails A A, switch-rails A' A', and locking-plate P, having slots *p' p*, substantially as and for the purpose specified.

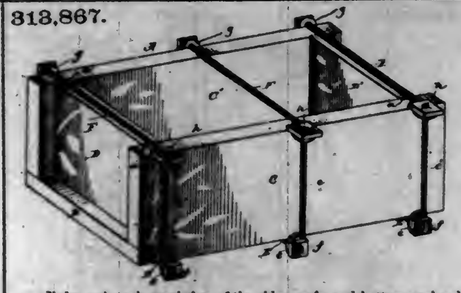
9. In a railroad-switch, the combination of the switch proper, an actuating cam-plate, E, having slot F F' F² F³, and connecting mechanism, with an actuating-rod, S, and its lever, and expansion take-up devices interposed in said rod S, to take up all expansion and allow the line of the rod to remain straight, substantially as shown.

10. The combination of a railroad-switch with an actuating-rod, S, and its lever, and expansion take-up devices consisting of levers T T' and rod U, interposed in said rod S, to take up all expansion and allow the line of the rod to remain straight, substantially as shown.

313,867. TANK. ELIJAH HIMES, Batavia, Ill. Filed Jan. 26, 1885. (No model.)

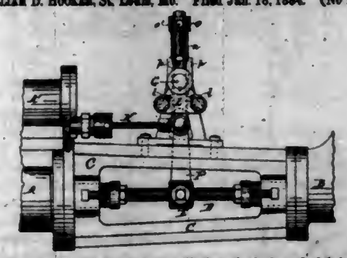


313,867.



Claim.—A tank consisting of the sides, ends, and bottom, and rods for holding the same together, said rods having loops at one end and screw-threaded at the other end, and nuts for securing said rods together, substantially as set forth.

313,868. VALVE-MOVEMENT FOR DIRECT-ACTING ENGINES. WILLIAM D. HOOKER, St. Louis, Mo. Filed Jan. 18, 1884. (No model.)



Claim.—1. The right-angle oscillating shaft G and driving-arm F, pivoted to the piston-rod and passing through said shaft, in combination with the valve-arm J, fitted loosely to the oscillating shaft G and pivoted to the valve-stem, and the arm L, having the dogs *m m*, fastened to and moving with the oscillating shaft, as described, and for the purpose set forth.

2. The combination, with the right-angle oscillating shaft or pin G and driving-arm F, of the valve-arm J, swinging on the oscillating shaft and provided with the extension or projection *s*, the arm L, rigidly secured to the shaft G, and provided with the dogs *m m*, and the stops *p p*, for contact with the projection *s*, to limit the stroke of the valve, as set forth.

3. The combination, with the driving-arm F and oscillating shaft G, through which the driving-arm loosely passes, of the spring *n*, exerting its force to retard and accelerate the movement of the steam-pump at the end and beginning of the strokes, respectively, substantially as set forth.

4. The combination of the oscillating pin or shaft G and means for operating it, with the swinging valve-arm J and rigid arm L, having the adjustable dogs *m*, for contact with the valve-arm, as set forth.

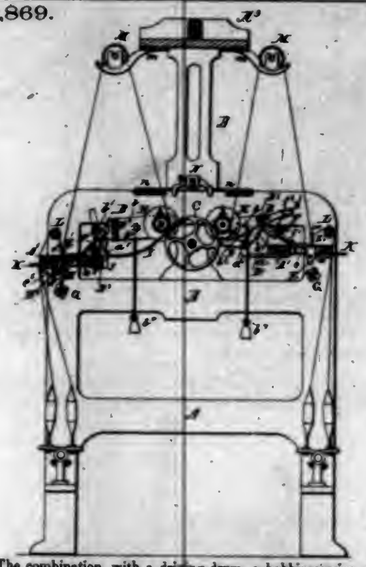
313,869. MACHINE FOR DOUBLING AND WINDING YARN OR THREAD UPON BOBBINS. JOHN HORROCKS and JAMES HORROCKS, Manchester, County of Lancaster, England. Filed Oct. 19, 1883. (No model.) Patented in England July 19, 1881, No. 3,132.

Claim.—1. The combination, with a driving-drum, a bobbin-carrier, a stop to hold the latter with its bobbin in contact with the former, and tripping devices to trip the stop and permit the carrier to move away from the drum, of a support for the bobbin and carrier acting to stop the rotation of the bobbin, and devices to hold the said carrier with its bobbin out of contact with the support and the driving-drum, substantially as and for the purpose specified.

2. The combination, with a driving-drum, a bobbin-carrier, and a stop to hold the latter with its bobbin in contact with the former, of a detector-plate, detector-wires, a rotating shaft to oscillate said plate when a wire drops on the breakage or absence of a thread to trip the stop and permit the bobbin-carrier to move away from the driving-drum when the detector-plate is tilted, a support for the bobbin and carrier operating to stop the rotation of said bobbin, said carrier being constructed to take a position with its bobbin out of contact with the support, substantially as and for the purpose specified.

3. The combination, with a driving-drum, a bobbin-carrier, a stop to hold the latter with its bobbin in contact with the former, and tripping devices to trip the stop and permit the carrier to move away from said drum, of a lever connected with and forming the fulcrum for said carrier, and constructed to support the same and act as a brake for the bobbin when said carrier has moved away from the drum, as described, for the purpose specified.

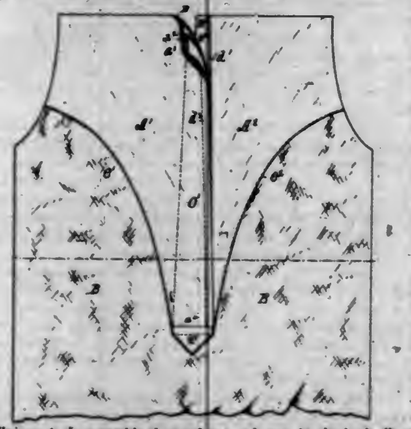
313,869.



4. The combination, with a driving-drum, a bobbin-carrier, a stop to hold the latter with its bobbin in contact with the former, and tripping devices to trip the stop and permit the carrier to move away from the drum, of a brake connected with and forming the fulcrum for said carrier, and means to limit the movement of the carrier and brake in a direction away from the drum, substantially as and for the purpose specified.

5. The combination, with the frame having the arms A^6, provided with semi-cylindrical bearings, of the detector-plate E, having journals e^4 lying in said bearings, and projecting lugs e^5 at each end adapted to engage the under side of the journal-bearings, substantially as described, for the purpose specified.

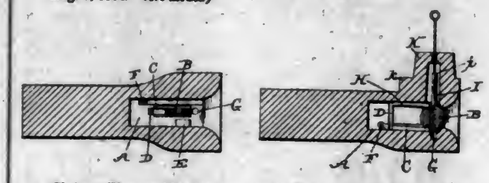
313,870. COMBINED RE-ENFORCE AND STAY FOR THE BACKS OF SHIRTS. JAS. M. IDE, Troy, N. Y., assignor to George P. Ide, Bruce & Co., same place. Filed Apr. 7, 1884. (No model.)



Claim.—1. In a combined re-enforce and stay for the back-slit of shirts, the combination of the re-enforce part A', attached to the shirt-body at c', and cut to overlap one edge of and the bottom of the slit, and attached to the shirt below the latter, the re-enforce part A^2, attached to the shirt-body at c^2, having its vertical edge parallel with the adjacent side of the slit where underlapping said part A', and the strip F, attached to the inner facing of the overlapping part of the re-enforce, and to the outer face of the underlap of the said part A^2 and the shirt beneath the latter, as shown and described.

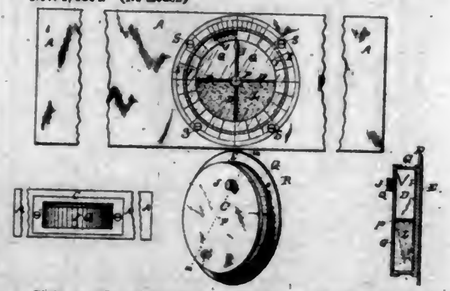
2. In a shirt-back, the combination of the slit M, the overlap O', produced on and by the lateral subversion of the vertical edge of the re-enforce part A', the underlap O^2, produced by the vertical edge of the re-enforce part A^2 and the shirt-body at the edge of the slit beneath said last-named re-enforce part, and the strip F, attached to the inner face of said overlap and the outer face of the underlap and shirt beneath it thereat, as shown and described.

313,871. CAR-COUPLING. WILLIAM F. JULIAN, Medora, Ind. Filed Aug. 7, 1884. (No model.)



Claim.—The combination, in car-coupling mechanism, of a draw-bar having a dome, K, grooves C and H, bolt D, and recess G with the wheel B, the back-stop E, the pawl F, and the coupling-pin I, all in the manner herein described, whereby the coupling of two adjacent cars can be performed from the platform, roof, or side of a car, as hereinbefore set forth.

313,872. CLINOMETER. JEFFERSON KIDDLEBERGER, Los Angeles, Cal., assignor of one-half to Alpheus Walter Scott, same place. Filed Nov. 8, 1884. (No model.)



Claim.—1. In a clinometer, an index or pointer mounted upon a pivot in a circular chamber and having one or more blades connected therewith, and placed in contact with a fluid contained in such chamber, substantially as set forth, whereby the motion of the fluid is made to actuate the pointer to indicate the angle of inclination.

2. A clinometer consisting of the following elements: the graduated annular plate E, the cap G, cap C, pivot P, blades D, graduated circle F, pointer I, and the straight-edge A, all being in combination, substantially as and for the purpose set forth.

3. In a clinometer, a pointer mounted upon a pivot and connected with a blade or blades placed in contact with a fluid, substantially as shown, whereby the motion of the fluid in seeking its level is made to actuate the pointer to indicate the inclination.

4. In a clinometer, a movable graduated plate mounted upon a pivot in a chamber and having blades attached thereto, such blades being in contact with a fluid contained in such chamber, the plate being in combination with a stationary graduated plate and a straight-edge, as shown, whereby the movement of the fluid in seeking its level is made to actuate the movable graduated plate and change its position to indicate the angle of inclination.

5. In a clinometer, substantially as described, a chamber for containing the pointers and their actuating fluid-weight, consisting of the glass cap G and the cap C, with its pivot P and the opening Q, for the purpose set forth.

313,873. COVER FOR FRUIT-BASKETS. JOHN W. LESLIE, Benton Harbor, Mich. Filed Oct. 2, 1884. (No model.)



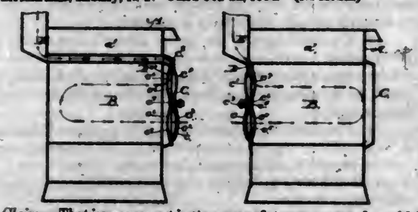
Claim.—1. A cover for fruit-baskets, comprising vertical sides C, bent to conform to the shape of the opening of the basket upon which the said cover is applied, and connected together by one or more cross-pieces, *t*, and means for fastening the said cover upon the said basket, substantially as described.

2. The combination, with a cover for a fruit-basket, comprising bent side pieces, C, connected together by one or more cross-pieces, *t*, of the device for fastening the same to the basket, consisting of wires D, provided with stops *q*, and passed through vertical openings in the side pieces, C, substantially as described.

3. A cover for fruit-baskets, comprising vertical sides C, having transverse scores *s* provided upon one surface, and bent to conform to the opening to the basket upon which the said cover is applied, and connected together by one or more cross-pieces, *t*, and provided with means for fastening the said cover upon the said basket, substantially as described.

4. The combination, with a cover, B, for fruit-baskets, said cover comprising vertical sides C, having transverse scores *s* provided upon one surface, and bent to conform to the opening to the basket upon which the said cover is applied, and connected together by one or more cross-pieces, *t*, of pieces of wire provided with stops *q* on one extremity, and forming the fasteners D, inserted through openings *r* opposite each other in the said side pieces, C, and projecting at their opposite extremities beyond the same, to permit the said projecting portions to be bent around a hoop, *p*, on the basket, as and for the purpose set forth.

313,874. OVEN FOR COOKING STOVES AND RANGES. DENNIS G. LITTLEFIELD, Albany, N. Y. Filed Oct. 22, 1884. (No model.)



Claim.—That improvement in the ovens of stoves, ranges, &c., which consists in providing its door or equivalent vertical plate with a lower air-circulating chamber having air-inlet openings, as herein described, and an upper air-circulating chamber having air-outlet openings, the said air-circulating chambers being formed in said door or plate in a vertical plane one above the other, separated from each other by a horizontal partition, and separated from the oven-space by a perforated or reticulated screen, as herein set forth, the upper air-circulating chamber being connected with the smoke-outlet by means of an auxiliary flue, whereby a stimulated draft is produced, to convey the vitiated air and gases out of the oven-space, as herein specified.

313,875. HEADING FOR BOOK-BINDING. WILLIAM MACDONALD, Boston, Mass. Filed Apr. 24, 1884. (No model.)



Claim.—As an improved article of manufacture, the heading for book-binding, consisting of the fabric A, having the stiffening-strip B inserted within the fold or hem, and the row of elevated stitches E, substantially as described, as and for the purposes set forth.

313,876. REFRIGERATOR-DOOR. GEORGE A. MCARTHUR, Pullman, Ill. Filed Dec. 29, 1884. (No model.)

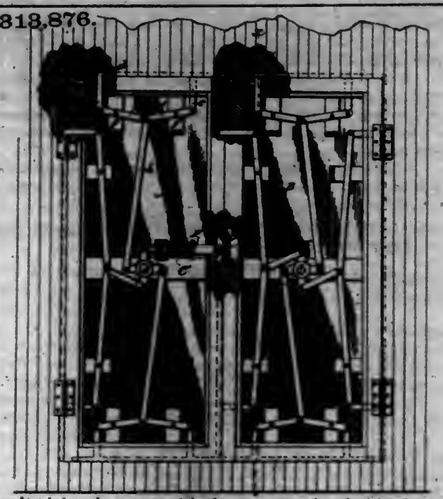
Claim.—1. A refrigerator-door having grooves in its edge and a packing arranged in said grooves, in combination with mechanism, substantially as described, for adjusting said packing, as and for the purpose set forth.

2. A refrigerator-door having grooves in its edges and a packing secured to said door and arranged in the grooved edges thereof, in combination with rods or bars supporting said packing, a rotary head provided with radial arms, and a connection between said head and the rods or bars, substantially as described.

3. The combination, with the door provided with grooves in its edges, the rods *d*, the packing sleeved thereon and secured to the door, of the rotary head and the lever-connections between said head and rod, substantially as described.

4. A refrigerator-door provided with grooves in the edges thereof, and the door-frame provided with opposing grooves, in combination with a packing secured to the door, and means for actuating said packing to

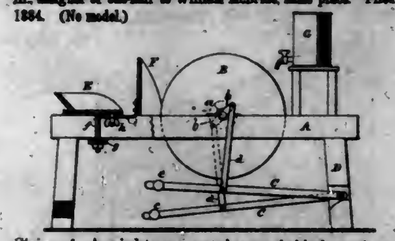
313,876.



project it into the grooves of the frame, so as to close the joints between the frame and door, substantially as described.

5. The combination, with the doors A B, their respective packings, the rotary head C, and the connections between said head and the packing of the door A, of the spring-actuated bolt pivoted to the rotary head, and the plate H upon the door B, substantially as described.

313,877. GRINDSTONE APPARATUS. JAMES I. KETTLER, Creston, Ill., assignor of one-half to William McBride, same place. Filed May 9, 1884. (No model.)

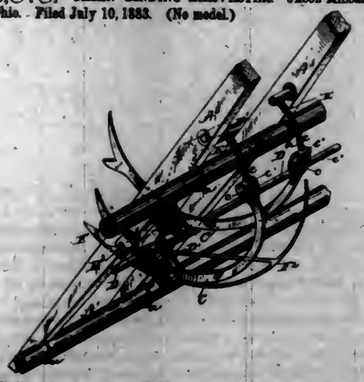


Claim.—1. A grindstone mounted on a suitable frame, in combination with a seat that is adjustably secured to the frame and a water-fender that is adjustably secured to the seat, substantially as described.

2. In combination with side pieces, A, of the frame, a seat with fender F secured thereto, said seat being provided with bolt *f* and cross-bar *g*, substantially as shown and described.

3. In combination with the grindstone and frame, the treadles C, connected with crank-arms *b*, the adjustable seat with bolt *f* and bar *g*, the adjustable fender F, connected to said seat, and tank G, the parts being constructed and arranged substantially as set forth.

313,878. GRAIN-BINDING HARVESTER. JACOB MILLER, Canton, Ohio. Filed July 10, 1883. (No model.)



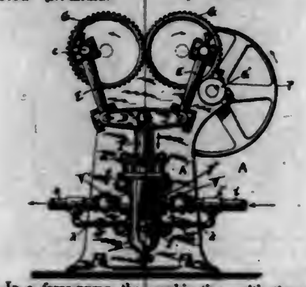
Claim.—1. In a grain-binding harvester, the packers for moving the grain up to the binding mechanism, connected at or near the centers of their length with actuating-cranks, in combination with heel-support-

ing links, swiveling supports for the ends of said links, and springs interposed between said supports, whereby the packers are adapted to yield, substantially as and for the purpose described.

2. In a grain-binding harvester, packers arranged on revolving cranks, in combination with swinging links at the heel ends of said packers, upon which the latter are adapted to slide and yield by means of a coiled spring surrounding said link, substantially as and for the purpose specified.

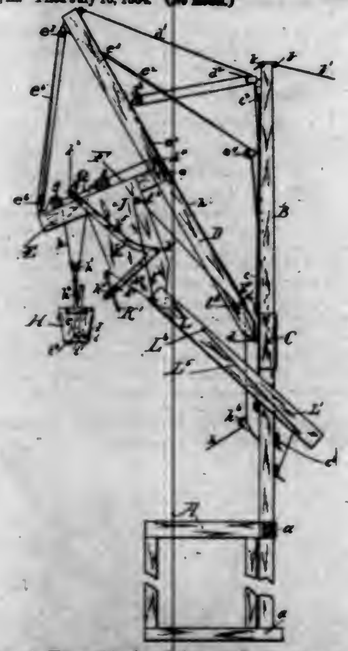
3. In a grain-binding harvester, the packers C C', in combination with the blocks c', links E, and springs e, all for the purpose and substantially as described.

313,879. FORCE-PUMP. AUGUSTUS F. NAGLE, Chicago, Ill. Filed Aug. 30, 1884. (No model.)



Claim.—In a force-pump, the combination, with the plunger P, operating in the chamber B', of the pipes *i* and *o*, connected on each side of the chamber B, and having valves *v* and *v'*, and the branch pipes *k*, provided with valves *w*, attached to the pipes *i* and *o* and to the chamber B, as shown and described.

313,880. COAL-HOISTING APPARATUS. DEWITT C. NIBLACK, Chicago, Ill. Filed July 10, 1884. (No model.)



Claim.—1. The combination of the mast B, adapted to turn on its own axis, with adjustable slide C, hinged boom D, adjustable projecting arm or frame E, provided with track F, pulley-carriage G, bucket H, hopper K, having hinged door or extension K', operated by the movement of the carriage G, and chute L, substantially as specified.

2. The combination of the boom D, provided with a projecting arm or frame, E, furnished with a track, F, of the pulley-carriage G, bucket H, provided with hinged side or door I, the locking and tripping lever i', and a stop or projection, J, to operate said lever, substantially as specified.

3. The combination of the frame E with the track F, pulley-carriage G, hopper K, stop J, and bucket H, provided with a discharging-door and an operating-lever adapted to strike against said stop J for opening the same.

4. The combination of the bucket with sliding pulley-carriage, a discharging-door, and a stop or projection for operating said door by the movement of the carriage G, substantially as specified.

5. The combination of a pulley-carriage, G, hopper K, and hinged extension K', operated by the movement of said carriage G, substantially as specified.

6. The combination of hopper K with hinged extension K', bent lever *k*, having slotted arms, one of which engages with said hinged extension, and pulley-carriage G, engaging with the other slotted arm of said bent lever, substantially as specified.

7. The combination, with boom D, of adjustable projecting arm or frame E and suitable lines and pulleys at each end of said arm or frame for adjusting the same up or down, substantially as specified.

8. The combination of mast B, adjustable slide C, adjustable boom D, hinged to said slide, and projecting frame E, adjustably secured to said boom, substantially as specified.

9. The combination of swiveling mast B, adjustable slide C, adjustable boom D, hinged to said slide, adjustable projecting frame E, secured to said boom, hopper K, and adjustable chute L, substantially as specified.

10. The combination, with the swiveling mast B, of a chute, L, provided with separate discharge-passages L' L², and a hinged divider or gate, L³, substantially as specified.

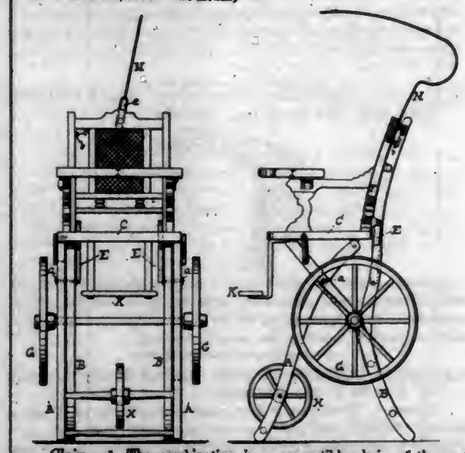
11. The combination, with a hoisting-bucket, of a movable pulley-carriage and a hinged or pivoted line-guard on the pulley of the bucket, said line-guard consisting of two independently-hinged arms—one for each branch of the line—so that the same may conform to the line as its direction changes, substantially as specified.

12. The combination of the bucket having a hinged side or door provided with a catch, and a bent locking-lever pivoted to said bucket and furnished with a spring for closing the same, and a fixed stop or projection for operating said lever to open said hinged side or door, substantially as specified.

13. The combination of mast A, boom D, and frame E, having track F, with pulley-carriage G, and the bucket H, having hoisting-line *h*, secured at one end to said carriage G, and passing thence around a pulley, *h'*, on the bail of the bucket, and over a pulley, *h²*, on the carriage G, substantially as specified.

14. The pulley provided with a line-guard consisting of two independently-hinged arms, *h'* *h²*, provided with eyes for each branch of the line, so that said arms may open or close as the direction of the line changes, substantially as specified.

313,881. NURSERY-CHAIR. BENJAMIN C. ODELL, Kingston, N. Y. Filed June 2, 1882. (No model.)

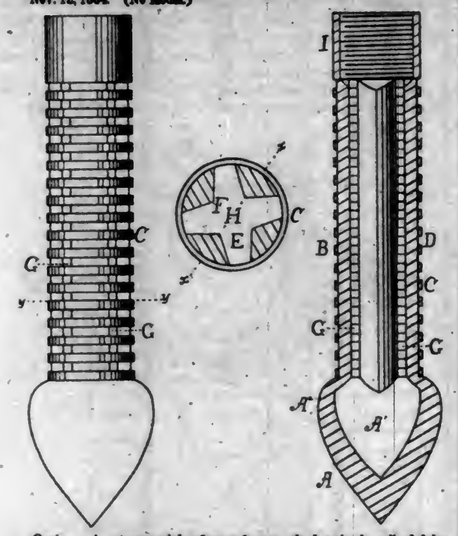


Claim.—1. The combination, in a convertible chair, of the seat-frame, pivoted cross-legs, a push-handle pivoted to one pair of said legs, the links which unite the push-handle to the back of the chair, and a locking device for the push-handle, substantially as described.

2. The combination, in a convertible chair, of a suitable seat-frame and crossed supporting-legs pivoted to the chair, a push-handle pivoted to one pair of legs and provided with a clasp, *d*, pivoted levers secured thereto and connecting said handle to the chair, and a ratchet-bar, substantially as described.

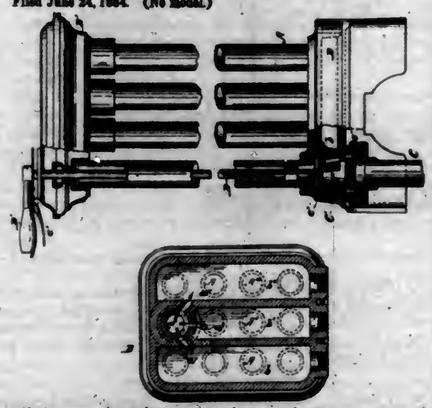
3. The combination, in a convertible chair, of a suitable seat-frame, crossed and pivoted legs, a push-handle pivoted to the rear legs, and a pivoted lever connecting the handle to the chair, whereby the seat-frame is adapted to rest upon the edge of one pair of said pivoted legs when the chair is in its lowest position, substantially as described.

313,882. DRIVE-WELL POINT. JNO. E. PARKER, Beloit, Wis. Filed Nov. 12, 1884. (No model.)



Claim.—As a new article of manufacture, the herein-described drive-well point having the acorn-shaped point A, enlarged at A², the exterior annular projections, C, intermediate transverse grooves, D, the latter provided with the openings G, the longitudinal grooves E, and longitudinal strengthening-ribs F, substantially as described.

313,883. STEAM-RADIATOR. LEON H. PRENTICE, Waukegan, Ill. Filed June 24, 1884. (No model.)



Claim.—1. As an improvement in steam-heating apparatus, the radiator composed of two or more independent compartments, each having a separate port, in combination with an inlet-pipe, as C, and a single valve, as C', operating in connection with all the ports, substantially as and for the purpose specified.

2. As an improvement in steam-heating apparatus, the radiator composed of two or more independent compartments, each having a port, in combination with a single inlet and valve and a dial, as E, substantially as and for the purpose specified.

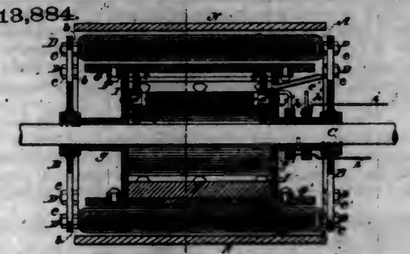
3. As an improvement in steam-radiators, the valve, as C', in combination with the rod, as D, extended up through one of the radiator-pipes to the top of the radiator, and having a handle and a dial, as E, all arranged substantially as shown.

4. The steam-radiator having compartments *b* A, *b'* A', and *b''* A'', inlet-pipe C, valve C', operating rod and handle D D', and dial E, all constructed and arranged substantially as shown.

313,884. DYNAMO-ELECTRIC MACHINE AND ELECTRIC MOTOR. ANTHONY REKNAGEL, London, England, assignor to Frederick Reckenzaun, New York, N. Y. Filed Mar. 25, 1884. (No model.)

Claim.—1. An armature-core composed of a number of series of links provided with angular projections and connected by pivoted joints, as herein specified.

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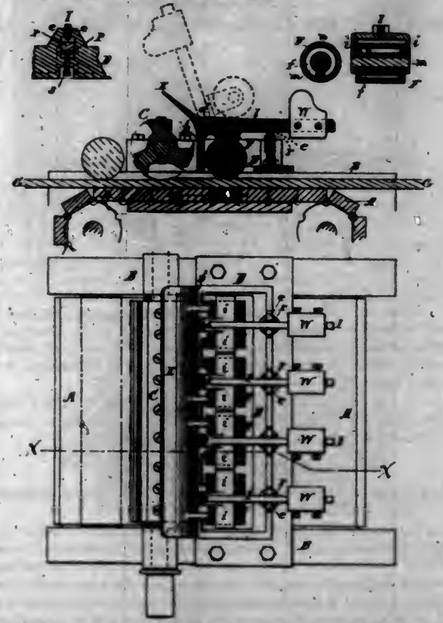
2. An armature-core composed of apertured links A, having angular end projections, *a*, and rods D, passing through the apertures of the said links, as specified.

3. In a dynamo-electric machine or electric motor, a field-magnet located wholly within the armature-core concentric with the armature-shaft C, and balanced or supported upon the shaft by rollers or wheels *e*, adapted to rotate around axle *d*, fixed to said internal field-magnet and above the armature-shaft, and by weights J, resting upon or fixed to the internal field-magnet at a point below the armature-shaft, substantially as and for the purpose specified.

4. The combination, with a field-magnet located wholly within the armature and suspended from the armature-shaft, of a weight for maintaining the said internal field-magnet in a vertical position, as specified.

5. The combination, with the internal field-magnet, F, of two friction-rollers or wheels, *e*, carried by the magnet-heads, bearing on the armature-shaft, and located entirely above the said shaft, and of the counterbalancing-weight J, located upon the said internal field-magnet and below the said armature-shaft, substantially as set forth in the annexed specification.

313,885. PLANER PRESSER-ROLL. S. M. RICHARDSON, Worcester, Mass. Filed Dec. 17, 1884. (No model.)



Claim.—1. In combination, as hereinbefore described, with the cutter-head and endless traveling bed, the bridge-plate D, having open center and front and rear upright flanges, the series of levers I, severally provided with lateral downwardly-extended ear-pieces *i*, supporting roll-sections F, hinged to the rear flange, D', as at *d*, above the rolls, and guided on the front flange, as at *e*, and the weights W, for the purposes set forth.

2. In combination, as hereinbefore described, with the cutter-head and traveling bed, the bridge-plate D, having front and rear upright flanges, the series of weighted levers I, severally provided with lateral downwardly-extended ears *i*, supporting the roll-sections F, hinged to the rear flange, D', as at *d*, above the roll, the guides *e* on the front flange, and the cushion-bunters *r* and adjusting-screws *s*, located within said front flange beneath said levers, for the purposes set forth.

3. In combination, as described, with the cutter-head and bridge-plate D, having the upright rear flange, D', the shaving-hood E, and the series of levers I, carrying the presser-roll sections F, connected with said bridge-plate flange by the same hinge-pivots, as at *d*, whereby said hood can be turned back upon the levers, or the levers turned up against said hood, as indicated.

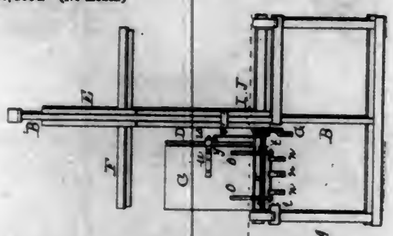
4. The levers I, provided near their fulcrum ends with the right and left lateral and downwardly-extended wings *i i*, the shaft *m*, connecting said wings, and the self-oiling roll-section F, revoluble on said shaft, the lever-arm being centrally disposed above said roll, in combination with the bridge-plate and traveling bed, as shown and described.

313,886. CHURN. ABRAHAM ROBINSON, Berry, Ill. Filed July 7, 1884. (No model.)



Claim.—The combination, with the frame consisting of the sides *a*, connected a short distance from their outer ends by strips *b*, legs or standards having elongated slots, screws for securing said legs or standards, when adjusted, upon the strips *b*, a master-wheel mounted on a shaft bearing in the strips *a*, a pinion suitably mounted to gear therewith, a dasher removably secured to said pinion, and a frame inclosing said dasher, substantially as set forth.

313,887. ELEVATOR. GEORGE H. ROEHM, Dayton, Ohio. Filed Nov. 26, 1884. (No model.)



Claim.—1. The combination of the door C, suspended on shaft S within bearings *t t*, supplementary door D, hinged to the former, and having an arm, *u*, attached thereunto, pinions I J on said shaft, double rack G, attached to platform-guides, connection-rod *v*, and crank *w*, pivoted to said arm, substantially as described.

2. The combination, substantially as set forth, of the door C, supplementary door D, shaft S, arms *o o*, counterbalance-weights *u*, pinions I J, double rack G, connection-rod *v*, crank *w*, and arm *u*.

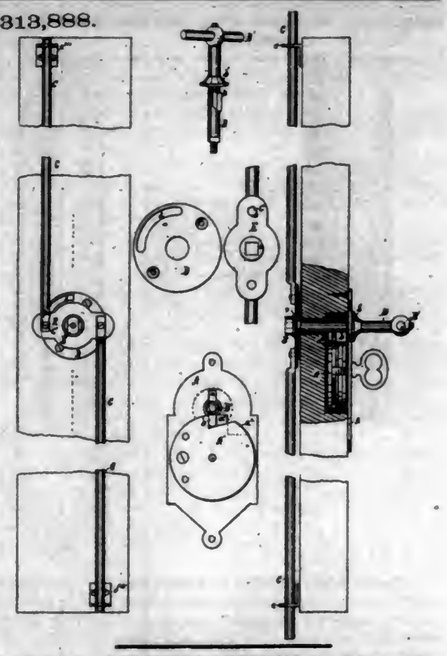
313,888. LOCK-BOLT FOR DOORS. JOHN B. SCHRODER, Cincinnati, Ohio. Filed Dec. 19, 1884. (No model.)

Claim.—1. The combination, with a door-stile and bolt C, of the spindle B, having boss *b'*, to bear against a plate or escutcheon on the front of the stile, and an angular inner portion and reduced screw-threaded end, the flanged nut b^2, the plate D, having annular slot *d*, and spindle-plate E, having hub *e*, said plate E being secured to the spindle and the bolt C joined to the plate E by screws *c c'*, the screw *c'* passing through the plate and projecting into the slot *d'* in plate D, to limit the throw of the bolts, substantially as specified.

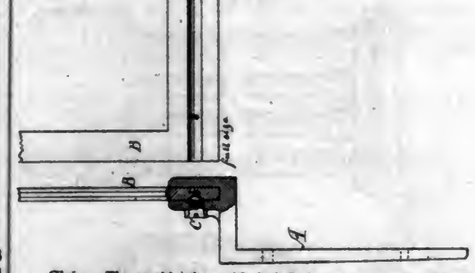
2. The combination, substantially as specified, with a bolt-actuating mechanism consisting of the spindle B *b b'* b^2 and piece E, of the spindle-lock consisting of the plate A, notched lock-cap A', and the lock mechanism located between the front plate, A, and back plate, A', and having its bolt *a'* arranged to pass up against the side of the spindle-bit *b* and secure it against turning.

3. The bolt actuating and bolt-locking devices hereinbefore described, consisting of the lock-plates A A' and inclosed locking mechanism, the spindle B, having bit *b* and collar *b'*, the slotted plate D, and spindle-piece E, the said parts being constructed and combined substantially as specified.

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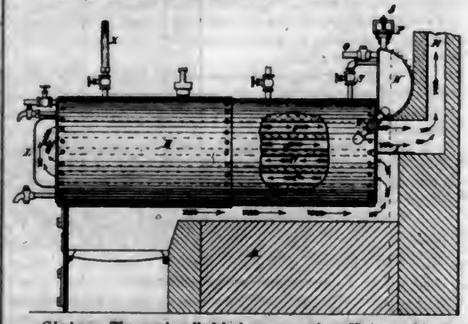


313,889. DASH-BOARD FOR VEHICLES. KARL J. SCHUSTER, Cleveland, Ohio. Filed June 11, 1884. (No model.)



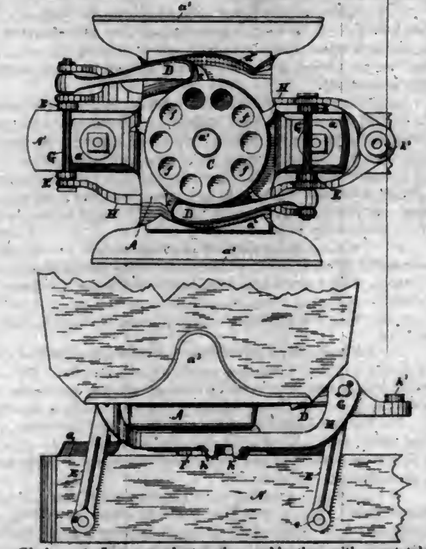
Claim.—The combination, with dash B, having grooved rail *b*, of the dash-foot A, having bifurcated upper arm into which the grooved rail sets, provided with the set-screw C, for securing the rail therein, all constructed and arranged for adjustment substantially as and for the purpose specified.

313,890. FEED-WATER HEATER. WILLIAM SCHWARTZ, Louisburg, Kans. Filed June 7, 1884. (No model.)



Claim.—The semi-cylindrical water-receiver N, in combination with the furnace-chimney having a pocket or recess, horizontal boiler, steam-pipe, and water-pipe, the receiver fitting in the pocket or recess in the chimney at the back end of the boiler in close proximity to the entrance of the chimney, so as to be heated by the escaping products of combustion at the base of the chimney, the steam-pipe connecting the upper part of the boiler with the upper part of the receiver, and the water-pipe connecting the lower part of the receiver below the upper line of the boiler with the boiler, as set forth.

313,891. CORN-PLANTER. LEVI SCOFIELD, Grand Haven, Mich., assignor to the Challenge Corn Planter Company, same place. Filed Nov 11, 1884. (Model.)



Claim.—1. In a corn-planter, the combination, with a rotatable toothed seed-plate, of actuating-pawls a support for said pawls, and vertically-swinging arms, on which said support is mounted and vibrates, substantially as described.

2. In a corn-planter, the combination, with a rotatable toothed seed-plate, of oppositely-acting gravitating pawls, a support for said pawls, and vertically-swinging arms, on which said support is mounted and vibrates, substantially as described.

3. In a corn-planter, the combination, with a rotatable toothed seed-plate, of a horizontally-vibrating frame mounted upon and connecting vertically-swinging arms, and oppositely-acting gravitating pawls carried by said frame for co-operating with said toothed seed-plate, substantially as described.

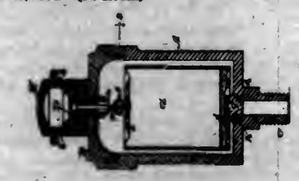
4. In a corn-planter, the combination, with a rotatable toothed seed-plate, of the beam, vertically-swinging arms pivoted to said beam below the seed-plate, a frame mounted on said swinging arms, and a pair of oppositely-acting gravitating pawls carried by said frame, substantially as described.

5. In the herein-described corn-planter, the combination of the vertically-swinging supports, the horizontally-vibrating frame, and the gravitating actuating-pawls having the stops on their sides with the rotatable toothed seed-plate, substantially as described.

6. The combination, with the rotatable toothed seed-plate, of the vibrating gravitating pawls having stops which at one side are flat, for arresting the teeth after full movements of the pawls, and at the other side are inclined or beveled, as at *d'*, for the purpose of preventing the locking of the teeth when partial movements only of the pawls occur, substantially as described.

7. The combination, with the rotatable seed-plate, of the horizontally-vibrating frame, its vertical swinging supports, the gravitating pawls, and the cross-bolts, which serve both for the pivots of the pawls and as the means for connecting the frame to the supports, substantially as described.

313,892. RADIATOR-VALVE. JOHN A. SCOLLAY, Brooklyn, N. Y. Filed Mar. 19, 1884. (No model.)



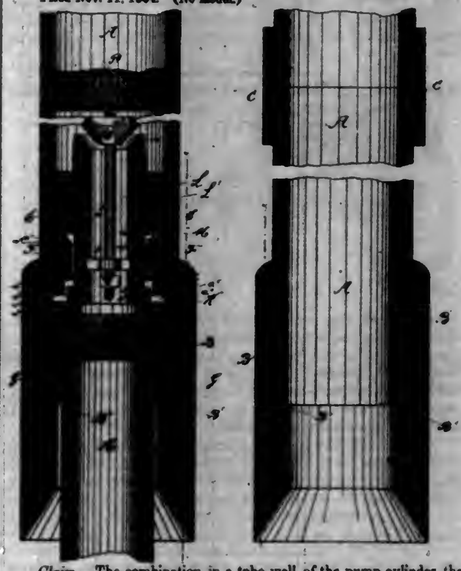
Claim.—1. A radiator-valve constructed substantially as herein described, and adapted to be seated by both expansion and flotation through the medium of an expansible float, as set forth.

2. In a radiator-valve, the combination, with a float-chamber and valve-seat, of a float bearing a valve, and capable of being expanded by heat, whereby the valve is seated both by expansion and flotation, substantially as set forth.

3. In a radiator-valve, the combination, with a float-chamber and valve-seat, of a float having diaphragm-heads *c* and *c'*, and provided with a valve, *d*, adapted to be seated by the expansion of the gas or fluid within the float, substantially as herein set forth.

4. The combination, with the float-chamber, of the screw-threaded tube D, bearing the valve-seat, and the float G, having a diaphragm-head and bearing the valve *d*, all arranged to operate substantially as set forth.

313,893. TUBE-WELL. FREDERICK H. SMITH, Kansas City, Mo. Filed Nov. 11, 1884. (No model.)



Claim.—The combination, in a tube-well, of the pump-cylinder, the check-tube provided with a smooth-surfaced cone near its upper end, the packing-ring having a flaring inner surface encircling the cone, and the ring F, upon the upper edge of which the said cone rests when the check-tube is in place, substantially as specified.

313,894. ARMATURE FOR DYNAMO-ELECTRIC MACHINES. WM. STANLEY, Jr., Pittsburg, Pa. Filed Sept. 23, 1884. (No model.)



Claim.—1. An armature-core consisting of the end plates, A, disks *a*, and bars B, the whole cast of iron in a single piece, substantially as described.

2. The combination, in an armature-core, of end plates, A, perforated disks *a*, and bars B along the inner circumference of the disks, rigidly uniting the disks and end plates into a single piece, substantially as described, and for the purposes set forth.

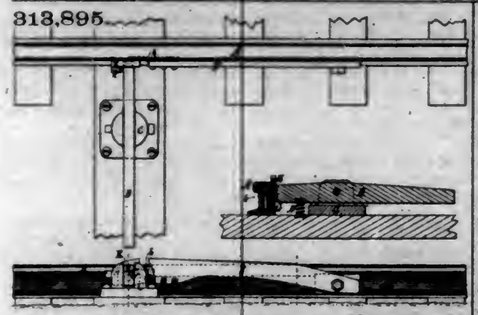
3. An armature-core consisting of a series of annular disks composed of a single piece of cast-iron, substantially as shown and described.

313,895. APPARATUS FOR ACTUATING THE LEVER OF A RAILWAY-SIGNAL. AMOS H. STETSON, Brookline, Mass. Filed June 30, 1884. (No model.)

Brief.—Consisting of a lever arranged at right angles to a depressor and pivoted thereto, said depressor being operated by an actuator located parallel to and pivoted at one end to the rail. The depressor can be operated by the train passing in one direction only.

Claim.—The combination of the rail and lever with the depressor arranged aside of the rail and pivoted to the said lever, and with the actuator arranged aside of the rail and pivoted both to the rail and to the depressor,

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such actuator being obtuse angular on its upper edge, and with a spring or springs arranged to restore the parts to their normal positions, and all being constructed and arranged substantially in manner to operate as set forth.

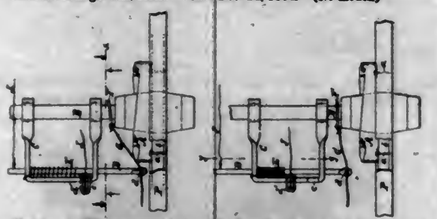
313,896. THROTTLE-VALVE LEVER. ALLISON M. STEKNEY, Watertown, Mass. Filed May 26, 1884. (No model.)



Claim.—1. The combination of the block A, fixed to the throttle lever L, and chambered and provided with springs and rollers, and inclined planes arranged in the chamber, substantially as set forth, with the said throttle-lever L and the curved arm B, extending through such block, and with the headed slide F, the auxiliary lever E, and the spring H, arranged with and applied to the said block A and lever L, all being as and to operate essentially as described.

2. The combination of the adjustable collar I, provided with a set-screw and arranged on the slide F, as described, with such slide and its guide and operative spring, and with the block A, adapted to the throttle-lever L and the curved arm B, and chambered and provided with rollers, springs, and inclined planes, as set forth, all being to operate essentially in manner and for the purpose or purposes as represented.

313,897. VEHICLE DEVICE FOR CHECKING HORSES. EDMUND B. TAYLOR, College Hill, Mass. Filed Dec. 24, 1884. (No model.)



Claim.—1. The combination, with the wheel of a vehicle, of a connected winding device provided with line-engaging portions and a line and line-controlling mechanism, whereby the line is held in and out of engagement with the winding device, substantially as described.

2. The combination, with the wheel of a vehicle and a winding device attached thereto, provided with teeth, substantially as shown, of a line and line-controlling mechanism which may be moved and held in one of two positions, so that the line may be caused to shorten when the vehicle advances, or may be held away from the shortening mechanism and be unaltered in length when the vehicle moves, substantially as described.

3. A shifting mechanism adapted to control and hold a line in one of two positions, consisting of the combination of a stationary frame and shifting-rod adapted to control the said line, substantially as described.

4. The combination, with a stationary frame, of a spring-actuated shifting-rod and a catch device adapted to control the position of the said rod, and a line controlled by said shifting-rod in relation to a winding device, substantially as described.

5. The combination of a winding device provided with engaging teeth and a line attached at its rear end to the axle in such manner that the line will not wind thereon, and which line at the other end forms connection with the horse's bit, substantially as described.

6. The combination of a frame, a shifting-rod, a spring and catch, and means for moving the shifting-rod, so that the catch may be brought into action to hold the shifting-rod in one position, while the spring may be used to hold it in the other position, substantially as described.

7. The combination of a winding device, provided with teeth adapted to catch upon a line and shorten the same when the vehicle advances by winding the line upon the exterior surface of the said device, and a line which may be held so as to be engaged by or be free from the said teeth, substantially as described.

8. A winding device adapted to be attached to the wheel of a vehicle, having an exterior surface adapted to hold a line when wound thereon, and teeth which on one face are adapted to catch the line and on the other face are beveled, so that the line can slip past the teeth, substantially as described.

9. The combination of a catch or winding device attached to a wheel of a vehicle, provided with teeth, as shown, which will hold a line when rotated in one direction, but will not hold it when rotated in the opposite direction, a line one end of which leads to the horse's bit, and the other end of which is so attached to the axle that it will not wind thereon, and a shifting mechanism consisting of a stationary frame and a shifting-rod, which latter controls the position of the line with regard to the winding device, substantially as described.

10. A winding device attached to a vehicle-wheel by clips which embrace the spokes of the wheel, said device being provided with teeth to engage with a check-line, substantially as described, and a shifting mechanism adapted to control the position of the said line, said shifting mechanism being attached to the axle by means of clips, substantially as described.

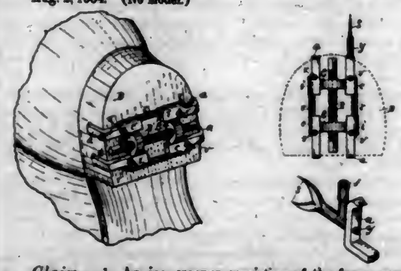
11. The combination of a vehicle-wheel carrying an attached winding device, a shifting mechanism attached to the axle, and a line controlled thereby, one end of which is attached to a ring surrounding the axle between the hub and the shifting device, substantially as described.

12. The combination of the frame of the shifting mechanism, provided with a notch, as *c*, and a sliding rod moved in one way by a spring, as E, said rod carrying an arm, as *d'*, adapted to engage with the notch *c*, substantially as described.

13. A shifting-rod moving in a stationary frame, said rod being provided with an arm, as *d'*, which is adapted to have attached thereto the operating-cord leading to the driver, in combination with a line controlled by the position of the shifting-rod, substantially as described.

14. A line-shifting device consisting of a frame, as C, a shifting-rod, as D, provided with an eye, as *d*, and devices for holding the shifting-rod in one of two positions, in combination with a line passing through the eye, and a device adapted to shorten the said line, substantially as described.

313,898. ICE-CREEPER. JOHN J. TEMPLE, Kalamazoo, Mich. Filed Aug. 2, 1884. (No model.)



Claim.—1. An ice-creeper consisting of the frame parts, as described, provided with threaded holes to receive the connecting-rod, perforated side extensions, rods adapted to play therein, spurred arms and spurs for engaging the ice, and a right and left threaded rod adjustably connecting the frame parts, substantially as set forth.

2. An ice-creeper provided with spurred arms for clamping the sole and spurs for engaging the ice, one of said arms being provided with a threaded hole for the connection therewith of the threaded end of the spurred key, substantially as set forth.

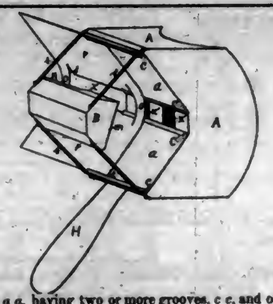
313,899. REFLECTING STEREOSCOPE. AARON K. TUTTLE, St. Lawrence, N. Y. Filed Mar. 26, 1884. (No model.)

Claim.—1. The combination, in a stereoscope, of the mirrors *m* and *n*, picture-rest *a a*, and the picture-mount *p p o o*, having the narrow opening *x*, and having one picture of the stereoscopic pair above the opening and the other below it, substantially as shown, and for the purpose described.

2. The combination, in a stereoscope, of the front *a a*, having two or more grooves, *c c*, hood or eye shade A, and eye-glasses L, substantially as shown and described.

3. The combination and arrangement of the mirrors *m n*, block B,

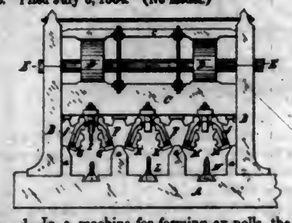
313,899.



rods *r r r r*, picture-rest *a a*, having two or more grooves, *c c*, and openings *x' x'*, and eye-glasses L, substantially as shown and set forth.

4. The picture-mount *p p o o*, having the right and the left pictures of the stereoscopic pair printed or otherwise mounted thereon one above the other, as indicated by the open lines *o o*, and having between these pictures the narrow central opening, *x*, substantially as shown and set forth.

313,900. MACHINE FOR MAKING PICKS. SAMUEL T. TYLER, Ironton, Ohio. Filed July 8, 1884. (No model.)



Claim.—1. In a machine for forming ax-polls, the combination, substantially as specified, of the squeezing-dies G, K, and M, with the punches H, I, L, and N, the first pair of dies having the punch H, arranged to pass partially through the blank held by the dies, and the upper punch or plug, I, arranged to close the upper opening of the dies and leave space upon each side for the metal which forms the lugs *j* of the ax-poll, and the second pair of dies being of substantially the same shape as the first pair and having the pointed punch L, arranged to pass through the ax-eye and the dies, and the third pair of dies being below the neck the counterpart of the ax-poll and the punch N of the size and shape of the ax-eye.

2. The combination of the swinging jaws F and the dies G, K, and M, arranged in pairs in said jaws, the dies G and K being of the same shape and having their opposite walls substantially parallel, and the third pair of dies, M, being the shape of the finished poll, with the punches H, I, L, and N, for the purpose of completely finishing ax-polls, substantially as specified.

3. In combination with a forming-press such as described, the dies G, arranged in the swinging jaws F, with the punch H, arranged to pass partially through the blank as the dies descend, and the punch I, arranged between the dies and to close the neck, leaving a space between said punch and the upper arched portion of the dies for the lugs *j*, whereby the blank J, Fig. 5, is formed at one stroke of the frame carrying the dies.

313,901. AUTOMATIC STEERING APPARATUS. CHARLES H. WASHBURN, New York, N. Y. Filed July 21, 1884. (No model.)

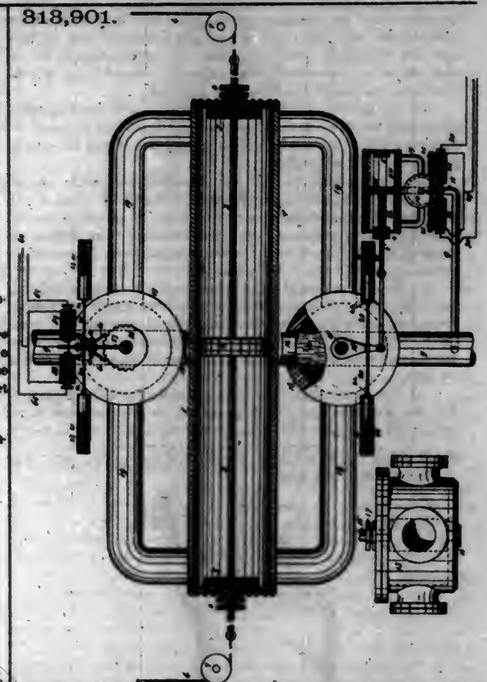
Claim.—1. In a steering apparatus, the combination, with a pneumatic cylinder wherein is located a piston the rods whereof control the movement of the rudder, of a main valve the blade whereof is actuated by an auxiliary piston, cylinder, and valve electrically controlled, substantially as shown and described.

2. The combination, with a rotary valve of the character herein specified, of a self centering and locking device consisting of a flexible cord or chain engaging with the operating-lever of the valve and with springs each side thereof, substantially as shown and described.

3. The herein-described self-centering device for rotary valves, consisting of flexible cords or chains engaging with the operating-lever and with controlling-springs, the action of said springs being controlled by stops or buttons, substantially as shown and described.

4. In an electrical steering device of the character herein specified, a four-way valve provided with a self-centering valve-blade, whereby the piston controlling the movement of the rudder may be locked in place, substantially as shown and described.

5. A valve consisting of a shell, 13, having four ports, as set forth, the rotating blade 14 being provided with an operating-lever, 18, said lever engaging with chains 20, whereon are fixed stops or buttons 22,



springs 23, engaging with the extremities of the chains opposite to the operating-lever, substantially as and for the uses and purposes shown and described.

6. In an electric steering apparatus of the character herein specified, the combination of the main valve, cylinder, and piston controlling the movement of the rudder, with an auxiliary cylinder and electrically-controlled valve, the blade whereof is cut away, substantially as set forth.

7. In a steering apparatus of the character herein specified, the combination, with a main cylinder and a piston operated by a main valve, auxiliary piston, cylinder, and auxiliary valve, of electro-magnets, the circuits whereof are controlled by a compass, substantially as shown and described.

8. In a compass, the combination, with the bowl and pivoted card, of a movable frame, supported thereabove and carrying a rocking bar adapted and arranged to close either of two electric circuits, as set forth.

9. The combination, with the bowl of a compass, of a circumferential channel wherein is supported a movable plate bearing a frame extending over the card of the compass, said frame supporting a rocking bar provided with arms adapted and arranged to make or break one or more electric circuits, substantially as shown and described.

10. The combination, with a rocking bar, of arms projecting therefrom and a vertical pin engaging with the compass-card therebeneath, said arms supporting pendants adapted and arranged to make electrical connection with curved conducting-plates supported therebeneath, substantially as shown and described.

11. In a mariner's compass of the character herein specified, the combination, with the depressible pendants, of the insulated curved metal plates therebeneath, said pendants and plates forming a circuit-maker, substantially as shown and described.

12. In a compass of the character herein specified, the combination, with an annular toothed plate, of an arm projecting downward therefrom and a sliding stop therefor, substantially as shown and described.

13. In a compass, the combination, with the card, slotted as described, of a bar extending through the slot and carried by an adjustable frame, whereby disarrangement of the parts is prevented, substantially as set forth.

14. A compass adapted and arranged to open or close one or more electric circuits by the deflection of the needle, said compass consisting of a bowl, 32, bearing a circumferential channel, 33, wherein is located a rotatable toothed plate, 34, supporting a frame, 40, wherein is a rocking shaft, 41, having arms 44 and 54, bearing pendants 46, curved insulated plates 51 being supported beneath said pendants, as set forth, a vertical bar, 47, extending through a perforation, 48, in a balanced card, 38, and a vertical pin or bar, 49, extending from frame 40 through a slot, 50, in said card, the whole arranged to operate substantially as set forth.

15. In a steering apparatus, the combination, with the main cylin-

der, of a rotary valve bearing a toothed wheel upon its stem, the movements of said valve being governed by pawls engaging with the teeth upon said wheel, said pawls being actuated by electro-magnets, the circuits whereof are controlled from a hand device upon the bridge or in the pilot-house, substantially as shown and described.

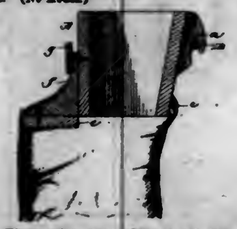
16. The combination, with a valve of the character herein specified, of a toothed wheel, 56, mounted upon the stem thereof, bar 57, pawls 60, chains or cords 20, springs 23, and electro-magnets 58 and 59, substantially as shown and described.

17. The combination, with the circuits of the electro-magnets adapted and arranged to regulate the position of a rotary valve, of a bifurcated lever having electrical connection with one conductor, and one or more pins or projections mounted upon a wheel or frame adapted and arranged to close either of said circuits, substantially as shown and described.

18. In an apparatus of the character herein specified, the combination, with a main valve, of a circuit-making lever or wheel and circuit-connections, as described, the whole adapted and arranged to open said valve, driving a piston in one direction when moved, the return movement of said lever or wheel locking the piston in place, substantially as set forth.

19. The combination, in an apparatus of the character herein specified, of a hand apparatus, 76, with a cut-out for the automatic circuit and for the circuit to a wheel, 67, substantially as set forth.

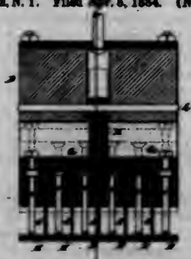
313,902. BAG-HOLDER. GEORGE W. WHITE, Tedrow, Ohio. Filed Dec. 23, 1884. (No model.)



Claim.—1. The combination, with a bag-holder, of a strip secured thereto and having its ends projecting beyond the sides of said holder, a hinged semicircular strip for distending the mouth of the bag, a plate attached to said strip, and a button pivoted to the holder and adapted to engage said plate, substantially as set forth.

2. The herein-described bag-holder having the inclined sides, brackets having seats attached to the said holder, a strip having projecting ends, a semicircular hinged strip carrying a plate, and a button adapted to engage said plate to hold the semicircular strip at right angles to the holder, as set forth.

313,903. PLUG-TOBACCO MACHINE. GEORGE WILDEY and ALPHEUS ROLLINS, Brooklyn, N. Y. Filed Apr. 8, 1884. (No model.)



Claim.—1. A plug-tobacco machine having the press-bed A', the knives *d*, and means, as described, for operating them, the pressers E, eccentric H, and hand-lever H', all combined and arranged for joint operation as and for the purposes set forth.

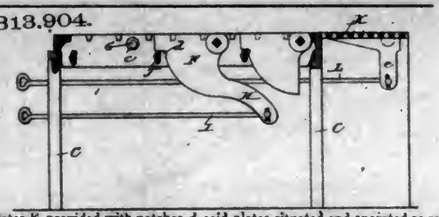
2. The plug-tobacco machine described, having the press-bed A', adapted to receive the stroke of the knives *d*, in combination with such knives and means for operating them, and with the pressers E, eccentric H, hand-lever H', and supporting-catch I, combined and arranged for joint operation substantially as and for the purposes herein specified.

313,904. GRATE. HENRY C. WILLIAMSON, Michigan City, Ind. Filed July 15, 1884. (No model.)

Claim.—1. The combination, with the grate A D E, of cross-bars J and plates F, provided with notches *d*, situated and operated as set forth.

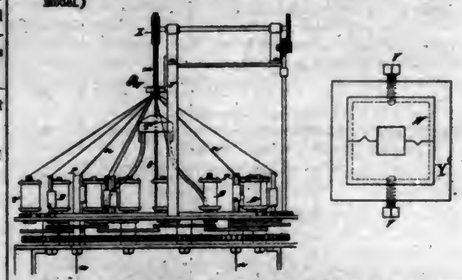
2. The grate described, consisting of cross-bars E and longitudinal bars D A, provided with lugs *a b*, in combination with cross-bars J and

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plates F, provided with notches *d*, said plates situated and operated as set forth.

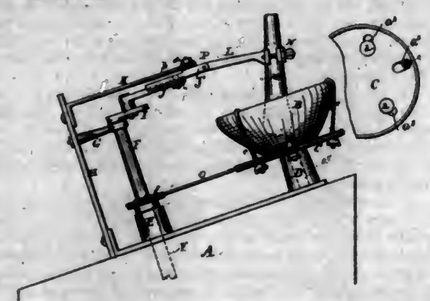
313,905. BRAIDING-MACHINE. HERMAN W. WINANS, New York, N. Y., assignor to John K. Ford, same place. Filed Jan. 23, 1883. (No model.)



Claim.—1. The combination, with the die W, made in two parts, as shown, of the frame Y' and screws V, the corner guides, P, the carriers B B', and the mechanism for traversing said carriers in opposite directions, as set forth.

2. The upper die, W, having notches *w*, adapted to guide the yarns *s*, as described, combined with the core-die T, bobbin-carriers B B', means for traversing them in opposite directions, and the take-up mechanism, as herein specified.

313,906. TRITURATOR. LEWIS H. WITTE, Cleveland, Ohio. Filed Jan. 16, 1875.



Claim.—1. In a triturator, the combination, with a revolving support and a laterally-adjustable mortar, of a vertically-vibrating pestle-arm and a pestle adapted to traverse the inner surface of the mortar, substantially as set forth.

2. In a triturator, the combination, with a revolving support and a mortar, of a pestle and a vertically-movable and longitudinally-adjustable arm, substantially as set forth.

3. In a triturator, the combination, with a revolving support and a mortar, of a longitudinally-adjustable arm for actuating said pestle, substantially as set forth.

4. In a triturator, the combination, with a revolving support and a mortar, of a pestle, an operating-arm provided with a pivotal bearing, and a supporting-arm connected to allow of a longitudinal movement of said pivotal bearing, substantially as set forth.

5. In a triturator, the combination, with a revolving support and a laterally-adjustable mortar, of a pestle and a vertically-movable longitudinally-adjustable arm, substantially as set forth.

6. In a triturator, the combination, with a revolving support, a mortar, and securing-stops of a pestle, and a vertically-vibrating pestle-arm, substantially as set forth.

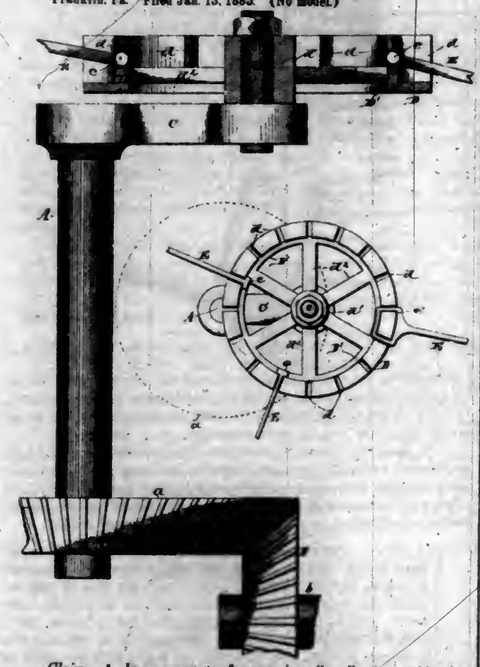
7. In a triturator, the combination, with a revolving support and a mortar, of adjustable hooks arranged to engage the upper rim of the mortar, substantially as set forth.

8. In a triturator, the combination, with a removable mortar and a

revolving mortar-support constructed to form a pulley, a crank-shaft provided with a driving-pulley, and a belt for connecting the driving-pulley and mortar-support of a pestle and devices connecting the pestle and crank, substantially as set forth.

9. A triturator consisting, essentially, of a removable mortar, a revolving support, a removable and vertically-adjustable pestle, a vertically-movable operating-arm, a shaft, and means for transmitting motion from the shaft to the pestle and mortar-support, substantially as set forth.

313,907. APPARATUS FOR PUMPING OIL-WELLS. GEO. ALLEN, Franklin, Pa. Filed Jan. 13, 1885. (No model.)



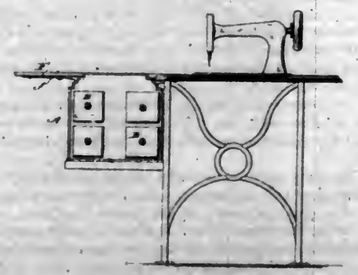
Claim.—1. In an apparatus for pumping oil-wells, the combination, with an upright shaft and a crank secured to its upper end, of a wheel or disk loosely mounted on the wrist-pin for attaching pump-actuating rods, substantially as set forth.

2. In apparatus for pumping oil-wells, the combination, with a crank secured to the upper end of an upright shaft, of a wheel or disk loosely mounted on the wrist-pin, said wheel or disk being adapted to the attachment of pump-actuating rods in any direction, substantially as set forth.

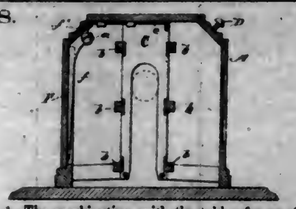
3. In apparatus for pumping oil-wells, the combination, with a crank secured to the upper end of an upright shaft, of a wheel or disk loosely mounted on the wrist-pin and provided with a series of radial slots for the attachment of pump-actuating rods in any desired direction, substantially as set forth.

4. A wheel or disk for attaching pump-actuating rods, having a series of radial slots formed in the upper side of its rim adapted to receive the ends of pump-actuating rods from any desired direction, substantially as set forth.

313,908. COVER FOR SEWING-MACHINE TABLES. GEORGE A. ANNETT, Bothwell, County of Kent, Canada. Filed Jan. 9, 1884. (No model.)



313,908.



Claim.—1. The combination, with the table of a sewing-machine, of attaching-brackets secured thereto, a cover provided on its front side with devices fitted to engage said brackets, drawers arranged longitudinally of the said cover and opening at the end thereof at the left hand of the operator, and a drop-leaf hinged to said cover, said drop-leaf, when raised, being on a level with the top of the said table, whereby the cover is adapted to serve as an extension for the table and the drop-leaf as an additional extension, with the drawers at the front thereof conveniently accessible to the operator, substantially as set forth.

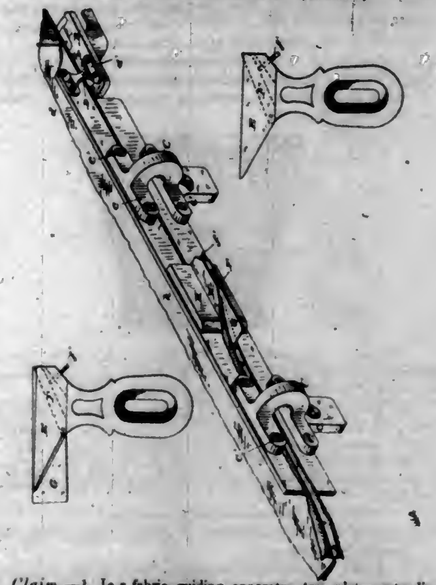
2. The combination, with the table of a sewing-machine, of the slotted brackets E, attached thereto, the cover A, having the headed pins or buttons D on its front side, the drawers B, opening at the end of the said cover at the left hand of the operator, and the hinged side or drop-leaf F, which, when raised, is level with the top of the said table, whereby the cover is adapted to serve as an extension for the table and the drop-leaf as an additional extension, with the drawers at the front thereof conveniently accessible to the operator, substantially as set forth.

3. A sewing-machine cover having an internal forked guide-piece fitted to closely embrace the bracket-arm of the machine, and thus hold the cover in place on the table, substantially as set forth.

4. A sewing-machine cover having a series of drawers extending longitudinally thereof for about three-fourths of the length of the said cover, leaving sufficient space behind said drawers for the balance-wheel of the machine, substantially as set forth.

5. The combination of the cover A, the drop-leaf F, the ribs or arms *f*, pivotally attached to the said cover, and the molding *f'*, for preserving the symmetry of the said cover when the drop-leaf is down, said drop-leaf, arms, and molding being all rigidly connected together, so that they will move simultaneously up or down, substantially as set forth.

313,909. APPARATUS FOR GUIDING, STRAIGHTENING, AND EVENING FABRICS FOR PRESENTATION TO STITCH-FORMING MECHANISM. SATTERLEE ARNOLD, Brooklyn, N. Y., assignor to Anna M. Arnold, same place. Filed June 27, 1884. (No model.)



Claim.—1. In a fabric-guiding apparatus, two plates extending bodily lengthwise in the direction in which the fabrics are to be guided and having adjacent guiding portions, one of said plates being placed edgewise to and above the other, with an open guiding-space between them, combined with means for supporting said plates separated from each other, substantially as set forth.

2. In a fabric-guiding apparatus, two rigid guide-plates arranged edgewise and adjacent to each other, with an open space between them.

combined with arched supports connected with both of said plates and spanning said open space, substantially as set forth.

3. In a fabric-guiding apparatus, two rigid guide-plates arranged adjacent to each other, with an open space between them, one of the said plates being adjustable relative to the other to vary the width of the said open space, combined with supports for holding said plates in place, substantially as set forth.

4. In a fabric-guiding apparatus, two rigid guide-plates arranged with an interval or open space between them and having longitudinal ribs on their adjacent faces, combined with supports for holding said plates in place, substantially as set forth.

5. The combination, with two rigid guide-plates placed adjacent to each other, with an open space between them and extending bodily lengthwise in the direction in which the fabrics are to be guided, of a bracket secured to one of said plates and adapted for connection with a sewing-machine, substantially as set forth.

6. A fabric straightening or uncurling device consisting of the combination of two plates arranged adjacent to each other, with an interval between them, and having sloping or inclined ends, the points of which extend in the direction from which the fabric is to be moved in its passage between them, substantially as set forth.

7. A fabric straightening or uncurling device consisting of the combination of two plates arranged adjacent to each other, with an interval between them, said plates having sloping or inclined ends, which are beveled or chamfered off on their outer faces, substantially as set forth.

8. A fabric straightening and guiding device consisting of the combination of two plates with inclined ends, arranged parallel to each other, or approximately so, and an inclined guide or deflector interposed between said plates, substantially as set forth.

9. The combination, with two straightening-plates having inclined ends, of an inclined guide interposed between said plates, said guide being adjustable so that its angle of inclination and the position of its free end may be changed, substantially as set forth.

10. The combination, with two plates arranged adjacent to each other, of an interposed separating plate or divider and an inclined guide or deflector having a guiding-edge on each side of said divider, and serving to even two pieces of fabric, substantially as set forth.

11. The combination, with two guide-plates arranged adjacent to each other, with an open space between them, of two straightening-plates having a space between them registering with the space between the guide-plates, and an inclined guide or deflector interposed between said straightening-plates, substantially as set forth.

12. The combination, with two guide-plates arranged adjacent to each other, of two straightening-plates also arranged adjacent to each other, a separator plate or divider interposed between said straightening-plates, and an inclined guide or deflector having a guiding-edge on each side of said divider, substantially as set forth.

313,910. BASKET. ROLAND S. BARTLETT, Northampton, Mass., assignor to the Williams Manufacturing Company, same place. Filed Dec. 24, 1884. (No model.)



Claim.—1. The combination, with the staves of a basket, of a middle hoop encircling the basket, and having its ends bent around the opposite edges of one of the staves, substantially as described.

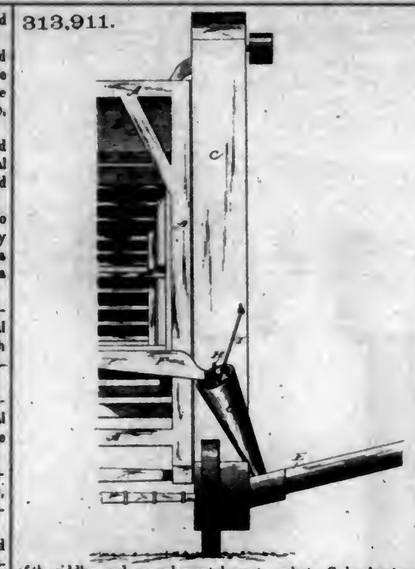
2. The combination, in a stave basket, of the bottom, the side staves, the hoops at the top and bottom, the re-enforcing and sustaining stays F', secured by nails to the upper and lower hoops, the middle hoop overlaid by the stays, and nails *n*, driven through the stays and staves under said middle hoop, whereby the latter is supported, substantially as described.

313,911. GRAIN-CLEANER. DANIEL BEST, Albany, Oreg. Filed June 20, 1884. (No model.)

Claim.—1. In a secondary or auxiliary grain-cleaner, the combination of the machine-frame, a receiving-hopper at the top thereof, a series of riddles or screens, an elevator by which grain received at the bottom of the machine is delivered into the hopper at the top, a discharge-spout, F, for the grain which falls through the rear portion of the riddles, and a cut-off spout, G, by which the grain may at will be mingled with the supply brought to the elevator or discharged exterior to it, as described.

2. In a grain-cleaner, the combination of the riddles, elevator C, the discharge-spout F for grain which passes through the rear portion

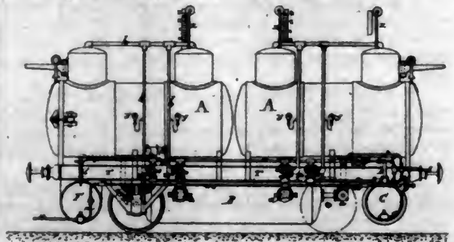
313,911.



of the riddles, and a supplemental spout or chute, G, having its upper end hinged or supported so as to receive the discharge from the spout F, while its lower end is free to be directed into the supply-spout or receiver or exterior to it, as herein described.

3. The combination, with the spout F and the elevator, of the tube or spout G, having its upper end hinged to the side of the elevator so as to receive the discharge from the spout F, and its lower end free to be directed into the supply-spout or receiver of the elevator or exterior thereto, as described.

313,912. TREATING RAILWAY-SLEEPERS. JOHN B. BLYTHE, Bordeaux, France. Filed Mar. 14, 1883. (No model.) Patented in France May 8, 1876, No. 112,576, Nov. 30, 1878, No. 127,528, and June 12, 1883, No. 155,963; in England June 27, 1876, No. 2,651, Dec. 20, 1878, No. 5,222, June 6, 1879, No. 2,244, and May 12, 1883, No. 2,410; in Austria Oct. 6, 1876, No. 26,003, July 30, 1879, No. 14,007, and June 19, 1884, No. 2,970; in Belgium Nov. 27, 1876, No. 40,943, and Jan. 2, 1879, No. 48,640; in Spain Mar. 17, 1877, No. 21; in India Aug. 2, 1877, No. 58; in Germany Oct. 5, 1877, No. 2,172; in Luxemburg Nov. 7, 1877, No. 652; in Sweden July 24, 1880, No. 6,021; in Canada May 29, 1882, No. 14,856, and in Portugal Nov. 27, 1883, No. 876.



Claim.—1. The improvement in treating wood and other fibrous material to preserve the same, consisting in ejecting by a steam jet or jets, through the medium of an ejector or ejectors, the preservative agent finely divided and mixed with said steam into an oven containing said wood, substantially as described.

2. In treating wood and other material to preserve the same, the improvement consisting in subjecting the preserving agent to the action of successive steam-jets, so that it is very thoroughly subdivided, mixed with steam, and heated preparatory to introduction into the oven, substantially as described.

3. The improvement consisting in withdrawing the condensed matters from the oven and, by means of a steam-jet, returning the same into the oven finely divided, mixed with steam, and heated, substantially as described.

4. The improvement consisting in subdividing or pulverizing the preservative agent with superheated steam of high pressure through the medium of an ejector or ejectors, substantially as described.

5. The method of treating wood and other material to preserve the same by injecting by means of a jet or jets of high-pressure steam into an oven containing the wood the preservative agent finely divided and

mixed with said steam and withdrawing and returning the condensed matters finely divided, mixed with steam, and heated, substantially as described.

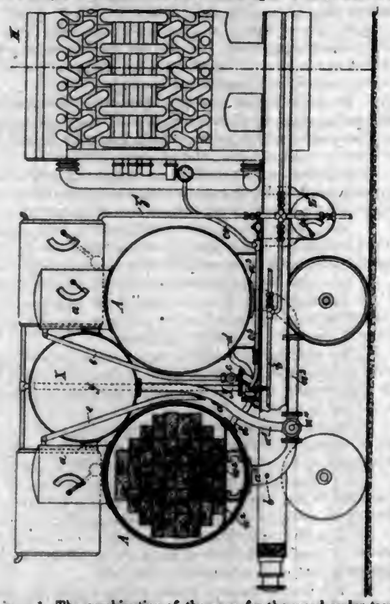
6. The improvement in treating wood and other materials, consisting in withdrawing the preservative agent from its receptacle by the suction of a steam-jet in an ejector, subdividing the said agent and mixing it with the steam of the jet, and afterward injecting into the oven containing the wood or other material the carbureted steam or mixture of steam and preservative agent by a second steam-jet, substantially as described.

7. The improvement consisting in sucking the preservative agent out of its receptacle by a jet of superheated steam, and thereby also subdividing the same and mixing it with the steam and heating it, and afterward urging forward the mixture and further subdividing the preservative agent by a second steam-jet, substantially as described.

8. The method of treating wood and other materials to preserve the same by injecting into the oven containing the material to be treated, and maintaining through said oven a circulation of the preservative agent by the action of steam-jets acting successively or in series, the one being a jet of high-pressure superheated steam and serving to withdraw the agent from its receptacle and subdivide the same, and another serving to urge forward into the oven and further subdivide the said agent, substantially as described.

9. The method of treating wood and other materials by first subjecting the same in an oven to a circulation of carbureted steam or preservative agent subdivided by and mixed with steam, and afterward admitting a liquid into said oven and soaking the wood or other material therein under pressure, substantially as described.

313,913. APPARATUS FOR TREATING, SEASONING, AND PRESERVING TIMBER. JOHN B. BLYTHE, Bordeaux, France. Filed Oct. 23, 1883. (No model.) Patented in France May 8, 1876, No. 112,576, Nov. 30, 1878, No. 127,528, and June 12, 1883, No. 155,963; in England June 27, 1876, No. 2,651, Dec. 20, 1878, No. 5,222, June 6, 1879, No. 2,244, and May 12, 1883, No. 2,410; in Austria Oct. 6, 1876, No. 26,003, July 30, 1879, No. 14,007, and June 19, 1884, No. 2,970; in Belgium Nov. 27, 1876, No. 40,943, and Jan. 2, 1879, No. 48,640; in Spain Mar. 17, 1877, No. 21; in India Aug. 2, 1877, No. 58; in Germany Oct. 5, 1877, No. 2,172; in Luxemburg Nov. 7, 1877, No. 652; in Sweden July 24, 1880, No. 6,021; in Canada May 29, 1882, No. 14,856, and in Portugal Nov. 27, 1883, No. 876.



Claim.—1. The combination of the oven for the wood under treatment, a receptacle for the preservative agent, one or more steam-ejectors, and the connecting-pipes, substantially as described.

2. The combination, with the oven, of a receptacle for preservative agents, a steam-ejector, a steam-generator, a superheater, and connecting-pipes, substantially as described.

3. The combination, with the oven and a condensing vessel or receptacle, of an ejector, and pipes connecting said vessel or receptacle with said oven through the ejector, substantially as described.

4. The combination, with a series of two or more ovens, of a common steam-boiler, common ejectors, and connecting-pipes, substantially as described.

5. The combination of the series of ovens, receptacles for preservative agents, ejectors, condensing-vessel, and connecting-pipes, substantially as described.

6. The combination, with a treating-chamber, of a steam-generator, an injecting apparatus, and connecting-pipes for injecting the treating agent into said chamber and for maintaining a circulation of the gases or vapors therein, substantially as described.

7. The combination, with a treating-chamber provided with an outlet-pipe for the liquid or liquefied matters therein, an outlet-pipe for gases and vapors, and an inlet-pipe, of an injecting apparatus having its suction connected with said outlets, and its discharge connected with said inlet, so as to withdraw from said chamber the liquid or liquefied matters, and also the gases and vapors, and also to return them mixed together into said chamber, substantially as described.

8. The combination, with the treating-chamber and the injecting apparatus, of the outlet-pipe connecting the lower part of the treating-chamber with the injecting apparatus, the outlet-pipe connecting the upper part of the treating-chamber with said apparatus, and the inlet-pipe connecting the discharge of the injecting apparatus with the lower part of said chamber, substantially as described.

9. In apparatus for treating wood and other materials, the injecting apparatus described, having a suction pipe or nozzle projecting into the steam-jet pipe or nozzle, and a second suction-pipe surrounding the same, in combination with the connecting-pipes, treating-chamber, and steam-generator, substantially as described.

10. In apparatus for treating wood and other materials, a series of two or more vessels provided or combined each with doors or covers and fastening devices for uniting the same together so as to form one chamber or for closing each so as to form separate chambers, as may be desired, substantially as described.

11. In apparatus for treating wood and other materials, a series of two or more vessels mounted upon separate trucks and combined with fastening devices, whereby they may be united into one chamber, substantially as described.

12. An apparatus for treating wood and other materials, comprising in combination the following elements: a series of two or more vessels mounted on separate trucks and provided with fastening devices for uniting them to form one long treating-chamber, a steam-boiler, a superheater, an injecting apparatus having a suction pipe or nozzle inside the steam-jet pipe, and a second suction pipe or nozzle surrounding the said steam-pipe, pipes connecting the said suction pipes or nozzles the one with the lower part of the treating-chamber, the other with the upper part of the same, pipes connecting the discharge of said injecting apparatus with the lower part of said chamber, and pipes connecting the steam-boiler with the steam-jet pipe of the injecting apparatus, substantially as described.

313,914. PRESS. JAMES H. BOOK, New Castle, Ind., assignor of one-half to Milton Brown, same place. Filed Feb. 7, 1885. (No model.)



Claim.—1. The combination of the press-box, the slotted standards, shaft C, having cam-wheels E, shaft G, journaled in the slots in the standards, having cam G' and gear-wheel H, pinion *k*, having crank *k'*, springs L, and the follower, which is suspended from the shaft G by chains or cords, substantially as described.

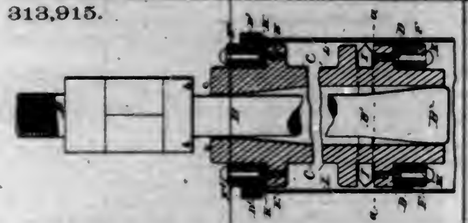
2. The combination of the press-box, the slotted standards, shaft C, having cam-wheels E, wheel C', having notches C^2 and C^4, dog D, shaft G, journaled in the slots in the standards, having cam G' and gear-wheel H, pinion *k*, having a crank, springs L, and the follower, which is suspended from the shaft G by chains or cords, substantially as described.

3. The combination, with the press-box and the standards, of cam-wheels E, shaft G, provided with a cam, G', the follower, and cords or chains suspending the latter from the shaft G, the cam-wheels E revolving against the latter, as set forth.

313,915. METHOD OF TUBING AND PACKING ARTESIAN AND OIL WELLS. JOHN BOLE, Pittsburg, Pa. Filed Nov. 10, 1884. (No model.)

Claim.—The process of excluding water, mud, gravel, quicksand, or other objectional substances from oil-wells, gas-wells, or Artesian wells

313,915.



by lowering a pipe or tube forming well-casing to the required position in the well and then expanding the walls of the casing into the walls of the well at the points and in the manner required to exclude the objectionable substances from the well, substantially as and for the purposes set forth.

313,916. ANTI-FRICTION MATERIAL AND JOURNAL OR OTHER BEARING. FERDINAND E. CANDA, New York, N. Y. Filed May 16, 1883. Renewed Feb. 9, 1884. Again renewed Aug. 21, 1884. (Specimens.)

Claim.—1. An anti-friction mixture composed of one or more ground, granulated, pulverized, or otherwise divided metals or alloys, or of one or more metals with one or more alloys, in any desired proportion, with or without a coating of tin or other metals or alloys and one or more lubricants or unctuous substances that will not fuse with the melting of the metals, substantially as specified.

2. A journal-bearing composed of one or more ground, granulated, pulverized, or otherwise divided metals or alloys, or of one or more metals with one or more alloys, in any desired proportion, and one or more lubricants or unctuous substances that will not fuse with the melting of the metals, mixed together and compressed into shape, substantially as specified.

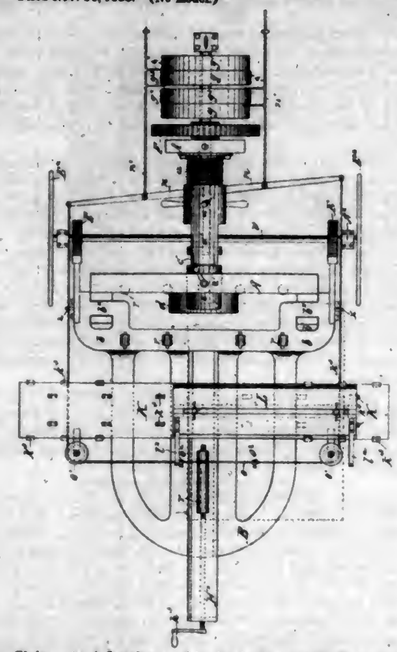
3. The method herein described of making an anti-friction material or compound from one or more metals or alloys, or from one or more metals with one or more alloys jointly and one or more lubricants or unctuous substances, which consists in first grinding, granulating, pulverizing, or otherwise dividing into particles the metals and alloys which fuse or melt at high temperatures, and then coating or covering the same with tin or other metal or Babbitt metal or other alloy which fuses or melts at lower temperatures, and afterward adding to and mixing with the prepared or coated metallic particles the lubricant or lubricants or unctuous substance or substances, essentially as described.

4. The method herein described of making an anti-friction solidified material or compound or journal or other bearing, which consists in first grinding, granulating, pulverizing, or otherwise dividing into particles one or more metals or alloys or one or more metals with one or more alloys jointly with or without the addition of a suitable flux or fluxes, then adding one or more lubricants or unctuous substance or substances, then subjecting the whole to heat sufficient to bring some of the metals or alloys to a welding or soldering state, and afterward pressing the same, while hot, to perfect the welding or soldering and to lock the disseminated lubricant or lubricants or unctuous substance or substances within the mass, and to give the mass solidity, compactness, and shape, substantially as specified.

5. The method herein described of making an anti-friction solidified material or compound or journal or other bearing, which consists in first grinding, granulating, pulverizing, or otherwise dividing into particles one or more metals or alloys or one or more metals with one or more alloys jointly with or without the addition of a suitable flux or fluxes, coating one or more of said metals and alloys with tin or other metal or Babbitt metal or other alloy, then adding one or more lubricants or unctuous substance or substances, then subjecting the whole to heat sufficient to bring some of the metals or alloys or the coating thereof to a welding or soldering state, and afterward pressing the same, while hot, to perfect the welding or soldering and to lock the disseminated lubricant or lubricants or unctuous substance or substances within the mass, and to give the mass solidity, compactness, and shape, substantially as set forth.

6. The method herein described of lining journal or other bearings, which consists in placing a bearing-shell (the inside of which may be coated with tin or other metal or Babbitt metal or other alloy) in a die or mold, adding thereto ground, granulated, pulverized, or otherwise divided particles of one or more metals or one or more alloys, or one or more metals with one or more alloys, some or all of which may be coated with tin or other metal or Babbitt metal or other alloy melting at lower degrees of temperature with or without the addition of one or more lubricants or unctuous substances, also with or without the addition of a suitable flux or fluxes, then subjecting the whole to heat sufficient to bring some or all of the divided particles of metals or alloys or the coatings thereof, if coated, to a soldering or welding state, and afterward subjecting the mass to pressure, while hot, to perfect the welding or soldering, and to give the bearing solidity, compactness, and shape, substantially as set forth.

313,917. FLANGING-MACHINE. ROBERT A. CARTER, Pittsburg, Pa. Filed Nov. 30, 1883. (No model.)



Claim.—1. A flanging-machine having in combination a transversely-reciprocating rest or support, a pair of flanging-rolls, and a vertically-swinging table, substantially as set forth.

2. In a plate-flanging machine, the combination of a swinging table having thereon a reciprocating support for the plate, rotating flanging-rolls, and an arm moving with the plate, and adapted to operate the roll-reversing mechanism, substantially as set forth.

3. In a plate-flanging machine, a swinging table having thereon a reciprocating support for the table and reversible rotating flanging-rolls, in combination with an arm moving with the plate to be flanged, for automatically reversing said rolls, substantially as set forth.

4. In a plate-flanging machine, a swinging table, in combination with an upper positively-driven roll and a lower roll driven by frictional contact with the plate to be flanged, substantially as set forth.

5. In a plate-flanging machine, a table having a plate rest or support, in combination with a positively-driven roll and a roll rotated by frictional contact with the plate to be flanged, substantially as set forth.

6. In a plate-flanging machine, the combination of the swinging table B, the longitudinally-adjustable block H, the guide-plate K, secured to said block, and the plate-bed adapted to slide on said guide-plate crosswise of the machine, substantially as set forth.

7. In a plate-flanging machine, the combination of a swinging table having a plate rest or support and a pair of reversible rotating flanging-rolls with reversing mechanism operated by the plate to be flanged, substantially as set forth.

8. In a plate-flanging machine, a table having a plate rest or support, in combination with a pair of flanging-rolls, and reversing mechanism operated by the plate to be flanged, substantially as set forth.

9. In a flanging-machine, a table having a plate rest or support, in combination with a pair of rotating flanging-rolls and mechanism for reversing the motion of the flanging-rolls, substantially as set forth.

10. In a flanging-machine, the combination of a table having a plate rest or support with a pair of flanging-rolls, one of said rolls being supported at both ends, substantially as set forth.

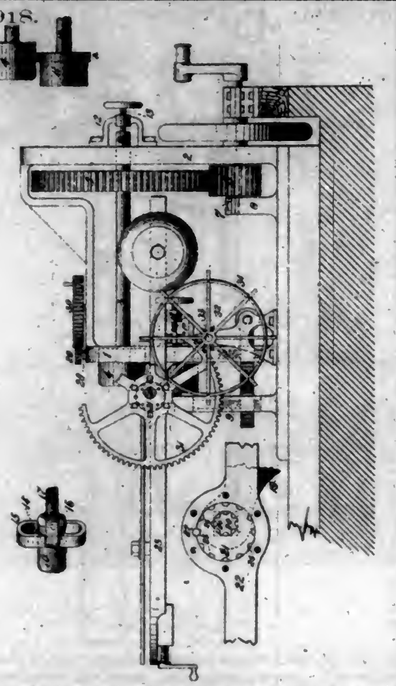
11. In a flanging-machine, a table having a plate rest or support, in combination with a pair of flanging-rolls, the lower roll being adjustably supported at both ends, substantially as set forth.

313,918. FLANGING-MACHINE. ROBERT A. CARTER, Pittsburg, Pa. Filed Sept. 26, 1884. (No model.)

Claim.—1. In a flanging-machine, the combination of a pair of flanging-rolls and a swinging table having its pivotal point vertically adjustable, substantially as set forth.

2. In a flanging-machine, the combination of a pair of flanging-rolls and a swinging table having its pivotal point horizontally and vertically adjustable, substantially as set forth.

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3. In a flanging-machine, the combination of a swinging table and a pair of flanging-rolls, both of said rolls being longitudinally adjustable, substantially as set forth.

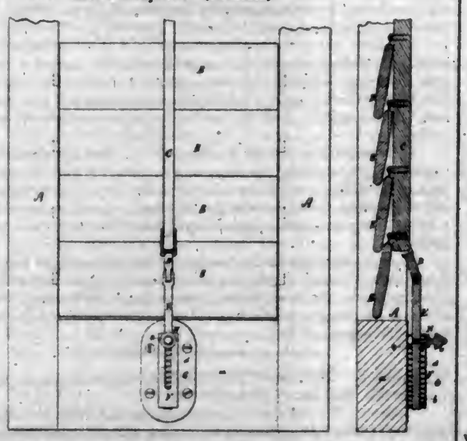
4. In a flanging-machine, the combination of a swinging table and a pair of flanging-rolls, both of said rolls being longitudinally and vertically adjustable, substantially as set forth.

5. In a flanging-machine, the combination of a swinging table and a pair of vertically-adjustable flanging-rolls, substantially as set forth.

6. In a flanging-machine, the combination of a swinging table and a pair of flanging-rolls, the lower roll having a bead, *a*, and being longitudinally adjustable, substantially as set forth.

7. In a flanging-machine, the combination of a pair of flanging-rolls, a swinging table, journal-pins secured to the frame of the machine, eccentric sleeves surrounding said journal-pins and mounted in the arms of the swinging table, substantially as set forth.

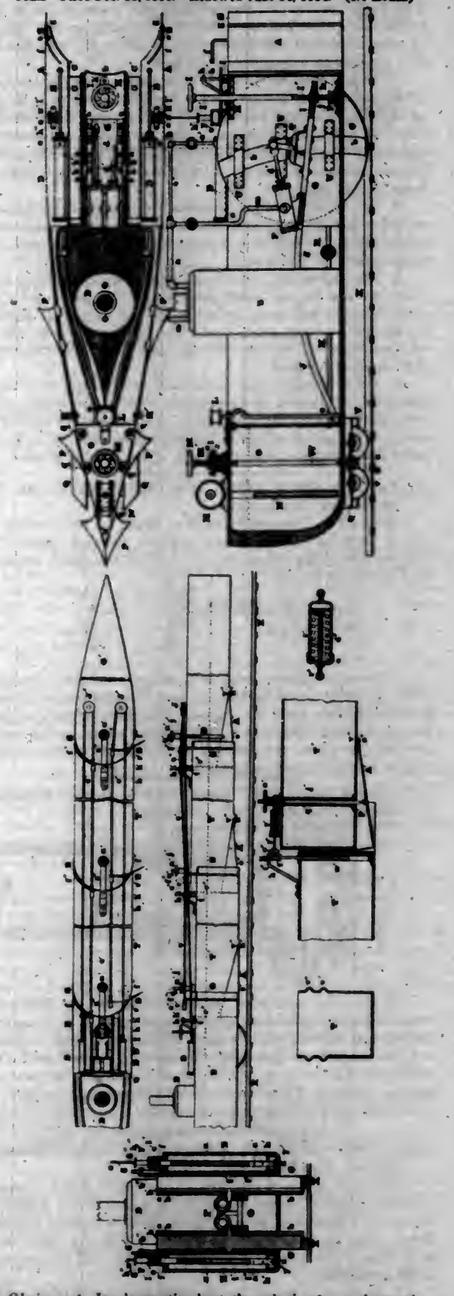
313,919. BLIND-SLAT FASTENING. EBEN M. COFFIN, Hubbardston, Mass. Filed Nov. 24, 1884. (No model.)



Claim.—1. The blind-slat fastening as composed of the link, slide, the slotted socket-piece, spiral spring, and the clamp-screw, arranged and combined substantially as set forth.

2. The combination of the blind-frame and its series of movable slats and their connection-bar with the slat-fastening fixed to such bar and frame, and consisting of the link, slide, slotted support-piece, spring, and clamp-screw, arranged and applied substantially in manner to operate as represented.

313,920. TOW-BOAT FOR CANALS. DAVID W. COOKE, Franklin, Tenn. Filed Feb. 10, 1880. Renewed June 14, 1884. (No model.)



Claim.—1. In a locomotive-boat, the swinging frame, the traction-wheel and bearings carried by said frame, the vertical screw-shaft stepped at its base, and swiveled nut on said frame through which said screw-shaft passes, all in combination, substantially as stated.

2. In a locomotive-boat, a truck-frame under the boat and adjustable relatively thereto, a vertical screw-shaft stepped in the truck, a fixed

nut at the deck through which the screw passes, and mechanism for turning the screw, all in combination, substantially as set forth.

3. In combination, the hull of a locomotive-boat, the side water-ballast chamber, the valve controlling the entrance of water to said chamber, the tubular stem to said valve perforated as described, and a float-indicator in said valve-stem, all substantially as set forth.

4. The brace, as A, attached to the deck and made in bracket form, as described, the draft-bolt passing through said brace and into the deck, the hub of the draw-head made vertically adjustable on said bolt, and the draw bar or head connected to said hub and to the succeeding boat, all in combination, substantially as set forth.

5. In a flexible train-boat, a series of rudders, one at the rear corner of each section, tiller-cords connecting the series of rudders in the manner shown, sheaves near one end of the train of boats round which the tiller-cords pass, and cylinders to operate the tiller-cords, whereby the rudders may be closed against the sides of the boat to close the openings between sections or thrown out to act as brakes, all being combined as shown and described.

6. In a train of boats, an adjustable apron hinged to the bottom of one section and extending backward, as described, and mechanism, substantially as described, to raise or lower the free end of said apron, combined substantially as described.

7. The combination, with a boat-section, of an apron hinged to the bottom and near the end thereof, wedge-shaped side pieces, and a stern piece attached to said apron, and mechanism, substantially as described, for raising and lowering the free end of the apron, whereby the side and end pieces close over the boat when the apron closes against its bottom, all substantially as stated.

8. The combination, with boat-sections constituting a train-boat, of mechanism, substantially as described, for retaining the sections at different elevations relatively to each other, and an adjustable apron at the bottom of one section adjustable, substantially as described, to form an incline to the bottom of the next section, all substantially as stated.

313,921. WEATHER-STRIP. JOHN COTRELL, Schell City, Mo. Filed Apr. 29, 1884. (No model.)

Brief.—Two L-shaped plates—one hinged to the threshold, the other to the lower part of the door—interlock and close contact of one with the other, being secured by a plate-spring arranged to extend beneath them upon the sill.



Claim.—In a weather-strip, two L-shaped metal plates hinged, respectively, to the side of the door and to the door-sill, so that when the door is closed both plates will lap each other directly under the edge of the door, in combination with a plate having a convex spring-arm and upwardly-bent elbow, and connected to the frame of the door, substantially as and for the purpose set forth.

313,922. GAS-ENGINE. GOTTLIEB DAIMLER, Cannstadt, Würtemberg, Germany. Filed Mar. 25, 1884. (No model.)

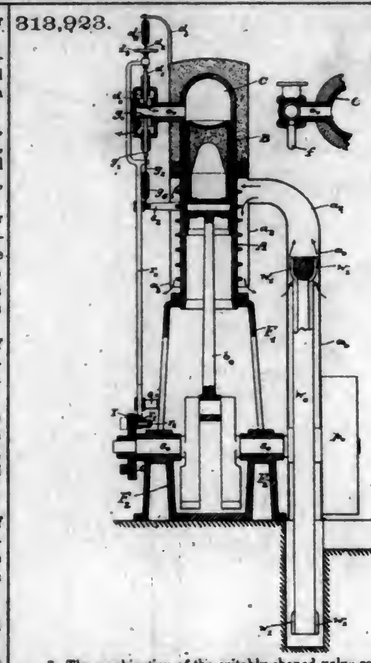


Claim.—In a gas-motor, the combination, with an exteriorly-insulated cylindrical gas-chamber fitted with a supply and an exhaust port controlled by valves, and an igniting-chamber, of a piston having its end projecting into the igniting-chamber interiorly insulated and working within said chamber to draw in the gas and to compress the same to its point of ignition by the walls of the igniting-chamber and to receive the force of the explosion of the gases, substantially as described.

313,923. GAS-ENGINE. GOTTLIEB DAIMLER, Cannstadt, Würtemberg, Germany. Filed Mar. 25, 1884. (No model.)

Claim.—1. In gas or oil motors, in combination with a crank-shaft and valve-chest, as shown and described, a cam with a double-loop curve, and a slide-shoe operated thereby, said slide-shoe fulcrumed to and operating the valve-rod, which works the inlet and outlet valves, so as to cause one complete operation of parts for each two revolutions of the crank-shaft.

2. In gas or oil motors, in combination with crank-shaft S^9, connecting-rod b^9, piston B, working within cylinder A and insulated compression-cylinder C, pipe c^9, valves d^9 g^9, contracting-springs g^4 and d^3, valve-rod r^2, with slide-shoe r^3, fulcrumed thereon, said shoe operated by grooves i' i^2 i^3 i^4 i^5 in cam I on shaft S^9, guide-brackets e' e^2, and fly-wheel w^9, all substantially as shown, and for the purpose set forth.



3. The combination of the suitably-shaped valve-rod of a gas or oil motor with a projecting arm pushing against the valve-stem and opening the inlet-valve, and an adjusting-screw screwed into said projecting arm for regulating the quantity of gases or the moment of priming the same.

4. In combination with the compression-cylinder, working-cylinder with piston, connecting-rod, crank-shaft, and cam of a gas or oil motor, the suitably-shaped valve-rod r^9, inlet-valve d^9, mounted on pipe c^9, valve-stem d', contracting-spring d^4, bracket d^5, rod d^3, and adjusting-screw d^2, substantially as shown and described.

5. In combination with the cam I of a gas or oil motor, said cam provided with a double-loop groove, a suitable slide-shoe guided within said groove and journaled at the end of the valve-rod governing the inlet and outlet valves of the motor, and a switch-piece combined with a centrifugal regulator and mounted on said cam, all for the purpose set forth and described.

6. In combination with the cam I of a gas or oil motor, said cam provided with the double-loop groove i' i^2 i^3 i^4 i^5, and with a switch-piece, j^3, and a bridging-lid, j', and mounted on the crank-shaft s^9, the fly-wheel w^9, mounted on the same shaft, the slide-shoe r^3, guided by said double-loop groove and journaled by means of a pin to the eye r' at the end of valve-rod r^2, said valve-rod r^2 governing the inlet-valve d^9 and the outlet-valve g^9 of the compression-cylinder of the motor, and a centrifugal regulator consisting of weights or balls j^3 j^3, secured on the ends of the angular levers j^4 j^4, said angular levers connecting by the joint j^5 and by helical spring j^6, and fulcrumed in fulcrums j^3 j^3 to said cam I, all substantially as shown, and for the purpose set forth and described.

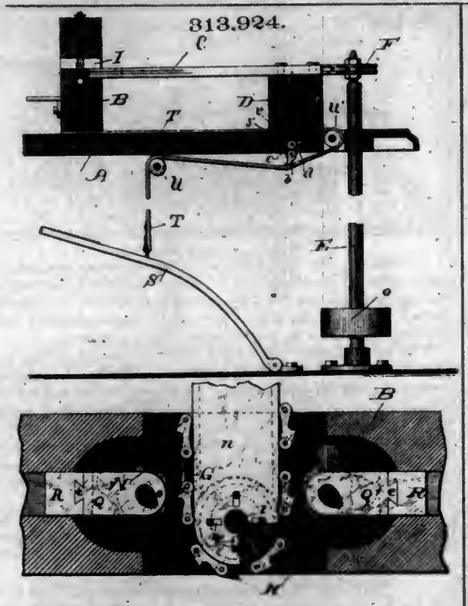
7. In combination with the fly-wheel and the working-cylinder of a gas or oil motor, annular ribs on the outside walls of the working-cylinder, and suitably-curved blades provided on the rim of the fly-wheel, said rim working within a circular flue, said flue in communication with a hollow casing enveloping the working-cylinder, for the purpose set forth.

8. In combination with the fly-wheel w^9 and the working-cylinder A of a gas or oil motor, annular ribs provided on the outside walls of the working-cylinder, the curved blades w on the rim of the fly-wheel, flue a^9, flue a, and casing a^2, surrounding cylinder A, substantially as shown, and for the purpose set forth.

313,924. CHAIN MORTISING-MACHINE. TAYLOR E. DANIELS, Chicago, Ill. Filed Jan. 28, 1884. (No model.)

Claim.—1. In a chain mortising-machine, the combination, with the supporting-frame, endless-chain cutter mounted upon a bar, mechanism for driving the chain cutter, and support for the object to be mortised, of guides bearing against the sides and edges of the chain-carrying bar, whereby the chain cutter is prevented from deviating from a straight line, substantially as described.

313,924.



2. In a chain mortising-machine, the combination, with the chain cutter and mechanism for driving and bar for supporting the same, of the sliding body B, supported upon the machine and having on its side opposite the end of the chain cutter a shelf for the object to be mortised, and having through it, in line with the chain cutter, an opening, I, provided internally with rotary guide mechanism to bear against the chain cutter and bar without impeding the action of the chain cutter, substantially as described.

3. In a chain mortising-machine, the combination, with the chain cutter and mechanism for driving and bar for supporting the same, of the device for guiding the said bar and chain and preventing their deviation from a direct line, comprising the body B, supported upon the machine, and having an opening, I, through it for the passage of the bar and chain, and made movable forward and back with relation to the bar and chain, and provided internally with rollers K and mechanism for adjusting the said rollers to and from each other, and also with spur-wheels N and mechanism for adjusting the said spur-wheels to and from each other, substantially as described.

4. In a chain mortising-machine, the combination, with the guide or support B, provided with the aperture I, to receive the end of the chain-supporting bar and chain thereon, of the spur-wheels N, upon bearings within the aperture I, and mechanism for adjusting them vertically to correspond with the adjustment of the chain upon the chain-carrying bar, and mechanism for adjusting them laterally to permit engagement with the links of different-sized chains, substantially as described.

5. In a chain mortising-machine, the combination, with the endless-chain cutter and mechanism for driving the same, of the bar for supporting the chain cutter, said bar being provided with a pulley at its forward end, and being made tapering, as shown, and broadest toward its forward end, whereby the chain cutter is in contact with it for only a portion of its length, thus reducing friction, as set forth.

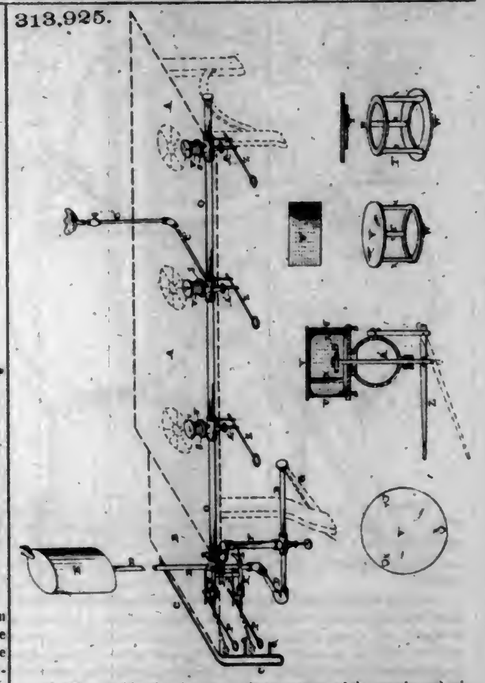
6. The bar C, for supporting the chain cutter, made tapering, as described, whereby it is broadest toward its forward end, and formed in two parts, a and a', fitting together, as and for the purpose set forth.

7. In combination with the chain-supporting bar of a chain mortising-machine, provided with a recess in its outer end and with openings i leading thereto, the pulley H, set into the said recess and comprising the ring K, rigidly secured in place, with its interior in line with the openings i of the bar, and provided with an annular recess, g, for packing, and with openings g', extended through the bar to admit oil thereto, and the loose ring k', surrounding the ring k, and provided with the groove l', substantially as described.

313,925. VAPOR-STOVE. ZEBULON DAVIS, Canton, Ohio. Filed Jan 15, 1884. (No model.)

Claim.—1. The combination, in a vapor-burner stove, of the supply and mixing pipe, two or more burners connected thereto, a vapor-generating chamber, and a means for injecting the vapor into the supply and mixing pipe, each one of the burners being provided with a means of its own for regulating the supply of gas to it, substantially as described.

313,925.



2. The combination, in a vapor-burner stove, of the supply and mixing pipe, two or more burners connected thereto, and independent means for controlling the supply of vapor to each burner, and a vapor-generating chamber, a needle-barrel for producing a heating-flame for the chamber, and a needle-barrel for injecting the vapor into the supply and mixing pipe, substantially as set forth.

3. The combination, in a vapor-burner stove, of the horizontal supply and mixing pipe, two or more burners connected thereto, each burner being provided with a means for regulating the supply of gas to it, a vapor-generating chamber, a means for heating the chamber, and a needle-barrel for injecting the gas into the horizontal pipe, substantially as specified.

4. The combination, in a vapor-burner stove, of the mixing and supply pipe, two or more burners connected thereto, and independent means for controlling the supply of vapor to each burner, and a vapor-generating chamber, a means for heating the chamber, a means for injecting the gas into the supply-pipe, and a flaring-mouth section placed upon the pipe, substantially as shown.

5. In a vapor-burner stove, the combination of the levers P, connected with the needle-valves K N, the guide C, and the lugs or stops Q with the tank and the feed-pipe D, as set forth.

6. The combination of the reservoir, the feed-pipe and tank, the needle-barrels, needles, and devices for moving the needles with suitable stops which are secured to the frame, whereby the needles must be closed before the tank can be turned down to be filled, substantially as set forth.

313,926. BOTTLE-STOPPER. FREDERICK J. DEVERALL, Jersey City, N. J. Filed Jan. 22, 1885. (No model.)



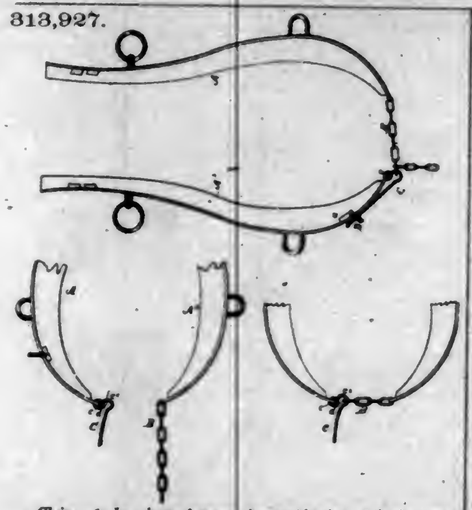
Claim.—1. The bottle-stopper composed of the stop or bowl, a post extending from the concave, and a tube from the opposite side thereof, a passage being formed through the tube and terminating in the bowl at the base of the post, substantially as set forth.

2. The bottle-stopper composed of the bowl or stop F, post G, tube H, and passage I, in combination with the ring of material D, substantially as set forth.

3. The bottle-stopper composed of the bowl or stop, post G, tube H, passage I, and opening W, substantially as set forth.

313,927. HAME-FASTENER. CHARLES K. DICKSON, St. Louis, Mo. Filed Dec. 10, 1883. (No model.)

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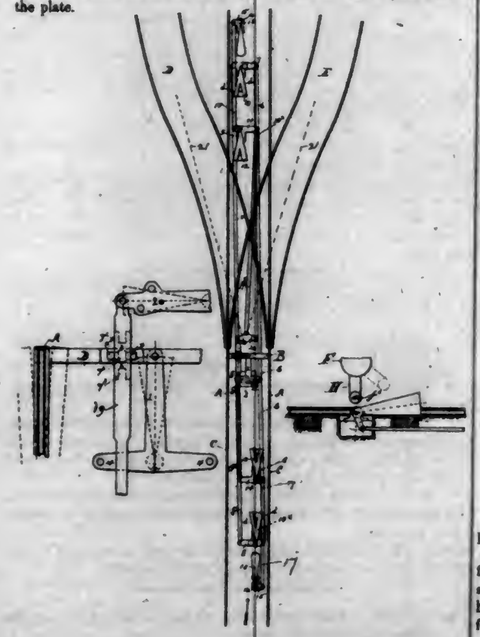


Claim.—1. In a hame-fastener, the combination of the hame-sections A A', chain B, pivoted hook C, having the irregular swell or pocket *d* at the curve of the hook, and the long arm, gravity-ring D, and gravity-ring slot *a*, substantially as described, and for the purposes specified.

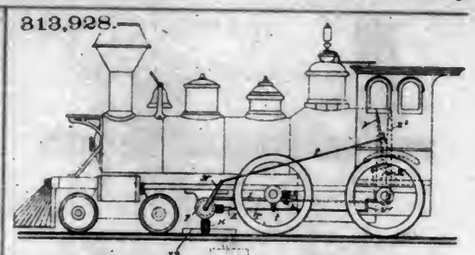
2. In a hame-fastener, the combination of hame-section A, having chain B firmly attached to its lower end, a hame-section, A', having an elongated slot, *a*, and sliding gravity-ring D, a pivoted hook, C, pivoted to lower end of hame-section A', and having an irregular swell or pocket, *d*, adapted to receive and hold one end of chain, and the long arm adapted to establish connection with chain B and to be locked by gravity-ring D, substantially as described.

313,928. AUTOMATIC RAILWAY-SWITCH. CHARLES S. DRAKE, San Francisco, Cal. Filed Apr. 27, 1883. (No model.)

Brief.—Means for unlocking, shifting, and locking a switch, embracing three wedge-shaped plates arranged in line in the track along the approach to the switch and mounted on levers connected with the switch-rails and the lock mechanism, as described. The plates are successively engaged to turn the levers by a device carried by the locomotive, and consisting of a rotatable longitudinally-movable cylinder sliding in a fixed slotted barrel and carrying two arms to bear on both faces of the plate.



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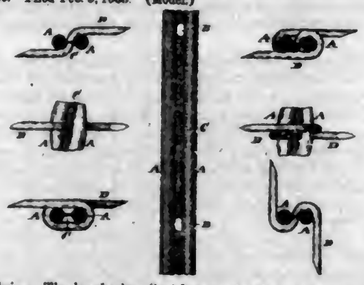
Claim.—1. The combination of a switch-unlocking mechanism, a switch-operating mechanism, and a means, substantially as described, for locking the switch after each throw, consisting of the lever 14, projecting surface 12, and a locking slide or draw bar, 19, adapted to operate locking devices at or near the free end of the switch, as set forth.

2. In combination with a switch-section or movable portion in a line of railway, the switch-operating lever, wedge-plate, and connecting-rods constituting the switch-actuating mechanism, and the wedge-plates 13 and 12, rod 17, and draw-bar 19, having the stops y' y^2 y^3, and the lugs x' x on the switch-bar, constituting a locking device which is adapted to be operated by engagement with projecting stops carried by the locomotive, and to be operated in advance of and after the operation of the switch by the said stops to unlock the switch before its throw and lock it after it is set, substantially as hereinbefore described.

3. The combination, with the slotted barrel or case F, of the bolt G, movable therein and provided with arms or stops H, extending out through the slots in the barrel, substantially as and for the purpose herein set forth.

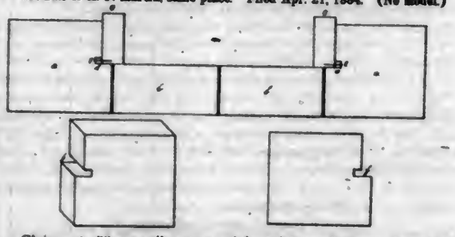
4. The combination, with the slotted holding barrel or case F, of the bolt G, having stops or projections H H, the lever I, crank N, connecting-rods J P, operating-handle z^2, and locking-pin K, and its operating lever-handle and connecting mechanism, substantially as herein described.

313,929. BARBED FENCE-WIRE. WILLIAM EDENBORN, St. Louis, Mo. Filed Feb. 5, 1883. (Model.)



Claim.—The herein-described improved twin fencing-wire, consisting of two main wires connected by a very thin flat web, said web being perforated, as described, and provided with wire barbs secured in the perforations, and the twin wires being twisted, twined, or rolled sidewise one over the other, whereby the perforations of the web are closed around the barbs and the latter caused to project at different angles, as shown and described.

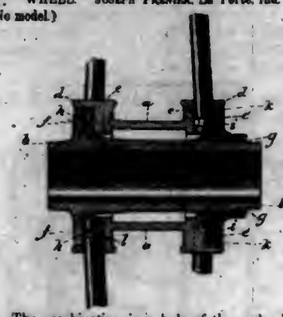
313,930. BRICK FOR VENEERING FRAME HOUSES AND OTHER WOODEN BUILDINGS. MILLARD F. ELLIS, Atchison, Kans., assignor of one-half to A. F. Martin, same place. Filed Apr. 21, 1884. (No model.)



Claim.—1. The peculiar shape of the brick *a a* for veneering purposes, the same having a slot, *f*, substantially as described.

2. The method of securing said veneering bricks to the studding or frame of a house or building by means of wooden cleats *d d*, nailed to said frame, over which the slots *f f* of said veneering bricks fit, and which hold the wall to the frame of the wooden building, substantially as and for the purpose set forth.

313,931. WHEEL. JOSEPH FRENIER, La Porte, Ind. Filed Jan. 3, 1885. (No model.)



Claim.—The combination, in a hub, of the spoke-holder *a*, with flanges and recesses, as described, and the box *b*, with flange and annular projection, and the nut *c*, with similar flange and projection.

313,932. COMBINED GRAIN AND OIL CAR. JOHN R. GATHRIGHT, Jeffersonville, Ind. Filed Dec. 31, 1884. (No model.)



Claim.—1. The combination of a tank, B, having a close top, sides, and ends, and mounted on wheels, and the body of a grain-car, consisting of a box, C, fitted on top of the tank, and having a bottom, D, separated from the top of the tank by an air-space, and slanted on its bottom from its ends toward its middle, substantially as shown and described.

2. The combination of an oil-tank, B, practically separated into two compartments by its top slanting from the ends toward the middle, and a box or car-body fitted on the top thereof and having its bottom slanted from the ends toward the middle thereof, substantially as shown and described, for the purpose specified.

313,933. MEANS FOR VERTICALLY RECIPROCATING SEWING-MACHINE PRESSER-FEET. JULIUS C. GOODWIN, Philadelphia, Pa., assignor to the American Buttonhole, Overseaming and Sewing Machine Company, same place. Filed Aug. 4, 1884. (No model.)

Brief.—The lifter-arm is pivoted directly to the presser-bar, its other end being provided with a roller for operation by the disk-cam. The fulcrum consists of an eccentric disk mounted on a bolt projecting through the case of the machine and provided with a thumb-nut and a spring friction-washer.



Claim.—1. The combination of the disk or cam plate, the presser-foot bar, its actuating-lever pivoted thereto, and an adjustable eccentric, which serves as a fulcrum for said arm.

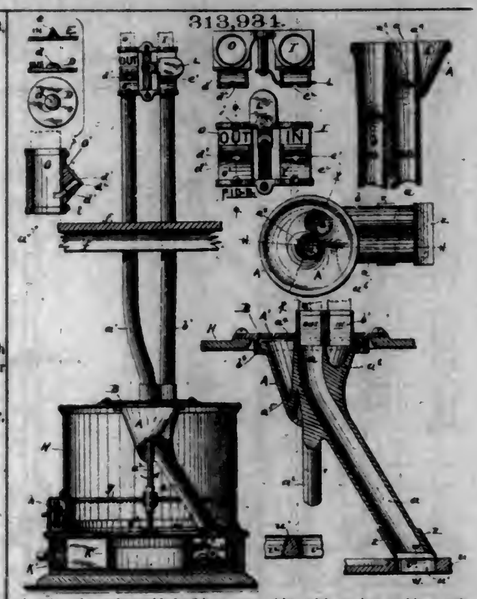
2. The combination of the disk or cam-plate, the presser-foot bar, the actuating-arm pivoted thereto, the adjustable eccentric, which serves as its fulcrum, the bolt on which said eccentric is carried, means for rotating said bolt, and a friction-washer for holding the eccentric in any position into which it may be rotated.

313,934. TIME-CHECK REGISTER. FRANK W. GRISWOLD, Providence, R. I. Filed Oct. 10, 1884. (No model.)

Claim.—1. In a time-check register, the double check-conductor herein described, the head thereof having a central opening, *a*, around which is formed an annular space, its bottom surface having the form of a quick-receding volute or spiral and terminating in the eccentric or side opening, *b*, both of said openings *a b* extended downwardly, forming the conductor-tubes, the head being further provided with a center spindle or arbor, thereby adapting the conductor to be mounted and rotated within a register, substantially as shown, and for the purpose set forth.

2. The combination, in a time-check register provided with the rotating double conductor herein described, of the double stations O I, each

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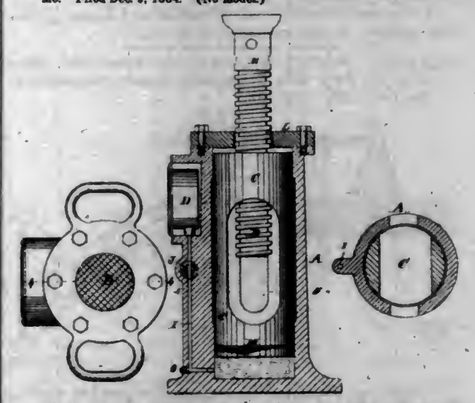


chamber thereof provided with a removable and interchangeable mouth-piece having an opening or slit adapted to receive time-checks, with stationary tubes connecting the station and register, substantially as shown, and for the purpose set forth.

3. In a time-check register, the double station herein described, having interchangeable and apertured mouth-pieces, in combination with the non-interchangeable metallic checks E D, each having a central projection, the center *e* of the former check being conical, and that of the latter being convex, said projections being so proportioned as to render the checks non-interchangeable when used in a double station having correspondingly-shaped apertures, substantially as shown and set forth.

4. In a revolving double conductor having tubes *a b*, provided at their lower end with the projecting plates *z z*, the combination therewith of a stationary partition having a series of openings, *c*, therein, each separated by the tie *n'*, its upper surface being rounded or beveled, substantially as shown and set forth.

313,935. LIFTING-JACK. ALEXANDER H. HANDLAN, Jr., St. Louis, Mo. Filed Dec. 9, 1884. (No model.)

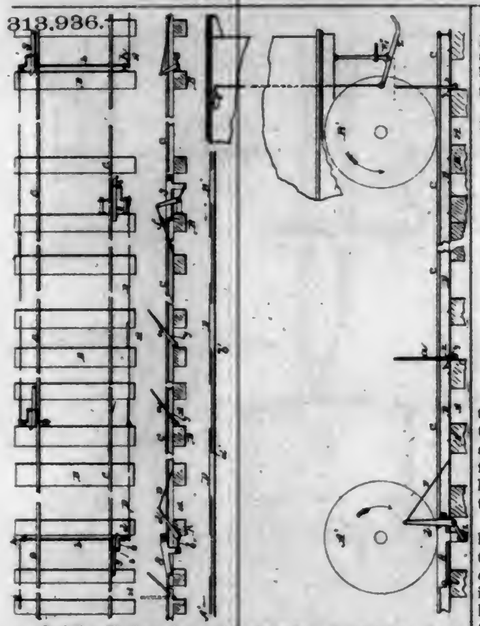


Claim.—1. In a lifting-jack, the combination of the body, screw, plunger, and register, the latter being connected to the former by means of a port for the passage of liquid displaced by the plunger, substantially as set forth.

2. The combination of a lifting-jack and register, arranged as described, that the latter will indicate the amount lifted by the former through means of liquid forced from the former to the latter, as specified.

313,936. RAILROAD-SIGNAL. ADAM HOFFMANN, Allegheny, Pa. Filed Mar. 3, 1884. (No model.)

313,936.



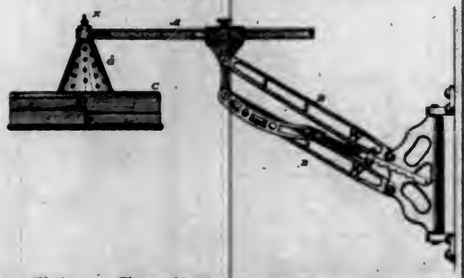
Brief.—The invention consists of two lines of rods having signal-rods attached to them, guided in staples and running parallel with the track, placed on either side and overlapping each other about one-third of their lengths. The rods are operated by a spring-returning treadle, which is itself operated by the flange of the car-wheels, and is only operated when the train is passing in one direction. The signal-rods come in contact with an arm projecting from the engine of a train coming in the opposite direction, and warn the engineer of danger.

Claim.—1. In a railroad-signal, the combination of the track, the rods D, placed alongside thereof and made to overlap each other, cranks, levers for moving the rods, and signal-rods which are operated by the endwise movement of the rods, substantially as shown.

2. In a railroad-signal, the combination of the track, the rods D, placed alongside thereof and made to overlap at their ends, cranks, operating-levers connected to the cranks, signal-rods, and a mechanism on the locomotive which is for sounding an alarm and which is operated by the signal-rods, substantially as described.

3. The combination of the rods D, crank-shafts *b*, treadles *g*, levers *d*, and springs S, arranged substantially as set forth.

313,937. BRACKET. WOODBURY S. HOW, Cincinnati, Ohio, assignor to the S. S. White Dental Manufacturing Company, Philadelphia, Pa. Filed Dec. 1, 1882. (No model.)



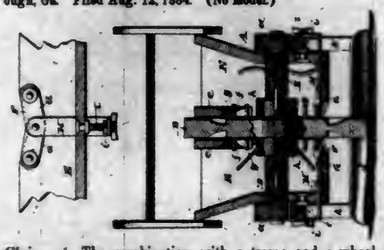
Claim.—1. The combination of an arm or support with a table or tray suspended therefrom by means of a central swiveling or turning connection extending from the upper surface of said table or tray, substantially as described.

2. The combination, substantially as hereinbefore set forth, of an arm or support, a table or tray hung or suspended from said support, and a coned or tapered turning-connection between said support and said table.

3. The combination of a support, a connection for a table or tray connected therewith, and a tool-rack fitted to said connection, so as to be capable of being turned relatively to said support, substantially as described.

4. The combination, substantially as hereinbefore set forth, of a support, a table or tray connected to and suspended beneath said support, so as to be capable of being rotated, and a tool-rack fitted to the connection between the support and table, to steady the turning movements of said table, substantially as described.

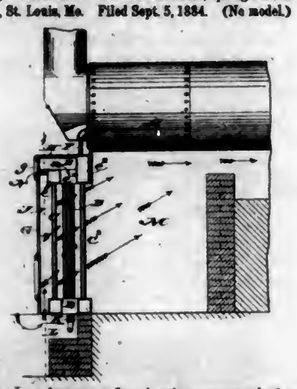
313,938. COTTON-SEED PLANTER. JESSE M. HOWELL, Greensborough, Ga. Filed Aug. 12, 1884. (No model.)



Claim.—1. The combination, with a frame and a wheel secured therein and projecting upwardly through the frame, of hoppers secured to the frame on opposite sides of the wheel, each hopper being provided at its lower end with an opening, arms pivoted at their outer ends to the floor of the hopper and their inner ends to an arm extending through the hopper, and a bolt or screw passing through the end of the arm and into the side of the hopper, substantially as set forth.

2. The combination, with a frame and a wheel secured therein, of hoppers secured to the frame and provided with V-shaped openings in the floor thereof, arms fitting over the openings and pivoted at their outer ends to the floor of the hopper and at their inner ends to an arm extending through the hopper, and a screw or bolt passing through the said latter arm and into the side of the hopper, and provided with a lock-nut fitting against the end of the arm, substantially as set forth.

313,939. FURNACE. MICHAEL KEARNEY, Springfield, and MELVILLE C. HAWLEY, St. Louis, Mo. Filed Sept. 5, 1884. (No model.)



Claim.—1. In a furnace, a fire-chamber composed of vertical water-circulating tubes arranged zigzag and connected to water-boxes at their upper and lower ends, substantially as described.

2. The combination, with a combustion-space, M, and an air space or flue, J, of a fuel fire-chamber composed of vertical tubes connected at their upper and lower ends to water-boxes, substantially as described.

3. The narrow vertical fire-chamber formed of vertical tubes, in combination with water-boxes having passages through them for supplying fuel and discharging the ashes, substantially as described.

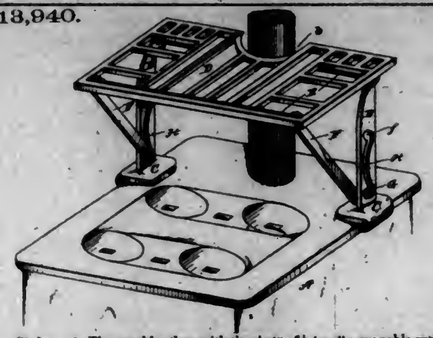
4. The combination of a fuel fire-chamber, composed of a front and rear series of tubes, a fuel feed passage at the upper end thereof, an ash-discharge passage at the lower end thereof, a grate, an ash-pit, an air-flue, J, the front wall thereof provided with doors above and below, and a combustion-chamber, M, substantially as described.

5. A fire-chamber formed of vertical tubes connected to a hollow base and to a hollow cap or chamber, E, having its rear side elevated above the top of its front side, substantially as described.

6. The combination of a fire-chamber composed of water-circulating pipes united to chambers D E, a pipe communicating with the water-space of a steam-boiler, a vertical air-flue, J, on one side of said fire-chamber, and a combustion-chamber, M, on the opposite side thereof, substantially as described.

313,940. SHELF FOR STOVES. THOMAS KENOK, Knoxville, Tenn. Filed July 26, 1884. (No model.)

313,940.



Claim.—1. The combination, with the shelf, of laterally-movable supporting-standards and laterally-movable stops or braces, whereby said shelf may be attached to stoves of different sizes, substantially as set forth.

2. The combination, with the shelf, of laterally-movable uprights having attaching-brackets at their lower ends pivoted thereto, and laterally-movable stops or braces pivoted to the shelf at the forward end thereof, and connected with the uprights in such manner that they may slide thereon and lock the shelf in either a vertical or horizontal position with regard to the stove, substantially as set forth.

3. The combination, with the shelf having the recess *b*, of the uprights pivoted thereto in such manner that they may be moved laterally, said uprights having attaching-brackets at their lower ends, and braces pivoted to the forward end of the shelf in such manner as to be laterally movable thereon, and connected with the uprights so as to slide thereon and lock the shelf in either a vertical or horizontal position with regard to the stove, as set forth.

4. In a stove-shelf, the combination, with uprights or standards having clamping-brackets at their lower ends, of a shelf hinged or pivoted at its rear end directly above the stove, and adapted to be folded to occupy a position at right angles thereto, and stops or braces for supporting the outer or free end of the shelf when raised, substantially as set forth.

5. In a stove-shelf, the combination, with uprights or standards, of a shelf pivoted at its rear end between said uprights directly above the stove, and braces pivoted to the shelf at their upper ends, their lower ends sliding upon the vertical uprights, substantially as set forth.

6. The combination, with uprights or standards having brackets at their lower ends, the lower leaf of each bracket having a screw-threaded opening and set-screws to engage the same, of a shelf pivoted to said uprights directly above the stove, and braces for supporting said shelf, substantially as set forth.

7. The combination, with uprights or standards, of a shelf located directly above the stove, said shelf having a rod, E, passing through openings in the upper ends of the uprights or standards, and pivoted braces for supporting the shelf, said shelf being adapted to be raised or folded at right angles to the stove, as set forth.

8. The combination, with uprights or standards having openings at their upper ends, of a shelf located directly above the stove and having a rod near its rear end, and braces for supporting said shelf, said braces working in slots upon the uprights or standards, substantially as set forth.

9. The combination, with uprights or standards having clamping-brackets at their lower ends, and openings at their upper ends, of a shelf located directly above the stove, pivoted to said uprights, and braces adapted to work in slots upon said uprights, substantially as set forth.

10. The combination, with uprights or standards, of a shelf located directly above the stove, having rods secured to its under side, and braces pivoted on the forward of said rods, substantially as set forth.

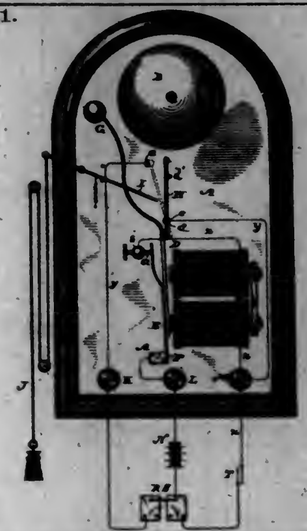
11. The combination, with uprights or standards, of a pivoted shelf located directly above the stove, and braces pivoted to said shelf, said braces having lugs at their lower ends adapted to work in slots formed on the uprights or standards, substantially as set forth.

12. The combination, with uprights or standards, of a shelf having rods secured to its under side, braces mounted on the forward of said rods, said braces being each provided with a lug on its outer side adapted to work in slots on the uprights or standards and engage an enlarged opening at either end of said slots, substantially as set forth.

13. The combination, with uprights or standards having brackets at their lower ends and set-screws working in said brackets, said uprights having each a vertical slot having an enlarged opening at each end, of a shelf having rods secured to its under side, braces pivoted to the forward of said rods, said braces being each provided with a lug upon its outer side near its lower end, said lug having a head or cross piece, substantially as set forth.

313,941. ELECTRIC BELL. CHARLES E. KELLS, Jr., New Orleans, La. Filed May 31, 1884. (No model.)

313,941.

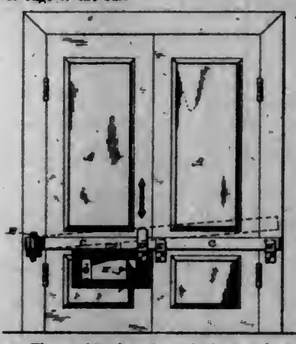


Claim.—1. The main circuit, the local ringing circuit, the electro-magnet, the vibrating armature of said magnet, carrying the bell-hammer, the vertical pivoted gravity circuit-completing bar, arranged, when in its normal position, with its lower end in contact with or in close proximity to said armature, a stop, *d'*, against which said bar normally lies, and the contact-stop *e*, against which the pivoted bar is thrown to complete the ringing circuit when the armature is attracted.

2. The combination of the electro-magnet, its armature, the main and local circuits, the vertical pivoted gravity circuit-completing bar, arranged with its lower end in a position to be struck by the armature when the armature is attracted, the stop *d'*, the contact *e*, and the pivoted rod I, which serves to throw the gravity-bar back upon its normal supporting-stop *d'*.

313,942. BAR FOR SECURING DOORS AND SHUTTERS. CHARLES H. KNAUER, Phœnixville, Pa. Filed Feb. 6, 1885. (No model.)

Brief.—A bar having a swinging, rising, and falling movement is pivoted to the door-frame, engages with keepers of different heights, and is locked in the keepers by a bolt on the door which engages a catch upon the lower edge of the bar.



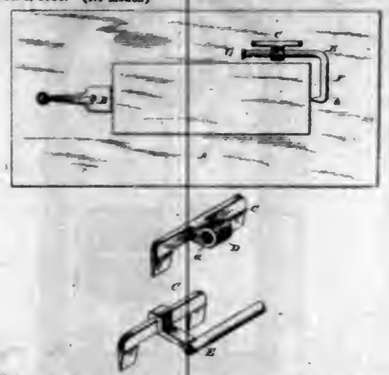
Claim.—1. The combination of a swinging or pivoted locking-bar with keepers of different heights, the bar being adapted to have both a swinging and a rising and falling movement, substantially as shown.

2. The combination of the pivoted locking-bar, which is pivoted upon the door or window frame, with a keeper which is secured to the door or shutter, and by means of which the locking-bar is carried back and forth, substantially as shown.

3. The combination, with the pivoted locking-bar, of suitable keepers and a lock provided with a bolt, which engages with a suitable catch upon the locking-bar, for the purpose of locking the bar down in position substantially as set forth.

4. The combination of the pivoted locking-bar, having a catch formed upon its lower edge, with the keepers of different heights and a lock provided with a hook-bolt, which engages with the catch upon the lower edge of the locking-bolt, substantially as shown.

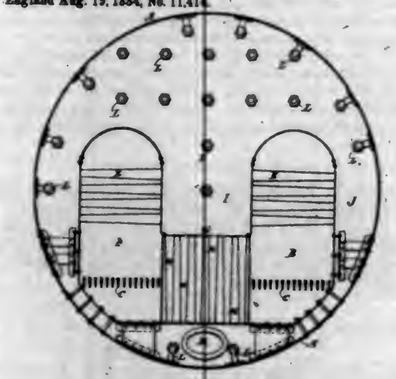
313,943. BENCH-DOG. MARTIN J. KUGLER, Barnesville, Ohio. Filed Feb. 2, 1885. (No model.)



Claim.—1. In a bench-dog, the combination, with a guide having downturned ends, of a dog having an inturned end formed with a point or barb, said dog sliding on the guide, substantially as set forth.

2. The combination, with a guide comprising a bar having downturned ends and a boss having a passage or opening, of a dog located and adapted to slide in said passage, said dog having an inturned end formed with a point or barb and a headed end, substantially as set forth.

313,944. STEAM-BOILER. JAMES McG. MCCULLOCH, Garston, County of Lancaster, England. Filed Sept. 8, 1884. (No model.) Patented in England Aug. 19, 1884, No. 11,414.



Claim.—1. A steam-boiler having a forward and return flue opening into each other at the one end, but separated from each other by a thin partition except at that end, and each pierced with transverse tubes at right angles, or nearly so, to those of the other.

2. The combination of a furnace-flue having transverse tubes in its upper part, with a return-flue alongside but not sufficiently high to interfere with the replacing of the transverse tubes, substantially as described.

3. In a boiler, a longitudinal furnace-flue having a series of transverse tubes in its upper part, in combination with a longitudinal return-flue of less height than the lowest part of the tubes of the furnace-flue, and fitted with vertical water-tubes, substantially as described.

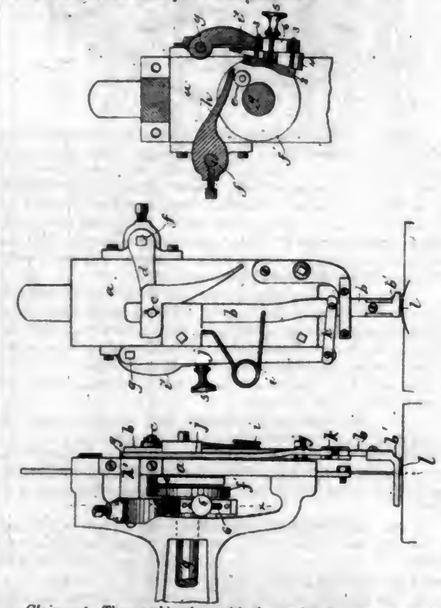
4. In a boiler, a water-space, I, having two or more of its sides formed by flues pierced with water-tubes opening into said space, the width of the clear space in front of the tubes being greater than the length of said tubes, whereby the tubes can be withdrawn into said space when required, and the steam escaping from said tubes will have free opportunity to escape, substantially as described.

5. In combination with a boiler having a main furnace-flue and a return-flue united at the back end, a feed-water chamber attached to and covering the entire rear end, whereby the end plate is completely protected against the fire and a large heating-surface is secured for the feed-water chamber.

6. A steam-boiler having a primary furnace-flue of substantially square section, from adjacent sides of which project the tubulous return-flue spaces, and open freely to the primary flue, and each projecting flue-space having its tubes opening out into the rectangle formed by the two projections.

313,945. FEEDING DEVICE FOR SEWING-MACHINES. EPHRAIM MCDONALD, Somerville, Mass. Filed Aug. 19, 1884. (No model.)

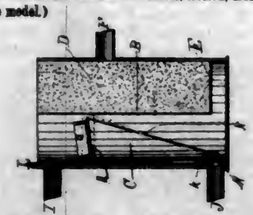
Brief.—A spring tends to hold the presser-bar down and in a vertical position. The presser-bar carrying the presser-foot, which latter serves also as an upper feeding device in connection with the under feed-wheel, is pivoted to an arm on a rock-shaft, whose other arm is operated by a roller eccentrically placed on the inner side of the disk on the end of the needle-operating shaft, whereby the presser-foot is lifted. The horizontal movement of the presser bar and foot is given by means of said roller operating another rock-shaft, one of whose arms has a link-connection with the lower part of the presser-bar.



Claim.—1. The combination, with the feed *l*, the pivoted presser-bar, and the mechanism for vertically moving the same, of the rock-shaft *g*, having the arms *i' j*, and the link *k*, connecting the arm *j* with the presser-bar, as set forth.

2. The combination, with the pivoted presser-bar and the mechanism for vertically moving the same, of the rock-shaft *g*, having the arms *i' j*, the link *k*, connecting the arm *j* with the presser-bar, the block 2 on the arm *i'*, and the adjusting devices for said block, as set forth.

313,946. FILTER. ROBERT C. MOORE, Holton, Kans. Filed May 20, 1884. (No model.)



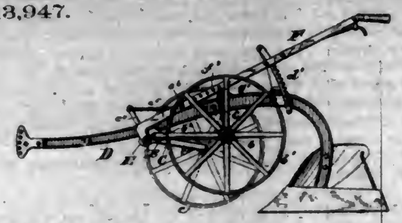
Claim.—1. The combination, with the tank A, provided with the water-chamber C, extending from top to bottom at one side, and provided with the inlet-pipe I at its upper end, and outlet-pipe J on the same side at its lower end, of the valve M, spring-arms H H, sliding valve K, and the filling-pan G, substantially as specified.

2. The combination, with the tank having the water-chamber C, extending from its top to its bottom on one side, and provided with the inlet-pipe I at its upper end, and the outlet-pipe J on the same side at its lower end, of the filter-chamber D, having the perforated bottom E and outlet F, and the perforated filling-pan G, the spring-arms H H, the connecting-rod connecting the spring-arms, and lifting-valve, substantially as specified.

313,947. WHEEL-PLOW. GILPIN MOORE, Rock Island, assignor to Deere & Company, Moline, Ill. Filed Nov. 10, 1884. (No model.)

Claim.—1. In combination with crank-axles B C, beam D, and beam-plate E, pivoted lever F, and spring G, attached at one end to the

313,947.



lever and at the opposite end to the lower or moving end of the crank-axle B, and adapted to lift the axle without other connection between the axle and lever.

2. In combination with a plow, its beam and beam-plate, and with two independent crank-axles, a pivoted lever connected with one of the crank-axles by a spring or yielding connection, and connected with the other crank-axle by a link capable of adjustment, substantially as shown and described.

3. In a sulky or wheel plow, a crank or bent axle supporting upon its lower end the land-wheel, its vertical portion inclined toward the front of the plow, and actuated by a lever fulcrumed upon the upper horizontal end of the furrow-crank, and operating, by a vertical spring or other flexible connection with the lower part of the crank, to raise the land-wheel, as and for the purpose set forth.

4. In a sulky or wheel plow, a crank or bent axle supporting upon its lower end the land-wheel, its vertical portion inclined forward, its upper horizontal end extended to the opposite crank, and journaled into the lower portion of a block secured to a brace connected to the furrow side of the plow-beam, and actuated by a lever fulcrumed upon the upper horizontal end of a similar extension of the furrow-crank, and operating, by a vertical spring or other flexible connection with the lower part of the crank, to raise or lower said land-wheel, as and for the purpose set forth.

5. In a sulky or wheel plow, a crank or bent axle supporting upon its lower end the land-wheel, its vertical portion inclined forward, its upper horizontal end extended to the opposite crank, and journaled into a block secured to a brace connected to the furrow side of the plow-beam, and actuated by a lever fulcrumed upon the upper horizontal end of a similar extension of the furrow-crank, and operating, by a vertical spring or other flexible connection with the lower part of said land-wheel crank, to raise and lower said wheel, and a spring-pawl connection with said lever, adapted to engage with the teeth of a notched segment upon the rear of the plow-beam and lock the land-wheel in any desired adjustment, as described, for the purpose set forth.

6. In a sulky or wheel plow, a crank or bent axle supporting upon its lower end the furrow-wheel, its vertical portion inclined forward, and adjustable through a link-connection near the upper end of said crank, with a lever fulcrumed to said upper end to raise or lower said wheel, as and for the purpose set forth.

7. In a sulky or wheel plow, a crank or bent axle supporting upon its lower end the furrow-wheel, its vertical portion inclined forward, and actuated jointly with the land-wheel crank by a lever fulcrumed upon the upper horizontal end of the furrow-crank and operating by a link-connection between said crank and lever and a vertical spring or flexible connection with the lower part of the land-wheel crank, and said lever, as and for the purpose set forth.

8. In a sulky or wheel plow, a crank or bent axle supporting upon its lower end the furrow-wheel, its vertical portion inclined forward, and actuated jointly with the land-wheel crank by a lever fulcrumed upon the upper horizontal end of the furrow-crank, and operating by a link-connection between said crank and lever and a vertical spring or flexible connection with the lower part of the land-wheel crank and said lever, and a spring-pawl connection with said lever adapted to engage with the teeth of a notched segment upon the rear of the plow-beam and lock the wheels in any desired adjustment.

9. The combination, in a sulky or wheel plow, with the land-wheel supported upon its crank, of a vertical spring hung from the lever, fulcrumed to the upper horizontal end of the furrow-wheel crank, and acting with a yielding pressure upon said land-wheel by a connection with the lower portion of its crank, substantially as described, for the purpose set forth.

10. In a sulky or wheel plow, the combination, with the double-crank axle upon which the wheels are journaled, the vertical portions of which incline forward, the upper horizontal end of each extending to the vertically-inclined bend of the opposite crank, and such horizontal end of the furrow-crank journaled into the fulcrum end of the land-wheel lever, of a brace with straight body portion, to which is secured a plate through which the upper extension of the furrow-wheel crank passes, and into which is journaled the extension of the land-wheel crank, having its arms bolted or otherwise rigidly secured to the furrow side of the plow-beam, substantially as described.

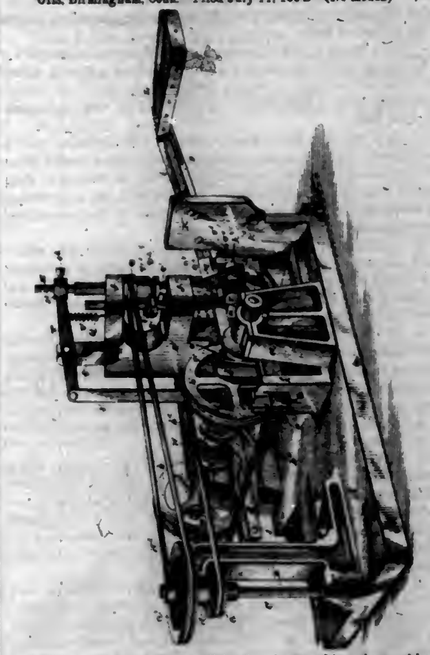
11. In a sulky or wheel plow, the combination of the double-crank axle, carrying wheels, beam plate or support to which the plow-beam is attached, beam-brace and brace-plate, actuating-lever having spring-connection with the land-wheel crank and link-connection with the furrow-wheel crank, and spring-pawl adapted to engage with the notches on a segment-bar secured to the beam, all constructed and operating substantially as described.

313,948. TAG AND FASTENER. SAMUEL E. MOWER, New Haven, Conn., assignor to Henry Grant Thompson, same place, and Henry G. Thompson, Milford, Conn. Filed Dec. 15, 1884. (No model.)



Claim.—The combination of the card-board *a* with a fastener composed of a staple having its prongs passed through the said card-board, and offset or shouldered to embrace and hold the same, the said shoulders being struck or bent back into the card-board at the under side of the latter, substantially as and for the purpose described.

313,949. BUTTON AND DISK TRIMMING MACHINE. SAMUEL L. OTIS, Birmingham, Conn. Filed July 11, 1884. (No model.)



Claim.—1. In a button or disk trimming machine, the combination, with a horizontal rest adapted to receive a button or disk, of a rotary cutter-head located above said rest and adapted to engage the said button or disk, and a spring-pressed spindle passing centrally through the cutter-head and clamping the button to the rest, substantially as set forth.

2. In a button or disk trimming machine, the combination, with a horizontal stationary rest adapted to receive a button or disk, and an incline located at one side of and adapted to automatically feed the button or disk to the rest of a rotary cutter-head, located above the rest and reciprocated by a spring and cam, and a spindle passing centrally through the cutter-head and clamping the button to the rest, substantially as set forth.

3. In a button or disk trimming machine, the combination, with a horizontal stationary rest adapted to receive a button or disk, and an inclined automatic feed located to one side of said rest, of a rotary cutter-head located above the rest and reciprocated by a spring and a cam, and thereby alternately clamping and releasing the button or disk, substantially as set forth.

4. In a button or disk trimming machine, the combination, with a stationary rest adapted to receive a button or disk and an automatic feed, of a rotary cutter-head adapted to engage the edge of the button, a clamping-rod passing centrally through the cutter-head, and an ejecting-rod located centrally in the rest, substantially as set forth.

5. In a button or disk trimming machine, the combination, with a stationary rest adapted to receive a button or disk, a clamping-rod adapted to hold the button in contact with the rest, and a cutter adapted to engage the button while held on the rest, of an ejector centrally located in

the rest, and provided with an oblique set head whereby the button is cast to one side, substantially as set forth.

6. In a button or disk trimming machine, the combination, with a stationary rest and an inclined feed, of a spring-actuated guard located at the side of the rest opposite the feed for preventing the button or disk from sliding over the rest, substantially as set forth.

7. In a button or disk trimming machine, the combination, with a rest, an inclined feed, and a rotary cutter, the latter reciprocated by a spring and a cam, of a spring-actuated guard located at the side of the rest and adapted to be depressed simultaneously with the cutter, substantially as set forth.

8. In a button or disk trimming machine, the combination, with a rest having an ejector therein, of a cutter-head consisting, essentially, of a block provided with a series of sockets, cutters cushioned in the sockets, said cutters being detachably locked therein by a hook or equivalent device, substantially as set forth.

9. In a button or disk trimming machine, the combination, with a rest having an ejector therein, of a cutter-head consisting, essentially, of a block provided with a series of sockets communicating with the periphery of the head by narrow slots, cutters cushioned in the sockets, and provided with lugs or pins extending through the slots, and devices located on the periphery of the head for locking the cutters in position, substantially as set forth.

10. In a button or disk trimming machine, the combination, with a rest having an ejector therein, of a rotary cutter-head provided with a series of cutters cushioned in sockets formed in the head, and further provided with hooks adapted to hold the cutters in the sockets, substantially as set forth.

11. In a button or disk trimming machine, the combination, with a horizontal rest adapted to receive a button or disk, a cutter located above said rest, and devices for clamping and discharging the buttons or disks at regular intervals, of an inclined feed provided with the reciprocating gates which automatically feed a button to the rest at the required intervals, substantially as set forth.

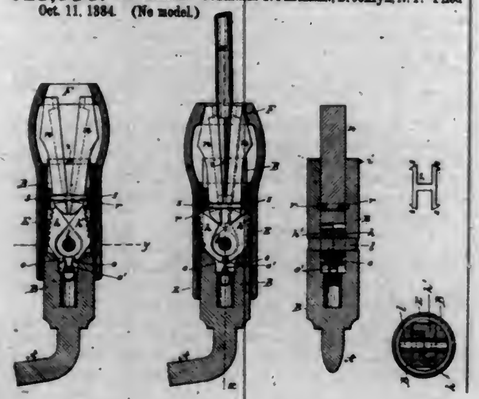
12. In a button or disk trimming machine, the combination, with a rest and a cutter, of feed mechanism consisting, essentially, of an inclined slide provided with guide-ribs, one of which is laterally adjustable, and reciprocating gates which alternately open and close the channel formed between said ribs, substantially as set forth.

13. In a button or disk trimming machine, the combination, with a cutter secured on a sleeve, and a spindle extending centrally through the sleeve, of a horizontal rest situated below the cutter, cam-wheels mounted on the main shaft, and spring-actuated levers connected with the said sleeve and spindle, whereby the rotation of the main shaft reciprocates the sleeve and spindle, in the manner and for the purpose substantially as set forth.

14. In a button or disk trimming machine, the combination, with a sleeve carrying a cutter, a clamping-spindle located centrally in the sleeve, a stationary rest situated below the cutter and having an ejector centrally located therein, and an inclined feed having gates, of cam-wheels secured on the main shaft, and spring-actuated devices connecting the said sleeve, spindle, ejector, and gates with said cam-wheels, in the manner and for the purpose substantially as set forth.

15. In a button or disk trimming machine, the combination, with a cutter secured on a reciprocating sleeve, and a reciprocating clamping-spindle passing centrally through the sleeve, of a pulley secured on the sleeve, pulleys secured on an independent shaft, and bands connecting the pulleys on the independent shaft with a pulley on the main shaft and with the pulley on the sleeve, whereby the cutter receives sufficient velocity to trim a button with each revolution of the main shaft, substantially as set forth.

313,950. BIT-BRACE. JOHANNES T. PEDERSEN, Brooklyn, N. Y. Filed Oct. 11, 1884. (No model.)

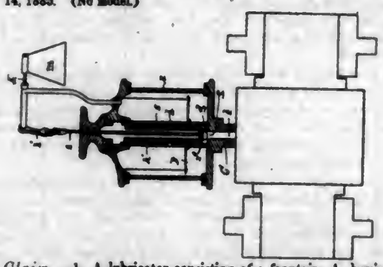


Claim.—1. The combination, with the slotted cylinder and the sleeve having an internal screw-thread, of screw-sections within the slotted cylinder, a pivot upon which such sections can swing out of contact with the sleeve, a pair of tool-holding jaws within the slot, the inner ends of which act against the inclined ends of the screw-sections to force the same into contact with the screw, substantially as set forth.

2. The combination, with the slotted cylinder and two holding-jaws, of the H-shaped stop *r*, passing into grooves in the sides of the jaws, and having end lips, *s*, outside the edges of the slotted cylinder, substantially as set forth.

3. The combination, with the slotted cylinder and the screw-sleeve, of the sectional screw, the pivot for the same, the spring to force the screw-sections out of contact with the screw in the sleeve, the two-part jaws, and the H-shaped stop, substantially as set forth.

313,951. LUBRICATOR. FRANK REDDERS, Detroit, Mich. Filed Jan. 14, 1885. (No model.)



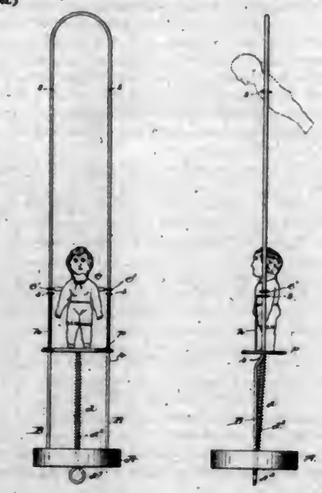
Claim.—1. A lubricator consisting of a fountain, A, having inlet and outlet passages, a valve actuated by the aerial pressure created by the movement of the parts to which said lubricator is attached, a tube surrounding the stem of said valve, the bottom of said tube forming a stop to limit the play of said valve, substantially as and for the purposes specified.

2. In an oiler, the combination, with a fountain having inlet and outlet passages, and a valve provided with a stem, *e*, of the swinging crank *i*, connected with the upper end of said stem, and provided with the wing *m*, constructed to be operated by the aerial pressure created by the reciprocation of the parts to which the oiler is attached, substantially as and for the purpose specified.

3. In an oiler, the combination, with a fountain having inlet and outlet passages, and a valve provided with a stem, *e*, of the crank *i*, connected with the upper end of said stem, the rocking arm *k*, supported in suitable bearings and carrying said crank, and the wing *m*, secured to the free end of said arm, substantially as and for the purposes specified.

4. An oiler consisting of a fountain to contain the oil, with inlet and outlet passages, a valve controlling the outlet-passage, a stop to limit the throw of such valve, a disk secured to the free end of the valve-stem, and a perforated diaphragm within such fountain, the parts being constructed, arranged, and operating substantially as and for the purposes described.

313,952. TOY. VICTOR E. RICHER, West Medford, assignor of one-half to Robert B. C. Bement, Boston, Mass. Filed Sept. 10, 1884. (No model.)



Claim.—1. In a toy, the guide-rods, the figure, and eyes *c'*, combined with the platform and spring to throw the figure, substantially as described.

2. The guide-rods provided with the inclined portions 4, and the spring-actuated platform, combined with a pivoted figure having connected loops or eyes to slide on the guide-rods, the platform striking the figure a diagonal blow and turning the figure on its pivotal center, substantially as described.

313,953. PULVERIZER. ORRIN S. RICHMOND, Adair, Mich. Filed July 23, 1884. (No model.)

Brief.—A rock-shaft carrying spring cultivator-teeth journaled in rear of transverse cutter-bars, to which the tongue is hinged. Lever on rock-shaft to raise its teeth, and lever, pawl, and rack to regulate depth of cutters.



Claim.—1. In a pulverizer, the combination of the bar A, cutter-blades B, carried by said bar, brackets C, attached to the ends of said rock-bar, rock-shaft D, journaled in said brackets, teeth E, tongue F, pivoted to the bar A, seat G, spring-dog I, standard M, levers K L, fulcrumed on said standard, and the handle *a*, attached to said bar, all constructed, arranged, and operating substantially as and for the purposes set forth.

2. The combination of the bar A, carrying cutter-blades B, tongue F, pivoted to said bar, ratchet-standard J, secured to said bar, spring-dog I, pivoted to said tongue, brackets C, rock-shaft D, journaled in said brackets, standard M, and levers K L, fulcrumed on said standard, the short arm of the lever K being pivoted to the standard J, and the short arm of the lever L operating on the dog I, substantially as and for the purpose specified.

313,954. STEAM-BOILER FEEDER. CLYDE A. RICKARD, Ottawa, Kans. Filed May 16, 1884. (No model.)



Claim.—1. In combination with a steam-boiler, a reservoir provided with steam and water spaces in direct communication with the steam and water spaces of the boiler, respectively, and a piston working steam-tight in said reservoir for separating the two elements within the same, substantially as and for the purpose described.

2. In combination with a steam-boiler and its reservoir, a steam-tight piston fitting within said reservoir, and provided with an automatically-operated exit, as H, substantially as and for the purpose specified.

3. In combination with the reservoir A' and the steam-tight piston P, the siphon S and recess I, substantially as and for the purpose specified.

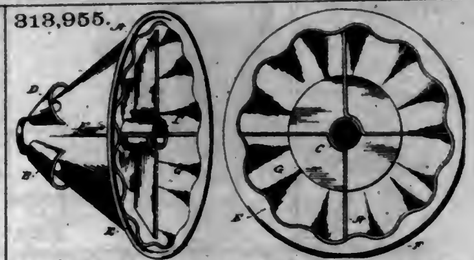
4. In combination with the reservoir A', piston P, and rod *p*, the casting F', provided with the ribs *f*, substantially as and for the purpose specified.

313,955. CLOTHES-POUNDER. RUSSELL M. RINER, Richmond, Ind. Filed Jan. 16, 1884. (Model.)

Claim.—1. In a clothes-pounder, the combination, with the body F, of the inverted imperforate pan G, located in the lower end of the body, and having a scalloped periphery adapted to fit with its outer contours the inside of the body, and to thereby form a series of openings between the scalloped pan and body for the passage of water up and down therein, into and out of the said body, substantially as and for the purpose herein specified.

2. The combination of the body F, provided with perforations D D near its upper end, the inverted imperforate scalloped pan G, fitting within the lower part of the body, and the separate inclined hoods B B

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over the said perforations of the body, substantially as herein set forth, whereby, in the descent of the instrument upon the clothes, water is forced up through the pan-scallops into the body and a portion of the water is expelled in jets through the perforations, and in the ascent of the instrument the water in the body is caused to descend in separate streams through the scallops, for the purpose herein specified.

313,956. REMEDY FOR CHICKEN-CHOLERA. GEORGE W. ROSS and JAMES D. ROSS, Booneville, Tex. Filed Dec. 19, 1884. (No specimens.)

Claim.—A medicine for the treatment of chicken-cholera, composed of Cayenne pepper, May-apple root, and blue vitriol, as described.

313,957. ANIMAL-TRAP. JOHN SCHAFFER, Kirkwood, Mo. Filed May 19, 1884. (Model.)



Claim.—The combination of the plate *a*, the legs *a' a'*, the chambers B B, the hammers C C, the springs D D, and the arms E E, the lower end of the arms being extended and shaped to bear upon the ground, and the upper end being extended and shaped to form a trigger having the shoulders *e' e'*, substantially as described.

313,958. NON-CONDUCTING COVERING FOR STEAM-PIPE FITTINGS. WILLIAM S. SEYMOUR, Chicago, Ill., assignor to James H. Shields and Frederick E. Brown, both of same place. Filed Feb. 18, 1884. (No model.)



Claim.—1. A covering for pipe-fittings composed of sheets or pulp, having its outer surface conforming substantially in shape to said fittings, and split or divided longitudinally, substantially as described.

2. The combination, with a pipe-fitting covering composed of non-conducting sheets or pulp, having its outer surface conforming substantially in shape to said fittings, and split or divided longitudinally, of a fastening device or devices, substantially as described.

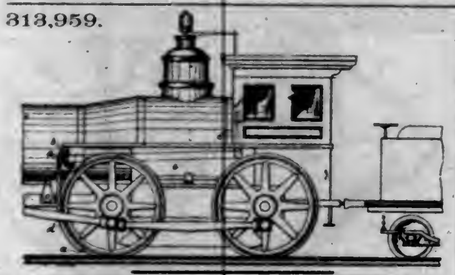
313,959. FRICTION DEVICE FOR LOCOMOTIVES. NATHANIEL S. SHALER, Cambridge, assignor to Theodore A. Dodge, trustee, Brookline, Mass. Filed Apr. 4, 1884. (No model.)

Claim.—1. In a friction device for locomotives, a flexible strip or band provided with gritty or friction-producing material, combined with mechanism for feeding the same between the track and the treads of the wheels, substantially as described.

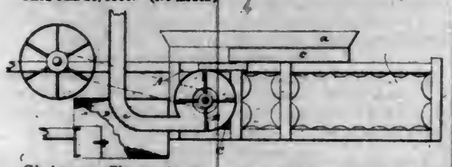
2. In a friction device for locomotives, a coiled flexible band provided with gritty or friction-producing material, combined with a guide-tube for the said band leading from the coil to the track near the contact-point of the wheels, substantially as described.

3. The flexible band provided with gritty or friction-producing material, combined with a reel for the said band when coiled, and actuating mechanism for the said reel, to operate substantially as described.

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313,960. DEVICE FOR REMOVING DUST, &c., FROM HAY DURING THE PROCESS OF BALING. JACOB S. SHERMAN, Cassopolis, Mich. Filed Jan. 21, 1885. (No model.)



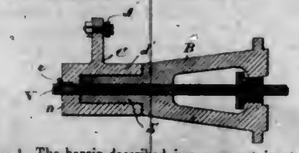
Claim.—1. The combination, with a hay-press, of an exhaust-chamber communicating therewith, and means of exhausting the air therefrom, for the purpose substantially as set forth.

2. The combination, with a hay-press having a receiving-chamber open at the mouth only, of a dust-conduit communicating with the chamber, and means for exhausting the air from said conduit, thereby producing a draft through the receiving-chamber and conduit, substantially as set forth.

3. The combination, with the receiving chamber or chambers of a hay-press, of an exhaust-pipe and dust-conduit communicating therewith, having a bent portion provided with a screen, for the purpose substantially as set forth.

4. The combination, with a receiving-chamber of a hay-press, of an exhaust-pipe and dust-conduit communicating therewith, a screen connecting with the conduit, and a seed-receptacle inclosing the screen portion of the conduit, substantially as set forth.

313,961. VALVE-ROD CONNECTION. JAMES B. STANWOOD, Cincinnati, Ohio, assignor to the Lane & Bodley Company, same place. Filed Oct. 27, 1884. (No model.)



Claim.—1. The herein-described improvement in steam-engines employing valve-gear of the kind described, consisting in bonnets B, provided at their outer ends with journals S, adapted for holding thereon as a journal-bearing in operating contact a correspondingly-counterbored crank, D, substantially as and for the purpose specified.

2. In steam-engines with valve motion, as described, cranks D, with suitable arm or arms for attachment of operating-levers, centrally bored for passage of valve-stems, and counterbored to fit in operative contact upon journals S at the outer ends of the bonnets, adapted, if required, for the insertion of the governor-cam collar in suitable operative position, substantially as shown and described.

3. The combination, with a steam-cylinder and valve-gear of the class described, of bonnets B, with journaled outer ends, and cranks D, counterbored to fit and ride upon the bonnet-journals, arranged and operating substantially as described.

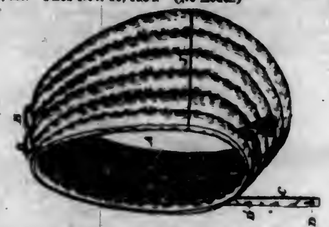
313,962. ESCAPEMENT. GEORGE B. ST. JOHN, Boston, Mass. Filed Jan. 3, 1884. (Model.)



Claim.—1. In an escapement for wheel-work, the lever provided with pallets, combined with an escape-wheel provided with wide teeth or projecting portions having convex ends, the sides of which teeth are engaged by the said pallets, which thus arrest the wheel, and the convex end of the said teeth co-operating with each of the said pallets during the rotary movement of the wheel after a tooth has escaped therefrom, substantially as described.

2. In an escapement, the escape-wheel having wide teeth, the ends of which are concentric with the arbor of the wheel, combined with the vibrating lever provided with pallets consisting of cylindrical pins, substantially as and for the purpose described.

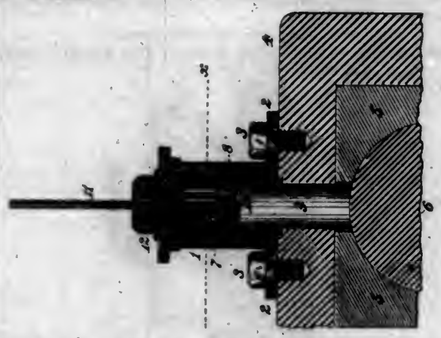
313,963. SWEAT-PAD FOR HORSE-COLLARS. JACOB STRAUS, St. Louis, Mo. Filed Nov. 19, 1884. (No model.)



Claim.—1. A sweat-pad for horse-collars, stitched all the way around before being turned, and having pockets to receive stuffing, which are formed by rows of stitches that do not pass through the stuffing of the pad, for the purpose specified.

2. A sweat-pad for horse-collars, having pockets and transverse slits, the pockets being formed by rows of stitches that do not pass through the stuffing of the pad, substantially as and for the purpose set forth.

313,964. CRANK-PIN LUBRICATOR. FRED F. SWAIN, Chicago, Ill., assignor of one-half to George W. Tilton, same place. Filed Dec. 1, 1884. (No model.)



Claim.—1. A journal or crank-pin lubricating mechanism having, in combination, a feed-cylinder adapted for the reception and forward feeding of a solid column of lubricant, a prolongation of the bore of said cylinder of similar diameter through the strap or box and brasses to the surface of the journal or crank-pin, a piston working in said cylinder and bore, and through practically the entire length of both, a slightly-vented cap closing the outer end of said cylinder, and an indicator-rod playing closely through a long bearing in said cap, substantially as set forth.

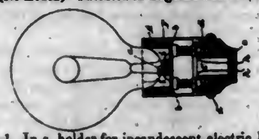
2. The combination of a cup or case, a feed-cylinder secured therein, and adapted to receive and form the inclosing-wall of a block of solidified lubricating material inserted in its lower end, a piston fitting said cylinder, and a slightly-vented cap closing the upper end of said cylinder, substantially as set forth.

3. The combination of a cup or case, a feed-cylinder secured therein, a slightly-vented cap closing one end of said cylinder, and a piston fitting in said cylinder and acting as a movable partition between an air-cushion chamber at and adjoining its closed end and a lubricating-chamber at and adjoining its open end, substantially as set forth.

4. The combination of a connecting-rod strap having a passage on its top leading from its outer to its inner side, a lubricating cup or case having an internal feed-cylinder corresponding in diameter and direction with said passage, and studs passing through lugs on the cup in line longitudinally of the strap and engaging threaded sockets therein, substantially as set forth.

5. The combination of a cup or case, a feed-cylinder secured therein and forming the inner wall of an air-jacket space, a piston fitting said cylinder, a cap provided with a long central bearing and closing the upper end of the cylinder, and an indicator-rod secured to the piston and passing through the bearing of the cap, substantially as set forth.

313,965. HOLDER FOR INCANDESCENT ELECTRIC LAMPS. ALFRED SWAN, Low Fell Works, Gateshead-on-Tyne, England. Filed Dec. 20, 1884. (No model.) Patented in England June 19, 1884, No. 9,185.



Claim.—1. In a holder for incandescent electric lamps having a socket of glass or similar insulating moldable or castable material with metal fittings or contact-plates embedded directly therein, and having projections extending into the mass of the glass or other insulating material, substantially as described.

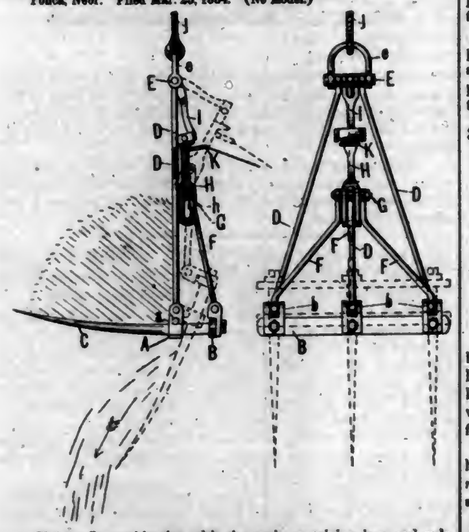
2. A holder for incandescent electric lamps, comprising a part of glass or like moldable or castable insulating material, having split screws partly embedded therein, the main wires being held in said screws by screw-nuts, substantially as described.

3. In a holder for incandescent electric lamps, the combination of the part to which the main wires are led, formed of glass or like material, with split screws partly embedded therein, the screw-nuts for holding the main wires in said screws, and the springs connected with screw-nuts and forming or provided with contacts for connecting with the leading-in wires, substantially as described.

4. A holder for incandescent electric lamps, comprising a part or socket, *a*, of glass or like material, having contact-plates embedded directly therein, a part, C, of like material, having split screws partly embedded therein, screw-nuts for engagement with said screws, and spring-contacts for making connection between said screws and contact-plates, both parts *a* and C being supported in a tube or collar, substantially as described.

5. A holder for incandescent electric lamps, comprising a socket, *a*, of glass or like material, provided with contact-plates embedded therein, a part, C, also of glass or like material, provided with screws for the main wires, spring-contacts for connecting said screws with said plates, and a tube or collar in which both said parts *a* and C are supported by a bayonet-joint, so as to be readily removable, or to be turned to make and break the circuit, substantially as described.

313,966. HORSE HAY AND MANURE FORK. WASHINGTON TAYLOR, Ponca, Nebr. Filed Mar. 25, 1884. (No model.)



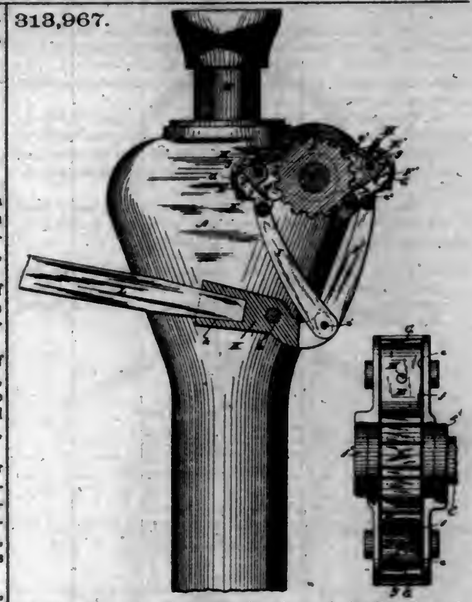
Claim.—In combination with the main sustaining bars and rods, the subordinate sustaining-rods, the slotted bar H, and bolt G, the construction being such that by means of the slots and the bolt the angle of the tines may be adjusted as desired, as set forth.

313,967. SCREW-JACK. ALBERT R. TIFFANY, Dayton, Ohio, assignor of three-fourths to Michael Neil and John J. Leland, both of same place. Filed Feb. 12, 1885. (No model.)

Claim.—1. The combination, with the spur-wheel and its shaft, of the two independent pawl-carriers hung loosely upon said shaft and the pawls mounted upon said carrier, substantially as described.

2. The combination, with the spur-wheel and its shaft, of the two independent pawl-carriers and their pawls and the links articulated at one end to the pawl-carriers and at the other to the handle-socket, substantially as described.

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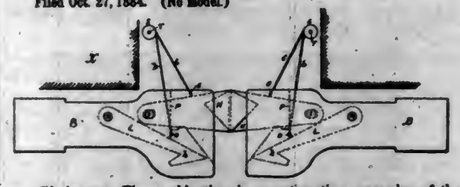


3. The combination, with the spur-wheel and its shaft, of the independent pawl-carriers hung upon said shaft, reversible pawls mounted upon said carriers, the pivoted handle-socket, and the links connected at one end to the pawl-carriers and at the other to the handle-socket, substantially as described.

4. The combination, with the spur-wheel and its shaft, of the independent pawl-carriers hung upon said shaft, the reversible pawls and their spring, the links, and the handle-socket, substantially as described.

5. The combination, with the spur-wheel and its shaft, of the independent pawl-carriers mounted loosely on the shaft and embracing the said spur-wheel, the bell-crank-shaped pawls having the projections or pins for shifting them, and the springs having the wedge-shaped projections on their ends, substantially as described.

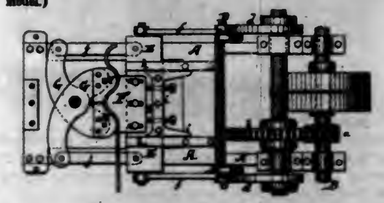
313,968. CAR-COUPLING. WALTER TURNBULL, New Orleans, La. Filed Oct. 27, 1884. (No model.)



Claim.—1. The combination, in an automatic car-coupler, of the buffer or draw-head B, provided with the recesses in forward end for the hook-lever H and link-lever L, and the buffing-plate P, with the hook-lever H, provided with pin *i* and eyebolt *e*, and the link-lever L, provided with the hook A, pin N, and eyebolt *o*, all substantially as set forth, and for the purpose specified.

2. In an automatic car-coupling, the combination of the buffer B, hook-lever H, and link-lever L with the chains *b* and *c*, sheave *s*, shaft *r*, handles *d*, bearings *m*, and counter-weights *w*, all substantially as described, and for the purpose specified.

313,969. METAL-BENDING MACHINE. ALWILL URBAHN, Paterson, N. J., assignor to Jacob May, Brooklyn, N. Y. Filed May 31, 1884. (No model.)

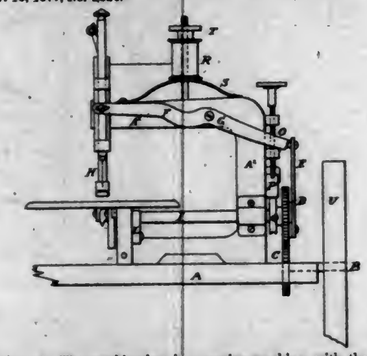


Claim.—1. In a bending-machine for bending metal, the combination of the patrix F with the bending-levers G and single pivot *k* for said levers, and with the reciprocating beam E, rods *j*, and rods *f*, for simultaneously moving the patrix and the levers G, substantially as herein shown and described.

2. The combination, in a bending-machine, of the patrix F with the reciprocating beam E, and with the levers G G, carrying the benders H H, single pivot *k*, for said levers, rods *j j*, for moving said levers, and rods *f*, for moving said patrix, substantially as herein shown and described.

3. The combination of the shaft C, cams *d*, frame D, rods *f*, beam E, and patrix F with the rods *j*, levers G G, and bending devices H H, all arranged for operation substantially as described.

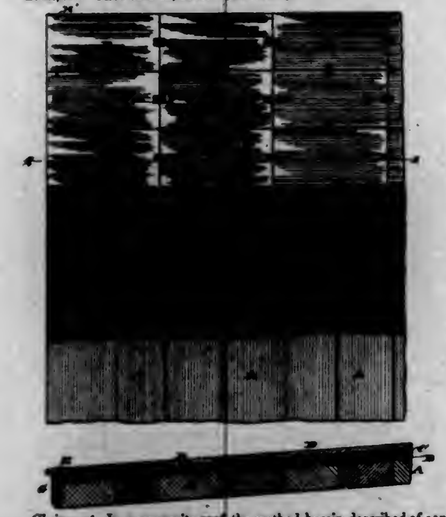
313,970. **SEWING-MACHINE.** ALEXANDER WATKINS, London, England, assignor to the Self-Acting Sewing Machine Company, Limited, same place. Filed Apr. 23, 1884. (No model.) Patented in England Nov. 19, 1877, No. 4,326.



Claim.—1. The combination, in a sewing-machine, with the driving-shaft B, having gear-wheel C, of the shaft I, having reduced journals, hardened bearings for said journals, the gear-wheel D, having a crank-pin, the connecting-rod E, the needle-operating lever F, pivoted near its center, and the needle-bar with which said lever is loosely connected, substantially as set forth.

2. In a sewing-machine, the combination, with the driving-shaft B, its gear-wheel C, the looper-shaft I, having friction-wheel Q, and gear-wheel D, the latter provided with a crank-pin, the connecting-rod E, the needle-lever F, and the needle-bar, of the spring-brake P and the screw-rod O, by which the friction of said brake is regulated, substantially as set forth.

313,971. **FIRE-PROOF COMPOSITE ROOF.** THOMAS H. WHITE, St. Louis, Mo. Filed Jan. 12, 1885. (No model.)



Claim.—1. In a composite roof, the method herein described of connecting the adjoining edges of the slates D by clamps that engage in apertures formed in the slates forming the superimposed layer of a composite roof, substantially as and for the purpose set forth.

2. In a composite roof, the combination of the sheathing-boards A, two or more layers of roofing felt or paper, B, dressed with tar or other suitable bituminous material, pitch, or bituminous bed-layer C, with the slotted slates and clamps by which they are attached, all substantially as described, and for the purpose set forth.

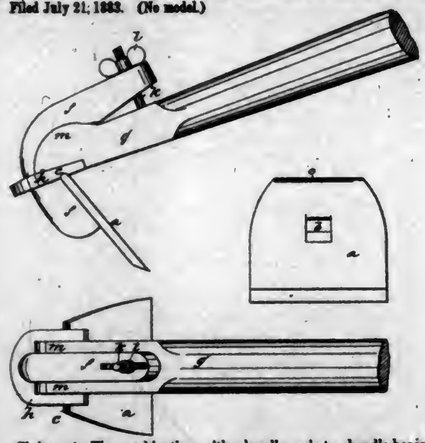
3. In a composite roof, the combination of slates secured by clamps, cant-strip G, and staples H, passing through the slates into the cant-strip, all substantially as described, and for the purpose set forth.

4. In a composite roof, the combination of the sheathing-boards, roofing felt or paper, pitch, or other bituminous bed-layer, and superimposed layer of slate, and attaching clamps and staples, substantially as and for the purpose set forth.

5. In a composite roof, the combination of the slates secured by clamps, and the straps or clamps I, extending over the peak or ridge of the roof, substantially as described, and for the purpose set forth.

6. A composite roof composed of the sheathing-boards, roofing-felt, bituminous bed-layer, cant-strip, perforate slates, clamps, staples, and asbestus cement, all combined substantially as described, and for the purpose set forth.

313,972. **HOE.** ROBERT J. WHITEHURST, Clear Water Harbor, Fla. Filed July 21, 1883. (No model.)



Claim.—1. The combination, with a handle-socket or handle having a slotted extension and a boss on its upper surface, of the shank *f*, provided with a hooked point, *e*, the blade *a*, provided with the opening *b*, and the clamping-bolt and nut *k l*, substantially as herein shown and described.

2. The ears or lugs *m* of the handle *g*, in combination with the shank *f*, which rests on fulcrum *j*, extends through the handle, hooks onto the hoe-blade, and is provided with a binding-screw, *k*, and nut *l*, substantially as described.

313,973. **TYPE-WRITING MACHINE.** GEORGE W. N. YOST, New York, N. Y., assignor, by mesne assignments, to the American Writing Machine Company of New York. Filed June 23, 1880. (Model.)

Claim.—1. In a type-writing machine, the combination of the top frame thereof, type-levers of unequal lengths pivoted thereto, to strike the under side of the platen, and a platen having its axle hinged to the top frame at one end, with a paper-carriage hung on said axle of the platen, whereby the platen is adapted to turn on its axle for line-spacing, and with the paper-carriage, to move longitudinally thereon for letter-spacing, and be lifted, substantially as described.

2. In a type-writing machine, a line-space regulator, F, attached to the carriage-lever, and adapted to be rocked and held by a spring on said carriage-lever, substantially as described.

3. In a type-writing machine, an adjustable line-space regulator held in position by a spring, and secured to the end of the lever, extending forward and down, substantially as described.

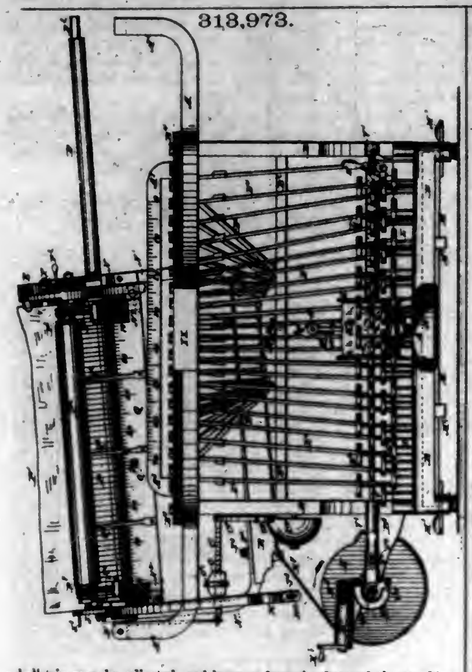
4. A graduated scale attached to the frame of a type-writing machine, parallel to and nearly in contact with a reversely-graduated scale attached to the paper-carriage, substantially as described.

5. In combination with a rotating platen, a lever, pawl, and ratchet-wheel to rotate the platen in one direction, and to return it to its original position, substantially as and for the purpose described.

6. In combination with a trip-pin on the paper-carriage of a type-writing machine, an adjustable trip adapted to ring a bell, hinged so as to rise over the trip-pin on the reverse movement of the paper-carriage, substantially as and for the purpose described.

7. In combination with the frame and a graduated scale on a type-writing machine, to indicate the progress of the writing, the pivotal axle of the bell-hammer, provided with a similarly-graduated scale, on which

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a bell-trip may be adjusted, and be seen from the front of the machine, and a paper-carriage provided with a trip-pin, substantially as and for the purpose described.

8. In a type-writing machine, the combination of two parallel and straight racks attached to and extending the length of the paper-carriage, one of which is fixed, and the other capable of a slight longitudinal motion in a vertical plane passing through the axle of the platen, with a dog hinged so as to slip over the teeth of the racks when the paper-carriage is reversed, and the lever to which it is pivoted, extending under the key-levers, substantially as shown and described.

9. In a type-writing machine, the combination of the paper-carriage provided with pendent arms at each end, with a rack attached to said arms, and situated in a vertical plane passing through the axis of the platen, the whole forming an open frame for the passage of type-bars, substantially as and for the purpose described.

10. In a type-writing machine, the combination of a series of type-bars of unequal lengths, pivoted and arranged, as shown, in two rows, so as to cause type to be impressed at a common point, with a rack attached to arms adapted to pass between the rows of type-bars, and moving with the paper-carriage in a plane passing through the common impression-point, and a grooved guide-rail passing through the platen, on which rail the paper-carriage moves, substantially as shown and described.

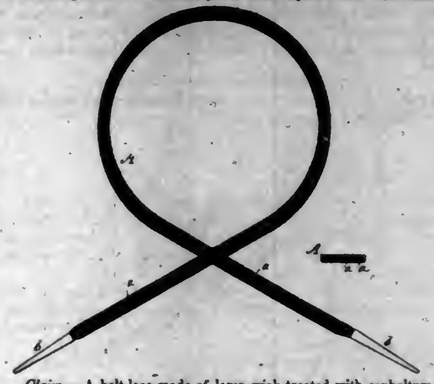
11. In a type-writing machine, the combination of a series of type-bars pivoted in two rows, as shown, to impress type at a common point, a paper-carriage with pendent arms adapted to pass between said rows, and a rack secured to said arms, with a spring-wheel and strap adapted to impart motion to the paper-carriage, the arms, rack, and wheel being situated in a vertical plane with the axis of the platen, substantially as shown and described.

12. In combination with a spring-wheel to move the paper-carriage of a type-writing machine, a pawl, K^6, and ratchet-wheel U^3, to turn the inking-ribbon spools, the shaft to which the ratchet-wheel is attached being supported in a bearing running through the hub of the spring-wheel, substantially as shown and described.

13. In a type-writing machine, inking-ribbon spools having their axes parallel with the axis of the platen, each having a flanged sleeve connected with the hub, in combination with arms Z^1 Z^2 and crotches Z^3 Z^4, substantially as shown and described.

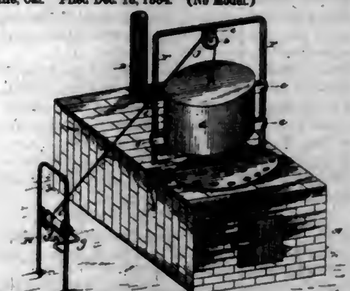
14. In a type-writing machine, the combination of key-levers, each having its fulcrum on a common rod between its key and connecting-rod, with a vibratory frame adapted to vibrate, and two racks connected with carriage-frame by pendent arms, and a single dog pivoted to a bell-crank lever having one of its arms extending under the space-bar, forming a spacing mechanism to permit an intermittent movement of the paper-carriage when actuated by a key-lever, and to disengage the spacing mechanism from the paper-carriage when actuated by a special key, substantially as shown and described.

313,974. **BELT-LACE.** NICHOLAS I. ALLEN, Rochester, N. Y., assignor to Irving W. Van Zandt, same place. Filed Apr. 18, 1884. (No model.)



Claim.—A belt-lace made of lamp-wick treated with asphaltum or coal-tar, provided with metallic tips at its ends, and having strands of wire running longitudinally through the lace, as and for the purpose specified.

313,975. **FRUIT-CANNING APPARATUS.** WILLIAM H. AUSTIN, Vacaville, Cal. Filed Dec. 18, 1884. (No model.)



Claim.—1. In fruit-canning apparatus, the combination, with a heating-furnace, of a vessel, a lid having a series of openings, and a dome adapted to be lowered to cover the top of said vessel and lid, as set forth.

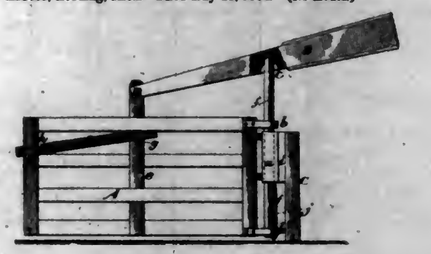
2. In fruit-canning apparatus, the combination, with a furnace having an opening on its under side near the front end thereof, of a vessel fitting in said opening, a perforated lid for the same, and a dome adapted to fit over said lid and the top of the vessel, as set forth.

3. In fruit-canning apparatus, the combination, with a furnace, of a vessel, a perforated lid for the same, a dome, a windlass, and a cord connecting said dome with the drum of the windlass, as set forth.

4. In fruit-canning apparatus, the combination, with a furnace, of a vessel, a perforated lid for the same, a dome, a pulley mounted above the furnace, a windlass located a short distance from said furnace, and a cord connecting the dome with the drum of the windlass, as set forth.

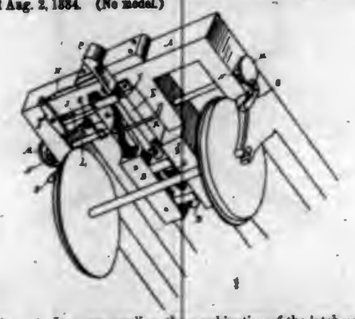
5. In fruit-canning apparatus, the combination, with a furnace having a vessel let into the same and a perforated lid for said vessel, of ways F, located above the furnace, a dome having guides adapted to fit the uprights of said ways, a pulley, a windlass, and a cord connecting the drum of the windlass with the dome, said cord passing through the pulley, as set forth.

313,976. **SWINGING GATE.** GROVE S. BARTHOLOMEW and JOHN D. ABBOTT, Reading, Mich. Filed May 23, 1884. (No model.)



Claim.—In farm-gates, the combination of a gate having oblong hinge-eyes, a rear gate-post having standard *a* attached thereto, the pintle *f*, secured in said standard and extended out above said post, the median upright *e*, and the counterbalance-lever E, pivoted to said upright as well as recessed at *c*, substantially as and for the purpose specified.

313,977. CAR-COUPLING. URBEL BEAUSEJOUR, East Saginaw, Mich. Filed Aug. 2, 1884. (No model.)

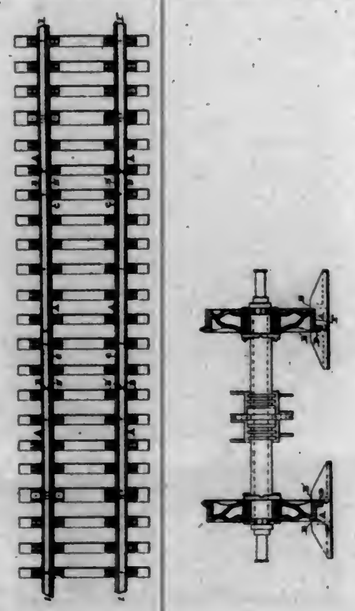


Claim.—1. In a car-coupling, the combination of the latch-coupling E, pivoted to the rod D, the shaft L, journaled across the bed of the car, the lever I, pivoted to said bed, hand-wheels M and ratchet-wheels N, secured upon the projecting ends of said shaft, the chain J, connecting the shaft with one end of said lever, and the chain H, connecting the opposite end of said lever with the coupling-latch E, substantially as and for the purpose specified.

2. The combination of the latch or coupling bar E, the shaft L, journaled across the bed of the car, hand-wheels M and ratchet-wheels N, secured to the projecting ends of said shaft, pawls O, pivoted to the car-body, the lever I, pivoted at the center of its length to the bed of the car, the chain H, connecting one end of the lever to the end of the latch E, the chain J, connecting the opposite end of said lever with said shaft, and the spring G, arranged to bear on said latch, substantially as and for the purpose specified.

313,978. RAILROAD-TRACK TO BE USED IN CONNECTION WITH VARIABLE RAILROAD-TRUCKS. GEORGE W. BEMIS, Sr., Cincinnati, Ohio. Filed Oct. 3, 1884. (No model.)

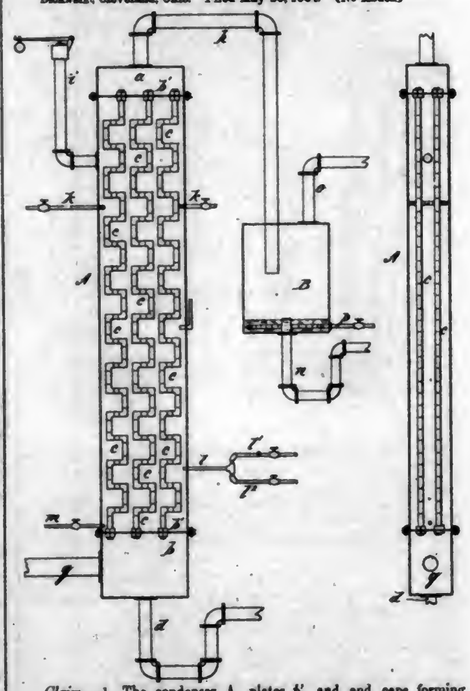
Brief.—The receiving and changing tracks are both constructed of rails having raised side walls to embrace the side edges of the wheels, and a groove to receive the flanges of the same, for use with trucks of changeable gage, in changing from a wide to a narrow gage track, or vice versa. The receiving tracks are made sufficiently long to hold an entire train.



Claim.—1. The combination of the changing tracks, having the raised side walls, B B', the groove C, and the recessed portion F, with the parallel receiving tracks, placed at each end of the changing track and constructed in a similar manner, and made long enough to receive a whole train of cars, substantially as shown.

2. The combination of the two receiving tracks I with the changing track A, placed between them, the two tracks being constructed of the same kind of rails, and the receiving tracks being made long enough to receive a whole train of cars, substantially as specified.

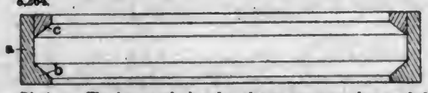
313,979. APPARATUS FOR SEPARATING OIL-VAPORS. JOHN E. BENNETT, Cleveland, Ohio. Filed May 28, 1884. (No model.)



Claim.—1. The condenser A, plates *b'*, and end caps forming chambers *b*, sinuous pipes *c*, extending through the condenser into the said chambers, pipes *g d*, connected with chamber *b*, pipe *h*, connected with chamber *a*, and hot and cold water pipes leading into the condenser between the two end chambers, substantially as set forth.

2. The combination, with vessel A and pipes *c*, of the water and steam pipes *k l l' l''*, substantially as described, for supplying dry or wet steam or water at any temperature for the purpose of maintaining the condensing-pipes at a uniform heat, as specified.

313,980. METALLIC PACKING-RING FOR PISTONS, PUMP-BUCKETS, &c. WILLIAM BUCKLEY, Sheffield, County of York, England. Filed Dec. 12, 1884. (No model.) Patented in England May 27, 1884, No. 8,264.

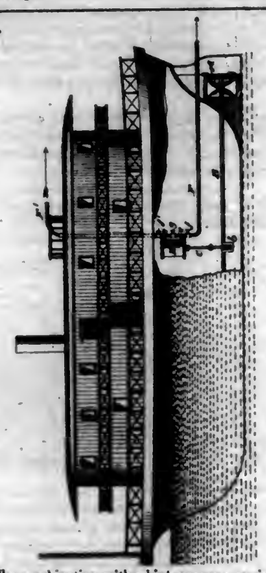


Claim.—The improved ring for pistons, pumps, valves, and for other similar purposes, the same being constructed of an outer broad ring body with an inner flange at one edge and a loose ring at the other edge, substantially as hereinbefore described and illustrated.

313,981. PROPELLING VESSELS BY EXHAUST-STEAM. CHARLES E. BURCH, Panama, N. Y. Filed Nov. 22, 1884. (No model.)

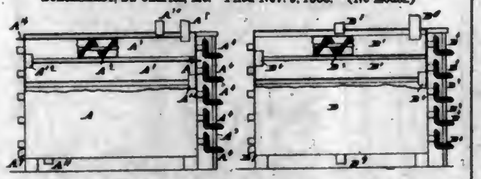


313,981.



Claim.—The combination, with a high-pressure engine arranged on a land or water vehicle and connected with mechanism operated by its live steam to drive said vehicle, of the tube F F', open at both ends, connected with the exhaust of engine, provided with the cocks *e e f f g*, and having its discharge ends pointing rearwardly of the vehicle, as shown and described.

313,982. PROCESS OF MANUFACTURING HOMINY, GRITS, &c. F. BURCKHARDT, St. Charles, Mo. Filed Nov. 9, 1883. (No model.)



Claim.—1. The herein-described process of manufacturing hominy, grits, &c., which consists in steaming the grain to moisten it, then drying it, then hulling it, then cleaning it, and then drying it by air-currents, as set forth.

2. The herein-described process of manufacturing hominy, grits, &c., which consists in steaming the grain to moisten it, then drying it, then hulling it, then cleaning it, then drying it by air-currents, and finally cooling it, as set forth.

313,983. CAR-COUPLING. F. BURCKHARDT, St. Charles, Mo. Filed July 9, 1884. (No model.)

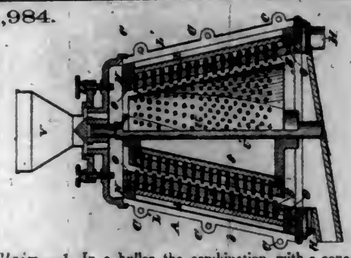


Claim.—1. The combination of the draw-head A, having transverse slot D, side slots, I I, mouth J, and web L, the hooks N N, pins O O, by which the hooks are hinged to the draw-head within the transverse slot, and the spiral spring P, the web L occupying a central position between the side slots and mouth and transverse slot, the hooks occupying and fitting in the side slots to bear against the side walls of the web, and the spiral spring connecting and drawing the hooks together against the side walls of the web, as set forth.

2. The combination of the draw-head, having transverse slot D, side slots, I I, mouth J, and web L, the hooks N N, pins O O, by which the hooks are hinged to the draw-head within the transverse slot, spiral spring P, drawing the hooks together, ears X X on the hooks, links W W, rock-shaft T, having handles or levers U U, and the arms V V, connecting the rock-shaft to the hooks, as set forth.

313,984. GRAIN-HULLER. F. BURCKHARDT, St. Charles, Mo. Filed July 9, 1884. (No model.)

313,984.



Claim.—1. In a huller, the combination, with a cone or runner having a hulling-surface, of a shell having rows of tufts increasing in number toward the bottom, and consisting of metallic brushes, substantially as and for the purpose set forth.

2. In a huller, the combination, with a shell having a hulling-surface, of a cone or runner having rows of tufts increasing in number toward the bottom, and consisting of metallic brushes, substantially as and for the purpose set forth.

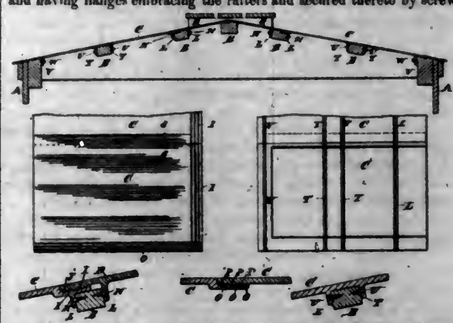
3. A perforated huller-plate, I, having metallic brushes forming rows of tufts, and the ribs T, formed on said plate to provide backings or supports for the rows of tufts, as set forth.

4. The combination of a cone having spiral rows of metallic tufts, and a shell having spiral rows of metallic tufts, said rows of tufts increasing in number toward the bottom of both the cone and shell, as set forth.

5. The combination of a cone having a hulling-surface, and the shell, the latter consisting of inner and outer portions, upper and lower rings, and spiral rows of tufts forming the hulling-surface, the inner portion being formed of sectional ribbed plates, and the rows of tufts increasing in number toward the bottom, as set forth.

313,985. CAR-ROOF. F. BURCKHARDT, St. Charles, Mo. Filed July 9, 1884. (No model.)

Brief.—A metallic roof made in sections united by interlocking ribs, and having flanges embracing the rafters and secured thereto by screws



Claim.—1. A car-roof section having side and end ribs and downwardly-projecting flanges to embrace the rafters, as shown and described.

2. A car having a metal roof made in sections jointed together by interlocking ribs, and having flanges to embrace the rafters, to which they are secured by screws, substantially as set forth.

313,986. CAR-FLOOR. F. BURCKHARDT, St. Charles, Mo. Filed July 9, 1884. (No model.)

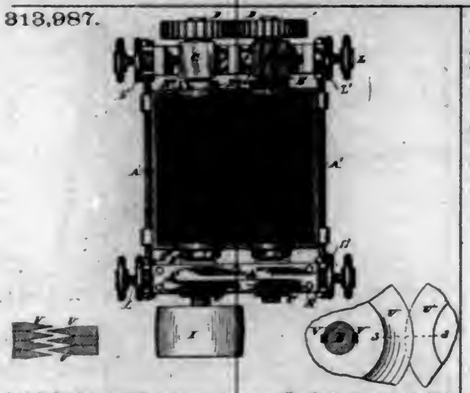


Claim.—A car-floor consisting of iron sills, end strips, angle-irons, and bolts or rivets by which the sills are secured to the end strips, strips of wood bolted to the tops of the sills, and boards secured to the strips of wood.

313,987. MACHINE FOR CUTTING OATS, &c. F. BURCKHARDT, St. Charles, Mo. Filed June 21, 1884. (No model.)

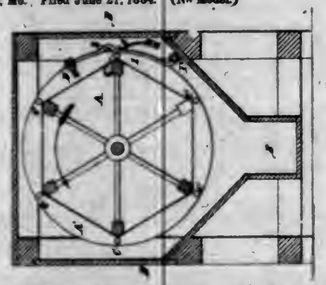
Claim.—A machine for cutting oats, comprising a frame, A, formed with ways A'' A'', vertical portions A'' A'' A'', top plates, A''' A''', capping said portions, bolts A', journal-boxes C, formed with sockets C', and mounted on the ways between the central vertical portions and the outer portions, springs located in the sockets and bearing against the central vertical portions, adjusting-screws L, nuts L', to lock the screws,

313,987.



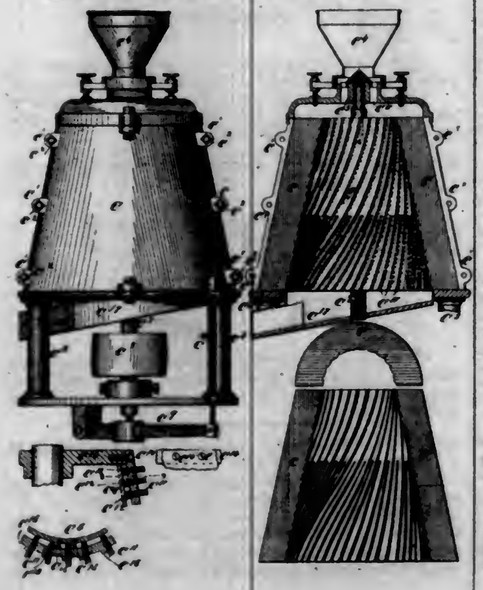
shaft B B, slicing cutting-surfaces keyed to the shafts, cog-wheels D D on the shafts, driving-pulley I, a casing, A', inclosing the cutting-surfaces, a feed-hopper, and devices to regulate the feeding of the rolls, as set forth.

313,988. BOLTING-REEL ATTACHMENT. F. BURCKHARDT, St. Charles, Mo. Filed June 21, 1884. (No model.)



Claim.—The combination, with a reel armed with pins or projections, of the hinged arms formed with depressions or notches to receive the pins or projections, and a brush secured to the free ends of the arms, the brush being arranged to strike the reel-cloth when the pins or projections enter the depressions or notches in the arms, as set forth.

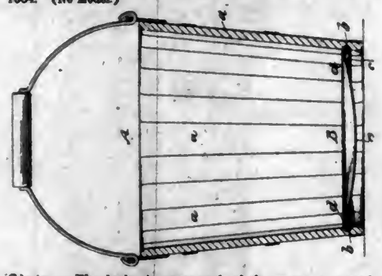
313,989. GRAIN-HULLER. F. BURCKHARDT, St. Charles, Mo. Filed Dec. 31, 1883. Renewed Nov. 26, 1884. (No model.)



Claim.—1. The combination, in a grain-huller, of a hopper, a hollow conical hulling-stone having spiral furrows increasing in number toward the bottom, and a brush cone or runner having ribs consisting of brushes, increasing in number toward the bottom, all substantially as set forth.

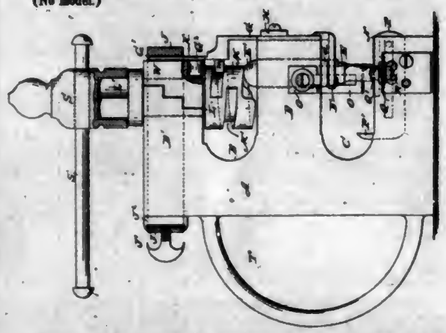
2. The combination of the hollow conical hulling-stone, the brush-cone consisting of a shell, sectional perforated ribbed plates, upper and lower disks and brushes arranged spirally and forming the hulling-ribs, and the driving-shaft, substantially as set forth.

313,990. PAIL. THEODORE A. COOK, Brooklyn, N. Y. Filed July 30, 1884. (No model.)



Claim.—The body A, composed of the staves *a*, crozed at *b*, in combination with the metallic bottom B, made concaved at *c*, rolled at *c*, and provided with the ring or hoop *d*, substantially as described.

313,991. PUNCH. SOLOMON COONS, Orbisonia, Pa. Filed June 6, 1884. (No model.)



Claim.—1. In a punch, the combination, with the block or frame and a sliding die held in the same, of a spindle provided with a head having a spiral end surface for acting on the end of the said spindle, and means for revolving the said spindle, substantially as herein shown and described.

2. In a punch, the combination, with a block or frame and a sliding die held in the same, of a spindle having a spiral end surface, sliding bar operated by the spindle for raising the die, and means for operating the spindle, substantially as herein shown and described.

3. In a punch, the combination, with a block or frame, of a sliding die, a spindle having a spiral groove, and also a spiral end surface adapted to act on one end of the die, and a sliding rod connected with the die and having a prong or pin projecting into the spiral groove in the spindle, substantially as herein shown and described.

4. In a punch, the combination, with the block or frame A, of the sliding die E, the spindle L, having a head or nut, M, provided with a spiral end surface, and the roller G^2, against which the top of the nut M works, substantially as herein shown and described.

5. In a punch, the combination, with the block or frame A, of the sliding die E, the spindle L, having a nut or head, M, provided with a spiral groove, M', and a spiral end surface, the sliding bar G, having a forked end, F, holding the die E, and the prong *m*, projecting from the sliding bar G into the groove M', substantially as herein shown and described.

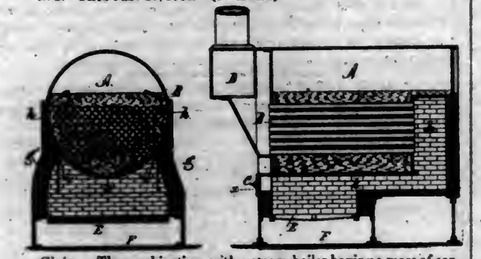
6. In a punch, the combination, with the block or frame A, of the spindle L, a die adapted to be acted on by the spindle, the block W, the band or frame J, and the screw J', substantially as herein shown and described.

7. In a punch, the combination, with the block A, having recesses B C, forming a prong, D, of the die E, having the rounded top E', and fitted to slide freely in said prong, and the spindle L, provided with a head, M, having a spiral end surface for acting on the rounded end of the spindle, substantially as herein shown and described.

8. In a punch, the combination, with the block or frame A, of the sliding die E, the spindle L, having a squared head, L', and a head or nut, M, adapted to act on the die, the key S, fitting on the head L', and the handle S' in the said key, substantially as herein shown and described.

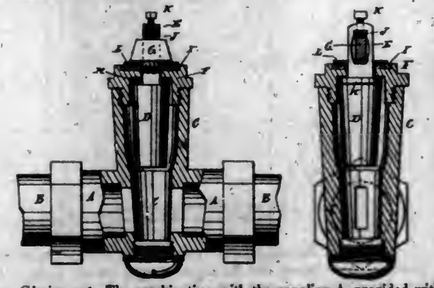
9. In a punch, the combination, with the block or frame A, of the sliding die E, the spindle L, having a nut or head, M, adapted to act on the die, the adjustable gage-plate P, having a lug, P', the gage-plate Q, and the adjustable gage Q' on the same, substantially as herein shown and described.

313,992. STEAM-BOILER FURNACE. MYERS CORYELL, New York, N. Y. Filed June 27, 1884. (No model.)



Claim.—The combination, with a steam-boiler having a mass of contiguous horizontal tubes passing through the same, and a fire-chamber, bridge-wall, and flue beneath the same, of side walls to the fire-chamber and flue that are contracted and inclose the sides of the boiler, so as to protect the same from heat, and allow the water in the boiler to circulate downwardly at the sides and rise upwardly between the tubes, and thereby prevent foaming, substantially as set forth.

313,993. AUTOMATIC STOP-PLUG FOR GAS AND OIL PIPES. W. F. CONOVER, Jersey City, N. J. Filed Feb. 2, 1884. (No model.) Patented in Canada Dec. 8, 1883, No. 18,271.



Claim.—1. The combination, with the coupling A, provided with the tapering socket C and the apertured removable cap F, of the plug D, provided with the slotted stem E, passing through the aperture of the said cap, and the fusible key G, passing through the said stem on the outside of the cap, substantially as herein shown and described

2. In an automatic stop-plug, the combination, with the apertured cap F, the slotted stem E, and the fusible key G, of the non-heat-conducting washers I J, substantially as herein shown and described, whereby the said cap and stem are kept from conducting the heat away from the said key, as set forth.

3. In an automatic stop-plug, the combination, with the stem E, the plug D, and the key G, of the set-screw K, substantially as herein shown and described, whereby the said plug can be drawn firmly into place, as set forth.

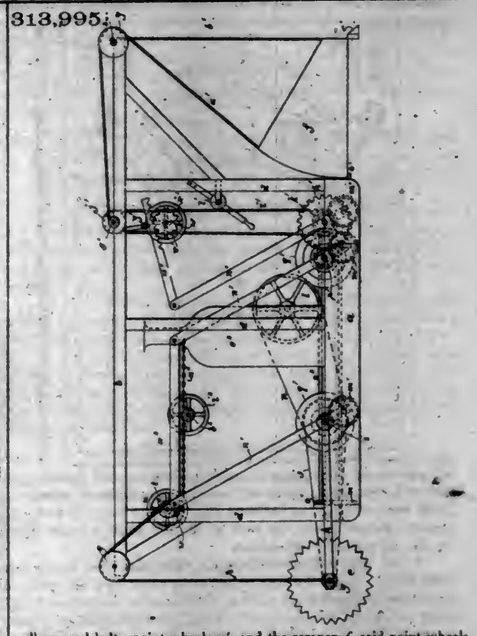
313,994. PAPER-MAKER'S COTTON DRYING-FELT, PRINTER'S MACHINE-BLANKET, AND OTHER MACHINERY CLOTHS. JAMES CROSSLEY, Bury, County of Lancaster, England, assignor to James Kenyon, same place. Filed July 1, 1884. (Specimens.) Patented in England Oct. 9, 1880, No. 4,103, and Feb. 23, 1884, No. 3,517.

Claim.—An improved endless felt blanket or machinery cloth of uniform thickness, composed of a piece of woven fabric having overlapping ends each of half-thickness, the outer sides of which form continuations of the respective sides of the fabric, while their inner sides come together at mid-thickness of the fabric, and are united by means of the stitched-in warp ends, substantially as herein specified.

313,995. ICE-CUTTING MACHINE. ISAACHAR CROWFOOT, Hartford, Wis. Filed June 17, 1884. (No model.)

Claim.—1. The combination, substantially as herein described, of a gang of circular saws, *c*, driving mechanism therefor comprising shafts,

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pulleys, and belts, point-wheels *m'*, and the scraper *f*, said point-wheels being geared with the saw-driving mechanism, and all being mounted on runners *a*, adapted for being propelled along the surface of the ice, and the saws and scraper being mounted at opposite ends of the machine, as specified.

2. The combination, with an ice-cutting machine, of mechanism for propelling it, consisting of point-wheels *m'*, suspended from a driving-shaft by levers *n'*, and gearing with pinions *o'* on said driving-shaft, and said shaft being geared with the driving mechanism, substantially as described.

3. The combination, with the saw-driving shaft *i* in an ice-cutting machine, of point-wheels *m'*, mounted thereon by levers *n'*, and geared with it by pinions *o'*, substantially as described.

4. The combination, with the saw-driving shaft *i* in an ice-cutting machine, of the shaft *p'*, having point-wheels *m'* mounted on it by levers *n'*, and gearing with it by pinions *o'*, said shafts *p'* and *i* being geared together differentially, substantially as described.

5. The combination, with an ice-machine consisting, essentially, of the runner-frame *a*, having a gang of circular saws, *c*, at one end, and a snow-scraper, *f*, at the other end, and mechanism comprising belts, pulleys, and shafts for working the saws, of the auxiliary shaft *h'*, having point-wheels *m'* mounted on it by levers *n'*, and geared with it by pinions *o'*, said shaft *h'* being geared with the driving-shaft *p'* by reducing-wheels *s'* and *t'*, for driving the snow-scraper, as specified.

6. The combination, with the scraper *f*, of the front rope, *b'*, attached to spool d^2 of shaft *x*, ropes *a'*, attached to the rear of said scraper, and extending over pulleys *y* of said shaft *x* to spools *f''* on the shaft *g'*, said shaft *g'* being geared by a loose belt, *i''*, and tightener with the shaft *h'*, substantially as described.

7. The combination, with an ice-machine consisting, essentially, of the runner-frame *a*, having a gang of circular saws, *c*, and the means for driving them, comprising belts, pulleys, and shafts, of the shaft c^2, arranged longitudinally on the machine, and having point-wheels *m'* mounted on it by levers *n'*, and geared with it by pinions *o'*, for shifting the machine laterally, said shaft c^2 being suitably geared with the driving mechanism of the machine, substantially as specified.

8. The combination of a toothed rack, *n'*, pinion *v'*, and hand-wheel *x'* with levers *n'*, having a point-wheel, *m'*, and mounted on a driving-shaft, said point-wheel being geared with a pinion on said driving-shaft, substantially as described.

9. The combination of the chain a^2, shaft b^2, and its hand-wheel c^2 with levers *n'*, mounted on separate driving-shafts *i* and *p'*, and having point-wheels *m'*, gearing with said driving-shafts by pinions *o'*, substantially as described.

313,996. CALENDAR. JOHN CONSOER, Glen Allen, Va. Filed June 18, 1884. (No model.)

Claim.—1. In a calendar, the combination, with a face-piece having indicated thereon days of the week, of a movable dial having numerals thereon indicating the days of the longest months, and a second series

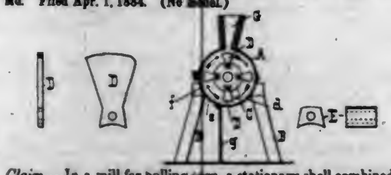
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of numerals indicating a part of the days of a month and opposite a portion of the first series of numerals, to adapt the calendar to correctly indicate dates of the month and week-days on which they fall in the last week of one month and first week of the next month without shifting the dial, substantially as described.

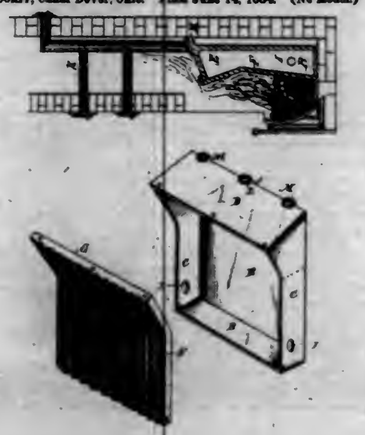
2. In a calendar, the combination, with a face-piece having indicated thereon days of the week, names of the month, and the number of days contained therein, of a movable dial having numerals thereon indicating the days of the month, and a second series of numerals opposite a portion of the other series indicating a part of the days of the month, whereby the calendar will indicate the number of days in each month and the dates of the month and week-days on which they fall in the last week of one month and first week of the next month without shifting the dial, substantially as described.

313,997. MILL FOR HULLING CORN. CHARLES S. DAY, Waverly, Md. Filed Apr. 1, 1884. (No model.)



Claim.—In a mill for hulling corn, a stationary shell combined with a revoluble shaft, the said shaft having longitudinal dovetail grooves open at one end and closed at the other, and at the closed ends provided with pockets, a series of knives and separating-blocks in the grooves, and bolts which pass through the said knives and blocks, each having a nut at one end and a head at the other, the said heads resting in the said pockets, substantially as specified.

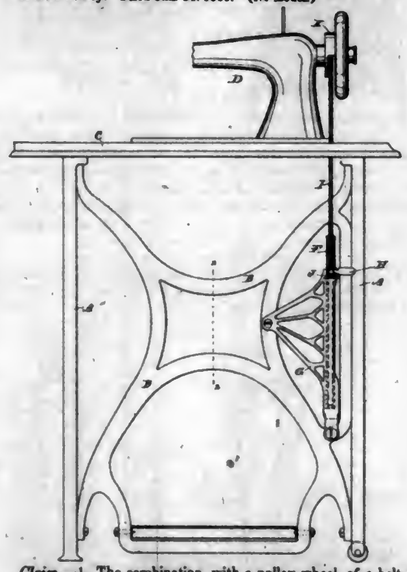
313,998. HOT-AIR GENERATOR FOR FIRE-PLACES. JESSE S. DEARDORFF, Canal Dover, Ohio. Filed June 14, 1884. (No model.)



Claim.—1. As an improvement in hot-air generators, the combination, with the chamber having its top wall slanting downward from the back wall and its upper portion projecting outward, and a series of swells or extensions on the rear of the top wall to rest against the back wall of the chimney, so as to set the chamber out from the same, of the removable front plate conforming to the shape of the chamber and flanged to fit over the top and side edges thereof, cold-air inlets provided in the chamber, and openings through the top wall adjacent to the swells to receive a corresponding number of pipes or flues, arranged and operating as set forth.

2. In a hot-air generator, the combination, with the chamber having its top wall slanting downward, swells or extensions M on the rear end of said wall, holes through the top wall adjacent to the extensions, and a series of pipes or flues fitted in the holes and extending upward through the chimney and communicating with the rooms above, of the removable front plate, arranged and operating substantially as described.

313,999. BELT SHIFTING AND REPLACING DEVICE. PHILIP DIEHL, Elizabeth, N. J., assignor to the Singer Manufacturing Company of New Jersey. Filed Jan. 31, 1885. (No model.)



Claim.—1. The combination, with a pulley-wheel, of a belt-shifter placed adjacent thereto and having an opening for the passage of the belt, and a spring connected with said shifter and adapted to hold the same in position for the belt to run on the said pulley and to return or retract said shifter to such position after it has been moved to shift the belt from the pulley, substantially as set forth.

2. A spring-retracted belt-shifter having an inclosed opening for the passage of the belt, substantially as set forth.

3. The combination, with a sewing-machine stand, of a spring-retracted belt-shifter, substantially as set forth.

4. The combination, with the dress-guard of a sewing-machine stand, of a belt-shifting lever pivoted thereto, substantially as set forth.

5. The combination, with the dress-guard of a sewing-machine stand, of a spring-retracted belt-shifter pivoted to the top thereof, substantially as set forth.

6. The combination, with a pulley provided with a belt-replacer, of a spring-retracted belt-shifter, substantially as set forth.

7. The combination, with the main or lower driving-pulley and the belt-shifter, of a belt-guard for covering the upper pulley, substantially as set forth.

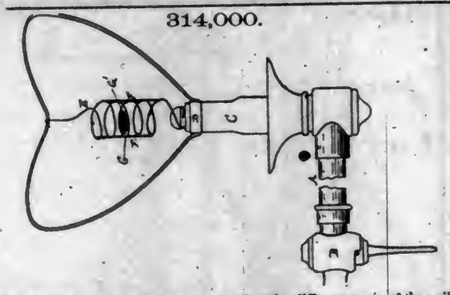
8. The combination, with the stand, the belt-shifter placed at the front side thereof, and the main driving-pulley, of a belt-guide on the rear side of said stand, substantially as set forth.

314,000. SAFETY ATTACHMENT FOR GAS-BURNERS. FERDINAND DITTMAR, Toronto, Ontario, Canada. Filed Feb. 23, 1884. (No model.)

Claim.—1. As a safety attachment to gas-burners and as a means for relighting the gas issuing therefrom, a platinum coil arranged vertically over said burner, and a platinum sponge, G', inclosed within and supported by a convolution of the said coil, substantially as described.

2. As a safety attachment to gas-burners and as a means for relighting the same, a platinum coil arranged vertically over said burner,

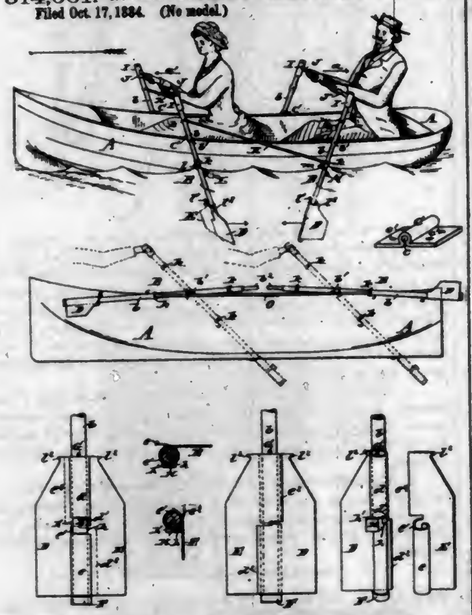
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and provided with vertical ribs connecting the different parts of the coil together, substantially as and for the purpose described.

3. A safety attachment to gas-burners, consisting of the following elements: a wire-holder, D, substantially following the contour of the flame, platinum coil E, provided with vertical ribs F, and platinum sponge G', inclosed within a convolution of said coil, the whole being constructed and arranged as shown, and for the purpose specified.

314,001. ROWING APPARATUS. BEREND DOSCHER, Charleston, S. C. Filed Oct. 17, 1884. (No model.)



Claim.—1. A rowing apparatus comprising swinging fore and aft oars on opposite sides of a boat, and a rod connecting each pair of fore and aft oars above and below their pivotal points, whereby when power is applied to either the fore or aft oars they will be moved simultaneously in opposite directions.

2. A rowing apparatus comprising swinging fore and aft oars on opposite sides of a boat, and the oars at each side of the boat being connected together at points above and below their respective pivots by a tie rod or bar, and said oars having blade-wings which open and close on their propelling and return strokes, respectively, substantially as herein set forth.

3. A rowing apparatus comprising swinging fore and aft oars on opposite sides of a boat, and the oars at each side of the boat being connected together at points above and below their respective pivots by a tie rod or bar, and said oars having blade-wings which open and close, and also having rings or links supported on their shafts and adapted to be lowered on the wings to hold them closed, substantially as set forth.

4. The combination, with the fore and aft oars on the same side of a boat, which are connected at points above and below their respective pivots by a tie-rod, K, and have folding blade-wings D E, substantially as specified, of the rings or links L M, adapted to be supported above the blade-wings on the hooks *l m* of the fore and aft oars, respectively, and the opposite hooks, *l'*, on the oar-shafts and *l²* on the oar-blades, adapting the rings or links L M to lock the blade-wings closed or out of action, substantially as herein set forth.

5. An oar made with blade-wings D E, fitting loosely by elongated eyes around the lower rounded end of the oar-shaft, which has a stud, H, against which the wings fold or close, and said wings having side extensions, d^2 e^2, which overlap the backs of the opposite wings for their whole length when the wings open for the propelling-stroke, substantially as herein set forth.

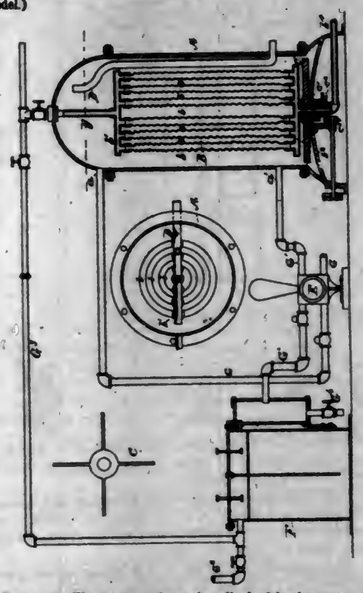
314,002. ORNAMENTING CHINA AND EARTHEN WARE AND OTHER POTTERY. HENRY DOULTON, Lambeth, County of Surrey, and JOHN SLATER, Burslem, County of Stafford, England. Filed Feb. 10, 1885. (No model.) Patented in England Mar. 27, 1882, No. 1,476.

Claim.—1. The process of ornamenting china and earthen ware and other pottery by impressing textile fabric—such as lace—upon the clay, together with the application of color or colored clay, and pressing the clay so embossed in plaster or other molds, substantially as described.

2. The process of ornamenting china and earthen ware and other pottery by indenting the surface of the clay by means of rollers covered with lace or such like material, substantially as described.

3. The process of ornamenting china and earthen ware and other pottery by forming a shallow recess in the surface of the article, covering the recessed part with textile fabric—such as lace—and by a burnisher or like tool causing the fabric to be impressed into the clay, substantially as described.

314,003. PROCESS OF PURIFYING WATER. THOMAS W. DUFFY, Medford, Mass., assignor, by direct and mesne assignments, to the Wainwright Manufacturing Company, Portland, Me. Filed Feb. 1, 1884. (No model.)



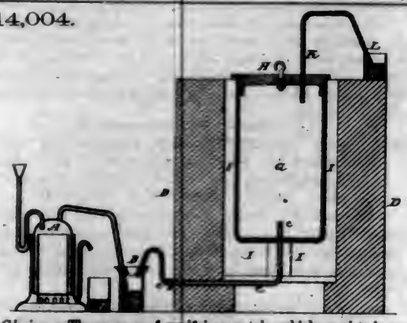
Claim.—1. The process above described of freeing water from carbonates of lime and magnesia insoluble at a high temperature, which consists in heating the water to a temperature sufficient to precipitate the carbonates held in solution, then freeing it from carbonic-acid gas, and then separating from it the insoluble matter, all as set forth.

2. The process above described of freeing water from salts of lime and magnesia insoluble at a high temperature, which consists in heating the water under pressure to a temperature sufficient to precipitate the salts held in solution, at the same time freeing it from carbonic-acid gas and steam, then separating from it the insoluble matter while still at a high pressure and temperature, all as set forth.

3. The process above described of freeing water from salts of lime and magnesia which are insoluble at high temperature, consisting in heating the water under pressure to a temperature sufficient to render said salts insoluble, agitating the water while it is being heated and freeing the water from carbonic-acid gas, and then separating the insoluble particles from the water while it is still at high temperature and pressure, all as set forth.

314,004. PROCESS OF PURIFYING METALS. CHARLES EDWARDS, Paris, France. Filed Apr. 26, 1883. (No model.) Patented in France June 7, 1882, No. 149,437; in Belgium July 11, 1882, No. 58,434; in England July 13, 1882, No. 3,333; in Norway Jan. 22, 1883; in Sweden June 23, 1883, and in Austria-Hungary Aug. 7, 1883, No. 12,932 and No. 31,509.

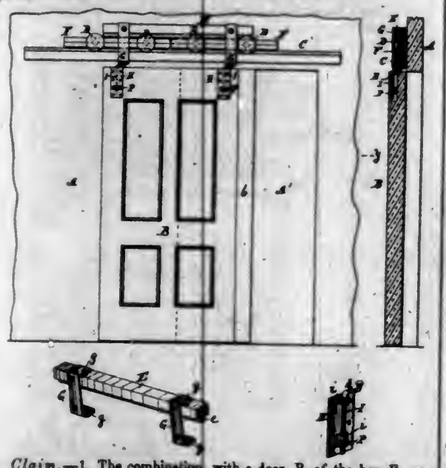
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Claim.—The process of purifying metals, which consists in passing moist hydrogen over the metal while at a temperature of 600° to 700° centigrade in an air-tight retort, as described.

314,005. HANGING DOOR. CHARLES W. EMERSON, Charlestown, Mass. Filed Oct. 20, 1884. (No model.)

Brief.—A door having beveled vertical edges is connected with a traveling carriage through adjustable swivel-rods, whereby it is permitted to swing into its jamb upon being closed and out of said jamb in being opened.



Claim.—1. The combination, with a door, B, of the bar E, provided with the tongue *e*, the rollers D, bar C, hangers G, rod I, and bracket H, as shown and described.

2. The combination, with the door B, beveled on both vertical edges, of the hangers G and swivel-rod I *h*, whereby the beveled edges of the door are caused to fit in the beveled sides *a a* of the doorway when closed, and swing out of the same when opened.

3. The combination, with the door B, of the adjusting device P *i* and the swivel-rod I *h*, as and for the purpose set forth.

4. The combination, with the door B, of the hangers G, bar E, grooved rollers D, the bars F, each made in two parts longitudinally, and the bar C, provided with a tongue, as and for the purpose set forth.

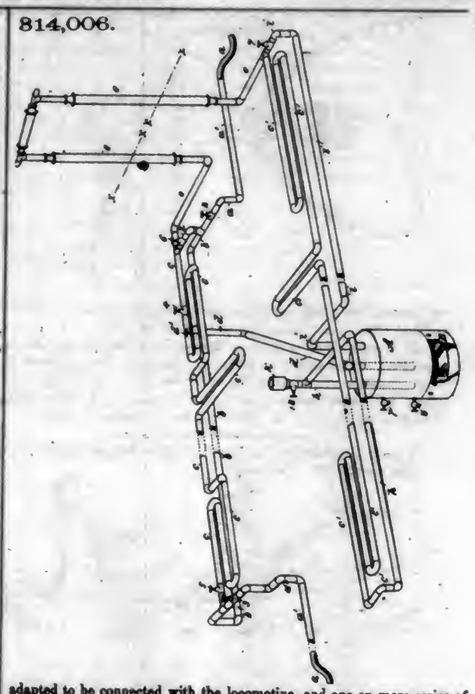
314,006. STEAM-HEATING APPARATUS FOR RAILWAY-CARS. JAMES EMERSON, Williamsett, Mass. Filed Apr. 24, 1884. (No model.)

Claim.—1. The within-described improved means for warming railway-cars by steam taken from the locomotive, which consist of a main steam-pipe running through the car and adapted to be connected with the locomotive, a series of warming-pipes located above and connected with said main steam-pipe, cut-off valves in the connections, and suitable drip-pipes connected with said warming-pipes, combined and operating substantially as set forth.

2. The within-described means for warming railway-cars by steam taken from the locomotive, which consist of a main steam-pipe running through the car and adapted to be connected with the locomotive, two series of warming-pipes, substantially as described, one located on each side of the car and connected with said main steam-pipe, cut-off valves between said series, and one of more drip-pipes connected with each series of said warming-pipes, combined and operating substantially as set forth.

3. The combination, in a railway-car, of a main steam-supply pipe

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adapted to be connected with the locomotive, and one or more series of warming-pipes arranged above and connected with said main pipe, a boiler having a heating device, substantially as described, attached thereto and suspended under the car, one or more drip-pipes leading from said series of warming-pipes into said boiler, a steam-pipe leading from said boiler and adapted to convey steam therefrom to one or more of said series of warming-pipes, and means, substantially as described, for controlling the flow of steam from said boiler through said warming-pipes, substantially as set forth.

4. The combination, in a railway-car, of the series of pipes *c'*, the drip-pipe *h*, the boiler A, having a suitable heating device attached thereto, the steam-pipe *i*, and valves in the connecting-pipes for controlling the flow of steam from the boiler through the pipes *c'*, substantially as set forth.

5. The combination, in a railway-car, of the series of pipes *c* and *c'*, the pipe *e*, the drip-pipe *h*, the boiler A, having a suitable heating device attached thereto, the steam-pipe *i*, and valves for controlling the flow of steam from the boiler through the pipes *c* and *c'*, substantially as set forth.

314,007. STEAM-VALVE CONNECTION FOR RAILWAY-CARS. JAMES EMERSON, Williamsett, Mass. Filed May 7, 1884. (No model.)

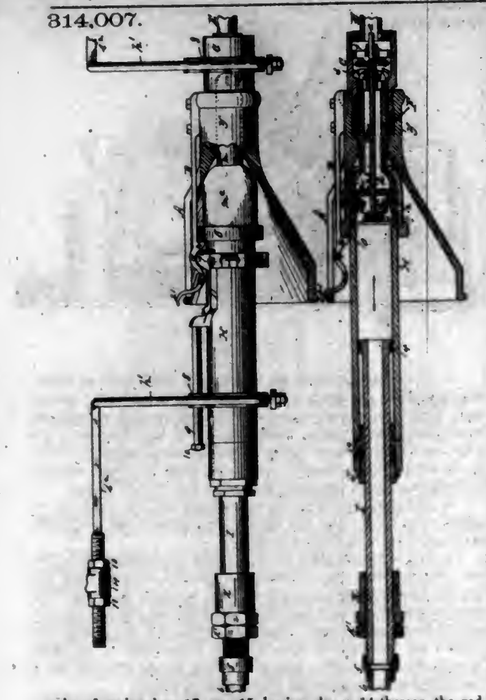
Claim.—1. In automatic steam-pipe couplings for railway-cars, a receiving-connection, substantially as described, having a wide mouth provided with a tubular extension having packing-rings within the latter, a back-pressure valve and valve-case connected with said extension, a spring connected with the latter provided with a catch-block and reverse curves and extending into a slot in said mouth, an entering connection, substantially as described, consisting of pipes H and I, the latter provided with the nut K, the ball-joint case m^2, the valve-case *m*, valve d^2, stem *d*, extending beyond the valve-case *m*, and means, substantially as described, for securing said connections to railway-cars, combined and operating substantially as set forth.

2. In combination, the mouth A, the tubes H and I, spring B, the case m^2, having ring *o* thereon, the valve-case *m*, having a ball-joint connection with case m^2, and inclosing a valve, substantially as described, ring 7 and yoke 8, connected by rod 9, and means, substantially as described, for connecting said yoke with a car, all as set forth.

3. In combination, the rod 16, plate *v*, having the pivot bolt 15, the

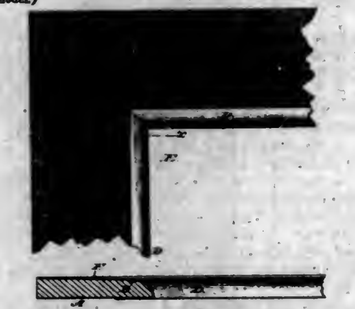


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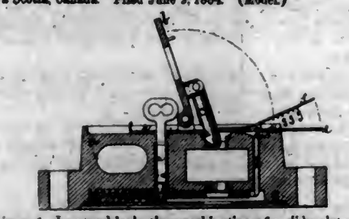
yoke w^2, spring-bars 17, arm 15, having sleeve 14 thereon, the rod i^2, arm h', and yoke 8, substantially as set forth.

314,008. PICTURE-MAT. ALLEN S. FONTAINE, New York, N. Y., assignor to Frederick Keppel & Co., same place. Filed Nov. 17, 1884. (No model.)



Claim.—The combination, with a wooden foundation-frame in a picture-mat, of a paper lining carried around and upon the inner edge or border of the mat and fitted against an offset in the face of the frame to produce a flush joint therewith, and a thin continuous paper facing fitted upon the frame to cover its face and overlap the edge of the lining upon its inner border, so as to conceal the joint of the latter with the frame, all substantially in the manner and for the purpose herein set forth.

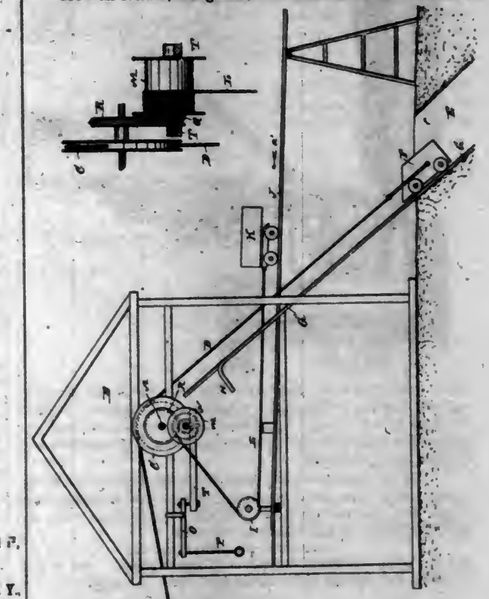
314,009. SEAL-LOCK FOR CAR-DOORS. JOHN FORBES, Halifax, Nova Scotia, Canada. Filed June 9, 1884. (Model.)



Claim.—1. In a seal-lock, the combination of a slide-plate, *e*, with spring-arms *f f*, said arms provided with pins *g g*, adapted to pass into openings *A A* made in such slide-plate *e*, and a bolt-locking mechanism, substantially as and for the purposes described.

2. In a seal-lock, the combination of a slide-plate, *e*, with spring-arms *f f*, said arms provided with pins *g g*, adapted to pass into openings *A A* made in the slide-plate *e*, plate *b*, bolt *c*, and rod *d*, substantially as and for the purposes described.

314,010. MINE-RAILWAY. JOHN C. FOWLE, JOHN P. CHRISTOPHER, and WILL P. SMITH, Michigamme, Mich. Filed Jan. 14, 1885. (No model.)

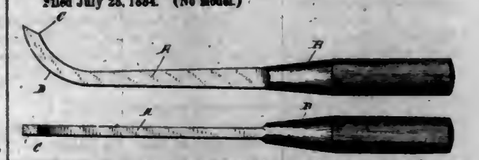


Claim.—1. The combination, with a pulley over which a hoisting-rope is to be passed, of a drum, gearing for revolving the drum from the said pulley, and of a cable or rope secured on the said drum and connected with a dumping-car, said cable being passed over the angle-pulley, substantially as herein shown and described.

2. The combination, with the pulley C, over which the hoisting-cable D is to be passed, of the wheel R on the same shaft with the pulley C, the pivoted frame T, the drum M, journaled in the same, the pinion Q, connected with the drum, the rope L, secured on the drum, and the dumping-car K, secured to the said rope L, substantially as herein shown and described.

3. The combination, with the shaft A, of the pulley C and the friction-wheel R on the same, the pivoted frame T, the lever O, the drum M, and the pinion Q, on the frame T, the rope L, the track J, the car K, the track G', and the dump H, substantially as herein shown and described.

314,011. LOCK-MORTISING CHISEL. PHILO L. FOX, Bridgeport, Conn. Filed July 28, 1884. (No model.)



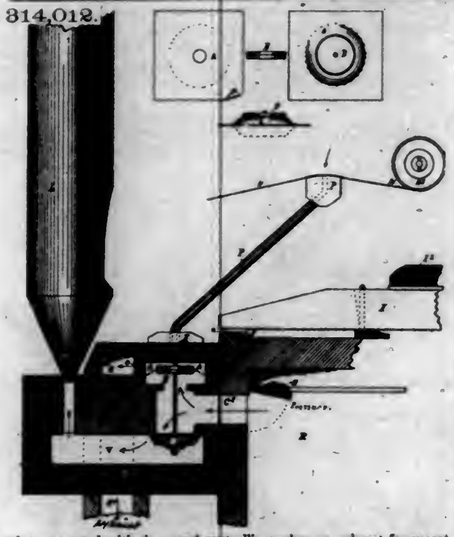
Claim.—1. A chisel-blade formed in a continuous curve at its outer end, whereby a bearing-surface is formed, as at D, and provided with a cutting-edge at its point, substantially as described.

2. A chisel-blade having a straight portion, A, and formed in a continuous curve at its outer end to form a bearing-surface, as at D, the sides of the straight and curved portions being parallel, and a cutting-edge being made at the end by beveling off the inner side of the curved portion, substantially as and for the purpose set forth.

314,012. MECHANICAL MUSICAL INSTRUMENT. MERRITT GALLY, New York, N. Y. Filed Mar. 5, 1881. (No model.)

Claim.—1. In a pneumatic action for organs and similar instruments, an air-passage from the wind-chest to the sounding apparatus, a valve in said passage controlling the sounding apparatus, a diaphragm-

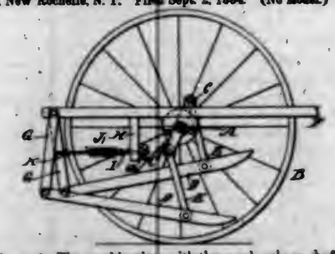
314,012.



valve connected with the sound-controlling valve, an exhaust for operating said diaphragm-valve, and mechanism, substantially as described, by which the exhaust may be overcome and the sound-controlling valve permitted to open by the pressure, all combined and arranged to operate substantially as described.

2. In an organ-action, the pneumatic consisting of a flexible diaphragm and a button placed therein, the opening in the diaphragm being smaller than the inserted button, whereby a baggy shape of the diaphragm is produced, substantially as described.

314,013. TREADLE-MOTION FOR VELOCIPEDES. GEO. H. GRIFFITHS, New Rochelle, N. Y. Filed Sept. 2, 1884. (No model.)



Claim.—1. The combination, with the crank axle or shaft A, treadles D, and links E, of the links G, arm H, and springs J, arranged to operate substantially as and for the purposes set forth.

2. The reach F, provided with the arm H, in combination with the crank axle or shaft A, treadle D, links E G, and the springs J, the same being attached to the links G and arm H, and made adjustable, substantially as described.

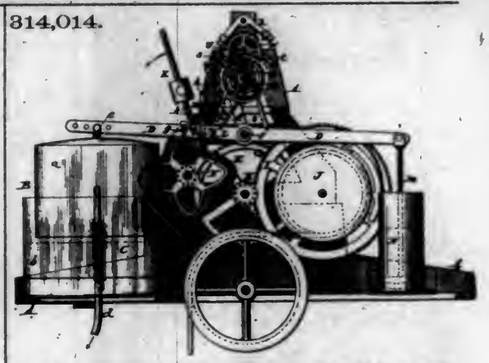
3. The combination, with a cranked axle and treadles and their links or connections for operating said axle, of links supporting the inner ends of said treadles, and of springs connected to these supporting-links and to a fixed support, substantially as shown and described, and for the purpose set forth.

314,014. PNEUMATIC CLOCK. AUGUSTUS HAHL and OTTMAR MERGENTHALER, Baltimore, Md. Filed Mar. 22, 1883. (No model.)

Claim.—1. In a pneumatic clock, the combination of the pump bell or piston, the driving-train, and the grooved cam-wheel, constructed, substantially as described, to impart a positive motion to the pump, as described.



314,014.



2. In a pneumatic clock, the combination, substantially as hereinbefore described and shown, of the pumping bell or piston, the driving-train, the intermediate cam connected to the bell, the latch or detent, an intermittingly-acting locking mechanism to hold the driving-train, and a time mechanism acting at regular intervals to release the detent, whereby the driving-train is caused to actuate the pump at suitable intervals and hold the same at rest during the intermediate periods of time.

3. In a pneumatic clock, the combination, with the pump bell or piston, of the driving-train and the controlling pump or piston, whereby the speed of the main piston is controlled.

4. In a pneumatic clock, the combination of a pumping bell or piston, a driving-train acting, substantially as described, to operate said piston, the secondary piston and cylinder M N, to control the speed of the pumping-piston, a detent to lock the driving-train, and a time mechanism adapted to release the detent at regular intervals, said parts being constructed and combined for joint operation, substantially as described, whereby the action of the pump is caused at regular intervals and a gradual rising movement of the pumping-piston secured.

5. In a pneumatic clock, the combination of a pump bell or piston, a driving-train, substantially as described, to operate the same, and a weighted lever to assist in depressing the bell, constructed and arranged in connection with a shifting fulcrum or bearing, substantially as described, whereby it is caused to exert an increasing effect to compensate for the increasing resistance to the action of the pump.

6. In combination with the pumping-bell and the vibratory operating frame or lever, the weighted lever K, pivoted to said frame and acting beneath a fixed bearing or fulcrum, substantially as described, whereby said lever is caused to exert a variable force upon the pump.

7. In a pneumatic clock, the pump-actuating device D, in combination with the weighted lever K, pivoted thereto, and the bearing or fulcrum L, adjustable horizontally in relation to said lever.

8. The pump-lever D and the weighted lever K, in combination with the bearing or fulcrum L, adjustable vertically.

9. In a pneumatic clock, the combination of the vibratory lever D, having the pump connected therewith, the driving-train for said lever, the hooked dogs O and P, attached to the lever, the wheel Q, actuated by said hooks, the power-maintaining spring T, and the time-train connected with and driven by said spring, whereby the driving-train is caused to serve the twofold purpose of actuating the pump and of winding the spring.

10. In a pneumatic clock, a reciprocating pump bell or piston, a power-maintaining or escapement-actuating spring, and devices, substantially as shown, connecting the pump with said spring and arranged to exert a winding action upon the spring during the entire movement of the pump-piston in each direction.

11. The pumping bell or piston and the driving-train therefor, and the vibratory lever connected with said driving-train, and provided with two dogs or detents to limit its motion, in combination with the rock-shaft to hold and trip said dogs, and the shaft-controlling devices connected with the escapement, substantially as described.

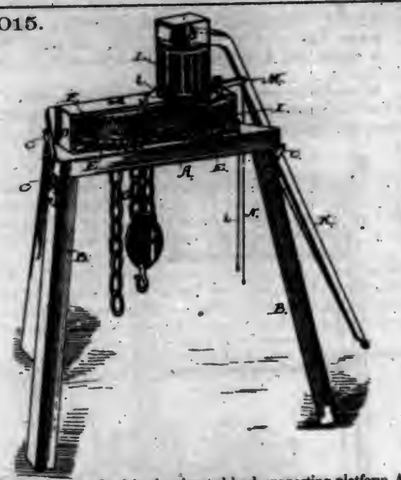
12. In combination with the vibratory arm A', the two dogs *q* and *r*, mounted thereon, and the intermittently-operating rock-shaft *p*, substantially as shown, whereby the arm is locked fast at the end of each vibration.

13. The dogs *q* and *r*, applied substantially as and for the purpose described, in combination with the rock-shaft *p*, the arms *s* and *w*, detent-arm *t*, tripping-pin *u*, and restoring-wheel Q.

14. In a pneumatic clock, the combination of the vibrating frame D, the pump B C, and the governing device M N, whereby the sudden movement of the pumping-piston is prevented, and thus the formation of a vacuum in the air-pipes avoided.

314,015. DERRICK. OLE P. HALIN, San Francisco, Cal. Filed Jan. 26, 1885. (No model.)

314,015.



Claim.—1. In a derrick, the elevated load-supporting platform A, in combination with the folding legs B, substantially as described.

2. In a derrick, the elevated load-supporting platform A, in combination with the legs B and the pivoted hinge-links C, by which the legs are united to the platform, substantially as and for the purpose herein described.

3. In a derrick, the elevated platform A, having the intermeshing gears E and chain-pulleys F, in combination with the chain-tackle G, engaged by said pulleys and operated by the gears, substantially as herein described.

4. In a derrick, the elevated platform A, the horizontal, spaced, and intermeshing pairs of gears E, and the intervening chain-pulleys F, in combination with the chain-tackle G, engaged by the pulleys and operated by the gears, substantially as herein described.

5. In a derrick, the elevated platform A, the horizontal, spaced, and intermeshing pairs of gears E, and the intervening chain-pulleys F, in combination with the vertical guide-pulleys H H', and the chain-tackle G, guided by the pulleys H H', engaged by the pulleys F and operated by the gears, substantially as herein described.

6. In a derrick, the elevated platform A, the horizontal, spaced, and intermeshing pairs of gears E, and intervening chain-pulleys F, in combination with the chain-tackle G, engaged by the pulleys and operated by the gears, the retaining-pawl I, engaging the chain and cord *i*, by which the pawl is disengaged, substantially as herein described.

7. In a derrick, the elevated platform A, the horizontal, spaced, and intermeshing pairs of gears E, and intervening chain-pulleys F, by which the hoisting-tackle is operated, in combination with the lever K on the shaft of one of the pairs of gears, substantially as herein described.

8. In a derrick, the elevated platform A, the horizontal, spaced, and intermeshing pairs of gears E, and intervening chain-pulleys F, by which the hoisting-tackle is operated, and the ratchet-wheel J on the shaft of one of the pairs of gears, in combination with the lever K, hinged and fitted upon the shaft, and having a ratchet-disk, *l*, engaging the ratchet-wheel J, substantially as herein described.

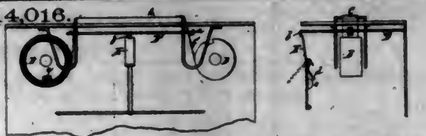
9. In a derrick, the elevated platform A, the horizontal gears E, and chain-pulleys F, by which the hoisting-tackle is operated, and the ratchet-wheel J on the shaft of one of the gears, in combination with the lever K, the hinged sleeve L, and the ratchet-disk *l*, fitted on the shaft and engaging the ratchet-wheel J, substantially as herein described.

10. In a derrick, the elevated platform A, the horizontal gears E, and chain-pulleys F, by which the hoisting-tackle is operated, and the ratchet-wheel J on the shaft of one of the gears, in combination with the lever K, the hinged sleeve L, and the ratchet-disk *l*, fitted on the shaft and engaging the ratchet-wheel, and the forked lever M, bearing under the ratchet-disk and fulcrumed on stops *m*, and the cord N, by which the lever M is operated, substantially as and for the purpose herein described.

11. A derrick consisting of the combination of the elevated platform A, the folding legs B, the horizontal, spaced, and intermeshing pairs of gears E, and intervening chain-pulleys F, the chain-tackle G, the retaining-pawl I, the hinged ratchet-lever K, engaging a ratchet-wheel on the shaft of one of the pairs of gears, and the forked disengaging-lever M, all arranged and adapted to operate substantially as herein described.

314,016. INKING-RIBBON ALARM FOR TYPE-WRITING MACHINES. ALVIN C. HALL, New York, N. Y. Filed Mar. 24, 1884. (No model.)

314,016.



Claim.—1. In combination with an inking-ribbon of a type-writer, a suitable tripping device, substantially as described, and an alarm mechanism, substantially as described, arranged to be released through the medium of said tripping device, substantially as and for the purpose set forth.

2. The inking-ribbon, the trippers applied in connection therewith, the movable bar or arm, and an alarm mechanism, substantially as described, arranged and combined substantially as and for the purposes set forth.

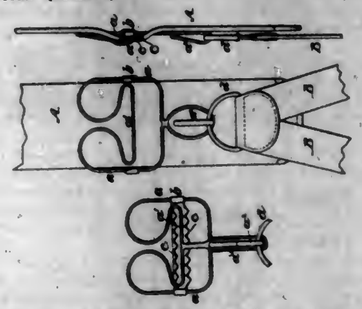
314,017. PLOW. OLE K. HANSE, Pennington, Dak. Filed May 13, 1884. (No model.)



Claim.—1. The combination, with the plow-beam A, clevis D, and handles C, of the lever I, rod H, link G, elbow-lever F, and adjusting-bar E, having a pendent pivot, *e*, bearing in an eye, *f*, of the clevis D, substantially as shown and described.

2. The combination, with the plow-beam A, of the plate K, having lugs *k* and *l*, and the clevis D, bar E, and lever F, substantially as shown and described.

314,018. BUCKLE. CHARLES R. HARRIS, Cortland, N. Y. Filed Aug. 6, 1884. (No model.)



Claim.—1. The fixed toothed cross-bar on the body of the buckle, provided on its front with duplicate rows of teeth arranged one above the other and forming a hollow or space in between them, in combination with the folding or closing front portion of the buckle, constructed substantially as described, to form a presser-bar opposite the toothed cross-bar between the duplicate rows of teeth thereon, substantially as specified.

2. The combination, with the body of the buckle having a fixed toothed cross-bar and attached lower hook, a^2, of the folding or closing portion a' of the buckle, constructed substantially as described, to form a presser-bar in front of the toothed cross-bar and extended downward to receive the hook along it or through it, essentially as and for the purposes herein set forth.

3. The buckle having its body *a*, folding or closing portion a', and hook a^2, made of a single piece of spring round wire, with its folding portion a' constructed substantially as described, to form a presser-bar set to spring inward, in combination with the fixed toothed cross-bar *b*, provided with upper and lower rows of downwardly-inclining teeth, *c c*, essentially as shown and described.

314,019. MONUMENT. ALEXANDER HARROUN, Clockville, N. Y. Filed June 18, 1884. (No model.)

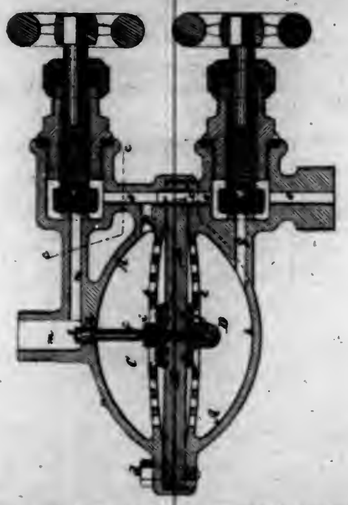
Claim.—A monument consisting of an outside shell of rigid material and a filling of plastic material which will harden after being put in place, those sections of the shell which require additional support

314,019.



being provided with internal flanged projections embedded in the plastic material, substantially as described.

314,020. REGULATOR FOR GASES OR FLUIDS UNDER PRESSURE. JAMES S. HAZARD, Newport, R. I., assignor to the firm of John Matthews, New York, N. Y. Filed May 18, 1884. (No model.)



Claim.—1. The pressure-regulator A, containing flexible diaphragm B, forming two chambers, C D, and passages, substantially as described, in combination with the valve F, by means of which the chamber D can be wholly isolated, after filling, from the remaining chambers and passages, and its contents used as a load on the diaphragm, substantially as described.

2. The regulator A, having movable diaphragm B, forming two chambers, C D, in combination with the valve *g*, passages *m n o p q*, and valves E F, substantially as described.

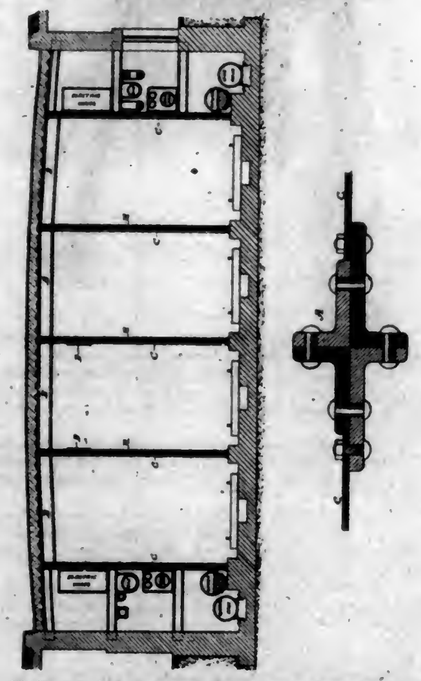
3. The combination of the regulator A, having flexible diaphragm B, with the perforated screens *e*, placed on opposite sides of said diaphragm and adapted to limit its movements, substantially as described.

4. The combination of the regulator A and its diaphragm B with the nut *i*, having ribbed contact-face, nut *j*, having ribbed contact-face and cup-shaped central portion, screw-stem *f*, and valve *g*, substantially as and for the purpose herein shown and described.

5. The combination of the regulator A, which is constructed of two parts, with the rubber diaphragm B, clamping-bolts *d*, and with the tube *r*, which extends through the rubber in line with the passage *o*, which is formed in the body of the regulator, substantially as described.

314,021. UNDERGROUND-RAILWAY STRUCTURE. ROWLAND R. HAZARD, New York, N. Y. Filed July 11, 1884. (No model.) Patented in England Aug. 6, 1884, No. 11,000, and in France Aug. 9, 1884, No. 151,159.

Brief.—Constructed with a series of columns and a series of panels between the columns, forming thin walls of non-resonant material. The columns are provided with deflecting-plates.



Claim.—1. An underground-railway structure constructed with a thin wall between its tracks, whereby the space necessarily occupied is reduced to a minimum and proper ventilation obtained, substantially as described.

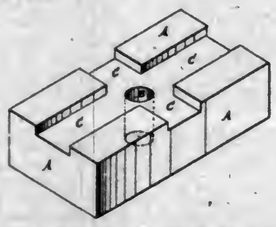
2. An underground-railway structure constructed with a thin wall of non-resonant material between its tracks, whereby the space necessarily occupied is reduced to a minimum, proper ventilation obtained, and the noise caused by the passage of trains is obviated.

3. An underground-railway structure constructed with a series of columns between its tracks, and a series of panels in the spaces between said columns, substantially as described.

4. An underground-railway structure constructed with a series of columns between its tracks, and a series of panels of non-resonant material in the spaces between said columns, substantially as described.

5. An underground-railway structure constructed with a series of columns between its tracks, and provided with deflecting-plates, substantially as described.

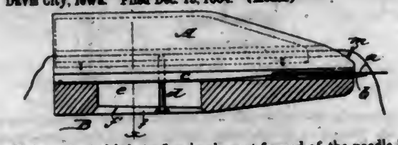
314,022. BRICK. WILLIAM HEARD, Brooklyn, N. Y. Filed Aug. 29, 1884. (No model.)



Claim.—1. An improved brick provided with an aperture, B, and intersecting grooves C, substantially as described.

2. A brick provided with the central aperture, B, and the longitudinal and transverse grooves C on one of its faces, substantially as herein shown and described.

314,023. FABRIC-TURFING IMPLEMENT. CHARLES M. HINKLE, Davis City, Iowa. Filed Dec. 15, 1884. (Model.)



Claim.—1. A fabric-turfing implement formed of the needle-block A and the loop-holder block B, which are tongued and grooved, and connected together by a screw, *d*, passing through a slot in the loop-holder block, said slot having inclined shoulders, substantially as described.

2. In a fabric-turfing implement, the combination of the needle-block having the side groove covered by a plate with the loop-holder block, said blocks being connected together to permit of their reciprocation one upon the other, substantially as and for the purpose set forth.

314,024. HUB FOR VEHICLE-WHEELS. JOEL C. HOLLINGSWORTH, Wilna, Md. Filed July 22, 1883. (No model.)



Claim.—The combination, in a hub, of the wooden body A, provided with external taper, a^3, and with a stop-shoulder, a^4, arranged in advance of such taper, and the jacket B, having spoke-sockets *b*, and provided at the forward end of its bore with an internal bevel, b', which in the application of the parts A B binds firmly on the bevel a^3 and compresses that portion of the hub-body by a wedging action, and with an internal stop-shoulder, b^2, arranged to engage the shoulder a^4 and limit the compressing action of portion b', substantially as and for the purposes set forth.

314,025. BOTTLE-STOPPER. LEWIS S. HOTT, Boston, assignor to Daniel E. Dever, Brookline, and Frank F. Smalley, Chelsea, Mass. Filed Oct. 11, 1884. (Model.)



Claim.—1. In a bottle-stopper, the combination of the following instrumentalities, to wit: a stopple adapted to close the mouth of the bottle, a binding-wire or yoke hinged to the stopple, said wire having a spring-coil at either side and inwardly-turned ends, a lever adapted to exert a strain on the binding-wire to force the stopple into the mouth of the bottle, said lever having an outwardly-inclined coil at either side and outwardly-turned ends, and an attaching-wire having an inwardly-inclined coil at either side, said binding-wire being journaled in the coils of the lever by having its ends passed inwardly through the same, and the lever journaled in the coils of the attaching-wire by having its ends passed outwardly through the same, the lever and binding-wire being so bent as to cause them to press constantly and forcibly against the coils in which they are respectively journaled, substantially as set forth.

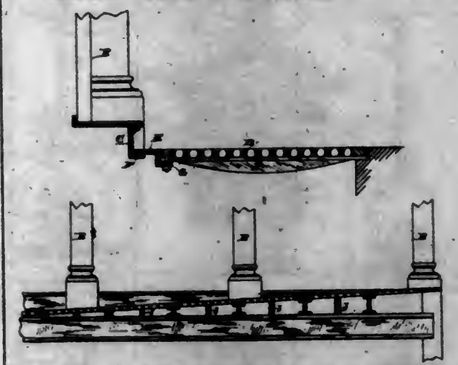
2. The combination, in a stopper-fastener, of an attaching-wire provided with outwardly-flaring coils projecting downward from diametrically-opposite points of the bottle-neck, a lever having outwardly-springing arms provided with outturned ends, said ends being passed through said flaring coils and said arms resting against the inclined faces thereof, and a yoke connected to said lever, substantially as described.

3. An attaching-wire for bottle-stopper fasteners, consisting of a ring-shaped band having bent or hooked ends and provided at diametrically-opposite points with integral coils projecting diagonally downward and outward from the horizontal plane of the ring at approximate right angles thereto, substantially as set forth.

4. The combination, in a stopper-fastener, of a binding wire or yoke provided with bends, as described, a stopper hinged to said yoke between said bends, and provided on one side of said yoke with an upright ear and on the other side thereof with studs which assist in preventing an undue turning of the stopper on the yoke, substantially as described.

5. The improved bottle-stopper herein described, the same consisting of the attaching-wire E, having the coils *d*, the lever D, having the coils A, the binding-wire or yoke C, having the coils *l*, the stopple B, and the tie-wire *b*, constructed, combined, and arranged to operate substantially as described.

314,026. ILLUMINATING BASEMENTS. PETER H. JACKSON, San Francisco, Cal. Filed July 21, 1884. (No model.)



Claim.—1. Tiles covering areas and made in two sections in the direction of their length, said tiles being joined together at their meeting edges on the same plane, without intervening risers, the outer sections being rectangular in shape, and the inner ones having their inner edge made to fit the contour of the building-front, and without surrounding metal frames, together with supporting-flanges F G or beams H, as herein described.

2. Tiles covering areas and made in two sections, the outer one of which is rectangular in form and the inner one fitted to its inner edge, while its own inner edge is made to fit the contour of the building, said tiles being made without surrounding metal frames, and having supporting-flanges between the two and extending their entire length, together with bearers having strengthening-ribs and shoulders upon which the sections are supported, substantially as described.

3. Tiles covering areas and made in two sections fitted to each other and the building contour, as shown, having connecting-flanges between the two, together with bearings having deep strengthening-ribs and shoulders extending the entire length of both tiles, so as to rest upon the end supports, substantially as herein described.

4. Tiles covering areas and resting on strengthening-bearers extending longitudinally with both tiles, and having end supports, said bearers being made of different depths where they rest upon their end supports, so that the tiles may conform to the grade of the street, substantially as herein described.

5. Tiles made in sections covering areas, and resting on bearers which extend longitudinally with both tiles, and resting on the end supports, in combination with blocks or wedge-pieces on the end supports and between the bearers, and a filling of fusible or plastic cement about the blocks or wedges in the ends of the bearers, substantially as herein described.

6. Tiles made in sections covering areas and resting on strengthening-ribs which extend longitudinally with the tiles, in combination with iron bars extending along the outer edges of the tiles, which are secured to them, said bars being secured to the beam or girder, substantially as herein described.

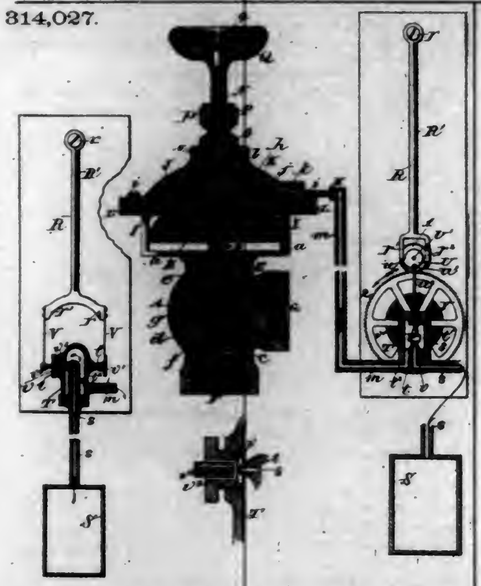
7. Tiles made in sections and covering areas, as shown, said tiles resting on strengthening-ribs or bearers extending longitudinally with the tiles and resting upon end supports, in combination with channel-iron or other bars extending beneath the outer edges of the tiles, which are bolted to a support by them, and a fusible or plastic cement filling at the outer ends of the tiles and bars, substantially as herein described.

314,027. THERMO-PNEUMATIC TEMPERATURE-REGULATOR. W. S. JOHNSON, Whitewater, assignor of one-half to William Plankinton, Milwaukee, Wis. Filed June 20, 1884. (No model.)

Claim.—1. The combination, with a main valve controlling steam or analogous passages, and an expansible chamber for operating said valve, of a thermostat and a double valve operated directly thereby, a reservoir of compressed air, and suitable pipe connections or passages, substantially as described, whereby the main valve will be operated by the compressed air and the passage of the latter to and from the expansible chamber be controlled by the action of the thermostat, substantially as set forth.

2. In a temperature-regulator, the combination of a thermostat whose free portion is moved by a change of temperature in the surrounding medium, a valve mechanism operated by the mechanical action of said thermostat, a reservoir of air or other gas under pressure, the escape of the air or gas from said reservoir being controlled by the mechanical

314,027.



action of said thermostat through said valve mechanism, an expansible chamber whose inlet and outlet are controlled by said valve mechanism and a valve operated by the expansion of said chamber, said valve by its movements controlling a steam or other passage, whereby a rise of temperature in the medium surrounding the thermostat operates the outlet to said reservoir and inlet to said expansible chamber, so that the chamber is expanded and the valve governing the steam or other passage is operated in one direction, and a fall of temperature in the surrounding medium through the mechanical action of the thermostat serves to close the inlet to said expansible chamber and opens the outlet to said chamber, whereby the said valve which controls the steam or other passage is operated in the other direction, substantially as set forth.

3. In a temperature-regulator, the combination of a thermostat having fork or projections at its free end, and actuating mechanism, substantially as described, with a valve-chamber having inlet and outlet ports, and a double valve adapted to close one of said ports and open the other, according as the thermostat expands or contracts, substantially as set forth.

4. In a temperature-regulator, the combination of a valve adapted to close a steam or other passage, an expansible chamber having a flexible wall and a rigid backing, a valve-stem having a disk secured to the end opposite the valve, said stem passing through the packing-box of the valve-body, and a spring interposed between the packing-box and disk and surrounding said stem, substantially as set forth.

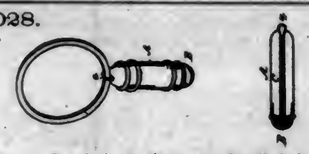
5. In a temperature-regulator, the combination of a valve adapted to close a steam or other passage, an expansible chamber having a flexible wall and a rigid backing, a valve-stem passing through the packing-box of the valve body or housing and having a disk secured to the end opposite the valve, a spring interposed between the packing-box and disk and surrounding said stem, and an auxiliary stem bearing a flange on its inner end and a wheel or handle on its outer end, and having exterior screw-threads working in corresponding threads in the bore of a stem-guide through which it passes, said stem-guide being secured within a central perforation of the rigid backing of the expansible chamber, substantially as set forth.

6. In a temperature-regulator, the combination of the body or housing A, having packing-box C and inlet and outlet coupling connections F and G and valve-seat *c*, spider *a a*, ring I, and the backing J and diaphragm K, forming expansible chamber *h* between them, stem D, having disk H secured to one end and valve-disk B swiveled or loosely connected to the other end, and the spring *b*, interposed between the disk H and packing-box C, substantially as set forth.

7. In combination with the thermostat R R', having the forked ends r' r^2, the disk U, mounted on shaft U' and provided with offset *u* and pin u', the valve-chamber T, having inlet-port with valve-seat *t*, and outlet-port with valve-seat *t'*, the link u^2, valve-stem V, and two-faced valve *v v'*, and suitable clock-work mechanism, and pipes or passages to and from the valve-chamber, substantially as set forth.

314,028. KEY-RING ATTACHMENT. AMOROUS O. JONES, Flint, Mich. Filed Jan. 2, 1885. (No model.)

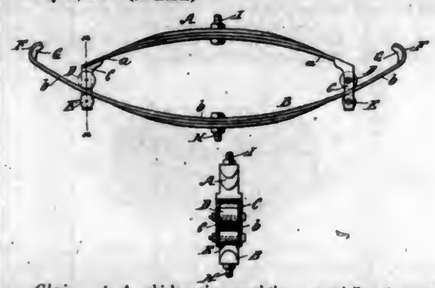
314,028.



Claim.—1. In a device for the purpose described, the combination, with the cylinder A, of the plug having secured thereto two parallel wires formed of one piece and terminating in a loop, for the double purpose of holding blank paper and affording means for securing the key-ring thereto, substantially as described.

2. The combination of the cylinder A and the plug B, carrying the wire C, with a key-ring, substantially as and for the purposes set forth.

314,029. VEHICLE-SPRING. JOHN J. KALMA, Collinsville, Ill. Filed May 31, 1884. (No model.)

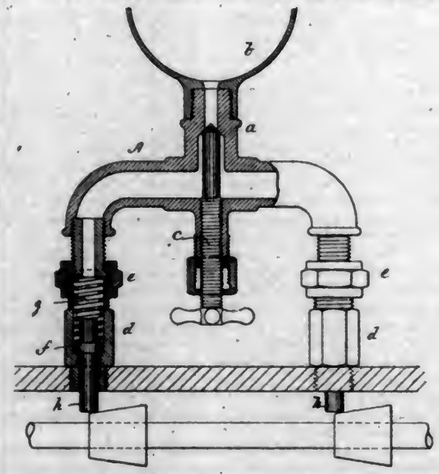


Claim.—1. A vehicle-spring consisting, essentially, of an upper section adapted to be secured to a vehicle-body, and provided on its ends with guide-flanges, and a lower section adapted to be secured to an axle or axle-bolster, and provided at its ends with stops, whereby, when the said sections are applied to a vehicle and its axle as described, the upper spring-section and the vehicle-body may have a lateral sliding movement on the lower spring-section, the stops preventing the disconnection of the two sections, substantially as set forth.

2. A vehicle-spring made with its upper and lower sections movable lengthwise upon each other, and one of said sections having end stops provided with elastic buffers or cushions, substantially as shown and described.

3. The combination, with the section A, having end pairs of rollers, D E, of the section B, held by its ends between the rollers, and having end stops, F F, fitted with buffers or cushions G G, substantially as shown and described.

314,030. LUBRICATOR FOR STEAM-CYLINDERS. FORTUNATUS G. KELLOGG, Winnipeg, Manitoba, Canada. Filed Sept. 6, 1884. (No model.)



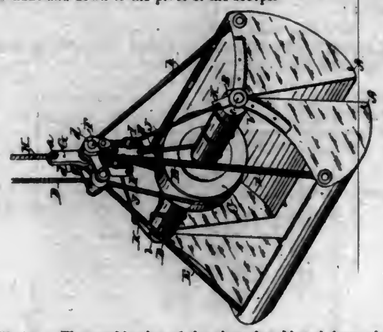
Claim.—1. The lubricator consisting of tube A, cup *b*, cylinders *d*, attached to the tube ends, valves *f*, projecting stems *h*, and springs *g*, combined for operation, as specified.

2. The combination, in a lubricator, of cup *b*, tube A, cylinder *d*, valve *f*, stem *h*, and spring *g*, substantially as described

3. In a lubricator, the combination, with the lubricant-feeding valves, with their stems extending into the steam-chamber, of the steam-valves acting upon said stems to open their valves, substantially as and for the purpose set forth.

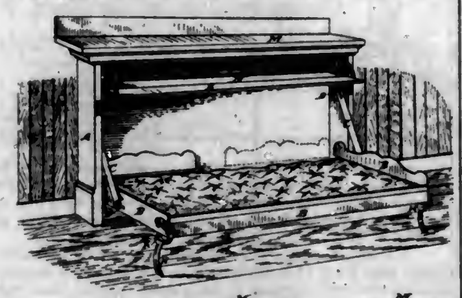
314,031. HOISTING-BUCKET. LOREN G. LADD, Pawtucket, R. I., assignor to Smith Grant & Co., same place. Filed Oct. 20, 1884. (No model.)

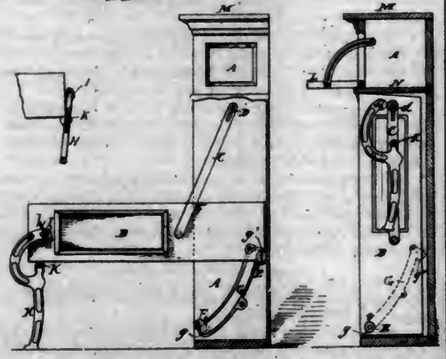
Brief.—In a clam-shell bucket, the drum-chains for closing the scoops run around pulleys connected to the upper ends of the closing arms or links and down to the pivot of the scoops.



Claim.—The combination of the pivoted or hinged jaws, the upwardly-converging rods, the drum and sheave, the hoisting ropes or chains, and the pulleys with the ropes or chains attached to the periphery of the drums and to the pivoted jaws and passing over the pulleys, substantially as described.

314,032. MANTEL-BED. JOHN H. LASKEY, Boston, Mass., assignor of two-thirds to Isaac F. Dobson, same place, and Benjamin F. Davies, Cambridge, Mass. Filed Mar. 24, 1884. (No model.)



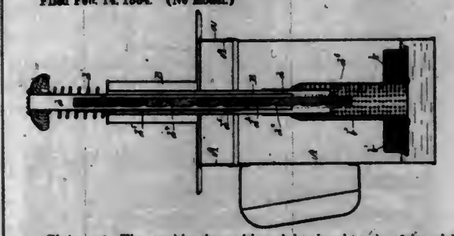


Claim.—1. The combination, with the casing having guide-grooves closed at each end, the lower end abutments thereof forming rests, of the bed-frame having projections which enter the grooves, and the links C, pivoted at one end to the casing and at the other end loosely pivoted to the frame, substantially as described.

2. The combination, with the casing and bed-frame pivoted thereto, of the leg H, loosely pivoted to the sides of the frame, said legs having offset-knees K, forming a projection to engage with the frame when frame is turned down, substantially as stated.

3. The combination, with the casing and bed-frame pivoted thereto, of the legs H, having three-way slots in their upper ends, a pivot passing loosely through said slot, said legs curving back from the pivot and then curving forward, and being provided with the cushioned projection K, all substantially as described.

314,033. NIGHT-SIGNAL TORCH. CHARLES T. LEE, Boston, Mass. Filed Feb. 14, 1884. (No model.)



Claim.—1. The combination, with a night-signal torch, of the wick-lighting device above described, consisting of a strip or splint having wafers of composition arranged upon it, a splint-carrier carrying a pawl to engage with the splint to feed it forward, and friction-jaws between which the splint is thrust and by which a wafer is ignited, substantially as set forth.

2. In a night-signal torch for vessels, the case *b* for the wicking, whose cover is attached to the stem of the torch, the case being movable on the stem when the case is not held by the cover.

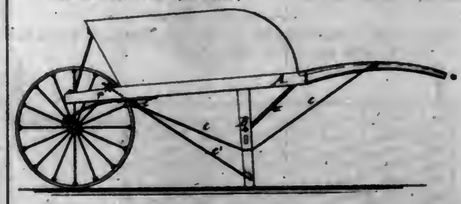
314,034. LINE-RING FOR HAMES. GEORGE J. LETCHWORTH, Buffalo, N. Y. Filed Nov. 11, 1884. (No model.)



Claim.—1. The combination, with a hame, of a line-ring provided on the side adjacent to the hame with two journals, and two staples embracing said journals within the ring, substantially as set forth.

2. The combination, with a hame, of the line-ring provided with a straight bar, *d*, adjacent to the hame, and two staples, C C, embracing said bar within the ring at a suitable distance one above the other, substantially as set forth.

314,035. WHEELBARROW. JUSTUS W. MARSHALL, Cazenovia, N. Y. Filed Nov. 28, 1884. (No model.)



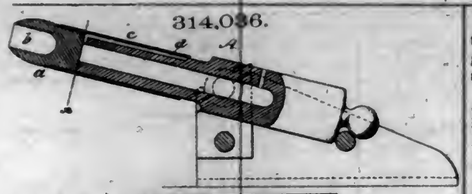
Claim.—1. In a wheelbarrow, the combination, with the handles, legs, and brace-rods extended from opposite ends of the handles and across the lower portion of the legs, of bolts extended through the handles and connected at one end with the brace-rods and provided at the opposite end with an adjusting-nut, substantially as described and shown.

2. In a wheelbarrow, the combination of eyebolts adjustably connected to the forward end of the handles, two brace-rods extended, respectively, from the rear end of one handle through the lower portion of the leg of said handle, thence through the eye of the eyebolt at the forward end of the other handle, and terminating with a connection to the lower portion of the leg of the latter handle, substantially in the manner specified and shown.

314,036. DYNAMITE-SHELL. JAMES F. MARVIN, Fort Apache, Ariz. Filed Oct. 7, 1884. (No model.)

Claim.—In apparatus for projecting dynamite, the combination, with a piece of ordnance having a longitudinally-fluted barrel, of a hollow-headed shell having a rearwardly-extending cylindrical tail surrounding said barrel, substantially as and for the purpose set forth.

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314,037. RAILROAD-STATION INDICATOR. JOHN MATZINGER, New York, assignor of one-half to John H. Mitchell, Brooklyn, N. Y. Filed June 20, 1884. (No model.)



Claim.—1. In a station-indicator, the combination of the two sets of indicating devices with the reaction-springs arranged to operate the same and a lever and intermediate devices arranged to put the springs respectively under temporary tension when said lever is tripped by posts or suitable obstructions in its path, the tripping of the lever in one direction straining one spring, while an opposite tripping strains the other, substantially as set forth.

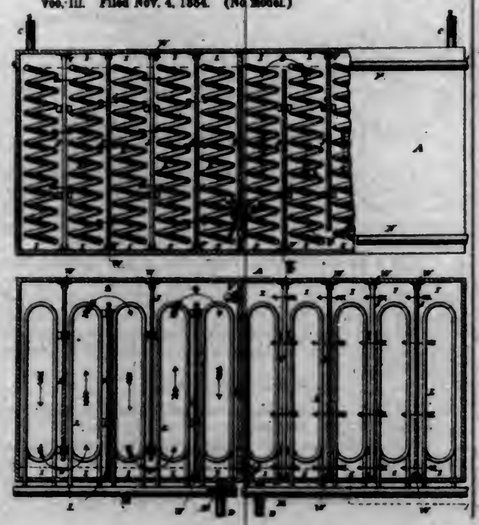
2. The combination, with pins or similar obstructions at given points along a line of rails, of a lever on a car, adapted to be moved on encountering the pins, two spring-barrels arranged to be respectively wound up by opposite movements of the lever, and two station-indicating mechanisms arranged to be operated by the recoil of the respective spring-barrels, essentially as set forth.

3. The combination, with two indicating-bands and their rollers, and a shaft for imparting motion thereto, of the sprocket-wheel mounted on said shaft, two spring-pulleys, hinged pawls carried by said pulleys and arranged to engage the teeth of the sprocket-wheel in opposite directions, respectively, and a lever and suitable connections for putting the springs of said pulleys under tension, respectively, by movements in opposite directions, substantially as described.

4. The combination of the four rollers and the bands E F, the shaft A', sprocket-wheel B', spring-pulleys C' D', carrying hinged pawls for engaging with the teeth of the sprocket-wheel, cords N O, lever P, rod T, arms R, and pins S, all arranged and operating as described.

5. The combination, with the rollers and indicating-bands, of the shaft A', geared with said rollers and carrying the star brake-wheel, the spring-rod carrying the the plate arranged to bear upon said star-wheel, and mechanism for turning shaft A' alternately in opposite directions, substantially as described.

314,038. BRINE-COOLING APPARATUS. CHARLES G. MAYER, Nauvoo, Ill. Filed Nov. 4, 1884. (No model.)

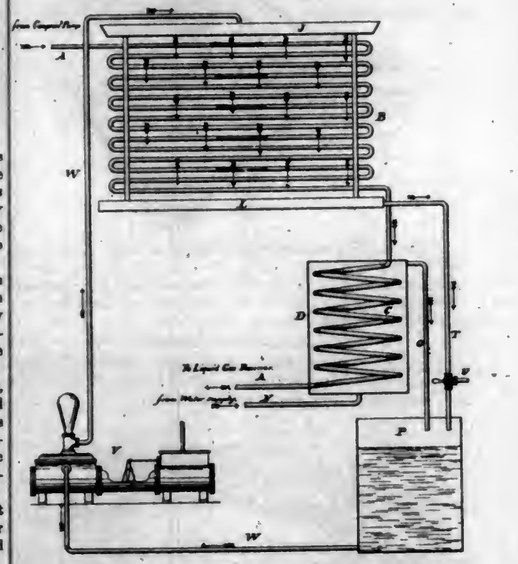


Claim.—1. The combination of the tank provided with the partitions J, leaving spaces O, cooling-liquid supply and discharge pipes, gas-coils L, and main gas-pipes M and N, arranged and operating substantially as and for the purpose set forth.

2. The combination of a tank having partitions forming small compartments connected to form circulation-chambers, independent circulating gas-pipe in each compartment, brine inlet and outlet pipes, and main supply and discharge gas-pipes connected to each circulating gas-pipe, as set forth.

3. A brine-cooling tank divided into two parts by a central partition which is perforated and provided with valves, for the purpose specified.

314,039. GAS-COOLING APPARATUS. CHARLES G. MAYER, Nauvoo, Ill. Filed Nov. 4, 1884. (No model.)



Claim.—1. The combination of the gas-circulating pipe having the coils B and C, tank D, in which the coil C is located and through which water is circulated, and a pipe and pump for taking the water from the tank D and discharging it over the coil B, substantially as and for the purpose set forth.

2. The combination of the gas-circulating pipe having coils B and C, pan J, tanks D and P, the coil C being located in the tank D, water-pipes N, O, and W, and pump V, arranged and operating substantially as and for the purpose set forth.

3. The combination of the gas-circulating pipe having coils B and C, pans J and L, tanks D and P, the coil C being located in the tank D, water-pipes N, O, T, U, and W, and pump V, all arranged and operating substantially as and for the purpose set forth.

4. The gas-circulating pipe having two coils, in one of which the gas is cooled by water from the supply, and in the other of which it is cooled by the second use of the water while in heated condition, substantially as shown and described.

5. The combination of the gas-circulating pipe having two coils, a tank inclosing one of the coils, and through which cooling-liquid is caused to circulate, and means for conveying the cooling-liquid from the tank to the other coil, over which it is caused to drip, substantially as and for the purpose set forth.

314,040. SAW-JOINTER. GEO. H. MAYER, Kansas City, Mo. Filed Nov. 3, 1884. (No model.)

Claim.—1. A saw-jointer constructed with a frame, A, having arms B C, spaced apart at E and connected by a head-piece, D, and the arm B, having guards J fixed to and projecting beyond its inner face, the tri-form recess G H I, and with means for securing the file in the recess and for holding the guards J closely to the saw-blade, substantially as herein set forth.

2. A saw-jointer constructed with a frame, A, having arms B C, spaced apart at E and connected by a head-piece, D, guards J on the arm B and projecting beyond its inner face, the tri-form recess G H I, and the screws K O, all arranged for operation with either a three-cornered or flat file, substantially as herein set forth.

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3. In a saw-jointer having arms B C, file-holding recess, and a binding-screw, the studs J and binding-screw K, substantially as shown and described, and for the purpose set forth.

4. As an improved article of manufacture, the jointer-frame A, made with arms B C, spaced apart at E and connected by a head-piece, D, and with guides J, formed on and projecting from the inner face of the arm B, and with the tri-form recess G H I, substantially as set forth.

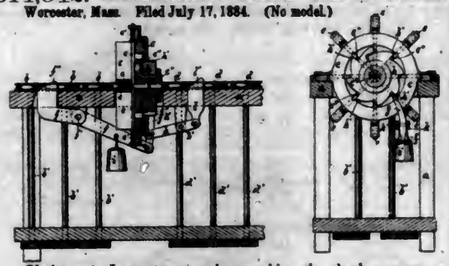
314,041. ELECTRO-MAGNET. EDWIN D. MCCRACKEN, Paterson, N. J. Filed May 17, 1884. (No model.)



Claim.—1. An electro-magnet coil the wire of which is insulated by a spiral wrapping of paper, substantially as herein described.

2. An electro-magnet formed of convolutions of wire having a covering consisting of a spirally-wound strip or strips of pure vegetable paper, which forms of itself the insulating-covering of the wire, substantially as and for the purpose herein described.

314,042. RATTAN-SCRAPING MACHINE. ALEXANDER MCDONALD, Worcester, Mass. Filed July 17, 1884. (No model.)



Claim.—1. In a rattan-scraping machine, the chuck or scraper-head *c*, its radially-movable scrapers *e e*, combined with an automatic device for expanding said scrapers to allow the rattan to enter between them, consisting of the ratchet *h* and pawl *g* and connecting mechanism to the cam or projection *f''*, and also with an automatic device for closing the said scrapers onto the rattan after it has entered the chuck or scraper-head, consisting of the said ratchet *h* and pawl *g* and connecting mechanism to the cam or projection *f'*, as set forth.

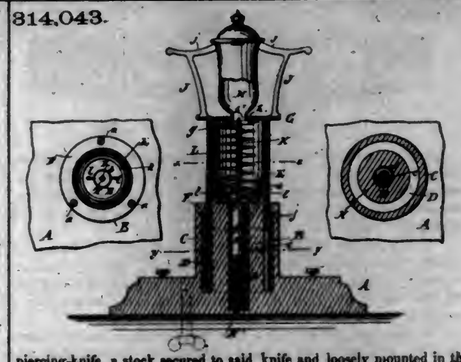
2. In a rattan-scraping machine, the stationary scraper-head *c* and its expansive scrapers *e e*, combined with lever *f*, jointed to pawl *g* for operating the ratchet *h*, which is journaled on hub *c''* of said scraper-head, the lever *f* being provided with a tooth, cam, or projection, *f''*, arranged in front of the scraper-head, and when actuated and depressed by the rattan while it is being fed forward causes the inclines of the teeth of the ratchet to be forced under the pins or projections *e'' e''* on the scrapers *e e* sufficiently to expand said scrapers before the end of the rattan reaches them, substantially as set forth.

3. In a rattan-scraping machine, the stationary scraper-head *c* and its expansive scrapers *e e*, combined with lever *k*, jointed to pawl *g* for operating the ratchet *h*, which is journaled on hub *c''* of said scraper-head, the lever *k* being hinged to link or bar *l*, which is provided with a tooth, cam, or projection, *l'*, arranged back of the scraper-head, and is actuated or depressed by the rattan while being fed forward sufficiently to cause the teeth of the ratchet *h* to pass by the pins or projections *e'' e''* on the scrapers *e e* and the said scrapers to automatically close onto the rattan, substantially as set forth.

314,043. CIGAR-PERFORATOR. LEANDRO C. MICHELENA, Brooklyn, N. Y. Filed Nov. 17, 1882. Renewed Sept. 30, 1884. (No model.)

Claim.—1. In a cigar-piercer, the combination, with a post, of a

314,043.



piercing-knife, a stock secured to said knife and loosely mounted in the post, a spring to force the knife upward, and a spiral connection between the post and stock to cause the rotation of the latter when reciprocated, substantially as described.

2. In a cigar-piercer, the combination, with the post B, having bore *b* and pin *c*, and the shell E, carrying a cigar-holder at its upper end, of the spirally-grooved-knife-stock N, knife K, and spring N', substantially as described.

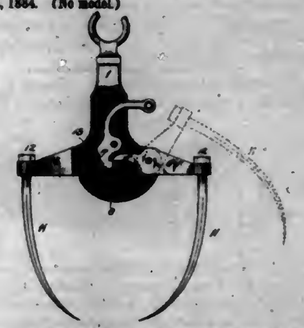
3. The combination, with the post B, provided with the bore *b*, knife K, knife-stock N, shell E, and spring L, of the holder H and arms J, formed with the crutch-pieces *j j*, substantially as described.

4. The combination, with the base A, spring L, knife K, holder H, and shell E, of the arms J J, provided with the crutch-pieces *j j*, serving the double purpose of supporting the holder and facilitating its downward movement against the tension of the spring, substantially as described.

5. The combination of the base A, provided with the casing C, having collar F, post B, provided with the bore *b*, having pin *c*, spirally-grooved knife-stock N, knife K, springs L N', shell E, having collar *f*, holder H, and arms J, having crutch-pieces *j j*, substantially as described, and for the purpose set forth.

6. In a cigar-holder of the character described, the plate G, provided with the arms J, having the crutch-pieces *j*, and the holder H, secured to and between the said crutch-pieces, substantially as herein shown and described.

314,044. HORSE HAY-FORK. SAML. MILLER, Pittsburg, Pa. Filed July 18, 1884. (No model.)



Claim.—1. A hay-fork having in combination a head portion, recessed, as described, provided with two rigid radial arms carrying tines, an arm pivoted in said recess, and having a beak-like projection at its inner end and carrying a tine at its outer end, and a spring-catch pivoted to the head within the recess and adapted to engage the end of the pivoted arm, substantially as described.

2. In a hay-fork, the head portion, recessed, as described, and provided with two rigid radial arms having tines secured in their outer ends, in combination with an arm pivoted in said recess, and having a tine secured in its outer end, and a spring-catch pivoted within the recess and constructed to hold the arm and tine in operative position, substantially as set forth.

314,045. CAR-COUPLING. WINFIELD S. MINER, Turney, Mo. Filed Jan. 13, 1885. (No model.)

Claim.—1. The draw-head having the lateral offset recess in the rear end of its cavity to receive the pivotal end of the attached coupling-tongue, and the longitudinal slot in the floor of said cavity on the opposite side, provided with an uncoupling-bar and adapted to engage the catch of the coupling-tongue of the opposite draw-head, substantially as specified.

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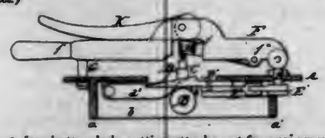


2. The combination, with a draw-head having the lateral longitudinal slot in its floor, of the pivoted uncoupling-bar having a falling front end shouldered to engage the front end of said slot, and of the coupling-tongue having a gravitating catch pivoted in a vertical slot in its end substantially as specified.

3. The pivoted coupling-tongue having a vertical slot back of its point portion and pivoted therein, and the gravitating catch having an expanded lower end, in combination with a draw-head having a longitudinal catch-slot on one side in the floor of said draw-head, substantially as specified.

4. The combination, with a draw-head having a laterally-slotted floor, of a coupling-tongue having a gravitating catch, and a gravitating uncoupling-bar in the floor-slot, having a transverse lever, and devices for holding said lever in the raised position, substantially as specified.

314,046. BUTTON-HOLE-CUTTING ATTACHMENT FOR SEWING-MACHINES. EDWARD B. MOORE, West Chester, Pa. Filed Mar. 13, 1884. (No model.)



Claim.—1. In a button-hole-cutting attachment for sewing-machines, the combination, with a swiveled punch-holder carrying an independently-movable punch, of a sliding shoe connected with and operated through the medium of said punch-holder, and a hinged shoe carrying an anvil or die upon which the punch cuts, said shoes being beveled on their contiguous faces for conjoint action, substantially as shown and described.

2. The combination, with a sewing-machine, of a button-hole-cutting attachment comprising the following parts: a die or anvil mounted on an arm or shoe hinged or pivoted to the bed-piece of the machine, a sliding shoe fitted in guides on the bed-piece and located beneath the anvil or die support, and a lever constituting the punch-holder and hinged to a swiveled post having its bearing in the bed-piece at one side thereof and connected with the sliding shoe, said punch-holder being provided with a punch or cutter and an eccentric-lever for operating the same, substantially as shown and described.

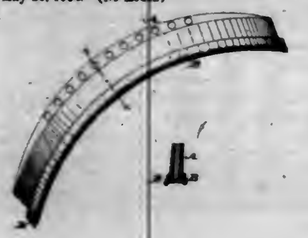
314,047. SPONGE-GATHERING NET. BASILIOS K. MOSCOPOULOS, New York, N. Y. Filed Aug. 14, 1884. (No model.)



Claim.—1. The combination, with the heavy lower bar and buoyant upper bar of the frame of a sponge-gathering net, of detachable end pieces embracing and connecting said bars at each end thereof, and made fast thereto by detachable fastenings, substantially in the manner and for the purpose herein set forth.

2. The combination, with the frame of a sponge-gathering net, of an inwardly-opening valve or gate hinged loosely to the upper bar of said frame, substantially in the manner and for the purpose herein set forth.

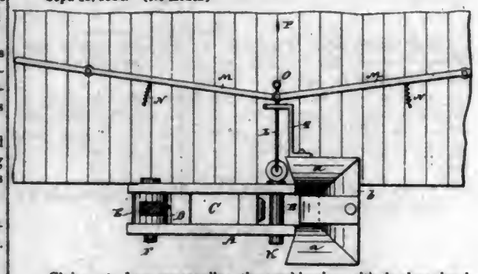
314,048. HAT-VENTILATOR. MANOEL J. NASCIMENTO, Philadelphia, Pa. Filed May 20, 1884. (No model.)



Claim.—1. A hat-ventilator formed of a single piece of cork with air-passages therein, and reeds which are inclosed in fabric secured to opposite sides of said piece, substantially as and for the purpose set forth.

2. A hat-ventilator formed of a single piece of material with air-passages therein, and reeds which are inclosed in pieces of fabric which are doubled around the reeds and have their ends secured to said piece, substantially as and for the purpose set forth.

314,049. CAR-COUPLING. EDWARD R. OAKLEY, Madison, Wis. Filed Sept. 13, 1884. (No model.)

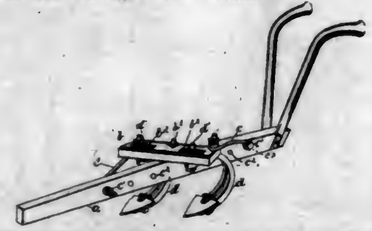


Claim.—1. In a car-coupling, the combination, with the draw-head A, provided with the pockets B C D, of the pivoted hooks E, the spring J, bearing on the front ends of the hooks, the pin K, and means for raising and lowering said pin, substantially as herein shown and described.

2. In a car-coupling, the combination, with the draw-head A, provided with the pockets B C D, of the pivoted hook E, the spring J, the pin K, the cord L, and the levers M, substantially as herein shown and described.

3. In a car-coupling, the combination, with the draw-heads A, provided with the pockets B C D, the pockets B having beveled guide-surfaces *b*, of the pivoted hooks E, the pins K, the cords L, and the levers M, substantially as herein shown and described.

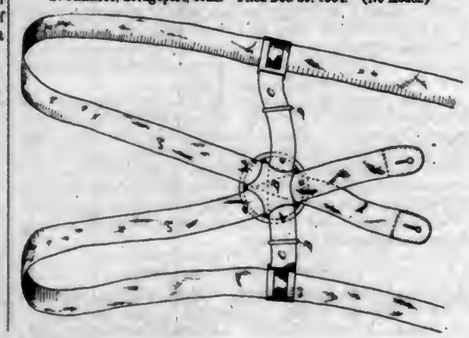
314,050. DOUBLE-FOOT PLOW-STOCK. DIONISIUS O. PAGE, Gainesville, Tex. Filed Aug. 11, 1884. (No model.)



Claim.—1. In a double-footed plow, the combination of the beam provided with transverse holes c^2, the cross-bar *b*, having slots b^2, the pivot-bolt b'; and the adjustable braces *c*, independently pivoted to the cross-bar, substantially as shown and described, and for the purposes set forth.

2. The slotted standard *d*, having on its front face the notches *e*, and the plow-point, in combination with the clip *f*, having a T-head whose lower face is V-shaped to fit in one of the notches *e* of the standard, substantially as shown and described, and for the purposes set forth.

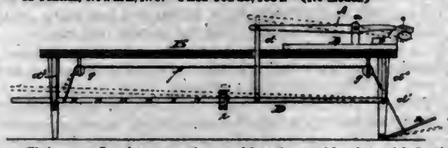
314,051. COMBINED SUSPENDERS AND SHOULDER-BRACES. E. D. PARROTT, Bridgeport, Conn. Filed Dec. 29, 1884. (No model.)



Claim.—1. The combination, with the two supporting-straps, of a brace-strap having loops at its ends, by which it is loosely connected in front to said supporting-straps, and a slide or buckle, substantially as described, adapted to loosely combine all of the said straps without rigid attachment, whereby an automatic adjustment of any or all of said straps is possible, substantially as set forth.

2. The combination, with the supporting-straps A and the brace-strap C, having loops at its ends, by which it is loosely connected in front to the said supporting-straps, of the confining slide or buckle B, through which all of the said straps loosely pass, and in which they are all free to slide, and thus automatically adjust themselves to the wearer, substantially as set forth.

314,052. BUTTON SHANK OR EYE TESTING MACHINE. EDWIN R. PARSH, Newark, N. J. Filed Oct. 23, 1884. (No model.)

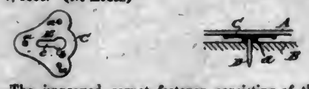


Claim.—1. In a button-testing machine, the combination, with fixed jaws, of a lever adapted to move between said jaws and connect with a weighted lever, and said weighted lever, said parts being arranged and combined substantially as and for the purposes set forth.

2. In combination, the table E, bed B, base *c'*, jaws c, pointed and hooked lever A, and weighted and graduated lever D, connected to said lever A, substantially as and for the purposes set forth.

3. In a button-testing machine, the combination, with a table, of a fixed jaw or jaws secured thereon to hold the button-body, and a lever fulcrumed near said jaws and made small thereat to enter the button shank or eye, the lever being adapted to exert a force tending to separate the shank from the body, substantially as set forth.

314,053. CARPET-FASTENER. JOHN PEARSALL, New York, N. Y. Filed Jan. 7, 1885. (No model.)



Claim.—The improved carpet-fastener consisting of the metal plate C, provided with the key-hole slot *d*, and depressed along its middle portion adjacent to said slot to receive the head of the carpet-nail, the remaining portion or edge of the plate being elevated at a uniform height around its entire circumference, as shown and described.

314,054. PAPER-PULP FABRIC FOR BOXES, &c. JULIUS A. PEASE, West Medford, and GEORGE J. BARRON, Boston, Mass. Filed Jan. 13, 1885. (Specimens.)



Claim.—1. As an article of manufacture, a compound material consisting of wire-cloth completely embedded and covered with pulp, substantially as specified.

2. A continuous sheet, roll, or web of material consisting of wire-cloth embedded and completely covered with paper-pulp, substantially as specified.

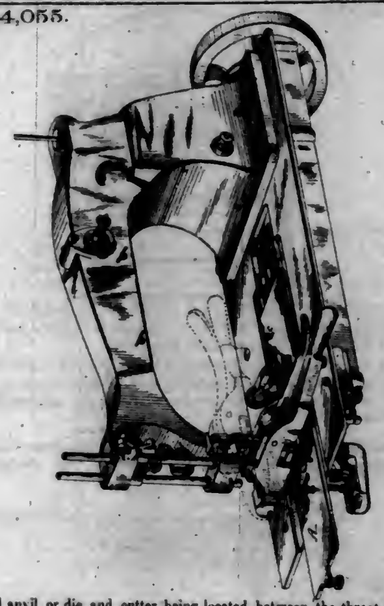
3. The method of making the compound fabric or material herein specified, which consists in uniting by compression continuous sheets or webs of pulp and of wire-cloth in such manner as to completely cover and embed the latter in and by the former, substantially as specified.

4. As an article of manufacture, the fabric or material herein described, consisting of wire-cloth rendered water-repellent and covered and having its meshes filled with pulp, substantially as specified.

314,055. BUTTON-HOLE ATTACHMENT FOR SEWING-MACHINES. GEORGE REHFUSS, Philadelphia, Pa. Filed Mar. 13, 1884. (No model.)

Claim.—1. In button-hole appliances for sewing-machines, the combination, with a feed-plate carrying a rotary disk, and having a sectional rack on its under side engaging with a pinion through which motion is conveyed from the main shaft, and said plate caused to travel outwardly on a line with the needle-arm, or toward the front of the machine, and the disk caused to revolve, of a button-hole cutter and an anvil or die,

314,055.



said anvil or die and cutter being located between the throat and the standard supporting the needle-arm, and said disk and feed-slide being formed with communicating slots, whereby a shifting movement of the slide is permitted, to allow the cutter and anvil play through the same, substantially as described.

2. In button-hole appliances for sewing-machines, the combination of the following elements, viz: a feed-plate carrying a rotary disk and having a sectional rack mounted on its under side, a rock-shaft having a crank-arm on one end coupled to the main shaft and receiving motion therefrom, a pinion, ratchet-wheel, and pawl and lever mounted on the bed of the machine, and a link connecting the pawl-lever with the crank-arm, substantially as described.

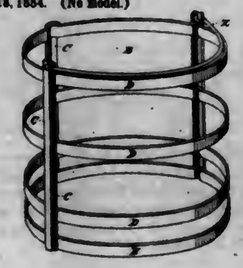
314,056. CORD-HOLDER FOR GRAIN-BINDERS. NOAH T. RENY, Milton, Ind. Filed Oct. 22, 1883. (No model.)



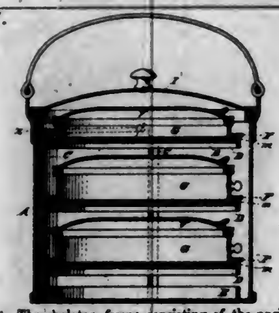
Claim.—1. In a cord-holder for grain-binders, the combination of the rotary disk with the shoe having flanges to embrace the edge of the disk, the flange on the side of the disk away from the knotter being cut away at its rear end, substantially as described.

2. In a cord-holder for grain-binders, the combination of the notched rotary disk with the grooved or flanged shoe, the flanges of which straddle or embrace the edge of the disk, and the flange on the side of the disk away from the knotter cut away at its rear end, substantially as described.

314,057. COOKING UTENSIL. NANNIE E. ROBINSON, Lamont, Mich. Filed Apr. 18, 1884. (No model.)



314,057.



Claim.—1. The skeleton frame consisting of the uprights C, open on one side, and the series of rings D, in combination with the perforated rests F and the pans G, substantially as specified.

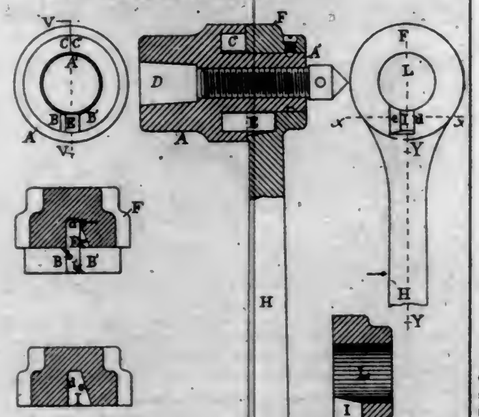
2. The cooking utensil consisting of the water-vessel A, and therein the removable skeleton frame consisting of the uprights C and rings D E, the perforated rests F, the pans G, and the bail Z, substantially as specified.

314,058. BENCH-HOOK. JOSEPH B. SARGENT, New Haven, Conn., assignor to Sargent & Co., same place. Filed Jan. 12, 1885. (No model.)



Claim.—The combination of the socket A, constructed with a recessed flange, B, at its upper end, and with a stop, *d*, upon its inside, and so as to form an angular recess in the socket below the stop, the head D, adapted to enter the recess in the flange B, the shank of the hook extending down into the socket, the adjusting-screw F vertically through the head and shank, the nut *b*, arranged in the recess below the stop in the socket, and of corresponding angular shape, and a spring arranged in the socket to force the hook upward, but yield to a downward force upon the hook independent of the screw, substantially as described.

314,059. METAL-DRILLING TOOL. THEODORE SCHEYTLER, Paterson, N. J. Filed Feb. 7, 1884. (No model.)



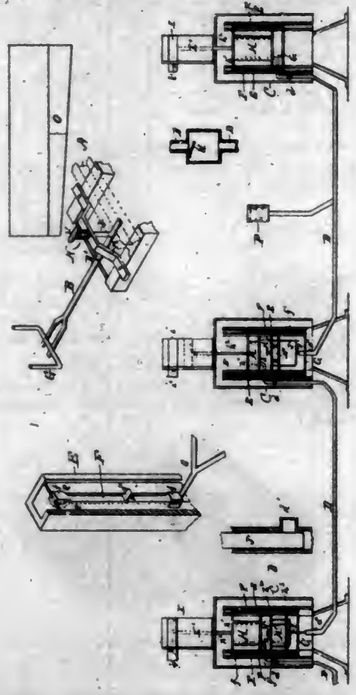
Claim.—1. The combination, with the two revolving parts of the device, of a split expanding ring carried by and bearing upon one of the parts, and a lever-bar located in the split of the ring parallel with the axis of rotation and engaging with the other part of the device at its outer end to expand the ring and lock the parts together in their rotary movement, substantially as set forth.

2. The combination, with one revolving part of the device, a split expanding ring carried by and bearing upon such part, and a lever-bar located in the split of the ring parallel with the axis of rotation, of the other revolving part of the device, provided with a recess receiving said lever-bar and bearing in one direction upon the end of said lever-bar to expand the ring and lock the parts together, and in the other direction to move the lever-bar bodily without expanding the ring, substantially as set forth.

3. The combination, in a ratchet drilling-tool, of the stock, the handle-head, and handle, with a sectional expanding ring lying in an annular space in the stock, and a lever-pin located in the split of the sectional ring lying parallel with the axis of rotation, and engaging at one end with an angular recess in the stock to expand the ring, and thus lock the parts together in their rotary movement, substantially as set forth.

314,060. PNEUMATIC BLOCK SIGNAL FOR RAILWAYS. WILLIAM H. SCHNEIL, Baltimore, Md. Filed Mar. 14, 1884. (No model.)

Brief.—The invention consists in a series of stations connected by a line of pipe in sections, beginning at one station and ending at the next, and being provided with a self-acting valve at its beginning. Two bellows are provided at intermediate stations, both being operated by the same track-lever. The bellows at the beginning of each pipe-section is provided with a signal, and the one at the termination thereof with a plunger working in the end of the pipe, to open and close the same. Said plunger starts the collapse of the bellows, exposing the signal, said collapse being completed by valve mechanism within the case.



Claim.—1. A pneumatic signaling mechanism for block systems, consisting of a series of stations, track-levers therefor, a line of pipe in sections beginning at one station and terminating at the next, each section of pipe being provided with a self-acting valve at its beginning, two bellows at each intermediate station on the line, both operated by the same track-lever, the bellows connected to the beginning of each pipe-section being provided with a signal, and the one at the termination thereof being provided with a plunger working in the end of the pipe, to open and close it, all constructed and combined to operate substantially as set forth.

2. The combination, with the bellows H and air-tube D, provided with the opening *d'*, of the bellows H', provided with the rod or plunger J', working in the tube D and controlling the opening *d'*, substantially as set forth.

3. The bellows H', having a plunger for controlling the emission of air from the tube D, and also provided with the air-escape H^2, as set forth.

4. The bellows H', provided with a plunger beneath it working in the end of the tube D, for controlling the emission of air therefrom, and

having the exhaust-passage H^2, fitted with a regulating-cock, substantially as and for the purpose set forth.

5. The combination of the bellows H, tube D, and valve *d*, located near bellows H and acting to prevent the escape of air from the tube or pipe D when the bellows H is being charged, with the signal and the devices at the next station for discharging said bellows, as set forth.

6. The combination, with the bellows H and valve K, having the operating lever or levers K', of the rod or rods L, provided with means for holding them away from the levers while the bellows is inflated, but adapted to bear upon the levers and open the valve when the bellows has begun to exhaust, as set forth.

7. The combination, with the bellows H, valve K, and operating-levers K', of the rods L, provided with a screw-threaded portion, and nuts *l*, for adjusting said rods, substantially as set forth.

8. The combination, with the bellows H', provided with the air-escape H^2 and plunger J', of the tube D, opening *d'*, bellows H, its valve K, operating-levers K', and weighted rods L, whereby when the descent of the plunger J' closes the opening *d'* the bellows H is completely exhausted by the pressure of the rods L on the levers K', which opens the valve, as set forth.

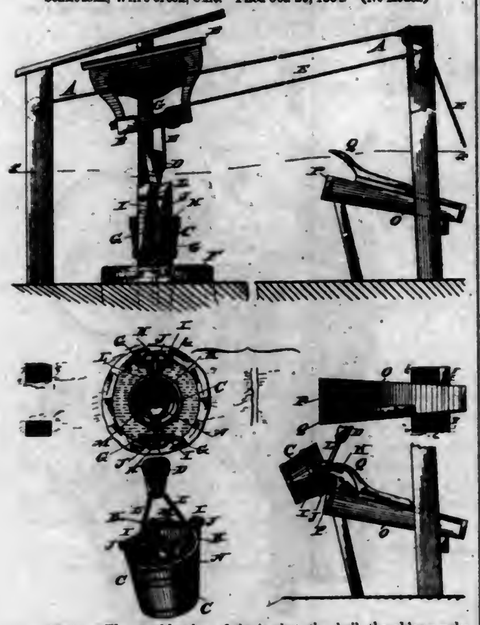
9. The combination, with the standards E E and ways *e e*, of the rods F, working in the ways *e*, and connections to the bellows and to the lever, operated by the train, as set forth.

10. The combination, with the standards E E and ways *e e*, of the rods F, bellows-bars *h' h'*, and means on rods F whereby they are engaged on the upstroke, substantially as set forth.

11. The combination, with the means for expanding the bellows, of the operating-lever B, provided with the upright piece *b b'* and spring N, as set forth.

12. The combination, with the air-tube D and bellows H, of the pouch or collapsible signal P, to be placed at a siding or analogous point and connected with the air-tube D, substantially as set forth.

314,061. WINDLASS WATER-ELEVATOR BUCKET. CHARLES W. SCHNEIDER, Will's Creek, Ohio. Filed Oct. 29, 1884. (No model.)

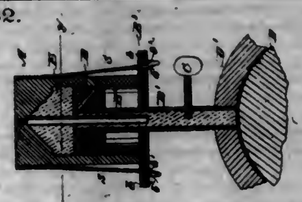


Claim.—The combination of the bucket, the bail, the oblong yoke having its ends projecting through the ears of the bucket, and the weight suspended from and between the arms of the yoke, keeping the latter in a horizontal position, as and for the purpose shown and set forth.

314,062. GREASE-CUP. WILLIAM SCHOENDELEN, Davenport, Iowa. Filed Jan. 27, 1885. (No model.)

Claim.—1. In a grease-cup for lubricating shafts and other parts of machinery, the combination of an inverted cup, a piston therein adapted to hold a body of grease above it, and a downwardly-projecting feeding-tube in open communication at its upper end with the grease-space in the cup above the piston, whereby the weight of the cup is made to force the grease down said tube to the part to be lubricated, substantially as specified.

314,062.

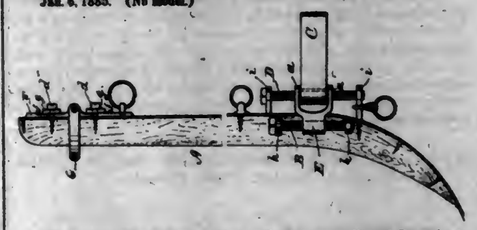


2. The combination of the regulating-screw C with the feed-tube B', having an attached piston, B, and the inverted grease-cup A, essentially as shown and described.

3. The guide-pin B^2, in combination with the feed-tube B', the piston B, and the inverted grease-cup A, substantially as specified.

4. The catches S, in combination with the lower cover, *b*, the inverted grease-cup A, the feed-tube B', and the piston B, essentially as and for the purposes herein set forth.

314,063. HAME. NICHOLAS C. SCHWALEN, Minneapolis, Minn. Filed Jan. 6, 1885. (No model.)

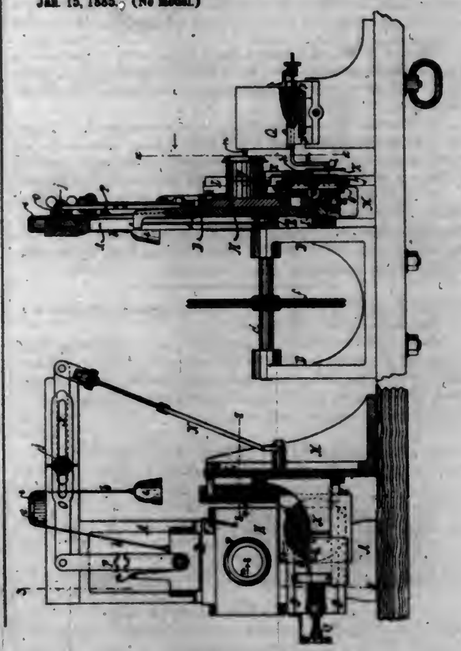


Claim.—1. The hame provided with the screw B, rod D, and adjusting device E, arranged upon the screw and rod, substantially as and for the purposes set forth.

2. The combination, with the hames A, of the plate F, having the upper and lower slots, *d' d'*, and the set-screws *d d*, passing through said slots into the upper outer edge of the said hames, substantially as set forth.

3. In a hame, the plate F, slotted and serrated, and provided with the loop G, in combination with the screws *d* and serrated plates *g*, placed upon the screws, substantially as and for the purposes set forth.

314,064. ROSE-ENGINE. ANTON SCHWITTER, Brooklyn, N. Y. Filed Jan. 15, 1885. (No model.)



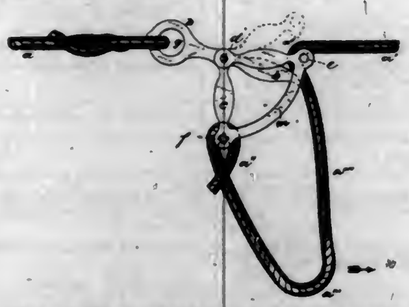
Claim.—1. The combination, substantially as hereinbefore described, with the graver-support, of the pattern-slide, the screw-spindle for imparting to this slide the requisite motion, the work-support, the carriage supporting the pattern-slide and the work-support, the tracer-slide, the stop which retains the graver out of contact with the work when the tracer is opposite to one of the high portions of the pattern, and means for imparting to the carriage a reciprocating motion.

2. The combination, substantially as hereinbefore described, with the graver-support, of the pattern-slide, the screw-spindle for imparting to this slide the requisite motion, the work-support, the carriage supporting the pattern-slide and the work-support, the tracer-slide, the stop which retains the graver out of contact with the work when the tracer is opposite to one of the high portions of the pattern, the pantograph connection between the carriage and the tracer-slide, and means for imparting to the carriage a reciprocating motion.

3. The combination, substantially as hereinbefore described, with the graver-support, of the pattern-slide, the screw-spindle for imparting to the slide the requisite motion, the work-support, the carriage supporting the pattern-slide and the work-support, the tracer-slide, the arm hinged to the tracer-slide and carrying the tracer, the pin projecting from the graver-support and bearing on said arm, and means for imparting to the carriage a reciprocating motion.

4. The combination, substantially as hereinbefore described, with the graver-support, of the pattern-slide, the screw-spindle for imparting to the slide the requisite motion, the work-support, the carriage supporting the pattern-slide and the work-support, the tracer-slide, the arm hinged to the tracer-slide and carrying the tracer, the pin projecting from the graver-support and bearing on said arm, the pantograph connection between the carriage and the tracer-slide, and means for imparting to the carriage a reciprocating motion.

314,065. AUTOMATIC LINE-FASTENER. SIMON SEID and FRANK SEID, Newark, N. J. Filed Feb. 11, 1884. (No model.)



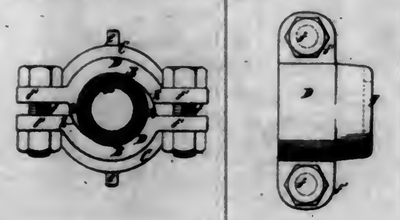
Claim.—1. The crank-shaped frame having posts or bearings *d e f*, and a lever, *b*, arranged upon one of said bearings and adapted to co-operate with the bearing *e* in holding the rope, substantially as set forth and shown.

2. The crank-shaped plates having posts in the angles thereof, upon one of which said posts a lever, *b*, is pivoted, having means at one extremity to receive the rope end *a*, and adapted to co-operate with the bearing *e* in holding the rope, substantially as herein set forth and shown.

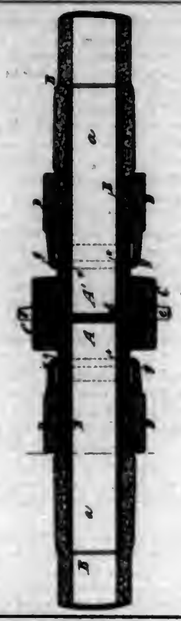
3. In combination, the two crank-shaped plates having posts connecting the same in the angles thereof, one of said posts having the lever fulcrumed thereon, and the other said posts being adapted to receive the rope and co-operate with the lever in automatically fastening the same, all substantially as set forth.

314,066. HOSE-COUPLING. HENRY C. SERGEANT, New York, N. Y. Filed May 15, 1884. (No model.)

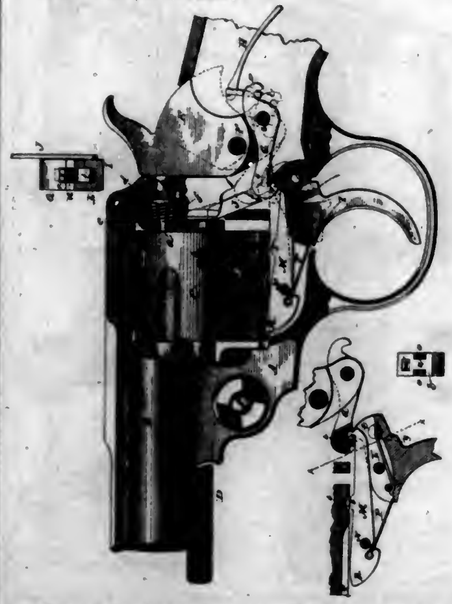
Claim.—The combination, with a coupling, of a two-part hose-clamp having ears *f*, for the reception of tightening-bolts, and provided with lips or guards A, projecting circumferentially beyond the face of one part across the division or gap between the two parts, substantially as and for the purpose herein described.



314,066.



314,067. LOCK FOR REVOLVERS. JOHN T. SMITH, Rock Fall, Conn. Filed Nov. 10, 1884. (No model.)



Claim.—1. In a revolver, the rear or recoil of the frame, constructed with the recess *d*, in substantially axial line with the barrel, an opening from the recess through the frame, but of less diameter than the recess, combined with the bolster *e*, arranged in the forward end of said recess, the said bolster constructed with a central opening through it and recessed upon its rear side to form a spring-chamber, the firing-pin arranged in the recess in the frame, its forward end extending through the opening in the bolster, its rear end through the opening in the frame, and constructed with a collar within the recess in the frame, and a spring arranged in the recess in the bolster, to take its bearing rearward upon the firing-pin, substantially as and for the purpose described.

2. The combination of the hammer E, provided with a bifurcated hook in rear of its pivot, the mainspring, and a stirrup constructed at its lower end of inverted-T shape, its upper end constructed with an open-

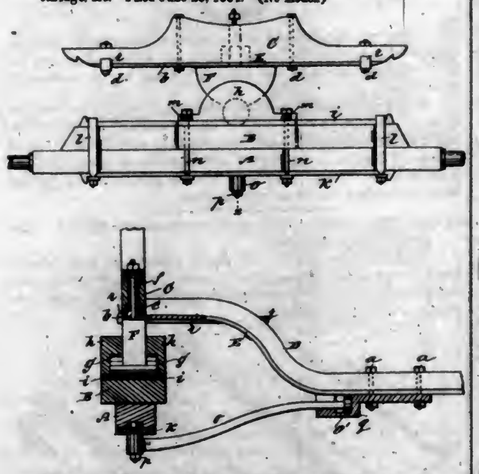
ing, M, the said stirrup arranged the tail of the T between the prongs of the hook, the cross of the T in the hook, and the forward end of the mainspring in the recess in the upper end of the stirrup, substantially as described.

3. The combination of the hammer E, the lever G, one arm extending rearward and engaged with the mainspring, the other arm extending forward and constructed with a hook-shaped shoulder, *r*, and a shoulder, *u*, in rear thereof, the trigger I, constructed with a nose, *s*, arranged to engage the lever G between the shoulders *r* and *u*, substantially as and for the purpose described.

4. The combination of the cylinder C, the trigger I, pawl J, hung in said trigger in rear of its pivot, the hub of the pawl constructed with a bearing, *y*, upon its forward side, and recessed in rear of said bearing, and the spring L, its forward end fixed to the trigger, its rear end arranged upon said bearing *y* on the hub of the dog, substantially as described.

5. The combination of the hammer E, the lever G, hung to said hammer, its rear end engaged with the mainspring, its forward end extending forward and constructed with a hook-shaped shoulder, *r*, and also with a shoulder, 4, the trigger I, constructed with a nose, *s*, to engage said shoulder *r*, the lever M, hung upon a pivot forward of the trigger, its rear end constructed with a shoulder, 3, to engage said shoulder 4 on the lever G, the said lever extending forward of its pivot, said forward arm, R, of the lever extending up into the cylinder-opening, and the cylinder constructed with recesses T, into one of which the said forward arm, R, of the lever will stand when the parts are in their normal condition, substantially as described.

314,068. FIFTH-WHEEL FOR VEHICLES. THOMAS SMITH, Brookeridge, Mo. Filed June 25, 1884. (No model.)

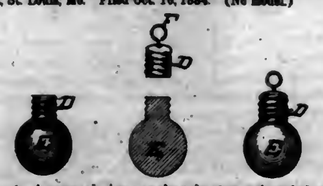


Claim.—1. The piece F, formed with king-bolt *f* and ears *g*, and he recessed boxes *h h*, combined with the head-block and axle-bed, substantially as described.

2. The combination, with the axle-bed and axle provided with boxes *h*, of the strengthening-plates *i k*, as shown and described.

3. The pivoted brace *o*, having head *o'*, and the box *q*, having a T-shaped recess, combined with reach D and axle A, hung to oscillate on the king-bolt connection, substantially as described.

314,069. MANUFACTURE OF GLASS PENDANTS. WILLIAM SOMERVILLE, St. Louis, Mo. Filed Oct. 16, 1884. (No model.)



Claim.—1. A pressed-glass pendant having a threaded neck, substantially as described.

2. In a glass pendant, the combination of a pressed-glass drop having a threaded neck, and a cap-piece made to screw upon the threaded neck of the glass pendant, substantially as described.

3. The combination, in a glass pendant, of the glass piece E, (pressed or blown,) having a threaded neck, and a cap-piece, D, substantially as described.

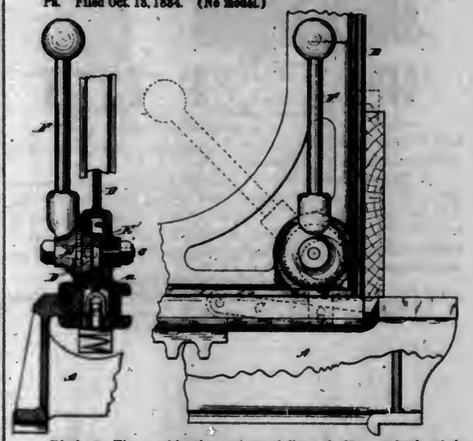
4. The combination, in a glass pendant, of the glass piece E, (pressed or blown,) having a threaded neck, cap-piece D, and hook F, substantially as described.

314,070. RESPIRATOR. MATHIEU SOUVIELLE, Paris, France. Filed Dec. 2, 1884. (Model.)



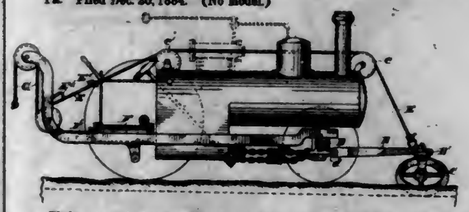
Claim.—The herein-described respirator, consisting of the mouth-section or shell having a perforated end head, a circumferential bead, and a curved rim adapted to fit the mouth of the user, and a larger shell provided with a perforated end head, and adapted to have either end of the mouth-section entered therein telescopically, substantially as described.

314,071. SAW-MILL DOG. WILLIAM H. SNYDER, Waynesborough, Pa. Filed Oct. 18, 1884. (No model.)



Claim.—The combination, substantially as before set forth, of the saw-mill head-block constructed with a chamber, the under dog pivoted to the head-block within said chamber, the eccentric in said chamber above the dog and journaled in the side of the head-block, and the eccentric rod and strap for connecting the pivoted dog with the eccentric.

314,072. TRACTION-ENGINE. WILLIAM H. SNYDER, Waynesborough, Pa. Filed Dec. 20, 1884. (No model.)



Claim.—1. A furrow-pilot for traction plowing-engines adapted to be pivoted to the swiveling truck thereof, substantially as and for the purpose set forth.

2. The combination, substantially as before set forth, of the swiveling truck of a traction plowing-engine and the furrow-pilot pivoted thereto.

3. The combination, substantially as before set forth, of the swiveling truck of a traction plowing-engine and the laterally-adjustable furrow-pilot pivoted thereto.

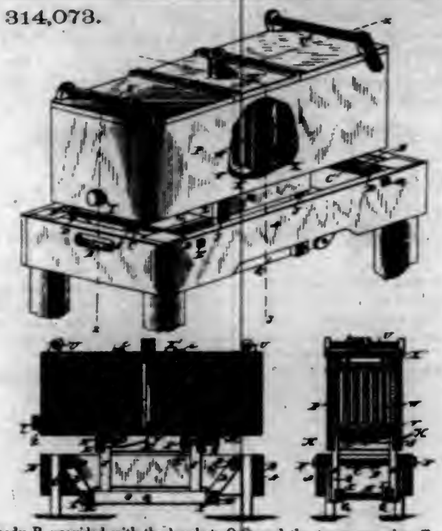
4. The combination, substantially as before set forth, of the swiveling truck of a traction plowing-engine, the steering-gear, and the furrow-pilot pivoted to the said truck.

5. The combination, substantially as before set forth, of the swiveling truck of a traction-engine, the pilot pivoted thereto, and a hoisting rope or chain for lifting the pilot out of action.

314,073. CHURN. JOHN P. SPILGER, Buffalo Prairie, Ill. Filed May 8, 1884. (No model.)

Claim.—1. The combination, with the main frame A of the churn, of the swinging frame Q, having the end rail L, provided with the strip N, and the end rail M, provided with the thumb-screw R, and the churn-

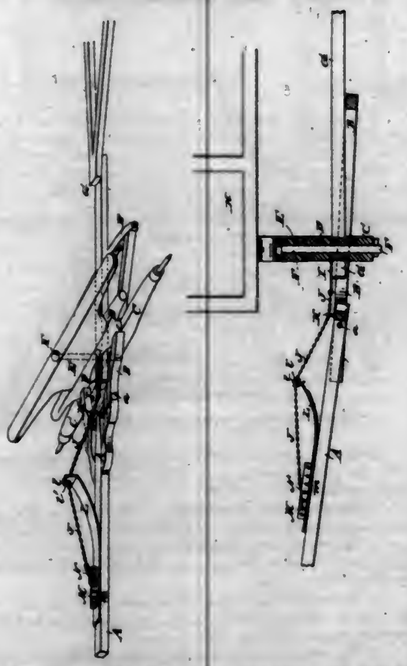
314,073.



body P, provided with the brackets O O, and the transverse cleat T on its bottom, substantially as specified.

2. The combination, with the main frame A, having the transverse shafts C C, of the pivoted hangers D, the pivoted horizontal side rails, G G, uprights J, the rails K K, and end rails L, provided with strip N, and end rail M, provided with thumb-screw R, and the churn-body P, having brackets O O, and transverse cleat T on the under face of its bottom, substantially as specified.

314,074. WAGON-TONGUE SUPPORT. WM. R. SPRAY, Ingraham, Ill. Filed Nov. 13, 1884. (No model.)



Claim.—1. A wagon-tongue support constructed with a chain or cord held to the wagon running-gear and passing over a spring held to the tongue and secured to a plate fixed to the tongue in front of the spring, substantially as herein set forth.

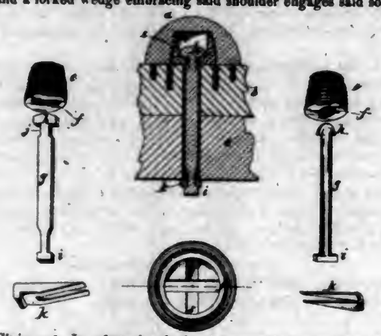
2. The combination, in a wagon-tongue support, of the link I, held to the king-bolt F, the chain J, spring L, and plate M, having a series of holes, *m*, and secured to the tongue, substantially as herein set forth.

3. The combination, in a wagon-tongue support, of the link I, held to the king-bolt F, the chain J, eye or hook K, spring L, and flange M, having a series of holes, *m*, substantially as herein set forth.

4. The combination, in a wagon-tongue support, of the link I, held to the king-bolt F, the chain J, eye or hook K, spring L, flange M, having a series of holes, *m*, and a snap-hook, N, on the chain J, substantially as herein set forth.

314,075. ASSEMBLING-BOLT. J. GALUSHA STAUNTON, Ellicottville, N. Y. Filed June 11, 1884. (No model.)

Brief.—A fastening device consists of a socket screw-threaded on its periphery, open at one end, and having an oblong slot at the other, a bolt having a T-head on its entering end and a shoulder on its other end, and a forked wedge embracing said shoulder engages said socket.

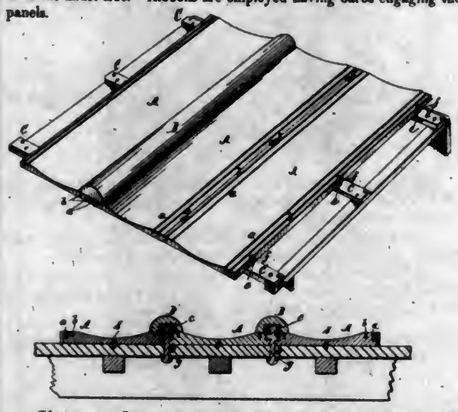


Claim.—1. In a fastening device for assembled parts, the combination, with the screw-socket formed with an end slot, of a T-headed bolt or tie-rod shouldered at its other end, and a forked wedge, substantially as described.

2. In a fastening device for assembled parts, a socket screw-threaded on its periphery, open at one end, and having an oblong slot in the other end provided with interior seats, in combination with a bolt or tie-rod having a T-head on its entering end and a shoulder on its other end, and a forked wedge adapted to embrace the said shouldered end, substantially as described, for the purpose specified.

314,076. ROOF. J. GALUSHA STAUNTON, Ellicottville, N. Y. Filed June 11, 1884. (No model.)

Brief.—Concave panels with double gutters near their adjacent edges have battens with embedded sockets receiving clamping-bolts from the under side. Ribbons are employed having barbs engaging the panels.



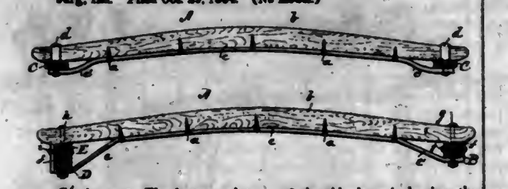
Claim.—1. In a roof of removable parts, the combination, with the panels and the ribbons, of battens provided with embedded sockets and a bolt-fastening applied thereto from the under side, substantially in the manner and for the purpose set forth.

2. In a roof of removable parts, the combination, with the panels and the ribbons, of battens provided with embedded sockets, a fastening-bolt applied to said sockets from the under side, and a wedge-fastening clamp for said bolt, substantially as and for the purpose described.

3. The combination, in a roof of removable parts, of the panels, concaved as described, and provided with the double gutters *a b* near their adjacent edges, and battens provided with embedded sockets to receive clamping-bolts from the under side, substantially as and for the purpose set forth.

4. In a roof of removable parts, the combination, with the panels and battens, clamped from the under side, of the ribbons provided with barbed points or pins for the purpose of holding said panels, substantially as set forth.

314,077. SIDE BAR FOR BUGGIES. ROBERT ST. CLAIR, Vincennes, Ind. Filed Oct. 29, 1884. (No model.)



Claim.—1. The bottom plate, *c*, of the side bar, A, having the clips *d* passed through it for securing the plate, spring, and wooden portion *b* together, as set forth.

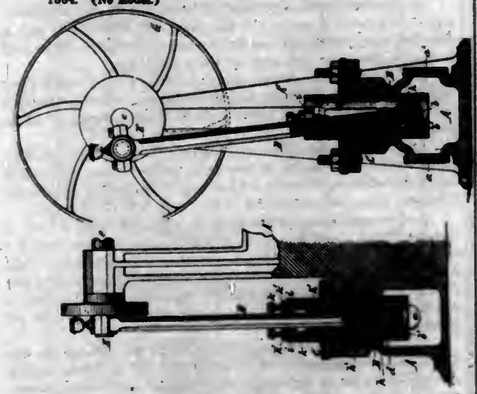
2. The bottom plate, *c*, of the side bar, A, widened, as shown at *c'*, substantially as and for the purposes set forth.

3. The bottom plate, *c*, of the side bar, A, bent downward at *c'* to receive the spring C above it, substantially as described.

4. The bottom plate, *c*, of the side bar, A, bent to form the end lip *f*, substantially as described.

5. The bottom plate, *c*, bent to form the lips *f*, adapted to embrace the head-block and axle and cap, and to have horizontal rivets passed through the lip, head-block, and axle-cap, as set forth.

314,078. PUMP. DAVID P. STEWART, Buffalo, N. Y. Filed Apr. 9, 1884. (No model.)



Claim.—1. The combination, with the piston or plunger B, of the connecting-rod D, provided with a head or knuckle, *d*, bearings *h*, having vertical arms *h'*, and screw-bolts *k*, substantially as set forth.

2. The combination, with the piston or plunger B, having a groove or recess, *b'*, of a connecting-rod, D, provided with a knuckle, *d*, seated in said groove, bearings *h*, arms *h'*, and screw-bolts *k*, substantially as set forth.

3. The combination, with a tubular plunger, B, having a groove or recess, *b'*, and lugs *i*, of the connecting-rod D, provided with a T-shaped head or knuckle, *d*, bearings *h*, provided with vertical arms *h'*, screw-bolts *k*, and jam-nuts *k'*, substantially as set forth.

314,079. JOURNAL-BEARING. FRANK W. THAYER and ALLEN S. HOWELL, Milwaukee, Wis. Filed Nov. 6, 1884. (No model.)

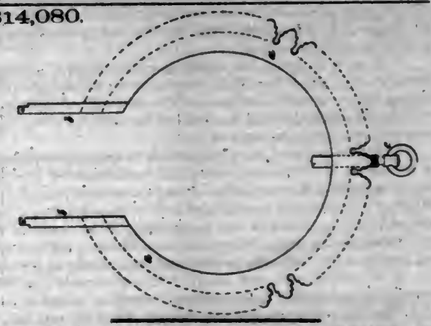


Claim.—A journal-bearing for car-axles, made of brass or other suitable material, and formed with diagonal grooves *c d*, which open into each other at their intersection and open through the radial flat portion of the box to form oil-inlets, as specified.

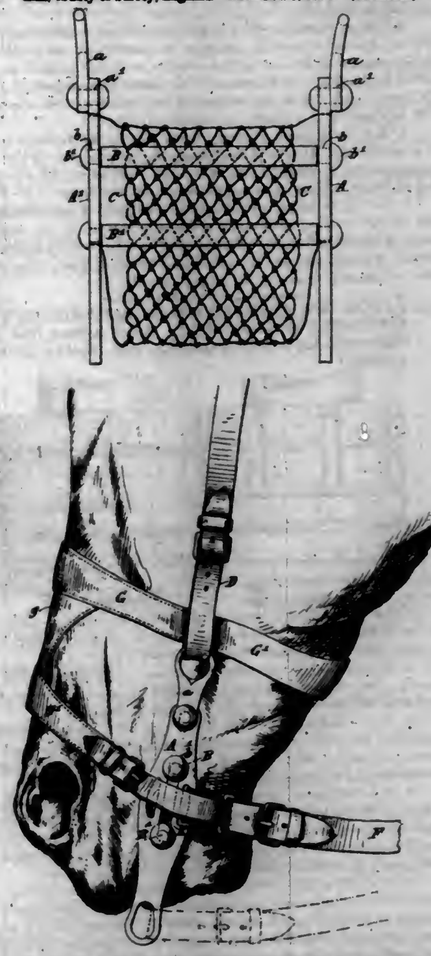
314,080. LAMP-FIXTURE. GEORGE C. THOMAS, Waterbury, Conn. Filed Oct. 6, 1884. (No model.)

Claim.—As a new article of manufacture, a lamp-fixture frame made of a strip or strips of sheet metal curved edgewise in the direction of the length, and having cuttings or perforations at the outer edge, substantially as specified.

314,080.



314,081. BIT FOR HORSES. ARNOLD THORNTON, Chelsea, County of Middlesex, assignor of one-half to William Paine, 2 Garden Road, Clapham, County of Surrey, England. Filed Dec. 3, 1884. (No model.)



Claim.—1. In combination with the nose-band and cheek-straps of the bridle, my improved bit, consisting of the metal cheeks A A', rigid bars B B', constituting the mouth-piece connecting said cheeks and movable thereon, a flexible piece of net or its equivalent, C, and side straps, *g'*, or their equivalent, for retaining the bit in place, and compressing the nostrils when the bit is pulled by the reins, substantially as and for the purpose set forth.

2. In a bit for horses, the combination, with a metal mouth-piece and cheeks capable of independent motion, of a piece of net—such as C or its equivalent—adapted to lie at length within the mouth when the

horse is going quietly, and to be drawn to the back of the throat when the position of the bit is changed by the reins, and thereby check any tendency to pulling or bolting.

3. In a bit for horses, the combination, with cheeks A A', loosely mounted upon a pair of bars, B B', constituting the mouth-piece, of the loops or eyes *a*, pivotally connected to the upper ends of said cheeks, whereby the independence of movement of the two sides of the bit is increased, substantially as set forth.

4. In a bit for horses, the combination, with a pair of slotted cheeks, A A', capable of independent motion, and each formed of two parts loosely articulated or connected by a pivot-pin or its equivalent, of a pair of bars, B B', constituting the mouth-piece, of which one is free to rotate only and the other to slide in slots longitudinally of the cheeks, as well as to rotate, for the purpose of obtaining a smooth rolling and ever-varying bearing-surface within the horse's mouth, substantially as described.

5. The combination, with cheeks A A' and movable bars B B', constituting an expanding and contracting mouth-piece, of the side straps, *g'*, or their equivalent, secured to or forming part of the nose-band G, and adapted to take the strain produced by suddenly jerking or pulling the reins, which would otherwise fall upon the mouth-piece of the bit, and to compress the nostrils of the horse and prevent star-gazing, substantially as set forth.

6. The combination, with a loosely-mounted bar or bars of smooth steel or equivalent material, serving as a mouth-piece, of a pair of cheeks—such as A A'—having linked upper ends, and adapted to be moved independently by the reins, and be made to bear, respectively, on the nose or upper jaw on one side and on the lower jaw on the opposite side, substantially as set forth.

7. In a bit for horses, the combination, with the cheeks—such as A A—and the reins D, secured thereto, of a flexible nose-piece or pair of straps attached at one end to the nose-band G and at the other to the said cheeks or to the reins, as and for the purpose set forth.

8. In a bit for horses, a mouth-piece consisting of a pair of smooth bars of steel or other suitable material, loosely mounted in the cheek-pieces of the bit, and capable of mutual approximation and separation in parallel or oblique positions, and also of an individual rolling or axial motion, substantially as and for the purpose set forth.

314,082. ROLLING-MILL FOR ROLLING LEAFED WIRE FOR THE MANUFACTURE OF BARBED WIRE. FRANCIS H. TREAT, Joliet, Ill., assignor of one-half to Horace S. Smith, same place. Filed Apr. 23, 1882. (No model.)



Claim.—1. The combination, substantially as before set forth, of the roll provided with grooves *c* and *f f'*, and the roll provided with the groove *d*, having depressions *d'*, and the groove *e e'*.

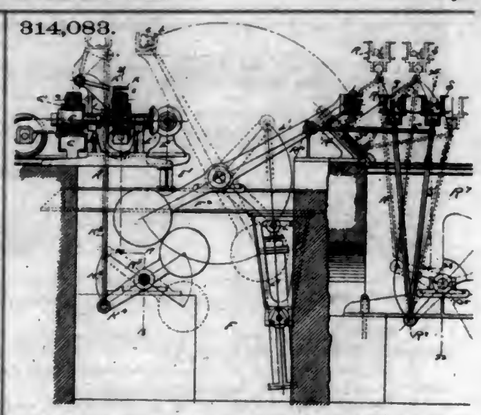
2. In a rolling-mill for rolling leafed wire, a roll provided with a circular groove intersected by deeper channels, whereby depressions are formed in such groove, substantially as before set forth.

3. In a rolling-mill for rolling leafed wire, a roll having a circular groove, *d*, provided at intervals with depressions *d'*, and a circular groove, *e*, provided with a lateral flat portion, *e'*, on one or both sides, substantially as before set forth.

4. In a rolling-mill for rolling leafed rods or wire, a roll having a uniform circumferential semi-oval or semi-elliptical groove the transverse diameter of which is parallel to the axis of the roll, and which is provided at intervals with depressions in line with its conjugate radius, substantially as before set forth.

5. In a rolling-mill for rolling leafed rods or wire, a roll having a uniform circumferential semi-oval or semi-elliptical groove the transverse diameter of which is parallel to the axis of the roll, and which is provided at intervals with depressions in line with its conjugate radius, the bottom of the depressions being inclined, substantially as before set forth.

314,083. ROLLING-MILL. FRANCIS H. TREAT, Joliet, Ill., assignor of two-thirds to Horace S. Smith and Charles Pottigrew, both of same place. Filed Sept. 19, 1883. (No model.)



Claim.—1. The combination, substantially as before set forth, of a set of three-high rolls constructed with equally-spaced passes, stationary lines of feed-rollers and a movable carrier in front of said rolls, a movable feed-table in rear of said rolls, and the mechanism, substantially such as described, for simultaneously moving said carrier and feed-table back and forth to register alternately with successive upper and lower passes.

2. The combination, substantially as before set forth, of a set of three-high rolls, a stationary line of feed-rollers in line with a lower pass thereof, a movable carrier, and the mechanism, substantially such as described, for transversely moving the carrier from a preceding upper pass to a point where the supporting-surface of the carrier is in line with and below the top of the said feed-rollers.

3. The combination, substantially as before set forth, of a set of three-high rolls, a movable carrier, and the mechanism, substantially such as described, for elevating and lowering the carrier through an oblique path to register alternately with an upper and a lower pass.

4. The combination, substantially as before set forth, of a set of three-high rolls, a movable feed-table, and the mechanism, substantially such as described, for elevating and lowering the feed-table through an oblique path.

5. The combination, substantially as before set forth, of a set of three-high rolls, a movable carrier, (or feed-table,) the mechanism, substantially such as described, for elevating and lowering the carrier, and a radius-link fulcrumed at one end, and pivoted to the carrier with its other end.

6. The combination, substantially as before set forth, of a set of three-high rolls, a movable carrier (or feed-table) on one side thereof, a movable feed-table on the other side thereof, a single longitudinal rock-shaft, and the means, substantially such as described, for connecting both the carrier and the feed-table with the rock-shaft, by the rocking of which the said carrier and feed-table on opposite sides of the rolls are simultaneously moved.

7. The combination, substantially as before set forth, of the first line of feed-rollers in front of the roughing-rolls, and the bloom-carriage arranged in a track at right angles to said line of feed-rollers, and constructed with a transverse bloom-supporting surface, substantially such as described, whereby the bloom may be delivered laterally from the carriage to the feed-rollers.

8. The combination, substantially as before set forth, of the three-high roughing-rolls, the second line of feed-rollers in front thereof, the pivoted trough provided with openings in one side to admit the feed-rollers, and the mechanism, substantially such as described, for transferring and turning the trough from a point in front of pass 2 to a point where its side having openings is below the top of said feed-rollers.

9. The combination, substantially as before set forth, of the line of feed-rollers in front of pass 5 of the finishing-rolls, the pivoted trough (for receiving the piece from pass 4 of the roughing-rolls) having openings in its side to admit the feed-rollers, and the mechanism, substantially such as described, for transferring and turning the trough down to a point where its side having openings is below the top of said feed-rollers.

10. The combination, substantially as before set forth, of the trough for transferring the piece from the last pass of the roughing-rolls to the first pass of the finishing-rolls, the lever to which the trough is secured, and trunnioned double-acting hydraulic cylinder for swinging said lever and trough.

11. The combination, substantially as before set forth, of a set of three-high rolls, a movable table, (or trough,) and a stationary table, (or trough,) forming a continuation of the movable one, the movable one being pivoted by a universal joint at the adjacent end of the stationary one, so as to be movable in an oblique direction.

12. The combination, substantially as before set forth, of the second line of feed-rollers in front of the finishing-rolls, the first movable trough, said trough being pivoted at its end remote from the rolls, and having openings in its bottom to admit the feed-rollers, and the mechanism, substantially such as described, for lowering the trough from its turned-up position to a point where its supporting-bottom is below the top of the feed-rollers.

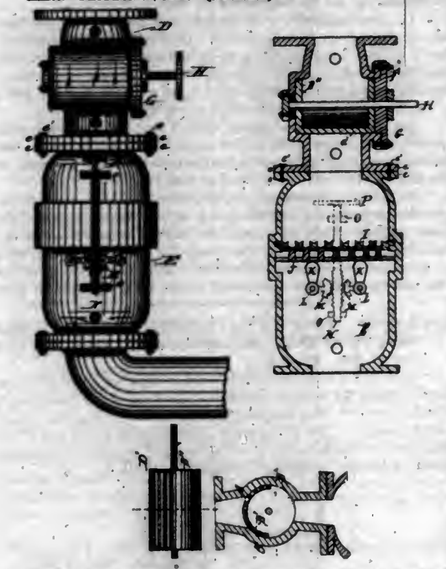
13. The combination, substantially as before set forth, of a set of three-high rolls having two finishing-passes, 9 and 9ª, the second movable trough in front thereof, and laterally adjustable, as described, so that it may register with either of said passes 9 or 9ª, and the mechanism, substantially such as described, for moving the trough to transfer the piece from a preceding pass.

14. The combination, substantially as before set forth, of the second movable trough in front of the finishing-rolls, the radius-link connected thereto, the adjustable fulcrum of said radius-link, and the obliquely-arranged screw for adjusting said fulcrum.

15. A plant for rolling rails, consisting of three-high rolls and the trains of mechanism, substantially such as described, for feeding, transferring, and turning the piece, whereby a bloom may be converted into a rail wholly automatically.

16. The combination, substantially as before set forth, of a stationary line of feed-rollers, a movable continuous trough provided with openings to admit the feed-rollers through its supporting-surface, and the mechanism, substantially such as described, for lowering such trough from an elevated position to a point where its supporting-surface is below the top of the feed-rollers.

314,084. VEGETABLE BOILER AND CUTTER. CHARLES UNGER, Pittsburg, Pa., assignor of two-thirds to Elias Kauffald and Thomas Miller. Filed Dec. 27, 1884. (No model.)

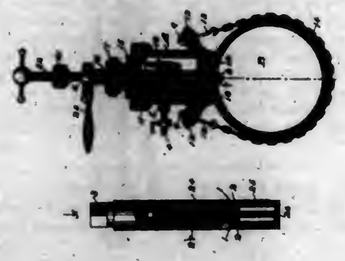


Claim.—1. The combination, with chamber D and boiler A, of the movable semi-cylindrical plate D', having the slots *d* at one side the disks D'', secured to the shaft H, substantially as described.

2. The combination, with the stationary knives I, the movable knives J, cams K, beneath said knives, of the rock-shafts L, the toothed sectors M M, secured to said shaft, and the toothed bar N, gearing with said sectors, substantially as described.

3. In an apparatus for preparing vegetable matter for mashing, the combination of the boiler A, chambers D and E, the former being provided with the revolving grating D' and the latter with the reciprocating knives or cutters J and the stationary knives I, and means, substantially as described, for operating said knives and grating, with the pipe Q, having partitions *q q*, all arranged and operated as set forth.

314,085. DRILLING AND TAPPING APPARATUS. JACOB VAN NORMAN, Easton, Pa. Filed Aug. 20, 1884. (No model.)



Claim.—1. The combination, with the casing A, having an opening at its upper end for the introduction of the drill, tap, or mandrel, and provided with a stuffing-box surrounding said opening, and a valve or cock for closing the same, of the interchangeable drill, tap, or mandrel 24, constructed to carry the nipple 25 at its end, substantially as described.

2. The combination, with the casing A, having an opening at its upper end for the introduction of the drill, tap, or mandrel, and provided with the stuffing-box 17, and the automatically-acting valve 18, of the interchangeable drill, tap, or mandrel 24, constructed to carry the nipple 25 at its end, substantially as described.

3. The combination, with the casing A, provided with the packing 10 and a clamping apparatus for securing it to the thing to be tapped, and having an opening at its upper end for introduction of the drill, tap, or mandrel, of the stuffing-box 17, a valve or cock for closing said opening, and the mandrel 24, constructed to carry the nipple 25 at its end, substantially as described.

4. The combination, with the casing A, having an opening for the introduction of the drill, tap, or mandrel, and a valve or cock for closing said opening, of the stuffing-box 17, packing 10, hollow mandrel 24, carrying the nipple 25, plug 26, and stem 27, substantially as described.

5. The combination, with the casing A, having an opening for the introduction of the drill, tap, or mandrel, and a valve or cock for closing said opening, of the stuffing-box 17, packing 10, hollow mandrel 24, plug 26, and stem 27, substantially as described.

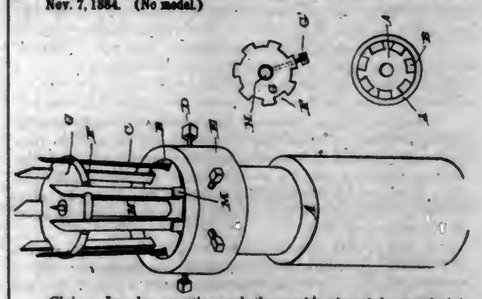
6. The combination, with the hollow mandrel 24, carrying the nipple 25, of the plug 26 and stem 27, substantially as described.

7. The combination, with the hollow mandrel 24, having the threaded projection 2, of the plug 26 and stem 27, substantially as described.

8. The hollow mandrel 24, provided with the shoulder 1 and threaded projection 2, substantially as described.

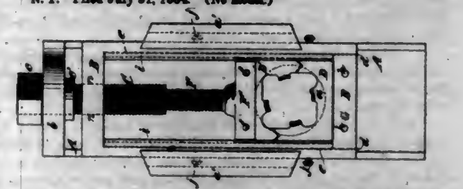
9. The combination, with the hollow mandrel 24, carrying the nipple 25, of the plug 26, having the stem 27, extending beyond the end of the nipple, substantially as described.

314,086. BUNG-CUTTER. HENRY WAAS, San Francisco, Cal. Filed Nov. 7, 1884. (No model.)



Claim.—In a bung-cutting tool, the combination of the mandrel A, having mortises B B and slot K, said mandrel being reduced in diameter at its mortised end, the collar E, having set-screws D D, the cutters C C, the splints or wedges M M, the spindle H, provided with guide-pin J and spring L, and the notched disk G, detachably secured to the end of the spindle, and provided with a centering-point, I, substantially as shown and described.

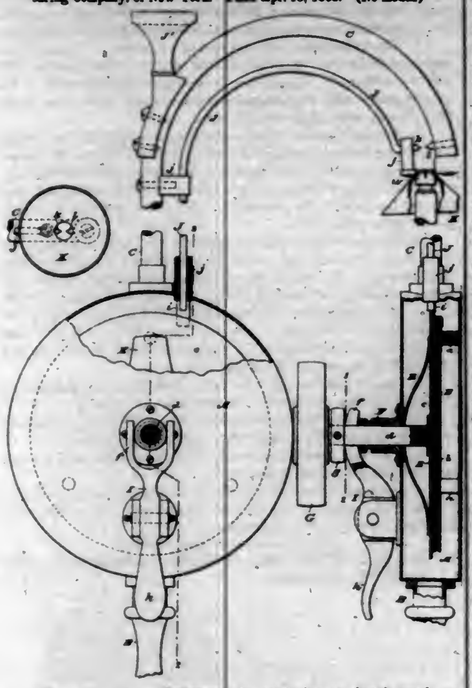
314,087. DIE OR NIPPLE HOLDER. SETH J. WAKELEY, New York, N. Y. Filed July 31, 1884. (No model.)



Claim.—1. The combination, in a die or work holder for the sliding carriage of a pipe-threading machine, of the two slides fitted one within the other, the outer one having an opening in one end for the introduction of the dies or jaws of both slides, and a block and means of securing the same in said opening for retaining the dies, substantially as herein described.

2. The combination of the plate A of the carriage of a pipe-threading machine, the slide B, fitted to said plate, the slide F', fitted to said slide B, the screws C F, for moving the said slides in opposite directions, and the dies or vise-jaws within and between said slides, the said slide B having a mortise, *d d*, in one end for the introduction of the dies or jaws, and a groove, *e*, conforming to said mortise, for guiding and retaining the dies or jaws, substantially as herein described.

314,088. ELECTRIC GAS-LIGHTER. CHARLES W. WEISS, Brooklyn, N. Y., assignor, by direct and mesne assignments, to the Weiss Manufacturing Company, of New York. Filed Apr. 13, 1883. (No model.)



Claim.—1. In an instrument for producing an electric spark, an electrophorus inclosed within a hermetic casing, and the movable plate of the same provided with an operating-stem arranged to pass out from said case through a packed or air-tight passage, the said movable plate being so constructed, substantially as described, that it may be moved toward and from the fixed plate as well as rotated, substantially as and for the purposes set forth.

2. In a portable apparatus for producing an electric spark, an electrophorus inclosed within a hermetic casing, and the movable plate of the same provided with an operating-stem arranged to pass out from said case through a packed or air-tight passage, the said movable plate being so constructed, substantially as described, that it may be moved toward and from the fixed plate as well as rotated, substantially as and for the purpose set forth.

3. In an electric gas-lighter, the combination, with the hermetically-sealed case, of the fixed and movable generating-surfaces D E, the conductor J, and mechanism operating from the outside of the case to lift and rotate the plate E, substantially as and for the purpose described.

4. In an electric gas-lighter, the combination, with the hermetically-sealed case, of a fixed metallic plate, an electrical conductor rigidly attached thereto, and means, substantially as described, for electrifying the plate and discharging the same, as set forth.

5. The combination of a hermetically-sealed case of an electrical gas-lighting apparatus with two generating-surfaces inclosed in said case, one of said surfaces constructed and arranged to be separated from the other or turned on its axis at will, substantially as described.

6. In an electric gas-lighter, a thumb-lever having its fulcrum attached to one side of the case, and having its forked end arranged under a collar upon the stem to which the movable generating-surface is attached for the purpose of lifting and lowering said generating-surface, substantially as described.

7. In an electric gas-lighter, the combination of the fixed and movable generating-surfaces with the thumb-piece and a rotating lever, substantially as described.

8. The combination of a hermetically-sealed case of an electrical gas-lighting apparatus with two generating-surfaces inclosed in said case, one of said surfaces being constructed and arranged to be separated from and brought into contact with the other by an axial movement on its stem, substantially as described.

9. The combination of a hermetically-sealed case of an electrical gas-lighting apparatus with two generating-surfaces inclosed in said case, one of said surfaces being constructed and arranged to move from the other and remain parallel to its normal position, substantially as described.

10. In an instrument for producing an electric spark, an electrophorus inclosed within a hermetic casing, and the movable plate of the same provided with an operating-stem arranged to pass out from said casing through an air-tight passage, said plate being provided with spring to hold it in contact with the fixed plate, and so constructed, substantially as described, that it may be moved toward and from the fixed plate through the medium of its stem and spring, substantially as set forth.

11. An electrophorus wherein the metal plate is fixed in position and insulated and the resinous plate is made movable to and from the metal plate, the whole being inclosed in a hermetic case, substantially as herein set forth.

12. An electrophorus comprising a metal plate to be excited, mounted fixedly in a hermetic case and insulated from the said hermetic case, a conductor of substantially the character described attached to said fixed plate and terminating in a point, a resinous plate mounted movably in said hermetic case, a metallic contact-piece for connecting the fixed plate electrically with the metal backing of the resinous plate, means, substantially as described, for moving the resinous plate toward and from the fixed plate, and a conductor terminating in a point, connected electrically at all times with the resinous plate through the medium of metallic parts, substantially as and for the purposes set forth.

13. The combination of the hermetic case provided with a stuffing-box, the lever I, the movable plate E *e*, provided with a stem and a collar, *g*, or other projecting part, a spring in the case to press the movable plate up to the fixed plate, the insulated fixed plate, the contact-piece, the conductor J, provided with a point, *k*, and a branch, C, with a point, *l*, all arranged to operate substantially as set forth.

14. An electrophorus inclosed within a case, and its movable plate provided with a stem which projects out from said case, and means, substantially as described, for raising said movable plate from the outside of the inclosing-case, substantially as described.

15. In an instrument for producing an electric spark, an electrophorus inclosed within a hermetic casing, and the movable plate of the same provided with an operating-stem arranged to pass out from said case through a packed or air-tight passage, the said movable plate being so constructed, substantially as described, that it may be moved toward and from the fixed plate, substantially as and for the purposes set forth.

314,089. SYSTEM FOR THE PROTECTION OF RAILROAD-TRACKS AND GAS-PIPE LINES. GEO. WESTINGHOUSE, Jr., Pittsburg, Pa. Filed Aug. 21, 1884. (No model.)

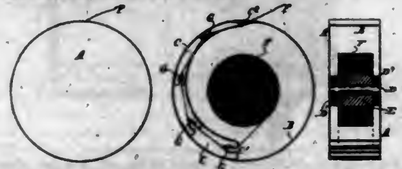
Brief.—A method of detecting leakage of gas-pipes which consists in surrounding the main for a distance on each side of the crossing with a closed pipe and valve, admitting gas into the annular ring thus formed at low pressure. This gas provides a lamp placed by the side of the track, so that should a leak occur the increased pressure thus produced would be detected by the color of the flame in the lamp.



Claim.—1. The combination of a railroad-track, a gas-main surrounded by a tight inclosing-casing for a portion of its length adjacent to said track, a pipe admitting gas at low pressure from the main to the interior of the casing, a lantern supported in position to be in view from the line of track, and a burner inclosed in said lantern and supplied with gas by a pipe from the casing, substantially as set forth.

2. The combination of a railroad-track, a gas-main surrounded by a tight inclosing-casing for a portion of its length adjacent to said track, a pipe admitting gas at low pressure from the main to the interior of the casing, a lantern supported in position to be in view from the line of track, a burner inclosed in said lantern and supplied with gas by a pipe from the casing, and an escape-pipe leading out of the casing and fitted with a relief-valve adapted to permit the escape of gas therefrom at a point beyond the access of fire projected from engines passing over the railroad-track, substantially as set forth.

314,090. TICKET-CASE. GEORGE A. WESTON and HENRY R. PROCTER, 6 Park Street, Croydon, County of Surrey, England. Filed June 16, 1884. (No model.) Patented in England Feb. 19, 1884, No. 2,608; in France June 4, 1884, No. 162,551; in Belgium June 4, 1884, No. 65,375, and in Germany June 13, 1884, No. 30,536.



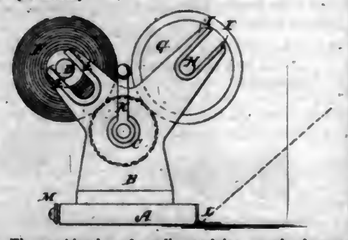
Claim.—1. As an improvement in apparatus for containing and delivering a continuous strip of tickets, the closed card-board box provided with means for supporting within it the continuous strip of tickets, having the interior guide-channel terminating in a delivery-mouth, and provided with the flexible lips secured to the opposite walls of the guide-channel, and between which lips the strip of tickets passes as drawn from the delivery-mouth, substantially as and for the purpose set forth.

2. The card-board box provided with means for supporting within it the continuous strip of tickets, and formed of the end parts and the side or periphery part united thereto, and one end of which overlaps the other to provide the interior guide-channel, substantially as and for the purpose set forth.

3. The combination of the box having the interior guide-channel, means for supporting a continuous strip of tickets in the box, and the several pairs of flexible lips in the guide-channel, between which lips the strip of tickets passes, substantially as and for the purpose set forth.

4. The combination of the box provided with the guide-channel and the mouth for delivering the continuous strip of tickets, means for supporting the strip within the box, the flexible lips in the guideway-channel, and the envelope secured about the box, substantially as and for the purpose set forth.

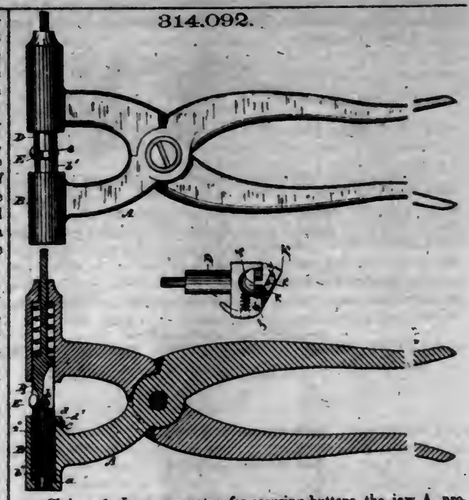
314,091. COPYING-MACHINE. SETH WHEELER, Albany, N. Y. Filed Dec. 31, 1883. (No model.)



Claim.—1. The combination of a roll containing a web of paper with an impression and storing roll on which said paper is run and stored after it has been impressed, and an absorbent roll in contact with the surface of such paper, upon the periphery of which is transferred the surface of original matter to be impressed on the surface of the paper.

2. The combination of a roll containing a web of paper, an impression-roll on which said paper is run, an absorbent roll in contact with the surface of such paper, upon the periphery of which is transferred the surface of original matter to be impressed on the surface of the paper, and a knife-bar for severing the paper into portions, such elements being arranged upon a base-plate which is hinged to a stand or table, substantially as described.

314,092. APPARATUS FOR ATTACHING BUTTONS. ALEXANDER G. WILKINS, Meadville, Pa., assignor to the Wilkins Shoe Button Fastener Company, same place. Filed Apr. 14, 1884. Renewed Feb. 3, 1885. (No model.)



Claim.—1. In an apparatus for securing buttons, the jaw A, provided with the barrel B, and a concentric sleeve adapted to project above the point of the fastening-pin when in place and protect it from contact with the fabric, substantially as set forth.

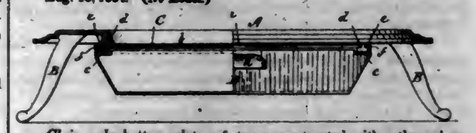
2. In an apparatus for securing buttons, the jaw A, in combination with a centrally-arranged continuous cylindrical receptacle to receive the fastening-pin, and means, substantially as set forth, adapted to support it and center it throughout its length, for the purpose described.

3. In a button-securing apparatus, the jaw A and barrel B, in combination with central fixed bolt, *a'*, spring-bolt *b*, sleeve *b'*, and springs *a''* *b''*, all constructed, arranged, and operated as set forth.

4. In an apparatus for securing buttons, the spring upsetting-bolt D, provided with the slot *e*, in combination with the spring button-holding latch E, provided with recesses *n n*, to receive the wire of the button-eye, substantially as set forth.

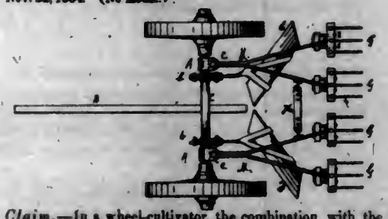
5. In an apparatus for securing buttons, the spring-bolt D, having the transverse slot *e*, spring button-holding latch E, and recess A, all constructed and operated as set forth.

314,093. STOVE. SARAH A. H. WILLIAMSON, Carson City, Nev. Filed Aug. 13, 1884. (No model.)



Claim.—In bottom plates of stoves constructed with a through recess or opening for escape of the ashes, and fitted with a lower removable ash-pan and a slide arranged to close said opening and interposed between it and the ash-pan, the combination, with the sliding plate C and with the sliding ash-pan D, having inner bent upper side edges or lips, *f f*, of the open bottom plate, A, provided on its under side or face with side flanges, *e e*, constructed to form ways on their opposite sides for both the sliding plate and pan, and with a rear under strip, *g*, constructed to act as a stop to said sliding plate and pan, substantially as shown and described, and for the purposes herein set forth.

314,094. CULTIVATOR. GEORGE W. WILSON, Murdock, Ill. Filed Nov. 22, 1884. (No model.)



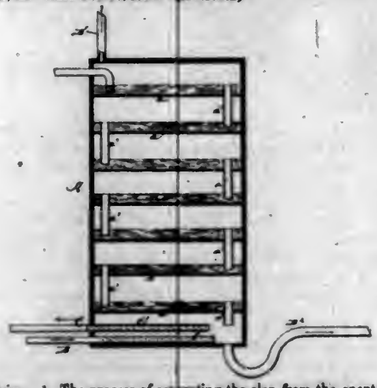
Claim.—In a wheel-cultivator, the combination, with the arched axle, of the bifurcated frames M, secured to the horizontal arms of such axle, and having cross-bars and knives or teeth G, the scrapers E F in front of said knives and secured by branched arms to the vertical arms of the axle, and the adjusting-bar H, substantially as shown and described.

314,095. WRENCH. THOMAS J. WILSON, Auburn, N. Y. Filed Sept. 19, 1884. (No model.)



Claim.—As an improvement in wrenches, the shank or bar provided with a fixed jaw at one end, in combination with a sliding jaw having transverse elongated slots at the front and rear ends, a pawl or stop, D, below the sliding jaw, and having teeth engaging teeth on the shank, spring-bails E, pivoted on the front and rear ends of the pawl or stop, and having their other ends fitted in the slots of the sliding jaw, and pins or lugs *d*, projecting laterally from the sliding jaw in rear of one of the bails, to provide an additional spring force for the same to retain the pawl or stop always in engagement, as set forth.

314,096. PROCESS OF MAKING WHISKY. FRANCIS M. YOUNG, Chicago, Ill. Filed Dec. 29, 1884. (No model.)

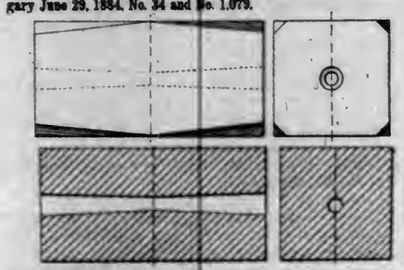


Claim.—1. The process of separating the slop from the spent beer in the manufacture of whisky, which consists in separating them by sieving under pressure while in a heated state, substantially as described and shown.

2. The process of separating the slop from the spent beer in the manufacture of whisky, which consists in separating them by forcing through a perforated or reticulated cylinder under steam-pressure, substantially as described and shown.

3. The process of separating the slop from the spent beer in the manufacture of whisky, which consists in separating them by forcing through a sieve or similar device under steam-pressure before they leave the still, substantially as and for the purpose shown and described.

314,097. ARTIFICIAL FUEL. HERMANN AEGNER, Vienna, Austria-Hungary. Filed Dec. 8, 1884. (No model.) Patented in Austria-Hungary June 29, 1884, No. 34 and No. 1,079.

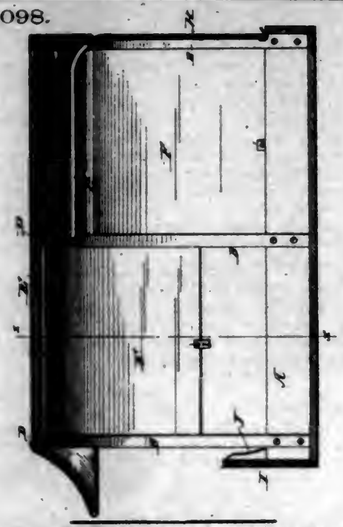


Claim.—The described method of manufacturing artificial fuel, consisting in forming perforated blocks of a mixture, substantially as described, of coal-tar pitch and vegetable fiber, subsequently coking such blocks, and in finally pressing the same into the perforated beveled shape, essentially as described, and shown in the drawings.

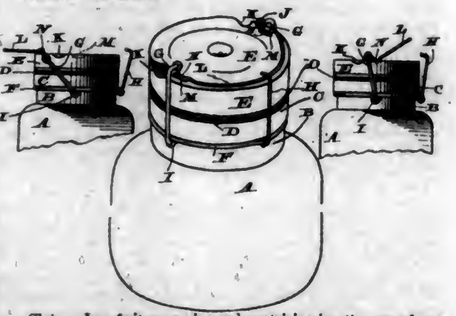
314,098. WAGON-TOP. HENRY W. BLOOD, Fredonia, N. Y. Filed Aug. 29, 1884. (No model.)

Claim.—The combination, with the front bows, of the brackets J for the dash-board, cut off inclined or beveled upon the inner edges of their upper portions to form tapering rein-holders, as and for the purpose shown and set forth.

314,098.

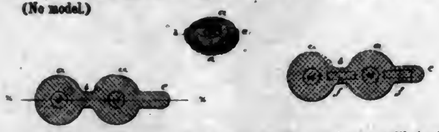


314,099. FRUIT-JAR. JOHN G. BRIGGS, San José, Cal. Filed Nov. 28, 1884. (No model.)



Claim.—In a fruit preserving and containing jar, the cover-fastening herein described, consisting of a hinged curved lever working within recesses upon the face of the cover to compress said cover upon an india-rubber band surrounding the opening or mouth of the jar, in combination with the hinged side bars, G G, and catch H, for retaining said lever in its closed position, substantially as shown and described, for the purpose set forth.

314,100. HAIR-CRIMPER. EDWARD J. BROOKS, East Orange, N. J., assignor to E. J. Brooks & Co., New York, N. Y. Filed July 22, 1884. (No model.)



Claim.—1. An improved hair-crimper having a pair of metallic leaf-frames connected by a permanent flexible metallic union integral with said frames, substantially as herein set forth.

2. An improved hair-crimper having a pair of metallic leaf-frames connected by a permanent flexible metallic union, and provided with a flexible metallic clasp integral with said frames, substantially as herein set forth.

3. An improved hair-crimper having a pair of metallic leaf-frames, one of which is provided with a catch-opening, d^3, connected by a permanent flexible metallic union, and provided with a flexible metallic clasp, c^2, integral with said frames, adapted to interlock with said catch-opening, substantially as herein set forth.

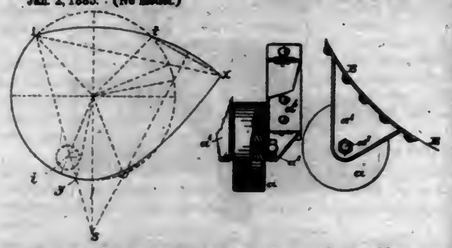
4. The combination, in a hair-crimper, of a metallic part comprising a pair of leaf-frames, a flexible union, and a flexible clasp, and a covering of thin textile fabric united therewith by moisture-proof cement, substantially as herein set forth.

5. The combination, in a hair-crimper, of a metallic part comprising a pair of leaf-frames, a flexible union, and a flexible clasp, the lower leaf-frame, from which said clasp projects, having a ventilating-opening

therein, and a covering of thin textile fabric which bridges said ventilating-opening, substantially as herein set forth.

6. The combination, in a hair-crimper, of a metallic part comprising a pair of leaf-frames, a flexible union, and a flexible clasp made of very thin pliable sheet metal, and re-enforced at its bends, either or both, by strips of a strong pliable metal, and a covering of thin textile fabric outside of said re-enforcing strips, substantially as herein set forth.

314,101. AUTOMATIC DUMP-BUCKET FOR HOISTING AND CONVEYING MACHINES. ALEXANDER E. BROWN, Cleveland, Ohio. Filed Jan. 2, 1885. (No model.)



Claim.—1. A bucket for hoisting and conveying machines, composed of two vertical sides or portions, A A, and a single plate-like portion, B, the contour or shape of the bucket in side view being such, as described, as to present from its upper front edge to a point slightly in rear of the lowermost part of the bottom a substantially parabolic curve, and from thence rearwardly and upwardly to the back edge a substantially circular curve, as and for the purposes set forth.

2. In a bucket for hoisting and conveying machines, the top opening of which is substantially rectangular in plan or top view, and which has substantially straight front and rear top edges, the formation of the edges of the two sides A A in arcs of circles, such as hereinbefore specified, as will substantially conform to the natural curvature of a load of fine material or small anthracite coal.

3. A hoist-bucket composed of two parallel side pieces, the lowermost edge of each of which lies in a continuous curve, and both of which have their said curved edges turned inwardly at angles of ninety degrees to the planes of said side pieces, and a third plate-like piece, B, bent to conform to the curves of said inwardly-bent portions of the side pieces and secured thereto, all substantially as set forth.

4. In combination with the bucket composed of side portions, A A, and a front, rear, and bottom portion, B, the wheels *b b*, and centrally-arranged wheel *a*, the combination being such, as described, that the three wheels *b b* and *a* will support the bucket when resting on a level surface in substantially the position which the bucket assumes when suspended by its bail or handle.

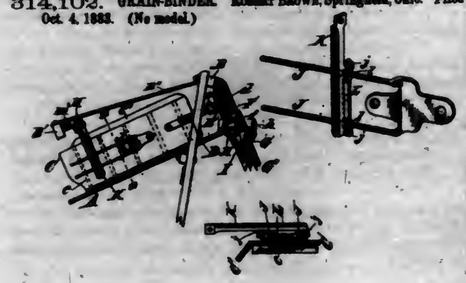
5. In combination with the bucket or receptacle proper, a set of wheels, *b b*, journaled in and turning within housings *h h*, that are securely riveted to the portion B of the bucket, all substantially in the manner and for the purposes described.

6. In combination with the bucket proper, wrought-metal stands a^4, made with wide side stiffening-flanges, and the hind wheel or caster, *a*, mounted between said stands, as specified, the whole arranged and operating in the manner and for the purposes set forth.

7. In combination with a dumping-bucket, stops *i*, formed with flat surfaces adapted for contact with the back side of the handle or bail of the bucket, and with an inclined or tapering surface adapted to sheer or glance off from any obstruction during the descent of the bucket, substantially as hereinbefore set forth.

8. In combination with the cast-metal housing *h*, which projects or protrudes inwardly into the load-space of the bucket or receptacle, ribs 1 2 3, or strengthening projections adapted to receive the shocks and blows of the material shoveled into the bucket and prevent any injurious effect which might otherwise be produced upon the exposed surface of said housing.

314,102. GRAIN-BINDER. ROBERT BROWN, Springfield, Ohio. Filed Oct. 4, 1883. (No model.)



Claim.—1. In a grain-binder, the butt-evener device composed of ribbed board C *c*, connected at one end by a journal-arm, D *d*, with a rotating crank, E *e*, and supported at its other end over the binder-platform on arms J, which reciprocate in a bracket, K L, suspended from the timbers of the binder-frame, the whole being constructed and adapted to operate substantially as herein set forth.

2. In a grain-binder, the combination, with the vibrating and reciprocating butt-evener C *c*, suspended above the binder-platform by journal-arm D *d*, forked arm J, and bracket K L, of a sliding adjusting-bar, M N, constructed and adapted to operate substantially as herein set forth.

3. In a grain-binder, the butt-evener board C, provided with the ribs or serrations *c* on its inner face, and the flaring upper edge, C', substantially as and for the purpose specified.

314,103. CUTTER AND CUTTER-GUARD FOR HARVESTERS AND MOWERS. ROBERT BROWN, Springfield, Ohio. Filed Dec. 7, 1883. (No model.)



Claim.—1. The detachable guard-finger B C, having the slot *g*, and adapted to receive and hold the ledger-plates G, substantially as described.

2. The detachable guard-finger B C, having the slot *g* in the rear and the slot or recess *b* in the front for receiving the ledger-plate G, substantially as described.

3. The detachable guard-finger B C, having the slot *g*, in combination with the ledger-plate G and finger-bar, substantially as described.

4. In combination with the detachable guard-finger B C, the flange C thereof provided with the hook *c* and bolt-shoulders *d*, adapted to be secured to the finger-bar A by bolts D, substantially as described.

5. The detachable guard-finger B C, the flange C thereof having hook *c*, adapted to fit over and be secured to the bar by the heads of bolts D engaging over the flanges of two adjacent guards, substantially as described.

314,104. COTTON-CHOPPER. HENRY G. CADY, Pine Bluff, Ark. Filed Nov. 20, 1884. (No model.)



Claim.—1. In a cotton-chopper, the pivoted beams *b*, cylindric hub F, carrying the metallic cups C^2, and the nutted rod I, substantially as shown and described.

2. In a cotton-chopper, the metallic cups C^2, having standards C', washers *d*, and clutch-bars *e*, secured to the cylindric hub F by hoops G, substantially as shown and described.

3. A cotton-chopper having the scrapers E and shovels H, in combination with the pivoted beams *b*, cylindric hub F, metallic cups C^2, and nutted rod I, substantially as shown and described.

4. The screw-bar I, having actuating-rod i', head *h*, arranged beneath the transverse stud *j*, nut *k'*, secured to platform L, and nut *k*, secured to stud *j*, substantially as shown, and for the purpose described.

314,105. HINGE-LOCK FOR SHUTTERS. SERENA M. CARNES, New York, N. Y. Filed Jan. 24, 1885. (No model.)

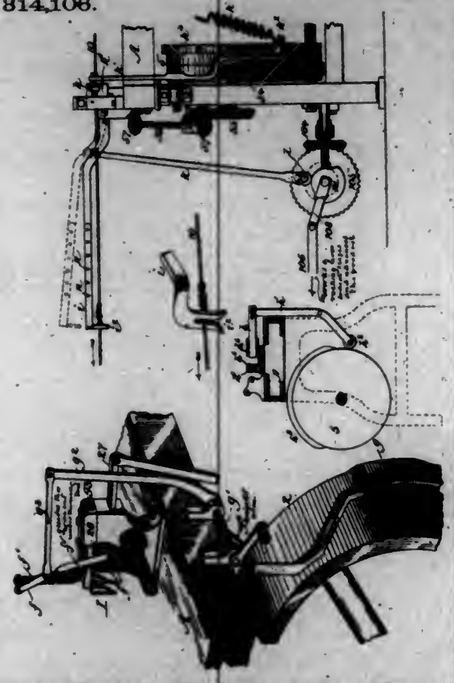


Claim.—A hinge-lock consisting of a short tube longitudinally slotted to fit upon the knuckles and embrace the inner ends of the straps of the hinge, in combination with parallel flanges projecting from the edges of either of its slots, substantially in the manner and for the purpose herein set forth.

314,106. MACHINE FOR FORMING CHECK-ROWER WIRE. GEO. W. CAYWOOD, Joliet, Ill., assignor to the Joliet Wire Check Rower Company, of Ill. Filed Oct. 27, 1883. (No model.)

Brief.—Improvements on Patent No. 291,584, dated January 8, 1884. The wire is cut into two parts between a mandrel and a coiling-head, leaving the rear end of the forward part of the wire lying on the mandrel. A feed-slide advances and passes the forward end of the rear part of the wire under the mandrel. The mandrel is advanced length-

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wise to cross the two ends of the wire. A rotary looper advances and loops the ends together. Two rotary coilers advance toward each other and coil the ends of the loops in opposite directions around the main portions of the wire. The coilers recede. The jaws of one coiler are opened, and the wire with one finished check is pulled forward by a throw-lever regulated by a gage-lever resting upon the wire successively forward of each check of the wire. A sliding and a stationary jaw hold the wire during the back throw of the throw-lever.

Claim.—1. In a machine for forming check-rower wire, in which the wire is severed at one side of a mandrel and one of the parts of the wire afterward fed forward, a vibratory guide arranged to engage and guide said part of the wire that is being fed forward by the carriage under the mandrel and then to release the wire, substantially as and for the purpose described.

2. The vibratory guide *f*, having its lower end adapted to engage and guide the wire, in combination with means for automatically vibrating said guide at the proper moments, whereby results hereinbefore described in a machine for forming check-rower wire are attained, substantially as described.

3. The combination, with the vibratory guide *f*, pivotally connected with a standard and located to operate alongside the looper-mandrel in a check-rower-wire machine, of the cook-shaft operated from a cam-faced wheel and connected by an arm with a pitman that is in turn connected with the vibratory guide, said mechanism being timed to operate substantially in the manner and for the purpose described.

4. In a machine for forming check-rower wire, in which the wire is drawn through the machine after the formation of each check or knot, a gage mechanism and means for operating it independently of the device for drawing the wire through the machine and intermittingly, whereby it engages and arrests the wire at determined intervals, substantially as described.

5. The vibratory gage-lever located at the delivery end of the machine and adapted to engage the wire and prevent the passage of a check in the latter past the engaging part of said lever, substantially as and for the purpose described.

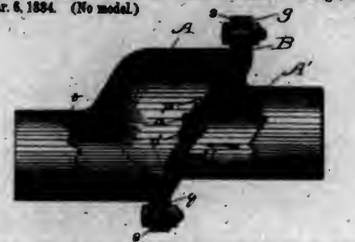
6. The vibratory gage-lever pivoted at one end of a machine for forming check-rower wire and having at one end a fork for engaging the wire, substantially as described.

7. The combination, in a machine for forming check-rower wire, of the vibratory gage-lever, with means, substantially as described, for bringing said lever into engagement with the wire after a check has been formed, substantially as set forth.

8. The combination, in a machine for forming check-rower wire, of the vibratory gage-lever with a pitman pivoted to said lever and operated by a cam-faced wheel, substantially in the manner and for the purpose described.

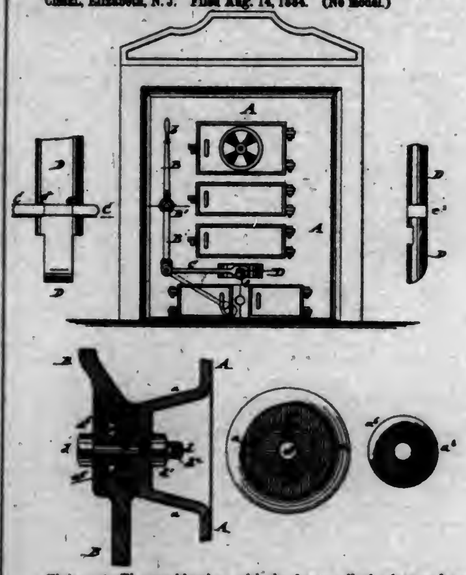
9. The combination, in a machine for forming check-rower wire, substantially as described, of the vibratory throw-lever situated at the delivery end of the machine with an intermittingly-operating clamp timed to hold the wire during the back throws of the throw-lever so as to prevent the wire from being pushed back, and consisting of a stationary jaw formed by one wall of a guide-passage for the wire and an intermittingly-reciprocating jaw working through the opposing wall of said guide-passage, substantially as described.

314,107. CHECK-VALVE. WILLIAM CHAPPELL, Chicago, Ill. Filed Mar. 6, 1884. (No model.)



Claim.—A valve to be inserted in a waste-pipe leading from a bath tub to a water-closet, comprising in combination the following elements, viz: a bulb, A, provided at one end with a tubular extension, *t*, and with a flange, *s*, at the opposite end, a tube, A', of narrower dimensions than the bulb A, and provided with a flange, *q*, a disk, B, of pliable material, secured between the flanges *s* and *q*, which are secured together, and a flap, C, formed by cutting part way around the center of the disk B and hanging at one end from the same, all being constructed and arranged to operate substantially as described.

314,108. SHAKING ATTACHMENT FOR GRATES. REINARD S. T. CRESEL, Elizabeth, N. J. Filed Aug. 14, 1884. (No model.)



Claim.—1. The combination, with the front wall of a furnace having a raised seat, of a shaking-lever fulcrumed to said seat, a pivot-rod connected to the lower end of the lever, and a shaker-rod, the outer end of the pivot-rod having a recess with a contracted upper portion that engages side recesses of the shaker-rod, substantially as set forth.

2. The combination, with the front wall of a furnace having a conical part, *a*, and raised seat *a'*, of a washer, *a²*, locked to the seat, a connecting screw-bolt, *d d'*, and a shaking-lever, B, fitted by a circular portion to said seat and retained by a side washer, substantially as set forth.

314,109. JAR OR OTHER COVERED VESSEL. WM. H. CLARKE, Olean, assignor of one-half to Thomas W. Larsen, Bolivar, and Mrs. M. A. Tack, New York, N. Y. Filed Dec. 2, 1884. (No model.)

Claim.—1. The combination of the swinging bail, the cam-lever embracing the bail, and provided with two separated cam-bearings, and pivoted to the bail to swing in the longitudinal plane thereof, the cover disconnected from the bail and lever, and the jar or vessel, substantially as described.

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2. The combination of the swinging bail, the cam-lever pivoted to the bail to swing in the longitudinal plane thereof, and having cheek-pieces to embrace the bail, and provided with two separated cam-bearings, the cover, and the jar or vessel, substantially as described.

3. The combination, with the jar, of the swinging yoke having its ends pivotally connected with the neck of the jar and bent intermediate its ends into an eye, the lever embracing the bail, and provided with two cam-bearings, and pivotally connected with the yoke-eye to swing in the longitudinal plane thereof, and the cover disconnected from the bail and lever, substantially as described.

4. The combination of the jar, the swinging bail, the lever having two separated cam-bearings, and pivoted to the bail to swing in the longitudinal plane thereof, and the cover having the central lug or rib which is embraced by the cam-bearings of the lever, substantially as described.

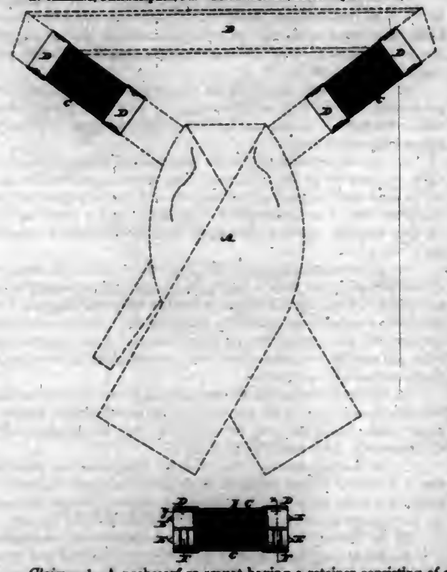
314,110. BOTTLE-STOPPER. WM. H. CLARKE, Olean, N. Y. Filed Jan. 16, 1885. (No model.)



Claim.—1. In a bottle-stopper, the combination, with a bail or yoke to which the stopper is movably connected, of a cam-lever pivotally mounted upon said yoke, and having parallel plates, which lie upon each side of and are guided by the bail, substantially as described.

2. In a bottle-stopper, the combination, with a bail or yoke having a central eye, in which is pivoted a cam-lever having two parallel plates lying upon each side of said bail, and a stopper having perforated lugs or ears, which engage with the bail, substantially as described.

314,111. RETAINER FOR THE BANDS OF NECKSCARFS. WILLIAM R. CLEMENT, Philadelphia, Pa. Filed Jan. 13, 1885. (No model.)



Claim.—1. A neckscarf or cravat having a retainer consisting of a cap, D, having a clip, F, the said cap being so formed as to encircle the band of the said scarf, and the clip formed on one end of the cap and bent outward so as to be hooked under the collar, substantially as and for the purpose set forth.

2. The combination, with the band of a neckscarf, of an elastic piece or spring, and caps connected with the ends of the latter, said caps being secured to the band and forming with the elastic piece or spring a continuity of the band, substantially as and for the purpose set forth.

3. A neckband having a cap of tubular form provided with lips which clamp an elastic piece or spring which is a continuity of said band, substantially as and for the purpose set forth.

4. A retainer for the band of a neckscarf, consisting of a cap of tubular form provided with a clip for engagement with the lower edge of a collar, and lips which clamp an elastic piece or spring which is a continuity of said band, substantially as and for the purpose set forth.

314,112. NUT-LOCK. WILLIAM S. CLYMER, Westerville, Ohio. Filed May 29, 1884. (No model.)



Claim.—The combination, with a longitudinally-slotted bolt, of a cross-notched key to fit therein, a nut fitted on the bolt and countersunk around the bolt-hole, another nut fitted on the screw-bolt, provided with slots to register with the slot in the bolt and to receive the key, and provided with grooves across its face and across its slots tangent to the bolt-hole, and a wire adapted to fit closely in the said grooves, and at the same time to rest in a notch of the said key, substantially as shown and described.

314,113. PROCESS OF PREPARING IRON ORES FOR SMELTING. MICHAEL R. CONLEY, Brooklyn, assignor to William Bell, New York, N. Y. Filed Feb. 21, 1884. (No specimens.)

Claim.—1. The process of preparing finely-divided ores for reduction, consisting in mixing about ninety-five per cent., by weight, of said ores with about five per cent., by weight, of pitch or analogous material, heating the same in a pan or other vessel until the pitch or analogous material becomes liquid, thoroughly incorporating the pitch or analogous material with the ore, and while the mass is in a heated state forming the compound into bricks, blocks, or lumps, substantially as specified.

2. A brick, block, or lump consisting of about ninety-five per cent., by weight, of sea-sand ores or other finely-divided ores, and about five per cent., by weight, of pitch or analogous material, substantially as specified.

314,114. MANUFACTURE AND PRESERVATION OF ARTICLES OF GYPSUM, STUCCO, OR THE LIKE. MAXIMILIAN DEGENHART, Trockenbeln-Niederlausitz, Prussia, Germany. Filed Jan. 10, 1885. (No specimens.) Patented in Belgium Oct. 17, 1884, No. 66,639; in England Oct. 17, 1884, No. 13,761, and in Italy Dec. 6, 1884, XXXIV, 456.

Claim.—1. The process herein described of increasing the density of articles or objects made of gypsum, stucco, terra-cotta, and other analogous porous and frangible materials, and adapting such articles or objects to be cleansed by washing with water, by treatment with a hot saturated barium or strontium solution, and drying in presence of carbonic-acid gas.

2. The herein-described process of increasing the density of articles or objects made of gypsum, stucco, terra-cotta, and other analogous substances, and adapting such articles or objects to be cleansed by washing with water, by mixing with the substance finely-pulverized glass, cement, kaolin, and other like substances, either separately or in combination, or in combination with finely-pulverized marble, witherite, heavy spar, or other like substances, and treating the object made therefrom with a hot saturated solution of a barium or strontium hydrate, and drying the same in presence of carbonic-acid gas.

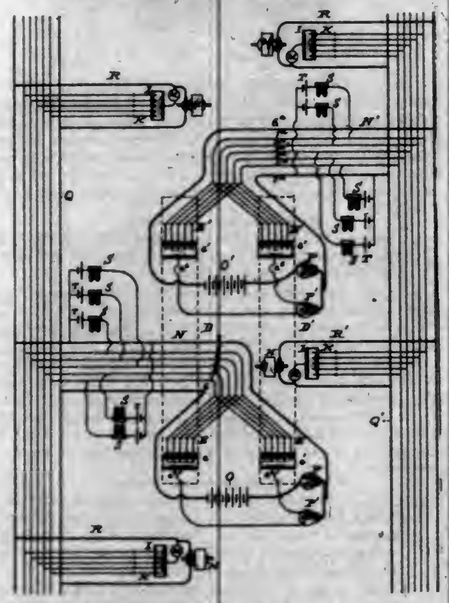
3. The process herein described of increasing the density of articles or objects made of gypsum, stucco, terra-cotta, and other analogous substances, and adapting such articles or objects to be cleansed by washing with water, by mixing with the substance a solution of a free acid or a solution of a metal salt thereof that will in presence of a barium or strontium hydrate form an insoluble metal oxide or hydroxide besides the insoluble barium or strontium salt, and treating the articles or object formed from such substance with a solution of barium or strontium hydrate.

4. The process herein described of increasing the density of articles or objects made of gypsum, stucco, terra-cotta, and other analogous substances, and adapting such articles or objects to be cleansed by washing with water, by mixing with the substance finely-pulverized glass, cement, kaolin, or other like substances, either by themselves or combined with finely-pulverized marble, witherite, heavy spar, or other like substances, and a solution of a free acid or a metal salt thereof that will in presence of a barium or strontium hydrate form an insoluble metal oxide or hydroxide besides the insoluble barium or strontium salt, and treating the article or object formed from such substance with a hot saturated solution of a barium or strontium hydrate.

5. The process herein described of increasing the density of articles or objects made of gypsum, stucco, terra-cotta, and other analogous substances, and adapting such articles or objects to be cleansed by washing with water, by combining silicic-acid anhydrite and either barium, calcium, or strontium hydrate, and treating the finished article or object with a solution of these metal salts, which form with the alkaline earth or earths insoluble combinations.

6. The process herein described of increasing the density of articles or objects made of gypsum, stucco, terra-cotta, and other analogous substances, imparting to such articles or objects a black color, and adapting them to be cleansed by washing with water, by mixing sulphuric acid with the substance from which the article or object is made, and treating such article or object with a hot saturated solution of barium or strontium hydrate combined with an organic substance convertible into carbon by the action of sulphuric acid.

314,115. CHEMICAL STOCK-QUOTATION TELEGRAPH. THOMAS A. EDISON, Menlo Park, N. J., and PATRICK KELLY, New York, N. Y. Filed Mar. 19, 1884. (No model.)



Claim.—1. In automatic telegraphs, the combination, with a suitable transmitter and chemical-receiver, of an electric motor operating the receiver and worked directly and entirely by current from the transmitting-office, substantially as set forth.

2. In automatic telegraphs, the combination, with a suitable transmitter and a chemical-receiver, of an electric motor operating the receiver, worked directly and entirely by current from the transmitting-office, and a switch at the transmitting-office for controlling the circuit of the motor, substantially as set forth.

3. In automatic telegraphs, the combination, with a suitable transmitter, of a chemical-receiver, an electric motor operating the receiver, separate pen and motor circuits from the transmitter to the receiver, a common return for all the circuits, and switches at the transmitting-office for controlling the pen and motor circuits, substantially as set forth.

4. In automatic telegraphs, the combination, with a suitable transmitter, of a line extending therefrom and two or more automatic receivers connected in multiple arc with the line, and operated directly and entirely by the line-current, substantially as set forth.

5. In automatic telegraphs, the combination, with a suitable transmitter, of a line extending therefrom, and two or more chemical-receivers connected in multiple arc with the line, and operated directly and entirely by the line-current, substantially as set forth.

6. In automatic telegraphs, the combination, with a suitable transmitter, of a line extending therefrom and including pen-wires and a separate motor-wire, and two or more chemical-receivers operated by separate electric motors, such receivers being connected in multiple arc with the line, substantially as set forth.

7. In automatic telegraphs, the combination, with a transmitter, a line, and two or more receivers connected in multiple arc with said line, of a feeder extending from the transmitter to the center of the line, substantially as set forth.

8. In automatic telegraphs, the combination, with a suitable transmitter, a line including pen-wires and a separate motor-wire, chemical-receivers operated by separate electric motors and connected in multiple arc with the line, and a feeder extending from the transmitter to the center of the line, substantially as set forth.

9. In automatic telegraphs, the combination, with a transmitter, a line therefrom to receivers, including small pen-wires and a larger motor-wire capable of carrying without injury the entire battery-current, of a safety-catch for protecting the small pen-wires, substantially as set forth.

10. In automatic telegraphs, the combination, with a transmitter having several independent transmitting-styluses, from which run separate pen-wires, and a battery connected by a single conductor with the transmitting-roller, of a safety-catch for protecting the pen-wires located in the conductor common to all the styluses, substantially as set forth.

11. In automatic chemical telegraphs, the combination, with a number of independent line pen-wires and instruments for transmitting and receiving Roman letters, of magnets located in cross-circuits between such pen-wires, and a common return for preventing tailings, substantially as set forth.

12. In automatic chemical telegraphs, the combination, with a number of independent line pen-wires and instruments for transmitting and receiving Roman letters, of a number of batteries for sending currents upon the separate pen-wires reverse in direction to the main battery-current, such batteries being located in cross-circuits between the pen-wires and a common return, and serving to prevent the marking of inactive pens, substantially as set forth.

13. In automatic chemical telegraphs, the combination, with a number of independent line pen-wires and instruments for transmitting and receiving Roman letters, of electro-magnets and reverse-current batteries located in cross-circuits between the several pen-wires and a common return, substantially as set forth.

14. In automatic telegraphs, the combination, with a suitable transmitter, of a chemical-receiver operated by an electric motor receiving current from the transmitting-office, and a governor for automatically governing the speed of said receiver-motor, to maintain a uniform size of the characters, substantially as set forth.

15. In automatic telegraphs, the combination, with a suitable transmitter, of a chemical-receiver operated by an electric motor receiving current from the transmitting-office, and an adjustable governor for automatically governing the speed of the motor, substantially as set forth.

16. In automatic telegraphs, the combination, with a suitable transmitter operated by an electric motor, of a chemical-receiver operated by an electric motor receiving current from the transmitting-office, and adjustable governors for adjusting and controlling the relative speeds of said transmitter and receiver motors, whereby the desired size of characters will be produced by the receiver, substantially as set forth.

17. In automatic telegraphs, a chemical-receiver operated by an electric motor, in combination with a circuit-controller for automatically opening the motor-circuit when there is an abnormal flow of current, substantially as set forth.

18. In automatic telegraphs, the combination, with a chemical-receiver, of an electro-magnet located in the pen-circuit, and a circuit-controller operated or controlled by such electro-magnet for opening the pen-circuit when there is an abnormal flow of current therethrough, substantially as set forth.

19. In automatic telegraphs, the combination, with a chemical-receiver, of a lifter for automatically raising the pens from the receiving-roller when there is an abnormal flow of current through the pen-circuit, substantially as set forth.

20. In automatic telegraphs, the combination, with a chemical-receiver operated by an electric motor, of an electro-magnet in the pen-circuit and a lifter operated or controlled by such electro-magnet and acting, when there is an abnormal flow of current in the pen-circuit, to raise the pens from the receiving-roller and to open the motor-circuit, substantially as set forth.

21. In automatic telegraphs, the combination, with a chemical-receiver operated by an electric motor, of an electro-magnet located in the pen-circuit and moving its armature only when there is an abnormal flow of current, a spring-lever released by the movement of the armature, connections with such spring-lever for raising the pens from the receiving-roller and opening the motor-circuit, and a thumb-piece for resetting the parts, substantially as set forth.

22. In chemical-receivers for automatic telegraphs, the combination, with the pivoted pens, of an arm carrying the pressing-roller, having a finger passing under the pens for raising the pens and pressing-rollers simultaneously, substantially as set forth.

23. In chemical-receivers for automatic telegraphs, the combination of a number of pens insulated from each other and mounted together in a frame removable from a suitable support, whereby the pens can be removed bodily from the instrument, substantially as set forth.

24. In chemical-receivers for automatic telegraphs, the combination of a number of pens insulated from each other and mounted in a frame held upon a support by engaging parts, whereby the pens can be removed bodily by simply raising the frame from the support, substantially as set forth.

25. In chemical-receivers for automatic telegraphs, the combination of a number of pens held removably upon a suitable support, and separate springs pressing against the shanks of said pens, but not secured thereto, for maintaining circuit-connections with such pens and permitting of their ready removal and replacement, substantially as set forth.

26. In chemical-receivers for automatic telegraphs, the combination of a number of receiving-pens mounted at their shanks upon separating insulation, said pens being brought close together at their ends and carrying insulating-studs to insure their electrical separation, substantially as set forth.

27. In chemical-receivers for automatic telegraphs, the receiving-pens having removable points, held by friction in dovetail grooves, substantially as set forth.

28. In automatic telegraphy, the combination, with a suitable support, to which the line-wires run, carrying terminals of such line-wires, of an automatic receiver having circuit-terminals engaging with the terminals of the support and completing the circuits by the act of setting the receiver upon the support, substantially as set forth.

29. In automatic telegraphy, the combination of a number of automatic receivers arranged in multiple arc, each carrying circuit-terminals, with supports for such receivers, to which the line-wires run, carrying terminals of such line-wires engaging the terminals of the receivers, and completing the circuits by the act of setting the receivers in position upon the supports, substantially as set forth.

30. In transmitters for automatic telegraphs, the combination of two troughs or paper-ways, each containing two or more sets of transmitting-styluses connected to different lines, the opposite styluses of the two troughs being connected to the same line, substantially as set forth.

31. In transmitters for automatic telegraphs, the combination, with feeding devices, of a loose transmitting-roller separate from the feeding devices, transmitting-styluses resting on the roller, and a spring-pressing wheel for pressing the traveling strip on the roller to turn said roller, substantially as set forth.

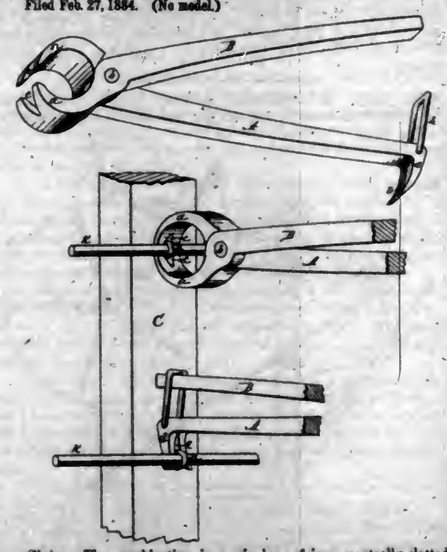
32. In transmitters for automatic telegraphs, the combination, with a feeding-wheel, of a trough or paper-way having a movable bottom, carrying one or more transmitting-rollers, and a lifter for raising said trough-bottom to bring the transmitting-rollers into contact with the transmitting-styluses, substantially as set forth.

33. In transmitters for automatic telegraphs, the independent transmitting-styluses removably held upon a support by frictionally-engaging parts, whereby they can be lifted from position, substantially as set forth.

34. In transmitters for automatic telegraphs, the combination, with the removable styluses, of springs pressing upon the shanks of said styluses, but not secured thereto, said springs permitting of the removal and replacement of the styluses, and maintaining circuit-connection therewith when in position, substantially as set forth.

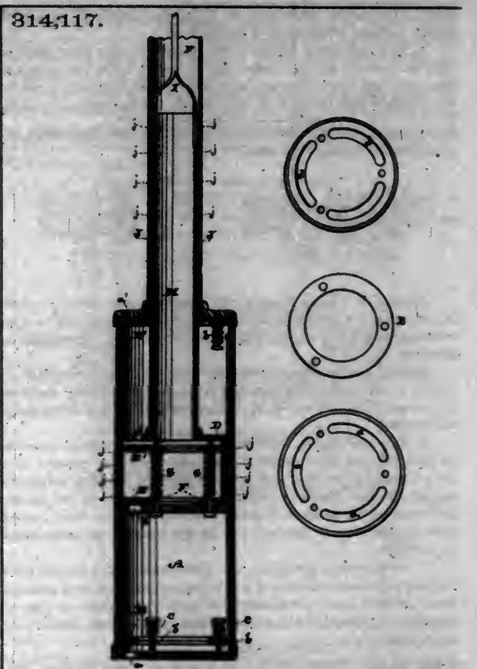
35. In transmitters for automatic telegraphs, the combination, with two or more feeding-wheels and two or more troughs or paper-ways, of independent spring-rollers for pressing the strips of the troughs separately upon the feeding-wheels, substantially as set forth.

314,116. STAPLE-EXTRACTOR. THOMAS FLANAGAN, Beritt, Ill. Filed Feb. 27, 1884. (No model.)



Claim.—The combination, in a pincher, of jaws centrally slotted in claw form, a hook-claw on the free end of one lever-arm, and a pivoted link to connect the free ends of the lever-arms, substantially as and for the purpose set forth.

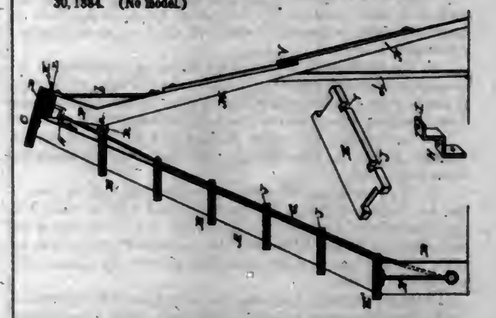
314,117. DOUBLE-ACTING SUBMERGED PUMP. CHARLES H. FOSTER, Alameda, Cal. Filed Aug. 29, 1884. (No model.)



Claim.—1. In a submerged pump, the combination, with a cylinder having valve-ports and valve-rings B B', of the hollow plunger D, having oppositely-located ports *d d'* in each end, the valve-rings E E', located within the plunger, the spindles or bolts F and the springs G, by which the valve-rings are seated, and the hollow piston-rod H, substantially as described.

2. The combination, with a cylinder having ports *a* and valve-rings B B' located at each end of the cylinder and controlled by springs *c*, of a pipe, J, a hollow plunger, D, having oppositely-located ports, the valve-rings E E' within the plunger, bolts F, for guiding the rings, springs for actuating said rings, and a piston-rod, H, all constructed and arranged to operate as herein set forth.

314,118. STEP-LADDER. DAVID A. FOSTER, Dublin, Ind. Filed July 30, 1884. (No model.)



Claim.—1. The outwardly-bowed rails A, having their lower ends, B, at an angle with their main portions, the steps provided with bearings, and the truss-rods extending longitudinally and engaging said bearings, substantially as specified.

2. The combination, with the outwardly-bowed rails A and the steps, of the truss-rods and the arch-brace under the lower step, the ends of which are secured by the bolts which fasten the lower ends of the truss-rods to the side rails, substantially as specified.

3. The combination, with the side rails and the top strip or shelf having an extension, of the brackets supporting said extension and provided with offsets, and the truss-rods bracing said side rails and secured to said offsets, substantially as specified.

4. The combination of the longitudinal truss-rods with the side rails and steps of a step-ladder, substantially as specified.

5. The combination, with the top step or shelf and the under spring-

catch, of the angular brace-frame M, having its connecting-hinges at its angular portions, substantially as specified.

6. In a step-ladder having a rearwardly-extending upper shelf or step, the brace M, having angular legs N, hinged to the second step at the angles, and above the same extending upward vertically, or nearly so, to support said top shelf or step squarely, substantially as specified.

314,119. ELECTRIC GAS-LIGHTER. JOHN GRAEY, Philadelphia, Pa. Filed Mar. 5, 1884. (No model.)



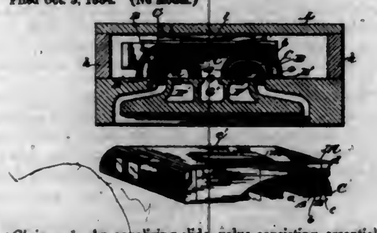
Claim.—1. The combination, with a swinging arm carrying a yielding electrode, of a lever pivoted on the gas-pipe, provided with an electrode, and adapted to engage with an arm on the cock, substantially as described.

2. The combination of swinging lever E, having electrode F, weight *e*, and stop *f*, with lever-arm G, having the yielding electrode H, and arm I, having dog M, all constructed and arranged substantially as described.

3. In a gas-lighting apparatus, the combination, with an electrode on the burner and an electrode on a lever pivoted on the gas-pipe, of a lever attached to the cock, and provided with a pivoted dog which will engage with said lever and move it past the electrode on the burner, and means, substantially as described, whereby said lever will be loosed from engagement with the dog when the gas is turned on, substantially as described.

4. In an electric gas-lighter, the combination, with a pivoted lever carrying a yielding electrode, of a swinging and weighted lever attached to and pivoted upon an insulated collar upon a gas-burner carrying an electrode, and provided with a stop to limit its movement, substantially as set forth.

314,120. SLIDE-VALVE. CHARLES M. GIDDINGS, Massillon, Ohio. Filed Oct. 3, 1884. (No model.)



Claim.—1. An equalizing slide-valve consisting, essentially, of the parts A, B, and C, arranged with intervening spaces, as described, in combination with a valve-seat provided with the five ports E, F, and G, substantially as set forth.

2. The combination, with a cylinder having an induction-port, exhaust-ports located on opposite sides of the induction-port, and the ports E outside of the exhaust-ports, of the valve having the induction-ports *c* and *b*, and the exhaust cups or chambers *a*, substantially as set forth.

3. An equalizing slide-valve provided with the cover C and the chambers *a* and C′, and the openings h and *i*, all arranged substantially as set forth.

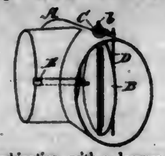
4. In an equalizing slide-valve, the combination, with the cover C and the chambers *a* and C′, the plug H, provided with the orifice h in open relation with the live-steam chamber C′, and the chamber of the steam-chest, of the plug I, provided with the relief-orifice *i* in open relation with the chamber of the steam-chest and with the exhaust, substantially as set forth.

5. In an equalizing slide-valve, the combination, with a valve-casing having a transversely-inclined slideway for the valve, of a valve having its lower edge or side inclined to correspond with the inclined slideway, whereby the face of the valve is held in close contact with its seat, substantially as set forth.

6. In an equalizing slide-valve, the combination, with a spring attached to the steam-chest cover, of a raised surface on the back of the valve adapted to form a track for the spring to travel upon, and the parts so arranged that by the engagement of the spring with the raised track the valve is held to its seat when the pressure of steam is removed, substantially as set forth.

7. In an equalizing slide-valve, the combination, with a valve-casing having points or marks M′, of a valve located within said casing, and provided with a projecting rib having the points or marks M thereon, the said points being arranged with relation to the ports as described, whereby the valve can be easily and quickly set, substantially as set forth.

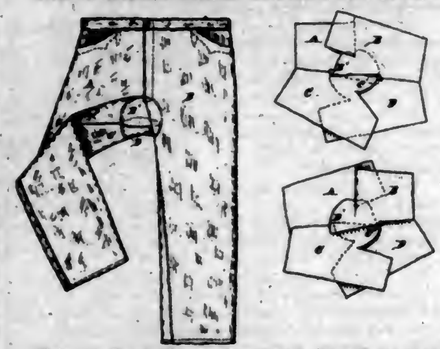
314,121. DAMPER FOR STOVE-PIPES AND FLUES. FREDERICK J. GILMAN, Cote des Neiges, Quebec, Canada. Filed June 16, 1884. (No model.)



Claim.—1. The combination, with a damper-plate having its spindle provided with a coiled spring, of a fusible band connected directly to such damper-plate, and adapted to operate substantially as described.

2. The combination of the pipe A, the damper-plate B, the pin D, spring C, and fusible strip or band E, all substantially as described.

314,122. OVERALLS AND PANTALOONS. JACOB GOLDSTEIN and CHARLES H. ROSBACH, St. Louis, Mo. Filed June 9, 1884. (Model.)

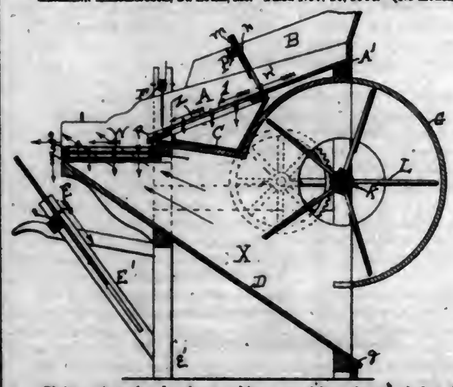


Claim.—1. In overalls, pantaloons, and the like, the combination of the front sections, A B, having crotch-laps A′ B′, and back sections, C D, having crotch-laps C′ D′, the crotch-laps interlocking and being stitched together, forming a four-ply re-enforced crotch, as shown and described.

2. In overalls, pantaloons, and the like, the combination of the four parts A, B, C, and D, having re-enforcing laps A′, B′, C′, and D′, that severally interlock one another, and whose marginal seams are secured beyond the lines of the fly, as shown and described.

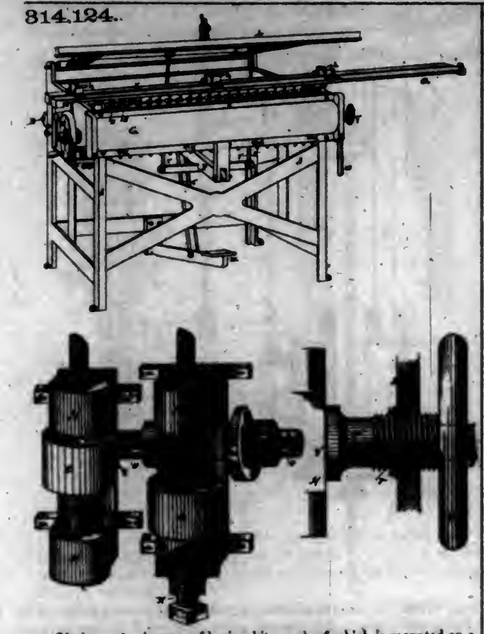
3. In overalls, pantaloons, and the like, the combination of the four sections A, B, C, and D, having re-enforcing overlaps interlocking with one another and being secured by a transverse double-stitched seam through the center of the re-enforce, for the purpose shown and described.

314,123. GRAIN-CLEANING MACHINE. JOHN D. HASSELBUSCH and HERMANN HASSELBUSCH, St. Louis, Mo. Filed Nov. 10, 1884. (No model.)



Claim.—A grain-cleaning machine comprising pivoted shaker A, provided with compartments B, Z, and W, and having cross-piece *n*, door *m*, and sieves 1, 2, and 3, the removable box C, rake F, the casement, the fan L, the main shaft K, pitman V, rock-shaft H, having arms H′ H″, inclined bottom D, blast-exit S, removable fan-casing G, and adjustable shield E, substantially as described.

314,124. GANG-BIT BORING-MACHINE. ELI B. HAVEN, Big Rapids, Mich. Filed Dec. 30, 1884. (No model.)



Claim.—1. A gang of boring-bits, each of which is mounted on a laterally-adjustable head, combined with a series of wedges located between but independent of said heads, and a device whereby said wedges may be simultaneously advanced or withdrawn to vary the spacing of said heads uniformly, as set forth.

2. A gang of boring-bits, each of which is mounted on a laterally-adjustable head, combined with a series of wedges located between said heads and laterally adjustable upon a carriage independent of the heads and the carriage whereon said heads are moved, said wedges being also simultaneously advanced or withdrawn, and held in position to vary and determine the spacing of said bits, as set forth.

3. A gang of boring-bits, each of which is mounted on a laterally-adjustable head, combined with a series of circular wedges mounted on and supported by a shaft capable of rotation, and free to slide laterally on said shaft, said wedges being located between said heads to vary and determine the spacing of the same, as set forth.

4. A gang of boring-bits driven by spindles provided with pulleys set alternately high and low, as set forth, combined with a driving-pulley, an idler between said driving and driven pulleys, over which the belt passes from the high pulley to the adjacent low pulley, and guide-pulleys *f g*, also between said driving and driven pulleys, whereby the belt is returned to the place of beginning.

5. A gang of laterally-adjustable spindle-heads provided with pulleys alternately near the upper and lower ends of said spindles, and a continuous belt, F, combined with a driving-drum, E, an idler-drum, J, and guide-pulleys *f g*, located between said spindle-heads and driving-drum, whereby, when the spindle-heads are laterally adjusted, the belt will automatically readjust itself on said drums.

6. The head G, with the parallel dovetailed gibs, combined with the spindle-heads H, provided with guides to engage and slide upon said gibs, said guides being so attached that said heads alternately will have guides inside and outside of said gibs, whereby said guides may lap past each other, for the purpose set forth.

7. The heads H, provided with transverse guides *a*, so attached that said heads alternately will have guides adapted to lap past each other, with a space between, as set forth, combined with the head G, provided with the parallel gibs *b* and *c*, adapted to fit the space between said lapping guides, the gib *c* being adjustable to tighten all the guides *a*, as set forth.

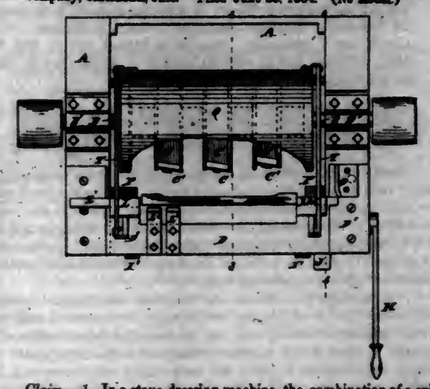
8. In a gang-boring machine having a series of laterally-adjustable spindle-heads, whereof one at or near the center is fixed in position, and a series of adjusting-wedges between the same to determine and regulate uniformly the spacing of the boring-bits, combined with a double-acting clamp, whereby the spindle-heads may all be forced toward the stationary head and against the spacing-wedges, as set forth.

9. In a gang boring-machine having laterally-adjustable spindle-heads, and a series of adjustable wedges between said spindle-heads to determine and regulate uniformly the spacing of the boring-bits, combined with the clamping-forks *s*, rod *t*, and nut *r*, for the purpose set forth.

10. In a gang boring-machine having laterally-adjustable boring-bits, combined with a slotted table, K, located above said bits, guides *k* upon the same, and a pivoted frame, L, to clamp and straighten the stile and present it to the bits, as set forth.

11. In a gang boring-machine having a series of equally-spaced laterally-adjustable spindles, and boring-bits carried by said spindles, a slotted table, K, springs *i*, supporting said table, a swinging frame, L, to clamp and straighten the stile upon the table K, and an operative treadle, M, attached to said frame L.

314,125. STAVE-DRESSING MACHINE. JOHN B. REVERLING, St. Louis, Mo., assignor, by mesne assignments, to the Cincinnati Cooperage Company, Cincinnati, Ohio. Filed June 25, 1884. (No model.)



Claim.—1. In a stave-dressing machine, the combination of a suitable bed or frame, revolving cutter-heads journaled to said frame, a frame to carry the staves toward or from the cutter-heads, a rack secured to the stave-frame, and a shaft journaled in the bed, and having a lever by which it is rocked and a pinion to engage the rack to advance and retract the stave-frame.

2. In a stave-dressing machine, the combination of a suitable bed or frame, revolving cutter-heads journaled to said frame, a stave-frame to slide toward and from the cutter-heads, and dogs secured to the stave-frame and having gage-blocks.

3. In a stave-dressing machine, the combination of a suitable bed or frame, revolving cutter-heads journaled to said frame, a sliding stave-frame, a shield for the cutter-heads hinged to the bed, and an arm hinged to the stave-frame and shield, the latter being raised and lowered by the advance and retraction of the stave-frame.

314,126. ROTARY WATER-METER. FRANK A. HINDS, Watertown, N. Y. Filed Nov. 22, 1884. (No model.)



Claim.—1. In a water-meter, the combination, with a suitable casing having an interior eccentric cylindrical collar, of a central or concentric inverted-cup-shaped cylinder fitted over and revolving around the said collar, suitable valves or gates attached to the revolving cylinder, a cut-off attached to the cylindrical collar, and entrance and exit ports on either side of the said cut-off, substantially as and for the purpose herein set forth.

2. In a water-meter, the combination, with a casing having an interior eccentric cylindrical collar, and an inverted-cup-shaped cylinder arranged to revolve over and around the same, of the water inlet and outlet, suitable gates or valves, a cut-off, and openings admitting water to the spaces between the outer casing and the revolving cylinder and between the interior of the latter and the space inside the eccentric collar, substantially as and for the purpose herein set forth.

3. In a water-meter, the combination, with a casing having an interior eccentric cylindrical collar, of a central revolving inverted-cup-shaped cylinder, and vibrating valves or gates hinged to the inner side

of the latter, and adapted to bear against the outer side of the eccentric collar, substantially as and for the purpose set forth.

4. The combination of the base-plate having a central spindle and an eccentric cylindrical collar with the outer casing or covering, and an inverted cup-shaped revolving cylinder mounted upon the said spindle, vibrating gates hinged to the inner side of the revolving cylinder, a cut-off valve attached to the eccentric collar between suitable inlet and exit ports, and openings arranged to admit water under pressure to the spaces between the outer casing and the revolving cylinder and to the interior of the eccentric collar against the under side of the top of the said revolving cylinder, substantially as and for the purpose herein set forth.

314,127. CARTRIDGE FOR ORDNANCE. WILLIAM HOPE, London, England, and ROSWELL S. EPLEY, Paris, France, assignors to the Société des Fonderies et Forges de Terre-Noire, in Veules et Besseges. Filed Apr. 22, 1884. (No model.) Patented in England July 15, 1880, No. 2,923; in France July 24, 1880, No. 137,920; in Belgium Dec. 27, 1883, No. 63,672, and in Italy Jan. 5, 1884, XXXII, 362.



Claim.—1. A cartridge for ordnance and fire-arms, comprising a tubular case, an igniting-tube arranged in the powder-chamber of said case, said igniting-tube having perforations which increase in area, substantially as set forth, toward the forward end of the cartridge, and an igniting-charge arranged at the rear end of said perforated igniting-tube and designed to effect the ignition of the charge in the cartridge, substantially as and for the purposes set forth.

2. A cartridge for ordnance and fire-arms, comprising a tubular case, an axial perforated igniting-tube arranged to extend through the powder-chamber of the said case, and an elongated tubular removable cartridge, *n*, adapted to fit into the igniting-tube and to be exploded by ignition, and designed to ignite the main charge and to overcome, or partly overcome, the inertia of the projectile, substantially as set forth.

3. A cartridge for ordnance and fire-arms, comprising a tubular case provided with a perforated igniting-tube extending through the powder-chamber, and an igniting-cartridge adapted to fit into said igniting-tube, the said igniting-cartridge comprising a tubular case provided with a perforated igniting-tube extending through its powder-chamber, all constructed and arranged substantially as set forth.

4. A cartridge for ordnance and fire-arms, comprising a tubular case, an igniting-tube arranged in said case and extending through the powder-chamber of the same, said igniting-tube having perforations which increase in area, substantially as set forth, toward the forward end of the cartridge, and an igniting-cartridge, substantially as described, adapted to fit into the rear end of said igniting-tube, substantially as and for the purposes set forth.

5. A cartridge for ordnance and fire-arms, comprising a tubular case, A, provided with a batt-piece, *m*, a perforated igniting-tube, *a*, having a thickened unperforated portion, *a'*, to receive the igniting-cartridge *n*, and the said igniting-cartridge of elongated tubular form and adapted to be exploded by ignition, all constructed and arranged substantially as and for the purposes set forth.

6. The combination, in a cartridge for ordnance and fire-arms, of the tubular case provided with a batt-piece and a perforated igniting-tube, as shown, the igniting-cartridge, the mold *f*, the dished wad *g*, the grease *h*, the compressed wad *o*, and the charge of powder B, all constructed and arranged substantially as set forth, and for the purposes specified.

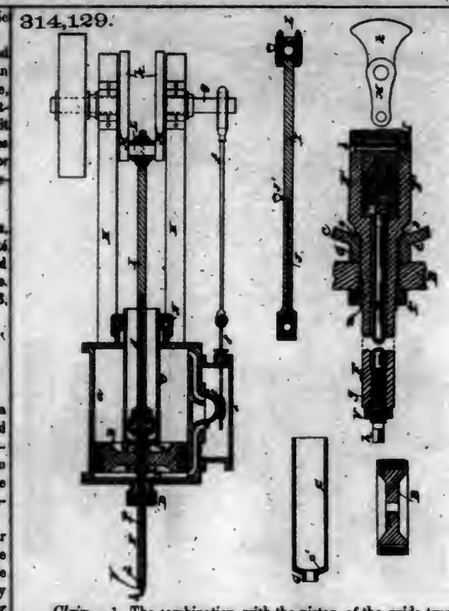
314,128. RADIATOR. WILLIAM HOPKINS, Dubuque, Iowa. Filed Dec. 18, 1883. (No model.)



Claim.—1. A radiator having radiating pipes expansibly secured in plates removably secured within top and bottom caps or chambers, substantially as described.

2. In a radiator, the combination of the top and bottom grooved caps, B B, the plates B' B', fitting within the grooves of said caps, the keys or wedges *c' c'* for securing the plates, and the pipes A A, expansibly secured at their upper and lower ends in said plates, substantially as described.

314,129. STEAM-ENGINE. STEPHEN H. HOWARD, Trustee, Tenn., assignor to J. I. Wells & Son, same place. Filed Aug. 18, 1884. (No model.)



Claim.—1. The combination, with the piston, of the guide-trunk C, having the bearing end G, with the piston guide-rod F, having the shoulder *s* and the external screw, *n*, the nut T, and the piston-rod, substantially as described, for the purpose specified.

2. The combination, with the cylinder and piston, of the guide-trunk C, the hollow guide-rod F, having an internal screw, the piston-rod, and a screw-bolt carried by said guide-rod, for adjusting the joint-pin bearings of the piston-rod, substantially as described, for the purpose specified.

3. The combination, with the piston and the cylinder of a steam or other engine, of a hollow guide-rod, F, having an interior and exterior screw, the guide-trunk C, the piston-rod I, a screw-bolt, P, having a bearing-head, Q, and an angular end, *h*, and the nuts V T, substantially as herein set forth.

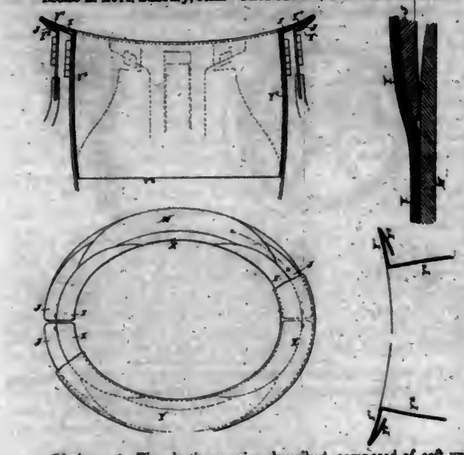
4. The combination, with the piston, of the guide-trunk C, having the closed end *c'*, formed with the bearing projection G, the guide-rod F, formed with the shoulder *s* and the screw *n*, and the nut T, the said shoulder having a bearing upon the inner side of the closed end of the said guide-trunk, and the said guide-rod having the joint-connection R with the piston-rod within the said guide-trunk, as set forth.

314,130. SHOE-HEEL. JOSHUA HOWLAND, Union Springs, N. Y. Filed Sept. 18, 1884. (No model.)



Claim.—The combination of the boot or shoe, the metallic heel-case having its upper side conformed to the bottom of the heel part of the shoe, provided in its under side with a round mortise to receive the heel having lugs C, provided with openings C', and projected from opposite sides inward over the upper or inner end of the rear part of the heel-mortise, and having nail-openings D in its opposite forward corners outside of the heel-mortise, and the heel fitted into the circular mortise in the heel-case, all substantially as and for the purposes specified.

314,131. APPARATUS FOR CURLING AND SETTING HAT-BRIMS. LOUIS H. HOYT, Danbury, Conn. Filed June 23, 1884. (No model.)



Claim.—1. The elastic covering described, composed of soft vulcanized india-rubber having a cylindrical portion, Y^2, upper or working face, Y', and inward extension Y^3, adapted to serve on a hat-brim shaper, as herein specified.

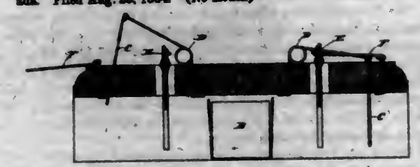
2. In a hat-brim shaper, the combination, with properly-formed overlapping rigid parts, as I J, a covering-piece, Y, of india-rubber or analogous elastic material, contracting and expanding by its own elasticity as the rigid parts are lapped more or less, as herein specified.

314,132. RECTAL SPECULUM. LUTHER J. INGERSOLL, Denver, Colo. Filed Oct. 4, 1884. (No model.)



Claim.—The combination, with the outer shell having the flanged base and closed top and a slot in one side from the base to the top, of the inner revolvable shell formed with a flanged base working over the base of the outer shell and an opening in the side from the base to the top, a slide seated in grooves in the walls of the opening for the inner shell, and means, substantially as described, for holding the inner shell at any point of its revolution, as set forth.

314,133. VERMIN-TRAP. EDGAR J. JARVIS, Toronto, Ontario, Canada. Filed Aug. 25, 1884. (No model.)



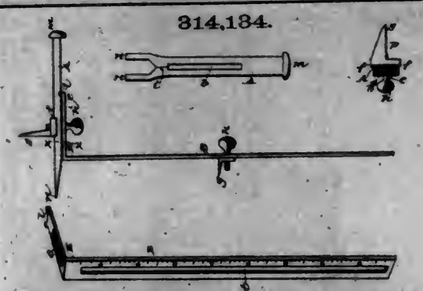
Claim.—1. A rectangular block, A, made in the form of a parallelopiped, having a groove cut out of one side of it the entire length of the block, in combination with the sheet-metal or wire spring-sided bait-box B, arranged substantially as and for the purpose specified.

2. A rectangular block, A, made in the form of a parallelopiped, having a groove cut out of one side of it the entire length of the block, and a sheet-metal or wire spring-sided bait-box at or near its longitudinal center, in combination with the choke-loop C, extending into the groove, and spring D, for actuating the loop C and the locking-bar F, and trip-catch E, substantially as and for the purpose specified.

3. In a spring-catch vermin-trap, the combination, with the spring D, of the choke-loop C, actuated by said spring and having its lower end bent to form an upwardly-curved bow, *a*, substantially as and for the purpose specified.

314,134. SIDING-GAGE. JAMES H. JENKINS, Thomasville, Ga. Filed Nov. 20, 1884. (No model.)

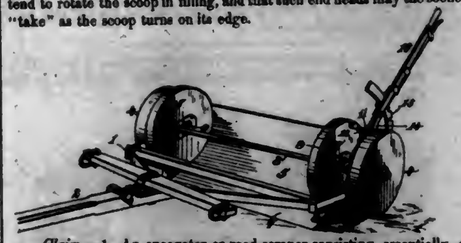
Claim.—1. The combination of the slotted body A, provided with the spurs *n*, the gage S, provided with flanges *f*, fitted to the said body, the angular arm B, having slots *t* and *e*, the screw *h'*, passing through a slot in the body A and arm B, and securing the gage S and the said body and arm together, the gage *g*, and the screw *h*, passing through the slot *t* into the gage *g*, substantially as shown and described.



2. The combination of the body A, provided with the spurs *n*, the central line, *i*, and the slot *b*, the gage S, fitted to the said body and having the vertical straight-edge *p*, coinciding with the line *i*, the arm B, and the screw *h'*, passing through the arm B and body A into the gage S, substantially as shown and described.

314,135. ROAD-SCRAPER AND EXCAVATOR. CALVIN M. JONES, Fresno, Cal., assignor to Thomas R. Brown, same place. Filed July 10, 1884. (No model.)

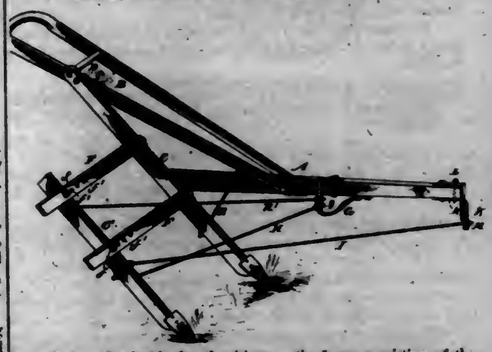
Brief.—A scoop rotatable on a shaft of a wheeled frame, but having a cam-plate and spring-lever for locking it, has circular end heads on which it turns, the bearings whereof are slots, that the draft may not tend to rotate the scoop in filling, and that such end heads may the sooner "take" as the scoop turns on its edge.



Claim.—1. An excavator or road-scraper consisting, essentially, of a wheeled supporting-frame, a rotary scoop or shovel having circular end heads provided with slotted bearings, a central shaft fitted in the latter, and suitable devices for locking the scoop to the frame and releasing it therefrom, substantially as described.

2. In an excavator or road-scraper, the combination of the wheeled supporting-frame having a transverse shaft, the rotary scoop having slotted end heads mounted upon said shaft and provided with a notched cam-plate, and the spring-pressed lever adapted to engage with said cam-plate, substantially as described.

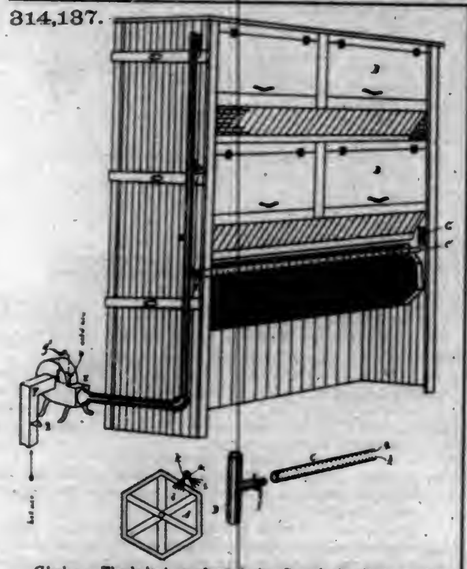
314,136. CULTIVATOR. FRANK KEMPER and JOHN H. STUMPF, St Florian, Ala. Filed Nov. 13, 1884. (No model.)



Claim.—In double-shovel cultivators, the frame consisting of the handled beam A, connected standards C C', brace-rods H H', draft-rod I, clevis K *k*, and clip G, all arranged and connected substantially as shown and described.

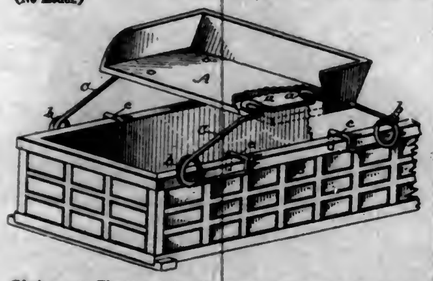
314,137. ATTACHMENT FOR FLOUR-BOLTS. JAS. M. R. KENNEDY, Dunkville, Mich. Filed Sept. 10, 1884. (No model.)

314,187.



Claim.—The bolt A, perforated pipe C, and pipe D, in combination with the blower E, having adjustable inlets for hot and cold air, as and for the purposes set forth.

314,138. SEAT-SPRING FOR VEHICLES. THOMAS S. KING, Atlanta, Ga., and CHARLES E. STIVERS, Chattanooga, Tenn. Filed Oct. 22, 1884. (No model.)

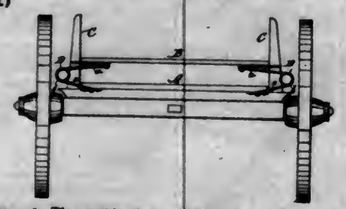


Claim.—1. The seat-spring C, composed of a rod of steel having eyes *a a*, coils *b b*, and forks or sockets *c c*, substantially as and for the purpose described.

2. The seat-spring C, composed of a single rod of steel bent to form eyes *a a*, coils *b b* at its outer extremities, and forks or sockets *c c* on its inturned ends, substantially as described.

3. A seat-spring for a wagon, consisting of a rod of steel bent to form a socket or fork, *c*, coil *b*, and an eye, *a*, as and for the purpose described.

314,139. WAGON-BOLSTER SPRING. THOMAS S. KING, Atlanta, Ga., and CHARLES E. STIVERS, Chattanooga, Tenn. Filed Oct. 21, 1884. (No model.)



Claim.—1. The combination, with the upper and lower bolster of a vehicle, of the springs D, having their upper arms, *a*, longer than their lower arms, and arranged longitudinally with the bolsters, with the coils *b* projecting beyond the ends of the same, and plates connecting the ends of the springs to the bolsters, as described.

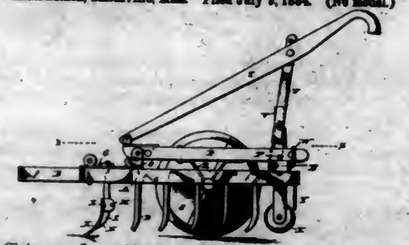
2. The combination, with the upper and lower bolster of a vehicle, of the springs D, arranged longitudinally with the same, with their coils *b* projecting beyond the ends of the said bolster, and plates for connecting the bolster to the spring, which said plates have a series of holes or seats for receiving and adjusting the springs, substantially as shown and described.

314,140. SELF-OILING CAR-WHEEL. HERMAN L. KIRCHMAN, Centreville, Iowa. Filed Dec. 10, 1884. (No model.)



Claim.—A car-wheel having two of its spokes connected by walls or webs, so as to form a chamber radiating from the hub, an opening at the inner end of the said chamber extending through the hub, a screw-plug affording access to the said chamber, and lugs or flanges extending into the said chamber from the spokes, forming the end walls thereof, in combination with packing placed in the inner end of the said chamber and retained by such lugs or flanges, substantially as set forth.

314,141. COMBINED SEED-PLANTER AND HARROW. MONROE KIRKPATRICK, Smithville, Miss. Filed July 9, 1884. (No model.)



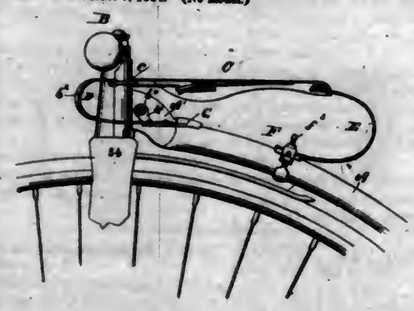
Claim.—1. In combination with a harrow, a seed cylinder or roller supported by a frame pivoted to the harrow near the front, and normally resting on the rear cross-piece of said harrow and operated by handles, substantially as and for the purpose specified.

2. In combination with a harrow, a frame pivoted to near the front thereof and projecting beyond the pivotal point, and handles pivoted to said projections, and also to a support pivoted to an upright on the rear of said harrow, the frame carrying seeding cylinder or roller, and operated substantially as and for the purpose specified.

3. In combination with a harrow, a frame supporting the seeding mechanism of a seed-planter, said frame pivoted to the raised ends of a cross-piece near the front of said harrow and extending beyond them, handles pivoted to the projecting ends of the frame, and a pivoted support secured to an upright on the harrow at the rear, said support having a series of holes, by which the handles may be adjustably connected to it, substantially as and for the purpose specified.

4. The combination of the variable harrow-frame having removably secured to its front tooth an adjustable plow, and to its rear a concave centered roller and an interchangeable double scraper, of a seeding-roller frame supporting the roller and pivoted near the front of the harrow, the handles connected to the front of the frame, and adjustably connected to a support pivoted to an upright secured to the rear cross-piece of the harrow, and the pivotal hooks secured in the said cross-piece and holding or supporting the roller-frame.

314,142. BICYCLE-SADDLE. THOMAS J. KIRKPATRICK, Springfield, Ohio. Filed Nov. 7, 1884. (No model.)



Claim.—1. The combination, with the perch or backbone of a bicycle or similar vehicle, of independent front and rear springs secured to said perch or backbone and a flexile seat suspended directly from said springs at the front and rear, respectively, substantially as set forth.

2. In a bicycle-saddle, the combination, with a flexile seat, of independent front and rear springs or spring-connections, to which the respective ends of said seat are directly attached, one of said springs or spring-connections being adapted to extend forward of the head of the bicycle, substantially as set forth.

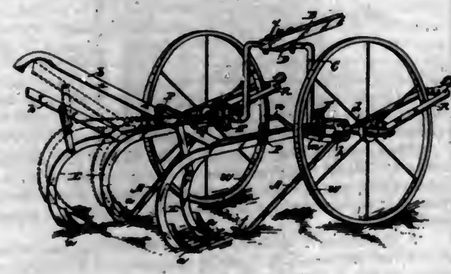
3. The combination, with a flexile seat, of independent front and rear springs for supporting said seat, secured to the perch or backbone of a bicycle, the front spring being constructed with two wings adapted to extend on either side of the head and to connect to the forward end of said seat, and means for adjusting the tension of said seat, substantially as specified.

4. The combination, with a flexile seat, of front and rear springs, from which the ends of the seat are respectively suspended, the forward spring being bifurcated at the front end, and adapted to extend forward of the head and connect to the front end of the seat, the rear end of said spring being adapted to rest on the top of the backbone, and a bolt for securing said spring to the backbone, substantially as set forth.

5. The combination, with a flexile seat suspended at its respective ends from independent front and rear springs, of a clip for securing the rear spring to the backbone or perch, said clip being made in two parts, the lower part being provided with screw-threaded studs adapted to extend up through lugs on the upper part, and to receive nuts for securing said clip in position, and the upper part being provided with a housing and set-screw for receiving and securing the lower end of the said rear spring, substantially as set forth.

6. The combination, with a flexile seat, of independent front and rear springs, from which said seat is suspended, the said front spring being bifurcated at its forward end, and adapted to extend on each side of the head and connect with the forward end of said seat, and adapted at its rear end to rest on the backbone, to which it is secured by a single bolt, the said rear spring being secured to the backbone by a clip provided with a housing and set-screw adapted to receive and hold the lower end of said spring, substantially as described and shown.

314,143. CULTIVATOR. JOHN LANE, Hyde Park, Ill. Filed Nov. 10, 1884. (No model.)



Claim.—1. In a cultivator, the runner A, consisting of a forked bar provided with the foot *f* and arm *m*, adapted to sustain the gang in an elevated position, said runner connected by a hinged joint permitting vertical play, while holding the said runners and the thereto-suspended gangs rigidly upright and parallel with the wheels, substantially as and for the purpose set forth.

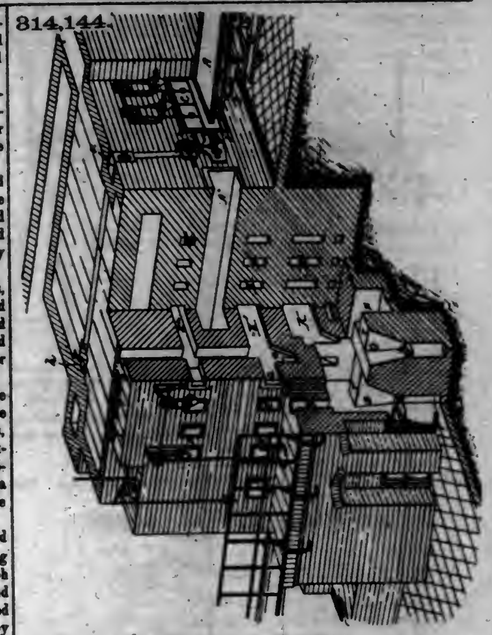
2. In a cultivator, the combination of an axle having wheel-arms pivotally connected thereto, the runner A, consisting of the forked bar pivotally connected to the said wheel-arm and adapted to support the gang independent of the axle, substantially as and for the purpose set forth.

314,144. BAKING OR COOKING OVEN FOR CONTINUOUS WORKING. WILHELM LORENZ, Vienna, Austria-Hungary. Filed Apr. 8, 1882. (No model.) Patented in Austria-Hungary July 9, 1881, No. 31 and No. 876, and July 31, 1882, No. 32 and No. 1,375; in Germany Jan. 26, 1882, No. 19,488; in France Jan. 26, 1882, No. 147,087; in Belgium Feb. 13, 1882, No. 57,974; in England Feb. 14, 1882, No. 720, and in Italy Mar. 31, 1882.

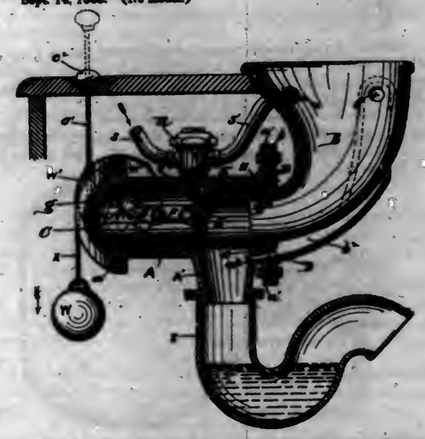
Claim.—1. In a baker's oven, the combination, with the baking-muffles, of the steam-generating apparatus comprising the chamber *c*, the tray *d*, and means for the admission of steam to the muffles and for controlling the supply thereof, substantially as set forth.

2. In a baker's oven, the combination, with the baking-muffles, the chamber *c*, and tray *d*, of the reservoir Z and pipe-connection *f*, substantially as described, and for the purpose set forth.

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314,145. WATER-CLOSET. JAMES MUIRHEAD, Olneyville, R. I. Filed Sept. 14, 1883. (No model.)



Claim.—1. The chamber A, having the bearing *g*³ and cap *a*, placed diagonally at its rear end, said cap having bearing *g'*, in combination with the shaft *g* and means for operating said shaft, substantially as and for the purpose set forth.

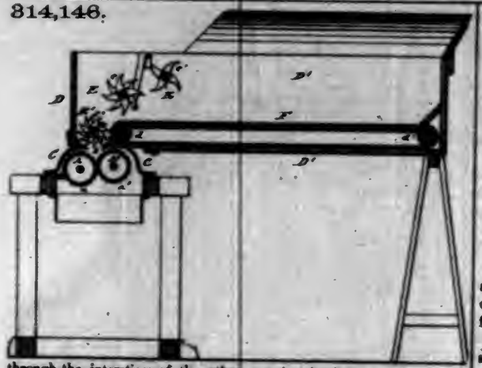
2. The gate E, recessed in front, and having an incline, E', on its top, in combination with the water-valve R, valve-stem T, and chamber A, substantially as and for the purpose set forth.

314,146. MACHINE FOR SEPARATING HOP-SCALES FROM THEIR STEMS. JACOB MÜLLER, New York, N. Y. Filed Sept. 20, 1884. (No model.)

Claim.—1. A machine for separating hop-scales from their stems, which comprises mechanism for separating the hop-scales from their stems, a casing having a supply-opening above said separating mechanism, a hopper located above said casing and having a lateral extension, rotating agitators located in said hopper, a feed-belt arranged in the extension of said hopper, and means for intermittently moving the feed-belt, substantially as set forth.

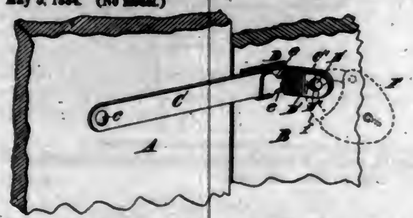
2. The herein-described machine for separating hop-scales from their stems, consisting of a rotating roller, a second roller the shaft of which is supported in spring-cushioned bearings, both rollers having alternating circumferential rows of teeth, the teeth of one roller passing

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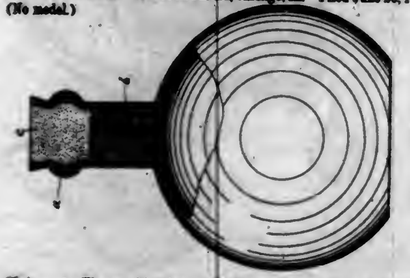
through the interstices of the other, a casing having a supply-opening above said rollers, a hopper supported on said casing and having a lateral extension, rotating agitators located in said hopper, a feed-belt located in said extension, and means for intermittently moving the feed-belt forward, substantially as set forth.

314,147. HASP-LOCK. CHARLES NEBLETT, Cincinnati, Ohio. Filed May 5, 1884. (No model.)



Claim.—A hasp or latch composed of a pivotal bar, C, having an outwardly-turned end, C' E, in combination with a catch, D, having a keeper-plate and tongue, D' E', the said parts constructed and adapted to engage each other substantially as herein set forth.

314,148. HERMETICAL SEAL FOR LIQUID FIRE-EXTINGUISHING HAND-GRENADES. JAMES H. PRICE, Chicago, Ill. Filed June 20, 1884. (No model.)



Claim.—1. The combination, with the vessel having the recessed neck and containing carbonic-acid gas in solution therein, and the stopper, of a hydraulic-cement filling, substantially as described.

2. In liquid fire-extinguishing grenades having free carbonic-acid gas in solution therein, the combination, with the neck provided with offset *a*, of the tallow-saturated stopper *b* and the hydraulic-cement filling *c*, substantially as set forth.

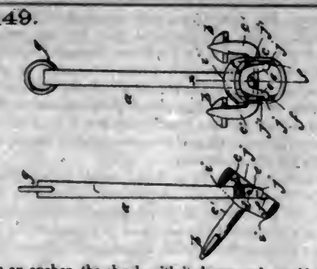
3. The combination, with a bottle for containing carbonic gas in solution, of means for hermetically sealing said bottle, comprising a stopper, *b*, coated with tallow or the like, for preventing the escape of gas or liquid through its pores, and above said stopper a seal, *c*, of hydraulic cement, substantially as described.

314,149. ANCHOR. JAS. A. PETTIS, Grand Manan, New Brunswick, Canada. Filed June 14, 1884. (No model.)

Claim.—1. The anchor with its shank provided at the lower end with lateral stops or lugs, in combination with the head having the arms and flukes, said stops or lugs bearing against the rear side of the head, substantially as and for the purpose set forth.

2. In an anchor, the shank provided at its lower end with laterally-inclined arms, said arms having lateral stops or lugs, in combination with the open head having arms and flukes, substantially as and for the purpose set forth.

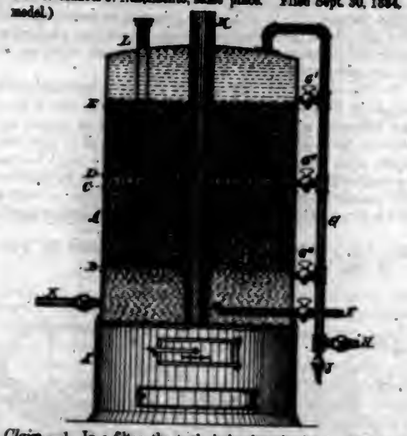
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3. In an anchor, the shank with its lower end provided with laterally-inclined arms, having lateral stops or lugs, in combination with the open head having arms and flukes and sharp edges, substantially as and for the purpose set forth.

4. In an anchor, the shank with its lower end provided with lateral stops or lugs, in combination with the open head having arms and flukes and shoulders, the latter being formed of recesses made in the rear side of said head, substantially as and for the purpose set forth.

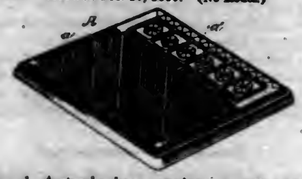
314,150. FILTER. HENRY ROEMER, Philadelphia, Pa., assignor of one half to Manoel J. Nascimento, same place. Filed Sept. 30, 1884. (No model.)



Claim.—1. In a filter, the tank A, having the fixed perforated partitions B, C, D, and E, said partitions C D having openings *a*, and provided with the pipe L, leading from the upper chamber having filtering material to the outside of the tank, substantially as and for the purpose set forth.

2. The furnace A', in combination with the tank A, having a flue, M, and fixed partitions B, C, D, and E, said partitions C D having openings *a*, the pipe L, supply-pipe F, discharge-pipe G, having branches G' G'' G''', and steam-inlet pipe K, substantially as and for the purpose set forth.

314,151. CARRIAGE-STEP. FRANCIS A. SAWYER, Boston, Mass. Filed Jan. 8, 1884. Renewed Feb. 17, 1885. (No model.)



Claim.—1. A step having a wearing or treading surface and an ornamental section disposed in relation to each other, as and for the purpose described.

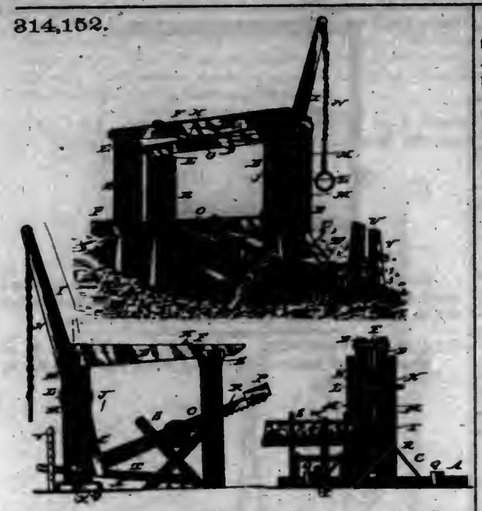
2. In a step, the combination of the wearing or tread section *a* and the ornamental section *a'*, substantially as and for the purposes described.

3. A step having the ornamental section *a'* and the tread or wearing surface a^2, extended above the upper surface of the ornamental section, all substantially as and for the purposes described.

314,152. DRAG-SAW. FRANCIS A. STROUD, Colebrook, Wis. Filed June 23, 1884. (No model.)

Claim.—In a drag-saw, the combination of the base A, having perforations to receive stakes Q, flattened or rectangular tabular posts or uprights B B, mounted on said base, levers D, pivoted to the upper ends

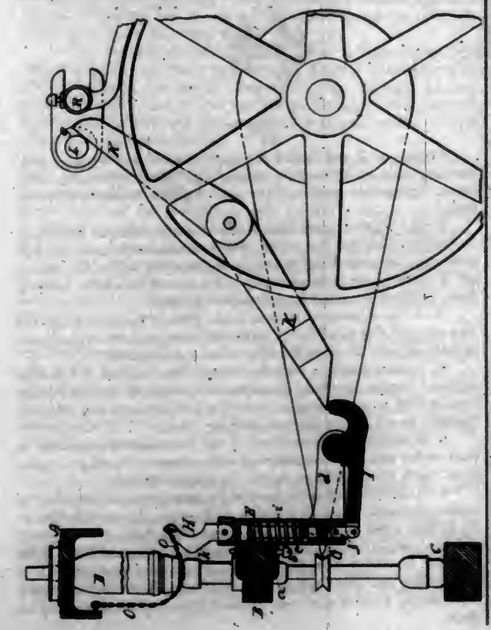
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of said uprights, and having teeth E at their outer ends, pivoted brace F, connecting said levers, permanent or stationary posts R, lever I, pivoted between the uprights B B, and having pivoted handle N and pivoted saw O, the saw-horse S, lever T, slotted guide V, and cord or chain W, all arranged and operating substantially as and for the purpose herein set forth.

314,153. STOP-MOTION FOR SPINNING-FRAMES. LEAVITT L. SWEATT, Manchester, N. H. Filed May 18, 1883. (No model.)

Brief.—Attached to the bolster-rail is a stand having a socket, in which is a spiral spring surrounding a plunger having pivoted to its upper end a latch and to its lower end a lever, upon the free end of which rests one end of a second or locking lever, that engages with a shoulder upon the shipping-rod to hold the belt upon the fast pulley. When the ring-rail is caused to descend for doffing, it strikes the latch and depresses the plunger, and moves the lever connected to the plunger, and also the locking-lever, so as to disengage the latter from the shoulder on the shipping-rod and leave the rod free to ship the driving-belt from the fast to the loose pulley. The latch and plunger are returned to their original position by the rising of the ring-rail by means of a chain which connects the latch to the ring-rail.

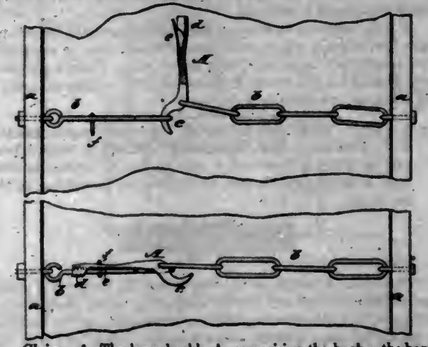


Claim.—1. The tilting latch H and belt and shipper mechanism intermediate of such latch and shipper, in combination with the ring-rail A of a spinning-frame, substantially as and for the purpose herein specified.

2. The combination, with the ring-rail A, shipping-lever K, belt-shipper, and mechanism intermediate of the shipper and said shipping-lever, of the latch H, lever I, and intermediate plunger, G, substantially as and for the purpose herein specified.

3. The resetting-chain O, in combination with the tilting latch H and ring-rail A, substantially as and for the purpose herein specified.

314,154. END-GATE FASTENER. BENOY J. SWENSON, Sugar Land Tex. Filed Nov. 19, 1884. (No model.)



Claim.—1. The lever-buckle A, comprising the hook *c*, the handle, the lugs *d d* on the handle, and the spring *e*, the chains *b*, and the loop *f*, substantially as set forth.

2. In a lever-buckle, the lugs *d*, formed on the handle end, as and for the purpose set forth.

3. The spring-tongue *e*, combined with the buckle or chain fastening A, as and for the purpose specified.

314,155. TELEPHONE-RECEIVER. THEODORE F. TAYLOR, Brooklyn, N. Y. Filed Jan. 2, 1884. (No model.) Patented in England Feb. 5, 1884, No. 2,703; in France Feb. 5, 1884, No. 160,135; in Germany Feb. 5, 1884; in Belgium Feb. 15, 1884, No. 64,060, and in Canada June 16, 1884, No. 19,581.



Claim.—1. A telephonic receiving-instrument consisting of an electric conductor formed into two confronting flat spirals situated in parallel planes, in combination with means, substantially such as described, for placing the same in circuit with a main line.

2. A telephonic receiver consisting in the combination, substantially as hereinbefore set forth, of an electrical conductor formed into two confronting flat spirals situated in parallel planes and connected in series, and means, substantially such as described, for supporting the same in position.

3. A telephonic receiver consisting of an electric conductor formed into confronting flat spiral coils situated in parallel planes and connected in series, in combination with means for supporting the same.

314,156. TELEPHONE-RECEIVER. THEODORE F. TAYLOR, Brooklyn, N. Y. Filed Jan. 7, 1884. (No model.) Patented in England Feb. 5, 1884, No. 2,703; in France Feb. 5, 1884, No. 160,135; in Germany Feb. 5, 1884; in Belgium Feb. 15, 1884, No. 64,060, and in Canada June 16, 1884, No. 19,581.



Claim.—1. In a telephone-receiver, the combination, substantially as hereinbefore set forth, of an electric conductor which is thrown into vibration by the varying force of attraction or repulsion mutually exerted between different portions of the same when traversed by an electrical current of varying strength, a supporting-plate for said conductor, and an independent plate or mass of soft iron serving to re-enforce the vibrations of said conductor and supporting-plate.

2. The combination, substantially as hereinbefore set forth, of an electrical conductor formed into two confronting flat spirals situated in parallel planes, and a plate of soft iron intervening between the same.

3. A telephonic receiving-instrument consisting of an electrical conductor formed into spiral coils, means serving to support the spirals in

their relative positions, and a soft-iron plate intervening between the same.

4. A telephonic receiving-instrument consisting in the combination, substantially as hereinbefore set forth, of an electrical conductor the different portions of the length of which extend in directions parallel to each other, and which is thrown into vibration by the effects produced therein when traversed by an electric current of varying strength, non-magnetic plates upon which said conductor is supported, and a soft-iron plate serving to re-enforce the vibrations imparted to said conductor.

5. A telephonic receiving-instrument consisting of an electric conductor formed into confronting flat spiral coils situated in parallel planes, in combination with means for placing the same in circuit with a main-line conductor, and a plate or mass of soft iron serving to re-enforce the vibrations imparted to said coils.

6. In a telephonic receiver, an electrical conductor the different portions of the length of which extend parallel to each other, in combination with non-magnetic supporting-plates, one of which plates is perforated, and a plate of soft iron serving to re-enforce the vibrations imparted to said conductor, substantially as described.

314,157. TELEPHONE-RECEIVER. THEODORE F. TAYLOR, Brooklyn, N. Y. Filed Jan. 7, 1884. (No model.) Patented in England Feb. 5, 1884, No. 2,703; in France Feb. 5, 1884, No. 160,125; in Germany Feb. 5, 1884; in Belgium Feb. 15, 1884, No. 64,050, and in Canada June 16, 1884, No. 19,581.



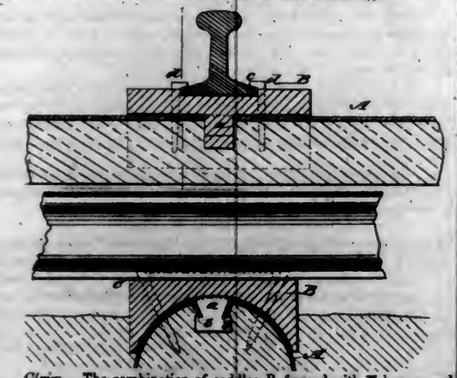
Claim.—1. A telephonic receiving-instrument consisting of an electrical conductor formed into two flat confronting spirals situated in parallel planes, in combination with means, substantially such as described, for placing the same in circuit with a main line, and an iron case upon or within which said conductor is supported.

2. A telephonic receiving-instrument consisting of an electric conductor formed into two flat confronting spirals situated in parallel planes and connected in series, in combination with means, substantially such as described, for placing the same in circuit with a main line, and an iron case in which said conductor is supported.

3. A telephonic receiving-instrument consisting in the combination, substantially as hereinbefore set forth, of an electrical conductor formed into two confronting flat spirals situated in parallel planes, and soft-iron plates for supporting the same.

314,158. RAILWAY-TIE. CLAYTON M. VAN ORMAN, Sherwood, Mich. Filed June 30, 1884. (No model.)

Brief.—A metallic tie formed with openings and depending lips. T-shaped lugs on the saddle are placed into said openings, and the lips on the tie are bent or forced into notches formed in said lugs.



Claim.—The combination of saddles B, formed with T-lugs *a*, and the sheet-metal ties A, having holes with flanges or lips *b* at their edges for locking the lugs, substantially as described.

314,159. NEWSPAPER-BINDER. GEORGE W. WELCH, Mobile, Ala. Filed Apr. 10, 1883. (Model.)

Claim.—1. In a newspaper-binder, the combination, with the binding-nails constructed to pass through the paper, of the washer-strip, against which the binding-nails are clinched, and the guard-strip constructed to inclose the points thereof, the said strips being detachably connected together.

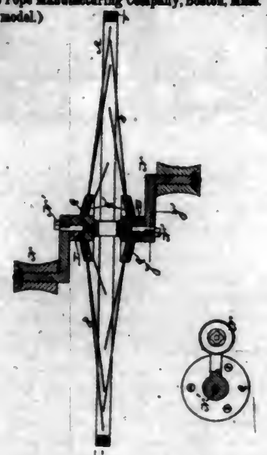
2. The improved newspaper-binder, consisting of soft-metal nails *b*, washer-stripe *c d*, and the guard-strip *g*, in combination with the file or cover *a*, said guard-strip being secured by clips *f*, of the washer-strip *d*, and the nail-points being bent over on the washer-strip, substantially as described.

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3. In a newspaper-binder, the combination, with the cover *a* and nails *b*, of the washer-strip *d*, perforated as specified, the guard-strip *g*, and clips for securing said strips together, as shown and described.

314,160. VELOCIPEDE. CHARLES L. WORK, Philadelphia, Pa., assignor to the Pope Manufacturing Company, Boston, Mass. Filed May 10, 1882. (No model.)



Claim.—1. A step formed of a single piece of bent metal, in combination with a reach consisting of two parts, the ends of said step being passed through said parts to fasten them together, substantially as set forth.

2. In a bicycle, an axle and a tube or sleeve arranged thereon, in combination with four disks, Q Q', which are secured on said axle and spokes, the said disks being arranged in pairs at the ends of said sleeve, and of concavo-convex shape, clamping the ends of the spokes between them, substantially as and for the purpose set forth.

3. A step constructed from a single piece of metal bent into the form of a step with parallel ends, said ends passing transversely and horizontally through the reach of a bicycle and secured thereto.

4. A wheel having a conically-recessed hub composed of four disks arranged in pairs, longitudinally adjustable on the axle thereof, in combination with a reach having a forked rear end secured to said axle, substantially as and for the purpose set forth.

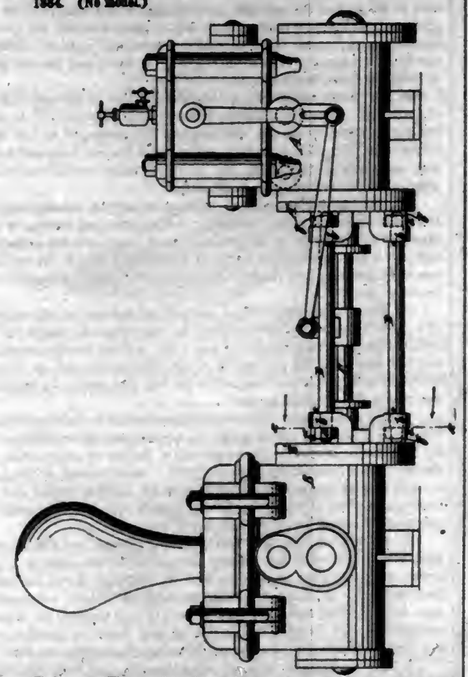
5. A bicycle-reach constructed of the two pieces of metal oval in cross-section and united together at their sides, thus forming a corrugated reach, substantially as and for the purpose set forth.

6. A bicycle-reach constructed of the two pieces of metal oval in cross-section and united for a portion of their length, and then spreading to form a fork at the rear, substantially as set forth.

7. A wheel having a conically-recessed hub composed of four disks arranged in pairs and an intervening separate tube arranged with its ends against the inner faces of the inner disks, in combination with a reach having a forked rear end, substantially as and for the purpose set forth.

8. In a bicycle, an axle, in combination with conically-recessed disks arranged in pairs thereon to form a hub and conical bearings arranged on each side of said hub, said bearings being adjustable toward each other in said recesses to take up wear, but having no rotary motion, substantially as and for the purpose set forth.

314,161. DIRECT-ACTING PUMPING-ENGINE. WM. H. WORTHEN, Brooklyn, N. Y., assignor to Guild & Garrison, same place. Filed Nov. 3, 1884. (No model.)



Claim.—1. The combination, with a cylinder having its head provided with lugs or ears offset from its face in a direction lengthwise of the cylinder, of rods forming a cradle, and having the ends shouldered and inserted through said lugs or ears, and securing devices applied to the rods behind said lugs or ears and between them and the head, substantially as herein described.

2. The combination, with a cylinder having its head provided with lugs or ears offset sufficiently therefrom in a direction lengthwise of the cylinder to receive nuts behind them and between them and the head, of rods forming a cradle, and having shouldered and screw-threaded ends, which extend through said lugs or ears and receive said nuts upon them, substantially as herein described.

3. The combination, with a cylinder and a head separable therefrom, and provided with lugs or ears offset sufficiently therefrom in a direction lengthwise of the cylinder to receive nuts behind them and between them and the cylinder, of rods forming a cradle, and having shouldered and screw-threaded ends, which extend through said lugs or ears and are engaged with said nuts, substantially as herein described.

4. The combination, with a cylinder and cylinder-head having lugs or ears *b* offset therefrom in a direction lengthwise of the cylinder, and forming pockets or cavities *b*° behind them, of the shouldered rods D and nuts *a*, substantially as herein described.

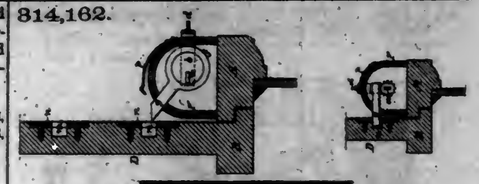
5. The combination, with two cylinders arranged in line and having heads provided with lugs or ears offset therefrom in a direction lengthwise of the cylinders sufficiently to receive nuts behind them and between them and the heads, of a cradle connecting the cylinders, and composed of rods having shouldered and screw-threaded ends extending through said lugs or ears and receiving the nuts upon them, substantially as herein described.

314,162. SASH-FASTENER. JOHN ASHTON, Philadelphia, Pa. Filed May 24, 1884. (No model.)

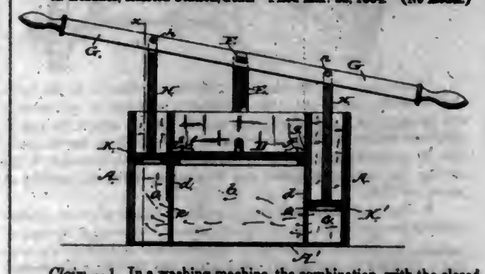
Claim.—1. The combination of the sashes, the bar D, having an opening or openings, *m*, the casing F, the bolt *g*, the shaft *a*, a bolt-operating device carried thereby, and the yoke *d*, as set forth.

2. The combination of the sashes, the bar D, having an opening or openings, *m*, the casing F, the bolt *g*, the shaft *a*, the eccentric *b*, and the yoke *d*, as set forth.

314,162.



314,163. WASHING-MACHINE. JAMES R. BLAKEMORE and WILLIAM A. ROBERTS, Ralston Station, Tenn. Filed Mar. 22, 1884. (No model.)



Claim.—1. In a washing-machine, the combination, with the closed receptacle A, of the perforated partitions *d*, forming communicating compartments *a*, *b*, and *c*, the imperforate plungers K K', for forcing the water through the perforated partitions, the arms H, lever G, and rock-shaft F, all constructed and arranged to operate as herein set forth.

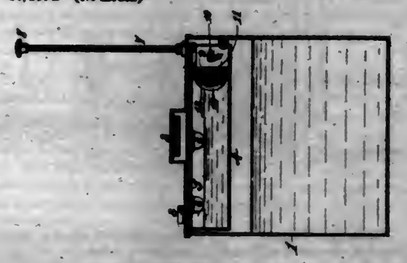
2. The herein-described washing-machine, which consists of a receptacle, A, provided with a sheet-metal bottom, A', the perforated partitions *d*, which form compartments *a b c*, the cover D, and the buttons *f*, for securing the cover within the compartments *d*, the imperforate plungers K K', slotted connecting-arms H, pivoted to the operating-lever G, and the rock-shaft F, all constructed to operate substantially as and for the purpose set forth.

314,164. BAGGAGE-SEAL. EDWARD J. BROOKS, East Orange, N. J., assignor to E. J. Brooks & Co., New York, N. Y. Filed Jan. 5, 1885. (No model.)



Claim.—The within-described improved seal composed of a flexible shackle of tin or like sheet metal and a hard and brittle seal-disk of Babbitt metal or the like, the latter constructed with a threading-hole extending nearly but not quite through the seal-disk parallel to its sides, a pair of punching-apertures formed in and perpendicular to the respective sides of the disk, and a solid bottom to engage with and mask the extremities of the shackle ends, retaining-burrs being formed on both shackle ends within the respective punching-apertures, so that both ends are uniformly and securely fastened, as herein set forth.

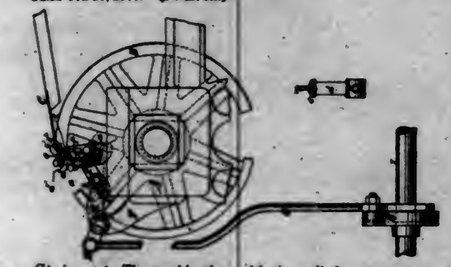
314,165. OIL-LAMP. WILLIAM P. BUTLER, Chicago, Ill. Filed Oct. 16, 1884. (No model.)



Claim.—1. The combination, with a lamp-fount, of a vertically-movable interior cup, a rod by which it is depressed, and a drum and spring with a cord wound upon the former, the spring being compressed by the lowering of the cup, and operating to rewind the cord and raise the cup, substantially as described.

2. The combination, with a lamp-fount, of a vertically-movable cup having a depressing-rod attached to it and rising through the fount, a shaft mounted in bearings upon said cup, a spring coiled upon said shaft, and a cord wound upon the drum and attached to the fount, substantially as described.

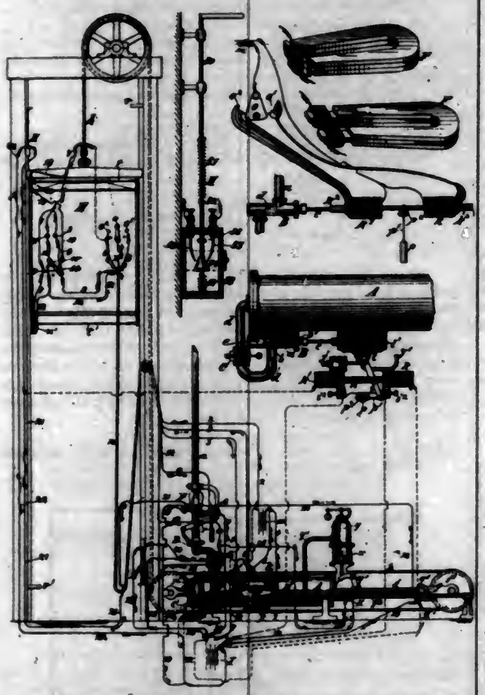
314,166. PRINTING-PRESS. CALVERT B. COTTRELL, Stonington, Conn. Filed Oct. 13, 1883. (No model.)



Claim.—1. The combination, with the cylinder B, of the rock-shaft *b*, having arms *f* and *i*, the rock-shaft *c*, supported in said arms *f*, and having arms *d g*, the feed-gages attached to said arms *d*, the cam *h*, attached to the cylinder, and mechanism, substantially as herein specified, for producing and controlling the operation of the rock-shaft *b*, for moving the feed-gages within and from the cylinder, substantially as herein set forth.

2. The combination, with the impression-cylinder of a stop-cylinder printing-press and the tympan-nippers attached thereto, of feed-gages movable inward and outward within and from said cylinder, and a stop-bar, *t*, attached to said nippers to serve as a stop to said gages, substantially as herein described.

314,167. ELECTRICAL SAFETY DEVICE FOR ELEVATORS. ROBERT M. CURTISS, Brooklyn, N. Y. Filed July 10, 1884. (No model.)



Claim.—1. The combination, with an elevator-car and mechanism for stopping the same, of a magnet operatively connected with the stopping mechanism and arranged to normally hold the same inactive, and an electric circuit connected with said magnet, provided with a contact or contacts arranged relatively to the terminal movements of the hoisting apparatus, substantially as herein described, whereby the terminal movement of the apparatus beyond the normal limits operates said contact and causes the magnet to release the stopping mechanism to stop further movement.

2. The combination, with an elevator-car and its hoisting engine or machinery, of a valve or equivalent stopping device for stopping the motion of the engine, a magnet arranged to normally hold said stopping device inactive, an electric circuit connected with said magnet and provided with a contact or contacts so arranged relatively to the terminal movements of the elevating apparatus that in case the car or engine moves beyond its normal limits said contacts are operated and the magnet actuated to release the stopping device to stop further movement.

3. The combination, with an elevator-car and its hoisting-engine, of a valve or stopping device for stopping said engine, with a magnet operatively connected with the valve or stopping device and arranged to normally hold it inactive, with one or more electric contacts on the shaft in the path of the car when near the end of its movement, and an electric circuit between said contacts and magnet, whereby the movement of the car beyond its normal limits operates said contacts, and thus actuates the magnet to release the stopping device to stop the car, substantially as herein set forth.

4. The combination, with an elevator-car and its hoisting-engine, of a valve, C, controlling the down motion of car, and valve D to control the up motion of the car, with magnets F G, arranged to hold said valves open, with electric circuits extending to the car from said magnets, and means for controlling the circuit of either magnet independently in the car, substantially as set forth.

5. The combination, with an elevator-car and its hoisting-engine, of a valve or its equivalent, controlling the stopping and starting of the engine, with a magnet or magnets arranged to control the shifting of said valve, an electric circuit extended from said magnet to the car, and means for breaking and closing said circuit in the car, substantially as herein set forth.

6. The combination, with an elevator-car and its hoisting-engine, of a valve to control the movements of the engine and car, and a valve-motor or engine arranged to move said valve, with an electro magnet or magnets controlling the movements of said valve-motor, and an electric circuit extending from said magnets to the car, with means for breaking and closing the circuit in the car.

7. The combination, with an elevator-car and its hoisting-engine, of a valve or stopping device to stop the engine, and a governor responding to increases of speed in the movement of the car or engine, with an electric contact operatively connected with a movable part of the governor, a magnet operatively connected with the stopping device, and an electric circuit between said magnet and contact, arranged and operating substantially as and for the purpose herein set forth.

8. The combination, with an elevating apparatus and with a stopping device or devices for stopping the motion of the same, of a polarized electro-magnet arranged to hold the stopping device normally inactive by the attraction of permanent magnetism, with a normally-open electric circuit connected with the coil of said magnet, and means, substantially such as set forth, for closing said circuit in emergencies, and thus neutralizing the magnet and releasing the stopping device.

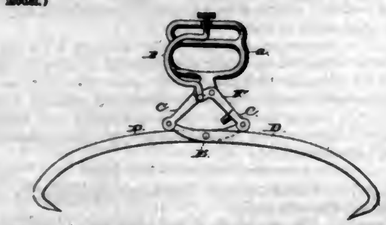
9. The combination, with an elevator-engine, and with the main stopping and starting valve thereof, of a small fluid motor or engine for actuating said valve, and a fluid-pump for supplying said engine, having its piston connected to an actuating device arranged in the path of a movable part of the elevator-engine, and operated thereby, substantially as herein shown and described.

314,168. HOOK. JOHN DAVIS, Allegheny, Pa. Filed July 9, 1884. (No model.)



Claim.—A hide or fanning hook consisting of a piece of metal pointed at one end, hooked at the other, and having an offset directly across the hook-points, substantially as shown and described.

314,169. ICE-TONGS. WILLIAM DIBOND, Huntington, Ind., assignor of one-half to William H. Shank, same place. Filed June 24, 1884. (No model.)



Claim.—1. The arms C C, provided with the segment-cogs and operated by the lever F, substantially as and for the purpose set forth and described.

2. In an ice-tongs, the combination of the legs D D, jointed at E, with the linked arms C C, provided with the segment-cogs, and lever F, substantially as and for the purpose set forth and described.

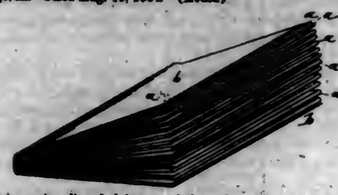
3. In an ice-tongs, the handle A, having the two loops, as shown, and providing bearings for the arms C C, substantially as and for the purpose set forth and described.

4. The combination of the handle A, the bent rod B, lever-piece F, the link-arms C C, and the legs D D, all substantially as set forth and described.

5. The combination of the link-arms C C, being spreading arms and pivotally attached to the legs D D, with the said legs D D, substantially as and for the purpose set forth and described.

6. The combination of the hook I, the link-arms C C, and eyelet G with the legs D D and eyelet H, substantially as and for the purpose set forth and described.

314,170. CONTINUOUS MILEAGE-TICKET. JOHN P. EASTMAN, Chicago, Ill. Filed Aug. 19, 1884. (Model.)



Claim.—A railroad-ticket consisting of a series of leaves or sheets bound together in book form, each having a number of mileage-coupons, the leaves being connected at alternate ends for tearing off in a single piece the required number of single coupons for mileage traveled, substantially as described.

314,171. TURBINE WATER-WHEEL. WILLIAM H. ELMER, Berlin, Wis. Filed Jan. 8, 1885. (No model.)

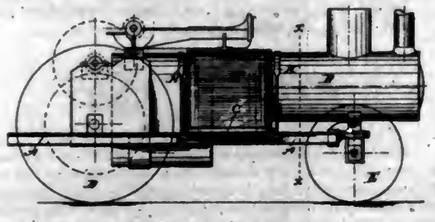


Claim.—1. In a turbine water-wheel, a gate-operating device consisting of a block connected to the gate and having a rod continuation, a partially-rotating disk or plate, and a block pivoted to the same and traveling on the said rod, substantially as and for the purpose specified.

2. In a turbine wheel, a gate-operating device consisting of a block with a slotted continuation and a rod, a plate or disk partially rotating, and a block pivoted to said plate and traveling on the rod, substantially as and for the purpose specified.

3. The combination, with the gates and partially-rotating disk or plate of a turbine wheel, of a block or blocks adjustably secured to the gates and having a rod-extension, and a block pivoted to the said disk or plate and traveling on the said rod-extension, substantially as and for the purpose specified.

314,172. ROAD-ENGINE. ABRAHAM O. PERK, Waynesborough, Pa. Filed Oct. 14, 1884. (No model.)

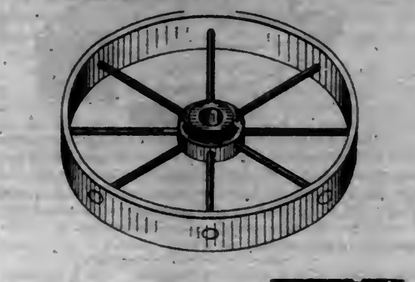


Claim.—1. A road-engine having a laterally-projecting platform between the driving and steering wheels for the support of a feed-water tank, substantially as before set forth.

2. In a road-engine, the combination, substantially as before set forth, of the horizontal boiler, a laterally-projecting platform on each side between the driving and steering wheels, and a feed-water tank on each platform.

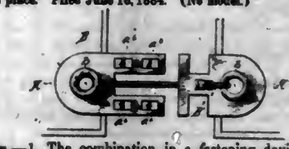
3. The combination, substantially as before set forth, of the horizontal boiler, a laterally-projecting platform for supporting a feed-water tank on each side between the driving and steering wheels, and suspenders suspended from the boiler and connected to the outer ends of the platform.

314,173. ART OF MAKING METALLIC SUSPENSION-WHEELS BY CASTING. ABRAHAM O. PERK, Waynesborough, Pa. Filed Oct. 16, 1884. (No model.)



Claim.—The described improvement in the art of making metallic suspension-wheels, which consists in casting the nave on the spokes, and at the same time firmly pressing their headed outer ends home against the rim.

314,174. FASTENING DEVICE FOR GLOVES, GARTERS, &c. EDMOND GRISWOLD, New York, N. Y., assignor to Elizabeth A. Griswold, same place. Filed June 16, 1884. (No model.)



Claim.—1. The combination, in a fastening device for belts, corsets, and analogous articles, of the part A, having a hook at one end, and the part A', provided with a slot to receive said hook, eyelets by which said parts are secured, and a pull-cord having one end secured in the eyelet of one part and its other end passing through the eyelet of the opposite part, substantially as described.

2. The herein-described clasp for gloves, corsets, and analogous articles, constructed of the parts A A', attached to opposite ends or sides of the article, and having interlocking ends consisting of a hook and slot, the part A' formed with a threading-hole, and a pull-cord for drawing the parts into interlocking position, the same having one end secured to the part A and its free end passing through the threading-hole of A', substantially as shown and set forth.

314,175. WATER-COOLING ATTACHMENT FOR REFRIGERATORS. JOHN E. GUENTHER, Owensborough, Ky. Filed June 28, 1884. (No model.)

Claim.—1. A water-cooling attachment for refrigerators, consisting of a reservoir, a flat closed box or tank attached below and to one side of the reservoir, communicating with the same by means of an elbow or bent pipe having an upright vent-pipe and provided with a threaded outlet-aperture, and a faucet having a threaded shank fitting in the said aperture and adapted to be inserted through the side of the refrigerator-casing, as and for the purpose shown and set forth.

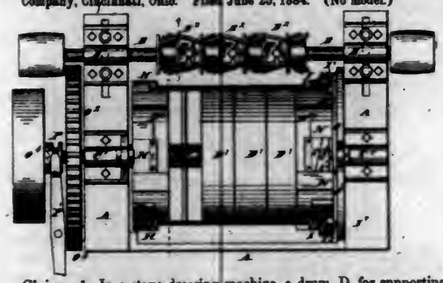


314,175.



2. The combination, with a refrigerator of the usual construction, of a water-cooling attachment consisting of a reservoir and a flat box or tank communicating with the reservoir by means of a bent pipe and secured below and to one side of the said reservoir, provided with an upright vent-pipe and with a removable faucet adapted to be inserted through the side of the refrigerator-casing into the end of the tank, as and for the purpose shown and set forth.

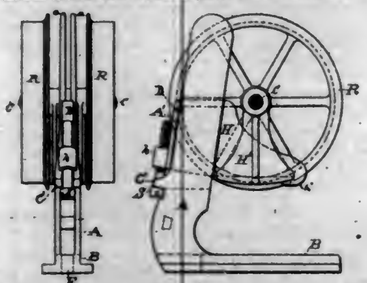
314,176. STAVE-DRESSING MACHINE. JOHN B. HEVERLING, St. Louis, Mo., assignor, by mesne assignments, to the Cincinnati Cooperage Company, Cincinnati, Ohio. Filed June 25, 1884. (No model.)



Claim.—1. In a stave-dressing machine, a drum, D, for supporting the staves to be dressed, consisting of a shaft, C, inner removable pulleys, D′, and outer pulleys, D″ and D‴, the outer pulleys having projections on their peripheries to receive dogs for holding the staves on the drum, the outer pulley D″ being adjustable toward and from the other outer pulley D‴, as set forth.

2. In a stave-dressing machine, the combination of a drum, D, on which the staves are supported, having projections on its periphery, stationary dogs H, fitting between the projections at one end of the drum, sliding dogs I, fitting between the projections on the other end of the drum, and having projections I and inclines I^2, and the disk J′, having cam J on its face, and a hook, M, as shown and described.

314,177. DOOR-HANGER. GEORGE W. HEY, Syracuse, N. Y., assignor of one-half to Charles H. Duell, same place. Filed June 18, 1884. (Model.)



Claim.—1. A compound attaching-plate for door-hangers, composed of two parts, respectively, constructed and arranged to be interlocked or connected by sliding one part endwise on the other, one of said parts being secured on the door and the other carrying the hanger attachments, substantially as described.

2. A door-hanger attachment comprising a fixed plate on the door provided with a longitudinal way, and a hanger-arm adapted to slide in said way, and clamping devices for confining the said plate and arm in their relative position, substantially as described.

3. In a door-hanger attachment, the combination of the hanger-carrying arm or plate B with the fixed plate B′, one of said plates having slot E, and the other screw-bolts b', adapted to enter said slot and secure the plates in their operative position, substantially as described.

4. In an adjustable door-hanger or supporting-frame having projections a a extending upward from the attaching-plate, between which the journal-carrier is supported and guided in its vertical adjustment by a screw or equivalent device, substantially as described.

5. In an adjustable door-hanger, the combination of a slotted supporting-frame extending upward from the attaching-base, and having an inclined raceway, a journal-carrier riding in the slotted frame, and having an inclined flange bearing on the raceway, and an adjusting-screw, substantially as and for the purpose specified.

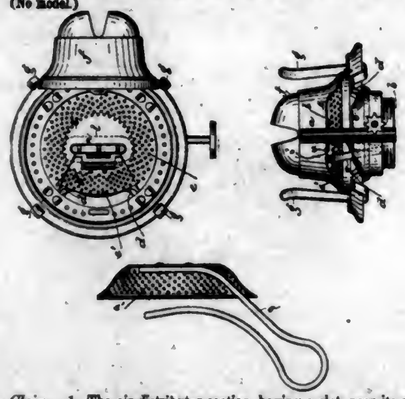
6. In a sliding-door hanger, a frame having an inclined raceway, and a journal-carrier adapted to move thereon by suitable means to adjust the door vertically, a roller-journal loosely mounted in said carrier to allow the carrying-rollers to deflect laterally, substantially as and for the purpose specified.

7. In a sliding-door hanger, a frame having a slotted raceway, and a journal-carrier adapted to move therein by suitable means to adjust the door vertically, a roller journaled in a yoke, said yoke being suspended horizontally on the carrier, whereby longitudinal deflection of the roller is prevented, while it is free to swing laterally, as specified.

8. In combination with an adjustable journal-carrier, the yoke H′, loosely mounted therein to allow a lateral deflection of the roller, substantially as described.

9. A roller-journal supporting and carrying device composed of a yoke or stirrup having the journal-bearing in its upper end, and its lower or slotted portion loosely mounted on a carrier, as H, whereby said yoke is permitted to rock freely sidewise on said carrier, and the center of movement of the lateral deflection of the roller-journal is at or in proximity of the periphery of the tread of the roller, substantially as described.

314,178. LAMP-BURNER. THOMAS HEPWELL, Astoria, assignor to the Manhattan Brass Company, New York, N. Y. Filed Mar. 17, 1884. (No model.)



Claim.—1. The air-distributer section having a slot near its edge, in combination with the hinge-piece surrounding the wick-tube, and having a tongue to pass through the slot and form a hinge, and a lever or handle to open or close the section, substantially as set forth.

2. The combination, in a lamp-burner, of an air-distributer with an opening in it, a section to fit such opening, a hinge upon which the section can be swung, and a lever-spring fastened at one end to the section, and the other end resting upon the ratchet-cap or wick-tube, substantially as set forth.

314,179. BOTTLE-STOPPLE. LEWIS S. HOTT, Boston, assignor to Daniel E. Devoe, Brookline, and Frank F. Smalley, Chelsea, Mass. Filed Sept. 30, 1884. (No model.)

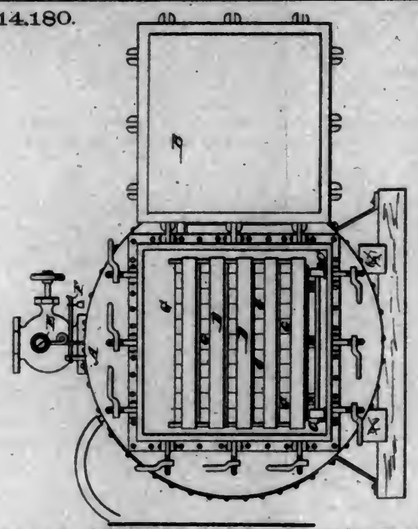


Claim.—A bottle-stopple composed of a metallic cap comprising an upper disk, a lower disk of smaller diameter than the upper disk, and a neck connecting said disks, in combination with an elastic dish-shaped cover inclosing the lower portion of said cap, said cover being provided with an inward flange, which contracts around the upper disk, substantially as described.

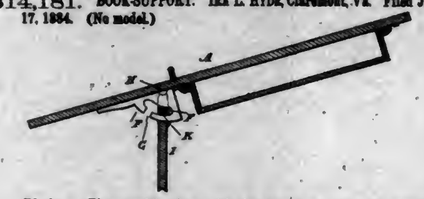
314,180. TESTING SEALED CANS. MARVIN C. HUTCHINGS, Astoria, Oreg. Filed Aug. 18, 1884. (No model.)

Claim.—The herein-described method of testing filled tin cans whose heads have been soldered in place, the same consisting in placing the cans in a vessel, closing the latter hermetically, then admitting air compressed to the required degree, next shutting off the same and opening the vessel, and then suddenly relieving the air-pressure on the cans exteriorly, as specified.

314,180.



314,181. BOOK-SUPPORT. IRA L. HYDE, Claremont, Va. Filed June 17, 1884. (No model.)
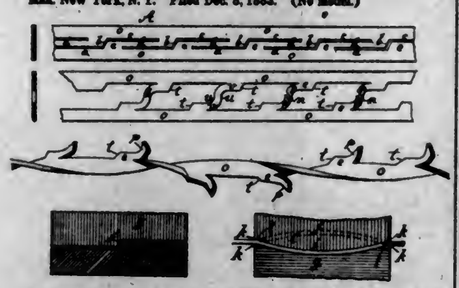


Claim.—The combination, with the board or tablet A, provided with the quadrant E, having curved slot F, an intersecting radial slot, G, and a lug or stud, H, of the standard having its upper flattened portion provided with a semicircular bearing to fit the stud H, and a binding-screw, K, the whole constructed and arranged substantially as shown and described.

314,182. COMPOUND FOR REPAIRING STOVES, FIRE-BRICKS, &c. EPHRAIM IVEY and ALEXANDER GEORGE, Clay Bank, Ohio. Filed June 12, 1884. (No specimens.)

Claim.—1. An improved plastic compound for repairing stoves, fire-bricks, and the like, the same consisting of burned and ground fire-clay, unburned and ground fire-clay, sifted wood-ashes, sand, salt, black-lead, asphaltum, and water, in about the proportions herein set forth.

2. A fire-brick or similar article composed of the following ingredients, in about the annexed proportions, namely: burned and ground fire-clay, unburned and ground fire-clay, sifted wood-ashes, sand, salt, black-lead, asphaltum, and water, the said ingredients being mixed, molded, and burned, substantially as and for the purpose set forth.

314,183. METHOD OF AND MEANS FOR MAKING BARBED METALLIC FENCING. EDMUND JORDAN, Brooklyn, assignor to Michael H. Cashman, New York, N. Y. Filed Dec. 8, 1883. (No model.)



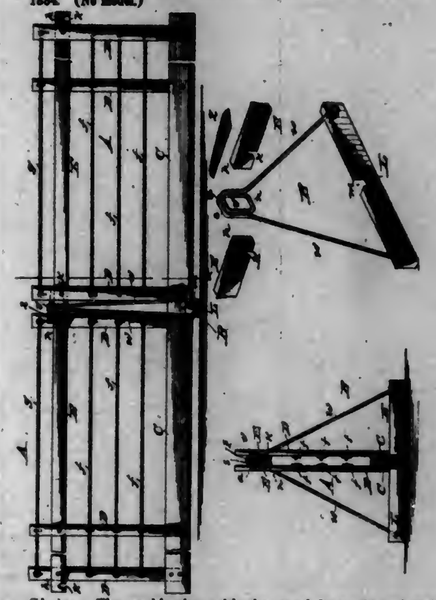
Claim.—1. The method of making bar or strip barbed metallic fencing, consisting of making successive overlapping slits along a blank strip, and thereby partially separating the blank into two strips and forming bars d, connected at the ends with the said partially-formed strips, respectively, separating the two partially-formed sections of the strip so made by forcing them asunder, and then completing their separation and at the same time pointing the barbs constituted of the bars which have thus far held them united by severing said bars at the middle.

2. The blank strip A, having successive overlapping slits partly separating said strip into two strips, o, with connecting-bars d, and thus adapted to form fencing-strips with barbs p, when cut apart and bent substantially as described.

3. The improvement in the art of making barbed fencing, consisting of the partial construction of barbed fencing-strips by forming a blank strip, A, with successive overlapping slits, partly separating said strip into two strips, o, with connecting-bars d, of which barbs p may be formed alternately on said strips o, when cut apart and bent substantially as described.

4. The improved cutters f g, for partially separating metallic fencing-strips, and also partly forming barbs thereon having convex edges i, with offset j in the middle of said edges, substantially as described.

314,184. FENCE. NORMAN KNAUB, Princeton, Ind. Filed Sept. 22, 1884. (No model.)



Claim.—The combination, with the panel base-rails and under-notched brace-rails having lapping extensions, of the bracing-support consisting of the transverse foot and wire stay bent in rectangular loop form at v, and the fastening-wedge z, adapted to be inserted in the loop to draw the same into engagement with the brace-rail notches, substantially as specified.

314,185. WHEELBARROW. HOMER W. KNOWLTON, Pecatonica, Ill. Filed May 5, 1884. (No model.)

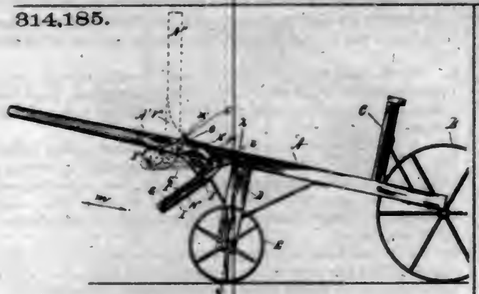
Claim.—1. The combination, with the body of a cart or wheelbarrow, of a handle or handles hinged thereto, and means, substantially as shown and described, whereby the handles may be rigidly secured at any desired angle to said body, substantially as and for the purpose set forth.

2. The combination of the side bar, A, handle A′, plate K, attached to the side bar and provided with knuckle K′, plates F F′ Q, attached to the handle, and pivot M, connecting said plates and the knuckle K′, pin J, attached to the plate F F′, and swinging bar G, notched and slotted as described and shown, and co-operating with said pin J, substantially as and for the purpose set forth.

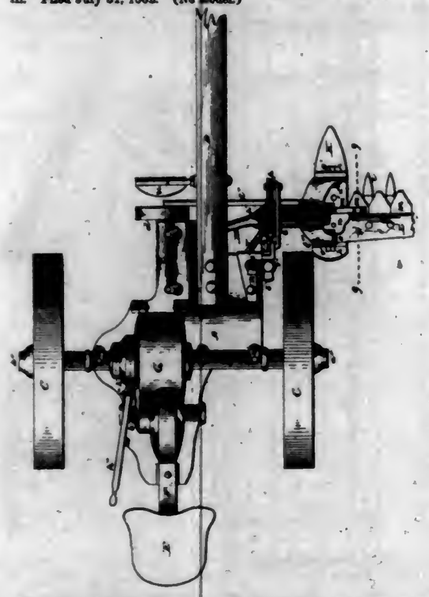
3. The combination of the side bars, A, wheel B, legs D, wheels E, swinging handles A′, and means, substantially as shown and described, for setting the handles at any desired angle with the bed, substantially as and for the purpose set forth.



314,185.



314,186. MOWING-MACHINE. WILLIAM A. KNOWLTON, Rockford, Ill. Filed July 31, 1882. (No model.)



Claim.—1. The combination, with the main frame, the finger-bar, and shoe, of the coupling-arm provided with a fixed collar about midway of its length, and its inner end pivot jointed to the forward end of the frame, a clutch-sleeved yoke supported to oscillate on the outer portion of the coupling-arm, and a push-bar having a free eye-connection with the coupling-arm between the collar and the yoke-sleeve, and its rear end having a detachable connection with the main frame, substantially as and for the purpose set forth.

2. The combination of the herein-described coupling-arm pivotally connected at its inner end with the main frame, a push-bar having a free eye-joint connection at its forward end with the coupling-arm and its rear end pivotally connected with the main frame, and a sleeved yoke supported to oscillate on the outer portion of the coupling-arm, outside of the push-bar and independently thereof, substantially as and for the purpose set forth.

3. The combination of a ratchet-toothed sector-plate mounted upon the main frame, a lifting-lever having a stud-pivot connection with the sector-plate, and a spring-detent to engage the teeth thereof, and a flanged washer and bolt connection, whereby said lever is guided in its movements and held in its position on the sector-plate, substantially as and for the purpose set forth.

4. The combination of the ratchet-toothed sector-plate, the lever having a pivotal connection therewith, an eccentric washer, and an adjustable clamping-bolt, whereby the forward throw of the lever may be adjusted, substantially as and for the purpose set forth.

5. The combination of the lifting-lever, the sleeved yoke having an arm, the link pivoted at one end to said lever, and at its outer end having a slotted connection with an arm on said sleeve, and a removable forked block adapted to enter the slotted link, substantially as and for the purpose set forth.

6. The combination, with the tongue and the crank-head, of a depending guard secured to the tongue in front of the crank-head by a clamping-bolt, whereby it may be swung forward, substantially as and for the purpose set forth.

7. The combination of the cap *n*, the sickle provided with the eye-piece, and a spring-actuated bolt to engage said eye-piece, substantially as and for the purpose set forth.

314,187. SEED-PLANTER AND FERTILIZER-DISTRIBUTER. JOHN P. LUMMUS, Jackson, Ga. Filed July 9, 1884. (No model.)

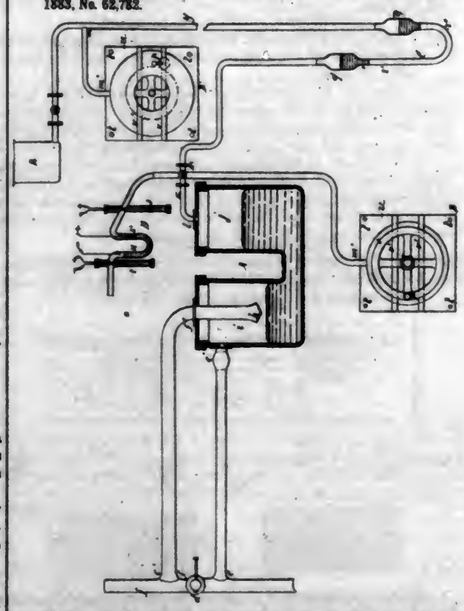


Claim.—1. In a seed-planter, the combination, with a hopper having a side opening, of an outwardly-projecting casing open at the bottom and covering said opening, a shaft extending across said hopper, and a revolving cylinder secured to the shaft, said cylinder having its outward end closed, provided with stirrers within itself, said stirrers supporting and bracing the walls of the cylinder, which is adjustable longitudinally on the shaft and located within the casing coincident with the opening in the hopper, substantially as and for the purpose specified.

2. In a seed-planter, a flow-adjustment for the seed, consisting of a cylinder having one end closed, a sleeve passing centrally through said cylinder and beyond its closed end where it is longitudinally slotted, and stirrers extending radially from the sleeve interiorly to the walls of the said cylinder, the entire device being adjustably fixed on the operating-shaft of the planter exterior to the hopper and coincident with its seed-orifice, substantially as and for the purpose specified.

3. In a seed-planter, a divided hopper with side discharge-openings, shafts journaled in the hopper and to bearings on the frame and provided with stirrers, adjustable flow-regulators, each consisting of a wheel or cylinder having one end closed and provided with bracing stirrers, the said wheels being secured to the shaft by a set-screw passing through a slotted sleeve, a funnel and spout under one of the discharge-openings, and an inclined board under the other, and the coverers each pivoted to the frame and adjustable by means of a right-angle slotted L-extension, as and for the purpose set forth.

314,188. APPARATUS FOR REGULATING OR CONTROLLING FROM A DISTANCE THE FLOW OF GASES. FERDINAND L. MURATORI and EDOUARD CROS, Paris, France. Filed Feb. 20, 1884. (No model.) Patented in France Aug. 11, 1883, No. 156,995, and in Belgium Aug. 13, 1883, No. 62,782.

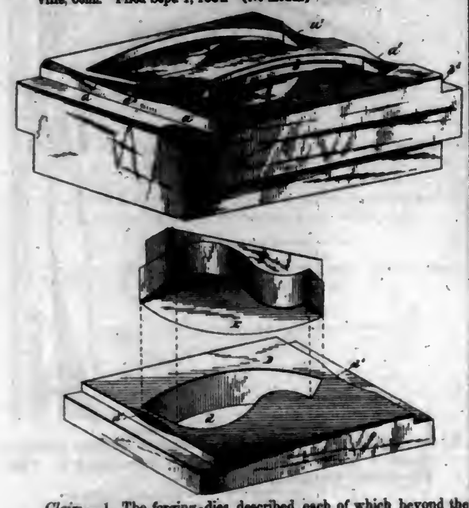


Claim.—1. The combination of the hydraulic stop-valve A with one or more compressors, B, a compensating-tube, C, and a manometer, D, substantially as herein shown and described.

2. The combination, with the hydraulic stop-valve A, of the sliding compensating-tube C, having bulbs *q q'*, by which the pressure of the column of motive fluid is balanced by varying the height of the tube according to the height of the said column, as described and represented.

3. The combination of the hydraulic stop-valve A with the manometer safety-tube D, having pipes *u v*, and with electric wires placed in said pipes, all arranged to signal the closing, the breaking, or the overheating of the apparatus, substantially as described.

314,189. DIE FOR FORGING OX-SHOES. WILLIAM PEARCE, Plantsville, Conn. Filed Sept. 1, 1884. (No model.)



Claim.—1. The forging-dies described, each of which beyond the end of its intaglio has the metal cut away to form a downward and outward inclining face, *a* or *a'*, substantially as and for the purpose specified.

2. The dies A and B, constructed as described, and adapted for forging an ox-shoe from a straight bar of metal, substantially as set forth.

3. The series of dies A, B, D, and E, constructed as described, and adapted for forging and trimming an ox-shoe, substantially as shown.

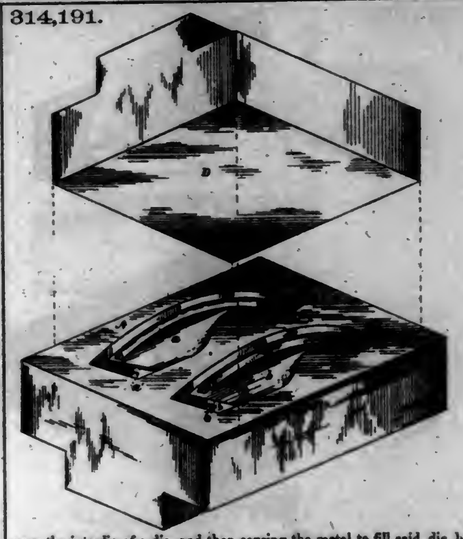
314,190. METHOD OF FORGING OX-SHOES. WILLIAM PEARCE, Plantsville, Conn. Filed Aug. 21, 1884. (No model.)



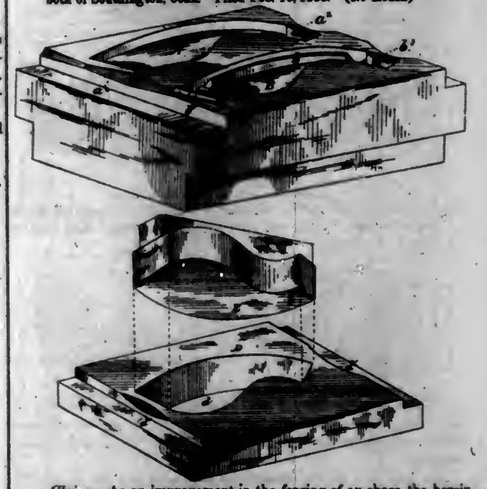
Claim.—As an improvement in the forging of ox-shoes, the hereinbefore-described method, consisting in the placing of a straight bar of heated metal having less width than the finished shoe over the intaglio of an ox-shoe die in substantially a line with the transverse centers of the calk-recesses and subjecting the same to one or more blows by an upper or impinging die, substantially as and for the purpose specified.

314,191. METHOD OF FORGING OX-SHOES. WILLIAM PEARCE, Plantsville, assignor to himself, and M. N. Woodruff and N. A. Barnes, both of Southington, Conn. Filed Feb. 16, 1885. (No model.)

Claim.—As an improvement in the forging of ox-shoes, the hereinbefore-described method, consisting in the placing of a straight bar of heated metal having less width than the finished shoe longitudinally over the intaglio of a die, and then causing the metal to fill said die by blows from a plain-faced upper die which has but slightly greater length than the length of said intaglio, substantially as specified.



314,192. METHOD OF FORGING OX-SHOES. WILLIAM PEARCE, Plantsville, assignor to himself, and M. N. Woodruff and N. A. Barnes, both of Southington, Conn. Filed Feb. 16, 1885. (No model.)



Claim.—As an improvement in the forging of ox-shoes, the hereinbefore-described method, consisting in the placing of a straight bar of heated metal having less width than the finished shoe over the intaglio of a die which roughly corresponds to the required size and shape, and by blows from a plain-faced upper die causing said metal to fill said die, then placing the partially-forged shoe within and causing it to fill the intaglio of a second or finishing die, and, lastly, removing the surplus metal from the edges of said shoe, substantially as specified.

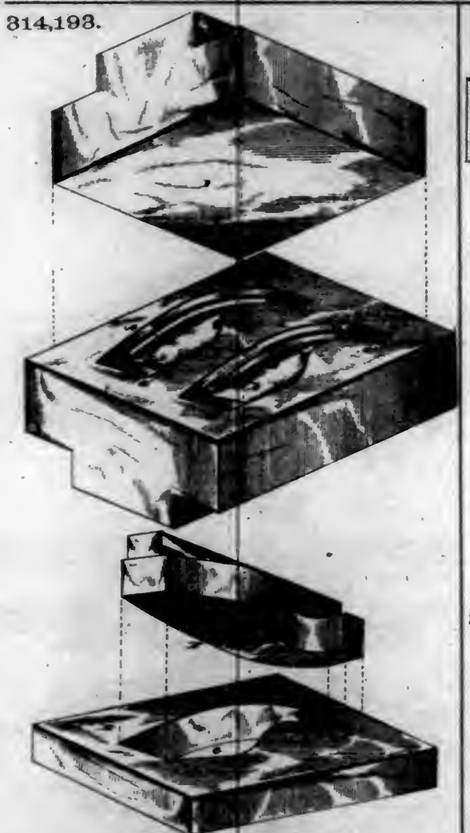
314,193. DIE FOR FORGING OX-SHOES. WILLIAM PEARCE, Plantsville, assignor to himself, and M. N. Woodruff and N. A. Barnes, both of Southington, Conn. Filed Sept. 2, 1884. (No model.)

Claim.—1. A lower die provided with an intaglio for forming an ox-shoe, in combination with a plain-faced upper die having a length but slightly greater than the length of said intaglio and less than the length of the face of said lower die, substantially as and for the purpose shown.

2. The blanking-die A, provided with the half-round rib *a*, in combination with the finishing-die B, having the A-shaped rib *b*, and with a plain-faced upper die, substantially as and for the purpose set forth.

3. The series of dies A, B, D, E, and F, constructed as described, and adapted for use in forging and trimming an ox-shoe, substantially as shown.

314,193.



314,194. NUT-LOCK. CHARLES A. PENNINGTON, Champaign, Ill., assignor to James R. Scott and John L. Ray, same place. Filed June 16, 1884. (No model.)



Claim.—1. The nut-lock herein described, consisting of a wire, D, bent toward its ends at right angles to the body *b*, and its ends again bent at right angles to the arms *b'*, and also to the body *b*, as shown and described.

2. In a nut-lock, the combination, with a nut and bolt, of the wire D, bent toward its ends at right angles to the body *b*, and its ends again bent at right angles to the arms *b'*, and also to the body *b*, as shown and described.

314,195. UPRIGHT-PIANO ACTION. FERDINAND POLSTER, Baltimore, Md., assignor to Wm. Knabe & Co., same place. Filed Apr. 14, 1884. (No model.)

Claim.—1. In a piano-action, the combination, with a hammer and hammer-butt, of a back-check, a pivoted jack, and an auxiliary jack having a movement independently of the pivoted jack, substantially as set forth.

2. In a piano-action, the combination, with a hammer-butt and adjustable back-check, of a pivoted jack and a spring-actuated auxiliary jack connected to the main jack, but having a motion independently thereof.

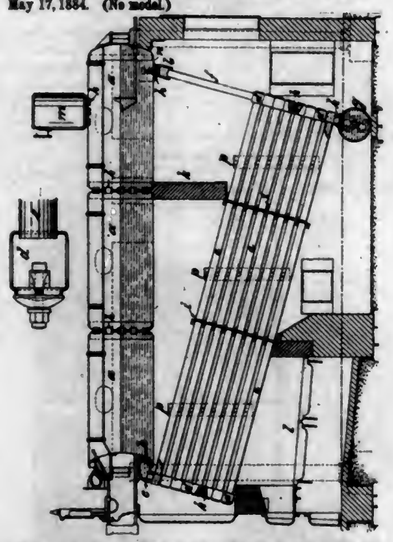
3. In a piano-action, the combination, with a hammer, hammer-butt, and an adjustable back-check having an inclined face, of the pivoted jack having an angular projection, and the auxiliary jack connected to said pivoted jack, but having a motion independently thereof, substantially as set forth.

4. The combination, with the jack G and hammer, of the sliding rod *k*, the spring, and the adjustable check-nuts, substantially as described.

314,195.



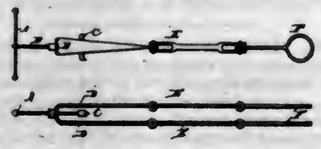
314,196. STEAM-GENERATOR. NATHANIEL W. PRATT, Brooklyn, assignor to the Babcock & Wilcox Company, New York, N. Y. Filed May 17, 1884. (No model.)



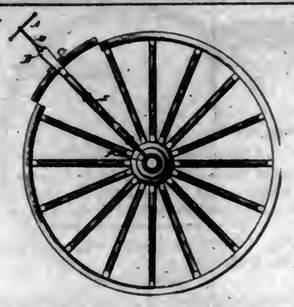
Claim.—1. A mud-drum composed of two or more sections joined together by a series of expanded nipples located near the top and bottom thereof, whereby communication is maintained when either becomes choked, as set forth.

2. A flame-bridge wall composed of a series of overlapping plates lined with fire-brick and provided with side bars, substantially as described.

314,197. DEVICE FOR INSERTING FELLIES. JOHN G. ROE, Shanesville, Ohio. Filed Apr. 3, 1884. (No model.)

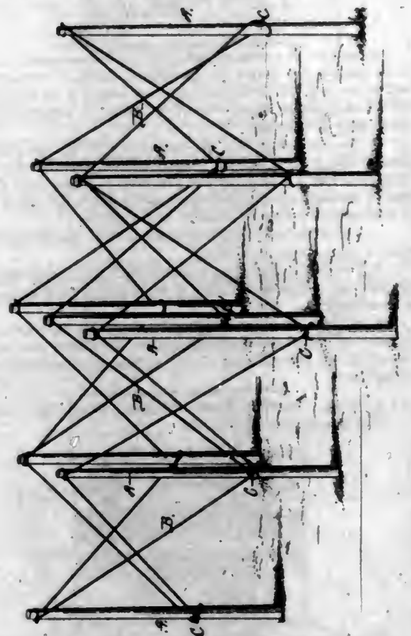


314,197.



Claim.—The combination, with the screw B, having a handle, and the head C, secured loosely to the lower end of the screw, of the fork D, screw-threaded through its head for the passage of the screw B, the connecting-links E E, and the hub-rings F F, pivoted to the limbs of the fork D so as to turn laterally away from the wheel, as set forth.

314,198. MEANS FOR SECURING HOP-STRINGS. ORLANDO SHUTE, Cooperstown, N. Y. Filed June 9, 1884. (No model.)



Claim.—In combination with one of more hop-poles and a training-cord, a double or S-shaped hook interposed about and between the approaching and departing strand at the lower part of the poles to anchor the hop-strand to the poles, substantially as and for the purpose set forth.

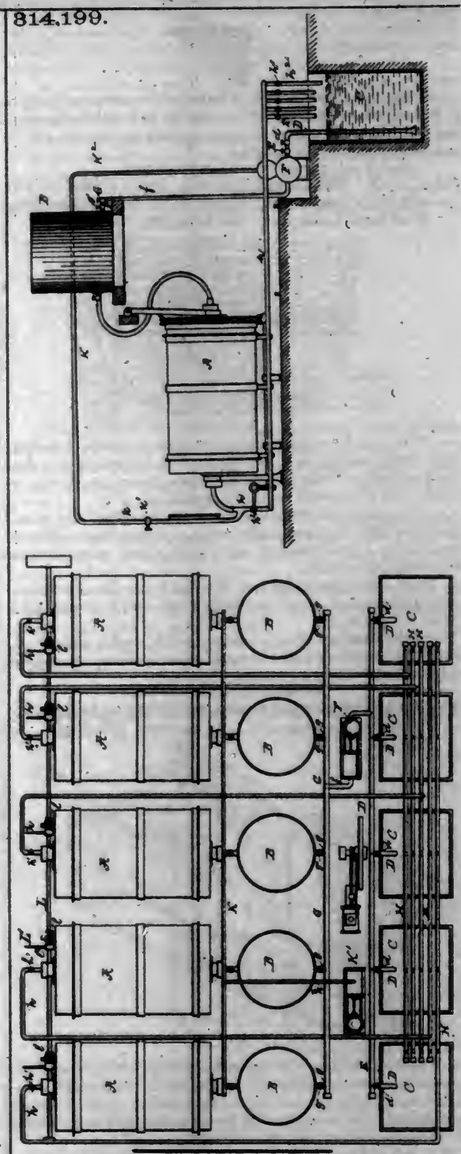
314,199. APPARATUS FOR TANNING. LENOX SIMPSON, Pittsburg, Pa. Filed Sept. 16, 1884. (No model.)

Claim.—1. The combination, with the supply-vats B, leaching-vats C, and pump, F, of the vertical pipes D, having cocks *d*, the end-closed pipes E, connected with pipes D and pump F, and the end-closed pipe G, the latter being connected by pipe *f* with the discharge-pipe of said pump, and by cocked pipes *g* with the supply-tanks B, as and for the purpose specified.

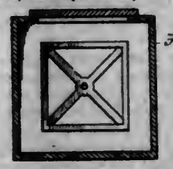
2. The combination, with the discharge-pipes of the cylinders A, of the cocked exhaust-pipes *k*, the pipe K, the air-pump K', and the pipe k^2, substantially as shown and described.

3. In a tanning apparatus of the class described, the combination, with shaft L, of the shaft *l*, revolving loosely thereon and provided with a worm-wheel, the feathered friction-clutches l^2, and the hand-levers L', substantially as and for the purpose specified.

314,199.



314,200. APPARATUS FOR TANNING. LENOX SIMPSON, Pittsburg, Pa. Filed Sept. 20, 1884. (No model.)



Claim.—In a tanning apparatus, a fixed tanning-vat and an independently-rotary hide-frame, in combination with journals *a a*, arranged centrally in the ends of the vat, one of said journals being rotated by a drive-wheel, *a'*, the other being fixed or non-revolvible, substantially as shown and described.

314,201. SASH-SUPPORTER. JASON D. SIMMONS, Chicago, Ill., assignor of one-half to Mary L. Simmons, same place. Filed Apr. 17, 1884. (No model.)

314,201



Claim.—As a new article of manufacture, the detent consisting of an angular plate adapted to be driven into the sash, and having a segmental serrated edge adapted to engage and hold the cam-surface of the lock-lever, substantially as specified.

314,202. TIRE-HEATING FURNACE. MELVIN L. SMITH and BERNARD SCHAD, Lockport, N. Y., assignors to Smith's Suspension Carriage Wheel Company, same place. Filed Jan. 2, 1884. (No model.)



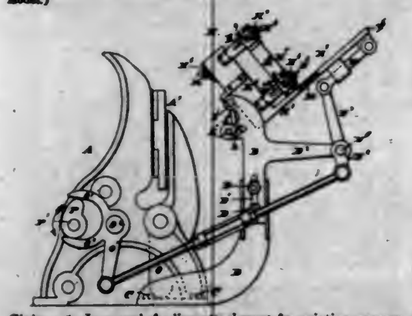
Claim.—1. A heating-oven for tires of wheels, having in the front of its casing openings with slide-covers, in combination with a fixed frame and inclined tracks, directly in rear of such openings, for supporting the tires, substantially as shown and described.

2. In combination with a heating-oven, the vertical front pieces, F, and the slides E, in combination with a supporting-frame within the oven, having inclined tracks H, and a heating-stove under the frame, substantially as set forth.

3. In a heating-oven for tires, the strips F and slides E, in combination with a fixed frame, I J, and tracks H, and stove B, substantially as shown and described.

4. In combination with a heating-oven, the vertical parts F, provided with rollers *a*, and the intervening slides E, substantially as shown and described.

314,203. CARD-FEEDING ATTACHMENT FOR PRINTING-PRESSES. SHERMAN A. SPENCER, St. Louis, Mo. Filed Apr. 19, 1884. (No model.)



Claim.—1. In a card-feeding attachment for printing-presses, the combination of the box, sliding plate, and mechanism, substantially as described, for operating the plate, the box being made in sections connected by slotted strips and set-screws, and having an elongated slotted bottom to receive the plate, substantially as set forth.

2. In a card-feeding attachment for printing-presses, the combination of the box, sliding plate, and mechanism, substantially as described, for operating the plate, the box being secured to an adjustable bar, by which the inclination of the box can be changed, substantially as set forth.

3. In a card-feeding attachment for printing-presses, the combination of the box, sliding plate, and mechanism, substantially as described, for operating the plate, the box being secured to a bar supported by the frame of the attachment, and having an arm with a set-screw working in a slot in the frame, substantially as and for the purpose set forth.

4. In a card-feeding attachment for printing-presses, the combination of the box, sliding plate, bell-crank lever, eccentric, pitman, crank, shaft to which the crank is secured, arm secured to the shaft, and link connecting the arm to the plate, substantially as set forth.

5. In a card-feeding attachment for printing-presses, the combination of the box, sliding plate, mechanism, substantially as described, for operating the plate, and the sectional adjustable frame for supporting the parts, all substantially as shown and described, for the purpose set forth.

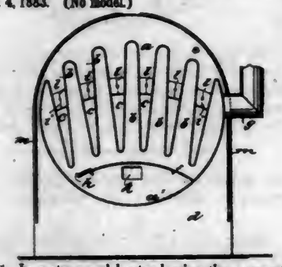
314,204. STAPLE-FASTENER FOR WOODEN VESSELS. WILLIAM O. SWET, Normal Park, Ill. Filed July 16, 1884. (No model.)





Claim.—A fastener for securing wooden-package covers, formed of a single piece of metal, with tapered shanks D, and a thin metal plate, A, which is thick enough at its junction with bases C of shanks D to form heads B for driving the shanks D in the wood, as specified.

314,205. STOVE OR HEATER. THOMAS J. TREW, Kirksville, Mo. Filed Dec. 4, 1883. (No model.)



Claim.—1. In a stove and heater having the corrugated top plate, *a*, the said top plate having the lower curved section, *a'*, connecting the ends of the same, and forming the sides and bottom of the fire-box, and the deflecting-plate *f*, arranged under the corrugated part of the plate *a*, substantially as described.

2. The combination, in a stove and heater, of the corrugated top plate, *a*, having the smoke-pipe *g* connected at one end, and the deflecting-plate *f*, said plate causing the heat-currents to pass on to the corrugated plate opposite the smoke-pipe and to traverse the whole length of said corrugated plate, substantially as described.

3. The combination of pipe-connections *l* with the corrugated top plate, *a*, substantially as described.

4. The combination, with a stove and heater having the corrugated top plate, *a*, and connecting-pipes *l*, of the deflector-plate *f*, substantially as described.

5. In a stove and heater, the combination, with the plates *d*, having grooves *e*, of the corrugated top plate, *a*, the bottom plate, *a'*, provided with the deflector-plate *f*, and the hood *m*, substantially as described.

314,206. SHAFT-COUPLING. WILLIAM B. TURNER, New York, N. Y. Filed Nov. 19, 1884. (No model.)



Claim.—1. In a shaft-coupling, the cam-levers J, substantially as described.

2. In a shaft-coupling, the combination, with the cam-levers J, of the movable caps E F, substantially as described.

3. In a shaft-coupling, the combination, with the cam-levers J and rod S and nut or nuts T, of the movable caps E F, substantially as described.

4. In a shaft-coupling, the combination, with the cam-levers J, of the movable caps E F and stationary seat B, substantially as described.

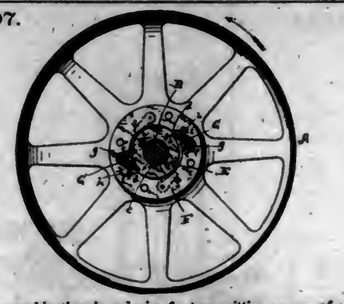
5. In a shaft-coupling, the combination, with the yoke-shaped cam-levers J, of the movable caps E F, substantially as described.

6. In a shaft-coupling, the combination, with the casing A, of the movable caps E F, levers J, and cams *p q*, substantially as described.

314,207. DEVICE FOR TRANSMITTING POWER. JOSEPH WARD, Manchester, N. H., assignor of two-thirds to John Ashton and Frederick J. Martin, both of same place. Filed Sept. 26, 1884. (No model.)

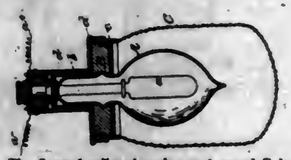
Claim.—1. The improved means of transmitting power herein described, consisting of a shaft, a series of pulleys mounted thereon and adapted to revolve the same when turned in one direction only, and each being driven from a motor independent of the motor or motors of the other wheel or wheels, substantially as set forth.

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2. The combination, in a device for transmitting power, of a shaft, a sleeve, E, spring-dogs, pulley, and cam-shoulders adapted to engage said dogs, substantially as set forth.

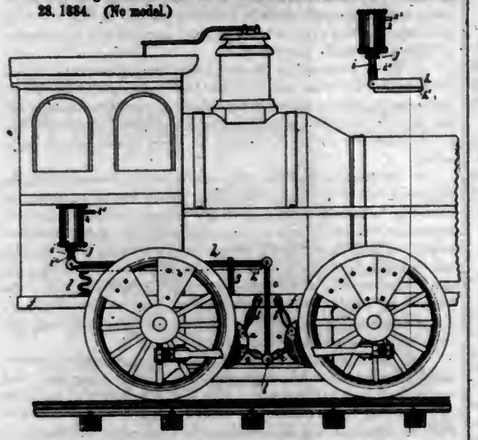
314,208. METHOD OF PROTECTING INCANDESCENT ELECTRIC LIGHTS. NELSON S. WHITE, Canton, Mass. Filed Oct. 13, 1883. (No model.)



Claim.—1. The flanged collar *d*, neck *c*, and guard C, in combination with the flange B applied to an incandescent electric-light fixture, substantially as described.

2. A wire-gauze screen for an incandescent electric lamp disposed around the glass bulb thereof and of greater diameter than said glass bulb, the wires of which screen have bright reflecting-surfaces of light color, whereby the intensity of the light is reduced, its diffusion enhanced, and its illuminating value retained, substantially as described.

314,209. LOCOMOTIVE-BRAKE. JOHN H. WILLIAMS, Texarkana, Ark., assignor of one-half to T. W. Palmer, Gonzales, Tex. Filed Oct. 28, 1884. (No model.)



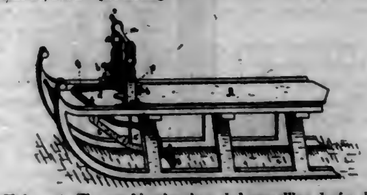
Claim.—1. In a locomotive-engine having brake-shoes *a a*, rods *b b*, and tightening-rods *c c*, the combination therewith of lifting-rod *e*, its lower end pivoted to the inner ends of the tightening-rods *c c*, and its upper end pivoted to the short arm of lever *h*, with lever *h* pivoted on fulcrum *g*, piston-rod *i*, pivoted to the long arm of said lever, said rod *i* having knuckle-joint *i'*, the upper part of said rod working up and down through the guide *j*, and attached to the piston, steam or air cylinder *k*, having the guide *j*, and S-spring *l*, bolted to the upper face of rail *f* and the lower side of lever *h*, substantially as shown and described, and for the purposes set forth.

2. In a locomotive steam or air brake having shoes *a a*, rods *b b c c*, and lifting-rod *e*, lever *h*, having flange or blade *h'*, having its short arm pivoted in the upper end of lifting-rod *e*, with fulcrum *g*, mounted on the upper face of the rail *f* and bearing the said lever *h* in its upper end, piston-rod *i*, pivoted to the long arm of the said lever *h* and working through the lower head of a cylinder, *k*, substantially as shown and described, and for the purposes set forth.

3. In a locomotive steam or air brake operated by means of a lever, *h*, the combination of the piston-rod *i*, having the knuckle-joint *i'*, with the guide *j*, attached to the lower head of the cylinder *k*, substantially as shown, and for the purposes set forth.

4. In a locomotive steam or air brake operated by means of a lever, *h*, the combination of the cylinder *k*, piston-rod *i*, having knuckle-joint *i'*, by means of which the end of said lever is thrown down, with S-spring *l*, the lower end bolted to upper face of rail *f*, and its upper end bolted to the lower side of lever *h*, by means of which the end of said lever is thrown up, substantially as shown, and for the purposes set forth.

314,210. SLED-PROPELLER. JOSEPH WEBER, Decatur, Ill. Filed June 24, 1884. (No model.)



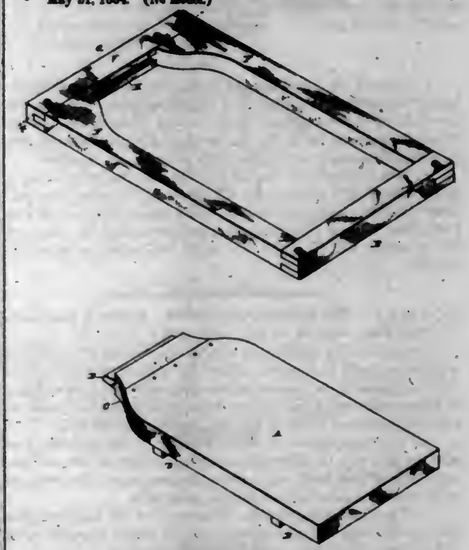
Claim.—1. The combination, in a sled-propelling device, by means of which a slow steady backward motion similar to rowing is used to impart motion to the sled, of levers *a*, geared segments *b* and *c*, levers *d*, and suitable means for connecting the said levers *d* with penetrating points *h*, as and for the purpose set forth.

2. The combination, in a sled-propelling device, of levers *a*, geared segments *b* and *c*, bars *e*, provided with projections *e'*, bars *f*, provided with receptacles *g* and screws *k*, and penetrating points *h*, adapted to be adjusted in receptacles *g*, as and for the purpose set forth.

3. In a sled-propelling device, the combination of levers *a*, provided with holes *a' a''*, and handle *m*, provided with diminished extensions *o o*, as and for the purpose set forth.

4. The combination, with levers *a*, geared segments *b c*, bars *e f*, and point *h*, of attaching-brackets *p*, as and for the purpose set forth.

314,211. BOSOM-BOARD. FRANK M. WRIGHT, Palmyra, N. Y. Filed May 21, 1884. (No model.)

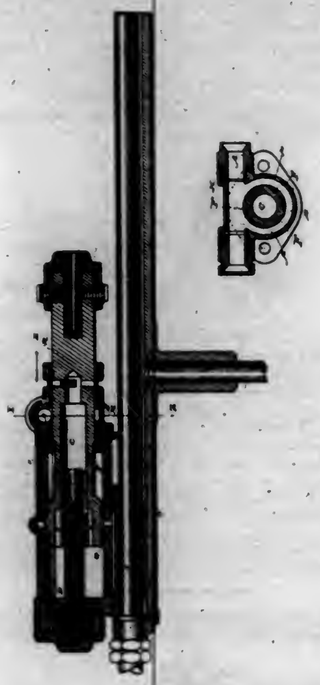


Claim.—The combination, with a tongued board, of a frame consisting of a tail-piece and tongued side pieces, and a grooved head-piece receiving and retaining the tongues on side pieces, and also receiving the tongue on the board, substantially as and for the purpose specified.

314,212. REMEDY FOR DYSPEPSIA. JAMES E. WRIGHT, New York, N. Y. Filed Mar. 28, 1884. (Specimens.)

Claim.—The herein-described composition of matter to be used for treatment of dyspepsia and the various nervous troubles arising therefrom, and for aiding the assimilation of food by convalescents, consisting of aletrin, hydrastin, oil of xanthoxylum, lupulin, gum-acacia, and extract of gentian, in the proportions specified.

314,213. ROCK-DRILL. GEORGE F. WYNNE, Minera, near Wrexham, County of Denbigh, assignor to Thomas Rowland Jordan and Robert E. Commans, London, England. Filed Dec. 13, 1884. (No model.) Patented in England Feb. 24, 1882, No. 903.



Claim.—1. In a rock-drill, the combination, with the cylinder O, having the annular exhaust-port G, of the hollow piston P, hollow piston-rod R, having external longitudinal recesses, F, and radial openings B, and the gland H, having the annular space A', communicating with the motive-fluid-supply pipe, substantially as shown and described.

2. In a rock-drill, the combination, with the cylinder O, having a central exhaust, of a hollow piston and piston-rod, the latter being provided with inlet-openings entering the hollow piston-rod space, and with longitudinal external recesses, and a gland surrounding the piston-rod and connecting with the motive-fluid supply, substantially as shown and described.

314,214. STEAM-ENGINE LUBRICATOR. WARREN H. CRAIN, Lawrence, Mass. Filed Dec. 19, 1884. (No model.)

Claim.—1. The combination, with the oil-reservoir, of a glass tube arranged alongside and outside thereof and communicating at its ends with the interior of the reservoir at the upper and lower portions thereof, and provided with a light-reflector arranged lengthwise and revolubly and movably around within it, (the said glass tube,) as set forth.

2. The combination, with the oil-reservoir, of the sight-feed glass tube provided with the light-reflector arranged within its bore, and having a spring to keep it (the said reflector) in close contact therewith and admit of it being turned around therein, as set forth.

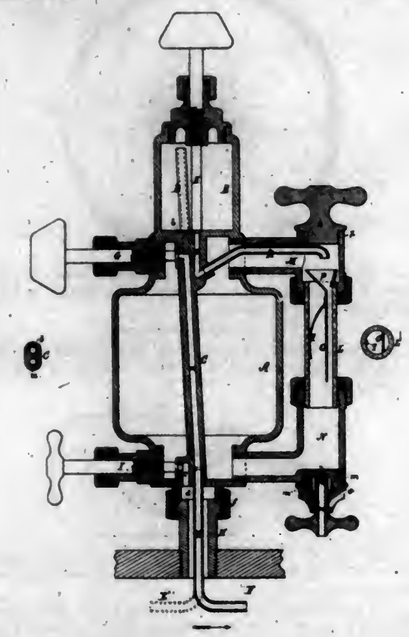
3. The combination, with the oil-reservoir, of the sight-feed glass tube provided with the light-reflector and its hopper arranged in and with the bore of such tube, substantially as represented.

4. The combination of the steam-condenser and the oil-reservoir with the duplex-bored tube extending within such reservoir from its bottom to its top, and having one bore, a, in its upper part to open into the oil-reservoir, with a pipe leading from one of the bores of the said tube up within the condenser, and also with another pipe leading downward from the other bore into the pipe, for conveyance of steam from the boiler to the steam-engine.

5. The combination, with the oil-reservoir, of the duplex-bored pipe extending within it from top to bottom of it and integral or cast in one piece with such reservoir, substantially as set forth.

6. The combination of the steam-condenser, the oil-reservoir, and the duplex-bored tube of the latter arranged and integral or cast in one piece, substantially as set forth.

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7. The combination of the steam-condenser, the oil-reservoir, the duplex-bored tube in the latter, extending from top to bottom thereof, and the tubes leading from such duplex-bored tube into the condenser and steam-pipe, with a screw-plug to the bore opening into the oil-reservoir at its upper part, and with a draining-passage leading out of the oil-reservoir at its bottom or lower part and provided with a screw-plug, all being substantially as set forth.

8. The combination of the steam-condenser, oil-reservoir, duplex-bored tube of the latter, and the tubes leading from such tube into the condenser and steam-pipe, with the sight-feed glass tube arranged outside of the oil-reservoir and communicating therewith, and provided with the light-reflector arranged within it, all being substantially as represented.

9. The combination of the steam-condenser, the oil-reservoir, the duplex-bored tube of the latter, and its tubes leading into the condenser and steam-pipe with the sight-feed glass tube arranged outside of and communicating with the oil-reservoir, and provided with a light-reflector arranged longitudinally within and transversely across it (the said glass tube) and with a pipe communicating with the condenser and opening into that part of the bore of the glass tube which is directly in front of the reflector, all being substantially as described, and the educt of the condenser and that of the duplex-bored tube into the oil-reservoir being provided with screw valves or plugs, as explained.

10. The combination of the steam-condenser and the oil-reservoir with the duplex-bored tube extending within the latter from top to bottom thereof, and provided with a pipe leading from one of the bores upward within the condenser and with another pipe leading downward from the other bore into the steam-pipe and curved forward therein, as represented, the latter bore being open at its upper part into the oil-reservoir.

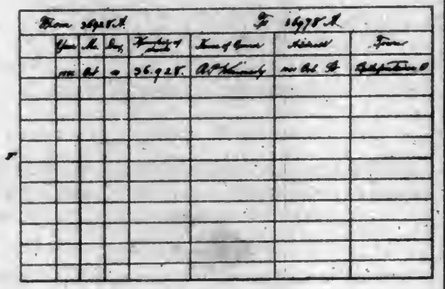
11. The combination of the steam-condenser and the oil-reservoir with the duplex-bored tube extending within the latter from top to bottom thereof, and provided with a pipe leading from one of the bores up within the condenser, and having the other bore at its upper part to open into the oil-reservoir, with a pipe leading down from the first-named bore into the steam-pipe and bent or turned or bent backward therein, all being substantially as set forth.

314,215. METHOD OF CHECKING AND REGISTERING BAGGAGE. LEWIS G. REYNOLDS, Dayton, Ohio. Filed Oct. 25, 1882. (No model.)

Claim.—The within-described method of securing safe transportation and delivery of baggage to rightful owners, consisting in registering a number or mark for the same, with the name and address of the owner, the permanently attaching to the article of baggage such registration

314,215.

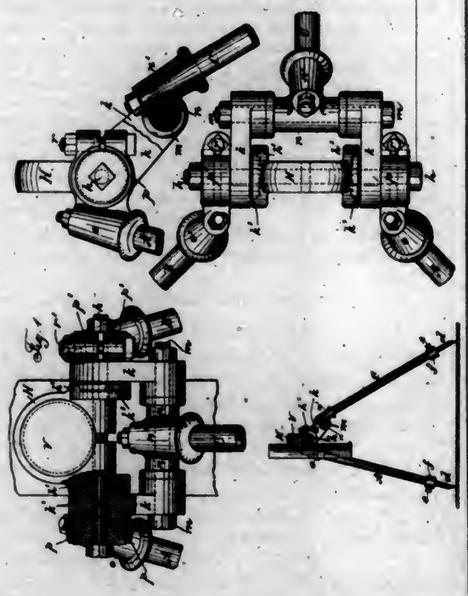




number or mark, and furnishing the owner with a duplicate of such registration number or mark, all substantially as set forth.

REISSUES.

10,572. TRIPOD FOR ROCK-DRILLS. GEORGE M. GITHENS, Brooklyn, N. Y. Filed Jan. 20, 1885. Original No. 307,640, dated Nov. 4, 1884.



Claim.—1. The combination, with the hub or trunnion with a peripheral groove for supporting the rock-drill, of a split band, a clamping-bolt passing across at the open portion of such split band and into the peripheral groove of the trunnion, and links through which such bolt passes, and the legs and connecting-pieces between the legs and the respective links and bolts, substantially as set forth.

2. The combination, with the split ring H and the bolt *h*, of the links *k k'*, through which the bolt *h* passes, the leg *c*, connected to such links, the trunnions upon such links, the sockets *o o'*, the legs A B, fitting such sockets, the split rings *p p'*, and the bolts *r r'*, substantially as set forth.

3. The tubular metallic tripod-legs, each closed at its upper end and made conical, and terminating with a screw and nut, in combination with the conical metallic sockets through which the closed portions of the legs pass and are held by the nuts, and the connections between the sockets, substantially as set forth.

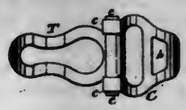
4. The trunnion having a peripheral groove and forming a support for the rock-drill and its connected parts, and the legs for such drill, in combination with a split band, and a clamping-bolt passing through the split band and into the peripheral groove, for holding the split band to the trunnion, the links, the connections between the legs and links, and the bolts for clamping the same, substantially as set forth.

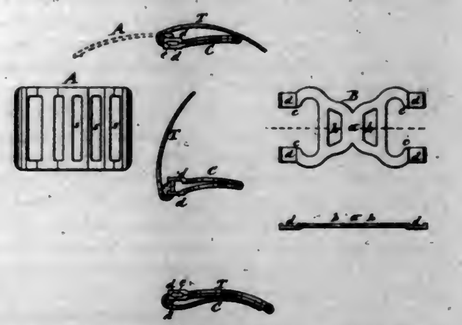
5. The combination, with a rock-drill cylinder, of a trunnion permanently connected to the cylinder and forming a support upon which the cylinder can be adjusted, a split band surrounding and clamped to the trunnion, three legs for supporting the drill, connections between the legs and band, and clamping-screw to hold the connections adjustably to the band, substantially as specified.

6. The combination, with the rock-drill cylinder and trunnion, of a split band passing around the trunnion and links and connections to the legs, and a bolt passing through the split band and the links to clamp the links to the split band, substantially as specified.

7. The combination, with the rock-drill cylinder and a trunnion permanently connected therewith, of a split band passing around the trunnion, a bolt for clamping said band to the trunnion, legs and leg-holding devices for supporting the rock-drill, and clamping mechanism for securing the leg-holding devices to the split ring, substantially as set forth.

10,573. SHOE-CLASP. JACOB J. UNDERHILL, Syracuse, N. Y., assignor, by direct and mesne assignments, to Judson L. Thomson, same place, and George Watkinson, New Haven, Conn. Filed Sept. 26, 1884. Original No. 306,410, dated Sept. 16, 1884.





Claim.—1. A shoe-clasp composed of two flexible plates connected together at one end, and a third plate hinged at the free ends of the flexible plates and having angular lateral projections extending between the aforesaid ends at opposite edges of the hinged plate, which pry the free ends of the two flexible plates apart when raising the hinged plate or when swinging it back on its hinge.

2. A shoe-clasp composed of two flexible plates lying one upon the other, and connected together at or near one end, and a third plate having angular projections extending between the free ends of the flexible plates, substantially as described, and constituting the hinge of the tongue, in the manner set forth.

3. In a shoe-clasp, the combination of two spring-jaws provided between their vibratory ends with angular or elongated recesses, substantially as described, an angular pintle extending between said recesses, and a tongue attached to said pintle, substantially as set forth and shown.

4. The blank B, formed with the solid central portion, *a*, openings *b b* at opposite sides of the said central portion, and end extensions, *c c*, having recesses *d d*, substantially as described and shown.

PHOTO 11TH
NORRIS PETERS
WASHINGTON D.C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

CASES A AND B. VOELKER *v.* GRAY *v.* EDISON *v.* BELL.
CASE G. EDISON *v.* GRAY *v* MCDONOUGH *v.* BELL.
CASE NO. 1. VOELKER *v.* EDISON *v.* IRWIN.

Decided March 3, 1885.

1. When an applicant seeks to overthrow a patent granted to one who, though junior in date of conception, has yet shown diligence in filing his application and reducing his invention to practice, the former must show entire freedom from laches; and doubts should be resolved in favor of the patentee.
2. It is not enough for a party to show that he was experimenting in the direction of the invention, but he must have matured his conception so that it can be materialized into an operative device. The conception which the law recognizes is not that of the result to be attained, but that of the means to produce such result.
3. The specification of an application for an alleged pioneer invention is addressed to those skilled in the art as it existed before the making of the particular invention therein referred to, and is not to be supplemented and aided by knowledge of events transpiring at a subsequent period, or derived from another's invention of the same thing.
4. An occasional accidental operation of a device, varying from its usual operation, and which is at war with the principle upon which it was designed to act, is not a sound basis for a claim as an inventor to a device capable of uniformly producing similar effects.
5. The declaration of an interference is made on the assumption that the application or patent put in interference covers an operative device, but it by no means follows that such presumption is conclusive; the question of operativeness may be raised and considered in determining the question of priority.
6. The controlling issue in this contest is, in howsoever many claims or subordinate issues it may find expression, a speaking-telephone. The inventor of an art and apparatus for transmitting articulate speech cannot be defeated or put under tribute by those who claim to have invented certain constituent elements, but who certainly never produced the completed invention—a speaking-telephone.
7. Bell is adjudged the prior inventor of all the issues save D and No. 1, and upon these latter two, priority is awarded to Edison.

THE SPEAKING TELEPHONE.

APPEAL from the Examiners-in-Chief.

Cases A and B.—Application of W. L. Voelker filed May 19, 1879. Application No. 1 of Elisha Gray filed October 29, 1877. Application No. 130 of T. A. Edison filed April 27, 1877. Patent No. 174,465, dated March 7, 1876, of A. G. Bell.

Case G.—Application No. 48 of T. A. Edison filed December 24, 1877. Application No. 3 of Elisha Gray filed October 29, 1877. Application of J. W. McDonough filed April 10, 1876. Patent No. 174,465, dated March 7, 1876, of A. G. Bell.

Case No. 1.—Application of W. L. Voelker filed September 26, 1879. Application No. 141 of T. A. Edison filed July 20, 1877. Application of J. H. Irwin filed May 24, 1779.

Mr. G. W. Dyer for Voelker.

Messrs. Baldwin, Hopkins & Peyton for Gray.

Mr. L. W. Serrell and *Hon. Roscoe Conkling* for Edison.

Mr. J. J. Storrow and *Mr. Chauncey Smith* for Bell.

Mr. W. W. Hicks and *Mr. S. A. Duncan* for McDonough.

Mr. G. W. Dyer for Irwin.

BUTTERWORTH, *Commissioner:*

The hearing of this case before the Examiner of Interfences was in the latter part of 1882. He held the case under advisement about eighteen months. His decision is very full and reviews the law and evidence with great elaboration and care. The printed decision makes a volume of over three hundred pages. Every fact and phase of the case were carefully and critically considered, and every conclusion written out. The decision was in favor of Bell on all the issues except D, No. 1, and G. In issue G priority was awarded to McDonough. In issues D and No. 1 Edison was adjudged to be the prior inventor. From the decision of the Examiner of Interferences an appeal was prosecuted to the Examiners-in-Chief in cases A, B, C, E, G, J, L, and No. 1. No appeal was taken in cases D, F, and I. The case was again fully argued, held under advisement several months, and a very full opinion rendered by the Examiners-in-Chief in October last. The action of the Examiner of Interferences was affirmed, except as to issue G, in which priority was awarded to Bell. From this decision the case was appealed to the Commissioner, and seven days devoted to the hearing. Some additional testimony given by Professors Young and Brackett, and considered in the argument, is before me.

Counsel are thoroughly familiar with every fact disclosed by the record which is important to any one of the issues; nothing which has any important bearing on the case has escaped consideration in the argument. In the course of the several hearings all that savors of husk and chaff has been cleared away, and the important controlling evidence, with the exhibits, drawings, and models, presented.

The time I have at my disposal to devote to the preparation of a decision precludes me from reviewing in an elaborate opinion the several points considered. I had proposed to do this, and had arranged notes of evidence and decisions accordingly; but I find that the time within which the decision must be signed is too brief to enable me to properly perform that work. If on examination of the evidence and consideration of the arguments I had become convinced that the findings and decision of the Examiners-in-Chief were erro-

neous, or if a serious doubt in that behalf had been raised in my mind, I would have felt constrained to leave the case undecided to be reheard by my successor. Had I reached a different conclusion, it would have been desirable that the reasons for overruling the decision of the board should be stated at length.

In reaching a right decision in a case like this, where the interests involved are great, as well as the honor of inventing an instrument so wonderful in its character and uses as the telephone, certain probabilities which always inhere in ascertained facts and conditions must inevitably have great influence. As a guide to truth it is safer to rely upon the actions of men than upon their expressed declarations, where the actions and declarations are inconsistent. Individuals, as a rule, act and speak in harmony with their own interests, certainly if consistent with truth. All persons reason in the direction of their desires, and resolve doubts in their own favor. When the dim and distant recollection of a party concerning his own or the conduct of another, in a matter of great interest to him who speaks, is found to be wholly at variance with what the known facts in that connection would naturally suggest and prompt, the fair inference is that the recollection of the witness is at fault, and that the logic of the known facts points nearer to the truth. It is natural for persons to hunt hastily through the pigeon-holes of memory, where unpleasant or damaging truths are supposed to be stored away; and, on the other hand, it is just as natural to encourage and quicken the pace of a lagging and uncertain recollection which is believed to contain even a fragmentary fact which will tend to mend a flaw in a title through which valuable interests may escape.

When an applicant seeks to overthrow a patent granted to one who, though junior in date of conception, has yet shown diligence in filing his application and reducing his invention to practice, the former must, in view of the importance, not merely to the patentee but to the general public, show entire freedom from laches. Nothing could sooner bring the patent system into disfavor than to permit a patent granted for a valuable invention in which thousands have become interested to be overthrown by a competitor in the same field of invention on evidence which fails fully to establish the superior claims of the junior applicant to be adjudged the prior inventor. And it is in view of this fact that doubts are resolved in favor of the patentee. See *Cushman* v. *Parham*, C. D., 1876, 130; *Wheeler* v. *Chenoweth*, C. D., 1869, 43; *McKnight* v. *Van Wagenen*, C. D., 1876, 127; *Richardson* v. *Denza*, C. D., 1870, 156; *Morse* v. *Clark*, C. D., 1872, 58; *Gray* v. *Hall*, C. D., 1871, 129; *Busha* v. *Phelps*, C. D., 1876, 119; *Wheeler* v. *Clipper Mower and Reaper Co.*, 6 Fisher, 1; *Stoner* v. *Clark*, C. D., 1877, 92; *Towers* v. *Pease*, C. D., 1878, 6; *Sargent* v. *Burge*, C. D., 1877, 62. And also the following court decisions: *Ellithorpe* v. *Robertson*, (2 Fisher, 83;) *Union Sugar Refinery* v. *Matthessen*, (2 Fisher, 62.)

To defeat a patent it is not enough for an applicant to show that he was experimenting in the same field of investigation, and that his experiments finally led up to the invention in controversy. He must have been first to conceive *the thing* in controversy; not merely to have *conceived it possible to construct a device* which would produce the result sought. In the case under consideration it was not enough for any one of the parties engaged in the interference with Bell's patent to show that he conceived that an apparatus could be so constructed as to transmit articulate speech by the utilization of an electric current. Such an idea was not new, nor does it occur that apparatuses were wanting which were constructed for that purpose and which would transmit or reproduce sounds. The thing for which the commercial and scientific world was waiting was a method and apparatus for transmitting articulate speech in such manner as to preserve what the scientists and counsel term "*quality*," by which is meant that characteristic of sound which enables us to distinguish two sounds which have the same pitch and the same intensity from each other. It is the quality of sound which enables us to distinguish the voice of one individual from that of another. It is not enough that an applicant ranging through the field of experiment unconsciously stumbles upon that which is nearly related and very similar to the device in controversy. The conception must not be of the result to be attained, but the means (which is the patentable thing) to produce that result. As long as there was a missing ingredient, in the absence of which the means utilized was a failure and the desired result unattainable, the invention was incomplete. The question is, what was in fact accomplished, *not what could have been* had the inventor possessed the light which he subsequently obtained, either by research or from a more successful competitor. There is not unfrequently a disposition on the part of an applicant to confound a strong desire in the mind to produce certain results by some means of which he has but a vague and indefinite conception with an intelligent conception of a machine adapted to accomplish those results. It is in such cases that the desire, coupled with the imperfect conception of a device, ripens and matures in the light of subsequent knowledge. That of which the law takes notice is not the maturing, but the matured conception, which can materialize in an operative device; but it very frequently occurs that the inventor confounds his original desire and later conception and gives the latter the date of the former, and does it innocently. In such cases we appeal to the inherent probabilities, which are always the ear-marks of truth. One is found in the conduct of men—for instance, where a person has been searching long and earnestly for a valuable thing which he is anxious to utilize, and can only utilize when found by introducing it to the public. If the searcher is successful and develops the valuable thing sought, he is not likely to conceal it. He does not put it aside and out of sight for years, but he at once takes it to the waiting public. In other words, he acts reasonably and in accordance with what the experience and observation of men teach us is natural and logical under the circumstances.

It occurs in this case that Voelker in his search discovered what had been known to the scientific world for fifteen or twenty years. It was not what the public demanded and was waiting for. It has no value, even as a scientific toy. After Bell had invented and successfully introduced his speaking-telephone Voelker unpacked his trunk and brought out the device mentioned, and in the light of what Bell had taught the world concluded that he (Voelker) had been ahead of

Bell in producing a speaking-telephone, though unaware of the fact. True, his models did not and could not talk when he wanted them to talk, and when for the purposes of the public and of this case they should have talked; but, as stated, since the advent of Bell's telephone it is urged that the Voelker device, as he constructed it in 1877, and stored it away, has during its retirement become loquacious. The same may be said of McDonough's invention. It was no substantial improvement on Reis's. Whatever defects McDonough considered to exist in the Reis instrument, he did not regard the palpable make-and-break element to be one, since he provides in his best model, not for the imperceptible make-and-break of which Professors Young and Brackett speak in their evidence taken in the case of the *American Bell Telephone Company* v. *The Overland Telephone Company of New Jersey*, and which can hardly be regarded as coming within the definition of what McDonough requires and provides for in his telephone, but a palpable make-and-break of the current.

The circuit-breaker mentioned and described in the specification of McDonough and shown in his drawings is treated by his able counsel as a mere adjuster, peculiarly adapted to the purpose of so regulating the current as to attain the best results—whether that was to keep the circuit closed, to make the theoretical make-and-break of Professors Young and Brackett, or the palpable, perceptible make-and-break of McDonough. In this model of McDonough the learned counsel finds all the elements required, and in proper combination and perfect adaptation to the use called for in issue G; for, says counsel, if it be true, as claimed, that McDonough's *theory* required a make-and-break system in which the makes and breaks should be palpable, yet if he did, nevertheless, in fact produce a device that supplied not only the conditions of a make-and-break system, but also of the closed-circuit system of Bell, having produced the *thing* sought, it is not important that his theory was unsound, since he was not required to have any theory about it. What the public wanted, what the commercial world would buy and pay for, was an instrument that would produce the results sought without reference to or concern about the theory or reasoning of the inventor, since he may have given the world a useful invention, and yet have held a very erroneous theory in regard to its scientific operation.

General Duncan says the true and only lawful test to apply to the McDonough specification is to determine whether the description is such as to enable a person skilled in the art to make a speaking-telephone. In this connection it must be supposed that the McDonough specifications were addressed to those skilled in the art as it existed before the invention of the speaking-telephone. The speaking-telephone was what McDonough was trying to invent, and his apparatus reflected his best conception of that art and the means to practice it; and Bell's specification indicated his conception of the art and the means adopted to practice it. There were at that date none skilled in the art as it is now understood, and the most and best an electrician at that time could do would be to intelligently follow the specification contained in the application. In following the McDonough specification the Reis instrument would be produced, while an intelligent construction in accordance with the Bell specification would, as it did, produce a speaking-telephone. As an abstract proposition, I agree that General Duncan is correct; but his reasoning, when applied to the facts in this case, is more ingenious than sound. That the circuit-breaker used by McDonough was intended to perform just the office its name implies cannot be seriously questioned. That it was not a mere adjuster to regulate the flow of the current so as to vary it between full force and zero, with an occasional range to the latter, which I understand to be the make-and-break contemplated by Professors Young and Brackett, is utterly improbable. That it was intended to preserve contact, and so maintain a closed circuit, is unreasonable. Nothing in the name of the device (and the name clearly points out its function) suggests such a thing. Nothing said in the specification in regard to it is at war with the function ascribed to it by the name by which it is designated. It occurs in this case that that which counsel referred to as a mere theory or philosophical disquisition of McDonough is of controlling importance, because he either conceived a speaking-telephone within the terms of the issue or he did not. There is no pretense that he did not make his model in accordance with his conception, (else his model would not illustrate his invention,) nor that his conception was not the result of and the mere reflection of his theory. His theory was that a talking-telephone involved, as an indispensable element, a make-and-break system, (not the theoretical make-and-break of Professors Young and Brackett, but that which is palpable, perceptible.) His conception of his invention responded to that theory, and his model was the materialization of that conception. His drawing and specification were in harmony with all three. So the circuit-breaker of McDonough's application is a key to the line of his investigation and the theory resulting from it. It indicates the source of his conception and the precise character of the invention upon which he predicates his claim to priority over Bell in this interference.

I recur again for a moment to the points before mentioned—to wit, that it is of no consequence what *theory* McDonough held if he in fact produced an invention which met the requirements of a speaking-telephone within the terms of the issue. Counsel proceeded to assert that McDonough did invent and construct a speaking-telephone, and that his models show it, and he refers to the evidence relied on to sustain his assertions. If McDonough, in the course of his experiments, did occasionally hear spoken words, was it because the instrument was made in accordance with his conception, as reflected in his application, drawing, and model, or because of an accidental condition not mentioned or demanded by the terms of his application? If a machine operating upon a different principle, and not in conformity to McDonough's conception, and at war with his theory, did occasionally talk, as asserted, it is clear that McDonough could not justly claim that such result was due to his theory, conception, or mechanical construction; and the cases cited by the learned counsel are in point, for in each of those cases the point is distinctly made that mere accidental use by a person is not conscious invention. He does not know that he has invented anything, and hence cannot know that he has anything to offer to others. *Colgate* v. *West.*

Un. Tel. Co., 15 Blatchf., 365; *Tilghman* v. *Proctor*, 102 U. S., 707.

Counsel says that it is not competent to hold that the McDonough device did not talk because it could not, and the Examiners-in-Chief erred in so doing, since that assumes the inoperativeness of a device upon which the Office has already passed. It will be observed, however, that the learned counsel argues with equal force that the device covered by the Bell patent is not an operative device, because it could not talk if constructed according to Bell's specification; and he says further, if Bell had died leaving to the world no other information touching a telephone than is contained in his application upon which his patent is predicated the public would never have heard of the Bell telephone, nor of Bell himself. The argument is legitimate, although the conclusion may be unauthorized.

The declaration of an interference is made on the assumption that the application or patent put in interference covers an operative device; but it by no means follows that such presumption is conclusive. It would border on the absurd to say that the moment the consideration of a vital question, important to both parties, and concerning that about which each has a right to be heard, is approached the hearing shall stop, and as to that important question the case should proceed *ex parte*. A motion to dissolve the interference is suggested as a proper proceeding, if the question of the operativeness of the device is raised in any manner or at any time. There is no reason why the question should not be raised and considered in determining that of priority. If the device of one of the parties is found to be inoperative, a dissolution of the interference would follow; at least the party having such device would have judgment against him.

It being competent to consider, as an item of evidence, the question of the operativeness of the McDonough device, or the device upon which he predicates his right to a patent as the prior inventor over Bell, I submit that I am not satisfied that McDonough had produced a speaking-telephone prior to Bell's successful efforts in the same field, and I am not satisfied that a telephone constructed in accordance with the specification of McDonough and operated in conformity to this theory and conception would or could transmit articulate speech within the terms of the issue.

I have considered the affidavits of Professors Young and Brackett in connection with the evidence given by them in the case of the American Bell Telephone Company v. the Overland Telephone Company of New Jersey. Taking the evidence of those two scientists as a whole, I cannot find that they have demonstrated or that they unqualifiedly affirm the fact to be that a telephone using the make-and-break system, as contemplated by McDonough, will transmit articulate speech within the terms of the issue. It transpires in the cross-examination of these learned gentlemen that they assume that a battery telephone-transmitter may successfully transmit articulate speech when it is operated to make and break alternately the circuit in a manner indicated by Sylvanus Thompson, as quoted by counsel in the course of the examination of Professor Young in the case last cited. The breaks spoken of by Sylvanus Thompson, however, are not those contemplated by McDonough—that is, such as will occur when all points on one electrode are removed from all points on the other electrode; but, on the contrary, are such as occur when a limited number of points on one electrode are removed from the limited number of points on the other electrode. Such breaks cannot cause an interruption of the current, because contact between the electrodes, as a whole, is not interrupted, and what Sylvanus Thompson and Professor Young described as *breaks* are, in effect, nothing but variations of contact, which, when occurring between the electrodes of a telephone, will give rise to an undulated current. It is true that Professor Young does intimate that it is even possible that the character of make-and-break which they (he and Professor Brackett) have in mind may, instead of a hinderance, be a real advantage in the electrical transmission of articulate speech. The better and controlling opinion is that a telephone constructed on the make-and-break system according to McDonough's conception will not talk. If that is so, clearly McDonough cannot succeed in the contest with Bell; but beyond that, it will be remembered that every incentive to diligence, every suggestion of honor and profit, was prompting McDonough, and, in fact, all the parties to this contest, to make haste in giving to the public an operative telephone; every condition and circumstance that could influence human action in such a matter reprehended delay and inaction. These contestants were in the field, fame and fortune were waiting at the goal of success for the inventor who first reached that point with a speaking-telephone. Each contestant knew it; each was trying to secure the reward that waited on success. The record discloses what was done by each and the measure of success attained.

Bell's patent was issued on the 1st of March, 1876. At the Centennial Exposition, held at Philadelphia that year, (1876,) he exhibited his telephone, and it was adjudged by such eminent scientists as Professor Henry, Sir William Thompson, of England, Professor Gray, one of the contestants herein, to be a success, and the world recognized Bell as the first inventor of a speaking-telephone. The indications are that it was not until the promised reward for so important a public service became visible that his claim to priority was called in question by any of the parties to this interference.

When considering the facts disclosed in this case I am forcibly reminded of the observation of Justice Grier in the case of *Goodyear* v. *Day*, (2 Wallace, Jr., 298:)

> When genius and patient perseverance have at length succeeded, in spite of sneers and scoffs, in perfecting some valuable invention or discovery, how seldom is it followed by reward. Envy robs him of the honor, while speculators, swindlers, and pirates rob him of the profits. Every unsuccessful experimenter who did or who did not come very near making the discovery now claims it. Every one who can invent an improvement or vary its form claims a right to pirate the original discovery. We need not summon Morse or Blanchard or Woodworth to prove that this is the usual history of every great discovery or invention.

And to the same effect in the case of *Howe* v. *Underwood* (1 Fisher, 162) Justice Sprague said:

> How invariable it is that after a great invention has been brought before the world, has become known to the public, and put in a form to be useful, that people start up in various places and declare that they invented the same thing long before. * * * These pretended prior inventors had thought of such a thing, perhaps, but they had never carried it to the extent of making it of practical utility, so that the world could obtain possession of it; but when they find that another has completed that which they had begun they are astonished that they did not see, think they must have seen, all that is necessary, and claim that they have invented it. After having seen what has been done the mind is very apt to blend subsequent information with prior recollections and confuse them together. Prophecy after the event is easy prophecy. I think that this is one of the cases in which several of the witnesses have been led into the illusion of believing that they knew before what they have learned or been taught by Mr. Howe's invention and specification.

I quote further the language of the case of *Smith* v. *Fay & Co.*, (6 Fisher, 452:)

> The presumption arising from silence, where there is so much interest to assert and occasion to assert it, and the party intelligent, and the results certain if the facts warranted it, has far more strength than any preponderance in number of witnesses and literal statements made by them in the case.

Also, *Hayden* v. *Suffolk Company*, (4 Fisher, 101:)

> The greater the importance of the invention the less probable that if achieved it would have been laid aside and not extended itself to others interested in its use.

And, further, *Howe* v. *Underwood*, (1 Fisher, 162:)

> It is a little remarkable that a perfect sewing-machine * * * never produced work that anybody ever used for any purpose whatever; * * * that it was laid aside for years without producing either work or propagating itself in other machines even after. *This is a phenomenon that requires to be accounted for.*

I have quoted these authorities which are cited in the brief of counsel for Bell, because the principle suggested and the ideas which are uppermost in the language quoted have had no little influence in bringing me to the conclusion I have reached in the determination of this case.

There is a disposition manifested by Bell's contestants to limit within the narrowest scope the invention claimed by Bell in his application of 1876, filed February 14th of that year. He then disclosed to the world what he had before invented—an art or method for transmitting articulate speech. His subsequent experiments demonstrated that the art or method discovered by him was what had been long sought, but not found, by his predecessors and rivals in the field of invention. He invented the art or method, and also an apparatus by which said art or method could be practiced. His claim as an inventor is for having done that thing in its entirety. The controlling issue in this contest is, however described and in howsoever many claims or subordinate issues it may find expression, a speaking-telephone. The invention of such a telephone involved necessarily the invention or discovery of the art or method not theretofore known of transmitting articulate speech. It would be impossible for an inventor to know that he had invented such an art until he had produced an apparatus which would enable him to practice it, for only by such a test could the fact be established. Hence it must appear that the inventor of the speaking-telephone must have invented the art and the apparatus, and I understand Bell's claim to cover the art and the apparatus by which he practiced said art. It occurs that Bell's competitors find in the various contrivances which they have invented certain elements which Bell now employs, and which they had employed in their unsuccessful efforts to transmit articulate speech. If not able to overthrow Bell's claim that he is the first inventor of a speaking-telephone, they seek to establish their claims to constituent elements, which they say Bell is not authorized to use without paying tribute to them. If they could succeed in this, it would be obvious, as counsel for Bell pertinently suggest, that these contestants will realize as great benefits from their several failures as Bell from his success. That all the efforts of the several contestants who had attempted to produce a speaking-telephone were failures seems clear from the record; that Bell was the first to give to the world the art of transmitting articulate speech, and the apparatus by which it could be successfully practiced, was substantially conceded for a long period after his success in that behalf was placed beyond doubt. Whether or not these several contestants had the instrumentalities and appliances at that time from which success might have been realized if those instrumentalities had been better understood is of little consequence. The history of their experiments is a history of recorded failures.

It is observed that Bell discovered, and his patent showed, that a certain combination of magnet, diaphragm, and armature, when arranged in a specified connection with other specified parts, constituted an apparatus which would transmit articulate speech. Up to this time no one else had done this, or had known it. The combination was the result of his conception and the outgrowth of his theory, and the apparatus, being a materialization of that conception and in conformity to that theory, was his original invention.

It is urged with great earnestness by counsel for McDonough that a telephone constructed after the manner shown in Bell's application would have been a failure, and would never have served as a valuable hint in constructing a commercial telephone, while he at the same time insists that McDonough has shown and described in his application a speaking-telephone. One very important truth may be mentioned in this connection, which goes a great way in resolving every doubt in favor of Bell as between him and McDonough. It is this: every improvement upon the Bell apparatus made in conformity to the specifications contained in Bell's original application tended to enhance the value of the telephone, and did, in fact, result in producing a thoroughly successful commercial instrument; while, on the other hand, every improvement of the McDonough device made in strict conformity to the requirements of his specification would tend to make the instrument worthless. The correctness of this proposition rests in large measure upon the theory that the underlying principle in the McDonough device was that it should operate by palpable make-and-break system, which involves a cessation of current at each vibration of the diaphragm. I am aware that this theory is assailed by the learned counsel for McDonough, and that he insists not only that the make-and-break is not incompatible with a successful speaking-telephone, but is in a measure a help. I accept the theory as fairly established that a telephone cannot be successfully operated which involves that system, and for the reason that there must be a time between the make-and-break when the diaphragm at the receiving end will not be under the control of the speaker, and will operate according to its own law.

The comments I have made touching the efforts of Voelker and McDonough apply with equal force, in the main, to those of the other parties in the contest with Bell. Edison is very properly accorded priority in issue D and No. 1.

A detailed review of each issue and each argument is not possible. I am satisfied from an examination of the evidence and consideration of the arguments submitted that the decision of the Board of Examiners-in-Chief should not be disturbed, and I do therefore approve and affirm it.

DECISIONS OF THE U. S. COURTS.

Supreme Court of the United States.

VOSS *v.* FISHER.

Decided January 26, 1885.

Patent had been granted for a device for protecting the necks of horses in which the claim was "the neck-pad having an inner lining of crimped leather and provided with straps to allow its being fastened to the collar," the specification reciting that "the stuffing in the pad is of hay or any other suitable material." The appellant, the defendant in a suit for infringement, had made and sold, as a substitute for a neck-pad, a single piece of crimped leather stiffened by a metal plate and provided with straps to fasten it to the collar, and the evidence showed that such a device had been made, sold, and used by many persons years before date of the patent. *Held* that (1) if the patent covers a combination including the stuffed pad, there is no infringement, for the appellant does not use the stuffed pad; (2) if it covers only the forming of the inner lining of a pad with crimped leather, there is no infringement, for the appellant does not use the crimped leather as the inner lining of a pad; and (3) if it covers simply a piece of crimped leather serving to protect the horse's neck, it is void for want of novelty.

APPEAL from the Circuit Court of the United States for the Western District of Michigan.

STATEMENT OF THE CASE.

This was a suit in equity brought by Charles J. Fisher, the appellee, against Willibald Voss, the appellant, to restrain the infringement by the latter of letters patent granted to Fisher, dated May 4, 1869, for an improved neck-pad for horses. The answer denied infringement and denied that Fisher was the first inventor of the patented improvement. Upon final hearing on the pleadings and evidence the circuit court rendered a decree in favor of the complainant, and the defendant appealed.

Mr. E. A. West and *Mr. L. L. Bond* for the appellant.
Mr. E. Taggert for the appellee.

Mr. Justice WOODS delivered the opinion of the Court.

Neck-pads for horses to which the letters patent relate were made of various kinds and used long before application for the patent was filed. They were attached to the horse-collar at its upper end immediately below the point where the two arms of the collar are buckled together. They rested on the neck of the horse, and their object was to prevent the galling of the horse's neck by the upper part of the collar. The improvement in neck-pads covered by the letters patent of the appellee was described as follows in the specification:

This invention relates to a new device for protecting the necks of horses between the upper ends of the collar to prevent galling. For this purpose pieces of leather, cloth, or other material have heretofore been used, but without the desired success. Pads could not be made, as their inner faces could not be kept clear from wrinkles or protuberances, which are more injurious than the omission of a protecting device.

My invention consists in producing a pad which may be attached to the collar, and which is perfectly smooth on the under side, the leather used on the under side being crimped in order to obtain the desired shape. The pad is so shaped that it fits a horse's neck between the arms of the collar, it being thick on top and tapering toward the ends. The under side of the pad is formed by a sheet of leather, which is crimped in order to have its ends turned up without producing wrinkles. The stuffing in the pad is of hay or any other suitable material. On the outer side of the pad, near the ends of the same, are straps, which are fitted around the collar to prevent longitudinal displacement of the pad.

The claim was as follows:

The neck-pad having an inner lining of crimped leather, and provided with straps to allow its being fastened to the collar, as herein shown and described, for the purpose specified.

The thing made and sold by the appellant which was charged to be an infringement of the appellee's patent was a single piece of crimped leather having a piece of sheet metal so shaped as to fit it riveted to its upper side in order to stiffen it and preserve its crimped form, and provided with straps to fasten it to the collar. The specification of appellant's patent describes a stuffed pad. The drawing by which it is illustrated shows a stuffed pad, and the certified model of the invention from the Patent Office exhibited at the hearing is a stuffed pad. It is clear that if the patent is to be construed as a combination consisting of a stuffed pad having an inner lining of crimped leather and straps to fasten the pad to the collar, the appellant does not infringe, for he does not use one of the elements of the combination, namely, the stuffed pad, nor its equivalent. *Prouty* v. *Ruggles*, 16 Pet., 336; *Gould* v. *Rees*, 15 Wall., 187; *Rowell* v. *Lindsay*, 112 U. S., and cases therein cited. But counsel for appellee insists that the patent was not intended to cover a combination, but merely the forming of the under side of the pad by the use of a smooth sheet of leather crimped in order to have its ends turned up without producing wrinkles.

As already stated, the appellant does not use the crimped leather as the inner lining of a stuffed pad. He uses the crimped leather stiffened by a metal plate as a substitute for a stuffed pad with a crimped leather lining. There is, therefore, no infringement, unless the patent of the appellee should be construed to cover simply a piece of leather crimped to the proper shape, and having its under side smooth and free from wrinkles, to be used to keep the upper part of the collar from galling the neck of the horse. If the patent is so construed, it must be held void, for the evidence in the record is conclusive to show that such a device was made, sold, and used by many persons years before the date of the appellee's patent.

The result of these views is that the decree of the circuit court must be reversed and the cause remanded to that court, with directions to dismiss the bill.

U. S. Circuit Court—Southern District of New York.

HATCH *et al. v.* HALL.

Decided December 4, 1884.

A territorial grantee cannot be restrained from advertising and selling within his territory, even though the purchasers may take the patented articles outside of the vender's territory.

Mr. Frank P. Prichard and *Messrs. Biddle & Ward* for the complainants.
Mr. B. F. Watson for the defendant.

WHEELER, *J.*:

The right of the defendant to the orators' patent for the territory comprised within the State of New York would seem to afford him no right to sell for use within the territory still owned by the orators the patented articles made by him in his territory. This is shown in the opinion of Judge McKennan in *Hatch* v. *Adams;* but no good reason yet appears why he should not be permitted to advertise the articles and sell them in New York, although the purchasers may take them into the orators' territory. The citizenship of the defendant within this district gives the right to proceed here against him personally to prevent infringement elsewhere.

The motion for an injunction is granted so far as to restrain sales by the defendant or his agents within the orators' territory, and denied as to the residue.

THE OFFICIAL GAZETTE OF THE United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

VOL. 30—No. 12. TUESDAY, MARCH 24, 1885. PRICE—$5 per year.

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Indexes to Patents on Electricity.

Appendix No. 2 to the index to patents relating to electricity, covering the period of time from July 1, 1882, to June 30, 1883, has been issued, and is now for sale. These indexes, arranged alphabetically, numerically, and by classes, are completed to June 30, 1883, and comprise the following volumes:

Vol. 1. Index to patents relating to electricity granted by the United States prior to June 30, 1881, with an appendix, July 1, 1881, to June 30, 1882. One volume, 250 pages. In paper covers, $3; bound, $5.

Vol. 2. Appendix No. 2, July 1, 1882, to June 30, 1883. One volume, 50 pages. In paper covers, $1.50.

Vol. 3. Appendix No. 3, July 1, 1883, to June 30, 1884. One volume, 60 pages. In paper covers, $1.50.

BENJ. BUTTERWORTH,
Commissioner.

Issue of March 24, 1885.

Patents	339	No. 314,216 to No. 314,554, inclusive.
Designs	21	No. 15,981 to No. 16,001, inclusive.
Trade-Marks	24	No. 12,032 to No. 12,055, inclusive.
Labels	4	No. 4,389 to No. 4,392, inclusive.
Reissues of patents	2	No. 10,574 to No. 10,575, inclusive.
Total issue	390	

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Australia			Germany	3	
Austria-Hungary			Holland		
Barbadoes			Ireland	1	
Belgium			Italy		1
Bermuda			Mexico		
Brazil			New Zealand		
Canada	2		Scotland		
Chili			Spain		
Colombia, U. S. of			Sweden		
Cuba			Switzerland		
Denmark			Victoria	1	
Ecuador					
England	8		Total to citizens of foreign countries	17	1
France	2				

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	1		Nebraska	3	
Arizona Territory			Nevada		
Arkansas			New Hampshire	1	
California	7		New Jersey	20	
Colorado	1		New Mexico Territ'y	1	
Connecticut	5		New York	66	13
Dakota Territory	3		North Carolina	1	
Delaware	2		Ohio	26	4
District of Columbia			Oregon	1	
Florida			Pennsylvania	36	3
Georgia	3		Rhode Island	3	2
Idaho Territory			South Carolina	1	
Illinois	38		Tennessee	3	
Indiana	11		Texas	6	
Indian Territory			Utah Territory		
Iowa	4		Vermont	2	
Kansas	7		Virginia	2	
Kentucky	3	1	Washington Territ'y		
Louisiana			West Virginia	2	
Maine	3		Wisconsin	8	1
Maryland	4		Wyoming Territory		
Massachusetts	36	1	United States Army		
Michigan	13		United States Navy		
Minnesota	4				
Mississippi	1		Total to citizens of the United States	343	27
Missouri	15	2			
Montana Territory					

DESIGNS.

15,981 and 15,982.—FENCE-PICKET.—*George Q. Adams*, Quincy, Ill. Applications filed July 24, 1884. Term of patents 3½ years.

15,983.—MONEY-BOX.—*Isaac Brooks*, Pottstown, Pa. Application filed January 5, 1885. Term of patent 3½ years.

15,984.—BRACKET FOR SPRINGS.—*William I. Bunker*, Chicago, Ill. Application filed January 27, 1885. Term of patent 14 years.

15,985.—ADVERTISING-CARD.—*Martin M. Dux*, New York, N. Y. Application filed January 16, 1885. Term of patent 7 years.

15,986.—CARPET.—*James L. Folsom*, Brooklyn, N. Y., assignor to *The Hartford Carpet Company*, Hartford, Conn. Application filed January 14, 1885. Term of patent 3½ years.

15,987 and 15,988.—CARPET.—*Arthur L. Halliday*, Yonkers, N. Y., assignor to *The Bigelow Carpet Company*, Clinton, Mass. Applications filed February 7, 1885. Term of patents 3½ years.

15,989.—CARPET.—*Arthur L. Halliday*, Yonkers, N. Y., assignor to *The Bigelow Carpet Company*, Clinton, Mass. Application filed February 13, 1885. Term of patent 3½ years.

15,990.—CURTAIN FABRIC.—*John Hartley*, Philadelphia, Pa., assignor to *Barnes & Beyer*, same place. Application filed February 19, 1885. Term of patent 3½ years.

15,991.—ADVERTISING-SIGN.—*Norval Marion Harrison*, Baltimore, Md. Application filed February 4, 1885. Term of patent 7 years.

15,992.—CARPET.—*Otto Heinigke*, New Utrecht, N. Y., assignor to *The Hartford Carpet Company*, Hartford, Conn. Application filed January 14, 1885. Term of patent 3½ years.

15,993.—CARPET.—*Henry Hunt*, Greenville, N. J., assignor to *The Hartford Carpet Company*, Hartford, Conn. Application filed January 14, 1885. Term of patent 3½ years.

15,994.—SCARF.—*James R. Keiser*, Brooklyn, N. Y. Application filed December 27, 1884. Term of patent 3½ years.

15,995 and 15,996.—CARPET.—*Norie Komori*, New York, N. Y., assignor to *The Bigelow Carpet Company*, Clinton, Mass. Applications filed February 12, 1885. Term of patents 3½ years.

15,997.—CLOCK-FRONT.—*Charles Kitschelt*, New York, N. Y., assignor to *Nicholas Muller's Sons*, same place. Application filed February 11, 1885. Term of patent 3½ years.

15,998.—RUG.—*Patrick McCaffray*, Philadelphia, Pa., assignor to *William T. Smith*, same place. Application filed January 29, 1885. Term of patent 3½ years.

15,999.—CARPET.—*William McCallum*, Yonkers, N. Y., assignor to *The Bigelow Carpet Company*, Clinton, Mass. Application filed February 7, 1885. Term of patent 3½ years.

16,000.—CARPET.—*Edmund Pyne*, New York, N. Y., assignor to *The Bigelow Carpet Company*, Clinton, Mass. Application filed February 7, 1885. Term of patent 3½ years.

16,001.—CARPET.—*Frank E. Smith*, New York, N. Y., assignor to *The Bigelow Carpet Company*, Clinton, Mass. Application filed February 13, 1885. Term of patent 3½ years.

TRADE-MARKS.

[Certificates of registration of Trade-Marks numbered 8,191 and upward are registered under the act of March 3, 1881.]

12,032.—APPLICATION FOR CHAPPED HANDS, FACE, &c.—*Oscar A. Alter*, Manitowoc, Wis. Application filed February 24, 1885.
"The word 'CHAPPINE.'"

12,033.—BOTTLED LAGER-BEER.—*Anthony & Kuhn Brewing Company*, St. Louis, Mo. Application filed February 20, 1885.
"The triple letters 'X X X.'"

12,034.—MACARONI.—*A. Cusimano & Co.*, Palermo, Italy, New Orleans, La., Boston, Mass., and New York, N. Y. Application filed February 5, 1885.
"The term 'GLADIATOR,' whether represented by the word or the figure."

12,035.—SHEET METAL FOR PACKING AND OTHER PURPOSES.—*D. P. Dieterich*, Philadelphia, Pa. Application filed February 12, 1885.
"The fanciful word or title 'LUCTOR.'"

12,036.—WATER, STEAM, AND OTHER VALVES.—*D. P. Dieterich*, Philadelphia, Pa. Application filed February 12, 1885.
"The title 'VULCAN.'"

12,037.—COMPOUND FOR REMOVING BLOTCHES AND FRECKLES FROM THE SKIN.—*Joseph B. Glenny*, New York, N. Y. Application filed January 30, 1885.
"The words 'SNOW BALM' appearing and arranged on a shaded band or strip, and in combination with said band or strip."

12,038.—RUBBER BOOTS, SHOES, AND CLOTHING.—*Goodyear Rubber Company*, New York, N. Y. Application filed February 24, 1885.
"The arbitrarily-selected word 'LINCOLN.'"

12,039.—SILESIAS, SATEENS, TWILLS, AND OTHER TEXTILE COTTON FABRICS.—*Hyde & Burton*, New York, N. Y. Application filed February 9, 1885.
"The word 'BOLTON' in an elliptical ground."

12,040.—FLOUR.—*Jimenes, Haustedt & Co.*, New York, N. Y. Application filed February 13, 1885.
"The words 'LA RUBIA.'"

12,041.—FLOUR.—*Jimenes, Haustedt & Co.*, New York, N. Y. Application filed February 13, 1885.
"The words 'LA INDIA.'"

12,042.—PERFUMERY.—*Lorenz Bros.*, Toledo, Ohio. Application filed January 12, 1885.
"The fanciful title 'MOUNTAIN MIST.'"

12,043.—PERFUMERY.—*Lorenz Bros.*, Toledo, Ohio. Application filed January 12, 1885.
"The fanciful title 'ANGEL FLOWER.'"

12,044.—PLUG-TOBACCO.—*Perkins & Ernst*, Covington, Ky. Application filed February 9, 1885.
"The term 'PALM LEAF,' whether indicated by the words or by the symbol, separately or together."

12,045.—BAKING-POWDER.—*Potter, Parlin & Co.*, Cincinnati, Ohio. Application filed February 2, 1885.
"The representation of a camel."

12,046.—BAKING-POWDER.—*Potter, Parlin & Co.*, Cincinnati, Ohio. Application filed February 2, 1885.
"The representation of an owl."

12,047.—STOVES OF ALL KINDS, PORTABLE OVENS, AND COOKING UTENSILS FOR THE SAME.—*Quick Meal Stove Company*, St. Louis, Mo. Application filed January 26, 1885.
"The words 'QUICK MEAL.'"

12,048.—MEDICINAL FOOD PRODUCTS.—*Reed & Carnrick*, New York, N. Y. Application filed August 26, 1882.
"The word 'PEPTONOIDS.'"

12,049.—BUTTONS.—*Rothschild Bros. & Co.*, New York, N. Y. Application filed February 9, 1885.
"A design showing an obelisk, blacksmith's arm and hammer, an anvil, and a female figure holding a spear."

12,050.—SPARKLING OR EFFERVESCING BEVERAGE.—*Rumford Chemical Works*, Providence, R. I. Application filed February 24, 1885.
"The arbitrary word 'PHOSA.'"

12,051.—SAD-IRONS.—*John Sabold, Jr.*, Colebrookdale, Pa. Application filed February 7, 1885.
"The two letters 'XX' or double 'X.'"

12,052.—COSMETICS.—*Mary E. Thompson*, New York, N. Y. Application filed February 28, 1885.
"The word 'KOSMONE.'"

12,053.—KID GLOVES.—*Augustus Traver*, New York, N. Y. Application filed December 17, 1884.
"The word 'TRÈVERE,' arranged on a band extending diagonally across a shield."

12,054.—LEAF-TOBACCO.—*Weil & Co.*, New York, N. Y. Application filed February 9, 1885.
"The letters and abbreviation 'W. & C.'"

12,055.—LAUNDRY-SOAP.—*George F. Whitney*, Boston, Mass. Application filed February 4, 1885.
"The word 'ORIOLE.'"

LABELS.

4,389.—Title: "DR. GEO. DESBROUGH'S ANTI-DYSPEPTIC STOMACH POWDER."—*Dr. George Desbrough*, Utica, N. Y. Application filed February 26, 1885.

4,390.—Title: "DR. DESBROUGH'S ANTI-BILIOUS BLOOD AND LIVER PILLS."—*Dr. George Desbrough*, Utica, N. Y. Application filed February 26, 1885.

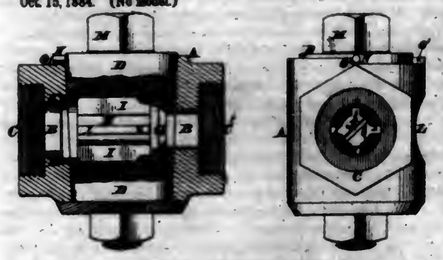
4,391.—Title: "SPARKLING PHOSA" (FOR A BEVERAGE.)—*Rumford Chemical Works*, Providence, R. I. Application filed February 24, 1885.

4,392.—Title: "S. L. TUCKER'S RHEUMATIC X LINIMENT.—*Samuel L. Tucker*, New York, N. Y. Application filed February 27, 1885.

PATENTS

GRANTED MAR. 24, 1885.

314,216. CHECK-VALVE. WILLIAM BARKER, Cincinnati, Ohio. Filed Oct. 15, 1884. (No model.)

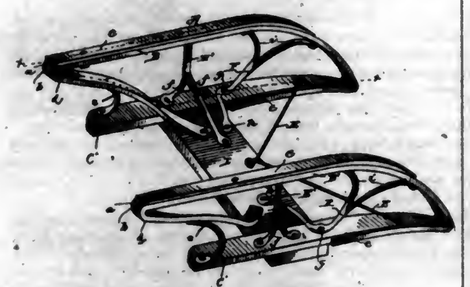


Claim.—1. The combination, in a check-valve, of a casing or shell having a suitable passage and an opening at one side, and a rotating plug having a seated port containing a valve that closes against said seat, for the purpose described.

2. The combination, in a check-valve, of the pierced shell A B L, having a counterbore, K, and a rotating plug, D, having a seated port, E F, that contains a suitable valve, as G, closing against said seat, for the purpose described.

3. A check-valve having a turning member provided with a valved port, which port is normally in line with the channel of the valve casing or shell, but can be shifted out of line with said channel and brought into communication with an opening in said casing, in order that said valve may be reground without removing it bodily, substantially as herein described.

314,217. SLED. SAMUEL BAUM, Little Falls, N. Y. Filed Jan. 30, 1885. (No model.)



Claim.—1. In a sleigh, the combination, with runners having their forward ends extended and bent rearwardly and formed with flanges, of raves adapted to fit said flanges, substantially as set forth.

2. In a sleigh, the combination, with the runners having grooves upon their under sides, of shoes having ribs or tongues to fit the same, the ends of said runners being formed with downwardly-extending flanges, and raves adapted to be fitted between said flanges, substantially as set forth.

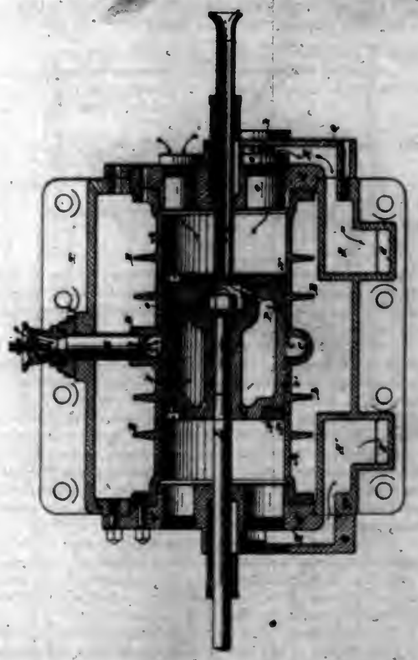
3. In a sleigh, the combination, with the runners having their rear ends bent forwardly and inwardly and raves mounted above the runners, of a sand-board secured to the forwardly and inwardly bent ends of the runners and to the raves, and shoes having ribs or tongues to fit grooves in the under faces of the runners, substantially as set forth.

4. In a sleigh, the combination, with the runners having the forwardly and inwardly extending rear ends, raves mounted above and connected with said runners, and a sand-board connecting said raves, of braces connecting the forwardly and inwardly extending rear ends of the runners and the raves, as set forth.

5. In a sleigh, the combination, with the raves and runners supporting the same, of the sand-board and braces F, secured to the under side of the raves, bent inwardly and secured to the sand-board, their other ends being divided and secured to the runners, as shown and described.

6. A sled comprising in its construction runners having grooves on their under faces, shoes having ribs to fit the same, the forward ends of the runners being flanged, turned back, and secured to the raves, the sand-board connecting the runners, said runners having their rear ends turned inwardly and forwardly and secured to the sand-board, braces e, connecting the rear ends of the runners and raves, and the braces F, connecting the raves, sand-board, and runners, substantially as set forth.

314,218. AIR-COMPRESSING ENGINE. REGINALD P. BOLTON, Broxbourne, County of Herts, England. Filed Sept. 3, 1884. (No model.) Patented in England Sept. 20, 1883, No. 4,502.



Claim.—1. In an air-compressing engine, the combination of the air-compressing cylinder and elongated hollow reciprocating piston, the piston being provided on its perimeter with circumferential grooves, and air-passages communicating between the said grooves and the interior of the piston, and an air-passage leading therefrom to the open air.

2. In an air-compressing engine, the combination of the compressing-cylinder A, provided intermediate its ends with an internal circumferential groove, C, with an air-passage, E, leading to said groove, an air-injector, I, arranged and constructed as described, for forcing air

through said passage into said groove, and a reciprocating piston, K, constructed, arranged, and proportioned relatively to said cylinder as described, whereby at the end of each stroke it uncovers the said groove and opens communication between it and the interior of the body of said cylinder, all as and for the purpose specified.

3. In an air-compressing engine, the combination of the cylinder A, provided with an internal circumferential groove, C, the elongated hollow piston K, provided with an exterior circumferential groove, and an air-passage communicating between the interior of the piston and said groove, the hollow tail-piece M, and an air-passage communicating between the interior of the piston and the said tail-piece, as and for the purpose described.

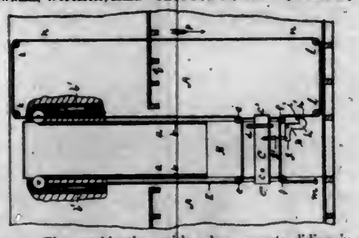
4. In an air-compressing engine, the combination of the cylinder A, the hollow elongated piston provided with an external circumferential groove, an air-passage communicating between the interior of the piston and said groove, and an air-passage communicating between the interior of the piston and the open air, and provided, also, with metallic packings N, secured to the piston-head, all as and for the purpose specified.

5. In an air-compressing engine, the combination, with the air-compressing cylinder and piston, of the described inlet-valve formed of the tubular seating *a* and the valve-tube *b*, open at the outer end and closed at the inner end by the valve-head *b'*, formed thereon, the said valve-tube being fitted into said valve-seating to reciprocate therein, and provided with an annular external groove near the valve-head, and with apertures *c*, communicating between the said groove and the interior of said valve-tube, all as and for the purpose described.

6. In an air-compressing engine, the combination, with the air-compressing cylinder and piston, of the described outlet-valve composed of the tubular valve-seating *e*, central boss, *f*, valve-tube *j*, valve-head *g*, tube *g'*, projection *k'*, and spring *l*, all as and for the purpose described.

7. The combination, with the cylinder-head Q, the seating *a*, and valve-tube *b*, provided with slotted apertures in its walls, of the headed stop-pins *d*, which pass through countersunk holes in the body of said seating and project into the said slotted openings in the said valve-tube, as and for the purpose described.

314,219. APPARATUS FOR OPERATING WAREHOUSE-DOORS. G. L. BROWNELL, Worcester, Mass. Filed Dec. 19, 1884. (No model.)



Claim.—1. The combination, with a door or gate sliding in ways in a building, of a hoisting-rope having its ends attached to the building and carried around pulleys on the sliding door and building, substantially as described, and for the purpose set forth.

2. The combination, with a sliding door or gate sliding in ways in a building, and a hoisting-rope having its ends attached to the building and passing around pulleys on the door and building, of a latching device actuated by said hoisting-rope, as and for the purpose set forth.

3. The combination, with a sliding door or gate sliding in ways in a building, of a bar pivoted to the sliding door and having pulleys to receive a hoisting-rope, the free end of said bar vibrating between stops on the door, a hoisting-rope having its ends attached to the building and passing around the pulleys on the pivoted bar, and a latching device connected with said pivoted bar so the motion of the bar will actuate the same, as and for the purpose set forth.

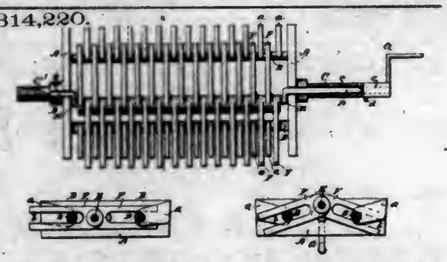
4. The combination, with a sliding door sliding in ways in a building, and a hoisting-rope by which said door is operated, of a bell-crank lever pivoted to the door and connected with and actuated by the hoisting-rope, said bell-crank lever having on one arm a hook adapted to engage a stop on the building, as and for the purpose set forth.

5. The combination, with a door or gate sliding in ways in a building, of a bar pivoted to said door and vibrating between stops on the door and carrying pulleys to receive a hoisting-rope, a hoisting-rope having its ends attached to the building and passing over the pulleys on the pivoted bar and over pulleys on the building changing the direction of the rope, and a bell-crank having one arm connected with and actuated by the pivoted bar and its other arm carrying a hook or latching device to engage a stop on the building, as and for the purpose set forth.

314,220. GRATE. EDWARD CARD, Pawtucket, R. I. Filed Mar. 10, 1884. (No model.)

Claim.—1. In a fire-grate, the combination of the grate-frame provided with trunnions, and having side bars provided with outwardly-

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projecting ribs, with the grate-bars arranged upon a crank and alternately embracing the ribbed side bars of the frame, substantially as described.

2. In a fire-grate, the combination of the grate-bars, arranged alternately in opposite directions upon separate cranks, with an intermediate grate-supporting bar adapted to support the interlocked ends of the adjacent separately-cranked grate-bars, substantially as described.

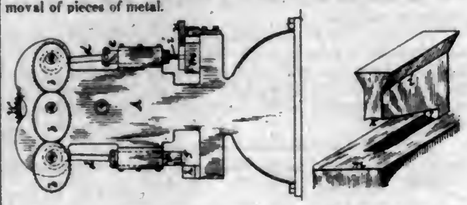
3. In a fire-grate, the combination of the side bars provided with outwardly-projecting ribs, the grate-bars arranged alternately in opposite directions upon separate cranks, with an intermediate grate-supporting bar adapted to support the interlocked ends of the adjacent separately-cranked grate-bars, substantially as described.

4. A grate-bar supported at one end upon a crank and at the opposite end by means of a stationary bar, and thus having a circular movement in a vertically-directed plane at the crank end of the grate-bar, with a corresponding forward and backward and an opposite up-and-down movement at the other end of the same, substantially as described.

5. In a fire-grate, the combination of the crank, with the grate-bars arranged alternately in opposite directions upon the same, and means for supporting the outer ends of the grate-bars, substantially as described.

314,221. MACHINE FOR SPLITTING BARS AND SHEETS OF IRON OR STEEL. CYRUS M. CARNAHAN, Pittsburg, Pa. Filed July 2, 1884. (No model.)

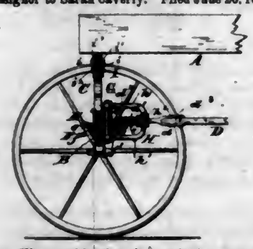
Brief.—The cutter *i* and die-box *m* are used in slitting heavy metal. The iron or steel is placed on *m*, *l* acting as a stop and guide, and the cutter reciprocated until the bar is divided by the successive removal of pieces of metal.



Claim.—1. The combination, with the frame A, its shafts *a*, gear-wheels *b*, and connecting-links *d*, the vertically-sliding heads *e f*, the latter having the blade *g*, and the stationary block *h*, of the adjustable end-wise-movable table *n*, provided with a rack and operated by a pawl mechanism, as shown and described.

2. As an improvement in metal splitting and slotting machines, the same consisting of the frame A, shafts *a*, gear-wheels *b*, cams *c*, links *d*, and head *e*, having tool *i*, provided with concave face *k* and projection *l*, the die-box *m*, and the horizontally-sliding table *n*, provided with rack *o*, and mechanism, as described, for operating the machine, as specified.

314,222. RUNNING-GEAR FOR VEHICLES. AMOS K. CAVERLY, Moline, Ill., assignor to Sarah Caverly. Filed June 20, 1884. (No model.)



Claim.—1. The combination, in a vehicle, of a straight reach attached rigidly to the rear axle and swiveled in the fifth-wheel at its forward end, a spring attached to said fifth-wheel, carrying at its upper side a shouldered block, and a guiding-plate secured to the body of the vehicle, and adapted to receive and guide the shouldered block of the spring, substantially as set forth.

2. In a vehicle, the combination of the swiveled reach, constructed substantially as described and shown, the fifth-wheel, the front spring attached to the fifth-wheel, and carrying at its upper end a block adapted to slide within a block upon the under side of the vehicle-body, the vehicle-block being provided with stops to limit the movement of the spring-block, as and for the purpose described.

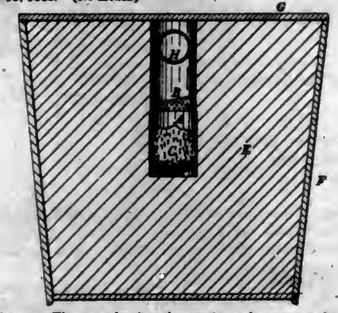
3. A straight reach rigidly attached to the rear axle, its forward end journaled into a projection from the rear of the upper disk of the fifth-wheel, its forward portion behind the fifth-wheel supported by a yoke whose arms are swiveled by the king-bolt to the disks of the fifth-wheel.

4. A straight reach rigidly attached to the rear axle, its forward end journaled into a projection from the rear of the upper disk of the fifth-wheel, its forward portion behind the fifth-wheel supported by a yoke embracing such forward portion through a hole in its rear, and its arms swiveled to the disks of the fifth-wheel, immediately behind the front axle, by the king-bolt.

5. A fifth-wheel for vehicles, consisting of an upper disk with central hollow vertical projection above, horizontal hollow projection in the rear of and at right angles to such vertical projection, peripheral flange extending below its bottom face and secured to the front spring immediately in front of such vertical projection, and a lower disk with like central hole and parallel flanges in front of such hole adapted to fit over and around the front axle and secured thereto or to the axle-block, with its diameter slightly smaller than that of the upper disk to fit and rotate within the flange on the periphery of the upper disk, and the king-bolt.

6. The herein-described running-gear for vehicles, consisting of the rear and front axles, a fifth-wheel mounted upon the latter, a reach rigidly attached to the rear axle and swiveled in the fifth-wheel, a spring mounted upon the fifth-wheel, the body, and a sliding connection between the body and the spring.

314,223. TOBACCO-MOISTENING DEVICE. CHARLES H. CLARK, Rochester, N. Y., assignor of one-half to Silas A. Servis, same place. Filed Aug. 13, 1883. (No model.)

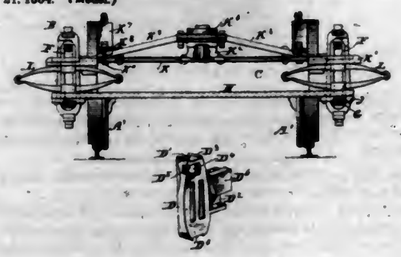


Claim.—1. The case having the perforated open portion and the water-tight lower portion or cup, with the absorbent material seated therein, the device being adapted to be seated within and sustained by the body of tobacco contained in a pail or like closed receptacle, whereby the tobacco may be charged with moisture in the form of vapor.

2. In a tobacco-moistener, the combination of a water-tight cup or receptacle, a perforated body rising above the same, a body of absorbent material seated in the cup, and a handle by which to withdraw said material.

3. In combination with a tight receptacle containing a body of tobacco, a case the upper portion of which is perforated, as described, and which is seated bodily within the receptacle, and a body of absorbent material charged with moisture and confined within the case, whereby the moisture is caused to permeate the mass of tobacco in the form of vapor, but prevented from contact therewith in a liquid form.

314,224. CAR-TRUCK. ISAAC H. COWDON, Omaha, Nebr. Filed July 21, 1884. (Model.)



Claim.—1. In a car-truck provided with swinging metallic transoms and suspension-links therefor, a swinging bolster supported by and in combination with the standards of the arches of the truck, substantially as specified.

2. In a car-truck provided with swinging metallic transoms of channel-iron and suspension-links therefor, a swinging bolster, as described, supported by the standards of the arches of the truck and in line with the journals of the axles, substantially as specified.

3. In a truck provided with swinging metallic transoms and suspension-links therefor, the combination of a swinging bolster supported in the standards of the arches of the truck, and said transoms secured at each of their ends to standards D, provided with slots in their inner faces and suspension-bars entering said slots, substantially as and for the purpose described.

4. In a truck provided with swinging metallic transoms and suspension-links therefor, the combination of the arches, the standards, constructed as described, links suspended therefrom, a bolster mounted upon said links and between the transoms secured to the standards, and springs arranged within said links substantially in line with the journals, substantially as specified.

5. In a truck provided with swinging metallic transoms and suspension-links therefor, the combination of standards provided with slots, as described, suspension-links retained thereby, a metallic sand-plate and bolster, with intermediate springs arranged within the links, and transoms connecting the standards, substantially as specified.

6. The standard D, provided with the suspension-bar seats D^4, substantially as specified.

7. The standard D, provided with the projection D^2, adapted to receive a transom, substantially as specified.

8. The standard D, provided with the projection D^2 and bearing-face D^4, substantially as specified.

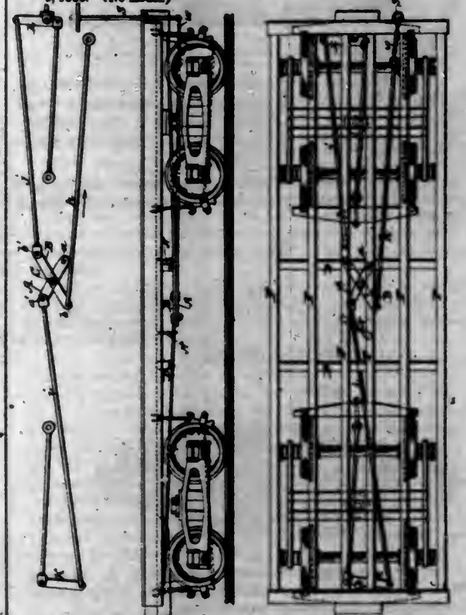
9. The standard D, provided with the bolt-passage D', the projection D^2, the seats D^3 D^4, and the bearing-face D^4, the whole being cast in a single piece, substantially as shown and described.

10. The standard D, provided with the seat D^4 and with slots D^5, substantially as specified.

11. The combination of the arches B, the standards D, having the projections D^2, the transoms C, and the bolts B', substantially as shown and described.

12. The combination of the arches B, the standards D, having the projection D^2 and seats D^4, transoms C, the links F, the bars E G, the sand-plate H, the springs I, and a bolster mounted on the springs, substantially as shown and described.

314,225. CAR-BRAKE. ISAAC H. COWDON, Omaha, Nebr. Filed Feb 9, 1885. (No model.)

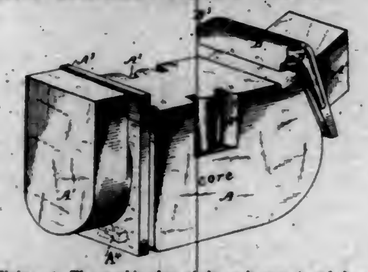


Claim.—1. The combination of the levers A and B, pivoted one above the other, (like the blades of a pair of scissors,) one of said levers having one end pivoted to the car and the other end connected to the brake-lever at one end of the car, and the other lever having one end

connected to the brake-staff and the opposite end secured to a brake-lever adjacent to said brake-staff, substantially as and for the purpose described.

2. The combination of the frame of a car, the crossed levers A B, pivoted together about the middle of their length, the rod *i* and brake-lever K at one end, the rod *j* and brake-lever L at the other, with the rod *h*, connected to the cross-levers at one end and to the brake-staff at the other, whereby tension from a brake-staff upon one rod is evenly divided and equalized upon two trucks of a car, substantially as described.

314,226. MEANS FOR CASTING CAR-AXLE BOXES. ISAAC H. CONGDON, Omaha, Nebr. Filed July 22, 1884. (No model.)



Claim.—1. The combination of the main core A and the separate core B, substantially as specified.

2. The combination of the main core A, provided with the core-supporting projections A', with the separate core B, mounted upon one of the projections, substantially as specified.

3. The combination of the main core A, provided with the depressions A^2 and with the projection A', with the separate core B, provided with the curved ribs B^2, substantially as specified.

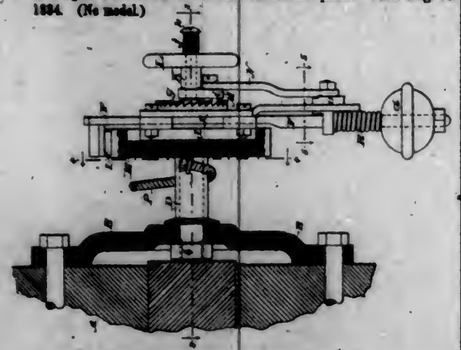
4. The core B, provided with the opening B' and the curved ribs B^2, substantially as shown and described.

314,227. SCREW-CAP FOR METAL CANS. ALMOND F. COOPER, Cambridge, Mass. Filed Oct. 17, 1884. (No model.)



Claim.—In a can or vessel, the screw-cap B, provided with a bar, D, permanently secured to its top and extending horizontally across the same and beyond the sides thereof, and having its ends *f* bent downward to form a combined handle or wrench and hanging-up loops or hooks, substantially as shown and described.

314,228. SPEED-REGULATOR. AARON E. CORSON, High Bridge, N. J., assignor of one-half to Wm. H. Corson, same place. Filed Aug. 29, 1884. (No model.)

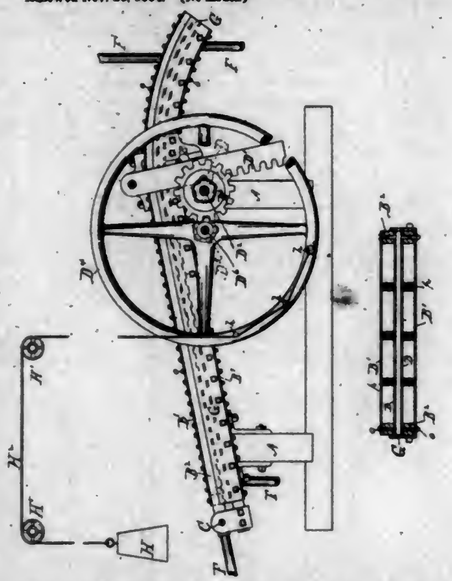


Claim.—1. A speed-regulator of substantially the construction shown, provided with a drum, E, having a scroll-like form, substantially as shown, and for the purposes set forth.

2. The combination, with a wheel, A, and its brake *a*, of the spindle C, mounted on said wheel, the barrel D, and brake-rope P, the scroll-like drum E, fixed to the barrel, the stem F, mounted in sliding bearings, substantially as shown, and provided with a weight, G, and brake-shoe I, arranged to press on the drum E, and the means, substantially as described, for varying the normal pressure of the brake-shoe on the drum while the machine is in motion, substantially as set forth.

3. The combination, with the barrel, the drum, their spindle, the sliding rod, its brake-shoe, and weight, of the plate J, stem *h*, sleeve K, hand-wheel L, arm M, provided with tooth *i*, ratchet *g* on plate J, rod N, cross-head O, the spring H, and the spring *j*, arranged to keep the tooth *i* in engagement with the ratchet, all constructed and arranged to operate substantially as set forth.

314,229. WOOD-BENDING MACHINE. JOHN R. CROSS, Chicago, Ill.; Mary L. Cross, administratrix of said John R. Cross, deceased, assignor, by mesne assignments, to Mary L. Cross, same place. Filed Jan. 14, 1882. Renewed Nov. 20, 1884. (No model.)



Claim.—1. In a wood bending or drying machine, the hollow platen constructed of upper and lower boiler-iron plates, B B', intermediate wrought-metal frame B^3, marginal rivets *o*, and central stay-bolts, *p*, substantially as specified.

2. The combination of under stationary platen, the upper platen hinged to the lower one, the rack-bars secured to the upper platen, the crank-wheel, and the gearing, whereby the power of the wheel is transmitted to the rack-bar for operating upper platen, substantially as specified.

3. In a wood bending or drying machine, the combination of two hollow platens adapted to be heated by steam, one of said platens being provided with overlapping plates inclosing the side edges of the board without preventing the escape of the vapor thereat, substantially as specified.

4. The combination, with the moving platen, of a drying and bending machine, and the mechanism for depressing said platen, of a weight connected to said mechanism and exerting a steady force thereon, whereby the shrinkage in the wood is taken up, and an unvarying pressure is secured, substantially as specified.

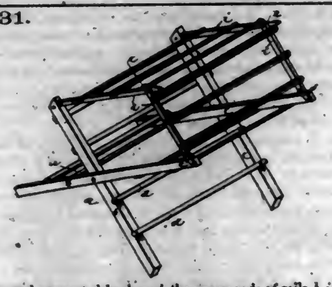
314,230. PRUNING IMPLEMENT. CHESTER F. DEAN, St. Johnsbury, Vt., assignor, by mesne assignments, to himself and Harvey S. Calderwood, same place. Filed May 12, 1884. (No model.)



Claim.—The combination of the pole and saw with the pivoted abutment, the two jawed plates, and their clamping screw and nut, arranged with the handle of the saw, and with the said pole, substantially as set forth.

314,231. CLOTHES-DRIER. JOHN DENNIS, Glenbeulah, Wis. Filed Apr. 26, 1884. (No model.)

Claim.—The clothes-drier described, consisting of the pivoted rails *b c*, connected by horizontal bars *d*, an upper section composed of rails *h i*, pivoted together near their upper ends and hinged to rails *b c* at their lower ends, and connected by bars *l*, the upper ends of rails *h i* engaging the uppermost bars, *l*, whereby the drier is held in its open position.

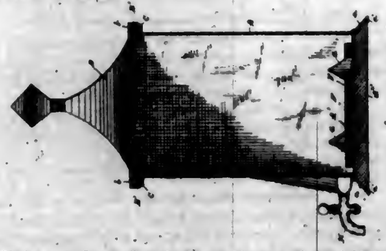


314,232. FELLY-CLAMP. GREGORY M. DILLARD, Macon, Miss. Filed July 21, 1884. (No model.)



Claim.—As an improvement in vehicle-wheels, the combination, with the felly or rim formed in sections, of the herein-described felly-clamp and tire-support for securing the meeting edges of the sections together, said clamp consisting of the main portion D, provided with suitable attaching means and curved inward to form flanges F F, which embrace the sides of the felly or rim, and a cross-bar, G, formed integral with and connecting the flanges, but not extending the entire length of the same, so that said flanges will project above the cross-bar on opposite sides, the tire fitting between the projecting ends of the flanges over the cross-bar, for the purpose set forth.

314,233. OIL-TANK. CHARLES A. FISHER, Calvert, Tex. Filed Feb. 4, 1885. (No model.)



Claim.—1. In an oil-tank, the combination of metal blades and supports with the bottom of the tank, as described, and for the purposes set forth.

2. In an oil-tank, the combination of the body A with bottom A', supports F, and blades G, as described, and for the purposes set forth.

3. In an oil-tank, the combination of the body A and faucet H with bottom A', having supports F, and pointed blades G, as described, and for the purposes set forth.

314,234. ORGAN-REED. MERRITT GALLY, New York, N. Y. Filed Feb. 18, 1884. (No model.) Patented in England May 14, 1884, No. 7,708.



Claim.—1. A musical reed-block having a slot in its body portion, which slot is extended and forms a plurality of slots at one end, as described.

2. A musical reed-block having a slot in its body portion, which slot is extended into a series of separated branches, the united width of the branches being greater than that of the main slot.

3. A musical reed-tongue having a single vibrating shank or body portion, and a series of prongs integral therewith lying side by side.

4. A musical reed-tongue having a single shank or body and a plurality of prongs integral therewith and lying side by side, the combined width of the prongs being greater than that of the shank, substantially as described.

5. The combination, with a reed-block having a branching slot, of a reed-tongue having prongs corresponding with the branches in the slot, as described.

6. The combination, with a reed-tongue having a single body portion, of a series of prongs integral therewith and extending in the same direction as the body, and a reed-block having a slot corresponding to the shape of tongue, as set forth.

314,235. ORGAN-REED. MERRITT GALLY, New York, N. Y. Filed Feb. 25, 1884. (No model.) Patented in England May 14, 1884, No. 7,708.



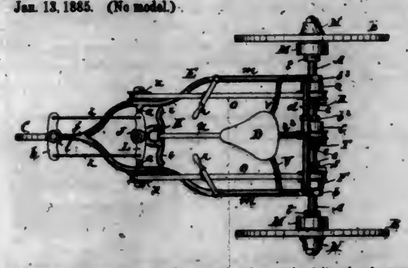
Claim.—1. An organ-reed the reed-block of which has two or more longitudinal slots extending from its base and connected by a transverse slot.

2. The combination, with a reed-block having two or more longitudinal slots extending from its base and connected by a transverse slot, of a reed-tongue the vibrating portion of which is made to conform to the opening through the reed-block formed by the several slots.

3. The combination, with the reed-block having two or more slots extending from its base and connected by a transverse slot, of a reed-tongue the vibrating portion of which is made to conform to the opening in the reed-block formed by the several slots, the reed-tongue being formed of a single piece of metal.

4. The reed-tongue formed to correspond with two or more longitudinal slots connected by a transverse slot in the reed-block, the tongue having a common base of vibration.

314,236. TRICYCLE. HERBERT J. GORMLEY, Boston, Mass. Filed Jan. 13, 1885. (No model.)



Claim.—1. In a tricycle, the combination of the following instrumentalities, to wit: a body, a seat, a pilot-wheel journaled at the forward end of said body, an axle journaled in the rear end of said body, supporting or driving wheels disposed on said axle and adapted to be turned forward therewith, three clutches disposed on said axle, two of said clutches being respectively provided with straps passing over pulleys and connected with pivoted hand-levers, a treadle mechanism adapted to be operated to steer the vehicle, and also to actuate a clutch on said axle, and a strap connecting the treadle with a clutch on said axle, substantially as described.

2. In a tricycle, a treadle mechanism adapted to be operated to control the pilot-wheel, and thereby steer the vehicle, and also to actuate a clutch on the main axle, and thereby assist in propelling the vehicle, substantially as described.

3. In a tricycle, the treadle-bar K, hinged to the shaft J, in combination with the pilot-wheel C, axle A, and means for operatively connecting said axle, wheel, and bar, substantially as set forth.

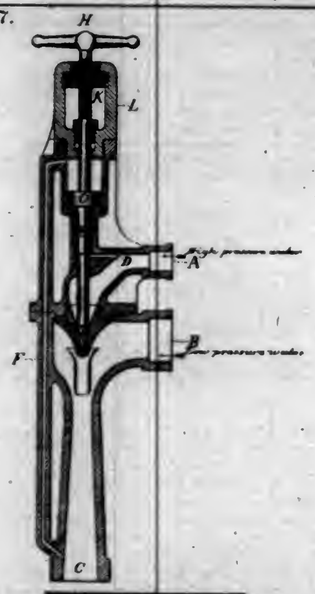
4. In a tricycle, the bar K, shaft J, bars *k* L, rods *z*, shaft H, wheel C, strap U, clutch-collets G T, axle A, and wheels B, combined and arranged to operate substantially as described.

5. The improved tricycle herein described, the same consisting of the body E, seat D, axle A, wheels B, provided with ratchet-teeth *k*, collets M, provided with pawls *p*, clutch-collets F S T G R Q, provided with springs *n* and pawls *w*, straps O U, levers *r*, pulleys *x*, bars K *k* L, shafts J H, rods *z*, and wheel C, constructed, combined, and arranged to operate substantially as set forth.

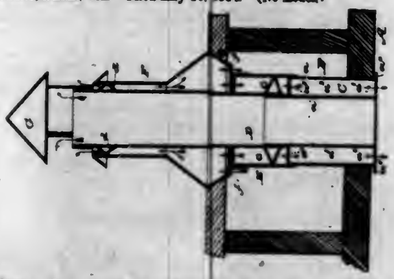
314,237. HYDRAULIC EJECTOR. HENRY H. GORRINGE and AXEL O. TENGVALL, New York, N. Y. Filed Dec. 29, 1884. (No model.)

Claim.—A hydraulic ejector in which the pressures in the discharge-pipe and high-pressure pipe are communicated to pistons having areas proportioned so as to adjust the flow of high-pressure water automatically, substantially as and for the purpose herein set forth.

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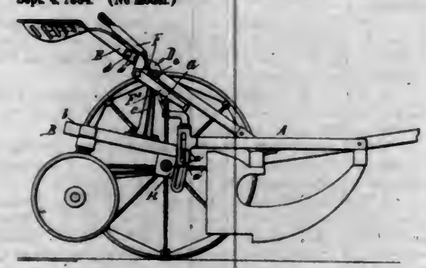


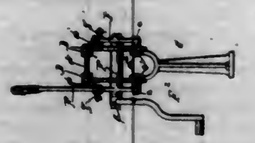
314,288. COMBINED CHIMNEY AND VENTILATOR. THOMAS C. HARRY, Dallas, Tex. Filed May 26, 1884. (No model.)



Claim.—In a combined ventilator and smoke-flue, a series of pipes or flues having a sectional inclosing casing extending from the ceiling of a room and adapted to receive a stove-pipe, the lower drum or casing being provided with a series of openings, and having an annular flange, *a*, the top casing being located without the building, having its lower end within the space between the roof and ceiling, and braces *c c*, said upper casing having a downwardly-extending flange at its lower end, substantially as set forth.

314,239. CORN-PLANTER. GEO. D. HAWORTH, Chicago, Ill. Filed Sept. 4, 1884. (No model.)





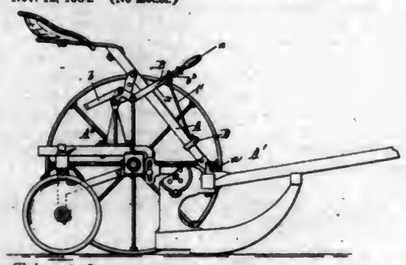
Claim.—1. In a corn-planter, the combination, with the rear frame carrying the covering devices and mounted on wheels, of a link or links pivotally connected therewith, and with a seat-bar pivoted at its forward end to the frame carrying the seeding mechanism, and a lever pivotally connected at or near the pivotal connection of the rear frame and said link or links, and arranged to engage with said link or links, substantially as and for the purposes specified.

2. In a corn-planter, the combination, with the rear frame mounted on wheels and having a forked standard secured to it, of links pivoted to said standard and to opposite sides of a seat-bar, the forward end of which is pivotally connected to the front frame, and levers mounted on the pivot-bolts which connect the links and standard arranged to engage the links, and having connecting-rods pivoted to the front frame, the said rods being arranged in the rear of the said pivot-bolts when the frames are raised, substantially as and for the purposes specified.

3. In a corn-planter, the combination, with the frames, seat-bar, standard, levers, and connecting-rods, arranged as described, of the links constructed to engage with the levers, and having inward projections to engage with projections on the standard, substantially as and for the purposes set forth.

4. In a corn-planter, the combination, with the frames, seat-bar, standard, levers, and connecting-rods, arranged as described, of the links constructed to engage with the levers, and having inward projections to engage with projections on the standard, the said links being slotted at their lower end to receive the pivot-bolts on the standard, substantially as and for the purposes specified.

314,240. CORN-PLANTER. GEO. D. HAWORTH, Chicago, Ill. Filed Nov. 12, 1884. (No model.)



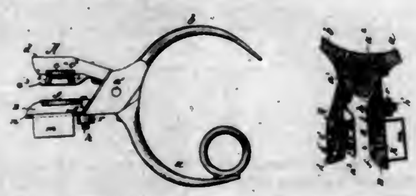
Claim.—1. In a corn-planter, the combination, with the lever for operating the seeding and covering frames, of a stirrup mounted to slide upon a suitable guide and having a connecting-bar pivoted to the hand-lever, substantially as and for the purposes specified.

2. In a corn-planter, the combination, with the lever for operating the seeding and covering frames, of the seat-lever supported upon said frames and a stirrup sliding upon said seat-lever and having a connecting-bar pivoted to the hand-lever, substantially as and for the purposes specified.

3. In a corn-planter, the combination, with the lever for operating the seeding and covering frames, the said lever having the foot-lever *b* attached thereto, of a stirrup sliding on a suitable guide and having a connecting-bar pivoted to the hand-lever, substantially as and for the purposes specified.

4. The combination, with the lever B, having projection B' attached thereto, of the bar C, pivoted on said projection, and the stirrup D, having aperture *d* and gain *d'*, in which the bar C is riveted, substantially as and for the purposes specified.

314,241. TICKET-PUNCH. ELIHU B. HAYES, Lynn, Mass. Filed Jan. 12, 1885. (No model.)



Claim.—1. In a ticket-punch, the jaw A, the die-plate *c*, provided at its back with the pin *c'*, and the two male dies 2 and 3, projecting from the face of the said plate, and the jaw B and the die-plate having two female dies, combined with the box *m*, all constructed and arranged substantially as described.

2. The combination, with the jaw of a ticket-punch provided with a movable die-plate having notches in its periphery, of a bolt passing through the jaw and provided with a nut and coiled spring, substantially as set forth.

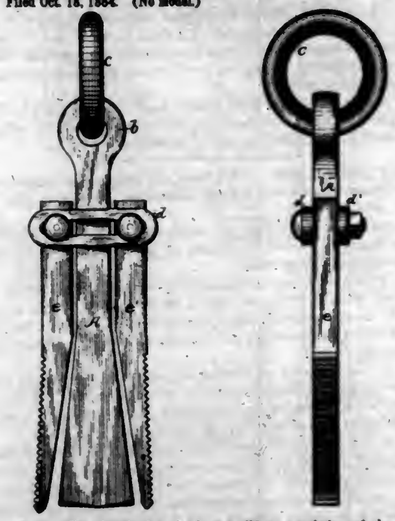
3. In a punch, the jaw A and an attached plate, provided with a male die extended from the plate at an angle with relation to the part of the jaw on which the plate rests, combined with the jaw B and its attached female die-plate and box *m*, substantially as described.

314,242. ARMATURE FOR DYNAMO-ELECTRIC MACHINES. C. L. HEALY, Brooklyn, assignor to Stephen D. Field, Yonkers, N. Y. Filed Aug. 13, 1884. (No model.)



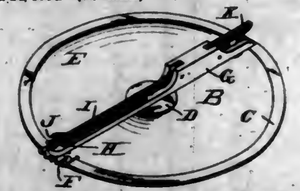
Claim.—The combination, in an armature of a dynamo-electric machine, of an armature-core and a winding therefor, consisting of a compound conductor composed of wires insulated from and arranged spirally around one another, substantially as and for the purpose set forth.

314,243. STONE-LIFTER. THOMAS HEATHCOTE, Allegheny City, Pa. Filed Oct. 18, 1884. (No model.)



Claim.—The herein-described stone-lifter, consisting of the cone-shaped plug *a*, with the ring *c* and slotted links *d d'*, with the ribbed feathers *e e'*, as shown and described, and for the purposes intended.

314,244. CULINARY COVER. GEO. H. HENKEL, Middletown, Ohio. Filed Jan. 24, 1884. (No model.)



Claim.—1. The combination of a cover for culinary vessels and an outwardly-facing claw attached to the rim thereof and adapted to engage the rim of the vessel and support the cover in an open position, substantially as and for the purpose set forth.

2. The combination of a cover for culinary vessels provided with a pivot-support on its under surface, and a claw pivoted in said pivot-support and adapted to engage the rim of a vessel and support the cover in an open position, substantially as and for the purpose set forth.

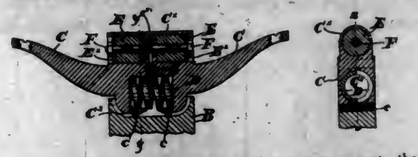
3. The combination of a cover for culinary vessels, a handling device upon the upper surface thereof, a projection from the lower surface of the rim thereof adapted to engage the rim of a kettle, and a hook-projection upon the under surface thereof adapted to be engaged by the bail of a kettle, substantially as and for the purpose set forth.

4. The combination of a cover for culinary vessels provided with an annular sunken portion, and with a peripheral and a center portion having their upper surfaces upon the same level, and a cross-bar arranged diametrically across and secured to the upper surface of the cover at the rim and center of the same, substantially as and for the purpose set forth.

5. The combination of a cover for culinary vessels, a diametrically-arranged cross-bar secured to the upper surface thereof, a brace having a notched end and pivoted in said cross-bar, and a kettle-rim-engaging claw in said cross-bar, substantially as and for the purpose set forth.

6. In a cover for culinary vessels, the cover B, having corrugations F, the cross-bar G, having recess H, the brace I, having notches J, and the claw K, all combined and arranged to operate substantially as and for the purpose set forth.

314,245. CAR-SPRING. JOHN T. HERSCHELL, Evansville, Ind. Filed Jan. 20, 1885. (No model.)

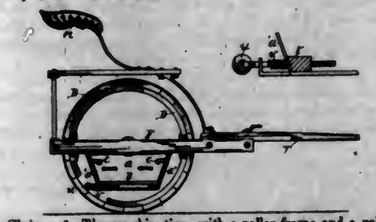


Claim.—1. A car-spring consisting of two arms or parts, the adjacent ends of which are provided with hollow upper portions containing springs, and connected to each other from the ends of said springs, and the lower adjacent portions of which have a spring interposed between them, and a pivot-bolt or fulcrum interposed between said adjacent ends of the arms between the said upper and lower springs, substantially as set forth.

2. A car-spring consisting of two arms having hollow adjacent upper portions, springs in said hollow portions, and a bolt running through and connecting said springs, a pivot-bolt or fulcrum interposed between the ends of the arms, and a spring interposed between the lower adjacent portions of said arms, substantially as set forth.

3. The combination, in a car-spring, of the arms or parts C, having open-ended hollow adjacent upper portions, C', the rubber springs E, inserted in said hollow portions, the followers E' on the outer ends of said rubber springs, the bolt F, passing through said springs and hollow portions and connecting said followers, the pivot-bolt or fulcrum G, interposed between the ends of said arms, and the spring D, interposed between the ends of the arms below said fulcrum, substantially as set forth.

314,246. LAND-ROLLER. EUGENE HORTON, Prairieville, Mich. Filed July 1, 1884. (No model.)



Claim.—1. The combination, with a roller-frame and a roller, of a tray-frame pivotally suspended therein, and a tray detachably located in said tray-frame, substantially as set forth.

2. The roller-frame and roller, in combination with a tray-frame provided with the pintles and wheels, and a weight-tray, all constructed and adapted to operate substantially as set forth.

3. A stave roller provided with a head composed of two spokes radiating in opposite directions from their axis, and provided at the outer ends with the castings of the semicircular rims bolted in the recesses of said castings, substantially as set forth.

314,247. ELEVATED RAILROAD. JAS. JENKINSON, Brooklyn, N. Y. Filed Mar. 24, 1884. (No model.)

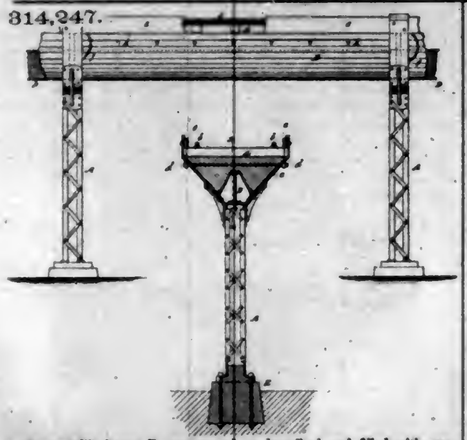
Brief.—An elevated railway in which the ties and rails are laid upon a solid bed of concrete, held in trough-shaped metallic boxes, for the purpose of deadening sound.

Claim.—1. In an elevated railroad, a roadway, B, composed of a series of metallic boxes or troughs, *c*, filled with concrete or similar material, suspended from or supported by the ordinary metallic posts or pillars A, and constructed as described to support the ties *a* and rails *b* without permitting the same to come in contact with the metallic superstructure.

2. In combination with the posts or pillars A, the roadway B, composed of a series of metallic boxes or troughs filled with concrete, said boxes being constructed substantially as described, and supported at their ends by said posts or pillars, as and for the purpose set forth.

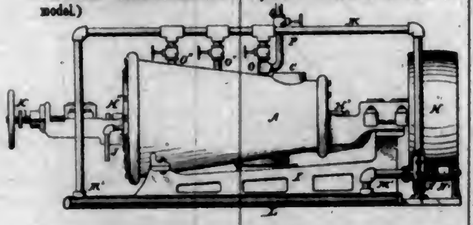
3. In an elevated railroad, the combination of the posts or pillars

314,247.



A, the metallic boxes B, constructed as described and filled with concrete, and the beam or girder D, the whole constructed and arranged substantially as shown and described.

314,248. APPARATUS FOR BEATING AND MANIPULATING PAPER-PULP. JOSEPH JORDAN, Philadelphia, Pa. Filed Feb. 18, 1885. (No model.)



Claim.—1. In a closed pulp-beating engine, the combination of the outer conical frustum, A, the inner conical frustum, F, the opposing frictional surfaces of which are armed with grinding serrations or knives, and two water-pipes, O O'', provided with suitable cocks, whereby water can be projected into the interior at one or two different points in the operation of grinding, substantially as described.

2. In a closed pulp-beating engine, three water-pipes, O O' O'', provided with suitable cocks and projecting through the outer shell, A, whereby water can be projected into the interior at one, two, or three different points in the operation of grinding, substantially as described.

3. In a closed pulp-beating engine, a water-pipe, O, provided with a suitable cock and projecting through the outer shell, A, whereby water can be projected into the interior at a point beyond that where the operation of grinding begins, substantially as described.

4. In a closed pulp-beating engine, the water-pipe O, projecting through the outer shell, A, and provided with a suitable cock, and steam-pipe P, connected with an opening through the outer shell, A, whereby either steam or water can be projected into the interior between the grinding-surfaces at will, substantially as described.

5. In a closed pulp-beating engine, the water-pipe O, projecting through the outer shell, A, at one end provided with a suitable cock and connected at the other with a water-supply pipe or conduit, whereby water can be projected into the interior, substantially as and for the purposes described.

6. In a closed pulp-beating engine, the water-pipe O, projecting through the shell A, at one end provided with a suitable cock, and connected at the other end with a water-supply pipe or conduit, and a pump, N, to project water under pressure into the interior of the pulp-engine, substantially as described.

7. In a closed pulp-beating engine, the water-pipe O, provided with a suitable cock and projecting through the shell A at one end and at the other attached to a water-supply pipe, M, which latter is connected at both ends with and draws from and empties into a main water-supply conduit or holder, L, substantially as and for the purpose described.

8. In a closed pulp-beating engine, the combination of the outer conical frustum, A, and the inner conical frustum, F, the opposing frictional surfaces of which are armed with grinding serrations or knives, the section F'' of the smaller end of the inner frustum having its knives arranged in close clusters of two or more, with open spaces or pockets G between the clusters wider than the spaces between the knives forming said clusters, substantially as and for the purpose described.

9. In a closed pulp-beating engine, the combination of the outer conical frustum, A, and inner conical frustum, F, the opposing frictional surfaces of which are armed with grinding serrations or knives, the section B' at the smaller end of said outer frustum being provided with a space containing the concave plate D, free from knives, immediately surrounding the opening C, to attain a larger feeding-surface upon the revolving interior frustum, substantially as described.

10. In a closed beating-engine where pulp is ground between two grinding-surfaces, the process of continuously grinding the same and introducing water at various stages of the process of grinding to attenuate the mass being treated, substantially as described.

11. In a closed beating-engine wherein pulp is ground between two grinding-surfaces, the process of continuously grinding the same and introducing water to the mass actually being treated at various stages of the operation of grinding to attenuate the mass being treated, substantially as and for the purposes described.

314,249. PITMAN FOR SEWING-MACHINES. DAVID L. KEELER, Grand Rapids, Mich. Filed Sept. 17, 1884. (No model.)



Claim.—1. A pitman, A, provided with a slot, B, and with auxiliary slots *b b*, in combination with a roll-pin, C, which plays in the slot B, and adjusting-screws E E, which are adapted to contract the slots *b b* and B, and thereby take up the wear between the pitman and roll-pin, substantially as set forth.

2. The combination of the pitman A, provided with slots *b b* B, the roll-pin C, formed in two parts, *a a*, the wrist-pin D, and the adjusting-screws E E, substantially as and for the purpose set forth.

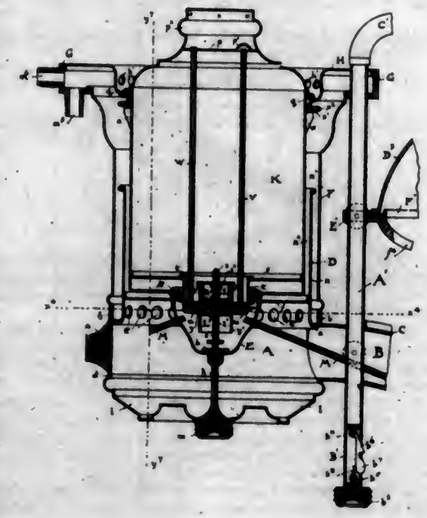
314,250. LAMP. JOHN KIRBY, Jr., Dayton, Ohio, assignor to the Dayton Manufacturing Company, same place. Filed July 5, 1883. (No model.)

Claim.—1. In a lamp, the combination of the brace-ring G, the plate H, the oil-reservoir K, the rods m^4, the ring A, and the oil-holder E, substantially as described.

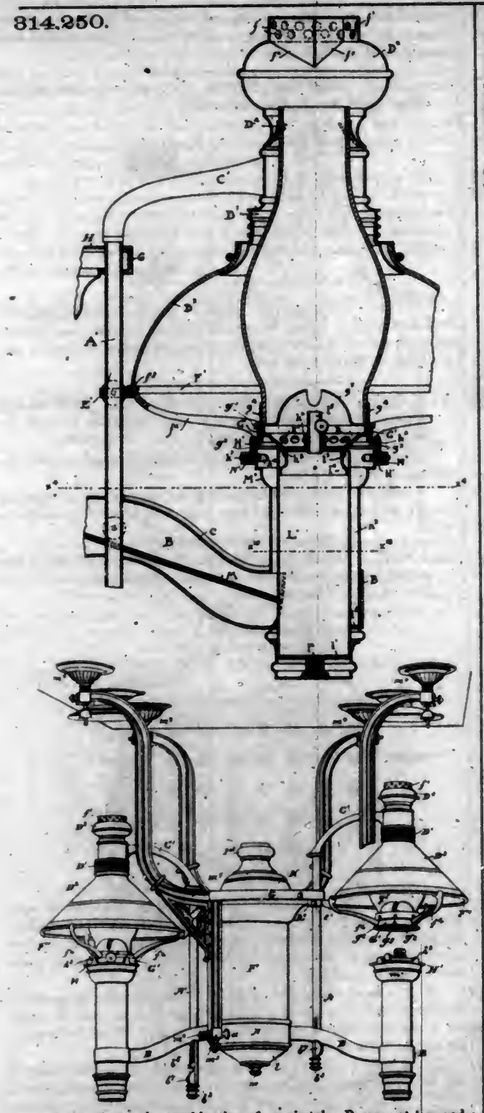
2. In a lamp, the combination of the cast ring A, the cylinder D, securely attached thereto and having the air-openings *e e*, the air-cylinder F, the air-conduits B, and the burner-tubes of the lamp, the cylinder receiving the lower end and forming an air-space, substantially as described.

3. In a lamp, the combination of an oil-holder, a valve, an oil-reservoir having a valve-seat, a cylinder surrounding the valve-seat, and an elastic ring encircling the said cylinder and securely held in position by the upper edge of said oil-holder, as set forth.

4. In a lamp of the student-lamp type, the combination of the oil-reservoir K, having a partition, *p*, to form an air-cap, p^3, an oil-holder, E, elastic packing-ring R, between the reservoir and holder, an air-tube, W, connecting the air-cap chamber with the holder, and an air-tube, V, connecting the holder with the upper part of the reservoir-chamber, as set forth.



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5. In a lamp, the combination of an air-tube, B, open at top, and a removable cover, C, formed to receive a card, as set forth.

6. In a lamp, a frame for an oil-reservoir, consisting of a brace-ring, G, a cast ring, A, having conduits for air and oil leading to the burner, and the binding-rods m^4, connecting said rings, in combination with a lifting-rod sustaining a shade-holder and passing through said conduits and the rim of said brace-ring, substantially as described.

7. In a lamp, the combination of a frame for the oil-reservoir, a shade-ring, a burner, and a vertically-adjustable lifting-rod for the shade and ring, the shade-ring adapted to be disconnected from the rod and rest on the burner.

8. In a lamp, the combination of a reservoir-frame, a lifting-rod movably fixed in said frame, and a ring carrying the chimney-holder and burner-cap, movably attached to said rod, substantially as described.

9. In a lamp, the combination of an oil-tube, a drip-collar having perforations and secured to the upper end of the tube, a wick-tube secured to the collar, and a perforated burner-plate seated on the collar and surrounding the wick-tube, as set forth.

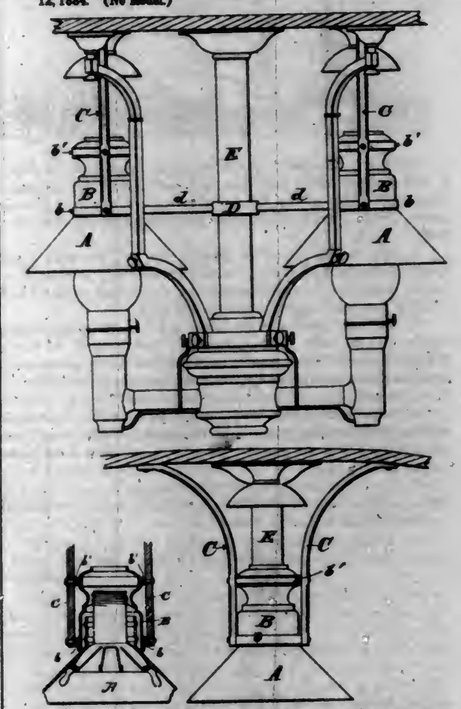
10. In a lamp, the combination of a lifting-rod, A', adapted to be moved vertically in guides on the frame of the lamp, a shade-holder, D', rigidly attached to said rod, and a ring, F', sustaining a chimney-holder and a burner-cap and movably attached to said rod, substantially as described.

11. In a lamp, the combination of wick-tube chamber, cylinder surrounding the chamber, a burner-plate and chimney-holder adapted to be removed therefrom, and a coupling secured to the cylinder to engage the burner-plate, as set forth.

12. In a lamp, the combination of wick-chamber L', cylinder M', burner-plate K', chimney-holder g^4, ring G', having openings g^3 and surrounding the burner-plate, and ring H', having hooked lugs h^3 and surrounding the cylinder, as and for the purpose set forth.

13. In a lamp, the combination, with the ring G' and the cylinder M', having slot h^4, of the coupling-ring H' and a ring of non-conducting material secured to the coupling-ring by pin h^3, as set forth.

314,251. RAILWAY-CAR LAMP. JOHN KIRBY, Jr., Dayton, Ohio, assignor to the Dayton Manufacturing Company, same place. Filed Feb. 12, 1884. (No model.)



Claim.—1. The independent shade-hanger consisting of pendent bars C C, adapted to be secured to the ceiling of a car, and rings *b b'*, to receive the dome of the shade at the lower ends of the bars, as set forth.

2. The shade-hanger consisting of pendent bars C C and rings *b b'*, the rings adapted to receive the dome of the shade, and the bars being secured to the ceiling of a car independent of the lamp-supports, as set forth.

3. In a car-lamp, the shade-hanger consisting of pendent bars C C and rings *b b'*, in combination with a stay-pipe, E, ring D on the stay-pipe, and stay-rod extending from the stay-pipe ring to a ring on the pendent bars, the stay-pipe and shade-hanger being secured to the ceiling of the car independent of the lamp-support, as set forth.

4. In a car-lamp, the combination of shade-hangers for two or more burners, adapted to be secured directly to the ceiling, and a rigid connection by which the shade-hangers are connected together centrally, the hangers and connection being independent of the lamp-support, as set forth.

5. In a car-lamp, a shade-hanger adapted to be secured directly to the ceiling and having a rigid lateral stay, the hanger and stay being independent of the lamp-frame, as set forth.

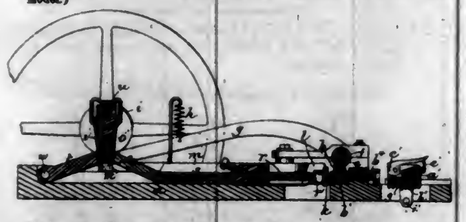
314,252. LAMP-EXTINGUISHER. ALOIS KOSEL, Milwaukee, Wis. Filed June 11, 1884. (No model.)

Claim.—In lamps, the combination of lever B and lever C, pivoted to the lamp-top by and through bracket A or other equivalent means, spring D, adapted to forcing the lever C upward, and weight W, in combination with the sleeve E, provided with rigid lug *f*, said sleeve being adapted to move freely upwardly and downwardly on the lamp-wick tube, substantially as and for the purpose specified.

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314,253. WIRE-NAIL-MAKING MACHINE. SAMUEL LORING, Duxbury, and EPHRAIM S. MORTON, Plymouth, Mass. Filed Mar. 3, 1884. (No model.)



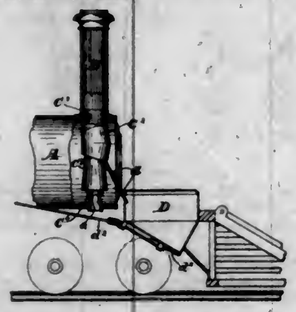
Claim.—1. The cutting and pointing dies composed of the plates *p p*, each having multiple half-dies *b*, and each adapted to be rotated to bring either of its half-dies into operative position, combined with supporting-slides *l l*, and the mechanism for reciprocating said dies, as set forth.

2. The combination of the grasping-dies *b b'*, the upper resting loosely on the lower, the cam *c*, located over the upper grasping-die, *b* and the mechanism for oscillating said cam, and thereby causing it to alternately press and release the die *b*, as set forth.

3. The combination, with the header and the cutting-dies, of grasping-dies *b b'*, the latter having a flange, *b*³, which projects in front of jaw *b*, provided with an orifice for the passage of the wire, and presenting a seamless surface surrounding said orifice, whereby formation of a fin on the back of the rivet or nail head is prevented.

4. The combination, with the reciprocating header, of the clearer *r'*, composed of a spring-plate adapted to project normally over the completed nail and to be depressed by the forward movement of the header, as set forth.

314,254. SPARK-ARRESTER. JOHN W. MALONEY, Indianapolis, Ind. Filed Sept. 22, 1884. (No model.)



Claim.—1. The combination, with an engine and its stack, of a device for arresting and carrying off the sparks located in the smoke-box of said engine below said stack, and consisting of an internal perforated pipe, a surrounding pipe, and an enlarged portion surrounding the upper ends of these portions and provided with a top and a bottom with an orifice leading therefrom, the space between said internal perforated pipe and said pipe surrounding it leading into this portion below its top, substantially as set forth.

2. The combination, in a spark-arrester secured to the bottom of the smoke-stack, of a portion, C^2, having a top, *c'*, having a central opening for the pipe C^3, and a bottom, c^2, having a central opening for the pipe C^4, a pipe, C^3 C^4, leading from below said bottom up into said portion, and a perforated pipe, C^5, leading from the bottom of said portion C^2 up to the top *c'* of the portion C^2, to which it is connected, substantially as shown and described.

3. The combination, with a locomotive, of a spark-arresting device secured in the smoke-box to the bottom of the stack, a receptacle, D, and a pipe leading from said spark-arrester to said receptacle, substantially as set forth.

4. The combination, with a locomotive, of a spark-arrester consisting of a device located in the smoke-box and secured to the lower end of the stack, the upper portion being perforated and the lower portion provided with devices for arresting and carrying off the sparks, and an exhaust-pipe arranged to discharge centrally into said spark-arrester, substantially as set forth.

314,255. SHOE-NAIL CUTTER. THEODORE A. MANCHESTER, Lynn, Mass. Filed Dec. 22, 1884. (No model.)



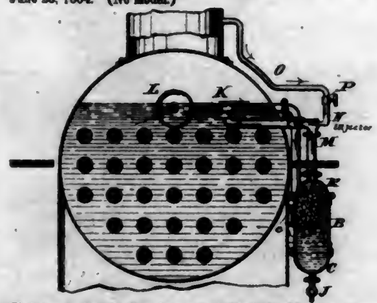
Claim.—As an improved article of manufacture, the herein-described cutting-tool having the long handles and the short jaws, the latter being curved, as shown and described, and having the curved cutting-edges to operate as set forth.

314,256. COMPOSITION FOR CLEANING METAL. OLE H. MELLUM, Chicago, Ill., assignor of two-thirds to Albert Stephenson and Paul Arnold, both of same place. Filed Dec. 13, 1884. (No specimens.)

Claim.—1. The within-described compound for cleaning metal, the essential of which is aniline.

2. The within-described composition for cleaning metal, consisting of oxalic acid, tripoli, aniline, and pure water, in or about the proportions stated.

314,257. BOILER-CLEANER AND FILTER. JAMES G. MINER, Cincinnati, Ohio, assignor to John A. Robinson, trustee, same place. Filed June 28, 1884. (No model.)

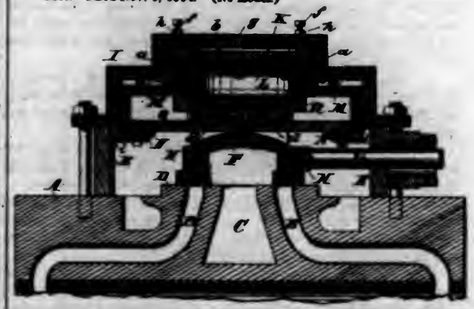


Claim.—1. In a boiler-cleaner and filter, the filtering-chamber composed of a tubular shell with removable hemispherical heads, and filtering material supported between separate perforated concavo-convex plates, arranged as shown, and suitable induction and eduction pipes, substantially as described.

2. In a boiler-cleaner and filter, the filtering-chamber composed of the tubular shell B, removable heads C E, grates F G, collar D, shoulder *a*, and taper plugs *b*, the parts constructed and united in the manner and for the purpose specified.

3. In a boiler-cleaner and filter, the combination, with a filtering and sediment chamber, of an induction-pipe having a funnel-shaped mouth, and an eduction-pipe provided with a steam-injector, substantially as described.

314,258. BALANCED SLIDE-VALVE. JAMES G. MINER, Cincinnati, Ohio. Filed Nov. 1, 1884. (No model.)

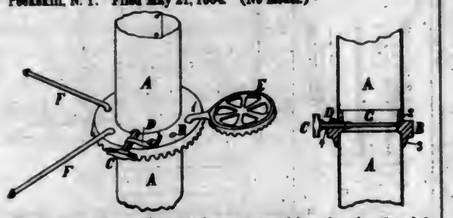


Claim.—1. The piston L, with yoke-extensions M N, supporting the lifting-plate O, in combination with the slide-valve supported and traveling on said plate through the medium of the plate R and friction-rollers, substantially as described.

2. In a balanced slide-valve wherein an upward pressure is exerted upon the valve through the medium of a vertically-acting piston and lifting-plate, the combination, with said lifting-plate and valve, of an interposed roller-frame provided with rollers extending almost the width of said plate, and having its sides overlapping and embracing said plate at its side, whereby said frame and rollers are compelled to travel in true and direct lines, substantially as described.

3. The piston L, with yoke-extensions M N, supporting the lifting-plate O, the vertical portions of said yoke-extensions bearing and traveling upon the adjacent inner end walls of the cover, whereby said piston is caused to travel absolutely true, in combination with the slide-valve supported and traveling on said plate through the medium of friction-rollers, substantially as described.

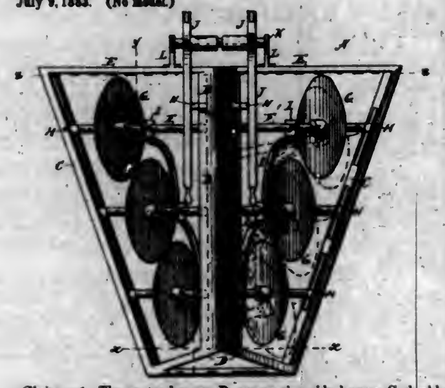
314,259. STOVE-PIPE ATTACHMENT. CHARLES W. MCCUTCHEN, Peekskill, N. Y. Filed May 21, 1884. (No model.)



Claim.—1. A stove-pipe attachment comprising pipe-rims 2 and 3, perforated flange B, ornamental flange 5, spring D, and damper G, having a flat-sided spindle, 4, all combined as and for the purpose described.

2. In combination with the stove-pipe A, rim 2, to enter a pipe, rim 3, to receive a pipe, central flange, B, spring D, and damper G, provided with a flat-sided spindle, 4, substantially as shown.

314,260. ROTARY PLOW. MILTON C. NILES, Oak Park, Ill. Filed July 9, 1883. (No model.)



Claim.—1. The center beams, B, converging side beams, C, double series of axles F, each axle being pivoted at one end to a side beam and having a sliding support at the other in a center beam, and plow-disks G, arranged upon the axles at equal distances from the nearer side beam, all in combination, substantially as and for the purpose described.

2. The side beam, C, the series of parallel axles F, each pivoted at one end to the side beam, and the connecting-rods I, attached to the axles respectively at equal distances from the pivots, all in combination, substantially as and for the purpose described.

3. The axles F, made of different lengths, pivots H, and connecting arms or rods I, connecting the axles together at the same distance from their respective fulcrums, as and for the purposes specified.

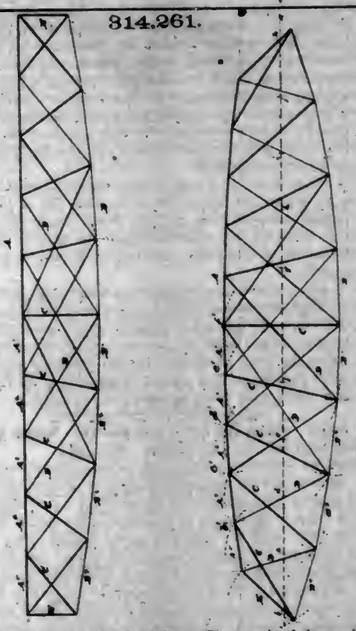
4. The diverging side beams, C, in combination with the central beam, B, sloping upward in proportion as the side beams diverge, and with the axles F, each supported at one end in a side beam and at the other in the central beam, for the purpose of setting all the axles at the same angle to the ground, substantially as described.

5. The combination, in a plow-frame, A, of the two sets of pivoted axles F, each axle carrying a plow-disk, G, connecting-rods I, adjusting-lever J, and connecting-rods M, substantially as specified and shown.

314,261. TRUSS FOR BRIDGES. GEORGE H. PEGRAM, Wilmington, Del. Filed Dec. 21, 1883. (No model.)

Brief.—A truss in which one or both chords are curved but not parallel, and in which the panels of the compressive chord are of equal

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lengths measured on the chord-line. The panels of the tensile chord are of equal lengths and longer than the panels of the compressive chord. Lines drawn through the points of connection of the respective panels in both chords and extended across the compression-chord will cut a central vertical line through said truss closer and closer to the truss as the panels between which said lines are drawn are removed from said central line. The end panels of either or both chords may be of greater or less length than the intermediate panels, the intermediate panels of the tensile chord being longer than the intermediate panels of the compression-chord. The posts are substantially of equal length, and increase in inclination in regular order from the point of greatest chord-strains to the end or ends of the truss. Said posts connect the respective points of connection of adjacent panels.

Claim.—1. A bridge or roof truss or any portion thereof having one or both chords curved but not parallel, in which the panels of the compressive chord are of equal lengths measured on the chord-line, and in which the panels of the tensile chord are of equal lengths and longer than the panels of the compressive chord, and in which lines drawn through the points of connection of the respective panels in both chords and extended across the compression-chord will cut a central vertical line through said truss closer and closer to the truss as the panels between which said lines are drawn are removed from said central line, substantially as and for the purpose specified.

2. A bridge or roof truss or any portion thereof having one or both chords curved but not parallel, in which the panels of the compressive chord are of equal lengths measured on the chord-line, and in which the panels of the tensile chord are of equal lengths, except the end panels of either or both chords, which may be of greater or less length than the intermediate panels, the said intermediate panels of the tensile chord being longer than the intermediate panels of the compressive chord, substantially as and for the purpose specified.

3. A bridge or roof truss or any portion thereof having one or both chords curved but not parallel, in which the panels of the compressive chord are of equal lengths measured on the chord-line and in which the panels of the tensile chord are of equal lengths and longer than the panels of the top chord, and in which the posts are substantially of equal lengths, substantially as and for the purpose specified.

4. A bridge or roof truss having one or both chords curved but not parallel, in which the panels of the compressive chord are of equal lengths measured on the chord-line, and in which the panels of the tensile chord are of equal lengths and longer than the panels of the compressive chord, and in which the posts are substantially of equal lengths, and increase in inclination from the point of greatest chord-strains to the end or ends of the truss, substantially as and for the purpose specified.

5. A bridge or roof truss or any portion thereof having one or both chords curved but not parallel, in which the respective panels of the top and bottom chords are of different lengths, and the respective points of connection of adjacent panels in said chords being connected by posts of substantially equal length, substantially as and for the purpose specified.

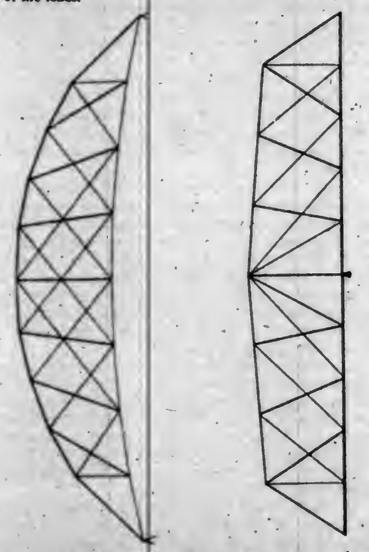
6. A bridge or roof truss or any portion thereof having one or both chords curved but not parallel, in which the respective panels of the top and bottom chords are of different lengths, and the respective points of connection of adjacent panels in said chords being connected by posts which have a gradually-increasing obliquity, in which lines drawn through said posts longitudinally and extended across the compressive chord will cut a vertical line through the center of the truss at points closer and closer to said truss as the posts are removed from said center line, substantially as and for the purpose specified.

7. A bridge or roof truss or any portion thereof provided with posts which incline toward the center line of the truss, and in which lines drawn through said posts in the direction of their length and across the compressive chord cut said center line closer and closer to the truss as said posts are removed from said center line, substantially as and for the purpose specified.

8. A bridge or roof truss having one or both chords curved but not parallel, in which the panels of the compressive chord are of equal lengths measured on the chord-line, and in which the panels of the tensile chord are of equal lengths and longer than the panels of the compressive chord, and in which the posts are inclined, the said inclination increasing in regular order from the point of greatest chord-strain to the end or ends of the truss, substantially as and for the purpose specified.

314,262. TRUSS FOR ROOFS AND BRIDGES. GEORGE H. PEGRAM, Wilmington, Del. Filed Oct. 24, 1884. (No model.)

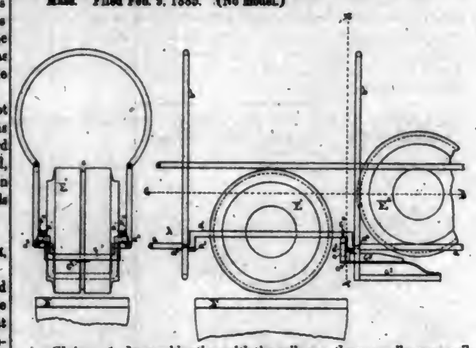
Brief.—A truss having one or both chords curved or broken-lined but not parallel, said chords being the greatest distance apart at the point of greatest moment, (being at the middle of a span supported at both ends and over the support in a cantilever,) and further being connected by posts which are vertical or nearly vertical at the point of greatest moment and increasé in inclination toward the ends of the truss, the posts forming with the top and bottom chords quadrilateral panels, in each of which the section of the tensile chord is longer than the corresponding section of the compressive chord, the intersections of said chords and posts being connected by tie-rods and counter tie-rods, arranged substantially as in the Pratt and Whipple trusses, or in such a way that the web members cannot be subjected to reverse strains by different positions of the loads.



Claim.—1. A bridge or roof truss having one or both chords curved or broken-lined but not parallel, said chords being the greatest distance apart at the point of greatest moment, (being at the middle of a span supported at both ends and over the support in a cantilever,) and further being connected by posts which are vertical or nearly vertical at the point of greatest moment and increase in inclination toward the ends of the truss, the posts forming with the top and bottom chords quadrilateral panels, in each of which the section of the tensile chord is longer than the corresponding section of the compressive chord, substantially as and for the purpose specified.

2. A bridge or roof truss having one or both chords curved or broken-lined but not parallel, said chords being the greatest distance apart at the point of greatest moment, (being at the middle of a span supported at both ends and over the support in a cantilever,) and further being connected by posts which are vertical or nearly vertical at the point of greatest moment and increase in inclination toward the ends of the truss, the posts forming with the top and bottom chords quadrilateral panels, in each of which the section of the tensile chord is longer than the corresponding section of the compressive chord, the intersections of said chords and posts being connected by tie-rods and counter tie-rods, arranged substantially as in the Pratt and Whipple trusses, or in such a way that the web members cannot be subjected to reverse strains by different positions of the load, substantially as set forth.

314,263. CASH-CARRYING APPARATUS. DAVID H. RICE, Lowell, Mass. Filed Feb. 9, 1885. (No model.)



Claim.—1. In combination with the rails *a a*, the normally-open rail-sections *a' a'*, the yielding platforms *c' c'*, supporting the same in that position, the tongue or bar placed in the path of the carrier, and mechanism, substantially as set forth, connecting said bar and said platforms, adapted to withdraw the latter from beneath the track-sections and allow the same to close when said bar is pressed upon by the carrier, substantially as described.

2. In combination with the rails *a a*, the track-sections *a' a'*, the bar *c*, provided with end parts, *c' c'*, supporting said rail-sections, the spring c^3, and the tongue c^2, placed within the path of the carrier, substantially as described.

3. In combination with the rails *a a*, the normally-open rail-sections *a' a'*, their yielding supporting-platforms *c' c'*, and yielding pressure devices connected thereto, substantially as described, for holding the latter in position, having one or more parts of the same lying within the path of the carrier and adapted to be struck by the same, and thereby to withdraw said platforms from beneath said track-sections and allow the same to close, substantially as described.

4. In combination with the rails *a a*, the rail-sections *a' a'*, normally open, their supporting-platforms *c' c'*, the spring c^3, connected therewith, the tongue c^3, lying within the path of the carrier, and the carrier E', provided with a groove, *e*, registering with said tongue and allowing the carrier to pass without pressing thereon, substantially as described.

5. In combination with the rails *a a*, the track-sections *a' a'*, normally open, their supporting-platforms *c' c'*, the spring c^3, connected therewith, the tongue c^3, lying within the path of the carrier, and the carrier E^2, provided with a circumferential groove, e^2, not registering with the tongue, thereby allowing the same to be pressed by the carrier and the track-sections to be closed, substantially as described.

6. In combination with the elevated track A^2, a normally-open trap-section supported in such open position by yielding supports or shelves and yielding-pressure mechanism connected thereto, having a portion thereof projecting within the path of carriers traversing said track, and two carriers, E' E^2, adapted to traverse said track, one of said carriers being made of a size or diameter in its parts passing contiguous to said projecting portion of the pressure mechanism adapted to pass by it without operating it, and the other being made of a size or diameter in its corresponding parts adapted to strike and move said projecting portion in passing, and thereby withdraw said supports and allow said trap-section to close and said carrier to pass over the same, substantially as described.

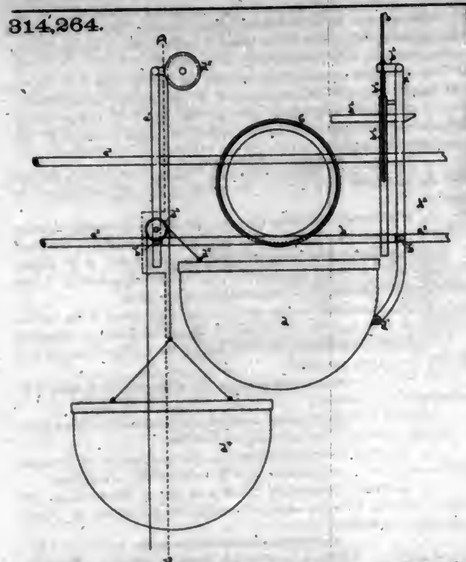
314,264. CASH-CARRYING APPARATUS. DAVID H. RICE, Lowell, Mass. Filed Feb. 2, 1885. (No model.)

Claim.—1. In the elevated track A^2, the combination of the rail-sections a^3 a^3, pivoted on axes substantially parallel to the track, with an elevator mechanism adapted to elevate the carrier-wheels past and above said rail-sections and allow the latter to drop beneath the carrier-wheels, substantially as described.

2. In the elevated track A^2, in combination with the rails a^3 a^3, the pivoted rail-section a^3 a^3, placed at a steeper pitch or incline than the rails, substantially as described.

3. In the elevated track A^2, the combination of the pivoted track-sections a^3 a^3, the elevator E, and the curved arm e^3, attached thereto and adjusted at such a distance from the carrier as to enable it to strike

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the latter on the rear side as the elevator descends after depositing the carrier upon the track, substantially as described.

4. The combination, in the elevated track A^2, of the pivoted rail-sections *b b*, the basket *d* under the track, provided with hinges or pivots allowing it to be reversed, and with devices for reversing the same, substantially as described, and the falling and rising basket d^4, with elevating and lowering devices attached thereto, substantially as set forth and described.

5. The combination, in the elevated track A^2, of the pivoted rail-sections *b b*, the basket *d* under the track, provided with hinges or pivots allowing it to be reversed, and with devices for reversing the same, substantially as described, and the automatically falling and rising basket d^4, with automatic elevating and lowering mechanism attached thereto, substantially as set forth and described.

6. In the carrier C, the combination of the hollow axle *c'* with the wheels c^3 c^3, said hollow axle being adapted to receive and retain the cash therein, substantially as described.

7. In the carrier C, the combination of the hollow axle *c'*, provided with wheel-retaining flanges c^4 c^4 and the wheels c^3 c^3, said hollow axle being adapted to receive and retain the cash therein, substantially as described.

8. In the carrier C, the combination of the wheels c^3 c^3, the hollow axle *c'*, and the cup or receptacle *m*, fitted to the interior of said axle, substantially as described.

9. In the carrier C, the combination of the hollow axle *c'*, the wheels c^3 c^3, and the flange c^3, attached to one of said wheels, substantially as described.

10. In the carrier C, the combination of the hollow axle *c'*, provided with flanges c^4 c^4, the wheels c^3 c^3, and their separating-flange c^5, substantially as described.

11. In the carrier C, in combination with the axial cavity therein, the cash-cup *m*, provided with an enlarged annular portion having slots *m' m'* therein, forming springs around said cup adapted to bear against the wall of said cavity, substantially as described.

12. In the carrier C, in combination with the axial cavity therein, the cup *m*, provided with the slot m^2 in its exposed end, and a chamber beneath said slot larger than the slot transversely of the latter, substantially as described.

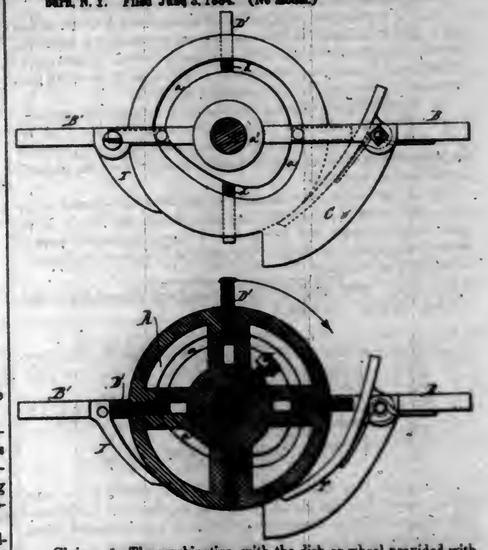
13. In the carrier C, the combination of the wheels c^3 c^3 with the hollow axle *c'*, the latter having the cavity within it closed at one end and open at the other, substantially as described.

14. In combination with the track A^2, the bar n^4, placed in the path of the carrier and adapted to be moved aside by the carrier passing the same, connecting devices substantially as set forth, and the bar n^5, connected to bar n^4 thereby, and adjusted to be projected within the path of the carrier as the bar n^4 is moved away therefrom at a point behind the latter and within a distance from its center equal to its diameter, substantially as described.

15. In combination with the track A^2 and the carrier C, the retarding-bar n^5, adapted to move into and out of the path of the carrier, and mechanism, substantially as set forth, automatically operated by the carrier and connected to said bar, adapted to move said bar into the path of the carrier behind it and within a distance from its center equal to its diameter, and to hold said bar in that position while said carrier passes over a predetermined length of said track, and then to automatically withdraw the same, substantially as described.

16. In combination with the track A^2, made with a steeper pitch or grade than its normal one at a^{12}, the bar n^5, adapted to be projected into the path of the carrier, connected mechanism, substantially as set forth, adapted to be operated by the carrier and so project it, and the carrier C, substantially as described.

314,265. PHOSPHATE-SOWING DEVICE. ERNEST RUHLAND, Auburn, N. Y. Filed June 3, 1884. (No model.)



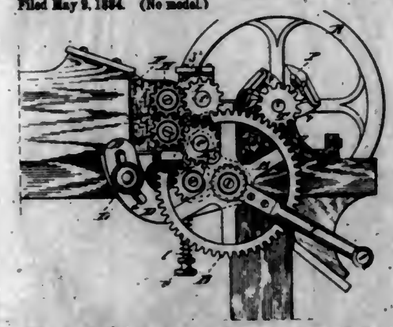
Claim.—1. The combination, with the disk or wheel provided with a series of radial slots and with the blades or wings mounted therein provided with projecting spurs, of the side plate or casing provided with the irregular groove or slot for reciprocating said blades in the revolving movement of the wheel, substantially as and for the purpose described.

2. The combination, with the disk or wheel provided with the radial slots having the reciprocating blades or wings mounted therein, of the yielding tongue or regulator engaging the periphery of the disk or wheel, and operating substantially in the manner and for the purpose set forth.

3. The combination, with the revolving disk or wheel having the reciprocating blades mounted therein, of the fixed cleaner connected to the rear portion of the casing and engaging the periphery of the wheel, substantially as and for the purpose set forth.

4. The combination, with the casing-plates A A', provided with the portions C at their forward ends, of the yielding tongue or regulator secured between said portions and engaging the periphery of the wheel, substantially as and for the purpose set forth.

314,266. FEED-CUTTER. EDWIN F. SHERMAN, Springfield, Mass. Filed May 9, 1884. (No model.)



Claim.—1. In a feed-cutter, the combination, with the journaled knife-shaft having removable gear T, of the plate D, pivoted concentrically with the lower feed-roll, the driving-wheel journaled on said plate, and a securing device, L, by which the plate may be held in adjusted position, substantially as described.

2. The combination, with the journaled knife-shaft and its removable and interchangeable wheel T, of the swinging plate D, having a pivot

concentric with the lower feed-roll, the driving-wheel B and attached gear C, journaled on said plate, the train of gears leading from the wheel C to the shaft of the lower feed-roll, and a retaining-screw, L, whereby the plate D may be held in adjusted position, as set forth.

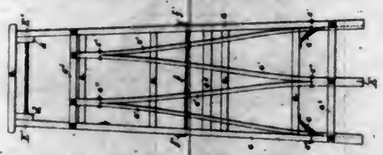
3. The combination, with the frame of a feed-cutter, of a lower feed-roll journaled therein, a swinging plate pivoted about said feed-roll shaft, the plate having supports *b w* for gears, and a curved slot, *d*, gears B, C, and W, mounted on said supports and in train with gear E on the feed-roll, a gear, T, on the knife-shaft meshing with gear B, and a set-screw, L, passing through the curved slot, substantially as described.

4. The combination, with the gear E on the lower feed-roll, of pinions G H in train therewith and mounted on the studs *g h*, projecting from the side plate, the upper feed-roll supports pivoted in line concentric with stud *h*, and a feed-roll mounted in said supports, having a gear intermeshing with gear H, substantially as described.

5. In combination with the studs *h h'* and the feed-roll supports J J', pivoted thereon, the gear H on the stud *h* and the gear I on the feed-roll shaft intermeshing therewith, and springs attached by connecting-rods to the feed-roll supports and acting to draw down the feed-roll, substantially as described.

6. In combination with the feed-roll supports J J', pivoted at the sides of the frame, the feed-roll *i*, journaled therein, the rods *k k'*, attached to said supports, and the springs *l l*, bearing against the heads of said rods and against the frame of the machine to depress the feed-roll, substantially as described.

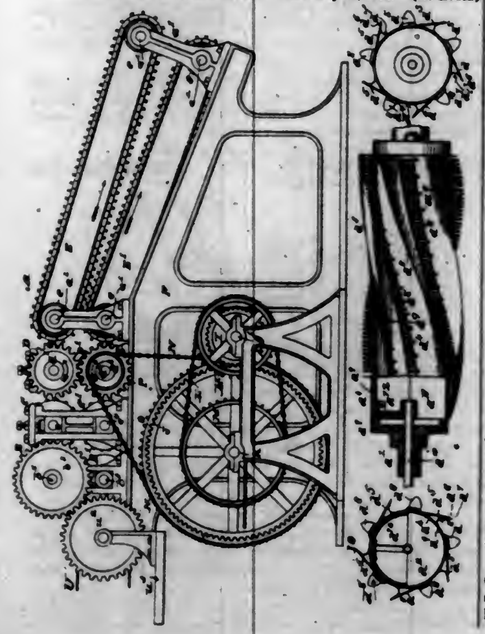
314,267. STEP-LADDER. DOE C. SHART, Cambridgeport, Mass. Filed Aug. 19, 1884. (No model.)



Claim.—1. In a step-ladder, the standard E, formed of one piece split alternately from one end and then from the other, and being spread to the required width, in combination with one or more horizontal braces, e^3, for retaining said piece in its spread position, as set forth.

2. In a step-ladder, the steps *a a*, joined to the sides of the ladder, said sides being formed by the strips *b b*, stays *b' b'*, and diagonal braces *b'' b''*, as described, in combination with the standard E, formed from one piece split and spread as described, and having one or more horizontal braces, e^2, e^3, for the purpose described, said standard being held in relative positions to the ladder by a suitable bail, as set forth.

314,268. FIBER-DISINTEGRATING MACHINE. T. A. SMITH, St. Louis, Mo., assignor of two-thirds to L. F. Woods, same place, and Constantine Mesalas, Brookhaven, Miss. Filed May 13, 1882. (No model.)



Claim.—1. In a fiber-decorticating machine, the combination of the flattening-rolls B B', the sectional breaking-rolls C C', and the decorticating-rolls D D', substantially as described.

2. In a fiber-decorticating machine, the pair of rolls D D', having the spirally-arranged yielding knives d^5 d^6, substantially as described.

3. In a fiber-decorticating machine, the rolls D D', having the spirally-arranged knives d^5 d^6 and the spirally-arranged combs d^8 d^9, substantially as described.

4. In a fiber-decorticating machine, the roll D, having the chamber d^{11}, the perforated shell d^4, and the knives d^5 d^6, substantially as described.

5. In a fiber-decorticating machine, the roll D, having the chamber d^{11}, the perforated shell d^4, and the valve d^{12}, substantially as described.

6. In a fiber-decorticating machine, the combination of the flattening-rolls B B', the breaking-rolls C C', the decorticating-rolls D D', and the endless brush-belts E E', substantially as described.

7. In a fiber-decorticating machine, the combination of the decorticating-rolls D D' and the brush-belts E E', substantially as described.

8. A fiber-decorticating machine having the endless brush-belts E E', for the purpose described.

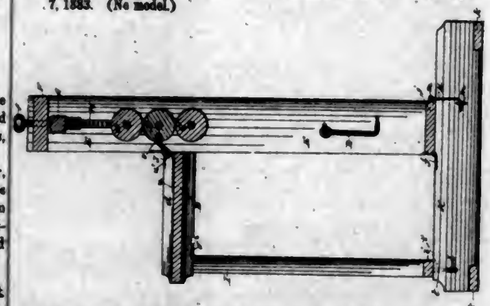
9. In a fiber-decorticating machine, the diverging brush-belts E E', substantially as described.

10. In a fiber-decorticating machine, the combination of the apron U and the platform V, substantially as described.

11. In a fiber-decorticating machine, the combination of the apron U, the platform V, and the trackway W, substantially as described.

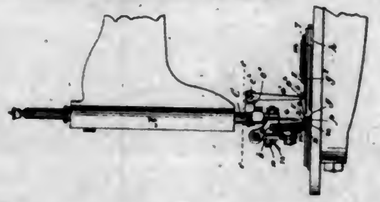
12. In a fiber-decorticating machine, a pair of decorticating-rolls, both of said rolls having a series of spirally-arranged knives, d^5 d^6, substantially as described.

314,269. MANGLE. JEPPE J. A. SORENSON, Erie, Pa. Filed Sept. 7, 1883. (No model.)



Claim.—In a clothes-mangle, the base-frame K K, provided with holes *k' k'* and *l' l'*, the standards E E, hinged to the center thereof and supporting the compression-rollers, in combination with the table D, hinged to the standards E E in front of the compression-rollers, legs I I, hinged to the outer edge of the table, whereby the said parts may be placed in operative position or the table and base folded up against the standards E E, and hooks and staples for holding the parts in the desired positions, substantially as and for the purpose set forth.

314,270. SEWING-MACHINE GUIDE. SAMUEL S. SPEAR, South Weymouth, Mass. Filed June 2, 1884. (No model.)



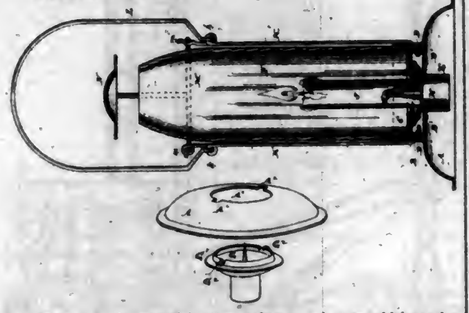
Claim.—1. The presser-bar, the presser-holding frame or bracket secured to it, the presser-roller mounted upon the said bracket, located at one side of the line of the feed, and an independent longitudinal and horizontally movable edge-gage having its face located at the opposite side of the line of the feed, and a spring to actuate the same in one direction, combined with a leg and toe connected with and adapted to rise and fall with the presser-bar, whereby the gage is automatically moved longitudinally and horizontally toward and from the line of the feed and the edge of the presser-roller, to operate substantially as described.

2. The presser-bar, the presser-holding frame, and the roller-presser, constructed and supported thereby at one side the line of the feed to present its periphery to the cloth-plate, with the inner edge of the roller higher than its outer edge, 2, combined with a gage, *g*, and base-plate, in

which it slides, the said gage being located at the opposite side of the line of the feed, and being movable at right angles to the line or direction of the feed, to operate substantially as described.

3. The base-plate provided with a shoulder or projection, and the horizontally-sliding edge-gage therein, provided with a shoulder or projection, combined with a bracket adapted to be attached to the presser-bar, and with a leg and foot, substantially as described, to co-operate with the said gage and its base-plate, as and for the purposes set forth.

314,271. LANTERN. ROBERT A. STEVENSON, New York, N. Y. Filed Oct. 24, 1884. (No model.)



Claim.—1. As an article of manufacture, a lantern which consists of a base having a support for a candle and apertures for air, in combination with an ordinary lamp-chimney supported thereon, wire uprights adapted to sustain the chimney against lateral displacement, and a ring hinged to one of said uprights and arranged to encircle the top of the chimney and snap upon the other upright, substantially as and for the purpose specified.

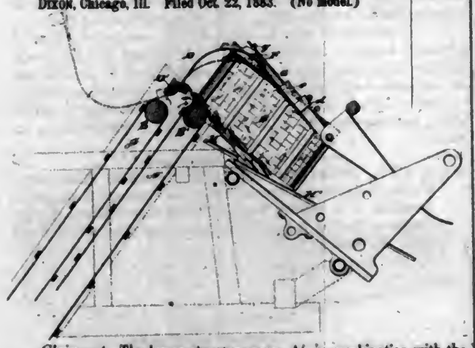
2. As an article of manufacture, a lantern which consists of a base having a support for a candle and apertures for air, in combination with an ordinary lamp-chimney supported thereon, wire uprights adapted to sustain the chimney against lateral displacement, a ring hinged to one of said uprights and arranged to encircle the top of the chimney and snap upon the other upright, and a cap supported above the chimney by said ring, substantially as and for the purpose specified.

3. The combination of the base A, having a vertical ring, B, provided with a supporting-flange, upon which the chimney rests, and apertures D D', to admit air through the said ring and bottom of the base, chimney F, wires K K', secured to said base on its ring and adapted to support the chimney, and snap-ring to hold said wires against the chimney, and a support for the candle carried by the base, substantially as and for the purpose specified.

4. The combination of base A, having apertures D A', notches A^3, and ring B, having a bead, C, cup G, flange G', pins or lugs G^2 and point I, and chimney F, substantially as and for the purpose specified.

5. The combination of base A, having apertures D A', notches A^3, and ring B, having a bead, C, cup G, flange G', pins or lugs G^2 and point I, wires K K', ring M, cap N, and handle L, substantially as and for the purpose specified.

314,272. HARVESTER-BINDER. JOHN F. STEWARD and ROBERT H. DIXON, Chicago, Ill. Filed Oct. 22, 1883. (No model.)

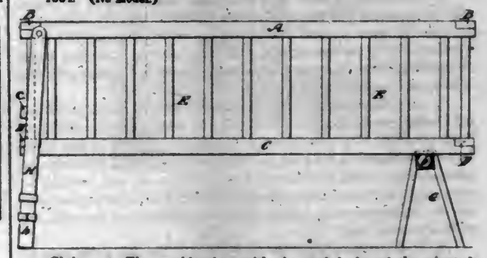


Claim.—1. The lower elevator-apron, A', in combination with the upper apron, A, shortened at its delivery end in relation to the said apron A', and with the deflector D, its edge placed adjacent to the said apron A, substantially as shown and described, whereby the space between the termination of the apron A and the beginning of the deflector is placed at a point relatively lower than that of termination of the elevating mechanism, as set forth.

2. The combination, with the elevating mechanism, of the deflector D, adjustable in its height, substantially as described.

3. In combination with the harvester-frame and the binder-frame, the grain deflector and receptacle-covering hinged to the said harvester-frame, and adjustably secured to the binder-frame, whereby the capacity of the receptacle may be varied to conform to varying conditions of grain, or opened at will, substantially as described.

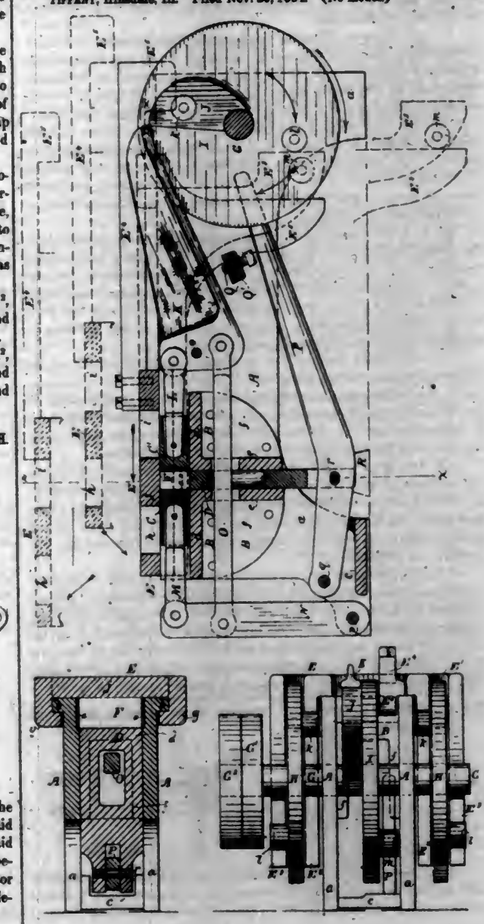
314,273. FEED-RACK. MANLY THOMAS, Orlinda, Mo. Filed Apr. 11, 1884. (No model.)



Claim.—1. The combination, with the rack-body, of the pivoted front legs, H H, united by a cross-bar, *c*, and the rear swinging double-legged trestles G G, arranged to brace the rack when in their supporting position, essentially as described.

2. The pivoted legs H H, fitted with lower slip extensions, A A, in combination with the rack-body and swinging rear legs or trestle-supports, substantially as and for the purpose specified.

314,274. MACHINE FOR THE MANUFACTURE OF BRICKS. JOEL TIFFANY, Hinsdale, Ill. Filed Nov. 29, 1884. (No model.)



Claim.—1. In a brick-machine, the combination, with the mold, of horizontally-reciprocating plungers constituting the sides thereof, a main pressure-lever for operating both of said plungers, connecting-rods, and an intermediate lever connecting said main lever with said plungers, and a cam for operating said main lever, substantially as described.

2. In a brick-machine, the combination, with the mold, of horizontally-reciprocating plungers constituting the sides thereof, a vertically-reciprocating plunger constituting the bottom thereof, and a sliding plate constituting the top thereof, substantially as set forth.

3. In a brick-machine, the combination, with the mold, of horizontally-reciprocating plungers constituting the sides thereof, a main pressure-lever for operating both of said plungers, connecting-rods and an intermediate lever connecting said main lever with said plungers, a cam for operating said main lever, and an adjustable stop for regulating the drop of the main lever, substantially as described.

4. In a brick-machine, the combination, with the mold, of horizontally-reciprocating plungers constituting the sides thereof, a sliding top frame provided with two openings, respectively, for the feeding of the clay and discharge of the brick, and with an intermediate plate between said openings, which constitutes the top of the mold, and cams for reciprocating said frame intermittently to bring the feed-opening, the plate, and the discharge-opening successively into position over the mold, substantially as set forth.

5. In a brick-machine, the combination of the side plates covering the ends of the mold and constituting a part of the supporting-frame, angle-bars connecting said plates, provided with attaching webs at their ends, and bolts uniting said plates and webs, substantially as described.

6. In a brick-machine, the combination of the side plates constituting the ends of the mold, the angle-bars connecting said side plates, said bars being each composed of a transverse horizontal and a transverse vertical web connected at their ends by vertical webs which constitute attaching plates, the horizontally-reciprocating plungers sliding on said horizontal transverse webs, the vertically-reciprocating plunger playing between said transverse vertical webs, and a reciprocating top frame, substantially as described.

7. In a brick-machine, the combination, with the mold, of the horizontally-reciprocating plungers C C', the lever K, the connecting-rod L, connecting said lever with the plunger C', the upright lever N, the connecting-rod M, connecting plunger C with said lever N, and the lever O, connecting said lever N with said lever K, substantially as described.

8. In a brick-machine, the combination of the side plates, A A, the sliding top frame, E, the plates *d d*, the horizontally-reciprocating plungers C C', the connecting-rod L, connecting said lever with the plunger C', the upright lever N, the connecting-rod M, connecting plunger C with said lever N, and the rod O, connecting said lever N with said lever K, substantially as described.

9. In a brick-machine, the combination of the side plates, A A, the sliding top frame, E, the plates *d d*, the horizontally-reciprocating plungers, C C', the connecting-rod L, connecting said lever with the plunger C', the upright lever N, the connecting-rod M, connecting plunger C with said lever N, the rod O, connecting said lever N with said lever K, the vertically-reciprocating plunger D, the lever P, and the cams for actuating said lever, substantially as described.

10. In a brick-machine, the combination, with the mold, of the horizontally-reciprocating plungers C C', the lever K, the connecting-rod L, connecting said lever with the plunger C', the upright lever N, the connecting-rod M, connecting plunger C with said lever N, the lever O, connecting said lever N with said lever K, and the adjustable stop S, for regulating the drop of lever K, substantially as described.

11. In a brick-machine, the combination, with the mold, of the sliding top frame, E, provided with openings *h i*, and having horizontal arms, E', vertical arms E^2 E^3, dependent from said horizontal arms, and a horizontal arm, E^4, having a dependent lug, E^5, a shaft, and disks on said shaft provided with pins which engage said dependent arms and lug, substantially as described.

12. In a brick-machine, the combination, with the mold, of the horizontally-reciprocating plungers C C', the vertically-reciprocating plunger D, the main lever K, the connecting-rods and intermediate lever connecting said horizontally-reciprocating plungers with said main lever, the sliding top frame, provided with arms E' E^2 E^3 E^4, and lug E^5, the lever P, the driving-shaft G, and cam-disks on said driving-shaft for actuating both levers K P and said top frame, substantially as described.

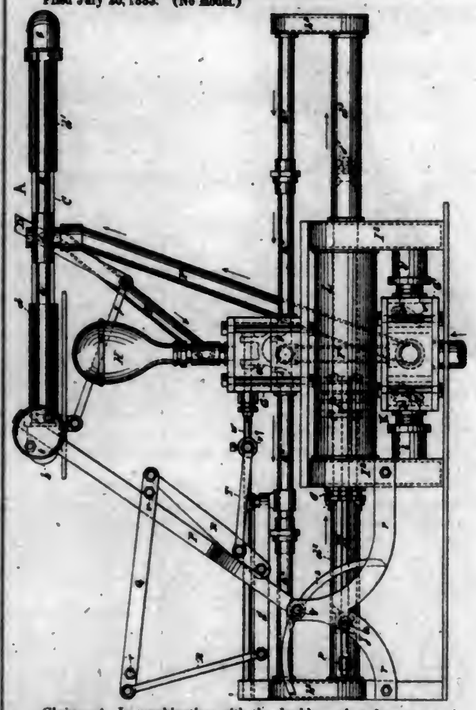
314,275. CAR-COUPLING. HUBBARD W. TILTON, Boston, Mass. Filed Jan. 12, 1885. (No model.)



Claim.—1. An automatic car-coupling which consists of a weighted hook suitably mounted in the draw-head, in combination with a slotted link arranged in connection with said hook and hung independently thereof in such manner that it can be readily driven out of place when it is desired that said hook should couple with another link, but is at all times ready to couple with another hook if presented to it, as herein described, and for the purposes specified.

2. The above-described slotted link C, mounted in the draw-head, and arranged substantially as herein described and shown.

314,276. HYDRAULIC ENGINE. NELSON J. TUBBS, Philadelphia, Pa. Filed July 20, 1883. (No model.)

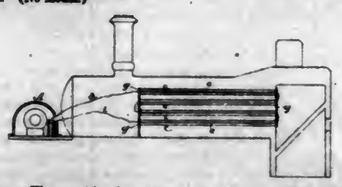


Claim.—1. In combination with the double-acting force-pump A, its induction and eduction pipes, the secondary motor, its double-acting piston and the pump connected thereto, the slide-valve a^4, its actuating mechanism, and the air-chamber located above the slide-valve and communicating with the induction-pipe of the secondary motor, substantially as described.

2. In a hydraulic motor, and in combination with its cylinders, piston-rod, and pistons, the valve controlling the inlet and outlet ports, the pivoted shifting lever with its weight and fork, the pivoted links carrying the connecting links and stops, the valve-rod connected to the links, and the shifting rod connected to the piston-rod and carrying a roller for engaging the forks on the shifting lever, substantially as described.

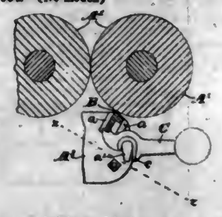
3. In combination with the slide-valve, its rod, and the block c^9, adjustably secured to the said rod, the link T, pivoted links R, connecting-links Q, carrying stops *v* at either end, the lever P, provided with the adjustable weight at one end and the fork *s* at the other, and adapted to vibrate between links Q and make contact with the stops *v*, and the sliding rod carrying roller *u*, for engaging fork *s*, substantially as described.

314,277. MEANS FOR GENERATING STEAM BY ELECTRICITY. WALTER W. VAUGHN and EDWARD D. ELDRIDGE, Stockton, Cal., assignors to themselves, W. W. Paddock, Henry W. Devoll, Edward Elmore Eldridge, Charles A. Eldridge, Joshua B. Webster, and Asa Clark. Filed May 5, 1884. (No model.)



Claim.—The combination of a steam-boiler provided with suitable flues with a dynamo-machine, suitable wires connected thereto, and a strip, band, or wire of platinum which is passed back and forth through the flues, which are sealed hermetically at their ends and lined their entire lengths with graphite, substantially as set forth.

314,278. SCRAPER FOR ROLLER-MILLS. JESSE WARRINGTON, Indianapolis, Ind., assignor to the Nordyke & Marmon Company, same place. Filed Aug. 30, 1884. (No model.)



Claim.—1. The combination, with the grinding-rolls of a roller-mill, of a scraper consisting of the scraper-blade B, slides *a* therefor, fulcrums *a'*, and levers C, extended across and supported by said fulcrums, the inner ends of which pass under and support said scraper-blade, and the outer ends of which are weighted, said several parts being arranged and operating substantially as shown and specified.

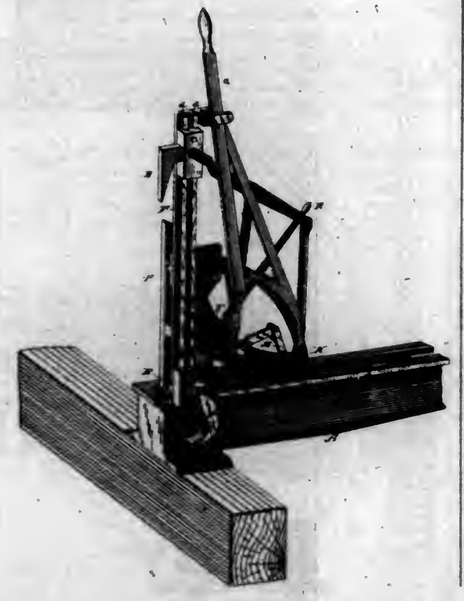
2. The combination, in a roller-mill, of a grinding-roll, a scraper-blade mounted in slides on the frame-work, having notches in its lower edge, and levers which extend across and rest upon fulcrums and pass under and enter said notches, whereby said levers are secured against endwise movement on said fulcrums, substantially as set forth.

3. The combination of a scraper-blade, weighted levers for sustaining said scraper-blade, and fulcrums on which said levers are mounted, said fulcrums being flattened and said levers having lips *c*, adapted to come in contact with the side of said fulcrums, and thus hold said levers from too great a movement, substantially as set forth.

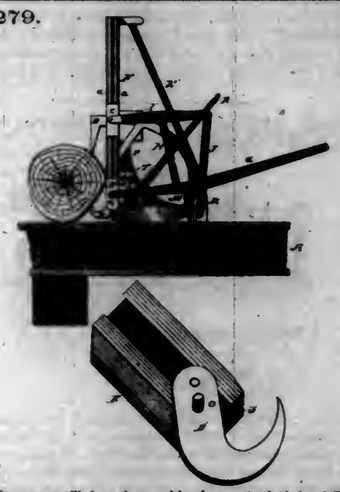
4. The combination of the scraper-blade B, the weighted lever C, having lips *c* on the weight side of the fulcrum, and the fulcrum *a'*, flattened or extended downwardly to form a stop, with which said lip may come in contact, substantially as shown and specified.

314,279. SAW-MILL DOG. HARLOW M. WILCOX, Milwaukee, assignor to C. S. Martin and Marilla J. Wilcox, both of Wausau, Wis. Filed Sept. 6, 1884. (No model.)

Claim.—1. In a saw-mill dog, the combination, with the vertical ways *d d*, terminating at their lower end with a rearward curve, of the vertically-moving slides C and E, and log-retaining hooks B and D, said lower hook, D, being provided with a pintle or lug adapted to move in said rearwardly-curved way, said slides being both connected with a single operating handle or lever, by which they are simultaneously operated, substantially as set forth.



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2. In a saw-mill dog, the combination of the jack-head P, horizontally-moving standard F, provided with the vertical ways, slides C and E, log-retaining hooks B and D, said lower hook, D, being provided with a pintle operating at the lower extremity of its movement in the rearwardly-curved groove of the way at the lower end of the standard F, said slides being connected with the operating-handle, substantially as set forth.

3. In saw-mill dogs, the standard F, provided with vertical ways *d d*, in combination with sliding blocks C and E, provided with grooves adapted to receive and move upon the ways *d d*, retaining-hook B, rigid to block C, retaining-hook D, pivoted to block E, lever-handle G, bar L, pivoted to handle G, and block E, lever I, and bar H, by and through which lever and bar motion is communicated from handle G to block C, and retaining-bars J and M, pivoted to and retaining the rear ends of levers I and L, respectively, substantially as and for the purpose set forth.

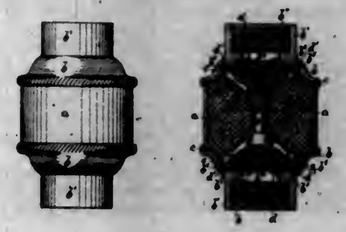
4. The combination, with the stationary jack-head P, provided with retaining-ways, of the standard F, provided with retaining-brackets adapted to engage in the retaining-ways of said jack-head, tooth-bar T, rigidly affixed to said jack-head, gear-segment S, pivoted to the side of said standard and engaging in said toothed bar, and handle R, rigidly affixed to said gear-segment, said gear-segment being adapted as it is turned by said handle to move horizontally beneath said toothed bar and carry with it the dog, whereby the same may be adjusted forward or rearward to meet the requirements of the timber to be sawed, substantially as and for the purpose specified.

314,280. BOTTLE-FILLING MACHINE. HERMAN WELL, Chicago, Ill. Filed Sept. 10, 1883. Renewed Dec. 5, 1884. (No model.)



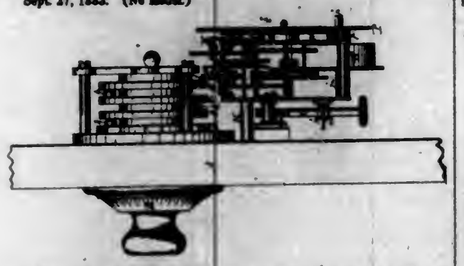
Claim.—In a bottle-filling machine, the combination of bracket *e*, cam-slotted lever D, pivoted therein and having a detachable safety-screen, *l m*, and stirrup *p*, having pin *f*, as and for the purpose set forth.

314,281. FILTER. ARTHUR N. WILSON, Salem, Mass., assignor of one-half to John R. Smith, same place. Filed Dec. 24, 1884. (No model.)



Claim.—In a filter, the shell *a* and caps *b b*, in combination with the semi-spherical or cup-shaped perforated strainers *d d*, and screw-threaded fastening-rings *e e*, having bails *d' d'*, and screw-threaded shank or spindle *e''*, for securing the filter parts together in a manner as set forth.

314,282. TIME-LOCK. JACKSON B. YOUNG, Sioux Falls, Dak. Filed Sept. 27, 1883. (No model.)



Claim.—1. In a time-lock, a time-movement, in combination with a set of tumblers none of which is connected with the time-movement, except when adjusted in position for unlocking, a projection or enlargement on one or more of the tumblers, and a wheel driven by the time-movement, and arranged to come in contact with the said projection when the tumbler is at the point of adjustment for unlocking and to be released from such contact just after the said tumbler is displaced, substantially as and for the purposes set forth.

2. In a time-lock, a time-movement, in combination with a set of tumblers all of which are disconnected from the time-movement when out of position for unlocking, a frictional surface provided by a flange or enlargement on one or more of said tumblers, and a friction-wheel driven by the time-movement, and arranged to engage with the frictional surface on the tumbler just at the point of the adjustment of the latter into position for unlocking and to be released from such contact when said tumbler is slightly displaced, substantially as and for the purposes set forth.

3. In a time-lock, a time-movement, a set of tumblers having no operative connection with the time-movement except in one position, and automatic means for producing an engagement of the time-movement with one of the tumblers whenever said tumbler is in position for unlocking, all in combination, substantially as and for the purpose described.

4. In a time-lock, the tumbler *d*, having in its periphery the slot *e* for the purpose of receiving an arm of the locking-bolt, and having also the projection *i*, arranged, as described, on its periphery, a friction-wheel arranged on a fixed bearing to engage with the projection on the tumbler when the two are nearest each other, and means for communicating to the friction-wheel a rotary motion from the time-movement, all in combination, substantially as and for the purpose described.

5. In a time-lock, the revolving tumbler *d*, having the projection *i*, arranged, as described, thereon, the friction-wheel *k*, loosely mounted on a revolving shaft in a position to engage with the projection at a certain point in the revolution of the latter, the collar *k'*, rigidly mounted on the shaft, and the spring *k''*, arranged to press the wheel against the collar, all in combination, substantially as and for the purpose described.

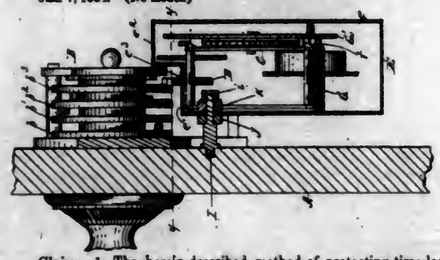
6. In a time-lock, the fixed dial, the gear-wheel N, concentric with the dial and having near its periphery the laterally-projecting pin *t'*, the lever K, pivoted on the frame of the time-movement and having the lateral arm *a'*, arranged to engage at one end of its range of oscillation with one of the gear-wheels of the movement, and having also the tappets *o* and *o'*, arranged, as described, to engage with the pin *t'*, the spring *n''*, arranged, as described, to push the lever to the nearer extreme of its arc of oscillation, and means for communicating the time-movement to the wheel N, all in combination, substantially as and for the purpose described.

7. The rotating tumbler *d*, having on its periphery the projection *i*, the time-movement, the friction-wheel *k*, mounted on a revolving shaft of the time-movement in position to engage with the projection, the revolving wheel N of the time-movement, having near its periphery the laterally-projecting pin *t'*, the lever K, having a pivotal fulcrum on the frame of the movement, having the lateral arm *a'*, arranged to engage at one end of its range of oscillation with one of the gear-wheels of the movement, and having also the tappets *o* and *o'*, arranged, as described, to engage with the pin *t'*, and the spring *n''*, arranged, as described, to push the lever to the nearer extreme of its arc of oscillation, all in combination, substantially as described, for the purpose of preventing the adjustment of the tumbler in a certain position up to a predetermined time, and permitting the adjustment when the time has arrived.

8. In a time-lock, a combination-lock, in combination with an adjustable time-movement, whereby the relative position of the time-movement and lock may be adjusted, substantially as and for the purpose described.

9. In a time-lock, the fixed support F, having a threaded transverse aperture arranged therein, as described, the frame of the movement having the slot *l*, arranged to engage with the fixed support, and the slotted arm *m*, projecting to a position opposite the threaded aperture, and the shaft 1, arranged in the slotted arm and in the threaded aperture, threaded toward one end to fit the aperture, and provided with the collars *m'*, arranged on each side of the slotted arm and close to it, all in combination, substantially as and for the purpose described.

314,283. TIME-LOCK. JACKSON B. YOUNG, Sioux Falls, Dak. Filed Jan. 7, 1884. (No model.)



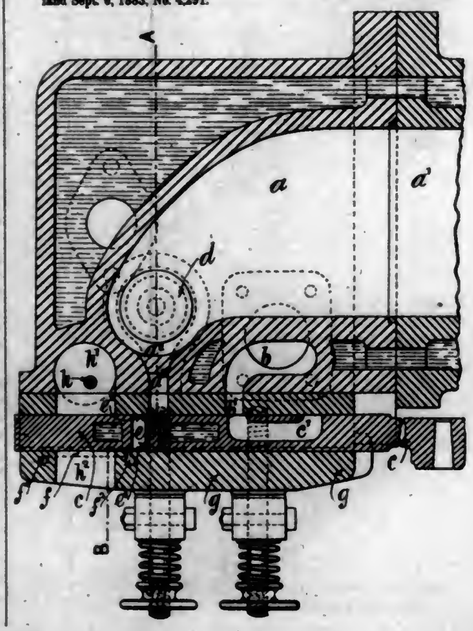
Claim.—1. The herein-described method of protecting time-locks from disturbance by electricity, which consists in insulating them by means of rubber or other non-conducting material, substantially as and for the purposes specified.

2. The herein-described method of protecting time-locks from disturbance by electricity, which consists in inclosing the time-works in an insulating-case of rubber or other non-conducting material, substantially as and for the purposes specified.

3. The tumbler-lock B, in combination with the time-works C, the friction-wheel D, of rubber or other electric non-conductor, and the inclosing-case E, of rubber or other electric non-conductor, provided with a movable front, *e*, and a movable top section, *e'*, slotted, as described, for the accommodation of the friction-wheel, substantially as and for the purposes set forth.

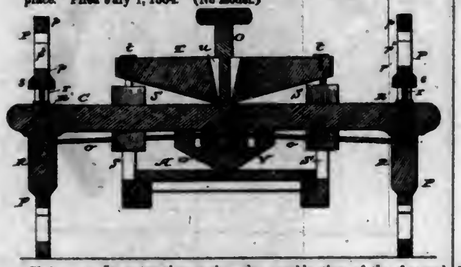
4. In a time-lock, the combination, with the tumblers, of time-works provided with insulating devices, whereby the passage of currents of electricity from their point of attachment to the works is prevented, and having a disarranging device of rubber or other non-conducting material arranged to act on one or more of the tumblers, whereby the passage of electricity from the tumblers to the time-works is prevented, substantially as and for the purposes specified.

314,284. GAS-ENGINE. CHARLES H. ANDREW, Stockport, County of Chester, England. Filed Mar. 8, 1884. (No model.) Patented in England Sept. 6, 1883, No. 4,291.



Claim.—In combination with the slide-valve and the explosion-cylinder of a gas-engine, a spring-held mushroom valve, *d*, which closes the passage between them, a preliminary explosion chamber or space formed between said slide-valve and said mushroom valve, a burning jet, and an ignition pocket and passage whereby said jet ignites the gas in the preliminary explosion-chamber, blowing open the mushroom valve *d* and exploding the charge in the main explosion-cylinder, whereby said valve *d* is immediately closed, substantially as set forth.

314,285. TRACTION-ENGINE. RANSOM S. ANGELL, Moorhead, Minn., assignor of one-half to Marshall A. Spooner and Frank D. Larrabee, same place. Filed July 1, 1884. (No model.)

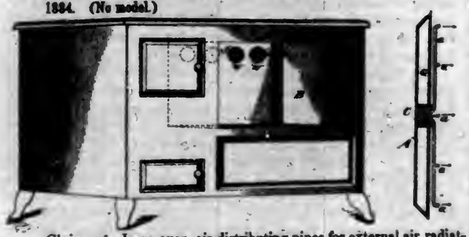


Claim.—1. In a traction-engine, the combination of the forward axle, C, the wheels P, the turning-post O, the double pulley O', the wire cables *o*, the braces *t*, and the slotted bolster T, all as described.

2. In a traction-engine, the combination of the main shaft or axle B, the tumbling blocks *e*, the stop-rod L, and the hooked rod *f*², with the drive-wheels E, and the carriage bed or frame, as described.

3. In a traction-engine, the combination of the main axle B, the tumbling blocks *e*, stop pin or rod L, hooked rod *f*², the frame F, carrying the drive-wheel and friction-rollers, and the endless track or tread, all as described.

314,286. STOVE. JOHN B. CROCKER, St. Louis, Mo., assignor to John W. Thomas and John B. Saghers, Jr., both of Chicago, Ill. Filed Feb. 23, 1884. (No model.)

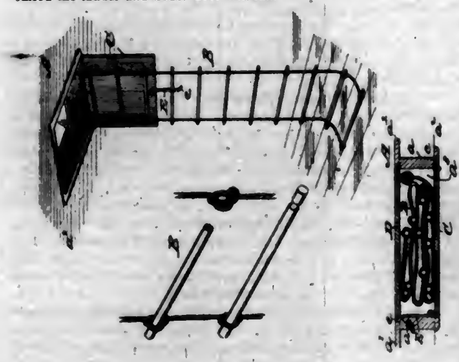


Claim.—1. In an oven, air-distributing pipes for external air radiating from a central point in the oven-door, substantially as and for the purpose set forth.

2. The combination, in an oven, of radiating air-distributing pipes, substantially as described, with a rotascope or register in the partition separating the oven and the flue, substantially as and for the purpose set forth.

314,287. FIRE-ESCAPE. EDWARD W. FISHBRAUK, Edwardsville, Ill. Filed Jan. 28, 1884. Renewed Jan. 31, 1885. (No model.)

Brief.—The latch which holds the ladder and its support is held up and fast by the trap-door in the floor, so that when said trap-door is raised the ladder and under door will fall.



Claim.—1. The combination of the floor A and ladder B, the door C, the hook E, and the door D, said hook being automatically released by the opening of the door D, substantially as described.

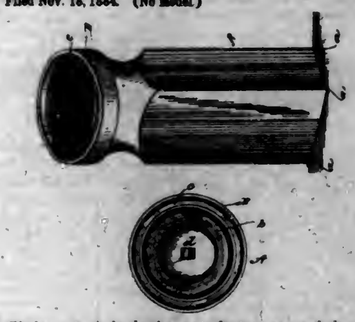
2. The combination of the floor A, the doors C and D, and the hook E, said hook being automatically released by the opening of the door D, as described.

314,288. STEM-WINDER MECHANISM FOR WATCHES. ALLEN S. GALENTINE, Valparaiso, Ind., assignor of one-half to Frank M. AYE, same place. Filed Aug. 15, 1884. (No model.)



Claim.—In a stem winding and setting watch, the combination, with the pivoted plate *f''*, provided with the point *f*, stem C, casing A, plate *e'*, provided with the opening *e⁴*, of the spring-arm E, pivoted at *e*, and provided at its end *e²* with the lip *e³*, passing through the opening *e⁴* and engaging the point *f*, the push-pin D, adapted to engage by its point *d* said arm, whereby the train of gearing on the plate *f''* is thrown in and out of engagement, substantially as described, and for the purposes set forth.

314,289. FRUIT-JAR. MONROE RIX GANNAWAY, Unionville, Tenn. Filed Nov. 18, 1884. (No model.)



Claim.—1. A jar having seats for two caps and channels for the reception of a sealing agent, as set forth.

2. The combination, with a jar having the usual mouth or opening and stopper to fit the same, of an inner and an outer flanged cover and channels for the reception of a sealing agent, as set forth.

3. The jar A, having flange B, provided on its upper edge with a circumferential groove, and also having the circumferential seat *b*, in combination with flanged covers to fit said groove and seat and to leave a space for the introduction of a sealing agent, substantially as set forth.

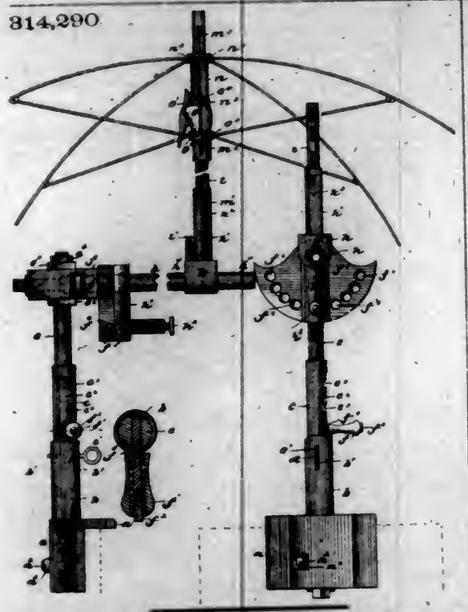
314,290. UMBRELLA-SUPPORT. FREDERIK HAHN, Towanda, Ill. Filed Jan. 14, 1885. (No model.)

Claim.—1. The combination of the base *a*, hollow shaft *b*, sleeve *c*, supporting-rod *e*, having head *f*, a catch for securing the rod to the sleeve at any desired point, horizontal rod *h*, journaled in the head *f*, and a catch for securing said rod at any desired point of rotation, and vertical hollow shaft *k'*, that is adapted to slide on rod *h*, and to receive and support an umbrella, substantially as described.

2. The combination of the base *a*, hollow shaft *b*, spring *d*, sleeve *c*, bearing on said spring, supporting-rod *e*, having head *f*, a catch for securing the rod to the sleeve at any desired point, horizontal rod *h*, journaled in the head, and a catch for securing said rod at any desired point of rotation, and vertical shaft *k'*, that is adapted to slide on rod *h* and to receive and support an umbrella, substantially as described.

3. The combination of the base *a*, having hollow shaft *b*, sleeve *c*, supporting-rod *e*, head *f*, swiveled to rod *e*, and a catch for clamping the head to the rod, horizontal rod *h*, journaled in the head, and a catch for securing said rod at any desired point of rotation, and vertical shaft *k'*, that is adapted to slide on rod *h*, and to receive and support an umbrella, substantially as described.

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314,291. BUSH-HAMMER. WESLEY H. HARPER, Bartlesville, Pa. Filed June 18, 1884. (No model.)



Claim.—1. A bush-hammer having its pole provided with movable jaws, each of the said jaws having at one end a shoulder which bears on the cuts or picks, and being gradually thickened from the shoulder toward the other end, substantially as and for the purpose specified.

2. A bush-hammer having its pole provided with movable jaws, each of the said jaws having at one end a shoulder which bears on the cuts or picks, and being gradually thickened from the shoulder toward the other end, the said thickened portion having passed through it the beveled portion of the securing and clamping bolt or bolts, substantially as and for the purpose specified.

3. In combination with a bush-hammer having a pole provided with clamping-jaws, a gib having a recess on one side for receiving the lug or key on pole, and provided on its other side with a lug or key, the said gib resting behind the butts of the cuts or picks, substantially as and for the purpose set forth.

4. In combination with the jaws of a bush-hammer pole, the said jaws being slotted on their bearing-surfaces, a filler resting between the jaws and the cuts, and provided with a lug on its surface to engage in the slot in the jaw, which lug prevents the filler from slipping, substantially as and for the purpose set forth.

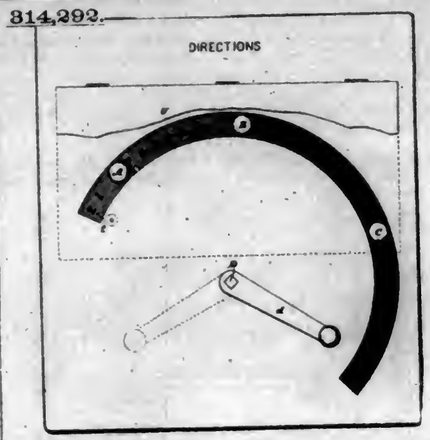
5. A bush-hammer having a pole provided with movable shouldered jaws retained in place by bolts, with the portions passing through the jaws beveled, a removable gib provided with a lug and a recess, and a filler provided with a lug fitting in a slot in the jaws, the said pole having a lug at the rear of the cut-retaining recess, and being provided centrally with an eye for the handle, the entire device operating substantially as and for the purpose set forth.

314,292. ELECTRIC SIGNALING APPARATUS. F. BERNDT HERRON, New York, N. Y. Filed Dec. 1, 1884. (No model.)

Claim.—1. The combination, with an electric circuit, of a latent-signal transmitter for transmitting over the circuit three or more variable signals or sets of impulses, signal-determining devices whereby the automatic signaling mechanism can be set to transmit said signals in any desired sequence, a motor for actuating said signaling mechanism, and means for releasing said motor, substantially as and for the purposes hereinbefore set forth.

2. The combination, in a latent-signal transmitter, of a traveling contact-maker, a motor, a number of contacts swept by said traveling contact-maker, and one or more adjustable interval-producing devices, substantially as and for the purposes hereinbefore set forth.

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3. The combination, in a latent-signal transmitter, of a series of contacts and a contact-maker movable with respect to each other, and two or more interval-producers differently spaced from the series of contacts and adjustable with relation to each other, together with a motor, a detent therefor, and a locking device to prevent the detent from reobstructing the motor after it has once been started by the current, substantially as and for the purposes hereinbefore set forth.

4. In combination with a latent-signal transmitter having a contact-maker and a series of contacts movable with respect to each other, two or more interval-producers and a limiting-stop, the interval-producers and the stop being adjustable with respect to one another, substantially as and for the purposes hereinbefore set forth.

5. The combination, in a latent-signal transmitter, of a signal-transmitting mechanism and two or more signal limiting and controlling devices, substantially as described, whereby the entire signal transmitted is divided up into three or more groups of impulses or signals, substantially as and for the purposes hereinbefore set forth.

6. The combination, in a latent-signal transmitter, of a fixed toothed transmitting-plate, a contact-brush driven by the motor and sweeping the transmitter, two or more interval-producers, means for setting the interval-producers with respect to one another, and indicators to indicate how the signal is set, substantially as hereinbefore set forth.

7. The combination of the arbor D, driven by the clock-work, the electro-magnet whose armature locks and releases the clock-work, the fixed sector P, traveling arm M, attached to the arbor D and carrying the contact-brush *m*, one or more arms, Q, provided with interval devices *q* and carrying numbered or marked arcs or dials, and the arm S, constructed to limit the movement of the arm M, substantially as described.

8. The combination of the arbor D, driven by the clock-work, the electro-magnet whose armature locks and releases the clock-work, the fixed sector P, traveling arm M, attached to the arbor D and carrying the contact-brush *m*, one or more arms, Q, provided with interval devices *q* and carrying numbered or marked arcs or dials, and the arm S, constructed to limit the movement of the arm M, and the arm or crank *d*, attached to the arbor D, substantially as described.

9. The combination, with the arbor D and clock-work driving the same, of the metal sector P, fixed to the frame, the traveling arm M, attached to the arbor D and carrying the contact-brush *m*, the arm or crank *d*, attached to the arbor D, one or more arms, Q, provided with interval devices *q* and carrying numbered or marked arcs or dials, the arm S, also provided with a dial and constructed to limit the movement of the arm M, a suitable frame, and means for exposing the dials or arcs, substantially as described.

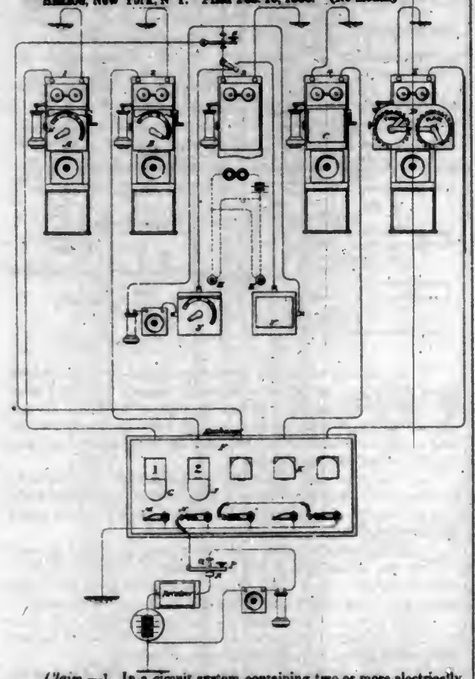
10. The combination, with the arbor D and clock-work driving the same, of the metal sector P, fixed to the frame, the traveling arm M, attached to the arbor D and carrying the contact-brush *m*, the arm or crank *d*, attached to the arbor, one or more arms, Q, carrying interval-blocks *q* and numbered or marked arcs or dials, the arm S, also provided with a dial and constructed to limit the movement of the arm M, locking devices for the arms, and the box inclosing the mechanism provided with an opening exposing the dials, substantially as described.

11. The combination, with a latent-transmitter box and dials or indicators, according to which the instrument can be set to transmit different signals, of a cover or flap for the indicators, so as normally to hide the signals from view, substantially as described.

12. The combination, with a transmitter-box and dials or indicators by which the instrument can be set to transmit different signals, of the cover or flap V of the box, so arranged as automatically to hide the dials exposed to view after the signal has been set, substantially as described.

13. In a latent-signal transmitter, the combination, with a motor and a releasing device, of a signal-determining device and an independently-operative starting "lever" or "pull," substantially as described.

314,293. METHOD OF LATENT-SIGNAL TRANSMISSION. F. B. HERRON, New York, N. Y. Filed Feb. 10, 1885. (No model.)

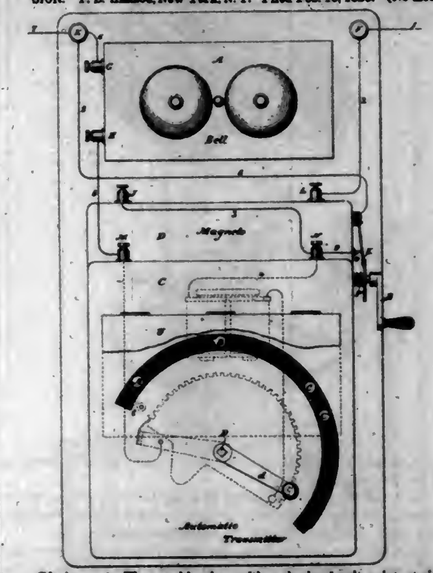


Claim.—1. In a circuit system containing two or more electrically connected stations at one of which (the sending-station) is a latent-signal transmitter and calling apparatus, and at the other of which (the receiving-station) are apparatus responding to the said calling apparatus and latent-signal transmitter and means for transmitting an impulse over the circuit to release said latent-signal transmitter, the hereinbefore-described method of signaling, consisting in first setting at the sending-station the latent-signal transmitter, and sending in a call from the station to indicate to the receiving-station that the transmitter is set and ready to be operated, and then at the receiving-station, upon receipt of said call, operating the releasing mechanism to release the latent-signal transmitter at the sending-station, substantially as set forth.

2. In a circuit system containing two or more electrically-connected stations at one of which (the sending-station) are a latent-signal transmitter, a calling apparatus, and a safety apparatus, (to permit of the operation of the calling apparatus without during its operation releasing the latent-signal transmitter,) and at the other of which (the receiving-station) are apparatus for releasing and responding to the said calling apparatus and latent-signal transmitter and means for transmitting an impulse over the circuit to release the said latent-signal transmitter, the hereinbefore-described method of signaling, consisting in, first, setting at the sending-station the latent-signal transmitter, sending in a call to the receiving-station, and operating the safety mechanism to indicate that the transmitter is set and ready to operate; and, secondly, at the receiving-station, upon receipt of said call; operating the releasing mechanism to release the latent transmitter at the sending-station, substantially as and for the purposes hereinbefore set forth.

3. In an electric circuit containing two stations at one of which (the sending-station) are latent-signal transmitter, calling apparatus, and call-receiving apparatus so constructed as to be operated from the receiving-station, and where at the other of which (the receiving-station) are apparatus for releasing the said latent-signal transmitter responding to said calling apparatus and operating the call-receiving apparatus at the sending-station, the herein-described method of signaling, which consists in, first, at the sending-station setting the latent-signal transmitter and sending in a call to the receiving-station; and, secondly, at the latter station releasing the latent-signal transmitter and sending in a call to the sending-station through the call-receiving apparatus at that station, to indicate to said sending-station that the call has been received and noted, substantially as and for the purposes hereinbefore set forth.

314,294. CIRCUIT-CHANGER FOR LATENT-SIGNAL TRANSMISSION. F. B. HERRON, New York, N. Y. Filed Feb. 10, 1885. (No model.)



Claim.—1. The combination, with a single circuit, a latent-signal transmitter, and calling apparatus for informing the receiving-station that the latent-signal transmitter is set, of a circuit-changer at the transmitting-station, whereby the call may be operated without thereby releasing the latent-signal transmitter, substantially as described.

2. The combination, with a single circuit, a latent-signal transmitter, and calling apparatus for informing the receiving-station that the latent-signal transmitter is set, of a circuit-changer connected with and operated by the calling apparatus, substantially in the manner hereinbefore described.

3. The combination, with a single circuit, a latent-signal transmitter, and calling apparatus for informing the receiving-station that the latent-signal transmitter is set, of a normally-open shunt which when closed offers to the current actuating the call-receiving apparatus a path of less resistance without breaking the continuity of the circuit, and a shunt-closing key whereby the call may be operated without thereby releasing the latent signal, substantially as described.

4. The combination, with a single circuit, a latent-signal transmitter, and calling apparatus for informing the receiving-station that the latent-signal transmitter is set, of a normally-open shunt which when closed offers to the current actuating the call-receiving apparatus a path of less resistance without breaking the continuity of the circuit, and a shunt-closing key whereby the call may be operated without thereby releasing the latent transmitter, the said key being connected with and operated by the calling apparatus, substantially as described.

5. The combination, in a circuit with normally no current in line, of a latent-signal transmitter, a magneto-generator, and a circuit-changer at the transmitting-station to be operated during the current generation by the magneto, whereby the current so generated will not release the latent transmitter, substantially as described.

6. The combination, in a circuit with normally no current in line, of a latent-signal transmitter, a magneto-generator, and a circuit-changer connected with and operated thereby during the act of current generation, whereby the current so generated will not release the latent transmitter, substantially as described.

7. The combination of a latent-signal transmitter, a magneto for calling attention of the receiving-office, a normally-open shunt, and a shunt-closing key, whereby the latent transmitter will not be released by the act of calling up the other station, substantially as described.

8. In combination with a latent-signal transmitter, a magneto for calling attention of the receiving-station provided with a shunt around the latent-signal transmitter and an automatic shunt-closing key, whereby the latent transmitter can remain set without being released during the operation of the magneto, substantially as described.

314,295. BANJO. JOHN B. HOWE, Danbury, Conn. Filed Dec. 30, 1884. (No model.)

Claim.—1. The combination, with a banjo, of a bell consisting of an adjustable ring adapted to press upward against the head-skin thereof, and provided with means for connecting it to the brace-bar of the

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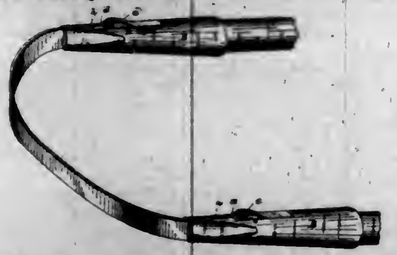


banjo, whereby its vertical adjustment can be controlled, substantially as and for the purpose set forth.

2. A bell for banjos, consisting of a ring provided with an adjustable mute, said ring adapted to be brought in contact with the head-skin of the banjo, substantially as and for the purpose specified.

3. A bell for banjos, consisting of a ring, a guide bar or rod connected thereto and extending diametrically across the same, and a sleeve connected to the bar or rod and to an angle-arm adjustably connected to a clamping or fastening device for attachment to the brace-bar of the banjo, substantially as and for the purpose specified.

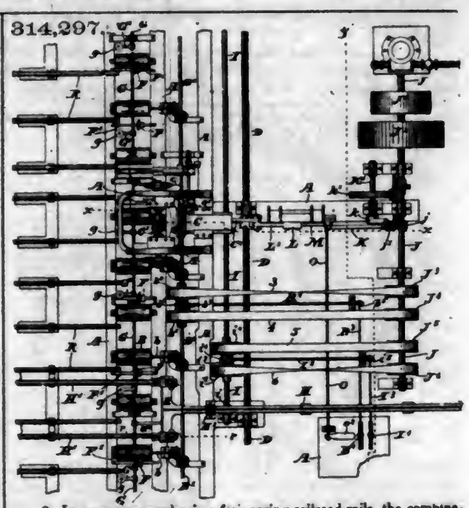
314,296. SHAFTS FOR VEHICLES. HOSMER F. JACKSON, Newport, N. Y. Filed Aug. 14, 1884. (No model.)



Claim.—1. The combination, with the thills or shafts having shouldered ends, of a stiff band or strap, caps secured to said band and provided with recesses, into which the ends of the thills or shafts fit, and a dog secured to each cap and adapted to engage the shoulder of its respective shaft, substantially as set forth.

2. The combination, with shafts or thills and the ferrules, grooved as described, and secured to the ends of said shafts or thills, of the band or strap, the caps secured to the opposite ends of said band, and the spring-actuated dogs pivoted within said caps and adapted to engage the shoulders on the ferrule, substantially as set forth.

314,297. ROLLING-MILL APPLIANCE. DAVID H. LEWIS, Indianapolis, Ind., assignor of one-third to John Thomas, same place. Filed Mar. 3, 1884. (No model.)



Claim.—1. The combination, in rolling-mill appliances for sawing and handling the rails, of the frame A, having a raised portion in which are slides, a sliding frame, C, mounted and moving in said slides, the saw-arbor and saw mounted on said frame, connecting-rods running to the driving mechanism, and a latch portion which may be moved to engage with or be disengaged from said driving mechanism, whereby said driving mechanism may while in continual operation operate said sliding frame intermittingly, substantially as set forth.

2. In rolling-mill appliances with the usual means of supporting the rails, the mechanism for carving said rails, consisting of adjustable stops arranged at intervals, and carvers E, near the saws, which consist of the sliding bar having a hook on the end, a slide thereon provided with the means of engagement therewith, a connecting-bar connecting said slide with driving mechanism, and said driving mechanism, substantially as set forth.

3. In a carving mechanism for carving railroad-rails, the combination of the stops set on inclines, and carvers mounted in inclined slides, said inclines being arranged at such an angle to the face of the rolls whereon the rail is mounted that said rail is carved directly from the head to the foot notwithstanding the difference in the width of said head and foot, substantially as set forth.

4. In a rail-carving mechanism, the combination of a stop and a traveling carving-bar, E, the latter moving in slides, and provided with a hooked end, E^2, and a notch, *e*, with which a pawl, *e'*, on the operating-head E' may engage, substantially as set forth.

5. The combination of the traveling carving-bar, E, having notch *e* therein, the operating-head E', having pawl *e'*, and the trip E^3 by which said pawl is disengaged from said notch as the device reaches the proper point, substantially as described, and for the purposes specified.

6. In rolling-mill appliances, the combination of the inclined bar F', the adjustable stop F thereon, and a hooked carving-bar for drawing the hot rails against said stop, substantially as set forth.

7. In rolling-mill appliances, the combination, with the carrying-rolls for the rails, of a rock-shaft, G, having arms G' whereon are mounted guide-rollers *g*, substantially as described, and for the purposes specified.

8. The combination, in rolling-mill appliances, with the carrying-rolls for the rails, of the rock-shaft G, carrying guide-rolls *g*, and an arm G^2, said arm G^2 acting as a lever whereby the shaft is rocked, and the car of the rail-carrier H, which comes in contact with said arm and operates said rock-shaft, substantially as described, and for the purposes specified.

9. The combination, in rolling-mill appliances, of the rail supporting and sawing mechanism, a hot-bed carrying tracks extending out alongside and continuously with the rails of said hot-bed, and rail-carriers H, mounted and adapted to run back and forth on said tracks from one side to the other of said hot-bed, the stems of said rail-carriers being of substantially equal length with the rails of the hot-bed, and having rack-bars thereon, and the shaft I, having pinions *i*, which engage with said rack-bars and drive said rail-carriers, substantially as shown and described, and for the purposes specified.

10. The combination of the hot-bed, rail-carrier tracks arranged between and substantially the same length as the hot-bed rails, the rail-carriers H, the shaft I for driving the same, having loose pulleys and a clutch thereon, and the rods and levers for operating said clutch, whereby it may be engaged with either of said pulleys, and thus drive said shaft in either direction, substantially as set forth.

11. The combination, in rolling-mill appliances, of the rail supporting and sawing mechanism, the hot-bed, the carrier-track extending out between the rails of the hot-bed across said hot-bed, a rail-carrier mounted on said track, said rail-carrier stems having rack-bars thereon, a shaft having pinions which engage with said rack-bars, and guide-trucks H^3, mounted in bearings above said stems, whereby said stems are held down and the rack-bars thereon held into engagement with said pinions, substantially as set forth.

12. In rolling-mill appliances, a rail-carrier, H, having a pivoted catch, A, arranged to carry a part of the weight of the rail as the latter is being pushed out on the hot-bed, substantially as set forth.

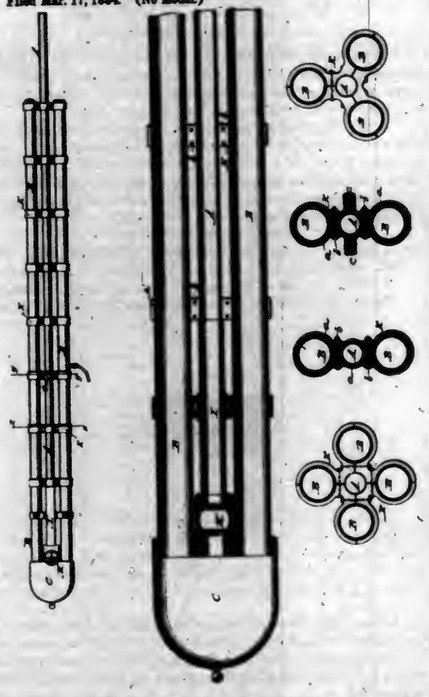
13. The combination, in rolling-mill appliances, of the operative mechanism, the driving mechanism, the connecting mechanism, said connecting mechanism being composed in part of the latch M and a means for throwing said latch into and out of engagement with the pitman, consisting of a pivoted table whereon said latch rests, and a rock-shaft provided with an arm whereby when the shaft is rocked the table, and with it the catch, will be lifted, substantially as set forth.

14. The combination, in rolling-mill appliances, of the sawing mechanism, the driving mechanism, and the connecting mechanism, said connecting mechanism being composed of a pitman, a connecting-rod, a cross-head, L, having an extension, L^2, containing a groove in which the wrist-block of the pitman travels, and a latch, M, substantially as described, and for the purposes specified.

15. The combination, with the sliding saw-frame C and the carver E, of the connecting links and rods whereby said frame and carver are moved simultaneously and by the same operation, substantially as set forth.

16. The combination, in rolling-mill appliances, of the frame C, the rail-carver E, the rock-shaft E^2, the arms e^2 e^4, and the links e^3 e^5, substantially as described, and for the purposes specified.

314,298. PNEUMATIC CANNON. DAVID M. MEYFORD, Toledo, Ohio. Filed Mar. 17, 1884. (No model.)



Claim.—1. In a pneumatic gun, a barrel having its bore continued directly through the rear end, two magazines located on opposite sides of the barrel, and a breech-section connecting the rear ends of the two reservoirs with the open breech of the barrel.

2. In combination with the air-reservoirs and the intermediate gun-barrel, the metallic clamp connecting both reservoirs with the barrel, and provided with trunnions or bearings.

3. In a pneumatic gun, a plurality of parallel elongated reservoirs, in combination with an intermediate barrel, a valve through which the barrel communicates with the reservoirs, and a movable breech-block in advance of the valve, to permit the introduction of the projectile.

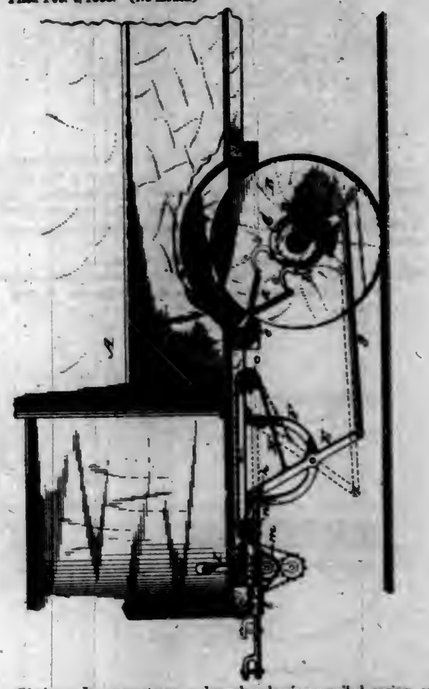
4. In a pneumatic gun, a reservoir to hold compressed air or gas, a barrel fixed in relation thereto, a valve for opening and closing communication between the barrel and reservoir, and a breech block or section opening laterally from the barrel in advance of the valve, to permit the insertion of the projectile.

5. In combination with the parallel reservoir, tubes B, and the intermediate barrel, A, the clamps K, each composed of two parts united by bolts, as described and shown.

6. In combination with the breech section or reservoir, the two cylindrical reservoirs and the intermediate barrel, all screwed thereto, the bore of the barrel being continued through its rear end and opening directly into the interior of the breech-section, as shown.

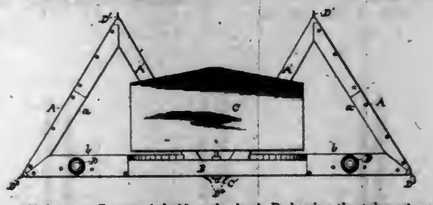
7. In a pneumatic gun, a barrel having its bore continued through the breech end, in combination with an air-retaining chamber of relatively great diameter arranged directly in rear of the barrel, and a plurality of reservoir-chambers connected at their rear ends to the air-retaining chamber, and extended thence forward along the sides of the barrel, substantially as and for the purpose described.

314,299. CAR-STARTER. NEWELL J. ROBERTS, Battle Creek, Mich. Filed Feb. 4, 1885. (No model.)



Claim.—In a car-starter, a draw-bar having a coiled spring, arranged as shown, a pivoted cross-lever connected at its upper end to the draw-bar and at its lower end to a push-bar, a stationary hub provided with a ratchet, a movable collar pivoted to the push-bar, and a pawl pivoted to the collar and controlled by a spring, in combination with a sprocket-chain connected to the cross-lever and passing over sprocket-wheels, one of which has its bearings in a stirrup to throw the mechanism, substantially as and for the purpose set forth.

314,300. SACK-HOLDER. JOHN WILLIAM ROHR, Stockton, Cal. Filed Nov. 17, 1884. (No model.)



Claim.—1. In a sack-holder, the back B, having the tubes at each end, the sides A, having tubes therein, and the diagonal braces A' A', in combination with the spout C and belt C', all as shown and described.

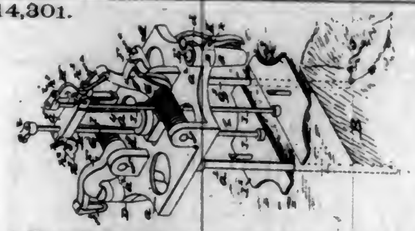
2. In a sack-holder, the combination of the brace A', the back B, and side A, provided with tubes, as described, the handle D, the rod D^2, the hinged extension-rods D^3 and D^4, and the hinged rod D', said rods D', D^3, and D^4 having points for holding the sack, substantially as shown and described.

314,301. ANIMAL-TRAP. JOHN SCHAFFER, Kirkwood, Mo. Filed May 19, 1884. (Model.)

Claim.—1. The combination, substantially as described, of the frame A, the column a^4, the trigger H, having the projections h^2 h^3, the hammer F, the chamber D, the rod I, the plate I', the spring G, and the link f^2.

2. The combination of the plate I', the rod I, having the eye *i*, the frame A, the column a^4, having the extension a^5, the chamber D, the hammer F, the spring G, and the trigger H, having the projection h^3, substantially as described.

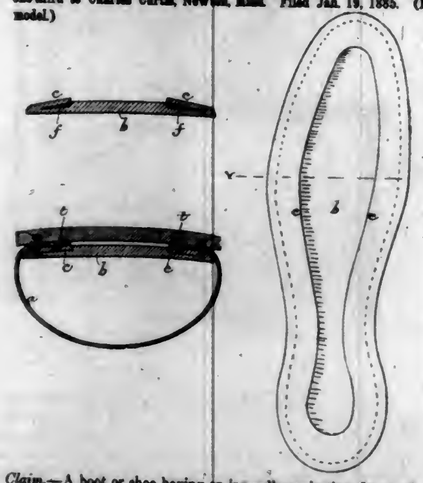
314,301.



3. The combination of the plate I', the rod I, having the eye i, the frame A, the column a^1, the extension a^2, the trigger H, the link f^2, the hammer F, the spring G, and the chamber D, substantially as described.

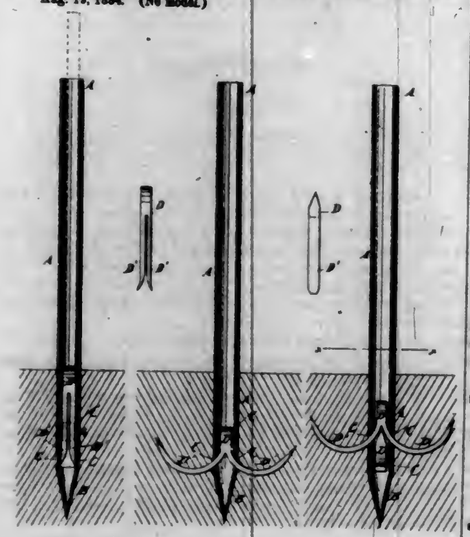
4. In an animal-trap, the combination of the chamber D, the rod I, and the plate I', having the extension P, as and for the purpose described.

314,302. BOOT OR SHOE. AUGUSTUS SEAVER, Boston, assignor of one-third to Charles Curtis, Newton, Mass. Filed Jan. 19, 1885. (No model.)



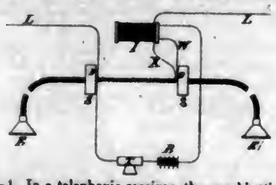
Claim.—A boot or shoe having an inwardly-projecting flap on the outer surface of the inner sole, and the upper secured to said flap only by metallic fastenings passed through the edge of the upper and the flap, and clinched between the flap and the main portion of the inner sole, as set forth.

314,303. FENCE-POST. BENJ. B. ADAMS, Roswell, N. Mex. Filed Aug. 19, 1884. (No model.)



Claim.—The post comprising the pointed or tapered tube having just above said point apertures, and the split anchor-bars disposed in said tube to cause their tapered prongs to project through the apertures of the latter at right angles to each other, substantially as and for the purpose set forth.

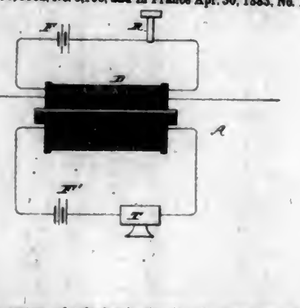
314,304. TELEPHONE. HENRY ALABASTER, South Croydon, and TOM E. GATEHOUSE, Camberwell, County of Surrey, and HARRY R. KEMPE, Barnet, County of Middlesex, England. Filed Sept. 20, 1884. (No model.) Patented in England June 7, 1882, No. 2,675; in France Dec. 7, 1882, No. 152,487, and in Germany Dec. 9, 1882, No. 23,992.



Claim.—1. In a telephonic receiver, the combination consisting of two resonating disks, a wire or rod of magnetic material stretched between them perpendicularly to their faces, and a coil of insulated wire in an electric circuit surrounding the magnetic wire or rod.

2. In a telephone, the combination of two resonating boxes, with a magnetic rod extending between and secured to the same, an inductorium having its primary in a local-battery transmitter-circuit, which also includes a coil upon the magnetic rod, and its secondary in the line-circuit, which includes another coil upon said rod, and flexible listening-tubes proceeding from the resonator-boxes, substantially as described.

314,305. CIRCUIT FOR TELEPHONIC COMMUNICATION. HENRY ALABASTER, South Croydon, and TOM E. GATEHOUSE, Camberwell, County of Surrey, England. Filed Sept. 20, 1884. (No model.) Patented in England Oct. 30, 1882, No. 5,166, and in France Apr. 30, 1883, No. 155,180.



Claim.—In a system of telephonic circuits, the combination of an inductorium having primary, secondary, and tertiary coils, with a transmitting-instrument in circuit with the primary coil and a receiving-instrument in the tertiary coil of the inductorium, the secondary coil being in the main line.

314,306. TELEPHONE-RECEIVER. HENRY ALABASTER, South Croydon, and TOM E. GATEHOUSE, Camberwell, County of Surrey, England. Filed Sept. 20, 1884. (No model.) Patented in England Oct. 30, 1882, No. 5,167; in France Dec. 7, 1882, No. 152,487, and in Germany Dec. 9, 1882, No. 23,992.



Claim.—1. In a telephone, an electro-magnet core of magnetic metal having a permanent set of its molecules, substantially as described.

2. In a telephone, a wire or rod of magnetic material inclosed in a magnet-coil, in combination with a wire or rod projecting at approximately right angles from the same, and connected to a disk of resonant material, substantially as described.

3. The combination of the case B, the rod of magnetic material A, the insulated wire coil C, the rod D, and the disk E.

314,307. TELEPHONIC TRANSMITTER. HENRY ALABASTER, South Croydon, and TOM E. GATEHOUSE, Camberwell, County of Surrey, England. Filed Sept. 20, 1884. (No model.) Patented in England Jan. 11, 1883, No. 179, and in France July 10, 1883, No. 156,510.

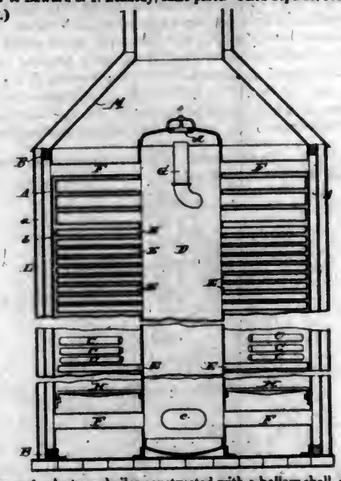
Claim.—In a telephonic transmitter, the combination which consists of a holder at the end of an acoustic tube, two carbon electrodes in

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the holder, and a bridge resting across the electrodes, and so placed in the end of the acoustic tube as to receive upon its back the acoustic impulses transmitted through the tube.

314,308. STEAM-BOILER. HENRY F. ALLEN, New York, N. Y., assignor to Edward S. T. Kennedy, same place. Filed Sept. 25, 1884. (No model.)



Claim.—1. A steam-boiler constructed with a hollow shell, and with one or more vessels surrounded by the shell and connected with the same, and with water-tubes projecting inwardly from the shell, the water-tubes projecting outwardly from the interior vessels, substantially as herein shown and described.

2. A steam-boiler constructed with an exterior hollow shell, and one or more vessels surrounded by the shell and connected with the shell by pipes at the top and bottom, and with water-tubes projecting inwardly from the shell and outwardly from the inner vessels, the tubes of the shell projecting in between the tubes of the inner vessels, substantially as herein shown and described.

3. In a steam-boiler, the combination, with the hollow shell A, of one or more vessels, D, surrounded by the same, the water-pipes C E, the connecting-pipes F, and of the annular grate H, between the vessels D and the shell, substantially as herein shown and described.

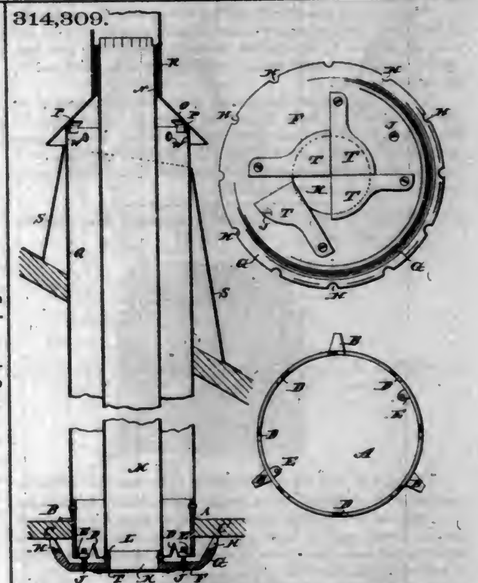
314,309. VENTILATING-CHIMNEY. SAMUEL T. ATKIN, Georgetown, Tex., assignor to himself and Oliver Steele, same place. Filed Apr. 30, 1884. (No model.)

Claim.—1. The combination, with the smoke-flue M, of the ventilating-flue Q, surrounding it, the thimble or sleeve A, to which the lower end of flue Q, is secured, the plate F, adjustably and removably connected to the lower end of thimble A and provided with a notched flange, G, and an opening, K, said plate F being secured to the lower end of the smoke-flue M in line with the opening K, whereby the plate F and the smoke-flue M may be radially removed without disturbing the sleeve A or flue Q, and may be adjusted to different thicknesses of ceiling, substantially as set forth.

2. The combination, with the smoke-flue M, of the ventilating-flue Q, the thimble A, provided with outwardly-projecting lugs B and inwardly-projecting apertured lugs E, plate F, provided with a central aperture and with a flange, G, having notches H, and the screws J, passed through the plate F into the apertured lugs E, substantially as herein shown and described.

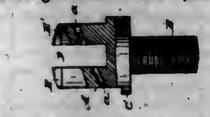
3. The combination, with the smoke-flue M, of the ventilating-flue Q, surrounding it, the thimble A, having notches in its lower edge, which thimble is connected with the exterior flue, Q, the notched plate F, held

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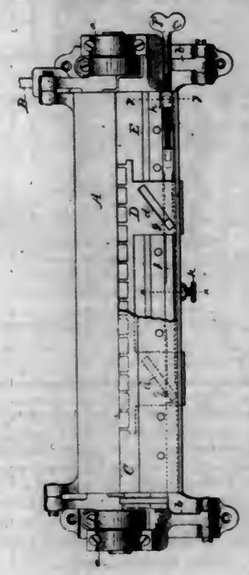
by screws J on the lower end of the thimble A, and provided with a central aperture, K, substantially as herein shown and described.

314,310. AGRAFFE FOR PIANOS. AUGUSTUS BAUS, New York, N. Y., assignor to Augustus Baus & Co., same place. Filed May 26, 1884. (No model.)



Claim.—An agraffe having two prongs, each provided with an inclined aperture or inclined apertures, the central axes of the two corresponding apertures in two prongs being on one and the same line, substantially as herein shown and described.

314,311. MACHINE FOR FOLDING SHEET METAL. WILLIAM J BAYER, Southington, Conn., assignor to the Peck, Stow & Wilcox Company, same place. Filed Dec. 18, 1884. (No model.)



Claim.—1. In a machine for folding sheet metal, the combination of the gage D, the gage-adjusting mechanism for moving said gage, and means, in addition to the adjusting mechanism, for locking said gage against movement in either direction, substantially as described, and for the purpose specified.

2. In a machine for folding sheet metal, the combination of the frame, the gage D, mounted thereon, and having the oblique slots, the gage-slide *f*, having the studs which enter said oblique slots and move longitudinally within a groove in the frame, the gage-adjusting screw F, and the nut A, formed separately from the frame E, substantially as described, and for the purpose specified.

314,312. TELEPHONE. FRANCIS BLAKE, Weston, Mass. Filed Feb. 9, 1885. (No model.)



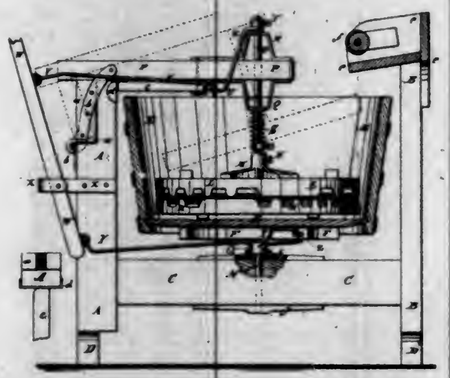
Claim.—1. In a telephone employing a granulated conducting material as the variable-resistance portion of the circuit, two horizontal electrodes, one serving as the transmitting-diaphragm and carrying such material loosely upon its upper surface, and the other being a sieve buried in such material and allowing such material to pass freely through it, substantially as described.

2. In a telephone employing a granulated conducting material as the variable-resistance portion of the circuit, two horizontal electrodes mechanically connected to vibrate together, one serving as the transmitting-diaphragm and carrying such material loosely upon its upper surface, and the other being a sieve buried in such material and allowing such material to pass freely through it, substantially as described.

3. In a contact-telephone employing granulated conducting material as the variable-resistance portion of the circuit, a transmitting-diaphragm in mechanical contact with said granulated material, and an electrode buried in said granulated material and allowing said material to pass freely through it, the said electrode being mechanically connected to the said diaphragm at the center of the latter to partake of its vibrations, substantially as described.

4. In a telephone employing a granulated conducting material as the variable-resistance portion of the circuit, a transmitting-diaphragm carrying such material loosely upon its upper surface and strained to a conical form, substantially as described.

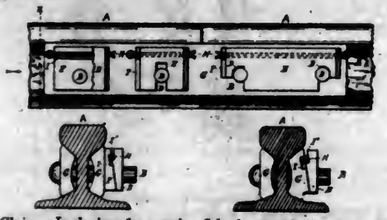
314,313. WASHING-MACHINE. HOWELL T. BOYDSTUN, Monmouth, Kans. Filed Dec. 10, 1883. (No model.)



Claim.—In a washing-machine, the combination, with the post A, having its upper end rabbeted, and the bar P, having the shaft of the upper rubber journaled in its outer end and provided with the short vertical bar *a* at its other end, of the hinge *b*, having its upper straps curved or inclined forward and attached to the said bars *a* P, and the latch *c*, pivoted to the under side of the bar P, substantially as herein shown and described, whereby provision is made for locking the said bar in position and preventing any lateral movement of the same when locked, as set forth.

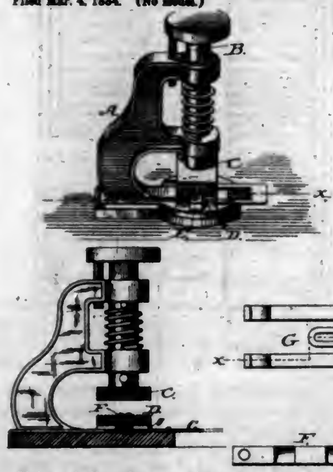
314,314. DEVICE FOR SECURING FISH-PLATES TO JOINTS OF RAILROAD-RAILS. JAMES M. BURKE, Dublin, Ireland, assignor to himself, and Charles A. Chapin and Henry Shackell, Jr., both of Milwaukee, Wis. Filed Aug. 29, 1884. (No model.) Patented in England Sept. 29, 1884, No. 12,951.

Brief.—The fish-plates are held in place by wedges fitting over the recessed bolts, said wedges being channeled and held by spring-keys resting therein.



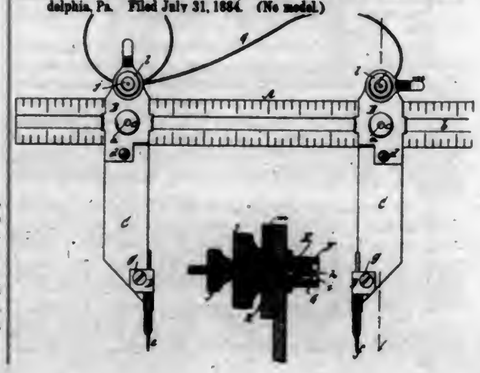
Claim.—In devices for securing fish-plates to the joints of railroad-rails, two or more wedges, E, which are provided each with one or more open mortises on the under edges thereof, and half-channel I', horizontally on their inner sides with two fish-plates, one of which is beveled to form an incline against the wedges E, and is provided with a half-channel, I, or presents, by means of the wedge-clamp F, a like beveled surface and half-channel to the wedges E, in combination with the spring-keys H, whose opposite sides, respectively, have bearings in the respective half-channels I I', as and for the purpose hereinbefore specified.

314,315. HAND-STAMP. EDMUND D. CHAMBERLAIN, Westfield, N. J. Filed Mar. 4, 1884. (No model.)



Claim.—A die and counter-die, one of which is provided with an adjustable section, in combination with a sliding plate, by which said section is raised above the plane of the die and lowered into said plane, so that impressions may be made from the section alone or from the die and section together, as herein described.

314,316. DRAFTSMAN'S TOOL. THEODORE G. R. CHRISTIAN, Philadelphia, Pa. Filed July 31, 1884. (No model.)



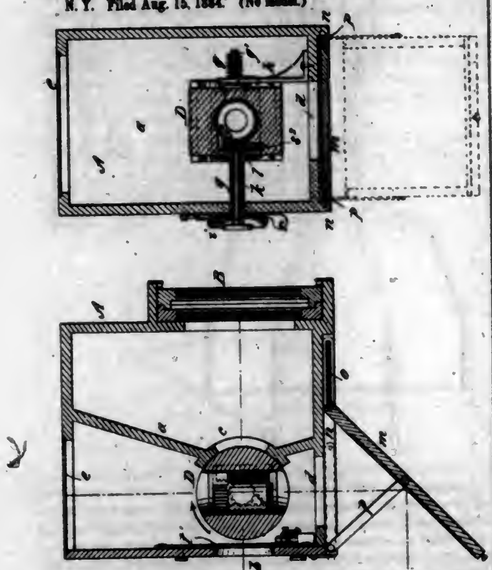
Claim.—1. The combination, substantially as hereinbefore described, of the graduated rod, the two slides movable on the rod, and a flexible strip adjustably connected with the two slides for drawing curves, substantially as described.

2. The combination, substantially as hereinbefore described, of the rod having a scale marked on it, two slides fitted on the rod, legs secured to the slides in a plane with the rear surface of the rod, and the sockets attached to said legs—one for the reception of the needle-point and the other for the reception of a pen or pencil.

3. The combination, substantially as hereinbefore described, of the rod, the slides fitted on the rod, the spindles fitted into the slides and adapted to be turned therein, and the flexible strip of steel or other suitable material secured in the spindles.

4. The combination, substantially as hereinbefore described, of the rod, the slides fitted on the rod, the spindles fitted into the slides and adapted to be turned therein, the flexible strip of steel or other suitable material, and the clamping-wedges for securing the flexible strip in the spindles.

314,317. PHOTOGRAPHIC CAMERA. WALTER CLARK, New York, N. Y. Filed Aug. 15, 1884. (No model.)



Claim.—1. In a camera provided with a separate focusing-chamber, a lens-holder of cylindrical form fitted to rotate so as to bring its aperture in line with either the object-glass or the exposure-apertures, substantially as described.

2. In a photographic camera having a partition forming a separate focusing-chamber, a lens-holder fitted closely in an aperture in the partition, so as to exclude light, and arranged to rotate in its seat, substantially as described.

3. The rotating holder D, tube *f*, shaft *g g'*, shaft *k*, and pinion *l*, combined with box A and partition *a*, substantially as described.

4. The lens-holder D, shaft *g g'*, spring *q*, and trigger *r*, combined with camera-box A, substantially as described.

5. The combination of cylindrical lens-holder D and box A, having partitions *a*, formed to lap upon the ends and side of the holder, substantially as described.

6. In combination with a photographic camera, the mirror *m*, hung by pivots entering grooves *o* in flanges on box A, substantially as described.

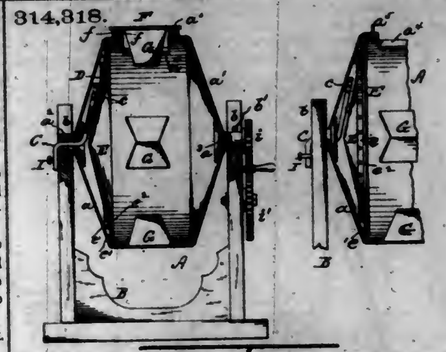
7. The sliding weight s^2, combined with the lens-tube *f*, holder D, and pinion *l*, as and for the purpose specified.

8. The rotary shutter *t*, combined with rotary lens-holder D and box A, having apertured partition *a*, substantially as described, for operation as specified.

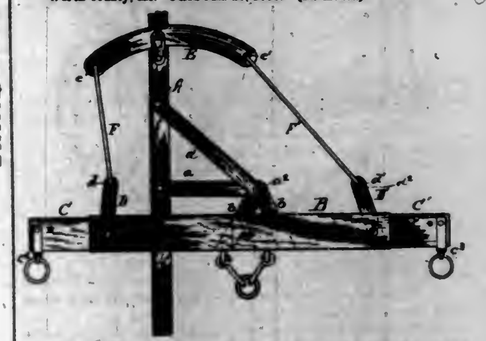
314,318. WASHING-MACHINE. PATRICK J. COURTENAY, Philadelphia, Pa. Filed Oct. 18, 1883. (No model.)

Claim.—The receptacle A, having conical ends *a a'* with journals a^3 a^3, plungers G, and conical superforated disk E, supported from the end of the casing, and having a space between its periphery and cylindrical wall of the case connecting perforated ring *e* and steam-escape pipe C, substantially as shown and described.

314,318. [illegible]

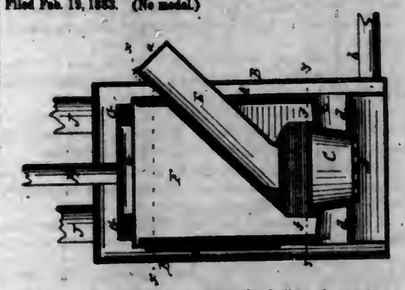


314,319. DRAFT-EQUALIZER. MORDICA A. DAVIDSON, Union, Worth County, Mo. Filed Jan. 20, 1885. (No model.)



Claim.—The combination of pole A, arms *a a'*, plates *b b*, evener B, whiffletrees C C', sway-bar E, rods F F', and plates D D', all combined, constructed, and arranged as and for the purpose set forth.

314,320. HEATING APPARATUS. SIMEON DOWD, Rochester, N. Y. Filed Feb. 19, 1883. (No model.)



Claim.—1. In a heating apparatus, the hollow air trunks or conduits F F, constructed with legs *f f* at their bottom, which form an arch over the fire-chamber, and with horizontally-projecting flanges *g g* at the top, halved together, and provided with notches *h h*, the whole so arranged, as described, that the flanges form a continuous covering to the tops of the air-trunks, to prevent passage of the draft except through the notches *h h*, as herein shown and described.

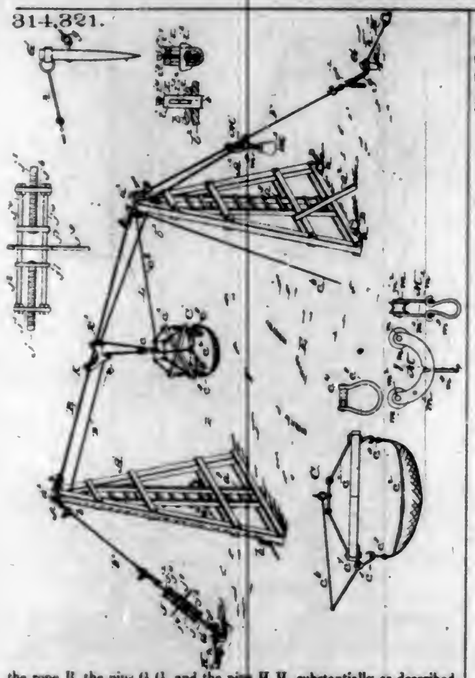
2. In a heating apparatus, the combination, with a series of hollow air-trunks, F F, having flanges *g g* at the top, which match together and form a continuous covering to the air-trunks, of side flues, G G, covering ports *h h* in the flanges, that allow the passage of the draft, a cross-flue, G', which connects the two side flues, and an exit-pipe, H, leading from the cross-flue, as shown and described, and for the purpose specified.

3. In a heating apparatus, the fire-pot C, constructed with the circular rim *k*, projecting plate *l*, and side lugs, *m m*, fitting removably in an opening in the fixed plate *c*, and capable of being inserted and removed through a door in the casing of the furnace, as herein shown and described.

314,321. HAY AND GRAIN DERRICK AND CARRIER. THOMAS B. ELLIOTT, Kemper, Ill. Filed Jan. 3, 1885. (No model.)

Claim.—1. The combination of the uprights A A', the ties F F,

314,321.



the rope B, the pins G G, and the pins H H, substantially as described.

2. The combination of the pin G, the pin H, and the tie A, as and for the purpose described.

3. The combination of the end *b*, the part *b'*, the hook-eye, and the clamp I, consisting of the frame *i*, the cross-bar *i²*, and the screw *i³*, substantially as described.

4. The combination of the threaded rods *j f'*, the frame *j²*, and the hand-bar *j³*, substantially as described.

5. The combination of the swivel J, the pins G G, the ties F F, the rope B, and the uprights A A', substantially as described.

6. The upright A, having the ladder *a²* embodied in it, substantially as described.

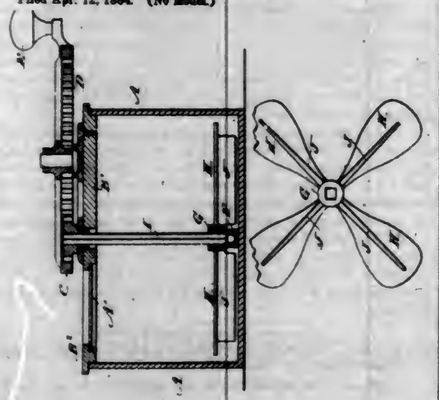
7. The combination of the uprights A A', the pins G G, the rope B, the ties F F, the rope L, the carrier C, and the weighted traveler M, substantially as described.

8. The combination of the upright A', the tie F, the pin G, the rope L, and the weighted traveler M, said upright being tied in the opposite direction to that of the tie F, substantially as described.

9. The combination of the upright A', the tie F, and the traveler M, consisting of the side bars, *m' m'*, the sheaves *m m*, the hook *m³*, and the weight M', substantially as described.

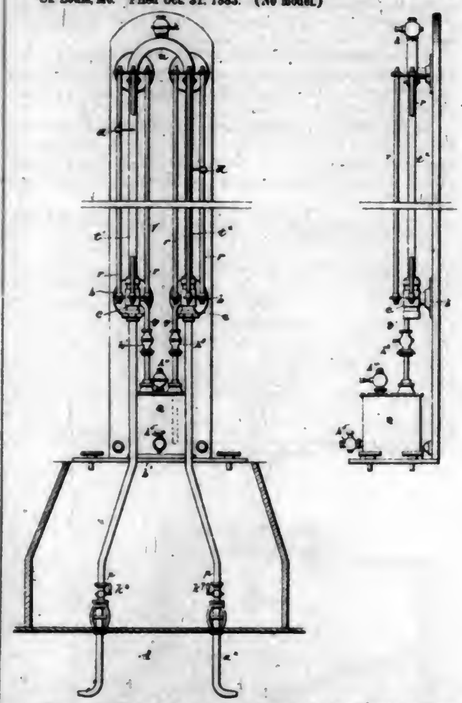
10. The combination of the frame *c'*, the canvas *c²*, the eyes *c³ c³*, having the roller *c⁴*, and the tilting-hook *c⁵*, substantially as described.

314,322. CHURN-DASHER. REDFORD W. PIKE, Council Grove, Kans. Filed Apr. 12, 1884. (No model.)



Claim.—A churn-dasher consisting of the hub G and flat horizontal wings H, projecting therefrom, said wings being each provided on their under sides with a depending fin, J, substantially as described, and for the purpose set forth.

314,328. VELOCIMETER FOR WATER-CURRENTS. HENRY FLAD, St. Louis, Mo. Filed Oct. 31, 1883. (No model.)



Claim.—1. The herein-described method of indicating the velocity of running fluid, the same consisting in causing two columns of the fluid to be respectively acted upon simultaneously by the impact and suction or draft of the stream, and connecting the upper ends of said columns directly by an inclosed fluid medium having a less specific gravity than that of the fluid the velocity of which is to be ascertained, substantially as described, whereby the combined effects of impact and suction are applied to effect a displacement of the interposed lighter medium, substantially as described.

2. The herein-described method of securing within certain limits uniform indications in a tube from successively equal increments or decrements of velocity in a stream with the current of which the lower end of the tube is connected, the same consisting in using a tube with its bore gradually contracted on a curve, the equation of which corresponds to the ratio of decrease in elevation of a column of liquid of uniform diameter acted upon by such equal changes of velocity, substantially as set forth.

3. In a velocimeter of the class described, the combination with each other of two vertical tubes connected together at their upper ends and opening in opposite directions at their lower ends, the lower portions of said tubes containing liquid such as that the velocity of which is to be measured, and their upper portions being filled with a fluid medium of less specific gravity, which directly connects the upper ends of the liquid-columns in the lower portions of the tubes, substantially as described.

4. In a velocimeter of the class described, the combination with each other of two vertical tubes connected together at their upper ends and opening in opposite directions at their lower ends, the lower portions of said tubes containing liquid such as that the velocity of which is to be measured, and their upper portions being filled with a liquid of less specific gravity, which directly connects the upper ends of the liquid-columns in the lower portions of the tubes, substantially as described.

5. In a recording-velocimeter in which two columns of liquid are acted upon respectively by impact and suction, the combination, with said columns, of a body of fluid of less specific gravity, interposed between and directly connecting their upper ends, a float carried by one of said columns and lying between the same and the superincumbent lighter fluid, and indicating devices arranged to receive motion from said float, substantially as described.

6. In a velocimeter, the combination, with two vertical tubes connected together at their upper ends and opening in opposite directions at their lower ends, of a float and indicating devices arranged to be operated thereby, inclosed in one of said tubes, substantially as described.

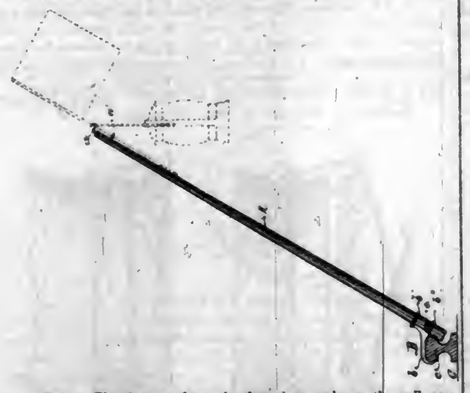
7. The combination, in a velocimeter, of two vertical tubes connected together at their upper ends and opening in opposite directions at their lower ends, of cocks arranged to close said tubes respectively near their lower ends, a cross-pipe connecting said tubes below their tops and above said cocks, and a cut-off cock in said cross-pipe, substantially as described, whereby columns of liquid in said tubes may be brought to the same level.

8. The combination, with the two tubes connected together at their upper ends and opening in opposite directions at their lower ends, the columns of liquid in the lower portions of said tubes, and the superincumbent body of lighter fluid directly connecting the tops of said columns, of the float arranged upon the top of the lower column in one of said tubes, the pointer connected with said float for operation thereby, the recording-cylinder arranged to rotate in contact with said pointer, and means for automatically rotating said cylinder, the said pointer, recording-cylinder, and operating devices being inclosed in one of the tubes and surrounded by the lighter fluid, which rests upon the heavier columns in the low portions of said tubes, substantially as described.

9. In a velocimeter, the combination, with a measuring-tube containing a comparatively heavy liquid in its lower portion and a lighter liquid resting thereon, of a hollow float resting on the heavier and filled with the lighter liquid, and having an opening in its bottom, substantially as and for the purpose set forth.

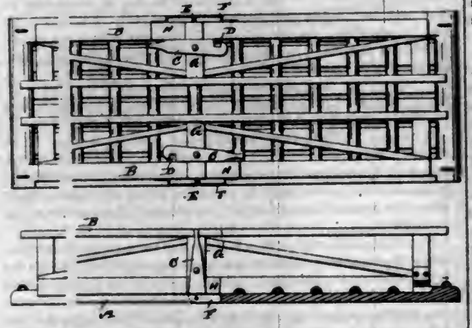
314,324. SIGNAL-STAFF. GEO. F. FOLSOM, Boston, Mass., assignor to Henry M. Enselen, same place. Filed Feb. 11, 1884. (No model.)

Brief.—A staff-holder consisting of the lower end of the staff passing through an eye of the clamp or foot and, coming in contact with the rail, assisting in holding the staff in position.



Claim.—The foot or clamp *b*, adapted to embrace the rail, provided with the staff-receiving eyes *b' b²*, combined with the signal-staff A, the lower end of which is passed entirely through said eyes to come in contact with the rail to assist in retaining the foot in place, substantially as shown and described.

314,325. GANG-PLANK FOR VESSELS. LAWRENCE F. FRAZER, Jersey City, N. J. Filed Dec. 4, 1884. (No model.)

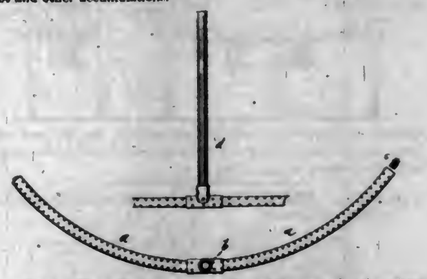


Claim.—1. The combination, with a gang-plank, of hinged side rails, pins projecting from the side edges of the plank, and latch-levers pivoted on the side rails, substantially as herein shown and described.

2. The combination, with the gang-plank A, provided with the pins E and guards F, of the hinged side rails, B, and the hooks C, pivoted to the side rails and engaging the said pins when the side rails are in an upright position, substantially as herein shown and described.

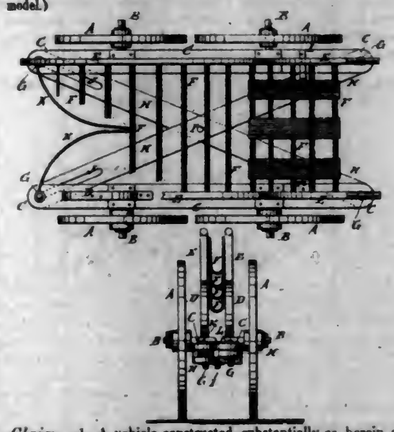
314,326. BOILER-CLEANER. GEO. A. GALLOWAY, La Claire, Iowa. Filed Oct. 4, 1884. (No model.)

Brief.—A flexible pipe connects handle *d* with a steam-connection at the front of the boiler, whereby jets of steam may be made to issue through perforations in pipe *a* to clean the fire-surfaces of boiler from soot and other accumulations.



Claim.—The boiler-cleaner consisting of the curved and perforated tubing *a*, provided with the handle or steam-supply pipe *d*, substantially as described.

314,327. CHILD'S CARRIAGE. EUGENE A. GERBRACHT, New York, and ERNEST W. GERBRACHT, Brooklyn, N. Y. Filed Oct. 2, 1884. (No model.)



Claim.—1. A vehicle constructed, substantially as herein shown and described, in two parts, connected by pivoted diagonal bars, and held apart by a spring, as set forth.

2. In a vehicle, the combination, with the side bars, C, of the wheels and short axles A B, the bars H, crossed at their centers and pivoted at their ends to the opposite ends of the side bars, and a spring, K, between said side bars, substantially as herein shown and described, whereby the said vehicle can be readily folded, as set forth.

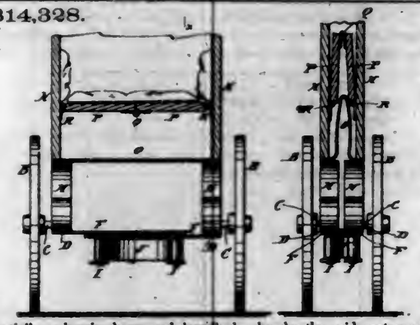
3. In a vehicle, the combination, with the wheels and short axles A B, the side bars, C, on which the axles are journaled, the bars H, crossed at their centers and pivoted to the opposite ends of the side bars, and the spring K between said side bars, of the body E, made in two parts, longitudinal springs D, secured to said parts E and to the side bars, C, and the flexible connections F, substantially as herein shown and described, whereby the said body will be folded by and with the running part of the vehicle, as set forth.

4. In a vehicle, the combination, with the side bars, C, and the pivoted diagonal bars H, of the spring-catch L on one side bar and pin M on the other, for said catch to engage, substantially as herein shown and described, whereby the parts of the vehicle will be held in place when folded, as set forth.

314,328. CHILD'S CARRIAGE. ERNEST W. GERBRACHT, Brooklyn, and EUGENE A. GERBRACHT, New York, N. Y. Filed Dec. 13, 1884. (No model.)

Claim.—In a folding baby-carriage, the combination, with the rigid sides N and the flexible bottom and back O of the carriage-body, of the seat P, made in two parts, hinged to each other and to the said sides, sub-

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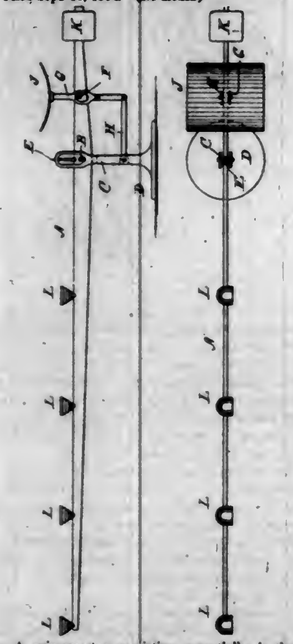
stantially as herein shown and described, whereby the said seat can be folded with the carriage and will serve as a lock-brace to the carriage-body when opened for use, as set forth.

314,329. NUT-BAR. JAMES GILLESPIE, Springfield, Ill. Filed July 19, 1884. (No model.)



Claim.—A hexagonal nut-bar of equal width throughout its length, the same being made of a width to provide for duplicate rows of hexagonal nuts being cut or stamped from it, and with the salient angles on either one of its edges being arranged to alternate with the salient angles on the other edge thereof, and to occupy opposite transverse positions relatively to the angular depressions in the edges of the bar, substantially as and for the purposes herein described.

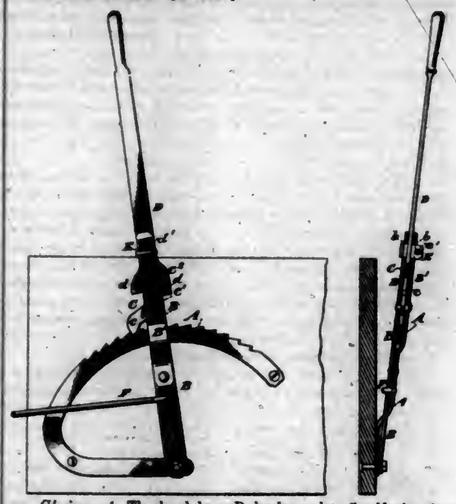
314,330. COIN COUNTER AND TESTER. WM. W. HAAS, Fairmount City, Ill. Filed Sept. 10, 1884. (No model.)



Claim.—1. A coin-counter consisting, essentially, in the standard C, the beam A, pivoted thereto to form a long and a short arm, graduated open-sided cups L on the upper edge of the long arm, and weight K on the short arm, the bar G, pivoted to the short arm of the beam, between the weight and the standard, the link H, pivoted to the lower end of the bar G and to the standard, and the receptacle J on the upper end of the bar G, substantially as set forth.

2. In a coin-counter, a coin-cup, L, tapered from the top to the bottom, provided with offsets and open at one side, substantially as herein shown and described.

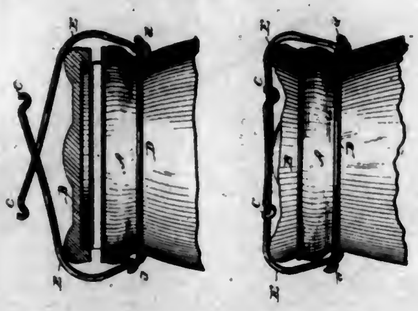
314,331. BRAKE-LEVER. AARON W. HAMAKER, Moundsville, W. Va. Filed Jan. 24, 1885. (No model.)



Claim.—1. The hand-lever D, having a slot, d', widening from bottom to top, in combination with a flat rivet, E, connecting the two parts B B', as and for the purpose described.

2. The hand-lever D, made with a fork at the lower end, and embracing an angle-arm, c^3, of the detent C, to enable the lever not only to unlock, but to hold detent down to the rack and to prevent the brake from being unlocked by jolts and jars before the bottom of a hill is reached.

314,332. WIRE FRUIT-JAR FASTENING. WILLIAM F. HANNER, Oakland, Cal. Filed Aug. 14, 1884. (No model.)



Claim.—1. The herein-described fastening for covers of fruit-jars, consisting of the ring D and the overlapping wire arms E E, adapted to extend over the cover from opposite directions, and provided with hooked ends C C, substantially as described.

2. The combination, with a fruit-jar, of the ring D, surrounding the neck, and the attached wire arms E E, permanently connected to the ring D, and having the hooked ends C C, the said wires being of suitable length to extend over the cover of the jar and overlap each other, substantially as described.

314,333. COMBINED DETACHABLE POCKET AND CAP. ANDREW HELLER, New York, N. Y. Filed Feb. 14, 1884. (No model.)

Claim.—1. The herein-described pocket A, having the sides A' A^2, the side A' being shorter than the side A^2, and each provided with button-holes in its upper edge for attaching the same to a coat above and below a pocket-slit, and provided with the strings K, passed through the upper corners for drawing the sides together, substantially as herein shown and described.

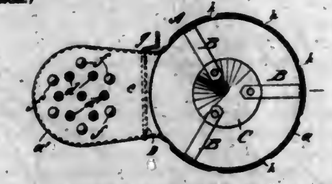
2. The combination, with a coat, of a piece secured to the inner side of the coat and provided with a slot coinciding with the pocket-slot in the coat, and of a detachable pocket adapted to be held on the said piece, substantially as herein shown and described.

3. The combination, with a coat, of a piece, C, secured to the inner side of the same and forming a tongue, F, and of a detachable pocket adapted to be held on the said piece, substantially as herein shown and described.

314,333.



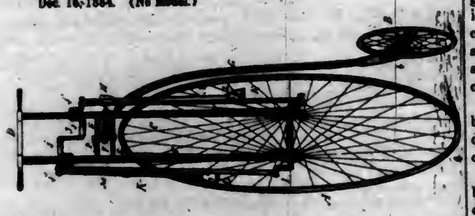
314,334. COMBINED STEEPER AND HEAT-DISTRIBUTER FOR OIL-STOVES. BENJAMIN HUNT, Neosho Falls, Kans. Filed Aug. 9, 1884. (No model.)



Claim.—1. A combined steeper and heat-distributer consisting of the ring-shaped portion *a*, formed with the extension *a'*, having an apertured top, and provided with the cone C in the ring-shaped portion and the hinged valve D at the entrance to the extension, substantially as herein shown and described.

2. The rim A, bent to form the main circular portion *a* and extention *a'*, in combination with the arm B, cone C, plates *b c*, and damper D, arranged substantially as and for the purposes set forth.

314,335. BICYCLE. THOMAS JOHNSTON, San Francisco, Cal. Filed Dec. 16, 1884. (No model.)



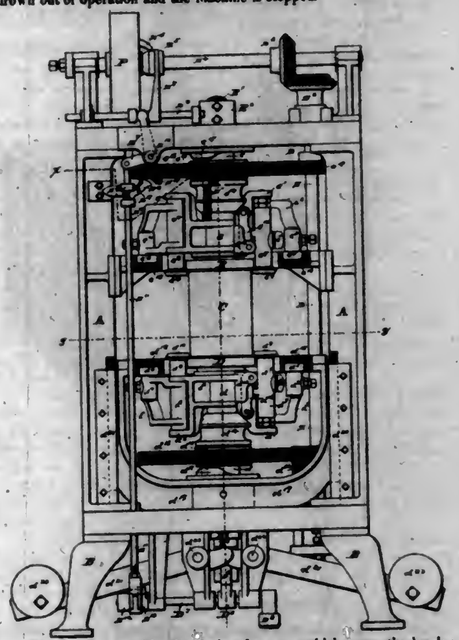
Claim.—1. In a bicycle or velocipede, the front wheel, A, having cranks I and forks C, in combination with the crank-shaft J, mounted in the forks above the wheel, and having middle cranks, *j*, and end cranks, *j'*, the rods K, connecting said cranks *j'* with the cranks I, and the vertically-adjustable stirrups L upon rods K, substantially as herein described.

2. A bicycle or velocipede consisting of the front wheel, A, having cranks I and forks C, with handle D, a rear wheel or wheels, a backbone connecting the rear wheel or wheels with the forks of the front wheel by means of a suitably-pivoted head or steering-center, the seat or saddle H, the crank-shaft J, with its cranks *j j'*, the rods K, connecting cranks I *j'* and the vertically-adjustable stirrups L upon said rods, and the adjusting-straps M, substantially as herein described.

3. In a bicycle or velocipede, the front wheel, A, having forks C, with cross-bars E, in combination with the backbone G, the steering-bolt F, to which the backbone is secured, said bolt being mounted in the cross-bars, and having a top lug, *p*, and the locking-strap P, hinged on the upper cross-bar, and provided with a socket engaging the lug *p* of the steering-bolt, substantially as herein described.

314,336. SEAMING-MACHINE. EDMUND JORDAN, Brooklyn, N. Y., assignor to E. W. Hine, same place. Filed Nov. 26, 1884. (No model.)

Brief.—Pressure on the treadle raises the lower clamping-disk, securing the can between the two disks, and also operates the clutch. When the rolls have completed one revolution about the can, they are thrown out of operation and the machine is stopped.



Claim.—1. A machine for closing the seams which secure the heads to the bodies of non-circular sheet-metal cans having, first, a pair of centering and clamping disks conforming to the shapes of the heads of the cans, and constructed and arranged to center, clamp, and retain the can stationary; second, one or more seaming-rolls, with mechanism whereby the same are retained against and revolved around the can throughout the entire length of the seam of whatever contour the seam may be.

2. In a machine for closing the seams which secure the heads to the bodies of non-circular cans of sheet metal, the following mechanisms in combination: first, a pair of centering and clamping disks conformed to the shapes of the heads of the cans, and means for operating them together to center, clamp, and retain the can stationary; second, mechanism whereby seaming-rolls are retained against and revolved around the can throughout the entire length of the seam of whatever contour the seams may be; and, third, mechanism whereby, first, the machine is set in action, and, secondly, whereby the seaming-rolls are unset, the can unclamped, and the machine stopped.

3. In a machine for closing the seams of sheet-metal cans, the combination of the seaming-rolls revolved around centering and clamping disks, spring-sleeves, conical slides, sliding pins, together with stationary cams for operating the pins, whereby the rolls are set and unset.

4. In a machine for closing the seams of sheet-metal cans, the combination, with the seaming-rolls revolved around centering and clamping disks, and mechanism whereby the clamping-disk, rolls, and cams are alternately lifted and dropped, of a treadle, D^6, rock-shaft D^7, cam D^8, balancing-levers d^{10}, and adjustable weights d^{10}, substantially as shown and described.

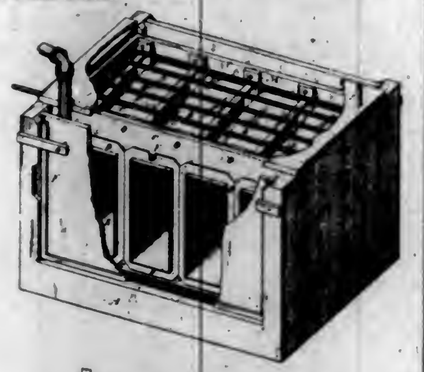
5. In a machine for closing the seams of sheet-metal cans, the combination of the mechanism for throwing the clutch into operation and operating the clamps for retaining the can, a lever connected with said clutching and clamping mechanisms, and a cam connected to and operated with the seaming-rolls, whereby upon the requisite number of revolutions of the seaming-rolls around the can the clutch is thrown out of operation and the can is unclamped.

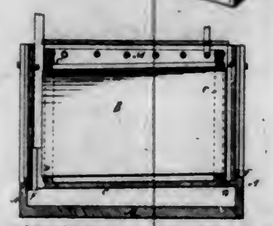
6. The herein-described seaming-machine having the following combinations: first, a pair of centering and clamping disks conforming to the

heads of the can and constructed to center and retain the can stationary: second, one of said disks having a reciprocal motion to allow the can to be inserted and removed; third, a pair of rotating sleeves carrying links, and guide and seaming rolls constructed to be rotated by and with the sleeve; fourth, a stationary cam to guide and keep the seaming-rolls to their work with the aid of spring-pressure, with means for rotating the sleeve-links and the guide and cam rolls; fifth, dependent links constructed to be rotated with the sleeve and to be expanded by conical sleeves with reciprocating motion, actuated by pins, gear-wheels, and stationary cams, whereby the seaming-rolls are brought to and removed from their work, with mechanism to actuate the same.

314,337. ICE-MACHINE. JOHN C. KITTON, San Francisco, Cal. Filed Nov. 20, 1884. (No model.)

Brief.—Improvement on Patent No. 311,013, dated January 20, 1885, to same inventor.





Claim.—1. In an ice-machine, the four-sided open-ended molds or chambers within which the ice is to be formed, an inclosing-chamber around the sides, within which the refrigerating-liquid may be contained, and an exterior chamber with which the open ends of the molds connect, with a space or compartment below the refrigerator for the reception of impurities from the water to be frozen, substantially as herein described.

2. In an ice-machine, the open-ended four-sided molds placed side by side and extending transversely across a compartment within which they lie and are surrounded by a refrigerating-liquid, an exterior fresh-water compartment into which the ends of the molds open, and flanges and packing surrounding the ends of the molds, whereby tight joints are maintained between the outer and inner compartments, substantially as herein described.

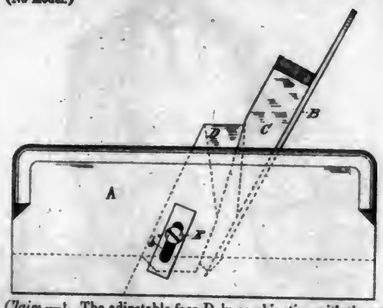
3. In an ice-machine, the four-sided open-ended molds extending transversely across a compartment within which they lie and are surrounded by a freezing-liquid, an exterior fresh-water chamber with which the open ends of the molds alone communicate, said chamber having vertically-sliding sides or gates placed opposite the ends of the molds, and having packing around their edges, so that the outward pressure of the water retains them in place and makes tight joints, substantially as herein described.

4. In an ice-machine, the four-sided open-ended molds placed transversely across a chamber containing a refrigerating-liquid, said molds being inclined from one end to the other and having their open ends connecting with an exterior fresh-water space having removable sides or gates placed opposite the molds, substantially as herein described.

5. In an ice-machine, the open-ended four-sided molds or chambers set transversely within a compartment containing a refrigerating-liquid, an exterior chamber into which the ends of the molds open, and which also extends beneath the refrigerating-compartment, together with a partition or diaphragm whereby the water from one end of the molds is cut off from the space below, substantially as herein described.

6. In an ice-machine, the open-ended four-sided molds or chambers placed transversely across a compartment containing a refrigerating-liquid, and an exterior surrounding chamber into which the ends of the molds open, said chamber having a partition across the bottom at one side, in combination with a pump or means for transferring the water from one end to the other of the molds and producing a current therein, substantially as herein described.

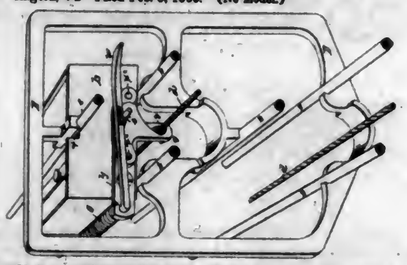
314,338. CHAMFER-PLANE. JAMES MANDER, Philadelphia, Pa., assignor of one-third to Maurice R. Dillin, same place. Filed Dec. 18, 1884. (No model.)



Claim.—1. The adjustable face D, in combination with the rabbeted faced stock A, said face D being confined within the body of the stock A by means of the set-screws E E, which pass through the sides of the stock to engage the face D, whereby said face D may be raised or lowered to suit the depth of chamfer required, substantially as described.

2. The stock A, which forms the stop or depth of chamfer, rabbeted throughout its length from a central point at an angle of ninety degrees each way to its sides, in combination with the adjustable face D, which is secured in the stock and made adjustable therein by means of the screws E E and cutting-bit B, thus leaving the back of the bit free to act as a chisel for cutting the beveled end of the chamfer.

314,339. CASH AND PARCEL CARRIER. JOSEPH C. MARTIN, Burlington, Vt. Filed Feb. 5, 1885. (No model.)



Claim.—1. In a cash and parcel carrier system, the wheel *a*, having a grooved periphery, and the flange on one side of the groove wider than the other, the tracks *e*, cord *d*, and the box *b*, provided with the hooks *v v*, lever *w*, and a spring to actuate the latter, combined and operating substantially as set forth.
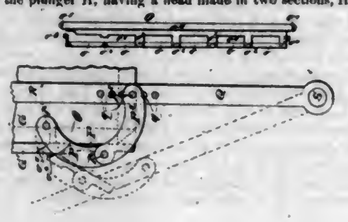
2. In combination, box *b*, the pivoted hooks *v v*, having circular slots therein, the lever *w*, engaging with said hooks, substantially as described, and a spring to actuate said lever, all substantially as set forth.

314,340. BRICK-MACHINE. ANDREW J. MILLER, Meadville, assignor to himself, and Seth L. Moore, Milledgeville, Pa. Filed Oct. 1, 1884. (No model.)

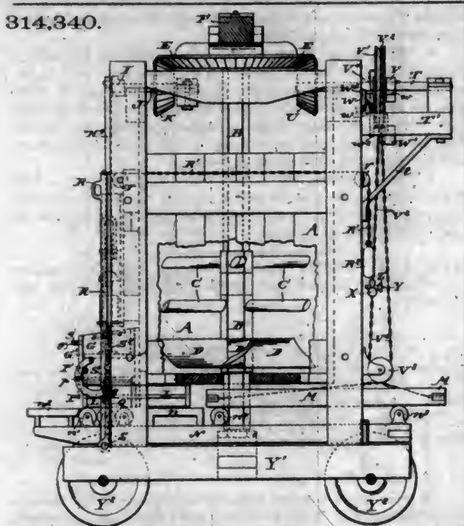
Claim.—1. In brick-machines, the head of the clay-pressing plunger, constructed in independently-moving and connected sections to give a period of rest to the plunger while the filled brick-mold is being pushed from beneath it by the discharger, substantially as shown and described.

2. In brick-machines, the combination, with the pug-mill and the press-box G, of the plunger H, having a head made in two sections, H′ H², connected by a bar, A², and pin A⁴, and means for operating the plunger, substantially as shown and described.

3. In brick-machines, the combination, with the pug-mill and press-box, of the plunger H, having a head made in two sections, H′ H², con-



314,340.



nected by a bar, A², having a series of holes, A³, to receive the pin A⁴, and means for operating the plunger, substantially as shown and described.

4. In brick-machines, the combination, with the pug-mill and the press-box G, of the plunger H, having a head made in two sections, H′ H², connected by a bar, A², and pin A⁴, and the connecting-rod H⁴, crank-arm I, and driving-gears K E, substantially as shown and described.

5. In brick-machines, a swinging or hinging gate fitted at the side of the press-box and arranged to be closed automatically by a weight, substantially as shown and described.

6. The combination, in a brick-machine, of the gate P, hinged by links P′ to the press-box and connected by links P² to levers Q, fixed to a rock-shaft, S, and said levers Q being connected to a cord and weight, substantially as shown and described.

7. In brick-machines, the combination, with the press-box and plunger, of a clay-die, O, made with openings *o*, having downwardly-converging side walls, and with relief-openings *o*² above and at one side or end of the die-openings *o*, and means for closing the openings *o*² at the front of the press-box, substantially as shown and described.

8. In brick-machines, the combination, with the press-box G, plunger H, and the clay-die O, having front openings, *o*², of the hinged relief-plate P, covering the openings *o*², and connected by links P′ to the press-box and by links P² to levers Q, connected to a weight acting to close the gate P, substantially as shown and described.

9. A clay-die for brick-machines, constructed with relief-openings *o*², formed by connecting the front plate, *o*³, by hangers *o*³ to the body of the die, substantially as shown and described.

10. A clay-die for brick-machines, constructed with openings *o*, having downwardly-converging walls, and with relief-openings *o*², substantially as shown and described.

11. In brick-machines, the combination, with the mold-discharger M, driving-chain V², and the chain-wheel V′, placed loosely on the shaft T, and weighted at W′, of the cam V, fixed on the shaft, the trip-lever W, having a pin, *w*, acted on by the cam, and the trip-plate W³, having a pin, *w*³, to release the lever W from the cam, substantially as shown and described.

12. In brick-machines, the combination, with the mold-discharger M, driving-chain V², chain-wheel V′, loose on shaft T, and weighted at W′, cam V, trip-lever W, and trip-plate W³, of the spring V⁴, acting on the trip-lever, substantially as shown and described.

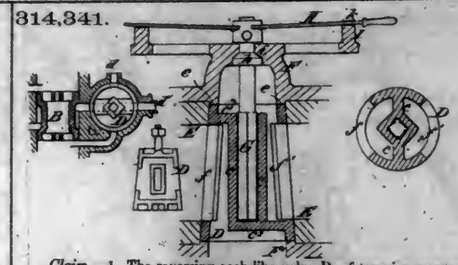
13. In brick-machines, the combination of the mold-discharger M, driving-chain V², chain-wheel V′, placed loosely on the shaft T, and weighted at W′, cam V, trip-lever W, spring V⁴, and trip-plate W³, attached adjustably to the machine, so as to be adapted for regulating the forward stroke of the discharger, substantially as shown and described.

14. In brick-machines, the combination, with the driving-chain V² of the mold-discharger M, of an open or split link inserted in the chain, substantially as shown and described.

15. In brick-machines, the combination, with the driving-chain V² of the mold-discharger, of the link X, split at *x*, and the elastic washers Z Z, held by a screw-rod, Y, and nut Z′ outside of the arms *x′ x′* of the link, substantially as shown and described.

314,341. REVERSING-VALVE. ENOS L. MOORE, Portsmouth, Ohio. Filed Apr. 30, 1884. (No model.)

314,341.



Claim.—1. The reversing cock-like valve D, of tapering construction in direction of its length, and divided longitudinally by a hollow partition into separate compartments, with ports in its sides arranged for operation in connection with fixed ports or passages in its case; as described, and whereby either passage of the valve-case is made to serve as an inlet or as an outlet, accordingly as the valve is reversed, substantially as specified.

2. The reversing-valve D, of circular tapering form, divided longitudinally by a hollow partition, *c*, having opposite end branches, *c′ c²*, on reverse sides, respectively, of the axial line of the valve, into inlet and exhaust compartments provided with exterior side ports, *f f′*, in combination with an inclosing-case having inlet and outlet passages *g g′*, for operation substantially as described.

3. The circular tapering reversing-valve D, divided longitudinally into opposite compartments, open, respectively, at reverse ends of the valve on opposite sides of it, and having side ports, *f f′*, and with the longitudinal portion *c* of its partition constructed to form a square or angular socket for reception of the spindle by which the valve is turned or operated, essentially as specified.

4. The loosely-fitting valve-spindle G, constructed with a valvular collar, *h*, held up to or against its seat by spring-pressure, as described, in combination with the cock-like reversing-valve D, divided into opposite open-ended compartments, as specified, and having the longitudinal portion *c* of its partition constructed to form a socket closed at its one end and of angular construction transversely for engagement with said spindle, and the case E, within which said valve works, and its caps F F′, substantially as described.

5. The combination, with the valve-casing E, caps F F′, the notched arc I, and the valve D, provided with the hollow partition *c*, of the stem G, provided with the collar *h*, and the spring-lever H, substantially as herein shown and described.

6. The combination, with the valve D, provided with the socketed partition *c*, and the stem G, of the casing E, provided with the caps F F′, substantially as herein shown and described, whereby provision is made for removing the valve without removing its stem, as set forth.

314,342. MANUFACTURE OF HYDROGEN. GIDEON E. MOORE, New York, N. Y. Filed Aug. 21, 1884. (No specimens.)

Claim.—1. The process of transforming gases, vapors, or substances containing carbon or carbon compounds into mixtures of gases composed, essentially, of carbonic acid and hydrogen, which consists in the continuous introduction of such gases or vapors, together with an excess of steam, into a chamber containing a metallic oxide or oxidized metal, substantially as described.

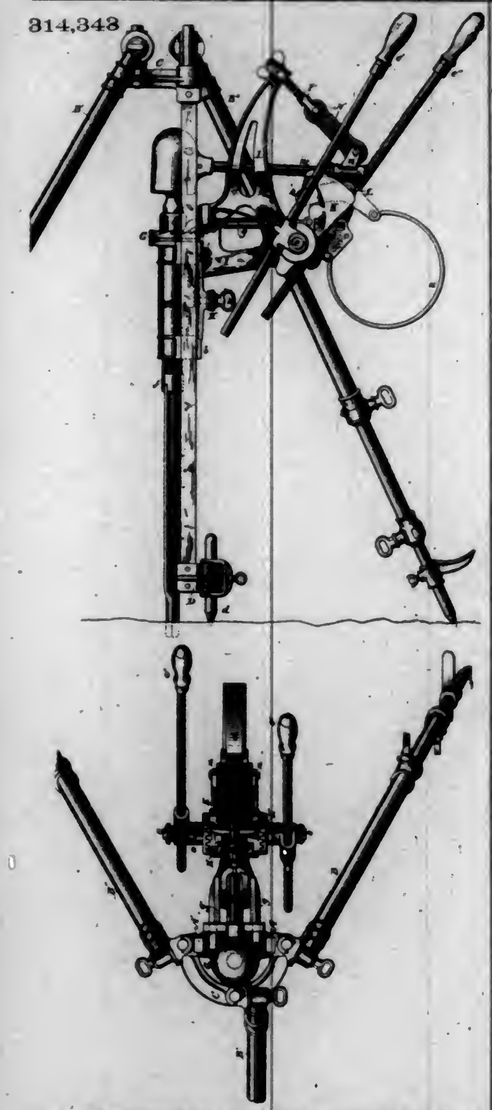
2. The process of manufacturing hydrogen gas, consisting in the continuous introduction of gases, vapors, or substances containing carbon or carbon compounds, simultaneously along with steam, into a chamber containing a metallic oxide or oxidized metal, followed by a treatment of the gaseous products thereby obtained with lime or the carbonates of potassa or soda, or solutions thereof, or solutions in which these substances may be formed under the action of the said gaseous products, or with water for eliminating the carbonic acid they contain, substantially as described.

3. The herein-described process, consisting in the continuous introduction of gases, vapors, or substances containing carbon, simultaneously along with steam, into a chamber containing a metallic oxide or oxidized metal, passing the mixture of hydrogen and carbonic acid resulting from said treatment over, through, or in contact with the carbonate of potassa or of soda, or solutions of said carbonates, or solutions in which these substances may be formed under the action of said mixture of gases, and eliminating and utilizing the by-products, bicarbonate of soda or potassa, and carbonic acid resulting from said process, substantially as described.

314,343. ROCK-DRILLING MACHINE. HENRY F. PARSONS, New York, N. Y., assignor to the Parsons Hand Rock Drill Company, of New York. Filed Sept. 29, 1882. (No model.)

Claim.—1. The combination, in a drilling-machine, of the yoke P, loosely secured to the bracket I, and the rubber spring N, one end of said spring being connected to the hammer and the other to the yoke, said yoke having a screw attached to the bracket, and provided with an adjusting-nut, substantially as described.

314,348.



2. The combination, in a rock-drilling machine, with the drill-operating mechanism and its main shaft, of clutches on said main shaft composed of toothed members fixed to the shaft, and spring-pressed toothed members to which the operating-handles are secured, which spring-pressed members may engage the fixed members, so as to bring the handles to any desired angle to the perpendicular, substantially as described.

3. The combination, in a rock-drilling machine, of a casting carrying the drill-lifting cam, provided with corrugations or teeth on the side around the center on which it turns, and a lever for operating said cam, having corresponding corrugations or teeth on its attached end, and means for pressing the corrugated faces together, substantially as described, and for the purposes specified.

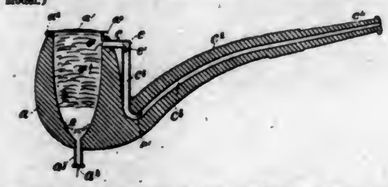
4. The combination, in a drilling-machine, of a casting carrying the drill-lifting cam, having corrugations or teeth on its side around the shaft on which it revolves, with the lever for operating said cam, having corresponding corrugations or teeth on its attached end, and a spring surrounding the shaft, constructed and arranged to press the corrugations of the lever into the corrugations of the casting, substantially as and for the purpose specified.

5. A rock-drill frame composed of parallel guide-bars upon which the drill-carriage moves, and which are connected by upper and lower yokes, one of the yokes being curved or bent outward and attached to the sides of the bars, so as not to interfere with the removal of the carriage, substantially as described.

6. The frame for drilling-machines herein described, consisting of the guide-bars A A, secured together by the connecting-bars C D, and having the upper bar curved to leave an open space between the guide-bars, and attached to the outer surfaces of the bars A, whereby a clear space is left for the passage of the bracket and operating parts into the machine and down toward the bottom of the guide-bars when the frame is in position for use, substantially as described.

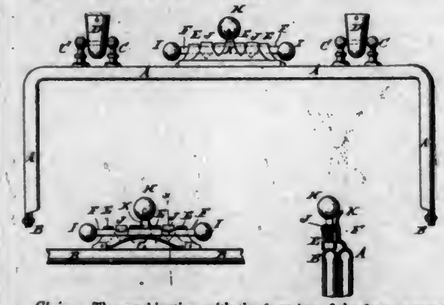
7. The combination, with a drill having radial wings, of a drill-holder provided with a socket having a central hole of the shape and size of the body of the drill, and cross-cuts extending entirely across the holder, substantially as described.

314,344. TOBACCO-PIPE. JACOB PFEIFFER, Niagara Falls, assignor to himself and Charles F. Heintz, Buffalo, N. Y. Filed Nov. 10, 1884. (No model.)



Claim.—A tobacco-pipe adapted to be filled from the top, having a close-fitting cover at the top of the bowl and a small open tube projecting downward from the bottom, in combination with a tube forming a passage leading from a point near the top of the bowl, then down to near the bottom of the same, and from thence outward through the stem and mouth-piece, as and for the purposes described.

314,345. BAG, POCKET-BOOK, OR PURSE FRAME. LOUIS B. PRAHAR, Brooklyn, N. Y., assignor to himself and Charles S. Shepard, same place. Filed Jan. 28, 1885. (No model.)



Claim.—The combination, with the front bar of the frame carrying the catches, and the knob attached to the locking-bar connected with the rear bar of the frame, of the inclined finger connected with the said front bar and resting against the said knob, substantially as herein shown and described, whereby the bars of the frame will be forced apart by the movement of the locking-bar in unfastening the frame, as set forth.

314,346. PHOTOGRAPHIC PAPER AND SENSITIVE EMULSION THEREFOR. THOMAS C. ROCHE, Brooklyn, assignor to E. & H. T. Anthony & Co., New York, N. Y. Filed Mar. 18, 1884. (No specimens.)

Claim.—1. As a new and useful or improved article of manufacture, a photographic-printing paper made with a toothed facing of gelatine and bromide of silver, as herein set forth.

2. The within-described compound for facing photographic paper, consisting of gelatine, bromide of silver, and a suitable toothing substance, such as the sulphate of baryta, prepared in the manner and proportions substantially as described.

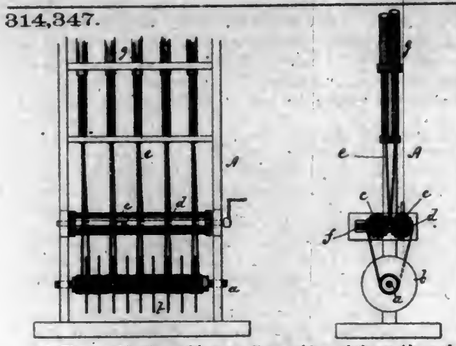
3. The combination, with a photographic emulsion of gelatine and bromide of silver, of a toothing substance, such as the sulphate of baryta, substantially as herein described.

314,347. CANDLE-MACHINE. GREGORY ROTH, Cincinnati, Ohio. Filed Oct. 14, 1884. (No model.)

Claim.—1. In a candle-machine, a roller or rollers fitted between the wick-spools and molds, and carrying the wicks in such a manner that by turning the roller or rollers the wicks are stretched, substantially as described.

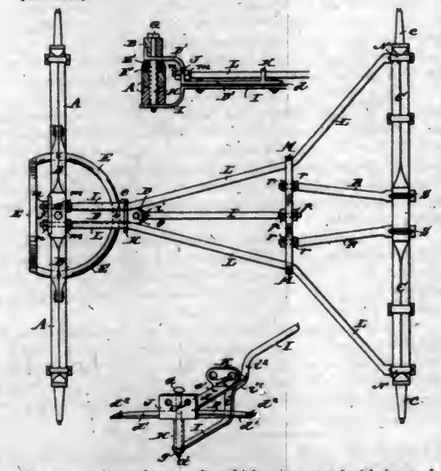
2. The combination, in a candle-machine, with the wick-spools and molds, of a pair of rollers, *c*, formed with transverse apertures, for use in the manner specified, for stretching and drawing the wick.

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3. The combination, with a candle-machine, of the molds *g*, the transversely-apertured rollers *c*, and the wick-spools formed by the shaft *a* and the disks *b*, substantially as described.

314,348. RUNNING-GEAR. GEORGE W. SHAW, Taylorsville, Ky., assignor to himself and James S. Maratta, same place. Filed Dec. 12, 1884. (No model.)



Claim.—1. A running-gear for vehicles, constructed with the perch-plate D, having flanges J K, and secured to the head-block B, and the brace-rods L L, held to the flanges and head-block, and diverging backward to a transverse bar, M, through which the braces pass, and whence said rods are bent to the ends of the hind axle, to which they are connected, substantially as herein set forth.

2. A running-gear for vehicles, constructed with the perch-plate D, having flanges J K, and secured to the head-block B, the braces L L, held to the flanges and block B, and diverging backward therefrom to a transverse brace-bar, M, through which they pass, and whence said braces are bent to the ends of the hind axle, to which they are connected, and a perch-iron, I, connected to brace-bar M and perch-plate D, and arranged either for a drop or straight perch, substantially as herein set forth.

3. A running-gear for vehicles, constructed with the perch-plate D, having flanges J K, and secured to the head-block B, the diverging brace-rods L L, held to the flanges J K and to the head-block, and passing through a transverse brace-bar, M, and secured to the ends of the hind axle, and the braces R R, attached to bar M and the hind axle, substantially as herein set forth.

4. A running-gear for vehicles, constructed with the perch-plate D, having flanges J K, and secured to the head-block B, the diverging braces L L, held to flanges J K and the head-block and in the transverse brace-bar M, the perch-iron I, arranged either for a drop or straight reach, and the braces R R, held to bar M and to the hind axle, substantially as herein set forth.

5. A running-gear for vehicles, constructed with the perch-plate D, having flanges J K, the diverging braces L L, connected to the plate D and the head-block, and passing through the brace-bar M, and attached to the ends of the hind axle, and the perch-iron I, connected to bar M and at O to the plate D, and thence bending downward and forward to connect with the king-bolt G, and with or without the brace-bars R R, substantially as herein set forth.

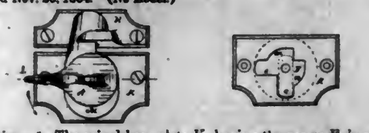
6. As an improved article of manufacture, the perch-plate D, having the lateral arms *d'* *d'* formed at its forward end, and the upturned perforated flanges J K on its forward and rear ends, respectively, as shown and described.

314,349. PROCESS OF MANUFACTURING ILLUMINATED FABRICS. ROBERT K. SLAUGHTER, Brooklyn, N. Y. Filed June 30, 1884. (No model.)



Claim.—The hereinbefore-described process of manufacturing illuminated fabrics, which consists in first coating a foundation material with paint to render it opaque, then removing the color by acids, so as to expose the foundation and produce a pattern or design, and finally oiling the fabric, as specified.

314,350. FASTENING FOR MEETING-RAILS OF SASHES. THOS. S. SMITH, New Haven, Conn., assignor to Charles H. Rentz, same place. Filed Nov. 20, 1884. (No model.)



Claim.—1. The raised base-plate K, having the recess F, in which are the circular sides *m* and *n*, having a common center, also having the radial grooves *e* and *c*, opening into the recess, and also having the circular rim I, having a circular recess to receive a spring, as shown and described.

2. The raised base-plate K, having the recess F, in which are the circular sides *m* and *n*, in combination with the latch having the piece E, as described.

3. The raised base-plate K, having the recess F and the radial grooves *e* and *c*, opening into the recess, in combination with the latch having an oblong slot and the piece E, as described.

4. The raised base-plate K, having the recess F and the radial grooves *e* and *c*, opening into the recess, in combination with the latch having an oblong slot, piece E, and recess D, and with the lever L, having the cam B, as described.

314,351. HOBBY-HORSE. WM. SPITZMAN, New Athens, Ill. Filed Aug. 23, 1884. (No model.)



Claim.—1. The combination, with a rocking horse-body, of a plate pivoted to the under side of the hoofs of the front legs, and of a connecting rod or frame connecting the said plate with a crank-shaft provided with driving-wheels and journaled in a plate pivoted on the front end of the reach of the vehicle-frame, substantially as herein shown and described.

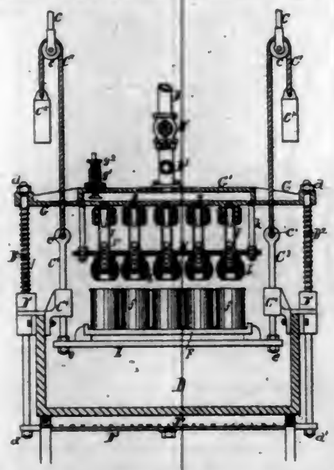
2. The combination, with the bar or reach A, having a cross-piece, B, with upwardly-projecting ends, of the crank shaft or axle D, the standard H, the horse-body G, pivoted on the same, the connecting rod or frame F, connecting the shaft D with the rear part of the horse-body, the pivoted plate K, the connecting rod or frame I, the crank-shaft M, and the pivoted frame P, in which the front shaft or axle is journaled, substantially as herein shown and described.

3. The combination, with the rocking horse-body G and a frame for supporting it, of the plate K, pivoted to the hoofs, the connecting rod or frame I, the crank-shaft N, the frame or plate P, and the cords Q T, extending from the plate K up through rings on the bridle to the saddle, substantially as herein shown and described.

4. The combination, with the rocking horse-body G and a frame for supporting it, of the plate J, secured to the hoofs of the front legs,

the forked plate K, pivoted to the plate J, the connecting rod or frame I, the crank-shaft N, and the plate P, pivoted to the reach A of the vehicle-frame, substantially as herein shown and described.

314,352. CAN-FILLING MACHINE. WILLIAM H. H. STEVENSON, Baltimore, Md. Filed Apr. 10, 1884. (No model.)



Claim.—1. In a can-filling machine, the combination of a liquid-tank, a movable can-holder, an exhausting apparatus, pipes communicating between the cans on the holder and the exhausting apparatus, and provided with valves, and mechanism for immersing the cans and their holder in the liquid in the tank, as and for the purpose set forth.

2. The combination of an air-exhausting apparatus, a pipe. A^2, the flexible pipe A^3, the pipe B, and the movable valve-carrying plate G, as and for the purpose set forth.

3. The combination of the plate G, adapted to be raised and lowered, the pipe B, carried thereby and provided with valve B', the liquid-tank D, and the projections D^6, as and for the purpose set forth.

4. The combination of the plate G, adapted to be raised and lowered, valve g^2, carried thereby, the liquid-tank D, the projection D^6, attached thereto, and the horizontal bar D^7, as and for the purpose set forth.

5. The combination of the tank G', the glass tube secured thereto, the nozzle A', tapered perforated pipe J, and the ball-valve I', as and for the purpose set forth.

6. The combination of the tank G', having perforated bottom, the nipples *h*, projecting downward therefrom, the nozzle A', threaded to the perforated glass tube I, the cap-nut A^4, and the packing A^2 A^5, as and for the purpose set forth.

7. The combination of the tank G', having perforated bottom, the glass tubes I, secured to said bottom and communicating with said perforations, the plate K, having nipples K', and the rubber ball-valve, as and for the purpose set forth.

8. The combination of the plate E, adapted to support the cans to be raised and lowered, the tank G', pipe B, attached thereto, and communicating with the exhaust mechanism, and tubes I, connecting with the cans carried by the plate E, as and for the purpose set forth.

9. The combination of the liquid-tank-carrying bracket C^4, the plate E, for supporting the cans, the rods C^5, and the counterpoise-weights C^6, as and for the purpose set forth.

10. The combination of the liquid-tank, the tank G', connecting with the exhaust mechanism and with the cans, rods D^3, cross-bar D^5, and treadle D^4, as and for the purpose set forth.

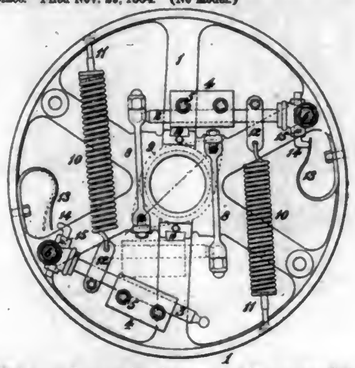
11. The combination of the tank G', having connection with exhausting mechanism and with the cans, and adapted to be raised and lowered, the can-supporting plate, also adapted to be raised and lowered, and the liquid-tank, as and for the purpose set forth.

12. The combination of the liquid-tank-carrying brackets C^4 and D', the can-supporting plate E, rods C^5, counterpoise-weight C^6, the tank G', and rods D^3, as and for the purpose set forth.

13. The combination of the can-supporting plate, counterpoised as set forth, the plate G, adapted to be raised and lowered, and a series of pipes, I, carried by said plate G, and having communication with the exhaust apparatus, as and for the purposes set forth.

14. In combination, an exhausting apparatus, pipes communicating between it and the cans, a can-holder, a liquid-tank adapted to receive the cans, and automatic valve-operating devices brought into action by the raising and lowering of the can-holder, as set forth.

314,353. STEAM-ENGINE GOVERNOR. JOSEPH W. THOMPSON, Salem, Ohio, assignor of one-half to the Buckeye Engine Company, same place. Filed Nov. 29, 1884. (No model.)



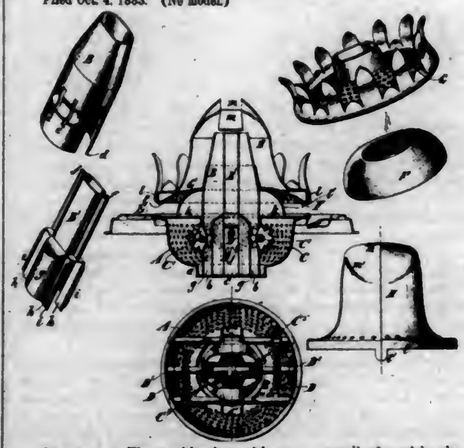
Claim.—1. In a centrifugal governor of the type specified, the combination, substantially as set forth, of a movable valve-operating device, a weighted arm and centripetally-acting spring adapted to vary the position of such device in opposite directions by the action of centrifugal and centripetal force, respectively, and an auxiliary spring adapted to supplement the centrifugal action of the weight during the moiety of the traverse of its arm adjacent to the inward limit of its range of motion.

2. In a centrifugal governor, the combination, substantially as set forth, of a supporting wheel or case, weighted arms pivoted to said case and coupled to a valve-operating device which is movable independently of the shaft of the supporting-wheel, springs coupled at one end to the weight-arms and at the other to the supporting-wheel, and auxiliary springs secured to said wheel in such relation to the weighted arms as to be subject to compression therefrom during substantially the inner half of their range of movement.

3. In a centrifugal governor, the combination, substantially as set forth, of a supporting wheel or case, an auxiliary spring connected thereto, a weighted arm pivoted thereto, and a finger connected adjustably to the weighted arm and adapted to bear against the auxiliary spring during a portion of the traverse of the arm about its pivot.

4. In a centrifugal governor, the combination, substantially as set forth, of a supporting wheel or case, a helical auxiliary spring fitting in a case secured thereto, a movable cap or follower fitting over said spring, and a weighted arm pivoted to the supporting-wheel, and provided with a projecting finger adapted to bear upon said movable cap during a portion of the traverse of the arm about its pivot.

314,354. LAMP-BURNER. EUGENE F. TRENT, Jersey City, N. J. Filed Oct. 4, 1883. (No model.)



Claim.—1. The combination, with an outer wall of a wick-tube whose tip is of ellipsoidal form or has flat sides and round corners, of an inner wall having a tip ellipsoidal in form or provided with flat sides and round corners, and provided with flanges fitting the outer wall of the wick-tube and serving to separate and guide two wicks used in the wick-tube, substantially as described.

2. The combination, with an outer wall of a wick-tube, having notches at the lower end, of an inner wall having flanges and lips engaging with the edges of the notches in the outer wall, substantially as specified.

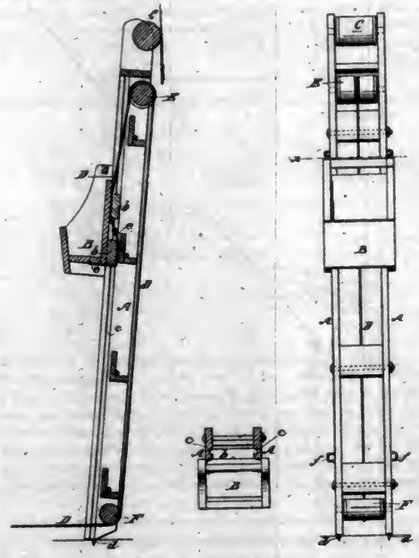
3. The combination, with the outer wall, A, of the wick-tube, having notches *d* in the lower portion, of the inner wall, A', provided with flanges *f*, fitting in the upper part of the outer wall, and with the flanges A and lips *i* engaging with the edges of the notches *d*, substantially as specified.

4. The combination, with a wick-tube, of ratchet-wheels mounted on shafts arranged at opposite sides of the wick-tube, wheels on the ratchet-wheels shafts engaging with driving-wheels mounted on two independent shafts, and a wheel carried by a rotary plate and engaging with the driving-wheels, substantially as specified.

5. In a burner, the combination, with a wick-tube having an opening or passage communicating with the interior of the inner wall, of a perforated air-distributer through which air passes to the said opening or passage, a second air-distributer through which air may pass to the exterior of the outer wall of the wick-tube, and a partition serving to separate the said air-distributers, substantially as specified.

6. In a lamp-burner, the combination of the air-distributer A, the plate E, the cap-plate F, a wick-tube, and the air-distributer G, as and for the purpose specified.

314,355. FIRE-ESCAPE. EPHRAIM WATTS, Middletown, Pa. Filed May 14, 1884. (No model.)



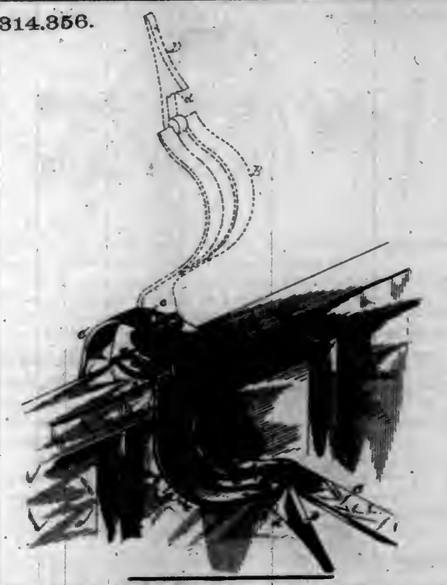
Claim.—In a fire-escape, the combination, with the skids A, having the longitudinal grooves *c*, and provided with the roller C, and the pulleys E F, of the car B, provided with the cross-bar *b*, having its ends projecting into the grooves of the skids, the bolt *c*, secured to the car, and the rope D, secured to the bolt, and passing over and around the pulleys, substantially as herein shown and described.

314,356. REIN-HOLDER. JOHANN F. A. WINKELMANN, Schell City Mo. Filed Oct. 31, 1884. (No model.)

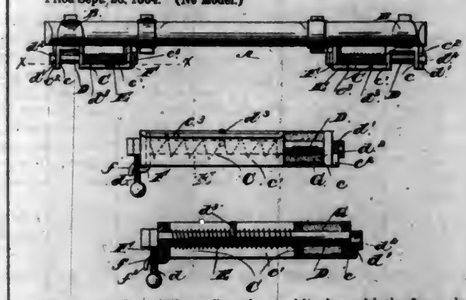
Claim.—1. A driving-rein holder consisting of two curved plates hinged together, the lower or stationary plate having a flanged extension for fastening it to the dash or foot board of the vehicle, and the upper or clamping plate provided at its end with a latch adapted to engage with the lower or stationary plate to secure the two together against the reins, substantially as and for the purpose set forth.

2. In a driving-rein holder, a lower or stationary plate provided with a flanged extension, a block, and a stop, in combination with an upper or clamping plate hinged to the block, and provided at its free end with a latch having a series of notches, said plates being curved, as shown, substantially as and for the purpose specified.

314,356.



314,357. THILL-COUPLING. GEORGE W. BEAVER, Mann's Choice, Pa. Filed Sept. 20, 1884. (No model.)



Claim.—1. In a thill-coupling, the combination, with the fore axle, of a metal bracket recessed at one end for the reception of the thill, a sliding locking-bolt operating therein, and encircled by a spring and the bolt-operating lever, and spring-plate locking device, substantially as described.

2. In a thill-coupling, the combination, with the divisional bracket having a sliding bolt encircled by a spring, of the locking-flange on the end of said bolt, the raised portion of the bracket engaging with the locking-flange, and the means for unlocking said bolt, substantially as described.

3. In a thill-coupling, the combination, with the divisional bracket having a sliding bolt encircled by a spring, of the locking-flange on the end of said bolt, the raised portion engaging the flange, the spring-plate for releasing and fastening the bolt-operating lever-arm, the pin midway of the locking-bolt engaging with a recess in the bracket, and the rubber cushion, for purposes specified, substantially as described.

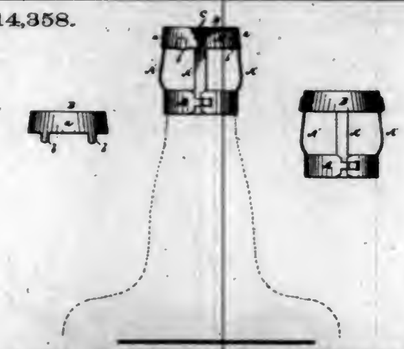
4. In a thill-coupling, the combination, with the fore axle, A, having attached thereto a divisional bracket, C, the sliding bolt D, and its operating-lever *d*, of a locking-flange, d^2, on said bolt engaging the raised portion c^2, spring locking-plate F, and the rubber cushion G, substantially as described.

314,358. COMBINED METALLIC CAP AND FASTENER FOR BOTTLES. ALFRED L. BERNARDIN, Evansville, Ind. Filed Dec. 26, 1884. (No model.)

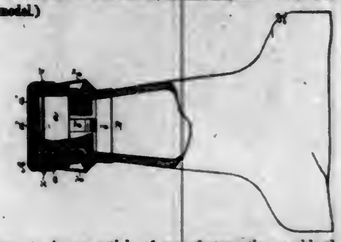
Claim.—1. A cap-fastener for bottles including two parts, a cap of a single thickness, and having a pendent flange, and a lower part comprising a collar and vertical strips made integral with the collar, and bent clips for detachably connecting the flange of the cap with the upper portion of the lower part, substantially as and for the purpose described.

2. The combination, with the collar-section A with vertical strips A' and upper collar-section, A^2, of the cap having clips *b*, adapted to be bent around and detachably fastened to the upper collar-section, substantially as shown and described.

314,358.



314,359. COMBINED METALLIC CAP AND FASTENER FOR BOTTLES. ALFRED L. BERNARDIN, Evansville, Ind. Filed Dec. 19, 1884. (No model.)

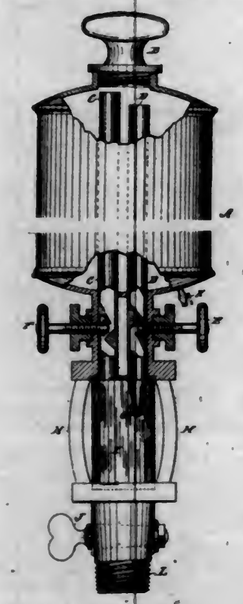


Claim.—1. As an article of manufacture, the combined stopper-fastener and bottle-cap, consisting of the sheet-metal cap proper having a vertical pendent flange adapted to embrace the bottle-nozzle and the sheet-metal fastener including the neck-band *b* and arms *b'*, the cap and fastener being permanently secured together and the whole being applicable as a unit about a bottle neck and nozzle and securable thereon by uniting the ends of the neck-band, all as and for the purposes set forth.

2. The combination, with a double cap, of the fastener proper, consisting of a band and arms, the latter being inserted between the inner and outer portions of said cap and permanently secured thereto, substantially as specified.

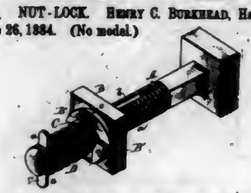
3. The combination, with the fastener proper, consisting of a band and arms, as specified, of the double cap having a crimp which secures it to said arms, substantially as shown and described.

314,360. OIL-CUP. EZRA BEST, Quincy, Ill. Filed Jan. 17, 1885. (No model.)



Claim.—The combination of the oil-cup A, the hollow screw-plug L, the cage H, securing the cup and plug together, the glass tube I, adjoining the hollow screw-plug, the steam-pipe C, connecting the upper end of the glass-tube chamber with the upper end of the cup-chamber, the drip-pipe D, connecting the cup-chamber with the glass-tube chamber, each of its ends being lower than the corresponding ends of the pipe C, and its lower end provided with a reduced nozzle, G, the stop-cocks E and F in the tubes D and C, respectively, and the plug B in the top of the cup, substantially as shown and described, whereby both pipes C and D communicate with the same chambers at different levels, and whereby the action of both pipes may be observed.

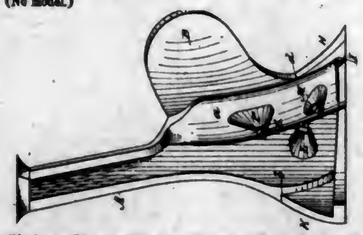
314,361. NUT-LOCK. HENRY C. BURKHEAD, Hardin Springs, Ky. Filed June 26, 1884. (No model.)



Claim.—1. In a nut-lock, the combination of the slotted bolt A, the nut B, with ratchets B' formed thereon, a spiral spring embracing said bolt and bearing upon keys which rest upon the nut and end of the bolt, substantially as shown, and for the purpose set forth.

2. In a nut-lock, the combination, with the slotted bolt A, of a nut, B, with raised ratchets formed on one side of the same, and locking devices consisting of a key, C, with enlarged wedge-shaped head, a spiral spring, and a key, E, substantially as shown, and for the purpose set forth.

314,362. PLOW. MANFRED CALL, Richmond, Va. Filed Dec. 4, 1884. (No model.)



Claim.—The combination of a plowshare, B, provided with a sanger, C, projecting from the back of the share, the said hanger being open at its sides like a staple, and provided with a bolt-hole at its outer end, and a standard, A, provided with a mound-shaped nest or recess, E, formed to receive and fit the hanger C, and provided with a bolt-hole to register with the hole in the hanger, substantially as shown and described, whereby a common bolt may be inserted at said open sides and the share and post may be secured together, as and for the purpose specified.

314,363. MAGAZINE FIRE-ARM. REUBEN S. CHAPMAN, Springfield, Ill., assignor of one-half to Jasper N. Reece, same place. Filed Dec. 5, 1881. Renewed Apr. 22, 1884. (No model.)

Claim.—1. The combination of the endwise-moving bar having its lower edge cut away to leave shoulders or inclines with the loading-bars provided with pins or projections which ride under the depressed portion of the endwise-moving bar, substantially as shown.

2. The combination of the endwise-moving bar, the two loading-bars, the magazine-tube having two or more openings through its bottom, and the double-pronged springs F, each prong of the spring being made to bear against the under side of a loading-bar, substantially as described.

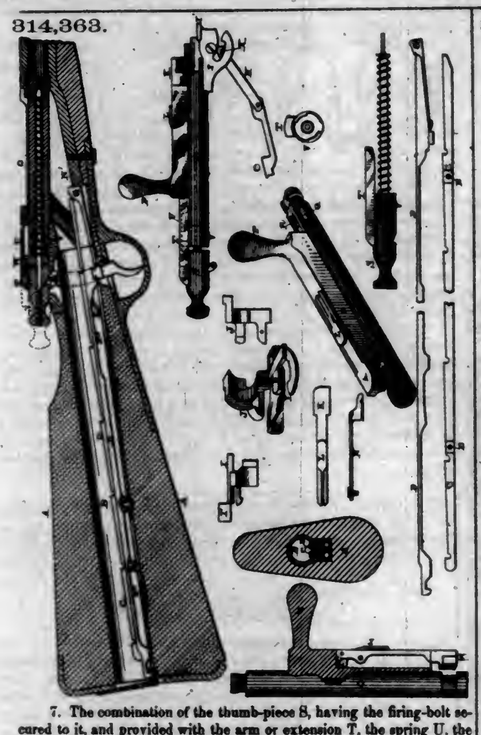
3. The combination of the firing-bolt, the cartridge-extractor J, the pivoted arm or lever K, and the cam L, which is pivoted to the arm or lever for locking it down in place, substantially as set forth.

4. The combination of the firing-bolt, a cartridge-extractor loosely attached thereto, a holding device or lever pivoted in the bolt, and a means of locking the lever or holding device down in place, substantially as specified.

5. The combination of a firing-bolt, a cartridge-extractor, a plate, I, secured to the extractor, a connecting-rod, and a loading-bar, the rod being provided with a projection for catching in the plate, substantially as shown.

6. The combination of the firing-bolt, the extractor J, loosely connected thereto, the plate I, pivoted to the extractor, and having a notch in its edge, and a projection, I', with the rod H, having projection X and loading-bar C, substantially as described.

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7. The combination of the thumb-piece S, having the firing-bolt secured to it, and provided with the arm or extension T, the spring U, the sleeve V, having the projection W, and the firing-bolt having its rear end fitted in the sleeve V, and provided with the notches Q R, substantially as specified.

8. In a breech-loader, the receiver having a slot cut through its rear end, with a spring having a shoulder formed upon it to project through the slot and act both to hold the cartridge back and to eject the shell after the gun has been fired, in combination with the firing-bolt and a mechanism for feeding the cartridges forward from the magazine, substantially as shown.

9. In a breech-loading fire-arm, the receiver provided with an incline at its front end and shoulders 3 at its rear end, in combination with the spring G and the firing-bolt, whereby the cartridge is presented horizontally to the bore of the gun, substantially as set forth.

10. In a breech-loading fire-arm, the combination of the firing-bolt, a detachable cartridge-extractor which is connected thereto, a plate connected to the cartridge-extractor, and which is provided with a recess in its front edge, a rod which is pivoted to one of the loading-bars, and provided with means for engaging with the pivoted plate, whereby the magazine is thrown in and out of action, substantially as shown.

11. In a breech-loading fire-arm, the combination of the firing-bolt, a removable cartridge-extractor which is applied to its front end, and which is provided with an arm or projection which extends downward outside of the barrel, a movable plate which is connected to this downwardly-projecting arm, the loading-bars, and the connecting-rod H, which is connected to one of the bars, which rod is provided with means upon its outer end for connection with the movable plate or device attached to the cartridge-extractor, substantially as shown.

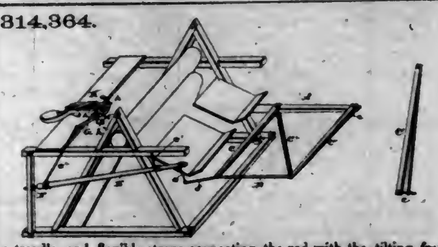
12. The combination of the firing-bolt, the removable cartridge-extractor which is attached to its front end, the holding-bars, one of which is provided with the connecting-rod H, and a suitable movable device which is attached to the cartridge extractor and moved back and forth with the firing-bolt, and which is adapted to be connected to and disconnected from the connecting-rod H, substantially as described.

314,364. SHEAF-CARRIER FOR SELF-BINDING HARVESTERS. HIRAM S. CHAPMAN, Penn, Mich., assignor of one-half to Karl E. Radd, Sheldon, Dak. Filed Dec. 23, 1883. (No model.)

Claim.—1. In a sheaf-carrier, the combination, with a rocking shaft and braces rigidly secured thereto, forming a supporting-frame, of a receiver or sheaf-receptacle rigidly secured on said frame and devices for raising and lowering one end of said frame, substantially as set forth.

2. In a sheaf-carrier, the combination, with a rearwardly-tilting frame, of a rolling rod attached to the harvester-frame and operated by

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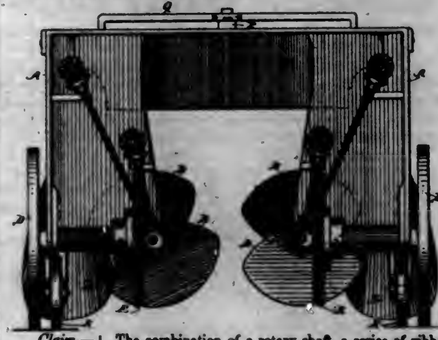
a treadle, and flexible straps connecting the rod with the tilting frame and the treadle with the rod, substantially as set forth.

3. In a sheaf-carrier, the combination, with a tilting frame, of a rod loosely mounted at one end in the frame of the harvester, and connected at its other end by flexible devices to the tilting frame, and a treadle for operating the rod, and connected thereto by flexible devices, substantially as set forth.

4. In a sheaf-carrier, the combination, with a rocking shaft and a receiver or sheaf-receptacle rigidly secured thereto, of the treadle having the curved portion A, the curved arm secured to said curved portion of the treadle, and devices connecting the arm and receiver, substantially as set forth.

5. In a sheaf-carrier, the combination, with a rocking shaft, of braces secured thereto in pairs, each pair constructed of two different materials, the whole forming a support for a receiver, and devices for holding the movable end of the supporting-frame in the required vertical adjustment, substantially as set forth.

314,365. COTTON-HARVESTER. ROBERT K. CHARLES, Darlington, S. C. Filed Mar. 12, 1884. (Model.)



Claim.—1. The combination of a rotary shaft, a series of gibbous-shaped plates secured near their edges on said shaft and projecting alternately in opposite directions, picking-teeth on one face of each of said plates, and means, substantially as described, for removing the cotton-lint from said teeth, as and for the purpose specified.

2. The combination of the drive-wheels D, the shaft C, the gibbous-shaped plates B thereon, the intermediate gearing, as described, the wall G, having apertures F, through which the plates B rotate, the brushes H, and their actuating-gears, substantially as and for the purpose specified.

3. The combination of the drive-wheels D, the shafts C, the gibbous-shaped plates B, the wall G, having apertures F, the brushes H, and the toothed belt I, operating as and for the purpose specified.

4. The combination of two drive-wheels, D, the shafts C, the gibbous-shaped plates B, the walls O, having apertures F, the brushes H, the toothed belts I, and the receptacle J, removably fixed over the center of the machine to receive the cotton-lint delivered by the two belts, substantially as shown and described.

5. The combination, in a double or straddle-row cotton-harvester, of a team-pole secured to the center of the forward cross-bar of the frame and extended forward above the cotton-plants, and a neck-yoke on the forward end of said pole adapted to be carried above the necks of the team, as and for the purpose specified.

6. The combination, in a double or straddle-row cotton-harvester, of a double-tree pivoted on the middle of the top of the forward cross-bar of the frame and extending down at both sides of the frame, and means for attaching a team thereto, as and for the purpose specified.

314,366. CLASP. GEORGE A. COLTON, Syracuse, N. Y. Filed Aug 4, 1884. (Model.)

Claim.—1. A clasp comprising a body portion made of a single piece of wire, and having an eye and jaws, and provided with a locking-lever pivoted in said eye and adapted to embrace an opposite branch of the body portion, substantially as specified.

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2. A clasp comprising a body portion which is formed of a single piece of wire, so as to form a spring, an eye, and jaws, which are brought into contact by the said spring, and a yielding locking-lever pivoted in said eye and adapted to embrace one branch of said body portion having a depression, substantially as specified.

3. A clasp comprising a body portion formed of a single piece of wire, and having a spring, an eye, and jaws, and a locking-lever pivoted in said eye and constructed to spread the branches of the body portion, substantially as specified.

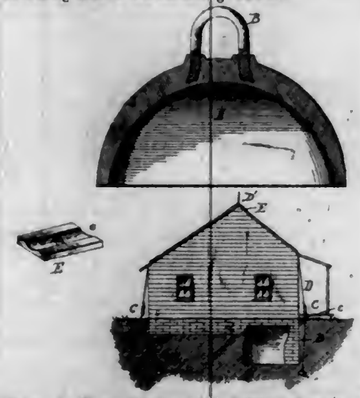
4. A clasp the main portion of which is formed of a single piece of wire, having a spring, A′, an eye, A^4, and jaws A^6 A^{12}, in combination with a yielding or spring locking-lever, B, pivoted in the eye A^4, and adapted to embrace a branch, A^3, of the clasp, substantially as specified.

5. The body portion consisting of a single piece of wire bent to form the spring A, the substantially-straight branch A^3, the eye A^4, the straight branch A^5, and the jaw A^6 A^7, the eye A^8 A^9, and the curved branch A^3, the jaw A^{11}, said jaws being curved, as at A^{12}, in combination with a locking-lever, B, having the eye B′ and the loop B^2, substantially as shown and described.

6. In a clasp of the class described, a body portion bent, as at A^{10} A^{11}, to form one jaw, and bent, as at A^5 A^6 A^7, to form the opposite jaw, and bent, as at A^8 A^9, to form an eye embracing both jaws, to prevent them from separating laterally, substantially as shown and described.

314,367. LAND-ANCHOR. GEORGE H. COOK, Palmer, Kans. Filed Aug. 22, 1884. (No model.)

Brief.—Consists of a series of semi-cylindrical cup-shaped anchors, each having an eye to which is attached an inclined rod, which is held from contact with the building by a block. A turn-buckle connects said rod with a guy-rope which passes over the structure and through a grooved bearing-block of non-conducting material.

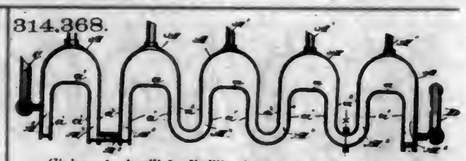


Claim.—1. The combination, with a building, of a series of anchors, each consisting of a semi-spherical shell having an eye, B, attached thereto, the guy-ropes D, passing over the buildings, turn-buckles C, and rods B′, connected to the buried anchors, inclined as specified, and connected to the turn-buckles, substantially as set forth.

2. In combination with semi-spherical shells A, rods B′, turn-buckles C, guy-ropes D, blocks E, of non-conducting material, secured to the roof, to insulate the guy-ropes therefrom, substantially as and for the purpose set forth.

3. The combination, with a building, of a series of anchors, each consisting of a semi-spherical shell having an eye, B, attached thereto, the guy-ropes D, passing over the building, blocks E, of non-conducting material, secured to the roof and grooved for the reception of said guy-ropes, turn-buckles C, connected to the lower ends of said guy-ropes, and inclined rods B′, connected to the said anchors and to the turn-buckles, and held out of contact with the building by blocks *e*, substantially as set forth.

314,368. APPARATUS FOR THE DISTILLATION OF HYDROCARBONS. RICHARD DEAN, Cleveland, Ohio, assignor of one-half to James Quarrie, same place. Filed Jan. 30, 1885. (No model.)



Claim.—1. A still for distilling hydrocarbon oils, and provided with a crown-sheet, and inner and outer plates extending below the body of the still, forming hollow so-called legs that extend the length of the still, and one or more fire-boxes located between the legs and under the crown-sheet, one or more feed-pipes leading into the leg on one side, and a discharge-pipe connected with the opposite leg, and the parts so arranged that a continuous flow of oil is had through the still and maintained at a uniform depth by the elevation of the discharge-pipe, substantially as set forth.

2. For the fractional distillation of hydrocarbon oils, a series of stills, each provided with a crown-sheet and hollow so-called legs extending the length of the still, and inclosing a fire-box between the legs and the next adjacent legs of the stills, connected at the bottom, forming a connected system from end to end of the plant, a feed-pipe and a discharge-pipe at the opposite end of the system, and the parts so arranged that a continuous flow of oil may be had through the stills and maintained at a uniform depth by the elevation of the discharge-pipe, substantially as set forth.

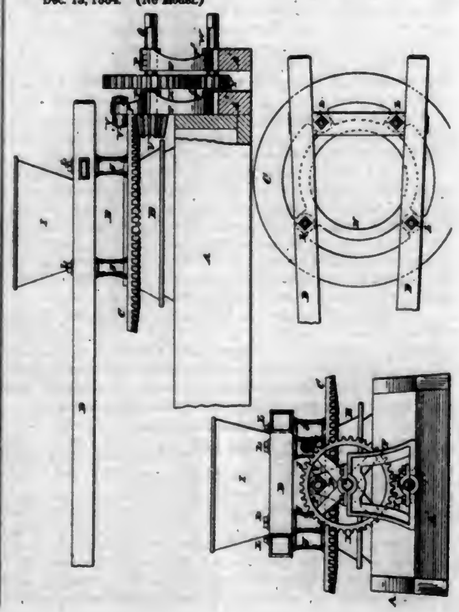
314,369. PROCESS OF PRODUCING FELT HAVING A CROSS-SECTION VARYING IN THICKNESS THROUGHOUT ITS WIDTH. CARL B. DOLGE, Dolgeville, assignor to Alfred Dolge, New York, N. Y. Filed Dec. 11, 1884. (No model.)



Claim.—1. The improvement in the art of manufacturing felt the cross-section of which is varying in thickness throughout its width, which consists in first forming webs of varying width, then placing these webs one upon the other in the proper order to form a pile corresponding to the cross-section of the fabric to be produced, and, finally, exposing the pile to a felting action.

2. The improvement in the art of manufacturing felt the cross-section of which is varying in thickness throughout its width, which consists in producing webs of varying width, then exposing the first two webs to a felting action, then adding one or more webs and exposing them together with the webs already felted to a felting action, and so on until a fabric of the desired width and cross-section has been formed.

314,370. GRINDING-MILL. JAMES A. FIELD, St. Louis, Mo. Filed Dec. 13, 1884. (No model.)



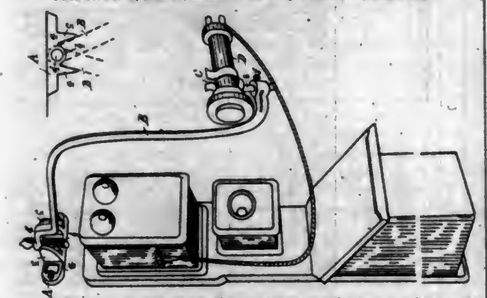
Claim.—1. In a grinding-mill, the combination, with the master-wheel and sweep, of the removable spools and bolts by which the parts are secured together.

2. In a grinding-mill, the combination of a master-wheel having radial perforated lugs, removable spools, sweep, and bolts by which the parts are secured together.

3. In a grinding-mill, the combination of a master-wheel having radial perforated lugs, strengthening-ring by which the lugs are connected, removable spools, sweep, and bolts by which the sweep, spools, and master-wheel are secured together.

4. In a grinding-mill, the combination of a master-wheel, removable spools, sweep, bolts connecting the sweep, spools, and master-wheel together, journal-boxes, and horizontal shaft having pinion engaging the master-wheel and mounted in the boxes.

314,371. ADJUSTABLE SUPPORT FOR TELEPHONE-RECEIVERS. JOHN M. FITCH, Detroit, Mich. Filed July 9, 1884. (No model.)



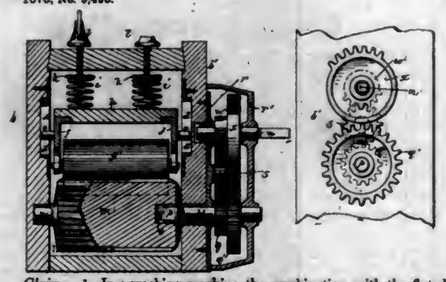
Claim.—1. An adjustable support for a telephone-receiver, comprising a single arm turning on a vertical pivot arranged centrally over the stationary transmitter, so that said arm may swing laterally in front of the transmitter from one side to the other thereof, and having in the free end of said arm a swivel-clasp, whereby the receiver may be turned for use at either ear of the operator, substantially as described.

2. The combination, with a telephone-transmitter, of a receiver-supporter hung on a pivot supported substantially in a vertical line drawn through the center of the transmitter, as and for the purpose set forth.

3. In a bracket-support for ear-receivers, the base-plate A, provided with socket *b* and ears *c*, in combination with a bracket-arm, B, pivotally attached to said base-plate, and carrying at its free end a vertically-adjustable clamp, C, substantially as and for the purposes described.

4. In combination with the ear-receiver D of a telephone, the vertically-adjustable clamp C, secured to the free end of the bracket-arm, the opposite end of which is pivotally secured and provided with means to limit the swinging of such arm, substantially as set forth.

314,372. WASHING-MACHINE. ZEPHIRIN M. GELINAS, Yamachiche, Quebec, Canada, assignor of one-third to Otis Chamberlain, Enfield Centre, N. H. Filed Apr. 9, 1884. (No model.) Patented in Canada Dec. 18, 1878, No. 9,498.



Claim.—1. In a washing-machine, the combination, with the fluted roller having a cog-gear and pinion on the same end of its shaft, of the two plain rollers in bearings regulated by tension-springs, and a crank-shaft provided with a segmental cog-gear and a segmental pinion having their plain arcs opposed, and an intermediate pinion, substantially as specified.

2. In a washing-machine, the combination, with the frame provided with the vertical side walls having slotted guide-plates for the studs on the castings for the plain rollers, the castings connected by the cross-bar and having open bearings in their lower edges, the plain rollers, and the tension-springs regulated by bearing-plates and thumb-screws, of the fluted roller having a socket in one end for its driving-shaft, and full and segmental gearing connected to operate when driven to impart a rocking motion to said rollers, substantially as specified.

3. In a washing-machine, the combination, with the fluted roller and plain rollers, of the removable shaft having the cog-gear *q′* and pinion *q*, the pinion *s*, the crank-shaft with segmental cog-gear *x* and the segmental pinion *w*, the bearing-strip *r*, and the removable cover-plate *r′*, substantially as specified.

314,373. LAWN-RAKE. LEWIS GIBBS, Canton, Ohio. Filed Oct. 3, 1884. (No model.)



Claim.—1. In a lawn-rake, a handle-socket terminating in a shank for attachment to the rake-head, and bent at the end so as to hook over the side of the head, and provided with ears for the attachment of braces and with points adapted to engage the wood-work and to be clinched, substantially as set forth.

2. In a lawn-rake, a skeleton socket for a handle semicircular in cross-section, and provided on the edges with depending points for bending around and securing the wooden handle, and the socket terminating in a shank for attachment to the rake-head, substantially as set forth.

3. In a lawn-rake, a tapering skeleton socket for a handle with depending points adapted to be bent around the wooden handle, and the socket provided with lugs or ears for the attachment of braces, and terminating in a shank for attachment to the rake-head, and braces riveted to said ears and secured to the rake-head, substantially as set forth.

4. In a lawn-rake, the combination, with braces provided with points for clinching to the rake-head, of a handle-socket and shank provided with ears or lugs for attaching the braces, substantially as set forth.

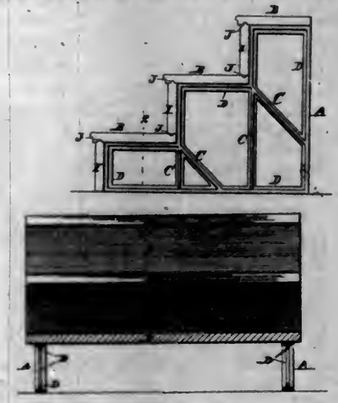
5. In a lawn-rake, wire teeth, preferably of spring-steel, and each tooth separate from the other teeth and bent back near the upper end at about a right angle, the ends of which are adapted to be forced into the wood and the lower end curved forward and upward, so as to form runners, with the points of the teeth slightly elevated from the ground when the rake is held in working position, substantially as set forth.

6. In a lawn-rake, the part D, provided with the grooves *d* and the holes *d′*, in combination with the teeth G and the strip E, substantially as set forth.

7. In a lawn-rake, the combination, with the parts D and E and the teeth G, of the part C and the ends F, substantially as set forth.

314,374. DOOR AND TERRACE STEP. EBENGTON N. GILFILLAN, Fort Scott, Kans., and WILLIAM J. GILFILLAN, St. Louis, Mo. Filed Dec. 4, 1884. (No model.)

Brief.—Steps of cast-iron supports having strengthening ribs and braces, and stone treads and risers locked by tongues and grooves.

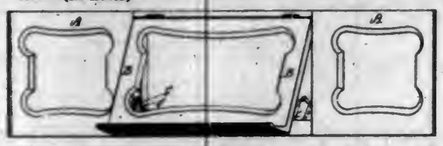


Claim.—1. The combination of the cast-iron supports having strengthening-braces and stone treads and risers, arranged as shown and described.

2. In combination with the cast-iron supports having strengthening-ribs extending all the way around, and strengthening-braces, the stone treads and risers, arranged substantially as shown and described.

3. The combination of cast-iron supports having strengthening ribs and braces, and stone treads and risers locked together by tongues and grooves, substantially as and for the purpose set forth.

314,375. MUSIC-RACK FOR PIANOS. JOS. GRAMER, Boston, Mass., assignor of one-half to Orrin A. Kimball, same place. Filed June 18, 1884. (No model.)



Claim.—In combination, the vertical support A, pendent rack B, hinged near its upper edge, toggle-arms b' b^2, and spring b^3, arranged between the support A and rack B, and near the lower part of rack B, all as and for the purpose set forth.

314,376. GAS-BURNER. ALLAN P. GUYER, Philadelphia, Pa. Filed Oct. 24, 1884. (No model.)



Claim.—1. A gas-burner having an auxiliary burner arranged beneath the main burner-tip and provided with outwardly-projecting supports, and a vertically-arranged platinum-wire coil or incandescent body attached to said supports on the burner, substantially as described.

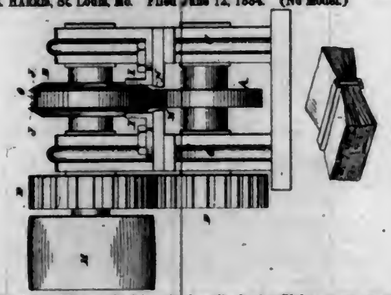
2. A gas-burner having a boss or enlargement provided with a vertical aperture leading into the gas-chamber of the burner, outwardly-projecting supports located on the burner beneath the tip portion and the apertured boss thereof, and a platinum coil or wire connected with said supports, so as to be within or in line with the flamelet issuing from the aperture in the boss of the burner, substantially as described.

314,377. FENCE-POST. ABRAM HANDLEY, Acton, Mass. Filed Sept. 18, 1884. (No model.)



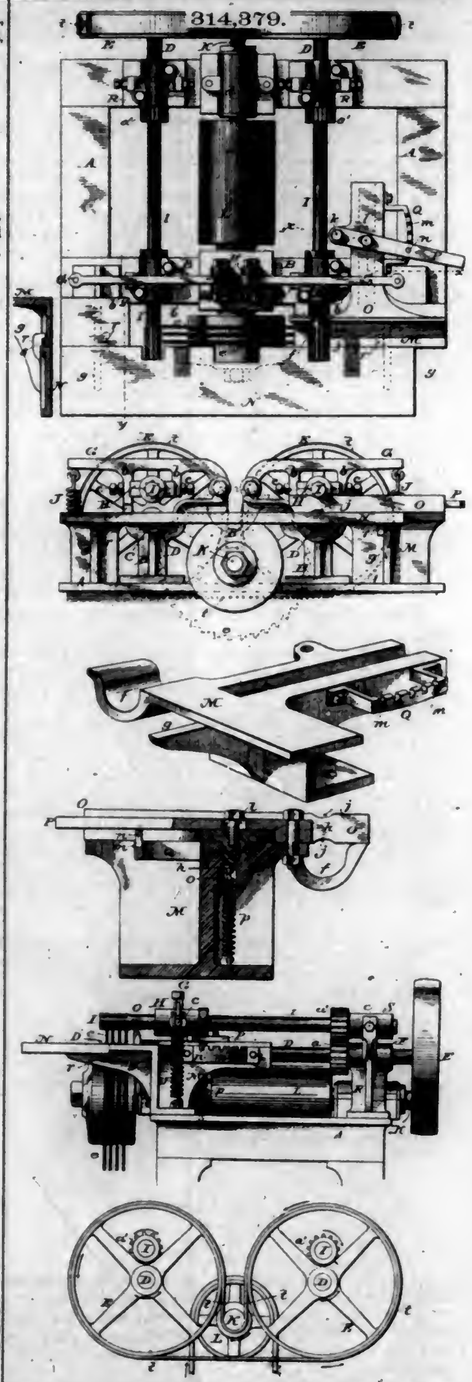
Claim.—The improved article of manufacture herein described, consisting of a metal fence-post provided with side strengthening ribs or flanges, *a*, a series of openings, C, having adjacent thereto vertical ribs *c*, and transverse ribs *d*, inclosing the openings C, the said inclosing portions being beveled as described, the said post being tapered and flattened at its lower portion, B, and having the side and central ribs merging in said portion, so as not to offer any resistance to the ready insertion of the post in the ground, substantially as set forth.

314,378. METHOD OF UTILIZING WASTE HOOP-IRON. WILLIAM E. HARRIS, St. Louis, Mo. Filed June 12, 1884. (No model.)



Claim.—The method herein described of utilizing waste or scrap hoop-iron, &c., which consists in passing it in a hot condition through rolls to reduce it to the proper thickness and width, then perforating it and cutting it into proper lengths for binding shingles, as set forth.

314,379. CIRCULAR SAWING MACHINE. GEORGE M. HINKLEY, Milwaukee, Wis. Filed Jan. 30, 1885. (No model.)



Claim.—1. In a sawing-machine, the combination of a frame, a lower feed-roll mounted in stationary bearings in said frame, and provided with a gear-wheel, and an upper feed-roll carried at one end in a swiveled box journaled in a stationary bracket secured to the frame and at its other end in a similarly-swiveled bearing carried in a lever pivoted to the frame, gear-wheels connecting the upper and lower rolls, and a spring connecting the pivoted lever and frame and tending to hold the upper roll down to its work, as set forth.

2. In a sawing-machine, the combination of a frame, a lower feed-roll mounted in stationary bearings therein, and an upper feed-roll geared to the lower roll and having one end carried in a bearing swiveled in a stationary frame and its other end carried in a bearing swiveled in a swinging frame, to allow of a free vertical movement of the upper feed-roll.

3. In a sawing-machine, the combination of a frame, A, upright bracket B, secured to the front side of said frame and provided with lateral extension B', lower feed-roll, D, box C for said roll mounted in the bracket, arm G, pivoted to the bracket B to allow a vertical movement of the arm, upper feed-roll, I, and box H for said roll, carried by and swiveled in the arm G, as and for the purpose set forth.

4. In a sawing-machine substantially such as described, the combination of frame A, provided with a saw-arbor, saw, and feed-roll, and bracket M, rigidly secured to said frame, and provided with a depression in its face beneath the feed-roll to afford room therefor, and extending beyond said roll to support the material close to the saw, substantially as shown and described.

5. In a sawing-machine, the combination of frame A, provided with a saw-arbor and a saw, bracket M, secured to said frame, and provided with a beveled groove, *h*, guide O, mounted upon said bracket, and provided with a beveled tongue, *i*, to fit and move within the groove *h*, and hand-lever P, pivoted to the bracket M and to the guide, as shown, whereby said guide can be adjusted instantaneously to any desired position.

6. In a sawing-machine, the combination of a frame provided with a saw or saws and feed-rolls, bracket M, secured upon the frame, and provided with groove and slot *o* in the base of said groove, guide O, having tongue *i*, moving in said groove, and spring *p*, connecting the guide and bracket, whereby the guide is held firmly to its seat in the bracket.

7. In a sawing-machine constructed substantially as shown and described, the combination of frame A, arbor K, provided with saws *e*, brackets M, securely fastened to the upper side thereof, and provided with supporting-arm *g* and lug or flange *s*, and removable table N, provided with hooks *r*, to engage the lug or flange *s*, as and for the purpose set forth.

8. In a sawing-machine constructed substantially as described and shown, the combination of frame A, bracket M, secured thereto, as shown, upper and lower feed-rolls, D I, and guide O, adapted to be moved over the surface of and guided by the bracket M between the rolls D I, and having its forward edge notched on its upper and lower faces, as shown, whereby it may be moved the entire width of cut without coming in contact with the feed-rolls.

9. In a sawing-machine, the combination of a frame, A, a driving-shaft, K, journaled therein and carrying the saws, lower feed-rolls, D, journaled in the frame, provided with belt-pulleys E and gear-wheels *a*, upper feed-rolls, I, provided with gear-wheels *a'*, adapted to be driven by the gear-wheels on the lower feed-shaft, and belt *t*, extending around both pulleys E and the shaft K, whereby the proper motion and speed are given to the feed-rolls and the saws.

314,380. REVERSING-GEAR. HARY H. HUDSON, Flint, Mich. Filed Jan. 16, 1884. (No model.)



Claim.—1. In a reversing-gear, a crank-wheel for actuating the valve, consisting of two concentric parts, the inner part being fast upon the crank-shaft of the engine, while the outer part, which carries the wrist-pin for the valve-rod, forms a loose ring around it, which is kept in engagement therewith, against the frictional resistance of the valve motion, by a spring-dog, substantially as and for the purpose described.

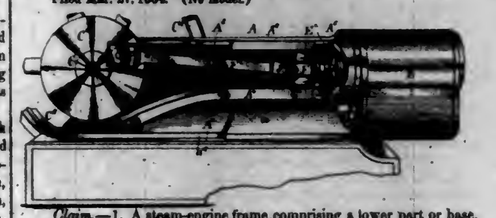
2. In a reversing-gear, the actuating crank-wheel of the engine-valve made in two concentric parts, the inner part being fast upon the engine-shaft, while the outer part, to which the valve-rod is secured, forms a loose ring around it, which is kept in engagement therewith, against the frictional resistance of the valve motion, by a spring-dog secured in the fast part and adapted to engage in either one of the recesses in the loose ring, in combination with a friction-brake actuated by a hand-lever and operating upon the loose ring of the crank-wheel, substantially as and for the purposes described.

3. In a reversing-gear, the loose ring G', carrying the crank-pin of the engine valve-rod, and forming the outer concentric part of a two-part crank-wheel, the inner portion, G, of which is fast upon the engine-shaft, the spring-dog J, secured to the latter and adapted to make a breakable connection between the two, the two recesses *f f*, the lug H, and lug K, all combined and operating substantially as described.

4. A reversing-gear consisting of the two-part crank-wheel, G G', arranged and operating substantially as described, in combination with the friction-straps L L' and bell-crank lever M, substantially as and for the purposes described.

5. In a reversing-gear, the combination of the fast part G of the crank, provided with the flange *a*, the concentric ring G', sleeved loosely upon the part G, the washers *b*, secured to the part G, the spring-dog J, recesses *f f*, lug H, lug K, and hand-brake device L L', for the loose ring G', all combined and operating substantially as described.

314,381. STEAM-ENGINE FRAME. ALBERT L. IDE, Chicago, Ill. Filed Mar. 27, 1884. (No model.)



Claim.—1. A steam-engine frame comprising a lower part or base, A', an upper horizontal curved plate or girder, A^2, and a straight vertical web, A^3, uniting the base A' with the curved girder A^2, substantially as described.

2. In a steam-engine frame constructed for the attachment of a cylinder at one end, and having a crank-shaft bearing at its opposite end, a lower part or base, A', extending beneath the shaft-bearing at one end of the frame, an upper horizontal curved plate or girder, A^2, extending from the cylinder to the shaft-bearing, and a straight vertical web, A^3, uniting the base A' with the curved girder A^2, substantially as described.

3. A steam-engine frame comprising a rectangular base made hollow on its under side, an upper horizontal curved girder, A^2, extending from the cylinder to the shaft-bearing, and a straight vertical web of metal uniting the base A' with the girder A^2, substantially as described.

4. In a steam-engine frame constructed for the attachment of a cylinder at one end, and having a crank-shaft bearing at its opposite end, a base, A', an upper curved girder, A^2, and a straight vertical web uniting the base and girder, and located in a line with the side of the cylinder and the front portion of the crank-shaft bearing, substantially as described.

5. In a steam-engine frame, a hollow base, A', the top of which forms the lower slide for the cross-head, and which is provided with vertical walls *a a'*, constructed to support the said lower slide at both sides of the latter, substantially as described.

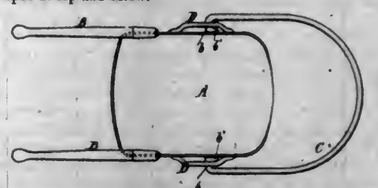
6. The combination, with the hollow base A' of an engine-frame provided with an aperture, L', in its rear wall, of a rock-shaft, J, supported at one end in the front wall of the base A', and a flanged sleeve, L, constructed to cover the aperture L' and to afford a bearing for the rear end of the rock-shaft, substantially as and for the purpose set forth.

7. The combination, with a hollow base, A', of an engine-frame provided with an opening, L', in its rear wall, of a flanged sleeve, L, constructed to cover the said aperture, and a rock-shaft, J, provided with a downwardly-extending arm, J^3, and having bearings at one end in the front wall of the base A' and at its opposite end in the sleeve L, substantially as and for the purpose set forth.

8. The combination, with a steam-engine frame supporting suitable cross-head guides and a cylinder provided with a steam-chest located beneath the latter and having a suitable slide-valve and rod, of a rock-shaft located transversely beneath the lower cross-head slide, means for operating the said rock-shaft from the crank-shaft, and a depending arm fixed to said rock-shaft and connected with the valve-rod, substantially as and for the purpose set forth.

314,382. ROAD-SCRAPER. WM. R. JACOBS, Columbus, Ohio. Filed Jan. 23, 1884. (No model.)

Brief.—Brackets on the sides of the scraper, having key-hole perforations for receiving and holding the angle ends and lugs of a spring-bail, are left open at top and below.



Claim.—The combination of the scraper-bowl A, brackets D, open at top and bottom, and provided with a passage, *a a'*, and a spring-bail having angular portions *b*, with lugs *b'*, substantially as and for the purpose described.

314,383. LANTERN. WILLIAM H. KARGES and CLARENCE E. SMITH, St. Louis, Mo. Filed Mar. 25, 1884. (No model.)

Claim.—1. A lantern provided with draft-tubes O O, having the enlarged tubes J J at the top thereof, said tubes J J being closed at the

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top and perforated below the tops of the tubes O O, substantially as and for the purpose set forth.

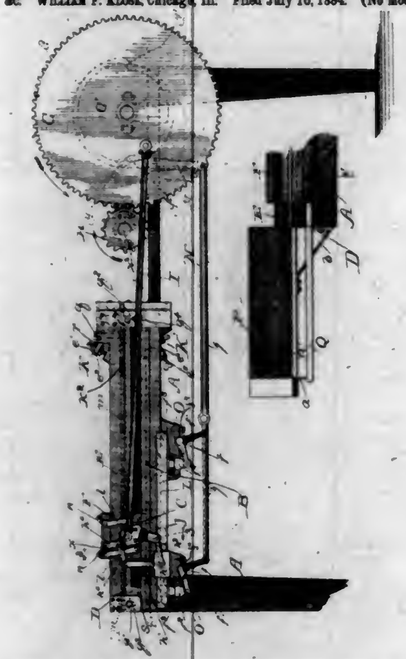
2. In a lantern, the combination of the tilting disk G, part D held therein, having slots F, connecting-rods C C, and supporting-disk B at the lower end thereof, substantially as and for the purpose set forth.

3. In a lantern, the combination of the movable cap or part D, having the slots F, the connecting-rods C C, working in said slots at the top, the disk B, connected to the bottom of said rods, and the tilting disk G, through which the part D and rods C C pass, as set forth.

4. The combination, with the part D, disk B, connecting-rods C, and globe A, of the tilting disk G, circular disk H H on the sides thereof, and the circular bearings I I for said disks H, substantially as and for the purpose set forth.

5. The combination, with the part D, having slots F, connecting-rods C, disk B, and tilting disk G, of the spring-fastening K, for holding the said parts in a vertical position, as set forth.

314,384. MACHINE FOR SHAVING PRINTERS' LEADS, SLUGS, &c. WILLIAM F. KLOSE, Chicago, Ill. Filed July 10, 1884. (No model.)



Claim.—1. A machine for shaving printers' leads, slugs, and furniture, having a recess, *m*, to receive and confine the articles to be shaved, and having knives operating to shave the said articles when passed between them, in combination with clamping mechanism for moving the said articles forward within the recess *m*, and mechanism for reciprocating the said clamping mechanism, all substantially as described.

2. A machine for shaving printers' leads, slugs, and furniture, having a recess, *m*, to receive and confine the said articles to be shaved, and having knives arranged toward one end of the said recess to shave the said articles when passed between them, clamping mechanism operating to carry the said articles in the said recess *m* toward the said knives, and reciprocating mechanism operating to move the said clamping mechanism back toward the inlet of the recess *m* after the said clamping mechanism shall have carried one of the said articles in a position before the knives, and to cause the said clamping mechanism to draw another article within the recess *m*, by means of the impingement of which against the first-named article the latter shall be forced between the knives, substantially as described, and for the purpose set forth.

3. A machine for shaving printers' leads, &c., comprising, in combination, the following elements, viz: a bed, B, provided with a longitudinal recess, *t*, on its upper side, a clamping-block, C, provided on its under side with a tongue, *t'*, fitting within the recess *t*, and upon its upper side with a tongue, t^2, a block, D, secured toward each end upon the bed B, and hollowed out on its under side to produce the recess *s*, to receive the clamping-block C, and provided with a longitudinal slot, t^3, to receive the tongue t^2 of the clamping-block C, a block, E, above the block D and adjustably connected with the same, and provided on its lower side with a recess, *m*, and with a longitudinal slot, p^3, a clamping-block, F, upon the part E, and provided on its lower side with an adjustable tongue, p^3, within the slot p^3, adjustable knives K, K', K^2, and K^3, having their cutting-edges arranged with relation to each other and to the recess *m*, as described, to shave the said printers' articles when passed between them, and mechanism operating to reciprocate the said clamping-blocks C and F, to carry the said articles along the recess *m* and pass them between the knives, as and for the purpose set forth.

4. In a machine for shaving printers' leads, &c., the combination, with the clamping-blocks C and F, of mechanism to reciprocate the said blocks and cause them to clamp the object to be shaved in its forward motion within the recess *m*, said mechanism comprising the following elements, viz: a wheel, G, provided with means for revolving it, a plate, *j*, secured to the clamping-block C and connected with the wheel G, a cam, G', formed upon one face of the wheel G, pivoted links *l*, connecting the clamping-blocks C and F, and mechanism connecting the cam G' and the plate *j*, whereby the clamping-block C is caused to move forward in advance of the clamping-block F, and whereby the said clamping-blocks C and F are returned with the links *l* in a vertical position, the whole being constructed and arranged to operate substantially as and for the purpose set forth.

5. The combination, with a machine for shaving printers' leads, &c., provided with a recess, *m*, to receive and confine the articles to be shaved, and having knives operating to shave the said articles when passed between them, and clamping mechanism for moving the said articles forward within the recess *m*, and mechanism for reciprocating the said clamping mechanism, of means for feeding the said articles automatically to the said machine, all substantially as described.

6. In a machine for shaving printers' leads, &c., the combination, with the tongue *t'* of the clamping-block C, of a rod or bar, Q, reciprocating with the said tongue *t'*, having a finger, *a*, toward one end, and a box, P, supported upon the said machine and to contain the articles to be shaved, and provided with a longitudinal slot, *a'*, through which the finger *a* projects, substantially as described, and for the purpose set forth.

314,385. HOLDER FOR LIGHTNING-RODS. SPENCER R. LAWSHE, Greencastle, Ind., assignor to Theodore H. Pates, same place. Filed May 8, 1884. (No model.)



Claim.—1. A holder for lightning-rods or insulators, composed of a body, A, and two pivoted arms provided on their inner ends with interlocking cogs, whereby the motion of one arm is communicated to the other, substantially as described.

2. A holder for lightning-rods, &c., composed of a body portion, A, having two pivoted fingers secured thereto and adapted to inclose the said lightning-rod, substantially as described.

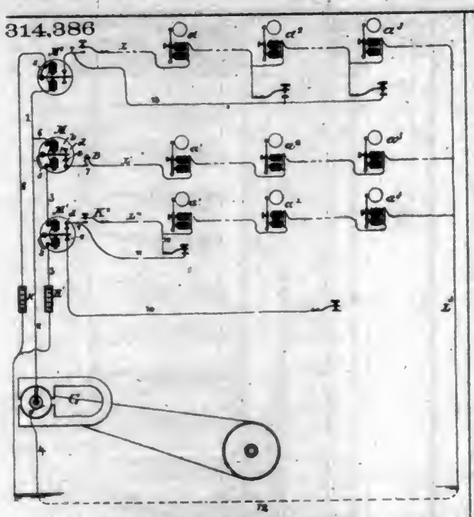
3. A lightning-rod holder composed of the body A, provided with two metal inclosing-fingers, one or both of which fingers are movable, the outer ends of the said fingers being notched and adapted to interlock, substantially as described.

314,386. ELECTRIC SIGNALING CIRCUIT. THOMAS D. LOCKWOOD, Malden, Mass. Filed Sept. 8, 1884. (No model.)

Claim.—1. In an electrical signaling system, a magneto-generator adapted to produce successively reversed currents, a normally-closed main circuit therefor, a normally-open derived circuit containing a circuit-closer and electric bells, and a polarized relay having its electro-magnet included in the main circuit and its armature attached to said main circuit, and provided with a contact limit-stop for said armature, the said stop being connected through the circuit-closer with the derived circuit, whereby the said derived circuit may be connected with the main at each stroke of the relay-armature in a given direction, for the purposes set forth.

2. In combination with a magneto-generator, one or more normally-open bell-circuits, keys or circuit-closers for connecting any of the said bell-circuits with the generator, and analyzing devices, as indicated, adapted to select the intermittent electrical pulsations of either direction and to direct them upon the said bell-circuits when the keys of the said bell-circuits are closed, substantially as described.

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3. In a system of electric signaling, the combination of an alternating current-generator, one or more normally-closed main circuits therefor, one or more polarized relays in each main circuit, a normally-open signaling-circuit, including a series of electric bells, a key or circuit-closer for each signaling-circuit, adapted when operated to connect the said circuit with one of the armature-contacts of one of the said polarized relays, whereby successive pulsations of like direction may be transmitted over the signaling-circuit to ring the bells connected thereon, in the manner described.

4. The combination, substantially as hereinbefore described, of an alternating current-generator, one or more normally-closed circuits therefor, one or more polarized relays included in each of the said branch circuits, each of the said relays having its armature connected with the main circuit at a point external to the relay-magnet, a series of normally-open signaling-circuits, including neutral electric bells, each circuit being adapted to be connected by means of a suitable circuit-closer with one of the armature-contacts of one of the relays, so as to constitute a derived circuit from the generator, whereby the successive pulsations of the same direction may be directed over the said derived circuit, substantially as and for the purposes described.

5. The combination, substantially as hereinbefore described, of an alternating current-generator, one or more main normally-closed circuits therefor, one or more polarized relays included in each of the said branch circuits, each of said relays having its armature connected with the main circuit at a point external to the relay-magnet, a series of normally-open signaling-circuits including neutral electric bells, each circuit being adapted to be connected by means of a suitable closer with one of the armature-contacts of one of the relays, so as to constitute a derived circuit from the generator, whereby the successive pulsations of the same direction may be directed over the said derived circuit, substantially as and for the purposes described.

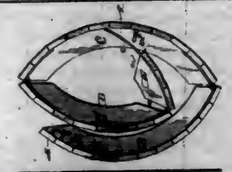
6. A magneto-generator adapted to produce electric currents of successively alternating direction, one or more closed main circuits therefor, each including one or more polarized relays and a high resistance, the armatures of the said polarized relays being united with the main circuit at a point external to the relay-magnet, one or more normally-open bell-circuits for each polarized relay, each bell-circuit including a series of electric bells and having a total resistance not greater than the resistance of the main circuit, together with a key or circuit-closer for each bell-circuit, whereby the said bell-line may be united with a contact-point of one of the relays, in the manner and for the purposes specified.

7. The combination, with a normally-open bell-circuit, of a polarized relay acting as an analyzer of the successively-reversed currents of an ordinary magneto-machine, and one or more circuit-closers adapted to connect the said bell-circuit with the local contact-point of the said relay at any desired point of the said circuit, whereby one or more of the bells may be rung to the exclusion of the others, as described.

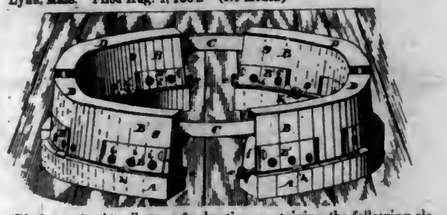
314,387. DEVICE FOR FORMING THE INTERIOR OF WELLS. D. J. LORD, South Farmington, Wis. Filed Aug. 9, 1884. (No model.)

Claim.—In combination with a series of different sized segmental braces tapered at their inner ends, a series of longitudinal staves attached to the braces, and hinges and securing means for attaching the different sections to each other, so that they can be folded, causing the adjacent edges to contact and thereby brace the several series in their relative positions when the structure is collapsed, substantially as shown.

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314,388. DEVICE FOR HEATING TIRES. SYLVESTER MANSFIELD, Lynn, Mass. Filed Aug. 1, 1884. (No model.)

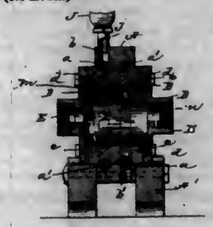


Claim.—1. An oil-stove for heating, containing the following elements, viz: an oil-chamber, one or more wick-tubes, bearing-plates to receive and support a section of the tire, and a hood or cover to inclose and cover a section of the tire, substantially as described.

2. A series of portable oil-stoves or heaters arranged in a circle, and each provided with a removable hood adapted to inclose a section of the tire and support it above the flame, substantially as described.

3. An oil-stove for heating tires, made in the form of an arc of a circle and provided with one or more wick-tubes, in combination with a hood having its ends of suitable height to serve as supports for the tire and its curved sides extending above the top of said ends a distance equal to the width of the tire to be heated, and a covering-plate arranged to rest upon said curved sides and inclose a section of a tire, substantially as described.

314,389. ROTARY ENGINE. JAS. L. MITCHELL, Keuton, Ohio. Filed July 3, 1884. (No model.)



Claim.—1. In a rotary steam-engine, an inner and an outer casing provided with circumferential passage-ways formed within the same, induction and eduction openings located on opposite sides of the cylinder and provided with openings for the admission of steam on opposite sides of a rotary disk, and openings connected with the eduction-passage similarly located, so that steam will be admitted against the pistons at each quarter-turn of the disk, substantially as shown, and for the purpose set forth.

2. In a rotary engine or motor, an inner and outer cylinder provided with circumferential passage-ways formed within said cylinders and adjacent to the opposite sides thereof, said cylinders being shrunk upon each other so that the sections of the passage-way will coincide, substantially as set forth.

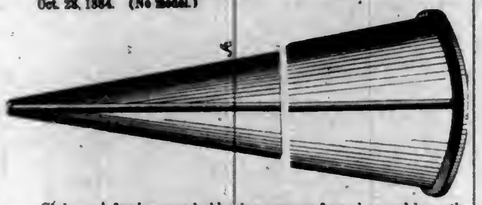
3. In a rotary engine or motor, the inner and outer cylinders, A B, having circumferential openings or passages *a a'* located between the cylinders and formed therein on opposite sides thereof, and provided with passage-ways *n n*, located opposite each other and connecting the openings *a a'* with the opening for the reception of the rotating parts of the engine, substantially as shown and set forth.

4. In a rotary engine, the cylinders A B, provided with circumferential openings *a a'* on opposite sides thereof, each of said openings being provided with two ports located diametrically opposite each other, and an opening in the inner cylinder with steam-spaces, as shown, in which the live steam enters and exerts a pressure upon the piston on each side of the rotary disk, substantially as shown, and for the purpose set forth.

5. In a steam-engine, the outer casings, A B, provided centrally with a passage-way, *c*, adapted to convey lubricants to the rotary disk said rotary disk being provided with openings and grooves adjacent to the movable pistons, whereby said pistons may be lubricated and a passage-way provided between the grooves in which the pistons slide and the inner cylinder, substantially as shown.

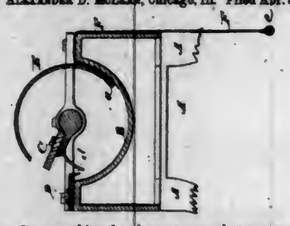
6. In a rotary engine, the casings A B, having adjacent to their edges circumferential passage-ways, openings through the outer casing connecting therewith, and openings *m n* upon different horizontal planes connecting the circumferential passage-ways with the opening F, a rotary disk with sliding pistons, and means for lubricating the surfaces of the disk and pistons from the exterior of the casing, the parts being combined and organized substantially as shown.

314,390. ANVIL. DENNIS E. MACCARTHY, Maplewood, assignor to the Wiley & Russell Manufacturing Company, Greenfield, Mass. Filed Oct. 28, 1884. (No model.)



Claim.—A forging-mandrel having a groove formed on and beneath its exterior surface, as and for the purpose described.

314,391. MACHINE FOR SHAVING CURVED STEREOTYPE-PLATES. ALEXANDER D. MCLEAN, Chicago, Ill. Filed Apr. 8, 1884. (No model.)



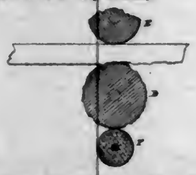
Claim.—1. In a machine for shaving curved stereotype-plates, the type-protecting feeder F, interposed between the concave bed and the type-face of the inserted plate, substantially as described.

2. The combination of the head *a*, having the grooves *b* and concaved bed B, with the feeding and type-protecting sheet F and guides or holders *d*, substantially as described.

3. The clamping bar or head *a*, having the groove *b*, in combination with the feeding type-protector F, for preserving the form of the type-faces, substantially as specified.

4. The combination of the head *a*, feeding-protector F, and rod *c*, substantially as described.

314,392. ORNAMENTING WOOD. DAVID MCMULLAN, New York, N. Y. Filed June 14, 1884. (Specimens.)



Claim.—The method herein specified of ornamenting the surface of wood, consisting in pressing into the said wood a die having a corrugated surface, with ink upon the raised portions of the corrugations, and ornaments recessed into said surface, whereby ornaments are produced upon the surface of the wood in relief and of the natural color of the wood, while the background around such ornaments is corrugated and darkened by the ink, so as to render the design prominent, substantially as specified.

314,393. WINDOW-SHUTTER. FRANK D. PARADISE, Memphis, Tenn. Filed Dec. 31, 1884. (No model.)

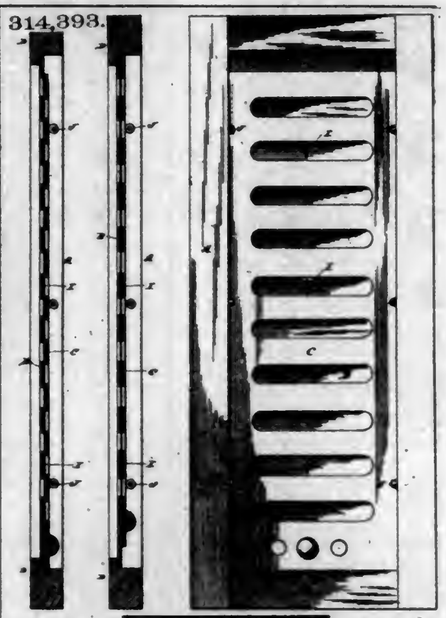
Brief.—Perforated stationary panels, having ribs secured on their inner sides, and movable panels are held in place by a flange on the shutter-frame on one side and by conical rollers on the other.

Claim.—1. In a shutter, the combination of the two panels, the shutter-frame provided with a flange, and the friction-rollers, substantially as shown.

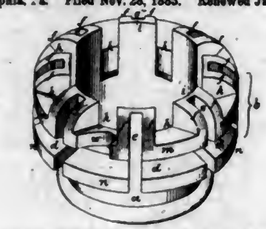
2. In a shutter, the combination of the stationary panel, the movable one, the shutter-frame, and the conical friction-rollers, substantially as described.

3. In a shutter, the combination of the two panels with the ribs secured to one of them, substantially as set forth.

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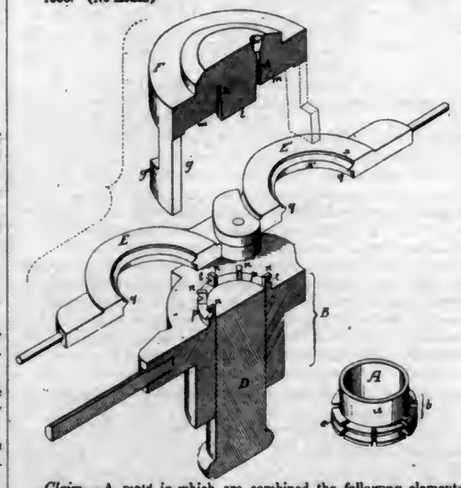


314,394. UMBRELLA NOTCH AND RUNNER. JOHN G. POWELL, Philadelphia, Pa. Filed Nov. 28, 1883. Renewed Jan. 19, 1885. (No model.)



Claim.—A cast-metal notch in which each radial slot in the upper portion is bounded laterally by cheek-pieces *f f'*, and in which there are as many cavities *h* as there are radial slots, substantially as set forth.

314,395. MOLD FOR UMBRELLA NOTCHES AND RUNNERS. JOHN G. POWELL, Philadelphia, Pa. Filed Nov. 30, 1883. Renewed Jan. 19, 1885. (No model.)



Claim.—A mold in which are combined the following elements, namely: first, the body B; second, the cylindrical plunger D, adapted to and arranged to slide in the said body; third, the radial projections *n*;

fourth, the cylindrical projection or core *i*; fifth, the movable segments E E', each provided with an internal rib, *q*; and, sixth, a cap, F, all substantially as set forth.

314,396. NECKTIE-FASTENER. FRANK S. R. PERRINS, Denver, Colo., assignor to George H. Braman and Merritt W. Gano, same place. Filed Dec. 10, 1884. (No model.)



Claim.—1. The combination, in a necktie-fastener, of a strip of metal bent in the form of a coil and a retaining-hook, *a*, extending radially from the edge toward the center of the coil, for the purpose specified.

2. A retainer for neckties, consisting of a strip of metal bent into a coil terminating at one end in a hook extending radially from the edge toward the center of the coil and bent back into the latter, whereby the collar is bent by the hook and securely held when placed between the coils, substantially as set forth.

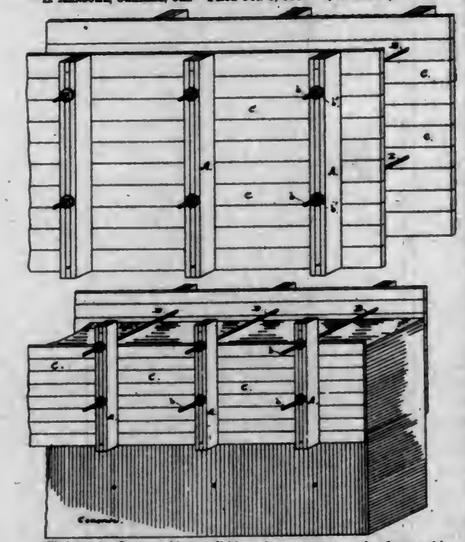
314,397. LAMP-CHIMNEY HOLDER. JOHN QUIMBY, Jr., Dorchester, N. H. Filed May 15, 1884. (No model.)



Claim.—1. The improved lamp-chimney holder herein described, consisting of an annular spring-band and devices connected to the band and adapted for engagement with the burner to distend said band, substantially as set forth.

2. The improved lamp-chimney holder herein described, consisting of an annular band of spiral wire and rods *b c*, connected to the said band, having hooks for engagement with the burner to distend said band, substantially as set forth.

314,398. MOLD OR CRIBBING FOR CONCRETE STRUCTURES. E. L. RANSOME, Oakland, Cal. Filed Oct. 1, 1884. (No model.)

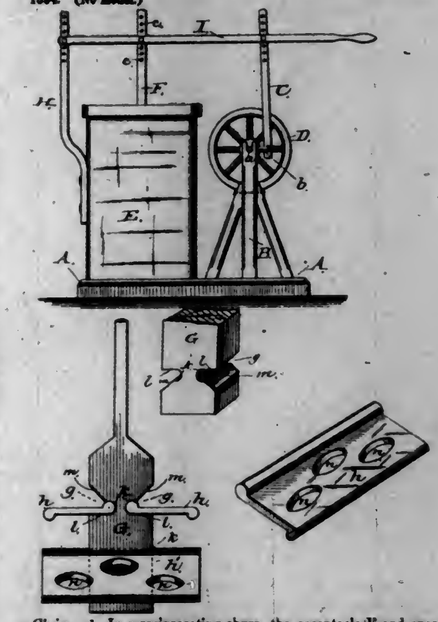


Claim.—1. In a mold or cribbing for concrete work, the combination, with the boards or panels C C and rods B, embedded in the concrete of the standards A, arranged in pairs or sets, and free to move upon said panels and tie-rods without disturbing said panels or removing said rods, as set forth.

2. In a mold or cribbing for concrete work, the combination, of the tie rods or bolts, as B, embedded in the concrete, and standards adapted to slide on said rods without removing them from the concrete and without removing the standards from the rods, as set forth.

3. A mold or cribbing consisting of the boards or panels C, and tie-rods B, passing through said panels and through the body of concrete, and the slotted standards A, detached from the panels C and free to move thereon and on the tie-rods, while both the panels and the tie-rods remain undisturbed against and in the concrete, as set forth.

314,399. CHURN. WILLIAM STAR, Rimersburg, Pa. Filed June 11, 1884. (No model.)



Claim.—1. In a reciprocating churn, the receptacle E and operating-lever I, in combination with a dasher provided with a stem, and a head-block grooved on all sides to receive a series of swinging blades engaging the grooves in such manner that each series of blades is alternately raised and lowered, substantially as herein set forth.

2. In a churn, the combination, with a receptacle, E, of a stem, F, a head-block, G, having openings on all sides and provided with semicircular slots *k*, and two or more swinging blades with enlargements adapted to engage the slots, substantially as herein described.

3. In a churn, the combination, with swinging blades provided with enlargements, as shown, of a head-block, G, having openings on all sides, said openings consisting of semicircular slots *k*, adapted to engage and hold the blades, bearings *l*, against which the blades rest, and inclined surfaces *m*, substantially as described.

4. In a churn, the combination, with an adjustable stem, F, of a head-block having portions cut away on all sides and provided with semicircular slots *k*, of the blades A and A', adapted to be passed endwise into the slots, within which they are held, but allowed to have a swinging movement, as herein described.

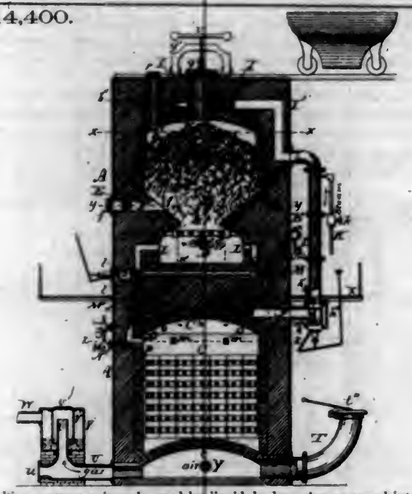
5. In a churn, the head-block G, slotted as shown, and the blades A, in combination with blades A', arranged at right angles to the blades A, and adapted to have a movement opposite to that of said blades A, substantially as described.

6. A churn comprising a frame, A, a shaft, *a*, connecting-rod C, an adjustable lever, I, stem F, arm H, receptacle E, and head-block G, cut away on all sides and formed with semicular slots adapted to engage and hold swinging blades, the said rod C, stem F, and arm H being provided with a series of perforations, all constructed and arranged to operate as herein set forth.

314,400. APPARATUS FOR THE MANUFACTURE OF GAS. THEODORE G. SPRINGER and GEORGE W. JEREMY, New York, N. Y.; said Jeremy assignor to said Springer. Filed Aug. 11, 1884. (No model.)

Brief.—The lower portion of a deep body of fuel is raised to incandescence and the upper portion thereof is highly heated by an air-blast at the bottom, and the resulting gaseous products are burned in a fixing-chamber below the fuel-chamber. After heating up, steam is superheated by passage down through the cooler portion of fuel, and then decomposed by passage down through the incandescent portion. The

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resulting water-gas is carbureted by liquid hydrocarbon sprayed into it in the heated fixing-chamber, the gas being drawn into the spraying-injector and forced with the hydrocarbon spray into the fixing-chamber, and thus circulated till an intimate mixture is effected, after which such mixture is converted into a fixed gas by passage down through the heated fixing-chamber.

Claim.—1. The combination of the steam superheating and decomposing chamber, a steam-supply pipe connecting with the top thereof, the fixing-chamber, and a pipe or pipes and flues connecting the two, and provided with a shutting-off valve, for the purpose described.

2. The combination of the steam superheating and decomposing chamber, the superheating or fixing chamber, a pipe or flue connecting the two, provided with a controlling-valve, and a steam-pipe connecting with such pipe or flue for supplying steam to the top of the decomposing-chamber, as and for the purpose described.

3. The combination of the steam-decomposing chamber, the superheating or fixing chamber, a pipe or flue connecting the top of such decomposing-chamber with the fixing-chamber, and provided with a controlling-valve and a steam-pipe connecting with such pipe or flue between the valve and the top of the decomposing-chamber, for the purpose described.

4. The combination of the steam-decomposing chamber, the superheating or fixing chamber, a pipe or flue connecting the top of such decomposing-chamber with the fixing-chamber, and provided with a controlling-valve and connecting steam-supply pipe, arranged as described, and a flue or flues connecting the base of the decomposing-chamber with the fixing-chamber, as and for the purpose described.

5. The combination of the fuel and decomposing chamber, a steam-supply pipe connecting with the top thereof, the superheating or fixing chamber, a flue or flues provided with a controlling-valve connecting the base of the decomposing-chamber with the top of the fixing-chamber, for the purpose described.

6. In combination with the superheating or fixing chamber, an inlet gas pipe or flue, an oil-injector opening into a port, and a circulating-gas flue, also opening into such port or injector passage and the body of refractory material, as and for the purpose described.

7. In combination with the fuel and steam decomposing chamber having an ash-pit and a blast-pipe connected therewith, the annular flue in the wall a short distance above the grate, a blast-pipe connecting therewith, and the converging passages intersecting the annular flue and opening into the fuel-chamber, and having stoppers in their outer ends, as and for the purpose described.

8. In apparatus for the manufacture of gas, the combination, with a fuel and steam decomposing chamber having a steam-supply pipe connecting with its top, of a superheating or fixing chamber and flues or passages connecting opposite parts of the fuel and decomposing chamber with said fixing-chamber, substantially as described.

9. In apparatus for manufacturing gas, the combination, with a fuel and decomposing chamber, of a fixing-chamber located directly beneath the decomposing-chamber and flues or passages connecting opposite parts of the decomposing-chamber with the fixing-chamber, substantially as described.

10. In apparatus for the manufacture of gas, the combination, with the fuel and generating chamber, of a fixing-chamber located directly beneath the same, a passage for gases leading from the lower part of the generating-chamber to the fixing-chamber, and a flue or passage leading from the upper part of the generator to the fixing-chamber, for the purpose described.

11. In combination with a gas-generator and a connecting gas-outlet pipe and valve and seat in such pipe, inlet and outlet water-pipes connecting with such pipe above the valve, for the purpose of cooling the valve and maintaining a tight joint when the valve is closed.

12. In combination with a gas-conducting pipe of a generator, a valve-box connected therewith and having a water-chamber, a valve having a stem passing through the wall of the box, and inlet and outlet water-pipes connecting with the gas-pipe above the valve-seat, as and for the purpose described.

13. In combination with the gas-conducting pipe, the connected valve-box, valve, and operating-stem, water-supply pipe *h'*, discharge-pipe *h''*, connected as described, and overflow-pipe *h'''*, as and for the purpose described.

14. In combination with the fuel-chamber and ash-pit, the grate journaled at one end, and adapted to be let down at the opposite end, as described, the annular flue above the grate, a blast-pipe connecting therewith, and the converging passages intersecting such flue and opening into the fuel-chamber, and having removable stoppers or caps closing their outer ends, whereby false grate-bars may be inserted for supporting the fuel when the lower grate is dumped to be cleaned.

15. The fuel and steam decomposing chamber having an outlet-passage, and a steam-supply pipe connecting at its top, in combination with the superheating or fixing chamber placed below, and having a gas-outlet pipe and a air-inlet pipe connecting with its base, and a flue connecting the adjacent ends of the two chambers, for the purpose described.

16. A gas-generating apparatus having the fuel-chamber at the top and the superheating or fixing chamber at the bottom, in combination with air-inlet pipe *a*, connecting with the ash-pit, flues L M, connecting the ash-pit with the top of the fixing-chamber, and a gas flue or pipe connecting the top of the fuel-chamber with the top of the fixing-chamber.

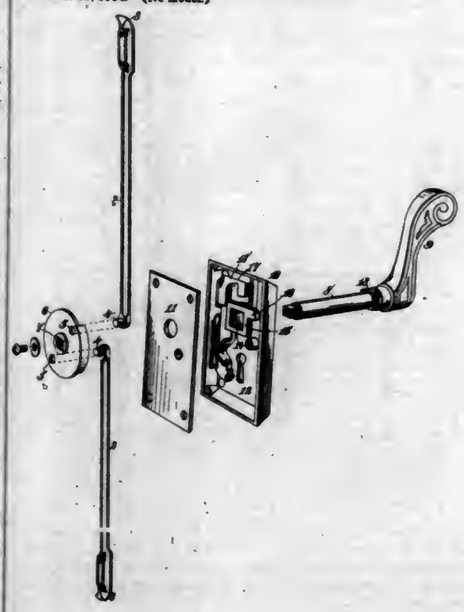
17. The combination of the steam-decomposing chamber, the fixing-chamber, the connecting gas-flue, and the oil-vaporizing pipe or coil located in such flue for vaporizing the oil.

18. In combination with a gas-generating furnace and a gas-conducting flue in the wall thereof, an oil-vaporizing coil or pipe located in such flue, as described, whereby oil is vaporized by hot gas passed through the flue, for the purpose described.

19. The combination of the steam superheating and decomposing chamber and the fixing-chamber, arranged one above the other, and connected, as described, by two separate pipes or flues, each having a controlling-valve or shutting-off device.

20. A steam superheating and decomposing chamber having a steam and air pipe, a fixing-chamber having an air pipe or flue, and a gas-outlet pipe, the steam superheating and decomposing chamber and the fixing-chamber being connected by two separate pipes or flues, each having a controlling valve or damper for opening and closing them.

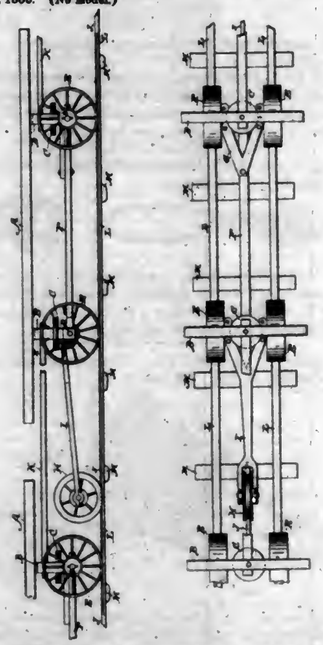
314,401. LOCKING MECHANISM FOR DOORS. DANIEL W. TOWER, Grand Rapids, Mich., assignor to Charles H Leonard, same place. Filed Nov. 15, 1884. (No model.)



Claim.—1. The combination of the two sliding bars, the disk to which they are connected at their inner ends, the lock-case, the cylindrical spindle passing through the lock-case and having an angular hub portion located within the lock-case, the tumbler arranged on the angular hub portion to turn therewith and provided with a tooth, and a longitudinally-sliding bolt in the lock-case having a socket to receive and engage the tooth of the tumbler on the spindle and prevent the latter from turning, substantially as described.

2. The combination of the two sliding bars, the disk, the lock-case, the spindle passing through the lock-case and secured to the disk, a tumbler arranged on the spindle within the lock-case and turning with the spindle, and a longitudinally-sliding bolt within the lock-case actuated by a key for moving the lock into engagement with the tumbler on the spindle to lock the latter against rotation, substantially as described.

314,402. CAR-TRUCK. JEFFERSON D. TRAMMELL, Auburn, Ala. Filed Jan. 17, 1885. (No model.)



Claim.—1. The combination, in a railway system, of cars mounted upon trucks, both fore and aft, by means of fifth-wheels, side wheels to each truck free to revolve independently of each other, a tongue extending forward of the forward truck, a two-flanged wheel journaled in the forward end of the tongue, a reach connecting the rear truck with the king-bolt of the forward truck, two wide flat-topped side rails and a narrow central rail secured upon the road, all substantially as described, for the purpose specified.

2. The combination of cars mounted on trucks by means of fifth-wheels, the trucks having broad-rimmed flat-faced supporting-wheels, a tongue extending forward of the car, a two-flanged guide-wheel journaled in the tongue, a single track of a width to enter between the flanges of the guide-wheel, and cross-timbers shorter than the space between the side truck-wheels lying in the ground and supporting the track, substantially as shown and described.

314,403. CAR-COUPLING. FRANK VAUGHAN, Elizabeth City, N. C. Filed Sept. 26, 1884. (No model.)

Claim.—1. A car-coupling consisting of a frame, X, arranged to slide transversely to the car, and bearing a coupling-link at one end and a draw-head at the other, substantially as and for the purpose described.

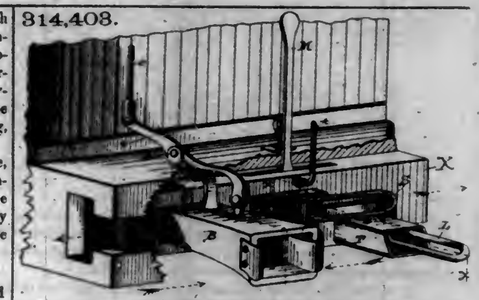
2. The combination of the spring S, casing T, link L, with ball-and-socket joint A, and springs *a a*, to hold the link horizontal, substantially as described.

3. The combination of the casing T and link L, connected thereto by ball-and-socket joint, as described.

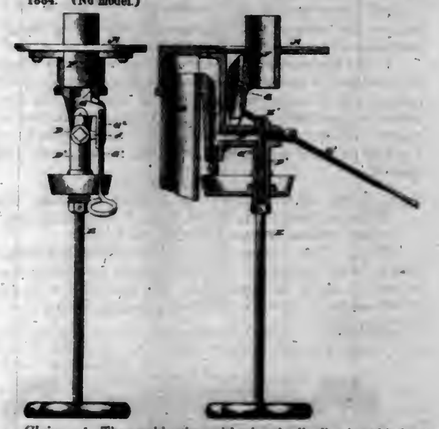
4. The combination of the draw-head B and the U-shaped springs *f*, as and for the purpose described.

5. The combination of the slotted draw-head B, the lever *e*, jointed pin P, and lug *l*, as and for the purpose described.

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314,404. VAPOR-BURNER. J. BENNETT WALLACE, Chicago, Ill., assignor to Myers Manufacturing Company, same place. Filed May 8, 1884. (No model.)



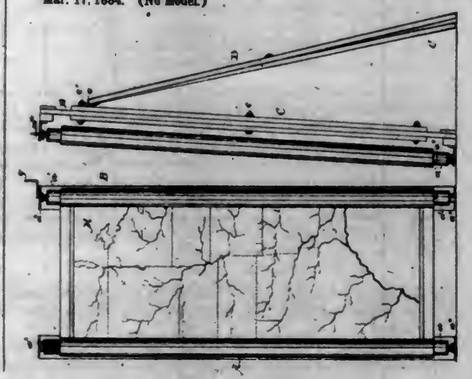
Claim.—1. The combination, with a longitudinally-slotted induction-tube, adjacent parts to be heated, and a valve for the ejection of vapor, of a deflector movably mounted in the slot of the induction-tube, substantially as described.

2. The combination, with a longitudinally-slotted induction-tube, a valve for the emission of vapor, and vapor-generating parts, of a movable deflector fitted to the slot of the induction-tube, and having its inner surface shaped to conform to the stationary wall of the said tube, substantially as described.

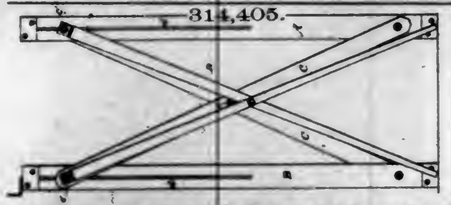
3. The combination, with a longitudinally-slotted induction-tube, a valve for ejection of vapor, and vapor-generating parts, of a deflector fitted to the slot of the induction-tube, and pivoted at its end adjacent to the burner, and a lever attached to the deflector, substantially as described.

4. The combination, with a longitudinally-slotted induction-tube of a vapor-generating burner, of a pivoted deflector fitted to the slot, and a stop constructed to arrest the deflector in position to form a part of the wall of the induction-tube, substantially as described.

314,405. MAP-EXHIBITOR. JOHN A. WHIPPLE, Boston, Mass. Filed Mar. 17, 1884. (No model.)



314,405.



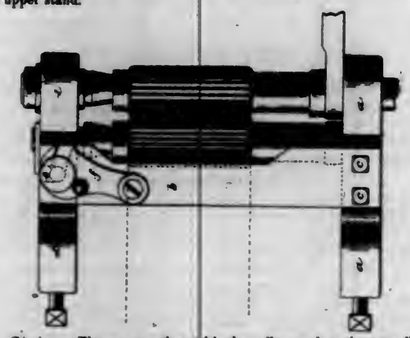
Claim.—1. An exhibitor, for the purposes set forth, consisting of two connected roll-carriers capable of lateral extension, provided with rollers journaled therein, and having a back prop adapted to support said roll-carriers in inclined position, substantially as specified.

2. An exhibitor, for the purposes set forth, consisting of two slotted roll-carriers connected together and capable of lateral extension by means of extension-bars pivoted to each other and to the roll-carriers, provided with rollers journaled therein, and having a back prop adapted to support said roll-carriers in inclined position, the upper ends of the extension-bars and back prop bolted together, said bolts passing through the slots of the roll-carriers, substantially as specified.

3. In a map-exhibitor, a pair of connected roll-carriers adapted to be moved from or toward each other and to be supported in an inclined position, said roll-carriers having brackets at their ends, and provided with rollers journaled in said brackets, the upper end of one roller having a handle, and the other roller provided with a catch adapted to engage a squared portion of the journal of said roller, as and for the purposes specified.

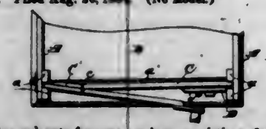
314,406. ROLLER-STAND FOR COMBING-MACHINES. JOHN H. WHITEHEAD, Leeds, County of York, England. Filed Nov. 24, 1884. (No model.) Patented in England June 30, 1883, No. 3,343.

Brief.—The roller-stands are held in position by a vertical bar screwed to the lower stand, and provided at its top with an open slot to receive a stud on the upper stand. This stud is held in the slot by a catch secured to the vertical bar, thus permitting the easy removal of the upper stand.



Claim.—The combination, with the rollers and stationary roller-stand *a*, of the fixed upright bar *b*, the catch *f*, stud *e*, and top stand, *d*, substantially as set forth.

314,407. END-GATE FOR WAGONS. GURDON H. WILLIAMS, Greensburg, Ohio. Filed Aug. 26, 1884. (No model.)

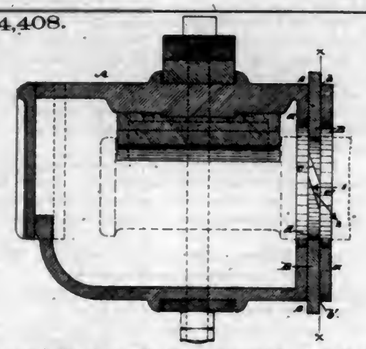


Claim.—An end-gate for a wagon-box, consisting of the parts C and C', of unequal length and hinged together, and of such width as to slide under the rod a^2, and the outside pieces, D and D', joined, respectively, to the inner parts, and so arranged as to break joints, in the manner shown, and the plate E, secured to the part D and overlapping the joint, and provided with the slots *e*, arranged to admit the staples or eyebolts *e'*, and the part F, bent in the manner shown, and provided with the slots *f* and the rounded ends or pins *f'*, and so arranged and secured to the plate E that the part F may be depressed and the pins *f'* caused to engage the part *s'* and lock the end-gate, substantially as set forth.

314,408. CAR-AXLE BOX. SAMUEL WELLS, Camden, N. J., assignor of one-half to Richard Clark, same place. Filed June 25, 1884. (No model.)

Claim.—1. A car-axle box having a dust-guard which is formed of sections which are forcibly driven into the dust-chamber and thus held

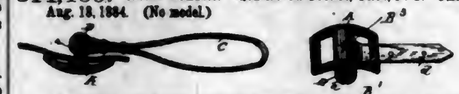
314,408.



by the compression of the walls thereof, substantially as and for the purpose set forth.

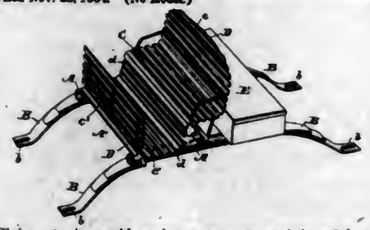
2. A car-axle box having a dust-guard formed of sections which are cut away on the sides of their inner ends and driven into the dust-chamber and held therein by compression of the walls of said chamber, substantially as and for the purpose set forth.

314,409. REIN-HOLDER. QUIRTEN M. YOUNGS, Utica, N. Y. Filed Aug. 18, 1884. (No model.)



Claim.—A rein-holder consisting of the curved frame A, having arms *a* and bar *b* integral therewith, recessed roll B, having tongue B^2, recess B', and lips B^3, and plate *d*, having riveted thereto the rein-loop C, substantially as shown and described.

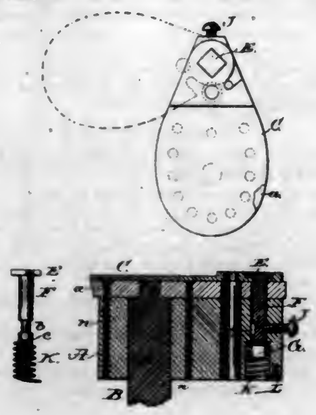
314,410. WAGON-SEAT. CASPER ZIMMERMAN, Owatonna, Minn. Filed Nov. 22, 1884. (No model.)



Claim.—1. A portable spring wagon-seat consisting of the seat and its foot-stand, parallel tubes rigidly secured thereto, and independent short end springs rigidly secured to said tubes, substantially as described.

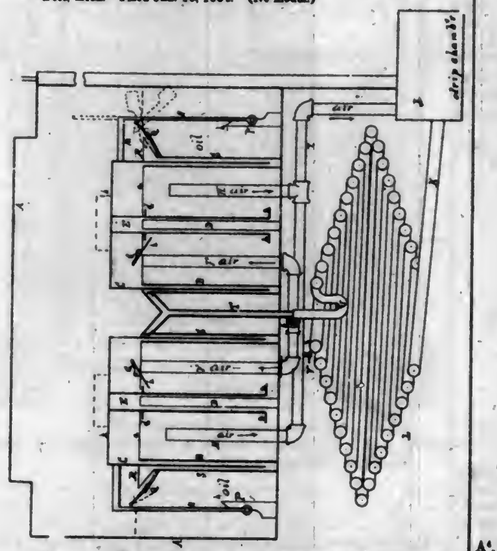
2. The within-described portable wagon-seat, consisting of the parallel tubes, the cross-braces A' A' E, the latter being a box, the four end springs secured to the ends of said tubes, and a seat and foot-stand secured directly upon the tubes A A, substantially as described.

314,411. HEELING-BLOCK. EDWARD B. ALLEN, Portland, Me., assignor to James W. Brooks, trustee, Cambridge, Mass. Filed May 3, 1884. (No model.)



Claim.—A horizontally-swinging top-lift plate pivoted to the nail-block, combined with an actuating-spring to return said plate to its normal position above, and to cover the nail-block when a blind top-lift is to be attached to the heel, substantially as described.

314,412. HYDROCARBON-GAS MACHINE. HENRY ALLENDER, Detroit, Mich. Filed Jan. 16, 1884. (No model.)



Claim.—1. The combination, in a hydrocarbon-gas machine, of a hydrocarbon and air tank with a carbureting device, an annular seal-chamber, and means, substantially as described, for supplying oil to said seal-chamber, the parts being arranged substantially as specified, whereby the hydrocarbon for the carburetor is supplied from the seal-chamber, as set forth.

2. In a hydrocarbon-gas machine, a carbureting-coil made in the form of an ellipse, each convolution overlapping its fellow, instead of riding upon it, in combination with the trap U, depending from the apex of the coil, and connecting the same at one end with the gasoline-supply, and the air-supply pipe K, connected to the other end of the coil, substantially as and for the purposes set forth.

3. The air-cylinder B, provided with an annular seal-chamber, and the inverted cylinder C, in combination with a carbureting-coil, as I, and an overflow-pipe, as T, the latter constructed and arranged to convey the surplus hydrocarbon from the said seal-chamber to the carbureting-coil, substantially as specified.

4. In a hydrocarbon-gas machine, a telescoping gasometer air-tank made in two parts, with an annular seal-chamber between them, in combination with an air-supply pipe regulated by the movement of one of the parts of the tank, means, substantially as described, for supplying oil to said seal-chamber during each traverse of said moving part, and a carburetor supplied by the overflowing oil from the seal-chamber, as and for the purposes set forth.

5. In a hydrocarbon-gas machine, the combination of a telescoping gasometer air-tank, as B S C, with an air-inlet, F, a valve, G, controlling said inlet, and tappets *d c*, attached to the moving cylinder, and constructed and arranged to contact with said valve G, and open and close the air-inlet at each traverse of the moving cylinder, substantially as and for the purposes specified.

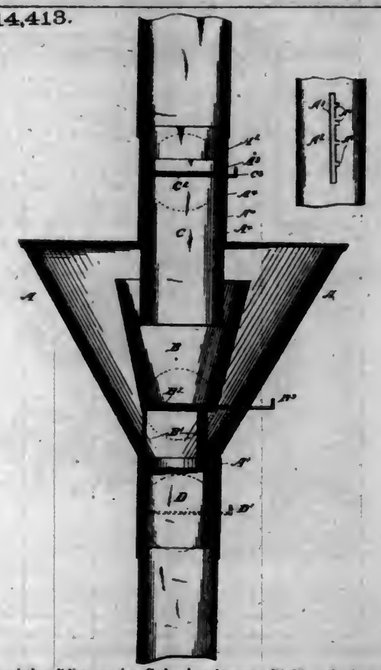
6. A hydrocarbon-gas machine consisting of the tank A, the gasometer consisting of the cylinders B C S, air-inlet pipe F, valve G, flanges *c d* on the guide-tube D, overflow-pipe T, air-outlet pipe H I, arm M, rod N, bracket P, deflector Q, carbureting-coil L, and drip-tank J, the parts being constructed, combined, and operating substantially as and for the purposes set forth.

314,413. STOVE-PIPE SHELF AND DRUM. JAMES ALLINGHAM Mitchell, Dak. Filed Sept. 25, 1884. (No model.)

Claim.—1. As a new article of manufacture, a stove-pipe shelf consisting of an inverted conical main or heating drum, A, a truncated inverted cone supported centrally within the main drum and provided with a damper at its lower end, and a slotted section projecting above the main drum, and a sliding section adjustably mounted to move therein and within the inner cone, substantially as specified.

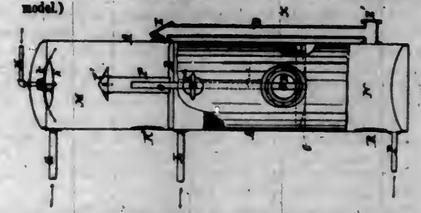
2. The combination of a main drum, A, central inverted truncated coné, B, having damper B^2, the section A^2, having slot A^3 and notches

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A^4, and the sliding section C, having dampers B^3 C^3, and adapted to be adjustably supported with its lower end within the cone B, substantially as shown and described.

314,414. WATER HEATER AND PURIFIER. GEORGE H. BABCOCK, Plainfield, N. J., and LEBBEUS PIER, South Bend, Ind., assignors to the Babcock & Wilcox Company, of New Jersey. Filed May 29, 1884. (No model.)



Claim.—1. In a feed-water heater and purifier, a spray-chamber and a settling-chamber connected by an external pipe having removable portions or bonnets, whereby the interior of said pipe is rendered accessible for cleaning, substantially as specified.

2. In a feed-water heater and purifier having a spray-chamber and a settling-chamber, a hooded equalizing-pipe connecting the same, substantially as specified.

3. In a feed-water heater and purifier having a spray-chamber and a settling-chamber, an external pipe accessible for cleaning and an equalizing-pipe connecting the said chambers, substantially as specified.

4. In a feed-water heater and purifier, the combination of a settling-chamber and a filter with a pass-over pipe around or through the filter, substantially as specified.

5. In a feed-water heater and purifier, a perforated elastic spray-box, substantially as specified.

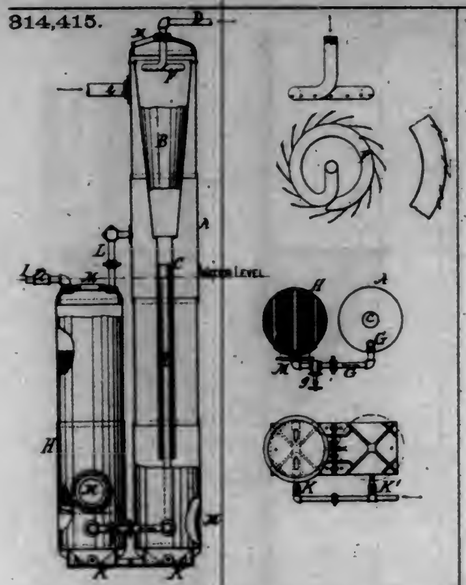
6. In a feed-water heater and purifier having a filter and settling-chamber, a siphon pass-over pipe, substantially as and for the purpose specified.

7. In a feed-water heater and purifier having a spray-chamber and a settling-chamber connected by an external pipe, a diagonal cap permitting access to two parts of said pipe through one opening, substantially as specified.

314,415. FEED-WATER HEATER. GEORGE H. BABCOCK, Plainfield, N. J., assignor to the Babcock & Wilcox Company. Filed May 29, 1884. (No model.)

Claim.—1. In a feed-water heater and purifier, the combination of a steam-chamber, an inverted cone therein, and a feed-pipe delivering water obliquely against the upper inside surface of said cone.

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2. In a feed-water heater and purifier, the combination of a steam-chamber, an inverted cone, and a pipe adapted to deliver water obliquely against the upper inside surface of said cone, with a settling-chamber wherein the impurities of the water may be deposited, substantially as described.

3. In a feed-water heater and purifier, the combination, with a steam-chamber, an inverted cone therein, and a pipe adapted to deliver water obliquely against the upper inside surface of said cone, and a settling-chamber wherein the grosser impurities of the heated water may be precipitated, of a filter for completing the purification, substantially as described.

4. In a feed-water heater and purifier having a chamber in which the water is brought into direct contact with steam, a settling-chamber wherein the grosser impurities may be precipitated, and a filter for completing the purification, a pipe connecting the steam-chamber directly with the delivery-pipe leading to the boiler or other receptacle, substantially as described.

5. In a feed-water heater and purifier having a steam-chamber and a depositing-chamber, a filter connected with the steam-chamber, and also connected with the depositing-chamber by a pipe provided with a stop-valve, said filter being also provided with a blow-off valve, substantially as and for the purposes set forth.

6. In a feed-water heater and purifier having a steam-chamber directly connected with a settling-chamber, and a filter directly connected with said steam-chamber, and connected with said settling-chamber by a connection which can be closed at will, the combination of blow-off valves in both said settling-chamber and said filter with a check-valve in the delivery-pipe leading from said filter, substantially as described.

7. In a feed-water heater and purifier, an independent safety-pipe leading without impediment from the steam-chamber to the final delivery-pipe, and adapted to act in case the usual course of the water through the purifier is clogged or cut off, substantially as described.

8. In a feed-water heater and purifier, a pipe adapted to perform the double office of a safety or overflow water pipe and to supply steam for blowing out and cleaning the filter, substantially as described.

314,416. STEAM-BOILER. GEORGE H. BABCOCK, Plainfield, N. J., assignor to the Babcock & Wilcox Company. Filed May 31, 1884. (No model.)

Claim.—1. In a sectional boiler, the overlapping headers communicating with each other, substantially as shown and described.

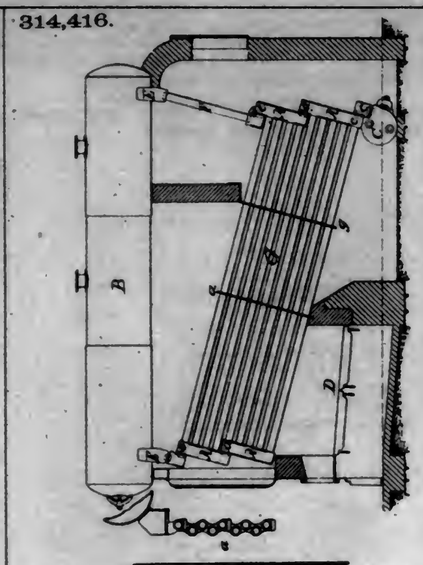
2. In a sectional boiler, the combination of overlapping headers with a steam and water reservoir, substantially as described.

3. In a sectional steam-generator, the combination of overlapping headers with a mud-drum communicating with the same, substantially as shown and described.

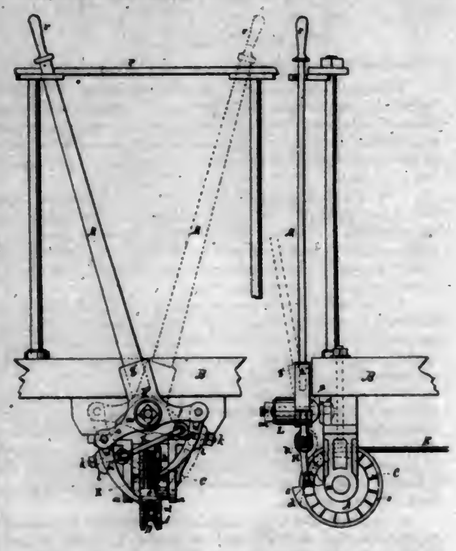




314,416.



314,417. CAR-BRAKE. JACKSON R. BAKER, Jersey City, N. J. Filed July 1, 1884. (No model.)



Claim.—1. In a car-brake, the combination of the following elements: a journaled wheel with ratchets on each side of the same, a groove in the periphery of said wheel, and a rope or chain fixed to said periphery, two pawls to engage with the ratchets on the journaled wheel and pivoted to a pivoted cross-head, and an operating-lever, as and for the purpose described.

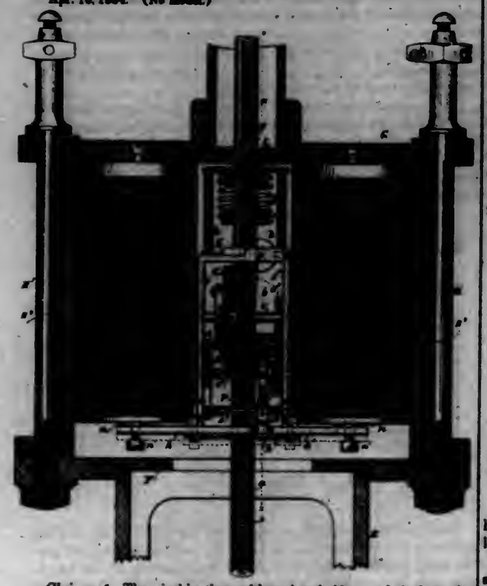
2. In combination, a car-brake, a pivoted cross-head provided with a rubber cushion, I, and nut *n*, pawls G and H, link-bars K, and an operating-lever, M, as and for the purpose described.

3. In combination, a car-brake with a pivoted cross-head, F, pawls G and H, a link-bar, K, eyebolts *k*, and rubber washers *l*, as and for the purpose described.

4. In combination, a car-brake with a pivoted cross-head, F, a curved projection, *n*, fixed to its rear face, and a metal bearing-plate, *o*, fixed to the platform of the car or its frame-work, as and for the purpose described.

5. In combination, a car-brake, a journaled wheel with ratchets on its two sides, a groove in its periphery, and a device fixed on its periphery, to which is secured one end of a brake chain or rope, as and for the purpose described.

314,418. ELECTRIC-ARC LAMP. CLINTON H. BALL, Troy, N. Y. Filed Apr. 10, 1884. (No model.)



Claim.—1. The combination, with carbon-holders and feed mechanism, of an electro-magnet having two separate helices wound upon the core or cores in the same direction, one being in the main circuit through the carbons, the other in a shunt, the feed mechanism being controlled by the magnetism, substantially as set forth.

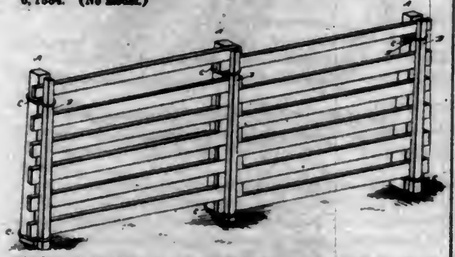
2. The armature-plates *h h'* and the frames *f f' g*, and gearing connected with the same, in combination with the helices K R, cores *n*, and studs *n'*, and the secondary armature and brake-wheel, substantially as set forth.

3. The frames *f f' g*, gearing, and carbon-holder, in combination with the spring P, the collars *l l'*, and the adjusting-screws *m*, for partially counterbalancing the weight of the parts, substantially as set forth.

4. The combination, in an electric lamp, of a carbon-holder, a train of gearing connected with the same, a brake-wheel, and a movable frame carrying the gearing, an electro-magnet, an armature-brake supported upon the movable frame, and an adjustable spring whereby the frame is moved to draw the arc, and the brake-wheel is liberated by the action of the electro-magnet when the maximum magnetism is developed, substantially as set forth.

5. The combination, with the electro-magnet and carbon-holders, of the armature *h h'*, the gearing and brake-wheel supported by the same, the brake-lever *o*, and the trip 10, substantially as set forth.

314,419. FENCE. FERDINAND A. BARTON, Frederick, Md. Filed Aug 6, 1884. (No model.)

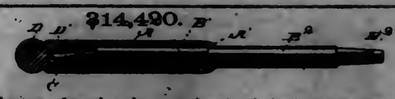


Claim.—A double loop constructed in the manner herein specifically described, in combination with a stationary post and an auxiliary post materially shorter than the stationary one, and the rails between said posts retained and secured in the manner herein described.

314,420. CAUSTIC-HOLDER. HENRY BELL, New York, N. Y. Filed Dec. 13, 1884. (No model.)

Claim.—1. The combination, in a caustic-holder, of a case open at both ends and provided at one end with an inwardly-turned flange, whereby the opening at such end is reduced in size, the caustic-carrier formed with a body portion fitted to the bore of the case, and a shank made of a cross-section equal that of the reduced open end of the case,

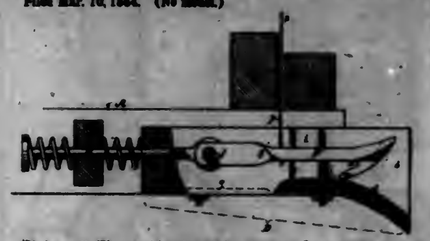
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and a tenon formed on the extremity of such shank, and the cap or head fitted to be inserted in the larger open end of the case or on the tenon of the carrier when the latter is adjusted out of or into position for use, substantially as set forth.

2. The combination, with the case provided with a flange, A', and the carrier having a shoulder, *b*, of the cap adapted to fit snugly in the outer end of the case and against the caustic-bearing end of the carrier, whereby the latter will be firmly clamped between the cap and the flange A', substantially as set forth.

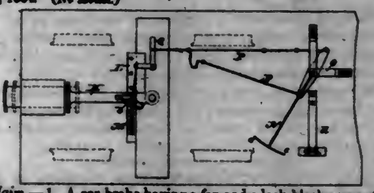
314,421. CAR-COUPLING. CLARENCE M. BENNETT, Jenkintown, Pa. Filed Mar. 10, 1884. (No model.)



Claim.—1. The combination of the pivoted hook with the draw-head having flaring mouth and opposite projections, *i*, forming stops for the link, as set forth.

2. The coupling-hook F, consisting of a flat strip of wrought-iron or steel twisted at *g*, and bent at the front end to form the hook, as set forth.

314,422. CAR-BRAKE. LOUIS BRAHM, Philadelphia, Pa. Filed Nov. 28, 1884. (No model.)



Claim.—1. A car-brake having a fan and a lock-block connected by suitable rods, chains, and levers, the said lock-block being disconnected or separate from the draw-bar of the car and operated by the said fan so as to be drawn out of the way of the end of the said draw-bar, substantially as and for the purpose set forth.

2. In a car-brake, a lever attached to a draw-bar, in combination with a bifurcated arm mounted loosely on a bolt and resting on the said lever, the lower end of the said lever directly acting on one of the brake-beams, and one end of the bifurcated arm directly acting on the other brake-beam, substantially as and for the purpose set forth.

3. In a car-brake, the fan N, in combination with lock-block L, means connecting said block and fan, draw-bar K, lever J, attached to said draw-bar, bifurcated arm H, loosely mounted on a bolt and resting on a pin attached to the lever J, substantially as and for the purpose set forth.

4. In a car-brake, the draw-bar K, in combination with the lever J, having the pin *b*, bifurcated arm H, rod F, and brake-beams C and D, substantially as and for the purpose set forth.

5. In a car-brake, a fan, N, having a wing, *c*, in combination with a hanger, O, and spring *d*, the said fan being pivotally supported in said hanger, substantially as and for the purpose set forth.

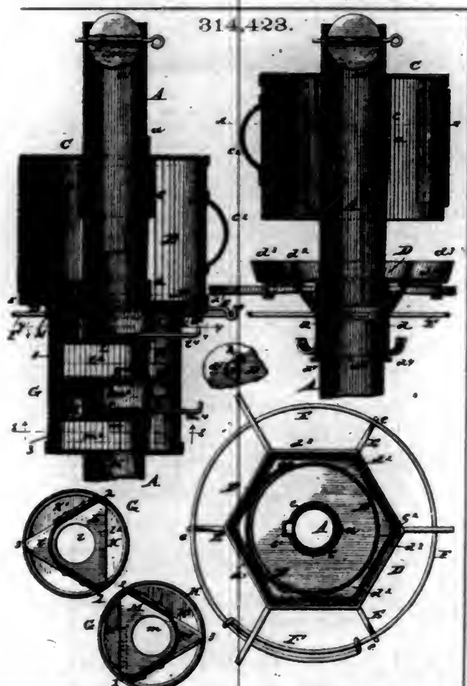
314,423. HEATING ATTACHMENT FOR STOVE-PIPES. JEAN H. BROADUS, Manhattan, Kans. Filed July 9, 1884. (No model.)

Claim.—1. A stove-pipe oven composed of a hood closed at the top, bent over at the bottom, and a stove-pipe shelf forming a bottom thereto, the hood being detachable from the shelf by sliding up upon the stove-pipe, which passes centrally and longitudinally through it, substantially as specified.

2. In a stove-pipe oven, the combination of the shelf D, stove-pipe A, provided with stop or detent *a*, and hood C, provided with collar *c* and handle c^2, substantially as specified.

3. The combination of the heater K, provided with pins *h h*, &c., and the stove-pipe A, with the oven B, composed of the hood C and shelf D, provided with slots d^3 d^3, &c., to engage with said pins *h*, and thus prevent the shelf rising when the hood is lifted from it, substantially as specified.

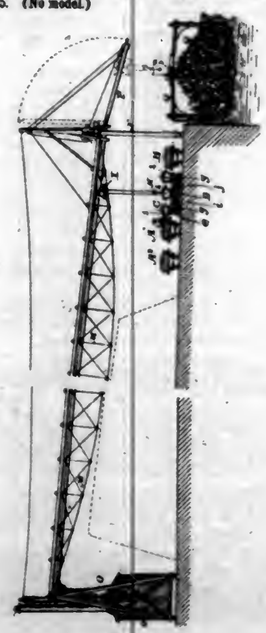
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4. The combination, with a stove-pipe, of the heater K, the ring F, shelf D, sockets d^3, secured to the under side thereof, and the arms supporting the said ring, having outer hooked ends and extending from the shelf above the heater, substantially as specified.

5. The combination, with a stove-pipe and oven surrounding the same, of a heater arranged beneath said oven having dampers, whereby the hot air may be directed around and beneath the walls of the oven before discharging through the pipe, substantially as specified.

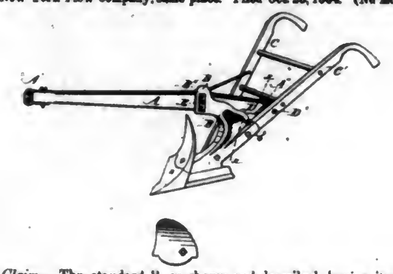
314,424. APPARATUS FOR DISCHARGING CONTENTS OF VESSELS AND CARS, &c. ALEXANDER E. BROWN, Cleveland, Ohio. Filed Jan. 12, 1885. (No model.)



Claim.—1. A portable bucket-supporting platform adapted to be placed contiguous to one or intermediate of two cars, for the purpose of properly supporting one or more series of buckets to be loaded from said car or cars, and provided with an intermediate or supplemental car-like device or platform, onto which the loaded buckets may be run, as specified, and adapted to affect the movement laterally of said buckets, all substantially as and for the purposes set forth.

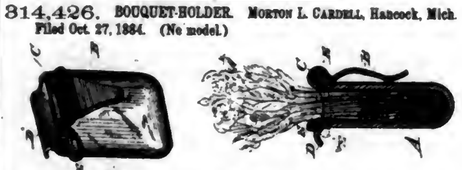
2. In a contrivance composed of a portable bucket-supporting platform provided with an intermediate car-like device adapted to move endwise within said platform, the arrangement of the bucket-supporting surfaces C C in an inclined position to facilitate the running of the loaded buckets from them onto the intermediate platform, D, substantially as hereinbefore set forth.

314,425. PLOW. JAMES R. BROWN, New York, N. Y., assignor to the New York Plow Company, same place. Filed Oct. 25, 1884. (No model.)



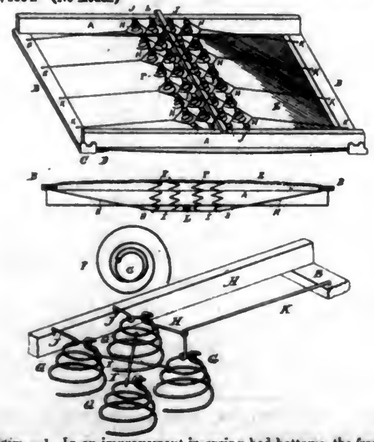
Claim.—The standard B, as shown and described, having its front edge formed to curve sharply back from the mold-board seat, and provided with a handle-socket, *b*, and a single beam-bearing, B', having adjusting-holes, in combination with plow-beam A, handle C', block D, and bolt D', securing the beam to the handle, as set forth.

314,426. BOUQUET-HOLDER. MORTON L. CARDELL, Hancock, Mich. Filed Oct. 27, 1884. (No model.)



Claim.—The bouquet-holder herein shown and described, consisting of the vessel A, having the lip D, and the spring-lip B, bent to form the bead C, and a downwardly-projecting hook, and provided with an elastic band, E, substantially as and for the purpose herein shown and described.

314,427. SPRING BED-BOTTOM. CHARLES CARLETON, Chicago, Ill., assignor to the Carleton Spring Bed Company, same place. Filed May 20, 1884. (No model.)

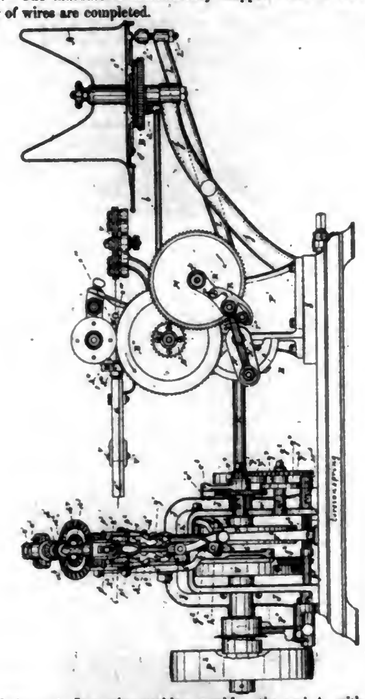


Claim.—1. In an improvement in spring bed-bottoms, the frame A B, the wire mattress E, and spiral springs F, which are truncated cones in form, with their smaller ends terminating in rings G, in combination with the ring-connecting wires I, the side wires, J, the angle-wires H, and the inclined wires K, connected with the angle-wires and with the end rails, B, of the frame, substantially as and for the purpose set forth.

2. The combination of woven-wire mattress E, frame A B, springs F, and wires I, J, H, and K, and set-screws D, for tightening the mattress and wire simultaneously and giving a uniform tension to the mattress and springs, as and for the purpose specified.

314,428. BOTTLING-WIRE MACHINE. ORRIL R. CHAPLIN, Boston, Mass., assignor, by direct and mesne assignments, to the Chaplin Bottling Wire Company, of New Hampshire. Filed Nov. 4, 1882. (No model.)

Brief.—Wire is fed intermittingly between straightening and tension rolls, thence through a conductor, where it is cut. Clamps then seize the middle of the cut wire. Grippers slide forward, bending the ends of the wire together, then close and hold the ends stationary. The clamps then revolve and twist the wire, then open and allow the finished wire to drop. The machine is automatically stopped when a determined number of wires are completed.



Claim.—1. In a wire-working machine, the reel A, with means for giving it a positive intermitting rotary movement, in combination with shaft E and the feed-rolls, and mechanism whereby the said rolls are operated, substantially as shown and described.

2. The reel A, in combination with ratchet B, pawl *c*, spring *d*, lever *a*, connecting-rod *b*, lever *x'* and its actuating-cam, and shaft E, substantially as shown and described.

3. The reel A, in combination with stop-lever L, provided with adjusting-screw L', cam *k*, and shaft E, substantially as shown.

4. The combination of reel A, the ratchet, lever *a*, pawl, connecting-rod, cam-lever *x'*, and its cam *f* with the stop-lever L and its cam, as set forth.

5. In a wire-working machine, the combination of the feed-rolls, the presser-pin x^{12}, and the guide-pin x^{10}, whereby the direction of the end of the wire after passing between the rolls may be governed, all as described.

6. In a wire-working machine, a bed-plate containing a slide supporting the reel, and the mechanism for straightening, feeding, cutting, and conducting the wire, and arranged to admit of increasing or diminishing the distance between the cutters and the twisting mechanism, for the purposes described.

7. The combination of the toggled twisting-clamps *a'*, spindle a^3, pinions d' d^3, compound gears d^2 d^4, and shaft *f'* and its actuating-gear and segment, substantially as described.

8. The combination of the twisting-clamps *a'*, supported by the stationary frame J, and the sliding head *k'*, bearing the holding-grippers, all as shown and described.

9. The grippers k^2 and the head *k'*, set on guide-rod *g'*, in combination with connection *s'*, slotted adjustable cam-levers *f'* t^2, and cam t^3, substantially as shown.

10. The grippers k^2, mounted and operated as shown, in combination with the pieces p^3, pin p^2, and spring *s*, substantially as shown and described.

11. The head *k'* and toggle-grippers k^2, in combination with connecting-piece *p'*, lower guide-rod, g^2, rock-shaft *h'*, connection *q'*, cam-lever q^2, and cam q^3, substantially as set forth.

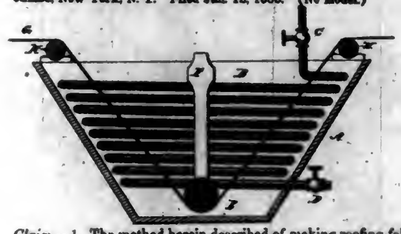
12. The grippers k^2, provided on one jaw with the adjustable spring-face s^{10}, to adapt the grippers to wire of varying sizes, as shown.

13. The grippers k^2 and their operating mechanism, whereby the wire is seized, bent, and twisted, in combination with gear y^3, actuated as shown, rider-wheel y^4, pawl w^2, rock-shaft p^2, spring s^2, and shipper P', substantially as described.

14. The combination of cam s^{15}, elbow-lever, ratchet, feed, and retaining pawls, pinion *y'*, gear y^3, rider-wheel y^4, drop-pawl, rock-shaft, spring, and shipper, for the purposes and substantially as described.

15. The slide I, in combination with the elbow-lever I', connecting-rod I^2, and lower guide-rod, g^2, for the purposes specified, and substantially as described.

314,429. MANUFACTURE OF ROOFING-FELT. WILLIAM H. H. CHILDS, New York, N. Y. Filed Jan. 12, 1885. (No model.)
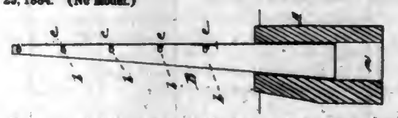


Claim.—1. The method herein described of making roofing-felt, the same consisting in subjecting the felt to a chemical solution, substantially such as described, whereby the surfaces are freed from the sticky or adhesive substance, as set forth.

2. The method herein described of manufacturing roofing-felt, the same consisting in subjecting the felt as it leaves the machine to a hot solution of soda and milk of lime or their described equivalents, as set forth.

3. The method herein described of treating roofing-felt to prevent its adhering together when formed in rolls, the same consisting in subjecting it, after it leaves the machine which joins the several felts into one, to a hot chemical solution of soda, milk of lime, and hydraulic cement or other material which will deposit a powder on the felt, as set forth.

314,430. WIRE FENCE. ALFRED CLARK, Englewood, Ill. Filed Mar. 29, 1884. (No model.)



Claim.—1. A fence-post for a wire fence, composed of a separate base formed of pottery and having a longitudinal opening extending from end to end and tapered or diminished in width from a point intermediate of its two ends toward the top, and of a flat metallic plate increasing in width toward the lower end, which is wider than the opening in the upper end of the base, the parts being united by inserting the plate within the base and cementing, substantially as described.

2. In a wire fence, the combination, with the separate base A, having the opening *a*, tapered from a point intermediate of its ends upward, of the metallic plate B, increasing in width from the top toward the bottom and having the apertures *b*, slots *c*, and lips *d*, and the wire strands having fastenings *f*, clamped thereon upon each side of the post, substantially as described.

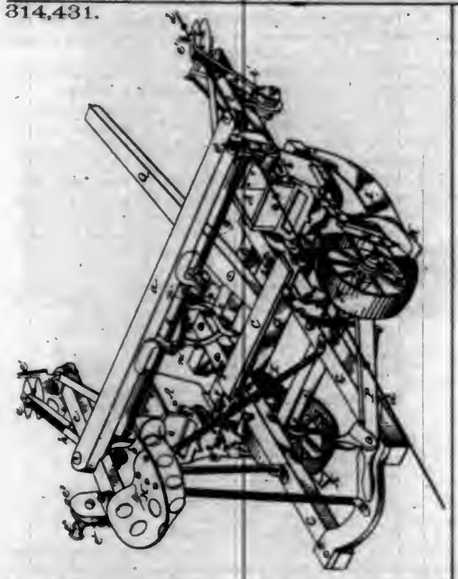
314,431. AUTOMATIC CHECK-ROW CORN-PLANTER. JAMES W. CLARK and NORMAN A. PALMER, Pataskala, Ohio. Filed Oct. 11, 1884. (No model.)

Claim.—1. A check-rower device composed, essentially, of a slide-operating shaft, m^2, having a crank, *n*, at each end, arranged in opposite relation to each other between its bearing ends, in combination with a stop-arm, *r*, carried by said crank-shaft, and suitable gear and ratchet mechanism connecting said crank-shaft with the oscillating shaft *g*, whereby said crank-shaft is intermittently rotated, substantially as herein set forth.

2. In a check-rower device, the combination, with the double-crank shaft m^2, its arm *q*, and slide-bar C, operating the corn-dropping device, of a double arm, *r*, upon the crank-shaft, the intermittent oscillating shaft *g*, and mechanism arranged thereon to engage with and rotate said crank-shaft and co-operate with the arm *r* thereon to effect such rotation intermittently in semi-revolutions, whereby to control the intermittent delivery of the corn from the hopper.

3. In an automatic check-rowing mechanism, the combination, with the fixed field-operating line and check-rowing levers, of a double-crank

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shaft, m^2, and a forked arm carried thereby, locked in position by the relation of the cranks to each other and to the said forked arm between the actions of the line-operated levers and the corn-dropping device, substantially as described, for the purpose specified.

4. In a check-rower device, the combination, with oscillating shaft *g*, the gear loosely fitted thereon, having ratchet-hubs *k k* on each side, and the ratchet-pawl *l*, of the double-crank shaft m^2, having the pinion *p*, the ratchet-pawl *m*, the double-armed stop *r*, and the slide-connecting arm *q*, substantially as herein set forth, for the purpose stated.

5. The combination of the slide-bar, its connecting-arm *q*, the double-crank shaft m^2, rotated at intervals in semi-revolutions by means of the oscillating shaft *g*, and intermediate engaging mechanism, substantially as described, for the purpose specified.

6. In a check-rower device, the combination, with the loosely-swinging-line-connecting levers, of a double-crank shaft, m^2, operated and controlled in intermittent semi-revolutions by a stop, *r*, thereon, operated and controlled by mechanism carried by the oscillating shaft *g* of said line-connecting levers, substantially as described, for the purpose specified.

7. The combination, with the corn-containing hoppers and the dropping devices, of automatic check-rower mechanism connected with and intermittently operating the dropping-slides by an intermediate double-crank shaft, m^2, and a stop-arm, *r*, carried thereby, substantially as herein described, for the purpose specified.

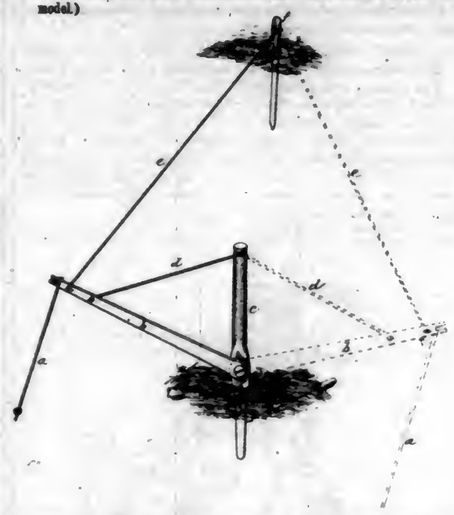
8. In a check-rower device, the swinging lever *h*, having the field-line-retaining forks constructed of V shape in cross-section, with a narrow opening at the front and a wide opening at the rear side, in combination with the knotted field-line, substantially as described, for the purpose specified.

9. In an automatic check-rowing mechanism, the combination, with an operating field-wire and check-rowing devices, of a corn-dropping slide, D, and a flapper-valve, L, connected with and operated by a double-crank shaft, m^2, controlled in semi-intermittent revolutions and constituting an element of said check-rowing devices, substantially as herein set forth.

10. The combination, with the slide-bar of the corn-dropping devices and automatic check-row-operating mechanism, of a device connecting said slide-bar D with said mechanism, consisting of a double-crank shaft, m^2, having its bearings in the same axial line, its cranks *n* at each end between the bearings and standing in opposite directions, and the arm *q*, hung upon said shaft between its cranks, the said crank-shaft being operated intermittently to operate the slide-bar, substantially as herein set forth.

11. A check-rower attachment for corn-planters, composed of a beam, *a*, provided with attaching-brackets *b*, the line-guiding devices, the actuating-levers, the oscillating shaft *g*, the double-crank shaft m^2, mechanism for connecting it with and operating it from said oscillating shaft in semi-revolutions, a stop-arm, *r*, carried by said double-crank shaft to control its interval actions, and an arm, *q*, adapted to communicate said interval actions of the double-crank shaft to the corn-dropping device, all constructed and arranged for operation with a corn-planter, substantially as herein set forth.

314,432. CORN-PLANTER CHECK-LINE ANCHOR. JAMES W. CLARK and NORMAN S. PALMER, Pataskala, Ohio. Filed Oct. 11, 1884. (No model.)

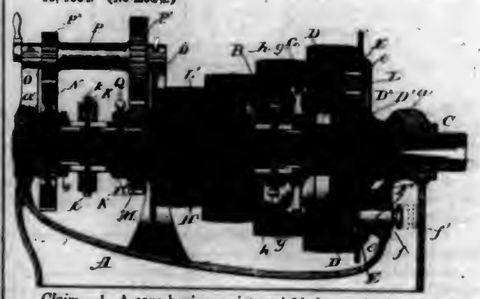


Claim.—1. In an anchor for check-row lines of corn-planters, the line-connecting arm pivoted to the stake-post, and connected to it above said pivot by a stay-cord extending from the top of the anchor-post to the free end of the line-arm, whereby to limit the shifting-throw of the latter, substantially as herein set forth.

2. In an anchor for check-row lines, the combination of the anchor-post, the line-arm and its guy, with a flexible stay connecting said arm with said anchor-post in a manner to limit the shifting-throw of the line-arm, substantially as described.

3. The combination, with the anchor-post, of the line-arm pivoted to the side thereof and connected therewith by a flexible stay, so as to shift the latter and the line over the top of said anchor-post, substantially as herein set forth.

314,433. LATHE. EDWARD S. COBB, Terre Haute, Ind. Filed Mar. 15, 1884. (No model.)



Claim.—1. A cone having an internal friction or clutch surface, in combination with the spindle, a sliding male clutch-wheel carried by the spindle, and a female clutch-wheel, also carried by the spindle, and gearing connecting the female clutch-wheel with the interior of the cone, as set forth.

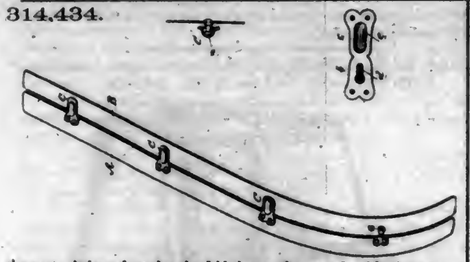
2. In combination with the spindle and double male clutch-wheel, the cone and its internally-cogged annulus E, the female clutch-wheel and its cogged annulus, and a pinion connecting the two annuli, as set forth.

3. The combination, with the cone-clutch mechanism and spindle, of sleeves H' and L', pinions M and P^2, gear-wheels N and P', and pin Q, as set forth.

314,434. CORSET-CLASP. GEORGE H. COLLEY, Jackson, Mich., assignor to Charles W. Higby, same place. Filed Dec. 10, 1884. (No model.)

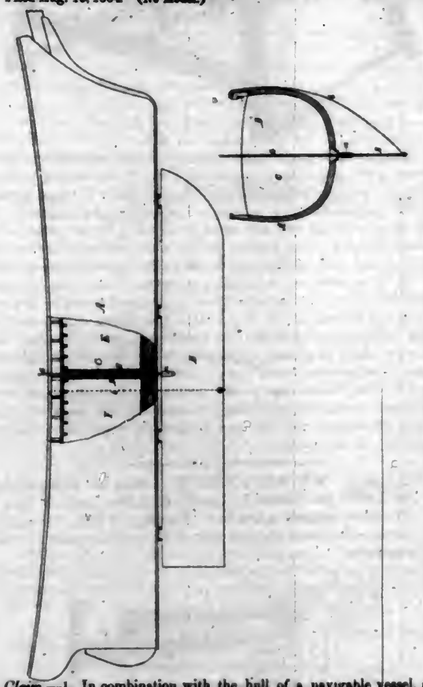
Claim.—The combination, with a corset-steel provided with a stud, *a*, of the part C, struck up or formed from one piece of metal, and consisting of the two united sections *b c*, the former having formed therein the longitudinal slot *d*, having an enlargement at one end, and provided with holes for the reception of rivets, and the part *c* having a sunken longitudinal recess, *e*, and also provided with holes for the reception of rivets,

314,434.



the part *c* being adapted to be folded over the part *b*, with the recess *e* immediately over the slot *d*, with the holes for receiving the rivets coincident, and the coincident edges of the parts *b* and *c* touching at all points, and the stud *a* engaging with said slot, and the recess *e* covering and protecting the head of said stud, substantially as and for the purpose specified.

314,435. NAVIGABLE VESSEL. RUFUS B. CONDON, Belfast, Me. Filed Aug. 18, 1884. (No model.)



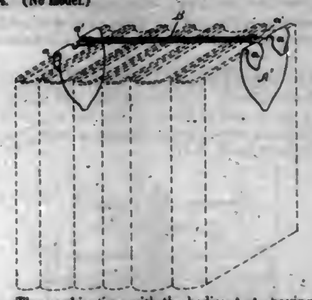
Claim.—1. In combination with the hull of a navigable vessel, a pendulous plate or wing hinged to the bottom thereof, and provided with a device or arm extended upward from it (the said wing) within the hull and free therein, so as to be vibrated by it (the said wing) when the vessel may be at sea and rolled by the waves.

2. The combination of a navigable vessel's hull provided with a narrow chamber arranged in and athwartships of its hold, and separated from the rest of the hold by water-tight bulk-heads, with a vibratory or pendulous wing hinged to the hull and extended beneath it, and provided with a device or arm projecting upward from it (the said wing) into the said chamber, so as to be vibrated therein by the said wing when the vessel may be rolling at sea.

3. The combination, with the hull of a navigable vessel, of a plate or wing hinged to and extending down from its bottom and socketed to receive a device or arm extending from it (the said wing) up within the hold of the vessel and free therein, so as to be capable of being vibrated across it by the wing while the hull may be rolling by the action of the sea, all substantially as set forth.

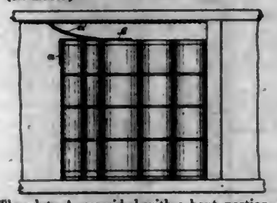
4. The combination, with the hull of a navigable vessel, of a pendulous plate or wing hinged to the bottom thereof, and provided not only with a device or arm extended upward into a narrow chamber, arranged in the hull athwartships thereof and adapted to allow of such arm or device being by the plate vibrated within it transversely of the hull, but at or near its lower edge with a line or rope extending from it to the deck, or thereabout, such rope being for drawing the plate or wing upward to and flatwise against the hull, as specified.

314,436. BOOK-HOLDER. HENRY CROCKER, Bristol, R. I. Filed Mar. 18, 1884. (No model.)



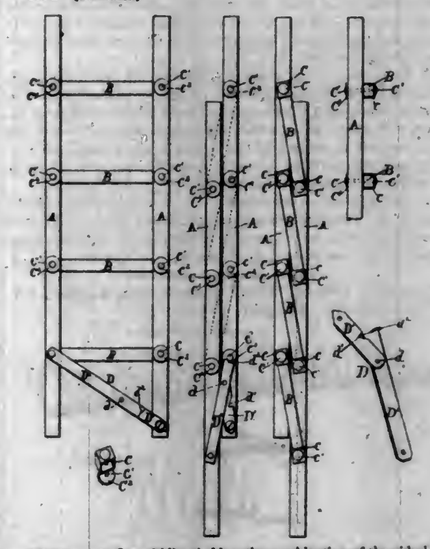
Claim.—The combination, with the bodies A A, having the extensions *a a* and *a'*, of an elastic connection, B or B', secured to the extension *a'*, substantially as and for the purposes described.

314,437. BOOK-HOLDER. HENRY CROCKER, Bristol, R. I. Filed Mar. 18, 1884. (No model.)



Claim.—The plate A, provided with a bent portion, *a*, and tongue *a'*, substantially as specified.

314,438. LADDER. SAMUEL DENNIS, Monroe, Wis. Filed Sept. 16, 1884. (No model.)

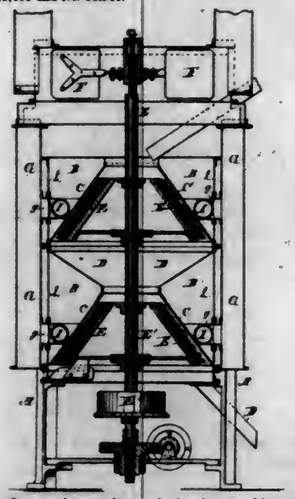


Claim.—1. In a folding ladder, the combination of the side bars, A A, the rounds B, the boxes C, fitted on the ends of the rounds, and the bolts C', passed through the ends of the rounds, the boxes, and the bars A, substantially as set forth.

2. The combination, with the bars A and the rounds pivoted at their ends to said bars, of the brace D, composed of sections D D^2, pivoted together at *d* and at their outer ends one to each bar A, the section D' being provided in its upper edge midway its ends with a notch, *d'*, and the section D^2 being extended beyond its pivot *d* alongside the section D', and provided at the upper edge of the extremity of such extension with a lateral lug, d^2, fitted and arranged to engage in the notch *d'*, substantially as set forth.

3. The improved folding ladder herein described, consisting of the bars A A, the rounds B, the boxing C, placed and fitted snugly on the ends of the rounds B, the bolts C', inserted through the boxes C, the rounds B, and the bars A, and the brace D, composed of sections D' D², pivoted together at *d* and at their outer ends to bars A, the section D' having a notch, *d'*, and the section D² an extension beyond its pivot, and a lug, *d²*, at the extremity of such extension, substantially as set forth.

314,439. GRAIN SCOURING AND CLEANING MACHINE. HERMANN DIETZ, Berlin, Germany. Filed May 27, 1884. (No model.) Patented in England Apr. 3, 1884, No. 6,090; in Italy May 23, 1884, XXXIII, 290; XVIII, 16,832; in Sweden Oct. 17, 1884, and in Austro-Hungary Nov. 7, 1884, No. 13,405 and No. 51,340.

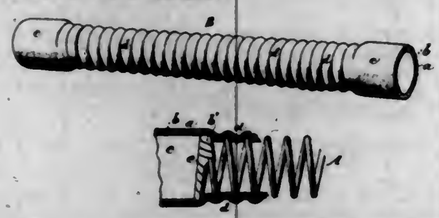


Claim.—1. In a grain scouring and cleaning machine the combination, substantially as herein described, of a perforated scouring-surface and an exhaust-fan with a perforated suction-duct arranged in proximity to and around the perforated scouring-surface, said parts being arranged for operation as described.

2. In a grain scouring or cleaning machine, the combination, substantially as herein described, of a series of scouring-brushes mounted on a common driving-shaft, a corresponding series of perforated scouring-surfaces, with a series of perforated suction-ducts arranged around said scouring-surfaces, an exhaust-fan driven from the brush-shaft, and connecting-ducts common to all the suction-ducts for connecting the latter with the fan, for the purposes specified.

3. The combination, substantially as herein described, with the brushes E, the perforated scouring-surfaces C, and the exhaust-fan, of the perforated suction-ducts I, connected with said fan, said parts being arranged for operation as set forth, for the purposes specified.

314,440. HOSE OR TUBING. ELISHA D. EAMES, Watertown, N. Y. Filed Nov. 10, 1884. (No model.)

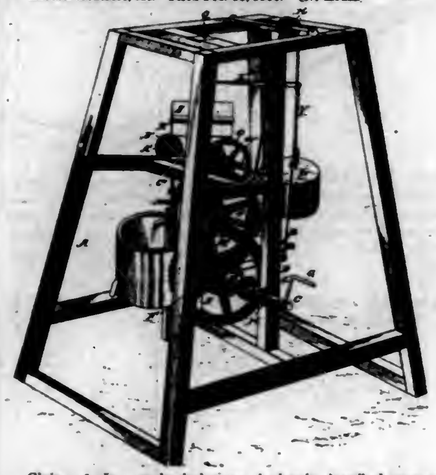


Claim.—1. A rubber or composite hose-section provided with expansible folds or corrugations and an internal embedded wire coiled to correspond with each fold, substantially as set forth, whereby strength and pliability are obtained.

2. A rubber-and-cloth hose-section provided with expansible folds or corrugations and an internal embedded wire coiled to correspond with each fold, the wire being stopped off near each end of the section, and the end of the wire wound with a cloth and fastened to the adjacent coil, substantially as set forth.

3. A rubber or composite hose-section provided with expansible folds or corrugations and enlarged plain end portions, combined with an internal embedded wire coiled to correspond with each fold, the said wire being stopped off some distance from each end of the section and secured, substantially as set forth.

314,441. MECHANICAL MOTOR. JESSE A. EMMERT and LEONARD P. KLUTTS, Montrose, Mo. Filed Feb. 18, 1885. (No model.)

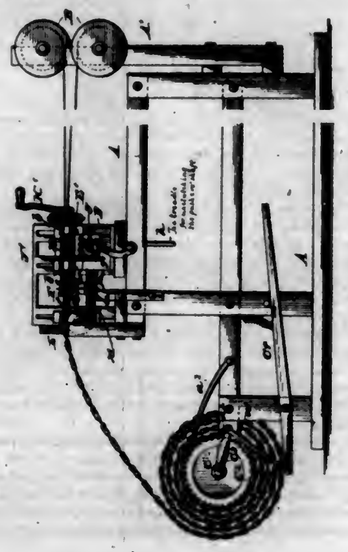


Claim.—1. In a mechanical motor, the herein-described governor, consisting of a shaft connected with and driven by the machinery of the motor, and provided with radial arms, in combination with wings or vanes pivoted upon the said arms, a sliding and adjustable collar connected with said vanes by pivoted rods, and means for adjusting the said collar to and retaining it at any desired position, thereby setting and retaining the vanes at any desired angle, substantially as and for the purpose herein set forth.

2. In a mechanical motor, the combination of the frame, the main shaft, the winding-drum mounted upon the latter, and connected by pawl-and-ratchet mechanism with a spur-wheel, the weight, weight-rope, and guide-pulley, a shaft provided with a worm or spiral and having radial arms provided with pivoted vanes, means for adjusting and retaining said vanes, a shaft connected with the main shaft by a train of gears, and having a beveled-toothed spur-wheel engaging and operating the worm or spiral, and mechanism connecting the motor with the machinery to be driven, all arranged and operating substantially as and for the purpose herein shown and specified.

314,442. WIRE-FENCE MACHINE. LUTHER W. FILLEBROWN, SAMUEL S. GRAY, and JAIRUS A. FILLEBROWN, Piqua, Ohio; said L. W. and J. A. Fillebrown assignors to said Gray. Filed May 29, 1884. (No model.)

Brief.—The picket is pushed forward automatically while the twisting is going on.



Claim.—1. The combination, in a wire-fence machine, of a wire-twister consisting of spring-fingers having inwardly-turned perforated and flanged ends, a head having longitudinal grooves in its periphery, and a hollow hub, E, substantially in the manner and for the purposes described.

2. The combination of the hollow hub E, its sprocket-wheel, and cross-bar with the grooved head *e'* and spring-fingers having perforated ends secured to said head *e'*, substantially as described.

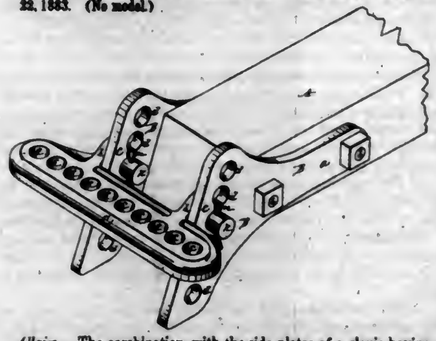
3. The combination, with wire-twisting devices, of the slat-pushing racks G, having upturned ends and engaging with pinions on a shaft, *g'*, substantially as described.

4. The combination, in a wire-fence machine having twisting devices and pushing devices, of the shaft and pinions for actuating the pushers, the clutch for engaging said shaft with the shaft of ratchet-wheel H', the pawls, their nut and screw-shaft, spur-wheels *l* L, shaft J, bearing a sprocket-wheel, and the sprocket-wheels on the hubs of the twisting devices with the driving-chain, all constructed and adapted to operate substantially as described.

5. The combination, in a wire-fence machine, of wire-twisters mounted and rotated as described, rectilinear-moving slat-pushers, a clutching device, the shifter *h* therefor, the ratchets and pawls, the nut *m* and its screw-shaft, the gearing *l* L, and shaft J, and the means described for rotating the twisters simultaneously with the forward movement of the pushers, all substantially as specified.

6. In a wire-fence machine of the character described, the combination, with the frame J', of the ratchet-wheel having a half-clutch on its shaft, the pawls actuated by a nut on a shaft, M, the shaft J, bearing a sprocket-wheel, K, the intermediate gears between shafts M and J, sprocket-wheels on the hubs of the twisters, the driving-chain therefor, and the means described for engaging and disengaging the pusher-actuating shaft with the shaft of the ratchet-wheel H', all constructed and adapted to operate substantially in the manner and for the purposes described.

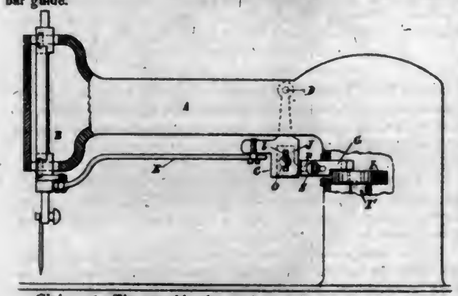
314,443. CLEVIS. ALEXANDER D. FORBES, Rockford, Ill. Filed Oct. 22, 1883. (No model.)



Claim.—The combination, with the side plates of a clevis having a series of coincident apertures, of a transverse clevis having rearwardly-extending arms provided with pins projecting at right angles therefrom in the same lateral direction, as and for the purposes set forth.

314,444. BUTTON-HOLE SEWING-MACHINE. JOHN S. FREESE, Brooklyn, N. Y. Filed July 23, 1884. (No model.)

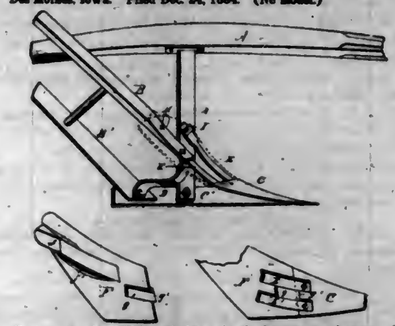
Brief.—The vertical driving-shaft by its cam-slot engages a pin on the pitman connected by intermediate adjusting parts with the needle-bar guide.



Claim.—1. The combination, substantially as hereinbefore described, with the needle-bar carrier, of the swinging arm pivoted at one end, the rod connecting the needle-bar carrier to the swinging arm, the grooved disk, the shaft supporting the disk, the pitman engaging the groove of the disk, the link connecting the swinging arm to the pitman, and a means for adjusting the link in relation to the pitman.

2. The combination, substantially as hereinbefore described, with the needle-bar carrier, of the swinging arm, the rod connecting the needle-bar carrier to the swinging arm, the grooved disk, the shaft supporting the disk, the pitman engaging the groove of the disk, the link connecting the swinging arm to the pitman, a means for adjusting the link in relation to the pitman, and a means for adjusting the link in relation to the pitman.

314,445. PLOW AND MOLD-BOARD THEREFOR. DAVID HARGER, Des Moines, Iowa. Filed Dec. 24, 1884. (No model.)

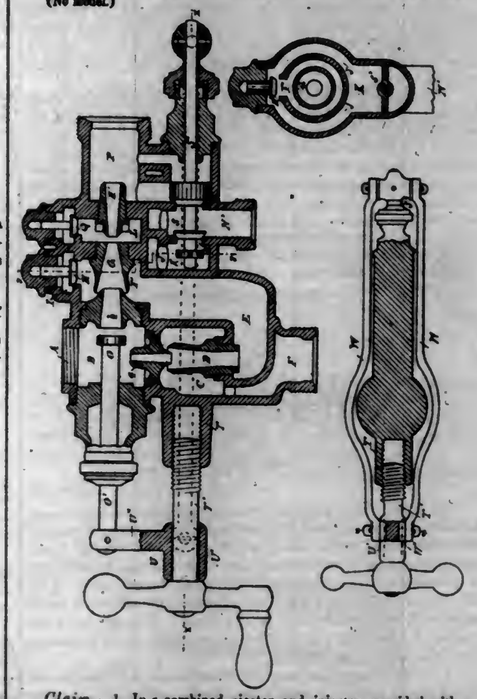


Claim.—1. A mold-board formed of glass or analogous vitreous material, having the flange *f'*, for resting upon the plow-handle, and the lug or projection *g g'*, for resting between the braces and under the upper edge of the share, as set forth.

2. The combination with the plow handles, standard, and share, of the S-shaped brace D, the curved braces E E', and the glass mold-board having lugs *f* and *g*, as described.

3. The combination, with the plow handle, standard, and share, of the curved braces E E', mold-board F, having projections *g g'*, and spring-clamps H and I, constructed and applied substantially as herein set forth.

314,446. COMBINED INJECTOR AND EJECTOR. THOMAS J. HART, Detroit, Mich., assignor to James Jenks, same place. Filed June 4, 1884. (No model.)



Claim.—1. In a combined ejector and injector provided with a valve for the admission of steam to the steam-nozzle of, the ejector, and with an overflow or waste valve, the stem of both said valves projecting through the walls of the device, one at either end thereof, said valves being on the same vertical plane, but each arranged on one side of the

center of the other, as shown, the threaded projection T, integral with the casing, in combination with the threaded stem T', yoke U, and rods W, constructed and arranged substantially as described, by means of which said steam and waste valves are connected and simultaneously operated in opposite directions as relates to their respective seats, substantially as and for the purposes specified.

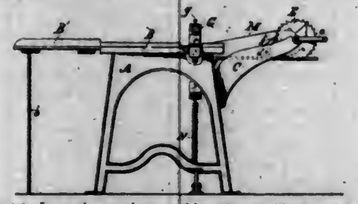
2. In combination with a combined injector and ejector having a steam-valve to control the admission of steam to the jet of the ejector, and a waste-valve, a supplemental screw-stem, T', arranged at one side of said steam-valve, and yoke U, sleeved on said stem and reciprocating therewith, the arm U" of which connects directly with said steam-valve stem by means of the rods W, substantially as and for the purposes set forth.

314,447. SOAP. JAMES HOAGLAND and BARNHARD ZIPPEL, Toledo, Ohio. Filed Jan. 8, 1885. (No specimens.)

Claim.—1. The herein-described compound for soap, consisting in mixing tallow, sal-soda, resin, milk, soapstone, and water of lime in about the proportions specified, and for the purpose set forth.

2. The herein-described soap compound, consisting of tallow, sal-soda, resin, milk, lemons, soapstone, and water of lime, substantially as and for the purpose specified.

314,448. SHEET-METAL-SEAMING MACHINE. CHARLES HOFF, Cincinnati, Ohio, assignor to Hoff, Noll & Renner. Filed June 3, 1884. (No model.)



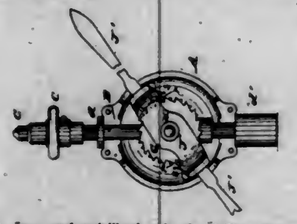
Claim.—1. In a tin-seaming machine, the combination, substantially as specified, of the frame A, the bed B, transversely slotted to pass the movable member of a clamping device, with toggle-jointed levers actuated by a treadle to bring the said movable jaw up against the stationary jaw for the purpose of closing the seam.

2. In a seaming-machine, the combination of the stationary jaw provided with gravitating stop-pins to check the hooked joints beneath the said stationary jaw with a movable jaw constructed to be forced up against said stationary jaw to form the completed seam, substantially as specified.

3. A seaming-machine consisting of a bed-plate, a pair of clamping-jaws arranged to operate upon a hooked sheet of tin passing over said bed-plate, a removable winding-roll to draw the sheet forward and roll it up for use after the seams are formed, and a guide (one or more) removably secured to the roll, substantially as herein shown and described.

4. In a seaming-machine, the combination, substantially as hereinbefore set forth, of the frame, bed-plate B B', and clamping-jaws G I, with stop-pins *g*, and removable roller E, ratchet F, and pawl *f*.

314,449. RATCHET-DRILL. JOHN C. IMLAY, Phillipsburg, N. J. Filed May 7, 1884. (No model.)



Claim.—1. In a ratchet-drill wherein the drill-stock receives continuous rotary motion from a lever to which is given vibrating motion, the combination of a case having studs fixed to it, the ratchet-wheels having beveled teeth on their inner sides, a beveled spur-wheel applied on the drill-stock and engaging with said beveled teeth, collars on the drill-stock, and a vibrating frame bearing spring-actuated pawls which engage with said ratchet-wheels and are adapted to receive one or two handles, all constructed and adapted to operate substantially in the manner and for the purpose described.

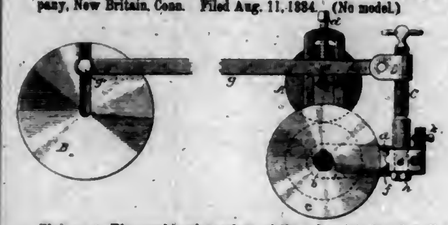
2. A ratchet-drill case composed of two parts secured together and having slots or spaces *c c*, studs having collars on them fixed to the sides of said case, a vibrating pawl-bearing frame applied on the collars of said studs, the ratchet-wheels and their gears, and a vertically-adjustable drill-stock, all constructed and adapted to operate substantially in the manner and for the purposes described.

314,450. BURGLAR-ALARM. ALEXANDER JACOBI, St. Clair, Mich. Filed Oct. 22, 1884. (No model.)



Claim.—In an auto-mechanical burglar-alarm, the combination, with the base A and case B, provided with spring-alarm C and hammer D, of the arm N, secured to the hammer-rod and provided with the eye *a*, the staples *b*, projecting from said base, the detent M, the lower end of which passes loosely through said eye *a* and staples *b*, and the frictional tension-spring F, bearing on the side of said detent, a main cord, O, attached to said detent and passing to the window or door farthest therefrom, and the branch cords P, connecting said main cord with the other windows and doors of the building, whereby the opening of a door or window withdraws said detent from said eye *a* and staples *b*, substantially as and for the purpose specified.

314,451. INTERMITTENT ROLL FEED MECHANISM. HORACE K. JOHNS, Hartford, assignor to the Russell & Erwin Manufacturing Company, New Britain, Conn. Filed Aug. 11, 1884. (No model.)



Claim.—1. The combination, substantially as hereinbefore described, of the feed-rolls, the friction-disk for intermittingly driving said rolls, the vibrating arm or lever pivoted on the shaft of said disk, a friction-shoe block pivoted on said arm or lever, and the adjusting-screw mounted in said block for varying the vibratory movement of said arm or lever, and consequently varying the feeding movement of the rolls, as set forth.

2. The combination, substantially as hereinbefore described, of the feed-rolls, the friction-disk, the shoe and its pivoted block, the arm or lever on which said shoe is mounted, means, substantially as described, for vibrating said arm, and the adjusting-screw by which the vibratory movement of said arm or lever is varied and the intermittent movement of the feed-rolls can be correspondingly varied while the machine is in motion.

3. The combination, with the feeding-rolls, the friction-disk, the lever, and the shoe and pivoted block mounted on said lever, of the slotted crank-plate and pitman, and the hand-screw serving as an adjustable connection between said pitman and pivoted block, substantially as described, whereby variations in the intermittent movement of the feed-rolls can be readily made while the mechanism is in motion.

314,452. BUCKLE. CHARLES KAHLHOFER, Centralia, Ill. Filed Jan. 22, 1885. (No model.)



Claim.—1. The combination, with an attaching-plate, of a pivoted sectional fastening consisting of two plates pivoted together, and pivotally connected with the attaching-plate, one of said plates having side flanges and a hook at its end, and a plate having a series of cross-bars, substantially as set forth.

2. The combination, with an attaching-plate, of convexo-concave plates pivoted together and pivotally connected to said attaching-plate, one of said plates having side flanges, a hook on one of said plates, and a plate adapted to receive said hook, as set forth.

3. The herein-described shoe-fastening, consisting of an attaching-plate, a convexo-concave plate pivoted thereto, a convexo-concave plate pivoted to the plate C, side flanges on said plate D, a hook on said plate, and a plate, E, having means, substantially as described, for its attachment, and a series of cross-bars adapted to be engaged by the hook on the plate D, substantially as set forth.

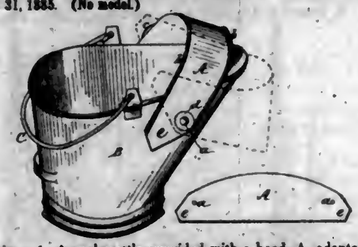
314,453. DEPURATOR. JOB KETCHUM, Jr., Brooklyn, N. Y. Filed Oct. 31, 1884. (No model.)

314,453.



Claim.—The combination of an air-tight cabinet adapted to receive a patient and having provision for breathing from and back into the external air, a pump for exhausting air from the cabinet, a tank between the pump and the cabinet, a connection between the cabinet and the tank, and a connection between the tank and the pump, substantially as specified.

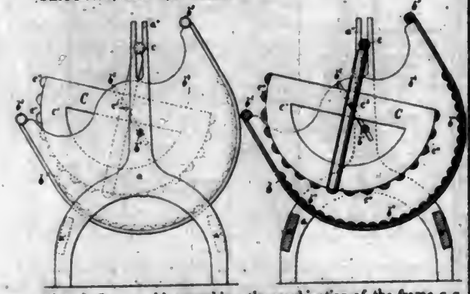
314,454. COAL-SCUTTLE. JOSEPH KINGSLEY, Carrollton, Md. Filed Jan. 31, 1885. (No model.)



Claim.—1. A coal-scuttle provided with a hood, A, adapted to be adjusted to different positions over the delivery-mouth and outside the walls thereof by means of the rivet-pivots *a*, substantially as described.

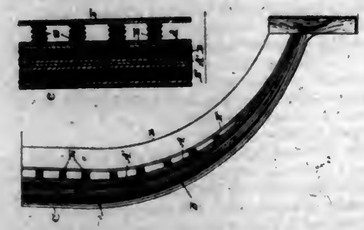
2. A coal-scuttle provided with a hood, A, adapted to be adjusted to different positions over the delivery-mouth and outside the walls thereof by means of the rivet-pivots *a*, substantially as described, the said hoods having the extensions *e* beyond the point of pivot, for the purpose stated.

314,455. WASHING-MACHINE. JOSEPH T. LAMER, Waltham, Mass. Filed Nov. 2, 1883. (No model.)



Claim.—In a washing-machine, the combination of the frame *a a*, provided with the slots *a''* *a''*, the shell *b*, provided with the grooves b^2 b^2 on the inside of the ends of the shell, said shell being pivoted to the frame *a*, the internal rubber, C, the bar *c*, supporting said rubber, and having its ends guided in the slots *a''* *a''* on the frame, and the axle c^2 of the rubber C resting and guided loosely in the grooves b^2 b^2 of the shell, all arranged as and for the purpose set forth and described.

314,456. ARMOR FOR VESSELS, FORTS, &c. WILLIAM N. LE PAGE, San Francisco, Cal. Filed Dec. 13, 1884. (No model.)



Claim.—1. The combination, with an armor for vessels, forts, &c., consisting, essentially, of alternate layers of metal plates and cement, of springs interposed between the armor and the hull or other surface to be protected, substantially as set forth.

2. An armor for vessels, forts, &c., consisting, essentially, of alternate layers of plates and cement, having an outside covering of chilled steel and a backing composed of springs, substantially as set forth.

3. An armor for vessels, forts, &c., consisting of a series of metal plates and an interposed filling of cement, the latter being composed of asbestus, wool or hair, and glue.

4. In an armor for vessels, forts, &c., the combination, with a layer of cement composed of asbestus, wool or hair, cork, and glue, of layers of plates located on the outside and inside of the layer of cement, a yielding backing, and a chilled-steel face, substantially as set forth.

314,457. COVERING FOR BRICK-HACKS. JAMES S. LESTER, Atlanta, Ga. Filed May 21, 1884. (No model.)



Claim.—1. A removable covering for brick-hacks, consisting of a frame supporting a flexible covering which is formed into one or more longitudinal gutters on the said frame, substantially as and for the purpose specified.

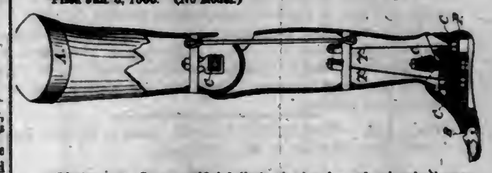
2. A removable protector or covering for brick-hacks, consisting of a frame supporting a flexible covering which projects longitudinally beyond the said frame on one or both ends, so as to rest on the next succeeding cover, thus forming a continuous protector of two or more sections, substantially as and for the purpose specified.

3. A removable protector or covering for brick-hacks, consisting of a frame supporting a flexible covering which falls on each side of the hack, is formed into longitudinal gutters in the said frame, and projects longitudinally beyond one or both ends of the frame, substantially as and for the purpose specified.

4. A removable protector for brick-hacks, consisting of a flexible covering falling on each side the said hack, formed into one or more gutters extending longitudinally on top the hack and also beyond one or both ends thereof, and a supporting-frame formed of two or more longitudinal strips between which is a central strip of less vertical diameter, the said strips being connected by suitable cross-pieces, all arranged substantially as and for the purpose specified.

5. A removable protector for brick-hacks, consisting of a flexible covering and a frame supporting the same, and formed of two longitudinal strips, and a central strip of less vertical diameter, and suitable connecting cross-pieces, all arranged substantially as and for the purpose specified.

314,458. ARTIFICIAL LIMB. WILLSHIRE LOCKWOOD, St. Louis, Mo. Filed Jan. 3, 1885. (No model.)

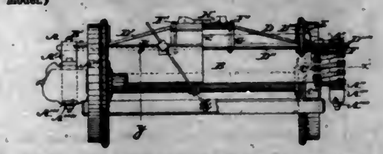


Claim.—1. In an artificial limb, the band *a*, of vulcanized vegetable fiber, surrounding the socket, as and for the purpose described.

2. In an artificial limb, the combination of the toe, ankle, and bolt bushings, the concave sockets, and boxes of vulcanized vegetable fiber, substantially as described, and for the purpose specified.

3. In an artificial limb, the tendons made of vulcanized vegetable fiber, as and for the purpose described.

314,459. CAR-TRUCK. HARRY C. MCCARTY, Williamsport, assignor of one-half to John F. Bickel, Merton, Pa. Filed June 5, 1884. (No model.)



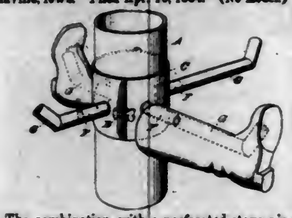
Claim.—1. In a car-truck, the side trusses consisting of irons A' A'' A''' A'''', in combination with the angle-irons B, each of which extends across the space between the upper irons, A' and A'', and the bolts

B', which pass through the flanges of said angle-irons and also through irons A', A'', and A''', substantially as set forth.

2. In a car-truck, a bolster consisting of upper and lower bars and supporting angle-irons between the bars, said angle-irons being parallel to said upper and lower bars and bolted thereto through their flanges, substantially as and for the purpose set forth.

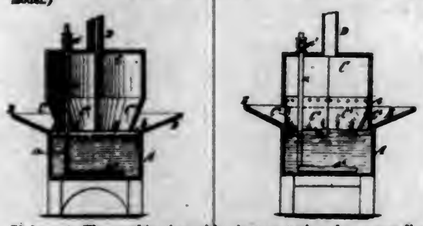
3. The upper bolster-bar, D', having horizontal ends, in combination with the lower bolster-bar, D'', having its ends extended beyond the ends of the bar D', and folded back against them, these two bars composing the whole bolster, substantially as shown.

314,460. MEANS FOR DRYING RUBBER BOOTS. ROBERT MEREDITH, Lynaville, Iowa. Filed Apr. 10, 1884. (No model.)



Claim.—The combination, with a perforated stove-pipe, of a stove-pipe band, C, having openings corresponding to the perforations in the stove-pipe, and provided with tubular projections F, hollow bent arm G, seated on the tubular projections, and a valve-plate adapted to regulate the draft, substantially as specified.

314,461. HATTER'S TANK. CHARLES H. MERRITT, Danbury, Conn., assignor to John T. Waring, New York, N. Y. Filed Dec. 20, 1883. (No model.)

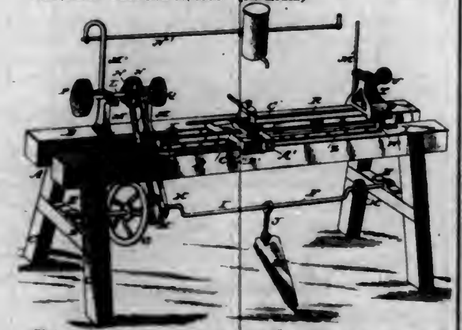


Claim.—1. The combination, with a battery-tank and a surrounding plank, of a cover or steam-chamber above the tank, a guard or curtain practically closing the entrance to said cover or chamber, and a draft or outlet pipe arranged to carry off the steam or vapor from said cover or chamber, substantially as and for the purpose described.

2. The combination, with a tank used for dipping hat-bodies, of a steam-chamber above the tank having an opening closed by a yielding curtain, and a draft or outlet pipe arranged to carry off the steam or vapor from said cover or chamber, substantially as described.

3. The combination, with a battery-tank used for dipping hat-bodies and a surrounding plank, of a cover or steam-chamber above the tank having an opening closed by a yielding curtain, and a draft or outlet pipe arranged to carry off the steam or vapor from said cover or chamber, substantially as described.

314,462. STONE-WORKER'S LATHE. JAMES O. MESSERLY, Baltimore, Ohio. Filed Dec. 10, 1884. (No model.)



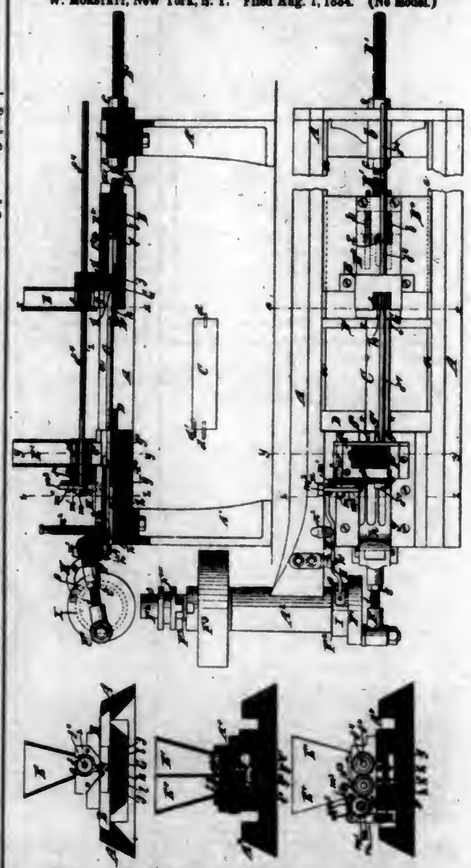
Claim.—In a stone-worker's lathe, the combination of the parallel beams B B, the spindles mounted upon the rear beam, the strip Z, having dovetailed edges, the tool-carrier having a dovetailed groove fitting upon the strip, and having the downwardly-projecting flanges B', bearing against the inner sides of the beams and against the outer side of the front beam, and means, substantially as set forth, for sliding the tool-carriage, as and for the purpose shown and set forth.

314,463. THILL-COUPLING. JAS. M. MILLER, Allentown, Pa. Filed Dec. 15, 1884. (No model.)



Claim.—A thill-coupling consisting of the clip B, one of the arms of which is provided with the square aperture I, the bolt G, having the square body portion J, the half-boxes E F, the slotted strap K, the slotted shank D, provided with the set-screw O, the key L, and the wedge M, substantially as shown and described.

314,464. MACHINE FOR INSERTING PINS IN BLIND-SLATS. G. W. MORSTATT, New York, N. Y. Filed Aug. 1, 1884. (No model.)



Claim.—1. The combination, with a bed plate or frame and a head or stock piece, A°, provided with a slideway having in its bottom a groove or pin-seat, of a hopper for pins and a pin-feeding roll or device controlling the outlet therefrom, a reciprocating plunger or slide working in said slideway, and having on its under side a tongue or rib fitting said groove or pin-seat and serving to force a pin from said groove or seat into one end of a blind-slat, an abutment for the other end of the slat, and a slat-support between the head A° and said abutment, substantially as herein described.

2. The combination, with a bed plate or frame and a head or stock piece, A°, provided with a slideway having in its bottom grooves or pin-seats, of hoppers for pins and feed-rolls geared together and controlling the outlets of said hoppers, a reciprocating plunger working in said slideway, and having on its under side tongues or ribs fitting said grooves or pin-seats and serving to force pins therefrom into one end of a blind-slat, an abutment for the other end of the slat, and a slat-support between said head and abutment, substantially as herein described.

3. The combination, with a bed-plate and a head, A°, formed with a slideway, *g*, in the bottom of which is a pin-seat or groove, *g'*, of the pin-hopper E' and its roll *f'*, having a step-by-step rotation, the reciprocating plunger or slide A, provided with a rib or tongue, *h'*, fitting the pin-seat or groove *g'* and adjustable lengthwise relatively to the plunger or slide, an abutment for supporting the slat against free movement lengthwise, and a slat-support between said head and abutment, substantially as herein described.

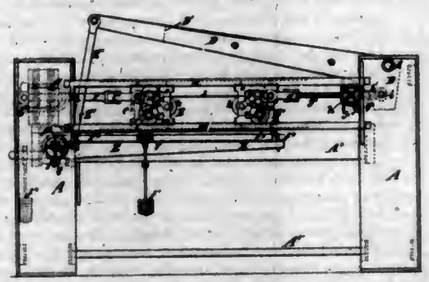
4. The combination, with a bed-plate and a head, A°, constructed with a grooved slideway, *g g' g°*, of the pin-hoppers E' E° and their feed-rolls *f' f°*, geared together, the ribbed or tongued plunger A *h'* A°, the ratchet-wheel *m'*, geared with said rolls, the pawl-carrying lever m^2 and its pawl, the spring-actuated lever H, and the crank-shaft and its cam I *o*, all substantially as herein described.

5. The combination, with a bed-plate and a head or stock piece constructed with a slideway, of a yielding abutment having a groove or pin-seat in its upper surface, a pin-hopper and pin-feeding device controlling its outlet, a tongue or rib fitting said groove or pin-seat and forming a fixed abutment for the pins, a reciprocating plunger for forcing the slats against said yielding abutment and upon the pins, and a slat-support, substantially as herein described.

6. The combination, with a bed-plate and a head or stock piece, B, constructed with a slideway, *j*, the spring-supported slide G, having a groove or pin-seat, *k*, in its upper surface, the tongue or rib *k'*, fitting said groove or pin-seat, the hopper and feed-roll E *f*, the slat-support D D', and a reciprocating plunger for forcing the slats endwise against the slide G and upon their pins, substantially as herein described.

7. The combination, with a bed-plate and two heads or stocks, each constructed with a slideway, and one of said slideways having in its bottom a groove or grooves, of a reciprocating plunger working in the last-named slideway and tongued or ribbed to fit the groove or grooves thereof, a slide fitting the other slideway and grooved to form a pin-seat, pin-hoppers and feed devices controlling the outlets thereof, and a slat-support between the heads or stocks, all substantially as herein described.

314,465. MACHINE FOR TESTING CANVAS AND OTHER FABRICS. JOHN P. O'CONNOR, New York, N. Y. Filed June 21, 1884. (No model.)



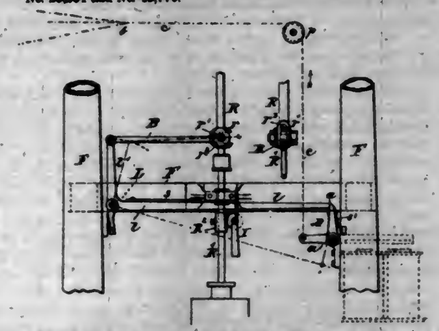
Claim.—1. In a fabric-testing machine, the combination, with a main frame and two grips, B B', in which opposite ends of a piece of fabric may be secured, of a cylinder and piston at one end of the frame, connected with the grip B, for putting strain on the fabric, the beam D, pivoted at the other end of the frame, adjustable connections between the grip B' and the beam for adjusting the grip to suit fabrics of different lengths, the steelyard-beam E, and the rod E', connecting the beams D and E, the weighted trolley *f*, and connections for moving it, substantially as herein described.

2. The combination, with the grip B and an actuating-cylinder and piston connected therewith, of the grip B', the non-rotary screws *g'*, extending therefrom, the beam D, the movable box or frame *h*, and arms *h'*, connecting it with said beam, the spur-pinions *j*, forming nuts fitting said screws, and one provided with bevel-teeth, the intermediate wheel, *j'*, and the operating pinion and handle j^2 j^3, all substantially as herein described.

3. The combination, with the grip-frame, of a roller, *k*, journaled therein, a roller, *m*, around which a fabric is to be passed, a roller, *l*, to which the end of the fabric is to be clamped, and eccentric connections between the rollers *l m*, whereby the roller *l* will be drawn down and caused to bite upon the roller *m* by any rotation of the latter, substantially as herein described.

4. The combination, with the grip-frame provided with inclined slots *o'*, of the roller *k*, journaled in said frame, the roller *m*, having boxes movable in said slots, and eccentric hubs *m°*, the roller *l*, provided with a clamp for the fabric, the links *l'*, wherein the roller *l* is journaled, and the eccentric link-connections l^2 l^3 between the rollers *l m*, all substantially as herein described.

314,466. APPARATUS FOR STOPPING STEAM-ENGINES. HERRMANN OELERT, Vippes, near Cologne, Prussia, Germany. Filed July 14, 1884. (No model.) Patented in Belgium July 2, 1884, No. 65,663; in England July 3, 1884, No. 9,692, and in Austria-Hungary Oct. 7, 1884, No. 25,284 and No. 45,779.



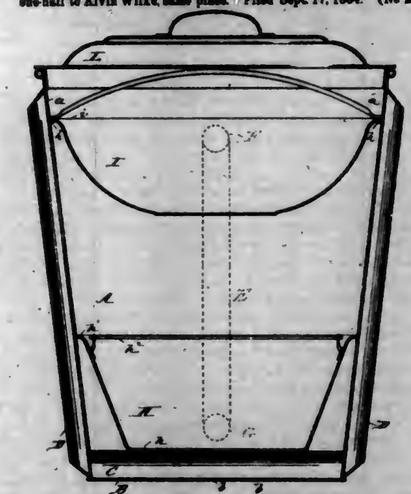
Claim.—1. The herein-described mechanism for stopping steam-engines, which consists in the combination, with the slide-valve and the eccentric-rods R' R, detachably connected together, and the driving or eccentric shaft S, of a two-armed lever, L, and a tripping-lever operating to trip the lever L, and through the latter disconnect the rods R' R, for the purposes stated.

2. The herein-described mechanism for stopping steam-engines, which consists in the combination, with the valve and eccentric rods R' R, detachably connected together, and the eccentric-shaft S, of a two-armed loaded lever, L, and a tripping-lever, A, operating to trip the lever L, and through the latter disconnect the rods R' R, for the purposes specified.

3. The combination, with the slide-valve and connecting-rods R' R, detachably connected together, and the eccentric-shaft S of a steam-engine, of a coupling-lever, a tripping-lever operating to trip the coupling-lever, and through the latter uncouple the rods R' R, and a lever operating to carry one of said rods into position for coupling, for the purposes specified.

4. The combination, with the slide-valve rod provided with a toothed portion or rack, and the eccentric-rod coupled detachably to the valve-rod, of a coupling-lever, a tripping-lever operating to trip the coupling-lever, a pinion arranged to mesh with the toothed portion of the valve-rod, and a lever for rotating said pinion, for the purposes specified.

314,467. BOILER. WILLIAM H. PAYNE, Camden, N. J., assignor of one-half to Alvin Wilke, same place. Filed Sept. 17, 1884. (No model.)



Claim.—1. The pot or vessel A, having holes in the bottom communicating with a pipe, C, on said bottom, said pipe extending completely across the bottom and being connected with pipes D D at each end, which communicate with the interior of the said pot or vessel, substantially as shown, and for the purpose set forth.

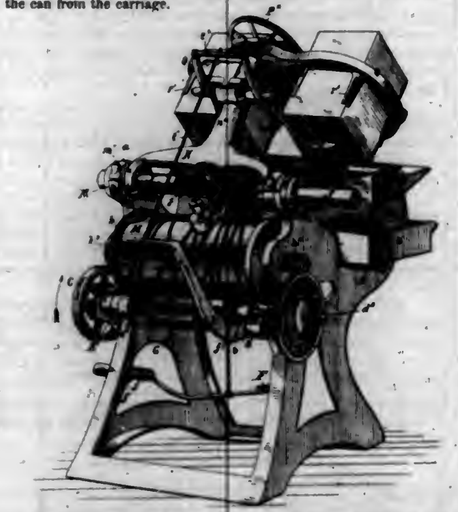
2. The pot or boiler A, having a series of external pipes, two of which connect with a transverse pipe on the bottom, which bottom has holes which communicate with said transverse pipe, and the other pipes having internal communication at their upper and lower ends with the interior of said vessel, substantially as shown and described.

3. The combination, with the pot or vessel A, provided with the externally-applied pipes E E, having internal communication with said vessel, of the steamer I and the steamer-supporting lugs *k k*, located in a plane above the discharging upper openings, F F, of said pipes E E, substantially as shown and described, and for the purpose set forth.

314,468. APPARATUS FOR AUTOMATICALLY SOLDERING THE SEAMS OF SHEET-METAL CANS.

GEORGE H. PERKINS, Philadelphia, Pa., and OBERLIN SMITH, Bridgeton, N. J.; said Smith assignor to said Perkins. Filed July 22, 1884. (No model.)

Brief.—To start the machine depress the treadle, which throws back the lever and permits the clutch mechanism to lock the loose pulley to the shaft, and at the same time allows the shifter-rod to spring back and lock the lever back. Motion is communicated by the pulley to the drum and the cam. While the cam operates the rocking head to raise and lower the can-carriers, the shuttle, traveling in the ways in the drum, operates the rack-shaft and causes the revolution of the can-carriers. Five revolutions of the drum cause one revolution of the loose wheel, which then, by a trip-spur on its inner face, throws back the shifter-rod and allows the lever to drop and stop the machine. During these five revolutions of the drum the can is lowered into and raised from the solder bath and partially rotated five times to solder the joints of the head and body at each of the four sides and to remove the drainage from the corner of the last-soldered joint, after which the knockouts discharge the can from the carriage.



Claim.—1. In a machine for soldering the seams which secure the heads to the bodies of quadrangular, square, hexagonal, and other shaped sheet-metal cans having angular corners, the following instrumentalities in combination: first, rotatable can-holders each adapted to receive a can; second, a rocking head to which said can-holders are connected so as to rock therewith; third, a shaft connected with and carried by said rocking head, the rotation of which, through suitable gears or kindred motion-communicating devices, occasions the rotation of the can-holders; fourth, mechanism whereby the rocking head is at predetermined intervals caused to rock; fifth, mechanism whereby the said shaft, which is connected with and carried by the rocking head, is at predetermined intervals caused to rotate, substantially as set forth.

2. In a machine for soldering the seams which secure the heads to the bodies of quadrangular, square, hexagonal, and other shaped sheet-metal cans having angular corners, the following instrumentalities in combination: first, rotatable can-holders each adapted to receive a can; second, a rocking head to which said can-holders are connected so as to rock therewith; third, a shaft connected with and carried by said rocking head, the rotation of which, through suitable gears or kindred motion-communicating devices, occasions the rotation of the can-holders, and which is provided with a pinion; fourth, a sliding rack-shaft gearing with the pinion of said head-shaft; fifth, suitable means for occasioning the longitudinal intermittent reciprocation of said rack-shaft in both directions; and, sixth, mechanism whereby said rocking head is at predetermined intervals caused to rock, substantially as set forth.

3. In a machine for soldering the seams which secure the heads to the bodies of quadrangular, square, hexagonal, and other shaped sheet-metal cans having angular corners, the following instrumentalities in combination: first, rotatable can-holders each adapted to receive a can; second, a rocking head to which said can-holders are connected so as to rock therewith; third, a shaft connected with and carried by said rocking head, the rotation of which, through suitable gears or kindred motion-communicating devices, occasions the rotation of the can-holders, and which is provided with a pinion; fourth, a sliding rack-shaft gearing with the pinion of said head-shaft; fifth, a shuttle-carrier provided with shuttles and rigidly connected with the rack-shaft; sixth, a rotatable drum provided with shuttle-ways for the shuttles; and, seventh, mechanism whereby said rocking head is at predetermined intervals caused to rock, substantially as set forth.

4. In a machine for soldering the seams which secure the heads to the bodies of quadrangular, square, hexagonal, and other shaped sheet-metal cans having angular corners, the following instrumentalities in combination; first, rotatable can-holders each adapted to receive a can; second, a rocking head to which said can-holders are connected so as to rock therewith; third, a shaft connected with and carried by said rocking head, the rotation of which, through suitable gears or kindred motion-communicating devices, occasions the rotation of the can-holders, and which is provided with a pinion; fourth, a sliding rack-shaft gearing with the pinion of the head-shaft; fifth, a shuttle-carrier provided with shuttles and rigidly connected with the rack-shaft; sixth, a rotatable drum provided with shuttle-ways for the shuttle; and, seventh, a head-cam rotating in unison with the drum and adapted to bear against a part of said rocking head, so as to occasion the rocking of said head at predetermined intervals, substantially as set forth.

5. In a machine for soldering the seams which secure the heads to the bodies of quadrangular, square, hexagonal, and other shaped sheet-metal cans having angular corners, the following instrumentalities in combination: first, rotatable can-holders each adapted to receive a can; second, a rocking head to which said can-holders are connected so as to rock therewith; third, a shaft connected with and carried by said rocking head, the rotation of which, through suitable gears or kindred motion-communicating devices, occasions the rotation of the can-holders; fourth, mechanism whereby the rocking head is at predetermined intervals caused to rock; fifth, mechanism whereby the said shaft, which is connected with and carried by the rocking head, is at predetermined intervals caused to rotate; and, sixth, knockouts or devices for ejecting the cans from the holders, substantially as set forth.

6. In a machine for soldering the seams which secure the heads to the bodies of quadrangular, square, hexagonal, and other shaped sheet-metal cans having angular corners, the following instrumentalities in combination: first, rotatable can-holders each adapted to receive a can; second, a rocking head to which said can-holders are connected so as to rock therewith; third, a shaft connected with and carried by said rocking head, the rotation of which, through suitable gears or kindred motion-communicating devices, occasions the rotation of the can-holders; fourth, mechanism whereby the rocking head is at predetermined intervals caused to rock; fifth, mechanism whereby the said shaft, which is connected with and carried by the rocking head, is at predetermined intervals caused to rotate; sixth, knockouts or devices for ejecting the cans from the holders; and, seventh, suitable devices for at predetermined intervals occasioning the operation of the knockouts, substantially as set forth.

7. In a machine of the class above recited, in combination with the rocking head, head-shaft, and can-holders, a rack-shaft adapted for both oscillatory movement and longitudinal travel, a shuttle-carrier fixedly connected with said rack-shaft and provided with two shuttles, and a drum having two shuttle-ways which in opposite directions in continuous courses circumscribe the drum, and in which ways the shuttles are adapted to be respectively but alternately engaged, whereby upon the rotation of the drum the shuttle-carrier and rack-shaft are caused to travel longitudinally in both directions from end to end of the drum, substantially as set forth.

8. In a machine of the class above recited, in combination with the rocking head, head-shaft, and can-holders, a rack-shaft adapted for both oscillatory movement and longitudinal travel, a shuttle-carrier fixedly connected with said rack-shaft and provided with two shuttles, a drum having two shuttle-ways which in opposite directions in continuous courses circumscribe the drum, and in which the shuttles are adapted to be respectively but alternately engaged, and a head-cam rotating in unison with the drum, adapted to bear against the leg or other projection from the rocking head, whereby upon the rotation of the drum the shuttle-carrier and rack-shaft are caused to travel longitudinally in both directions from end to end of the drum and the rocking head is intermittently caused to rock, substantially as set forth.

9. A drum having two shuttle-ways, which in opposite directions in continuous courses circumscribe the drum, the said respective ways intersecting each other and being as to portions of their respective courses right-angular with respect to the axis of the drum, and as to other portions of said courses oblique thereto, and each of said ways terminating in an incline from the bottom of said way to the exterior surface of the drum, in combination with the shuttle-carrier and its connected shuttles, the sliding rack-shaft, the head-shaft, the rocking head, and the can-holders, substantially as set forth.

10. A drum having two shuttle-ways, which in opposite directions in continuous courses circumscribe the drum, the said respective ways intersecting each other and being as to portions of their respective courses right-angular with respect to the axis of the drum, and as to other portions of said courses oblique thereto, and each of said ways terminating in an incline from the bottom of said way to the exterior surface of the drum, and a head-cam rotatable in unison with said drum, in combination with the shuttle-carrier provided with shuttles, the sliding rack-shaft, the head-shaft, the rocking head provided with a depending leg for said head-cam to encounter, and the can-holders, substantially as set forth.

11. In a machine of the class above recited, the combination of the rocking head carrying can-holders and equipped with a head-shaft and pinion, the rack-shaft, the shuttle-carrier, the shuttle-drum, a driving-shaft geared so as to rotate said drum, a driving-pulley, and a clutch between said driving-pulley and said driving-shaft, substantially as set forth.

12. In a machine of the class above recited, the combination of the rocking head carrying can-holders and equipped with a head-shaft and pinion, the rack-shaft, the shuttle-carrier, the shuttle-drum, a trip spur-wheel rotating freely and geared from said drum, a driving-shaft geared so as to rotate said drum, a driving-pulley revolving freely upon said driving-shaft, a clutch for at will rendering the driving-pulley fast upon the driving-shaft, a treadle for operating said clutch, a spring-controlled shifter-rod for controlling the set of said treadle, and a trip for said shifter-rod mounted upon the trip spur-wheel, substantially as set forth.

13. In combination with a rocking head carrying can-holders and provided with a depending foot, the trip spur-wheel provided with a head stop adapted, in the revolution of said spur-wheel, to deflect the foot of the rocking head, substantially as and for the purposes set forth.

14. In combination with the rocking head, the knockouts, the knockout-link, the knockout-lever mounted upon the shifter-rod, the shifter-rod, the driving-shaft, and the knockout-cam upon said driving-shaft, as and for the purposes specified.

15. In a machine of the class above recited, the following devices in combination: the rocking head having a tubular arm or extension, a head-shaft journaled with respect to said tubular arm, the can-holder supports connected with the tabular arm, the can-holders carried by said holder-supports and geared from the head-shaft, and an axis in the housing of the machine, with respect to which axis said rocking head is adapted to rock, substantially as described.

16. In a machine of the class above recited, the combination of the rocking head carrying can-holders, constructed as described, and provided with a head-shaft equipped with a pinion, and the sliding cylindriform rack-shaft constituting the axis upon which said rocking head is mounted so as to rock, the pinion of the head-shaft being engaged with the racks of the rack-shaft, and the cylindric form of said rack-shaft preventing the disengagement of the pinion of the head-shaft with the rack of said rack-shaft when the head rocks, substantially as described.

17. In a machine of the class above recited, in combination with the rocking head formed with a tabular arm, a head-shaft journaled within said tubular arm and provided at its upper extremity with a toothed wheel and at its lower extremity with a pinion, can-holder supports carried by the said tubular arm of the head, and can-holders contained in said holder-supports and circumferentially provided with teeth which engage with the toothed wheel of the head-shaft, whereby upon the rotation of the head-shaft the can-holders are rotated in the same direction, substantially as described.

18. In a can-soldering machine of the class herein recited, and in combination with a rocking head carrying can-holders, with a shuttle-drum, and with a sliding rack-shaft, the shuttle-carrier provided with an arm to which one of the shuttles is applied, and also provided with an adjustable shuttle-casting to which the other shuttle is applied, substantially as and for the purposes set forth.

19. In a machine of the class above recited, the combination of the shuttle-drum, the sliding rack-shaft, the rocking head carrying can-holders, the shuttle-carrier provided with an arm and with two shuttles and mounted and operated as described, and a shuttle guide-bar fixed in the housing of the machine having bar-slots near its respective extremities, and operating, substantially as set forth, to retain the arm of the carrier either on its upper or under surface and the shuttle-carrier in such position as to cause the engagement of one or the other of its shuttles with the shuttle-drum, as and for the purpose specified.

20. In a machine of the class above recited, the rocking head carrying can-holders and provided with the depending leg and foot, in combination with the head-cam, and with the head-stop on the trip spur-wheel, the arrangement being such that the head-cam of the drum occasions four oscillations of the head between every engagement of the head-stop with the foot of the head, as and for the purposes set forth.

21. In combination with the rocking head carrying can-holders and provided with the depending leg, in a machine of the class above recited, the spiral head-spring for cushioning the downward throw of the rocking head, substantially as described.

22. The combination of the housing, the adjustable screw-sleeves, the rocking head carrying can-holders, and the sliding rack-shaft, as and for the purposes specified.

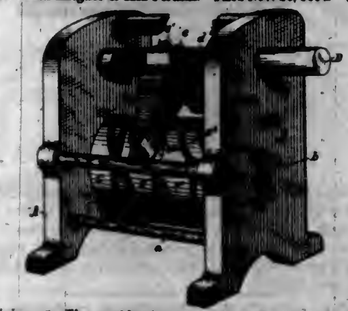
23. In a can-soldering machine of the class herein recited, the combination of the shuttle-carrier, the shuttle-casting, means for adjusting the set of said shuttle-casting laterally with respect to said carrier, the shuttle-drum, the sliding rack-shaft, and the rocking head carrying can-holders, as and for the purposes set forth.

24. The shuttle-drum provided with shuttle-ways of the character described, and with a head-cam, in combination with a rocking head carrying can-holders and provided with a depending leg, substantially as and for the purposes specified.

25. In a machine of the class above recited, in combination with the rocking head constructed as described, and equipped with can-holders and the head-shaft, the sliding rack-shaft, the shuttle-carrier, and shuttles connected with said sliding rack-shaft, a cam operating to occasion the lift and drop of the head, and a shuttle-drum provided with shuttle-ways, the courses of which ways form varying paths and are adapted, in the revolution of the drum and the engagement of a given shuttle, to occasion intermittent motions of the shuttle-carrier and rack-shaft calculated to impart predetermined rotations of varying extent to the can-holders, and between these intermittent advances to leave the rack-shaft at rest for periods long enough to permit of the operation of the cam for the movement of the rocking head, substantially as and for the purposes set forth.

314,469. MECHANICAL MOVEMENT FOR REVERSING MOTION.

GEORGE H. PERKINS, Philadelphia, Pa., and OBERLIN SMITH, Bridgeton, N. J.; said Smith assignor to said Perkins. Filed Nov. 20, 1884. (No model.)



Claim.—1. The combination of a rack-shaft adapted for both oscillatory movement and longitudinal travel, a shuttle-carrier fixedly connected with said rack-shaft and provided with two shuttles, and a drum having two shuttle-ways which in opposite directions in continuous courses circumscribe the drum, and in which ways both shuttles are adapted to be respectively but alternately engaged, whereby upon the rotation of the drum the shuttle-carrier and rack-shaft are caused to travel longitudinally in both directions from end to end of the drum, substantially as set forth.

2. A drum having two shuttle-ways which in opposite directions in continuous courses circumscribe said drum, and which terminate, respectively, in lifting-inclines, in combination with a shuttle-carrier having two shuttles, which are respectively adapted to travel within the respective shuttle-ways of the drum, and with a sliding oscillatory rack-shaft, upon which said shuttle-carrier is mounted, the arrangement being such that first one shuttle is engaged within one shuttle-way and caused to travel throughout its length from end to end of the drum, and then the other shuttle is engaged in the other shuttle-way and caused to travel in the opposite direction throughout its length from end to end of the drum, substantially as and for the purposes specified.

3. A drum having two shuttle-ways which in opposite directions in continuous courses circumscribe said drum, and which terminate, respectively, in lifting-inclines, in combination with a shuttle-carrier having two shuttles, which are respectively adapted to travel within the respective shuttle-ways of the drum, with a sliding oscillatory rack-shaft, upon which said shuttle-carrier is mounted, and with a shuttle-guide bar adapted to retain one or the other shuttle in its respective shuttle-way during its travel through the same, substantially as set forth.

4. A drum having two shuttle-ways which in opposite directions in continuous courses circumscribe the drum, the said respective ways intersecting each other, and being as to portions of their respective courses right angular with respect to the axis of the drum, and as to other portions of said courses oblique thereto, substantially as set forth.

5. A drum having two shuttle-ways which in opposite directions in continuous courses circumscribe the drum, the said respective ways intersecting each other, and being as to portions of their respective courses right angular with respect to the axis of the drum, and as to other portions of said courses oblique thereto, and each of said ways terminating in an incline from the bottom of said way to the exterior surface of the drum, substantially as set forth.

6. In a machine of the class above recited, the shuttle-carrier provided with an arm to which one of the shuttles is applied, and also provided with an adjustable shuttle-casting to which the other shuttle is applied, as and for the purposes set forth.

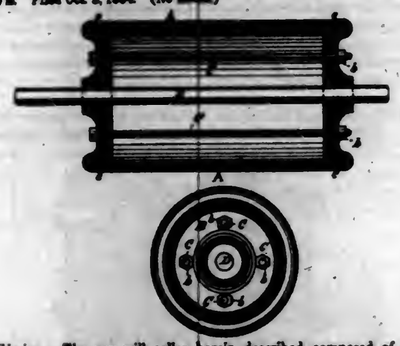
7. In a machine of the class above recited, in combination with the shuttle-drum, and with the shuttle-carrier provided with an arm and with two shuttles, and mounted and operated as described, a shuttle-guide bar fixed in the housing of the machine, having bar-slots near its respective

extremities, and operating substantially as set forth, to retain the arm of the carrier either on its upper or under surfaces and the shuttle-carrier in such position as to cause the engagement of one or the other of its shuttles with the shuttle-drum, as and for the purpose specified.

8. In combination with the shuttle-carrier, the shuttle-casting and means for adjusting the set of said shuttle-casting laterally with respect to said carrier, as and for the purposes set forth.

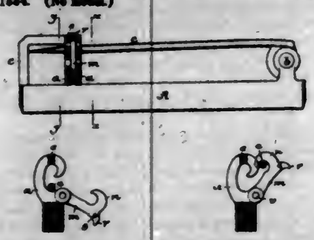
9. The combination of the rack-shaft, shuttle-carrier, and segmental carrier-head, substantially as described.

314,470. SAW-MILL ROLLER. SAMUEL B. PERRY, North La Crosse, Wis. Filed Oct. 3, 1884. (No model.)



Claim.—The saw-mill roller herein described, composed of the wrought-iron cylinder A, having its ends chamfered or beveled, and the cast-iron heads B B, provided with beveled circular recesses, in which the ends of the cylinder fit, the parts A B B being held together by means of the screw-bolts C and nuts b, substantially in the manner and for the purpose specified.

314,471. LACE-PIN AND OTHER SIMILAR FASTENINGS. SAMUEL PINOVER, New York, N. Y., assignor to A. Pinover & Co., same place. Filed July 30, 1884. (No model.)



Claim.—1. In a breastpin or analogous fastening, the combination, with the catch and the pin, of an arm pivoted at the root of the catch and at its front, and vibrating in a plane coincident with that in which lies the catch, as and for the purpose set forth.

2. In a breastpin or analogous fastening, the combination, with the bifurcated catch and the pin, of an arm pivoted at the root of the catch, so as to close the opening of the catch, as and for the purpose set forth.

3. In a breastpin or analogous fastening, the combination, with the catch and the pin, of an arm pivoted at the root of the catch and provided with a stop, as and for the purpose set forth.

4. In a breastpin or analogous fastening, the combination, with the catch and the pin, of an arm pivoted at the root and at the front of the catch, to vibrate transversely of the bar or base, and provided with a finger-piece, as and for the purpose set forth.

5. In a breastpin or analogous fastening, the combination, with the catch and the pin, of an arm pivoted at the root of the catch and provided with a hook, as and for the purpose set forth.

6. In a breastpin or analogous fastening, the combination, with the catch and the pin, of an arm pivoted at the root of the catch and provided with a stop, a finger-piece, and a hook, as set forth.

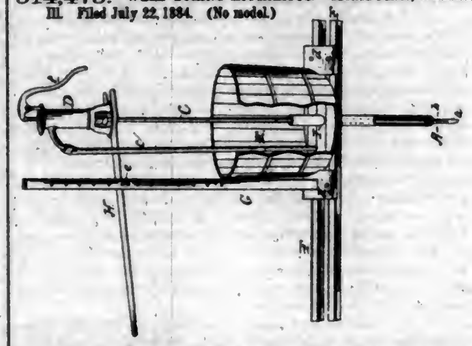
7. A breastpin or analogous fastening comprising the main bar or base, the hinged pin, the bracket, the fixed catch, and the arm pivoted at the root and at the front of the catch, as set forth.

314,472. GEAR-WHEEL. ARBOGE PLAISOUDON, Chicago, Ill. Filed Oct. 12, 1883. (No model.)

Claim.—As a new article of manufacture, a gear-wheel consisting of a hub, A, formed integral with a plate or flange, *a*, and a plate, B, provided with a central opening, and upon its outer edge with a toothed flange, *b*, the parts being so arranged and the central opening of plate B of such size that there will be a space left between flanges *a b* and between plate B and hub A, and the space between plate B and flange *a* being filled with elastic material C, as and for the purpose set forth.



314,473. WELL-BORING APPARATUS. GEORGE PLATT, Waseka, Ill. Filed July 22, 1884. (No model.)



Claim.—1. In an apparatus for sinking wells or other like excavations, a water-receptacle having an opening in its bottom, a surface-tube constructed from a short section of tubing and projected through the opening in the water-receptacle's bottom into the ground, with a portion thereof left extending upward in said receptacle, a reciprocally-operated pump, and a hollow perforated boring-tool connected to said pump by tubular sections of a diameter less than that of the surface-tube, substantially as and for the purpose set forth.

2. In a well-boring apparatus, a water-receptacle having projected through its bottom a surface-tube, a hollow perforated boring-tool having a stem composed of one or more tubular sections of less diameter than that of the surface-tube, in turn connected to a pump, and an adjustable lever having its forward end placed under the base of said pump, substantially as and for the purpose described.

3. In a well-boring apparatus, the combination, with a hollow boring-tool and a reciprocally-operated pump-stock connected to the upper end of the boring-tool, of a receptacle provided with a surface-tube fixed through the bottom thereof and loosely surrounding the boring-tool, and a tube fixed to the nozzle of the pump, and its free end opening into the receptacle, whereby the raised material is deposited in the receptacle and the water raised is utilized in the boring operation, substantially as described.

4. In a well-boring apparatus, the combination, with a hollow perforated boring-tool provided with a wire sieve or strainer, of a reciprocally-operated pump connected to and provided with an extended pipe or hose, a water-receptacle, and a surface-tube adapted to extend from the interior of the tube down into the ground and incase the stem of the boring-tool, substantially as shown and described.

314,474. PUNCHING-MACHINE. THOMAS M. PLATTS, Newark, N. J. Filed Apr. 11, 1884. (No model.)

Claim.—1. The combination, in a punching-machine, of the guides 6 6, arranged on a right-and-left screw, the bearings 8 8 of the bed-plate, a suitable finger-piece, 10, and a screw, 11, all arranged and operating substantially as and for the purposes set forth.

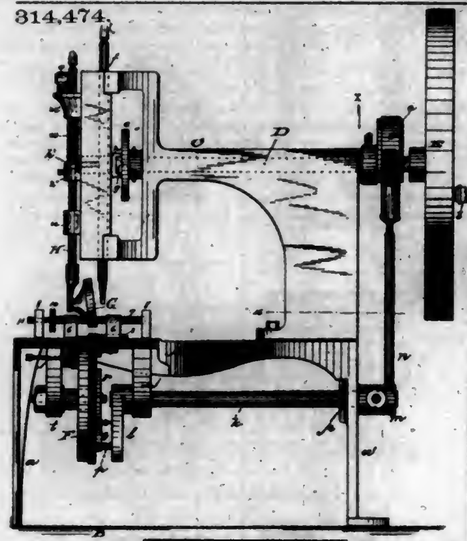
2. In a punching-machine, the combination of the horizontal shaft D, actuating the vertically-sliding piece, said vertically-sliding piece, the bar *f*, secured in said sliding piece by the set-screw A', and the punch, all said parts being arranged and operating substantially as and for the purposes set forth.

3. In a punching-machine, the combination of the arm C, presser-foot bar H, bearings *u u'*, adjustable piece 2, bearing against the face of the said arm and preventing the presser-wheel from turning, the spring *w*, and said presser-wheel, all said parts being arranged and operating substantially as set forth.

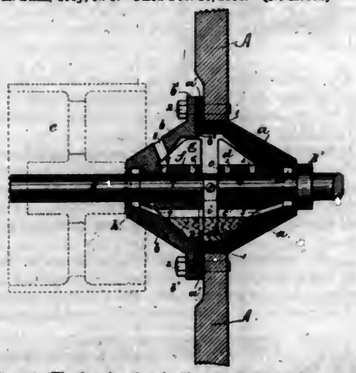
4. In a punching-machine, the combination, with the rocking shaft *k*, actuating the feeding mechanism intermittently, of a slotted and graduated arm secured on one end of said shaft, a connecting-rod, a bolt and nut, and a gage moving with said rod, substantially as set forth.

5. In a punching machine, the combination, with a bed-plate carrying a reciprocating punch, and having a series of perforations, one perforation to receive the shank of a bearing-disk, and the other a set-screw, of said reciprocating punch, said bearing-disk having a shank, and a set-screw to hold said shank in its perforation, said parts being arranged and operating substantially as and for the purposes set forth.

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314,475. BEARING FOR SHAFTING. JOSEPH A. POWERS and CLINTON M. BALL, Troy, N. Y. Filed Feb. 16, 1885. (No model.)



Claim.—1. The bearing for shafting, composed of the hollow shells *a b*, having uniting-flanges *a' b' b²*, internal bearing-tubes, *c f*, partitions *d g*, the oil-holes, channels, and chambers, in combination with a frame, A, and bolts 2, the shaft B, and a fin or paddle, *i*, upon the same, substantially as and for the purposes set forth.

2. In a bearing for shafting, the combination, with the shaft B and fin or paddle *i* upon the same, and a support for the bearing, of the hollow bearing-shells *a b*, the bearing-tubes *c f*, the inclined partitions *d g*, and openings for introducing oil within the shells, for conveying oil to the shaft, and for returning the oil back to the oil-well, as and for the purposes set forth.

314,476. JOURNAL-BEARING. PAUL S. REEVES, Phœnixville, Pa. Filed Aug. 14, 1884. (No model.)



Claim.—1. A journal-bearing formed of hard metal, having a recess on the face thereof and a lining of anti-friction or soft metal, said recess having its end portions of a greater depth than the central part thereof, substantially as described.

2. A journal-bearing formed of hard metal, having a recess on the face thereof and a lining of anti-friction or soft metal entering the same and continuing over the double-sloping front and rear walls thereof to the ends of the bearing, substantially as described.

3. A journal-bearing formed of hard metal, having a lining of anti-friction or soft metal entering a recess on the face thereof and continuing over the double-shaped walls at the front and rear ends thereof to the ends of the bearing, said lining being flush with the exposed parts of the face of the hard-metal portion and the curvatures of the said parts being coincident, the said recess having its end portions of a greater depth than the central part thereof, substantially as described.

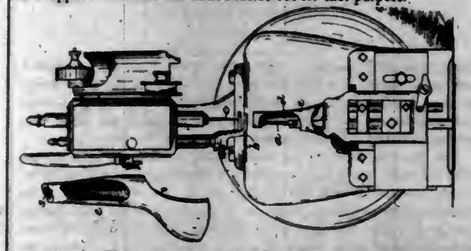
314,477. VERMIFUGE. ADDISON REGAN, Gleamore, Ga. Filed June 18, 1884. (No specimens.)

Brief.—Half a bushel of China berries and one barrel of boiling water are mixed and left until sour. Half a barrel of cornmeal and one barrel of boiling water are mixed and allowed to stand for fifty hours. Then half a barrel of cold water is added and this latter mixture allowed to commence fermenting. In ten days the two mixtures are united and distilled over a slow fire, and then filtered through charcoal. Dose, one to two tea-spoonfuls.

Claim.—The herein-described vermifuge mixture, consisting of a distillate of China berries (*Smilax China*) and cornmeal, as set forth.

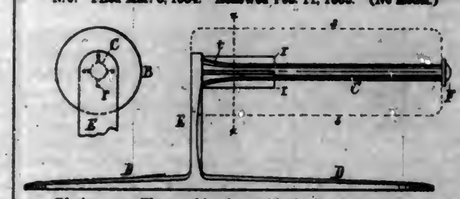
314,478. WAX-THREAD SEWING-MACHINE. ARTHUR S. RICHARDSON, Reading, Mass. Filed Mar. 17, 1884. (No model.)

Brief.—The construction is designed for stitching outer soles to shoe-uppers which are not turned inside out for that purpose.



Claim.—The combination, with the needle and awl of a wax-thread sewing-machine, of a standard for supporting the shoe, and the lower stitching devices flattened to permit the needle to penetrate the sole adjacent to the edge, and with an elongated slot to permit the play of the awl or needle, substantially as described.

314,479. TROWEL-HANDLE. CHRISTOPHER RICHARDSON, Newark, N.J. Filed Mar. 8, 1884. Renewed Feb. 11, 1885. (No model.)



Claim.—1. The combination, with the handle of a trowel, of the shank C, provided with ribs *r*, the shank being inserted in a hole bored in the handle, and the ribs being driven into the wood about the hole, all substantially as herein shown and described.

2. The combination, with the handle B, having central bored hole and notch cut in the end at one side of the hole, as described, of the stem E, fitted to said notch, and the shank C, provided with the ribs *r*, driven into the wood, and having its ends secured in the handle by rivet F, all as shown and described.

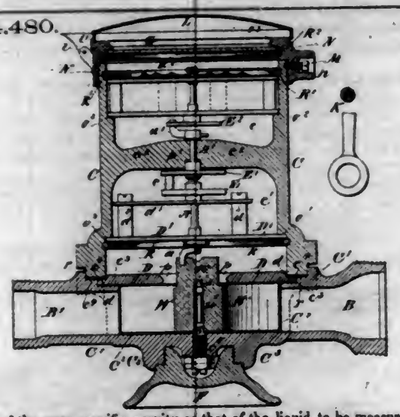
314,480. WATER-METER. PHILIPP H. ROSSBERANS and FRIEDRICH PROFFET, Hanover, Prussia, Germany, assignors to Droyer, Rossbrans & Droop, same place. Filed Oct. 2, 1884. (No model.) Patented in Germany May 23, 1880, No. 12,258, and July 15, 1881, No. 18,976; in England Dec. 8, 1880, No. 5,116, and in Austria-Hungary Jan. 7, 1881, No. 36,262 and No. 40,706.

Claim.—1. In a liquid-meter, the combination, substantially as described, of the meter-casing having a cylindrical measuring-chamber, an outlet-passage, and a tapering inlet-passage communicating with said chamber, with a measuring-wheel and an inlet-nozzle made of a taper corresponding with that of the inlet-passage in which said nozzle is loosely seated, for the purpose specified.

2. In a liquid-meter, the combination, substantially as described, of the meter-casing having a cylindrical measuring-chamber, an outlet-passage, and a tapering inlet-passage in communication with said chamber, with a measuring-wheel having peripheral wings or buckets, and an inlet-nozzle having a taper corresponding with that of the inlet-passage in which the nozzle is loosely seated, said nozzle being arranged to direct the inflowing liquid in the line of a tangent to the wheel, for the purposes specified.

3. In a liquid-meter, the combination, substantially as described, with the meter-casing having a cylindrical measuring-chamber, an outlet-passage, and a tapering inlet-passage in the line of a tangent to the chamber and communicating therewith, with a measuring-wheel of or

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about of the same specific gravity as that of the liquid to be measured, and an inlet-nozzle of a taper corresponding to that of the inlet-passage in which the nozzle is loosely seated, said nozzle being made of a material indifferent to the chemical or corrosive action of the liquid to be measured, for the purpose specified.

4. In a liquid-meter, the combination, substantially as described, with the meter-casing having cylindrical measuring-chamber, an outlet-passage, and a tapering inlet-passage on the line of a tangent to the chamber, with a measuring-wheel of or practically of the same specific gravity as that of the liquid to be measured, and constructed of a material indifferent to the chemical action of said liquid, and an inlet-nozzle of a taper corresponding with that of the inlet-passage in which the nozzle is seated, said nozzle being constructed of a material indifferent to the chemical action of the liquid to be measured, for the purposes specified.

5. A measuring-wheel for liquid-meters, having two sets of superposed wings projecting from a common hub in like plane, one set intersecting the space between the wings of the other set, for the purposes specified.

6. A measuring-wheel for liquid-meters, having two sets of superposed wings projecting in like planes and on lines inclined or tangential to and from a common hub, one set of wings intersecting the space between the wings of the other set, for the purposes specified.

7. In a liquid-meter, the combination, substantially as described, of the meter-casing having a cylindrical measuring-chamber, an outlet-passage, and an inlet-passage on the line of a tangent to said chamber, with a measuring-wheel provided with two sets of superposed wings projecting on lines inclined or tangential to and from a common hub, one set of wings intersecting the space between those of the other set, for the purposes specified.

8. In a liquid-meter, the combination, substantially as herein described, of a measuring-wheel the wings whereof are provided with recesses w^3, with a measuring-chamber in which are formed annular flanges c^4, projecting into said recesses, for the purpose specified.

9. In a liquid-meter, the combination, substantially as herein described, of a measuring-wheel having a central annular recess for a spindle, and an annular recess, w^2, in its hub or body, with a measuring-chamber and an inlet-passage therefor, for the purpose specified.

10. The combination, substantially as herein described, of the casing C, having partition c^3 and offsets o' o^2, the disk D', and the supporting-plates for the registering-gearing of the expansion-rings R R', for the purpose specified.

11. The combination, substantially as herein described, with the casing C, of the ring N, the cap or lid L, pivoted thereto, and the glass G, of the expansion-ring R^2 and means, such as described, to lock the ring N to casing C, for the purpose set forth.

12. The combination, substantially as herein described, of the casing C', its annular flange C^6, and the disk D with the casing C and foot-piece F, for the purpose specified.

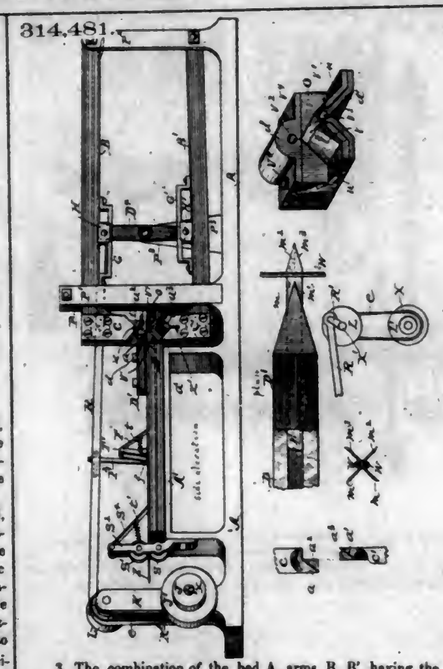
314,481. WIRE-BARBING MACHINE. JAMES C. ROSS, Joliet, Ill., assignor of one-half to James R. Speer, same place. Filed Nov. 12, 1884. (No model.)

Brief.—The strand-wires are fed continuously through the holes shown in the die-block and afterward twisted together.

Claim.—1. In a wire-barbing machine, the combination of the shear-punches C C', the dies D D', block O, having the inclined forming-sides v v', and the means, substantially as shown and described, for operating said parts, as and for the purpose set forth.

2. In the wire-barbing machine described, the head-block O, having the removable strand-wire guides d and d' and inclined forming-sides v v', for the purpose set forth.

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3. The combination of the bed A, arms B B', having the boxes G G', working-beam D^4, pitman B, shear-punches C C', dies D D', head-block O, and the means, substantially as described, for operating said parts, as and for the purpose set forth.

4. In the machine described for cutting and forming flat metal barbs, the combination of the shear-punches C C' and the means described for operating them, head-block O, having the inclined forming-sides v v' and removable strand-wire guides d and d', dies D and D', and the means described for feeding forward the barb-strip, as and for the purpose set forth.

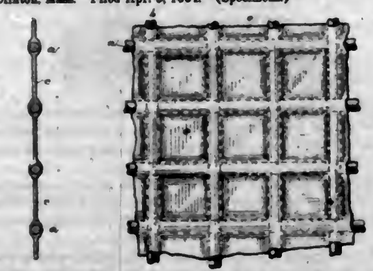
5. In the machine described for forming flat metal four-pointed barbs, the combination of the shear-punches C C', head-block O, having the detachable strand-wire guides d d', and dies D D', and the means described for operating said parts, substantially as and for the purpose set forth.

314,482. LATHE-DOG. HUGO SALOMO, Melbourne, Victoria. Filed Jan. 22, 1885. (No model.)



Claim.—The herein-described carrier for wood-turning, composed of a shank, B, provided with a groove, B', and terminating in a cylindro-conical head, A', the center A^3, and the wings A^2, radiating from said center, for the purpose specified.

314,483. MANUFACTURE OF WIRE-CLOTH. BENJAMIN SCARLES, Clinton, Mass. Filed Apr. 5, 1884. (Specimens.)

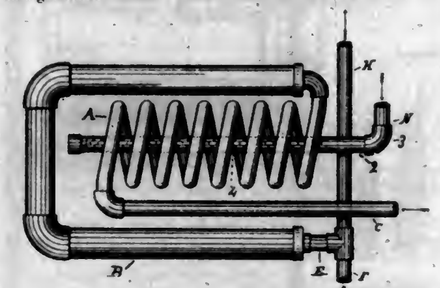


Claim.—1. Open-work wire-cloth provided with a translucent impervious film, coating the wires thereof and closing the openings between them, substantially as described.

2. Open-work wire-cloth provided with a translucent impervious film, coating the wires thereof and closing the openings between them, said film being ornamented, substantially as described.

314,484. APPARATUS FOR MANUFACTURING OIL-GAS. BENJAMIN C. SMITH, Salem, Mass. Filed May 31, 1884. (No model.)

Brief.—Oil is vaporized in a coil of pipe, and the resulting vapor made into a fixed gas by passage through a heated chamber of larger diameter. Air is forced into the gas on the way to the holder, and the mixed gas and air pass from a perforated pipe into the water in the holder-tank, whereby impurities are washed out. A perforated burner-pipe connecting with a gas-pipe from the holder passes through the vaporizing-coil for heating such coil and the U-shaped fixing-chamber with a gas-flame.



Claim.—1. An apparatus for manufacturing gas, consisting of an oil-supply tank and pipe leading into a vaporizer, A, a fixing-chamber connected to said vaporizer, a pipe, H, leading from said fixing-chamber to a gasometer, the end of said pipe in the gasometer being perforated below the level of the water, and an air-pump connected to said pipe H, substantially as described, and for the purpose set forth.

2. In the manufacture of gas, an apparatus consisting of an oil-supply tank, D, pipe-connections, and a generator, the generator consisting of a pipe forming a vaporizer coiled within a heating-chamber, a U-shaped section of larger pipe forming a fixing-chamber surrounding the said vaporizer, and pipe-connections to the gasometer, substantially as described.

3. In the manufacture of gas, an apparatus consisting of an oil-supply tank, pipe-connections to the generator of substantially the form described, pipe-connections from said generator to the gasometer, and a pipe, N, leading from said gasometer to the heating-chamber of the generator, and a perforated pipe, 4, extending from said pipe N to the interior of the heating-chamber through the space formed by the coils of the vaporizer, whereby the gas from the gasometer is used as a fuser, and great heat obtained by the direct action of the flame upon the coils of the said vaporizer.

314,485. INHALER. WILLIAM B. SPENCER, Terre Haute, Ind. Filed Oct. 14, 1884. (No model.)



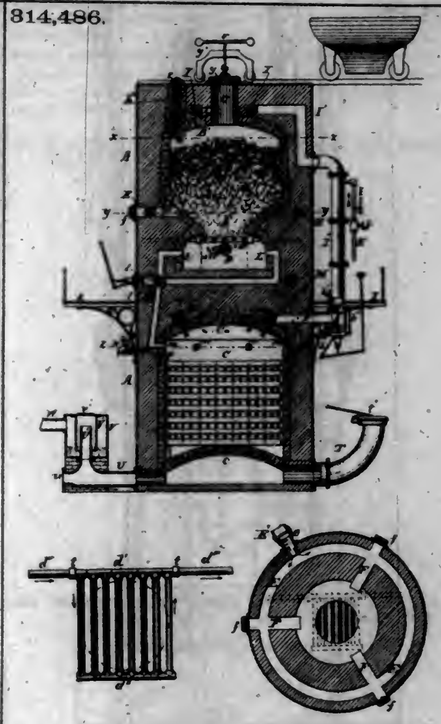
Claim.—A pulmonic shield comprising an approximately oval-shaped body extended forward at the upper end to receive the nose, and open-work connecting the sides of the body, in combination with a rim hinged to the body, and having its sides connected by open-work and fitting over the sides of the body, a catch for holding the rim to the body, and bands connecting with the rim, as and for the purpose set forth.

314,486. PROCESS OF MANUFACTURING GAS. THEODORE G. SPRINGER and GEORGE W. JEREMY, New York, N. Y.; said Jeremy assignor to said Springer. Filed Mar. 4, 1884. (No model.)

Brief.—The lower portion of a deep body of fuel is raised to incandescence and the upper portion thereof is highly heated by an air-blast at the bottom, and the resulting gaseous products are burned in a fixing-chamber below the fuel-chamber. After heating up, steam is superheated by passage down through the cooler portion of fuel, and then decomposed by passage down through the incandescent portion. The resulting water-gas is carbureted by liquid hydrocarbon sprayed into it in the heated fixing-chamber, the gas being drawn into the spraying-injector and forced with the hydrocarbon spray into the fixing-chamber, and thus circulated till an intimate mixture is effected, after which the mixture is converted into a fixed gas by passage down through the heated fixing-chamber.

Claim.—1. The process of manufacturing gas which consists in blasting a body of fuel with air in one direction till it is highly heated,

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using the resulting gaseous products for heating up a fixing-chamber, then superheating and decomposing steam by passing it first into the cooler portion of the fuel, and then down through the hottest portion thereof in a direction the reverse of the air-blast, carbureting the resulting water-gas, and then converting it into a fixed gas in a chamber by the heat previously stored from the waste gaseous products, for the purpose described.

2. The process of manufacturing gas which consists in highly heating a body of fuel by passing the air-blast up through it, and at the same time heating a fixing-chamber by means of the resulting gaseous products, then superheating and decomposing steam by passing it down through the heated body of fuel, carbureting the resulting water-gas, and then converting it into a fixed gas by passing it through the heated brick-work in the fixing-chamber, for the purposes described.

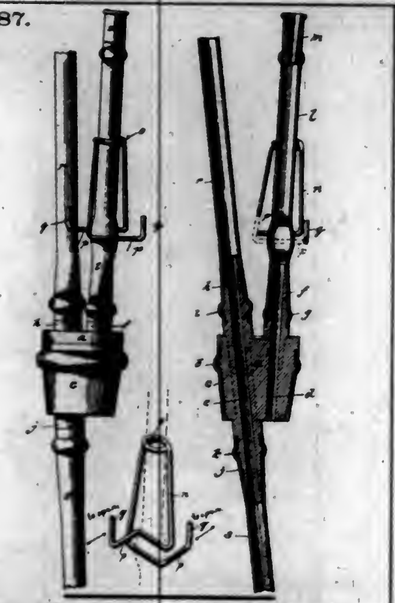
3. The process of manufacturing gas which consists in raising a portion of a body of fuel to incandescence and highly heating the remaining portion by an air-blast, and at the same time heating a carbureting and fixing chamber by the resulting gaseous products, then superheating steam in the least highly-heated portion of the fuel and decomposing it in the incandescent portion of the fuel, carbureting the resulting water-gas with hydrocarbon liquid sprayed into it, and mixing the gas and hydrocarbon vapor uniformly by drawing gas into the spray of hydrocarbon and injecting them together into the fixing-chamber, and finally converting the mixture into a fixed gas by passing it down through the heated fixing-chamber.

4. In the manufacture of illuminating-gas, the process of uniformly carbureting and fixing the water-gas, which consists in injecting a spray of hydrocarbon liquid into the gas, and continuously drawing a portion of the gas through a suitable passage into the spray of hydrocarbon and injecting them together into the fixing-chamber, and thereby circulating the gas and vapor from and into the same chamber till they are intimately mixed, then through highly-heated refractory material, as described.

314,487. SIPHON. ALFRED D. STAINSBURY, Colliers, W. Va. Filed Oct. 2, 1884. (No model.)

Claim.—A siphon composed of the stopple a, of non-porous and non-absorbent material or substance, having the circumferential bead b and external packing, c, and the beaded nipples f h j, communicating with longitudinal passages in said stopple, in combination with the pressure and exit tubes l and p e, respectively secured thereto, and the valve or compressor on the pressure-tube, as and for the purpose set forth.

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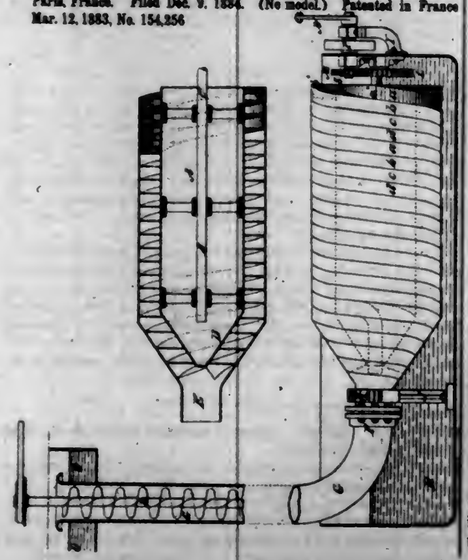


314,488. APPARATUS FOR FREEZING PARAFFINE-OILS. JOHN TEAGLE, Cleveland, Ohio. Filed Nov. 13, 1884. (No model.)



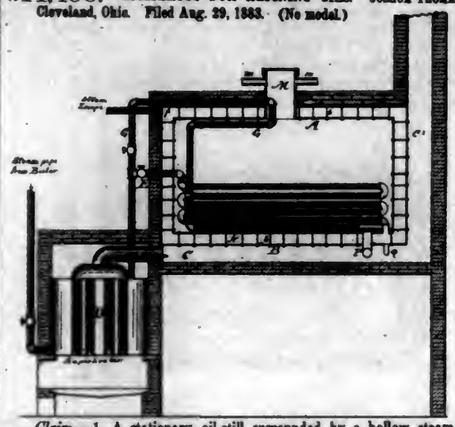
Claim.—The combination, with the tank A and cylinder B, the former containing a refrigerating material and the latter arranged to rotate thereio, of the flexible roller or wiper E, adjustably arranged therewith, an inclined shelf, F, and perforated pipe G, for conducting the oil to the cylinder, and the adjustable scraper H, for removing the paraffine from the cylinder, substantially as specified.

314,489. APPARATUS FOR PROPELLING FLUIDS. HECTOR THIERY, Paris, France. Filed Dec. 9, 1884. (No model.) Patented in France Mar. 12, 1883, No. 154,256



Claim.—The combination of the rotary body A D, partly cylindrical and partly conical, the tubes *a b c d*, coiled on both the cylindrical and conical portions of said body, the central conduit, E, attached to said body and to which the said tubes converge, the stationary outlet-pipe G, and the stuffing-box connection F between said central conduit and said outlet-pipe, substantially as herein described.

314,490. APPARATUS FOR REFINING OILS. JOSHUA THOMAS, Cleveland, Ohio. Filed Aug. 29, 1883. (No model.)



Claim.—1. A stationary oil-still surrounded by a hollow steam-jacket, in combination with a steam-heating coil in the lower part of said still, but discharging extenally thereto, said still being closely incased in masonry, substantially as set forth.

2. The combination of a steam-jacketed still, an internal heating-coil, an independent steam-jet pipe, and means for supplying superheated steam, substantially as set forth.

3. The combination of a steam-jacketed still, an internal heating-coil, an independent steam-jet pipe, and means for supplying superheated steam, the whole being inclosed in brick-work, substantially as set forth.

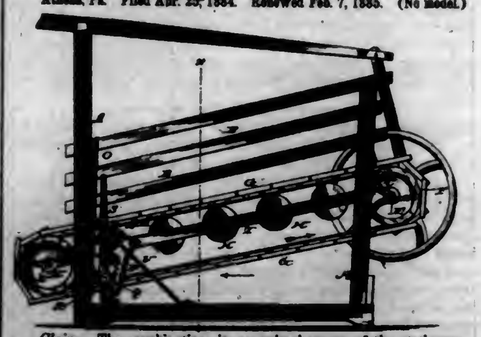
4. The combination of a steam-jacketed still, an internal heating-coil, an independent steam-jet pipe, and means for supplying superheated steam, the whole being inclosed in brick-work, and connected with a furnace, substantially as set forth.

314,491. WIND-GUARD FOR VELOCIPEDE-BOATS. JAS. THOMPSON Boston, Mass. Filed Dec. 22, 1884. (No model.)



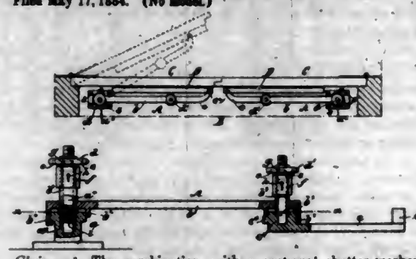
Claim.—A velocipede-boat having the operative mechanism for propelling it, as described, in combination with a wind-guard arranged in front of such mechanism, such guard being narrower in front and diverging backward, as and for the purpose set forth.

314,492. ANIMAL-POWER. MARK THOMPSON and JOHN KUCHER, Athens, Pa. Filed Apr. 25, 1884. Renewed Feb. 7, 1885. (No model.)



Claim.—The combination, in an animal-power, of the stationary frame, the ways I, carrying the endless traveling platform, and hinged in the forward part of the frame, the ways or guides B, attached to the parts N and O, which (said parts) are attached to the upper part of the frame, the downward-projecting racks P, fastened to the rear ends of the platform-supporting ways, shaft R, having pinions Q, adapted to engage said racks on opposite sides of the frame, lever S, and notched brace-bar U, the whole constructed and combined to operate substantially in the manner and for the purpose herein shown and specified.

314,493. SHUTTER-WORKER. LEONARD TILTON, Brooklyn, N. Y. Filed May 17, 1884. (No model.)



Claim.—1. The combination, with a sectional shutter-worker, of locks mounted on one of said sections, and adapted to engage a part of the section upon which said lock-carrying section pivots, substantially as set forth.

2. The stud *a*, provided with bolt a^1, and formed with the serrations a', in combination with the main section *b*, formed with the serrations b' and placed upon the bolt and stud, and held by the nut *d*, substantially as and for the purposes set forth.

3. The stud *a*, provided with the bolt a^1, combined with the section *b* and interposed spring *i*, the hub and section being serrated, and means for holding said serrated surfaces engaged against the action of the spring, substantially as and for the purposes set forth.

4. The section *b*, formed with the sleeve b^3, and the lock *f*, attached to said sleeve, in combination with the stud *a*, bolt a^1, and nut *d*, having recesses to receive the bolt of the lock, substantially as set forth.

5. The stud *a*, having bolt a^1, and lugs a^2, in combination with the section *b*, fitted upon the bolt and hub, and formed with the stop b^4, substantially as and for the purposes set forth.

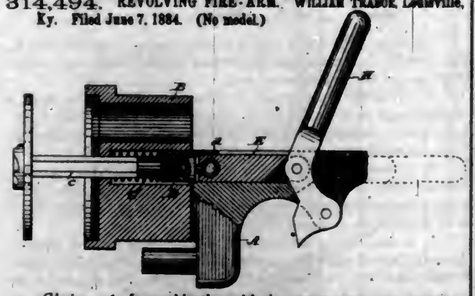
6. The section *b*, formed on its outer end with a circular cup, b^6, and serrations b^5 on its upper inner surface, in combination with the outer section, *c*, formed with a circular hub, c', provided with the bolt c^3, and formed with the serrations c^2 on its upper surface, and a nut for holding said serrations engaged, substantially as set forth.

7. The section *b*, formed with the sleeve b^3 at its outer end, and the lock *f*, attached to said sleeve, in combination with the section *c*, bolt c^3, and nut d', having cavities in its under surface for receiving the bolt of the lock, substantially as described.

8. The section *c*, formed with the hub c' and lug c^4, in combination with the bolt c^3, nut d', and section *b*, formed with the projection b^5, substantially as and for the purposes set forth.

9. The shutter-worker herein shown and described, consisting of the serrated stud *a*, serrated sections *b c*, and the bolts a^1 c^3, in combination with the nuts *d* d' and locks *f*, for locking the nuts, substantially as described.

314,494. REVOLVING FIRE-ARM. WILLIAM TRABUE, Louisville, Ky. Filed June 7, 1884. (No model.)



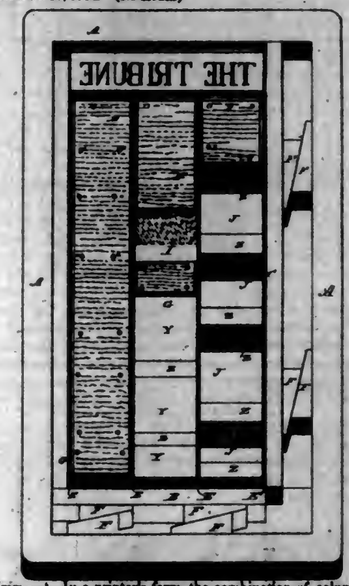
Claim.—1. In combination with the ejector-plate and operating-lever of a fire-arm of the kind specified, a rod for connecting the two made in two or more parts and connected by one or more ball-and-socket joints.

2. The combination, with the cylinder and swinging frame of a pistol of the kind described, bored to receive the ejector-rod, of the rod made in two or more sections and connected by one or more ball-and-socket joints and an operating-lever mounted in the frame, substantially as described.

3. The combination, with the ejector-plate and operating-lever of a fire-arm of the type referred to, of the ejector-rod joined by ball-and-socket joint provided with a spring adapted to exert a pressure to retain the plate in its normal position.

4. The combination, with the cylinder B, having a central passage, the rear portion of said passage being angular in cross-section and the forward portion being circular, in combination with the ejector-rod composed of two or more sections connected by one or more ball-and-socket joints, the configuration of the said rod being coincident to that of the passage in the cylinder, substantially as described.

314,495. PRINTER'S FORM. FREDERICK K. TRACY, Chicago, Ill. Filed Feb. 18, 1884. (No model.)



Claim.—1. In a printer's form, the combination of column-rules, a series of long and short blocks for the base in each column, and printing-plates placed between the rules and secured to the short blocks of the base.

2. In a printer's form, the combination of column-rules, a series of long supporting-blocks and short fastening-blocks somewhat lower than the supporting-blocks, and thin printing-plates placed between the rules and secured to the fastening-blocks.

3. In a printer's form, the combination of column-rules, a series of long metal supporting-blocks and short fastening-blocks in each column, and thin printing-plates placed between the rules and secured to the fastening-blocks.

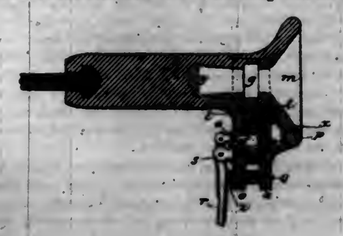
4. In a printer's form, the combination of column-rules, a series of long supporting-blocks and short wooden fastening-blocks in each column, and thin printing-plates between the rules and secured to the fastening-blocks.

5. In a printer's form, the combination of column-rules, a series of long metal supporting-blocks and short wooden fastening-blocks in each column, and thin printing-plates between the rules and secured to the fastening-blocks.

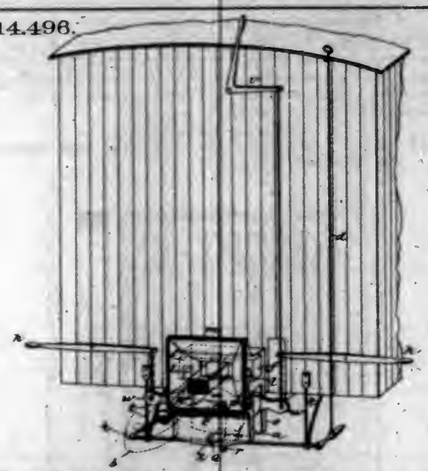
6. In a printer's form, the combination of column-rules, a series of long metal supporting-blocks and short wooden fastening-blocks somewhat lower than the supporting-blocks in each column, and thin printing-plates placed between the rules and secured to the fastening-blocks.

314,496. CAR-COUPLING. ALVIN W. VAN DORSTON, Salem, Oreg. Filed June 20, 1882. (No model.)

Claim.—1. In a draw-head having the front and back walls, *o* and *a*, the slotted stud S, lever *r*, and movable latch *e*, the pin-holes and pins passing through from the back wall, *o*, to the space, I', between the wall *a* and front end, the rubber block *z*, extending from the front wall,



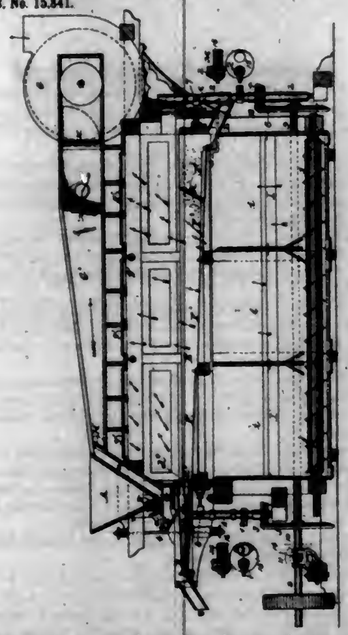
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a, through the back wall, *o*, to the readjusting-lever *r*, and the pin Q, for supporting the said rubber block *z*, as shown and described.

2. In a draw-head, the combination of the rubber block *z* with the readjusting-lever *r*, in connection with the levers *l* between the walls *o* and *a*, connecting with the jaws *f*, reciprocating in the grooves *g*, for the admission of a connecting-bar, substantially as described.

314,497. SEPARATING-MACHINE. PIETER VAN GELDER, Sowerby Bridge, County of York, England. Filed Sept. 6, 1883. (No model.) Patented in England Feb. 28, 1883, No. 1,063; in France Aug. 28, 1883, No. 157,277; in Belgium Aug. 29, 1883, No. 62,443, and in Italy Sept. 3, 1883, No. 15,841.



Claim.—1. In a separating-machine for peas, the hopper A and feed-roller B, revolving with its upper surface traveling toward the neighboring back of the hopper and bringing the feed down between the back of the hopper, and feed-roll, and then between the bottom of the hopper and the feed-roll, the bottom and side of the hopper thus forming, roughly, a concave surface, between which and the roller the feed is drawn, said hopper-bottom being constructed with the feed-hole *b* and lip *a'*, rising beyond the feed-hole nearly to the top of the feed-roll, substantially as and for the purpose described.

2. In a separating-machine, the combination of a main frame or casing, a reciprocating sieve-frame mounted in said main frame, and provided with a series of sieves of gradually-increasing coarseness, a bridge extending transversely across the sieve-frame near its lower end, an imperforate plate in the same plane with the sieves, beyond the bridge, an air-trunk above the sieves, having openings of increasing size to correspond with the increase in size of the meshes of the sieves, and a fan for producing a current of air through said trunk, all constructed and arranged to operate substantially as set forth.

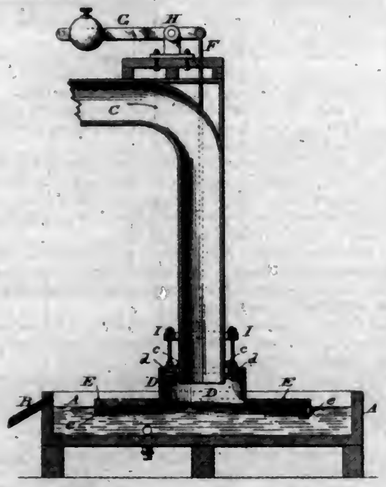
3. In combination with sieve F^2, having imperforate plate F^3 and bridge K, an air-trunk above the sieve, and provided with an air-inlet beyond the end thereof, and a fan adapted to cause a current of air to pass upward through the sieve to said outlet.

4. In a separating-machine, the combination of two vertical shafts geared to rotate synchronously, a sieve or screen carried at its ends by eccentrics placed at equal angular distances upon said shafts, and a pair of counterweighted eccentrics placed on the same shafts at an angle of one hundred and eighty degrees with the sieve-eccentrics, whereby the sieve may be counterbalanced throughout its entire movement.

5. In combination with vertical shafts 1 2, provided with eccentrics 7 8, carrying a screen-frame, E, horizontal shaft 9, geared with shafts 1 2, to impart equal and synchronous motion thereto, and eccentrics 15, provided with wells or recesses M, to receive weights 16, and secured upon the vertical shafts in position diametrically opposite the eccentrics 7 8, by which the screen-frame E is carried.

6. In a separator, the combination of a shaft, a counter-weight placed eccentrically to the shaft, and provided with weight-hole M and weights, as and for the purpose described.

314,498. DUST-SEPARATING MACHINE. PIETER VAN GELDER, Sowerby Bridge, County of York, England. Filed Dec. 9, 1884. (No model.) Patented in England Feb. 28, 1883, No. 1,063; in France Aug. 28, 1883, No. 157,277; in Belgium Aug. 29, 1883, No. 62,443, and in Italy Sept. 3, 1883, No. 15,841.



Claim.—1. The herein-described dust-collector, comprising tube C, box or casing D, carrying float E, and tank A, filled with water or other liquid, as and for the purpose set forth.

2. In combination with tank A, containing water or other liquid, a discharge-pipe for dusty air extending nearly to the surface of the liquid, and a casing encircling the lower end of the pipe and resting upon the liquid, as and for the purpose set forth.

3. In combination with a tank containing water or other liquid, a discharge-pipe for dusty air extending nearly to the surface of the liquid, and a casing encircling the lower end of the pipe and provided with a float, substantially as shown and described.

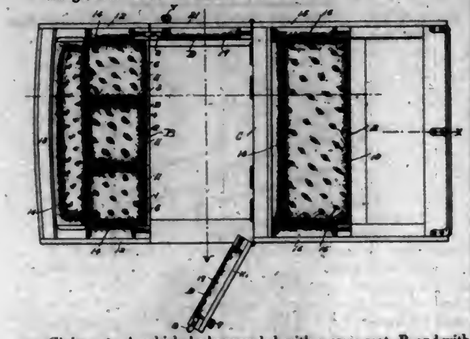
4. In combination with a tank containing water or other liquid, a discharge-pipe for dusty air extending nearly to the surface of the liquid, a casing encircling the lower end of the pipe, and a float attached to the casing and provided with pins or teeth, as and for the purpose described.

5. In combination with a tank containing water or other liquid, a discharge-pipe for dusty air extending nearly to the surface of the liquid, a casing encircling the lower end of the pipe, and a float attached to the casing and provided with teeth or pins increasing in length toward the periphery of the float, as shown and described.

6. In combination with a tank containing water or other liquid, a stationary discharge-pipe for dusty air extending nearly to the surface of the liquid, a counterweighted casing encircling the lower end of the pipe and provided with a float.

7. In combination with a tank containing water or other liquid, dusty-air-discharge pipe C, casing D, float E, provided with pins *e*, and washer *c*, all arranged and operating substantially as described.

314,499. BODY AND SEAT FOR VEHICLES. DANIEL A. VANSOMEREN, Orange, N. J. Filed Oct. 29, 1884. (No model.)



Claim.—1. A vehicle-body provided with a cross-seat, B, and with hinged seats E F, arranged to join with the cross-seat to form side seats upon each side of the body, substantially as described.

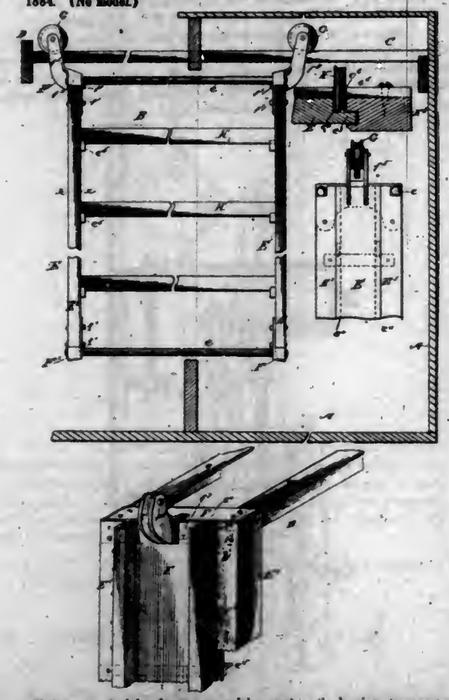
2. A vehicle-body provided with a cross-seat, B, having a removable middle part, 2, and with hinged seats E F, arranged to join with the ends of the cross-seat to form side seats upon each side of the body, substantially as described.

3. A vehicle-body provided with a cross-seat, B, having a removable middle part, 2, and with hinged seats E F, arranged to join with the ends of the cross-seat to form side seats upon each side of the body, and to be turned up into recesses 20 in the partition C when not in use, substantially as described.

4. A vehicle-body provided with side doors, D, and a cross-seat, B, having a removable middle part, 2, and with hinged seats E F, arranged to join with the ends of the cross-seat to form side seats upon each side of the body, and to be turned up into a vertical position when not in use, substantially as described.

5. A vehicle-body provided with a cross-seat, B, consisting of a removable middle part, 2, and stationary end parts, 1 3, and with the brackets or braces 5, arranged to support the inner corners of said parts 1 3, substantially as described.

314,500. DRIER. THOMAS S. WILES, Albany, N. Y. Filed Mar. 19, 1884. (No model.)



Claim.—1. A drier-frame comprising end walls having transverse castings and metallic tie-rods firmly seated in the castings at opposite ends of the frame, whereby the frame as a whole is prevented from warping, substantially as specified.

2. A drier-frame comprising an end wall and a casting or castings secured across its end or ends, and metallic tie-rods connected with said castings, substantially as specified.

3. A drier-frame having a vertically-grooved end wall, metallic stiles, end castings secured together, and metallic tie-bars secured to the upper and lower ends of the wall, substantially as specified.

4. A drier-frame having an end wall, comprising a sheet-metal panel bent to form interior vertical grooves for receiving clothes-bars, castings secured to its ends, one of which is provided with brackets for the attachment of a supporting-roller, substantially as specified.

5. A drier-frame, an end wall of which comprises an interiorly-grooved panel, vertical stiles, castings secured to the ends of said stiles, cleats secured to the inner surface thereof, both of said castings being adapted to receive tie-bars, and one or both having brackets for a supporting-roller, substantially as specified.

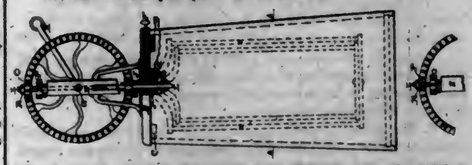
6. The casting F, provided with perforations f^2, for attachment to an end wall or panel, lugs f^3, (or their described equivalents,) perforated for the reception of tie-rods, and with brackets f^4, substantially as specified.

7. The combination of the panel E, the stiles E', the upper casting, F, having brackets f^4, and the lower casting, F', these elements being connected to each other, substantially as shown and described.

8. The combination of the vertically-grooved sheet-metal panel E, metal stiles E', cleats e^3, and castings F F', substantially as shown and described.

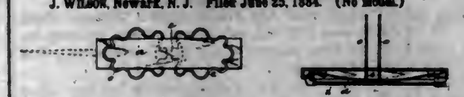
9. In a drier-frame, an end wall comprising a panel provided with two vertical grooves formed by rabbeting or shaping its edges, and stiles secured to said edges outside of said grooves, substantially as specified.

314,501. CHURN. HOMER T. WILSON and BLUFORD B. SANDERS, Dallas, Tex. Filed May 13, 1884. (No model.)



Claim.—In a churn, the combination of the frame E, the driving-wheel which meshes with both pinions, the shaft P, having its upper end screw-threaded and provided with a stop, the pinion O, placed upon the screw-threaded portion of the shaft, and having a rising and falling movement thereon, the lower pinion, sleeve, and two dashers which revolve in opposite directions, substantially as shown.

314,502. COMBINED LACE-PIN AND FLOWER-HOLDER. THOMAS J. WILSON, Newark, N. J. Filed June 25, 1884. (No model.)



Claim.—1. In combination, the lace-pin body and pin and pivoted loops, arranged and operating to hold the flower-stems.

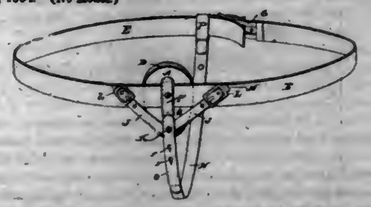
2. The combination of a lace-pin and spring-actuated loops, substantially as set forth.

3. The combination of a lace-pin, a loop arranged in side bearings thereof, and a spring on the under side of the body of said lace-pin bearing on said loop, substantially as set forth.

4. The combination, with the lace-pin, of spring-actuated clamps adapted to press the flower-stem against the face of said body to hold the same in position.

5. In a lace-pin, the body provided with a pin and a pivoted loop, substantially as set forth.

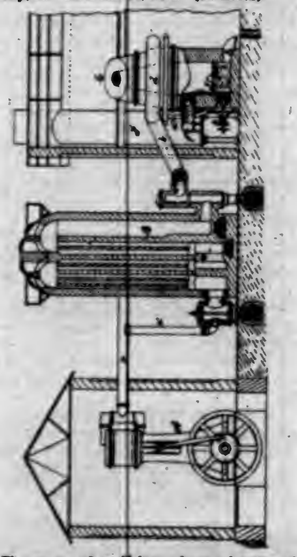
314,503. TRUSS. ALANSON D. WINTERS, Bombay, N. Y. Filed July 16, 1884. (No model.)



Claim.—In a truss, the combination, with the pad, of the waistband, crotch-band, and the supplemental connecting-straps extending from the pad to the waistband, said straps and bands being adjustable in length,

so that the pad may be set at any angle desired, as and for the purpose set forth.

314,504. PROCESS OF PURIFYING PIG-IRON. JAMES P. WITHEROW, Allegheny, Pa. Filed Jan. 16, 1884. (No model.)



Claim.—1. The process of purifying a charge of molten pig metal which consists in blowing or oxidizing the metal, as described, and removing the slag during and without interrupting the blow, substantially as and for the purposes described.

2. The process of purifying a charge of molten pig metal, which consists in blowing or oxidizing the metal, tapping off the slag containing the silica, then continuing the blow, and subsequently tapping the slag again to remove the phosphorus, substantially as described.

3. The process of purifying a charge of molten pig metal, which consists in blowing or oxidizing the metal, removing the silicon, phosphorus, and other impurities by successive discharges of slag during the continuance of the blow, and maintaining the heat, after the carbon, silicon, and phosphorus are exhausted, by a heated or superheated blast, substantially as and for the purposes described.

314,505. INGOT IRON AND STEEL. JAMES P. WITHEROW, HENRY W. OLIVER, Jr., JOHN F. WILCOX, and GEORGE E. TENER, Pittsburg, Pa.; said Wilcox and Tener assignors to said Oliver and Witherow. Filed Feb. 4, 1885. (Specimens.)

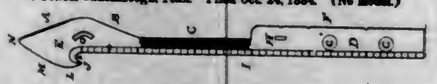
Claim.—Phosphor ingot iron or steel practically free from silicon and low in carbon, substantially as described.

314,506. PROCESS OF MAKING INGOT IRON AND STEEL. JAMES P. WITHEROW, HENRY W. OLIVER, Jr., JOHN F. WILCOX, and GEORGE E. TENER, Pittsburg, Pa.; said Wilcox and Tener assignors to said Oliver and Witherow. Filed Feb. 4, 1885. (Specimens.)

Claim.—1. The process of making phosphor steel herein described, which consists in blowing a charge of molten pig metal high in phosphorus, and removing the slag containing the silicon when formed, substantially as and for the purposes described.

2. The process of making phosphor steel herein described, which consists in blowing a charge of molten pig metal high in phosphorus, removing the slag during the earlier period of the blow, and continuing the blow until the carbon is consumed.

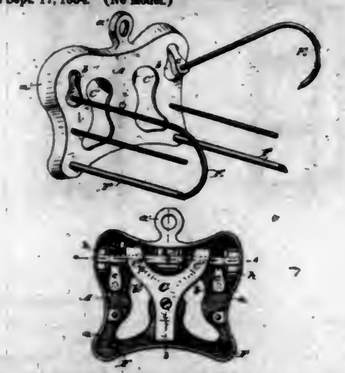
314,507. COMBINED KNIFE, ERASER, LETTER-OPENER, &c. W. W. YONGE, Chattanooga, Tenn. Filed Oct. 24, 1884. (No model.)



Claim.—1. A combination-tool for desk use, consisting of a handle, D, a reduced portion connecting the handle with the head portion, the said head being double-bladed and having upon side the hook J, the said tool being adapted for the uses enumerated, substantially as described.

2. A combination desk-tool consisting of the handle having a straight-edge upon one side and measuring-notches on the other edge, the reduced portion having a file upon one edge and forming a continuation of the straight-edge of the handle upon the other, and the bladed head comprising a knife, an eraser, nail-cleaner, letter-opener, wrapper-opener, and pencil-sharpener, all substantially as described.

314,508. TEMPORARY BINDER. ABEL T. ATHERTON, Lowell, Mass. Filed Sept. 17, 1884. (No model.)



Claim.—The combination, with the posts F and base-plate A, of the curved retaining-wires E, the separate bars B, one for each curved retaining-wire, abutting at the inner ends, the end and center bearings A, and the spring C, these parts being constructed and arranged in the manner herein shown and described.

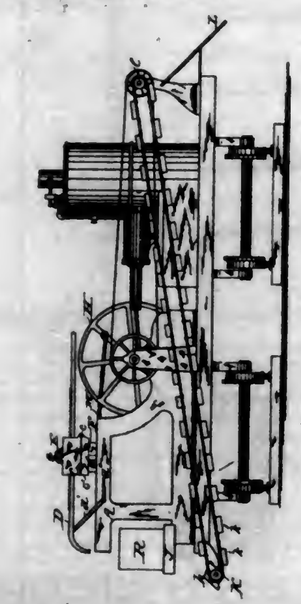
314,509. SHAWL-STRAP HANDLE. FRANK E. BAKER, Akron, Ohio. Filed Nov. 12, 1884. (No model.)



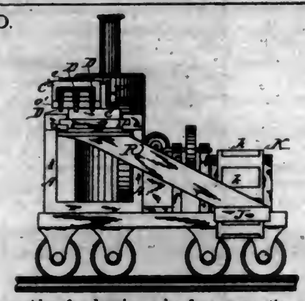
Claim.—As an improved article of manufacture, a shawl-strap handle consisting of a handle, a bar, and two posts, all of wood, mortised together, held by metallic screws, and enameled, substantially as shown, and for the purpose specified.

314,510. APPARATUS FOR REMOVING COKE FROM OVENS. G. W. BIERER, Pittsburg, Pa. Filed Jan. 15, 1885. (No model.)

Claim.—1. In a machine for drawing coke from ovens, the combination, with the main frame A, of the reciprocating block B, supported on said frame, the laterally-traveling block C, mounted and moving on the block B, and the longitudinally-reciprocating forks or picks carried upon the block C, substantially as described.



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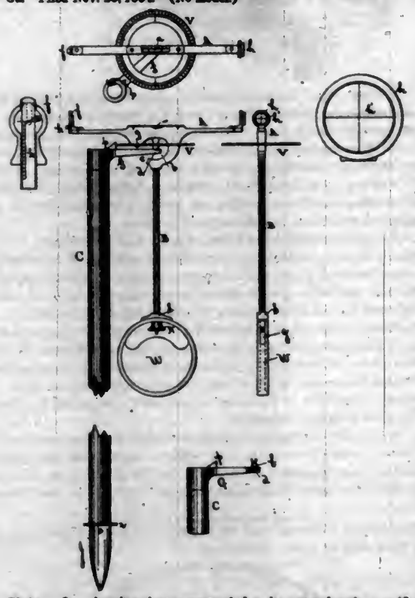


2. In a machine for drawing coke from ovens, the combination, with the main frame A and horizontally-reciprocating block B, having block C' and box C'' mounted thereon, and carrying the pinion *e*, of the fork or pick D, arranged within said box C'' and having teeth to engage with said pinion, whereby the fork or pick may be fed forward and backward irrespective of the movement of the block B, substantially as described.

3. In a machine for drawing coke from ovens or kilns, the combination of frame A A, block B, sliding thereon and receiving motion from rod M, and having block C and box C'', carrying picks or forks D D D, mounted thereon, with chute R and endless apron K, moving under said chute, as set forth.

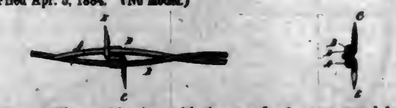
4. In a machine for drawing coke from ovens or kilns, the combination of frame A A, block B, sliding thereon, and picks or forks D D D, provided with means, substantially as shown, for giving lateral and horizontal motion to the forks or picks, and lever *d'* and treadle *d''*, for raising the ends of the picks or forks as they enter the oven or kiln.

314,511. LEVELING-INSTRUMENT. ERNST A. BOSTROM, Newnan, Ga. Filed Nov. 25, 1884. (No model.)



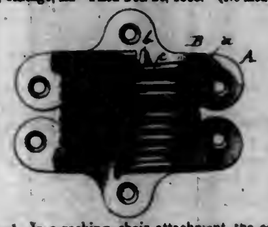
Claim.—In a leveling-instrument of the character herein specified, the spherical bearing *b*, supporting the level A, whereon are sights *f h*, slide *k*, adjustable weight W, circle V, staff C, having arm G, wherein is seat *d* at top, and the pointer *p*, said staff being provided at its lower extremity with the point J and flange *i*, the whole combined and arranged to operate substantially as shown and described.

314,512. BARBED FENCING. FRANK W. BRAINERD, Chicago, Ill. Filed Apr. 5, 1884. (No model.)



Claim.—The combination, with the strands of a two-strand fence-cable, of a retaining-plate lying on one side of and in contact with both of said strands, and a two-point barb formed of a single piece of wire whose middle is parallel with the strands and lies across said retaining-plate, while its ends pass between said strands on opposite edges of said plate, and are bent outward in opposite directions on the opposite side of the strands from said plate, substantially as shown and described, and for the purpose set forth.

314,513. SPRING ATTACHMENT FOR ROCKING-CHAIRS. WILLIAM I. BUNKER, Chicago, Ill. Filed Dec. 26, 1883. (No model.)

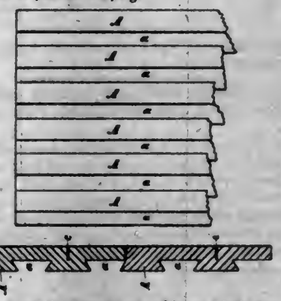


Claim.—1. In a rocking-chair attachment, the combination of a coiled spring with the brackets A, each of said brackets being provided with a rim or external supporting-flange and thread, *a*, substantially as described.

2. In a rocking-chair attachment, the combination of a coiled spring with the brackets A, each of said brackets being provided with a rim or external supporting-flange and thread *a*, beveled at one end to a point and terminating in a lug, *b*, at the other end, substantially as described, and for the purpose set forth.

314,514. COMBINED WOODEN SHEATHING AND LATH. EDWIN M. BYRKIT, Indianapolis, Ind., assignor of one-half to John H. Murry and Addison A. Adair, same place. Filed Feb. 2, 1885. (No model.)

Brief.—Boards of a wooden sheathing and lath have grooves in their faces, forming a key for the plastering, and one or more cuts in the back of their faces to prevent warping.



Claim.—In a combined wooden sheathing and lath, the combination of the boards A A, having grooves in their faces worked to form a key for the plastering, and of one or more cuts, *c c*, in the back side of the boards A A, substantially as described, and for the purpose specified.

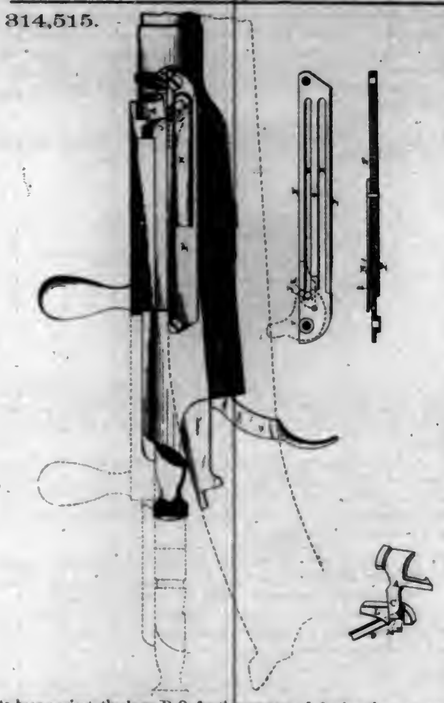
314,515. FEEDING MECHANISM FOR BREECH-LOADING FIRE-ARMS. REUBEN S. CHAFFEE, Springfield, Ill. Filed Feb. 9, 1883. Renewed Apr. 22, 1884. Again renewed Dec. 31, 1884. (No model.)

Claim.—1. The combination, in a breech-loading fire-arm, of an arm which is attached to the firing-bolt, a grooved plate or casting secured to the side of the gun opposite to the firing-bolt when in position, a vertically-moving locking-plate which is carried back and forth on the arm which is attached to the firing-bolt, a pivoted shifting device for moving the locking-plate, and the loading-bars, one of which is provided with a connecting-rod which is adapted to be connected to and disconnected from the arm on the firing-bolt, substantially as shown.

2. In a breech-loading fire-arm, the combination of the grooved plate or casting which is applied to the side of the receiver, an arm which is secured to the firing-bolt so as to move back and forth therewith, and which arm has a groove or recess in its front edge, a vertically-moving locking-plate which is carried back and forth by the arm, a shifting device for moving the locking-plate, and the loading-bars, one of which is provided with a connecting-rod which has a projection upon its front end, and which connecting-rod is adapted to be connected to and disconnected from the arm that is secured to the firing-bolt, substantially as described.

3. The combination of a magazine-tube provided with holes in its lower edge with the loading-bars D O P, which are placed therein, the springs T, having their ends pronged, as shown, and provided with the small projections V, which snap into the holes or recesses formed in the lower edge of the magazine-tube, the prongs of the springs being made

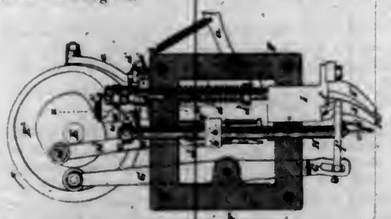
314,515.



to bear against the bars D O, for the purpose of forcing them upward, substantially as set forth.

314,516. FEEDING MECHANISM FOR BOOT AND SHOE SEWING MACHINES. FRANK CHASE, Boston, Mass. Filed Apr. 4, 1884. (No model.)

Brief.—The needle-bar is automatically and simultaneously raised with the presser-foot beyond its normal upward limit of movement by means of a hook pivoted to an arm attached to the upper end of the presser-bar, thus raising the work by means of the loop of thread connecting it with the needle and facilitating the feeding. The stroke of the needle-bar is automatically varied in length, according to the thickness of the work being sewed, by means of a device working in conjunction with its connecting-rod.



Claim.—1. The combination, of a reciprocating needle-bar, co-operating feeding and stitch-forming mechanism, a presser-bar, and means whereby it is adapted to be automatically raised to relieve the pressure on the work during the operation of feeding, a spring-actuated dog pivoted to said presser-bar and adapted to engage with a shoulder upon the needle-bar, and means of disengaging said dog from the needle-bar, substantially as and for the purposes described.

2. The combination of the reciprocating needle-bar H, co-operating feeding and stitch-forming mechanism, the presser-bar I, and means whereby it is adapted to be automatically raised to relieve the pressure on the work during the operation of feeding, the spring-actuated dog V, pivoted to the presser-bar I, and adapted to engage with a shoulder upon the needle-bar, the pin *w*, set in the dog V, and the connecting-rod H, adapted by its lateral motion to act upon the pin *w* to disengage the dog V from the needle-bar, substantially as and for the purposes described.

314,517. WRENCH. ISAIAH CHENEY, Boston, assignor to the Porter Manufacturing Company, Revere, Mass. Filed Nov. 3, 1884. (No model.)

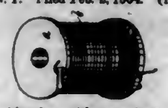
Claim.—A wrench having a fixed jaw, *a*, screw-threaded at its shank, a slide-block, *c*, adapted to slide thereon and provided with a rounded pivotal projection, *e*, a spring-held movable jaw, *b*, having a

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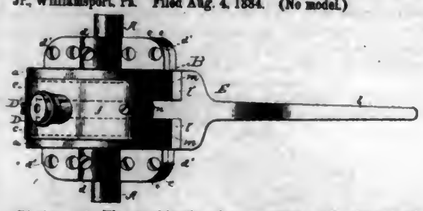
serrated bearing-face and a tail-piece, 2, and provided with a recess corresponding to the said projection *e*, upon which it is mounted, a bolt having an enlarged head and not passing through said projection preventing lateral movement of the movable jaw, a spring, *b*², and an adjusting-nut, all constructed and operated substantially as described.

314,518. COMBINED THREAD CUTTER AND HOLDER. JOHN L. C. CRONYN, Buffalo, N. Y. Filed Feb. 2, 1884. (No model.)



Claim.—The combination, with a spool, of a combined thread holder and cutter consisting of a pointed shank, *d*, which is driven into the end of the spool, and a flat arm, *c*, which extends closely along the end of the spool and has its sides sharpened and its blunt end projecting slightly beyond the edge of the spool, whereby the cutting-edges are prevented from coming in contact with the hand, while the thread is easily caught and cut, substantially as set forth.

314,519. CAR-STARTER. FRANK DAWSON, Sr., and FRANK DAWSON, Jr., Williamsport, Pa. Filed Aug. 4, 1884. (No model.)



Claim.—1. The combination, in a car-starter, of a driving-wheel made in two removable sections, a loose collar mounted between said sections, and a lever-clutch pivoted to said collar, substantially as described.

2. The combination, in a car-starter, of a driving-wheel made in two removable sections, a loose collar mounted between said sections, with a casing partly inclosing the periphery of the driving-wheel, and a lever-clutch pivoted to said collar and having jaws embracing the rim-flanges of said sections, substantially as described.

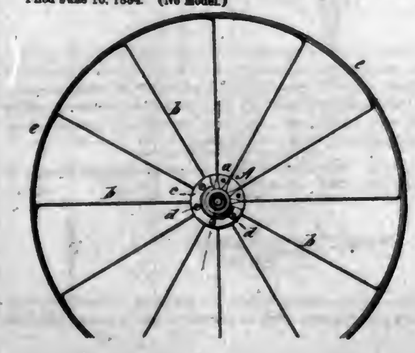
3. A lever-clutch, *l* E, for a car-starter, having two jaws, *l' l'*, two hooks, *m m*, and a central lug or extension, *n*, substantially as described.

4. The combination, in a car-starter, of a driving-wheel made in two removable sections, *a a*, each made in two equal parts, *b b*, with lateral rim-flanges *c c*, and a lever-clutch, E, having two jaws, *l' l'*, hooks *m m*, and a lug or extension, *n*, substantially as and for the purpose set forth.

5. The combination, in a car-starter, of the driving-wheel B, made in two removable sections, the loose collar C, made in two parts, mounted between said sections, and the lever-clutch E, having the two jaws *l' l'*, hooks *m m*, and lug or extension *n*, pivoted between ears *p p* on said collar, substantially as described.

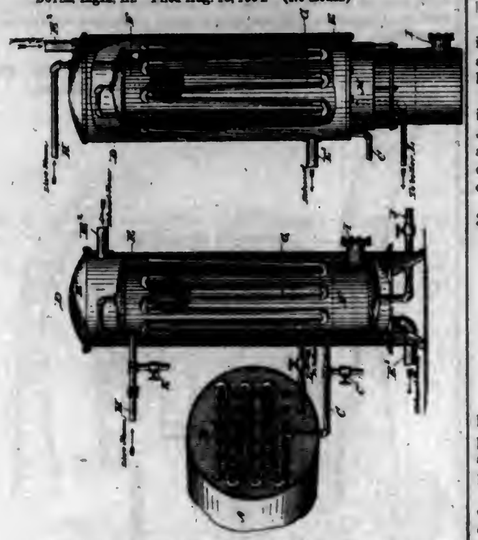
6. The combination, in a car-starter, of the driving-wheel B, made in two removable sections, the loose collar C, mounted between said sections, the casing D, provided with chamber D' and secured to said collar, and the lever-clutch E, all combined and arranged as described and shown.

314,520. WHEEL FOR VEHICLES. JAS. E. DEWEESE, Nevada, Mo. Filed June 10, 1884. (No model.)



Claim.—The vehicle-wheel comprising the hub having dovetailed sockets and the removably-bolted plate, the rim, and the thin spring-metal spokes, with their inner ends formed with dovetailed shoulders or enlargements, and with their outer portions curved and sprung to conform to and re-enforce the rim, the free ends of such curved and sprung portions lapping the heels of the adjacent curved and sprung portions, substantially as shown and described, and for the purpose set forth.

314,521. FEED-WATER HEATER FOR STEAM-BOILERS. FRANK DOYLE, Elgin, Ill. Filed Aug. 15, 1884. (No model.)



Claim.—1. In a feed-water heater, the combination, with the inner reservoir, the outer shell, and the exhaust-steam space between them, of a pipe for delivering the water into the reservoir in the form of a spray, and a pipe connecting said reservoir directly with the boiler, whereby the water sprayed from the supply-pipe is subjected to the action of the highly-heated live steam, substantially as described.

2. In a feed-water-heating device, the combination with the inner reservoir or chamber and the coil connected to the water-supply surrounding it, and having its end extended within said chamber and perforated, as shown, of the supply-pipe for admitting live steam into the reservoir, whereby the water as it is sprayed from said supply-pipe is subjected to the action of the live steam, substantially as described.

3. The combination, with the boiler having the coil B at the end thereof, of the feed-water heater having the inner steam-jacketed water chamber or reservoir, and the water and steam-supply pipes leading to said reservoir, substantially as described.

4. The combination, in a water-heating device, of the coil in which the water is heated directly by the fire, the inner chamber for containing the water, and a coil surrounding said chamber connected to the water-supply and heated by the exhaust-steam from the engine, substantially as described.

5. In combination with the water-heating coil and the jacketed reservoir, the water-pipe leading from the coil into the steam-chamber, extending around the reservoir and terminating within the latter at or near the top, the steam-pipe extending from the boiler to the reservoir at the top, and the supply-pipe connecting the boiler and reservoir at or near the middle, substantially as and for the purpose set forth.

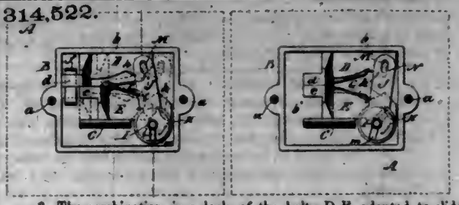
6. In a feed-water heater, the combination, with the reservoir connected to the boiler, as described, of the steam-jacket communicating with the exhaust, and the water-supply pipe extending from the water-heater within the steam-jacket and around the reservoir, to which latter said pipe is connected at the top and in line with the steam-pipe from the boiler, substantially as and for the purpose set forth.

314,522. TRUNK-LOCK. LEANDRE E. DUPONT, Farnham, Quebec, Canada. Filed July 19, 1884. (Model.)

Claim.—1. A lock constructed with two independently-sliding bolts adapted to be moved by the key when its bit is in different transverse positions in the locks, substantially as described.

2. A lock constructed with two independently-sliding bolts, one bolt moved by the key in one transverse position of the key-bit, and the other bolt moved by the action of the key-bit when in a different transverse position on a swinging arm connected to the latter bolt, substantially as described.

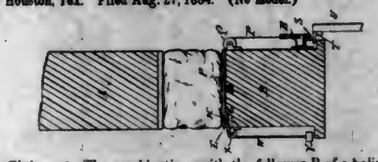
314,522.



3. The combination, in a lock, of the bolts D E, adapted to slide independently in the lock-case, the bolt E, having a key-notch, H, the arm J, connected to the bolt D, and provided with a hub, *j*, having a key-hole, *m*, substantially as set forth.

4. The combination, in a lock, of the bolts D E, the spring G, acting on both bolts, the bolt E, having a key-notch, H, the swinging arm J, connected to the bolt D, and provided with a grooved hub, *j*, having a key-hole, *m*, the collar K, engaging the groove in the hub *j*, and an escutcheon, L, the key-hole *m* being adapted to align with the key-hole of the escutcheon, substantially as set forth.

314,523. BALE-EJECTOR FOR BALING-PRESSES. JOHN L. DUVAL, Houston, Tex. Filed Aug. 27, 1884. (No model.)

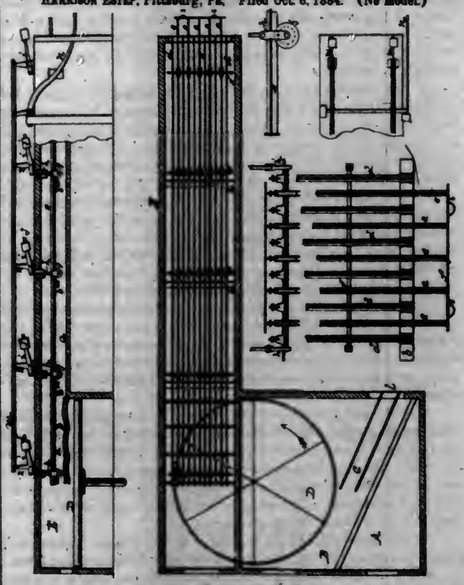


Claim.—1. The combination, with the follower B of a baling-press, having channels D, recesses F, and inclines C, of the trucks E, having prongs H, and an operating mechanism, substantially as herein shown and described, whereby the compressed bale will be removed from the press, as set forth.

2. The combination, with the follower B of a baling-press, having channels D, recesses F, and inclines G, of the trucks E, the ropes or chains P, pulleys Q, segments R, having arms S, the stationary arms T, and the ropes or chains W, pulleys X, and weights Y, substantially as herein shown and described, whereby the said trucks will be operated from the movements of the said follower, as set forth.

3. In a bale-ejector for baling-presses, the trucks E, constructed, substantially as herein shown and described, with recesses I, having inclined shoulders K M, and provided with the rod J, and the prongs H, having shoulders L M, as set forth.

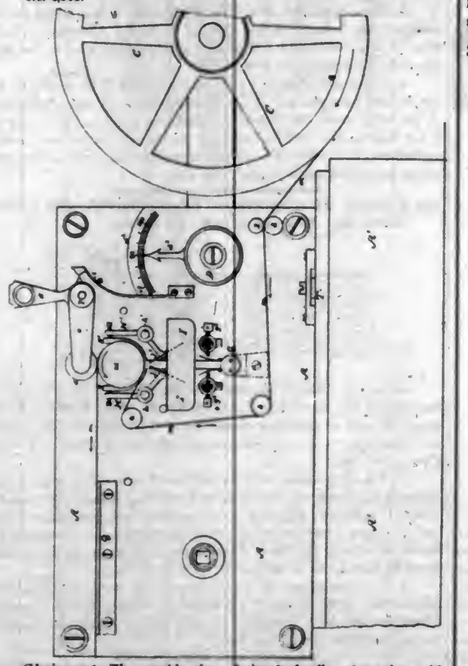
314,524. FURNACE FOR ANNEALING AND FLATTENING GLASS. HARRISON ESTEP, Pittsburg, Pa. Filed Oct. 6, 1884. (No model.)



Claim.—In a furnace for annealing and flattening window-glass, the combination, with the chamber E, having a revolving table and swinging grate-frame, of the arches *p*, located above said table and below the in-

ner end of said swinging grate-frame, whereby heat is evenly distributed to the glass on the frame, and the said frame prevented from being warped or burned out, as shown and described.

314,525. MORSE REGISTER. EDOUARD ESTIENNE, Paris, France. Filed Nov. 6, 1882. (No model.) Patented in France Nov. 19, 1881, No. 145,920; in England July 29, 1882, No. 3,595; in Belgium Sept. 6, 1882, No. 58,958; in Italy Sept. 16, 1882, No. 14,595; in Germany Oct. 17, 1882, No. 24,170; in Austria-Hungary Nov. 29, 1882, No. 32,222; in Russia Dec. 6, 1882; in Sweden Mar. 9, 1883, and in Spain June 8, 1883, No. 4,065.



Claim.—1. The combination of the feed-roller of a telegraphic register and two levers, one carrying a marking-pen having a wide point to form a long stroke and the other a narrower point to form a short stroke, with armatures and electro-magnets acting on the latter and an arm or arms moving with the armatures to operate the pen-levers, substantially as set forth.

2. The combination of the feed-roller of a telegraphic register, and two levers carrying marking-pens of different character, with armatures controlling said pen-levers, electro-magnets to act on said armatures in one direction or other, according as a negative or positive current is sent, and a permanent magnet acting as a retractor on said armatures to return them to their normal positions, all substantially as described.

3. The combination of the feed-roller of a telegraphic register, and two marking-pens of different character, with armatures controlling the said marking-pens, electro-magnets having poles facing each other on opposite sides of the armatures, and a permanent magnet in line with the armatures and acting thereon to retract them to a position midway between the poles of the armatures, substantially as specified.

4. The combination of the feed-roller of a telegraphic register, and two marking-pens of different character, with armatures controlling said marking-pens, electro-magnets acting on said armatures, a permanent magnet to act on the armatures to return them to their normal positions, and a retracting spring or springs to assist the permanent magnet, substantially as described.

5. The combination of the feed-roller of a telegraphic register, and two marking-pens of different character, with armatures controlling said marking-pens, electro-magnets having poles facing each other on opposite sides of the armatures, a permanent magnet to act on the armatures and return them to the said position, and a spring acting on the armatures, and adjustable, substantially as set forth, to assist either electro-magnet in its action on the armatures.

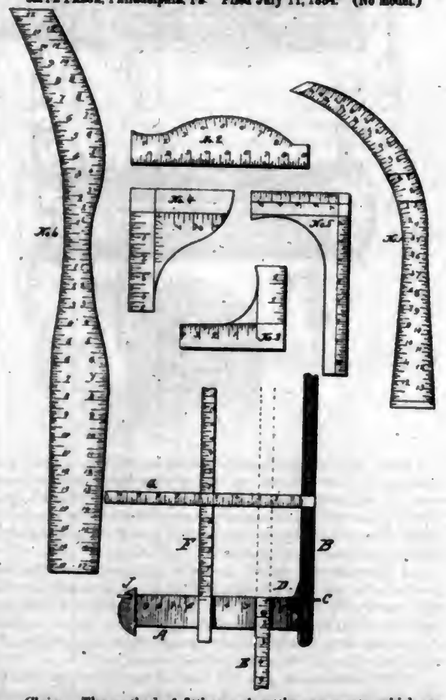
6. The combination of the feed-roller of a telegraphic register, and pivoted levers carrying marking-pens consisting of flattened tubes containing sponge or similar material, with an ink trough or troughs in which the rear ends of the pens dip and electro-magnets for operating the pen-levers, substantially as set forth.

7. The combination of the feed-roller of a telegraphic register, operating-spring, and trains of gears, with a speed-regulator consisting of a shaft driven by gearing and carrying a yielding bevel-wheel, and an adjustable friction-cone in contact with the said bevel-wheel, all substantially as described.

8. The combination of the feed-roller of a telegraphic register, operating-spring, and train of gears, with a frictional speed-regulator and an adjusting-knob therefor on the outside of the case, substantially as set forth.

9. The combination of the feed-roller of a telegraphic register, operating-spring, and train of gears, with a speed-regulator, and an adjusting-knob therefor, and an indicator on the outside of the case, substantially as specified.

314,526. MODE OF CUTTING AND FITTING GARMENTS. GIUSEPPE PRISA, Philadelphia, Pa. Filed July 11, 1884. (No model.)



Claim.—The method of fitting and cutting garments, which consists in establishing upon a pattern-sheet a base-line representing the back-seam, and a line at right angles thereto representing the scye-line, erecting on the latter at a distance from its foot equal to that of the rear and front of the shoulder from the center of the back a rectangle corresponding to the measured dimensions of the shoulder, and from the outer corner of said rectangle laying off upon the base-line points corresponding to the measured distances from a single point upon the form of the person to be fitted to the collar, small of back, and end of skirt, and erecting perpendiculars from such points, upon which the front measurements are laid off, and finally tracing the seam and outline curves upon the sheet from patterns of fixed or standard curvatore, substantially as shown and described.

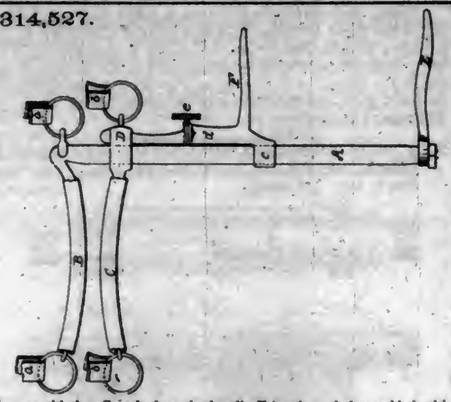
314,527. DEVICE FOR OPENING ANIMALS' MOUTHS. JOHN A. GREEN, Waltham, Mass. Filed July 17, 1884. (No model.)

Claim.—1. As a means for opening the mouths of animals, the combination, with the bit composed of the bars B C, of the fixed and movable handles E F, whereby motion of the lower bar, C, is effected upon the rod A, or its equivalent, substantially as described.

2. The combination, with the rod A, fixed bar B, and handle E, of

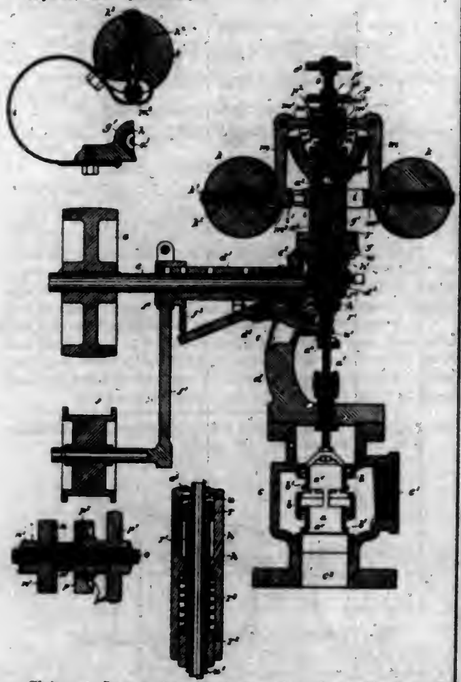


314,527.



the movable bar C, united to the handle F by the rod *d*, provided with a set-screw, *e*, as and for the purposes set forth.

314,528. GOVERNOR FOR STEAM-ENGINES. ALVAH E. HARDY, Everett, Mass., assignor to Edward Dewey & Co., Boston, Mass. Filed Sept. 29, 1884. (No model.)



Claim.—1. In a governor for steam-engines, the combination, with the valve and revolving weights controlling the same, of the spring-actuated stopping device for wholly or partially closing the valve, and the lever, whereby the said stopping device is retained inoperative while the governor is properly actuated, substantially as described.

2. In a governor for steam-engines, the combination of the valve and revolving weights controlling the same with the spring-actuated stopping device and the lever and idle-pulley, whereby the said stopping device is retained inoperative while the governor-actuating belt is in its normal operative condition, substantially as described.

3. In a governor, the combination of the revolving weights and their supporting-springs with the valve-actuating levers and yielding bearing-pieces engaging the said levers, substantially as described.

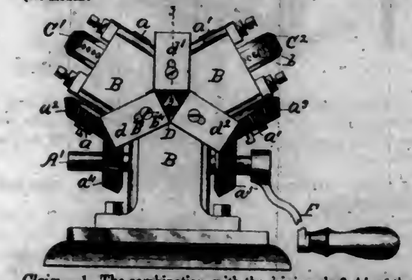
4. The combination of the revolving weights and their supporting-springs with the valve-actuating levers, bearing-pieces engaging said levers and springs, and adjusting devices whereby the pressure of said bearing-pieces and the consequent frictional resistance to the movement of the parts may be regulated, substantially as described.

5. The combination of the revolving weights and valve-actuating arms or levers with a rod provided with flanges or collars engaged by the levers, the said collars being provided with an oil-chamber surrounding the rod, and an inlet-passage to said chamber in one flange or collar, and an outlet-passage in the other flange or collar, substantially as described.

6. In a steam-engine governor, the combination, with the revolving weights and valve-stem and valve controlled thereby, of an auxiliary spring acting upon the said valve-stem, whereby the effect of the weights thereon may be varied, substantially as described.

7. In a governor for steam-engines, the combination of the valve-stem and revolving weights controlling the same with the spring-actuated stopping device and engaging projection on the valve-stem co-operating therewith, substantially as described.

314,529. CANDY-MACHINE. WILLIAM E. HENRY, Chicago, Ill., assignor of one-half to William L. Jancey, same place. Filed Sept. 10, 1884. (No model.)
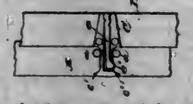


Claim.—1. The combination, with the driving-shaft A', of the gear-wheels a^1 a^2, mounted on said shaft, the inclined shafts *a a'*, and the gear-wheels a^3 a^3, mounted on the lower ends of said inclined shafts, and adapted to engage with the gear-wheels on said driving-shaft, whereby motion is transmitted to said inclined shafts and the mechanism mounted thereon, substantially as described.

2. In a candy-machine, the combination, with the standard B, of the driving-shaft A', the gear-wheels a^1 a^2, the gear-wheels a^3 a^3, the inclined shafts *a a'*, and the disk-wheels C C' C^2, mounted on said shafts in the order given, substantially as and for the purpose set forth.

3. The combination, with the standard B, of the adjustable angle-gages *d* d' d^2 and the disk-wheels C C' C^2, substantially as set forth.

314,530. CORSET-STEEL FASTENING. LUCIAN HILL, North Brookfield, assignor to Theodore C. Bates, Worcester, Mass. Filed Jan. 23, 1885. (No model.)



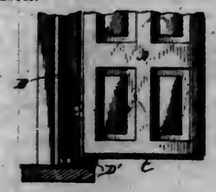
Claim.—A fastening for corsets, consisting of a pair of headed studs secured adjacent to each other on one corset-steel, and a plate secured to a second corset-steel, having a reduced portion to permit the plate to be passed down between the headed studs, and lateral projections near its free end to prevent the escape of the plate from the studs, and a spring interposed between such reduced portion and lateral projections, and adapted to lock or retain the studs in engagement with the lateral projections of the plate, substantially as set forth.

314,531. INSECTICIDE COMPOSITION. FRANK M. HOWARD, Cameron, Tex. Filed July 30, 1884. (No specimens.)

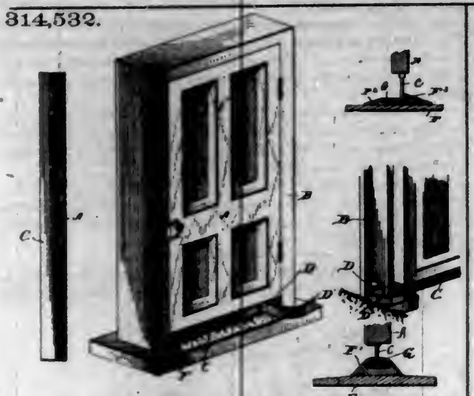
Claim.—The herein-described compound, consisting of bisulphide of carbon, one pound; brimstone, (roll-sulphur,) two ounces; carbolic acid, (cryst.,) two ounces; phosphorus, half-ounce, mixed together in the proportions herein described, and for the purposes set forth.

314,532. WEATHER-STRIP. DANIEL H. ISENHOUR, Bloomington, Ill., assignor of one-half to S. R. Cooper, same place. Filed Nov. 7, 1884. (No model.)

Brief.—A hinged strip, in combination with a sill grooved to receive a block of rubber.

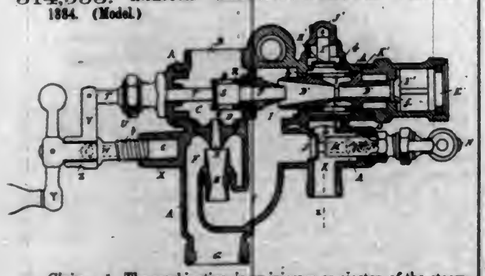


314,532.



Claim.—A door provided on its lower edge with a hinged strip, in combination with a grooved metallic plate provided with a rubber strip resting in said groove, substantially as described, and for the purposes set forth.

314,533. INJECTOR. JAMES JENES, Detroit, Mich. Filed June 4, 1884. (Model.)

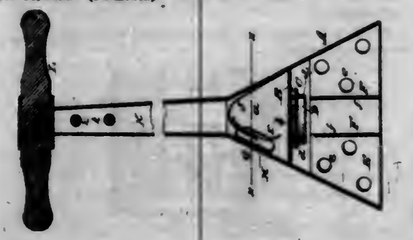


Claim.—1. The combination, in an injector or ejector, of the steam-jet, combining-tube, and delivery-tube, situated in relation to each other, substantially as described, with a piston controlling the admission of steam to the jet, tightly fitting in and having a reciprocating motion within a perforated cylinder, and a valve upon a yielding stem controlling the overflow-passage, substantially as and for the purposes specified.

2. In an ejector having an injector inclosed in the same shell, and adapted to draw water from a plane below that of the implement, and deliver the same to said injector, a perforated cylinder in the steam-chamber having a reciprocating piston tightly fitting therein, a steam-jet, a combining-tube and a delivery-tube, such cylinder, steam-jet, and tubes being on the same axial line, in combination with a water-chamber surrounding the adjacent ends of said tubes, having an opening in its top communicating with an overflow-passage, such opening being controlled by a valve which is opened by internal pressure and closed by gravity, substantially as specified.

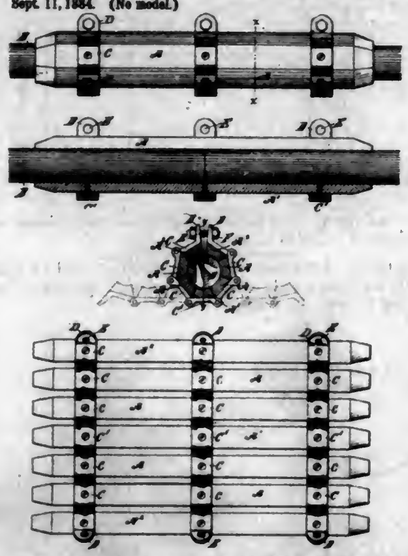
3. In a steam-injector provided with inlet, exit, and overflow passages, the chambers I and C', the latter independently formed within the body of the casing, and surrounding the combining and delivery tubes thereof, passage G', wholly within the said casing, and the overflow-pipe K, communicating with the chambers I and C', in combination with the valve L, mounted on a yielding stem, and regulating the exit from the chamber I to the overflow-pipe K, and the valve I', automatically regulating the overflow from the chamber C' to the overflow-pipe K in the rear of and independently of the valve L, substantially as shown and described.

314,534. CLOTHES-POUNDER. JOHN JUST, Sauk City, Wis. Filed Mar. 11, 1884. (No model.)



Claim.—In a clothes-pounder of the described class, the combination of the funnel A, having diaphragm B, annular valve-seat D, and perforated partition-walls E and F, arranged as described, valve C, spring-actuated hinged valve H, located inside of the air-chamber and covering its aperture G, and tubular stock K, provided with air-holes *k*, the whole constructed and combined in the manner and for the purpose herein shown and specified.

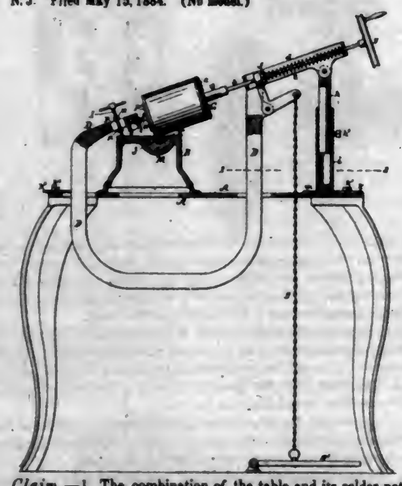
314,535. RE-ENFORCING BAND FOR SPARS. J. WESLEY KETCHAM, Greenport, assignor of one-half to Carlisle J. Bishop, Orient, N. Y. Filed Sept. 11, 1884. (No model.)



Claim.—1. A transversely-flexible and longitudinally-rigid clamping-band for fishing and re-enforcing weak or broken spars or sticks of timber, constructed of a series of narrow strips or slats hinged together laterally, substantially in the manner and for the purpose herein set forth.

2. A series of narrow clamping and re-enforcing strips, each fitted with two or more transverse hinge-plates adapted to interlock and form, in the construction of an adjustable clamping-band, a lateral hinged connection, with counterpart plates upon the other corresponding strips, substantially in the manner and for the purpose herein set forth.

314,536. CAN-SOLDERING MACHINE. DAVID KLUMP, Moorestown, N. J. Filed May 15, 1884. (No model.)



Claim.—1. The combination of the table and its solder-pot with the upper and lower can-clamping disks and their spindles, the frame D, having bearings for said spindles, the adjustable support for the lower end of said frame, the stem *h*, pivoted to the upper end of the frame, and the plate *k*, guided longitudinally on the table and having a guide, *i*, for the stem *h*, as set forth.

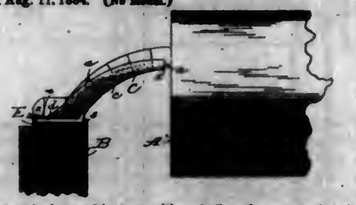
2. The combination of the solder-pot with the guard K, and the recessed gage-bar J, detachable from said guard, as set forth.

3. The gage-bar J, having a segmental recess, J', and supplementary recess J^2, as set forth.

4. The combination of the lower clamping-disk, F, and its spindle *a* with the frame D, having a flange, *z*, with end bearing for the spindle, and a flange, *t*, with detachable sleeve *v*, as set forth.

5. The fluxing-box P, having a slotted partition, P', absorbent packing P^3, and a transverse bar, P^2, serving as a rest for the head of the can, as set forth.

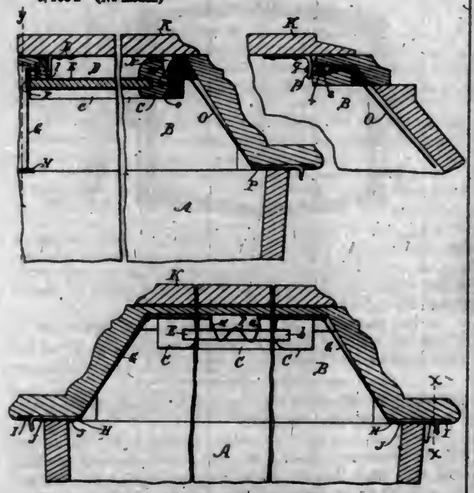
314,537. BOILER-FURNACE. CHRISTIAN LOUTSCHER, Dubuque, Iowa. Filed Aug. 11, 1884. (No model.)



Claim.—1. In combination with a boiler, the supporting-iron for the fire-brick arch, secured at its base to the surrounding wall, and having its inner end free of support by the boiler, substantially as described, and for the purpose set forth.

2. In a boiler-furnace, and in combination with the boiler A and wall B, the supporting-iron C, for the fire-brick, formed with a base-plate, *d*, and the holding-plate F, formed with flanges 2 and 5, the said iron C being unsupported at its inner end by the boiler, all substantially as described.

314,538. COFFIN. GEORGE B. MARKLE, Jr., Hazleton, Pa. Filed June 6, 1884. (No model.)



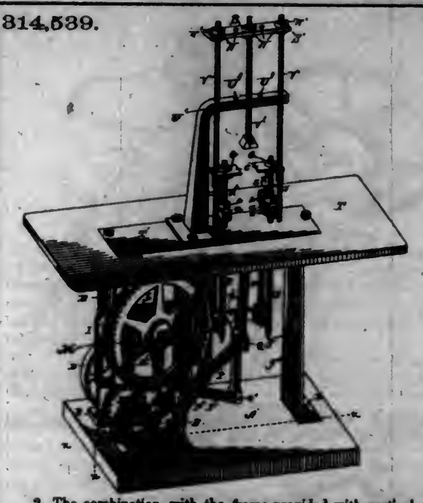
Claim.—1. The combination, with a coffin-lid, of a removable face-glass, a flexible wire stop for holding the glass in place, which stop is suspended or fulcrumed at two points near its ends, and the wires or cords connected to said ends and to slides located in opposite sides of the coffin, which slides project outside the coffin, as and for the purpose specified.

2. The combination, with a coffin-lid and a cap for covering a face-glass, of a shouldered bolt at the forward end of the cap, a spring-catch for engaging the shouldered bolt, a slide projecting outward through the head of the coffin, and a wire or cord connecting the spring-catch and slide, substantially as herein shown and described.

314,539. TOBACCO-PACKING MACHINE. WILLIAM R. MUSSER, Leftwich, Va. Filed June 11, 1884. (Model.)

Claim.—1. The combination, with the frame of the machine, the perforated plate and the standard U, having the perforated arm U', of the plunger-frame S and plunger, the mold-lifting frame R^2, provided with the vertically-adjustable lifter-plates c c, the levers connected to the lower cross-heads of said frames, the sash-frames connected to the levers and working in vertical guideways in the sides of the main frame, the shaft provided with sector-cams within the sash-frames, and means, substantially as described, for operating the cams, as set forth

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2. The combination, with the frame provided with vertical guideways in its sides, of the power-shaft C, provided with the small cog-wheel F, the shaft H, provided with the large cog-wheel G at one end and the sector-shaped cams J and J' on opposite sides of said shaft H between the sides of the frame B, the sash-frames L L', secured to slides M, working in guideways I in the sides of the frame B, the pivoted levers P P', connected to the sash-frames and to the lower cross-heads of the plunger and lifter frames, and the plungers and funnel-lifters, substantially as specified.

3. The combination of the plunger-frame composed of the guide-rods V V and cross-heads S and R, the lifter-frames composed of the rods *z z'*, the yokes *a a*, the cross-head R', and the rods *y y'* adjustable vertically in the yokes, the lifter-plates secured upon the adjustable rods *y y'*, and sliding on the guide-rods V, and mechanism, substantially as described, for operating said frames, substantially as set forth.

314,540. PIANO-VIOLIN. TEMAN OLSON, Hawley, assignor of one-half to Oley A. Olson, Minneapolis, Minn. Filed June 23, 1884. (No model.)



Claim.—The combination of the sounding-box, the action-box, the strings and pins, the keys arranged in a series in the forward side of the action-box and having downwardly-projecting pins upon their under sides, the levers pivoted in the action-box and having the pins bearing against their forward ends, the pins sliding in the vertical perforations in the bridge of the action-box and bearing against the rear ends of the levers, and the hammer-bearing blocks provided with the hammers or dampers having the upwardly-projecting leather-covered lugs, as and for the purpose shown and set forth.

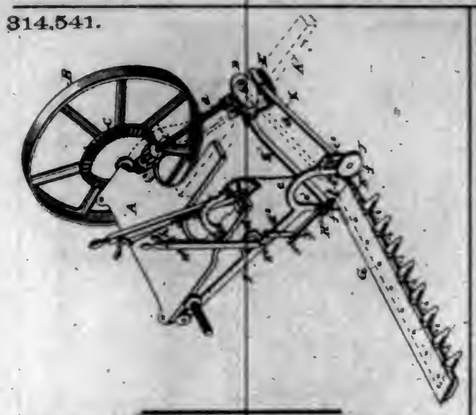
314,541. MOWING-MACHINE. EDWARD PRIDMORE, Batavia, N. Y., assignor to the Johnston Harvester Company, same place. Filed Feb. 13, 1884. (Model.)

Claim.—1. The combination of the finger-bar, the shoe having the forwardly-projecting spur, the thrust-bar having the depending arm provided with a recess within which said spur plays, and coupling-bar K K', all arranged and operating substantially as described.

2. The combination of the finger-bar, the shoe, the rear extension of said shoe, the thrust-bar provided with the notched quadrant-plate, the bent tilting-lever, the means, as described, for connecting said lever with the finger-bar, and the ground-wheel, all arranged and operating substantially as described.

3. The combination of the finger-bar, the shoe having the front and rear extensions, the thrust-bar having the recess for the reception of the front extension of said shoe, the swivel-block forming the hinge in rear of the finger-bar, the connecting-rod H^2, and the tilting-lever, all arranged and operating substantially as described.

314,541.



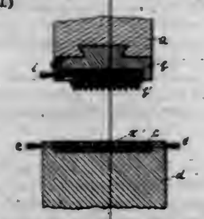
314,542. SHOW-BOX FOR EMBROIDERY. MORRIS H. PULASKI, Philadelphia, Pa. Filed Feb. 15, 1883. (No model.)



Claim.—1. A box for holding and exhibiting embroidery and analogous articles, consisting of an exterior case or envelope, A, said case being left open at one end, and having an opening at the top thereof, in combination with an interior sliding drawer, the under surface of said drawer being connected to the inner surface of the bottom of the box A by an elastic band, *h*, said drawer having a bottom, F, and rigid strip E' upon its back end, and a rigid strip, H, on each of its two sides, and provided with a cover composed of the following elements: a permanently-attached rear bridge-piece, B, a forward hinged flap, D, having an attached rigid end fortifying inclosing-strip, E, and a middle portion, C, provided with slits *c c*, adapted and intended to receive as an exhibit-sample a portion of the contents of the package—as, for instance, embroidery *g*—arranged as set forth, as and for the purpose intended, substantially as described.

2. In devices for holding and exhibiting embroidery-stripe and analogous articles, the combination of an outer envelope, A, an interior sliding drawer, and an elastic band, *h*, one end of which is attached to the inner surface of the bottom of the outer envelope, A, the opposite end of said band being attached to the under surface of the bottom F of an interior sliding drawer, said drawer being provided with a lid composed of a permanent back strip, B, middle portion, C, provided with slits *c c*, and hinged front portion, D, having rigid supporting-strip E, substantially as described.

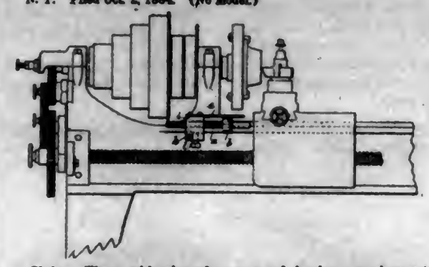
314,543. DRAW-PLATE PUNCH. MATHIAS ROEGNER, Pittsburg, assignor of one-half to Otto Bergmann, Allegheny City, Pa. Filed Aug. 7, 1884. (No model.)



Claim.—1. In apparatus for making draw-plates for wire-drawing machines, the combination of a matrix having a cavity for the reception of the plate, a punch or die frame, and a series of conical punches or dies, the operating faces of which are shorter in length than the depth of the cavity in the matrix, substantially as and for the purpose specified.

2. In apparatus for making draw-plates for wire-drawing machines, the combination of the punch frame or holder *b*, having longitudinal dovetailed grooves formed therein separate from each other, said grooves being of unequal length, a series of punches having a dovetailed base adapted to fit within the grooves, and a securing device, substantially as and for the purpose specified.

314,544. GAGE FOR LATHES. JOSEPH A. ROTHWELL, Brooklyn, N. Y. Filed Oct. 2, 1884. (No model.)

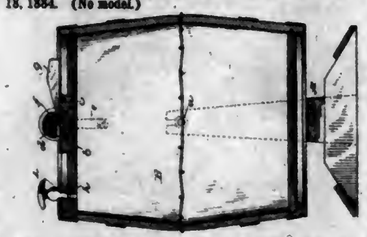


Claim.—The combination of a screw-rod, having a graduated head and a plain portion extending beyond the head, with the indicator-bar and the stock adapted to be clamped to or slide upon the shears of a lathe or similar machine, so as to form a reversible stop for a tool-holder, substantially as set forth.

314,545. HOG-CHOLERA REMEDY. DIEDRICH SCHULTE, Pittsburg, Kans., assignor of one-half to Robert Veeth, same place. Filed July 18, 1884. (No specimens.)

Claim.—The herein-described composition, designed as a preventive and remedy for hog-cholera, consisting of tartaric acid, asafetida, sulphur, black antimony, arsenic, tar, and linseed-oil, as and for the purposes substantially as herein set forth.

314,546. PAINT-MIXER. DAVID J. STARRETT, Thomaston, Me., assignor of one-half to John Ruggles, Cambridgeport, Mass. Filed Mar. 18, 1884. (No model.)



Claim.—1. In a paint-mixer, a receptacle to contain the paint, a wire mesh extending across the interior of the same and secured to the walls thereof, the receptacle being so arranged as to be capable of rotary motion, whereby the paint is thoroughly mixed and cut up by passage through the said wire mesh, substantially as described.

2. In a paint-mixer, and in combination, the wire mesh adapted to cut and mix the paint, the cover *c*, loops and rings *d d*, strip *f*, and wedge *g*, all arranged substantially as described.

314,547. FOUNTAIN-PEN. WILLIAM W. STEWART, Brooklyn, N. Y. Filed June 30, 1884. (No model.)

Claim.—1. A fountain pen-holder consisting of the combination, with the ink-reservoir, closed at its upper end, of a feed-pipe extending down close along the under side of the pen, formed with a capillary grip or cavity on its side against the pen, having the shape of a saw-tooth, with its abrupt side above and its inclined side below or toward the point of the pen, and the ink-duct leading from the reservoir to said cavity, substantially as set forth.

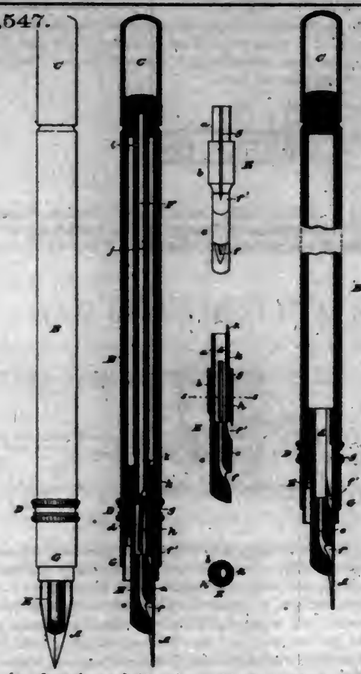
2. A fountain pen-holder consisting of the combination, with the ink-reservoir, closed at its upper end, of a feed-pipe with an ink-duct through it for conveying ink therefrom to the pen, provided with one or more cavities or grips for holding the ink against the pen, and with a capillary slit extending to the duct and from the ink-reservoir down to said grip, substantially as set forth.

3. The feed-pipe E, for a fountain pen-holder, formed with an ink-duct through it, one or more recesses or grips on its external surface designed to come in contact with the pen, and with a capillary slit extending down from its upper end, substantially as set forth.

4. The feed-pipe E, for a fountain pen-holder, formed with an ink-duct through it, enlarged to form a chamber, *d*, and a partition *h*, fixed in said chamber and dividing the same into two separate passages, substantially as and for the purposes set forth.

5. The feed-pipe E, for a fountain-pen, formed with an ink-duct through it, and with a capillary slit, *g*, through its wall, and provided with an irritant, *k*, of a smooth flexible substance arranged in said slit, for the purposes specified.

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6. In a fountain pen-holder, the combination, with the closed ink-reservoir, of the feed-pipe having an ink-duct leading thence down to the pen, and a film-tube, F, arranged in the reservoir, and provided with a capillary slit, *j*, along its side, substantially as and for the purposes set forth.

7. The combination of reservoir B, slitted film-tube F, extending therethrough, and the removable feed-pipe E, its upper end embracing the lower end of said film-tube, substantially as set forth.

314,548. PURIFYING SULPHURIC ACID. GEORGE THOMSON and WILLIAM KEMP, Elizabeth, N. J. Filed Mar. 7, 1884. (No specimens.)

Claim.—1. The improved process of purifying sulphuric acid, which consists, essentially, in adding ammonium sulphide to the acid and precipitating the resulting compounds, substantially as set forth.

2. The improved process of purifying sulphuric acid, which consists in adding ammonium sulphide, and then filtering the acid to free it from the resulting precipitate, substantially as set forth.

3. The improved process of purifying sulphuric acid, which consists in first adding ammonium sulphide, then filtering the acid, and finally concentrating it by heat, substantially as set forth.

314,549. GARMENT-CLASP. FRANK TUCKER, Boston, Mass., assignor of one-half to Chas. W. Tucker, same place. Filed July 23, 1884. (No model.)



Claim.—As an improved article of manufacture, the herein-described garment-clasp, comprising the clamping-jaws pivoted together at or about their centers, one of said jaws being cut out to form an integral spring-tongue, which is bent downward and bears at its free end against the rear end of the other jaw, so as to force their forward ends together, as set forth.

314,550. FASTENING FOR SHOES. SIGMUND VEISBURG, Jefferson City, Mo., assignor of one-half to John Urban, same place. Filed Aug. 26, 1884. (No model.)



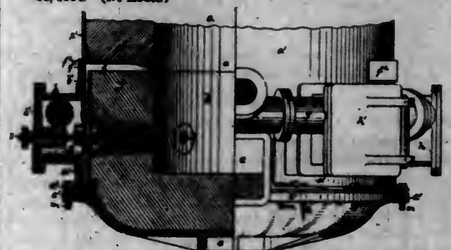
314,550.



Claim.—1. The fastening for shoes and the like, consisting of the curved bifurcated frame provided with a cross-bar, in combination with the curved link pivoted to and within the frame and provided with a cross-bar at or near its inner end, and the stop on the frame adapted to limit the upward swing of the inner end of the curved pivoted link, all substantially as and for the purpose described.

2. In a fastening for shoes and the like, the curved flanges, the cross-bar adapted to receive a strap, the curved link pivoted to and between the flanges formed at its inner end with a cross-bar to receive a second strap, and the curved covering-plate attached to or made in one piece with the flanges and former cross-bar and having portions overlapping or projecting inward beyond the sides of the flanges to form a stop for the inner end of the pivoted link, all combined substantially as and for the purpose described.

314,551. CONVERTER. JOHN F. WILCOX, Pittsburg, Pa. Filed Dec. 10, 1884. (No model.)



Claim.—1. The combination, in a converter, of an upper section having a downwardly-projecting shell with a removable lower section sliding within the shell of the upper section, substantially *de* and for the purposes described.

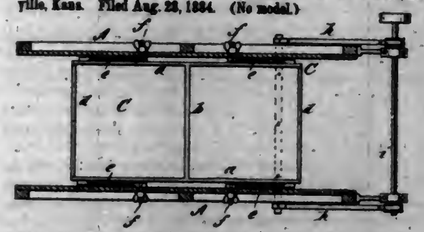
2. The combination, in a converter, of an upper section provided with a downwardly-projecting shell and a flange at its lower end with a removable lower section which is insertible within said shell and is provided with a flange around its lower end, and means for securing the parts together by the flanges, substantially as and for the purposes described.

3. A converter formed in two sections, one sliding within the shell of the other, provided with openings in the shell opposite the joints between the parts, said openings having suitable doors, substantially as and for the purposes described.

4. A converter formed in two sections, one sliding within the shell of the other, and secured by meeting flanges, one of which is provided with dowel or guiding pins, and the other with holes for receiving the same, substantially as and for the purposes described.

5. A converter formed in two sections, one sliding within the shell of the other, and secured by meeting flanges provided with a suitable packing, substantially as and for the purposes described.

314,552. FEEDER FOR ROLLER-MILLS. JOS. W. WILSON, Brookville, Kans. Filed Aug. 28, 1884. (No model.)



Claim.—1. The feeder for double roller-mills, consisting of boxes D, provided with adjustable boards *k*, and vibrating shoe C, having middle portion, *h*, between the boxes, the lower open ends of said boxes being disposed adjacent to the bottom of the vibrating shoe, substantially as shown and described.

2. The dividing-strip *l*, of flexible material, combined with the double feeding-shoe C and two pairs of rollers, B B', as and for the purpose specified.

314,553. BUTTON-FASTENING STRIP. ERASTUS WOODWARD, Somerville, Mass., assignor to the Belle Point Button Fastener Company, Kennebunk, Me. Filed July 28, 1884. (No model.)

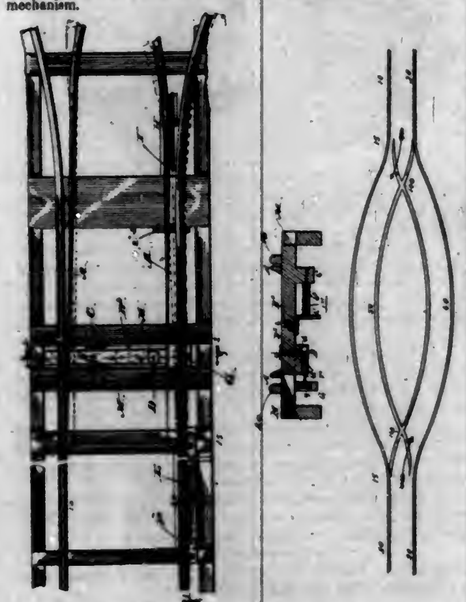


Claim.—1. As an improved article of manufacture, a button-fastening strip composed of sheet metal and presenting a series of shanks joined only by a web suitable to form heads for the shanks, each shank having a head-forming portion projecting from each edge, the head-forming web being provided with projections *d*, which form end portions of the head of the separated fastener adapted to enter the material when the fastener is driven, substantially as and for the purpose described.

2. As an improved article of manufacture, a button-fastening strip composed of sheet metal and presenting a series of shanks joined only by a web suitable to form heads for the shanks, each shank having a head-forming portion projecting from each edge, the head-forming web being provided with projections *d* on its lower side to enter the material when the fastener is driven, the upper side of the said web having notches *c*, substantially as described.

314,554. AUTOMATIC RAILROAD-SWITCH. ADOLPH WULFF, St. Paul, Minn., assignor of one-half to Alexander Ramsey, same place. Filed Apr. 23, 1884. (No model.)

Brief.—An automatic switch consisting of a system of levers, rods, and springs arranged to always keep the switch opened to the right. The switch-rails are secured to a collapsible cross-bar to permit the rails to give in one direction, thereby preventing the breaking or destruction of the several operating parts. The switch-points are opened and closed by the wheels of the train operating levers and connecting mechanism.



Claim.—1. In a switch, substantially as described, the combination, with the spring C', the switch-rails and their operating means, as described, of a collapsible cross-bar, as B, formed in two parts hinged together to allow the rails to give in one direction, as and for the purposes set forth.

2. The shifting-levers H and hinged cross-bar B, combined with a cable connecting the two, the spring C', and means, substantially as described, for taking up slack in the cable, as set forth.

3. In a switch, substantially as described, the combination, with the switch-rails, the shifting-lever and chain or cable connecting said lever with the cross-bar, the shaft D, having ratchet-disk d', and the spring-pawl d^2, as and for the purposes set forth.

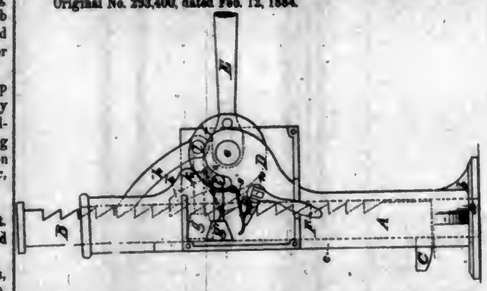
4. In combination with the switch-rails, the cable-lever H and shaft D, the two-part cross-bar B, having lugs b^2 *d*, the plate C, the spring C', and roller *g*, as set forth.

5. The lever H, having arms A A^1 A^2, and arranged as specified, combined with the bolt I^2, spring I', the cable J, and lever L, as set forth.

6. The combination, with the switch-rails, the two-part hinged bar B, and springs C' I', of the levers H and L, the bolt I^2, the shaft D, rollers K *g*, and the chains connecting the levers with the bolt I^2 and bar B, as and for the purposes set forth.

REISSUES.

10,574. LIFTING-JACK. JOHAN BARRETT, Allegheny, Pa., assignor to the Duff Manufacturing Company, (Limited.) Filed Jan. 27, 1885. Original No. 293,400, dated Feb. 12, 1884.



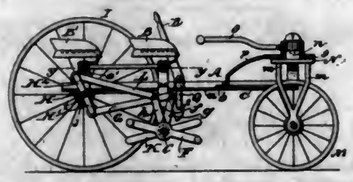
Claim.—1. In a lifting-jack, a lifting-bar provided with ratchet-teeth on one side only, in combination with an operating-lever and two pawls pivoted to said lever in such relation to its fulcrum-point that one of said pawls, arranged to engage the lifting-bar on the same side, one above the other, will engage the lifting-bar during the upward movement of the operating-lever, and the other pawl will engage said lifting-bar during the downward movement of the operating-lever, substantially as set forth.

2. In a lifting-jack, a lifting-bar provided with ratchet-teeth, in combination with an operating-lever, one on each side of its fulcrum-point, and springs adapted to engage said pawls and hold them alternately from engagement with the lifting-bar while they are being raised by the operating-lever, and to permit the pawls to engage said lifting-bar while they are being lowered, such alternate engagement and disengagement being effected automatically, substantially as set forth.

3. In a lifting-jack, the lifting-bar provided with ratchet-teeth, in combination with an operating-lever, and pawls *h h'*, provided with weighted levers *g g'*, and pivoted to the operating-lever, one on each side of its fulcrum-point, substantially as set forth.

4. In a lifting-jack, a lifting-bar provided with ratchet-teeth, in combination with an operating-lever, pawls *h h'*, weighted levers *g g'*, springs *s s'*, crank *m*, and lever F, substantially as set forth.

10,575. TRICYCLE. CARL G. E. HEDIN, Paterson, N. J. Filed Feb. 7, 1885. Original No. 310,998, dated Jan. 20, 1885.



Claim.—1. The combination, with four pairs of treadles, of two rocking arms, *g h*, connected to the cranks of the axle by rods G L, two pairs of said treadles being connected to the shaft C, and the two other pairs of said treadles being connected to a tube, D, arranged upon said shaft C, substantially as described.

2. The shaft C, having treadles secured thereto, in combination with a tube placed upon a shaft, and provided with treadles, the shaft and tube being connected with the crank-axle by rocking arms and connecting-rods, substantially as described.

3. The shaft C, provided with double treadles E F, in combination with the tube D, provided with the double treadles J K, and the treadles E K, having the rocker-arms *g h*, connected to the axle H, substantially as described.

4. The cross-piece *d* of the frame of the tricycle, enlarged at *e* and braced by the rod *p*, in combination with the circular plate N, formed with hub *n*, and provided with the braces *m*, between which the guide-wheel M is held, substantially as described.

N. Devers, Photo-Lithographer, Washington, D. C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

ACTING COMMISSIONER'S DECISIONS.

C. A. YALE CIGAR MANUFACTURING COMPANY, LIMITED, *v.* C. A. YALE.

APPEAL from the Examiner of Interferences.

Decided July 19, 1884.

1. Trade-mark falls under the general head of equity, inasmuch as the fraudulent use of a trade-mark will be restrained by injunction, the ground of relief being that it is not only an invasion of the rights of property, but that equity will not permit a party to practice a fraud by availing himself of another's reputation and deceiving the public.
2. Trade-mark is the mere *association* with some particular class of merchandise of an arbitrary—that is, non-descriptive—expression, word, name, letter, device, figure, mark, or symbol, whether newly created or not, indicating the origin and ownership or emanation of the particular merchandise, serving to distinguish it from like merchandise of others, and enabling the public immediately to recognize the particular manufacture, or product, or substance, or to know where to obtain it. It is the adoption, in the sense of use, of some arbitrary expression, character, or device in connection with something, the subject of trade.
3. Invention is some *creation* of the brain in the nature of an art, (mechanical or chemical procedure,) a machine, a manufacture, or a composition of matter, or of a design for an article of manufacture, or the like, to give it a particular appearance.
4. Original productions of the mind, whether in the form of books, maps, engravings, designs, or other of the manifold manifestations of human thought, expressed by word or symbol, bear no appreciable resemblance to a mere expression, word, name, letter, device, figure, mark, or symbol, coupled with and used as a designation of certain merchandise; the former having an existence in the thing itself, in the expression, design, or manifestation, which is the sign of a thing and the form and embodiment of thought, and being protected under the copyright statute.
5. The right of property in a trade-mark is an original right, neither created nor controlled by any legislative enactment, but existing at common law, independent of all statutory provisions, which (recognizing its existence and the great importance of its protection beyond that afforded it by courts of civil jurisdiction) inflict penalties upon its violation.
6. The words "prints" and "labels" are construed as synonymous, and are defined as any device, picture, word or words, figure or figures (not a trade-mark) impressed or stamped directly upon the articles of manufacture, or upon a slip or piece of paper, or other material, to be attached in any manner to manufactured articles, or to bottles, boxes, and packages containing them, to indicate the contents of the package, the name of the manufacturer or the place of manufacture, the quality of goods, directions for use, &c.
7. The chief differences between trade-mark matter and label matter are that trade-mark matter is property at common law, label matter is not; trade-mark matter must be adopted *and used* before a right attaches or vests, whereas from the use of label matter no right attaches.
8. The difference between a copyright and a label is that in the copyright act the words "engraving, cut, and print" are applied only to pictorial illustrations or works connected with the fine arts, and matter pertaining to them is entered at the office of the Librarian of Congress; whereas by the word print or label, as employed in the label act, is understood such a label or print as may only be used upon an article of manufacture, and is not of the kind specified in the copyright act, and the Commissioner of Patents is charged with the supervision and control of the entry or registry of such print or label.
9. A trade-mark registration is not a grant; neither is it a contract. It is a mere record permitted to an owner of a trade-mark, that has been used in commerce with foreign nations or Indian tribes, who is domiciled in the United States, or located in some foreign country which affords similar privileges to our citizens, of which record a certificate is given by the Commissioner of Patents. It is true that the registration is *prima facie* evidence of ownership, but in this it is only like other record.
10. In an interference between an applicant and a registrant, or between two or more separate applicants and a registrant, the judgment of the Commissioner of Patents awarding the right to a registered trade-mark to some party other than the registrant makes the registration valueless, in like manner as the award of any other property, title to which has been recorded, to a party other than him in whose name it is recorded makes the record or the certificate of record valueless.
11. In an interference between an applicant and a patentee, or between separate applicants and a patentee, the judgment of the Commissioner of Patents awarding the right in an invention to some party other than the patentee does not annul the patent, since the Commissioner is powerless to cancel a patent, but only gives the party other than the patentee (the applicant) a patent also, thus placing him in a proper position before the country and the courts as regards the prior patentee.
12. A patent is a grant presumably to the first and true inventor or inventors, whether citizen or alien, his or their heirs or assigns, for the term of seventeen years, of the exclusive right to make, use, and vend an invention or discovery throughout the United States and the territories thereof, and is not a grant of a monopoly in the prohibited sense—that is, a grant which restrains others from the exercise of a right or liberty which they had before the grant was made. It is a contract between the public and the patentee to be supported on the ground of mutual considerations, and, being essentially a *bargain*, is to be construed like other contracts to which there are two parties, each having rights and interests involved in its stipulation. In this respect the public, as party of the first part, through the medium of the Government, makes the grant above mentioned, while the inventor, as party of the second part, divulges his secret and causes benefit to flow to the public in two forms—*first*, by immediate practice of the invention under the patent, and, *secondly*, by the practice of the invention, or opportunity to practice the same, which becomes the property of the public, which is free to the public, on the expiration of the patent. To guard against the inventor's concealment of the process by which the invention is practiced, and to guard against its loss, he is required to deposit in the Patent Office a written description of the invention sufficiently clear and explicit to enable others to practice the same therefrom.
13. There are two kinds of patents: mechanical patents and design patents. A mechanical patent covers a concrete invention,

one in the nature of a manufacturing art, a machine, an article of manufacture, or a composition of matter, and is issued for the term of seventeen years. A design patent covers an abstract invention, one in the nature of configuration of a manufacture, bust, statue, alto relievo, or bas-relief, to be employed in the mechanic arts, in manufactures, or in constructions, and not strictly as works in the field of the fine arts.

14. A copyright is the grant to the author or proprietor, if a citizen of the United States, of any book, map, chart, dramatic or musical composition, or engraving, cut, or print if a work of the fine arts, or photograph or negative thereof, or painting, drawing, chromo, statue, statuary, or of models or designs intended to be perfected as works of the fine arts, his heirs or assigns, for a term of years, extensible upon suitable request, of the exclusive right, the sole liberty, of printing, reprinting, publishing, copying, finishing, and vending the same, and, in the case of a dramatic composition, of publicly performing or representing, or causing to be performed or represented by others, with all rights of translation or dramatization of works. The Commissioner of Patents has nothing to do with copyright. The Librarian of Congress is charged with all things relating thereto.

15. A print or label registration, whereof a certificate is given by the Commissioner of Patents, is in the nature of a grant to the owner or owners of any new print or label of the exclusive right to the same. But no such print or label can be registered unless it properly belongs to an article of commerce, and is as above defined; nor can the same be registered as a print or label when it amounts to a lawful trade-mark, or when its use in connection with the article to which it is applied is arbitrary or fanciful. The benefits of the act authorizing the registration of prints or labels seem to have been confined originally to citizens or residents of the United States, but appear to be extended to British subjects and the subjects of the German empire by existing treaties.

16. A trade-mark applied to an article manufactured by a partnership is, in the absence of agreement, partnership property, and it follows that the right to the trade-mark is considered to reside in the partnership, even as against any retiring partner.

17. Under considerations of estoppel *in pais* or equitable estoppel, it is doubtful whether a person after having been actively engaged in an attempt to secure a certain right to and in the name of another—as, for example, the right of property under a copyright or a trade-mark—even though the attempt were unsuccessful, may afterward assert such a right in his own name, though these considerations may be somewhat modified by the obtainment by the person first referred to of a statutory or *prima facie* position.

18. Where the plaintiff furnished a lithographing company with a certain arbitrary phrase for the production by the lithographing company of a trade-mark for the plaintiff, the lithographing company is to be regarded as bailee for hire of the delineation of the trade-mark and of the result of such delineation; and, consequently, if the defendant was furnished with the result of this delineation wherewith to make application for registration, he was using the property of the plaintiff therefor.

19. A party's right in a trade-mark may be violated, not only by one who uses the same or a colorable imitation thereof, but by any person who provides the means or instrument of this fraud—as by making for the use of the violator the type or tool or printing the label by which it is carried into effect—and an injunction will issue to prevent this.

20. The Patent Office has no authority to go into an abstract or general investigation of the question of title to any vested right with a view, as it were, of divestment; but it does not follow that the Office is not empowered to try the right of a second party to register that which had heretofore been registered to another.

21. Section 3 of the trade-mark act of 1881 provides for an interference proceeding between an applicant and a previous registrant, placing the jurisdiction in such proceeding, analogous to other interferences, with the Commissioner of Patents; and it is nowhere indicated in the act that if the registrant and applicant happen to be partners the Commissioner is divested of his jurisdiction.

22. It is not clear what a court could award in such a proceeding as this. It could not award the right of registration, such, as above shown, being solely within the jurisdiction of the Commissioner of Patents; and an award of the registration of the registrant to the applicant would scarcely be proper, as it might be that of a void thing, since the principal point in the case besides the contention on the part of the applicant of prior adoption and use is that the registration of the registrant is itself wanting in every fundamental essential to make it valid or properly indicative of a right—as, for example, being based upon an oath false as to the statement that the party registrant had at the time of application a right to the use of the trade-mark sought to be registered, and that no other person, firm, or corporation then had.

23. The burden of proof is upon the plaintiff to show not only that the defendant has no right to the trade-mark in question, but that the plaintiff has such right, and in addition is entitled to registration.

24. The question in a trade-mark interference is not of priority of selection or creation, but of priority of adoption and use. Selection or even creation of a name is in no sense invention as this term is understood with reference to the mechanic arts and manufactures, and with reference to rights conferred in them thereby, and there are no analogies between the two.

25. It will be noted that the words *adoption* and *use*, or "*adopted* and *used*," are coupled together. No right of trade-mark can accrue or attach from either fact alone. Although the word *adoption* doubtless implies something more than mere selection—viz., the receiving or taking as one's own of what is not naturally so, and perhaps in a matter like a trade-mark the *open* taking as one's own thereof—yet adoption is not sufficient by itself, for *use* with it is an essential, and one could scarcely be said to be using a thing in the proper sense of *use* here if he were employing it in the interest of some other party.

26. It is intimated that as the defendant originated the name while in the employ of the plaintiff, upon considerations which would obtain in determining a question of right to an invention as between workman and employer, the trade-mark should be considered his. But rules applicable to questions arising between parties in a matter of invention have, in general, no application in questions arising between parties in a trade-mark matter, and there is no analogy to be drawn from the doctrine of "employer and workman," as applied sometimes in questions of priority of invention. It may be remarked, however that even in the relation of employer and workman, with reference to invention, the production of the workman may be the invention of the employer.

27. The first production or invention or the ownership of an article manufactured confers no right in or to a trade-mark upon such article.

28. The proposition of the defendant that he is entitled to the trade-mark because he had used due diligence in making an application for registration is without force, since diligence has nothing to do with the matter. Trade-mark being a common law right, and being perfectly independent of registration, there can be no race of diligence in coming to the Patent Office.

29. Registration is no judgment, and is not conclusive of the right to the trade-mark, not only because interference is provided for by statute, but upon general principles. Even if the issue of a certificate of registration amount to a judgment, it could be in no sense a judgment *in rem*. As said, however, it is not a judgment at all, not even a judgment *in personam*.

30. It is not at all apparent how the collateral, or rather subsequent, application for and registration of a print or label could have any bearing upon the question of defendant's right to the trade-mark in question, the label registration being in very fact *res inter alios;* but this directs attention to the fact that a label being substantially the trade-mark in question has been registered in the Patent Office, while the act of Congress only permits the entry or registration of a print or label when it is not a trade-mark. The provisions of the trade-mark law, as uniformly construed, are radically and essentially different from those relating to labels.

31. Adoption and *use* is not alleged, but only adoption and "application." The mere marking of goods, or the applying of trade-mark to goods, is a different thing from *using* the mark. To adopt and use a trade-mark a person must have trade of his own.

32. There is no force in any consideration of mere priority of foreign use. It can scarcely be contended that if one party had a valid trade-mark at common law, another might deprive him of it and acquire legal title thereto merely by entering into commerce (upon the goods bearing the trade-mark) with foreign nations or Indian tribes.

33. The defendant while acting in the capacity of agent of the plaintiff, as well as being a partner, sold goods bearing the mark of the plaintiff to merchants in a foreign country: *Held*, that whatever foreign trade was thus established was for and on behalf of the plaintiff—was in fact the plaintiff's.

TRADE-MARK FOR CIGARS.

Application of the C. A. Yale Cigar Manufacturing Company, Limited, filed November 2, 1883. Registration of C. A. Yale, No. 10,029, February 6, 1883. Application filed January, 13, 1883.

Messrs. Elliott & Watrous, Mitchell & Cameron, Judge H. W. Williams, and *Mr. L. W. Seely* for the plaintiff.

Hon. R. H. Duell, Mr. Henry Sherwood, and *Mr. S. F. Wilson* for the defendant.

This is an appeal from the decision of the Examiner of Interferences in a proceeding instituted under the third section of the trade-mark act of 1881 to determine, in a dispute between an applicant and a previous registrant, the claim to a certain trade-mark, said decision adjudging the right of ownership to the words "Grand Master," appropriated as a trade-mark upon cigars, to be with the C. A. Yale Cigar Manufacturing Company, Limited, applicant, as against C. A. Yale, registrant.

STATEMENT OF THE CASE.

The C. A. Yale Cigar Manufacturing Company, Limited, plaintiff, applicant, claims to be the true and lawful owner of the trade-mark in question, and entitled to registration substantially upon the following grounds:

In July, 1881, a number of persons, desiring to enter into the business of manufacturing and selling cigars, formed a partnership at Wellsborough, Pennsylvania, under the name of the "C. A. Yale Cigar Manufacturing Company, Limited." In February, 1882, the company began to place upon the market a superior cigar, designated the "Grand Master," these words being appropriated to the cigar and applied as a trade-mark to the packages in which cigars of the particular kind were sold. The goods were sold as the manufacture of the company. The mark was employed as that of the company and to designate the particular goods of the company. The company paid for all the tobacco used in the manufacture of the cigars; paid for the boxes for containing the cigars, and in which they were sold; paid for branding or stamping these boxes with the words "Grand Master;" had a lithographing company from specific instructions apply upon stone a peculiar design, with the words "Grand Master;" paid for this applying, so that it owned the embodiment upon the stone; paid for labels for the exterior and interior of the boxes, bearing the words "Grand Master" and produced from the embodied design on the stone; paid all the expenses incident to the manufacture and placing upon the market of the cigars; paid all expenses connected with advertising and extending the sale of the cigars, and received and divided all profits arising out of the business; C. A. Yale, defendant, registrant, at the time the trade-mark was adopted, besides being a partner, a member of the C. A. Yale Cigar Manufacturing Company, Limited, being in the employ of this company as its superintendent, and having applied for and obtained registration secretly and covertly, and never having before his registration disputed with the company its assumed right, but having acquiesced in its efforts to get this right made a matter of record; and the trade-mark having also been used in commerce with a foreign nation.

C. A. Yale, defendant, registrant, claims to be the true and lawful owner of the trade-mark in question upon grounds which he specifically sets forth as follows:

1. That he devised and originated the name "Grand Master" as applied to cigars.

2. That by his own skill, aided by his knowledge of the business, he selected and combined the different kinds of tobacco necessary to form the particular cigar designated as the "Grand Master."

3. That he devised the particular shape and size of the cigar.

4. That he made with his own hands the first cigars afterward designated by the name of "Grand Master."

5. That he personally affixed to the first box of the particular kind of cigars designated as "Grand Master" cigars the label bearing the words "Grand Master."

6. That he was the first to adopt and apply as a trade-mark to cigars the name "Grand Master."

7. That he was the first to use the trade-mark in commerce with a foreign nation.

8. That he used due diligence in making an application to register his trade-mark.

9. That he paid the expenses of registration from his own funds, using none of the company's money.

10. That the Patent Office adjudged him to be entitled to the trade-mark, and issued to him a certificate.

11. That he deposited on the 16th day of January, 1883, in the Patent Office, the label "Grand Master" for cigar-boxes, and on March 6, 1883, received a certificate therefor; and he submits that for these reasons, if established, it would be inequitable to take his trade-mark from him and give it to the company.

DYRENFORTH, *Acting Commissioner:*

In section 3 of the trade-mark act of 1881 it is declared that, in the matter of a trade-mark, in any dispute between an applicant and a previous registrant, or between applicants, the Commissioner of Patents shall follow, so far as the same may be applicable, the practice of courts of equity of the United States in analogous cases.

I will therefore first consider what a trade-mark is, and distinguish it from invention, from copyright matter, and from matter for a print or label; consider what a trade-mark registration is, and distinguish this from a patent, from a copyright, and from a print or label registration; and then consider some of the general doctrine of equity applicable to this case; remembering that the plaintiff and defendant were partners at the time the trade-mark in question was adopted and first used, as also when it was registered, and that the defendant at the time the trade-mark in question was adopted and first used, as well as when it was registered, was also in the employ of the partnership; remembering also that if there was acquiescence this may be treated under a broad principle of equity.

But the strict course of equity—though usually excluding matter for which there is ample remedy at law, it being the ordinary reason for a court of equity to grant relief that the party is remediless at law—does not exclude consideration of a wrong incident to the case and which may have its full remedy at law, nor exclude consideration of the law which prohibits that wrong and defines it.

I will therefore also consider some principles applicable in the case, cognizable exclusively in a court of law, remembering that this company intrusted certain work to another, as to an artisan, and so herein had certain legal rights and obligations.

I will finally consider the facts in this particular case, bringing to bear upon them the principles first set forth.

Trade-mark falls under the general head of equity, inasmuch as the fraudulent use of a trade-mark will be

restrained by injunction, the ground of relief being that it is not only an invasion of the rights of property, but that equity will not permit a party to practice a fraud by availing himself of another's reputation and deceiving the public. (*Millington* v. *Fox*, 3 Mylne & Craig, 338; *Walton* v. *Crowley*, 3 Blatchf., 440; *Congress and Empire Spring Co.* v. *High Rock Spring Co.*, 45 N. Y., 6 Hand., 291; *Gillott* v. *Esterbrook*, 47 Barb., 455; 48 N. Y., 3 Sick., 374; 8 Am. Rep., 553; *Hostetter* v. *Vowinkle*, 1 Dillon, 329; *Filley* v. *Fassett*, 44 Mo., 68). The interference of courts of equity, instead of being founded upon the theory of protection to the owners of trade-marks, is now supported mainly to prevent frauds upon the public. If the use of any words, numerals, or symbols is adopted for the purpose of defrauding the public, the courts will interfere to protect the public from such fraudulent intent, even though the person asking the intervention of the court may not have the exclusive right to the use of those words, numerals, or symbols. This doctrine is fully supported by the English cases of *Lee* v. *Haley*, (5 Ch. App. Cas. Law R., 155), and *Wotherspoon* v. *Currie*, in the House of Lords, (5 Eng. & Ir. App. Law R., 508), and also by the cases of *Newman* v. *Alvord*, (51 N. Y., 189), 1877, N. Y. Sup. Ct., S. T. Van Brunt, J.; and *Kinney* v. *Basch*, unreported."

Trade-mark is the mere *association* with some particular class of merchandise of an arbitrary—that is, non-descriptive—expression, word, name, letter, device, figure, mark, or symbol, whether newly created or not, indicating the origin and ownership or emanation of the particular merchandise, serving to distinguish it from like merchandise of others, and enabling the public immediately to recognize the particular manufacture, or product, or substance, or to know where to obtain it. It is the adoption, in the sense of *use*, of some arbitrary expression, character, or device in connection with something, the subject of trade. Whenever the question arises, whether any particular expression, word, name, letter, device, figure, mark, or symbol can be so associated as to constitute a property—or, rather, whether one who adopts such expression, word, name, letter, device, figure, mark, or symbol as a trade-mark for his production is entitled to the protection of the law in its exclusive use—it is obvious that the appropriate answer must depend upon the determination of the question, whether such expression, word, name, letter, device, figure, mark, or symbol is affixed to an article of trade—*is used to designate, and does, in fact, designate the article to which it is affixed*—and can indicate the production of the manufacturer who has adopted it, thereby serving to *identify* and distinguish it from all others, as well as to furnish to the public that assurance of origin and ownership of the article, and that pledge of integrity in its manufacture, which such a trade-mark necessarily carries with it; or whether, on the contrary, the expression, word, name, letter, device, figure, mark, or symbol is a *mere offspring of the fancy*, unassociated with any particular article to which it is affixed, or is used to denote, and does, in fact, denote, nothing more than the kind, character, or quality of the article, or its name simply. In the former case it is a trade-mark, which he who adopts as such is entitled to treat as property and be secured in exclusively. In the latter case it is an expression, word, name, letter, device, figure, mark, or symbol which, neither pertaining to any particular article of trade, nor declaring the origin or ownership of the article, nor serving in any manner to distinguish it as the production of any particular manufacturer, one may use with equal truth and propriety with another, and is something which no prior appropriation can limit or impair. Therefore, an expression, word, name, letter, device, figure, mark, or symbol adopted as a designation for merchandise, and connected therewith, must, besides, be coupled with the assurance to the public that *he who adopts it* is the owner, manufacturer, or lawful representative of the manufacturer of the thing designated for purpose of its use in the name of such representative, as a fundamental condition to the protection of the law in its exclusive use as a trade-mark. It is not the abstract right to the exclusive use of a certain expression, word, name, letter, device, figure, mark, or symbol which can be acquired and possessed as a trade-mark. It is such use only, in connection with certain vendible property, and as a designation of the particular property to which it is affixed. It follows, therefore, that the exclusive right to the trade-mark can exist in him only who, in some form and to some extent, possesses an exclusive right in the property to which it is appended. Naturally, to acquire a trade-mark, he must himself have trade in the article designated. The fundamental policy of the law is to protect the manufacturer who, by his skill and industry, has produced an article of merchandise which has found favor with the public, and which he has designated by a particular name or mark. We accordingly find that in nearly all the reported cases in which the right has been recognized the complainants have been manufacturers, and, as such, possessed of an exclusive right in the designated commodity. It is not doubted that the merchant who imports and sells the article may acquire the right and be alike entitled to protection. It would seem, however, that he must acquire it by virtue of his relationship to the manufacturer, which has vested in him an exclusive right to sell (see *McLean* v. *Fleming*, 96 U. S. Rep., 6 Otto, 245), and there can be no doubt that a mark used to denote that the goods on which it is used are the *selection of a merchant* will be protected. See note to *Godillot* v. *Hazard*, Cox's Manual of Trade-Mark Cases, p. 260.

It will be seen that trade-marks are not free and independent names or symbols floating about, as spores float in the air or oyster spawn floats in the waters, ready for attachment to any congenial object, or to be detached and re-attached, like a stroller's sign. Without attachment—and continual attachment—the name or symbol is not a trade-mark. It is alone what the definition of name or of symbol indicates. Trade-mark, besides expression of ownership or emanation, implies association of two ideas—of the name or symbol with a particular production, the subject of trade. The two things are blended or wedded. Neither is a trade-mark without the other, any more than either the intangible carbonic acid or the zinc is *lapis calaminaris*, (named in one of the decisions quoted hereinafter, and by which is here meant the native carbonate of zinc, and not silicious calamine or silicate of zinc), or any more than either of the conjugate cells of certain Algæ (spirogyra) is the zygospore. It is the union of both conjugating cells that constitutes the zygospore or germ of the perfect plant. But even name or symbol and the particular production, subject of trade, together, are not a trade-mark, in the strict sense, without association with the manufacturer, the producer, or the controlling merchant of the production.

Trade-mark may be likened to baptism, in which the goods to which the name or designation is attached occupy the position of the individual; the name or designation by which the goods are to be known, that of the Christian name; the designation of origin or ownership, that of the patronymic. The right of property in trade-marks does not partake in any degree of the nature and character of invention or of copyright, to which it has sometimes been referred, nor is it safe to reason from any supposed analogies existing between them.

Invention is some *creation* of the brain in the nature of an art (mechanical or chemical procedure), a machine, a manufacture, or a composition of matter, or of a design for an article of manufacture, or the like, to give it a particular appearance.

Trade-mark is mere adoption and use of a name or symbol.

Original productions of the mind, whether in the form of books, maps, engravings, designs, or other of the manifold manifestations of human thought, expressed by words or symbols, bear no appreciable resemblance to an expression, or a word, name, letter, device, figure, mark, or symbol, coupled with and used as a mere designation of certain merchandise.

The former, which is copyright matter, is protected by express statute, and, whatever may have been the origin, is controlled by the limitations and conditions of the law of copyright; it is an existence in the thing itself—in the expression, design, or manifestation, which is the sign of a thing, and the form and embodiment of thought.

The latter is trade-mark matter, and a property—an expression, word, name, letter, device, figure, mark, or symbol, *not* as a thing, as a sign of thought, as a production of the mind, but, simply and solely, as a means of designating a thing, the thing thus designated being a production of human skill or industry, whether of the mind or the hands, or of a combination of both; and this property has no existence apart from the thing designated, and no separability from its actual use in accomplishing the present and immediate purpose of its being. It is a right of property originally, neither created nor controlled by any legislative enactment, but existing at common law, independent of all statutory provisions, which however (recognizing its existence and the great importance of its protection beyond that afforded it by courts of civil jurisdiction) inflict penalties upon its violation. And it is of great importance to the public interests, as well as to individual rights, to maintain inviolate that peculiar property which serves to designate and identify the goods, and wares, and merchandise of the artisan, the manufacturer, and the merchant, which ministers to the constant necessities of all, and which furnishes assurance and guaranty of genuineness, purity, and integrity.

The words "prints" and "labels" are construed to be synonymous, and are defined as any device, picture, word or words, figure or figures (not a trade-mark) impressed or stamped directly upon the articles of manufacture, or upon a slip or piece of paper, or other material, to be attached in any manner to manufactured articles, or to bottles, boxes, and packages containing them, to indicate the contents of the package, the name of the manufacturer or the place of manufacture, the quality of goods, directions for use, &c. By the words "articles of manufacture" (to which such print or label is applicable by this act) are meant all vendible commodities produced by hand, machinery, or art.

The chief differences between trade-mark matter and label matter are that trade-mark matter is property at common law, label matter is not; trade-mark matter must be adopted *and used* before a right attaches or vests, whereas from the use of label matter no right attaches. On the contrary, if trade-mark matter is used before it has statutory protection, it is public property, analogous to copyright matter (*Marsh et al.* v. *Warren et al.*, 13 O. G., 7), and trade-mark subject when adopted cannot be descriptive, the mark being required to be in the nature of an arbitrary symbol, while the subject-matter of a label *must* be descriptive.

The difference between a copyright and a label is that in the copyright act the words "engraving, cut, and print" are applied only to pictorial illustrations or works connected with the fine arts, and matter pertaining to them is entered at the office of the Librarian of Congress; whereas by the word print or label, as employed in the label act, is understood such a label or print as may only be used upon an article of manufacture, and is not of the kind specified in the copyright act; and the Commissioner of Patents is charged with the supervision and control of the entry or registry of such print or label.

A trade-mark registration is not a grant; neither is it a contract. It is a mere record permitted to an owner of a trade-mark, that has been used in commerce with foreign nations or Indian tribes, who is domiciled in the United States, or located in some foreign country which affords similar privilege to our own citizens, of which record a certificate is given by the Commissioner of Patents. It is true that the registration is *prima facie* evidence of ownership, but in this it is only like any other record. Parties not owners of a trade-mark are as liable in damages before the registration of the trade-mark by the owners as afterward. Registration gives no additional right in and to the trade-mark. The registration remains in force thirty years; but the right to the trade-mark does not then go to the public as a matter of course upon expiration of the period of registration, though it may become the property of any one who chooses to take it up, even during the period of registration, if its use be discontinued by the registrant. Upon the expiration of one registration another may be had, and so on *ad infinitum*; though even failure to re-register a trade-mark does not work a defeasance, unless the trade-mark be discontinued or abandoned. The right may, therefore, be perpetual.

In an interference between an applicant and a registrant, or between two or more separate applicants and a registrant, the judgment of the Commissioner of Patents awarding the right to a registered trade-mark to some party other than the registrant makes the registration valueless, in like manner as the award of any other property, title to which had been recorded, to a party other than him in whose name it is recorded makes the record or the certificate of record valueless.

A patent is a grant, presumably, to the first and true inventor or inventors, whether citizen or alien, his or their heirs or assigns, for the term of seventeen years,

of the exclusive right to make, use, and vend an invention or discovery throughout the United States and the territories thereof, and is not a grant of a monopoly in the prohibited sense—that is, a grant which restrains others from the exercise of a right or liberty which they had before the grant was made. It is a contract between the public and the patentee to be supported on the ground of mutual considerations, and, being essentially a *bargain*, is to be construed like other contracts to which there are two parties, each having rights and interests involved in its stipulation. In this respect the public, as party of the first part, through the medium of the Government, makes the grant above mentioned, while the inventor, as party of the second part, divulges his secret and causes benefit to flow to the public in two forms—*first*, by immediate practice of the invention under the patent, and, *secondly*, by the practice of the invention, or opportunity to practice the same, which becomes the property of the public, which is free to the public, on the expiration of the patent. To guard against the inventor's concealment of the process by which the invention is practiced, and to guard against its loss, he is required to deposit in the Patent Office a written description of the invention sufficiently clear and explicit to enable others to practice the same therefrom.

There are two kinds of patents, mechanical patents and design patents. A mechanical patent covers a concrete invention, one in the nature of a manufacturing art, a machine, an article of manufacture, or a composition of matter, and is issued for the term of seventeen years. A design patent covers an abstract invention, one in the nature of configuration of a manufacture, bust, statue, alto-relievo, or bas-relief, to be employed in the mechanic arts, in manufactures, or in constructions, and not strictly as works in the field of the fine arts; in the nature of a delineation, decoration, or pattern for printing woolen, silk, cotton, or other fabrics; in the nature of an impression, ornament, pattern, print, or picture, to be printed, painted, cast, or otherwise placed on or worked into an article of manufacture; or in the nature of a shape or configuration of an article of manufacture, and is issued for the term of three and a half, seven, or fourteen years, as may originally be requested in the petition.

In an interference between an applicant and a patentee, or between separate applicants and a patentee, the judgment of the Commissioner of Patents awarding the right in an invention to some party other than the patentee does not annul the patent, since the Commissioner is powerless to cancel a patent, but only gives the party other than the patentee (the applicant) a patent also, thus placing him in a proper position before the country and the courts as regards the prior patentee.

It will be seen how different are the considerations to be brought to bear upon the questions involving the right to an invention and questions involving the right to a trade-mark.

A copyright is the grant to the author or proprietor, if a citizen of the United States, of any book, map, chart, dramatic or musical composition, or engraving, cut, or print if a work of the fine arts, or photograph or negative thereof, or painting, drawing, chromo, statue, statuary, or of models or designs intended to be perfected as works of the fine arts, his heirs or assigns, for the term of twenty-eight years, extensible beyond this term for fourteen years, upon suitable request, of the exclusive right, the sole liberty, of printing, reprinting, publishing, copying, finishing, and vending the same, and, in the case of a dramatic composition, of publicly performing or representing, or causing to be performed or represented by others, with all rights of translation or dramatization of works. The Commissioner of Patents has nothing to do with copyright. The Librarian of Congress is charged with all things relating thereto.

A print or label registration, whereof a certificate is given by the Commissioner of Patents, is in the nature of a grant to the owner or owners of any new print or label of the exclusive right to the same for the term of twenty-eight years. But no such print or label can be registered unless it properly belongs to an article of commerce, and conforms to the above definition; nor can the same be registered as a print or label when it amounts to a lawful trade-mark, or when its use in connection with the article to which it is applied is arbitrary or fanciful. The benefits of the act authorizing the registration of prints or labels seem to have been confined originally to citizens or residents of the United States, but appear to be extended to British subjects and to the subjects of the German empire by existing treaties.

There seems to be a very vague notion among the parties to this case as to the nature of invention, patent, trade-mark, copyright, and label, and as to the distinctions existing between them; and the terms *patent*, *trade-mark*, *copyright*, and *label* are constantly confused. The differences between a trade-mark registration and the registration of a print or label are apparent.

Before going into the particular evidence, in order to define the duties of partners and certain duties under the head of agency, as well as to exhibit other principles bearing upon the case, all of which from general considerations may be treated under the head of equity, some general doctrines will now be considered, though from other matter which presents itself it may not be improper to consider also a subject strictly cognizable in a court of law—viz., the law of bailment.

Equity jurisdiction as to law being concurrent, exclusive, or supplemental, partnership comes to equity in its concurrent jurisdiction. The C. A. Yale Cigar Manufacturing Company, Limited, is a partnership; in some respects, but not in all, a limited partnership. It is not a limited partnership in the sense of a commandatary partnership, in which the trust is reposed in a single bailee partner, termed the "general partner," in whom the legal title to the funds and property is vested, and who is responsible for the whole liability incurred, the others, termed "special partners," occupying collectively the position of a *cestui que trust*, or individually of *cestuis que trust*, and their responsibility being limited to the amounts of their respective shares; but it is a limited partnership substantially in the sense that the liability of all the bailors of capital to it, or, more strictly speaking, of the members of the partnership association, is limited. It is a partnership association, so termed, formed under the laws of Pennsylvania, in conformity with an act of the legislature of 1874, in which, as expressed in the terms of the act, the members shall be liable under any judgment, decree, or order which shall be obtained against such association, or for any debt or engagement of such company; only if any execution, sequestration, or other process in the nature of execution, either at law or in equity, shall have issued against the property or effects of the company, and if there cannot be found sufficient therein whereon to levy or enforce such execution, sequestration, or other process, then, when such execution, sequestration, or other process is issued against any member or members, alone to the extent of his portion or their portion of the subscription, respectively, in the capital of the association not then paid up. If it were, in *general* terms, a limited partnership, Yale, from his capacity of superintendent or business operative of the company, might be the sole manager, and so be deemed the sole general partner, in whom the legal title to the funds and property of the company would reside, though only as in a trustee; but in section 5 of the act it is provided that there shall be three, four, or five managers of such an association, and hence, though it is indicated that a debt may be contracted or a liability incurred for the association by one or more of these managers, all the managers together—that is to say, the *body* of managers—must be regarded as the general partner, who would have the legal title to the property of the company and be the trustee thereof for the special partners and for creditors, (see Tronbat on the Law of Commandatary and Limited Partnership in the United States, paragraph 358,) though with this difference again between partnership association specifically under the act named and limited partnership in general, that, even as general partners, the managers are not jointly and severally responsible as general partners now are at law, but are only responsible each to the extent of his portion of the subscription not paid up, and not then until, upon proper process in the nature of execution issued against the property and effects of the company, it shall have been found that there is not sufficient to satisfy judgment, and so process shall have issued as above set forth. Among others, there is one particular in which the company is the same as a limited partnership generally, and that is that any one of the partners may transfer his capital, devise or bequeath it, without causing a dissolution. It is a limited partnership in another particular, and a very important one, that, under the laws of Pennsylvania, only money can be contributed as a part of the stock, there being of, I think, eighteen States of the Union in all which authorize limited partnerships, but two States, so far as I am aware—namely, Florida and Louisiana—that permit contribution of property generally as part of the contributed capital. Wherefore there could be no pretense on the part of any of the contributors of capital in this association that anything but money could have been supplied which could afterward separately be withdrawn, transferred, devised, or bequeathed. For the most part the general rules of limited partnership are applicable to this association. A partnership, in general, exists when two or more persons combine their capital, property, labor, and skill, or one or more of these, in the transaction of business for their common profit. (*Noyes* v. *Cushman*, 25 Vt., 390.) A copartnership is not a corporation, nor a joint tenancy, nor a co-tenancy. Some of its qualities and characteristics are similar to those of these other modes of joint interest, but it has its own system of rules and

principles of law, which must govern all the questions arising under it; and mistakes have arisen from attempting to bring rules from these other modes of joint interest to control questions of partnership. A partnership is presumed to be general when there are no stipulations, or when there is no evidence from the course of business to the contrary; but it may be created for a specific purpose, or be confined by the parties to a particular line of business, or to even a single transaction. (*Ripley* v. *Colby*, 3 Foster, N. H., 438). When a partnership is formed by written articles, it is considered as beginning at the date of the articles, unless they contain a stipulation to the contrary. (See Parsons Contr., 7th ed., p. 147). Each partner is for many purposes the agent of all the others, by force of law, without any express authority. (*Boswell* v. *Green*, 1 Dutcher, 390; *Western Stage Co.* v. *Walker*, 2 Ia., 504).

The opening section of Mr. Justice Story's chapter upon the "Rights, Duties, and Obligations of Partners Between Themselves" demonstrates, by a reference to the foreign law—that is, the civil and the French law—that the sources for the requirement of good faith, and the exclusion of fraud, selfishness, and negligence are the same in the three systems. Good faith not only requires that a partner should not make any false representation to his copartners, but that *he should abstain from all concealments* which may be injurious to the partnership business. (Story Partn., par. 172).

In Story on Partnership, paragraph 174, it is said:

> If, therefore, any one partner should so stipulate clandestinely for any private advantage or benefit to himself, to the disadvantage or in fraud of his partners, he will in equity be compelled to divide such gains with them. (Collyer on Partn., B. 2., ch. 2, par. 1; 3 Kent Comm., lect. 43; *Russell* v. *Austwick*, 1 Sim. R., 53).

In the same work, paragraph 177, the following language occurs:

> Upon similar grounds it is the implied obligation and duty of every partner not to engage in any other business or speculation which must necessarily deprive the partnership of a portion of the skill, industry, diligence, or capital which he is bound to employ therein. In other words, he is not at liberty to deal on his own private account in any matter or business which is obviously at variance with or adverse to the business or interest of the partnership. (See also Kent, lect. 43; *Burton* v. *Wookey*, 6 Madd. R., 367).

Pothier de Société, N 59, lays down the same rule and inculcates it in emphatic language, insisting that no party has a right to prefer his own particular interest to that of the firm, or take away any advantage from the firm and appropriate it to his own private use; and Boulay Paty (Droit Comm., Tom. 2, par. 19) is equally expressive on the same subject.

In Story on Partnership, paragraph 178, the following language occurs:

> If one partner should purchase articles upon his own private account in some special trade and business in which the partnership was engaged and injuriously to the partnership—as, for example, by purchasing *lapis calaminaris* of neighboring miners, on his own private account, that being also the business of the partnership—he would be held to account for the profits made thereby. (*Burton* v. *Wookey*, 6 Madd. R., 367).

This will be referred to particularly with reference to Yale's purchase of cigars for trade with Canada, and his alleged "going into business for himself."

Substantially the doctrine announced above with reference to the obligations of partners *inter sese* will be found in Kent, in Story's Equity Jurisprudence, and among those English treatises which enter more at large into the law of partnership, in the third volume of Chitty's large Treatise on the Laws of Commerce and Manufactures and the Contracts Relating Thereto; and more especially in the American edition of Gow's

Practical Treatise on the Law of Partnership; also in a Treatise on the Law of Partnership by Collyer, with notes of American cases by Phillips and Pickering, of Boston.

In an English Treatise on the Law of Partnership, by Andrew Bisset, with notes of American cases, forming the ninth volume of M'Kinley and Lescure's Library of Law and Equity, it is said, in regard to the rights, duties, and obligations of partners *inter sese*, implied by law, that a full enumeration of these with reference to the circumstances of each particular kind of partnership would, to borrow the words of the eminent American jurist, Mr. Justice Story, be found at once tediously minute and of little value, even if it were practicable; that they must necessarily be expanded or restrained to meet the exigencies of each peculiar trade and business; and that general rules can do little more than point out the ordinary course in common transaction, but that general rules are none the less applicable. (Story Partn., par. 185).

The rights, duties, and obligations of partners *inter sese*, implied by law, may be summarized as follows:

First. Good faith, reasonable skill and diligence, and the exercise of sound judgment and discretion are implied from the very nature of the relation of partnership. Hence, if any loss occur from the gross negligence, unskillfulness, fraud, or wanton misconduct of any partner in the course of the business, he will be responsible over to the other partners for all the damage sustained thereby, whether directly or through their own liability to third persons. (Story Partn., par. 169).

Secondly. It is implied in law that all the partners shall strictly conform themselves to all the stipulations contained in the partnership articles, (Ibid., par. 173), and shall also keep within the bounds and limitations of the rights, powers, authorities, and acts appropriate to the due discharge of the partnership business. For every deviation therefrom or excess in the exercise of such rights, powers, and acts, that shall cause loss to the concern, the transgressing partner shall be responsible to his associates.

Thirdly. A clandestine stipulating with third persons by any one partner, for any private advantage to himself, in any transaction of the partnership business, would be a breach of good faith, and any profit accruing to him therefrom would inure to the joint benefit. (Ibid., par. 174). So, any concealment of superior information from his associates, which would enable him to deal with them privately for any further interest in the partnership, upon terms advantageous to himself and injurious to them, would be set aside as a constructive fraud. (Ibid., par. 172). So, if a partner voluntarily places himself in a position in which his bias as well as his interest becomes opposed to the interest of the partnership, it would be a fraud upon the partnership.

Fourthly. It is the implied duty of a partner to refrain from engaging in any business or speculation which must necessarily deprive the partnership of a portion of the skill, industry, diligence, or capital which he is bound to employ therein. (Ibid., par. 177; 3 Kent, Lect. 43). In other words, he is not at liberty to deal on his own private account in any matter of business which is obviously at variance with or adverse to the business or interest of the partnership. (Kent and Story, *ubi supra*, and Pothier de Société, No. 59, Boulay Paty, Droit Commer., Tom. 2, cited by them).

Fifthly. It is, next, an implied obligation upon all the partners, as a matter of good faith, that the business of the partnership shall be conducted in such a manner as that each one may be enabled to see that it is being carried on for their mutual advantage, and not injuriously to the common interests. (Story Partn., par. 181, citing Collyer Partn., B. 11, ch. 2, par. 1, and the English Chan. Cases, quoted by the latter).

Sixthly. In the implied obligation of every partner to possess the requisite skill, and to exercise due diligence and perform due labor in the business of the partnership, mentioned hereinbefore as the first in the series in these legally implied duties, he must be so qualified, and must so devote himself, without exacting any reward or special compensation, unless he can do so under an express previous agreement. (Story Partn., par. 182).

Seventhly. It is an implied obligation among partners that each one shall exercise a sound and reasonable discretion for the mutual benefit and interest—shall avoid abusing in any way the privileges of a partner in the management of the concern.

Having thus concluded the enumeration of the rights, duties, and obligations between partners implied by law, and independent of any express agreement or articles, it remains to be seen how far, and in what degree, if any, the existence of these rights, duties, and obligations between all partners under the general commercial law would affect, influence, or enter into a contract of limited partnership for the advantage or the protection of the special partners. For, in regard to a general commercial partnership, constituted by specific written articles, it is an undoubted rule that these articles, although regulating the rights, duties, obligations, and interests of the partners in the cases and contingencies therein detailed, yet leave in full force all the other rights, duties, obligations, and interests, implied by law, so far as the latter are not superseded, qualified, or limited by these articles. (Story Partn., ch. 10, par. 191, citing Collyer, B. 11, ch. 2, par. 139).

It seems undeniable that all partners, whether special partners under the system *en commandité*, or limited, or whether partners under some other variety of system, do possess the advantage and protection of these implications of the general law of partnership, and can invoke their aid whenever an emergency may arise. It also seems that the series of rules and illustrations of the rights, duties, and obligations of partners to each other, implied by law, above stated under seven categories, borrowed, though in a very condensed form, from the ninth chapter of the work last quoted, is yet, if not a repetition, certainly but an amplification of the same two principles—the one positive, requiring competent skill, discretion and diligence, and the other negative, enforcing good faith and fidelity on each toward all. Indeed, this condensation may be carried still farther; and the two principles, important as they doubtless are and sacred as they ought ever to be held, amount in fact to but one—a sort of large principle with two handles, *an ampulla*—the whole benefit of which could be incorporated into the text of any copartnership deed in a sentence of three or four lines, as thus:

Each party covenants that he possesses due skill in his line; that he will employ it with care, economy, and industry in the common business, at all times and to the best of his ability, without any attempt at private gain, and with perfect openness, good faith, and fidelity toward his associates. (See also Tronbat, *supra*).

In a limited partnership, then, so far as obligation *inter sese* is concerned, one partner is no more independent of the others than in a general or common partnership; but Yale also served the company in the capacity of its superintendent, and it may be well to consider his duty toward the company separately as its agent. The bare relation of principal and agent does not bring agency into equity jurisdiction; yet where matters occurring in the agency can be considered in the nature of fraud, or if the thing lie in privity of contract and personal confidence, or where the agency is of a fiduciary character—for example, to manage, lease, and sell property, pay expenses on it, to collect debts, and pay over to the principal moneys received—or where matter of account is involved, or where a tort arises in the course of an agency from the act of the agent and respects the property, or in other matters unnecessary to specify, the questions arising under the agency will be cognizable in a court of equity.

An agent has been defined to be one who undertakes to transact some business or to manage some affair for another, by the authority and on account of the latter, and to render an account of it. And it is generally laid down that wherever confidence is reposed, and one party has it in his power, in a secret manner for his own advantage, to sacrifice those interests which he is bound to protect, whether acting in pure agency—that is, where the authority is unclothed with any real or apparent interest in the property itself—or whether acting where the authority is coupled with an interest in the property itself, and the agent thus acts in his own name, if he take any such advantage he will be held guilty of at least constructive fraud; constructive fraud being defined as such acts or contracts as, although not originating in any actual evil design or contrivance to perpetrate a positive fraud or injury upon other persons, are yet, by their tendency to deceive or mislead other persons, or to violate private or public confidence, or to impair or injure the public interests, deemed equally reprehensible with positive fraud, and therefore are prohibited by law as within the same reason and mischief, as acts and contracts done *malo animo*. Concealment or non-disclosure of facts of which one party is under some legal or equitable obligation to disclose to the other, and which the other has a right to know, not merely *in foro conscientiæ*, but *juris et de jure*, constitutes fraud. (*Young* v. *Bumpass*, 1 Freem. Miss., Ch. 241; *Van Arsdale* v. *Howard*, 5 Ala., 596; *McAdams* v. *Cates*, 24 Mo., 223; *Aortsen* v. *Ridgway*, 18 Ill., 23; *Kent* v. *Freehold Land and Brickmaking Company*, L. R., 4 ed., 598; and see Wait's Actions and Defenses at Law or in Equity, Vol. 3, p. 431).

By far the most comprehensive class of cases of undue concealment arises from some peculiar relation of a fiduciary character between the parties. In this class of cases are to be found those which arise from the relation of partners and part owners, principal and agent, and trustee and *cestui que trust*. In these and the like cases the law, in order to prevent undue advantage from the unlimited confidence which the relation naturally creates, requires the utmost degree of good faith (*uberrima fides*) in all transactions between the parties. If there is any misrepresentation, or any concealment of a material fact, or any just suspicion of

artifice or undue influence, courts of equity will interpose and pronounce the transaction void, and, as far as possible, restore the parties to their original rights. (*Ormand* v. *Hutchinson*, 13 Ves., 51; *Beaumont* v. *Boultbee*, 5 Ves., 485; *Garteide* v. *Isherwood*, 1 Bro. Ch. App., 558, 560, 561; Story Eq. Jur., 12th ed., pp. 216, 217).

In Story's Equity Jurisprudence, Volume 1, 12th edition, page 309, it is said:

In the next place, the relation of principal and agent. This is affected by * * * considerations * * * founded upon enlightened policy. In all cases of this sort the principal confides for the aid and benefit of the skill and judgment of the agent; and the habitual confidence reposed in the latter makes all his acts and statements possess a commanding influence over the former. * * * Be this as it may, it is very certain that agents are not permitted to become *secret venders or purchasers of property which they are authorized to buy or sell for their principals*. * * * So, if an agent employed to purchase for another purchases for himself, he will be considered as the trustee of his employer.

And as trustee, intended or not, he could derive no advantage adverse to the *cestui que trust* from the act which made him such, nor, as once trustee, proceed further to the disadvantage of the *cestui que trust*. A trustee will not be permitted to obtain any profit or advantage to himself in managing the concerns of the *cestui que trust;* but whatever benefits or profits are obtained will belong exclusively to the *cestui que trust*. (*Saagar* v. *Wilson*, 4 Serg. & Watts, 102). In short, it may be laid down as a general rule that a trustee is bound not to do anything which can place him in a position inconsistent with the interests of the trust, or which has a tendency to interfere with his duty in discharging it. (*Hamilton* v. *Wright*, 9 Clark & Finnell, 111, 123).

There is a general rule that particular persons, in contracts and other acts, shall not only transact *bona fide* between themselves, but shall not transact *mala fide* in respect to other persons who stand in such relation to either as to be affected by the contract or the consequences of it. (Per Lord Hardwicke, in *Chesterfield* v. *Jansen*, 2 Ves., 156, 157.) And as the rest of mankind, besides the parties contracting, are concerned, the rule is properly said to be governed by public utility. (*Chesterfield* v. *Jansen*, 1 Madd. Pr., ch. 97, 98, 99, 214; 1 Eq. Abridg., 90, *et seq*).

There can be no real difference between an express representation and one that is naturally or necessarily implied from the circumstances. (1 Fonbl. Eq., B. 1, ch. 3, par. 4, notes *m* and *n;* Sugden on Vendors, ch. 16.) The wholesome maxim of the law is that a party who enables another to commit a fraud is answerable for the consequences, (Bac. Max., 16); and the maxim, so often cited, *Fraus est celare fraudem*, (1 Vern., 240), is, with proper limitations in its application, a rule of general justice.

Without going to the full length of the statement of Pomponius, as adopted in the Pandects, that, in regard to price, the parties may lawfully circumvent each other, if that word is to be understood in its offensive sense, *in pretio emptionis et venditionis naturaliter licere contrahentibus se circumvenire*, (Dig. Lib. 4, Tit. 4, 1, 16, par. 4), it may be correctly said, with reference to Christian morals, that no man can faithfully serve two masters whose interests are in conflict. If, then, the seller were permitted, as the agent of another, to become the purchaser, his duty to his principal and his own interest would stand in direct opposition to each other; and thus a temptation, perhaps, in many cases, too strong for resistance by men of flexible morals or hackneyed in the common devices of worldly business,

would be held out, which would betray them into gross misconduct, and even into crime. It is to interpose a preventive check against such temptations and seductions that a positive prohibition has been found to be the soundest policy, encouraged by the purest precepts. This doctrine is well settled at law, (*Taylor* v. *Salmon*, 4 Mylne & Craig R., 139); but it is acted upon in courts of equity to a much larger extent, not only in cases of persons confidentially intrusted with the management of the property of others, but in cases of other relations of a confidential nature, involving the rights and interests of the employer. (Paley on Agency, by Lloyd, 10-12, 33-36; 1 Story Eq. Jur., par. 308-328; *Hugenin* v. *Baseley*, 14 Ves., 290; *Baker* v. *Whiting*, 3 Sumner R., 476; *Poillon* v. *Martin*, 1 Sandf. Ch. R., 569). And it is by no means necessary in cases of this sort that the agent should have made any advantage by the bargain. Whether he has so or not, the bargain is equally without any obligation to bind the principal. (*Campbell* v. *Walker*, 5 Ves., 680; *ex parte* James, 8 Ves., 348; *ex parte* Bennett, 10 Ves., 385; *Cane* v. *Allen*, No. 2 Dow R., 289; *ex parte* Lacey, 6 Ves., 625; 1 Story Eq. Jur., pars. 315, 316, 316a). Of course, it is to be understood, as a proper qualification of the doctrine, that the principal has an election to adopt the act of the agent or not; and that if, after a full knowledge of all the circumstances, he deliberately and freely ratifies the act of the agent, or acquiesces in it for a great length of time, it will become obligatory upon him, not by its own intrinsic force, but from the consideration that he thereby waives the protection intended by the law for his own interests, and deals with his agent as a person, *quoad hoc*, discharged of his agency. (Paley Ag., by Lloyd, 33, 34, 37; 1 Story Eq. Jur., *supra;* 3 Chitty Comm. & Manuf., ch. 3, pp. 216, 217; 1 Liverm. Ag. Ch., par. 6; *Lees* v. *Nuttall*, 1 Russ. & Mylne, 53; S. C., 2 Mylne & Keen, 819; *Copeland* v. *Merc. Ins. Co.*, 6 Pick., 198; *Reed* v. *Warner*, 5 Paige, R. 650; *Lowther* v. *Lowther*, 13 Ves., 103; *Reed* v. *Norris*, 2 M. & Craig, 374; *Beal* v. *McKiernan*, 6 Miller, Louis. R., 407; *Bartholomew* v. *Leach*, 7 Watts, 472; *Conkey* v. *Bond*, 34 Barb., 276; 4 Kernan, 85). And here, perhaps, the old maxim *"summa ratio est quæ pro religione facit"* (Co. Litt., 341a; Bac. Max. Reg., p. 5; Noy. Max., 9th ed., 34; Br. Max., 7th ed., 19) applies.

Let us look at the bearing of partnership relation specifically upon trade-mark property.

A trade-mark applied to an article manufactured by a partnership is, in the absence of agreement, partnership property. (*Filkins* v. *Blackman*, 13 Blatchford, 440.) So of a patent. (*Kenny's Patent Button-Holing Co.* v. *Somerveil*, 38 L. T., N. S., 878).

Upon the formation of a partnership with a person even previously entitled to the benefit of a trade-mark, in the absence of express provision in relation to it, it becomes an asset of the partnership. (1864, Ch. App., *Bury* v. *Bedford*, 10 Jur. N. S., 503; S. C., 33 L. J. R. N. S., ch. 465; S. C., 12 Weekly R., 726; S. C., 10 Law Times N. S., 470; S. C., 4 N. R., 180; reversing S. C., 11 W. R., 973; S. C., 8 Law Times N. S., 847; S. C., 32 L. J. R. N. S., ch. 741; S. C., 9 Jur. N. S., 956; S. C., 1 N. R., 5).

The whole trade is carried into the partnership, and the trade-mark is but an element of the trade. (Per Turner, L. J. in *Bury* v. *Bedford*, 4 De G., J. & S., 374).

In *Kidd* v. *Mills, Johnson & Co.* (V. O. G., 337) it follows from the holding that the right to the trade-mark is considered to reside in the partnership, even as against any retiring partner.

Under considerations of estoppel *in pais* or equitable estoppel, it is doubtful whether a person after having been actively engaged in an attempt to secure a certain right to and in the name of another—as, for example, the right of property under a copyright or a trade-mark—even though the attempt were unsuccessful, may afterward assert such right in his own name; though these considerations may be somewhat modified by the obtainment by the person first referred to of a statutory or *prima facie* position.

To define the position of the company plaintiff with reference to the lithographing and engraving company that made its labels, let us consider the subject of bailments. The mere notion of a virtual trust is not the true and only source of equity jurisdiction, for then equity jurisdiction would cover every case of bailment. It is not intended to be said that some matters arising under bailment may not be cognizable in a court of equity; but bailments themselves, though trusts, are cognizable at law. How and why bailment is here considered has been set forth above. The term "bailment" is derived from the French word *bailler*, which signifies to deliver. It is a compendious expression to denote a contract resulting from delivery. (2 Black. Comm., 451; Jones Bailm., 90; see 1 Dane Abr., ch. 17, art. 2). Bailment is a delivery of something of a personal nature by one party to another, to be held, treated, or employed *according to the object of the delivery*, and, where not impossible from the nature of the case, to be returned or delivered over when that purpose is accomplished.

Sir William Jones has defined bailment to be—

A delivery of goods on a condition expressed or implied that they shall be restored by the bailee to the bailor, or according to his directions, as soon as the purpose for which they are bailed shall be answered.

He has again, in the closing summary of his elegant essay manifesting so much learning in the Roman civil law, defined it in language somewhat different, as—

A delivery of goods in trust, on a contract expressed or implied that the trust shall be duly executed and the goods redelivered as soon as the time or use for which they were bailed shall have elapsed or be performed. (Jones Bailm., 117).

Each of these definitions seems redundant and inaccurate, if it be the proper office of a definition to include those things only which belong to the genus or class. Both of these definitions suppose that the goods are to be restored or redelivered. But in some bailments, as where the thing bailed and to be employed for the bailor by the bailee is perishable, or perishes after certain use, or is not redeliverable—as services—or where there is a bailment for sale—as in the case of a consignment to a factor—no redelivery is contemplated between the parties. Hence the first definition seems at once the most ample and the most accurate. Under bailments there may be accessorial rights to the bailor upon the tangible thing bailed. (See Justice Story's criticism of Mr. Chancellor Kent, lecture 40, in the second book of his commentaries, page 2, sixth edition, Story Bailm).

Mr. Justice Blackstone has defined a bailment to be—

A delivery of goods in trust, upon a contract expressed or implied that the trust shall be faithfully executed on the part of the bailee, (2 Black. Comm., 451),

and in another place as a delivery of goods to another person for a particular use. (2 Black. Comm., 395).

Mr. Chancellor Kent has blended, in some measure, the definition of Jones and Blackstone, as follows:

Bailment is a delivery of goods in trust, upon a contract, expressed or implied, that the trust shall be duly executed and the goods restored by the bailee as soon as the purpose of the bailment shall be answered. (2 Kent Comm., 12th ed., p. 764, and see *Trunick* v. *Smith*, 63 Penn. St., 18, 21).

But, as before said, Mr. Justice Story criticises the stated obligation of redelivery.

Mr. Justice Story defines a bailment as—

A delivery of a thing in trust for some special object or purpose, and upon a contract to conform to the object or purpose of the trust. (Story Bailm., par. 2).

And he says the word "contract" is used in a definition of bailment as equivalent to engagement, or undertaking, or promise, and refers to such a contract, engagement, undertaking, or promise as is founded on a sufficient consideration, and is capable of being enforced by law; that there can be no doubt that there is a consideration, even in that form of bailment in which property is to be kept for the bailor without recompense and to be returned when the bailor shall require, called a "deposit," and commonly defined to be a "naked bailment;" and in that form of bailment in which property is intrusted to a bailee, in order that he may do something in or about or with that property for the bailor, called a "mandate," and commonly defined to be a "bailment of goods without reward." What is the consideration? Mr. Justice Story says it is on the part of the bailor yielding up his present possession, custody, and care of the thing to the bailee, upon the faith of his engagement to perform the acts expected. He says:

It is true that the bailee may derive no benefit. But that is not the only source of legal considerations. A detriment or parting with a present right, or delaying the present use of a right on the part of the promisee, is a sufficient consideration to support a contract by a promisor, although the promisor derives no benefit from it.

In Comyn's Digest, Action on the Case Assumpsit B, it is laid down that the consideration upon which an attempt shall be founded must be for the benefit of the defendant, or to the trouble or prejudice of the plaintiff. Thus a forbearance of a suit against a stranger is a sufficient consideration to support a promise from the defendant. So, proof of a debt against a third person is a sufficient consideration for a promise by the defendant to pay a debt, if made at his request. So, doing any act at the request of another is a sufficient consideration of a promise, although the act is no benefit to the promisor. There is a clear distinction between the effect of a gratuitous engagement to take a thing on deposit, where the engagement is wholly unexecuted on both sides, and a like engagement where the bailment has been completely executed on the side of the depositor by a delivery to and receipt by the bailee. In the former case the engagement, being executory, cannot be enforced, it being purely voluntary; in the latter case, the bailment being executed, it becomes a valid and obligatory contract upon the bailee to perform the duty of redelivery, expressly or impliedly resulting from his engagement. The distinction was expressly put in the Year Book, (2 Hen. VII, 11), and still more pointedly by Lord Chief Justice Holt, in *Coggs* v. *Bernard*, (2 Ld. Raym., 919, 920), the case in which that eminent judge may be said to have laid the foundation of the law of bailment for England, building it, however, as distinguished from Sir William Jones, upon principles deducible from or harmonizing with existing English jurisprudence, although he used an arrangement and a nomenclature borrowed from the civil law. He said:

But, secondly, it is objected that there is no consideration to ground his promise upon, (it was the case of a mandate to carry), and therefore the undertaking is but *nudum pactum*. But to this I answer that the owner's trusting him with the goods is a sufficient consideration. Indeed, if the agreement had been executory to carry these brandies from one place to another such a day, the defendant had not been bound to carry them. But this is a different case, for assumpsit does not only signify a future agreement, but in such a case as this it signifies an actual entry upon the thing, and taking the trust upon himself. And if a man will do that, and miscarries in the performance of his trust, an action will lie against him for that, though nobody could have compelled him to do the thing.

The very point arose in *Riches* v. *Briggs*, (Yelv. R., 4. S. C. Cro. Eliz., 883), where the question was, whether, if A delivers goods to B, and B, in consideration thereof, promises to redeliver the goods, an action will lie upon the promise against B. And it was held that the delivery was a good consideration to support the action. *Thus it is shown that A had in no sense parted with his right of property or title to the goods.* The judgment in *Riches* v. *Briggs* was afterward reversed, and judgment given for the defendant in a writ of error. But in *Game* v. *Harvie* (Yelv. R., 50) the whole court said the reversal was wrong. In *Pickas* v. *Gutle* (Yelv 128) the doctrine was, however, maintained that no action would lie in such a case for want of a sufficient consideration, and *that the plaintiff, therefore, could establish no title to the goods delivered by him in trust to the defendant.* But the doctrine was again re-examined in *Wheatly* v. *Low*, (Cro. Jac., 668; S. C., Palmer's R., 281), where there was a mandate of money, not goods, and it was finally established that this was a sufficient consideration to support the action; and this last judgment was affirmed in error. Lord Holt, in *Coggs* v. *Bernard*, (2 Ld. Raym., 920), recognized in the fullest manner the authority of the last case, and said that the reversal of the case was grumbled at, and finally the contrary doctrine solemnly adjudged. He then added:

And yet there is no benefit to the defendant, nor no consideration in that case, but the having the money in his possession and being trusted with it; and yet that was held to be a good consideration. And so a bare being trusted with another man's goods must be taken to be a sufficient consideration, *if the bailee once enter upon the trust and take the goods into his possession.*

See also Jones Bailm., 51, and *Mytton* v. *Cock*, (2 Str., 1099). Also, the cases of *Whitehead* v. *Greetham*, (1 McCleland & Younge R., 205; S. C. 2 Bing. R., 464); *Robinson* v. *Threadgill*, (13 Iredell, 39); *Shiel* v. *Blackburne*, (1 H. Bl., 158); *Shilliber* v. *Glyn*, (2 Mees. & Welsh, 143); *Eddy* v. *Livingston*, (35 Mo., 487), and *Delaware Bank* v. *Smith*, (1 Edm. Sel. Cas., 351), seem fully to sustain the doctrine that a delivery of the thing bailed is a sufficient consideration to support an action of assumpsit in cases of this sort, and that no title passes.

Gratuitous bailees may be made liable *ex contractu*, if they have not performed their contract; but they may also be made liable *ex delicto*, if they have committed a tort upon the property intrusted to them. One could scarcely commit a tort upon his own property. And it is in reference to their liability *ex delicto* that the distinction, which has occasioned so much discussion in our books, between non-feasance and misfeasance becomes important. The distinction between non-feasance and misfeasance has exclusive reference to liability sounding in tort. When an action is brought to recover damages for the non-performance of a contract, a consideration must be alleged and proved; but when one man does another an injury by unskillfully or improp-

erly doing what he had promised to do, or by *doing something with the thing which he had engaged not to do*, an action may be maintained to recover the damage, without consideration or promise, even without allegation thereof. Besides being liable to civil action, if a bailee appropriate or misconvert property intrusted to him, he is liable criminally for larceny as bailee.

It seems that in every bailment there must be a delivery of goods, except where the bailee furnishes everything. But in every bailment the bailee has only the right of possession, (Pars. Contr., 7th ed., 103; Story Bailm., par. 93, *et seq.*; *Hartop* v. *Hoare*, 3 Atk., 44), *and no right of property. Non solet locatio dominium mutare*, says Ulpian in the Digest, Lib. 19, Tit. 2, 1, 39; and see Bell Comm., par. 198; id., p. 255, 5th ed., and note; Bynk. Obs. Jur. Rom., Lib. 8, Cap. 4; and Cujacii Oper., Lib. 8, Obs. Cap., 39; Code Civil de France, Art. 1709; Code of Louisiana, 1825, Art. 2644; Pothier C. de L. n. 3, 4, 5, 22. He may maintain trover, for which possession is enough, (*Sutton* v. *Buck*, 2 Taunt., 302; *Burton* v. *Hughes*, 2 Bing, 173; see also *Webb* v. *Fox*, 7 T. R., 391; *Giles* v. *Grover*, 6 Bligh., 277), but not replevin, because that action requires property in the plaintiff. (*Waterman* v. *Robinson*, 5 Mass., 303). A bailee of goods is not the owner, and has only a qualified right in them. The bailor or actual owner has the absolute property.

Where a workman is employed to make a thing out of his own material, it is a case of purchase and sale, or hiring of labor upon nothing belonging to the hirer, and is not a bailment; but if the principle thing is delivered to the workman, this is a case of bailment. (*Merritt* v. *Johnson*, 7 Johns., 473; *Gregory* v. *Stryker*, 2 Denio, 628; Pars. Contr., 7th ed., p. 141).

If the bailee sell the property of the bailor, a purchaser, even buying in good faith and without notice, acquires no title. (See *McMahon* v. *Sloan*, 12 Penn. St., 229). Even if the workman is not paid for his services, though he has a lien on the work produced, or upon the thing, for his pay, it is merely a passive right of retainer, or, as it is called, a "passive lien," and he is not authorized to seal. (*Jones* v. *Thurlow*, 8 Mad., 171; *Chase* v. *Westmore*, 5 M. & S., 180; and see Parsons on Contracts, 7th ed., p. 148.)

In bailment the expression "trust" has its most comprehensive meaning. (Story Bailm., note on p. 7). In the relation of trustee and *cestui que trust*, the matter intrusted is denominated a "*trust*," but the expression "trust" is used there in a confined and technical sense. The *technical trust* created by the limitation of a second use is only a species of trust. In what is said in regard to bailments above, the expression "trust" is used in its general and most comprehensive sense. It is the duty of the bailee to act in good faith and perform his undertaking, in respect to the property intrusted to him, with the diligence and care required by the nature of his engagement. (Edwards Bailm., Story Bailm).

There are several divisions of bailments which have been classified by Sir William Jones as follows: 1. *Depositum;* 2. *Mandatum*, both of which have already been referred to; 3. *Commodatum*, or loan, where the thing bailed is lent for use, and is to be itself returned, in contradistinction to a *mutuum*, or loan for consumption; 4. *Pignus*, or pledge, where the thing bailed is security for debt; 5. *Locatio*, or *Locatio-Conductio*, (a letting, a letting-hiring), a bailment for hire.

We have only to do with the last, *locatio*, or, as Mr. Gibbon (Gibbon's Rome, Vol. 8, ch. 44, p. 84) has not hesitated to denominate a contract for hire, "location." It is a contract whereby the use of a thing or the services and labor of a person are stipulated to be given for a certain reward. (Wood Inst., B. 3, ch. 5, p. 235; 1 Domat, B. 1, Tit. 4, par. 1, art. 1). Pothier defines it to be a contract by which one of the contracting parties engages to allow the other to enjoy or use the thing hired during the stipulated period for a compensation, which the other party engages to pay. (Pothier, Contrat de Louage, n. 1). A definition substantially the same will be found in other writers. (Domat, *supra;* see, also, Code Civil de France, art. 1709, 1710). Lord Holt has defined it to be "when goods are left with the bailee to be used by him for hire." (*Coggs* v. *Bernard*, 2 Ld. Raym., 909, 913). The objection to this, as well as to the definition of Pothier, is that it is incomplete, and covers only cases of the hire of a thing, (*locatio rei*), and excludes all cases of the hire of labor and services and of the carriage of goods. As Mr. Justice Story says at the beginning of chapter 6 of his work on the Law of Bailments, Mr. Bell defines it with great exactness, thus:

> Location is in general defined to be a contract by which the temporary use of a subject, or the work or service of a person, is given for an ascertained hire. (Bell Comm., par. 385).

At the common law it may properly enough be defined to be a bailment of a personal chattel where a compensation is to be given for the use of the thing, or for labor or services about it; or a loan for hire, or a letting or hiring of goods, or of labor and services for a reward. (2 Kent Comm., lect. 40; Bell, *supra*). *Locatio*, letting, and *conductio*, hiring, are equivalents, used for the purpose of distinguishing the relative situation of different parties to the same contract. The letter, called in the civil law "*locator*," and in the French law "*locateur*," "*loueur*," or "*bailleur*," is he who, being the owner of the thing, lets it out to another for hire or compensation; and the hirer, called in the civil law "*conductor*," and in the French law "*conducteur*," "*preneur*," "*locataire*," is one who pays the compensation, having the benefit of the use of the thing. (Wood Inst., B. 3, ch. 5, 236; Pothier, *supra;* Domat, B. 1, Tit. 4, par. 1, art. 2; Heinecc. Pand., Lib. 19, Tit. 2, par. 318; Jones Bailm., 90). The employer who gives the reward is *locator operis*, (the letter of the work), but *conductor operarum*, (the hirer of the labor and services), while the party employed, who receives the pay, is called "*locator operarum*," (the letter of the labor and services), but *conductor operis*, (the hirer of the work). (See Heinecc, *supra*, par. 320, note; Jones Bailm., 90, note *r;* Pothier Pand., Lib. 19, Tit. 2, p. 2, n. 1, 15; Pothier, Contr. de L. n., 392).

As there are many ways of hiring, the general topic includes several forms, as follows, and usually the classification and terms of the civil law are used:

1. *Locatio rei*, or *locatio conductio rei*, is where a thing is let, and the bailee, for a compensation, has a temporary use of it. (Parsons, Story).

2. *Locatio operis* is the hire of the labor and services of the bailee for a compensation to be paid by the bailor. (Code, Civil, *supra;* Pothier, C. de L., Art. Prelim.; Merlin. Report, Art. Louage, Art. Bailment). This last is again subdivided into *locatio operis faciendi*, which is the hire of labor and services in connection with the thing bailed, and is not only a *locatio custodiæ*, or the hire of care and services to be exerted *upon* the thing bailed, but also a hiring of care, labor, and services to be performed and exerted *with* the thing bailed.

3. *Locatio operis mercium vehendarum*, where the bailee is hired to carry from one place to another goods for the bailor, or to carry passengers.

The case of letting a marking device to a lithographer to produce work for the bailee may fall under the first or second kinds of *locatio*, and under the second kind under the variety *locatio operis faciendi*. In the letting of a marking device to a lithographer as bailee the consideration or compensation is, besides the instrument, that *by* the marking device intrusted to him he can do certain work and gain reward. The acts may even be reciprocal and still involve bailment. Thus the innominate contracts of the Roman law, *do ut des*, *facio ut facias*, *do ut facias*, *facio ut des*, are bailments. (Story Bailm). A permits B to use his pleasure-boat for a day, in consideration that B will permit him to use his chariot for the same time. This is a case of double or reciprocal bailment for use or hire. (Jones Bailm., 93). So, if A gives a pair of pointers to B for the use of B's hunter for the season, it is a grant of absolute property on one side for the temporary bailment of property for use on the other side. (Ibid.) These cases belong to the class of innominate contracts of the civil law, *do ut des*. (Ibid.) The same rule applies to the innominate contract *facio ut facias*, where two persons agree to perform reciprocal works—as if a mason and a carpenter have each, respectively, undertaken to build an edifice, and they mutually agree that the first shall finish all the masonry and the second all the wood-work in their respective buildings, this would be the innominate contract, *facio ut facias*. (Ibid.) A more simple case of the same sort is where A, a cabinet-maker, agrees to repair B's sideboard if B, who is a carrier, will carry A's bureau to Boston. This is a case of double or reciprocal bailment, *operis faciendi*. Similar illustrations may be given of the other innominate contracts, *do ut facias* and *facio ut des*. Thus, if a goldsmith should make a bargain with an architect to give him a quantity of wrought-plate for building his house. This is a case of the reciprocal contract *do ut facias* or *facio ut des*, (ibid.), which is much like a manufacturing company giving from its goods, as giving cigars or money to a lithographer to do something needed by the company.

The loan of a stone by a lithographer for a consideration, as bailor, to a customer, as bailee, is a bailment. It is true that in all bailments there must be a delivery, and in the case of a lithographic stone it is kept on the premises of the lithographer; but there is none the less a delivery. The setting apart of the stone *for the exclusive use* of the customer is a delivery.

If there could be any question as to there being a bailment in the case, as stated at the outset of this decision, upon the ground that the thing said to be bailed is incorporeal, as being only an idea, an expression, a mere abstract configuration, delineation, or design, notwithstanding the fact that it is well known that the letting or hire of so incorporeal a thing as "services" is a bailment, the reply would be that in its corporeal form on a backing or bed (as a painting is a tangible thing on canvas, or an expression, a delineation, or design is a tangible thing when a relief or marking device on or in a plate or stone) it is the property of the party furnishing the idea, expression, configuration, delineation, or design, having paid for the embodiment; but if this is not sufficient we may go to the thing made by a reproducer and in his possession, the thing bearing the expression, configuration, delineation, or design of the intruster reproduced by the intrusted from any mold, die, form, or relief, or marking device in or on some plate or stone, and made by him or given into his custody, and consider this thing made by the reproducer and bearing the expression, configuration, delineation, or design, the bailment in the possession of the reproducer, as bailee.

That a design or picture is property will appear from the following: Under the head "Of Title to Things Personal by Occupancy," in Book 2 of the Commentaries, Mr. Justice Blackstone so considers it at common law, and intimates that even in copyright matter it is not necessary to invoke the protection of statutory law, but for protection of the composition of the mind after publication; that until published there is a common law right of property thereto in the owner. Surely a design intrusted by one party to another to be used only for the benefit of the first party is not a thing promulgated to the public. It might be that a design, delivered to a lithographer for the purpose of making from it a label, has in the hands of such lithographer only increased by *accession*, and then be shown that not only by the Roman law, but also under the law of England, even as laid down in the *Year Books*, whatever alteration of form any property has undergone, the owner may seize it in its new shape, if he can prove the identity of the original articles; as if leather be be made into shoes, cloth into a coat, or if a tree be squared into timber, or silver melted or beaten into a different figure; and that where one converts the materials of another, at his request, into a different article by the manufacturing process, the property of the manufactured article is in the owner of the original material. (*Babcock* v. *Gill*, 10 Johns., 287; *Eaton* v. *Lynde*, 15 Mass., 242; *Worth* v. *Northam*, 4 Iredell, 102). But the doctrine arising from *accession* is, perhaps, confined to corporeal substance. It is clear, however, that if a design be given to a founder to produce, say, peculiar stove-plates, no matter whether it be set in the costliest material by the founder, or in the cheapest, he never has any right of property in the design, and cannot produce it for any one else. It is the same if a peculiar configuration of an article of manufacture devised by one person be, by direction of this person, produced by another. Though the particular die for producing the peculiar configuration be made by and remain the property of such person, he may not employ it to produce the peculiarly-shaped article of the first person for any one else. He can retain his die, and employ it as a tool, perhaps, in other ways, or he can break it up and cast it into a new die, but he has no right to use it for the purpose for which it was hired by the first person. So with a photograph. A photographer invariably retains the "negative," but he could be restrained by injunction from supplying pictures from that negative to any party other than the one who ordered the picture from him, and to the detriment of such person, because the right of property in the picture is in the party who sat for it, who supplied it, who ordered it. So, where a design is fur-

nished to an engraver, so far as the engraver of himself has any right to know or decide, unless the contrary is a matter of public notoriety, the party furnishing the design is the owner thereof, and no proposition seems more conformable to the criterion of moral right than that every one should enjoy the reward of his labor or expense—the harvest where he has sown, or the fruit of the tree which he planted.

In his note on page 407 (1 Black. Comm.), Mr. Justice Sharswood says:

> Nothing is more erroneous than the common practice of referring the origin of moral rights and the system of natural equity to that savage state which is supposed to have preceded civilized establishments; in which literary composition, and of consequence the right to it, could have no existence. But the true mode of ascertaining a moral right, I conceive, is to inquire whether it is such as the reason—the cultivated reason—of mankind must necessarily assent to.

The Roman law adjudged the right of property in so incorporeal a thing as a painting to be so absolute that one might claim his painting upon another's canvas, even to the extent of taking with it the canvas. (Black. 2, ch. 26).

In the Institutes of Justinian (Lib. 2, Tit. 1, sect. 34) it is declared to be absurd that the work of an Appelles or a Parrhasius should go without compensation to the owner of a worthless tablet if the painter fairly had it. And see *Wooden-Ware Co.* v. *United States*, U. S. Supreme Court, 16 Otto, Mr. Justice Miller delivering the opinion of the Court.

That property exists in a design or picture, such as an oil-painting, and that the right to reproduce such painting is property at common law, irrespective of the copyright statutes, even to the extent that this right is assignable, and that the assignees thereof may restrain by an injunction from making and selling any copies of such painting in any form, will also appear from *Oertel* v. *Wood*, (40 How., (N. Y.,) 10), and see *Parton* v. *Prang*, (7 Am. Law Rev., 357).

A party's right in a trade-mark may be violated, not only by one who uses the same or a colorable imitation thereof, but by any person who provides the means or instrument of this fraud, as by making for the use of the violator the type or tool or printing the label by which it is carried into effect, and an injunction will issue to prevent this. (2 Parsons Contr., 7th ed., 375); and see *Farina* v. *Silverlock*, (1 Kay and J., 509, 4 id., 650), where the defendant printed and offered for sale labels exactly imitating those used by the plaintiff upon his Cologne water.

So, too, the owner of a trade-mark has his remedy against the seller of the goods fraudulently marked, as well as against the maker of them. (*Coates* v. *Holbrook*, 2 Sandf. Ch., 586; *Ainsworth* v. *Walmsley*, Eng. Eq. Rep., 1 Eq. Cas., 518; *Jurgenson* v. *Alexander*, 24 How. Pr., 269; *Burgess* v. *Hills*, 26 Beav., 244; *Matsell* v. *Flanagan*, 2 Abb. Pr., N. S., 459; *Oldham* v. *James*, 13 Irish Ch., 393; 14 id., 81).

The abettor of one using a fraudulent trade-mark, as well as the person using such trade-mark, or having in his possession labels, brands, stamps, wrappers, engravings on paper, wood, stone, or metal, or other substance for counterfeiting such trade-mark, as well as civilly, is liable *criminally* under the act of Congress approved August 14, 1876, entitled "An act to punish the counterfeiting goods and the sale or dealing in of counterfeit trade-mark goods."

This is, perhaps, most of the doctrine of equity in general and of law which should be applied to the case as recited above under the head of "Statement of the Case;" but before going into the testimony of the case there is a plea to the jurisdiction to be disposed of.

It is contended on behalf of the defendant that the Patent Office has not jurisdiction, because decision is called for between one or more members composing a partnership; that the Patent Office cannot issue two certificates of registration for the same trade-mark—one to an individual, and another to a firm of which the individual is a member—the courts alone having the power to determine in whom title shall rest as between partners; and the case of *Swift* v. *Peters* is cited as sustaining this, and as holding that the title of the registrant of a trade-mark is for the courts, not for the Office, to determine.

The reply is:

In the first place, section 3 of the trade-mark act of 1881 provides for an interference proceeding between an applicant and a previous registrant, placing the jurisdiction in such proceeding, analogous to other interferences, with the Commissioner of Patents; and it is nowhere indicated in the act that if the registrant and applicant happen to be partners the Commissioner is divested of his jurisdiction.

In the second place, it is not clear what a court could award in such a proceeding as this. It could not award the right of registration, this, as above shown, being solely within the jurisdiction of the Commissioner of Patents; and an award of the registration of the registrant to the applicant would scarcely be proper, as it might be that of a void thing, since the principal point in the case, in addition to the contention on the part of the applicant of prior adoption and use, is that the registration of the registrant is itself wanting in every fundamental essential to make it valid or properly indicative of a right—as, for example, being based upon an oath false as to the statement that the party registrant had at the time of application a right to the use of the trade-mark sought to be registered, and that no other person, firm, or corporation then had. And where conflicting partners claim ownership in a trade-mark there will be no injunction, (5 McLean, C. C., 256), though the writ has been granted where there has been retirement, and the trade-mark is used as of the old firm by the retiring partner. (4 Abb. Pract., N. Y., 394).

In the third place, the case of *Swift* v. *Peters* is not in point. It is true that in the syllabus in that case it is stated that the title of the registrant of a trade-mark is for the courts, not for the Office, to determine; but what the Acting Commissioner really decided was that, outside of the mere question of title as between the parties, it was not for the Patent Office to determine whether the title of the registrant was good or not, but that this was a question for the courts. It is not for the Patent Office to examine the question of title, either to a trade-mark registered or to an invention patented—that is, to a registration or to a patent—excepting so far as a finding of the want of title in the registrant or patentee would vest it in another party to the particular suit, to the particular interference, to which they were parties. The Patent Office has no authority to go into an abstract or general investigation of the question of title to any vested right, with a view, as it were, of divestment. This is for the courts; and in the case of *Swift* v. *Peters* this is what the Acting Commissioner decided—namely, that, if the decision of this Office as to the right of property of one party in the mark would not affect the claim thereto of another party to the interference, it was not for the Office to pass upon the title of the registrant.

Proceeding, then, to the case at bar, accepting the statement of the distinguished and able counsel for the defendant, an interference was declared by the Patent Office on the 17th of November, 1883, based upon the application of the C. A. Yale Cigar Manufacturing Company, Limited, filed November 2, 1883, for the registration of a trade-mark on the words "Grand Master," as applied to cigars, there being found by the Office a certificate of registration of the same trade-mark issued to C. A. Yale in due form, as No. 10,029, February 6, 1883, and interference having been demanded by the applicant.

The parties to this interference, pursuant to the direction of the Patent Office, have taken testimony in support of their respective claims, and the question to be decided is whether, in view of the testimony given in this matter, and in view of the trade-mark law of March 3, 1881, which declares that registration of a trade-mark shall be *prima facie* evidence of ownership, the Patent Office will declare that Charles A. Yale has no right to the trade mark registered by him, and award the same, with incident right of registration, to the C. A. Yale Cigar Manufacturing Company, Limited. The burden of proof is on the company to show, not only that Charles A. Yale has no right to the trade-mark in question, but positively that the company has such right, and is, in addition, entitled to registration. (*United States* v. *Steffens*, XVI O. G., 999).

There is no doubt that the expression "Grand Master" as applied to cigars is a proper trade-mark.

From the testimony in the case it appears that the C. A. Yale Cigar Manufacturing Company, Limited, was organized in July, 1881, with nineteen members, of whom F. K. Wright was elected president, C. A. Yale secretary, and J. M. Robinson treasurer, the same officers being elected for the second year, (pltffs. pr. rec., pp. 8, 12, 26, 37, 67; dfts. pr. rec., pp. 26, 39); that about February, 1882, the company began the manufacture of a high-grade cigar, and used the name "Grand Master" to designate it, (pltffs. pr. rec., pp. 9, 13, 26; dfts. pr. rec., pp. 29, 33, 43); that at that time, in fact from its organization, C. A. Yale was a partner, (dfts. pr. rec., p. 36), and was superintendent of the company, in addition to being its secretary—was in the employ of the company as its servant at a salary of $1,200 per annum—and so remained during the year 1882, and until July, 1883, when he went traveling, selling the "Grand Master" and other cigars for the company on commission, (dfts. pr. rec., pp. 37, 39, 64); that during the whole period of his service with the company he had no other recognized business; (pltffs. pr. rec., pp. 9, 12, 51).

But, perhaps, it will be most conducive to a clear and systematic consideration of the case, and to a consequent just conclusion, first to take up in detail Yale's allegations upon which he bases his claim to the trade-mark in question and consider the law bearing upon and the facts connected with each allegation, and also the legal effect of some of the facts brought out.

Referring, then, in the first place, to Yale's allegation of origination of the name, there is little doubt that he did devise and originate the name "Grand Master" for application to cigars, since, although the witness F. K. Wright (pltffs. pr. rec., p. 22), says that, as well as he can remember, E. C. Deans first suggested the name, and the witness J. M. Robinson (pltffs. pr. rec., p. 26) says Deans first suggested it, yet this is denied by Yale, who says the name was his own suggestion. The witness Phelps says that Yale and Deans agreed that it was Yale's idea, (dfts. pr. rec., p. 4), and Deans himself does not claim to have suggested it. He says he cannot state who first suggested the name; (pltffs. pr. rec., p. 33.) The testimony in regard to this matter is somewhat conflicting; but if the point turned upon this alone I should have no hesitation in deciding in favor of Yale. The preponderance of evidence on this particular question is in his favor. The very narratives of F. K. Wright, (pltffs. pr. rec., p. 2), of the witnesses C. C. Mathus, (pltffs. pr. rec., p. 31), Hugh Young, (pltffs. pr. rec., p. 5), Moses Yale, (dfts. pr. rec., pp. 30, 32), Veazie, (dfts. pr. rec., pp. 97, 98), R. R. Stowell, (dfts. pr. rec., pp. 100, 101), rather indicate that Yale had from first to last regarded the name as his own thought; while the narrative of Deans, beyond this, seems to indicate not only that Yale had from the first regarded himself as the originator of the name as applied to cigars, but that Deans so regarded him too. But it is not of the least moment, it is absolutely immaterial, who first selected the name. Selection is not creation, and even creation of a name alone confers no rights which the Patent Office can recognize, or that the courts can regard, in trade-mark cases. The sole purpose being that the marks adopted shall be such as will identify the thing named, as that of the person naming it, and distinguish it from all others, this purpose is accomplished if the name be not then in like use, or has not been within a period so recent as would be likely to defeat the primary purpose of distinctive designation. The question in a trade-mark interference is not of priority of creation, but of priority of adoption and use. Selection or even creation of a name is in no sense invention, as this term is understood with reference to the mechanic arts and manufactures, and with reference to rights conferred in them thereby, and there are no analogies between the two. The following decisions are in point: In *McLean* v. *Fleming* (96 U. S. Rep., 6 Otto, 245; XIII O. G., 913), the United States Supreme Court held that a trade-mark may consist of a name, symbol, figure, letter, form, or device, *if adopted and used by a manufacturer or merchant as distinctive of his goods;* that even common words and phrases, not invented for the purpose, may be so adopted and used, if not previously applied to the same or similar articles. In *Rowley* v. *Houghton* (Court of Common Pleas of the County of Philadelphia, 2 Brewster, 303) the court held that no right can be absolute in a name as a name merely. It is only when the name is printed or stamped upon a particular article, and thus becomes identified with a particular style and quality of goods, that it becomes a trade-mark. A trade-mark is property, and the proprietor thereof should be fully protected in its enjoyment and in all the benefits and advantages which it confers. (1868, N. Y. Ct. of Com. Pleas, G T., *Curtis* v. *Bryan*, 2 Daly, 312; S. C., 36 How. Pr., 33). In *Collins Company* v. *Cowen* (3 Kay & J., 428) it is held that there is no such thing as property in an *abstract name* as a trade-mark; it is the right which a

person has to use a certain name or symbol for articles which he has manufactured, so that he may prevent another from using it, such name or symbol denoting that articles by it marked were manufactured *by a certain party*, and no one else has the right to put the same name or symbol on his goods and so represent them to have been manufactured by the party whose mark it is, that constitutes property in trade-mark. (See also *Lee* v. *Haley*, L. R. 5 Ch. App., 155,161).

In *Walton* v. *Crowley* (3 Blatch., C. C., 440) it is held that the privilege of a party to the exclusive enjoyment of a trade-mark does not rest upon a right of property therein *as a name or symbol* alone, but on its prior use and application. In *Candee, Swan & Co.* v. *Deere & Co.* (Illinois Supreme Court, 54 Ill., 439) Mr. Justice Breese said:

> It is the actual use of the trade-mark affixed to the merchandise of the manufacturer, and this alone, which can impart to it the element of property. The mere declaration of a person, however long and however extensively published, that he claims property in a word as his trade-mark, cannot even tend to make it his property.

In *Swift* v. *Peters* (XI O. G., 1110) it is declared that he who was the first to adopt and use a trade-mark for the purpose of indicating ownership or proprietorship of the articles to which the mark is applied is entitled to it as against the person who was the first to suggest and urge its adoption. And see Coddington's Digest of Trade-Marks, Cox's American Trade-Mark Cases, Browne on Trade-Marks, Bump's Patents, Trade-Marks, and Copyrights, and Cox's Manual. And it will be noted that the words *adoption* and *use*, or "*adopted* and *used*," are coupled together. No right of trade-mark can accrue or attach from either fact alone. Although the word *adoption* doubtless implies something more than mere selection—viz., the receiving or taking as one's own of what is not naturally so, and perhaps in a matter like a trade-mark the *open* taking as one's own thereof—yet adoption is not sufficient by itself, for *use* with it is an essential, and one could scarcely be said to be using a thing in the proper sense of *use* here if he were employing it in the interest of some other party. A person could scarcely be said to be using his own name or credit in an act declared to be *for* and thus to be *of* another. It would be the other who was using the name or credit of the first. The expression "adoption" may even imply *and comprehend* use.

Referring to Yale's next allegation, it seems also to be the fact that Yale, by his own skill, aided by his knowledge of the business, selected and combined the varieties of tobacco necessary to compose the "Grand Master" cigar; that he devised its particular shape and size, and that he, with his own hands, made the first six cigars designated as "Grand Master Cigars;" for although Mr. Wright says that the foreman, Near, originally combined the tobacco in making the "Grand Master" cigar, (pltffs. pr. rec., p. 22), the preponderance of evidence is to the effect that Yale did this, since Mr. Robinson says that it was Yale, (p. 26); Mr. Dean says the same, (p. 33); the testimony of the witness Alleman (dfts. pr. rec., p. 24) indicates the same, as does also that of the witnesses Sayre, (p. 26), Moses Yale, (p. 31), Veazie, (pp. 97, 98), and R. R. Stowell, (p. 99); and Mr. Near says that the general work which he did was under Yale's direction, (p. 62), though it is noticeable that Near, although said by Yale to have been present when he, with his own hands, made the first six cigars alluded to, is silent on the subject. But, again, it is not of the least moment, it is absolutely immaterial, who first produced, or, if the genius of invention could be involved in such matter, who even first *invented* the cigar to which the name was applied. It is true, as alleged, that Yale was the only member of the company who had any practical knowledge regarding the manufacture of cigars, and of the cigar business, (pltffs. pr. rec., p. 11), but he was engaged for this reason, and hired to do just such work as he did. It is not likely, as the witness H. W. Williams very pointedly remarks, that the company was paying him for the use of his hands or feet alone, without that of his brain; and, as the witness Hugh Young remarks, the price it was paying him was supposed to include his brains. It is intimated that as Yale originated the name while in the employ of the company, upon considerations which would obtain in determining a question of right to an invention as between workman and employer, the trade-mark should be considered his. But rules applicable to questions arising between parties in a matter of invention have, in general, no application in questions arising between parties in a trade-mark matter, and there is no analogy to be drawn from the doctrine of "employer and workman," as applied sometimes in questions of priority of invention. It may be remarked, however, that even in the relation of employer and workman, with reference to invention, the production of the workman may be the invention of the employer. But inasmuch, as before remarked, as there is no analogy in this respect between trade-mark and invention, it were foreign to the subject to discuss the relative positions of parties in such cases. Many of the decisions cited by counsel for Yale are explanations of this doctrine. They are therefore not in point.

There are many references to *invention* in the defendant's record; thus Yale, referring to the selection of the name, speaks of his "discovery," and generally refers to the matter or to the trade-mark as "my invention" or "my discovery." If the picking out of names were invention, Yale might soon, if he were to keep on in the same line, indeed rival the Marquis of Worcester, for his choices would seem already to have been quite prolific, as witness, "Origina," "Honor Bright," "La Rose," "Ashes of Roses," "Merry," "Grand Master," and others; although with reference to "Origina," he says that he thought of the name first, and then adopted a cigar for it, which is something like christening now a child to come some generations hence. Even the preparation of a superior cigar of attractive form is a mere matter of skill, and in no sense rises to the dignity of invention or *discovery*. But, as already said, origination of a name and origination of the article, even to the extent of invention, are immaterial. Though Yale selected the name and made the first cigar to which it is applied, these facts alone could give him no right to the trade-mark. That first production or even invention of an article manufactured confers no right in or to a trade-mark upon such article will appear also from the following: In *Partridge* v. *Menck*, January, 1848, N. Y. Chan., Sandford V. C., Walworth, C., (2 Sandf. Ch., 622; 2 Barb., Ch. 101), Chancellor Walworth said:

> The question in such cases *is not whether the complainant was the original inventor or proprietor of* the article made by him, and upon which he now puts his trade-mark, or whether the article made and sold by the defendant under the complainant's trade-mark is an article of the same quality or value. But the court proceeds upon the ground that the complainant has a valuable interest in the good-will of *his trade or business*, and that, having appropriated to himself a particular label, or sign, or trade-mark, indicating to those who wish to give him their patronage that the article is manufactured or sold by him or by his authority, or that he carries on business at a particular place, he is entitled to protection.

In *McLean* v. *Brunton* (849 U. S. C. C. Ind., 4 McLean, 516) it was held that the inventor of a thing has no common law *exclusive right of property in it;* that any other individual has a right to make and sell the same thing; that an exclusive right, as the inventor, can only be obtained under the patent law and upon compliance with its provisions. In *McLean* v. *Fleming* (*supra*) it is held that in trade-mark cases the original invention or proprietorship of the article with which the trade-mark is connected is not in question, but that the court proceeds on the ground that the plaintiff has a valuable interest in the good-will of the business, and that *in this is included the trade-mark by which his goods are distinguished.* (See also *The Manhattan Medicine Co.* v. *Wood*, XIV O. G., 519). In *Caswell* v. *Davis*, 1874, N. Y. Ct. of App., (58 N. Y., 223), it is held that, though one produce, discover, or invent an article, and give it a peculiar and distinctive name, if he permit another with his acquiescence to appropriate it with that name and to put it forth to the public as his own, that other will become the proprietor or owner of the name, if he meets the other conditions prescribed by the law in such cases.

It may next be the *fact* that Yale personally affixed to the first box of "Grand Master" cigars made and sold, the label bearing the words "Grand Master," and that these cigars were made and sold by him. This is not shown beyond Yale's own rather faint assertion in his deposition, (dfts. pr. rec., pp. 61, 62), and is not corroborated; but his statement is not controverted nor denied, and it may possibly be that he did; but it is immaterial who first performed the act, if merely mechanical, of affixing the label to a box of the cigars. The statement is that on the first Sunday following Thursday, the 16th day of February, 1882, he went into the manufactory of the company, where he found Mr. John Near, his assistant, took suitable tobacco from the stock, made six cigars therefrom, called Mr. Near's attention to them, told him that he thought "Grand Master" was a good name for a cigar like the one he had just made, rolled the cigars in paper, went to the Parkhurst House, found Mr. Veazie seated alone in the office, took the cigars from his pocket, displayed them to Mr. Veazie, and said: "There is a new brand I have been getting up; I worked nearly all the morning on it; what do you think of them?" That Mr. Veazie praised the cigar, approved the name, and said that he wanted the first box of cigars made, (dfts. pr. rec., pp. 43, 44—Yale uses the expression, "he wanted the first box of those cigars *we* got up"); that in the early part of March following there was delivered, he *thinks* by himself, to Mr. Veazie the first box, *he believes*, that was sold, and he *thinks* the boxes came blank, and *believes* that he put the label on, but would not be positive as to that. (Yale, pp. 44, 62). The statement as to the carrying to the Parkhurst House, in February, 1882, of half a dozen cigars which he alleged that he himself made, and the utterances regarding their nature, are corroborated by defendant's witnesses, Alleman, Sayre, and Veazie, while Alleman and Sayre corroborate Yale's statement as to his having mentioned the name by which they were to be known, and his statement as to Veazie's demand for the first box is corroborated by Veazie himself; but this gentleman says nothing about the delivery to him by Yale, or by anybody else, of any box of "Grand Master" cigars, or any others. Considerable parade is made by Yale of his having made the first "Grand Master" cigars on a Sunday—that is to say, not in the company's time; but the inconsistency is that he made them in the company's factory, and with the company's stock and appliances, and he was hired at an annual salary. (Yale, pp. 43, 84). However, though not proved, it may possibly be true that Yale did first affix a label bearing the words "Grand Master" upon a box of peculiar cigars now generally recognized by that appellation; but what if he did? He was a part of the company, and the agent for all, an employé of all, and the rules of partnership and agency apply; the cigars made were the company's; the box of cigars sold, and to which he says he affixed the label bearing the words "Grand Master," was the property of the company; the label which he says he affixed to the box was the company's. The following testimony, elicited upon cross-examination of Mr. Yale, is to this point, page 84:

> Question. When you say you conceived the "Grand Master" cigar, you were at the time actively engaged as the superintendent of the company—were in charge of the manufacturing interests? Answer. I was working in the capacity of superintendent and manager.
>
> Q. At $100 a month? A. Yes, sir.
>
> Q. You had for them the general charge of their manufacturing operations? A. As I understand it, yes, sir.

And the following, page 83:

> Q. I understand you to say that you sold the first box of cigars to Mr. Veazie; you have so stated, have you not? A. Yes, sir.
>
> Q. Whose cigars were those, and to whom was the price paid? A. *They were the O. A. Yale Manufacturing Company's, Limited.*
>
> Q. *And the money was paid them?* A. *I presume so; I did not receive the pay, to my recollection.*
>
> Q. Where were those cigars made—the cigars that you first exhibited to him—to Mr. Veazie? A. They were made in the factory of the company plaintiff.
>
> Q. Whose tobacco was used in making them? A. *The tobacco belonging to the O. A. Yale Cigar Manufacturing Company, Limited.*

And the following, page 84:

> Q. Who paid for the stones upon which these labels were printed or impressed, whatever is the proper term? A. I could not answer that question.
>
> Q. You know that several hundred dollars were paid by somebody; did you pay that out of your own pocket? A. No, sir, not the labels, excepting those I used. (Referring to those sent to Washington.)
>
> Q. I inquire of those that were used by the company? A. No, sir.
>
> Q. Did you pay for stones upon which they were printed? A. No, sir.
>
> Q. In your contract with the lithographic company did you act for yourself in contracting for these labels, or the company whose superintendent you were? A. For the company in which I was interested.

The next proposition of Yale which will be considered is that he is entitled to the trade-mark because he had used due diligence in making an application for registration; but this is of no force. Diligence has nothing to do with the matter. Trade-mark being a common-law right and being perfectly independent of registration, there can be no race of diligence in coming to the Patent Office. Besides, Yale's diligence seems to have been of a description that involved the overreaching of his partners and principals, and the duties and obligations which, it would seem, should have restrained him, at least from any concealment, or from having made his application covertly, have already quite extensively been set forth. Aside from any consideration between parties, the question of due diligence in coming to the Patent Office, as has just

been said, can hardly arise in a trade-mark case, as it may in the case of an invention. In the case of a trade-mark the principal question is who was the first to adopt and use the mark in his trade, and, as counsel have very clearly shown, (citing Browne on Trade-Marks, sec. 52; *Taylor* v. *Carpenter*, 2 Sandf. Ch. R., 603, 614; 11 Paige R., 292), title to a trade-mark may be acquired instantly. Trade-mark is a common-law right, and title vests at once upon adoption and user. The moment a person has selected a symbol or device to indicate his mark and applied it to an article made by or for him the act is complete and his right consummated. It is different with invention. The question there between two parties claiming the same thing is, who was the first to invent, (in the fullest sense, including conception and embodiment), and no right is consummated until a patent has been granted. Invention is no common-law right, and title does not vest until the grant of a patent; hence, with an invention, the party's promptness in seeking protection—in coming to the Patent Office for a patent—whereby, while protected himself, the public may be benefited also by immediate and open practice of the invention under the patent, is to be considered.

But let the circumstances of Yale's act of application be examined. He knew that fault had been found with him, (pltffs. pr. rec., pp. 42, 43), and rather expected to be discharged as superintendent, (p. 49), and so probably had no very good feeling toward the company, and thought to gain an advantage, (pp. 23, 48). In December, 1882, he went to New York city on business for the company, (pltffs. pr. rec., p. 37; dfts. pr. rec., Yale, pp. 53, 56), and at the expense of the company, traveling upon a pass of the company. Yale, in his direct examination, claims that the pass was in his name, or, rather, says he *thinks* the pass was in his name, (p. 56); but it appears that it was sent in a letter by the general agent of the railroad to the company plaintiff in lieu of a rebate. The letter containing the pass was elicited by a letter written for the company plaintiff by Mr. Deans, the book-keeper, asking for a rebate, for the reason that Mr. Yale, while in New York in October, having hired a number of cigar-makers for the company plaintiff, and made arrangements with the railroad company for their transportation from New York to Elmira, more men were paid for than came, (pltffs. pr. rec., pp. 64, 65), and the letter sending the pass is exhibited and marked "L." Deans personally handed the pass to Yale. (Pltffs. pr. rec., p. 65). Yale's testimony on cross-examination in regard to the matter of the pass (dfts. pr. rec., pp. 90–94) is so apparently evasive that it leaves a bad impression. A great deal is said about this pass matter, and perhaps needlessly, since it is nowhere denied, but is fully admitted, that Yale went to New York city in December, 1882, on the company's business; and there is no likelihood, if he had incurred any personal outlay in traveling, as by using his own money or his own property for fare, that he would not have charged it to his employers, as is usual in such cases; but the point evidently is to emphasize a suspicion that Yale, in applying for the trade-mark in question, used some of his employer's money, since it is shown that, notwithstanding the pass, his expenses were much greater for the time he was in New York city in December, 1882, than ever before for a corresponding period. (Pltffs. pr. rec., pp. 38, 65). Yale's expenses in New York city were paid by the company plaintiff, and he charged full time against the company. (Pltffs. pr. rec., p. 38).

The following is Yale's own testimony on the subject of his expenses:

> Question. You speak of having gone to New York in December at the time you made your application; you went there that time upon the business of the company, did you? Answer. I did; yes, sir.
>
> Q. You charged the expenses of the journey to the company and were allowed them? A. The company paid my expenses, so far as I gave in to the company.
>
> Q. You charged the expenses of the journey to the company and were allowed them? A. Not entirely; no, sir.
>
> Q. State some of the expenses of the journey not charged? A. Some of my individual expenses in the way of amusement.
>
> Q. With that exception, the expenses of the journey were charged to the company and allowed you? A. The expenses of the journey, yes, sir, if I understand the question aright.

While in New York city at this time he went to the office of the Empire Lithographic and Engraving Company, in Pearl street, taking with him the letter from the lithographic company to the company plaintiff, inclosing an application for a copyright on the "Grand Master" matter, which the former sent to the latter in response to the letter from Deans, the book-keeper of the company plaintiff, (dfts. pr. rec., pp. 6, 53), and consulted the manager and agent of that concern, defendant's witness, A. W. Phelps, as to the feasibility and advisability of procuring a copyright or trade-mark on the words "Grand Master." Yale says that from about the time he originated the name "Grand Master" for cigars he had intended to have it protected to him in some form, but that not until November, 1882, did he come to any decision, partly owing to the fact that until then he could not incur any expense, and partly because Mr. Deans, the book-keeper, had told him that he thought a copyright or trade-mark could not be procured, since the cigar had already been sold under the name "Grand Master" without the copyright, or without the trade-mark being printed on the label. All the witnesses seem to be considerably confused on the subjects of patent, copyright, trade-mark, and label, and it is somewhat perplexing sometimes to ascertain what is intended by remarks in which the expressions "patent," "trade-mark," "copyright," and "label" are indiscriminately used; but here it is, perhaps, meant that Deans told him that he could not get a copyright on an expression that had already been published, nor a trade-mark which had been employed on something that had been sold under the name. The first might be correct; the second, too, if it were meant that one party could not take a trade-mark which had, from the very beginning of its conception, been adapted to and used upon the goods of another. Yale says further that in November a Mr. Peter Near (not a witness in this case) advised him to get a trade-mark in his own name, and that, in consequence, he the same day directed Mr. Deans, the book-keeper, to write a letter for him to the department (probably to the Patent Office) and see what it would be necessary for him to do in order to "take out" a trade-mark upon *his* brand, the "Grand Master;" that some days later Mr. Deans brought to him a pamphlet containing the patent laws or rules governing trade-marks, &c., and said to him (nobody else being present) that it was impossible for him to "take out" a trade-mark, as the goods had not been in commerce with foreign nations; that he then directed Deans to write a letter personally

to Mr. A. W. Phelps, and in Yale's name, not in the name of the company plaintiff, but that thereafter a response came, not from Phelps personally, but from the lithographic company, and with an application for a copyright filled out, not in his name, but in the name of the company plaintiff, with directions that one of the firm should sign it, all of which was a surprise to him, as he had directed Deans to write to Phelps, and not to the lithographic company, and expected the letter to be written to Phelps personally, and to get the reply *from him*; so he then said to Deans that the application was certainly not filled out correctly, whereupon Deans gave him the application and letter, and said that he had better attend to the matter himself; that he did not see either the letter that was sent to the Patent Office or the letter that was sent to the lithographic company before it was sent off, and that he *does not recollect* having heard either read. (Dfts. pr. rec., pp. 49, 50, 51, 52). But in regard to most of this matter nearly the opposite is stated by Deans, who says that in November, 1882, Mr. C. A. Yale and Mr. J. M. Robinson entered the factory-office and jointly directed him to open a correspondence with the Patent Office and learn what steps would be necessary to secure a trade-mark *for the company* upon the words "Grand Master" as applied to cigars. (Pltffs. pr. rec., p. 34). This is corroborated by Robinson, who says that, as a result of frequent conversations between Mr. Yale, himself, and Mr. Deans, after the company had spent some money advertising, in order to protect the company in the use of the words "Grand Master" on the particular brand of cigars, Mr. Yale and he directed Mr. Deans, the book-keeper of the company, to write to the Commissioner of Patents, stating that the company desired to procure a trade-mark on the words "Grand Master." (Pltffs. pr. rec., p. 23). A press copy or fac-simile of the letter sent to the Patent Office at Washington, and of the letter sent by direction of Yale and Robinson to the lithographic company in regard to the copyright, were made before the letters were sent in the letter-book of the company, presumably in their order in such book, and the copies are produced as Exhibits B and C, (pp. 35, 36). Deans declares that he read the letters to Yale before they were sent off. And Mr. Wright says that Yale knew that the company had taken steps toward getting a copyright, and making application for registration of a trade-mark for the words "Grand Master" as applied to cigars, and agreed to it. (Pltffs. pr. rec. pp. 23, 25). The same appears from the testimony of Robinson, (page 28), of Deans, (pages 34, 35). There seems to be no good reason for any belief that Deans would have disregarded instructions given to him at that time by Yale. It does not seem that Deans at that time could have had any motive, either from suspicion or from any other cause, to antagonize Yale, and he could not help but know, if Yale directed him to write in his name and to a certain party, that if he wrote in the name of the company plaintiff, and not to the particular party directed by Yale, Yale would become aware of this very shortly thereafter. His very display to Yale of the letter from the lithographic company to the company plaintiff would seem to indicate quite strongly that he had followed, or believed that he had followed, the directions which were given him. It seems pretty clear that they all thought, and never had any doubt, that the trade-mark was fully the company's, and that Yale knew the company deemed it theirs to the extent of taking steps toward ascertaining how to make their right a matter of record, and acquiesced in their belief and intention. Yale goes on to say that, being at the office of the Empire Lithographic Company, he said to Mr. Phelps that he desired to get out a copyright or trade-mark to protect his "*invention*" upon the words "Grand Master;" that after some conversation Mr. Phelps said to him that they could procure a copyright for him, but that he had better go to a certain firm of attorneys and consult them with reference to trade marks; that he and Phelps went together to these attorneys, and that he was told there that it would be necessary for him first to deal with a foreign nation in order to make the required affidavit in his application; that he accordingly *went into business for himself*, and appointed Mr. Phelps as his agent to deal with foreign nations. But of this business with foreign nations more hereafter. He then returned home, and on the 5th or 6th of January received an application filled out by the attorneys for a trade-mark on the words "Grand Master," which application he executed and returned to them, and wrote to Mr. Phelps of the Empire Lithographic Company to furnish the necessary amount of labels to the attorneys to accompany his application to Washington for his trade-mark, and that when he came to New York he would settle with him for the same; that he also included in this order labels for the copyright, the application for which he had sent to Phelps; that the application for the copyright was afterward returned to him with the statement that it was not filled out correctly, but that he corrected it, and he then got notice from the "*Patent Office*" that it had been allowed. (Dfts. pr. rec., pp. 53, 54, 57, 58). His notice could not have been from the Patent Office, because the Patent Office does not deal with copyright matter.

Mr. Phelps tells of Yale's consulting him as to the feasibility and advisability of procuring a trade-mark in December, 1882, their going together to the attorneys' office, and the advice given, and that he was to furnish labels to be sent to Washington with the application; but there is no certainty that the labels were furnished from labels in the possession of the Empire Lithographic Company. It is true that he narrates that Yale subsequently paid for the labels furnished; but he does not say positively that the labels were furnished from some in the possession of the Empire Lithographic Company, and I very much doubt from Phelps' testimony that any were so furnished. It would make no difference, even if it were shown positively and beyond the possibility of a doubt that the labels with the words "Grand Master" upon them, which accompanied Yale's application to the Patent Office for the registration of the trade-mark, had been furnished from labels in the possession of the Empire Lithographic Company, since, as has already been shown in the comments above upon the law of bailment, these labels were not the property of the lithographic company, but were the property of the company plaintiff, even the very stones upon which they are said to have been printed being possessed by the company plaintiff, these stones having been hired to them, or loaned for a consideration, as above shown. That Yale forfeited a certain sum of

money when the labels were transferred to his possession or to the possession of his agent (I will not use the expression paid for them, since he could not buy and pay for what was not for sale) makes no difference. He might as well have thrown his money into the street to acquire title to them. The lithographic company were bailees of the company plaintiff, and had only the right of possession, and not the right of property, (see cases cited above), and hence, if they as bailees assume to sell this property of the company plaintiff, bailor, the pretended purchaser acquired no title. (See *McMahon v. Sloan*, 12 Penn. St., 229, *supra*). And so part and parcel of the very application which Yale made to the Patent Office for the registration of the trade-mark was the property of the company plaintiff. The doubt expressed above that any labels were furnished to the attorneys from labels in the possession of the lithographic company is engendered by the following direct testimony of Phelps:

Question. State, if you please, who furnished the labels which accompanied the application made by Munn & Co. Answer. *I believe* they were furnished by the Empire Lithographic and Engraving Company, sent to Munn & Co. from their stock by one of the clerks, and afterward Mr. Yale paid sixty cents for the labels that were furnished. The sixty cents was paid to me. They were worth about that.

And the following testimony of Phelps upon cross-examination:

Q. Didn't you furnish C. A. Yale with the same kind of labels that you furnished the company plaintiff with? A. I don't *think* I saw the labels that were furnished to Mr. Yale; *don't remember* that I was present when they were sent. I did not send them myself. I *think* I gave directions to have them sent; I know they were sent, because I know *Munn & Co. must have got them*, and I *heard* they were sent.

Q. To whom did those labels belong? A. I suppose they belonged to the Empire Lithographic and Engraving Company; the Empire Lithographic and Engraving Company furnished labels with the name "Grand Master" on them, I think, in November, 1882. (But he is careful not to say that any have been furnished since.) I did not print them myself. The words "Grand Master" were, I think, in several colors. I can't swear positively what color words "Grand Master" were printed in in November, 1882. Can't tell how many different colors the words "Grand Master" were printed in; *they were not printed in any type*—were engraved; were engraved in letters similar to Exhibit 1; may have been some where a transfer was used; *think* I saw those furnished to Munn & Co.; *think* they were black lettering; *don't know who printed them*; *I suppose* we did; can't say whether they were engraved letters or made with type.

Not only had the lithographic company no right to furnish any one but some person representing the company plaintiff, and for the use of the company plaintiff, with any of these labels, since, as a general proposition, the lithographic company was merely custodian thereof, as bailee for the company plaintiff, as above fully shown, but there was an express contract that these labels should be furnished to no one other than the company plaintiff. (Pltffs. pr. rec., p. 44; dfts. pr. rec., p. 14).

The following is Phelps's testimony on this subject:

I made a contract with the company plaintiff in relation to furnishing these labels to them. I made the contract on behalf of the Empire Lithographic and Engraving Company. *It was a condition of that contract that these labels were not to be furnished to any other person than the company plaintiff.*

How Mr. Phelps reconciles his conduct with this condition he does not state, and some of the law cited above may apply to such acts.

While the testimony above quoted caused a doubt in my mind that the labels which accompanied Yale's application for registration of the trade-mark in question were furnished from the stock in possession of the Empire Lithographic Company, the following circumstances remove all doubt, and convince me *that they were not, but were furnished direct from stock in the possession of the company plaintiff at Wellsborough:*

The first order for "Grand Master" labels given to the Empire Lithographic and Engraving Company was for twelve thousand. Shortly afterward Mr. Yale, having occasion to go to New York city, went to the Empire Company and directed that only two thousand should be printed with the words "Grand Master" on them, these words to be omitted from the remainder, the reason being that in case the brand did not take with the public the labels might be used with other words printed upon them. Going into one of the rooms with a Mr. Heffron of the Empire Company, he was shown the stones with impressions of the "Grand Master" label, upon each of which were the words "Grand Master," and it was explained to him that from several of them the words would have to be erased. Calling again by the next day, he found that the words had been erased from enough of the impressions to produce but two thousand labels with the words "Grand Master" of the whole twelve thousand to be printed, leaving ten thousand blank—that is to say, without the words "Grand Master" upon them. Some time after that the labels were delivered to the company plaintiff. (Dfts. pr. rec., pp. 48, 49.) All the labels in possession of the Empire Company, as well as all such as the company plaintiff had, must have become exhausted, for Yale (page 49) says:

Our trade increased upon sale of the cigar, and we found it best, in the absence of any more labels printed with the words "Grand Master," to take the blanks to the printing-office at Wellsborough and have the words "Grand Master" printed upon them.

So the lithographic company had no labels on hand bearing the words "Grand Master," and there could not have been any such "furnished from their stock by one of the clerks" (who is not produced either) to supply Yale for his application. But, in addition to this, it is positively shown that the labels which accompanied Yale's application were procured by him from the company plaintiff's stock at Wellsborough. Labels which had the words "Grand Master" printed on them at Wellsborough were not returned to the lithographic company. It did no work upon them after these words were printed. They went direct from the Wellsborough printer to the office of the company plaintiff, and this company always kept a stock of completed "Grand Master" labels on hand. (Pltffs. pr. rec., p. 39). Now, when Yale was in New York city at that time in December, 1882, when he was busy with Phelps in getting up an application for the registration of the trade-mark in his own name, and was making application through his attorneys, he telegraphed to Deans for some "Grand Master" labels, and Deans sent twenty of them for him to the Empire Company (the telegram is marked "Exhibit K") with the words "Grand Master" printed on them at Wellsborough by Barnes & Roy. (Pltffs. pr. rec., pp. 63, 64). One of the labels sent to the Patent Office with Yale's application, having been procured from the Patent Office by the company plaintiff, or a member thereof, is identified by one of the printers, Mr. Roy, by a certain peculiarty in the circle inclosing the word "Master," as having been printed by the firm, Roy even recognizing that the type was set and wedged personally by himself, (pltffs. pr. rec., p. 47), and is identified also by Deans (page 64) as being from the same lot.

It must be remembered that after the words "Grand Master" were printed at Wellsborough by Barnes & Roy, on blank labels sent from the Empire Company at

New York city, they were not returned to the Empire Company, but were delivered direct to the company plaintiff. It is quite apparent that Yale had to send to the company plaintiff for the labels he wanted, including some eleven which he had to forward to the Patent Office with his application for registration, *because the Empire Company had none*, or not enough for his purpose, with the words "Grand Master" on them. Deans sent them to the Empire Company; so Yale may, as he said to Deans, (pltffs. pr. rec., p. 38), and as he intimates in his own testimony, without direct falsehood, say that *he* obtained the labels from the Empire Company. But they were sent from Wellsborough, and from the establishment of the company plaintiff, by Deans to the Empire Company first. The first "Grand Master" labels employed by the company were lithographed by George S. Harris & Sons, of Philadelphia. They were then sent to Barnes & Roy, and had the words "Grand Master printed on them, after which they were delivered to the company plaintiff. One of these labels, which has been in Deans's posession ever since it was received, is produced and marked "Exhibit A." The next "Grand Master" labels were lithographed by the Empire Lithographic & Engraving Company, and, as already explained, most of them were also sent to Wellsborough to have the words "Grand Master" printed on them by Barnes & Roy. It is the practice of the Patent Office to require eleven copies of the trade-mark proposed to be registered to be filed with the application, to the end that after the registration is effected, if certified copies of the trade-mark registration are called for, there will be copies or *fac-similes* of the trade-mark to supply. Those supplied until the number is exhausted, when more may be furnished by the registrant, are from the number sent by the applicant. Now, the company plaintiff applied for and obtained a certified copy of Yale's registration from the Patent Office, and with it came one of the labels which had been sent with Yale's application. This is marked "Exhibit E," and is the label identified by Roy and by Deans. Deans recognizes it particularly by comparison with "Exhibit A."

In the entire matter of his application, and even after he had obtained the certificate of registration, Yale observed great secrecy, carefully concealing his act from his partners and associates. It is repeated that he knew of, even joined in directing, steps taken toward getting a copyright and a trade-mark for the company, and he knew of the words "Copyright applied for" being printed on one of the "Grand Master" labels. The following testimony given upon cross-examination and relating to this matter (see pages 85, 86) exhibits an evasive spirit:

Question. Did you, as the superintendent of the company, think they ought to be protected in the use of their labels? Answer. I felt I ought to be protected in the ownership of my invention in the words "Grand Master."

Q. Did you ever communicate to any of the officers of the company your idea that it was necessary that somebody should be protected in the use of the labels? A. Not to my recollection.

Q. In the transaction of the business of the company, making up and putting into the market these cigars, after the copyright was applied for by the company, do you not know that those words were printed upon the labels that were used: "Copyright applied for?" A. I did not know that the company had applied for any copyright.

Q. Did you know that those words were printed upon the labels that were used: "Copyright applied for?" A. I do remember of my directing Mr. Deans to have them put on for my benefit.

Q. Was there anything on the labels to indicate that it was for your benefit? A. The fact of its being my invention.

Q. Was there anything on the labels to indicate, in addition, that it was for your benefit? A. My benefit, so far as protecting my property was concerned.

Q. Do you understand my question? A. I understand it to the best of my ability.

Q. I ask if there was anything on the label to indicate that those words were put there for your benefit, as distinct from that of the company? A. I cannot understand the question. I do not understand the question.

After registration had been effected, the certificate was sent to Yale to the office of the company plaintiff at Wellsborough. Yale being absent, Deans opened the envelope, and, seeing too late that the matter was personal to Yale, put the certificate aside against Yale's return. When Yale came he was very wroth, probably seeing himself discovered, and threatened Deans with prosecution for opening his letter. Deans then promised that until the knowledge that Yale had obtained this trade-mark in his own name should come to the members of the company plaintiff otherwise, he would not reveal to them what he had seen. (Pltffs. pr. rec., p. 37). In this Deans behaved badly, for a faithful servant never conceals and condones treachery, and his conduct might detract from the weight of his testimony were it not corroborated by circumstances, and by utterances of Yale himself. Thus, where Deans goes on to narrate that Yale was nervous about being discovered, invariably inquiring upon his return from a business trip if the company had yet discovered his conduct, saying: "Has the company found out that I have the trade-mark?" Or as he always said: "Have the company found out that I have the patent?" (page 37).

In Yale's testimony (page 82) the following occurs:

Question. Mr. Deans says in his evidence that after the trade-mark came from the Patent Office to you you frequently made inquiry of him whether the managers knew that you had obtained the trade-mark; that you did this several times, and whenever business called you away you invariably, on your return, asked him if the company had found it out. What do you say to that? Answer. *My recollection is not clear upon the subject*; it may be true in part. I do remember of asking Mr. Deans on one or two occasions if any of the company had said anything to him about it; but I do not think in the light in which Mr. Deans testified at Wellsborough.

Taking either view, that the labels were obtained actually and at first hand from the Empire Company, or that they were really obtained from the company plaintiff, though, perhaps, through the Empire Company, it is clear that part of the property which Yale forwarded to Washington, forming his application, indeed the very basis of his case, belonged to the company plaintiff.

The next proposition of Yale is that he paid the expenses of registration from his own funds, using none of the firm's money.

This is urged by the distinguished counsel for the defendant, not as indicating that Mr. Yale might have used any of the money of his partners in securing to himself an individual advantage, and that the fact of any such use is to be denied, but as pointing to the case of *The McWilliams Manufacturing Company v. Blundell*, (U. S. C. C., R. I.; XXII O. G., 177), in which it is held that the title to a patent taken out in the name of one of the members of a firm, and never assigned to the firm, will not pass by sale of partnership property, (that is, substantially, has not passed to the partnership, is not the property of the partnership), *even where* expenses incident to the issue of the patent were paid by the firm, and the patent was used for the benefit of the firm while the partnership lasted; but, as has already been said, there is no analogy to be drawn from property under a patent. An invention is necessarily individual as being the crea-

tion of one party, (whether the party include one or more than one person), and when patented the right is vested in that party. Whether the party pay the necessary Government fees himself, or whether some other person or persons, who may be in a partnership relation with him, pay them for him, is immaterial as affecting the right in the patent. Certain interest in the patent might be assigned, or there might be an equitable claim to an interest, in consideration of such payment of fees, though that is another matter; but if a trade-mark is being used by a firm the question is whether the person claiming the sole right to it had that right before he entered the partnership or brought that right with him into the partnership. It is in this sense that in the case of *The Amoskeag Manufacturing Company* v. *Spear* (2 Sandf. S. C., 599) it is held that an acquiescence by the owner of the trade-mark in its use by another is in the nature of a revocable license, and confers no right after the license is withdrawn. Of course, the person assuming to revoke a license must be the owner in the true sense, and have had the right to the trade-mark before the person whom he assumes to deprive of the right had used the mark.

The next proposition of Yale is that the Patent Office adjudged him to be entitled to the trade-mark and issued to him the certificate.

But registration is no judgment, and is not conclusive of the right to the trade-mark, not only because interference is provided for by statute, as above shown, but upon general principles. Even if the issue of a certificate of registration amounted to a judgment, it could be in no sense a judgment *in rem*. As just said, however, it is not a judgment at all, not even a judgment *in personam*. Even in an actual court of equity, in all suits the primary decree is *in personam*, and not *in rem*. (Newland Contr., ch. 16, p. 305; Com. Dig., Chan. 3, X. 4 W., 27; *Penn* v. *Lord Baltimore*, 1 Ves., 447, 454; *Archer* v. *Preston*, 1 Eq. Abr., 133; S. C., 1 Vern. 77, and Mr. Raithby's note; *Lord Cranstown* v. *Johnston*, 3 Ves. Jr., 182; *Jackson* v. *Petrie*, 10 Ves., 164; *Foster* v. *Vassall*, 3 Atk., 589; *Pike* v. *Hoare*, 2 Eden, 185, and note; *White* v. *Hall*, 12 Ves., 323; *Massie* v. *Watts*, 6 Cranch, 148, 158; Story Conf. Laws, pars. 544, 545; *Ward* v. *Arredondo*, 1 Hopk., 213; *Mead* v. *Merritt*, 2 Paige, 402; *Sutton* v. *Fowler*, 9 Paige, 280).

The present decision is a judgment; but though a judgment which awards the thing *in lite*, it is not a judgment *in rem*, rendering the thing adjudicated upon *ipso facto*, as it is thereby declared to be, and, therefore, of effect as between all persons whatsoever, but only one *inter partes*, since, though conclusive here between the original parties and their privies, these same parties could not plead the judgment in favor of either against the right of a third party. (1 Stark, Evid., 3d ed., 252; *King* v. *Norman*, 4 C. B., 884, 56 E. C. L. R.; *Thomas* v. *Russell*, 9 Exch., 764; *Drout* v. *Taylor*, 16 C. B., 671, 81 E. C. L. R.; *Boileau* v. *Rutlin*, 2 Exch., 665). Hence registration is not conclusive, and the maxim *res inter alios acta alteri nocere non debet* applies, though somewhat modified by the declaration of the statute to the effect that the registration of a trade-mark shall be *prima facie* evidence of ownership. It is, however, not at all modified by the collateral registration of a label.

The next proposition of Yale is that he deposited on the 16th day of January, 1883, in the Patent Office, the label "Grand Master" for cigar-boxes, and, on March 6, 1883, received a certificate therefor.

It is not at all apparent how the collateral, or rather subsequent, application for and registration of a print or label could have any bearing upon the question of Yale's right to the trade-mark in question, the label registration being in very fact *res inter alios;* but this directs attention to the fact that a label being substantially the trade-mark in question has been registered in the Patent Office, while the act of Congress only permits the entry or registration of a print or label when it is not a trade-mark. The law establishing the registration of labels distinctly sets forth that only those prints and labels *not* trade-marks may be registered in the Patent Office upon the payment of the fee of six dollars. The provisions of the trade-mark law, as uniformly construed, are radically and essentially different from those relating to labels. In the case of Simpson & Sons (X O. G., 333) it was reiterated that only those prints and labels which are not trade-marks can be registered in the Patent Office. It is true that in the case of John D. Park (XII O. G., 2) it is indicated that an applicant may register trade-mark matter as or in a label, if it has first been registered as a trade-mark, it being said that it was held in the case of W. Simpson & Sons (X O. G., 333) that if an applicant wished to include in his label arbitrary and fanciful words and figures constituting a proper trade-mark, in addition to matter properly a label, he should first register the fanciful matter as a trade-mark; but the decision in the case of Simpson & Sons holds nothing of the kind, there being no reason in law for it. On the contrary, the law is positive against it. The subsequent registration of trade-mark matter in a label might be made the means of fraud. Thus, if a registrant knew that he would not be able to hold his trade-mark he might, before any question of his title was raised, register a label in the Patent Office, and when he lost his trade-mark, it being shown to belong to another, he would have a label bearing the trade-mark of the other, thus casting a cloud upon it, and being otherwise troublesome. Besides, in the case of *Marsh et al.* v. *Warren et al.*, (XIII O. G., 7), I find that Mr. Justice Blatchford held that to effect the valid registration of a print or label under the amendatory act of June 18, 1874, a printed copy of the title of the label to be thus protected must be deposited in the Patent Office before its publication. So that the registration as a label at the Patent Office of any matter that has first been used as a trade-mark (and no matter can be registered as a trade-mark until it has been properly used as such) is void; and this is an additional reason for refusing such registration.

The last and final propositions to be considered, and in fact the only important ones, are that Yale was the first to adopt and apply as a trade-mark to cigars the name "Grand Master," and that he used this trade-mark in trade with foreign nations.

Let the circumstances of his alleged adoption and application and of his alleged use of the trade-mark in commerce with a foreign nation be examined. He originated the name. That has been shown to be

of no importance. He selected and combined the varieties of tobacco to make the particular cigar and made the first of the kind. That is of no importance. In fact these acts were what was expected of him when he was employed. He may personally have affixed to the first box of cigars a label bearing the words "Grand Master," although this is not proved. He got to the Patent Office with his application for registration before the company plaintiff; but there is no race of diligence involved in a matter of application for the registration of a trade-mark. He might have paid the expenses attendant upon registration entirely from his own funds, using nothing belonging to the company, (although it has been shown that part of that wherewith he made his application was the property of the company plaintiff), but this alone would not give him the right of property in and to a trade-mark. He obtained a certificate of registration from the Patent Office; but registration is no judgment awarding a right. What, then, was his adoption and use? Adoption and use is not even alleged, but only adoption and "application." The mere marking of goods, or the applying of a trade-mark to goods, is a very different thing from *using* the mark. To adopt and use a trade-mark a person must presumably have trade of his own; but when this trade-mark is alleged to have been adopted and used Yale had no trade. The company plaintiff alone was engaged in manufacturing and issuing the particular cigar at the time Yale claims to have adopted the trade-mark in question, and this is evidenced in the following testimony of Yale himself, (page 87), elicited on cross-examination:

Question. When did this company commence the manufacture of the "Grand Master" cigar, or about when? Answer. *I think* in February, 1882.
Q. They continued to make them as long as you were in their employ? A. I may have the year wrong—1881 or 1882. I am not positive at the present moment; I think it was in November, 1882.
Q. Were they engaged in the manufacture of this cigar steadily from that time as long as you were in their employ or connected with them? A. *They were; yes, sir.*
Q. Were they manufacturing them there? A. At times; yes, sir.
Q. Were they manufactured under your general direction *as the superintendent?* A. *They were; yes, sir.*
Q. Were they manufactured much in other places, to your knowledge, during that time? A. No, sir.
Q. *Nor by any other person or firm?* A. *No, sir.*
Q. *The only person or firm engaged in the manufacture, then, up to July last, of this cigar was the O. A. Yale Cigar Manufacturing Company, Limited, the company plaintiff?* A. *To my knowledge, yes, sir.*

The deputy collector of internal revenue for the district in which Yale resided when he claims to have adopted the trade-mark, the witness Truman, says that Yale had no license for the sale of cigars in his own name. (Pltffs. pr. rec., pp. 5½, 66). The witness Gardner says that he had no business at that time other than the business of the company, (pltffs. pr. rec., p. 9), and the testimony of Yale himself is to the same effect, as shown. Although he says evasively, on page 62, that his business was "associated with theirs," it is clear that what should have been expressed is that his business was theirs. It is not denied that if a party have a trade-mark he may lend it to another, and that his acquiescence by the owner of a trade-mark in its use by another is in the nature of a revocable license and confers no right after the license is withdrawn; but the person must first have the trade-mark to lend, and there is no pretense that Yale had any right to the trade-mark in question before he entered the company plaintiff. He was in business before he became a member and employé of the company plaintiff, in a firm styled C. A. Yale & Co., (dfts. pr. rec., p. 29), but it is not even alleged that he had this trade-mark while in that firm, and that business closed before he entered the company plaintiff. (Pltffs. pr. rec., p. 12). Yale is asked, on page 62, if he had ever assigned or disposed of any right in the words "Grand Master," either as a label or as a trade-mark, to the C. A. Yale Cigar Manufacturing Company, Limited, and he replies that he never did. A reason for this might be that he never had any such right to dispose of, not only for the reasons just given, but because, under the decision in *Filkins* v. *Blackman*, (13 Blatch., 446), a trade-mark applied to an article manufactured by a partnership is, in the absence of agreement, the property of the partnership.

The case of *Taylor* v. *Bothin* (U. S. C. C. Dist. Cal., 8 Rep., 516) seems very closely in point to the case under consideration. In that case it appears that the complainant had invented a yeast-powder, and that afterward, with the defendant, had manufactured and sold the same under the name of "Mrs. Mills' Cream." In the second year of their connection the defendant secretly applied to the Patent Office and registered the words "Mrs. Mills' Cream" as a trade-mark for the powder. On a suit in equity, held that the registration was invalid, and that the parties were equally entitled to use the name "Mrs. Mills' Cream," as applied. In this case the learned Mr. Justice Field said:

> The only serious question for deliberation is whether the complainant is *entitled to the exclusive use of the trade-mark*, or only to a joint or equal use of it with the defendant. Had the name been suggested *and used* by the complainant before the business connection with the defendant, there would be no doubt of his exclusive right to it; but it having been *suggested and adopted after* that connection was formed, upon a consultation of the parties on the subject, and then used for their joint benefit, we are led to the conclusion that they are equally entitled to its use after that connection ceased. Clearly the defendant has no such exclusive right, and the representations which he must have made to obtain the letters of registration required by law, "that no other person, firm, or corporation" had the right to its use, are inconsistent with the facts.

In Yale's case a similar representation under oath is inconsistent with the facts.

It is clear, then, that Yale never adopted and used the trade-mark in a sense that would make him the owner of it.

Regarding the foreign trade, it appears that, upon being told at the office of his attorneys that he could not get a certificate of registration unless he had commerce with a foreign nation or with the Indian tribes, Yale asked Phelps if he had any friends or customers in Canada to whom he could sell any "Grand Master" cigars for him. (Dfts. pr. rec., pp. 7, 8). Yale says:

> I accordingly went into business for myself, and appointed A. W. Phelps my agent to deal with foreign nations, (p. 53).

Phelps took a box of cigars out of a lot which he had obtained from the company plaintiff, sent them to a firm in Canada, and was paid for them, the bill being produced as "Exhibit 2." He then notified Mr. Yale of the transaction, and caused the application papers for the registration to be prepared by his attorneys. Yale paid Phelps for the cigars sent to Canada by purchasing a box of "Grand Master" cigars in the Grand Central Hotel and handing them to him. The ruling in the case of *Burton* v. *Wookey* above cited seems to apply precisely to such a performance as this. But a serious feature of this foreign trade affair is, that whatever foreign trade there was, must, in fact, have been the company's. Not only was Yale a part-

ner, so that his acts in regard to any matter favorably affecting the others must be taken as for his associates as well as for himself, under the law as set forth at the outset of this decision, and an agent of the company plaintiff also, so that acts performed by him within the scope of the interests of the company must be taken as performed for the company under the laws of agency as set forth in the beginning of this decision, but the very box of cigars which was used in the foreign trade set forth bore the name of the company plaintiff. It was one of a lot of two hundred or five hundred which Phelps had bought from the company plaintiff. All the boxes must have had the usual labels of the company on them. (Phelps, 19, 20). Some of these labels, but particularly the inside silver sheet label, bore the name of the company plaintiff. Phelps says (page 19) that he opened the box of cigars which he sent to Canada, which had upon it the "Grand Master" label with the words "Grand Master" upon it, and saw the label inside. He says afterward, perhaps thinking that he had said too much, that he is not willing to swear positively that he opened the individual box which he sent to Canada, but he admits that all the other boxes had the labels; so it were violent to assume that this one had not.

A doubt is expressed as to Yale's having been actually a member of the board of managers. (Pltffs. pr. rec., p. 40). It is pointed out that if all the persons named as managers were really managers, the board would have consisted of six managers, while the law permits no more than five, and it is urged from this that Yale was not a member; but there is no doubt that he was. The witness Gardner says positively that he was, (pltffs. pr. rec., p. 9), and the law under which the company was organized specifies that one of the managers is to be secretary. The converse then, would seem to be true—namely, that the secretary must be one of the managers. So far as the questions here are concerned, it makes little difference whether Yale was a manager or not. He is equally bound to act toward his associates and toward the company as has been above set forth. If he were sole manager, and in the fullest sense the *general partner*, he would have no more right to act in a manner prejudicial to the others. If possible, he might even have less. Hence it is clear that Yale never either adopted and used the words "Grand Master" applied to cigars as a trade-mark, nor used the trade-mark, in a legitimate sense, in commerce with foreign nations or Indian tribes.

Yale's proposition as to use of the trade-mark in commerce with foreign nations is really that he was *the first* to use it in commerce with foreign nations. But there is no force in any consideration of mere priority of foreign use. It can scarcely be contended that if one party had a valid trade-mark at common law, another might deprive him of it and acquire legal title thereto himself merely by entering into commerce (upon the goods bearing the trade-mark) with foreign nations or Indian tribes. Could any proposition be more preposterous than that a party might take another's trade-mark merely by sending goods bearing it to a foreign nation or to one of the Indian tribes?

But although it has thus been made clear that Yale has no right to the trade-mark in question, this alone would not vest right in the company plaintiff. As already said, the company plaintiff must positively show that it is the rightful owner of the trade-mark in question, and can legally register the same.

The following is proved on behalf the company plaintiff. The company organized in July, 1881, for the purpose of manufacturing cigars. In February, 1882, Mr. R. R. Stowell, a traveling salesman for the company, suggested that the company put a high-priced cigar upon the market. (Pltffs. pr. rec., p. 33). It was a matter of earnest speculation with the company to get up a first-rate cigar. (Pltffs. pr. rec., p. 16). A desirable shape was carefully considered. (Pltffs. pr. rec., p. 33). The company began manufacturing in February, 1882. (Dfts. pr. rec., pp. 87, 105). C. A. Yale, being the superintendent, and having been selected for that position by reason of his supposed practical knowledge of the manufacture of cigars, was directed to make such combinations of tobacco as would produce a first-rate ten-cent cigar. By a resolution of the company Yale was instructed to go to New York and employ twenty-five or thirty skilled cigar-makers competent to manufacture the "Grand Master" cigar, and also to buy such tobacco as the company needed for the special brand. (Pltffs. pr. rec., p. 12). A point is made that the resolution is not produced in writing; but it must be remembered that Yale was the secretary of the company, and if there is any remissness in this respect it is in him. There is no doubt that the resolution was adopted, and that Yale went to New York in behalf of the company and for the purposes named. In February or March, 1882, the company employed the trade-mark in question upon the particular cigars, the prominent name in which trade-mark seems to have been settled upon by three persons—namely, by the treasurer of the company, Mr. Robinson, the book-keeper, Mr. Deans, as well as by Mr. Yale, the secretary and superintendent, though Mr. Yale undoubtedly originated the name for the purpose. (Pltffs. pr. rec., p. 13). From the time of its adoption it has been used continuously to the present time, (pltffs. pr. rec., p. 45), and exclusively by the company until September, 1883, when Yale and Stowell, having left the company plaintiff, began manufacturing it on their own behalf. When the "Grand Master" labels were to be got up by the Empire Lithographing & Engraving Company, Phelps, the manager of that company, went to Wellsborough to consult with the company plaintiff regarding them. (Dfts. pr. rec., p. 12). When he got to the office he met Mr. Yale and Mr. Deans. Mr. Robinson, the treasurer of the company, was sent for, but, on behalf of the company, sent word that Yale was to attend to the business. Yale did so, and ordered a large number of labels. Phelps understood that Yale was acting for the company. All the bills for this work were made out to the company plaintiff and were paid by them. (Dfts. pr. rec., p. 13). A point is made by Yale, (dfts. pr. rec., p. 39), probably to show that he had control, (although, as above shown, this avails him nothing, and would, if anything, only tend to make his obligations toward his associates the more strict), that it was difficult to get a meeting of the board of managers; but the company had confidence in him, and so, perhaps, did not think it necessary to attend and be ever acting, as it were, as a board of investigation or scrutiny into and control of his managing or superintendency. The company plaintiff trusted him and relied upon his ability, diligence, integrity and good faith. No one seems to have had a doubt that the trade-mark, together with the whole trade, was the company's, and it was not until July or August, 1883, that it was discovered that Yale had registered the trade-mark in his own name. (Pltffs. pr. rec., p. 15). It is true that after the trade-mark was registered an incorrect notice of Yale's having taken out a patent upon a cigar-table appeared in one of the Wellsborough papers; but, though Yale was questioned by Mr. Wright, and perhaps others, the company did not suspect then that he had done anything antagonistic to their rights. A correct notice of what Yale had done did appear in the *Tobacco Journal*, and perhaps another paper; but it is perfectly clear that none of the company became aware of his act until the time specified. When this was discovered, Yale was traveling as a salesman for the company on commission. The members of the company were very indignant at finding that he had played them false, and he was at once recalled, was cited before the board of managers, and was taken to task for his conduct. He was asked with considerable emphasis and indignation to explain his behavior, and was reminded that he had been trusted and paid as the superintendent, and was charged with acting unfairly toward the company. He was openly told that when they supposed he was acting for them it was found that he was in reality secretly planning to cheat them of their trade in their principal cigar and of their trade-mark. (Pltffs. pr. rec., p. 48). It was never for a moment acknowledged that the trade-mark was Yale's; and, in fact, it would make no difference if it were, for this could not vest a right in Yale in a trade-mark upon a thing in which he never had had a day's trade of his own. His very secrecy shows that he knew that the trade-mark was not his, but was the property of the partnership and of his employer.

The weakest part of the case for the company plaintiff looking toward registration is the matter of foreign trade; but I think it may be held that foreign trade in and on their behalf has been shown to have been obtained by one of the partners, an agent, an employé of the company plaintiff—namely, Mr. C. A. Yale—and, besides, there is the oath to the application alleging foreign trade. As the application for the registration of the trade-mark on behalf of the company was filed subsequent to Yale's retirement from the company, up to which time Yale says there had been no foreign trade upon the "Grand Master" cigar excepting such as he had had, (dfts. pr. rec., pp. 82, 83), the company may at the time of filing their application have had foreign trade in addition to that which Yale obtained for them.

This substantially disposes of the case; but before judgment I wish to say that great delay and embarrassment in examining the testimony on both sides has been caused by failure to observe the rules and forms as laid down in the Rules of Practice of the United States Patent Office with regard to the taking of testimony. The questions and answers should have been numbered and marked as therein shown; each answer should have appeared as being given in response to a separate question; the name of the witness should have been printed at the head of each page whereon his testimony appears, and the preliminary statement, or that which in a trade-mark case takes the place of a preliminary statement, should have been printed and bound with the testimony.

The C. A. Yale Cigar Manufacturing Company, Limited, applicant, is adjudged the true and lawful owner of the trade-mark in question and entitled to registration, and the decision of the Examiner of Interferences is affirmed.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—District of Indiana.

GRAIN DRILL MANUFACTURERS' COMPANY *v.* RUDE *et al.*

Decided January 24, 1885.

WESTCOTT *et al.*—GRAIN DRILLS.

Letters Patent No. 176,717, dated April 25, 1876, to J. M. Westcott; Reissue No. 4,091, dated August 2, 1870, to Thomas and Mast; No. 66,578, dated July 9, 1867, to J. P. Fulghum, and Reissue No. 6,274, dated February 2, 1875, to C. E. Patric, all for improvements in grain-drills, so construed and limited, in view of the state of the art, that defendant's machines do not infringe any of them.

Messrs. Wood & Boyd for the complainants.
Messrs. Stem & Peck and *Mr. L. Hill* for the defendants.

WOODS, *J.*:

The complainant is a corporation organized under the laws of Ohio, having its place of business at Dayton. The defendants are manufacturers doing business at Liberty, Indiana. The original bill charged the infringement of Letters Patent No. 176,719, granted J. M. Westcott, April 25, 1876, for an improvement in grain-drills; Letters Patent No. 171,907, granted Edward Kuhns, January 4, 1876, reissued September 3, 1880, No. 9,066, and Reissued Letters Patent No. 4,091, dated August 2, 1870, granted to Thomas and Mast, the original patent being dated August 3, 1869. These three patents cover the improvements in the seeding mechanism, and in what is called the "shifting-levers" used to throw the machine out of gear.

The defendants in their answer cited numerous anticipating devices, which they allege were the same in construction and mode of operation as the patented devices of complainant.

The complainant, having obtained leave of court, filed its supplemental bill alleging the infringments of Letters Patent No. 66,578, granted J. P. Fulghum, July 9, 1867, for an improvement in grain-drills; also, Letters Patent No. 100,998, granted Fulghum, Davis, and Lawrence, March 22, 1870, and Reissue No. 9,341, dated March 15, 1870, to the same parties, and Reissue No. 6,274, granted C. E. Patric, February 2, 1875, the original patent being dated December 29, 1868. The patent to Edward Kuhns and the last-mentioned reissue to Fulghum and the Wayne County Agricultural Company, No. 9,341, have been withdrawn by the complainant.

The devices in controversy relate, first, to the method of constructing the seed-cup and seed-wheel, which is the subject-matter of the Westcott patent. The first-mentioned patent, granted to Fulghum in 1867, is for a combined grass-seed and grain-drill. The first claim

of Reissue No. 4,091 and the first claim of the Patric reissue, (No. 6,274,) as well as the first claim of the Fulghum patent, (No. 100,998,) relate to improvements in shifting-levers. The Reissue No. 4,091 relates to the conductors and swinging tubes embraced in the thirteenth, fourteenth, and fifteenth claims. These several patents, it was conceded in the argument, were duly assigned to the complainant before the commencement of the suit.

In view of the previous art, as shown in the record, my judgment is that the patents in question, in so far as they can be sustained at all, must be restricted to a narrow construction, practically excluding any claim of infringement on account of the use by defendants of mechanical equivalents; and by this rule, as it seems to me, the bill is not sustained by the evidence, and should be dismissed.

Decree accordingly.

THE OFFICIAL GAZETTE OF THE United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

VOL. 30—No. 13. TUESDAY, MARCH 31, 1885. PRICE—$5 per year

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The Official Gazette.

The OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Indexes to Patents on Electricity.

Appendix No. 2 to the index to patents relating to electricity, covering the period of time from July 1, 1882, to June 30, 1883, has been issued, and is now for sale. These indexes, arranged alphabetically, numerically, and by classes, are completed to June 30, 1883, and comprise the following volumes:

Vol. 1. Index to patents relating to electricity granted by the United States prior to June 30, 1881, with an appendix, July 1, 1881, to June 30, 1882. One volume, 250 pages. In paper covers, $3; bound, $5.

Vol. 2. Appendix No. 2, July 1, 1882, to June 30, 1883. One volume, 50 pages. In paper covers, $1.50.

Vol. 3. Appendix No. 3, July 1, 1883, to June 30, 1884. One volume, 60 pages. In paper covers, $1.50.

BENJ. BUTTERWORTH,
Commissioner.

Issue of March 31, 1885.

Patents	431	No. 314,555 to No. 314,985, inclusive.
Designs	14	No. 16,002 to No. 16,015, inclusive.
Trade-Marks	15	No. 12,056 to No. 12,070, inclusive.
Labels	8	No. 4,393 to No. 4,400, inclusive.
Reissues	1	No. 10,576.
Total issue	469	

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TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	1	1	Nebraska	2	....
Arizona Territory	....	....	Nevada	....	....
Arkansas	1	....	New Hampshire	3	....
California	13	....	New Jersey	20	1
Colorado	2	....	New Mexico Territ'y	....	....
Connecticut	16	....	New York	76	9
Dakota Territory	2	....	North Carolina	3	....
Delaware	1	....	Ohio	34	2
District of Columbia	2	....	Oregon	1	....
Florida	1	....	Pennsylvania	56	1
Georgia	5	....	Rhode Island	2	....
Idaho Territory	....	....	South Carolina	....	....
Illinois	27	2	Tennessee	5	....
Indiana	36	....	Texas	9	....
Indian Territory	....	....	Utah Territory	1	....
Iowa	6	....	Vermont	2	....
Kansas	2	....	Virginia	4	....
Kentucky	7	....	Washington Territ'y	....	....
Louisiana	2	....	West Virginia	....	....
Maine	5	....	Wisconsin	8	1
Maryland	5	....	Wyoming Territory	....	....
Massachusetts	16	1	United States Army	1	....
Michigan	20	1	United States Navy	....	....
Minnesota	5	....			
Mississippi	2	....	Total to citizens of the United States	417	21
Missouri	13	2			
Montana Territory	....	....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Australia	....	....	Germany	6	....
Austria-Hungary	1	....	Japan	....	2
Barbadoes	....	....	Mexico	....	....
Belgium	....	....	Netherlands	1	....
Bermuda	....	....	Norway	....	....
Brazil	....	....	Russia	....	....
Canada	2	....	Scotland	....	....
Central America	....	....	Spain	....	....
Colombia, U. S. of	....	....	Sweden	....	....
Cuba	....	....	Switzerland	1	....
Denmark	....	....			
Ecuador	....	....	Total to citizens of foreign countries	28	2
England	11	....			
France	6	....			

DESIGNS.

16,002.—TYPE.—*Henry Brehmer*, Stapleton, assignor to *David Wolfe Bruce*, New York, N. Y. Application filed December 13, 1884. Term of patent 14 years.

16,003 and 16,004.—CARPET.—*Henry Davis*, Philadelphia, Pa., assignor to *Horner Brothers*, same place. Applications filed February 27, 1885. Term of patents 3½ years.

16,005.—CARPET.—*James L. Folsom*, Brooklyn, N. Y., assignor to *The Hartford Carpet Company*, Hartford, Conn. Application filed January 14, 1885. Term of patent 3½ years.

16,006.—ORNAMENTATION OF BOYS' JACKETS.—*Frederick Goerte*, New York, N. Y. Application filed February 10, 1885. Term of patent 3½ years.

16,007.—HARNESS-MOUNTING.—*John M. Gwinnell*, Nowark, N. J. Application filed January 21, 1885. Term of patent 7 years.

16,008 and 16,009.—CARPET.—*Norio Komori*, New York, N. Y., assignor to *The Bigelow Carpet Company*, Clinton, Mass. Applications filed February 12, 1885. Term of patents 3½ years.

16,010.—VENTILATOR-CAP.—*John Joseph Mooney*, New Orleans, La. Application filed September 20, 1884. Term of patent 14 years.

16,011 to 16,014, inclusive.—CARPET.—*John B. Neil*, Philadelphia, Pa., assignor to *Horner Brothers*, same place. Applications filed February 27, 1885. Term of patents 3½ years.

16,015.—DOOR-KNOB AND ESCUTCHEON.—*Sidney S. Niles*, Chicago, Ill., assignor to *The Chicago Hardware Manufacturing Company*, same place. Application filed November 7, 1884. Term of patent 7 years.

TRADE-MARKS.

[Certificates of registration of Trade-Marks numbered 8,191 and upward are registered under the act of March 3, 1881.]

12,056.—PERFUMERY.—*F. R. Arnold & Co.*, New York, N. Y. Application filed March 3, 1885.
"The words 'MAY BELLS.'"

12,057.—BAR-SOAP.—*Joseph Biechele*, Canton, Ohio. Application filed February 25, 1885.
"The arbitrary word 'MAGIC.'"

12,058.—REMEDY FOR CATARRH.—*Oscar F. Burton*, Brooklyn, N. Y. Application filed February 20, 1885.
"The word 'TAHAMA.'"

12,059.—FEATHERS FOR BEDS, PILLOWS, AND BOLSTERS.—*Cold Blast Feather Company*, Chicago, Ill. Application filed February 10, 1885.
"The representation of a triangle with a break in the upper line, in which the words 'NO ODOR' appear, and a break in each of the side lines, in one of which appear the words 'NO QUILLS,' and in the other 'NO DUST.'"

12,060.—SPOKES, RIMS, HUBS, AND OTHER CARRIAGE WOOD-WARE.—*Crane & McMahon*, New York, N. Y. Application filed March 3, 1884.
"A triangle having within its lines the monogram composed of the letters 'A M D G,' interwoven, and at the side a representation of an acorn with a cross on the face of it."

12,061.—WOOD-WARE FOR VEHICLES.—*Crane & McMahon*, New York, N. Y. Application filed March 3, 1884.
"A triangle having within its lines the monogram composed of the letters 'A M D G,' interwoven, and at the side a representation of a hickory-nut with a cross on the face of it."

12,062.—SPOKES, RIMS, SHAFTS, BOWS, SAWED FELLIES, HUBS, RIM-STRIPS, AND OTHER CARRIAGE WOOD-WARE.—*Crane & McMahon*, New York, N. Y. Application filed March 3, 1884.
"The letters 'A M D G,' interwoven, and at the side a representation of a star with a cross on the face of it."

12,063.—DRESS-SHIELDS.—*Frank & Gutmann*, New York, N. Y. Application filed March 9, 1885.
"The words 'BON TON.'"

12,064.—TEAS.—*Fraser, Farley & Varnum*, Yokohama, Japan. Application filed February 24, 1885.
"The word-symbol 'DAIKOKU,' with the pictorial representation of the Japanese god of wealth."

12,065.—TEAS.—*Fraser, Farley & Varnum*, Yokohama, Japan. Application filed February 24, 1885.
"The word-symbol 'OBAN,' with the pictorial representation of that coin."

12,066.—TOILET-PAPER.—*Henry J. Howlett*, Brooklyn, N. Y. Application filed March 6 1885.
"The word 'ALEXANDRA.'"

12,067.—LAUNDRY AND TOILET SOAP.—*James S. Kirk & Co.*, Chicago, Ill. Application filed April 5, 1884.
"The word 'RUSSIAN.'"

12,068.—LININGS AND FACINGS FOR LADIES' APPAREL.—*Clarence D. Newell*, Orange, N. J. Application filed March 5, 1885.
"The word 'CASBANS' and the representation of a triangular block or figure pierced by an arrow."

12,069.—SMOKING-TOBACCO.—*Rassfeld & Albers*, St. Louis, Mo. Application filed February 28, 1885.
"The word-symbol 'WHITE ELEPHANT' and the pictorial representation of a white elephant."

12,070.—SPICES.—*Ricker, Crombie & McLaren*, Milwaukee, Wis. Application filed November 14, 1884.
"A red cross, whether expressed by words or pictorially."

LABELS.

4,393.—Title: "WESTPORT MILLS." (FOR WRITING PAPER.)—*The Beebe Holbrook Company*, Holyoke, Mass. Application filed March 5, 1885.

4,394.—Title: "COLLINS' ANTI-PERIODIC OR FEVER AND AGUE CURE."—*Collins Brothers Drug Company*, St. Louis, Mo. Application filed March 10, 1885.

4,395.—Title: "GUESNARD'S CUBAN FLAVORED SMOKING TOBACCO." *Theodore Guesnard*, Mobile, Ala. Application filed March 10, 1885.

4,396.—Title: "PECTORAL MUCILAGE" (FOR A MEDICINE.)—*John Harvey*, Detroit, Mich. Application filed March 5, 1885.

4,397.—Title: "SCHOOL SEWING BOX."—*Louise J. Kirkwood*, New York, N. Y. Application filed March 2, 1885.

4,398.—Title: "THE BRACKET DISINFECTANT-HOLDER AND EVAPORATOR."—*Alfred H. Kidney*, Philadelphia, Pa. Application filed March 7, 1885.

4,399.—Title: "COCAINE TOOTH ACHE DROPS."—*Charles E. Lloyd* and *S. Dexter Pilsbury*, New York, N. Y. Application filed March 6, 1885.

4,400.—Title: "ÆSCULAPIAN COMPOUND."—*Andrew J. McFarland*, St. Clairsville, Ohio. Application filed March 5, 1885.

DISCLAIMER.

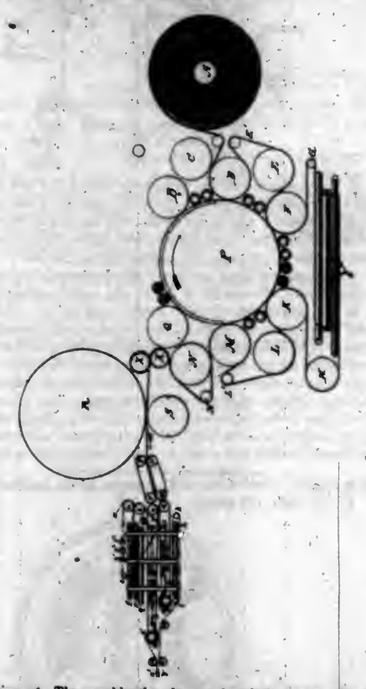
10,391, (Reissue.)—*William B. Dunning*, Geneva, N. Y. Reissue patent dated October 9, 1883. IMPROVEMENT IN STEAM-HEATERS. Disclaimer filed March 23, 1885, by the patentee.

"Enters his disclaimer to so much of the invention as is set forth in the following words, to wit: 'In Fig. 5 I have shown another form of heater, differing, however, but slightly from that shown in Fig. 1, in which the products of combustion pass directly through the flues *a'*, and return through the chamber *D'* to the pipe *d'*. The heat is not so fully economized as in the first-described arrangement; but it may be preferable in many locations on account of requiring a less powerful draft;' and illustrated in Fig. 5, leaving the description of my invention as it would be set forth in said reissue patent were the above-quoted words and said Fig. 5 canceled or erased therefrom—that is to say, the sentence commencing 'Fig. 5', line 37, page 1, of the printed Patent Office copy, of said reissue, 10,391, and the words of the sentences commencing 'In Fig. 5', line 1, page 2, of said copy, and ending with the word 'draft', line 9, of said second page."

PATENTS

GRANTED MAR. 31, 1885.

314,555. DELIVERY APPARATUS FOR PRINTING-MACHINES. EDWYN ANTHONY, Jersey City, N. J., assignor to R. Hoe & Co., New York, N. Y. Filed Apr. 27, 1883. (No model.)



Claim.—1. The combination, in a web printing-press, of a form-cylinder (adapted to receive six forms, two abreast, the columns lying parallel to its axis and not occupying its whole surface,) and impression and carrier cylinders, with mechanism for reversing the sides of the web, mechanism for longitudinally slitting it along its central line, and mechanism for transversely severing it into sheets of unequal breadth, (measured in the direction of their motion,) all substantially as described.

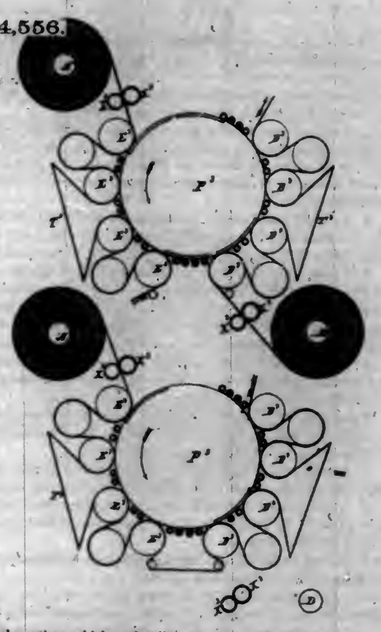
2. The combination, with printing mechanism whereby a web is perfected, a slitting mechanism dividing it longitudinally into two webs, mechanism for transversely severing both of said webs into sheets of unequal breadth, mechanism for moving forward side by side the larger sheets, and deflecting devices whereby the smaller sheets are transferred laterally and associated with the larger sheets, all substantially as described.

3. The combination, with printing mechanism operating to perfect a web, of mechanism for severing it into alternately large and small sheets and means for associating the small with the large sheets, all substantially as described.

314,556. PRINTING-MACHINE. EDWYN ANTHONY, Jersey City, N. J., assignor to R. Hoe & Co., New York, N. Y. Filed Apr. 30, 1883. (No model.)

Claim.—1. In a printing-press, a plurality of impression and carrier cylinders and a form-cylinder (long enough to receive two or more

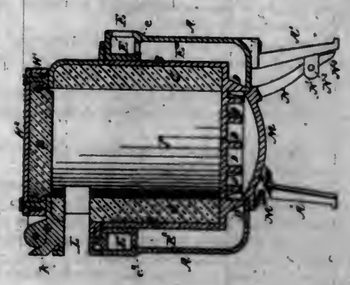
314,556.



forms abreast) on which a plurality of forms are fixed in such a way that the number of them in the direction of the cylinder's motion is not the same for each section of the cylinder, all substantially as described.

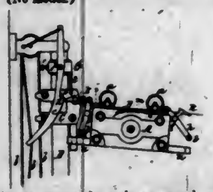
2. In a printing-press, the combination of a cylinder (long enough to receive two or more forms abreast) on which a plurality of forms are fixed in such a way that the number of them in the direction of the cylinder's motion is not the same for each section of the cylinder, with mechanism for longitudinally severing a web (or sheets in tapes) before it has been completely printed on, and impression and carrier cylinders whereby the severed stripe are continuously printed on but do not all pass round the same number of impression-cylinders and do not all receive impressions from the same number of forms, all substantially as described.

314,557. SMELTING-FURNACE. CHAS. E. ASHCROFT, Lynn, Mass. Filed Jan. 14, 1884. (No model.)



Claim.—In a smelting-furnace cover, the combination of the metal ring H' and plate H², having a hinge, K, with the refractory block H, and screw-bolts h, whereby all the parts are fastened together, substantially as described, and for the purpose set forth.

314,558. CASH AND PARCEL CARRIER. GEORGE A. BADGER and WILBER F. LAKIN, Quincy, assignors to John H. Lakin, Boston, Mass. Filed May 24, 1884. (No model.)



Claim.—1. As an improvement in cash or parcel carriers, the device, substantially as described, secured thereto for locking the same to a track-support, in order that the carrier may be elevated therewith, in combination with means, substantially as described, for releasing the locking device when the carrier is ready to descend the incline.

2. A cash or parcel carrier provided at one or both ends with a hook connected with a spring, in combination with means, substantially as described, for liberating the hook when the carrier is at the elevated end of the track and ready to return to the depressed end thereof, substantially as described.

3. A cash or parcel carrier having secured thereto a device for cushioning the same when it reaches the lower end of the track, and for starting the carrier from its elevated position down the track, as set forth.

4. A cash or parcel carrier having one or both of its ends provided with lever A, connected with spring *m*, the latter being extended when the outer end of the lever comes in contact with the track-support or its guide, the retraction of the spring causing said end of the lever to exert a forcible pressure away from the track-support or its guide, as set forth.

5. In combination with a cash or parcel carrier, a locking device and a cushioning and starting device having their movements controlled by a spring, for the purpose described.

6. A cash or parcel carrier having a clasping device secured thereto, in combination with the device, substantially as described, located at the end of the track, for the purpose specified.

7. A spring-clasp, *u*, secured to a cash or parcel carrier, in combination with a track-support or its guide, for the purpose described.

8. An adjustable stop, G, in combination with a track-support, C, and its guide D, for limiting the upward movement of the track-support, for the purpose set forth.

9. An adjustable stop, G, having a pin, *v*, in combination with and for locking the carrier-hook *k*, as specified.

10. An adjustable stop, G, having a pin, *v*, and a plate, *t*, in combination with a carrier-hook, *k*, as and for the purposes designated.

11. In combination with the adjustable stop G, the pin or projection *s*, for limiting the vibration of the notched latch *c*, substantially as and for the purpose explained.

12. A carrier having its lower end open and provided with a spring-actuated device, which in its normal position is located under the carrier to form a support for a book contained therein, and which may be vibrated to one side to allow of the introduction and removal of the book, as described.

13. A hollow carrier having an open bottom, in combination with a pair of arms, H, having blocks I secured to their lower ends, and connected with springs *w* at their upper ends, constructed to operate as and for the purpose set forth.

314,559. HEATING AND PURIFYING FEED-WATER. WILLIAM BARAGWANATH, Chicago, Ill. Filed Oct. 19, 1883. (No model.)

Claim.—1. The combination of the lower water-chamber head, H, and extended cylinder B with the diaphragm I, for forming the steam-chamber C', substantially as specified.

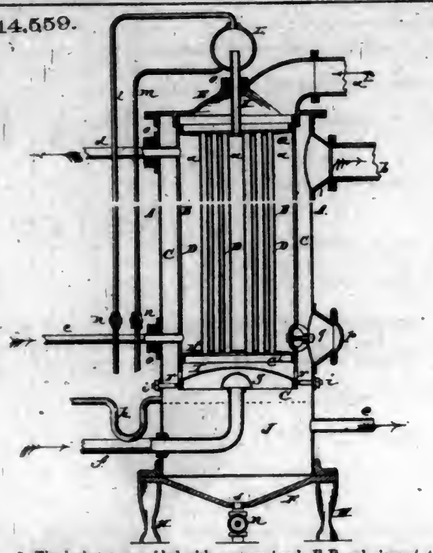
2. The combination, within the chamber J, of the pipe *f*, having the perforated head or rose *g*, and the diaphragm or plate I, substantially as described.

3. The combination of the pipes *e*, *f*, and *h* with the extended jacket-cylinder and head F of the water-purifying chamber J, substantially as set forth.

4. The siphon overflow-pipe *h*, in combination with the water-chamber J, substantially as and for the purpose specified.

5. The combination of the jacket A, cylinder B, suspended within jacket A to form space C, the heads to cylinder B, and pipes *a* connecting the same, the steam-space C', beneath pipes *a*, the pipe *a'*, opening into cylinder B above pipes *a*, and pipe *b*, leading from space C', the pipes *c d*, communicating with cylinder B, the pipes *e* and *f*, extending from lower part of jacket A, and the pipe *f* provided with rose *g*, substantially as described.

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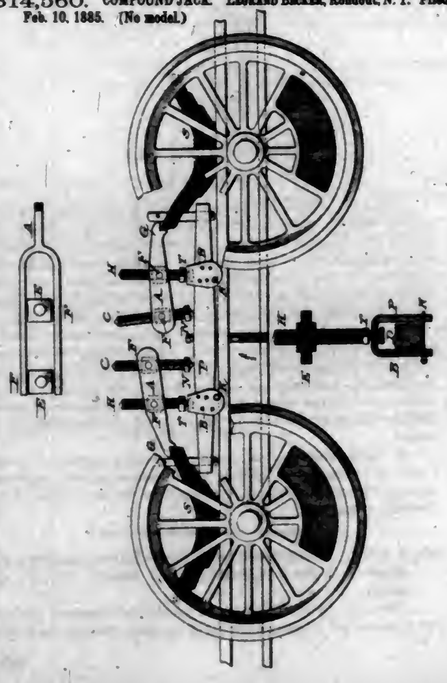


6. The jacket A, provided with concave heads E F and pipes *a'*, *b*, *c*, and *h*, in combination with the cylinder B, suspended within said jacket to form the spaces C and J, and formed with the steam-space C', communicating with space C, and provided with pipes *c d*, the pipes *a* and K, steam-chamber L, and pipes *l m*, substantially as described.

7. The combination of the pipe *f* with the extended cylinder A and the diaphragm I, substantially as and for the purpose described.

8. The combination of the two shells, each having a cylinder suspended within the same to form a steam-space between it and the shell, a series of pipes in each cylinder, connected at opposite ends to end plates curved on the arc of a circle, a steam-space below each lower end plate, a scum-chamber above each shell, provided with escape-pipes and communicating with the suspended cylinder through a pipe, a water-supply and exit pipe to the suspended cylinder in one of the shells, an overflow-pipe and outlet-pipe to the space below said cylinder, and a water-supply pipe thereto provided with a rose at its end, substantially as described.

314,560. COMPOUND JACK. LEGRAND BECKER, Rondout, N. Y. Filed Feb. 10, 1885. (No model.)

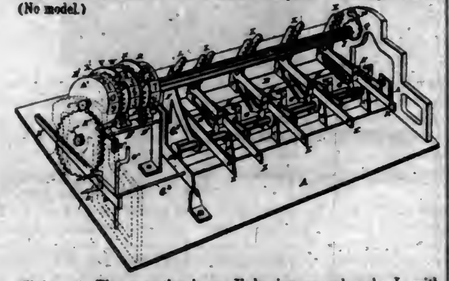


Claim.—1. The lever A with slotted end and with the notched end G, all as shown and specified, and for the purposes set forth.

2. The combination of revolving nuts E E with the pivoted ends F F.

3. The slotted head B, having holes X X, and the pin K, in combination with the screw C and H, and the lever A with the notched end G, as described.

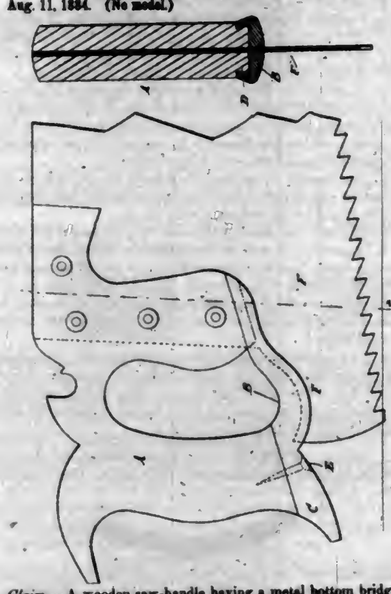
314,561. ADDING-MACHINE. MICHAEL BOUCHET, Louisville, Ky., assignor of one-third to M. F. Madden, same place. Filed Apr. 4, 1884. (No model.)



Claim.—1. The operating-levers E, having curved racks L, with teeth upon the inner side of same, in combination with toothed roller I, rod D, arms F, hung upon rod D and jointed to the levers E, and the springs G, as and for the purpose described.

2. The combination of the pinions D' D', with three-cornered projections E' E' at one end, the longitudinally-adjustable shaft carrying the same, the numbering-wheel R, with stop-pin N', and the rocking plate G⁴, with arm G³, adapted to push the pinion-shaft endwise and simultaneously engage the pin N', the arm G³, and the rack mechanism H' O', for setting the wheels, as described.

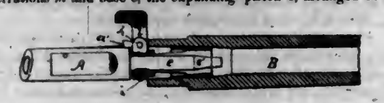
314,562. SAW-HANDLE. FRANK A. BUELL, Brooklyn, N. Y. Filed Aug. 11, 1884. (No model.)



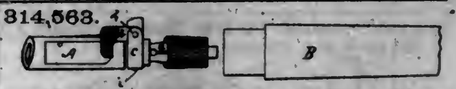
Claim.—A wooden saw-handle having a metal bottom bridge provided in its upper surface with a dovetailed groove for receiving a dovetailed ridge on the bottom of the wooden part of the handle, substantially as herein shown and described.

314,563. CARTRIDGE-SHELL EXTRACTOR. CHARLES M. BURTON, New Haven, Conn. Filed Jan. 14, 1885. (No model.)

Claim.—In an implement for extracting broken shells from gun-barrels, the combination of the cylindrical slotted body *a*, provided with the serrations *m* and base *c*, the expanding-piston *e*, arranged so as to

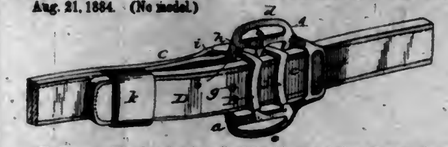


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expand the cylinder *a* when the breech pin or bolt A is pressed forward, and the hinged latch or cam *b*, arranged to operate in the base c and engage with the breech pin or bolt A, as and for the purpose set forth.

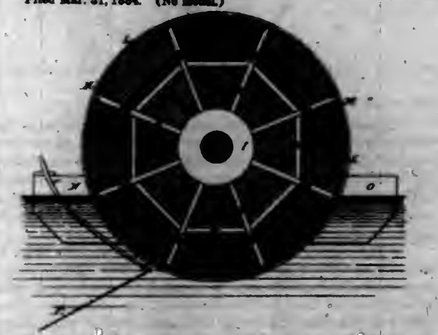
314,564. TRACE-BUCKLE. LAURENCE CARR, Shakopee, Minn. Filed Aug. 21, 1884. (No model.)



Claim.—1. The herein-described buckle, consisting of parts A and B, the former composed of frame *a*, having cross-bars *b* and stud *g*, and the latter composed of two curved yokes, *h*, having a common cross-bar, *i*, said parts being constructed and combined to operate substantially as described and shown.

2. A buckle consisting of a frame having a series of cross-bars in the same plane, a stud projecting from one of said cross-bars, and a cross-bar raised above the series of cross-bars, and a double yoke passed through between the cross-bars of the frame and having a single cross-bar for attachment to a strap.

314,565. ROTARY FISH-NET. BENJAMIN W. CLARK, Herndon, Va. Filed Mar. 31, 1884. (No model.)

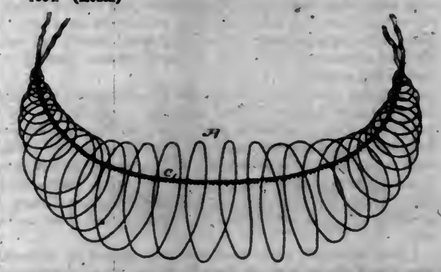


Claim.—1. A rotary dipping-net having buckets formed between partitions which radiate from the axis of the shaft which forms the center of motion to said wheel and sides formed of flanking-disks, the outer edges of which are concentric to the axis of said rotary net, substantially as and for the purpose set forth.

2. The rotary dipping-net, substantially as described, constructed with buckets formed from netting-disks and radiating wings or partitions, the latter cupping inward at their free ends to form barriers to the back movement of the fish, in combination with the double deflecting-chutes which form the bottoms of said buckets, all arranged as specified.

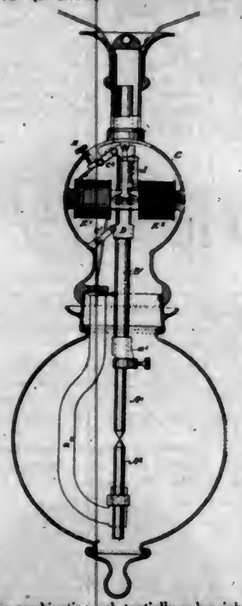
3. The combination, with the rotary dipping-net formed as described, of the apron P, the adjusting-lever *r*, and supporting-boats N O, all arranged as and for the purpose set forth.

314,566. BUSTLE. CHARLES R. DAVIS, Dallas, Tex. Filed Apr. 21, 1884. (Model.)



Claim.—The bustle A, consisting of a single piece of wire bent in spiral form, said bustle being larger in diameter at its center than at its ends, and eyes or loops formed in said ends, in combination with a spiral spring located within said bustle, the ends of said spring being formed with eyes or loops, and cords or tapes secured to the eyes of the bustle and spring, substantially as set forth.

314,567. ELECTRIC-ARC LAMP. PHILIP DIEHL, Elizabeth, N. J. Filed July 22, 1884. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, in an electric-arc lamp, with the upper electrode and a holder for the same, of a frame surrounding said holder, parallel supporting-links for said frame, two movable cores and arms supporting said cores, two helices, the one of thick and the other of fine wire, respectively, surrounding said cores, and a clutch-arm pivoted at one end to said arms, and at the other to said movable frame.

2. The combination, substantially as hereinbefore set forth, with the upper electrode of an arc lamp, a movable frame for supporting the same, means, substantially such as described, for permitting an upward movement of said frame, and two electro-magnets having movable cores secured to each other, through the differential action of which the position of said frame is controlled, a swinging arm supporting said cores, and a clutch-arm connected from said swinging arm to said movable frame, substantially as described.

3. The combination, substantially as hereinbefore set forth, with two coils of insulated wire, the one included in the main-line circuit of an electric-arc lamp and the other in a circuit around the arc of the same, of two cores respectively applied to said helices, a swinging arm supporting said cores, an electrode-holder, an arm pivoted to said holder and linked to said swinging arm, and two parallel arms supporting said holder, substantially as described.

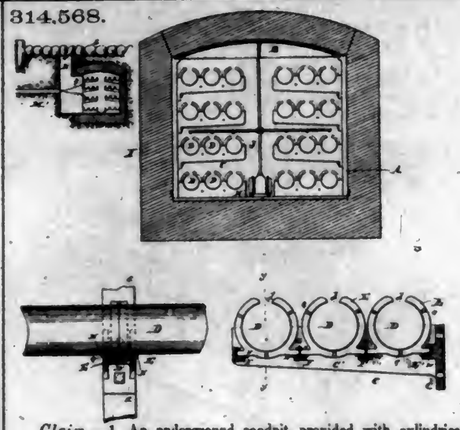
4. The combination, with the upper electrode of an electric lamp, of a guiding frame or bracket for the same, which frame is so supported that it is capable of a diagonal movement with reference to the axis of the electrode, a pivoted arm, and means, substantially such as described, for moving said arm in one direction or another, accordingly as the arc of the lamp increases or decreases in resistance, and a linked connection between said frame and said pivoted arm, whereby the movement of the latter in one direction causes the electrode to be clutched and raised, while the movement of the arm in the other direction causes it to be lowered and released.

5. In an electric lamp, the combination, substantially as hereinbefore set forth, of the upper electrode, a guiding bracket or frame for the same, links or arms pivoted at one end to a stationary support and at their remaining ends to said frame, and extending at an angle to the direction of movement of the electrode, electro-magnetic devices for controlling the movements of said frame, an arm pivoted to a stationary support at one end and connected with said electro-magnetic devices, and the clutch-arm *d* and links *m'* and m^2, connecting said frame and said arm.

6. In an electric lamp, the combination, substantially as hereinbefore set forth, of the frame B, the cores F' and F^2 and their respective helices, and one or more arms, D, for supporting the cores, and having the slots k' and the screws k^2, for adjusting the point of support of said cores.

314,568. CONDUIT FOR ELECTRIC WIRES. JOSIAH S. DU BOIS, Camden, N. J. Filed Sept. 6, 1884. (No model.)

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Claim.—1. An underground conduit provided with cylindrical pockets or troughs for supporting the electric wires, made of light sheet metal, cylindrical or polygonal in cross-section, and having a narrow longitudinal slot in its upper part, the said pockets being arranged side by side in rows in the same horizontal plane, and the rows being arranged one above the other, as shown, substantially as and for the purpose specified.

2. Two or more pockets for underground conduits formed of sheet metal, cylindrical or polygonal in cross-section, provided with outwardly-flanged ends, and having a longitudinal slot in their upper surfaces, in combination with clamping mechanism, substantially as set forth, to clamp said pockets end to end in a continuous line, forming a long section made up of small parts and in position to be placed bodily into the conduit, substantially as and for the purpose specified.

3. A pocket for underground conduits, consisting of sheet-metal tube D, having longitudinal slot *d*, and flanges D', in combination with rings E and bolts or clamps to clamp said rings together, uniting the two sections of tube, substantially as and for the purpose specified.

4. A pocket for underground conduits, consisting of sheet-metal tube D, having longitudinal slot *d*, and flanges D', in combination with rings E, bolts or clamps to clamp said rings together, uniting the two sections of tube, and brackets formed to receive said rings and tube-sections, substantially as and for the purpose specified.

5. The bracket C, having side frames, C', scalloped as at *c*, in combination with slotted troughs D, having flanges and rings E, substantially as and for the purpose specified.

6. The bracket C, having side frames, C', scalloped as at *c*, and cross-bars F, in combination with slotted troughs D, having flanges and rings E, provided with lugs E', substantially as and for the purpose specified.

7. The bracket C, having side frames, C', scalloped as at *c*, and cross-bars F, in combination with slotted troughs D, having flanges, rings E, provided with lugs E', and bolts G, substantially as and for the purpose specified.

8. In a conduit for electric wires, a frame provided with supporting-brackets, in combination with a series of pockets or troughs to carry the electric wires, supported by said brackets close to each other, but insulated from both the brackets and the adjacent pockets or troughs, substantially as and for the purpose specified.

314,569. OVERSHOE. LEWIS ELLIOTT, New Haven, Conn., assignor to the L. Candee & Co., same place. Filed Sept. 15, 1884. (No model.)

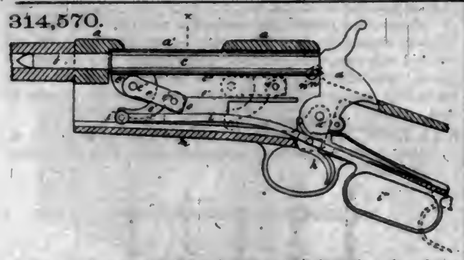


Claim.—The herein-described improvement in the art of manufacturing that class of overshoes which are constructed with an upper to present a fabric surface, and which consists in stitching the parts of the fabric outer together on their meeting line, the said fabric being first coated with rubber upon its inner surface, then applying said stitched outer to a fabric lining, the said fabric lining having its outer surface correspondingly prepared to receive said coated stitched outer, substantially as described.

314,570. BREECH-LOADING FIRE-ARM. WILLIAM H. ELLIOT, New York, N. Y. Filed Jan. 16, 1885. (No model.)

Claim.—1. In a breech-loading fire-arm, the combination of devices, substantially as follows: a bolt for closing the chamber, a brace for locking said bolt, pivoted at its forward end to the forward end of the bolt, and provided with an operating-arm, a divided recoil-shoulder within the

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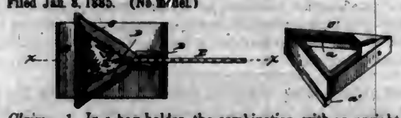
receiver, against which said brace engages in locking the bolt, a slot extending backward from between said shoulders, through which said operating-arm travels to move the bolt, a reciprocating handle, and connecting-strap, guided by suitable means at its rear end and connected at its forward end to said operating-arm, said reciprocating strap being constructed with recess A', in and through which the trigger operates upon the hammer, as set forth.

2. In a breech-loading fire-arm, the combination of devices, substantially as follows: a bolt for closing the chamber, a brace for locking said bolt, pivoted at its forward end to the forward end of the bolt, and provided with an operating-arm, a divided recoil-shoulder within the receiver, against which said brace engages in locking the bolt, a slot extending backward from between said shoulders, through which said operating-arm travels to move the bolt, a reciprocating handle, and connecting-strap, guided at its forward end by its connection with said arm and at its rear end by a diagonal mortise in the guard-strap, through which it slides in a direction substantially parallel with the wrist of the arm, as shown and described.

3. In a breech-loading fire-arm, a bolt for closing the chamber, which moves in a line with the barrel, a hammer pivoted in the receiver and provided with the usual mainspring and trigger, said hammer being brought to full-cock by the bolt in its backward movement, and in combination therewith a friction-roller provided with diagonally-elongated pivotal bearing in the rear end of said bolt, whereby the hammer is depressed beyond full-cock by the backward movement of the bolt, but is not depressed at all by its forward movement, substantially as specified.

4. The combination, in a breech-loading fire-arm, of the ledges *o'* and *o''*, projecting inward from the inner surface of the receiver, one above and one below the path of the locking-brace, a bolt for closing the chamber, which moves in a line with the barrel, a brace for locking the same, which is pivoted at its forward end to the forward end of said bolt and is provided with an operating arm and handle with a suitable connection between the same, said brace being provided at its rear end with friction-roll *s''*, which runs alternately on ledges *o' o''*, as the bolt is moved back and forth, substantially as and for the purpose specified.

314,571. BAG-HOLDER. WALLACE B. EMMONS, Pottsville, Ohio. Filed Jan. 8, 1885. (No model.)



Claim.—1. In a bag-holder, the combination, with an upright having a triangular supporting-frame at its upper end, of a pivoted locking-bar having a spur, *c*, and a pivoted lever.

2. In a bag-holder, the combination, with an upright having a triangular supporting-frame at its upper end provided with a strip or bar, *a'*, of a pivoted locking-bar and a pivoted lever.

3. The herein-described bag-holder, comprising in its construction an upright or standard, a supporting-frame having inclined inner faces, a locking-bar pivoted within said frame, said locking-bar having a seat and a spur or spud, and a lever pivoted between the bifurcated upper end of the upright and having a cam-face, as set forth.

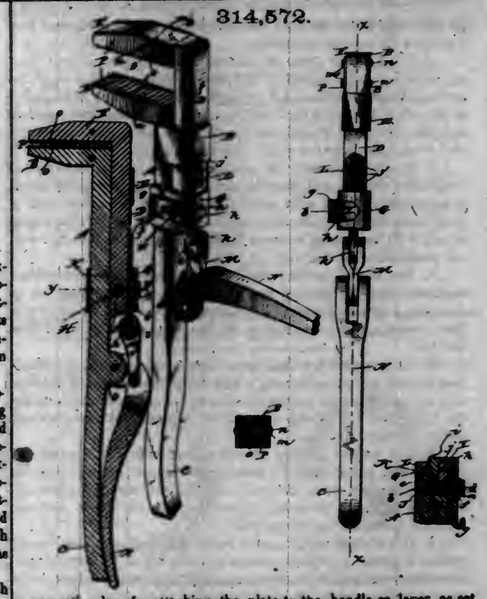
314,572. WRENCH. JONATHAN FORSHEY and CHRISTIAN G. HERLINGER, Philipsburg, Pa. Filed Sept. 10, 1884. (No model.)

Claim.—1. In a wrench, the combination, with the shank carrying a jaw at one end, of a sliding stem carrying a jaw, a pivoted handle or lever, and means, substantially as described, for connecting the latter with the stem, said means being adjustable in length, as and for the purpose set forth.

2. In a wrench, the combination, with the shank carrying a jaw at one end, of the stem sliding on said shank and carrying a jaw, a band or collar rigidly held to the stem and sliding on the shank, the pivoted handle or lever, the adjustable plate connecting with the handle or lever, and means for attaching the plate to the stem at any point of the length of said plate, as set forth.

3. In a wrench, the combination, with the shank carrying a jaw, of the stem sliding on said shank and carrying a jaw, the pivoted handle or lever, a perforated plate held at any point of its length on the stem, and

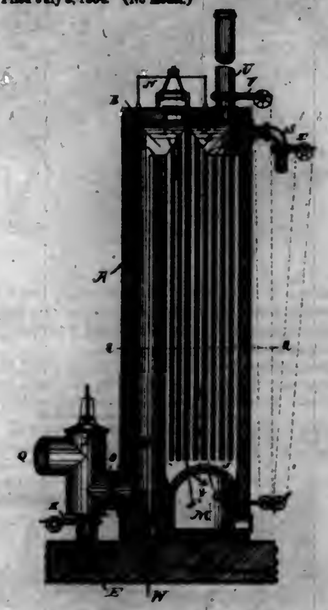
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a connecting-bar for attaching the plate to the handle or lever, as set forth.

4. In a wrench, the combination, with the shank carrying a jaw, of the stem sliding on the shank, and also carrying a jaw, a band or collar connecting the shank and stem, a spring-pressed pin or bolt securing the band to the stem, an adjusting-piece held in place by the head of the said bolt, a pin on one end of the said piece, a perforated plate arranged to be engaged by the said pin, and a handle or lever connecting with the plate, as set forth.

314,573. HOT-BLAST STOVE. FREDERICK W. GORDON, Allegheny, Pa. Filed July 5, 1884. (No model.)



Claim.—1. In a hot-blast stove, the combination of a vertical shell, a combustion-chamber wall reaching from the base of the stove to near its top, a hot-blast outlet and gas-inlet at the foot of the combustion-chamber, a separating-wall reaching from the roof of the stove to near the base of the stove, regenerator-walls upon either one of the sides of said separating-wall, a chimney upon the roof of the stove over that portion of the regenerator farthest from the combustion-chamber, and a cold-

air inlet at the top of the stove over that portion of the regenerator farthest from the combustion-chamber.

2. In a hot-blast stove, the combination of the vertical shell having an arched roof, a separating-wall reaching from near the base of the stove to the roof the stove, and arranged with its plane at right angles to the axis of the arch of such roof, a combustion-chamber wall reaching from the base of the stove to near the top of the stove, and regenerator-wall work upon either one of the sides of said separating-wall.

3. In a hot-blast stove, the combination of a vertical shell wall, a combustion-chamber wall reaching upward from the base of the stove, a separating-wall and walls parallel thereto reaching upward from a point above the base of the stove, and a series of walls at right angles to said walls terminating below in arches springing from the shell wall and combustion-chamber wall.

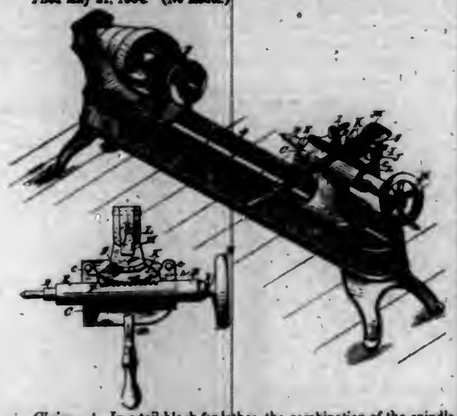
4. In a vertical hot-blast stove, the combination of a combustion-chamber, a final uptake, a vertical pass or series of passes from one to the other, a chimney connecting by a single aperture with the top of said final uptake, and valves to control the flow of gas and air to and from the stove.

5. In a vertical hot-blast stove, the combination, with a combustion-chamber and passes forming a path beyond the same, of a final uptake at one side only of the stove, a chimney in communication with the top of said final uptake, and valves for the control of the flow of air and gas to and from the stove.

6. In a vertical hot-blast stove, the combination, with a combustion-chamber, passes forming a path beyond the same, and valves for the control of the flow of air and gas to and from the stove, of a final uptake, and a chimney-connection directly over the top of said final uptake and in communication therewith.

7. In a vertical hot-blast stove, wall-work arranged to form an odd number of passes, a chimney-connection at the top of the stove, a cold-blast inlet at the top of the stove, a gas-inlet and hot-blast outlet at the base of the stove, and valves for the control of the flow of gas to and from the stove.

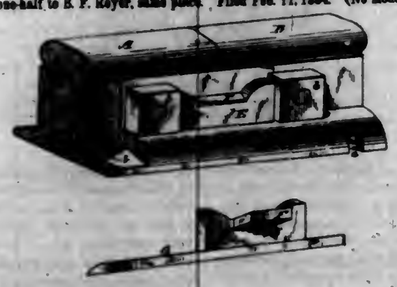
314,574. DRILLING-LATHE. BENJAMIN H. HADLEY, Providence, R. I. Filed May 21, 1884. (No model.)



Claim.—1. In a tail-block for lathes, the combination of the spindle hand-screw, the spindle, the inclosing-shell having rack-teeth, the segment-gear, and the pivoted hand-lever adapted to operate the spindle substantially as described.

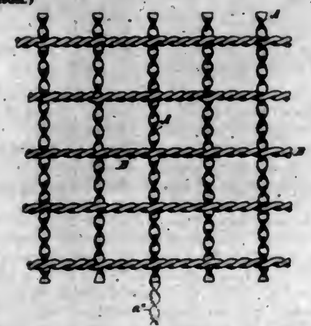
2. In a tail-block for lathes, the combination of the spindle hand-screw, the spindle, the inclosing-shell having rack-teeth, the segment-gear, and means for operating the same, substantially as described.

314,575. NUT-LOCK. PETER HENRY Burr Oak, Kans., assignor of one-half to B. F. Royer, same place. Filed Feb. 11, 1884. (No model.)



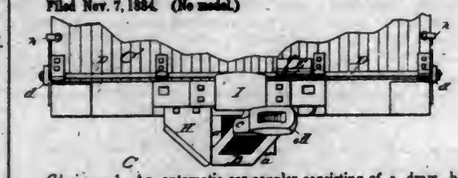
Claim.—In a nut-lock, the combination, with a fish-plate having an upwardly-inclined slot, of a locking-plate located between the nuts, and provided with an upwardly-inclined block engaging with the slot, and having a base which is drawn up against the under side of the nuts by the inclined slot and block, substantially as and for the purpose set forth.

314,576. METALLIC FABRIC. WILLIAM HEWITT, Trenton, N. J., assignor to the Trenton Iron Company, same place. Filed Oct. 20, 1884. (No model.)



Claim.—As a new article of manufacture, a metallic fabric composed of a series of spirally-twisted strips, rods, or pieces of metal and of a series of wire cables the strands of which embrace the strips, substantially as shown and described.

314,577. CAR-COUPLING. ROBERT HITCHCOCK, Springfield, Mass. Filed Nov. 7, 1884. (No model.)



Claim.—1. An automatic car-coupler consisting of a draw-bar hinged at its inner end to the car-body, and having a hook and beveled head at its outer end, a yoke at the end of the car having an upwardly-inclined oblique passage through which the body of the draw-bar passes, and a chain and attachments connected to the bar by which the same may be lifted in uncoupling, all in combination, substantially as stated.

2. The combination, with the end of a car, of a draw-bar hinged thereto at its inner end, and having a hook and beveled head at its outer end, a yoke attached to the car, having an upwardly-inclined passage through which the body of the draw-bar extends, and a projecting guard which extends near the draw-bar, to prevent accidental uncoupling, all substantially as described.

314,578. AMALGAMATING ORES. FREDERICK HOLLICK, New York, assignor of one-half to J. J. Greenough, Syracuse, N. Y. Filed Oct. 20, 1882. (No specimens.)

Claim.—1. The process of amalgamating ores, slums, and tailings of the precious metals by means of an alloy of lead, tin, bismuth, zinc, and mercury so proportioned as to melt at a low temperature, and employing the same in a melted state as a substitute for mercury, as herein specified.

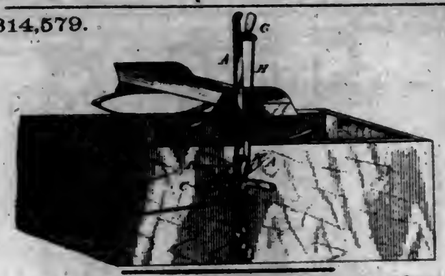
2. The process which consists in amalgamating ores, &c., with an alloy melting at a low temperature, as described, and maintaining the alloy in a state of fluidity applicable to the free amalgamation of the metals contained in the ores worked, by the application of heat and regulating the same, as specified.

3. In the process of amalgamating ores by the described compound, with the application of heat, as herein specified, the application of hydrocarbons, as described, to prevent the oxidation.

314,579. BRAKE-LEVER. GEORGE M. HUFFMAN, Zanesville, Ohio. Filed Dec. 31, 1884. (No model.)

Claim.—The combination, forming a lock for wagons and other vehicles, consisting of a lever, A, having a slot in the lower half through which a notched quadrant, B, passes, the notched quadrant B having a hole in each end through which the extension of the feet C pass, feet C, with an extension on one end and a hole through the middle parallel with the extension, the pawl D, the wire spring E, the arm F, the handle G, and rod H, so fashioned that the lock can be attached to either the right or left hand side of the vehicle by changing the feet C from one side of the quadrant B to the other side without changing the position of the lever A on the quadrant B, all substantially as hereinbefore set forth.

314,579.



314,580. WHEEL-GUARD FOR RAILWAY-CARS. JOSEPH JACOBS, San Francisco, Cal. Filed Feb. 16, 1884. (No model.)



Claim.—1. In a fender attachment for cars, consisting of the frame A and front plate, *b*, and the continuous piece of rubber or analogous yielding material F, surrounding the exposed edge of the plate *b*, and set at an inclination thereon, substantially as and for the purpose set forth.

2. The combination, with the horizontal front plate, *b*, and inclined rubber rim F, of the supporting arms or rods *A*, extended back from the rubber rim at right angles to the axles of the car, and supported loosely in the hangers or brackets I, and the coiled springs J, surrounding the rods *A*, and bearing at one end against the part F and at the other against the part I, substantially as and for the purpose set forth.

3. In a fender for cars, the combination of the horizontal plank or part *b*, having its exposed edges surrounded by the yielding rim F, and the inclined portion *b*², extending from a point on the part *b* to the front of the car, substantially as set forth.

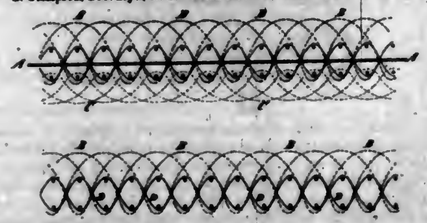
4. The combination of the supporting-frame A A, adapted to be fixed to the running-gear of a car, or so as to be disconnected from the car-body, the fender having the projecting platform portion *b* and the brace *d*, substantially as hereinbefore described.

5. The combination of the supporting-bar A, adapted to be fixed to the running-gear of a car, or so as to be disconnected from the body thereof, and the guard K, attached to it by loose connections *m*, substantially as hereinbefore described.

6. The combination of the frame B and traction-roller E, located in the central longitudinal line of the frame, and adapted to ride over the slot of a cable road, as set forth.

7. The combination of the horizontally-extended brackets or hangers *k*, the loose link *m*, and the guard-plank K with the stop *p*, having a curved end secured upon the lower part of the axle-box and curved outward, as shown, and for the purpose set forth.

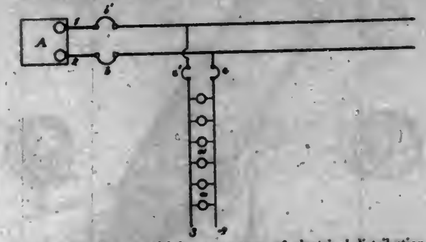
314,581. ELASTIC WOVEN FABRIC. WILLIAM E. JEFFERSON, Nottingham, County of Nottingham, England, assignor of one-half to Edwin R. Stimpson, Brooklyn, N. Y. Filed Nov. 10, 1883. (No model.)



Claim.—1. An elastic woven fabric having a margin of gradually-diminishing thickness toward and to the selvage, substantially as described.

2. The elastic fabric herein described, containing in its body elastic warps and binder-warps, a face-warp with terry-loops, and a back warp with terry-loops and having its margin gradually reduced in thickness by the omission of the back warp, the elastic warp, and portions of the face-warp, substantially as herein described.

314,582. SAFETY-CATCH. EDWARD H. JOHNSON, New York, N. Y., assignor to the Edison Electric Light Company, same place. Filed Nov. 23, 1882. (No model.)



Claim.—In a multiple-arc system of electrical distribution, the combination, with the conductors of a circuit, of a safety-catch located in each pole or side of the circuit, substantially as set forth.

314,583. HORSESHOE. JOHN JOHNSON, Brooklyn, N. Y. Filed May 1, 1884. (No model.)



Claim.—A horseshoe composed of india-rubber or analogous elastic or yielding material, and having metal calk segments or pieces which form a portion of the bottom surface of the shoe, and which are provided with flanges embedded in the material of which the shoe is composed, and constructed to receive through them the nails whereby the shoe is secured, substantially as and for the purpose herein described.

314,584. COMPOUND FOR COATING METALLIC ROOFING. SAMUEL B. JOHNSTON and SAMUEL HUNTER, Cedar Rapids, Iowa. Filed Aug. 27, 1884. (No specimens.)

Claim.—The within-described protective coating for metallic roofing, consisting of coal-tar, chloride of sodium, asbestos, sugar of lead, litharge, yellow wax, and mineral paint, combined in about the proportions and substantially the manner herein specified.

314,585. METHOD OF TAMPING BLAST-HOLES. JOHN L. L. KNOX, Allegheny, assignor to the Knox Rock Blasting Company, Pittsburg, Pa. Filed Apr. 7, 1884. (No model.)



Claim.—1. The within-described method of charging and tamping blast-holes, which consists in filling the central portion of the hole with a rod extending to within a short distance of its top, distributing the explodent between the rod and the sides of the hole, and tamping at the top of the hole and upon the upper extremity of said rod, as and for the purposes described.

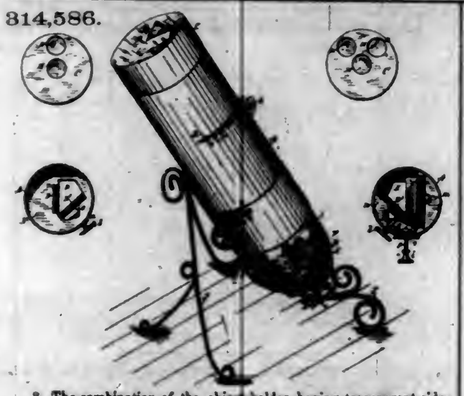
2. The within-described method of charging and tamping a blast-hole having oppositely-located two-sided equilateral grooves throughout its length, which consists in inserting in the hole a rod somewhat less in thickness than the short diameter of the hole and somewhat less in length than said hole, distributing the explodent throughout the grooves, and tamping upon the top of said rod, substantially as and for the purposes set forth.

314,586. KALEIDOSCOPE. ROBERT LEACH, Providence, R. I. Filed June 11, 1884. (No model.)

Claim.—1. In a kaleidoscope, the combination of the transparent object-holder having a hemispherical end with the revoluble object-holding table inclosed within the transparent object-holder, substantially as described.

2. The combination of the object-holder having transparent sides with the revoluble table provided with a frictional covering serrated at its edges, substantially as described.

314,586.



3. The combination of the object-holder having transparent sides, the revoluble table for holding the objects, and the mirrors for reflecting the light upon the face of the objects, substantially as described.

4. The combination of the fixed reflector and the movable reflector, provided at its back with the notched adjusting-wire, with the outer case provided transversely with a notched slot adapted to receive the notched wire of the removable reflector, substantially as described.

5. The combination of the fixed reflector, the movable reflector, and the outer case provided with the transverse partition adapted to form a stop or guide for the extreme positions of the movable reflector, substantially as described.

6. The combination of the fixed reflector, the movable reflector, and the transverse clamping-strip adapted to hold the movable reflector in its required positions, substantially as described.

7. The combination of the object-holder having transparent sides, the revoluble table within the object-holder, the fixed reflector, the movable reflector, and the end cap provided with the lenses for binocular vision, substantially as described.

8. The combination of the fixed reflector, the movable reflector, the transverse clamping-strip adapted to hold the movable reflector in its required positions, the downward-acting spring, the notched holding-wire, and the pivoted catch, substantially as described.

314,587. TOP-PROP. THEODORE F. LEMARESQUIER, Newark, N. J., assignor to Lillian Lemarquier, same place. Filed Sept. 15, 1884. (No model.)



Claim.—1. The top-prop herein shown and described, and formed of paper-pulp united by cement, and molded to form, substantially as and for the purpose set forth.

2. The top-prop herein shown and described, and formed of paper-pulp united by india-rubber cement, and molded to form, and then vulcanized, substantially as and for the purpose set forth.

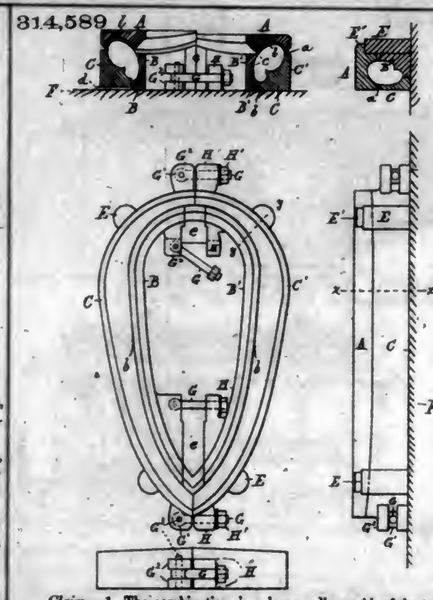
314,588. SHOE. THEODORE F. LEMARESQUIER, Newark, N.J., assignor to Lillian Lemarquier, same place. Filed Sept. 17, 1884. (No model.)



Claim.—1. A boot or shoe provided upon its entire outer surface with a coating of japan baked upon the shoe and its sole, substantially as described.

2. As an improved article of manufacture, a seamless boot or shoe formed of leather scraps pasted or united together and japanned externally, substantially as herein set forth.

314,589. HORSE-COLLAR MOLD. THEODORE F. LEMARESQUIER, Newark, N. J., assignor to Lillian Lemarquier, same place. Filed Jan. 6, 1885. (No model.)



Claim.—1. The combination, in a horse-collar mold, of the top section, A, the inner bottom section formed in two pieces, B B', and the outer bottom section formed in two parts and provided with fastenings, substantially as shown and described.

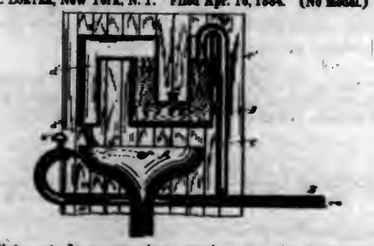
2. The combination, in a horse-collar mold, of inner sections, B B', and outer bottom sections, C C', constructed and adapted to withdraw from the collar in the same plane both internally and externally, as and for the purpose herein shown and described.

3. The combination, in a horse-collar mold, of the top section, A, the inner bottom sections, B B', provided with the removable gibs *e e*, and the outer bottom sections, C C', provided with fastenings, substantially as shown and described.

4. The combination, in a horse-collar mold, of the top and bottom sections provided with the cutting-edges *a a*, as described, the stops E E, arranged to guide the parts of the mold when pressed together, and the ears E' E', arranged to touch the stops when the mold is properly closed, substantially as and for the purpose set forth.

5. The combination, with the divided sections of a horse-collar mold, of the bolt G, pivoted to one section and having a nut fitted to lugs upon the opposite section and operating to clamp the sections together, as and for the purpose set forth.

314,590. DISINFECTING APPARATUS FOR WATER-CLOSETS. A. M. LORTEA, New York, N.Y. Filed Apr. 16, 1884. (No model.)

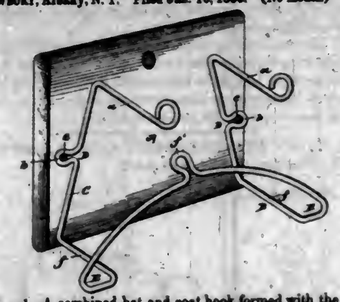


Claim.—1. In a water-closet attachment, a chamber to contain a soluble disinfectant, having an inflow-pipe connected with the flushing-pipe on one side and an overflow-pipe connected with the basin on the other side, in combination with a flushing-pipe having a stop-cock, *b*, said inflow-pipe being provided with a float-valve to control the inflow of water into the disinfectant-chamber when cock *b* is closed, substantially as described, and for the purposes set forth.

2. In a water-closet attachment, the combination of the disinfectant-chamber D, having cap *d*, inlet-pipe C, provided with float-valve C' upon one side, and overflow-connections d' d^2 d^3, with the basin on the other side, with the flushing-pipe B, having cock *b*, constructed and arranged substantially as described.

3. In combination with a closet-bowl, a chamber to contain a soluble disinfectant, having two upright arms, one connected with the inflow-pipe having a floating valve, as C', and the other with the overflow-pipe, and a flushing-pipe having a regulating stop-cock, as *b*, all constructed and arranged substantially as described.

314,591. HAT AND COAT HOOK. JOHAN D. MACK, Salem, and JAMES G. NEWBURY, Albany, N.Y. Filed Jan. 10, 1885. (No model.)



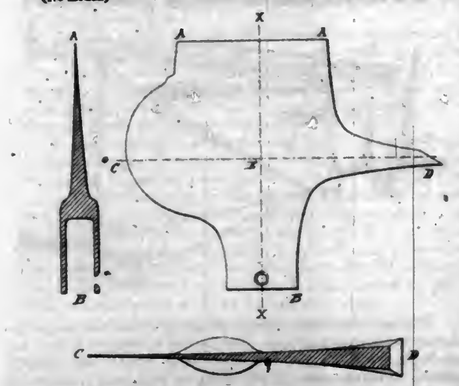
Claim.—1. A combined hat and coat hook formed with the arms *a*, and having its closed end formed with a loop, E, having the loop *f*, substantially as set forth.

2. A combined hat and coat hook formed with the arms *a*, having looped ends, and having its closed end formed with a loop, E, having the inwardly-extending loop *f*, substantially as set forth.

3. A combined hat and coat hook constructed of a single piece of wire, and comprising outwardly-extending arms having looped ends, body portions having loops for the attachment of the device, a loop, E, and an inwardly-extending loop, *f*, substantially as set forth.

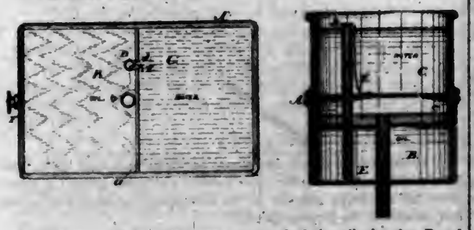
4. A combined hat and coat hook comprising the body portions provided with loops, the outwardly-extending arms having looped ends, said body portions being formed at their lower ends with outwardly-extending arms, and an upwardly-extending coat-hook having an inwardly-extending loop, substantially as set forth.

314,592. COMBINED IMPLEMENT FOR REMOVING SNOW AND ICE. LUDGER L. MAILLET, Montreal, Quebec, Canada. Filed Apr. 8, 1884. (No model.)



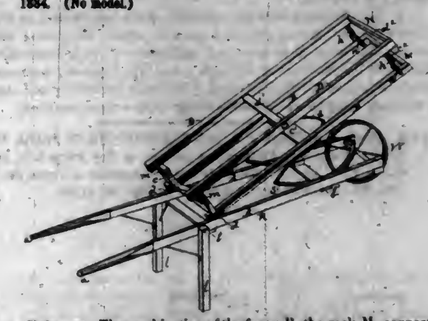
Claim.—The combination, in one implement, of a shovel, A, an ax, C, and a pick, D, substantially as shown and described.

314,593. LUBRICATING-CUP. JOHN H. MARR, Albany, N.Y. Filed Feb. 3, 1885. (No model.)



Claim.—A lubricating-cup composed of the oil-chamber B and water-chamber C, the said oil-chamber being provided with an oil-feeding tube, *b*, and a water-feeding thread, E, by which water is transferred from the water-chamber C to the oil-chamber B, as and for the purpose specified.

314,594. TRUCK. HENRY MARTIN, Lancaster, Pa. Filed June 30 1884. (No model.)

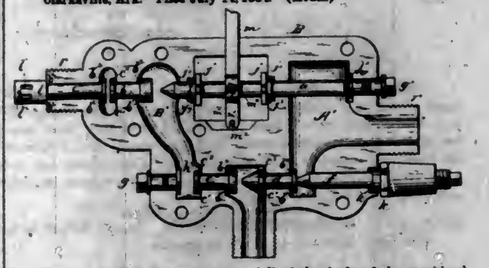


Claim.—1. The combination of the frame R, the rack M, connected with the said frame in such a manner as to permit vibration about the said point of connection, and the spring S, as herein more specifically set forth.

2. The combination of the frame R, the rack M, connected with the said frame in such a manner as to permit vibration about the said point of connection, the springs S, and the rack N, held above the rack M, and hinged to one of its own supports, as herein described.

3. As a means of transporting bricks, racks placed upon vehicles, the said racks being raised the one above the other, the upper rack supported above that below it, and hinged to one of the said supports, as and for the purpose herein set forth

314,595. COMBINED INJECTOR AND EJECTOR. JOHN M. MARTY. Clarksville, Ark. Filed July 14, 1884. (Model.)



Claim.—1. The two halves A and B of the body of the combined injector and ejector, each having beds for the pipes *a*, *b*, *c*, *d*, and *e*, and for the regulating-plug *f*, steam-chambers A' and B', sockets j' k' for packing-glands *j* and *k*, beds for the plugs *g g'* and for the bushings *h h'*, said halves A and B being firmly held together by screws or bolts and nuts *q*, substantially as shown and described.

2. The two halves A and B, having steam-chests A' B', beds for the pipes *a*, *b*, *c*, *d*, and *e*, the upper half, A, having overflows *o* and *p*, said halves being firmly held together by screws or bolts and nuts *q*, substantially as shown and described.

3. In combination with halves A and B, threaded studs n, with packing-glands *j*, having mouths grasping said studs n, and flanges j^3, fitting into sockets j', with nuts n', working on threaded studs n and against the outer face of said packing-glands *j*, and adapted to press said flanges down into their sockets j', substantially as shown and described.

4. In combination with the halves A and B, threaded studs n^2, with packing-gland *k*, having female screw f^2, carrying threaded regulating-plug *f*, flange k^3, fitting into socket k', and nuts n', working on said studs n^2 and against the outer face of said packing-gland *k*, and adapted to press said flange k^3 down into its socket k', substantially as shown and described.

5. In combination with halves A and B, lever M, its end m', pivoted on pin m^3 of the lower half, B, of the body, grasping in its perforation m^4 tube *a* by means of nuts and bolts m^5, and tube *a*, working back and forth in packing-gland *j*, and bushing k', having circular groove k^2, fitting the rear end of tube *a*, and serving as a plug to shut off the steam from said tube when required, all substantially as shown and described.

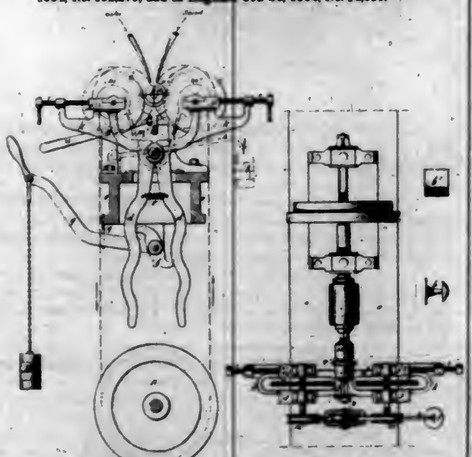
6. In combination with the halves A and B, pins h^4, with bushings *h* and k', fitting into their grooves, and their pin-holes h^3, fitting on said pins h^4, and their shoulders h^3, fitting against the shoulder of said grooves, and plugs *g g'*, screwing into said bushings, substantially as shown and described, and for the purposes set forth.

7. In combination with the combined ejector and injector, having the two halves A and B, steam-chests A' and B', self-stopping overflows *o* and *p*, and ground sockets b^2 c^2, with tubes *b*, *c*, *d*, and *e*, having ground

shoulders b^2 c^2, fitting into said ground sockets b^2 c^2, substantially as shown and described.

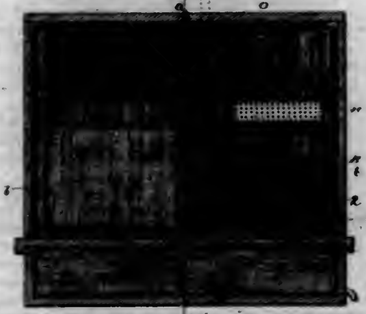
8. In combination with the combined ejector and injector, as above described, pipe *c*, having ground shoulders b^2, fitting into ground shoulders b^2, and having in its outer end perforations l^2, with check-valve *l*, fitting into the outer end of said pipe *c*, and pin l^3, passing horizontally across the opening in the outer end of said pipe, preventing said check-valve from being blown out, substantially as shown and described.

314,596. MACHINE FOR THE MANUFACTURE OF PEARL BUTTONS. ERNEST MAY, Paris, France, assignor to May Frères & Co., same place. Filed Nov. 17, 1884. (No model.) Patented in France Oct. 18, 1884, No. 152,279, and in England Oct. 24, 1884, No. 14,069.



Claim.—The combination of the two levers *d d*, a slide, *j*, on the upper arm of each of said levers, a revolving grinding-disk arranged in each of said slides, the two disks in the same plane, their faces corresponding to the shape of the button to be produced, a cam, *f*, between the lower arms of said levers, lever *g*, arranged to operate said cam, and a revolving mandrel adapted to hold and revolve the material between said disks, substantially as described.

314,597. REFRIGERATOR AND FILTER. ANDREW MCCLAIN, Nashville, Tenn. Filed July 10, 1883. (No model.)



Claim.—1. The combination, with a series of refrigerating-chambers, as H H', an ice-receiver, as 1, water-compartment, as 3, and a filter, as *k*, of the water-receptacle C, extending over the refrigerating-compartments, the ice-receiver, the water-compartment, and the filtering-chamber, substantially as described.

2. The combination, with a series of submerged refrigerating-chambers, as H H', and a filtering-chamber, of an ice-receiver partially surrounded by said refrigerating and filtering chambers, substantially as described.

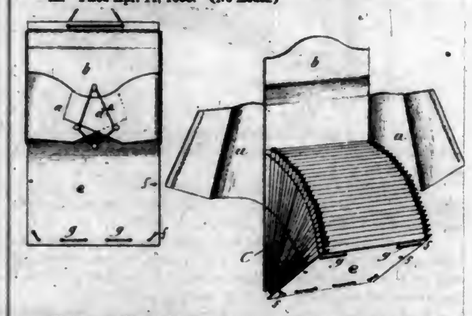
3. A combined refrigerator and filter consisting of a series of refrigerating-chambers, as H H', filter *k*, and ice-receiver 1, in combination with a water-receptacle, as C, located over said parts and provided with an opening, C', coincident with the ice-receiver 1, as and for the purpose set forth.

4. In combination with a series of refrigerating-chambers, as H H', ice-receiver 1, and filter *k*, a water-receptacle, as C, located over said parts and provided with an opening, C', coincident with said receiver, said opening being inclosed or surrounded on three of its sides by vertical walls, and on the fourth by a filtering-box, as D, substantially as and for the purposes specified.

5. The combination, with a series of refrigerating-chambers, as H H', and an ice-receiver, as 1, of a water-receptacle arranged above the ice-receiver and refrigerating-chambers, and provided with a passage through it of smaller diameter than the ice-receiver, substantially as and for the purpose specified.

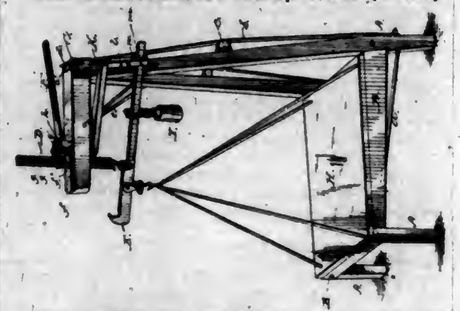
6. The combination, in a combined refrigerator and filter, of a series of refrigerating-chambers and a water-compartment with the tray *n* and tube *m*, the upper end of the tube extending above the top of said chamber, and its lower end extending below the bottom of the same, substantially as shown, and for the purpose described.

314,598. FILE FOR HOLDING BLANKS. S. MASON MEEK, Chicago, Ill. Filed Apr. 11, 1883. (No model.)



Claim.—A file for holding blanks, consisting of a case having the front *e* and back *k* with partitions *i i* between them and secured thereto by cords *g g* through eyelets *f f* in each of the parts, and the flaps *a a* and covers *b*, secured to the back and adapted to be infolded over the front to close the case and to be secured together and to the front by an elastic cord or spring, *d*, over eyelet-hooks, as shown and described.

314,599. FARMER'S WEIGHING-SCALE. ROBERT A. MITCHELL and JACOB VON THUEN, Helena, Ohio. Filed Sept. 16, 1884. (No model.)



Claim.—The herein-described weighing-scales, consisting of the rectangular base and uprights A, provided with the braces *a*, *b*, and *c*, and carrying the projecting arm C, hoisting-bar D, lever F, scale-beam E, platform H, and supporting-arm K, having the extension *l*, provided with the slot *n*, for the reception of the end of the scale-beam E, all substantially as and for the purpose specified.

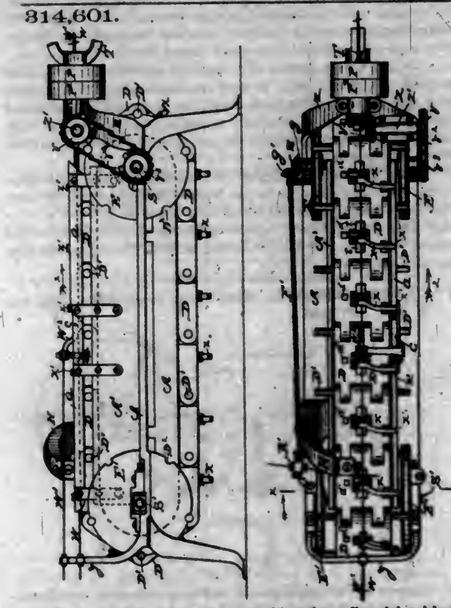
314,600. BLACKBOARD. HIRAM E. MOON, Richmond, Ind. Filed July 9, 1884. (Model.)



Claim.—A continuous blackboard consisting of a back frame with thin three-ply wood veneers nailed thereto, with joints secured to cross-piece, having slating material on the surface and air-chambers in the rear, as and for the purpose specified

314,601. MACHINE FOR MAKING BARBED WIRE. JOHN W. NABLEVOYER, Joliet, Ill. Filed Mar. 11, 1884. (No model.)

314,601.



Claim.—1. In a wire-barbing machine, the endless jointed bed D, having the extending pintles D', mounted on the notched wheels E E', each section of the bed D being provided with a presser-foot, X, cutting-die *d'*, and barb-benders *m m' n n'*, said benders having friction-rollers on their lower or inner ends, in combination with the cutting-die *d*, guide-bed *a'*, having channels a^2, and means for feeding in the barb-wire *b* and for guiding, spooling, and twisting the main strand-wires W W', as and for the purpose set forth.

2. In the wire-barbing machine described, the combination of the endless traveling bed D, formed in separate sections, each provided with a set of barb-benders, *m m' n n'*, cutting-die *d'*, and presser-foot X, and the bed *a'*, having the guide-channels a^2, arm *y*, having the strand-wire-guide eyelets, guide W^3, and means for operating the traveling bed and cutters, as and for the purpose set forth.

3. The combination of the traveling bed D, formed in separate sections, as shown, with the presser-foot X with each section, and means for operating the bed and presser-foot, as and for the purpose set forth.

4. In the wire-barbing machine described, a jointed sectional endless traveling bed, D, having each section provided with a cutting-die, *d'*, and means for applying a barb to the two strand-wires W W' as the said strand-wires travel along with said bed D, and stationary means for operating said devices, and means for guiding and feeding forward the main wires so that several barbs are being simultaneously formed and applied to the said strand-wires, as and for the purpose set forth.

5. The combination of the frame A, notched wheels E E', shafts S S', endless jointed traveling bed D, having each of its sections provided with the set of barb-benders *m m' n n'*, cutting-die *d'*, and presser-foot X, bed *a'*, having the channels a^2, frame A', pintles D', guide-bars *a*, cutting-die *d*, and means for feeding forward and guiding the strand-wires W W' and barb-wire *b*, as and for the purpose set forth.

6. In the wire-barbing machine described, the barb-benders *m m' n n'*, constructed substantially as shown and described, and arranged to attach the barbs to the two strand-wires, in the manner substantially as set forth.

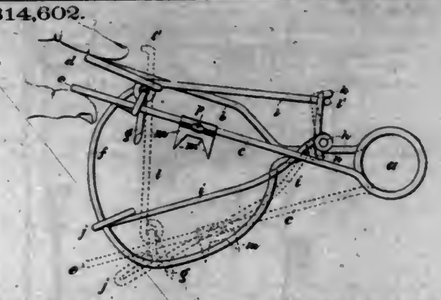
7. In the wire-barbing machine described, the endless sectional traveling bed D, constructed and arranged substantially as shown and described, in combination with the several independent sets of barb-benders described, the cutting-dies, and means for properly guiding and holding the strand-wires while they are being supplied with barbs and for operating the several specified devices, substantially as and for the purpose set forth.

8. In combination with the body-frame of a wire-barbing machine, an endless traveling bed made in jointed sections, each section of said bed being provided with means for attaching a barb to a strand wire or wires while said bed and strand-wires are in motion, in combination with stationary means for operating said devices, substantially as set forth.

314,602. ANIMAL-TRAP. ELIJAH P. PEACOCK, Chicago, Ill. Filed Nov. 16, 1883. (Model.)

Claim.—1. In an animal-trap having spring *a*, loop *f*, arms *b c*, and

314,602.



trigger, and whereof the arm *c* is provided with handle *e*, the handle *d*, substantially as specified.

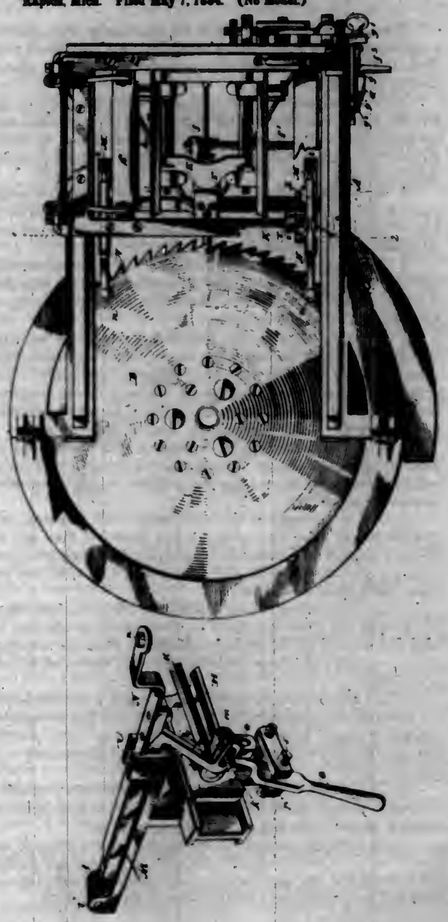
2. An animal-trap formed of the arms *b c*, loop *f*, and lever *l*, in combination with lever *i*, fulcrumed at *h*, and provided with hook *k* and loop *j*, surrounding the wire of loop *f*, substantially as specified.

3. An animal-trap formed of the spring *a* and arm *b*, formed into loops *d* and *f*, in combination with the arm *c*, having bend *p*, and plate provided with spurs *m'*, substantially as specified.

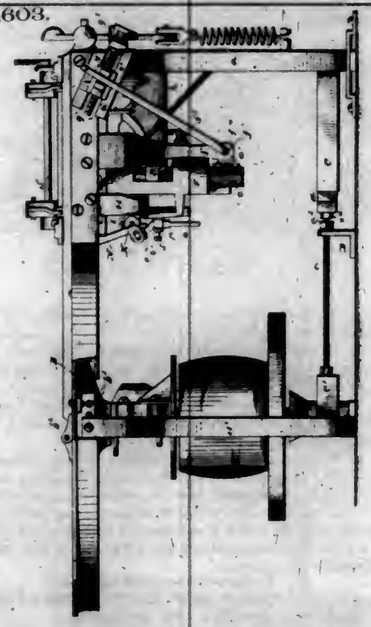
4. An animal-trap formed of the spring *a* and arm *b*, formed into the loops *d* and *f*, in combination with the arm *c*, having bend *p*, spur *g*, loop *e*, and plate *m*, provided with spurs *m'*, substantially as specified.

5. In an animal-trap formed of a spring, *a*, and arms *b* and *c*, the arm *b* provided with a bend, *o*, and beyond it bent into a loop, *f*, the outer end of which is wound around said arm and bend *o*, so as to form a knot, *n*, substantially as specified.

314,603. SHINGLE-SAWING MACHINE. WILLIS J. PERKINS, Grand Rapids, Mich. Filed May 7, 1884. (No model.)



314,603.



Claim.—1. In a shingle-machine, the combination, with a saw and a bolt-carriage, of a guide adapted to rest in contact with the bolt side of the saw and prevent the same from springing or running up, substantially as set forth.

2. In a shingle-machine, the combination, with a saw and a carriage provided with a head-block and tail-dog, of two saw-guides, situated, respectively, immediately behind the head-block and tail-dog, to prevent the saw from coming in contact with said head-block and tail-dog, substantially as set forth.

3. In a shingle-machine, the combination, with a saw and a carriage provided with a head-block and dog, of one or more saw-guides on one side of the saw, the said guide or guides having longitudinal and vertical adjustments, substantially as set forth.

4. In a shingle-machine, the combination, with a saw and a carriage provided with a head-block and dog, of two or more saw-guides adapted to rest on the saw and a rod or shaft connected with the guides for operating them, substantially as set forth.

5. In a shingle-machine, the combination, with a saw and a carriage provided with a head-block and dog, of two or more saw-guides, a handle or lever connected with the operating-rod, said handle or lever being hinged so as to have a free lateral movement in the direction of the length of said rod, but held rigidly against a horizontal rotary motion with reference to said operating-rod, substantially as set forth.

6. In a shingle-machine, the combination, with a saw and a carriage, of a saw-guide and one or more adjusting-screws or their equivalent, each screw adapted to adjust the guide for the saw it represents, substantially as set forth.

7. In a shingle-machine, the combination, with a carriage, of a tilt-table located below the carriage, a post depending from said tilt-table and provided with teeth, a pinion or a segment engaging the teeth, a lever for elevating the table, and a bracket through which the post passes, substantially as set forth.

8. In a shingle-machine, the combination, with a vertically-adjustable tilt-table and a rack and pinion or its equivalent for adjusting the table, of a crank or handle adapted to operate the pinion and an adjustable nut provided with a recess adapted to receive the handle, substantially as set forth.

9. In a shingle-machine, the combination, with a vertically-adjustable tilt-table and an operating crank or handle, of a longitudinally-adjustable nut adapted to receive the said handle, the nut being provided with an index hand or pointer and a graduated scale, substantially as set forth.

10. In a shingle-machine, the combination, with a saw journaled in a swinging frame or leg, of a single rod or brace and locking devices for adjusting the lead of the saw, substantially as set forth.

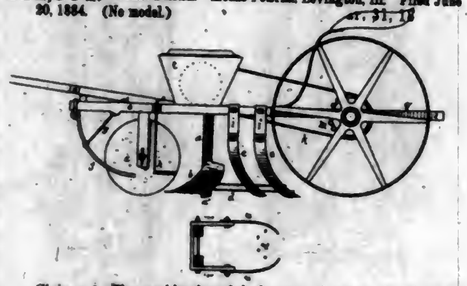
11. In a shingle-machine, the combination, with a swinging saw frame or leg and a bracket secured to the floor, of a central rod provided with a thread and nut, whereby the whole machine is horizontally adjusted and saw-driving belt tightened, substantially as set forth.

12. The combination, with a shingle-machine frame, of a saw-arbor frame or legs adjustably secured to said machine-frame, whereby the saw-arbor frame can be moved toward and away from the operator.

13. In a shingle-machine, the combination, with the main frame provided with two series of perforations situated transversely opposite and a removable saw-arbor frame adapted to be secured at its upper end in said perforations, of a horizontally-adjustable brace connected with the foot of the arbor-frame, whereby the saw is moved squarely forward, substantially as set forth.

14. In a shingle-machine, the combination, with the main frame having a saw-arbor frame for its rear support, the upper end of said saw-arbor frame being horizontally adjustable in the main frame, of a rod or brace adapted to horizontally adjust the bottom of the arbor-frame and washers adapted to embrace the rod and facilitate the adjustment, substantially as set forth.

314,604. CORN-DRILL. MOSES PORTER, Lovington, Ill. Filed June 20, 1884. (No model.)



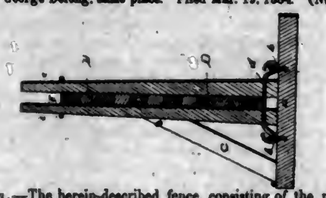
Claim.—1. The combination of shaft *a*, plow *b*, screen *d*, and scrapers *c c*, as and for the purpose set forth.

2. The combination of plow *b*, screen *d*, scrapers *c c*, and cutter *e*, as and for the purpose set forth.

3. The combination, in a corn-drill, of plow *b*, screen *d*, scrapers *c*, cutter *e*, and shoe *f*, as and for the purpose set forth.

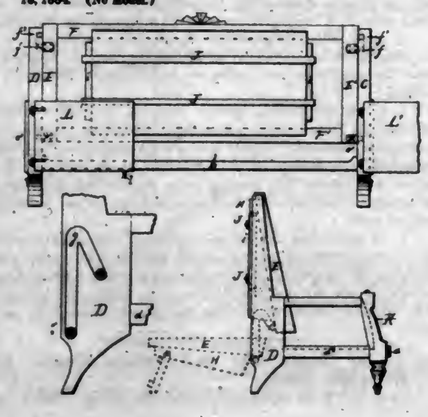
4. The combination of plow *b*, screen *d*, scrapers *c*, cutter *e*, and scrapers *h*, as and for the purpose set forth.

314,605. FENCE. JACOB PRESSLER, Newville, Ind., assignor of one-half to George Delong, same place. Filed Mar. 19, 1884. (No model.)



Claim.—The herein-described fence, consisting of the posts constructed of two uprights, and resting upon suitable transverse strips provided with staples, as shown, rods or bolts passing through said uprights composing the posts, and having their ends secured in said staples and the rails alternately lapping, and loops secured around the posts just above the rails, to prevent upward movement of the same, substantially as set forth.

314,606. BED-SOFA. WILLIAM REDDELL, Denver, Colo. Filed Mar. 18, 1884. (No model.)

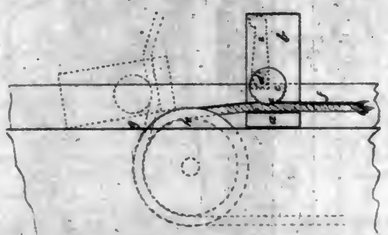


Claim.—In a sofa-bed, the combination, with a frame-work comprising posts having continuous unbroken inverted-J-shaped slots or grooves extending from a point above to a point below the level of the seat portion of the sofa, and broken or inverted-L-shaped slots or grooves at or near the upper ends of said posts, of a back having at its lower opposite corners pivots projected into said slots or grooves, and at its upper opposite corners locking-pins which enter the inverted-L-shaped slots or grooves when the back is elevated, substantially as specified.

314,607. VARNISH. GEORGE REHM, Wilmington, Del. Filed May 12, 1884. (No specimens.)

Claim.—A varnish consisting of an oil composed of linseed-oil, red lead, litharge, burnt umber, and white lead, in combination with turpentine, amber, and gum-mastic, prepared substantially as set forth.

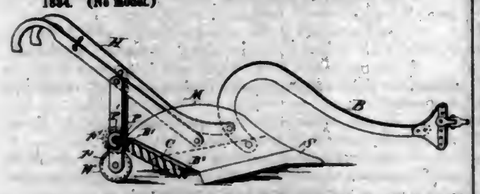
314,608. SASH-WEIGHT HOLDER. JEREMIAH RILEY, New York, N. Y. Filed Dec. 13, 1883. Renewed Dec. 20, 1884. (Model.)



Claim.—1. The improved sash-weight holder consisting of the angle-plate *a b* and eccentric or cam-shaped dog *c*, in combination, the dog pivoted to the plate *b* by an extension of its shaft from one side only and in relation to the part *a*, for clamping the cord against it, substantially as described.

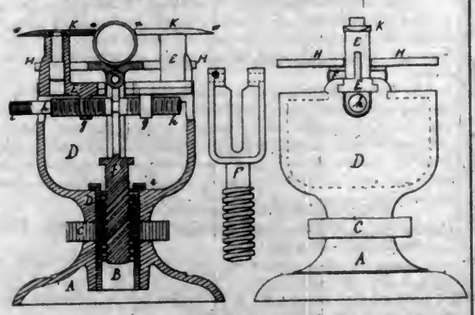
2. The improved sash-weight holder consisting of the angle-plate *a b* and eccentric or cam-shaped dog *c*, in combination, the dog pivoted to the plate *b* in the relation to part *b*, as set forth, by an extension of its shaft from one side only, and said shaft having a crank, *i*, substantially as described.

314,609. PLOW. JOHN C. F. SCHENCK, Moline, Ill. Filed Nov. 10, 1884. (No model.)



Claim.—The combination, substantially as described, with the mold-board M of a plow and a ground-wheel, of the pulverizer C, of equal diameter throughout its length, journaled in bearings B' B' on the lower edge of the heel or wing of the mold-board, and carrying a pinion and intermediate gearing for rotating the pulverizer from the ground-wheel, for the purposes specified.

314,610. ENGRAVER'S VISE. HUGO SCHMIDT, Chicago, Ill. Filed Oct. 8, 1884. (No model.)



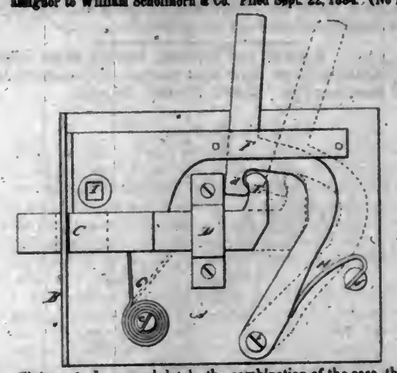
Claim.—1. The support F of an engraver's vise, provided with a vertical slot and a screw, as and for the purpose described.

2. The jaws E E of an engraver's vise, capable of horizontal adjustment, and provided with pivoted clamping-arms, in combination with the slotted table H, as and for the purpose described.

3. The jaws E E of an engraver's vise, provided with clamping-arms and capable of horizontal adjustment by means of a right-and-left screw, in combination with the table H, capable of vertical adjustment.

4. The right-and-left screw *h h* of an engraver's vise, in combination with the support F, provided with a slot for the purpose of allowing of vertical adjustment of this support.

314,611. COACH-LATCH. WILLIAM SCHOLLHORN, New Haven, Conn., assignor to William Schollhorn & Co. Filed Sept. 22, 1884. (No model.)



Claim.—1. In a coach-latch, the combination of the case, the pivot *a*, constructed as an integral part of said case and internally screw-threaded, the latch-bolt C, the lever F, hung upon said pivot and constructed to engage with the said bolt, and the headed screw *b*, introduced in the end of said pivot, the head of the screw taking a bearing upon the end of the pivot, of greater diameter than the pivot, and so as to extend over the pivot onto the surface of the lever, with a spring adapted to force the said bolt outward, substantially as described.

2. In a carriage-latch, the combination of the case, the bolt C, extending through the face-plate, its inner end supported in a bearing, D, and terminating in an arm, E, the lever F, extending through the upper edge of the case downward and hung upon a pivot, *a*, below said lever, also constructed with an arm, *d*, to engage the arm E of the bolt, the spring H, having one end secured in the slot of a fixed stud, *f*, formed as an integral part of the case, said spring arranged to bear upon the lever independent of the bolt, and a spring, G, arranged to act directly upon the bolt, substantially as described.

3. In a carriage-latch, the combination of the case, the bolt C, arranged through the face-plate of the case, its inner end supported in a bearing, D, and terminating in an arm, E, the lever F, extending through the upper edge of the case downward, hung upon a pivot, *a*, formed as an integral part of the case, said lever constructed with an arm, *d*, to engage the arm E of the bolt, the spring G, made from wire, one end arranged in a slot in a stud, *e*, made as an integral part of the case, the other engaged with the bolt, and a spring, H, arranged to bear upon the lever independent of the bolt, substantially as described.

314,612. BUTTON. SAMUEL C. SCOTT, Brooklyn, N. Y. Filed Aug. 1, 1884. (No model.)



Claim.—1. A button having a head, *a*, single-shank divided spring-post A, and two-part shoe B, said spring-post being of oval or analogous form in cross-section, the line of division of said shoe being at right angles to the longer axis of the oval post, substantially as set forth.

2. The shoe B, composed of contiguous members *e f*, having sockets *h*, combined with the two-part spring-post A, having projecting pins *g*, said parts of the shoe straddling said post, as described.

3. In a button, the combination, with the disk *i*, having central aperture, *j*, and slots *l l*, of two semi-tubular post-sections, each provided with a tongue, *n*, which is bent flat on the upper surface of the disk *i*, and has its end passed into a slot, *l*, substantially as described.

4. In a collar or sleeve button, the combination, with the disk *i*, having a central aperture, *j*, and slots *l l*, of the two semi-tubular post-sections having tongues *n*, that rest on the upper surface of the disk *i* and enter the slots *l*, and of the plate *p*, which is spun over the disk *i*, substantially as described.

314,613. SLEEVE-BUTTON. SAMUEL C. SCOTT, Brooklyn, N. Y. Filed Nov. 22, 1884. (No model.)

Claim.—1. The post E, constructed with the horizontal lip *e*, and combined with the rigid hinge-piece *f*, which rests on and is soldered to

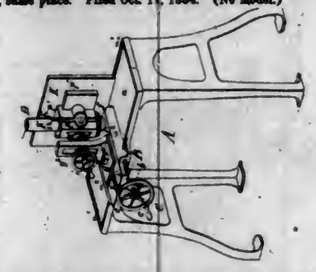
314,613.



said lip, and with the pin *g*, shoe F, and head D, substantially as herein shown and described.

2. A button constructed of the head D, plate *i*, sleeve *h*, two-part spring-post E, having lips *e*, hinge-pieces *f f*, pins *g*, and two-part shoe F, substantially as herein shown and described.

314,614. MACHINE FOR APPLYING BABBITT-METAL LININGS TO BEARING-BOXES. NOAH SHAW, Eau Claire, Wis., assignor to Addie M. Shaw, same place. Filed Oct. 17, 1884. (No model.)



Claim.—1. In a machine for applying Babbitt-metal linings to bearing-boxes, the combination of the half-boxes, the core, and the spacing-strips, substantially as and for the purpose described.

2. The combination, with a babbitting-machine table or platform provided with a gage-plate, E, of a centering and adjustable carriage-plate, B, provided with a core, F, substantially as and for the purpose described.

3. The combination, with a babbitting-machine table or platform having a gage-plate, E, and scale J, of a centering and adjustable carriage-plate, B, provided with a removable core, F, substantially as and for the purpose described.

4. In a machine for babbitting bearings, a table, A, comprising a rear gage and clamping plate, E, a carriage-plate, B, having a centering device for receiving a core, and a clamp-screw, I, substantially as and for the purpose described.

5. A core, F, provided with a porous or other suitable packing-washer, *f'*, in combination with an adjusting centering carriage-plate, B, and a platform or table, A, substantially as and for the purpose described.

6. The combination, with a babbitting-machine table or platform having a clamping-plate, E, and a centering-carriage, B, provided with a removable core, F, of a horizontally-adjustable plate, G, provided with a clamp-screw, I, and applied on carriage-plate B, substantially as described.

7. The combination, with the babbitting-machine table or platform having the clamping-plate E, and core-centering carriage B, carrying a removable core, F, of the horizontally-adjustable plate G, having a vertically-adjustable clamp-screw, I, substantially as and for the purpose described.

8. A babbitting-machine provided with laterally centering and dividing or parting plates K, a removable and horizontally-adjustable core, F, clamping-plate E, and a clamp-screw, I, substantially as described.

9. The indicating-scales J on a table or platform, A, having a gage-plate, E, with a horizontally-adjustable plate, B, having an indicator, *j*, and centering and carrying a removable core, F, substantially as described.

10. The indicating-scale on the plate E, in combination with the hooks *k*, applied on said plate, the plates K, the scales J of the table A, the indicator *j* of carriage B, and a series of removable cores, substantially as and for the purpose described.

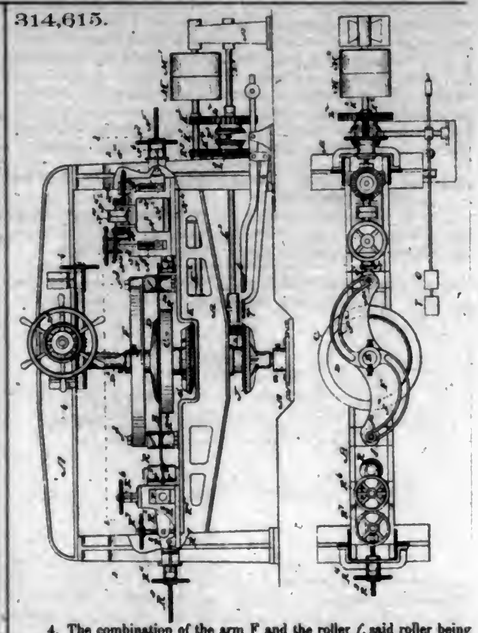
314,615. FLANGING-MACHINE. HENRY W. SHEPARD, St. Louis, Mo., assignor of one-half to Albert B. Bowman, same place. Filed Oct. 16, 1884. (No model.)

Claim.—1. The combination of the rotating table C and clamp D, the arm F, provided with the rollers *f f*, and the vertically-adjustable roller N, substantially as described.

2. The combination of the rotating table C and clamp D, the arm F, provided with the rollers *f f*, and the roller N, said roller being adapted to be moved upward and downward, and being upheld by a support adapted to be moved toward and from the sheet being flanged.

3. The combination of the frame A, the carriage N^7, the shaft N', the roller N, the boxes N^7 N^7, the screws N^9 N^9, the nuts N^9 N^9, the gears N^{11} N^{12}, the shaft N^{13}, the pulleys N^{14} N^{15} P, and the shaft K', substantially as described.

314,615.



4. The combination of the arm F and the roller *f*, said roller being attached to the inclined spindle *f''*, as and for the purpose described.

5. The combination of the stationary arm F, the roller *f*, the rotating table C, and clamp D, as and for the purpose described.

6. The combination of the stationary arm F, and roller *f*, the rotating table C, and clamp D, and the roller R, substantially as described.

7. The combination of the arm F, the roller *f*, the rotating table C, and clamp D, the frame A, and the roller R^{10}, substantially as described.

8. The combination of the frame A, the roller R^{10}, the table C, the clamp D, and the roller r^3, substantially as described.

9. The combination of the vertically-adjustable roller R, the table C, the clamp D, the arm F, and the roller *f*, substantially as described.

10. The combination of the rotating table C and clamp D, the stationary arm F and roller *f*, the roller N, and the roller R, substantially as described.

11. The combination of the frame A, the roller R, the arm R', and the frame R^2, substantially as described.

12. The combination of the frame A, the frame R^2, the roller R, the arm R', and the screws R^3, R^6, and R^7, as and for the purpose described.

314,616. BUTTON. THERON I. SMITH, North Attleborough, Mass. Filed Jan. 22, 1885. (No model.)



Claim.—1. The combination, in a button, of the plate *e*, having grooves or indentations *g* in its inner edge, the grooved under plate, *b*, having the openings therein, the arms *k k*, having pivots *l* with plain faces, and the springs beneath the said pivots, all substantially as described.

2. The combination, in a button, of a grooved under plate, *b*, having openings therein, a spring-plate above the same, and the independent arms *k k*, both movable and independent of each other, and provided with squared shanks *l* running at right angles to the arms and serving as pivots therefor, the said shanks being adapted to the groove in the under plate and to be held in position by the spring-plate above the same, as described.

314,617. WATER-CLOSET. WM. SMITH, San Francisco, Cal. Filed Feb. 21, 1883. (No model.)

Claim.—1. In a water-closet operating automatically, having a basin, R, and waste-pipe E, the combination, with the chambers A and X, connected by a passage, B', of the trapped pipe C', substantially as and for the purpose set forth and specified.

2. In a water-closet, the combination of the bowl R, having waste-pipe E, the chambers A X, one of which is provided with a plug, W, for closing the outlet of the waste-pipe, and the other with a floating ball, B, connected with a self-closing supply-cock that discharges into

314,617.



the bowl, the pipe B', and the trapped pipe C', having dome D', substantially as shown and described.

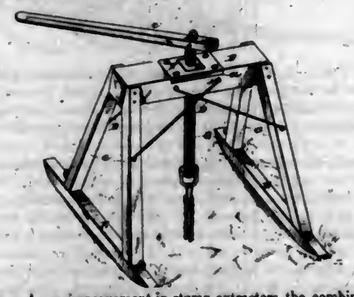
3. In a water-closet, the combination, with the bowl R, of the rose S, having a hollow head, T, provided with side openings, U U, connected by an under-cut slit, V, substantially as shown and described.

314,618. COPPER-COVERED WIRE. JAMES SPENCE, Waterbury, Conn., assignor to the Scovill Manufacturing Company, same place. Filed Mar. 22, 1884. (No model.)



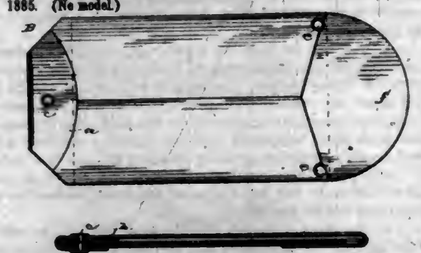
Claim.—The herein-described improvement in copper-covered wire, consisting of the core *a*, inclosed by a strip of copper in width substantially two or more times the circumference of the core, the covering depressed on the line where it overlaps the inner edge, and so as to form a shoulder against which the outer edge of the covering abuts, substantially as described.

314,619. STUMP-EXTRACTOR. GEORGE W. STANBAUGH, Troy, Ill. Filed Aug. 13, 1884. (No model.)



Claim.—As an improvement in stump-extractors, the combination, with the inclined standards C C', mounted on runners, of a beam, B, having an oblong recess, *a*, in its upper side, and an enlarged opening or passage extending from the recess through the beam, a plate, F, seated flush in the recess and held therein by suitable fastening means, a square recess in said plate, a feed-nut, *b*, seated in the square recess and having its lower side rounded off, a feed-screw, G, working in the threaded opening of the nut and extending through the enlarged passage of the beam, a chain attached to the lower end of the screw, and an operating arm or lever, C, keyed to the upper end of the same, as and for the purpose set forth.

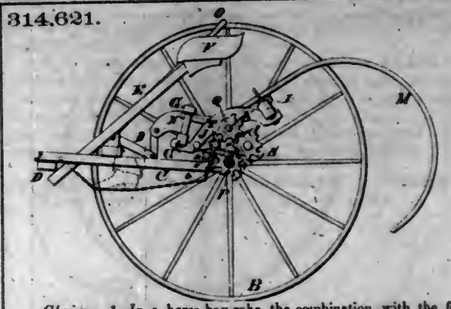
314,620. TAG. HARLEY M. STEVENS, Bismarck, Dak. Filed Jan. 21, 1885. (No model.)



Claim.—The herein-described improved envelope-tag, having a re-enforcing strip within the same at one end thereof and located transversely of the length of said tag, said re-enforcing strip and the tag having their corners cut off diagonally, an eyelet located in the re-enforcing strip and tag, and eyelets located at the other end of the tag and adapted to be closed by a flap, *f*, substantially as set forth.

314,621. HORSE HAY-RAKE. E. FOWLER STODDARD, Dayton, Ohio, assignor to J. W. Stoddard & Co., same place. Filed Dec. 14, 1883. (No model.)

314,621.



Claim.—1. In a horse hay-rake, the combination, with the forwardly and backwardly adjustable rake-teeth, the rake-head, and the carrying-wheels, of an oscillating non-rotating shaft upon which the teeth are pivoted, and by means of which the rake-head is journaled concentric with the pivotal axes of the teeth, and connecting mechanism whereby said shaft can be locked to the carrying-wheels at the will of the operator to cause the tilting of the rake-head and elevation of the teeth as the rake advances or turns.

2. In a horse hay-rake, the combination, with the forwardly and backwardly adjustable rake-teeth, the rake-head, and the carrying-wheels provided with pinions, of an oscillating non-rotating shaft upon which the teeth are pivoted, and by means of which the rake-head is journaled concentric with the pivotal axes of the teeth, said shaft being rigidly fastened at or near its middle to the rake-head and having pinions fastened upon its ends, intermediate pinions, and connecting mechanism whereby said intermediate pinions can be made to engage with the pinions upon the carrying-wheels, and thereby effect a lock between the rake-head and carrying-wheels at the will of the operator to cause the elevation of the teeth as the rake advances or turns.

3. In a horse hay-rake, the combination of a tilting rake-head, an oscillating non-rotating shaft upon which the teeth are pivoted, and by means of which the rake-head is journaled concentric with the pivotal axes of the teeth, the carrying-wheels provided with pinions revolving therewith, and connecting and locking mechanism arranged to apply the lifting strain at or near the middle of the rake-head.

4. In a horse hay-rake, the combination of a vibrating rake-head, an oscillating non-rotating shaft attached rigidly to said rake-head and upon which the teeth are pivoted, and by means of which the rake-head is journaled concentric with the pivotal axes of the teeth, gearing connecting said shaft and the carrying-wheels at the will of the operator, mechanism for bringing said gearing into action and forming a lock between the carrying-wheels and rake-head, and a stop which, when the rake-head has been sufficiently elevated, disengages the gearing to permit the rake-head to fall back into raking position.

5. In a horse hay-rake, the combination of the rake-teeth, a rocking rake-head to which said teeth are attached, an oscillating non-rotating shaft upon which the teeth are pivoted and to which the rake-head is rigidly secured, and by means of which the rake-head is journaled concentric with the pivotal axes of the teeth, pinions keyed upon the ends of said shaft, intermediate pinions upon pivoted arms, pinions continuously revolving with and attached to the carrying-wheels, a rock-shaft upon the axle having secured thereto lifting-arms adapted to engage with the intermediate pinion-arms, and a latch or detent for holding said rock-shaft locked to cause the engagement of all the pinions and effect a lock between the rake-head and carrying-wheels, and a stop upon the rake-head for breaking the lock between the latch and detent and disengaging the intermediate pinions from the carrying-wheel pinions, substantially as described.

6. In a horse hay-rake, the combination of the pinions P, the intermediate pinions, S, pinions Q, shaft K, the rake-head, the rock-shaft T, lifting-arms U, operating-arm *b*, detent *f*, and latch *g*, substantially as and for the purpose specified.

7. The combination of the rock-shaft T, provided with lifting-arms U, the operating-arm *b*, bolt *c*, spring *d*, latch *g*, and detent *f*, substantially as and for the purpose described.

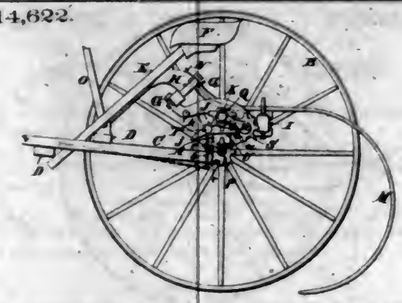
8. In a horse hay-rake such as described, the combination, with the lifting-arms U, having forward extensions, *j*, of the lugs *k* upon the rocking frame, substantially as and for the purpose described.

9. In a horse-rake such as described, the combination, with the rake-head and means for engaging it with the wheels, of the detent *f*, latch *g*, and a striking device, *i*, for releasing said detent, substantially as described.

314,622. HORSE HAY-RAKE. E. FOWLER STODDARD, Dayton, Ohio, assignor to J. W. Stoddard & Co., same place. Filed Dec. 14, 1883. (No model.)

Claim.—1. In a horse hay-rake, the combination of the rake-teeth attached to a rocking rake-head, the rocking rake-head having segmental

314,622.

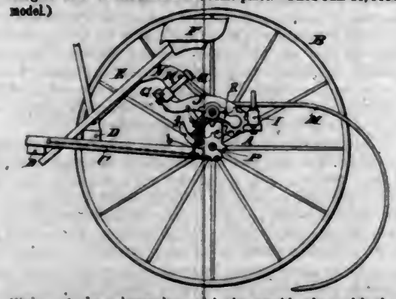


racks or pinions directly and rigidly secured thereto at its ends concentric with the axis of the rake-head, pivoted arms carrying intermediate pinions constantly meshing with the segmental racks, pinions revolving with the carrying-wheels, and mechanism which, at the will of the operator, causes the locking, by means of the racks and pinions, of the carrying-wheels to the rake-head to cause the tilting of the same and the elevation of the teeth as the machine advances or turns.

2. In a horse hay-rake, the combination of the rake-teeth attached to a rocking rake-head, the rocking rake-head having segment racks or pinions directly and rigidly secured thereto at its ends concentric with the axis of the rake-head, pivoted arms carrying intermediate pinions constantly meshing with the segment-racks, pinions revolving with the carrying-wheels, mechanism which, at the will of the operator, causes the locking, by means of the racks and pinions, of the carrying-wheels to the rake-head to cause the tilting of the same as the machine advances or turns, and mechanism which, when the teeth have been sufficiently elevated to discharge their load, disengages the pinions and racks and releases the rake-head from the carrying-wheels.

3. In a horse hay-rake such as described, the combination, with the outer arms of the rocking frame, of the segment-pinions Q, rigidly attached thereto, the arms R, intermediate pinions, S, constantly-revolving pinions P, and lifting-arms U, attached to the rock-shaft T, with means for rocking and locking said shaft, substantially in the manner and for the purpose specified.

314,623. HORSE HAY-RAKE. E. FOWLER STODDARD, Dayton, Ohio, assignor to J. W. Stoddard & Co., same place. Filed Jan. 11, 1884. (No model.)



Claim.—1. In a horse hay-rake, the combination, with the rake-teeth, the rake-head, and carrying-wheels, of an oscillating non-rotating locking-shaft upon which the teeth and rake-head are coincidently journaled, and connecting mechanism whereby said shaft can be oscillated to effect a lock between the rake-head and carrying-wheels at the will of the operator to cause the elevation of the teeth as the machine advances or turns.

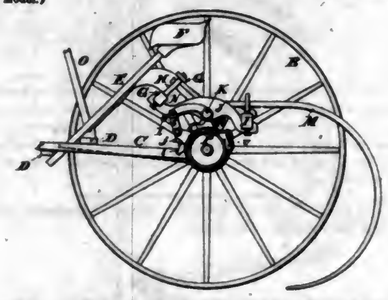
2. In a horse hay-rake, the combination, with the rake-teeth, the rake-head having segmental racks or pinions rigidly secured thereto, the carrying-wheels having pinions revolving therewith, intermediate pinions constantly meshing with the segmental racks, and an oscillating non-rotating locking-shaft upon which the rake-teeth and rake-head are coincidently journaled, and connecting mechanism, whereby upon oscillating said shaft the intermediate pinions are brought into engagement with the pinions upon the carrying-wheels to effect a lock between the carrying-wheels and the rake-head and cause the elevation of the teeth as the machine advances or turns.

3. In a horse hay-rake, the combination of the rocking rake-head carrying the rake-teeth and having segment racks or pinions rigidly secured thereto, pivoted arms carrying intermediate pinions constantly meshing with the segment-racks, pinions revolving with the carrying-wheels, an oscillating non-rotating shaft upon which the rake-teeth and rake-head are coincidently journaled, arms secured to the ends of said shaft for controlling the intermediate pinions, an arm also secured to said shaft for rocking it to permit the pinions to come into engagement, a locking device to hold said shaft in its rocked position, and a projection upon the rake-head to unlock said shaft and permit its return to effect the disengagement of the pinions when the rake-teeth have been sufficiently elevated.

4. In a horse hay-rake, the combination of the rocking rake-head having segment-pinions rigidly secured thereto, pinions revolving with the carrying-wheels, the rock-shaft K, upon which the rake-teeth and rake-head are coincidently journaled and provided with arms T and *b*, and the arms R, carrying intermediate pinions, S, substantially as and for the purpose described.

5. The combination, with the rock-shaft K, provided with arms T, of the loosely-hung pinion-carrying arms R, and set-screws *a*, for effecting the adjustment of the arms R, substantially in the manner and for the purpose specified.

314,624. HORSE HAY-RAKE. E. FOWLER STODDARD, Dayton, Ohio, assignor to J. W. Stoddard & Co., same place. Filed Jan. 11, 1884. (No model.)



Claim.—1. In a horse hay-rake, the combination, with the rake-teeth, the rake-head journaled upon the axle, and the carrying-wheels provided with ratchets revolving therewith, of pawl-carrying plates coincidently journaled with the carrying-wheels, and provided with pawls, and link mechanism uniting said pawl-carrying plates to the rake-head, whereby the engagement of the pawls and ratchets effects a lock between the carrying-wheels and rake-head, to cause the oscillation of the rake-head and the elevation of the teeth as the rake advances or turns.

2. In a horse hay-rake, the combination, with the rake-teeth, the rake-head journaled upon the axle, and the carrying-wheels provided with ratchets revolving therewith, of pawl-carrying plates coincidently journaled with the carrying-wheels, and provided with pawls, and link mechanism uniting said pawl-carrying plates to the rake-head at or near its middle, whereby the engagement of the pawls and ratchets effects a lock between the carrying-wheels and rake-head to cause the oscillation of the rake-head and elevation of the teeth as the rake advances or turns, and whereby the power of the carrying-wheels is exerted at or near the middle of the rake-head.

3. In a horse hay-rake, the combination, with the rake-teeth, the rake-head, and the carrying-wheels provided with ratchets revolving therewith, of pawl-carrying plates coincidently journaled with the carrying-wheels, and provided with spring-projected pawls, link mechanism uniting said pawl-carrying plates to the rake-head, arms for supporting said pawls out of engagement with the ratchets, and connecting mechanism, which, at the will of the operator, causes the depression of the supporting-arms and the consequent engagement of the pawls with the ratchets to effect a lock between the carrying-wheels and the rake-head, for the purpose described.

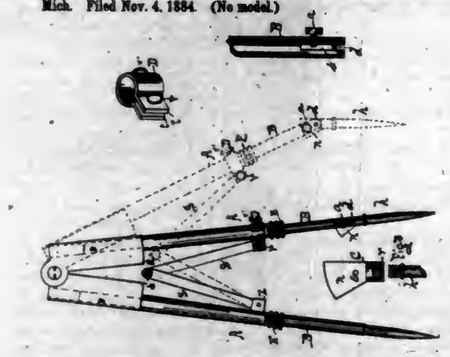
4. In a horse hay-rake, the combination, with the rake-teeth, the rake-head, and the carrying-wheels provided with ratchets revolving therewith, of pawl-carrying plates coincidently journaled with the carrying-wheels, and provided with spring-projected pawls, link mechanism uniting said pawl-carrying plates to the rake-head, arms for supporting said pawls out of engagement with the ratchets, a rock-shaft carrying said supporting-arms, and means for oscillating said rock-shaft at the will of the operator to depress the supporting-arms and permit the engagement of the pawls with the ratchets, to effect a lock between the carrying-wheels and the rake-head.

5. In a horse hay-rake, the combination, with the rake-teeth, the rake-head, and the carrying-wheels provided with ratchets revolving therewith, of pawl-carrying plates coincidently journaled with the carrying-wheels, and provided with spring-projected pawls, link mechanism uniting said pawl-carrying plates to the rake-head, arms for supporting said pawls out of engagement with the ratchets, a rock-shaft carrying said supporting-arms, means for oscillating said rock-shaft at the will of the operator to depress the supporting-arms and permit the engagement of the pawls with the ratchets to effect a lock between the carrying-wheels and the rake-head, a latch and arm for locking said supporting-arms in a depressed position, and a projection upon the rake-head for releasing the latch and arm, and causing the re-engagement of the supporting-arms and pawls to disengage the latter from the ratchets when the rake-teeth have been sufficiently elevated to discharge their load.

6. In a horse hay-rake substantially such as described, the combination, with the ratchets revolving with the carrying-wheels, of combined pawl-carrying plates, and shields encompassing said ratchets, and having contained therein pivoted pawls adapted to engage with the ratchets, and link mechanism uniting said pawl-carrying plates to the rake-head, substantially as and for the purpose specified.

7. The combination, with the ratchets P, pawl-carrying plates Q, and pawls U, provided with lateral studs *b*, of the arms W, having cam or inclined surfaces *m*, and link mechanism uniting the pawl-carrying plates to the rake-head, substantially as and for the purpose specified.

314,625. CALIPERS AND DIVIDERS. OSCAR STODDARD, Detroit, Mich. Filed Nov. 4, 1884. (No model.)



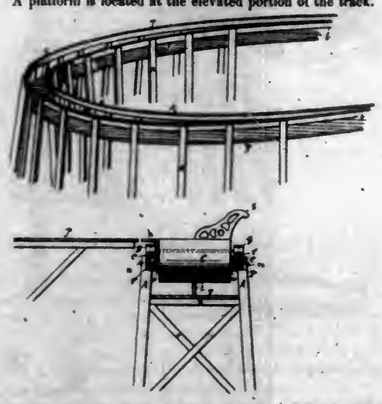
Claim.—1. In combination with the legs of a compass, the adjusting-arms pivotally attached to said legs by means of the metal yokes D, having arms *t t*, and set-screws, as specified, said adjusting-arms secured at their upper end by a set-screw, as and for the purposes specified.

2. In combination with the hollow legs A A of a compass, the adjusting-arms pivoted thereto, said arms united and adjustably held by the set-screw *g*, the extension-legs B B, adjustably secured within the hollow legs, and the pivoted arm C, having the internally-screw-threaded portion *r*, adapted to receive a pencil or point, *k*, when constructed substantially as set forth.

3. In combination with the leg of a compass having the recess *s*, the arm C, provided with the web *n*, pivotally attached within said recess, and adjustably held by the set-screw *a*, said arm provided with the internally-screw-threaded portion *r*, for holding a point or pencil, as and for the purposes specified.

314,626. ROLLER COASTING DEVICE. SYLVESTER S. STODDARD and ORA TERWILLIGER, Detroit, Mich. Filed June 2, 1884. (No model.)

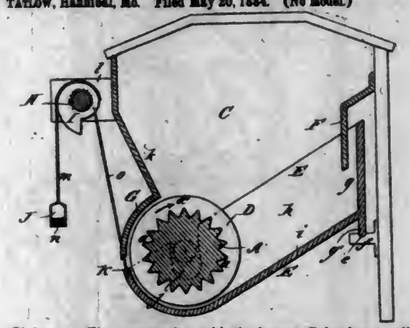
Brief.—A carriage provided with rollers bearing on the top of the circular inclined track, and friction-rollers bearing on the inside of the same, and having its bottom extended down between the rails of the track, and provided with a guard or step on one side and a seat on the other. A platform is located at the elevated portion of the track.



Claim.—1. In a roller coasting device, the combination of a continuous circular track having a portion elevated, as set forth, said track mounted upon the upper end of the trestles A, and a circular floor located below the track, of a car mounted upon said track, and with the body of the car between and the bottom below the rails *b c* of said track, said car having a seat, S, and guard A, and of a platform, P, for the purposes set forth.

2. In a roller coasting device, the combination of a continuous circular track, elevated as set forth, said track mounted upon the upper ends of the posts A, of a car mounted upon said track having transporting-wheels B and friction-rollers *a*, said rollers *a* bearing against the inner vertical edge of the rails *b c*, the bottom of said car located below said rails, and of a platform, P, as and for the purposes set forth.

314,627. FEED-REGULATOR FOR ROLLER-MILLS. FORRESTER M. TAYLOW, Hannibal, Mo. Filed May 20, 1884. (No model.)



Claim.—1. The combination, with the hopper C, having an adjustable bottom, of the shaft H, carrying the eccentric block I, the weight J, the connections *o m*, and the longitudinally-grooved roller A, journaled in the sides of the hopper, substantially as shown and described.

2. The combination, with the hopper C and the roller A, journaled therein, of the hinged shoe E, the eccentric block I, the straps *m o*, the weight J, and the cant-board F, substantially as herein shown and described.

3. The combination, with the hopper C, shoe E, and longitudinally-grooved roller A, of the shaft H, journaled at the front side of said hopper, the eccentric block I upon the shaft H, the weight J, having means for adjusting its weight, and the straps *m* and *o*, substantially as shown and described, and for the purpose set forth.

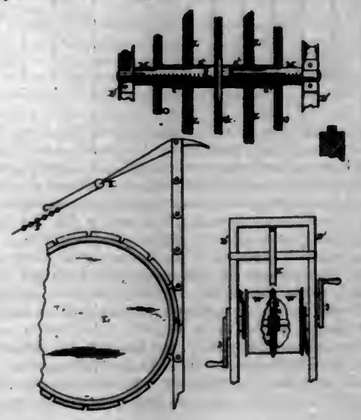
4. The combination, with the hopper C, provided with the brackets *f*, the cant-board F, and the curved front board, G, of the shoe E, slotted at *j*, the shaft H, eccentric block I, the straps *m o*, the weight J, and the roller A, journaled in the hopper, substantially as herein shown and described.

314,628. FIRE-ESCAPE. DAVID S. THOMAS, North Platte, Nebr. Filed Feb. 3, 1883. Renewed Mar. 3, 1885. (No model.)

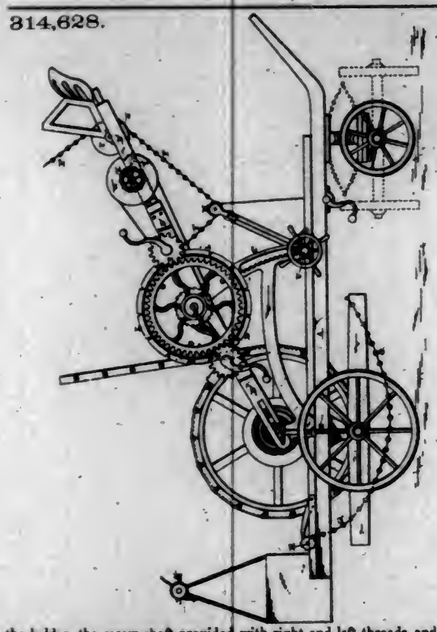
Brief.—A jointed tapering ladder elevated by toothed wheels connected to sleeves mounted on a right-and-left-screw-threaded shaft, and which toothed wheels catch under the rounds of the ladder. Gear-wheels on the ends of the sleeves mesh with the operating gear-wheels.

Claim.—1. In a fire-escape, the combination of the reel upon which the ladder is wound, the jointed tapering ladder, toothed elevating-wheels L, which catch over the rounds of the ladder, the pinions P, spur-wheels O, and the screw-shaft upon which the wheels O L are placed, and the connecting-sleeves, substantially as shown.

2. In a fire-escape, the combination of the reel upon which the ladder is wound, the jointed tapering ladder, the spur-wheels O and operating-pinions P, the elevating-wheels L, which catch over the rounds of



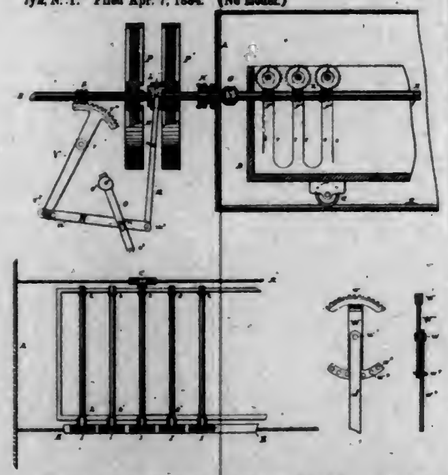
314,628.



the ladder, the screw-shaft provided with right and left threads, and the sleeves c^2, substantially as shown.

3. In a fire-escape, the combination of the reel, the ladder, and the chain F, with the two reels W W, and their ratchets and pawls, and the ropes which extend therefrom, substantially as specified.

314,629. STEAM-BOX FOR FIXING DYES. WILLIAM THOMAS, Brooklyn, N. Y. Filed Apr. 7, 1884. (No model.)

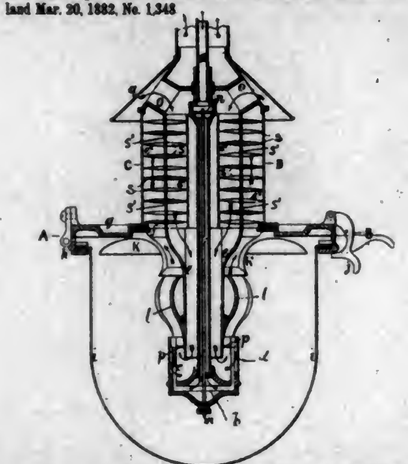


Claim.—1. In an apparatus for steaming dyed fabrics, and using a carriage capable of running in and out of a boiler or steam-tight inclosure, the said carriage being provided with cloth-sticks suitably geared to a shaft attached to the carriage and automatically connected to a shaft outside of the boiler, the combination of the palleys running loose on the said shaft, a double clutch prevented from rotating with the shaft by means of a feather, but capable of sliding longitudinally thereon, a pin working in a circumferential groove in said clutch, a toothed arc or sector gearing with a worm on the palley-shaft and pivoted to the frame of the machine, and suitable levers and counter-weight to connect the toothed arc with the pin and clutch before mentioned, all substantially as and for the purpose specified.

2. In an apparatus for steaming dyed fabrics, the combination of a boiler, carriage, cloth-sticks geared to a longitudinal shaft, automatic coupling, exterior shaft, loose palleys driven in opposite directions, sliding double clutch, worm or screw-thread on shaft, pivoted toothed arc gearing with worm on shaft, and system of levers connecting toothed arc with clutch, substantially as shown and described.

3. In an apparatus for steaming dyed fabrics, the combination of the carriage B, boiler A, cloth-sticks K, gear-wheel I, shaft E, coupling G, loose palleys P P', clutch L, worm S, toothed pivoted arc V, levers M, O, and N, and counter-weight o^2, all arranged substantially as shown and described.

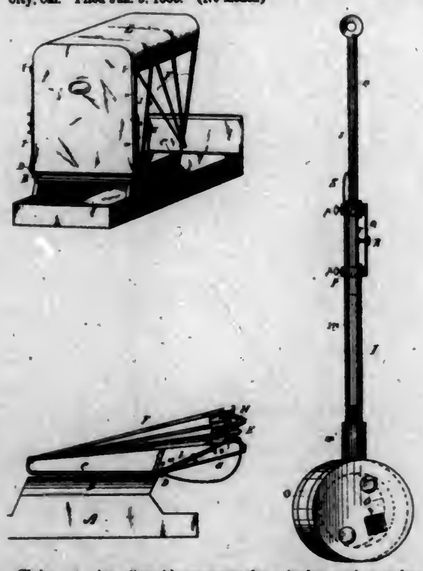
314,630. GAS-BURNER. THOMAS THORP, Whitefield, County of Lancaster, England. Filed Feb. 6, 1884. (No model.) Patented in England Mar. 20, 1882, No. 1,343.



Claim.—1. In an apparatus for gas-lighting, the combination of the chamber a' and tube a with the gas-supply pipe a, chamber b, ring of upright tubes c, perforated plate p, and chamber c^2, all substantially as herein shown and described, for the purposes specified.

2. The combination of an annular burner with a deflector surrounding the same, an annular deflector arranged above the same and within the flame, and a curved conical deflector arranged above the flame, the first deflector preventing the flame from spreading too soon, and the second deflector causing it to spread into the desired shape within the globe, substantially as set forth.

314,631. SUPPORT FOR CARRIAGE-TOPS. ISAAC L. UMSTEAD, Lone City, Cal. Filed Jan. 5, 1885. (No model.)



Claim.—1. An adjustable supporter for swinging carriage or buggy tops, consisting of an extensible rod, bar, or brace—one on each side near the back—pivoted at its lower end to the arm of the shifting-rail or other suitable portion of the body and pivoted at its upper end to the bow of the top, substantially as herein described.

2. In combination with the swinging top of a carriage or buggy having bows jointed to the front of the shifting-rail, an extensible rod, bar, or brace—one on each side—pivoted at its lower end to the arm at the back of the shifting-rail and at its upper end to the top of the rear bow, whereby said rod, bar, or brace is adapted to support the top when thrown back, substantially as herein described.

3. The supporter for swinging carriage or buggy tops, consisting of the telescopic rods I, pivoted below on the arms of the shifting-rail and above to the rear bows of the top, substantially as and for the purpose herein described.

4. In combination with a swinging carriage or buggy top and the shifting-rail C, to which its bows are jointed, said rail having arms D at the rear, the telescopic rods or braces I, consisting of the tubes m, having an eye by which their lower ends are pivoted on the arm D, and the spindles n, sliding in the tubes and pivoted to the rear bows of the top, substantially as herein described.

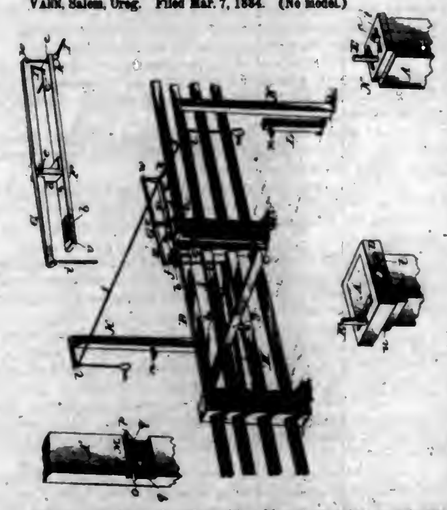
5. In combination with the swinging carriage or buggy top, the telescopic rods or braces I, formed of the tubular base m', having eye o, by which it is pivoted on the arm of the shifting-rail, the tubular center m, screwed to the base, and the spindle n, sliding in the tubular base and center and pivoted to the top of the rear bows, substantially as and for the purpose herein described.

6. The swinging top E of a carriage or buggy, shifting-rail C, having arms D at its rear, and the eccentric disks J on said arms, in combination with the extensible or telescopic rods or braces I, pivoted below on the eccentric and above to the rear bows of the top, substantially as herein described.

7. In combination with the swinging carriage or buggy top, the telescopic rods or braces I, pivoted below on the arms of the shifting-rail and above to the rear bows of the top, and the means by which the rattling of said rods is avoided, consisting of the collars P on the outer section of the rods, the bar Q between the collars, and the cushioned screw R, passing through the bar and through slot in the outer section and bearing against the inner section, substantially as herein described.

8. In combination with swinging carriage or buggy top E, the telescopic rods or braces I, pivoted below on the arm of the shifting-rail and above on the rear bows of the top, and the means by which the rods are made to act as supports for the top when raised, consisting of the spring or pawl s on the outer section and the notches or teeth s' on the inner section, substantially as herein described.

314,632. ATTACHMENT FOR OPERATING GATES. WILLIAM T. VANN, Salem, Oreg. Filed Mar. 7, 1884. (No model.)



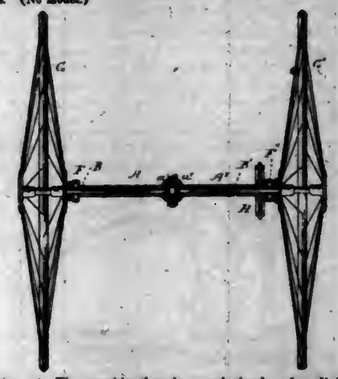
Claim.—1. In combination with a hinged or swinging gate provided with an upright stud or pin and with a pivoted latch-bar, a horizontally-movable lever slotted to embrace the stud, and mounted upon a pivot on the gate-post, a vertically-movable lever pivoted in a support rising from the horizontally-movable lever, having its forward end connected with the latch-bar, and cords or chains extending from the rear end of the vertically-movable lever downward through eyes at the rear end of the horizontally-movable lever, and thence in opposite directions from the gate, substantially as described and shown.

2. In combination with post A, and gate B, provided with stud f and latch-bar H, horizontally-movable lever F, vertically-movable lever G, and cords I, all constructed and arranged substantially as shown.

3. In combination with post A, and gate B, provided with latch H and stud f, horizontally-movable lever F, pivoted upon post A, and provided with eyes at its rear end, vertically-movable lever G, connected with latch-bar H and pivoted in a support rising from lever F, and cords I I, provided with buttons k, and passing loosely through levers F and G, substantially as and for the purpose set forth.

4. In combination with post A and gate B, operating-lever F and a cap or band, D, adjustably secured to post A, substantially as shown and described, and provided with stud or pin E.

314,633. VELOCIPEDE. ALBERT E. WALLACE, Hartford, Conn., assignor to the Pope Manufacturing Company, same place. Filed Apr. 9, 1884. (No model.)



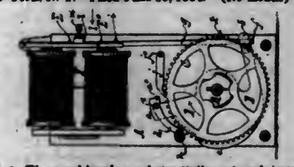
Claim.—1. The combination, in a velocipede, of a divided inner axle and a tubular outer axle or sleeve with a driving-wheel fixed thereon, and a differential gear of three or more toothed wheels, one of which is fixed on either of the parts of the divided axle and one on a pinion in an enlargement of the tubular axle inclosing said gear.

2. The combination, in a velocipede, of the following parts, namely: two main wheels on axles in the same axial line, two toothed wheels fixed one on each of the approximate ends of said axles, a sleeve on said axles offering one or more bearings for each and in which either of them is free to revolve, a chain-wheel or its equivalent fixed upon said sleeve, and a third toothed wheel pinioned in said sleeve or some part fixed thereon and meshing with the other two toothed wheels, all constructed and adapted to operate as a balance or power or speed distributing mechanism, essentially as set forth.

3. Axles B B', a transverse shaft between them, bevel-gears C C' D, sleeve a a' A', and power-wheel H, constructed and combined to operate in a velocipede as a differential mechanism, essentially as set forth.

4. In an epicyclic balance-gear of the class described, the transverse block-shaft e e', constructed and adapted to operate in combination with other parts of the mechanism, substantially as shown and described.

314,634. SECONDARY ELECTRIC CLOCK. WILLIAM F. WHEELER, New York, N. Y. Filed June 19, 1884. (No model.)



Claim.—1. The combination, substantially as hereinbefore described, of the electro-magnet, the armature, the cog-wheel mounted on or geared together with the center arbor of a clock, the gravitating or weighted lever mounted loosely upon the center arbor and exposed to the action of the armature, the propelling-pawl mounted on the gravitating lever and gearing into the cog-wheel, and the independent stop-pawl.

2. The combination, substantially as hereinbefore described, of the electro-magnet, the armature, the cog-wheel mounted on or geared together with the center arbor of a clock, the gravitating or weighted lever which is exposed to the action of the armature, the propelling-pawl mounted on the gravitating lever, the locking-stud h, and the independent stop-pawl.

3. The combination, substantially as hereinbefore described, of the electro-magnet, the armature, the cog-wheel mounted on or geared together with the center arbor of a clock, the gravitating or weighted lever which is exposed to the action of the armature, the propelling-pawl mounted on the gravitating lever, the locking-stud h, the independent stop-pawl, and the lip a^3, for locking this stop-pawl during the time the propelling-pawl is released by its locking-stud.

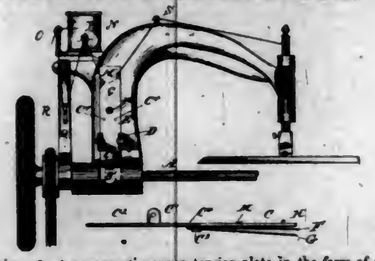
4. The combination, substantially as hereinbefore described, of the electro-magnet, the armature, the arm g, extending from this armature, the cog-wheel C, mounted on or geared together with the center arbor

of a clock, the gravitating or weighted lever D, mounted loosely upon the center arbor, the stud *f*, secured on this lever and bearing against the arm *g* of the armature, the propelling-pawl *d*, pivoted to the lever D and gearing into the cog-wheel C, the independent stop-pawl *j*, the stud *h*, for locking the propelling-pawl, and the lip a^9, formed on the lever D, for locking the stop-pawl.

5. The combination, substantially as hereinbefore described, of the electro-magnet, the armature, the arm *g*, extending from said armature, the cog-wheel C, mounted on or geared together with the center arbor of a clock, the gravitating or weighted lever which is exposed to the action of the arm *g*, the stop-pawl *k*, secured to this arm, the propelling-pawl mounted on the gravitating lever, and the locking-stud *h*.

6. The combination, with the cog-wheel mounted on or geared together with the center arbor of a clock and with the propelling-pawl which is in gear with the cog-wheel, of an electro-magnet and an armature divided in two sections, E^9 E, one of which acts upon the propelling-pawl, substantially as and for the purpose shown and described.

314,635. AUTOMATIC TENSION FOR SEWING-MACHINES. RUEL W. WHITNEY, New York, N. Y. Filed June 4, 1884. (No model.)



Claim.—1. An automatic upper tension-plate in the form of a lever attached pivotally and about centrally to a fixed part of the arm of the machine, extended in one direction to and in contact with a moving part of the machine, and having an opposite extension, to which is rigidly secured a tension-spring and an adjusting-plate, in combination with means for varying the pressure of the adjusting-plate upon the tension-spring, substantially as specified.

2. The combination, with a shaft, A, an eccentric-arm, B, mounted thereon, of a pivoted tension-plate, C, having an extension, C^2, and having a spring-tension plate, F, and adjusting-plate G connected thereto, and screw J, substantially as shown and described.

3. The combination of the plate C, having the bearing C′ and extension C^2, with the spring-tension plate F, and the adjusting-screw M, mounted in the plate C and bearing upon the plate F, and means for actuating the plate C, substantially as shown and described.

4. The combination of the arm E, the bearings D, the plate C, having the bearings C′, screw M, and the extension C^2, the spring-tension plate F, the adjusting-plate G, and screw J, and means for actuating the plate C, substantially as shown and described.

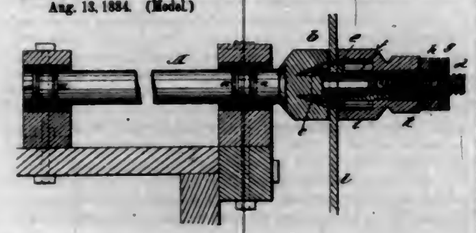
5. The combination, with the thread-guides O P, arranged above the eccentric-rod, with the pull-off R, mounted upon the eccentric-rod Q, and between the guides, substantially as shown and described.

6. The combination of the fixed arm of the machine, provided with the tension-plates C and F, and with a guide-book, S, at one side of the tension-plates, spool-supporting bracket N, having the thread-guides O P, arranged at the other side of the tension-plates, and the pull-off R, mounted upon the eccentric-rod Q, below the thread-guides O P, substantially as shown and described.

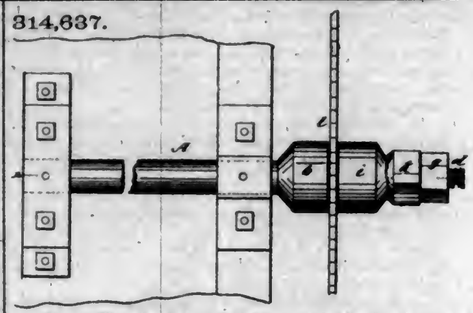
314,636. COMPOSITION SLATING FOR BLACKBOARDS, &c. WM. P. WEBB, Bristol, Ind., assignor of two-thirds to Christian N. Kautz and Lyman B. Langworthy, same place. Filed Apr. 10, 1884. (No specimens.)

Claim.—The herein-described slating compound, composed of alcohol, shellac, bone-black, drab, charcoal, emery-flour, pumice-flour, benzine, and caoutchouc, substantially as described, and for the purpose set forth.

314,637. SAW-ARBOR. RYMAN D. WOLCOTT, Wright's, Pa. Filed Aug. 13, 1884. (Model.)



314,637.



Claim.—The arbor A, formed with a recessed collar, *b*, and a screw-threaded spindle, *d*, extending from said collar, the sleeve *f*, screw-threaded internally and externally, and formed with a cone, *e*, at its forward end, the recessed collar *i*, extending over cone *e* and formed with a nut, *k*, fitting on the exterior of sleeve *f*, and the nut *g* on the outer end of sleeve *f*, substantially as set forth.

314,638. COVER FOR OIL-CUPS. JOHN E. ZIMMERMAN, Springfield, Ohio, assignor to the Springfield Brass Company, same place. Filed Dec. 22, 1884. (No model.)



Claim.—1. The combination, with the oil-cup provided with a threaded opening, of the cap or cover having a threaded portion to fit the opening, and a hexagonal face or projection to receive a wrench in turning the cap into place, as set forth.

2. The combination, with the oil-cup provided with a threaded opening, of the cap or cover having a threaded portion to screw into the opening, a hexagonal face or projection to receive a wrench in turning the cap into its place, and an annular flange between the threaded portion and the face or projection, as and for the purpose set forth.

3. The herein-described oil-cup cover having a spring-pressed valve which will open by pressing inward to allow the free passage of oil and then automatically close outward to exclude the admission of foreign matter, as set forth.

4. An oil-cup cover or cap made hollow and having an opening at the upper and lower ends and a vertically-movable automatic valve to open or close said openings, as set forth.

5. An oil-cup cap or cover made hollow and having an opening at the upper and lower ends, ribs or guides extending along the interior walls of the cap, and a vertically-movable valve, arranged and operating as set forth.

6. An oil-cup cover or cap made hollow and having an opening at each end fitting normally flush with the opening, a valve-stem moving therein, a valve at one end of the stem for closing one of the openings, and a disk at the other end, as set forth.

7. An oil-cup cover or cap made hollow and having an opening at each end, a valve-stem moving therein and having its walls concaved or hollowed out, a valve at one end of the stem having its sides cut away, as described, and a disk at the opposite end, as set forth.

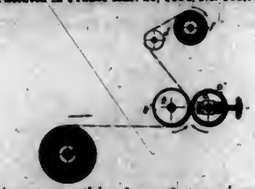
8. An oil-cup cover or cap having an opening at each end, a valve-stem moving therein, a valve at one end of the stem, a disk at the opposite end, and a spring bearing against the disk and the end of the cap or cover, as set forth.

9. An oil-cup cover or cap made hollow and having an opening at each end, ribs or guides extending along the interior walls of the said cap and forming spaces between each rib, a valve-stem moving in the cap, a valve at one end of the stem, a disk at the other end, and recesses formed in the sides of the valve-stem, the sides of the valve being cut away to correspond with the recesses, as set forth.

10. An oil-cup cover or cap made hollow and having an opening at each end, ribs or guides extending along the interior walls of the said cap, a valve-stem provided with a valve at one end and a disk at the other, a spring bearing against the disk and one end of the cap or cover, and an annular flange, around which the lower end of the spring fits, as set forth.

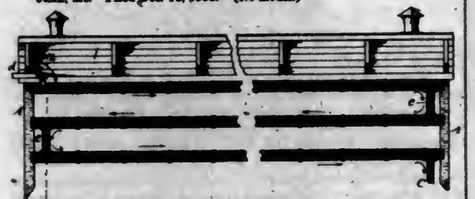
11. An oil-cup cover having a spring-pressed valve-stem moving therein and a disk at one end of the stem arranged to close the exit-opening and to rest flush with the cover in its normal position, as set forth.

314,639. MANUFACTURE OF RETICULATED PAPER FOR CIGARETTES. ERNEST ARADER, Paris, France. Filed Jan. 8, 1885. (No model.) Patented in France Mar. 20, 1884, No. 161,073.



Claim.—As a new article of manufacture, cigarette-paper having reticulated central body and plain margins *g′ g′* at two opposite sides, as specified.

314,640. DRIER FOR PAPER-BOARD. EMERY ANDREWS, Kennebunk, Me. Filed Dec. 15, 1883. (No model.)



Claim.—1. In combination with one or more plates, *b b*, supported in a suitable frame, A A, the rack C, provided with the blocks *i i*, and the tapered blocks *m m*, attached to suitable guide-pieces *g g*, arranged and to operate substantially as set forth.

2. In combination with one or more plates, *b b*, supported in a frame, A A, the rack C, provided with the blocks *i i*, and the guide-pieces *g g* with ledges *h h*, and tapered blocks *m m*, arranged and to operate substantially as described and shown.

3. In combination with one or more plates, *b b*, supported in a suitable frame, A A, the rack C, provided with the blocks *i i*, the inclined blocks *m m*, supported on the guide-rails *g g* and so arranged that the blocks *i i* shall slide beneath them and thus depress the rear of the rack C, and the wedges *p p*, for holding down the front of the rack, substantially as specified.

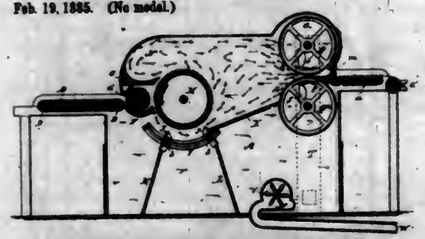
314,641. BOX-FASTENER. EMERY ANDREWS, Kennebunk, Me., assignor to the Leatheroid Manufacturing Company, same place. Filed Nov. 3, 1884. (No model.)



Claim.—1. In a trunk-fastener, the hasp-plate A, the hasp C, pivoted thereto, and carrying a locking-latch, D, in combination with the plate B, adapted to engage the loose end of the hasp C, and having a projection, *h*, to co-operate with said latch to hold the hasp in position, substantially as herein specified.

2. The combination of the hasp-plate A, the hasp C, the spring *b*, the latch D, the spring *f*, adapted to hold the same in position, the plate B, having a recess adapted to engage the loose end of said hasp, and a projection, *h*, to engage the latch D, arranged and to operate substantially as shown and described.

314,642. MACHINE FOR DISINTEGRATING FIBER PREPARATORY TO BEING FELTED. WILLIAM S. ARCHER, New York, N. Y. Filed Feb. 19, 1885. (No model.)



Claim.—1. In a machine for disintegrating fiber, the feed, separator, stop, cylinders for gathering the separated stock, and a roller for receiving the stock from the cylinders, substantially as set forth.

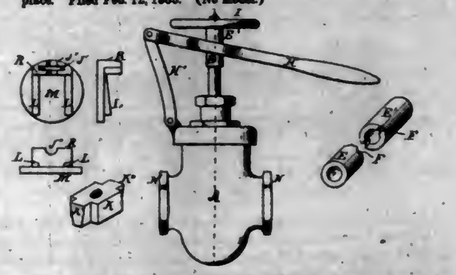
2. In a machine for disintegrating fiber, the feed, separator, stop, and cylinders for gathering and delivering the separated stock, substantially as set forth.

3. In a machine for disintegrating fiber, the feed, separator, stop, perforated cylinders, suction, and roller for receiving the separated stock, substantially as set forth.

4. In a machine for disintegrating fiber, &c., the feed, separator-roller, perforated cylinders, suction, and roller for receiving the separated stock, substantially as set forth.

5. In a machine for disintegrating fiber, the feed, separator-roller, stop, perforated cylinders, and suction-blower, substantially as set forth.

314,643. PAPER-PULP-DIGESTER VALVE. THEOPHILUS ATCHESON, Philadelphia, Pa., assignor of one-fourth to George E. Buckley, same place. Filed Feb. 12, 1885. (No model.)



Claim.—1. In a straight-way gate-valve, the combination of the shell A, revolving stem D, screw-threaded at its lower extremity, valve-disks M M′, wedges K′ K″, incline faces L L′, and lift J, whereby the valve-faces can be raised or lowered to any point of the interior of the valve-cylinder by sliding the stem upward and downward and locked thereat by turning said stem, substantially as described.

2. In a straight-way gate-valve, the combination of the shell A, stem D, so adapted as to be capable of being revolved as well as of being shifted upward and downward therein independently of its revolving motion, lift J, attached to said stem, and wedge-block K, operated by the turning of said stem D to jam against the back of valve-disk M and lock the latter at any point of opening of the valve, whereby the valve-disk M′ can be raised or lowered by the stem D to any desired point in the interior of the valve-cylinder and locked thereat by turning the stem, substantially as described.

3. In a straight-way gate-valve, the combination of the stem D, adapted to be revolved to lock or unlock the valve, and also to be moved upward and downward to any point to open and close the same independently of the locking mechanism, lift J, engaging with the back of the disk-valve M′, wedge-block K, with its wedge K′, said block engaging by a female screw-threaded hole with the lower screw-threaded end of stem D, and inclines L′ upon the back of said disk, adapted to engage with the wedge K′, all combined and operating substantially as and for the purposes described.

4. In a straight-way gate-valve, the combination of the shell A, stem D, having two independent motions—viz., a vertical sliding motion to open and close the valve, and a revolving movement independent of the former motion to lock the valve-disks fixedly against vibration at any point of opening—and a wedge-block upon stem D, adapted by the turning of this stem to jam against the back of valve-disk M′, substantially as and for the purposes described, whereby the valve-disk can be shifted to any point of the interior without looking, and can there be locked firmly at will, substantially as described.

5. In a straight-way gate-valve, the combination of shell A, cap B, valve-disk M′, to open and close the valve-opening, stem D, to raise and lower said disk, sectional sleeve E E′, provided with notches F F and set upon said stem outside the valve-shell A, and lever-arm H, suitably hinged or jointed to said shell, provided with a collar to embrace said sleeve, with inner spuds, G G, to engage in said notches, all held down by a screw-nut or other suitable device, whereby the stem can be raised and lowered by the lever, and the parts can be easily and quickly removed, substantially as described.

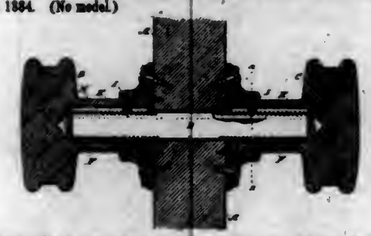
6. In a straight-way gate-valve, the combination of valve-shell A, cap B, valve-disk M′, to open and close the valve-opening, stem D, to raise and lower said disk, a loose sleeve or collar clasping said stem outside the valve-shell, provided with suitable mechanism to raise and lower the stem, and hand mechanism I, to turn the stem in said sleeve, said mechanism I and said sleeve being held down upon said stem by a screw-nut or other well-known mechanical means, whereby the stem can be turned independently of upward and downward motion, and can be raised and lowered without turning the same to effect the vertical movement, substantially as described.

7. In a straight-way gate-valve, the combination of valve-shell A, cap B, valve-disk M′, to open and close the valve-opening, stem D, to raise and lower said disk, and hand mechanism I, attached to and adapted to turn said stem, said stem being adapted to be turned without vertical

movement, and to be raised and lowered by mechanism located above cap B and attached to said stem, without requiring to be turned to effect said vertical movement, substantially as and for the purposes described.

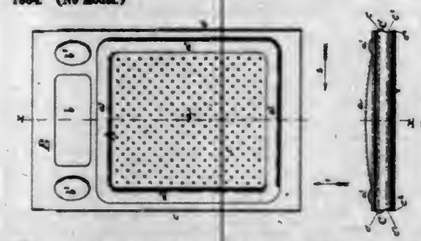
8. In a straight-way gate-valve, the combination of valve-shell A, cap B, valve-disk M', stem D, screw-threaded at D', to raise and lower said disk, block K, plate R', attached to the back of said disk and clasping said stem D over said block, and stop J on said stem, engaging in a notch in said plate R', whereby as the block K is raised by a turn of the stem D it holds the plate R' firmly by jamming it upward against the stop J, and the disk is securely held against vibration while being shifted, substantially as described.

314,644. DOOR-KNOB. JOSEPH HARDSLEY, Newark, N. J. Filed Dec. 29, 1884. (No model.)



Claim.—In the manufacture of door-knobs, the method of lining the knob-shank with metal, which comprises the following steps: giving the metal tube a longitudinal rib, inserting it into the knob-shank, and threading it to receive the knob-spindle, substantially as set forth.

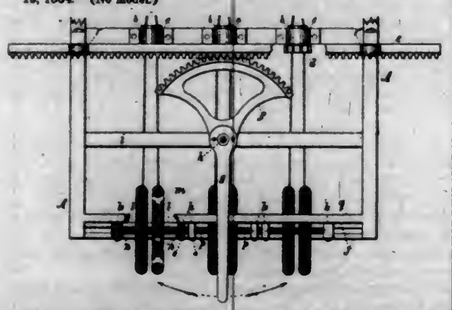
314,645. GRATER. DAVID BLACK, New York, N. Y. Filed Oct. 23, 1884. (No model.)



Claim.—1. A grater consisting of the body A, having an abrasive surface, *a*, the opposite side flanges, C, at about right angles to the said body, and the coiled handle B, secured with its ends to the said flanges.

2. A grater in a single piece, consisting of the body A, having an abrasive surface, *a*, side flanges, C, bent at an angle to the said body, and turned in and forming the handle B.

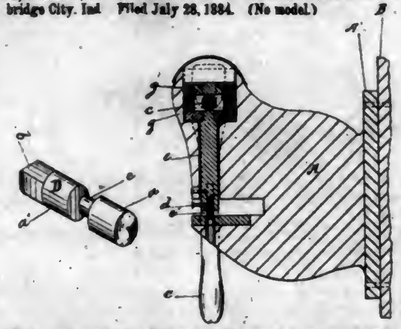
314,646. FENCE-MAKING MACHINE. NELSON P. BRADEN, Jerseyville, Ill., assignor of one-half to MOSES COCKRELL, same place. Filed Aug 15, 1884. (No model.)



Claim.—1. In a fence-making machine, the combination, with the wire-twisters *b*, provided with gear-wheels *d*, of the actuating mechanism described, consisting, essentially, of a toothed rack, *e*, and segmental gear *f*, provided with a hand-lever, *g*, all of said parts constructed, combined, and adapted to operate substantially as and for the purpose set forth.

2. In a fence-making machine, the combination, with the reels *m*, secured upon arbors *l*, of the conical ends *n* and supporting-bars *k*, provided with sockets adapted to receive the conical ends of the arbors *l*, and pivotally secured at their lower ends to the frame of the machine so as to vibrate in a plane coincident with the axes of the reel-arbors, and controlled as to the force with which they impinge upon the ends of said arbors by thumb-screws *p*, substantially as and for the purpose set forth.

314,647. BLACKSMITH'S PUNCH. MARTIN C. BRANDENBERG, Columbus City, Ind. Filed July 28, 1884. (No model.)



Claim.—In a blacksmith's punch, the stock A, lever-shaft D, constructed as described, sheath *e*, punch-point *d'*, combined with the lever *c*, and cross-head *g*, all substantially as set forth and described.

314,648. MACHINE FOR JOINTING STAVES. ERWIN D. BUCKMAN and IRA BUCKMAN, Brooklyn, N. Y. Filed June 6, 1884. (No model.)

Brief.—The supporting-bed C has a vertical movement, by means of which the stave is clamped, and as soon as the stave is thus clamped the knife begins its downward movement, and the bed and knife act together to cut the joint of the stave.

Claim.—1. The combination of the following elements: a vertically-moving supporting-bed having a curved bearing-face, a relatively-fixed clamping device, a relatively-fixed cutter having an edge which is straight in the direction of its length, and means, substantially as described, for moving the bed and stave lying thereon against the clamping device and cutter.

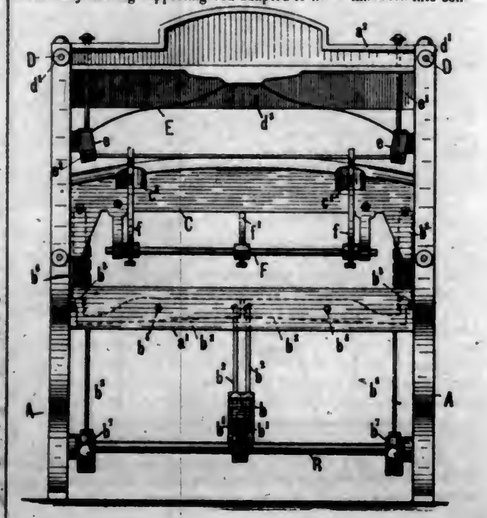
2. The combination, with the vertically-moving supporting-bed C, having a curved bearing-face, and the relatively-fixed clamping device E, of the vertically-moving knife d^2, having an edge which is straight in the direction of its length.

3. In combination with the vertically-moving supporting-bed C, the vertically-fixed clamping-spring E, having the blocks *e e*, adapted to bear upon the stave, and means, substantially as described, for moving the stave against the bearing-blocks, for the purpose set forth.

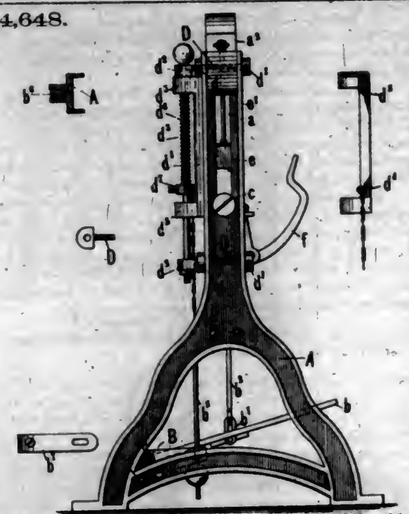
4. In combination with the vertically-moving supporting-bed C, the relatively-fixed clamping-spring E, having the bearing-blocks *e e*, and adjusting-rods *d' d'* for holding the stave, and means, substantially as described, for moving the staves against the bearing-blocks of the spring.

5. In combination with a vertically-moving supporting-bed having no lateral movement, the frame d^4, having the cutting-knife rigidly attached thereto, as far as lateral movement is concerned, and the adjusting-screws D D, having the collars *d d*, nuts *d' d'*, and guide-rods d^3 d^3, as described.

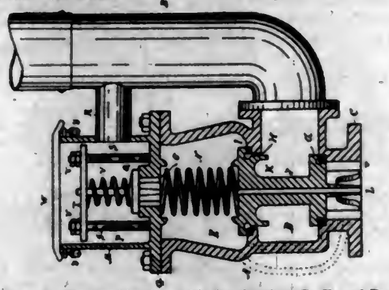
6. In a stave-jointing machine having a straight-edged knife and a vertically-moving supporting-bed adapted to move the stave into contact with the knife, the grooved standards A A, the bars b^4 b^4, and lever mechanism, substantially as described, the bars b^4 b^4 connecting the lever mechanism to the supporting-bed, substantially as described.



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314,649. SAFETY-VALVE. WILLIAM A. CAMPBELL, East Saginaw, Mich., assignor of one-half to A. F. Bartlett & Co., same place. Filed Sept. 24, 1884. (No model.)



Claim.—1. The combination, with the chambers D, E, and P, and outlets from the chambers P and D, of the valve G, closing the opening from F to chamber D, the valve I, closing the opening between chambers E and D, a stem connecting and a spring closing both of said valves, a passage from below the valve G to the chamber E when valves G I are closed, and the valve Q, closing the passage between chamber E and the chamber P, substantially as described.

2. The combination, with the case A, having the orifice F, and the chambers D E P, of the pipes B and R, connecting the chambers D and P, and the valves G I and stem J, having passage L, extending vertically through said valves and stem, the spring N in chamber E, and the spring-pressed valve Q in the chamber P, substantially as described.

3. The combination, with the case A, having the connected chambers D E P, and the pipes B and R, of the connected valves G I, having the steam-passage L, the spring N, the spring-pressed valve Q, and the adjustable yoke T, substantially as specified.

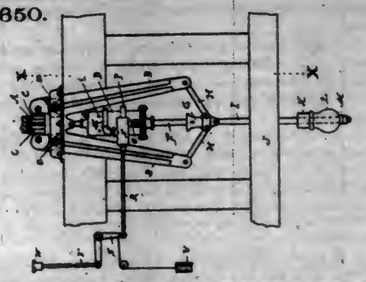
4. The combination, with the case A, having chambers D, E, and P, with inlet F and outlet-pipes B R, and a communication between said inlet and chamber E when the valves G I are closed, of the said valves G I, having stem J and guide-disk K, the spring N, and the spring-pressed valve Q in chamber P, substantially as specified.

314,650. STEAM-BRAKE FOR SAW-MILL CARRIAGES. WILLIAM A. CAMPBELL, East Saginaw, Mich., assignor of one-half to A. F. Bartlett & Co., same place. Filed Sept. 24, 1884. (No model.)

Claim.—1. In a steam-brake operating as described, the brake-cylinder D, pivotally and centrally suspended between the two brake-levers B B, and transmitting the braking-power by means of toggle-levers connecting its piston-rod with the longer ends of the brake-levers, substantially as described.

2. In a steam-brake operating as described, the combination of its brake-cylinder and piston with the buffer-block K, adjustably connected with said piston, and stop, as J, the parts being constructed and arranged

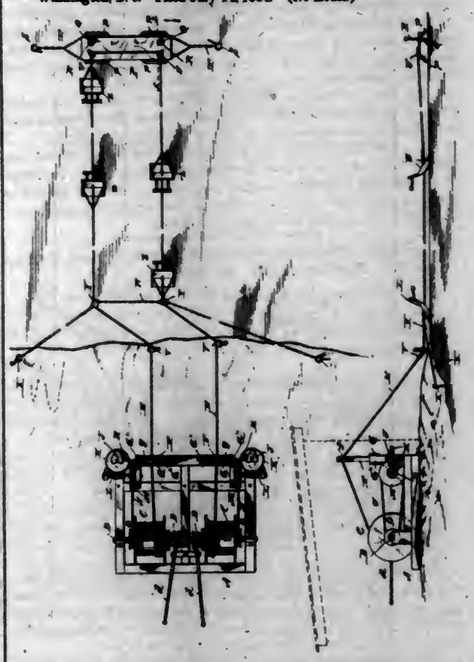
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to arrest the braking movement of the piston at an abnormal action of the same, substantially as described.

3. In a steam-brake, the combination of the two brake-levers B B and their brake-shoes C, of the brake-cylinder D, centrally suspended between the brake-levers, of the cross-head G, of the toggle-levers H, connecting the piston-rod with the brake-levers, of the rod I, buffer K, counter-weight L, adjusting-screw, and cross-girt, all combined substantially as and for the purposes described.

314,651. ICE-HARVESTING APPARATUS. CHARLES B. CHURCH, Washington, D. C. Filed July 14, 1884. (No model.)



Claim.—1. The combination, in ice-harvesting apparatus, of operating mechanism, a continuous cable carrying the harvesting devices and having its ends connected with the operating mechanism, and a guide-line connected to the cable at its inner end, and adapted to be adjusted to carry and adjust the cable independent of a change in position of the operating machinery, substantially as set forth.

2. The combination, in ice-harvesting apparatus, with stationary operating machinery, of a cable connected with the same and adapted to extend over the field of ice, and adjustable devices consisting of an anchor-sleigh and a guide-line respectively connected with the cable at its shore and outer ends, to adjust the same transversely in relation to the operating mechanism and independent of any change in the position of the latter, substantially as set forth.

3. In ice-harvesting apparatus, a cable operated by steam-power and carrying ice-scrapers, and adjustable devices consisting of an anchor-sleigh and a guide-line respectively connected to end of the cable mechanism, for adjusting it over the field of ice independent of movement of the operating mechanism, substantially as set forth.

4. The combination, with steam operating mechanism and with the continuous cable connected with the same at its end and secured by an anchor-sleigh at its outer portion, of an adjustable shore-line engaging

the cable and carrying the same to effect its adjustment, substantially as set forth.

5. The combination of the operating mechanism arranged upon the shore, the cable connected at its ends with the same, an anchor-sleigh carrying the outer end of the cable, and a shore-line secured at its ends and carrying pulleys engaging the cable, substantially as and for the purpose set forth.

6. The combination of the main frame arranged upon the shore and carrying the drums, the cable having its ends connected therewith, the anchor-sleigh carrying the outer end of the cable, the pulleys arranged at the shore and carrying the cables, and the guide rope or chain extending transversely along the shore-line and adjustably secured at its ends, and having pulleys engaging the cable, substantially as and for the purpose set forth.

7. In ice-harvesting apparatus, the combination, with the frame carrying two drums, and with the cable connected with the drums and carrying harvesting mechanism, of clutch mechanism, substantially as described, for alternately throwing the drums into and out of operation, substantially as and for the purpose set forth.

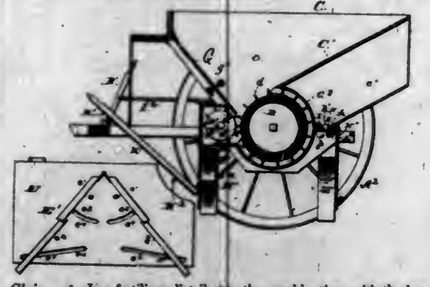
8. The combination, in ice-harvesting apparatus, with the cable carrying harvesting mechanism and a drum for winding the same, of a reciprocating lever arranged in front of the drum and carrying the cable, a sliding bar for operating this lever, a cam engaging the bar, and mechanism for operating the cam, substantially as and for the purpose set forth.

9. The combination of the frame carrying the drums, the cable carrying ice-harvesting mechanism, the slotted reciprocating guide-levers engaging the cable, sliding bars having shoulders or enlargements acting upon the lever, the returning-springs, the cam mechanism, the worm-shafts having a pulley, pulleys on the drum-shaft, and connecting chains or bands, substantially as and for the purpose set forth.

10. The combination, with the anchor-sleigh having the vertical tubes, of the bars received by the same and having pointed bottom ends to engage the ice, substantially as and for the purpose set forth.

11. The combination, with the herein-described cable, of four ice-scrapers disposed in pairs upon the side sections of the cable, the scrapers of each pair projecting in opposite directions, and being secured at about the center and at one end of the said side section of the cable, substantially as shown, and for the purpose set forth.

314,652. FERTILIZER-DISTRIBUTER. JAMES E. CLARK, Washington, N. C. Filed Mar. 27, 1884. (No model.)



Claim.—1. In a fertilizer-distributer, the combination, with the hopper and the feed-roller, of the regulating-board hinged or pivoted at its upper end within the hopper and adjustable on said hinge or pivot, whereby its lower end may be set to and from the feed-roller in a line approximating the radius of said roller, substantially as set forth.

2. The combination of the hopper, the feed-roller, the board G, hinged at its upper end within the hopper and adjustable on said pivot, and the set-screw g', all substantially as and for the purposes set forth.

3. The combination, with the concave, the main feed-cylinder, and the supplemental cylinder, of the board F, hinged at its rear end to the concave and extended forward under the supplemental cylinder, and having its forward edge adjustable to and from the supplemental cylinder, and means for holding said board at any proper point of adjustment, substantially as set forth.

4. The combination, in a fertilizer-distributer, of the large and small hopper, the feed mechanism, the shaft having valves *i*, the clutch, and the operating-lever connected with the clutches and the shafts, whereby the said shafts and the clutches are simultaneously operated, substantially as set forth.

5. In a fertilizer-distributer, the combination of the hopper, the concave, the cutting-ribs c^3, secured on said concave, the toothed feed-cylinder, and the necessary operating mechanism.

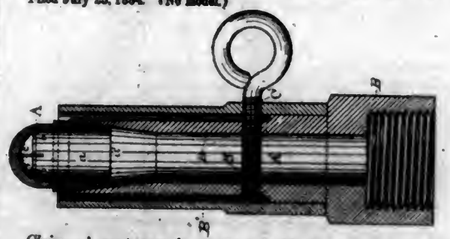
6. The combination of the hopper having discharge-opening, the door or apron hinged at its upper end adjacent to and on one side of said discharge-opening, and provided with troughs arranged thereunder, and means whereby said door may be elevated and held in suspension, substantially as and for the purposes set forth.

7. The combination, in a fertilizer-distributer, of the door or apron, the troughs composed of sections a a^2 a^3, and adjusting and retaining bolts c^2 c^3, operating through slots in the apron, substantially as and for the purposes set forth.

8. The combination of the hoppers, the feed-cylinder, the wheels having ratchets *a*, the clutch a', the shaft I, having valves *i* and a crank, I', the shaft B, having cams b', the lever B^2, having its forward end engaged with the cam b' and its rear end with the clutch a', the operating-lever B', secured to shaft B, and the rod I^2, connecting said lever B' and the crank I', substantially as and for the purposes set forth.

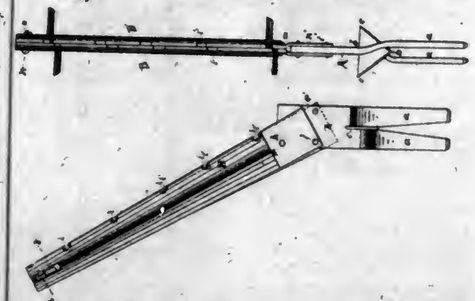
9. The combination, with the hopper having discharge-opening, and the shaft B, of the door or apron hinged at its upper end, and provided with troughs projecting under the discharge-opening, and the handle-bar K, secured at its lower end to the door or apron, and having its other end carried up over shaft B, and hooks K' K^2, secured on said handle-bar, and adapted to engage the shaft B and hold the door in its several positions, substantially as set forth.

314,653. GAS-BURNER. THEODORE CLOUGH, Dobbs Ferry, N. Y. Filed July 23, 1884. (No model.)



Claim.—A gas-burner tip constructed with the angular or sloping shoulder *b* between the bore or chamber *a* and the domed portion *c*, and with the slit *f* extended below said shoulder, all substantially as and for the purpose herein set forth.

314,654. METALLIC POST FOR WIRE FENCES. THOMAS J. COX, Gainesville, Tex. Filed Aug. 13, 1883. Renewed Sept. 16, 1884. (No model.)



Claim.—1. The standard A, bifurcated as described, having bracing-legs below the body proper of the standard, and brace-piece *c*, as described, combined with notched plates B B', one pivoted at the front and the other at the rear of the standard, all substantially as shown, and for the purposes set forth.

2. The combination, with a suitable standard, of notched plates, as B B', one pivoted at the front, and the other at the back, of said standard, so as to crimp the wires in said notches when the plates are brought to a vertical position.

3. The combination, with a suitable standard, of notched plates B B', one of said plates being slotted at *k* for the passage of the securing-bolt, plate B being pivoted near the back, and plate B' near the front, of standard A, substantially as described.

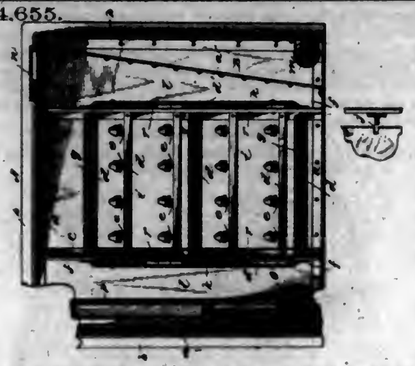
4. The combination, with a suitable standard, of plates B B', pivoted one at the front, and the other at the back, of said standard, and having offset *m* near the top of standard, and apertures for a bolt to pass through and secure the plates to said standard, as set forth.

314,655. CONDUIT FOR ELECTRICAL WIRES. MATHEW H. DEVET, Chester, Pa. Filed Nov. 11, 1884. (No model.)

Claim.—1. In a conduit for electrical wires, the combination, with the conduit-section, of the heating-pipe, escape-pipe, and pure-air-supply pipe, and suitable supports for the wires, substantially as described.

2. The herein-described conduit, consisting of the rectangular frame having the connecting-flanges at its ends, strengthening-ribs, hot-air and pure cold-air pipes running parallel to the side walls, and the vertical T-shaped supports or posts having the cross-bars for supporting the wires, substantially as described.

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3. The combination, in a conduit, of the rectangular frame provided with the strengthening-ribs, end flanges, the hot and cold air pipes, vertical posts connected by the supporting cross-bars on which the wires are strung, the side boards removably secured to said posts, and the horizontal boards having the side notches to engage the flange of the post, whereby the same can be removed, and forming compartments in the conduit, substantially as described.

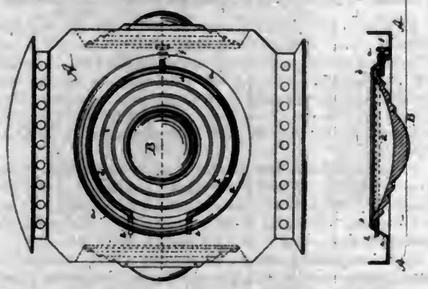
314,656. COAL-CAR. DENNIS S. DOCKSTADER, Meadville, Pa. Filed June 6, 1884. (No model.)



Claim.—1. The combination, with freight-car doors, of fastening-bolts L, working in clips H, suitable chains, C, and hooks F, arranged to slide up and down in clips E, whereby a handspike may be used and the doors allowed to open, as described.

2. The combination of car-doors beveled at O and the pendent hooks F, the latter connected with bolts L by chains, as and for the purpose specified.

314,657. LANTERN. GEORGE C. DRESSEL, New York, N. Y. Filed Aug. 30, 1884. (No model.)

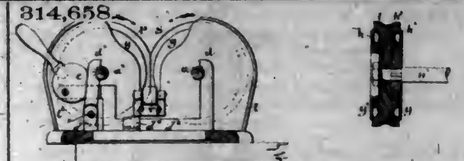


Claim.—1. The combination of lantern A, having flange *a*, with lens B, and with the wire *d*, having outwardly-bent ends *e*, that pass through a hole or holes in flange *a*, and with fastener *f*, substantially as specified.

2. The combination of lantern A, having flange *a* and seat *b*, with lens B, and wire *d*, having two outwardly-bent disconnected ends, *e*, and with fastener *f*, substantially as herein shown and described.

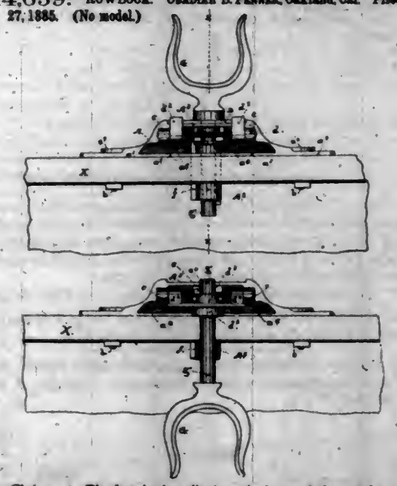
314,658. KNIFE-CLEANING APPARATUS. WILHELM FAHIAN and ADALBERT TELLER, Hamburg, Germany. Filed July 12, 1884. (No model.)

Claim.—1. The combination, in a knife-cleaning machine, of two revolving rollers or disks of elastic material having grooves in their circumferences and sides, substantially as and for the purpose herein described.



2. The combination, with the elastic rollers or disks having grooves A^3 in their circumferences and grooves A A' in their sides, of the side plates, *g g'*, covering the said grooves A A' in their sides, substantially as described, and as illustrated in the accompanying sheet of drawings.

314,659. ROWLOCK. OBADIAH B. PENNER, Oakland, Cal. Filed Jan. 27, 1885. (No model.)



Claim.—1. The herein-described rowlock, consisting of the socket-plate A a', having the plate or face A^2, the socket A^3, and the hinged plate D, with the holding-socket d^2, in which a rowlock with a shank, as *g*, is confined while being free to slide and turn, substantially as herein set forth.

2. The socket-plate A, adapted to be secured to the gunwale of a boat, having the flat plate or surface A^2 and the long socket A^3, and provided with the knuckles *c c* at one side, substantially as described.

3. The combination, with the socket-plate A, having the flat surface A^2, and the long socket A^3 below it, of the hinged plate D, with holding-socket d^2, for the shank of an oar lock or rest, substantially as described.

4. The combination, with the socket-plate A a', having the surface A^2 over the socket A^3, of the oar lock or rest, as G, attached to the socket-plate by the hinged connection D, but having free sliding and rotating movements in its connection, and the locking projection *e*, applied to operate with relation to the socket A^3, substantially as described.

314,660. COMBINED COAT-COLLAR AND HOOD. OSKAR FLAIG, Cincinnati, Ohio. Filed Mar. 6, 1884. (No model.)

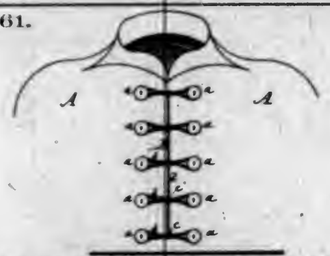


Claim.—The herein-described coat-collar, consisting of inner and outer flaps, B and C, and hood H, secured at one edge between said flaps and adapted to be folded into or withdrawn from the space between the flaps at will.

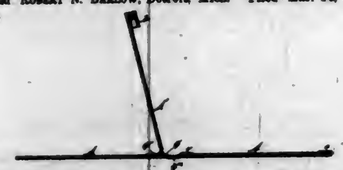
314,661. SHIRT-LACE. WILLIAM T. GALLT, Port Byron, N. Y. Filed July 5, 1884. (No model.)

Claim.—The lacing made from a single length, consisting of the opposite loops *b b*, knots *c c*, and connecting-lengths *d d*, in combination with a shirt-front provided with buttons on opposite sides, over which the loops button, as shown and described, and for the purpose specified.

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314,662. DUPLICATING COUNTER-CHECK BOOK. JOHN A. GERHARD and ROBERT N. BARLOW, Detroit, Mich. Filed Mar. 14, 1884. (Model.)



Claim.—1. A duplicating counter-check book composed of the cover A, flexible at the center, said cover having pockets *c c'* and memorandum-sheet E, with a yearly calendar, arranged as specified, and a fly-leaf, A', hinged to said cover, said fly-leaf having the pocket D at its free end for supporting the leaves and carbon sheet, as set forth.

3. A duplicating counter-check book having a cover flexible at the center, with a fly-leaf hinged thereto, said fly-leaf having a pocket at its free end for holding the detachable sheets, as specified.

314,663. ADJUSTING DEVICE FOR MACHINISTS' TOOLS. FRED. I. GETTY and FREDERICK DICKINSON, Geneva, Ohio. Filed May 16, 1884. (No model.)



Claim.—1. In an adjusting device for tools, the parts *a* and *b*, having their inclined faces in contact, as shown, in combination with the screw *c*, swiveled to the part *a* and held from longitudinal movement therein, and having its threads in engagement with a threaded groove in the part *b*, substantially as described, and for the purposes set forth.

2. An adjusting device in which one part having an inclined face is moved upon another similar part by a screw-rod, held in one part from longitudinal movement in either direction, as shown, the threads of said rod engaging with a correspondingly-threaded dovetail upon the other part, substantially as shown, and for the purposes set forth.

3. In an adjusting device, the fixed part *a* and movable part *b*, in combination with the screw *c*, attached to the part *a* so as to turn therein, and the threaded dovetail piece adapted to slide in the part *a* and secured by screws to the part *b*, so that by tightening the screws lost motion between the parts *a* and *b* occasioned by wear may be taken up.

314,664. TOOTHED CYLINDER FOR BURRING-MACHINES. CALVIN L. GODDARD, New York, N. Y. Filed Dec. 1, 1882. (No model.)

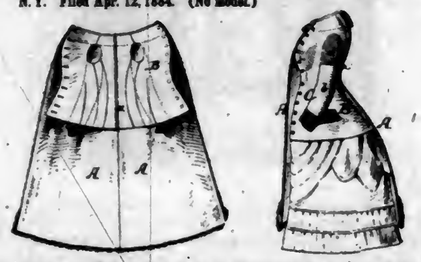
Brief.—The toothed rings and interposed packing-rings are slipped onto the cylinder, and secured in place by flanges fitting in rabbets at the ends of the cylinder, and being themselves rabbeted on the inner side to form a continuation of the periphery of the cylinder and a seat for the outer rings. The flanges are secured by pins inserted from their outer edges in a direction transverse to the axis of the cylinder.



Claim.—1. The combination of a cylinder having in its end an annular rabbet, toothed rings and interposed packing-rings fitting said cylinder, and a removable flange secured near the circumference of the cylinder in said rabbet and rabbeted on its inner side so as to form an extension of the periphery of the cylinder and a seat for the end rings, substantially as and for the purpose herein described.

2. The combination of a hollow cylindric body, A, and integral heads or ends B, short shafts or gudgeons C, secured in the heads or ends, toothed rings *b* and interposed packing-rings made separate from and independent of each other and fitted on said body, a flange, *d*, fitted to the end of the body to secure the rings thereon, and securing devices *f*, inserted from the outer edge or circumference of the flange *d* in a direction transverse to the axis of the cylinder, entering the integral head or end and serving to secure the flange *d* in place, substantially as and for the purpose herein described.

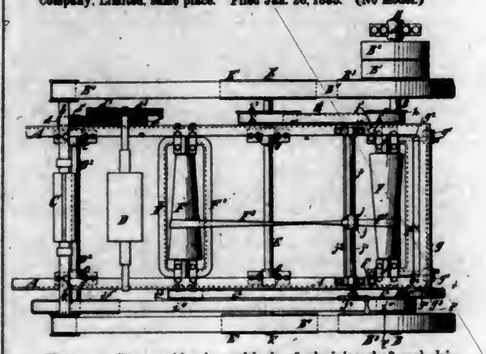
314,665. LADY'S CIRCULAR-CLOAK. LOUIS GRAMER, New York, N. Y. Filed Apr. 12, 1884. (No model.)



Claim.—1. The circular-cloak A, combined and connected by the upright central back-seam, *a*, only, with the complete jacket B, having sleeves that are adapted to be worn within the cloak, substantially as herein shown and described.

2. The circular-cloak A, connected by an upright row or rows of stitches with an inner jacket, B, having sleeves C, to be worn on inner side of the cloak, the upper parts, *d*, of which are made of thinner material than the remainder of the sleeves, substantially as herein shown and described.

314,666. FEED MECHANISM FOR WOOD-PLANING MACHINES. WILLIAM H. GRAY, Brooklyn, N. Y., assignor to the Glen Cove Machine Company, Limited, same place. Filed Jan. 26, 1885. (No model.)



Claim.—1. The combination, with the feed-pinion shaft and driving-shaft of a wood-planing machine, of a shaft, E, and pulley E', a belt, B', for driving the upper cutter-head, passing over and driving the pulley E', two reversely-set cones or conical drums, and a belt and belt-shipper for transmitting a variable speed from one to the other of them, and belt-gearing for driving one cone from the shaft E and for driving the feed-pinion shaft from the other cone, substantially as herein described.

2. The combination, with the shaft E, the feed-pinion shaft D^2, and the two cones F F' with their connecting-belt and shipper, of the driving-shaft B and the pulleys *i i'* loose thereon, belts connecting the pulleys *i i'* with the driven cone F' and the shaft D^2, and belt-gearing for operating the driving-cone F, all substantially as herein described.

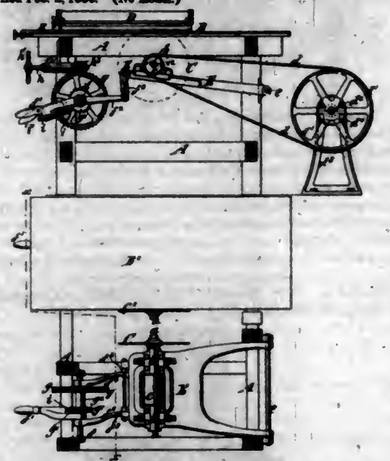
3. The combination, with the driving-shaft and feed-pinion shaft of a wood-planing machine, of a pair of reversely-set cones or conical drums with their connecting-belt and shipper, belt-gearing for operating the driving-cones, belt-gearing for transmitting motion from the driven cone to the said feed-pinion shaft, and movable boxes for one of said cones, whereby the belt-gearing may be slackened to suspend feeding, substantially as herein described.

4. The combination, with the pairs of cones F F', with their connecting-belt and shipper, of a swinging frame for the cone F, a belt for driving said cone, and which is slackened by the swinging movement of the said frame, and belt-gearing for transmitting motion from the cone F' to the feed-pinion shaft of the machine, substantially as herein described.

5. The combination, with the cones F F', bearings for the cone F', and belt-gearing for transmitting motion from the cone F', of the swinging frame F^3 for the cone F, and levers and connections for swinging

said frame, a belt, A', for operating the cone F, and a belt support or rest, A^3, for the belt A', substantially as herein described.

314,667. CIRCULAR SAWING MACHINE. WILLIAM H. GRAY, Brooklyn, N.Y., assignor to the Glen Cove Machine Company, Limited, same place. Filed Feb. 2, 1885. (No model.)

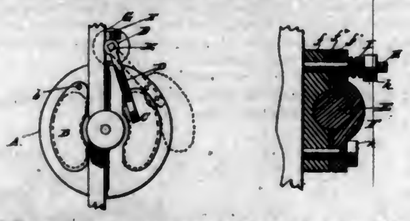


Claim.—1. The combination, with a saw-arbor and bearings therefor, movable to expose or shield the saw, of a shaft and handle, whereby it may be turned, arms extending from said shaft and connected with the arbor-bearings, a notched disk loose on said shaft and a locking device on the said handle engaging with said disk, and a worm and worm-wheel, whereby the said disk and its locked handle may be turned or adjusted, substantially as herein described.

2. The combination, with a saw-arbor and a swinging frame, E, pivoted at its rear end and carrying said arbor, of a shaft or pivot, *f*, provided with arms f^2, and a connection, f^3, whereby said arms are connected with the free end of the frame E, a lever or handle, *f'*, on the shaft or pivot *f*, and by which the frame with its saw-arbor, may be raised and lowered, and locking devices, substantially such as described, for holding the lever or handle *f'* in different positions to which it is adjusted, all substantially as herein set forth.

3. The combination, with the swinging frame E, pivoted at its rear end, and the saw-arbor *a*, carried thereby, of the shaft *f* and its lever or handle *f'*, arms f^2, fast on said shaft, and a connection, f^3, between said arms and the free end of said frame E, the worm-wheel and notched disk *g g'*, the worm h^2, engaging with the wheel *g* for turning it and said disk, and the locking-bar *i*, carried by the lever or handle *f'* and engaging with the notched disk *g'*, all substantially as herein described.

314,668. BLAST-REGULATOR FOR GRAIN-SEPARATORS. JEFFERSON GRUBB, Newark, Ohio. Filed July 10, 1884. (No model.)



Claim.—1. In a grain-separator, a fan-case adapted to admit air, and a rock-shaft, in combination with a shutter for regulating the admission of air to the fan-case, rigidly connected to the rock-shaft, extending from side to side of the machine, and adapted to be swung from side to side to regulate the admission of air into the case, substantially as described.

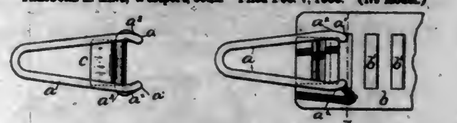
2. In a grain-separator, the combination of a rock-shaft extending from side to side of the machine, and boxes provided with tension devices, with depending arms rigidly attached to said shaft, the fan-case formed with air-ports, and shutters for opening or closing said air-ports, substantially as described.

3. In a grain-separator, the fan-case provided at its ends with air-ports, shutters therefor arranged in pairs, one of each pair being pivoted directly to the case, the other being rigidly secured by an arm, and a rock-shaft provided with said arms and extending from side to side of the machine above the fan-case, all combined substantially as described.

4. In a grain-separator, the combination of the rock-shaft E and boxes F, having tension-springs I, with the arms D, shutters C, and the fan-case A, having air-ports, substantially as described.

5. In a grain-separator, the combination of the fan-case A, having air-ports, and a shutter, B, hinged at each end thereof, with shutters C, arms D, the rock-shaft E, and spring-controlled boxes F, substantially as described.

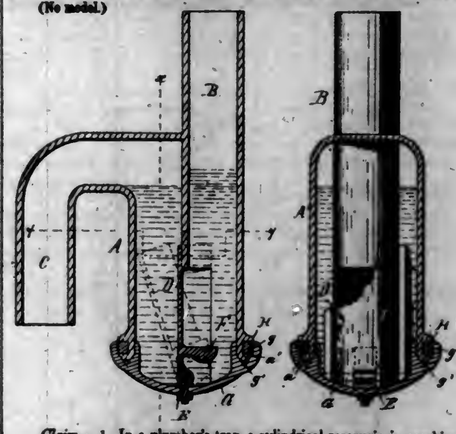
314,669. SHOE-CLASP. JOSEPH C. HAMMOND, Jr., Rockville, and THEODORE E. KING, Westport, Conn. Filed Feb. 7, 1885. (No model.)



Claim.—1. In a clasp, in combination, a laterally-elastic tongue with cam sides, and a catch-plate having one or more openings less in length than the tongue is in width at the part where the cams are formed, all substantially as described.

2. In combination, a catch-plate having one or more openings, and a hook-shaped tongue that is laterally elastic, and has lateral cams that overhang the sides of the catch-plate when the parts are engaged, and whereby these two parts—the catch-plate and the tongue—form a complete locking spring-clasp, all substantially as described

314,670. PLUMBER'S TRAP. CHARLES E. HESS, Chicago, Ill., assignor of one-half to James N. Raymond, same place. Filed Feb. 26, 1884. (No model.)



Claim.—1. In a plumber's trap, a cylindrical reservoir, in combination with the inlet-pipe arranged within the same, at one side thereof, and a weighted valve, F, pivoted to the bottom of the reservoir and arranged to close the inlet-pipe, substantially as and for the purposes specified.

2. In a plumber's trap, the combination, with the cylindrical reservoir A, and the inlet-pipe B, arranged therein at one side, of the detachable bottom G, and weighted valve F pivoted thereto, and extending upward to overlap the end of the inlet-pipe, substantially as and for the purposes specified.

3. In a plumber's trap, the reservoir, in combination with a detachable bottom fastened to the reservoir-body by screw-threads, and provided with a liquid seal at the joint between the reservoir-body and bottom, substantially as and for the purposes specified.

4. In a plumber's trap, the reservoir A, the bottom edge of which is beveled or wedge-shaped, in combination with the bottom G, provided with a threaded section, *g*, and a V-shaped groove, *g'*, and the threaded ring H, secured to the reservoir near the lower end thereof, substantially as and for the purposes specified.

314,671. CARPET-FASTENER. FREDERICK C. HELLMUTH, Brooklyn, N. Y., assignor to himself and John Munz, Jr., same place. Filed May 27, 1884. (No model.)



Claim.—1. In a matting-fastener, the combination of a plate or socket piece adapted for attachment to the floor and provided with an elongated slot, and a double-headed locking-piece whereof one head is adapted to pass through the matting, the opposite elongated head being adapted to pass through said slot and lock under said socket-piece, substantially as described.

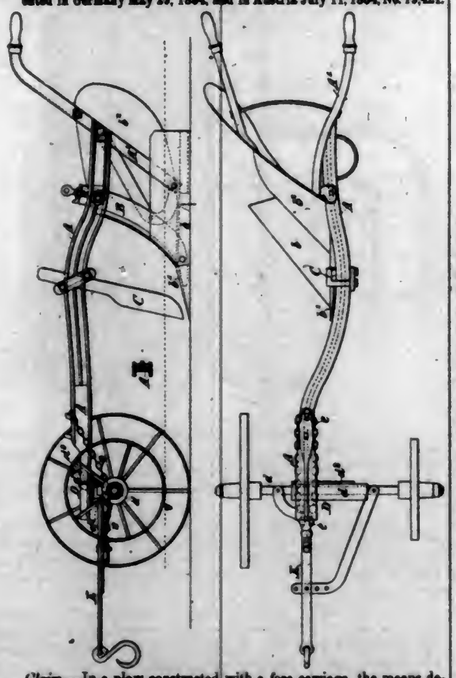
2. The combination of a slotted socket having a raised rim at the under side, means to lock the socket flush with the floor, a double-T-shaped locking-piece passed through the matting, the heads of said locking-piece having longitudinal nicks, substantially as set forth.

314,672. WATCH-REGULATOR. CLARENCE M. HOWARD, Fredonia, N. Y. Filed May 13, 1884. (No model.)



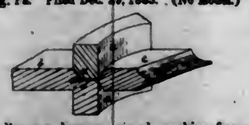
Claim.—In a regulator for a watch, the combination of the threaded shaft, and wheel having teeth to engage with the thread on the shaft, and provided with a wrist-pin, with the lever which is slotted at one end and provided with an arm and regulating-pins at the other, substantially as shown and described.

314,673. PLOW. JAMES HOWARD and HENRY W. GIBBS, Bedford, County of Bedford, England. Filed Dec. 17, 1884. (No model.) Patented in Germany May 29, 1884, and in Austria July 11, 1884, No. 19,421.



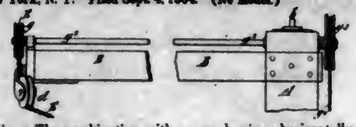
Claim.—In a plow constructed with a fore carriage, the means described for maintaining the verticality of the plow-body irrespective of the depth of the furrow being plowed, such means consisting of an arched axle-tree or its equivalent and an adjustable sliding block or bracket fitted thereto, with gage-plate on which the forward end of the plow-beam bears, substantially as herein described.

314,674. DIE FOR MAKING AX-BIT BLANKS. CHARLES W. HUBBARD, Pittsburg, Pa. Filed Dec. 29, 1883. (No model.)



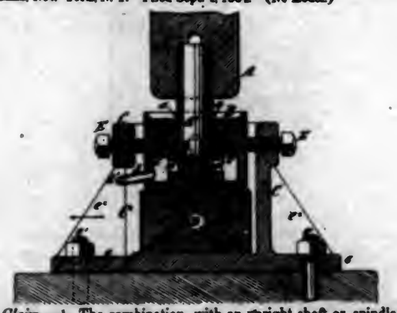
Claim.—The dies *a a*, having curved working-faces *a'*, which are struck on a shorter radius at the middle than at the ends, whereby the metal of the bar acted upon by the dies shall be displaced laterally at both sides of the same, so as to form laterally-projecting fins or edges on the blank, substantially as and for the purposes described.

314,675. MEANS FOR SWINGING CRANES. H. GEISENHEIM HUBERT, New York, N. Y. Filed Sept. 4, 1884. (No model.)



Claim.—The combination, with a crane having a horizontally-swinging boom or arm, and provided with suitable guide-pulleys, as herein described, of a driving drum or pulley on the crane, a circular series of hooks or hooked supports, and an endless chain or rope hung upon said hooks or supports, and having surplus length or slack which is passed over, under, or around said guide-pulleys and over or around said driving drum or pulley, whereby the rotation of said drum or pulley in one direction or the other will gather in and pay out said endless chain or rope and swing the crane-boom in one direction or the other, substantially as specified.

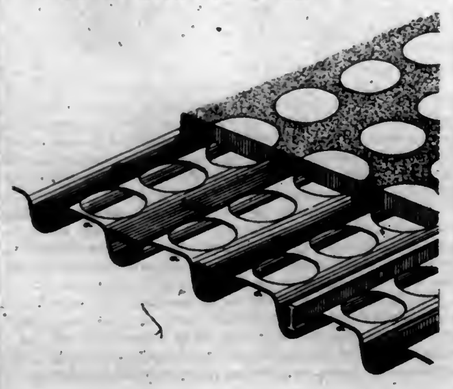
314,676. STEP-BEARING FOR MACHINERY. H. GEISENHEIM HUBERT, New York, N. Y. Filed Sept. 4, 1884. (No model.)



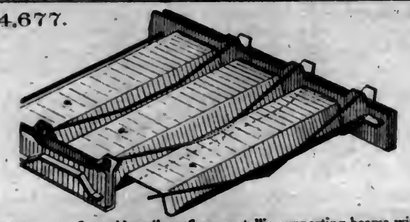
Claim.—1. The combination, with an upright shaft or spindle and step receiving within it and supporting the lower end thereof, of a step box or frame wherein the step may be raised and lowered, and which has an opening in its side through which the step may be withdrawn laterally, and a base-block interposed between the bottom of the step and its box or frame, and also capable of being withdrawn laterally through said opening, whereby provision is afforded for removing the step from the box or frame by first removing the base-block through said opening, and thereby allowing the step to descend, and by then withdrawing the step through said opening, substantially as and for the purpose herein described.

2. The combination, with the lower end of a shaft or spindle, of the step B, the step box or frame C, which at the top is continuous or unbroken on all sides, and which is provided with the opening C', the set-screws E, and the base-block D, supporting said step, both said block and step being removable laterally through said opening C', whereby provision is afforded for removing said step by first withdrawing the base-block through said opening, and thus allowing the step to descend, and by then withdrawing the step through said opening, substantially as and for the purpose herein described.

314,677. FLOOR OR AREA-COVERING. PETER H. JACKSON, San Francisco, Cal. Filed Dec. 1, 1884. (No model.)



314,677.



Claim.—1. In a sidewalk or floor, metallic supporting-beams with transverse arched or corrugated plates, in combination with a superposed surface or sidewalk composed of cement, artificial stone, or concrete, substantially as herein described.

2. In a sidewalk, area-covering, or floor, metallic supporting-beams with transverse corrugated plates to support a sidewalk or surface of concrete, in combination with bars or bearers extending longitudinally within the corrugations, substantially as herein described.

3. In a sidewalk, area-covering, or floor, metallic supporting-beams with corrugated iron plates extending between them, and having the upwardly-curved arched portions perforated to receive illuminating-glasses, in combination with a filling between the glasses of concrete or artificial stone which is supported by the plates and fixed to the floor or surface, substantially as herein described.

4. In a sidewalk, area-covering, or floor, corrugated or iron or other metal plates for the reception of a surface of concrete or artificial stone, in combination with metallic projections or bars formed in the depressions or grooves of the corrugated metal, substantially as herein described.

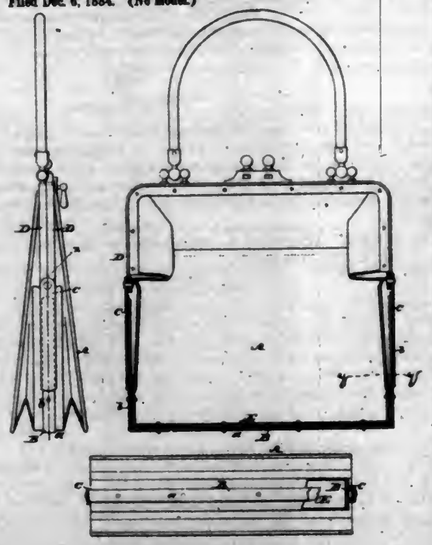
5. In a sidewalk, area-covering, or floor, metallic beams with corrugated iron plates supported between them and a filling of concrete or other plastic material above the plates, in combination with metallic ties extending longitudinally through the corrugations secured at the ends, substantially as herein described.

6. In combination with the corrugated plates, bearers consisting of vertical plates or bars secured at the ends of each section, and having projecting ribs or flanges curved to correspond with the depressions and elevations in the corrugated plates, and upon which the ends of the plates rest and are supported, substantially as herein described.

7. Corrugated metallic plates and bearers having correspondingly-curved projecting ribs upon which the plates are supported, together with lugs or projections between the adjacent ribs to form a space for the introduction of a water-tight cement, substantially as herein described.

8. In a sidewalk, area-covering, or floor, corrugated iron plates having the upwardly-curved arched portions perforated to receive illuminating-glasses, in combination with a filling between the glasses of concrete or artificial stone which is supported by the plates, and with metallic bearers consisting of vertical plates or bars on which the ends of each of them rest, and having projecting ribs or flanges curved to correspond with the depressions and elevations in the corrugated plates, substantially as herein described.

314,678. BAG OR SATCHEL. CHARLES W. JENKS, Philadelphia, Pa. Filed Dec. 6, 1884. (No model.)



Claim.—1. A metallic frame for a bag, formed of a band fastened to the ends of the bag, and movable pieces connected with said band and the jaws of the bag, substantially as and for the purpose set forth.

2. A bag having a metallic frame formed of a band, B, extending around the ends and bottom thereof, and provided with a sliding piece, C, on each end, said sliding pieces working on the said band B, and having pivoted to them the jaws D D, substantially as and for the purpose set forth.

3. A metallic frame for a bag, formed of a band or strip extending around the outside of the bottom and ends of the said bag, a band on the inner side of said bottom, and movable bands which are fitted to said outside band and the jaws of the bag, substantially as and for the purpose set forth.

314,679. OIL-PRESS MAT. ALFRED JONES and THOMAS BLAKE, St. Louis, Mo. Filed Feb. 14, 1885. (No model.)



Claim.—1. In wire mats for the expression of oil from oleaginous seeds or substances, the separated layers of wire-netting B B', folded over at their marginal portions one upon the other, substantially as specified.

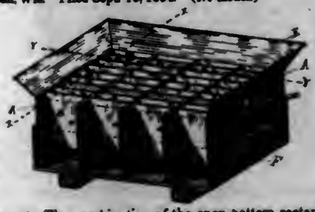
2. In wire mats for compressing oleaginous substances, the mat composed of duplicate layers B B', of wire-netting, closed along its marginal portions, and provided with along its longitudinal edges with porous ropes or fillings C C, essentially as and for the purpose herein set forth.

3. The combination of the internally-arranged cloth D with the layers B B' of the wire-netting of the mat, essentially as described.

4. The cross porous ropes or fillings C' C', in combination with the porous ropes or fillings C C, arranged to run along the longitudinal margins of the mat, and the inclosing-layers B B', of wire-netting, substantially as specified.

5. In a wire-mat for expressing oleaginous substances, the hollow wire mat, substantially as herein described, consisting of the layers B B', of wire-netting, and the longitudinal marginal and cross porous ropes or fillings C C', and the cloth D, arranged between said wire layers, as set forth.

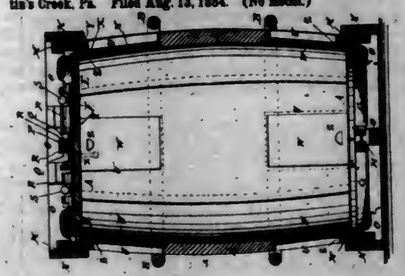
314,680. MATCH-SPLINT STRAIGHTENER. ARTHUR W. JONES, Oshkosh, Wis. Filed Sept. 10, 1884. (No model.)



Claim.—1. The combination of the open-bottom rectangular frame A, provided with the rectangular partitions B and C, with the receptacle F, provided with partitions *b*, forming a series of larger compartments for the reception of the straightened matches as they escape from the several smaller compartments of the superimposed frame A when said frame is uplifted, as set forth.

2. The combination of the open-mouthed frame A, provided with flange E, solid partition B, and transversely-arranged open or hollow partition C, having space for the reception of the partitions *b* of the receptacle F, provided with partition *b*, as set forth.

314,681. TRANSPORTATION-BARREL. REUBEN H. KACHLINE, Martin's Creek, Pa. Filed Aug. 13, 1884. (No model.)



Claim.—1. A transportation-barrel constructed substantially as herein shown and described, and consisting of the staves having tongued and grooved side edges held together by hoops adjustable in length, and provided at their ends with sectional male screws, and of the heads, held in place by sections of female screws connected adjustably by arms and bars, as set forth.

2. In a transportation-barrel, the combination, with the staves A, having tongued and grooved side edges, of the hoops B, made in sections connected by right and left screws C, substantially as herein shown and described, whereby the body of the barrel can be expanded and contracted, as set forth.

3. In a transportation-barrel, the combination, with the staves A, having interior shoulders, E, and provided with exterior sectional male screws, M, and the heads F, of the sectional female screws N, having radial arms O, provided with set-screws S, and the crossed bars P, having side grooves, R, substantially as herein shown and described, whereby the ends of the staves can be drawn together and the heads can be forced into and held in their seats, as set forth.

4. In a transportation-barrel, the combination, with the head F, made in two parts, and the recessed radial arms O, of the semi-annular bars G, connected at one end by a double-jointed swiveled hinge, H, and at the other end by a pin, I, provided with a spring-catch, K, substantially as herein shown and described, whereby the said head can be forced to its seat and folded for transportation, as set forth.

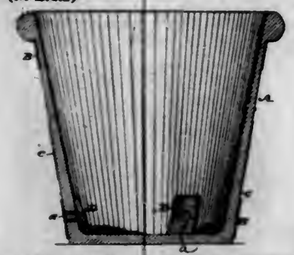
5. In a transportation-barrel, the combination, with the crossed bars P, connecting the arms of the male screw-sections, of the plates T, substantially as herein shown and described, whereby the ends of the barrel, when contracted for transportation, will be closed, as set forth.

6. In a transportation-barrel, the combination, with the staves A and the expandible hoops B, of the clips D, substantially as herein shown and described, whereby the said hoops are kept from slipping out of place when loosened, as set forth.

7. In a transportation-barrel, the combination, with the shouldered staves A, having apertures U below the said shoulders, and provided with grooves extending from the ends of the openings to the shoulders, and having angular grooves V in their sides, of the sliding plates W, substantially as herein shown and described, and for the purpose set forth.

8. In a transportation-barrel, the combination, with the staves A and the sliding plates W, of the spring-catches X, substantially as herein shown and described, whereby the said plates will be held in place when the heads are taken out, as set forth.

314,682. FLOWER-POT. Otto Kaiser, Jarrettown, Pa. Filed Mar. 29, 1884. (No model.)



Claim.—1. A flower-pot having a closed bottom and an opening in its side, and a shield or guard rigidly secured to said side over said opening, having an open space between said guard and side, substantially as and for the purpose set forth.

2. An improved flower-pot formed of unvitrified material, provided with a metallic band encircling a portion of its periphery, and having another portion thereof covered with paint, the said flower-pot also having in its side an opening, which is protected on the inner side by a shield or guard rigidly secured to the side, leaving a space between said side and guard, substantially as and for the purpose set forth.

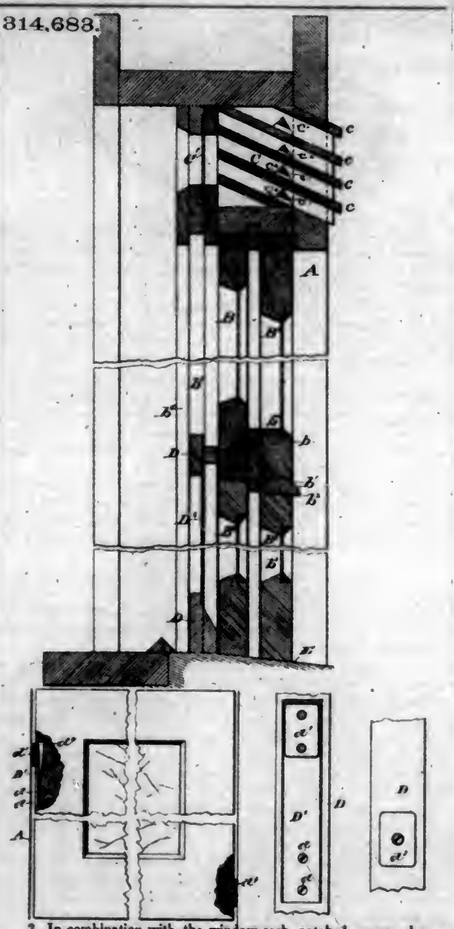
314,683. WINDOW. Friedrich Keller, Milwaukee, Wis. Filed May 19, 1884. (No model.)

Brief.—The ordinary lower window-sash is raised opposite the upper one and sashes inserted under each to form a set of double windows. The outside upper sash is provided with a dripping-piece, which covers the joint between the two inner sashes. The sashes are also provided with a spring-arm on one side and a counterbalancing friction-block on the other

Claim.—1. A double window formed by raising the lower sash of an ordinary single window opposite the upper sash and inserting a new sash under each, substantially as set forth.

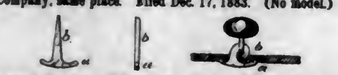
2. In a double window, in combination with single window-sashes, the lower one of which is raised opposite the upper one, a strip or bar fastened on the lower edge of the latter and projecting slightly outward from it, and adapted to cover the joint formed between the raised sash and the sash inserted in its place, and to form a water-drip for the outer lower sash, substantially as set forth.

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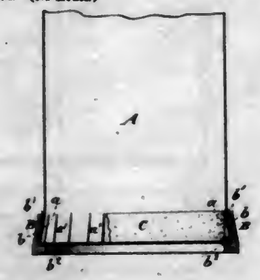
3. In combination with the window-sash, notched on one edge, as at d^3, plate IV, with block d', and the friction-block d^3, secured within the opposite edge, substantially as shown and described, and for the purpose set forth.

314,684. BUTTON-FASTENER. Eleazer Kempshall, New Britain, Conn., assignor, by mesne assignments, to the American Button Fastener Company, same place. Filed Dec. 17, 1883. (No model.)



Claim.—A sheet-metal button-fastener consisting of a narrow head or base having an edgewise bearing-surface, and an integral puncturing-prong projecting from said bearing-surface and in the same plane with the head or base, the whole being adapted to be struck from a sheet of metal in its finished form, substantially as described, and for the purposes specified.

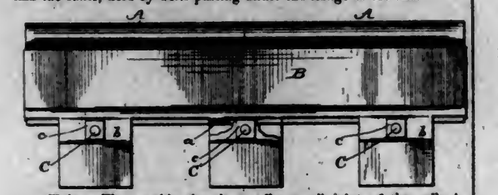
314,685. ROVING-CAN. David R. Kennedy, Ware, Mass. Filed Dec. 11, 1884. (No model.)



Claim.—In roving-cans, the combination of a body having the lower edge turned outwardly and notched, with a band having the wedge-groove *b* undercut on its upper wall, and provided with a filling of solder, substantially as shown and described.

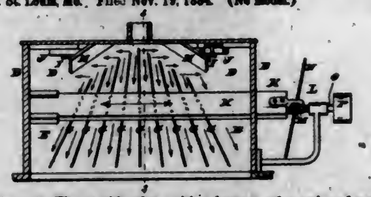
314,686. RAIL-JOINT FOR RAILWAYS. James L. Kendall, New London, Mo. Filed Aug. 29, 1884. (No model.)

Brief.—A rail-joint in which the flanges of the rails are recessed the full width of the depending flanges or lugs of the fish-plates, and contain the same, held by bolts passing under the flange of the rail.



Claim.—The combination, in a railway-rail joint, of the rails A, having recesses *a*, with the plates B, having projections *b*, and the bolts C, having nuts *c*, in the manner hereinbefore described, whereby the adjacent ends of said rails are held in line and contact, and the loosening of said nuts upon said bolts is diminished or avoided, as above set forth.

314,687. FEED-DISTRIBUTER FOR ROLLER-MILLS. James Kincaid, St. Louis, Mo. Filed Nov. 19, 1884. (No model.)



Claim.—1. The combination, with a hopper, of a series of upright boards, and means for imparting a lateral reciprocating motion to said boards across the path of the falling material, substantially as and for the purposes set forth.

2. The combination, with a hopper having an inclined lower side, of a series of deflecting-boards placed in close proximity thereto, and means for imparting a lateral reciprocating motion to said boards over the surface of said lower inclined side and across the path of the falling material, as set forth.

3. The combination, with a hopper, of a series of substantially upright slats or boards which project at their upper ends successively higher from the outsides toward the center of the series, and means for imparting a reciprocating motion to said series of boards, as set forth.

4. The combination, with a hopper, a series of upright boards projecting successively higher from the outsides toward the center of said series, and means for imparting a reciprocating motion thereto, of inclined deflecting-boards for directing the grain thrown by the reciprocating boards downward, substantially as set forth.

5. The combination of the hopper B, having the lower inclined side, D, the series of deflecting-boards G, inclining toward the central one of the series, as described, and the reciprocating bar K, to which said boards are secured, as set forth.

314,688. COMPOSITION OF MATTER FOR THE PRODUCTION OF SLATE. Louis Klutner, East New York, N. Y. Filed July 18, 1884. (No specimens.)

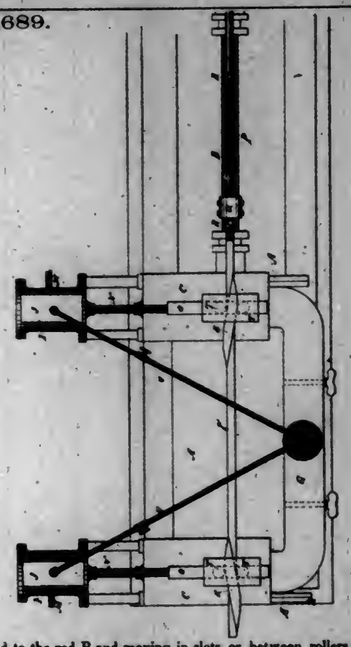
Claim.—The herein-described composition of matter to be used as a paint applied to a suitable material, consisting of finely-powdered white marble-dust and English china white lead and white dammar varnish, in the proportions specified.

314,689. HYDRAULIC ENGINE. Samuel N. Knight, Sutter Creek, Cal. Filed Sept. 18, 1884. (No model.)

Claim.—1. A hydraulic engine having a main cylinder, piston, and piston-rod, transversely-placed valve-chambers at the ends of the cylinder containing valves, and supplemental cylinders and pistons, valve-stems having rollers attached, and valves by which water is admitted to and exhausted from these cylinders, in combination with arm Q on the piston B, and the inclined plates S, adapted to move the valve-stems of the supplemental cylinder transversely to their own motion, as herein described.

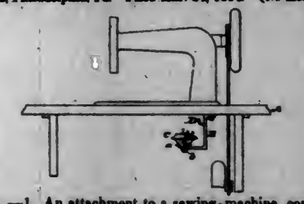
2. A hydraulic engine having a main cylinder, piston, and piston-rod, valve-chambers placed transversely across the ends of the cylinder, and having valves operated by supplemental pistons, together with the rod P, having collars R R fixed to it, an arm, Q, secured to the main piston-rod so that its movement will actuate the rod P, inclined plates

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S, fixed to the rod P and moving in slots or between rollers which are mounted upon the supplemental valve-stems O, so that the movement of the rod P will actuate these valves and move the stems at right angles with its own motion.

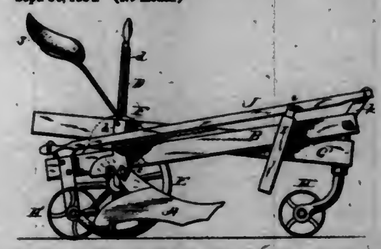
314,690. ATTACHMENT FOR SEWING-MACHINES. Charles S. Knowles, Philadelphia, Pa. Filed Mar. 24, 1884. (No model.)



Claim.—1. An attachment to a sewing-machine, consisting of a bracket having perforated bent upper and lower arms, a hook on the upright portion thereof, and a pin-cushion connected with the lower arm, substantially as and for the purpose set forth.

2. The combination, with the bracket B, having perforated bent upper and lower arms, of the block *a*, secured to the upper face of the lower bent arm, and a pin-cushion connected with said block, substantially as and for the purpose set forth.

314,691. SULKY-PLOW. Thomas H. Latimer, T. B., Md. Filed Sept. 30, 1884. (No model.)



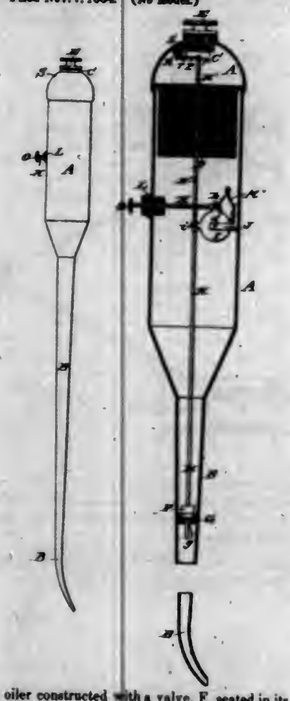
Claim.—1. The combination, with the seat-frame of a sulky-plow and the plow-beam, of a guide secured to the seat-frame and embracing the plow-beam to guide and limit its throw, and a lever pivoted to the said frame and connected by a link to the plow-beam, substantially as and for the purpose set forth.

2. In combination with the seat-frame of a sulky-plow, a caster-support for the front end of the said frame and the plow-beam, a guide secured to the seat-frame and embracing the plow-beam, and a lever

pivoted to the said frame and connected by a link to the said beam, substantially as set forth.

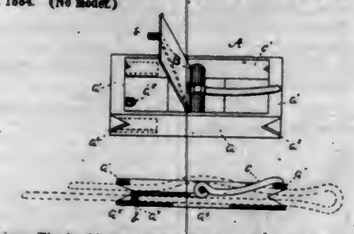
3. The combination, with plow A, plow-beam B, seat-frame G, wheel E, caster H, and roller H', of guide I, secured to the seat-frame, lever J, link *k*, and means, substantially such as described, for adjusting the seat-frame to a level in any position of the plow.

314,692. OILER. JOHN J. LEAVITT and JOHN Q. LEAVITT, Salt Lake City, Utah. Filed Nov. 7, 1884. (No model.)



Claim.—An oiler constructed with a valve, F, seated in its spout or nozzle, and said valve connecting by a rod, H, a disk or bell-crank, I, and a rod, K, with a push-button, O, and said rod H being extended, as at H', and connected with the lever P, which carries the valve R, adapted to close the vent S, and a spring, M, acting to throw the button outward and close the valves F and R, substantially as herein set forth.

314,693. BUCKLE. JOHN E. LEE, Chippewa Falls, Wis. Filed July 21, 1884. (No model.)

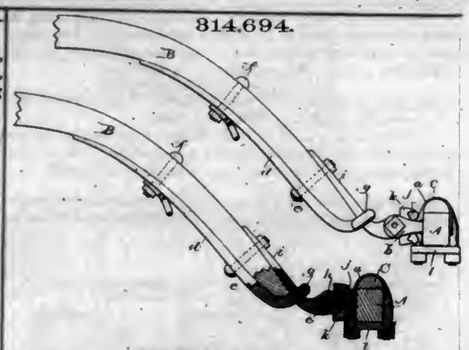


Claim.—The buckle provided with side and open end bars, a suitable base-plate, and central cross-bar, substantially as described, a tongue pivoted to the central cross-bar and extending in one direction and adapted to rest on one of the end bars, and a tongue-plate pivoted to the same cross-bar and extending in the opposite direction from the tongue, and provided with a stud upon its under side adapted to engage an aperture in the said base-plate, substantially as described.

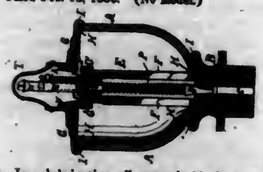
314,694. SHAFT-SHACKLE. BENJAMIN F. LEWIS, Amesbury, Mass. Filed Oct. 13, 1884. (No model.)

Claim.—The strap *i*, formed to be attached to the part of the shackle secured to the axle and to extend along the top of shaft B, in combination with strap *d*, formed with eye *g*, to receive strap *i*, and curved upward a distance sufficient to admit the shaft between said straps, substantially as specified.

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314,695. LUBRICATING-OIL CUP. JOHN E. LONERGAN, Philadelphia, Pa. Filed Feb. 12, 1885. (No model.)



Claim.—1. In a lubricating-oil cup suitably inclosed at the top, the combination of the shell A, base B, central open cylinder, E, attached rigidly to said base, plug J, set in the upper part of said cylinder, standard K, valve D in the upper part of base-opening C, stem L, with its spring P, sleeve M upon the upper part of said stem, provided with the catch O, by the raising and turning of which stem the catch O is made to set upon the top of standard K, whereby the valve can be always opened at a regular feed, arranged and operating substantially as described.

2. In a lubricating-oil cup suitably inclosed at the top, the combination of shell A, base B, central open cylinder, E, supported rigidly from said base, plug J, set in the upper part of said cylinder, standard K, valve D in the upper part of base-opening C, stem L, with its spring P, sleeve M, screwed upon the upper part of said stem, provided with the catch O, the said stem being adapted by its screw-thread to be turned in the screw-thread of the sleeve M, to shorten or lengthen the distance of the sleeve M from the valve D, whereby the quantity of the feed of oil from the valve can be regulated or changed at will, substantially in the manner above set forth.

3. In a lubricating-oil cup suitably inclosed at the top, the combination of shell A, base B, central open cylinder, E, supported rigidly from said base, plug J, set in the upper part of said cylinder, standard K, valve D in the upper part of base-opening C, stem L, with its spring P, sleeve M, screwed upon the upper part of said stem, provided with the catch O, the said stem being adapted by its screw-thread to be turned in the screw-thread of the sleeve M, to shorten or lengthen the distance of the sleeve M from the valve D, whereby the quantity of the feed of oil from the valve can be regulated or changed at will, and the knob N, screwed upon the top of stem L and setting down upon the sleeve M, to serve as a check or lock nut to the latter, substantially as described.

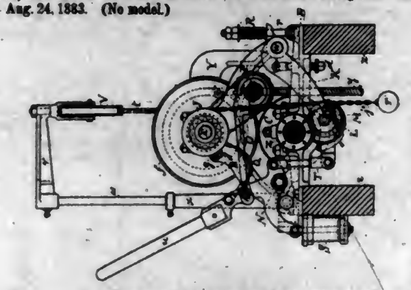
4. In a lubricating-oil cup suitably inclosed at the top, the combination of shell A, base B, central open cylinder, E, supported rigidly from said base, plug J, set in the upper part of said cylinder, standard K, valve D in the upper part of base-opening C, stem L, with its spring P, sleeve M, screwed upon the upper part of said stem, provided with the catch O, the said stem being adapted by its screw-thread to be turned in the screw-thread of the sleeve M, to shorten or lengthen the distance of the sleeve M from the valve D, whereby the quantity of the feed of oil from the valve can be regulated or changed at will, and the knob N, so grooved or indented at the top as to engage or fit over the correspondingly-shaped upper terminus of stem L, substantially as and for the purposes described.

5. In a lubricating-oil cup provided with stem L and valve D, to close opening C in base B of the cup, the combination of the shell A, base B, central open cylinder, E, attached rigidly to said base and sustaining said stem L, cover G, open centrally and secured to the upper part of said cylinder, whereby it can be tightened or removed without disturbing the centrally-operating mechanism to open and close the valve or changing the feed, substantially as described.

6. In a lubricating-oil cup provided with stem L and valve D, to close opening C in base B of the cup, the combination of the shell A, base B, central open cylinder, E, attached rigidly to said base and sustaining said stem L, spring P, standard K, catch O, cover G, open centrally to permit the stem and the parts by which the latter is operated to

be free from and project through it, said cover being detachably secured upon the upper part of said cup, whereby the cover can be tightened or removed without disturbing the feed, substantially as described.

314,696. HOISTING-MACHINE. WM. H. LOTZ, Chicago, Ill. Filed Aug. 24, 1883. (No model.)



Claim.—1. In an automatic hoisting-machine, substantially as described, the frame D, carrying the hoist-rope spool, supported by toes of cam *k* and lever K on set-screws *d*, substantially in the manner set forth.

2. In an automatic hoisting-machine, substantially as described, the frame D, pivotally connected to frame B and depressed by spring R, as and for the purpose set forth.

3. In an automatic hoisting-machine, substantially as described, the lever K, having cam L, that is rotated by wheel Z of driving-shaft A, as and for the purpose set forth.

4. In an automatic hoisting-machine, substantially as described, the lever K, connected by rod T with bell-crank N, and hook-bar O, pivoted to such bell-crank and engaging with hub *q*, rotated by drum-shaft E, substantially as set forth, to operate as specified.

5. In an automatic hoisting-machine, substantially as described, the lever K, having cam L with pin *l*, and hook *o* with spring *p*, as and for the purpose set forth.

6. In an automatic hoisting-machine, substantially as described, the lever K, having cam L and pulley M, both coupled by a pawl, *m*, substantially as and for the purpose set forth.

7. In an automatic hoisting-machine, substantially as described, the lever K, having cam L and pulley M, connected by chain *j''* with pulley J of drum-shaft E, substantially in the manner and for the purpose set forth.

8. In an automatic hoisting-machine, substantially as described, the lever K, having cam L and pulley M, connected by chain *j''* with pulley J, riding upon the screw-threaded end of shaft E and coupling with clutch-nut I, all substantially as and for the purpose set forth.

9. In an automatic hoisting-machine, substantially as described, the clutch-nut I and pulley J on screw-threaded end of shaft E, such pulley J having arm *j*, bearing against stud *g* of frame D, as and for the purpose set forth.

10. In an automatic hoisting-machine, substantially as described, the drum-shaft E, carrying upon its screw-threaded end the clamp-nut I, and pulley J, having arm *j* butting against stud *g*, and both having clutch-teeth to engage each other, such pulley J being connected with pulley M of lever K by a chain, *j''*, having weight *r'*, and pulley M being coupled with cam L by pawl *m*, in combination with driving-shaft A, having friction-wheel Z, all constructed and arranged to operate substantially in the manner set forth.

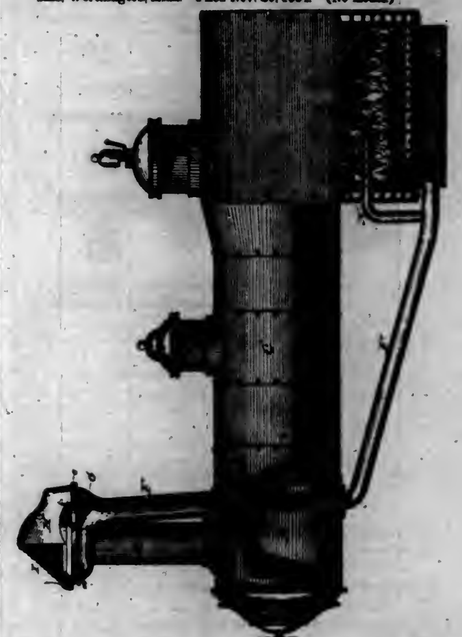
11. In an automatic hoisting-machine, substantially as described, the combination, with lever K, rod T, and bell-crank N, of cylinder S and piston S', as and for the purpose set forth.

12. In an automatic hoisting-machine, substantially as described, the combination, with hook-bar O, of hub *q*, having ratchet-teeth engaging with pawls A' of sprocket-wheel P, driven by endless chain U from sprocket-wheel H of drum-shaft E, all constructed and arranged substantially as and for the purpose set forth.

13. In an automatic hoisting-machine, substantially as described, the combination, with driving-shaft A, having friction-wheels C and Z, of swinging frame D above the driving-shaft, the hoist-drum F, mounted in such frame and having frictional connection with the wheels C, the drum-shaft E, having spool G for the starting-weight rope, sprocket-wheel H, for driving sprocket-wheel P and hub *q* by endless chain U, clamp-nut I, and pulley J, traveling on the screw-threaded end of such drum-shaft and being held from turning with such shaft by arm *j* and stud *g*, and chain *j''*, connecting pulley J with pulley M, that is again connected by pawl *m* with cam L, pivoted to lever K, that controls the elevation of frame D, and is connected by rod T with bell-crank N, carrying hook-bar O, all constructed and arranged to operate substantially in the manner set forth.

14. In an automatic hoisting-machine, the combination, with lever K and bell-crank N, of pulley J, traversing on screw-threaded end of shaft E, coupling with clamp-clutch I, and being connected with bell-crank N by safety-chain Q, all substantially as and for the purpose set forth.

314,697. SPARK ARRESTER AND CONSUMER. CHARLES B. LOVELESS, Worthington, Minn. Filed Nov. 29, 1884. (No model.)



Claim.—1. A smoke-stack provided with a movable or revolving hood having a screen at its front, and a conducting-pipe communicating therewith and with the fire-box of a boiler, substantially as and for the purpose set forth.

2. A smoke-stack provided with a conducting-pipe communicating therewith and with the fire-box of the boiler below the grate, and a perforated branch pipe communicating with the conducting-pipe and entering the fire-box above the grate, substantially as and for the purpose specified.

3. A smoke-stack provided with a revolving hood having a screen, and a conducting-pipe communicating therewith and with a chamber arranged under the fire-box of the boiler, whereby a suction is created to draw the products of combustion through said pipe to the fire-box, substantially as and for the purpose described.

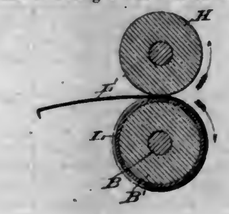
4. A smoke-stack provided with a revolving hood having a screen front, a conducting-pipe communicating with the fire-box of the boiler, and terminating at its opposite or outer end in a funnel-shaped head divided into two separate conduits by a vertical partition, each communicating with the hood, substantially as and for the purpose specified.

5. A smoke-stack provided with a revolving hood and deflecting-plates, and a conducting-pipe communicating with the fire-box of the boiler and with the hood, substantially as and for the purpose set forth.

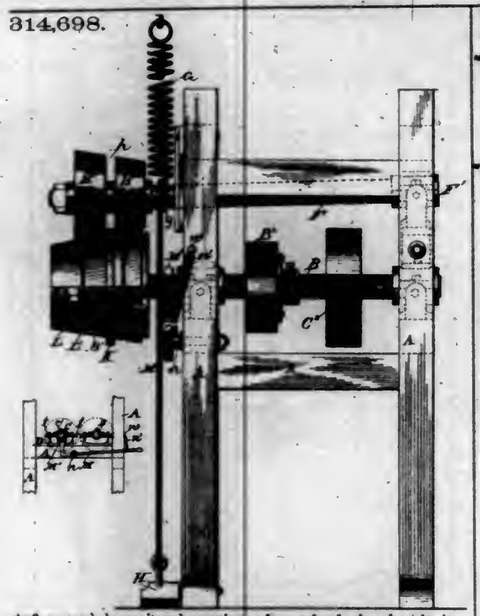
6. A smoke-stack provided with a revolving hood and deflecting-plates, and a conducting-pipe communicating with the hood, and divided into two separate conduits by a suitable partition, said conducting-pipe communicating with the fire-box of the boiler under the grate thereof, and above it by a branch pipe, substantially as and for the purpose described.

314,698. MACHINE FOR WIRING PAILS. HENRY MANN, Milwaukee, Wis. Filed Feb. 10, 1885. (No model.)

Claim.—1. In a machine for wiring pails, a shaft carrying a pail-chuck, mechanism connecting it with a source of power, and another



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shaft suspended over it and carrying a former for forcing the wire into the pail as it is revolved under it by the chuck, as set forth.

2. The combination, with shaft B and its chuck, of the shaft F and its former, the spring-hanger, and treadle, as set forth.

3. The combination, with shaft B and its pulley and former, of the shaft C, having a movable front bearing, a lever, M, and its spring s', as set forth.

314,699. HOSE-COUPLING. CHARLES E. MARE, Flint, Mich. Filed Dec. 10, 1884. (No model.)



Claim.—1. A two-part hose-coupling, each part being a counterpart of the other, and each having two communicating passages, one of which is provided with a rubber bushing, while the other is unprovided with such bushing, substantially as described.

2. The combination, in a two-part hose-coupling having each a curved passage, of a sloping division-wall, which forms one side of such passage, and having two openings therein, one of which is provided with a rubber bushing, and adapted, when the two parts are engaged, to bring the bushed opening into coincidence with the unbushed opening of the other part, substantially as specified.

314,700. LOCOMOTIVE HEAD-LIGHT. JOHN R. MCCORMICK, Austin, Tex., assignor of one-half to Frederick E. Raffini, same place. Filed Apr. 9, 1884. (No model.)

Claim.—1. The combination, with a head-light pivotally secured to a locomotive, and a bar rigidly secured to the movable truck, of a vertical shaft, a horizontal arm or lever rigidly secured to said shaft and loosely connected with the lamp, and links or arms connecting the lower end of the shaft with the bar on the truck, substantially as set forth.

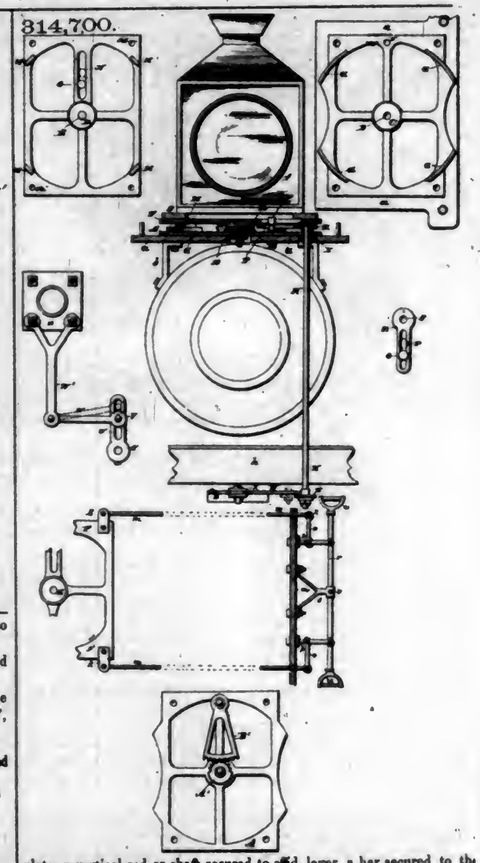
2. The combination, with a head-light pivotally secured to a locomotive, and a bar rigidly secured to the forward truck of said locomotive, of a vertical shaft, a horizontal arm or lever secured to said shaft, a lug or pin connecting the horizontal arm or lever and the lamp, and links or arms connecting the lower end of said shaft with the bar on the truck.

3. The combination, with a head-light pivotally secured to a locomotive, and a vertical shaft for turning said head-light, of a bar secured to the front truck of the locomotive, and adjustable links or arms connecting the bar and shaft, whereby the angle at which the light is turned may be regulated.

4. The combination, with a revolving plate supporting a head-light, of a lower supporting-plate secured to the locomotive, a lever or crank adjustably secured to the revolving plate, and a vertical shaft adjustably connected with the front truck of the locomotive, whereby the light may be turned at any angle with the locomotive, substantially as set forth.

5. The combination, with a revolving plate supporting a head-light, of a lower supporting-plate, a lever adjustably secured to the revolving

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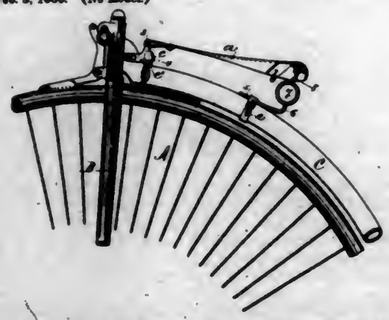


plate, a vertical rod or shaft secured to said lever, a bar secured to the front truck of the locomotive, a link, and a lever adjustably connecting the bar with said shaft, substantially as set forth.

6. The combination, with a head-light rigidly secured to a plate, the latter being pivoted to the locomotive and provided with an oblong slot, of a shaft indirectly connected with the front truck of the locomotive, an arm secured to said shaft, and a lug or pin secured to said arm and resting and moving in the slot in said plate.

7. The combination, with a stationary plate, a plate pivoted to said stationary plate, and a head-light secured to said pivoted plate, of the upright shaft adjustably connected at its lower end to the forward truck of the locomotive, and adjustably connected at its upper end to the pivoted plate.

314,701. BICYCLE-SADDLE. WM. D. MCCOY, Orange, N. J. Filed Feb. 3, 1885. (No model.)



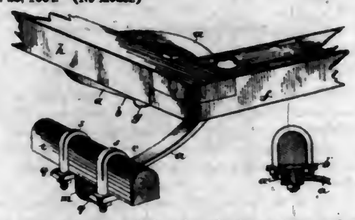
Claim.—1. In a bicycle-saddle, the combination, with the flexible seat or saddle, of a clip, *c*, for connecting the front of the saddle to the neck of the bicycle-backbone, a rubber buffer, *c'*, in said clip, and a spring formed of a single wire or rod coiled and connecting the frame of the

saddle to the bicycle-backbone, respectively, substantially as and for the purposes set forth.

2. In a bicycle-saddle, the combination, with the flexible seat and a spring for connecting the back frame of the saddle to the bicycle-backbone, of a clip, *c*, having perforated arms 1 2, bolted to the neck, an eye, 3, for the saddle, a shell portion, 4, and a rubber block or buffer, *c'*, substantially as set forth.

3. In a bicycle-saddle, the combination, with the flexible seat and an independent clip connecting the front of the saddle to the neck of the bicycle-backbone, of a double coiled spring formed of a single piece of wire having the parallel and inclined portions 5, the return-bends 6, the coils 7, and the upper portions, 8, to connect the spring to the saddle, and a clip for connecting said spring upon the backbone, the parts being constructed and operating substantially in the manner and for the purposes set forth.

314,702. VEHICLE-SPRING. HOLLIS W. MOORE, Olean, N. Y. Filed Dec. 23, 1884. (No model.)



Claim.—1. A wagon coiled spring the free or outer end of which crosses the upper or inner end at or nearly at right angles thereto, substantially as set forth.

2. The combination, with a side bar and body-frame, of a coil-spring the outer end of which crosses the inner end at or nearly at right angles, the said upper end being rigidly secured to the body, and the opposite end yieldingly secured to the side bar, substantially as set forth.

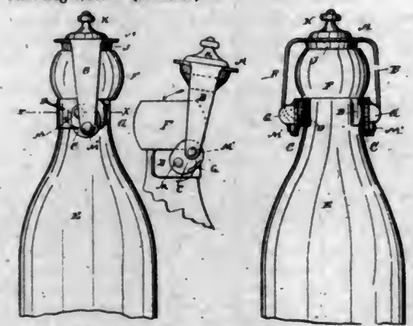
3. The combination, with a side bar, a socketed plate secured to said side bar, and provided with a slot in one face thereof, and a vehicle-body, of the spring, bent substantially as described, and secured at one end to the body and provided at its opposite end with an enlarged head, which latter rests within the socket in the plate, substantially as set forth.

4. The combination, with a side bar and body-frame, of a coil-spring one end of which is adapted to be rigidly secured to the body, and the opposite end bent around in curved form, crossing the said end portion at or nearly at right angles thereto, and extending outwardly a short distance therefrom, substantially as set forth.

5. The combination, with a side bar and body-frame, of a coil-spring one end of which is adapted to be rigidly secured to the body, and the opposite end yieldingly secured to a socket-plate, and rubber cushions located above and below the said end in the hollow plate, substantially as set forth.

6. A wagon-spring one end of which is L-shaped, for attaching it securely to the body, and the opposite end provided with an eye for attaching it to the side bar by means of a bolt, pin, or stirrup, the shape of the spring being such as to form a loop, the side-bar end crossing the body end below and at or nearly at right angles thereto, substantially as set forth.

314,703. BOTTLE-STOPPER. CHAS. L. MOREHOUSE, Brooklyn, N. Y. Filed Aug. 1, 1884. (No model.)

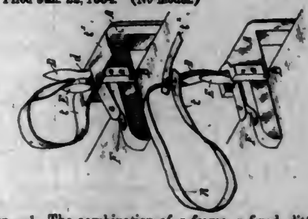


Claim.—1. In a bottle-stopper, the combination, with the plate A, having arms B, of the band or ring D and the links C, pivoted eccentrically to the band or ring D, and to the arms B, and provided with the flanges or wings G, substantially as herein shown and described.

2. The combination, with the ring D and links C, each having parts pressed out to form sockets, of the plate A, provided with arms B, having parts pressed out to form sockets, and of the pivots M M', passing through the socketed parts of the ring, links, and arms, substantially as set forth.

3. In a bottle-stopper, the combination, with the ring or band D, of the links C, the plate A, having arms B, and of the head or button K on the plate, substantially as herein shown and described.

314,704. CARPET-RAG LOOPER. HENRY A. MORROW, Philadelphia Pa. Filed Jan. 22, 1884. (No model.)

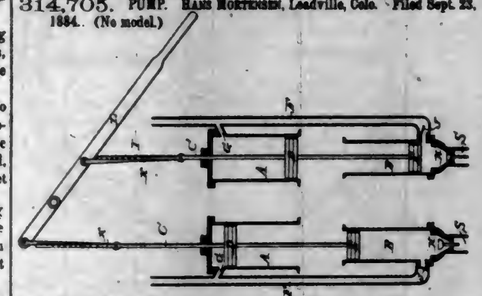


Claim.—1. The combination of a frame, a fixed slitter, and a pivoted slitter, substantially as and for the purposes described.

2. The combination of a retaining-frame, a fixed slitter, a pivoted slitter, and a spring for controlling the movement of the pivoted slitter, substantially as described.

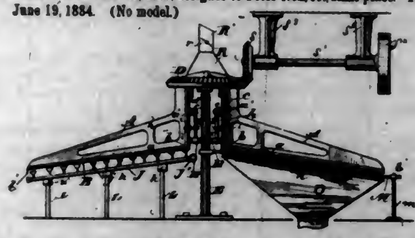
3. The combination of the frame, the fixed slitter having a blunt-sided throat, the pivoted slitter likewise having a blunt-sided throat, and provided with a thumb-heel or kindred projection, by means of which it can be tilted, and the spring for controlling the position of said pivoted slitter, substantially as set forth.

314,705. PUMP. HANS MORTENSEN, Leadville, Colo. Filed Sept. 23, 1884. (No model.)



Claim.—In a pump, the combination, with the cylinders A, open at the bottom, and the cylinders B, open at the top, of the piston-rods C, the pistons D and E, mounted on the same within the cylinders A and B, respectively, and of the stand-pipes F, connected with the bottoms of the cylinders B and the tops of the cylinders A, substantially as herein shown and described.

314,706. APPARATUS FOR MANUFACTURING LAMP-BLACK. PETER NEFF, Gambier, Ohio, assignor to Peter Neff, Jr., same place. Filed June 19, 1884. (No model.)



Claim.—1. In a machine for the manufacture of lamp-black, the combination, with the stationary burners, of a horizontally-rotating table, the under surface of which is more or less conical or concaved, the said table being provided with a central draft-opening, substantially as set forth.

2. In a machine for the manufacture of lamp-black, the combination, with burners and a standard, of a horizontally-rotating table mounted on said standard, and a series of rollers connected to the table and bearing against the standard, substantially as set forth.

3. In a machine for the manufacture of lamp-black, the combination, with stationary burners, of a horizontally-rotating table provided with a central chimney, substantially as set forth.

4. In a machine for the manufacture of lamp-black, the combination, with a horizontally-rotating table provided with a central chimney and arranged, preferably, as described, of mechanism by means of which the table may be rotated, substantially as set forth.

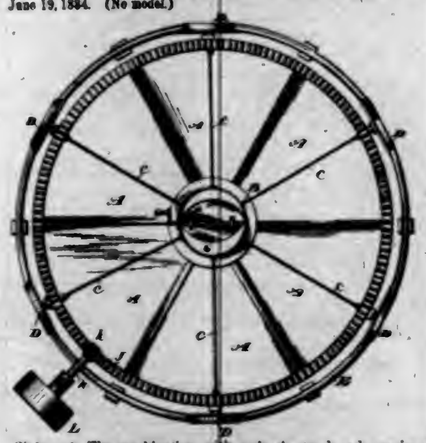
5. In a machine for the manufacture of lamp-black, the combination, with a horizontally-rotating table and a spindle located above and connected with said table, of a standard on which the spindle rests and moves, and stationary burners located in close proximity to the under surface of the table, substantially as set forth.

6. The combination, with a horizontally-rotating table provided with a chimney and pivotally supported on a central column, of lateral wheels arranged to engage the said column and journaled on axles pivotally secured to the said table or its attachments, and provided with suitable mechanism, preferably as described, by means of which the relative position of the table and lateral wheel may be adjusted radially, substantially as set forth.

7. In a machine for the manufacture of lamp-black, the combination, with a horizontally-rotating table provided with a chimney and suitable hood or connections for conducting the escaping gases and smoke from the chimney, of a damper located in the chimney or attachments, and so arranged that the draft through the chimney may be controlled thereby, substantially as set forth.

314,707. APPARATUS FOR MANUFACTURING LAMP-BLACK.

PETER NEFF, Gambier, Ohio, assignor to Peter Neff, Jr., same place. Filed June 19, 1884. (No model.)



Claim.—1. The combination, with a circular track and a series of stationary burners and scrapers, of a horizontally-rotating table located above the burners and scrapers, a series of wheels connected to the periphery of and supporting the table, and mechanism for rotating the table, substantially as set forth.

2. The combination, with a horizontally-rotating table having a central chimney or draft-opening, of a track, a series of wheels supporting the table and moving on the track, and mechanism for rotating the table.

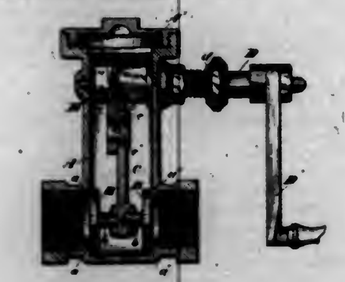
3. In a machine for the manufacture of lamp-black, the combination, with a conical horizontally-revolving table mounted on wheels that travel on a circular track, of a central chimney provided with a damper, substantially as set forth.

4. In a machine for the manufacture of lamp-black, the combination, with a horizontally-rotating table, of a band around the periphery of the table, and made adjustable vertically, so that it may be made to depend more or less below the table, substantially as set forth.

5. In a machine for the manufacture of lamp-black, the combination, with a horizontally-rotating table mounted on wheels traveling on a circular track, of axles so arranged that they may be adjusted radially with the track, substantially as set forth.

314,708. STRAIGHT-WAY VALVE.

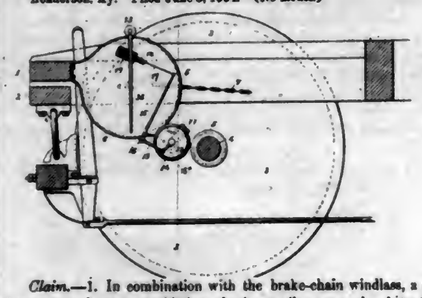
PETER R. PAGE, Lorain, Ohio. Filed Nov. 19, 1884. (No model.)



Claim.—The combination, with the casing, spindle, crank, arm, and rim *e*, of a single valve-link provided with the band *c*, and arranged to operate two valves connected with converging valve-seats, substantially as set forth.

314,709. ELECTRO-MAGNETIC CAR-BRAKE.

HARVEY S. PARK, Henderson, Ky. Filed June 3, 1884. (No model.)



Claim.—1. In combination with the brake-chain windlass, a train of concave and convex V friction wheels or rolls, arranged, substantially as described, between said windlass and the truck-axle, and fixed hangers or supports having circular bearings for said windlass, and slotted bearings for the intermediate friction-roller, substantially as and for the purpose set forth.

2. In an electro-magnetic car-brake, the combination of a roller having capacity for lateral movement, an electro-magnet, a movable armature therefor, and a bell-crank lever pivoted to a fixed portion of the frame, having connection at one end to said armature, and bearing beneath or surrounding the axis of said roller at its other end, substantially as and for the purpose set forth.

3. In combination with a system of brake-beams, levers, windlass, and chain, a friction disk or roller fixed to the truck-axle, a second friction-disk on the brake-chain windlass, a third friction-disk on a shaft intermediate between the truck-axle and windlass, hangers fixed to the truck-beams, and having circular bearings for the windlass and slotted bearings for the journals of said intermediate shaft, and a bell-crank lever pivoted to one of said hangers, bearing beneath the said intermediate shaft at one end, and having means of actuating its other end to apply or release the brakes, substantially as set forth.

4. In combination with a brake-chain windlass, a cylinder or roller having rigid connection therewith, means for imparting rotation thereto in one or the other direction, according to the direction of motion of the train, a pair of racks having teeth inclined in opposite directions, and a pair of oppositely-turned pawls for locking said cylinder or roller in position at the proper point of brake application and in either direction of rotation thereof, substantially as set forth.

5. In combination with brake-chain windlass, cylinder, or roller having rigid connection therewith, and means for imparting motion from the truck-axle in one or the other direction to said cylinder or roller, the fixed hangers or supports having bearings for said windlass, and double ratchet and pawl arranged to lock the cylinder in either direction at any desired point of brake application, substantially as set forth.

6. In combination with the cylinder having rigid connection with the brake-chain windlass, and carrying oppositely-faced ratchets, the fixed hangers having oppositely-turned pawls arranged to engage said ratchets and means of tripping said ratchets, for the purpose set forth.

7. In combination with the brake-chain windlass and a cylinder or roller having rigid connection therewith and carrying oppositely-faced ratchets, the fixed hangers or supports and the oppositely-turned pawls pivoted thereon, said pawls having weighted heads, arranged substantially as described.

8. In combination with a cylinder or roller and mechanism for imparting rotary motion thereto to effect the application of the brakes, locking pawls and ratchets, and a pivoted arm having frictional contact with said roller at one end, and extending between said pawls at the other end when in a state of rest, substantially as and for the purpose set forth.

9. In combination with a cylinder or roller, mechanism for imparting motion in one or the other direction to said cylinder or roller to effect the application of the brakes and locking pawls and ratchets, the pivotal arm extending between said pawls at one end, and having anti-friction wheel or roller at the other, substantially as set forth.

10. The combination, with the rotary cylinder or roller on the brake-chain windlass, having ratchet-teeth, substantially as described, and the pawls for engagement therewith, of the arm pivoted to said windlass and carrying anti-friction wheel or roller at one end, and the stops fixed to the windlass-supporting frame or hanger on each side of the said arm to limit its motion, substantially as set forth.

11. In combination with the locking-cylinder, pawls, and ratchets, the pivotal arm having a plate-spring fixed to one end projecting between said pawls when at rest, and suitable means for imparting oscillation to said arm, substantially as set forth.

12. In a brake apparatus, the combination of a rotary shaft, two sets of ratchet-teeth inclined in opposite directions, a pair of pawls, means for throwing either of them into engagement with its ratchet, and a tripping device for freeing said pawls, operated by an electro-magnet, as set forth.

13. In combination with the locking-cylinder, pawls, and ratchets, the pivotal tripping-lever, electro-magnet, movable armature, and transmitting mechanism, substantially as described.

14. The combination, with the rotary cylinder or roller having the ratchet-teeth, substantially as described, and the pawls for engaging therewith, of a tripping-lever for engaging with said pawls, a hollow magnet, a movable core-armature, and means for transmitting motion from said armature to said lever, as described.

314,710. TRIMMING ATTACHMENT FOR SEWING-MACHINES.

T. S. PARKER, Schenectady, N. Y. Filed Nov. 24, 1882. Renewed July 22, 1884. (No model.)



Claim.—1. In a sewing-machine trimmer, the combination of an upper movable knife, a lower stationary knife arranged horizontally on one side of said upper knife, and a lower stationary knife arranged in a vertically-inclined position on the opposite side of the upper knife, substantially as described.

2. In a sewing-machine trimmer, the combination of an upper knife, a slotted cloth-plate, a nearly vertical lower knife adjustably secured to a knife-carrying bar having a longitudinal adjustment within a slot formed in the cloth-plate, and means for securing said bar in position, substantially as described.

3. In a sewing-machine trimmer, the combination of an upper knife, a slotted cloth-plate, a nearly vertical lower knife, a knife-carrying bar curved at one end and provided with an inclined bearing for said lower knife, means for adjustably securing said knife, a horizontal knife resting on the knife-carrying bar, and forming one side of a slot that receives the cutting-edge of the upper knife, and means for securing and imparting a longitudinal adjustment to the knife-carrying bar and horizontal knife, substantially as described.

4. In a sewing-machine trimmer, the combination of the slotted cloth-plate A, feed mechanism G, bridge-piece H, movable knife E, slotted knife-carrying bar B, the lower stationary knife, C, adjustably secured to said bar by means of a clamp, F, and screws *f*, and arranged in a vertically-inclined position with its cutting-edge between the upper knife and the feed, the horizontal slotted knife D, resting on the knife-carrying bar B, and the shouldered stud *e*, adapted to clamp said parts in position, substantially as described.

5. In a sewing-machine trimmer, the combination of the movable knife E, the slotted cloth-plate A, the knife-carrying bar B, the lower stationary knife, C, having clamp F and screw *f*, and means for imparting longitudinal adjustment to the lower knife-carrying bar, substantially as described.

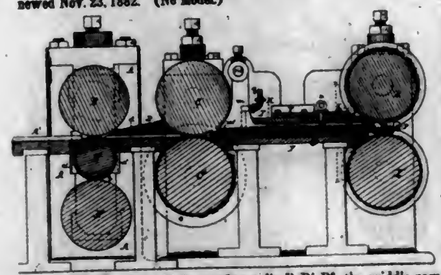
314,711. PROCESS OF FREEING QUICKSILVER FROM LEAD.

A. PATCHEN, Westfield, N. Y. Filed May 21, 1884. (No specimens.)

Claim.—The process herein described of freeing quicksilver from lead, which consists in agitating the same in the presence of a solution of the sulphate of copper, substantially as specified.

314,712. MACHINE FOR SCARFING AND BENDING TUBE-SKELPS.

PETER PATTERSON and HENRY E. BOYD, McKeesport, Pa., assignors to the National Tube Works Company, Boston, Mass. Filed Feb. 21, 1881. Renewed Nov. 23, 1882. (No model.)



Claim.—1. The three-high scarfing-rolls B B' B^2, the middle row, B', having the scarfing-depression and being capable of being withdrawn through the side of the housing, substantially as and for the purposes set forth.

2. The combination of the housings A, the three-high rolls B B' B^2, the small middle roll capable of being withdrawn through the side of the housing, and the journal-boxes *a a'*, one having the lugs a^2, for the reception of the pin a^3, passing through the housing, substantially as and for the purposes set forth.

3. In combination with the scarfing-rolls B B' and bending-rolls C C', mounted in line therewith, the guide-box D, secured between said scarfing-rolls and bending-rolls, and having the pass *d*, flat at the entrance and concavo-convex at the discharge, substantially as and for the purposes set forth.

4. The bending-box F, having the longitudinal ridge *k*, depressions *l l'* on either side of the ridge, and gradually-converging sides *g g*, extending beyond the bending-box roof, substantially as and for the purposes set forth.

5. In bending-boxes for the manufacture of tubing, the combination of the guide-plate G and the former H, having the longitudinal ridge *k* and gradually-converging sides *g g*, the former being capable of vertical adjustment from and toward the guide-plate to adapt it for use in bending different diameters of skelp, substantially as set forth.

6. The improved bending-box F', for bending tube-skelp, having the longitudinal ridge *k* and gradually-converging sides *g g*, and provided with the removable shoe S, secured therein at the delivery end, substantially as and for the purposes set forth.

7. The mandrel-bar M, attached to the frame above and extending through the bending-box, and provided with the heel m^2, extending between the bending-rolls, substantially as and for the purposes set forth.

8. The mandrel-bar M, extending through the bending-box, in combination with the mandrel N, supported between the lapping-rolls, and so removably secured to the mandrel-bar as to be removed at the rear of the rolls, substantially as and for the purposes set forth.

9. The combination of the mandrel-bar M, tubular ball N, and headed rod P, passing through the ball and removably secured to the mandrel-bar, substantially as and for the purpose set forth.

10. The combination of the mandrel-bar M, tubular ball N, and headed rod P, extending through the ball into the bar and secured therein by a pin, *r*, substantially as and for the purposes set forth.

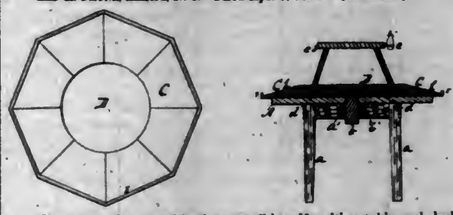
11. The combination of the guide-plate G, the former H, having the converging sides *g g*, the longitudinal ridge *k*, and the depressions *l l'* on either side of the ridge, and the suspended mandrel-bar M, passing through between the guide-plate and former, substantially as and for the purposes set forth.

12. The combination of the mandrel-bar formed hollow for the passage of water, the tubular ball N, and the headed rod P, passing through the ball and loosely secured in the hollow of the bar.

13. The combination of the bending-box F, having the longitudinal ridge *k*, depressions *l l'* on either side thereof, and gradually-converging sides *g g*, extending beyond the bending-box roof, the lapping-rolls E E', one having the annular groove *e*, and the mandrel-bar M, extending through the bending-box and supporting the mandrel between the rolls, substantially as and for the purposes set forth.

314,713. COMBINED SELF-WAITING TABLE AND DESK.

RICHARD A. PAYNE, Enfield, N. C. Filed Apr. 8, 1884. (No model.)



Claim.—1. In a combined convertible self-waiting table and desk, the combination of a stationary table, a central rotating table, and a detachable desk-section, substantially as and for the purposes specified.

2. The combination of a stationary table, a detachable centrally-arranged rotating table, and a detachable annular sloping desk-section, which encircles the rotating table, substantially as and for the purposes specified.

314,714. DROP-PERCH FOR VEHICLES.

HENRY W. PELL, Rome, N. Y. Filed July 28, 1884. (No model.)

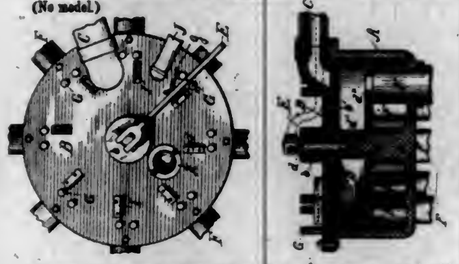


Claim.—1. In combination with the head-block H and perches P P, the transom-plate *a*, having the arms *b b* integral with it and extended under the perches, and the braces *c c* on top of the perches and extended

across the top of the transom-plate and countersunk in the under side of the head-block, substantially as described and shown.

2. In combination with the head-block H, perches P P, and the transom-plate *a*, formed with the arms *b b*, the braces *c c* on top of the arms *b b*, and extended between and across the transom-plate and head-block and shouldered against the side of the head-block, substantially as shown and set forth.

314,715. APPARATUS FOR SEPARATING AND DISTRIBUTING DISTILLATES. GEO. H. PERKINS, Philadelphia, Pa. Filed May 2, 1884. (No model.)



Claim.—1. In combination with an inclosed casing provided with distributing-pipes, a rotatable pan provided with an outlet adapted upon the rotation of the pan to register with respect to any given distributing-pipe, substantially as set forth.

2. In combination with an inclosed casing provided with distributing-pipes and a slop-line pipe, a rotatable pan provided with an outlet adapted upon the rotation of the pan to register with respect to any given distributing-pipe.

3. In combination with an inclosed casing provided with distributing-pipes, a rotatable pan provided with an outlet adapted upon the rotation of the pan to register with respect to any given distributing-pipe, and means for causing the rotation of the pan, substantially as set forth.

4. In combination with an inclosed casing provided with distributing-pipes, a rotatable pan provided with an outlet adapted upon the rotation of the pan to register with respect to any given distributing-pipe, means for causing the rotation of the pan, and means for securing the pan fixedly in given positions, substantially as set forth.

5. In combination with an inclosed casing provided with distributing-pipes, a distillate-inlet pipe and a gas-outlet, a rotatable pan provided with an outlet adapted to register with any one of the distributing-pipes into which pan said distillate-pipe discharges, substantially as set forth.

6. In combination with an inclosed casing provided with distributing-pipes and a slop-line pipe, a rotatable pan provided with an outlet adapted to register with any one of the distributing-pipes or with the slop-line pipe, into which pan said distillate-pipe discharges, substantially as set forth.

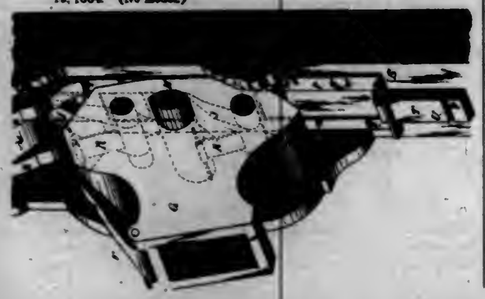
7. In combination with an inclosed casing provided with distributing-pipes, a distillate-inlet pipe and a gas-outlet, a rotatable pan provided with an outlet adapted to register with any one of the distributing-pipes, into which pan said distillate-pipe discharges, and means for rotating the pan, substantially as set forth.

8. In combination with an inclosed casing provided with distributing-pipes, a distillate-inlet pipe and a gas-outlet, a rotatable pan provided with an outlet adapted to register with any one of the distributing-pipes into which pan said distillate-pipe discharges, means for rotating the pan, and means for locking the pan in different positions, substantially as set forth.

9. In combination with the inclosed casing, the rotatable pan, the handle and stops, and the finger-indices, substantially as set forth.

10. The combination of the casing having a cover-plate provided with a depending flange, *b'*, and the rotatable pan provided with the inturned edge *c*, substantially as and for the purposes set forth.

314,716. LIFTING-JACK. THOMAS PEARCE, Eureka, Cal. Filed Aug. 19, 1884. (No model.)



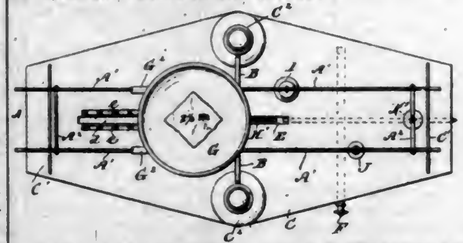
Claim.—1. The friction-clamp consisting of the jaws K, the head L, with its operating-lever, and the trunnions N, turning in holes in the plates or jaws K, and having a journal pin or axis eccentric to the circumference, whereby the jaws are forced against the rack-bar by the movement of the lever, substantially as herein described.

2. In a lifting-jack, the standard A, vertically-moving rack-bar B, the pawl-block G, with its lever and pawls I and J, with the plate P, in combination with the friction-clamp K, L, and N, substantially as and for the purpose herein described.

3. In a lifting-jack, the oscillating pawl-block with the pawls I and J engaging the rack-bar, a friction-clamp, K, with its eccentric operating-head L, having a recess or notch at its lower side, together with an arm or pawl, V, hinged to the upper part of the block G, so that it may be made to engage with the recess in the head L, substantially as and for the purpose herein described.

4. In a lifting-jack, the standard with a vertically-sliding rack-bar, an oscillating head having pawls I and J engaging the rack-bar, together with the sliding plate P, having slots through which the pawls project, and by which they may be thrown out of contact with the rack-bar, substantially as herein described.

314,717. WEIGHING AND PRICE SCALE. JULIUS E. PITRAT, Gallipolis, Ohio. Filed Jan. 24, 1885. (No model.)



Claim.—1. The combination, in a scale, of the lever having a true and indicating series of graduations, and the scale-pan having supports and pointers, substantially as set forth.

2. In a scale, a lever pivotally supported between its ends, and provided on one side of its support with true graduations *a* and indicating-graduations *a'*, and on the other side of its support with graduations a^2, corresponding to graduations *a*, and with graduations a^3, substantially as set forth.

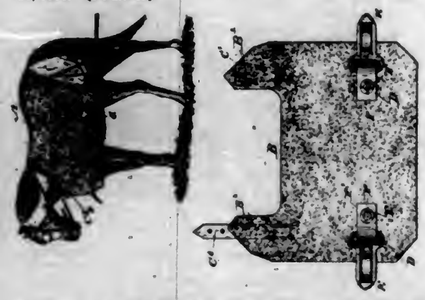
3. The combination of the base, the lever, the pan having a depending rod, H, the movable cross-head E, means for clamping such cross-head in position, and a rod, H', connecting the rod or bar H with the cross-head, substantially as set forth.

4. The combination, with the lever, the pan having depending rod H, and the base having a keeper or keepers, F', and guides D, of the cross-head having a rod, E, the rod H', connecting the rod H and cross-head, and the wedge-bar F, substantially as set forth.

5. In a computing-scale, a lever pivotally supported between its ends and provided on one end with a true and an indicating series of graduations, and on its other end with a graduation corresponding to the true series, substantially as set forth.

6. The combination of a graduated lever, a support having a graduation corresponding to that of the lever, and a scale-pan supported on the lever and provided with a rod registering with the graduation on the support, substantially as set forth.

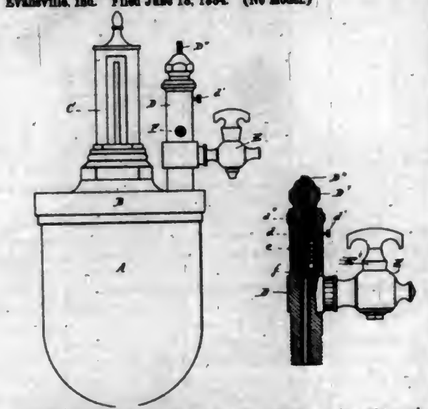
314,718. HORSE-COVER. HUGH REA, Village Green, Pa. Filed Jan. 17, 1885. (No model.)



Claim.—1. A horse-cover having a strap, D, secured to the under side of cover A, upon each side, by rivets and washers, and having snap-hook E, designed for attaching the cover to the breech-strap or its rings, substantially as shown and described.

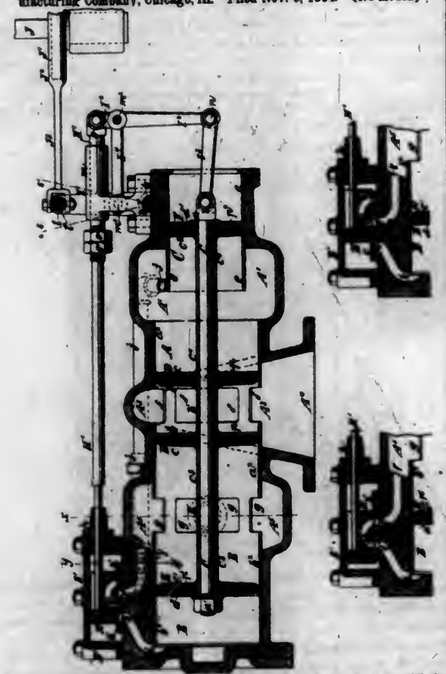
2. A horse-cover having straps and snap-hooks for attachment to the breech-straps, secured in the manner as described, in combination with the strap C, having buckle C' and strap C^2, substantially as shown and described.

314,719. SAFETY-VALVE AND BLOW-OFF COCK. DAVID F. REESE, Evansville, Ind. Filed June 18, 1884. (No model.)



Claim.—As an improved article of manufacture, the safety-valve and blow-off cock constructed in one device, and consisting of a main tube, a plug fitted in one end, and an interior valve-seat, a valve fitted upon the seat, having its rod extended through said plug, a spiral spring fitted upon said valve, a washer interposed between the spring and plug, and a set-screw to maintain the washer within the main tube when the plug is removed, and a cock-tube extended from one side of the main tube communicating with the interior thereof, and provided with a cock-plug.

314,720. VALVE FOR HYDRAULIC ELEVATORS, &c. GEORGE H. REYNOLDS, New York, N. Y., assignor of one-half to Crane Brothers Manufacturing Company, Chicago, Ill. Filed Nov. 6, 1884. (No model.)



Claim.—1. The combination, with a main-valve cylinder, with its working-port and the larger and smaller controlling-cylinders on opposite sides thereof, the supply-passage between the valve-cylinder and smaller controlling-cylinder, and the discharge-passage between the smaller controlling-cylinder and the valve-cylinder and the larger controlling-cylinder, of the main valve and controlling-pistons fitting said cylinders and an auxiliary valve for controlling the passage of water under pressure to the outer end of the larger controlling-cylinder and its exhaust therefrom, substantially as herein described.

2. The combination, with the casing comprising the valve-cylinder and controlling-cylinders A B C, and the supply, working, and discharge belts and ports A' A^2 *f* A^3 *g*, of the main valve D and larger and smaller controlling-pistons E F on opposite sides thereof, and an auxiliary valve for controlling the supply of water to and the exhaust of water from the outer end of the controlling-cylinder B, substantially as herein described.

3. The combination, with the casing comprising the valve-cylinder and its port, the larger and smaller controlling-cylinders on opposite sides thereof, the intermediate supply and discharge spaces, and the ports *i i'*, of the main valve and larger and smaller controlling-pistons fitting said cylinders, an auxiliary valve-chest and an auxiliary valve for controlling the said ports *i i'*, and a pipe or passage for supplying fluid under pressure to the auxiliary valve-chest, substantially as herein described.

4. The combination, with the casing comprising the valve-cylinder with its port, the larger and smaller controlling-cylinders, the intermediate supply and discharge spaces, A' A^2, the ports *i i'*, and the chest B', of the main valve and controlling-pistons, the auxiliary valve controlling the ports *i i'*, and a pipe or passage for conducting water under pressure from the said supply-space to the valve-chest B', all substantially as herein described.

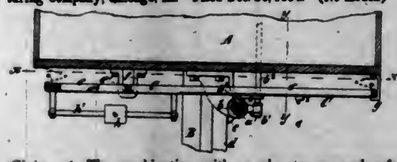
5. The combination, with the casing comprising the valve-cylinder A, the controlling-cylinders B C, the intermediate supply and discharge spaces, the ports *i i'*, and the passage *j'*, of the main valves and controlling-pistons D E F, the valve-chest B', the auxiliary valve H, and a pipe or passage, *j*, leading from the supply-space to the cavity or passage *j'*, for admitting water under pressure to the valve-chest B', substantially as herein described.

6. The combination, with a main-valve cylinder with its working-port and the larger and smaller controlling-cylinders on opposite sides thereof, the supply-passage between the smaller controlling-cylinder and the valve-cylinder, and the discharge-passage between the larger controlling-cylinder and the valve-cylinder, of the main valve and controlling-pistons fitting said cylinders, an auxiliary valve for controlling the passage of water under pressure to the outer end of the larger controlling-cylinder and its exhaust therefrom, connections through which said auxiliary valve is operated automatically by the moving main valve and controlling-pistons, and connections through which the auxiliary valve may be shifted by the operator independently of its automatic movement, substantially as herein described.

7. The combination, with a main valve and its cylinder and controlling pistons and cylinders on opposite sides thereof, as described, of an auxiliary valve for controlling the supply of water to and its exhaust from the outer end of the larger controlling-cylinder, a lever through which said auxiliary valve is operated automatically by the moving main valve and controlling-pistons and which is fulcrumed between its ends, and connections through which the fulcrum of said lever and the auxiliary valve may be shifted by the operator independently of the automatic movement of the valve, substantially as herein described.

8. The combination, with a main valve and cylinder and a controlling piston and cylinder connected therewith, and an auxiliary valve for controlling the admission of water to and its exhaust from the controlling-cylinder, of the lever I^2 and rod I^3, connecting the auxiliary valve-stem and the piston-rod, the rock-shaft I and levers I', the rods or links I^4, connecting the levers I' and I^2, and connections whereby the levers I' and parts connected therewith may be shifted by the operator, substantially as herein described.

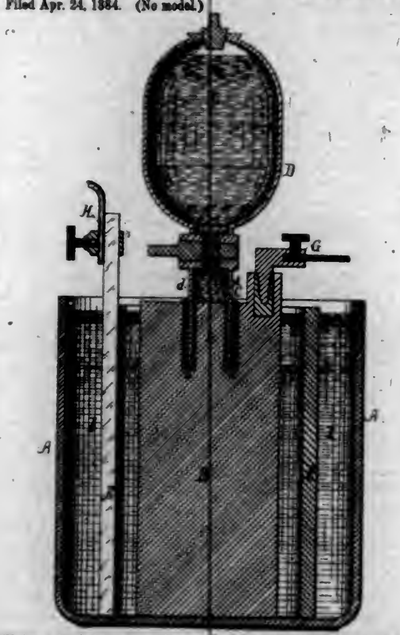
314,721. SAFETY APPLIANCE FOR ELEVATORS. GEORGE H. REYNOLDS, New York, N. Y., assignor of one-half to Crane Brothers Manufacturing Company, Chicago, Ill. Filed Dec. 26, 1884. (No model.)



Claim.—1. The combination, with an elevator-car and safety devices therefor, of an air-resistance plate or board provided with trunnions, hangers, or brackets on the under side of the car, constituting open or slotted bearings, which support the trunnions and permit of their rising, and a catch upon said plate or board for holding the safety devices out of operation, whereby the said plate or board will be raised to release the safety devices in case of its striking any obstruction at any part of its surface, substantially as herein described.

2. The combination, with an elevator-car and its safety dogs or pawls, of a safety-spring which is held compressed when the hoisting-cables are intact, a plate or board arranged below the car, to be lifted by the resistance of air when the desired speed is exceeded, and forming a stop or catch for the safety dogs or pawls, and connections whereby said plate or board will be raised by the safety-spring in case of the cables parting, substantially as herein described.

314,722. ELECTRIC BATTERY. ISAIAH L. ROBERTS, Brooklyn, N. Y. Filed Apr. 24, 1884. (No model.)



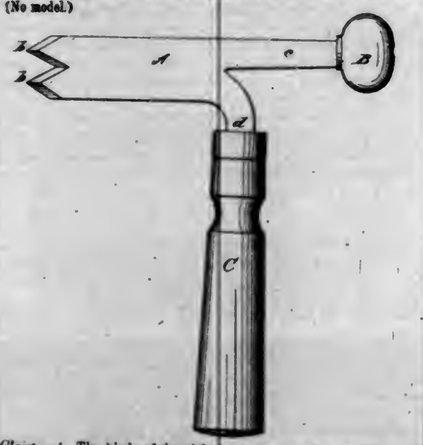
Claim.—1. A battery carbon and a reservoir or liquid-holder arranged at the upper portion of said carbon and communicating with the pores or interstices of the carbon.

2. A battery element of carbon, an attached reservoir or liquid-holder, and a controlling-cock between the reservoir or liquid-holder and the carbon, to regulate and control the supply of fluid from the reservoir to the carbon.

3. A battery element consisting of a carbon and an attached elevated reservoir united by a substance which adheres to both.

4. A battery element consisting of a carbon and an attached reservoir united by inserting the neck of the reservoir into a hole in the carbon, and then forming the union by packing the space between the exterior of the neck and the interior of the carbon-hole.

314,723. ICE-PICK. ETHAN ROGERS, Cohoes, N. Y. Filed Dec. 27, 1884. (No model.)



Claim.—1. The blade of the pick, having serrated or cutting points at its one end, a weighted head at its opposite end, and an angularly-arranged intermediate shank for the handle of the pick, essentially as described.

2. The blade A, serrated at its one end, as described, and cut or divided to form a back or head extension, e, and intermediate angularly-arranged shank, *d*, in combination with the head-weight B and handle C, the whole being arranged in relation with each other, substantially as and for the purposes herein set forth.

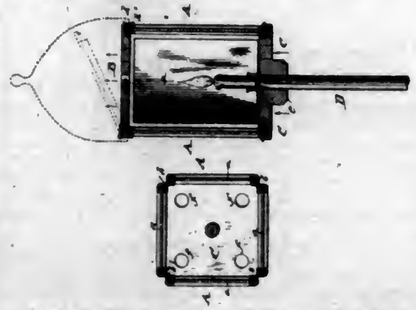
314,724. BAG OR SATCHEL HANDLE. WILLIAM RÖMER, Newark, N. J. Filed Jan. 23, 1885. (No model.)



Claim.—1. The improved handle consisting, essentially, of a strap, metal plates arranged on opposite sides thereof to give strength to the handle, the edges of the said strap *a* projecting beyond said plates, and a covering secured to said edges, substantially as described.

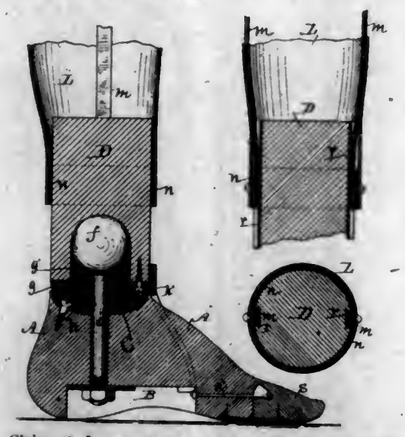
2. In a bag-handle, the oppositely-concaved plates *b c*, having a projecting strap or piece therebetween, projecting to receive a covering and said covering, said parts being arranged and combined substantially as set forth.

314,725. TORCH. JOHN H. J. RONNER, New York, N. Y. Filed Aug. 14, 1884. (No model.)



Claim.—A folding lantern consisting of a body, A, having hinged sides *a a*, with transparent panels, perforated top B, and bottom C, both having recessed edges to fit into the body and hold it in shape, and means to attach the top and bottom to the body, substantially as set forth.

314,726. ARTIFICIAL LEG. JAMES F. ROWLEY, Des Moines, Iowa. Filed Jan. 10, 1885. (No model.)



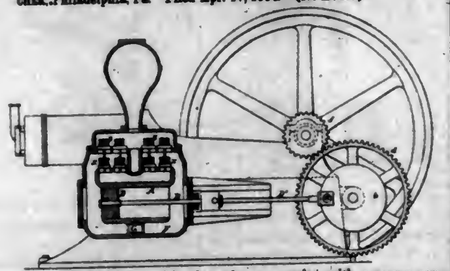
Claim.—1. In an artificial leg, the combination of a wooden foot having a recess in its bottom and a solid rigid plate having a concave top surface fixed on the top of the foot, a wooden leg or shank having a central vertical bore in its bottom, a solid rigid base-piece having a convex surface on its under side and a boss on its top fixed to the bottom of the wooden shank, and a ball having a screw-bolt extending from within the bore of the shank into the recess in the bottom of the foot, to operate in the manner set forth.

2. An elastic plug, *k*, in combination with the base-piece *g g'*, and the ball *f*, having a fixed rod or bolt, *i*, as and for the purposes stated.

3. An elastic tendon, *k*, split at its lower end, in combination with the shank of a leg and a foot hinged to the shank, as and for the purposes specified.

4. The combination of the tubular top end of an artificial leg having fixed jointed bars *m* with the shank of a leg having fixed bearings *r*, to operate in the manner set forth, for the purposes stated.

314,727. COMBINED GAS-ENGINE AND PUMP. ADOLPH W. SCHLICHER, Philadelphia, Pa. Filed Apr. 17, 1884. (No model.)

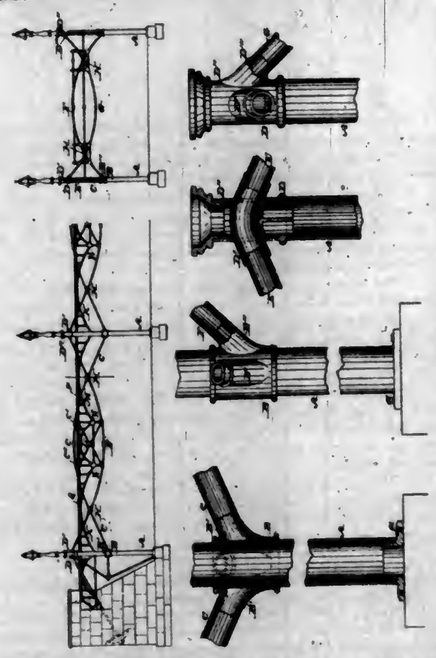


Claim.—1. The combination of a gas-engine with a pump connected to and driven thereby and having between its opposite ends a passage independent of the valve-chest and a valve for opening or closing said passage, as and for the purpose set forth.

2. The combination of a gas-engine, a pump having between its opposite ends a passage independent of the valve-chest, a valve for opening or closing said passage, and gearing whereby the piston of the pump is driven from the shaft of the gas-engine, as set forth.

314,728. ELEVATED RAILROAD AND BRIDGE. FREDERICK SOEHLMANN, Philadelphia, Pa. Filed Feb. 23, 1884. (No model.)

Brief.—Bridge having a longitudinal series of reversed arches intersecting each other between their ends, and united at their points of intersection; also, transverse reversed arches and longitudinal auxiliary arches secured to the main longitudinal reversed arches. The transverse reversed arches are locked by a longitudinal series of arches coupled together; employs columns consisting of inner pipes and an outer pipe, the latter screw-threaded for the attachment of laterally-extending parts; provides columns with a saddle having a convex top, and a bent sleeve fitting on said saddle, a cap which holds said sleeve down on the latter, and a lower chord, the sections of which are screwed into the ends of said sleeve; also employs with lower sections of tubular columns sleeves screwed directly on, and having external tenons for the ends of tubular chords.



Claim.—1. A bridge provided with a longitudinal series of reversed arches, C E, intersecting each other between their ends and united at their points of intersection, substantially as set forth.

2. A bridge having reversed arches extending in the transverse direction thereof, substantially as and for the purpose set forth.

3. A bridge having reversed arches extending in the longitudinal and transverse directions thereof, substantially as and for the purpose set forth.

4. A bridge having reversed arches and auxiliary arches, both extending in the longitudinal direction thereof, arranged in series and secured together, substantially as and for the purpose set forth.

5. A bridge provided with a series of connected reversed arches and locks for the same, which consist of devices which extend across the space between each upper and lower arch, and are secured to them, substantially as set forth.

6. A column consisting of the inner pipes and the outer pipe, A, the latter being screw-threaded for the attachment of laterally-extending parts, substantially as set forth.

7. A column provided with a saddle, D, having a convex top, in combination with a bent sleeve, D', fitting on said saddle, a cap, D'', which holds said sleeve down on the latter, and the lower chord, E, the sections of which are screwed into the ends of said tube, substantially as set forth.

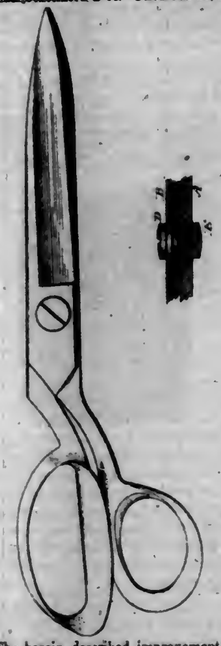
8. The lower section of a tubular column, in combination with a sleeve, B, which is screwed directly upon it, and provided with external tenons, B', for receiving the ends of the tubular chords C, substantially as set forth.

9. The longitudinal and cross chords or arches in reversed order, as shown, and connecting-couplings, combined and operating substantially as and for the purpose set forth.

10. In a bridge, the combination of two intersecting chords or arches with a coupling attached thereto at their intersection, said coupling being provided with external tenons for attaching one chord or arch, a screw-threaded inner portion for attaching the other chord or arch, and tenons *b*, which extend inwardly from said outer portion of the coupling nearly to said inner portion thereof, and serve as braces, substantially as and for the purpose set forth.

11. An arch-truss consisting of horizontal upper chords formed of tubes attached to a coupling by screw-threads, and a lower chord forming an arch, both connected by means of vertical columns and screw-threaded hollow tenons, substantially as and for the purpose set forth.

314,729. SHEARS. WILLIAM SCHOLLHORN, New Haven, Conn., assignor to William Schollhorn & Co. Filed Oct. 30, 1884. (Model.)



Claim.—The herein-described improvement in shears, consisting of the pivot composed of a screw-threaded body, C, head D on one end, shoulder *a* directly under the head and of a diameter between that of the body and of the head, the body of the pivot of a length greater than the thickness of the two blades, the one blade constructed with an opening for the pivot and with a counterbore corresponding to the shoulder *a* beneath the head of the pivot, the other blade having a corresponding opening screw-threaded to correspond to the screw-thread on the body

of the pivot, the pivot introduced through the one blade to bring the said shoulder *a* to a bearing in the counterbore and the head to a bearing upon the outer surface of the blade, the opening through the blade also taking a bearing on the body of the pivot, the pivot screwed into the other blade and extending through that blade, combined with a nut, E, on said projecting end of the pivot and against the surface of the blade opposite the head, substantially as described.

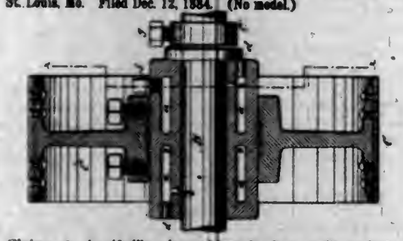
314,730. **BOLSTER-PLATE.** RAPHAEL SERGEANT, Pittsburg, Pa. Filed July 17, 1884. (No model.)



Claim.—1. The combination of the bolster-plates *a b*, the bolster *d*, and flanged tube *c*, the flange of which is secured between plate *b* and bolster *d*, substantially as and for the purposes specified.

2. The combination of the bolster-plates *a b*, having flanges *a' b'*, the bolster *d*, and the flanged tube *c*, extending through the plates, and the flange of which is supported by the bolster, substantially as and for the purposes specified.

314,731. **SELF-LUBRICATING JOURNAL-BOX.** FREDERICK SIEBERT, St. Louis, Mo. Filed Dec. 12, 1884. (No model.)



Claim.—1. A self-oiling journal-box for loose pulleys, shafts, &c., consisting of a double-walled annular box provided with perforations closed by plugs at its ends, between the walls, with radial oil-ducts in the inner wall, with a supply-opening in the outer wall closed by a plug, and with central stays between the walls, substantially as described.

2. A self-oiling journal-box for loose pulleys, shafts, &c., consisting of a double-walled annular box provided with perforations closed by plugs at its ends, between the walls, with radial oil-ducts in the inner wall, with a supply-opening in the outer wall closed by a plug, and with central stays between the walls, in combination with the pulley-rim, detachable spokes, bolts for fastening said spokes to said rim, and set-screws for adjusting said spokes to said box, substantially as described.

314,732. **APPARATUS FOR PRESERVING AND TRANSPORTING OYSTERS, &c.** DANIEL W. SIMONSON, Tottenville, N. Y. Filed Nov. 10, 1884. (No model.)



Claim.—1. An apparatus for preserving shell-oysters during transportation and storage, consisting of an exterior receptacle for the oysters arranged to permit a free circulation of air into and through the oysters, and an ice-chamber placed within the receptacle for the oysters so as to be equally distant from the sides thereof, substantially as described.

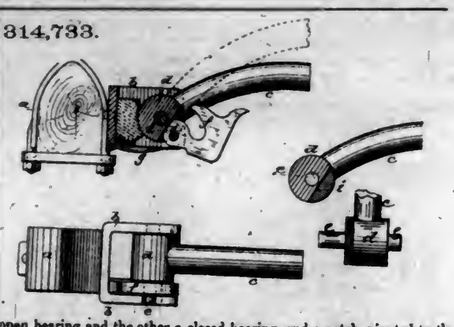
2. The combination of the barrel A, provided with openings for the admission of air, with the removable ice-chamber B, made of a can which can be removed and utilized when the oysters have been taken from the barrel, substantially as specified.

314,733. **THILL-COUPLING.** A. FRANK SKINNER, Tama City, Iowa, assignor of one-half to Robert E. Austin, same place. Filed Aug. 8, 1884. (No model.)

Claim.—1. The combination of the clipped thill-coupling, one lug whereof having an open bearing and the other a closed bearing, and the thill-iron having a long and a short bearing-pin, with a catch adapted to fit over the long pin between one of the lugs and the thill-iron, whereby to lock the short pin in its bearing, substantially as herein set forth.

2. The thill-iron having the long and short bearing-pins and an end notch, in combination with the clipped coupling, one lug whereof has an

314,733.

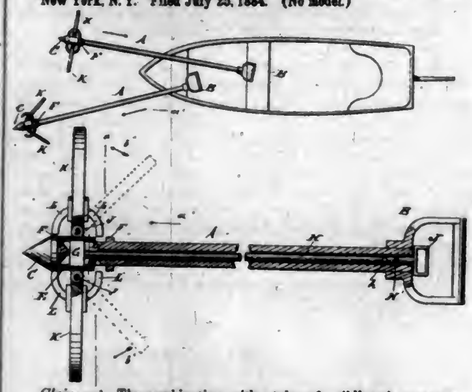


open bearing and the other a closed bearing, and a catch pivoted to the lug between said lug and the notched end of the thill-iron, substantially as described, for the purpose specified.

3. In a thill-coupling, the combination of the clip-iron and the thill-iron *d*, having the end notch, *i*, with the latch *f*, and a confining-spring, *g*, for said latch, constructed and arranged substantially as herein set forth.

4. The thill-iron having a long and a short bearing-pin and an end notch, *i*, combined with a clip-iron having an open bearing in one of its lugs, and a pivoted catch adapted to close the said open bearing, and when open to bring its end into alignment with the thill-iron notch *i*, substantially as and for the purpose set forth.

314,734. **PROPELLING DEVICE FOR BOATS.** CHARLES F. SMITH, New York, N. Y. Filed July 25, 1884. (No model.)



Claim.—1. The combination, with a tube, of a sliding sleeve on one end of the same, wings hinged on the sleeve, stop-lugs projecting from both sides of the wings, and devices for adjusting or shifting the sleeve, substantially as herein shown and described.

2. The combination, with a tube, of a sliding sleeve on one end of the same, wings hinged on the sleeve, stop-lugs on the wings, a rod held to slide within the tube, and having its inner end connected with the sleeve, and devices for locking the rod and sleeve in place, substantially as herein shown and described.

3. The combination, with the tube A, having longitudinal slots D at one end, of the sliding sleeve E over the slots, the wings K, hinged to the sleeve, the stop-lugs L on the wings, the rod H within the tube A, which rod is connected with the sleeve, and of devices for locking the rod H in place, substantially as herein shown and described.

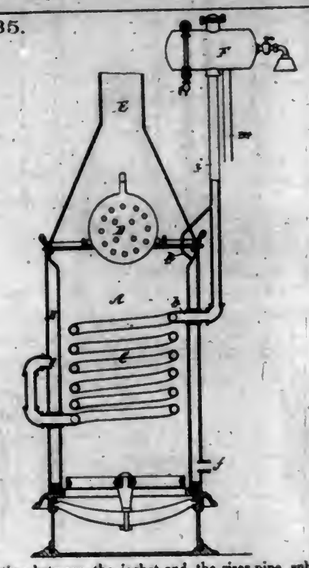
4. The combination, with the tube A, having two fixed collars, F, and longitudinal slots D between them, of the sleeve E, mounted to slide on the tube between the two collars, the wings K, hinged to the sleeve, the stop-lugs L on the wings, the rod H, connected with the sleeve, and devices for locking the rod in place, substantially as herein shown and described.

5. The combination, with the tube A, having the fixed collars F and longitudinal slots D between them, of the sleeve E, the rod H, the locking-pin H', and the wings K, pivoted to the sleeve E, and provided with the lugs L, substantially as herein shown and described.

314,735. **WATER HEATER AND CIRCULATOR.** PETER SMITH, Detroit, Mich. Filed Nov. 26, 1884. (No model.)

Claim.—1. A water heater and circulator consisting of an upright furnace with an inclosing water-jacket, a conduit leading into the jacket from the outside of the furnace, a coil arranged within the furnace, and having one terminal connected with the water-jacket and the other leading directly to the outside of the furnace, and adapted for connecting with a water-conveying pipe, and an escape-pipe for air, affording a

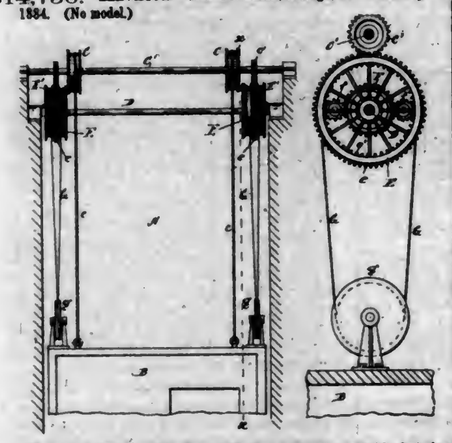
314,735.



communication between the jacket and the riser-pipe, substantially as described.

2. In a water heater and circulator constructed and operating substantially as described, an air-pipe communicating with the water-jacket at its highest point, and the riser-pipe, in combination with a compression-drum, substantially as and for the purposes specified

314,736. **ELEVATOR.** UZZIEL P. SMITH, Chicago, Ill. Filed Sept. 4, 1884. (No model.)



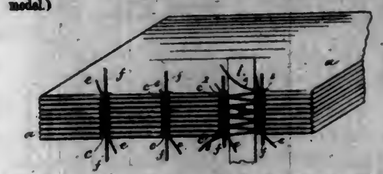
Claim.—1. The combination, with the car and a suitable hoisting apparatus, of one or more pairs of drums connected with the elevator by a rope wound around them in opposite directions, one of said drums being operated from the shaft of the hoisting apparatus, and having an internal gear meshing with one or more pinions mounted on the other drum between said internal gear and a fixed gear between the drums, substantially as and for the purposes set forth.

2. The safety attachment for elevators, consisting of the drums E E', the former having external gear, *e*, and internal gear, *e'*, and the latter having a pinion or pinions, *f*, arranged to gear with the internal gear, *e'*, on the former and with a fixed gear, F, between the two drums, substantially as and for the purposes set forth.

3. The combination, with the car B, having pulleys *g*, of the drums E E', connected therewith by ropes G passing around said pulleys and wound on said drums in opposite directions, the said drums being connected by pinions on the one gearing with an internal gear on the other, and with a fixed gear between the two, substantially as and for the purposes specified.

4. The combination, with fixed shaft D, of drums E E', mounted loosely thereon, and having internal gear, *e'*, and pinions *f*, respectively, and of gear F, fixed on said shaft between the arms, substantially as and for the purposes specified.

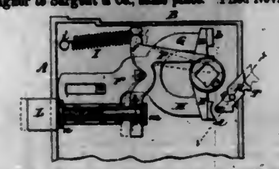
314,737. **BOOK-SEWING.** D. M. SMYTH, Hartford, Conn., assignor to the Smyth Manufacturing Company, same place. Filed Oct. 8, 1883. (No model.)



Claim.—1. The combination, with the folded and notched signatures, of threads within the folds of the signatures, the cords *f*, a strip or tape passing across the backs of the signatures, and the cord *e*, interlaced across the said strip and passing beneath the cords *f*, substantially as specified.

2. The combination, with the notched signatures, of the threads *c*, pasted into the fold, the cords *f*, passing across through the notches, the threads *e*, interlaced to bind the cords *f* and threads *c* together, and the tape or strip *l*, and binding-threads *s*, substantially as specified.

314,738. **REVERSIBLE LATCH.** WILLIAM E. SPARKS, New Haven, Conn., assignor to Sargent & Co., same place. Filed Nov. 17, 1884. (No model.)



Claim.—1. In a latch, the combination of the slide F, mechanism, substantially such as described, to impart forward and back movement to said slide, a latch-bolt, a lever, one arm, *h*, of which extends into connection with the bolt forward of a shoulder thereon, and a spring in connection with said lever, and arranged to force the said arm *h* rearward against said shoulder on the bolt, the said lever constructed with an arm, P, extending rearward toward the hub, and the hub constructed with a transverse slot, *r*, in the plane of the said arm P, substantially as described.

2. In a knob-latch, the combination of the hub C, and the latch-bolt operated by the rotation of said hub, with the slide R, arranged in diagonal guides in rear of said hub, substantially as and for the purpose described.

3. In a knob-latch, the combination of the hub, C, and the latch-bolt operated by the rotation of said hub, with the slide R, arranged in diagonal guides in rear of said hub, the said slide R constructed with a rib, *s*, upon one surface, and the case with a corresponding rib, *t*, with a spring, *u*, upon the reverse side of the slide, substantially as described.

314,739. **PROCESS OF AND APPARATUS FOR MANUFACTURING GAS.** THEODORE G. SPRINGER, New York, N. Y. Filed Nov. 15, 1884. (No model.)

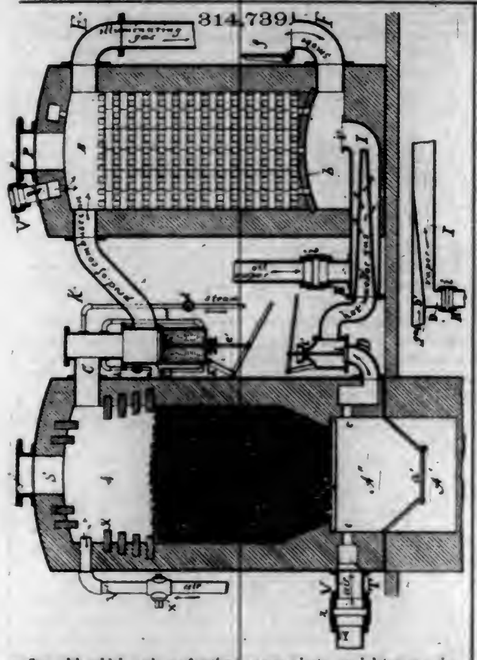
Brief.—A deep body of fuel in the generating-chamber is blasted with air in an upward direction, and the resulting gaseous products burned in the top of an adjacent fixing-chamber, and the hot products passed down through the brick-work and out at the base of the chamber, thereby heating the upper portion to the highest temperature. Steam is then superheated and decomposed by passing it first into the cooler portion of the fuel at the top, and then down through the hottest portion thereof in a direction the reverse of that traversed by the air-blast, and the resulting hot water-gas is forced in numerous small jets into a passing current of hydrocarbon vapor or oil for gradually and uniformly heating such vapor or oil and mixing it with the water-gas. The mixture is then subjected to a comparatively low temperature at the base of the fixing-chamber, and to a gradually-increasing temperature by passage up through the fixing-chamber, till a homogeneous fixed gas is produced, whereby the formation of lamp-black is prevented.

Claim.—1. The process of generating gas, which consists in decomposing steam in contact with incandescent or highly-heated fuel, and forcing the resulting hot water-gas in numerous fine jets or streams into a passing current of inflowing hydrocarbon vapor, whereby such vapor is gradually and uniformly heated and mixed with the water-gas, and then converting the mixture into a fixed gas.

2. The process of manufacturing illuminating-gas, which consists in decomposing steam in contact with highly-heated fuel, and, forcing the resulting hot water-gas in numerous fine jets or streams into a current of inflowing hydrocarbon vapor for gradually and uniformly heating such vapor, mixing the two together, then subjecting the mixture to a comparatively low temperature and to a gradually-increasing temperature till a homogeneous fixed gas is produced, whereby the formation of lamp-black is prevented and improved results are secured.

3. In combination with the decomposing-chamber, a gas-outlet pipe or flue having numerous small perforations, and an adjacent vapor pipe

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or flue with which such perforations communicate, an inlet vapor-pipe, and a connecting receiving-chamber.

4. In combination with a gas-generator, a perforated discharge-pipe a surrounding vapor-pipe, an inlet-pipe for conveying hydrocarbon vapor connected with such surrounding vapor-pipe, and a connected fixing-chamber.

5. The combination of decomposing-chamber A, fixing-chamber B, a pipe having a controlling-valve connecting them at the top, a pipe having a controlling-valve connecting them at the bottom, an escape-pipe for gas leading from one end of the fixing-chamber, and an escape-pipe for waste products of combustion leading from the other end of such chamber, and suitable connecting-pipes for air, steam, and oil or oil-vapor.

6. The chambers A and B, connected at top and bottom by pipes having controlling-valves, outlet gas-pipe E, and escape-pipe F for products of combustion, connected, respectively, with the top and bottom of chamber B, in combination with a perforated water-gas conduit communicating with and discharging into a hydrocarbon-vapor pipe arranged at the base of the fixing-chamber, for the purpose described.

7. The process of manufacturing gas, which consists in blasting a body of fuel with air in one direction till it is highly heated, then superheating and decomposing steam by passing it first into the cooler portion of the fuel, and then through the hottest portion thereof in a direction the reverse of that traversed by the air-blast, and forcing the resulting hot water-gas in numerous streams or jets into a passing current of hydrocarbon vapor or oil, whereby such vapor or oil is gradually heated and mixed with the water-gas, and then converting the same into a fixed illuminating-gas.

8. In combination with a gas-generator, a gas-discharge pipe of tapering form having numerous perforations in one or more of its walls, and an adjacent hydrocarbon-vapor pipe or flue with which such perforations communicate, an inlet vapor-pipe, and a connecting fixing-chamber, for the purpose described.

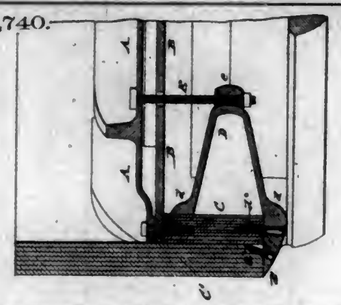
314,740. PIANO-FRAME. C. F. THEODOR STEINWAY, New York, N. Y. Filed Mar. 26, 1884. (No model.)

Claim.—1. The combination, in a piano, with a metallic string-frame, of a hollow bell-shaped bracket attached to the rim of the case below the treble portion of the frame, and of a brace-bolt that connects the string-frame with the apex of the bell-shaped bracket, substantially as set forth.

2. The combination of the string-frame A, a hollow bell-shaped bracket, D, having an annular base-rim, *d*, and tapering extension-tongue *d'*, attached to the inner and outer rims, C C', and a brace-bolt, E, connecting the apex of the bell-shaped bracket with the treble portion of the string-frame, substantially as set forth.

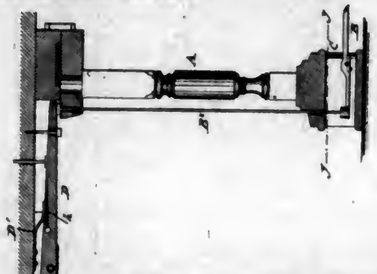
3. A bell-shaped bracket for the treble portion of the string-frame, formed of a hollow conical or bell-shaped body having an annular base-

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rim and an outwardly-extending tapering tongue, substantially as set forth.

314,741. PIANO-PEDAL. C. F. THEODOR STEINWAY, New York, N. Y. Filed Mar. 26, 1884. (No model.)



Claim.—1. The combination of a pedal-supporting plate having a fixed pivot-shaft with pedals fulcrumed thereto by bushings and detachable bottom plates or cheeks, substantially as set forth.

2. The combination of a pedal-supporting plate having rear brackets and clamp-screws, a fixed transverse pivot-shaft, pedals fulcrumed thereto by detachable bottom cheeks, and intermediate anti-friction bushings, substantially as set forth.

3. The combination of the pedal-supporting plate C, having recesses for the pedals, recessed rear brackets, *b b*, provided with clamp-screws, a transverse pivot-shaft, *a*, secured rigidly by said clamp-screws, and fulcrumed pedals B, having detachable bottom plates, B', secured by screws *f*, the pivot-recesses of the pedals and bottom plates being lined with a suitable anti-friction material, substantially as set forth.

4. The combination of the recessed pedal-supporting plate C, having rear brackets, *b b*, pivot-shaft secured to said brackets by clamp-screws *b'*, pedals B, having detachable bottom cheeks, B', said pedals being connected to the pivot-shaft by means of anti-friction bushings and intermediate anti-friction washers placed intermediately between the pedals and the brackets, substantially as and for the purpose set forth.

5. In pedals for piano-fortes, the combination of the pedal-levers provided with cushioned strips of wood with returning band-springs which rest upon said cushioned strips, substantially as specified.

314,742. PIANO-FRAME. C. F. THEODOR STEINWAY, New York, N. Y. Filed Apr. 11, 1884. (No model.)

Claim.—1. The combination of a case formed of an inner and outer rim, A A', a rear console, C, arranged below the bottom edge of said rims, and front consoles, C', interposed between said rims and the key-frame bed C^2, substantially as set forth.

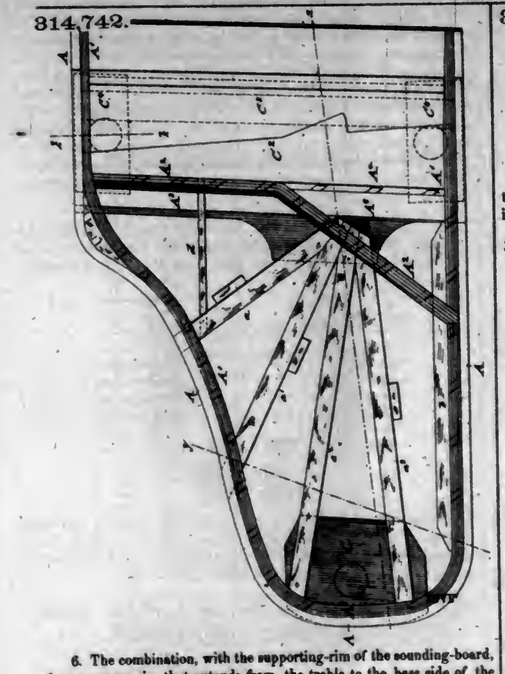
2. The combination of a case formed of a bent outer and inner rim, A A', a rear console, C, located below the bottom edge of said rims, a key-frame bed, C^2, and stiffening-braces *a a' a² a³*, supported by said key-frame bed and rear console, substantially as set forth.

3. The combination of a case formed of bent outer and inner rims, A A', front consoles, C', located below the bottom edge of the rims, and a key-frame bed, C^2, below said front consoles, substantially as set forth.

4. The combination of a case formed of continuously-bent outer and inner rims, A A', and rear and front consoles, C C', located below the bottom edge of the rims, the front consoles being interposed between the rims and key-frame bed, so as to diminish the height of the case without decreasing the height of the space required for the action, substantially as set forth.

5. The combination of a case formed of a continuously-bent outer and inner rim, A A', front consoles, C', key-frame bed C^2, and transverse re-enforcing block C^3, having T-shaped end pieces, C^4, the re-enforcing block and end pieces serving for attaching the lyre and front feet, substantially as set forth.

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6. The combination, with the supporting-rim of the sounding-board, of a transverse rim that extends from the treble to the bass side of the rim, and forms with the rim a continuous support for the sounding-board, substantially as set forth.

7. The combination, with the bent inner rim, A', of a transverse obtuse-angled closing-rim, A^2, that extends from the treble to the bass side of the rim, substantially as set forth.

8. The combination of the supporting-rim A', a transverse obtuse-angled closing-rim, A^2, extending from the treble to the bass of the rim, and a sounding-board, B, resting upon the main and closing rims, substantially as set forth.

9. In piano-fortes, a transverse obtuse-angled rim, A^2, supporting the treble and bass end of the sounding-board, substantially as set forth.

10. The combination of the continuously-bent inner rim, A', transverse closing-rim A^2, stiffening-braces *a a' a² a³*, and a tension-brace, *d*, that connects the treble portion of the closing-rim A^2 with the brace *a*, substantially as and for the purpose set forth.

11. The combination of the bent inner rim, A', stiffening-braces *a a' a² a³*, a re-enforcing rib, *b*, extending along the bass side of the inner rim, A', and a transverse closing-rim, A^2, extending from the treble to the bass side of the rim A', substantially as set forth.

12. A metallic string-frame for piano-fortes, having an arched or cupola-shaped web in the treble and middle portions, and a cupola-shaped bass-web raised above the level of the treble and middle web to the level required for the bass-strings, substantially as set forth.

13. A metallic string-frame for piano-fortes, having an arched or cupola-shaped web in the treble and middle portions, and a cupola-shaped bass-web raised above the level of the treble and middle portions, the double-arched bass-web being confined between the extensions of the converging ribs of the frame, substantially as set forth.

14. A metallic string-frame for piano-fortes, having the treble and middle webs on a level with the treble and middle strings, and a raised cupola-shaped bass-web on a level with the overstrung bass-strings, substantially as set forth.

15. A metallic string-frame for piano-fortes, having an arched or cupola-shaped web for the treble and middle portions, and an arched bass-web raised above the treble and middle webs, said bass-web having an opening and depressed portion on a level with the treble and middle webs of the string-frame for hitching on the longest uncovered steel strings, substantially as set forth.

314,743. ARGAND-LAMP-WICK TRIMMER. OMAR A. STEMPEL, St. Louis, Mo., assignor of one-half to Martin S. Barnett, same place. Filed Jan. 5, 1885. (No model.)

Claim.—1. In a lamp-wick trimmer, the combination, with an annular rim, C, of a disk, A, secured therein, and having radial cutting-edges *a*, substantially as set forth.

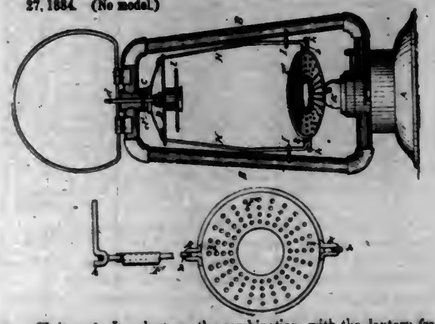
2. The combination, with the annular rim C, of the disk A, secured therein centrally between its ends, and having the radial knives or cut-

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ters, substantially as set forth, whereby the trimmer may be used in an inverted position and another set of cutting-edges brought into play.

314,744. LANTERN. JOSEPH B. STETSON, Lincoln, Me. Filed Feb. 27, 1884. (No model.)



Claim.—1. In a lantern, the combination, with the lantern-frame, of a movable bell, D, side wires, H, secured with their upper ends to said bell, a catch whereby the upper end of the globe is detachably secured to said bell, and a globe-supporting plate, F, detachably secured to the lower ends of said wires by means of swiveling connections, on which the plate can be tilted to remove the globe, substantially as set forth.

2. In a lantern, the combination, with the lantern-frame, of a movable bell, D, side wires, H, secured with their upper ends to said bell, and provided at their lower ends with hooks *h*, a catch whereby the upper end of the globe is detachably secured to said bell, and a globe-supporting plate, F, provided with ears *k*, engaging with the hooks *h*, substantially as set forth.

314,745. FLYING TARGET. CHARLES F. STOCK, Peoria, Ill.; N. Grier Moore, administrator, assignor to Edward H. Walker, same place. Filed May 12, 1884. (No model.)



Claim.—1. In combination with the thin fragile flying target A, the thickening-ring *a*, located midway between the spherical face and the open mouth of said target, whereby the same is balanced and rendered steadier in its flight, as herein specified.

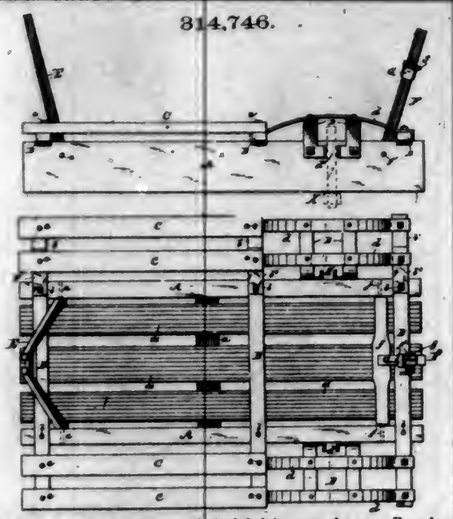
2. The combination, with the thin fragile flying target A, of the thickening-ring *a*, located on said target, as set forth, and the cord B, or its equivalent, having its ends embedded at widely-different points in the periphery of the said ring *a*, substantially as and for the purpose herein specified.

314,746. HAY-RACK. JEROME STORMER, Moline, Ohio. Filed Oct. 16, 1884. (No model.)

Claim.—1. In a hay-rack, the combination of the longitudinal beams A, the transverse beams B, secured on top of the beams A, and extending beyond the sides thereof, the arched pieces *d*, secured at their ends to the beams B, and the guards D, secured to the sides of beams A, and extending upward and outward and secured as supports to the arch of the pieces *d*, substantially as shown and described.

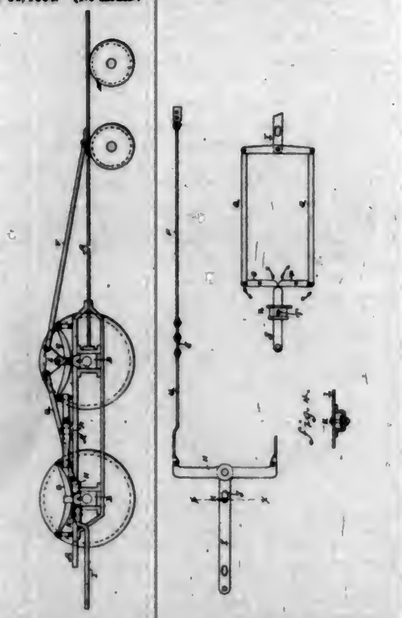
2. The combination, with the hay-rack described, of the post F, provided with a series of holes, f^3, and the pin *g* therefor, and the catch G, fitted to slide upon the said post, and provided with a hook projecting from one side, substantially as shown and described, whereby the said

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catch G may be fixed at any desired height upon the post F, and a binder-pole be secured when swung under the said hook.

314,747. LOCOMOTIVE. EDGAR L. STREAM, New Orleans, La. Filed July 31, 1884. (No model.)

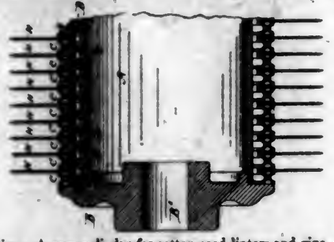


Claim.—1. The combination, with the frame-work and the driving-wheels of a locomotive, of a bell-crank or equivalent device fulcrumed above the spring-support to adapt it to transmit weight or pressure to the driving-wheels, the connecting-rod connecting the forward end of the bell-crank to the forward end of the frame-work, and the connecting-rod connecting the rear end of the bell-crank to the draw-bar, substantially as shown and described, whereby draft on the draw-bar will cause a downward pressure on the bell-crank to increase the adhesive and tractive power of the locomotive drive-wheels.

2. The combination of the frame-work and the driving-wheels, the pair of bell-cranks fulcrumed on the springs over the forward driving-wheels, the rods connecting the bell-cranks to the forward end of the frame, the rods connecting the bell-cranks to a cross-bar, the draw-bar connected to said cross-bar, and means, substantially as described, for limiting the longitudinal play of the draw-bar, substantially as and for the purpose specified.

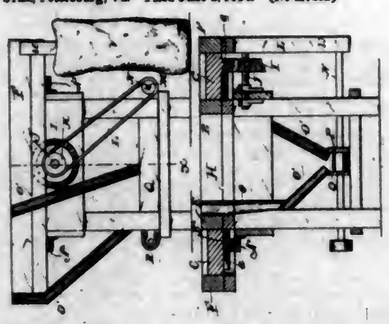
3. The combination, with a device, substantially as described; for throwing the weight of a forward-moving train upon the driving-wheels of a locomotive to increase the adhesive and tractive power of the latter, of a device for creating a draft upon the draw-bar of a locomotive when a train is being backed, the same consisting of two levers pivoted near their centers under a tender, bars connecting one end of each lever with the draw-bar of the locomotive, and a sliding draw-bar supported in the draw-head of the tender in contact with the adjacent ends of said levers, whereby the backing of a train shall cause said levers to draw the draw-bar of the locomotive rearward, substantially as and for the purpose set forth.

314,748. SAW-CYLINDER FOR COTTON-SEED LINTERS AND GINS. FREDERICK S. STRONG, East Bridgewater, Mass., assignor to the Carver Cotton Gin Company, same place. Filed July 5, 1884. (No model.)



Claim.—A saw-cylinder for cotton-seed linters and gins, comprising the pipe A, end pieces, B, the rings C C C C, having studs K K, the sectional saws H, having holes K' K', and the wedges E E, substantially as described, and for the purpose set forth.

314,749. MACHINE FOR ASSORTING PEANUTS, &c. CHAPMAN J. SYME, Petersburg, Va. Filed June 2, 1884. (No model.)



Claim.—1. The herein-described assorting-table, comprising inner and outer circular rims, connecting-strips, and a bottom turning loosely over the strips, and revolving in the space between the rims, the inner rim inclosing a space to receive a suitable number of pickers, as set forth.

2. The herein-described assorting-table, comprising inner and outer rims or ledges, and a revolving bottom moving in the space between the rims or ledges, as set forth.

3. The table having a revolving bottom turning therein, in combination with mechanism for operating the bottom, said mechanism being supported in the frame-work of the table and disposed below the bottom, for the purpose set forth.

4. The herein-described assorting-table, comprising inner and outer rims or ledges, and a revolving bottom moving in the space between the rims or ledges, the inner rim inclosing a space to receive a suitable number of pickers, as set forth.

5. The herein-described assorting-table, comprising inner and outer rims or ledges, a revolving bottom moving in the space between the same, a cross-bar connecting the rims at the top, and a passage or opening formed in the outer rim, arranged and operating as described, so that the cross-bar will deflect the nuts through the passage or opening into a bag or other receptacle, as set forth.

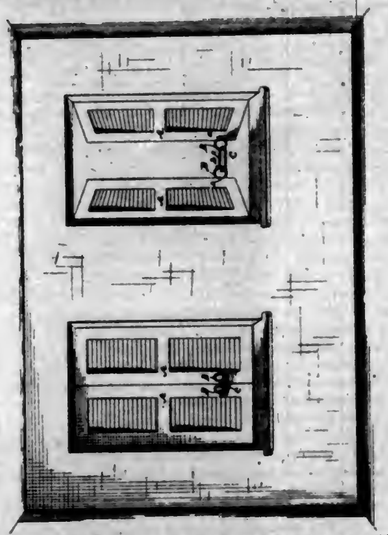
6. The herein-described assorting-table, comprising inner and outer rims, a bottom revolving in the space between the rims, means, substantially as described, for operating the bottom, and chutes secured to the rims, as set forth.

7. The herein-described assorting-table, comprising inner and outer rims or ledges, a revolving bottom moving in the space between the same, chutes secured to the rim, and a traveling carrier, with which the chutes communicate, as set forth.

8. The herein-described assorting-table, comprising inner and outer rims or ledges, a bottom revolving in the space between the rims, means

for operating the bottom, a chute communicating with the bottom, and means, substantially as described, for causing the peanuts retained on the bottom to enter the chute, as set forth.

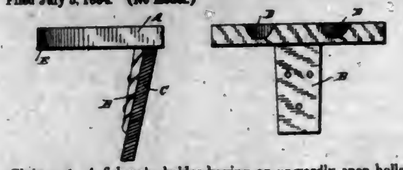
314,750. SHUTTER-BOWER. MICHAEL R. TALLMAN, Philadelphia, Pa., assignor of one-half to Samuel L. Foster, same place. Filed Jan. 9, 1885. (No model.)



Claim.—1. A shutter bower and lock consisting of an open oblong link, the opening of which is near the end of the link, as described, and two rings secured to the inside of the shutter working loosely in said link, whereby the device is rendered incapable of being unlocked from the outside of the building, as set forth.

2. A shutter-bower consisting of a wire spirally coiled at one end to engage with a ring secured to the shutter, the other end of said wire being formed into an elongated hook or link, said hook being adapted to be engaged with or disengaged from a ring on the other shutter only when both shutters are in a closed position, as set forth.

314,751. FISH-POLE HOLDER. THOS. P. TAYLOR, Bridgeport, Conn. Filed July 5, 1884. (No model.)



Claim.—1. A fish-pole holder having an upwardly-open hollowed rest adapted to support the pole and to prevent its lateral displacement, an overhanging hollowed support for the butt of the pole, and an attaching shank or bracket, the outer face of which is at an obtuse angle to the body of the holder, substantially as set forth.

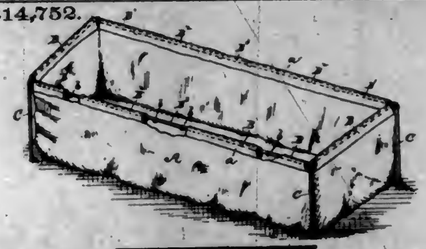
2. A fish-pole holder consisting of an open plate having at one side a rest with upwardly-open hollows or depressions, and at its other side an overhanging support for the butts of the poles, having hollows or depressions on its under side, said plate being provided with an attaching shank or bracket, the outer face of which is at an obtuse angle to the body of the holder, substantially as set forth.

314,752. FOLDING BATH-TUB. JOHN A. THROCKMORTON, Sidney, Ohio. Filed Aug. 15, 1884. (No model.)

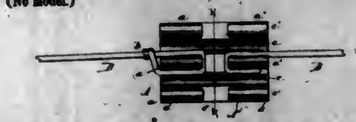
Claim.—A folding bath-tub consisting of a flexible water-proof bag or receptacle having a hem at its upper edge and a rectangular frame having folding legs C C, adapted to be disposed parallel to the end section of the frame, and which frame has side sections, each of which is composed of five jointed pieces, B' B', B^2 B^2, and B^3, of which B^2 is about equal in length to the thickness of the other four sections, B' B' B^2 B^2, when folded, substantially as described.



314,752.



314,753. BALE-TIE. JAMES A. TIPPIT, Carroll's Prairie, Tex., assignor of one-half to George W. Randolph, Memphis, Tenn. Filed Dec. 15, 1884. (No model.)

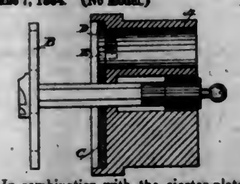


Claim.—1. A bale-tie consisting of a plate having undercut projections or hooks in the same longitudinal plane and a rod or band, substantially as and for the purpose set forth.

2. In combination with a band or rod, a tie consisting of a base-plate having a series of undercut projections or hooks spaced apart, substantially as and for the purpose set forth.

3. In a bale-tie, the combination, with a band or rod, of a tie consisting of a base-plate having a series of projections or hooks spaced apart longitudinally and divided into two sets by a transverse passage, substantially as shown and described.

314,754. REVOLVING FIRE-ARM. WILLIAM TRABUE, Louisville, Ky. Filed June 7, 1884. (No model.)



Claim.—1. In combination with the ejector-plate and cylinder of a revolving fire-arm, a plate provided with openings for the passage of the cartridges, interposed between the two, and provided with means, substantially as described, for turning the plate to partially close the openings in the cylinder when the cartridges are removed by the ejector-plate.

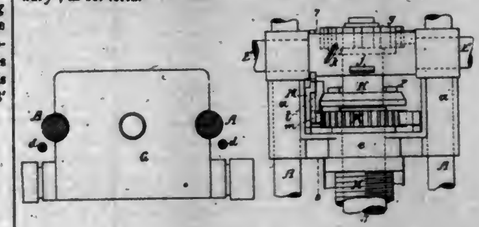
2. The combination, with the ejector-plate and cylinder of a revolving fire-arm, of a plate having openings for the passage of cartridges interposed between the two, and a spring arranged, substantially as described, between the plate and the cylinder, whereby the said plate is slightly turned when the shells are removed.

3. The combination, with the cylinder having a countersink containing a spring, of the plate C, perforated for the passage of the cartridges, having a lug or projection adapted to enter the countersink and receive the pressure of the spring and the ejector-plate, substantially as described.

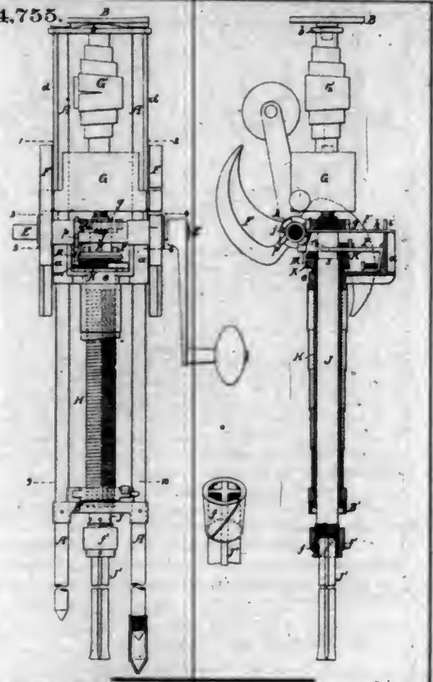
314,755. ROCK-DRILLING MACHINE. LEWIS W. TRACY, Philadelphia, Pa. Filed Mar. 20, 1882. (No model.)

Claim.—1. The combination of the drill-rod, the ring N thereon, the feed-screw having a ratchet-wheel, K, the pawl-carrier, and a pivoted pawl, *m*, having a projection, *t*, said projection or ring, or both, being beveled, as described, whereby they co-operate to control the extent of engagement of the pawl and the ratchet, as set forth.

2. The combination of the drill-rod and the ribbed drill with the chuck comprising the diagonally-slotted taper sleeve *f*, and the confining-nut *f'*, as set forth.



314,755.



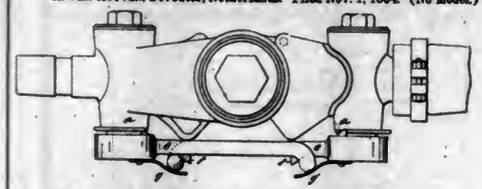
Claim.—1. The tie A, formed with the short flanges *a*, between which are held the blocks *b b' c*, the outer block, *b'*, being made to project above the flanges, substantially as and for the purposes set forth.

2. The rail B, held upon the tie by the plates *d*, and the inclined and hooked bolts *e*, substantially as set forth.

3. The bolts *e*, formed with the hooks *e'*, in combination with the tie A, having the holes *f*, and the plates *d*, for holding the rail, substantially as described.

4. The tie A, formed with the holes *f*, and supporting the rails upon blocks, in combination with the plates *d*, and hooked bolts *e*, the holes *f* being made below the center of the rail, substantially as described.

314,758. ALARM-COUPLING FOR AIR AND STEAM BRAKES. C. R. VAN RUYVEN, Deventer, Netherlands. Filed Nov. 1, 1884. (No model.)



Claim.—1. In continuous brakes, the construction of a warning or alarm coupling, A, consisting of the cocks *a*, whistles *d*, handles *e*, tenons *f*, and springs *g*, in combination with the dummy-coupling B, which is connected with the draw-hook of the vehicle by a yoke, *h*, and joint *i*, all substantially in the manner and for the purpose as described in the specification and shown in the drawings.

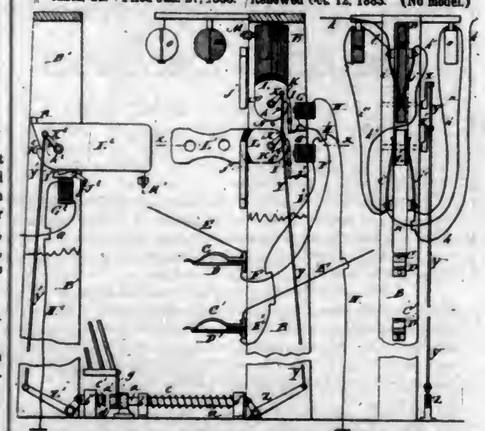
2. The combination, with the sections of a hose or pipe coupling and cocks therein, of whistles arranged in the said sections and passages for admitting air or steam to the whistles when the cocks are closed, substantially as described, whereby an alarm will be sounded when the sections are disconnected, as set forth.

3. In a hose-coupling, the combination, with the cap, of a plug having the usual aperture and a smaller channel, and of a whistle in the cap, to which whistle the air or steam is conducted through the small channel in the plug, substantially as herein shown and described.

314,759. INK-ERASING COMPOUND. CHARLES WALPUSKI, New York, N. Y. Filed Aug. 1, 1884. (Specimens.)

Claim.—An ink-erasing composition consisting of finely-pulverized clay, pulverized pumice-stone, and dissolved glue or other binding medium, mixed and dried without burning, substantially as set forth.

314,760. ELECTRIC RAILWAY-SIGNAL. WILLIAM T. WATERS, Atlanta, Ga. Filed Jan. 27, 1883. Renewed Oct. 12, 1883. (No model.)



Claim.—1. In an electric railway signaling system, a series of separate signaling-circuits extending from point to point along the entire road, signal-carrying posts located at the termini of each independent circuit and provided with visual signals for protecting a moving train in both front and rear, electro-magnetic locking devices adapted to be alternately operated by electric impulses transmitted from the train being signaled, and mechanical means, operated by the moving train, whereby dropped signals are reset, substantially as set forth.

2. An electric railway signaling system comprising a series of separate signaling-circuits extending from point to point along the entire road, signal-carrying posts located at the termini of each independent line-circuit and provided with visual signals, means for displaying and housing the same, consisting in electro-magnetic latching devices, and means, carried by the train being signaled, for transmitting a current of electricity from one post to the ones with which it may be connected in front and rear, and thereby releasing an advance signal in front and a rear signal in its rear, and mechanical means, operated by the moving train, for automatically raising both signals on the post being passed, housing the advance and displaying the rear signals, said rear signals being then in position to be housed by the electro-magnetic devices when the next post is passed, leaving the line clear and the signals ready to be set by the next succeeding train.

3. An automatic system of railway-signals, comprising a series of separate signal-circuits extending from point to point along the entire road, each circuit being connected through pairs of normally-closed contact-points so located with reference to the track that any pair may be momentarily separated by a passing train, and means, substantially as described, whereby electro-magnetic signal-controlling devices located at the termini of said independent circuits may be energized and operated by a current transmitted through either pair of contact-points, in a predetermined direction, by the passing train, as set forth.

4. Electric railway-signals constructed substantially as herein shown and described, and consisting of a source of electricity carried upon a train and connected by wires with insulated contact-bars projecting therefrom, pairs of insulated contact-arms projecting from posts at the sides of the track and provided with conducting-wires extending forward and rearward, and connected with electro-magnets secured to other posts, and having pivoted armatures provided with hooked ends and springs to engage with signals pivoted to the said posts, whereby the passage of a current of electricity will withdraw the said armatures from the said signals, and allow the signals to swing down from a vertical to a horizontal position, and from a horizontal to a vertical position, as set forth.

5. In electric railway-signals, the combination, with the signals L L', provided with stops A A', of the cranks X X', the connecting-rod Y, the elbow-lever Z, the sliding bar *a*, having spring *c*, and inclined hinged bars *d*, and an arm, *g*, projecting from the train, substantially as herein shown and described, whereby a passing train will automatically withdraw the advance signal and display the rear signal upon each succeeding signal-post, as set forth.

6. In electric railway-signals, the combination, with automatically-operated visual day-signals, and means, substantially as described, whereby the same are raised and lowered in front and behind a passing train, of an equal number of electric lamps of color corresponding to that of the day-signals, and pairs of contact-arms corresponding to said lamps, located in proximity to the said visual signals, and adapted to be separated by the displaying thereof, and thereby to direct the lighting-current to the lamp corresponding to the displayed signal

7. In electric railway-signals, the combination, with the signals L L', the line-wire *k*, and the electric lamps *m o*, of the pairs of insulated conducting-arms *i j i' j'*, and the wires *k' l l' n n'*, substantially as herein shown and described, whereby the displaying of either of the said signals will send the electric current through the corresponding lamp, and thus give proper night-signals, as set forth.

314,761. ELECTRIC RAILWAY-SIGNAL. WILLIAM T. WATERS, Atlanta, Ga. Filed May 23, 1883. (No model.)

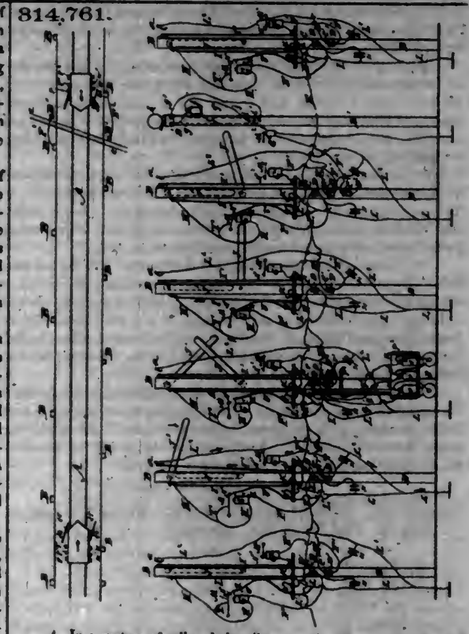
Brief.—Batteries on train. As it passes each signal-post, train electrically releases advance signal one, two, or more blocks ahead, as desired, mechanically restores to "safety" the advance signal at the post which it is passing, mechanically sets rear signal at the same post, and electrically restores to "safety" the signal at rear end of the section which it is leaving.

Claim.—1. A system of electric railway-signals comprising a series of normally-independent circuits, each of which is connected at either end with electric signal-controlling mechanism, including a normally-grounded switch and a visual signal adapted to be displayed by mechanically-stored power, released electrically, and then mechanically housed, and means, substantially as set forth, whereby each display movement of the said signal will break the ground-connection of its system and unite the contiguous normally-independent circuits.

2. A system of electric railway-signals comprising separate line-circuits connected in series, signal-controlling devices located at each signaling-station and connected with each section of the series and provided with electric signal-operating mechanism, including a normally-open ground-switch and a visual signal adapted to be mechanically displayed and then housed by mechanically-stored power, released electrically, and means, substantially as described, whereby each display movement of the signal will complete the ground-connection of its circuit, thereby disuniting the contiguous circuits.

3. An electric railway-signal system comprising a series of separate normally-independent circuits, each of which is connected at one end with electric signal-controlling mechanism for advance signals, and at its other end with electric signal-controlling mechanism for rear signals, a switch normally grounded and located in proximity to the advance signal, and mechanical connections between said signal and the switch, whereby the latter is automatically shifted so as to span the signal-operating mechanism and unite the contiguous circuits upon the displaying of the signal, as set forth.

314,761.



4. In a system of railroad-signaling, a series of separate normally-independent circuits, each of which includes a movable ground-connection normally out of circuit, a rear signal and electro-mechanical devices for retaining same in its displayed position, and mechanical connections between said signal and the movable earth-circuit, whereby the latter is only brought into action during the exposure of the signal, and is automatically cut out when the same is released and allowed to fall, substantially as described.

5. In electric railway-signals, a series of signaling-stations extending along a line of railway, each provided with a normally-grounded movable contact, and means, substantially such as described, for transmitting a current from a moving train at one of the rear posts to one or more thereof in advance and to ground successively through the said movable contacts, and a signal-controlling electro-magnet located at each of said stations, said ground-connections being successively broken by the displaying of signals released therethrough, as set forth.

6. A system of electric railway-signals comprising a series of separate normally-independent circuits, each including a movable temporary ground-connection at its advance signaling-point, and means, substantially as described, whereby said ground-connection is placed under compression by the displaying of said advance signal, and thereby automatically cut out of circuit, as set forth.

7. A system of electric railway-signals comprising a series of separate normally-independent circuits, each including a movable temporary ground-connection at its advance signaling-point, said ground-connection being brought into circuit by the attraction of the armature of an electro-magnet, and then put under compression while so connected by the change of position of a signal released by said armature, so that it will move out of contact position when said armature is released, and remain out of contact position until said signal is returned to its normal position, as set forth.

8. In an electric railway-signaling system, the combination, with an electro-mechanically-controlled advance signal, of an oscillatory signal for highway and other crossings secured to the axis of said advance signal and at right angles thereto, and moved upon its horizontal longitudinal axis from "danger" to "safety," and vice versa, by the ordinary manipulations of the advance signal, as set forth.

9. In electric railway-signals, the combination, with the armature-operated conducting wire or strip T and the switch U, of the switch I, lever P, and signal J, substantially as herein shown and described, whereby the free end of the switch U is forced out of contact position by the downward movement of the advance signal, as set forth.

10. In electric railway-signals, the combination, with the conducting-wires F H E and the ground-wire L^2, of the armature-operated conducting wire or strip T, the switches U I I', the signals J J', levers P P', and the conducting-wire W, substantially as herein shown and described, whereby the forward ground-connection is changed from post to post automatically in advance of the train, as set forth.

11. In electric railway-signals, the combination, with the rear signal, J', having pin *d*, the armature M', having hook N', and the magnet G', of the lever P', having curved recess *b*, slot *c*, and hook O', substan-

tially as herein shown and described, whereby the said signal is held in place when displayed, and released by the passage of an electric current through the said magnet, as set forth.

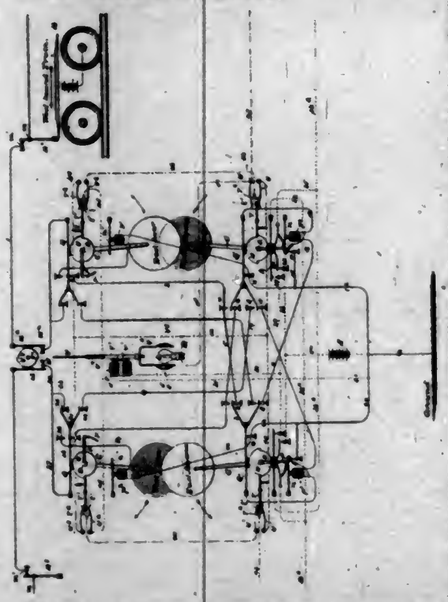
12. In electric railway-signals, the combination, with the armature M, having hook N', the signal J, having pin 8, and the magnet G, of the bent lever P, having hook 6, and slot R, substantially as herein shown and described, whereby the advance signal is held in place when concealed, and is released by the passage of an electric current through the said magnet, as set forth.

13. In electric railway-signals, the combination, with the sliding rod 17, operating the weight-raising elbow-lever 12, and the supports 18, of the two springs 19 20, and the pins 21 22, substantially as herein shown and described, whereby the said rod will be brought back to its normal position after being moved in either direction, as set forth.

14. In electric railway-signals, the combination, with the horizontally-sliding rod 17, the elbow-lever 12, and the vertically-sliding rod z, having cloteh-jaws 4, of the rod 8, the sliding weight 7, carrying the rod 6, having spear-head end 5, and the stops 27 and 28, substantially as herein shown and described, whereby the weight is raised and suspended by the action of a passing train, and is released by the descent of the vertically-sliding rod, as set forth.

15. In electric railway-signals, the combination, with the signals J J', having stop-pins 26, and the vertically-sliding rod z, having slotted horizontal arms y y', of the pivoted connecting-bars x x', substantially as herein shown and described, whereby the said signals will be raised by the downward movement of the said rod, as set forth.

314,762. ELECTRIC RAILWAY-SIGNAL. WILLIAM T. WATERS, Atlanta, Ga. Filed Feb. 18, 1884. (No model.)



Claim.—1. An electric railway signaling system comprising a double set of advance and rear signals united and controlled by a single series of normally-independent circuits extending from post to post along the entire line, substantially as set forth.

2. An electric railway signaling system comprising a double set of advance and rear signals united and controlled by a single series of normally-independent circuits extending from post to post along the entire line, and a movable two-part switch located in proximity to each of the signals, and mechanical and electrical connections between said switches and signals, whereby either advance signal when displayed will complete its forward circuit through the switch of its rear signal, and when housed and the rear signal displayed said switch will be moved thereby, so as to sever the advance circuit and prevent the setting of advance signals by a following train, substantially as described.

3. A system of electric railway-signals comprising a series of normally-independent circuits, each circuit being provided at either end with a set of signals and electric controlling mechanism, each set including a normally-grounded switch operated by a visual signal adapted to be displayed by mechanically-stored power released electrically from a distant point, and then mechanically housed, and a verifying-signal controlled electrically by normally-open circuits passing through the advance signals of both systems, which circuits are closed by the display movement of the advance signals at that post, whereby a current may be sent rearward to the next verifying-signal to move the same from "danger" to "safety," thereby giving notice of the displaying of the distant advance signal last set, substantially as described.

4. A system of electric railway-signals comprising a series of normally-independent circuits, each provided at either end with a set of signals and electric controlling mechanism, each set including a normally-grounded switch operated by a visual signal adapted to be displayed by mechanically-stored power released electrically from a distant point and then mechanically housed, and a verifying-signal controlled electrically by two normally-open circuits passing through the advance signals of both systems, one of which extends rearward and includes a source of electricity, from which a current is sent to the next post to move its verifying-signal from "danger" to "safety," the other circuit being locally grounded, but unprovided with current, and extending forward to the next post, where, on the displaying of an advance signal at said advance post, it is connected with a source of electricity, from which current passes rearward to the intermediate post, and by actuating the electro-magnetic apparatus thereof changes the verifying-signal from "danger" to "safety," as described.

5. An electric railway signaling system comprising a series of normally-independent circuits, each of which is connected at one end with electric signal-controlling mechanism for advance and rear signals, and at its other end with the electric signal-controlling mechanism of rear and advance signals, a pair of switches normally grounded and located in proximity to the advance signals, and a pair of switches normally out of circuit and located in proximity to the said rear signals, and mechanical connections between said signals and the switches, whereby the advance switches are automatically shifted, so as to span the signal-operating mechanism and unite the contiguous circuits through the switches of said rear signals upon the displaying of an advance signal, as set forth.

6. In an automatic electric railway signaling system, a series of signaling-stations extending along a line of railway, each provided with two normally-grounded movable contact-switches, through one of which the current enters and through the other of which it leaves, according to the direction of the approaching train, and contact devices, substantially as described, for transmitting a current from a train at one of the posts to one or more thereof in advance in either direction, and to ground successively through a predetermined set of movable contacts and a signal-controlling electro-magnet located at each of said stations, said ground-connections being successively broken from either direction (when the line is clear) by the successive displaying of the set of signals released therethrough, substantially as described.

7. In an automatic signaling system, the combination, with electric signal locking and controlling mechanism, of an electro-magnet for releasing the same, a normally-grounded circuit including said magnet, and a movable switch in proximity to said mechanism, of an auxiliary or by-pass circuit adapted to complete the ground-connection of said magnet during the display movement of the signal and prior to the severance of the normal ground-line, thereby interposing a temporary ground at that point for that impulse and preventing any portion thereof passing beyond, substantially as described.

8. In an automatic electric railway signaling system, a pivoted two-part switch consisting of a stem or arm forming part of one circuit and a pair of arms attached to the extremity thereof, but insulated therefrom and normally included in a different circuit, and mechanical means operated by the movements of the signal for changing the positions of said switch, and thereby breaking one of its circuits and completing the other, substantially as set forth.

9. In an electric railway signaling system, an electrically-operated supplementary or verifying signal normally indicating "danger," and included in a circuit passing through the advance signals of the moving train, the safety-circuit being arranged to be made and broken by the mechanical movements of said advance signals, substantially as set forth.

10. In an electric railway signaling system, an electrically-operated supplementary verifying-signal normally indicating "danger," in combination with an advance signal or signals and electrical switches operated by the latter, a portion of said switches being located in the circuit of the verifying-signal, whereby the safety-circuit of said verifying-signal is made and broken by the mechanical movements of other signals forming part of the same system, but located at a distant point in advance, substantially as set forth.

11. In an electric railway signaling system, an electrically-operated supplementary or verification signal included in a circuit passing through and controlled by the movements of two advance signals located at different points in advance of the moving train, substantially as set forth.

12. In an electric railway signaling system, an electrically-operated verifying-signal having circuits adapted to be made and broken by the mechanical movements of other signals, one of which is a distant advance signal forming part of the same system, and a retracting-spring or equivalent for restoring said signal to its normal or "danger" position when said mechanical movements terminate by the housing of the circuit-controlling signals, as hereinbefore described.

13. The combination of a vertically-pivoted signal, an armature-carrying lever, and means for communicating rotary motion from said lever to the signal, an electro-magnet located so as to control the movements of said lever, a ground-line, and a pair of pivoted switches forming parts of a normally-open circuit including a source of electricity and mechanism actuated by the displaying of either advance signal for moving the switch and closing said circuit, whereby the magnet is energized and the signal turned, as set forth.

14. The combination of the signal V, provided with toothed sector v^4, pivoted lever V^6, provided with suitable armature, and an electro-magnet, v^5, the ground-wire 31, wires 30 and 29, contact 27, switch R, and cam N, with the wire 32, wire 35, switch R', contact 28, wire 34, battery S, and cam N of the next adjacent post, substantially as described.

15. In an automatic electric railway signaling system comprising advance and rear signals operated by moving trains, a supplementary or verification signal, and means consisting of switches operated by the movement of the said verification-signal, substantially as described, for breaking the main or signaling circuit at that point whenever said verifying-signal is moved from "danger" to "safety," substantially as described.

16. In an automatic electrical railway signaling system comprising signals operated by moving trains, a supplementary or verification signal and an automatically-operated circuit-breaking device operated by said verifying-signal breaking the main or signaling circuit at that point whenever said verifying-signal is moved from "danger" to "safety," substantially as described.

17. In an automatic electric railway signaling system, a pair of line contact-brushes included in the main circuit and located one on each side of each signaling-station, a circuit-breaker operated by each contact-brush, and connections, as described, whereby at each contact with a moving train the normal circuit will be momentarily broken and a current imparted from a source of electricity on said moving train will traverse the longer end of said normal circuit, thereby energizing the electro-magnetic signal-operating devices at a distant station, as set forth.

18. In an automatic electric railway signaling system, the combination, with a pair of line contact-brushes located one on each side of each signaling-station, and a circuit-breaking device between said brushes operated by the movements of the verifying-signal, of a contact-bar mounted upon and carried by the train being signaled, a source of electricity, also carried by the train, and connections for sending a current of electricity through said bar, the contact-brushes, and line, substantially as set forth.

19. In an automatic electric railway signaling system, one or more sets of day-signals located at each post, and means, substantially as described, for displaying and housing the same, an electric lighting device located at about the center of each system, and a supplementary system of night-signals, consisting of colored semaphores actuated by the movements of the day-signals, so as to cover or expose the light as the day-signals are displayed and housed, substantially as described.

20. In an automatic electric railway signaling system, a double set of advance and rear signals and means for housing the same, in combination with an electric lighting device and a supplementary set of colored signals for night use, and mechanical connections between said day and night signals, whereby the latter are displayed in front of or to the rear of the fixed light, so as to change its color in a direction corresponding to the nature of the signal displayed, substantially as described.

21. In a system of automatic electric railway-signals comprising two or more signals to each post, an electric lighting device located at substantially the central point in each system, and a series of switches, one to each signal, and mechanical means for operating said switches, whereby by the displaying of any of said signals a normally-closed circuit carrying the electric lighting-current will be opened and said current diverted through the electric lighting device, substantially as described.

22. The combination, with the lamp L, terminals T^2, and connecting-wires, of the spring-switches U U' U^2 U^3, mounted in pairs, one on each side of a terminal, T^2, and adapted to make contact therewith, pivoted levers T, each having a block of insulating material, t', at its outer end and provided with a suitable retracting-spring, and located so as to bear upon the cams N O, to normally hold one set of switches away from the terminals T^2, and when said cams are rotated to allow the set of switches previously out of contact to make contact with the terminals T^2 before the opposing set are removed therefrom, whereby sparking and burning of the apparatus are prevented, one circuit being made before the other is severed.

23. In an automatic railway signaling system, the combination of a pair of levers having crank-arms projecting therefrom, a rod suspended between said crank-arms, a coiled spring mounted on said rod and confined between two fixed points thereon, and means carried by a moving train for raising one of said levers and depressing the other, both movements uniting to continuously compress the spring.

24. In a system of automatic railway-signals, a power-receiving device consisting of the combination of laterally-projecting angle-levers A A', crank-arms h^2 h^3, depending therefrom, a rod, h^4, pivoted to the extremities of and uniting said crank-arms, and a spring, J, carried upon said rod and confined within a trough or box, h^5, provided with supporting lugs or trunnions h^6, and perforated at each end to allow free passage of the rod h^4 and keys J', carried thereon, and a pair of washers, j, mounted upon said rod within said box, between which the spring is confined and compressed by the movement of the levers, substantially as shown and described.

25. In a system of automatic electric railway-signals, the semaphores W A, W R, suitably mounted on shafts, and provided with cams N O, respectively, and with the locking-levers P, having upturned extremities p, in combination with spring-catches n n', electro-magnets p' p^2, switching-levers Q Q', and electrical connections, substantially as set forth.

26. The combination, with the signals W A, W R, cams N O, and locking-levers P p, of the catches n n', electro-magnets p' p^2, switches Q and 7, wires 3 5 9 10, switch Q', and wire 12, as described.

27. The combination, with the signals W A, W R, cams N O, and locking-levers P p, of the catches n n', electro-magnets p' p^2, switches Q and 7, and wires 3, 5, 9, 13, 15, and 12, as described.

28. The combination of semaphores W A, W R and suitable supporting-shafts, the slotted loosely-mounted crank-arms d', and rigidly-mounted crank-arms d^2, with the yoke F, provided with pins f, and a downwardly-extending rod, G, substantially as set forth.

29. The combination, with semaphores W A and W R and supporting-shafts, slotted crank-arms loosely mounted thereon, and crank-arms rigidly secured thereto, of the yoke F, provided with pins engaging the slots of the crank-arms, a downwardly-extending draft-rod G, and a retracting-spring, g'.

30. The combination of semaphore-arms, suitable supporting and controlling mechanism, a draft-rod leading to a source of power, and an air-cushion cylinder and adjusting devices, whereby quick movements of the draft-rod are prevented, substantially as described.

31. The combination of the semaphore-arms, suitable supporting and controlling mechanism, a draft-rod leading to a source of power, and an air-cushion cylinder having a tubular piston-rod formed with communicating apertures above and below the piston, and a rod and adjusting devices within said piston-rod, whereby the area of one of said apertures can be increased or diminished to regulate the resistance of the piston, substantially as shown and described.

32. The combination, with draft-rods G, connecting-levers k', provided with catches k^3, and adjustable stops K^2, of the arms g g, provided with spring-catches J^3, and the shaft J^2.

33. The combination, with draft-rods G, connecting-levers k', provided with catches k^3 and studs k^4, the shaft J^2, upon which the inner ends of said levers are loosely supported, and adjustable stops K^2, of the arms g g, provided with spring-catches J^3, adapted to engage the stop k^3, and having laterally-extending trip-pins i and a pair of trip-levers, K', pivotally supported on the studs k^4, and adapted to engage the stops k^3 on the descent of the draft-rods, and to retract and release the catches J^3.

314,768. ELECTRICAL RAILROAD-SIGNAL. WILLIAM T. WATERS, Atlanta, Ga. Filed Apr. 1, 1884. (No model.)

Claim.—1. An electric-signal system for railways in which each signal station or post is provided with an automatically-reversible electric motor connected with a source of electricity, and with a two-way reciprocating mechanism for actuating the signals at each posts or stations, substantially as and for the purpose set forth.

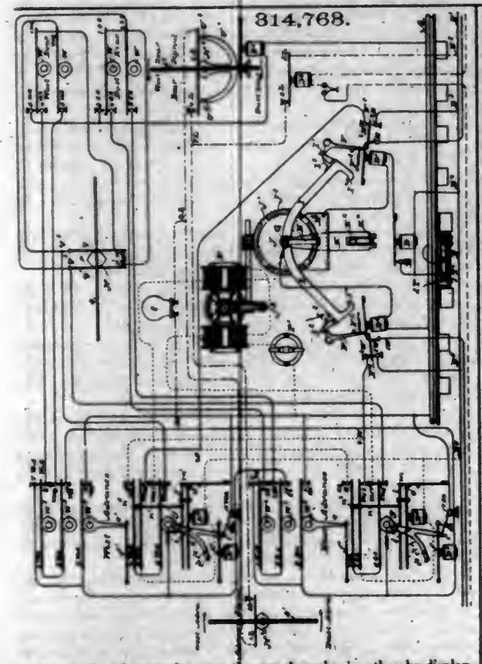
2. An electric-signal system for railways, consisting of a series of signal-stations in normally-independent circuits, each station having an automatically-reversible electric motor and signal-actuating mechanism by means of which the setting of an advance signal at a second advance-signal post by an electric impulse imparted to the signal-circuit by a moving train completes a circuit from a source of electricity at said second post to and through an electric motor located at the first post in front of the passing train, substantially as and for the purpose set forth.

3. An electric-signal system for railways in which each station or post is provided with one or more vertically-pivoted two-way reciprocating signals, substantially as described, an electric motor connected with a source of electricity, and signal-actuating mechanism having electrical attachments connected with the motor and source of electricity, said motor acting through electric impulses to store power in said actuating mechanism, substantially in the manner and for the purpose set forth.

4. An electric-signal system for railways in which each station or post is provided with one or more signals and signal-actuating mechanism and an automatically-reversible electric motor connected with a source of electricity, said motor acting to store power in the signal-actuating mechanism for displaying the rear signal and concealing the advance signal, and at the same time actuating the verifying-signal at that post, substantially as and for the purpose set forth.

5. An electric-signal system for railways in which each station or post is provided with one or more signals, signal-actuating mechanism, and an automatically-reversible electric motor connected with a source of electricity, the motor at a given post acting to store power in said mechanism for displaying a rear signal, concealing an advance, and turning a verifying-signal at that post, a train on passing said post automat-

314,768.



ically releasing the stored power, the signal mechanism thereby displaying the verifying and rear signals and concealing the advance signal at that post, and at same time connecting the advance-signal circuit with a local source of electricity, displaying an advance signal at the second post in advance thereof, and connecting a local source of electricity with a rear-signal circuit, thereby concealing the rear signal at the post last passed, substantially as and for the purpose set forth.

6. An electric-signal system for railways, each station of which is provided with one or more signals, an automatically-reversible electric motor, and signal-actuating mechanism, and in which the displaying of an advance signal at a second post in advance of a moving train connects a source of electricity at that post with a motor at the first post in advance of the train, said motor automatically breaking the motor-circuit as soon as the necessary power has been stored for actuating the signal mechanism at said post, the cessation of said current permitting the armature of an electro-magnet at the advance post to rise and couple the normally-independent signal-circuits terminating at that post, thus completing the signaling-circuits from the post next to be passed by the train to second post in advance thereof, substantially as and for the purpose set forth.

7. An electric-signal system for railways, each post of which is provided with one or more signals and actuating mechanism therefor, and an automatically-reversible electric motor, the posts being electrically connected, the signal mechanism and its electrical connections at one post automatically controlling the signal mechanism and the electrical connections of one rear and two advance posts in such manner that one train cannot affect them when another train has an advance or rear signal displayed thereon, thus always securing an entire block between any two trains on the same track, whether moving in the same or opposite directions, substantially as set forth.

8. An electric railway-signal system in which each advance signal is normally held at "safety" and operated by trains moving in either direction through the intervention of electric connections and signal-actuating mechanism in two sets of parts, only one of which operates at one time, and so operates that the signal is thereby turned to the right or left, according to the direction of the moving train, with the safety side of said signal in each case turned toward the approaching train, as and for the purpose described.

9. An electric-signal system for railways, each post of which is provided with one or more signals, and mechanism for actuating the same, and electrical connections, and in which each advance signal is adapted to be displayed in either of two directions, according to direction of approaching train, by the release of a normally and automatically stored power in said mechanism.

10. An electric-signal system for railways in which each signal post or station is provided with one or more signals, and actuating mechanism controlled by an automatically-reversible electric motor electrically connected with such mechanism, and a source of electricity, the operation of said motor at each post being dependent upon the position of the advance signal next beyond it, and the direction of its rotation determined by the direction from which it receives current, substantially as and for the purpose set forth.

11. An electric railway-signal system in which each signal-post is provided with a power-receiving and signal-actuating mechanism and an automatically-reversible electric motor which, when turned in one direction by an electric impulse, stores power (in said mechanism) that, when released, will display an east rear signal and conceal an east advance signal, and turned in the other direction will store power that, when released, will display a west rear and conceal a west advance signal, and turned in either direction will turn the verifying-signal from its normal position of "danger" to "safety," and vice versa, substantially as and for the purpose described.

12. An electric-signal system for railways in which each signal-post is provided with one or more signals, actuating mechanism therefor, and an automatically-reversible electric motor the driving-current of which is automatically broken by a cut-out in the motor-circuit as soon as the required power in the power-receiving part of the signal mechanism has been stored by said motor, substantially as and for the purpose described.

13. In an electric railway-signal system, an automatically-reversible electric motor at each signal-post, for concealing displayed signals through the intervention of suitable mechanism and electrical connections.

14. In an electric-signal system for railways, an automatically-reversible electric motor at each post, for displaying concealed signals through the intervention of suitable mechanism and electrical connections.

15. In an electric-signal system for railways, an automatically-reversible electric motor at each signal-post for storing power that, when released electrically, will actuate visual signals through the intervention of suitable electrical and mechanical connections.

16. In an electric-signal system for railways, an automatically-reversible electric motor with suitable electrical and mechanical connections, for operating electric latching and switching devices.

17. In an electric-signal system for railways, an automatically-reversible electric motor with suitable electrical and mechanical connections for storing power that, when released electrically, will actuate electric latching and switching devices.

18. A system of electric signals for railways in which each post is provided with an automatically-reversible electric motor, as described, in combination with one or more signals and with suitable electrical and mechanical connections for actuating said signals and signal mechanism.

19. An electric-signal system for railroads in which each signal-post is provided with one or more signals, signal-actuating mechanism, and a local lighting-circuit passing through two switches, one of which is adapted to be closed by the display movement of one or more of said signals, and the other of which is adapted to be closed by an electro-magnet in an independent light-controlling circuit, but the concurrent closing of both of which is necessary to direct a lighting-current from a source of electricity through an electric lamp to ground at that post, substantially as and for the purpose set forth.

20. In electric railway-signals, a vertically-pivoted two-way reciprocating visual signal provided with electrical and mechanical devices for displaying and concealing same, substantially as and for the purpose set forth.

21. In a system of electric railway-signals, the combination, with an automatically-reversible electric motor and electro-mechanical signal-actuating mechanism, of a vertical oscillating verifying-signal normally displayed, but that may be concealed by an electric current from either of two distant and opposite points.

22. In a system of electric railway-signals, a vertical oscillating verifying-signal normally displayed, but adapted to turn through an angle of ninety degrees in a horizontal plane in either direction from its normal position, and that, through the intervention of mechanical and electrical connections, as described, may be turned by an electric current from either of two distant and (with respect to the railroad-track) opposite points, and that will be turned in one direction or the other according to the direction from which such current is received.

23. In a system of electric railway-signals, a single vertical oscillating verifying-signal at each post, normally displayed, but adapted to turn ninety degrees in either direction from its normal position through the intervention of mechanical and electrical connections, as described, the direction of its movement being determined by the direction from which current is received, and that when so turned to indicate "safety" will also indicate the direction from which the train that it signals is approaching.

24. In a system of electric railway-signals, the combination, with electro-mechanical signal-actuating devices electrically connected forward and rearward, as described, of a single vertical oscillating verifying-signal at each signal post or station, normally displayed, but adapted to turn ninety degrees in either direction from its normal position, which movement can be effected only by the display movement of advance-signal mechanism at a distant post in a direction opposite (with respect to railroad-track) to that from which such advance-signal mechanism is operated.

25. In a system of electric railway-signals, comprising an advance and rear signal and a verifying-signal at each post, an advance-signal mechanism in two sets or parts, each provided with a set of automatic electric switches, as described, one part of which is operated by an electric current from a distant point in one direction only and the other by an electric current from a distant point in the opposite direction.

26. In a system of electric railway-signals, an advance-signal mechanism in two sets or parts, each part comprising a normally-stored power detained by a locking-arm and electric latching device, but capable of being released by an electric impulse from a distant point, in connection with a cam-shaft for operating electric switches.

27. In electric railway-signals, a cam-sleeve loosely mounted on each cam-shaft of the advance-signal mechanism provided with a separate normally-stored power detained by a locking-arm escapement which normally rests against the locking-arm of the cam-shaft on which said cam-sleeve is mounted, but which, when said locking-arm has been released, has a step-by-step movement controlled by the same electric latching device that controls the forward movement of said cam-shaft, and is restored to its normal position by the restoration of the cam-shaft to its normal position.

28. In electric railway-signals, the combination, with one or more signals and signal-actuating mechanism, of a cam-sleeve for operating electric switches, loosely mounted on each cam-shaft of the advance-signal mechanism, adapted to be actuated by a separate normally-stored power, and normally detained by the locking-arm of said cam-shaft, against which it rests, but which, when said locking-arm has been released, has a step-by-step movement controlled by an electric latching device in such manner that the direct effect of a first electric current by releasing the locking-arm of the cam-shaft will be to give to this locking-arm escapement its first forward movement, its reflex effect at cessation of first current will give a second forward movement, the direct effect of a second electric current will give a third-forward movement, and its reflex effect at cessation of second current will give its fourth and final forward movement.

29. In electric railway-signals, the combination, with one or more signals and signal-actuating mechanism, of a cam-sleeve loosely mounted on each cam-shaft of an advance-signal mechanism adapted to be actuated by a separate normally-stored power and normally detained by the locking-arm of said cam-shaft, but which, when said locking-arm has been released, has a four-step forward movement, at the second of which it operates indirectly two electric switches connecting a local source of electricity with line-wire to rear, and at the fourth of which it operates directly one electric switch establishing a local ground (or return circuit) connection for a like current from a distant post in advance.

30. In electric railway-signals, the combination, with a cam-sleeve having a step-by-step movement, of a gravity-dog so pivoted to lugs or standards formed on said cam-sleeve as to have an independent radial movement with reference to said cam-sleeve in one direction only, and a locking-lever pivoted at one end and so adjusted with reference to said dog as to be depressed by said gravity-dog in its forward movement, but not disturbed by it in its return movement.

31. In electric railway-signals, the combination, with a cam-sleeve having a step-by-step movement and a gravity-dog so pivoted thereto as to have an independent radial movement with reference thereto in one direction only and a locking-lever pivoted at one end and so adjusted with reference to said gravity-dog as to be depressed by its forward movement but not disturbed by its return movement, of a spring-latch by which said locking-lever, when depressed, is detained, and a connecting-rod by which said locking-lever is rigidly connected with two or more electric switches that are thereby depressed when said locking-lever is depressed, and so remain till said locking-lever is allowed to rise to its normal position.

32. In electric railway-signals, a switch-controlling magnet and its armature, connected with a local source of electricity and one or more electric switches, in combination with a spring-latching device for locking said switches in a depressed position and completing the circuit through said magnet and line-conductor to a distant point rearward, a current through which circuit causes said magnet to attract its armature, which will at once displace said latching device, but still hold the switches depressed until the circuit is broken at the distant point, when the armature and the switches will rise together to their normal position and the latching device assume its normal position.

33. In a system of electric railway-signals, a normally-independent circuit extending from one signal-station to the one next adjacent to it, each end terminating in a movable switch adapted to move between two fixed contacts, one of which is connected with a source of electricity, and the other is normally connected through electric signal-releasing devices to ground or other return circuit, and against the latter of which said movable switch normally rests, whereby the connection of the movable switch with the source of electricity at one post will cause a current to pass to and through the electric signal-releasing devices at the other post.

34. A system of electric signals for railways in which each signal-post is provided with one or more signals and actuating mechanism therefor, substantially as described, and an electric lamp in a normally-open lighting-circuit, said lighting-circuit being under the control of an independent circuit in so far only as to control the lamp irrespective of the position of signals in day-time, or when no lights are required, said independent circuit passing through an electro-magnet at each signal-post, the armatures of which magnets are portions of the normally-open lighting-circuits for their respective posts, the magnets, when energized by a current of said independent circuit, attracting their armatures from contact in the normal lighting-circuit, thus breaking the lighting-circuit simultaneously at each post, so that, though signals be displayed, no light will appear, substantially as and for the purpose set forth.

35. A system of electric signals for railways in which each signal post or station is provided with one or more signals and actuating mechanism therefor, and an electric lamp the lighting-circuit of which is controlled by an independent circuit, and a cut-out at each post in said independent circuit for the reception of a plug connected with a telegraphic outfit, so that said independent circuit may be used at any time for telegraphic purposes without disturbing the signaling-circuits, substantially as and for the purpose set forth.

36. In a system of railway-signals, a two-way reciprocating power-receiving mechanism and one or more signals adapted to be actuated thereby, in combination with a motor and source of energy, whereby power may be stored that, when released, will display concealed signals, or conceal displayed signals of trains moving in either direction over a given track, and at the same time actuate signal mechanism and electrical appliances, substantially as shown and described.

37. In a system of electric signals for railways, an electro-mechanical power-receiving mechanism supported on a bed-plate in the bottom of the signal-box, a main shaft about which said mechanism is mounted, a shuttle-arm having an automatic locking and releasing shuttle, a weight-raising lever, and one or more automatic cut-outs for electric circuits a compound wheel geared with an electric motor, a bifurcated two-armed lever normally locked in both directions, and two arms carrying the heavier weights by the suspension of which power is stored, and in such position that when the main shaft is turned from its normal position it will raise one of them without disturbing the other, and two arms carrying lighter weights in such position than when the bifurcated lever is moved from its normal position it will raise one lighter weight without disturbing the other, and two cam-plates for changing the position of the shuttle within said shuttle-arm during its movement and while the shuttle-bolt is held in a fixed position relative to said arm.

38. In electric signals for railways, an electro-mechanical signal-actuating mechanism in two sets or parts for advance signals, consisting of a rag-wheel, R', a pair of slotted wheels mounted upon a shaft in such position that the turning of the rag-wheel in either direction from its normal position will affect but one of said slotted wheels, and then only to restore it to its normal position, a cam-shaft geared to each wheel, with normally-stored power detained by an electric latching device, a signal-shaft pivotally mounted upon the shaft carrying the rag and slotted wheels, with a beveled wheel rigidly mounted thereon in such a position that the movement of either slotted wheel from its normal position will turn the signal-shaft, but in opposite directions, and a cam-shaft geared to said beveled wheel and provided with a suitable weight so adjusted that the turning of said cam-shaft from its normal position will raise said weight, thus storing power to restore the signal-shaft to its normal position as soon as released from the heavier weight by which it was turned away therefrom, as and for the purpose set forth.

39. In electric signals for railways, an electro-mechanical rear-signal mechanism consisting of a rag-wheel, R, rigidly mounted on a shaft or stud, and a rear-signaling shaft pivotally mounted on the top of said shaft, and on which is rigidly mounted a cam-boss, S, in such position that the turning of said rag-wheel one-half around in either direction will turn said signal-shaft one-fourth around in the same direction, and a beveled sector to which is geared a cam-shaft carrying a weight, H', that, when said signal-shaft is turned from its normal position, will be raised and suspended, and a sector with two notches diametrically opposite, and an electric latching device so adjusted with reference thereto that on the turning of said signal-shaft one-fourth around in either direction from its normal position it is adapted to engage with said sector, and thus hold said weight in its suspended position, so that when released from said latching device it will restore the signal to its normal position.

40. In electric signals for railways, the combination of an automatic electro-mechanical signaling device including advance, rear, and advance-verifying signals with a local independent track-circuit and circuits to one or more distant points.

41. In electric signals for railways, the combination in one circuit of two or more signal-actuating mechanisms located at different points and each having a local source of electricity and automatic switching devices whereby a mutual interdependence is established and maintained between the signals displayed and concealed thereby, substantially as shown and described.

42. In a system of electric signals for railways, consisting of a series of normally-independent circuits, the combination of electro-mechani-

cal signal-actuating mechanism at each post with automatic electric switching devices, whereby normally-independent signaling-circuits without battery are automatically coupled and uncoupled in front and rear of moving trains and connected with a source or sources of electricity, as required, substantially as set forth.

43. In an electric-signal system for railways, an automatically-reversible electric motor with an automatic cut-out at each signal-post and electric switching devices, whereby said motor may be thrown into either of two normally-independent circuits, each of which circuits includes a source of electricity and an automatic switching device at a distant point.

44. In an electric railway-signal system, a series of independent circuits extending from post to post along the line of railway, each provided at either end with signal-actuating mechanism, automatic switching devices, an automatically-reversible electric motor, and a source of electricity, said motors and sources of electricity being normally out of circuit, but adapted to be thrown into and out of circuit automatically by said signal-actuating mechanism.

45. In electric signals for railways, a series of independent motor-circuits, each circuit extending from a given signal-post to another only, and each including a source of electricity, an automatically-reversible electric motor normally out of circuit, a switch or switches for controlling the action of such motor, an automatic cut-out, and an electro-magnet and its armature at a distant point, and one or more signals and signal-actuating mechanism, whereby the action of said motor is automatically controlled, and the cessation of the driving-current automatically couples or unites at a distant point two normally-independent signaling-circuits.

46. In an electric-signal system, as described, a series of normally-independent signaling-circuits, with one or more vertically-pivoted two-way reciprocating signals, an automatically-reversible electric motor, and a source of electricity at each signal-post, in combination with electrical connections and appliances whereby said normally-independent circuits are automatically utilized as motor-circuits or signaling-circuits dependent upon the conditions existing at one or more distant posts.

47. A signal-post with one or more vertically-pivoted two-way reciprocating signals and signal-actuating mechanism, an automatically-reversible electric motor, a source of electricity, and electrical connections to two or more distant and opposite points, a first current to which will display an advance signal toward a direction opposite to that from which said current is received; the cessation of this current will unite a local source of electricity through an electro-magnet and its armature with line-wire to rear, giving out a current that will drive a motor at a distant point; the cessation of this motor-current, caused by an automatic cut-out at the distant point where motor is located, will unite or couple together at said post the two normally-independent signaling-circuits that terminate thereat; a second signaling-current passing over these two temporarily-united circuits will pass through this post, and its cessation will connect the line forward through the electromotor to ground at this post, thus disuniting the two normally-independent circuits that were before united, and a motor-current now traversing the circuit that includes the forward post and its electro-magnet, the local electro-motor and its automatic cut-out, and a source of electricity will, through the action of said motor, conceal the normally-displayed verifying-signal, and at same time store power that, when released, will display the verifying and a rear signal and conceal the advance signal; the passage of a train by this post releasing the stored power, which changes the positions of the signals thereat, as stated, leaving only a rear signal displayed; and, finally, said rear signal is concealed by an electric impulse from a distant point in the direction of the receding train, and the mechanism thus restored to its normal position.

48. An electro-mechanical signal-actuating mechanism electrically connected with a local source of electricity and with a like mechanism at one or more distant points, including an electric motor normally out of circuit, and its automatic cut-out, a two-way reciprocating power-receiving mechanism by which the power of said motor may be automatically stored by a current from a distant point, as required; a power-releasing mechanism by which said stored power may be automatically utilized, as required; an advance-signal mechanism in two sets, only one of which acts at one time, but both of which are adapted to act on same signal and electric switching devices back and forth, though in opposite directions, corresponding to the direction in which the train signaled is moving, and to break the forward signaling-circuit when said advance signal is displayed; a rear-signal mechanism adapted to move a given signal and electric switching devices back and forth in either of two directions, corresponding to the direction in which the train signaled is moving, and to lock the advance signal at "safety" when said rear signal is displayed in either direction, and a verifying-signal normally held at "danger," but turned to "safety" by the storing of power in said mechanism, and restored to its normal position by the release of said power, with an automatic cut-out adapted to break the incoming signaling-circuit in all directions when said signal is displayed, as set forth.

49. An electro-mechanical signal-actuating mechanism, electrically connected with a local source of electricity and with a like mechanism at one or more distant points, including an electric motor normally out of circuit and its automatic cut-out, a two-way reciprocating power-receiving mechanism by which the power of said motor may be automatically stored, as required; a power-releasing mechanism by which said stored power may be automatically utilized when required; an advance-signal mechanism in two sets or parts, both of which are adapted to act on same signal, but in opposite directions and at different times, as required; a rear-signal mechanism adapted to move a given signal in either of two directions, as required, and a verifying-signal that indicates the position of the advance signal at a distant point beyond it, and the direction from which the train that it signals is approaching.

50. In electric signals for railways, the combination, with an independent local track circuit and electro-mechanical signal-actuating mechanism, of an auxiliary local circuit normally open at two points one of which is closed by the movement of the signal-actuating mechanism and the other by the closing of an independent track-circuit, substantially as shown.

51. In electric signals for railways, a signal-station or stationary mechanism including a local source of electricity and an automatically-reversible electric motor with one or more signals and signal-actuating mechanism electrically connected to two or more distant points, whereby an advance signal may be displayed from a distant point, power stored to conceal said advance signal and display a rear signal, this stored power then released, and finally a rear signal concealed from a distant point, substantially as shown.

52. An electro-mechanical signal-actuating mechanism electrically connected with a local source of electricity and with one or more distant points, consisting of an automatically-reversible electric motor normally out of circuit and its automatic cut-out, a reciprocating power-receiving mechanism, a power-releasing mechanism, a signal locking and releasing mechanism, and electro-magnets and switching devices, substantially as shown and described.

53. In electric signals for railways, the combination of a power-receiving mechanism having a two-way reciprocating movement and including the compound wheel J, the shuttle-arm K, the shuttle K', the shuttle-bolt K^3, the cam-plates Q, the two-armed lever I, the lighter weights H^2 and H^3, the weight-raising lever L, and the heavier weights H H', with an electric motor, electric power-releasing devices, and one or more sources of electricity, substantially as shown.

54. In electric signals for railways, the combination, with a power-receiving and power-releasing mechanism, substantially as described, a source of electricity, and electrical connections forward and rearward, of a verifying-signal and mechanism for advance and rear signaling, substantially as and for the purpose set forth.

55. In an electro-mechanical signal-actuating mechanism, the ragwheel R', the loose arm Y, the pair of slotted wheels Z Z', with the cam-shafts W' W^2 W^3, the cam-sleeves g g', and their connections, substantially as described.

56. In an electro-mechanical signal-actuating mechanism, the ragwheel R, the boss S, the cam-shaft W, the eccentric cam T, the eccentric strap or bolt X, and their connections, substantially as shown.

57. In electric signals for railways, the combination, with electro-mechanical signal-actuating mechanism and electrical connections forward and rearward, of a verifying-signal the position of which at five consecutive posts more or less remote from each other may be controlled by a moving train, said signal being displayed at the two posts next in rear of such train, concealed at the first post in advance thereof, and displayed at the two posts next succeeding this, substantially as shown.

58. An electric signal-actuating mechanism for railways in which each post is provided with a verifying-signal, for indicating to the engineer the "danger" or "safety" position of a distant advance signal and the position of which, with reference to a moving train, is normally controlled automatically by the movement of said train, at three posts in advance and two in rear of said train, through the intervention of electro-mechanical signal-actuating devices, a source of electricity, and electrical connections forward and rearward.

59. In electric railway-signals, the combination, with a source or sources of electricity, an electric motor, an electro-mechanical signal-actuating mechanism, and electrical connections to one or more distant points, of a special danger-signal and automatic switching devices, whereby said signal may be displayed by an electric impulse from a distant point, and by the movement of which from its normal position said motor and its source of electricity are thrown into the signaling-circuit, the driving-current of said motor passing over the signaling-circuit to the operating-station verifies the distant signal at that station, and by the action of the motor itself power is stored in the signal-actuating mechanism, which power may afterward be released by an electric impulse from the same or another distant point, and when so released will restore said signal and signal mechanisms to their normal positions, substantially as described.

60. In a system of electric railway-signals, the combination, with an advance-signal mechanism in two sets or parts, and operating as described, of an electric motor, a source of electricity, and mechanism, as set forth, for normally storing power, a locking-arm, and an electric latching device by which said stored power and mechanism are controlled, substantially as and for the purpose set forth.

61. In a system of electric signals for railways, the combination of an advance and rear signaling mechanism with an electric motor, a power-receiving mechanism, a source of electricity, and electrical connections forward and rearward, as and for the purpose set forth.

62. In a system of electric signals for railways, the combination, with an advance and rear signal mechanism, and an electric motor, and a source of electricity at each post, of a verifying-signal at each post, as and for the purpose set forth.

63. In a system of electric signals for railways, the combination, with a track-circuit closer and its source of electricity, the magnets D D' D^2 and their armatures, a contact, E, the brush or strip E' and its contact E^2, an automatical reversible electric motor, and a source of electricity, of the signals and signal-actuating mechanism, as set forth.

64. In electric signals for railways, the combination, with the magnets D' D^2, each having a hooked shoulder formed on the free end thereof and electrically connected, as described, of the two-armed levers F F', normally engaged therewith, said levers being pivoted at their angles, and provided with retracting-springs F^2, to hold them in their normal positions with a power-receiving and signal-actuating mechanism and electric motor and source of electricity, as and for the purpose set forth.

65. In a system of electric railway-signals, the combination of a power-receiving mechanism consisting of a pair of loosely-mounted arms secured to shaft G and carrying the heavier weights H H', a pair of loosely-mounted arms carrying the lighter weights H^2 H^3, the bifurcated lever I, the compound wheel J, shuttle-arm K, weight-raising lever L, and the insulated brush or strip E', with a source of electricity and an automatically-reversible electric motor, as set forth.

66. In electric signals for railways, the combination, with a reciprocating signal-actuating mechanism, of the two-armed lever I, pivoted loosely at its angle on the shaft G, each of its arms at its outward extremity being provided with a latch, I' I^2, to normally engage with the short arms of the levers F F', respectively, and in such manner as to affect only the downward movement of said latches, substantially as set forth.

67. In electric signals for railways, the combination, with a reciprocating signal-actuating mechanism, of a lever, I', each arm of which at its extremity has a downward-projecting hook, I^4, and provided with two bearings between which are mounted the shuttle-arm K and compound wheel J, one bearing extending upward and carrying the beveled sector I^5.

68. In electric signals for railways, the combination, with the bifurcated two-armed lever I, provided with a reciprocating signal-actuating mechanism, of the weight-raising projections I^6 I^7, projecting at right angles to the vertical plane of said lever, and the arms carrying the weights H^2 H^3, said arms resting in the path of said projections in such positions that one or the other of them is raised whenever said lever I is moved from its normal position.

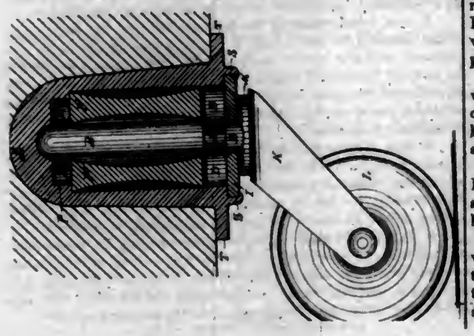
69. In electric signals for railways, the combination, with electric signal-actuating mechanism, as described, of the compound wheel J, mounted at its center upon the shaft G, and having its face divided circumferentially into two parts, J' J^2, as and for the purpose set forth.

70. In electric signals for railways, a shuttle, K', having laterally-projecting studs K^2, sliding in slots in the arm K, and projecting beyond the surface of said arm to form bearings by which the shuttle can be moved longitudinally within said arm, as set forth.

71. In electric signals for railways, the shuttle-arm K, pivoted to shaft G, carrying at one end the beveled sector K^5, its other end being bored and slotted to receive the shuttle K', its cam-rollers K^3, the shuttle-bolt K^2, and its cam-rollers K^4, as set forth.

72. In an electro-mechanical signal-actuating mechanism, the power-releasing magnets D' D^2 with their armatures f and a source of electricity, in combination with the two-armed levers F F', substantially as shown.

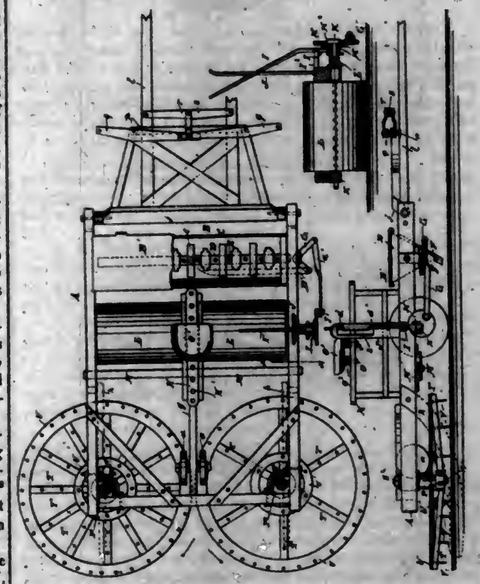
314,764. CASTER. FRANCIS K. WAY, Springfield, Ohio, assignor to Stephen C. Mendenhall, Richmond, Ind. Filed Apr. 16, 1884. (No model.)



Claim.—1. In combination with a spindle-casing, a spindle supported on the floor-wheel and receiving on its top the weight of said casing, a series of flat anti-friction rollers surrounding the top of said spindle, supported by a thimble or collar in such manner as to receive lateral but not vertical pressure, and a second series of anti-friction rollers supported within the said casing around the bottom of the spindle, substantially as set forth.

2. The casing A, combined with the thimble P', friction-rollers R, and spindle B, constructed as described, the said friction-rollers being located between the thimble P' and case A, and adapted to bear against the upper end of the spindle, together with the friction-rollers D and bottom plate, I, all substantially as and for the purpose described.

314,765. BROADCAST-SOWER, LAND-ROLLER, AND DOUBLE REVOLVING HARROW. DELOS F. WEBBER, Valley City, Dak. Filed May 5, 1884. (No model.)



Claim.—1. The combination, with a frame, of a seed-sower held transversely in front of the same, a roller behind the said seed-sower, a reciprocating bar in the bottom of the seed-sower, a clutch-disk mounted loosely on the end of the shaft of the roller and connected by suitable bars and levers with the reciprocating bar on the bottom of the seed-sower, and means for engaging and disengaging the clutch-disk from the shaft of the roller, substantially as herein shown and described.

2. The combination, with a frame, of a seed-sower held transversely in front of the same, a roller behind the seed-sower, the shaft K', having a head, K, the disk H, mounted loosely on the shaft K', and provided with a square recess, H^2, in its outer surface, the spring L', for pressing the disk outward, a pivoted lever for moving the disk H, a reciprocating bar in the bottom of the seed-trough, and means for connecting the said bar with the disk H, substantially as herein shown and described.

3. The combination, with a frame, of a seed-sower held transversely in the front of the same, a roller held behind the seed-sower, a reciprocating bar in the seed-sower, a clutch held loosely on the shaft of the roller and connected with the reciprocating bar in the sower, the lever I', holding the clutch, and the vertical standard J, having the slot b, provided with top and bottom notches, d d', through which slot the lever I passes, substantially as herein shown and described.

4. The combination, with a frame, of two horizontal revolving wheels pivoted on the same, the said wheels having their spokes inclined upward from the hubs toward the rims, and the rims and spokes being provided with downwardly-projecting spikes or pins, substantially as herein shown and described.

5. The combination, with the hub R, having the annular projection R', of the blocks P, having the tapering necks Q, the ring R^2 on the said blocks, and the bolt S, provided with the head S', substantially as herein shown and described.

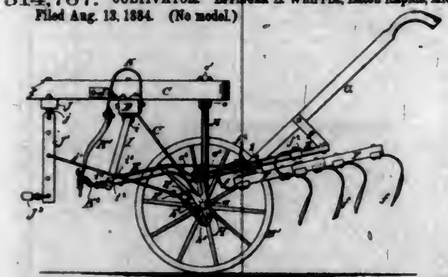
6. The combination, with the frame A, and the blocks P, provided with tapering necks Q and the rings R^2, of the hubs R', provided with the heads S', the spokes T, secured in the hubs and united by rims U U', the said spokes and rims being provided with teeth, substantially as herein shown and described.

314,766. AIR-PUMP. FRANZ J. WIRZ, Basle, Switzerland. Filed Dec. 27, 1882. (No model.) Patented in England July 26, 1882, No. 3,551; in Germany Nov. 21, 1882, No. 22,775; in France Nov. 25, 1882, No. 150,319; in Belgium Dec. 15, 1882, No. 43,396, and in Italy Mar. 31, 1883, XVI, 15,049; XXX, 161.



Claim.—In an air-compressing or exhaust pump, the combination, with the working-cylinder, the piston, and the valve-chest having ports leading to the ends of the cylinder, and provided with an air-inlet chamber, of a slide-valve having a longitudinal channel and end ports communicating therewith, outlet-ports for the compressed air and carrying a back-pressure valve, and an eduction-chamber in which said slide-valve is located, all constructed and relatively arranged substantially as described.

314,767. CULTIVATOR. EPHRAIM E. WHIPPLE, Eaton Rapids, Mich. Filed Aug. 13, 1884. (No model.)



Claim.—1. The combination, with the frame of a cultivator, of a drag-bar pivotally connected at its forward end with said frame by devices permitting both a horizontal and vertical movement of its rear end, a crank-arm pivoted to the machine-frame and engaged with the drag-bar by a sliding connection adapted to permit the drag-bar to move laterally upon the crank-arm, and means, substantially as described, for actuating said crank-arm, whereby the drag-bar may be raised or lowered, substantially as and for the purpose set forth.

2. The combination, with the axle and frame of a cultivator, of a drag-bar pivoted at its forward end to said frame by connections permitting a longitudinal movement of the drag-bar with reference to the frame, and an arm pivotally connected with the axle or a part of the frame and with the drag-bar, and adapted to sustain the rear end of said drag-bar in its raised position when the latter is at the forward limit of its movement, substantially as described.

3. The combination, with the axle and frame of a cultivator, of a drag-bar pivoted at its forward end to said frame by connections permitting a longitudinal movement of the drag-bar with reference to the frame, an arm pivotally connected with the axle or with a part of the frame and with the drag-bar, and a spring applied between the frame and the drag-bar and arranged to throw the latter forward, substantially as and for the purpose set forth.

4. The combination, with the axle and frame of a cultivator, of a drag-bar pivoted to said frame at a point forward of the axle by connections permitting a longitudinal movement of the drag-bar with reference to the frame, and an arm pivotally connected with the axle and with the drag-bar, and arranged to project rearwardly from the axle when the drag-bar is in operative position, said arm being provided with a downwardly-projecting part adapted for the attachment of the draft-connections, substantially as and for the purpose set forth.

5. The combination, with the axle, frame, and drag-bar of a cultivator, of a vertically-arranged support for the front end of the said drag-bar pivotally connected at its upper end with the machine-frame and at its lower end with the drag-bar, an arm pivotally connected with the axle and with the drag-bar for sustaining the rear end of the latter, and a stop to limit the forward rotary movement of the said arm upon the axle, substantially as and for the purpose set forth.

6. The combination, with the axle and frame of a cultivator, of drag-bars pivotally connected with the frame at a point in advance of the axle, arms pivotally connected with the axle and drag-bars and provided with downwardly-projecting parts adapted for the attachment of draft-connections, an evener or double-tree pivoted to an elevated part of the machine-frame, depending bars pivotally connected with the ends of the evener and adapted for the attachment of suitable single-trees, and draft-rods connecting the said depending bars with the projections upon the said arms, substantially as and for the purpose set forth.

7. The combination, with the frame and axle of a cultivator, of drag-bars pivoted to the frame at a point forward of the axle by devices permitting a longitudinal movement of the drag-bar with reference to the frame, an arm pivotally connected with the axle and with the drag-bar, and provided with a downwardly-extending part or projection for the attachment of draft-connections, and a sliding attachment between said draft-connections and the said projection whereby the point at which the draft is applied may be automatically shifted when the arm is moved, substantially as and for the purpose set forth.

8. The combination, with the frame and axle of a cultivator, of a drag-bar pivoted to the frame at a point forward of the axle by devices permitting a longitudinal movement of the drag-bar, an arm pivotally connected with the axle and with the drag-bar, and provided with a downwardly-extending part or projection, draft-rods having sliding connection with the said downwardly-projecting part of the said arm, and a stop or pin, as A^3, adjustably secured to the arm for limiting the downward movement of the said draft-rods, substantially as and for the purpose set forth.

9. The combination, with the frame and axle of a cultivator, of drag-bars pivotally connected with the frame at points in advance of the axle, arms pivotally connected with the axle and drag-bars and provided with downwardly-projecting parts, an evener or double-tree pivoted to an elevated part of the frame, depending bars pivotally connected with the evener, and draft-rods attached to the downwardly-projecting parts of the said arms and adjustably connected with the said depending bars, substantially as and for the purpose set forth.

10. The combination, with the axle, frame, and drag-bars of a cultivator, of an arm pivotally connected with the axle and drag-bar for sustaining the rear end of the latter in a raised position, a link, I, for supporting the forward end of the drag-bar pivoted to an elevated part of the frame, and a swivel-piece, i^2, pivotally connected with the link I and with the drag-bar, whereby the latter may swing both in horizontal and vertical planes, substantially as and for the purpose set forth.

11. The combination, with the axle and frame of a cultivator, and a drag-bar pivoted to said frame by devices permitting both a lateral and vertical movement of its rear end, of an arm comprising two laterally-separated parts, A' A^2, pivotally connected with the axle and provided with a pivot-rod, h, at their outer ends adapted to engage the drag-bar, whereby the latter may slide upon the said pivot-rod when its rear end is moved laterally, substantially as and for the purpose set forth.

12. The combination, with the axle and frame of a cultivator, of a drag-bar pivoted to the frame at a point in advance of the axle by devices permiting a longitudinal movement of the drag-bar, an arm pivotally connected with the axle and with the drag-bar, and provided with a downwardly-extending part, A^2, provided with a slot, A^4, extending above the axle, and a draft-rod, j', having a hook or link engaged with the said slot, substantially as and for the purpose set forth.

314,768. FOUNDRY-PLANT. J. HILL WHITING, Detroit, Mich. Filed Sept. 24, 1884. (No model.)

Claim.—1. In a foundry-plant for the purposes described, a series of trucks connected together the same distance apart as the rows of molds, and operated by chain, cable, or other equivalent device in a direction transverse to the row of molds, substantially as and for the purpose described.

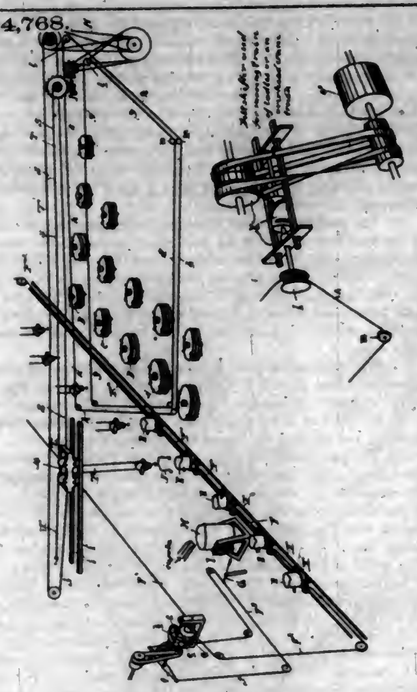
2. In a foundry-plant for the purposes described, a train of trucks operated by power in a direction transverse to the rows of molds, and adapted to support the ladles the same distances apart as the rows of molds, in combination with a chain or cable, a starting-rope, a belt-shifting device, and the starting-lever G and big ladle H, placed in proximity to each other, substantially as and for the purposes described.

3. In a foundry-plant for the purposes described, the combination of the following devices: a train of trucks supporting the ladles and registering with the rows of molds, a chain, cable, or equivalent device for carrying the train of trucks, with their ladles, from and to the supply-ladle and transverse to the rows of molds, and a series of overhead traversing cranes, one for each row of molds, all arranged and operating substantially as described.

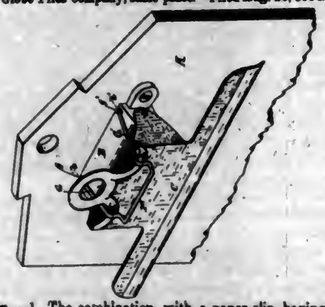
4. In a foundry-plant for the purposes described, the combination of a suspended ladle with the brace-rod L, provided with hooks or eyes at each end, slipped over trunnions on the ladle and the mold, respectively, whereby the ladle in pouring is held and steadied in its relative position toward the mold while pouring, substantially as described.

5. In a foundry-plant for the purposes described, the combination of a series of molds arranged in parallel rows, a series of independent overhead traversing cranes, a belt-shifting device, and the cables g h, arranged in proximity to the rows of molds and connected with said belt-shifting device, substantially as and for the purpose specified.

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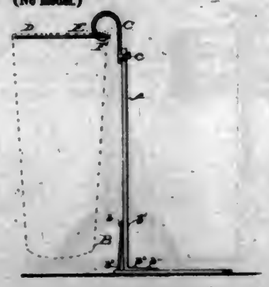
314,769. PAPER-CLIP. HENRY C. YERKES, Cincinnati, Ohio, assignor to the Globe Files Company, same place. Filed Aug. 26, 1884. (Model.)



Claim.—1. The combination, with a paper-clip having the pivot-box B, holding the closing-spring D, acting on the clip-jaw C, of the prong G, having lip E, adapted to be engaged with the heel of the clip-jaw, and hook g, secured to the base for retaining the clip-jaw in open position.

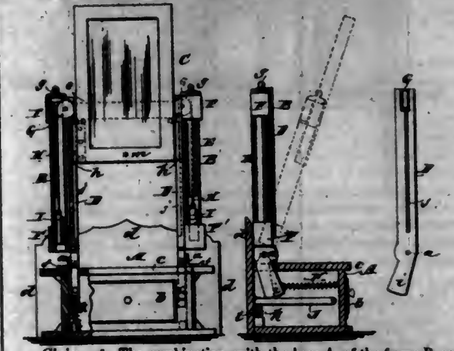
2. The combination, with a paper-clip having the pivot-box B, holding the closing-spring D, acting on the clip-jaw C, of the prongs G G', having hooks g g', secured to the base, and downturned lips E E', connected by a bar, F, adapted to engage the clip-jaw to retain the latter in open position.

314,770. BAG-HOLDER. WILLIAM YERDON, Fort Plain, N. Y. Filed June 6, 1884. (No model.)



Claim.—The annular barbless spring D, in combination with the standard A and the arm C, which is bent inward and provided with a rear extension, F, at its point of attachment to said spring, substantially as and for the purpose set forth.

314,771. ADJUSTABLE MIRROR. STEARNS K. ABBOTT, Warnerville, Mass. Filed May 20, 1884. (No model.)



Claim.—1. The combination, with the base A, of the frame B, consisting, essentially, of two uprights pivoted near their lower ends to said base, and a mirror mounted between said uprights, substantially as set forth.

2. The combination, with the base A, of the uprights D, pivoted thereto near their lower ends, a mirror mounted between said uprights, and devices acting on the lower ends of said uprights to hold said uprights in a vertical or inclined position, substantially as set forth.

3. The combination, with the base A, of the uprights D, having their lower ends inclined, as shown, and pivoted to said base, of the mirror mounted between said uprights, a spring connecting the lower ends of the standards and the base, and a spring friction device engaging the lower ends of the uprights, for overcoming the action of the former spring when the uprights are inclined, substantially as set forth.

4. The combination of the base, uprights D, pivoted to said base near their lower ends, pulleys G, mounted in the upper ends of said uprights, and hollow boxes or tubes secured to said uprights, with the mirror sliding between said uprights, weights in said boxes, and cords passing over said pulleys and secured to the mirror and the weights.

5. The combination, with the uprights D, pivoted at a in the base A, carrying the vertically-adjustable mirror C, and having their lower parts inclined outward and convexed on the ends i, of the spring K, the pivoted bars J, and the springs k, substantially as shown and described, and for the purposes set forth.

6. The combination, with the base A, having a back, d, extending above the top plate, c, of the frame B, pivoted to swing in the said base, and having its uprights D inclined forward at their lower ends from the line of the pivots a, as shown and described, and of the springs K, and friction devices bearing upon the lower ends of the said uprights, substantially as specified.

7. The uprights D D, provided with pulleys G G at their upper ends and sockets F F' on their sides, and tubes E, secured at their ends to said sockets, in combination with the mirror B, sliding between said uprights, and the cords and weights H I, for balancing said mirror, substantially as set forth.

8. An adjustable mirror consisting, essentially, of a base, A, provided with a back, d, uprights D D, provided with forwardly-inclined lower ends, pulleys at their upper ends, and side tubes or boxes, said uprights pivoted at a, with their lower ends extending within the casing, mirror C, sliding between the uprights, weights I in the boxes, cords H, connecting the mirror and weights, the spring K, secured to the base and lower portion of the upright, and the spring-operated bar J, bearing upward against the lower ends of the upright, substantially as set forth.

314,772. CHURN. ASA H. ALLISON, Knightstown, Ind. Filed July 2, 1884. (No model.)

Claim.—1. The combination of dashers on an inclined dasher-shaft with a churn-box having an inclined and a horizontal floor and a swinging partition, all constructed and adapted to operate substantially in the manner and for the purposes described.

2. The swinging partition constructed with a beveled and lipped upper end, with short and long portions, and with perforations on one side of its center, in combination with a churn-box having an inclined floor and dashers on an inclined rotary shaft, substantially as and for the purposes described.

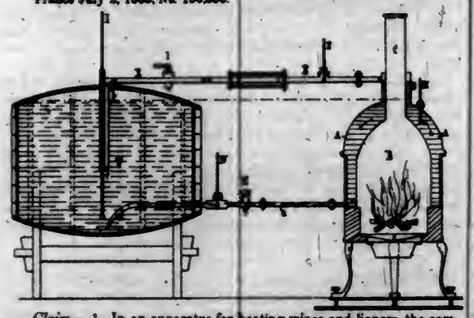
3. The combination, with a churn-box, of the partition having a batter-arresting shelf and the dasher-blades adapted to produce a rotary current of the milk beneath said partition, substantially as described.

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4. The combination, with the removable dasher-shaft, of the removable bearing-plug at one end, a gate at the opposite end, and a removable partition astride of said shaft on a churn-box, substantially as described.

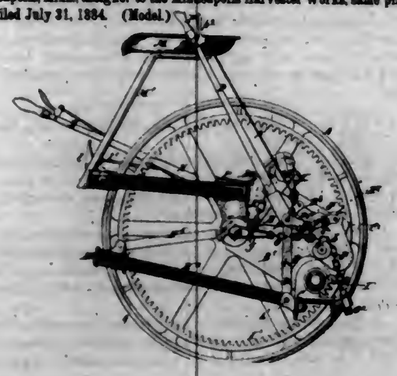
314,773. APPARATUS FOR WARMING WINE WITHOUT BRINGING IT IN CONTACT WITH ATMOSPHERIC AIR. FRANZ ANTAL, Buda-Pesth, Austria-Hungary. Filed Oct. 10, 1883. (No model.) Patented in France July 2, 1883, No. 156,335.



Claim.—1. In an apparatus for heating wines and liquors, the combination of a heater having a chamber for the circulation of a fluid, a cask or reservoir, a pipe connecting the lower parts of the reservoir and the chamber of the heater, a pipe connecting their upper parts and attached to the heating-chamber at a point above the normal line of the liquid, the cask or reservoir and pipes being detachable from each other, whereby an automatic circulation of the liquid to be treated may be effected by the expansion of the liquid and the reservoir and its contents treated and removed without exposure to the air, substantially as described.

2. In an apparatus for heating wines or liquors, the combination of a heater provided with a chamber for heating the liquid, an inlet-pipe connected to the bottom thereof, an egress-pipe connected to the top thereof above the intended normal line of the liquid, the pipes being adapted to be attached to a cask or reservoir, whereby the contents of the latter may be heated without exposure to the air and an automatic circulation of the liquid during its treatment be caused by its own expansion, substantially as described.

314,774. MECHANISM FOR SUPPORTING AND ADJUSTING THE ELEVATION OF HARVESTER-PLATFORMS. JOHN F. APPLEBY, Minneapolis, Minn., assignor to the Minneapolis Harvester Works, same place. Filed July 31, 1884. (Model.)



Claim.—1. In mechanism for adjusting the height of the drive-wheel and of a harvester-platform, a quadrilateral jointed frame mounted edgewise upon the axle of the drive-wheel and projecting rearward therefrom, and connected at its rear end with the platform-frame, in combination with a windlass having its axis through the center of the drive-wheel, and a windlass-chain extending from the windlass-drum to the upper front corner of the quadrilateral frame, thence downward across the frame, and suitably connected with and exerting its suspensory effect upon the rear lower corner of the frame, and means for operating the windlass for taking up or letting off more or less of the windlass-chain, substantially as described.

2. The quadrilateral frame B, mounted edgewise upon and extending rearward from the axle of the drive-wheel, in combination with the pole H, pole-socket H′, and the braces H^3 and H^2, having suitable horizontal pivotal connections with the platform-frame, and the link H^5, pivoted at its front end to the pole or pole-socket forward of the axial line of the drive-wheel, and at its rear end suitably connected with the upper part of the standard C, constituting the rear end member of the quadrilateral frame.

3. The quadrilateral frame B, mounted edgewise upon and extending rearward from the axle of the drive-wheel, and connected with the platform-frame, in combination with the arm M^3, rigidly connected with one of the members of the quadrilateral frame and projecting forward therefrom, and affording the support for the driver's seat M.

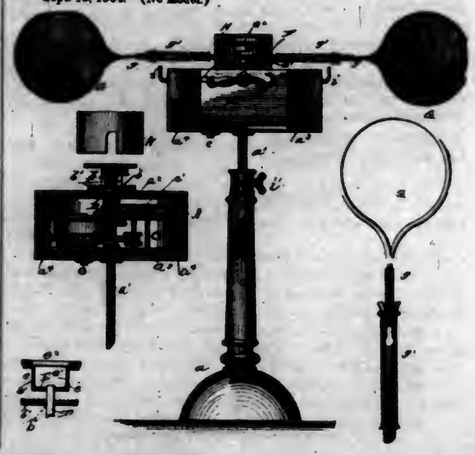
4. The quadrilateral frame mounted upon the axle of the drive-wheel, the platform-frame provided with the standard C, constituting the rear end member of the quadrilateral frame, the pole H, having a suitable jointed connection with the platform-frame, and the link H^5, in combination with the windlass and windlass-chain K, and the adjustable rocking plate *b*, for varying the radial distance from the windlass-drum of the end k^2 of the windlass-chain fastened to the rocking plate *b*.

5. The quadrilateral frame mounted upon the axle of the drive-wheel, the platform-frame provided with the standard C, constituting the rear end member of the quadrilateral frame, the pole H, the pole-socket H′, the braces H^3 and H^2, and the link H^5, in combination with the windlass and windlass-chain K, the rocking plate *b*, pivoted to the standard C and to the rear end of the link H^5, the bell-crank lever P, having its short arm pivoted to the rocking-plate *b*, its elbow pivotally connected by means of the eye-bar P^4 to the platform-frame, the retaining-pawl *b*′, pivoted to the rocking plate *b*, and the rack b^3, forming a part of the standard C, as and for the purpose set forth.

6. The quadrilateral frame mounted upon and extending backward from the axle of the drive-wheel, and the guide-pulley O′, pivoted to the rocking plate *b*, and a windlass for raising and lowering the rear end of the quadrilateral frame, in combination with the chain O, loosely hung upon the windlass-shaft in the center of the drive-wheel, and led therefrom over the pulley O′ and downward around the pulley O^3, affixed to the platform-frame, and suitably connected with the chain O^4, leading under the pulley O^2 and extending upward, and having its end O^5 suitably secured to the upper part of the up-and-down rocking arm *g*, as and for the purpose set forth.

7. The up-and-down rocking arm *g*, composed of two members, one having a horizontal pivotal connection with the grain-wheel and the other affixed to the axle of the grain-wheel, and having their adjoining ends bent laterally and united by a bolt which is within the rim of the grain-wheel, the spokes of the grain-wheel being suitably curved to allow clearance for the jointed ends of the two members of the up-and-down rocking arm, substantially as set forth.

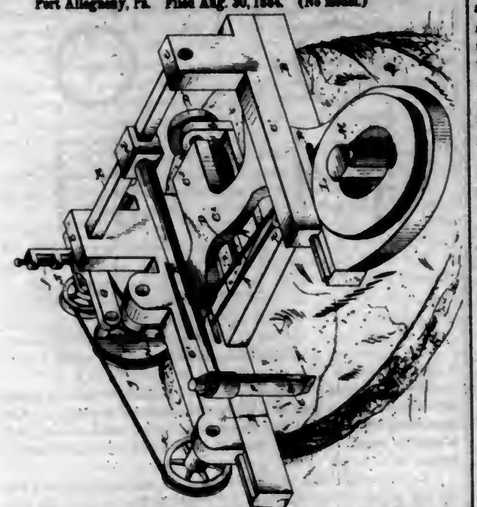
314,775. AUTOMATIC FAN. CLEM BAILEY, Kinston, N. C. Filed Sept. 13, 1884. (No model.)



Claim.—1. The combination, with the box containing the operating mechanism, of the vertical rotary shaft D, having the plate E, provided with the vertical branches *e*, attached thereto for supporting the shaft carrying the fan-blades, having thereon the pinion *f*, engaging with the crown-ratchet *b*′, substantially as specified.

2. The combination, with the crown-ratchet *b*′, of the vertical shaft D, having the plate E, with vertical branches *e*, having ring e^3, supported on the vertical shaft, and the fan-shaft F, supported in the vertical branches, and having thereon the pinion *f*, engaging with the crown-ratchet *b*′, for rotating the same, substantially as specified.

314,776. MACHINE FOR DRESSING MILLSTONES. ISAAC B. BAKER, Port Allegheny, Pa. Filed Aug. 20, 1884. (No model.)



Claim.—The combination of the supporting base or frame having the plate P extending from one of its side rails, the driving-pulley L, fitting and working loosely within an opening in the plate, said pulley being adapted to be keyed to the mill-spindle, the sliding carriage which is fitted with a tongue-and-groove connection to the base, rock-shaft E, sliding arm F, for the dressing-tool, arm G, attached to one end of the rock-shaft, arm *m*, pivoted also thereto, pulley N on arm *n*, pulley I, having cam H, for actuating the rock-shaft, pulley K, sheaves *h* and *k*, band *g*, for connecting the pulleys, and screw D, for moving the sliding carriage, all combined and arranged to operate substantially as shown and described.

314,777. DIAMOND-DRILL-CORE CATCH OR RETAINER. ALBERT BALL, Claremont, N. H. Filed Nov. 17, 1884. (No model.)

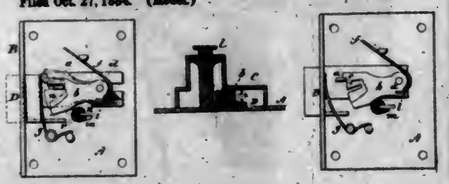


Claim.—1. In combination with an annular diamond-drill head, a cylindrical steel core receiver and retainer, with upwardly-extending spring-catches and a series of base-openings, substantially as described.

2. As a new article of manufacture, a cylindrical core receiver and retainer composed wholly of a blank with upwardly-extending catches and a series of base-openings, all punched from a single sheet of steel rolled and tempered, substantially as described.

3. The cylindrical core receiver and retainer G, having upwardly-extending spring-catches F, intermediate its top and base, and a series of openings for the passage of the water, &c., substantially as described.

314,778. LOCK. JOHN H. BARNES and JOSEPH H. WOOLASTON, New Haven, Conn., assignors to the Barnes Manufacturing Company, same place. Filed Oct. 27, 1884. (Model.)



Claim.—1. The combination of the bolt and its spring with a latch, *b*, hung in the case, arranged to engage a corresponding shoulder on the bolt when the bolt is drawn, a cylinder arranged in the case, the axis of which is at right angles to the plane of the bolt, and constructed to receive the key by which the bolt may be drawn, the said cylinder arranged for rotation both with and independent of the key, and constructed with a radially-projecting cam, *m*, the path of which is in the plane of the said latch, substantially as described, and whereby by the rotation of the cylinder the latch will be moved out of engagement with the drawn bolt, substantially as described.

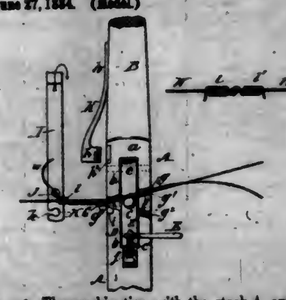
2. The combination of the bolt D, latch *b*, hung in the case to swing in a plane parallel with the plane of the bolt, the bolt constructed with a shoulder with which said latch may engage when the bolt is drawn, a spring arranged to throw the said bolt when free, a cylinder arranged in the case, its axis at right angles to the plane of the latch, and constructed with a groove, *k*, to receive the key, the cylinder also constructed with a cam, *m*, projecting radially therefrom, the path of said cam *m* being in the plane of said latch, the bolt constructed with a gate, *n*, in such relation to the key that the key will give to the bolt an over motion beyond the engagement of the bolt with the latch, substantially as described.

3. In a lock, the combination of the bolt D, a spring arranged to throw said bolt, a latch hung in the case to swing in a plane parallel with the plane of the bolt, the bolt constructed with a shoulder with which said latch will engage, a cylinder arranged in the case, its axis at right angles to the plane of the latch, said cylinder arranged for rotation upon its own axis, and constructed with a longitudinal groove to receive the key and with a cam, *m*, arranged to operate upon said latch in the rotation of the cylinder, the said cylinder extended outside the case, and terminating in a knob form, *l*, substantially as described.

4. The combination of the bolt D, latch *b*, hung in the case to swing in a plane parallel with the plane of the bolt, the bolt constructed with a shoulder with which said latch may engage when the bolt is drawn, a spring arranged to throw the said bolt when free a cylinder arranged in the case, its axis at right angles to the plane of the latch, and constructed with a groove, *k*, to receive the key, the cylinder also constructed with a cam, *m*, projecting radially therefrom, the path of said cam *m* being in the plane of said latch, the bolt constructed with a gate, *n*, in such relation to the key that the key will give to the bolt an over motion beyond the engagement of the bolt with the latch, the bolt also constructed with a projection, *r*, toward the cylinder in the path of the key when the bolt is drawn, substantially as described.

5. In a lock, the combination of the bolt constructed with a gate through which the key works in drawing the bolt, the said gate terminating at a point distant from the face of the bolt less than the distance from the outer surface of the face-plate to the point where the bit of the key escapes from the gate, and whereby the key will draw the face of the bolt inside the surface of the face-plate, a spring in connection with the bolt, the tendency of which is to throw the bolt outward, a catch arranged to engage the bolt in its drawn condition, and when the face of the bolt is substantially flush with the surface of the face-plate said bolt-engaging device arranged to be thrown out of engagement independent of the key, substantially as described.

314,779. WIRE-FENCE TOOL. JAMES B. BARRON, Topsham, Me. Filed June 27, 1884. (Model.)



Claim.—1. The combination, with the stock A, extended to form a handle, B, and having a transverse groove across its face, of the jaw C, pivoted at *c* to the stock, and having a slot, *c*′, at its lower end, the screw D, hinged to the stock to enter the said slot *c*′, and a nut, E, adapted to clamp the jaw C over the wire-groove in the stock, substantially as set forth.

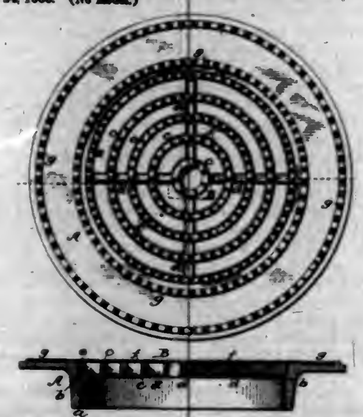
2. A combined fence-wire stretcher, cutter, and twister consisting, essentially, of the stock A, having a handle, B, and a transverse wire-groove in its side face, the jaw C, pivoted to swing over said groove and slotted at its lower end, the screw D, hinged to the stock to enter the slot, a hand-nut, E, adapted to clamp the jaw over the transverse groove, the spring-cutter *A*′ on the end face of the stock, the twisting-bar I, having holes J and K *k*, and the loop *t* over the stock for holding the splicing-tool in place, substantially as set forth.

314,780. DOOR OF GAS-RETORTS. JAMES BARTLE, Notting-Hill, County of Middlesex, England. Filed Aug. 30, 1884. (No model.) Patented in England July 30, 1883, No. 3,723.



Claim.—In combination with the retort C, the door A, loosely hinged thereto, and having a central conical recess, E, and the lever F, also hinged to the retort and provided with a hand-screw, D, arranged to enter the said conical recess at or near its upper periphery, whereby the door will be given a sliding rising action when pressure is applied thereto by means of the hand-screw, substantially as described.

314,781. VAULT-COVER. WM. H. BECKWITH, Pittsburg, Pa. Filed Jan. 24, 1885. (No model.)

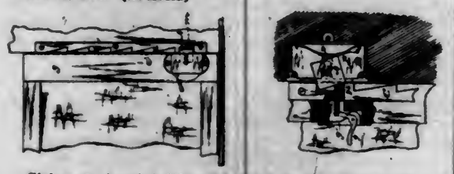


Claim.—1. In combination with stationary frame A, removable plate B, composed of concentric rings *c* and arms *d*, beveled or inclined, as shown.

2. A vault-cover consisting of a series of concentric rings having their peripheries inclined, as shown, and provided on their upper faces with teeth or projections.

3. In combination, stationary frame A, having depending flange *a*, and ledge *b*, adapted to receive a removable plate, B, consisting of concentric rings *c c*, the former beveled, as shown, and provided with teeth or projections *f*, and the beveled arms *d*, connecting the rings *c c*, as and for the purpose set forth.

314,782. SASH-FASTENER. DAVID P. BIDDELL, Newark, N. J. Filed Dec. 19, 1884. (No model.)

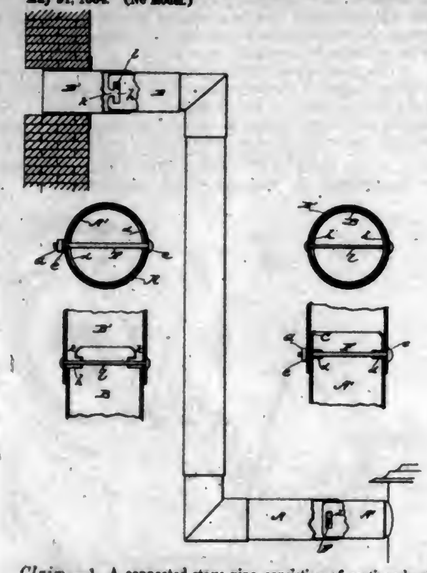


Claim.—1. A sash holding or fastening device provided with a rotating plate arranged within a slotted frame or casing, and adapted to engage with stops suitably placed to lock or hold the sash, said plate having journals moving in the slots in said frame or casing, and a spring arranged and operating to cause said rotating plate to engage with said stops, substantially as and for the purpose set forth.

2. The combination, in a sash holding or fastening device, with a rotating plate arranged within a suitable casing, a spring, and stops or holding devices, of a pivoted lever or finger-piece, and a bolt or equivalent device arranged and operating substantially as and for the purpose set forth.

3. In a sash holding or fastening device, in combination, a square rotating plate arranged in a slotted casing, and provided with journals moving in said slots in the casing, a stop-plate provided with a mortise and stops therein, a spring arranged in connection with the casing to cause the square rotating plate to engage with the stop-plate, and mechanism, substantially as specified, whereby the said rotating plate is disengaged from locking engagement with the stop-plate, for the purposes set forth.

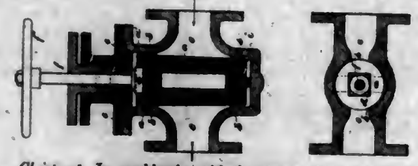
314,783. STOVE-PIPE. GAYLORD W. BEEBE, Swanton, Vt. Filed May 31, 1884. (No model.)



Claim.—1. A connected stove-pipe consisting of sections having beveled ends slotted back of their beveled margins to permit a rotary movement, and having at their opposite ends transverse connecting-rods adapted to engage the slots of the marginally-beveled ends, substantially as specified.

2. The combination, with the stove-pipe section having its end beveled and slotted on opposite sides at *d d* back of the bevel, of the adjacent section having opposite perforations, *e e*, and the transverse connecting-rod F and nut G, substantially as specified.

314,784. VALVE. ARISTIDE BERGES, Grenoble, Isère, France. Filed Mar. 15, 1884. (No model.) Patented in France Dec. 20, 1882, No. 152,764.



Claim.—1. In combination with the plug *a*, the casing having an internal rib or rim, as *b*, surrounding the discharge-orifice *c*, and having spaces, as *i*, between said casing and plug, to allow a balance-pressure on the plug, as set forth.

2. In a cock in which a loose plug is held to a rim surrounding the discharge-orifice by the fluid-pressure, the combination, with the casing having such rim *b*, of the plug *a*, having recess *a'*, and the shaft *f*, having its end *d* fitting loosely in said recess, whereby the force of the fluid will be enabled to carry the plug to its seat *b* without interfering with the action or bearings of said shaft, as set forth.

3. The combination of the casing, having rims *b b* surrounding the entrance and discharge apertures *c c*, with spaces *i* between said rims, the loose plug *a*, and the operating-shaft *f*, having its end fitting loosely in said plug, as and for the purposes set forth.

314,785. WIRE FENCE. FRANK H. BISSELL, Orwell, assignor of one-half to Michael Neil, Dayton, Ohio. Filed Feb. 6, 1884. (No model.)



Claim.—1. As a means for positioning and sustaining the wire during the stretching operation, and for fastening the same to the posts, the tubular bracket herein described attached to the post by one of its flanges, the other flange being raised and the eye open to receive the wire, in combination with the wire and post, substantially as described.

2. The tubular post-bracket having the open eye, beveled as described, and flanges or wings for securing it to the post, substantially as described.

3. The hereinbefore-described improved stay for wire fences, composed, essentially, of a vertical rod or wire provided with a series of pairs of vertical eyes, and a lateral recess between the members of each pair for the reception of the line-wires, and a second wire passing through the vertical eyes formed in the first-mentioned wire to close the open side of the lateral recesses, and thus retain the line-wires therein, substantially as described.

4. In a stay for wire fences, a wire for sustaining the line-wires, formed with a series of vertical eyes, intermediate lateral recesses and connecting straight sections, and a second wire inserted through the said vertical eyes and across the open ends of the lateral recesses, substantially as described.

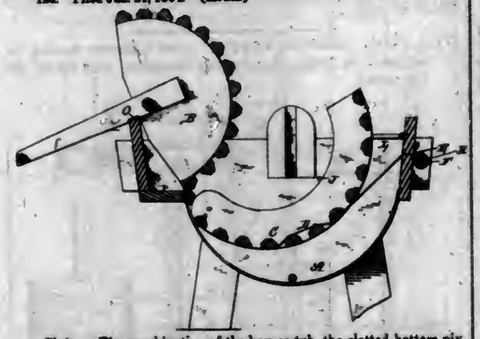
5. A stay for wire fences composed of a wire looped and bent upon itself to form the lateral recesses and vertical eyes, as described, and the vertical confining-wire passed through the vertical eyes, as set forth.

6. The herein-described improved stay for wire fences, composed of the parts *h h'*, the part *h* provided with the vertical eyes or guides h^2 and the lateral recesses or rests h^3, and the part *h'* passing through the eyes or guides h^2 and closing the lateral recesses h^3, as set forth.

7. A stay for wire fences composed of two substantially parallel wires, the one provided at intervals throughout its length with a series of lateral recesses, substantially in line with the straight portion, for the reception of the line-wires, and with projecting vertical eyes for the reception of the other vertical wire, substantially as described.

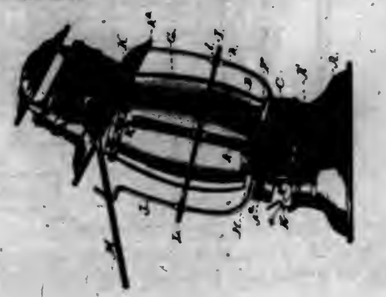
8. In a wire fence, and in combination with the vertical post to which the line-wires are secured, the inclined brace-bars mortised at one end to said post and attached at the other to a common base-piece resting upon the surface of the ground, the cross-bolt passing through said brace-bars and connected to the vertical post by a rod or bolt screw-threaded at one end and provided with a hook at the other for engagement with the said cross-bolt, substantially as described.

314,786. WASHING-MACHINE. FRANCIS B. BLACK, Mount Carmel, Ind. Filed Jan. 21, 1884. (Model.)

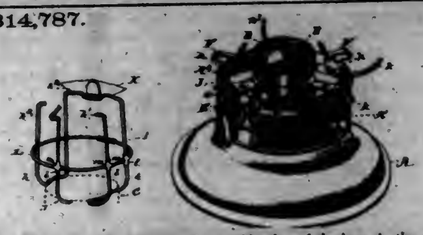


Claim.—The combination of the box or tub, the slatted bottom pivoted therein, the cord, the roller, and the shaft provided with a recess, the roller being provided with a hole for the cord to pass through and being made movable upon the shaft in relation to the recess, substantially as set forth.

314,787. LANTERN. JAMES A. BLANKLEY and CHARLES H. TALLMAN, Bellaire, Ohio; said Blankley assignor to said Tallman. Filed Dec. 6, 1883. (No model.)



314,787.



Claim.—1. In a lantern, the combination of the base A, the globe G and its supports, and a globe-band stamped out of a single piece with vertical sides *c* and inclined top *b*, made integral therewith, substantially as and for the purposes set forth.

2. In a lantern, the combination of the base A, the globe G and its supports, and a globe-band stamped out of a single piece with inclined top *b*, and with openings *e* in its sides, substantially as and for the purposes set forth.

3. The combination, in a lantern, of the globe-band C, with arms *a'* made integral therewith, and the burner-collar D, supported by said arms, substantially as described.

4. The combination, in a lantern, of the globe-band C, with inclined top *b*, openings *e*, and arms F, the globe G, the clear open space H intermediate the bottom of the globe and the top of the globe-band, and the chambers $A' A^2$, substantially as described and shown.

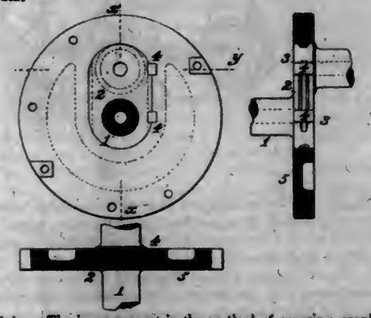
5. In a lantern, the combination of the globe-band stamped out of a single piece, with vertical sides *c*, inclined top *b*, arms *a'*, and openings *e*, the globe G, the arms F, for supporting the same, the burner-collar D, supported by the arms *a'*, the clear open space H between the bottom of the globe and the top of the globe-band, and the air-chamber A^2, substantially as described.

6. In a lantern, the base A, the globe G, the hinged globe-band C, having openings *e* in its sides, and the spring-latch E, secured to said base and adapted to engage with one of the openings *e*, substantially as and for the purpose set forth.

7. In a lantern, the combination of the hinged top and the wire guard composed of the continuous wire *k*, *k'*, k^2, and k^3, the separate vertical wire J, hooked at its upper end, and the horizontal breast-wire L, substantially as described.

8. In a lantern, the combination of the hinged top and the wire-guard composed of the continuous wire *k*, *k'*, k^2, and k^3, the separate vertical wire J, hooked at its upper end, the horizontal breast-wire L, and the straps *l* and *m* at the intersections of the breast-wire and the vertical portions of the guard, substantially as described.

314,788. METHOD OF SECURING PULLEYS OR CRANK-DISKS TO SHAFTS. WILLIAM A. BOLE, Pittsburg, Pa. Filed Dec. 16, 1884. (No model.)



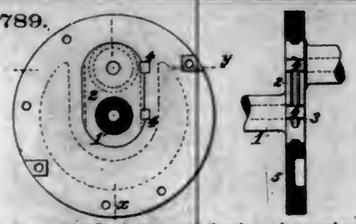
Claim.—The improvement in the method of securing crank-disks, pulleys, &c., to shafts, which consists in first fitting a wedging-key in a longitudinal recess in the periphery of the shaft or of a crank-arm thereon, then casting the disk or pulley upon and continuously around the shaft and key, and finally driving the key to a tight bearing, after the solidification and contraction of the casting, upon the member which it permanently incloses, substantially as set forth.

314,789. COMBINED PULLEY OR CRANK-DISK AND SHAFT. WILLIAM A. BOLE, Pittsburg, Pa. Filed Feb. 17, 1885. (No model.)

Claim.—The combination of a shaft having a longitudinal keyway in its body or in a crank-arm thereon, a key fitting in said keyway with



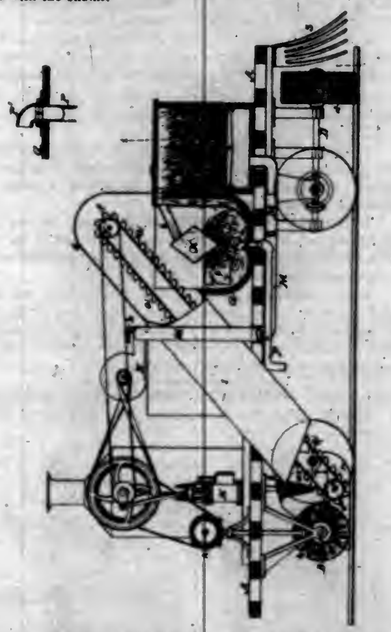
314,789.



the capacity of longitudinal movement therein, and a continuous disk cast upon and encircling said shaft and key, substantially as set forth.

314,790. APPARATUS FOR REMOVING SNOW FROM RAILWAY-TRACKS. WILLIAM BERGOS and CHRISTOPHER GALLAGHER, Philadelphia, Pa. Filed Nov. 20, 1884. (No model.)

Brief.—A track-clearer in which an endless conveyer is operated from the engine, and a melter is placed under the front end of the conveyer, and a brush in the rear of its lower end. Two furnaces are provided, which have blast-pipes communicating with the melter, which is provided with an automatic valve for discharging. Side brushes separated by a guard-plate are mounted at the front end of the truck. The conveyer-buckets have curved overlapping buckets and a yielding connection with the chains.



Claim.—1. The combination of a truck, an endless conveyer, a melting-vessel beneath the upper front end of the latter, a brush in the rear of the lower end, mechanism for operating the brush and conveyer, and a furnace for heating the melting-vessel, as set forth.

2. The combination of the melting-vessel, the furnace, the passage i, communicating with the bottom of the vessel, and the central distributer, K, in the upper portion of the vessel, as set forth.

3. The combination of the melting-vessel, two furnaces, each communicating with the said vessel, and two blast-pipes, through either of which the blast can be directed, whereby the furnaces may be operated alternately, as set forth.

4. The combination of the melting-vessel, the pivoted discharge-pipe, and an automatic valve whereby the pipe is opened when projected and closed when drawn inward, as set forth.

5. The combination of the truck, the side brushes, *d*, and the central guard-plate, *m*, as set forth.

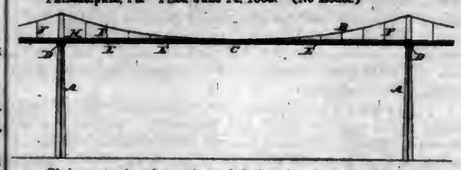
6. The combination of a truck and endless conveyer, a melting-vessel beneath the upper front end of the latter, a brush in the rear of the lower end, mechanism for operating the brush and conveyer, a furnace for heating the melting-vessel, and cleaners for removing the snow in advance of the front wheels of the truck, as set forth.

7. The combination of the truck, and its elevator and brushes, with the clearer S, as set forth.

8. The combination of the brush *b* with an endless conveyer, consisting of the chains with buckets, the base-plates of which are curved and overlap each over, as set forth.

9. The combination of the brush *b* with the conveyer consisting of the chains with buckets having overlapping curved bases *f* pivoted to the chains near the front end, and having a yielding connection with the chains near the rear end, as set forth.

314,791. CONDUIT FOR ELECTRIC WIRES. DAVID BROOKS, Jr., Philadelphia, Pa. Filed June 14, 1883. (No model.)



Claim.—1. An elevated conduit for electric wires, having a wire-receiving trough formed of woven wire or open-work, substantially as and for the purpose set forth.

2. An elevated conduit for electric wires, consisting of a wire-receiving trough, C, poles A, extended above said trough, a suspension-cable extending from top to top of the poles, wires F, depending from said cable, and anchors E, attached to said wires, the said anchors extending under said trough and conforming to the shape thereof, substantially as set forth.

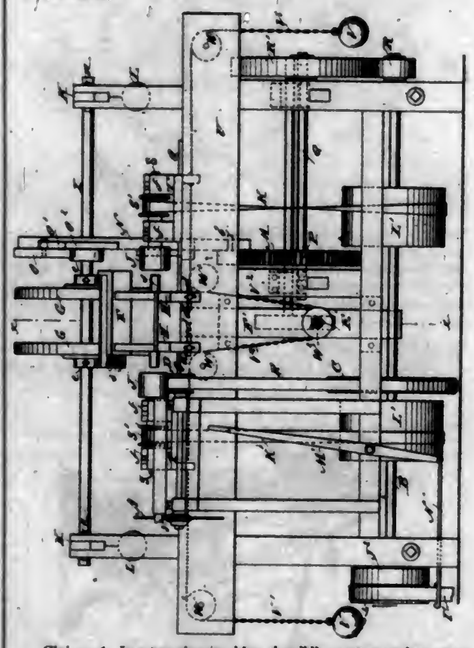
3. An elevated conduit for electric wires, having a wire-receiving trough formed of woven wire or open-work provided with anchors E, which embrace said trough at intervals and hold it in shape, substantially as set forth.

4. A suspended wire-holding trough having supporting-anchors, the latter being provided with upright partitions, substantially as and for the purpose set forth.

5. An elevated conduit for electric wires, consisting of poles, a trough, a suspension-cable, and supporting anchors and brackets, substantially as and for the purpose set forth.

6. A curved anchor, E, for receiving a wire-holding trough, said anchor being provided with a hook, whereby it may be suspended, bars G G', which separate the wires from one another, and lids H, which close the top of said trough on either side or on both sides of the central line, as set forth.

314,792. TENONING-MACHINE. JAMES R. BRUMBY, Marietta, Ga., assignor to the Brumby Chair Company same place. Filed Oct. 25, 1884. (No model.)



Claim.—1. In a tenoning-machine, the sliding cutter-carriages normally held at distant points, in combination with a slide carrying a fixed arm with one end acted upon by a cam on a shaft driven from the driving-shaft, the other end of said arm carrying a pulley acting upon a cord connected to the cutter-carriages, said carriages being automatically returned to their normal positions after the escape of said cams from said arm, substantially as and for the purpose set forth.

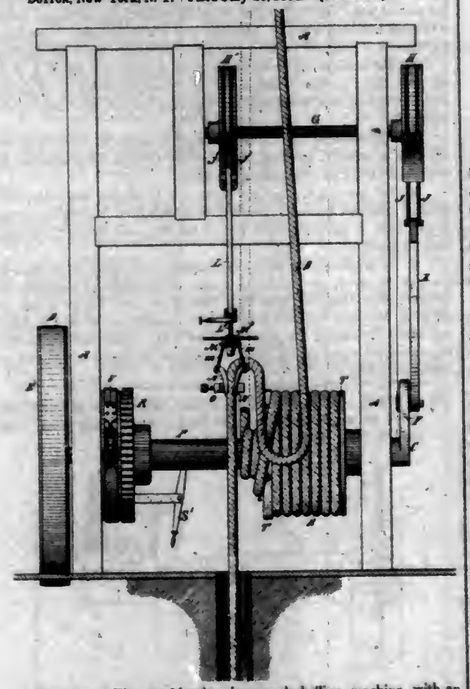
2. In a tenoning-machine, the sliding cutter-carriages, in combination with the weighted chains connected to the outer ends of said carriage and passed over pulleys at distant ends of the carriage support or table, the additional chain with its ends connected to the inner ends of said carriage and passed over pulleys and down under an intermediate pulley, said latter pulley being supported upon a fixed arm of a slide, and a cam carried by a shaft driven from the driving-shaft, said cam acting upon one end of said fixed arm, substantially as and for the purpose set forth.

3. In a tenoning-machine, the sliding cutter-carriages with their end pieces supported upon rails fitting in under-cut grooves of said end pieces, and with their cutters mounted upon arbors, one driven by a crossed belt, in combination with weighted chains passed over pulleys at the distant ends of the carriage-table and connected to the outer ends of said carriages, an additional chain connected to the inner ends of the carriages and passed over pulleys and down under an intermediate pulley, a slide having a fixed arm carrying said intermediate pulley, a cam carried by a shaft and acting upon said pulley-carrying arm, said shaft gearing with a second shaft driven from the driving-wheel, substantially as and for the purpose set forth.

4. In a tenoning-machine, the sliding cutter-carriages and the slide having a fixed arm carrying a pulley acting upon a cord connected to said carriages, said arm being acted upon by a cam carried by a shaft geared to a shaft driven by the driving-shaft, in combination with the work-feeding wheels having connection with the gearing of the shaft having the aforesaid cam by intermittently-actuating mechanism, substantially as and for the purpose set forth.

5. In a tenoning-machine, the sliding cutter-carriages automatically moved from each other, and the slide having a fixed arm carrying a pulley acting upon a cord connected to said carriages, said arm being acted upon by a cam carried by a shaft geared to a shaft driven by the driving-shaft, in combination with the work-feeding wheels with their shaft carrying a ratchet engaged by a pawl pivoted to a lever connected to a rod engaging with a projection of the gear-wheel upon the shaft of the aforesaid cam, substantially as and for the purpose set forth.

314,793. ROCK-DRILLING MACHINE FOR ARTESIAN WELLS. J. BUTTON, New York, N. Y. Filed July 25, 1884. (No model.)



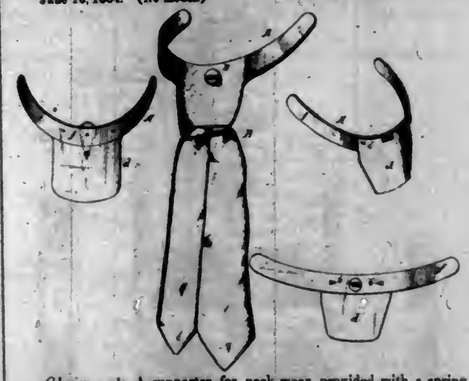
Claim.—1. The combination, in a rock-drilling machine, with an oscillating segmental pulley secured to a rock-shaft in line with the drill-rope and its suspension-pulley, and adapted to be reversed to clear the rope and permit a withdrawal thereby of the drill-tool, of one or more flexible bands or cords led over and secured to the periphery of the segmental pulley and adapted for attachment to the drill-rope, for the purpose of lifting and dropping the drill-tool by the movement of the rock-shaft, substantially in the manner and for the purpose herein set forth.

2. In a rock-drilling machine, the combination, with an oscillating segmental pulley fixed upon a rock-shaft actuated by a prime motor, of a swivel suspended from one or more cords or bands led over and secured to the periphery of said segmental pulley, and a device for attaching the drill-rope to the swivel, substantially in the manner and for the purpose herein set forth.

3. The combination, in a rock-drilling machine, with a rope carrying the drill-tool, of a cord or cords suspended from the periphery of a segmental pulley and adapted for attachment to the drill-rope, a rock-shaft to which the pulley is secured, a driving-shaft geared to said rock-shaft to produce its oscillation, and an independent drum or shaft adapted to be thrown into gear with the driving-shaft by a clutch and to wind by its rotation the drill-rope led thereto over suitable pulleys, all substantially in the manner and for the purpose herein set forth.

4. A rock-drilling machine constructed of the segment wheels or sectors H H', secured upon a common axial shaft mounted in a suitable frame, A A, a link, L, and swiveled clamp N N, suspended by a flexible connection, J', from the periphery of the sector H' upon one side of the shaft G, a link, K, attached by a flexible connection, J, to the periphery of the sector H and upon the other side of said shaft G, a rotating shaft, C, mounted in the frame A A parallel with the shaft G, and driven by a prime motor, and a crank, F, upon said shaft C, to which the link K is pivoted, all substantially in the manner and for the purpose herein set forth.

314,794. NECK-WEAR. HARTLEY A. CARLES, Philadelphia, Pa. Filed June 16, 1884. (No model.)



Claim.—1. A supporter for neck-wear, provided with a spring-band adapted to support the tie or scarf at the front, and extended back on each side beyond the tie around the collar-band to clasp with its ends the sides of the collar, substantially as set forth.

2. A supporter for neck-wear, consisting of a spring-band having its ends extending beyond the tie or scarf to about midway around the sides of the shirt-band or collar, and bent to fit and clasp with its ends the sides of the band or collar, substantially as set forth.

3. The combination, in an article of neck-wear, of a curved elastic band extending to and adapted to clasp with its ends the sides of the collar-band, a bow or scarf connected to the center of said elastic band, the latter being covered with the same material as the bow or scarf, substantially as set forth.

4. The combination, in a support for neck-wear, of a strip of card-board or other non-elastic material supporting the bow or scarf at the center and extending to the sides of the collar-band, and a strip of thin metal or other material connected to the said strip of card-board and curved to maintain the latter in a curved form to clasp the shirt or collar band, substantially as specified.

314,795. SEPARABLE BUTTON. HARTLEY A. CARLES, Philadelphia, Pa. Filed June 17, 1884. (No model.)



Claim.—1. A fastening device consisting of two portions, one of which is provided with a stem closed at its end and carrying one or more sliding spring-prongs having hooks projecting laterally through openings in the sides of said stem, and bearings formed within the stem, whereby said hooks are retracted when the prongs are moved inward, and the other

portion having a socket to receive the closed end of the stem and provided with apertures for said hooks, substantially as set forth.

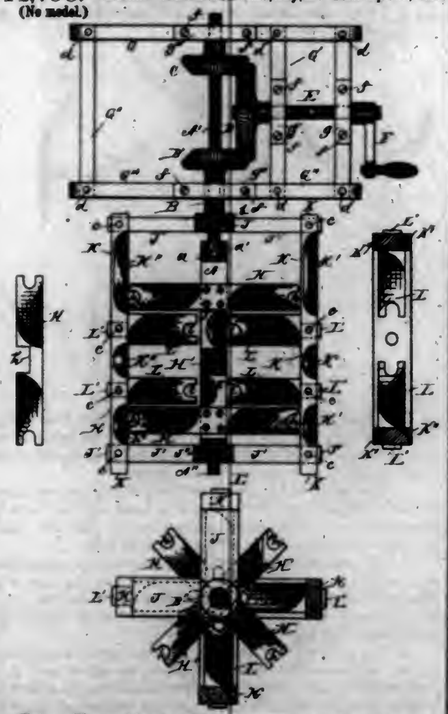
2. The combination, with the socketed portion B of a fastening device, of the portion *a*, having a hollow flat stem secured thereto, spring-prongs sliding within and independent of said stem and secured to a pusher extending through the portion *a*, and inclined bearings formed within the stem and adapted to engage with the inclined edges of hooks formed on the ends of said prongs and projecting through openings in the stem, so that by the inward movement of the pusher the hooks are retracted within said openings and the portion B released, as and for the purpose set forth.

3. The combination, in a fastening device, of the portion *a*, provided with a hollow stem, and carrying prongs sliding therein, and provided with hooks inclined inward, and a socketed portion, B, having inturned edges and apertures for said hooks, substantially as set forth.

4. The combination, in a fastening device, of the head *a*, stem *b*, secured thereto, spring-fingers sliding in the stem and provided with hooked ends adapted to openings in said stem, and pusher D, consisting of a capsule of thin metal secured to the spring-fingers and extending through the head, substantially as set forth.

5. The combination, in a fastening device, of the portion B thereof, adapted for attachment to the shield of a tie, and consisting of an eyelet having a tubular part, *s*, extending through the shield and provided with openings *w*, and a plate, *v*, through which the tube *s* extends, and outside of which it is spread, and the portion *a*, provided with a stem having suitable fastening devices and adapted to said tubular opening in the portion B, substantially as described.

314,796. CHURN. GARVIN S. H. CAMP, Ray, Ill. Filed Apr. 12, 1884. (No model.)

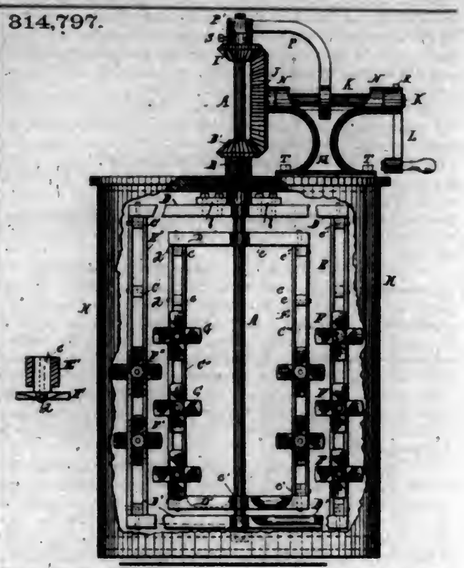


Claim.—The combination of the transverse diagonally-cut agitating-blades H H', having their ends recessed, as shown at A A, and the central rotating shaft, A, having diagonally-cut recesses I, intermediate of the blades H H', with the diagonally-cut agitating-blades L L, having their ends recessed, as shown at *l l*, secured to the outer frame, K K, having diagonally-cut recesses intermediate of the blades L L, the gear-supporting frame G G' G'' G''', provided with detachable pieces *g g' g'' g'''*, and the driving-gear, as described.

314,797. CHURN. PHILANDER A. CARTER, Ashley, Ill. Filed Jan. 14, 1884. (No model.)

Claim.—In a churn, the combination, with the dasher-frames composed of the upper and lower radial arms, D and D', and the vertical bars E, secured to the outer ends of the said arms, as shown, with the interposed bearing and bracing blocks *e*, of the rotators F, having the central lateral annular projection, c^3, and means, substantially as described, for securing the same to the said dasher-frames, as set forth.

314,797.



314,798. PAPER-HANGING IMPLEMENT. OSCAR L. CASE, Windham, N. Y. Filed Jan. 5, 1885. (Model.)



Claim.—1. In an implement for laying and securing wall-paper to its place on the wall, the combination, with a pair of tongs-like or crossing levers and attached devices for pinching or clamping the one end of the strip of paper with a jaw-like action between them, of fingers or feet connected with said levers for adjusting said end of the paper opposite to the place it is designed to occupy on the wall, substantially as specified.

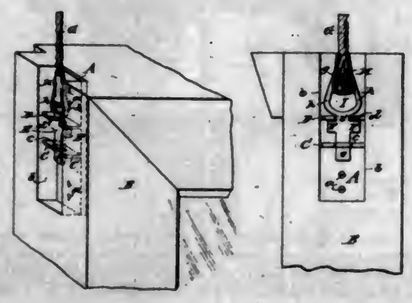
2. The combination, with the crossing or tongs-like levers A B, of the cross-bar *d*, carried by the one of said levers, the roller E, connected with the other of said levers, and the fingers or feet C C, essentially as described.

3. The combination, with the crossing or tongs-like levers A B, the cross-bar *d*, roller E, and the fingers or feet C C, of the presser-bar D, essentially as and for the purpose specified.

4. The crossing or tongs-like levers A B, in pivoted and slotted connection with each other, as described, in combination with the cross-bar *d*, the roller E, the presser-bar D, and the fingers or feet C C, substantially as specified.

5. An implement for laying and securing wall-paper to its place on the wall, in which are combined means, substantially as described, for clamping or holding the paper at or near its one end, fingers or feet for adjusting the paper opposite to its proper position on the wall, a pressing device for holding the paper in place when so adjusted, and a laying device for securing the paper throughout its length to the wall, as herein set forth.

314,799. SASH-CORD FASTENER. WELLINGTON H. CHENEY, Pine Grove, Pa., assignor to himself and Simon J. Seyfert, same place. Filed Nov. 21, 1884. (No model.)



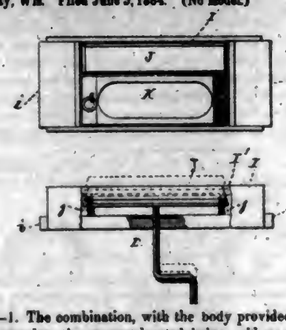
Claim.—1. The combination, in a sash-cord fastener and with the sash B and cord G, of the plate A, secured to the sash and provided with the flange C, apertured at *c*, and the flange D, recessed at *d*, and the cord-holder E, having projections F, and entering the recesses *c d*, and means for attaching the cord to the holder, substantially as herein set forth.

2. The combination, with the sash B and cord G, of the plate A, having flanges C D, slotted and recessed at *c d*, respectively, and the cord-holder E, having projections F, and provided with a thimble, H, to receive the end of the cord, substantially as herein set forth.

3. As an improved article of manufacture, the sash-cord-fastener plate A, made with a flange, C, having an aperture, *c*, and a flange, D, having a recess, *d*, substantially as herein set forth.

4. As an improved article of manufacture, the sash-cord holder E, made with projections F from its shank, and with a thimble or head, H, connected to the shank by arms *h h*, providing a space at I between the thimble and shank, substantially as herein set forth.

314,800. COMBINED CHURN AND BUTTER-MOLD. AUGUSTIN CLARENBEAUX, Luxemburg, assignor of one-half to Pascal De Grandgagnage Green Bay, Wis. Filed June 5, 1884. (No model.)



Claim.—1. The combination, with the body provided in its lower side with an opening, the support located below said opening and provided with a plug fitted thereto, and a mold adapted to fit thereunder, and a dasher, the dasher being arranged in the body and adapted to churn the milk and to force the butter when formed through the opening in the body, all arranged and operating substantially as set forth.

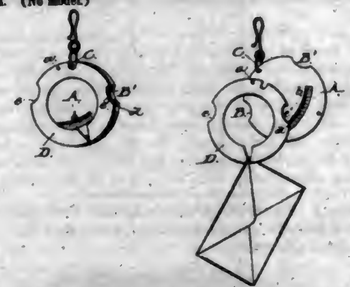
2. The combination, with a churn-body provided in its lower side with an opening, of the support provided with a plug fitted to said opening and with a mold adapted to fit thereunder, said support being adjustable, substantially as described, whereby either the mold or plug may be brought to register with the churn-opening, substantially as set forth.

3. The combination of the churn-body provided in its lower side with an opening, the end boards provided with horizontal guide-grooves, the support having lateral end lugs fitted to said grooves and provided with a plug and mold, as described, and the screw, substantially as set forth.

4. The combination of a churn-body having a discharge-opening, a support held under said opening and movable laterally, as described, a mold held movably in said support, a plug arranged in said support, and a screw turned through the bottom of the support and engaged with the plug, substantially as set forth.

5. The combination of the churn-body, the support, the plug held therein, the clamping-screw engaged with and operating said plug, and leveling-springs arranged to bear on said plug, substantially as set forth.

314,801. COMBINED LETTER-SCALE, ENVELOPE-OPENER, AND CIGAR-CUTTER. ADLER C. CLAUSEN, Minneapolis, Minn., assignor of two-thirds to J. C. Slafter and A. A. Pond, both of same place. Filed Nov. 18, 1884. (No model.)



Claim.—1. In a combined letter-scale, watch-charm, &c., the plate A, provided with the scale *b* and the pivot C, in combination with the pivoted open ring D, provided with one or more indentations, substantially as and for the purpose set forth.

2. In a combined letter-scale, watch-charm, &c., the plate A, provided with the graduated scale *b*, the pivot C, and one or more indentations, in combination with a flat open spring-steel ring having its inner periphery sharpened and provided with one or more indentations, substantially as and for the purpose set forth.

314,802. FIRE-BRICK AND PACKING FOR FURNACES AND OTHER PURPOSES. JACOB F. CLINGHARD, Chicago, Ill. Filed Oct. 20, 1884. (No specimens.)

Claim.—1. The combination of bicarbonate of soda, iron or other furnace-slag, and fire-clay with water to mix the same, substantially in the proportions and for the purposes specified.

2. The combination of bicarbonate of soda, or any chemical equivalent, with furnace-slag and fire-clay, substantially in the manner and for the purposes set forth.

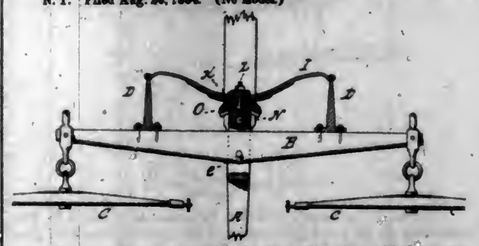
3. As a new article of manufacture, the combination of bicarbonate of soda, or its chemical equivalent, with furnace-slag, fire-clay, and water, substantially in the manner and for the purposes described.

314,803. WHIFFLETREE. JOHN F. COLLINS, New York, N. Y. Filed July 11, 1884. (No model.)



Claim.—A whiffletree consisting of a number of leaves, in combination with a central fastening consisting of a basal support, opposite cheek-pieces, slotted on their edges, as shown, a retaining-plate provided with lugs fitting in said slots, and a bolt and nut or their equivalents for joining the parts, substantially as described.

314,804. ELASTIC WHIFFLETREE. JOHN F. COLLINS, New York, N. Y. Filed Aug. 26, 1884. (No model.)



Claim.—1. In a spring-whiffletree, the combination, with the tongue A, having hollow draw-bar provided with slot F, of the double-tree B, pivoted within said draw-bar by a pin passing through the slot and provided with rigid arms D D, the spring I, and the cap-piece K, resting upon the inner end of said draw-bar and through which the spring passes and is secured, substantially as described.

2. In a spring-whiffletree, the combination, with the tongue, of the draw-bar secured thereto, the whiffletree B, pivoted in the draw-bar, having rigid arms, and the spring connecting the outer ends of said arms, and a central sliding connection between said spring and draw-bar, substantially as described.

3. In a spring-whiffletree, the combination, with the tongue A, of the draw-bar secured thereto, the whiffletree B, pivoted in the draw-bar, having rigid arms, the spring connecting the outer ends of said arms, a central sliding connection between the spring and draw-bar, and a friction medium or washer intermediate between the said connection and draw-bar, substantially as described.

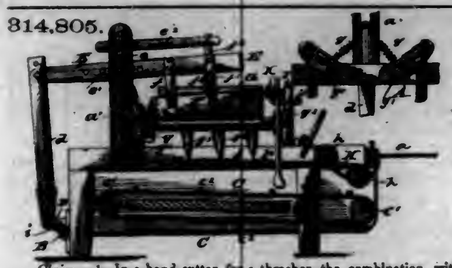
4. In a spring-whiffletree, the combination, with the tongue A, of the draw-bar rigidly connected thereto by a king-bolt, the sides thereof being cut away at its inner end to form a projecting lug, the cap-piece embracing the sides of said lug, the spring secured in the cap-piece, and the whiffletree having rigid arms to which the ends of the spring are attached, substantially as described.

5. In a spring-whiffletree, the combination, with the tongue having draw-bar G, of the double-tree having rearwardly-extending arms D D, and spring I, the cap-piece, and the washer P, intermediate between the draw-bar and said cap-piece, substantially as described.

6. In a spring-whiffletree, the combination, with the tongue having draw-bar G, of the double-tree having rearwardly-extending arms D D, and spring I, the cap-piece K, within which the spring passes and is secured, and the washer P, intermediate between the draw-bar and cap-piece, formed with the connecting-lug Q, substantially as described.

314,805. BAND-CUTTER AND FEEDER FOR THRASHERS. EMANUEL T. COOK, Alexander, assignor of one-half to F. M. Carlton, Carlton P. O., Tex. Filed Oct. 30, 1884. (No model.)

314,805.



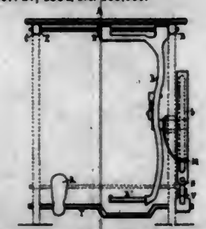
Claim.—1. In a band-cutter for a thrasher, the combination, with the main frame A, main shaft B, platforms G G, and mechanism adapted and arranged to cut the bands, of the crank I, rod *i*, oscillating shaft J, provided with the crank-arms *j* and *j'*, reciprocating rod K, and depending rod *k'*, substantially as specified.

2. In a band-cutter for a thrashing-machine, the combination, with the main frame A, platforms G G, and reciprocating cutter-bars F F, of the main shaft B, crank D, pitman *d*, bars E e^2, and swinging straps or bars *f*, *f'*, and f^2, substantially as specified.

3. The combination, in a band-cutter, with the main frame and the platforms G G, of the spring *g*, vibrating arms *g'*, and slotted arms g^2, adjustable on the main frame, substantially as specified.

4. The combination, with the main frame, of the crank-shaft B, pitman *d*, bar E, the upright *a'*, the parallel cutters pivotally suspended from the said bar E, the pivoted bar e^2, and the lever f^2, connecting one of the cutters with the bars E and *e*, substantially as specified.

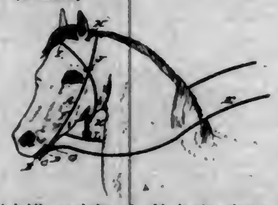
314,806. TREADLE FOR SEWING-MACHINES. FELIX L. E. COULVIER, Bohain, Aisne, France. Filed Jan. 15, 1885. (No model.) Patented in France Nov. 27, 1884, No. 153,009.



Claim.—1. In a sewing-machine, the oscillating treadle B B', provided with the ear I, in combination with the fly-wheel S and the connecting-bar L, adjustably connected with the ear, substantially as described.

2. In a sewing-machine, the treadle R and connecting-rod T, in combination with the sliding cam V, spring-brake M N, connecting-rod P, and fly-wheel S, substantially as described.

314,807. BRIDLE. JOHN R. M. CRAWFORD, Boonville, Miss. Filed Jan. 9, 1885. (No model.)

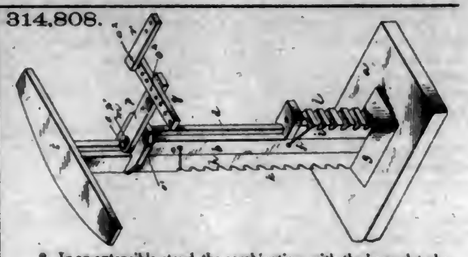


Claim.—A bridle consisting of a bit having rings or loops at its ends, and a rope or strap having its central portion formed into the rein, and having its ends passed through the rings of the bit, and connected above the loops of the bit by means of links with the portion forming the rein, thereupon passed upward to form the cheek-pieces, connected at the crown by a link, passed over the brow and connected by a link, passed to both cheek-pieces and connected to the same by links, passed under the throat to form a throat-latch and connected by a link, and provided at the ends with thimbles, as and for the purpose shown and set forth.

314,808. EXTENSIBLE STAND. CHARLES DEDERICK, Toledo, Ohio. Filed Feb. 28, 1884. (No model.)

Claim.—1. In an extensible stand, the combination, with the base having the vertical stem provided with vertical tongues on opposite faces, and pivoted drop-bails working in opposite directions, of the longer and shorter grooved rack-extensions on opposite sides of the stem, and top plates for said extensions, substantially as specified.

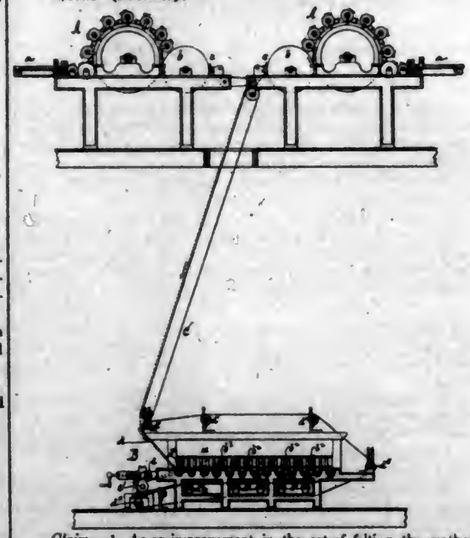
314,808.



2. In an extensible stand, the combination, with the base-plate having the vertical stem rising therefrom, provided with tongues on its opposite faces, and pivoted bails at its sides working in opposite directions, of the longer and shorter grooved extension-racks, the recessed and perforated bearing-plate provided with the guard-wire and the vertical square-headed bolt on the end of the tongued stem, and the swinging arm having the rectangular opening and integral slot at one end, and a series of perforations near the other end, substantially as specified.

3. In an extensible stand, the combination, with the base-plate having the vertical stem rising therefrom, and provided with the bearing-plate at its upper end, having the square-headed vertical bolt, of the swinging arm having the rectangular opening and the integral slot near one end and the series of perforations near the other end, and a series of perforated fixtures having attaching-pins, whereby they may be secured to the swinging arm and to each other, substantially as specified.

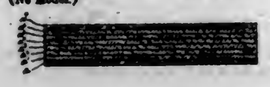
314,809. METHOD OF PRODUCING FELTED FABRICS. CARL B. DOLGE, Dolgeville, assignor to Alfred Dolge, New York, N. Y. Filed Dec. 11, 1884. (No model.)



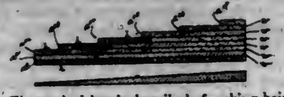
Claim.—1. As an improvement in the art of felting, the method substantially as herein described, which consists in taking two webs and exposing them to a felting action, then adding one or more additional webs and exposing them, together with the webs already felted, to a felting action, and so on until the fabric has reached the required thickness.

2. As an improvement in the art of felting, the method substantially as herein described, which consists in forming two webs, and while these webs are exposed to a felting action forming one or more additional webs which are exposed to a new felting action, together with the webs previously felted, while at the same time one or two fresh webs are formed and then added to the webs previously felted, and thus continuing simultaneously the operations of forming the webs and exposing the newly-formed webs successively, together with those previously felted, to a new felting action until the fabric has reached the desired thickness.

314,810. MANUFACTURE OF HAIR-FACED WOOL FELT. CARL B. DOLGE, Dolgeville, assignor to Alfred Dolge, New York, N.Y. Filed Dec. 11, 1884. (No model.)



314,810.



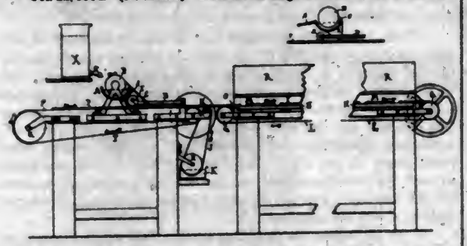
Claim.—1. The method herein described of making hair-faced wool felt, which consists in first carding a layer of hair, then carding a layer or layers of wool, and then felting the wool and hair layers together, substantially as described.

2. The method herein described of making hair-faced wool felt, which consists in first carding a layer of hair, then carding a layer or layers of wool, adding a final layer of hair, and felting the layers together to form wool felt faced on opposite sides with hair, substantially as described.

3. As a new article of manufacture, wool felt faced with hair, as shown and described.

4. As a new article of manufacture, wool felt having a tapering cross-section and faced on both sides with hair, as described.

314,811. APPARATUS FOR COATING PHOTOGRAPHIC PLATES. BENJAMIN J. EDWARDS, London, County of Middlesex, England. Filed Oct. 22, 1884. (No model.) Patented in England June 5, 1884, No. 8,643.

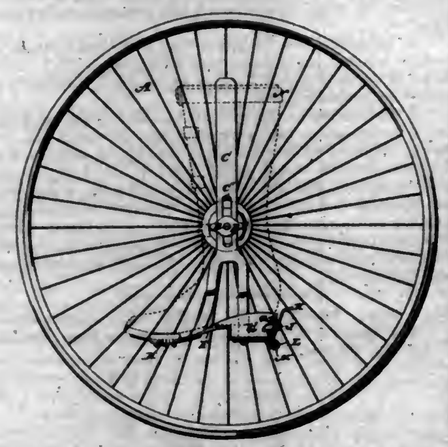


Claim.—1. In an apparatus for coating sheets of glass or paper with gelatine emulsion for photographic purposes, the movable and adjustable scraper or scrapers, of any suitable shape or size, in combination with the roller and trough, for the purpose of applying the coating of gelatine or other emulsion to the upper surface of the plates, substantially as described and shown.

2. In an apparatus for coating photographic plates with an emulsion, the endless band or bands for cleaning the back or under surface of the plates, as described and shown.

3. In an apparatus for coating photographic plates with an emulsion, the combination, with the pivoted frame which carries the scraper, of the trough with scraper attached, of the roller or guide connected with said frame, substantially as described.

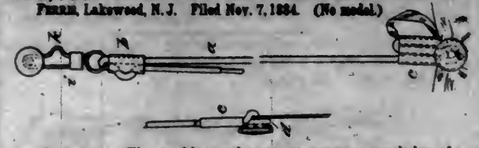
314,812. UNICYCLE SKATE. JAMES B. ELLIOTT, London, England. Filed May 27, 1884. (No model.)



Claim.—1. In a unicycle skate, the combination, with the foot-plate F, having the heel-socket G, provided with the aperture *a*, of the rod L, secured to the under side of the heel-socket, the spring-frame K M, secured on the said rod and provided with the bolt J, projecting through the aperture of the said socket, substantially as herein shown and described.

2. The combination, with the strap N, of a shackle, P, pivoted in jaws or lugs on the strap, and of a frame or box, Q, pivoted to the shackle, substantially as herein shown and described.

314,813. STOCKING OR GARMENT SUPPORTER. SHERWOOD B FERRIS, Lakewood, N.J. Filed Nov. 7, 1884. (No model.)



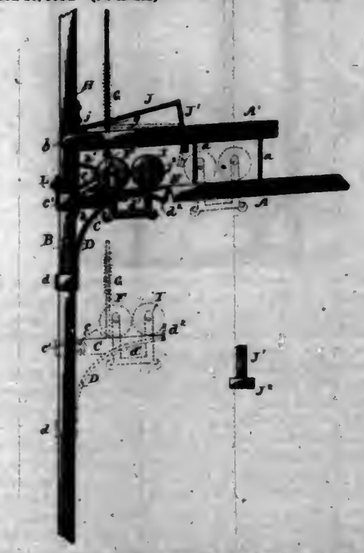
Claim.—1. The stocking and garment supporter consisting of a cord, *a*, provided with an adjustable loop at its upper end, and at its lower end with a slide, *c*, and a button attached to the slide by a flexible connection, substantially as described.

2. In a stocking-supporter, the combination of slide *c*, made of flexible material, with the cord *a* and button *e*, substantially as described.

3. In a stocking-supporter, the open-ended loop *b*, having a vertical central passage for a doubled cord and two perforations in one of its vertical sides and at right angles to the central passage, said perforations being one above the other with a portion of the material of the loop between them to form a cross-piece, whereby the loop may be slid upon a looped cord in the manner and for the purpose described.

4. The combination of button *e* and flexible connection *f* with cord *a* and slide-loop *c*, substantially as described.

314,814. STORE-SERVICE APPARATUS. CHARLES FISHER, Manitowoc, Wis., assignor to the International Store Service Company. Filed Dec. 29, 1884. (No model.)



Claim.—1. The combination, with the receiver of a store-service system, of a spring-catch for supporting the receiver in raised position, said catch being adapted to be struck by the carrier to automatically release the receiver, substantially as set forth.

2. The combination, with the receiver, of a spring-catch for supporting the receiver in raised position, and adapted to automatically release the receiver by contact with the carrier, and a spring-brake provided at its free end with an arm to support the carrier upon the seat, substantially as set forth.

3. The combination, with the shouldered end of the track-strip, of the seat and its brake-spring, whose free end is provided with a guard-arm, which engages the shouldered strip, substantially as set forth.

4. The combination, with the receiver-seat and its beveled stop, of the spring-support provided with an inwardly-projecting bracket and a shoulder, as described, the combined spring-brake and guard, and the elastic suspensory, substantially as set forth.

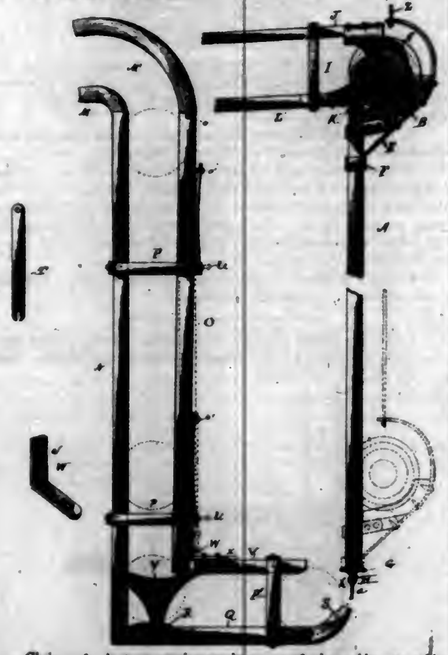
5. The combination, with the receiver-seat and its suspensory formed with a knot or stop, of a pivoted guard-arm adapted to be automatically raised and lowered, substantially as set forth.

6. The combination, with the receiver, of a pivoted guard supported above the track and adapted to be automatically raised and lowered by the elevating-cord of the receiver, substantially as set forth.

7. The combination, with the single guide strip or way, recessed as described, of the carrier-seat and its suspensory formed with a knot or stop, and its beveled stop, the spring-support formed with a shoulder to engage the seat, and with a bracket projection adapted to be struck by the carrier, the curved spring forming a combined rake and guard, and

the pivoted guard-arm adapted to be automatically raised and lowered, and provided with a bumper at its free end, substantially as set forth.

314,815. STORE-SERVICE RECEIVER. CHARLES FISHER, Manitowoc, Wis., assignor to the International Store Service Company. Filed Feb. 10, 1885. (No model.)



Claim.—1. A store-service receiver, one of whose sides or guideways is adapted to yield to act as a friction-check for the carriers.

2. A store-service receiver formed by continuing the tracks of the system and having one of its sides pivotally secured and provided with a spring or springs, substantially as set forth.

3. The combination, with the pivotally-secured side or guideway of the receiver, of the adjacent horizontal stationary guard-strip thereof, an angle-arm slotted to permit the movement of said pivoted guideway, and a spring or springs, substantially as set forth.

4. The combination, with the yielding spring-pressed guideway of the receiver, of the stationary guard-strip and an angle-arm whose vertical portion is secured rigidly to the yielding way, while its horizontal portion is provided with slots and is secured loosely upon the guard-strip so as to have a sliding movement thereon, substantially as set forth.

5. The combination, with the receiver of a store-service system, of a yielding bumper located at the bottom thereof and a base guideway curved or crooked at its outer end, substantially as set forth.

6. The combination, with the guideways of the receiver, of the base and side brackets secured one on each side of the base, substantially as set forth.

7. The combination, with a single-strip elevator, of a steadying cord or wire, *a*, substantially as set forth.

8. The combination, with the end of the single strip, of a bumper, a washer, a screw-eye securing said bumper and washer, and a steadying cord or wire attached to said screw-eye, substantially as set forth.

9. The combination, with the elevator and the track, of side guards secured to the track, substantially as set forth.

10. The combination, with the parallel track-rails and the single-strip elevator, of curved guard-plates secured to the rails, substantially as set forth.

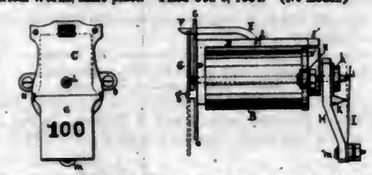
314,816. INDUCTION-COIL. FRANK E. FISHER, Detroit, Mich. Filed Aug. 4, 1884. (No model.)



Claim.—1. In an induction-coil, the combination of a soft-iron core, a piece of diamagnetic metal secured to and partially surrounding that part of the core which is within the coil, and a second movable diamagnetic metal piece adapted to cover the remaining portion of said core within the coil, adapted to revolve on the core as an axis, and having an opening cut therein longitudinally of greater width at one end than at the other, substantially as shown and described.

2. The combination of the induction-coil K with the core C and the diamagnetic metal pieces A B and the crank D, substantially as shown and described.

314,817. MECHANISM FOR OPERATING TELEPHONE NIGHT-BELLS. FRANK E. FISHER, Detroit, Mich., assignor to the Detroit Electrical Works, same place. Filed Oct. 1, 1884. (No model.)



Claim.—1. A night-bell mechanism for annunciator-boards in telephone-exchanges, consisting of a metallic arm attached to each annunciator but insulated therefrom, and all of said arm being electrically connected, a spring attached to but insulated from each of said arms in such a manner that its free end constantly tends to make electrical connection with said arm, and all of said springs being electrically connected, mechanism, substantially such as is described, whereby the drop, when raised, forces the free end of the spring away from the arm, and a battery and electric bell in a circuit one end of which is electrically connected with one of said arms and the other with one of said springs, substantially as shown and described.

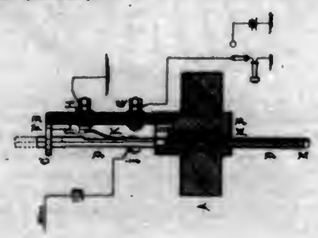
2. In mechanism for operating a night-bell attached to an annunciator, the following elements, viz: an electro-magnet having a hollow core, a pivoted armature adapted to hold or release a drop in the usual manner, a metallic arm attached to but insulated from the electro-magnet, a spring attached to but insulated from the metallic arm, a needle having an insulated end extending through the hollow core, and adapted to press against the drop when raised and the free end of said spring, and a battery and electric bell in a circuit whose ends are connected, one with said arm and the other with said spring, substantially as shown and described.

3. In mechanism for operating a night-bell in connection with an annunciator, a battery and electric bell in a circuit having its ends connected with two contact-pieces which are supported by but have no electrical connection with the annunciator mechanism, a connecting-rod having an insulated tip resting at one end against one of said contact-pieces and at the other end against the drop when raised, to hold said contact-pieces apart, and a swinging drop adapted, when raised, to hold said rod in position and release the same when it falls, substantially as shown and described.

4. The combination of the battery E and electric bell S, situated in a circuit formed in part by the fixed arm H and spring I, with the needle L, having the insulating-point *i*, and the pivoted drop G, substantially as and for the purposes described.

5. The combination, with an annunciator, of a battery and night-bell in a circuit entirely independent of the annunciator mechanism, and having therein two contact-pieces, one of which is fixed, while the other is a spring constantly tending to make contact with the fixed piece, and a rod having an insulated end bearing against said spring-contact piece, and extending, when said contact-pieces are in contact, beyond the plane of a drop on the annunciator when said drop is raised, whereby raising said drop separates said contact-pieces, and said spring-contact forces said drop to fall when released from the pawl which locks it, substantially as shown and described.

314,818. TELEPHONE-LINE SWITCH. FRANK E. FISHER, Detroit, Mich., assignor to the Detroit Electrical Works, same place. Filed Oct. 1, 1884. (No model.)

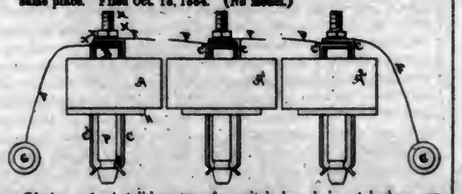


Claim.—1. A telephone-switch consisting of a fixed metal frame having attached thereto, but insulated therefrom, a ground-connection and a binding-post connected with the operator's telephone, and of a metal piece movable in said frame, adapted to make contact with the ground-connection when moved in one direction to the limit of its range of motion and to break this connection when correspondingly moved in the other direction, and having a lateral motion adapted to bring the same in connection with the binding-post connected with the operator's telephone, and a spring-plug adapted to engage with or be disengaged from said movable metal piece by the exercise of force sufficient to slide said metal piece in said frame, substantially as and for the purposes set forth.

2. In combination with the fixed metallic frame B, carrying the insulated binding-posts H G, the movable binding metallic piece D, adapted to slide therein, and carrying the contact-spring K, and having its end E rounded and grooved, whereby pressure necessary to connect a spring-plug, P, to said movable piece causes the same to slide to the extent of its range of motion in one direction, and pressure necessary to withdraw said plug therefrom causes the same to slide in the other direction, substantially as shown and described.

3. The combination of the frame B, having piece C, lug F, and oblong hole M, and carrying the insulated binding-posts H G, with the movable metallic piece D, having grooved end E and contact-spring K, and spring-plug P, substantially as shown and described.

314,819. TALKING-STRAP FOR TELEPHONE SWITCH-BOARDS. FRANK E. FISHER, Detroit, Mich., assignor to the Detroit Electrical Works, same place. Filed Oct. 18, 1884. (No model.)



Claim.—1. A talking-strap for switch-boards in a telephone-exchange, consisting of a metal piece fixed in each switch-board, having a pointed metal projection, and having fastened thereto two metal springs insulated therefrom and from each other at the point of fastening, but normally in contact with the projecting metal piece, electrical conductors connecting alternate springs on adjoining switch-boards with each other and the outside spring on each end switch-board with the ground, and a plug adapted to slide over said pointed metal piece and break the contact of said springs therewith, and having one of its surfaces insulated from the rest of the plug, substantially as shown and described.

2. A talking-strap for switch-boards in a telephone-exchange, permanently grounded at each end, wherein the circuit in each switch-board is composed of two insulated contact-springs normally in contact with a common electrical conductor, in combination with a connecting-plug adapted, when placed in position, to break the contact of said springs and their common conductor, and having one side thereof insulated, substantially as shown and described.

3. In a telephone-exchange, the combination of the switch-boards A A', &c., metal pieces B, each having the projection P, with groove *f*, insulated contact-springs C C', and conductors F, substantially as shown and described.

4. In combination with a talking-strap connecting the switch-boards in a telephone-exchange, and consisting in each board of the metal piece B, projection P, and insulated contact-springs C C', the connecting-plug D, having the insulated side E, substantially as shown and described.

5. In a talking-strap for telephone switch-boards, the combination of the metal piece B, projection P, having thereon the groove *f*, insulated contact-springs C C', and plug D, having spring L, with V-shaped part Q, adapted to engage with groove *f*, and insulated side E, substantially as and for the purposes set forth.

6. A talking-strap for switch-boards in a telephone-exchange, permanently grounded at each end, and consisting at each switch-board of two contact-springs insulated from each other, but in contact with a metal piece adapted to receive and hold a connecting-plug when said plug is not in use, substantially as shown and described.

7. A talking-strap for switch-boards in a telephone-exchange, permanently grounded at both ends, in combination with a connecting-plug having one side insulated, whereby the ground at one end of the strap is cut out whenever the connecting-plug is placed in position, substantially as and for the purposes set forth.

314,820. DISINFECTANT. ROBERT A. FISHER, Philadelphia, Pa. Filed Aug. 30, 1884. (No specimens.)

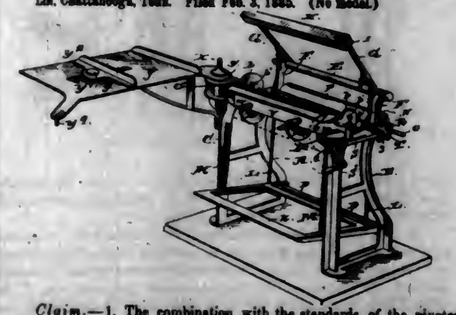
Claim.—The herein-described disinfectant, consisting of about one hundred parts of chloride of lime, about fifty parts calcined sulphate of lime, and about twenty parts of water, substantially as herein described.

314,821. HARNESS-PAD. HERMAN A. FONTAINE, Auburn, N. Y. Filed Oct. 31, 1884. (No model.)



Claim.—As an improved article of manufacture, the harness-pad comprising the upper or main leather piece, *a*, and the bottom piece or lining, *b*, said pieces *a b* having transverse ventilating-slots *d*, surrounded by rows of stitches *c*, and extending nearly the entire width and length of said pieces, substantially as and for the purpose set forth.

314,822. GROOVING AND SEAMING MACHINE. HENRY H. FRANKLIN, Chattanooga, Tenn. Filed Feb. 3, 1885. (No model.)



Claim.—1. The combination, with the standards, of the pivoted mandrel, the pivoted hammer, and the operating-treadle and springs, substantially as described.

2. The combination, with the standards, of the pivoted mandrel having one face grooved and the other face plain, substantially as described.

3. The combination, with the standards, of the pivoted hammer, the operating-treadle and springs, and the pivoted mandrel having the wings hinged thereto, for the purpose set forth, substantially as described.

4. The combination, with the standards, of the pivoted hammer, the operating-treadle and springs, the mandrel, the drum, gearing for rotating the drum, the guiding-table, and guiding-rod, said table and rod having adjustable gages, substantially as described.

5. The combination of the removable mandrel, having a groove in one face and the opposite face plain, with the pivoted table having an adjustable gage, substantially as described.

6. The combination, with the standards, of the pivoted reversible mandrel having one side grooved and the other side plain, the pivoted table having the adjustable gage, the drum, and gearing for rotating the drum, substantially as described.

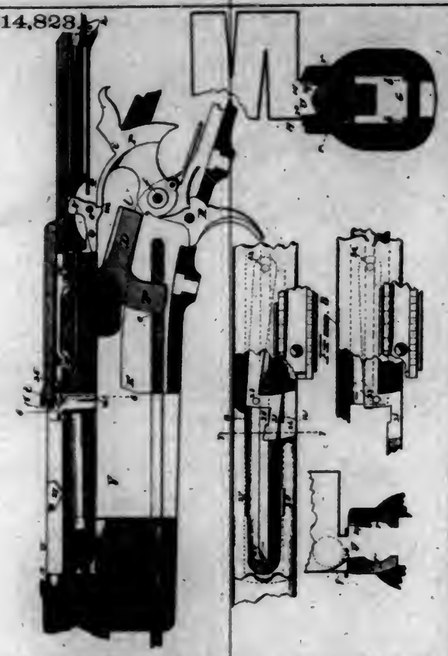
7. The combination, with the standards, of the pivoted hammer, the operating-treadle and springs, the pivoted reversible mandrel having one grooved side and one plain side, the drum, gearing for rotating the drum, the pivoted guiding-table, and the guiding-rod, said table and rod having adjustable gages, substantially as described.

314,823. MAGAZINE FIRE-ARM. WILLIAM B. FRANKLIN, Hartford, Conn., assignor to Colts Patent Fire Arms Manufacturing Company, same place. Filed Oct. 20, 1884. (No model.)

Claim.—1. In a fire-arm, the combination of the longitudinally-reciprocating breech-piece C, the firing-pin L, extending longitudinally through said breech-piece, the lever N, hung in said breech-piece and in connection with said firing-pin, constructed with the shoulder *m*, and the hammer P, constructed with a forward extension, T, against which the said shoulder *m* of the firing-pin lever will strike as the breech-piece approaches its extreme rear movement, substantially as described.

2. In a fire-arm, the combination of the longitudinally-reciprocating breech-piece C, the dog D, hinged in the breech-piece and extending rearward, constructed with an arm, F, extending downward, a longitudinally-reciprocating bar, G, in connection with said arm F, and extending forward through the receiver, provided with a handle, I, the shoulder E, against which the dog will abut when the breech-piece is in its

314,823.



closed position, and the shoulder *l* in the receiver in rear of the shoulder E, and against which the dog will abut as the breech-piece arrives at its extreme rear movement, substantially as described.

3. In a fire-arm, the combination of the longitudinally-reciprocating breech-piece C, the firing-pin L, extending longitudinally through said breech-piece, the dog D, hinged to the breech-piece and extending rearward, and constructed with the downwardly-projecting arm F, the longitudinally-reciprocating bar G in connection with said arm F, and extending forward through the receiver, provided with a handle, I, the bell-crank lever O N, hung in the breech-piece, the one arm, N, in connection with the firing-pin, the other arm, O, over the said dog and in the path of its movement, and also constructed with the shoulder *m*, and the hammer P, constructed with a forward extension, T, against which the said shoulder *m* of the firing-pin lever will strike as the breech-piece approaches its extreme rear movement, substantially as and for the purpose described.

4. In a fire-arm, the combination of the longitudinally-reciprocating breech-piece C, provided with an extractor-hook extending forward of its front face, and the receiver constructed with a mouth at the rear end of the barrel narrower than the diameter of the head of the cartridge, but greater in width than the diameter of the body of the cartridge, the sides of the receiver below said mouth constructed with longitudinal recesses *r*, forming the auxiliary chamber to receive the cartridge, the sides of the mouth at the rear end constructed with recesses *n*, through which the head of the cartridge may freely pass while the body passes downward through the mouth into the auxiliary chamber, the said auxiliary chamber constructed with recesses *s* from the lower side downward and in rear of the recesses *n* above, the receiver also constructed with an opening, V, from the auxiliary chamber downward, and into which said recesses *s* open, the said opening V being less in length than the mouth of the chamber, and so as to form a solid bottom, *s*, at the forward end of the auxiliary chamber substantially as described.

5. In a fire-arm, the combination of the receiver constructed with the receiving-chamber for the cartridge in rear of the barrel, the said chamber constructed with recesses *n s* at its rear end into an opening, V, downward through the receiver, the said opening less in length than the mouth of the chamber, and so as to leave a solid bottom, *s*, at the forward end, the longitudinally-reciprocating breech-piece in line with the barrel, the extractor W, arranged in the upper surface of the breech-piece, and free for a limited longitudinal movement, the said extractor constructed with a lug, 11, extending downward into a recess in the breech-piece and in rear of the inclined shoulder 12 in the breech-piece, and the check 21, hung above the breech-piece to swing in a horizontal plane, and provided with a stud, 23, extending downward toward the breech-piece, the extractor and breech-piece constructed with a diagonal groove, 25, near their forward end, substantially as described.

6. In a fire-arm, the combination of a longitudinally-reciprocating breech-piece, a receiver constructed with an auxiliary chamber to receive a cartridge between the open breech-piece and the rear end of the barrel, a mouth opening upward from said chamber, and an opening downward therefrom, and a magazine adapted to contain a series of cartridges, constructed with a flange at its front and rear end, the receiver with corresponding horizontal grooves with which said flanges may engage and locate the mouth of said magazine over the mouth of the receiver, the said magazine constructed with a tongue, 19, projecting inward across the mouth of the magazine, the receiver constructed with a lug, 20, corresponding to said tongue, and whereby in setting the magazine in place over the mouth of the receiver the said tongue will be turned outward to open the mouth of the magazine for the escape of the cartridges therefrom into the receiver, substantially as described.

7. In a fire-arm, the combination of a longitudinally-reciprocating breech-piece, a receiver constructed with an auxiliary chamber to receive a cartridge between the open breech-piece and the rear end of the barrel, a mouth opening upward from said chamber and an opening downward therefrom, a magazine adapted to contain a series of cartridges, constructed with a flange at its front and rear end, the receiver with corresponding horizontal grooves, with which said flanges may engage and locate the mouth of said magazine over the mouth of the receiver, and the turn-button 27, hung at one side of the mouth of the receiver and in the path of the moving breech-piece, adapted to be turned up into the mouth of the magazine as the breech-piece is moved forward or drop therefrom as the breech-piece is moved rearward, substantially as described.

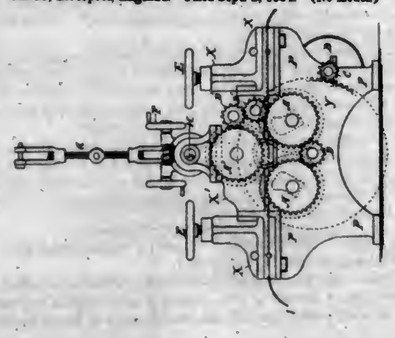
8. In a fire-arm, the combination of the longitudinally-reciprocating breech-piece C, the receiver constructed with a mouth upon its upper side in rear of the barrel, and so as to form an auxiliary chamber into which the cartridge may be received for introduction into the barrel, a magazine arranged for attachment to the upper side of the receiver and over the mouth, whereby the several cartridges in the magazine may successively fall into the auxiliary chamber in the receiver forward of the front face of the breech-piece, and a check arranged to swing transversely across the mouth of the receiver above the breech-piece, the said breech-piece and check constructed the one with a cam and the other with a corresponding shoulder substantially as described, and whereby said check will be automatically moved out of the mouth of the receiver as the breech-piece approaches its extreme rear movement, and return as the breech-piece is moved forward.

9. In a fire-arm, the combination of the longitudinally-reciprocating breech-piece C, the receiver constructed with a mouth, U, upon its upper side and in rear of the barrel, and so as to form an auxiliary chamber into which the cartridge may be received for introduction to the barrel, a magazine arranged for attachment to the upper side of the receiver and over the mouth, whereby the several cartridges in the magazine may successively fall into the auxiliary chamber in the receiver forward of the front face of the breech-piece, and the check 21, pivoted at the rear, extending forward into the mouth of the receiver, and so as to swing horizontally into and away from the mouth of the receiver over the cartridge standing in front of the breech-piece, the breech-piece provided with a longitudinal rib, 24, and constructed with a diagonal groove, 25, the check with a corresponding stud, 23, substantially as described, and whereby in the last part of the rear movement of the breech-piece the check will be thrown out of the mouth of the receiver, and in the first part of the forward movement of the breech-piece will be thrown into the mouth of the receiver and over the cartridge lying in the auxiliary chamber of the receiver, substantially as described.

314,824. BLASTING-POWDER. ADRIEN GACON, Paris, France. Filed Mar. 15, 1884. (No specimens.) Patented in Belgium Nov. 21, 1883, No. 46,269, and in France Nov. 22, 1883, No. 146,346.

Claim.—An explosive compound consisting of a mixture of nitrate of potash or nitrate of soda, sulphur, ashes, and tannin, substantially as herein described.

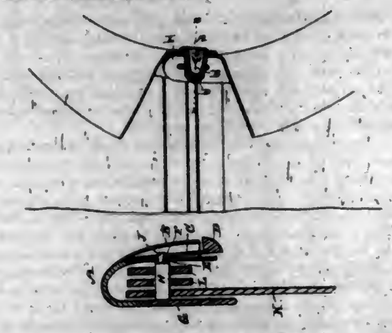
314,825. MACHINE FOR THE MANUFACTURE OF BELTING. M. GANDY, Liverpool, England. Filed Sept. 2, 1884. (No model.)



Claim.—1. In the endless-belt-stretching machine substantially herein described, the combination of the upper calender-roller and the upper nipper-plates in a separate upper frame fitted upon the frame carrying the lower calender-rollers and stretching nipper-plates, said upper frame, calender-roller, and nipper-plates being susceptible of being lifted up to admit the belt between the upper and lower calender-rollers and nipper-plates, substantially as described.

2. In the endless-belt-stretching machine substantially herein described, a set of calender-rollers having calendering ends projecting beyond the frame of the machine, and combined with a set of stretching-nippers, also extending beyond or set outside of the frame of the machine to correspond with the projecting calender-rollers, substantially as described.

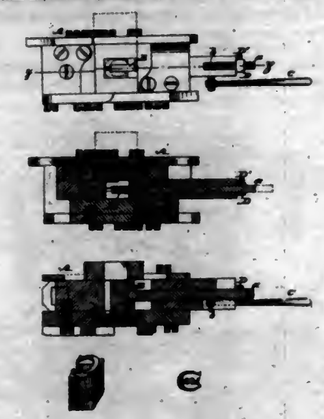
314,826. COLLAR-BUTTON. HENRY J. GUNN, Attleborough, Mass. Filed Jan. 3, 1885. (No model.)



Claim.—1. In a collar-button, the combination, with the U-shaped plate A, having a pocket, B, of the hinged plate G, the headed stud H on the plate G, and the spring-catch C in the pocket B, substantially as herein shown and described.

2. In a collar-button, the combination, with the U-shaped plate A, having a pocket, B, and provided with the aperture E, of the spring C, held in the pocket B and provided with an aperture, F, the hinged plate G, the stud H on the same, and the head J on the stud G, substantially as herein shown and described.

314,827. TYPE-CASTING MOLD. RUDOLPH GROSWITH, Philadelphia, Pa., assignor to the MacKellar, Smiths and Jordan Company, same place. Filed Jan. 22, 1884. (No model.)



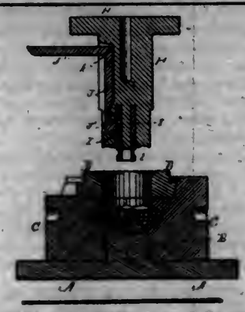
Claim.—1. A type-casting mold provided with an adjustable core, substantially as and for the purpose set forth.

2. In a type-casting mold, a core for forming a recess in type, provided with means, substantially as described, for adjusting the same in the matrix-space, as stated.

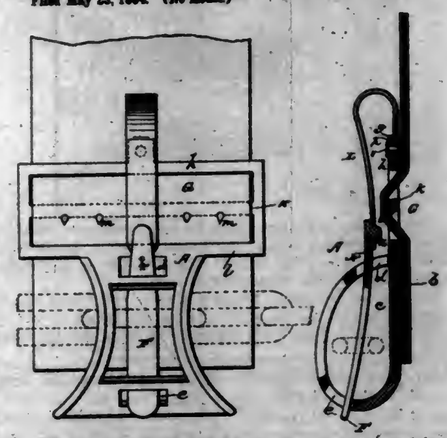
314,828. SECURING SHANKS TO GLASS KNOBS. JOHN W. HARRIS, Cambridge, Mass. Filed July 11, 1884. (No model.)

Claim.—In a mold for pressing shanks into glass knobs, the combination, with the plunger H, provided with openings for the reception of the shank I, of the lever J J' J'', pivoted to said plunger and adapted to lie against said shank, substantially as and for the purpose described.

314,828.

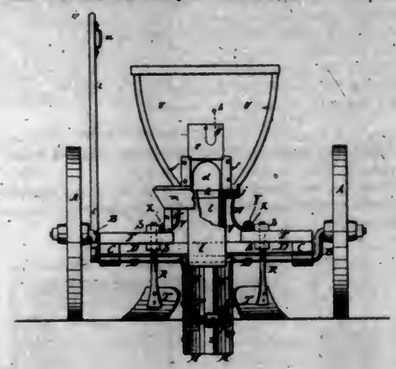


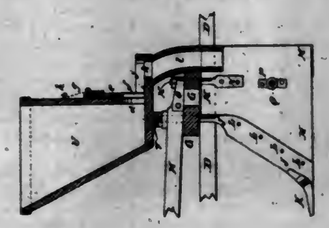
314,829. BACK-BAND LOOP. JOSEPH P. HAMILTON, Franklin, Texas. Filed May 23, 1884. (No model.)



Claim.—A back-band fastener having its upper end formed into a buckle for adjustment on the back-band, and having its lower end formed into separate loops with a fastening-pin, which is connected to the body by means of a flexible strap or band and adapted to engage with the chain.

314,830. COMBINED POTATO AND TREE PLANTER. EVEN J. HAMER, St. Paul, Minn., assignor to himself, John G. Ribaldaffer, and James W. Brown, all of same place. Filed May 27, 1884. (No model.)

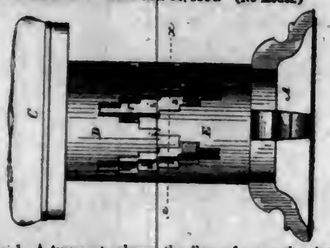




Claim.—1. In a combined potato and tree planter, the frame having the parallel side bars, C, and the intermediate oblique bars, D, with their rear ends connected to the same ends of bars C, and their forward convergent portions connected to short front bars, E, of said frame, in combination with the tongue H, secured upon bars D and G, and hopper U, having the spout *l*, said frame being supported near its forward end upon an axle bearing wheels, substantially as shown and described, and for the purpose set forth.

2. In a combined potato and tree planter, the hopper U, secured to straps or plates W, with their lower laterally-projecting slotted ends receiving staples X of the carrying-frame and keyed to said staples, in combination with the slotted pedestal V, through which the tongue H passes, said tongue being strapped to a bolt, N, of a cross-bar of the said frame, and the spout *l*, depending from the rearwardly-projecting platform *i* of the hopper, substantially as and for the purpose set forth.

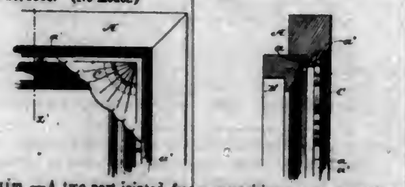
314,831. ADJUSTABLE COLUMN OR STAND FOR STOOLS, &c. H. HARDY, New York, N. Y. Filed Feb. 16, 1884. (No model.)



Claim.—1. A two-part column, the lines of separation being inclined zigzags forming steps, so that the column can be lengthened or shortened, the steps taking bearings upon each other to support the weight upon the column, substantially as set forth.

2. The two-part column formed of a hollow cylinder, the lines of separation between the two parts being inclined zigzags or steps, in combination with a guide within the tabular column, substantially as set forth.

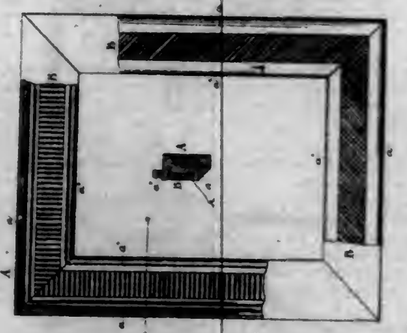
314,832. PICTURE-FRAME. LESLIE R. HARSHA, Chicago, Ill. Filed Oct. 29, 1883. (No model.)



Claim.—A two-part jointed frame comprising a part or molding, A, provided upon its inner edge with a ledge, *a*, and shoulder *a'*, forming a groove or rabbet, an inner part or molding, B, and a corner-piece, C, fitted and secured at its edge in the said groove or rabbet, with its front face at the rear of the front face of the part A, and extending inwardly over the joint between the parts of the molding B, so as to conceal the said joint, substantially as described.

314,833. WOODEN-SURFACED MOLDING. LESLIE R. HARSHA, Chicago, Ill. Filed Jan. 14, 1885. (No model.)

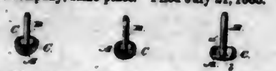
Brief.—A transversely-grooved strip having its grain parallel with the grooves therein is secured in a longitudinal groove in the face of a wooden surface.



Claim.—1. A wooden-surfaced molding comprising a part, A, provided with a longitudinal groove, A', in its face, and a transversely-corrugated or grooved strip, B, secured in said groove A', substantially as described and shown.

2. A wooden-faced molding comprising a part, A, provided with a longitudinal groove, A', in its face, and a transversely-corrugated or grooved strip, B, secured in the said groove A', the grain of the wood in the said strip being parallel with corrugations or grooves therein, substantially as described.

314,834. PROCESS OF MAKING CROWNS FOR WINDING WATCH-ARBORS. GEORGE E. HART, Waterbury, Conn., assignor to the Waterbury Watch Company, same place. Filed July 21, 1883. (No model.)



Claim.—1. The process of constructing watch-crowns, which consists in taking a blank cut from sheet copper or brass, forming it into a cup with corrugated or roughened exterior, forming a cup of metal, like that of the watch-case, corrugated externally and also internally, to fit over the cup previously formed, placing it over such cup, turning in the edges of the two cups, and milling out the interior to fit the watch-stem, substantially as and for the purpose described.

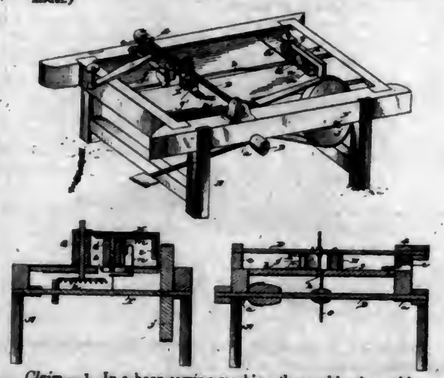
2. The process of making watch-crowns, which consists in forming of sheet metal by suitable dies a cup with corrugated or roughened exterior, placing over this a cup of similar metal to that of the case, corrugated on its exterior and roughened or corrugated on its interior to fit the inner cup, turning in the edges of the cups, and milling out the center of the crown thus formed, substantially as shown and described.

3. The process of making watch-crowns, which consists in making from sheet-copper by suitable dies a cup corrugated on its exterior, making a second cup of any desired metal, adapted on its inside to fit the smaller cup with its corrugations, and also corrugated on its exterior, placing the smaller cup within the larger, and turning the edges in, substantially as and for the purpose described.

4. The process of manufacturing watch-crowns, which consists in making of sheet-copper a cup having corrugations on its outside radiating from its bottom, making an opening in the bottom for the reception of the end of a winding-arbor, making a second cup of metal corrugated inside and out on lines radiating from its bottom, and adapted to fit over the other cup with its corrugations, placing the smaller cup within the larger, and turning in, by means of dies, the edge of the double cup thus formed.

5. The process of manufacturing watch-crowns, which consists in taking a cup formed of copper and provided with a hole for the reception and fastening of the end of the winding-arbor, making a second cup of the same material as the outside of the watch-case, corrugated on lines radiating from its bottom, placing this over the copper cup, turning in the edges of the double cup so formed, and milling out its inside to fit the watch-stem, substantially as shown and described.

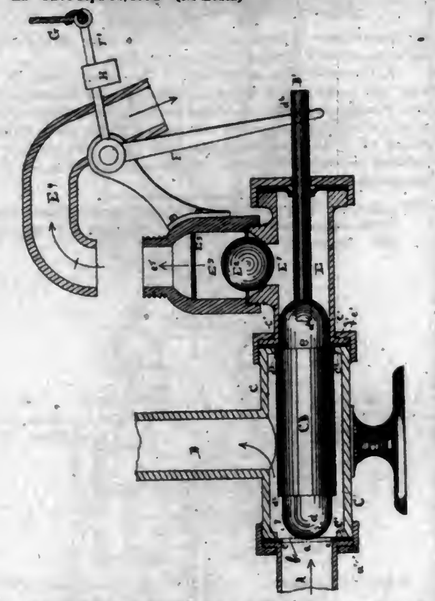
314,835. HOOP-SAWING MACHINE. JOSEPH HARTMANN, Fremont, Ohio, assignor to Jacob H. Orwig, same place. Filed Dec. 30, 1884. (No model.)



Claim.—1. In a hoop-sawing machine, the combination, with a table or frame, of a bracket, *c*, having a hole or opening, the plate *d*, having an elongated slot, said plate and bracket being adjustably connected, a shaft mounted in said bracket at one end, a shaft, a saw on said shaft, and guide-rollers located in front of the saw, one of said rollers having a laterally-movable bearing, substantially as set forth.

2. In a hoop-sawing machine, the combination, with a shaft mounted upon the under side of the top of the frame or table, and having a spur-wheel, of a shaft having a crown-wheel to gear therewith, a fluted roller upon said shaft, an angular bracket having side flanges, said bracket receiving the upper end of said shaft, a roller or idler mounted in a bracket, the shaft of said idler bearing in a slot in the table at its lower end, its upper end fitting between the flanges *l*, and means for holding said roller against lateral movement, substantially as set forth.

314,836. STOP AND WASTE VALVE. PATRICK HARVEY, Chicago, Ill. Filed Sept. 22, 1884. (No model.)

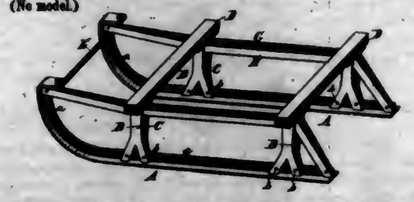


Claim.—1. In combination with a water-supply pipe and a waste-pipe, a valve-chamber located and affording communication between the two, and a valve playing in such chamber and adapted to pass through and close at one end the supply-port and at the other end the waste-port, and longer than the distance between said ports, said valve provided with bearing-shoulders, and said chamber provided with bearing-seats for said shoulders at the margin of said ports, respectively, the distance between said seats being greater than the distance between said shoulders and less than the distance from either shoulder to the opposite end of the valve, substantially as set forth.

2. The combination, with a water-supply pipe and service-pipe, and a waste-pipe communicating therewith, and a stop and waste valve controlling such communication, of an automatic check-valve in the waste-pipe beyond the stop and waste valve, substantially as set forth.

3. In combination with the water-supply pipe, service-pipe, and waste-pipe, the chamber C, communicating between the two, the valve D, playing within said chamber, the supplemental chamber E, having the eduction-port E', and the automatic valve E², closing said eduction-port and opening outward, substantially as and for the purpose set forth.

314,837. SLED. WILLIAM HASLUP, Sidney, Ohio. Filed Jan. 29, 1885. (No model.)



Claim.—1. The runners A, formed of T iron or steel, having wet *a* notched and bent down to overlap the web 3, to form the terminus of the bent runner, substantially as herein specified.

2. In combination with the T-runners A and beams D, the standards B C, united at their lower ends to the web *a* of the runner, and at their upper ends to the beams D, substantially as described.

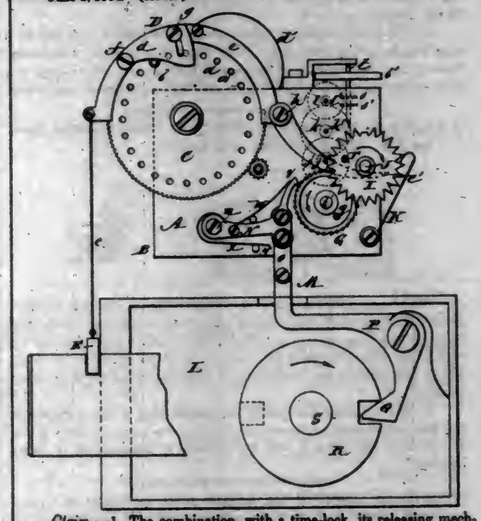
3. In combination with the runners A and beams D, the standards B C, provided with the forks *b b* at the lower end and bent flange *c* at the upper end, substantially as herein specified.

4. In combination with the runners A, beams D, and their supporting-standards, the girders G H, riveted to the web of the runners at their front and rear ends, substantially as herein specified.

5. In combination with the runners A, the girders G H and diverging standards B C, rigidly connected together, substantially as herein specified.

6. In combination with the runners A, the diverging brace B C, beams D, and longitudinal rail I, connected to the beams, substantially as herein specified.

314,838. TIME-LOCK. MOSES C. HAWKINS, Edinborough, Pa. Filed June 3, 1884. (Model.)

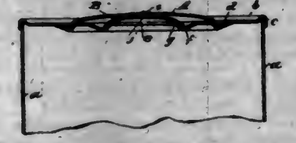


Claim.—1. The combination, with a time-lock, its releasing mechanism, and the spindle of a combination-lock, of an escapement, an auxiliary spring-acted train of gearing operating the same, and connected with said spindle to be operated thereby, and a connection between the said auxiliary train of gearing and the releasing mechanism of the time-lock, whereby if the time-lock should fail to operate its releasing mechanism may be operated from the spindle of the combination-lock, substantially as set forth.

2. The combination, with a combination-lock and a time-lock having a releasing mechanism therefor, of an auxiliary spring-acted movement, as at F G, constructed to engage the said releasing mechanism, and provided with a self-starting escapement, and a spindle connected with and adapted to operate the said auxiliary spring-acted movement, and constructed to be operated from the outside of a safe, substantially as set forth.

3. The combination, with the bolt-latch E, of the lever D, toothed wheel I, provided with the lever-operating pin *r*, the ratchet-wheel G, provided with the pin *q*, pawl *v*, spring-acted train of gearing, the lever N, lever P, connected therewith, the notched tumblers, and spindle of the combination-lock, as specified.

314,839. CAN. EDWARD C. HAZARD, Shrewsbury, N. J., assignor of one-half to Frank Gross, New York, N. Y. Filed Dec. 6, 1884. (No model.)



Claim.—1. The combination, with a can-top, of the outer sealed cap, A, and the inner cap, B, secured in place over the mouth of the can by the outer cap, substantially as set forth.

2. A can for the purposes described, having a top provided with a mouth and depressions or grooves adjacent thereto, in combination with the vented caps A B, as set forth.

3. A cam for the purposes described, having the metal at its central opening or mouth crimped to form a recess, combined with an inner cap to close said opening and an outer cap soldered to the can-top, both caps having vents, substantially as specified.

314,840. LEGGIN. GEORGE C. HENNING, Washington, D. C. Filed Jan. 30, 1885. (No model.)

Claim.—1. A leggin composed of an outer wearing fabric and an inner lining or stiffening fabric intimately and firmly joined throughout

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their adjacent faces by rubber or equivalent cementing material, as and for the purpose explained.

2. The herein-described leggin, consisting of body A, provided with front flap, *a*, having lacing-holes *c*, and rear flap, *b*, provided with lacing-hooks *e*, and the lacing-cord B, threaded through the holes *c* from the inner to the outer faces of the flap, substantially as described and shown.

314,841. TELEPHONE-TRANSMITTER. GEORGE M. HOPKINS, Brooklyn, N. Y. Filed Feb. 29, 1884. (No model.)



Claim.—1. In a telephone-transmitter, a carbon electrode having a metal center provided with a conical cavity, and an adjusting-screw held by a yielding support and provided with a rounded end touching the wall of the conical cavity in the metal center of the electrode, in combination with an electrode carried by the transmitter-diaphragm, as herein specified.

2. In a telephone-transmitter, the combination of the electrode D, the electrode-supporting device consisting of the screw *f*, plate *g*, and two or more taut wires, *h*, and the electrode C, substantially as herein specified.

314,842. MACHINE FOR MAKING AXES, HATCHETS, &c. LEANDER B. HUNT, Hyde Park, Mass., assignor of one-third to Theodore H. Videto, same place. Filed Feb. 9, 1884. (No model.)



Claim.—1. In a machine for making the eye in and finishing axes or other tools, the die *e*, provided with the eye-former *e'*, in combination with the die *f*, provided with the eye-former *f'*, substantially as described.

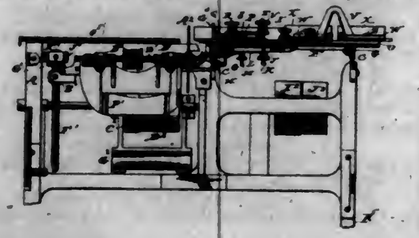
2. In a machine for making the eye in and finishing axes or other tools, the combination of the die *e*, provided with eye-former *e'*, die *f*, provided with eye-former *f'*, and the laterally-movable dies *g g*, substantially as described.

3. The combination of the die *e*, provided with eye-former *e'*, the die *f*, provided with eye-former *f'*, the laterally-movable dies *g g*, and the yielding die-supports *h h*, located beneath the dies *g g*, substantially as described.

4. The combination of die *e*, provided with eye-former *e'*, the die *f*, provided with eye-former *f'*, yielding die-support *h h*, the laterally-movable dies *g g*, bearing upon said movable supports, and mechanism, such as described, for forcing the laterally-movable dies against the blank, substantially as described.

314,843. MITER-SAWING MACHINE. LEONARD D. HOWARD, St. Johnsbury, Vt. Filed Jan. 12, 1885. (No model.)

Claim.—1. In a mitering-machine, the combination of a frame pivoted at one end, and having means, substantially as described, for raising or lowering its free end, a frame sliding vertically in the said swinging frame, and having means, substantially as shown, for raising and lowering it, and the saw and saw-shaft journaled in the upper end of the sliding frame, as and for the purpose shown and set forth.

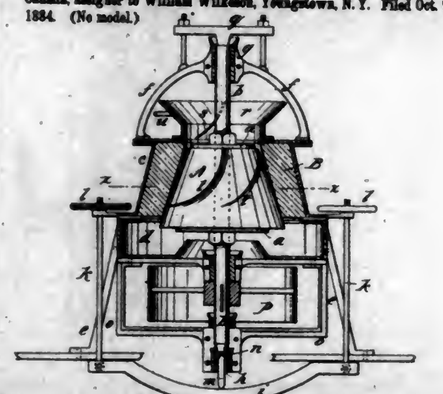


314,843.



2. The combination of the frame C', having side pieces, E², provided with tracks P' upon their inner sides, and with threaded perforations I² in their outer sides, the sliding frame R', having flanges A², traveling in tracks P', and provided with grooves B², the plates Q', having flanges C² at their inner edges, and outer flanges, D², provided with threaded perforations F² and G², and screws H² and J², as and for the purpose shown and set forth.

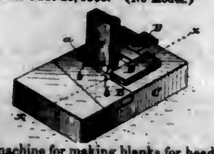
314,844. PULP-GRINDER. WILLIAM H. HOWELL, Thorold, Ontario, Canada, assignor to William Wilkeson, Youngstown, N. Y. Filed Oct. 9, 1884. (No model.)



Claim.—1. A pulp-grinder consisting, essentially, of the conical running stone A, shaft *b*, to which said stone is clamped, the fixed stone B, surrounding the said running stone, the casing *c*, surrounding the fixed stone, spout *d*, secured to the lower edge of said casing, the hangers *o*, secured to the under side of spout *d*, cross-bar *i*, the vertically-adjustable rods *k*, connecting the outer ends of the cross-bar with the frame above said cross-bar, steps *h* in the hangers *o*, center *m* between the step and cross-bar *i*, pulley *p* on the shaft *b* within the hangers *o*, the bridge-trees *f*, mounted on top of casing *c* and provided with the bearing *g*, and cross-bar *q*, bearing on the upper end of shaft *b* to prevent vertical movement thereof, and a hopper, *r*, substantially as set forth.

2. The combination, with the conical running stone A and the hollow conical fixed stone surrounding the same, of the hopper *r*, provided with the vertical inclined flanges *s*, extending from the top to the bottom of the hopper and acting to force the material into the space between the stones, and the pipe *u*, for directing a stream of water between the stones to cool them, substantially as set forth.

314,845. DIE FOR FORMING AX-POLL CLIPS. JOHN U. HUBBARD, Oakland, Me. Filed June 25, 1883. (No model.)



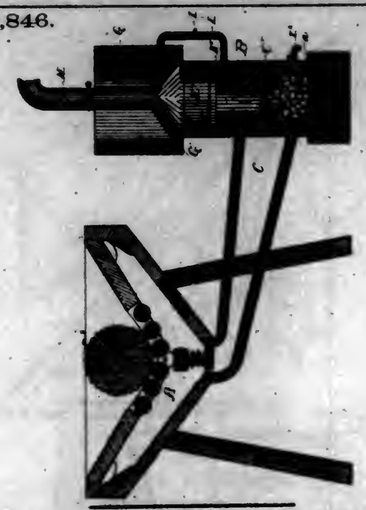
Claim.—In a machine for making blanks for heads of axes, hammers, and like tools, the combination of the punch, having its corners clipped, with a bed-piece, C, having a counter-die, B, notched to correspond to the clipped corners of the punch, and the guides D D', substantially as described.

314,846. HOT-WATER-CIRCULATING WASHING-MACHINE. A. HUPPER, Hagerstown, Md. Filed Apr. 15, 1884. (No model.)

Claim.—1. The combination of the washing-machine A and furnace B, having conduits C, water-jacket C', and boiler G, located on the furnace B and connected with the water-jacket, substantially as shown, and for the purpose described.

2. The combination of the conduits C, water-jacket C', and cock I², furnace B, having door E, the boiler G, located on the furnace, and pipe I, having valve I', substantially as shown, and for the purpose described.

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314,847. FURNITURE-CASTER. FREDERICK W. JACKSON, Richmond, Ind., assignor to Stephen C. Mendenhall, same place. Filed July 10, 1884. (No model.)



Claim.—1. In a caster, the combination of two floor-wheels, an anti-friction wheel or roll, a wheel frame or housing having bearing for the axes of said wheels, a vertical pin or stud on said wheel-frame, rounded on its upper surface, a furniture-plate on which the rounded upper surface of said stud and the anti-friction wheel bear, and means for holding stud and furniture-plate together, substantially as set forth.

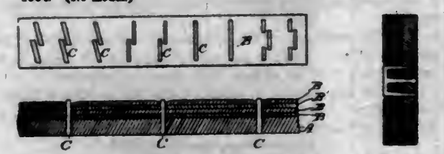
2. In a caster, in combination with a furniture-plate, a frame or housing on which two floor-wheels and an anti-friction wheel are supported, and a pin having rounded head formed integrally with said housing and bearing on said furniture-plate, substantially as described.

3. In combination with the wheel-frame and floor and anti-friction wheels mounted thereon, a pin or stud on said wheel-frame, having a neck, as shown, a furniture-plate, and a device for retaining said stud against the furniture-plate, formed in two parts, adapted to surround the neck on said stud and be fixed to the furniture-plate, respectively, substantially as set forth.

4. A track-plate for casters, consisting of a plate provided on its under side with an undercut socket or cavity, a recess communicating with said socket or cavity, and a key-plate to fill said recess, substantially as specified.

5. A furniture-caster consisting of a wheel-frame having a headed pivot-stud formed integral therewith, and a track-plate provided with an undercut socket to receive said stud, and a key-plate to secure the same, in combination with the floor-wheels and friction-roll journaled in the wheel-frame.

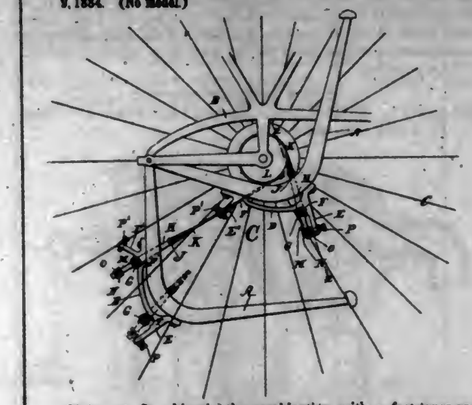
314,848. PACKING. THOMAS JAMES, Braddock, Pa. Filed June 5, 1884. (No model.)



Claim.—1. As a new article, a fibrous packing material having inserted at intervals in its wearing-surface pieces of metal so soft as to be easily spread out over the fibrous material by the wearing action of the journal and possessing the quality of lubricating the bearing, substantially as described.

2. A packing composed of layers of fibrous material secured together by soft-metal staples having barbed legs, substantially as described.

314,849. BICYCLE. HARRY H. JOHNS, Lancaster, N. H. Filed Aug. 9, 1884. (No model.)



Claim.—1. In a bicycle, the combination, with a foot-lever and a clutch, of a strap or band connected with the clutch and with a roller, and of a bar secured on the foot-lever, on which bar the roller runs, substantially as herein shown and described.

2. In a bicycle, the combination, with a foot-lever and a clutch, of a strap or band connected with the clutch, a roller connected with the band, and a bar secured on the foot-lever, and provided at each end with an arm and a notch for receiving the roller, substantially as herein shown and described.

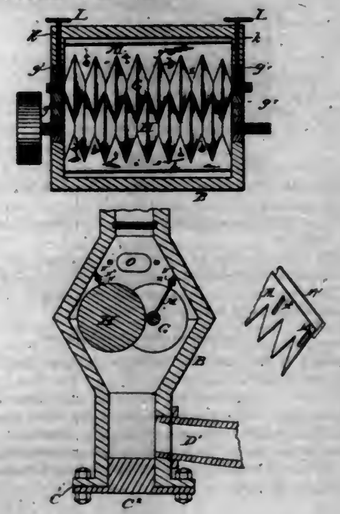
3. In a bicycle, the combination, with a foot-lever and a clutch, of a strap or band connected with the clutch, a frame held to the free end of the band and carrying a roller, and a bar secured on the foot-lever and provided at each end with an arm and a notch for receiving the roller which runs on the said bar, substantially as herein shown and described.

4. In a bicycle, the combination, with a foot-lever, of a strap or band connected with the clutch, the frame H, having hooks at the ends, and the cross-pin J, held in the said hooks, around which pin the strap passes, and through which frame H the foot-lever A passes, substantially as herein shown and described.

5. In a bicycle, the combination, with a foot-lever and a clutch, of a strap or band connected with the clutch, the frame H, the roller G, the tongue M, the bar D, secured on the foot-lever and having arms E E', and notches F F', and the screws P P' in the arms E E', substantially as herein shown and described.

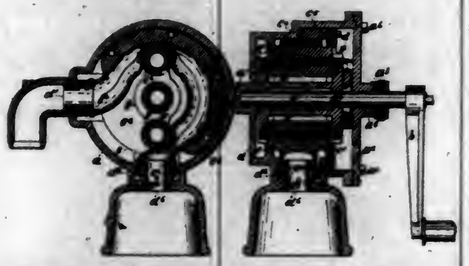
6. In a bicycle, the combination, with the foot-lever A and a clutch, of the band or strap K, connected with the clutch, the frame H, having the tongue M, the slide N, the screw O, the roller G, the bar D, having notches F F' and arms E E', and the set-screws P P' in the arms E E', substantially as herein shown and described.

314,850. APPARATUS FOR CRUSHING AND GRINDING MALT AND OTHER VEGETABLE SUBSTANCES. ELIAS KAUFFELD, Pittsburg, Pa. Filed June 20, 1884. (No model.)



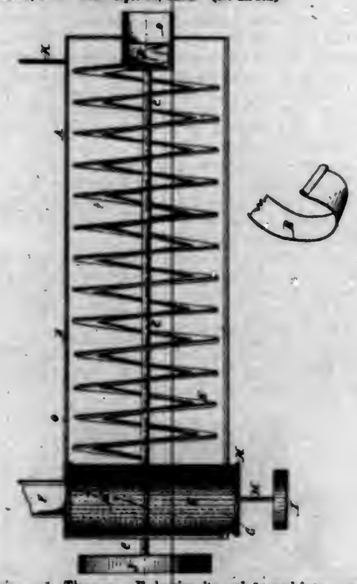
Claim.—The combination, with the drum B and a hopper or receptacle above the same, of a pair of circumferentially-grooved rolls, G H, one of which is adjustable relatively to the other, and a pair of serrated plates, M and N, secured to the interior of the drum and forming a supplementary hopper, one of the said plates being adjustable, substantially as described.

314,851. ROTARY PUMP. DAVID L. KELLY, Buffalo, N. Y. Filed Jan. 5, 1885. (No model.)



Claim.—A pump having the flexible tube secured within the casing, rollers and shaft for operating it, substantially as specified, and an air-space within the pump outside of the flexible tube, in combination with one or more perforations leading from the suction-tube to the air-chamber, whereby an equal vacuum is formed and maintained in the air-chamber and inlet and flexible tube while the pump is in operation.

314,852. SAND-WASHING MACHINE. CHAUNCEY W. KILBORN, South Vineland, N. J. Filed Apr. 22, 1884. (No model.)



Claim.—1. The screw E, having its end formed into a scoop, for the purpose specified.

2. The screw E, having its end formed into a scoop, in combination with the trough A.

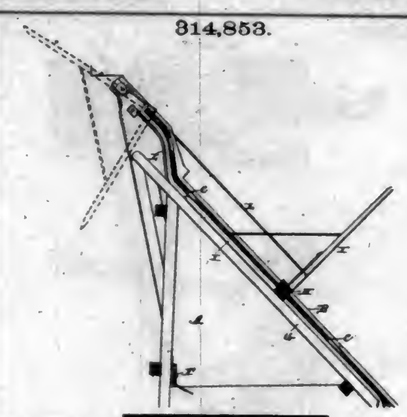
3. The shaft C, encircled by screw E, terminally formed into a scoop and supported by spokes L M, in combination with the trough A.

4. The trough A, in combination with the inlets F K, screw E, having scoop B, chute D, and outlet O.

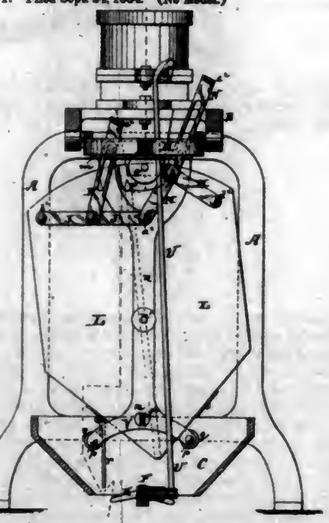
314,853. HAY-STACKER. WESLEY KLEMER, Union Mills, Iowa. Filed Nov. 28, 1884. (No model.)

Claim.—In a hay-stacker, the combination of a frame, A, having the side timbers, B, which are grooved upon their inner sides, suitable guiding-pulleys, inclined guideways which are provided with extension-guides L under the ends of the grooves, an elevator constructed substantially as shown, and elevating-ropes which are secured to the elevator, substantially as set forth.

314,853.



314,854. AUTOMATIC WEIGHING-SCALE. MORIS P. KOCH, New York, N. Y. Filed Sept. 24, 1884. (No model.)



Claim.—1. The combination of the oscillating weighing-box L with the sustaining vertically-movable uprights *n*, and with the two pairs of toggle-levers J and M, that are pivoted to said box and also to one of said uprights, substantially as shown and described.

2. The combination of the weighing-box L, pivoted in the uprights *n*, which are capable of vertical motion with the toggle-levers J M, and links N N, having projections e^3, as specified.

3. The combination of the pivoted weighing-box L, having partition P, with the roller *t*, uprights *n*, toggle-levers J M, and means for moving said toggle-levers, substantially as described.

4. The combination of the pivoted weighing-box with two separate pairs of toggle-levers with which it is joined, said toggle-levers being arranged to lock said box in each of its two inclined positions automatically, substantially as described.

5. The pivoted weighing-box L, combined with the transverse rail T and laterally-adjustable weight thereon, all at one end of said box, as specified.

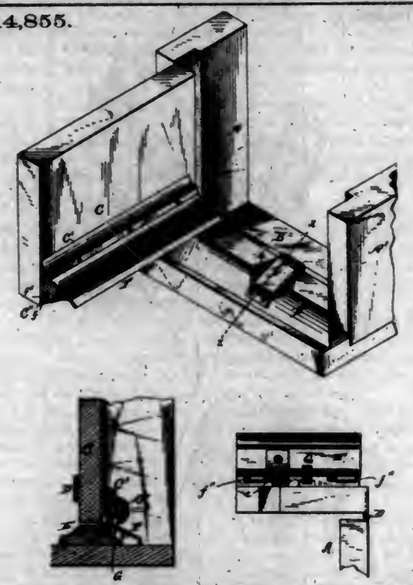
6. The combination of the scale-beam H and its slotted arm I with the screw h^2, nut f^3, having gudgeons g^3, and with the weight K, substantially as and for the purpose herein shown and described.

7. The weighing-box L, combined with the uprights *n*, frame *m*, scale-beam H, and with the doubly-pivoted link V and frame A, substantially as described.

314,855. WEATHER-STRIP. JOHN H. LABOURNIX, Robinson, Ill. Filed Sept. 18, 1884. (No model.)

Brief.—Consisting of a strip having its upper edge bent upwardly, pivotally hinged in the recess of a strip secured to the face of a door, a spring to hold said strip in a raised position, and a lug secured to the strip, which, coming in contact with a cam-block on the sill, forces the strip in contact with the sill.

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Claim.—The combination, in a weather-strip device, of a strip, C', secured along the face of the door near its bottom and recessed on its under side, as described, depending elbows *c*, located in said recess, a weather-strip, F, bent as specified, and pivotally hinged to the elbows, a spring, G, also located in said recess and normally adapted to hold said spring F up out of contact with the sill, and a block, E, located in the sill and adapted to contact with the tongue extending from said strip to move the latter in contact with the sill, substantially as set forth.

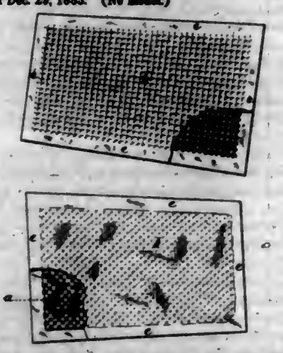
314,856. SCABBARD FOR INTRENCHING-TOOLS. HENRY C. LA POINT and CURTIS B. HOPPIN, U. S. Army. Filed Apr. 25, 1883. Renewed Feb. 25, 1885. (No model.)



Claim.—1. A case or scabbard having sockets adapted, respectively, to support the blade and detachable handle of an intrenching-tool, and provided with a sling, substantially as described, for suspending it from the person.

2. Combined with the scabbard for the purpose described, the adjustable shoulder-pad and the sling secured to the scabbard.

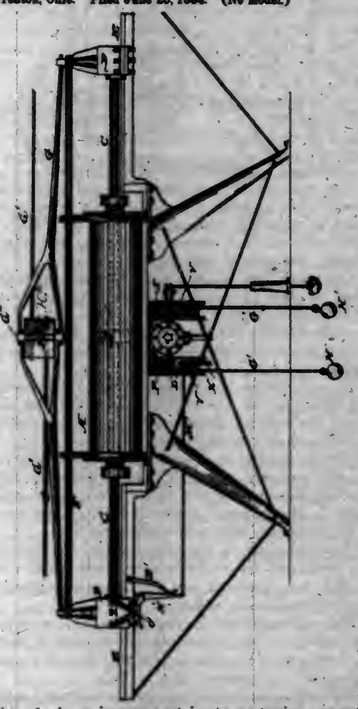
314,857. FABRIC FOR WRAPPERS. CHARLES H. LEONARD, Detroit, Mich. Filed Dec. 29, 1883. (No model.)



Claim.—1. The composite fabric herein described, composed of the flexible reticulated metal lining covered on both sides with paper or cloth projecting beyond the edges of said lining, and cemented to form a sealed non-lined border, as and for the purpose specified.

2. The metal-lined fabric herein specified, composed of the flexible reticulated metal lining enveloped by paper or cloth cemented to said lining and sealed at the edges in a border, *e*, all around outside the covered metal lining, as shown, and for the purpose stated.

314,858. STEAM STEERING APPARATUS. ELLSWORTH J. LEWIS, Warrenton, Ohio. Filed June 25, 1884. (No model.)



Claim.—1. As an improvement in steam steering apparatus, the combination, with a cylinder having a central piston, the rods of which extend through both the ends of the said cylinder, of a suitable guide-rod connecting the cross-heads, and the forked arms secured to the said cross-heads and connected movably with the tiller, and mechanism, substantially as described, for admitting steam into either end of the cylinder while the other end of the same is connected with the exhaust, substantially as set forth.

2. As an improvement in steam steering mechanism, the combination, with a cylinder having two cross-heads connected, substantially as described, with the tiller, of the valve-chest I, having steam-entrance J, ports K L M, exhaust O, and valves Q Q, arranged as described, the valve-rod R, having rack S, the shaft U, having gear-wheel T, wheel V, having spring-pawls W, ring Y, having lug Z, disk A', having lugs B', cross-bar C', having weighted rods D', the tiller-ropes G'; having weights H', and the guide-pulleys I', the said tiller-ropes passing over the wheels V, thence over the guide-pulleys I' along the sides of the tiller, and thence to the wheel in the pilot-house, substantially as herein described, and for the purpose set forth.

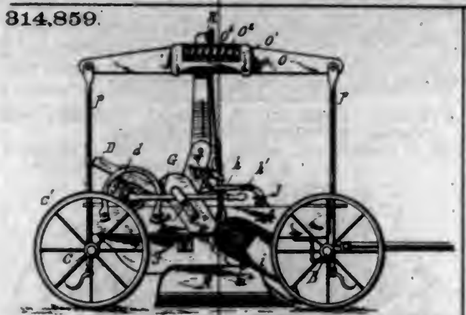
3. In a steam steering apparatus, the combination, with the reciprocating piston-rod C, having cross-head D, provided with a projection, O, of the bell-crank lever N', and a rod connecting the latter with a butterfly-valve arranged in the steam-supply pipe, substantially as set forth.

314,859. DITCHING-MACHINE. ALEXANDER LOWE, Leipsic, Ohio. Filed May 9, 1884. (No model.)

Claim.—1. The combination, in a ditching-machine, of a supporting frame or carriage, an inclined bar playing obliquely therein and provided at its upper side with a rib, a drum journaled about midway in the supporting-frame contacting with said bar, and grooved to receive said rib; and devices for moving said bar in a downward or upward direction, substantially as set forth.

2. The combination, in a ditching-machine, of a supporting-frame, an inclined bar playing obliquely therein and provided at its lower portion with a facing having cutting-edges, a mold-board secured on the under side of the frame and contacting with said facing, and devices for moving said bar in a forward or rearward direction, substantially as set forth.

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3. The combination, in a ditching-machine, of a supporting-frame, an inclined bar playing obliquely therein and provided at its lower portion with a facing having cutting-edges, a guard, M, pivotally attached at its front end to the frame adjacent to said facing, and devices for laterally moving said guard M, substantially as set forth.

4. The combination, in a ditching-machine, of a supporting-frame, an inclined bar playing therein and provided at its lower portion with a facing having cutting-edges, a mold-board secured on the under side of the frame and contacting with said facing, a guard, M, pivotally attached, as described, and devices for operating said inclined bar and guard M, substantially as set forth.

5. The combination, in a ditching-machine, of a supporting-frame carrying ditching devices, a beam, O, provided with a level and having the vertical rods *p* playing through bearings in the frame, and carrying the fingers P at their ends, substantially as set forth.

6. The combination, in a ditching-machine, of a supporting-frame carrying ditching devices, a beam, O, provided with a case containing a spirit-level embraced by a metallic guard, vertical rods *p*, connected to said beam O, playing through bearings in the frame, and carrying the fingers P at their lower ends, substantially as set forth.

7. The combination, in a ditching-machine, of a supporting-frame carrying ditching devices, a spirit-level connected to devices extending into the ditch, and a graduated arm, with respect to which said spirit-level plays, substantially as set forth.

8. The combination, in a ditching-machine, of a supporting-frame carrying ditching devices, a graduated arm mounted on said frame, a spirit-level and connections extending into the ditch, and a cord or cable for elevating said level, substantially as set forth.

9. The combination, in a ditching-machine constructed and arranged substantially as described, of the guard M, having loop *n* on its inner side, a lever, K, centrally pivoted and engaging said loop, and devices for operating said lever, as and for the purpose set forth.

10. The combination, in a ditching-machine arranged and constructed substantially as described, of a graduated arm mounted on the machine and carrying a pulley at its upper end, a level device, a cord or cable attached to said level device passing over said pulley and having a hook at its other end to engage a fixed portion of the machine, as set forth.

11. The combination, in a ditching-machine arranged and constructed substantially as described, of a graduated arm mounted on the machine and carrying a pulley at its upper end, a level device, a cord or cable attached to said level device passing around said pulley and connected to a spring-hook section, S, as set forth.

314,860. HAY AND STRAW STACKER. HENRY MCCOPPER, Bunker Hill, Ill. Filed May 20, 1884. (No model.)

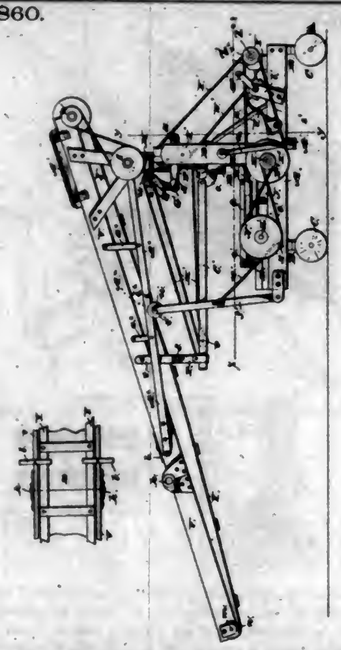
Claim.—1. The combination, with a horizontal frame, of an upright frame pivotally secured thereto, a vertical hollow shaft movably secured in the pivoted frame, an elevator-frame movably secured to the shaft, devices for raising or lowering the pivoted frame, and suitable devices for raising or lowering the rear end of the elevator-frame, substantially as and for the purpose described.

2. The combination, with a frame, of a vertical hollow shaft movably secured thereto, a support secured to the upper end of the hollow shaft, an elevator-frame secured to the support, a carrier adapted to move on said frame, and devices secured to the shaft, whereby said frame may be raised or lowered and moved from side to side, substantially as set forth.

3. The combination, with a frame, of a vertical hollow shaft movably secured to the frame, a vertical shaft extending through the hollow shaft and provided on either end with gear-wheels, an elevator-frame secured to the hollow shaft, a carrier mechanism connecting with the gear-wheels, for propelling the carrier around said elevator-frame, and devices for moving said latter frame from side to side, substantially as set forth.

4. The combination, with a hollow shaft movably secured to a frame, of an elevator-frame pivotally secured to a support rigidly secured to the upper end of said shaft, a supporting-beam the lower end of which is pivotally secured to a support rigidly secured to the shaft, and the upper end loosely connected to the elevator-frame, and mechanism for raising or lowering the rear end of the supporting-beam, and thereby raising or lowering the elevator-frame, substantially as set forth.

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5. The combination, with a frame, of a vertical hollow shaft loosely secured thereto, a vertical shaft extending through the hollow shaft and provided on its ends with gear-wheels, an elevator-frame secured to the hollow shaft, a carrier mechanism connected with the gears for propelling the carrier around the elevator-frame, a support secured to the hollow shaft and to the rear portion of the elevator-frame, and mechanism for raising or lowering the rear end of the support, thereby raising or lowering the rear portion of the elevator-frame, substantially as set forth.

6. The combination, with a horizontal frame, of an upright frame pivotally secured thereto, a vertical hollow shaft movably secured to the upright frame, a vertical shaft extending through the hollow shaft and provided on either end with gear-wheels, a support rigidly secured to the upper end of the hollow shaft, an elevator-frame pivotally secured to the support, a carrier mechanism connecting with the gear-wheels, for propelling the carrier around the elevator-frame, and devices for moving the elevator-frame from side to side, substantially as set forth.

7. The combination, with a frame and a shaft secured therein, of an elevator-frame pivotally connected with the upper end of said shaft, a supporting-beam loosely connected with the shaft and with the elevator-frame, a drum loosely secured to the shaft, a rope connected with the drum and beam, and means whereby it is adapted to raise and lower the elevator, substantially as set forth.

8. The combination, with a frame and a shaft movably secured therein, of an elevator-frame pivotally secured to a support rigidly secured to the shaft, a supporting-beam pivotally connected at its lower end with the shaft, and at its upper end pivotally connected to a support pivotally secured to the elevator-frame, and means for raising or lowering the support, and thereby elevating or lowering the elevator-frame, substantially as set forth.

9. The combination, with a frame and a shaft secured therein, of a support rigidly secured to said shaft, an elevator-frame pivotally secured to the support, a supporting-beam movably connected with the shaft and elevator-frame, a drum loosely mounted on the shaft, pulleys mounted on the support and the beam, and a rope secured to the beam and adapted to pass around the pulleys and drum and raise and lower the elevator, substantially as set forth.

10. The combination, with a frame and a hollow shaft secured thereto and allowed to rotate therein, a support rigidly secured to the hollow shaft, an elevator-frame pivotally secured to said support, allowing the elevator to move laterally and vertically, a supporting-beam secured to the shaft and elevator-frame, a drum mounted on the shaft, and a rope secured to the rear end of the beams, and adapted to wind around the drum and thereby raise or lower the elevator-frame, substantially as set forth.

11. The combination, with the frame A, of an upright frame pivotally secured thereto, a hollow shaft, I, secured to the latter, a support, M, an elevator-frame secured to the support, and means for raising or lowering the elevator-frame and moving it from side to side, substantially as set forth.

12. The combination, with the frame A, of an upright frame pivotally secured thereto, the hollow shaft I, shaft O, an elevator-frame connected to the hollow shaft, an elevator or carrier adapted to move on said frame, gearing connecting the shaft O with the carrier, and devices, substantially as described, for moving the outer end of the elevator-frame vertically, substantially as set forth.

13. The combination, with the frame A, of the upright frame pivotally secured thereto, hollow shaft I, shaft O, provided on its ends with gear-wheels, an elevator-frame secured to the shaft I, a carrier adapted to travel over the elevator-frame, support C', loosely connected with said elevator-frame, and means for raising or lowering the rear end of the support C', substantially as set forth.

14. The combination, with the hollow shaft I and support M, secured thereto, of an elevator pivotally connected with the support M, the support C', loosely connected with the shaft I and the elevator-frame, drum F', pulleys *u* and *v*, and the rope or chain H, all of the above parts combined and adapted to operate substantially as set forth.

15. The combination, with a frame and a hollow shaft secured thereto and provided on its lower end with a gear-wheel, of a vertically-adjustable elevator-frame secured thereto, a carrier adapted to travel over the frame, and a segmental gear adapted to mesh with the said former gear, and operated to turn the shaft and the elevator-frame from side to side, substantially as set forth.

16. The combination, with a frame and an upright shaft secured thereto and provided on its lower end with a gear-wheel, of a vertically-adjustable elevator-frame secured thereto, a carrier adapted to travel over the elevator-frame, and a segmental gear pivoted to a cross-bar pivotally secured to the frame, and adapted to throw the segment in or out of gear with the wheel on the shaft, substantially as set forth.

17. The combination, with a supporting-frame, of an upright shaft secured therein and provided at its lower end with a gear-wheel, an elevator-frame secured to the shaft, a segmental rack mounted in a cross-beam pivotally secured at one end to the supporting-frame, the opposite end being movably secured thereto, a gear-wheel mounted on the frame, a pitman connecting, said wheel and segment, and means for rotating said latter gear, substantially as set forth.

18. The combination, with a supporting-frame and an upright shaft secured in said frame and provided on its lower end with a gear-wheel, of an elevator-frame secured to the said shaft, a segmental rack supported on a cross-beam pivotally secured at one end to frame, the opposite end being movably secured thereto, a gear-wheel provided on its upper surface with a series of holes, one being in advance of the other and nearer the center of said wheel, a pitman secured to the segmental rack and in one of the said holes, and means for rotating said latter gear, substantially as set forth.

19. The combination, with an upright shaft and an elevator-frame adjustably secured thereto, said shaft being provided on its lower end with a gear-wheel, a segmental rack adapted to be thrown into or out of gear with said wheel, a gear-wheel secured to the rear end of the frame and provided with a series of holes, and a pitman one end of which is secured to said segmental rack, and the other end provided with a finger adapted to fit in the holes in said gear-wheel, substantially as set forth.

20. The combination, with the shaft I, secured in a suitable frame, and a gear-wheel, R, of a vertically-adjustable elevator-frame secured thereto, a carrier adapted to travel around the elevator-frame, the segmental rack K', secured to the pivoted bar J', secured to the main frame, said rack being adapted to mesh with the gear-wheel R, substantially as set forth.

21. The combination, with the shaft I, secured in a suitable frame and provided with the gear R, of an elevator-frame secured to the shaft I, gear K', secured to the bar J', secured to the main frame, gear-wheel P', pitman Q', and means for revolving said gear P', substantially as set forth.

22. The combination, with the shaft I, secured in a suitable frame and provided with the gear R, of an elevator-frame secured to the shaft I, bar J', gearing K' P', pitman Q', rod *c'*, pin *g'*, and means for operating the gear P', substantially as set forth.

23. The combination, with the shaft I, secured in a suitable frame and provided with the gear R, of an elevator-frame secured to the shaft I, bar J', gearing K' P', pitman Q', shaft L', worm or screw M', pulley N', and means for transmitting motion to the battery, the above parts being combined and adapted to operate substantially as set forth.

24. The combination, with a main frame, of an upright frame pivotally secured thereto, a vertical shaft mounted in the upright frame and extending above the same, an adjustable elevator-frame secured to the shaft above the pivoted frame, and means for lowering or raising the said upright frame and holding it in any desired position, substantially as set forth.

25. The combination, with a main frame, of an upright frame movably secured thereto, a vertical shaft mounted in the upright frame, an adjustable elevator-frame attached to the shaft, a shaft secured to the main frame, and ropes or chains secured to the upright frame and adapted to be wound around the shaft and raise or lower the elevator-frame, substantially as set forth.

26. The combination, with a main frame, of an upright frame movably secured thereto, a vertical shaft mounted in the upright frame, an elevator-frame mounted on the shaft, a horizontal shaft mounted in the main frame, and ropes secured to the upright frame and winding around the shaft in an opposite direction to the said former ropes, substantially as set forth.

27. The combination, with the main frame A, of an upright frame pivotally secured thereto, an elevator-frame adjustably secured to the pivoted frame, the shaft S, provided at one end with a handle, pulleys X' *p'*, located in standards secured to the main frame, and ropes W' Y', adapted to raise and lower said pivoted frame, substantially as set forth.

28. The combination, with the frame A, of a frame pivotally secured thereto, an elevator-frame, shaft S', ratchet U', dog V', pulleys X' *p'*, and ropes W' Y', all of the above parts combined and adapted to operate substantially as set forth.

29. The combination, with a main frame, of an elevator-frame mounted thereon, tracks or supports connected to the elevator-frame, and a frame pivotally secured to the rear end of the main frame and adapted to support the rear portion of the elevator-frame when in its lowered position only, substantially as set forth.

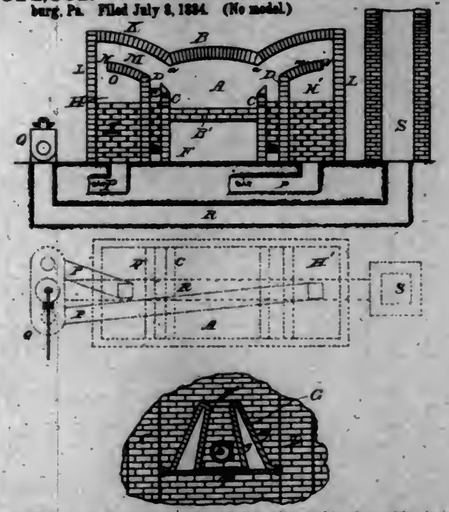
30. The combination, with a main frame, of an elevator-frame secured thereto, depending tracks or supports secured to the elevator-frame, a frame pivotally secured to the rear end of the main frame and adapted to support the elevator-frame when the latter is lowered, roller or rollers secured to the top of the pivoted frame, and a hook or hooks for holding the pivoted frame in an upright position, substantially as set forth.

31. The combination, with the main frame, of an elevator-frame mounted thereon, a frame pivotally secured to the rear end of the main frame, and provided on its upper end with a roller or rollers adapted to support the rear portion of the elevator when the latter is lowered, and rods secured to the pivoted frame and removably secured to the main frame, for holding said pivoted frame in position, substantially as set forth.

32. The combination, with the frame A, of an elevator-frame adjustably mounted thereon, the pieces *r'*, secured to the main frame, frame *s'*, pivoted to the pieces *r'*, rollers *t'*, secured to the frame *s'*, and rods *w'*, adapted to hold the frame in position, all of the above parts combined and adapted to operate substantially as set forth.

33. The combination, with the main frame A, of an elevator-frame adjustably secured thereon, and provided with tracks A^2, an auxiliary frame pivotally secured to the rear end of the main frame and comprising the parts *r' s'*, rollers *t'*, mounted on bars *s'*, and the rods *w'*, all of the above parts combined and adapted to operate substantially as set forth.

314,861. REGENERATOR-FURNACE. WILLIAM S. MCKENNA, Pittsburg, Pa. Filed July 8, 1884. (No model.)



Claim.—1. In a regenerating-furnace, the combination, with a heating-chamber having checker-work chambers on each side, and a gas-conveying space between said checker-work chambers and the heating-chamber, of main arches and supplemental arches located over said

checker-work chambers, and leaving a direct passage between them from the combustion-chamber to the checker-work chambers, said supplemental arches being elevated above the level of the floor of the combustion-chamber, substantially as described.

2. In a regenerating-furnace, the combination, with a heating-chamber, A, having checker-work chambers H H on each side, of flues P P, leading from the centers of said checker-work chambers diagonally to the two ends of an air-valve, Q, substantially as described.

3. In a regenerating-furnace, the combination, with a heating-chamber having an arched top, checker-work chambers on each side, having similarly-arched tops, of a bridge-wall whose tops are arched concentrically with the arch of the heating-chamber, substantially as described.

4. In a regenerating-furnace adapted to use gas as a fuel, the combination, with a gas-pipe, of a box having double walls with air-spaces between on each side of said pipe and in full communication with the external atmosphere, substantially as described.

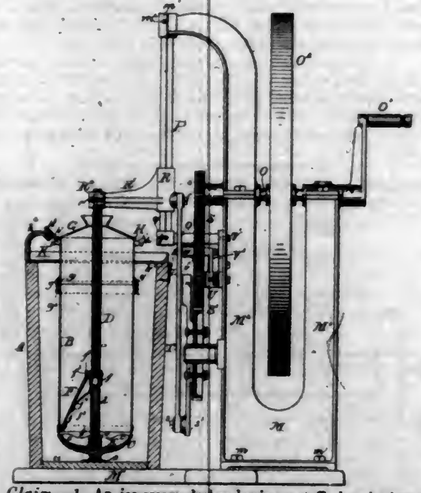
5. In a regenerating-furnace adapted to use gas as fuel, the combination of heating-chamber A, perforated bridge-wall C, and space E for the reception of gas-conveying pipe F, supplemental arch M, having space N at the end, with checker-work I, flue P, and air-valve Q, all constructed and arranged substantially as described.

314,862. RAILROAD-SPIKE. JOHN MCMURTRY, Lexington, Ky. Filed May 13, 1884. (No model.)



Claim.—A railroad-spike having the front side of its lower end beveled away on a straight line, and the opposite side also beveled, but made slightly rounding, and provided with a rounded shoulder, F, on the front side, and with the grooves I on both the front and rear side, substantially as shown and described.

314,863. ICE-CREAM FREEZER. GEORGE M. MILLS, Philadelphia, Pa. Filed June 13, 1884. (No model.)



Claim.—1. An ice-cream dasher having a staff, *d*, and a beater comprising a hub with radial carved blades, said staff and beater being adapted and designed to be reciprocated vertically, substantially as and for the purpose set forth.

2. The beater E, consisting of a hub, *e*, with flaring upwardly-curved blades *e'*, having each a vertical flange on one edge, substantially as shown and described.

3. The combination, with dasher-staff D, of pendent hinged scrapers *f'*, substantially as shown and described.

4. The combination, with dasher-staff *d*, of collar F, having pintles f^2, and pendent blades *f'*, having a hinge-connection with said collar, substantially as shown and described.

5. The combination, with collar F on dasher-staff *d*, and pendent hinged blades *f'*, of springs f^3, substantially as shown and described.

6. The combination, with can B, of detachable locking-neck G, having an annular rack, H, and adapted and designed for engagement with a worm-wheel, I, gearing therewith, substantially as and for the purpose set forth.

7. The combination, with a rotatable can or vessel, of a swiveled support for its lower end, and anti-friction rollers or bearing-wheels k^3, located above and bearing down upon said can, thereby affording lateral support and preventing the can from lifting when rotating, said rollers being located on a ring, K, which fits on the tub A, substantially as shown and described.

8. The combination of tub A, swiveled tripartite support C, and can B, substantially as shown and described.

9. The combination of tub A, can B, swiveled support C, annular rack H, ring K, worm-wheel I, and anti-friction rollers or bearing-wheels k^3, substantially as shown and described.

10. The combination, with rotatable can B and vertically-reciprocating dasher D, of shaft O and its support, with gear-wheels secured to said support at one side of the can and its surrounding tub, a sliding collar secured to said dasher, and a pitman connecting said collar with said gearing, substantially as shown and described.

11. The combination, with wheel S' and dasher D, of pitman T, guide-rod P, slide-collar R, and arm R', said wheel S' being located to one side of and below the upper edge of the freezer-tub, substantially as shown and described.

12. In an ice-cream freezer, the combination, with the dasher D, sliding collar R, wheel S', and pitman T, of an adjustable wrist-pin on said wheel for varying the length of stroke of the dasher driven thereby, substantially as shown and described.

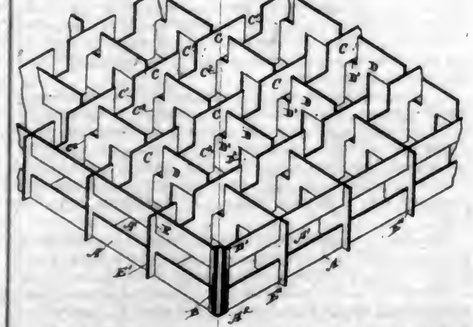
13. In an ice-cream freezer, the combination, with wheel S, of a rock-shaft, V, having a lever, V', with spring-pawl *v*, and arm V^2, carrying a pinion, *v'*, substantially as shown and described.

14. In an ice-cream freezer, the combination, with pinion *v'*, of an angular socket, *w*, and shaft W, having an angular head or end, *w'*, substantially as shown and described.

15. In an ice-cream freezer, the combination, with pinion *v'*, having socket *w*, and shaft W, having angular head or end fitted therein, of universal or flexible coupling Y and worm-wheel shaft *i*, substantially as shown and described.

16. The combination, with a rotatable can, B, having a dasher, D, and means for vertically reciprocating the same, of adjustable gear, substantially as described, whereby said can may be rotated, and which may be shifted or unshipped to allow the reciprocation of the dasher while the can stands still, substantially as shown and described.

314,864. CELL-TRAY. WILLIAM A. MOORE, Hampton, Va., assignor of one-half to Joseph C. Heath, same place. Filed Oct. 9, 1884. (Model.)



Claim.—1. In a cell-tray, the combination, with the side and adjacent end strips, of a vertical link pivoted at each side between the said strips, whereby, when closed or packed flat, the link permits of longitudinal movement of said strips to a distance equaling the width of the link, substantially as specified.

2. In a cell-tray, the combination, with outer strips continuously slotted to near their ends and connected by vertical links, of a series of inner strips half-jointed together and terminating in T-heads engaging the continuous slot of the outer strips, substantially as specified.

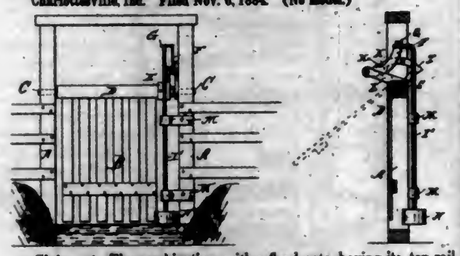
3. In a cell-tray, the combination of a series of longitudinal strips and a series of cross-strips half-jointed thereto by means of slots formed in the edges of both series, the slots being of much greater width than the thickness of the material of which said strips are made, whereby expansion of the cells is secured, and the strips are capable of moving upon each other at all joints to permit of close compression in packing the tray, substantially as specified.

4. In a cell-tray constructed of strips of tin or sheet metal, the combination of a series of longitudinal and transverse partitions or strips half-jointed together, each of which is provided at each of its edges with slots of much greater width than the thickness of the material, and the ends of each of which are slotted to form T-heads, outer strips slotted longitudinally from nearly end to end, and vertical links connecting the outer strips at their ends, substantially as shown and described.

5. A cell-tray having at its corners outer strips connected by a vertical link by being bent around the same, substantially as specified.

6. The combination of the cross-strips C, having the cut-out portions C^3, and the longitudinal strips D, having the cut-out portions D', these cut-out portions or slots being wider than the thickness of the material, whereby the two sets of strips are interlocked, forming loose or sliding joints capable of expansion, substantially as specified.

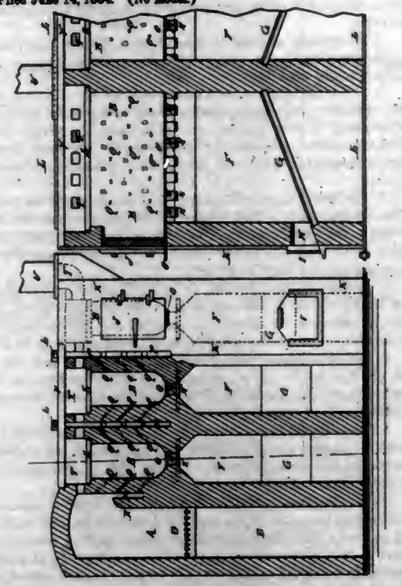
314,865. FLOOD-GATE. FRANCIS M. MOSHER, Cleveland, Ind., assignor to himself and Charles A. Sample, same place, and John R. Relland, Charlottesville, Ind. Filed Nov. 6, 1884. (No model.)



Claim.—1. The combination, with a flood-gate having its top rail pivoted between the gate-posts and provided with a rearward-extending arm, E, of a notched quadrant fixed to the gate-post adjacent to said arm, a bar, F, pivoted to the end of the arm E, and provided with a laterally-extending detent engaging in the notch of the quadrant when the gate is down, and devices arranged to lift the detent out of the notch when the water rises, substantially as specified.

2. The combination, with the gate A, having its rail D pivoted in the posts C, the arm E, and pivoted bar F, provided with projections G and H, of the notched quadrant I, rod I', and float N, substantially as specified.

314,866. BONE-BLACK OVEN. GEORGE MURDOCH, Brooklyn, N. Y. Filed June 14, 1884. (No model.)

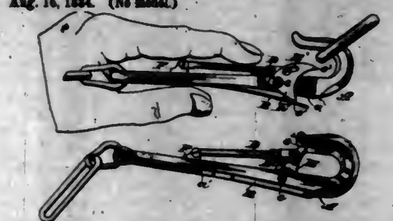


Claim.—1. In a bone-black oven, the combination, with the furnace A and ovens proper, B, of narrow vertical flue P, extending between said ovens, and the small lateral passages Q, leading upward from ovens to flues, as shown and described.

2. In bone and bone-black ovens, the oven B, made, substantially as herein shown and described, with a contracted grate-bottom covered with a slide, substantially as herein shown and described, whereby the oven can be readily drawn, as set forth.

3. In bone and bone-black ovens, the combination, with the ovens B, of the receiving-chambers F, having inclined bottoms G, substantially as herein shown and described, whereby the bone-black can be allowed to cool before being exposed to the air, as set forth.

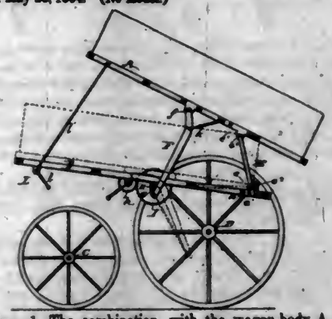
314,867. SNAP-HOOK. CORNELIUS D. MURPHY, Cleveland, Ohio, assignor to the Werewick Manufacturing Company, same place. Filed Aug. 16, 1884. (No model.)



Claim.—1. In a snap-hook, the lever E, pivoted in the slot *a*, and provided with the cam-groove E' and with the points *c'* and c^2, in combination with the spring B and the arm or thumb-piece D, and the parts so arranged that by depressing the arm the hook will be opened, and will be closed by the action of the spring, substantially as set forth.

2. In a snap-hook, the combination, with the hook and the bell-crank lever pivoted thereto, of the spring secured to the hook and having an extended bearing against one arm of the bell-crank lever, substantially as set forth.

314,868. DUMPING-WAGON. JAMES J. MURPHY, Philadelphia, Pa. Filed May 23, 1884. (No model.)

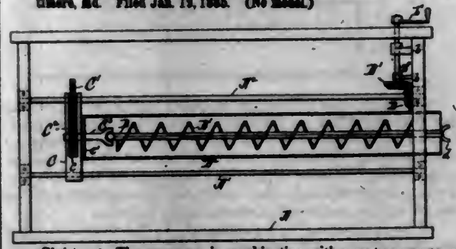


Claim.—1. The combination, with the wagon-body A, supported on frame B, the levers F F, attached to the body A at their upper ends, and provided with check-chains *k k*, of the shaft H and chains G, attached to said shaft and to the levers F F, substantially as shown and described.

2. The combination, with the wagon-body A, supported on frame B, and the levers F F, attached to the body A at their upper ends, the shaft H, and chains G G, attached to said shaft and to the levers F F, of auxiliary levers E E, pivoted to the frame and body, and stops *m m*, for limiting the movement of said levers, substantially as described.

3. In an elevating-body or dumping wagon, the combination, with the body and a winding-shaft, H, of levers F F, having their lower ends attached to said chains and their upper ends pivoted to said body, said levers being bent in a forward direction at their upper ends, substantially as shown and described.

314,869. CONVEYER FOR COAL-CARTS. THOMAS A. NAYLOR, Baltimore, Md. Filed Jan. 19, 1885. (No model.)

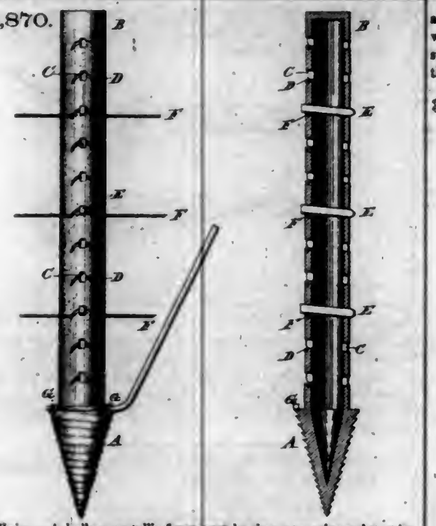


Claim.—1. The conveyer, in combination with a cart or wagon, as herein shown and described, substantially in the manner as and for the purpose set forth.

2. In combination with a cart or wagon body, the worm-screw working within the trough by means of the universal joint, the whole attached to the under side thereof, as herein shown and described, substantially in the manner as and for the purposes set forth.

314,870. METALLIC FENCE-POST. WILLIAM NEIDIG, and W. IRVING KNOWLTON, Ireton, Iowa. Filed July 7, 1884. (Model.)

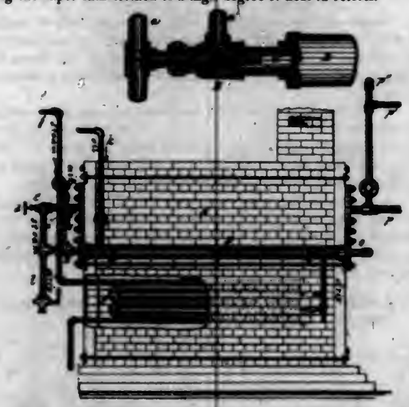
314,870.



Claim.—A hollow metallic fence-post having a tapering point at its lower end, and a series of horizontal notches in one of its faces not extending through its shell, a nearly horizontal mortise through the post transversely to each notch, and extending down nearly to the bottom thereof, and a wedge fitted to said mortise, substantially as shown and described, whereby a wire lying in the notch may be clamped between the wedge and the bottom of the notch, for the purpose specified.

314,871. APPARATUS FOR GENERATING HEATING AND ILLUMINATING GASES. JAMES J. NEWELL, Adrian, Mich. Filed Mar. 26, 1884. (No model.)

Brief.—Gas is generated by simultaneously feeding and blending atmospheric air and hydrocarbons in a comparatively cool condition with superheated steam in an atomizer apart from the heating-retorts, and subjecting the vapor thus formed to a high degree of heat in retorts.

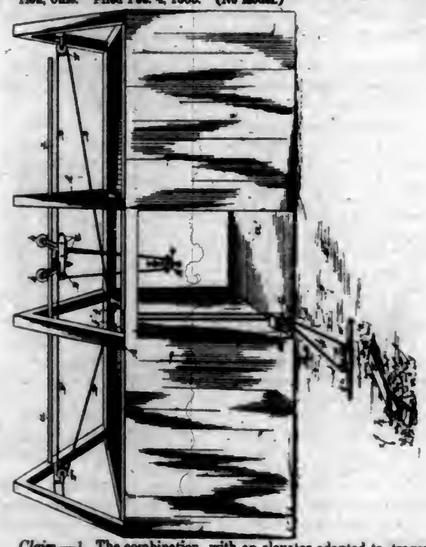


Claim.—1. In an apparatus for generating heating and illuminating gases from atmospheric air, petroleum or other hydrocarbons, and superheated steam, the combination of a heating-chamber, one or more retorts for decomposing and fixing the gases, an injector, and a tubular atomizer of approximately the same length as the retorts exterior to said chamber in which the petroleum or other hydrocarbons are vaporized and then blended with the steam and air, substantially as described.

2. In an apparatus for generating heating and illuminating gases from atmospheric air and petroleum or other hydrocarbons and superheated steam, the combination of a fire-chamber with gang-pipes on either side thereof and adjacent thereto, a heating-chamber containing a series of retorts to fix the gases, an atomizer of tubular form exterior to said chambers provided with a drip-pipe, and an injector so constructed as to blend the superheated steam and air before the same comes in contact with the hydrocarbon, substantially as described.

3. In an apparatus for generating heating and illuminating gases from atmospheric air and petroleum or other hydrocarbons and superheated steam, a fire-chamber with gang-pipes for superheating the steam adjacent thereto, a heating-chamber containing a series of retorts one of which contains a gang of pipes for completing the superheating of the steam, an atomizer, an injector, and a test-jet to determine the quality of the gases produced, substantially as described.

314,872. HAY ELEVATOR AND CARRIER. BENJAMIN OBORN, Marion, Ohio. Filed Feb. 4, 1885. (No model.)



Claim.—1. The combination, with an elevator adapted to traverse a track in different directions, of a draft rope or ropes connected to the elevator and to the power, and adapted to raise the elevator and move it along the track in either direction without changing the attachment of said ropes.

2. An elevator and carrier adapted to be elevated and moved in opposite directions by the same rope or ropes without changing its attachment to the actuating-power.

3. The combination, with a carrier and an elevator, of a pair of ropes connected at one end to the carrier and passing under the elevator, and connected at their opposite ends to the actuating-power, whereby the elevator can be raised and lowered and moved in opposite directions without changing its attachment to the actuating-power, substantially as set forth.

4. The combination, with an elevator and carrier, of two ropes attached thereto, and to a draft-bar for elevating the load and moving the carriage in opposite directions, and a pulley or stop for changing the direction of the draft, and thereby causing the carriage to move in either direction along the track, as set forth.

5. The combination, with an elevator and carrier, of an operating-rope leading therefrom and returning thereto, forming a circuit, and a pulley for changing the direction of the draft, and thereby determining the direction of the movement of the carrier, substantially as set forth.

6. The combination, with the elevator and a stationary cam, of a hook gravity-latch having a rocking motion transversely to the length of the carriage, and adapted to be positively operated by the cam and movable block, substantially as set forth.

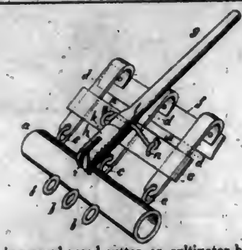
7. The combination, with the elevator and a stationary cam, of a hook-latch adapted to rock transversely to the carriage, and a stationary guard adapted to act in conjunction with the latch in releasing the movable block therefrom, substantially as set forth.

8. The combination, with a track secured to a barn or store-house, and a carriage mounted on the track, of draft-ropes secured to the carriage and to the actuating-power, said draft-ropes passing around pulleys secured to the barn or store-house, and devices, substantially as described, whereby the load is locked in elevated position and automatically changed from one direction to the opposite without changing the combination, substantially as set forth.

9. The combination, with a track secured to a frame, and an elevator mounted on the track, and draft-ropes secured to the elevator, of a set of fixed pulleys for adjusting the ropes in a circuit, and the actuating-power secured to the draft-ropes, as described, to operate the car in different directions, elevate the load to the elevator, and alternately change the direction of the carrier, substantially as set forth.

314,873. CULTIVATOR AND WEED-CUTTER. SETH E. A. PALMER, San Bernardino, Cal. Filed Sept. 9, 1883. (No model.)

314,873.



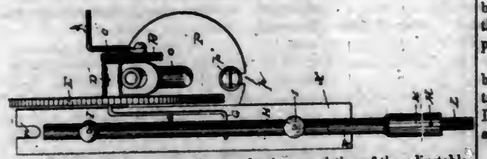
Claim.—The improved weed-cutter or cultivator herein described, consisting, essentially, of the tubular cross-beam *a*, carrying the front and rear eyes, *b* and *c*, and the rearwardly-extending knife-bars *d*, secured at the forward ends to the eyes *c* of the tubular cross-beam, and at the rear curved ends to the transverse bar *e*, connecting the knife-bars and carrying the eyes *n* to receive the ends of the hooks *m*, which hook has its bearing in a lateral perforation in the handle *g*, which is hinged at its forward end to the said tubular cross-beam *a*, the whole adapted to operate substantially as and for the purposes specified.

314,874. GAS-COCK. DAVID M. PARKER, Boston, Mass. Filed Apr. 14, 1884. (No model.)



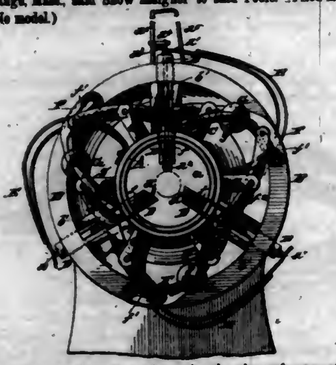
Claim.—A gas fixture having a stop-cock, E, provided with a check-groove, P, and openings or cavities L and T, forming the gas-passage through the cock, and a screw, N, adapted to pass through said groove when the stop-cock is turned, substantially as described, as and for the purposes set forth.

314,875. CHURN-POWER. CHAS. W. PATTON, Houston, Tex. Filed June 3, 1884. (No model.)



Claim.—A churn-operating mechanism consisting of the adjustable board P, having open-ended slots, as described, bracket O upon said board, and the crank and wheels supported by said bracket, the board N, having the brackets I I, and being provided with open-ended slots for adjusting it up and down, a shaft, H, working in brackets I I, and link G, connecting shaft H to one of the wheels, said shaft H having a hollow lower end, and the churn-dasher handle L, provided with the openings *l* at various heights, and pin M, for connecting parts H and L, as set forth.

314,876. WOOD-PEELING MACHINE. LORENZO POOLE and FRED P. SNOW, Orange, Mass.; said Snow assignor to said Poole. Filed Aug. 2, 1884. (No model.)



Claim.—1. In a machine to peel or trim the circumference of logs, the combination, with the horizontal feeding-cylinder A, case B, surrounding the same, and springs E, having one end fixed to the said case, the radial cutter-bars D D, having their inner ends provided with cutters, and sliding on ways c c, secured to the case, and means for connecting said cutter bars in such manner that the movement of one will cause all the others to move equally toward or from the center of the feeding-cylinder, substantially as specified.

2. In a machine for trimming the circumference of logs, the combination, with the horizontally-arranged feeding-cylinder, case surrounding the same, and the springs having their free ends engaging the outer ends of the cutter-bars, the cutter-bars sliding in ways arranged radial to the aperture of the said feeding-cylinder, the links F, pivoted to the outer ends of the rods *f*, links f^2, pivoted to the said links F, the supports C, extending from the case, and the counterbalancing-weights pivoted to the said supports, substantially as specified.

3. In a machine to peel or trim the circumference of logs, the combination, with the feeding-cylinder A, case B, and springs E, of three or more cutter-bars, D D D, sliding in proper ways c c, fixed to the case, and connected by proper mechanism to make all three move together equally and similarly, two of said bars having proper cutters *d* attached to their inner ends, and the third being provided with the roller d^2, rod d^3, guide d^4, engaging properly the bar d^5, attached to the case, substantially as specified.

314,877. WIRE FENCE. HUGH B. RAINS and GEORGE TARRINGTON, Danville, Ky. Filed July 10, 1884. (No model.)



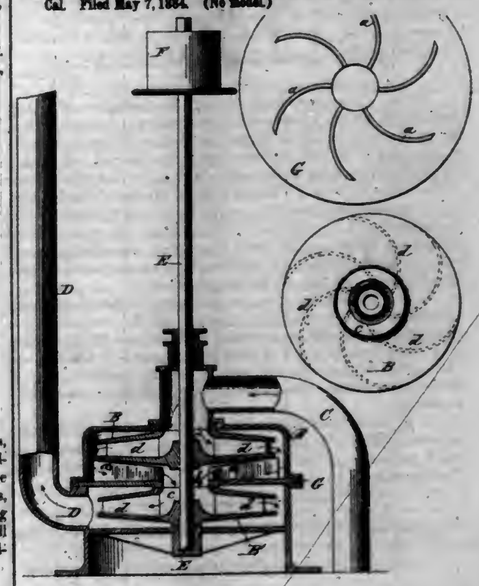
Claim.—1. The combination, with the post A, of the horizontal arm provided with an eye at its outer end and secured to said post on a level with the ground by a bolt-and-nut connection, the spool in the eye of said arm, and the two inclined braces secured to the spool and the post by bolts, substantially as specified.

2. The combination, with the fence posts and wires, of the guide-brackets comprising diagonally slotted or divided bases, and eyes having their ends secured each to a section of the said bases, as and for the purpose set forth.

3. The combination, with the fence posts and wires, of the guide-bracket comprising the base portion I^2, diagonally slotted or divided centrally, as shown, to allow the passage of the wires, and the metallic eye I', having its ends secured to the base portion on each side of the slot, as and for the purpose set forth.

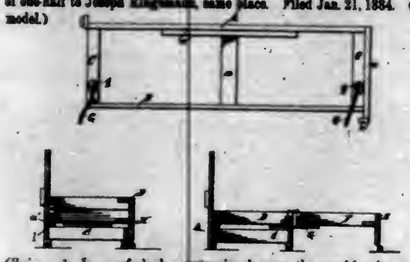
4. The combination, with the end post, of horizontal arms attached to the same at one end, a spool fitted to the other end of the arm, and braces connected to the spool and attached to said end post, arranged and operating as described, whereby when the strain comes on the braces the spools will yield or turn slightly with the said braces, for the purpose set forth.

314,878. CENTRIFUGAL PUMP. JOHN RICHARDS, San Francisco, Cal. Filed May 7, 1884. (No model.)



Claim.—In a centrifugal pump, the combination of the pump-casing A, provided with one or more horizontal diaphragms, G, having central opening, *b*, and provided on the upper side with curved vanes *a a*, the vertical driving-shaft E, having a weighted pulley, F, the runners B B', mounted on said shaft, the suction-pipe C, communicating with the top of the upper compartment of the pump-casing and surrounding the driving-shaft, and the discharge-pipe D, leading from the lower compartment at the side, whereby the thrust of the water is balanced by the weight of the driving-shaft and its attachments and the pump-casing made to retain a quantity of water after the runners are stopped, substantially as described.

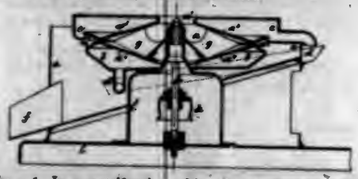
314,879. SOFA-BED. FRANZ RINGMANN, Cincinnati, Ohio, assignor of one-half to Joseph Ringmann, same place. Filed Jan. 21, 1884. (No model.)



Claim.—1. In a sofa-bed or extension-lounge, the combination, substantially as before set forth, of the stationary frame with the seat and bed frame, and the links G, having their opposite ends bent in opposite directions, the lower ends being pivoted in vertical sockets in the top side of the stationary frame, and the upper ends in similar sockets in the under side of the seat and bed frame.

2. The combination, substantially as specified, of the stationary frame A, having vertical sockets *g* on the upper side of its end rails, and the movable frame E, having similar sockets in the under side of its end rails, with the metal coupling-links G, the opposite bent ends of which are pivoted in said sockets, uniting the two frames, and the folding seat-frame D D', hinged to the inner rail of frame E, whereby it may unfold over the stationary frame when the frame is extended, and form in connection with frame E a broad level bed.

314,880. CONTINUOUS-ACTING CENTRIFUGAL DRYING-MACHINE. EDWARD C. ROSTRON, Brunswick, Germany, assignor of two-thirds to Heinrich Furchmann and Carl Hammer. Filed Sept. 6, 1884. (No model.) Patented in Germany Apr. 24, 1884, No. 29,606; in France Apr. 28, 1884, No. 161,779; in Belgium June 5, 1884, No. 65,397, and Aug. 2, 1884, and in England July 16, 1884, No. 10,232.



Claim.—1. In a centrifugal machine, the combination of a rotary shaft and the stationary section of a draining vessel or drum mounted on said shaft, with a movable section of said draining vessel or drum having its outer edge in line with the outer edge of the stationary drum-section, and automatic means for holding such edges together and allowing them to separate to discharge the drained contents, substantially as described.

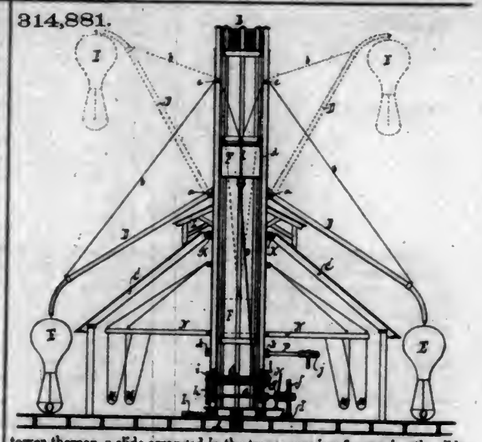
2. In a centrifugal machine, the combination, with the rotating draining-vessel made of two perforated sections having a concentric discharge-slit between the same, of an elastic ring applied to the draining-vessel and covering the discharge-slit until the pressure of the material is sufficient to remove said ring, substantially as described.

3. In a centrifugal machine, the combination of the rotating draining-vessel having a concentric slit or opening, and the permeable surface surrounding said slit and against which the dried material issuing from the draining-vessel is caused to strike for the purpose of allowing any liquid parts adhering to the said parts of the said material to separate therefrom and to escape through the said permeable surface, substantially as described.

4. In a centrifugal machine, the combination, with the lenticular perforated sections a^3 a^4, having outer curved rims, a^5, and plates *g*, the shaft *h*, and casing *e*, of the troughs *c* and *b*, gutter *d*, and discharge-spout *d'*, substantially as described.

314,881. ROUNDABOUT. WILLIAM SAMBACH, Brooklyn, N. Y. Filed July 24, 1884. (No model.)

Claim.—1. The combination of a supporting base or platform, a



tower thereon, a slide arranged in the tower, gearing for moving the slide vertically, arms connected with the slide, and carriers supported by arms and raised and lowered by the vertical movement of the slide, substantially as described.

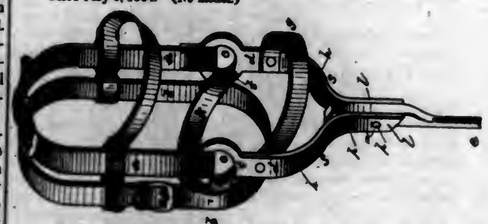
2. The combination of a supporting base or platform, a rotating tower thereon, a slide in the tower, gearing for moving the slide vertically, and arms carrying carriers and raised and lowered by the vertical movements of the slide, substantially as described.

3. The combination, substantially as hereinbefore described, with a tower, B, mounted so that it can be rotated, and a base, A, of the balloon-shaped carriers, the slide F, arms D, cables or ropes *b* and *e*, the windlass G, gears *i h f*, and circular rack I.

314,882. VENTILATOR. ALFRED S. SEAMAN, Frackville, Pa. Filed July 12, 1884. (No model.)

Claim.—As an improved article of manufacture, the ventilator herein described, consisting of the frame A, composed of a single piece, having its upper and lower longitudinal edges provided with the rabbets *d* and *i*, its outer face longitudinally grooved or recessed to receive the slide and provided with transverse apertures, the perforated slide arranged in said groove, the slide knob having its shank extending through the elongated slot in the frame A, and the covering-strip having the longitudinal slot *g*, covered with wire-gauze I, and its opposite end extended to engage the window-ways of a window-casing, substantially as shown and described.

314,883. HORSE AND MULE POKE. WILLIAM SIMMS, Lebanon, Tenn. Filed July 9, 1884. (No model.)

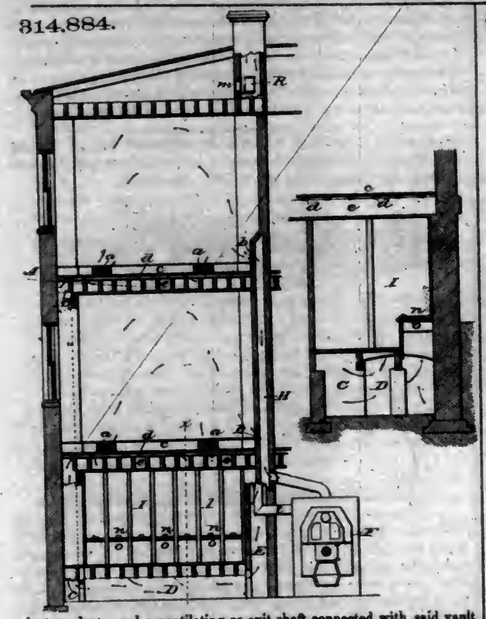


Claim.—In an animal-poke, the combination, with the headstall, of the perforated arms *d d*, having the lap-rings *c c*, the jaw-band connected to said rings, and the nose-band riveted to the arms, substantially as specified.

314,884. DRY CLOSET, &c. ISAAC D. SHEAD, Toledo, Ohio. Filed Aug. 13, 1884. (No model.)

Claim.—1. The combination and arrangement of one or more ducts for the removal of the foul air from a room or rooms of a building, a vault for receiving and retaining the fecal deposits, connected with said

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duct or ducts, and a ventilating or exit shaft connected with said vault, whereby the warm air from within the building is made to desiccate or dry the deposit in the vault and remove all odors therefrom to the outer air, as set forth.

2. The combination, in a building, of a series of foul-air ducts, B, a gathering-room, C, a vault, D, and a ventilating or exit shaft, E, with means, substantially such as described, for creating a draft through the same, substantially as and for the purpose set forth.

3. A dry closet arranged in relation to the ducts which convey the air from the room or rooms in a building and the ventilating or exit shaft, substantially as shown and described, whereby the foul and warm air from the room or rooms is made to pass through said dry closet, and thence out through the ventilating-shaft, as and for the purpose set forth.

314,885. GLASS JAR FOR FIRE-EXTINGUISHING COMPOUNDS AND OTHER SUBSTANCES. JAMES R. SMITH, Chicago, Ill., assignor to Henry C. Buhoup, same place. Filed Mar. 2, 1885. (No model.)



Claim.—A jar provided with a stopple of glass or other frangible material resting upon an annular shoulder in the neck of said jar, which shoulder terminates in an annular cavity for the reception of the sealing substance, the said stopple being of lighter construction than the shoulder upon which it rests, substantially as and for the purpose set forth.

314,886. FIRE-EXTINGUISHING COMPOUND. JAMES R. SMITH, Chicago, Ill., assignor to Henry C. Buhoup, same place. Filed Mar. 2, 1885. (No specimens.)

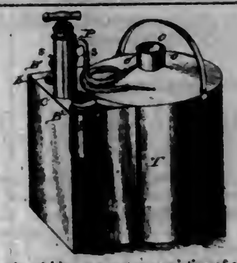
Claim.—The liquid herein described for extinguishing fires, consisting of a solution of sulphite or hyposulphite of soda and of muriate of ammonia.

314,887. FIRE-EXTINGUISHING APPARATUS. JAMES R. SMITH, Chicago, Ill., assignor to Henry C. Buhoup, same place. Filed Mar. 2, 1885. (No model.)

Claim.—1. A portable tank for holding liquid, provided with a pocket for holding a portable pump to be used in connection therewith and a central opening for filling, and in which said pump is secured when in use.

2. A fire-extinguishing apparatus consisting of a portable tank or bucket provided with a pocket for holding a portable pump and means for securing said pump in the mouth of such tank, and also provided with additional pockets to contain extra charges of dry chemicals, substantially as and for the purpose set forth.

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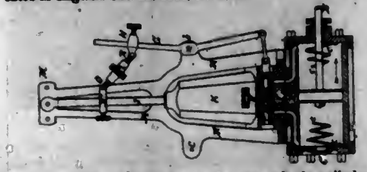
3. A fire-extinguishing apparatus consisting of a vessel or tank provided with one or more openings, O O, in its mouth, in combination with a pump provided with one or more springs, with lugs arranged to fit into said openings, substantially as and for the purposes shown.

314,888. NUT-LOCKING SPRING-WASHER. JOHN SMITH, Verona, assignor of two-thirds to F. G. Kay and James I. Kay, Allegheny City, Pa. Filed Apr. 28, 1884. (Model.)



Claim.—In nut-locks, the combination, with the bolt and nut, of the plate-metal spring-washer curved in opposite directions on central lines at right angles to each other, substantially as and for the purposes set forth.

314,889. MARINE-ENGINE GOVERNOR. RALPH J. SMITH, John Street, Sunderland, England. Filed May 13, 1884. (No model.) Patented in England Dec. 23, 1881, No. 5,637.



Claim.—1. The combination of the atmospheric cylinder having a piston-rod to connect with the throttle-valve of a marine engine, a valve-casing open to the external atmosphere and containing a slide-valve, and a pipe for connecting the valve-casing with the condenser of the engine, with the pendulum, and connections between the pendulum and the air-cylinder valve for automatically regulating and controlling the admission of steam to the marine engine by the suction or vacuum in the atmospheric cylinder operating the piston therein, substantially as described.

2. The combination of the piston, the air-receiving cylinder in communication with the external atmosphere, the valve-casing open at its ends, and having a port to connect with a condenser, the cylinder air-valve, the pendulum, and adjustable connections between the air-valve and pendulum for controlling the admission of steam to a marine engine by the suction or vacuum in the air-cylinder actuating the piston therein, substantially as described.

3. The combination of the pendulum swiveled by a joint, whereby it can swing with the air-cylinder in communication with the external atmosphere, the air-valve, the open valve-casing, the pivoted lever connected with the valve, the collar vertically adjustable on the stem of the pendulum, and a lengthwise-adjustable connection between the pivoted lever and the collar, substantially as described.

314,890. HORSESHOE-BLOCK. GEORGE G. SNYDER, Middaugh, Pa. Filed Feb. 18, 1884. (Model.)



Claim.—A supplemental horseshoe constructed with a rough beveled tread-surface, combined with a permanent shoe and with the described fastening device, consisting of strap *l* at the toe, and strap *p* passing through the adjustable loop *r* at the heel of the shoe and connected with the strap *l*, substantially as set forth.

314,891. ELECTRICAL INDICATOR. FRANK J. SPRAGUE, New York, N. Y. Filed Jan. 24, 1884. (No model.)



Claim.—1. In an electrical indicator, the combination of a coil forming part of a circuit, a core magnetized from said coil, and a movable arm or needle magnetized from said core and placed in proximity to a conductor of the circuit the variations of whose current are to be indicated, substantially as set forth.

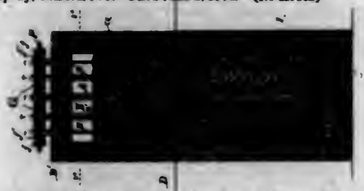
2. In an electrical indicator, the combination of a coil forming part of a circuit, a movable core magnetized from said coil, and a magnetic extension attached to said core and placed in proximity to a conductor of the circuit, substantially as set forth.

3. In an electrical indicator, the combination of a coil forming part of a circuit, a movable core magnetized thereby, and two magnetic extensions of said core, both affected by the current in the conductor, substantially as set forth.

4. The combination, with the coil, the movable core magnetized thereby, and the one or more extensions in proximity to the conductor, of an adjustable weight or spring attached to said core and opposing the movement of said extension or extensions, substantially as set forth.

5. The combination, with the coil, of the core pivoted at its ends centrally within said coil, the one or more magnetic extensions of said core situated in such proximity to a conductor of the circuit the variation of whose current are to be indicated as to be affected by variations in the magnetic field surrounding such conductor, and the scale indicating the movements of said extensions, substantially as set forth.

314,892. SECONDARY BATTERY OR ELECTRIC ACCUMULATOR. ELI T. STARR, Philadelphia, Pa., assignor to the Starr Electric Storage Company, Camden, N. J. Filed June 2, 1884. (No model.)



Claim.—1. A battery-plate having substantially parallel strips arranged horizontally and separated one from another by separating portions or washers, so as to form free spaces between the strips for the circulation of the battery-liquid, said strips being united together by a separate connecting rod or rods or strips passing transversely through them, substantially as described.
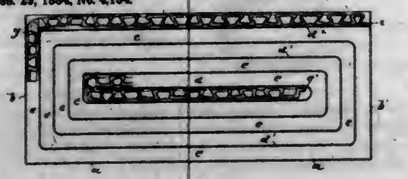
2. A battery-plate made up of strips having slotted ends, said strips being united together partially or wholly by a connecting strip or rod let into the slotted ends of the strips, substantially as described.

3. A battery-plate having single longitudinal strips of V or equivalent retaining form, said strips being placed one above another and rigidly united together with spaces or recesses extending transversely through the battery-plate, substantially as described.

4. A battery element or electrode made up of two or more plates the terminals of which are united together by a transverse bolt passing through them, said bolt also passing through a separate tubular conducting washer or washers or pipe-pieces interposed between the terminals of said plates, substantially as described, whereby the terminals of the plates are firmly clamped and united together and good electrical connection insured.

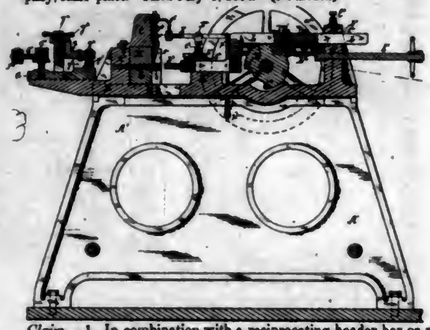
5. The combination, with a slotted battery-box, of electrodes or battery-plates therein, the terminals or extended portions of which plates project through a slotted cover of said box, and are connected together by a bolt passing transversely through them and through a separate intermediate conducting washer or washers or pipe-pieces, substantially as described.

314,893. SHOW-BOX. EDWARD S. B. TOMS, London, County of Middlesex, England. Filed Dec. 23, 1884. (No model.) Patented in England Feb. 29, 1884, No. 4,154.



Claim.—A box or receptacle constructed with superposed supports forming a spiral, coiled, or zigzag passage in which trimmings or other like materials are contained, the said passage at its upper or outer end opening to or terminating at the exterior of the box for the egress of the trimming or like material which may thus be displayed along the top, end, or side of the box, all substantially as hereinbefore described.

314,894. MACHINE FOR MAKING WROUGHT NAILS. WILLIAM TRURAN, Allegheny City, Pa., assignor to the Pittsburg Steel Nail Company, same place. Filed July 8, 1884. (No model.)



Claim.—1. In combination with a reciprocating header bar or ram having an engaging-lug thereon, a cam mounted on a shaft at right angles to and on a different plane from the ram and engaging with said lug, said cam having releasing and withdrawing shoulders and a depression between them, and a continuous concentric face the full diameter of the cam extending from said withdrawing-shoulder to said releasing-shoulder, substantially as and for the purposes set forth.

2. In combination with the spring-actuated header bar or ram mounted in bearings and having the lug *m* on the under face thereof, the cam B, mounted on a shaft below and at right angles to said header-bar, and having the concentric face *b*, shoulders *b'* *b²*, and depression *b³*, substantially as and for the purposes set forth.

3. In combination with the reciprocating header-bar L, carrying the threaded loop *n*, the lug *m*, adjustably secured to the header-bar, and adjusting-screw *n'*, passing through loop and fitting against said lug *m*, substantially as and for the purposes set forth.

4. In combination with the reciprocating slide, bearings or guides therefor having the adjusting-screws *l* extending through the top plates of the bearings and carrying wearing-plates *l²*, substantially as and for the purposes set forth.

5. In nail and like machines, the combination, with the grippers, of reciprocating feeding mechanism carrying one or more feeding-wheels binding upon the rod or wire, so as to feed it forward, and on the return of the feeding mechanism stretch and straighten it, substantially as set forth.

6. In nail or like machines, the combination, with the grippers, of reciprocating feeding mechanism carrying one or more feeding-wheels having corrugated working faces and binding upon the wire, so as to hold and feed forward the rod or wire, and on the return of the feeding mechanism travel over and corrugate it, substantially as set forth.

7. The combination of the reciprocating base-plate G, having the standard g^4, lever *g*, carrying the feeding-wheel g^3, and extending over or around said standard, spring g^5, and hand-wheel g^6, substantially as and for the purposes set forth.

8. The combination of the reciprocating base-plate G, mounted in guides in the bed-plate, pivoted vibrating bar F^2, and double-pivot link G', pivoted to the base-plate and vibrating bar, substantially as and for the purposes set forth.

9. The combination of the pivoted vibrating bar F^2, the horizontal guide F^4, crank F, pitman F', fitting within the vertical guide F^3, and the sliding joint *f*, substantially as and for the purposes set forth.

10. In combination with the horizontally-vibrating bar F^2, having the cylindrical stem f^2, the vertically-vibrating pitman F', and the sleeve *f'*, pivoted at the end of the pitman and fitting over said stem, substantially as and for the purposes set forth.

11. In combination with the die-box, the gripper having the bar k^2, extending out at the side of the box, the standard *s*, and adjusting-screw *s'*, substantially as and for the purposes set forth.

12. In combination with the reciprocating slide working in a guide in the bed-plate and having the slot *i*, the bolt *i'*, extending through the top plate of the guide, and having the eccentric-lug fitting in said slot, substantially as and for the purposes set forth.

13. In nail-machine apparatus, the combination of the slide D', having the idle-roller D^2 and the cam D, said cam having a groove in a portion of the working face thereof in the course of the idle-roller, and the removable shoe *u*, fitting within said groove, substantially as and for the purposes set forth.

14. The combination of the cam E, lever E' operated thereby, and retracting-spring, the vertically-moving bar *r*, mounted in the bracket *t*, and the spring r^3, substantially as and for the purposes set forth.

15. The combination of the vertically-moving bar *r*, mounted in the bracket *t*, spring r^3, confined within said bracket under a pin in said bar, and power-lever E', having the forked arm *r'*, extending on either side of said bar above said pin, substantially as and for the purposes set forth.

16. The combination of the cam E, lever E', operated by said cam, and having its opposite end connected to suitable mechanism operated thereby, the rod *p'*, secured to the lever and extending through the bed-plate, and the spring *p* and rubber sleeve p^3 around said rod, substantially as and for the purposes set forth.

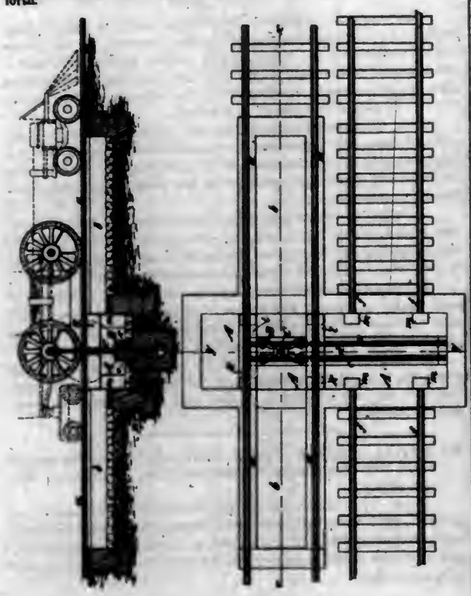
314,895. APPARATUS FOR REMOVING AND REPLACING CAR-WHEELS. JACOB H. VREELAND, Jersey City, N. J. Filed Sept. 18, 1884. (No model.)

Brief.—In a device for removing and replacing the driving-wheels of locomotives for repair or otherwise, a truck having mounted thereon a powerful hydraulic jack is run on the track in the pit under the engine, the jack is pumped up, its ram-head bearing up the axle, and the engine thereby lifted. The removable rail-sections are then taken away and the jack allowed to run down, carrying the wheels far enough to be removed under the engine. The truck is then run along the track in the pit until in line with a second track, when the jack is again pumped up, raising the wheels above the rails. The bridging-rails are inserted, and the wheels can then be run off where desired.

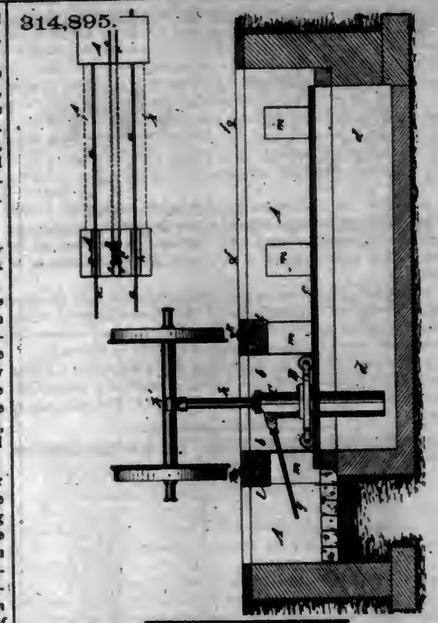
Claim.—1. An apparatus for removing or replacing engine or car wheels, consisting in the combination, with the track or rails on which the engine or car is supported, of a pit beneath the same having an opening in the track under the engine and an opening beyond the position of the engine, with a movable jack or equivalent lifting-machine movable in the pit from one opening to the other, and having its ram capable of being raised or lowered, whereby the wheels may be lifted from the engine, and, the supporting-rails being removed, may be then lowered in the pit and thence transported to the distant opening and raised out of the same, substantially as herein set forth.

2. In a wheel removing and replacing apparatus, the combination, with the supporting track or way, of a pit beneath the same opening under the supporting-track at one end and extending therefrom and opening beyond the track at the other end, with removable bridge-rails bridging the pit at the supporting-track, a movable truck or carrier arranged to move in the bottom of the pit from one opening to the other, and a hydraulic jack or equivalent raising and lowering machine, arranged and operating substantially as and for the purpose set forth.

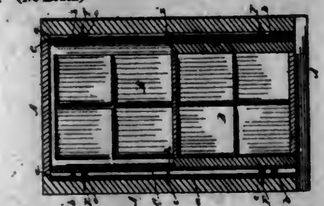
3. In a wheel removing and replacing apparatus, the combination, with the supporting-track and an additional side or transfer track, of a pit extending transversely beneath both tracks and opening beneath the same, with a movable truck or carriage arranged to move in the bottom of the pit from one track to the other, and a lifting and lowering jack or machine thereon, with movable bridging-rails arranged to bridge the pit coincident with either track, substantially as and for the purpose set forth.



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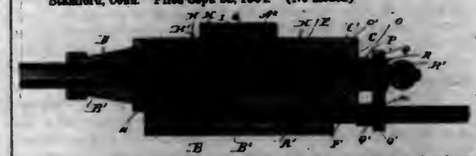


314,896. SASH-HOLDER. ALBERNON L. WILKINSON, Huntsville, assignor of one-eighth to John L. Rison, Madison County, Ala. Filed Oct. 7, 1884. (No model.)



Claim.—In a sash-holder, the combination of a window-frame having guide-pins, and spring-pressed strips provided with tubes, with a sash, and beads or slats having recesses, guide-pins, and spring-pressed strips provided with friction-tubes in which said guide-pins are adapted to play, substantially as shown and described.

314,897. ROCK-DRILL. WILLIAM R. WILLETTS and HARRY BALL, Stamford, Conn. Filed Sept. 22, 1884. (No model.)



Claim.—1. The cylinder and steam-chest having steam and exhaust ports, in combination with a rock-shaft held in place by cap M, and having an arm which carries a valve adapted to slide over said ports, and a cross-piece acted on by pins which are alternately lifted by inclines on the piston, whereby the rock-shaft is vibrated and the valve carried from one port to the other to admit steam alternately above and below the piston.

2. The piston, rod E engaging therewith and having a ratchet and pawls to hold it against rotation in one direction, in combination with a gear upon the feed-rod, a loose gear upon rod E, and means, as a sliding clutch-plate keyed to said rod, whereby the loose gear and the gear upon the feed-rod may be connected or disconnected, substantially as and for the purpose set forth.

3. The feed-rod, free to rotate in the base of the cylinder and carrying a gear, Q', in combination with a recessed piston, a rod, E, having spiral grooves engaging therewith, the ratchet and pawls, a loose gear upon rod E, a sliding clutch-plate held against rotation on said rod, and a knob for forcing the clutch-plate into engagement with the loose gear, whereby the automatic feed may be connected or disconnected.

314,898. SOLE-EDGE-TRIMMING TOOL. CHARLES W. WILSON, Lynn, Mass. Filed Sept. 20, 1884. (No model.)

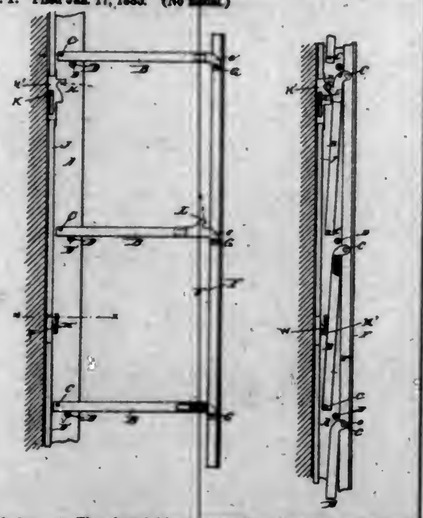


Claim.—1. In a sole-edge-trimming tool, in combination, a series of independent cutters and a central hub provided with radial arms having each a vertical slot, said arms being backed off, as described, and the cutters having shanks adapted to the vertical slots, substantially as described.

2. In a sole-edge-trimming tool, the combination, with the upper guard, C, having discharge-openings, of the cutter-knife having its corner next the plate C beveled off, whereby a throat is formed between the same to allow escape for the rand-chips, substantially as described.

3. The combination of the central hub, A, the radial arms *a*, having vertical slots *e*, the cutter-knives *n*, having shanks fitting between the walls of the vertical slots *e*, and the clamp-screw *f*, all substantially as set forth.

314,899. FIRE-ESCAPE LADDER. ROBERT M. WILSON, New York, N. Y. Filed Jan. 17, 1885. (No model.)



Claim.—1. The slotted hinge connecting the outer end of each round with the central flange of the outer T-rail of the ladder, which consists of the curved knuckles projecting upon one side of the longitudinal axis of the round to embrace the flange, a pivot-pin passing transversely through the knuckles and flange, and a stop-surface formed at the inner end of the slot, between the knuckles, to abut against the edge of the flange when the round is lifted at a right angle thereto, substantially in the manner and for the purpose herein set forth.

2. The combination, with a vertically-moving bar within the stationary case of the ladder and with a catch upon the outer end of one of its rounds, of a catch or detent fixed to or formed integral with the bar, in position to engage the catch upon the round when the latter is closed up into the case, substantially in the manner and for the purpose herein set forth.

3. The combination, with a beveled or inclined faced lug or offset formed upon or secured to the outer face of the vertically-moving bar in the stationary case of the ladder, of a counterpart inclined faced lug or offset upon the outer end of one of the pivoted rounds of the ladder adapted to rest against the lug or offset on the bar when the ladder is closed, so that a movement of the bar shall operate to force out the round therefrom, substantially in the manner and for the purpose herein set forth.

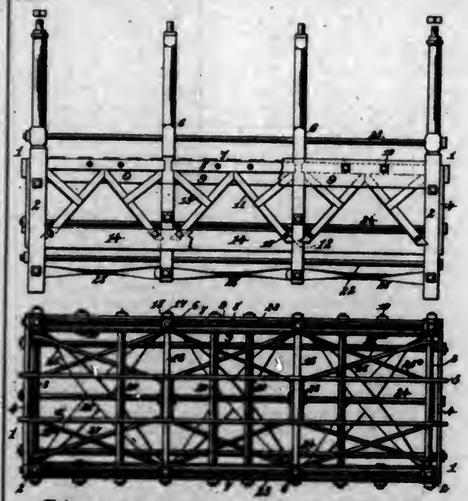
4. The combination, with the vertically-moving locking-bar fitted within the stationary case of the ladder, of a lever pivoted outside of the case, and constructed with a curved arm projecting through the side of the case to engage directly a lug or recess upon the face of the bar, and adapted thereby when swung outward to lift said bar, substantially in the manner and for the purpose herein set forth.

5. The combination, with the vertically-moving locking-bar fitted within the stationary case of the ladder, of a horizontal pivoted lever whose shorter arm engages the bar directly and whose longer arm projects laterally from the case, so that pressure exerted upon said outer arm shall operate to lift the locking-bar, substantially in the manner and for the purpose herein set forth.

6. The combination, with the vertically-moving locking-bar within the stationary case of the ladder, and with a horizontal pivoted lever whose inner shorter arm engages the bar to lift the same, of a fixed bar extending parallel with the outer end of the lever and a transverse locking bolt or hasp led through an aperture in said fixed bar to lock and prevent the movement of the lever, substantially in the manner and for the purpose herein set forth.

314,900. SUSPENSION-BRIDGE. SOLON T. WILSON, Echo, Tex. Filed Oct. 4, 1884. (No model.)

Brief.—Employs intermediate diagonal bracing between king-abutments consisting of long braces having their lower ends resting in notches in the king-posts and meeting beneath the center of the sill-pieces intermediate of said posts, and short braces half-mortised upon the long braces and resting against the king-posts and ends of the side pieces. Lower diagonal sills connect the extremities of the posts, said sills being fastened between the posts and their tie-bars. The two central posts between the king-abutments are connected by king-beams. V-shaped braces are bolted to one king-beam, and have their ends engaging the studs of the adjacent beam. Provides stringers notched over the king-beams.



Claim.—1. An under-brace truss-bridge having a series of king-abutments and intermediate diagonal bracing, consisting of long braces resting in notches in the king-posts and meeting beneath the center of the sill-pieces intermediate of said posts, and short braces half-mortised upon the long braces and resting against the king-posts and the ends of the said sill-pieces, substantially as described.

2. In an under-brace truss-bridge, the combination, with the king-posts, of lower sills connecting the extremities of the posts, said sills being fastened between the posts and the ends of the tie-bars connecting the same, and extending diagonally from side to side of the bridge, substantially as described.

3. In an under-brace truss-bridge, the combination, with the king-abutments 1, of the king-posts 6, connected by king-beams 16, the side braces composed of the long and short arms 11 and 13, the center sills, 8, and transverse tie-rods, substantially as described.

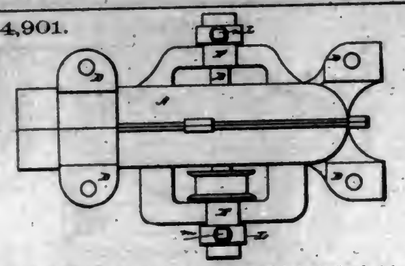
4. In an under-brace truss-bridge, the combination, with the king-posts having connecting king-beams, of inside V-shaped braces bolted upon one beam and having their ends engaging with the studs upon the adjacent beams, substantially as described.

5. In an under-brace truss-bridge, the combination, with the king-abutments 1, having king-beams 4, of the king-posts 6, having king-beams 16, and the stringers 5, notched upon the king-beams, substantially as described.

314,901. BLOWER. JAMES F. WINCHELL, Springfield, Ohio, assignor to the Foos Manufacturing Company, same place. Filed Jan. 17, 1885. (No model.)

Claim.—1. A blower-case having perforated feet or bearings D, and at right angles thereto perforated feet or bearings E, whereby the blower may be adjusted in high or low position to a vertical or horizontal support without or with a change of direction of the blower-spout, substantially as specified.

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2. An adjustable blower-case having four oil-holes in the shaft-bearing at right angles to each other, substantially as specified.

3. An adjustable blower-case having four oil-holes in the shaft-bearing, an adjustable oil-cup having a bearing extending around the shaft-bearing, a perforated projection entering the upper oil-hole, and a set-screw adapted to secure the oil-cup and its bearing firmly in position, substantially as specified.

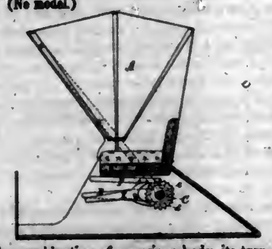
4. The combination, with an adjustable blower-case, of an adjustable oil-cup, substantially as specified.

314,902. FASTENING DEVICE FOR HORSE-BLANKETS. WILLIAM I. WINNE, Albany, assignor of one-half to James Godwin, New York, N.Y. Filed Sept. 13, 1884. (No model.)



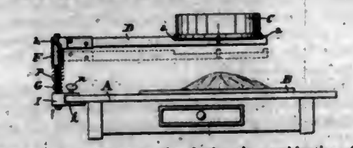
Claim.—A fastening device composed of the eye-piece A, provided with the eye *a*, and the hook-piece B, as shown, provided with the hook *b*, as herein described, the eye-piece A and hook-piece B being each provided with the fastening-pin C, the greatest external width of the hook *b* exceeding the greatest transverse diameter of the opening of the eye *a*, as and for the purpose herein specified.

314,903. CARRIAGE-TOP. EDWIN E. WITHAM, Stark, N. H. Filed Aug. 5, 1884. (No model.)



Claim.—The combination of a carriage-body, its turn-down hood, and the two side props of the latter with a shaft connecting such props at their lower ends, mechanism for imparting to such shaft rotary motion in either direction transversely of it, and mechanism for retaining the hood in a raised or partially-elevated position, the mechanism hereinbefore described for turning the shaft being the ratchet-wheel *d*, the lever D, and furcated lever E, and the mechanism for preventing such shaft from being "back-turned" being the ratchet-wheel *c* and the retaining-pawl or catch-lever F, all being substantially and to operate as set forth.

314,904. SIEVE-OPERATING DEVICE. RICHARD D. YOST, Glencoe, Md. Filed Dec. 17, 1884. (No model.)

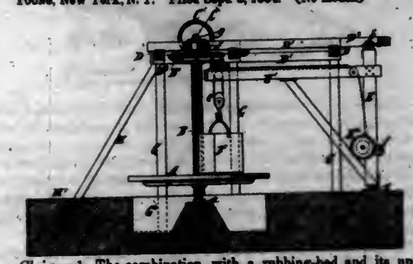


Claim.—1. In a sieve-operating device, the combination of a suitable support with an arm having a portion of its length made thin, so as to spring or vibrate in a horizontal plane, and provided at one end with a seat for a sieve, as set forth.

2. In a sieve-operating device, the combination, with an upright stud, of an arm having a portion of its length made thin, so as to spring or vibrate in a horizontal plane, provided at one end with a seat for a sieve, and loosely attached at its other end to said upright stud, and means for making it rigid therewith, whereby it may be turned in a horizontal plane or adjusted vertically, as set forth.

3. The combination, in a sieve-operating device, of an upright stud, an arm provided at one end with a seat for a sieve, and having its other end loosely attached to the upright stud, means for making the arm rigid on the stud, and a spring, *p*, about the stud bearing up against the arm, as set forth.

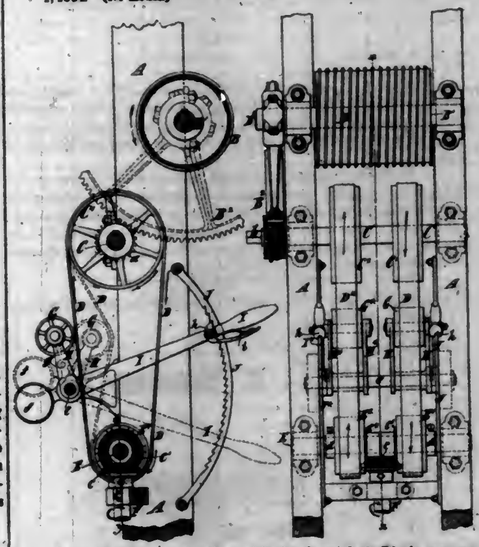
314,905. MACHINE FOR SCOURING AND POLISHING STONE. H. YOUNG, New York, N. Y. Filed Sept. 2, 1884. (No model.)



Claim.—1. The combination, with a rubbing-bed and its upright shaft and a crane, of a horizontal frame-work supporting both the upper bearing of the said shaft and the bearing of the upper pivot of the crane, substantially as herein described.

2. The combination, with a rubbing-bed, its shaft, and a gear on said shaft through which it receives motion, of a horizontal framing which supports the upper bearing of said shaft, and a crane the upper pivot of which has its bearing on or in the said framing, and the arm of which is below the said gear, substantially as herein described.

314,906. TRANSMITTING POWER TO CRANES AND OTHER HOISTING APPARATUS. HUGH YOUNG, New York, N. Y. Filed Sept. 1, 1884. (No model.)



Claim.—1. The combination, with the drum-shaft B', the power-receiving shaft C, and the wheel and pinion B^2 *a*, connecting said shafts and a pulley on the shaft C, of a continuously-rotating pulley below and in line with the pulley on said receiving-shaft, a slack belt for connecting said pulleys, a tightening-pulley and a lever, I, for applying the same, a notched bar, J, and a catch, *h*, upon the lever for engaging with said bar, substantially as and for the purpose herein described.

2. The combination, with the power-receiving shaft of a crane or hoisting apparatus and two pulleys thereon, of two pulleys arranged to rotate continuously in reverse directions below the pulleys on said power-receiving shaft, two slack belts for connecting said pulleys on the power-receiving shaft with said reversely-rotating pulleys, and tightening-pulleys movable toward and from said belts for tightening them separately, substantially as herein described.

3. The combination, with the power-receiving shaft C and its pulleys C' C², of the lower shaft, E, loose pulleys and bevel-wheels E' e' E² e² on said shaft E, the shaft F and its wheel e, the belts D D², and mechanism for separately controlling said belts, substantially as herein described.

314,907. LOOM-SHUTTLE. ABEL T. ATHERTON, Lowell, Mass. Filed June 7, 1884. (No model.)



Claim.—1. The combination, with the shuttle-body formed with a delivery-eye, and the shoulder or stud around the corner formed by which the thread or yarn from the spindle passes to the delivery-eye, of a spring-controlled strip bridging the space through which the thread passes between said stud or shoulder and shuttle-body, adapted to yield to the thread as the latter is drawn under it into said space and to automatically close after the passage of the thread, substantially as and for the purposes hereinbefore set forth.

2. The combination, with the shuttle-body formed with delivery-eye G, threading-slot K, threading-eye H, and throat D, of the stud or shoulder E and spring-strip, *d*, under the arrangement and for joint operation substantially as hereinbefore shown and described.

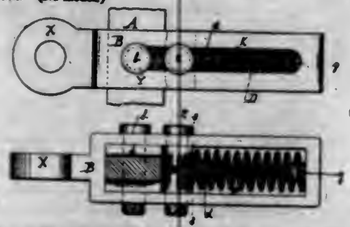
314,908. LIFTING-JACK. HENRY AUSTIN, Seymour Lake, Mich. Filed Sept. 17, 1884. (No model.)



Claim.—1. In a lifting-jack, the combination, with a suitable supporting-base and uprights, of a vertically-movable bar, a block adjustable on the same, a lever pivoted to the bar, and a connecting-bar pivoted to the lever and arranged to support the bar in its raised position, as set forth.

2. In a lifting-jack, the combination, with a suitable supporting-base and a pair of uprights, of a vertically-movable bar working between the uprights and having teeth on one of its faces, a block adapted to engage with the teeth so as to be vertically adjustable, a lever connected to the bar, and a connecting-bar pivoted at one end to the uprights and attached to the lever, arranged and operating as set forth.

314,909. DRAFT-TUG. REUBEN B. AYRES, St. Louis, Mo. Filed Dec. 12, 1884. (No model.)



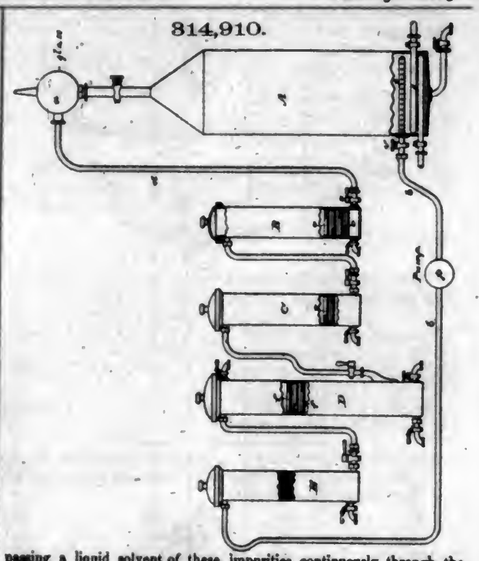
Claim.—1. In a draft-tug, the combination of the combined slotted spring-casement, whiffletree-bearing, and coupling-link B, whiffletree A, pin *b*, draft pushing-pin *c*, spiral spring D, and shoulder *g*, substantially as described, and for the purposes specified.

2. In a draft-tug, the combination of the combined slotted spring-casement, whiffletree-bearing, and coupling-link B, pin *b*, draft pushing-pin *c*, spiral spring D, and shoulder *g*, substantially as described, and for the purposes specified.

314,910. PROCESS OF PURIFYING ALCOHOL. IVAR A. F. BANG and MARIE C. A. BUFFIN, Paris, France. Filed Jan. 13, 1885. (No model.) Patented in France Aug. 17, 1883, No. 157,095.

Claim.—1. The herein-described method of purifying crude alcohol to remove from it the essential oils and aldehydes, which consists in

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passing a liquid solvent of these impurities continuously through the liquid alcohol at a normal temperature, substantially as described, whereby pure aqueous alcohol is obtained.

2. The herein-described method of purifying crude alcohol to remove from it the essential oils and aldehydes, which consists in mixing with the liquid alcohol at a normal temperature a liquid hydrocarbon, which dissolves the essential oils and aldehydes, and subsequently separating the hydrocarbon from the alcohol, substantially as set forth.

3. The herein-described process of treating crude alcohol to separate from it the essential oils and aldehydes, which consists in placing the alcohol in a suitable vessel, introducing a liquid hydrocarbon into the bottom of the vessel in order that it may ascend through the alcohol and dissolve the essential oils and aldehydes, taking the hydrocarbon from the top of the vessel, conducting it to the bottom of a vessel containing water, and causing it to ascend through the body of water, whereby the hydrocarbon holding the essential oils and aldehydes in solution is delivered free from admixture of alcohol, substantially as set forth.

4. The improved process of treating crude alcohol for the separation of the essential oils and aldehydes, which consists in placing the alcohol in a suitable vessel, passing a liquid hydrocarbon up through the mass of alcohol, taking the hydrocarbon from the top thereof, conducting it to the bottom of a vessel containing water, causing it to ascend through the water, and conducting it thence to a vessel containing calcium chloride or equivalent dehydrating agent, and passing it through said vessel, whereby the hydrocarbon holding the essential oils or aldehydes in solution is delivered without admixture of alcohol and free from moisture, substantially as set forth.

5. The improved process of separating essential oils and aldehydes from crude alcohol, which consists in passing a liquid hydrocarbon up through the mass of alcohol, thereby dissolving the essential oils and aldehydes, passing the hydrocarbon then through water to free it from alcohol, passing it then through a vessel containing some dehydrating substance to free it from water, and finally passing it through sulphuric acid, whereby the essential oils or aldehydes are taken up by the acids, leaving the hydrocarbon regenerated, substantially as set forth.

6. The improved process of separating essential oils and aldehydes from crude alcohol, which consists in adding to the alcohol a soluble salt, then adding a liquid hydrocarbon, and finally separating the hydrocarbon, substantially as set forth.

314,911. BOX FOR PRESSES. GEORGE B. BOOMER, Mount Pleasant, N. Y. Filed Jan. 26, 1885. (No model.)

Claim.—1. In oil-presses, a frame for holding the cloth adapted to surround the plate or pressing-surface, as and for the purposes set forth.

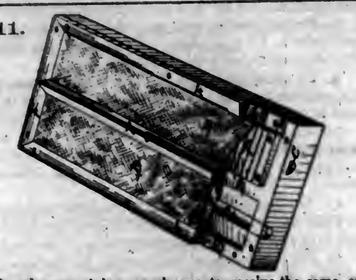
2. In oil-presses, the combination, with a perforated plate or plates, of the frame F for holding the cloth adapted to surround the plate, as and for the purposes set forth.

3. In oil-presses, the combination, with a perforated plate or plates and recessed box or plunger to receive the same, of the frame F for holding the cloth adapted to surround the plate, as and for the purposes set forth.

4. In oil-presses, a plate having grooves across the surface increasing in depth from the edges and passing through the plate at or near the center, substantially as described, and for the purpose set forth.

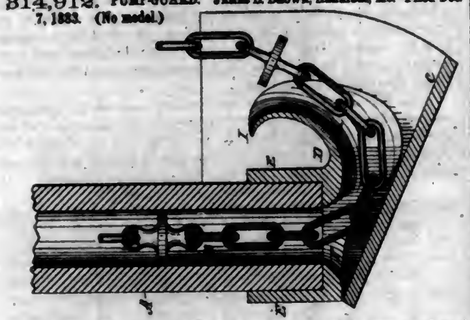
5. In oil-presses, the combination, with the grooved and perforated

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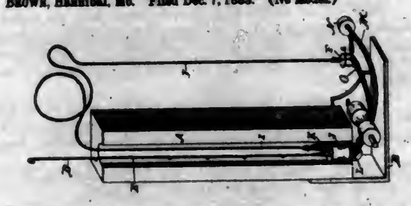
plates P P and recessed box or plunger to receive the same, of the frame F and filter-cloth D, substantially as and for the purposes set forth.

314,912. PUMP-GUARD. JAMES R. BROWN, Hannibal, Mo. Filed Dec. 7, 1883. (No model.)



Claim.—The combination, in a pump-guard, of the trumpet-shaped mouth F, extending to one side and flared out, forming the lips G G I, and the flanges E, projecting upward at a sufficient distance from the sides of the upper opening of the mouth F to admit the pump-tube A between the flanges and the said opening, substantially as shown and described, whereby the guard may be secured to a wooden tube and the end of the tube be guarded from being worn by the chain.

314,913. DEVICE FOR REPLACING PUMP-CHAINS. JAMES R. BROWN, Hannibal, Mo. Filed Dec. 7, 1883. (No model.)



Claim.—1. The combination, with the jointed rod D, having a spear-head at one end, of a conductor consisting of the head J, having a hole to receive the head of the rod, the elastic wires M, pivoted in the head J, the roller N, mounted in the wires, the grapple F, and the rope I, connecting the grapple with the conductor, as described.

2. The combination of a series of rods joined together at their ends by close hinge-joints, each rod being coiled midway into a loop, E, one end of the series of rods being hook-shaped and the other end spear-shaped, substantially as shown and described.

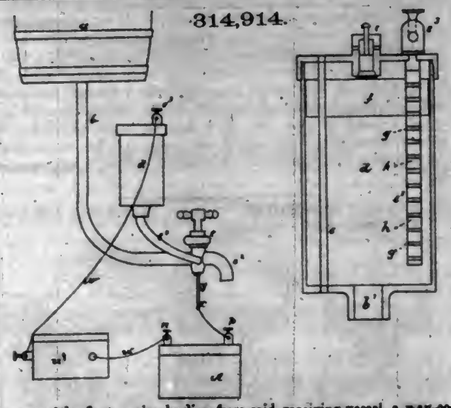
3. The grapple consisting of the disk F, provided with the swivel-hung eye-rivets G, and having an upward-extending tang, in combination with the two-ended hooks H, hung in the said eye-rivets, as shown and described.

4. The conductor consisting of the head J, having a hole in its top, and provided with an upward-projecting tang, K, and a downward-projecting tang, L, in combination with an elastic wire, M, pivoted to the downward tang, a roller, N, journaled to the wire, and a cord, O, attached to the wire, as shown and described.

314,914. APPARATUS FOR MEASURING THE FLOW OF LIQUIDS. WILLIAM A. M. BROWN and JOHN M. PORTER, Leeds, County of York, England; said Brown assignor to Frederick Maskell King, same place. Filed Nov. 6, 1884. (No model.) Patented in England July 31, 1884, No. 10,836.

Claim.—1. The combination of a receiving-tank provided with a float, an electrical conductor carried by said float, a circuit-breaker for alternately opening and closing the circuit at certain stages in the move-

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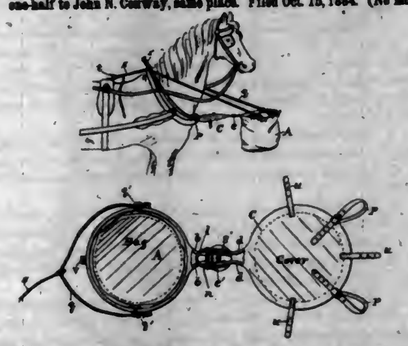
ment of the float, a pipe leading from said receiving-vessel, a way-cock connected with said pipe, a pipe leading from a liquid source of supply and communicating with the receiving-vessel through said way-cock, a register having an electrical connection with said circuit breaker and closer, a battery for charging said electrical conductors, and a wire leading from said battery to a point adjacent to said cock, whereby in the movement of said cock to permit the flow of the liquid into the receiver the flow of the current through the float circuit-breaker will be stopped and when the cock is moved to cut off the flow of the liquid the current will be again established, substantially as described.

2. The combination, with the vessel *d*, of the rods *e* and e^3, the conductors *g* and non-conductors *h*, arranged in alternation on the rod e^3, the float *f* within the vessel, the conductor *f'*, carried by said float, and the rods *e* and e^3, substantially as described.

3. The combination of the vessel *d*, the rods *e* and e^3, the conductors and non-conductors *g* and *h*, arranged in alternation on the rod e^3, the float *f*, and conductor *f'*, carried by said float, pipe c^3, leading from vessel *d*, the way-plug *c*, connected therewith, the pipe *b*, connecting with the way-cock, the battery, the wires *w*, through which a current passes to the rod e^3, and the wire *x*, leading from the battery to a point adjacent to the plug of the cock *c*, substantially as described.

4. The combination of the vessel *d*, the rods *e* and e^3, the conductors and non-conductors *g* and *h*, arranged in alternation on the rod e^3, the float *f*, and conductor *f'*, carried by said float, the pipe c^3, leading from vessel *d*, the way-plug *c*, connected therewith, the pipe *b*, connected with the way-cock, the battery, the register, the wires *w*, connecting the register with the battery and with rod e^3, and the wire *x*, leading from the battery to a point adjacent to the plug of the cock *c*, substantially as described.

314,915. FEED-BAG. JESSE CONWAY, Baltimore, Md., assignor of one-half to John N. Conway, same place. Filed Oct. 15, 1884. (No model.)

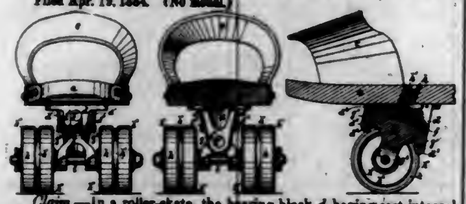


Claim.—1. The combination, with the feed-bag and cover, each having a rod with two ends projecting laterally, of two disks centrally pivoted together, each having a flat face, *f*, one in contact with the other, and both flat faces provided with two grooves, *h*, which are occupied by the said laterally-projecting rod ends, as set forth.

2. A feed-bag having secured to its top rim a rod whose two ends, *b*, are brought near together, project laterally, and are attached to a disk, *e*, a cover having a rod with two laterally-projecting ends, *d*, attached to a second disk, *d'*, a pivot, *g'*, connecting the said two disks, whereby the cover may turn in a horizontal plane, and a loop-fastening device attached to the upper or cover disk, *d'*, and having two angles, *n*, which may embrace the projecting rod ends *b* of the bag, the parts being combined as set forth.

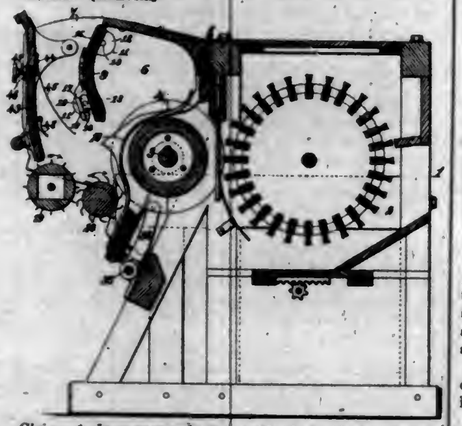
3. A feed-bag provided with a hanger-cord for engagement back of the hames, and having secured to its top rim a rod whose two ends, *b*, are brought near together, project laterally, and are attached to a disk, *c*, a cover provided with straps for attachment to the harness-collar, and having a rod with two laterally-projecting ends, *d*, attached to a second disk, *c'*, a pivot, *g'*, connecting the said two disks, whereby the cover may turn in a horizontal plane, and a loop-fastening device attached to the upper or cover disk, *c'*, and having two angles, *n*, which may embrace the projecting rod ends *b* of the bag, the parts being combined as set forth.

314,916. ROLLER-SKATE. JOSEPH C. CROPPER, Cedar Falls, Iowa. Filed Apr. 19, 1884. (No model.)



Claim.—In a roller-skate, the bearing-block *d*, having cast integral therewith the perforated bearing d^2 and forked bearing d^3, in combination with the rocker *g*, carrying the rollers, and secured in place by means of the cap d^2 and pin d^3, substantially as shown and described.

314,917. COTTON-GIN. WILLIAM L. CROWSON, Memphis, Tenn., assignor to the Milburn Gin and Machine Company, same place. Filed Sept. 11, 1884. (No model.)



Claim.—1. In a cotton-gin, the combination, with the adjustable hulling-rollers 19 20, the pulley 22, and the saw-shaft having pulley 26, of the vertically-adjustable block or box 24*, having pulleys 24, and the continuous belt 23, passing around the pulleys 22, 26, and 24, substantially as described.

2. The combination of the hulling-rollers, the belt for driving the same, the vertically-movable carrier, the pulleys on the carrier engaging the belt, and the screw-bolt for moving the carrier, substantially as described.

3. The combination of the hulling-rollers, the gin-saws, the gin-saw shaft, the belt connecting the saw-shaft with one of the hulling-rollers, the vertically-movable carrier, the pulleys on the carrier engaging the belt, the box or casting, and the screw-bolt carried by the latter and engaging the carrier, substantially as described.

4. The combination of the hulling-rollers, the gin-saws, the driving-belt, the carrier having guide-flanges, the pulleys on the carrier, the grooved box or casting guiding the carrier, and the screw-bolt carried by the box or casting and engaging the carrier, substantially as described.

5. The combination, with the gin-saws and roll-box, of the vertically and horizontally adjustable seed-board, the top and bottom cross-shafts, and revolving disks having said shafts fitted eccentrically thereto, and means for locking said disks, substantially as described.

6. The combination, with the seed-board and the roll-box, of rotary disks having eccentric rods for raising and lowering the seed-board and adjusting it backward and forward, substantially as described.

7. The combination, with the seed-board, of a device for adjusting the same, consisting of the upper and lower pairs of rotary disks, the transverse rods eccentrically secured to the disks, the studs projecting from the disks at one side of the roll-box, and the hand-wheels and locking-nuts fitted on said studs, substantially as described.

8. The combination, with the seed-board, of the upper and lower transverse rods, the rotary disks, the studs rigid with the disks, and the hand-wheels on the studs, substantially as described.

9. The combination, with the seed-board, of the upper and lower transverse rods, the rotary disks, the studs connected with the disks, and means for turning and holding the studs, substantially as described.

10. The combination, with the seed-board, of the transverse rods, the rotary disks, the studs secured to the disks, the hand-wheels on the studs, and the jam-nuts for locking the wheels, substantially as described.

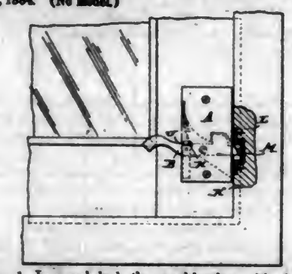
11. The combination, with the gin-saws, of the hulling-rollers, the rods connecting the same, and means for adjusting the rods to move the rollers to and from the gin-saws, substantially as described.

12. The combination of the gin-saws, the hulling-rollers, the rods connecting the rollers, and the screws engaging the rods to move the rollers to and from the saws, substantially as described.

13. The combination, with the roll-box, the vertically and horizontally adjustable seed-board, the breast-board, the front and rear hulling-rollers, and the gin-saws, of the curved deflecting-plate extending entirely across the roll-box in the space in front of the seed-board, a hinge-joint for connecting said deflecting-plate to the breast-board, and a set-screw for causing its free lower end to be adjusted to and from the seed-board, substantially as described.

14. The combination, with the vertically-movable gin-breast and roll-box, of the transverse shaft 35, having arms 36, connected with said gin-breast, and the vertical lever 37, having the arm 38, provided with the tooth 39, and loosely connected with said rock-shaft, and the rack-plate 40, fitted on the frame of the gin, substantially as described.

314,918. SASH-FASTENER. BENJ. S. CURRY, Manatee, Fla. Filed Sept. 6, 1884. (No model.)



Claim.—1. In a sash-lock, the combination, with the casing A, of the pivoted lever B, the pin E, projecting from the same, and the spring-strip G, having an aperture, F, and having its upper end bent outward and through a slot in the casing, substantially as herein shown and described.

2. In a sash-lock, the combination, with the casing A, of the pivoted latch-lever B, the spring D' and the locking spring-strip G, for locking the latch-lever in place, substantially as herein shown and described.

314,919. ELLIPTIC SPRING. WM. DAVISON, Hoboken, N. J. Filed Jan. 30, 1884. Renewed Jan. 27, 1885. (No model.)



Claim.—1. The improved top plate for elliptic or semi-elliptic springs made with concavo-convex intermediate and main plates, having the plano-convex middle section, *a*, and concavo-convex and tapered ends, substantially as described.

2. The improved top plate for elliptic or semi-elliptic springs made with concavo-convex, intermediate, and main plates, having the plano-convex middle section, *a*, and concavo-convex ends, said ends being tapered at the edges *f* on a radius equal to the breadth of the plate, substantially as described.

3. The combination, in an elliptic or semi-elliptic spring, of a top plate having the plano-convex middle section, *a*, and concave-convex pointed ends, with intermediate concavo-convex plates having similarly-pointed ends, and a main plate of concavo-convex form with flat ends, substantially as described.

4. The combination, in an elliptic or semi-elliptic spring, of a top plate having the middle plano-convex section, *a*, and concavo-convex tapered ends with edges *f* formed on a radius equal to the width of the plate, intermediate plates also having pointed ends formed on the same radius, and a main plate, said intermediate and main plates being concavo-convex in cross-section and the transverse curvature of all the plates being formed on a radius equal to the width of the plates, substantially as described.

314,920. FERTILIZER-DISTRIBUTER. JOSEPH B. DENTON, New-town, N. Y. Filed June 17, 1884. (No model.)



Claim.—1. In a fertilizer-distributer, the combination, with the frame B, the wheel A, provided with the pins O, and the hopper E, of the hinged board F, having its free end projecting beyond the hopper and provided with the opening K, the box J on the free end of the said board, and the arms N on the box, substantially as herein shown and described.

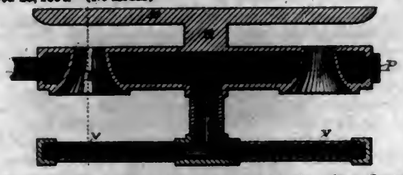
2. In a fertilizer-distributer, the combination, with the frame B, the wheel A, provided with the pins O, and the hopper E, of the hinged board F, provided with the opening K, the box J on the free end of the said board, the prongs N on the box, and means for raising the said prongs out of contact with the pins O, substantially as herein shown and described.

314,921. TREATMENT OF FLAX, &c. JAMES R. DEY, London, England. Filed Oct. 13, 1884. (No specimens.) Patented in England Mar. 15, 1883, No. 1,268; in France Apr. 27, 1883, No. 155,136; in Belgium May 1, 1883, No. 61,232, and in India Sept. 7, 1883, No. 153.

Claim.—1. The process herein described of treating flax, straw, and other fibrous material, which consists in subjecting the dry or green material to the action of a bath of cold water, borax, and soap to soften the fiber, then heating the bath to or near a boiling-point to loosen the rosin and other glutinous matter, and then washing the material to remove the saponaceous matter, and finally drying the material preparatory to scutching.

2. The process herein described of treating flax, straw, and other fibrous material, which consists in subjecting the material to the action of a bath of cold water, borax, and soap to soften the fiber, then heating the bath to loosen the rosin and other glutinous matter, then washing the material in a hot solution of soda to remove the saponaceous matter, and then rinsing the material in cold water to remove the soda.

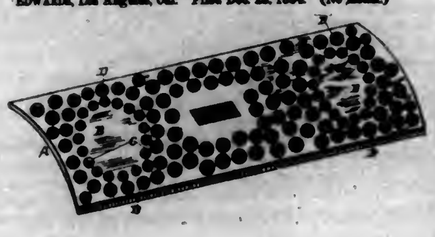
314,922. OIL-BURNER. EVAN A. EDWARDS, Los Angeles, Cal. Filed Oct. 23, 1884. (No model.)

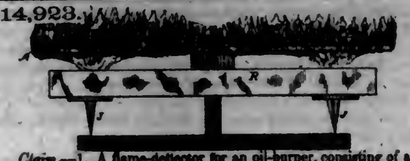


Claim.—1. The combination of the gas-generating retort, the tube T', opening thereinto at a level with the floor of the retort, and connecting the same with the vent-tube, the vent-tube T, situated under the retort, and having vents upon its upper side, inverted funnel-shaped flues situated above such vents and passing through the retort, and the deflector situated above the retort, all being constructed and combined substantially as and for the purpose set forth.

2. The combination, in an oil-burner substantially as described, of a gas-generating retort, constructed as shown, with inverted-funnel-shaped flues passing upward therethrough, a gas-pipe the mouth of which is on a level with the floor of the retort, and gas-vents connected with the retort by such pipe, and situated beneath the mouth of the flues, substantially as set forth, whereby the flame is caused to heat the upper portion of the retort in excess of the bottom of the retort, where the oil is vaporized, so that the oil is subjected to a moderate heat and the vapor is subjected to excessive heat.

314,923. FLAME-DEFLECTOR FOR VAPOR-BURNERS. EVAN A. EDWARDS, Los Angeles, Cal. Filed Dec. 23, 1884. (No model.)





Claim.—1. A flame-deflector for an oil-burner, consisting of a plate mounted above the jets of the burner and having the portions against which the flames or jets are projected solid, and having perforations through such plate around the solid portions thereof, substantially as set forth, those perforations nearest the solid portions thereof being smaller than those farther away.

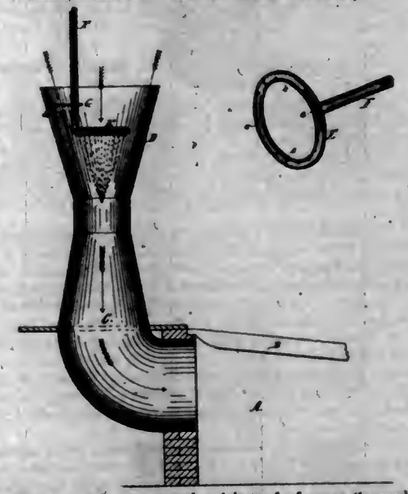
2. A flame-deflector for a vapor-burner, concave upon its under face, and perforated, substantially as set forth, with holes of different diameters, those near the portion of the deflector against which the jet strikes being smaller than those more remote therefrom, for the purpose set forth.

314,924. TRACTION-ENGINE. CHARLES ERVIN and EDWARD E. ERVIN, Princeton, Ind. Filed Feb. 5, 1885. (No model.)



Claim.—A steam-cylinder connected to the boiler of a traction-engine near its forward end, and provided with a hand-lever for operating its cut-off valves, a piston-rod with gear-teeth, a gear-wheel upon the end of a rotating cylinder, E, into which the teeth of the piston-rod mesh, and chains *d d'*, which connect said cylinder to the shaft of the forward carrying-wheels of the engine, all for giving direction to the engine, substantially as set forth.

314,925. STEAM AND AIR INJECTOR FOR FURNACES. FRANK E. FARRIS, Scranton, Pa. Filed June 1, 1883. (No model.)



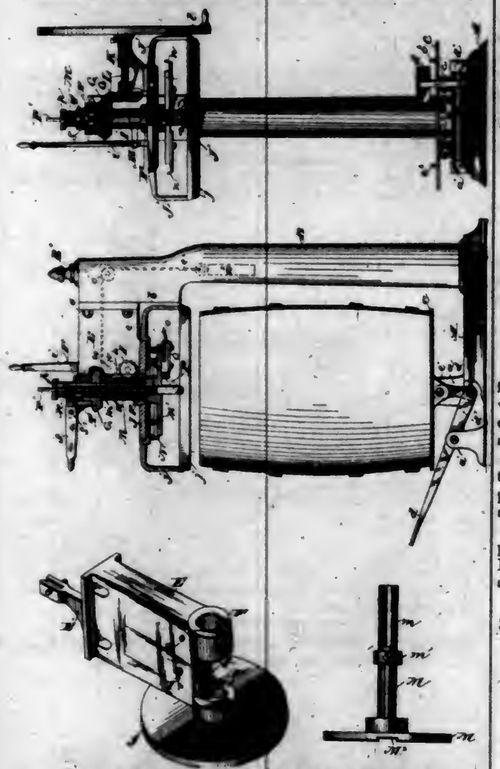
Claim.—1. In a steam and air injector for furnaces, the combination, with a nozzle, of a circular steam-delivery pipe arranged therein and having perforations arranged so as to focus or converge the jets issuing therefrom and draw a supply of air into the nozzle through and around the circular delivery-pipe, substantially as described.

2. A hollow steam-injecting annulus provided with jet-perforations and a supporting-extension outside its central air-passage, in combination with an air-cone, whereby an unobstructed central passage for the air drawn through the cone by the steam-jets is secured within the en-

tire circle of the annulus, while an outside airway is also maintained between the cone and the annulus, substantially as described.

3. In combination with an air-cone, the steam-injecting annulus having an unobstructed central passage and provided with jet-perforations which are arranged so as to prevent the steam-jets striking upon the inner surface of the cone, and thereby insuring an uninterrupted airway between the cone and the steam-jets flowing from the annulus, substantially as described.

314,926. BARREL-MAKING MACHINE. GEORGE A. FRISDEL and JAMES D. CLOUGH, Cleveland, Ohio. Filed Jan. 13, 1885. (No model.)



Claim.—1. In barrel-making machinery, the combination, with a supporting-base having an upwardly-projecting boss, *a*, with a vertical bore, and upwardly-projecting ears *a'*, of the table C, with the pendent pin or lug *c*, arranged to slide in the boss *a* and form a guide for the table, and a treadle fulcrumed to the ears *a'* and connected by links to pendent ears of the table on opposite sides of the guiding device, substantially as set forth.

2. In barrel-making machinery, the combination, with a barrel-support and a hollow column having the face *b*, of a head secured to said face and provided with bearings, a grooved pinion journaled in one of said bearings, a hollow spindle connected to said pinion so as to be rotated thereby, but free to move longitudinally independently of said pinion, and cutters connected by said spindle, substantially as set forth.

3. In barrel-making machinery, the combination, with a barrel-support, a standard, and the head E, provided with bearings or boxes at its outer end, of the grooved pinion provided with a hub resting in the upper bearing of the head, a hollow spindle having a spline fitting the groove in the hub of the pinion, and suitable cutters operated by said spindle, substantially as set forth.

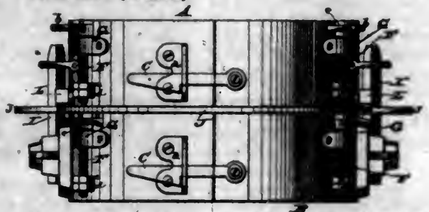
4. In barrel-making machinery, the combination, with a barrel-support and a standard provided at its upper end with bearings or boxes F F', of the pinion G, journaled in one of said boxes, the longitudinally-movable spindle M, passing through said pinion and rotated thereby, the sleeve H, embracing the spindle and secured therein against longitudinal movement independently of said spindle, and provided with a rack, a pinion engaging the rack, and cutters operated by said spindle, substantially as set forth.

5. In barrel-making machinery, the combination, with a barrel-support and a standard provided at its upper end with bearings F F', of a rotary spindle journaled in said bearings, a sleeve embracing said spindle and provided with a rack, a pinion engaging the rack for moving the sleeve and spindle longitudinally, the spring-actuated rod P', located within the hollow spindles, the link P, connected to one end of said rod, the sliding block connected to the link, the collar *p*, and the forked lever S, all of the above parts combined substantially as set forth.

6. In barrel-making machinery, the combination, with a barrel-support and a standard provided at its upper end with bearings and with the plate J, of the arms J', secured to said plate, the band *j*, secured to the lower ends of the arms, and cutter supports or holders journaled in the bearings at the upper end of the standard, and secured to said holders, substantially as set forth.

7. In barrel-making machinery, the combination, with a barrel-support and standard, of the head E, having a rearwardly-projecting arm, a roller journaled on said arm, the pinion G, spindle M, cutters connected to and operated by said spindle, a sleeve embracing the spindle, and the cord and counterbalance-weight, all of the above parts operating substantially as set forth.

314,927. MOLDER'S FLASK. EDVARD FRIESS, Louisville, Ky. Filed Jan. 12, 1885. (No model.)

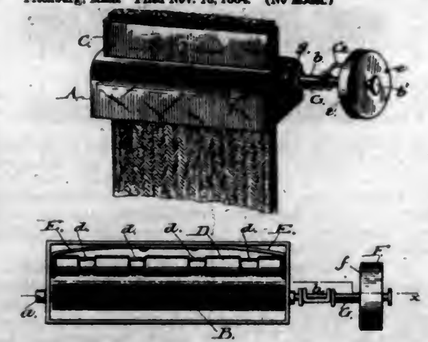


Claim.—1. The combination of a molder's flask which is formed from a single piece of elastic material with an elastic adjustable frame which is applied thereto, and which is also formed from a single piece of elastic material, so that it will conform to the movements of the flask, substantially as specified.

2. The combination of the flask formed from a single piece of elastic material, and provided with suitable guides, with the adjustable frame provided with guiding-rods which pass through the guides, substantially as shown.

3. The combination of the two parts of the flask, the frames D, placed in them, and provided with the ears or projections *e*, and the rods F, the guides G on the two parts of the flask, and the nuts on the rods, substantially as specified.

314,928. WICK-ADJUSTER FOR OIL-STOVES. ROGER P. FROST, Fitchburg, Mass. Filed Nov. 18, 1884. (No model.)



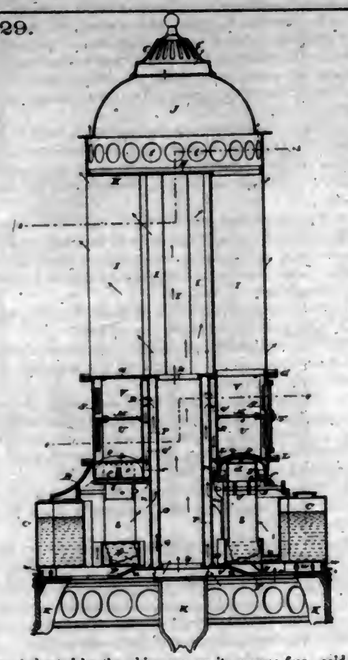
Claim.—1. In a stove or lamp burner, the metal housing A, provided with the wick-tube C, in combination with the fluted feed-roll B and the pressure-roll D, having portions cut away at intervals, *d*, and provided with bearings in the bent ends of spring E, all constructed to operate substantially as and for the purpose set forth.

2. In a stove or lamp burner, the metal housing A, provided with the wick-tube C and projection *g*, in combination with the fluted feed-roll B, spindle *b*, metal thumb-piece F, made in sections, with the outer cap sliding on the spindle, and the wire G, all constructed to operate substantially as and for the purpose set forth.

314,929. OIL OR GAS STOVE. WILLIAM A. GREENE, Brooklyn, N.Y. Filed Feb. 9, 1884. (No model.)

Claim.—1. An oil or gas heating-stove consisting of the combination of two or more lamps in one frame or casing, each having a separate chimney, with an air-passage extending upward from the bottom of the stove and terminating in an inclosed space, the only escape from which is between and around said chimney, whereby cool air ascending through

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said passage is heated by the chimneys on its escape from said space, substantially as set forth.

2. An oil or gas heating-stove consisting of the combination of two or more lamps in one frame or casing, each having a separate chimney, with one common radiating dome or chamber, into which all the chimneys discharge, and with an air-heating flue terminating in a space beneath said chamber, the only escape from which is through the spaces between said chimneys, substantially as set forth.

3. An oil or gas stove consisting of the combination of a series of distinct lamps, all arranged in one frame or casing in a circular or polygonal group, each lamp having a separate chimney, with an air-passage extending up from the bottom of the stove through the center thereof and surrounded by the group of lamps, and terminating in an inclosed chamber bounded by the annular series of chimneys, the only escape from which chamber is through the spaces between said chimneys, substantially as set forth, whereby air is drawn up through said passage, is heated, and is discharged in all directions from the stove.

4. An oil-stove consisting of two or more lamps in one frame or casing, each lamp having a separate chimney, I, and flame-chamber U, all the chimneys I I being fixed to said casing, and all the chambers U U being formed by horizontal and vertical partitions forming part of said casing, and the burners E E and their attached oil-vessels arranged removably in said casing beneath and in operative connection with their respective chambers U and chimneys I, all combined and arranged to operate substantially as set forth.

5. An oil-stove consisting of the combination of a frame or casing, a series of lamp-chimneys fixed therein, a series of flame-chambers below and in communication with said chimneys, and a plate forming the bottom of said chambers and having an arch or convex upward projection beneath each chamber, with a series of lamp-burners having their respective cones fixed to them, and the oil vessel or vessels bearing said burners and removable from said casing, substantially as set forth, whereby when the burners are in place in the casing their cones come beneath and coincide with said arches.

6. An oil or gas stove consisting of the combination of a casing, a series of lamps arranged therein, a series of flame-chambers for said lamps, an air-heating flue passing by said flame-chambers, and a hot-air space or conduit leading over the cone of each lamp in communication with said flue, whereby the air heated by flowing through said flue is conducted to the flames of the lamps to complete and perfect their combustion, substantially as set forth.

7. In an oil-stove, the combination, with the casing of a chimney, I, flame-chamber U, plate L, having arch *p*, and plate F, having incline *u*, all forming parts of said casing, of oil-vessel C and burner E connected therewith, said burner having a cone, *e*, entering said arch *p*, and resting on a leg or point, *v*, at the top of said incline *u*, substantially as set forth, whereby the removal and replacement of the oil-vessel and burner are facilitated.

8. In an oil or gas stove, the combination, with air-heating flue Q Q', burner E, having cone *e*, flame-chamber U, having bottom plate, L, formed with arch *p*, conforming to the cone *e*, and forming intervening space *q*, of perforated diaphragm *r*, interposed between said flue Q' and the air-space *q*, substantially as set forth.

314,930. SACK-HOLDER. LUCIAN H. GUILFORD, Wauseon, Ohio. Filed Jan. 21, 1885. (No model.)



Claim.—1. In a bag-holder, the combination, with a support, A, having keepers A' converging toward one end, of the hopper provided at its rear end with cleats C C, corresponding in angle to and fitted to engage with the keepers A', substantially as set forth.

2. In a bag-holder, the combination of the support having keepers A' with the hopper having its side boards extended rearwardly beyond its back board, and provided with cleats C, extended laterally from said side boards, substantially as set forth.

3. In a bag-holder, a hopper, B, having its side boards, B^2, extended rearwardly beyond its back board, B^2, and provided with vertical slots B^4, substantially as set forth.

4. The combination of the hopper having its back board projected below its front and side boards, guides I on the lower ends of the side boards, and the screen supported and movable on guides I to and against the downward extension of the back board, substantially as set forth.

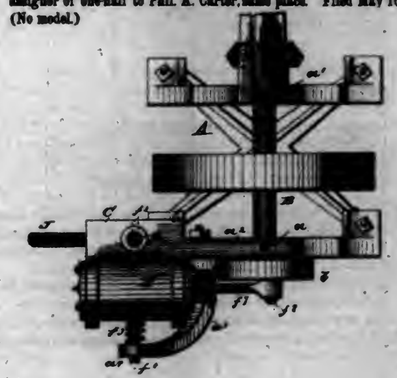
5. In a bag-holder, the combination, with the hopper having projections D extended rearwardly from its lower or discharge end, and the staples E E on its forward end, of the lever G, pivoted to the hopper between the staples E, and the arms F, having their outer ends projected through staples E, and their inner ends secured to lever G on opposite sides of the pivot of said lever, substantially as set forth.

314,931. MANUFACTURE OF LINOPHANIES OR TRANSLUCENT PICTURES. ERNST O. GRÜNERT, Meissen, Saxony, Germany. Filed Dec. 3, 1884. (No specimens.)

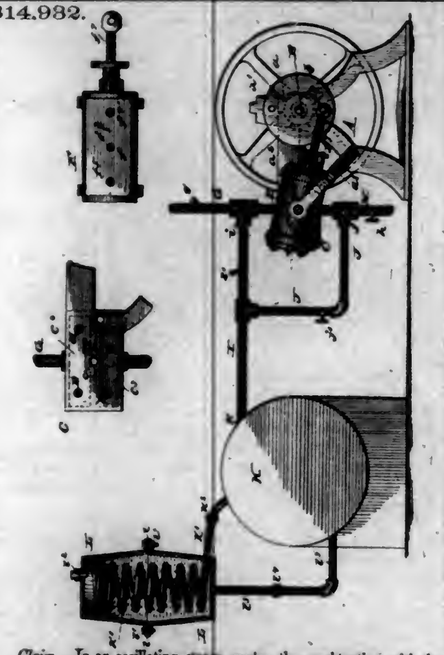
Claim.—1. The herein-described method of manufacturing "linophanies," so called, which consists in, first, pouring paper-pulp into a properly-prepared mold, as described; second, covering said pulp with a pervious sheet of gauze or its specified equivalent, and then placing upon said sheet blotting-paper or other similar absorbent material; third, subjecting the contents of the mold to pressure, and, fourth, removing the absorbent material and the gauze, in order that the pulp may dry in the mold, substantially as described.

2. The herein-described method of manufacturing "linophanies," so called, which consists in, first, pouring paper-pulp into a properly-prepared mold, as described; second, covering said pulp with a pervious sheet of gauze or its specified equivalent, and then placing upon said sheet blotting-paper or other similar absorbent material; third, subjecting the contents of the mold to pressure, and, fourth, removing the absorbent material and the gauze, and, fifth, subjecting the mold and the pulp contained therein to artificial heat, in order to complete the drying of the pulp in the mold, substantially as described.

314,932. OSCILLATING ENGINE. ADAM H. HAPLEY, Ashley, Ill., assignor of one-half to Phil. A. Carter, same place. Filed May 10, 1884. (No model.)



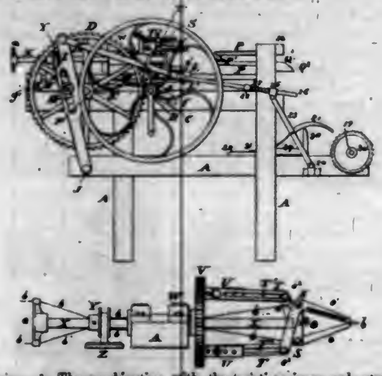
314,932.



Claim.—In an oscillating steam-engine, the combination, with the steam-chest having the bearing c^4, of the arm f^2, the upwardly and forwardly curved arm a^2, the steam-cylinder having the trunnions adapted to be supported by the said bearings, and the spring f^3, arranged upon the trunnion f', and engaging the inner side of the said curved arm a^2, to keep the cylinder pressed tightly against the steam-chest and form a steam-tight joint therewith, substantially as specified.

314,933. MACHINE FOR MAKING WIRE AND PICKET FENCING. THOMAS B. HARRISON, Clinton, assignor of two-thirds to Jerome W. Martin, Kirksville, and Abraham Siegel, St. Louis, Mo. Filed July 29, 1884. (No model.)

Brief.—The picket is shot through the open jaws of the twisters when they are in their rearmost position. The beaters and the twisters then move forward, the beater-fingers drawing the picket from the twister-arms. When the picket has reached its position between the spring-jaws, the points of the twister-arms are together in their extreme forward position just behind the picket. The wires are then twisted, after which the beaters and the twisters resume their first position.



Claim.—1. The combination, with the twisting-jaws and rotating mechanism, of the shaft B, sleeve *m*, springs *l*, wheels *n n'*, wheel *k*, cam-wheel *r*, having cams r' r^2, shaft *j*, spur-wheel *i*, stop-wheel *s*, and lever *p*, having arms p^2 p^3 p^4.

2. The trap consisting of spring-jaws 6 6, toes 8, trip-plate 10, body 12, having spring 11, and tail 14, formed with inclines 17 18.

3. The trap composed of jaws having a trip-plate between them, means for forcing the jaws toward each other, setting-toes, and means for operating the toes to open the jaws.

4. The trap having spring-jaws to engage the end of the entering picket with setting-toes 8 thereon, a trip piece or plate, 10, constructed to operate substantially as described, the trap having hinge-connection to the frame, and an extension or tail with inclined parts in the course of projections of the twister-carriage Z or other movable part of the machine.

5. The combination of the twister-carriage Z and the beater-carriage L, means for advancing and retracting the twister-carriage, and means by which the beater-carriage has simultaneous movement in the same direction at a different rate of speed, substantially as and for the purpose set forth.

6. The combination with twisters O, capable of rotary and longitudinal movement, means, substantially as described, for giving to them such movement, and the beater-carriage having fingers M, arranged and operated to work between the twisters to withdraw the pickets therefrom, substantially as set forth.

7. The combination of twisters O, beater L, having fingers M, and jaws P, having catches substantially as set forth.

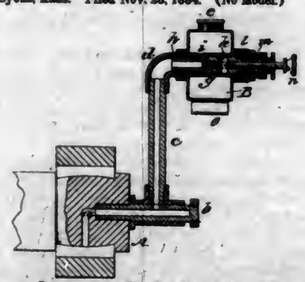
8. The picker mechanism consisting of depressible picker *x*, carried by a rod connected to a lever, 3, actuated by a projection, l^2, and spring 4, substantially as set forth.

9. The combination, with a winding reel or drum, of a ratchet-wheel upon or connected with the reel-shaft, a reciprocating ratchet acting on the ratchet-wheel with a projection or tail, 22, and a bar, 29 30 31, actuated by the roll of material on the reel to govern the action of the pawl, substantially as set forth.

10. The winding-reel having bars 32, hinged at one end to links which are hinged to a sliding collar, substantially as and for the purpose set forth.

11. The register having a finger, 43, resting on the fence and carrying a ratchet operating upon a ratchet-wheel on a screw which carries a pointer working in connection with a scale, for the purpose set forth.

314,934. AUTOMATIC OILER FOR CRANK-PINS. JOHN M. HARTNETT, Lyons, Kans. Filed Nov. 28, 1884. (No model.)



Claim.—1. In an automatic oiler for engines, the apertured plug with its aperture connecting with a channel in the wrist-pin, said plug being sleeved or coupled to a tube, in combination with the elbow connected to said tube and to a second tube having transverse apertures covered by a tubular screen, together with an apertured oil-cup or receptacle suspended upon said second tube, substantially as and for the purpose specified.

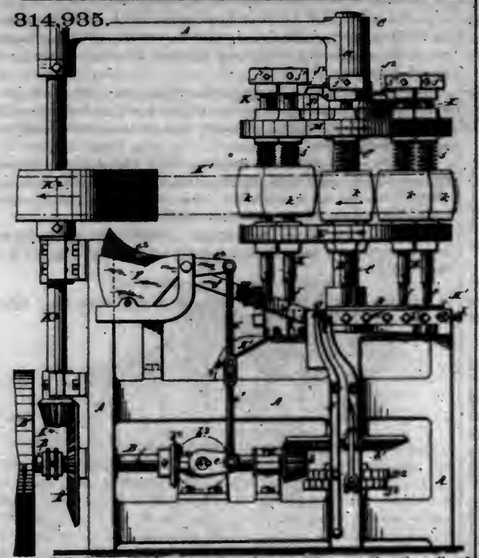
2. In an automatic oiler for engines, the apertured plug with its aperture connecting with a channel in the wrist-pin, said plug being coupled or sleeved to a tube, in combination with the elbow connected to said tube and to a second tube having transverse apertures covered by a tubular screen, said apertured tube having a regulating-screw with its inner end arranged to fit into a socketed tube disposed in said apertured tube, together with the suspended oil cup or receptacle, substantially as and for the purpose set forth.

3. In an automatic oiler for engines, the apertured plug with its aperture connecting with a channel in the wrist-pin, said plug being coupled or sleeved to a tube, in combination with the elbow connected to said tube and to a second tube having transverse apertures covered by a tubular screen, said apertured tube having a regulating-screw with its inner end arranged to enter a socketed tube in the said apertured tube, and the oil cup or receptacle sleeved upon said apertured tube and having the hand-hold or loop, substantially as and for the purpose set forth.

314,935. SCREW-POINTING MACHINE. HAYWARD A. HARVEY, Orange, N. J., and CHARLES S. CLARK, Providence, R. I.; said Clark assignor to the Harvey Screw and Bolt Company, of Connecticut. Filed Mar. 12, 1884. (No model.)

Claim.—1. In a multiple screw-pointing machine, a rotating carrying-wheel for carrying in a curved path a series of screw-blanks successively delivered to the carrying-wheel by suitable feeding mechanism, and a series of pointing-tools supported upon and revolving with the said carrying-wheel, and a corresponding series of devices, also supported upon and partaking of the motion of the carrying-wheel, for rotating the blanks upon their longitudinal axes, and at the same time pressing the tails of the blanks against the cutting-tools during that part of the orbital motion of the blanks in the course of which they are undergoing the pointing operation preparatory to being discharged from the carrying-wheel.

314,935.

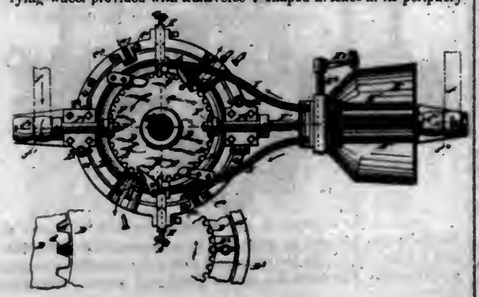


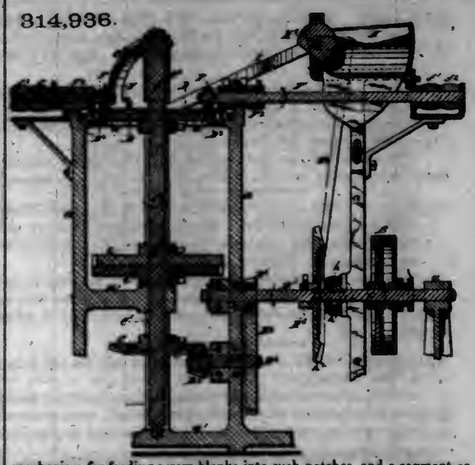
2. A carrying-wheel having in its periphery a series of equidistant transverse grooves, a concentric shield or guard partially surrounding the carrying-wheel, means for feeding the screw-blanks successively into the said transverse grooves, and a series of pointing-tools partaking of the rotatory movement of the carrying-wheel and arranged with their cutting-edges, respectively, opposite the ends of the grooves upon one side of the carrying-wheel, in combination with a series of screw-drivers affixed to spindles, also partaking of the rotatory motion of the carrying-wheel and arranged upon the opposite side of the carrying-wheel in longitudinal alignment with the said transverse grooves, means for rotating the screw-driver spindles upon their longitudinal axes, and a cam for disengaging the screw-drivers from the blanks successively as the pointing operations are completed, and, after each blank has been discharged and a fresh blank fed to the carrying-wheel in its place, releasing the screw-drivers to the action of gravity or to the action of springs, whereby the screw-drivers are permitted to engage the heads of the blanks and to rotate the blanks, and at the same time press them with an endwise movement against the cutting-tools.

3. The rotating carrying-wheel D, adapted to receive a series of screw-blanks and carry them in a circular path, and provided with the cutting-tools I, affixed thereto, the system of screw-drivers J, affixed to the spindles K, partaking of the rotatory motion of the carrying-wheel shaft, and each provided with a pulley, *l*, in combination with the driving-belt K', for engaging the pulleys *k* and rotating the spindles upon their longitudinal axes during a portion of their orbital movement, and the stationary cam J', for varying the distance of the screw-drivers from the carrying-wheel, as and for the purpose set forth.

314,936. MACHINE FOR NICKING SCREW-BLANKS. HAYWARD A. HARVEY, Orange, N. J., and CHARLES S. CLARK, Providence, R. I.; said Clark assignor to the Harvey Screw and Bolt Company, of Connecticut. Filed Mar. 24, 1884. (No model.)

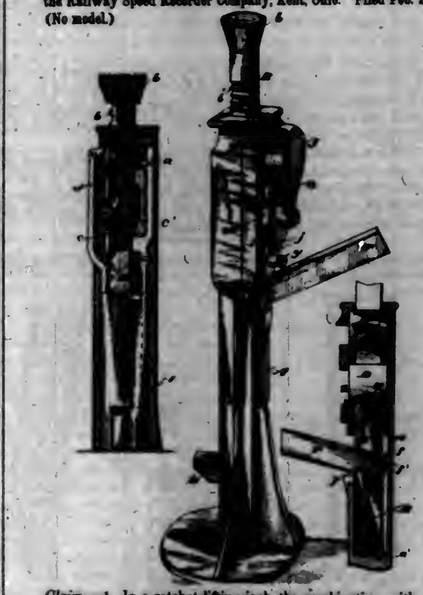
Claim.—In machines for nicking the heads of screw-blanks, a carrying-wheel provided with transverse V-shaped notches in its periphery





mechanism for feeding screw-blanks into such notches, and a segment or segments partially surrounding the periphery of the carrying-wheel, so arranged that their concave faces bear upon the shanks of the blanks contained in the notches, in combination with a saw rotating upon an axis at right angles to the axis of the carrying-wheel, and having its cutting-edge intersecting the plane in which the heads of the blanks are moved by the rotation of the carrying-wheel.

314,937. LIFTING-JACK. J. WESLEY HAWKINS, Galion, assignor to the Railway Speed Recorder Company, Kent, Ohio. Filed Feb. 24, 1885. (No model.)



Claim.—1. In a ratchet lifting-jack, the combination, with a tumbler arranged to engage simultaneously or alternately the lifting and holding pawls, of a weighted lever mounted on the spindle of the tumbler, with the arrangement of parts such that with the weighted lever turned in one direction the tumbler will force both pawls from the ratchet, and when turned in the opposite direction the tumbler will engage the pawls alternately and reverse their action on the ratchet and cause the lifting-bar to descend, substantially as set forth.

2. In a ratchet lifting-jack, the combination, with the tumbler H, provided with the arm A, the shoulder *h'*, and the sliding rod I, of the pin *c*, and the weighted lever J, substantially as set forth.

3. In a ratchet lifting-jack, the combination, with the tumbler and connected spindle and depending lug, of a weighted lever mounted on the spindle, and the recess J^3, substantially as set forth.

4. In a ratchet lifting-jack, the combination, with lever J, cam-groove j^3, and prongs *j*, of the slot a^2, roller G, and lug *g*, substantially as set forth.

314,938. COLORING-MATTER FROM BETA-NAPHTHOL. MEINHARD HOFFMANN, Maisakur, near Frankfort-on-the-Main, assignor to Leopold Cassella & Co., Frankfort-on-the-Main, Germany. Filed Feb. 7, 1884. (No specimens.)

Claim.—1. The described process for producing a red coloring-matter, which consists in mixing the diazo compound of the difficultly-soluble alphanaphthylamine sulphonic acid with an alkaline solution of beta-naphthol gamma disulphonic acid.

2. As a new product of the process herein described, a red coloring-matter producing on wool and silk a blue shade of color, as described.

314,939. RED COLORING-MATTER FROM GAMMA DISULPHONIC ACID OF BETA-NAPHTHOL. MEINHARD HOFFMANN, Maisakur, near Frankfort-on-the-Main, assignor to Leopold Cassella & Co., Frankfort-on-the-Main, Germany. Filed Feb. 7, 1884. (Specimens.)

Claim.—As a new dye-stuff, the scarlet-red coloring-matter produced by the action of the diazo compound of amidoazobenzole upon an alkaline solution of gamma disulphonic acid of beta-naphthol, as herein set forth.

314,940. JETTY. FRANK A. HYATT, Sabine Pass, Tex. Filed June 4, 1884. (No model.)

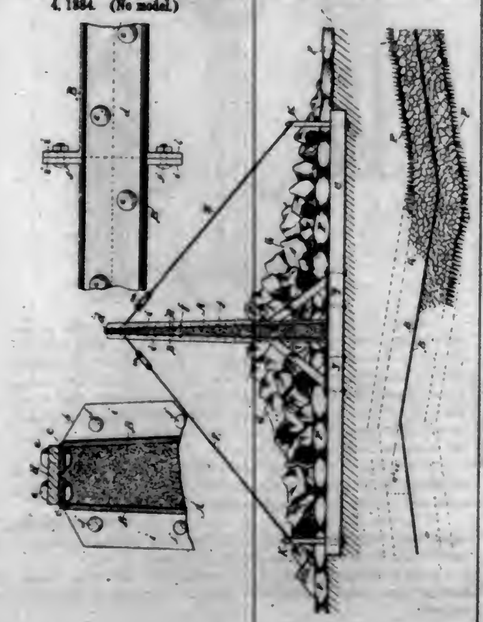
Brief.—Piles support and are inclosed between partitions formed of plates bolted together and secured thereto by bolts, forming a space for filling. The upper ends of opposite piles are connected by long bolts.



Claim.—1. The combination of two partitions formed of metal plates, and a series of piles driven down between the partitions for supporting the same, bolts for connecting the upper ends of the piles with the plates, and a suitable filling for the space between the partitions, substantially as shown and described.

2. The combination of two partitions formed of metal plates, a series of piles connected to either partition by staples arranged on the inner sides of the partitions, bolts connecting the upper ends of opposite piles together, and a filling of sand or mud for the space between the partitions, substantially as shown and described.

314,941. JETTY. FRANK A. HYATT, Sabine Pass, Tex. Filed June 4, 1884. (No model.)



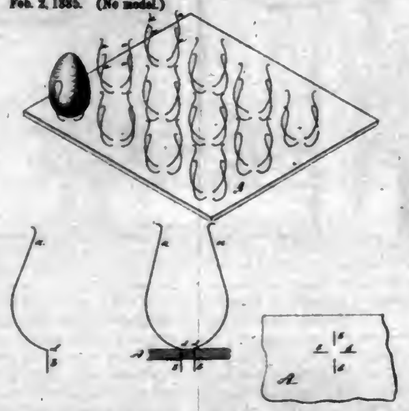
Brief.—A shell formed of metal plates bolted together and connected by cross-bolts and inclosing a concrete wall has broad base-flanges and rests on mud-sills protected and ballasted by mats and stones and stayed by braces.

Claim.—1. The combination of the plates riveted together to form shells, the wall of concrete inclosed in said shells, the mud-sills to which said shells are bolted, and the anchoring mats and stones, substantially as shown and described.

2. The combination of the metallic sections formed of plates riveted together at their upper ends and connected together by cross-bolts, the filling of concrete, the mud-sills, the braces, the stay-rods, and the mats and stones, substantially as shown and described.

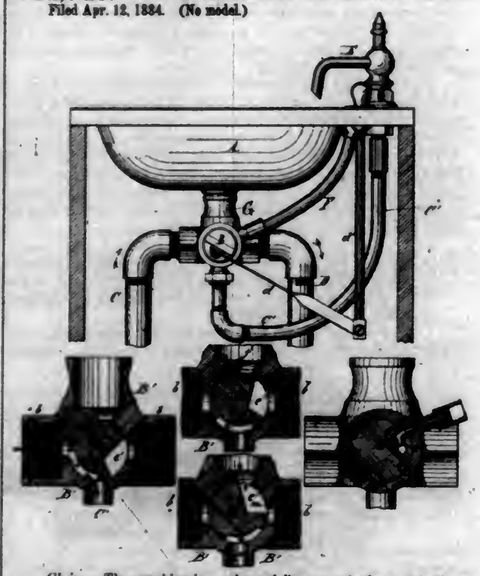
3. The plates having broad flanges at their lower ends to form a base to support the same on mud-bottoms, substantially as shown and described.

314,942. EGG-CARRIER. JOB L. JOYCE, New Haven, Conn. Filed Feb. 2, 1885. (No model.)



Claim.—A plate having several sets of wire springs thereon, each set composed of several springs and each spring being a single wire, one end of each of said springs inserted through the plate and bent down upon the reverse side, the projecting portion of the said single springs bent outward on the upper surface of the plate and curved upward and inward, substantially as described.

314,943. COCK FOR WASH-BASINS. JOSEPH JUNGBLUTH, Erie, Pa. Filed Apr. 12, 1884. (No model.)



Claim.—The combination, substantially as set forth, of a basin or receptacle provided with an outlet-pipe, a cock connected to said outlet-pipe, a water-supply pipe connecting said cock with the source of supply, a water-supply pipe connecting said cock with said basin, a waste-pipe leading from said cock for carrying off the waste water, an overflow-pipe connecting said cock with said basin, and mechanism for actuating said cock, the plug of said cock being provided with a recess or channel, *e*, for connecting said supply-pipes, with a recess or channel, *d'*, for connecting said outlet and waste pipes, and with a channel, d^3, for connecting the recess last mentioned with the overflow-pipe, said plug serving in one position to disconnect and close all said pipes, in another position to connect said supply-pipes and disconnect said waste and outlet pipes, closing the latter, and to connect said overflow and waste pipes, in a third position to disconnect said supply-pipes and connect said outlet and waste pipes.

314,944. SAW-SET. WILHELM KOPP, Santa Rosa, Cal. Filed Aug. 6, 1884. (No model.)



Claim.—1. In a saw-set having a suitable die and a hammer between which the teeth of the saw are fitted to be set, an oscillating rest or bench upon which the blade of the saw is supported, said rest or bench being adapted to be moved by an oscillating nut and screw to or from the plane of the die and hammer to accommodate different widths of blade, and up or down to support the blade at a suitable angle with the horizontal plane of the die, substantially as herein described.

2. In a saw-set, the frame A, having transverse recess or groove *a*, with the die B, and the hammer C, in combination with the bench or rest E, parallel with the recess or groove *a*, and an oscillating screw and threaded bolt by which said bench or rest may be raised or lowered to support the saw-blade at an angle with the horizontal plane of the groove or recess, substantially as herein described.

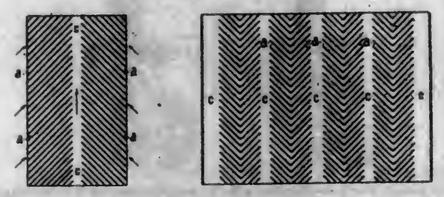
3. In a saw-set, the frame A, having transverse recess or groove *a* in its face, with a die, B, and the hammer C, in combination with the bench or rest E, parallel with the chamber or recess, and a means by which said bench or rest may be adjusted to or from said recess or groove, consisting of a screw, F, passing through the bench, and through a suitable nut in the frame A, substantially as herein described.

4. In a saw-set, the frame A, having transverse recess or groove *a*, with a die, B, and the hammer C, in combination with the bench or rest E, and the means by which said bench or rest *h* adjusted up or down to support the saw-blade at an angle with the horizontal plane of the groove or recess, consisting of the arms H, and the oscillating pin or bolt I, through which the arms loosely pass, substantially as herein described.

5. In a saw-set, the frame A, having transverse recess or groove *a* in its face, with a die, B, and the hammer C, in combination with the bench or rest E, and the means by which said bench or rest is adjusted to or from the recess, and up or down, consisting of the screw F, passing through the bench, the oscillating pin or bolt G, with its nut *g*, through which the screw F passes, arms H, and the oscillating pin or bolt I, through which said arms loosely pass, substantially as herein described.

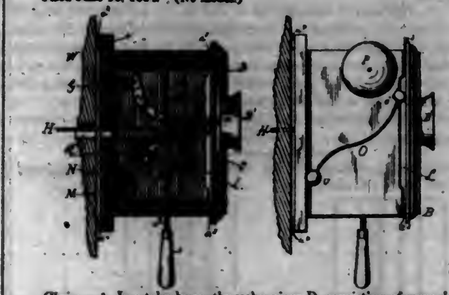
6. In a saw-set, the frame A, having transverse groove or recess *a* in its face, with the die B, and the hammer C, in combination with the bench or rest E, and the means by which said bench or rest is adjusted to or from the recess or groove, and up or down, consisting of the screw F, the oscillating pin or bolt G, having nut *g*, through which the screw passes, arms H, and oscillating pin or bolt I, through which the arms loosely pass, and the means by which said bench or rest is fixed in any desired position, consisting of the vertically-adjustable plate J, mounted upon the screw F, and having an elongated slot, *j*, and the set-screw K, passing through said slot, substantially as herein described.

314,945. HEATING APPARATUS. ERNST KÜSTNER, Hanover, Prussia, Germany. Filed July 22, 1884. (No model.)



Claim.—The combination, with the channels *a*, formed upon a heating apparatus for air, substantially as described, of one or more collecting-channels, *c*, as and for the purpose specified.

314,946. MECHANICAL TELEPHONE. FREEMAN C. LUDLOW, Cincinnati, Ohio, assignor to the Ludlow Telephone Company, Newport, Ky. Filed June 10, 1884. (No model.)



Claim.—1. In a telephone, the yoke-piece D, consisting of arms *d d'*, and provided with opening d^3, and arm *d* being pivoted at or near its free end, spring G, operating against arm *d*, and lever E, pivoted to the free end of arm *d'*, and provided with a notch in its forward end, its rear end being the fulcrum, and the bifurcated lever pivoted at its upper ends, and having notch *d'*, and handle, and springs K, substantially as and for the purposes specified.

2. In a telephone, the yoke-piece D, consisting of arms *d d'*, and provided with opening d^3, and the arm *d* being pivoted at or near its free end, spring G, operating against arm *d*, and lever E, pivoted to the free end of arm *d'*, and provided with a notch in its forward end, its rear end being the fulcrum, and the bifurcated lever pivoted at its upper ends, and having projection *p*, and handle *i*, and springs K, and bell-crank lying across and in proximity to arm *d'*, to enable the latter to be operated by said arm, and clapper-shank O, clapper *o'*, and bell P, substantially as and for the purposes specified.

3. In a telephone, the yoke-piece D, consisting of arms *d d'*, and provided with opening d^3, and the arm *d* being pivoted at or near its free end, spring G, operating against arm *d*, and lever E, pivoted to the free end of arm *d'*, and provided with a notch in its forward end, its rear end being the fulcrum, and the bifurcated lever pivoted at its upper ends, and having projection *p*, and handle *i*, and springs K, and bell-crank lying across and in proximity to arm *d'*, to enable the latter to be operated by said arm, and clapper-shank, clapper *o'*, bell P, knob U, and spring n^3, substantially as and for the purposes specified.

4. In a telephone, the yoke-piece D, consisting of arms *d d'*, and provided with opening d^3, and the arm *d* being pivoted at or near its free end, spring G, operating against arm *d*, and lever E, pivoted to the free end of arm *d'*, and provided with a notch, *d'*, in its forward end, its rear end being the fulcrum, and the bifurcated lever pivoted at its upper ends, and having projection *p*, and handle *i*, and springs K, and line-wire having projections or hooks *h*, substantially as and for the purposes specified.

5. In a telephone, the yoke-piece D, consisting of arms *d d'*, and provided with opening d^3, and the arm *d* being pivoted at or near its free end, spring G, operating against arm *d*, and lever E, pivoted to the free end of arm *d'*, and provided with a notch in its forward end, its rear end being the fulcrum, and the bifurcated lever pivoted at its upper ends, and having projection *p*, and handle *i*, and springs K, and line-wire having projections or hooks *h* and eye h^2, and diaphragm provided with hook *c*, substantially as and for the purposes specified.

6. The yoke D, having arms *d d'* and center opening, d^3, spring G, operating against arm *d*, whereby the yoke is held forward, and line-wire having projections *h*, for retaining it in connection with the yoke, whereby on suitable operation the signal is operated, lever I, spring or springs K, and the lever E, for connecting said lever I and yoke D, substantially as and for the purpose described.

7. The diaphragm C, located in front of the box or casing, and provided with a hook, in combination with the line-wire formed at its end with an eye and projections *h*, yoke D, suspended by its upper arm, *d*, provided with central opening, through which the wire passes, and is retained when disconnection of the line with the diaphragm is made, lever I, and the intermediate lever connecting it with the lower arm of the yoke, spring G, and springs K K, all arranged to operate substantially as described.

8. In a telephone, the bell, clapper, clapper-rod provided with rod N, operated by suitable mechanism, the rod N arranged to slide horizontally, and the spring n^3, for keeping the clapper in operating plane with the bell, and yet permitting the rod N, with clapper-rod O and clapper, to be moved to one side, so that the clapper will be out of operating plane with the bell, substantially as and for the purposes specified.

9. The diaphragm consisting of a wooden piece impregnated with shellac, and at rear having alternate layers of varnish and paper, substantially as and for the purposes specified.

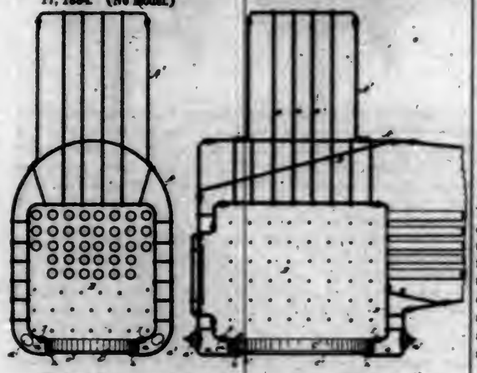
10. The diaphragm consisting of a wooden piece impregnated with

shellac, and at rear having alternate layers of shellac and paper; and in front a layer of shellac and paper, substantially as and for the purposes specified.

11. The lever I, suspended at or near its top, and line-wire, projection *h*, and eye, and hook and diaphragm, and bell and clapper, the lever I being arranged in connection with yoke and its lever E, for enabling it when swung in one direction to connect or disconnect the line-wire and the diaphragm, and when moved in a contrary direction to ring the bell, substantially as and for the purposes specified.

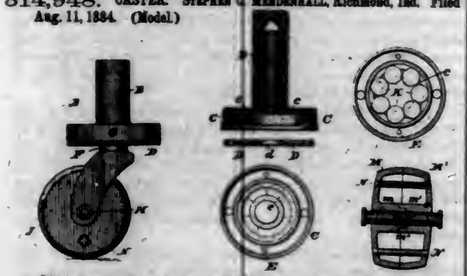
12. The diaphragm consisting of a wooden strip having alternate layers of gum and paper, substantially as described.

314,947. STEAM-BOILER. PETER I. LYNCH, Corry, Pa. Filed Apr. 17, 1884. (No model.)



Claim.—In a steam-boiler, the combination, with the plates A and B, of the water-ring C, having internal flange, *c'*, and external flange, *c²*, substantially as shown.

314,948. CASTER. STEPHEN C. MENDENHALL, Richmond, Ind. Filed Aug. 11, 1884. (Model.)



Claim.—1. A caster top or socket having an annular chamber, a series of loose horizontal flat wheels or rolls arranged in said chamber, substantially as described, and of less thickness than the height of said chamber, whereby said rollers are entirely free from vertical strain, in combination with a spindle occupying said top, bearing laterally against said wheels or rolls, which in turn bear laterally on the inner wall of the chamber, substantially as set forth.

2. An anti-friction stem-caster comprising a chambered socket closed at top, a series of loose flat anti-friction wheels or rolls without fixed axles arranged horizontally within said socket, so as to bear laterally upon the wall of the chamber while being free from vertical pressure, and a spindle occupying said socket, of greater length than the same, so as to receive the weight of the furniture vertically on its top, while bearing horizontally against the peripheries of the loose anti-friction wheels or rolls, substantially as set forth.

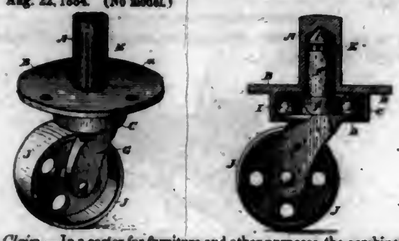
3. In combination with a caster top or socket having an annular chamber grooved substantially as shown, a series of loose horizontal anti-friction rolls or wheels occupying said chamber, and having teats or projections bearing in said grooved portion, to prevent the rolls or wheels from falling out of the top when the spindle is removed, substantially as set forth.

4. The combination of a stem-caster socket-top having an annular enlargement at bottom, two concentric rims on said top, between which the screws for attachment to the furniture may pass, a series of loose horizontal wheels or rolls occupying the enlargement in said socket-top and bearing outwardly against the inner rim, a cap-plate for retaining the rollers in place resting against said inner rim, and a spindle occupying the said socket and bearing against the inner peripheries of said anti-friction rolls, substantially as and for the purpose set forth.

5. A floor wheel or roller formed in two parts, each part with flat or unbroken outer surfaces and having a circular rim, which rims are placed edge to edge, and means, substantially as described, for securing the two parts together, so as to give the wheel a solid appearance on the exterior.

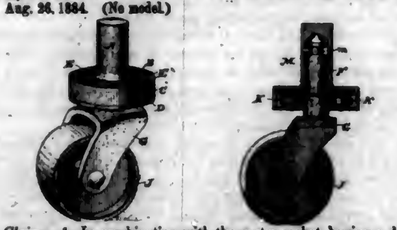
6. A hollow metallic caster-wheel composed of two vertically-separated parts or halves with central hubs, which fit one into the other and hold the two halves accurately concentric without any support from the horns of the caster-saddle, said halves being held to one another by rivets, substantially as set forth.

314,949. CASTER. STEPHEN C. MENDENHALL, Richmond, Ind. Filed Aug. 22, 1884. (No model.)



Claim.—In a caster for furniture and other purposes, the combination, with a socket or stem having a circular flange, B, at bottom, screw-holes *a* near the margin of said flange, a downwardly-projecting circular rim upon said flange inside said screw-holes, a floor-wheel housing having fixed spindle having conical upper end adapted to receive the weight of the socket, a screw or stud, E, occupying a groove in the said spindle, a disk upon the saddle adapted to fill the opening in the circular rim aforesaid, and loose horizontal anti-friction rollers supported on the said disk, and bearing on both the spindle and the circular rim of the furniture-socket, substantially as and for the purpose set forth.

314,950. CASTER. STEPHEN C. MENDENHALL, Richmond, Ind. Filed Aug. 26, 1884. (No model.)



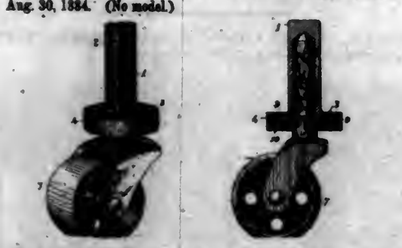
Claim.—1. In combination with the caster-socket having a downwardly-projecting rim for inclosing the anti-friction rollers, vertical ears on the edge of said rim, and the cap-plate on which said rollers are supported, and having peripheral notches for receiving the ears on said rim, substantially as set forth.

2. In a caster, the combination, with a chambered socket, of a movement to be inserted therein, consisting of two annular plates and anti-friction rollers mounted between the same, substantially as set forth.

3. In combination with rings or plates D D' and anti-friction rollers K, the shouldered pins L, on which said rollers are mounted, substantially as set forth.

4. In combination with a movement-ring held together by shouldered pins, as shown, a chambered socket, rivets for fixing said movement-ring in said socket, and screw-holes passing through both ring and socket for fixing the caster-top to the furniture-leg or other part, substantially as shown.

314,951. CASTER. STEPHEN C. MENDENHALL, Richmond, Ind. Filed Aug. 30, 1884. (No model.)



Claim.—In combination with a caster-top having bottom flange with downwardly-projecting rim, loose rollers assembled within the said rim, and a cap-plate or disk having upwardly-projecting rim adapted to closely fit the said top rim, and thus form a closed chamber for retaining said rollers, as set forth.

314,952. CASTER. STEPHEN C. MENDENHALL, Richmond, Ind. Filed Sept. 3, 1884. (No model.)



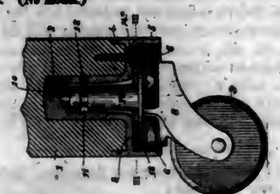
Claim.—1. In combination with a two-part stem-caster socket-top, a band or rim pressed closely around the bottom thereof for holding the two parts together, substantially as set forth.

2. In combination with a two-part stem-caster socket-top having bottom flange and rim projecting downward therefrom, the band or rim surrounding said rim and pressed closely thereon, loose anti-friction rollers, and a retaining flange or disk below said rollers, forming with the socket-flange and rim a closed chamber, substantially as set forth.

3. In combination with a two-part stem-caster socket-top riveted together at top and fastened by band or ring at bottom, the loose anti-friction rolls or rollers, as set forth.

4. In combination with a caster socket-top having an annular enlargement or chamber at bottom, loose horizontal rolls occupying said chamber and a smooth ring or way for said rolls within said chamber, substantially as set forth.

314,953. CASTER. STEPHEN C. MENDENHALL, Richmond, Ind. Filed Sept. 4, 1884. (No model.)



Claim.—1. A stem-caster socket with a downward annular rim at bottom forming a circular chamber, in combination with a saddle or housing and three horizontal anti-friction rollers mounted on said saddle, one immediately above the axis of the floor-wheel and the other two at equal distances from the same, and all adapted to revolve in contact with the inner surface of the socket-rim, substantially as set forth.

2. In a non-separating caster, a disk-shaped saddle having ears for the floor-wheel axle, holes for the anti-friction-wheel journals, and a spindle, all cast in one piece, and a groove turned in said spindle, substantially as set forth.

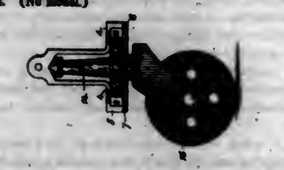
3. In combination with a caster-saddle having disk-shaped plate, horizontal anti-friction rollers supported thereon, suitable rivets forming journals for said rollers, and an upper plate wherein said rivets are fastened, substantially as set forth.

4. In combination with a saddle having disk-shaped plate 7, formed with a ridge, 15, the plate 18, supported on said ridge, and anti-friction rollers supported between said plates 7 and 18, substantially as set forth.

5. In combination, with the saddle-plate having teats or lugs cast thereon, the upper plate having holes for registering with said teats, for the purposes set forth.

6. In a caster for furniture and other articles, in combination with a furniture-plate having circular downwardly-projecting rim forming a housing for the anti-friction movement, and having screw-holes for attachment to the furniture-leg, the floor-roller and its saddle supporting three anti-friction rollers, and having cut-away portion between the two forward rollers to allow the introduction of a screw-driver, and thus permit ready access to each screw-hole by the rotation of the caster.

314,954. CASTER. STEPHEN C. MENDENHALL, Richmond, Ind. Filed Sept. 5, 1884. (No model.)



Claim.—1. The combination, with a two-part top having flange with downwardly-projecting rim, of an annular cap adapted to rest against said rim and form a closed chamber, and lugs and slots for holding said top and cap to proper relative position, substantially as set forth.

2. In combination with a two-part top having flange with downwardly-projecting rim, the cap having groove or rim for surrounding said top, and riveted pins for fixing said top and cap together, substantially as set forth.

3. In combination with a two-part stem-caster socket-top having flange at bottom with downwardly-projecting rim, a cap resting against said rim, horizontal anti-friction rollers, and vertical pins passing through said rollers and riveted in said flange and cap, substantially as set forth.

4. In combination with a stem-caster socket-top having flange at bottom with downwardly-projecting rim, a cap resting against said rim and forming a curved chamber, horizontal anti-friction rollers within said chamber, and shouldered pins passing through said rollers and riveted in said flange and cap, substantially as set forth.

314,955. CASTER. STEPHEN C. MENDENHALL, Richmond, Ind. Filed Sept. 6, 1884. (No model.)



Claim.—1. In an oscillating caster, the combination, with two floor-wheels and a spindle, of a horizontal arm fixed to the floor-wheel axis and lying in a plane below the same, substantially as set forth.

2. In an oscillating caster, in combination with two floor-wheels having a solid axle, and a solid cylindrical arm projecting therefrom, the spindle having corresponding cylindrical bearing, substantially as set forth.

3. In combination with two floor-wheels and a spindle having cylindrical bearing, as shown, the solid floor-wheel axle made of malleable iron, and having cylindrical arm and floor-wheel trunnions cast in one therewith and riveted over at their ends for retaining the spindle and floor-wheels thereon, substantially as shown and described.

4. In combination with a spindle having horizontal cylindrical bearing for a projection on the floor-wheel axis, a furniture socket or top, and horizontal anti-friction wheels or rollers within said top for taking up lateral strain on the spindle, substantially as set forth.

314,956. CASTER. STEPHEN C. MENDENHALL, Richmond, Ind. Filed Sept. 8, 1884. (No model.)



Claim.—1. In combination with a floor-wheel, the axle thereof having horizontal cylindrical arm, a vertical spindle in the bottom of which said arm is journaled, a flange or projection on said spindle, and a single vertical anti-friction roller supported on said flange vertically over the floor-wheel axle, substantially as set forth.

2. In combination with a furniture-plate having a circular downwardly-projecting rim, a vertical spindle swiveled in said plate, a circular flange formed on said spindle, vertical anti-friction movement supported on said flange and rolling on the furniture-plate, two floor-wheels and their axle having a horizontal arm bearing in the lower end of said spindle, so as to have liberty of oscillating movement, substantially as shown and described.

314,957. CASTER. STEPHEN C. MENDENHALL, Richmond, Ind. Filed Sept. 10, 1884. (No model.)



Claim.—In combination with a pod for the top of a furniture-caster, having horizontal annular flange at the bottom, a ring or cup having upset lip engaging with said flange, substantially as set forth.

314,958. CASTER. STEPHEN C. MENDENHALL, Richmond, Ind. Filed Sept. 10, 1884. (No model.)

Claim.—1. In a plate-caster, the combination, with a furniture-plate having a circular downwardly-projecting rim, of the saddle having

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disk-shaped plate, and six anti-friction rollers having alternately vertical and horizontal bearing on said disk, substantially as and for the purpose set forth.

2. In combination with a caster-saddle having enlarged central opening, a spindle having bearing on transverse pin in said opening, a circular disk fixed to said spindle, and six anti-friction wheels alternately vertical and horizontal having bearing upon said disk, substantially as set forth.

314,959. CASTER. STEPHEN C. MENDENHALL, Richmond, Ind. Filed Sept. 12, 1884. (No model.)





Claim.—1. In a stem-caster, in combination with a socket and caster-spindle, two sets of anti-friction rollers, one at the top and the other at the bottom of said spindle.

2. In combination with the spindle having flange or collar near its upper end and a socket for receiving said spindle, a series of anti-friction balls placed in the annular chamber between said collar and socket, and adapted to take up both vertical and lateral strains.

3. In combination with an anti-friction socket-top and a spindle fixed to the saddle and bearing therein, a felt or equivalent washer surrounding the said spindle and protecting the top from dust, substantially as set forth.

4. In combination with a two-part pod or socket having an annular enlargement or chamber at bottom, a circular flange surrounding and extending beyond said chamber, and a cap-plate riveted to said flange and having wood-screw holes for attachment of the top to the leg of the piano or other article, substantially as set forth.

5. In combination with a floor-wheel and the horns of a caster-saddle embracing the same, a pin having bearing in both horns and floor-wheel, a shoulder or head on said pin for preventing movement in one direction, a washer having end bearing on said pin, so as to prevent movement in the other direction, and means for fixing said washer and pin together, the whole being so constructed and arranged as to prevent the straining of the two horns when the pin is being fixed in position, substantially as set forth.

6. In combination with a caster saddle or horn and a floor-roller, a journal-pin for said roller, having a solid head at one end and an internal screw-thread at the other, a washer, and a screw, the whole being so arranged as to permit the fixing of the pin within the saddle-ears without subjecting the said ears to strain.

7. A malleable furniture-caster saddle having ears surrounding the floor wheel or roller, said ears having ribs or bulged portions struck up therein, substantially as shown.

314,960. CASTER. STEPHEN C. MENDENHALL, Richmond, Ind. Filed Oct. 4, 1884. (No model.)

Claim.—1. In a two-wheel oscillating caster, an axle supporting the floor-wheels, having a transverse cylindrical bearing below the axis

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of said wheels, and a spindle having an arm occupying said bearing, substantially as and for the purpose set forth.

2. In an oscillating caster, the combination, with two floor-wheels and an anti-friction roller and spindle having a horizontal arm, of an axle having trunnions for the floor-wheels and bearings for the vertical anti-friction wheel or wheels also formed integrally with the axle, and a transverse cylindrical bearing for the spindle-arm below the center of the floor-wheels, substantially as and for the purpose set forth.

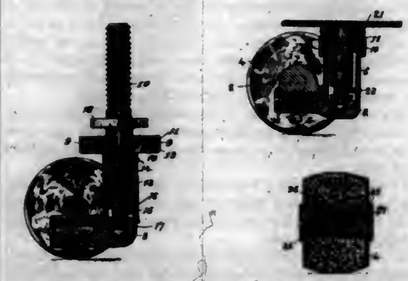
3. The combination, with an axle-piece made of malleable or wrought iron, and having trunnions and bearings for the floor-wheels and anti-friction roller, respectively, formed integrally therewith, of a malleable or wrought iron spindle occupying a socket in the axle, and connected to said axle by riveting, substantially as described.

4. The combination of an axle, two floor-wheels, and a vertical anti-friction roller mounted thereon, a spindle occupying a bearing in said axle below the center of the floor-wheels, a furniture-plate resting on said anti-friction roller, and a downwardly-projecting neck surrounding and bracing the lower end of the spindle, substantially as set forth.

5. In combination with an axle having a vertical anti-friction roller and a horizontal arm journaled thereon in different horizontal planes, a rigid vertical projection from said horizontal arm, and a furniture-plate having a rigid downward projection engaging with the projection from the arm in the axle or housing in such a manner as to allow vertical movement between the two.

6. In a caster, the combination, with the spindle having a horizontal arm, of an axle having a transverse bearing for said arm, and a neck or extension surrounding said arm, substantially as and for the purpose set forth.

314,961. CASTER. STEPHEN C. MENDENHALL, Richmond, Ind. Filed Oct. 3, 1884. (No model.)



Claim.—1. In combination with two floor-wheels, their axle, and a horizontal arm bearing therein, a vertical socket fixed or formed on said arm, having anti-friction rollers at top, and a spindle occupying said socket, substantially as set forth.

2. In combination with a socket supported from the floor-wheel axle or housing and having a conical seat at the bottom, an anti-friction ball occupying said seat, and a spindle having concave bearing at bottom resting on said anti-friction ball, substantially as shown and described.

3. In combination with the floor-wheels of a caster, a wrought or malleable iron spindle bearing in said wheels, and a cast-iron axle formed about said spindle, substantially as set forth.

4. In combination with a spindle having cylindrical portion at bottom and screw-threaded portion at top, a nut rigid upon the center of said spindle, and having upturned cup or rim for surrounding the furniture-leg, formed in one with said nut, substantially as set forth.

5. A glass roller having a bushing driven therein and fixed by spinning over its ends.

6. In combination with a glass roller having an axial opening, sleeves driven into both ends of said opening, and a cylindrical bushing having its ends spun over outside of said sleeves, substantially as set forth.

7. In a caster, in combination with an inverted pod and grooved spindle occupying same, a plate-spring secured on the outside of the pod, and having a teat at the end of same, which passes through the pod and engages in the groove in the spindle, substantially as set forth.

8. In combination with a caster-socket and spindle occupying same, a groove and inclined notch on said spindle, and a teat or pin operated by a spring from the outside of pod, and engaging in said groove, substantially for the purpose set forth.

314,962. CASTER. STEPHEN C. MENDENHALL, Richmond, Ind. Filed Oct. 11, 1884. (No model.)



Claim.—1. In a caster, in combination with a single floor-wheel, a reversed socket formed in halves, and ears formed one on each half of the socket, embracing the floor-wheel, substantially as shown and described.

2. In combination with a wheel frame or socket formed in halves, having ears embracing the floor-wheel, a shouldered axle for said wheel, substantially as shown.

3. In combination with a spindle having an upper end square in cross-section, a furniture-socket having corresponding bearing for said spindle, substantially as shown and described.

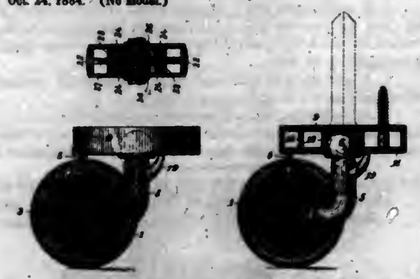
4. In combination with a wheel-frame and reversed socket thereon, a spindle having a cylindrical lower end and a polygonal upper end, substantially as shown.

5. In combination with a caster-socket having a hard-metal plate with a central circular bearing, a spindle having a hard-metal end piece with projecting stud to occupy said bearing, substantially as set forth.

6. In combination with two half-wheels formed with circular rims fixed together edge to edge, and means for riveting the same, a tongue or projection upon one half-rim occupying a corresponding notch or recess in the other, for the purpose set forth.

7. A wheel made of two half-wheels having rims dovetailed together, substantially as shown.

314,963. CASTER. STEPHEN C. MENDENHALL, Richmond, Ind. Filed Oct. 24, 1884. (No model.)



Claim.—1. In a caster, a wheel-frame consisting of a horizontal arm supported at one end on the floor-wheel axle between the floor-wheels, having vertical ears above said axle for the anti-friction wheel or roller, and having at its other end a vertical projection supporting a ball for bearing on the furniture-plate, substantially as set forth.

2. In combination with floor-wheels and a spherical-headed spindle mounted thereon, a furniture plate or attachment having a downwardly-projecting socket of malleable or wrought iron pressed around the spherical head of said spindle, substantially as set forth.

3. In combination with floor-wheels, an axle or frame mounted thereon having a vertical socket, a wrought or malleable iron spindle riveted in said socket, and having a spherical head, a furniture attachment having a downward spherical socket for receiving said head and spun over or pressed around the same, substantially as set forth.

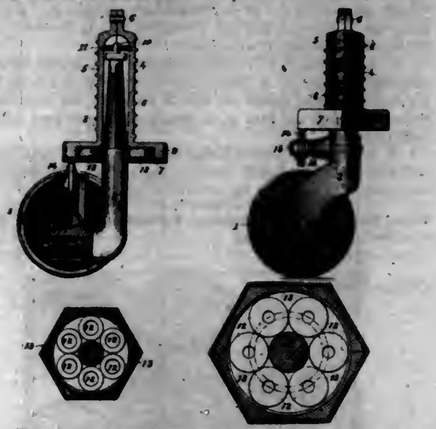
4. A hollow caster-roller formed with two coaxial annular chambers separated by a circular ledge or partition, and having a series of anti-friction rollers bearing on said ledge, substantially as set forth.

5. A hollow caster-roller having two coaxial annular chambers, circular ledges separating said chambers, transverse partitions and cap-plates, and two series of anti-friction rollers, at opposite sides of the roller, retained to position by said transverse partitions and cap-plates, substantially as set forth.

6. In combination with a caster-axle, a floor-wheel having a series of anti-friction rollers, on which said axle has bearing, and loose rings or washers covering the opening around the axle for excluding dust from the movement, substantially as set forth.

7. In combination with a furniture-plate, 9, having a rigid nut-shaped projection, 20, on its under side, a floor-wheel axle, a vertical anti-friction wheel mounted thereon and bearing on said furniture-plate, and a log, 19, projecting from the floor-wheel housing and adapted to rest on the said projection 20 on the furniture-plate, whereby said projection serves the double purpose of supporting the housing and aiding in the fixing of the caster to the furniture, substantially as set forth.

314,964. CASTER. STEPHEN C. MENDENHALL, Richmond, Ind. Filed Nov. 15, 1884. (No model.)



Claim.—1. A stem-caster socket-top cast in two parts, each part having one-half of a screw-thread, which halves register when the two parts are put together, and one-half of an enlarged chamber at bottom having a polygonal contour, in combination with a polygonal cap forced over said chambered portion, for the purpose set forth.

2. In combination with a furniture socket-top having an enlargement or chamber at bottom, horizontal anti-friction rollers occupying said chamber, a spindle occupying said socket and bearing laterally on said rollers, and a single vertical anti-friction roller bearing against the bottom of said chamber, substantially as set forth.

3. The combination of a vertical socket having horizontal washer or diaphragm at top and horizontal enlargement or chamber at bottom, loose horizontal anti-friction rollers within said chamber, a spindle bearing on said rollers laterally, and having a stud at top occupying a hole in said washer or diaphragm, and a vertical anti-friction wheel or roller mounted upon the wheel truck or spindle and bearing on the bottom of said chamber, substantially as set forth.

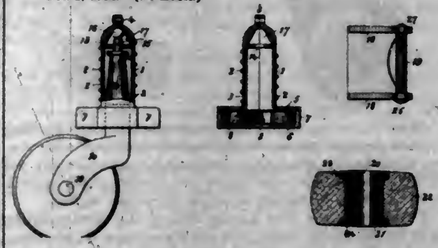
4. In combination with a furniture top or socket having a horizontal enlargement or chamber, a spindle arranged concentrically within said chamber, and loose horizontal anti-friction rollers having flat bearing-faces adapted to fill the annular space between the spindle and wall of the chamber and prevent the falling out of said rollers when said spindle is removed, substantially as set forth.

5. In combination with a spindle having a horizontal boss or arm thereon, a vertical anti-friction wheel or roller supported on said boss, substantially as and for the purpose set forth.

6. In combination with a single floor wheel or roller and its axle, a saddle and spindle supported on said axle, a horizontal boss cast on said spindle, a shouldered wrought pin occupying a horizontal bore in said boss, a vertical anti-friction roller supported on said pin, and a furniture plate or attachment resting upon said anti-friction roller, substantially as set forth.

7. In a caster, loose hollow anti-friction rollers, arranged substantially as described.

314,965. CASTER. STEPHEN C. MENDENHALL, Richmond, Ind. Filed Dec. 2, 1884. (No model.)



Claim.—1. In combination with a furniture-socket having horizontal flange at bottom, a cap corresponding in cross-section to the shape of said flange, and having seat and lip, substantially as described.

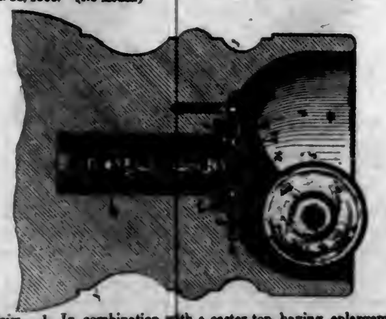
2. The combination of a furniture socket or stem, a horizontal diaphragm therein having central bearing, as shown, a spindle having stud at top projecting through said bearing, and an anti-friction ball occupying the top of the socket and resting upon said stud, substantially as herein set forth.

3. In a furniture-caster socket, a horizontal diaphragm therein having central bearing, as shown, a spindle having stud at top projecting through said bearing, and an anti-friction ball occupying the top of the socket and resting upon said stud, in combination with a series of anti-friction rollers at bottom of socket-plate.

4. In combination with a saddle having horns embracing the floor-wheel and axial openings of different sizes in said horns, an axle-pin having shoulder abutting against one horn of the saddle, and an extension projecting through and fixed on the outside of the same horn, substantially as set forth.

5. A floor wheel or roller having an axial bushing of metal packed within the roller by means of artificial stone or other equivalent material, substantially as and for the purpose set forth.

314,966. CASTER. STEPHEN C. MENDENHALL, Richmond, Ind. Filed Feb. 11, 1885. (No model.)



Claim.—1. In combination with a caster-top having enlargement or chamber at bottom and a horizontal flange projecting beyond said chamber, a cap-plate having upturned rim or lip adapted to be turned or swaged over the edge of said flange, substantially as set forth.

2. In combination with a caster socket or top, a hard-metal ball in the top thereof, a spindle having a hard-steel pin on the top of which said ball is adapted to rest, and a horizontal anti-friction box for retaining said spindle to axial position, substantially as described.

3. In combination with a socket and spindle, two series of horizontal anti-friction rollers at the top and bottom of said spindle, respectively, and an anti-friction ball located at the top of said socket and resting upon the head of the spindle, for the purpose set forth.

4. In combination with a two-part socket having a groove near its top and a spindle adapted to rotate in said socket, an anti-friction box surrounding the upper end of said spindle and having outturned lip for occupying said groove, for the purpose set forth.

5. In combination with a socket and a spindle adapted to rotate therein, a series of loose horizontal anti-friction rollers made with flat bearing-faces, upon which the spindle bears laterally, and which in their turn bear outwardly against the wall of the socket, said rollers having curved or conical sides to adapt them to touch at but a single point upon their supporting-plate.

314,967. CASTER. STEPHEN C. MENDENHALL, Richmond, Ind. Filed Feb. 14, 1885. (No model.)



Claim.—1. In combination with a floor wheel or roller, a housing and spindle supported thereon, a single vertical anti-friction roller supported in said housing immediately above said floor wheel or roller, and a furniture attachment or plate having downwardly-projecting neck around said spindle, substantially as and for the purpose set forth.

2. A floor wheel or roller provided with an axial opening having seats for the anti-friction bushing, two cup-shaped boxes of such dimensions and so forced into the roller as to be retained by friction of its sides on the said seats, and two annular series of vertical rollers arranged within said cups and having bearing vertically against their sides or rims, substantially as set forth.

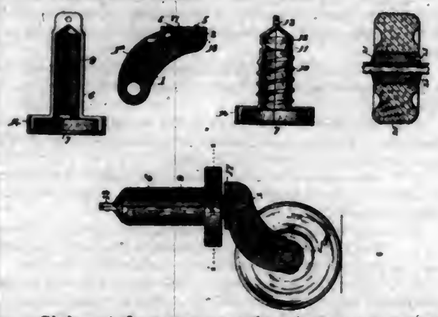
3. The anti-friction box comprising an annular series of loose anti-friction rollers and two metallic cups or boxes telescoped together to retain said rollers between them, as set forth.

4. In combination with a floor wheel or roller and a metallic tube inserted therein, one or more anti-friction boxes forced into said tube, substantially as and for the purpose set forth.

5. In combination with the floor-wheel 8, the tube 20, having ribs 21, and anti-friction boxes at each end and abutting on said ribs, substantially as set forth.

6. In combination with a floor wheel or roller and anti-friction boxes on each side thereof, a metallic tube in which said anti-friction boxes are forced and a soft-rubber or other cushion placed between said tube and the body of the roller, substantially as and for the purpose set forth.

314,968. CASTER. STEPHEN C. MENDENHALL, Richmond, Ind. Filed Feb. 25, 1885. (No model.)



Claim.—1. In a caster, a wrought socket or top stamped out in two parts, having ridges or ribs stamped therein for holding the socket within the furniture, substantially as set forth.

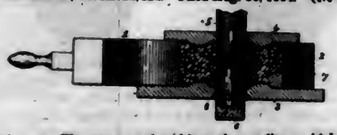
2. A wrought socket or top for casters having an annular depression stamped around it near its top, forming an internal ridge for retaining the spindle in place, substantially as set forth.

3. In combination with a wrought saddle, washers on each side of the same, and corresponding depressions and bosses in the saddle and washers, for preventing relative horizontal movement between these parts, substantially as set forth.

4. A floor wheel or roller made with circumferential corrugations, substantially as and for the purpose set forth.

5. In combination with a floor wheel or roller having axial opening, chamfered or recessed, as described, a bushing therefor, and a wedge for forcing said bushing into the chamfer or recess, for the purpose set forth.

314,969. GLASS ROLLER FOR SKATES, CASTERS, AND OTHER ARTICLES, AND THE PROCESS OF PRODUCING THE SAME. STEPHEN C. MENDENHALL, Richmond, Ind. Filed Aug. 30, 1884. (No model.)



Claim.—1. The process of making glass rollers which consists in molding the roller with an axial opening and then driving a bushing pin or sleeve therein, substantially as set forth.

2. The process of making glass rollers which consists in molding the roller with an axial opening, drilling said opening with emery or sand, and then driving in a suitable bushing, substantially as set forth.

3. The process of making glass rollers which consists in forming the roller with an axial tapering opening, driving the bushing-pin into said opening, and subsequently boring said bushing, substantially as set forth.

4. A roller for casters, skates, and similar articles, made of glass, and having a bushing of wood, rubber, or equivalent material, substantially as set forth.

5. A roller for casters, skates, and similar articles, made of glass, and having a bushing cemented in said rollers, substantially as set forth.

6. A roller for casters, skates, and similar articles, made of glass, having a tapering axial opening and a tapering wooden or equivalent bushing driven therein, substantially as set forth.

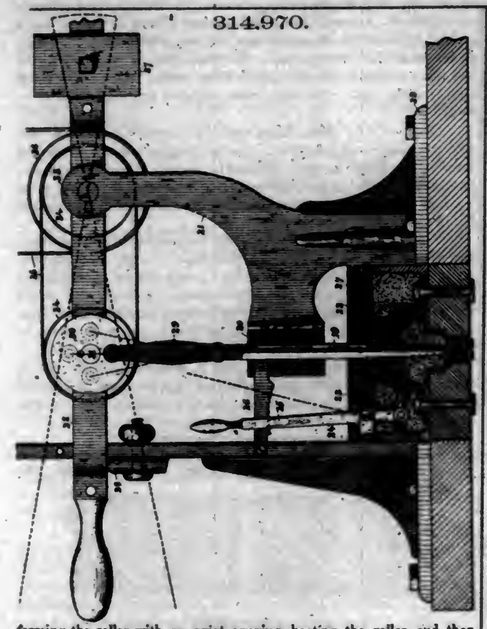
7. A roller for casters, skates, and similar articles, made of glass, having an axial opening, a wooden or equivalent bushing therein, and a brass or other hard bushing within said wooden bushing, substantially as set forth.

314,970. MANUFACTURE OF GLASS ROLLERS. STEPHEN C. MENDENHALL, Richmond, Ind. Filed Nov. 3, 1884. (No model.)

Claim.—1. The process of forming glass rollers, which consists in molding the glass with an axial opening oppositely tapered from the center, breaking out the intervening web, and subsequently applying a bushing of suitable material, substantially as described.

2. The process of forming a bushed glass roller, which consists in

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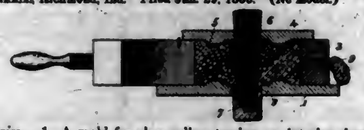


forming the roller with an axial opening, heating the roller, and then casting a metal bushing therein, substantially as described.

3. A glass roller having an axial opening polygonal in cross-section, and a correspondingly-shaped bushing applied thereto after the formation of the roller, substantially as described.

4. A glass roller molded with annular depressions or grooves formed in the sides thereof for lessening the weight without impairing the strength of the roller, substantially as described.

314,971. MANUFACTURE OF GLASS ROLLERS. STEPHEN C. MENDENHALL, Richmond, Ind. Filed Jan. 29, 1885. (No model.)

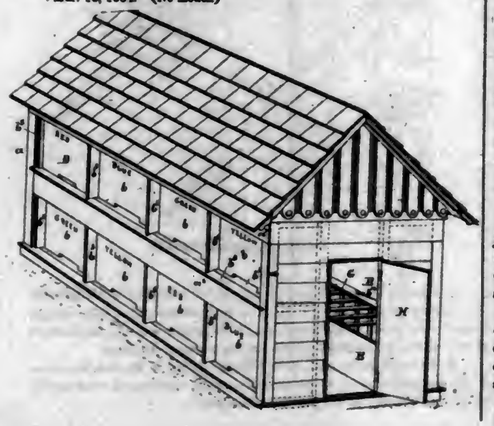


Claim.—1. A mold for glass rollers having an interior chamber of the desired conformation of the roller, and a vertical plunger adapted to pass entirely through the said chamber, substantially as set forth.

2. A mold for glass rollers having a plunger for forming an axial opening, and suitable gateways for the glass in excess, substantially as described.

3. In combination with a mold for glass rollers, a plunger having conical end, substantially as and for the purpose set forth.

314,972. BEE-HIVE. NELSON C. MITCHELL, Kansas City, Mo. Filed Mar. 10, 1884. (No model.)

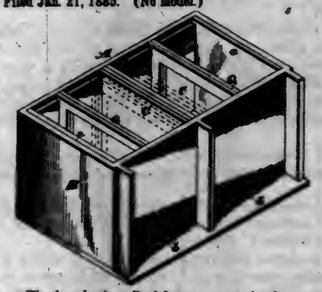


Claim.—1. The way or trough B, having one or more compartments, B', each of which is provided with two distinctively-marked entrances with longitudinally-adjustable division-boards, C' C', rendering it extensible, so as to accommodate one or two colonies of bees, with removable comb-frames placed in a position accessible from both of said entrances, and with one or more division-boards, C C, and means for supporting them between the two entrances, whereby the multiplication of colonies is facilitated and swarming prevented, substantially as described.

2. The combination, with the inclosing-house, of the beeway or series of hives B on the walls of the house, accessible from within, and having the outer wall, *b*, of the way adjacent to the comb-frames, constituting the outer wall of the house.

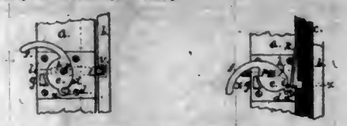
3. The combination, with the way B, constituting a series of hives, of the inclosing-house, having an opening in its walls adjacent to each hive, and removable covers E for said openings, whereby the bees are led to fly outward upon the opening of the hive from within the house.

314,973. ART OF BEE-KEEPING. NELSON C. MITCHELL, Kansas City, Mo. Filed Jan. 21, 1885. (No model.)



Claim.—The herein-described improvement in the art of bee-keeping, which consists of the following steps: first, in placing an original colony in an extensible compartment having two differently-marked entrances and of a size sufficient to accommodate two colonies, whereby the worker bees are taught to recognize either of said entrances as leading to their home; second, in subdividing the colony without changing its location at the proper point of increase thereof in the original compartment; and, third, in extending the compartment laterally to accommodate the subdivided colony, whereby swarming is prevented and the workers will remain with and labor for either or both colonies, and the young bees hatched after the division will recognize but one of the distinctively-marked entrances as leading to their home, substantially as described.

314,974. SASH-FASTENER. ROBT. S. NOBLE, West Bay City, Mich. Filed Apr. 25, 1884. (No model.)



Claim.—1. In a window-sash fastener, the face-plate *d*, provided with the slot *h* and the studs *i* and *g*, the bolt *l*, and spring *m*, in combination with the cam *e*, provided with the lever *f*, and secured to the bolt *l* by the screw *p* passing through the slot *h*, and adapted to engage with the stud *i* for moving the bolt *l* back and holding it free from the jamb *b*, and to engage with the stud *g* for pressing the end of the bolt *l* firmly against the jamb for holding the sash in a desired position, substantially as described and shown.

2. In an automatic sash-fastener, the plate *d*, having the studs *i* and *g* and slot *h*, the bolt *l*, provided with the spring *m*, the cam *e*, provided with the lever *f*, the recess *t*, and the projecting lug *n*, in combination with the spring-catch *k*, located and arranged to operate substantially as described, and for the purpose specified.

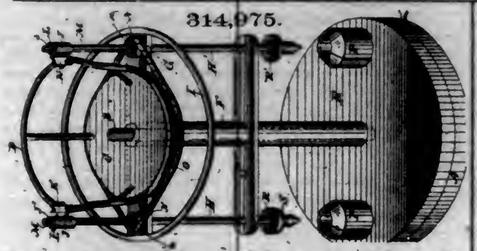
314,975. MACHINE FOR FORMING GLASS JARS, BOTTLES, &c. DANIEL W. NORRIS, Elgin, Ill. Filed July 25, 1884. (No model.)

Claim.—1. In a machine for forming the mouths or necks of glass jars, bottles, &c., the combination, with the mold in which the jar or bottle is blown, of a rotating tool for pressing the neck of the jar or bottle outward against the mold and co-operating with the mold to cut off the surplus glass or blow-over, substantially as described.

2. In a machine for forming the mouths or necks of glass jars, bottles, &c., the combination, with the mold in which the jar or bottle is blown, of a tool for pressing the glass of the mouth or neck of the jar or bottle outward against the mold and co-operating with the mold to cut off the surplus glass or blow-over, substantially as described.

3. In a machine for forming the mouths or necks of glass jars, bottles,

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&c., the combination, with the mold, of an automatic rotating expansible forming-tool, substantially as described.

4. In a machine for forming the mouths or necks of glass jars, bottles, &c., the combination, with a mold in which the jar or bottle is blown, of a rotating expansible forming-tool for forcing the mouth or neck of the bottle laterally against the walls of the mold, substantially as described.

5. In a machine for forming the mouths or necks of glass jars, bottles, &c., the combination, with the mold, of an automatic rotating expansible forming and cutting-off device, substantially as described.

6. In a machine for forming the mouths or necks of glass jars, bottles, &c., the combination, with the mold having the cutting-off edge, of the co-operating expansible forming and cutting-off tool, substantially as described.

7. The combination, with the mold, of the spindle or plunger and the forming and cutting-off levers connected thereto, substantially as described.

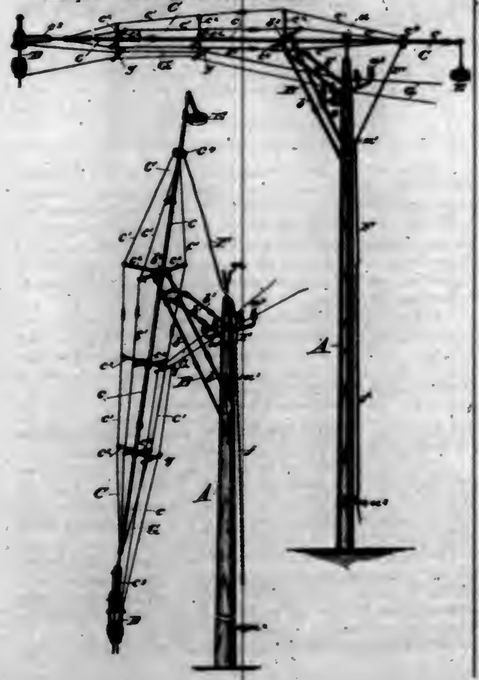
8. The combination of the mold with the spindle or plunger, the forming and cutting-off levers pivoted thereto, and the loose collar, substantially as described.

9. In a machine for forming and finishing glass jars, bottles, &c., the combination, with the mold for forming the exterior of the vessel, of an automatic rotating expansible forming-tool for forcing the vessel outward against the walls of the mold, substantially as described.

10. In a machine for forming and finishing glass jars, bottles, &c., the combination, with the mold for forming the exterior of the vessel, of an automatic expansible forming-tool for forcing the vessel outward against the walls of the mold, substantially as described.

11. In a machine for forming and finishing glass jars, bottles, &c., the combination, with the mold for forming the exterior of the vessel, of an automatic forming-tool for forcing the vessel outward against the walls of the mold, substantially as described.

314,976. MEANS FOR SUSPENDING ELECTRIC LIGHTS. WILLIAM R. O'BRIEN, Fort Wayne, Ind., assignor to the Star Iron Tower Company, same place. Filed Sept. 23, 1884. (No model.)



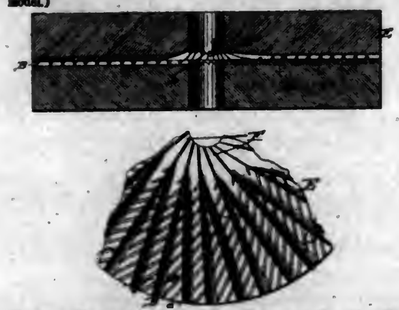
Brief.—A trussed lamp-frame having a lamp at one end and a counter-weight at the other is fulcrumed to a supporting-frame projecting from a mast adjacent to its head. The lamp-frame is swung by a wire and chain secured to the mast, and its inner portion rests on a support at the top of the mast. The lamp-frame and mast are provided with insulators.

Claim.—1. An electric-lamp supporter composed of a mast or pole having a proper supporting-frame fixed to its upper end, and a swinging lamp-frame having the lamp attached to one end, and a counterbalancing-weight attached to the other end and fulcrumed at a proper point between the two to the supporting-frame at a suitable distance from the mast, substantially as specified.

2. In an electric-lamp supporter, the combination of a vertical mast having a vertical rest for the lamp-frame fixed in its top and a supporting-frame fixed to the mast, and having a proper fulcrum situated at the same height as the rest and at a suitable distance from the mast, with a vertically-swinging lamp-frame carrying the lamp at one end and a counter-balance at the other and turning on the fulcrum, and proper means for actuating the lamp-frame from the ground, substantially as specified.

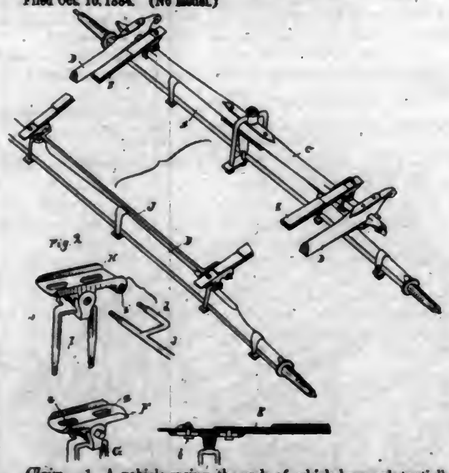
3. The combination, with the mast A, provided with the rest *a*, staple *a'*, locking device a^2, and insulators a^3, and the frame B, provided with the fulcrum b^2, of the trussed lamp-frame C, lamp D, weight E, wire F, chain *f*, and insulators *g g*, substantially as specified.

314,977. MILLSTONE-DRESS. JOSEPH R. PRICE, Hickory, Miss., assignor of one-half to I. I. Barber, same place. Filed Dec. 22, 1884. (No model.)



Claim.—The combination of the millstones A E, said millstones having each the leaders B, the skirt-furrows C, and the short furrows D, arranged obliquely to the leaders and skirt-furrows, the leaders, skirt-furrows, and short furrows having each a steep edge, *a*, and a slanting edge, *b*, and the upper stone having the sunken bosom F at its center, for the purposes set forth, substantially as described.

314,978. VEHICLE-SPRING. JORAN PRIEST, Grosse Point, Mich. Filed Oct. 10, 1884. (No model.)

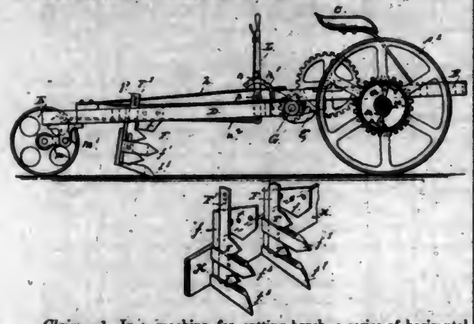


Claim.—1. A vehicle-spring the ends of which have substantially flat bearings upon plates pivotally secured, as described, such springs being free to move in the direction of their length over the flat surfaces of said plates, substantially as and for the purposes described.

2. In combination with a semi-elliptic spring, E, the bearing-plates F H, pivotally secured to the clips G I, when constructed substantially in the manner and for the purposes described.

3. In a vehicle, and in combination with the axles A B and bolster C, the side semi-elliptic springs, E, oscillating bearing-plates F H, clips G I, and equalizing-bar J, when constructed, arranged, and operating substantially in the manner and for the purposes specified.

314,979. BRUSH-CUTTING MACHINE FOR VINEYARDS. OTTO R. RUFUS, Sonoma, Cal. Filed Jan. 19, 1884. (No model.)



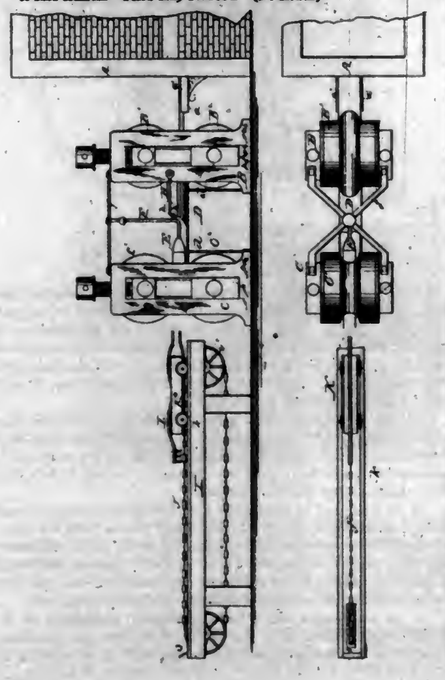
Claim.—1. In a machine for cutting brush, a series of horizontal or approximately horizontal arms capable of being tilted, each carrying a vertically-operating cutter, in combination with said cutters and with the mechanism for operating them, as set forth.

2. In a machine of the character hereinbefore described, the combination of a draft-axle, A, a shaft, G, receiving motion therefrom, the frame having cutters that are set to operate in substantially vertical planes, the spring-arms *h*, and the cams *g* on the shaft G, as a means of giving a cutting movement to the cutters in both directions, as set forth.

3. The combination, with the cutters, of the apron K, substantially as hereinbefore described, for the purpose set forth.

4. The hereinbefore-described traveling brush-cutting machine, consisting, essentially, of a draft-frame mounted on wheels, a trailing frame composed of bars D, having vibrating cutters that move in substantially vertical planes, a means for setting and supporting the rear end of the frame with respect to the surface of the ground, an actuating-shaft to which each cutter is connected by mechanism that produces the required vibratory motions thereof, and mechanism connecting said shaft with the draft-axle, substantially as hereinbefore set forth.

314,980. MACHINE FOR MAKING PIPE. GEORGE RUSSELL and D. ROSS WOOD, McKeesport, Pa.; said Wood assignor of one-half of his right to said Russell. Filed May 26, 1884. (No model.)



Claim.—1. In a machine for making pipe, the combination, with the forming and welding rolls, of a welding-ball arranged between the welding-rolls, and a gripping device and endless chain operating in unison with said rolls, for grasping the end of the pipe and drawing it through said rolls, as set forth.

2. In a pipe-machine, the combination, with the forming and welding rolls, of means, substantially as described, for automatically grasping the pipe and drawing it through the rolls, as set forth.

3. In a pipe-welding machine, the combination of two pairs of rolls and a welding-ball arranged between the second pair of rolls with a feeding device comprising a pair of tongs arranged behind the second pair of rolls, and means, substantially as described, for causing the said tongs to grasp the end of the blank as it comes from the rolls and draw it out of the same, as set forth.

4. In a pipe-machine, the combination, with the rolls, of the endless chain J, carriage K, and levers L L, having jaws *l l*, and depending hooks M M, substantially as set forth.

5. In a pipe-machine, the combination, with the rolls, of a feeding device comprising an endless chain, a carriage, a pair of tongs carried thereby, and a spring-coupling device, I, adapted to connect said carriage to the chain and to yield slightly when first engaging with the chain, substantially as described.

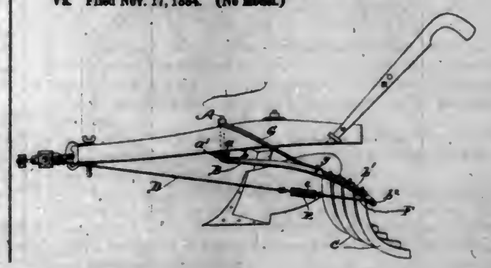
314,981. WAGON-AXLE. AUGUSTUS E. SUELL, Franklin, Ky., assignor of two-thirds to John B. Montague and J. Toms Booker, same place. Filed July 12, 1884. (No model.)



Claim.—1. The combination of an axle-tree having its ends threaded, removable spindles having their engaging ends also threaded, and a nut for uniting the same, adapted to serve as a stop for the inward movement of the wheels, substantially as specified.

2. The combination, with an axle having its ends threaded in the direction of rotation of the wheels, of the spindles having their inner ends threaded, and union-nuts connecting said spindles to the axle ends, and forming the axle-shoulders for the inner bearings of the wheel-hubs, substantially as specified.

314,982. PULVERIZING ATTACHMENT FOR PLOWS. JUNIUS R. SUMMERSON, Dublin, assignor of one-half to David T. Martin, Pulaski P. O., Va. Filed Nov. 17, 1884. (No model.)



314,982.



Claim.—1. In combination with a plow, the arm B, provided with single eye *b*, slotted end *b'*, and hole *b²*, bolt A, provided with double eye *a* and pin *a'*, cutters C, tension-rod D, spring E, provided with spring-box *e*, and rod F, substantially as described and shown, and for the purpose set forth.

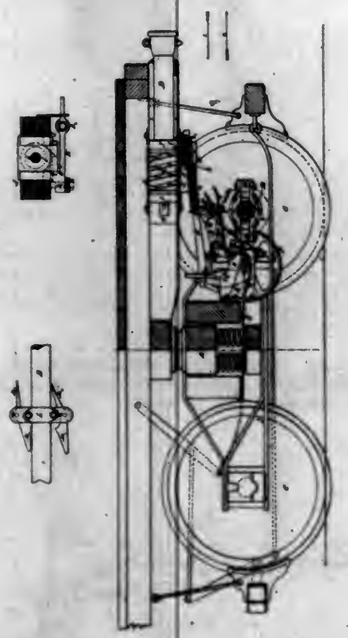
2. In combination with a plow, the arm B, provided with single eye *b*, slotted end *b'*, and hole *b²*, bolt A, provided with double eye *a* and pin *a'*, cutters C, tension-rod D, provided with a spring and connecting the end of arm B with the double-tree of the plow, and spring G, attached to the plow-beam and adapted to press the cutters downward against the sod, substantially as described and shown, and for the purpose set forth.

314,983. AUTOMATIC CAR-BRAKE. WILLIAM B. TURNER and CORNELIUS BEARD, New York, N. Y. Filed Apr. 23, 1884. (No model.)

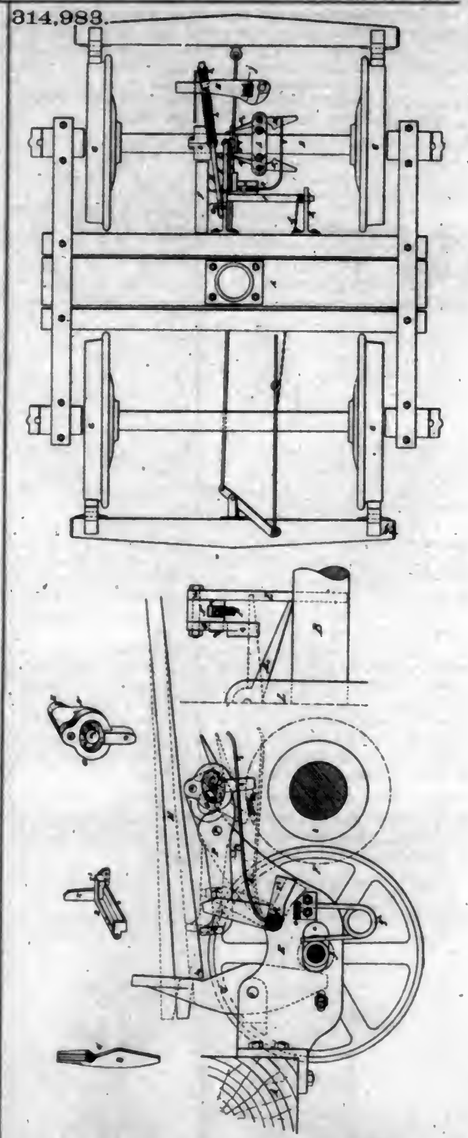
Claim.—1. In a car-brake, the combination, with a tripping device constructed to automatically throw the brake out of operation on a change of direction, of a device adapted to hold it in an inoperative condition until a predetermined rate of speed has been attained, substantially as described.

2. The combination, with a car-brake operated by the inward motion of the draw-bar, of a push-bar connecting the draw-bar with the brake-operating mechanism, a tripping device, substantially as described, for automatically throwing said push-bar out of operative connection with said brake mechanism on a change of direction, and a device for holding the same in an inoperative condition until a predetermined rate of speed has been attained, substantially as described.

3. The combination, with a car-brake, of a tripping device provided with a lever constructed and arranged to throw the brake out of operative condition on change of direction, and cause the brake to resume its operative condition when the predetermined rate of speed has been attained, substantially as described.



314,983.



4. The combination, with a car-brake, of a tripping device provided with a pivoted weighted lever having one end constructed to automatically brake the connection between the brake and the draw-bar on change of direction, and through suitable mechanism hold the same in an inoperative position, and the other end to disengage said mechanism and allow the connection between the brake and draw-bar to resume its operative position, substantially as described.

5. The combination, with a brake mechanism, of a weighted lever revolving with the axle and operated by gravity and the centrifugal force created by the revolution of the axle adapted to throw the brake mechanism out of operation on change in direction, and a dog to hold it in that condition, substantially as described.

6. In a car, and in combination with a brake mechanism operated through the draw-bar, a lever operated by the axle to throw the brake-connection out of operation, a dog operated by gravity to hold said brake-connection out of operation, and a lever carried by the axle constructed to disengage said dog by the centrifugal action of its weighted end when a predetermined rate of speed is attained, substantially as set forth.

7. In combination with a brake mechanism substantially as described, weighted levers, as M, operated by the car-axle and connections, whereby the said brakes may be thrown and held out of operation by one end of said levers as the axle revolves slowly on change of direction and into operation by the opposite end when a rate of speed sufficient to overcome the gravity of said weighted lever has been reached, substantially as set forth.

8. In combination with a car-brake, the weighted lever M, pivoted to the car-axle, a lever operated by one arm of said lever M to throw the brake mechanism out of operation on change of direction, and a lever, as E', operated by the other arm of said lever M to release such mechanism and render the brake operative.

9. In combination with the brake mechanism and levers M, the lever P, having cam p^3 and stud p', the hangers N O, the roller n^2, and the dog *r*, having arm R' r^2, as set forth.

10. In combination with the push-bar H, lever G, and brake mechanism, the lever P, dog *r* R' r^2, the weighted levers M, and their operating connections, as and for the purposes set forth.

11. In a brake mechanism, and in combination with the push-bar H and draw-bar D, the pivoted lever K, having recess *k* and aperture k^2, the springs *k k'*, and connections, as I J, as set forth.

12. The moving plate J, sliding on guides J', and having lug *j*, combined with the oscillating lever K, having recess *k* and connections with the brake mechanism and the draw-bar, as set forth.

13. The oscillating lever K, having recess *k* and aperture k^2, the springs *k k'*, and push-bar H, having tooth h^2, combined with the lever G, having its upper end forked, and the shaft *f*, brake mechanism, and connections with the draw-bar, as set forth.

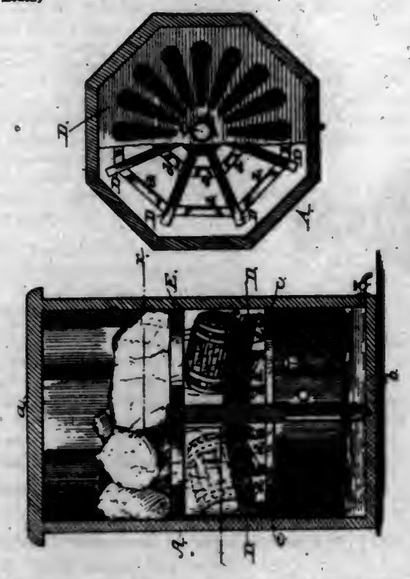
14. In combination with the push-bar and brake mechanism, the lever P, having cam p^3, the lever M, having arm M^3, the hanger O, and roller n^2, as and for the purposes set forth.

15. In combination with the push-bar H and brake mechanism, the lever P, having cam p^3 and lug p^2, the levers M, the hanger O, and roller n^2, and the dog *r*, having arm R' r^2, as set forth.

16. In combination with the lever M, the push-bar, and lever P, having cam p^3 and lug p^2, and the dog having arm R' r^2, the hanger O, having roller n^2, pivoted in the jaws *n'*, and having lug n^3, as set forth.

17. The combination, in a brake apparatus, of a pivoted lever, K, provided with a recess, *k*, and having its fulcrum on one side of a line drawn through the center of said recess, in combination with the sliding lug *j*, working in said recess and connected with and deriving its motion from the draw-bar, substantially as described.

314,984. ICE-CHEST FOR BEER. ALFRED B. WROTH, Omaha, Nebr., assignor to Christian Dietrich, same place. Filed July 15, 1884. (No model.)

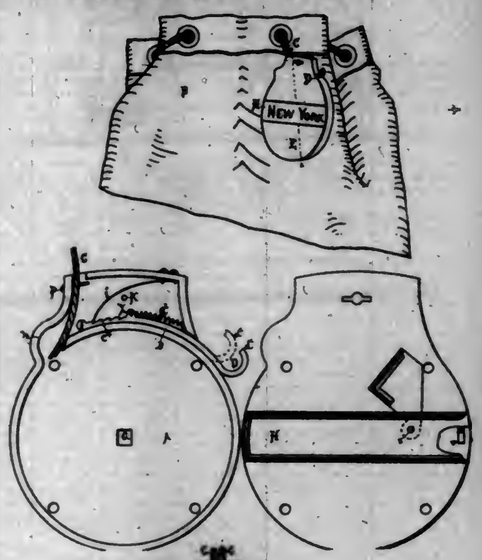


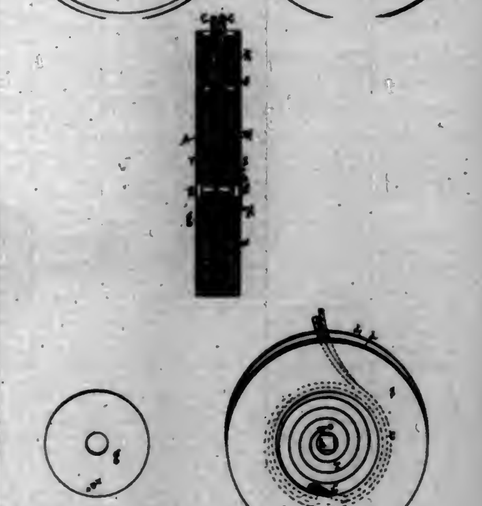
Claim.—1. In combination with an ice-chest having a projecting ledge, and an ice-chamber formed by the frame of the chest, and a perforated plate, E, the vertically-revolving shaft having a hub provided with inclined arms D and cross-bars *d*, with curved surfaces, the said arms adapted to receive and hold a keg or barrel, substantially as and for the purpose set forth.

2. The combination, with an ice-chest constructed substantially as shown and described, of a revolving vertical shaft having a hub provided with inclined projecting arms D and cross-bars *d*, each of said arms being provided with a roller or caster adapted to engage the projecting ledge B, substantially as and for the purpose herein specified.

3. The herein-described ice-chest A, provided with doors, as shown, the perforated plate E, projecting ledge B, vertically-revolving shaft C, having a hub, and projecting arms D, cross-bars *d*, and rollers or casters secured to said arms, all arranged to operate substantially as herein set forth.

314,985. COMBINED MAIL-POUCH LOCK AND CORD-CASE. OLIVER B. YOUNG, Detroit, Mich., assignor of one-half to William T. Blenman, same place. Filed July 31, 1884. (No model.)





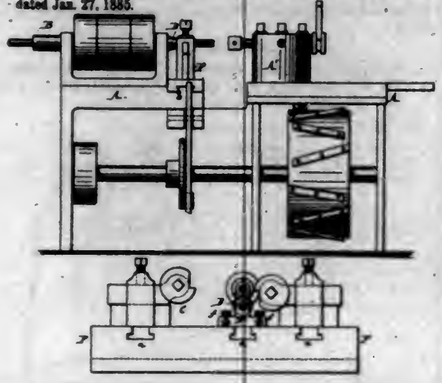
Claim.—1. In a combined cord-case and lock, the metal case provided with the cord-pocket, the cord or cords C, said cords adapted to be forced into the pocket by the locking-bar D, having the toothed portion d^4, with springs *i* and d^3, operating in the manner and for the purposes set forth.

2. The plate E, provided with the card-case H, said card-case having a pivoted end portion, said pivoted end portion engaging with the tension-spring *v*, as and for the purposes set forth.

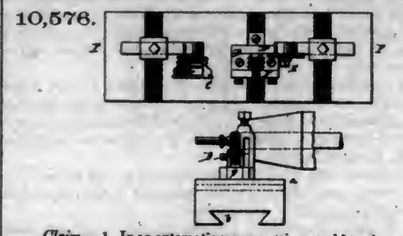
3. In a combined cord-case and lock, the metal case containing the cord-reeling spool, the cord or cords C, attached to the spring *r* of the spool or reel, said cord or cords adapted to be forced into the cord-pocket by the locking-bar D, having the springs *i* and d^3, operating in the manner substantially as specified.

REISSUES.

10,576. ATTACHMENT FOR SCREW-CUTTING MACHINES. FRIEDRICH MÜLLER, Elizabeth, N. J. Filed Mar. 3, 1885. Original No. 311,200, dated Jan. 27, 1885.



10,576.



Claim.—1. In an automatic screw-cutting machine, the combination, with a transversely-moving tool-supporting piece, of a head-shaping tool, a cutting-off tool, and a knurling die or roller that is supported on said transversely-moving piece intermediately between said tools, substantially as set forth.

2. In an automatic screw-cutting machine, the combination, with a transversely-moving tool-supporting piece, of a head-shaping tool, a cutting-off tool, and a knurling die or roller that is supported in horizontally and vertically adjustable bearings intermediately between said tools, substantially as set forth.

3. In an automatic screw-cutting machine, the combination, with a transversely-moving tool-supporting piece, of a cutting-off tool and a knurling die or roller supported on said transversely-moving piece in front of the cutting-off tool, substantially as set forth.

PHOTO LITH NORRIS PETERS WASHINGTON D.C.

DECISIONS
OF THE
COMMISSIONER OF PATENTS
AND OF
UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE BLYTHE.

Decided July 28, 1884.

THE STATUTORY CLASSES OF INVENTION INDICATE SEPARATE AND INDEPENDENT SUBJECTS OF INVENTION.

1. The words "art," "machine," "manufacture," and "composition of matter" were carefully chosen to cover what were regarded as four great and distinct classes of invention. It is undoubtedly the intention of the law to distinguish inventions which are separated by this statutory classification as separate inventions, as not being one and the same invention.

SAME.

2. The line of division has been laid down by Congress, and there is no room for difference of opinion.

INVENTIONS SEPARATED BY THE STATUTORY CLASSIFICATION ARE NOT, AS A RULE, COMPREHENSIBLE IN ONE PATENT.

3. A patent may not include two subjects which severally belong to what are specifically recognized by the statute as distinct classes of invention, if each of the subjects is separately capable of supporting a patent.

MACHINE, PROCESS, AND PRODUCT.

4. Suppose there be invented something in an art, or, as it is ordinarily called, a "process" or "method," also a machine for carrying out the process, and also the manufacture or article produced in the operation of the process by the machine. There can be no doubt that the statute calls for three patents for these three things.

PROCESS AND PRODUCT.

5. There are, perhaps, only two cases in which claims to a process and to a product can be properly included in one patent. These cases are: (1.) When the product is entirely new, and hence the process also. (2.) When the exercise of the process would produce no other product and when the product could be produced by no other process.

MACHINE OR APPARATUS, AND ART.

6. An apparatus must be classed as a "machine" in the sense of the patent act.

SAME.

7. A new apparatus is a separate invention from the "art" which it is intended to carry out.

SAME.

8. There seems to be no case when a patentable process and a machine must or even may be claimed in one patent.

9. *Held* that the plain provisions of the statute, as well as the weight of judicial opinion, and the dictates of what seems to be common sense, require that "arts," (or processes,) "machines," (including apparatus,) "manufactures," (articles,) and "compositions of matter" should be made the subjects of separate and independent patents, except as indicated.

TREATING RAILWAY-SLEEPERS, &c., AND APPARATUS THEREFOR.

APPEAL from the Primary Examiner.

REHEARING.

Application of John B. Blythe filed March 14, 1883.

***Mr. A. Pollok* for the applicant.**

BUTTERWORTH, *Commissioner:*

The following decision was rendered in this case on June 18, 1884:

This appeal presents three points:

First, must the oath recite all the foreign patents granted for the invention covered by the United States application?

Secondly, are there two or more inventions included in the application?

Thirdly, can a United States patent include an invention or inventions covered by several English patents which expire at different dates, and which limit the life of the United States patent?

As to the first point, the rule (39) is explicit. The oath must give "the number and date of each patent." Secretary Kirkwood in his decision reported in Vol. XXI, O. G., page 1197, sustained this rule. Whether these patents have been obtained in one country or several is immaterial.

Upon the second point, Rule 40 makes the following requirement:

"Two or more independent inventions cannot be claimed in one application; but where several distinct inventions are dependent upon each other and mutually contribute to produce a single result they may be claimed in one application."

This rule is based upon the decision of Justice Woodbury in *Hogg* v. *Emerson*, (6 Howard, 483, and 11 Howard, 587,) in which it is laid down that—

"A patent for more than one invention is not void, if they are connected in their design and operation."

It is now well settled that two inventions to be capable of joinder in one application must be connected in use for one common purpose. As in the case of a combination of mechanical elements, they must mutually co-operate to produce a single result. Now, if a process is dependent on the operation of any one apparatus or mechanism, it is no more than the function of that apparatus or machine, and is not patentable. (*Neu* v. *Warren*, XXII, O. G., 587.) If it is not dependent on the apparatus or mechanism, then it is not capable of joinder therewith, since it does not come under the rule laid down in *Hogg* v. *Emerson*. True, the process may be carried out by the apparatus. That is the purpose of the apparatus. But the process remains quite as distinct an invention as before. It is capable of being carried out by other apparatus. The fact that both inventions, process and apparatus, are operated at the same time does not render them "connected in design and operation." The "design and operation" of the apparatus is to accomplish the performance of the process. The "design and operation" of the process is to produce a new article. They are no more connected in design and operation than two sets of apparatus intended for use in that art. Says the Supreme Court in *James* v. *Campbell*, (XXI, O. G., 337:)

"A patent for a process and a patent for an implement or machine are very different things. * * * A process and a machine for applying the process are not necessarily one and the same invention. They are generally distinct and different."

In *ex parte Murray & Walrich* (III O. G., 659) Commissioner Leggett said:

"I think the time has come when, leaving out of consideration the perspicuity of the patents themselves and the revenue to be derived under the law for examinations, a proper classification in the Office, so as to facilitate examinations and prevent mistakes in the issue of patents, requires that processes, machines, and their products be presented in separate applications."

In *Piper* v. *Brown* (4 Fisher, 175) Judge Shepley says:

"It is essential to the validity of the process as an invention to show how it may be adapted to practical use. In showing this the inventor may describe mechanical means of applying a peculiarly-shaped vessel for containing any of the ingredients used in his process or art. But they constitute no part of his invention. Another person may discover new and useful means of applying or using the inventor's process, and be entitled to a patent for that improvement, without the right to use the process. So the inventor himself may discover such new means or invent new appliances, which may be the subjects of a patent to him separate and apart from his patent for the art itself."

In the case at bar applicant presents nine process claims, 1, 2, 3, 4, 5, 6, 7, 8, and 13. They cover various sub-processes involved in the general process described. Whether some of them do not come dangerously near to being claims for the use of the apparatus is not now before me on this appeal. However, they may all properly enough be included in one application. So, too, may the eight claims for the apparatus, which are all drawn upon the specific arrangement shown in Figures 1 to 6 of the drawings. But *both sets of claims cannot be included in one patent for the reasons above given.*

Upon the third point the Examiner is in error in holding that one United States patent cannot issue to cover an invention protected by foreign patents of different dates. The apparatus presented in the application at bar is one invention. Were it not that the subject-matter of it has been divided among three English patents, the Examiner would hardly refuse to entertain it. The modification shown in Figs. 7 and 8 is clearly within the case, being merely a rearrangement of the elemental features to suit the requirements of patentability. No specific claims are drawn upon this modification. The decisions of the Office do not require a division because of the three English patents. *Ex parte Siemens* (C. D., 1877, pp. 41 and 75) is in point, in which it is held that a domestic application for an invention already patented abroad need not be restricted to precisely the same subject-matter as the foreign patent. If made up from a number of foreign patents, it will be divided for the purpose of restricting the term if the subject-matter is not properly in combination.

So, too, in *ex parte Unsworth*, (C. D., 1879, p. 60,) a case precisely parallel with the present one, it is said that—

"Where the domestic application is not bad for duplicity a division should not be required. * * *" When claims which, although properly included in the domestic application, as in this instance, are the subjects of separate foreign patents, those patents should be noted on the file by the Examiner, and they can be mentioned in the clause of restriction. When the entire matter is the subject of more than one foreign patent the restriction should be made in view of the one having the shortest term."

As herein indicated, there is no reason for withholding a patent because the life of some of its claims may expire before that of others. The courts have repeatedly decided that patents void as to some claims are not thereby void as to all. This is especially the case in reissued patents, wherein the original claims are frequently sustained while the new claims are held invalid. The patent is nevertheless good for the part that is left. If a patent can thus be killed in part while the remainder survives, there is no reason why it may not die in part with survival of the residue. A careful reading of the domestic and foreign patents discloses the fact that all the claims are fairly indicated in the English patents of 1878 and 1879, while all but claims 14 and 15 are found described or shown in the 1876 patent. The restriction should, therefore, be made in accordance with this finding.

Applicant will be required to file a new oath, specifying all his foreign patents for this invention. He will also be required to present his process and apparatus in separate applications, and to mention in each specification the dates of the respective foreign patents, in order that each United States patent when granted may upon its face give proper information to the public of the facts governing the duration of patent protection upon the subject-matter described and claimed.

The decision of the Examiner is affirmed upon the first and second points of appeal, above stated, but is reversed upon the third.

Request is now made for reconsideration on the ground that "there was no appeal upon the first and second points, the appeal being upon the single question stated in the third point," and it is asked that everything relating to the first and second points be stricken from the decision.

The statement in the decision that the appeal presented three points was not intended to mean that they were raised by the appeal paper, but that the case presented these questions for determination as matters upon which the Examiner and the applicant seemed to have disagreed. When a case is appealed to the Commissioner the entire case is before him, and is subject to review. He is not confined to the particular points upon which appeal has been taken.

So far as concerns the first point, whether the oath must recite all the applicant's foreign patents for his invention, the decision is reiterated. No very strenuous objection has been urged against this opinion.

With respect to the third point—viz., the restriction of a United States patent to the subject-matter of a single foreign patent—the applicant was sustained.

Applicant objected, however, that his appeal not having raised the second point—viz., whether a patent can cover both a process and an apparatus—that is, whether both process and apparatus may be claimed in one patent, he had no expectation that this would be passed upon in the decision, and devoted no attention to it at the hearing. At the rehearing, however, his argument is largely devoted to this single question; consequently, it is now squarely before me for consideration, and requires a more extended treatment.

A patent is the creature of the statute, and must be governed by its provisions. In inquiring into the extent of a patent as to its subject-matter, it is necessary, first, to examine the statute to discover what the law is.

Section 4886 Revised Statutes is as follows:

> Any person who has invented or discovered any new and useful art, machine, manufacture, or composition of matter, or any new and useful improvement thereof, not known or used by others in this country, and not patented or described in any printed publication in this or any foreign country before his invention or discovery thereof, and not in public use or on sale for more than two years prior to his application, unless the same is proved to have been abandoned, may, upon payment of the fees required by law and other due proceedings had, obtain a patent therefor.

The first part of section 4892 Revised Statutes is as follows:

> The applicant shall make oath that he does verily believe himself to be the original and first inventor or discoverer of the art, machine, manufacture, composition, or improvement for which he solicits a patent.

Section 4923 Revised Statutes is as follows:

> Whenever it appears that a patentee, at the time of making his application for the patent, believed himself to be the original and first inventor or discoverer of the *thing* patented, the same shall not be held to be void on account of the invention or discovery, or any part thereof, having been known or used in a foreign country before his invention or discovery thereof, if it had not been patented or described in a printed publication.

It will be found that the law nowhere mentions the subject-matter of a patent in any terms but the singular. Subject-matter is invariably spoken of as *the* invention, *the* art, *the* machine, *the* manufacture, *the* improvement, *any* art, &c., or *any* improvement thereof, "every patent granted for *an* invention." Mr. Commissioner Marble, commenting upon this in the decision in *ex parte Bancroft & Thorne*, (20 O. G., 1883,) says:

> The fair construction, I think, of this statute is that an invention or discovery for which a person may receive a patent is a single invention or discovery, not several. In other words, that but one invention or discovery may be embraced in the same patent. What is a single invention or discovery is left to the officers whose duty it is to execute the law to determine.

The determination of this question is one of the most difficult and perplexing duties which the Office is called upon to perform. Section 4886 Revised Statutes is expressed in condensed language. Written out in full, it would read:

> Any person who has invented or discovered any new and useful art, or who has invented or discovered any new and useful machine, or who has invented or discovered any new and useful manufacture, or who has invented or discovered any new and useful composition of matter, or who has invented or discovered any new and useful improvement thereof * * * may * * * obtain a patent therefor.

In other words, the law says that the inventor or discoverer of any one of these things may have a patent for it. It does not say he may obtain one patent for two or three or all of them. The several subjects-matter are joined by the word "or," not by the word "and." It is evident that the words "art," "machine," "manufacture," and "composition of matter" were carefully chosen to cover what were regarded as four great and distinct classes of invention. It is undoubtedly the intention of the law to distinguish as separate inventions "a new art," "a new machine," "a new manufacture," "a new composition of matter," "an improved art," "an improved machine," "an improved manufacture," "an improved composition of matter"—eight in all. These may be called the "statutory classes of invention," between which the lines of division are sharply drawn.

There is another line of division to be drawn between two separate and independent inventions falling under the same statutory class. In this case the rule applies which was laid down in *Hogg* v. *Emerson*, and in the decision of the present Commissioner in *ex parte, Mefford*, (25 O. G., 881,) that in order to be joined in one patent they must be connected in design and operation; but as between statutory subjects of invention even this rule cannot serve to warrant their joinder in one application. Here the line of division has been laid down by Congress, and there is no room for difference of opinion. A patent may not include two or more of what are specifically recognized as distinct classes of invention, if each is separately capable of supporting a patent.

Suppose there be invented something in an art, or, as it is ordinarily called, a "process," also the machine for carrying out the process, and also the manufacture or article which is produced in the operation of the process by the machine. There can be no doubt but that the statute calls for three patents for these three things. It makes no difference whether they are invented simultaneously or successively, by one man or by three. Their independence remains the same.

There are, perhaps, only two cases in which claims to a process (or mode or method) and to a product can properly be included in one patent, and these are when the product is entirely new, and hence the procedure also; or where the exercise of the procedure would produce no other result, and where the result (the product) could be produced by no other procedure, (process, mode, method.) In such cases, of course, the invention is unitary, and, being incapable of division, not only may, but must, be included in one patent. If there were two patents upon such an invention, one with a claim to the process and the other with a claim to the product, (hitherto unknown as produced by *any* procedure, or incapable of being made in any way other than by the process, subject of the first patent,) there would be two patents for the same thing. The indivisibility of such subject-matter was recognized in the celebrated case of *Goodyear* v. *Wait*, (3 Fish., 242.)

It is argued that apparatus is not machinery, but is improvement in an art, and hence may be included in a patent for a process or art. This is clearly erroneous, since the term "art" in the statute only includes a mode of procedure—that is, a mode, method, or process. Strictly speaking, apparatus is distinct from machinery in the specific meaning of the term "machine", since machinery is dynamic, while apparatus is static, though we must not allow ourselves to be misled into considering as a machine, in the specific meaning of the term, an apparatus which may need to be induced to exert its action by extraneous dynamic impressions. If a device, in and of itself and distinctly, exerts its effect statically, that there may be extraneous impressions to cause it to act, renders it none the less an apparatus, and from this it will be seen how ignorant it appears to call, for example, a bicycle a "machine," or to designate such means as ice-making apparatus or as carbureting apparatus as "machinery." It would be just as proper to designate an ordinary carriage or a pianoforte as a "machine;" but the word "machine" in the statute must be taken broadly to cover all *mechanical* means, dynamic or static, so that the static means be not properly included under the word "manufacture"—that is article of manufacture—meaning a mere instrumentality, tool, utensil, implement, or article. An apparatus must therefore be classed as a "machine" in the sense of the patent acts. It is evidently not an "art," nor a "manufacture," nor a "composition of matter," nor an improvement upon any of these. Consequently, a new apparatus is a separate invention from the art which it is intended to carry out. Could it for a moment gravely be contended that a particular apparatus, an aggroupment of interdependent instrumentalities—such as a collection of vessels, boilers, pipes, heaters, injectors, pumps, valves, &c.—is one and the same invention as a process or mode—a regular sequence of acts for the accomplishment of a certain result—such as a process of preserving wood by impregnating it first with a mineral salt or substance, like zinc-chloride, then steaming it, then impregnating it with a suitable hydrocarbonaceous substance, like coal-tar, and finally baking or drying it, which might be carried into effect by various apparatus? This point was considered by Mr. Justice Bradley in the opinion in the case of *Tilghman* v. *Proctor et al.*, (19, O. G, 859.)

After the discussion of the principles laid down in *Corning* v. *Burden*, (15 How., 267,) the famous Neilson hot-blast case, and *O'Reilly* v. *Morse*, (15 How., 62,) and after quoting from the decision in the latter case, the learned judge continues:

> It seems to us that this clear and exact summary of the law affords the key to almost every case that can arise. "Whoever discovers that a certain useful result will be produced in any art by the use of certain means is entitled to a patent for it, provided he specifies the means." But everything turns on the force and meaning of the word "means." It is very certain that the means need not be a machine or an apparatus. It may, as the court says, be a process. A machine is a thing. A process is an act or a mode of acting. The one is visible to the eye—an object of perpetual observation. The other is a conception of the mind, seen only by its effects when being executed or performed. Either may be the means of producing a useful result. The mixing of certain substances together, or the heating of a substance to a certain temperature, is a process. If the mode of doing it, or the apparatus in or by which it may be done, is sufficiently obvious to suggest itself to a person skilled in the particular art, it is enough in the patent to point out the process to be performed without giving supererogatory directions as to the apparatus or method to be employed. If the mode of applying the process is not obvious, then a description of a particular mode by which it may be applied is sufficient. There is, then, a description of the process and of one practical mode in which it may be applied. Perhaps the process is susceptible of being applied in many modes and by the use of many form, of apparatus. The inventor is not bound to describe them all in order to secure to himself the exclusive right to the process if he is really its inventor or discoverer. But he must describe some particular mode or some apparatus by which the process can be applied with at least some beneficial result, in order to show that it is capable of being exhibited and performed in actual experience.

This is unmistakably an assertion that a process as "means" for producing a certain useful result is separate and distinct from a machine or apparatus as "means" toward the same object. The difference between them is clearly pointed out. "Either may be the means of producing a useful result." But "whoever discovers that a certain useful result will be produced in any art by the use of certain means is entitled to a patent for *it*, provided he specifies the means." If his "means" be a process, he is entitled to a patent for his process. If his "means" be a machine or apparatus, he is entitled to a patent for his machine or apparatus. In his "means," whether in the nature of a procedure or in the nature of a machine, resides his patentable invention.

The language quoted above asserts that a process and a machine (or apparatus) are two separate and distinct means for accomplishing a certain result, and the decision in *O'Reilly* v. *Morse* plainly indicates that a patent can issue for only one means of effecting a result.

In *Corning* v. *Burden* (15 How., 268) it is stated that if A invents a process, and B an apparatus in which the process may be carried on, then each could have a patent for his *means*. Process and apparatus, therefore, constitute two separate inventions. If they are separate inventions when one has been invented by one person and the other by another, they must be separate inventions when both have been invented by the same person, and separate inventions cannot be included in a single patent; but it seems that there can be no case where a patentable process and a machine must or even may be claimed in one patent.

In *McKay* v. *Dibert* (19 O. G., 1351) it is held that patents for machine, process, and product represent distinct inventions, which live or expire without regard each to the other. Each patent must, therefore, be for a complete invention. A patent for an incomplete invention is void. If, as is contended, machine and pro-

cess could be protected by one patent, and constitute but one real invention, the ruling in the case just cited could not have been made. The separate patents would have been void. If machine, process, or product were not separate inventions, furthermore, each patent would have been for the same invention as the others, and so would have been void too, since there cannot be more than one valid patent for the same invention. (*Treadwell* v. *Beaden*, 4 Wash., 703; *Odiorne* v. *Amesbury Nail Factory*, 2 Mason, 28.)

It is argued that the process claim in this case demands of necessity certain apparatus, and that the person who invented the process necessarily and by the same mental act also conceived the apparatus; that the process is such that it is impossible to practice it without using this apparatus. If this is the case, then either the process or the apparatus is lacking in patentable novelty. If the process is such that the recital of it suggests the apparatus, then this apparatus requires no invention to produce it, and the invention is solely in the process. It is in such case but the obvious means of effecting the process, and need not be even described in the specification. (*Tilghman* v. *Proctor*, 19, O. G., 85.) If the process is merely the function or operation of the apparatus, then the process possesses no patentable novelty, but is a necessary consequence of the construction and arrangement of the machine. The courts have frequently held that a "process" which is merely the function of a machine does not constitute patentable subject-matter. (*Dederick* v. *Cassell*, 20, O. G., 1233.) Such a "process" may be an industrial fact or entity inherent in the machine, or even in a product, but it possesses no patentable novelty as a separate invention. It may be but a necessary consequence of the real invention.

If, as applicant says, it is entirely impracticable to practice the process without using the apparatus, it would seem unnecessary to patent the process at all, since it would seem that a patent for the apparatus would fully protect the invention. The very purpose of a process patent is so to cover the invention as to protect the practice of the process, even when carried out by different mechanism. This fact of itself establishes the independence of the process as an invention from the apparatus as such.

I am compelled to hold that the plain provisions of the statute, as well as the weight of judicial opinion and the dictates of what seems to me common sense, require that arts, (or "processes,") machines, (including apparatus,) manufactures, and compositions of matter should be made the subjects of separate and independent patents, except as above indicated.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—Southern District of New York.

HAMMOND v. FRANKLIN.

Decided January 10, 1885.

In a suit for infringement of a reissued patent for an improvement in preserving meats, &c., involving two claims which were not in the original patent, it is held as follows:

1. There is not unreasonable delay in applying, between two and three months after date of the original patent, for a reissue enlarging the claims to cover parts of an invention already described, especially where it appears that the application is not made for the purpose of covering the improvements of other inventors.
2. A reissue for an invention not exhibited in some manner (including, doubtless, an arrangement of the parts to produce the result, without express statement that it will be produced) in the original patent is invalid, and the question of delay in making the application is irrelevant.
3. Where inventions embraced in a reissue were not exhibited in the original patent, evidence tending to show that prior to his application for the original patent the patentee constructed an apparatus embodying them is immaterial.
4. The fact that the Patent Office suggested the application for reissue is without weight where it appears that the suggestion was founded on an application by the patentee for a new patent which did not include the subject-matter of the new claims of the reissue.
5. In this case the invention covered by the new claims of the reissue consists, essentially, in producing in a compartment a circulation of cold air about an ice-receptacle by means of an air-space underneath it, and in freezing to its sides the moisture arising from the meats, &c. Said operation and result were not mentioned or indicated in the original patent, the description being silent and the drawings ambiguous on these points, and the model showing the ice-receptacle resting on the floor of the compartment; wherefore, as respects the claims in question, the reissue is for an invention different from that described in the original patent, and is to that extent void.

Mr. Livingston Gifford for the orator.
Mr. Charles Levi Woodbury for the defendant.

WHEELER, J.

This suit is brought for alleged infringement of Reissued Letters Patent No. 3,119, dated September 15, 1868, granted to William Davis, assignor, for improvement in preserving meats, fruit, &c., the original of which was No. 78,932, dated June 16, 1868. The alleged infringement consists in the use of refrigerator-cars made according to the specifications of Letters Patent No. 244,676, dated July 19, 1881, granted to William Scott, for a refrigerating-chamber, and Letters Patent No. 248,738, dated October 25, 1881, granted to Edward Hamilton for improvements thereon. Lack of novelty differences between the original and reissue, and non-infringement are set up and relied upon as defenses.

The original patent described a car-body constructed of three separate compartments, one within the others, with open spaces all around between them filled with poor conductors of heat, and an ice-receptacle inside the inner compartment consisting of a double wall, "extending from the bottom to the top" of the compartment, and having funnels extending upward through the roof to contain the freezing-mixture to be filled in through the funnels, and closed air-tight, except where there were funnels, and they were provided with caps to close them as tightly as was practicable. The ice-receptacle was provided with a goose-neck trap for carrying off water which would collect in the lower part without admitting air. Access to the inside of the car was provided for through hatchways in the roof, made to be practically air-tight, for discharging freight at way-stations without letting out the cold and heavy air, to be replaced by warm air, and through doors in the side made air-tight in a similar manner for use at the beginning and end of the journey. The drawings and model showed the ice-receptacle extending around the inside of the car at a little distance from the walls, and the model showed it standing on the floor and extending upward to the ceiling. Whether the drawings showed it as standing on the floor or suspended a little above it, and as reaching to the ceiling between the funnels or stopping a little below, is a matter of controversy. Nothing was said about producing currents

anywhere in the inner chamber for equalizing the cold, nor about freezing the moisture from the air to produce dryness and purity. The leading idea seems to have been to produce cold air within, and retain it by excluding external warm air, and protecting it from radiation by non-conducting sides. The claims were for the construction of a car-body, room, box, or chest provided with the compartments between the sides, ice-receptacles, funnels, and hatches arranged and operating substantially as described and for the purposes set forth, and for the goose-neck trap in combination with the receptacle and compartments arranged substantially as and for the purposes set forth.

On the 15th of August, Davis filed another application for a patent for an improvement in preserving meats, fruits, fish, &c., consisting of a box, room, chest, or car-body of any size or shape desired, with another box inside sufficiently small to allow an air-space all around it, and the inside of the inner box covered with wool or felt, and the whole lined with galvanized iron or zinc or other appropriate material, making it water-tight, and forming a receptacle for the article to be preserved. Inside this was to be placed a rectangular or other properly-shaped receptacle, within which to place ice and salt or other freezing-mixture, which might extend around the entire box, be placed across one or both sides or ends, or in the middle, as might be desired, closed on all sides and at top and bottom, except small opening or openings for putting in ice, provided with covers, as described in his former patent, and provided with a goose-neck to carry off the drippings arising from the melting ice. He stated that it was a fact beyond question that the moisture of air was what tended to produce decomposition; that he did not propose to preserve the contents of his boxes or cars by simply reducing the atmosphere in which they were confined to as near a freezing-point as possible; that neither did he wish to introduce fresh air upon the principle that confined air becomes foul, especially when the articles confined in it are constantly throwing off moisture; that it was this introduction of fresh air into refrigerators that prevented their contents from being preserved but a short time; that he designed to preserve the contents of his boxes or cars "by having the air-space next the outside of the same so arranged that the air in the said space is still at all times," and that then by the arrangement of the other parts, as before described, with the air confined in the preserving-receptacle, no matter how full of moisture, he would congeal the moisture upon the inner metallic walls of the receptacle, thereby rendering it perfectly pure and dry, so that the decomposition would be postponed for a long time. He claimed congealing the moisture in the air confined in boxes, chests, rooms, or cars, upon the inner walls of the same, substantially as described, the ice-receptacle placed entirely around, across either end or sides, or at any other point in the preserving-chamber when operating substantially as and for the purposes set forth, and the hatchways or doors in connection with a box, room, chest, or car, for the purposes specified. He was advised by the Department that his patent anticipated the leading features of his claim, and that if he desired to avail himself of the protection afforded by the patent laws he should seek it by a reissue. He thereupon abandoned that application and obtained leave to withdraw the model with a view to filing it in an application for the reissue of a former patent for the same invention. Application was made for the reissue and it was granted as it is in suit, but upon what communications between him and the Department does not appear.

In the reissue the construction of the car itself, with its compartments, is the same in all respects as in the original. The ice-receptacle is the same, except that in the reissue it is described as extending from near the bottom of the chamber, but leaving a space between it and the bottom of the chamber to the top of the chamber, and that its sides are slightly inclined or tapering from the top to the bottom, so that the bottom is less in area than the top. This is stated to be an essential feature to the complete and successful operation of the invention, for the inclined sides will keep the melting ice in close contact with them, causing the moisture to be frozen upon them as long as any ice remains; but it is added that the walls may be "perpendicular or equilateral," but that the inclined sides are preferred as best in effect. One drawing shows the ice-receptacle with inclined sides near a side or end of the inner chamber raised from the floor and extending to the top of the chamber. It is stated in the specification that by the arrangement of the ice receptacle in and with relation to the chamber as shown, only a thin film of air lies between the top of the receptacle and wall of the chamber; that the air in this thin space is colder than in any other portion of the chamber, and hence there is a current or circulation of the air from the thin space between the top of the receptacle and wall of the chamber downward and under the receptacle into the space in the chamber between the ice-receptacle and the opposite wall until the whole air in the chamber is at the same temperature. This is all that is said in the specification, apart from the claims, about the production of currents for equalizing temperature. This thin space and its film of air are treated on both sides of the case as being between the upper surface of the ice-receptacle and the ceiling of the chamber, so that the falling of the cold air would create a current over the top and down behind the receptacle; but such does not appear to me to be the case. The receptacle is described and shown everywhere as extending to the top of the chamber; the current is described as being downward and under, but not over, the receptacle, and the third claim, which is framed upon this part of the specification, is for the receptacle "so constructed and arranged as to be pendent from the inner upper wall" of the chamber, "and allowing a free circulation underneath the receptacle and on all sides, substantially as described." The thin space would seem to be between the projecting top of the inclined side of the receptacle and wall. The descending cold air would be replaced by currents around the ends and along the sides of the receptacle, and would thus pass under it, and thereby fill the whole description and not contradict any of it.

The first two claims of the reissue are the same as the two claims of the original. There are two others in the reissue, the third being as just stated, and the fourth is for the construction and relative arrangement of the ice-receptacle with the chamber, whereby the moisture in the chamber is frozen to the walls of the receptacle substantially in the manner and by the means described.

The defendant does not have the construction, arrangement, or combination of either of the claims of the original patent, and infringement of the two new claims only is relied upon. The claims of the original are enlarged in the reissue, and the suit rests upon the enlargement. But little more than two months, and less than three, elapsed between the date of the original and the application for the reissue. This does not seem to be too long a time to take before proceeding for an enlargement of the claims to cover parts of the invention described but not claimed in the original, especially when not shown to be done to cover the progress of other inventors. The decided cases appear to warrant this course. (*Miller* v. *Brass Co*, 104 U. S., 352; *James* v. *Campbell*, 104 U. S., 371; *Clements* v. *Odorless Apparatus Co.*, 109 U. S., 641; *Hartshorn* v. *Eagle Shade Roller Co.*, 18 Fed. Rep., 91.) But where the reissue is for an invention not shown in the original, or a different one from that shown there, neither promptitude nor delay in making application for the reissue would seem to make any difference. It is understood that an inventor cannot at any time take out a valid reissue for an invention not shown in the original in some manner, so as to be discernible there. (*Gill* v. *Wells*, 22 Wall., 1; *Russell* v. *Dodge*, 93 U. S., 460; *Manufacturing Co.* v. *Ladd*, 102 U. S., 408.) The evidence tends to show that Davis made a refrigerating apparatus showing the principle of these new claims, and of the alleged infringement, prior to his application for the original patent, and it is urged that this shows that the invention which he undertook and intended to patent included the same thing, and that the reissue is for the same invention. The same thing was done in *Manufacturing Co.* v. *Ladd*, *supra*, and the court said that if it were true it would be nothing to the purpose; that there was no safe or just rule but that which confines a reissued patent to the same invention which was described or indicated in the original. It is also urged that the action of the Patent Office in suggesting an application for a reissue when the application for a new patent was made should have weight in upholding the reissue. But that application was for a patent for a different invention from that to which the new claims of the reissue are applicable. That was for an arrangement to have the air still; this for having it in circulation. Therefore, if a new invention was taken into the reissue, it was not that, and the suggestion, if it would have any weight when acted upon, was not acted upon for this purpose. Upon this question the original patent as it was made, not as it might have been made, is to be compared with the reissued patent as it is. Now, the invention sought to be covered by these new claims consists, essentially, in the production of circulation of the air about the ice-receptacle by the falling of the cold and heavy air behind it and passing under it to replace the warmer air taking the place of the falling cold air, and the freezing of the moisture taken by the warmer air from the articles to be preserved to the surfaces of the ice-receptacle as it passes them. The original patent does not mention this operation nor this result. If the ice-receptacle were raised from the floor, so as to make an air-passage under it, this result would be produced. It would doubtless be well enough if the patent showed the parts arranged to produce the result, without saying expressly that they would produce it. It is an important question, therefore, whether the original patent shows the ice-receptacle so raised from the floor of the compartment. It is described as extending from the bottom to the top of the compartment. The model shows it resting on the floor of the compartment. The drawing shows nothing to support it raised. Figures 2 and 3 of the drawings show cross-sections of it touching a line at the bottom. It is not clear what that line is intended to represent; if the floor, then the drawing shows the receptacle resting on the floor; if another part of the receptacle, then it may show it raised. But the cross-sections of the structure are not at such points that there would be no part of the receptacle there to be represented by this line. The drawings themselves are ambiguous on this point, and do not appear to be sufficiently clear to control the expressions of the specifications and model. Probably no one, not even those skilled in the art or science to which this invention appertains, would read the specifications, examine the model and drawings without taking any suggestions from without them, and perceive any invention there depending at all upon a passage for air under the ice-receptacle. Certainly what the inventor delivered was not a written description of an invention or discovery covering such device in such full, clear, and exact terms as to enable any person so skilled to construct and use it as required by the statute under which the patent was granted. (Act of 1836, Sec. 6, 5 Stat. at Large, 117.) The conclusion follows that the invention described in the reissue, and that part of it relied upon, is a different invention from that described in the original, and that, to this extent at least, the reissue is void.

Let a decree be entered dismissing the bill of complaint, with costs.

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OFFICIAL GAZETTE—January—March, 1885.

DIGEST OF DECISIONS.

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ABANDONMENT.
(See Renewed Applications, 2.)

ACQUIESCENCE.
(See Disclaimers, 4; Reissues, 11.)

ADOPTION AND USE.
(See Trade-Marks, 22, 23, 29.)

AGENTS.
(See Service of Process, 1; Trade-Marks, 31.)

AMENDMENTS.
(See Specifications, 1.)

ANALOGOUS DEVICES.
(See Particular Patents, 17.)

APPARATUS.

(See Separate Patents for Separate Inventions, 4, 5.)

1. MACHINE OR APPARATUS, AND ART.
An apparatus must be classed as a "machine" in the sense of the patent act.
[*Ex parte* Blythe, 1321.

2. SAME.
A new apparatus is a separate invention from the "art" which it is intended to carry out.
[*Id.

APPEALS TO THE SECRETARY OF THE INTERIOR.

The Secretary having reversed the decision of the Commissioner, and the latter having acquiesced and directed that the case should proceed in conformity with the decision of the Secretary, *Held* that the Commissioner had thereby so ratified and adopted the ruling of the Secretary as to interpose a valid objection to the Commissioner subsequently treating it as a nullity.
[Drawbaugh *v.* Blake *v.* Edison, 259.

APPLICANTS FOR PATENTS

APPLICATIONS.

(See Renewed Applications, 1; Specifications, 1.)

ASSIGNMENTS.

The patentees do not explicitly transfer to complainants the right to vend to others the right to make the patented article; but they do not reserve that right to themselves in the instrument; and as the complainants are vested with the exclusive right to make the article, as well as to use and vend it, the patentees have nothing left to transfer, and therefore the complainants are assignees and not licensees.
[*Pickhardt *et al.* *v.* Packard *et al.*, 179.

BAILEE
(See Trade-Mark, 16.)

BILL OF COMPLAINT.
(See Injunction, 2.)

BILL IN EQUITY.
(See Damages and Profits, 1.)

BURDEN OF PROOF.
(See Trade-Mark, 21.)

CHANGE OF STRUCTURE.
(See Disclaimers, 1; Infringement, 1, 2; Reissues, 3, 4.)

CITIZENSHIP.
(See Labels, 3.)

CLASSES OF INVENTION.
(See Division of Application, 1.)

CLAIMS.

(See Interference, 1.)

A party being the first discoverer of a process for making a certain product is entitled to make a broad claim for the product when made by his process; and such a claim is not to be construed as one for the product obtained by any method or process, but for any method which is the equivalent of the process described because it produces like results.
[*Pickhardt *et al.* *v.* Packard *et al.*, 179.

COMBINATION.

(See Construction of Specifications and Patents, 2; Interference, 9.)

COMMISSIONER OF PATENTS.

(See Appeal to the Secretary of the Interior, 1; Copyrights, 1; Disclaimers, 1; Interference, 11; Reissues, 9, 10, 11, 13; Trade-Marks, 13, 19, 20.)

CONCEPTION OF THE INVENTION.

(See Interference, 6, 7.)

CONSTRUCTION.

(See Infringement, 1, 2.)

CONSTRUCTION OF SPECIFICATIONS AND PATENTS.

(See Claims, 1; Disclaimers, 1; Infringement, 1, 2; Particular Patents, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17; Separate Patents for Separate Inventions, 1, 2, 3.)

1. Though the proofs do not show that the defendant's product was made by the process described in the patent, yet there is nothing to the contrary, and as sufficient appears to establish the chemical identity of the defendant's product with the complainant's, a sufficient *prima facie* case is shown upon the question of infringement.

[*Pickhardt *et al.* v. Packard *et al.*, 179.

2. To eliminate what is a plainly-declared element of a combination is beyond the power of judicial construction.

[*Williams v. Stolzenbach *et al.*, 891.

3. A patent is a grant presumably to the first and true inventor or inventors, whether citizen or alien, his or their heirs or assigns, for the term of seventeen years, of the exclusive right to make, use, and vend an invention or discovery throughout the United States and the territories thereof, and is not a grant of a monopoly in the prohibited sense—that is, a grant which restrains others from the exercise of a right or liberty which they had before the grant was made. It is a contract between the public and the patentee to be supported on the ground of mutual considerations, and, being essentially a *bargain*, is to be construed like other contracts to which there are two parties, each having rights and interests involved in its stipulation. In this respect the public, as party of the first part, through the medium of the Government, makes the grant above mentioned, while the inventor, as party of the second part, divulges his secret and causes benefit to flow to the public in two forms—*first*, by immediate practice of the invention under the patent, and, *secondly*, by the practice of the invention, or opportunity to practice the same, which becomes the property of the public, which is free to the public, on the expiration of the patent. To guard against the inventor's concealment of the process by which the invention is practiced, and to guard against its loss, he is required to deposit in the Patent Office a written description of the invention sufficiently clear and explicit to enable others to practice the same therefrom.

[C. A. Yale Cigar Manufacturing Company (limited,) *v.* C. A. Yale, 1183.

4. There are two kinds of patents: mechanical patents and design patents. A mechanical patent covers a concrete invention, one in the nature of a manufacturing art, a machine, an article of manufacture, or a composition of matter, and is issued for the term of seventeen years. A design patent covers an abstract invention, one in the nature of configuration of a manufacture, bust, statue, alto relievo, or bas-relief, to be employed in the mechanic arts, in manufactures, or in constructions, and not strictly as works in the field of the fine arts.

[*Id.

CONSTRUCTION OF STATUTES.

(See Apparatus, 1; Disclaimers, 2; Division of Application, 1; Inventions, 2; Renewed Applications, 1; Separate Patents for Separate Inventions, 2, 3, 4, 5; Trade-Marks, 1, 2.

CONTINUOUS APPLICATION.

(See Renewed Applications.)

COPYRIGHTS.

(See Labels, 2.)

A copyright is the grant to the author or proprietor, if a citizen of the United States, of any book, map, chart, dramatic or musical composition, or engraving, cut, or print, if a work of the fine arts, or photograph or negative thereof, or painting, drawing, chromo, statue, statuary, or of models or designs intended to be perfected as works of the fine arts, his heirs or assigns, for a term of years, extensible upon suitable request, of the exclusive right, the sole liberty, of printing, reprinting, publishing, copying, finishing, and vending the same, and, in the case of a dramatic composition, of publicly performing or representing or causing to be performed or represented by others, with all rights of translation or dramatization of works. The Commissioner of Patents has nothing to do with copyright. The Librarian of Congress is charged with all things relating thereto.

[C. A. Yale Cigar Manufacturing Company, (limited,) *v.* C. A. Yale, 1183.

CORPORATIONS.

(See Trade-Marks, 3.)

DAMAGES AND PROFITS.

1. Judgment for and payment of nominal damages upon a bill in equity by a patentee without joining his licensee against one who has made and sold a machine in violation of the patent are no bar to a bill in equity by the patentee and licensee together, for the benefit of the licensee, against another person who afterward uses the same machine.

[*Birdsell *et al.* v. Shaliol *et al.*, 261.

2. Evidence of settlements for infringements of a patent, or of licenses for the future given wholly or partially in consideration of such settlements, is not competent to show an established royalty or license fee.

[*Gottfried *v.* Crescent Brewing Company. Same *v.* Goff *et al.* Same *v.* Hack *et al.*, 892.

3. The price at which sales have been made, licenses granted, &c., under a patent, being in the nature of admissions, is competent evidence against a plaintiff in respect to the value of the patented invention; but the plaintiff is not necessarily concluded thereby.

[*Id.

4. In these cases the court holds that a contract or license between the copatentees and sales of machines made at an early day and at varying prices were not sufficient to show an established royalty or license fee, and confirms a master's report based on general evidence as to the value of the invention.

[*Id.

5. Suits in equity having been begun in 1879 for the infringement of two patents, and the circuit court having dismissed the bills, this Court in reversing the decrees, after the first patent had expired, but not the second, awarded accounts of profits and damages as to both patents, and a perpetual injunction as to the second patent.

[*The Consolidated Safety Valve Company *v.* The Crosby Steam Gage and Valve Company, 991.

DATE OF FILING APPLICATION.

(See Renewed Application, 1.)

DATE OF INVENTION.

(See Reissues, 20.)

DECREE.

(See Damages and Profits, 5.)

In view of decisions in certain suits in which the complainants in this case occupied a similar position, and in which the defendants herein were closely identified with the defendants therein, although not in such sense privies as to effect an estoppel, the court declined to render a decree until a rehearing (the motion for which had been made) had been had of the former cases, and an opportunity thus afforded for a consideration in them of recent decisions of the Supreme Court on the subject of reissues.

[*Tuttle *et al.* v. Loomis *et al.*, 344.

DEFECTIVE SPECIFICATIONS.

(See Disclaimers, 3.)

DEFENSE.

(See Reissues, 9.)

DELAY.

(See Interference, 6, 7; Reissues, 1, 5, 6, 7, 10, 11, 12, 13, 18, 19 Renewed Applications, 2.)

DEMURRER.

(See Reissues, 16, 17.)

DESIGNS.

(See Construction of Specifications and Patents, 4.)

DIFFERENT INVENTIONS.

(See Reissues, 3, 4, 19, 22.)

DILIGENCE.

(See Interference, 6, 7; Reissues, 12, 15; Trade-Marks, 26.)

DISCLAIMERS.

1. Letters Patent No. 27,094 were issued to Ethan Allen, February 14, 1860, for fourteen years, for an improvement in machine for making percussion cartridge-cases. The patent was reissued in two divisions, No. 1,948 and No. 1,949, May 9, 1865. No. 1,948 embraced that part of the invention which concerned the mechanism for striking up the hollow rim at one stroke. The original patent and drawings showed such mechanism to be a moving die and a fixed bunter. In No. 1,948 the description was altered so as to state that the bunter might be carried against the die, and its two claims each contained the words "substantially as described." An extension of No. 1,948 having been applied for, it was opposed, on the ground that such arrangement of a fixed die and a moving bunter was a new invention interpolated into the reissue. The Commissioner of Patents so held, and required such new matter to be disclaimed, as a condition precedent to the extension. A disclaimer was filed disclaiming the movable bunter as of the invention of Allen. No. 1,948 was then extended by a certificate which stated that a disclaimer had been filed to that part of the invention embraced in such new matter. In a suit in equity afterward brought on No. 1,948 against machines having a fixed die and a moving bunter for infringements committed both before and after the extension, *Held* that the effect of the disclaimer was to exclude those machines from the scope of any claim in No. 1,948 without reference to the question whether they contained mechanical equivalents for the moving die and the fixed bunter.

[*The Union Metallic Cartridge Company *v.* The U. S. Cartridge Company, 771.

2. Under section 54 of the act of July 8, 1870, chapter 230, (16 Stat., 205,) a disclaimer could be made only by a patentee who had claimed more than that of which he was the original or first inventor or discoverer, and he could make a disclaimer only of such parts of the thing patented as he should not choose to claim or hold by virtue of the patent.

[*Id.

3. In so disclaiming or limiting a claim, descriptive matter on which the disclaimed claim was based might be erased; but if there was merely a defective or insufficient description, the only mode of correcting it was by a reissue.

[*Id.

4. An acquiescence and disclaimer on a decision requiring the disclaimer as a condition precedent to an extension are as operative to prevent the afterward insisting on a recovery on the invention disclaimed as to prevent a subsequent reissue to claim what was so disclaimed.

[*Id.

DIVISION OF APPLICATION.

(See Apparatus, 2; Separate Patents for Separate Inventions, 1, 2, 3, 4, 5.

1. THE STATUTORY CLASSES OF INVENTION INDICATE SEPARATE AND INDEPENDENT SUBJECTS OF INVENTION.

The words "art," "machine," "manufacture," and "composition of matter" were carefully chosen to cover what were regarded as four great and distinct classes of invention. It is undoubtedly the intention of the law to distinguish inventions which are separated by this statutory classification as separate inventions as not being one and the same invention.

[*Ex parte* Blythe, 1321.

2. SAME.

The line of division has been laid down by Congress, and there is no room for difference of opinion.

EMPLOYÉS.

(See Trade-Marks, 24.)

ENLARGEMENT OF CLAIMS.

(See Reissues, 1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 14, 15, 18, 19, 20, 21.)

EQUITY.

(See Trade-Marks, 6.)

EQUIVALENTS.

(See Claims, 1.)

ESTOPPEL.

(See Trade-Marks, 15.)

EVIDENCE.

(See Damages and Profits, 2, 3, 4.)

EXPERIMENTAL USE.

(See Interference, 7; Public Use and Sale, 1.)

FOREIGN USE OF TRADE-MARK.

(See Trade-Marks, 30.)

FORFEITED APPLICATIONS.

(See Renewed Applications, 1.)

FORMER DECISIONS AFFIRMED.

(See Decree, 1; Interference, 1; Reissues, 5, 6, 8, 9.)

The decision in *Leggett v. Avery* (101 U. S., 256) cited and applied.

[*The Union Metallic Cartridge Company *v.* The United States Cartridge Company, 771.

FORMER DECISIONS REVERSED.

(See Damages and Profits, 5; Reissues, 6.)

FRAUD.

(See Trade-Marks, 6.)

FRAUDULENT USE OF TRADE-MARKS.

(See Trade-Marks, 16, 17.)

INFRINGEMENT.

(See Construction of Specifications and Patents, 1; Damages and Profits, 2, 3, 4, 5; Reissues, 2, 9, 16, 17; Trade-Marks, 3, 5.)

1. When the language of the claim explicitly imports a certain arrangement into such claim, it is unnecessary to consider whether that arrangement is essential to the combination for the purpose of producing the result desired, and a machine which does not employ such arrangement is not an infringement of the claim.

[*Tate *et al.* v. Thomas, 345.

2. The addition of certain elements to a patented construction which does not unfit it for performing its original result, but simply adds the results due to the new elements, does not avoid infringement.

[*Id.

INJUNCTION.

(See Trade-Marks, 4.)

1. Preliminary injunction will not be granted when, upon the same proofs and allegations, final relief would be denied.

[*The International Tooth Crown Company *v.* Mills *et al.*, 602.

2. Matters not alleged in the bill of complaint cannot be urged as grounds for preliminary injunction.

[*Id.

INTERFERENCE.

(See Trade-Marks, 10, 18, 19, 22, 27.)

1. Although the claims are couched in such language that they do not in terms conflict, yet if the devices or inventions claimed do in fact conflict, an interference should be declared. The question is whether both parties do in fact claim the same invention;

not whether the conflict appears in terms in the claims. Rule laid down in *ex parte* Upton approved.
[Drawbaugh *v.* Blake *v.* Edison, 259.

2. Rule 105, relating to preliminary statements, is not inconsistent with law, and is necessary to the orderly and proper conduct of interference cases.
[Smith and Thomas *v.* Cowles, 343.

3. A party should be permitted to correct a mistake in his preliminary statement resulting from inadvertence; but such correction should be made in accordance with some fixed and reasonable rule, and such a rule has been prescribed, and requires that the motion to correct the statement must be made, if possible, before the taking of any testimony, and as soon as practicable after the discovery of the error.
[*Id.

4. It is only in cases where parties have failed to comply with the law, after having made reasonable and proper efforts to do so, that further opportunity should be accorded. Facts conclusive in themselves will not authorize an amendment of the statement if the statement is faulty through the negligence or refusal of the applicant to make suitable efforts to ascertain the real facts upon which his right depended, and which the rule required him to set forth in his statement.
[*Id.

5. It is better to insist upon a reasonable and just compliance with the rules of the Office, though it may work a hardship in an individual case, than adopt a course which would result in a practical abrogation of them, with consequent confusion.
[*Id.

6. When an applicant seeks to overthrow a patent granted to one who, though junior in date of conception, has yet shown diligence in filing his application and reducing his invention to practice, the former must show entire freedom from laches, and doubts should be resolved in favor of the patentee.
[Voelker *v.* Gray *et al.*, 1091.

7. It is not enough for a party to show that he was experimenting in the direction of the invention; but he must have matured his conception, so that it can be materialized into an operative device. The conception which the law recognizes is not that of the result to be attained, but that of the means to produce such result.
[*Id.

8. The declaration of an interference is made on the assumption that the application or patent put in interference covers an operative device; but it by no means follows that such presumption is conclusive. The question of operativeness may be raised and considered in determining the question of priority.
[*Id.

9. The controlling issue in this contest is, in howsoever many claims or subordinate issues it may find expression, a speaking-telephone. The inventor of an art and apparatus for transmitting articulate speech cannot be defeated or put under tribute by those who claim to have invented certain constituent elements, but who certainly never produced the completed invention—a speaking-telephone.
[*Id.

10. Bell is adjudged the prior inventor of all the issues save D and No. 1, and upon these latter two priority is awarded to Edison.
[*Id.

11. In an interference between an applicant and a patentee, or between separate applicants and a patentee, the judgment of the Commissioner of Patents awarding the right in an invention to some party other than the patentee does not annul the patent, since the Commissioner is powerless to cancel a patent, but only gives the party other than the patentee (the applicant) a patent also, thus placing him in a proper position before the country and the courts as regards the prior patentee.
[C. A. Yale Cigar Manufacturing Company, (limited,) *v.* C. A. Yale, 1183.

INVALID PATENTS.

(See Reissues, 19.)

INVENTION.

(See Interference, 9.)

1. An occasional accidental operation of a device, varying from its usual operation, and which is at war with the principle upon which it was designed to act, is not a sound basis for a claim as an inventor to a device capable of uniformly producing similar effects.
[Voelker *v.* Gray *et al.*, 1091.

2. Invention is some *creation* of the brain in the nature of an art, (mechanical or chemical procedure,) a machine, a manufacture, or a composition of matter, or of a design for an article of manufacture, or the like to give it a particular appearance.
[C. A. Yale Cigar Manufacturing Company, (limited,) *v.* C. A. Yale, 1183.

INVENTOR.

(See Inventions, 1; Specifications, 1.)

JUDGMENT.

(See Damages and Profits, 1; Trade-Marks, 27.)

JURISDICTION.

(See Trade-Marks, 20.)

LABELS.

(See Trade-Marks, 1, 2, 10, 11, 28.)

1. The mere acts of printing and selling labels in imitation of that of a complainant might be innocent; but when done with the purpose of enabling others, by the use of such labels, to palm off their goods as the goods of complainant, there is ground for proceedings in a court of equity.
[*De Kuyper *et al* *v.* Witteman *et al.*, 346.

2. The difference between a copyright and a label is that in the copyright act the words "engraving, cut, and print" are applied only to pictorial illustrations or works connected with the fine arts, and matter pertaining to them is entered at the office of the Librarian of Congress, whereas by the word "print" or "label," as employed in the label act is understood such a label or print as may only be used upon an article of manufacture, and is not of the kind specified in the copyright act, and the Commissioner of Patents is charged with the supervision and control of the entry or registry of such print or label.
[C. A. Yale Cigar Manufacturing Company, (limited,) *v.* C. A. Yale, 1183.

3. A print or label registration, whereof a certificate is given by the Commissioner of Patents, is in the nature of a grant to the owner or owners of any new print or label of the exclusive right to the same. But no such print or label can be registered unless it properly belongs to an article of commerce, and is as above defined; nor can the same be registered as a print or label when it amounts to a lawful trade-mark, or when its use in connection with the article to which it is applied is arbitrary or fanciful. The benefits of the act authorizing the registration of prints or labels seem to have been confined originally to citizens or residents of the United States, but appear to be extended to British subjects and the subjects of the German empire by existing treaties.
[*Id.

LACHES.

(See Delay.)

LICENSE.

(See Assignments, 1; Damages and Profits, 1, 2, 3, 4.)

A territorial grantee cannot be restrained from advertising and selling within his territory, even though the purchasers may take the patented articles outside of the vender's territory.
[*Hatch *et al.* *v.* Hall, 1096.

MACHINE.

(See Apparatus, 1; Infringement, 1, 2; Separate Patents for Separate Inventions, 4, 5.)

MACHINE AND PRODUCT.

(See Separate Patents for Separate Inventions, 2, 3.)

MISTAKE.

(See Reissues, 10.)

NEW CLAIMS.

(See Reissues, 21.)

NEW ELEMENTS.

(See Infringement, 2.)

NON-INVENTION.

(See Invention, 1.)

OATH OF INVENTOR.

(See Renewed Applications, 2.)

OMISSION OF PARTS.

(See Reissues, 3, 4.)

OPERATIVENESS OF A DEVICE.

(See Interference, 8.)

ORIGINAL AND FIRST INVENTION.

(See Interference, 9, 10.)

OWNERSHIP.

(See Sale of Patented Articles, 1, 2.)

PARTICULAR PATENTS.

(See Reissues, 15.)

1. Benton—Fare-Register.
Letters Patent No. 260,526, granted July 4, 1882, to John B. Benton, for an improvement in fare-registers, sustained and held to be infringed.
[*Railway Register Manufacturing Company *v.* Broadway and Seventh Avenue Railroad Company, 180.

2. Ransom—Fare Register and Recorder.
Letters Patent No. 265,145, granted September 26, 1882, to Newman A. Ransom, for an improvement in fare registers and recorders, held not to have been anticipated or invalidated by public use, and also infringed.
[*Id.

3. The first claim of Reissue Letters Patent No. 5,487, granted to Alexander Rogers as the assignee of Esau Torrent, declared void.
[*The Torrent and Arms Lumber Company *v.* Rodgers, 349.

4. Osgood—Ball-Covers.
A patent for ball-covers issued to James H. Osgood, May 21, 1872, reissued April 11, 1876, *Held* invalid as to the new and enlarged claims, because there was unreasonable delay in applying for it, the only object of the reissue being to enlarge the claims.
[*Mahn *v.* Harwood *et al.*, 657.

5. Reissued Letters Patent No. 10,155 granted M. Runstetler, July 11, 1882, for improvement in corn-planters, *held* invalid, as being for a different invention from that described and claimed in the original letters patent.
[*The Farmers Friend Manufacturing Company *v.* The Challenge Corn Planter Company, 661.

6. Reissued Letters Patent No. 8,102, granted to Washington Wilson, as inventor, April 9, 1878, on an application therefor filed March 11, 1878, for an improvement in collars, the original patent (No. 197,807) having been granted to him December 4, 1877, are invalid as to claims 1 and 4. Claim 2 of the reissue was substantially the same as the single claim of the original patent, and claim 3 had as an element short bands. As the defendant's collars had a continuous band with a graduated curve, and not short or sectional bands, and did not infringe the claim of the original patent or claims 2 and 3 of the reissue, and claims 1 and 4 thereof were invalid, the bill was dismissed.
[*Coon *et al.* *v.* Wilson, 889.

7. Letters Patent No. 206,514, granted July 30, 1878, to complainant, examined and construed.
[*Williams *v.* Stolzenbach *et al.*, 891.

8. Letters Patent No. 58,294, granted to George W. Richardson, September 25, 1866, for an improvement in steam safety-valves, are valid.
[*The Consolidated Safety Valve Company *v.* The Crosby Steam Gage and Valve Company, 991.

9. Under the claim of that patent—namely, a safety-valve, with the circular or annular flange or lip *e e*, constructed in the manner or substantially in the manner shown, so as to operate as and for the purpose herein described—the patentee is entitled to cover a valve in which are combined an initial area, an additional area, a huddling-chamber beneath the additional area, and a strictured orifice leading from the huddling-chamber to the open air, the orifice being proportioned to the strength of the spring, as directed.
[*Id.

10. Richardson was the first person who made a safety-valve which, while it automatically relieved the pressure of steam in the boiler, did not in effecting that result reduce the pressure to such an extent as to make the use of the relieving apparatus practically impossible, because of the expenditure of time and fuel necessary to bring up the steam again to the proper working standard.
[*Id.

11. His valve was the first which had the strictured orifice to retard the escape of the steam and enable the valve to open with increasing power against the spring and close suddenly with small loss of pressure in the boiler.
[*Id.

12. The direction given in the patent that the flange or lip is to be separated from the valve-seat by about one sixty-fourth of an inch for an ordinary spring, with less space for a strong spring, and more space for a weak spring, to regulate the escape of steam as required, is a sufficient description as a matter of law, and it is not shown to be insufficient as a matter of fact.
[*Id.

13. Letters Patent No. 85,963, granted to said Richardson, January 19, 1869, for an improvement in safety-valves for steam boilers or generators, are valid.
[*Id.

14. Under the claim of that patent—namely, the combination of the surface beyond the seat of the safety-valve with the means herein described for regulating or adjusting the area of the passage for the escape of steam, substantially as and for the purpose described—the patentee is entitled to cover the combination, with the surface of the huddling-chamber and the strictured orifice, of a screw-ring to be moved up or down to obstruct such orifice more or less, in the manner described.
[*Id.

15. The patents of Richardson are infringed by a valve which produces the same effects in operation by the means described in Richardson's claims, although the valve proper is an annulus, and the extended surface is a disk inside of the annulus, the Richardson valve proper being a disk and the extended surface an annulus surrounding the disk; and although the valve proper has two ground joints, and only the steam which passes through one of them goes through the stricture, while in the Richardson valve all the steam which passes into the air goes through the stricture; and although the huddling-chamber is at the center instead of the circumference, and is in the seat of the valve, under the head, instead of in the head, and the stricture is at the circumference of the seat of the valve, instead of being at the circumference of the head.
[*Id.

16. The fact that the prior patented valves were not used, and the speedy and extensive adoption of Richardson's valve, supports the conclusion as to the novelty of the latter.
[*Id.

17. Fisher—Neck-Pad for Harness.
Letters Patent No. 89,646 had been granted May 4, 1869, to C. J. Fisher, for a device for protecting the necks of horses, in which the claim was "the neck-pad having an inner lining of crimped leather and provided with straps to allow its being fastened to the collar," the specification reciting that "the stuffing in the pad is of hay or any other suitable material." The appellant, the defendant in a suit for infringement, had made and sold, as a substitute for a neck-pad, a single piece of crimped leather stiffened by a metal plate and provided with straps to fasten it to the collar, and the evidence showed that such a device had been made, sold, and used by many persons years before date of the patent. *Held* that (1) if the patent covers a combination including the stuffed pad, there is no infringement, for the appellant does not use the stuffed pad; (2) if it covers only the forming of the inner lining of a pad with crimped leather, there is no infringement, for the appellant does not use the crimped leather as the inner lining of a pad; and (3) if it covers simply a piece of crimped leather serving to protect the horse's neck, it is void for want of novelty.
[*Voss *v.* Fisher, 1096.

18. Westcott *et al.*—Grain-Drills.
Letters Patent No. 176,717, dated April 25, 1876, to J. M. Westcott; Reissue No. 4,091, dated August 2, 1870, to Thomas and Mast; No. 66,378, dated July 9, 1867, to J. P. Fulghum, and Reissue No. 6,274, dated February 2, 1875, to C. E. Patric, all for improvements in grain-drills, so construed and limited, in view of the state of the art, that defendant's machines do not infringe any of them.
[*Grain Drill Manufacturers' Company *v.* Rude *et al.*, 1207.

PARTNERSHIP.

(See Trade-Marks, 14, 19, 31.)

PATENTED ARTICLES.

(See Sale of Patented Articles, 1, 2.)

PATENTS.

(See Construction of Specifications and Patents, 2; Separate Patents for Separate Inventions, 1, 2, 3, 4, 5.)

POWER OF THE COURTS.

(See Construction of Specifications and Patents, 2.)

PRACTICE IN THE COURTS.

(See Damages and Profits, 1, 2, 3, 4, 5; Decree, 1; Injunction, 1, 2; Reissues, 2, 16, 17; Service of Process, 1.)

PRACTICE IN THE PATENT OFFICE.

(See Appeals to the Secretary of the Interior, 1; Interference, 1, 2, 3, 4, 5, 6, 7, 8, 9; Reissues, 9; Trade-Marks, 21.)

PRESUMPTION.

(See Interference, 8.)

PRIMA FACIE EVIDENCE.

(See Reissues, 16, 17; Trade-Marks, 12, 15.)

PRIMA FACIE PROOF.

(See Construction of Specifications and Patents, 1.)

PRINTS.

(See Trade-Marks, 10; Labels, 3.)

PRIORITY OF INVENTION.

(See Interference, 6, 7, 8, 9, 10, 11; Inventions, 1; Specifications, 1.)

PROCESS.

(See Separate Patents for Separate Inventions, 4, 5.)

PROCESS AND PRODUCTS.

(See Claims, 1; Construction of Specifications and Patents, 1; Separate Patents for Separate Inventions, 2, 3.)

PRODUCT.

(See Separate Patents for Separate Inventions, 4, 5.)

PROPERTY RIGHTS.

(See Trade-Marks, 6, 9, 11, 14.)

PUBLIC RECOGNITION OF VALUE OF AN INVENTION.

(See Particular Patents, 16.)

PUBLIC USE AND SALE.

PUBLIC USE.

In case of a sale and public use of a machine subsequently patented, such sale and use being more than two years before the date of the application, it being shown that such sale was for experimental purposes, then upon the question of the reasonableness of the use in point of duration every presumption should be made in favor of the inventor.

[*Innis v. The Oil City Boiler Works, 998.

REDUCTION TO PRACTICE.

(See Interference, 6, 7.)

REISSUES.

(See Decree, 1; Disclaimers, 1, 3, 4.)

1. After a lapse of eight years no amendment can be imported into a reissue to effect a broadening of the claim of the original in the absence of very special circumstances.

[*Tuttle *et al.* v. Loomis *et al.*, 344.

2. Where in an action at law for the infringement of the reissued patent of Esau Torrent it was pleaded that the patentee and the plaintiff unjustly obtained such reissue for that which was not included in the original patent, and was in fact invented by John Torrent, who was using reasonable diligence in adapting and perfecting the same, and had filed an application for a patent therefor, with the knowledge of the patentee and the plaintiff, prior to the application upon which the reissued patent had issued at a date earlier than that of the patent to John Torrent, and that the invention described in John Torrent's patent had been put in use at the place where all the parties lived, and on the trial the plaintiff had put in evidence the Esau Torrent original and reissued patents, and asserted infringement of the first claim only of the reissue, which claim was not found in the original patent, and also put in evidence of infringement of said first claim, and the defendant had put in evidence the later patent of John Torrent and evidence that the supposed infringing machines were made in accordance therewith, and the defendant then requested the court to instruct the jury to bring in a verdict for the defendant, which instruction the court refused to give, *Held* that this was error on the part of the court, because such first claim was void.

[*The Torrent and Arms Lumber Company v. Rogers, 349.

3. Where upon comparison of the original and reissued letters patent of the plaintiff it was apparent that the invention had been originally for the turning of logs on their own axes on a log-carriage, and the reissued patent had been expanded to embrace the rolling of logs from place to place on the log-deck or from the log-deck upon the carriage, and in so doing required the omission of parts essential in turning logs on their axes when upon the carriage, *Held* that this involved not only a change of purpose, of location of parts, of the manner of operation, but of effect produced, and this involved a change of mechanism, and therefore the reissue covered a different invention from that described in the original patent, and the claim based upon such change was void.

[*Id.

4. Where each of the claims of the original patent was for a combination of operative elements, and the new claim in the reissue was for a single element only, without reference to its operating mechanism, and the operation of this element had been changed in the reissue, *Held* that this claim was enlarged so as to include an invention not described or included in the original patent.

[*Id.

5. Where an original patent was reissued after a lapse of nearly five years, and the reissue included an invention not described in the original patent, which was described in a prior application by another party who obtained a patent after the date of the reissue, *Held* that it might fairly be inferred that the purpose of the reissue was to include the invention described in the later patent, and so far the reissue was void, as coming within the rule adopted by the Court in various decisions, particularly in the cases of *Clements* v. *Odorless Company*, *McMurray* v. *Mallory*, and *Mahn* v. *Harwood*.

[*Id.

6. Upon the facts presented, *Held* that the plaintiff below failed to show any cause of action, and the court should have instructed the jury to render a verdict for the defendant.

[*Id.

7. OSGOOD—BALL-COVERS.

A patent for ball-covers issued to James H. Osgood, May 21, 1872, reissued April 11, 1876, *Held* invalid as to the new and enlarged claims, because there was unreasonable delay in applying for it, the only object of the reissue being to enlarge the claims.

[*Mahn v. Harwood *et al.*, 657.

8. SAME—REISSUE—ENLARGING CLAIMS.

The principles announced in the case of *Miller* v. *Brass Company*, (104 U. S., 350,) in reference to reissuing patents for the purpose of enlarging the claims, reiterated and explained.

[*Id.

9. SAME—DECISION OF COMMISSIONER OF PATENTS.

It was not intended in that case to question the conclusiveness in suits for infringement of the decisions of the Commissioner of Patents on matters of fact necessary to be decided before issuing the patent, except as the statute gives specific defenses; but those defenses are not the only ones that may be made. If it appears that the Commissioner has granted or reissued a patent without authority of law, this will be a good defense, as where the thing patented is not a patentable invention, or where a reissue is for a different invention from that described in the original patent, &c.

[*Id.

10. SAME—ENLARGEMENT OF CLAIMS IN REISSUE.

A patent cannot be lawfully reissued for the mere purpose of enlarging the claim, unless there has been a clear mistake inadvertently committed in the wording of the claim, and the application for reissue is made within a reasonably short time. Whether there has been such an inadvertent mistake is, in general, a matter of fact for the Commissioner to decide; but whether the application is made in reasonable time is matter of law, which the court may determine by comparing the reissued patent with the original, and, if necessary, with the records in the Patent Office when presented by the record.

[*Id.

11. SAME—APPLICATION WHEN MADE.

The application for a reissue in such cases must be made within a reasonable time, because the rights of the public, conceded by the original patent, are directly affected and violated by an enlargement of the claim; and the patentee's continued acquiescence in the public enjoyment of such right for an unreasonable time justly deprives him of all right to a reissue, and the Commissioner of lawful authority to grant it.

[*Id.

12. SAME—WHAT IS A REASONABLE TIME.

No invariable rule can be laid down as to what is a reasonable time within which the patentee must seek for the correction of a claim which he considers too narrow. It is for the court to judge in each case, and it will exercise proper liberality toward the patentee; but as the law charges him with notice of what his patent contains, he will be held to reasonable diligence. By analogy to the rule as to the effect of public use before an application for a patent, a delay of more than two years would, in general, require special circumstances for its excuse.

[*Id.

13. SAME—DELAY OF FOUR YEARS.

As in the present case, there was a delay of nearly four years, and the original patent was plain, simple, and free from obscurity, it was *Held* that the delay in seeking a correction by reissue was unreasonable, and that the Commissioner had, therefore, no authority to grant it; and the patent was *Held* invalid so far as the claims were broader than those in the original patent.

[*Id.

14. Allen had not, before the granting of the original patent, made any machine in which the die was fixed and the bunter movable, and it was never lawful to cover by the claims of a reissue an improvement made after the granting of the original patent.

[*The Union Metallic Cartridge Company v. The U. S. Cartridge Company, 771.

15. The original patent described and claimed only a collar with short or sectional bands—that is, a band along the lower edge of the collar, made in parts or sections, and having a graduated curve. The reissued patent and claims 1 and 4 thereof were so framed as to cover a continuous band with a graduated curve, but not in sections. The defendant's collars were brought into the market after the original patent was issued and before the reissue was applied for, and the reissue was obtained to cover those collars; and, although it was applied for only a little over three months after the date of the original patent, there was no inadvertence or mistake so far as the short or sectional bands were concerned, and it was sought merely to enlarge the claim.

[*Coon *et al.* v. Wilson, 889.

16. In a suit for infringement of a reissued patent, on demurrer to the bill for failure to specify the ground of surrendering the original patent, it is held that the reissued patent is *prima facie* evidence that it is founded on sufficient cause and is in accordance with law.

[*Spaeth v. Barney, 997.

17. The action of the Commissioner in accepting the surrender and granting the reissue is final and conclusive in such a suit, unless it is apparent on the face of the patent that he has exceeded his authority; that it must be held, as a matter of legal conclusion from the repugnancy between them, that the reissued patent is not for the same invention as that embraced in the original patent.

[*Id.

In a suit for infringement of a reissued patent for an improvement in preserving meats, &c., involving two claims which were not in the original patent, it is held as follows:

18. There is not unreasonable delay in applying, between two and three months after date of the original patent, for a reissue enlarging the claims to cover parts of an invention already described, especially where it appears that the application is not made for the purpose of covering the improvements of other inventors.

[*Hammond v. Franklin, 1324.

19. A reissue for an invention not exhibited in some manner (including, doubtless, an arrangement of the parts to produce the result, without express statement that it will be produced) in the original patent is invalid, and the question of delay in making the application is irrelevant.

[*Id.

20. Where inventions embraced in a reissue were not exhibited in the original patent, evidence tending to show that prior to his application for the original patent the patentee constructed an apparatus embodying them is immaterial.

[*Id.

21. The fact that the Patent Office suggested the application for reissue is without weight where it appears that the suggestion was founded on an application by the patentee for a new patent which did not include the subject-matter of the new claims of the reissue.

[*Id.

22. In this case the invention covered by the new claims of the reissue consists, essentially, in producing in a compartment a circulation of cold air about an ice-receptacle by means of an air-space underneath it, and in freezing to its sides the moisture arising from the meats, &c. Said operation and result were not mentioned or indicated in the original patent, the description being silent and the drawings ambiguous on these points, and the model showing the ice-receptacle resting on the floor of the compartment; wherefore, as respects the claims in question, the reissue is for an invention different from that described in the original patent, and is to that extent void.

[*Id.

RENEWED APPLICATION.

(See Claims, 1; Construction of Specifications and Patents, 1; Infringement, 1, 2.)

RIGHT TO USE.

(See Damages and Profits, 1; Sale of Patented Articles, 1, 2; Trade-Marks, 4.)

ROYALTY.

(See Damages and Profits, 2, 3, 4.)

RULES OF PRACTICE.

(See Interference, 2, 3, 4, 5.)

SALE OF PATENTED ARTICLES.

(See Licenses, 1.)

1. Unconditional sale of a patented article confers the whole title therein, and impliedly warrants full ownership on the part of the vender.

[*Holliday *et al.* v. Matheson *et al.*, 452.

2. Title so passed, even where the sale was in a foreign country, is good everywhere, and carries the right to use or sell for use anywhere.

[*Id.

SECRETARY OF THE INTERIOR.

(See Appeals to the Secretary of the Interior, 1.)

SEPARATE PATENTS FOR SEPARATE INVENTIONS.

1. INVENTIONS SEPARATED BY THE STATUTORY CLASSIFICATION ARE NOT, AS A RULE, COMPREHENSIBLE IN ONE PATENT.

A patent may not include two subjects which severally belong to what are specifically recognized by the statute as distinct classes of invention, if each of the subjects is separately capable of supporting a patent.

[*Ex parte* Blythe, 1321.

2. MACHINE, PROCESS, AND PRODUCT.
Suppose there be invented something in an art, or, as it is ordinarily called, a "process" or "method," also a machine for carrying out the process, and also the manufacture or article produced in the operation of the process by the machine. There can be no doubt that the statute calls for three patents for these three things.
[*Id.

3. PROCESS AND PRODUCT.
There are, perhaps, only two cases in which claims to a process and to a product can be properly included in one patent. These cases are: (1.) When the product is entirely new, and hence the process also. (2.) When the exercise of the process would produce no other product and when the product could be produced by no other process.
[*Id.

4. SAME.
There seems to be no case when a patentable process and a machine must or even may be claimed in one patent.
[*Id.

5. *Held* that the plain provisions of the statute, as well as the weight of judicial opinion, and the dictates of what seems to be common sense, require that "arts," (or processes,) "machines," (including apparatus,) "manufactures," (articles,) and "compositions of matter" should be made the subjects of separate and independent patents, except as indicated.
[*Id.

SERVICE OF PROCESS.

An agent engaged in the business in controversy in the suit is such an agent as the statutes of New York State designate as the proper person upon whom a subpœna may be served.
[*Estes *et al.* v. Belford, Clarke & Co. *et al.*, 100.

SPECIFICATIONS.

The specification of an application for an alleged pioneer invention is addressed to those skilled in the art as it existed before the making of the particular invention therein referred to, and is not to be supplemented and aided by knowledge of events transpiring at a subsequent period, or derived from another's invention of the same thing.
[Voelker v. Gray *et al.*, 1091.

STATE STATUTES.

(See Service of Process, 1.)

SUITS FOR INFRINGEMENT.

(See Service of Process, 1.)

TECHNICAL TERMS.

(See Apparatus, 1, 2; Division of Application, 1; Separate Patents for Separate Inventions, 4, 5.)

TRADE-MARKS.

(See Labels, 2.)

1. The law devolves upon the Patent Office the duty of determining in each instance whether that which is sought to be registered as a label is in fact a label or subject-matter for a trade-mark.
[Statement, Moodie v. Butterworth, 97.

2. If the latter, it will not be registered except as a trade-mark and upon the payment of the fee fixed by law for the registration of a trade-mark—to wit, twenty-five dollars.
[*Id.

3. TRADE NAME—RIGHT OF CORPORATION TO ACQUIRE—INFRINGEMENT BY ANOTHER CORPORATION.
A corporation may acquire a property right to the use of a name other than its original corporate name as a trade-mark, or as incidental to the good-will of a business, as well as an individual; and if it has acquired such a right, it cannot be deprived thereof by the assumption of such name subsequently by another corporation, whether the latter selects its name by the act of corporators who organize under the general laws of the State, or the name is selected for it in a special act by a legislative body.
[*Goodyear Rubber Company v. Goodyear's Rubber Manufacturing Company *et al.*, 97.

4. SAME—PRIORITY—EVIDENCE—INJUNCTION—"GOODYEAR RUBBER COMPANY"—"GOODYEAR'S RUBBER MFG. CO."
Upon examination of the evidence in case at bar, *held* that the "Goodyear Rubber Company" was entitled to an injunction restraining the defendant from using the name "Goodyear's Rubber Mfg. Co."
[*Id.

5. Where the reading-matter of defendant's publication was different from the complainant's, but the name, style, and arrangement were the same, and it was clear that the latter had been adopted for the advantage they gave, *Held* that taking this advantage was injurious and illegal.
[*Estes *et al.* v. Belford, Clarke & Co. *et al.*, 99.

6. Trade-mark falls under the general head of equity, inasmuch as the fraudulent use of a trade-mark will be restrained by injunction, the ground of relief being that it is not only an invasion of the rights of property, but that equity will not permit a party to practice a fraud by availing himself of another's reputation and deceiving the public.
[C. A. Yale Cigar Manufacturing Company, (limited,) v. C. A. Yale, 1183.

7. Trade-mark is the mere *association* with some particular class of merchandise of an arbitrary—that is, non-descriptive—expression, word, name, letter, device, figure, mark, or symbol, whether newly created or not, indicating the origin and ownership or emanation of the particular merchandise, serving to distinguish it from like merchandise of others, and enabling the public immediately to recognize the particular manufacture, or product, or substance, or to know where to obtain it. It is the adoption, in the sense of *use*, of some arbitrary expression, character, or device in connection with something, the subject of trade.
[Id.

8. Original productions of the mind, whether in the form of books, maps, engravings, designs, or other of the manifold manifestations of human thought, expressed by word or symbol, bear no appreciable resemblance to a mere expression, word, name, letter, device, figure, mark, or symbol, coupled with and used as a designation of certain merchandise; the former having an existence in the thing itself, in the expression, design, or manifestation, which is the sign of a thing and the form and embodiment of thought, and being protected under the copyright statute.
[Id.

9. The right of property in a trade-mark is an original right, neither created nor controlled by any legislative enactment, but existing at common law, independent of all statutory provisions, which (recognizing its existence and the great importance of its protection beyond that afforded it by courts of civil jurisdiction) inflict penalties upon its violation.
[Id.

10. The words "prints" and "labels" are construed as synonymous, and are defined as any device, picture, word or words, figure or figures (not a trade-mark) impressed or stamped directly upon the articles of manufacture, or upon a slip or piece of paper, or other material, to be attached in any manner to manufactured articles, or to bottles, boxes, and packages containing them, to indicate the contents of the package, the name of the manufacturer or the place of manufacture, the quality of goods, directions for use, &c.
[Id.

11. The chief differences between trade-mark matter and label matter are that trade-mark matter is property at common law, label matter is not; trade-mark matter must be adopted *and used* before a right attaches or vests, whereas from the use of label matter no right attaches.
[Id.

12. A trade-mark registration is not a grant; neither is it a contract. It is a mere record permitted to an owner of a trade-mark, that has been used in commerce with foreign nations or Indian tribes, who is domiciled in the United States, or located in some foreign country which affords similar privileges to our citizens, of which record a certificate is given by the Commissioner of Patents. It is true that the registration is *prima facie* evidence of ownership, but in this it is only like other record.
[Id.

13. In an interference between an applicant and a registrant, or between two or more separate applicants and a registrant, the judgment of the Commissioner of Patents awarding the right to a registered trade-mark to some party other than the registrant makes the registration valueless, in like manner as the award of any other property, title to which has been recorded, to a party other than him in whose name it is recorded makes the record or the certificate of record valueless.
[Id.

14. A trade-mark applied to an article manufactured by a partnership is, in the absence of agreement, partnership property, and it follows that the right to the trade-mark is considered to reside in the partnership, even as against any retiring partner.
[Id.

15. Under considerations of estoppel *in pais* or equitable estoppel, it is doubtful whether a person after having been actively engaged in an attempt to secure a certain right to and in the name of another—as, for example, the right of property under a copyright or a trade-mark—even though the attempt were unsuccessful, may afterward assert such a right in his own name, though these considerations may be somewhat modified by the obtainment by the person first referred to of a statutory or *prima facie* position.
[Id.

16. Where the plaintiff furnished a lithographing company with a certain arbitrary phrase for the production by the lithographing company of a trade-mark for the plaintiff, the lithographing company is to be regarded as bailee for hire of the delineations of the trade-mark and of the result of such delineation; and, consequently, if the defendant was furnished with the result of this delineation wherewith to make application for registration, he was using the property of the plaintiff therefor.
[Id.

17. A party's right in a trade-mark may be violated, not only by one who uses the same or a colorable imitation thereof, but by any person who provides the means or instrument of this fraud—as by making for the use of the violator the type or tool or printing the label by which it is carried into effect—and an injunction will issue to prevent this.
[Id.

18. The Patent Office has no authority to go into an abstract or general investigation of the question of title to any vested right with a view, as it were, of divestment; but it does not follow that the Office is not empowered to try the right of a second party to register that which had heretofore been registered to another.
[Id.

19. Section 3 of the trade-mark act of 1881 provides for an interference proceeding between an applicant and a previous registrant, placing the jurisdiction in such proceeding, analogous to other interferences, with the Commissioner of Patents; and it is nowhere indicated in the act that if the registrant and applicant happen to be partners the Commissioner is divested of his jurisdiction.
[Id.

20. It is not clear what a court could award in such a proceeding as this. It could not award the right of registration, such, as above shown, being solely within the jurisdiction of the Commissioner of Patents; and an award of the registration of the registrant to the applicant would scarcely be proper, as it might be that of a void thing, since the principal point in the case besides the contention on the part of the applicant of prior adoption and use is that the registration of the registrant is itself wanting in every fundamental essential to make it valid or properly indicative of a right—as, for example, being based upon an oath false as to the statement that the party registrant had at the time of application a right to the use of the trade-mark sought to be registered, and that no other person, firm, or corporation then had.
[Id.

21. The burden of proof is upon the plaintiff to show not only that the defendant has no right to the trade-mark in question, but that the plaintiff has such right, and in addition is entitled to registration.
[Id.

22. The question in a trade-mark interference is not of priority of selection or creation, but of priority of adoption and use. Selection or even creation of a name is in no sense invention as this term is understood with reference to the mechanic arts and manufactures, and with reference to rights conferred in them thereby, and there are no analogies between the two.
[Id.

23. It will be noted that the words *adoption* and *use*, or "*adopted* and *used*," are coupled together. No right of trade-mark can accrue or attach from either fact alone. Although the word *adoption* doubtless implies something more than mere selection—viz., the receiving or taking as one's own of what is not naturally so, and perhaps in a matter like a trade-mark the *open* taking as one's own thereof—yet adoption is not sufficient by itself, for *use* with it is an essential, and one could scarcely be said to be using a thing in the proper sense of *use* here if he were employing it in the interest of some other party.
[Id.

24. It is intimated that as the defendant originated the name while in the employ of the plaintiff, upon considerations which would obtain in determining a question of right to an invention as between workman and employer, the trade-mark should be considered his. But rules applicable to questions arising between parties in a matter of invention have, in general, no application in questions arising between parties in a trade-mark matter, and there is no analogy to be drawn from the doctrine of "employer and workman," as applied sometimes in questions of priority of invention. It may be remarked, however, that even in the relation of employer and workman, with reference to invention, the production of the workman may be the invention of the employer.
[Id.

25. The first production or invention or the ownership of an article manufactured confers no right in or to a trade-mark upon such article.
[Id.

26. The proposition of the defendant that he is entitled to the trade-mark because he had used due diligence in making an application for registration is without force, since diligence has nothing to do with the matter. Trade-mark being a common law right, and being perfectly independent of registration, there can be no race of diligence in coming to the Patent Office.
[Id.

27. Registration is no judgment, and is not conclusive of the right to the trade-mark, not only because interference is provided for by statute, but upon general principles. Even if the issue of a certificate of registration amount to a judgment, it could be in no sense a judgment *in rem*. As said, however, it is not a judgment at all, not even a judgment *in personam*.
[Id.

28. It is not at all apparent how the collateral, or rather subsequent, application for and registration of a print or label could have any bearing upon the question of defendant's right to the trade-mark in question, the label registration being in very fact *res inter alios;* but this directs attention to the fact that a label being substantially the trade-mark in question has been registered in the Patent Office, while the act of Congress only permits the entry or registration of a print or label when it is not a trade-mark. The provisions of the trade-mark law, as uniformly construed, are radically and essentially different from those relating to labels.
[Id.

29. Adoption and *use* is not alleged, but only adoption and "application." The mere marking of goods, or the applying of trade-mark to goods, is a different thing from *using* the mark. To adopt and use a trade-mark a person must have trade of his own.
I

30. There is no force in any consideration of mere priority of foreign use. It can scarcely be contended that if one party had a valid trade mark at common law, another might deprive him of it and acquire legal title thereto merely by entering into commerce (upon the goods bearing the trade-mark) with foreign nations or Indian tribes.
[Id.

31. The defendant while acting in the capacity of agent of the plaintiff, as well as being a partner, sold goods bearing the mark of the plaintiff to merchants in a foreign country: *Held*, that whatever foreign trade was thus established was for and on behalf of the plaintiff—was in fact the plaintiff's.
[Id.

TWO YEARS' LIMIT OF DELAY IN APPLYING FOR REISSUE.

(See Reissues, 12, 13.)

VALIDITY OF PATENTS.

(See Reissues, 2, 3, 4.)

VALID PATENTS.

(See Particular Patents, 1, 2, 8, 9, 10, 11, 12, 13, 14, 15, 16.)

VOID CLAIMS.

(See Reissues, 3, 4, 5, 6.)

VOID PATENTS.

(See Particular Patents, 3, 5; Reissues, 7, 9, 13, 15, 22.)

ALPHABETICAL LIST OF PATENTEES

FOR

THE QUARTER ENDING MARCH 31, 1885.

[Claims and drawings of Designs do not appear in the Monthly Volumes or the Gazette. Separate indexes for Designs, Trade-Marks, Labels, and Disclaimers follow this.]

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
			Specification.	Drawing.	Volume.	Page.
Abadie, Egbert, Paris, France. Manufacture of reticulated paper for cigarettes	314,639	Mar. 31	2167	575	30	1231
Abbott, Isaac M., Philadelphia, Pa. Siphon stop-cock and bottle-stopper	312,600	Feb. 24	1567	429	30	665
Abbott, John D. (See Bartholomew and Abbott.)						
Abbott, Stearns K., Warnerville, Mass. Adjustable mirror	314,771	Mar. 31	2361	625	30	1267
A B C Fence Company of New York. (See Adams, George Q., assignor.)						
Acers, Nelson F., Iola, Kans. Window-shade attachment	313,041	Mar. 3	1	1	30	779
Achenbach, William F., Reading, Pa. Plane	310,163	Jan. 6	1	1	30	3
Ackermann, John. (See Fabing and Ackermann.)						
Acme Mining Machine Company. (See Hamilton, Walter, assignor.)						
Adair, Addison A., *et al.* (See Byrkit, Edwin M., assignor.)						
Adams, Albert A., and W. Lee, McBrides, Mich. Packing for steam-joints	311,707	Feb. 3	323	89	30	410
Adams, Benjamin B., Roswell, N. Mex. Ter. Fence-post	314,303	Mar. 24	1716	456	30	1122
Adams, Charles, Allegheny City, Pa. Furnace for the manufacture of iron direct from the ore	310,164	Jan. 6	2	1	30	3
Adams, Edwin F. (See Terry, Andrew J., assignor.)						
Adams Electric Mast Company. (See Adams, Frederick U., assignor.)						
Adams, Frederick U., assignor to Adams Electric Mast Company, Chicago, Ill. Electric-lamp support	312,789	Feb. 24	1812	498	30	708
Adams, George Q., Quincy, Ill., assignor to A B C Fence Company of New York. Fence-making machine	312,063	Feb. 10	812	222	30	507
Adams, George W., Boston, Mass. Shingling-bracket	310,631	Jan. 13	604	166	30	121
Adams, James. (See Wheeler, George M., assignor.)						
Adams, John Q., Marseilles, Ill. Windmill	311,937	Feb. 10	637	175	30	475
Adams, John Q. and O. R., Marseilles, Ill. Corn-sheller	313,042	Mar. 3	2	1	30	779
Adams, John S., Elgin, Ill., assignor to Detroit Iron Tower Company, Detroit, Mich. Skeleton tower	311,165	Jan. 27	1325	365	30	265
Adams, John S., Elgin, Ill., assignor to Detroit Iron Tower Company, Detroit, Mich. Electric-light tower	311,166	Jan. 27	1328	365 366	30	265
Adams, John S., Elgin, Ill., assignor to Detroit Iron Tower Company, Detroit, Mich. Iron grating	311,167	Jan. 27	1331	367	30	266
Adams, Joseph D., Marshall, Ind. Road-grading machine	310,165	Jan. 6	3	1, 2	30	3
Adams, Oliver R. (See Adams, John Q. and O. R.)						
Adams, Robert, 17 Blackman Street Borough, county of Surrey, England. Window	310,355	Jan. 6	264	72	30	50
Adams & Westlake Manufacturing Company. (See Campbell, William N., assignor.)						
Adams, William L., and W. R. Polk, assignors to Baltimore Lime Paint Company, Baltimore, Md. Lime-paint	310,550	Jan. 13	503	.....	30	103
Adams, William W. (See Smith and Adams.)						
Adee & Co., Fred. (See Smith, Benjamin C., assignor.)						
Adkins, Sebastian M., Cincinnati, Ohio. Key-buckle	310,632	Jan. 13	604	166	30	121
Adler, Henry, Pittsburg, Pa. Coal-vase	311,864	Feb. 10	529	145	30	455
Ætna Glass and Manufacturing Company. (See Wood, Joseph M., assignor.)						
Aetna Stopper Company. (See Thatcher, Frederick B., assignor.)						
Ahlers, George F., *et al.* (See Kuhn, Leo S., assignor.)						
Aigner, Hermann, Vienna, Austria-Hungary. Artificial fuel	314,097	Mar. 17	1441	377	30	1062
Ajax Forge Company. (See Alkins, Charles, assignor.)						
Akerman, John N., Somerville, Mass. Pole-coupler for horse-cars	311,168	Jan. 27	1332	367	30	266
Alabaster, Henry, South Croydon, and T. E. Gatehouse, Camberwell, county of Surrey, England. Circuit for telephonic communication	314,305	Mar. 24	1718	457	30	1122
Alabaster, Henry, South Croydon, and T. E. Gatehouse, Camberwell, county of Surrey, England. Telephone-receiver	314,306	Mar. 24	1719	457	30	1122
Alabaster, Henry, South Croydon, and T. E. Gatehouse, Camberwell, county of Surrey, England. Telephonic transmitter	314,307	Mar. 24	1720	457	30	1122
Alabaster, Henry, South Croydon, T. E. Gatehouse, Camberwell, county of Surrey, and H. R. Kempe, Barnet, county of Middlesex, England. Telephone	314,304	Mar. 24	1717	456	30	1122
Alapaw, Charles H., assignor of two-thirds to J. G. and F. A. Brinkmeyer, St. Louis, Mo. Calipers	311,800	Feb. 3	438	118	30	430
Albertson, Henry C. (See Weston and Frost, assignors.)						
Albertson, John W., *et al.* (See Ebel, John V., assignor.)						
Albertson, William R., Worcester, Mass. Burnishing-machine for boots and shoes	310,166	Jan. 6	5	2	30	4
Albright, Eli, *et al.* (See Brown, Hiram L., assignor.)						
Alcoke, Charles H., Hamilton, Ohio. Roller coasting-vehicle	310,356	Jan. 6	264	73	30	51

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Alcorn, Marshall G. (See Brown and Alcorn.)						
Alderman, Asa, Calvary, Ga. Combined rake and pitch-fork	313,843	Mar. 17	1105	287	30	999
Aldridge, Hiram, Wheeling, W. Va. Car-roof	310,971	Jan. 20	1056	287	30	208
Alexander, M. Clair. (See Southwick, Thomas A., assignor.)						
Alkins, Charles, assignor to Ajax Forge Company, Chicago, Ill. Machine for making arch-bars	312,244	Feb. 17	1071	295 / 296	30	563
Allaben, Orson M., Margaretville, N. Y. Ditching-machine	313,043	Mar. 3	5	1, 2	30	779
Allason, William J., Billings, Mont. Ter. Button and button-fastening	311,460	Feb. 3	1	1	30	349
Allcock, Arthur T. (See Nicholson and Allcock.)						
Allcutt, Elwood H., Kansas City, Mo. Switch	311,461	Feb. 3	2	1	30	349
Allen, Augustus L., Poughkeepsie, N. Y. Apparatus for the manufacture of gas	310,467	Jan. 6	411	113	30	79
Allen, Charles W., Valentine, Nebr. Time-register for seals	312,176	Feb. 10	983	268	30	538
Allen, Edward B., Portland, Me., assignor to J. W. Brooks, trustee, Cambridge, Mass. Heel-nailing machine for boots or shoes	310,488	Jan. 6	414	113 / 114	30	80
Allen, Edward B., Portland, Me., assignor to J. W. Brooks, trustee, Cambridge, Mass. Heeling-block	314,411	Mar. 24	1852	494	30	1148
Allen, George, Franklin, Pa. Apparatus for pumping oil-wells	313,007	Mar. 17	1179	310	30	1015
Allen, George H., Ayer, Mass. Pen-holder	311,556	Feb. 3	137	39	30	374
Allen, George H., Ayer, Mass. Soap-holder	312,601	Feb. 24	1567	429	30	665
Allen, Henry F., assignor to E. S. T. Kennedy, New York, N. Y. Steam-boiler	314,308	Mar. 24	1721	458	30	1123
Allen, James B. (See Tucker and Godfrey, assignors.)						
Allen, John R., Indianapolis, Ind. Log boom	311,865	Feb. 10	530	145	30	455
Allen, Joseph C., Plainfield, N. J. Type-writing machine	312,546	Feb. 17	1498	408	30	642
Allen, Nicholas I., assignor to I. W. Van Zandt, Rochester, N. Y. Belt-lace	313,974	Mar. 17	1292	336	30	1033
Allen, Samuel F., assignor of two-thirds to T. R. Freeman and J. S. Toppan, Chicago, Ill. Torpedo for railway-signals	313,151	Mar. 3	151	37	30	805
Allen, William J., Norborne, Mo. Motor	313,641	Mar. 10	818	214	30	939
Allender, Henry, Detroit, Mich. Hydrocarbon-gas machine	314,412	Mar. 24	1853	494	30	1149
Allfree, James B., assignor of one-half to R. Shriver and H. Swartzwelder, Cumberland, Md. Floor-bolt	313,152	Mar. 3	152	37, 38	30	805
Allingham, James, Mitchell, Dak. Ter. Stove-pipe shelf and drum	314,413	Mar. 24	1854	494	30	1149
Allison, Asa H., Knightstown, Ind. Churn	314,772	Mar. 31	2302	625	30	1267
Allison, James, *et al.* (See Linham, Robert E., assignor.)						
Almond, David, Newark, N. J. Hat-forming machine	312,602	Feb. 24	1568	429	30	665
American Automatic Cartridge Company. (See Ring, John H., assignor.)						
American Bell Telephone Company. (See Eckert, Seely, and Eckert, assignors.)						
American Bell Telephone Company. (See Gilliland, Ezra T., assignor.)						
American Button Fastener Company. (See Kempshall, Eleazer, assignor.)						
American Button Fastener Company. (See Richards, Francis H., assignor.)						
American Buttonhole, Overseaming and Sewing Machine Company. (See Goodwin, Julius C., assignor.)						
American Buttonhole, Overseaming and Sewing Machine Company. (See Palmer, John H., assignor.)						
American Clay Bird Company. (See Marqua, Philip, assignor.)						
American Electric Headlight Company. (See Lynn, Mirabean N., assignor.)						
American Pneumatic Signal Company. (See Chase, Edward M., assignor.)						
American Press Association. (See Cummings, George W. and J. R., assignors.)						
American Press Association. (See Marshall, Albert W., assignor.)						
American Rein Hook Company. (See Hutchinson, Daniel, assignor.)						
American Writing Machine Company of New York. (See Yost, George W. N., assignor.)						
Ames, Chester L., Cabery, Ill. Drying apparatus for brick and tile kilns	311,557	Feb. 3	137	39	30	374
Amet, Edward H., assignor to H. A. Strecter, Chicago, Ill. Lamp-controlling mechanism	312,944	Feb. 24	2011	549	30	744
Ames, Daniel W., Saxton, Pa. Steam-engine	311,708	Feb. 3	321	89	30	410
Andersen, Anders, assignor to Kjöbenhavns Hesteskofabrik, Copenhagen, Denmark. Machine for bending the ends of bars	312,547	Feb 17	1499	409	30	642
Anderson, Abraham, assignor to C. S., G. D., and F. Colton, Galesburg, Ill. Check-row corn planter	313,466	Mar. 10	691	155	30	897
Anderson, Charles, assignor to himself and E. W. Farrar, Downer's Grove, Ill. Combined screen and storm door	313,844	Mar. 17	1106	287	30	999
Anderson, Euclid, Peekskill, N. Y. Drilling-machine	311,709	Feb. 3	324	89, 90	30	410
Anderson, George W., Westport, Ind. Speed-governor	310,467	Jan. 6	7	3	30	4
Anderson, James C., Highland Park, Ill. Device for conveying clay and clay-shale to the machines for pressing them into bricks	311,652	Jan. 20	1167	319	30	230
Anderson, James C., and F. H. Latimer, Winnipeg, Manitoba, Canada. Boiler ash-pan	311,695	Jan. 20	1230	337	30	241
Anderson, James H., Macon, Ga. Pen holder	310,771	Jan. 13	786	212	30	154
Anderson, John H. (See Sandstrom and Anderson.)						
Anderson, Josiah B., Boston, Mass. Toy block	312,420	Feb. 17	1314	362	30	609
Anderson, William H., Brooklyn, N. Y. Mechanical toy	311,219	Jan. 27	1415	385 / 386	30	281
Anderson, William H., Brooklyn, N. Y. Mechanical movement	311,220	Jan. 27	1418	386	30	281
Anderson, William T., Rock Hill, S. C. Baling-press	310,357	Jan. 6	265	73	30	51
Andrew, Charles H., Stockport, county of Chester, England. Gas-engine	314,284	Mar. 24	1668	449 / 450	30	1116
Andrews, Emery, Kennebunk, Me. Drier for paper-board	314,640	Mar. 31	2169	575	30	1231
Andrews, Emery, assignor to Leatheroid Manufacturing Company, Kennebunk, Me. Manufacture of parchment-paper or leatheroid	312,945	Feb. 24	2013	550	30	744
Andrews, Emery, assignor to Leatheroid Manufacturing Company, Kennebunk, Me. Trunk	312,946	Feb. 24	2014	550	30	744
Andrews, Emery, assignor to Leatheroid Manufacturing Company, Kennebunk, Me. Trunk-hinge	312,947	Feb. 24	2015	550	30	744
Andrews, Emery, assignor to Leatheroid Manufacturing Company, Kennebunk, Me. Box-fastener	314,641	Mar. 31	2170	576	30	1231
Andrews, John S., Milltown, New Brunswick, Canada. Car-coupling	313,044	Mar. 3	6	2	30	780
Andrews, Martin L. (See Brott and Andrews.)						
Andrews, Reuben H., Washington, D. C. Tricycle	310,868	Jan. 20	907	247	30	183
Andris, Robert. (See Mayer, Benedict, assignor.)						
Angell, Ransom S., assignor of one-half to M. A. Spooner and F. D. Larrabee, Moorhead, Minn. Traction-engine	314,285	Mar. 24	1669	450	30	1117
Angell, Thomas, Brooklyn, N. Y. Gas-regulator	310,240	Jan. 6	98	27	30	21
Anglim, Edward, Brockton, Mass. Shoe	313,271	Mar. 3	341	84	30	838
Annable, Edward R., assignor of one-half to J. Hodges, Paw Paw, Mich. Fence-post	311,710	Feb. 3	325	90	30	410
Annett, George A., Bothwell, county of Kent, Canada. Cover for sewing-machine tables	313,908	Mar. 17	1191	310	30	1015

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Ansonia Brass and Copper Company. (See Cowles, Alfred A., assignor.)						
Ansonia Brass and Copper Company *et al.* (See Headley, Robert, assignor.)						
Antal, Fromm, Buda-Pesth, Austria-Hungary. Apparatus for warming wine without bringing it in contact with atmospheric air	314,773	Mar. 31	2364	625	30	1268
Anthony & Co., E. & H. T. (See Lewis, William H., assignor.)						
Anthony & Co., E. & H. T. (See Prasch, Cyrus, assignor.)						
Anthony & Co., E. & H. T. (See Roche, Thomas C., assignor.)						
Anthony, Edwyn, Jersey City, N. J., assignor to R. Hoe & Co., New York, N. Y. Delivery apparatus for printing-machines	314,555	Mar. 31	2053	547 / 548	30	1211
Anthony, Edwyn, Jersey City, N. J., assignor to R. Hoe & Co., New York, N. Y. Printing-machine	314,556	Mar. 31	2056	548 / 549 / 550	30	1211
Anthony, Samuel I., New York, N. Y. Furnace for generating illuminating-gas	311,403	Jan. 27	1675	457	30	329
Apel, Hermann C., Milwaukee, Wis. Water-closet valve	310,972	Jan. 20	1058	287	30	209
Appleby, John F., assignor to Minneapolis Harvester Works, Minneapolis, Minn. Mechanism for raising and lowering harvesting-machines	310,998	Jan. 20	987	268	30	196
Appleby, John F., assignor to Minneapolis Harvester Works, Minneapolis, Minn. Knotting mechanism for grain-binders	312,790	Feb. 24	1614	408	30	709
Appleby, John F., assignor to Minneapolis Harvester Works, Minneapolis, Minn. Mechanism for supporting and adjusting the elevation of harvester-platforms	314,774	Mar. 31	2365	626 / 627	30	1268
Appleton, David, Manchester, England. Apparatus for electroplating	313,569	Mar. 10	725	190	30	922
Archer, Benjamin F., Marlotta, Miss. Harness-saddle	313,153	Mar. 3	154	38	30	805
Archer, Roger W., Beeville, Tex. Combination-tool	313,272	Mar. 3	312	84	30	838
Archer, William S., New York, N. Y. Machine for disintegrating fiber preparatory to being felted	314,642	Mar. 31	2170	576	30	1231
Archibald, Nelson, Santa Maria, Cal. Fire lighter and kindler	311,462	Feb. 3	4	1	30	349
Arci, Juan B., and J. Chapman, Brooklyn, N. Y. Steam-radiator	310,633	Jan. 13	605	167	30	121
Arci, Juan B., and J. Chapman, Brooklyn, N. Y. Steam-radiator	310,634	Jan. 13	606	167	30	121
Argersinger, Chauncey E., *et al.* (See Hall, Eugene E., assignor.)						
Armour, Charles W., Summit, N. J. Paper for roofing-felt, &c	311,938	Feb. 10	640	175	30	476
Armour, Charles W., Summit, N. J. Paper for sheathing, &c	311,939	Feb. 10	641	176	30	476
Armstrong, Alfred T. (See Armstrong, Wilbur I., assignor.)						
Armstrong, Edwin E., Detroit, Mich. Harness-saddle pad	311,940	Feb. 10	641	176	30	476
Armstrong, Frank, Bridgeport, Conn. Soap-hook	311,941	Feb. 10	642	176	30	476
Armstrong, John B., Guelph, Ontario, Canada. Thill-coupling	310,358	Jan. 6	268	73, 74	30	51
Armstrong, Martin, Milan, Kans. Automatic car-brake	313,154	Mar. 3	155	38	30	805
Armstrong, Wilbur I., assignor to himself and A. T. Armstrong, Belvidere, Ill. Paint-distributer	311,631	Feb. 3	228	64	30	392
Arnett, William D., Morrison, Colo. Seeding-machine	312,791	Feb. 24	1615	498 / 499	30	709
Arnold, Allen. (See Marvin and Arnold.)						
Arnold, Anna M. (See Arnold, Satterlee, assignor.)						
Arnold, Clarence R., Wellsville, Ohio. Double pen-holder	310,168	Jan. 6	10	3	30	5
Arnold, Edward, *et al.* (See Cuming, Alfred A., assignor.)						
Arnold, Paul, *et al.* (See Mellum, Ole H., assignor.)						
Arnold, Satterlee, assignor to A. M. Arnold, Brooklyn, N. Y. Link or pitman	311,558	Feb. 3	138	39	30	374
Arnold, Satterlee, assignor to A. M. Arnold, Brooklyn, N. Y. Apparatus for guiding, straightening, and eyeing fabrics for presentation to stitch-forming mechanism	313,909	Mar. 17	1192	310 / 311	30	1015
Arnold, T. J. (See Crumley, E. Miner, assignor.)						
Arnold, William S., Chatham, Ontario, Canada. Steam-engine	310,489	Jan. 6	417	115	30	80
Arrington, W. T. (See Randall and King, assignors.)						
Arthur, Charles M., Evansville, Wis. Paper box	310,241	Jan. 6	99	27	30	21
Artz, George L., Columbus, Ohio. Top-prop block for carriages	313,570	Mar. 10	726	190	30	922
Asbury, T. Henry, assignor to Enterprise Manufacturing Company of Pennsylvania, Philadelphia, Pa. Tobacco-cutter	311,053	Jan. 20	1168	319	30	230
Ashby, George H., Oskaloosa, Iowa. Gearing	312,064	Feb. 10	815	222	30	507
Ashcroft, Charles E., Lynn, Mass. Smelting-furnace	314,357	Mar. 31	2059	550	30	1211
Ashcroft, John, New York, N. Y. Glass-furnace	311,654	Jan. 20	1169	320	30	231
Ashcroft, John, New York, N. Y. Tile for glass and other furnaces	311,655	Jan. 20	1171	320	30	231
Ashe, Robert, Somerville, Mass. Edge-burnishing machine	313,155	Mar. 3	157	39	30	806
Ashner, Sigmund, New York, N. Y. Bathing-garment	313,845	Mar. 17	1106	287	30	999
Ashton, John, *et al.* (See Ward, Joseph, assignor.)						
Ashton, John, Philadelphia, Pa. Sash-fastener	314,162	Mar. 17	1525	400	30	1077
Asiel & Co., L. N., *et al.* (See West, Jonathan B., assignor.) (Reissue.)						
Atcherley, Rowland J., London, England. Amalgamator	312,240	Feb. 10	1063	292	30	553
Atcheson, Theophilus, assignor of one-fourth to G. E. Buckley, Philadelphia, Pa. Paper-pulp-digester valve	314,643	Mar. 31	2172	576	30	1231
Atherton, Abel T., Lowell, Mass. Machinery for the manufacture of roving for spinning purposes	311,096	Jan. 20	1231	337	30	241
Atherton, Abel T., Lowell, Mass. Cotton-opener	311,097	Jan. 20	1233	338	30	241
Atherton, Abel T., Lowell, Mass. Carding-machine	311,404	Jan. 27	1677	457 / 458	30	329
Atherton, Abel T., Lowell, Mass. Temporary binder	314,506	Mar. 24	1903	531	30	1172
Atherton, Abel T., Lowell, Mass. Loom-shuttle	314,907	Mar. 31	2545	673	30	1300
Atkin, Samuel T., assignor of one-half to O. Steele, Georgetown, Tex. Water-cup for stove-pipes	313,273	Mar. 3	343	85	30	838
Atkin, Samuel T., assignor to himself and O. Steele, Georgetown, Tex. Ventilating-chimney	314,309	Mar. 24	1722	458	30	1123
Atkinson, John W., Benton, Ark. Level	312,548	Feb. 17	1500	409	30	642
Atkinson, Thomas E., San Francisco, Cal. Apparatus for rectifying spirits and spirituous liquors by electricity	312,948	Feb. 24	2016	550	30	745
Atkinson, William H., Brooklyn, N. Y. Device for converting motion	310,169	Jan. 6	11	3	30	5
Atkinson, William H., assignor to Somers Bros., Brooklyn, N. Y. Machine for seaming irregular-shaped cans	311,632	Feb. 3	229	64, 65	30	392
Atterbury, Thomas B., Pittsburg, Pa. Manufacture of glass shade holders	313,399	Mar. 3	506	132	30	871
Atwood, James B., and A. W. Slate, assignors of one-third to G. Dwight, Jr., Springfield, Mass. Gage-cock	310,490	Jan. 6	418	115	30	80
Atwood, Joseph R. (See Dutton, Edward E., assignor.)						
Atwood, Montraville W., Clayton, N. Y. Center-board	313,796	Mar. 10	1033	265	30	976
Atwood, Osmyn H. (See Codding and Atwood.)						
Augho, Silas S., Dayton, Ohio. Plow-clevis	311,405	Jan. 27	1679	458	30	329
Aurand, Fred, and F. H. Sherer, Youngstown, Ohio. Sash-holder	312,315	Feb. 17	1176	322	30	582
Austin, Henry, Seymour Lake, Mich. Lifting-jack	314,908	Mar. 31	2546	673	30	1300
Austin, Norman L., Norwalk, Conn. Grate-bar	311,633	Feb. 3	233	65	30	392

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Austin, Robert E. (See Skinner, A. Frank, assignor.)						
Austin, William H., Vacaville, Cal. Fruit-canning apparatus	313,975	Mar. 17	1293	337	30	1031
Automatic Fire Alarm Association. (See Prentiss and Tilden, assignors.)						
Automatic Traction Draw Bar Company. (See Craven, Thomas C., assignor.)						
Averell, John D., Brooklyn, assignor of two-thirds to S. T. Dunham, New York, N. Y. Gas-pressure regulator	313,846	Mar. 17	1107	287	30	999
Averell, William W., Bath, N. Y. Sea-bridle	310,551	Jan. 13	503	139	30	103
Averill, John C., Tracy, Iowa. Car-coupling	313,702	Mar. 10	898	234	30	954
Avery, Amos P., Plain City, Ohio. Attachment for vapor-burners	312,065	Feb. 10	816	223	30	508
Avery, Ashbel S., and L. W. Osborn, Walnut, assignors of three twenty-fourths to H. S. Butler, Des Moines, Iowa. Corn-harvester	311,056	Jan. 20	1172	321	30	231
Avery, Thomas M., *et al.*, trustees. (See Hunter, George, assignor.)						
Avery, William, Redditch, county of Worcester, England. Manufacture of metallic needle-cases	313,797	Mar. 10	1035	266	30	978
Ax, Christian, *et al.* (See Foster, Thomas J., assignor.)						
Axe, Frank M. (See Galentine, Allen S., assignor.)						
Ayer, John M., Chicago, Ill. Ventilator	312,177	Feb. 10	994	268 / 269	30	538
Ayres, Abraham, New York, N. Y. Railway-switch	311,801	Feb. 3	438	118	30	430
Ayres, Hobart, Clinton, Iowa. Ladder	311,406	Jan. 27	1679	458	30	329
Ayres, John F., Alloway, N. J. Floor-bolt	310,772	Jan. 13	786	212 / 213	30	155
Ayres Manufacturing Company. (See Ayres, Samuel, assignor.)						
Ayres, Ruben B., St. Louis, Mo. Draft-tug	314,909	Mar. 31	2547	673	30	1300
Ayres, Samuel, assignor to Ayres Manufacturing Company, Worcester, Mass. Wire broiler	313,400	Mar. 3	507	132	30	871
Babcock, Erskine L., assignor to Falls Rivet Company, Cuyahoga Falls, Ohio. Pulley	313,467	Mar. 10	603	156	30	897
Babcock, George H., Plainfield, N. J., assignor to Babcock & Wilcox Company. Feed-water heater	314,415	Mar. 24	1858	495	30	1149
Babcock, George H., Plainfield, N. J., assignor to Babcock & Wilcox Company. Steam-boiler	314,416	Mar. 24	1860	495	30	1150
Babcock, George H., Plainfield, N. J., and L. Pine, South Bend, Ind., assignors to Babcock & Wilcox Company, of New Jersey. Water heater and purifier	314,414	Mar. 24	1855	494	30	1149
Babcock, Paul, Jr., Montclair, N. J. Lamp	310,635	Jan. 13	607	167	30	122
Babcock & Wilcox Company. (See Babcock, George H., assignor.)						
Babcock & Wilcox Company. (See Babcock and Pine, assignors.)						
Babcock & Wilcox Company. (See Pratt, Nathaniel W., assignor.)						
Babcock & Wilcox Company. (See Pratt and Palmer, assignors.)						
Babington, Joseph P., Shelby, N. C. Tympan-sheet and compound for same	312,684	Feb. 24	1681	.....	30	685
Babson, George J. (See Pease and Babson.)						
Bach, Andrew E., Ottawa, Ill. Railway-switch	313,798	Mar. 10	1036	266	30	978
Bachmeister, Theodore, Toulon, Ill. Conduit-pipe	310,173	Jan. 13	788	213	30	155
Bacon, Murray, assignor to Novelty Electric Company, Philadelphia, Pa. Electro-magnetic toy swing	312,178	Feb. 10	986	269	30	538
Badger, Benjamin F., Charlestown, Mass. Razor-strop	312,603	Feb. 24	1560	429	30	665
Badger, George A., and W. F. Lakin, Quincy, assignors to J. H. Lakin, Boston, Mass. Cash and parcel carrier	314,558	Mar. 31	2060	550	30	1212
Badger, George M., Quitman, Ga. Cotton chopper and cultivator	310,630	Jan. 13	608	167 / 168	30	122
Bagga, James T., Bridgeport, Ohio. Belt-gearing	310,359	Jan. 6	269	74	30	52
Bailey, Clem, Kinston, N. C. Automatic fan	314,775	Mar. 31	2362	627	30	1268
Bailey, Ephraim, West Newbury, Mass. Heel-jack	311,098	Jan. 20	1234	338	30	242
Bailey, Farrell & Co. (See Jarboe, Walter S., assignor.)						
Bailey, Henry L. (See O'Malley, Patrick A., assignor.)						
Baillie, John D., assignor of one-half to J. R. Mudson, Mogadore, Ohio. Lifting-jack	310,973	Jan. 20	1000	267	30	209
Baker, Arthur M., New York, N. Y. Safety attachment for elevators	311,279	Jan. 27	1501	412	30	299
Baker, Bernard N. (See Price, George W., assignor.)						
Baker, Charles F. (See Gardner, Sylvenus A., assignor.)						
Baker, Charles H., *et al.* (See Bestor, Francis L., assignor.)						
Baker, Frank E., Akron, Ohio. Shawl-strap handle	314,509	Mar. 24	1994	531	30	1172
Baker, Frank M., Birmingham, Conn. Button-fastening	313,274	Mar. 3	343	85	30	839
Baker, George L., Cabery, Ill. Scraper attachment for cultivators	310,974	Jan. 20	1001	268	30	209
Baker, Isaac B., Port Allegheny, Pa. Machine for dressing millstones	314,776	Mar. 31	2370	627 / 628	30	1269
Baker, Jackson R., Jersey City, N. J. Car-brake	314,417	Mar. 24	1861	495	30	1150
Baker, Jacob W., Uxbridge, Ontario, Canada. Car-coupling	311,711	Feb. 3	326	90	30	410
Baker, William S. G., Baltimore, Md. Refrigerator	310,975	Jan. 20	1001	268	30	209
Baldwin, Charles W., assignor to himself, A. A. Webb, Denver, and A. J. Smith, Central City, Colo. Power-hoist	313,156	Mar. 3	158	39	30	806
Baldwin, James S., assignor to L. Harper, Newark, N. J. Toy gravity-railway or parlor-sleigh	310,929	Jan. 20	989	260	30	196
Baldwin, Jeannette D., Moore's Hill, Ind. Back for piano-stools	313,642	Mar. 10	819	214	30	939
Baldwin, Myron T., Chicago, Ill. Photograph-burnishing machine	311,463	Feb. 3	4	2	30	349
Ball, Albert, Claremont, N. H. Diamond-drill-core catch or retainer	314,777	Mar. 31	2372	628	30	1269
Ball, Ansel, assignor to A. S. Davis, Seneca Falls, N. Y. Scroll-sawing machine	310,491	Jan. 6	419	115 / 116	30	81
Ball, Charles, and G. Liapenard, assignors to Ball & Jewell, Brooklyn, N. Y. Damper-regulator	310,976	Jan. 20	1063	288	30	210
Ball, Clinton M. (See Powers and Ball.)						
Ball, Clinton M., Troy, N. Y. Electric-arc lamp	314,418	Mar. 24	1862	495 / 496	30	1151
Ball, Harry. (See Willetts and Ball.)						
Ball, James, Holyoke, Mass. Machine for cutting sheets with oblique edges from webs of paper	311,539	Feb. 3	139	39	30	375
Ball & Jewell. (See Ball and Liapenard, assignors.)						
Ballantine, Alexander T., assignor to E. B. Ballantine, Geneva, Ohio. Compressor for ice-making apparatus	313,045	Mar. 3	7	2	30	780
Ballantine, Ella B. (See Ballantine, Alexander T., assignor.)						
Ballard, Alonzo W., Buckhorn, Va. Machine for separating peanuts	311,712	Feb. 3	327	90	30	410
Ballard, David L., assignor to Hendey Machine Company, Torrington, Conn. Reversing-gear for shaping machines	310,774	Jan. 13	788	213	30	155
Ballard, George M. (See Wayland, James, assignor.)						
Ballard, Stephen, Winchester, Ind. Cider-press	311,713	Feb. 3	398	91	30	411
Balson, Harry L., De Soto, Mo. Brick-machine	312,066	Feb. 10	817	223	30	503

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Baltimore and Ohio Telegraph Company. (See Van Hoevenbergh, Henry, assignor.)						
Baltimore Lime Paint Company. (See Adams and Polk, assignors.)						
Baltzly, Stephen. (See Harris and Baltzly.)						
Bancroft, Samuel, Jr., Rockford, Del. Fabric for window-shades, book-covers, &c.	313,799	Mar. 10	1037	.....	30	978
Bang, Ivar A. F., and M. C. A. Rufin, Paris, France. Purifying alcohol	314,910	Mar. 31	2548	674	30	1300
Bangs, David E., Medford, Mass. Valve for vapor-burners	312,067	Feb. 10	818	223 / 224	30	508
Bangs, Winfield S., Alma, Mich. Swinging gate	311,714	Feb. 3	329	91	30	411
Bannwart, Alexander, Zurich, Switzerland, and E. Ernold, New York, N. Y., assignors to Wittemann Brothers. Corking-machine	311,634	Feb. 3	233	65	30	392
Banser, John H., North Clarendon, Pa. Rope-socket	310,360	Jan. 6	270	74	30	52
Baragwanath, William, Chicago, Ill. Heating and purifying feed-water	314,559	Mar. 31	2062	550 / 551	30	1212
Barber, Charles S., Hartford, Conn. Dividers and calipers	313,275	Mar. 3	344	85	30	839
Barber, George F., De Kalb, Ill. Combined screen and storm-door	312,949	Feb. 24	2017	551	30	745
Barber, I. I. (See Price, Joseph R., assignor.)						
Barber, Thomas, Flatbush, N. Y. Disk and cone valve	311,942	Feb. 10	643	176	30	476
Barber, Thomas, Flatbush, N. Y. Piston	312,950	Feb. 24	2017	551	30	745
Barber, Thomas, Flatbush, N. Y. Stuffing-box	313,703	Mar. 10	899	234	30	954
Barber, Thomas, Flatbush, N. Y. Piston-packing	313,704	Mar. 10	900	234	30	954
Barber, Thomas W. (See Stevens, Major, and Barber.)						
Barbiere, Joseph, Lansdale, Pa. Vehicle-wheel	311,280	Jan. 27	1512	412	30	299
Bardsley, Joseph, Newark, N. J. Door-knob	314,644	Mar. 31	2175	577	30	1232
Barker, Columbus C., and T. Craney, Bay City, Mich. Floating log-loader	313,293	Mar. 3	370	92	30	844
Barker, Columbus C., and T. Craney, Bay City, Mich. Log-crib	313,294	Mar. 3	370	92	30	844
Barker, John L., Racine, Wis. Flying target	312,604	Feb. 24	1570	430	30	665
Barker, R. M. (See Skinner, John, assignor.)						
Barker, William, Cincinnati, Ohio. Check-valve	314,216	Mar. 24	1503	421	30	1099
Barker, William R., and A. L. Savory, New Bond Street, county of Middlesex, England. Food for infants and invalids	313,157	Mar. 3	160	.....	30	806
Barley, James H., assignor of one-half to T. K. Barley, Sedalia, Mo. Harrow	310,170	Jan. 6	12	4	30	5
Barley, Thomas K. (See Barley, James H., assignor.)						
Barlow, Joseph C., Quincy, Ill. Check-rower attachment for corn-planters	312,695	Feb. 24	1682	463 / 464	30	685
Barlow, Robert N. (See Gebhard and Barlow.)						
Barnard, Andrew B., St. Joseph, Mo. Hand punch or press	312,696	Feb. 24	1687	464	30	686
Barnard, Henry H., assignor of one-half to J. D. Gray, Syracuse, N. Y. Converting recip-rocating into rotary motion	311,407	Jan. 27	1660	458 / 459	30	330
Barnekow, Charles W., Newburg, N. Y. Hood for shutter-hinges	310,637	Jan. 13	611	168	30	122
Barnes, Emory, Mount Pleasant, Mich. Device for moving cars	310,492	Jan. 6	420	116	30	81
Barnes, Harry W., Bristol, Conn. Clock-bell	312,792	Feb. 24	1817	499	30	709
Barnes, John H., and J. H. Woolaston, assignors to Barnes Manufacturing Company, New Haven, Conn. Lock	314,778	Mar. 31	2373	628	30	1269
Barnes Manufacturing Company. (See Barnes and Woolaston, assignors.)						
Barnes, N. A., *et al.* (See Pearce, William, assignor.)						
Barnes, Raymond F., Brooklyn, assignor to United States Electric Lighting Company, New York, N. Y. Vacuum-pump	312,951	Feb. 24	2018	551	30	745
Barnes, Robert W. (See Brown, Barnes, and Bell.)						
Barnett, Joseph, New York, N. Y. Fire-escape ladder	312,793	Feb. 24	1818	499	30	709
Barnett, Martin S. (See Stempel, Omar A., assignor.)						
Barney, Everett H., Springfield, Mass. Roller-skate	312,952	Feb. 24	2020	552	30	745
Barney, R. Lester, Swanton, Vt. Stone-sawing machine	313,643	Mar. 10	819	214 / 215	30	939
Barney, Valentine G., Charles City, Iowa. Machine for sawing stone	312,068	Feb. 10	819	224	30	508
Barney, Valentine G., Charles City, Iowa. Sand and water pump	312,069	Feb. 10	821	224	30	509
Barnum, George S. (See Williams, Ives, and Barnum.)						
Barrett, Charles E., *et al.*, trustees. (See Pratt, Harry P., assignor.)						
Barrett, Charles E., Brattleborough, Vt. Journal-bearing	310,532	Jan. 13	505	139	30	103
Barrett, Josiah, assignor to Duff Manufacturing Company, (limited,) Allegheny, Pa. Lifting-jack	312,316	Feb. 17	1176	322 / 323	30	583
Barrett, Josiah, Allegheny, Pa., assignor to Duff Manufacturing Company, (limited.) Lifting-jack. (Reissue)	10,574	Mar. 24	2050	546	30	1182
Barron, James B., Topsham, Me. Wire-fence tool	314,779	Mar. 31	2375	628	30	1269
Barron, John W., assignor to E. F. Hagar, Boston, and H. Sawyer, Chelsea, Mass. Zincography	310,638	Jan. 13	612	169	30	122
Barsby, William, King's Heath, county of Worcester, England. Lock-stitch sewing-machine	313,705	Mar. 10	900	234 / 235	30	954
Barstow, Howland M. (See Gould, Andrew J., assignor.)						
Bartgis, Frederic A., Frederick, Md. Fence	314,419	Mar. 24	1864	496	30	1151
Bartholomew, Grove S., and J. D. Abbott, Reading, Mich. Swinging gate	313,976	Mar. 17	1294	337	30	1033
Bartle, James, Notting Hill, county of Middlesex, England. Door of gas retorts	314,780	Mar. 31	2376	629	30	1270
Bartlett & Co., A. F. (See Campbell, William A., assignor.)						
Bartlett, John W., Moline, Ill. Gang-plow	310,775	Jan. 13	789	213 / 214	30	155
Bartlett, Roland S., assignor to Williams Manufacturing Company, Northampton, Mass. Basket	313,910	Mar. 17	1196	311	30	1016
Bartlett, Samuel H. (See Waite and Bartlett.)						
Bartley, Nadab G., Auburn, N. Y. Sprinkling apparatus	311,560	Feb. 3	140	40	30	375
Barton, Charles C., New York, and J. Thomson, Brooklyn, N. Y. Combined piston and diaphragm meter	313,158	Mar. 3	161	40	30	806
Barton, Charles C., New York, and J. Thomson, Brooklyn, N. Y. Fluid-meter	313,159	Mar. 3	165	40, 41	30	807
Barton, David C., assignor to himself and M. D. Lewis, Rocheport, Mo. Car-coupling	310,553	Jan. 13	507	140	30	103
Barton, William E., East Hampton, Conn. Sleigh-bell attachment	312,070	Feb. 10	823	224	30	509
Bartron, Stockton, Portland, Pa. Friction-clutch	313,644	Mar. 10	821	215	30	939
Bass, Charles A., Cicero, Ill. Air-brake for locomotives and railway-cars	312,245	Feb. 17	1074	296	30	563
Basye, Taylor C., *et al.* (See Park, John S., assignor.)						
Batcheldor, William W., New York, N. Y. Lamp	312,317	Feb. 17	1179	323	30	583
Batcheller, Andrew C., Bay City, Mich. Hoop-nailing machine	313,645	Mar. 10	822	215	30	940
Batdorf, Charles S., assignor of one-half to J. W. Batdorf, Chicago, Ill. Button-hole attachment for sewing-machines	313,046	Mar. 3	8	3	30	780
Batdorf, John W. (See Batdorf, Charles S., assignor.)						
Bates, Henry C., assignor of one-half to W. Corrinage, Miles, Iowa. Whiffletree-hook	310,869	Jan. 20	908	247	30	183
Bates, Henry C., Miles, and G. Bryant, Iowa, Jackson county, Iowa. Land-pulverizer	312,677	Feb. 24	1698	465	30	686

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Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Bates, Theodore C. (See Hill, Lucian, assignor.)						
Bates, Theodore C. (See Ruffin, Perley, assignor.)						
Bates, Theodore C. (See Williams, Charles H., assignor.)						
Batterson, James G., Hartford, Conn. Burglar-alarm	310,242	Jan. 6	101	28	30	91
Bätz, Michael, Brooklyn, N. Y. Hand-propeller for boats	312,071	Feb. 10	824	225	30	509
Bauder, Silas E., Birmingham, Ohio. Supporting-button for coffins	311,715	Feb. 3	330	91	30	411
Bauer, Alexander H., assignor to Viaduct Manufacturing Company of Baltimore, Baltimore, Md. System of electric-lighting by secondary batteries	312,098	Feb. 24	1689	465	30	686
Bauer, Jacob C., Philadelphia, Pa. Packing-case	312,421	Feb. 17	1315	363	30	609
Bauer, John C., London, England. Spanner	313,571	Mar. 10	727	191	30	922
Baum, Samuel, Little Falls, N. Y. Sled	314,217	Mar. 24	1594	421	30	1009
Baumann, Robert, assignor of one-half to E. Schmid, Cincinnati, Ohio. Medical compound	312,953	Feb. 24	2021	.....	30	746
Baumeister Charles, assignor to A. Bans & Co., New York, N. Y. Music-rack for pianos	313,647	Mar. 10	827	216	30	941
Baumgartner, Frederick, Brooklyn, N. Y. Whip-socket	313,160	Mar. 3	171	41	30	808
Bans, Augustus, assignor to A. Bans & Co., New York, N. Y. Agraffe for pianos	314,310	Mar. 24	1723	458	30	1123
Bans & Co., Augustus. (See Baumeister, Charles, assignor.)						
Bans & Co., Augustus. (See Bans, Augustus, assignor.)						
Bausman, David H., Lancaster, Pa. Wind-engine	313,646	Mar. 10	824	215	30	940
Baville, Edmond P., Brussels, Belgium. Machine for threading screws, bolts, and nuts	311,009	Jan. 20	1236	{338 339 340}	30	242
Bay, William L., Columbus, Ohio. Vehicle-spring	313,800	Mar. 10	1038	266	30	978
Baylies, Benjamin, Jr., Beltzhoover, Pa. Manufacturing iron and steel	313,079	Mar. 3	52	14, 15	30	787
Baxter, William J., assignor to Peck, Stow & Wilcox Company, Southington, Conn. Machine for folding sheet metal	314,311	Mar. 24	1723	{458 459}	30	1123
Beach, Charles A. (See Downer and Beach.)						
Beach, Hannah. (See Beach, Thaddeus C., assignor.)						
Beach, Nelson M., assignor to Bridgeport Brass Company, Bridgeport, Conn. Gamecounter	312,794	Feb. 24	1810	499	30	710
Beach, Thaddeus C., assignor to H. Beach, Detroit, Mich. Table	313,295	Mar. 3	372	92	30	844
Beach, William W., New York, assignor to D. R. Morse, Brooklyn, N. Y., and R. M. Stelle, Plainfield, N. J. Winker for bridles	311,561	Feb. 3	141	40	30	375
Beach, William W., New York, assignor to D. R. Morse, Brooklyn, N. Y., and R. M. Stelle, Plainfield, N. J. Blinder or winker for bridles	311,762	Feb. 3	142	40	30	375
Beadle, Joseph W., *et al.* (See Heron, John, assignor.)						
Beaham, Thomas G., Zanesville, Ohio. Culinary vessel	310,639	Jan. 13	613	169	30	123
Beam, Henry T., Palestine, assignor of two-thirds to W. C. Jones, Robinson, and C. Butler, Effingham, Ill. Car-coupling	311,281	Jan. 27	1512	413	30	299
Beaman, Timothy L., Knoxville, Tenn. Street-railway rail	310,640	Jan. 13	614	169	30	123
Bean, Henry F., Jackson, Mich. Leveling-rod	311,221	Jan. 27	1421	{386 387}	30	281
Bear, Theophilous L., Camden, N. J. Watch-case spring	311,563	Feb. 3	143	41	30	375
Beard, Cornelius. (See Turner and Beard.)						
Beardslee, William F., Boston, Mass., assignor to Manufacturers Special Machine Company, Danbury, Conn. Sewing-machine	311,943	Feb. 10	644	177	30	476
Beatty, Laura A., Galesburg, Ill. Shawl-strap	310,641	Jan. 13	615	169	30	123
Beauséjour, Urgel, East Saginaw, Mich. Car-coupling	313,977	Mar. 17	1295	337	30	1034
Beaver, George W., Mann's Choice, Pa. Thill-coupling	314,357	Mar. 24	1726	475	30	1135
Becker, Christopher, New Rochelle, N. Y. Weighing-scale	313,468	Mar. 10	664	156	30	897
Becker, Legrand, Rondout, N. Y. Compound jack	314,560	Mar. 31	2064	551	30	1212
Becker, Victor H., Memphis, Tenn. Cooling coils of gas-condensers	313,047	Mar. 3	13	3	30	781
Beckwith, William H., Pittsburg, Pa. Vault-cover	314,781	Mar. 31	2377	629	30	1270
Bedell, David E., Newark, N. J. Sash-fastener	314,782	Mar. 31	2378	629	30	1270
Bedinger, George W., near Joshua, Tex. Plow	310,243	Jan. 6	102	28	30	21
Beebe, Gaylord W., Swanton, Vt. Stove-pipe	314,783	Mar. 31	2380	629	30	1270
Beecher, James, and T. P. Smart, Philadelphia, Pa. Jack	311,716	Feb. 3	331	92	30	411
Beekman, Gerard, New York, N. Y. Picking mechanism for cotton-harvesters	313,276	Mar. 3	345	95	30	839
Beekman, Gerard, New York, N. Y. Picking rod or burr for cotton-harvesters	313,277	Mar. 3	347	86	30	839
Beekman, Gerard, New York, N. Y. Cleaning mechanism for cotton-harvesters	313,278	Mar. 3	349	86	30	839
Beers, Martha J., Boston, Mass. Bathing-garment	310,171	Jan. 6	17	4	30	5
Belden, Edwin S., San Francisco, Cal. Type-writing machine	310,244	Jan. 6	102	28, 29	30	22
Belfrage, Robert M., Cannonsville, N. Y. Reefing upper top-sails	313,279	Mar. 3	351	86	30	840
Belknap, Samuel C., and T. H. Fye, Zanesville, Ohio. Overshoe	313,161	Mar. 3	172	41	30	808
Bell, Andrew J., Manchester, county of Lancaster, England. Rope pulley-block	311,101	Jan. 27	1333	367	30	267
Bell, Henry, New York, N. Y. Caustic-holder	314,490	Mar. 24	1865	496	30	1151
Bell, John W., *et al.* (See Reznor, George, assignor.)						
Bell, Joseph. (See Brown, Barnes, and Bell.)						
Bell, Samuel H., Pinckneyville, Ala. Guano-distributer	310,642	Jan. 13	616	170	30	123
Bell, Thomas, Catskill, N. Y. Elevator	313,162	Mar. 3	172	42	30	809
Bell, William. (See Conley, Michael R., assignor.)						
Bell, William. (See Lipsey, Andrew B., assignor.)						
Bell, William. (See Miller, Sylvanus E., assignor.)						
Bell, William H., Cloverdale, Cal. Ironing-table	313,280	Mar. 3	352	87	30	840
Belle Patent Button Fastener Company. (See Woodward, Erastus, assignor.)						
Bellmann, Charles, Barton, Wis. Draft-equalizer	310,977	Jan. 20	1064	289	30	210
Bement, Robert B. C. (See Richer, Victor E., assignor.)						
Bemis Car Box Company. (See Bemis, Sumner A., assignor.)						
Bemis, George W., Sr., Cincinnati, Ohio. Railway-track to be used in connection with variable railway-trucks	313,978	Mar. 17	1296	337	30	1034
Bemis, Sumner A., Springfield, Mass., assignor to Bemis Car Box Company, New York, N. Y. Car-axle box	311,717	Feb. 3	331	92	30	411
Bench, William, Auburn, N. Y. Tongue-support for wagons	312,246	Feb. 17	1075	296	30	563
Benedict & Burnham Manufacturing Company. (See Blackman, Eli J., assignor.)						
Benedict, Jacob, assignor to J. M. Wheeler, W. Green, A. B. Knowlson, J. S. Cowin, and A. L. Sibley, Grand Rapids, Mich. Folding table	310,245	Jan. 6	105	29	30	22
Benedict, R. Watson. (See Tuttle and Benedict.)						
Benedict, William, Tunkhannock, Pa. Potato-digger	311,635	Feb. 3	235	66	30	393
Benham, William P., assignor to Pope Manufacturing Company, Hartford, Conn. Velocipede	310,776	Jan. 13	792	214	30	156
Benjamin, George H. (See Corning, Frederick G., assignor.)						
Benjamin, George H., Short Hills, N. J. Glass-melting furnace	312,422	Feb. 17	1316	363	30	609
Benjamin, Park, Brooklyn, N. Y. Wire bale-tie	311,222	Jan. 27	1402	387	30	282
Benner, Lorenzo D., Peoria, Ill. Check-rower	312,179	Feb. 10	987	269	30	536

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Bennett, Clarence M., Jenkintown, Pa. Car-coupling	314,421	Mar. 24	1866	497	30	1151
Bennett, John F., Pittsburg, Pa. Apparatus for the conveyance of fluids	312,318	Feb. 17	1181	{323 324}	30	583
Bennett, Theodore G. (See Smith, John S., assignor.)						
Bennett, Thomas H., assignor of two-thirds to D. L. Gouch, Ironton, and A. L. Stout, Dayton, Ohio. Puddling and heating furnace	311,802	Feb. 3	439	119	30	431
Bennyworth, John, Kinsley, Kans. Cane-mill	312,072	Feb. 10	825	225	30	510
Benoit, Joseph, New Braunfels, Tex. Windmill	312,795	Feb. 24	1820	500	30	710
Benson, Oliver, Hinsdale, N. Y. Sash-fastener	310,930	Jan. 20	991	269	30	196
Benson, William H., Chicago, Ill. Machine for dressing fine-cut tobacco	312,796	Feb. 24	1822	{500 501}	30	710
Bentley, Richard W., Brooklyn, N. Y. Ruling and engraving machine	313,648	Mar. 10	829	{216 217}	30	941
Bergès, Aristide, Grenoble, Isère, France. Valve	314,784	Mar. 31	2380	630	30	1270
Bergmann & Co. (See Bergmann, Sigmund, assignor.)						
Bergmann & Co. (See Johnson, Edward H., assignor.)						
Bergmann & Co. (See Klein, Philip H., Jr., assignor.)						
Bergmann, Otto. (See Roesgen, Mathias, assignor.)						
Bergmann, Sigmund, assignor to Bergmann & Co., New York, N. Y. Socket for incandescent electric lamps	311,100	Jan. 20	1240	340	30	242
Bergmann, Theodor, Gaggenau, Baden, Germany. Spittoon	311,636	Feb. 3	236	66	30	393
Berman, Edward, London, county of Middlesex, England, assignor to B. Blumenthal, New York, N. Y. Button	310,361	Jan. 6	271	74	30	52
Bernardin, Alfred L., Evansville, Ind. Combined metallic cap and fastener for bottles	314,358	Mar. 24	1787	475	30	1135
Bernardin, Alfred L., Evansville, Ind. Combined metallic cap and fastener for bottles	314,359	Mar. 24	1788	475	30	1136
Berry, John, Biddeford, Me. Pharmaceutical still	313,163	Mar. 3	175	42	30	809
Berry, John A., Detroit, Mich. Egg-carrier	312,319	Feb. 17	1185	324	30	584
Berthon, Louis A., assignor to Société Générale des Téléphones, Paris, France. Telephonic circuit and apparatus	311,944	Feb. 10	646	{177 178}	30	476
Best, Clearmont V., Canton, Ohio. Vapor-burner	312,247	Feb. 17	1076	297	30	564
Best, Daniel, Albany, Oreg. Grain-cleaner	313,911	Mar. 17	1197	311	30	1016
Best, Ezra, Quincy, Ill. Oil-cup	314,360	Mar. 24	1789	476	30	1136
Best, James F., Galva, Ill. Harness-maker's stitching-horse	312,073	Feb. 10	826	{225 226}	30	510
Bestor, Francis L., assignor of two-thirds to C. H. Baker, Knoxville, and T. C. Cunningham, Sycamorney, Iowa. Truck	310,362	Jan. 6	272	75	30	52
Betty, William, New York, N. Y. Armpit-shield	312,320	Feb. 17	1186	324	30	584
Beurmann, Lawriston R., East Saginaw, Mich. Saw-jab	311,170	Jan. 27	1334	367	30	267
Beyatrum, John, Pittsburg, Pa. Rotary steam-engine	311,718	Feb. 3	332	92	30	412
Bezançon, Camille, New York, N. Y. Steam-hoist	312,423	Feb. 17	1318	363	30	609
Bickel, John F. (See McCarty, Harry C., assignor.)						
Bicknell, John E., Cleveland, Ohio. Apparatus for separating oil-vapors	313,979	Mar. 17	1297	338	30	1034
Bidelman, Robert M. (See Bury and Bidelman.)						
Bidwell, Julius A., Ivanpah, Cal. Amalgamating-pan	313,164	Mar. 3	176	43	30	809
Bierer, George W., Pittsburg, Pa. Apparatus for removing coke from ovens	314,510	Mar. 24	1995	{531 532}	30	1172
Bigelow, George W., New Haven, Conn. Steam-engine governor	310,363	Jan. 6	272	75	30	52
Bigelow, John, Philadelphia, Pa. Mechanism for making zigzag or irregular stitches	313,801	Mar. 10	1039	267	30	978
Bigelow, John, Philadelphia, Pa. Trimming attachment for sewing-machines	313,802	Mar. 10	1040	267	30	979
Bigge, Frederick J., London, England. Latch and lock combined	311,637	Feb. 3	238	67	30	394
Bikle, Charles A., Hagerstown, Md. Clover thrasher and huller	310,246	Jan. 6	106	29	30	22
Bill, Henry W., Cuyahoga Falls, Ohio. Screw-tap	310,777	Jan. 13	793	214	30	156
Billing, Jacob M. (See Danner and Billing.)						
Billings, George H., E. W. Carter, and D. R. Smith, Cohoes, N. Y. Filtering-paper	311,223	Jan. 27	1423	387	30	282
Bimel, Lawrence and W., St. Mary's, Ohio. Axle box and skein	310,778	Jan. 13	793	215	30	156
Bimel, William. (See Bimel, Lawrence and W.)						
Binkley, Charles A., Troy, Ohio. Weather strip	310,364	Jan. 6	274	75	30	53
Birch, James. (See Birch, Thomas, W., and J.)						
Birch, Thomas, W., and J., Crawfordsville, Ind. Clay-pulverizing machine	313,572	Mar. 10	728	191	30	922
Birch, William. (See Birch, Thomas, W., and J.)						
Bird, James E., La Monte, Mo. Wagon-hoisting apparatus	313,803	Mar. 10	1041	267	30	979
Birdsall, Samuel, Susquehanna, Pa. Hitching-strap	310,643	Jan. 13	617	170	30	123
Birge, William H., Franklin, assignor to Oil Well Supply Company, (limited,) Oil City, Pa. Sand-pump	311,945	Feb. 10	651	178	30	477
Bishop, Augustus A., Washington, D. C. Envelope	311,946	Feb. 10	652	179	30	477
Bishop, Carlisle J. (See Fetcham, J. Wesley, assignor.)						
Bishop, Robert H., Islington, and W. Down, Vicars Road, county of Middlesex, England. Key-board attachment for musical instruments	311,947	Feb. 10	654	{179 180}	30	477
Bissell, Frank H., Orwell, assignor of one-half to M. Neil, Dayton, Ohio. Wire fence	314,785	Mar. 31	2381	630	30	1270
Bissell, James H., Rochester, Ohio. Vehicle-wheel	310,779	Jan. 13	794	215	30	156
Bissell, Thelus M., South Bend, Ind. Plow	312,797	Feb. 24	1824	501	30	711
Bissett, Edwin H. (See Evans and Bissett.)						
Black, Francis B., Mount Carmel, Ind. Washing-machine	314,786	Mar. 31	2383	630	30	1271
Black, James E. (See Sustaire, John T., assignor.)						
Black, Joseph P., assignor to Hapgood Plow Company, Alton, Ill. Cultivator	313,847	Mar. 17	1109	288	30	1000
Blackham, George E., Dunkirk, assignor of two-thirds to Bull & Haynes and E. N. Bowen, Buffalo, N. Y. Bicycle-wheel	311,803	Feb. 3	441	119	30	431
Blackman, Henry. (See Parker and Blackman.)						
Blackmore, John E., assignor of one-half to O. M. Bruce, Walnut, Iowa. Wire-stretcher	313,165	Mar. 3	177	43	30	809
Blackwell, Henry T., What Cheer, Iowa. Condenser for steam-pumps	311,638	Feb. 3	239	67	30	394
Blaikie, Alexander J., Rochester, N. Y. Machinery for opening and closing automatically safety-covers for elevators	312,699	Feb. 24	1692	{465 466}	30	687
Blain, Frank J., Cincinnati, Ohio, and E. Rardon, Newport, Ky. Preventing tarnishing in silver-ware	312,954	Feb. 24	2022	.....	30	746
Blaine Centre Draft Plow Company. (See Blaine, George E., assignor.)						
Blaine, George E., Chattanooga, Tenn., assignor to Blaine Centre Draft Plow Company. Plow	311,564	Feb. 3	144	41	30	375
Blair, George W., assignor of two-thirds to L. H. Fougeres and J. M. Haas, Wabash, Ind. Thill-coupling	311,464	Feb. 3	6	2	30	350
Blake, C. H., *et al.* (See Blake, Francis M., assignor.)						
Blake, D. D., *et al.* (See Blake, Francis M., assignor.)						
Blake, Francis, Weston, Mass. Telephone	314,312	Mar. 24	1724	459	30	1124

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Blake, Francis M., assignor of one-half to C. H. and D. D. Blake, Worcester, Mass. Friction-clinch	312,074	Feb. 10	830	226	30	511
Blake, George W., New York, N. Y. Hanger for pipe	311,282	Jan. 27	1513	413	30	299
Blake, Thomas. (See Jones and Blake.)						
Blakemore, James B., and W. A. Roberts, Ralston Station, Tenn. Washing-machine	314,163	Mar. 17	1536	400	30	1077
Blakey, Mildred, Allegheny, Pa. Thread-protector for wrought-iron pipe	311,171	Jan. 27	1336	368	30	267
Blakey, Mildred, Allegheny City, Pa. Machine for making tapered threaded sockets	312,700	Feb. 24	1694	466	30	687
Blanchard, Thomas A., Appling, Ga. Plow	312,075	Feb. 10	831	226 / 227	30	511
Blankley, James A., and C. H. Tallman, Bellaire, Ohio; said Blankley assignor to said Tallman. Lantern	314,767	Mar. 31	2384	630 / 631	30	1271
Blattner, Joseph, Highland, Ill. Feed-trough	310,554	Jan. 13	508	140	30	104
Blenman, William T. (See Young, Oliver B., assignor.)						
Blesch, August F., Columbus, Ohio. Water-closet	313,981	Mar. 3	353	87	30	840
Blessing, James H., Albany, N. Y. Revolving joint for screw valve-stems	310,870	Jan. 20	909	247	30	183
Bleyney, John C., Newark, N. J. Amalgamator	310,172	Jan. 6	14	4	30	5
Bleyney, John C., Newark, N. J. Friction-coupling	310,173	Jan. 6	15	5	30	6
Bliss, E. W. (See Jordan, Edmund, assignor.)						
Bliss, Eliphalet W. (See Jordan, Edmund, assignor.)						
Bliss, William H., Norwich, Conn. Revolving fire-arm	313,048	Mar. 3	13	4	30	781
Block, David, New York, N. Y. Grater	314,645	Mar. 31	2176	577	30	1232
Blohm, Christian, Altona, Prussia, Germany. Device for putting on boots or shoes	312,321	Feb. 17	1186	324	30	584
Blomstrom, John, assignor to H. W. Price, Rockford, Ill. Glove-fastening	311,101	Jan. 20	1243	340	30	243
Blood, Henry W., Fredonia, N. Y. Wagon-top	314,098	Mar. 17	1441	377	30	1002
Blood, Lydia A., Chicago, Ill. Tag for harness	312,799	Feb. 24	1826	501	30	711
Blood, Maurice E. (See Marsh and Blood.)						
Bloom, Jacob E., assignor to Ligowsky Clay Pigeon Company, Cincinnati, Ohio. Ball-trap	313,804	Mar. 10	1043	267	30	979
Bloomfield, Ellis S., Jr., Jersey City, N. J. Call-bell	313,573	Mar. 10	729	191	30	922
Bloomfield, William, San Francisco, Cal. Lamp-filling attachment for oil-cans	311,465	Feb. 3	7	2, 3	30	350
Blount, Alexander C., Pensacola, Fla. Stave and cask	312,955	Feb. 24	2022	552	30	746
Blow, Peter E., Joplin, Mo. Grate	313,282	Mar. 3	354	88	30	841
Blum, Christan J., Salem, N. C. Grist-mill	313,166	Mar. 3	178	43	30	809
Blumenthal, Benjamin. (See Berman, Edward, assignor.)						
Blumenthal, Leon, Minneapolis, Minn. Eliminating the smell of coal-oil	312,605	Feb. 24	1572	.....	30	666
Blumrick, Charles. (See Walker, Richard, assignor.)						
Blythe, John B., Bordeaux, France. Treating railway-sleepers	313,912	Mar. 17	1108	312 / 313	30	1016
Blythe, John B., Bordeaux, France. Apparatus for treating, seasoning, and preserving timber	313,913	May 17	1202	313 / 314	30	1017
Boak, James K., *et al.* (See Ginter, William P., assignor.)						
Bock, Henry F., Lansing, Ill. Frying-pan	310,365	Jan. 6	275	76	30	53
Bock, Henry F., Lansing, Ill. Shaft-tug	310,366	Jan. 6	276	76	30	53
Bock, Henry F., Lansing, Ill. Shaft-tug	310,367	Jan. 6	277	76	30	53
Bock, James H., assignor of one-half to M. Brown, New Castle, Ind. Press	313,914	Mar. 17	1205	314 / 315	30	1017
Bodenstein, John G., Staatsburg, N. Y. Ice-hook	311,639	Feb. 3	240	67	30	394
Boerner, Wunibald R., Chicago, Ill. Wire-work	312,701	Feb. 24	1695	466 / 467	30	687
Bogan, James F., East Boston, assignor to G. E. Marvin, Boston, R. F. Pratt, Everett, and W. E. Carleton, Charlestown, Mass. Device for reducing the diameter of metal rods or wire	313,283	Mar. 3	356	88	30	841
Bogert, John L., Flushing, N. Y. Rotary valve for steam-engines	310,978	Jan. 20	1065	289	30	210
Bogert, John L., Flushing, N. Y. Twin-cylinder engine	310,979	Jan. 20	1067	289 / 290	30	211
Bogga, William H., Covington, Ohio. Fence	313,848	Mar. 17	1110	298	30	1000
Bohn, Frederick W., Wabasha, Minn. Traction-engine	310,980	Jan. 20	1068	291	30	211
Bohner, George and J. E., Chicago, Ill. Extension-lamp	311,224	Jan. 27	1423	388 / 389	30	282
Bohner, Joseph E. (See Bohner, George and J. E.)						
Boissier, Herrmann R., New York, N. Y. Brush-holder for dynamo-electric machines	310,780	Jan. 13	795	215	30	156
Boissier, Herrmann R., New York, N. Y. Regulator for electric-arc lamps	310,781	Jan. 13	796	215 / 216	30	156
Boissier, Herrmann R., New York, N. Y. Dynamo-electric machine	310,782	Jan. 13	797	216	30	157
Boissier, Herrmann R., New York, N. Y. Cut-out for electric-arc lamps	310,783	Jan. 13	798	216	30	157
Boland, William A., *et al.* (See Woodward, Erastus, assignor.)						
Bole, John Pittsburg, Pa. Tubing and packing Artesian and oil wells	313,915	Mar. 17	1207	315	30	1017
Bole, William A., Pittsburg, Pa. Securing pulleys or crank-disks to shafts	314,788	Mar. 31	2380	631	30	1271
Bole, William A., Pittsburg, Pa. Combined pulley or crank disk and shaft	314,789	Mar. 31	2387	631	30	1271
Bolette, Jean S., Perpinster, Belgium. Fleece-dividing attachment for carding-machines	312,424	Feb. 17	1319	364	30	610
Bollinger, Alexander M., Kelly's Station, Pa. Work-table for shoe-makers	310,764	Jan. 13	800	217	30	157
Bollinger, Joseph, Bracken, Ind. Combined corn-planter and plow	313,296	Mar. 3	373	92	30	845
Bolthoff, Henry, assignor of one-half to C. F. Hendrie, Denver, Colo. Stamp-mill	312,956	Feb. 24	2025	552 / 553	30	746
Bolthoff, Henry, assignor of one-half to C. F. Hendrie, Denver, Colo. Reducing and discharging ores, &c	312,957	Feb. 24	2027	553	30	747
Bolton, Francis J., Westminster, county of Middlesex, England. Floating apparatus for producing illuminated fountains	312,958	Feb. 24	2029	554	30	747
Bolton, Reginald P., Broxbourne, county of Herts, England. Air-compressing engine	314,218	Mar. 24	1595	421 / 422	30	1099
Bolus, Lewis, and P. Ellsperman, Wooster, Ohio. Ventilating measure-funnel	313,049	Mar. 3	15	4	30	781
Bonds, George W., assignor to B. Jackson, San Francisco, Cal. Friction-clutch	313,281	Mar. 3	357	88	30	841
Bone, Frank A., Lebanon, Ohio. Automatic fire escape	312,676	Feb. 10	833	227	30	511
Bonnor, Charles C., *et al.*, trustees. (See Pratt, Harry P., assignor.)						
Booker, J. Toma, *et al.* (See Sucll, Augustus E., assignor.)						
Boomer, George B., Mount Pleasant, N. Y. Box for presses	314,911	Mar. 31	2351	674	30	1300
Booth Albert T., Meriden, Conn. Repeating call-bell	310,368	Jan. 6	278	76	30	54
Booth, Caleb H., Dubuque, Iowa. Anti-friction dredging-pump	313,049	Mar. 10	837	217	30	942
Booth, Henry W., *et al.* (See Cowan, Miles R. B., assignor.)						
Booth, John, Central Falls, assignor to S. A. Jenks, Lincoln, R. I. Spindle-supporting bolster and step	310,871	Jan. 20	910	248	30	183
Borchardt, Hugo, Bridgeport, Conn. Machine for setting spiral springs	313,706	Mar. 10	902	235	30	955
Boring, Charles O., *et al.* (See Sencenbaugh, Samuel S., assignor.)						
Born, Fredrick W., Cleveland, Ohio. Oiling-can	311,225	Jan. 27	1426	389	30	282
Bosch, Berthold, Burlington, Iowa. Wagon-brake	310,174	Jan. 6	19	5	30	6

Alphabetical list of patentees, January to March, inclusive—Continued.

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Boschert, Rufus E., Syracuse, N. Y. Strain-indicator for screw-presses	312,800	Feb. 24	1826	502	30	711
Bosa, Martin P., Oakland, Cal. Apparatus for amalgamating ores. (Reissue)	10,549	Jan. 13	899	243 / 244	30	175
Bostrom, Ernst A., Newman, Ga. Leveling-instrument	314,511	Mar. 24	1096	532	30	1173
Bostwick, Walter W. (See Pitt, William R., assignor.)						
Boswell, Arthur C. (See Owen and Boswell.)						
Bosworth, Lorenzo P., Pawtucket, R. I. Jeweler's press	313,650	Mar. 10	838	218	30	942
Bouchet, Michael, assignor of one-third to M. F. Madden, Louisville, Ky. Adding-machine	314,561	Mar. 31	2065	552	30	1213
Boughton, William, Caledonia, Ohio. Vehicle-spring	310,175	Jan. 6	20	5	30	6
Boulden, Alfred. (See Peebles, Francis A., assignor.)						
Boulton, Matthew P. W., Tew Park, county of Oxford, and E. Perrett, Westminster, county of Middlesex, England. Caloric-engine	311,102	Jan. 20	1243	341	30	243
Boulton, Matthew P. W., Tew Park, county of Oxford, and E. Perrett, Westminster, county of Middlesex, England. Superheated-steam engine	312,959	Feb. 24	2030	554	30	747
Bourne, Theodore F., Bloomfield, N. J. Paper holder or file	312,704	Feb. 24	1697	467	30	688
Bowden, Russell, Marblehead, Mass. Machine for skiving leather	313,167	Mar. 3	179	44	30	810
Bowen, Ephraim N., *et al.* (See Blackham, George E., assignor.)						
Bowen, Philip A., assignor of one-half to Loeffelholz & Co., Milwaukee, Wis. Water-cock	312,077	Feb. 10	834	227	30	512
Bowen, Zadok W., *et al.* (See Orr and Selvard, assignors.)						
Bower, Henry, Philadelphia, Pa. Manufacture of ferro-cyanide of potassium	312,248	Feb. 17	1078	.....	30	564
Bower, Joseph W. (See Clemons and Bower.)						
Bower, Oliver C. (See Hostetler, Bower, and Hopwood.)						
Bowers, John W., East Douglas, assignor to Douglas Axe Manufacturing Company, Boston, Mass. Blank for axes and similar tools	311,866	Feb. 10	531	146	30	456
Bowers, John W., East Douglas, assignor to Douglas Axe Manufacturing Company, Boston, Mass. Die for making axes	311,867	Feb. 10	533	146	30	456
Bowers, William H. H., Salt Lake City, Utah Ter. Calcining and chloridizing furnace	311,804	Feb. 3	441	119 / 120	30	431
Bowes, Michael, Raleigh, N. C. Dumping-cart	312,078	Feb. 10	835	227 / 228	30	512
Bowley, Joseph H., Marengo, Ill. Fire-escape	311,805	Feb. 3	443	120	30	432
Bowman, Albert B. (See Shepard, Henry W., assignor.)						
Bowman, Frank, New York, N. Y. Temporary binder	313,574	Mar. 10	730	192	30	922
Bown, Albert, assignor of one-half to F. Plumb, Streator, Ill. Steam or vapor engine	310,369	Jan. 6	279	77	30	54
Boyd, David, Damariscotta Mills, Me. Ice-scraper	310,176	Jan. 6	21	6	30	6
Boyd, Henry E. (See Patterson and Boyd.)						
Boyd, Margaret E., Carthage, Ill. Foot-warmer	311,283	Jan. 27	1514	413	30	299
Boyd, Nathaniel W., Steelton, Pa. Railway-frog	312,801	Feb. 24	1828	502	30	711
Boydston, Howell T., Monmouth, Kans. Washing-machine	314,313	Mar. 24	1726	479	30	1124
Boyle, Homer L., Hamilton, Mich. Stump-extractor	310,644	Jan. 13	618	170	30	124
Boyles, Augustine B., Boston, Mass. Life-boat	311,808	Feb. 10	534	146 / 147	30	456
Brackett, Jefferson B., Leeds Junction, Me. Stone jug	312,180	Feb. 10	989	269	30	539
Braddock, Edward I., Medford, and D. A. Ritchie, Chelsea, Mass. Apparatus for coating metals	311,284	Jan. 27	1515	413	30	299
Bradford, Charles A., Peru, N. Y. Device for checking horses	310,872	Jan. 20	911	248	30	183
Bradish, Nelson P., assignor of one-half to M. Cockrell, Jerseyville, Ill. Fence-making machine	314,646	Mar. 31	2176	577	30	1232
Bradley, Charles B. (See Hubbard, William W., assignor.)						
Bradley, Charles S., Yonkers, assignor to Bradley Electric Power Company, New York, N. Y. Secondary battery	312,802	Feb. 24	1829	502	30	712
Bradley, Charles S., Yonkers, assignor to Bradley Electric Power Company, New York, N. Y. Electrical conducting material	312,803	Feb. 24	1831	.....	30	712
Bradley, Christopher C. (See Deering, Michael, assignor.)						
Bradley Electric Power Company. (See Bradley, Charles S., assignor.)						
Bradley & Hubbard Manufacturing Company. (See Evarts, John A., assignor.)						
Bradley Manufacturing Company, David. (See Packer, John F., assignor.)						
Bradley, Milton, Springfield, Mass. Toy spring-gun	310,873	Jan. 20	912	248	30	184
Bradshaw, John A., assignor of three-fourths to J. Leach, O. V. Smith, and T. F. Byron, Lowell, Mass. Music-box	310,645	Jan. 13	619	171	30	124
Brady, Edward J., Brooklyn, N. Y. Pan for water-closets	310,370	Jan. 6	280	77	30	54
Brady, James, Brooklyn, N. Y. Binder for electrical conductors	310,177	Jan. 6	22	6	30	7
Brainard, Amos H. (See Coes and Miller, assignors.)						
Brainard, Amos H., and Z. B. Coes, Hyde Park, Mass.; said Coes assignor to said Brainard. Automatic gear-cutting machine	310,247	Jan. 6	107	30	30	22
Brainerd, Frank W., Chicago, Ill. Wire-barbing machine	310,178	Jan. 6	24	6, 7	30	7
Brainerd, Frank W., Chicago, Ill. Barbed fencing	314,512	Mar. 24	1097	532	30	1173
Braman, George H., *et al.* (See Prentiss, Frank S. R., assignor.)						
Bramwell, William C., Hyde Park, Mass. Feeding mechanism for carding-engines	311,948	Feb. 10	656	180 / 181	30	478
Brand, Charles, Oakland, Cal. Step-ladder	311,949	Feb. 10	660	181	30	478
Brand, Conrad. (See Zornow, Charles, assignor.)						
Brandenberg, Martin C., Cambridge City, Ind. Blacksmith's punch	314,647	Mar. 31	2177	577	30	1232
Branford Lock Works. (See Thumshirn, George, assignor.)						
Brauig, Julius M., New York, N. Y. Music-leaf turner	311,950	Feb. 10	661	181	30	479
Brauer, Louis, Philadelphia, Pa. Car-brake	314,422	Mar. 24	1066	497	30	1151
Bray, Mellen, Newton, Mass. Manufacture of reed-plates and reeds	312,322	Feb. 17	1187	325	30	584
Brazelle, Benjamin, St. Louis, Mo. Governor for engines	313,168	Mar. 3	180	44	30	810
Breckenridge, Joseph C., *et al.* (See Reznor, George, assignor.)						
Breer, Caroline H. (See Breer, Henry, assignor.)						
Breer, Henry, assignor to C. H. Breer, De Witt, N. Y. Apparatus for drying fertilizers	313,401	Mar. 3	507	132	30	871
Breer, Henry, assignor to C. H. Breer, De Witt, N. Y. Desiccating apparatus	313,402	Mar. 3	508	133	30	871
Brehmer, August. (See Brown and Brehmer.)						
Brehmer, August, Leipsic, Germany, and G. Brown, Glasgow, Scotland. Binding books	312,606	Feb. 24	1572	430	30	666
Breitenbucher, Philip. (See Müller, William, assignor.)						
Bremerman, Fredrick, Indianapolis, Ind. Fence	313,169	Mar. 3	182	44	30	810
Bressler, John. (See Hunt and Bressler.)						
Brevoort, Henry L. (See Roberts, Isaiah L., assignor.)						
Brevoort, Henry L., Brooklyn, N. Y. Candle	310,874	Jan. 20	913	248 / 249	30	184
Brevoort, William H., Vincennes, Ind. Fence	310,555	Jan. 13	509	140	30	104

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Brewer, Albert L., *et al.* (See Hewen, Hendrick, assignor.)						
Brewer, Charles J., *et al.* (See Hewen, Hendrick, assignor.)						
Brewer, David W. (See Perrin, Charles, assignor.)						
Brewer, William J., London, England. Road-vehicle	312,960	Feb. 24	2032	554	30	747
Brewis, John J., assignor to North Star Iron Works Company, Minneapolis, Minn. Car-wheel lathe	312,961	Feb. 24	2032	555	30	748
Brewster, Hiram B., Centralia, Ill. Tag-fastener	310,785	Jan. 13	801	217	30	157
Brewster, James B. (See Mote and Brewster.)						
Bridgeport Brass Company. (See Beach, Nelson M., assignor.)						
Briggs, George G., *et al.* (See Moulton, Luther V., assignor.)						
Briggs, George S., Rockford, Ill. Plow-colter	313,651	Mar. 10	838	218	30	943
Briggs, John A., assignor to S. T. Briggs, Philadelphia, Pa. Mail-bag	313,050	Mar. 3	15	4	30	781
Briggs, John G., San José, Cal. Fruit-jar	314,099	Mar. 17	1442	378	30	1062
Briggs, Susannah T. (See Briggs, John A., assignor.)						
Brigham, Charles F., assignor of three-fourths to D. A. Brown, trustee, Boston, Mass. Fire-proof shutter	312,549	Feb. 17	1501	409	30	643
Bright, William, St. Louis, Mo. Paper-file	311,951	Feb. 10	663	181	30	479
Brill, J. George, and E. H. Zitzman, Philadelphia, Pa. Car-axle box	312,181	Feb. 10	990	270	30	539
Brinkmeyer, Frederick A., *et al.* (See Alapaw, Charles H., assignor.)						
Brinkmeyer, John G., *et al.* (See Alapaw, Charles H., assignor.)						
Briody, Barnad, and G. W. McHale, assignors of one-third to W. E. Lennane, Detroit, Mich. Pedestal for railway-cars	312,079	Feb. 10	837	228	30	512
Briscoe, William, and C. Gallagher, Philadelphia, Pa. Apparatus for removing snow from railway-tracks	314,790	Mar. 31	2388	631 632	30	1272
Britton, Joseph W., Cleveland, Ohio. Apparatus for straightening sheet metal	312,607	Feb. 24	1573	410	30	666
Britton, Joseph W., Cleveland, Ohio. Removing swells in sheet and plate metal	312,608	Feb. 24	1574	431	30	666
Britton, Rodney G., Springfield, Vt. Match-card	311,952	Feb. 10	664	182	30	479
Broadhead, Joseph, Cornwall, N. Y. Blanket	312,323	Feb. 17	1188	325	30	584
Broadus, Jean H., Manhattan, Kans. Heating attachment for stove-pipes	314,421	Mar. 24	1867	497	30	1151
Broadwell, Charles B., New Orleans, La. Car-starter	310,556	Jan. 13	810	140	30	104
Brock, Levi M., Mackinaw, Ill. Sulky-plow	312,324	Feb. 17	1189	325	30	584
Brock, Matthias, Boston, Mass., assignor to McKay & Copeland Lasting Machine Company, Portland, Me. Nailing apparatus for lasting boots or shoes	312,550	Feb. 17	1501	409	30	643
Brock, Matthias, Boston, Mass., assignor to McKay & Copeland Lasting Machine Company, Portland, Me. Lasting-machine	312,902	Feb. 24	2034	555	30	748
Brock, S. W. (See Smith, George C., assignor.)						
Brockner, Washington, New York, N. Y. Bale-tie	311,226	Jan. 27	1427	389	30	283
Brockner, Washington, New York, N. Y. Bale-tie	311,227	Jan. 27	1427	389	30	283
Brokhalme, Alfred V., New York, N. Y. Razor-guard	311,466	Feb. 3	8	3	30	350
Brooks & Co., E. J. (See Brooks, Edward J., assignor.)						
Brooks, David, Jr., Philadelphia, Pa. Conduit for electric wires	314,791	Mar. 31	2390	632	30	1272
Brooks, Edward J., East Orange, N. J., assignor to E. J. Brooks & Co., New York, N. Y. Seal	312,963	Feb. 24	2036	556	30	748
Brooks, Edward J., East Orange, N. J., assignor to E. J. Brooks & Co., New York, N. Y. Hair-crimper	314,100	Mar. 17	1443	378	30	1062
Brooks, Edward J., East Orange, N. J., assignor to E. J. Brooks & Co., New York, N. Y. Baggage-seal	314,164	Mar. 17	1527	400	30	1077
Brooks, Henry. (See Fefel, Henry H., assignor.)						
Brooks, Henry G., Battle Creek, Mich. Low-water alarm	310,786	Jan. 13	801	217	30	157
Brooks, James W., trustee. (See Allen, Edward B., assignor.)						
Brooks, John, Plainfield, N. J. Bed for zincographic presses	312,325	Feb. 17	1190	326	30	585
Broomhall, George L., Paterson, N. J. Device for securing electric wires to poles	310,931	Jan. 20	993	269	30	197
Brott, John R., East Medway, and M. L. Andrews, Melrose, Mass. Bridle-bit	312,182	Feb. 10	992	270	30	539
Brown, Alexander E., Cleveland, Ohio. Bucket-hook for hoisting and conveying apparatus	311,285	Jan. 27	1517	414	30	299
Brown, Alexander E., Cleveland, Ohio. Tubular tramway	313,585	Mar. 3	358	98	30	841
Brown, Alexander E., Cleveland, Ohio. Automatic dump-bucket for hoisting and conveying machines	314,101	Mar. 17	1445	378 379	30	1063
Brown, Alexander E., Cleveland, Ohio. Apparatus for discharging contents of vessels and cars, &c	314,424	Mar. 24	1869	498	30	1152
Brown, Alfred. (See Van Luven, Thomas F., assignor.)						
Brown, Alfred, assignor of one-half to J. R. Dow, Ottawa, Ontario, Canada. Suspenders	312,089	Feb. 10	838	228	30	513
Brown, D. Austin, trustee. (See Brigham, Charles F., assignor.)						
Brown, D. Austin, Boston, Mass. Plastic-cement mixture for non-conducting coverings for boilers, &c	311,287	Jan. 27	1520		30	300
Brown, Daniel W., Woodbridge, N. J. Combined cuff and button holder	311,286	Jan. 27	1519	414	30	300
Brown, Edward H., New York, N. Y. Door-closer	310,179	Jan. 6	26	7	30	7
Brown, Fayette, Cleveland, Ohio. Hoisting and top-filling apparatus for blast-furnaces	313,849	Mar. 17	1111	288	30	1000
Brown, Francis M., Greenfield, Iowa. Hen's nest	311,467	Feb. 3	10	3	30	350
Brown, Frederick E., *et al.* (See Seymour, William S., assignor.)						
Brown, Gavin. (See Brehmer and Brown.)						
Brown, Gavin, Glasgow, Scotland, and A. Brehmer, Leipsic, Germany. Machine for binding books	312,609	Feb. 24	1576	431	30	666
Brown, George S., Charleston, S. C. Refrigerator	310,371	Jan. 6	281	77	30	54
Brown, George W., New York, N. Y. Drum-cover	312,804	Feb. 24	1832	502	30	712
Brown, Gilbert F. (See Hanlenbeck and Brown.)						
Brown, Hiram L., Vistula, assignor of one-half to G. N. Thomas and E. Albright, Goshen, Ind. Piston	311,806	Feb. 3	445	121	30	432
Brown, James, and M. G. Alcorn, Los Angeles, Cal. Fruit-picker	312,326	Feb. 17	1191	326	30	585
Brown, James B., Hannibal, Mo. Pump-guard	314,912	Mar. 31	2553	674	30	1301
Brown, James B., Hannibal, Mo. Device for replacing pump-chains	314,913	Mar. 31	2553	675	30	1301
Brown, James B., assignor to New York Plow Company, New York, N. Y. Plow	314,425	Mar. 24	1871	498	30	1152
Brown, James W., *et al.* (See Hamre, Even J., assignor.)						
Brown, John F. (See Grunmann, Albert U., assignor.)						
Brown, John H., Chicago, Ill. Device for unloading grain from vehicles	311,468	Feb. 3	10	3	30	350
Brown, Milton. (See Bock, James H., assignor.)						
Brown, Nelson H. (See Van Hoesen and Brown.) (Reissue.)						
Brown, Orlando. (See Rorabaek, John, assignor.)						
Brown, Richard, R. W. Barnes, and J. Bell, Liverpool, county of Lancaster, England. Preparing pictures and photographs for photo-engraving	311,057	Jan. 20	1175		30	232
Brown, Robert, Springfield, Ohio. Grain-binder	314,102	Mar. 17	1448	379	30	1063
Brown, Robert, Springfield, Ohio. Cutter and cutter-guard for harvesters and mowers	314,103	Mar. 17	1449	379	30	1063
Brown, Robert L., New York, N. Y. Shutter-worker	310,372	Jan. 6	282	78	30	54

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Brown, Thomas R. (See Jones, Calvin M., assignor.)						
Brown, Thomas W. (See Melville and Brown.)						
Brown, Willard E., Philadelphia, Pa. Plow	310,249	Jan. 6	110	31	30	23
Brown, William, Duncannon, Pa. Sash-fastener	311,288	Jan. 27	1521	414	30	300
Brown, William A. M., and J. M. Porter; said Brown assignor to F. M. King, Leeds, county of York, England. Apparatus for measuring the flow of liquids	314,914	Mar. 31	2554	675	30	1301
Brown, William E., Elbridge, N. Y. Well-drilling machine	310,875	Jan. 20	914	249	30	184
Brown, William H., Indianapolis, Ind. Hot-water radiator	310,961	Jan. 20	1069	291	30	211
Brown, William H., Dunedin, Fla. Plant-protector	312,964	Feb. 24	2038	556	30	749
Brown, William L., Fennimore, Wis. Iron sled	312,425	Feb. 17	1322	365	30	610
Brown, William P., Zanesville, Ohio. Wheel-cultivator	310,248	Jan. 6	109	31	30	23
Brown, William T., Hastings, Mich. Base-ball bat	311,289	Jan. 27	1521	414	30	300
Brown, Willis L., Lake Geneva, Wis. Pot and kettle cover	312,805	Feb. 24	1833	503	30	712
Browne, George W., Brooklyn, N. Y. Safety gas-burner						
Brownell, Frank, *et al.* (See Spear and Wight, assignors.)						
Brownell, George L., Worcester, Mass. Apparatus for operating warehouse-doors	314,219	Mar. 24	1598	422	30	1100
Brownell, Harrie C., *et al.* (See Spear and Wight, assignors.)						
Browning, John M. and M. S., Ogden, Utah Ter. Magazine-gun	312,183	Feb. 10	993	271	30	539
Browning, Matthew S. (See Browning John M. and M. S.)						
Brownson, Ralph, assignor of one-half to P. R. L. Hardenbergh, St. Paul, Minn. Horse-collar	312,081	Feb. 10	839	228	30	513
Brownson, Ralph, assignor of one-half to P. R. L. Hardenbergh, St. Paul, Minn. Horse-collar and sweat-pad clamp	312,082	Feb. 10	840	229	30	513
Bruce, O. M. (See Blackmore, John E., assignor.)						
Bruderer, John, Philadelphia, Pa., and O. C. Burdict, assignors to Plumb, Burdict & Barnard, Buffalo, N. Y. Machine for forging bolt-blanks	310,046	Jan. 13	621	172	30	124
Bruen, William, and S. A. Wall, Newark, N. J. Combined door spring and bell	312,806	Feb. 24	1834	503	30	712
Brumby Chair Company. (See Brumby, James R., assignor.)						
Brumby, James R., assignor to Brumby Chair Company, Marietta, Ga. Tenoning-machine	314,792	Mar. 31	2390	632	30	1272
Brundage, Agnes M., Brooklyn, N. Y. Sled	310,100	Jan. 6	27	7	30	7
Brush, Charles F., Cleveland, Ohio. Armature for dynamo-electric machines	310,976	Jan. 20	947	250	30	195
Brush, Charles F., Cleveland, Ohio. Electric-arc lamp	312,184	Feb. 10	995	271	30	540
Brush, Charles F., Cleveland, Ohio. Armature for dynamo-electric machines	312,807	Feb. 24	1835	503	30	713
Bryan, Carter W., Kansas City, Mo. Handle for orange-boxes, &c	313,051	Mar. 3	16	4	30	782
Bryant, George. (See Bates and Bryant.)						
Bryant, Thomas W., Ansonia, Conn. Holder for incandescent lamps	310,373	Jan. 6	283	78	30	54
Buchnan, William M., Columbia, Tenn. Two-wheeled vehicle	311,290	Jan. 27	1521	415	30	300
Buchner, Herman, *et al.* (See Graham, Eri, assignor.)						
Buckeye Engine Company. (See Thompson, Joseph W., assignor.)						
Buckley, George E. (See Atcheson, Theophilus, assignor.)						
Buckley, Herbert T., and W. H. Wineland, Easton, Pa. Bolt	310,787	Jan. 13	802	217	30	158
Buckley, William, Sheffield, county of York, England. Metallic packing-ring for pistons, pump-buckets, &c	313,990	Mar. 17	1298	338	30	1034
Buckley, William N., Meriden, Conn. Spring-balance curtain-fixture	310,557	Jan. 13	811	141	30	104
Buckman, Erwin D. and L., Brooklyn, N. Y. Machine for jointing staves	314,648	Mar. 31	2178	578	30	1232
Buckman, Ira. (See Buckman, Erwin D. and L.)						
Buell, Frank A., Brooklyn, N. Y. Saw-handle	314,562	Mar. 31	2067	552	30	1213
Buffalo Dental Manufacturing Company. (See Snow, George B., assignor.)						
Buffet, Jules, Paris, France. Furnace for burning liquid hydrocarbons	313,403	Mar. 3	516	133 134	30	872
Bugbee, George W. (See Doane and Bugbee.)						
Buhoup, Henry C. (See Smith, James R., assignor.)						
Bull & Haynes *et al.* (See Blackham, George E., assignor.)						
Bull, Jacob B., Christiania, Norway. Lock for fire-arms	313,150	Mar. 3	183	44	30	811
Bullivant, William M., London, England. Rope-stopper	311,565	Feb. 3	145	41	30	376
Bullivant, William M., London, county of Middlesex, England. Torpedo-net	312,965	Feb. 24	2039	556	30	749
Bullock, Chester, New York, N. Y. Cable or electric railway yoke or frame, &c	310,558	Jan. 13	814	141	30	104
Bullock, Edward A., Du Bois, Pa. Door-securer	312,426	Feb. 17	1324	365	30	611
Bunker, William I., *et al.* (See Keune, Joseph W., assignor.)						
Bunker, William I., Chicago, Ill. Rocking-chair attachment	313,707	Mar. 10	905	235	30	955
Bunker, William I., Chicago, Ill. Spring attachment for rocking-chairs	314,513	Mar. 24	1968	532	30	1173
Bunn, George W., Frenchtown, N. J. Vehicle-spring	311,807	Feb. 3	440	121	30	432
Bunnell, Benjamin B., Branford, Conn. Automatic lamp lighter and extinguisher	313,207	Mar. 3	374	93	30	845
Burch, Charles E., Panama, N. Y. Propelling vessels by exhaust-steam	313,981	Mar. 17	1298	338	30	1034
Burckhardt, Fredrich, St. Charles, Mo. Manufacturing hominy, grits, &c	313,982	Mar. 17	1299	339	30	1035
Burckhardt, Fredrich, St. Charles, Mo. Car-coupling	313,983	Mar. 17	1300	339	30	1035
Burckhardt, Fredrich, St. Charles, Mo. Grain-huller	313,984	Mar. 17	1301	339	30	1035
Burckhardt, Fredrich, St. Charles, Mo. Car-roof	313,985	Mar. 17	1301	339	30	1035
Burckhardt, Fredrich, St. Charles, Mo. Car-floor	313,986	Mar. 17	1302	340	30	1035
Burckhardt, Fredrich, St. Charles, Mo. Machine for cutting oats, &c	313,987	Mar. 17	1302	340	30	1035
Burckhardt, Fredrich, St. Charles, Mo. Bolting reel attachment	313,988	Mar. 17	1303	340	30	1036
Burckhardt, Fredrich, St. Charles, Mo. Grain-huller	313,989	Mar. 17	1304	340	30	1036
Burden, Charles L., Gun City, Mo. Gate	312,427	Feb. 17	1324	365	30	611
Burdict, Orrin C. (See Bruderer and Burdict.)						
Burgess, Andrew, Owego, N. Y. Magazine fire-arm. (Reissue.)	10,355	Feb. 3	592	141 142	30	447
Burgess, Charles M., assignor to Russell & Erwin Manufacturing Company, New Britain, Conn. Fire-shovel	311,160	Jan. 20	1319	362	30	257
Burgess, Charles M., assignor to Russell & Erwin Manufacturing Company, New Britain, Conn. Handle for drawers	311,953	Feb. 10	665	182	30	479
Burgess, Eben. Chelsea, Mass. Bed-lounge	312,327	Feb. 17	1192	326	30	585
Burke, Charles G., Richmond Hill, N. Y. Multiplex telegraph	313,298	Mar. 3	357	93, 94	30	845
Burke, James M., Dublin, Ireland, assignor to himself, C. A. Chapin, and H. Shackell, Jr., Milwaukee, Wis. Device for securing fish-plates to joints of railway-rails	314,314	Mar. 24	1727	459	30	1124
Burkhard, Thomas, New York, N. Y. Stove	310,647	Jan. 13	824	172	30	125
Burkhead, Henry C., Hardin Springs, Ky. Nut-lock	314,361	Mar. 24	1790	476	30	1136
Burkman, Walfrid, assignor to C. H. Frost, Chicago, Ill. Clay reducer and disintegrator	312,808	Feb. 24	1836	504	30	713
Burlingame, Amy L., Willett, N. Y. Napkin pin or holder	311,640	Feb. 3	240	66	30	364
Burmeister, Frederick, Cleveland, Ohio. Sash-holder	310,983	Jan. 20	1073	292	30	212
Burne, William C., New York, N. Y. Feathering paddle-wheel	313,692	Mar. 10	839	218	30	943
Burnley, James. (See Holden, Burnley, and Fawell.)						
Burns, Elijah P., assignor to Detroit Steel and Spring Works, Detroit, Mich. Machine for forming spring-teeth	311,954	Feb. 10	665	182	30	479
Burns, Frank, North East, Pa. Bottle-stopper	312,328	Feb. 17	1193	326	30	585

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Burns, Hays, Double Springs, Ala. Ox-yoke	313,092	Mar. 3	17	5	30	782
Burpee, Thomas B. C., Philadelphia, Pa. Coffee-roaster	311,955	Feb. 10	667	183	30	480
Burrows, George H. (See Mannel and Burrows.)						
Burton, Charles C., Utica, N. Y. Alternating reversing mechanical movement	312,249	Feb. 17	1078	297	30	564
Burton, Charles M., New Haven, Conn. Cartridge-shell extractor	314,563	Mar. 31	2067	552	30	1213
Burton, George D. (See Perkins and Burton.)						
Burton, George D., Boston, Mass. Stock-car	311,719	Feb. 3	334	92, 93	30	412
Bury, Richard A., and R. M. Bidelman, Adrian, Mich. Device for generating and burning gases	313,575	Mar. 10	730	192	30	922
Busek, Rudolph. (See Fischer and Busek.)						
Busell, James H. (See Orcutt, William D., assignor.)						
Bushnell, Oscar P., Worcester, Mass. Double platform and platform-shifting mechanism	311,956	Feb. 10	668	183	30	480
Butcher, William, York, Pa. Revolving flower-stand	311,408	Jan. 27	1682	459	30	330
Butler, Charles, *et al.* (See Beam, Henry T., assignor.)						
Butler, Eli T., and T. McFeely, assignors to said McFeely, S. E. and W. Griscom, Philadelphia, Pa. Middlings-purifier	311,808	Feb. 3	447	121	30	432
Butler, H. S. (See Avery and Osborn, assignors.)						
Butler, Henry T., Spartanburg, S. C. Cotton chopper	310,493	Jan. 6	421	116	30	91
Butler, Jonathan S., Chicago, Ill. Apparatus for carbureting air and gas	312,186	Feb. 10	996	{271 272}	30	540
Butler, Joseph J., Cromwell, Ky. Hand-cultivator	312,185	Feb. 10	996	271	30	540
Butler, Paul, Lowell, Mass. Implement for packing cartridges	312,809	Feb. 24	1838	{504 505}	30	713
Butler, William H., Brooklyn, assignor to Kinney Tobacco Company, New York, N. Y. Cigarette-case	311,641	Feb. 3	241	68	30	394
Butler, William H., Brooklyn, assignor to Kinney Tobacco Company, New York, N. Y. Cigarette-case	311,642	Feb. 3	242	68	30	394
Butler, William P., Chicago, Ill. Oil-lamp	314,165	Mar. 17	1528	401	30	1077
Butlin, Charles H., Camborne, county of Cornwall, England. Umbrella-covering for vehicles	311,809	Feb. 3	448	122	30	432
Butterfield, David N., New Boston, N. H., assignor of one-half to H. F. Willard, Cambridge, Mass. Desk	310,877	Jan. 20	917	250	30	195
Butterfield, William, Auburn, N. Y., assignor to D. M. Osborne and Company, of New York. Grain-binding machine	312,498	Feb. 17	1326	366	30	611
Button, Jesse, New York, N. Y. Rock-drilling machine for Artesian wells	314,593	Mar. 31	2392	653	30	1272
Butz, Benniville, and O. J. Pflueger, Allentown, Pa. Making moldings, &c., from paper, &c.	311,409	Jan. 27	1683	459	30	330
Buzzell, James C., Acton, Me. Cattle-fastening	310,984	Jan. 20	1073	292	30	212
Byfield, John, Lowell, Mass. Knitting-machine	311,172	Jan. 27	1337	{368 369}	30	268
Byfield, John, Lowell, Mass. Knitting-machine	311,173	Jan. 27	1343	{369 370}	30	208
Byler, Tyre A., San Francisco, Cal. Coffee-pot	313,469	Mar. 10	604	156	30	898
Bynon, Charles P., and J. Stewart, Jr., Yonkers, N. Y. Lamp attachment	312,810	Feb. 24	1840	505	30	713
Byrkit, Edwin M., assignor of one-half to J. H. Murry and A. A. Adair, Indianapolis, Ind. Combined wooden sheathing and lath	314,514	Mar. 24	1998	533	30	1173
Byrne, Patrick, Nashville, Tenn. Spring-motor	312,703	Feb. 24	1698	467	30	688
Byron, Thomas F., *et al.* (See Bradshaw, John A., assignor.)						
Bywater, Joseph K., Paris, Tex. Car-coupling	310,788	Jan. 13	803	218	30	158
Cable, E. J., *et al.* (See Newhouse, Frederick, assignor.)						
Cable, F. L., *et al.* (See Newhouse, Frederick, assignor.)						
Cable, John A. (See Randolph, David S., assignor.)						
Cables, Hartley A., Philadelphia, Pa. Fastener for neckties, &c	313,171	Mar. 3	184	45	30	811
Cables, Hartley A., Philadelphia, Pa. Neck-wear	314,794	Mar. 31	2394	634	30	1273
Cables, Hartley A., Philadelphia, Pa. Separable button	314,795	Mar. 31	2395	634	30	1273
Cadbury, Joel, and J. G. Rollason, Birmingham, county of Warwick, England; said Rollason assignor to said Cadbury. Suspenders	312,083	Feb. 10	841	222	30	513
Cadman, Alexander W., Edgewood, Pa. System of conveying and distributing gas	312,811	Feb. 24	1841	506	30	713
Cady, Henry G., Pine Bluff, Ark. Cotton-chopper	314,104	Mar. 17	1451	379	30	1063
Cain, Edwin S., Hillsdale, Ill. Weight-motor	313,708	Mar. 10	905	236	30	955
Cain, Nicholas, Detroit, Mich. Propeller-wheel	310,789	Jan. 13	804	218	30	158
Calderwood, Harvey S. (See Dean, Chester F., assignor.)						
Caldwell, Henry P., *et al.* (See Strong, Henry C., assignor.)						
Calhoun, Noah W., and J. G. Chambers, Lena, Ill.; said Calhoun assignor to said Chambers. Leather-punching machine	313,172	Mar. 3	195	45	30	811
Call, Manfred, Richmond, Va. Plow	314,302	Mar. 24	1791	476	30	1136
Callahan, Charles, *et al.* (See Ring, Denis J., assignor.)						
Callahan, Cornelius, Chelsea, Mass. Knitting-machine	311,410	Jan. 27	1684	{459 460}	30	330
Callahan, Cornelius, Chelsea, Mass. Nozzle	311,720	Feb. 3	335	93	30	412
Callow, John J., Cleveland, Ohio. Stencil-holder	313,470	Mar. 10	605	156	30	898
Callow, John J., Cleveland, Ohio. Manufacturing perforated metallic goods	313,805	Mar. 10	1044	.....	30	980
Cambria Iron Company. (See Short, John N., assignor.)						
Cambria Iron Company. (See Williams, Lewis, assignor.)						
Cameron, John F., New York, N. Y. Scrubbing-machine	311,810	Feb. 3	449	122	30	433
Camp, David, Wakeshma, Mich. Fence	310,759	Jan. 13	514	141	30	165
Camp, Garvin, S. D., Ray, Ill. Churn	314,796	Mar. 31	2397	634	30	1274
Camp, Theron H., *et al.* (See Walter, Henry C., assignor.)						
Campany, Milton E. (See Vanderbilt and Campany.)						
Campbell, Henry F., Concord, N. H. Electric circuit	313,053	Mar. 3	18	5	30	782
Campbell, Hugh A., Antioch, assignor to A. and W. McQueen, Plainview, N. C. Fertilizer-distributer and cultivator	312,329	Feb. 17	1194	327	30	585
Campbell, Irvin K., assignor to Oliver Brothers & Phillips, Pittsburg, Pa. Die for single-tree straps	312,966	Feb. 24	2040	557	30	749
Campbell, James A., Brenham, Tex. Nut-lock	310,985	Jan. 20	1074	292	30	212
Campbell, John T., Easton, Ill. Railway	310,878	Jan. 20	918	250	30	185
Campbell, Joseph O. C., *et al.* (See Ebel, John V., assignor.)						
Campbell, Samuel R., Buffalo, N. Y. Roller-mill	310,374	Jan. 6	285	78, 79	30	55
Campbell, Samuel R., New York Mills, N. Y., assignor of one-half to G. Draper & Sons, Hopedale, Mass. Warp-slasher	310,790	Jan. 13	805	218	30	158
Campbell, Thomas. (See Webber, Charles C., assignor.)						
Campbell, William A., assignor to Marinette Iron Works Company, Marinette, Wis. Gang-edger	312,250	Feb. 17	1079	{297 298}	30	564
Campbell, William A., assignor of one-half to A. F. Bartlett & Co., East Saginaw, Mich. Safety-valve	314,649	Mar. 31	2181	578	30	1233

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Campbell, William A., assignor of one-half to A. F. Bartlett & Co., East Saginaw, Mich. Steam-brake for saw-mill carriages	314,650	Mar. 31	2182	578	30	1233
Campbell, William N., assignor to Adams & Westlake Manufacturing Company, Chicago, Ill. Flour-sifter	310,791	Jan. 13	807	219	30	158
Canda, Ferdinand E., New York, N. Y. Anti-friction material and journal or other bearing	313,916	Mar. 17	1208	.....	30	1018
Candee, Charles E., New York, assignor of one-half to A. G. Story, Little Falls, N. Y. Car-truck	310,986	Jan. 20	1075	293	30	212
Candee, Charles E., New York, assignor of one-half to A. G. Story, Little Falls, N. Y. Car-brake	312,429	Feb. 17	1328	366	30	611
Candee, Charles E., New York, assignor of one-half to A. G. Story, Little Falls, N. Y. Journal-bearing for car-axles	312,430	Feb. 17	1329	366	30	612
Candee & Co., L. (See Elliott, Lewis, assignor.)						
Canfield, Charles G. (See Leavitt and Canfield.)						
Cannon, William G., London Road, Southwark, county of Surrey, England. Steam-radiator	310,375	Jan. 6	287	79	30	55
Cantrill, James E., assignor of two-thirds to J. E. Welling and J. Webb, Georgetown, Ky. Stock-car	313,173	Mar. 3	187	45, 46	30	811
Capewell, George J. (See Turner and Capewell.)						
Car-Skaden, Delos, Chicago, Ill. Pneumatic separator	310,251	Jan. 6	112	31, 32	30	22
Card, Edward, Pawtucket, R. I. Grate	314,220	Mar. 24	1509	422	30	1100
Card, Martin. (See Chappell, Benjamin F., assignor.)						
Cardell, Morton L., Hancock, Mich. Bouquet-holder	314,426	Mar. 24	1872	498	30	1152
Carden, John, Jr., Afton, Iowa. Check-row planter	313,806	Mar. 10	1045	268	30	980
Cardwell, George A., Brooklyn, assignor to himself, F. K. Fitch, New York, N. Y., and J. T. Murray, Newark, N. J. Telegraphic and telephonic instrument protector	311,957	Feb. 10	670	184	30	480
Carey, Augustus C., Boston, Mass. Barrel	312,967	Feb. 24	2041	557	30	749
Carey, Augustus C., Boston, Mass. Apparatus for filling and heading barrels	312,968	Feb. 24	2042	557	30	749
Carhuff, Elles R., Newark, N. J. Apparatus for the manufacture of prussiate of potash	310,376	Jan. 6	288	79	30	55
Carleton, Charles, assignor to Carleton Spring Bed Company, Chicago, Ill. Spring-bed bottom	314,427	Mar. 24	1872	499	30	1152
Carleton Spring Bed Company. (See Carleton, Charles, assignor.)						
Carleton, William E., *et al.* (See Bogan, James F., assignor.)						
Carlin, William L. (See Flater, Henry, assignor.)						
Carlson, Carl E., *et al.* (See Holmberg, Gustaf L., assignor.)						
Carlson, Nels. (See Morris, Robert H., assignor.)						
Carlton, F. M. (See Cook, Emmanuel T., assignor.)						
Carlyle, George, assignor of three-fourths to L. A. C., G. W., and J. W. Wagner, Adrian, Mich. Manufacture of pearl buttons	311,958	Feb. 10	671	184	30	481
Carmichael, James, Oshawa, Ontario, Canada. Cinder-sifter	313,054	Mar. 3	20	5	30	782
Carnahan, Cyrus M., Pittsburg, Pa. Machine for splitting bars and sheets of iron or steel	314,221	Mar. 24	1600	422	30	1100
Carnes, Serena M., New York, N. Y. Hinge-lock for shutters	314,105	Mar. 17	1452	380	30	1063
Carpenter, Alice P. (See Wright, Morris S., assignor.)						
Carpenter, Jacob A. (See Sourwine and Carpenter.)						
Carpenter, James W. (See Maxon, Thomas, assignor.)						
Carpenter, William W., and A. S. Dudley, Granville, assignors to E. P. Dudley, Morrow, Ohio. Fence-post	310,250	Jan. 6	111	31	30	23
Carpinter, Steven L., Rossville, Tenn. Bale-band tightener	312,704	Feb. 24	1699	467	30	688
Carr, John A., deceased. Walden, (J. Carr, administratrix,) assignor of one-half to S. M. Disney, Brooklyn, N. Y. Door-hanger	312,969	Feb. 24	2044	558	30	750
Carr, Julia, administratrix. (See Carr, John A.)						
Carr, Laurence, Shakopee, Minn. Trace-buckle	314,564	Mar. 31	2068	553	30	1213
Carrico, Thomas W., San Antonio, Tex. Mold and mold hoisting apparatus for building concrete walls	310,377	Jan. 6	289	79	30	55
Carrington, James H., New York, N. Y. Mechanical movement	311,643	Feb. 3	243	68	30	395
Carskadon, Thomas R., Keyser, W. Va. Silo	310,378	Jan. 6	290	80	30	56
Carter, Alfred, Wellington, New Zealand. Pen and pencil holder	312,812	Feb. 24	1843	506	30	714
Carter, Ezra W. (See Billings, Carter, and Smith.)						
Carter, Ezra W., and D. R. Smith, Cohoes, N. Y. Filtering-paper	313,174	Mar. 3	189	46	30	812
Carter, Henry C., Montclair, N. J. Wash-board	313,653	Mar. 10	841	218	30	943
Carter, John F., assignor to W. McGeorge, Jr., Philadelphia, Pa. Ore-roasting furnace	311,058	Jan. 20	1176	{321 322 323}	30	232
Carter, Phil. A. (See Hafley, Adam H., assignor.)						
Carter, Philander A., Ashley, Ill. Churn	314,797	Mar. 31	2398	634	30	1274
Carter, Robert A., Pittsburg, Pa. Flanging-machine	313,917	Mar. 17	1210	{315 316}	30	1018
Carter, Robert A., Pittsburg, Pa. Flanging-machine	313,918	Mar. 17	1213	316	30	1018
Carter, Wilson. (See Simpson, Lottridge and Carter.)						
Carver Cotton Gin Company. (See Strong, Frederick S., assignor.)						
Cary, Alanson, *et al.* (See Hall, Hiram S., assignor.)						
Cary, James H., Boston, Mass., assignor to Cary Telephone Signal Company, Portland, Me. Telephone signaling apparatus	310,379	Jan. 6	291	80	30	56
Cary Telephone Signal Company. (See Cary, James H., assignor.)						
Casaday, William L., assignor of one-half to South Bend Iron Works, South Bend, Ind. Wheel-plow	313,286	Mar. 3	361	89, 90	30	842
Case, Charles P., Horseheads, N. Y. Reversible rotary engine	313,055	Mar. 3	21	6, 7	30	782
Case, Charles P., Horseheads, N. Y. Reversible rotary engine	313,056	Mar. 3	28	7, 8	30	783
Case, Charles S., Binghamton, N. Y. Toe and instep stretcher for boots or shoes	310,380	Jan. 6	293	81	30	56
Case, Francis M., Denver, Colo. Sash-fastener	312,251	Feb. 17	1080	293	30	565
Case, George, assignor to W. T. Conklin, Joliet, Ill. Spool for barbed wire	312,168	Feb. 10	999	272	30	541
Case, George, assignor to W. T. Conklin, Joliet, Ill. Spool for barb-wire	312,970	Feb. 24	2046	558	30	750
Case, John M., assignor to Case Manufacturing Company, Columbus, Ohio. Middlings-purifier	310,181	Jan. 6	27	7, 8	30	7
Case Manufacturing Company. (See Case, John M., assignor.)						
Case, Orville, Hartford, Conn. Body-brace	313,057	Mar. 3	32	8	30	784
Case, Oscar L., Windham, N. Y. Paper-hanging implement	314,798	Mar. 31	2399	635	30	1274
Case, Willard E., Auburn, N. Y. Electrolytic liquid for storage-batteries	313,058	Mar. 3	32	.....	30	784
Cash, Evan F., assignor of two-thirds to R. A. Mercer and D. Rankin, Bellaire, Ohio. Lantern	312,551	Feb. 17	1502	410	30	643
Cashin, Thomas D., Hagerstown, Md. Lamp-shade holder	312,813	Feb. 24	1843	506	30	714
Cashman, Michael H. (See Jordan, Edmund, assignor.)						
Casler, Willie M., Columbia City, Ind. Gas apparatus	312,471	Feb. 17	1329	367	30	612
Cassagnes, Gilbert A., Paris, France. Printing-telegraph	313,175	Mar. 3	190	46, 47	30	812
Cassagnes, Gilbert A., Paris, France. Printing-telegraph	313,176	Mar. 3	193	47, 48	30	812

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Cassel, Henry R., New York, N. Y. Apparatus for treating metals by means of electrolysis	312,814	Feb. 24	1844	506	30	714
Cassella & Co., Leopold. (See Hoffmann, Meinhard, assignor.)						
Cassidy, Peter B., assignor of one-half to J. Crawley, Pittsburg, Pa. Mail-bag catcher	311,228	Jan. 27	1428	390	30	283
Cathcart, Frank H., Alexandria, Va. Steering apparatus	311,869	Feb. 10	535	147	30	457
Cauderay, Jules, Lausanne, Switzerland. Apparatus for measuring electricity	310,252	Jan. 6	117	32 33 34	30	24
Cavalli, Andrea, San Francisco, Cal. Nailing-machine for boots or shoes	310,932	Jan. 20	993	269 270 271	30	197
Cavalli, Andrea, San Francisco, Cal. Machine for screw-threading wire	312,084	Feb. 10	842	229 230 231	30	513
Cavanagh, James, trustee. (See Dancel, Christian, assignor.)						
Caverly, Amos K., Moline, Ill., assignor to S. Caverly. Running-gear for vehicles	314,222	Mar. 24	1001	423	30	1100
Caverly, Sarah. (See Caverly, Amos K., assignor.)						
Caywood, George W., Joliet, Ill., assignor to Joliet Wire Check Rower Company, of Illinois. Machine for forming check-rower wire	314,106	Mar. 17	1452	380	30	1063
Cerebotani, Luigi, Sayn, Prussia, Germany. Apparatus for measuring distances	310,253	Jan. 6	120	34	30	25
Chadsey, William R., St. Louis, Mo. Tobacco-pipe	311,469	Feb. 3	12	4	30	371
Chadwick, Ablather, Kansas City, Mo. Reversible coal-chute	313,471	Mar. 10	696	157	30	898
Chaffee, Reuben S., Springfield, Ill. Feeding mechanism for breech-loading fire-arms	314,315	Mar. 24	1999	533	30	1173
Chaffee, Reuben S., assignor of one-half to J. N. Reece, Springfield, Ill. Magazine fire-arm	314,363	Mar. 24	1791	456 477	30	1136
Challenge Corn Planter Company. (See Scofield, Levi, assignor.)						
Chamberlain, Edmund D., Westfield, N. J. Hand-stamp	314,315	Mar. 24	1728	460	30	1124
Chamberlain, Henry, assignor of one-half to G. J. Vaness, Waupaca, Wis. Fire-escape	313,709	Mar. 10	907	216	30	955
Chamberlain, Otis. (See Gelinas, Zephirin M., assignor.)						
Chamberlain, William T., assignor of two-thirds to B. M. Prince, Norwich, Conn., and W. Crossley, Randolph, Mass. Cartridge for compressed air	310,648	Jan. 13	624	172	30	125
Chamberlain, William T., assignor of two-thirds to B. M. Prince, Norwich, Conn., and W. Crossley, Randolph, Mass. Pneumatic projectile	310,649	Jan. 13	625	173	30	125
Chamberlain, William T., assignor of two-thirds to B. M. Prince, Norwich, Conn., and W. Crossley, Randolph, Mass. Explosive shell	312,705	Feb. 24	1700	468	30	698
Chamberlain, William T., assignor of two-thirds to B. M. Prince, Norwich, Conn., and W. Crossley, Randolph, Mass. Pneumatic cartridge	312,706	Feb. 24	1701	468	30	699
Chamberlain, William T., assignor of two-thirds to B. M. Prince, Norwich, Conn., and W. Crossley, Randolph, Mass. Pneumatic projectile	312,971	Feb. 24	2047	558	30	750
Chamberlain, William T., assignor of two-thirds to B. M. Prince, Norwich, Conn., and W. Crossley, Randolph, Mass. Pneumatic projectile	312,972	Feb. 24	2048	559	30	700
Chamberlin, Chester U., Hartford, N. Y. Composition for preserving eggs	311,470	Feb. 3	12	.....	30	351
Chambers, John G. (See Calhoun and Chambers.)						
Champlain, L. Eugene, and G. G. Winans, Ypsilanti; said Winans assignor to L. M. Miller, Detroit, Mich. Check-rein spring	312,730	Feb. 17	1195	327	30	595
Chandler, Moses, East Corinth, Me. Wheel-harrow	313,654	Mar. 10	842	219	30	943
Chaney, James M., *et al.* (See Gill, Edwin R., Jr., assignor.)						
Chapin, Charles A., *et al.* (See Burke, James M., assignor.)						
Chaplin Bottling Wire Company. (See Chaplin, Orril R., assignor.)						
Chaplin, Orril R., Boston, Mass., assignor to Chaplin Bottling Wire Company, of New Hampshire. Bottling-wire machine	314,428	Mar. 24	1874	499 500 501	30	1153
Chapman, Hiram S., Penn. Mich., assignor of one-half to K. E. Rudd, Sheldon, Dak. Ter. Sheaf-carrier for self-binding harvesters	314,364	Mar. 24	1795	477	30	1137
Chapman, Horace P., Akron, Ohio, assignor to Howes, Babcock & Ewell, Silver Creek, N. Y. Flour-packer	311,811	Feb. 3	450	122	30	433
Chapman, John. (See Arci and Chapman.)						
Chapman, Robert W., Newark, N. J. Manufacturing traveling-bags, satchels, &c.	311,050	Jan. 20	1179	321 324	30	252
Chappell, Benjamin F., assignor of one-half to M. Card, South Windham, Conn. Chuck	313,472	Mar. 10	907	157	30	898
Chappell, William, Chicago, Ill. Check-valve	314,107	Mar. 17	1455	381	30	1064
Charles, Andrew, *et al.* (See Holmberg, Gustaf L., assignor.)						
Charles, Robert K., Darlington, S. C. Cotton-harvester	314,365	Mar. 24	1796	477 478	30	1137
Chase, Edward M., assignor to American Pneumatic Signal Company, Boston, Mass. Pneumatic railway-signal	311,759	Feb. 10	672	184 185	30	481
Chase, Frank, Boston, Mass. Feeding mechanism for boot and shoe sewing machines	314,516	Mar. 24	2001	534	30	1174
Chase, George S., Bellefonte, Pa. Water-gage	311,471	Feb. 3	13	4	30	351
Chase, Isaac M., Washington, D. C. Corn-husking machine	310,192	Jan. 6	29	8 9	30	8
Chastain, Marshal, Moulton, Iowa. Burial apparatus	312,816	Feb. 24	1847	507	30	715
Chatain, Amand J. B. A., New York, N. Y. Marquetry	310,381	Jan. 6	294	81	30	56
Chaumont, Jules. (See Milligan and Chaumont.)						
Chaumont, Jules, Wood Haven, assignor to Lalance & Grosjean Manufacturing Company, New York, N. Y. Patty-pan	312,189	Feb. 10	1000	273	30	541
Cheever, Charles A., trustee. (See Shaw, William A., assignor.)						
Cheever, Charles A., trustee. (See Wheeler, Schuyler A., assignor.)						
Cherney, Jacob, and W. C. Davis, assignors to said Cherney and F. M. Davis, Denver, Colo. Ore-concentrator	311,863	Feb. 3	519	140 141	30	446
Cherry, William S. (See Kangley and Cherry.)						
Chicago Attachment Company. (See Griest, John M., assignor.)						
Chichester, Lewis S., Jersey City, N. J., assignor to R. B. Symington, New York, N. Y. Compressed-air multiple-gun	310,382	Jan. 6	205	61	30	57
Chilcoat, Margaret, Auburn, Ind. Combined ironing-table and clothes-holder	310,702	Jan. 13	808	219	30	158
Child, Frederick W., Greenwich, Conn. Tabular calculator	313,635	Mar. 10	843	219	30	943
Childs, William A., Englewood, N. J., and F. Shaw, New York, N. Y. Annunciator for telephone systems	311,472	Feb. 3	13	4	30	351
Childs, William H. H., New York, N. Y. Manufacture of roofing-felt	314,429	Mar. 24	1879	501	30	1153
Chilton, Franklin H. (See Chilton, William W. and F. H.)						
Chilton, William W. and F. H., assignors of one-half to C. V. Faile, New York, N. Y. Handle	311,870	Feb. 10	537	147	30	457
China, George W., Bloomington, assignor of one-half to W. T. Hale, Atlanta, Mo. Weather-strip	312,610	Feb. 24	1578	431	30	666
Chinnock, Charles and E. E., assignors to J. L. Hyde, New York, N. Y. Gun for insect-powder	312,252	Feb. 17	1082	298	30	565

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Chinnock, Edgar E. (See Chinnock, Charles and E. E.)						
Chisholm, Wilson B., J. Walker, and E. H. Martin, Cleveland, Ohio. Feeding device for rolling-mills	311,229	Jan. 27	1429	390	30	283
Chisolm, William B., Charleston S. C. Machine for mixing fertilizers	311,291	Jan. 27	1524	415	30	700
Chopard, Albert, assignor to Société Industrielle, Moutier-Grandval, Switzerland. Watch	311,566	Feb. 3	146	42	30	376
Chorier, Louis M., Paris, France. Comb-making machine	311,060	Jan. 20	1182	324	30	252
Chorier, Louis M., Paris, France. Comb-making machine	311,061	Jan. 20	1183	324 325	30	252
Christ, Wollington H., assignor to himself and S. J. Seyfert, Pine Grove, Pa. Sash-cord fastener	314,709	Mar. 31	2400	635	30	1274
Christian, Theodore G. R., Philadelphia, Pa. Draftsman's tool	314,316	Mar. 24	1729	460	30	1124
Christopher, John P. (See Fowle, Christopher, and Smith.)						
Church, Charles B., Washington, D. C. Ice-harvesting apparatus	314,651	Mar. 31	2184	579	30	1233
Church, Duane H., Waltham, Mass. Watch-regulator	312,253	Feb. 17	1083	299	30	565
Church, James S., assignor of one-half to G. M. Hinkley, Milwaukee, Wis. Drill-chuck	310,987	Jan. 20	1076	293	30	212
Cifre, Andres, Plaistow, N. H. Necktie-fastener	313,807	Mar. 10	1046	268	30	980
Cilley, Sherburn E., Tunbridge, Vt. Ticket-holder	310,988	Jan. 20	1077	293	30	213
Cincinnati Cooperage Company. (See Heverling, John B., assignor.)						
Cissel, Richard S. T., Elizabeth, N. J. Ash pan and screen for furnaces	312,331	Feb. 17	1196	328	30	596
Cissel, Richard S. T., Elizabeth, N. J. Shaking attachment for grates	314,108	Mar. 17	1456	381	30	1064
Claghorn, Edward J., assignor to M. A. Seitz, New York, N. Y. Safety-belt	313,085	Feb. 10	845	231	30	504
Clague, William H. H., Rochester, N. Y. Paper-file	312,086	Feb. 10	847	231 232	30	514
Clanton, Simeon H., Quitman, Ga. Plow	312,817	Feb. 24	1849	507	30	715
Clarembeaux, Augustin, Luxembourg, assignor of one-half to P. De Grandgagnage, Green Bay, Wis. Combined churn and butter-mold	314,800	Mar. 31	2401	635	30	1275
Clark, Alfred, Englewood, Ill. Wire fence	314,430	Mar. 24	1880	502	30	1153
Clark, Alfred D., assignor to G. W. Startzman, Springfield, Ohio. Grain-drill	313,808	Mar. 10	1047	268	30	980
Clark, Andrew J. (See McIndoo, Joseph and J., assignors.)						
Clark, Asa, *et al.* (See Vaughn and Eldridge, assignors.)						
Clark, Benjamin S. (See Evans, James W., assignor.)						
Clark, Benjamin W., Herndon, Va. Rotary fish-net	314,565	Mar. 31	2069	553	30	1213
Clark, Charles H., assignor of one-half to S. A. Servis, Rochester, N. Y. Tobacco-moistening device	314,221	Mar. 24	1603	423	30	1101
Clark, Charles S. (See Harvey and Clark.)						
Clark, Decolson L. (See Mast, Startzman, and Clark.)						
Clark, George F., Ravenswood, W. Va. Harrow	310,793	Jan. 13	809	219	30	159
Clark, Henry A., Boston, Mass. Electrical cable	310,879	Jan. 20	919	250	30	185
Clark, Henry A., Boston, Mass. Electric cable	311,174	Jan. 27	1349	370	30	369
Clark, Henry F., Poughkeepsie, N. Y. Cartridge	310,650	Jan. 13	626	173	30	125
Clark, James E., Washington, N. C. Fertilizer-distributer	314,632	Mar. 31	2186	579	30	1234
Clark, James W., and N. A. Palmer, Pataskala, Ohio. Automatic check-row corn-planter	314,431	Mar. 24	1881	502	30	1153
Clark, James W., and N. A. Palmer, Pataskala, Ohio. Corn-planter check-line anchor	314,432	Mar. 24	1885	503	30	1154
Clark, John K., Buffalo, N. Y. Railway tie or support	310,794	Jan. 13	810	219 220	30	159
Clark, John K., Buffalo, N. Y. Stop-cock box	311,871	Feb. 10	539	148	30	457
Clark, John L. (See Nicholson, Granville, assignor.)						
Clark, Louis, Jr. (See Weinberg, Clark, and Winkler.)						
Clark, Melville, Chicago, Ill. Reed-organ	310,933	Jan. 20	998	271	30	197
Clark, Milton, New York, N. Y., and J. T. Cowley, Baltimore, Md. Store-service apparatus	312,087	Feb. 10	848	232	30	514
Clark, Milton, New York, N. Y., and J. T. Cowley, Baltimore, Md. Store-service apparatus	312,088	Feb. 10	849	232 233	30	514
Clark, Milton, New York, N. Y., and J. T. Cowley, Baltimore, Md. Store-service apparatus	312,089	Feb. 10	851	233	30	515
Clark, Milton, New York, N. Y., and J. T. Cowley, Baltimore, Md. Store-service apparatus	312,090	Feb. 10	852	233 234	30	515
Clark, Milton, New York, N. Y., and J. T. Cowley, Baltimore, Md. Store-service apparatus	312,091	Feb. 10	854	234	30	515
Clark, Norman, Sterling, Ill. Sash-holder	311,872	Feb. 10	540	148	30	457
Clark, Richard. (See Wills, Samuel, assignor.)						
Clark, Walter, New York, N. Y. Photographic camera	314,317	Mar. 24	1730	460 461	30	1125
Clarke, Alfred, and H. C. Perham, assignors to Kitson Machine Company, Lowell, Mass. Machine for opening and cleaning cotton and other fibers	312,815	Feb. 24	1846	507	30	714
Clarke, Frederick N. (See Woodbury, Walter B., assignor.)						
Clarke, George H. (See Sibley, William J., assignor.)						
Clarke, Willard A., assignor to North Western Manufacturing and Car Company, Stillwater, Minn. Reversing-gear for steam-engines	311,812	Feb. 3	451	123	30	433
Clarke, William H., Olean, N. Y. Bottle-stopper	314,110	Mar. 17	1458	381	30	1065
Clarke, William H., Olean, assignor of one-half to T. W. Larsen, Bolivar, and M. A. Tack, New York, N. Y. Jar or other covered vessel	314,109	Mar. 17	1457	381	30	1064
Clarkson, William H., New York, N. Y. Copy-holder for type-writing machines	311,292	Jan. 27	1524	415	30	301
Clarkson, William H., New York, N. Y. Copy-holder	311,293	Jan. 27	1526	415 416	30	301
Clausen, Adler C., assignor of two-thirds to J. C. Slafter and A. A. Pond, Minneapolis, Minn. Combined letter-scale, envelope-opener, and cigar-cutter	314,801	Mar. 31	2402	636	30	1275
Clauss, Frederick, Elizabeth, N. J. Gas-generator	311,161	Jan. 20	1320	363	30	257
Clawson, Leonard E., San Francisco, Cal. Deafening or filling for walls	311,567	Feb. 3	147	42	30	376
Clay, Edward P., Massillon, Ohio. Harrow	312,254	Feb. 17	1084	299	30	565
Clay, Edward P., Massillon, Ohio. Harrow	312,255	Feb. 17	1085	299	30	565
Clay, Henry H., and M. D. Phileo, Cedar Falls, Iowa. Roller-bearing	310,283	Jan. 6	297	82	30	57
Clay, William H., Paris, Ky. Anchor-stake for check-row wires	310,284	Jan. 6	298	82	30	57
Clement, Hardey H., Hazel Dell, Miss. Gate	312,632	Feb. 17	1341	367	30	612
Clement, John F., Philadelphia, Pa. Dental plugger	312,818	Feb. 24	1850	508	30	715
Clement, William B., Philadelphia, Pa. Retainer for the bands of neckscarfs	314,111	Mar. 17	1459	381	30	1065
Clemons, James H., Dolgeville, and J. W. Bower, Stratford, N. Y. Gluing-table	312,633	Feb. 17	1331	367	30	612
Clephane, James O., Washington, D. C., assignor to National Typographic Company, of West Virginia. Matrix for printing-surfaces	311,411	Jan. 27	1686	460	30	331
Clephane, James O., Washington, D. C., assignor to National Typographic Company, of West Virginia. Type for matrix-making	311,412	Jan. 27	1687	460	30	331
Clephane, James O., Washington, D. C., assignor to National Typographic Company, of West Virginia. Casting appliance for stereotype-bars	311,413	Jan. 27	1689	460 461	30	331
Clephane, James O., Washington, D. C., assignor to National Typographic Company, of West Virginia. Producing printing-surfaces	311,414	Jan. 27	1691	461	30	331

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Cleveland, Thomas B., Newark, N. J. Inkstand	311,415	Jan. 27	1692	461	30	331
Cleves, Charles, Omaha, Nebr. Rubber shoe	311,473	Feb. 3	15	4	30	351
Clinchard, Jacob F., Chicago, Ill. Fire-brick and packing for furnaces and other purposes	314,802	Mar. 31	2403	.....	30	1275
Cloud, John W. (See Ely and Cloud.)						
Cloud, John W., Altoona, Pa. Lubricator for locomotive or other engines	312,973	Feb. 24	2048	559	30	750
Clough, James D. (See Freidel and Clough.)						
Clough, Jefferson M., assignor to Winchester Repeating Arms Company, New Haven, Conn. Railway-torpedo	311,416	Jan. 27	1693	462	30	331
Clough, Theodore, Dobbs Ferry, N. Y. Gas-burner	314,653	Mar. 31	2188	580	30	1234
Clow, William M. (See Hutchins, William J., assignor.)						
Clower, James L., Plantersville, Ark. Combination-plow	313,473	Mar. 10	608	157	30	898
Clymer, William S., Westerville, Ohio. Nut-lock	314,112	Mar. 17	1460	382	30	1065
Cobb, Edward S., Terre Haute, Ind. Lathe	314,433	Mar. 24	1885	503	30	1154
Cobb, Francis. (See Weeks, Abner B., assignor.)						
Cochrane, David, Philadelphia, Pa. Feed-water heater and purifier	313,287	Mar. 3	363	90	30	842
Cochrane, Henry, and J. M. Day, Dublin, Ireland. Bottle and stopper	313,059	Mar. 3	33	8	30	784
Cochrane, William F. (See Smith and Cochrane.)						
Cochrane, William F., Indianapolis, Ind., and G. T. Smith, Jackson, Mich. Flour-bolt	311,873	Feb. 10	541	148	30	457
Cockrell, Moses. (See Bradish, Nelson P., assignor.)						
Codding, D. Edgar, and O. H. Atwood, North Attleborough, Mass. Bracelet	310,795	Jan. 13	812	220	30	159
Coe, Henry I. (See Thackston, Edward D., assignor.)						
Coes, Zorester B. (See Brainard and Coes.)						
Coes, Zorester B., Hyde Park, Mass., and G. W. Miller, Woonsocket, R. I., assignors to A. H. Brainard, Hyde Park, Mass. Gear-cutting machine	310,796	Jan. 13	813	220	30	159
Coffee, Christopher C., Memphis, Tenn. Water-elevating bucket	313,288	Mar. 3	364	90	30	843
Coffield, Peter T., assignor to himself, C. H. Neff, and A. L. Wooley, New Carlisle, Ohio. Windmill	310,385	Jan. 6	299	82	30	57
Coffin, Eben M., Hubbardston, Mass. Blind-slat fastening	313,919	Mar. 17	1215	316	30	1019
Cogswell, Thomas, Wellesley Hills, Mass. Dental tool	312,092	Feb. 10	856	235	30	516
Cohn, Julius M., New York, N. Y. Corset-clasp	310,597	Jan. 13	814	221	30	160
Cohn, Moritz, New York, N. Y. Corset	310,598	Jan. 13	815	221	30	160
Colby, Edward A., Newark, N. J., assignor to United States Electric Lighting Company, New York, N. Y. Apparatus for treating carbons for incandescent electric lights	312,532	Feb. 17	1503	410	30	643
Colby, Edward J., Cincinnati, Ohio. Lock	312,810	Feb. 24	1851	508	30	716
Colby, James F., Buffalo, N. Y. Sleeping-car	313,576	Mar. 10	732	192	30	923
Cole, John M., *et al.* (See Dalton, William D., assignor.)						
Cole, William R. (See Jackson and Cole.)						
Cole, William R., Pottsville, Pa. Combined desk-pad, portfolio, and calendar	311,103	Jan. 20	1245	341	30	243
Colin, Theodore F., Bodine, Pa. Manufacture of tanning-extract	313,177	Mar. 3	197	.....	30	812
Collard, Richard M., assignor to L. W. Fairchild, New York, N. Y. Combined match-box and cigar-cutter	311,239	Jan. 27	1430	3 0	30	283
Colley, George H., assignor to C. W. Higby, Jackson, Mich. Corset-clasp	314,434	Mar. 24	1887	503	30	1154
Collings, Edward Z., Camden, N. J., and C. F. Pike, Philadelphia, Pa. Apparatus for preserving wood	310,980	Jan. 20	980	251	30	185
Collings, Edward Z., Camden, N. J., and C. F. Pike, Philadelphia, Pa. Refrigerator	311,813	Feb. 3	453	124	30	433
Collings, Edward Z., Camden, N. J., and C. F. Pike, Philadelphia, Pa. Refrigerator	311,814	Feb. 3	454	123	30	434
Collins, John F., New York, N. Y. Whiffletree	314,803	Mar. 31	2404	636	30	1275
Collins, John F., New York, N. Y. Elastic whiffletree	314,804	Mar. 31	2405	636	30	1275
Collins, Joseph H., Jr. (See Granger and Collins.)						
Collins, Joseph S. (See Ulmer and Collins.)						
Collins, Simon C., Marietta, Pa. Detachable brush-handle	312,611	Feb. 24	1579	432	30	666
Collis, John, Des Moines, Iowa. Boiler-furnace	311,874	Feb. 10	543	149	30	458
Colt, Samuel S., Orange, N. J. Alarm-clock	313,656	Mar. 10	845	210	30	944
Colton, C. S., *et al.* (See Anderson, Abraham, assignor.)						
Colton, F., *et al.* (See Anderson, Abraham, assignor.)						
Colton, G. D., *et al.* (See Anderson, Abraham, assignor.)						
Colton, George A., Syracuse, N. Y. Till-alarm	312,707	Feb. 24	1702	468	30	689
Colton, George A., Syracuse, N. Y. Clasp	314,366	Mar. 24	1798	478	30	1135
Colton, George A., assignor of one-half to Syracuse Bolt Company, Syracuse, N. Y. Shoe-fastening	311,104	Jan. 20	1246	341	30	244
Colts Patent Fire Arms Manufacturing Company. (See Ebbets, Carl J., assignor.)						
Colts Patent Fire Arms Manufacturing Company. (See Franklin, William B., assignor.)						
Colts Patent Fire Arms Manufacturing Company. (See Knoss, Franklin F., assignor.)						
Colwell, William S., Pittsburg, Pa., assignor to Triple Thermic Motor Company, New York, N. Y. Triple thermic motor	313,178	Mar. 3	178	48.49	30	812
Colwell, William S., Pittsburg, Pa., assignor to Triple Thermic Motor Company, New York, N. Y. Triple thermic motor	313,179	Mar. 3	203	49.50	30	814
Colwell, William S., Pittsburg, Pa., assignor to Triple Thermic Motor Company, New York, N. Y. Packing piston and valve rods	313,180	Mar. 3	206	50	30	815
Colwell, William S., Pittsburg, Pa., assignor to Triple Thermic Motor Company, New York, N. Y. Triple thermic motor	313,181	Mar. 3	207	50, 51	30	815
Colwell, William S., Pittsburg, Pa., assignor to Triple Thermic Motor Company, New York, N. Y. Triple thermic motor	313,182	Mar. 3	210	51	30	816
Colwell, William S., Pittsburg, Pa., and A. J. Davis, assignors to Triple Thermic Motor Company, New York, N. Y. Triple thermic motor	313,183	Mar. 3	213	51 52 53	30	816
Combs, Hiram S., Detroit, Mich. Wire-netting machine	310,254	Jan. 6	123	34 35 36	30	25
Combs, John, assignor of one-half to C. Thomas, Rushville, Ohio. Stove-pipe ventilator	313,809	Mar. 10	1048	269	30	980
Commans, Robert E., *et al.* (See Wynne, George F., assignor.)						
Compton, James E., Lynn, Mass. Wheel for grinding or polishing surfaces	310,799	Jan. 13	816	221	30	160
Conder, Irenaeus. (See Harding, Richard, assignor.)						
Condict, Nathan W., Jr., Jersey City, N. J., and T. Rose, Brooklyn, N. Y. Refrigerating apparatus	311,002	Jan. 20	1185	325	30	233
Condon, Rufus B., Belfast, Me. Navigable vessel	314,635	Mar. 24	1888	504	30	1155
Cone, Jonathan, Bristol, and F. S. Groves, Philadelphia, Pa. Life-raft	312,256	Feb. 17	1087	299	30	566
Cone, William W. (See Donahue, Roche, Goodwin, and Cone.)						
Congdon, Isaac H., Omaha, Nebr. Car-truck	314,224	Mar. 24	1604	424	30	1101
Congdon, Isaac H., Omaha, Nebr. Car-brake	314,225	Mar. 24	1607	424	30	1101
Congdon, Isaac H., Omaha, Nebr. Casting car-axle boxes	314,226	Mar. 24	1608	425	30	1102
Conger, Abraham B., New York, N. Y. Preparation of a fluid for making water-repellent fabrics	310,560	Jan. 13	515	.....	30	105
Conger, Henry C. (See Lewis and Conger.)						
Conger, Henry R., Burlington, Vt. Apparatus for hoisting and conveying ice by hand-power	313,289	Mar. 3	365	91	30	843

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Conklin, Hudson W., *et al.* (See Heesen, Hendrick, assignor.)						
Conklin, Theodore F., assignor, by mesne assignments, to Conklin Trunk Bolt Company, (limited,) Fond du Lac, Wis. Trunk-catch	311,721	Feb. 3	336	93	30	412
Conklin Trunk Bolt Company. (See Conklin, Theodore F., assignor.)						
Conklin, William T. (See Case, George, assignor.)						
Conley, Michael R., Brooklyn, assignor to W. Bell, New York, N. Y. Preparing iron ores for smelting	314,113	Mar. 17	1461	.....	30	1065
Connell, John, Rochester, N. Y. Planer feed-roll	311,063	Jan. 20	1187	325	30	233
Conner, Lewis D., Oberlin, and C. F. Peebles, Berea, Ohio. Core rock-drill	312,093	Feb. 10	857	235	30	516
Connett, Matthew F., Jr., assignor of one-third to M. F. Connett, Sr., Springfield, Ill. Machine for turfing fabrics	313,710	Mar. 10	907	236 237	30	956
Connolly, Patrick, Brooklyn, N. Y. Casing for cocks and hydrants	313,060	Mar. 3	34	9	30	784
Conolly, William. (See Seton and Conolly.)						
Conradson, Pontus H., Brooklyn, N. Y., assignor of one-half to A. W. Hale, Plainfield, N. J. Surface-coating iron	311,294	Jan. 27	1527	.....	30	301
Conradt, Julius W., Middletown, Conn. Harness for horses	313,850	Mar. 17	1112	289	30	1000
Consolidated Safety Valve Company. (See Richardson, George W., assignor.)						
Converse, Waldo F. (See Keller, Jeremiah, assignor.)						
Conway, Andrew J., assignor, by mesne assignments, of one-half to E. W. West, Jr., Belleville, Ill. Covering for chimney-tops	311,105	Jan. 20	1248	341	30	244
Conway, Jesse, assignor of one-half to J. N. Conway, Baltimore, Md. Feed-bag	314,915	Mar. 31	2356	676	30	1301
Conway, John. (See Ryan and Conway.)						
Conway, John N. (See Conway, Jesse, assignor.)						
Cook, Burton H., Brooklyn, N. Y. Ash-sifter	312,434	Feb. 17	1333	367 368	30	613
Cook, Emmanuel T., Alexander, assignor of one-half to F. M. Carlton, Carlton P. O., Tex. Band-cutter and feeder for thrashers	314,805	Mar. 31	2406	636	30	1275
Cook, Enos A., J. D. Shoots, and D. Staring, Horseheads, N. Y. Steel trap	312,094	Feb. 10	858	235	30	516
Cook, Frederick, and J. H. Pomeroy, New Haven, Conn. Clock-work for mechanical lamps	310,651	Jan. 13	627	173	30	125
Cook, George H., Palmer, Kans. Land-anchor	314,367	Mar. 24	1799	478	30	1138
Cook, Harvey S., Boston, Mass. Bed	310,255	Jan. 6	126	36	30	26
Cook, Leroy, Worcester, Mass. Barb-fence machine	312,820	Feb. 24	1853	508 509	30	716
Cook, Leroy, Worcester, Mass. Bale-tie machine	312,821	Feb. 24	1856	509 510	30	715
Cook, Roswell F., assignor to E. Remington & Sons, Ilion, N. Y. Magazine for fire-arms	313,851	Mar. 17	1113	289	30	1001
Cook, Theodore A., Brooklyn, N. Y. Pail	313,990	Mar. 17	1304	341	30	1036
Cook, William, assignor of one-half to F. Donner, Columbus, Ind. Dust-collector	311,295	Jan. 27	1528	416	30	301
Cooke, Charles H., Providence, R. I., assignor to J. B. Matthewson & Co. Button or stud	311,474	Feb. 3	16	5	30	351
Cooke, David W., Franklin, Tenn. Tow-boat for canals	313,920	Mar. 17	1215	317	30	1019
Cooke, Edward H., and H. T. Seymour, Cork, Ireland. Hermetically-sealed tin can, canister, &c.	310,989	Jan. 20	1078	293	30	213
Cookson, Charles W. (See Dyson and Cookson.)						
Coolbaugh, Frank W., New York, N. Y. Holder for signal lanterns and flags	310,652	Jan. 13	627	173	30	125
Coon, Madison, Sidney, Ohio. Mechanical motor	310,256	Jan. 6	127	36	30	26
Coon, Riley H., Canastota, N. Y. Thrashing-machine	313,299	Mar. 3	382	94	30	846
Coons, Solomon, Orbisonia, Pa. Punch	313,991	Mar. 17	1305	341	30	1036
Coonse, George W., Indianapolis, Ind. Force-pump	310,561	Jan. 13	516	141	30	105
Coop, William L., Providence, R. I. Swivel-block	310,386	Jan. 6	300	83	30	58
Cooper, Albert. (See Metzger and Cooper.)						
Cooper, Alfred J., Duryea, Pa. Coal-drilling machine	313,577	Mar. 10	733	193	30	923
Cooper, Almond F., Cambridge, Mass. Screw-cap for metal cans	314,227	Mar. 24	1609	425	30	1102
Cooper Manufacturing Company. (See Moore, Aaron B., assignor.)						
Cooper, S. B. (See Iseminger, Daniel H., assignor.)						
Cooper, William E., assignor of one-half to M. L. Hinman, Dunkirk, N. Y. Chimney-cowl	312,553	Feb. 17	1506	411	30	643
Copeland, George T., Gloversville, N. Y. Corn-popper	312,612	Feb. 24	1579	432	30	667
Copeland, George W. (See Woodward and Copeland.)						
Copelin, Thomas E., Chicago, Ill. Machine for making stick-candy	313,061	Mar. 3	35	9	30	784
Copp, Charles H., Clyde, Mich., assignor to Marks Automatic Car Coupler Company, Cleveland, Ohio. Railway-velocipede	312,332	Feb. 17	1197	328	30	586
Corbett, Philip F., Boston, Mass. Elevator	310,193	Jan. 6	33	9 10	30	8
Corbin, Jay S., Gouverneur, N. Y., and A. G. Hill, Prescott, Ontario, Canada; said Hill assignor to said Corbin. Combined harrow and seeder	312,554	Feb. 17	1507	411	30	644
Cordon, François. (See Scotland and Cordon.)						
Cordry, Lorenzo H. (See McGregor and Cordry.)						
Corey, Francis E., Westborough, Mass. Air-compressing engine	311,106	Jan. 20	1248	342	30	244
Corey, George D., assignor of one-half to J. F. Puffer, Jr., Lowell, Mass. Bottle-stopper	310,990	Jan. 20	1079	294	30	213
Corey, George D., assignor to Woods, Sherwood & Co., Lowell, Mass. Bottle-stopper	312,095	Feb. 10	860	235	30	516
Corey, George D., assignor to Woods, Sherwood & Co., Lowell, Mass. Bottle-stopper	312,096	Feb. 10	861	236	30	516
Corey, James B., North Braddock, Pa. Leak-stopper for vessels	312,613	Feb. 24	1580	432	30	667
Cornell, George H., Amboy, Ill. Milk-strainer	310,494	Jan. 6	422	117	30	82
Cornely, Emil, Paris, France. Fixing cords or braids to textile fabrics by means of sewing or embroidering machines	311,644	Feb. 3	244	69	30	395
Corning, Frederick G., Brooklyn, assignor of one-half to G. H. Benjamin, New York, N. Y. Ore concentrator and separator	311,231	Jan. 27	1432	391	30	284
Corron, César, assignor to Société Anonyme La Teinturerie Stephanoise, Saint-Etienne, Loire, France. Apparatus for dyeing yarn	311,568	Feb. 3	147	42	30	376
Corser, E. Jay, assignor to S. N. Galinp, Macedon, N. Y. Gearing for changing speed	313,711	Mar. 10	910	237	30	956
Corson, Aaron R., assignor of one-half to W. H. Corson, High Bridge, N. J. Speed-regulator	314,228	Mar. 24	1610	425	30	1102
Corson, William H. (See Corson, Aaron R., assignor.)						
Cortright, Lewis D., Hyde Park, Ill. Roofing finishing	313,852	Mar. 17	1114	289	30	1001
Cortright, Lewis D., Hyde Park, Ill. Roofing for buildings	313,853	Mar. 17	1116	289	30	1001
Coryell, Joe H. (See Coryell, Peter D. and J. H.)						
Coryell, Miers, New York, N. Y. Steam-boiler furnace	313,992	Mar. 17	1306	341	30	1037
Coryell, Peter D. and J. H., Glidden, Iowa. Fruit-drier	313,810	Mar. 10	1049	269	30	980
Cosgrove, William F., Jersey City, N. J. Automatic stop-plug for gas and oil pipes	313,993	Mar. 17	1307	341	30	1037
Coté, Louis, St. Hyacinthe, Quebec, Canada. Machine for nailing on the heels of boots and shoes	310,562	Jan. 13	517	142	30	105
Cotrell, John, Schell City, Mo. Weather-strip	313,921	Mar. 17	1219	317	30	1020
Cottle, Shubael, New York, N. Y. Collar-button	311,107	Jan. 20	1249	342	30	244
Cottle, Shubael, New York, N. Y. Bracelet	311,722	Feb. 3	337	93	30	412
Cottom, James B. (See Myers and Cottom.)						
Cottom, James B., assignor to D. E. McSherry & Co., Dayton, Ohio. Spring-hoe for seeding-machines	312,974	Feb. 24	2050	559	30	751

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Cottom, James B., assignor to D. E. McSherry & Co., Dayton, Ohio. Agitator for grain-drills	312,975	Feb. 24	2051	560	30	751
Cotton, William W., and A. Hewes, Brooklyn, assignors, by mesne assignments, of one-half to Fishkill Manufacturing Company, New York, N. Y. Paper-bag machine	312,257	Feb. 17	1088	360 / 301	30	566
Cottrell, Calvert B. (See Overend, Andrew, assignor.)						
Cottrell, Calvert B., Stonington, Conn. Printing-press	314,166	Mar. 17	1529	401	30	1072
Cottrell, Herbert, Newark, N. J. Expander for expanding and securing metal bung-bushings into casks	311,960	Feb. 10	677	186	30	482
Cottrell, Jesse D., Central Falls, R. I. Let-off mechanism for looms	312,708	Feb. 24	1705	469	30	689
Coughlin, Reese P., Cincinnati, Ohio. Manufacture of clock-cases, statuary, vases, and other articles from plastic materials	311,875	Feb. 10	544	149	30	458
Coultas, Thomas. (See Coultas, William, assignor.)						
Coultas, William, Stockton-on-Tees, county of Durham, England, assignor to T. Coultas, Pittsburg, Pa. Composite roofing	311,569	Feb. 3	148	.....	30	370
Coulter, William B., Bristol, Conn. Trunk-fastener	311,232	Jan. 27	1434	391	30	284
Coulter, William B., Bristol, Conn. Relief-valve	311,723	Feb. 3	338	94	30	413
Coulvier, Felix L. E., Bohain, Aisne, France. Treadle for sewing-machines	314,606	Mar. 31	2408	637	30	1276
Coupland, Charles, Seymour, Conn. Loom for weaving double pile fabrics	311,961	Feb. 10	679	186	30	482
Coupland, Charles, Seymour, Conn. Loom for weaving double pile fabrics	312,190	Feb. 10	1001	273	30	541
Courtenay, Patrick J., Philadelphia, Pa. Washing-machine	314,318	Mar. 24	1731	461	30	1125
Courtnage, William. (See Bates, Henry C., assignor.)						
Cowan, Miles R. B., assignor, by mesne assignments, of two-thirds to H. W. Booth, Windsor, Ontario, Canada, and F. H. Leavenworth, Detroit, Mich. Shield and blotter	310,257	Jan. 6	127	36	30	26
Cowdrey, Robert H. (See Hardy, Dexter D., assignor.)						
Cowin, James S., *et al.* (See Benedict, Jacob, assignor.)						
Cowles, Alfred A., New York, N. Y., assignor to Ansonia Brass and Copper Company, Ansonia, Conn. Manufacture of telegraph-conductors	310,258	Jan. 6	128	37	30	26
Cowles, James A., Chicago, Ill. Hydrocarbon burner	312,976	Feb. 24	2052	560	30	751
Cowles, James A., Chicago, Ill. Argand lamp-burner	313,184	Mar. 3	219	58	30	817
Cowles, Rnel P., New Haven, Conn. Carriage-wheel lock	312,191	Feb. 10	1003	273	30	541
Cowley, James T. (See Clark and Cowley.)						
Cowley, James T., Baltimore, Md. Cash and parcel carrying system for store-service	311,108	Jan. 20	1250	342 / 343	30	244
Cox, Samuel, Booneville, Miss. Horse-power	311,233	Jan. 27	1435	391	30	284
Cox, Thomas J., Gainesville, Tex. Metallic post for wire fences	314,654	Mar. 31	2189	580	30	1234
Craeraft, Richard, Berwick, assignor of one-half to J. H. Miller, Abingdon, Ill. Cultivator	311,645	Feb. 3	245	69	30	395
Craig, Andrew J., Hickory, Miss. Cultivator	313,811	Mar. 10	1050	269	30	981
Craig, Lloyd A., Woodson, Ill. Boiler-cleaner	311,226	Jan. 27	1529	416	30	301
Craig, Warren H., Lawrence, Mass. Steam-engine lubricator	314,214	Mar. 17	1525	420	30	1068
Craighead, Horace M. (See Souders, Smith, Craighead, and Souders.)						
Cramer, Elijah D., Youngstown, Ohio. Pendulum-level	313,290	Mar. 3	367	91	30	843
Crane, Augustus S., Newark, N. J. Electric clock	311,234	Jan. 27	1436	391 / 392	30	284
Crane Brothers Manufacturing Company. (See Reynolds, George H., assignor.)						
Crane, George W., Topeka, Kans. Envelope	310,495	Jan. 6	423	117	30	82
Crane, Michael Brooklyn, N. Y., and J. L. Firm, Jersey City, N. J. Stereotype-plate	311,175	Jan. 27	1351	370	30	269
Craney, Thomas. (See Barker and Craney.)						
Crary, Cushman W., Chicago, Ill. Lathe-chuck	311,962	Feb. 10	680	186	30	482
Crary, William. (See Lockwood and Crary.)						
Craven, Gershom T. (See Emery, Lowell M., assignor.)						
Craven, Thomas C., Greenbush, assignor of one-half to A. Schell, Albany, N. Y. Supplying air to the furnaces of locomotive-boilers	311,475	Feb. 3	17	5.6	30	351
Craven, Thomas C., Greenbush, assignor to Automatic Traction Draw Bar Company, Albany, N. Y. Draw-bar for locomotives	311,963	Feb. 10	672	186 / 187	30	482
Crawford, James G. (See Smith, Benjamin C., assignor.)						
Crawford, John M., Philadelphia, Pa. Combined alarm-clock and lamp-regulating mechanism	313,300	Mar. 3	394	94.95	30	846
Crawford, John R. M., Boonville, Miss. Bridle	314,807	Mar. 31	2408	637	30	1276
Crawford, Robert P. (See Strain, Ebenezer W., assignor.)						
Crawley, James. (See Cassidy, Peter B., assignor.)						
Crawley, John B., Brooklyn, N. Y. Grate-bar	312,614	Feb. 24	1581	432 / 433	30	667
Creamer, Henry, New York, N. Y. Steam feed-water trap	313,854	Mar. 17	1117	290	30	1001
Creighton, Bernard. (See Kennedy and Creighton.)						
Crescent Combination Pavement Company. (See Hoyt, Frederick J., assignor.)						
Cressey, Isaiah, Boston, assignor to Porter Manufacturing Company, Revere, Mass. Wrench	314,517	Mar. 24	2004	534	30	1174
Cressey Meter Company. (See Maxwell, George S., assignor.)						
Creveling, Lewis, Akron, Ohio, assignor to Howes & Ewell, Silver Creek, N. Y. Flour-packer	310,496	Jan. 6	423	117	30	82
Critchett, Oliver G., Belfast, Me. Heel-burnishing machine	313,185	Mar. 3	220	53 / 54 / 55	30	817
Crites, Stanley M., Pipestone, Mich. Bob-sleigh	310,881	Jan. 20	921	251	30	186
Crocker, Henry, Bristol, R. I. Book-holder	314,430	Mar. 24	1889	504	30	1155
Crocker, Henry, Bristol, R. I. Book-holder	314,457	Mar. 24	1889	504	30	1155
Crocker, John. (See Crocker, Pitser M., assignor.)						
Crocker, John B., St. Louis, Mo., assignor to J. W. Thomas and J. B. Seghers, Jr., Chicago, Ill. Stove	314,286	Mar. 24	1691	451	30	1117
Crocker, Pitser M., McNairy, Tenn., assignor of one-half to J. Crocker, Garland, Ark. Nut-lock	312,555	Feb. 17	1510	412	30	644
Crockett, Fred P., Detroit, Mich. Automatic oiler	311,109	Jan. 20	1252	343	30	245
Crockett, James, Bloomingdale, Pa. Record-tablet	311,724	Feb. 3	340	94	30	413
Cronin, John, New Orleans, La. Truss	311,570	Feb. 3	150	43	30	377
Cronyn, John L. C., Buffalo, N. Y. Combined thread cutter and holder	314,518	Mar. 24	2005	535	30	1174
Crook, William, Salisbury, England. Fire-place	310,892	Jan. 20	922	252	30	186
Cropper, Joseph C., Cedar Falls, Iowa. Roller-skate	314,916	Mar. 31	2557	676	30	1302
Cros, Edouard. (See Muratori and Cros.)						
Cross, John R., deceased; M. L. Cross, administratrix, and assignor, by mesne assignments, to M. L. Cross, Chicago, Ill. Wood-bending machine	314,229	Mar. 24	1612	426	30	1102
Cross, Mary L., administratrix. (See Cross, John R.)						
Cross, Washington, Pulaski, Tenn. Tire-tightener	313,002	Mar. 3	36	9	30	784
Cross, William C., Boston, Mass. Preparing the uppers of boots or shoes for lasting	313,301	Mar. 3	385	95	30	846

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Crossley, James, assignor to J. Kenyon, Bury, county of Lancaster, England. Paper-maker's cotton drying-felt, printer's machine-blanket, and other machinery cloths	313,994	Mar. 17	1508	.....	30	1037
Crossley, William, *et al.* (See Chamberlain, William T., assignor.)						
Crotchett, Al. (See Hornor and Crotchett.)						
Crothers, Noble E., Paxton, Ill. Check-rower for corn-planters	312,977	Feb. 24	2053	561	30	752
Crow, Alfred E. and W. L., New York, N. Y. Apparatus for separating or concentrating materials of different specific gravities	312,333	Feb. 17	1198	328	30	586
Crow, Benjamin F., Nebraska City, Nebr. Harrow	313,474	Mar. 10	609	157	30	899
Crow, William L. (See Crow, Alfred E. and W. L.)						
Crowell, Luther C., Brooklyn, assignor to R. Hoe & Co., New York, N. Y. Sheet-delivery apparatus	312,258	Feb. 17	1092	301 / 302	30	566
Crowell, Luther C., Brooklyn, assignor to R. Hoe & Co., New York, N. Y. Sheet-delivery apparatus for printing-machines	313,475	Mar. 10	610	158 / 159	30	899
Crowfoot, Issachar, Hartford, Wis. Ice-cutting machine	313,995	Mar. 17	1309	342	30	1037
Crowley, John H., Philadelphia, Pa. Shuttle-box operating mechanism for looms	313,578	Mar. 10	735	193 / 194	30	923
Crowson, William L., assignor to Milburn Gin and Machine Company, Memphis, Tenn. Cotton-gin	314,917	Mar. 31	2558	676 / 677	30	1302
Crüger, Theodor, New York, N. Y. Chimney-cowl	312,978	Feb. 24	2055	561	30	752
Crumley, E. Miner, Springfield, assignor of one-half to T. J. Arnold, Boswell, Ohio. Combined whip-socket and rein-holder	311,815	Feb. 3	455	124	30	434
Crummey, William J., *et al.* (See Heron, John, assignor.)						
Cuisinier, Léon, Paris, France. Manufacturing maltose	311,417	Jan. 27	1694	.....	30	332
Cuisinier, Léon, Paris, France. Liquefaction, dextrination, and saccharification by means of malt of the starch in amylaceous substances	311,646	Feb. 3	246	.....	30	395
Culbertson, William L., *et al.* (See Jessee, Robert, assignor.)						
Cullen, James K., and J. W. See, assignors to Niles Tool Works, Hamilton, Ohio. Lathe	312,615	Feb. 24	1582	433	30	667
Cullingworth, George R., New York, N. Y. Valve for rock-drills	310,653	Jan. 13	629	174	30	126
Culp, James D., San Felipe, Cal. Demonstrative electrical apparatus	311,725	Feb. 3	341	94	30	413
Cuming, Alfred A., Hingham, assignor of one-half to E. Arnold, Marblehead, and F. S. Whitman, Cambridge, Mass. Sewing	313,063	Mar. 3	36	9	30	785
Cummings, George W. and J. R., assignors to American Press Association, Chicago, Ill. Electrotype shell and base	313,812	Mar. 10	1051	269 / 270	30	981
Cummings, John R. (See Cummings, George W. and J. R.)						
Cummings, Rockwood, Palmetto, Ga. Post-hole digger	313,476	Mar. 10	613	159	30	899
Cummins, Patrick H., Amsterdam, N. Y. Sled	311,726	Feb. 3	343	95	30	413
Cunningham, Thomas C., *et al.* (See Bostor, Francis L., assignor.)						
Cupler, J. C. (See Pencille, Jethro E., assignor.)						
Currie, Neill A., Laurinburg, N. C. Fertilizer-distributer	312,334	Feb. 17	1201	329	30	587
Currier, Henry A., Almont, Mich. Land-roller	313,813	Mar. 10	1052	270	30	981
Curry, Benjamin S., Manatee, Fla. Sash-fastener	314,918	Mar. 31	2561	677	30	1302
Curry, Burwell J., Huntsville, Ala. Cotton and hay press	311,816	Feb. 3	456	124	30	434
Curtis, Benjamin F., Atlanta, Ga. Street-railway chair	312,259	Feb. 17	1094	302	30	567
Curtis, Charles. (See Seaver, Augustus, assignor.)						
Curtis, Elias, Kansas City, Mo. Electric indicator for pool-tables	313,404	Mar. 3	511	134	30	872
Curtis, John D. (See Lenox, Daniels, and Curtis.)						
Curtis, William L., Forest Grove, Oreg. Surveying-instrument	313,657	Mar. 10	846	220	30	944
Curtiss, Robert M., Brooklyn, N. Y. Electrical safety device for elevators	314,167	Mar. 17	1530	401	30	1078
Cortner, Paul H., Hazleton, and C. C. Genung, Evansville, Ind. Car-brake	313,186	Mar. 3	224	55	30	818
Cushing, Frank A., New York, N. Y. Overflow-alarm for water-tanks	313,658	Mar. 10	847	220	30	944
Cushwa, James A., Isle St. George, Ohio. Rein supporter and protector	310,883	Jan. 20	921	252	30	186
Cussons, John, Glen Allen, Va. Calendar	313,996	Mar. 17	1311	342	30	1037
Custer, George M., Terre Haute, Ind. Combined whip-socket and rein-holder	311,876	Feb. 10	546	150	30	458
Cutler, Alexander M. (See Cutler, William P. and A. M.)						
Cutler, William P. and A. M., Bath, Me. Jib-furler	311,964	Feb. 10	686	188	30	483
Cutter, Martin A., Galveston, Tex. Street-car	312,556	Feb. 17	1510	412	30	645
D'Spain, Thomas C., Sherman, Tex. Pulverizer	312,338	Feb. 17	1208	332	30	588
Daboll, Austin P., New London, Conn. Friction-roller bushing or bearing	310,279	Jan. 6	129	37	30	26
Daft, Leo, Greenville, N. J. Electric railway	312,557	Feb. 17	1512	412	30	645
Dailey, Albert A., Wilson, N. Y. Thill-coupling	312,097	Feb. 10	802	236	30	516
Daimler, Gottlieb, Cannstadt, Würtemberg, Germany. Gas-engine	313,922	Mar. 17	1220	318	30	1020
Daimler, Gottlieb, Cannstadt, Würtemberg, Germany. Gas-engine	313,923	Mar. 17	1222	318	30	1020
Dalgarno, James, assignor of one-half to P. H. Griffin, Detroit, Mich. Device for molding propeller-wheels	311,817	Feb. 3	457	124	30	435
Dalton, Edward F., assignor of one-half to W. F. Holroyd, Waterford, N. Y. Axle-cutter and threader	311,647	Feb. 3	250	69	30	395
Dalton, William D., assignor of two-thirds to J. M. Cole, Ludlow, Ky., and T. H. Foules, Cincinnati, Ohio. Track-gage	311,418	Jan. 27	1696	462	30	332
Dame, William, Woonsocket, R. I. Shaft-lubricator	312,892	Feb. 24	1859	510	30	717
Damon, George L., Boston, Mass. Locking and unlocking the doors of safes, &c	311,419	Jan. 27	1697	462	30	332
Damp, John, Ashland, Ohio. Grain separator and scourer	311,727	Feb. 3	344	95, 96	30	414
Dancel, Christian, New York, N. Y., assignor to J. Cavanagh, trustee. Machine for lasting boots or shoes	312,335	Feb. 17	1202	329 / 330	30	587
Daniell, John S., Conyers, Ga. Cotton cleaner and feeder	312,192	Feb. 10	1004	273 / 274	30	542
Daniels, Fred H. (See Lenox, Daniels, and Curtis.)						
Daniels, Taylor E., Chicago, Ill. Chain mortising-machine	313,924	Mar. 17	1226	318 / 319	30	1020
Danner, William, and J. M. Billing, Canal Fulton, Ohio. Thill-coupling	312,823	Feb. 24	1800	510	30	717
Danz, Jacob, Jr., St. Paul, Minn. Decoy	311,577	Feb. 10	547	150	30	459
Darnell, David E., Masonville, assignor of one-half to H. W. Doughten, East Moorestown, N. J. Furrower, marker, and coverer	312,098	Feb. 10	803	236	30	517
Dauchy, L. Otis. (See Ross, Christian H., assignor.)						
Davey, Henry, Leeds, County of York, England. Low-pressure steam-motor	310,387	Jan. 6	301	83	30	58
Davids, Henry S., Oakland, Cal. Bent-lever scale	313,477	Mar. 10	613	159	30	899
Davidson, Mordica A., Union, Mo. Draft-equalizer	314,319	Mar. 24	1732	461	30	1125
Davies, Benjamin F., *et al.* (See Laskey, John H., assignor.)						
Davin, James J., Bradford, Pa. Die for making steel jars	311,648	Feb. 3	251	69	30	396
Davis, Adelbert S. (See Ball, Ansel, assignor.)						
Davis, Adelbert S., Seneca Falls, N. Y. Scroll-sawing machine	310,563	Jan. 13	519	142	30	105
Davis, Andrew J. (See Colwell and Davis.)						
Davis, Andrew J., Hartford, Mich. Combined sash-holder and weather-strip	310,564	Jan. 13	521	143	30	106
Davis, Aurin D. (See Hittle and Davis.)						
Davis, Benjamin F., Corsicana, Tex. Cantalever	311,064	Jan. 20	1188	326	30	233

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Davis, Charles R., Dallas, Tex. Bustle	314,566	Mar. 31	2071	553	30	1213
Davis, Clinton, Steelville, Ill. Splint	310,184	Jan. 6	35	10	30	9
Davis, Edward. (See Keyworth, Thomas, assignor.)						
Davis, Edward J., Rochester, N. Y. Box	313,814	Mar. 10	1053	270	30	981
Davis, Francis M. (See Cherney and Davis, assignors.)						
Davis, Frank I. (See Young and Davis.)						
Davis, James B., Washington, D. C. Boring device	313,405	Mar. 3	512	134	30	872
Davis, John. (See Simpson and Davis.)						
Davis, John, Allegheny, Pa. Apparatus for tanning hides	313,478	Mar. 10	614	159	30	900
Davis, John, Allegheny, Pa. Hook	314,168	Mar. 17	1537	402	30	1078
Davis, John P. T., New Trenton, Ind. Extension-ladder and fire-escape	312,979	Feb. 24	2056	561	30	772
Davis, John S., Toledo, Ohio. Mechanism for actuating grain-binders	311,420	Jan. 27	1700	463	30	332
Davis, John S., Toledo, Ohio. Grain-binding harvester	312,824	Feb. 24	1861	{510 511}	30	717
Davis, Luther M., Walla Walla, Wash. Ter. Gas-mixer for inhalers	312,435	Feb. 17	1336	368	30	613
Davis, Richard I., Sandusky, Tex. Gate	313,855	Mar. 17	1118	290	30	1002
Davis, William C. (See Cherney and Davis.)						
Davis, Zebulon, Canton, Ohio. Vapor-stove	311,459	Jan. 27	1745	475	30	341
Davis, Zebulon, Canton, Ohio. Vapor-burner	311,818	Feb. 3	458	125	30	435
Davis, Zebulon, Canton, Ohio. Vapor-stove	313,925	Mar. 17	1928	{319 320}	30	1021
Davis, Zebulon, assignor to Standard Lighting Company, Canton, Ohio. Tinner's and plumber's furnace	312,825	Feb. 24	1864	511	30	718
Davison, William, Hoboken, N. J. Elliptic spring	314,919	Mar. 31	2562	678	30	1302
Dawson, Frank, Sr., and Frank, Jr., Williamsport, Pa. Car-starter	314,519	Mar. 24	2006	535	30	1174
Dawson, George A., assignor to Hercules Manufacturing Company, Cardington, Ohio. Grain-scourer	313,712	Mar. 10	911	237	30	956
Dawson, Walter. (See Thatcher, Thomas, assignor.)						
Day, Albion L., Urbana, Ohio. Oil-can	311,965	Feb. 10	687	188	30	483
Day, Charles S., Waverly, Md. Mill for hulling corn	313,997	Mar. 17	1312	342	30	1038
Day, Florance P., assignor to himself and T. M. Van Court, Omaha, Nebr. Car-signal	312,099	Feb. 10	864	276	30	517
Day, Frank C., Scranton, Pa. Vehicle-brake	312,430	Feb. 17	1377	368	30	613
Day, Hiram T., Fullerton, Ill. Flood-gate	312,437	Feb. 17	1338	369	30	613
Day, Joseph M. (See Cochrane and Day.)						
Dayton Manufacturing Company. (See Kirby, John, Jr., assignor.)						
De Grandgagnage, Pascal. (See Clarembeaux, Augustin, assignor.)						
De la Jeanniere, Dominique C., Paris, France. Automatic safety-brake for elevators and hoists	311,649	Feb. 3	281	70	30	396
De Laval, Gustaf, Stockholm, Sweden. Device for lubricating bearings	311,966	Feb. 10	687	188	30	483
De los Rios, Alonso C., New Orleans, La. Filter	312,187	Feb. 10	908	272	30	541
De Motte, Thomas H., Eureka, Ill. Cooling and embalming table	310,684	Jan. 20	923	279	30	186
De St. Aubin, August, Concordia, Kans. Horizontal windmill	311,172	Jan. 27	1353	371	30	270
De Valin, William H., San Rafael, Cal. Variable crank or eccentric	312,709	Feb. 24	1707	469	30	690
De Vooght, Francis, Antwerp, Belgium. Cable railway and tramway	310,991	Jan. 20	1080	{294 295 296}	30	213
De Walt, George, Kenton, Ohio. Barbed fence	312,440	Feb. 17	1341	369	30	614
De Witt, Charles H., Weatherly, Pa. Steam-muffler	310,654	Jan. 13	632	174	30	126
Dealy, Paul K., Brandon, Manitoba, Canada. Game	310,388	Jan. 6	302	83	30	58
Dean, Chester F., assignor, by mesne assignments, to himself and H. S. Calderwood, St. Johnsbury, Vt. Pruning implement	314,220	Mar. 24	1613	426	30	1102
Dean, John R., Westminster, England. Boot	310,369	Jan. 6	303	83, 84	30	59
Dean, Richard, assignor to J. B. Meriam, Cleveland, Ohio. Process of and apparatus for the fractional distillation of petroleum	310,407	Jan. 6	425	117	30	82
Dean, Richard, assignor of one-half to J. Quarrie, Cleveland, Ohio. Apparatus for the distillation of hydrocarbons	314,368	Mar. 24	1600	479	30	1138
Deane, Charles P., Springfield, Mass. Construction of coverings or housings for the steam-cylinders of pumping-engines	313,479	Mar. 10	616	160	30	900
Deane, Royal E., New York, N. Y. Steaming-table	310,185	Jan. 6	36	10	30	9
Deardorff, Jesse S., Canal Dover, Ohio. Hot-air generator for fire-places	313,998	Mar. 17	1913	343	30	1038
Debes, Julius C., Mount Vernon, Ohio. Reversing-gear for engines	313,579	Mar. 10	737	194	30	924
Decker, John, Nashville, Tenn. Graining-machine	312,260	Feb. 17	1095	302	30	567
Deemar, Henry V., St. Charles, Mo. Rubber heel	313,291	Mar. 3	368	91	30	843
Deere & Company. (See Moore, Gilpin, assignor.)						
Deere & Mansur Company *et al.* (See Ruostetler, Michael and A., assignors.)						
Deering, Michael, assignor to C. C. Bradley, Syracuse, N. Y. Power-hammer	312,826	Feb. 24	1866	511	30	718
Deering, William. (See Randall and Snow, assignors.)						
Deibert, Ambrose E., Kansas City, Mo. Trace or hame-tug buckle	310,360	Jan. 6	304	84	30	59
Deimel, Gustave, Hancock, Mich. Trunk	311,176	Jan. 27	1352	371	30	269
Delamater, Cornelius H., *et al.* (See Reynolds, George H., assignor.)						
Delamater, William, *et al.* (See Reynolds, George H., assignor.)						
Delano, Jesse L., Northampton, Mass. Reversible plow	312,438	Feb. 17	1338	369	30	613
Delaviere, Albert D., Paris, France. Tool for affixing metal tags to laces	311,551	Feb. 3	150	43	30	377
Delavigne, John C., New Orleans, La. Jute-machine	312,100	Feb. 10	865	237	30	517
Delkescamp, Adolph, assignor to Metal Wheel Company, Waterbury, Conn. Sled	312,920	Feb. 24	2057	562	30	752
Delong, George. (See Presler, Jacob, assignor.)						
Dempsey, William E. (See Merrill and Dempsey.)						
Denecke, Charles, Toledo, Ohio. Extensible stand	314,808	Mar. 31	2409	637	30	1276
Denison, Edgar P., *et al.* (See Lovett, John, assignor.)						
Dennett, Fred A., Milwaukee, Wis. Horse hay-fork	311,728	Feb. 3	347	96	30	414
Denney, Samuel L., Strasburg, Pa. Combined hay-tedder and rake	312,336	Feb. 17	1204	{330 331}	30	587
Dennis, John, Glenbeulah, Wis. Clothes-drier	314,231	Mar. 24	1613	427	30	1102
Dennis, Samuel, Monroe, Wis. Ladder	314,438	Mar. 24	1890	504	30	1155
Dennstedt, Maximilian, Tzschocheln-Niederlausitz, Prussia, Germany. Manufacture and preservation of articles of gypsum, stucco, or the like	314,114	Mar. 17	1462	.....	30	1065
Denton, Joseph B., Newtown, N. Y. Fertilizer-distributer	314,920	Mar. 31	2563	678	30	1303
Detroit Electrical Works. (See Fisher, Frank E., assignor.)						
Detroit Iron Tower Company. (See Adams, John S., assignor.)						
Detroit Steel and Spring Works. (See Burns, Elijah P., assignor.)						
Deverall, Frederick J., Jersey City, N. J. Bottle-stopper	313,926	Mar. 17	1231	320	30	1021
Devereux, Walter B., Aspen, Colo. Slag-buggy	312,439	Feb. 17	1339	369	30	614
Devey, Mathew H., Chester, Pa. Conduit for electrical wires	314,655	Mar. 31	2190	{580 581}	30	1234

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Devine, Edward, Detroit, Mich. Pipe-bending machine	313,302	Mar. 3	386	95	30	847
Devoe, Daniel E., *et al.* (See Hoyt, Lewis S., assignor.)						
Devoll, Henry W., *et al.* (See Vaughn and Eldridge, assignors.)						
Dewease, James E., Nevada, Mo. Wheel for vehicles	314,520	Mar. 24	2007	535	30	1174
Dewey & Co., Edward. (See Hardy, Alvah E., assignor.)						
Dewrance, John, Lambeth, county of Surrey, England. Asbestus packing	311,729	Feb. 3	347	.....	30	414
Deyell, Isaac, St. Thomas, Ontario, Canada. Spark-extinguisher	310,565	Jan. 13	622	143	30	106
Diamond, Marc, New York, N. Y. Pantograph	310,186	Jan. 6	37	11	30	9
Dibble, Frank H., New Haven, Conn. Horse-car canopy	310,992	Jan. 20	1065	297	30	215
Dick, Joseph C. F., Belvidere, Ill. Button-attaching machine	310,934	Jan. 20	999	271	30	197
Dickerman, Amos, New Haven, Conn. Making metallic cartridge-shells	313,187	Mar. 3	225	55, 56	30	818
Dickerson, George W., New Castle, Del., assignor to G. Draper & Sons, Hopedale, Mass. Bobbin-supporter for spooling-machines	312,710	Feb. 24	1709	469	30	690
Dickert, Ferdinand, Salt Lake City, Utah Ter. Apparatus for refining sulphur	310,187	Jan. 6	38	11	30	10
Dickey, Alexander H., Connersville, Ind. Vehicle-spring	313,441	Feb. 17	1341	370	30	614
Dickinson, David A., Baltimore, Md. Farm-gate	312,442	Feb. 17	1342	370	30	614
Dickinson, Frederick. (See Getty and Dickinson.)						
Dickinson, Henry S., Jersey City, N. J. Chimney-cap	310,391	Jan. 6	305	84	30	59
Dickinson, Henry S., Jersey City, N. J. Chimney-cap	313,927	Mar. 17	1232	320	30	1021
Dickson, Charles K., St. Louis, Mo. Hame-fastener	10,548	Jan. 6	501	138	30	96
Dickson, Gilbert J., Albany, N. Y. Ice-tongs. (Reissue)	313,480	Mar. 10	617	160	30	900
Dickson, Henry, Pittsburg, Pa. Brick, tile, drain-pipe, &c	311,476	Feb. 3	91	6	30	352
Dickson, Herbert P., West Lima, Wis. Handle for millstone-picks	312,443	Feb. 17	1343	370	30	615
Dickson, William H., Philadelphia, Pa. Railway-frog	314,567	Mar. 31	2071	554	30	1214
Diehl, Philip, Elizabeth, N. J. Electric-arc lamp	313,999	Mar. 17	1314	343	30	1038
Diehl, Philip, Elizabeth, N. J., assignor to Singer Manufacturing Company, of New Jersey. Belt shifting and replacing device						
Diener, Carl. (See Mayrhofer, Charles A., assignor.)						
Dieter, Louis F. (See Kelly and Dieter.)						
Dieterich, Daniel P., *et al.* (See Phillippi, Abraham H., assignor.)						
Dietrich, Christian. (See Wroth, Alfred B., assignor.)						
Dietz, Frederick, New York, N. Y. Tubular lantern	310,188	Jan. 6	39	11	30	10
Dietz, Hermann, Berlin, Germany. Grain scouring and cleaning machine	314,439	Mar. 24	1891	505	30	1156
Diffenderfer, William H., Middletown, Pa. Safety-guard for eccentric rods	310,655	Jan. 13	633	175	30	126
Dill, Rufus M., Freeport, Me. Lamp-burner	310,392	Jan. 6	306	84	30	59
Dillard, Gregory M., Macon, Miss. Felly-clamp	314,232	Mar. 24	1614	427	30	1103
Dillin, Maurice R. (See Mander, James, assignor.)						
Dimelow, James, Wilmington, Del. Steam-trap	310,885	Jan. 20	925	253	30	186
Dimond, Charles H. (See House and Dimond.)						
Dimond, William, assignor of one-half to W. H. Shank, Huntington, Ind. Ice-tongs	314,169	Mar. 17	1538	402	30	1078
Dinkel, George, assignor to F. O. Matthiessen & Wiechers Sugar Refining Company, Jersey City, N. J. Magma-pump	311,878	Feb. 10	548	150	30	459
Dinsmore, William H., Connellsville, Pa. Nut-lock	311,879	Feb. 10	549	151	30	459
Disney, Sarah M. (See Carr, John A., assignor.)						
Diss, Louis P., assignor to E. Remington & Sons, Ilion, N. Y. Magazine for fire-arms	313,656	Mar. 17	1119	290	30	1002
Disston, Thomas S., Philadelphia, Pa. Shingle-planing machine	312,444	Feb. 17	1344	{370 371}	30	615
Dittmar, Ferdinand, Toronto, Ontario, Canada. Safety attachment for gas-burners	314,000	Mar. 17	1315	344	30	1038
Ditwiler & Son, J. (See Howard, Hoy, assignor.)						
Dixon, Robert H. (See Steward and Dixon.)						
Doane, William H., and G. W. Bugbee, Cincinnati, Ohio. Circular sawing machine	311,421	Jan. 27	1703	{463 464}	30	333
Dobbs, Seneca, Rochester, N. Y. Heating apparatus	314,320	Mar. 24	1733	{461 462}	30	1125
Dobson, Isaac F., *et al.* (See Laskey, John H., assignor.)						
Dockstader, Dennis S., Meadville, Pa. Coal-car	314,656	Mar. 31	2191	581	30	1235
Dodd, Willis G., San Francisco, Cal. Crank-pin	313,481	Mar. 10	617	160	30	900
Doddridge, Loyal M., assignor of one-half to L. J. Weatherwax, Stanton, Mich. Extension-table	313,406	Mar. 3	513	134	30	873
Dodds, Alexander, Grand Rapids, Mich. Tail-stock for lathes	310,260	Jan. 6	130	37	30	27
Dodds, Joseph H. (See Dodds, Thomas, assignor.)						
Dodds, Thomas, assignor of one-half to J. H. Dodds, Cedartown, Ga. Motor	313,188	Mar. 3	226	56	30	818
Dodge, Alfred. (See Millet, John W., assignor.)						
Dodge, Mauly C., Charlotte, Mich. Type-writing machine	312,981	Feb. 24	2058	562	30	753
Dodge, Theodore A., trustee. (See Shaler, Nathaniel S., assignor.)						
Doheny, James, Geddes, N. Y. Fire-grate for stoves	312,261	Feb 17	1096	303	30	567
Doherty, James G., Waterbury, Conn. Pendulum-level	313,292	Mar. 3	369	91	30	843
Doherty, Patrick J., Chelsea, Mass. Roller-skate	313,815	Mar. 10	1054	271	30	981
Dole, Aladin, Penn's Grove, N. J. Becket-clamp for steering-wheels	311,110	Jan. 20	1253	343	30	245
Dolge, Alfred. (See Dolge, Carl B., assignor.)						
Dolge, Carl B., Dolgeville, assignor to A. Dolge, New York, N. Y. Producing felt having a cross-section varying in thickness throughout its width	314,369	Mar. 24	1802	479	30	1138
Dolge, Carl B., Dolgeville, assignor to A. Dolge, New York, N. Y. Producing felted fabrics	314,809	Mar. 31	2410	637	30	1276
Dolge, Carl B., Dolgeville, assignor to A. Dolge, New York, N. Y. Manufacture of hair-faced wool felt	314,810	Mar. 31	2411	638	30	1276
Dolman, John H., Albany, Tex. Surveyor's instrument	313,659	Mar. 10	847	220	30	944
Domroe, Saml. (See Foley, John A., assignor.)						
Donadoni, Cesare, assignor to himself and Pohl, Berlin, Germany. Mechanical musical instrument	310,498	Jan. 6	427	118	30	82
Donahue, Thomas, J. Roche, W. T. Goodwin, and W. W. Cone, assignors to Eagle Lock Company, Terryville, Conn. Lock	312,827	Feb. 24	1868	512	30	718
Donald, James, Glasgow, county of Lanark, Scotland. Washing-machine	312,982	Feb. 24	2061	563	30	753
Dondero, Antonio. (See Ege, Frederick, assignor.)						
Dongan, John B., *et al.* (See Lovett, John, assignor.)						
Donnell, Edward P., Chicago, Ill. Clutch for paper-cutting machines	313,462	Mar. 10	618	{160 161}	30	900
Donner, Frederick. (See Cook, William, assignor.)						
Doolittle, William E., West Haven, assignor to New Haven Watch Company, New Haven, Conn. Enlargement-ring for watch-plates	311,297	Jan. 27	1530	416	30	302
Dorey, Charles, Lock Haven, Pa. Photograph-burnisher	312,337	Feb. 17	1207	332	30	588
Doscher, Berend, Charleston, S. C. Rowing apparatus	314,001	Mar. 17	1317	344	30	1039
Dotterweich, Andrew. (See Heintz and Dotterweich.)						
Doty, Levi, Frankfort, Ill. Feed-box for animals	311,880	Feb. 10	550	151	30	459

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Doubleday, Abner D., Kalamazoo, Mich. Fence-post	310,800	Jan. 13	818	221	30	160
Doughten, Henry W. (See Darnell, David E., assignor.)						
Douglas Axe Manufacturing Company. (See Bowers, John W., assignor.)						
Doughty, William H., New York, N. Y. Refrigeration for railway-cars, &c	311,298	Jan. 27	1531	417	30	302
Dougine, James T., Chicago, Ill. Double-tree	310,801	Jan. 13	818	222	30	160
Dougine, James T., Chicago, Ill. Seat for wagons	310,802	Jan. 13	819	222	30	160
Doulton, Henry, Lambeth, county of Surrey, and J. Slater, Burslem, county of Stafford, England. Ornamenting china and earthen ware and other pottery	314,002	Mar. 17	1319	.....	30	1039
Dow, John R. (See Brown, Alfred, assignor.)						
Dow, Josiah, Lowell, Mass. Valve-cut-off mechanism	310,189	Jan. 6	40	11	30	10
Down, William. (See Bishop and Down.)						
Downer, Benjamin H., Buffalo, and C. A. Beach, Albany, N. Y. Car-coupling	311,730	Feb. 3	348	96	30	414
Downing, James L., assignor of one-half to G. H. Wells, Richmond, Ill. Thill-coupling	311,819	Feb. 3	459	125	30	435
Downing, Jerome F., Erie, Pa. Conveyer apparatus	310,393	Jan. 6	307	85	30	59
Downing, William S., Half Moon Bay, assignor of one-half to G. H. Walker, San Francisco, Cal. Combined feed-rack and manger	310,261	Jan. 6	131	37	30	27
Doyle, Frank, Elgin, Ill. Feed-water heater for steam-boilers	314,521	Mar. 24	2008	535	30	1175
Doyle, John, Hoboken, N. J., assignor to himself, and C. C. Dusenbury, White Plains, N. Y. Rheostat	311,820	Feb. 3	460	125	30	435
Doyle, William, Albany, N. Y. Sand-molding machine for running riddled sand into molds for casting	312,983	Feb. 24	2062	{563 564	30	753
Drais, Peter, and A. Hegler, Washington C. H., Ohio; said Drais assignor to said Hegler. Device for ringing hogs	312,445	Feb. 17	1347	371	30	615
Drake, Charles M. (See Drake, Elbridge and C. M.)						
Drake, Charles S., San Francisco, Cal. Automatic railway-switch	313,928	Mar. 17	1233	{390 391	30	1022
Drake, Cuningham, Philadelphia, Pa. Sunshade and umbrella	312,446	Feb. 17	1348	372	30	616
Drake, Elbridge and C. M., Gardiner, Me. Saw-mill dog	310,190	Jan. 6	41	12	30	10
Draper, James O., Pawtucket, R. I. Steam-boiler	312,447	Feb. 17	1348	372	30	616
Draper & Sons, George. (See Campbell, Samuel R., assignor.)						
Draper & Sons, George. (See Dickerson, George W., assignor.)						
Dressel, George C., New York, N. Y. Signal-lantern	313,303	Mar. 3	388	96	30	847
Dressel, George C., New York, N. Y. Lantern	314,657	Mar. 31	2192	581	30	1235
Dresser, Chester H., New York, N. Y. Corking and filling machine	312,448	Feb. 17	1350	{372 373	30	616
Drew, Christopher, A. W. Leisner, and P. Nelson, Las Vegas, N. Mex. Ter. Harrow	310,499	Jan. 6	428	118	30	83
Drew, Henry P., New York, N. Y. Cock for gas and water fittings	311,650	Feb. 3	253	70	30	396
Dreyer, Herman H., assignor of one-half to J. H. H. Uthoff, Genoa, Ohio. Device for opening and closing furnace-doors	313,304	Mar. 3	389	96	30	847
Dreyer, Rosenkranz & Droop. (See Rosenkranz and Prophet, assignors.)						
Dromgold, Walker A. (See Hench and Dromgold.)						
Drown & Co., William A. (See Plumb, Hiram, assignor.)						
Drummond, David D., Chicago, Ill., assignor of one-half to R. A. Drummond. Device for conveying and precipitating dust arising from wood-working machinery. (Reissue)	10,568	Mar. 10	1097	285	30	989
Drummond, Robert A. (See Drummond, David D., assignor.) (Reissue.)						
Dry, James R., London, England. Treatment of flax, &c	314,991	Mar. 31	2564	.....	30	1303
Du Bois, Joseph, Waverly, N. Y. Portable anchor-fence	311,065	Jan. 20	1188	326	30	234
Du Bois, Joseph, Waverly, N. Y. Gate	311,066	Jan. 20	1189	326	30	234
Du Bois, Josiah S., Camden, N. J. Conduit for electric wires	314,568	Mar. 31	2074	554	30	1214
Du Shane, James, South Bend, Ind. Automatic cut-out for electric apparatus	312,985	Feb. 24	2067	564	30	754
Duball, Mounin, Frossard et Cie. (See Frossard, Joseph, assignor.)						
Dudley, Adolphus S. (See Carpenter and Dudley.)						
Dudley, Andrew J., North Anson, assignor to B. Moore, Anson, Me. Steam cooking-vessel	311,821	Feb. 3	461	125	30	435
Dudley, Elizabeth P. (See Carpenter and Dudley, assignors.)						
Dueber, John C., Newport, Ky. Watch-case center. (Reissue)	10,566	Mar. 3	598	153	30	888
Duell, Charles H. (See Hey, George W., assignor.)						
Duff Manufacturing Company. (See Barrett, Josiah, assignor.)						
Duff Manufacturing Company. (See Barrett, Josiah, assignor.) (Reissue.)						
Duffner, Matthew, *et al.* (See Watts, Henry P., assignor.)						
Duffy, Charles G., Utica, N. Y. Gas-pipe holder	312,193	Feb. 10	1005	274	30	542
Duffy, Thomas W., New York, N. Y., assignor to New York Steam Company, of New York. Expansion-joint for steam and other pipes	311,178	Jan. 27	1354	371	30	270
Duffy, Thomas W., Medford, Mass., assignor to Wainwright Manufacturing Company, Portland, Me. Purifying water	314,003	Mar. 17	1319	344	30	1039
Dufuf, Hubert, Holyoke, Mass. Razor-guard	311,067	Jan. 20	1190	327	30	234
Dun, Alfred, Frankfort-on-the-Main, Germany. Galvanic element	312,339	Feb. 17	1209	333	30	588
Dun, Alfred, Frankfort-on-the-Main, Germany. Apparatus for emptying and charging galvanic elements	312,340	Feb. 17	1210	333	30	588
Dunbar, William, Larrabee, Pa., assignor of one-half to J. J. Newman, Buffalo, N. Y. Edger	311,422	Jan. 27	1705	464	30	333
Dunham, Sumner T. (See Averell, John D., assignor.)						
Dunn, Daniel J., West Fitchburg, Mass. Automatic stove-damper	312,449	Feb. 17	1353	373	30	617
Dunn, Sola B., Chicago, Ill. Box-fastener	313,857	Mar. 17	1121	291	30	1002
Dunn, William J., Chicago, Ill. Combined collar-button and scarf-holder	311,881	Feb. 10	551	151	30	459
Dunning, Eugene. (See Stone, William H., assignor.)						
Dunning, Robert A. (See Given and Dunning.)						
Dupont, Leandre E., Farnham, Quebec, Canada. Trunk-lock	314,522	Mar. 24	2009	536	30	1175
Dupont, Philippe D. Summerville, Vt. Fork-forming machine	312,984	Feb. 24	2066	564	30	754
Dupuis, George A., Detroit, Mich. Fish-line stake	311,068	Jan. 20	1191	327	30	234
Durand, David L., Derby, Conn. Lamp-burner	313,713	Mar. 10	913	238	30	957
Durgin, Henry J., Rochester, N. Y. Table-rail tenoning and grooving machine	311,822	Feb. 3	463	126	30	436
Duryea, Wright, Brooklyn, N. Y. Apparatus for drying starch, &c	312,341	Feb. 17	1212	{333 334	30	589
Duryea, Wright, Brooklyn, N. Y. Apparatus for drying the by-products of starch-manufacture and other vegetable matters	312,342	Feb. 17	1215	334	30	589
Dusenbury, C. Coles. (See Doyle, John, assignor.)						
Dutton, Edward E., assignor of one-half to J. R. Atwood, Natick, Mass. Last	312,558	Feb. 17	1513	412	30	645
Dutton, Leander K., Oskaloosa, Iowa. Washing-machine	313,407	Mar. 3	514	135	30	873
Dutton, Rufus, and R. Eickemeyer, Yonkers, N. Y. Harvester	312,450	Feb. 17	1354	{373 374 375	30	617
Duval, John L., Houston, Tex. Bale-ejector for baling-presses	314,523	Mar. 24	2010	536	30	1175
Duvall, Reid M., Nashville, Tenn. Hedge	313,408	Mar. 3	515	135	30	873

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Dwight, George, Jr. (See Atwood and Slate, assignors.)						
Dyblie, Julius A., Cummings, Ill. Shutter-worker	310,566	Jan. 13	523	143	30	106
Dyer, Aaron G. and J. M., San Francisco, Cal. Rock-crusher	310,636	Jan. 13	634	175	30	126
Dyer, Aaron G. and J. M., San Francisco, Cal. Rock crusher and pulverizer	311,235	Jan. 27	1437	392	30	285
Dyer, James M. (See Dyer, Aaron G. and J. M.)						
Dyer, Lucius. (See Young and Dyer.)						
Dyson, Job, and C. W. Cookson, New Britain, Conn. Carding-machine for the manufacture of mottled rovings	310,803	Jan. 13	890	222	30	161
Dyson, Robert. (See Owen and Dyson.)						
Eagle Lock Company. (See Donahue, Roche, Goodwin, and Cone, assignors.)						
Eames, Charles J., New York, N. Y. Method of and apparatus for enriching and burning water-gas	311,967	Feb. 10	688	188	30	483
Eames, Elisha D., Watertown, N. Y. Hose or tubing	314,440	Mar. 24	1892	505	30	1156
Earl, Charles N., and H. T. Hazard, Los Angeles, Cal. Pipe and drain-tile mold	310,259	Jan. 13	888	241	30	174
Eastman, John P., Chicago, Ill. Continuous mileage-ticket	314,170	Mar. 17	1539	{402 403	30	1079
Eaton, Asahel K., Brooklyn, N. Y. Preparing the elements of storage-batteries	311,236	Jan. 27	1439	392	30	285
Eaton, Hiram A., Manchester, Me. Steam-cooker	310,657	Jan. 13	635	175	30	127
Ebaugh, David C., Charleston, S. C. Rock-pulverizer	312,343	Feb. 17	1217	{334 335	30	589
Ebel, John V., assignor of two-thirds to H. F. Voigt, T. L. E. Ortman, J. W. Albertson, J. W. Patterson, and J. O. C. Campbell, Pittsburg, Pa. Glass-furnace	310,804	Jan. 13	892	223	30	161
Eberhard, John G., Akron, Ohio. Harness-trimming	313,189	Mar. 3	227	56	30	818
Eberhard, William, assignor to himself and G. T. Ford, Akron, Ohio. Grain-cutting machine	313,463	Mar. 10	619	161	30	901
Eberhardt, Henry E., Newark, N. J. Friction-coupling	311,179	Jan. 27	1356	{371 372	30	270
Eberle, Charles R. (See Thompson and Eberle.)						
Eccles, John R., Waterford, N. Y. Ice-elevator mechanism	312,616	Feb. 24	1583	433	30	667
Eccles, Nicholas, assignor to R. & N. Eccles, Auburn, N. Y. Die for fifth-wheel heads	312,898	Feb. 24	1870	512	30	719
Eccles, R. & N. (See Eccles, Nicholas, assignor.)						
Eckert, Edward A. (See Eckert, Seely, and Eckert.)						
Eckert, William H., J. A. Seely, and E. A. Eckert, Cincinnati, Ohio, assignors to American Bell Telephone Company, Boston, Mass. Electric cable	313,305	Mar. 3	391	96, 97	30	847
Eckert, William H., J. A. Seely, and E. A. Eckert, Cincinnati, Ohio, assignors to American Bell Telephone Company, Boston, Mass. Combined telephone-receiver and circuit-breaker	313,409	Mar. 3	516	135	30	873
Eckert, William H., J. A. Seely, and E. A. Eckert, New York, N. Y., assignors to American Bell Telephone Company, Boston, Mass. Hanger for electric cables	313,410	Mar. 3	518	136	30	874
Economist Plow Company. (See Meagher and Tower, assignors.)						
Eddy, Ezra B., G. H. Millen, and E. Mousseau, Hull, Quebec, Canada. Apparatus for dipping matches	313,064	Mar. 3	37	10	30	785
Eddy, George W., New London, Conn. Window-curtain roller	310,658	Jan. 13	637	176	30	127
Edenborn, William, St. Louis, Mo. Barbed fence-wire	313,929	Mar. 17	1236	321	30	1022
Edgar, Dennis P., Jackson, Mich. Car-coupling	311,651	Feb. 3	254	70	30	396
Edison Electric Company. (See Johnson, Edward H., assignor.)						
Edison, Thomas A., Menlo Park, N. J., and P. Kenny, New York, N. Y. Chemical stock-quotation telegraph	314,115	Mar. 17	1464	{382 383	30	1066
Edmiston, John F., Edmistonville, N. C. Cotton-seed planter and cultivator	310,191	Jan. 6	42	12	30	11
Edsall, William E., Brooklyn, N. Y. Extension-bracket for curtain-poles	311,237	Jan. 27	1440	393	30	285
Edson, Julius T., assignor of one-half to H. W. White, Cleveland, Ohio. Fibrous-pulp roofing-tile	310,192	Jan. 6	43	13	30	11
Edwards, Benjamin J., London, county of Middlesex, England. Apparatus for coating photographic plates	314,811	Mar. 31	2412	638	30	1277
Edwards, Charles, Paris, France. Purifying metals	314,004	Mar. 17	1321	344	30	1039
Edwards, Evan A., Los Angeles, Cal. Oil-burner	314,922	Mar. 31	2565	678	30	1303
Edwards, Evan A., Los Angeles, Cal. Flame-deflector for vapor-burners	314,923	Mar. 31	2566	678	30	1303
Edwards, Luther R., Franklin, Va. Peanut-cleaner	312,617	Feb. 24	1585	434	30	668
Edwards, Oliver H., assignor, by mesne assignments, of one-half to F. H. McCoun, New York, N. Y. Stop-motion for knitting-machines	311,238	Jan. 27	1441	393	30	285
Edwards, William F., Covington, Ga. Cotton-gin rib	310,193	Jan. 6	44	13	30	11
Ege, Alexander H. (See Richardson, John T., assignor.)						
Ege, Alexander H. (See Walters, Charles D., assignor.)						
Ege, Frederick, assignor of one-half to A. Dondero, Detroit, Mich. Top-support for carriages	311,731	Feb. 3	350	97	30	415
Egells, Hermann, Berlin, Germany. Constructing lead vessels	310,300	Jan. 6	429	118	30	83
Egerton, Charles C., Baltimore, Md. assignor to O. J. Flagg. Carriage-standard	312,618	Feb. 24	1586	434	30	668
Eggert, Harry B., Bethlehem, Pa. Combined cigar-cutter and match-box	313,660	Mar. 10	848	220	30	945
Ehbets, Carl J., assignor to Colts Patent Fire Arms Manufacturing Company, Hartford, Conn. Safety-lock for fire-arms	311,732	Feb. 3	351	97	30	415
Ehret, Michael, Jr., Philadelphia, Pa. Manufacture of tarred paper	312,451	Feb. 17	1361	375	30	618
Ehrlich, Leo, St. Louis, Mo. Device to assist hearing	311,180	Jan. 27	1358	372	30	270
Ehrlich, Paul, Gahlis, near Leipsic, Saxony, Germany. Music-sheet for mechanical musical instruments	310,501	Jan. 6	430	118	30	83
Eichelberg, Leopold, Heidelberg, Germany. Coffin	310,202	Jan. 6	132	38	30	27
Eickemeyer, Rudolf. (See Dutton and Eickemeyer.)						
Eisenhower, Frank B. (See Eisenhower, Jonathan, assignor.)						
Eisenhower, Jonathan, assignor to F. B. Eisenhower, Philadelphia, Pa. Mold-box for paving and other blocks	312,899	Feb. 24	1871	512	30	719
Eisler, Marcus, assignor to M. Swoboda, New York, N. Y. Suspenders	311,111	Jan. 20	1251	343	30	245
Eitel, Henry, and J. E. Hunt, San Francisco, Cal. Device for raising and lowering window-sashes	312,262	Feb. 17	1007	303	30	567
Eldredge, Alonzo W., Big Rapids, Mich. Dental engine	313,411	Mar. 3	519	136	30	874
Eldridge, Charles A., *et al.* (See Vaughn and Eldridge, assignors.)						
Eldridge, Edward D. (See Vaughn and Eldridge.)						
Eldridge, Edward E., *et al.* (See Vaughn and Eldridge, assignors.)						
Eldridge, Frank N. (See Eldridge, Joseph W. and F. N.)						
Eldridge, Joseph W. and F. N., Stuart, Iowa. Adjustable railway frog and switch combined	312,619	Feb. 24	1586	434	30	668
Electrical Power Storage Company. (See Philippart, Simon, fils, assignor.)						
Electrical Power Storage Company. (See Swan, Joseph W., assignor.)						
Elgin National Watch Company. (See Smith and Folsom, assignors.) (Reissue.)						
Elkin, Charles. (See Longley and Elkin.)						
Ellacott, Joseph P., Chicago, Ill. Stirrup	313,484	Mar. 10	621	161	30	901
Ellacott, Joseph P., assignor to Union Brass Manufacturing Company, Chicago, Ill. Reclining-chair	311,882	Feb. 10	552	{151 152	30	459

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Ellington, Edward B. (See Johnson, William H., assignor.)						
Elliot, William H., New York, N. Y. Breech-loading fire-arm	314,570	Mar. 31	2076	555	30	1214
Elliott, Charles W., Moncton, New Brunswick, Canada, assignor of one-half to G. E. Mackintire, Melrose, Mass. Folding paper box	313,190	Mar. 3	927	56	30	818
Elliott, George L., New York, N. Y. Combined sash-fastener and sash-lift	313,580	Mar. 10	738	194	30	924
Elliott, James, Melville, N. Y. Well-tube	311,279	Jan. 27	1532	417	30	302
Elliott, James B., London, England. Unicycle-skate	314,812	Mar. 31	2414	638	30	1277
Elliott, John T., Grand Rapids, Mich. Water-proof compound	313,412	Mar. 3	590	.....	30	874
Elliott, King H., Burlington, Vt. Shovel step or guard	310,567	Jan. 13	524	143	30	106
Elliott, Lewis, assignor to L. Candee & Co., New Haven, Conn. Overshoe	314,560	Mar. 31	2075	554	30	1214
Elliott, Thomas B., Kemper, Ill. Grain and hay derrick and carrier	310,263	Jan. 6	133	38	30	27
Elliott, Thomas B., Kemper, Ill. Hay and grain derrick and carrier	314,321	Mar. 24	1734	462	30	1125
Elliott, William H., Texarkana, Tex. Wire basket	312,101	Feb. 10	866	237	30	517
Ellis, Albert C., *et al.* (See Johnston, James J., assignor.)						
Ellis, Millard F., assignor of one-half to A. F. Martin, Atchison, Kans. Brick for veneering frame houses and other wooden buildings	313,930	Mar. 17	1237	321	30	1022
Ells, Josiah W., Pittsburg, Pa. Device for making barbed strips for fences	310,394	Jan. 6	309	86	30	60
Ells, Josiah W., Pittsburg, Pa. Machine for making compound wire	310,805	Jan. 13	824	{223 224}	30	161
Ells, Josiah W., assignor to J. W. Friend, Pittsburg, Pa. Fire-fender	312,020	Feb. 24	1587	435	30	668
Ellsperman, Philip. (See Bolns and Ellsperman.)						
Ellwood, Isaac L., *et al.* (See Upham, Andrew J., assignor.)						
Elmer, William H., Berlin, Wis. Turbine water-wheel	314,171	Mar. 17	1540	403	30	1079
Elsey, George, Springfield, Mass. Toy spring-gun	313,413	Mar. 3	321	136	30	874
Elvin, Thomas C., Huntington, Ind. Car-wheel	312,263	Feb. 17	1097	303	30	567
Elwell, George W., and B. Fay, Danbury, Conn. Hat-sizing machine	311,572	Feb. 3	151	43, 44	30	377
Ely, Edward O., *et al.* (See Moulton, Luther V., assignor.)						
Ely, Edward O., Boston, Mass., assignor to Peninsular Novelty Company, Grand Rapids, Mich. Button-fastener	312,986	Feb. 24	2068	564	30	754
Ely, Edward O., Boston, Mass., assignor to Peninsular Novelty Company, Grand Rapids, Mich. Button-setting machine	312,987	Feb. 24	2069	565	30	754
Ely, Edward P., South Wallingford, Vt., assignor to A. H. Ritchie, New York, N. Y. Machine for the reduction of wood pulp	310,659	Jan. 13	638	176	30	127
Ely, Mary C. (See Ely, Ralph, assignor.)						
Ely, Ralph, assignor to M. C. Ely, Delaware, Ohio. Hook	311,968	Feb. 10	690	189	30	484
Ely, Theodore N., and J. W. Cloud, Altoona, Pa. Refrigerator-car	312,836	Feb. 24	1871	512	30	719
Embrey, Robert, assignor of one-half to S. Landes, North Lewisburg, Ohio. Register for billiards	311,300	Jan. 27	1533	417	30	302
Embury, Holloway P. (See Johnson, Josee, assignor.)						
Emerson, Charles W., Charlestown, Mass. Hanging door	314,005	Mar. 17	1322	345	30	1040
Emerson, Cyrus J., Jr. (See Lakin and Emerson.)						
Emerson, James, Willimansett, Mass. Steam-heating apparatus for railway-cars	314,006	Mar. 17	1323	345	30	1040
Emerson, James, Willimansett, Mass. Steam-valve connection for railway-cars	314,007	Mar. 17	1325	{345 346}	30	1040
Emerson, James E., Beaver Falls, Pa. Insertible saw-tooth	311,301	Jan. 27	1534	417	30	302
Emery, Charles E., Brooklyn N. Y. Tube-joint	310,264	Jan. 6	135	39	30	27
Emery, John J., South Thomaston, Me. Mechanism relating to chain-stoppers and windlasses of navigable vessels	311,573	Feb. 3	153	44	30	377
Emery, Lowell M., Leavenworth, Ind., assignor of one-half to G. T. Craven, Cincinnati, Ohio. Medical still or vapor-generator	310,568	Jan. 13	524	144	30	106
Emmert, Ezra, Dixon, Ill. Road-cart	313,485	Mar. 10	621	162	30	901
Emmert, Jesse A., and L. P. Klutts, Montrose, Mo. Mechanical motor	314,441	Mar. 24	1893	505	30	1156
Emmick, Andrew C. (See Hatcher, Edmund N., assignor.)						
Emmons, Wallace B., Pettisville, Ohio. Bag-holder	314,571	Mar. 31	2078	555	30	1215
Endres, John J., Hoboken, N. J. Grip attachment for railway-cars	312,711	Feb. 24	1710	470	30	690
England, James, assignor to I. S. McGlehan, New York, N. Y. Belt-coupling	311,983	Feb. 10	554	152	30	460
Enos, John A., Peabody, Mass. Tranacycle	310,263	Jan. 6	133	38	30	27
Enos, John R., Buffalo Hart, Ill. Reel for check-rower ropes	311,112	Jan. 20	1255	344	30	245
Enterprise Manufacturing Company of Pennsylvania. (See Asbury, T. Henry, assignor.)	311,302	Jan. 27	1536	418	30	302
Erickson, Gustaf, and W. Lindblom, Des Moines, Iowa. Medicine for croup, diphtheria, &c.	311,884	Feb. 10	555	.....	30	460
Ermold, Edward. (See Bannwart and Ermold.)						
Ervin, Charles and E. E., Princeton, Ind. Traction-engine	314,924	Mar. 31	2567	679	30	1303
Ervin, Edward E. (See Ervin, Charles and E. E.)						
Eschner, Louis, Philadelphia, Pa. Neck-wear retainer	310,660	Jan. 13	639	176	30	127
Eschner, Louis, Philadelphia, Pa. Neckscarf shield and pin	312,102	Feb. 10	867	237	30	518
Esselen, Henry M. (See Fulsom, George F., assignor.)						
Estelle, Charles W., Valparaiso, Ind. Gate	312,621	Feb. 24	1589	435	30	669
Estep, Harrison, Pittsburg, Pa. Furnace for annealing and flattening glass	314,924	Mar. 24	2011	536	30	1175
Estes, William A., Vassalborough, Me. Plow	312,559	Feb. 17	1514	413	30	645
Estienne, Edouard, Paris, France. Morse register	314,525	Mar. 24	2013	{536 537 538}	30	1176
Etheridge, Freeman, Bradford, Pa. Measure-spout	313,191	Mar. 3	228	57	30	818
Euston, Alexander, and J. P. Neville, St. Louis, Mo. Boxing lead pipe	312,103	Feb. 10	867	237	30	518
Evans, Austin C., Springfield, Ohio. Drilling attachment for corn-planters	311,574	Feb. 3	154	44	30	377
Evans & Co., Thomas. (See Evans, Thomas, assignor.)						
Evans, James W., assignor of one-third to B. S. Clark, New York, N. Y. Combined fire-escape ladder and ventilating-fine	311,239	Jan. 27	1442	393	30	286
Evans, John, assignor to W. H. Hoover, New Berlin, Ohio. Pad for horse-collars	313,714	Mar. 10	914	232	30	957
Evans, John, assignor to W. H. Hoover, New Berlin, Ohio. Horse-collar	313,715	Mar. 10	915	232	30	957
Evans, Lemuel E., East Orange, N. J. Bale-tie	310,502	Jan. 6	431	119	30	84
Evans, Thomas, Providence, R. I. Damper-regulator	310,569	Jan. 13	526	144	30	107
Evans, Thomas, Providence, R. I. Feed-water heater	310,570	Jan. 13	528	145	30	107
Evans, Thomas, assignor to T. Evans & Co., Pittsburg, Pa. Lamp	313,192	Mar. 3	229	57	30	819
Evans, Thomas P., Philadelphia, Pa. Strap-buckler and wrench combined	311,423	Jan. 27	1706	464	30	334
Evans, Thomas S., and E. H. Blissett, Winnipeg, Manitoba, Canada. Stove-pipe elbow	313,858	Mar. 17	1122	291	30	1002
Evans, Walter N. (See Hazelton, Milton, W., assignor.)						
Evans, William D., Philadelphia, Pa. Razor-strop	312,104	Feb. 10	868	238	30	518
Everts, John A., assignor to Bradley & Hubbard Manufacturing Company, Meriden, Conn. Extension-lamp	312,194	Feb. 10	1006	274	30	542
Everett, John C., Williamsport, Pa., and R. Hardie, Hoboken, N. J. Machine for bundling kindling-wood	311,424	Jan. 27	1707	465	30	334
Ewer, James B., Wellsville, Kans. Concentric rotary engine	311,240	Jan. 27	1443	{393 394}	30	286

Alphabetical list of patentees, January to March, inclusive—Continued.

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Ewing, Edward, assignor to R. E., J. V., and H. O. Hastings, Philadelphia, Pa. Booking gold-leaf	311,923	Feb. 3	465	.....	30	436
Ewing, Mary R., Pataskala, assignor of one-half to S. J. McCord, Portsmouth, Ohio. Hammock	312,668	Feb. 24	2072	565	30	755
Ewing, Reuben H., Promise City, assignor of one-half to J. A. and W. J. Wolfinger, Wayne County, Iowa. Cultivator	310,806	Jan. 13	896	224	30	162
Faber, Louis, Washington, D. C. Refrigerator for preserving oysters, clams, &c	310,886	Jan. 20	926	253	30	187
Fabian, Wilhelm, and A. Teller, Hamburg, Germany. Knife-cleaning apparatus	314,658	Mar. 31	2193	{581 582}	30	1235
Fabing, Peter M., and J. Ackermann, Roxbury, Wis. Fanning-mill	311,733	Feb. 3	353	97	30	415
Fahnehjelm, Otto B., Stockholm, Sweden. Incandescent light	312,452	Feb. 17	1362	376	30	618
Fahrig, Frank E., Scranton, Pa. Steam and air injector for furnaces	314,925	Mar. 31	2568	679	30	1303
Faile, Charles V. (See Chilton, William W. and F. H., assignors.)						
Fairbanks, E. and T. (See Miller, Charles C., assignor.)						
Fairbrother, Harley, Conneaut, Ohio. Machine for dressing saw-teeth	313,581	Mar. 10	740	195	30	924
Fairbrother, Henry L., *et al.* (See Hull, Richard L., assignor.)						
Fairchild, Le Roy W. (See Collard, Richard M., assignor.)						
Fairchild, Le Roy W., New York, N. Y. Button-hook	312,622	Feb. 24	1589	435	30	669
Falvre, Alexise Ca Meadville, Pa. Link for clothes or harness	312,105	Feb. 10	869	238	30	518
Fajen, Gustav, Milwaukee, Wis. Gas-meter	312,106	Feb. 10	869	238	30	518
Falconnet, Eugene F., Nashville, Tenn. Vessel for aerial navigation	311,885	Feb. 10	555	{152 153}	30	460
Falconnet, Eugene F., Nashville, Tenn. Vessel for aerial navigation	311,886	Feb. 10	559	{153 154}	30	461
Falconnet, Eugene F., Nashville, Tenn. Vessel for aerial navigation	311,887	Feb. 10	563	{154 155}	30	461
Falconnet, Eugene F., Nashville, Tenn. Vessel for aerial navigation	311,888	Feb. 10	568	{155 156 157 158}	30	462
Falconnet, Eugene F., Nashville, Tenn. Vessel for aerial navigation	312,344	Feb. 17	1219	336	30	590
Falls Rivet Company. (See Babcock, Erskine L., assignor.)						
Farmer, James, Salford, county of Lancaster, England, and A. Lalance, Mulhausen, Germany. Apparatus for bleaching and dyeing	313,306	Mar. 3	392	97	30	848
Farmer, Moses G., New York, N. Y. Movement-cure apparatus	310,305	Jan. 6	310	86	30	60
Farmer, Moses G., Newport, R. I. Apparatus for manufacturing compound telegraph-wire	310,903	Jan. 20	1086	297	30	215
Farmer, Moses G., Newport, R. I. Apparatus for coating wire with metal	310,904	Jan. 20	1087	297	30	215
Farmer, Moses G., Newport, R. I. Manufacturing compound telegraph-wire	310,905	Jan. 20	1088	298	30	215
Farmer, Moses G., Newport, R. I. Flexible shaft	312,241	Feb. 10	1065	293	30	553
Farmer, Moses G., Newport, R. I. Repeater for submarine cables	312,831	Feb. 24	1872	513	30	719
Farmers Friend Manufacturing Company *et al.* (See Runstetler, Michael and A., assignors.)						
Farra, Lorenzo D., assignor of one-half to H. F. McCann, Philadelphia, Pa. Machine for rolling irregular forms	312,107	Feb. 10	870	238	30	518
Farrar, Eugene W. (See Anderson, Charles, assignor.)						
Farrar, Isaac, and J. A. Powers, Boston, Mass., assignors, by mesne assignments, to said Isaac Farrar. Fire escape	311,889	Feb. 10	577	158	30	464
Farrell, Robert W., Wheatland, Ind. Railway-switch	310,396	Jan. 6	311	86	30	60
Faught, Luther R., Philadelphia, Pa. Boring-bar	311,652	Feb. 3	254	71	30	396
Faulkner, James D., Colburn's Store, N. C. Cotton-chopper	312,108	Feb. 10	871	239	30	519
Faulkner, Katie. (See Weber, Theodore A., assignor.)						
Fawell, Joseph. (See Holden, Burnley, and Fawell.)						
Fay, Bernard. (See Elwell and Fay.)						
Fay, James J., New Bedford, Mass. Cuff-fastener	312,109	Feb. 10	872	239	30	519
Feast, John, Sr., Baltimore, Md. Cultivator	311,303	Jan. 27	1537	418	30	303
Fechheimer, Sigmund, New York, N. Y. Shirt and necktie fastener	310,661	Jan. 13	640	176	30	128
Fefel, Henry H., assignor of three fourths to H. Brooks, Philadelphia, Pa. Sewing-machine trimmer	311,734	Feb. 3	354	97, 98	30	415
Fell, Thomas M., Brooklyn, assignor to United States Steam Specialty Company, New York, N. Y. Relief-valve for steam-engine cylinders	310,935	Jan. 20	1001	271	30	198
Felton, Benjamin W., Boston, Mass. Hot-air furnace	313,065	Mar. 3	39	10	30	785
Fenner, George P., New London, Conn. Printing-press	311,735	Feb. 3	355	98	30	416
Fenner, Obadiah B., Oakland, Cal. Rowlock	314,679	Mar. 31	2194	582	30	1235
Ferer, James W., assignor of one-third to A. E. Weil, Renova, Pa. Baluster	310,807	Jan. 13	827	224	30	162
Ferguson, Thomas M., Sacarnochee, Miss. Horse-detacher	310,808	Jan. 13	828	224	30	162
Ferguson, John W., Sardis, Miss. Car-coupling	312,110	Feb. 10	873	239	30	519
Fernandez, Filomeno. (See Mason and Fernandez.)						
Ferrier, Francis, Vallejo, Cal. Roller-mill	312,623	Feb. 24	1590	435	30	669
Ferrin, Eaton E., Beverly, Mass. Ventilating the hull of a navigable vessel	313,066	Mar. 3	40	10	30	785
Ferris, Sherwood B., Lakewood, N. J. Stocking or garment supporter	314,813	Mar. 31	2415	638	30	1277
Fertig, John T., Denver, Colo. Belt-tightener	312,989	Feb. 24	2073	565	30	755
Fessler, Walter W., New York, N. Y. Sleeping-car	310,809	Jan. 13	829	225	30	162
Fessy, Jean B. Saint-Etienne, Loire, France. Bleaching paper-pulp, &c	311,425	Jan. 27	1709	465	30	334
Fiegenbaum, Edward W., Edwardsville, Ill. Fire-escape	314,287	Mar. 24	1691	451	30	1117
Field, Horace T., assignor of one-half to C. W. Hodgdon, Boston, Mass. Movement-indicator	310,860	Jan. 13	890	241	30	174
Field, James A., St. Louis, Mo. Grinding-mill	314,370	Mar. 24	1803	479	30	1178
Field, Osmond H., Kiantone, N. Y. Sulky-plow	311,736	Feb. 3	356	98, 99	30	416
Field, Stephen D. (See Healy, Clarence L., assignor.)						
Fielding, John. (See Tweddell, Platt, and Fielding.)						
Fields, Charles C., Bristol, Tenn. Welding compound	313,716	Mar. 10	916	.....	30	957
Fillebrown, Jairus A. (See Fillebrown, Gray, and Fillebrown.)						
Fillebrown, Luther W., S. S. Gray, and J. A. Fillebrown, Piqua, Ohio; said L. W. and J. A. Fillebrown assignors to said Gray. Wire-fence machine	314,442	Mar. 24	1894	506	30	1156
Filley, Horace A., Jackson, Mich. Gate	312,832	Feb. 24	1876	514	30	720
Finch, John M., Jackson, Mich. Roller-mill	313,816	Mar. 10	1055	{271 272}	30	982
Finley, William L., Washington, D. C. Ink-eraser	313,717	Mar. 10	916	238	30	957
Firm, Joseph L. (See Crane and Firm.)						
Fischbach, Wilhelm. (See Peschel, Alexander, assignor.)						
Fischer, F. Louis, Pittsburg, Pa. Adjustable holder for pens, pencils, &c	311,181	Jan. 27	1359	372	30	271
Fischer, Wilhelm, and R. Dasek, Vienna, Austria-Hungary. Machine for making bolts, rivets &c	311,909	Feb. 10	691	{189 190}	30	484
Fish, Washington I., Amboy, Ill. Attachment for cultivators	311,970	Feb. 10	695	190	30	484

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Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Fish, William A., *et al.* (See Reagles, Isaac V., assignor.)						
Fisher, Charles, Manitowoc, Wis. assignor to International Store Service Company. Store-service apparatus	314,814	Mar. 31	2416	639	30	1277
Fisher, Charles, Manitowoc, Wis. assignor to International Store Service Company. Store-service apparatus	314,815	Mar. 31	2417	639	30	1278
Fisher, Charles A. (See Wright and Fisher.)						
Fisher, Charles A., Calvert, Tex. Oil-tank	314,233	Mar. 24	1615	427	30	1103
Fisher, Clark, Trenton, N. J. Rail-joint	313,067	Mar. 3	41	11	30	785
Fisher, Frank E., Detroit, Mich. Induction-coil	314,816	Mar. 31	2419	639	30	1278
Fisher, Frank E., assignor to Detroit Electrical Works, Detroit, Mich. Mechanism for operating telephone night-bells	314,817	Mar. 31	2420	639 / 640	30	1278
Fisher, Frank E., assignor to Detroit Electrical Works, Detroit, Mich. Telephone-line switch	314,818	Mar. 31	2422	640	30	1278
Fisher, Frank E., assignor to Detroit Electrical Works, Detroit, Mich. Talking-strap for telephone switch-boards	314,819	Mar. 31	2423	640	30	1279
Fisher, John J., Cleveland, Ohio, and J. A. Herrick, New York, N. Y., said Fisher assignor of one-third to said Herrick. Machine for making tubes	311,477	Feb. 3	22	6	30	353
Fisher, Melissa C., Long Prairie, Minn. Stove-hood	312,712	Feb. 24	1711	470	30	691
Fisher, Noble A., Sacramento, Cal. Clutch for cable railways	310,397	Jan. 6	343	87	30	61
Fisher, Peter, Oak Creek, Wis. Horse-power motor	311,737	Feb. 3	358	99	30	416
Fisher, Robert A., Philadelphia, Pa. Disinfectant	314,820	Mar. 31	2423	.....	30	1279
Fisher, Stephen D., Chicago, Ill. Furnace-grate	311,971	Feb. 10	696	191	30	494
Fishkill Manufacturing Company. (See Cotton and Howes, assignors.)						
Fisk, Asa S., Stevensville, Pa. Stove-hood	310,398	Jan. 6	313	87	30	61
Fisk, Redford W., Council Grove, Kans. Churn-dasher	314,322	Mar. 24	1736	462	30	1126
Fitch Electric Lighting and Construction Company. (See Fitch, Frederick K., assignor.)						
Fitch, Frederick K., *et al.* (See Cardwell, George A., assignor.)						
Fitch, Frederick K., assignor to Fitch Electric Lighting and Construction Company, New York, N. Y. Armature for dynamo-electric machines	312,111	Feb. 10	874	239	30	519
Fitch, John M., Detroit, Mich. Adjustable support for telephone-receivers	314,371	Mar. 24	1664	460	30	1139
Fitt, Frederick, Chaux-de-Fonds, Neuchâtel, Switzerland. Stop-watch	310,936	Jan. 20	1003	272	30	198
Fitt, Frederick, Chaux-de-Fonds, Neuchâtel, Switzerland. Watch-movement box	310,937	Jan. 20	1006	272	30	199
Fitzgibbons, Patrick, Oswego, N. Y. Steam-boiler	313,307	Mar. 3	393	98	30	848
Fitzgerald, Daniel H., Reading, Pa. Reversible latch	311,575	Feb. 3	157	45	30	378
Fitzsimmons, Thomas, Burlington, Vt. Cutter-head	310,571	Jan. 13	529	145	30	107
Fitzsimons, Thomas A., San Francisco, Cal. Automatic feeding and wick-raising lamp	311,972	Feb. 10	697	191	30	495
Flack, William S. (See Hall, Henry, assignor.)						
Flad, Henry, St. Louis, Mo. Velocimeter for water-currents	314,323	Mar. 24	1737	463 / 464 / 465	30	1126
Fladd, Frederick C., assignor to Stiles & Parker Press Company, Middletown, Conn. Sprue-cutter	311,738	Feb. 3	359	99	30	416
Flagg, Frank E., New York, N. Y. Suspenders	310,399	Jan. 6	315	87	30	61
Flagg, Othello J. (See Egerton, Charles C., assignor.)						
Flaig, Oskar, Cincinnati, Ohio. Combined coat-collar and hood	314,660	Mar. 31	2195	582	30	1235
Flanagan, Thomas, Burritt, Ill. Staple-extractor	314,116	Mar. 17	1471	384	30	1067
Flanaburgh, Anthony, Saratoga Springs, N. Y. Grapple for lifting and moving barrels	311,478	Feb. 3	93	7	30	353
Flater, Henry, assignor of one-half to W. L. Carlin, Findlay, Ohio. Saw-vise	311,241	Jan. 27	1445	394	30	226
Fleming, Peter F., Huntsville, Mo. Hay-elevator	310,810	Jan. 13	829	225	30	162
Flynn, John, Omaha, Nebr. Box	312,713	Feb. 24	1712	471	30	691
Fo, Yee, Grand Lake, La. Preserving shrimps	310,811	Jan. 13	841	.....	30	163
Fogarty, James H., New York, N. Y. Steam-trap	310,400	Jan. 6	316	87	30	61
Foley, John A., assignor to himself and S. Domroe, New York, N. Y. Railway-rail joint	313,661	Mar. 10	849	221	30	945
Folger, Jacob, Toledo, Ohio. Refrigerator, ice-box, and cool storage-room	313,308	Mar. 3	394	98	30	848
Folsom, George F., assignor to H. M. Esselen, Boston, Mass. Signal-staff	314,724	Mar. 24	1746	465	30	1127
Folsom, Henry P., Brooklyn, N. Y. Machine for calking boilers	310,812	Jan. 13	831	225	30	163
Folsom, Rufus. (See Smith and Folsom.) (Reissue.)						
Fonerden, Clarence A., New York, N. Y. Sprinkling-box	313,718	Mar. 10	917	239	30	957
Fontaine, Clarence A., New York, N. Y. Picture-mat	314,008	Mar. 17	1327	346	30	1041
Fontaine, Herman A., Auburn, N. Y. Harness-pad	314,821	Mar. 31	2426	640	30	1279
Fontaine, Herman A., and T. A. Kosters, assignors to Hayden & Boyd, Auburn, N. Y. Strap-loop connection for harness	313,582	Mar. 10	742	193	30	925
Foos Manufacturing Company. (See Winchell, James F., assignor.)						
Foote, George B., Helena, Mont. Ter. Nut-arbor	311,479	Feb. 3	24	7	30	353
Foote, Isaac N., Middletown, Ohio. Tuyé-pad	311,739	Feb. 3	360	99	30	417
Forbes, Alexander D., Rockford, Ill. Clevis	314,443	Mar. 24	1696	507	30	1153
Forbes, John, Halifax, Nova Scotia, Canada. Seal-lock for car-doors	314,009	Mar. 17	1328	346	30	1041
Force, Albert W., Ithaca, N. Y., assignor to J. W. Hallenback, Wilkes-Barré, Pa. Horse hay-rake	312,453	Feb. 17	1364	336	30	618
Ford, Franklin D., assignor of one half to C. S. Sweetland, Providence, R. I. Making barbed fences	310,813	Jan. 13	833	226	30	163
Ford, Franklin D., assignor of one-half to C. S. Sweetland, Providence, R. I. Barbed-wire fence	311,426	Jan. 27	1710	465	30	334
Ford, Franklin D., assignor of one-half to C. S. Sweetland, Providence, R. I. Barbed-wire fence	311,740	Feb. 3	361	100	30	417
Ford, Franklin D., assignor of one-half to C. S. Sweetland, Providence, R. I. Barbed-wire fence	312,454	Feb. 17	1365	377	30	618
Ford, George T. (See Eberhard, William, assignor.)						
Ford, Jarvis O., assignor of one-half to F. R. Slocum, Hartford, Conn. Trunk-catch	312,195	Feb. 10	1007	274	30	542
Ford, John K. (See Winans, Herman W., assignor.)						
Ford, William S., Louisville, Ky. Press	311,824	Feb. 3	466	126 / 127	30	436
Foreacre, Green J., *et al.* (See Phillips, Columbus, assignor.) (Reissue.)						
Forhan, John, New York, N. Y. Blind-tenon	313,859	Mar. 17	1122	291	30	1002
Forister, John H., Flatonia, Tex. Motor	312,990	Feb. 24	2074	565	30	755
Forrest, James, Grand Forks, Dak. Ter. Measuring, sacking, and registering attachment for grain-separators	310,503	Jan. 6	432	119	30	84
Forrester, Abraham M., Racine, Wis. Feed-cutter	313,662	Mar. 10	850	231	30	945
Forshaw, Joseph and N., St. Louis, Mo. Gasoline-stove attachment	311,182	Jan. 27	1360	373	30	271
Forshaw, Nathan. (See Forshaw, Joseph and N.)						
Forshey, Jonathan, and C. G. Hirlinger, Philipsburg, Pa. Wrench	314,572	Mar. 31	2079	555	30	1215
Foskett, William A., New Haven, Conn. Steam-trap	311,113	Jan. 20	1256	344	30	246
Foster, Charles H., Alameda, Cal. Double-acting submerged pump	314,117	Mar. 17	1472	384	30	1067
Foster, David A., Dublin, Ind. Step-ladder	314,118	Mar. 17	1473	384	30	1067

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
			Spec.	Drg.	Vol.	Page.
Foster, Hickman E., Decatur, Ill. Boat-detaching apparatus	312,714	Feb. 24	1713	471	30	691
Foster, Michael A., St. Louis, Mo. Grate bar attachment for furnaces	310,194	Jan. 6	46	13	30	11
Foster, Rolon E., Milford, Mass. Cork sole for boots or shoes	313,817	Mar. 10	1056	272	30	992
Foster, Samuel L. (See Tallman, Michael R., assignor.)						
Foster, Theodore W., Providence, R. I. Jewelry manufacture	312,833	Feb. 24	1877	514	30	720
Foster, Thomas J., Shenandoah, Pa., assignor to G. W. Gail, E. Schneisser, and C. Ax, Baltimore, Md. Squib, match, and touch-paper safety-box	311,183	Jan. 27	1361	373	30	271
Fougeres, Louis F., *et al.* (See Blair, George W., assignor.)						
Foulds, William, *et al.* (See Walter, Henry C., assignor.)						
Foulos, Thomas H., *et al.* (See Dalton, William D., assignor.)						
Fowle, John C., J. P. Christopher, and W. P. Smith, Michigamme, Mich. Mine-railway	314,010	Mar. 17	1329	347	30	1041
Fowler, Hervey W., Chicago, Ill. Driving and reversing gear	310,265	Jan. 6	137	39	30	28
Fox, Melchior, Eau Claire, Wis. Water-closet seat	310,401	Jan. 6	318	88	30	62
Fox, Philo L., Bridgeport, Conn. Lock-mortising chisel	314,011	Mar. 17	1330	347	30	1041
Fox, Samuel, 110 Gloucester Place, county of Middlesex, England. Apparatus for annealing wire and metal in other forms	310,402	Jan. 6	318	88	30	62
Fraley, William K., Forest Hill, Ind. Carriage-spring	311,069	Jan. 20	1192	327	30	235
Francis, Lewis G., La Grange, Ill. Gas-pressure regulator	312,560	Feb. 17	1516	413	30	646
Francy, John, Toronto, Ohio. Manufacture of wall-coping	313,563	Mar. 10	743	196	30	925
Franklin, Henry H., Chattanooga, Tenn. Grooving and seaming machine	314,822	Mar. 31	2426	641	30	1278
Franklin, William B., assignor to Colts Patent Fire Arms Manufacturing Company, Hartford, Conn. Magazine fire-arm	314,823	Mar. 31	2428	641 / 642	30	1279
Fraser, David R., Chicago, Ill. Rock and ore crushing machine	313,818	Mar. 10	1057	272 / 273	30	992
Frazee, Lawrence F., Jersey City, N. J. Gang-plank for ferry-boats	313,663	Mar. 10	851	221	30	945
Frazee, Lawrence F., Jersey City, N. J. Gang-plank for vessels	314,325	Mar. 24	1747	465	30	1127
Frazey, Guy S., Jersey City, N. J. Device for milking cows	312,834	Feb. 24	1877	514	30	720
Frazey, Guy S., Jersey City, N. J. Milk-cooler	313,309	Mar. 3	396	98	30	849
Frazey, Guy S., Jersey City, N. J. Creaming-can	313,310	Mar. 3	397	99	30	849
Frazier, George C., Allegheny, assignor to Hamilton, Lemmon, Arnold & Co., Pittsburg, Pa. Coffin-handle	313,819	Mar. 10	1059	273	30	992
Frazier, James C., Vassar, Mich. Flour-bolt	310,572	Jan. 13	530	145 / 146	30	107
Frear, Moses, assignor of one-half to R. Snyder, Rosendale, N. Y. Vehicle running-gear	313,486	Mar. 10	623	162	30	902
Fréchette, Isaie, St. Hyacinthe, Quebec, Canada. Lubricator	311,576	Feb. 3	158	45	30	378
Freeman, Alonzo, Concord, Mass. Reversing-valve for steam-engines	311,890	Feb. 10	578	158	30	464
Freeman, Alva M., and J. B. Overmeyer, Chicago, Ill. Suspenders	312,264	Feb. 17	1008	303 / 304	30	568
Freeman, Benjamin S., Jr., and E. L. Robinson, assignors to B. S. Freeman & Co., Attleborough Falls, Mass. Ornamental chain	311,114	Jan. 20	1257	344	30	246
Freeman & Co., B. S. (See Freeman and Robinson, assignors.)						
Freeman, Cornelia T., Elizabeth, N. J. Guide-setter for sewing-machines	312,196	Feb. 10	1008	275	30	542
Freeman, H. K. (See Redington, William H., assignor.)						
Freeman, John M., Steubenville, Ohio. Terra-cotta pavement	310,662	Jan. 13	641	177	30	128
Freeman, Thomas R., *et al.* (See Allen, Samuel F., assignor.)						
Freeman, Warren P., New York, N. Y. Electric-arc lamp	313,487	Mar. 10	624	162	30	902
Freeman, Warren P., New York, N. Y. Dynamo-electric machine	313,488	Mar. 10	625	162	30	902
Freeman, Warren P., New York, N. Y. Commutator for dynamo-electric machines	313,489	Mar. 10	626	163	30	902
Freeman, William P. (See King, John D., assignor.)						
Freese, John S., Brooklyn, N. Y. Button-hole sewing-machine	314,444	Mar. 24	1697	507	30	1157
Frega, Guiseppe, Philadelphia, Pa. Cutting and fitting garments	314,526	Mar. 24	2015	578	30	1176
Freidel, George A., and J. D. Clough, Cleveland, Ohio. Barrel-making machine	314,926	Mar. 31	2569	679 / 680	30	1304
French, Frank L., Meriden, N. H. Adjustable axle-nut	313,311	Mar. 3	399	99	30	849
Frenier, Joseph, La Porte, Ind. Wheel	313,931	Mar. 17	1238	322	30	1023
Frenyear, Thomas C., *et al.* (See Lane, Frederick, assignor.)						
Freschi, Alfred, Detroit, Mich. Burial-casket drapery	313,820	Mar. 10	1060	273	30	992
Freund, George, Durango, Colo. Knife for miners	313,414	Mar. 3	522	137	30	875
Frick, Abraham O., Waynesborough, Pa. Road-engine	314,172	Mar. 17	1541	403	30	1079
Frick, Abraham O., Waynesborough, Pa. Making metallic suspension-wheels by casting	314,173	Mar. 17	1542	403	30	1079
Frick, Charles W., Hecker, Ill. Evaporating pan and furnace	310,403	Jan. 6	320	88	30	62
Fricke, Joseph R., Pittsburg, Pa. Lightning-conductor	311,115	Jan. 20	1238	345	30	246
Friedenthal, Albert, New York, N. Y. Show-tray for rings	312,835	Feb. 24	1879	514	30	720
Friend, James W. (See Ells, Josiah W., assignor.)						
Friend, Samuel, Decatur, Ill. Splint for baskets, &c	312,197	Feb. 10	1009	275	30	542
Friess, Edvard, Louisville, Ky. Molder's flask	314,927	Mar. 31	2571	680	30	1304
Fröhlich, Ferdinand, New York, N. Y. Fire-extinguishing compound	310,404	Jan. 6	321	.....	30	62
Frossard, Joseph, assignor to Dubail, Mounin, Frossard et Cie., Porentruy, Switzerland. Machine for turning watch-cases	312,198	Feb. 10	1010	275	30	543
Frost, Charles H. (See Burkman, Walfrid, assignor.)						
Frost, Edward J. (See Thomas and Frost.)						
Frost, Edward J., Philadelphia, Pa. Carburetor	312,836	Feb. 24	1879	515	30	720
Frost, George, West Newton, assignor of two-thirds to G. H. Phelps and G. A. Frost, Newton, Mass. Clasp or fastening	310,504	Jan. 6	433	119	30	84
Frost, George, assignor of two-thirds to G. A. Phelps and G. A. Frost, Newton, Mass. Sleeve-supporter	313,584	Mar. 10	745	196	30	925
Frost, George A., *et al.* (See Frost, George, assignor.)						
Frost, Roger P., Fitchburg, Mass. Wick-adjuster for oil-stoves	314,928	Mar. 31	2572	680	30	1304
Frost, Walter S., London, England. Glove-fastener	310,573	Jan. 13	532	146	30	108
Froude, Richard H. (See Heenan and Froude.)						
Fry, Charles H., Jr., Wheeling, W. Va., assignor of one-half to C. M. Rhodes, Bridgeport, Ohio. Spinning-top	310,574	Jan. 13	533	146	30	108
Fuller, Harrie E., Fredonia, Kans. Sifter for flour, &c	310,405	Jan. 6	321	88	30	62
Fuller, Isaac Y., *et al.* (See Reagles, Isaac V., assignor.)						
Fuller, Jacob C. (See Norton and Rouse, assignors.)						
Fuller, Nason H., and H. S. Hallock, Menlo, Iowa. Fence-wire coupling	311,480	Feb. 3	25	7	30	353
Fuller & Warren Company. (See Wolfe, Gurdon G., assignor.)						
Fullman, George, Denver, Colo. Apparatus for interlocking switches and signals	313,585	Mar. 10	745	196 / 197	30	925
Fulton, Sydney W., West Taieri, near Dunedin, New Zealand. Fence-wire strainer	310,505	Jan. 6	434	119	30	84
Funk, Solomon, Spirit Lake, Iowa. Weather-strip	311,825	Feb. 3	468	127	30	437
Furman, Charles E., New York, N. Y. Illuminating-tile for sidewalks, roofing, &c	311,891	Feb. 10	580	159	30	464
Furnell, William P., Silver Hill, W. Va. Ballot-box	310,506	Jan. 6	435	120	30	84

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Fuss, Harry S. (See Snyder, Benjamin F., assignor.)						
Fussell, Mordecai T., New York, N. Y. Packing and preserving ice-cream	310,266	Jan. 6	141	.....	30	28
Fye, Theodore H. (See Belknap and Fye.)						
Gacon, Adrien, Paris, France. Blasting-powder	314,824	Mar. 31	2433	.....	30	1280
Gage, Wellesley W., Yonkers, N. Y. Discharge and waste pipe protector	313,068	Mar. 3	42	11	30	786
Gagnier, Barney J., Detroit, Mich. Wash-boiler	311,070	Jan. 20	1193	328	30	235
Gaiger, Robert, West Hoboken, N. J. Rubber-stamp hand-printing machine	312,455	Feb. 17	1366	377	30	618
Gail, George W., *et al.* (See Foster, Thomas J., assignor.)						
Galatian, Erwin A., and J. B. Tarta, South Westerlo, N. Y. Thill-coupling	312,112	Feb. 10	876	240	30	529
Gale, Frank A., Lowell, Mass. Condensing-engine	310,575	Jan. 13	534	147	30	108
Calentine, Allen S., assignor of one-half to F. M. Axe, Valparaiso, Ind. Stem-winder mechanism for watches	314,288	Mar. 24	1692	451	30	1117
Gallacher, James I. (See Meredith, Gallacher, and Jones.)						
Gallagher, Bernard, Lynn, Mass. Rail-fastening device	311,162	Jan. 20	1321	363	30	257
Gallagher, Christopher. (See Briscoe and Gallagher.)						
Galland, Berthold, *et al.* (See West, Jonathan B., assignor. (Reissue.)						
Galloway, George A., Le Claire, Iowa. Boiler-cleaner	314,326	Mar. 24	1747	465	30	1127
Galloway, James B., *et al.* (See Tuerk, Samuel, assignor.)						
Galloway, James W., assignor to Stout, Mills & Temple, Dayton, Ohio. Roller-mill	313,312	Mar. 3	400	99	30	849
Galloway, Thomas D., Oshawa, Ontario, Canada. Spring-hoe attachment for seeding-machines	313,719	Mar. 10	918	239	30	958
Galit, William T., Port Byron, N. Y. Shirt-lace	314,661	Mar. 31	2195	583	30	1235
Gallup Novelty Works. (See Gallup, William H., assignor.)						
Gallup, Silas N. (See Corner, E. Jay, assignor.)						
Gallup, William H., assignor to Gallup Novelty Works, Troy, N. Y. Apparel-collar	311,184	Jan. 27	1362	373	30	271
Gally, Merritt, New York, N. Y. Mechanical musical instrument	314,012	Mar. 17	1331	347	30	1041
Gally, Merritt, New York, N. Y. Organ-reed	314,234	Mar. 24	1616	427	30	1103
Gally, Merritt, New York, N. Y. Organ-reed	314,235	Mar. 24	1617	428	30	1103
Galt, Thomas A., *et al.* (See Johnson, William F., assignor.)						
Gandy, Maurice, Liverpool, county of Lancaster, England. Belt	311,242	Jan. 27	1446	394	30	286
Gandy, Maurice, Liverpool, England. Belt for driving machinery	313,069	Mar. 3	43	11	30	786
Gandy, Maurice, Liverpool, England. Machine for the manufacture of belting	314,825	Mar. 31	2434	{642 {643	30	1280
Gannaway, Edward, Nashville, Tenn. Automatic electrical cut-off	313,313	Mar. 3	401	99	30	850
Gannaway, Moning R., Unionville, Tenn. Fruit-jar	314,289	Mar. 24	1693	451	30	1117
Gano, Merritt W., *et al.* (See Prentiss, Frank S. R., assignor.)						
Gantner, William H., Pittsburg, Pa. Measure for liquids	311,204	Jan. 27	1537	418	30	303
Gants, William H., assignor of one-half to G. E. Herrick, San Francisco, Cal. Valve for water-closets and other receptacles	313,314	Mar. 3	402	100	30	850
Gard, Stephen J., and J. Zaruba, Goshen, Iowa. Weather-strip	310,406	Jan. 6	323	89	30	63
Gardner, Isaac. (See Hardy, Cyrus H., assignor.)						
Gardner, John, assignor of one-half to R. Ryan, Bloomingdale, Ill. Well-drilling apparatus	313,921	Mar. 10	1002	273	30	983
Gardner, Miles W., assignor of one-half to Michigan Stove Company, Detroit, Mich. Stove	311,653	Feb. 3	255	71	30	396
Gardner, Sylvenus A., assignor of one-half to C. F. Baker, Jamestown, N. Y. Step-ladder	310,814	Jan. 13	834	226	30	163
Garland, Richard H., Chicago, Ill. Spring-motor for propelling vehicles	311,305	Jan. 27	1538	{418 {419	30	303
Garner, Amaziah, Lynchburg, Ohio. Dental impression-cup	310,407	Jan. 6	324	89	30	63
Garrard, Israel, Frontenac, Minn. Sail-boat	313,064	Mar. 10	852	{221 {222	30	946
Garrard, Samuel, assignor of one-third to J. W. Tatum, Durham, N. C. Plant-protector	311,116	Jan. 20	1258	345	30	246
Garratt, William T. (See Pitchford, John B., assignor.)						
Garrett, Henry H., Pittsburg, Pa. Molder's flask	313,315	Mar. 3	403	100	30	850
Garrison, George C., Bennett, Pa. Type-writing machine	312,113	Feb. 10	877	{240 {241	30	720
Garvey, Michael J. (See Jay and Garvey.)						
Gaskill, Harvey F., Lockport, N. Y. Liquid-meter	313,660	Mar. 17	1123	{291 {292	30	1002
Gassett, Oscar, Boston, Mass. System of electric lighting	310,663	Jan. 13	643	177	30	128
Gassett, Oscar, Boston, Mass. Apparatus for distributing electricity	310,664	Jan. 13	645	177	30	128
Gassett, Oscar, Boston, Mass. Apparatus for the distribution of electricity	310,665	Jan. 13	647	177	30	129
Gatchell, Albert E. (See Pennington and Gatchell.)						
Gatchouse, Tom E. (See Alabaster and Gatchouse.)						
Gatchouse, Tom E. (See Alabaster, Gatchouse, and Kempe.)						
Gates, George S., Athol, Mass. Apparatus for drafting the arm-size of garments	310,666	Jan. 13	648	178	30	129
Gathright, John R., Jeffersonville, Ind. Combined grain and oil car	313,032	Mar. 17	1238	322	30	1023
Gatling, Richard J., Hartford, Conn. Breech-loading ordnance	311,973	Feb. 10	679	172	30	485
Gatling, Richard J., Hartford, Conn. Loading device for breech-loading guns	311,974	Feb. 10	702	172	30	486
Gawne, O. M. (See Thayer, Charles G., assignor.)						
Gay, Paulin, Paris, France. Machine for sawing stone	311,741	Feb. 3	362	100	30	417
Gaylord, Edward L., Bridgeport, Conn. Device for locking joints	313,193	Mar. 3	229	57	30	819
Gaylord, Edward L., Bridgeport, Conn. Device for locking joints	313,194	Mar. 3	230	57	30	819
Gaylord, Edward L., Bridgeport, Conn. Plane for picture-moldings	313,195	Mar. 3	231	58	30	819
Gaylord, Edward L., Bridgeport, Conn. Tool for beveling and finishing the edges of wooden picture-mats	313,196	Mar. 3	232	58	30	819
Gaylord, Edward L., Bridgeport, Conn. Mat-gage for picture-frames	313,197	Mar. 3	232	58	30	819
Gaylord, Edward L., Bridgeport, Conn. Machine for preparing miter-joints for fastenings	313,198	Mar. 3	233	58, 59	30	820
Geary, John, Philadelphia, Pa. Electric gas-lighter	314,119	Mar. 17	1474	384	30	1068
Gebhard, John A., and R. N. Barlow, Detroit, Mich. Duplicating counter-check book	314,062	Mar. 31	2196	583	30	1236
Geer, Henry J., Attleborough, Mass. Collar-button	314,226	Mar. 31	2436	643	30	1281
Geisler, Frank P., *et al.* (See Orr and Selvard, assignors.)						
Gelinas, Zephirin M., Yamachiche, Quebec, Canada, assignor of one-third to O. Chamberlain, Enfield Centre, N. H. Washing-machine	314,372	Mar. 24	1805	480	30	1139
Gent, Joseph F., Columbus, Ind. Flake-rice	312,265	Feb. 17	1100	.....	30	568
Gent, Joseph F., Columbus, Ind. Apparatus for mashing	313,070	Mar. 3	43	11	30	786
Genung, Charles C. (See Curtner and Genung.)						
George, Alexander. (See Ivett and George.)						
Gerber, Nicholas, Little Falls, N. Y. Milk can	311,975	Feb. 10	703	103	30	486
Gerbracht, Ernest W. (See Gerbracht, Eugène A. and E. W.)						
Gerbracht, Ernest W., Brooklyn, and E. A. Gerbracht, New York, N. Y. Child's carriage	314,328	Mar. 24	1749	466	30	1127
Gerbracht, Eugène A., New York, and E. W. Gerbracht, Brooklyn, N. Y. Child's carriage	314,327	Mar. 24	1748	466	30	1127
Gerdom, Gregory, West Troy, assignor of one-half to J. H. Reynolds, Troy, N. Y. Combined shaft and pulley bearing	312,561	Feb. 17	1518	413	30	646
Gerhard, William, Philadelphia, Pa. Chain-link	310,267	Jan. 6	142	40	30	28

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Gerner, Richard, Port Clinton, Ohio. Bolster-stake for vehicles	313,199	Mar. 3	236	60	30	890
Gesellschaft für Stahlindustrie. (See Koehler, Heinrich, assignor.)						
Gesner, Sylvester, Jr., and J. F. Stevens, North Tarrytown, N. Y. Running-gear for vehicles	311,654	Feb. 3	257	71	30	397
Gessner, Ernst, Aue, Saxony, Germany. Feeding device for carding-machines	312,456	Feb. 17	1367	{377 {378	30	619
Getty, Fred I., and F. Dickinson, Geneva, Ohio. Adjusting device for machinists' tools	314,663	Mar. 31	2197	583	30	1236
Getz, P. Charles, Philadelphia, Pa. Gossamer-cloak	313,316	Mar. 3	405	100	30	850
Gibbons, John, assignor to Meneely Hardware Company, West Troy, N. Y. Oiler for car-axles	311,071	Jan. 20	1194	328	30	235
Gibbons, John, assignor to Meneely Hardware Company, West Troy, N. Y. Wrench	311,892	Feb. 10	581	159	30	464
Gibbons, John, assignor to Meneely Hardware Company, West Troy, N. Y. Car-axle oiler	311,893	Feb. 10	582	{159 {160	30	464
Gibbons, John, assignor to Meneely Hardware Company, West Troy, N. Y. Bicycle	313,400	Mar. 10	627	163	30	902
Gibbs, Henry W. (See Howard and Gibbs.)						
Gibbs, Lewis, Canton, Ohio. Lawn-rake	314,373	Mar. 24	1806	480	30	1139
Gibbs, Samuel, Knox, Pa. Banjo	312,457	Feb. 17	1370	378	30	619
Gibbs, William W., *et al.* (See Johnston, James J., assignor.)						
Gibford, Charles A., Newton, Iowa. Steamer for cooking food	311,306	Jan. 27	1541	419	30	303
Giblin, John M., Sheboygan, Wis. Fire-extinguishing compound	310,887	Jan. 20	928	.....	30	187
Giblin, John M., Sheboygan, Wis. Fire-extinguisher	310,888	Jan. 20	929	253	30	187
Giblin, John M., Sheboygan, Wis. Fire-extinguishing compound	310,889	Jan. 20	930	.....	30	187
Gibson, George, Pittsburg, Pa. Decorticating-machine	312,637	Feb. 24	1880	{515 {516	30	721
Gibson, Gideon, Union township, Union county, Iowa. Gate	310,408	Jan. 6	325	89	30	63
Gibson, Robert. (See Johnson, Charles H., assignor.)						
Giddings, Charles M., Massillon, Ohio. Slide-valve	314,120	Mar. 17	1475	384	30	1068
Giesler, Franklin B., Milwaukee, Wis. Smoke-consuming furnace	313,071	Mar. 3	44	12	30	786
Giffard, George W., assignor of one-half to O. B. Wilson, Great Bend, Kans. Snap-hook	311,427	Jan. 27	1710	465	30	334
Gilbert, Jabez H., Big Sandy, Tenn. Device for watering stock	313,317	Mar. 3	405	101	30	851
Gilchrist, Duncan, Ishpeming, Mich., assignor of one-half to Marinette Iron Works Company, Marinette, Wis. Hoisting apparatus	310,667	Jan. 13	648	{178 {179	30	129
Gilchrist, John T., Knobel, Ark. Car-coupling	312,345	Feb. 17	1223	336	30	591
Giles, Charles K., Chicago, Ill. Anti-magnetic watch-case	312,458	Feb. 17	1371	378	30	619
Giles, Edwin L., assignor to Lamson Cash Railway Company, Lowell, Mass. Switch for store-service apparatus	310,815	Jan. 13	835	226	30	163
Gilfillan, Essington N., Fort Scott, Kans., and W. J. Gilfillan, St. Louis, Mo. Door and terrace step	314,374	Mar. 24	1807	480	30	1139
Gilfillan, William, assignor to Sargent & Co., New Haven, Conn. Spring-hinge	310,409	Jan. 6	325	89	30	63
Gilfillan, William, assignor to Sargent & Co., New Haven, Conn. Door-spring	311,307	Jan. 27	1542	419	30	303
Gilfillan, William, assignor to Sargent & Co., New Haven, Conn. Pneumatic door-check	311,742	Feb. 3	363	{100 {101	30	417
Gilfillan, William J. (See Gilfillan, Essington N. and W. J.)						
Gill, Edwin R., Jr., assignor of one-half to J. T. Russell, W. A. Symington, and J. M. Chaney, Pleasant Hill, Mo. Automatic electric signal-controlling apparatus	313,720	Mar. 10	919	239	30	958
Gill, George C., Brooklyn, assignor to R. Hoe & Co., New York, N. Y. Printing-machine	311,976	Feb. 10	704	193	30	486
Gill, John, Orange, N. J. Machine for forming hat-bodies	311,226	Feb. 3	469	127	30	437
Gilles, Peter, and M. Link, Kenosha, Wis. Vehicle-hub	310,576	Jan. 13	536	147	30	108
Gillespie, James, Lincoln, Ill. Washing-machine	313,318	Mar. 3	406	101	30	851
Gillespie, James, Springfield, Ill. Nut-bar	314,329	Mar. 24	1750	466	30	1128
Gillham, Robert, Kansas City, Mo. Carrying-pulley for cable railways	312,024	Feb. 24	1591	436	30	669
Gilliland, Ezra T., assignor to American Bell Telephone Company, Boston, Mass. Suspension of aerial cables	310,938	Jan. 20	1007	272	30	199
Gilliland, James F., Indianapolis, Ind. Memorandum-holder for telephone-boxes	311,977	Feb. 10	707	194	30	486
Gilman, Frederick J., Cote des Neiges, Quebec, Canada. Damper for stove-pipes and flues	314,121	Mar. 17	1457	385	30	1068
Gilmer, Joseph, assignor to W. R. Kline and E. R. Mitchell, Brunswick, Ga. Car-coupling	313,200	Mar. 3	237	60	30	821
Gilmore, Othniel, North Raynham, Mass. Channel-flap layer	310,018	Jan. 13	651	179	30	129
Gilmore, Robert J., Providence, R. I. Ring-traveler machine	310,577	Jan. 13	537	{147 {148	30	108
Gilmore, Robert J., Providence, R. I. Machine for attaching buttons	310,578	Jan. 13	539	148	30	109
Ginter, William P., assignor of two-thirds to J. K. Boak and W. Stronse, Hughesville, Pa. Brad-driver	312,199	Feb. 10	1011	275	30	543
Girard, Hyacinth, Dubuque, Iowa. Incrustation-preventive	310,410	Jan. 6	327	.....	30	64
Githens, George M., Brooklyn, N. Y. Tripod for rock-drills. (Reissue)	10,572	Mar. 17	1359	420	30	1089
Githens, Joseph C., assignor to Rand Drill Company, New York, N. Y. Rotating feed for steam rock-drills	312,346	Feb. 17	1224	337	30	591
Githens, Joseph C., assignor to Rand Drill Company, New York, N. Y. Rotatory feed for steam rock-drills	312,347	Feb. 17	1225	337	30	591
Githens, Joseph C., assignor to Rand Drill Company, New York, N. Y. Steam rock-drill	312,348	Feb. 17	1226	337	30	591
Given, Nathan W., and R. A. Dunning, Brunswick, Me. Mail-bag	310,411	Jan. 6	327	90	30	64
Gleason, Francis, Philadelphia, Pa. Loose-pulley lubricator	310,669	Jan. 13	653	179	30	130
Glen Cove Machine Company. (See Gray, William H., assignor.)						
Glessner, Charles E., Boulder, Colo. Combined tweezers and screw-driver	311,308	Jan. 27	1543	420	30	304
Globe Capsule Company. (See Krehbiel, John, assignor.)						
Globe Files Company. (See Yeiser, Henry C., assignor.)						
Glody, Thomas P., New York, N. Y. Folding bed	312,625	Feb. 24	1593	436	30	669
Glover, Carlos W., Boston, Mass. Lathe-chuck	312,838	Feb. 24	1892	516	30	721
Glover, Carlos W., Boston, Mass. Centering-chuck	312,839	Feb. 24	1893	516	30	721
Glover, Frank R. (See Kendall and Glover.)						
Glover, John H., assignor of one-half to R. McMillen, Oshkosh, Wis. Sash and door sticker	310,579	Jan. 13	540	{148 {149	30	109
Glover, Joseph N., Chicago, Ill. Device for rendering wooden houses fire-proof	311,309	Jan. 27	1543	420	30	304
Gmehlin, Paul, New York, N. Y. Piano-forte	311,243	Jan. 27	1447	{394 {395	30	287
Gnichwitz, Rudolph, assignor to MacKellar, Smiths & Jordan Company, Philadelphia, Pa. Type-casting mold	314,827	Mar. 31	2436	643	30	1281
Godcharles, Charles D., Milton, Pa. Nail-packer	313,721	Mar. 10	924	240	30	959
Goddard, Calvin L., New York, N. Y. Toothed cylinder for burring-machines	314,664	Mar. 31	2198	583	30	1236
Goddard, Charles V., Brooklyn, N. Y. Button	310,939	Jan. 20	1008	273	30	199
Goddard, David N. (See Lindsey and Goddard.)						
Goddard, Rodney W., Wellston, Ohio. Fowl-coop	313,319	Mar. 3	407	101	30	851
Goddu, Louis, Winchester, assignor, by mesne assignments, to N. S. Hotchkiss, Boston, Mass. Nailing-machine	310,816	Jan. 13	836	{226 {227	30	164

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Goddu, Louis, Winchester, assignor, by mesne assignments, to N. S Hotchkiss, Boston, Mass. Machine for screw-threading wire	310,817	Jan. 13	839	227, 228	30	164
Godfrey, Andrew. (See Tucker and Godfrey.)						
Godfrey, Frank M., Congdon, Nebr. Visual electric signal	310,412	Jan. 6	328	90	30	64
Godwin, James. (See Winne, William L., assignor.)						
Goertz, August, Newark, N. J. Bag-lock	310,413	Jan. 6	329	90	30	64
Gohl, Willis D., Philadelphia, Pa. Anchor-chain compressor and stopper	311,117	Jan. 20	1259	345	30	246
Golden, William. Port Huron, Mich. Saw-fitting tool	311,481	Feb. 3	26	7	30	353
Golding, William H. Chelsea, Mass. Clamp	310,195	Jan. 6	47	13	30	11
Goldstein, Jacob, and C. H. Rombach, St. Louis, Mo. Overalls and pantaloons	314,122	Mar. 17	1478	385	30	1068
Good, John, Brooklyn, N. Y. Machine for drawing or spreading fibrous materials	311,310	Jan. 27	1544	420	30	304
Good, John, Brooklyn, N. Y. Chain and chain-wheel for machinery for preparing fibrous materials, &c	311,577	Feb. 3	160	45	30	378
Good, John, Brooklyn, N. Y. Measuring stop-motion for hemp-spreaders, &c	311,978	Feb. 10	707	194	30	486
Goodale, Laura M., assignor to herself and P. Gordon, Marshalltown, Iowa. Cover for cooking kettles and utensils	313,320	Mar. 3	408	102	30	851
Goodell Company. (See Goodell, David H., assignor.)						
Goodell, David H., assignor to Goodell Company, Antrim, N. H. Apple-parer	310,196	Jan. 6	49	14	30	12
Goodfellow, James, New York, N. Y. Car-starter	310,197	Jan. 6	50	14	30	12
Goodhart, George S., Louisville, Ky. Vaporizer and fumigator	312,459	Feb. 17	1372	378	30	619
Goodman, Charles R., Hammond, Ind. Apparatus for laying railway-tracks	312,626	Feb. 24	1504	436	30	669
Goodson, John and W., London, England. Gas-regulator	313,321	Mar. 3	408	102	30	851
Goodson, William. (See Goodson, John and W.)						
Goodwin, Julius C., assignor to American Buttonhole, Overseaming and Sewing Machine Company, Philadelphia, Pa. Vertically-reciprocating sewing-machine presser-feet	313,933	Mar. 17	1239	322	30	1023
Goodwin, Octavius B. (See Malcolmson, Thomas, assignor.) (Reissue.)						
Goodwin, Willard T. (See Donahue, Roche, Goodwin, and Cone.)						
Goolden, Richard E. (See Mackay, Murdoch, assignor.)						
Gordon, David, *et al.* (See Walter, Henry C., assignor.)						
Gordon, Frederick W., Allegheny, Pa. Hot-blast stove	314,573	Mar. 31	2080	555, 556	30	1215
Gordon, John J., Detroit, Mich. Knob attachment	313,722	Mar. 10	925	240	30	959
Gordon, Peter. (See Goodale, Laura M., assignor.)						
Gordon, Thomas R., Brooklyn, N. Y. Car-axle lubricator	311,743	Feb. 3	366	101	30	417
Gorgas, Jacob, and G. E. Mohler, Ephrata, Pa. Cider-press	313,322	Mar. 3	410	102, 103	30	851
Gorham, Edwin S. (See Pott and Gorham.)						
Gorman, James J., Temescal, Cal. Filling-machine for cans, &c	310,268	Jan. 6	143	40	30	28
Gorman, Michael O., Jersey City, N. J. Automatic gas-governor	310,580	Jan. 13	542	149	30	110
Gormley, Herbert J., Boston, Mass. Tricycle	314,236	Mar. 24	1618	428	30	1103
Gorringe, Henry H., and A. O. Tengvall, New York, N. Y. Hydraulic ejector	314,237	Mar. 24	1619	428	30	1103
Gottlieb, Abraham, Pittsburg, Pa. Metallic railway cross-tie	310,269	Jan. 6	144	40, 41	30	29
Götze, Christian C., Cöthen, Germany. Leveling-instrument	313,723	Mar. 10	926	240	30	959
Gouch, D. Linn, *et al.* (See Bennett, Thomas H., assignor.)						
Gould, Andrew J., assignor of one-half to H. M. Barstow, Quincy, Cal. Mail-bag	310,670	Jan. 13	654	179	30	130
Gould, George W., Yolo Station, Cal. Spreader for thrashers	310,671	Jan. 13	655	180	30	130
Gould, Philetus W. (See Walt, Oscar E., assignor.)						
Gould, Simeon L., Gardiner, Me., assignor of one-half to G. W. Russell, Lawrence, Mass. Compound pulp-beating engine	310,940	Jan. 20	1009	273	30	199
Gould, William B., Newark, N. J. Sheet-metal trunk-covering and ornamenting the same	312,715	Feb. 24	1715	471	30	691
Gould, William F., Des Moines, Iowa. Railway-rail joint, chair, and splice	310,581	Jan. 13	543	149, 150	30	110
Gousseu, Johann W., assignor to F. H. Herhold, Chicago, Ill. Manufacture of amber varnish	311,118	Jan. 20	1261	345	30	247
Gowell, Robert N., Ashburnham, Mass. Road-scraper	311,482	Feb. 3	26	8	30	353
Gowell, Robert N., Ashburnham, Mass. Stone-lifter	313,491	Mar. 10	638	163	30	907
Gracey, Charlie, Summit, Miss. Coffee and tea pot stand	312,200	Feb. 10	1013	276	30	543
Graham, Eri, assignor of two-thirds to E. Miller and H. Buchner, Lancaster, Wis. Locomotive-journal lubricator	311,744	Feb. 3	368	101	30	418
Graham, John D., Brooklyn, assignor of one-half to S. I. Knight, New York, N. Y. Car-axle lubricator	310,941	Jan. 20	1011	273	30	200
Graham, John W., *et al.* (See Park, John S., assignor.)						
Gramer, Joseph, assignor of one-half to O. A. Kimball, Boston, Mass. Music-rack for pianos	314,375	Mar. 24	1808	481	30	1140
Grand Rapids Electric Light and Power Company. (See Thomas, William M., assignor.)						
Grandjean, Arthur, Cincinnati, Ohio. Watch-case spring	311,894	Feb. 10	583	160	30	464
Granger, Louis, New York, N. Y. Lady's circular cloak	314,665	Mar. 31	2199	584	30	1236
Granger, Albert L., Brooklyn, N. Y. Machine for cutting teeth of rack-bars	313,201	Mar. 3	238	60	30	821
Granger, Almon M., Medford, Mass. Automatic fire-extinguisher	313,724	Mar. 10	928	241	30	959
Granger, Arthur O., Philadelphia, Pa. Gas-generating apparatus	311,484	Feb. 3	31	9	30	355
Granger, Arthur O., Philadelphia, Pa. Apparatus for purifying gas	313,861	Mar. 17	1125	292	30	1003
Granger, Arthur O., and J. H. Collins, Jr., Philadelphia, Pa. Apparatus for manufacturing gas	311,483	Feb. 3	29	9	30	354
Granger, John, Dunharton, Ontario, Canada. Millstone-pick	313,725	Mar. 10	930	241	30	960
Grannies, Charles E., New Haven, Conn. Ventilator	313,492	Mar. 10	634	164	30	903
Grant, Charles, Jr. (See Nourse, James K. P., assignor.)						
Grant & Co., Smith. (See Ladd, Loren G., assignor.)						
Grant, Joseph A., Everett, assignor to Jarvis Engineering Company, Boston, Mass. Feed-water heater	312,716	Feb. 24	1716	471	30	691
Graver, Jay R., Lincoln, Nebr. Window-screen	311,837	Feb. 3	470	127	30	437
Gray, Frank M., Milwaukee, Wis. Well-reamer	310,270	Jan. 6	147	41	30	29
Gray, John D. (See Barnard, Henry H., assignor.)						
Gray, Samuel S. (See Fillebrown, Gray, and Fillebrown.)						
Gray, William D., Milwaukee, Wis. Centrifugal reel	311,838	Feb. 3	471	128, 129, 130	30	437
Gray, William D., Milwaukee, Wis. Gradual-reduction machine for grain, &c	311,839	Feb. 3	473	129, 130	30	438
Gray, William H., assignor to Glen Cove Machine Company, (limited,) Brooklyn, N. Y. Feed mechanism for wood-planing machines	314,666	Mar. 31	2199	584	30	1236
Gray, William H., assignor to Glen Cove Machine Company, (limited,) Brooklyn, N. Y. Circular sawing machine	314,667	Mar. 31	2201	584	30	1237
Green, Charles E. (See Leidy and Green.)						
Green, Frank. (See Hazard, Edward C., assignor.)						
Green, John A., Waltham, Mass. Device for opening animals' mouths	314,527	Mar. 24	2017	538	30	1176

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Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Green, William, *et al.* (See Benedict, Jacob, assignor.)						
Greene, Darwin A., New York, N. Y. Wood-splitting machine	313,586	Mar. 10	749	197, 198	30	926
Greene, Francis V., Philadelphia, Pa. Extracting the oil and albuminoid matter from corn	313,665	Mar. 10	853	.....	30	946
Greene, J. Durell, Ann Arbor, Mich., assignor of one-fourth to V. A. King, New Haven, Conn. Magazine fire-arm	312,201	Feb. 10	1013	270	30	543
Greene, John W., Deer Isle, Me. Cringle	310,414	Jan. 6	330	90	30	64
Greene, William A., Brooklyn, N. Y. Oil or gas stove	314,929	Mar. 31	2573	680, 681	30	1304
Greenough, J. J. (See Hollick, Frederick, assignor.)						
Greenwade, Moses M., Cincinnati, Ohio. Draft apparatus for steam-boilers	310,198	Jan. 6	51	14	30	12
Greenwood, Peter F., Catasauqua, Pa. Manufacture of links	310,415	Jan. 6	331	91	30	64
Greer, Howard, Chicago, Ill. Spike-blank	312,840	Feb. 24	1884	516	30	721
Gregg, John, *et al.* (See Straw, George, assignor.)						
Greindl, Gustave, Brussels, Belgium. Rotary pump	313,415	Mar. 3	523	137	30	875
Gresham, James. Manchester, county of Lancaster, England. Ejector for vacuum-brakes	312,991	Feb. 24	2075	566	30	755
Gridley, Harrison, and T. Johnson, Canandaigua, N. Y. Combined coal screen and dust-receiver	311,485	Feb. 3	33	10	30	355
Griest, John M., assignor to Chicago Attachment Company, Chicago, Ill. Ruffler for sewing-machines	311,119	Jan. 20	1262	346	30	247
Griffin, E. Harrison, New York, N. Y. Umbrella-lock	313,493	Mar. 10	632	164	30	903
Griffin, P. Henry. (See Dalgarno, James, assignor.)						
Griffin, P. Henry, Detroit, Mich. Metallic curbing for containing electrical wires	310,271	Jan. 6	148	41	30	30
Griffin, P. Henry, Detroit, Mich. Cast-iron column	312,349	Feb. 17	1229	338	30	591
Griffith, Thomas, near Manchester, county of Lancaster, England. Stair-pad	313,202	Mar. 3	240	60	30	821
Griffiths, David, Egypt, Pa. Manufacture of hydraulic cement	311,895	Feb. 10	585	.....	30	465
Griffiths, David, Egypt, Pa. Machinery for manufacturing Portland cement	313,203	Mar. 3	241	61	30	821
Griffiths, George H., New Rochelle, N. Y. Treadle-motion for velocipedes	314,013	Mar. 17	1332	347	30	1042
Grigsby, Lemuel Z., Minden, La. Combined cotton chopper and cultivator	310,416	Jan. 6	331	91	30	65
Grim, Abraham K. (See Low and Grim.)						
Grinnell, Frederick, Providence, R. I. Machine for tapping pipe-fittings	311,311	Jan. 27	1546	420, 421	30	304
Griscom, Samuel E., *et al.* (See Butler and McFeely, assignors.)						
Griscom, Walter, *et al.* (See Butler and McFeely, assignors.)						
Griswold, Edmond, assignor to E. A. Griswold, New York, N. Y. Fastening device for gloves, garters, &c	314,174	Mar. 17	1542	404	30	1079
Griswold, Elizabeth A. (See Griswold, Edmond, assignor.)						
Griswold, Frank W., Providence, R. I. Time-check register	313,034	Mar. 17	1240	323	30	1023
Griswold, Lewis F. (See Parker and Griswold.)						
Groff & Bennett Saw Guard Manufacturing Company. (See Groff, Joseph G., assignor.)						
Groff, Joseph G., assignor to Groff & Bennett Saw Guard Manufacturing Company, Connersville, Ind. Saw-guard	311,486	Feb. 3	34	10	30	355
Grooms, James M., assignor of one-half to W. A. J. Thompson, Avery, Iowa. Coal-drilling machine	313,204	Mar. 3	242	61	30	822
Grosch, William, Verona, N. J. Stamp-mill	313,567	Mar. 10	751	198	30	926
Grosjean, Charles T., assignor to Tiffany & Co., New York, N. Y. Siphon-bottle cover	312,562	Feb. 17	1519	414	30	646
Gross, Rudolph. (See Wessel, Nickel, and Gross.)						
Grottenthaler, Joseph, assignor of one-half to P. J. Huber and W. P. Koonsman, Allegheny, Pa. Manufacture of iron and steel	311,830	Feb. 3	477	.....	30	438
Grout, John C. (See Honck, John A., assignor.)						
Grove, David, Berlin, Germany. Drier	313,416	Mar. 3	525	137, 138	30	875
Groves, Frederic S. (See Cone and Groves.)						
Grubb, David, Waldron, Ind. Combined band-cutter and feeder for thrashing-machines	310,417	Jan. 6	333	91	30	65
Grube, Jefferson, Newark, Ohio. Blast-regulator for grain-separators, &c	312,992	Feb. 24	2078	566	30	756
Grube, Jefferson, Newark, Ohio. Blast-regulator for grain-separators	314,668	Mar. 31	2202	585	30	1237
Grummann, Albert U., Indianapolis, Ind. Elevator-gate	311,120	Jan. 20	1264	346	30	247
Grummann, Albert U., assignor of one-half to J. F. Brown, Indianapolis, Ind. Barrel-skid	311,635	Feb. 3	258	71, 72	30	397
Grünert, Ernst O., Meissen, Saxony, Germany. Manufacture of linophanies or translucent pictures	314,931	Mar. 31	2578	.....	30	1305
Guenther, John E., Owensborough, Ky. Water-cooling attachment for refrigerators	314,175	Mar. 17	1544	404	30	1079
Guess, Sanford L., Harlehurst, Miss. Steam-engine	313,002	Mar. 17	1127	293	30	1003
Guest, John H., Brooklyn, N. Y. Telephonic transmitter	311,070	Feb. 10	709	194	30	487
Guffin, Andrew J. and M. C., Rushville, Ind. Washing-machine	310,507	Jan. 6	438	121	30	85
Guffin, Matilda C. (See Guffin, Andrew J. and M. C.)						
Guild, Frederick. (See Lord, Tyler C., assignor.)						
Guild & Garrison. (See Worthen, William H., assignor.)						
Guild, George M., Boston, Mass. Music-rack for upright pianos	313,417	Mar. 3	526	138	30	875
Guilford, Joseph H. N., Whigham, Ga. Fish-plate-fastening machine	313,418	Mar. 3	527	138, 139	30	875
Guilford, Lucian H., Wauseon, Ohio. Sack-holder	314,930	Mar. 31	2576	682	30	1305
Guilloz, John F. (See Jeanjaquet, F. Eugène, assignor.)						
Gulickson, George, Chicago, Ill. Furnace	310,582	Jan. 13	545	150	30	110
Gurley, Lewis E. (See Gurley, William, assignor.)						
Gurley, William, assignor to himself and L. E. Gurley, Troy, N. Y. Rod-plumbing level	312,266	Feb. 17	1100	304	30	568
Guss, Jacob A., Spring City, Pa. Cashier's and salesman's check-book	310,508	Jan. 6	439	121	30	85
Gustafson, Nels A., Leadville, Colo. Device for cleaning ship-bottoms	313,822	Mar. 10	1063	274	30	983
Guthrie, James P., Somerville, Mass. Pipe-wrench	310,818	Jan. 13	840	228	30	165
Guthrie, Thomas J., *et al.* (See Vaughan, Elbert J., assignor.)						
Guyer, Allan P., Philadelphia, Pa. Gas-burner	314,376	Mar. 24	1808	481	30	1140
Gype, Christian. (See Gype, John and C.)						
Gype, John and C., Tedrow, Ohio. Cider-press	310,272	Jan. 6	149	41	30	30
Haas, Edwin, Philadelphia, Pa. Bottle and jar stopper and fastener	313,588	Mar. 10	752	198	30	926
Haas, James M., *et al.* (See Blair, George W., assignor.)						
Haas, Mathias, St. Georgen, Baden, Germany. Clutch-coupling	310,996	Jan. 20	1090	298	30	216
Haas, William W., Farmer City, Ill. Coin counter and tester	314,330	Mar. 24	1750	466	30	1128
Haberkorn, Theodore H., Fort Wayne, Ind. Spark and cinder arrester	310,819	Jan. 13	841	228	30	165
Haberkorn, Theodore H., Fort Wayne, Ind. Car-axle-box lid	310,820	Jan. 13	843	229	30	165
Hackley, Samuel R., Crockett's Station, Cal. Hose-coupling	310,672	Jan. 13	656	180	30	130
Hadden, William, Brooklyn, N. Y. Railway signaling apparatus	312,627	Feb. 24	1504	436	30	669
Hadden, William, Brooklyn, N. Y. Telephone	312,841	Feb. 24	1886	517	30	721
Hadden, William, Brooklyn, N. Y. Telephone	312,842	Feb. 24	1886	517	30	722
Hadden, William, Brooklyn, N. Y. Telephone-switch	312,843	Feb. 24	1887	517	30	722
Hadden, William J., Danville, Ill. Car-coupling	312,114	Feb. 10	885	241	30	520

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Hadley, Benjamin H., Providence, R. I. Drilling-lathe	314,574	Mar. 31	2082	556	30	1216
Hadley, Charles F. (See Overman and Hadley.)						
Hadley, Charles F., assignor to Overman Wheel Company, Chicopee, Mass. Pedal for velocipedes	313,323	Mar. 3	412	103	30	852
Hadley, Charles F., assignor to Overman Wheel Company, Chicopee, Mass. Tricycle	313,863	Mar. 17	1128	293	30	1003
Hadley, George W., Chicopee Falls, Mass. Implement for capping and uncapping cartridge-shells	310,583	Jan. 13	547	150	30	111
Hadley, John, Alexandria, Va. Tuyere-iron	312,628	Feb. 24	1595	437	30	670
Haendle, Conrad, New York, N. Y. Side spring for vehicles	312,844	Feb. 24	1888	517	30	722
Hafley, Adam H., assignor of one-half to P. A. Carter, Ashley, Ill. Oscillating engine	314,932	Mar. 31	2578	682	30	1305
Hagar, Edward F., *et al.* (See Barron, John W., assignor.)						
Hahl, Augustus, and O. Mergenthaler, Baltimore, Md. Pneumatic clock	314,014	Mar. 17	1333	348	30	1042
Hahn, John, *et al.* (See Orr and Selvard, assignors.)						
Hahn, John A., Moscow, Iowa. Cultivator	313,589	Mar. 10	753	199	30	926
Haid, Alfred, Rahway, N. J. Electric jewelry	313,726	Mar. 10	930	241	30	960
Haight, Jonathan, Pittsfield, Mass. Staple	312,466	Feb. 17	1373	379	30	620
Haines, John W., Cambridge, Mass. Securing shanks to glass knobs	314,828	Mar. 31	2437	643	30	1281
Hair, Benjamin M., Chicago, Ill. Belt-punch	311,121	Jan. 20	1265	346	30	247
Hair, John, Crittenden, N. Y. Potato-planter	311,312	Jan. 27	1549	422	30	305
Haitz, Fredrick, Towanda, Ill. Umbrella-support	314,290	Mar. 24	1694	452	30	1117
Hakins, George B., assignor of one-half to H. G. Pert, Norwood, N. Y. Ornamental screw-head cap	311,122	Jan. 20	1266	346	30	247
Hale, Albert W. (See Conradson, Pontus H., assignor.)						
Hale, Elias J., Foxcroft, Me. Burner for lamps	312,267	Feb. 17	1102	304	30	568
Hale, Francis W., Boston, Mass. Tuning-hammer	310,673	Jan. 13	657	180	30	131
Hale, Frank W., Boston, Mass. Tuning implement	310,674	Jan. 13	658	180	30	131
Hale, John, Scranton, Pa. Surveying-instrument	313,494	Mar. 10	633	164	30	903
Hale, William T. (See Chinn, George W., assignor.)						
Halin, Ole E., San Francisco, Cal. Derrick	314,015	Mar. 17	1337	348	30	1042
Hall, Alanson M. (See Wisner, Fred, assignor.)						
Hall, Alvin O., New York, N. Y. Inking-ribbon alarm for type-writing machines	314,016	Mar. 17	1338	348	30	1043
Hall, Eugene E., Troy, assignor of two-thirds to F. C. Huyck and C. E. Argersinger, Albany, N. Y. Cloth boot	311,123	Jan. 20	1267	347	30	247
Hall, Hayden H., New Hamburg, N. Y. Apparatus for laying submarine tunnels and tubes	311,656	Feb. 3	260	72	30	397
Hall, Henry, assignor to himself and W. S Flack, Lansingburg N. Y. Valve	310,509	Jan. 6	440	121	30	86
Hall, Hiram S., Jamestown, assignor to A. Cary and E. F. Moon, New York, N. Y. Machine for securing the ends of spiral springs	313,495	Mar 10	634	165	30	904
Hall, James B. (See Hall, Tomas P., and J. B.)						
Hall, Thomas G., Brooklyn, N. Y. Vise	311,487	Feb. 3	36	10	30	356
Hall, Thomas W. (See Thayer, Anson P., assignor.)						
Hall, Tomas P., Toronto, Canada. Fire-escape	310,675	Jan. 13	659	181	30	131
Hall, Tomas P. and J. B., Toronto, Canada. Tricycle	310,676	Jan. 13	660	181	30	131
Hallenback, John W. (See Force, Albert W., assignor.)						
Hallenbeck, Joseph P., New York, N. Y., and H. L. Phelps, Chicago, Ill., assignors to National Machine Company, New York, N. Y. Sewing-machine for stitching button-holes, eyelet-holes, &c.	310,677	Jan. 13	661	181, 182	30	132
Haller, Georg. (See Löffelhardt, Wilhelm, assignor.)						
Hallock, David, New York, N. Y. Weighing-scale	311,745	Feb. 3	368	101, 102	30	418
Hallock, Henry S. (See Fuller and Hallock.)						
Hallowell, Levi, China, Me. Ice-scraper	311,746	Feb. 3	371	102	30	418
Halstead, Charles, New York, N. Y. Coffee and spice mill	310,418	Jan. 6	334	91	30	65
Halstrom, Charlie, Los Angeles, Cal. Device for securing moldings	310,678	Jan. 13	664	182	30	132
Ham, Charles H. (See McMillan and Ham.)						
Hamaker, Aaron W., Moundsville, W. Va. Brake-lever	314,331	Mar. 24	1751	467	30	1128
Hambay, James T., assignor to G. Westinghouse, Jr., Pittsburg, Pa. Fluid-regulator and cut-off	311,747	Feb. 3	372	102	30	418
Hamborg, Peder T., Grand Rapids, Mich. Automatic fire-kindler	313,419	Mar. 3	529	139	30	876
Hambuhr, Ephraim, assignor of one-fourth to M. Maier, Detroit, Mich. Hasp-lock	313,590	Mar. 10	775	199	30	927
Hamburger, Manes, Washington, D. C. Combined button and fastener	310,273	Jan. 6	150	42	30	30
Hamilton, James B., Boston, Mass., assignor of one-third to E. A. Ramaden, New York, N. Y. Reed	312,115	Feb. 10	886	241	30	521
Hamilton, John, State College, Pa. Seed-drill	310,584	Jan. 13	548	151	30	111
Hamilton, John L., St. Joseph Mo. Hot-air heating apparatus	311,313	Jan. 27	1551	422	30	305
Hamilton, Joseph P., Franklin, Tenn. Back-band loop	314,829	Mar. 31	2438	644	30	1281
Hamilton, Lemmon, Arnold & Co. (See Frazier, George C., assignor.)						
Hamilton, Samuel, Salinas, Cal. Plowshare attachment	311,980	Feb. 10	710	195	30	487
Hamilton, Walter, assignor to Acme Mining Machine Company, New York, N. Y. Metal-extracting apparatus	311,748	Feb. 3	374	103	30	419
Hamilton, Walter, assignor to Acme Mining Machine Company, New York, N. Y. Metal-extracting apparatus	311,749	Feb. 3	377	103	30	419
Hamlin, John A., *et al.*, trustees. (See Pratt, Harry P., assignor.)						
Hammer, Carl, *et al.* (See Roettger, Edward C., assignor.)						
Hammill, J. Milton, Philadelphia, Pa. Covering for steam-pipes	311,750	Feb. 3	378	103	30	420
Hammond, Joseph C., Jr., Rockville, and T. E. King, Westport, Conn. Shoe-clasp	314,669	Mar. 31	2203	585	30	1237
Hamre, Even J., assignor to himself, J. G. Ribeldaffer, and J. W. Brown, St. Paul, Minn. Combined potato and tree planter	314,830	Mar. 31	2438	644	30	1281
Hamre, Ole K., Pennington, Dak. Ter. Plow	314,017	Mar. 17	1339	349	30	1043
Hand, S. Ashton, Toughkenamon, Pa. Mechanical movement	313,324	Mar. 3	413	103	30	852
Handlan, Alexander H., Jr., St. Louis, Mo. Lifting-jack	313,935	Mar. 17	1242	323	30	1023
Handley, Abram, Acton, Mass. Fence-post	314,377	Mar. 24	1809	481	30	1140
Haney, S. B., *et al.* (See Watts, Henry P., assignor.)						
Hanford, Robert G., Jr., Newark, assignor to New Jersey Steel and Iron Company, Trenton, N. J. Breast-strap toggle	310,510	Jan. 6	441	121	30	86
Hankin, William H. (See Lord, Almon, assignor.)						
Hankinson, John N. O., Harrisburg, Pa. Printer's quoin	312,845	Feb. 24	1889	518	30	722
Hanlon, John, New York, N. Y. Process of and apparatus for manufacturing gas	311,124	Jan. 20	1267	347, 348, 349	30	248
Hanlon, John, New York, N. Y. Process of and apparatus for manufacturing gas	311,125	Jan. 20	1272	349, 350, 351	30	248
Hanneman, Charles F., Ahnapee, Wis. Cooking-stove	312,461	Feb. 17	1374	379	30	620

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Hannes, William F., Oakland, Cal. Wire fruit-jar fastening	314,332	Mar. 24	1752	467	30	1128
Hannibal, Alfred, London, England. Manufacture of boots or shoes	313,727	Mar. 10	932	242	30	960
Hanover, Jacob G., Reed City, Mich. Wind-engine	310,419	Jan. 6	334	92	30	65
Hansen, John, Maryville, Mo. Boot or shoe	312,117	Feb. 10	888	242	30	521
Hanser, Jacob, Oxford, Ohio. Vehicle-spring	312,840	Feb. 24	1890	518	30	722
Hansen, Peter, Waupaca, Wis. Stump-puller	313,325	Mar. 3	414	103	30	852
Hapgood Plow Company. (See Black, Joseph P., assignor.)						
Hapgood Plow Company. (See Lane, John, assignor.)						
Hardenbergh, Peter R. L. (See Brownson, Ralph, assignor.)						
Hardie, Robert. (See Everett and Hardie.)						
Harding, Richard, assignor of one-half to I. Conder, McGaheysville, Va. Combined band-cutter and feeder for thrashing-machines	310,679	Jan. 13	666	182	30	132
Harding, William H., Springfield, Cal. Wheel for vehicles	310,585	Jan. 13	549	151	30	111
Hardy, Alvah E., Everett, assignor to E. Dewey & Co., Boston, Mass. Governor for steam-engines	314,698	Mar. 24	2018	539	30	1177
Hardy, Cyrus H., assignor of one-half to I. Gardner, Hingham, Mass. Clasp	311,126	Jan. 20	1275	351	30	249
Hardy, Dexter D., Chicago, Ill. Multiple-cylinder engine	313,730	Mar. 10	940	243	30	961
Hardy, Dexter D., assignor to R. H. Cowdrey, Chicago, Ill. Steam-engine	313,728	Mar. 10	933	242	30	960
Hardy, Dexter D., assignor of two-thirds to R. H. Cowdrey, Chicago, and M. J. Perry, Downer's Grove, Ill. Steam-engine valve	313,729	Mar. 10	938	243	30	961
Hardy, Francis A., Chicago, Ill. Apparatus for testing the eyes	311,185	Jan. 27	1363	373	30	271
Hardy, Hippolyte, New York, N. Y. Adjustable column or stand for stools, &c	314,831	Mar. 31	2440	644	30	1282
Harger, David, Des Moines, Iowa. Plow and mold-board therefor	314,445	Mar. 24	1698	507	30	1157
Harlson, Alferd A., Elmore, Ohio. Railway-tie	313,072	Mar. 3	45	12	30	786
Harker, John C., Grand Junction, Iowa. Ditching-machine	312,629	Feb. 24	1596	437	30	670
Harker, John C., Grand Junction, Iowa. Traction-engine	312,630	Feb. 24	1597	437, 438	30	670
Harker, John C., Grand Junction, Iowa. Ditching-machine	312,631	Feb. 24	1600	438, 439	30	670
Harlan, James A., Washington, D. C. Telephonic connection	313,731	Mar. 10	941	243	30	961
Harlow, Dewitt C., Chippewa Falls, Wis. Valve for steam-engines	313,496	Mar. 10	636	165	30	904
Harlow, Lucius, and G. Parker, Holyoke, Mass. Mechanism for laying off sheets from a paper-cutter	313,864	Mar. 17	1130	294	30	1004
Harman, C. Wesley, New York, N. Y. Watch-case	313,326	Mar. 3	415	104	30	852
Harman, C. Wesley, and H. G. Skidmore, Cincinnati, Ohio. Watch-case. (Reissue.)	10,556	Feb. 3	524	142	30	447
Harman, Elias R., Lincoln, Nebr. Stock-feeder	312,462	Feb. 17	1374	379	30	620
Harman, James, Rocky Well, S. C. Cultivator	310,580	Jan. 13	550	152	30	112
Harmon, Decater, Ionia, Mich. Steam-generator	313,327	Mar. 3	415	104	30	853
Harmon, I. M. (See Woodward and Copeland, assignors.)						
Harness, Cornelius B., London, England. Inhaler	311,314	Jan. 27	1551	422	30	305
Harper, Louise. (See Baldwin, James S., assignor.)						
Harper, Wesley H., Berlinsville, Pa. Bush-hammer	314,891	Mar. 24	1695	452	30	1118
Harrington, Frank W., Charlestown, Mass. Switch-board	310,820	Jan. 20	931	253	30	187
Harris, Annie W., Philadelphia, Pa. Bolt for doors or shutters	313,328	Mar. 3	417	104	30	853
Harris, Charles P., and S. Baltzly, Hill's Ferry, Cal. Coupling hook and loop	310,274	Jan. 6	152	42	30	30
Harris, Charles R., Cortland, N. Y. Buckle	314,018	Mar. 17	1340	349	30	1043
Harris, Levi, assignor of one half to D. Phillips, Kalamazoo, Mich. Fire-ladder and truck	311,981	Feb. 10	711	195	30	487
Harris, Thomas, assignor to A. A. Van Voorhies, Sacramento, Cal. Apparatus for forming horse-collars	313,420	Mar. 3	530	139, 140	30	876
Harris, William E., New York, N. Y. Extracting gold, silver, and lead from ores	312,847	Feb. 24	1890	.....	30	722
Harris, William E., St. Louis, Mo. Utilizing waste hoop-iron	314,378	Mar. 24	1810	481	30	1140
Harrison, James M., and L. N. White, Columbia City, Ind.; said White assignor to said Harrison. Car-coupling	310,511	Jan. 6	442	122	30	86
Harrison Machine Works. (See Stout, James A., assignor.)						
Harrison, Thomas B., Clinton, assignor of two-thirds to J. W. Martin, Kirksville, and A. Siegel, St. Louis, Mo. Machine for making wire and picket fencing	314,933	Mar. 31	2580	682, 683, 684	30	1306
Harroun, Alexander, Clockville, N. Y. Monument	314,019	Mar 17	1341	349	30	1043
Harry, Thomas C., Dallas, Tex. Combined chimney and ventilator	314,238	Mar. 24	1620	428	30	1104
Harsha, Leslie R., Chicago, Ill. Picture-frame	314,832	Mar. 31	2441	645	30	1282
Harsha, Leslie R., Chicago, Ill. Wooden-surfaced molding	314,833	Mar. 31	2442	644	30	1282
Hart, George E., assignor to Waterbury Watch Company, Waterbury, Conn. Making crowns for winding watch-arbors	314,834	Mar. 31	2443	645	30	1282
Hart, Hamilton M. (See Jones, Franklin D., assignor.)						
Hart, Harrie B., Philadelphia, Pa. Lantern	311,128	Jan. 20	1277	352	30	249
Hart, Harrie B., Philadelphia, Pa. Oil-can	311,488	Feb. 3	37	10	30	356
Hart, Hubert C., Unionville, Conn. Barbed wire	312,463	Feb. 17	1375	379	30	620
Hart, John B., and E. H. Walker, Holyoke, Mass. Device for cleaning cut rags and saving small rags of the same	311,186	Jan. 27	1364	374	30	272
Hart, John B., and E. H. Walker, Holyoke, Mass. Rag-cleaning machine	311,187	Jan. 27	1365	374	30	272
Hart, Thomas J., assignor to J. Jenks, Detroit, Mich. Combined injector and ejector	314,446	Mar. 24	1699	507	30	1157
Hartford Glass Water Closet Company. (See Lord, Henry S., assignor.)						
Hartley, Bernard. (See Hartley, Thomas and B.)						
Hartley, Thomas and B., Accrington, county of Lancaster, England. Last-stand for shoemaker's use	311,315	Jan. 27	1553	422, 423	30	305
Hartman, Charles R., Vincennes, Ind. Rolling colter	313,073	Mar. 3	46	12	30	786
Hartmann, Joseph, assignor to J. H. Orwig, Fremont, Ohio. Hoop-sawing machine	314,835	Mar. 31	2444	645	30	1282
Hartnett, John M., Lyons, Kans. Automatic oiler for crank-pins	314,934	Mar. 31	2584	684	30	1306
Hartwell, Abraham V., Chicago, Ill. Sand-drier	313,732	Mar. 10	942	244	30	961
Hartough, Cornelius S. (See Trussell, Lorenzo J., assignor.)						
Harvey, George V., *et al.* (See Sencenbaugh, Samuel C., assignor.)						
Harvey, Hayward A., Orange, N. J., and C. S. Clark, Providence, R. I.; said Clark assignor to Harvey Screw and Bolt Company, of Connecticut. Screw-pointing machine	314,935	Mar. 31	2585	684, 685	30	1306
Harvey, Hayward A., Orange, N. J., and C. S. Clark, Providence, R. I.; said Clark assignor to Harvey Screw and Bolt Company, of Connecticut. Machine for nicking screw-blanks	314,936	Mar. 31	2587	685	30	1307
Harvey, Patrick, Chicago, Ill. Stop and waste valve	314,836	Mar. 31	2445	646	30	1283
Harvey, Samuel W., *et al.* (See Straw, George, assignor.)						
Harvey Screw and Bolt Company. (See Harvey and Clark, assignors.)						
Harwood, Henry, Warren, Ohio. Constructing hollow brick walls	312,464	Feb. 17	1376	380	30	620
Harwood, T. M., *et al.* (See Watts, Henry P., assignor.)						
Haselton, Daniel B., Charleston, S. C., assignor to Southern Cotton Picking Company, of South Carolina. Cotton-harvester	313,421	Mar. 3	532	140	30	876

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Haselton, Daniel B., Charleston, S. C., assignor to Southern Cotton Picking Company. Cotton-harvester	313,422	Mar. 3	533	140, 141	30	876
Hasenclever, Friedrich A., Dusseldorf, Germany, assignor to Patent Nut and Bolt Company, (limited.) London Works, England. Nut-forging machine	310,680	Jan. 13	667	183	30	133
Haskell, John T., assignor of one-half to H. E. Streator, Norwalk, Ohio. Scaffolding	311,578	Feb. 3	161	46	30	379
Haslam, Mark, Stockport, county of Chester, assignor to MacQueen & Co., London, England. Hat-sweat	311,751	Feb. 3	379	104	30	420
Haslup, William, Sidney, Ohio. Sled	314,837	Mar. 31	2447	646	30	1283
Hasselbusch, Hermann. (See Hasselbusch, John D. and H.)						
Hasselbusch, John D. and H., St. Louis, Mo. Grain-cleaning machine	314,123	Mar. 17	1479	385, 386, 387	30	1068
Hasselman, Lewis W., Indianapolis, Ind. Straw-stacker	311,317	Jan. 27	1553	423	30	306
Hastings, Edwin G., Nevada, Iowa. Music-leaf turner	310,199	Jan. 6	53	15	30	13
Hastings, Harry O., *et al.* (See Ewing, Edward, assignor.)						
Hastings, John V., *et al.* (See Ewing, Edward, assignor.)						
Hastings, Robert E., *et al.* (See Ewing, Edward, assignor.)						
Hatcher, Edmund N., assignor to himself and A. C. Emmick, Columbus, Ohio. Clip for vehicle-axles	312,465	Feb. 17	1377	380	30	620
Hathaway, George M., New York, N. Y., assignor to Hathaway's Printing Telegraph and Telephone Company. Printing-telegraph	310,587	Jan. 13	551	152, 153, 154	30	112
Hathaway's Printing Telegraph and Telephone Company. (See Hathaway, George M., assignor.)						
Hatmaker, Adam H., Iuka, Ill. Gate	312,466	Feb. 17	1377	380	30	621
Haugk, Carl H., assignor of two-thirds to C. and C. Vogt, Brooklyn, N. Y. Cigar-butt cutter	313,329	Mar. 3	417	104	30	853
Haugk, Carl H., assignor of two-thirds to C. and C. Vogt, Brooklyn, N. Y. Cigar-bunch mold	313,330	Mar. 3	419	105	30	853
Hanlenbeck, John H., and G. F. Brown, Philadelphia, Pa. Necktie	312,118	Feb. 10	889	242	30	521
Hawkes, Nathan, Appleton, Me. Door-knob attachment	311,753	Feb. 3	381	104	30	420
Hawkins, Ellis S., Columbus, Ohio. Carriage-seat iron	313,331	Mar. 3	419	105	30	853
Hawkins, J. Wesley, Gallon, assignor to Railway Speed Recorder Company, Kent, Ohio. Lifting-jack	314,937	Mar. 31	2569	685, 686	30	1307
Hawkins, James D., Brazil, Ind. Tag-holder	310,201	Jan. 6	56	15	30	13
Hawkins, John T., Taunton, Mass. Machine for varnishing printed sheets of paper	310,200	Jan. 6	54	15	30	13
Hawkins, John T., Taunton, Mass. Fire hose case or box	311,752	Feb. 3	380	104	30	420
Hawkins, John T., Taunton, Mass. Buffer-spring for printing-presses	313,205	Mar. 3	243	61	30	822
Hawkins, Moses C., Edinborough, Pa. Time-lock	314,838	Mar. 31	2447	646	30	1283
Hawley, Joseph H., Danbury, Conn. Water-closet apparatus handle	311,962	Feb. 10	714	195	30	488
Hawley, Melville C. (See Kearney and Hawley.)						
Hawley, Theodore, Fairfield, Conn. Colored water-proof fabric	310,275	Jan. 6	152	42	30	30
Haworth, George D., Chicago, Ill. Corn-planter	314,239	Mar. 24	1621	429	30	1104
Haworth, George D., Chicago, Ill. Corn-planter	314,240	Mar. 24	1622	429	30	1104
Hawthorne, Robert H., New York, N. Y. Sewing-machine	312,467	Feb. 17	1379	381	30	621
Hayden & Boyd. (See Fonteine and Kosters, assignors.)						
Hayden, Hiram W., Waterbury, Conn. Watch	312,848	Feb. 24	1892	518, 519	30	722
Hayden, William B., Columbus, Ohio. Time-lock mounting	312,119	Feb. 10	890	242	30	521
Hayes, Eli B., Big Rapids, Mich. Gang-bit boring-machine	314,124	Mar. 17	1480	386, 387	30	1068
Hayes, Elihu B., Lynn, Mass. Ticket-punch	314,241	Mar. 24	1624	429	30	1104
Hayes, George. (See Reillé, Richard H., assignor.)						
Hayes, George, New York, N. Y. Ventilating-louver	313,865	Mar. 17	1132	294, 295	30	1004
Hayes, Isaac, Philadelphia, Pa. Range or stove	310,276	Jan. 6	153	42	30	30
Hayes, Isaac, Philadelphia, Pa. Open fire-place	310,277	Jan. 6	154	43	30	30
Hayes, Lewis S., Cortland, N. Y. Wood ornamentation	312,849	Feb. 24	1895	.....	30	723
Haynes, Archibald C. (See Haynes, Edward B., assignor.)						
Haynes, Edward B., assignor to A. C. Haynes, Baltimore, Md. Pedal attachment for pianos	311,754	Feb. 3	382	105	30	420
Haya, Charles W., Orange, N. J. Elevator	311,489	Feb. 3	37	11	30	356
Hazard, Edward C., Shrewsbury, N. J., assignor of one-half to F. Green, New York, N. Y. Can	314,839	Mar. 31	2449	647	30	1283
Hazard, Henry T. (See Earl and Hazard.)						
Hazard, James S., Newport, R. I., assignor to J. Matthews, New York, N. Y. Regulator for gases or fluids under pressure	314,020	Mar. 17	1342	349, 350	30	1044
Hazard, Rowland R., New York, N. Y. Underground railway-structure	314,021	Mar. 17	1344	350	30	1044
Hazelton, George H., Boston, Mass. Tea or sugar caddy	313,666	Mar. 10	854	222	30	946
Hazelton, Milton W., Chicago, Ill. Locomotive-boiler	311,318	Jan. 27	1554	424	30	306
Hazelton, Milton W., assignor of one-half to E. S. T. Kennedy, New York, N. Y. Steam-boiler	310,891	Jan. 20	932	254	30	188
Hazelton, Milton W., New York, N. Y., assignor of one-half to W. N. Evans, Chicago, Ill. Traction-engine	311,319	Jan. 27	1555	424	30	306
Heald, Charles W., Moline, Ill. Drive-chain	310,997	Jan. 20	1091	299	30	216
Healey, James A., Wakefield, Mass. Carriage-body	313,591	Mar. 10	756	199	30	927
Healy, Clarence L., Brooklyn, assignor to S. D. Field, Yonkers, N. Y. Armature for dynamo-electric machines	314,242	Mar. 24	1625	430	30	1105
Heard, William, Brooklyn, N. Y. Brick	314,022	Mar. 17	1346	350	30	1044
Heath, Joseph C. (See Moore, William A., assignor.)						
Heathcote, Thomas, Allegheny City, Pa. Stone-lifter	314,243	Mar. 24	1626	430	30	1105
Heatherington, Jacob, Bellaire, Ohio. Coal-chute	310,278	Jan. 6	155	43	30	31
Heaton, John S., Shelbyville, Ky. Cut-off for cisterns	312,120	Feb. 10	891	243	30	522
Heberling, John, Cleveland, Ohio, and W. L. Heberling, Bath, Ill. Sewing-machine shuttle	311,490	Feb. 3	38	11	30	356
Heberling, John, Cleveland, Ohio, and W. L. Heberling, Bath, Ill. Sewing-machine shuttle	311,491	Feb. 3	40	11	30	356
Heberling, William L. (See Heberling, John and W. L.)						
Hebert, Peter, assignor of one-half to B. F. Boyer, Burr Oak, Kans. Nut-lock	314,575	Mar. 31	2083	556	30	1216
Heenan, Richard H., and R. H. Fronde, Manchester, county of Lancaster, England. Rotary engine or pump	312,116	Feb. 10	887	241, 242	30	521
Heesen, Hendrick, assignor to himself, A. L. Brewer, H. W. Conklin, C. J. Brewer, and H. Stout, Tecumseh, Mich. Clay-crusher	313,332	Mar. 3	420	105	30	854
Hegler, Almer. (See Drais and Hegler.)						
Heilborn, Francis F., assignor to Lincoln, Bacon & Co., Plainville, Mass. Chain bracelet	312,994	Feb. 24	2079	567	30	756

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Heintz, Charles F. (See Pfeiffer, Jacob, assignor.)						
Heintz, Christian and G. M., Buffalo, and A. Dotterweich, Dunkirk, N. Y.; said Dotterweich assignor to said Christian and G. M. Heintz. Combined air-pressure apparatus and refrigerator	311,831	Feb. 3	478	130	30	438
Heintz, George M. (See Heintz and Dotterweich.)						
Heinzerling, Christian, Frankfort-on-the-Main, Germany. Steam-motor	311,983	Feb. 10	715	196	30	488
Heinzerling, Christian, Frankfort-on-the-Main, Germany. Generating steam and utilizing exhaust	311,984	Feb. 10	717	196	30	488
Heiss, Charles E., assignor of one-half to J. N. Raymond, Chicago, Ill. Plumber's trap	314,670	Mar. 31	2204	585	30	1237
Heller, Andrew, New York, N. Y. Combined detachable pocket and cap	314,333	Mar. 24	1753	467	30	1128
Hellerstedt, Peter F., Morrison, Ill. Two-wheeled vehicle	311,244	Jan. 27	1449	395	30	287
Hellings, Andrew J., Philadelphia, Pa. Combination-gage	310,420	Jan. 6	336	92	30	65
Hellmuth, Frederick C., assignor to himself and J. Munz, Jr., Brooklyn, N. Y. Carpet-fastener	314,671	Mar. 31	2205	585	30	1237
Hellwig, Maurice, Brooklyn, N. Y. Brush-machine	311,985	Feb. 10	718	196	30	488
Helmbold, Horace T., Philadelphia, Pa. Burglar-alarm	310,421	Jan. 6	337	92	30	66
Hemingway, Henry N., Auburn, assignor to W. H. Wood and D. G. Weaver, Rochester, N. Y. Machine for manufacturing button-fasteners	312,121	Feb. 10	693	243	30	522
Hemphill, James, Pittsburg, Pa. Rolling-mill	313,206	Mar. 3	244	61, 62	30	822
Hench, Samuel N., and W. A. Dromgold, York, Pa. Cultivator spring-hoe	310,421	Jan. 13	645	229	30	166
Henderson, James, Bellefonte, Pa. Furnace for manufacturing iron and steel	312,632	Feb. 24	1603	439, 440	30	671
Henderson, John W., Philadelphia, Pa. Railway-switch	313,866	Mar. 17	1133	295	30	1004
Hendey Machine Company. (See Ballard, David L., assignor.)						
Hendrickson, William, Brooklyn, N. Y. Composing-stick	310,422	Jan. 6	338	93	30	66
Hendrickson, William, Brooklyn, N. Y. Printer's quoin	312,850	Feb. 24	1896	519	30	723
Hendrie, Charles F. (See Bolthoff, Henry, assignor.)						
Henkel, George H., Middletown, Ohio. Culinary cover	314,244	Mar. 24	1626	430	30	1105
Henn, Eduard, Jersey City, N. J., assignor to A. Heyman, New York, N. Y. Skylight	311,245	Jan. 27	1450	395, 396	30	287
Hennig, Carl G. E., Paterson, N. J. Tricycle	310,998	Jan. 20	1092	299	30	216
Hennig, Carl G. E., Paterson, N. J. Tricycle. (Reissue)	10,575	Mar. 24	2051	546	30	1182
Henning, George C., Washington, D. C. Leggin	314,840	Mar. 31	2450	647	30	1283
Henry, Andrew L., Ladoga, Ind. Sifter	311,696	Feb. 10	586	160	30	465
Henry, William E., assignor of one-half to W. L. Jancey, Chicago, Ill. Candy-machine	314,529	Mar. 24	2020	539	30	1177
Herbert, Michael E., St. Joseph, Mo. Steam-boiler	310,423	Jan. 6	338	93	30	66
Hercules Manufacturing Company. (See Dawson, George A., assignor.)						
Herhold, F. H. (See Goussen, Johann W., assignor.)						
Hermle, John, Euclid, Ohio. Stock for fire-arms	311,755	Feb. 3	382	105	30	421
Heron, John, assignor to W. J. Crummey and J. W. Beadle, Evansville, Wis. Paper box	312,851	Feb. 24	1897	519	30	723
Herrick, Frank J., and A. McManus, assignors to North & Judd Manufacturing Company, New Britain, Conn. Swinging hook	311,246	Jan. 27	1451	396	30	287
Herrick, George E. (See Gants, William H., assignor.)						
Herrick, James A. (See Fisher and Herrick.)						
Herron, James P. (See Morrison and Herron.)						
Herschell, John T., Evansville, Ind. Car-spring	314,245	Mar. 24	1628	430	30	1105
Hershberger, Jonathan, Walnut Creek, Ohio. Traction-engine	312,633	Feb. 24	1605	440	30	672
Herzog, F. Benedict, New York, N. Y. Combined audible stock-quotation system and fire-telegraph	311,756	Feb. 3	383	105	30	421
Herzog, F. Benedict, New York, N. Y. Audible quotation-indicating system	311,757	Feb. 3	387	106	30	421
Herzog, F. Benedict, New York, N. Y. Electric signaling apparatus	314,292	Mar. 24	1696	452, 453	30	1118
Herzog, F. Benedict, New York, N. Y. Latent-signal transmission	314,293	Mar. 24	1700	453	30	1119
Herzog, F. Benedict, New York, N. Y. Circuit-changer for latent-signal transmission	314,294	Mar. 24	1703	453	30	1119
Hess, William C., Louisville, Ky. Automatic fire-alarm box	310,424	Jan. 6	339	93	30	66
Hesser, William J., Plattsmouth, Nebr. Wire flower-pot holder	313,667	Mar. 10	855	222	30	946
Heublein, Louis F. (See Hubbell, Napoleon C., assignor.)						
Heumann, Bernhard, Rochester, and F. B. Pease, Ontario Centre, N. Y. Cloth measuring and facing machine	310,425	Jan. 6	341	94	30	66
Heverling, John B., St. Louis, Mo., assignor, by mesne assignments, to Cincinnati Cooperage Company, Cincinnati, Ohio. Stave-dressing machine	314,125	Mar. 17	1483	387, 388	30	1069
Heverling, John B., St. Louis, Mo., assignor, by mesne assignments, to Cincinnati Cooperage Company, Cincinnati, Ohio. Stave-dressing machine	314,176	Mar. 17	1545	404, 405	30	1080
Hewes, Alfred. (See Cotton and Hewes.)						
Hewitt, Thomas S., New York, N. Y. Valve for steam-radiators	311,657	Feb. 3	262	72	30	397
Hewitt, William, assignor to Trenton Iron Company, Trenton, N. J. Metallic fabric	314,576	Mar. 31	2084	556	30	1216
Hoy, George W., assignor of one-half to C. H. Duell, Syracuse, N. Y. Door-hanger	314,177	Mar. 17	1545	405	30	1080
Heydt, Leonhard, Strasburg, Alsace, Germany. Steering apparatus	313,733	Mar. 10	943	244	30	961
Heylyn, Edward, New York, N. Y. Pavement	311,579	Feb. 3	102	46	30	379
Heyman, Abraham. (See Henn, Edward, assignor.)						
Heywood, Henry, and D. F. Pratt, Gardner, Mass. Die for cutting rattan	311,658	Feb. 3	263	72	30	398
Heywood, Joseph L. (See Richardson, Jeremiah M., assignor.)						
Hibbard, Angus S., Milwaukee, Wis. Atomizer	310,999	Jan. 20	1094	299	30	216
Hibbs, James C., Brownsville, Mo. Sash-fastening	312,268	Feb. 17	1103	305	30	568
Hickey, John. (See O'Neill, Michael, assignor.)						
Hickie, James F., Slevoir, Roscrea, Ireland. Cigar-cabinet	310,942	Jan. 20	1013	273, 274	30	200
Hickox, Charles V. (See Taft, Charles E., assignor.)						
Hicks, Charles R., Troy, N. Y. Umbrella	313,668	Mar. 10	855	222	30	946
Hicks, Thomas H., assignor to M. L. Rossvally, Detroit, Mich. Tension check-spring	310,426	Jan. 6	342	94	30	67
Hien, Phillip, Rock Island, Ill. Automatic car-brake	313,734	Mar. 10	944	244, 245	30	962
Higby, Charles W. (See Colley, George H., assignor.)						
Higby, Joseph L., *et al.* (See Pontz, Levi, assignor.)						
Higley, Eben N., Great Falls, N. H. Illuminated tile	312,269	Feb. 17	1104	305	30	568
Higley, Eben N., Somersworth, N. H. Railway-tie	312,717	Feb. 24	1717	472	30	691
Hilgner, Robert, assignor of one-half to G. B. Lawrason, New Orleans, La. Binding attachment for sewing-machines	310,822	Jan. 13	846	229	30	166
Hill, Andrew G. (See Corbin and Hill.)						
Hill, Charles, Los Angeles, Cal. Permutation-lock	310,892	Jan. 20	933	254	30	188
Hill, David K., Chicago, Ill. Automatic cash-carrier	311,897	Feb. 10	587	161	30	465
Hill, George H., Derby, assignor of one-half to W. J. Welsh, Birmingham, Conn. Expansible bit	313,735	Mar. 10	946	245	30	962
Hill, Harry W., Montgomery, Ala. Friction-clutch pulley	312,122	Feb. 10	895	243	30	529

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Hill, Louis C., assignor of one-half to J. W. Weaver, Myrtle Creek, Oreg. Hand-weeder	311,428	Jan. 27	1712	466	30	335
Hill, Lucian, North Brookfield, assignor to T. C. Bates, Worcester, Mass. Corset-steel fastening	314,530	Mar. 24	2021	539	30	1177
Hill, Lucian, assignor to T. C. Bates, North Brookfield, Mass. Corset-clasp	310,512	Jan. 6	443	122	30	86
Hill, Lucian, assignor to T. C. Bates, North Brookfield, Mass. Fastening for corsets	311,986	Feb. 10	719	196	30	489
Hill, Lucian, assignor to T. C. Bates, North Brookfield, Mass. Corset-steel fastening	311,987	Feb. 10	720	197	30	489
Hill, Lucian, assignor to T. C. Bates, North Brookfield, Mass. Corset-steel fastening	313,074	Mar. 3	48	12	30	787
Hill, Sylvester R., assignor to Overman Wheel Company, Chicopee, Mass. Velocipede	312,634	Feb. 24	1606	{440 441	30	672
Hill, William E., Kalamazoo, Mich. Combined boring and reaming tool	312,350	Feb. 17	1230	338	30	592
Hillman, William, Coventry, England. Saddle-spring for velocipedes	310,823	Jan. 13	248	230	30	166
Hillman, William, Binley Road, Coventry, England. Velocipede	311,320	Jan. 27	1557	{424 425	30	306
Hillson, John, administrator. (See Hillson, Robert.)						
Hillson, Robert, deceased, (J. Hillson, administrator,) Albany, N. Y. Damper	312,635	Feb. 24	1608	441	30	672
Hilton, George P., Glendale, S. C. Remedy for liver and kidney diseases	310,427	Jan. 6	343	.....	30	67
Hindes, Edward B. (See Wheeler and Hindes.)						
Hinds, Alfred A., and L. E. Mace, Lexington, Ind. Portable chute	312,468	Feb. 17	1380	392	30	621
Hinds, Frank A., Watertown, N. Y. Rotary water-meter	314,126	Mar. 17	1484	388	30	1069
Hines, Elijah, Batavia, Ill. Tank	313,867	Mar. 17	1135	295	30	1005
Hinkel, Ernst P., Offenbach-on-the-Main, Germany. Album-clasp	310,428	Jan. 6	343	94	30	67
Hinkle, Charles M., Davis City, Iowa. Fabric-turfing implement	314,023	Mar. 17	1346	351	30	1045
Hinkley, George M. (See Church, James S., assignor.)						
Hinkley, George M., Milwaukee, Wis. Circular sawing machine	314,379	Mar. 24	1811	492	30	1140
Hinks, Joseph, Birmingham, county of Warwick, England. Lamp	312,202	Feb. 10	1015	{276 277	30	544
Hinman, Marshall L. (See Cooper, William E., assignor.)						
Hipwell, Thomas, Astoria, assignor to Manhattan Brass Company, New York, N. Y. Lamp-burner	314,178	Mar. 17	1548	405	30	1070
Hirlinger, Christian G. (See Forshey and Hirlinger.)						
Hirsch, Isaac, *et al.* (See Tuerk, Samuel, assignor.)						
Hirshfield, Philip, Lowell, Mass. Button	311,758	Feb. 3	389	106	30	422
Hitaffer, Thomas T. A. (See Waterworth, Alexander M., assignor.)						
Hitchcock, Robert, Springfield, Mass. Car-coupling	314,577	Mar. 31	2084	557	30	1216
Hittle, Jonas H., and A. D. Davis, Mackinaw, Ill. Combined hay and stock rack	313,333	Mar. 3	422	105	30	854
Hitzert, Albert, East Saginaw, Mich. Barrel-hoop machine	313,207	Mar. 3	246	62	30	822
Hoadley, Robert, assignor to Ansonia Brass & Copper Company, Ansonia, Conn., and W. A. Hull, New York, N. Y. Manufacture of articles of sheet metal for lamp-fixtures	311,321	Jan. 27	1558	425	30	307
Hoag, John B., Judsonia, Ark. Insecticide	312,270	Feb. 17	1105	.....	30	569
Hoag, Seth W., Grand Isle, Vt. Match-box	311,129	Jan. 20	1279	352	30	250
Hoagland, James, and B. Zipfel, Toledo, Ohio. Soap	314,447	Mar. 24	1901	.....	30	1158
Hoagland, John, assignor to Pearce & Hoagland, Providence, R. I. Watch-chain bar	311,429	Jan. 27	1712	466	30	335
Hoard, John W. and F. R., Providence, R. I. Oxidizing linseed and other oils	312,351	Feb. 17	1231	338	30	592
Hoard, Frederick R. (See Hoard, John W. and F. R.)						
Hochhausen, William, New York, N. Y. Automatic cut-out for electric lamps	311,072	Jan. 20	1195	329	30	235
Hochhausen, William, New York, N. Y. Electric-arc lamp	311,073	Jan. 20	1199	{329 340	30	236
Hochhausen, William, New York, N. Y. Focusing electric-arc lamps	311,074	Jan. 20	1204	330	30	237
Hock, Mamert, Saar Louis, Germany. Mechanical musical instrument	312,636	Feb. 24	1610	442	30	673
Hockert, Seigfried L., Cincinnati, Ohio. Device for actuating mortar-pestles	311,580	Feb. 3	163	46	30	379
Hodgdon, Caleb W. (See Field, Horace T., assignor.)						
Hodges, Horace F., Chelsea, assignor to C. F. Payne, Groveland, and G. H. Spencer, Fitchburg, Mass. Pump	311,581	Feb. 3	164	47	30	379
Hodges, John. (See Annable, Edward R., assignor.)						
Hodges, Pliny F., Chicago, Ill. Automatic grain-binder	312,469	Feb. 17	1381	{382 383	30	621
Hodskinson, Jabez, Salem, assignor of one-half to D. Knox, Lynn, Mass. Machine for putting out and cleaning leather	311,582	Feb. 3	165	47	30	379
Hoe & Co., R. (See Anthony, Edwyn, assignor.)						
Hoe & Co., R. (See Crowell, Luther C., assignor.)						
Hoe & Co., R. (See Gill, George C., assignor.)						
Hoeber, Adolph, St. Louis, Mo. Demijohn or bottle	310,202	Jan. 6	56	15	30	13
Hoehn, William, New York, N. Y. Trunk-lock	311,759	Feb. 3	390	106	30	422
Hoeveler, William A., and T. J. McTighe, Pittsburg, Pa. System for distributing gas under pressure	312,470	Feb. 17	1389	{383 384	30	622
Hoff, Charles, Cincinnati, Ohio, assignor to Hoff, Noll & Renner. Sheet-metal-seaming machine	314,448	Mar. 24	1901	508	30	1158
Hoff, Noll & Renner. (See Hoff, Charles, assignor.)						
Hoffman & Ahlers. (See Kuhn, Leo S., assignor.)						
Hoffman, Austin D., Chicago, Ill. Paper-cutter	310,513	Jan. 6	444	122	30	86
Hoffman, Isaac A., *et al.* (See Kuhn, Leo S., assignor.)						
Hoffman, John G., New York, and G. Weber, assignors to J. G. Hoffman Manufacturing Company Brooklyn, N. Y. Mechanism for operating fan-blowers	310,681	Jan. 13	669	184	30	133
Hoffman Manufacturing Company, J. G. (See Hoffman and Weber, assignors.)						
Hoffman, William M., assignor to himself and E. B. Stevens, Buffalo, N. Y. Putting-out machine	310,279	Jan. 6	157	44	30	31
Hoffmann, Adam, Allegheny, Pa. Railway-signal	313,936	Mar. 17	1242	327	30	1023
Hoffmann, Meinhard, Mainkur, near Frankfort-on-the-Main, assignor to L. Cassella & Co., Frankfort-on-the-Main, Germany. Coloring-matter from beta-naphthol	314,938	Mar. 31	2591	.....	30	1308
Hoffmann, Meinhard, Mainkur, near Frankfort-on-the-Main, assignor to L. Cassella & Co., Frankfort-on-the-Main, Germany. Red coloring-matter from gamma disulphonic acid of beta-naphthol	314,939	Mar. 31	2592	.....	30	1308
Hoffmeister, Hermann C., Moidling, near Vienna, Austria-Hungary. Steam-boiler	312,718	Feb. 24	1718	472	30	692
Hogan, George W., Bentonville, Ark. Fruit and nut gatherer	310,429	Jan. 6	344	94	30	67
Hoke, David, Altoona, assignor of one-half to H. E. Hoke, Chambersburg, Pa. Locking device for sliding doors	311,760	Feb. 3	390	106	30	422
Hoke, Henry E. (See Hoke, David, assignor.)						
Hoke, Henry E., Chambersburg, Pa. Fastening device for the doors of freight-cars	311,761	Feb. 3	392	107	30	422
Holden, Frank H., Chicago, Ill. Mosquito-net	312,471	Feb. 17	1391	384	30	622
Holden, Jonathan, J. Burnley, and J. Fawell, Bradford, county of York, England. Stop-motion device for wool-combing machines	312,271	Feb. 17	1105	305	30	569
Holding, Joseph, Manchester, county of Lancaster, England. Whip	312,719	Feb. 24	1719	472	30	692
Holdsworth, John W. (See Pringle and Holdsworth.)						
Holgate, George, Philadelphia, Pa. Preserving meats	312,995	Feb. 24	2080	.....	30	756

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Holgate, George, Philadelphia, Pa. Apparatus for preserving by gases	313,736	Mar. 10	947	245	30	962
Hollick, Frederick, New York, assignor of one-half to J. J. Greenough, Syracuse, N. Y. Amalgamating ores	314,578	Mar. 31	2086	.....	30	1216
Hollingsworth, Joel C., Wilna, Md. Hub for vehicle-wheels	314,024	Mar. 17	1347	351	30	1045
Holmberg, Gustaf L., assignor of one-half to A. Charles and C. E. Carlson, Minneapolis, Minn. Force-pump	313,669	Mar. 10	856	223	30	947
Holmes, Joseph R., London, county of Middlesex, England. Inextinguishable lamp for marine and land purposes	311,583	Feb. 3	168	47	30	380
Holmes, Michael, Lodi, Wis. Coffee-roaster	311,322	Jan. 27	1559	425	30	307
Holmes, Nathan L., Racine, Wis. Circle-post for wagons	311,000	Jan. 20	1094	299	30	216
Holroyd, William F. (See Dalton, Edward F., assignor.)						
Holt, Charles H., Philadelphia, Pa. Grate for boiler-furnaces	312,472	Feb 17	1392	{384 385	30	622
Holt, George H., West Chelmsford, Mass. Pump	312,892	Feb. 24	1897	520	30	723
Holt, Noah W., Buffalo, N. Y. Roller-mill	310,430	Jan. 6	345	95	30	67
Holton, John L., New Lisbon, Ohio. Sheet-metal-roofing machine	310,824	Jan. 13	848	230	30	166
Holts Patent Fire Arms Manufacturing Company. (See Knous, Franklin F., assignor.)						
Hooker, Thomas. (See Sweet, John E., assignor.)						
Hooker, William D., St. Louis, Mo. Valve-movement for direct-acting engines	313,808	Mar. 17	1136	296	30	1005
Hoop, Henry W., Sr. (See Silberberg, Rudolf, assignor.)						
Hoosier Drill Company. (See Westcott, John M., assignor.)						
Hoover, William H. (See Evans, John, assignor.)						
Hope, William, London, England, and R. S. Ripley, Paris, France, assignors to Société des Fonderies et Forges de Terre-Noire, la Voulte et Besseges. Cartridge for ordnance	314,127	Mar. 17	1486	388	30	1070
Hopkins, George M., Brooklyn, N. Y. Telephone-transmitter	314,841	Mar. 31	2452	647	30	1284
Hopkins, I. Newton, Brooklyn, N. Y. Tie for bales and packages	312,637	Feb. 24	1611	443	30	673
Hopkins, Samuel S., Norwich, Conn. Hammer for fire-arms	311,323	Jan. 27	1560	425	30	307
Hopkins, William, Dubuque, Iowa. Radiator	314,128	Mar. 17	1488	388	30	1070
Hopkins, William J. (See Wilcox and Hopkins.)						
Hoppes, John J., assignor of one-half to W. A. Ross, Springfield, Ohio. Tobacco-cutter	310,431	Jan. 6	347	95	30	68
Hoppin, Curtis B. (See La Point and Hoppin.)						
Hopson, Lucien, Lampasas, Tex. Projectile	313,075	Mar. 3	49	13	30	787
Hopwood, Elijah M. (See Hostetler, Bower, and Hopwood.)						
Horack, Charles L., Brooklyn, N. Y. Automatic fire-extinguisher	310,432	Jan. 6	348	95	30	68
Horack, Charles L., Brooklyn, N. Y. Automatic fire-extinguisher	313,423	Mar. 3	535	141	30	877
Horne, Eli C., Jasper, Fla. Cotton-gin	311,001	Jan. 20	1096	300	30	217
Horne, John H., Lawrence, Mass. Roll for paper-pulp engines	310,203	Jan. 6	57	16	30	13
Hornig, Julius L., Jersey City, N. J. Metal-extracting apparatus	313,208	Mar. 3	248	62	30	823
Hornor, William H., and A. Crotchett, Baxter Springs, Kans. Corn-planter	312,853	Feb. 24	1899	{520 521	30	724
Horrocks, James. (See Horrocks, John and J.)						
Horrocks, John and J., Manchester, county of Lancaster, England. Machine for doubling and winding yarn or thread upon bobbins	313,869	Mar. 17	1137	{296 297	30	1005
Horton, Eugene, Prairieville, Mich. Land-roller	314,246	Mar. 24	1629	431	30	1105
Horton, Everett, New Haven, Conn. Machine for finishing clock-pallets	312,203	Feb. 10	1018	{277 278	30	544
Horton, James A., Reading, Mass. Loose pulley	313,497	Mar. 10	638	166	30	904
Hosch, Carl, Haida, Austria-Hungary. Bobbin-winding attachment for sewing-machines	311,968	Feb. 10	720	197	30	489
Hostetler, Peter J., O. C. Bower, and E. M. Hopwood, Bushton, Ill. Cultivator	311,832	Feb. 3	479	131	30	439
Hostetter, David R., Cleveland, Ohio. Cover for varnish-kettles	312,854	Feb. 24	1900	521	30	724
Hotchkiss, Henry, Cheshire, Conn. Ox-shoe	312,352	Feb. 17	1232	338	30	592
Hotchkiss, James F. (See Squire, Charles R., assignor.)						
Hotchkiss, Nathaniel S. (See Goddu, Louis, assignor.)						
Houck, John A., assignor of one-half to J. C. Gront, Detroit, Mich. Automatic grease-cup	312,204	Feb. 10	1021	279	30	545
Houghton, Stephen C., San Francisco, Cal. Blower for fire-grates	310,825	Jan. 13	851	231	30	167
House, James A., and C. H. Dimond, Bridgeport, Conn. Automatic damper-regulator	310,943	Jan. 20	1016	274	30	200
Houston, John W., assignor to himself and W. O. Houston, Bellaire, Ohio. Grate	310,514	Jan. 6	444	123	30	87
Houston, William O. (See Houston, John W., assignor.)						
Hövet, Rudolph F. H., Hamburg, Germany. Vehicle-wheel	313,209	Mar. 3	250	63	30	823
Hovey, Edwin S., assignor of one-half to W. H. Ireland, Boston, Mass. Device for connecting the ends of railway-rails	311,002	Jan. 20	1098	300	30	217
How, Woodbury S., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Artificial tooth-crown	313,737	Mar. 10	949	246	30	962
How, Woodbury S., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Artificial tooth-crown	313,738	Mar. 10	951	246	30	962
How, Woodbury S., Cincinnati, Ohio, assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Bracket	313,937	Mar. 17	1244	{323 324	30	1024
Howard, Arthur L., New Haven, Conn. Machine for trimming cartridge-heads	311,324	Jan. 27	1561	426	30	307
Howard, Arthur L., New Haven, assignor to Woodruff, Miller & Co., Mount Carmel, Conn. Die for making carriage-shaft tips	311,430	Jan. 27	1713	466	30	335
Howard, Clarence M., Fredonia, N. Y. Watch regulator	314,072	Mar. 31	2206	586	30	1238
Howard, Frank M., Cameron, Tex. Insecticide composition	314,531	Mar. 24	2022	.....	30	1177
Howard, Hoy, assignor of one-half to J. Ditwiler & Son, Mansfield, Ohio. Buckle	310,588	Jan. 13	555	154	30	112
Howard, James, and H. W. Gibbs, Bedford, county of Bedford, England. Plow	314,073	Mar. 31	2207	586	30	1238
Howard, Leonard D., St. Johnsbury, Vt. Miter-sawing machine	314,843	Mar. 31	2454	648	30	1284
Howard, Stephen H., assignor to J. I. Wells & Son, Trenton, Tenn. Steam-engine	314,129	Mar. 17	1489	389	30	1070
Howe, Clarence E., Marlborough, Mass. Coin-cabinet	313,592	Mar. 10	756	199	30	927
Howe, John B., Danbury, Conn. Modulator for banjos	312,638	Feb. 24	1612	443	30	673
Howe, John B., Danbury, Conn. Banjo	314,295	Mar. 24	1705	453	30	1120
Howell, Allen S. (See Thayer and Howell.)						
Howell, Jesse M., Greensborough, Ga. Cotton-seed planter	313,938	Mar. 17	1245	324	30	1024
Howell, John A., U. S. Navy. Marine torpedo	311,325	Jan. 27	1563	{426 427	30	307
Howell, John A., U. S. Navy. Apparatus for launching torpedoes	311,326	Jan. 27	1568	{427 428	30	308
Howell, Martin A., Jr., Chicago, Ill. Manufacture of cutting-tools and tool-blanks	310,280	Jan. 6	158	.....	30	31
Howell, Matthias H., Jersey City, N. J. Spring-motor	313,334	Mar. 3	423	106	30	854
Howell, William H., Thorold, Ontario, Canada, assignor to W. Wilkeson, Youngstown, N. Y. Pulp-grinder	314,844	Mar. 31	2457	649	30	1284
Howes, Babcock & Ewell. (See Chapman, Horace P., assignor.)						
Howes & Ewell. (See Creveling, Lewis, assignor.)						
Howland & Co. (See Young, Cornelius, assignor.)						
Howland, Joshua, Union Springs, N. Y. Shoe-heel	314,130	Mar. 17	1490	389	30	1070
Hoxie, Benjamin W., assignor to O. H. Jones, Hartford, Conn. Valve	311,833	Feb. 3	480	141	30	439

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Hoyt, Charles N., Haverhill, Mass. Turned boot or shoe	311,003	Jan. 20	1099	300	30	217
Hoyt, Frederick J., assignor, by mesne assignments, to Crescent Combination Pavement Company, Grand Rapids, Mich. Paving-block for streets	312,639	Feb. 24	1613	443	30	673
Hoyt, Jonathan J., assignor to F. F. Richardson, Chelmsford, Mass. Case for preserving food	313,076	Mar. 3	50	13	30	787
Hoyt, Lewis S., Boston, Mass. Flexible stopple for bottles	311,431	Jan. 27	1714	466	30	335
Hoyt, Lewis S., Boston, Mass. Stopple for bottles	311,834	Feb. 3	480	141	30	439
Hoyt, Lewis S., Boston, assignor to D. E. Devoe, Brookline, and F. F. Smalley, Chelsea, Mass. Bottle-stopper	314,025	Mar. 17	1348	351	30	1045
Hoyt, Lewis S., Boston, assignor to D. E. Devoe, Brookline, and F. F. Smalley, Chelsea, Mass. Bottle-stopper	314,179	Mar. 17	1549	406	30	1080
Hoyt, Lucius H., Danbury, Conn. Apparatus for curling and setting hat-brims	314,131	Mar. 17	1492	399	30	1071
Hubbard, Charles W., Pittsburg, Pa. Die for making ax-bit blanks	314,674	Mar. 31	2208	586	30	1238
Hubbard, John U., Oakland, Me. Die for forming ax-pole clips	314,845	Mar. 31	2457	649	30	1284
Hubbard, Moses G., Norristown, Pa. Car-truck	312,720	Feb. 24	1720	473	30	692
Hubbard, William W., assignor to C. B. Bradley, Manchester, N. H. Machine for reducing leather to a uniform thickness	312,272	Feb. 17	1106	306	30	569
Hubbell, Napoleon C., assignor to L. F. Heublein, Hartford, Conn. Hardening steel	310,433	Jan. 6	350	.....	30	68
Hubel, Fred A. (See Taylor, Harrison H., assignor.)						
Hubel, Frederick A., and F. Reinhold, Detroit, Mich.; said Reinhold assignor to said Hubel. Machine for greasing capsule-mold pins	311,659	Feb. 3	263	73	30	398
Hubel, Frederick A., and F. J. Reinhold, Detroit, Mich.; said Reinhold assignor to said Hubel. Capsule-machine	311,835	Feb. 3	481	{131, 132}	30	439
Huber, Berthold, Taunton, Mass. Sheet-delivering apparatus for printing-presses	311,432	Jan. 27	1715	467	30	335
Huber, Henry, Crestline, Ohio. Portable ladder for gathering fruit	310,434	Jan. 6	351	96	30	68
Huber, John Y., *et al.* (See Megee, Andrew J., assignor.)						
Huber, Louis C., Huber, Ky. Car-brake	310,435	Jan. 6	353	96	30	68
Huber, Phillip J., *et al.* (See Grattenthaler, Joseph, assignor.)						
Huber, Samuel, Danville, Pa. Potato-digger	313,670	Mar. 10	857	223	30	947
Hubert, H. Gengembre, New York, N. Y. Swinging cranes	314,675	Mar. 31	2209	587	30	1238
Hubert, H. Gengembre, New York, N. Y. Step-bearing for machinery	314,676	Mar. 31	2210	587	30	1238
Hudson, Benjamin F., Alvarado, Tex. Apparatus for emptying barrels or other receptacles containing liquids	313,077	Mar. 3	50	13, 14	30	787
Hudson, Hary H., Flint, Mich. Reversing-gear	314,380	Mar. 24	1813	{482, 483}	30	1141
Hudson, Samuel W., Hudsondale, Pa. Railway-track	310,281	Jan. 6	159	45	30	31
Huffer, Abraham, Hagerstown, Md. Hot-water-circulating washing-machine	314,846	Mar. 31	2458	649	30	1284
Huffman, George M., Zanesville, Ohio. Brake-lever	314,579	Mar. 31	2087	557	30	1216
Huggins, John C., Racine, Wis. Wagon	313,315	Mar. 3	423	106	30	854
Hughes, Jasper S., Dayton, Ohio. Tree-protector and lawn ornament	313,424	Mar. 3	537	141	30	877
Huguenin, Thomas A., Charleston, S. C. Composition for curing paving blocks or bricks	313,823	Mar. 10	1064	.....	30	983
Hulbert, Thomas H., Minneapolis, Minn. Self-closing hatchway	313,210	Mar. 3	251	63	30	823
Hulburt, James H., assignor of one-half to B. Winters, Blanchard, Mich. Drag-saw	312,205	Feb. 10	1022	279	30	545
Hull, Nicholas A., Peru, Ind. Lock	311,898	Feb. 10	589	161	30	465
Hull, Richard L., Meriden, Conn., assignor to A. H. White and H. L. Fairbrother, Providence, R. I. Lantern	313,425	Mar. 3	538	142	30	877
Hull, Wolcott A., *et al.* (See Hoadley, Robert, assignor.)						
Hulme, Thomas, Galveston, Tex. Regenerator for compound engines	310,926	Jan. 13	852	231	30	167
Humphrey, John N., *et al.* (See Scott, Jeremiah F., assignor.)						
Hungate, John H., Denver, Colo. Composition for journal-boxes	310,927	Jan. 13	852	.....	30	167
Hungerford, George, and S. H. Stiles, Genoa, Ill.; said Stiles assignor to said Hungerford. Box for packing butter	313,426	Mar. 3	539	142	30	877
Hunt, Alexander E. (See Rolling, Edward K., assignor.)						
Hunt, Benjamin, Neosho Falls, Kans. Combined steeper and heat-distributer for oil-stoves	314,334	Mar. 24	1793	467	30	1139
Hunt, George G., Bristol, Ill. Harvester	310,944	Jan. 20	1017	275	30	201
Hunt, James E. (See Eitel and Hunt.)						
Hunt, John P., Philadelphia, Pa. Cable railway	312,721	Feb. 24	1723	472	30	693
Hunt, Jonathan W., and J. Bressler, Crescent City, Cal. Rule-gage	311,584	Feb. 3	169	48	30	390
Hunt, Josiah K., Baldwin, Iowa. Washing-machine	313,498	Mar. 10	638	166	30	904
Hunt, Leander B., assignor of one-third to T. H. Videto, Hyde Park, Mass. Machine for making axes, hatchets, &c.	314,842	Mar. 31	2453	647	30	1284
Hunt, Robert W., Troy, N. Y. Feeding-table for rolling-mills	310,893	Jan. 20	934	254	30	188
Hunt, Robert W., Troy, N. Y. Feeding attachment for rolling-mills	312,640	Feb. 24	1614	{443, 444}	30	673
Hunt, Robert W., and M. M. Suppes, Troy, N. Y.; said Suppes assignor of one-sixth to said Hunt. Automatic feeding-table for rolling-mills	311,899	Feb. 10	590	{161, 162}	30	466
Hunter, George, Elgin, Ill., assignor, by mesne assignments, to R. E. Robbins, Boston, Mass., and T. M. Avery, Chicago, Ill., trustees. Stem-winding and hand-setting attachment for watches	312,856	Feb. 24	1907	523	30	725
Hunter, George, and F. Leman, Elgin, Ill. Machine for polishing pinions	312,855	Feb. 24	1901	{521, 522, 523}	30	724
Hunter, George D., Terre Haute, assignor of two-thirds to T. C. Van Nuys and M. C. Hunter, Bloomington, Ind. Spark-arrester	312,722	Feb. 24	1724	{473, 474}	30	693
Hunter, Morton C., *et al.* (See Hunter, George D., assignor.)						
Hunter, Rudolph M., Philadelphia, Pa. Salt-grainer	312,563	Feb. 17	1520	414	30	646
Hunter, Samuel. (See Johnston and Hunter.)						
Hunter, William H., *et al.* (See Matteson and Hutchins, assignors.)						
Hurst, H. Prinli, Newport, Ky. Child's copy-book	310,515	Jan. 6	446	123	30	67
Hurst, Jakob, and H. Schultz, Syracuse, N. Y. Breech-loading fire-arm	312,564	Feb. 17	1521	{414, 415}	30	647
Huse, Warren D., Laconia, assignor to O. Twombley, Lake Village, N. H., and T. S. Newell, Boston, Mass. Knitting-machine	313,593	Mar. 10	757	200	30	927
Husk, Edward F., Malden, Mo. Sulky-cultivator	310,828	Jan. 13	853	231	30	167
Huson, Charles M., South Pueblo, Colo. Cable tramway	312,273	Feb. 17	1108	{306, 307}	30	569
Huson, Charles M., South Pueblo, Colo. Device for loading and unloading tramways	312,274	Feb. 17	1117	{307, 308}	30	571
Huson, Charles M., Denver, Colo. Wheel for belts or cables and means for driving them	312,275	Feb. 17	1124	{308, 309}	30	573
Hussey, Charles A., assignor to Hussey Electric Light and Power Company, New York, N. Y. Incandescent electric lamp	310,516	Jan. 6	447	123	30	67
Hussey Electric Light and Power Company. (See Hussey, Charles A., assignor.)						
Hutchings, Marvin C., Astoria, Oreg. Testing sealed cans	314,180	Mar. 17	1549	406	30	1080

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Hutchins, William J. (See Matteson and Hutchins.)						
Hutchins, William J., Joliet, assignor to W. M. Clow, East Wheatland, Ill. Nail-machine	312,996	Feb. 24	2081	{567, 568}	30	756
Hutchinson, Arthur H., assignor to I. P. Morris Company, Philadelphia, Pa. Pump	312,997	Feb. 24	2084	568	30	757
Hutchinson, Daniel, Lynn, Mass., assignor to American Rein Hook Company, Nashua, N. H. Rein-hook	310,589	Jan. 13	555	154	30	112
Hutchinson, Edward, New York, N. Y. Corner-iron for wagon-bodies	310,517	Jan. 6	448	124	30	87
Hutchison, Andrew, Providence, R. I. Discharging tar from hydraulic mains in gas-works	312,565	Feb. 17	1523	415	30	647
Hutson, William J., Pineville, Ark. Car-coupling	312,353	Feb. 17	1232	339	30	592
Huyck, Francis C., *et al.* (See Hall, Eugene E., assignor.)						
Hyatt, Frank A., Sabine Pass, Tex. Jetty	314,940	Mar. 31	2592	686	30	1308
Hyatt, Frank A., Sabine Pass, Tex. Jetty	314,941	Mar. 31	2593	{686, 687}	30	1308
Hyde, Albert M. (See Steele, Ransom, assignor.)						
Hyde, Andrew, Hatfield, Mass. Head of stringed musical instruments	310,590	Jan. 13	556	155	30	112
Hyde, Elwin R., Springfield, and E. Vallentine, Florence, Mass.; said Vallentine assignor to said Hyde. Knife-grinding machine	310,861	Jan. 13	892	241	30	174
Hyde, Ira L., Claremont, Va. Book-support	314,181	Mar. 17	1550	406	30	1081
Hyde, Jonathan L. (See Chinnock, Charles and E. E., assignors.)						
Hyland, William, New Haven, Conn. Decorating glass	313,671	Mar. 10	858	.....	30	947
Hymer, James J., Louisville, Ky. Composition of matter for cleaning carpets, &c	310,899	Jan. 13	854	.....	30	168
Ibbotson, Charles, Sheffield, county of York, England. Knife-handle	313,499	Mar. 10	640	166	30	905
Ide, Albert L., Chicago, Ill. Steam-engine frame	314,381	Mar. 24	1814	483	30	1141
Ide, Bruce & Co., George P. (See Ide, James M., assignor.)						
Ide, James M., assignor to G. P. Ide, Bruce & Co., Troy, N. Y. Combined re-enforce and stay for the backs of shirts	313,870	Mar. 17	1142	{297, 298}	30	1006
Ide, Samuel, Medina, N. Y. Latch	313,594	Mar. 10	760	200	30	927
Iglehart, Joseph J., Columbia, Mo. Lock for worm-fences	313,672	Mar. 10	859	223	30	947
Iler & Co. (See Kunz, Frederick O., assignor.)						
Illinois Watch Company. (See Taft, Ryland L., assignor.)						
Imlay, John C., Phillipsburg, N. J. Ratchet-drill	314,449	Mar. 24	1902	508	30	1158
Ingalls, Robert S. (See Spyer and Ingalls.)	314,132	Mar. 17	1493	389	30	1071
Ingersoll, Luther J., Denver, Colo. Rectal speculum						
Ingersoll Rock Drill Company. (See Waring, John B., assignor.)						
Ingledue, Harvey R., Gray, Iowa. Grain-binder	311,492	Feb. 3	41	{11, 12, 13}	30	357
Ingrahm, Fanny, administratrix. (See Ingrahm, Philo H.)						
Ingrahm, Philo H., deceased, (F. Ingrahm, administratrix,) Marathon, N. Y. Vehicle-brake	310,518	Jan. 6	449	124	30	87
International Store-Service Company. (See Fisher, Charles, assignor.)						
Ireland, William H. (See Hovey, Edwin S., assignor.)						
Irish, Byron J., Hague, N. Y. Brake for horse-powers	310,436	Jan. 6	354	97	30	69
Irlbacker, John, Buffalo, N. Y. Drop-valve for steep tube and vats	311,247	Jan. 27	1452	396	30	288
Irvine, Louis C., Oregon, Mo. Indicating-poise for lever-scales	312,857	Feb. 24	1908	523	30	725
Irvine, Richard C., Sacramento, Cal. Bitting and driving harness	313,673	Mar. 10	859	{293, 294}	30	947
Irwin, William J., Reading, Pa. Stove-door knob	311,702	Feb. 3	393	107	30	422
Isbell, Charles W., New York, N. Y. Hydraulic main for gas-works	311,585	Feb. 3	170	48	30	390
Isseminger, Daniel H., assignor of one-half to S. B. Cooper, Bloomington, Ill. Weather-strip	314,532	Mar. 24	2022	540	30	1177
Iversen, Christian A., Copenhagen, Denmark. Car-starter	313,824	Mar. 10	1065	274	30	983
Ives, Charles, Clinton, N. Y. Putty-knife	310,682	Jan. 13	671	184	30	133
Ives, Edward B. (See Williams, Ives, and Barnum.)						
Ives, Franklin B., Chicago, Ill. Rectal speculum	312,123	Feb. 10	896	244	30	592
Ives, William A., New Haven, Conn. Auger-handle	313,739	Mar. 10	952	246	30	963
Ivester, John L., Boston, Mass. Flexible extension-ladder	312,354	Feb. 17	1233	339	30	593
Ivett, Ephraim, and A. George, Clay Bank, Ohio. Compound for repairing stoves, fire-bricks, &c	314,182	Mar. 17	1551	.....	30	1081
Jacker, Maximilian, *et al.* (See Prescott, De Witt C., assignor.)						
Jackson, Alonzo, New York, N. Y. Balanced slide-valve	312,858	Feb. 24	1909	523	30	725
Jackson, Byron. (See Bonds, George W., assignor.)						
Jackson, Byron, San Francisco, Cal. Governor	313,595	Mar. 10	761	200	30	928
Jackson, Edwin A., New York, N. Y. Grate-front	310,437	Jan. 6	354	97	30	69
Jackson, Frederick W., assignor to S. C. Mendenhall, Richmond, Ind. Furniture-caster	314,847	Mar. 31	2459	649	30	1285
Jackson, Hosmer F., Newport, N. Y. Shaft for vehicles	314,296	Mar. 24	1706	454	30	1120
Jackson, Peter H., San Francisco, Cal. Illuminating basements	314,026	Mar. 17	1351	{351, 352}	30	1045
Jackson, Peter H., San Francisco, Cal. Floor or area covering	314,677	Mar. 31	2211	587	30	1238
Jackson, Walter M., Providence, R. I. Gas-burner	310,945	Jan. 20	1018	275	30	201
Jackson, Walter M., Providence, R. I. Gas-stove	310,946	Jan. 20	1019	276	30	201
Jackson, Walter M., Providence, R. I. Gas-stove	310,947	Jan. 20	1020	{276, 277}	30	201
Jackson, Walter M., Providence, R. I. Producing heat in portable stoves	310,948	Jan. 20	1023	277	30	202
Jackson, William A., and W. R. Cole, Detroit, Mich., assignors to Western Electric Company, Chicago, Ill. Telephone system	310,282	Jan. 6	160	45	30	32
Jackson, William H. (See Morrison, Gardner L., assignor.)						
Jackson, William H. (See Sipperly, William H., assignor.)						
Jacob, Frederick, Newark, N. J. Shoe-fastener	312,723	Feb. 24	1725	474	30	693
Jacobi, Alexander, St. Clair, Mich. Burglar-alarm	314,450	Mar. 24	1903	508	30	1158
Jacobs, Joseph, San Francisco, Cal. Wheel-guard for railway-cars	314,580	Mar. 31	2087	557	30	1217
Jacobs, William E., Columbus, Ohio. Road-scraper	314,382	Mar. 24	1816	483	30	1141
Jacoby, Tilghman, Allentown, Pa. Tug	311,989	Feb. 10	721	197	30	489
Jaeger, Julius, Rutherford, N. J. Insect-powder ejector	311,004	Jan. 20	1100	301	30	217
James, Ira, Mattoon, Ill. Apparatus for generating gas	311,493	Feb. 3	45	13	30	357
James, Thomas, Braddock, Pa. Packing	314,848	Mar. 31	2460	650	30	1285
Jancey, William L. (See Henry, William E., assignor.)						
Jansson, Carl F., Manchester, N. H. Rotary engine	313,500	Mar. 10	640	166	30	905
Jaques, William, Rover's Ford, Pa. Stove-door hanger	313,740	Mar. 10	954	246	30	963
Jarboe, Walter S., Allegheny City, assignor to Bailey, Farrell & Co., Pittsburg, Pa. Safety-valve	312,724	Feb. 24	1726	474	30	693
Jarboe, Walter S., Allegheny City, assignor to Bailey, Farrell & Co., Pittsburg, Pa. Valve	312,725	Feb. 24	1728	475	30	694
Jarvis, Edgar J., Toronto, Ontario, Canada. Vermin-trap	314,133	Mar. 17	1494	390	30	1071

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Jarvis Engineering Company. (See Grant, Joseph A., assignor.)						
Jay, Sidney W., and M. J. Garvey, assignors to H. Wade, Toledo, Ohio. Door stop and holder	311,836	Feb. 3	484	132	30	440
Jeanjaquet, F. Eugène, assignor of one-half to J. F. Guillos, Detroit, Mich. Colter-cleaner	310,281	Jan. 6	161	45	30	32
Jefferson, Cornelius. (See Jefferson, Joseph, M., C., and L.)						
Jefferson, Joseph, M., C., and L., Bradford, county of York, England. Machine for drying fabrics, yarn, &c	310,683	Jan. 13	671	184, 185	30	134
Jefferson, Lazarus. (See Jefferson, Joseph, M., C., and L.)						
Jefferson, Mordecai. (See Jefferson, Joseph, M., C., and L.)						
Jefferson, William E., Nottingham, county of Nottingham, England, assignor of one-half to E. B. Stimpson, Brooklyn, N. Y. Elastic woven fabric	314,581	Mar. 31	2089	558	30	1217
Jeffery, Thomas B., Chicago, Ill. Velocipede	312,473	Feb. 17	1393	385	30	623
Jellett, Stewart A., Philadelphia, Pa. Calipers	311,248	Jan. 27	1453	396	30	288
Jenkins, James H., Thomasville, Ga. Siding-gage	314,134	Mar. 17	1495	390	30	1071
Jenkinson, James, Brooklyn, N. Y. Elevated railway	314,247	Mar. 24	1630	431	30	1105
Jenks, Charles W., Philadelphia, Pa. Bag or satchel	314,678	Mar. 31	2213	588	30	1239
Jenks, James. (See Hart, Thomas D., assignor.)						
Jenks, James, Detroit, Mich. Injector	314,533	Mar. 24	2023	540	30	1178
Jenks, Lemuel P., Boston, Mass. Coffee-pot	310,204	Jan. 6	59	16	30	14
Jenks, Stephen A. (See Booth, John, assignor.)						
Jenks, William, Newton, Mass. Sewer-cleanser	312,206	Feb. 10	1023	280	30	545
Jenne, Charles H., Indianapolis, Ind. Station-indicator	311,586	Feb. 3	172	48	30	380
Jennings, Daniel, Centreburg, Ohio. Door-check	312,859	Feb. 24	1910	524	30	726
Jennings, Gregory, West Cairo, Ohio. Tile-kiln	311,660	Feb. 3	265	73	30	398
Jensen, Jens C., Newark, N. J. Boot or shoe heel	311,005	Jan. 20	1101	301	30	218
Jensen, Ole T., Cresco, Tex. Hame-fastener	313,336	Mar. 3	425	106	30	855
Jeremy, George W. (See Springer and Jeremy.)						
Jesse, Cajus C., Charleston, S. C. Hominy-mill	313,337	Mar. 3	426	107	30	855
Jessee, Robert, Locust Lane, assignor to W. W. Nickels, W. I. Culbertson, and W. M. Pendleton, Scott County, Va. Animal-trap	312,124	Feb. 10	897	244	30	522
Jewett, Thomas B., assignor to J. S. Lowe and W. B. Jewett, Steubenville, Ohio. Railway-frog	310,591	Jan. 13	557	155	30	113
Jewett, William B., *et al.* (See Jewett, Thomas B., assignor.)						
Johns, Henry W., New York, N. Y. Fabric for covering heated surfaces	310,205	Jan. 6	60	16	30	14
Johnson, Charles H., Birmingham, assignor to R. Gibson, Derby, Conn. Skate	311,763	Feb. 3	394	107	30	422
Johnson, Charles J., Lone Pine, Cal. Shoe-lace fastener	313,338	Mar. 3	428	108	30	855
Johnson, Charles R., New York, N. Y., assignor to Union Switch and Signal Company, Pittsburg, Pa. Railway-signal	310,519	Jan. 6	450	124	30	88
Johnson, Edward H., assignor to Bergmann & Co., New York, N. Y. Connection for electrical conductors	311,130	Jan. 20	1281	352	30	250
Johnson, Edward H., assignor to Edison Electric Light Company, New York, N. Y. Safety-catch	314,582	Mar. 31	2090	558	30	1217
Johnson, Edwin A., Allegheny City, Pa. Window-bead fastener	313,674	Mar. 10	861	224	30	947
Johnson, Gustaf and N. R., Lariat, Col. Horse hay-fork	310,949	Jan. 20	1023	278	30	202
Johnson, Henry C., Meadville, Pa. Corpse cooler and preserver	311,764	Feb. 3	395	107	30	422
Johnson, I. W., *et al.* (See Thorough good, John E., assignor.)						
Johnson, John, Brooklyn, N. Y. Horseshoe	314,583	Mar. 31	2091	558	30	1217
Johnson, John B., Judsonia Ark. Transplanter	310,592	Jan. 13	558	155	30	113
Johnson, Josee, assignor to himself and H. P. Embury, Norfolk, Va. Peanut-cleaner	311,494	Feb. 3	46	13, 14	30	358
Johnson, Nels R. (See Johnson, Gustaf and N. R.)	311,495	Feb. 3	47	14	30	358
Johnson, Nelson, Jasper, N. Y. Saw-tooth	313,427	Mar. 3	540	142	30	877
Johnson, Thomas. (See Gridley and Johnson.)						
Johnson, Tom L., Cleveland, Ohio. Cable-way for railway traction-cables	310,284	Jan. 6	162	45, 46	30	33
Johnson, Tom L., Cleveland, Ohio. Double cable for cable railways	310,285	Jan. 6	165	46	30	32
Johnson, Warren S., Whitewater, assignor of one-half to W. Plankinton, Milwaukee, Wis. Thermo-pneumatic temperature-regulator	314,027	Mar. 17	1353	352	30	1045
Johnson, William, East Moulsey, county of Surrey, England. Rudder attachment	313,339	Mar. 3	429	108	30	855
Johnson, William F., Rock Falls, assignor to T. A. Galt and G. S. Tracy, Sterling, Ill. Corn-planter	313,596	Mar. 10	763	201	30	928
Johnson, William H., Westminster, county of Middlesex, assignor to E. B. Ellington, Chester, England. Hydraulic lift	311,327	Jan. 27	1571	428	30	309
Johnston, Allen, Ottumwa, Iowa. Pump and engine	312,736	Feb. 24	1729	475	30	694
Johnston, Allen, Ottumwa, Iowa. Ruffling and gathering attachment for sewing-machines	313,418	Mar. 3	541	142	30	878
Johnston, Edward H., assignor to Wharton Railroad Switch Company, Philadelphia, Pa. Mechanism for adjusting and locking switches	311,433	Jan. 27	1716	467	30	335
Johnston Harvester Company. (See Pridmore, Edward, assignor.)						
Johnston, James J., Columbiana, Ohio, assignor of seven-eighths to W. W. Gibbs, Philadelphia, and A. C. Ellis, Pittsburg, Pa. Manufacture of iron	312,641	Feb. 24	1616	444, 445	30	674
Johnston, James J., Columbiana, Ohio, assignor of seven-eighths to W. W. Gibbs, Philadelphia, and A. C. Ellis, Pittsburgh, Pa. Cupola-furnace	312,727	Feb. 24	1730	475	30	694
Johnston, James J., assignor to Light and Fuel Company, Columbiana, Ohio. Composition of matter for the manufacture of gas	312,728	Feb. 24	1732	476	30	694
Johnston, James J., assignor to Light and Fuel Company, Columbiana, Ohio. Apparatus for manufacturing gas	312,729	Feb. 24	1732	476	30	695
Johnston, James J., assignor to Light and Fuel Company, Columbiana, Ohio. Manufacturing gas	312,730	Feb. 24	1733	476, 477	30	695
Johnston, Louella, Columbus, Ohio. Combined toilet-case and satchel	312,335	Feb. 17	1234	339	30	502
Johnston, Samuel B., and S. Hunter, Coon Rapids, Iowa. Compound for coating metallic roofing	314,584	Mar. 31	2091	.....	30	1217
Johnston, Thomas, San Francisco, Cal. Bicycle	314,335	Mar. 24	1754	468	30	1129
Johnston, William H., North Fairfield, Ohio. Device for lowering coffins	311,075	Jan. 20	1206	331	30	237
Johnstone, Francis W., Mexico, Mexico. Journal-bearing	312,860	Feb. 24	1911	524	30	726
Joliet Wire Check Rower Company. (See Caywood, George W., assignor.)						
Jolliffe, William H., Baltimore, Md. Commode	313,597	Mar. 10	764	201	30	928
Jones, Alfred, and T. Blake, St. Louis, Mo. Oil-press mat	314,679	Mar. 31	2213	588	30	1239
Jones, Amasa. (See Knowlton, William H., assignor.)						
Jones, Amorous O., Flint, Mich. Key-ring attachment	314,028	Mar. 17	1356	353	30	1046
Jones, Arthur W., Oshkosh, Wis. Match-splint straightener	314,680	Mar. 31	2214	588	30	1239
Jones, Augustus H., Meriden, Conn. Hanging lamp	311,076	Jan. 20	1207	331	30	237
Jones, Benjamin F., Glenwood, Iowa. Machine for holding and handling fruit-jars	312,642	Feb. 24	1618	445	30	674
Jones, Calvin M., assignor to T. R. Brown, Fresno, Cal. Road-scraper and excavator	314,135	Mar. 17	1496	390	30	1071
Jones, Charles E. (See Meredith, Gallacher, and Jones.)						
Jones, Francis W., New York, N. Y. Overcoming static disturbances in telegraphy	310,684	Jan. 13	672	185	30	134

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Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Jones, Francis W., New York, N. Y. Quadruplex telegraph	310,685	Jan. 13	674	186	30	134
Jones, Franklin D., Burlington, Kans., assignor of one-fourth to H. M. Hart, Perry, Iowa. Mechanical motor	313,598	Mar. 10	765	201	30	928
Jones, Harry C., Lancaster, N. H. Bicycle	314,849	Mar. 31	2461	650	30	1285
Jones, Henry L., Buffalo, N. Y. Iron fence	313,825	Mar. 10	1066	274	30	984
Jones, Horace K., Hartford, assignor to Russell & Erwin Manufacturing Company, New Britain, Conn. Barbed-wire shoe-nail	313,078	Mar. 3	51	14	30	787
Jones, Horace K., Hartford, assignor to Russell & Erwin Manufacturing Company, New Britain, Conn. Intermittent roll feed mechanism	314,451	Mar. 24	1904	508, 509	30	1156
Jones, James H., Scotland, Mo. Mowing-machine	311,006	Jan. 20	1102	301, 302	30	218
Jones, John D., North Topeka, Kans. Splint-cutting machine	311,496	Feb. 3	49	14	30	358
Jones & Laughlins. (See Kennedy, Robert W., assignor.)						
Jones, Levin T., Baltimore, Md. Sewing-machine table	310,438	Jan. 6	355	97	30	69
Jones, Morgan, New York, N. Y. Valve-lock	313,211	Mar. 3	253	64	30	823
Jones, Moses D., Jackson, Ohio. Coal-chute	312,207	Feb. 10	1025	280	30	546
Jones, Nicholas R. (See Patterson and Jones.)						
Jones, Owen H. (See Hoxie, Benjamin W., assignor.)						
Jones, Reuben R., Sprague, Wash. Ter. Fire-place	313,675	Mar. 10	861	224	30	948
Jones, Robert, Salt Lake City, Utah Ter. Car-replacer	310,520	Jan. 6	453	125	30	88
Jones, Ruth L. (See Ross, James A., assignor.)						
Jones, Washington, Lancaster, Pa. Tobacco-hooking machine	310,593	Jan. 13	559	155	30	113
Jones, William C., *et al.* (See Beam, Henry T., assignor.)						
Joo, Morris, Roanoke, Va. Car-coupling	312,861	Feb. 24	1913	524	30	726
Jordan, Edmund, assignor to E. W. Bliss, Brooklyn, N. Y. Trimming-machine	310,894	Jan. 20	937	255	30	189
Jordan, Edmund, assignor to E. W. Bliss, Brooklyn, N. Y. Machine for forming and seaming sheet-metal tubes	310,895	Jan. 20	938	255, 256, 257	30	189
Jordan, Edmund, Brooklyn, assignor to M. H. Cashman, New York, N. Y. Making barbed metallic fencing	314,183	Mar. 17	1551	406, 407	30	1081
Jordan, Edmund, assignor to E. W. Bliss, Brooklyn, N. Y. Seaming-machine	314,336	Mar. 24	1755	468	30	1129
Jordan, Joseph, Philadelphia, Pa. Apparatus for beating and manipulating paper-pulp	314,248	Mar. 24	1631	431	30	1106
Jordan, Thomas R., *et al.* (See Wynne, George F., assignor.)						
Joslin, William, Painesville, Ohio. Car-wheel	311,837	Feb. 3	485	132	30	440
Jealyn, James W., *et al.* (See Maguire, John, assignor.)						
Joyce, Joseph L., New Haven, Conn. Egg-carrier	314,942	Mar. 31	2594	687	30	1308
Joynt, Charles W., Makanda, Ill. Fire-escape	311,661	Feb. 3	265	73	30	398
Judge, George. (See Snelson, William H., assignor.)						
Judkins, Edwin H., San Francisco, assignor of one-half to J. W. Tucker, Oakland, Cal. Coffee-pot	311,990	Feb. 10	722	198	30	489
Judson, Agur, assignor of one-half to F. M. Kummer, Newark, N. J. Cover for chamber-pails, &c	312,908	Feb. 24	2060	569	30	757
Julian, William F., Medora, Ind. Car coupling	313,871	Mar. 17	1143	298	30	1006
Jungbluth, Joseph, Erie, Pa. Cock for wash-basins	314,943	Mar. 31	2595	687	30	1308
Junod, Alfred H., Highland, Ill. Combined sink, sideboard, &c	312,999	Feb. 24	2087	569	30	757
Just, John, Sauk City, Wis. Clothes-pounder	314,534	Mar. 24	2025	540	30	1178
Kachline, Reuben H., Martin's Creek, Pa. Transportation-barrel	314,681	Mar. 31	2215	588, 589	30	1239
Kaemp, Reinhold H. (See Nagel, Kaemp, and Linnenbrügge.)						
Kahlhofer, Charles, Centralia, Ill. Buckle	314,452	Mar. 24	1906	509	30	1158
Kailor, John N., Newark, assignor to Newark Machine Company, Columbus, Ohio. Rubber for clover-hullers	310,521	Jan. 6	453	125	30	88
Kailor, John N., Newark, assignor to Newark Machine Company, Columbus, Ohio. Rubber for clover-hullers	310,522	Jan. 6	455	125	30	88
Kailor, John N., Newark, assignor to Newark Machine Company, Columbus, Ohio. Rubber for clover-hullers	310,523	Jan. 6	455	125	30	88
Kaiser, Alexander, Freiburg, Switzerland. Differential-pressure valve	313,080	Mar. 3	54	15	30	788
Kaiser, Otto, Jarrettown, Pa. Flower-pot	314,682	Mar. 31	2218	589	30	1240
Kaldenberg, Frederick J., New York, N. Y. Toilet-mirror	310,950	Jan. 20	1026	278	30	202
Kalina, John J., Collinsville, Ill. Vehicle-spring	314,029	Mar. 17	1357	353	30	1046
Kalischer, Salomon, Berlin, Germany. Secondary battery	311,007	Jan. 20	1103	302	30	218
Kalischer, Salomon, Berlin, Germany. Secondary battery	311,008	Jan. 20	1105	302	30	218
Kaltenbacher, Dominick, Shelbyville, Ky. Blinder for bridles. (Reissue)	10,569	Mar. 10	1099	285	30	989
Kamak, Max, New York, N. Y. Combined knife and scissors	310,439	Jan. 6	356	98	30	69
Kamps, John H. (See Wilhelm, Bartholomy, assignor.)						
Kangley, John, and W. S. Cherry, Streator, Ill. Steam-generator	311,900	Feb. 10	593	162	30	466
Kanmacher, George H., Columbus, Ohio. Window-fastener	311,765	Feb. 3	396	108	30	423
Kann, Gustav S., Baltimore, Md. Shoe	310,440	Jan. 6	357	98	30	69
Kannaley, John P., assignor of one-half to W. H. King, Albany, N. Y. Heel or toe plate	311,009	Jan. 20	1107	302	30	218
Kanters, Abraham M., Buffalo, N. Y. Fascine-binder	313,340	Mar. 3	430	108	30	856
Karges, William H., and C. E. Smith, St. Louis, Mo. Lantern	314,383	Mar. 24	1817	483, 484	30	1141
Katon, Walter, North Attleborough, Mass. Thill-coupling	312,125	Feb. 10	898	244	30	523
Kauffeld, Elias, *et al.* (See Unger, Charles, assignor.)						
Kauffeld, Elias, Pittsburg, Pa. Apparatus for crushing and grinding malt and other vegetable substances	314,850	Mar. 31	2462	650	30	1285
Kaufmann, Ernst. (See Reinhardt, Wilhelm, assignor.)						
Kautz, Christian N., *et al.* (See Wise, William P., assignor.)						
Kay, F. G., *et al.* (See Smith, John, assignor.)						
Kay, James I., *et al.* (See Smith, John, assignor.)						
Kayser, John, Kaiserslautern, Bavaria, Germany. Sewing-machine	312,862	Feb. 24	1914	525	30	726
Kearney, Frank B., assignor of one-half to D. E. Spencer and G. Powers, Grand Rapids, Mich. Tonguing and grooving machine	313,000	Feb. 24	2088	569	30	757
Kearney, Michael, Springfield, and M. C. Hawley, St. Louis, Mo. Furnace	313,939	Mar. 17	1246	324	30	1024
Keeler, David L., Grand Rapids, Mich. Pitman for sewing-machines	314,249	Mar. 24	1634	432	30	1106
Keeler, Henry C., Ogden, Utah Ter. Automatic weighing-scale	311,010	Jan. 20	1107	303	30	218
Keeler, Hiram J., Philadelphia, Pa. Scourer for knives and forks, metal, and glass	311,249	Jan. 27	1454	397	30	288
Keen, Charles B., Philadelphia, Pa. Store-service apparatus	311,398	Jan. 27	1572	428	30	309
Kehoe, Thomas, Knoxville, Tenn. Shelf for stoves	313,940	Mar. 17	1248	325	30	1024
Keith, George W., and G. C. Sutherland, Toronto, Ontario, Canada; said Sutherland assignor to said Keith. Cigar-holder	311,497	Feb. 3	50	15	30	358
Keller, Friedrich, Milwaukee, Wis. Window	314,683	Mar. 31	2218	589	30	1240
Keller, Jeremiah, assignor to W. F. Converse, Sandusky, Ohio. Hay-tedder	311,991	Feb. 10	723	198	30	489
Keller, John F., Shepherdstown, W. Va. Draft mechanism for grain-drills	313,341	Mar. 3	431	109	30	856

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Kellermann, Emil, Cincinnati, Ohio. Manufacture of wire-coated articles	310,441	Jan. 6	358	98	30	69
Kelley, David D., Yarmouth, Mass. Package-wrapper	310,206	Jan. 6	62	16	30	14
Kellogg, Fortunatus G., Winnipeg, Manitoba, Canada. Lubricator for steam-cylinders	314,030	Mar. 17	1358	353	30	1046
Kellogg Newspaper Company, A. N. (See Pratt, Edwin E., assignor.)						
Kells, Charles R., Jr., New Orleans, La. Electric bell	313,941	Mar. 17	1249	325	30	1025
Kells, Jacob M., Adrian, Mich. Steam oscillating valve	312,126	Feb. 10	898	244 / 245	30	523
Kells, Thomas, Brooklyn, N. Y. Belt-fastener	310,442	Jan. 6	359	98	30	70
Kelly, David L., Buffalo, N. Y. Rotary pump	314,851	Mar. 31	2463	651	30	1286
Kelly, James, *et al.* (See Kelly, John, assignor.)						
Kelly, John, assignor of two-thirds to T. and J. Kelly, Chicago, Ill. Water-cock and air-vent	313,081	Mar. 3	56	15	30	788
Kelly, Oliver W., and L. F. Dieter, assignors to Springfield Engine and Thresher Company, Springfield, Ohio. Traction-engine	310,443	Jan. 6	359	99	30	70
Kelly, Thomas, *et al.* (See Kelly, John, assignor.)						
Kelton, John C., San Francisco, Cal. Sight-protector for fire-arms	313,212	Mar. 3	254	64	30	824
Kelton, John C., San Francisco, Cal. Magazine-gun	313,213	Mar. 3	255	64	30	824
Kemp, William. (See Thomson and Kemp.)						
Kempe, Harry R. (See Alabaster, Gatehouse, and Kempe.)						
Kemper, Frank, and J. H. Stumpe, St. Florian, Ala. Cultivator	314,136	Mar. 17	1497	390	30	1071
Kempshall, Eleazer, New Britain, assignor to Kempshall Patent Button Fastener Company, Derby, Conn. Button-fastener	310,524	Jan. 6	456	126	30	88
Kempshall, Eleazer, New Britain, assignor to Kempshall Patent Button Fastener Company, Derby, Conn. Button-setting instrument	310,525	Jan. 6	457	126	30	88
Kempshall, Eleazer, assignor to American Button Fastener Company, New Britain, Conn. Button-setting instrument	310,830	Jan. 13	854	232	30	168
Kempshall, Eleazer, assignor, by mesne assignments, to American Button Fastener Company, New Britain, Conn. Button-fastener	314,684	Mar. 31	2219	590	30	1240
Kempshall Patent Button Fastener Company. (See Kempshall, Eleazer, assignor.)						
Kendall, Wallace A., and F. R. Glover, Framingham, Mass. Thill-coupling	310,207	Jan. 6	62	17	30	14
Kenna, Joseph W., assignor to W. I. Bunker and C. L. Miller, Chicago, Ill. Platform rocking-chair	313,429	Mar. 3	543	143	30	878
Kennedy, David R., Ware, Mass. Roving-can	314,685	Mar. 31	2221	590	30	1240
Kennedy, E. S. T. (See Hazleton, Milton W., assignor.)						
Kennedy, Edward S. T. (See Allen, Henry F., assignor.)						
Kennedy, James M. R., Dushville, Mich. Attachment for flour-bolts	314,137	Mar. 17	1498	391	30	1071
Kennedy, Robert W., assignor to Jones & Laughlins, (limited,) Pittsburg, Pa. Coiling metal rods	310,526	Jan. 6	458	.....	30	89
Kennerley, George, and B. Creighton, Paterson, N. J. Transfer-paint	312,474	Feb. 17	1385	.....	30	623
Kenney, Thomas M., assignor to C. A. Mason, Cambridge, Mass. Door-check	312,127	Feb. 10	899	245	30	523
Kenney, Thomas M., and F. E. Mason, Cambridge, Mass. Cash-carrier	311,011	Jan. 20	1108	303	30	219
Kenny, Patrick. (See Edison and Kenny.)						
Kent, Artemas A., Denver, Colo. Ore-concentrator	312,863	Feb. 24	1918	525	30	727
Kent, Milton A. (See Mead and Pierce, assignors.)						
Kenyon, James. (See Crossley, James, assignor.)						
Keppel & Co., Frederick. (See Fontaine, Alien S., assignor.)						
Kerner, John C., St. Louis, Mo. Fire-proof building material	313,501	Mar. 10	642	.....	30	905
Kesner, Solomon, Liberty, Kans. Meat-tenderer	311,901	Feb. 10	595	163	30	466
Kesselring, Friedrich, Philadelphia, Pa., assignor to J. C. McCreery, New York, N. Y. Take-up mechanism for looms	312,128	Feb. 10	900	245 / 246	30	523
Ketcham, J. Wesley, Greenport, assignor of one-half to C. J. Bishop, Orient, N. Y. Reenforcing-band for spars	314,535	Mar. 24	2026	540	30	1178
Ketchum, Joseph, Jr., Brooklyn, N. Y. Depurator	314,453	Mar. 24	1907	509	30	1156
Kettmann, Hermann, Eschershausen, Brunswick, Germany. Manufacturing asphaltic powder suitable for paving	310,504	Jan. 13	560	.....	30	113
Keyworth, Thomas, assignor of one-half to E. Davis, Brooklyn, N. Y. Apparatus for flushing the bowls of water-closets	311,587	Feb. 3	173	49	30	381
Kibele, August, Weissenfels, Germany. Insufflator	310,444	Jan. 6	361	99	30	70
Kidder Manufacturing Company, Jerome. (See Kidder, William K., assignor.)						
Kidder, William K., assignor to J. Kidder Manufacturing Company, New York, N. Y. Galvanic battery	310,831	Jan. 13	855	232	30	168
Kieffer, Joseph, Montreal, Quebec, Canada. Counter-stiffener for boots or shoes	312,129	Feb. 10	902	246	30	524
Kies, Dominick. (See Kies, Nicholas and D.)						
Kies, Nicholas and D., Chicago, Ill. Table	312,731	Feb. 24	1735	477	30	695
Kieselhorst, John A., St. Louis, Mo. Piano-pupil's monitor	313,702	Mar. 10	644	167	30	905
Kieser, Charles, Baltimore, Md. Draft-equalizer	311,838	Feb. 3	486	133	30	440
Kilborn, Chauncey W., South Vineland, N. J. Sand-washing machine	314,252	Mar. 31	2465	651	30	1286
Kimball, James L., New London, Mo. Rail-joint for railways	314,686	Mar. 31	2221	590	30	1241
Kimball, Orrin A. (See Gramer, Joseph, assignor.)						
Kincaid, James, St. Louis, Mo. Feed-distributer for roller-mills	314,687	Mar. 31	2222	590	30	1241
Kindleberger, Jefferson, assignor of one-half to A. W. Scott, Los Angeles, Cal. Clinometer	313,872	Mar. 17	1144	298	30	1006
King, Francis M. and W. E., Wilmington, N. C. Fertilizer-distributer and planter	310,208	Jan. 6	63	17	30	14
King, Frederick M. (See Brown and Porter, assignors.)						
King, George F. (See King, George P., assignor.)						
King, George H., *et al.* (See Millard, Martin S., assignor.)						
King, George P., St. Thomas, Ontario, Canada, assignor of one-half to G. E. King, Detroit, Mich. Car-wheel	311,434	Jan. 27	1718	467	30	336
King, John D., assignor of one-half to W. P. Freeman, Fairbury, Nebr. Artificial stone	312,356	Feb. 17	1235	.....	30	583
King, Osman S., Painesville, Ohio. Car-coupling	311,012	Jan. 20	1111	303	30	219
King, Phineas F., St. Louis, assignor to himself and A. S. Wolf, Kansas City, Mo. Nail-extractor	313,509	Mar. 10	766	202	30	928
King, Theodore E. (See Hammond and King.)						
King, Thomas S., Atlanta, Ga., and C. E. Stivers, Chattanooga, Tenn. Seat-spring for vehicles	314,138	Mar. 17	1499	391	30	1072
King, Thomas S., Atlanta, Ga., and C. E. Stivers, Chattanooga, Tenn. Wagon bolster-spring	314,139	Mar. 17	1499	391	30	1072
King, Victor A. (See Greene, J. Durell, assignor.)						
King, William A. (See Randall and King.)						
King, William E. (See King, Francis M. and W. E.)						
King, William H. (See Kannaley, John P., assignor.)						
King, William H., Little Silver, N. J. Land-marker	312,130	Feb. 10	902	246	30	524
King, William H., assignor of one-half to W. L. Reynolds, St. Louis, Mo., and J. Tunnicliff, Belleville, Ill. Barb-wire machine	313,741	Mar. 10	955	247	30	963
Kingsbury, Charlie H. Jamaica, Vt. Treadle	310,686	Jan. 13	678	186	30	135

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Kingsland, Allan B., Burlington, Vt. Adjustable stove-pipe thimble	313,342	Mar. 3	432	109	30	856
Kingsley, Joseph, Carrollton, Md. Coal-scuttle	314,454	Mar. 24	1908	509	30	1159
Kinnear, Peter. (See Loftus, John, assignor.)						
Kinney, Israel, Windsor, Ontario, Canada. Metallic fencing	312,864	Feb. 24	1921	526	30	727
Kinney Tobacco Company. (See Butler, William H., assignor.)						
Kintner, Simon A., Ney, Ohio. Threshold	313,742	Mar. 10	957	247	30	964
Kinzer, Jacob, Pittsburg, Pa. Car-door fastening	312,357	Feb. 17	1236	340	30	593
Kinzer, Jacob, Pittsburg, Pa. Car-door lock	312,358	Feb. 17	1237	340	30	593
Kirby, John, Jr., assignor to Dayton Manufacturing Company, Dayton, Ohio. Lamp	314,250	Mar. 24	1635	432 / 433 / 434	30	1106
Kirby, John, Jr., assignor to Dayton Manufacturing Company, Dayton, Ohio. Railway-car lamp	314,251	Mar. 24	1639	434	30	1107
Kirby, Josiah, Cincinnati, Ohio. Bung-hole cutter	312,359	Feb. 17	1238	340	30	593
Kirchman, Herman L., Centreville, Iowa. Self-oiling car-wheel	314,140	Mar. 17	1500	391	30	1072
Kirkaldy, John, Poplar, county of Middlesex, England. Condenser and heater	311,839	Feb. 3	486	133	30	440
Kirkpatrick, Monroe, Smithville, Miss. Combined seed-planter and harrow	314,141	Mar. 17	1501	392	30	1072
Kirkpatrick, Thomas J., Springfield, Ohio. Bicycle-saddle	314,142	Mar. 17	1502	392	30	1072
Kirkwood, William, Guelph, Ontario, Canada. Radiator	313,092	Mar. 3	57	16	30	788
Kitchen, George H., New York, N. Y. Transparent sign	313,343	Mar. 3	433	109	30	856
Kitselman, Alva L., Ridgeville, Ind. Roller-skate	311,077	Jan. 20	1208	331	30	238
Kitson Machine Company. (See Clarke and Perham, assignors.)						
Kitton, John C., San Francisco, Cal. Ice-machine	311,013	Jan. 20	1112	304	30	220
Kitton, John C., San Francisco, Cal. Ice-machine	314,337	Mar. 24	1758	469	30	1130
Köbenhavns Hesteskofabrik. (See Andersen, Anders, assignor.)						
Kleiman, Henry, Allegheny, Pa. Ejector-pump	310,896	Jan. 20	943	257	30	189
Klein, Philip H., Jr., assignor to Bergmann & Co., New York, N. Y. Combined gas and electric light fixture	311,131	Jan. 20	1282	352 / 353	30	251
Kleppinger, Joseph H., assignor of two-thirds to S. Newh rt and C. Kuntz, Cherryville, Pa. Shaft-support	313,600	Mar. 10	767	202	30	929
Kline, W. R., *et al.* (See Gilmer, Joseph, assignor.)	314,853	Mar. 31	2466	652	30	1286
Klinker, Wesley, Union Mills, Iowa. Hay-stacker	314,384	Mar. 24	1818	484	30	1142
Klose, William F., Chicago, Ill. Machine for shaving printers' leads, slugs, &c	314,688	Mar. 31	2223	.....	30	1241
Klueber, Louis, East New York, N. Y. Composition of matter for the production of slate	314,536	Mar. 24	2027	541	30	1178
Klump, David, Moorestown, N. J. Can-soldering machine						
Klutts, Leonard P. (See Emmert and Klutts.)						
Knabe & Co., William. (See Polster Ferdinand, assignor.)	312,865	Feb. 24	1922	526	30	727
Knapp, Charles H., Paterson, N. J. Machine for reeling silk	312,475	Feb. 17	1396	385	30	623
Knapp, George F., St. Louis, Mo. Folding barrel	312,208	Feb. 10	1026	280	30	546
Knapp, George W., Baltimore, Md. Bucket-handle	314,184	Mar. 17	1554	407	30	1081
Knaub, Norman, Princeton, Ind. Fence	313,942	Mar. 17	1250	325	30	1025
Knauer, Charles H., Phœnixville, Pa. Bar for securing doors and shutters	312,866	Feb. 24	1924	526	30	727
Knecht, Victor, Cincinnati, Ohio. Shaft-hanger	311,602	Feb. 3	266	74	30	398
Knight, Margaret E., Ashland, Mass. Spit						
Knight, Samuel I. (See Graham, John D., assignor.)	314,689	Mar. 31	2223	591	30	1241
Knight, Samuel N., Sutter Creek, Cal. Hydraulic engine	310,286	Jan. 6	167	46	30	33
Knipe, Oliver C., Norristown, Pa. Metal-bending machine						
Knous, Franklin F., assignor to Colts Patent Fire Arms Manufacturing Company, Hartford, Conn. Safety-lock for concealed-hammer guns	313,001	Feb. 24	2089	570	30	758
Knous, John, assignor to Pope Manufacturing Company, Hartford, Conn. Velocipede-spring clip	311,188	Jan. 27	1306	374	30	272
Knous, John, and A. E. Wallace, assignors to Pope Manufacturing Company, Hartford, Conn. Bicycle-fork	312,732	Feb. 24	1736	477	30	695
Knous, John, and A. E. Wallace, assignors to Pope Manufacturing Company, Hartford, Conn. Making bicycle-forks	313,083	Mar. 3	52	16	30	788
Knowles, Charles S., Philadelphia, Pa. Attachment for sewing-machines	314,690	Mar. 31	2224	591	30	1241
Knowlson, Abram B., *et al.* (See Benedict, Jacob, assignor.)						
Knowlton, Homer W., Pecatonica, Ill. Wheelbarrow	314,185	Mar. 17	1554	407	30	1081
Knowlton, W. Irving. (See Nendel and Knowlton.)						
Knowlton, William A., Rockford, Ill. Mowing-machine	314,186	Mar. 17	1556	408	30	1082
Knowlton, William H., assignor to himself and A. Jones, Pottsville, Pa. Railway-tie	312,566	Feb. 17	1524	415	30	647
Knox, David. (See Hodskinson, Jabez, assignor.)						
Knox, David, Lynn, Mass. Leather-rolling machine	311,498	Feb. 3	51	15	30	359
Knox, David, Lynn, Mass. Leather-cutting machine	312,643	Feb. 24	1619	445	30	674
Knox, John L. L., Allegheny, assignor to Knox Rock Blasting Company, Pittsburg, Pa. Tamping blast-holes	314,585	Mar. 31	2092	558	30	1217
Knox Rock Blasting Company. (See Knox, John L. L., assignor.)						
Knox, Sanford K., North Abington, Mass. Edge-trimmer for boots or shoes	312,360	Feb. 17	1239	341	30	593
Knutson, Knut S., Denver, Dak. Ter. Horse-power	313,214	Mar. 3	257	65	30	824
Koch, Moris F., New York, N. Y. Automatic weighing-scale	314,854	Mar. 31	2467	652 / 653	30	1286
Koch, William, Lawrenceburg, Ind. Caster	312,733	Feb. 24	1736	478	30	695
Kock, Charles, New York, and H. Kock, Brooklyn, N. Y. Pipe-case	310,987	Jan. 6	169	47	30	33
Kock, Henry. (See Kock, Charles and H.)						
Koegel, Alois, Milwaukee, Wis. Lamp-extinguisher	314,252	Mar. 24	1640	435	30	1107
Koehler, Heinrich, assignor to Gesellschaft für Stahlindustrie, Bochum, Prussia, Germany. Rolling-mill for tramway-rails	311,320	Jan. 27	1435	397	30	288
Koenig, Frank, Philadelphia, Pa. Lamp-chimney guard	310,527	Jan. 6	459	126	30	89
Koepka, Henry E., St. Johnsbury, Vt. Washer-cutter	311,992	Feb. 10	724	198	30	490
Kohlhof, Andreas, New York, N. Y. Lock						
Kohn, Adolf, *et al.* (See Lautensack, Daniel, assignor.)	313,676	Mar. 10	862	225	30	948
Kohn, Lasres, New York, N. Y. Culinary strainer	311,330	Jan. 27	1575	429 / 430	30	310
Kolzer, Joseph, Duisburg, Prussia, Germany. Telegraphic repeater	311,189	Jan. 27	1367	374 / 375	30	272
Komp, Albert, New York, N. Y. Bronzing-machine	314,944	Mar. 31	2596	687	30	1309
Koonsman, William P., *et al.* (See Grottenthaler, Joseph, assignor.)						
Kopf, Wilhelm, Santa Rosa, Cal. Saw-set	313,002	Feb. 24	2091	570	30	759
Kops, Samuel, Milwaukee, Wis., assignor to R. Messenger, New York, N. Y. Hammock and cradle stand	314,945	Mar. 31	2597	688	30	1309
Körting, Ernst, Hanover, Prussia, Germany. Heating apparatus	311,014	Jan. 20	1114	304	30	220
Koskol, Frederick, Chicago, Ill. Open veneer ornamental work						
Kosters, Theodore A. (See Fonteine and Kosters.)	313,826	Mar. 10	1067	275	30	983
Krabill, John P., Shawtown, Ohio. Ventilator for stove-pipes						

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Kraschovitz, Eduard, Reudnitz, near Leipsic, Germany. Heating apparatus	310,445	Jan. 6	302	99, 100	30	70
Krausse, Rudolf, Mentz, Germany. Street-lamp	310,209	Jan. 6	64	17	30	14
Krebbiel, John, Detroit, Mich. Capsule-cutter	313,601	Mar. 10	768	202	30	929
Krehbiel, John, assignor to Globe Capsule Company, Detroit, Mich. Capsule-cutter	312,361	Feb. 17	1240	341	30	594
Kressin, John. (See Wheeler, Clark W., assignor.)						
Kriete, Henry C., Chicago, Ill. Rail-rolling mill	311,588	Feb. 3	175	49	30	381
Kriete, Henry C., Chicago, Ill. Rail-cutting device	311,589	Feb. 3	177	50	30	381
Kruse, Charles. (See Weiss and Kruse.)						
Kucher, John. (See Thompson and Kucher.)						
Kugler, Martin J., Barnesville, Ohio. Bench-dog	313,943	Mar. 17	1251	325	30	1026
Kühn, Karl, St. Johann-on-the-Saar, Prussia, Germany. Street-pavement	311,994	Feb. 10	726	199	30	490
Kuhn, Leo S., assignor of one-half to G. F. Ahlers and I. A. Hoffman, Cincinnati, Ohio. Beer-mash tub	313,430	Mar. 3	544	143	30	878
Kuhn, Leo S., assignor of one-half to Hoffman & Ahlers, Cincinnati, Ohio. Preparing malze for mashing	313,431	Mar. 3	546	143	30	879
Kuhn, Leo S., assignor of one-half to Hoffman & Ahlers, Cincinnati, Ohio. Machinery for cooking mashes	313,432	Mar. 3	548	144	30	879
Kullmann, Robert A., Jersey City, N. J. Finger-ring	313,084	Mar. 3	59	16	30	789
Kummer, Frank M. (See Judson, Agur, assignor.)						
Kunkler, Albert. (See Priestley and Kunkler.)						
Kuntz, Charles, *et al.* (See Kleppinger, Joseph H., assignor.)						
Kunz, Frederick O., assignor to Iler & Co., Omaha, Nebr. Method of and apparatus for mashing and cooking grain	311,590	Feb. 3	178	50	30	381
Kutz, Samuel H., *et al.* (See Orr and Selvard, assignors.)						
Kux, Adolf, Berlin, Germany. Vacuum-pump	312,044	Feb. 24	1020	446	30	674
La Baw, David D., Jersey City, N. J. Clamp for dumb-waiters	310,687	Jan. 13	679	186	30	135
La Dow, Charles, Albany, N. Y. Sulky-harrow	312,476	Feb. 17	1307	386	30	920
La Point, Henry C., and C. B. Hoppin, U. S. Army. Scabbard for intrenching-tools	314,856	Mar. 31	2470	653	30	1287
La Rue, Silas H., Reading, Pa. Heating-stove	310,596	Jan. 13	502	156	30	114
Ladd, Edward O., Everett, Mass. Sash-fastening	313,503	Mar. 10	645	167	30	905
Ladd, James E., Bristol, Conn. Trunk hinge and stay	310,288	Jan. 6	169	47	30	33
Ladd, Loren G. (See Newell and Ladd.) (Reissue.)						
Ladd, Loren G., assignor to S. Grant & Co., Pawtucket, R. I. Hoisting-bucket	314,031	Mar. 17	1358	353	30	1047
Lade, Robert, Holyoke, Mass. Automatic elevator-gate	312,276	Feb. 17	1128	309	30	573
Laflin, Perley, Warren, assignor to T. C. Bates, North Brookfield, Mass. Corset-fastening	311,995	Feb. 10	728	199	30	490
Laflin, Perley, Warren, assignor to T. C. Bates, North Brookfield, Mass. Corset-steel fastening	312,209	Feb. 10	1026	280	30	546
Lafontaine, Joseph G., Champlain, N. Y. Car-wheel	310,688	Jan. 13	680	186	30	135
Laforge, Frederick H., and J. R. Smith, Waterbury, Conn. Key-ring tag	311,331	Jan. 27	1557	430	30	310
Lake, Charles M., Jackson, Mich. Locomotive ash-pan. (Reissue)	10,358	Feb. 3	526	142, 143	30	448
Lake, Everett L., Syracuse, N. Y. Breech-loading fire-arm	310,669	Jan. 13	670	187	30	135
Lake, J. Christopher, Aurora, Ill. Spring shade-roller	310,595	Jan. 13	561	156	30	113
Lake Shore Tubular Axle Company. (See Peckham, Edgar, assignor.)						
Lakin, James A., Westfield, Mass. Clock for governing damper mechanism	312,477	Feb. 17	1400	386	30	624
Lakin James A., and C. J. Emerson, Jr., Westfield, Mass., assignors to said Lakin. Time-damper mechanism	313,003	Feb. 24	2092	570	30	758
Lakin, John H. (See Badger and Lakin, assignors.)						
Lakin, Wilber F. (See Badger and Lakin.)						
Lalance, Auguste. (See Farmer and Lalance.)						
Lalance & Grosjean Manufacturing Company. (See Chaumont, Jules, assignor.)						
Lalance & Grosjean Manufacturing Company. (See Milligan and Chaumont, assignors.)						
Lamar, James S., Augusta, Ga. Cotton-chopper	310,446	Jan. 6	363	100, 101	30	71
Lamme, William W., Austin, Tex. Kettle attachment	312,478	Feb. 17	1401	386	30	624
Lamond, David, Allegheny, Pa. Hot-blast stove	311,150	Jan. 27	1370	376	30	273
Lamontagne, Marie M., Montreal, Quebec, Canada. Eye-water	312,131	Feb. 10	904	.....	30	524
Lamontagne, Marie M., Montreal, Quebec, Canada. Cough remedy	312,132	Feb. 10	905	.....	30	524
Lamoureux, John H., Robinson, Ill. Weather-strip	314,855	Mar. 31	2469	653	30	1286
Lamplugh, James A., Birmingham, county of Warwick, England. Saddle for bicycles	311,332	Jan. 27	1378	430	30	310
Lampton, William R., assignor of one-half to W. O. Winn, Terre Haute, Ind. Gate-latch	310,528	Jan. 6	460	126	30	89
Lamsen, W. S. (See Wiggin, William H. and F. L., assignors.)						
Lamson Cash Railway Company. (See Giles, Edwin L., assignor.)						
Lamson, William S., Lowell, Mass. Elevator for cash-carriers	310,832	Jan. 13	857	232	30	168
Landes, Samuel. (See Embrey, Robert, assignor.)						
Lane & Bodley Company. (See Stanwood, James B., assignor.)						
Lane, Frederic A., assignor to New Haven Clock Company, New Haven, Conn. Clock-striking	313,344	Mar. 3	434	109	30	856
Lane, Frederick, Boston, Mass., assignor to T. C. Frenyear, Exeter, N. H., and L. E. Razee, Attleborough, Mass. Knob for electric gas-lighting apparatus	311,840	Feb. 3	487	133	30	440
Lane, John, Hyde Park, Ill. Cultivator	314,143	Mar. 17	1503	392	30	1073
Lane, John, Hyde Park, assignor to Hapgood Plow Company, Alton, Ill. Cultivator	310,929	Jan. 6	170	47	30	33
Lang, Charley F., and O. C. Stafford, Rising City, Nebr. Coupling device for sand-points in drive-wells	312,867	Feb. 24	1025	527	30	728
Langbein, Woldemar. (See Richter, Hugo E., assignor.)						
Langworthy, Lyman B., *et al.* (See Wise, William P., assignor.)						
Lantz, Samuel M. (See Ludwig, Romulus P., assignor.)						
Lappin, John J., Toronto, Ontario, Canada. Brake-shoe	312,734	Feb. 24	1737	478	30	695
Laraway, George W., Hartford, Conn. Drier for paper drums and barrels	311,499	Feb. 3	53	15, 16	30	359
Laraway, George W., Hartford, Conn., assignor, by mesne assignments, to himself and J. F. Seiberling, Akron, Ohio. Machinery for drying drums or barrel-bodies	310,690	Jan. 13	681	187	30	136
Larée, Eugene P. (See Ysaba y Lazarte and Larée.)						
Laremore, Robert M., near Peoria, Ind. Butchering device	311,191	Jan. 27	1371	376	30	273
Lariew, John R., Elmira, N. Y. Head-section	313,743	Mar. 10	958	248	30	964
Larrabee, Frank D., *et al.* (See Angell, Ransom S., assignor.)						
Larsen, Thomas W., *et al.* (See Clarke, William H., assignor.)						
Laske, Oskar, *et al.* (See Lantenaack, Daniel, assignor.)						
Laskey, John H., assignor of two-thirds to I. F. Dobson, Boston, and B. F. Davies, Cambridge, Mass. Mantel-bed	314,032	Mar. 17	1339	354	30	1047
Latimer, Frank H. (See Anderson and Latimer.)						
Latimer, Thomas H., T. B., Md. Sulky-plow	314,691	Mar. 31	2225	592	30	1241
Latshaw, Hezekiah, Buffalo, N. Y. Hame	312,868	Feb. 24	1025	527	30	728

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Latta, Adrian C., assignor of one-half to E. G. Latta, Friendship, N. Y. Driving-gear for mowing and reaping machines	311,132	Jan. 20	1281	353	30	251
Latta, Emmit G. (See Latta, Adrian C., assignor.)						
Latta, Emmit G., Friendship, N. Y., assignor to Pope Manufacturing Company, Hartford, Conn. Bicycle	312,277	Feb. 17	1129	309, 310	30	573
Lattner, Jacob V., Dallas, Tex. Combined hedge-trimmer and mower	311,333	Jan. 27	1379	431	30	311
Lautensack, Daniel, assignor of two-thirds to A. Kohn and O. Laske, Vienna, Austria-Hungary. Thermo-electric battery	313,215	Mar. 3	258	65	30	824
Lauter, Isidor. (See Nitz, Ernest, assignor.)						
Lawless, Levi M., Geneseo, Ill. Roller-skate	313,744	Mar. 10	959	248	30	964
Lawrason, George B. (See Hilgner, Robert, assignor.)						
Lawrence, John H., Sterling, Ill. Stay-roller for sliding doors	313,085	Mar. 3	60	16	30	789
Lawrence, Joseph A., Sherman, Tex. Churn-power	312,278	Feb. 17	1131	310	30	574
Lawrence, William A., Flushing, N. Y. Furrower, marker, and fertilizer-distributer combined	313,504	Mar. 10	645	167, 168	30	905
Lawshe, Spencer R., assignor to T. H. Patee, Greencastle, Ind. Holder for lightning-rods	314,385	Mar. 24	1892	485	30	1142
Lawton, Lyman T., assignor to Meriden Malleable Iron Company, Meriden, Conn. Extension-chandelier	311,078	Jan. 20	1209	331	30	238
Le Page, William N., San Francisco, Cal. Armor for vessels, forts, &c	313,345	Mar. 3	436	110	30	857
Le Gay, Edward J., Boston, Mass. Boot or shoe heel nailing machine	314,456	Mar. 24	1910	510	30	1159
Leach, James, *et al.* (See Bradshaw, John A., assignor.)	314,586	Mar. 31	2093	559	30	1217
Leach, Robert, Providence, R. I. Kaleidoscope						
Leatheroid Manufacturing Company. (See Andrews, Emery, assignor.)						
Leavenworth, Frank H., *et al.* (See Cowan, Miles R. B., assignor.)						
Leavitt, Alonzo R. (See Walp and Leavitt.)						
Leavitt, Charles, and C. G. Canfield, Cleveland, Ohio. Car-wheel	310,597	Jan. 13	565	156	30	114
Leavitt, John J. and J. Q., Salt Lake City, Utah Ter. Oiler	314,692	Mar. 31	2226	592	30	1242
Leavitt, John Q. (See Leavitt, John J. and J. Q.)						
Lecraft, Frederick, Jersey City, N. J. Umbrella runner and notch	311,015	Jan. 20	1115	304	30	220
Leder, George, Demopolis, Ala. Artificial fuel	313,086	Mar. 3	61	.....	30	789
Ledward, Joseph, Westerly, R. I. Saw	312,133	Feb. 10	905	247	30	524
Lee, Charles T., Boston, Mass. Night signal-torch	314,033	Mar. 17	1360	354	30	1047
Lee, George W., Ridgewood, N. Y. Detachable bosom	310,691	Jan. 13	683	188	30	136
Lee, John E., Chippewa Falls, Wis. Buckle	314,693	Mar. 31	2227	592	30	1242
Lee, William. (See Adams and Lee.)						
Leech, John F., Allegheny, Pa. Car-coupling	312,362	Feb. 17	1240	341	30	594
Leeper, Grant, Medora, Iowa. Corn-planter	311,766	Feb. 3	397	108	30	423
Leffingwell, Charles, Newark, N. J. Ash-sieve	310,447	Jan. 6	364	101	30	71
Legate, Edgar A., Charlemont, Mass. Sheep-rack	310,897	Jan. 20	941	258	30	196
Leger, Joseph T., Waltham, Mass. Washing-machine	314,435	Mar. 24	1909	510	30	1159
Lehrenkrauss, Hermann, Stuttgart, Würtemberg, Germany. Preparing extracts from cereals	312,669	Feb. 24	1026	.....	30	728
Leidy, Clement, and C. E. Green, Angus, Ohio. Car-coupling	313,216	Mar. 3	259	65	30	824
Leigh, James, Chelsea, Mass., and R. W. H. McDowell, Manchester, county of Lancaster, England, assignors, by mesne assignments, to Revere Rubber Company, Boston, Mass. Elastic tire for wheels	310,862	Jan. 13	894	242	30	175
Leisner, Andreas W. (See Drew, Leisner, and Nelson.)						
Leland, John J., *et al.* (See Tiffany, Albert R., assignor.)						
Leman, Frank. (See Hunter and Leman.)						
Lemassena, Lillian. (See Lemassena, Theodore F., assignor.)						
Lemassena, Theodore F., assignor to L. Lemassena, Newark, N. J. Top-prop	314,587	Mar. 31	2094	559	30	1218
Lemassena, Theodore F., assignor to L. Lemassena, Newark, N. J. Shoe	314,588	Mar. 31	2095	559	30	1218
Lemassena, Theodore F., assignor to L. Lemassena, Newark, N. J. Horse-collar mold	314,589	Mar. 31	2096	559	30	1218
Lemon, Richard A. (See Rademacher and Lemon.)						
Lennane, William F. (See Briody and McHale, assignors.)						
Lenox, Edwin S., F. H. Daniels, and J. D. Curtis, Worcester, Mass. Fence-wire fastener	310,833	Jan. 13	858	233	30	168
Lentz, August, *et al.* (See Quaglio, Julius, assignor.)						
Lentz, David H., assignor of one-third to J. Thomas, Indianapolis, Ind. Rolling-mill appliance	314,297	Mar. 24	1707	454, 455	30	1120
Leonard, Charles H. (See Tower, Daniel W., assignor.)						
Leonard, Charles H., Detroit, Mich. Fabric for wrappers	314,857	Mar. 31	2470	654	30	1287
Leonard, Henry W., assignor to Syracuse Paper Ware Company, Syracuse, N. Y. Automatic belt-shifter	313,505	Mar. 10	647	168	30	906
Leplay, Hippolyte, Paris, France. Process of and apparatus for baryta or strontia treatment of saccharine liquors and production and recovery of these reagents	310,448	Jan. 6	365	101	30	71
Leploy, Isaac, Amador City, Cal. Valve-gear for high-speed water-wheels	311,591	Feb. 3	179	50, 51	30	382
Leploy, Isaac, Amador City, Colo. Trace-buckle	312,567	Feb. 17	1525	415	30	647
Lerchen, William, Lake City, Colo. Trace-buckle	313,217	Mar. 3	260	.....	30	825
Lesley, Robert W., Philadelphia, Pa. Manufacture of Portland cement	313,873	Mar. 17	1145	298	30	1066
Leslie, John W., Benton Harbor, Mich. Cover for fruit-baskets	313,218	Mar. 3	261	65	30	825
Leslie, Thomas, Brooklyn, N. Y. Soldering-pan	312,134	Feb. 10	906	247	30	525
Lester, Elisha F., Chittenango, N. Y. Windmill	314,457	Mar. 24	1911	510	30	1159
Lester, James S., Atlanta, Ga. Covering for brick-backs	314,034	Mar. 17	1361	355	30	1047
Letchworth, George J., Buffalo, N. Y. Line-ring for hames	311,767	Feb. 3	400	109	30	423
Letchworth, Ogden P., Buffalo, N. Y. Hame	310,692	Jan. 13	684	188	30	136
Leuba, Philippe, Beaver, Utah Ter. Sextant	313,347	Mar. 3	439	111	30	857
Leuffgen, Georg, Berlin, Germany. Glass-annealing furnace	313,348	Mar. 3	441	111, 112	30	858
Leuffgen, Georg, Brunshausen, near Stade, Prussia, Germany. Regenerative furnace	313,346	Mar. 3	438	110, 111	30	857
Leuffgen, Georges, Berlin, assignor to C. A. W. Schön, Hamburg, Germany. Device for holding and shaping glassware	311,334	Jan. 27	1581	432, 433	30	311
Levalley, Christopher W., St. Paul, Minn. Elevator-chain	311,335	Jan. 27	1585	433	30	311
Levalley, Christopher W., St. Paul, Minn. Elevator	311,336	Jan. 27	1586	434	30	312
Levalley, Christopher W., St. Paul, Minn. Elevator	311,337	Jan. 27	1588	434	30	312
Levalley, Christopher W., St. Paul, Minn. Elevator	314,694	Mar. 31	2228	592	30	1242
Lewis, Benjamin F., Amesbury, Mass. Shaft-shackle	312,479	Feb. 17	1402	386, 387	30	624
Lewis, Charles S., assignor to Waterbury Clock Company, Waterbury, Conn. Time-piece	311,902	Feb. 10	596	163	30	466
Lewis, David D., Johnstown, Pa. Stopper for ladles	314,858	Mar. 31	2471	654	30	1287
Lewis, Ellsworth J., Warrenton, Ohio. Steam steering apparatus	313,349	Mar. 3	443	112	30	858
Lewis, Fredrique R., Troy, N. Y. Fabric-cutting device	310,280	Jan. 6	171	48	30	34
Lewis, Hugh O., Portage, Wis. Attachment for cultivator and seeder teeth	311,104	Jan. 20	1322	363	30	257

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Lewis, Malcolm D. (See Barton, David C., assignor.)						
Lewis, Richard V., and H. C. Conger, New York, N. Y. Dish-warmer	310,291	Jan. 6	172	48	30	34
Lewis, Samuel O. (See Young, Lee B., assignor.)						
Lewis, William H., assignor to E. & H. T. Anthony & Co., New York, N.Y. Camera-stand	312,363	Feb. 17	1242	342	30	594
Libby, Alphonso J. (See Ronlstone, Edward A. G., assignor.)						
Liedel, Ludwig, Golden City, Mo. Bag-holder	310,210	Jan. 6	65	17	30	15
Liedel, Ludwig, Golden City, Mo. Self-dropping corn planter	313,219	Mar. 3	261	66	30	895
Light and Fuel Company. (See Johnston, James J., assignor.)						
Lightburne, Stafford, Jr., St. Louis, Mo. Hose-coupling	310,834	Jan. 13	859	233	30	168
Ligowsky Clay Pigeon Company. (See Bloom, Jacob E., assignor.)						
Ligowsky Clay Pigeon Company. (See Ligowsky, George, assignor.)						
Ligowsky, George, assignor to Ligowsky Clay Pigeon Company, Cincinnati, Ohio. Flying target	311,768	Feb. 3	400	109	30	423
Lilja, Frank G., Springfield, Mass. Calipers	310,292	Jan. 6	173	48	30	34
Lincoln, Bacon & Co. (See Heilborn, Francis F., assignor.)						
Lindahl, Daniel, Chesterton, Ind. Stove	311,592	Feb. 3	181	51	30	382
Lindauer, Jacob J., New York, N. Y. Detachable button or stud	310,293	Jan. 6	174	49	30	34
Lindblom, William. (See Erickson and Lindblom.)						
Lindenthal, Gustav, Pittsburg, Pa. Arch-bridge	311,338	Jan. 27	1589	435	30	312
Lindsey, Charles B., and D. N. Goddard, Mount Vernon, Ill. Hame-tug	310,693	Jan. 13	685	188	30	136
Lindsley, William E., Philadelphia, Pa. Filtering device	312,735	Feb. 24	1738	478	30	695
Lines, John, assignor to Scovill Manufacturing Company, Waterbury, Conn. Buckle	312,210	Feb. 10	1027	281	30	546
Lines, Thomas D., Syracuse, N. Y. Vehicle-body support	313,370	Mar. 3	444	112	30	858
Lingen, Hermann, Wheeling, W. Va. Measuring-jacket	312,211	Feb. 10	1028	281	30	546
Linham, Robert E., assignor of two-thirds to B. B. McVay and J. Allison, Mansfield, Ohio. Sulky-plow	311,016	Jan. 20	1116	305	30	220
Link Belt Machinery Company. (See McQuire, Henry, assignor.)						
Link Belt Machinery Company. (See Pearce, Frank I., assignor.)						
Link, Michael. (See Gilles and Link.)						
Linnenbrügge, Adolf W. F. G. (See Nagel, Kaemp, and Linnenbrügge.)						
Linsley, Joel, Burlington, Vt. Refrigerator	310,211	Jan. 6	66	18	30	15
Linton, Albert J., South Saginaw, and R. D. Stewart, Saginaw, Mich. Device for adjusting saw-fastenings	312,870	Feb. 24	1927	527	30	728
Linton, Edward F., assignor to Unexcelled Fire Works Company, East New York, N. Y. Rocket	310,508	Jan. 13	566	156	30	114
Lipsey, Andrew B., West Hoboken, N. J., assignor to W. Bell, New York, N. Y. Gas-burner	312,279	Feb. 17	1132	310 311	30	574
Lispenard, George. (See Ball and Lispenard.)						
Littell, Norris. (See Moss and Littell.)						
Little, James R., assignor, by mesne assignments, to Quincy Metal Wheel Company, Quincy, Ill. Manufacture of metal wheels	313,004	Feb. 24	2093	571	30	759
Littlefield, Dennis G., Albany, N. Y. Oven for cooking-stoves and ranges	313,874	Mar. 17	1146	299	30	1007
Livermore, Charles F., trustee. (See Waite, Henry E., assignor.)						
Livermore, Charles F., trustee. (See Waite and Bartlett, assignors.)						
Lloyd, H. P. (See Sagendorph, L. Lewis, assignor.)						
Lloyd, Harlan P. (See Sagendorph, L. Lewis, assignor.)						
Lobdell, Caleb S., Stormville, Miss. Can-opener	313,351	Mar. 3	444	112	30	858
Lobnitz, Julius, Madisonville, Ohio. Panel-raising machine	312,364	Feb. 17	1243	342 343	30	594
Locke, Jesse A., Milford, Mass. Mechanism for sewing linings or sweat-bands into hat-bodies	312,280	Feb. 17	1134	311	30	574
Locke, William R., New Richmond, Ohio. Adjustable harrow, sled, and marker	311,903	Feb. 10	596	163	30	467
Lockhart John M., Allegheny, Pa. Washing-machine	311,133	Jan. 20	1285	353	30	251
Lockwood, Jeremiah, and W. Crary, Sullivan, Ind. Gate	311,339	Jan. 27	1591	435	30	313
Lockwood, Lee, Des Moines, Iowa. Grain separator and cleaner	311,904	Feb. 10	598	163 164	30	467
Lockwood, Thomas D. (See Vanasse and Lockwood.)						
Lockwood, Thomas D., Malden, Mass. Battery-telephone	312,871	Feb. 24	1928	527	30	728
Lockwood, Thomas D., Malden, Mass. Electric signaling circuit	314,386	Mar. 24	1893	485	30	1142
Lockwood, Wilshire, St. Louis, Mo. Artificial limb	314,458	Mar. 24	1912	510	30	1159
Loeffelhols & Co. (See Bowen, Philip A., assignor.)						
Loefler, August, Tomnkinsville, N. Y. Instantaneous shutter for photographic lenses	313,677	Mar. 10	863	225	30	948
Loetscher, Christian, Dubuque, Iowa. Boiler-furnace	314,537	Mar. 24	2029	541	30	1179
Löffelhardt, Wilhelm, Hamburg, assignor to G. Haller, Ottensen, near Hamburg, Germany. Machine for feeding letters to stamping-dies	311,340	Jan. 27	1592	435 436	30	313
Loftus, John, assignor of one-half to P. Kinnear, Albany, N. Y. Feed-water injector	311,500	Feb. 3	55	16	30	359
Logan, Benjamin S., Lebanon, Pa. Tuyere-iron	311,017	Jan. 20	1118	305	30	221
Logan, James, Otterville, Mo. Plow-beam and attachment	310,694	Jan. 13	687	188	30	136
Logan, John B., assignor of one-third to J. P. Power, Baltimore, Md. Water-tower	311,905	Feb. 10	600	164	30	467
Logan, Marshall L., Tyrone, assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Artificial tooth-crown	310,294	Jan. 6	174	49	30	34
Loiseau, Emile F., Philadelphia, Pa. Machine for mixing and molding artificial fuel and other granulated materials	311,341	Jan. 27	1593	436	30	313
Lomas, William B., Brooklyn, N. Y. Banjo	313,352	Mar. 3	445	113	30	859
Lonergan, John E., Philadelphia, Pa. Lubricating-oil cup	314,695	Mar. 31	2229	593	30	1242
Long, Alexander, Leipsic, Ohio. Ditching-machine	314,859	Mar. 31	2473	655	30	1287
Long, Amos M., Monroe, Mich. Inhaler	313,745	Mar. 10	961	248	30	964
Long, John M., Hamilton, Ohio. Horse-rake	312,645	Feb. 24	1621	446	30	675
Long, Richard, assignor of one-half to S. D. Pryce, Iowa City, Iowa. Road-grading machine	312,480	Feb. 17	1403	387	30	624
Long, Thomas C. (See McFarland, James, assignor.)						
Long, Walter L., Melrose, Va. Double-tree	313,433	Mar. 3	549	144	30	879
Longley, William J., Mount Vernon, N. Y., and C. Elkin, Jersey City, N. J. Automatically disinfecting water-closets, urinals, &c	311,192	Jan. 27	1372	376	30	273
Longstreet, J. Holmes. (See Wright and Longstreet.)						
Lord, Almon, assignor to W. H. Hankin, Brooklyn, N. Y. Saw	311,435	Jan. 27	1719	468	30	336
Lord, Dana J., South Farmington, Wis. Device for forming the interior of wells	314,387	Mar. 24	1825	485	30	1143
Lord, Henry S., assignor to Hartford Glass Water Closet Company, Hartford, Conn. Attachment for water-supply cocks	312,872	Feb. 24	1929	528	30	728
Lord, Tyler C., Joliet, Ill., assignor to F. Gnild, Canton, Mass. Paper shoe	311,018	Jan. 20	1119	305	30	221
Lorenz, Phillip W., *et al.* (See Scott, Jeremiah F., assignor.)						
Lorenz, Wilhelm, Vienna, Austria-Hungary. Baking or cooking oven for continuous working	314,144	Mar. 17	1504	392 393 394	30	1073
Loring, Samuel, Duxbury, and E. S. Morton, Plymouth, Mass. Wire-nail-making machine	314,253	Mar. 24	1641	435	30	1106

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Lorton, Britton. (See Mertz and Lorton.)						
Loryea, Abram M., New York, N. Y. Disinfecting apparatus for water-closets	314,590	Mar. 31	2098	560	30	1216
Lottridge, Francis M. (See Simpson, Lottridge, and Carter.)						
Lotz, William H., Chicago, Ill. Hoisting-machine	314,696	Mar. 31	2231	593 594	30	1243
Loudon, Charles F., Cincinnati, Ohio. Cartridge-loading implement	310,295	Jan. 6	176	49	30	34
Loveless, Charles B., Worthington, Minn. Spark arrester and consumer	314,697	Mar. 31	2235	594	30	1243
Lovett, John, Indianapolis, Ind., assignor to R. B. Powers, E. P. Denison, J. B Dongan, and A. H. Moore. Roller-skate	311,841	Feb. 3	488	134	30	440
Low, James E., Chicago, Ill. Artificial denture	313,434	Mar. 3	550	144	30	879
Low, Joel B., and A. K. Grim, San Francisco, Cal. Cable railway	313,602	Mar. 10	769	202	30	929
Low, Joshua, Steubenville, Ohio. Siphon	310,863	Jan. 13	695	242	30	175
Lowe, J. Stewart, *et al.* (See Jewett, Thomas B., assignor.)						
Lowe, William, Bridgeport, Conn. System of traveling transfer-cranes	310,449	Jan. 6	367	102	30	71
Lowe, William, Bridgeport, Conn. Furnace-front	310,835	Jan. 13	860	233	30	169
Lowen, John C., Titusville, Pa. Combined truck and ladder	310,836	Jan. 13	861	233	30	169
Lowrie, Harvey C., Denver, Colo. Flushing-siphon	310,529	Jan. 6	460	127	30	89
Lowth, James, Chicago, Ill. Telephone	312,365	Feb. 17	1245	343	30	595
Lowth, James, Chicago, Ill. Telephone	312,366	Feb. 17	1246	343	30	595
Lübbert, H., Alexander C., Guaymas, Mexico. Car-coupling	311,663	Feb. 3	267	74	30	399
Lucas, George, New York, N. Y. Type-writing machine	313,827	Mar. 10	1068	275 276	30	984
Lucas, James A., *et al.* (See McDonald, Gilbert, assignor.)						
Lucas, William, Markdale, Ontario, Canada. Sawing-machine	311,501	Feb. 3	56	17	30	359
Lucas, William, Markdale, Ontario, Canada. Lead-lifter	313,087	Mar. 3	61	17	30	760
Ludlow, Freeman C., Cincinnati, Ohio, assignor to Ludlow Telephone Company, Newport, Ky. Mechanical telephone	314,946	Mar. 31	2598	688	30	1309
Ludlow Telephone Company. (See Ludlow, Freeman C., assignor.)						
Ludwig, Romulus P., Saumsville, assignor of one-half to S. M. Lantz, Edenburg, Va. Drill-tooth regulator and compressor for seeders	312,873	Feb. 24	1931	528	30	729
Ludwig, Zacharias, Oakland, Cal. Fire-escape	312,874	Feb. 24	1932	528 529	30	729
Lugibill, John E. (See McKimmy, Fred, assignor.)						
Lummus, John P., Jackson, Ga. Seed-planter and fertilizer-distributer	314,187	Mar. 17	1559	408	30	1062
Lumsdon, Thomas, Marion, Va. Corner-iron	312,481	Feb. 17	1404	387	30	625
Lund, John A., London, England, assignor to Standard Time Company, New Haven, Conn. Apparatus for synchronizing clocks	312,482	Feb. 17	1405	388	30	625
Lunkenheimer, Edmund, Cincinnati, Ohio. Throttle-valve. (Reissue)	10,557	Feb. 3	525	142	30	447
Luther, Henry C., Providence, R. I. Button-eye	310,896	Jan. 20	943	258	30	190
Luther, James H., Olean, N. Y. Gas regulator or governor	312,483	Feb. 17	1407	388	30	625
Luther, James H., Olean, N. Y. Gas regulator or governor	312,484	Feb. 17	1408	388 389	30	625
Lybrand, Lucius, Noblesville, Ind. Paper box	310,599	Jan. 13	567	157	30	115
Lynch, Lawrence, Batavia, N. Y. Bridle-bit	311,436	Jan. 27	1750	468	30	336
Lynch, Peter L., Corry, Pa. Steam-boiler	314,047	Mar. 31	2662	688	30	1310
Lynch, Thomas F., Philadelphia, Pa. Adjustable mirror	312,568	Feb. 17	1525	416	30	648
Lynn, Mirabeau N., Rising Sun, assignor to American Electric Headlight Company, Indianapolis, Ind. Steam-engine	313,005	Feb. 24	2094	571	30	759
Lynn, Mirabeau N., Rising Sun, assignor, by mesne assignments, to American Electric Headlight Company, Indianapolis, Ind. Electric-arc lamp	313,006	Feb. 24	2096	571 572	30	759
Lynn, Mirabeau N., Rising Sun, assignor, by mesne assignments, to American Electric Headlight Company, Indianapolis, Ind. Valve-gear for steam-engines	313,007	Feb. 24	2099	572 573	30	760
Lynn, Mirabeau N., Rising Sun, assignor, by mesne assignments, to American Electric Headlight Company, Indianapolis, Ind. Steam-engine	313,008	Feb. 24	2102	573 574	30	760
Lynn, Mirabeau N., Rising Sun, assignor, by mesne assignments, to American Electric Headlight Company, Indianapolis, Ind. Electric lamp for locomotives	313,009	Feb. 24	2105	574	30	760
Lytle, Alton A. (See Stellwagen and Lytle.)						
Lytle, Henry B., Boston, Mass., and J. A. McCoy, Baltimore, Md. Support for telephonic transmitters	313,828	Mar. 10	1071	276	30	984
Lytle, Henry B., Boston, Mass., and J. A. McCoy, Baltimore, Md. Office-connection for telephone and telegraph central offices	313,829	Mar. 10	1072	276	30	984
MacCarthy, Dennis E., Maplewood, assignor to Wiley & Russell Manufacturing Company, Greenfield, Mass. Anvil	314,390	Mar. 24	1828	486	30	1144
Macllvaine, John L., West New Brighton, N. Y. Bung	311,345	Jan. 27	1598	437	30	314
MacKellar, Smiths & Jordan Company. (See Gnichwitz, Rudolph, assignor.)						
MacQueen & Co. (See Haslam, Mark, assignor.)						
Macdonald, William, Boston, Mass. Heading for book-binding	313,875	Mar. 17	1148	299	30	1007
Macdougall, Matthew. (See Müller, Friederich, assignor.)						
Mace, Lambert E. (See Hinds and Mace.)						
Machlio, W. E. (See Patton, William P., assignor.)						
Mack, James C., St. Louis, Mo. Pump	313,353	Mar. 3	446	113	30	859
Mack, Josiah D., Salem, and J. G. Newbury, Albany, N. Y. Hat and coat hook	314,591	Mar. 31	2100	560	30	1219
Mackay, Carl A., Boston, Mass. Device for removing cross heads	311,769	Feb. 3	401	109	30	423
Mackay, Murdoch, assignor of one-half to R. E. Goolden, London, England. Plastic compound suitable for molding into various useful articles, such as screw-stoppers for bottles, jars, &c	310,899	Jan. 20	945	.....	30	190
Mackintire, George E. (See Elliott, Charles W., assignor.)						
Mackintosh, Edward D., Brooklyn, assignor to P. Pryibil, New York, N. Y. Lathe for turning spirals	312,736	Feb. 24	1742	479	30	696
Madden, M. F. (See Bouchet, Michael, assignor.)						
Maddock, William H., Allegheny, and A. Michaels, Pittsburg, Pa. Hoisting apparatus	312,737	Feb. 24	1744	479 480	30	697
Magruder, Robert, Liberty Hill, Tex. Gate-latch	312,135	Feb. 10	907	247	30	525
Maguire, John, assignor of three-tenths to A. B. Stevens and J. W. Joslyn, Richmondville, N. Y. Rotating egg-preserver	313,435	Mar. 3	552	144	30	880
Maier, Martin. (See Hambujer, Ephraim, assignor.)						
Maillet, Ludger L., Montreal, Quebec, Canada. Combined implement for removing snow and ice	314,592	Mar. 31	2101	560	30	1219
Mailloux, C. Odilon, New York, N. Y., assignor to Thomson-Houston Electric Company, Boston, Mass. Electric-arc lamp	313,436	Mar. 3	553	145	30	880
Mailloux, C. Odilon, Brooklyn, N. Y., assignor to Thomson-Houston Electric Company, Boston, Mass. Electric-arc lamp	313,437	Mar. 3	559	145	30	880
Major, Charles G. (See Stevens, Major, and Barber.)						
Makin, John, Glossop, county of Derby, England. Combined lead and iron plate	312,485	Feb. 17	1410	389	30	626

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Malcolmson, Thomas, assignor of one-half to O. B. Goodwin, Oil City, Pa. Steam-governor. (Reissue)	10,559	Feb. 10	1067	293	30	554
Mallasee, Lewis W., and F. B. Nimick, Pittsburg, Pa. Crane for crucible-furnaces	310,695	Jan. 13	688	189	30	137
Mallié, Jules, Paris, France. Filter	312,281	Feb. 17	1135	311	30	574
Mallon, James. (See Redmond, McFarlane, and Mallon.)						
Maloney, John W., Indianapolis, Ind. Spark-arrester	314,254	Mar. 24	1643	435	30	1108
Maltbie, Paul L., Newark, N. J. Latch	310,900	Jan. 20	946	258	30	190
Maltby, Benjamin, Cleveland, Ohio. Wheel-barrow	313,354	Mar. 3	447	113, 114	30	859
Maltby, Clinton H., assignor to National Manufacturing Company, Dayton, Ohio. Fare box, indicator, and recorder	311,019	Jan. 20	1120	306	30	221
Maltby, Frank D., New York, N. Y. Air pump	313,603	Mar. 10	770	203	30	929
Man, Albon, Brooklyn, N. Y., assignor to River and Rail Electric Light Company, Ohio County, W. Va. Apparatus for utilizing the current force of flowing waters in producing electric currents	313,746	Mar. 10	902	248, 249	30	964
Manchester, Theodore A., Lynn, Mass. Shoe-nail cutter	314,255	Mar. 24	1644	436	30	1108
Mander, James, assignor of one-third to M. R. Dillin, Philadelphia, Pa. Chamfer-plane	314,338	Mar. 24	1759	469	30	1130
Manhattan Brass Company. (See Hipwell, Thomas, assignor.)						
Mann, Abram, Kansas City, Mo. Hot-air furnace	311,502	Feb. 3	57	17	30	350
Mann, Charles A., Buffalo, N. Y. Buckle	312,136	Feb. 10	908	247	30	525
Mann, Charles H. T. (See Prescott and Mann.)						
Mann, Henry, Milwaukee, Wis. Machine for wiring pails	314,698	Mar. 31	2237	595	30	1243
Mann, William D., assignor to Mann's Boudoir Car Company, New York, N. Y. Window	311,020	Jan. 20	1122	306	30	221
Mann, William D., assignor to Mann's Boudoir Car Company, New York, N. Y. Hot-water apparatus for railway-cars	311,021	Jan. 20	1123	306, 307	30	221
Mann, William D., assignor to Mann's Boudoir Car Company, New York, N. Y. Panel for use in the construction of cars, boats, &c	311,022	Jan. 20	1124	307	30	222
Mann, William L., Benwood, W. Va. Tuyere	313,088	Mar. 3	63	17	30	789
Mann's Boudoir Car Company. (See Mann, William D., assignor.)						
Mansfield, Sylvester, Lynn, Mass. Device for heating tires	314,388	Mar. 24	1826	485, 486	30	1143
Mansur, Henry W., Boston, Mass. Hopper water-closet	311,342	Jan. 27	1505	436	30	314
Mannel, David, Hyde Park, and G. H. Burrows, Boston, Mass. Damper	310,696	Jan. 13	689	189	30	137
Manufacturers Special Machine Company. (See Beardslee, William F., assignor.)						
Maratta, James S. (See Shaw, George W., assignor.)						
Marbeau, Henry, Aîné, Paris, France. Making malleable ferro-nickel and ferro-cobalt	310,901	Jan. 20	948	.....	30	190
March, William J., Brooklyn, N. Y., assignor to himself and J. G. Ribon. Dumping-car	312,282	Feb. 17	1136	312	30	575
Marinette Iron Works Company. (See Campbell, William A., assignor.)						
Marinette Iron Works Company. (See Gilchrist, Duncan, assignor.)						
Marinette Iron Works Company *et al.* (See Prescott, De Witt C., assignor.)						
Mark, Charlie E., Flint, Mich. Elastic joint for the planking of vessels	311,593	Feb. 3	181	52	30	382
Mark, Charlie E., Flint, Mich. Hose-coupling	314,699	Mar. 31	2238	595	30	1244
Markham, Dewitt C., Towanda, Pa. Pitman for mowing-machines	311,996	Feb. 10	728	199	30	490
Markell, John H., Hayt's Corners, N. Y. Neck-yoke	311,343	Jan. 27	1506	437	30	314
Markle, George B., Jr., Hazleton, Pa. Coffin	314,538	Mar. 24	2030	541	30	1179
Marks Automatic Car Coupler Company. (See Copp, Charles H., assignor.)						
Marks, Phoebe S., 13 I Cornwall Residences, Regents Park, St. Marylebone, county of Middlesex, England. Draftsman's dividing-instrument	310,450	Jan. 6	368	102	30	72
Marqua, Philip, Cincinnati, Ohio, assignor to American Clay Bird Company. Ball-trap	313,220	Mar. 3	263	66	30	825
Mars, John H., Albany, N. Y. Lubricating cup	314,593	Mar. 31	2101	560	30	1219
Marsh, Parker C., Troy, N. Y. Feathering paddle-wheel	310,451	Jan. 6	369	102	30	72
Marsh, Robert, Brooklyn, N. Y. Composite filling, paving, and flooring slab or building-block	313,221	Mar. 3	264	67	30	825
Marsh, William W., and M. E. Blood, Sycamore, Ill. Grain binding harvester	311,997	Feb. 10	729	199, 200	30	490
Marshall, Albert W., Indianapolis, Ind., assignor to American Press Association, Chicago, Ill. Electrotype-plate and holder	312,569	Feb. 17	1526	416	30	648
Marshall, Calvin, Dexter, Iowa. Garden implement	311,503	Feb. 3	58	17	30	360
Marshall, Charles P., Memphis, Tenn. Air-refrigerating apparatus	310,212	Jan. 6	68	18	30	15
Marshall, James F., Rumford, R. I. Boiler for paper-pulp	312,875	Feb. 24	1934	529	30	729
Marshall, Justice W., Cazenovia, N. Y. Wheelbarrow	314,035	Mar. 17	1362	355	30	1047
Martin, A. F. (See Ellis, Millard F., assignor.)						
Martin, Benjamin G., Cork, Ireland. Cut-off valve	313,089	Mar. 3	64	17, 18	30	789
Martin, Bruno, East Saginaw, Mich. Gas-burner	312,367	Feb. 17	1248	344	30	595
Martin, C. S., *et al.* (See Wilcox, Harlow M., assignor.)						
Martin, Charles, Paris, France. Smoke-consuming attachment for lamp and other chimneys	312,368	Feb. 17	1248	344	30	595
Martin, David T. (See Summerson, Junius R., assignor.)						
Martin, Edwin H. (See Chisholm, Walker, and Martin.)						
Martin, Frederick J., *et al.* (See Ward, Joseph, assignor.)						
Martin, George, Boston, Mass. Attaching slates to roofs	313,506	Mar. 10	648	168	30	906
Martin, George W., Medford, Mass. Coasting-sled	312,646	Feb. 24	1622	446	30	675
Martin, Harry L., Lancaster, Pa. Combined grain separator and smutter	312,369	Feb. 17	1249	344	30	596
Martin, Henry, Lancaster, Pa. Truck	314,594	Mar. 31	2102	561	30	1219
Martin, James, Louisville, Ky. Saloon-hopper tube for keeping clean saloon-hoppers in railway-cars, &c	312,876	Feb. 24	1934	529	30	730
Martin, Jerome W., *et al.* (See Harrison, Thomas B., assignor.)						
Martin, Joseph C., Burlington, Vt. Cash and parcel carrier	314,339	Mar. 24	1760	469	30	1130
Martin, William G., Ypsilanti, Mich. Cultivator	313,355	Mar. 3	449	114	30	859
Marty, John M., Clarksville, Ark. Combined injector and ejector	314,595	Mar. 31	2103	561	30	1219
Marvin, George F., *et al.* (See Bogan, James F., assignor.)						
Marvin, Henry P., and A. Arnold, Chippewa Falls, Wis. Floating wing-dam	313,747	Mar. 10	965	249	30	965
Marvin, James F., Fort Apache, Ariz. Ter. Dynamite-shell	314,036	Mar. 17	1363	355	30	1047
Masmejan, Charles, Arogno, Tessin, Switzerland. Alarm-watch	311,594	Feb. 3	182	52	30	382
Mason, Charles A. (See Kenney, Thomas M., assignor.)						
Mason, Charles T., Jr., Sumter, S. C. Cotton-picker stem	311,344	Jan. 27	1506	437	30	314
Mason, Charles T., Jr., Sumter, S. C. Cotton-picker stem	312,647	Feb. 24	1622	446	30	675
Mason, Francis E. (See Kenney and Mason.)						
Mason, Frederick, administrator. (See Mason, William.)						
Mason, John, and G. W. Winsor, Providence, R. I., assignors to themselves. Frying-pan	310,864	Jan. 13	896	242	30	175
Mason, John M., Chelsea, Mass. Steam-engine governor	311,770	Feb. 3	402	109	30	424
Mason, Lafayette J., and G. N. Walker, Jr., Peoria, Ill. Grain-door for freight-cars	310,600	Jan. 13	567	157	30	115
Mason Regulator Company. (See Mason, William B., assignor.)						
Mason, Volney W., Providence, R. I. Elevator	311,504	Feb. 3	59	18	30	360

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Mason, William, deceased; F. Mason, Taunton, Mass., administrator. Roving traverse motion of spinning-machines	311,193	Jan. 27	1374	376	30	274
Mason, William, assignor to Winchester Repeating Arms Company, New Haven, Conn. Magazine fire-arm	311,679	Jan. 20	1211	332	30	238
Mason, William, assignor to Winchester Repeating Arms Company, New Haven, Conn. Magazine fire-arm	312,139	Feb. 10	914	248	30	526
Mason, William B., assignor to Mason Regulator Company, Boston, Mass. Governor	312,137	Feb. 10	909	248	30	525
Mason, William B., assignor to Mason Regulator Company, Boston, Mass. Governor	312,138	Feb. 10	912	248	30	525
Massey, Gideon B., Mount Vernon, N. Y. Car-window shade	311,906	Feb. 10	601	165	30	468
Massu, George, and F. Fernandez, Mazatlan, Mexico. Mortar-bed for stamp-batteries	310,296	Jan. 6	179	49, 50	30	35
Mast & Company, P. P. (See Mast, Startzman, and Clark, assignors.)						
Mast, Phineas P., G. W. Startzman, and D. L. Clark, Springfield, Ohio, assignors to P. P. Mast & Company. Tongueless cultivator	312,738	Feb. 24	1747	480, 481	30	697
Mather, Henry W., Butler, N. J. Stair-pad. (Reissue)	10,550	Jan. 13	901	244	30	176
Mather, John L., Tomah, Wis. Vehicle	313,507	Mar. 10	649	169	30	906
Mathes, William M., Gatesville, Tex. Meat-chopper	313,356	Mar. 3	450	114	30	859
Mathews, Joseph H., Canton, Ohio. Apparatus for treating ores with superheated steam	313,748	Mar. 10	966	249, 250	30	965
Mathewson & Co., J. B. (See Cooke, Charles H., assignor.)						
Mathewson, Nathan F., Providence, R. I. Button or stud	311,194	Jan. 27	1374	377	30	274
Mathias, David H. (See Van Derzee, Cornelius, assignor.)						
Matlick, Isaac N., assignor of one-half to J. N. Prather, San José, Cal. Hay-carrier and track-frame	310,951	Jan. 20	1027	278	30	203
Matlick, Isaac N., assignor of one-half to J. N. Prather, San José, Cal. Hay elevator, conveyer, and stacker	310,952	Jan. 20	1028	279	30	203
Matteson, Eugene R., and W. J. Hutchins, assignors to W. H. Hunter and R. E. Matteson, Joliet, Ill. Wire-barbing machine	313,090	Mar. 3	65	18, 19	30	790
Matteson, Rose E., *et al.* (See Matteson and Hutchins, assignors.)						
Matthews, George, executor. (See Matthews, John.)						
Matthews, Henry A., Waterbury, Conn. Foot-bar for stoves	312,877	Feb. 24	1935	529	30	730
Matthews, John. (See Hazard, James S., assignor.)						
Matthews, John, deceased; G. Matthews, New York, N. Y., executor. Filling bottles with aerated beverages	311,998	Feb. 10	732	200	30	491
Matthews, Marmaduke, Toronto, Ontario, Canada. Lamp	311,505	Feb. 3	60	18	30	360
Matthiessen & Wiechers Sugar Refining Company, F. O. (See Dinkel, George, assignor.)						
Mattison, James D., New York, N. Y. Combined bottle-stopper and faucet	311,680	Jan. 20	1214	332	30	238
Matzinger, John, New York, assignor of one-half to J. H. Mitchell, Brooklyn, N. Y. Railway-station indicator	314,037	Mar. 17	1363	355, 356	30	1048
Maxon, Thomas, assignor of one-half to J. W. Carpenter, Dayton, Ohio. Lifting-jack	312,878	Feb. 24	1936	530	30	730
Maxwell, Albert M., assignor of one-half to L. H. Vedder, Detroit, Mich. Table	313,604	Mar. 10	771	203	30	929
Maxwell, George S., assignor to Cressey Meter Company, Louisville, Ky. Electric contact-breaker	313,605	Mar. 10	772	203	30	930
Maxwell, James A., Allegheny, Pa. Tiller-wheel on steamboats, &c	310,213	Jan. 6	69	18	30	15
May, Ernest, assignor to May Frères & Co., Paris, France. Machine for turning pearl buttons	312,146	Feb. 10	916	249	30	526
May, Ernest, assignor to May Frères & Co., Paris, France. Machine for the manufacture of pearl buttons	314,596	Mar. 31	2105	561	30	1220
May Frères & Co. (See May, Ernest, assignor.)						
May, Jacob. (See Urbahn, Alwill, assignor.)						
May, John B., Watertown, Wis. Automatic cut-out for electric circuits	313,091	Mar. 3	69	19	30	790
May, Robert, New York, N. Y. Speaking-tube annunciator	310,601	Jan. 13	568	157	30	115
Mayer, Benedict, assignor of one-half to R. Andris, Durhamville, N. Y. Apparatus for conveying sheets of glass through the annealing-oven	312,141	Feb. 10	917	249	30	526
Mayer, Charles G., Nauvoo, Ill. Refrigerating-machine	311,506	Feb. 3	61	18	30	360
Mayer, Charles G., Nauvoo, Ill. Brine-cooling apparatus	314,038	Mar. 17	1365	356	30	1048
Mayer, Charles G., Nauvoo, Ill. Gas-cooling apparatus	314,039	Mar. 17	1366	356	30	1048
Mayer, George H., Kansas City, Mo. Saw-jointer	314,040	Mar. 17	1367	356	30	1048
Mayes, Thomas, Albany, N. Y. Baking-pan and cover	313,092	Mar. 3	70	19	30	790
Mayfield, Isaac T., *et al.* (See Mayfield, William D., assignor.)						
Mayfield, William D., assignor to W. F. and I. T. Mayfield, Fort Worth, Tex. Feeding-chute for stoves	312,739	Feb. 24	1749	481	30	697
Mayfield, William F., *et al.* (See Mayfield, William D., assignor.)						
Mayo, Urial K., Boston, Mass. Inhaler	311,907	Feb. 10	602	165	30	468
Mayrhofer, Charles A., assignor of one-half to C. Diener, Vienna, Austria-Hungary. Electric pneumatic clock system	310,530	Jan. 6	465	127, 128	30	90
McAllister, Eli, Albia, Iowa. Water-elevator	311,664	Feb. 3	268	74	30	399
McArthur, George A., Pullman, Ill. Refrigerator-door	313,876	Mar. 17	1148	299	30	1007
McBeth, Charles E., Hamilton, Ohio. Double throat for punching and shearing machines	310,602	Jan. 13	569	157, 158	30	115
McBride, William. (See Mettler, James I., assignor.)						
McCaffrey, Hugh, assignor of one-half to J. Phipps, Philadelphia, Pa. Car-door retainer	311,134	Jan. 20	1286	354	30	252
McCandless, Edward V., Pittsburg, Pa. Deoxidizing the surface of sheet metal	312,142	Feb. 10	919	250	30	527
McCann, Horace F. (See Farra, Lorenzo D., assignor.)						
McCann, Marion W., Posey township, Fayette county, Ind. Car-coupling	310,697	Jan. 13	690	189	30	137
McCarthy, Timothy J., *et al.* (See Rawson, George W., assignor.)						
McCarty, Harry C., Williamsport, assignor of one-half to J. F. Bickel, Morton, Pa. Car-truck	314,459	Mar. 24	1913	511	30	1159
McCarty, Norman, assignor to J. B. Tibbits, Hoosac, N. Y. Electric-arc lamp	310,837	Jan. 13	802	234	30	169
McCauley, Patrick, Braddock, assignor of one-half to T. E. Neville, Pittsburg, Pa. Fire-front	312,143	Feb. 10	921	250	30	527
McChesney, Wesley W., Green Island, N. Y. Pulley	311,023	Jan. 20	1124	307	30	222
McClain, Andrew, Nashville, Tenn. Refrigerator and filter	314,597	Mar. 31	2106	561, 562	30	1220
McClain, Edward L., Greenfield, Ohio. Horse-collar pad	313,606	Mar. 10	773	203	30	930
McClellan, Oscar D., assignor to Solar Gas Light and Heating Company, Philadelphia, Pa. Gas-burner	313,508	Mar. 10	650	169	30	906
McClelland, Robert E., Williamsville, Ill. Wagon-brake	313,093	Mar. 3	71	19	30	790
McCoffee, Henry, Bunker Hill, Ill. Hay and straw stacker	314,860	Mar. 31	2475	655, 656	30	1288
McCombie, William. (See Morgan, Thomas J., assignor.)						
McCord, Sarah J. (See Ewing, Mary R., assignor.)						
McCormick, John R., assignor of one-half to F. E. Ruffini, Austin, Tex. Locomotive headlight	314,700	Mar. 31	2238	595, 596	30	1244
McCoun, Frederick H. (See Edwards, Oliver H., assignor.)						
McCoy, John A. (See Lytle and McCoy.)						
McCoy, William D., Orange, N. J. Bicycle-saddle	314,701	Mar. 31	2240	596	30	1244

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McCracken, Edwin D., Paterson, N. J. Electro-magnet	314,041	Mar. 17	1368	357	30	1049
McCready, John C. (See Vollrath and McCready.)						
McCreary, Edward, *et al.* (See Smith, David R., assignor.)						
McCreary, John, *et al.* (See Smith, David R., assignor.)						
McCreery, J. C. (See Kesselring, Friedrich, assignor.)						
McCulloch, James M., Garston, county of Lancaster, England. Steam-boiler	313,944	Mar. 17	1252	326	30	1026
McCutchen, Charles W., Peekskill, N. Y. Stove-pipe attachment	314,259	Mar. 24	1648	437	30	1109
McDaniel, John S., Wilmington, Del., assignor of one-half to J. Watson, Philadelphia, Pa. Attachment for steam-pipes	311,437	Jan. 27	1720	468	30	336
McDermott, Charles J., Sandy Hook, Conn., assignor to New York Belting and Packing Company, New York, N. Y. Recovering rubber from rubber waste	311,135	Jan. 20	1287	.....	30	272
McDermott, Patrick, Memphis, Tenn. Balanced slide-valve	312,144	Feb. 10	922	250	30	527
McDonald, Alexander, Worcester, Mass. Rattan-scraping machine	314,042	Mar. 17	1368	357	30	1049
McDonald, Alexander, Cambridge, Mass., assignor to McDonald Stone Cutting Machine Company, Nashua, N. H. Furnace for heating disks	310,902	Jan. 20	949	259	30	190
McDonald, Ephraim, Somerville, Mass. Key-fastener	310,452	Jan. 6	370	102	30	72
McDonald, Ephraim, Somerville, Mass. Feeding device for sewing-machines	313,945	Mar. 17	1253	327	30	1026
McDonald, Gilbert, Augusta, Kans., assignor to H. M. Meredith, Silver City, and J. A. Lucas, Georgetown, N. Mex. Ter. Metal-shears	311,999	Feb. 10	733	200	30	401
McDonald, Lewis B., Little Rock, Ark. Fire-escape	310,603	Jan. 13	570	158	30	115
McDonald Stone Cutting Machine Company. (See McDonald, Alexander, assignor.)						
McDougall, Alexander, Duluth, Minn. Apparatus for collecting scattered logs	312,486	Feb. 17	1411	389	30	626
McDougall, Isaac S., Irk Vale, Chadderton, near Manchester, county of Lancaster, England. Production of sulphurous acid	311,595	Feb. 3	184	52, 53	30	363
McDowell, Albert, New York, N. Y. Adjustable pattern for drafting dresses	310,297	Jan. 6	180	50, 51	30	35
McDowell, Edward. (See Parker, Washington L., assignor.)						
McDowell, Robert W. H. (See Leigh and McDowell.)						
McDowell, William L., Lower Merion, Pa. Stove-door	311,771	Feb. 3	403	110	30	424
McElhaney, David M., Buena Vista, Ohio. Combined harrow, clod-crusher, and stalk-cutter	311,842	Feb. 3	490	134	30	441
McFarland, James, Richland, Iowa, assignor of one-half to T. C. Long, Iola, Kans. Carriage-jack	310,453	Jan. 6	371	103	30	72
McFarland, John W., Alliance, Ohio. Cut-off-valve gear	310,903	Jan. 20	950	259	30	190
McFarland, Samuel G., assignor to J. L. Mott Iron Works, New York, N. Y. Sewer-connection for water-closets	310,298	Jan. 6	184	51	30	36
McFarlane, George P. (See Redmond, McFarlane, and Mallon.)						
McFeely, Thomas. (See Butler and McFeely.)						
McGahan, Fred L., Indianapolis, Ind. Floe-cleaner	313,509	Mar. 10	651	169	30	907
McGahan, Fred L., assignor of one-half to G. W. Warren, Indianapolis, Ind. Lubricator	312,214	Feb. 10	1033	283	30	547
McGeorge, William, Jr. (See Carter, John F., assignor.)						
McGiehan, Isaac S. (See England, James, assignor.)						
McGill, William C., Washington, D. C. Cash-register	312,740	Feb. 24	1750	481	30	698
McGinnis, William T., New York, N. Y. Electro-magnetic comb	312,487	Feb. 17	1412	389	30	626
McGrail, Joseph, Savanna, Ill. Piston and valve rod	311,665	Feb. 3	269	74	30	309
McGregor, Charles W., and L. H. Cordry, St. Louis, Mo.; said McGregor assignor to said Cordry. Motor	313,222	Mar. 3	265	67	30	825
McGuire, James, *et al.* (See Scott, Jeremiah F., assignor.)						
McGwin, James, Fulton, Mo. Return steam-trap	311,507	Feb. 3	62	18	30	361
McHale, George W. (See Briody and McHale.)						
McIndoo, Jacob. (See McIndoo, Joseph and J.)						
McIndoo, Joseph and J., assignors of one-half to A. J. Clark, Lyons, Ind. Harrow	312,570	Feb. 17	1528	416	30	648
McKay & Copeland Lasting Machine Company. (See Brock, Matthias, assignor.)						
McKay & Thompson Consolidated Lasting Machine Association. (See Richardson, Everett P., assignor.)						
McKee, David, *et al.* (See Rawson, George W., assignor.)						
McKelvey, Christopher W., Los Angeles, Cal. Harrow	313,357	Mar. 3	451	114	30	860
McKenna, Robert, White, Tenn. Ball-governor	310,838	Jan. 13	864	234	30	169
McKenna, William, assignor of one-half to D. E. Park, Pittsburg, Pa. Metallurgical furnace	310,454	Jan. 6	372	103	30	73
McKenna, William S., Pittsburg, Pa. Regenerator-furnace	314,861	Mar. 31	2481	656 657	30	1289
McKenzie, Alexander. (See Senn, John T., assignor.)						
McKenzie, James A., Galesburg, Ill. Road-scraper	311,195	Jan. 27	1375	377	30	274
McKim, George W., Martin's Ferry, Ohio. Nail-plate feeder	313,010	Feb. 24	2110	575	30	762
McKimmy, Fred, assignor of one-half to J. E. Lugibill, Beaver Dam, Ohio. Washing-machine	310,698	Jan. 13	691	189	30	137
McKinlay, Edward S. and W. A., South Pueblo, Colo. Hoisting-machine	311,251	Jan. 27	1455	397 398	30	288
McKinlay, William A. (See McKinlay, Edward S. and W. A.)						
McKinney, George H., Stanford, Ky. Fish trap and bucket	311,346	Jan. 27	1509	437	30	314
McKinney, Robert M., Elizabeth, Pa. Automatic air-brake	311,196	Jan. 27	1378	377	30	274
McKinney, Truman D., and W. A. Soper, Tecumseh, Mich. Clay-crushing machine	311,081	Jan. 20	1214	332	30	239
McKinnis, William C., Red Bluff, Ark. Steam-valve	312,468	Feb. 17	1413	390	30	626
McKnight, Andora, *et al.* (See Orr and Seivard, assignors.)						
McKnight, M. Brayton, *et al.* (See Orr and Seivard, assignors.)						
McLachlan, John C., assignor to P. Patterson, Patterson, Ontario, Canada. Cord-holder for harvester-binders	313,094	Mar. 3	72	20	30	791
McLane, Reed A., Queen City, Tex. Signal-valve for boilers	312,741	Feb. 24	1751	482	30	698
McLaren, John R., Jr., Montreal, Quebec, Canada. Toboggan	312,879	Feb. 24	1937	530	30	730
McLean, Alexander D., Chicago, Ill. Machine for shaving curved stereotype-plates	314,391	Mar. 24	1829	487	30	1144
McLoughlin, Edmund, Brooklyn, N. Y. Plaque	311,772	Feb. 3	404	110	30	424
McMahon, William. (See Mills, Francis E., assignor.)						
McManus, Alonzo. (See Herrick and McManus.)						
McMaster, Marion E., Shelbyville, Mo. Folding book and paper rack	313,223	Mar. 3	266	67	30	826
McMillan, Solomon D., Rochester, and C. H. Ham, Charlotte, N. Y. Lubricating compound	311,347	Jan. 27	1509	.....	30	314
McMillen, Gilbert M. L., Dayton, Ohio. Reaper-truck	310,214	Jan. 6	70	18	30	15
McMillen, Robert. (See Glover, John H., assignor.)						
McMinn, Preston K., Bement, Ill. Heating-stove	310,904	Jan. 20	951	259	30	191
McMullan, David, New York, N. Y. Ornamenting wood	314,392	Mar. 24	1830	487	30	1144
McMullin, Michael, Denver, Colo. Lubricator	312,283	Feb. 17	1137	312	30	575
McMurray, Louis, Baltimore, Md. Stone-drilling machine	311,082	Jan. 20	1216	333	30	239
McMurtry, John, Lexington, Ky. Railway-spike	314,862	Mar. 31	2482	657	30	1290
McNair, David A., Warsaw, N. Y. Manufacture of glass cruets	311,197	Jan. 27	1381	378	30	275

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McNeil, George, Chicago, Ill. Automatic lubricator	313,095	Mar. 3	73	20	30	791
McNelly, Matthias J., Wilmington, Del. Unloading and elevating apparatus	310,699	Jan. 13	692	190	30	137
McNichols, Thomas C., Belmont, Ohio. Hay-carrier	310,700	Jan. 13	693	190	30	138
McPherson, Andrew G., Quinton, N. J. Horse-blanket	312,880	Feb. 24	1938	530	30	730
McQueen, A., *et al.* (See Campbell, Hugh A., assignor.)						
McQueen, W., *et al.* (See Campbell, Hugh A., assignor.)						
McQuire, Henry, assignor to Link Belt Machinery Company, Chicago, Ill. Elevator for hoisting and lowering and automatically discharging barrels, &c	311,773	Feb. 3	405	110	30	424
McSherry & Co., D. E. (See Cottom, James B., assignor.)						
McSherry & Co., D. E. (See Myers and Cottom, assignors.)						
McTighe, Thomas J. (See Hoeveler and McTighe.)						
McVay, Byram B., *et al.* (See Linham, Robert E., assignor.)						
McVey, William, Hopkins, Mo. Railway-tie	312,681	Feb. 24	1939	530	30	730
McVickar, James, Caldwell, N. J. Cherry-pitting machine	312,370	Feb. 17	1251	345	30	596
Meacham, William B., Boydton, Va. Axle skein and box	311,774	Feb. 3	408	110	30	425
Mead, Albert G., and E. F. Pierce, assignors to M. A. Kent, Boston, Mass. Spring-stud for gloves, &c	312,571	Feb. 17	1528	417	30	648
Mead, Charles L., New York, N. Y., assignor to Stanley Rule and Level Company, New Britain, Conn. Bench-plane	311,136	Jan. 20	1289	354	30	252
Meagher, Edmund D., and C. E. Tower, South Bend, assignors to Economist Plow Company, St. Joseph county, Ind. Sulky-plow	313,749	Mar. 10	968	250	30	966
Meatyard, Edward B., Lake Geneva, Wis. Manufacture of car-wheels	310,701	Jan. 13	694	190	30	138
Meatyard, Edward B., Lake Geneva, Wis. Railway	310,702	Jan. 13	697	191	30	138
Mecham, James G., Madison, Nebr. Warming oven and radiator	311,908	Feb. 10	602	165	30	468
Medcraft, John H., Newark, N. J. Trunk-fastener	311,348	Jan. 27	1600	438	30	315
Medynski, Fred. V., Des Moines, Iowa. Furnace-grate	310,215	Jan. 6	71	19	30	15
Meek, S. Mason, Chicago, Ill. File for holding blanks	314,598	Mar. 31	2108	562	30	1290
Mefford, David M., Toledo, Ohio. Pneumatic cannon	314,298	Mar. 24	1711	455	30	1121
Megee, Andrew J., assignor to himself, J. Y. Huber, and F. H. Miller, Philadelphia, Pa. Clasp for albums and other books	311,438	Jan. 27	1721	468	30	337
Mehrer, Henrietta L., New Rochelle, N. Y. Folding wardrobe and chiffonier	310,703	Jan. 13	700	191	30	139
Meigs, Joe V., Lowell, Mass. Railway	313,830	Mar. 10	1074	277 278 279 280	30	985
Meikle and Company, Thomas. (See Meikle, Thomas, assignor.)						
Meikle, James, Providence, R. I. Bleaching apparatus	311,349	Jan. 27	1601	438	30	315
Meikle, Thomas, assignor to T. Meikle and Company, Lonlaville, Ky. Cultivator	312,489	Feb. 17	1414	390	30	626
Meinecke, Ferdinand, Milwaukee, Wis. Woolen-shoe machine	310,216	Jan. 6	71	19	30	16
Meinhardt, Henry, Peru, Ind. Merchandise-holder	312,742	Feb. 24	1752	482	30	698
Meinikheim, Bernard G., Newtown, N. Y. Spring-seat support	311,596	Feb. 3	186	53	30	383
Melone, Thomas L., Chillicothe, Ohio. Sewing-machine stand	310,455	Jan. 6	373	103 104	30	73
Mellum, Ole H., assignor of two-thirds to A. Stephenson and P. Arnold, Chicago, Ill. Composition for cleaning metal	314,256	Mar. 24	1645	.....	30	1108
Melville, Charles H., and T. W. Brown, Chattanooga, Tenn. Rotary engine	310,531	Jan. 6	469	129	30	90
Mendenhall, Stephen C. (See Jackson, Frederick W., assignor.)						
Mendenhall, Stephen C. (See Way, Francis K., assignor.)						
Mendenhall, Stephen C., Richmond, Ind. Caster	314,948	Mar. 31	2602	689	30	1310
Mendenhall, Stephen C., Richmond, Ind. Caster	314,949	Mar. 31	2604	689	30	1310
Mendenhall, Stephen C., Richmond, Ind. Caster	314,950	Mar. 31	2605	689	30	1310
Mendenhall, Stephen C., Richmond, Ind. Caster	314,951	Mar. 31	2606	689	30	1310
Mendenhall, Stephen C., Richmond, Ind. Caster	314,952	Mar. 31	2606	690	30	1311
Mendenhall, Stephen C., Richmond, Ind. Caster	314,953	Mar. 31	2607	690	30	1311
Mendenhall, Stephen C., Richmond, Ind. Caster	314,954	Mar. 31	2609	690	30	1311
Mendenhall, Stephen C., Richmond, Ind. Caster	314,955	Mar. 31	2610	690	30	1311
Mendenhall, Stephen C., Richmond, Ind. Caster	314,956	Mar. 31	2611	691	30	1311
Mendenhall, Stephen C., Richmond, Ind. Caster	314,957	Mar. 31	2612	691	30	1311
Mendenhall, Stephen C., Richmond, Ind. Caster	314,958	Mar. 31	2613	691	30	1311
Mendenhall, Stephen C., Richmond, Ind. Caster	314,959	Mar. 31	2613	691 692	30	1312
Mendenhall, Stephen C., Richmond, Ind. Caster	314,960	Mar. 31	2615	692	30	1312
Mendenhall, Stephen C., Richmond, Ind. Caster	314,961	Mar. 31	2617	692	30	1312
Mendenhall, Stephen C., Richmond, Ind. Caster	314,962	Mar. 31	2619	693	30	1313
Mendenhall, Stephen C., Richmond, Ind. Caster	314,963	Mar. 31	2620	693 694	30	1313
Mendenhall, Stephen C., Richmond, Ind. Caster	314,964	Mar. 31	2622	694	30	1313
Mendenhall, Stephen C., Richmond, Ind. Caster	314,965	Mar. 31	2624	694	30	1313
Mendenhall, Stephen C., Richmond, Ind. Caster	314,966	Mar. 31	2626	695	30	1314
Mendenhall, Stephen C., Richmond, Ind. Caster	314,967	Mar. 31	2628	695	30	1314
Mendenhall, Stephen C., Richmond, Ind. Caster	314,968	Mar. 31	2629	695 696	30	1314
Mendenhall, Stephen C., Richmond, Ind. Glass roller for skates, casters, and other articles, and producing the same	314,969	Mar. 31	2631	696	30	1314
Mendenhall, Stephen C., Richmond, Ind. Manufacture of glass rollers	314,970	Mar. 31	2633	697	30	1314
Mendenhall, Stephen C., Richmond, Ind. Manufacture of glass rollers	314,971	Mar. 31	2635	697	30	1315
Menecely Hardware Company. (See Gibbons, John, assignor.)						
Menelas, Constantine, *et al.* (See Smith, T. Albee, assignor.)						
Mentel, Ferdinand L., Cincinnati, Ohio. Water-hammer preventive	312,882	Feb. 24	1939	531	30	730
Mercer, David, Bethlehem, Pa. Balanced valve	312,000	Feb. 10	734	200 201	30	492
Mercer, Rachel A., *et al.* (See Cash, Evan F., assignor.)						
Meredith, Hartford M., *et al.* (See McDonald, Gilbert, assignor.)						
Meredith, Oliver R., J. I. Gallacher, and C. F. Jones, Salt Lake City, Utah Ter. Trunk	310,704	Jan. 13	701	191	30	139
Meredith, Robert, Lynnville, Iowa. Drying rubber boots	314,460	Mar. 24	1914	511	30	1160
Mergenthaler, Ottmar. (See Hahl and Mergenthaler.)						
Mergenthaler, Ottmar, Baltimore, Md., assignor to National Typographic Company, Washington, D. C. Producing printing-surfaces	311,350	Jan. 27	1603	438 439	30	315
Mergenthaler, Ottmar, Baltimore, Md., assignor to National Typographic Company, Washington, D. C. Machine for producing stereotype-matrices	312,145	Feb. 10	922	250 251 252 253 254	30	528

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Mergenthaler, Ottmar, Baltimore, Md., assignor to National Typographic Company, of West Virginia. Machine for producing printing-bars	313,224	Mar. 3	268	67, 68, 69, 70, 71	30	326
Meriam, Joseph B. (See Dean, Richard, assignor.)						
Meriden Malleable Iron Company. (See Lawton, Lyman T., assignor.)						
Meriden Malleable Iron Company. (See Tidgewell, William, assignor.)						
Merrell, Albert R., Marshalltown, Iowa. Can watering-machine	312,648	Feb. 24	1623	447	30	675
Merriam, I. Z. (See Nichless, Anthony, assignor.)						
Merrill, Bisbee B., Brewer, Me. Combined square, bevel, and level	312,743	Feb. 24	1753	482	30	698
Merrill & Co., E. H. (See Merrill, Henry E., assignor.)						
Merrill & Co., E. H. (See Merrill and Dempsey, assignors.)						
Merrill, Edwin C., assignor, by mesne assignments, to G. Westinghouse, Jr., Pittsburg, Pa. Gas cut-off	313,750	Mar. 10	971	251	30	966
Merrill, Henry E., assignor to E. H. Merrill & Co., Akron, Ohio. Machine for making crock-rims	310,706	Jan. 13	703	192	30	139
Merrill, Henry E., and W. E. Dempsey, assignors to E. H. Merrill & Co., Akron, Ohio. Press for forming earthenware vessels	310,705	Jan. 13	701	192	30	139
Merritt, Charles H., Danbury, Conn., assignor to J. T. Waring, New York, N. Y. Hatter's tank	314,461	Mar. 24	1914	511	30	1160
Merritt, Daniel H., Marquette, Mich. External friction-brake band for hoisting machinery	312,146	Feb. 10	935	254, 255	30	530
Merserean, Frank D., Orange, N. J. Lamp-shade	310,953	Jan. 20	1029	279	30	203
Mertz, John F., B. Lorton, Uniopolis; said Mertz assignor to said Lorton; said Lorton assignor of one-half to N. Stout, Sidney, Ohio. Harvester-wheel	312,883	Feb. 24	1940	531	30	731
Messenger, Rebecca. (See Kope, Samuel, assignor.)						
Messerly, James O., Baltimore, Ohio. Stone-worker's lathe	314,462	Mar. 24	1915	511, 512	30	1160
Metal Wheel Company. (See Delkescamp, Adolph.)						
Mettam, Charles, Bayonne, N. J. Fire-proof partition and ceiling	312,284	Feb. 17	1138	312	30	575
Mettler, James I., assignor of one-half to W. McBride, Creston, Ill. Grindstone apparatus	313,877	Mar. 17	1151	300	30	1007
Metzger, Martin L., and A. Cooper, Harrisburg, Pa. Variable frictional power-transmitter	313,831	Mar. 10	1079	280	30	966
Meyer, Cord, Jr., Maspeth, N. Y. Machine for cleaning and washing bones	313,751	Mar. 10	973	251	30	966
Meyer, George H., Santa Rosa, Cal. Corn-planter	311,351	Jan. 27	1605	439	30	315
Meyer, Herman H., Denver, Colo. Cut-off and reversing gear	311,775	Feb. 3	409	111	30	425
Meyer, Michael, Waukesha, Wis. Drawer	310,299	Jan. 6	185	51	30	36
Meyer, Paul J., Berlin, Germany. Manufacture of isatine and substituted isatins	310,604	Jan. 13	571	.....	30	116
Meyer, Simon C., Philadelphia, Pa. Machine for reducing bagasse to pulp to extract the saccharine matter therefrom	313,510	Mar. 10	652	169, 170	30	907
Meyers, John G., Washington, D. C. Mechanical movement	312,001	Feb. 10	735	201	30	493
Michaelis, Moses, New York, N. Y. Spring-follower for cigar-boxes	311,597	Feb. 3	188	53	30	384
Michaels, Albert. (See Maddock and Michaels.)						
Michaels, Dennis, Hopedale, Ohio. Pitman-rod	310,707	Jan. 13	704	192	30	140
Michaels, Lewis A., Dallas, Tex. Caster and insect-guard combined	313,225	Mar. 3	285	72	30	898
Michelson, Leandre C., Brooklyn, N. Y. Cigar-perforator	314,043	Mar. 17	1370	357	30	1049
Michelson, Sigismund M., Milwaukee, Wis. Combined trunk buffer and caster	313,086	Mar. 3	75	20	30	791
Michelson, Sigismund M., assignor of one-half to G. Sylvester, Milwaukee, Wis. Trunk-stay	311,439	Jan. 27	1722	469	30	337
Michelson, Sigismund M., assignor of one-third to G. Sylvester, Milwaukee, Wis. Caster	313,097	Mar. 3	76	20	30	791
Michigan Stove Company. (See Gardner, Miles W., assignor.)						
Michigan Stove Company. (See Walker, Eugene R., assignor.)						
Mickel, William, Oneonta, N. Y. Bench-vise	310,939	Jan. 13	865	234	30	169
Middleton, William R., assignor of one-half to H. Tuttle, Cleveland, Ohio. Pipe-coupling	310,300	Jan. 6	186	51	30	36
Midgley, Thomas, assignor of one-half to C. G. Washburn, Worcester, Mass. Making wire	310,956	Jan. 20	1033	280	30	203
Miehling, Charles, assignor to himself and C. Miehling, New York, N. Y. Sewing-machine attachment for placing and ejecting bobbins	310,954	Jan. 20	1030	279	30	203
Miehling, Charles and C., New York, N. Y. Sewing-machine attachment for placing and ejecting bobbins	310,955	Jan. 20	1031	279	30	203
Milbank, Robert W., New York, N. Y. Pneumatic elevator for grain	310,905	Jan. 20	952	260	30	191
Milburn Gin and Machine Company. (See Crowson, William L., assignor.)						
Miles, A. S. (See Milliner, Isaac B., assignor.)						
Milgate, George C., Folsom, Cal. Gate	313,226	Mar. 3	286	72	30	898
Millar, James D., Milwaukee, Wis. Roller-mill	311,508	Feb. 3	63	19	30	361
Millard, Martin S., assignor of two-thirds to W. H. H. Tainter, Kansas City, and G. H. King, Salisbury, Mo. Window	311,252	Jan. 27	1457	398, 399	30	299
Millard, Orson, Flint, Mich. Apparatus for forcing air	312,371	Feb. 17	1232	345	30	596
Millen, George H. (See Eddy, Millen, and Mousseau.)						
Miller, Abraham, Newark, assignor to Newark Machine Company, Columbus, Ohio. Straw-stacker	311,137	Jan. 20	1290	354, 355	30	252
Miller, Adam, London, England. Amalgamating apparatus	311,352	Jan. 27	1606	439	30	315
Miller, Adam, London, England. Amalgamating apparatus	311,353	Jan. 27	1607	439	30	316
Miller, Adam, London, England. Amalgamating apparatus	311,354	Jan. 27	1608	440	30	316
Miller, Adam, London, England. Amalgamating apparatus	311,355	Jan. 27	1609	440	30	316
Miller, Andrew J., Meadville, assignor to himself and S. L. Moore, Milledgeville, Pa. Brick-machine	314,340	Mar. 24	1761	470	30	1130
Miller, Bion H., Bay City, Mich. Saw-swaging machine	310,708	Jan. 13	705	192	30	140
Miller, Charles, Auburn, N. Y. Pool-rack	311,843	Feb. 3	400	134	30	441
Miller, Charles C., Brooklyn, N. Y., assignor to E. and T. Fairbanks, St. Johnsbury, Vt. Testing-machine	313,607	Mar. 10	774	204	30	930
Miller, Charles L., *et al.* (See Kenna, Joseph W., assignor.)						
Miller & Co., Edward. (See Perkins, Russell B., assignor.)						
Miller, Edmund B., Dandridge, Tenn. Fence and post lifter	311,138	Jan. 20	1291	355	30	252
Miller, Eugene, *et al.* (See Graham, Eri, assignor.)						
Miller, Francis H., *et al.* (See Magee, Andrew J., assignor.)						
Miller, Frederick J., Brooklyn, N. Y. Banjo	310,906	Jan. 20	954	260	30	191
Miller, Frederick W., Brooklyn, N. Y. Well-tube	311,024	Jan. 20	1125	307	30	322
Miller, George, assignor to D. W. Ryan, Lake View, Ill. Machine for drying barrels	312,002	Feb. 10	736	201	30	402
Miller, George W. (See Coes and Miller.)						
Miller, George W., Meriden, Conn. Key-ring	310,301	Jan. 6	187	52	30	36
Miller, Gilbert C., Fort Wayne, Ind. Plow-fender	311,909	Feb. 10	603	165	30	468
Miller, Herman, New York, N. Y. Closing kerosene and other cans	312,372	Feb. 17	1253	345	30	596

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Miller, Isaac J., Jr., Cincinnati, Ohio. Railway-rail joint	312,490	Feb. 17	1416	390	30	627
Miller, J. Harts. (See Cracraft, Richard, assignor.)						
Miller, Jacob, Canton, Ohio. Grain-binding harvester	313,878	Mar. 17	1151	300	30	1007
Miller, James B. (See Wilkins and Miller.)						
Miller, James M., Allentown, Pa. Thill-coupling	314,463	Mar. 24	1917	512	30	1160
Miller, Lewis M. (See Champlain and Winans, assignors.)						
Miller, Otto. (See Miller, Rudolph and O.)						
Miller, Rudolph, Orange, N. J., and O. Miller, New York, N. Y. Awl for attaching buttons	312,491	Feb. 17	1418	391	30	627
Miller, Samuel, Pittsburg, Pa. Horse hay-fork	314,044	Mar. 17	1371	357	30	1049
Miller, Sylvanus E., Jersey City, N. J., assignor to W. Bell, New York, N. Y. Lighting lamps	312,285	Feb. 17	1140	312, 313	30	575
Miller, Thomas, *et al.* (See Unger, Charles, assignor.)						
Miller, William R., Baltimore, Md. Telephone	312,492	Feb. 17	1419	391	30	627
Millet, John W., Dolgeville, assignor to A. Dodge, New York, N. Y. Guide for endless aprons	311,844	Feb. 3	491	134	30	441
Milligan, John C., Brooklyn, and J. Chaumont, Woodhaven, assignors to Lalance & Grosjean Manufacturing Company, New York, N. Y. Milk-can	311,440	Jan. 27	1723	469	30	337
Milligan, John C., Brooklyn, and J. Chaumont, Woodhaven, assignors to Lalance & Grosjean Manufacturing Company, New York, N. Y. Coffee-mill	312,493	Feb. 17	1420	391	30	627
Milliron, Jacob, Jr., assignor of one-half to S. W. Steele, Nashville, Tenn. Hand-car	312,572	Feb. 17	1529	417	30	648
Millner, Isaac B., Washington, D. C. Combined lead-pencil tip and tape measure	310,840	Jan. 13	866	235	30	170
Milliner, Isaac B., New York, N. Y., assignor of one-half to A. S. Miles, Baltimore, Md. Automatic gas-valve	310,605	Jan. 13	573	158	30	116
Mills, Daniel, Philadelphia, Pa. Button-hole sewing mechanism	313,359	Mar. 3	453	115, 116	30	860
Mills, Daniel, Philadelphia, Pa., assignor to United States Automatic Buttonhole Sewing Machine Company, of New Jersey. Button hole sewing-machine	313,358	Mar. 3	451	115	30	860
Mills, Daniel, assignor to United States Automatic Buttonhole Sewing Machine Company, Philadelphia, Pa. Button-hole sewing-machine	313,438	Mar. 3	502	145	30	881
Mills, Francis E., assignor of one-half to W. McMahon, Pittsburg, Pa. Monocycle	312,147	Feb. 10	938	255	30	530
Mills, George M., Philadelphia, Pa. Ice-cream freezer	314,863	Mar. 31	2463	657, 658	30	1290
Miner, James G., Cincinnati, Ohio. Balanced slide-valve	314,258	Mar. 24	1647	436, 437	30	1108
Miner, James G., assignor to J. A. Robinson, trustee, Cincinnati, Ohio. Boiler-cleaner and filter	314,257	Mar. 24	1645	436	30	1108
Miner, Winfield S., Turney, Mo. Car-coupling	314,045	Mar. 17	1372	368	30	1049
Minneapolis Harvester Works. (See Appleby, John F., assignor.)						
Miragoll, Ettore S., St. Louis, Mo. Fresco-work	311,509	Feb. 3	67	20	30	361
Miskimen, George W., Newcomerstown, Ohio. Seeding-machine	312,148	Feb. 10	939	255	30	530
Mitchell, Albion L. F., Lynn, Mass., assignor to Mitchell Heel and Edge Burnishing Company, Kittery, Me. Jack for boots or shoes	310,532	Jan. 6	470	129	30	91
Mitchell, Albion L. F., Lynn, Mass., assignor to Mitchell Heel and Edge Burnishing Company, Kittery, Me. Heel-burnishing machine	312,573	Feb. 17	1530	418	30	648
Mitchell, Alexander. (See Strong and Mitchell.)						
Mitchell, E. R., *et al.* (See Gilmer, Joseph, assignor.)						
Mitchell, Edward P. (See Taliaferro and Mitchell.)						
Mitchell Heel and Edge Burnishing Company. (See Mitchell, Albion L. F., assignor.)						
Mitchell, James L., Kenton, Ohio. Rotary engine	314,389	Mar. 24	1827	486	30	1143
Mitchell, John E., Fowler, assignor of one-half to A. D. Raub, Earl Park, Ind. Attachment for cultivators	312,574	Feb. 17	1532	418	30	649
Mitchell, John H. (See Matzinger, John, assignor.)						
Mitchell, Nelson C., Kansas City, Mo. Bee-hive	314,972	Mar. 31	2636	698	30	1315
Mitchell, Nelson C., Kansas City, Mo. Bee-keeping	314,973	Mar. 31	2638	698	30	1315
Mitchell, Oliver F., assignor of one-half to W. H. Swinhart, Merrill, Wis. Billiard-cue	310,456	Jan. 6	374	104	30	73
Mitchell, Robert A., and J. Von Thurn, Helena, Ohio. Farmer's weighing-scale	314,599	Mar. 31	2109	562	30	1220
Mitrucker, Christian, Chicago, Ill. Shipping-case	311,025	Jan. 20	1126	308	30	222
Model Cuff Adjusting Company. (See Sourwine and Carpenter, assignors.)						
Moebius, Bernard, Chihuahua, Mexico. Separation of metals	310,302	Jan. 6	188	.....	30	36
Moebius, Bernard, Chihuahua, Mexico, assignor of three-eighths to W. E. Pope, Athens, Ga. Apparatus for the electrolytical separation and deposition of metals	310,533	Jan. 6	472	129, 130, 131, 132, 133	30	91
Moeller, Henry F., Davenport, Iowa. Box-fastener	311,910	Feb. 10	664	166	30	468
Moen, Edward F., *et al.* (See Hall, Hiram S., assignor.)						
Moeser, Henry, Allegheny, Pa. Preventing leakage from gas-conducting mains	310,841	Jan. 13	867	235	30	170
Mohler, George E. (See Gorgas and Mohler.)						
Moisson, Anatole T., Verneuil, France. Bobbin-winding attachment for sewing-machines	311,508	Feb. 3	188	54	30	384
Mond, Ludwig, Winnington Hall, county of Chester, England. Gas-generator	311,441	Jan. 27	1724	469, 470	30	337
Moneyment, Matthew, Philadelphia, Pa. Awning for windows	311,510	Feb. 3	68	20	30	362
Monger, Francis M., assignor to himself, C. A. Sample, Cleveland, and J. R. Rolland, Charlottesville, Ind. Flood-gate	314,265	Mar. 31	2467	650	30	1291
Monjeau, Cleophas, Middletown, Ohio. Balcony and fire-escape combined	313,511	Mar. 10	653	170	30	907
Monroe, Halsey H., Thomaston, Me. Seeder	312,149	Feb. 10	940	256	30	530
Monroe, Halsey H., Thomaston, Me. Rotary harrow	312,150	Feb. 10	941	256	30	531
Montague, John B., *et al.* (See Snell, Augustus E., assignor.)						
Montzillion, Louis, Elk Ridge, Md. Power-accumulator for vehicles	310,907	Jan. 20	955	260	30	191
Montgomery, Alpheus W., New York, N. Y. Manufacturing tarred ropes and yarns	312,286	Feb. 17	1142	.....	30	576
Montgomery, Frank P., San José, Cal. Globe	313,752	Mar. 10	974	251	30	967
Moock, Otto T. (See Seltzer and Moock.)						
Moody, James S., Fillmore, Ill. Feeding-trough	313,227	Mar. 3	287	72	30	899
Mook, Daniel D., North Pembroke, N. Y. Grain-screen	312,744	Feb. 24	1755	482	30	699
Moon, Hiram E., Richmond, Ind. Blackboard	314,600	Mar. 31	2110	562	30	1220
Moore, Aaron B., assignor to Cooper Manufacturing Company, Mount Vernon, Ohio. Fastening for metal laths	313,228	Mar. 3	288	72	30	899
Moore, Aaron H., *et al.* (See Lovett, John, assignor.)						
Moore, Ben. (See Dudley, Andrew J., assignor.)						
Moore, Edward B., West Chester, Pa. Button-hole-cutting attachment for sewing-machines	314,046	Mar. 17	1373	358	30	1050
Moore, Enos L., Portsmouth, Ohio. Reversing-valve	314,341	Mar. 24	1764	471	30	1121
Moore, Francis M., Worcester, Mo. Animal-muzzle	310,842	Jan. 13	870	235	30	170

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Moore, George R., Philadelphia, Pa. Valve mechanism for water-closet cisterns	311,599	Feb. 3	190	54	30	384
Moore, Gideon E., New York, N. Y. Manufacture of hydrogen	314,342	Mar. 24	1766	.....	30	1131
Moore, Gilpin, Rock Island, assignor to Deere & Company, Moline, Ill. Wheel-plow	313,947	Mar. 17	1255	327 / 328	30	1026
Moore, Hollis W., Olean, N. Y. Vehicle-spring	314,702	Mar. 31	2241	596	30	1245
Moore, Matthew R., assignor to Pneumatic Company, Indianapolis, Ind. Machinery for making molds for castings. (Reissue)	10,502	Feb. 24	2148	584	30	768
Moore, N. Grier, administrator. (See Stock, Charles F.)						
Moore, Robert C., Holton, Kans. Filter	313,946	Mar. 17	1254	327	30	1026
Moore, Robert W. (See Townsend and Moore.)						
Moore, Samuel, assignor of one-fourth to J. B. Richardson, Providence, R. I. Chuck	310,303	Jan. 6	191	52	30	37
Moore, Seth L. (See Miller, Andrew J., assignor.)						
Moore, Walter A., Charleston, S. C. Wagon-rack	313,753	Mar. 10	975	251	30	967
Moore, William A., assignor of one-half to J. C. Heath, Hampton, Va. Cell-tray	314,864	Mar. 31	2486	659	30	1290
Mordey, William M., Putney, county of Surrey, England. Dynamo-electric machine	312,745	Feb. 24	1756	483 / 484	30	699
Morehouse, Charles L., Brooklyn, N. Y. Bottle-stopper	310,304	Jan. 6	192	52	30	37
Morehouse, Charles L., Brooklyn, N. Y. Bottle-stopper	314,703	Mar. 31	2243	596	30	1245
Morgan, Thomas J., Hyde Park, assignor of one-half to W. McCombie, Chicago, Ill. Door-latch	312,575	Feb. 17	1533	418	30	649
Morrell, Thomas T., Johnstown, Pa. Regenerative furnace	313,754	Mar. 10	976	252	30	967
Morris Company, I. P. (See Hutchinson, Arthur H., assignor.)						
Morris, Marion A., assignor to Scovill Manufacturing Company, Waterbury, Conn. Wick-adjuster	313,678	Mar. 10	865	225	30	948
Morris, Robert H., assignor of one-half to N. Carlson, Janesville, Wis. Hay elevator and carrier	312,151	Feb. 10	944	257	30	531
Morrison, Ebenezer, and J. P. Herron, Washington, D. C. Thickness-gage	310,908	Jan. 20	957	260 / 261	30	192
Morrison, Gardner L., Brooklyn, assignor to W. H. Jackson, New York, N. Y. Fire-place heater	312,093	Feb. 10	737	201 / 202	30	492
Morrison, James, Jr., New York, N. Y. Lath	311,666	Feb. 3	270	75	30	399
Morrison, Prosper, Maquon, Ill. Automatic weighing-scale	311,198	Jan. 27	1382	378	30	275
Morrison, William, Toronto, Ontario, Canada. Chemical fire-engine	313,755	Mar. 10	977	252	30	967
Morrow, Henry A., Philadelphia, Pa. Carpet-rag looper	314,704	Mar. 31	2243	597	30	1245
Morse, David R., *et al.* (See Beach, William W., assignor.)						
Morse, Stephen A., Philadelphia, Pa. Dumb-waiter	311,253	Jan. 27	1460	399	30	289
Morse, Thomas G., Erie, Pa. Machine for tapping metal pipes and fittings	312,212	Feb. 10	1029	281 / 282	30	546
Morse Twist Drill and Machine Company. (See Stetson, George R., assignor.)						
Morstatt, George W., New York, N. Y. Machine for inserting pins in blind-slats	314,464	Mar. 24	1917	512	30	1160
Mortensen, Hans, Leadville, Colo. Pump	314,705	Mar. 31	2245	597	30	1245
Morton, Ephraim S. (See Loring and Morton.)						
Morton, Frederic C., Chelsea, Mass. Rotary engine	310,843	Jan. 13	871	235 / 236	30	170
Morton, Harden. (See Watkins, William, assignor.)						
Morton, Horace J., Pullman, Ill. Lumber-drier	311,442	Jan. 27	1726	470	30	338
Moscopoulos, Basilios K., New York, N. Y. Sponge-gathering net	314,047	Mar. 17	1374	359	30	1050
Moser, Benjamin, Brooklyn, N. Y. Lock	313,098	Mar. 3	77	21	30	791
Moser, Benjamin, Brooklyn, N. Y. Lock	313,439	Mar. 3	563	145 / 146	30	881
Mosler, John L. H., Long Island City, N. Y., assignor to himself and A. S. Sherwood, East Orange, N. J. Thill-coupling	311,600	Feb. 3	191	54	30	384
Moss, John L., and N. Littell, Rome, Ga. Extracting oil from formed oil-cake	313,440	Mar. 3	567	.....	30	882
Mote, Alden, and J. B. Brewster, Oskaloosa, Iowa. Wagon-jack	312,746	Feb. 24	1759	484	30	699
Mott, Frank M., Greeley, Colo. Plow	311,511	Feb. 3	69	20	30	362
Mott Iron Works, J. L. (See McFarland, Samuel G., assignor.)						
Mott, Jordan L., Jr., New York, N. Y. Bidet attachment for water-closets	312,373	Feb. 17	1254	345 / 346	30	596
Mottram, William K., Ottawa, Kans. Lifting-jack, lever, wrench, and oil-holder combined	312,747	Feb. 24	1760	485	30	699
Moulton, David, Malden, Mass. Elevated railway and car-truck for the same	312,004	Feb. 10	738	202	30	492
Moulton, Luther V., assignor to E. O. Ely, J. B. Parker, G. G. Briggs, Grand Rapids, Mich., and G. E. Parker, Boston, Mass. Button-attaching machine	312,748	Feb. 24	1761	485	30	700
Moulton, Luther V., assignor to Peninsular Novelty Company, Grand Rapids, Mich. Machine for attaching buttons	312,749	Feb. 24	1763	485	30	700
Moulton, Sarah A., Grand Rapids, Mich. Meat-tenderer	311,199	Jan. 27	1383	378	30	275
Monsseau, Edward. (See Eddy, Millen, and Monsseau.)						
Mower, Samuel E., assignor to H. G. Thompson, New Haven, and H. G. Thompson, Milford, Conn. Tag and fastener	313,948	Mar. 17	1258	328	30	1027
Moxham, Arthur J., Johnstown, Pa. Making steel-girder street-rails	310,457	Jan. 6	375	104	30	73
Moxham, Arthur J., Johnstown, Pa. Rolling-mill for rails	312,213	Feb. 10	1031	282	30	546
Moxham, Arthur J., Johnstown, Pa. Securing girder-rails in track	313,512	Mar. 10	655	170	30	907
Moyer, Charles E., Stevens Point, Wis. Centrifugal floor-bolt	313,756	Mar. 10	979	252	30	968
Muirhead, Alexander, Norwood, county of Surrey, England. Manufacture of compounds to be used for insulating, &c.	310,957	Jan. 20	1034	.....	30	204
Muirhead, James, Olneyville, R. I. Water-closet	314,145	Mar. 17	1507	394	30	1073
Müller, Friederich, Elizabeth, N. J. Attachment for screw-cutting machines. (Reissue)	10,576	Mar. 31	2657	703	30	1320
Müller, Friederich, assignor to himself and M. Macdougall, Elizabeth, N. J. Attachment for screw-cutting machines	311,200	Jan. 27	1384	379	30	275
Müller, Jacob, New York, N. Y. Machine for separating hop-scales from their stems	314,146	Mar. 17	1508	395	30	1073
Müller, John, Kansas City, Mo. Combined drawing-square and miter	311,911	Feb. 10	605	166	30	468
Müller, William, assignor to himself and P. Breitenbucher, Atlanta, Ga. Car-coupling	311,667	Feb. 3	270	75	30	399
Mullin, Benjamin F., Holyoke, Mass. Screen or strainer for the blow-off of paper-stock boilers	313,011	Feb. 24	2112	575	30	762
Mullin, Garland W., Washington, Ga. Plow-point	313,832	Mar. 10	1081	280	30	986
Munm, John F., Brooklyn, N. Y. Attaching rudders to boats	310,458	Jan. 6	376	104	30	73
Münch, Conrad. (See Rau and Münch.)						
Municipal Signal Company. (See Wilson, John C., assignor.)						
Munroe, William H., and T. C. Sullivan, Boston, Mass. Ballot-box	311,512	Feb. 3	70	21, 22	30	362
Munz, John, Jr. (See Hellmuth, Frederick C., assignor.)						
Muratori, Ferdinand L., and E. Cros, Paris, France. Apparatus for regulating or controlling from a distance the flow of gases	314,188	Mar. 17	1560	409	30	1082
Murdoch, George, Brooklyn, N. Y. Bone-black oven	314,866	Mar. 31	2488	659	30	1291
Murray, Joseph T., *et al.* (See Cardwell, George A., assignor.)						
Murray, Samuel J., assignor to Russell & Morgan Printing Company, Cincinnati, Ohio. Machine for cutting card-board	310,534	Jan. 6	478	133	30	92

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Murray, Samuel M., and J. C. Stryker, Tipton, Iowa. Ditching-machine	311,668	Feb. 3	272	75	30	400
Murphy, Cornelius D., assignor to Worswick Manufacturing Company, Cleveland, Ohio. Snap-hook	314,867	Mar. 31	2489	660	30	1291
Murphy, James, assignor, by mesne assignments, to himself and C. H. Souther, Boston, Mass. Dumping-scow	313,679	Mar. 10	866	225	30	948
Murphy, James J., Philadelphia, Pa. Dumping-wagon	314,868	Mar. 31	2490	660	30	1291
Murphy, Thomas, Cincinnati, Ohio. Tobacco-pipe	313,833	Mar. 10	1082	281	30	986
Murry, John H., *et al.* (See Byrkit, Edwin M., assignor.)						
Musser, William R., Leftwich, Va. Tobacco-packing machine	314,539	Mar. 24	2030	542	30	1179
Musson, John R. (See Baillie, John D., assignor.)						
Myers, Andrew G., and J. B. Cottom, assignors to D. E. McSherry & Co., Dayton, Ohio. Seeding-machine	313,013	Feb. 24	2113	576	30	762
Myers, Charles O., York Sulphur Springs, Pa. Car-coupling	310,535	Jan. 6	479	134	30	92
Myers, Christian, deceased, (M. A. Myers, administratrix,) San Francisco, Cal. Reversible plow	312,649	Feb. 24	1624	447	30	675
Myers, Gamaliel C., Dayton, Ohio. Carpet-fastener	310,217	Jan. 6	73	19	30	16
Myers, Laurence, Philadelphia, Pa. Hand-stamp	313,012	Feb. 24	2113	576	30	762
Myers Manufacturing Company. (See Wallace, J. Bennett, assignor.)						
Myers, Mary A., administratrix. (See Myers, Christian.)						
Nadelhoffer, John W., Joliet, Ill. Machine for making barbed wire	314,601	Mar. 31	2111	563	30	1220
Nagel, August C., R. H. Kaemp, and A. W. F. G. Linnenbrügge, Hamburg, Germany. Reducing grain	310,709	Jan. 13	707	193	30	140
Nagel, August C., R. H. Kaemp, and A. W. F. G. Linnenbrügge, assignors to Nagel and Kaemp, Hamburg, Germany. Disintegrating apparatus for flour-mills	312,215	Feb. 10	1034	283	30	547
Nagel, John, Fulton, Mo. Knife	310,606	Jan. 13	574	158	30	116
Nagle, Augustus F., Chicago, Ill. Force-pump	313,679	Mar. 17	1153	300	30	1008
Nall, Aaron. (See Presbrey and Nall.)						
Nascimento, Manoel J. (See Roeske, Henry, assignor.)						
Nascimento, Manoel J., Philadelphia, Pa. Hat-ventilator	314,048	Mar. 17	1376	359	30	1050
Nash, Charles C., assignor to D. M. Small, Providence, R. I. Portable water-closet	311,443	Jan. 27	1727	470	30	338
Nash, Lewis H., Brooklyn, assignor to National Meter Company, New York, N. Y. Gas-engine	312,494	Feb. 17	1421	391 / 392	30	628
Nash, Lewis H., Brooklyn, assignor to National Meter Company, New York, N. Y. Single-acting engine	312,495	Feb. 17	1425	392	30	628
Nash, Lewis H., Brooklyn, assignor to National Meter Company, New York, N. Y. Gas-engine	312,496	Feb. 17	1426	392 / 393	30	628
Nash, Lewis H., Brooklyn, assignor to National Meter Company, New York, N. Y. Gas-engine	312,497	Feb. 17	1429	393 / 394	30	629
Nash, Lewis H., Brooklyn, assignor to National Meter Company, New York, N. Y. Gas-engine	312,498	Feb. 17	1432	394	30	629
Nash, Lewis H., Brooklyn, assignor to National Meter Company, New York, N. Y. Igniter for gas-engines	312,499	Feb. 17	1435	394 / 395	30	630
National Improved Telephone Company. (See Randall, Charles A., assignor.)						
National Iron and Brass Works. (See Smedley, Edwin, assignor.)						
National Machine Company. (See Hallenbeck and Phelps, assignors.)						
National Manufacturing Company. (See Maltby, Clinton H., assignor.)						
National Meter Company. (See Nash, Lewis H., assignor.)						
National Tube Works Company. (See Patterson and Boyd, assignors.)						
National Typographic Company. (See Clephane, James O., assignor.)						
National Typographic Company. (See Mergenthaler, Ottmar, assignor.)						
National Typographic Company. (See White, John H., assignor.)						
Nativel, Theodore C., Oakland, Cal. Fire-place and chimney	313,441	Mar. 3	567	146	30	882
Naughton, James W., Brooklyn, N. Y. Window	312,005	Feb. 10	738	202 / 203	30	493
Naylor, Thomas A., Baltimore, Md. Ice-cream freezer	312,287	Feb. 17	1143	313	30	576
Naylor, Thomas A., Baltimore, Md. Conveyer for coal-carts	314,869	Mar. 31	2491	660	30	1291
Neal, Adam S., Richmond, Tex. Car-coupling	312,152	Feb. 10	945	257	30	532
Neblett, Charles, Cincinnati, Ohio. Heap-lock	314,147	Mar. 17	1509	395	30	1074
Neff, Charles H., *et al.* (See Coffield, Peter T., assignor.)						
Neff, Peter, assignor to P. Neff, Jr., Gambier, Ohio. Apparatus for manufacturing lampblack	314,706	Mar. 31	2245	597	30	1245
Neff, Peter, assignor to P. Neff, Jr., Gambier, Ohio. Apparatus for manufacturing lampblack	314,707	Mar. 31	2247	598	30	1246
Nell, Michael. (See Bissell, Frank H., assignor.)						
Neil, Michael, *et al.* (See Tiffany, Albert R., assignor.)						
Nelson Manufacturing Company, N. O. (See Reid, William A., assignor.)						
Nelson, Philip. (See Drew, Leisner, and Nelson.)						
Nelson, William A., assignor to J. D. Tully, Omaha, Nebr. Awning	313,757	Mar. 10	980	253	30	968
Nendel, William, and W. L. Knowlton, Ireton, Iowa. Metallic fence-post	314,870	Mar. 31	2492	661	30	1291
Neubert, John J., Rochester, N. Y. Attachment for pants	312,884	Feb. 24	1941	531	30	731
Neuert, Charles A., Boston, Mass. Fare-register	313,513	Mar. 10	656	170 / 171	30	907
Neukomm, David. (See Neukomm, George, L., and D.)						
Neukomm, George, L., and D., Tremont, Ill. Band-cutter and grain-feeder for thrashers	312,006	Feb. 10	741	203	30	493
Neukomm, George, L., and D. Tremont, Ill. Band-cutter and grain-feeder for thrashers						
Neukomm, Louis. (See Neukomm, George, L., and D.)						
Neville, John P. (See Euston and Neville.)						
Neville, Thomas E. (See McCauley, Patrick, assignor.)						
New Doty Manufacturing Company. (See Short, Robert L., assignor.)						
New Haven Clock Company. (See Lane, Frederic A., assignor.)						
New Haven Watch Company. (See Doolittle, William E., assignor.)						
New Home Sewing Machine Company. (See Thomas, Eddy T., assignor.)						
New Jersey Steel and Iron Company. (See Hanford, Robert G., Jr., assignor.)						
New York Belting and Packing Company. (See McDermott, Charles J., assignor.)						
New York Plow Company. (See Brown, James B., assignor.)						
New York Stationery and Envelope Company. (See Peck, Edward S., assignor.)						
New York Steam Company. (See Duffy, Thomas W., assignor.)						
Newark Machine Company. (See Kaller, John N., assignor.)						
Newark Machine Company. (See Miller, Abraham, assignor.)						
Newbold, William F., Cedar, Iowa. Potato-planter	312,885	Feb. 24	1942	531	30	731
Newbury, James G. (See Mack and Newbury.)						
Newell, George E., and L. G. Ladd, assignors to Smith, Grant & Co., Pawtucket, R. I. Hoisting-bucket. (Reissue)	10,551	Jan. 13	902	244	30	176
Newell, James J., Adrian, Mich. Apparatus for generating heating and illuminating gases	314,871	Mar. 31	2493	661	30	1292

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Newell, Nelson C., Springfield, Mass. Button	310,909	Jan. 20	959	261	30	192
Newhart, Stephen, *et al.* (See Kleppinger, Joseph H., assignor.)						
Newhouse, Frederick, assignor of one-half to E. J. and F. L. Cable, Toledo, Ohio. Locomotive	311,601	Feb. 3	192	54	30	385
Newman, Judson J. (See Dunbar, William, assignor.)						
Newman, Wenzel, Brooklyn, N. Y. Faucet for toys	312,750	Feb. 24	1765	485	30	700
Newton, Obadiah G., Trenton, Mo. Door or window screen	312,374	Feb. 17	1255	346	30	597
Newton, William H., Assumption, Ill. Cultivator	313,758	Mar. 10	981	253	30	908
Niblick, Dewitt C., Chicago, Ill. Coal-hoisting apparatus	313,880	Mar. 17	1154	{300 301}	30	1008
Nichless, Anthony, assignor of one-half to I. Z. Merriam, Whitewater, Wis. Grain-adjuster for binders	312,576	Feb. 17	1534	419	30	649
Nicholas, Thomas, Ishpeming, Mich. Car-coupling	313,680	Mar. 10	866	226	30	948
Nichols, Charles F., San Francisco, Cal. Guide for boring doors for locks	310,710	Jan. 13	708	193	30	140
Nichols, Robert H., Aylesford, Nova Scotia, Canada. Fire-escape	311,669	Feb. 3	271	76	30	400
Nichols, Urias R., New River, Tenn. Lumber-boom	313,608	Mar. 10	777	204	30	930
Nicholson, Granville, assignor to J. L. Clark, New York, N. Y. Adjustable bale-band	313,014	Feb. 24	2115	{576 577}	30	763
Nicholson, John H., New York, N. Y. Artificial ear-drum	312,577	Feb. 17	1535	419	30	650
Nicholson, W. Newzam, and A. T. Allcock, Newark-upon-Trent, county of Nottingham, England. Safety-valve	310,459	Jan. 6	377	105	30	74
Nickel, Adam. (See Wessel, Nickel, and Gross.)						
Nickel, Julius M., Baltimore, Md. Curtain-fixture	312,886	Feb. 24	1943	532	30	731
Nickels, William W., *et al.* (See Jessee, Robert, assignor.)						
Nickerson, William E., Somerville, Mass. Adjustable chair for tracks	311,254	Jan. 27	1461	399	30	290
Nielson, Rudolph, New York, N. Y. Glass mosaic for decorating rooms and other purposes	313,099	Mar. 3	81	21	30	792
Niggli, Emil, San Antonio, Tex. Door-check	310,944	Jan. 13	874	236	30	171
Nightengale, William O., McKeesport, Pa. Door for furnaces	312,578	Feb. 17	1536	419	30	650
Niles, Milton C., Oak Park, Ill. Rotary plow	314,260	Mar. 24	1649	437	30	1109
Niles Tool Works. (See Cullen and See, assignors.)						
Nimick, Frank B. (See Mallaese and Nimick.)						
Nitz, Ernest, assignor of one-half to I. Lauter, New York, N. Y. Inhaler	311,776	Feb. 3	410	111	30	425
Noble, Robert S., West Bay City, Mich. Sash-fastener	314,974	Mar. 31	2639	699	30	1315
Nobles, John C., assignor to M. C. Nobles, Atlantic Highlands, N. J. Binding-holder	313,015	Feb. 24	2116	577	30	763
Nobles, Mary C. (See Nobles, John C., assignor.)						
Noel, William M., Warren, Pa. Gas-burner	313,834	Mar. 10	1092	281	30	986
Nolen, Stephen A., Searcy, Ark. Saddle-attirrup	313,609	Mar. 10	778	204	30	931
Nordenfelt, Thorsten, Westminster, England. Torpedo	312,579	Feb. 17	1538	419	30	650
Nordyke & Marmon Company. (See Warrington, Jesse, assignor.)						
Norris, Charles E., Laconia, N. H., assignor of three-fourths to E. Vermilyea, Waterford, L. Vermilyea and A. Tabor, Cohoes, N. Y. Stocking	311,356	Jan. 27	1610	440	30	316
Norris, Charles E., Laconia, N. H., assignor of three fourths to E. Vermilyea, Waterford, L. Vermilyea and A. Tabor, Cohoes, N. Y. Knitting-machine	311,357	Jan. 27	1611	{441 442}	30	317
Norris, Daniel W., Elgin, Ill. Attaching tops to vessels	311,777	Feb. 3	411	111	30	425
Norris, Daniel W., Elgin, Ill. Machine for forming glass jars, bottles, &c.	314,975	Mar. 31	2640	699	30	1315
North & Judd Manufacturing Company. (See Herrick and McManus, assignors.)						
North Star Iron Works Company. (See Brewis, John J., assignor.)						
North Western Manufacturing and Car Company. (See Clarke, Willard A., assignor.)						
Northrop, George H., Huntington, Conn. Device for holding music, books, &c.	312,153	Feb. 10	946	257	30	532
Northrup, Anson D., Carbon, Iowa. Apparatus for feeding flour and other material	311,670	Feb. 3	276	76	30	401
Norton, Charles H., Thomaston, Conn, assignor to Seth Thomas Clock Company, New York, N. Y. Clock-bell hammer	313,016	Feb. 24	2117	577	30	763
Norton, James W., and F. H. Rouse, assignors of one-third to J. C. Fuller, Kinzua, Pa. Apparatus for removing paraffine from oil-tanks	313,514	Mar. 10	658	171	30	908
Norton, Joseph D. and L. M., West Hampton, Mass. Ladder	310,218	Jan. 6	73	19	30	16
Norton, Leonard M. (See Norton, Joseph D. and L. M.)						
Norton, Sylvanus, Sinclairville, N. Y. Bridle-bit	313,442	Mar. 3	568	146	30	892
Norwalk Lock Company. (See Taylor, Thomas, assignor.)						
Nourse, James K. P., Franklin, assignor of two-thirds to C. Grant, Jr., Boston, Mass. Cash and parcel carrying system for store-service	311,513	Feb. 3	74	22, 23	30	363
Novelty Electric Company. (See Bacon, Murray, assignor.)						
Nowell, T. S., *et al.* (See Huse, Warren D., assignor.)						
Noye Manufacturing Company, John T. (See Triller, Richard, assignor.)						
Noyes & Co., Joseph P. (See Noyes, Joseph P., assignor.)						
Noyes & Co., Joseph P. (See Winans, Thomas J., assignor.)						
Noyes, Joseph P., assignor to J. P. Noyes & Co., Binghamton, N. Y. Button	313,017	Feb. 24	2119	577	30	763
Noyes, La Verne W., Chicago, Ill. Book-holder	311,514	Feb. 3	78	23	30	364
Noyes, La Verne W., Chicago, Ill. Book-holder	311,515	Feb. 3	80	23	30	364
Noyes, Roswell R., Darlington, Wis. Harness and neck-yoke for double teams	310,305	Jan. 6	193	52	30	37
Noyes, William O., Derry, N. H. Stove and potato fork	310,958	Jan. 20	1036	280	30	204
Nugent, Thomas, New York, N. Y. Hot-air furnace	311,845	Feb. 3	493	135	30	441
Nunsmaker, John W., Kansas City, Mo. Car-coupling	312,316	Feb. 10	1035	284	30	547
Nunley, William, Newark, N. J. Tool-handle	310,959	Jan. 20	1038	281	30	205
O'Beirne, William H., assignor to Star Iron Tower Company, Fort Wayne, Ind. Suspending electric lights	314,976	Mar. 31	2643	699	30	1316
O'Connor, John F., New York, N. Y. Machine for testing canvas and other fabrics	314,465	Mar. 24	1920	513	30	1161
O'Donnell, Michael T. F., Boston, Mass. Flushing-valve for water-closets	311,036	Jan. 20	1128	308	30	223
O'Hara, Arthur, Hawley, Pa. Dumping-car	313,361	Mar. 3	457	117	30	861
O'Hara, Daniel, Waltham, Mass. Watch-case	313,360	Mar. 3	455	116	30	861
O'Hara, William P., Cincinnati, Ohio. Tag attachment for mail-bags	313,362	Mar. 3	458	117	30	861
O'Herin, William, Parsons, Kans. Atmospheric brake	312,155	Feb. 10	933	260	30	533
O'Keefe, Warner F. H., Allegheny City, Pa. Burglar-alarm	311,027	Jan. 20	1129	308	30	223
O'Malley, Patrick A., assignor to H. L. Bailey, Brooklyn, N. Y. Wire-splicer	312,580	Feb. 17	1541	420	30	651
O'Neill, James J., Boston, Mass. Messenger-signal and fire-alarm apparatus	313,610	Mar. 10	778	{204 205}	30	931
O'Neill, John, Milwaukee, Wis. Hoisting and conveying apparatus	311,671	Feb. 3	276	76, 77	30	401
O'Neill, Michael, assignor of one-half to J. Hickey, Michigamme, Mich. Bedstead	312,007	Feb. 10	742	203	30	404
Oakley, Edward B., Madison, Wis. Car-coupling	314,049	Mar. 17	1376	359	30	1050
Ober, George H., Chagrin Falls, Ohio. Lathe for turning irregular forms	312,288	Feb. 17	1144	313	30	576
Oborn, Benjamin, Marion, Ohio. Hay elevator and carrier	314,672	Mar. 31	2495	662	30	1292
Odell, Benjamin C., Kingston, N. Y. Nursery-chair	313,881	Mar. 17	1156	301	30	1008
Oelert, Herrmann, Vippes, near Cologne, Prussia, Germany. Apparatus for stopping steam-engines	314,466	Mar. 24	1922	514	30	1161

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Offutt, Joseph E., assignor to J. W. Thomas, Springfield, Ohio. Combined hay rake and tedder	312,650	Feb. 24	1625	447	30	676
Ogden, Ferris, Mansfield, Ohio. Grain-binder	312,154	Feb. 10	947	{257 258 259 260}	30	532
Ogden, John G., Chicago, Ill. Car-coupling	310,460	Jan. 6	378	105	30	74
Ohio Power and Light Company. (See Woolley, Leonidas G., assignor.)						
Oil Well Supply Company. (See Birge, William H., assignor.)						
Olander, Adolf. (See Schoen, Charles A., assignor.)						
Old, James, Pittsburg, Pa. Hand-carrying device for melons, &c	310,607	Jan. 13	576	159	30	116
Oldershaw, Hiram, *et al.* (See Walter, Henry C., assignor.)						
Oleson, Timan, Hawley, assignor of one-half to O. A. Olson, Minneapolis, Minn. Piano-violin	314,540	Mar. 24	2032	542	30	1179
Olin, Charles J., Piqua, Ohio. Adjustable staking and jeweling tool	313,363	Mar. 3	459	118	30	861
Oliver Brothers & Phillips. (See Campbell, Irvin K., assignor.)						
Oliver, David B., Pittsburg, Pa. Pile for sheet-iron	310,711	Jan. 13	709	193	30	141
Oliver, Elam A., Belleville, Wis. Bolt-making device	311,683	Jan. 20	1217	334	30	239
Oliver, Henry W., Jr. (See Witherow, Oliver, Wilcox, and Tener.)						
Oliver, James B., Sewickley, Pa. Envelope for mailing barbed articles	313,100	Mar. 3	81	21	30	792
Olmstead, David B., New York, assignor to himself, and T. Summerville, Brooklyn, N. Y. Curtain-pole knob	310,712	Jan. 13	710	193	30	141
Olson, Oley A. (See Oleson, Timan, assignor.)						
Opdyke, Stacy B., New Haven, Conn. Eyeglass-frame	311,602	Feb. 3	193	55	30	385
Oram, Frederick, Ilion, N. Y. Carriage-wheel	313,364	Mar. 3	460	118	30	862
Orbits, Hermon H., and M. Willet, Detroit, Mich. Faucet	313,443	Mar. 3	569	147	30	892
Orcutt, William D., assignor of one-half to J. H. Buscll, Boston, Mass. Rotary cutter	311,201	Jan. 27	1386	379	30	275
Ord, William, Brooklyn, Ohio. Boiler-cleaning apparatus	311,672	Feb. 3	277	77	30	401
Ordway, John M., Boston, Mass. Non-conducting composition for refrigerators, &c.	310,461	Jan. 6	379	105	30	74
Ormsby, William J., Cincinnati, Ohio. Loose-pulley lubricator	310,536	Jan. 6	490	134	30	92
Ormsby, William J., Cincinnati, Ohio. Loose-pulley lubricator	312,887	Feb. 24	1943	532	30	731
Orne, Charles P., Cambridge, Mass. Galvanic-battery porous cup	311,516	Feb. 3	82	24	30	364
Orr, J. Allison, and H. Selvard, assignors to themselves, S. H. Kntz, J. Hahn, F. P. Geisler, A. and M. B. McKnight, and Z. W. Bowen, Reading, Pa. Parlor heating-stove	311,139	Jan. 20	1293	{355 356}	30	253
Orr, J. Allison, and H. Selvard, assignors to themselves, S. H. Kntz, J. Hahn, F. P. Geisler, A. and M. B. McKnight, and Z. W. Bowen, Reading, Pa. Parlor heating-stove	311,140	Jan. 20	1294	356	30	253
Orr, Levi R., Waterman, Ill. Wire-fence latch	311,603	Feb. 3	194	55	30	385
Orr, William H., assignor to himself and J. Rotramel, Carlisle, Ind. Wall of buildings and other structures	312,375	Feb. 17	1256	346	30	597
Ortman, Theodore L. E., *et al.* (See Ebel, John V., assignor.)						
Orton, Benjamin F., East Saginaw, Mich. Regulator for dynamo-electric machines	311,141	Jan. 20	1296	357	30	253
Orvis, Orel D., New York, N. Y. Smoke-consuming furnace	313,611	Mar. 10	781	{205 206}	30	931
Orvis, Orland D., Chicago, Ill. Hydrocarbon-furnace	313,101	Mar. 3	82	21	30	792
Orwig, Jacob H. (See Hartmann, Joseph, assignor.)						
Osborn, Alexander C., Clarksburg, W. Va. Post-hole auger	310,608	Jan. 13	576	159	30	116
Osborn, Luke W. (See Avery and Osborn.)						
Osborne and Company, D. M. (See Butterfield, William, assignor.)						
Osborne, James C., Erie, Pa. Indicator for feed-screws of engine-lathes	313,612	Mar. 10	783	206	30	932
Osborne, John H., Union City, Ind. Neck-yoke	312,888	Feb. 24	1944	532	30	731
Osenbrück, August, Hemelingen, Prussia, Germany. Refrigerating-machine	311,098	Jan. 20	1130	{308 309}	30	223
Osgood, Edwin P., Malden, Mass. Store-service apparatus	312,752	Feb. 24	1766	486	30	701
Osgood, Edwin P., Malden, Mass. Store-service apparatus	312,753	Feb. 24	1767	486	30	701
Osgood, J. Lester, assignor to W. F. Wendt, Buffalo, N. Y. Forge	311,358	Jan. 27	1615	442	30	317
Osgood, Ralph R., Albany, N. Y. Excavator	313,613	Mar. 10	785	206	30	932
Ostensen, Elmer, Highlandville, Iowa. Fertilizer-distributer	311,444	Jan. 27	1728	471	30	338
Otis, Charles G., Brooklyn, N. Y. Chair for elevator guide-posts	310,713	Jan. 13	710	194	30	141
Otis, Samuel L., Birmingham, Conn. Button and disk trimming machine	313,949	Mar. 17	1250	{328 329}	30	1027
Otos, Berten T., Willmar, Minn. Animal-trap	311,778	Feb. 3	412	112	30	425
Otte, Gilbert, Apeldoorn, Holland. Indicator for railway-switches	311,840	Feb. 3	494	135	30	441
Otterson, Thomas G., and C. C. Voorhies, Woodbury, N. J. Glass-can cap	313,229	Mar. 3	288	73	30	829
Overbagh, Addison, Coxsackie Station, N. Y. Device for measuring the strain on fence-wires	310,845	Jan. 13	875	236	30	171
Overell, Joseph M., assignor of one-fourth to G. R. Pyne, Evansville, Ind. Nail	313,681	Mar. 10	867	226	30	949
Overend, Andrew, Philadelphia, Pa., assignor to C. B. Cottrell, Westerly, R. I. Receiving-table for printing-presses	312,217	Feb. 10	1037	284	30	547
Overman, Albert H., and C. F. Hadley, assignors to Overman Wheel Company, Chicopee, Mass. Steering device for tricycles	313,018	Feb. 24	2120	578	30	763
Overman Wheel Company. (See Hadley, Charles F., assignor.)						
Overman Wheel Company. (See Hill, Sylvester B., assignor.)						
Overman Wheel Company. (See Overman and Hadley, assignors.)						
Overmeyer, John B. (See Freeman and Overmeyer.)						
Owen, Frederick D., Washington, D. C. Decreasing the frictional resistance to vessels	312,500	Feb. 17	1439	395	30	631
Owen, George D., and R. Dyson, Rotherham, county of York, England. Manufacture of wheels	310,846	Jan. 13	875	236	30	171
Owen, John W. and W. H., Onarga, Ill., and A. C. Boswell, Fowler, Ind. Stove	312,651	Feb. 24	1627	448	30	676
Owen, William H. (See Owen and Boswell.)						
Owens, Jessee P., *et al.* (See Vaughan, Elbert J., assignor.)						
Oxley, Charles F., Brooklyn, N. Y. Friction-slide	313,444	Mar. 3	569	147	30	893
Pace, Robert G., Danville, Va. Stock-car	313,759	Mar. 10	982	253	30	968
Pace, William L., Tom's Creek, Tenn. Churn	311,359	Jan. 27	1618	443	30	318
Packer, Charles W., Philadelphia, Pa. Ice-cream freezer	313,760	Mar. 10	984	254	30	969
Packer, Henry H., Boston, Mass. Fan-blower	310,219	Jan. 6	75	20	30	16
Packer, John F., assignor to D. Bradley Manufacturing Company, Chicago, Ill. Clamping device	313,019	Feb. 24	2123	578	30	764
Paddock, W. W., *et al.* (See Vaughn and Eldridge, assignors.)						
Paessler, Theophilus H., Malvern, Ohio. Tricycle	311,084	Jan. 20	1218	334	30	259
Page, Dyonisius O., Gainesville, Tex. Double-foot plow-stock	314,050	Mar. 17	1377	359	30	1050
Page, Peter B., Lorain, Ohio. Straight-way valve	314,708	Mar. 31	2246	593	30	1246
Page, William H., Norwich, Conn. Steam-radiator	310,714	Jan. 13	711	194	30	141
Page, William H., Norwich, Conn. Steam-radiator	310,715	Jan. 13	713	194	30	141
Page, William H., Norwich, Conn. Steam-generator	312,652	Feb. 24	1628	448	30	676

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Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Page, William M. (See Wilt, George B., assignor.)						
Paine, William. (See Thornton, Amédée, assignor.)						
Palitsch, Christian, New York, N. Y. Coffee-roaster	312,376	Feb. 17	1256	346 347	30	597
Pallweber, Josef, Salzburg, Austria-Hungary. Time-piece	312,754	Feb. 24	1769	487	30	701
Palmer, Bartlett D., What Cheer, Iowa. Strap-hinge	311,518	Feb. 3	83	24	30	365
Palmer, Charles D. (See Pedrick, Knott H., assignor.)						
Palmer, Cyrus F., Utica, N. Y. Grate-bar	311,517	Feb. 3	83	24	30	364
Palmer, Eli J., assignor of one-third to T. Snell, Toronto, Ontario, Canada. Machine for applying photographic emulsion to photographic plates	313,761	Mar. 10	985	254	30	969
Palmer, Frank L., New London, Conn. Mechanical movement	313,230	Mar. 3	289	73	30	829
Palmer, George E. (See Pratt and Palmer.)						
Palmer, George E., Horseheads, N. Y. Handle for pot and other covers	310,716	Jan. 13	714	195	30	142
Palmer, James M., Cambridge, Mass., assignor to Union Carburetter Company. Air or gas carburetor	312,289	Feb. 17	1147	313	30	576
Palmer, John H., assignor to American Buttonhole, Overseaming and Sewing Machine Company, Philadelphia, Pa. Bobbin-winder for sewing-machines	312,501	Feb. 17	1440	395	30	631
Palmer, Norman A. (See Clark and Palmer.)						
Palmer, Seth E. A., San Bernardino, Cal. Cultivator and weed-cutter	314,873	Mar. 31	2497	662	30	1292
Palmer, T. W. (See Williams, John H., assignor.)						
Palmer, Timothy G., Schultzville, N. Y. Torpedo railway-signal	310,717	Jan. 13	715	195	30	142
Palmer, Timothy G., Schultzville, N. Y. Torpedo for danger-signals upon railways	310,718	Jan. 13	716	195	30	142
Panton, John A., Quincy, Mass. Leather-working machine	313,231	Mar. 3	293	73	30	830
Paradise, Frank D., Memphis, Tenn. Window-shutter	314,393	Mar. 24	1831	487	30	1144
Parham, George J., assignor to Thornton & Parham, Bedford, Ind. Hand-reaper	310,537	Jan. 6	481	134	30	92
Park, D. E. (See McKenna, William, assignor.)						
Park, Harvey S., Henderson, Ky. Electro-magnetic car-brake	314,709	Mar. 31	2249	598	30	1246
Park, John S., assignor of one-half to J. W. Graham, T. C. Basye, and F. Weil, Rockport, Ind. Spark-arrester	312,889	Feb. 24	1945	533	30	732
Parker, Adelbert E., Dubuque, Iowa. Wagon-axle	312,502	Feb. 17	1441	395	30	631
Parker Company, Charles. (See Parker and Griswold, assignors.)						
Parker, David M., Boston, Mass. Gas-cock	314,874	Mar. 31	2497	662	30	1293
Parker, Dexter W., Meriden, Conn. Suspension device for lamp-shades	311,519	Feb. 3	84	24	30	365
Parker, Dexter W., and L. F. Griswold, assignors to C. Parker Company, Meriden, Conn. Extension-lamp	311,520	Feb. 3	86	25	30	365
Parker, Edward, assignor to Winchester Repeating Arms Company, New Haven, Conn. Machine for crimping cartridges	310,306	Jan. 6	193	53	30	37
Parker, George, Bay City, Mich. Device for throttling steam-engines	313,365	Mar. 3	461	119	30	862
Parker, George E., *et al.* (See Moulton, Luther V., assignor.)						
Parker, Gustavus. (See Harlow and Parker.)						
Parker, James E., Whiting, Vt. Bag-holder	313,515	Mar. 10	661	172	30	908
Parker, John B., *et al.* (See Moulton, Luther V., assignor.)						
Parker, John E., Beloit, Wis. Drive-well point	313,892	Mar. 17	1157	301	30	1009
Parker, Samuel W., and H. Blackman, New York, N. Y. Disinfecting baled rags, &c	311,360	Jan. 27	1619	443	30	318
Parker, Thomas S., Schenectady, N. Y. Trimming attachment for sewing-machines	314,710	Mar. 31	2251	599	30	1247
Parker, Washington L., assignor of one-half to E. McDowell, Spartanburg, S. C. Wrench	311,202	Jan. 27	1387	379	30	276
Parks, Mathew B., Fayetteville, Tenn. Cultivator	311,912	Feb. 10	606	166	30	469
Parmeriee, James C., and A. Swift, Sedalia, Mo. Device for connecting straps with rings, &c	310,719	Jan. 13	717	195	30	142
Parrott, Edwin D., Bridgeport, Conn. Combined suspenders and shoulder-braces	314,051	Mar. 17	1378	360	30	1050
Parsil, Edwin R., Newark, N. J. Button shank or eye testing machine	314,052	Mar. 17	1379	360	30	1051
Parsons Hand Rock Drill Company. (See Parsons, Henry F., assignor.)						
Parsons, Henry F., New York, N. Y., assignor to Parsons Hand Rock Drill Company, of New York. Rock-drilling machine	314,343	Mar. 24	1769	471	30	1131
Parsons, Winslow R., Waterloo, Iowa. Hemstitching attachment for sewing-machines	311,673	Feb. 3	279	77	30	401
Partridge, Warren J., Athol, Mass. Oscillating-cylinder engine	310,609	Jan. 13	577	159	30	117
Pashley, Henry, Brooklyn, N. Y. Ash-chute	311,674	Feb. 3	281	77, 78	30	401
Patchen, Abel, Westfield, N. Y. Freeing quicksilver from lead	314,711	Mar. 31	2254	.....	30	1247
Patee, Theodore H. (See Lawshe, Spencer R., assignor.)						
Patent Nut and Bolt Company. (See Hasenclever, Friedrich A., assignor.)						
Patent Revolving Window Sash Company. (See Wagner, Emil, assignor.)						
Patrick, Jones. (See Peeney, Samuel B., assignor.)						
Pattee, John A., Lamar, Mo. Spectacle-case	313,762	Mar. 10	988	255	30	969
Patten, Albert B., and F. E. Sprague, Corinna, Me. Floor-board clamp	311,029	Jan. 20	1132	309	30	224
Patten, Anna M. (See Patten, Jefferson, assignor.)						
Patten, Jefferson, Brooklyn, assignor to A. M. Patten, New York, N. Y. Tap and die	310,402	Jan. 6	380	105	30	74
Patterson, Charles O., Augusta, Kans. Pencil-holder and slate-cleaner	311,361	Jan. 27	1621	443	30	318
Patterson, James W., *et al.* (See Ebel, John V., assignor.)						
Patterson, John W., and N. R. Jones, Slaughterville, Ky. Vehicle	313,763	Mar. 10	989	255	30	970
Patterson, Peter. (See McLachlan, John C., assignor.)						
Patterson, Peter, and H. E. Boyd, McKeesport, Pa., assignors to National Tube Works Company, Boston, Mass. Machine for scarfing and bending tube-skelps	314,712	Mar. 31	2254	599	30	1247
Patterson, Thomas, Cortland, N. Y. Loom for weaving wire fabric	312,008	Feb. 10	743	203 204	30	494
Patterson, William, San Francisco, Cal. Ticket-holder	310,610	Jan. 13	578	159	30	117
Patterson, William R., assignor to Western Electric Company, Chicago, Ill. Telegraph-cable	311,521	Feb. 3	87	25	30	365
Patterson, William R., assignor to Western Electric Company, Chicago, Ill. Repairing telegraph-cables	311,522	Feb. 3	88	25	30	365
Patterson, William R., assignor to Western Electric Company, Chicago, Ill. Hanging telegraph-cables	311,523	Feb. 3	88	25	30	366
Patterson, William R., assignor to Western Electric Company, Chicago, Ill. Apparatus for filling lead pipes of telegraph-cables	311,913	Feb. 10	607	166	30	469
Patterson, William R., assignor to Western Electric Company, Chicago, Ill. Joint for electric-arc-light cables	311,914	Feb. 10	608	167	30	469
Patterson, William R., assignor to Western Electric Company, Chicago, Ill. Electric conductor. (Reissue)	10,563	Feb. 24	2150	585	30	769
Patterson, William R., assignor to Western Electric Company, Chicago, Ill. Cable-hanger	312,755	Feb. 24	1770	487	30	701
Patton, Charles W., Houston, Tex. Churn-power	314,875	Mar. 31	2498	663	30	1293
Patton, William P., assignor of one-half to W. E. Machlin, Harrisburg, Pa. Voltaic-arc lamp	311,142	Jan. 20	1297	337	30	253
Paul, Charles H., Mill Centre, Wis. Sash-holder	310,220	Jan. 6	76	20	30	17
Paul, Eugene, Norwich, N. Y. Lifting device	311,030	Jan. 20	1133	309	30	224
Paul, Fanny W., New York, N. Y. Device for inducing sleep	313,516	Mar. 10	661	172	30	908
Payn, Philip J., Washington, D. C. Car-coupling	312,156	Feb. 10	954	260	30	533

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Payne, Charles F., *et al.* (See Hodges, Horace F., assignor.)						
Payne, Richard A., Enfield, N. C. Combined self-waiting table and desk	314,713	Mar. 31	2258	600	30	1247
Payne, William H., assignor of one-half to A. Wilke, Camden, N. J. Boiler	314,467	Mar. 24	1924	514	30	1161
Peacock, Elijah P., Chicago, Ill. Animal-trap	314,602	Mar. 31	2113	563	30	1221
Pearce, Frank I., assignor to Link Belt Machinery Company, Chicago, Ill. Shipper device for bevel-friction driving-wheels	312,890	Feb. 24	1946	533	30	732
Pearce, Frank I., assignor to Link Belt Machinery Company, Chicago, Ill. Endless or pan conveyer	312,891	Feb. 24	1947	533	30	732
Pearce & Hoagland. (See Hoagland, John, assignor.)						
Pearce, William, Plantsville, Conn. Die for forging ox-shoes	314,189	Mar. 17	1563	409 410	30	1083
Pearce, William, Plantsville, Conn. Forging ox-shoes	314,190	Mar. 17	1564	410 411	30	1083
Pearce, William, Plantsville, assignor to himself, M. N. Woodruff, and N. A. Barnes, Southington, Conn. Forging ox-shoes	314,191	Mar. 17	1565	411 412	30	1083
Pearce, William, Plantsville, assignor to himself, M. N. Woodruff, and N. A. Barnes, Southington, Conn. Forging ox-shoes	314,192	Mar. 17	1565	412 413	30	1083
Pearce, William, Plantsville, assignor to himself, M. N. Woodruff, and N. A. Barnes, Southington, Conn. Die for forging ox-shoes	314,193	Mar. 17	1566	413 414	30	1083
Pearsall, John, New York, N. Y. Carpet-fastener	314,053	Mar. 17	1380	360	30	1051
Pearsall, Richard S., Sea Cliff, N. Y. Construction of buildings	311,031	Jan. 20	1133	309	30	224
Pearson, Charles and W., Webster, N. H. Indicator-lock	313,232	Mar. 3	294	74	30	830
Pearson, William. (See Pearson, Charles and W.)						
Pease, Edwin H., Racine, Wis. Fanning-mill	312,157	Feb. 10	935	260 261	30	533
Pease, Franklin B. (See Henmann and Pease.)						
Pease, Julius A., West Medford, and G. J. Babson, Boston, Mass. Paper-pulp fabric for boxes, &c	314,054	Mar. 17	1381	360	30	1051
Pease, William M., assignor of one-half to L. Simpson, Pittsburg, Pa. Receiving-instrument for electrical reporting	312,503	Feb. 17	1442	396	30	631
Pease, William M., assignor of one-half to L. Simpson, Pittsburg, Pa. Alarm mechanism and apparatus for operating the same	312,504	Feb. 17	1444	396	30	632
Pease, William M., assignor of one-half to L. Simpson, Pittsburg, Pa. Railway-alarm mechanism	313,614	Mar. 10	787	207	30	932
Peck, Edward D., Sayre, Pa. Reflector	310,611	Jan. 13	579	160	30	117
Peck, Edward S., Brooklyn, assignor to New York Stationery and Envelope Company, New York, N. Y. Package for stationery	312,756	Feb. 24	1771	487	30	702
Peck, Stow & Wilcox Company. (See Bayrer, William J., assignor.)						
Peckham, Edgar, Syracuse, N. Y. Lining for the grooves of pipe-welding furnaces	313,102	Mar. 3	84	.....	30	792
Peckham, Edgar, Syracuse, N. Y., assignor to Lake Shore Tubular Axle Company, Cleveland, Ohio. Tubular axle	313,517	Mar. 10	662	172	30	909
Pedersen, Johannes T., Brooklyn, N. Y. Device for transmitting motion	311,255	Jan. 27	1462	400	30	290
Pedersen, Johannes T., Brooklyn, N. Y. Bit-brace	313,950	Mar. 17	1262	329	30	1028
Pedrick, Knott H., Lynn, assignor of one-half to C. D. Palmer, Lowell, Mass. Envelope	311,915	Feb. 10	608	167	30	469
Peebles, Charles F. (See Conner and Peebles.)						
Peebles, Francis A., assignor of one-half to A. Boulden, Hinkley, Ohio. Crutch	313,518	Mar. 10	664	172	30	909
Peeney, Samuel B., assignor of one-half to J. Patrick, Evanston, Ill. Main for water-distribution	312,158	Feb. 10	956	261	30	533
Pegram, George H., Wilmington, Del. Truss for bridges	314,261	Mar. 24	1650	438	30	1109
Pegram, George H., Wilmington, Del. Truss for roofs and bridges	314,262	Mar. 24	1653	438 439	30	1110
Peirce, James H., Chicago, Ill. Hermetical seal for liquid fire-extinguishing hand-grenades	314,148	Mar. 17	1509	395	30	1074
Peirce, John R., Buffalo, Ill. Cultivator	310,847	Jan. 13	876	237	30	171
Pelant, Henry, Wyandotte, Mich. Heel-stiffener	313,682	Mar. 10	808	226	30	949
Pell, Henry W., Rome, N. Y. Drop-perch for vehicles	314,714	Mar. 31	2259	600	30	1247
Pence, Merry L., Lexington, Ky. Safety gas-burner	312,892	Feb. 24	1948	533	30	732
Pencille, Jethro E., assignor of one-half to J. C. Cupler, Kendall, Pa. Mechanism for converting motion	312,378	Feb. 17	1258	347	30	598
Pendleton, John H. (See Tiers and Pendleton.)						
Pendleton, John H., Brooklyn, N. Y. Railway	312,009	Feb. 10	745	204	30	494
Pendleton, William M., *et al.* (See Jessee, Robert, assignor.)						
Pennington, Charles A., assignor to J. R. Scott and J. L. Ray, Champaign, Ill. Nut-lock	314,194	Mar. 17	1567	414	30	1084
Pennington, Edward J., Cincinnati, Ohio, and A. E. Gatchell, Newport, Ky., assignors to H. R. Probasco, trustee. Multiplex turning-lathe	310,538	Jan. 6	482	134 135	30	92
Peninsular Novelty Company. (See Ely, Edward O., assignor.)						
Peninsular Novelty Company. (See Moulton, Luther V., assignor.)						
Penniman, Russell S., Jenkintown, Pa., assignor of one-half to J. C. Schrader, McCainsville, N. J. Protected nitrate of ammonia for use in explosive compounds	312,010	Feb. 10	747	.....	30	495
Pennycuick, James G., New York, N. Y. Window-glass	312,290	Feb. 17	1149	314	30	577
Pentz, Levi, assignor of two-thirds to G. N. Yohe and J. L. Higby, Canton, Ohio. Door-check	311,604	Feb. 3	195	55	30	385
Perham, Haven C. (See Clarke and Perham.)						
Perkins, Alfred H., Leominster, Mass. Flower-pot stand	312,159	Feb. 10	958	261	30	533
Perkins, Charles H., Providence, R. I. Manufacture of toe-calks for horse and mule shoes	312,011	Feb. 10	748	204	30	495
Perkins, Charles H., Providence, R. I. Treating stock for horseshoe-calks	312,505	Feb. 17	1445	396	30	632
Perkins, Edwin F., and G. D. Burton, Boston, Mass. Stock-car	310,463	Jan. 6	381	106	30	74
Perkins, George H., Philadelphia, Pa. Apparatus for separating and distributing distillates	314,715	Mar. 31	2260	600	30	1248
Perkins, George H., Philadelphia, Pa., and O. Smith, Bridgeton, N. J.; said Smith assignor to said Perkins. Apparatus for automatically soldering the seams of sheet-metal cans	314,468	Mar. 24	1926	515 516	30	1162
Perkins, George H., Philadelphia, Pa., and O. Smith, Bridgeton, N. J.; said Smith assignor to said Perkins. Mechanical movement for reversing motion	314,469	Mar. 24	1938	516 517	30	1163
Perkins, Russell B., assignor to E. Miller & Co., Meriden, Conn. Extension lamp-fixture	311,779	Feb. 3	413	112	30	426
Perkins, Willis J., Grand Rapids, Mich. Shaft-hanger	311,780	Feb. 3	414	112	30	426
Perkins, Willis J., Grand Rapids, Mich. Shingle-sawing machine	314,603	Mar. 31	2114	563 564	30	1221
Perlinsky, Abraham B., Chicago, Ill. Mitten	312,653	Feb. 24	1630	449	30	677
Perrett, Edward. (See Boulton and Perrett.)						
Perrin, Charles, assignor of one-third to D. W. Brewer, Springfield, Ohio. Combined hay rake and tedder	311,847	Feb. 3	496	136	30	442
Perrine, George W., Canton, Ohio. Hoe	312,218	Feb. 10	1038	284	30	548
Perrine, H. Lansing, Brooklyn, N. Y. Compound steam-engine	313,366	Mar. 3	462	119	30	862
Perrine, H. Lansing, New York, N. Y. Steam-actuated valve	313,367	Mar. 3	464	120	30	862

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Perrine, Thomas N., Anna, Ill. Governor for steam-engines	312,893	Feb. 24	1949	534	30	732
Perry, Isaac A., Wilmington, Del. Railway-frog	313,368	Mar. 3	465	120	30	863
Perry, Mary J., *et al.* (See Hardy, Dexter D., assignor.)						
Perry, William, and J. A. Prince, Indianapolis, Ind. Broom-cover	313,233	Mar. 3	294	74	30	830
Perry, William V., Chicago, Ill. Car-coupling	310,720	Jan. 13	718	196	30	142
Perschmann, Heinrich, *et al.* (See Roettger, Edward C., assignor.)						
Pert, Henry G. (See Hakins, George B., assignor.)						
Peschel, Alexander, assignor to W. Fischbach, Berlin, Germany. Cigar lighter and cutter	312,654	Feb. 24	1630	449	30	677
Pessenger, John S., Brooklyn, assignor of one-fourth to W. P. St. John, New York, N. Y. Shell	313,663	Mar. 10	862	226	30	949
Peters, John B. and L. M., Detroit, Mich. Carpet-cleaning machine	310,307	Jan. 6	195	53	30	37
Peters, Louis M. (See Peters, John B. and L. M.)						
Petit, Nelzire F., Jr., Charleston, S. C. Type-writing machine	310,308	Jan. 6	196	53	30	37
Petraeus, Carl V., Camden, N. J. Manufacture of alumina by paper-mill sludge	312,894	Feb. 24	1950	.....	30	733
Petraeus, Carl V., assignor to United States Chemical Company, Camden, N. J. Solution of acid phosphates	313,369	Mar. 3	466	.....	30	863
Pettes, James A., Grand Manan, New Brunswick, Canada. Anchor	314,149	Mar. 17	1510	396	30	1074
Pettigrew, Charles, *et al.* (See Treat, Francis H., assignor.)						
Peyn, Charles V. (See Schmalz, François, assignor.)						
Pfeiffer, August F., Newark, N. J. Transom-lifter	311,256	Jan. 27	1463	400	30	290
Pfeiffer, Jacob, Niagara Falls, assignor to himself and C. F. Heintz, Buffalo, N. Y. Tobacco-pipe	314,344	Mar. 24	1771	471	30	1132
Pflueger, Oliver J. (See Butz and Pflueger.)						
Phares, Thomas, Eureka, Cal. Lifting-jack	314,716	Mar. 31	2263	601	30	1248
Phelps, George A., *et al.* (See Frost, George, assignor.)						
Phelps, George H., *et al.* (See Frost, George, assignor.)						
Phelps, Herbert L. (See Hallenbeck and Phelps.)						
Phelps, Lucius J., New York, N. Y., assignor to Railway Telegraph Company, of New York. Railway-car telegraph	312,506	Feb. 17	1446	396 397	30	632
Phelps, Lyman E. (See Swift and Phelps.)						
Phelps, Walter S., Wortendyke, N. J. Steam-actuated valve	313,684	Mar. 10	869	227	30	949
Phelps, William H., Stamford, Conn. File-holder	312,012	Feb. 10	750	205	30	495
Philippart, Simon, Fils, Paris, France, assignor to Electrical Power Storage Company, (limited,) London, England. Secondary battery or electric accumulator	311,445	Jan. 27	1729	471	30	338
Philleo, Millard D. (See Clay and Philleo.)						
Phillippi, Abraham H., Reading, assignor of two-thirds to D. P. Dieterich and R. M. Popham, Philadelphia, Pa. Signal-lantern	310,464	Jan. 6	382	106	30	74
Phillips, Delos. (See Harris, Levi, assignor.)						
Phillips, Columbus, assignor of two-thirds to G. J. Foreacre and J. B. Travis, Atlanta, Ga. Steam and air brake. (Reissue)	10,564	Feb. 24	2151	585	30	769
Phillips, John L., Sullivan, Ind. Wrench	310,960	Jan. 20	1039	281	30	205
Phillips, Stanley A., Amherst, Mass. Machine for bending tin-roofing cleats	312,013	Feb. 10	751	205	30	495
Phillips, Thomas, Orillia, Ontario, Canada. Tubular lantern	310,221	Jan. 6	77	20	30	17
Philpott, James H., Rising City, Nebr. Trace-carrier	313,519	Mar. 10	663	173	30	909
Phipps, John. (See McCaffrey, Hugh, assignor.)						
Pick, Ignac, London, county of Middlesex, England. Garment	310,309	Jan. 6	198	53	30	38
Pickenpack, H. Henry, Brooklyn, N. Y. Rigging-stretcher	311,605	Feb. 3	195	55	30	385
Pickering, Henry M., Holliston, Mass. Stove-pipe	311,143	Jan. 20	1300	358	30	254
Piefke, Carl W. E., Berlin, Germany. Filtering apparatus	311,257	Jan. 27	1464	400 401	30	290
Pierce, Edwin F. (See Mead and Pierce.)						
Pierce, Jonathan E., Deming's Bridge, Tex. Stock-car	311,781	Feb. 3	415	113	30	426
Pierce, Samuel B., North La Crosse, Wis. Saw-mill roller	314,470	Mar. 24	1941	517	30	1164
Pierpont, Charles L., Red Wing, Minn. Lamp-bracket	313,835	Mar. 10	1083	281	30	986
Pifre, Abel, Paris, France. Steam-boiler	312,379	Feb. 17	1258	347	30	598
Pike, Charles F. (See Collings and Pike.)						
Pine, George W., Troy, N. Y. Bosom-shirt	313,520	Mar. 10	665	173	30	909
Pine, Leighton. (See Babcock and Pine.)						
Pinel, Léon C., Paris, France. Apparatus for automatically extinguishing candles	312,291	Feb. 17	1149	314	30	577
Pinover & Co., A. (See Pinover, Samuel, assignor.)						
Pinover, Samuel, assignor to A. Pinover & Co., New York, N. Y. Lace-pin and other similar fastenings	314,471	Mar. 24	1942	517	30	1164
Pintach, Julius, *et al.* (See Quaglio, Julius, assignor.)						
Piquerez, Camille, Saint Ursanne, Switzerland. Watch-case-graving lathe	310,910	Jan. 20	959	261 262	30	192
Pitchford, John B., asignor of one-half to W. T. Garratt, San Francisco, Cal. Cut-off-valve gear	310,310	Jan. 6	198	54	30	38
Pitrat, Julius E., Gallipolis, Ohio. Weighing and price scale	314,717	Mar. 31	2264	601	30	1248
Pitt, William R., Brooklyn, N. Y., assignor to W. W. Bostwick, Cincinnati, Ohio. Gate	312,380	Feb. 17	1260	348	30	598
Pitts, Marcellus H., and I. R. Whiteman, Marseilles, Ill. Wire-barbing machine	313,103	Mar. 3	64	22	30	792
Pittsburg Steel Nail Company. (See Truran, William, assignor.)						
Place, John J. W., Rantoul, Ill. Dish washer and drier	313,764	Mar. 10	990	255 256	30	970
Plamondon, Ambrose, Chicago, Ill. Gear-wheel	314,472	Mar. 24	1944	517	30	1164
Plankinton, William. (See Johnson, Warren S., assignor.)						
Platt, George, Wataska, Ill. Well-boring apparatus	314,473	Mar. 24	1945	518	30	1164
Platt, James. (See Treddell, Platt, and Fielding.)						
Platt, William S., Waterbury, Conn. Amalgamating zinc plates or bars for voltaic batteries	313,615	Mar. 10	789	207	30	933
Platt, William S., Waterbury, Conn. Clamp for electrical purposes	313,616	Mar. 10	790	207	30	933
Platts, Thomas M., Newark, N. J. Punching-machine	314,474	Mar. 24	1946	518 519	30	1164
Pleukarp, Ezra, and T. Shilling, Columbus, Ohio; said Shilling assignor to said Pleukarp. Table-slide	313,020	Feb. 24	2124	578	30	764
Plum, William R., *et al.*, trustees. (See Pratt, Harry P., assignor.)						
Plumb, Burdict & Barnard. (See Bruderer and Burdict, assignors.)						
Plumb, Fawcett. (See Bown, Albert, assignor.)						
Plumb, Hiram, assignor to W. A. Drown & Co., Philadelphia, Pa. Machine for forming ferrule-seats on umbrella-sticks	313,836	Mar. 10	1084	281 282	30	986
Plume, David S. (See Young, Alden M., assignor.)						
Pneumatic Company. (See Moore, Matthew R., assignor.) (Reissue.)						
Poff, James W., Harrisburg, Ark. Sawing-machine	311,675	Feb. 3	292	78	30	402
Pohl. (See Donadoni, Cesare, assignor.)						
Poillon, Richard. (See Secor, Samuel and J. A., assignors.)						
Polhemus, James H., Brooklyn, N. Y. Cable-grip	312,507	Feb. 17	1449	397	30	633

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Politz, Frederick, Bridgeton, N. J. Burglar-alarm	312,508	Feb. 17	1452	397	30	634
Polk, William R. (See Adams and Polk.)						
Polkowski, John, New York, N. Y. Window-guard	310,721	Jan. 13	718	196	30	143
Pollitzer, Moritz, Beaufort, S. C. Knife-carrying crank-leg for cotton-gins	313,085	Mar. 10	872	228	30	950
Polster, Ferdinand, assignor to W. Knabe & Co., Baltimore, Md. Upright-piano action	314,195	Mar. 17	1568	414	30	1084
Pomeroy, John H. (See Cook and Pomeroy.)						
Pond, A. A., *et al.* (See Clausen, Adler C., assignor.)						
Poole, Lawrence V., and O. E. Williams, Windsor, Vt. Tool for making beadings or moldings	313,617	Mar. 10	790	207	30	933
Poole, Lorenzo, and F. P. Snow, Orange, Mass.; said Snow assignor to said Poole. Wood-peeling machine	314,876	Mar. 31	2499	663	30	1293
Pope Manufacturing Company. (See Benham, William P., assignor.)						
Pope Manufacturing Company. (See Knous, John, assignor.)						
Pope Manufacturing Company. (See Knous and Wallace, assignors.)						
Pope Manufacturing Company. (See Latta, Emmit G., assignor.)						
Pope Manufacturing Company. (See Pratt, Charles E., assignor.)						
Pope Manufacturing Company. (See Pratt and Wallace, assignors.)						
Pope Manufacturing Company. (See Wallace, Albert E., assignor.)						
Pope Manufacturing Company. (See White, Albert M., assignor.)						
Pope Manufacturing Company. (See Work, Charles L., assignor.)						
Pope, William E. (See Moebius, Bernard, assignor.)						
Popham, Richard M., *et al.* (See Phillippi, Abraham H., assignor.)						
Porter, Charles B., San Francisco, Cal. Window-cleaning seat	313,618	Mar. 10	791	208	30	933
Porter, John M. (See Brown and Porter.)						
Porter Manufacturing Company. (See Cressey, Isaiah, assignor.)						
Porter, Moses, Lovington, Ill. Corn-drill	314,604	Mar. 31	2117	564	30	1222
Porter, Stephen, Boston, Mass. Door-plate	311,782	Feb. 3	417	113	30	426
Portis, James W., Calhoun, La. Mechanical movement	311,362	Jan. 27	1022	444	30	318
Post, John W., New York, N. Y. Sewing-machine	310,612	Jan. 13	579	160	30	417
Post, John W., New York, N. Y. Sewing-machine	312,569	Feb. 17	1453	398	30	634
Post, Judson S., St. Louis, Mo. Marine speed-propeller	312,391	Feb. 17	1264	348	30	599
Pott, Henry A., Cape Girardeau, Mo. Trace-holder	313,705	Mar. 10	992	256	30	970
Pott, James, Jr., New York, and E. S. Gorham, Brooklyn, N. Y. Book holder and carrier	313,621	Feb 24	2125	579	30	764
Potter, Nicholas, Troy, Pa. Corn-sheller	313,619	Mar. 10	794	208	30	934
Potter, Prince A., Providence, R. I. Barrel-swing	310,539	Jan. 6	484	135	30	93
Potter, Thomas O., Boston, Mass. Suspenders	311,916	Feb. 10	609	167 168	30	469
Potter, Thomas O., Boston, Mass. Suspenders	311,917	Feb. 10	610	168	30	470
Potter, Thomas O., Boston, Mass. Suspenders	311,918	Feb. 10	611	169	30	470
Pottin, Henry, Paris, France. Recording and registering apparatus for tills	312,014	Feb. 10	752	205 206	30	495
Powell, John G., Philadelphia, Pa. Umbrella notch and runner	314,394	Mar. 24	1832	487	30	1144
Powell, John G., Philadelphia, Pa. Mold for umbrella notches and runners	314,395	Mar. 24	1833	488	30	1144
Power, Joseph P. (See Logan, John B., assignor.)						
Powers, David J., Chicago, Ill. Anti-friction bearing	313,022	Feb. 24	2126	579	30	764
Powers, David J., Chicago, Ill. Caster	313,023	Feb. 24	2128	579	30	764
Powers, Frank B., Springfield, Mass. Velocipede	313,234	Mar. 3	295	74	30	830
Powers, Gershom, *et al.* (See Kearney, Frank B., assignor.)						
Powers, Joseph A. (See Farrar and Powers.)						
Powers, Joseph A., Lansingburg, N. Y. Oscillating engine	312,757	Feb. 24	1771	478	30	702
Powers, Joseph A., and C. M. Ball, Troy, N. Y. Bearing for shafting	314,475	Mar. 24	1948	519	30	1165
Powers, Robert, Charleston, Miss. Steam-wheel	312,015	Feb. 10	753	207	30	497
Powers, Ruben B., *et al.* (See Lovett, John, assignor.)						
Powers, William P., La Crosse, Wis. Well-pump	313,521	Mar. 10	666	174	30	909
Powley, George, Toronto, Ontario, Canada. Black-leaf check-book	310,311	Jan. 6	200	54	30	38
Prahar, Louis B, assignor to himself and C. S. Shepard, Brooklyn, N. Y. Bag, pocket-book, or purse frame	314,345	Mar. 24	1772	472	30	1132
Prather, John N. (See Matlick, Isaac N., assignor.)						
Pratt, Charles E., Boston, Mass., and A. E. Wallace, assignors to Pope Manufacturing Company, Hartford, Conn. Velocipede	310,540	Jan. 6	485	135	30	93
Pratt, Charles E., Boston, Mass., assignor to Pope Manufacturing Company, Hartford, Conn. Velocipede-saddle	312,219	Feb. 10	1039	285	30	548
Pratt, David F. (See Heywood and Pratt.)						
Pratt, Edwin E., assignor to A. N. Kellogg Newspaper Company, Chicago, Ill. Stereotype-plate holder	311,521	Feb. 3	89	26	30	366
Pratt, Harry P., assignor, by mesne assignments, to himself, C. C. Bonney, J. A. Hamlin, C. E. Barrett, Chicago, and W. R. Plum, Lombard, Ill., trustees. Telephone	310,961	Jan. 20	1040	281	30	205
Pratt, John J., Wakefield, Mass. Hardening and coloring serpentine rock	313,522	Mar. 10	667	.....	30	910
Pratt, Nathaniel W., Brooklyn, assignor to Stratton Separator Company, New York, N. Y. Steam-supply system	311,606	Feb. 3	197	56	30	386
Pratt, Nathaniel W., Brooklyn, assignor to Babcock & Wilcox Company, New York, N. Y. Steam-generator	311,446	Jan. 27	1731	471 472	30	339
Pratt, Nathaniel W., Brooklyn, assignor to Babcock & Wilcox Company, New York, N. Y. Steam-generator	314,196	Mar. 17	1569	414 415	30	1084
Pratt, Nathaniel W., Brooklyn, N. Y., and G. E. Palmer, Chicago, Ill., assignors to Babcock & Wilcox Company, of New Jersey. Furnace for the combustion of bituminous coal	312,655	Feb. 24	1632	450	30	677
Pratt, Ronello F., *et al.* (See Bogan, James F., assignor.)						
Pray, E. A. (See Smith, Andrew A., assignor.)						
Prentice, George W., *et al.* (See Woodward, Erastus, assignor.)						
Prentice, Leon H., Waukegan, Ill. Steam-radiator	313,883	Mar. 17	1158	302	30	1009
Prentiss, Frank S. R., assignor to G. H. Braman and M. W. Gano, Denver, Colo. Necktie-fastener	314,396	Mar. 24	1834	488	30	1145
Prentiss, Frederick H., Cambridge, and J. A. Tilden, Hyde Park, assignors to Automatic Fire Alarm Association, Boston, Mass. Electric thermostat	313,523	Mar. 10	668	174	30	910
Presbrey, Oliver S., and A. Nall, Moriah, N. Y. Cultivator	312,382	Feb. 17	1264	349	30	599
Prescott, De Witt C., Marinette, Wis. Saw-mill set-works	310,848	Jan. 13	877	237 238	30	172
Prescott, De Witt C., assignor to Marinette Iron Works Company, Marinette, and M. Jacker, Florence, Wis. Hoisting apparatus	313,104	Mar. 3	89	23	30	793
Prescott, Edwin, Arlington, Mass. Roofing-bracket	311,676	Feb. 3	293	78	30	402
Prescott, Edwin, Arlington, and C. H. T. Mann, Methuen, Mass. Cattle-fastener	313,524	Mar. 10	669	174	30	910
Presler, Jacob, assignor of one-half to G. Delong, Newville, Ind. Fence	314,665	Mar. 31	2118	565	30	1222
Press, John H., Olney, Ill. Clothes-drier	313,766	Mar. 10	992	256	30	970
Preston, Almon E., Battle Creek, Mich. Elevator for thrashing-machines	313,767	Mar. 10	993	256	30	970

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Preston, George H., Ottawa, Ontario, Canada. Indicator	313,235	Mar. 3	297	74, 75	30	830
Preston, George L., Scranton, Pa. Cigar and cigarette case	312,656	Feb. 24	1633	450	30	678
Pribyl, Ignatius M., Chicago, Ill. Convertible implement for cutting and marking	312,292	Feb. 17	1150	314	30	577
Price, Charles B., Pittsburg, Pa. Railway-frog crossing	310,613	Jan. 13	580	160	30	117
Price, Charles H., and J. Stevenson, Adrian, Mich. Combined truck and bag-holder	312,016	Feb. 10	759	207	30	497
Price, George W., assignor to B. N. Baker, Baltimore, Md. Steam-engine	313,445	Mar. 3	571	147	30	883
Price, Henry W. (See Biomatrom, John, assignor.)						
Price, John A., Scranton, Pa. Water-heater for stoves and ranges	312,017	Feb. 10	762	207	30	497
Price, John A., Scranton, Pa. Furnace-grate	312,293	Feb. 17	1151	314	30	577
Price, Joseph R., assignor of one-half to I. I. Barber, Hickory, Miss. Millstone-dress	314,977	Mar. 31	2644	699	30	1316
Price, V. Clarence, *et al.* (See Wilson, Merrick F., assignor.)						
Pridmore, Edward, assignor to Johnston Harvester Company, Batavia, N. Y. Mowing-machine	314,541	Mar. 24	2033	542, 543	30	1179
Priest, James A., Utica, N. Y. Artificial tooth	310,849	Jan. 13	879	238	30	172
Priest, Joram, Grosse Point, Mich. Vehicle-spring	314,978	Mar. 31	2645	699	30	1316
Priestley, Forrest M., Grand Rapids, Mich. Vehicle-wheel	311,144	Jan. 20	1300	358	30	254
Priestley, John W., and A. Kunkler, Philadelphia, Pa. Fabric for carpets and other purposes	312,220	Feb. 10	1040	285	30	548
Prince, Benjamin M., *et al.* (See Chamberlain, William T., assignor.)						
Prince, James A. (See Perry and Prince.)						
Prindle, Edward T., Aurora, Ill. Door-hanger	312,294	Feb. 17	1152	315	30	577
Pringle, James C., and J. W. Holdsworth, St. Louis, Mo. Combined article of furniture	313,768	Mar. 10	994	257	30	971
Pritchard, John T., assignor of one-half to J. Work, Carson City, Nev. Automatic alarm for railway-crossings	311,607	Feb. 3	198	56	30	386
Probasco, H. R., trustee. (See Pennington and Gatchell, assignors.)						
Prockter, Henry R. (See Weston and Prockter.)						
Proctor, Josiah K., Philadelphia, Pa. Window-screen	310,312	Jan. 6	201	55	30	38
Proctor, Thomas F., Waltham, Mass. Apparatus for figuring watch-dials	310,313	Jan. 6	202	55	30	39
Prophet, Friedrich. (See Rosenkranz and Prophet.)						
Prosch, Cyrus, assignor to E. & H. T. Anthony & Co., New York, N. Y. Shutter for photographic cameras	312,581	Feb. 17	1542	420	30	651
Protheroe, Pryse, North Sydney, Nova Scotia, Canada. Anchor	310,614	Jan. 13	582	160	30	118
Pronsnitzer, Julius, Nashville, Tenn. Trunk-tray	310,222	Jan. 6	78	20	30	17
Prnim, Hiram P., Grand Haven, Mich. Watch-maker's tool	312,221	Feb. 10	1041	285	30	548
Prunty, John E., Baltimore, Md. Relief-valve for steam fire-engines	311,145	Jan. 20	1301	358	30	254
Pryce, S. D. (See Long, Richard, assignor.)						
Pryibil, Paul. (See Mackintosh, Edward D., assignor.)						
Puffer, James F., Jr. (See Corey, George D., assignor.)						
Pulaski, Morris H., Philadelphia, Pa. Show-box for embroidery	314,542	Mar. 24	2034	543	30	1180
Pulver, William, Italy Hill, N. Y. Ditching-machine	312,758	Feb. 24	1773	488	30	702
Purcell, George W., Black Hawk, Miss. Cotton-harvester	310,314	Jan. 6	204	55	30	39
Purdy, Stephen H., St. Paul, Minn. Steam-heating apparatus	313,446	Mar. 3	572	147	30	883
Puterbaugh, Isaac V., Vaughan, Ontario, Canada. Machine for cleaning and grading potatoes	313,105	Mar. 3	91	21	30	793
Putman, John, assignor to M. A. Putman, Beardstown, Ill. Draft-equalizer	310,850	Jan. 13	880	238	30	172
Putman, Martha A. (See Putman, John, assignor.)						
Putnam, George W., Malden, Mass. Fire-escape	313,024	Feb. 24	2129	579	30	765
Putnam, J. Pickering, Boston, Mass. Water-trap	311,085	Jan. 20	1220	334	30	239
Putnam, J. Pickering, Boston, Mass. Water-trap	311,086	Jan. 20	1221	335	30	240
Putnam, J. Pickering, Boston, Mass. Water-trap	311,087	Jan. 20	1223	335	30	240
Putnam, J. Pickering, Boston, Mass. Water-trap	311,146	Jan. 20	1302	358	30	254
Putnam, John, Philadelphia, Pa. Bird-cage	311,848	Feb. 3	498	136	30	442
Putnam, Joseph W., New Orleans, La. Pile-driver	312,582	Feb 17	1544	420	30	651
Putnam, Salmon W., Fitchburg, Mass. Lathe	313,447	Mar. 3	573	148	30	883
Pyne, George R. (See Overell, Joseph M., assignor.)						
Quaglio, Julius, Frankfort-on-the-Main, Prussia, assignor to himself, J. Pintsch, Berlin, and A. Lentz, Stettin, Germany. Furnace for reducing zinc and other metals	312,750	Feb. 24	1774	489	30	702
Quarrie, James. (See Dean, Richard, assignor.)						
Quimby, Edward E., Orange, N. J., assignor to Rand Drill Company, of New York. Rotatory feed for rock-drills	312,383	Feb. 17	1264	349	30	599
Quimby, John, Jr., Dorchester, N. H. Lamp-chimney holder	314,397	Mar. 24	1835	489	30	1145
Quimby, Julius F., assignor to Swett, Quimby & Co., Troy, N. Y. Oil-stove	313,525	Mar. 10	670	175	30	910
Quincy Metal Wheel Company. (See Little, James R., assignor.)						
Quinn, Patrick, St. Louis, Mo. Vehicle-spring	313,526	Mar. 10	671	175	30	910
Quinn, William L., *et al.* (See Wood, John B., assignor.)						
Raddin, John, Lynn, Mass. Car-coupling	313,527	Mar. 10	672	176	30	911
Rademacher, Joseph, and R. A. Lemon, Clinton, Ill. Fine-welding device	312,895	Feb. 24	1951	534	30	733
Rader, Gustavus W., New York, N. Y. Gutter for sewers	313,620	Mar. 10	795	208	30	934
Railway Speed Recorder Company. (See Hawkins, J. Wesley, assignor.)						
Railway Telegraph Company. (See Phelps, Lucius J., assignor.)						
Rains, Hugh B., and G. Tarkington, Danville, Ky. Wire fence	314,877	Mar. 31	2501	663	30	1293
Ralston, Joseph, Brenham, Tex. Cotton-cleaner	310,315	Jan. 6	205	55, 56	30	39
Ramsay, Charles W., Brooklyn, N. Y. Apparatus for aging and preserving distilled and fermented liquids	313,236	Mar. 3	298	75	30	831
Ramsay, Charles W., Brooklyn, N. Y. Apparatus for treating fermented, fermentable, or distilled liquids	313,237	Mar. 3	309	75	30	831
Ramsdell, Ildo, Atlanta, Ga. Producing transfers of drawings, engravings, &c	313,106	Mar. 3	92	.....	30	794
Ramsdell, Ildo, Atlanta, Ga. Treating paper to preserve it against the corrosive action of acids	313,107	Mar. 3	92	.....	30	794
Ramsden, E. Archibald. (See Hamilton, James B., assignor.)						
Ramsey, Alexander. (See Wulff, Adolph, assignor.)						
Rand Drill Company. (See Gilbens, Joseph C., assignor.)						
Rand Drill Company. (See Quimby, Edward E., assignor.)						
Rand, Joshua P., Dallas City, Ill. Weed-killing machine	311,525	Feb. 3	90	26	30	366
Randall, Charles A., New York, N. Y. Telephone-transmitter	312,160	Feb. 10	959	262	30	534
Randall, Charles A., New York, N. Y. Telephone-transmitter	312,161	Feb. 10	961	262, 263	30	534
Randall, Charles A., New York, N. Y. Telephone-receiver	312,162	Feb. 10	964	263	30	534
Randall, Charles A., Brooklyn, N. Y., assignor, by mesne assignments, to National Improved Telephone Company. Telephonic apparatus	312,896	Feb. 24	1952	534	30	733
Randall, Elisha L., Durand, Wis. Construction of buildings	311,677	Feb. 3	284	78	30	402
Randall, Elisha W. (See Randall, Timothy P., assignor.)						
Randall, Frank J., deceased, (I. F. Randall, administratrix,) Aurora and G. B. Snow, Sugar Grove, said administratrix and said Snow assignors to W. Deering, Chicago, Ill. Corn-harvester	311,526	Feb. 3	90	26, 27, 28	30	366

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Randall, Ida F., administratrix. (See Randall and Snow.)						
Randall, James D., and W. A. King, assignors to themselves and W. T. Arrington, Memphis, Tenn. Steam-boiler and furnace	312,163	Feb. 10	967	263, 264	30	535
Randall, Timothy P., assignor of one-fourth to E. W. Randall, Scofield, Mich. Thill-coupling	313,528	Mar. 10	673	176	30	911
Randolph, David S., assignor of one-half to J. A. Cable, St. Louis, Mo. Amalgamator	311,258	Jan. 27	1466	401	30	291
Randolph, George W. (See Tippit, James A., assignor.)						
Rankin, David, *et al.* (See Cash, Evan F., assignor.)						
Rankin, Thomas L., New York, N. Y., assignor to J. W. Skinkle, Chicago, Ill. Valve	312,164	Feb. 10	968	264	30	535
Rankin, William H., Lawrence, Mass. Mechanical movement	312,760	Feb. 24	1775	489	30	703
Ransome, Ernest L., Oakland, Cal. Mold or cribbing for concrete structures	314,398	Mar. 24	1895	489	30	1145
Rapp, Christian F., Cincinnati, Ohio. Concrete pavement	312,897	Feb. 24	1953	534	30	733
Rapp, Frederick, Chicago, Ill. Watch-case hinge	313,448	Mar. 3	575	148	30	883
Rapp, Frederick, Chicago, Ill. Watch-case hinge	313,449	Mar. 3	576	148	30	884
Rappleyea, Nicholas, Rochester, N. Y. Burial-casket	310,223	Jan. 6	78	21	30	17
Rardon, Everett. (See Blain and Rardon.)						
Rather, Daniel, Jr., and S., Holly Springs, Miss. Sorghum-evaporator	312,510	Feb. 17	1454	398	30	634
Rather, Samuel. (See Rather, Daniel, Jr., and S.)						
Rau, Charles W., Allentown, Pa. Double-acting water-wheel	313,621	Mar. 10	796	209	30	934
Rau, William F., and C. Münch, Cincinnati, Ohio. Elevator	314,783	Feb. 3	418	113	30	427
Raub, Adam D. (See Mitchell, John E., assignor.)						
Rawson, George W., assignor to D. McKee and T. J. McCarthy, Belleville, Ill. Tire-tightener	311,363	Jan. 27	1623	444	30	319
Ray, Frank B., Kansas City, Mo. Combined belt guide and reel for thrashing-machines, &c.	311,364	Jan. 27	1624	444	30	319
Ray, John L., *et al.* (See Pennington, Charles A., assignor.)						
Ray, William W., Springfield, Ky. Pad for medical purposes	313,238	Mar. 3	301	76	30	831
Raymond, Cadwallader M., assignor to S. R. Raymond, Boston, Mass. Roller-skate	313,622	Mar. 10	796	209	30	934
Raymond, Franklin L. (See Raymond, Silas H., assignor.)						
Raymond, James N. (See Heiss, Charles E., assignor.)						
Raymond, Samuel R. (See Raymond, Cadwallader M., assignor.)						
Raymond, Silas H., Grand Rapids, Mich., assignor to F. L. Raymond, Cleveland, Ohio. Nut-lock	313,623	Mar. 10	798	209	30	935
Razee, Lloyd E., *et al.* (See Lane, Frederick, assignor.)						
Rea, Hugh, Village Green, Pa. Horse-cover	314,718	Mar. 31	2268	602	30	1248
Read, James, assignor to Wilcox, Crittenden & Co., Middletown, Conn. Awning-frame	312,998	Feb. 24	1955	535	30	733
Read, Josiah M., Everett, Mass. Damper	310,224	Jan. 6	79	21	30	17
Reagles, Isaac V., assignor of two-thirds to I. Y. Fuller, Schenectady, and W. A. Fish, Utica, N. Y. Composition of matter for waterproofing	311,203	Jan. 27	1388	.....	30	276
Reams, James W., Napa County, Cal. Harvester	310,316	Jan. 6	208	56	30	39
Reckenzaun, Anthony, London, England, assignor to F. Reckenzaun, New York, N. Y. Dynamo-electric machine and electric motor	313,884	Mar. 17	1159	302	30	1009
Reckenzaun, Frederick. (See Reckenzaun, Anthony, assignor.)						
Recordon, Ernest F., Paris, France. Electro-magnet	312,511	Feb. 17	1455	399	30	634
Reddell, William, Denver, Colo. Bed-sofa	314,606	Mar. 31	2118	565	30	1222
Redfield, William W., Minneapolis, Minn. Draftsman's ink-mixer	313,239	Mar. 3	302	76	30	831
Redington, William H., Chicago, Ill. Mucilage-bottle	311,849	Feb. 3	499	136	30	442
Redington, William H., assignor of one-half to H. K. Freeman, Chicago, Ill. Bottle-cover	310,615	Jan. 13	584	161	30	118
Redman, Alonzo, Chicopee, Mass. Flooring-clamp	311,608	Feb. 3	199	56	30	386
Redmond, Michael R., G. P. McFarlane, and J. Mallon, Houghton, Mich. Trunk	311,919	Feb. 10	611	169	30	470
Redstone, Albert E., San Francisco, Cal. Quartz-mill	311,032	Jan. 20	1134	310	30	224
Reece, Jasper N. (See Chaffee, Reuben S., assignor.)						
Reed, George M., Leadville Colo. Mechanical movement	311,447	Jan. 27	1732	472	30	339
Reed, George P., Melrose, Mass. Watch-regulator	311,609	Feb. 3	200	56	30	386
Reed George W., East Bloomfield, N. Y. Dumping-wagon	312,295	Feb. 17	1153	315	30	578
Reed, Horatio G. H., Milwaukee, Wis. Discharge apparatus for coal and ore bins	311,365	Jan. 27	1625	444, 445	30	319
Reed, Joseph W., Kalamazoo, Mich. Steam-superheater	310,225	Jan. 6	81	21	30	17
Reed, Porter C., Kingston, Mass. Nail-machine	313,108	Mar. 3	94	24	30	794
Reese, David F., Evansville, Ind. Safety-valve and blow-off cock	314,719	Mar. 31	2266	602	30	1249
Reeves, Paul S., Phoenixville, Pa. Journal-bearing	314,476	Mar. 24	1949	519	30	1165
Regan, Addison, Glenmore, Ga. Vermifuge	314,477	Mar. 24	1950	.....	30	1165
Regan, John W., Boston, Mass. Harness	313,529	Mar. 10	674	176	30	911
Rehard, John A. (See Scheidt and Rehard.)						
Rehfuss, George, Philadelphia, Pa. Button-hole attachment for sewing-machines	310,911	Jan. 20	961	262	30	192
Rehfuss, George, Philadelphia, Pa. Button-hole attachment for sewing-machines	314,655	Mar. 17	1382	361	30	1051
Reid, William A., assignor to N. O. Nelson Manufacturing Company, St. Louis, Mo. Fire-extinguishing apparatus	312,899	Feb. 24	1955	535	30	733
Reillé, Richard H., assignor to G. Hayes, New York, N. Y. Skylight	311,784	Feb. 3	419	114	30	427
Rein, Adam, Hamilton, Ohio. Beefsteak-tenderer	311,527	Feb. 3	95	28	30	367
Reinecke, Herman A. T., Thomaston, Conn. Stem winding and setting attachment for watches	310,865	Jan. 13	896	242	30	175
Reinhardt, Wilhelm, assignor of one-half to E. Kaufmann, New York, N. Y. Article of confectionery	312,761	Feb. 24	1777	489	30	703
Reinhold, Frank. (See Hubel and Reinhold.)						
Reinhold, Frank J. (See Hubel and Reinhold.)						
Reiniach, Charles H., New York, N. Y. Machine for making and twisting chain-links	310,317	Jan. 6	209	57	30	40
Reisch, Michael, Buffalo, N. Y. Ash-sifter	313,109	Mar. 3	94	24	30	794
Remington & Sons, E. (See Cook, Roswell F., assignor.)						
Remington & Sons, E. (See Diss, Louis P., assignor.)						
Remy, Noah T., Milton, Ind. Cord-holder for grain-binders	314,656	Mar. 17	1384	362	30	1051
Renders, Frank, Detroit, Mich. Lubricator	313,951	Mar. 17	1264	329	30	1028
Rentz, Charles H. (See Smith, Thomas S., assignor.)						
Reuse, George, Wilmington, Del. Varnish	314,607	Mar. 31	2119	.....	30	1223
Revere Rubber Company. (See Leigh and McDowell, assignors.)						
Rex, Benjamin L., Lovettsville, Va. Sash-fastener	311,366	Jan. 27	1626	445	30	319
Reynolds, Edmund D. and O. B., Brockton, Mass. Harrow	311,367	Jan. 27	1627	445	30	319
Reynolds, George H., assignor of one-half to C. H. Delamater, G. H. Robinson, and W. Delamater, New York, N. Y. Cut-off valve	310,318	Jan. 6	213	57, 58	30	40
Reynolds, George H., New York, N. Y., assignor of one-half to Crane Brothers Manufacturing Company, Chicago, Ill. Elevator-cage and safety attachment	313,240	Mar. 3	303	76	30	832
Reynolds, George H., New York, N. Y., assignor of one-half to Crane Brothers Manufacturing Company, Chicago, Ill. Elevator	313,241	Mar. 3	308	77	30	833
Reynolds, George H., New York, N. Y., assignor of one-half to Crane Brothers Manufacturing Company, Chicago, Ill. Valve for hydraulic elevators, &c	314,720	Mar. 31	2267	602, 603	30	1249

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Reynolds, George H., New York, N. Y., assignor of one-half to Crane Brothers Manufacturing Company, Chicago, Ill. Safety appliance for elevators	314,721	Mar. 31	2272	603	30	1249
Reynolds, Henry, New Haven, Conn. Feeding device for screw-machines	311,785	Feb. 3	420	114	30	427
Reynolds, John H. (See Gerdom, Gregory, assignor.)						
Reynolds, Lewis G., Dayton, Ohio. Checking and registering baggage	314,215	Mar. 17	1587	490	30	1089
Reynolds, Oliver B. (See Reynolds, Edmund D. and O. B.)						
Reynolds, Orrin A., Covington, Ky. Ruffling attachment for sewing-machines	310,465	Jan. 6	383	106, 107	30	74
Reynolds, William L., *et al.* (See King, William H., assignor.)						
Reznor, George, assignor to J. W. Bell and J. C. Breckenridge, Mercer, Pa. Eaves-trough hanger	313,769	Mar. 10	995	257	30	971
Rhees, Joseph L. (See Seymour, Frederick W., assignor.)						
Rhind, Frank, Brooklyn, N. Y. Lamp	312,762	Feb. 24	1777	490	30	703
Rhoads, Morton G. (See Rhoads, Solomon J. and M. G.)						
Rhoads, Solomon J. and M. G., Metropolis, Ill. Invalid-supporter	312,763	Feb. 24	1778	490	30	703
Rhoads, Solomon J. and M. G., Metropolis, Ill. Boot and shoe cleaner	312,764	Feb. 24	1779	490	30	703
Rhodes, Charles M. (See Fry, Charles H., Jr., assignor.)						
Ribon, Juan G. (See Mayrh, William J., assignor.)						
Rice, D. Burt, C. N. Sword, and F. M. Wilder, Chicago, Ill. Folding steps	310,226	Jan. 6	82	23	30	18
Rice, David H., Lowell, Mass. Apparatus for cash-carriers	313,370	Mar. 3	466	121, 122	30	863
Rice, David H., Lowell, Mass. Cash-carrying apparatus	314,263	Mar. 24	1655	439	30	1110
Rice, David H., Lowell, Mass. Cash-carrying apparatus	314,264	Mar. 24	1656	439, 440	30	1110
Richards, David L., St. John, New Brunswick, Canada. Car-coupling	311,528	Feb. 3	95	28	30	367
Richards, David L., St. John, New Brunswick, Canada. Car-coupling	312,657	Feb. 24	1634	450	30	678
Richards, Francis H., Springfield, Mass. Button-fastener-setting machine	310,541	Jan. 6	487	136	30	93
Richards, Francis H., Springfield, Mass., assignor to American Button Fastener Company, New Britain, Conn. Button-fastener-setting machine	311,033	Jan. 20	1135	310	30	224
Richards, J. Dudley, Boston, Mass. Picture-exhibiting easel	310,319	Jan. 6	215	58	30	41
Richards, John, San Francisco, Cal. Centrifugal pump	314,878	Mar. 31	2502	663	30	1293
Richardson, Arthur S., Reading, Mass. Wax-thread sewing-machine	314,478	Mar. 24	1950	519	30	1165
Richardson, Christopher, Newark, N. J. Trowel-handle	314,479	Mar. 24	1951	520	30	1165
Richardson, Edward F. (See Hoyt, Jonathan J., assignor.)						
Richardson, Everett P., Lawrence, assignor to McKay & Thompson Consolidated Lasting Machine Association, Boston, Mass. Lasting-machine	311,850	Feb. 3	500	137	30	442
Richardson, Everett P., Lawrence, assignor to McKay & Thompson Consolidated Lasting Machine Association, Boston, Mass. Lasting-machine	311,851	Feb. 3	504	137	30	443
Richardson, George W., Plano, Ill. Device for converting motion	311,610	Feb. 3	201	57	30	386
Richardson, George W., Boston, Mass., assignor to Consolidated Safety Valve Company, Hartford, Conn. Multiplex safety-valve	311,147	Jan. 20	1303	359	30	255
Richardson, Ira M., Littleton, N. H. Thill-coupling bolt	313,242	Mar 3	310	77	30	833
Richardson, James B. (See Moore, Samuel, assignor.)						
Richardson, Jeremiah M., assignor of one-third to J. L. Heywood, Salt Lake City, Utah Ter. Rock-drilling machine	311,786	Feb. 3	422	114	30	427
Richardson, John T., Harrisburg, assignor to himself, and A. H. Ege, Mechanicsburg, Pa. Tie or connecting-bar for railway-switches	311,148	Jan. 20	1305	359, 360	30	255
Richardson Manufacturing Company. (See Richardson, Samuel T., assignor.)						
Richardson, Samuel T., assignor to Richardson Manufacturing Company, Baltimore, Md. Press	311,368	Jan. 27	1632	446	30	320
Richardson, Samuel T., assignor to Richardson Manufacturing Company, Baltimore, Md. Elevator	311,369	Jan. 27	1630	446, 447	30	320
Richardson, Samuel T., assignor to Richardson Manufacturing Company, Baltimore, Md. Windlass	311,370	Jan. 27	1632	447	30	320
Richardson, Samuel T., assignor to Richardson Manufacturing Company, Baltimore, Md. Windlass	311,371	Jan. 27	1634	447	30	321
Richardson, Samuel T., assignor to Richardson Manufacturing Company, Baltimore, Md. Capstan	311,372	Jan. 27	1635	448	30	321
Richardson, Samuel T., assignor to Richardson Manufacturing Company, Baltimore, Md. Windlass	311,373	Jan. 27	1636	448	30	321
Richardson, Samuel T., assignor to Richardson Manufacturing Company, Baltimore, Md. Windlass	311,374	Jan. 27	1637	448	30	321
Richardson, Seneca M., Worcester, Mass. Planer pressor-roll	313,825	Mar. 17	1161	302	30	1009
Richer, Victor E., West Medford, assignor of one-half to R. B. C. Bement, Boston, Mass. Toy	313,952	Mar. 17	1265	330	30	1028
Richie, E. Lucien. (See Riddel, Thomas E., assignor.)						
Richmond, Enos, Alloway, N. J. Boiler and steamer for domestic purposes	313,686	Mar. 10	874	228	30	950
Richmond, Leonard V., Sand Lake, N. Y. Doubling-spooler	310,722	Jan. 13	719	196	30	143
Richmond, Orrin S., Adair, Mich. Pulverizer	313,953	Mar. 17	1265	330	30	1029
Richter, Hugo E., assignor to W. Langbein, Dresden, Saxony, Germany. Stencil-plateholder	312,384	Feb. 17	1266	349	30	600
Richtmann, Charles, Newark, N. J., assignor, by mesne assignments, to R. R. Watson, New York, N. Y. Weighing-scale	312,583	Feb. 17	1545	421	30	652
Rickard, Clyde A., Ottawa, Kans. Steam-boiler feeder	313,954	Mar. 17	1266	330	30	1029
Ricketts, William, Cincinnati, Ohio. Stop-cock	312,165	Feb. 10	969	264	30	535
Riddel, Thomas E., assignor of one-half to E. L. Richie, Philadelphia, Pa. Combination-tool	310,851	Jan. 13	881	232	30	172
Riedel, Herrmann, Neenah, Wis. Lubricant	311,529	Feb. 3	96	.....	30	367
Rieger, Heinrich, Aalen, Würtemberg, Germany. Lamp-wick cutter and cleaner	310,466	Jan. 6	385	107	30	75
Riessner, Christopher, New York, N. Y. Coal-oil stove	311,259	Jan. 27	1469	401, 402	30	291
Riggs, Henry G. (See Walker and Riggs.)						
Rikeldaffer, John G., *et al.* (See Hamre, Even J., assignor.)						
Riley, James H., and J. J. Walsh, West Troy, N. Y. Necktie-holder	313,530	Mar. 10	874	176	30	911
Riley, Jeremiah, New York, N. Y. Sash-weight holder	314,608	Mar. 31	2120	565	30	1223
Rincklake, August, Brunswick, Germany. Lamp-collar	312,385	Feb. 17	1266	349	30	600
Rinehart, Martin L., Richmond, Ohio. Plow	310,227	Jan. 6	83	22	30	18
Riner, Russell M., Richmond, Ind. Clothes-pounder	313,955	Mar. 17	1267	330	30	1029
Ring, Denis J., assignor to J. H. Ring and C. Callahan, Lowell, Mass. Machine for making metallic shells for cartridges	311,034	Jan. 20	1139	311	30	225
Ring, John, St. Louis, Mo. Cooling attachment for gas and other machines	310,616	Jan. 13	585	161	30	118
Ring, John H., *et al.* (See Ring, Denis J., assignor.)						
Ring, John H., assignor to American Automatic Cartridge Company, Lowell, Mass. Machine for making cartridge-shells	311,035	Jan. 20	1140	311	30	225
Ringemann, Frank, assignor of one-half to J. Ringemann, Cincinnati, Ohio. Sofa-bed	314,879	Mar. 31	2503	664	30	1294

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Ringemann, Joseph. (See Ringemann, Frank, assignor.)						
Ripley, Joseph S., Crugers, N. Y. Necktie-fastening	310,617	Jan. 13	585	161	30	118
Ripley, Roswell S. (See Hope and Ripley.)						
Rison, John L. (See Wilkinson, Algernon L., assignor.)						
Ritchey, William J., Pittsburg, Pa. Spring-lock for hatchways	310,320	Jan. 6	216	58	30	41
Ritchie, Alexander H. (See Ely, Edward P., assignor.)						
Ritchie, David A. (See Braddock and Ritchie.)						
Riter, John L., Brownsville, Ind. Force-feed seeding-machine	310,228	Jan. 6	84	22	30	18
Rittenhouse, Anna M., Philadelphia, Pa. Ink-well guard	311,678	Feb. 3	284	79	30	403
River and Rail Electric Light Company. (See Man, Albon, assignor.)						
Robb, Charles S. (See Robb, William and C. S.)						
Robb, Herbert C., San José, Cal. Saw-mill head-block	313,531	Mar. 10	675	177	30	911
Robb, William, Conklingville, N. Y., and C. S. Robb, Boston, Mass. Fruit-paring machine	313,532	Mar. 10	678	177, 178	30	912
Robbins, Alfred L., Chicago, Ill. Air-pump	313,243	Mar. 3	310	77	30	833
Robbins, Royal E., *et al.*, trustees. (See Hunter, George, assignor.)						
Roberts Duplex Planing Machine Tool Company. (See Roberts, James A., assignor.)						
Roberts, Isaiah L., Brooklyn, N. Y. Electric battery	314,722	Mar. 31	2273	603, 604	30	1250
Roberts, Isaiah L., assignor of one-half to H. L. Brevoort, Brooklyn, N. Y. Carbon-battery element	311,852	Feb. 3	508	138	30	444
Roberts, Isaiah L., assignor of one-half to H. L. Brevoort, Brooklyn, N. Y. Electric battery	311,853	Feb. 3	508	.....	30	444
Roberts, James A., assignor to Roberts Duplex Planing Machine Tool Company, Detroit, Mich. Cutter-head	311,679	Feb. 3	285	79	30	403
Roberts, Marion M., Norris City, Ill. Alarm door-fastening	313,371	Mar. 3	469	122	30	863
Roberts, Newell J., Battle Creek, Mich. Car-starter	314,299	Mar. 24	1712	455	30	1121
Roberts, William A. (See Blakemore and Roberts.)						
Robertson, James, and J. F. Tobin, Rochester, N. Y. Shoe-maker's iron last	310,723	Jan. 13	721	197	30	143
Robins, Dewalt B., Fredonia, Pa. Stove-pipe thimble	312,018	Feb. 10	762	208	30	497
Robins, Dewalt B., Fredonia, Pa. Stove-pipe thimble	313,886	Mar. 17	1162	302	30	1010
Robinson, Abraham, Berry, Ill. Churn	311,680	Feb. 3	286	79, 80	30	403
Robinson, Albert S., assignor of one-half to A. Schell, Albany, N. Y. Baling-press	311,375	Jan. 27	1638	448	30	322
Robinson, David, Reynolds, Ill. Tobacco-plant slitter and cutter						
Robinson, Edwin L. (See Freeman and Robinson.)						
Robinson, Francis W., Richmond, Ind. Traction-engine	311,530	Feb. 3	97	29	30	367
Robinson, George H., *et al.* (See Reynolds, George H., assignor.)						
Robinson, Hale G., Sandusky, Ohio. Relief-valve for steam-engines	310,912	Jan. 20	962	262	30	192
Robinson, Henry D., Chester, Ind. Hay-ladder	311,531	Feb. 3	98	29	30	367
Robinson, John A., trustee. (See Miner, James G., assignor.)						
Robinson, Murray L., Adrian, Mich. Stock-rack	313,373	Mar. 3	471	122, 123	30	864
Robinson, Nannie E., Lamont, Mich. Cooking utensil	314,057	Mar. 17	1385	362	30	1051
Robinson, Thomas W., near Asheville, Ala. Harrow	312,166	Feb. 10	969	264	30	535
Robinson, William L., Philadelphia, Pa. Safety device for cars	312,167	Feb. 10	970	265	30	535
Robison, Elisha S., Fremont, Ind. Farm-gate	313,372	Mar. 3	470	122	30	864
Roche, James. (See Donahue, Roche, Goodwin, and Cono.)						
Roche, Thomas C., Brooklyn, assignor to E. & H. T. Anthony & Co., New York, N. Y. Photographic paper and sensitive emulsion therefor	314,346	Mar. 24	1773	.....	30	1132
Rockfellow, Albert G., Ashland, Oreg. Gate-latch	311,787	Feb. 3	424	115	30	428
Rodes, Tyree, Wales Tenn. Tire-tightener	312,900	Feb. 24	1937	535	30	734
Rodgers, Alexander, Muskegon, Mich. Edging-cutter	310,321	Jan. 6	217	59	30	41
Rodman, Henry H., Wilkes-Barré, Pa. Shoe-fastening	313,533	Mar. 10	680	178	30	912
Roeder, Frederick A. (See Springer and Roeder.)						
Roeder, Frederick A., and A. Springer, Cincinnati, Ohio. Torsional-pivot balance	310,542	Jan. 6	491	136	30	94
Roehn, George H., Dayton, Ohio. Elevator	313,887	Mar. 17	1163	303	30	1010
Roesgen, Mathias, Pittsburg, assignor of one-half to O. Bergmann, Allegheny City, Pa. Draw-plate punch	314,543	Mar. 24	2037	543	30	1180
Roeske, Henry, assignor of one-half to M. J. Nascimento, Philadelphia, Pa. Filter	314,150	Mar. 17	1511	396	30	1074
Roettger, Edward C., Brunswick, Germany, assignor of two-thirds to H. Perschmann and C. Hammer. Continuous-acting centrifugal drying-machine	314,880	Mar. 31	2505	664	30	1294
Rogers, Columbus K., Salem, Mass. Automatic hatchway-guard for elevators	313,450	Mar. 3	577	148	30	884
Rogers, Columbus K., Salem, Mass. Automatic elevator-brake	313,451	Mar. 3	578	149	30	884
Rogers, Ethen, Cohoes, N. Y. Ice-pick	314,723	Mar. 31	2275	604	30	1250
Rogers Fence Company. (See Rogers, Timothy, assignor.)						
Rogers, Lebbeus H., New York, N. Y. Secondary battery and transporting the same	310,724	Jan. 13	723	197, 198	30	143
Rogers, Timothy, assignor, by mesne assignments, to Rogers Fence Company, Springfield, Ohio. Harrow	313,534	Mar. 10	681	178, 179	30	913
Rogers, William A., Cambridge, Mass. Electro-magnetic clutch for step-by-step movements	310,913	Jan. 20	964	262	30	193
Roh, John G., Shanesville, Ohio. Device for inserting fellies	314,197	Mar. 17	1570	415	30	1094
Rohrer, Jacob N., Chewsville, Md. Draft-spring	311,260	Jan. 27	1471	402	30	291
Roll, Leonard, Wilkes-Barré, Pa. Device for controlling runaway horses	310,322	Jan. 6	219	60	30	42
Rolland, John R., *et al.* (See Monger, Francis M., assignor.)						
Rollason, Joseph G. (See Cadbury and Rollason.)						
Rollins, Alpheus. (See Wildey and Rollins.)						
Rollins, Charles G., Minneapolis, Minn. Dust-catcher	311,036	Jan. 20	1142	311, 312	30	226
Rollins, Edward K., assignor of one-half to A. E. Hunt, Scranton, Pa. Cutter for cutting glass tubes	310,914	Jan. 20	966	263	30	193
Rombach, Charles H. (See Goldstein and Rombach.)						
Römer, William, Newark, N. J. Bag or satchel handle	314,724	Mar. 31	2275	604	30	1250
Rouner, John H. J., New York, N. Y. Torch	314,725	Mar. 31	2276	604	30	1250
Root, Frank D., Cortland, Ill. Car-coupling	311,037	Jan. 20	1144	312	30	226
Rorabaek, John, assignor of one-half to O. Brown, Washington, Conn. Bob-sleigh	312,386	Feb. 17	1267	350	30	600
Rorick, John C., Wanseon, Ohio. Embroidering implement	313,770	Mar. 10	996	257	30	971
Rose, John J., Elmwood, Ill. Whip and rein holder	312,901	Feb. 24	1958	535	30	734
Rose, Thomas. (See Condict and Rose.)						
Rose, Walter E., Prophetstown, Ill. Shoe	310,725	Jan. 13	727	198	30	144
Rosenkranz, Philipp H., and F. Prophet, assignors to Dreyer, Rosenkranz & Droop, Hanover, Prussia, Germany. Water-meter	314,480	Mar. 24	1952	520	30	1165
Rosquist, George, Brooklyn, N. Y. Machine for dampening webs of printing-paper	311,361	Jan. 27	1472	402, 403	30	291
Rose, Christian H., assignor of one-half to L. O. Dauchy, Chicago, Ill. Illuminating-tiling	312,222	Feb. 10	1042	285	30	548
Ross, George W. and J. D., Boonsville, Tex. Remedy for chicken-cholera	313,956	Mar. 17	1268	.....	30	1029

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Ross, James A., assignor of one-half to R. L. Jones, Plymouth, Pa. Car-coupling	310,726	Jan. 13	728	198	30	144
Ross, James C., assignor of one-half to J. B. Speer, Joliet, Ill. Wire-barbing machine	314,481	Mar. 24	1956	520 521	30	1166
Ross, James D. (See Ross, George W. and J. D.)						
Ross, Robert M., Utica, N. Y. Dental drill	310,467	Jan. 6	385	107	30	75
Ross, Warren A. (See Hoppes, John J., assignor.)						
Rossvally, Max L. (See Hicks, Thomas H., assignor.)						
Roth, George C., Big Springs, Kans. Draft-equalizer	313,374	Mar. 3	472	123	30	864
Roth, Gregory, Cincinnati, Ohio. Candle-machine	314,347	Mar. 24	1774	472	30	1132
Roth, Joseph C., Buffalo, N. Y. Spool-holder for sewing-machines	311,532	Feb. 3	99	29	30	368
Rothhan, Isaac, and F. Schmidt, St. Louis, Mo. Horse collar	310,618	Jan. 13	586	161	30	118
Rothlisberger, Erneste, Cincinnati, Ohio. Top-prop nut	313,771	Mar. 10	998	258	30	972
Rothlisberger, Erneste, Cincinnati, Ohio. Top-prop nut	313,772	Mar. 10	999	258	30	972
Rothlisberger, Erneste, Cincinnati, Ohio. Washer for top-props	313,773	Mar. 10	999	258	30	972
Rothlisberger, Erneste, Cincinnati, Ohio. Top-prop nut	313,774	Mar. 10	1000	258	30	972
Rothwell, Joseph A., Brooklyn, N. Y. Gage for lathes	314,544	Mar. 24	2037	544	30	1160
Rotramel, John. (See Orr, William H., assignor.)						
Rotthoff, William, Pittsburg, Pa. Hot-blast stove	312,902	Feb. 24	1959	536	30	734
Roulstone, Edward A. G., Boston, assignor to A. J. Libby, Cambridge, Mass. Railway-rail joint	313,110	Mar. 3	95	24	30	794
Rouse, Franklin H. (See Norton and Rouse.)						
Roush, Samuel, Wilmot, Ind. Removable school and church seat	311,854	Feb. 3	509	138	30	444
Rowbottom, John M. (See Rowbottom, William and J. M.)						
Rowbottom, William and J. M., Allegheny, Pa. Protector for underground pipes	310,727	Jan. 13	729	198	30	144
Rowell, Sidney W., New York, N. Y. Portable elevator	312,387	Feb. 17	1268	350 351	30	600
Rowlett, Jacob V., Richmond, Ind. Band sawing-machine	313,025	Feb. 24	2132	560	30	765
Rowlett, Jacob V., Richmond, Ind. Roller-skate. (Reissue)	10,570	Mar. 10	1100	286	30	970
Rowlett, Jacob V., Richmond, Ind. Foot-plate for skates	313,624	Mar. 10	799	209	30	925
Rowlett, Jacob V., Richmond, Ind. Foot-plate for roller-skates	313,625	Mar. 10	799	210	30	935
Rowley, James F., Des Moines, Iowa. Artificial leg	314,726	Mar. 31	2277	605	30	1270
Rowley, John T., Johnstown, Pa. Rolling-mill for rods	311,920	Feb. 10	913	169	30	470
Roy, Fernand M., Jamaica, N. Y. Cauterizing apparatus	312,512	Feb. 17	1457	399	30	634
Royer, B. F. (See Hebert, Peter, assignor.)						
Roys, Philander B., Pultneyville, N. Y. Line-throwing projectile	310,852	Jan. 13	882	239	30	172
Royston, William H., Corona, N. Y. Wood ornamentation	313,535	Mar. 10	683	179	30	913
Rubel, Moses, *et al.* (See Tuerk, Samuel, assignor.)						
Rucker, William L., Martinsville, Mo. Corn-planter	310,543	Jan. 6	492	136	30	94
Rudd, Karl E. (See Chapman, Hiram S., assignor.)						
Rnetschi, Konrad, Battle Creek, Iowa. Chimney cap and ventilator	313,375	Mar. 3	472	123	30	864
Ruffin, Marie C. A. (See Bang and Ruffin.)						
Ruffini, Frederick E. (See McCormick, John R., assignor.)						
Rufus, Otto R., Sonoma, Cal. Brush-cutting machine for vineyards	314,979	Mar. 31	2646	700	30	1317
Ruggles, George W., Charlotte, N. Y. Form to build boats over	311,038	Jan. 20	1146	313	30	226
Ruggles, John. (See Starrett, David J., assignor.)						
Ruhland, Ernest, Auburn, N. Y. Phosphate-sowing device	314,265	Mar. 24	1660	441	30	1111
Runstetler, Andrew. (See Runstetler, Michael and A.)						
Runstetler, Michael, Dayton, Ohio, and A. Runstetler, Moline, Ill., assignors to Farmers Friend Manufacturing Company, Dayton, Ohio, and Deere & Mansur Company, Moline, Ill. Corn-planter	311,855	Feb. 3	510	138	30	444
Ruppel, Henry, Cleveland, Ohio. Hydrant	313,452	Mar. 3	579	149	30	884
Rush, Abner. (See Shorkey and Rush.)						
Rush, John W., Stockton, Cal. Sack-holder	314,300	Mar. 24	1713	455	30	1121
Russell, Eli F., San Francisco, Cal. Ore-furnace	310,619	Jan. 13	588	162	30	119
Russell & Erwin Manufacturing Company. (See Burgess, Charles M., assignor.)						
Russell & Erwin Manufacturing Company. (See Jones, Horace K., assignor.)						
Russell, George, McKeesport, Pa. Combined fire-iron stand and support for coal-vases	312,513	Feb. 17	1458	399	30	634
Russell, George, McKeesport, Pa. Forming-tube for pipe-welding machines	313,837	Mar. 10	1085	282	30	967
Russell, George, and D. R. Wood, McKeesport, Pa.; said Wood assignor of one-half to said Russell. Machine for making pipe	314,980	Mar. 31	2647	700	30	1317
Russell, George W. (See Gould, Simeon L., assignor.)						
Russell, John T., *et al.* (See Gill, Edwin R., Jr., assignor.)						
Russell & Morgan Printing Company. (See Murray, Samuel J., assignor.)						
Russell, Sterne, assignor to Scovill Manufacturing Company, Waterbury, Conn. Student-lamp	312,514	Feb. 17	1459	400	30	634
Rutter, Hannah J., Oakland City, Ind. Cooking-vessel	313,453	Mar. 3	580	149	30	884
Rntz, Carl, Brooklyn, N. Y. Sewing-machine binding attachment	311,376	Jan. 27	1639	449	30	322
Ryan, Daniel W. (See Miller, George, assignor.)						
Ryan, John S., and J. Conway, New York, N. Y. Shutter-fastener	311,448	Jan. 27	1733	472	30	339
Ryan, Rodger. (See Gardner, John, assignor.)						
Ryan, Thomas and T. E., Lockport, N. Y.; said Thomas Ryan administrator of said T. E. Ryan, deceased. Lathe-tool	312,223	Feb. 10	1043	286	30	548
Ryan, Thomas E., deceased. (See Ryan, Thomas and T. E.)						
Ryder, William J. H., Newcastle-upon-Tyne, county of Northumberland, England. Safety-lamp	312,584	Feb. 17	1547	421	30	652
Rye, Edgar, Albany, Tex. Car-coupling	313,026	Feb. 24	2132	560	30	765
Ryer, William H., South Bend, Ind. Plow	311,449	Jan. 27	1734	472	30	339
Ryle, William, Paterson, N. J. Hydrant	310,853	Jan. 13	883	239	30	173
Sabens, Stephen B., New Bedford, Mass. Seine	311,377	Jan. 27	1642	449	30	322
Sagendorph, L. Lewis, assignor of one-half to H. P. Lloyd, Cincinnati, Ohio. Apparatus for manufacturing flexible roofing material	310,544	Jan. 6	494	137	30	95
Sagendorph, L. Lewis, assignor of one-half to H. P. Lloyd, Cincinnati, Ohio. Sheet-metal roofing	312,658	Feb. 24	1635	450	30	676
Sagendorph, L. Lewis, assignor of one-half to H. P. Lloyd, Cincinnati, Ohio. Metal roof	313,376	Mar. 3	473	123 124	30	865
Salisbury, George P., New Haven, Conn. Machine for finishing metallic cartridge-shells	312,019	Feb. 10	763	208	30	498
Salomo, Hugo, Melbourne, Victoria. Lathe-dog	314,482	Mar. 24	1958	521	30	1166
Saltsman, Daniel J., Brewton, Ala. Log-loader	313,536	Mar. 10	684	179	30	913
Sample, Charles A., *et al.* (See Monger, Francis M., assignor.)						
Sampson, George T., Dayton, Ohio. Sled-propeller	312,388	Feb. 17	1272	351	30	601
Sandage, Jacob R., assignor of one-half to J. Sandage, South Bend, Ind. Axle-skein	312,765	Feb. 24	1780	491	30	704
Sandage, Joshua. (See Sandage, Jacob R., assignor.)						
Sanders, Bleuford B. (See Wilson and Sanders.)						
Sanders, Eliza. (See Sanders, Louis, assignor.)						
Sanders, Louis, assignor to E. Sanders, Brooklyn, N. Y. Waist-belt	312,108	Feb. 10	971	265	30	536

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Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Sandstrom, Daniel, and J. H. Anderson, Pullman, Ill. Blast-furnace	313,537	Mar. 10	685	179	30	913
Sargent & Co. (See Gilfillan, William, assignor.)						
Sargent & Co. (See Sargent, Henry B., assignor.)						
Sargent & Co. (See Sargent, Joseph B., assignor.)						
Sargent & Co. (See Shaw, John H., assignor.)						
Sargent & Co. (See Sparks, William E., assignor.)						
Sargent, Henry B., assignor to Sargent & Co., New Haven, Conn. Window-sash pull	313,687	Mar. 10	875	228	30	950
Sargent, Joseph B., assignor to Sargent & Co., New Haven, Conn. Bench-hook	314,058	Mar. 17	1396	362	30	1052
Sassack, William, Brooklyn, N. Y. Roundabout	314,681	Mar. 31	2507	665	30	1294
Sauer, Lorenz, Napa City, Cal. Hoe	313,244	Mar. 3	312	77	30	833
Saunders, William L., Jersey City, N. J. Drill-head for channeling-machines	311,378	Jan. 27	1643	449	30	322
Savory, Arthur L. (See Barker and Savory.)						
Sawtelle, Henry F., Leominster, Mass. Umbrella	313,111	Mar. 3	95	25	30	794
Sawtelle, Herbert H., Lowell, Mass. Belt-tightener	312,659	Feb. 24	1636	451	30	678
Sawyer, Alzaman, Providence, R. I. Convertible chair	312,020	Feb. 10	765	208	30	498
Sawyer, Francis A., Boston, Mass. Carriage-step	314,151	Mar. 17	1512	396	30	1074
Sawyer, Harriet A., St. Louis, Mo. Hand-easel	313,626	Mar. 10	800	210	30	935
Sawyer, Henry, *et al.* (See Barron, John W., assignor.)						
Sawyer, William H., Providence, R. I. Electrical connecting-cord	311,611	Feb. 3	203	57	30	367
Sawyer, William H., Providence, R. I. Electric-circuit opener	311,681	Feb. 3	289	80	30	404
Sawyer, William H., Providence, R. I. Clamp for binding wires to insulators	313,377	Mar. 3	475	124	30	865
Scales, Charles H., Covington, Ky., assignor of one-half to J. R. Silliman, Toronto, Canada. Tobacco-box, &c.	313,112	Mar. 3	97	25	30	795
Scantlebury, Woodman F., Brooklyn, N. Y. Horse-collar	313,775	Mar. 10	1001	259	30	972
Scarles, Benjamin, Clinton, Mass. Manufacture of wire-cloth	314,483	Mar. 24	1959	521	30	1166
Schad, Bernhard. (See Smith and Schad.)						
Schäffer & Budenberg. (See Westphal, Otto, assignor.)						
Schaffer, John, Kirkwood, Mo. Animal-trap	313,057	Mar. 17	1268	331	30	1029
Schaffer, John, Kirkwood, Mo. Animal-trap	314,301	Mar. 24	1714	456	30	1121
Schanck, La Fayette, Rochester, N. Y. Ventilator	312,903	Feb. 24	1961	536	30	735
Scheffler, Theodore, Paterson, N. J. Metal-drilling tool	314,039	Mar. 17	1387	362	30	1052
Scheibler, Carl, Berlin, Germany. Treating phosphatic slag	312,904	Feb. 24	1962	.....	30	735
Scheidler, Reinhard, Newark, Ohio. Reversing mechanism for engines	311,021	Feb. 10	614	170	30	471
Scheidt, Gottfried, and J. A. Rehard, Toledo, Ohio. Fire-escape	311,039	Jan. 20	1148	313	30	227
Schell, Abraham. (See Craven, Thomas C., assignor.)						
Schell, Abraham. (See Robinson, Albert S., assignor.)						
Schenck, John C. F., Moline, Ill. Plow	314,609	Mar. 31	2121	565	30	1223
Schilling, Alexander. (See Schilling, Gustav, assignor.)						
Schilling, August, San Francisco, Cal. Roasted coffee-berries	312,515	Feb. 17	1461	.....	30	635
Schilling, August, San Francisco, Cal. Roasted coffee-berries	312,516	Feb. 17	1461	.....	30	635
Schilling, Gustav, Detroit, Mich., assignor to A. Schilling, Chicago, Ill. Corset	312,905	Feb. 24	1963	536	30	735
Schimper, Rudolf F. and C. F. W. Siedhof, Union Hill, N. J. Cover for culinary vessels	310,468	Jan. 6	386	107	30	75
Schlatter, Heinrich, Reutlingen, Würtemberg, Germany. Centrifugal wood and paper sorting machine	310,469	Jan. 6	387	108	30	75
Schleicher, Adolph W., Philadelphia, Pa. Combined gas-engine and pump	314,727	Mar. 31	2278	605	30	1251
Schmalz, François, New York, assignor to C. V. Peyn, Brooklyn, N. Y. Manufacturing clock and watch dials	313,245	Mar. 3	312	.....	30	834
Schmauser, Theodore, Allegheny, Pa. Galvanic therapeutic apparatus	312,660	Feb. 24	1637	451 452	30	678
Schmeisser, Ernst, *et al.* (See Foster, Thomas J., assignor.)						
Schmelz, William H., Baltimore, Md. Pneumatic block signal for railways	314,060	Mar. 17	1388	363	30	1052
Schmid, Albert, Zurich, Switzerland. Hand-pressure rotating apparatus	310,323	Jan. 6	219	60	30	42
Schmid, Emil. (See Baumann, Robert, assignor.)						
Schmidt, Frederick. (See Rothhan and Schmidt.)						
Schmidt, Gottlieb, Philadelphia, Pa. Automatic fan	312,169	Feb. 10	921	265	30	536
Schmidt, Hugo, Chicago, Ill. Engraver's vise	314,610	Mar. 31	2122	566	30	1223
Schmucker, William Y., Reading, Pa. Ink-grinder	313,246	Mar. 3	313	78	30	834
Schmucker, Charles W., Will's Creek, Ohio. Windlass water-elevator bucket	314,061	Mar. 17	1392	363	30	1053
Schneider, George F., Chicago, Ill. Folding lunch-box	313,538	Mar. 10	666	180	30	914
Schneider, Jacob, New York, N. Y. Bronzing-machine	311,612	Feb. 3	204	57, 58	30	367
Schneider, Max, Doos, Bavaria, Germany. Lubricating-valve	311,379	Jan. 27	1644	449	30	323
Schoch, Caspar, Truckee, Cal. Rein-holder	312,517	Feb. 17	1462	400	30	635
Schoen, Charles A., assignor of one-half to A. Olander, Minneapolis, Minn. Straw-carrier for thrashing machines	312,661	Feb. 24	1642	452	30	679
Schoendelen, William, Davenport, Iowa. Grease-cup	314,062	Mar. 17	1392	363	30	1053
Schoenhof, Jacob, New York, N. Y. Pannier and bustle	312,518	Feb. 17	1463	400 401	30	635
Schofield, Silas C., Freeport Ill. Grinding-mill	310,916	Jan. 20	972	264	30	194
Schollhorn & Co., William. (See Schollhorn, William, assignor.)						
Schollhorn, William, New Haven, Conn., assignor to W. Schollhorn & Co. Coach-latch	314,611	Mar. 31	2123	566	30	1223
Schollhorn, William, New Haven, Conn., assignor to W. Schollhorn & Co. Shears	314,729	Mar. 31	2281	606	30	1251
Schön, Christian A. W. (See Loufigen, Georges, assignor.)						
Schooler, Lewis. (See Talbott, Jesse H., assignor.)						
Schott Button Hole Attachment Company. (See Schott, William, assignor.)						
Schott, William, New York, N. Y., assignor to Schott Button Hole Attachment Company, of New York. Button-hole attachment for sewing-machines	310,915	Jan. 20	967	263 264	30	193
Schott, William, assignor to Wiggers & Froelick, New York, N. Y. Jewel-box	312,766	Feb. 24	1781	491	30	704
Schrabetz, Emil, Vienna, Austria-Hungary. Gas-governor for gas-engines	312,906	Feb. 24	1964	537	30	735
Schrader, John C. (See Penniman, Russell S., assignor.)						
Schroder, John B., Cincinnati, Ohio. Lock-bolt for doors	313,898	Mar. 17	1164	303	30	1010
Schroyer, Stephen, assignor of one-half to A. Woodward, Pottstown, Pa. Car-coupling	310,854	Jan. 13	884	239	30	173
Schuette, H. George, Manitowoc, Wis. Street-lamp	310,728	Jan. 13	730	199	30	144
Schuetz, Charles, Newark, N. J. Watch-case	312,907	Feb. 24	1965	537	30	735
Schulte, Diedrich, assignor of one-half to R. Voeth, Pittsburg, Kans. Hog-cholera remedy	314,545	Mar. 24	2038	.....	30	1180
Schultz, Herman. (See Hurst and Schultz.)						
Schultz, Julius, Hamburg, Germany. Coffee-hulling machine	312,767	Feb. 24	1782	491	30	704
Schultz, William, La Porte, Ind. Apparatus for opening and closing gates	313,688	Mar. 10	876	228	30	950
Schumann, Carl. (See Willkomm and Schumann.)						
Schuster, Karl J., Cleveland, Ohio. Dash-board for vehicles	313,899	Mar. 17	1165	303	30	1010
Schuster, Rudolph, Waldeck, Tex. Hilling-plow	310,853	Jan. 13	885	239	30	173
Schutte, Louis, Philadelphia, Pa. Steam-jet apparatus	312,170	Feb. 10	972	265	30	536
Schwalen, Nicholas G., Minneapolis, Minn. Hame	314,063	Mar. 17	1393	364	30	1053
Schwartz, William, Louisburg, Kans. Feed-water heater	313,890	Mar. 17	1165	303	30	1010
Schwerin, Morris, Newark, N. J. Double-acting lock	313,113	Mar. 3	99	25	30	795

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Schwitter, Anton, Brooklyn, N. Y. Rose-engine	314,064	Mar. 17	1304	364	30	1053
Scofield, Levi, assignor to Challenge Corn Planter Company, Grand Haven, Mich. Corn-planter	313,891	Mar. 17	1166	304	30	1011
Scollay, John A., Brooklyn, N. Y. Radiator-valve	313,892	Mar. 17	1168	304	30	1011
Scotland, James, and F. Cordon, St. Pierre, near the Islands of Miquelon, France. Mariner's compass	310,729	Jan. 13	731	199	30	145
Scott, Alpheus W. (See Kindleberger, Jefferson, assignor.)						
Scott, Amos S. (See Scott, John and A. S.)						
Scott, Edwin M. (See Lewis and Scott.)						
Scott, Erastus W., Wauregan, Conn. Whip-socket	312,768	Feb. 24	1783	492	30	704
Scott, James R., *et al.* (See Pennington, Charles A., assignor.)						
Scott, Jeremiah F., assignor of three-fourths to J. N. Humphrey and P. W. Lorenz, Jefferson City, and J. McGuire, Fulton, Mo. Car-coupling	313,378	Mar. 3	476	124 / 125	30	865
Scott, John and A. S., Caln township, Chester county, Pa. Vehicle-shaft	312,021	Feb. 10	766	209	30	498
Scott, Robert P., Baltimore, Md. Pencil-clasp	312,296	Feb. 17	1154	315	30	578
Scott, Samuel C., Brooklyn, N. Y. Button	314,612	Mar. 31	2124	566	30	1223
Scott, Samuel C., Brooklyn, N. Y. Sleeve-button	314,613	Mar. 31	2125	566	30	1223
Scott, Walter, Plainfield, N. J. Printing-machine	312,022	Feb. 10	767	209	30	498
Scott, Walter, Plainfield, N. J. Printing-machine	312,289	Feb. 17	1272	351	30	601
Scott, Walter, Plainfield, N. J. Chromatic-printing machine	312,769	Feb. 24	1784	492	30	704
Scovill Manufacturing Company. (See Lines, John, assignor.)						
Scovill Manufacturing Company. (See Morris, Marion A., assignor.)						
Scovill Manufacturing Company. (See Russell, Sterne, assignor.)						
Scovill Manufacturing Company. (See Spruce, James, assignor.)						
Scutt & Co., H. B. (See Stubbe, John, assignor.)						
Seaman, Alfred S., Frackville, Pa. Ventilator	314,882	Mar. 31	2508	665	30	1294
Searle, John Q. C., Chicago, Ill. Car-warmer	311,533	Feb. 3	99	29	30	368
Searle, John Q. C., Chicago, Ill. Car-warmer	311,534	Feb. 3	100	30	30	368
Seaver, Augustus, Boston, assignor of one-third to C. Curtis, Newton, Mass. Boot or shoe	314,302	Mar. 24	1716	456	30	1122
Sebring, Clara E. (See Sebring, Thomas V., assignor.)						
Sebring, Thomas V., assignor to C. E. Sebring, Fort Wayne, Ind. Brush	313,776	Mar. 10	1002	259	30	972
Secor, John A. (See Secor, Samuel and J. A.)						
Secor, Samuel and J. A., Brooklyn, assignors of one-fourth to R. Poillon, New York, N. Y. Propelling vessels	313,689	Mar. 10	877	229	30	951
See, Alonzo B., Yonkers, N. Y. Packing for hydraulic pistons	311,380	Jan. 27	1644	450	30	323
See, James W. (See Cullen and See.)						
Seeber, Philip P. (See Wilber, William H., assignor.)						
Seeley, Isaac B., Philadelphia, Pa. Crate for fruit, &c	310,730	Jan. 13	732	199	30	145
Seely, John A. (See Eckert, Seely, and Eckert.)						
Seely, Obadiah, assignor to E. C. Stearns & Co., Syracuse, N. Y. Door-hanger	310,229	Jan. 6	86	21	30	19
Seghers, John B., Jr., *et al.* (See Crocker, John B., assignor.)						
Seib, Frank. (See Seib, Simon and F.)						
Seib, Simon and F., Newark, N. J. Automatic line-fastener	314,065	Mar. 17	1396	364	30	1054
Seiberling, John F. (See Laraway, George W., assignor.)						
Seiberling, John F., Akron, Ohio. Grain-binding harvester	310,324	Jan. 6	220	60 / 61 / 62	30	42
Seiberling, John F., Akron, Ohio. Grain-binding harvester	311,040	Jan. 20	1149	313 / 314	30	227
Seiberling, John F., Akron, Ohio. Pulp-vat for paper-making machines	312,390	Feb. 17	1274	372	30	601
Seitz, Edward G., Chicago, Ill. Two-wheeled vehicle	311,922	Feb. 10	616	170	30	471
Seitz, Mary A. (See Claghorn, Edward J., assignor.)						
Seitz, Mary A. (See Shay, Marie E., assignor.)						
Selvard, Henry. (See Orr and Selvard.)						
Self Acting Sewing Machine Company. (See Watkins, Alexander, assignor.)						
Sells, Sumner J., Bloomington, Ill. Slat-fastener for belts	313,777	Mar. 10	1003	259	30	972
Selowsky, Gustave, New York, N. Y. Shield for scarfs	312,519	Feb. 17	1464	401	30	635
Seltzer, Charles M. and O. T. Mosck, Philadelphia, Pa. Railway-chair	313,778	Mar. 10	1004	259	30	973
Selz, Henry, Pilot Point, Tex. Feeder for cotton-presses	313,627	Mar. 10	801	210	30	935
Sencenbaugh, Samuel S., Aurora, assignor of one-half to G. V. Harvey and C. O. Boring, Chicago, Ill. Tag-fastener	313,539	Mar. 10	687	180	30	914
Senn, John T., assignor to himself and A. McKenzie, Troy, Ala. Well-fixture	311,923	Feb. 10	618	171	30	472
Sergeant, Henry C., New York, N. Y. Hose-coupling	314,066	Mar. 17	1397	365	30	1054
Sergeant, Raphael, Pittsburg, Pa. Bolster-plate	314,730	Mar. 31	2282	606	30	1252
Sergeson, James C., Philadelphia, Pa. Loom-shuttle	312,520	Feb. 17	1465	401	30	635
Servis, Silas A. (See Clark, Charles H., assignor.)						
Seton, John, and W. Conely, Brooklyn, N. Y. Skylight	312,585	Feb. 17	1548	421	30	652
Sewell, Addison D., Colton, Washington Ter. Side-hill sulky-plow	311,041	Jan. 20	1151	314	30	227
Sewell, William N., Hedges, Ky. Car-coupling	311,535	Feb. 3	102	30	30	369
Seyfert, Simon J. (See Christ, Wellington H., assignor.)						
Seymour, Frederick W., Newark, Ohio, assignor of one-half to J. L. Rhees, Wheeling, W. Va. Combined sash fastener and lift	312,023	Feb. 10	770	209	30	499
Seymour, Henry T. (See Cooke and Seymour.)						
Seymour, Robert B., Willet's Point, N. Y. Leveling-rod	310,731	Jan. 13	733	199	30	145
Seymour, William S., assignor to J. H. Shields and F. E. Brown, Chicago, Ill. Non-conducting covering for steam-pipe fittings	313,958	Mar. 17	1269	331	30	1029
Shaaber, Jacob, Reading, Pa. Stove	312,602	Feb. 24	1643	453	30	679
Shackell, Henry, Jr., *et al.* (See Burke, James M., assignor.)						
Shaeffer, Samuel C. (See Wiesebrock, Frederick W., assignor.)						
Shaler, Nathaniel S., Cambridge, assignor to T. A. Dodge, trustee, Brookline, Mass. Friction device for locomotives	313,959	Mar. 17	1270	331	30	1029
Shank, William H. (See Dimond, William, assignor.)						
Shannon, Fanny B., Denver, Col. Game of fractions	310,325	Jan. 6	226	62	30	43
Shannon, James S., Hinsdale, Ill. Punch	310,917	Jan. 20	974	264 / 265	30	194
Sharp, Dennis P., Ithaca, N. Y. Two-wheeled vehicle	313,379	Mar. 3	478	125	30	865
Sharp, James B., New York, N. Y. Suspender-end	310,732	Jan. 13	734	200	30	145
Sharp, William R., New Philadelphia, Ohio. Axle-trimming tool	312,521	Feb. 17	1466	401	30	635
Shaw, Addie M. (See Shaw, Noah, assignor.)						
Shaw, Elijah. (See Stebbins, Nathan M., assignor.)						
Shaw, Frank. (See Childs and Shaw.)						
Shaw, George W., assignor to himself and J. S. Maratta, Taylorsville, Ky. Running-gear	314,348	Mar. 24	1775	472	30	1131
Shaw, Henry S. H., Bristol, county of Bristol, England. Apparatus whereby the relative motions of two or more bodies may be varied in any required manner independently of their actual motions	312,171	Feb. 10	974	266	30	536

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Shaw, James H., New York, N. Y. Electrode dumb-bell for electrical exercising apparatus	310,733	Jan. 13	734	200	30	145
Shaw, James H., New York, N. Y. Electrical exercising apparatus	311,381	Jan. 27	1646	450	30	323
Shaw, John H., assignor to Sargent & Co., New Haven, Conn. Transom-lifter	312,024	Feb. 10	770	210	30	499
Shaw, Noah, assignor to A. M. Shaw, Eau Claire, Wis. Machine for applying Babbitt-metal linings to bearing-boxes	314,614	Mar. 31	2126	567	30	1224
Shaw, Thomas, Philadelphia, Pa. Car-brake	311,202	Jan. 27	1475	403	30	292
Shaw, William A., Brooklyn, assignor to C. A. Cheever, trustee, New York, N. Y. Electric circuit	311,662	Feb. 3	292	80	30	404
Shay, Marie E., Fordham, assignor to M. A. Seitz, New York, N. Y. Machine for rolling axles, spindles, and other metal articles	311,924	Feb. 10	619	171 / 172	30	472
Shealy, David, Bucyrus, Ohio. Sash-cord guide	312,025	Feb. 10	771	210	30	499
Shelbourne, Sidney F., New York, N. Y. Electrical conductor	313,380	Mar. 3	478	125	30	866
Shelby, Christopher C., New York, N. Y. Garter	312,297	Feb. 17	1155	315	30	578
Shelby, Christopher C., New York, N. Y. Suspender-buckle	313,628	Mar. 10	802	210	30	935
Shelden, Bruce H., Oswego, N. Y. Pencil-holder	311,613	Feb. 3	206	58	30	367
Sheldon, Henry, Vienna, Ontario, Canada. Lathe for turning handles	312,298	Feb. 17	1155	316	30	578
Sheldon, Henry H., assignor to P. C. Sheldon, Pawtucket, R. I. Removable oven for combined coal and gas burning stoves	312,172	Feb. 10	977	267	30	536
Sheldon, Mark A., assignor of one-half to W. H. Starbird, Corry, Pa. Corn-planter	311,382	Jan. 27	1648	450	30	323
Sheldon, Phillip C. (See Sheldon, Henry H., assignor.)						
Sheldon, Roscoe S., North Greenfield, Wis. Bench-plane	313,540	Mar. 10	687	180	30	914
Shelley, George, Wilkes-Barré, Pa. Expanding-mandrel	311,788	Feb. 3	424	115	30	428
Shepard, Charles S. (See Prahar, Louis B., assignor.)						
Shepard, Henry W., assignor of one-half to A. B. Bowman, St. Louis, Mo. Flanging-machine	314,615	Mar. 31	2130	567	30	1224
Shepherd, Charles C., Passaic, N. J. Machine for gluing slate and other frames	312,391	Feb. 17	1276	352	30	602
Sherman, Daniel H., Buffalo, N. Y. Stop-valve box for water or other main and service pipes	313,541	Mar. 10	689	180	30	914
Sherman, Edward, New Pendington, Ind. Grain separator and cleaner	310,734	Jan. 13	735	200	30	146
Sherman, Edwin F., Springfield, Mass. Feed-cutter	314,206	Mar. 24	1661	441 / 442	30	1111
Sherman, Hamilton, Waverly, Pa. Saw-filing machine	310,735	Jan. 13	736	200	30	146
Sherman, Jacob S., Cassopolis, Mich. Device for removing dust, &c., from hay during the process of baling	313,060	Mar. 17	1271	331	30	1030
Sherer, Freeman H. (See Aurand and Sherer.)						
Sherwood, Alphonso S. (See Mosier, John L. H., assignor.)						
Shickle, Frederick, St. Louis, Mo. Hoisting-block	312,663	Feb. 24	1644	453	30	679
Shickle, Frederick, St. Louis, Mo. Fire-escape	312,908	Feb. 24	1906	537	30	735
Shickle, Frederick, St. Louis, Mo. Fire-escape	312,909	Feb. 24	1908	538	30	736
Shickle, Frederick, St. Louis, Mo. Fire-escape	312,910	Feb. 24	1908	538	30	736
Shields, James H., *et al.* (See Seymour, William S., assignor.)						
Shilling, Townsend. (See Plenkarp and Shilling.)						
Shipley, Morris S. (See Tyrrell and Shipley.)						
Shoemaker, George W., Dalton, Pa. Friction-bearing	311,925	Feb. 10	623	172	30	472
Shoots, James H. (See Cook, Shoots, and Staring.)						
Shorkey, Edward, and A. Rush, Austintown, Ohio. Whip-socket	312,522	Feb. 17	1467	402	30	636
Short, Henry L. (See Short, William G. and H. L.)						
Short, John N., assignor to Cambria Iron Company, Johnstown, Pa. Machine for slitting metal	311,263	Jan. 27	1476	403 / 404	30	292
Short, Robert L., assignor to New Doty Manufacturing Company, Janesville, Wis. Horse hay-fork	312,026	Feb. 10	772	210	30	499
Short, Sidney H., Denver, Colo. Electric-arc lamp	310,736	Jan. 13	738	201	30	146
Short, Sidney H., Denver, Colo. Cut-out for electric apparatus	312,942	Feb. 10	1065	293	30	554
Short, Sidney H., Denver, Colo. Feed-regulator for electric-arc lamps	312,943	Feb. 10	1066	293	30	554
Short, William G. and H. L., Larue, Ohio. Tellurian	311,264	Jan. 27	1478	404 / 405	30	292
Shrawder, John S., Upper Dublin, Pa. Fire-extinguisher	311,204	Jan. 27	1389	379	30	276
Shriver, Robert, *et al.* (See Allfree, James B., assignor.)						
Shunk, Benjamin, Jacksonville, Fla. Shipping box or crate	312,173	Feb. 10	979	267	30	537
Shuster, Lawrence, Jr., Philadelphia, Pa. Water-cock attachment	311,205	Jan. 27	1391	380	30	276
Shute, Orlando, Cooperstown, N. Y. Securing hop-strings	314,198	Mar. 17	1571	415	30	1085
Shute, Richard G., Edgartown, Mass. Bell for bicycles	310,620	Jan. 13	589	162	30	119
Shutt, Robert D., Capac, Mich. Detachable wagon-stake	311,206	Jan. 27	1391	380	30	276
Siar, William, Rimersburg, Pa. Churn	314,399	Mar. 24	1837	489	30	1145
Sibley, Aaron L., *et al.* (See Benedict, Jacob, assignor.)						
Sibley, William J., assignor to G. H. Clarke, Brooklyn, N. Y. Grate-bar	312,027	Feb. 10	773	210	30	500
Siddons, George W., Charlton, Iowa. Harrow	312,523	Feb. 17	1469	402	30	636
Siebert, Frederick, St. Louis, Mo. Self-lubricating journal-box	314,731	Mar. 31	2283	606	30	1252
Siedhof, Charles F. W. (See Schimmer and Siedhof.)						
Siegel, Abraham, *et al.* (See Harrison, Thomas B., assignor.)						
Siemens, Frederick, Dresden, Saxony, Germany. Gas-lamp	313,779	Mar. 10	1005	260	30	973
Silberberg, Rudolf, Brooklyn, assignor to H. W. Hoop, Sr., New York, N. Y. Manufacture of cream of tartar	313,629	Mar. 10	803		30	935
Silliman, James R. (See Scales, Charles H., assignor.)						
Simmerly, Albert N., Cleveland, Ohio. Coal or ore bucket or carrier	311,789	Feb. 3	425	115	30	428
Simmerly, Albert N., Cleveland, Ohio. Combined clutch and brake	312,911	Feb. 24	1909	538	30	736
Simmons, Jason D., assignor of one-half to M. L. Simmons, Chicago, Ill. Sash-supporter	314,201	Mar. 17	1573	416	30	1085
Simmons, John P., Bell's Depot, Tenn. Corn-planter	311,683	Feb. 3	294	80	30	404
Simmons, Marion H., assignor of one-half to M. T. Simmons, Kansas City, Mo. Whiffletree-hook	313,780	Mar. 10	1006	260	30	973
Simmons, Martin T. (See Simmons, Marion H., assignor.)						
Simmons, Mary L. (See Simmons, Jason D., assignor.)						
Simms, William, Lebanon, Tenn. Horse and mule poke	314,883	Mar. 31	2509	665	30	1294
Simonds, Alvan A., Dayton, Ohio. Bed-plate for pulp-engines	310,230	Jan. 6	87	23	30	19
Simonson, Daniel W., Tottenville, N. Y. Apparatus for preserving and transporting oysters, &c	314,732	Mar. 31	2284	606	30	1252
Simpson, Henry C., assignor of one-half to P. Willox, East Saginaw, Mich. Smoke-stack	312,912	Feb. 24	1971	539	30	736
Simpson, Joseph C., Oakland, Cal. Horseshoe-nail	310,231	Jan. 6	88	23	30	19
Simpson, Lenox. (See Pease, William M., assignor.)						
Simpson, Lenox, Pittsburg, Pa. Apparatus for tanning	313,542	Mar. 10	689	181	30	914
Simpson, Lenox, Pittsburg, Pa. Apparatus for tanning	314,199	Mar. 17	1572	416	30	1085
Simpson, Lenox, Pittsburg, Pa. Apparatus for tanning	314,200	Mar. 17	1573	416	30	1085
Simpson, Lenox, Pittsburg, and J. Davis, Allegheny City, Pa. Apparatus for tanning	313,543	Mar. 10	690	181	30	915

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Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Simpson, Lymon, F. M. Lottridge, and W. Carter, Jonesborough, Ind. Pessary	312,664	Feb. 24	1646	433	30	680
Singer Manufacturing Company of New Jersey. (See Diehl, Philip, assignor.)						
Sipperly, William H., Fishkill, assignor of one-half to W. H. Jackson, Matteawan, N. Y. Harness-saddle	311,856	Feb. 3	512	138	30	444
Sisum, William H. H., Brooklyn, N. Y. Endless-rope railway	312,913	Feb. 24	1072	539	30	737
Skaggs, Newton J., Montgomery, Ala. Tire-tightener	310,918	Jan. 20	976	265	30	194
Skerritt, William H., Jersey City, N. J. Elevator-hatchway cover	311,684	Feb. 3	295	81	30	404
Skidmore, Horace G. (See Harman and Skidmore.) (Reissue.)						
Skidmore, Horace G., Cincinnati, Ohio. Watch-key	310,737	Jan. 13	740	201	30	146
Skinkle, Jacob W. (See Rankin, Thomas L., assignor.)						
Skinner, A. Frank, assignor of one-half to R. E. Austin, Tama City, Iowa. Thill-coupling	314,733	Mar. 31	2285	607	30	1252
Skinner, John, assignor of one-third to R. M. Barker, Flint, Mich. Hay-tedder	311,614	Feb. 3	207	58	30	387
Slafter, J. C., *et al.* (See Clausen, Adler C., assignor.)						
Slate, Albert W. (See Atwood and Slate.)						
Slater, John. (See Doulton and Slater.)						
Slaughter, Robert K., Brooklyn, N. Y. Manufacturing illuminated fabrics	314,349	Mar. 24	1777	472	30	1133
Slawson, Amsey L., New Orleans, La. Wagon-loading machine	311,926	Feb. 10	623	172	30	472
Slocum, Franklin R. (See Ford, Jarvis O., assignor.)						
Slotterbek, Charles, Lakeport, Cal. Eyeglasses or spectacles	311,615	Feb. 3	208	59	30	388
Small, D. M. (See Nash, Charles C., assignor.)						
Smalley, Frank F., *et al.* (See Hoyt, Lewis S., assignor.)						
Smart, Don Carlos, Cambridgeport, Mass. Step-ladder	314,267	Mar. 24	1663	442	30	1112
Smart, Terrence P. (See Beecher and Smart.)						
Smead, Isaac D., Toledo, Ohio. Dry-closet, &c.	314,884	Mar. 31	2509	665, 666	30	1294
Smedes, Levi K., Mount Vernon, N. Y. Folding chair	313,381	Mar. 3	479	125	30	866
Smedley, Edwin, assignor to National Iron and Brass Works, Dubuque, Iowa. Vertical drill	313,114	Mar. 3	99	25	30	795
Smiley, Thomas M., Farmington, Mo. Churn	311,685	Feb. 3	297	81	30	404
Smith, Alva C., *et al.* (See Smith, David R., assignor.)						
Smith, Andrew A., assignor of one-half to E. A. Pray, Crested Butte, Colo. Spraying car-wheel and spraying-bar	312,028	Feb. 10	774	211	30	500
Smith, Artemus J., *et al.* (See Baldwin, Charles W., assignor.)						
Smith, Benjamin C., Salem, Mass. Apparatus for manufacturing oil-gas	314,484	Mar. 24	1960	521, 522	30	1167
Smith, Benjamin C., Brooklyn, assignor to F. Adee & Co., New York, N. Y. Stop-cock box	311,265	Jan. 27	1480	405	30	293
Smith, Benjamin C., Salem, assignor of one-fourth to J. G. Crawford, Boston, Mass. Conductor's punch	313,027	Feb. 24	2134	580	30	765
Smith, Charles F., New York, N. Y. Propelling device for boats	314,734	Mar. 31	2286	607	30	1252
Smith, Chester. (See Souders, Smith, Craighead, and Souders.)						
Smith, Clarence E. (See Karges and Smith.)						
Smith & Co., H. D. (See Ward, William S., assignor.)						
Smith, David R. (See Billings, Carter, and Smith.)						
Smith, David R. (See Carter and Smith.)						
Smith, David R., assignor to J. and E. McCreary and A. C. Smith, Cohoes, N. Y. Combination cipher-machine	312,665	Feb. 24	1646	454	30	680
Smith, Edward S., Waterbury, Conn. Lever-buckle	310,919	Jan. 20	977	265	30	194
Smith, Edward S., Waterbury, Conn. Spring-clasp	311,536	Feb. 3	104	31	30	369
Smith, Frank E., Toledo, Iowa. Adjustable check-cutter	313,544	Mar. 10	692	181	30	915
Smith, Frederick H., Kansas City, Mo. Tube-well	313,893	Mar. 17	1169	305	30	1011
Smith, Frederick T., Plantsville, Conn. Die for carriage-dash frames	312,029	Feb. 10	775	211	30	500
Smith, George C., assignor of one-half to S. W. Brock, Hamilton, Ohio. Measuring-vessel	312,030	Feb. 10	776	211	30	500
Smith, George T. (See Cochrane and Smith.)						
Smith, George T., Jackson, Mich. Journal-bearing	313,545	Mar. 10	693	181, 182	30	915
Smith, George T., and W. F. Cochrane, Jackson, Mich. Roller-mill	312,392	Feb. 17	1277	353, 354	30	602
Smith, George T., and W. F. Cochrane, Jackson, Mich. Flour-bolt	312,914	Feb. 24	1074	539	30	737
Smith, George W., Bay City, Mich. Baling-press	312,915	Feb. 24	1075	540	30	737
Smith, Grant & Co. (See Newell and Laid, assignors.) (Reissue.)						
Smith, Harry R., Cincinnati, Ohio, and R. Folsom, Boston, Mass., assignors to Elgin National Watch Company, Elgin, Ill. Stem-winding watch. (Reissue)	10,554	Jan. 27	1747	476	30	342
Smith, Horace S. (See Treat, Francis H., assignor.)						
Smith, Israel S., Sr., Washington, D. C. Elevator	310,738	Jan. 13	741	201	30	147
Smith, James H., Newark, Ohio. Traction-cable and car	311,537	Feb. 3	106	31	30	369
Smith, James M., Seymour, Conn. Lathe-tool holder	310,739	Jan. 13	743	202	30	147
Smith, James R., assignor to H. C. Buhoup, Chicago, Ill. Glass jar for fire-extinguishing compounds and other substances	314,885	Mar. 31	2512	666	30	1295
Smith, James R., assignor to H. C. Buhoup, Chicago, Ill. Fire-extinguishing compound	314,886	Mar. 31	2513	.....	30	1295
Smith, James R., assignor to H. C. Buhoup, Chicago, Ill. Fire-extinguishing apparatus	314,887	Mar. 31	2514	666	30	1295
Smith, John, Verona, assignor of two-thirds to F. G. and J. I. Kay, Allegheny City, Pa. Nut-locking spring-washer	314,888	Mar. 31	2515	666	30	1295
Smith, John H. (See Wilson, Arthur N., assignor.)						
Smith, John S., assignor of one-half to T. G. Bennett, Jackson, Mich. Machine for treating clay	312,666	Feb. 24	1649	455	30	680
Smith, John S., assignor of one-half to T. G. Bennett, Jackson, Mich. Machine for preparing clay	312,667	Feb. 24	1650	455	30	680
Smith, John T., Rockfall, Conn. Revolver	311,383	Jan. 27	1650	451	30	324
Smith, John T., Rockfall, Conn. Lock for revolvers	314,067	Mar. 17	1398	365	30	1054
Smith, John Y., Doylestown, Pa. Ensilage-cutter	311,538	Feb. 3	107	32	30	369
Smith, Joseph A., Deep River, Conn. Button-hook	311,539	Feb. 3	110	32	30	370
Smith, Joseph R. (See Laforge and Smith.)						
Smith, Lyman B., Chelsea, Mass. Cut-off for hose-nozzles	310,326	Jan. 6	228	62	30	43
Smith, M. Holroyd, Halifax, county of York, England. Electric railway system and car	310,962	Jan. 20	1042	282, 283	30	205
Smith, Marvin O., New Buffalo, Mich. Drag-saw	312,299	Feb. 17	1157	316	30	579
Smith, Melvin L., and B. Schad, assignors to Smith's Suspension Carriage Wheel Company, Lockport, N. Y. Tire-heating furnace	314,202	Mar. 17	1374	417	30	1086
Smith, Michael J., New York, N. Y. Water closet tank or cistern	311,207	Jan. 27	1392	380	30	276
Smith, Oberlin. (See Perkins and Smith.)						
Smith, Orange V., *et al.* (See Bradshaw, John A., assignor.)						
Smith, Peter, Detroit, Mich. Water heater and circulator	314,735	Mar. 31	2287	607	30	1252

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Smith, Ralph J., John Street, Sunderland, England. Marine-engine governor	314,889	Mar. 31	2516	667	30	1295
Smith, Robert B., Lafayette, Ala. Cotton-seed planter	312,393	Feb. 17	1280	374	30	602
Smith, T. Albee, assignor of two-thirds to L. F. Woods, St. Louis, Mo., and C. Menelas, Brookhaven, Miss. Fiber-disintegrating machine	314,268	Mar. 24	1664	442, 443	30	1112
Smith, Theron I., North Attleborough, Mass. Button	314,616	Mar. 31	2132	567	30	1224
Smith, Thomas, Breckenridge, Mo. Fifth-wheel for vehicles	314,068	Mar. 17	1400	365	30	1055
Smith, Thomas H., Auburn, N. Y. Combined shutter-worker and slat-operator	312,300	Feb. 17	1158	317	30	579
Smith, Thomas S., assignor to C. H. Rentz, New Haven, Conn. Sash-fastening	314,350	Mar. 24	1777	473	30	1133
Smith, Thomas T., London, England. Electric-circuit connection	311,616	Feb. 3	208	59	30	388
Smith, Thomas T., London, England. Portable electric lamp	311,617	Feb. 3	211	59	30	388
Smith, Thomas T., London, England. Hanging balanced electric lamp	312,394	Feb. 17	1282	354	30	603
Smith, Uzziel P., Chicago, Ill. Elevator	314,736	Mar. 31	2288	607	30	1253
Smith, Warren S., Hainesburg, N. J. Wagon-brake	313,115	Mar. 3	100	26	30	795
Smith, Will P. (See Fowle, Christopher, and Smith.)						
Smith, William, San Francisco, Cal. Water-closet	314,617	Mar. 31	2133	568	30	1224
Smith, William D., Pittsburg, Pa. Alarm-clock	311,540	Feb. 3	110	33	30	370
Smith, William F., and W. W. Adams, Ozark, Ark., said Smith assignor to said Adams. Baling-press	311,266	Jan. 27	1481	405, 406	30	293
Smith, William T., Bozeman, Ala. Lumber-stacker	310,232	Jan. 6	89	23, 24	30	19
Smith's Suspension Carriage Wheel Company. (See Smith and Schad, assignors.)						
Smitten, Thomas W. F., Brooklyn, N. Y. Button	312,770	Feb. 24	1785	492	30	705
Smolley, James L., Tipton, Ind. Fence-post	312,584	Feb. 17	1470	402	30	636
Smyth, David M., assignor to Smyth Manufacturing Company, Hartford, Conn. Book-sewing	314,737	Mar. 31	2289	608	30	1253
Smyth Manufacturing Company. (See Smyth, David M., assignor.)						
Snape, Thomas, Pawtucket, R. I. Nut-trimming machine	312,031	Feb. 10	777	212	30	500
Sneider, Robert, Brooklyn, N. Y. Envelope	311,208	Jan. 27	1393	380	30	277
Snell, Adolphus G., New Haven, Conn. Canopy-holder for children's carriages	312,395	Feb. 17	1284	355	30	603
Snell, Theodore. (See Palmer, Eli J., assignor.)						
Snelson, William H., assignor of seven-sixteenths to G. Judge, Chicago, Ill. Pulley-sheave	312,668	Feb. 24	1651	456	30	681
Snodgrass, James H., Midlinburg, Pa. Side spring for vehicles	312,174	Feb. 10	980	267	30	537
Snow, Fred P. (See Poole and Snow.)						
Snow, George B., assignor to Buffalo Dental Manufacturing Company, Buffalo, N. Y. Inhaler	312,771	Feb. 24	1786	493	30	705
Snow, Gilbert B. (See Randall and Snow.)						
Snyder, Benjamin F., Middleburg, assignor of one-half to H. S. Fuss, Franklin County, Pa. Ironing-table	311,384	Jan. 27	1652	451	30	324
Snyder, George G., Middagha, Pa. Horseshoe-block	314,890	Mar. 31	2518	667	30	1295
Snyder, Rufus. (See Frear, Moses, assignor.)						
Snyder, William H., Waynesborough, Pa. Saw-mill dog	314,071	Mar. 17	1403	366	30	1055
Snyder, William H., Waynesborough, Pa. Traction-engine	314,072	Mar. 17	1404	366	30	1055
Société Anonyme La Teinturerie Stephanoise. (See Corron, César, assignor.)						
Société des Fonderies et Forges de Terre-Noire. (See Hope and Ripley, assignors.)						
Société Générale des Téléphones. (See Berthon, Louis A., assignor.)						
Société Industrielle. (See Chopard, Albert, assignor.)						
Sohmemann, Friedrich, Philadelphia, Pa. Elevated railway and bridge	314,728	Mar. 31	2279	605	30	1251
Solar Gas Light and Heating Company. (See McClellan, Oscar D., assignor.)						
Somers Bros. (See Atkinson, William H., assignor.)						
Somerville, William, St. Louis, Mo. Manufacture of glass pendants	314,069	Mar. 17	1401	365	30	1055
Souler, Frank, Peoria, Ill. Spirit-condenser	310,963	Jan. 20	1044	284	30	205
Soper, Walter A. (See McKinney and Soper.)						
Sörenson, Jeppe J. A., Erie, Pa. Mangle	314,269	Mar. 24	1667	443	30	1112
Souders, Norton. (See Souders, Smith, Craighead, and Souders.)						
Souders, Peter, C. Smith, H. M. Craighead, and N. Souders, Riegleville, N. J. Bleaching compound for jute paper-stock, &c.	312,525	Feb. 17	1471	.....	30	636
Sourwine, John D., and J. A. Carpenter, assignors to Model Cuff Adjusting Company, Brazil, Ind. Cuff and sleeve holder and adjuster	312,032	Feb. 10	778	212	30	500
South Bend Iron Works. (See Casaday, William L., assignor.)						
Souther, Charles H. (See Murphy, James, assignor.)						
Southern Cotton Picking Company. (See Haselton, Daniel B., assignor.)						
Southwick, Thomas A., assignor to himself and M. C. Alexander, Brockton, Mass. Floor-clamp	312,526	Feb. 17	1471	403	30	636
Souvielle, Mathieu, Paris, France. Respirator	314,070	Mar. 17	1402	366	30	1055
Spalding, William J., Lockport, N. Y. Combined garden-drill and seed-sower	311,385	Jan. 27	1653	451, 452	30	324
Spangler, Harrison D., Rushville, Ind. Plow-handle	311,790	Feb. 3	427	115	30	428
Sparks, William E., assignor to Sargent & Co., New Haven, Conn. Reversible latch	312,916	Feb. 24	1077	540	30	738
Sparks, William E., assignor to Sargent & Co., New Haven, Conn. Reversible latch	312,917	Feb. 24	1079	540	30	738
Sparks, William E., assignor to Sargent & Co., New Haven, Conn. Reversible latch	314,738	Mar. 31	2290	608	30	1253
Spear, Henry A., Charlestown, and A. P. Wight, Jr., North Adams, assignors to themselves, H. C. Brownell, Newtonville, and F. Brownell, Newton, Mass. Smoke-consumer for locomotives, stationary boilers, furnaces, and stoves	310,920	Jan. 20	978	266	30	194
Spear, Samuel S., South Weymouth, Mass. Sewing-machine guide	314,270	Mar. 24	1667	444	30	1112
Speer, Carl and W., Baltimore, Md. Car-coupling	310,327	Jan. 6	229	63	30	44
Speer, James B. (See Ross, James C., assignor.)						
Speer, William. (See Speer, Carl and W.)						
Speir, William E., Augusta, Ga. Perspective delineator for drafting	312,175	Feb. 10	981	268	30	537
Spencer, David E., *et al.* (See Kearney, Frank B., assignor.)						
Spencer, Edward E., New York, N. Y. Jack for heel-burnishing machines	310,470	Jan. 6	389	108	30	75
Spencer, George H., *et al.* (See Hodges, Horace F., assignor.)						
Spencer, George N., Jackson, Mich. Magazine fire-arm	310,328	Jan. 6	231	63	30	44
Spencer, Henry P., Forestville, N. Y. Step-ladder	313,690	Mar. 10	679	229	30	951
Spencer, Sherman A., St. Louis, Mo. Card-feeding attachment for printing-presses	314,203	Mar. 17	1575	417	30	1086
Spencer, William B., Terre Haute, Ind. Inhaler	314,485	Mar. 24	1961	524	30	1167
Spielman, George D., Cincinnati, Ohio. Snap-hook	311,791	Feb. 3	427	116	30	428
Spilger, John P., Buffalo Prairie, Ill. Churn	314,073	Mar. 17	1405	366	30	1055
Spitznagel, Frank X., Buffalo, N. Y. Filter	312,527	Feb. 17	1472	403	30	637
Spitznass, William, New Athens, Ill. Hobby-horse	314,351	Mar. 24	1778	473	30	1133
Spooner, Marshall A., *et al.* (See Angell, Ransom S., assignor.)						
Sprague, Charles D. (See Sprague, Dudley D., C. D., and P. J.)						
Sprague, Dudley D., California, C. D. Sprague, Chilhowee, and P. J. Sprague, Higbee, Mo.; said C. D. Sprague assignor to said Dudley D. and P. J. Sprague. Straw-stacker	311,209	Jan. 27	1394	381	30	277
Sprague, Dudley D., California, C. D. Sprague, Chilhowee, and P. J. Sprague, Higbee, Mo.; said C. D. Sprague assignor to said Dudley D. and P. J. Sprague. Straw-stacker for thrashing-machines	311,210	Jan. 27	1396	382	30	277

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Sprague, Frank J., New York, N. Y. Regulator for electro-dynamic motors	313,247	Mar. 3	315	78	30	834
Sprague, Frank J., New York, N. Y. Electro-dynamic motor	313,546	Mar. 10	695	182	30	915
Sprague, Frank J., New York, N. Y. Electrical indicator	314,891	Mar. 31	2519	667	30	1206
Sprague, Frederick E. (See Patton and Sprague.)						
Sprague, Pearley J. (See Sprague, Dudley D., C. D., and P. J.)						
Spray, William R., Ingraham, Ill. Wagon-tongue support	314,074	Mar. 17	1406	367	30	1056
Spring, Menzo, San Francisco, Cal. Artificial-leg cord	312,396	Feb. 17	1285	355	30	603
Springer, Alfred. (See Roeder and Springer.)						
Springer, Alfred, Cincinnati, Ohio, assignor to Torsional Balance and Scale Company, of Ohio. Balance	310,545	Jan. 6	406	137	30	95
Springer, Alfred, and F. A. Roeder, Cincinnati, Ohio. Balance	310,471	Jan. 6	390	108	30	75
Springer, Theodore G., New York, N. Y. Process of and apparatus for manufacturing gas	314,739	Mar. 31	2201	608	30	1253
Springer, Theodore G., and G. W. Jeremy, New York, N. Y.; said Jeremy assignor to said Springer. Apparatus for the manufacture of gas	314,400	Mar. 24	1838	490	30	1145
Springer, Theodore G., and G. W. Jeremy, New York, N. Y.; said Jeremy assignor to said Springer. Manufacturing gas	314,486	Mar. 24	1902	523	30	1167
Springfield Brass Company. (See Zimmerman, John E., assignor.)						
Springfield Engine and Thresher Company. (See Kelly and Dieter, assignors.)						
Springstun, Nelson E., Detroit, Mich. Horse-shield	311,267	Jan. 27	1483	406	30	293
Sprinkel, Joseph M., Sterling, Ill. Dust-collector	313,022	Feb. 24	2134	581	30	766
Spruce, James, assignor to Scovill Manufacturing Company, Waterbury, Conn. Copper-covered wire	314,618	Mar. 31	2134	568	30	1225
Spurrier, Jennie, Springfield, Ill. Adjustable fastener for mosquito-bars	313,116	Mar. 3	102	26	30	795
Spyer, Joseph, and R. S. Ingalls, Newton, Kans. Dental plate	310,233	Jan. 6	91	24	30	20
Squier, Horace S., Newark, N. J. Bridle-bit	312,397	Feb. 17	1286	355	30	603
Squire, Charles R., Brooklyn, N. Y., assignor of one-half to J. F. Hotchkiss, Plainfield, N. J. Preparing ores for amalgamation and desulphurizing the same	312,586	Feb. 17	1549	.....	30	652
Squire, Charles R., New York, N. Y., assignor of one-half to J. F. Hotchkiss, Plainfield, N. J. Treatment of ores for amalgamation	312,587	Feb. 17	1549	.....	30	652
Squires, John, Troy, N. Y. Collar	313,547	Mar. 10	697	182	30	916
Srygley, George O. C., Barton, Ala. Plow	312,398	Feb. 17	1286	356	30	603
Stacker, John, assignor to Winsted Norway Bolt Company, West Winsted, Conn. Machine for heading bolts	312,399	Feb. 17	1287	356	30	603
Staeber, Theodor. (See Stange and Staeber.)						
Stafford, Frank, Auburn, N. Y. Harvesting-knife	311,792	Feb. 3	429	116	30	429
Stafford, Orlando C. (See Lang and Stafford.)						
Staley, James M., Womelsdorf, Pa. Car-coupling	313,548	Mar. 10	698	182	30	916
Stambaugh, George W., Troy, Ill. Stump-extractor	314,619	Mar. 31	2135	568	30	1225
Standard Lighting Company. (See Davis, Zebulon, assignor.)						
Standard Time Company. (See Lund, John A., assignor.)						
Stanford, Arthur L., Fort Hill, Ill. Friction-clutch	312,400	Feb. 17	1290	356	30	604
Stange, Friederich, and T. Staeber, Ellinwood, Kans. Cultivator	311,269	Jan. 27	1484	407	30	294
Stanley Rule and Level Company. (See Mead, Charles L., assignor.)						
Stanley, William, Jr., Englewood, N. J. Thermal cut-out	310,472	Jan. 6	392	109	30	76
Stanley, William, Jr., Englewood, N. J. Apparatus for charging and discharging secondary batteries	313,117	Mar. 3	102	26	30	795
Stanley, William, Jr., Pittsburg, Pa. Armature for dynamo-electric machines	313,894	Mar. 17	1170	305	30	1011
Stansbury, Alfred D., Colliers, W. Va. Siphon	314,487	Mar. 24	1906	523	30	1167
Stanwood, James B., assignor to Lane & Bodley Company, Cincinnati, Ohio. Valve-rod connection	313,961	Mar. 17	1272	332	30	1030
Star Iron Tower Company. (See O'Beirne, William H., assignor.)						
Starbird, Walter H. (See Sheldon, Mark A., assignor.)						
Staring, De Witt. (See Cook, Shoota, and Staring.)						
Stark, Isidor, New York, N. Y. Attachment for pants	312,033	Feb. 10	779	212	30	501
Starr Electric Storage Company. (See Starr, Eli T., assignor.)						
Starr, Eli T., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Electric mouth and throat illuminator	313,782	Mar. 10	1009	261	30	974
Starr, Eli T., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Electric illuminator for the mouth and similar purposes	313,783	Mar. 10	1011	261	30	974
Starr, Eli T., Philadelphia, Pa., assignor to Star Electric Storage Company, Camden, N. J. Secondary battery or electric accumulator	314,892	Mar. 31	2521	668	30	1296
Starr, Eli T., and L. Teal, assignors to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Head-rest for chairs	313,781	Mar. 10	1007	260	30	973
Starr, John F., Jr., Camden, N. J. Manufacturing sheet-metal pipe	312,301	Feb. 17	1159	317	30	579
Starrett, David J., Thomaston, Me., assignor of one-half to J. Ruggles, Cambridgeport, Mass. Paint-mixer	314,546	Mar. 24	2039	544	30	1180
Startzman, George W. (See Clark, Alfred D., assignor.)						
Startzman, George W. (See Mast, Startzman, and Clark.)						
Staunton, J. Galusha, Ellicottville, N. Y. Assembling-bolt	314,075	Mar. 17	1407	367	30	1056
Staunton, J. Galusha, Ellicottville, N. Y. Roof	314,076	Mar. 17	1408	367	30	1056
St. Clair, Robert, Veedersburg, Ind. Side bar for buggies	314,077	Mar. 17	1409	368	30	1057
Stead, James C., Brooklyn, N. Y. Steam-generator	311,450	Jan. 27	1735	473	30	339
Stearns & Co., E. C. (See Seely, Obadiah, assignor.)						
Stearns & Co., E. C. (See Warner, Warren E., assignor.)						
Stebbins, James H., Jr., New York, N. Y. Red coloring-matter	313,118	Mar. 3	106	.....	30	796
Stebbins, Nathan M., assignor of one-half to E. Shaw, Wales, Mass. Valve	313,549	Mar. 10	699	183	30	916
Steele, Charles R., *et al.* (See Wilson, Merrick F., assignor.)						
Steele, Herbert B., Somerville, Mass. Lathe and planer tool	312,034	Feb. 10	780	313	30	501
Steele, Oliver. (See Atkin, Samuel T., assignor.)						
Steele, Ransom, assignor of one-half to A. M. Hyde, New Britain, Conn. Marking-gage	310,964	Jan. 20	1046	284	30	206
Steele, Sylvanus W. (See Milliron, Jacob, Jr., assignor.)						
Steele, William B., Berlin, Minn. Draft-equalizer	311,042	Jan. 20	1154	314	30	222
Steen, Theodore J., Oakland, Nebr. Chimney-cap	312,918	Feb. 24	1980	540	30	738
Steers, William, Brattleborough, Vt. Bench-plane	310,473	Jan. 6	393	109	30	76
Steinway, C. F. Theodor, New York, N. Y. Piano-frame	314,740	Mar. 31	2294	608	30	1254
Steinway, C. F. Theodor, New York, N. Y. Piano-pedal	314,741	Mar. 31	2295	609	30	1254
Steinway, C. F. Theodor, New York, N. Y. Piano-frame	314,742	Mar. 31	2296	609 610	30	1254
Stelle, Randolph M., *et al.* (See Beach, William W., assignor.)						
Stellwagen, Michael F., and A. E. Lytle, St. Ignace, Mich. Mail-bag	313,630	Mar. 10	804	211	30	935
Stempel, Omar A., assignor of one-half to M. S. Barnett, St. Louis, Mo. Argand-lamp-wick trimmer	314,743	Mar. 31	2299	610	30	1255
Stephens, Richard, Albany, N. Y. Cover for fruit-baskets	311,211	Jan. 27	1597	382	30	277

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Stephenson, Albert, *et al.* (See Mellum, Olo H., assignor.)						
Stephenson, Alvin E., Charlestown, Ohio. Fence-post	312,919	Feb. 24	1981	541	30	738
Stephenson, John, New York, N. Y. Car-body truss	311,541	Feb. 3	114	33	30	370
Stephenson, William, Jordan, Ontario, Canada. Boiler and straw-burning furnace	310,740	Jan. 13	744	202	30	147
Stern, Aaron D., Chicago, Ill. Printer's rule	312,302	Feb. 17	1161	317	30	579
Sternberg, William, Cicero, N. Y. Tobacco-transporting rack. (Reissue)	10,560	Feb. 10	1069	294	30	554
Stetson, Amos H., Brookline, Mass. Apparatus for actuating the lever of a railway-signal	313,895	Mar. 17	1171	305	30	1011
Stetson, Amos H., Brookline, assignor to C. B. Wheelock, Braintree, Mass. Card or print hanger	312,035	Feb. 10	780	213	30	501
Stetson, George R., assignor to himself and Morse Twist Drill and Machine Company, New Bedford, Mass. Machine for making twist-drills	312,401	Feb. 17	1292	356 357	30	604
Stetson, George R., assignor to himself and Morse Twist Drill and Machine Company, New Bedford, Mass. Reamer	312,920	Feb. 24	1982	541	30	738
Stetson, Joseph B., Lincoln, Me. Lantern	314,744	Mar. 31	2299	610	30	1255
Stevens, Ambrose B., *et al.* (See Maguire, John, assignor.)						
Stevens, Edgar B. (See Hoffman, William M., assignor.)						
Stevens, Frank W., Lowell, Mass. Door-mortising machine	312,669	Feb. 24	1652	456	30	681
Stevens, Harley M., Bismarck, Dak. Ter. Tag	314,620	Mar. 31	2136	569	30	1225
Stevens, James F. (See Gesner and Stevens.)						
Stevens, John S., and C. G. Major, Battersea, county of Surrey, and T. W. Barber, Ulverstone, county of Lancaster, England. Hydraulic lift	312,921	Feb. 24	1983	541	30	739
Stevens, John S., C. G. Major, Battersea, county of Surrey, and T. W. Barber, Ulverston, county of Lancaster, England. Hydraulic lift	313,550	Mar. 10	700	183	30	916
Stevens, Samuel F., North Adams, Mass. Railway passenger-tariff and distance guide-book	310,329	Jan. 6	233	64	30	44
Stevens, Samuel F., North Adams, Mass. Railway time-table and distance guide-book	310,330	Jan. 6	234	64	30	45
Stevens, William E., San Francisco, Cal. Chimney for dwelling-houses	311,149	Jan. 20	1307	360	30	255
Stevens, William X., Washington, D. C. Hose-guard for railways	310,331	Jan. 6	236	64	30	45
Stevenson, James. (See Price and Stevenson.)						
Stevenson, James N., Salvisa, Ky. Weeding and thinning device for growing plants	313,631	Mar. 10	806	211	30	936
Stevenson, Robert A., New York, N. Y. Lantern	314,271	Mar. 24	1609	444	30	1113
Stevenson, Samuel J., Philadelphia, Pa. Lubricator	310,741	Jan. 13	745	202	30	147
Stevenson, Thomas H., Greensburg, Ind. Tool for corrugating rolls	312,922	Feb. 24	1985	542	30	739
Stevenson, William H. H., Baltimore, Md. Can-filling machine	314,372	Mar. 24	1779	473	30	1134
Steward, John F., Chicago, Ill. Harvester-covering	311,542	Feb. 3	115	33, 34	30	371
Steward, John F., and R. H. Dixon, Chicago, Ill. Harvester-binder	314,272	Mar. 24	1670	444	30	1113
Stewart, David P., Buffalo, N. Y. Pump	314,076	Mar. 17	1410	368	30	1057
Stewart, Frederick W., Oswego, N. Y. Darning attachment for sewing-machines	312,923	Feb. 24	1985	542	30	739
Stewart, James, Jr. (See Bynon and Stewart.)						
Stewart, James, Detroit, Mich. Adjustable stove-pipe hanger and fastener	312,924	Feb. 24	1986	542	30	739
Stewart, Robert D. (See Linton and Stewart.)						
Stewart, Wesley H., Louisa, Ala. Churn	313,248	Mar. 3	318	78	30	834
Stewart, William W., Brooklyn, N. Y. Fountain-pen	314,547	Mar. 24	2040	544	30	1180
Stickney, Allison M., Watertown, Mass. Throttle-valve lever	313,896	Mar. 17	1172	306	30	1012
Stiles, Albert, Jackson, Mich. Bustle	311,269	Jan. 27	1484	407	30	294
Stiles & Parker Press Company. (See Fladd, Frederick C., assignor.)						
Stiles, Samuel H. (See Hungerford and Stiles.)						
Stillman, Albert A., Syracuse, N. Y. Dental tool rack and case	313,382	Mar. 3	480	126	30	866
Stillson, Daniel C., Somerville, Mass. Automatic fire-extinguisher	311,088	Jan. 20	1223	335	30	240
Stilwell, Rickason, New York, N. Y. Material for filling mattresses	312,036	Feb. 10	781	.....	30	501
Stimpson, Edwin B. (See Jefferson, William E., assignor.)						
Stimpson, Edwin B., Brooklyn, N. Y. Perforating-machine	313,383	Mar. 3	481	126	30	866
Stivers, Charles E. (See King and Stivers.)						
St. John, George B. Boston, Mass. Escapement	313,902	Mar. 17	1273	332	30	1030
St. John, Henry, Hartford, Conn. Safety-pin	313,691	Mar. 10	880	229	30	951
St. John, William P. (See Pessenger, John S., assignor.)						
Stock, Charles F., Peoria, Ill. Apparatus for the manufacture of flying targets	313,119	Mar. 3	106	26	30	796
Stock, Charles F., Peoria, Ill. Flying target	313,120	Mar. 3	107	27	30	796
Stock, Charles F., deceased; N. G. Moore, administrator, and assignor to E. H. Walker, Peoria, Ill. Flying target	314,745	Mar. 31	2300	611	30	1255
Stocks, John G., San Francisco, Cal. Two-wheeled vehicle	310,621	Jan. 13	590	163	30	119
Stockwell, Emory, assignor to Yale & Towne Manufacturing Company, Stamford, Conn. Time-lock	312,925	Feb. 24	1987	542 543	30	740
Stockwell, George E., Marblehead, Mass. Leather-skiving machine	310,742	Jan. 13	746	202 203	30	148
Stoddard & Co., J. W. (See Stoddard, E. Fowler, assignor.)						
Stoddard, E. Fowler, Dayton, Ohio. Wheel-harrow	312,772	Feb. 24	1782	493	30	705
Stoddard, E. Fowler, assignor to J. W. Stoddard & Co., Dayton, Ohio. Horse hay-rake	314,621	Mar. 31	2137	569	30	1225
Stoddard, E. Fowler, assignor to J. W. Stoddard & Co., Dayton, Ohio. Horse hay-rake	314,622	Mar. 31	2140	570	30	1225
Stoddard, E. Fowler, assignor to J. W. Stoddard & Co., Dayton, Ohio. Horse hay-rake	314,623	Mar. 31	2142	570	30	1226
Stoddard, E. Fowler, assignor to J. W. Stoddard & Co., Dayton, Ohio. Horse hay-rake	314,624	Mar. 31	2145	570 571	30	1226
Stoddard, Oscar, Detroit, Mich. Calipers and dividers	314,625	Mar. 31	2148	571	30	1227
Stoddard, Sylvester S., and O. Terwilliger, Detroit, Mich. Roller coasting device	314,626	Mar. 31	2149	571	30	1227
Stollwerck, Gebr. (See Stollwerck, Heinrich, assignor.)						
Stollwerck, Heinrich, assignor to Gebr. Stollwerck, Cologne-on-the-Rhine, Prussia, Germany. Purifying feed-water in steam-boilers	313,838	Mar. 10	1086	282 283	30	987
Stoltz, David, San Francisco, Cal. Hair-dye	313,121	Mar. 3	108	.....	30	797
Stone, Charles M., Belton, Tex. Baling-press	313,551	Mar. 10	701	183 184	30	917
Stone, Elijah. (See Stone, Levi, assignor.)						
Stone, Levi, St. Mary's, Ohio, assignor of one-half to E. Stone, Chicago, Ill. Meat-tenderer	311,451	Jan. 27	1737	473	30	340
Stone, William H., assignor of one-half to E. Dunning, Bethel, Ohio. Fender for plows	311,857	Feb. 3	512	139	30	445
Stoney Landing Company. (See Walker, C. Irvine, assignor.)						
Storner, Jerome, Moline, Ohio. Hay-rack	314,746	Mar. 31	2301	611	30	1255
Story, Albert G. (See Candee, Charles E., assignor.)						
Stouffer, Hiram C., Cortland, Ohio, assignor to C. C. Trout, Sharon, Pa. Combined lock, latch, and hasp	312,926	Feb. 24	1990	543	30	740
Stout, A. L., *et al.* (See Bennett, Thomas H., assignor.)						
Stout, Herbert, *et al.* (See Heesen, Hendrick, assignor.)						
Stout, James A., assignor to Harrison Machine Works, Belleville, Ill. Valve-gear	310,743	Jan. 13	747	203	30	148
Stout, Mills & Temple. (See Galloway, James W., assignor.)						
Stout, Nathan. (See Mertz and Lorton, assignors.)						
Stover Manufacturing Company. (See Ziegler, Oscar J., assignor.)						
Stowell, John W., Putney, Vt. Folding table	313,632	Mar. 10	806	211	30	936

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Strain, Ebenezer W., Allegheny, assignor to himself, and R. P. Crawford, Lower Burrell township, Westmoreland county, Pa. Refining, reducing, and separating hydrocarbon oils	311,543	Feb. 3	116	34	30	371
Strait, Celestia L. (See Strait, William, assignor.)						
Strait, William, Elmira, N. Y., assignor to C. L. Strait. Hillside-plow	313,122	Mar. 3	109	27	30	797
Stranders, Walter, New York, N. Y., assignor to P. G. Thomson, Cincinnati, Ohio. Building toy	311,793	Feb. 3	431	116	30	429
Strathy, Matilda F., London, Ontario, Canada. Carpet-fastener	312,402	Feb. 17	1293	357	30	604
Stratton Separator Company. (See Pratt, Nathaniel W., assignor.)						
Straus, Jacob, St. Louis, Mo. Sweat-pad for horse-collars	313,963	Mar. 17	1274	332	30	1030
Straw, George, assignor of two-thirds to S. W. Harvey and J. Gregg, Constantine, Mich. Shifting-rail for vehicles	310,474	Jan. 6	393	109	30	76
Straw, Herman F., Manchester, N. H. Preparing colored yarn for filling	313,123	Mar. 3	109	.....	30	797
Straw, Herman F., Manchester, N. H. Mechanism for winding yarns upon shuttle bobbins or quills	313,124	Mar. 3	111	27	30	797
Stream, Edgar L., New Orleans, La. Locomotive	314,747	Mar. 31	2302	611	30	1256
Streator, Harry E. (See Haskell, John T., assignor.)						
Streeter, Herbert A. (See Amet, Edward H., assignor.)						
Streit, Charles, Cincinnati, Ohio. Sofa-bed	312,927	Feb. 24	1091	544	30	740
Stringham, Charles W., Brooklyn, N. Y. Car-brake	310,965	Jan. 20	1047	284	30	906
Strong, David A., *et al.* (See Strong, Henry C., assignor.)						
Strong, Eli, Kalamazoo, Mich. Pressure-indicator for roller-mills	311,927	Feb. 10	625	173	30	473
Strong, Francis A., Colebrook, Wis. Drag-saw	314,152	Mar. 17	1513	396	30	1074
Strong, Frederick S., assignor to Carver Cotton Gin Company, East Bridgewater, Mass. Saw-cylinder for cotton-seed linters and gins	314,748	Mar. 31	2303	611 612	30	1256
Strong, George S., Philadelphia, and A. Mitchell, Wilkes-Barré, Pa. Car-truck	312,928	Feb. 24	1092	544 545	30	740
Strong, Henry C., assignor of eleven-fifteenths to D. A. Strong and H. P. Caldwell, Chicago, Ill. Combined telegraphic relay and telephone	312,670	Feb. 24	1054	456	30	681
Strong, Joel, College Hill, Ohio. Trace-holder	311,686	Feb. 3	298	81	30	405
Strong, Joseph J., St. Paul, Minn. Hotel-car	313,454	Mar. 3	581	149	30	885
Strong, Sutton, Harmony, Ind. Transom-operator	312,294	Feb. 10	1044	286	30	549
Strong, William C., Readfield, Me. Gas-machine	311,858	Feb. 3	513	139	30	445
Strott, Adam, New Brunswick, N. J. Grain-winnower	312,929	Feb. 24	1093	545	30	741
Strouse, Edward, New Haven, Conn. Hoop-skirt	311,859	Feb. 3	515	139	30	445
Strouse, William, *et al.* (See Ginter, William P., assignor.)						
Stryker, John C. (See Murray and Stryker.)						
Stubbe, John, Pittsburg, Pa., assignor to H. B. Scott & Co., (limited.) Device for converting motion	312,773	Feb. 24	1791	494	30	706
Stumpe, John H. (See Kemper and Stumpe.)						
Styne, Nicholas, Brooklyn, N. Y. Faucet	313,249	Mar. 3	319	78	30	834
Snell, Augustus E., assignor of two-thirds to J. B. Montague and J. T. Booker, Franklin, Ky. Wagon-axle	314,981	Mar. 31	2650	701	30	1317
Suess, Max, Chicago, Ill. Making ornamental and other designs in relief	313,029	Feb. 24	2136	.....	30	766
Suhr, William M., New York, N. Y. Sectional non-conductive covering for tubes	312,017	Feb. 10	782	213	30	501
Sullivan, Cornelius J., Fall River, Mass. Cloth-guide for looms	313,633	Mar. 10	807	211	30	936
Sullivan, James F., Fitchburg, Mass. Water-motor	313,030	Feb. 24	2137	591	30	766
Sullivan, Timothy C. (See Munroe and Sullivan.)						
Summerson, Junius R., Dublin, assignor of one-half to D. T. Martin, Pulaski P. O., Va. Pulverizing attachment for plows	314,982	Mar. 31	2650	701	30	1317
Summerville, Thomas. (See Olmstead, David B., assignor.)						
Sumner, William P., Mooresville, Ind. Dumping-wagon	313,125	Mar. 3	114	28	30	797
Suppes, Maximillian M. (See Hunt and Suppes.)						
Susemihl, Francis G., Detroit, Mich. Car-bearing	311,618	Feb. 3	212	60	30	388
Sustaire, John T., Matthews, assignor of one-half to J. E. Black, Mecklenburg County, N. C. Car-coupling	313,455	Mar. 3	583	150	30	885
Sutherland, George C. (See Keith and Sutherland.)						
Sutton, Charles, San Francisco, Cal. Stamping margins for cement pavements, &c	312,225	Feb. 10	1045	286	30	549
Swain, Appleus C., Chico, Cal. Gas-retort	310,744	Jan. 13	749	203	30	148
Swain, Fred F., assignor of one-half to G. W. Tilton, Chicago, Ill. Crank-pin lubricator	313,964	Mar. 17	1275	333	30	1030
Swain, Fremont, Indianapolis, Ind. Bicycle	311,687	Feb. 3	296	81	30	405
Swan, Alfred, Low Fell Works, Gateshead-on-Tyne, England. Holder for incandescent electric lamps	313,965	Mar. 17	1276	333	30	1031
Swan, James, Seymour, Conn. Machine for the manufacture of auger-bits	313,456	Mar. 3	584	150	30	885
Swan, Joseph W., Newcastle-upon-Tyne, county of Northumberland, assignor to Electrical Power Storage Company, (limited,) London, England. Secondary battery	312,599	Feb. 17	1565	427	30	655
Swanson, John, Mendota Ill. Pedal attachment for organs	311,688	Feb. 3	300	82	30	405
Swartz, Francis M., Jacksontown, Ohio. Sheep-stock	312,403	Feb. 17	1293	357	30	605
Swartzwelder, Harrison, *et al.* (See Allfree, James B., assignor.)						
Sweatt, Francis V. (See Sweatt, James J., G. H., and F. V.)						
Sweatt, George H. (See Sweatt, James J., G. H., and F. V.)						
Sweatt, James J., G. H., and F. V., Conversville, Tenn. Seed-drill	313,250	Mar. 3	320	79	30	834
Sweatt, Leavitt L., Manchester, N. H. Stop-motion for spinning-frames	314,153	Mar. 17	1514	397	30	1075
Sweeney, Andrew J., Pana, Ill. Corn-cultivator	311,689	Feb. 3	301	82	30	405
Sweet, John E., assignor to T. Hooker, Syracuse, N. Y. Micrometer-gage	313,552	Mar. 10	702	184	30	917
Sweetland, Cornelius S. (See Ford, Franklin D., assignor.)						
Swenson, Bengt J., Sugar Land, Tex. End-gate fastener	314,154	Mar. 17	1515	397	30	1075
Swett, Quimby & Co. (See Quimby, Julius F., assignor.)						
Swett, William O., Normal Park, Ill. Staple-fastener for wooden vessels	314,204	Mar. 17	1576	417	30	1086
Swift, Alonzo. (See Parmerlee and Swift.)						
Swift, R. K., and L. E. Phelps, assignors of one-third to J. J. A. Zeller, Rochelle, Ill. Disk-harrow	310,475	Jan. 6	394	109 110	30	76
Swindell, William, Allegheny City, Pa. Gas-furnace	310,745	Jan. 13	750	204	30	148
Swing, Tilford C., Mason City, Ill. Piano-pedal attachment	311,043	Jan. 20	1154	315	30	228
Swinhart, William H. (See Mitchell, Oliver F., assignor.)						
Swoboda, M. (See Elder, Marcus, assignor.)						
Sword, Chancey N. (See Rice, Sword, and Wilder.)						
Sylvester, George. (See Michelson, Sigismund M., assignor.)						
Syme, Chapman J., Petersburg, Va. Machine for assorting peanuts, &c	314,749	Mar. 31	2304	612	30	1256
Symington, Robert B. (See Chichester, Lewis S., assignor.)						
Symington, William A., *et al.* (See Gill, Edwin R., Jr., assignor.)						
Symonds, Clarence M., San Francisco, Cal. Canister	311,690	Feb. 3	302	82	30	406
Synold, Alfred, Columbus, Ohio. Account-book	312,926	Feb. 10	1046	286	30	549

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Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Syracuse Belt Company. (See Colton, George A., assignor.)						
Syracuse Paper Ware Company. (See Leonard, Henry W., assignor.)						
Tabor, Anson, *et al.* (See Norris, Charles E., assignor.)						
Tack, M. A., *et al.* (See Clarke, William H., assignor.)						
Taets, John B. (See Galatian and Taets.)						
Taft, Charles E., assignor of one-half to C. V. Hickox, Chicago, Ill. Surveying-instrument	311,386	Jan. 27	1654	452	30	324
Taft, Ryland L., assignor to Illinois Watch Company, Springfield, Ill. Machine for ruling dials	312,227	Feb. 10	1047	287	30	549
Taggart, Francis S., Freeport, Ill. Pulley-block	313,553	Mar. 10	706	184	30	917
Tainter, William H. H., *et al.* (See Millard, Martin S., assignor.)						
Talbott, Jesse H., Nevada, assignor of one-half to L. Schooler, Des Moines, Iowa. School-desk	311,928	Feb. 10	626	173	30	477
Taliaferro, Ruben, and E. P. Mitchell, Hueneme, Cal. Two-wheeled vehicle	310,746	Jan. 13	752	205	30	149
Tallman, Charles H. (See Blankley and Tallman.)						
Tallman, Michael R., assignor of one-half to S. L. Foster, Philadelphia, Pa. Shutter-bower	314,750	Mar. 31	2305	612	30	1257
Tambling, William H., San Francisco, Cal. Churn	312,671	Feb. 24	1656	457	30	681
Tapling, Francis E., Mount Gilead, Ohio. Railway-chair	311,367	Jan. 27	1655	459	30	325
Tarbox, Frank T., Cedarville, Ohio. Dumping-wagon	313,126	Mar. 3	115	28	30	798
Tarkington, George. (See Rains and Tarkington.)						
Tarney, Simeon U., Auburn, Ind. Window-screen roller	311,044	Jan. 20	1155	315	30	228
Tatlow, Forrester M., Hannibal, Mo. Feed-regulator for roller-mills	314,627	Mar. 31	2150	572	30	1227
Tatum, J. W. (See Garrard, Samuel, assignor.)						
Taylor, Albert F., Pawtucket, R. I. Hub-cap	310,332	Jan. 6	238	65	30	45
Taylor, Edmund B., College Hill, Mass. Vehicle device for checking horses	313,697	Mar. 17	1173	306	30	1012
Taylor, George W. and S., Smyrna, Del. Wheel-cultivator	312,228	Feb. 10	1043	287	30	549
Taylor, Harrison H., assignor to F. A. Hubel, Detroit, Mich. Capsule-machine	311,860	Feb. 3	516	140	30	445
Taylor, Henry R., Oakland, Cal. Ore crusher and pulverizer	313,554	Mar. 10	708	184 185	30	918
Taylor, James S., Danbury, Conn. Machinery for scalding and felting hat-bodies	313,127	Mar. 3	116	28	30	798
Taylor, Robert H., Sheffield, county of York, England. Spring-packing for pistons and other analogous uses	313,251	Mar. 3	321	79	30	835
Taylor, Samuel. (See Taylor, George W. and S.)						
Taylor, Theodore F., Brooklyn, N. Y. Telephone-receiver	314,155	Mar. 17	1515	398	30	1075
Taylor, Theodore F., Brooklyn, N. Y. Telephone-receiver	314,156	Mar. 17	1517	398	30	1075
Taylor, Theodore F., Brooklyn, N. Y. Telephone-receiver	314,157	Mar. 17	1519	398	30	1076
Taylor, Thomas, assignor to Norwalk Lock Company, Norwalk, Conn. Door-key	313,692	Mar. 10	881	230	30	951
Taylor, Thomas P., Bridgeport, Conn. Fish-pole holder	314,751	Mar. 31	2306	613	30	1257
Taylor, Washington, Ponca, Nebr. Horse hay and manure fork	313,966	Mar. 17	1277	333	30	1031
Teagle, John, Cleveland, Ohio. Apparatus for freezing paraffine-oils	314,488	Mar. 24	1967	523	30	1168
Teal, Levi. (See Starr and Teal.)						
Teed, George, New York, N. Y. Banjo	313,384	Mar. 3	484	127	30	866
Teeter, Elijah R. H., White House Station, N. J. Revolving stand	312,528	Feb. 17	1473	403	30	637
Teetor, Abe L., Indianapolis, Ind. Grain-scourer	310,476	Jan. 6	396	110	30	76
Teller, Adalbert. (See Fabian and Teller.)						
Temple, John J., Kalamazoo, Mich. Ice-creeper	313,898	Mar. 17	1176	306	30	1012
Tener, George E. (See Witherow, Oliver, Wilcox, and Tener.)						
Tengvall, Axel O. (See Gorringe and Tengvall.)						
Tenney, Cornelius, assignor to C. Tenney Hardware Company, Brooklyn, N. Y. Rod for saw-frames	310,866	Jan. 13	898	243	30	175
Tenney Hardware Company, C. (See Tenney, Cornelius, assignor.)						
Terrell, Henry D., Covington, Ga. Convertible plow	310,333	Jan. 6	238	65	30	45
Terry, Andrew J., assignor of one-half to E. F. Adams, San Francisco, Cal. Bolting-reel	312,672	Feb. 24	1656	457	30	682
Terstegen, Fred, Elizabeth, N. J. Repeating attachment for watches	311,270	Jan. 27	1485	407	30	204
Terwilliger, Ora. (See Stoddard and Terwilliger.)						
Thacher, Edwin, Pittsburg, Pa. Bridge-truss	310,747	Jan. 13	753	205	30	149
Thackston, Richard D., assignor of one-half to H. I. Coe, St. Louis, Mo. Self-closing hatchway	311,089	Jan. 20	1226	335	30	240
Thackston, Richard D., assignor of one-half to H. I. Coe, St. Louis, Mo. Self-closing hatchway	311,090	Jan. 20	1226	336	30	240
Thackston, Richard D., assignor of one-half to H. I. Coe, St. Louis, Mo. Self-closing hatchway	311,091	Jan. 20	1227	336	30	240
Thatcher, Frederick B., Bridgeport, Conn., assignor to Aetna Stopper Company, Pawtucket, R. I. Bottle-stopper	313,253	Mar. 3	323	79	30	835
Thatcher, Thomas, Utica, N. Y., assignor of one-half to W. Dawson, Scranton, Pa. Car-axle end-bearing	313,252	Mar. 3	322	79	30	835
Thayer, Anson P., assignor to T. W. Hall, Brooklyn, N. Y. Die for making barbed strips	310,622	Jan. 13	591	163	30	119
Thayer, Anson P., assignor to T. W. Hall, Brooklyn, N. Y. Die for making barbed fencing	311,150	Jan. 20	1309	360	30	255
Thayer, Anson P., assignor to T. W. Hall, Brooklyn, N. Y. Die for making barbed fencing	312,404	Feb. 17	1294	357	30	605
Thayer, Anson P., assignor to T. W. Hall, Brooklyn, N. Y. Die for making barbed fencing	313,031	Feb. 24	2138	581	30	766
Thayer, Charles G., assignor of one-half to O. M. Gawne, Fredonia, N. Y. Bicycle	312,930	Feb. 24	1095	546	30	741
Thayer, Frank W., and A. S. Howell, Milwaukee, Wis. Journal-bearing	314,079	Mar. 17	1411	362	30	1057
Thayer, George B., Boston, Mass. Register for street-railway cars	310,921	Jan. 20	980	266 267	30	195
Thayer, Russell, Philadelphia, Pa. Disinfecting apparatus	311,271	Jan. 27	1496	406	30	296
Thiéry, Hector, Paris, France. Apparatus for propelling fluids	314,489	Mar. 24	1968	524	30	1168
Thomas, Anthony W., Bedford, Ind. Harrow	311,544	Feb. 3	118	35	30	371
Thomas, Charles. (See Combs, John, assignor.)						
Thomas Clock Company, Seth. (See Norton, Charles H., assignor.)						
Thomas, David S., North Platte, Nebr. Fire-escape	314,628	Mar. 31	2151	572	30	1227
Thomas, Eddy T., New York, N. Y., assignor to New Home Sewing Machine Company, Orange, Mass. Sewing-machine	310,477	Jan. 6	398	110	30	77
Thomas, Frederic R. H., Hudson, N. Y. Soda-water apparatus	312,588	Feb. 17	1550	422	30	653
Thomas, George C., Waterbury, Conn. Lamp-fixture	314,080	Mar. 17	1412	368	30	1057
Thomas, George N., *et al.* (See Brown, Hiram L., assignor.)						
Thomas, John. (See Lentz, David H., assignor.)						
Thomas, John H., Springfield, Ohio. Apparatus for bending metal bars	312,303	Feb. 17	1161	318	30	579
Thomas, John W., *et al.* (See Crocker, John B., assignor.)						
Thomas, Joseph W. (See Offutt, Joseph E., assignor.)						
Thomas, Joshua, Cleveland, Ohio. Apparatus for refining oils	314,490	Mar. 24	1969	524	30	1168
Thomas, Manly, Orlinda, Mo. Feed-rack	314,273	Mar. 24	1671	444	30	1113
Thomas, William, Brooklyn, N. Y. Steam-box for fixing dyes	314,629	Mar. 31	2153	572	30	1228
Thomas, William H., Fulton, Mo. Wagon-bed lifter	312,038	Feb. 10	782	213	30	501
Thomas, William M., assignor of one-half to Grand Rapids Electric Light and Power Company, Grand Rapids, Mich. Cut-out for electric lamps	312,529	Feb. 17	1474	403	30	637

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Thomas, William M., assignor of one-half to Grand Rapids Electric Light and Power Company, Grand Rapids, Mich. Circuit for systems of electric lighting	312,589	Feb. 17	1552	422	30	653
Thomas, William P., and E. J. Frost, Philadelphia, Pa. Insulated electrical conductor	312,402	Feb. 17	1295	358	30	605
Thompson, Charles, Allison, Iowa. Corn-planter	312,931	Feb. 24	1906	546	30	741
Thompson, Colin M., and C. R. Eberle, Brooklyn, N. Y. Electrical conductor	312,673	Feb. 24	1657	457	30	682
Thompson, Don S., assignor to West Haven Buckle Company, West Haven, Conn. Garter-slide	311,691	Feb. 3	304	83	30	406
Thompson, Henry G. (See Mower, Samuel E., assignor.)						
Thompson, James, Boston, Mass. Wind-guard for velocipede-boats	314,491	Mar. 24	1970	524	30	1168
Thompson, Jasper, Forest City, Iowa. Device for preventing horses getting their tails over the lines	313,254	Mar. 3	325	80	30	835
Thompson, John C., East Liverpool, Ohio. Lid for tea-pots, jugs, &c	310,478	Jan. 6	399	111	30	77
Thompson, Joseph W., assignor of one-half to Buckeye Engine Company, Salem, Ohio. Steam-engine governor	310,479	Jan. 6	400	111	30	77
Thompson, Joseph W., assignor of one-half to Buckeye Engine Company, Salem, Ohio. Steam-engine governor	314,353	Mar. 24	1781	474	30	1134
Thompson, La Marcus A., South Chicago, Ill. Roller coasting structure	310,966	Jan. 20	1048	285	30	207
Thompson, Mark, and J. Kucher, Athens, Pa. Animal-power	314,492	Mar. 24	1971	524 / 525	30	1168
Thompson, Robert H., Brooklyn, N. Y. Fabric for decoration	311,388	Jan. 27	1656	.....	30	325
Thompson, Robert H., Brooklyn, N. Y. Fabric for decoration	311,389	Jan. 27	1657	.....	30	325
Thompson, Robert H., Brooklyn, N. Y. Lining for carpets	311,390	Jan. 27	1658	.....	30	325
Thompson, William A. J. (See Grooms, James M., assignor.)						
Thomson, George, and W. Kemp, Elizabeth, N. J. Purifying sulphuric acid	314,548	Mar. 24	2041	.....	30	1181
Thomson-Houston Electric Company. (See Mailloux, C. Odilon, assignor.)						
Thomson, John. (See Barton and Thomson.)						
Thomson, Judson L. (See Unbehend, Jacob J., assignor.)						
Thomson, Judson L., *et al.* (See Unbehend, Jacob J., assignor.) (Reissue.)						
Thomson, Judson L., Syracuse, N. Y. Shoe-clasp	313,255	Mar. 3	325	80	30	835
Thomson, Judson L., Syracuse, N. Y. Attaching shoe-clasps	313,256	Mar. 3	327	80	30	835
Thomson, Judson L., Syracuse, N. Y. Spring-clasp	313,257	Mar. 3	327	81	30	835
Thomson, Judson L., and J. J. Unbehend, Syracuse, N. Y.; said Unbehend assignor to said Thomson. Shoe-clasp	313,385	Mar. 3	485	127	30	867
Thomson, Peter G. (See Stranders, Walter, assignor.)						
Thornton, Albert E., Atlanta, Ga. Treating oleaginous seeds for the extraction of oil	312,674	Feb. 24	1658	.....	30	682
Thornton, Amédée, Chelsea, county of Middlesex, assignor of one-half to W. Paine, 2 Garden Road, Clapham, county of Surrey, England. Bit for horses	314,081	Mar. 17	1412	369	30	1057
Thornton, John C., Mount Vernon, Ind. Apparatus for cleaning oils	313,693	Mar. 10	883	230	30	952
Thornton & Parham. (See Parham, George J., assignor.)						
Thoroughgood, John E., assignor of three-fourths to J. Wischart, Des Moines, and I. W. Johnson, Osceola, Iowa. Apparatus for heating street-cars and other vehicles	311,151	Jan. 20	1310	360 / 361	30	255
Thorp, Thomas, Whitefield, county of Lancaster, England. Gas-burner	314,630	Mar. 31	2155	573	30	1228
Throckmorton, John A., Sidney, Ohio. Folding bath-tub	314,752	Mar. 31	2307	613	30	1257
Thumshirn, George, assignor to Branford Lock Works, Branford, Conn. Sash-fastening	313,258	Mar. 3	328	81	30	836
Thurmond, William H., Forsyth, Ga. Car-coupling	313,386	Mar. 3	486	127	30	867
Tibbals, Layton S., Mission San José, Cal. Step-ladder	311,272	Jan. 27	1496	408	30	296
Tibbits, J. B. (See McCarty, Norman, assignor.)						
Tidgewell, William, Middletown, assignor to Meriden Malleable Iron Company, Meriden, Conn. Plane	312,229	Feb. 10	1049	287	30	549
Tidgewell, William, Middletown, assignor to Meriden Malleable Iron Company, Meriden, Conn. Joiner's plane	313,694	Mar. 10	884	230	30	952
Tiers, Cornelius, Madison, N. J., and J. H. Pendleton, Brooklyn, N. Y. Railway	311,045	Jan. 20	1156	315	30	228
Tiffany, Albert R., assignor of three-fourths to M. Neil and J. J. Leland, Dayton, Ohio. Screw-jack	313,967	Mar. 17	1278	333	30	1031
Tiffany & Co. (See Grosjean, Charles T., assignor.)						
Tiffany, Joel, Hinsdale, Ill. Machine for the manufacture of bricks	314,274	Mar. 24	1672	445	30	1113
Tilden, James A. (See Prentiss and Tilden.)						
Tillyer, James W., Newark, N. J. Whip-socket fastener	313,032	Feb. 24	2139	581	30	766
Tilton, George W. (See Swain, Fred F., assignor.)						
Tilton, Hubbard W., Boston, Mass. Car-coupling	314,275	Mar. 24	1675	445	30	1114
Tilton, Leonard, Brooklyn, N. Y. Shutter-worker	314,493	Mar. 24	1972	525	30	1169
Timby, Theodore R., Nyack, N. Y. Tower and shield system of fortifications	312,230	Feb. 10	1051	287 / 288	30	550
Timby, Theodore R., Nyack, N. Y. System of firing battery-guns in turrets by electricity	312,231	Feb. 10	1052	288 / 289	30	550
Timby, Theodore R., Nyack, N. Y. Revolving tower and shield system of fortifications	312,232	Feb. 10	1054	289	30	550
Timms, Harvey N., Stephenson County, Ill. Pole and shaft for vehicles	313,128	Mar. 3	117	28, 29	30	797
Tingley, Silvanus, Boston, Mass. Asbestus paper	310,334	Jan. 6	240	65	30	45
Tinker, George L., New Philadelphia, Ohio. Bee-hive	311,273	Jan. 27	1497	408	30	296
Tipney, Mary A., Janesville, Wis. Device for preserving fruits, &c	313,129	Mar. 3	119	29	30	798
Tippit, James A., Carroll's Prairie, Tex., assignor of one-half to G. W. Randolph, Memphis, Tenn. Bale-tie	314,753	Mar. 31	2308	613	30	1257
Tirrell, Jacob P., Boston, Mass. Electric signaling apparatus	313,784	Mar. 10	1013	261 / 262	30	974
Tobin, John F. (See Robertson and Tobin.)						
Tombs, Edward S. B., London, county of Middlesex, England. Show-box	314,893	Mar. 31	2324	608	30	1226
Toppan, James S., *et al.* (See Allen, Samuel F., assignor.)						
Torsional Balance and Scale Company. (See Springer, Alfred, assignor.)						
Totten, John E., North Attleborough, Mass. Button	311,794	Feb. 3	431	117	30	429
Tower, Abner J., Boston, Mass. Coat	310,922	Jan. 20	981	267	30	105
Tower, Abner J., Boston, Mass. Horseman's coat	313,130	Mar. 3	119	29	30	798
Tower, Ashley B., Holyoke, Mass. Machine for grinding pulp from wood	311,212	Jan. 27	1398	382 / 383	30	278
Tower, Caleb E. (See Meagher and Tower.)						
Tower, Daniel W., assignor to C. R. Leonard, Grand Rapids, Mich. Locking mechanism for doors	314,401	Mar. 24	1842	490	30	1146
Towle, George W., Jr., San Rafael, Cal. Hose-patch	312,406	Feb. 17	1296	358	30	605
Townsend, Eli C., New York, N. Y. Underground housing and insulation for electric conductors	310,748	Jan. 13	754	205 / 206	30	149
Townsend, Louis, Evansville, Ind. Combined annunciator and spring-jack	310,750	Jan. 13	756	206	30	149
Townsend, Louis, and R. W. Moore, Evansville, Ind. Combined spring-jack and annunciator	310,749	Jan. 13	755	206	30	149
Townsend, Samuel, Detroit, Mich. Cylinder-lubricator	313,033	Feb. 24	2140	582	30	766
Townsend, Samuel, Detroit, Mich. Lubricator	313,034	Feb. 24	2141	582	30	767

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Trabue, William, Louisville, Ky. Revolving fire-arm	314,494	Mar. 24	1974	525	30	1169
Trabue, William, Louisville, Ky. Revolving fire-arm	314,754	Mar. 31	2309	613	30	1257
Tracy, Christopher C., New York, N. Y. Machine for grading shot	310,335	Jan. 6	240	65, 66	30	46
Tracy, Frederick K., Chicago, Ill. Printer's form	314,495	Mar. 24	1975	525	30	1169
Tracy, George S., *et al.* (See Johnson, William F., assignor.)						
Tracy, John D., Sterling, Ill. Hay-tedder	313,555	Mar. 10	709	185	30	918
Tracy, Lewis W., Brooklyn, N. Y. Hand-power rock-drill	312,304	Feb. 17	1163	318	30	580
Tracy, Lewis W., Philadelphia, Pa. Rock-drilling machine	314,755	Mar. 31	2310	614	30	1257
Tracy, William P., Grand Rapids, Mich. Thill-coupling	310,480	Jan. 6	403	111	30	78
Trammell, Jefferson D., Auburn, Ala. Car-truck	314,402	Mar. 24	1843	491	30	1147
Trask, Adoniram J., Noblesborough, Me. Boot or shoe ventilator	311,046	Jan. 20	1157	315	30	228
Travis, Joseph B., *et al.* (See Phillips, Columbus, assignor.) (Reissue.)						
Treat, Francis H., assignor of one-half to H. S. Smith, Joliet, Ill. Rolling-mill for rolling leafed wire for the manufacture of barbed wire	314,082	Mar. 17	1415	369 / 370	30	1058
Treat, Francis H., assignor of two-thirds to H. S. Smith and C. Pettigrew, Joliet, Ill. Rolling-mill	314,083	Mar. 17	1416	370 / 371 / 372	30	1058
Tremont Nail Company. (See Walsh, John A., assignor.)						
Treat, Eugene F., Jersey City, N. J. Fishing-reel	313,695	Mar. 10	885	230	30	952
Trent, Eugene F., Jersey City, N. J. Lamp-burner	314,354	Mar. 24	1783	474	30	1134
Trenton Iron Company. (See Hewitt, William, assignor.)						
Trenton Iron Company. (See Withington, James, assignor.)						
Trew, Thomas J., Kirksville, Mo. Stove or heater	314,205	Mar. 17	1577	418	30	1086
Triller, Richard, assignor to J. T. Noye Manufacturing Company, Buffalo, N. Y. Tenoning and boring machine	312,530	Feb. 17	1475	404	30	637
Trimble, James M., Sedan, Kans. Ladder	313,387	Mar. 3	488	127	30	867
Triple Thermic Motor Company. (See Colwell, William S., assignor.)						
Triple Thermic Motor Company. (See Colwell and Davis, assignors.)						
Trost, Henry C. (See Weston and Trost.)						
Trout, Carver C. (See Stouffer, Hiram C., assignor.)						
Trueman, William H., Philadelphia, Pa. Stand for type-writers, &c	313,785	Mar. 10	1016	262	30	975
Trullinger, John C., Astoria, Oreg. Insertible saw-tooth	311,692	Feb. 3	304	83	30	406
Trumbull, Solomon T., Gloucester, Mass. Building-block	312,305	Feb. 17	1165	318	30	580
Truran, William, assignor to Pittsburg Steel Nail Company, Allegheny, Pa. Machine for making wrought nails	314,894	Mar. 31	2325	609	30	1226
Trussell, Joshua W., Rockland, Me. Check-rein holder	313,131	Mar. 3	120	29	30	799
Trussell, Lorenzo J., assignor of one-half to C. S. Hartough, Leavenworth, Kans. Device for fastening presser-feet for sewing-machines to their bars	311,795	Feb. 3	432	117	30	429
Tubbs, Nelson J., Philadelphia, Pa. Hydraulic engine	314,276	Mar. 24	1675	445 / 446	30	1114
Tucker, Charles W. (See Tucker, Frank, assignor.)						
Tucker, Ephraim, assignor to E. W. Vaill, Worcester, Mass. Folding table	312,039	Feb. 10	783	214	30	501
Tucker, Ephraim, assignor to E. W. Vaill, Worcester, Mass. Music rack or holder	312,040	Feb. 10	784	214	30	502
Tucker, Frank, assignor of one-half to C. W. Tucker, Boston, Mass. Garment-clasp	314,549	Mar. 24	2042	544	30	1181
Tucker, James H., and A. Godfrey, assignors to J. B. Allen, Providence, R. I. Curtain-ring fastening	312,233	Feb. 10	1054	290	30	551
Tucker, Josiah W. (See Judkins, Edwin H., assignor.)						
Tucker, Marcellus E., Brandon, Vt. Wood-turning lathe	313,839	Mar. 10	1089	283	30	987
Tucker, Marcellus E., Brandon, Vt. Wood-turning machine	313,840	Mar. 10	1090	283 / 284	30	988
Tucker, William A., New York, N. Y. Capsule-cutting machine	313,132	Mar. 3	121	30	30	799
Tucker, Frederick W., Jr., Chicago, Ill. Hydraulic sausage-stuffing machine	313,556	Mar. 10	710	185	30	918
Tuerk, Samuel, assignor to himself, M. Rubel, I. Hirsch, and J. B. Galloway, Chicago, Ill. Lock-hinge	313,457	Mar. 3	586	150	30	886
Tully, John D. (See Nelson, William A., assignor.)						
Tunnicliff, John, *et al.* (See King, William H., assignor.)						
Tupper, John A., Salt Lake City, Utah Ter. Capillary filter	311,452	Jan. 27	1737	473	30	340
Tupper, John B., Petaluma, Cal. Saw-set	313,557	Mar. 10	711	185	30	919
Turnbull, Walter, New Orleans, La. Car-coupling	313,968	Mar. 17	1279	334	30	1031
Turner, Christian, Fairfield, Iowa. Lamp-burner	311,453	Jan. 27	1739	474	30	340
Turner, James B., Brockton, Mass. Boot or shoe	312,675	Feb. 24	1660	457	30	682
Turner, Lewis W., Yalesville, and G. J. Capewell, Cheshire, Conn. Stove	310,623	Jan. 13	593	163 / 164	30	119
Turner, Melzar G., Westborough, Mass. Ruffler for sewing-machines	312,306	Feb. 17	1166	319	30	580
Turner, William B., New York, N. Y. Shaft-coupling	314,206	Mar. 17	1578	418	30	1086
Turner, William B., and C. Beard, New York, N. Y. Automatic car-brake	314,063	Mar. 31	2051	701 / 702	30	1318
Turner, William H., Martinsville, Ohio. Fish-inclosure	313,458	Mar. 3	587	150	30	886
Tuttle, Aaron K., St. Lawrence, N. Y. Reflecting-stereoscope	313,899	Mar. 17	1176	306	30	1012
Tuttle, Charles S., and F. Twitchell, Nashua, N. H. Device for oiling the arbors of shell-rollers	313,133	Mar. 3	121	30	30	799
Tuttle, Edward A., New York, N. Y. Hot-air furnace	311,152	Jan. 20	1312	361	30	256
Tuttle, Edward A., New York, N. Y. Hot-air furnace	311,153	Jan. 20	1313	361	30	256
Tuttle, Horace. (See Middleton, William R., assignor.)						
Tuttle, Silas, Jr., Brooklyn, N. Y. Register-front	311,154	Jan. 20	1314	361	30	256
Tuttle, Willis H., and R. W. Benedict, Perry, N. Y., assignors to said Tuttle. Harrow-cultivator	312,531	Feb. 17	1477	404	30	637
Tweddell, Ralph H., Westminster, county of Middlesex, J. Platt and J. Fielding, Gloucester, county of Gloucester, England. Riveting-machine	310,546	Jan. 6	497	137	30	95
Tweddell, Ralph H., Westminster, county of Middlesex, J. Platt and J. Fielding, Gloucester, county of Gloucester, England. Riveting-machine	310,547	Jan. 6	498	138	30	95
Twitchell, Franklin. (See Tuttle and Twitchell.)						
Twitchell, Myron A., Kingsley, Iowa. Adjustable cultivator-shovel	310,856	Jan. 13	885	240	30	173
Twombley, O., *et al.* (See Huse, Warren D., assignor.)						
Tyler, Samuel T., Ironton, Ohio. Machine for making picks	313,900	Mar. 17	1178	307	30	1013
Tyler, William H., David City, Nebr. Hame-tug and trace-fastening	311,796	Feb. 3	433	117	30	429
Tyrrell, Edward, Cincinnati, Ohio. Fountain-pen	311,861	Feb. 3	517	140	30	445
Tyrrell, Edward, and M. S. Shipley, Cincinnati, Ohio. Machine for spirally winding metallic strips	312,590	Feb. 17	1553	492	30	653
Udell, Calvin G., Indianapolis, Ind. Handle-clamp	313,558	Mar. 10	712	186	30	919
Ubrig, Johann E. A., London, county of Middlesex, England. Watch-balance	311,797	Feb. 3	435	117	30	430
Ulmer, John D., and J. S. Collins, Philadelphia, Pa. Button-hole-cutting attachment	312,932	Feb. 24	1997	546	30	741
Ulrich, Frederick, Peru, Ind. Wagon-axle truss	312,676	Feb. 24	1661	458	30	682
Ulrich, Jacob, Huntington, Ind. Device to be used in constructing fences	313,634	Mar. 10	808	212	30	936

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Ulrich, Jacob, Huntington, Ind. Farm-gate	314,756	Mar. 31	2311	614	30	1258
Umstead, Isaac L., Ione City, Cal. Support for carriage-tops	314,631	Mar. 31	2156	573	30	1228
Unbehend, Jacob J. (See Thomson and Unbehend.)						
Unbehend, Jacob J., assignor to J. L. Thomson, Syracuse, N. Y. Shoe-clasp	313,388	Mar. 3	489	128	30	867
Unbehend, Jacob J., assignor to J. L. Thomson, Syracuse, N. Y. Shoe-clasp	313,389	Mar. 3	490	128	30	867
Unbehend, Jacob J., assignor to J. L. Thomson, Syracuse, N. Y. Spring-clasp	313,390	Mar. 3	491	128	30	868
Unbehend, Jacob J., assignor to J. L. Thomson, Syracuse, N. Y., and G. Watkinson, New Haven, Conn. Shoe-clasp. (Reissue)	10,573	Mar. 17	1590	420	30	1080
Underwood, Flavius J., North Springfield, Mo. Street-railway track	310,234	Jan. 6	92	24	30	20
Unexcelled Fire Works Company. (See Linton, Edward F., assignor.)						
Unger, Charles, Pittsburg, Pa., assignor of two-thirds to E. Kauffeld and T. Miller. Vegetable boiler and cutter	314,084	Mar. 17	1423	372	30	1059
Unger, Oscar, Liepsic, Saxony, Germany. Mill for grinding or pressing coffee, spices, &c	310,336	Jan. 6	242	66	30	46
Union Brass Manufacturing Company. (See Ellacott, Joseph P., assignor.)						
Union Carburetter Company. (See Palmer, James M., assignor.)						
Union Switch and Signal Company. (See Johnson, Charles R., assignor.)						
United States Automatic Buttonhole Sewing Machine Company. (See Mills, Daniel, assignor.)						
United States Chemical Company. (See Petraens, Carl V., assignor.)						
United States Cotton Seed Cleaning Company. (See Wall, William, assignor.)						
United States Electric Lighting Company. (See Barnes, Raymond F., assignor.)						
United States Electric Lighting Company. (See Colby, Edward A., assignor.)						
United States Electric Lighting Company. (See Weston, Edward, assignor.)						
United States Steam Specialty Company. (See Fell, Thomas M., assignor.)						
Upham, Andrew J., Sterling, Ill., assignor to Washburn & Moen Manufacturing Company, Worcester, Mass., and I. L. Ellwood, De Kalb, Ill. Barbed wire	313,391	Mar. 3	492	128	30	868
Upjohn, William E., Hastings, Mich. Making pills	312,041	Feb. 10	785	214	30	502
Upton, George W. D., Springfield, Mass. Combined tobacco cutter and shaver	313,259	Mar. 3	329	81	30	836
Urbahn, Alwill, Paterson, N. J., assignor to J. May, Brooklyn, N. Y. Machine for bending bars	313,134	Mar. 3	124	30, 31	30	800
Urbahn, Alwill, Paterson, N. J., assignor to J. May, Brooklyn, N. Y. Machine for bending metal	313,459	Mar. 3	588	151	30	886
Urbahn, Alwill, Paterson, N. J., assignor to J. May, Brooklyn, N. Y. Metal-bending machine	313,969	Mar. 17	1280	334	30	1031
Urban, John. (See Vetsburg, Sigmund, assignor.)						
Uthoff, John H. H. (See Dreyer, Herman H., assignor.)						
Vail, Thomas C., Topeka, Kans. Easel	310,481	Jan. 6	403	111	30	78
Vaill, Edward W. (See Tucker, Ephraim, assignor.)						
Valiquet, Louis P., Mount Kisco, N. Y. Lady's tricycle	313,460	Mar. 3	589	151	30	886
Vallentine, Edward. (See Hyde and Vallentine.)						
Van Court, Thomas M. (See Day, Florance P., assignor.)						
Van Denburgh, Jesse, Chicago, Ill. Screw-cutting machine	310,337	Jan. 6	243	66	30	46
Van Derzee, Cornelius, assignor to D. H. Mathias, Albany, N. Y. Machine for straightening, measuring, cutting, and counting wire	311,213	Jan. 27	1401	{383 384}	30	278
Van Doraton, Alvin W., Salem, Oreg. Car-coupling	314,496	Mar. 24	1976	526	30	1169
Van Gelder, Pieter, Sowerby Bridge, county of York, England. Separating-machine	314,497	Mar. 24	1976	{526 527}	30	1170
Van Gelder, Pieter, Sowerby Bridge, county of York, England. Dust-separating machine	314,498	Mar. 24	1979	{527 528}	30	1170
Van Hagen, Isaac, Chicago, Ill. Stove-platform	312,933	Feb. 24	1998	546	30	742
Van Hagen, Isaac, Chicago, Ill. Heater for the crystallization of stove-platforms	312,934	Feb. 24	1999	547	30	742
Van Hoesen, Eugene M., Preble, and N. H. Brown, Syracuse, N. Y. Car-coupling. (Reissue)	10,567	Mar. 3	600	153	30	888
Van Hoevenbergh, Henry, Elizabeth, N. J. Preventing false signals upon reversals in quadruplex telegraphs	313,787	Mar. 10	1019	263	30	975
Van Hoevenbergh, Henry, Elizabeth, N. J., assignor to Baltimore and Ohio Telegraph Company, Baltimore, Md. Printing-telegraph	313,786	Mar. 10	1017	262	30	975
Van Horn, James C., Livermore, Cal. Wall-paper-cutting machine	312,043	Feb. 10	787	215	30	502
Van Luven, Thomas F., Kingston, Ontario, assignor to A. Brown, Gananoque, Canada. Fence	310,624	Jan. 13	595	164	30	119
Van Matteson, Marse, Milwaukee, Wis. Harvester-rake	313,135	Mar. 3	125	31	30	800
Van Matteson, Marse, Milwaukee, Wis. One-wheel harvester	313,136	Mar. 3	128	31	30	800
Van Matteson, Marse, Milwaukee, Wis. One-wheel harvester	313,137	Mar. 3	130	32	30	800
Van Norman, Jacob, Easton, Pa. Drilling and tapping apparatus	314,085	Mar. 17	1424	373	30	1059
Van Nostrand, Hazen, Gloversville, N. Y. Saw-gummer	312,935	Feb. 24	2000	547	30	742
Van Nuys, Thomas C., *et al.* (See Hunter, George D., assignor.)						
Van Orden, Charles H., Catskill, N. Y. Metallic railway-tie	314,757	Mar. 31	2312	615	30	1258
Van Orman, Clayton M., Sherwood, Mich. Railway-tie	314,158	Mar. 17	1520	398	30	1076
Van Ruyven, Cornelius R., Deventer, Netherlands. Alarm-coupling for air and steam brakes	314,758	Mar. 31	2313	615	30	1258
Van Voorhies, A. A. (See Harris, Thomas, assignor.)						
Van Wie, Avery, Indianapolis, Ind. Shutter-fastener	313,261	Mar. 3	331	82	30	836
Van Wormer, Clemson L., Melrose, Mass. Dumping-car	311,047	Jan. 20	1158	{316 317}	30	228
Van Wormer, Matthew, Malden, Mass. Dumping-car	311,274	Jan. 27	1499	{408 409}	30	296
Van Zandt, Irving W. (See Allen, Nicholas I., assignor.)						
Vanbriggle, Philip, Russiaville, Ind. Fence-post	311,693	Feb. 3	305	83	30	406
Vanderbilt, Lee O., and M. E. Campany, Muskegon, Mich. Railway-tie	313,260	Mar. 3	330	81	30	836
Vanderman, William, Willimantic, Conn. Steam-trap	310,967	Jan. 20	1049	{285 286}	30	207
Vanderman, William, Willimantic, Conn. Automatic air-valve	312,042	Feb. 10	786	{214 215}	30	502
Vandewalker, Herbert K., Pamelia Four Corners, N. Y. Hay-carrier	311,545	Feb. 3	119	35	30	371
Vaness, Garret J. (See Chamberlain, Henry, assignor.)						
Vanhorne, Daniel A., Orange, N. J. Body and seat for vehicles	314,499	Mar. 24	1980	{528 529}	30	1171
Vann, William T., Salem, Oreg. Attachment for operating gates	314,632	Mar. 31	2158	573	30	1229
Vanness, Jacob S., Newark, N. J. Dock	312,234	Feb. 10	1055	200	30	551
Vansize, William B., Boston, and T. D. Lockwood, Malden, Mass. Automatic circuit changer and alarm	313,841	Mar. 10	1091	284	30	988
Vantassel, John H., New York, N. Y. Glove-fastening	311,391	Jan. 27	1658	453	30	325
Varian, Samuel T., East Orange, N. J. Screen for coal, &c	313,262	Mar. 3	332	82	30	836

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Varnum, George W., Montgomery City, Mo. Centering-tool	311,619	Feb. 3	213	60	30	389
Vaughan, Aaron C., Shane's Crossing, Ohio. Nut-lock	312,677	Feb. 24	1662	458	30	682
Vaughan, Elbert J., assignor of two-thirds to T. G. Guthrie and J. P. Owens, Louisville, Ky. Carburetor	312,774	Feb. 24	1795	494	30	706
Vaughan, Frank, Elizabeth City, N. C. Car-coupling	314,403	Mar. 24	1844	491	30	1147
Vaughan, George A., Lockesburg, Ark. Attachment to stoves for heating air	312,678	Feb. 24	1663	458	30	682
Vaughan, Thomas, Millvale, Pa. Composition for gravel or granite roofing, &c	310,625	Jan. 13	596	.....	30	119
Vaughn, James W., Greenville, Pa., Running-gear for vehicles	313,392	Mar. 3	493	129	30	868
Vaughn, Walter W., and E. D. Eldridge, Stockton, Cal., assignors to themselves, W. W. Paddock, H. W. Devoll, E. E. and C. A. Eldridge, J. B. Webster, and A. Clark. Generating steam by electricity	314,277	Mar. 24	1677	447	30	1114
Vedder, Lewis H. (See Maxwell, Albert M., assignor.)						
Veeder, Curtis H., Bethlehem, Pa., and J. I. Veeder, Omaha, Nebr. Velocipede	312,407	Feb. 17	1297	358	30	605
Veeder, John I. (See Veeder, Curtis H. and J. I.)						
Venson, John S., Four Mile, N. Y. Vent for steam-pipes	310,338	Jan. 6	244	67	30	46
Vermilyea, Eugene, *et al.* (See Norris, Charles E., assignor.)						
Vermilyea, Le Roy, *et al.* (See Norris, Charles E., assignor.)						
Vernon, William G., Philadelphia, Pa. Belt-shifter	313,035	Feb. 24	2142	582	30	767
Vester, Adolph, Providence, R. I. Bracelet	313,036	Feb. 24	2143	582	30	767
Vetsburg, Sigmund, assignor of one-half to J. Urban, Jefferson City, Mo. Fastening for shoes	314,550	Mar. 24	2043	545	30	1181
Viaduct Manufacturing Company of Baltimore. (See Bauer, Alexander C., assignor.)						
Videto, Theodore H. (See Hunt, Leander B., assignor.)						
Vlean, John A., Gainesville, Tex. Motor	312,307	Feb. 17	1167	319	30	581
Virneisel, Ludwig, Mannheim, Baden, Germany. Manufacturing hydrated grape sugar	310,339	Jan. 6	245	.....	30	46
Voeth, Robert. (See Schulte, Diedrich, assignor.)						
Vogel, Charles W., Centreville, Ind. Arm-chair and writing-desk	310,626	Jan. 13	596	164	30	120
Vogel, Louis D., Boone, Iowa. Adjustable roof	313,559	Mar. 10	713	186	30	919
Vogt, Carl, *et al.* (See Haugk, Carl H., assignor.)						
Vogt, Charles, *et al.* (See Haugk, Carl H., assignor.)						
Voigt, Henry F., *et al.* (See Ebel, John V., assignor.)						
Volk, Jacob, assignor of one-half to C. Wendemuth, St. Louis, Mo. Car-pedestal	313,461	Mar. 3	590	151	30	886
Vollrath, Ernst H., and J. C. McCready, St. Louis, Mo. Alarm-lock for tills	310,627	Jan. 13	598	165	30	120
Von Lackum, Peter, Waterloo, Iowa. Curtain-fixture	312,332	Feb. 17	1479	404	30	638
Von Malkowsky, Robert, New York, N. Y. Velocipede	310,548	Jan. 6	500	138	30	96
Von Thurn, Jacob. (See Mitchell and Von Thurn.)						
Voorhies, Cornelius C. (See Otterson and Voorhies.)						
Vreeland, Jacob H., Jersey City, N. J. Apparatus for removing and replacing car-wheels	314,895	Mar. 31	2589	{669 670}	30	1297
Waas, Henry, San Francisco, Cal. Bung-cutter	314,086	Mar. 17	1427	373	30	1059
Wackerhagen, George, Brooklyn, N. Y. Surgical needle	312,408	Feb. 17	1298	358	30	606
Wade, Harry. (See Jay and Garvey, assignors.)						
Wagenführ, Charles, Brooklyn, N. Y. Manufacture of imitation bronze-plates for book-covers, furniture-panels, &c	312,044	Feb. 10	788	215	30	502
Wager, Gebhard, Union City, Pa. Wine and cider press	312,235	Feb. 10	1056	200	30	551
Wagner, Emil, assignor to Patent Revolving Window Sash Company, Cincinnati, Ohio. Window	313,138	Mar. 3	131	32	30	801
Wagner, George W., *et al.* (See Carlyle, George, assignor.)						
Wagner, Gustavus G., Mount Vernon, N. Y. Weather-strip	311,392	Jan. 27	1659	453	30	325
Wagner, John W., *et al.* (See Carlyle, George, assignor.)						
Wagner, Julius, Reading, Pa. Harness-hook	310,235	Jan. 6	92	25	30	20
Wagner, Julius, Reading, Pa. Harness-loop clamp	312,679	Feb. 24	1664	458	30	683
Wagner, Louis A. C., *et al.* (See Carlyle, George, assignor.)						
Wainwright Manufacturing Company. (See Duffy, Thomas W., assignor.)						
Wais, Christian, Newport, Ky. Sheet-metal-cutting machine	312,236	Feb. 10	1056	{290 291}	30	551
Wait, Oscar E., assignor to P. W. Gould, Springfield, Vt. Wooden mallet, &c	311,155	Jan. 20	1315	302	30	256
Waite, Henry E., New York, N. Y. Ear-tube	312,308	Feb. 17	1168	319	30	581
Waite, Henry E., New York, N. Y. Telephone-transmitter	312,409	Feb. 17	1299	359	30	606
Waite, Henry E., New York, N. Y. Switch-board	312,410	Feb. 17	1300	359	30	606
Waite, Henry E., assignor to C. F. Livermore, trustee, New York, N. Y. Telephone	310,751	Jan. 13	757	206	30	149
Waite, Henry E., and S. H. Bartlett, assignors to C. F. Livermore, trustee, New York, N. Y. Apparatus for operating electric bells	313,788	Mar. 10	1022	263	30	976
Waite, Henry E., and S. H. Bartlett, assignors to C. F. Livermore, trustee, New York, N. Y. Apparatus for operating electric bells	313,789	Mar. 10	1024	263	30	796
Wakeford, William H., Baltimore, Md. Roller grinding-mill	310,236	Jan. 6	93	25, 26	30	20
Wakeley, Seth J., New York, N. Y. Die or nipple holder	314,087	Mar. 17	1428	373	30	1059
Walden, Joseph, Orange, N. J. Inside stay for shoes	310,340	Jan. 6	246	67	30	46
Walker, Addison C., Merrill, Wis. Harness-buckle	311,393	Jan. 27	1660	453	30	325
Walker, Alonzo B., Canton, Ohio. Door-check	310,752	Jan. 13	758	207	30	149
Walker, C. Irvine, assignor to Stoney Landing Company, Charleston, S. C. Manufacture of artificial-stone compositions	311,156	Jan. 20	1316	.....	30	256
Walker, C. Irvine, assignor to Stoney Landing Company, Charleston, S. C. Apparatus for the manufacture of artificial stone	311,694	Feb. 3	306	83, 84	30	406
Walker, Edward H. (See Stock, Charles F., assignor.)						
Walker, Emery H. (See Hart and Walker.)						
Walker, Eugene R., Chicago, Ill., assignor to Michigan Stove Company, Detroit, Mich., Oil-stove	313,696	Mar. 10	886	{231 232}	30	952
Walker, George B., London, England. Treatment of yucca or sotal fiber for the production of paper pulp or stock and obtaining by-products therefrom	310,753	Jan. 13	759	.....	30	150
Walker, George H. (See Downing, William S., assignor.)						
Walker, George N., Jr. (See Mason and Walker.)						
Walker, John. (See Chisholm, Walker, and Martin.)						
Walker, John, Hyde, county of Chester, England. Clearer-holder for drawing-frames, &c	313,790	Mar. 10	1025	{263 264}	30	796
Walker, John H., Waterbury, Conn. Button	312,936	Feb. 24	2002	547	30	742
Walker, Micah, Port Huron, Mich. Well-curb	310,341	Jan. 6	246	67	30	47
Walker, Philip B., and H. G. Rigge, Sydney, New South Wales. Submarine torpedo-boat	310,342	Jan. 6	247	67, 68	30	47
Walker, Richard, assignor of one-half to C. Blumrick, Batavia, N. Y. Stove-grate	313,697	Mar. 10	889	272	30	963
Walker, Robert, Oakland, Cal. Spring-seat	312,775	Feb. 24	1796	494	30	706
Walker, William E., Taunton, Mass. Stove	313,560	Mar. 10	714	{186 187}	30	919
Walker, William W., Williamsport, Pa. Portable dark-room for photographers	312,937	Feb. 24	2003	547	30	742
Walkup, Liberty, Rockford, Ill. Paint-distributer	310,754	Jan. 13	760	207	30	150

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Wall, Joseph, Greenville, Miss. Sleeve or collar button	311,048	Jan. 20	1161	317	30	229
Wall, Stephen A. (See Bruen and Wall.)						
Wall, William, assignor to United States Cotton Seed Cleaning Company, New York, N. Y. Removing fiber from cotton-seed	310,628	Jan. 13	600	.....	30	129
Wallace, Albert E. (See Knona and Wallace.)						
Wallace, Albert E. (See Pratt and Wallace.)						
Wallace, Albert E., assignor to Pope Manufacturing Company, Hartford, Conn. Velocipede	312,411	Feb. 17	1301	350 / 360	30	606
Wallace, Albert E., assignor to Pope Manufacturing Company, Hartford, Conn. Velocipede	314,633	Mar. 31	2160	574	30	1229
Wallace, J. Bennett, assignor to Myers Manufacturing Company, Chicago, Ill. Vapor-burner	314,404	Mar. 24	1845	491 / 492	30	1147
Wallace, Samuel J., Keokuk, Iowa. Car-axle lubricator	310,755	Jan. 13	763	207	30	150
Wallace, Thomas, New York, N. Y. Telephone	312,533	Feb. 17	1490	405	30	638
Wallace, William, and T. J. Wood, Ansonia, Conn. Annealing copper wire	312,045	Feb. 10	788	.....	30	503
Wallach, Samuel, New York, N. Y. Clasp for bracelets. (Reissue.)	10,552	Jan. 13	993	245	30	176
Walling, Mary C., Brenham, Tex. Cotton-picker	313,139	Mar. 3	133	32	30	801
Walp, Oliver J., and A. R. Leavitt, Reading, Pa. Pattern for boot or shoe uppers	313,635	Mar. 10	809	212	30	936
Walpole, Mary R., Mayfield, Ky. Wash-boiler	311,695	Feb. 3	307	84	30	407
Walpuski, Charles, New York, N. Y. Paper-smoothing compound	313,263	Mar. 3	333	.....	30	837
Walpuski, Charles, New York, N. Y. Ink-erasing compound	314,759	Mar. 31	2314	.....	30	1258
Walsh, John A., Wareham, assignor to Tremont Nail Company, West Wareham, Mass. Pile-box	311,696	Feb. 3	308	84	30	407
Walsh, John J. (See Riley and Walsh.)						
Walsh, Patrick H., Waterbury, Conn. Surface-attaching garment-button	312,046	Feb. 10	789	216	30	503
Walter, George F., Caledonia, Iowa. Harness-rack	312,938	Feb. 24	2004	548	30	743
Walter, Henry C., Bridgeport, assignor to T. H. Camp, H. Oldershaw, New Britain, W. Foulds, Manchester, and D. Gordon, Hazardville, Conn. Bottle-stopper	310,756	Jan. 13	764	207	30	150
Walters, Charles D., Harrisburg, assignor of three-fourths to A. H. Ege, Mechanicsburg, Pa. Railway-switch	313,264	Mar. 3	333	82	30	837
Ward, Alexander F., Detroit, Mich. Pill-machine	311,620	Feb. 3	214	60	30	389
Ward, Barton B., Hartford, Conn., assignor to F. G. Waterhouse, Sacramento, Cal. Electric-arc lamp	311,546	Feb. 3	121	35	30	372
Ward, George M., Newark, N. J. Gas-motor	311,214	Jan. 27	1405	384	30	279
Ward, Joseph, assignor of two-thirds to J. Ashton and F. J. Martin, Manchester, N. H. Device for transmitting power	314,207	Mar. 17	1579	418	30	1086
Ward, Lewis F., Marathon, N. Y. Scarf, necktie, or cuff holder	312,047	Feb. 10	790	216	30	503
Ward, William S., assignor to H. D. Smith & Co., Plantsville, Conn. Machine for making clip-yokes	312,534	Feb. 17	1482	405	30	638
Wardwell, Charles E., Holyoke, Mass. Skate	310,923	Jan. 20	982	267	30	195
Wardwell, Simon W., Jr., Woonsocket, R. I. Thread-regulating device for sewing-machines	310,482	Jan. 6	405	112	30	78
Waring, John B., assignor to Ingersoll Rock Drill Company, New York, N. Y. Support for rock-drilling machines	312,412	Feb. 17	1304	360	30	607
Waring, John T. (See Merritt, Charles H., assignor.)						
Warner, George A., Des Moines, Iowa. Hydrant	313,265	Mar. 3	335	82	30	837
Warner, Warren E., assignor to E. C. Stearns & Co., Syracuse, N. Y. Door-hanger	311,697	Feb. 3	309	85	30	407
Warren, Augustus J., Nashville, Tenn. Wardrobe-bedstead	310,343	Jan. 6	250	68, 69	30	47
Warren, Edward K., Three Oaks, Mich. Stiffening-strip and producing the same	311,621	Feb. 3	216	61	30	389
Warren, Gilbert W. (See McGahan, Fred L., assignor.)						
Warrington, Jesse, assignor to Nordyke & Marmon Company, Indianapolis, Ind. Bolting-reel	310,483	Jan. 6	406	112	30	78
Warrington, Jesse, assignor to Nordyke & Marmon Company, Indianapolis, Ind. Roller-mill	312,048	Feb. 10	791	216 / 217	30	503
Warrington, Jesse, assignor to Nordyke & Marmon Company, Indianapolis, Ind. Scraper for roller-mills	314,278	Mar. 24	1678	447	30	1115
Washburn, Charles G. (See Midgley, Thomas, assignor.)						
Washburn, Charles H., New York, N. Y. Automatic steering apparatus	313,901	Mar. 17	1179	307	30	1013
Washburn & Moen Manufacturing Company, *et al.* (See Upham, Andrew J., assignor.)						
Waterbury Clock Company. (See Lewis, Charles S., assignor.)						
Waterbury Watch Company. (See Hart, George E., assignor.)						
Waterhouse, Frank G. (See Ward, Barton B., assignor.)						
Waterhouse, Frank G., Sacramento, Cal. Dynamo-electric machine	311,547	Feb. 3	123	36	30	372
Waterhouse, Frank G., Sacramento, Cal. Regulator for dynamo-electric machines	313,561	Mar. 10	715	187	30	919
Waters, Frank M., Springfield, Ohio. Mechanical movement	310,924	Jan. 20	983	267	30	195
Waters, William T., Atlanta, Ga. Electric railway-signal	314,760	Mar. 31	2314	615 / 616	30	1258
Waters, William T., Atlanta, Ga. Electric railway-signal	314,761	Mar. 31	2317	616 / 617	30	1259
Waters, William T., Atlanta, Ga. Electric railway-signal	314,762	Mar. 31	2323	617 / 618 / 619	30	1260
Waters, William T., Atlanta, Ga. Electrical railway-signal	314,763	Mar. 31	2331	619 / 620 / 621 / 622	30	1261
Waterworth, Alexander M., assignor of one-half to T. T. A. Hitaffer, Baltimore, Md. Bath-tub	310,344	Jan. 6	251	69	30	48
Watkins, Alexander, assignor to Self Acting Sewing Machine Company, (limited,) London, England. Sewing-machine	313,970	Mar. 17	1281	334	30	1032
Watkins, William, Linneus, Mo., assignor of one-half to H. Morton. Shoe	311,275	Jan. 27	1500	409	30	297
Watkinson, George, *et al.* (See Unbehend, Jacob J., assignor.) (Reissue.)						
Watson, Edwin J., Worcester, Mass. Machine for making eyeglass-springs	311,548	Feb. 3	125	36	30	372
Watson, James. (See McDaniel, John S., assignor.)						
Watson, Jeremiah M., Sharon, Mass. Centering-chuck	313,562	Mar. 10	716	187	30	920
Watson, Richard R. (See Richtsmann, Charles, assignor.)						
Watt, Henry C., Philadelphia, Pa. Electrical conductor	310,345	Jan. 6	252	69	30	48
Watts, Charles, Logansport, Ind. Signal-light. (Reissue)	10,565	Feb. 24	2153	585 / 586	30	769
Watts, Ephraim, Middletown, Pa. Fire-escape	314,355	Mar. 24	1784	474	30	1135
Watts, Henry P., assignor of two-thirds to M. Duffner, T. M. Harwood, and S. B. Haney, Lynchburg, Va. Fan attachment	312,413	Feb. 17	1306	360	30	607
Watts, John W., Montgomery, Ala. Thill-holder for harness	313,266	Mar. 3	336	83	30	837
Way, Francis K., Springfield, Ohio, assignor to S. C. Mendenhall, Richmond, Ind. Caster	314,764	Mar. 31	2349	622	30	1265
Wayland, James, assignor to G. M. Ballard, Newark, N. J. Trunk-catch	311,276	Jan. 27	1501	410	30	297

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Weatherbee, Brayton A., Warren, N. Y. Machine for gathering stones	312,237	Feb. 10	1058	291	30	552
Weathers, James, Indianapolis, Ind. Combined anvil, vise, and drill	311,394	Jan. 27	1660	453	30	325
Weatherwax, Leon J. (See Doddridge, Loyal M., assignor.)						
Weaver, Charles P., Norristown, Pa. Furnace for lining tacks	313,698	Mar. 10	890	232	30	953
Weaver, Devalson G., *et al.* (See Hemingway, Henry N., assignor.)						
Weaver, John W. (See Hill, Louis C., assignor.)						
Weaver, Theophilus, Harrisburg, Pa. Weather-strip	311,929	Feb. 10	626	173	30	473
Webb, Arthur A., *et al.* (See Baldwin, Charles W., assignor.)						
Webb, Jesse G., Boston, Mass. Toy	311,215	Jan. 27	1408	384	30	279
Webb, Justice, *et al.* (See Cantrill, James E., assignor.)						
Webber, Charles C., Holyoke, Mass., assignor to himself, and T. Campbell, Chicago, Ill. Cloth measuring and inspecting machine	310,757	Jan. 13	765	208	30	150
Webber, Charles G., assignor to S. A. Webber, Flushing, N. Y. Lamp-burner	310,340	Jan. 6	252	69	30	48
Webber, Sarah A. (See Webber, Charles G., assignor.)						
Weber, Alfred, Jersey City, N. J. Dumping-scow	311,698	Feb. 3	310	85	30	407
Weber, Frederick, Philadelphia, Pa. Drawing-board	312,535	Feb. 17	1483	405	30	638
Weber, Frederick D., assignor, by mesne assignments, to M. Weber, East New York, N. Y. Paper-file	310,758	Jan. 13	768	208	30	151
Weber, George. (See Hoffman and Weber.)						
Weber, Georg, Brooklyn, N. Y. Surgical chair	313,636	Mar. 10	810	212	30	937
Weber, Meta. (See Weber, Frederick D., assignor.)						
Weber, Theodore A., New York, N. Y., assignor to K. Faulkner, Jersey City, N. J. Shuttle-motion for looms	312,660	Feb. 24	1665	459	30	683
Webster, Joshua B., *et al.* (See Vanohn and Eldridge, assignors.)						
Weddle, Henry, Sherman, Tex. Combined land roller and plow	313,563	Mar. 10	718	188	30	920
Weeks, Abner B., assignor of one-half to F. Cobb, Rockland, Me. Limekiln	310,759	Jan. 13	768	208	30	151
Wegley, Austin, Lincoln Centre, Kans. Windmill	310,237	Jan. 6	95	26	30	20
Wegmann, Friedrich, Zurich, Switzerland. Roller grinding-mill. (Reissue)	10,571	Mar. 10	1101	286	30	990
Wegner, Detlef F., Valley City, Dak. Ter. Broadcast-sower, land-roller, and double revolving harrow	314,765	Mar. 31	2350	622	30	1265
Wehner, Christian, Buffalo, N. Y. Cleaning-brush for middlings-purifiers	311,622	Feb. 3	217	61	30	389
Wehrle, Jacob, Cincinnati, Ohio. Bosom-board	313,267	Mar. 3	337	83	30	838
Weil, Albert E. (See Ferer, James W., assignor.)						
Weil, Ferdinand, *et al.* (See Park, John S., assignor.)						
Weil, Joseph, New York, N. Y. Necktie-fastening	312,681	Feb. 24	1667	459	30	683
Weimer, Peter L., Lebanon, Pa. Valve for blowing engines	313,140	Mar. 3	135	33	30	801
Weinberg, Phillip, L. Clark, Jr., and E. Winkler, New York, N. Y. Seal-skin sacque, dolman, and ulster block	312,536	Feb. 17	1484	406	30	639
Weinberg, Phillip, L. Clark, Jr., and E. Winkler, New York, N. Y. Seal-skin sacque, dolman, and ulster block	313,908	Mar. 3	339	83	30	838
Weinhagen, Henry, Hoboken, N. J. Thermometer	310,925	Jan. 20	984	268	30	195
Weinstein, Isaac and S., New York, N. Y. Lamp-extinguisher	312,414	Feb. 17	1307	361	30	607
Weinstein, Samuel. (See Weinstein, Isaac and S.)						
Weisgerber, William F., New York, N. Y. Secondary electric clock	314,634	Mar. 31	2161	574	30	1229
Weiss, Charles W., and C. Kruse, New York, N. Y. Automatic check-machine	313,699	Mar. 10	891	232 / 233	30	953
Weiss, Charles W., Brooklyn, N. Y., assignor to Weiss Manufacturing Company, of New York. Electric gas-lighter	314,088	Mar. 17	1430	374	30	1060
Weiss, Franz J., Basle, Switzerland. Air-pump	314,766	Mar. 31	2352	623	30	1266
Weiss Manufacturing Company. (See Weiss, Charles W., assignor.)						
Welch, George W., Mobile, Ala. Newspaper-binder	314,159	Mar. 17	1521	399	30	1076
Welch, Lyman W., Montpelier, Vt. Wardrobe-bedstead	311,623	Feb. 3	218	61	30	390
Welch, S. Frank, Mount Pleasant, Iowa. Ditching-machine	312,049	Feb. 10	792	217	30	503
Weldon, Henry J., New York, N. Y. Button-fastener	312,309	Feb. 17	1169	320	30	561
Weller, Joseph, Trexlertown, Pa. Medical compound	311,930	Feb. 10	629	.....	30	474
Welling, John E., *et al.* (See Cantrill, James E., assignor.)						
Wells, Frederic E., Greenfield, Mass. Die stock	311,549	Feb. 3	128	37	30	373
Wells, G. H. (See Downing, James L., assignor.)						
Wells & Son, J. J. (See Howard, Stephen H., assignor.)						
Welsh, James, Plymouth, Pa. Feed-water heater	310,968	Jan. 20	1053	286	30	207
Welsh, William J. (See Hill, George H., assignor.)						
Welte, Andrew, Atchison, Kans. Steam-generator	311,395	Jan. 27	1662	454	30	326
Wendemuth, Charles. (See Volk, Jacob, assignor.)						
Wendt, Arthur F., New York, N. Y. Apparatus for recovering volatilized metals	311,699	Feb. 3	312	85	30	408
Wendt, William F. (See Osgood, J. Lester, assignor.)						
Wentz, George W., Tedrow, Ohio. Bag-holder	313,902	Mar. 17	1184	308	30	1014
Werkheiser, Monroe, Phillipsburg, N. J. Bridle	313,141	Mar. 3	136	33	30	802
Werner, Emmerich A., New York, N. Y. Bridge	311,624	Feb. 3	219	62	30	390
Werum, Charles A. (See Werum, Phillip, assignor.)						
Werum, Phillip, Stryker, assignor to C. A. Werum, Sherwood, Ohio. Pulley	312,682	Feb. 24	1668	459	30	683
Wesely, John, Chicago, Ill. Two-wheeled vehicle	310,760	Jan. 13	769	208 / 209	30	151
Wesell, Otto, A. Nickel, and R. Gross, New York, N. Y. Piano-forte damper	312,776	Feb. 24	1797	495	30	706
West, Edward W., Jr. (See Conway, Andrew J., assignor.)						
West Haven Buckle Company. (See Thompson, Don S., assignor.)						
West, John J., Chicago, Ill. Construction of vases having a body made of plastic material	311,092	Jan. 20	1227	336	30	241
West, Jonathan B., Rochester, assignor to L. N. Asiel & Co., and B. Galland, New York, N. Y. Embroidery-holder. (Reissue.)	10,553	Jan. 13	904	245	30	176
Westbrook, Charles S., Spragueville, N. Y. Chuck for rock-drills	311,396	Jan. 27	1662	454	30	326
Westbrook, Charles S., Spragueville, N. Y. Rock-drill	312,537	Feb. 17	1485	406	30	639
Westbrook, Charles S., Spragueville, N. Y. Rock-drill	312,538	Feb. 17	1488	406	30	640
Westbrook, Charles S., Spragueville, N. Y. Support for rock-drills	312,539	Feb. 17	1489	406	30	640
Westbrook, Charles S., Spragueville, N. Y. Support for rock-drills	312,540	Feb. 17	1491	407	30	640
Westbrook, Cherrick, Harrisburg, Pa. Automatic chemical telegraph	313,791	Mar. 10	1026	264	30	796
Westbrook, Cherrick, Harrisburg, Pa. Automatic telegraphy	313,792	Mar. 10	1028	264	30	977
Westcott, John M., assignor to Hoosier Drill Company, Richmond, Ind. Grain-drill	311,397	Jan. 27	1664	454	30	326
Western Electric Company. (See Jackson and Cole, assignors.)						
Western Electric Company. (See Patterson, William R., assignor.)						
Western Electric Company. (See Patterson, William R., assignor.) (Reissue.)						
Western Electric Company. (See Young, John, assignor.)						
Westinghouse, George, Jr. (See Hambay, James T., assignor.)						
Westinghouse, George, Jr. (See Merrill, Edwin C., assignor.)						
Westinghouse, George, Jr., Pittsburg, Pa. Pressure-regulator	310,347	Jan. 6	254	70	30	48

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Westinghouse, George, Jr., Pittsburg, Pa. Pressure-regulator and relief-valve	310,348	Jan. 6	255	70	30	48
Westinghouse, George, Jr., Pittsburg, Pa. Detecting leaks in gas-mains. (Reissue)	10,561	Feb. 17	1566	427	30	656
Westinghouse, George, Jr., Pittsburg, Pa. Detecting leaks in gas-mains	312,541	Feb. 17	1492	407	30	640
Westinghouse, George, Jr., Pittsburg, Pa. Detecting leaks in gas-mains	312,542	Feb. 17	1493	407	30	641
Westinghouse, George, Jr., Pittsburg, Pa. Pressure-regulator and cut-off	312,543	Feb. 17	1494	407	30	641
Westinghouse, George, Jr., Pittsburg, Pa. Carrying off leakage from gas-mains	312,777	Feb. 24	1798	495	30	706
Westinghouse, George, Jr., Pittsburg, Pa. Connection for pipe-lines	313,393	Mar. 3	494	129	30	868
Westinghouse, George, Jr., Pittsburg, Pa. System for the protection of railway-tracks and gas-pipe lines	314,089	Mar. 17	1432	374	30	1060
Weston, Edward, Newark, N. J. Electric-lamp fixture	311,398	Jan. 27	1667	455	30	327
Weston, Edward, Newark, N. J., assignor to United States Electric Lighting Company, New York, N. Y. Manufacture of incandescents	310,761	Jan. 13	770	209	30	151
Weston, Edward, Newark, N. J., assignor to United States Electric Lighting Company, New York, N. Y. Dynamo-electric machine	310,762	Jan. 13	771	209	30	152
Weston, Edward, Newark, N. J., assignor to United States Electric Lighting Company, New York, N. Y. System of generating and regulating electric currents	310,763	Jan. 13	774	210	30	152
Weston, Frank A., and H. C. Frost, assignors of one-third to H. C. Albertson, South Pueblo, Colo. Sash-fastener	311,049	Jan. 20	1162	317, 318	30	229
Weston, George A., and H. R. Prockter, 6 Park Street, Croydon, county of Surrey, England. Ticket-case	314,090	Mar. 17	1433	374	30	1061
Westphal, Otto, assignor to Schäffer & Budenberg, Buckau-Magdeburg, Prussia, Germany. Injector	312,591	Feb. 17	1554	422, 423	30	653
Wetmore, Sylvester J., Watson, N. Y. Railway-gate	311,277	Jan. 27	1502	410, 411	30	297
Wettstein, Hermann, Harvard, Ill. Portable fire-escape	312,415	Feb. 17	1308	361	30	607
Wettstein, Herman, Harvard, Ill. Fire-escape	312,683	Feb. 24	1669	459, 460	30	683
Wettstein, Herman, Harvard, Ill. Fire-escape	312,684	Feb. 24	1671	460	30	684
Weyerbusch, Emil, Elberfeld, Germany. Machine for shaping buttons	311,700	Feb. 3	313	85, 86	30	408
Weyman, Charles T. (See Weyman, George W., assignor.)						
Weyman, George W., assignor of one-half to C. T. Weyman, Philadelphia, Pa. Press for the manufacture of insulators and other glass articles	310,484	Jan. 6	407	112	30	79
Whartenby, Frank L., Hopewell, Ohio. Vehicle-spring	312,778	Feb. 24	1799	495	30	707
Wharton Railroad Switch Company. (See Johnston, Edward H., assignor.)						
Wheat, Van Buren, Orleans, N. Y. Wood-steaming apparatus	310,926	Jan. 20	985	268	30	195
Wheeler, Charles M., and E. B. Hindes, San Francisco, Cal. Automatic advertising device	313,143	Mar. 3	138	34	30	802
Wheeler, Clark W., assignor to J. Kressin, Kenosha, Wis. Buckle	313,142	Mar. 3	137	33	30	802
Wheeler, George M., assignor of one-half to J. Adams, Wausau, Wis. Friction-gearing	310,867	Jan. 13	898	243	30	175
Wheeler, Julian M., *et al.* (See Benedict, Jacob, assignor.)						
Wheeler, Lambert, assignor to L. Wheeler, Allentown, N. Y. Rope drill-jar	311,157	Jan. 20	1317	362	30	256
Wheeler, Lizzie. (See Wheeler, Lambert, assignor.)						
Wheeler, Ransom S., Red Oak, Mo. Car-coupling	312,310	Feb. 17	1169	320	30	581
Wheeler, Schuyler S., assignor to C. A. Cheever, trustee, New York, N. Y. Electric fire-engine system	312,939	Feb. 24	2004	548	30	743
Wheeler, Seth, Albany, N. Y. Copying-machine	314,091	Mar. 17	1435	375	30	1061
Wheeler, William H., Mohawk Village, Ohio. Harness-saddle	310,238	Jan. 6	96	26	30	20
Wheelock, Charles B. (See Stetson, Amos H., assignor.)						
Wherry, John, Jr., Putnam, Ill. Cultivator	311,931	Feb. 10	629	173	30	474
Whipple, Effinger E., Eaton Rapids, Mich. Harness	311,399	Jan. 27	1668	455	30	327
Whipple, Effinger E., Eaton Rapids, Mich. Tongueless cultivator	312,050	Feb. 10	795	217, 218	30	504
Whipple, Effinger E., Eaton Rapids, Mich. Cultivator	314,767	Mar. 31	2353	623	30	1266
Whipple, John A., Boston, Mass. Map-exhibitor	314,405	Mar. 24	1847	492	30	1147
Whitaker, Clarence E., Hyde Park, Mass. Soap-molding machine	313,564	Mar. 10	718	188, 189	30	920
Whitaker, Thomas, Horseforth, county of York, England. Pile-driving machine	313,637	Mar. 10	812	212, 213	30	937
Whitbeck, George V. H., Phelps, N. Y. Wheelbarrow grass-seed sower	313,565	Mar. 10	721	189	30	921
Whitcomb, James A., Washington, D. C. Making sweet-potato flour	310,927	Jan. 20	986	.....	30	196
Whitcomb, Marcellus L., Muskegon, Mich. Window-screen	312,685	Feb. 24	1672	461	30	684
White, Addison H., *et al.* (See Hull, Richard L., assignor.)						
White, Albert M., Waterbury, assignor to Pope Manufacturing Company, Hartford, Conn. Velocipede-wheel	310,857	Jan. 13	886	240	30	173
White Dental Manufacturing Company, S. S. (See How, Woodbury S., assignor.)						
White Dental Manufacturing Company, S. S. (See Logan, Marshall L., assignor.)						
White Dental Manufacturing Company, S. S. (See Starr, Eli T., assignor.)						
White Dental Manufacturing Company, S. S. (See Starr and Teal, assignors.)						
White, Howard W. (See Edson, Julius T., assignor.)						
White, John H., Washington, D. C., assignor to National Typographic Company, of West Virginia. Machine for justifying matrix-strips	311,400	Jan. 27	1669	455, 456	30	328
White, Lewis B., Norfolk, Va. Plow	313,394	Mar. 3	497	129, 130	30	868
White, Luther N. (See Harrison and White.)						
White, Nelson S., Canton, Mass. Protecting incandescent electric lights	314,208	Mar. 17	1580	418	30	1087
White, Peter, St. Louis, Mo. Hydrant	312,686	Feb. 24	1673	461	30	684
White, Peter, St. Louis, Mo. Water-closet valve	312,687	Feb. 24	1673	461	30	684
White, Thomas H., St. Louis, Mo. Fire-proof composite roof	313,971	Mar. 17	1282	335	30	1032
Whitehead, John H., Leeds, county of York, England. Roller-stand for combing-machines	314,406	Mar. 24	1848	492	30	1148
Whitehurst, Robert J., Clear Water Harbor, Fla. Hoe	313,972	Mar. 17	1284	335	30	1032
Whiteley, William N., Springfield, Ohio. Sheaf-carrier	311,550	Feb. 3	129	37	30	373
Whiteman, Israel R. (See Pitts and Whiteman.)						
Whiting, J. Hill, Detroit, Mich. Foundry-plant	314,768	Mar. 31	2357	623, 624	30	1266
Whitlock, James G., Richmond, Va. Stove-door handle	312,940	Feb. 24	2008	548	30	743
Whitman, Francis S., *et al.* (See Cuming, Alfred A., assignor.)						
Whitney, James S., Lowell, Mass. Machine-gun	311,551	Feb. 3	130	37, 38	30	373
Whitney, Ruel W., New York, N. Y. Automatic tension for sewing-machines	314,635	Mar. 31	2163	574	30	1230
Wicks, Richard V., Brooklyn, N. Y. Chamfering-plane	310,349	Jan. 6	257	70	30	49
Wiener, Meyer H., Buffalo, N. Y. Scale beam and poise	312,779	Feb. 24	1800	495	30	707
Wiesebrock, Frederick W., New York, N. Y., assignor of two-thirds to S. C. Shaeffer, Lancaster, Ohio. Apparatus for treating the refuse from breweries	312,592	Feb. 17	1555	423, 424	30	653
Wiesebrock, Frederick W., New York, N. Y., assignor of two-thirds to S. C. Shaeffer, Lancaster, Ohio. Preserving brewers' grain	312,593	Feb. 17	1557	424	30	654

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Wiggers & Froelick. (See Schott, William, assignor.)						
Wiggin, Frank L. (See Wiggin, William H. and F. L.)						
Wiggin, William H. and F. L., Lowell, Mass. Turn-out for store-service tracks	310,765	Jan. 13	779	210	30	153
Wiggin, William H. and F. L., assignors to W. S. Lamsen, Lowell, Mass. Switch for cash-railways	310,764	Jan. 13	777	210	30	152
Wight, Albion P., Jr. (See Spear and Wight.)						
Wilber, William H., assignor of one-half to P. P. Steber, Buffalo, N. Y. Paint	311,401	Jan. 27	1673	.....	30	328
Wilcox, Crittenden & Co. (See Read, James, assignor.)						
Wilcox, Edward M., and W. J. Hopkins, Whitewater, Wis. Sweep-coupling for grinding-mills	313,144	Mar. 3	140	34	30	802
Wilcox, John F. (See Witherow, Oliver, Wilcox, and Tener.)						
Wilcox, John F., Pittsburg, Pa. Converter	314,551	Mar. 24	2044	545	30	1181
Wilcox, Harlow M., Milwaukee, assignor to C. S. Martin and M. J. Wilcox, Wausau, Wis. Saw-mill dog	314,279	Mar. 24	1679	447, 448	30	1115
Wilcox, Marilla J., *et al.* (See Wilcox, Harlow M., assignor.)						
Wilcox, Stephen, Brooklyn, N. Y. Friction-gear	312,780	Feb. 24	1802	496	30	707
Wilder, Flavius M. (See Rice, Sword, and Wilder.)						
Wilder, Jones W., Parkville, N. Y. Sealing milk-bottles	311,932	Feb. 10	631	174	30	474
Wilder, William J., Ansonia, Conn. Coating metal	313,700	Mar. 10	896	233	30	954
Wildey, George, and A. Rollins, Brooklyn, N. Y. Plug-tobacco machine	313,903	Mar. 17	1184	308	30	1014
Wiles, Thomas S., Albany, N. Y. Drier	314,500	Mar. 24	1982	529	30	1171
Wiley & Russell Manufacturing Company. (See MacCarthy, Dennis E., assignor.)						
Wilhelm, Bartholomy, assignor of one-half to J. H. Kamps, Appleton, Wis. Cork-screw	310,766	Jan. 13	781	211	30	153
Wilhöft, Franz, New York, N. Y. Heating and cooling coil and producing the same	311,552	Feb. 3	132	38	30	373
Wilke, Alvin. (See Payne, William H., assignor.)						
Wilkeson, William. (See Howell, William H., assignor.)						
Wilkin, Theodore S., Milwaukee, Wis. Saw-mill head-block	311,701	Feb. 3	316	87	30	408
Wilkin, Theodore S., Milwaukee, Wis. Saw-mill dog	313,395	Mar. 3	500	130	30	869
Wilkin, Theodore S., Milwaukee, Wis. Saw-mill set-works	313,396	Mar. 3	502	130, 131	30	869
Wilkins, Alexander G., Meadville, Pa., and J. B. Miller, Kent, Ohio, assignors to Wilkins Shoe Button Fastener Company, Meadville, Pa. Apparatus for attaching buttons to fabrics	312,688	Feb. 24	1674	461, 462	30	684
Wilkins, Alexander G., assignor to Wilkins Shoe Button Fastener Company, Meadville, Pa. Apparatus for attaching buttons	314,092	Mar. 17	1436	375	30	1061
Wilkins, Edward S., Stowe, Vt. Sap-bucket and cover	313,397	Mar. 3	504	131	30	870
Wilkins, Frank R., Lawrence, assignor to Wilkins Locomotive Car Coupling Company, Boston, Mass. Car-coupling	313,269	Mar. 3	340	84	30	838
Wilkins Locomotive Car Coupling Company. (See Wilkins, Frank R., assignor.)						
Wilkins Shoe Button Fastener Company. (See Wilkins, Alexander G., assignor.)						
Wilkins Shoe Button Fastener Company. (See Wilkins and Miller, assignors.)						
Wilkinson, Algernon L., Huntsville, Ala. Automatic switch-signal	312,239	Feb. 10	1061	292	30	552
Wilkinson, Algernon L., Huntsville, assignor of one-eighth to J. L. Rison, Madison County, Ala. Sash-holder	314,896	Mar. 31	2532	670	30	1297
Wilkinson, Charles E., Matteawan, N. Y., assignor to Willimantic Linen Company, Willimantic, Conn. Unwinding attachment for spools and bobbins	311,625	Feb. 3	220	62	30	390
Wilkinson, George W., Kensington, county of Middlesex, England. Soldering-iron	312,941	Feb. 24	2008	549	30	743
Will, Herman, Chicago, Ill. Bottle-filling machine	314,290	Mar. 24	1681	448	30	1115
Willard, Henry F. (See Butterfield, David N., assignor.)						
Willer, Henry E., Milwaukee, Wis. Window-blind slat	312,051	Feb. 10	800	218	30	504
Willer, Henry E., Milwaukee, Wis. Window-frame	312,052	Feb. 10	800	218	30	504
Willer, Henry E., Milwaukee, Wis. Window-shutter	312,053	Feb. 10	801	219	30	505
Willet, Michael. (See Orbits and Willet.)						
Willetts, William R., and H. Ball, Stamford, Conn. Rock-drill	314,897	Mar. 31	2533	670	30	1297
Williams, Alfred, assignor to Williams, White & Co., Moline, Ill. Drop-hammer lifter	310,969	Jan. 20	1054	286	30	208
Williams, Charles H., Worcester, assignor to T. C. Bates, North Brookfield, Mass. Corset-fastening	312,054	Feb. 10	802	219	30	505
Williams, Charles H., Worcester, assignor to T. C. Bates, North Brookfield, Mass. Corset-fastening	312,055	Feb. 10	803	219	30	505
Williams, Charles H., Worcester, assignor to T. C. Bates, North Brookfield, Mass. Corset-fastening	312,238	Feb. 10	1060	292	30	552
Williams, Charles W., Cave City, Ky., E. B. Ives, New York, N. Y., and G. S. Barnum, Atlanta, Ga. Telegraphic apparatus	313,462	Mar. 3	591	152	30	887
Williams, Christopher, Adrian, Mich. Steam-boiler	313,566	Mar. 10	722	189	30	921
Williams, David H., Bellaire, Ohio. Steel-ladle-drying furnace	313,701	Mar. 10	897	233	30	954
Williams, Frank, Newark, N. J. Screen-plate or pulp-strainer for paper-making machines	313,037	Feb. 24	2143	583	30	767
Williams, Frederic T., Jamestown, N. Y. Seed-planter	312,689	Feb. 24	1676	462	30	685
Williams, George M., Newark, Del. Corn-planter	312,504	Feb. 17	1550	425	30	654
Williams, George R., Ithaca, N. Y. Thermostat	311,933	Feb. 10	632	174	30	474
Williams, Gurdon H., Greensburg, Ohio. End-gate for wagons	314,407	Mar. 24	1848	493	30	1148
Williams, James, Laytonville, Md. Feathering paddle-wheel	310,350	Jan. 6	259	71	30	49
Williams, John C., Aurorahville, Wis. Breeching attachment for vehicles	312,416	Feb. 17	1309	361	30	608
Williams, John H., Texarkana, Ark., assignor of one-half to T. W. Palmer, Gonzales, Tex. Locomotive-brake	314,209	Mar. 17	1581	419	30	1087
Williams, John J., Point Pleasant, Mo. Propeller	312,781	Feb. 24	1803	496	30	707
Williams, John N., Stapleton, N. Y. Stop and lock for pawl-and-ratchet mechanism	312,942	Feb. 24	2009	549	30	743
Williams, John S., Chicago, Ill. Hasp	311,934	Feb. 10	633	174	30	475
Williams, Lewis, assignor to Cambria Iron Company, Johnstown, Pa. Apparatus for annealing wire	312,417	Feb. 17	1311	362	30	608
Williams Manufacturing Company. (See Bartlett, Roland S., assignor.)						
Williams, Orlando E. (See Poole and Williams.)						
Williams, White & Co. (See Williams, Alfred, assignor.)						
Williams, William, Huntingdon, Pa. Indicator for base-ball or cricket fields	311,278	Jan. 27	1510	412	30	298
Williamson, Henry C., Michigan City, Ind. Boiler-furnace	313,567	Mar. 10	723	189	30	921
Williamson, Henry C., Michigan City, Ind. Grate	313,904	Mar. 17	1186	308	30	1014
Williamson, Sarah A. H., Carson City, Nev. Stove	314,093	Mar. 17	1437	376	30	1061
Willimantic Linen Company. (See Wilkinson, Charles E., assignor.)						
Willis, Josephus T., Cuba Station, Ala. Scissors	311,702	Feb. 3	317	87	30	408
Willis, Robert L., Sherman, Tex. Water-gage	311,093	Jan. 20	1229	336	30	241
Willkomm, Karl F., and C. Schumann, Freiberg, Saxony, Germany. Ore-concentrator	313,145	Mar. 3	141	35	30	803
Willox, Peter. (See Simpson, Henry C., assignor.)						
Wills, Samuel, assignor of one-half to R. Clark, Camden, N. J. Car-axle box	314,408	Mar. 24	1849	493	30	1148
Willsie, Charles, Wellington, Kans. Wire stretcher and support	313,146	Mar. 3	142	36	30	803
Willson, Osborn, Aurora, Ill. Two-wheeled vehicle	312,690	Feb. 24	1677	462	30	685
Willmot, James K., Oconee, Ill. Farm-gate	312,311	Feb. 17	1171	320	30	581

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Wilson, Arthur N., assignor of one-half to J. H. Smith, Salem, Mass. Filter	314,281	Mar. 24	1692	448	30	1115
Wilson, Charles A., Cincinnati, Ohio. Compound steam-pumping engine	313,793	Mar. 10	1030	264 265	30	977
Wilson, Charles R., assignor of one-half to J. C. Wilson, Detroit, Mich. Gear-iron for vehicles	311,094	Jan. 20	1229	337	30	241
Wilson, Charles W., Lynn, Mass. Sole-edge-trimming tool	314,898	Mar. 31	2535	670	30	1299
Wilson, Frank, assignor of two-thirds to J. L. and J. E. Wilson, Easton, Pa. Grinding-mill	311,696	Feb. 3	222	63	30	391
Wilson, George W., Murdock, Ill. Cultivator	314,094	Mar. 17	1438	376	30	1061
Wilson, Homer T., and B. B. Sanders, Dallas, Tex. Churn	314,501	Mar. 24	1984	530	30	1171
Wilson, James E., *et al.* (See Wilson, Frank, assignor.)						
Wilson, John B., Petersburg, Ill. Stump-extractor	310,767	Jan. 13	781	211	30	153
Wilson, John C., Boston, Mass., assignor to Municipal Signal Company, Portsmouth, N. H. Municipal telegraph	313,147	Mar. 3	144	36	30	803
Wilson, John L., *et al.* (See Wilson, Frank, assignor.)						
Wilson, Joseph B., Clayton, N. J. Fruit-jar	312,595	Feb. 17	1560	425	30	654
Wilson, Joseph B., Clayton, N. J. Fruit-jar	312,596	Feb. 17	1561	425	30	655
Wilson, Joseph C. (See Wilson, Charles R., assignor.)						
Wilson, Joseph W., Brookville, Kans. Feeder for roller-mills	314,552	Mar. 24	2046	545	30	1181
Wilson, Merrick F., Chicago, assignor of one-half to C. R. Steele and V. C. Price, Waukegan, Ill. Machine for cutting paper tubes	310,629	Jan. 13	601	165	30	120
Wilson, Nelse, Hutto, Tex. Sash-fastener	313,638	Mar. 10	814	213	30	938
Wilson, Oliver B. (See Giffard, George W., assignor.)						
Wilson, Peter M., New York, N. Y. Elevator-hatch	312,752	Feb. 24	1804	496	30	707
Wilson, Robert M., New York, N. Y. Fire-escape ladder	314,899	Mar. 31	2536	671	30	1299
Wilson, Robinson P., Vicksburg, Miss. Car-coupling	311,216	Jan. 27	1409	384	30	279
Wilson, Solon T., Echo, Tex. Suspension-bridge	314,900	Mar. 31	2538	671	30	1299
Wilson, Thomas J., Auburn, N. Y. Wrench	314,095	Mar. 17	1439	376	30	1062
Wilson, Thomas J., Newark, N. J. Combined lace-pin and flower-holder	314,502	Mar. 24	1985	530	30	1171
Wilson, Thomas L., Port Hope, Ontario, Canada. Railway-car	311,553	Feb. 3	132	38	30	373
Wilt, George B., assignor of one-half to W. M. Page, Bradford, Pa. Railway-rail joint	311,454	Jan. 27	1740	474	30	340
Wimpee, George C., Rome, Ga. Lifting-jack	313,794	Mar. 10	1032	265	30	977
Winane, George G. (See Champlain and Winans.)						
Winans, Herman W., assignor to J. K. Ford, New York, N. Y. Braiding-machine	313,905	Mar. 17	1186	308 309	30	1014
Winans, Thomas J., assignor to J. P. Noyes & Co., Binghamton, N. Y. Button	312,543	Feb. 24	2010	549	30	744
Winchell, James F., assignor to Foos Manufacturing Company, Springfield, Ohio. Blower	314,901	Mar. 31	2539	671	30	1299
Winchester, Edward S., Boston, Mass. Shuttle-operating mechanism for looms	310,970	Jan. 20	1055	286	30	208
Winchester Repeating Arms Company. (See Clough, Jefferson M., assignor.)						
Winchester Repeating Arms Company. (See Mason, William, assignor.)						
Winchester Repeating Arms Company. (See Parker, Edward, assignor.)						
Wineland, William H. (See Buckley and Wineland.)						
Wing, Benedict and J., Table Rock, Nebr. Washing-machine	311,935	Feb. 10	634	174	30	475
Wing, Daniel S., New York, N. Y. Hand-truck	310,485	Jan. 6	408	112	30	79
Wing, Joel. (See Wing, Benedict and J.)						
Wing, Levi J., Brooklyn, N. Y. Apparatus for circulating and attempering air in malt-houses and other buildings	312,597	Feb. 17	1562	426	30	655
Winkelmann, Johann F. A., Schell City, Mo. Rein-holder	314,350	Mar. 24	1785	475	30	1135
Winkler, Egbert. (See Weinberg, Clark, and Winkler.)						
Winn, Willis O. (See Lampton, William R., assignor.)						
Winne, William L., Albany, assignor of one-half to J. Godwin, New York, N. Y. Fastening device for horse-blankets	314,902	Mar. 31	2540	672	30	1299
Winship, George, assignor to Winship Machine Company, Atlanta, Ga. Cotton-gin feeder	313,038	Feb. 24	2144	583	30	767
Winship Machine Company. (See Winship, George, assignor.)						
Winsor, Charles F., San Quentin, Cal. Rigging for boats	313,398	Mar. 3	505	131	30	870
Winsor, George W. (See Mason and Winsor.)						
Winsted Norway Bolt Company. (See Stacker, John, assignor.)						
Winter, Caroline H., St. Paul, Minn. Shoe	312,056	Feb. 10	804	219	30	505
Winters, Alanson D., Bombay, N. Y. Truss	314,503	Mar. 24	1986	530	30	1171
Winters, Byron. (See Hulburt, James H. assignor.)						
Winters, George W., Knoxville, Iowa. Windmill	313,148	Mar. 3	147	36	30	804
Winton, Henry D., Wellesley Hills, Mass. Single-rail circuit for electric railway-signals	311,050	Jan. 20	1163	318	30	229
Winton, Moses T., Binghamton, N. Y. Paint-tub for wagon-wheels	311,217	Jan. 27	1410	385	30	280
Wirt, Paul E., Bloomsburg, Pa. Fountain-pen	311,554	Feb. 3	133	38	30	374
Wise, Joseph, assignor to J. Wise & Son, Watertown, N. Y. Drawer-pull	311,158	Jan. 20	1317	362	30	256
Wise & Son, J. (See Wise, Joseph, assignor.)						
Wise, William P., assignor of two-thirds to C. N. Kantz and L. B. Langworthy, Bristol, Ind. Composition slating for blackboards, &c	314,636	Mar. 31	2165	.....	30	1230
Wisehart, Jackson, *et al.* (See Thoroughgood, John E., assignor.)						
Wiswell, Lowell M., Boston, Mass. Roller-skate	311,936	Feb. 10	635	175	30	475
Wisner, Fred, Ridgway, Pa., assignor to himself and A. M. Hall, Olean, N. Y. Tea or coffee pot	311,455	Jan. 27	1741	474	30	340
Wissen, Joseph, Decatur, Ill. Sled-propeller	314,210	Mar. 17	1582	419	30	1087
Witham, Edwin E., Stark, N. H. Carriage-top	314,903	Mar. 31	2541	672	30	1299
Witherow, James P., Allegheny, Pa. Purifying pig-iron	314,504	Mar. 24	1987	530	30	1172
Witherow, James P., H. W. Oliver, Jr., J. F. Wilcox, and G. E. Tener, Pittsburg, Pa.; said Wilcox and Tener assignors to said Oliver and Witherow. Ingot iron and steel	314,505	Mar. 24	1988	.....	30	1172
Witherow, James P., H. W. Oliver, Jr., J. F. Wilcox, and G. E. Tener, Pittsburg, Pa.; said Wilcox and Tener assignors to said Oliver and Witherow. Making ingot iron and steel	314,506	Mar. 24	1989	.....	30	1172
Withington, James, Chambersburg, assignor to Trenton Iron Company, Trenton, N. J. Cone-pulley	311,402	Jan. 27	1674	456 457	30	328
Withrow, Joseph A., Scranton, Iowa. Check-rowing attachment for corn-planters	312,783	Feb. 24	1806	496	30	708
Witmer, Abraham R., Safe Harbor, Pa. Car-starter	311,627	Feb. 3	224	63	30	391
Witte, Lewis H., Cleveland Ohio. Triturator	313,906	Mar. 17	1188	309	30	1014
Wittemann Brothers. (See Bannwart and Ernold, assignors.)						
Witzel, August, Deadwood, Dak. Ter. Support for buggy-tops	311,703	Feb. 3	318	87	30	409
Wolcott, Hyman D., Wrights, Pa. Saw-arbor	314,637	Mar. 31	2165	574	30	1230
Wolf, Alfred S. (See King, Phineas F., assignor.)						
Wolf, Elihu, North Vernon, Ind. Neck-yoke clamp	310,351	Jan. 6	260	71	30	49
Wolfe, Gurdon G., assignor to Fuller & Warren Company, Troy, N. Y. Stove	313,568	Mar. 10	723	190	30	921
Wolfe, John J., West Millville, Pa. Car-coupling	311,628	Feb. 3	225	63	30	391
Wolfinger, Joseph A., *et al.* (See Ewing, Reuben H., assignor.)						
Wolfinger, William J., *et al.* (See Ewing, Reuben H., assignor.)						
Wollensak, John F., Chicago, Ill. Transom-lifter	310,352	Jan. 6	260	71	30	50

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Wood, Clandius D., Alexandria, Minn. Sack-holder	310,353	Jan. 6	261	72	30	50
Wood, D. Rush. (See Russell and Wood.)						
Wood, Edwin A., Utica, N. Y. Steam-heating device	311,704	Feb. 3	319	87	30	409
Wood, John B., assignor to M. M. Wood and W. L. Quinn, Brooklyn, N. Y. Mixed paint	312,784	Feb. 24	1807	.....	30	708
Wood, Joseph M., assignor to Ætna Glass and Manufacturing Company, Bellaire, Ohio. Mold for glass lamps, &c	312,312	Feb. 17	1171	321	30	581
Wood, Mary M., *et al.* (See Wood, John B., assignor.)						
Wood, Newell B., Washington, Ohio. Grain-drill	311,051	Jan. 20	1165	318 319	30	229
Wood, Thomas J. (See Wallace and Wood.)						
Wood, W. Dewees, Pittsburg, Pa. Making sheet-iron	310,354	Jan. 6	263	.....	30	50
Wood, William H., *et al.* (See Hemingway, Henry N., assignor.)						
Woodbury, Walter B., assignor to F. N. Clarke, London, England. Producing gelatinous printing-plates	310,486	Jan. 6	410	.....	30	79
Woodman, Clarence S., Wichita, Kans. Car-coupling	311,798	Feb. 3	435	118	30	430
Woodruff, M. N., *et al.* (See Pearce, William, assignor.)						
Woodruff, Miller & Co. (See Howard, Arthur L., assignor.)						
Woods, Arthur T., Champaign, Ill. Nut-lock	313,149	Mar. 3	149	37	30	804
Woods, L. F., *et al.* (See Smith, T. Albee, assignor.)						
Woods, Sherwood & Co. (See Corey, George D., assignor.)						
Woodward, Abner. (See Schroyer, Stephen, assignor.)						
Woodward, Erastus, Somerville, Mass., assignor, by mesne assignments, to G. W. Prentice, Providence, R. I., and W. A. Boland, Lynn, Mass. Machine for attaching buttons	311,456	Jan. 27	1742	474	30	340
Woodward, Erastus, Somerville, assignor to W. A. Boland, Lynn, Mass., and G. W. Prentice, Providence, R. I. Button-setting machine	311,457	Jan. 27	1743	475	30	341
Woodward, Erastus, Somerville, Mass., assignor to Belle Patent Button Fastener Company, Kennebunk, Me. Button-fastening strip	314,553	Mar. 24	2047	545	30	1182
Woodward, Erastus, Somerville, and G. W. Copeland, Malden, assignors to I. M. Harmon, Boston, Mass. Tack-strip	312,691	Feb. 24	1679	402	30	685
Woodworth, James R., Nunda, N. Y. Boiler-flue cleaner	310,549	Jan. 6	501	138	30	96
Woolaston, Joseph H. (See Barnes and Woolaston.)						
Wooley, Albert L., *et al.* (See Coffield, Peter T., assignor.)						
Woolley, Leonidas G., Indianapolis, Ind., assignor to Ohio Power and Light Company, Dayton, Ohio. Electric-arc lamp	310,630	Jan. 13	602	166	30	121
Woolley, Leonidas G., Indianapolis, Ind., assignor to Ohio Power and Light Company, Dayton, Ohio. Focusing electric-arc lamps	313,039	Feb. 24	2145	583 584	30	768
Woolsey, Atanson, Madison, Mich. Road-scraper	312,313	Feb. 17	1172	321	30	581
Woolsey, William W., Aiken, S. C. Sanitary ice-chest pail	313,463	Mar. 3	506	152	30	887
Work, Charles L., Philadelphia, Pa., assignor to Pope Manufacturing Company, Boston, Mass. Velocipede	314,160	Mar. 17	1522	399	30	1076
Work, Jeff. (See Pritchard, John T., assignor.)						
Worley, Edward G., New York, N. Y. Door-opener	313,464	Mar. 3	507	153	30	887
Worsley, John, Chester, Pa. Suspended scaffold	313,465	Mar. 3	508	153	30	887
Worswick Manufacturing Company. (See Murphy, Cornelius D., assignor.)						
Worthen, William H., assignor to Guild & Garrison, Brooklyn, N. Y. Piston for compressor and other pumps and engines	311,029	Feb. 3	226	63	30	391
Worthen, William H., assignor to Guild & Garrison, Brooklyn, N. Y. Direct-acting pumping-engine	314,161	Mar. 17	1523	399 400	30	1077
Wotapek, Bertha, administratrix. (See Wotapek, Joseph.)						
Wotapek, Joseph, deceased; B. Wotapek, New York, N. Y., administratrix. Exhaust-nozzle for locomotives	310,768	Jan. 13	782	211	30	154
Wotapek, Joseph, deceased; B. Wotapek, New York, N. Y., administratrix. Exhaust-nozzle for locomotives	310,769	Jan. 13	784	211	30	154
Wray, James L., Watseka, Ill. Composition for the manufacture of artificial stone	312,057	Feb. 10	804	.....	30	506
Wren, Patrick, Franklin, Mass. Mold for making rubber boots and shoes	311,458	Jan. 27	1744	475	30	341
Wright, Charles A., Philadelphia, Pa. Card-beveling machine	313,639	Mar. 10	815	213	30	938
Wright, Charles D., and C. A. Fisher, Petersburg, Ill.; said Fisher assignor of part to said Wright. Automatic shunt for telephone-lines	313,640	Mar. 10	817	214	30	938
Wright, Frank M., Palmyra, N. Y. Bosom-board	314,211	Mar. 17	1583	419	30	1087
Wright, James E., New York, N. Y. Remedy for dyspepsia	314,212	Mar. 17	1583	.....	30	1087
Wright, John E., New York, N. Y., and J. H. Longstreet, Hoboken, N. J. Printing-telegraph	311,218	Jan. 27	1410	385	30	280
Wright, John H., Bridgeport, Conn. Feed-actuating mechanism	312,058	Feb. 10	805	220	30	506
Wright, John H., Bridgeport, Conn. Clutch-operating mechanism	312,059	Feb. 10	808	220 221	30	506
Wright, John H., Bridgeport, Conn. Shipping device for metal planing and shaping machines	312,060	Feb. 10	810	221	30	506
Wright, Marcus L., Newton, N. J. Device for preventing accidents in elevators	313,842	Mar. 10	1096	284 285	30	988
Wright, Morris S., assignor of one-half to A. P. Carpenter, Worcester, Mass. Stop-action for organs	310,239	Jan. 6	97	26	30	21
Wroth, Alfred B., assignor to C. Dietrich, Omaha, Nebr. Ice-chest for beer	314,984	Mar. 31	2654	702	30	1319
Wulff, Adolph, assignor of one-half to A. Ramsey, St. Paul, Minn. Automatic railway-switch	314,554	Mar. 24	2048	546	30	1182
Wünsch, Christian, Camden, N. J. Ice-velocipede	311,862	Feb. 3	518	140	30	445
Wuth, W. A. Otto, Pittsburg, Pa. Removing silicon from wrought-iron	311,159	Jan. 20	1318	.....	30	257
Wyman, Richard H., Evanston, Ill. Railway-car cover	312,785	Feb. 24	1807	497	30	708
Wyman, Richard H., Evanston, Ill. Car-cover	312,786	Feb. 24	1808	497	30	708
Wyman, Richard H., Evanston, Ill. Guard for freight-car covers	312,787	Feb. 24	1810	497	30	708
Wynne, George F., Minera, near Wrexham, county of Denbigh, assignor to T. R. Jordan and R. E. Commans, London, England. Rock-drill	314,213	Mar. 17	1584	419	30	1088
Yagn, Nicholas, St. Petersburg, Russia. Hydraulic motor	310,770	Jan. 13	785	212	30	154
Yale & Towne Manufacturing Company. (See Stockwell, Emory, assignor.)						
Yaryan, Homer T., Toledo, Ohio. Manufacture of linseed and other oils	312,418	Feb. 17	1311	362	30	608
Yeiser, Henry C., assignor to Globe Files Company, Cincinnati, Ohio. Paper-clip	314,769	Mar. 31	2359	624	30	1267
Yellott, George, Towson, Md. Centrifugal pump	312,788	Feb. 24	1811	498	30	708
Yeoman, David S., Brooklyn, N. Y. Reversible cork sole	312,544	Feb. 17	1497	408	30	642
Yerdon, William, Fort Plain, N. Y. Bag-holder	314,770	Mar. 31	2360	625	30	1267
Yohe, George N., *et al.* (See Pentz, Levi, assignor.)						
Yonge, William W., Chattanooga, Tenn. Combined knife, eraser, letter-opener, &c	314,507	Mar 24	1992	531	30	1172
Yost, George W. N., New York, N. Y., assignor, by mesne assignments, to American Writing Machine Company of New York. Type-writing	313,973	Mar. 17	1285	335 336	30	1032
Yost, Joseph L., Wallingford, Conn. Bicycle	310,858	Jan. 13	887	240	30	174
Yost, Joseph L., Wallingford, Conn. Vehicle-wheel	312,692	Feb. 24	1679	403	30	685
Yost, Richard D., Glencoe, Md. Sieve-operating device	314,904	Mar. 31	2542	672	30	1299

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Young, Alden M., assignor of one-fourth to D. S. Plume, Waterbury, Conn. Electric battery	311,630	Feb. 3	227	64	30	391
Young, Cornelius, assignor to Howland & Co., Sandy Hill, N. Y. Stuff-regulator for paper-machines	312,314	Feb. 17	1174	322	30	562
Young, David, Stockton, Cal. Traveling thrasher	311,705	Feb. 3	320	88	30	409
Young, Edmund L., and L. Dyer, Millbridge, Me. Machine for making wire-solder	312,598	Feb. 17	1563	426	30	655
Young, Francis H., and F. I. Davis, Port Morris, N. J. Automatic time-signal for railways, &c	311,706	Feb. 3	321	88	30	409
Young, Francis M., Chicago, Ill. Making whisky	314,096	Mar. 17	1440	376	30	1062
Young, Hugh, New York, N. Y. Machine for scouring and polishing stone	314,905	Mar. 31	2543	672	30	1299
Young, Hugh, New York, N. Y. Transmitting power to cranes and other hoisting apparatus	314,906	Mar. 31	2544	673	30	1299
Young, Jackson B., Sioux Falls, Dak. Ter. Time-lock	314,282	Mar. 24	1683	448 / 449	30	1116
Young, Jackson B., Sioux Falls, Dak. Ter. Time-lock	314,283	Mar. 24	1686	449	30	1116
Young, John, assignor to Western Electric Company, Chicago, Ill. Fire-alarm signal-box	313,040	Feb. 24	2146	584	30	768
Young, Loy B., assignor to himself and S. O. Lewis, Newport, Ark. Saw-swage	312,061	Feb. 10	811	221	30	507
Young, Oliver B., assignor of one-half to W. T. Blennman, Detroit, Mich. Combined mail-pouch lock and cord-case	314,985	Mar. 31	2655	702	30	1310
Youngs, Quinten M., Utica, N. Y. Rein-holder	314,409	Mar. 24	1850	493	30	1148
Yzaba y Lazarte, Hilario, and E. P. Larée, Santa Clara, Cuba. Heater and evaporator for sirup and other liquids	311,799	Feb. 3	437	118	30	430
Zahn, Henry, Chicago, Ill. Composition for soap	311,555	Feb. 3	136	.....	30	374
Zalinski, Edmund L., U. S. Army. Electric shell-fuse	313,150	Mar. 3	150	37	30	804
Zaruba, Jaroslav. (See Gard and Zaruba.)						
Zeigler, George W., Washington, D. C. Adjustable clamping device	312,419	Feb. 17	1312	362	30	609
Zellh, John H., Philadelphia, Pa. Key	312,545	Feb. 17	1497	408	30	642
Ziegler, Oscar J., assignor to Stover Manufacturing Company, Freeport, Ill. Truing castings	312,693	Feb. 24	1680	463	30	685
Zeller, J. J. A. (See Swift and Phelps, assignors.)						
Zellner, William, Paterson, N. J. Steam-generator	313,270	Mar. 3	340	84	30	838
Zimmerling, August F., Milwaukee, Wis. Gas-fluid	313,795	Mar. 10	1033	.....	30	978
Zimmerman, Casper, Owatonna, Minn. Wagon-seat	314,410	Mar. 24	1851	493	30	1148
Zimmerman, John E., assignor to Springfield Brass Company, Springfield, Ohio. Cover for oil-cups	314,638	Mar. 31	2166	575	30	1230
Zipfel, Barnhard. (See Hoagland and Zipfel.)						
Zitzman, Edward H. (See Brill and Zitzman.)						
Zornow, Charles, Brooklyn, N. Y., assignor of one-half to C. Brand. Mirror-stand	312,062	Feb. 10	812	221	30	507

ALPHABETICAL LIST OF PATENTEES OF DESIGNS.

Name, residence, and design.	No.	Date.	Official Gazette. Volume.	Official Gazette. Page.
Adams, Dewey F., Providence, R. I. Badge or breastpin	15,756	Feb. 3	30	348
Adams, George Q., Quincy, Ill. Fence-picket	15,981 / 15,982	Mar. 24	30	1097
Andrews, Robert D., Boston, Mass. Parlor or heating stove	15,810	Feb. 17	30	562
Ansonia Brass and Copper Company, *et al.* (See Woodward, George W., assignor.)				
Babcock, Charles A., assignor to Pratt & Letchworth, Buffalo, N. Y. Carriage-step	15,757 to 15,762	Feb. 3	30	348
Baker, Pratt & Co. (See Day, Joseph C., assignor.)				
Barnes & Beyer. (See Hartley, John, assignor.)				
Barnhart, Alson E., *et al.* (See Guildenstine, Julius, assignor.)				
Barnhart, Alson E., *et al.* (See Heyer, Charles E., assignor.)				
Barnhart, Alson E., *et al.* (See Jackson, William W., assignor.)				
Barnhart, Arthur M., *et al.* (See Guildenstine, Julius, assignor.)				
Barnhart, Arthur M., *et al.* (See Heyer, Charles E., assignor.)				
Barnhart, Arthur M., *et al.* (See Jackson, William W., assignor.)				
Bascom, H. Clay, Troy, N. Y. Cooking-stove	15,678 / 15,679	Jan. 6	30	2
Bascom, H. Clay, Troy, N. Y. Cooking-stove	15,763	Feb. 3	30	348
Beal, Morton F., Boston, assignor to Lowell Manufacturing Company, Lowell, Mass. Carpet	15,782 / 15,783	Feb. 10	30	453
Beeler, Charles H., Jr., assignor to MacKellar, Smiths & Jordan, Philadelphia, Pa. Font of printing-type	15,811	Feb. 17	30	562
	15,812	Feb. 17	30	562
Benjamin, Frank, Lansingburg, N. Y. Needle-work holder				
Bendix, Herman. (See Salomon, Siegfried, assignor.)				
Benedict, George H., New York, N. Y. Package-holder	15,736	Jan. 20	30	182
Bernhard, Morris, assignor to Dreyfus Brothers, New York, N. Y. Pendant	15,737	Jan. 20	30	182
Bernhard, Morris, assignor to Dreyfus Brothers, New York, N. Y. Pendant	15,746	Jan. 27	30	264
Bigelow Carpet Company. (See Halliday, Arthur L., assignor.)				
Bigelow Carpet Company. (See Komori, Noric, assignor.)				
Bigelow Carpet Company. (See McCallum, William, assignor.)				
Bigelow Carpet Company. (See Pyne, Edmund, assignor.)				
Bigelow Carpet Company. (See Smith, Frank E., assignor.)				
Böttcher, Georg, Wurzen, Saxony, Germany. Mohair plush	15,924	Mar. 10	30	596
Brecht, Theodore C., Washington, D. C. Paper-cutter	15,764	Feb. 3	30	348
	15,747 to 15,749	Jan. 27	30	264
Brehmer, Henry, Stapleton, assignor to D. W. Bruce, New York, N. Y. Type	16,002	Mar. 31	30	1209
Brehmer, Henry, Stapleton, assignor to D. W. Bruce, New York, N. Y. Type				
Bromley, Edward, *et al.* (See Pegel, Julius, assignor.)				
Bromley, Edward, *et al.* (See Petzold, Adolph, assignor.)				
Bromley, John H., *et al.* (See Pegel, Julius, assignor.)				
Bromley, John H., *et al.* (See Petzold, Adolph, assignor.)				
Bromley, Joseph H., *et al.* (See Pegel, Julius, assignor.)				
Bromley, Joseph H., *et al.* (See Petzold, Adolph, assignor.)				
Brooke, Isaac, Pottstown, Pa. Money-box	15,983	Mar. 24	30	1097
Brooks & Son, George. (See Nuffer, Ernest G., assignor.)				
Brownell, William H., Brooklyn, N. Y. Plaque-frame	15,850	Feb. 24	30	663
Brownell, William H., Brooklyn, N. Y. Plaque	15,881	Mar. 3	30	778
Bruce, David W. (See Brehmer, Henry, assignor.)				
Bruce, David W. (See Ihlenburg, Herman, assignor.)				
Bryar, Samuel B. (See Scott and Bryar.)				
Bunker, William L., Chicago, Ill. Bracket for springs	15,984	Mar. 24	30	1097
Butterick Publishing Company. (See Tully, Louise, assignor.)				
Butterick Publishing Company. (See Turner, Mary, assignor.)				
Chaffee, Frederick H., and W. E. Colladay, Washington, D. C. Medal	15,925	Mar. 10	30	896
Chandler, Edward D., Cambridge, Mass. Carpet	15,967	Mar. 17	30	997
Chicago Hardware Manufacturing Company. (See Niles, Sidney S., assignor.)				
Colladay, William E. (See Chaffee and Colladay.)				
Conner, James M., New York, N. Y. Font of printing-type	15,966	Mar. 10	30	896
Conover & Co., J. S. (See Schoonmaker, Edward T., assignor.)				
Copelin, Thomas E., Chicago, Ill. Stick-candy	15,851	Feb. 24	30	663
Couch, Albert C. (See De Baud and Couch.)				
Crafts, Wilbur F., New York, N. Y. Finger-ring	15,711	Jan. 13	30	102
Crane & Breed Manufacturing Company. (See McComas, William R., assignor.)				
Crease, Orlando, *et al.* (See Heald, Alfred, assignor.)				
Danby, Arthur, Philadelphia, Pa. Carpet	15,713	Jan. 13	30	102
Davenport, John. (See Hartley, John, assignor.)				
Davis, Henry, assignor to Horner Brothers, Philadelphia, Pa. Carpet	16,003 / 16,004	Mar. 31	30	1209
Dawkins, Peter J., Brooklyn, N. Y. Type	15,767	Feb. 3	30	348
Day, Joseph C., Philadelphia, Pa., assignor to Baker, Pratt & Co., New York, N. Y. Settee-frame	15,712	Jan. 13	30	102
De Baud, Halsey C., Newark, N. J., and A. C. Couch, New York, N. Y. Ornamentation of skating-rinks	15,714	Jan. 13	30	102
	15,852	Feb. 24	30	663
Dietrich, Henry, Pittsburg, Pa. Lamp-chimney				
Dornan Bros. & Co. (See Righter, Oscar, assignor.)				
Dreyfus, Bernhard, New York, N. Y. Pendant	15,739	Jan. 20	30	182
Dreyfus, Bernhard, New York, N. Y. Pendant	15,750	Jan. 27	30	264
Dreyfus, Bernhard, New York, N. Y. Pendant	15,766	Feb. 3	30	348
Dreyfus, Bernhard, New York, N. Y. Pendant				
Dreyfus Brothers. (See Bernhard, Morris, assignor.)				
Dreyfuss, Julius, New York, N. Y. Chenille ornament	15,738	Jan. 20	30	182

Alphabetical list of patentees of designs, January to March, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Dux, Martin M., New York, N. Y. Advertising-card	15,985	Mar. 24	30	1097
Embossing Company. (See Selkirk, Charles, assignor.)				
Ennis & Co., George W. (See Gilmour, William, assignor.)				
Ennis & Co., George W. (See Roberts, William H., assignor.)				
Essig, Ozia A., Canton, Ohio. Plow-beam	15,814	Feb. 17	30	562
Evans, Oscar C. (See Langenbahn, Evans, and Hiby.)				
Ferguson, Joseph, assignor to Stead & Miller, Philadelphia, Pa. Upholstery fabric	15,815 to 15,816	Feb. 17	30	562
Ferguson, Joseph, assignor to Stead & Miller, Philadelphia, Pa. Curtain fabric	15,926	Mar. 10	30	896
Fisher, Edwin, Boston, assignor to Lowell Manufacturing Company, Lowell, Mass. Carpet	15,680 to 15,681	Jan. 6	30	2
Fisher, Edwin, Boston, assignor to Lowell Manufacturing Company, Lowell, Mass. Carpet	15,692 to 15,696	Jan. 6	30	2
Fisher, Edwin, Boston, assignor to Lowell Manufacturing Company, Lowell, Mass. Carpet	15,817 to 15,829	Feb. 17	30	562
Fisher, Edwin, Boston, assignor to Lowell Manufacturing Company, Lowell, Mass. Carpet	15,848	Feb. 17	30	562
Flagg, Thomas J., New York, N. Y. Made-up scarf	15,830	Feb. 17	30	502
Folsom, James L., Brooklyn, N. Y., assignor to Hartford Carpet Company, Hartford, Conn. Carpet	15,768	Feb. 3	30	348
Folsom, James L., Brooklyn, N. Y., assignor to Hartford Carpet Company, Hartford, Conn. Carpet	15,853 to 15,858	Feb. 24	30	664
Folsom, James L., Brooklyn, N. Y., assignor to Hartford Carpet Company, Hartford, Conn. Carpet	15,882 to 15,909	Mar. 3	30	778
Folsom, James L., Brooklyn, N. Y., assignor to Hartford Carpet Company, Hartford, Conn. Carpet	15,927 to 15,952	Mar. 10	30	896
Folsom, James L., Brooklyn, N. Y., assignor to Hartford Carpet Company, Hartford, Conn. Carpet	15,968 to 15,971	Mar. 17	30	997
Folsom, James L., Brooklyn, N. Y., assignor to Hartford Carpet Company, Hartford, Conn. Carpet	15,986	Mar. 24	30	1097
Folsom, James L., Brooklyn, N. Y., assignor to Hartford Carpet Company, Hartford, Conn. Carpet	16,005	Mar. 31	30	1210
Frost, Ella C., Boston, assignor to Lowell Manufacturing Company, Lowell, Mass. Carpet	15,682	Jan. 6	30	2
Giblin, John M., Sheboygan, Wis. Bottle or similar vessel	15,910	Mar. 3	30	778
Gilmour, William, assignor to G. W. Ennis & Co., Philadelphia, Pa. Rug	15,786	Feb. 10	30	453
Gilmour, William, assignor to G. W. Ennis & Co., Philadelphia, Pa. Rug	15,953	Mar. 10	30	896
Gobeille, Joseph L., assignor to Myers, Osborn & Co., Cleveland, Ohio. Cooking-stove	15,740	Jan. 20	30	182
Goerte, Frederick, New York, N. Y. Ornamentation of boys' jackets	16,006	Mar. 31	30	1210
Grosjean, Charles T., assignor to Tiffany & Co., New York, N. Y. Spoon or analogous article	15,715	Jan. 13	30	102
Grosjean, Charles T., assignor to Tiffany & Co., New York, N. Y. Spoon, fork, or knife handle	15,716 to 15,717	Jan. 13	30	102
Grosjean, Charles T., assignor to Tiffany & Co., New York, N. Y. Spoon or fork	15,784	Feb. 10	30	453
Grosjean, Charles T., assignor to Tiffany & Co., New York, N. Y. Spoon-handle	15,785	Feb. 10	30	453
Grosjean, Charles T., assignor to Tiffany & Co., New York, N. Y. Spoon-handle	15,831	Feb. 17	30	502
Guildenstine, Julius, New York, N. Y., assignor to A. M. and A. E. Barnhart, Chicago, Ill. Font of printing-type	15,787	Feb. 10	30	453
Gwinnell, John M., Newark, N. J. Harness-mounting	16,007	Mar. 31	30	1210
Halliday, Arthur L., Yonkers, N. Y., assignor to Bigelow Carpet Company, Clinton, Mass. Carpet	15,987 to 15,989	Mar. 24	30	1097
Harris, Elijah T., Chicago, Ill. Bracket	15,788	Feb. 10	30	453
Harrison, Norval M., Baltimore, Md. Advertising-sign	15,991	Mar. 24	30	1097
Hartford Carpet Company. (See Folsom, James L., assignor.)				
Hartford Carpet Company. (See Heinigke, Otto, assignor.)				
Hartford Carpet Company. (See Hunt, Henry, assignor.)				
Hartford Carpet Company. (See Jacobs, Winthrop L., assignor.)				
Hartley, John, assignor to J. Davenport, Philadelphia, Pa. Curtain fabric	15,741	Jan. 20	30	182
Hartley, John, assignor to Barnes & Beyer, Philadelphia, Pa. Curtain fabric	15,990	Mar. 24	30	1097
Haviland, Edwin, Plainfield, N. J. Platter	15,789	Feb. 10	30	453
Hawes, Edward C., Providence, R. I. Steam-trap case	15,718	Jan. 13	30	102
Heald, Alfred, Philadelphia, Pa. Carpet	15,719 to 15,721	Jan. 13	30	102
Heald, Alfred, Philadelphia, Pa. Carpet	15,709	Feb. 3	30	348
Heald, Alfred, assignor to H. McCallum, O. Crease, and A. J. Sloan, Philadelphia, Pa. Carpet	15,742	Jan. 20	30	182
Heidt, Louis, Brooklyn, N. Y. Glass sheet or pane	15,972	Mar. 17	30	998
Heinigke, Otto, New Utrecht, N. Y., assignor to Hartford Carpet Company, Hartford, Conn. Carpet	15,859	Feb. 24	30	664
Heinigke, Otto, New Utrecht, N. Y., assignor to Hartford Carpet Company, Hartford, Conn. Carpet	15,911	Mar. 3	30	778
Heinigke, Otto, New Utrecht, N. Y., assignor to Hartford Carpet Company, Hartford, Conn. Carpet	15,973 to 15,975	Mar. 17	30	998
Heinigke, Otto, New Utrecht, N. Y., assignor to Hartford Carpet Company, Hartford, Conn. Carpet	15,992	Mar. 24	30	1098
Heyer, Charles E., assignor to A. M. and A. E. Barnhart, Chicago, Ill. Font of printing-type	15,684	Jan. 6	30	2
Heyer, Charles E., assignor to A. M. and A. E. Barnhart, Chicago, Ill. Font of printing-type	15,710	Jan. 6	30	2
Hiby, Charles. (See Langenbahn, Evans, and Hiby.)				
Hofmann, Jacob, Brooklyn, N. Y. Stool	15,790	Feb. 10	30	453
Holzmark, Isaac, Kansas City, Mo. Carpet-molding	15,832	Feb. 17	30	502
Horner Brothers. (See Davis, Henry, assignor.)				
Horner Brothers. (See Neil, John B., assignor.)				
Hoyle, Harrison & Kaye. (See Kerr, David B., assignor.)				
Hull, Wolcott A., *et al.* (See Woodward, George W., assignor.)				
Humbert, Henry, Brooklyn, N. Y. Bottle	15,697	Jan. 6	30	2
Hunt, Henry, Greenville, N. J., assignor to Hartford Carpet Company, Hartford, Conn. Carpet	15,860 to 15,865	Feb. 24	30	664
Hunt, Henry, Greenville, N. J., assignor to Hartford Carpet Company, Hartford, Conn. Carpet	15,993	Mar. 24	30	1098
Hurdle, Julian A., New York, N. Y. Carbon filament	15,685	Jan. 6	30	2
Ihlenburg, Herman, Philadelphia, Pa., assignor to D. W. Bruce, New York, N. Y. Type	15,751 to 15,752	Jan. 27	30	264

Alphabetical list of patentees of designs, January to March, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Ihlenburg, Herman, assignor to MacKellar, Smiths & Jordan, Philadelphia, Pa. Font of printing-type	15,791	Feb. 10	30	453
Jackson, Charles W., Chicago, Ill. Furniture grip	15,912	Mar. 3	30	778
Jackson, William W., Philadelphia, Pa., assignor to A. M. and A. E. Barnhart, Chicago, Ill. Font of printing-type	15,743	Jan. 20	30	182
Jackson, William W., Philadelphia, Pa., assignor to A. M. and A. E. Barnhart, Chicago, Ill. Font of printing-type	15,792	Feb. 10	30	453
Jacobs, Winthrop L., East Orange, N. J., assignor to Hartford Carpet Company, Hartford, Conn. Carpet	15,866 to 15,876	Feb. 24	30	664
Kaldenberg, Frederick J., New York, N. Y., assignor to Novelty Manufacturing Company, Waterbury, Conn. Cane or umbrella head	15,849	Feb. 17	30	562
Keiser, James R., Brooklyn, N. Y. Necktie	15,913	Mar. 3	30	778
Keiser, James R., Brooklyn, N. Y. Scarf	15,994	Mar. 24	30	1098
Kellogg, William P., Troy, N. Y. Curry-comb	15,954	Mar. 10	30	896
Kempshall Manufacturing Company. (See Sparks, William E., assignor.)				
Kerr, David B., assignor to Hoyle, Harrison & Kaye, Philadelphia, Pa. Upholstery fabric	15,833 to 15,834	Feb. 17	30	562
Kitschelt, Charles, assignor to N. Muller's Sons, New York, N. Y. Lamp	15,722	Jan. 13	30	102
Kitschelt, Charles, assignor to N. Muller's Sons, New York, N. Y. Clock-front	15,907	Mar. 24	30	1098
Knowles, Homer S. (See Knowles, Taylor, and Knowles.)				
Knowles, Isaac W., J. N. Taylor, and H. S. Knowles, East Liverpool, Ohio. Nappy or dish	15,753	Jan. 27	30	264
Knowles, Isaac W., J. N. Taylor, and H. S. Knowles, East Liverpool, Ohio. Covered dish	15,914	Mar. 3	30	778
Komori, Noric, New York, N. Y., assignor to Bigelow Carpet Company, Clinton, Mass. Carpet	15,995 to 15,996	Mar. 24	30	1098
Komori, Noric, New York, N. Y., assigner to Bigelow Carpet Company, Clinton, Mass. Carpet	16,008 to 16,009	Mar. 31	30	1210
Langenbahn, Adolph, O. C. Evans, and C. Hiby, Hamilton, Ontario, Canada. Bas-relief	15,835	Feb. 17	30	562
Locke, Alexander S., New York, N. Y., assignor to New Haven Clock Company, New Haven, Conn. Clock-case	15,976	Mar. 17	30	998
Lowell Manufacturing Company. (See Beal, Morton F., assignor.)				
Lowell Manufacturing Company. (See Fisher, Edwin, assignor.)				
Lowell Manufacturing Company. (See Frost, Ella C., assignor.)				
Lowell Manufacturing Company. (See Swapp, Charles W., assignor.)				
MacKellar, Smiths & Jordan. (See Beeler, Charles H., Jr., assignor.)				
MacKellar, Smiths & Jordan. (See Ihlenburg, Herman, assignor.)				
Maier, Martin, Detroit, Mich. Trunk-iron	15,770	Feb. 3	30	348
McCaffray, Patrick, assignor to W. T. Smith, Philadelphia, Pa. Curtain fabric	15,765	Feb. 3	30	348
McCaffray, Patrick, assignor to W. T. Smith, Philadelphia, Pa. Rug	15,998	Mar. 24	30	1098
McCallum, Hugh, *et al.* (See Heald, Alfred, assignor.)				
McCallum, William, Yonkers, N. Y., assignor to Bigelow Carpet Company, Clinton, Mass. Carpet	15,977 to 15,978	Mar. 17	30	998
McCallum, William, Yonkers, N. Y., assignor to Bigelow Carpet Company, Clinton, Mass. Carpet	15,999	Mar. 24	30	1098
McComas, William R., Oakley, assignor to Crane & Breed Manufacturing Company, Cincinnati, Ohio. Coffin-handle	15,955	Mar. 10	30	896
Melville, David G., Medford, assignor to Roxbury Carpet Company, Boston, Mass. Carpet	15,686	Jan. 6	30	2
Mengel, John G., Jr., Baltimore, Md. Font of printing-type	15,723 to 15,724	Jan. 13	30	102
Meyer, Charles T. and V. E., Bergen, N. J., assignors to E. C. Sampson, New York, N. Y. Oil-cloth	15,771 to 15,770	Feb. 3	30	348
Meyer, Victor E. (See Meyer, Charles T. and V. E.)				
Mooney, John J., New Orleans, La. Ventilator-cap	16,010	Mar. 31	30	1210
Moore, Fredrick W., Providence, R. I. Necklace	15,915	Mar. 3	30	778
Muller's Sons, Nicholas. (See Kitschelt, Charles, assignor.)				
Myers, Osborn & Co. (See Gobeille, Joseph L., assignor.)				
Namur, Auguste, assignor to Tuttle & Bailey Manufacturing Company, New York, N. Y. Border-frame for registers	15,916	Mar. 3	30	778
Neil, John B., assignor to Horner Brothers, Philadelphia, Pa. Carpet	16,011 to 16,014	Mar. 31	30	1210
Neubert, Frank, Springfield, Mass. Badge	15,725	Jan. 13	30	102
New Haven Clock Company. (See Locke, Alexander S., assignor.)				
Nickel, David, Morris, Ill. Hanger	15,917	Mar. 3	30	778
Niles, Sidney S., assignor to Chicago Hardware Manufacturing Company, Chicago, Ill. Door-knob and escutcheon	16,015	Mar. 31	30	1210
Nobles, John C., Atlantic Highlands, N. J. Bluing-strainer	15,979	Mar. 17	30	998
Novelty Manufacturing Company. (See Kaldenberg, Frederick J., assignor.)				
Nuffer, Ernest G., assignor to G. Brooks & Son, Philadelphia, Pa. Curtain fabric	15,683	Jan. 6	30	2
Nuffer, Ernest G., assignor to G. Brooks & Son, Philadelphia, Pa. Curtain fabric	15,877	Feb. 24	30	664
Ohrenschall, Frederick A., assignor to J. H. Winkelmann, Baltimore, Md. Bottle-stand	15,918	Mar. 3	30	778
Otto, Charles A., New York, N. Y. Pendant	15,687	Jan. 6	30	2
Pegel, Julius, assignor to J. H., J. H., and E. Bromley, Philadelphia, Pa. Carpet	15,801 to 15,806	Feb. 10	30	453
Pegel, Julius, assignor to J. H., J. H., and E. Bromley, Philadelphia, Pa. Carpet	15,956	Mar. 10	30	896
Petzold, Adolph, assignor to J. H., J. H., and E. Bromley, Philadelphia, Pa. Carpet	15,793 to 15,795	Feb. 10	30	453
Petzold, Adolph, assignor to J. H., J. H., and E. Bromley, Philadelphia, Pa. Rug	15,796 to 15,800	Feb. 10	30	453
Plympton, Nathaniel, New York, N. Y. Fan	15,878	Feb. 24	30	664
Prahar, Louis B., assignor to himself and C. S. Shepard, Brooklyn, N. Y. Bag, pocket-book, &c., frame	15,957	Mar. 10	30	896
Pratt & Letchworth. (See Babcock, Charles A., assignor.)				
Pyne, Edmund, New York, N. Y., assignor to Bigelow Carpet Company, Clinton, Mass. Carpet	16,000	Mar. 24	30	1098
Rice, Bernard, New York, N. Y. Satchel-frame	15,744	Jan. 20	30	182
Righter, Oscar, assignor to Dornan Bros. & Co., Philadelphia, Pa. Carpet	15,958 to 15,964	Mar. 10	30	896
Roberts, William H., assignor to G. W. Ennis & Co., Philadelphia, Pa. Curtain fabric	15,919	Mar. 3	30	778
Rogers, John, New Canaan, Conn. Group of statuary	15,807	Feb. 10	30	453
Rogers, John K., Brookline, Mass. Font of printing-type	15,777	Feb. 3	30	348

Alphabetical list of patentees of designs, January to March, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Rowland, Charles, Quincy, Ill. Drawer-pull	15,698	Jan. 6	30	2
Roxbury Carpet Company. (See Melville, David G., assignor.)				
Russell & Erwin Manufacturing Company. (See Russell, Henry E., Jr., assignor.)				
Russell, Henry E., Jr., assignor to Russell & Erwin Manufacturing Company, New Britain, Conn. Door-knob	15,754	Jan. 27	30	264
Salomon, Siegfried, assignor to H. Bendix, New York, N. Y. Neckscarf	15,688	Jan. 6	30	2
Sampson, Edward C. (See Meyer, Charles T. and V. E., assignors.)				
Schoonmaker, Edward T., assignor to J. S. Conover & Co., New York, N. Y. Fire-place front	15,836 to 15,838	Feb. 17	30	502
Scott, Samuel F., and S. B. Bryan, Pittsburg, Pa. Jar or bottle	15,813	Feb. 17	30	502
Selkirk, Charles, assignor to Embossing Company, Albany, N. Y. Domino	15,745	Jan. 20	30	182
Sharpe, George E., Steubenville, Ohio. Fire-place front	15,699	Jan. 6	30	2
Shepard, Charles S. (See Prahar, Louis B., assignor.)				
Shiebler, George W., Brooklyn, N. Y. Spoon-handle	15,808	Feb. 10	30	453
Simmons, Robert F., Attleborough Falls, Mass. Watch-chain	15,879	Feb. 24	30	664
Slattery, Marmaduke M. M., New York, N. Y. Filament	15,839	Feb. 17	30	502
Sloan, Andrew J., *et al.* (See Heald, Alfred, assignor.)				
Smith, Frank E., New York, N. Y., assignor to Bigelow Carpet Company, Clinton, Mass. Carpet	16,001	Mar. 24	30	1098
Smith, Mark A., Evansville, Ind. Wash-board	15,809	Feb. 10	30	453
Smith, William, Philadelphia, Pa. Fringe or tassel block	15,726	Jan. 13	30	102
Smith, William T. (See McCaffray, Patrick, assignor.)				
Smith, William T., Philadelphia, Pa. Rug	15,778	Feb. 3	30	348
Smith, William T., Philadelphia, Pa. Rug	15,980	Mar. 17	30	998
Sparks, William E., assignor to Kempsball Manufacturing Company, New Britain, Conn. Sash-fastener frame	15,755	Jan. 27	30	264
Stead & Miller. (See Ferguson, Joseph, assignor.)				
Swapp, Charles W., New York, N. Y., assignor to Lowell Manufacturing Company, Lowell, Mass. Carpet	15,700 to 15,709	Jan. 6	30	2
Swapp, Charles W., New York, N. Y., assignor to Lowell Manufacturing Company, Lowell, Mass. Carpet	15,727 to 15,735	Jan. 13	30	102
Swapp, Charles W., New York, N. Y., assignor to Lowell Manufacturing Company, Lowell, Mass. Carpet	15,840 to 15,846	Feb. 17	30	502
Taylor, John N. (See Knowles, Taylor, and Knowles.)				
Tiffany & Co. (See Groejean, Charles T., assignor.)				
Tiffany & Co. (See Whitehouse, James H., assignor.)				
Tully, Louise, assignor to Butterick Publishing Company, (limited,) New York, N. Y. Miss's costume	15,690	Jan. 6	30	2
Tully, Louise, assignor to Butterick Publishing Company, (limited,) New York, N. Y. Lady's basque	15,691	Jan. 6	30	2
Turner, Mary, assignor to Butterick Publishing Company, (limited,) New York, N. Y. Lady's costume	15,689	Jan. 6	30	2
Tuttle & Bailey Manufacturing Company. (See Namur, Auguste, assignor.)				
Walker, George W., Malden, Mass. Radiator leg or loop	15,779	Feb. 3	30	348
Walsh, Francis A., Milwaukee, Wis. Lard-pail	15,847	Feb. 17	30	502
Waterhouse, Rufus, New York, N. Y. Ornamentation of a neckscarf	15,920	Mar. 3	30	778
Waterhouse, Rufus, New York, N. Y. Neckscarf	15,921	Mar. 3	30	778
West, James, Brooklyn, N. Y. Font of printing-type	15,923	Mar. 3	30	778
West, John, Brooklyn, N. Y. Font of printing-type	15,965	Mar. 10	30	896
Wettstein, Otto, Rochelle, Ill. Badge	15,880	Feb. 24	30	664
Whitehouse, James H., Brooklyn, assignor to Tiffany & Co., New York, N. Y. Badge	15,922	Mar. 3	30	778
Wiese, Max, Boston, Mass. Tile floor or pavement	15,780	Feb. 3	30	348
Winkelmann, John H. (See Ohrenschall, Frederick A., assignor.)				
Woodward, George W., assignor to W. A. Hull and Ansonia Brass and Copper Company, New York, N. Y. Lamp-reservoir	15,781	Feb. 3	30	348

ALPHABETICAL LIST OF REGISTRANTS OF TRADE-MARKS.

Name, residence, and title.	No.	Date.	Official Gazette. Volume.	Page.
Adler Bros. & Co., Baltimore, Md. Oiled clothing	12,015	Mar. 17	30	998
Allen & Hanburys, London, England. Certain named drugs and medicines	11,853	Jan. 13	30	102
Alter, Oscar A., Manitowoc, Wis. Application for chapped hands, face, &c.	12,032	Mar. 24	30	1098
Anthony & Kuhn Brewing Company, St. Louis, Mo. Bottled lager-beer	12,033	Mar. 24	30	1098
Arnold & Co., F. R., New York, N. Y. Perfumery	12,056	Mar. 31	30	1210
Arps, George L., Norfolk, Va. Manufactured guano	11,906	Feb. 10	30	453
Ash, William T., Lynn, Mass. Kid-skins of a peculiar finish and boots and shoes made therefrom	11,990	Mar. 10	30	896
Ayres & Sons, William, Philadelphia, Pa. Saddle-blankets, fly-nets, horse-sheets, lap-robes, and lap-dusters	12,016	Mar. 17	30	998
Backer, Mathias. (See Fusz and Backer.)				
Balfour, Guthrie & Co., San Francisco, Cal. Coke	11,907	Feb. 10	30	453
Bates, Theodore C., Worcester, Mass. Corsets	11,878	Jan. 27	30	264
Bean & Hurlbut, Philadelphia, Pa. Perfume	11,991	Mar. 10	30	896
Bernheimer & Bro., Jacob S., New York, N. Y. Printed, dyed, colored, bleached, and unbleached cottons	11,948	Feb. 17	30	502
Biechele, Joseph, Canton, Ohio. Bar-soap	12,057	Mar. 31	30	1210
Bigelow, Charles. (See Healy and Bigelow.)	11,908	Feb. 10	30	453
Bird, Alfred F., Philadelphia, Pa. Custard-powder	12,017	Mar. 17	30	998
Bootie Bros. & Wright, Shelby, N. C. Plug-tobacco	11,992	Mar. 10	30	896
Brown, Lyman, New York, N. Y. Astringent extracts	11,964	Feb. 24	30	664
Burk, Rich & Co., Detroit, Mich. Cigars	11,863	Jan. 20	30	182
Burroughs, Wellcome & Co., London, England. Medicinal fluid extracts for internal use	11,993	Mar. 10	30	896
Burroughs, Wellcome & Co., London, England. Lozenges or other medicinal preparations in solid form	11,891	Feb. 3	30	348
Burton Handle Company, Burton, Ohio. Cultivator	12,058	Mar. 31	30	1210
Burton, Oscar F., Brooklyn, N. Y. Remedy for catarrh	12,018	Mar. 17	30	998
Canfield Rubber Company, Middletown, Conn. Dress-shields	11,843	Jan. 6	30	2
Cash, J. & J., Coventry, England. Ribbon	11,949	Feb. 17	30	502
Chapin & Gould, Springfield, Mass. Writing-paper	12,029	Mar. 17	30	998
Chapman Valve Manufacturing Company, Indian Orchard and Boston, Mass. Valves and hydrants	11,864	Jan. 20	30	182
Chase, Andrew J., Boston, Mass. Refrigerators	11,950	Feb. 17	30	502
Childs & Co., New York, N. Y. Whisky, brandy, and gin				
Childs, William H. H., New York, N. Y. Disinfectant and moth-destroyer in cake, powder, and liquid form	11,994	Mar. 10	30	896
Clingman, Thomas L., Asheville, N. C. Ointments, plasters, and liniments	11,909	Feb. 10	30	453
Cold Blast Feather Company, Chicago, Ill. Feathers for beds, pillows, and bolsters	12,059	Mar. 31	30	1210
Colgate & Co., New York, N. Y. Toilet-soap	11,995	Mar. 10	30	896
Compagnie Peptones de Viande du Docteur Koche, (Société Anonyme,) Antwerp, Belgium. Peptonized meat	11,892	Feb. 3	30	348
Converse, Edmund C., Pittsburg, Pa. Alloys used for coating metal articles	11,965	Feb. 24	30	664
Cook & Bernheimer, New York, N. Y. Brandy	11,996	Mar. 10	30	896
Covell, Alexander H., New Bedford, Mass. Remedy for stimulating the spine, &c	11,854	Jan. 13	30	102
Cox Shoe Manufacturing Company, P., Rochester, N. Y. Boots and shoes for men, boys, women, and children	11,879	Jan. 27	30	264
Crane & McMahon, New York, N. Y. Spokes, rims, hubs, and other carriage wood-ware	12,060	Mar. 31	30	1210
Crane & McMahon, New York, N. Y. Wood-ware for vehicles	12,061	Mar. 31	30	1210
Crane & McMahon, New York, N. Y. Spokes, rims, shafts, bows, sawed fellies, hubs, rim-stripe, and other carriage wood-ware	12,062	Mar. 31	30	1210
Creagh, John B., Philadelphia, Pa. Havana leaf-tobacco	11,893	Feb. 3	30	348
Cusimano & Co., A., Palermo, Italy, New Orleans, La., Boston, Mass., and New York, N. Y. Macaroni	12,034	Mar. 24	30	1098
Davenport, J. T., Bloomsbury, London, England. Sedative, anti-spasmodic, and diffusible stimulant	11,855	Jan. 13	30	102
Davis & Co., Hiram W., Cincinnati, Ohio. Carriages, phaetons, buggies, spring-wagons, and other like vehicles	11,856	Jan. 13	30	102
De Winter, John B. A., New York, N. Y. Corn-plasters	11,910	Feb. 10	30	453
Dewey & Co., A. G., Hartford, Vt. Satinets or woolen cloths or clothing made therefrom	11,997	Mar. 10	30	896
Dieterich, D. P., Philadelphia, Pa. Sheet metal for packing and other purposes	12,035	Mar. 24	30	1098
Dieterich, D. P., Philadelphia, Pa. Water, steam, and other valves	12,036	Mar. 24	30	1098
Duffy Malt Whiskey Company, Baltimore, Md. Malt whisky	11,998	Mar. 10	30	896
Easley Bros., South Boston, Va. Smoking and chewing tobacco	11,865	Jan. 20	30	182
Eastman & Brother, Philadelphia, Pa. Perfumery and toilet-soaps	11,966	Feb. 24	30	664
Edmondson, J. & R., Manchester, county of Lancaster, England. Velvets, velveteens, corduroys, mole-skins, silesias, and linings	11,999	Mar. 10	30	896
Eisner, Joseph, Baltimore, Md. Drawers, overalls, and pantaloons	11,880	Jan. 27	30	264
Farmers' Fertilizer Company, Syracuse, N. Y. Chemical fertilizers	11,866	Jan. 20	30	182
Flaccus & Son, William, Pittsburg, Pa. Oak-tanned harness-leather	11,867	Jan. 20	30	182
Frank & Gutmann, New York, N. Y. Dress-shields	12,063	Mar. 31	30	1210
Fraser, Farley & Varnum, Yokohama, Japan. Teas	12,064	Mar. 31	30	1210
Fraser, Farley & Varnum, Yokohama, Japan. Teas	12,065	Mar. 31	30	1210
Freeman, Charles E. (See Freeman and Newlove.)				
Freeman, William W. and C. E., and W. I. Newlove, Columbus, Ohio. Medicine for the cure of toothache	11,982	Mar. 3	30	778
Friend-Erskine Cigar Company, San Francisco, Cal. Cigars, cigarettes, and smoking and chewing tobacco	11,868	Jan. 20	30	182
Fusz, Louis, and M. Backer, St. Louis, Mo. Wheat-flour	11,881	Jan. 27	30	264
Fusz, Louis, and M. Backer, St. Louis, Mo. Wheat-flour	11,882	Jan. 27	30	264
Gally, Merritt, New York, N. Y. Mechanical organ	11,869	Jan. 20	30	182
Gally, Merritt, New York, N. Y. Small mechanical organ or organette and music therefor	12,000	Mar. 10	30	896
Gardner & Co., (limited,) William A., Philadelphia, Pa. Woven shawls	11,844	Jan. 6	30	2
Glenny, Joseph B., New York, N. Y. Compound for removing blotches and freckles from the skin	12,037	Mar. 24	30	1098
Goodyear Rubber Company, New York, N. Y. Rubber boots, shoes, and clothing	12,038	Mar. 24	30	1098

Alphabetical list of registrants of trade-marks, January to March, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Grant, D. Lewis, Philadelphia, Pa. Hair and general toilet wash	11,870	Jan. 20	30	182
Grommes & Ullrich, Chicago, Ill. Cigars	11,894	Feb. 3	30	348
Harden Hand Grenade Fire Extinguisher Company, Chicago, Ill. Hand-grenade fire-extinguisher	11,883	Jan. 27	30	264
Harrington, Charles R., Norwich, Conn. Medicine for cholera, diarrhea, colic, and like diseases	12,019	Mar. 17	30	998
Harris & Co., Thomas M., Philadelphia, Pa. Boys', girls', children's, and infants' shoes	11,845	Jan. 6	30	2
Harris, Levi H., Pittsburg, Pa. Medicine for the cure of cramps	11,895	Feb. 3	30	348
Harris, Levi H., Pittsburg, Pa. Cordial for summer complaints	11,896	Feb. 3	30	348
Hasson, Albert A., Baltimore, Md. Washes, white or colored, for use on walls, fences, &c	12,020	Mar. 17	30	998
Hayden, H. A., Jackson, Mich. Wheat-flour	12,021	Mar. 17	30	998
Healy, John E., and C. Bigelow, Boston, Mass. Salve	11,911	Feb. 10	30	453
Healy, John E., and C. Bigelow, Boston, Mass. Certain proprietary medicines	11,967	Feb. 24	30	664
Healy, John E., and C. Bigelow, Boston, Mass. Salve	11,968	Feb. 24	30	664
Herbst, Solomon C., Milwaukee, Wis. Rye and bourbon whisky	11,951	Feb. 17	30	562
Herdic, Peter, Williamsport, Pa. Wheeled vehicles for carrying passengers	12,022	Mar. 17	30	998
Hereld, James H. (See Wheeler and Hereld.)				
Hess, Mayer & Co., Louisville, Ky. Men's and boys' underwear	11,871	Jan. 20	30	182
Hetfield & Ducker, Brooklyn, N. Y. Crackers, biscuits, jumbles, snaps, cakes, wafers, and kindred articles	11,912	Feb. 10	30	453
Hogarth, William, Liverpool, county of Lancaster, England. Ale, beer, porter, and stout	11,890	Jan. 27	30	264
Holmes & Ide, Troy, N. Y. Shirts, collars, and cuffs	11,983	Mar. 3	30	778
Howlett, Henry J., Brooklyn, N. Y. Toilet-paper	12,066	Mar. 31	30	1210
Huyler's, New York, N. Y. Chocolates	11,913	Feb. 10	30	454
Hyde & Burton, New York, N. Y. Cotton cloths	11,846	Jan. 6	30	2
Hyde & Burton, New York, N. Y. Silesias, sateens, twills, and other textile cotton fabrics	12,039	Mar. 24	30	1098
Isaigi, Joseph A., Boston, Mass. Figs	11,884	Jan. 27	30	264
Isham, A. H. (See Truman and Isham.)				
Jannopoulo, Demetrius, St. Louis, Mo. Water-proof clothing	11,914	Feb. 10	30	454
Jannopoulo, Demetrius, St. Louis, Mo. Water-proof clothing	11,952	Feb. 17	30	562
Jimenes, Hanstedt & Co., New York, N. Y. Flour	12,040	Mar. 24	30	1098
Jimenes, Hanstedt & Co., New York, N. Y. Flour	12,041	Mar. 24	30	1098
Jones, Charles T., New York, N. Y. Kid gloves	11,984	Mar. 3	30	778
Keller Medicine Company, Fort Wayne, Ind. Dental alloy	11,857	Jan. 13	30	102
Kellogg, Marie L., New York, N. Y. Hair-dye	12,023	Mar. 17	30	998
Kieffer, Nikolas, San Antonio, Tex. Medicinal bitters	11,985	Mar. 3	30	778
King, Julius, Cleveland, Ohio. Spectacles and eyeglasses	11,958	Feb. 17	30	562
Kirk & Co., James S., Chicago, Ill. Laundry and toilet soap	12,067	Mar. 31	30	1210
Koch, John W., Detroit, Mich. Ale, beer, and other malt liquors	11,872	Jan. 20	30	182
Klein, Baer & Co., Chicago, Ill. Frosted tinsel on small spools	12,001	Mar. 10	30	896
Kuhl, Boehmke & Co., Cleveland, Ohio. Wines and liquors	11,915	Feb. 10	30	454
Kuhlmann & Bro., Louis, Brooklyn, N. Y. Washing-liquid	12,024	Mar. 17	30	998
Kuttnauer & Co., Detroit, Mich. Cigars	12,002	Mar. 10	30	896
La Manna, Frank, Brooklyn, N. Y. Toilet-water	11,969	Feb. 24	30	664
La Manna, Frank, Brooklyn, N. Y. Toilet powders, pomades, washes, and perfumes	11,973	Feb. 24	30	664
Laird & Co., George W., New York, N. Y. Preparation of cod-liver oil	11,986	Mar. 3	30	778
Lalance & Grosjean Manufacturing Company, New York, N. Y. Enameled sheet-metal utensils and articles for household purposes, &c	11,858	Jan. 13	30	102
Landes, Beall & Co., Arkansas City, Kans. Flour	11,970	Feb. 24	30	664
Landes, Beall & Co., Arkansas City, Kans. Flour	11,971	Feb. 24	30	664
Lee, Lewis H., Westfield, Mass. Certain whips	11,859	Jan. 13	30	102
Loeb & Block, Philadelphia, Pa. Leaf-tobacco	11,972	Feb. 24	30	664
Lorenz Bros., Toledo, Ohio. Perfumery	12,042	Mar. 24	30	1098
Lorenz Bros., Toledo, Ohio. Perfumery	12,043	Mar. 24	30	1098
Loud, Claridge & Co., Baltimore, Md. Cigars and cigarettes	11,981	Feb. 24	30	664
Lyon & Co., Z. I., Durham, N. C. Smoking-tobacco	11,847	Jan. 6	30	2
Macqueen, Charles D. (See Symnott and Macqueen.)				
Marsching & Co., J., New York, N. Y. Bronze-powders, bronze-liquids, and bronze-metal leaves	11,917	Feb. 10	30	454
McNamara & Co., P., Covington, Ky. Plug-tobacco	12,003	Mar. 10	30	896
Meyer, Adolph C., Baltimore, Md. Liniment	11,918	Feb. 10	30	454
Meyer, Adolph C., Baltimore, Md. Liniment	12,004	Mar. 10	30	896
Miller, Edward, New York, N. Y. Gentlemen's hats	11,885	Jan. 27	30	264
Morrell & Company, limited, John, Liverpool and Manchester, England, Glasgow, Scotland, Ottumwa, Iowa, and Chicago, Ill. Hog products, lard, and meats	11,860	Jan. 13	30	102
Muench, Julius, Lake Creek Farm, Mo. Wine of a dark-red color	11,987	Mar. 3	30	778
Muhr's Sons, H., Philadelphia, Pa. Filled watch-cases	11,974	Feb. 24	30	664
Myers, John H., Philadelphia, Pa. Solution for the removal of corns, bunions, and warts	11,988	Mar. 3	30	778
Myers, Simon S., Philadelphia, Pa. Egg-food for poultry	11,975	Feb. 24	30	664
New York Belting and Packing Company, New York, N. Y. Certain belting for machinery	11,897	Feb. 3	30	348
Newell, Clarence D., Orange, N. J. Linings and facings for ladies' apparel	12,068	Mar. 31	30	1210
Newlove, William I. (See Freeman and Newlove.)				
Oakley, L. & J., Newburg, N. Y. Hard soap in cakes for toilet, bath, and laundry	11,861	Jan. 13	30	102
Pace & Sizer, Richmond, Va. Chewing and smoking tobacco, cigars, and cigarettes	12,005	Mar. 10	30	896
Pattberg & Bros., Lewis, New York, N. Y. Covered picture-frames	11,916	Feb. 10	30	454
Pearsall, Marvin R., New York, N. Y. Cigars	11,976	Feb. 24	30	664
Perfection Card Company, Philadelphia, Pa. Playing-cards	11,873	Jan. 20	30	182
Perkins & Ernst, Covington, Ky. Plug-tobacco	12,044	Mar. 24	30	1098
Plymouth Silica Company, Plymouth and Chiltonville, Mass. Silica cleaning and polishing preparations	12,025	Mar. 17	30	998
Potter Drug and Chemical Company, Boston, Mass. Fluid medicine for internal use	11,874	Jan. 20	30	182
Potter Drug and Chemical Company, Boston, Mass. Medicated soap	11,875	Jan. 20	30	182
Potter Drug and Chemical Company, Boston, Mass. Salve or ointment	11,876	Jan. 20	30	182
Potter, Parlin & Co., Cincinnati, Ohio. Baking-powder	12,045	Mar. 24	30	1098
Potter, Parlin & Co., Cincinnati, Ohio. Baking-powder	12,046	Mar. 24	30	1098
Pratt Manufacturing Company, New York, N. Y. Refined petroleum	11,886	Jan. 27	30	264
Prior & Hilgenberg, Baltimore, Md. Base-ball bats, Indian-clubs, and dumb-bells	11,977	Feb. 24	30	664
Procter & Gamble, Cincinnati, Ohio. Soap for toilet and general purposes	11,919	Feb. 10	30	454
Procter & Gamble, Cincinnati, Ohio. Soap for laundry and general purposes	11,920	Feb. 10	30	454
Procter & Gamble, Cincinnati, Ohio. Soap for laundry and general purposes	11,921	Feb. 10	30	454
Procter & Gamble, Cincinnati, Ohio. Soap for laundry and toilet purposes	11,922	Feb. 10	30	454
Procter & Gamble, Cincinnati, Ohio. Soap for laundry and general purposes	11,923	Feb. 10	30	454
Procter & Gamble, Cincinnati, Ohio. Soap for laundry and general purposes	11,924	Feb. 10	30	454
Procter & Gamble, Cincinnati, Ohio. Soap for laundry and general purposes	11,925	Feb. 10	30	454
Procter & Gamble, Cincinnati, Ohio. Soap for laundry and general purposes	11,926	Feb. 10	30	454
Procter & Gamble, Cincinnati, Ohio. Soap for laundry and general purposes	11,927	Feb. 10	30	454
Procter & Gamble, Cincinnati, Ohio. Soap for laundry and general purposes	11,928	Feb. 10	30	454

Alphabetical list of registrants of trade-marks, January to March, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Procter & Gamble, Cincinnati, Ohio. Soap for laundry and general purposes	11,929	Feb. 10	30	454
Procter & Gamble, Cincinnati, Ohio. Soap for laundry and general purposes	11,930	Feb. 10	30	454
Procter & Gamble, Cincinnati, Ohio. Soap for laundry and general purposes	11,931	Feb. 10	30	454
Procter & Gamble, Cincinnati, Ohio. Soap for laundry and general purposes	11,932	Feb. 10	30	454
Procter & Gamble, Cincinnati, Ohio. Tallow soap in oblong cakes	11,933	Feb. 10	30	454
Procter & Gamble, Cincinnati, Ohio. Soap for laundry and general purposes	11,934	Feb. 10	30	454
Procter & Gamble, Cincinnati, Ohio. Soap for laundry and general purposes	11,935	Feb. 10	30	454
Procter & Gamble, Cincinnati, Ohio. Soap for laundry and general purposes	11,936	Feb. 10	30	454
Procter & Gamble, Cincinnati, Ohio. Soap for laundry and general purposes	11,937	Feb. 10	30	454
Procter & Gamble, Cincinnati, Ohio. Soap for laundry and general purposes	11,938	Feb. 10	30	454
Procter & Gamble, Cincinnati, Ohio. Soap for laundry and general purposes	11,939	Feb. 10	30	454
Procter & Gamble, Cincinnati, Ohio. Soap in cakes for laundry and general purposes	11,959	Feb. 17	30	562
Procter & Gamble, Cincinnati, Ohio. Soap for laundry and general purposes	11,960	Feb. 17	30	562
Procter & Gamble, Cincinnati, Ohio. Soap for laundry and general purposes	11,961	Feb. 17	30	562
Procter & Gamble, Cincinnati, Ohio. Soap for laundry and general purposes	11,962	Feb. 17	30	562
Procter & Gamble, Cincinnati, Ohio. Soap for laundry and general purposes	11,963	Feb. 17	30	562
Pulliam, Columbus A. M., Okolona, Miss. Medicine for certain named diseases, to be used externally or internally	12,026	Mar. 17	30	998
Quick Meal Stove Company, St. Louis, Mo. Stoves of all kinds, portable ovens, and cooking utensils for the same	12,047	Mar. 24	30	1098
Rassfeld & Albers, St. Louis, Mo. Smoking-tobacco	12,069	Mar. 31	30	1210
Raymond, Daniel W., Middletown, Conn. Stove-polish and polishing compounds, both liquid and solid	11,940	Feb. 10	30	454
Reed & Carnrick, New York, N. Y. Medicinal food products	12,048	Mar. 24	30	1098
Reeme, Will K., Kansas City, Mo. Oysters	11,877	Jan. 20	30	182
Reichenkron & Mielke, Charlottenburg, Prussia, Germany. White beer and condensed white beer	12,006	Mar. 10	30	896
Ricker, Crombie & McLaren, Milwaukee, Wis. Spices	12,070	Mar. 31	30	1210
Rockwell & Co., J. S., Brooklyn, N. Y. Leather of all descriptions	11,898	Feb. 3	30	348
Roever, H. & G. A., Cincinnati, Ohio. Toilet and laundry soaps	11,941	Feb. 10	30	454
Rogers, Frank, Omaha, Nebr. Drugs or medicines used for venereal diseases	11,862	Jan. 13	30	102
Roskam, Gerstley & Co., Philadelphia, Pa. Malt whisky	11,899	Feb. 3	30	348
Rothschild Bros. & Co., New York, N. Y. Buttons	12,049	Mar. 24	30	1098
Rumford Chemical Works, Providence, R. I. Sparkling or effervescing beverage	12,050	Mar. 24	30	1098
Sabold, John, Jr., Colebrookdale, Pa. Sad-irons	12,051	Mar. 24	30	1098
Samper & Co., S., New York, N. Y. Wheat-flour	11,942	Feb. 10	30	454
Schandein, Harry. (See Weaver and Schandein.)				
Schriber & Co., J., Cleveland, Ohio. All kinds of fine-cut chewing, granulated and other kinds of smoking-tobacco, and cigars and cigarettes	12,007	Mar. 10	30	896
Schütte & Co., Wm., Barmen, Prussia, Germany, and New York, N. Y. Italian cloth	11,848	Jan. 6	30	2
Schweitzer, A., Fürth, Bavaria, Germany. Spectacles and eyeglasses	11,978	Feb. 24	30	664
Scofield, Shurmer & Teagle, Cleveland, Ohio. Naphtha of 62° to 64° gravity Baumé	11,943	Feb. 10	30	454
Scott Manufacturing Company, Roanoke, Va. Medicine for purifying the blood	11,944	Feb. 10	30	454
Seitz & Goold, New York, N. Y. Cotton-seed oil	12,008	Mar. 10	30	896
Shephard, John A., Wooster, Ohio. Varnishes of all kinds	12,027	Mar. 17	30	998
Shire, Adolph, Chicago, Ill. Cigars and cigarettes	11,945	Feb. 10	30	454
Smith, William T., Philadelphia, Pa. Carpets, rugs, mats, and curtain fabrics	12,009	Mar. 10	30	896
Spalding & Brothers, A. G., Chicago, Ill. Lawn-tennis bats	11,956	Feb. 17	30	562
Spalding & Brothers, A. G., Chicago, Ill. Bats of all kinds, balls, Indian-clubs, croquet-mallets, and dumb-bells	11,957	Feb. 17	30	562
Steel & Co., Edward T., Philadelphia, Pa. Cloths and cassimeres for garments	11,849	Jan. 6	30	2
Steinhardt Bros., New York, N. Y. Compounded beverage known as Jamaica rum and maple-sugar	11,900	Feb. 3	30	348
Steketee, George G., Grand Rapids, Mich. Neuralgia-drops	11,946	Feb. 10	30	454
Stern Brothers, New York, N. Y. Kid and lambskin gloves	12,010	Mar. 10	30	896
Stoddart, Charles, Buffalo, N. Y. Aerated beverage	11,947	Feb. 10	30	454
St. Paul Roller Mill Company, St. Paul, Minn. Flour	11,889	Jan. 27	30	264
Symnott, Thomas W., and C. D. Macqueen, Philadelphia, Pa. Preserve-jars	11,979	Feb. 24	30	664
Tballon, John, Brooklyn, N. Y. Butter	12,028	Mar. 17	30	998
Thompson, Fry & Co., Philadelphia, Pa. Canned and preserved fruits, vegetables, oysters, &c	11,850	Jan. 6	30	2
Thompson, Mary E., New York, N. Y. Cosmetics	12,052	Mar. 24	30	1098
Thompson & Sons, Henry G., New Haven, Conn. Spiral hair-pins	12,011	Mar. 10	30	896
Tower, James C., Baltimore, Md. Cigars	11,851	Jan. 6	30	2
Tower, Howard F., New York, N. Y. Salves	11,901	Feb. 3	30	348
Traver, Augustus, New York, N. Y. Kid gloves	12,053	Mar. 24	30	1098
Truman, I. J., and A. H. Isham, San Francisco, Cal. Twine used for binder attachments for harvesting-machines	11,953	Feb. 17	30	562
Van Pietersom Bros., Milwaukee, Wis. Cigars	11,852	Jan. 6	30	2
Walsh & Co., F. A., Milwaukee, Wis. Lard-pails and analogous vessels	11,902	Feb. 3	30	348
Warner, Hulbert H., Rochester, N. Y. Solid preparation for asthma, catarrh, hay-fever, and certain other diseases	11,903	Feb. 3	30	348
Wassmer, Joseph, New York, N. Y. Bottled beer	12,012	Mar. 10	30	896
Weaver, James B., and H. Schandein, Philadelphia, Pa. Perfumery	11,887	Jan. 27	30	264
Weaver, James B., and H. Schandein, Philadelphia, Pa. Perfumery	11,888	Jan. 27	30	264
Weil & Co., New York, N. Y. Leaf-tobacco	12,054	Mar. 24	30	1098
Weismann & Muellenbach, New York, N. Y. Fluid extract taraxicum, olive-oil, tincture of laudanum, and insect-powders	12,030	Mar. 17	30	998
Western Paper Bag Company, Batavia, Ill. Paper bags	12,031	Mar. 17	30	998
Wheeler, George R., and J. H. Hereld, Council Bluffs, Iowa. Barley beer	11,904	Feb. 3	30	348
Whitaker, William A., Winston, N. C. Plug and twist chewing and smoking tobacco, cigars, and cigarettes	11,980	Feb. 24	30	664
Whitney, George F., Boston, Mass. Laundry-soap	12,055	Mar. 24	30	1098
Williams & Co., J. H., Flushing, N. Y. Metal forgings	11,905	Feb. 3	30	348
Williams, Daniel R., Dallas, Tex. Reflector-lamps	11,954	Feb. 17	30	562
Williams, F. G., Erin, Tenn. Cement	12,013	Mar. 10	30	896
Wrenn, Whitehurst & Co., Norfolk, Va. Plows and plow-castings	12,014	Mar. 10	30	896
Wyman, J. & E. A., Millbridge, Me. Canned shelled fish	11,909	Mar. 3	30	778
Zacharie, Samuel P., New York, N. Y. Liquid for beautifying and preserving the nails	11,955	Feb. 17	30	562

ALPHABETICAL LIST OF REGISTRANTS OF LABELS.

Name, residence, and title.	No.	Date.	Official Gazette. Volume.	Page.
Ahlstrom, Charles N., New York, N. Y. "Ahlstrom's Hand Fire-Extinguisher"	4,362	Mar. 3	30	778
Andrews, Charles A., Lynn, Mass. "Novelty Pop Corn Works" (for Pop Corn)	4,380	Mar. 17	30	998
Aydelott, Jacob S., Xenia, Ind. "Aydelott's Base Ball Cards"	4,363	Mar. 3	30	778
Bailey, Henry C. (See Hall and Bailey.)				
Bard, Joseph, Chicago, Ill. "The Complexion Ointment"	4,327	Feb. 3	30	348
Barnard, William C., Worcester, Mass. "Granulated Soft Soap"	4,351	Feb. 24	30	664
Bass, John H., S., and S. J., Terrell, Tex. "Bass' Chicken Cholera Cure"	4,309	Jan. 13	30	102
Bass, Sidney. (See Bass, John H., S., and S. J.)				
Bass, Sidney J. (See Bass, John H., S., and S. J.)	4,320	Jan. 27	30	264
Bean, Ezra B., and T. S. Haight, New York, N. Y. "Liniment"	4,393	Mar. 31	30	1210
Beebe Holbrook Company, Holyoke, Mass. "Westport Mills." (for Writing Paper)				
Bigelow, Charles. (See Healy and Bigelow.)	4,365	Mar. 3	30	778
Canton Paint and Oil Company, Saco, Me. "Canton Black" (for a Water-Proof Oil Dressing)	4,366	Mar. 3	30	778
Canton Paint and Oil Company, Saco, Me. "Canton Black" (for a Water-Proof Oil Blacking)	4,367	Mar. 3	30	778
Canton Paint and Oil Company, Saco, Me. "Canton Waterproof Oil Dressing for Boots & Shoes"	4,352	Feb. 24	30	664
Carrall, Francis J., Baltimore, Md. "Liquid Cathartic"	4,304	Jan. 6	30	2
Clark, Samuel A., Chicago, Ill. "Clark's Hog Remedy"	4,394	Mar. 31	30	1210
Collins Brothers Drug Company, St. Louis, Mo. "Collins' Anti-Periodic or Fever and Ague Cure"	4,364	Mar. 3	30	778
Cook & Bernheimer, New York, N. Y. "Blackberry Brandy"	4,338	Feb. 10	30	454
Cooper & Conard, Philadelphia, Pa. "Gold and Silver Medal American Silks"				
Covell, Alexander H., New Bedford, Mass. "Covell's Genuine old Dr. Spencer's Queen of Pain or minute Cure of the period"	4,321	Jan. 27	30	264
Crossman & Bro., W. H., New York, N. Y. "Silver Steel" (for Axes, Hatchets, and similar Edge-Tools)	4,353	Feb. 24	30	664
Curtis, Charles, Newton, Mass. "The Reece Button-Hole Machine Silk"	4,310	Jan. 13	30	102
Desbrough, George, Utica, N. Y. "Dr. Geo. Desbrough's Anti-Dyspeptic Stomach Powder"	4,389	Mar. 24	30	1098
Desbrough, George, Utica, N. Y. "Dr. Desbrough's Anti-Bilious Blood and Liver Pills"	4,390	Mar. 24	30	1098
Detroit Knitting & Corset Works, Detroit, Mich. "The 8 Shilling Coiled Spring Health Preserving Corset"	4,391	Mar. 17	30	998
Detroit Knitting & Corset Works, Detroit, Mich. "Dr. Schilling's Health Preserving Corset"	4,392	Mar. 17	30	998
Dougherty, John, New York, N. Y. "South American Pile Cure"	4,354	Feb. 24	30	664
Drake, Reason, La Grange, Ind. "The People's Benefactor or the Great Household Remedy"	4,346	Feb. 17	30	562
Dunklee, Delano D., Kalamazoo, Mich. "White Bronze" (for Burial Caskets, &c)	4,323	Jan. 27	30	264
Dunn, William C., Brooklyn, N. Y. "Jamaica Tonic-Punch," (for a Beverage)	4,322	Jan. 27	30	264
Eckels, Louis W., Louisville, Ky. "The Mexican Syphilitic Treatment"	4,328	Feb. 3	30	348
Edwards, George C., Marysville, Ohio. "English Labor-Saving Soap"	4,311	Jan. 13	30	102
Erb, Jacob, Philadelphia, Pa. "Domestic Parlor Illuminator." (for Burning Fluid)	4,305	Jan. 6	30	2
Falke, Julius, St. Louis, Mo. "Falke's Sulphuret Cream." (for Chapped Hands, &c)	4,330	Feb. 3	30	348
Foss, Charles S., Deering, Me. "Roderic's Wild Cherry Cough Balsam"	4,329	Feb. 3	30	348
Frantz, Henry, and E. C. Stewart, Ithaca, N. Y. "Our Own" (for Cigars)	4,324	Jan. 27	30	264
Gallagher, Peter, Randolph, Mass. "Gallagher's Liquid Polish" (for Stoves)	4,363	Mar. 17	30	998
Gailt, William T., Port Byron, N. Y. "Goodstock" (for Shirts, Coats, and Jackets)	4,325	Jan. 27	30	264
Guesnard, Theodore, Mobile, Ala. "Guesnard's Cuban Flavored Smoking Tobacco"	4,395	Mar. 31	30	1210
Gutmann, Emil, New York, N. Y. "The Preventive Capsule"	4,376	Mar. 10	30	896
Hadley, William W., Lynn, Mass. "Mrs. W. W. Hadley's Indian Preparation"	4,347	Feb. 17	30	562
Haight, Thorne S. (See Bean and Haight.)				
Hall, Albert B., and H. C. Bailey, Indianapolis, Ind. "Hair Soap"	4,339	Feb. 10	30	454
Harrington, Charles R., Norwich, Conn. "Eaton's Celebrated Vegetable Cordial"	4,324	Mar. 17	30	998
Harris & Co., Thomas M., Philadelphia, Pa. "Favorite" (for Boys', Girls', Children's, & Infant's Shoes)	4,355	Feb. 24	30	664
Harvey, John, Detroit, Mich. "Pectoral Mucilage" (for a Medicine)	4,396	Mar. 31	30	1210
Healy, John R., and C. Bigelow, Boston, Mass. "Kickapoo Indian Salve"	4,356	Feb. 24	30	664
Hiscox & Co., W., New York, N. Y. "Hop Sarsaparilla" (for a Medicine)	4,368	Mar. 3	30	778
Hooper & Co., F. L., Baltimore, Md. "Drew's Yeast Powder"	4,357	Feb. 24	30	664
Howell & Co., Charles H., Philadelphia, Pa. "Marine Bronze" (for Paint)	4,369	Mar. 3	30	778
Howell & Co., Charles H., Philadelphia, Pa. "Howell's Deck" (for Paint)	4,370	Mar. 3	30	778
Howell & Co., Charles H., Philadelphia, Pa. "Marine White" (for Paint)	4,371	Mar. 3	30	778
Howell & Co., Charles H., Philadelphia, Pa. "Marine French." (for Paint)	4,372	Mar. 3	30	778
Howell & Co., Charles H., Philadelphia, Pa. "Marine Cement"	4,373	Mar. 3	30	778
Hutchinson, A. W., East Liverpool, Ohio. "Dr. Brooks' Diphtheria Cure"	4,348	Feb. 17	30	562
Jacobs, Samuel, Baltimore, Md. "Go-Go Vegetable Soap"	4,340	Feb. 10	30	454
Jones & Co., Boston, Mass. "Genuine Concord Wagon Colors"	4,358	Feb. 24	30	664
Kalbfleisch's Sons, Martin, New York, N. Y. "Cereal Acid Phosphates"	4,388	Mar. 17	30	998
Kidney, Alfred H., Philadelphia, Pa. "The Bracket Disinfectant Holder and Evaporator"	4,398	Mar. 31	30	1210
Kirkwood, Louise J., New York, N. Y. "School Sewing Box"	4,397	Mar. 31	30	1210
Kuhl, Anton, Merrill, Wis. "Kuhl's Drawing & Healing Salve"	4,349	Feb. 17	30	562
Kunkel & Griffiths, Philadelphia, Pa. "New Meyer" (for Boots and Shoes)	4,341	Feb. 10	30	454
Laird, Schober & Mitchell, Philadelphia, Pa. "The English Correct Style Waukenphast"	4,308	Jan. 6	30	2
Landreth, Oliver, Philadelphia, Pa. "Landreths' Extra Early Peas"	4,313	Jan. 13	30	102
Lautz Bros. & Co., Buffalo, N. Y. "Lautz Brothers and Co's Acme Soap"	4,359	Feb. 24	30	664
Lautz Bros. & Co., Buffalo, N. Y. "Lautz Brothers and Co's Acme Soap"	4,360	Feb. 24	30	664
Lloyd, Charles E., and S. D. Pilsbury, Albany, N. Y. "Indian Corn Cure"	4,313	Jan. 13	30	102
Lloyd, Charles E., and S. D. Pilsbury, Albany, N. Y. "Cocaine Tooth Ache Drops"	4,399	Mar. 31	30	1210
Mathis, Charles B., Toms River, N. J. "Mathis' Family Liniment"	4,314	Jan. 13	30	102
Mayer & Co., Hess, Louisville, Ky. "The Atkinson Dress Shirt"	4,306	Jan. 6	30	2
Mayer, Jacob, New York, N. Y. "Arlington Skirt Manufacturing Co." (for Skirts)	4,331	Feb. 3	30	348
McCoart, James, Philadelphia, Pa. "Dr. McCoart's World Renowned Specific"	4,361	Feb. 24	30	664
McFarland, Andrew J., St. Clairsville, Ohio. "Æsculapian Compound"	4,400	Mar. 31	30	1210
Morehead, Gustavus K., Philadelphia, Pa. "Ammoniated" (for Soap)	4,307	Jan. 6	30	2
Orange Elixir Company, Mobile, Ala. "Orange Elixir" (for a Laxative)	4,342	Feb. 10	30	454
Pearson, Henry E., Newbury, Mass. "The Boston Brown Bread Mixture"	4,332	Feb. 3	30	348

Alphabetical list of registrants of labels, January to March, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Perfection Card Company, Philadelphia, Pa. "Perfection" (for Playing Cards)	4,317	Jan. 20	30	182
Phinney, H. F., Boston, Mass. "Phinney's Camphor Ice"	4,326	Jan. 27	30	264
Pilsbury, S. Dexter. (See Lloyd and Pilsbury.)				
Raynolds & Co., C. T., New York, N. Y. "C. T. Raynolds and Co's Specially Prepared Paints"	4,333	Feb. 3	30	348
Rhode Island Lining Manufacturing Company, New York, N. Y. "Standard Quality" (for Cotton Goods)	4,385	Mar. 17	30	998
Rhode Island Lining Manufacturing Company, New York, N. Y. "Corset Finish" (for Silesias and Umbrella Cloths)	4,386	Mar. 17	30	998
Rice, William A., Boston, Mass. "Rice's No Rubbing Washing Fluid"	4,387	Mar. 12	30	998
Robert, F. Arnold, New York, N. Y. "F. Arnold Robert's Prune Juice"	4,377	Mar. 10	30	896
Robert, F. Arnold, New York, N. Y. "F. Arnold Robert's French vinous essence"	4,378	Mar. 10	30	896
Robinson, A. M., Jr., Bangor, Me. "Balsam of Wintergreen"	4,379	Mar. 10	30	896
Rumford Chemical Works, Providence, R. I. "Sparkling Phosa" (for a Beverage)	4,391	Mar. 24	30	1098
Sawyer, Andrew, Troy, N. Y. "Sawyer's Sick Headache Powders"	4,334	Feb. 3	30	348
Schloss Bros. & Co., Baltimore, Md. "London and Paris" (for Ready-Made Clothing)	4,343	Feb. 10	30	454
Schmidt, Albert G., Chicago, Ill. "Peruvian Bark Tonic Bitters"	4,335	Feb. 3	30	348
Schmitt, John H., Philadelphia, Pa. "The Hamburg Compressed Corn Beef Company." (for Compressed Corn Beef)	4,344	Feb. 10	30	454
Spencer, E. W., Albuquerque, N. Mex. Ter. "Spencer's Cooling Remedy," (for Burning or Sweating Feet)	4,315	Jan. 13	30	102
Stewart, Edwin C. (See Frantz and Stewart.)				
Strauss, Pritz & Co., Cincinnati, Ohio. "Mercer Co Kentucky Pure Small Grain Bourbon"	4,345	Feb. 10	30	454
Thomas, Lewis C., New York, N. Y. "L. C. Thomas, Pine Tar and Wild Cherry Cough Drops"	4,374	Mar. 3	30	778
Trades Chemical Company, New York, N. Y. "Bellevue Disinfectant"	4,350	Feb. 17	30	562
Tucker, Samuel L., New York, N. Y. "S. L. Tucker's Rheumatic X Liniment"	4,392	Mar. 24	30	1098
Valentine & Co., E. M., South Abington, Mass. "Dr. Chandler's Hemlock Plaster"	4,375	Mar. 3	30	778
Warner, C. D., Redding, Mich. "Warner's White Wine of Tar Syrup"	4,316	Jan. 13	30	102
Willimantic Linen Company, Hartford, Conn. "Windham Thread"	4,336	Feb. 3	30	348
Willimantic Linen Company, Hartford, Conn. "Iverton Mills" (for Spools of Sewing Thread)	4,337	Feb. 3	30	348
Wolf & Monahan, Milwaukee, Wis. "Medical Lake" (for Mineral Water)	4,318	Jan. 20	30	182
Wolf & Monahan, Milwaukee, Wis. "Medical Lake Ginger Ale"	4,319	Jan. 20	30	182

DISCLAIMERS.

Name, residence, and invention.	No.	Filed.	Official Gazette. Vol.	Page.
Davis, Thomas B. New York, N. Y. Scoop. (Reissue)	10,226	Jan. 2, 1885	30	102
Dunning, William B., Geneva, N. Y.; disclaimer filed by patentee. Steam-heater. (Reissue)	10,391	Mar. 25, 1885	30	1210
Kreischer, Balthasar, New York, N. Y., assignor to William J. Fryer, Jr.; disclaimer filed by assignee. Hollow tile-flooring. (Reissue)	5,174	Mar. 12, 1885	30	998
Taylor, Charles A., Chicago, Ill., assignor to A. A. L. Smith, Milwaukee, Wis.; disclaimer filed by assignee. Trunk	128,925	Mar. 7, 1885	30	998

ALPHABETICAL LIST OF INVENTIONS.

Invention.	Name.	No.	Date.	Monthly volume. Specification.	Monthly volume. Drawing.	Official Gazette. Volume.	Official Gazette. Page.
Acid. Production of sulphurous	I. S. McDougall	311,595	Feb. 3	184	52, 53	30	383
Acid. Purifying sulphuric	G. Thomson and W. Kemp	314,548	Mar. 24	2041	.....	30	1181
Adding-machine	M. Bouchet	314,561	Mar. 31	2065	552	30	1213
Advertising device. Automatic	C. M. Wheeler and E. B. Hindes	313,143	Mar. 3	136	34	30	802
Aerial navigation. Vessel for	E. F. Falconnet	311,885	Feb. 10	555	152, 153	30	460
Aerial navigation. Vessel for	E. F. Falconnet	311,886	Feb. 10	559	153, 154	30	461
Aerial navigation. Vessel for	E. F. Falconnet	311,887	Feb. 10	563	154, 155	30	461
Aerial navigation. Vessel for	E. F. Falconnet	311,888	Feb. 10	568	155, 156, 157, 158	30	462
Aerial navigation. Vessel for	E. F. Falconnet	312,344	Feb. 17	1210	336	30	590
Aging and preserving distilled and fermented liquids. Apparatus for	C. W. Ramsay	313,236	Mar. 3	298	75	30	831
Air and steam brakes. Alarm-coupling for	C. R. Van Ruyven	314,758	Mar. 31	2313	615	30	1258
Air-brake. Automatic	R. M. McKinney	311,196	Jan. 27	1578	377	30	274
Air-brake for locomotives and railway-cars	C. A. Bass	312,245	Feb. 17	1074	296	30	563
Air-compressing engine	R. P. Bolton	314,218	Mar. 24	1595	421, 422	30	1099
Air-compressing engine	F. E. Corey	311,106	Jan. 20	1248	342	30	244
Air-forcing apparatus	O. Millard	312,371	Feb. 17	1252	345	30	596
Air in malt-houses, &c. Apparatus for circulating and attempering	L. J. Wing	312,597	Feb. 17	1562	426	30	655
Air-pressure apparatus and refrigerator. Combined	C. and G. M. Heintz and A. Dotterweich.	311,831	Feb. 3	478	130	30	438
Alarm: *See* Burglar-alarm. Till-alarm. Low-water alarm.							
Alarm door-fastening	M. M. Roberts	313,371	Mar. 3	469	122	30	863
Alarm-lock for tills	E. H. Vollrath and J. C. McCready	310,627	Jan. 13	598	164	30	120
Alarm mechanism and apparatus for operating the same	W. M. Pease	312,504	Feb. 17	1444	396	30	632
Album-clasp	E. P. Hinkel	310,428	Jan. 6	343	94	30	67
Alcohol. Purifying	I. A. F. Bang and M. C. A. Ruffin	314,910	Mar. 31	2548	674	30	1300
Alumina by paper-mill sludge. Manufacture of	C. V. Petraeus	312,894	Feb. 24	1950	.....	30	733
Amalgamating apparatus	A. Miller	311,352	Jan. 27	1606	439	30	315
Amalgamating apparatus	A. Miller	311,353	Jan. 27	1607	439	30	316
Amalgamating apparatus	A. Miller	311,354	Jan. 27	1608	440	30	316
Amalgamating apparatus	A. Miller	311,355	Jan. 27	1609	440	30	316
Amalgamating ores	F. Hollick	314,578	Mar. 31	2086	.....	30	1216
Amalgamating ores. Apparatus for	M. P. Boss. (Reissue)	10,349	Jan. 13	899	243, 244	30	175
Amalgamating-pan	J. A. Bidwell	313,164	Mar. 3	176	43	30	809
Amalgamator	R. J. Atcherley	312,240	Feb. 10	1063	292	30	553
Amalgamator	J. C. Blevney	310,172	Jan. 6	14	4	30	5
Amalgamator	D. S. Randolph	311,258	Jan. 27	1466	401	30	291
Amalgamator	J. A. Pettes	314,149	Mar. 17	1510	396	30	1074
Anchor	P. Protheroe	310,614	Jan. 13	582	160	30	118
Anchor	W. D. Gold	311,117	Jan. 20	1259	345	30	246
Anchor-chain compressor and stopper	G. H. Cook	314,367	Mar. 24	1790	478	30	1138
Anchor. Land-	M. Thompson and J. Kucher	314,492	Mar. 24	1971	524, 525	30	1168
Animal-power	R. Jessee	312,124	Feb. 10	897	244	30	522
Animal-trap	B. T. Otos	311,778	Feb. 3	412	112	30	425
Animal-trap	E. P. Peacock	314,602	Mar. 31	2113	563	30	1221
Animal-trap	J. Schaffer	313,957	Mar. 17	1268	331	30	1029
Animal-trap	J. Schaffer	314,361	Mar. 24	1714	456	30	1121
Animal-trap	J. A. Green	314,527	Mar. 24	2017	538	30	1176
Animals' mouths. Device for opening	S. Fox	310,402	Jan. 6	318	88	30	62
Annealing wire and metal in other forms. Apparatus for	L. Townsend	310,750	Jan. 13	756	206	30	149
Annunciator and spring-jack. Combined	W. A. Childs and F. Shaw	311,472	Feb. 3	13	4	30	351
Annunciator for telephone systems	R. May	310,601	Jan. 13	568	157	30	115
Annunciator. Speaking-tube	F. E. Canda	313,916	Mar. 17	1208	.....	30	1018
Anti-frictional material and journal or other bearing	D. E. MacCarthy	314,390	Mar. 24	1828	486	30	1144
Anvil	J. Weathers	311,394	Jan. 27	1660	453	30	325
Anvil, vise, and drill. Combined	J. W. Millet	311,844	Feb. 3	491	134	30	441
Apron guide. Endless	C. Alkins	312,244	Feb. 17	1071	295, 296	30	563
Arch-bars. Machine for making	C. W. Vogel	310,626	Jan. 13	596	164	30	120
Arm-chair and writing-desk	W. N. Le Page	314,456	Mar. 24	1910	510	30	1159
Armor for vessels, forts, &c	W. Betty	312,320	Feb. 17	1186	324	30	584
Armpit-shield	J. G. Staunton	314,075	Mar. 17	1467	367	30	1056
Assembling-bolt	W. O'Herin	312,155	Feb. 10	953	260	30	533
Atmospheric brake							

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Atomizer	A. S. Hibbard	310,999	Jan. 20	1094	299	30	216
Auger-bits. Machine for the manufacture of	J. Swan	313,456	Mar. 3	584	150	30	885
Auger-handle	W. A. Ives	313,739	Mar. 10	952	246	30	963
Auger. Post-hole	A. C. Osborn	310,608	Jan. 13	576	159	30	116
Automatic lubricator	G. McNeil	313,095	Mar. 3	73	20	30	791
Awl for attaching buttons	R. and O. Miller	312,491	Feb. 17	1418	391	30	627
Awning	W. A. Nelson	313,757	Mar. 10	980	253	30	968
Awning-frame	J. Read	312,898	Feb. 24	1955	535	30	733
Awning. Window	M. Moneyment	311,510	Feb. 3	68	20	30	362
Ax-bit blanks. Die for making	C. W. Hubbard	314,674	Mar. 31	2208	586	30	1238
Ax-poll clips. Die for forming	J. U. Hubbard	314,845	Mar. 31	2457	649	30	1284
Axes, &c. Blank for	J. W. Bowers	311,866	Feb. 10	531	146	30	456
Axes. Die for making	J. W. Bowers	311,867	Feb. 10	533	146	30	456
Axes, hatchets, &c. Machine for making	L. B. Hunt	314,842	Mar. 31	2453	647	30	1284
Axle box and skein	L. and W. Bimel	310,778	Jan. 13	793	215	30	156
Axle box. Car	S. A. Benis	311,717	Feb. 3	331	92	30	411
Axle box. Car	J. G. Brill and E. H. Zitzman	312,181	Feb. 10	990	270	30	539
Axle box. Car	S. Wills	314,408	Mar. 24	1849	493	30	1148
Axle-box lid. Car	T. H. Haberkorn	310,820	Jan. 13	843	229	30	165
Axle clip. Vehicle	E. N. Hatcher	312,465	Feb. 17	1377	380	30	620
Axle cutter and threader	E. F. Dalton	311,647	Feb. 3	250	69	30	395
Axle end-bearing. Car	T. Thatcher	313,252	Mar. 3	322	79	30	835
Axle lubricator. Car	T. R. Gordon	311,743	Feb. 3	366	101	30	417
Axle lubricator. Car	J. D. Graham	310,941	Jan. 20	1011	273	30	200
Axle lubricator. Car	S. J. Wallace	310,755	Jan. 13	763	207	30	150
Axle-nut. Adjustable	F. L. French	313,311	Mar. 3	399	99	30	849
Axle-skein	J. R. Sandage	312,765	Feb. 24	1780	491	30	704
Axle skein and box	W. B. Meacham	311,774	Feb. 3	408	110	30	425
Axle-trimming tool	W. R. Sharp	312,521	Feb. 17	1466	401	30	635
Axle truss. Wagon	F. Ulrich	312,676	Feb. 24	1661	458	30	682
Axle. Tubular	E. Peckham	313,517	Mar. 10	662	172	30	900
Axle. Wagon	A. E. Parker	312,502	Feb. 17	1441	395	30	631
Axle. Wagon	A. E. Snell	314,981	Mar. 31	2650	701	30	1317
Back-band loop	J. P. Hamilton	314,829	Mar. 31	2438	644	30	1281
Bag: *See* Feed-bag. Mail-bag.							
Bag-holder	W. B. Emmons	314,571	Mar. 31	2078	555	30	1215
Bag-holder	L. Liedel	310,210	Jan. 6	65	17	30	15
Bag-holder	J. E. Parker	313,515	Mar. 10	661	172	30	908
Bag-holder	G. W. Wentz	313,902	Mar. 17	1184	308	30	1014
Bag-holder	W. Yerdon	314,770	Mar. 31	2360	625	30	1267
Bag-lock	A. Goertz	310,413	Jan. 6	329	90	30	64
Bag or satchel	C. W. Jenks	314,678	Mar. 31	2213	588	30	1239
Bag or satchel handle	W. Römer	314,724	Mar. 31	2275	604	30	1250
Bag, pocket-book, or purse frame	L. B. Prahar	314,345	Mar. 24	1772	472	30	1132
Bagasse to pulp to extract the saccharine matter therefrom. Machine for reducing	S. C. Meyer	313,510	Mar. 10	652	169; 170	30	907
Baking-pan and cover	T. Mayes	313,092	Mar. 3	70	19	30	790
Balance	A. Springer	310,545	Jan. 6	496	137	30	95
Balance	A. Springer and F. A. Roeder	310,471	Jan. 6	390	108	30	75
Balance. Torsional-pivot	F. A. Roeder and A. Springer	310,542	Jan. 6	491	136	30	94
Balcony and fire-escape combined	C. Monjean	313,511	Mar. 10	653	170	30	907
Bale and package tie	I. N. Hopkins	312,637	Feb. 24	1611	443	30	673
Bale-band. Adjustable	G. Nicholson	313,014	Feb. 24	2115	576; 577	30	763
Bale-band tightener	S. L. Carpinter	312,704	Feb. 24	1699	467	30	688
Bale-tie	W. Brockner	311,226	Jan. 27	1427	389	30	283
Bale-tie	W. Brockner	311,227	Jan. 27	1427	389	30	283
Bale-tie	L. E. Evans	310,502	Jan. 6	431	119	30	84
Bale-tie	J. A. Tippit	314,753	Mar. 31	2308	613	30	1257
Bale-tie machine	L. Cook	312,821	Feb. 24	1856	509; 510	30	716
Bale-tie. Wire	P. Benjamin	311,222	Jan. 27	1422	387	30	282
Baling-press	W. T. Anderson	310,357	Jan. 6	265	73	30	51
Baling-press	A. S. Robinson	311,680	Feb. 3	286	79, 80	30	403
Baling-press	W. F. Smith and W. W. Adams	311,266	Jan. 27	1481	405; 406	30	293
Baling-press	G. W. Smith	312,915	Feb. 24	1975	540	30	737
Baling-press	C. M. Stone	313,551	Mar. 10	701	183; 184	30	917
Baling-press bale-ejector	J. L. Duval	314,523	Mar. 24	2010	536	30	1175
Ball-trap	J. E. Bloom	313,004	Mar. 10	1043	264	30	979
Ball-trap	P. Marqua	313,220	Mar. 3	263	66	30	825
Ballot-box	W. P. Furnell	310,506	Jan. 6	435	120	30	84
Ballot-box	W. H. Munroe and T. C. Sullivan	311,512	Feb. 3	70	21, 22	30	362
Baluster	J. W. Ferer	310,807	Jan. 13	827	224	30	162
Banjo	S. Gibbs	312,457	Feb. 17	1370	378	30	619
Banjo	J. B. Howe	314,295	Mar. 24	1705	453	30	1120
Banjo	W. B. Lomas	313,352	Mar. 3	445	113	30	859
Banjo	F. J. Miller	310,906	Jan. 20	954	260	30	191
Banjo	G. Teed	313,384	Mar. 3	484	127	30	866
Banjo-modulator	J. B. Howe	312,638	Feb. 24	1612	443	30	673
Bar: *See* Chain-bar. Locomotive draw-bar. Grate-bar.							
Bar-bending machine	A. Urbahn	313,134	Mar. 3	124	30, 31	30	800
Barbed strips. Die for making	A. P. Thayer	310,622	Jan. 13	591	163	30	119
Barrel	A. C. Carey	312,967	Feb. 24	2041	557	30	749
Barrel-drying machine	G. Miller	312,002	Feb. 10	736	201	30	492
Barrel filling and heading apparatus	A. C. Carey	312,968	Feb. 24	2042	557	30	749
Barrel. Folding	G. F. Knapp	312,475	Feb. 17	1396	385	30	623
Barrel-making machine	G. A. Freidel and J. D. Clough	314,926	Mar. 31	2569	679; 680	30	1304
Barrel-swing	P. A. Potter	310,539	Jan. 6	484	135	30	93

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Barrel. Transportation	R. H. Kachline	314,681	Mar. 31	2215	588; 589	30	1239
Bars. Machine for bending the ends of	A. Andersen	312,547	Feb. 17	1499	409	30	642
Base-ball or cricket field indicator	W. Williams	311,278	Jan. 27	1510	412	30	298
Basket	R. S. Bartlett	313,910	Mar. 17	1196	311	30	1016
Basket cover. Fruit	J. W. Leslie	313,873	Mar. 17	1145	298	30	1006
Basket cover. Fruit	R. Stevens	311,211	Jan. 27	1397	382	30	277
Basket, Wire	W. H. Elliott	312,101	Feb. 10	866	237	30	517
Baskets, &c. Splint for	S. Friend	312,197	Feb. 10	1009	275	30	542
Bat. Base-ball	W. T. Brown	310,248	Jan. 6	109	31	30	23
Bath-tub	A. M. Waterworth	310,344	Jan. 6	251	69	30	48
Bath-tub. Folding	J. A. Throckmorton	314,752	Mar. 31	2307	613	30	1257
Bathing-garment	S. Ashner	313,845	Mar. 17	1106	287	30	999
Bathing-garment	M. J. Beers	310,171	Jan. 6	13	4	30	5
Battery: *See* Electric battery. Secondary battery. Galvanic battery. Thermo-electric battery.							
Beadings or moldings. Tool for making	L. V. Poole and O. E. Williams	313,617	Mar. 10	790	207	30	933
Bearing. Anti-friction	D. J. Powers	313,022	Feb. 24	2126	579	30	764
Bearing-boxes. Machine for applying Babbitt-metal linings to	N. Shaw	314,614	Mar. 31	2126	567	30	1224
Bearing for machinery. Step	H. G. Hubert	314,676	Mar. 31	2210	587	30	1238
Bearing for shafting	J. A. Powers and C. M. Ball	314,475	Mar. 24	1948	519	30	1165
Bearing. Friction	G. W. Shoemaker	311,995	Feb. 10	823	172	30	472
Bearing. Roller	H. H. Clay and M. D. Philloo	310,383	Jan. 6	207	82	30	57
Bed	H. S. Cook	310,255	Jan. 6	125	36	30	26
Bed-bottom. Spring	C. Carleton	314,427	Mar. 24	1872	499	30	1152
Bed. Folding	T. P. Glody	312,625	Feb. 24	1593	436	30	669
Bed-lounge	E. Burgess	312,327	Feb. 17	1192	326	30	585
Bed. Mantel	J. H. Laskey	314,032	Mar. 17	1359	354	30	1047
Bed-sofa	W. Reddell	314,606	Mar. 31	2118	565	30	1222
Bed. Sofa	F. Ringemann	314,879	Mar. 31	2503	664	30	1294
Bed. Sofa	C. Strelt	312,997	Feb. 24	1991	544	30	740
Bedstead	M. O'Neill	312,007	Feb. 10	742	203	30	494
Bedstead. Wardrobe	A. J. Warren	310,343	Jan. 6	270	68, 69	30	47
Bedstead. Wardrobe	L. W. Welch	311,623	Feb. 3	218	61	30	390
Bee-hive	N. C. Mitchell	314,972	Mar. 31	2636	698	30	1315
Bee-hive	G. L. Tinker	311,273	Jan. 27	1497	408	30	296
Bee-keeping	N. C. Mitchell	314,973	Mar. 31	2638	698	30	1315
Beefsteak-tenderer	A. Rein	311,527	Feb. 3	95	28	30	367
Bell attachment. Sleigh	W. E. Barton	312,070	Feb. 10	823	224	30	509
Bell. Bicycle	R. G. Shute	310,620	Jan. 13	589	162	30	119
Bell. Call	E. S. Bloomfield, Jr.	313,573	Mar. 10	729	191	30	922
Bell. Electric	C. E. Kelly, Jr.	313,941	Mar. 17	1249	325	30	1025
Bell. Repeating call	A. T. Booth	310,368	Jan. 6	278	76	30	54
Bells. Apparatus for operating electric	H. E. Waite and S. H. Bartlett	313,788	Mar. 10	1022	263	30	976
Bells. Apparatus for operating electric	H. E. Waite and S. H. Bartlett	313,789	Mar. 10	1023	263	30	976
Belt	M. Gandy	311,242	Jan. 27	1446	394	30	286
Belt-coupling	J. England	311,893	Feb. 10	554	152	30	460
Belt-fastener	T. Kells	310,442	Jan. 6	359	98	30	70
Belt for driving machinery	M. Gandy	313,009	Mar. 3	43	11	30	786
Belt guide and reel for thrashing-machines, &c. Combined	F. B. Ray	311,364	Jan. 27	1624	444	30	319
Belt-lace	N. I. Allen	313,974	Mar. 17	1292	336	30	1033
Belt. Safety	E. J. Claghorn	312,065	Feb. 10	845	231	30	514
Belt-shifter	W. G. Vernon	313,035	Feb. 24	2142	592	30	767
Belt-shifter. Automatic	H. W. Leonard	313,505	Mar. 10	647	168	30	900
Belt shifting and replacing device	P. Diehl	313,999	Mar. 17	1314	343	30	1038
Belt-slat fastener	S. J. Sells	313,777	Mar. 10	1003	259	30	972
Belt-tightener	J. T. Fertig	312,989	Feb. 24	2073	565	30	755
Belt-tightener	H. H. Sawtelle	312,659	Feb. 24	1636	451	30	678
Belt. Waist	L. Sanders	312,168	Feb. 10	971	265	30	536
Belting. Machine for the manufacture of	M. Gandy	314,825	Mar. 31	2434	642; 643	30	1280
Bench-dog	M. J. Kugler	313,943	Mar. 17	1251	325	30	1026
Bench-hook	J. B. Sargent	314,058	Mar. 17	1386	362	30	1052
Beveling and finishing the edges of wooden picture-mats. Tool for	E. L. Gaylord	313,196	Mar. 3	232	58	30	819
Bicycle	J. Gibbons	313,490	Mar. 10	627	163	30	902
Bicycle	T. Johnston	314,335	Mar. 24	1754	468	30	1129
Bicycle	H. H. Jones	314,849	Mar. 31	2461	650	30	1285
Bicycle	E. G. Latta	312,277	Feb. 17	1129	309; 310	30	573
Bicycle	F. Swain	311,687	Feb. 3	298	81	30	405
Bicycle	C. G. Thayer	312,930	Feb. 24	1995	546	30	741
Bicycle	J. L. Yost	310,858	Jan. 13	857	240	30	174
Bicycle-fork	J. Knous and A. E. Wallace	312,732	Feb. 24	1736	477	30	695
Bicycle-forks. Making	J. Knous and A. E. Wallace	313,063	Mar. 3	58	16	30	788
Bicycle-saddle	T. J. Kirkpatrick	314,142	Mar. 17	1502	392	30	1072
Bicycle-saddle	J. A. Lamplugh	311,332	Jan. 27	1572	430	30	310
Bicycle-saddle	W. D. McCoy	314,701	Mar. 31	2240	596	30	1244
Bicycle-wheel	G. E. Blackham	311,803	Feb. 3	441	119	30	451
Billiard-cue	O. F. Mitchell	310,456	Jan. 6	374	104	30	73
Billiard-register	R. Embrey	311,300	Jan. 27	1533	417	30	302
Binder. Newspaper	G. W. Welch	314,150	Mar. 17	1521	399	30	1076
Binder. Temporary	A. T. Atherton	314,508	Mar. 24	1993	531	30	1172
Binder. Temporary	F. Bowman	313,574	Mar. 10	730	192	30	922
Bird-cage	J. Putnam	311,848	Feb. 3	498	136	30	442
Bit: *See* Bridle-bit. Horse-bit. Expansible bit.							
Bit-brace	J. T. Pedersen	313,950	Mar. 17	1262	328	30	1028
Blackboard	H. E. Moon	314,600	Mar. 31	2110	562	30	1220
Blanket	J. Broadhead	312,323	Feb. 17	1188	325	30	584

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Blast-furnace	D. Sandstrom and J. H. Anderson	313,537	Mar. 10	685	179	30	913
Blast-furnaces. Hoisting and top-filling apparatus for	F. Brown	313,840	Mar. 17	1111	288	30	1000
Blast-holes. Tamping	J. L. L. Knox	314,585	Mar. 31	2092	558	30	1217
Blasting-powder	A. Gacon	314,824	Mar. 31	2433	.....	30	1280
Bleaching and dyeing apparatus	J. Farmer and A. Lalance	313,306	Mar. 3	392	97	30	248
Bleaching apparatus	J. Meikle	311,349	Jan. 27	1091	438	30	315
Bleaching compound for jute paper-stock, &c	P. Souders, C. Smith, H. M. Craighead, and N. Souders.	312,525	Feb. 17	1471	.....	30	636
Blind-slat fastening	E. M. Coffin	313,919	Mar. 17	1215	316	30	1019
Blind slat. Window	H. E. Willer	312,051	Feb. 10	800	218	30	504
Blind-slats. Machine for inserting pins in	G. W. Morstatt	314,464	Mar. 24	1917	512	30	1160
Blind-tenon	J. Forhan	313,859	Mar. 17	1122	291	30	1002
Block: *See* Building-block. Carriage-top-prop block. Heeling-block. Hoisting-block. Horseshoe-block. Paving-block. Pulley-block. Saw-mill head-block. Seal-skin sacque, dolman, and ulster block. Swivel-block. Toy block.							
Blower	J. F. Winchell	314,901	Mar. 31	2539	671	30	1298
Blower. Fan-	R. H. Packer	310,219	Jan. 6	75	20	30	16
Blower for fire-grates	S. C. Houghton	310,825	Jan. 13	851	231	30	167
Blowers. Mechanism for operating fan-	J. G. Hoffman and G. Weber	310,681	Jan. 13	609	194	30	133
Bluing-holder	J. C. Nobles	313,015	Feb. 24	2116	577	30	763
Board: *See* Bosom-board. Center-board. Drawing-board. Switch-board. Vehicle dash-board. Wash-board.							
Boat: *See* Life-boat. Sail-boat. Torpedo-boat. Tow-boat.							
Boat-detaching apparatus	H. E. Foster	312,714	Feb. 24	1713	471	30	691
Boat-rigging	C. F. Winsor	313,398	Mar. 3	505	131	30	870
Boats over. Form to build	G. W. Ruggles	311,038	Jan. 20	1146	313	30	226
Boiler: *See* Locomotive-boiler. Paper-pulp boiler. Steam-boiler. Vegetable-boiler. Wash-boiler.							
Boiler	W. H. Payne	314,467	Mar. 24	1924	514	30	1161
Boiler and steamer for domestic purposes	E. Richmond	313,686	Mar. 10	874	228	30	950
Boiler and straw-burning furnace	W. Stephenson	310,740	Jan. 13	744	202	30	147
Boiler ash-pan	J. C. Anderson and F. H. Latimer	311,095	Jan. 20	1230	337	30	241
Boiler-cleaner	L. A. Craig	311,296	Jan. 27	1529	416	30	301
Boiler-cleaner	G. A. Galloway	314,326	Mar. 24	1747	465	30	1127
Boiler cleaner and filter	J. G. Miner	314,257	Mar. 24	1645	436	30	1108
Boiler-cleaning apparatus	W. Ord	311,672	Feb. 3	277	77	30	401
Boiler-flue cleaner	J. R. Woodworth	310,549	Jan. 6	501	138	30	96
Boiler-furnace	J. Collis	311,874	Feb. 10	543	149	30	458
Boiler-furnace	C. Loetscher	314,537	Mar. 24	2029	541	30	1179
Boiler-furnace	H. C. Williamson	313,567	Mar. 10	723	189	30	921
Boiler furnace. Steam-	M. Correll	313,992	Mar. 17	1306	341	30	1037
Boilers. Machine for calking	H. P. Folsom	310,812	Jan. 13	831	225	30	163
Boilers, &c. Plastic-cement mixture for non-conducting coverings for	D. A. Brown	311,287	Jan. 27	1520	.....	30	300
Bolster-plate	R. Sergeant	314,730	Mar. 31	2282	606	30	1252
Bolt: *See* Assembling-bolt. Flour-bolt. Lock-bolt. Thill-coupling bolt.							
Bolt	H. T. Buckley and W. H. Wineland	310,787	Jan. 13	802	217	30	158
Bolt-heading machine	L. P. Lewis and E. M. Scott	311,164	Jan. 20	1322	363	30	257
Bolt-heading machine	J. Stacker	312,399	Feb. 17	1287	356	30	603
Bolt-making device	E. A. Oliver	311,063	Jan. 20	1217	334	30	239
Bolts, rivets, &c. Machine for making	W. Fischer and R. Busek	311,969	Feb. 10	691	{189 190	30	484
Bolting-reel	A. J. Terry	312,672	Feb. 24	1656	457	30	682
Bolting-reel	J. Warrington	310,483	Jan. 6	406	112	30	78
Bolting-reel attachment	F. Burckhardt	313,988	Mar. 17	1303	340	30	1036
Bone-black oven	G. Murdoch	314,866	Mar. 31	2488	659	30	1291
Bones. Machine for cleaning and washing	C. Meyer, Jr.	313,751	Mar. 10	973	251	30	966
Book. Account-	A. Synold	312,226	Feb. 10	1046	286	30	549
Book and paper rack. Folding	M. E. McMaster	313,223	Mar. 3	266	67	30	828
Book-binding heading	W. Macdonald	313,875	Mar. 17	1148	299	30	1007
Book. Black-leaf check-	G. Powley	310,311	Jan. 6	200	54	30	38
Book. Cashier's and salesman's check-	J. A. Guss	310,508	Jan. 6	439	121	30	85
Book. Child's copy-	H. P. Hurst	310,515	Jan. 6	446	123	30	87
Book. Duplicating counter-check	J. A. Gebhard and R. N. Barlow	314,662	Mar. 31	2196	583	30	1236
Book-holder	H. Crocker	314,436	Mar. 24	1889	504	30	1155
Book-holder	H. Crocker	314,437	Mar. 24	1889	504	30	1155
Book-holder	L. W. Noyes	311,514	Feb. 3	78	23	30	364
Book-holder	L. W. Noyes	311,515	Feb. 3	80	23	30	364
Book holder and carrier	J. Pott, Jr., and E. S. Gorham	313,021	Feb. 24	2125	579	30	764
Book. Railway passenger-tariff and distance guide-	S. F. Stevens	310,329	Jan. 6	233	64	30	44
Book. Railway time-table and distance guide-	S. F. Stevens	310,330	Jan. 6	234	64	30	45
Book-support	I. L. Hyde	314,181	Mar. 17	1550	406	30	1081
Books. Binding	A. Brehmer and G. Brown	312,606	Feb. 24	1572	430	30	666
Books. Machine for binding	G. Brown and A. Brehmer	312,609	Feb. 24	1576	431	30	666
Boot	J. R. Dean	310,389	Jan. 6	303	83, 84	30	59
Boot and shoe burnishing machine	W. R. Albertson	310,166	Jan. 6	5	2	30	4
Boot and shoe cleaner	S. J. and M. G. Rhoads	312,764	Feb. 24	1779	490	30	703
Boot and shoe heels. Machine for nailing on	L. Coté	310,562	Jan. 13	517	142	30	105
Boot. Cloth	E. E. Hall	311,123	Jan. 20	1267	347	30	247
Boot or shoe	J. Hansen	312,117	Feb. 10	888	242	30	521

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Boot or shoe	A. Seaver	314,302	Mar. 24	1716	456	30	1122
Boot or shoe	J. B. Turner	312,675	Feb. 24	1660	457	30	682
Boot or shoe	R. E. Foster	313,817	Mar. 10	1056	272	30	982
Boot or shoe cork sole	J. Kieffer	312,129	Feb. 10	902	246	30	524
Boot or shoe counter-stiffener	S. K. Knox	312,360	Feb. 17	1239	341	30	593
Boot or shoe edge trimmer	J. C. Jensen	311,005	Jan. 20	1101	301	30	218
Boot or shoe heel	E. B. Allen	310,498	Jan. 6	414	{113 114	30	80
Boot or shoe heel nailing machine	E. J. Le Gay	313,345	Mar. 3	436	110	30	857
Boot or shoe heel nailing machine	A. L. F. Mitchell	310,532	Jan. 6	470	129	30	91
Boot or shoe jack	C. Dancel	312,335	Feb. 17	1202	{329 330	30	587
Boot or shoe lasting machine	A. Cavalli	310,932	Jan. 20	993	{269 270 271	30	197
Boot or shoe nailing machine	C. N. Hoyt	311,003	Jan. 20	1099	300	30	217
Boot or shoe. Turned	O. J. Walp and A. R. Leavitt	313,635	Mar. 10	809	212	30	936
Boot or shoe uppers. Pattern for	A. J. Trask	311,046	Jan. 20	1157	315	30	228
Boot or shoe ventilator	P. Wren	311,458	Jan. 27	1744	475	30	341
Boots and shoes. Mold for making rubber	R. Meredith	314,400	Mar. 24	1914	511	30	1160
Boots. Drying rubber	C. Blohm	312,321	Feb. 17	1186	324	30	584
Boots or shoes. Device for putting on	W. C. Cross	313,301	Mar. 3	385	95	30	846
Boots or shoes for lasting. Preparing the uppers of	A. Hamil-all	313,727	Mar. 10	932	242	30	960
Boots or shoes. Manufacture of	M. Brock	312,550	Feb. 17	1501	409	30	643
Boots or shoes. Nailing apparatus for lasting	C. S. Case	310,380	Jan. 6	293	81	30	56
Boots or shoes. Toe and instep stretcher for	E. Hill	312,350	Feb. 17	1220	338	30	592
Boring and reaming tool. Combined	L. R. Faught	311,652	Feb. 3	254	71	30	396
Boring-bar	J. B. Davis	313,405	Mar. 3	512	134	30	872
Boring device	C. F. Nichols	310,710	Jan. 13	708	193	30	140
Boring doors for locks. Guide for	E. B. Hayes	314,124	Mar. 17	1480	{386 387	30	1008
Boring-machine. Gang-bit	J. Wehrle	313,267	Mar. 3	337	83	30	838
Bosom-board	F. M. Wright	314,211	Mar. 17	1583	419	30	1067
Bosom-board	G. W. Lee	310,691	Jan. 13	683	188	30	136
Bosom. Detachable	E. Haas	313,588	Mar. 10	752	198	30	936
Bottle and jar stopper and fastener	H. Cochrane and J. M. Day	313,050	Mar. 3	33	8	30	784
Bottle and stopper	W. H. Redington	310,615	Jan. 13	584	161	30	118
Bottle-cover	C. T. Grosjean	312,562	Feb. 17	1519	414	30	646
Bottle cover. Siphon-	H. Will	314,280	Mar. 24	1681	448	30	1115
Bottle-filling machine	W. H. Redington	311,849	Feb. 3	499	136	30	442
Bottle. Mucilage-	F. Burns	312,328	Feb. 17	1193	326	30	585
Bottle-stopper	W. H. Clarke	314,110	Mar. 17	1458	381	30	1065
Bottle-stopper	G. D. Corey	310,990	Jan. 20	1079	294	30	213
Bottle-stopper	G. D. Corey	312,095	Feb. 10	860	235	30	516
Bottle-stopper	G. D. Corey	312,096	Feb. 10	861	236	30	516
Bottle-stopper	F. J. Deverall	313,926	Mar. 17	1231	320	30	1021
Bottle-stopper	L. S. Hoyt	314,025	Mar. 17	1348	351	30	1045
Bottle-stopper	L. S. Hoyt	314,179	Mar. 17	1549	406	30	1080
Bottle-stopper	L. S. Hoyt	310,304	Jan. 6	192	52	30	37
Bottle-stopper	C. L. Morehouse	314,703	Mar. 31	2243	596	30	1245
Bottle-stopper	F. B. Thatcher	313,253	Mar. 3	323	79	30	835
Bottle-stopper	H. C. Walter	310,756	Jan. 13	764	207	30	150
Bottle-stopper	J. D. Mattison	311,080	Jan. 20	1214	332	30	238
Bottle stopper and faucet. Combined	L. S. Hoyt	311,834	Feb. 3	490	131	30	439
Bottle-stopple	L. S Hoyt	311,431	Jan. 27	1714	466	30	335
Bottle-stopple. Flexible	A. L. Bernardin	314,358	Mar. 24	1787	475	30	1135
Bottles. Combined metallic cap and fastener for	A. L. Bernardin	314,359	Mar. 24	1788	475	30	1136
Bottles. Combined metallic cap and fastener for	J. Matthews	311,998	Feb. 10	732	200	30	491
Bottles with aerated beverages. Filling	M. L. Cardell	314,426	Mar. 24	1872	498	30	1152
Bouquet-holder							
Box: *See* Axle-box. Ballot-box. Butter-packing box. Embroidery show-box. Feed-box. Fire-alarm box. Fire-alarm signal-box. Jewel-box. Lunch-box. Match-box. Music-box. Paper box. Pile-box. Shipping-box. Show-box. Sprinkling-box. Squib, match, and touch-paper safety-box. Stuffing-box. Tobacco-box. Valve-box.							
Box	E. J. Davis	313,814	Mar. 10	1053	270	30	981
Box	J. Flynn	312,713	Feb. 24	1712	471	30	691
Box-fastener	E. Andrews	314,641	Mar. 31	2170	576	30	1231
Box-fastener	S. R. Dunn	313,857	Mar. 17	1121	291	30	1002
Box-fastener	H. F. Moeller	311,910	Feb. 10	604	166	30	468
Brace: *See* Bit-brace.							
Bracelet	D. E. Codding and O. H. Atwood	310,795	Jan. 13	812	220	30	159
Bracelet	S. Cottle	311,722	Feb. 3	337	93	30	412
Bracelet	A. Vester	313,036	Feb. 24	2143	582	30	767
Bracelet. Chain-	F. F. Heilborn	312,994	Feb. 24	2079	567	30	756
Bracelet-clasp	S. Wallach. (Reissue)	10,552	Jan. 13	903	245	30	176
Bracket: *See* Lamp-bracket. Roofing-bracket. Shingling-bracket.							
Bracket	W. S. How	313,937	Mar. 17	1244	{323 324	30	1024
Brad-driver	W. P. Ginter	312,199	Feb. 10	1011	275	30	543
Braiding-machine	H. W. Winans	313,905	Mar. 17	1186	{308 309	30	1014

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Brake:							
See Air-brake. Locomotive-brake. Atmospheric brake. Steam and air brake. Car-brake. Vehicle-brake. Elevator-brake. Wagon-brake. Horse-power brake.							
Brake-lever	A. W. Hamaker	314,331	Mar. 24	1751	467	30	1128
Brake-lever	G. M. Huffman	314,579	Mar. 31	2067	557	30	1216
Brake-shoe	J. J. Lappin	312,734	Feb. 24	1737	478	30	695
Breast-strap toggle	R. G. Hanford, Jr.	310,510	Jan. 6	441	121	30	86
Breweries. Apparatus for treating the refuse from	F. W. Wiesebrock	312,502	Feb. 17	1555	423, 424	30	653
Brewers' grain. Preserving	F. W. Wiesebrock	312,503	Feb. 17	1557	424	30	654
Brick	W. Heard	314,022	Mar. 17	1346	350	30	1044
Brick and packing for furnaces and for other purposes. Fire-	J. F. Cliuchard	314,802	Mar. 31	2403	.....	30	1275
Brick and tile kilns. Drying apparatus for	C. L. Ames	311,537	Feb. 3	137	39	30	374
Brick for veneering frame houses and other wooden buildings.	M. F. Ellis	313,930	Mar. 17	1237	321	30	1022
Brick-back covering	J. S. Lester	314,457	Mar. 24	1911	510	30	1159
Brick-machine	H. L. Balson	312,066	Feb. 10	817	223	30	508
Brick-machine	A. J. Miller	314,340	Mar. 24	1761	470	30	1130
Brick, tile, drain-pipe, &c	H. Dickson	313,480	Mar. 10	617	160	30	900
Bricks. Device for conveying clay and clay-shale to the machines for pressing them into	J. C. Anderson	311,052	Jan. 20	1167	319	30	230
Bricks. Machine for the manufacture of	J. Tiffany	314,274	Mar. 24	1672	445	30	1113
Bridge	E. A. Werner	311,624	Feb. 3	219	62	30	390
Bridge. Arch-	G. Lindenthal	311,338	Jan. 27	1589	435	30	312
Bridge. Suspension-	S. T. Wilson	314,900	Mar. 31	2538	671	30	1298
Bridge-truss	G. H. Pegram	314,261	Mar. 24	1650	438	30	1109
Bridge-truss	E Thacher	310,747	Jan. 13	753	205	30	149
Bridle	J. R. M. Crawford	314,807	Mar. 31	2408	637	30	1276
Bridle	M. Werkheiser	313,141	Mar. 3	136	33	30	802
Bridle-bit	J. R. Brott and M. L. Andrews	312,182	Feb. 10	992	270	30	539
Bridle-bit	L. Lynch	311,436	Jan. 27	1720	468	30	336
Bridle-bit	S. Norton	313,442	Mar. 3	568	146	30	882
Bridle-bit	H. S. Squier	312,397	Feb. 17	1286	355	30	603
Bridle-blinder	D. Kaltenbacher. (Reissue)	10,569	Mar. 10	1099	285	30	989
Bridle blinder or winker	W. W. Beach	311,562	Feb. 3	142	40	30	375
Bridle-winker	W. W. Beach	311,561	Feb. 3	141	40	30	375
Brine-cooling apparatus	C. G. Mayer	314,038	Mar. 17	1365	356	30	1048
Broiler. Wire	S. Ayres	313,400	Mar. 3	507	132	30	871
Bronze plates for book-covers, furniture-panels, &c. Manufacture of imitation-	C. Wagenführ	312,044	Feb. 10	788	215	30	502
Bronzing-machine	A. Komp	311,189	Jan. 27	1367	374, 375	30	272
Bronzing-machine	J. Schneider	311,612	Feb. 3	204	57, 58	30	387
Broom-cover	W. Perry and J. A. Prince	313,233	Mar. 3	294	74	30	830
Brush	T. V. Sebring	313,776	Mar. 10	1002	259	30	972
Brush-cutting machine for vineyards	O. R. Rufna	314,979	Mar. 31	2646	700	30	1317
Brush-handle. Detachable	S. C. Collins	312,611	Feb. 24	1579	432	30	666
Brush-machine	M. Hellwig	311,985	Feb. 10	718	196	30	498
Bucket and cover. Sap-	E. S. Wilkins	313,307	Mar. 3	504	131	30	870
Bucket-handle	G. W. Knapp	312,208	Feb. 10	1026	280	30	546
Bucket. Water-elevating	C. C. Coffee	313,288	Mar. 3	364	90	30	843
Buckle	C. R. Harris	314,018	Mar. 17	1340	349	30	1043
Buckle	H. Howard	310,588	Jan. 13	555	154	30	112
Buckle	C. Kahlhofer	314,452	Mar. 24	1906	500	30	1158
Buckle	J. E. Lee	314,603	Mar. 31	2227	592	30	1242
Buckle	J. Lines	312,210	Feb. 10	1027	281	30	546
Buckle	C. A. Mann	312,136	Feb. 10	908	247	30	525
Buckle	C. W. Wheeler	313,142	Mar. 3	137	33	30	802
Buckle. Harness-	A. C. Walker	311,393	Jan. 27	1660	453	30	325
Buckle. Key-	S. M. Adkins	310,632	Jan. 13	604	166	30	121
Buckle. Lever-	E. S. Smith	310,919	Jan. 20	977	265	30	194
Buckle. Suspender-	C. C. Shelby	313,628	Mar. 10	802	210	30	935
Buckle. Trace-	L. Carr	314,564	Mar. 31	2068	553	30	1213
Buckle. Trace-	W Lerchen	312,567	Feb. 17	1525	415	30	647
Buckle. Trace or hame-tug	A. E. Deibert	310,390	Jan. 6	304	84	30	59
Buggy. Side-bar	R. St. Clair	314,077	Mar. 17	1409	368	30	1057
Buggy-top support	A. Witzel	311,703	Feb. 3	318	87	30	409
Building-block	S. T. Trumbull	312,305	Feb. 17	1165	318	30	580
Buildings. Construction of	R. S. Pearsall	311,631	Jan. 20	1133	309	30	224
Buildings. Construction of	E. L. Randall	311,677	Feb. 3	284	78	30	402
Bung	J. L. MacIlvaine	311,345	Jan. 27	1598	437	30	314
Bung-cutter	H. Waas	314,086	Mar. 17	1427	373	30	1059
Bung-hole cutter	J. Kirby	313,359	Feb. 17	1238	340	30	593
Burglar-alarm	J. G. Batterson	310,242	Jan. 6	101	28	30	21
Burglar-alarm	H. T. Helmbold	310,421	Jan. 6	337	92	30	66
Burglar-alarm	A. Jacobi	314,456	Mar. 24	1903	508	30	1158
Burglar-alarm	W. F. H. O'Keefe	311,027	Jan. 20	1129	308	30	223
Burglar-alarm	F. Politz	312,508	Feb. 17	1452	397	30	634
Burial apparatus	M. Chastain	312,816	Feb. 24	1847	507	30	715
Burial-casket	N. Rappleyea	310,223	Jan. 6	78	21	30	17
Burial-casket drapery	A. Freschl	313,820	Mar. 10	1000	273	30	982
Burner:							
See Gas-burner. Lamp-burner. Hydrocarbon-burner. Oil-burner. Vapor-burner.							
Burring-machines. Toothed cylinder for	C. L. Goddard	314,664	Mar. 31	2198	583	30	1236
Bushing or bearing. Friction-roller	A. P. Daboll	310,250	Jan. 6	129	37	30	26
Bushings into casks. Expander for expanding and securing metal bung-	H. Cottrell	311,960	Feb. 10	677	186	30	482
Bustle	C. R. Davis	314,566	Mar. 31	2071	553	30	1213

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Bustle	A. Stiles	311,269	Jan. 27	1484	407	30	294
Butchering device	R. M. Laremore	311,191	Jan. 27	1371	376	30	273
Butter-packing box	G. Hungerford and S. H. Stiles	313,426	Mar. 3	539	142	30	877
Button	E. Berman	310,361	Jan. 6	271	74	30	52
Button	C. V. Goddard	310,939	Jan. 20	1008	273	30	199
Button	P. Hirshfield	311,758	Feb. 3	389	106	30	422
Button	N. C. Newell	310,909	Jan. 20	959	261	30	192
Button	J. P. Noyes	313,017	Feb. 24	2119	577	30	763
Button	S. C. Scott	314,612	Mar. 31	2124	566	30	1223
Button	T. I. Smith	314,616	Mar. 31	2132	567	30	1224
Button	T. W. F. Smitten	312,770	Feb. 24	1725	492	30	705
Button	J. E. Totten	311,794	Feb. 3	431	117	30	429
Button	J. H. Walker	312,936	Feb. 24	2002	547	30	742
Button	T. J. Winans	312,943	Feb. 24	2010	549	30	744
Button	W. J. Allason	311,460	Feb. 3	1	1	30	349
Button and button-fastening	S. L. Otis	313,949	Mar. 17	1259	328, 329	30	1027
Button and disk trimming machine	M. Hamburger	310,273	Jan. 6	150	42	30	30
Button and fastener. Combined	W. J. Dunn	311,881	Feb. 10	551	151	30	459
Button and scarf-holder. Combined collar-	A. G. Wilkins	314,092	Mar. 17	1436	375	30	1061
Button-attaching apparatus	J. C. F. Dick	310,934	Jan. 20	999	271	30	197
Button-attaching machine	R. J. Gilmore	310,578	Jan. 13	539	148	30	109
Button-attaching machine	L. V. Moulton	312,748	Feb. 24	1761	485	30	700
Button-attaching machine	L. V. Moulton	312,749	Feb. 24	1763	485	30	700
Button-attaching machine	E. Woodward	311,456	Jan. 27	1742	474	30	340
Button-attaching machine	S. Cottle	311,107	Jan. 20	1249	342	30	244
Button. Collar-	H. J. Geer	314,896	Mar. 31	2436	643	30	1281
Button. Collar-	H. C. Luther	310,898	Jan. 20	945	258	30	190
Button-eye	E. O. Ely	312,986	Feb. 24	2068	564	30	754
Button-fastener	E. Kempshall	310,524	Jan. 6	456	126	30	88
Button-fastener	E. Kempshall	314,684	Mar. 31	2219	590	30	1240
Button-fastener	H. J. Weldon	312,309	Feb. 17	1169	320	30	581
Button-fastener	F. H. Richards	310,541	Jan. 6	487	136	30	93
Button-fastener-setting machine	F. H. Richards	311,033	Jan. 20	1135	310	30	224
Button-fastener-setting machine	H. N. Hemingway	312,121	Feb. 10	893	243	30	492
Button-fasteners. Machine for manufacturing	F. M. Baker	313,274	Mar. 3	343	85	30	799
Button-fastening	E. Woodward	314,553	Mar. 24	2047	545	30	1182
Button-fastening strip	J. D. Ulmer and J. S. Collins	312,932	Feb. 24	1997	546	30	741
Button-hole-cutting attachment	L. W. Fairchild	312,622	Feb. 24	1589	435	30	669
Button-hook	J. A. Smith	311,539	Feb. 3	110	32	30	370
Button-hook	C. H. Cooke	311,474	Feb. 3	16	5	30	351
Button or stud	N. F. Mathewson	311,194	Jan. 27	1374	377	30	274
Button or stud	J. J. Lindauer	310,293	Jan. 6	174	49	30	34
Button or stud. Detachable	H. A. Cables	314,795	Mar. 31	2395	634	30	1273
Button. Separable	E. O. Ely	312,987	Feb. 24	2069	565	30	754
Button-setting machine	E. Kempshall	310,525	Jan. 6	457	126	30	88
Button-setting instrument	E. Kempshall	310,830	Jan. 13	654	232	30	168
Button-setting instrument	E. Woodward	311,457	Jan. 27	1743	475	30	341
Button-setting machine	E. Weyerbusch	311,700	Feb. 3	313	85, 86	30	408
Button-shaping machine	E. R. Parkill	314,052	Mar. 17	1379	360	30	1051
Button shank or eye testing machine	S. C. Scott	314,613	Mar. 31	2125	566	30	1223
Button. Sleeve-	J. Wall	311,048	Jan. 20	1161	317	30	229
Button. Sleeve or collar-	P. H. Walsh	312,046	Feb. 10	789	216	30	503
Button. Surface-attaching garment-	E. May	314,596	Mar. 31	2105	561	30	1220
Buttons. Machine for the manufacture of pearl	E. May	312,140	Feb. 10	916	349	30	536
Buttons. Machine for turning pearl	G. Carlyle	311,958	Feb. 10	671	184	30	481
Buttons. Manufacture of pearl	A. G. Wilkins and J. B. Miller	312,688	Feb. 24	1674	461, 462	30	684
Buttons to fabrics. Apparatus for attaching	J. H. Smith	311,537	Feb. 3	106	31	30	369
Cable and car. Traction	J. H. Polhemus	312,507	Feb. 17	1449	397	30	633
Cable-grip	W. R. Patterson	312,755	Feb. 24	1770	487	30	701
Cable-hanger	C. Bullock	310,558	Jan. 13	514	141	30	104
Cable or electric railway yoke or frame, &c	C. M. Huson	312,273	Feb. 17	1108	306, 307	30	569
Cable tramway	M. G. Farmer	312,831	Feb. 24	1872	513	30	719
Cables. Repeater for submarine	E. T. Gilliland	310,938	Jan. 20	1007	272	30	199
Cables. Suspension of aerial	G. H. Hazelton	313,666	Mar. 10	854	232	30	946
Caddy. Tea or sugar	W. H. H. Bowers	311,804	Feb. 3	441	119, 120	30	431
Calcining and chloridizing furnace	F. W. Child	313,658	Mar. 10	843	219	30	943
Calculator. Tabular	J. Cussons	313,996	Mar. 17	1311	342	30	1037
Calendar	C. H. Alapaw	311,800	Feb. 3	438	118	30	430
Calipers	S. A. Jellett	311,248	Jan. 27	1453	396	30	288
Calipers	F. G. Lilja	310,292	Jan. 6	173	48	30	34
Calipers	O. Stoddard	314,625	Mar. 31	2148	571	30	1227
Calipers and dividers	M. P. W. Boulton and E. Perrett	311,102	Jan. 20	1243	341	30	243
Caloric-engine	W. H. Lewis	312,363	Feb. 17	1242	342	30	594
Camera:							
See Photographic camera.							
Camera-stand							
Can:							
See Creaming-can. Oiling-can. Milk-can. Tin can. Oil-can.							
Can	E. C. Hazard	314,839	Mar. 31	2449	647	30	1287
Can-filling machine	W. H. H. Stevenson	314,352	Mar. 24	1779	473	30	1134
Can-opener	C. S. Lobdell	313,351	Mar. 3	444	112	30	858
Can watering-machine	A. R. Merrell	312,648	Feb. 24	1623	447	30	675
Cans. Closing kerosene and other	H. Miller	312,372	Feb. 17	1253	345	30	596
Cans, &c. Filling-machine for	J. J. Gorman	310,268	Jan. 6	143	40	30	28
Cans. Screw-cap for metal	A. F. Cooper	314,227	Mar. 24	1609	425	30	1102
Cans. Testing sealed	M. C. Hutchings	314,180	Mar. 17	1549	406	30	1060
Canning apparatus. Fruit	W. H. Anstin	313,975	Mar. 17	1293	337	30	1033
Candle	H. L. Brevoort	310,874	Jan. 20	913	248, 249	30	184

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Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
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Candle-machine	G. Roth	314,347	Mar. 24	1774	472	30	1132
Candles. Apparatus for automatically extinguishing	L. C. Pinel	312,201	Feb. 17	1149	314	30	577
Candy-machine	W. E. Henry	314,529	Mar. 24	2020	539	30	1177
Candy. Machine for making stick	T. E. Copelin	313,061	Mar. 3	35	9	30	784
Cane-mill	J. Bennyworth	312,072	Feb. 10	825	225	30	510
Canister	C. M. Symonds	311,600	Feb. 3	302	82	30	406
Cannon. Pneumatic	D. M. Mefford	314,298	Mar. 24	1711	455	30	1121
Cantalever	B. F. Davis	311,064	Jan. 20	1188	326	30	233
Canvas and other fabrics. Machine for testing	J. F. O'Connor	314,465	Mar. 24	1920	513	30	1161
Capstan	S. T. Richardson	311,372	Jan. 27	1635	448	30	321
Capsule-cutter	J. Krehbiel	312,361	Feb. 17	1240	341	30	594
Capsule-cutter	J. Krehbiel	313,601	Mar. 10	768	202	30	929
Capsule-cutting machine	W. A. Tucker	313,132	Mar. 3	121	30	30	799
Capsule-machine	F. A. Hubel and F. J. Reinhold	311,835	Feb. 3	481	{131 132	30	439
Capsule-machine	H. H. Taylor	311,860	Feb. 3	516	140	30	445
Capsule-mold pins. Machine for greasing	F. A. Hubel and F. Reinhold	311,659	Feb. 3	263	73	30	398
Car-bearing	F. G. Sasemihl	311,618	Feb. 3	212	60	30	382
Car-body truss	J. Stephenson	311,541	Feb. 3	114	33	30	370
Car-brake	J. R. Baker	314,417	Mar. 24	1861	495	30	1150
Car-brake	L. Braner	314,422	Mar. 24	1866	497	30	1151
Car-brake	C. E. Candee	312,429	Feb. 17	1328	366	30	611
Car-brake	I. H. Congdon	314,225	Mar. 24	1607	424	30	1101
Car-brake	P. H. Curtner and C. C. Genung	313,186	Mar. 3	224	55	30	818
Car-brake	L. C. Huber	310,435	Jan. 6	353	96	30	68
Car-brake	T. Shaw	311,202	Jan. 27	1475	403	30	292
Car-brake	C. W. Stringham	310,965	Jan. 20	1047	284	30	206
Car-brake. Automatic	M. Armstrong	313,154	Mar. 3	155	38	30	805
Car-brake. Automatic	P. Hien	313,734	Mar. 10	944	{244 245	30	962
Car-brake. Automatic	W. B. Turner and C. Beard	314,963	Mar. 31	2651	{701 702	30	1318
Car-brake. Electro-magnetic	H. S. Park	314,709	Mar. 31	2249	598	30	1246
Car canopy. Horse	F. H. Dibble	310,992	Jan. 20	1085	297	30	215
Car. Coal	D. S. Dockstader	314,656	Mar. 31	2191	581	30	1235
Car. Combined grain and oil	J. R. Gathright	313,932	Mar. 17	1238	322	30	1023
Car-coupling	J. S. Andrews	313,044	Mar. 3	6	2	30	780
Car-coupling	J. C. Averill	313,702	Mar. 10	898	234	30	954
Car-coupling	J. W. Baker	311,711	Feb. 3	326	90	30	410
Car-coupling	D. C. Barton	310,553	Jan. 13	507	140	30	103
Car-coupling	H. T. Beam	311,281	Jan. 27	1512	413	30	299
Car-coupling	U. Beausejour	313,977	Mar. 17	1295	337	30	1034
Car-coupling	C. M. Bennett	314,421	Mar. 24	1866	497	30	1151
Car-coupling	F. Burckhardt	313,983	Mar. 17	1300	339	30	1035
Car-coupling	J. K. Bywater	310,788	Jan. 13	803	218	30	158
Car-coupling	B. H. Downer and C. A. Beach	311,730	Feb. 3	348	96	30	414
Car-coupling	D. P. Edgar	311,651	Feb. 3	254	70	30	396
Car-coupling	J. W. Fergusson	312,110	Feb. 10	873	239	30	519
Car-coupling	J. T. Gilchriat	312,345	Feb. 17	1223	336	30	591
Car-coupling	J. Gilmer	313,200	Mar. 3	237	60	30	821
Car-coupling	W. J. Hadden	312,114	Feb. 10	825	241	30	520
Car-coupling	J. M. Harrison and L. N. White	310,511	Jan. 6	442	122	30	86
Car-coupling	R. Hitchcock	314,577	Mar. 31	2084	557	30	1216
Car-coupling	W. J. Hutson	312,353	Feb. 17	1232	339	30	592
Car-coupling	M. Joo	312,861	Feb. 24	1913	524	30	726
Car-coupling	W. F. Julian	313,871	Mar. 17	1143	298	30	1006
Car-coupling	O. S. King	311,012	Jan. 20	1111	303	30	219
Car-coupling	J. F. Leech	312,362	Feb. 17	1240	341	30	594
Car-coupling	C. Leidy and C. E. Green	313,216	Mar. 3	259	65	30	824
Car-coupling	A. C. Lübbert, II.	311,663	Feb. 3	267	74	30	399
Car-coupling	M. W. McCann	310,697	Jan. 13	690	189	30	137
Car-coupling	W. S. Milner	314,045	Mar. 17	1372	358	30	1049
Car-coupling	W. Müller	311,667	Feb. 3	270	75	30	399
Car-coupling	C. O. Myers	310,535	Jan. 6	479	134	30	92
Car-coupling	A. S. Neal	312,152	Feb. 10	845	257	30	532
Car-coupling	T. Nicholas	313,680	Mar. 10	866	226	30	948
Car-coupling	J. W. Nunnamaker	312,216	Feb. 10	1035	284	30	547
Car-coupling	E. B. Oakley	314,049	Mar. 17	1376	359	30	1050
Car-coupling	J. G. Ogden	310,460	Jan. 6	378	105	30	74
Car-coupling	P. J. Payn	312,156	Feb. 10	854	260	30	533
Car-coupling	W. V. Perry	310,720	Jan. 13	718	196	30	142
Car-coupling	J. Raddin	313,527	Mar. 10	672	176	30	911
Car-coupling	D. L. Richards	311,328	Feb. 3	95	28	30	367
Car-coupling	D. L. Richards	312,657	Feb. 24	1634	450	30	678
Car-coupling	F. D. Root	311,037	Jan. 20	1144	312	30	226
Car-coupling	J. A. Ross	310,726	Jan. 13	728	198	30	144
Car-coupling	E. Rye	313,026	Feb. 24	2132	580	30	765
Car-coupling	S. Schroyer	310,854	Jan. 13	884	239	30	173
Car-coupling	J. F. Scott	313,378	Mar. 3	476	{124 125	30	865
Car-coupling	W. N. Sewell	311,535	Feb. 3	102	30	30	369
Car-coupling	C. and W. Speer	310,327	Jan. 6	229	63	30	44
Car-coupling	J. M. Staley	313,548	Mar. 10	698	182	30	916
Car-coupling	J. T. Snatzire	313,455	Mar. 3	583	150	30	885
Car-coupling	W. H. Thurmond	313,386	Mar. 3	486	127	30	867
Car-coupling	H. W. Tilton	314,275	Mar. 24	1675	445	30	1114
Car-coupling	W. Turnbull	313,968	Mar. 17	1279	334	30	1031
Car-coupling	A. W. Van Doraton	314,496	Mar. 24	1976	526	30	1169
Car-coupling	E. M. Van Hoesen and N. H. Brown. (Reissue.)	10,567	Mar. 3	600	153	30	868
Car-coupling	F. Vaughan	314,463	Mar. 24	1844	491	30	1147
Car-coupling	R. S. Wheeler	312,310	Feb. 17	1169	320	30	581
Car-coupling	F. R. Wilkins	313,269	Mar. 3	340	84	30	838
Car-coupling	R. P. Wilson	311,216	Jan. 27	1409	384	30	279

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Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
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Car-coupling	J. J. Wolfe	311,628	Feb. 3	225	63	30	391
Car-coupling	C. S. Woodman	311,798	Feb. 3	435	118	30	430
Car-cover	R. H. Wyman	312,786	Feb. 24	1808	497	30	708
Car cover. Railway	R. H. Wyman	312,785	Feb. 24	1807	497	30	708
Car covers. Guard for freight	R. H. Wyman	312,787	Feb. 24	1810	497	30	708
Car-door fastening	J. Kinzer	312,357	Feb. 17	1236	340	30	593
Car-door lock	J. Kinzer	312,358	Feb. 17	1237	340	30	593
Car-door retainer	H. McCaffrey	311,134	Jan. 20	1246	334	30	252
Car. Dumping	W. J. March	312,282	Feb. 17	1136	312	30	575
Car. Dumping	A. O'Hara	313,361	Mar. 3	457	117	30	861
Car. Dumping	C. L. Van Wormer	311,047	Jan. 20	1158	{316 317	30	228
Car. Dumping	M. Van Wormer	311,274	Jan. 27	1499	{408 409	30	296
Car-floor	F. Burckhardt	313,986	Mar. 17	1302	340	30	1035
Car. Hand	J. Milliron, Jr	312,572	Feb. 17	1529	417	30	648
Car. Hotel	J. J. Strong	313,454	Mar. 3	581	149	30	885
Car-moving device	E. Barnes	310,492	Jan. 6	420	116	30	81
Car-pedestal	J. Volk	313,461	Mar. 3	590	151	30	886
Car pedestal. Railway	B. Briody and G. W. McHale	312,079	Feb. 10	837	228	30	512
Car. Railway	T. L. Wilson	311,553	Feb. 3	132	38	30	373
Car register. Street-railway	G. B. Thayer	310,921	Jan. 20	980	{266 267	30	195
Car-replacer	R. Jones	310,520	Jan. 6	453	125	30	88
Car-roof	H. Aldridge	310,971	Jan. 20	1056	287	30	208
Car-roof	F. Burckhardt	313,985	Mar. 17	1301	339	30	1035
Car safety device	W. L. Robinson	312,167	Feb. 10	970	265	30	535
Car-signal	F. P. Day	312,099	Feb. 10	864	236	30	517
Car. Sleeping	J. F. Colby	313,576	Mar. 10	732	192	30	923
Car. Sleeping	W. W. Fessler	310,809	Jan. 13	820	225	30	162
Car-spring	J. T. Herschell	314,245	Mar. 24	1628	430	30	1105
Car-starter	C. B. Broadwell	310,556	Jan. 13	510	140	30	104
Car-starter	F., Sr., and F. Dawson, Jr	314,519	Mar. 24	2006	535	30	1174
Car-starter	J. Goodfellow	310,197	Jan. 6	50	14	30	12
Car-starter	C. A. Iversen	313,824	Mar. 10	1065	274	30	983
Car-starter	N. J. Roberts	314,299	Mar. 24	1712	455	30	1121
Car-starter	A. R. Witmer	311,027	Feb. 3	224	63	30	391
Car. Stock	G. D. Burton	311,719	Feb. 3	334	92, 93	30	412
Car. Stock	J. E. Cantrill	313,173	Mar. 3	187	45, 46	30	811
Car. Stock	R. G. Pace	313,729	Mar. 10	982	253	30	966
Car. Stock	E. F. Perkins and G. D. Burton	310,463	Jan. 6	381	106	30	74
Car. Stock	J. E. Pierce	311,781	Feb. 3	415	113	30	426
Car. Street	M. A. Cutter	312,550	Feb. 17	1510	412	30	645
Car-warmer	J. Q. C. Searle	311,533	Feb. 3	99	29	30	368
Car-warmer	J. Q. C. Searle	311,534	Feb. 3	100	30	30	368
Car-wheel	T. C. Elvin	312,263	Feb. 17	1007	303	30	567
Car-wheel	W. Joslin	312,537	Feb. 3	485	132	30	440
Car-wheel	G. P. King	311,434	Jan. 27	1718	467	30	336
Car-wheel	J. G. Lafontaine	310,688	Jan. 13	680	186	30	135
Car-wheel	C. Leavitt and C. G. Canfield	310,507	Jan. 13	565	156	30	114
Car-wheel and spraying-bar. Spraying	A. A. Smith	312,628	Feb. 10	774	211	30	500
Car-wheel guard. Railway	J. Jacobs	314,580	Mar. 31	2087	557	30	1217
Car-wheel. Self-oiling	H. L. Kirchman	314,140	Mar. 17	1500	391	30	1072
Car-wheels. Apparatus for removing and replacing	J. H. Vreeland	314,895	Mar. 31	2529	{669 670	30	1207
Car-wheels. Manufacture of	E. B. Meatyard	310,701	Jan. 13	694	190	30	138
Car-window shade	G. B. Massey	311,906	Feb. 10	601	165	30	468
Cars. Fastening device for the doors of freight	H. E. Hoke	311,761	Feb. 3	392	107	30	422
Cars. Grain-door for freight	L. J. Mason and G. N. Walker, Jr.	310,600	Jan. 13	567	157	30	115
Cars. Grip attachment for railway	J. J. Endres	312,711	Feb. 24	1710	470	30	690
Cars. Hot-water apparatus for railway	W. D. Mann	311,921	Jan. 20	1123	{306 307	30	221
Cars. Pole-coupler for horse	J. N. Akarman	311,108	Jan. 27	1332	367	30	266
Cars. Steam-heating apparatus for railway	J. Emerson	314,006	Mar. 17	1323	345	30	1040
Cars. Steam-valve connection for railway	J. Emerson	314,007	Mar. 17	1325	{345 346	30	1040
Carbon-battery element	I. L. Roberts	311,852	Feb. 3	508	138	30	444
Carbureting air and gas. Apparatus for	J. S. Butler	312,186	Feb. 10	996	{271 272	30	540
Carburetor	E. J. Frost	312,836	Feb. 24	1879	515	30	720
Carburetor	E. J. Vaughan	312,774	Feb. 24	1795	494	30	706
Carburetor. Air or gas	J. M. Palmer	312,289	Feb. 17	1147	313	30	576
Card-beveling machine	C. A. Wright	313,639	Mar. 10	815	213	30	928
Card-board-cutting machine	S. J. Murray	310,534	Jan. 6	478	133	30	92
Card or print hanger	A. H. Stetson	312,035	Feb. 10	780	213	30	501
Carding-engine feeding mechanism	W. C. Bramwell	311,948	Feb. 10	656	{180 181	30	478
Carding-machine	A. T. Atherton	311,404	Jan. 27	1677	{457 458	30	329
Carding-machine-feeding device	E. Gessner	312,456	Feb. 17	1367	{377 378	30	619
Carding-machine for the manufacture of mottled rovings	J. Dyson and C. W. Cookson	310,803	Jan. 13	820	222	30	161
Carding-machines. Fleece-dividing attachment for	J. S. Bolette	312,424	Feb. 17	1319	364	30	610
Carpet-cleaning machine	J. B. and L. M. Peters	310,307	Jan. 6	195	53	30	37
Carpet-fastener	F. C. Hellmuth	314,671	Mar. 31	2205	585	30	1237
Carpet-fastener	G. C. Myers	310,217	Jan. 6	73	19	30	16
Carpet-fastener	J. Pearsall	314,053	Mar. 17	1359	360	30	1051
Carpet-fastener	M. F. Strathy	312,402	Feb. 17	1293	357	30	604
Carpet-lining	R. H. Thompson	311,390	Jan. 27	1658	.....	30	325
Carpet-rag looper	H. A. Morrow	314,704	Mar. 31	2243	597	30	1245
Carpets, &c. Composition of matter for cleaning	J. J. Hymer	310,929	Jan. 13	854	.....	30	168
Carpets, &c. Fabric for	J. W. Priestley and A. Kunkler	312,220	Feb. 10	1040	285	30	548
Carriage-body	J. A. Healey	313,591	Mar. 10	756	199	30	927
Carriage. Child's	E. A. and E. W. Gerbracht	314,327	Mar. 24	1748	466	30	1127

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Carriage. Child's	E. W. and E. A. Gerbracht	314,328	Mar. 24	1749	466	30	1127
Carriage-dash frames. Die for	F. T. Smith	312,029	Feb. 10	775	211	30	506
Carriage-jack	J. McFarland	310,453	Jan. 6	371	103	30	72
Carriage-seat iron	E. S. Hawkins	313,331	Mar. 3	419	105	30	853
Carriage-spring	W. K. Fraley	311,069	Jan. 20	1192	327	30	235
Carriage-standard	C. C. Egerton	312,618	Feb. 24	1586	434	30	668
Carriage-step	F. A. Sawyer	314,151	Mar. 17	1512	396	30	1074
Carriage-top	E. E Witham	314,903	Mar. 31	2341	672	30	1299
Carriage-top-prop block	G. L. Artz	313,570	Mar. 10	726	190	30	922
Carriage-top support	F. Ege	311,731	Feb. 3	350	97	30	415
Carriage-top support	I. L. Umstead	314,631	Mar. 31	2156	573	30	1228
Carriage-wheel	F. Oram	313,364	Mar. 3	460	118	30	862
Carriage-wheel lock	R. P. Cowles	312,191	Feb. 10	1003	273	30	541
Carriages. Canopy-holder for children's	A. G. Snell	312,395	Feb. 17	1284	355	30	603
Carrier: *See* Cash-carrier. Hay-carrier. Cash and parcel carrier. Sheaf-carrier. Trace-carrier. Egg-carrier.							
Carrying device for melons, &c. Hand	J. Old	310,607	Jan. 13	576	159	30	116
Cart. Dumping	M. Bowes	312,078	Feb. 10	835	{227, 228}	30	512
Cart. Road	E. Emmert	313,485	Mar. 10	621	162	30	901
Carts. Conveyer for coal	T. A. Naylor	314,869	Mar. 31	2491	660	30	1291
Cartridge	H. F. Clark	310,650	Jan. 13	626	173	30	125
Cartridge-crimping machine	E. Parker	310,306	Jan. 6	193	53	30	37
Cartridge for compressed air	W. T. Chamberlain	310,648	Jan. 13	624	172	30	125
Cartridge for ordnance	W. Hope and R. S. Ripley	314,127	Mar. 17	1486	388	30	1070
Cartridge-heads. Machine for trimming	A. L. Howard	311,324	Jan. 27	1561	426	30	307
Cartridge-loading implement	C. F. London	310,295	Jan. 6	176	49	30	34
Cartridge. Pneumatic	W. T. Chamberlain	312,706	Feb. 24	1701	468	30	689
Cartridge-shell extractor	C. M. Burton	314,563	Mar. 31	2067	552	30	1213
Cartridge-shells. Implement for capping and uncapping	G. W. Hadley	310,583	Jan. 13	547	150	30	111
Cartridge-shells. Machine for finishing metallic	G. P. Salisbury	312,019	Feb. 10	763	208	30	498
Cartridge-shells. Machine for making	J. H. Ring	311,035	Jan. 20	1140	311	30	225
Cartridge-shells. Machine for making metallic	D. J. Ring	311,034	Jan. 20	1139	311	30	225
Cartridge-shells. Making metallic	A. Dickerman	313,187	Mar. 3	225	55, 56	30	818
Cartridges. Implement for packing	P. Butler	312,809	Feb. 24	1838	{504, 505}	30	713
Case: *See* Cigar and cigarette case. Spectacle-case. Ticket-case. Cigarette-case. Toilet-case. Packing-case. Watch-case. Shipping-case							
Cash and parcel carrier	G. A. Badger and W. F. Lakin	314,558	Mar. 31	2060	550	30	1212
Cash and parcel carrier	J. C. Martin	314,339	Mar. 24	1760	469	30	1130
Cash and parcel carrying system for store-service	J. T. Cowley	311,108	Jan. 20	1250	{342, 343}	30	244
Cash and parcel carrying system for store-service	J. K. P. Nourse	311,513	Feb. 3	74	22, 23	30	363
Cash-carrier	T. M. Kenney and F. E. Mason	311,011	Jan. 20	1108	303	30	219
Cash-carrier apparatus	D. H. Rice	313,370	Mar. 3	466	{121, 122}	30	863
Cash-carrier. Automatic	D. K. Hill	311,897	Feb. 10	587	161	30	465
Cash-carrier elevator	W. S. Lamson	310,832	Jan. 13	857	232	30	168
Cash-carrying apparatus	D. H. Rice	314,263	Mar. 24	1655	439	30	1110
Cash-carrying apparatus	D. H. Rice	314,264	Mar. 24	1656	{439, 440}	30	1110
Cash-railway switch	W. H. and F. L. Wiggin	310,764	Jan. 13	777	210	30	152
Cash-register	W. C. McGill	312,740	Feb. 24	1750	481	30	698
Caster	W. Koch	312,733	Feb. 24	1736	478	30	695
Caster	S. C. Mendenhall	314,948	Mar. 31	2602	689	30	1310
Caster	S. C. Mendenhall	314,949	Mar. 31	2604	689	30	1310
Caster	S. C. Mendenhall	314,950	Mar. 31	2605	689	30	1310
Caster	S. C. Mendenhall	314,951	Mar. 31	2606	689	30	1310
Caster	S. C. Mendenhall	314,952	Mar. 31	2606	690	30	1311
Caster	S. C. Mendenhall	314,953	Mar. 31	2607	690	30	1311
Caster	S. C. Mendenhall	314,954	Mar. 31	2609	690	30	1311
Caster	S. C. Mendenhall	314,955	Mar. 31	2610	690	30	1311
Caster	S. C. Mendenhall	314,956	Mar. 31	2611	691	30	1311
Caster	S. C. Mendenhall	314,957	Mar. 31	2612	691	30	1311
Caster	S. C. Mendenhall	314,958	Mar. 31	2613	691	30	1311
Caster	S. C. Mendenhall	314,959	Mar. 31	2613	{691, 692}	30	1312
Caster	S. C. Mendenhall	314,960	Mar. 31	2615	692	30	1312
Caster	S. C. Mendenhall	314,961	Mar. 31	2617	692	30	1312
Caster	S. C. Mendenhall	314,962	Mar. 31	2619	693	30	1313
Caster	S. C. Mendenhall	314,963	Mar. 31	2620	{693, 694}	30	1313
Caster	S. C. Mendenhall	314,964	Mar. 31	2622	694	30	1313
Caster	S. C. Mendenhall	314,965	Mar. 31	2624	694	30	1313
Caster	S. C. Mendenhall	314,966	Mar. 31	2626	695	30	1314
Caster	S. C. Mendenhall	314,967	Mar. 31	2628	695	30	1314
Caster	S. C. Mendenhall	314,968	Mar. 31	2629	{695, 696}	30	1314
Caster	S. M. Michelson	313,097	Mar. 3	76	20	30	791
Caster	D. J. Powers	313,023	Feb. 24	2128	579	30	764
Caster	F. K. Way	314,764	Mar. 31	2349	622	30	1265
Caster and insect-guard combined	L. A. Michalson	313,225	Mar. 3	285	72	30	828
Caster. Furniture	F. W. Jackson	314,847	Mar. 31	2459	649	30	1285
Casting appliance for stereotype-bars	J. O. Clephane	311,413	Jan. 27	1089	{460, 461}	30	331
Casting car-axle boxes	I. H. Congdon	314,226	Mar. 24	1608	425	30	1102
Casting. Making metallic suspension-wheels by	A. O. Frick	314,173	Mar. 17	1542	403	30	1079

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Casting mold. Type	R. Gnichwitz	314,827	Mar. 31	2436	643	30	1281
Casting. Sand-molding machine for running riddled sand into molds for	W. Doyle	312,983	Feb. 24	2062	{563, 564}	30	753
Castings. Machinery for making molds for	M. R. Moore. (Reissue)	10,562	Feb. 24	2148	584	30	768
Castings. Truing	O. J. Ziegler	312,693	Feb. 24	1680	463	30	685
Catch. Safety	E. H. Johnson	314,582	Mar. 31	2090	558	30	1217
Cattle-fastener	E. Prescott and C. H. T. Mann	313,524	Mar. 10	669	174	30	910
Cattle-fastening	J. C. Buzzell	310,984	Jan. 20	1073	292	30	212
Caustic-holder	H. Bell	314,490	Mar. 24	1665	496	30	1151
Cauterizing apparatus	F. M. Roy	312,512	Feb. 17	1457	399	30	634
Cell-tray	W. A. Moore	314,864	Mar. 31	2486	659	30	1290
Cement. Machinery for manufacturing Portland	D. Griffiths	313,903	Mar. 3	241	61	30	821
Cement. Manufacture of hydraulic	D. Griffiths	311,895	Feb. 10	585	.....	30	465
Cement. Manufacture of Portland	R. W. Lesley	313,217	Mar. 3	260	.....	30	825
Center-board	M. W. Atwood	313,796	Mar. 10	1033	265	30	978
Centering-tool	G. W. Varnum	311,619	Feb. 3	213	60	30	389
Centrifugal reel	W. D. Gray	311,828	Feb. 3	471	{128, 129}	30	437
Chain bar. Watch	J. Hoagland	311,429	Jan. 27	1712	466	30	335
Chain. Drive	C. W. Heald	310,997	Jan. 20	1091	299	30	216
Chain-link	W. Gerhard	310,267	Jan. 6	142	40	30	28
Chain-links. Machine for making and twisting	C. H. Reinisch	310,317	Jan. 6	209	57	30	40
Chain. Ornamental	B. S. Freeman, Jr., and E. L. Robinson.	311,114	Jan. 20	1257	344	30	246
Chair: *See* Arm-chair. Reclining-chair. Convertible chair. Rocking-chair. Folding chair. Surgical chair. Nursery-chair.							
Chair head-rest	E. T. Starr and L. Teal	313,781	Mar. 10	1007	260	30	973
Chandelier. Extension	L. T. Lawton	311,078	Jan. 20	1209	331	30	238
Channel-flap layer	O. Gilmore	310,668	Jan. 13	651	179	30	129
Channeling-machine drill-head	W. L. Saunders	311,378	Jan. 27	1643	449	30	332
Check-cutter. Adjustable	F. E. Smith	313,544	Mar. 10	692	181	30	915
Check-machine. Automatic	C. W. Weiss and C. Kruse	313,699	Mar. 10	891	{232, 233}	30	953
Check-row wires. Anchor-stake for	W. H. Clay	310,384	Jan. 6	298	82	30	57
Check-rower	L. D. Benner	312,179	Feb. 10	987	269	30	538
Check-rower ropes. Reel for	J. R. Enos	311,302	Jan 27	1536	418	30	302
Check-rower wire. Machine for forming	G. W. Caywood	314,106	Mar. 17	1452	380	30	1063
Check-spring. Tension	T. H. Hicks	310,426	Jan. 6	342	94	30	67
Checking and registering baggage	L. G. Reynolds	314,215	Mar. 17	1567	420	30	1088
Cherry-pitting machine	J. McVickar	312,370	Feb. 17	1251	345	30	596
Chicken-cholera. Remedy for	G. W. and J. D. Ross	313,956	Mar. 17	1268	.....	30	1029
Chimney and ventilator. Combined	T. C. Harry	314,238	Mar. 24	1620	428	30	1104
Chimney-cap	H. S. Dickinson	310,301	Jan. 6	305	84	30	59
Chimney-cap	T. J. Stean	312,918	Feb. 24	1980	540	30	738
Chimney cap and ventilator	K. Ruetschi	313,375	Mar. 3	472	123	30	864
Chimney-cowl	W. E. Cooper	312,553	Feb. 17	1506	411	30	643
Chimney-cowl	T. Crüger	312,978	Feb. 24	2055	561	30	732
Chimney for dwelling-houses	W. E. Stevens	311,149	Jan. 20	1307	360	30	255
Chimney-top covering	A. J. Conway	311,105	Jan. 20	1248	341	30	244
Chimney. Ventilating	S. T. Atkin	314,309	Mar. 24	1722	458	30	1123
China and earthenware, &c. Ornamenting	H. Doulton and J. Slater	314,002	Mar. 17	1319	.....	30	1039
Chisel. Lock-mortising	P. L. Fox	314,011	Mar. 17	1330	347	30	1041
Chopper: *See* Cotton-chopper. Meat-chopper.							
Chuck	B. F. Chappell	313,472	Mar. 10	607	157	30	898
Chuck	S. Moore	310,303	Jan. 6	191	52	30	37
Chuck. Centering	C. W. Glover	312,839	Feb. 24	1883	516	30	721
Chuck. Centering	J. M. Watson	313,562	Mar. 10	716	187	30	920
Chuck. Drill	J. S. Church	310,987	Jan. 20	1076	293	30	212
Chuck. Lathe	C. W. Crary	311,002	Feb. 10	680	186	30	482
Chuck. Lathe	C. W. Glover	312,838	Feb. 24	1882	516	30	721
Chuck. Rock-drill	C. S. Westbrook	311,396	Jan. 27	1662	454	30	326
Churn	A. H. Allison	314,772	Mar. 31	2302	625	30	1207
Churn	G. S. D. Camp	314,796	Mar. 31	2397	634	30	1274
Churn	P. A. Carter	314,797	Mar. 31	2398	634	30	1274
Churn	W. I. Pace	311,359	Jan. 27	1618	443	30	318
Churn	A. Robinson	313,886	Mar. 17	1162	302	30	1010
Churn	W. Siar	314,399	Mar. 24	1637	469	30	1145
Churn	T. M. Smiley	311,685	Feb. 3	297	81	30	404
Churn	J. P. Spilger	314,073	Mar. 17	1405	366	30	1055
Churn	W. H. Stewart	313,248	Mar. 3	318	78	30	834
Churn	W. H. Tambling	312,671	Feb. 24	1656	457	30	681
Churn	H. T. Wilson and B. B. Sanders	314,501	Mar. 24	1984	530	30	1171
Churn and butter-mold. Combined	A. Clarembeaux	314,900	Mar. 31	2401	635	30	1275
Churn-dasher	R. W. Fisk	314,322	Mar. 24	1736	462	30	1126
Churn-power	J. A. Lawrence	312,278	Feb. 17	1131	310	30	574
Churn-power	C. W. Patton	314,875	Mar. 31	2498	663	30	1293
Chute. Ash	H. Pashley	311,674	Feb. 3	281	77, 78	30	401
Chute. Coal	J. Heatherington	310,278	Jan. 6	155	43	30	31
Chute. Coal	M. D. Jones	312,207	Feb. 10	1025	280	30	546
Chute. Portable	A. A. Hinds and L. E. Mace	312,468	Feb. 17	1380	382	30	621
Chute. Reversible coal	A. Chadwick	313,471	Mar. 10	606	157	30	898
Cider-press	S. Ballard	311,713	Feb. 3	328	91	30	411
Cider-press	J. Gorgas and G. E. Mohler	313,322	Mar. 3	410	{102, 103}	30	851
Cider-press	J. and C. Gype	310,272	Jan. 6	149	41	30	30
Cigar and cigarette case	G. L. Preston	312,656	Feb. 24	1633	450	30	678
Cigar-boxes. Spring-follower for	M. Michaelis	311,597	Feb. 3	188	53	30	384
Cigar-bunch mold	C. H. Haugk	313,330	Mar. 3	419	105	30	853
Cigar-butt cutter	C. H. Haugk	313,329	Mar. 3	417	104	30	853
Cigar-cabinet	J. F. Hickie	310,942	Jan. 20	1013	{273, 274}	30	200

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Cigar-cutter and match-box. Combined	H. B. Eggert	313,600	Mar. 10	848	220	30	945
Cigar-holder	G. W. Keith and G. C. Sutherland	311,497	Feb 3	50	15	30	358
Cigar lighter and cutter	A. Peschel	312,654	Feb. 24	1630	449	30	677
Cigar-perforator	L. C. Michelena	314,043	Mar. 17	1370	357	30	1049
Cigarette-case	W. H. Butler	311,641	Feb. 3	241	68	30	394
Cigarette-case	W. H. Butler	311,642	Feb. 3	242	68	30	394
Cipher-machine. Combination	D. R. Smith	312,665	Feb. 24	1646	454	30	680
Circuit-changer and alarm. Automatic	W. B. Vanatze and T. D. Lockwood	313,841	Mar. 10	1091	284	30	988
Clamp: *See* Dumb-waiter clamp. Flooring-clamp. Felly-clamp. Handle-clamp. Floor-clamp. Harness-loop clamp. Floor-board clamp. Yoke-clamp.							
Clamp	W. H. Golding	310,195	Jan. 6	47	13	30	11
Clamping device	J. F. Packer	313,019	Feb. 24	2123	578	30	764
Clamping device. Adjustable	G. W. Zeigler	312,419	Feb. 17	1312	302	30	609
Clasp: *See* Album-clasp. Pencil-clasp. Bracelet-clasp. Shoe-clasp. Corset-clasp. Spring-clasp. Garment-clasp.							
Clasp	G. A. Colton	314,366	Mar. 24	1798	478	30	1137
Clasp	C. H. Hardy	311,126	Jan. 20	1275	351	30	249
Clasp for albums and other books	A. J. Megee	311,438	Jan. 27	1721	468	30	337
Clasp or fastening	G. Frost	310,504	Jan. 6	421	119	30	84
Clay-crusher	H. Heesen	313,332	Mar. 3	420	105	30	854
Clay-crushing machine	T. D. McKinney and W. A. Soper	311,061	Jan. 20	1214	332	30	239
Clay. Machine for preparing	J. S. Smith	312,667	Feb. 24	1650	455	30	680
Clay. Machine for treating	J. S. Smith	312,666	Feb. 24	1649	455	30	680
Clay reducer and disintegrator	W. Burkman	312,808	Feb. 24	1836	504	30	713
Cleaner: *See* Boiler-cleaner. Colter-cleaner. Boiler-flue cleaner. Cotton-cleaner. Boot and shoe cleaner. Fine-cleaner. Peanut-cleaner.							
Clevis	A. D. Forbes	314,443	Mar. 24	1896	507	30	1157
Clevis. Plow	S. S. Aughe	311,405	Jan. 27	1679	458	30	329
Clinometer	J. Kindleberger	313,872	Mar. 17	1144	298	30	1006
Clip: *See* Axle-clip. Velocipede-spring clip. Paper-clip.							
Clip-yokes. Machine for making	W. S. Ward	312,534	Feb. 17	1482	405	30	638
Cloak. Gossamer	P. C. Getz	313,316	Mar. 3	405	100	30	850
Cloak. Lady's circular	L. Graner	314,065	Mar. 31	2199	584	30	1236
Clock. Alarm	S. S. Colt	313,676	Mar. 10	845	219	30	944
Clock. Alarm	W. D. Smith	311,540	Feb. 3	110	33	30	370
Clock and lamp-regulating mechanism. Combined alarm	J. M. Crawford	313,300	Mar. 3	384	94, 95	30	846
Clock and watch dials. Manufacturing	F. Schmalz	313,245	Mar. 3	312	.....	30	834
Clock-bell	H. W. Barnes	312,792	Feb. 24	1817	499	30	709
Clock-bell hammer	C H. Norton	313,016	Feb. 24	2117	577	30	763
Clock-cases, statuary, vases, &c., from plastic materials. Manufacture of	R. P. Coughlin	311,875	Feb. 10	544	149	30	458
Clock. Electric	A. S. Crane	311,234	Jan. 27	1436	391, 392, 277, 278	30	284
Clock-pallets. Machine for finishing	E. Horton	312,203	Feb. 10	1018	273	30	544
Clock. Pneumatic	A. Hahl and O. Mergenthaler	314,014	Mar. 17	1333	348	30	1042
Clock. Secondary electric	W. F. Weisgerber	314,634	Mar. 31	2161	574	30	1229
Clock-striking	F. A. Lane	313,344	Mar. 3	434	109	30	856
Clock-synchronizing apparatus	J. A. Lund	312,482	Feb. 17	1405	388	30	625
Clock system. Electric pneumatic	C. A. Mayrhofer	310,530	Jan. 6	465	127, 128	30	90
Clothes-drier	J. Dennis	314,231	Mar. 24	1613	427	30	1102
Clothes-drier	J. H. Prese	313,766	Mar. 10	992	256	30	970
Clothes-pounder	J. Just	314,534	Mar. 24	2025	540	30	1178
Clothes-pounder	R. M. Rimer	313,955	Mar. 17	1267	330	30	1029
Clover-hullers. Rubber for	J. N. Kallor	310,521	Jan. 6	453	125	30	88
Clover-hullers. Rubber for	J. N. Kallor	310,522	Jan. 6	455	125	30	88
Clover-hullers. Rubber for	J. N. Kallor	310,523	Jan. 6	455	125	30	88
Clutch and brake. Combined	A. N. Simmerly	312,911	Feb. 24	1969	538	30	736
Clutch-coupling	M. Haas	310,996	Jan. 20	1090	298	30	216
Clutch for step-by-step movements. Electro-magnetic	W. A. Rogers	310,913	Jan. 20	964	262	30	193
Clutch. Friction	S. Barron	313,644	Mar. 10	821	215	30	939
Clutch. Friction	F. M. Blake	312,074	Feb. 10	830	226	30	511
Clutch. Friction	G. W. Bonda	313,284	Mar. 3	357	88	30	841
Clutch. Friction	A. L. Stanford	312,400	Feb. 17	1290	356	30	604
Clutch-operating mechanism	J. H. Wright	312,059	Feb. 10	808	220, 221	30	506
Coal and ore bins. Discharge apparatus for	H. G. H. Reed	311,365	Jan. 27	1625	444, 445	30	319
Coal-drilling machine	A. J. Cooper	313,577	Mar. 10	733	193	30	923
Coal-drilling machine	J. M. Grooms	313,204	Mar. 3	242	61	30	822
Coal or ore bucket or carrier	A. N. Simmerly	311,789	Feb. 3	425	115	30	428
Coal-screen and dust-receiver combined	H. Gridley and T. Johnson	311,485	Feb. 3	33	10	30	355
Coal-scuttle	J. Kingsley	314,454	Mar. 24	1908	509	30	1159
Coal-vase	H. Adler	311,864	Feb. 10	529	145	30	455
Coasting device. Roller	S. S. Stoddard and O. Terwilliger	314,626	Mar. 31	2149	571	30	1227
Coasting structure. Roller	L. A. Thompson	310,966	Jan. 20	1048	285	30	207
Coasting-vehicle. Roller	C. H. Alcoke	310,556	Jan. 6	264	73	30	51
Coat	A. J. Tower	310,922	Jan. 20	981	267	30	195
Coat-collar and hood. Combined	O. Flaig	314,660	Mar. 31	2195	582	30	1235
Coat. Horseman's	A. J. Tower	313,130	Mar. 3	119	29	30	798
Cock and air-vent. Water	J. Kelly	313,061	Mar. 3	56	15	30	788
Cock and bottle-stopper. Siphon stop	L M. Abbott	312,600	Feb. 24	1567	429	30	685

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Cocks and hydrants. Casing for	P. Connolly	313,060	Mar. 3	34	9	30	784
Cock attachment. Water	L. Shuster, Jr	311,205	Jan. 27	1391	390	30	276
Cock box. Stop	J. K. Clark	311,871	Feb. 10	539	148	30	457
Cock box. Stop	B. C. Smith	311,265	Jan. 27	1480	405	30	293
Cock for gas and water fittings	H. P. Drew	311,650	Feb. 3	253	70	30	396
Cock for wash-basins	J. Jungbluth	314,943	Mar. 31	2595	687	30	1308
Cock. Gage	J. B. Atwood and A. W. Slate	310,490	Jan. 6	418	115	30	80
Cock. Gas	D. M. Parker	314,874	Mar. 31	2497	662	30	1293
Cock. Stop	W. Ricketts	312,165	Feb. 10	969	264	30	535
Cock. Water	P. A. Bowen	312,077	Feb. 10	824	227	30	512
Cocks. Attachment for water-supply	H. S. Lord	312,672	Feb. 24	1929	528	30	728
Coffee and spice mill	C. Halstead	310,418	Jan. 6	334	91	30	65
Coffee and tea pot stand	C. Gracey	312,200	Feb. 10	1013	276	30	542
Coffee-berries. Roasted	A. Schilling	312,515	Feb. 17	1461	.....	30	635
Coffee-berries. Roasted	A. Schilling	312,516	Feb. 17	1461	.....	30	635
Coffee-hulling machine	J. Schultz	312,767	Feb. 24	1782	491	30	704
Coffee-mill	J. C. Milligan and J. Chaumont	312,493	Feb. 17	1420	391	30	627
Coffee-pot	T. A. Byler	313,469	Mar. 10	604	156	30	898
Coffee-pot	L. P. Jenks	310,204	Jan. 6	59	16	30	14
Coffee-pot	E. H. Judkins	311,990	Feb. 10	722	198	30	489
Coffee-pot	T. B. C. Burpee	311,955	Feb. 10	667	182	30	480
Coffee-roaster	M. Holmes	311,322	Jan. 27	1559	425	30	307
Coffee-roaster	C. Palitsch	312,376	Feb. 17	1256	346, 347	30	597
Coffee-roaster	L. Eichelberg	310,262	Jan. 6	132	38	30	27
Coffin	G. B. Markle, Jr	314,538	Mar. 24	2030	541	30	1179
Coffin	G. C. Frazier	312,819	Mar. 10	1059	273	30	982
Coffin-handle	W. H. Johnston	311,075	Jan. 20	1206	331	30	237
Coffin-lowering device	S. E. Bander	311,715	Feb. 3	330	91	30	411
Coffins. Supporting-button for	C. E. Howe	313,592	Mar. 10	756	199	30	927
Coin-cabinet	W. W. Haas	314,330	Mar. 24	1750	466	30	1128
Coin counter and tester	G. W. Bierer	314,510	Mar. 24	1995	531, 532	30	1172
Coke from ovens. Apparatus for removing	J. Squires	313,547	Mar. 10	697	182	30	916
Collar	R. Brownson	312,062	Feb. 10	840	229	30	512
Collar and sweat-pad clamp. Horse	W. H. Gallup	311,184	Jan. 27	1362	373	30	271
Collar. Apparel	R. Brownson	312,061	Feb. 10	839	228	30	513
Collar. Horse	J. Evans	313,715	Mar. 10	915	238	30	957
Collar. Horse	I. Rothhan and F. Schmidt	310,018	Jan. 13	586	161	30	118
Collar. Horse	W. F. Scantlebury	313,775	Mar. 10	1001	259	30	972
Collar. Horse	T. F. Lemassena	314,569	Mar. 31	2096	559	30	1218
Collar mold. Horse	J. Evans	313,714	Mar. 10	914	238	30	957
Collar pad. Horse	E. L. McClain	313,006	Mar. 10	773	203	30	930
Collar pad. Horse	J. Straus	313,963	Mar. 17	1274	332	30	1030
Collar sweat-pad. Horse	T. Harris	313,420	Mar. 3	530	139, 140	30	876
Collars. Apparatus for forming horse	M. Hoffmann	314,938	Mar. 31	2591	.....	30	1308
Coloring-matter from beta-naphthol	M. Hoffmann	314,939	Mar. 31	2592	.....	30	1308
Coloring-matter from gamma disulphonic acid of beta-naphthol. Red	J. H. Stebbins, Jr	313,118	Mar. 3	106	.....	30	796
Coloring-matter. Red	F. E. Jeanjaquet	310,283	Jan. 6	161	45	30	32
Colter-cleaner	G. S. Briggs	313,051	Mar. 10	838	218	30	943
Colter. Plow	C. R. Hartman	313,073	Mar. 3	46	12	30	786
Colter. Rolling	P. H. Griffin	312,349	Feb. 17	1229	338	30	591
Column. Cast-iron							
Comb: *See* Electro-magnetic comb.							
Combing-machine roller-stand	J. H. Whitehead	314,406	Mar. 24	1848	492	30	1148
Combing machines. Stop-motion device for wool	J. Holden, J. Burnley, and J. Fawell	312,271	Feb. 17	1105	305	30	569
Comb-making machine	L. M. Chorier	311,060	Jan. 20	1182	324	30	232
Comb-making machine	L. M. Chorier	311,061	Jan. 20	1183	324, 325	30	232
Commode	W. H. Jolliffe	313,597	Mar. 10	764	201	30	926
Compass. Mariner's	J. Scotland and F. Cordon	310,729	Jan. 13	731	199	30	145
Composing-stick	W. Hendrickson	310,422	Jan. 6	338	93	30	66
Compound jack	L. Becker	314,560	Mar. 31	2064	551	30	1212
Concrete structures. Mold or cribbing for	E. L. Ransome	314,398	Mar. 24	1835	489	30	1145
Concrete walls. Mold and mold-hoisting apparatus for building	T. W. Carrico	310,377	Jan. 6	289	79	30	55
Condenser and heater	J. Kirkaldy	311,839	Feb. 3	486	133	30	440
Condenser. Spirit	F. Senier	310,963	Jan. 20	1044	284	30	205
Condensing-engine	F. A. Gale	310,575	Jan. 13	534	147	30	108
Conduit-pipe	T. Bacmeister	310,773	Jan. 13	788	213	30	155
Confectionery. Article of	W. Reinhardt	312,761	Feb. 24	1777	489	30	703
Converter	J. F. Wilcox	314,551	Mar. 24	2044	545	30	1181
Convertible chair	A. Sawyer	312,020	Feb. 10	765	208	30	498
Conveyer apparatus	J. F. Downing	310,393	Jan. 6	307	85	30	59
Conveyer. Endless or pan	F. I. Pearce	312,891	Feb. 24	1947	532	30	732
Cooker. Steam	H. A. Eaton	310,657	Jan. 13	635	175	30	127
Cooking utensil	N. E. Robinson	314,057	Mar. 17	1385	362	30	1051
Cooking-vessel	H. J. Rutter	313,453	Mar. 3	580	149	30	884
Cooking-vessel. Steam	A. J. Dudley	311,821	Feb. 3	461	125	30	435
Cooler: *See* Corpse-cooler. Milk-cooler.							
Cooling and embalming table	T. H. De Motte	310,884	Jan. 20	923	252	30	186
Coop. Fowl	R. W. Goddard	313,319	Mar. 3	407	101	30	851
Copy-holder	W. H. Clarkson	311,293	Jan. 27	1526	415, 416	30	301
Copying-machine	S. Wheeler	314,091	Mar. 17	1435	375	30	1061
Corking and filling machine	C. H. Dresser	312,448	Feb. 17	1350	372, 373	30	616
Corking-machine	A. Bannwart and E. Ermold	311,634	Feb. 3	233	65	30	392
Corkscrew	B. Wilhelm	310,766	Jan. 13	781	211	30	153
Corn-drill	M. Porter	314,604	Mar. 31	2117	564	30	1222
Corn-hulling mill	C. S. Day	313,997	Mar. 17	1312	342	30	1038
Corn-husking machine	I. M. Chase	310,182	Jan. 6	29	8, 9	30	8

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Corn-popper	G. T. Copeland	312,612	Feb. 24	1579	432	30	667
Corn-sheller	J. Q. and O. R. Adams	313,042	Mar. 3	2	1	30	779
Corn-sheller	N. Potter	313,619	Mar. 10	794	208	30	934
Corner-iron	T. Lumsdon	312,481	Feb. 17	1404	387	30	625
Corpse cooler and preserver	H. C. Johnson	311,764	Feb. 3	395	107	30	422
Corrugating rolls. Tool for	T. H. Stevenson	312,922	Feb. 24	1985	542	30	739
Corset	M. Cohn	310,798	Jan. 13	815	221	30	160
Corset	G. Schilling	312,905	Feb. 24	1963	536	30	735
Corset-clasp	J. M. Cohn	310,797	Jan. 13	814	221	30	160
Corset-clasp	G. H. Colley	314,434	Mar. 24	1887	503	30	1154
Corset-clasp	L. Hill	310,512	Jan. 6	443	122	30	86
Corset-fastening	L. Hill	311,986	Feb. 10	719	196	30	489
Corset-fastening	P. Laflin	311,985	Feb. 10	728	199	30	490
Corset-fastening	C. H. Williams	312,054	Feb. 10	802	219	30	505
Corset-fastening	C. H. Williams	312,055	Feb. 10	803	219	30	505
Corset-fastening	C. H. Williams	312,238	Feb. 10	1060	292	30	552
Corset-steel fastening	L. Hill	311,987	Feb. 10	720	197	30	489
Corset-steel fastening	L. Hill	313,074	Mar. 3	48	13	30	787
Corset-steel fastening	L. Hill	314,530	Mar. 24	2021	539	30	1177
Corset-steel fastening	P. Laflin	312,209	Feb. 10	1026	280	30	546
Cotton and hay press	B. J. Curry	311,816	Feb. 3	456	124	30	434
Cotton and other fibers. Machine for opening and cleaning	A. Clarke and H. C. Perham	312,815	Feb. 24	1846	507	30	714
Cotton-chopper	H. T. Butler	310,403	Jan. 6	421	116	30	81
Cotton-chopper	H. G. Cady	314,104	Mar. 17	1451	379	30	1063
Cotton-chopper	J. D. Faulkner	312,108	Feb. 10	871	239	30	519
Cotton-chopper	J. S. Lamar	310,446	Jan. 6	363	100, 101	30	71
Cotton chopper and cultivator	G. M. Badger	310,636	Jan. 13	608	167, 168	30	122
Cotton chopper and cultivator. Combined	L. Z. Grigsby	310,416	Jan. 6	331	91	30	65
Cotton-cleaner	J. Ralston	310,315	Jan. 6	205	56	30	39
Cotton cleaner and feeder	J. S. Daniell	312,192	Feb. 10	1004	273, 274	30	542
Cotton-gin	W. L. Crowson	314,917	Mar. 31	2558	676, 677	30	1302
Cotton-gin	E. C. Horne	311,001	Jan. 20	1096	300	30	317
Cotton-gin feeder	G. Winship	313,038	Feb. 24	2144	583	30	767
Cotton-gin rib	W. F. Edwards	310,193	Jan. 6	44	13	30	11
Cotton-gins. Knife-carrying crank-leg for	M. Pollitzer	313,685	Mar. 10	872	238	30	950
Cotton-opener	A. T. Atherton	311,097	Jan. 20	1223	338	30	241
Cotton-picker	M. C. Walling	313,139	Mar. 3	133	32	30	801
Cotton-picker stem	C. T. Mason, Jr.	311,344	Jan. 27	1596	437	30	314
Cotton-picker stem	C. T. Mason, Jr.	312,647	Feb. 24	1622	446	30	675
Cotton-press feeder	H. Selz	313,627	Mar. 10	801	210	30	935
Coupling: *See* Car-coupling. Hose-coupling. Clutch-coupling. Pipe-coupling. Fence-wire coupling. Shaft-coupling. Friction-coupling. Thill-coupling.							
Coupling hook and loop	C. P. Harris and S. Baltzly	310,274	Jan. 6	152	42	30	30
Cover. Culinary	G. H. Henkel	314,244	Mar. 24	1626	430	30	1105
Cover for chamber-pails, &c	A. Judson	312,998	Feb. 24	2066	569	30	757
Cover for cooking kettles and utensils	L. M. Goodale	313,320	Mar. 3	408	102	30	851
Cover for culinary vessels	R. F. Schimper and C. F. W. Siedhof	310,468	Jan. 6	386	107	30	75
Cover for varnish-kettles	D. R. Hostetter	312,854	Feb. 24	1900	531	30	724
Cover. Pot and kettle	W. L. Brown	311,229	Jan. 27	1521	414	30	300
Cranes and other hoisting apparatus. Transmitting power to	H. Young	314,906	Mar. 31	2544	673	30	1299
Cranes. Swinging	H. G. Hubert	314,675	Mar. 31	2209	587	30	1238
Cranes. System of traveling transfer	W. Lowe	310,449	Jan. 6	367	102	30	71
Crank or eccentric. Variable	W. H. De Valin	312,709	Feb. 24	1707	469	30	690
Crank-pin	W. G. Dodd	313,481	Mar. 10	617	160	30	900
Crank-pin lubricator	F. F. Swain	313,964	Mar. 17	1275	333	30	1030
Crate for fruit, &c	I. B. Seeley	310,730	Jan. 13	732	199	30	145
Cream of tartar. Manufacture of	R. Silberberg	313,629	Mar. 10	803	....	30	935
Creaming-can	G. S. Frazey	313,310	Mar. 3	397	99	30	849
Cringle	J. W. Greene	310,414	Jan. 6	330	90	30	64
Crock-rims. Machine for making	H. E. Merrill	310,706	Jan. 13	703	192	30	139
Cross-heads. Device for removing	C. A. Mackay	311,769	Feb. 3	401	109	30	423
Crucible-furnace crane	L. W. Mallasee and F. B. Nimick	310,695	Jan. 13	688	189	30	137
Crusher: *See* Clay-crusher. Rock-crusher. Ore-crusher.							
Crutch	F. A. Peebles	313,518	Mar. 10	664	172	30	909
Cuff and button holder. Combined	D. W. Brown	311,286	Jan. 27	1519	414	30	300
Cuff and sleeve holder and adjuster	J. D. Sourwine and J. A. Carpenter	312,032	Feb. 10	778	212	30	500
Cuff-fastener	J. J. Fay	312,109	Feb. 10	872	239	30	519
Culinary vessel	T. G. Beaham	310,639	Jan. 13	613	169	30	123
Cultivator	J. P. Black	313,847	Mar. 17	1109	288	30	1000
Cultivator	R. Cracraft	311,645	Feb. 3	245	69	30	395
Cultivator	A. J. Craig	313,811	Mar. 10	1050	269	30	981
Cultivator	R. H. Ewing	310,806	Jan. 13	826	224	30	162
Cultivator	J. Feast, Sr.	311,303	Jan. 27	1537	418	30	303
Cultivator	J. A. Hahn	313,589	Mar. 10	753	199	30	926
Cultivator	J. Harman	310,586	Jan. 13	550	152	30	112
Cultivator	P. J. Hostetler, O. C. Bower, and E. M. Hopwood	311,932	Feb. 3	479	131	30	439
Cultivator	F. Kemper and J. H. Stumpe	314,136	Mar. 17	1497	390	30	1071
Cultivator	J. Lane	310,289	Jan. 6	170	47	30	33
Cultivator	J. Lane	314,143	Mar. 17	1503	392	30	1073
Cultivator	W. G. Martin	313,355	Mar. 3	449	114	30	859
Cultivator	T. Meikle	312,499	Feb. 17	1414	390	30	626
Cultivator	W. H. Newton	313,758	Mar. 10	981	253	30	968
Cultivator	M. B. Parks	311,912	Feb. 10	606	166	30	469

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Cultivator	J. R. Peirce	310,647	Jan. 13	876	237	30	171
Cultivator	O. S. Presbrey and A. Nall	312,382	Feb. 17	1264	349	30	599
Cultivator	F. Stange and T. Staeber	311,268	Jan. 27	1484	407	30	294
Cultivator	J. Wherry, Jr.	311,931	Feb. 10	629	173	30	474
Cultivator	E. E. Whipple	314,767	Mar. 31	2353	623	30	1266
Cultivator	G. W. Wilson	314,094	Mar. 17	1438	376	30	1061
Cultivator	H. O. Lewis	310,290	Jan. 6	171	46	30	34
Cultivator and seeder teeth. Attachment for	S. E. A. Palmer	314,673	Mar. 31	2497	662	30	1292
Cultivator and weed-cutter	W. I. Fish	311,970	Feb. 10	695	190	30	484
Cultivator attachment	J. E. Mitchell	312,574	Feb. 17	1532	418	30	649
Cultivator attachment	A. J. Sweeney	311,689	Feb. 3	301	82	30	405
Cultivator. Corn	J. J. Butler	312,185	Feb. 10	996	271	30	540
Cultivator. Hand	W. H. Tuttle and R. W. Benedict	312,531	Feb. 17	1477	404	30	637
Cultivator. Harrow	G. L. Baker	310,974	Jan. 20	1061	288	30	209
Cultivator scraper attachment	M. A. Twitchell	310,856	Jan. 13	885	240	30	173
Cultivator-shovel. Adjustable	S. N. Hench and W. A. Dromgold	310,821	Jan. 13	845	221	30	166
Cultivator spring-hoe	E. F. Husk	310,828	Jan. 13	853	231	30	167
Cultivator. Sulky	P. P. Mast, G. W. Startzman, and D. L. Clark.	312,738	Feb. 24	1747	480, 481	30	697
Cultivator. Tongueless	E. E. Whipple	312,050	Feb. 10	795	217, 218	30	504
Cultivator. Tongueless	W. P. Brown	312,425	Feb. 17	1322	365	30	610
Cultivator. Wheel	G. W. and S. Taylor	312,228	Feb. 10	1048	287	30	549
Cup: *See* Grease-cup. Oil-cup. Lubricating-oil cup.							
Cupola-furnace	J. J. Johnston	312,727	Feb. 24	1730	475	30	694
Curtain-fixture	J. M. Nickel	312,886	Feb. 24	1943	532	30	731
Curtain-fixture	P. Von Lackum	312,532	Feb. 17	1479	404	30	638
Curtain-fixture	W. N. Buckley	310,557	Jan. 13	511	141	30	104
Curtain-fixture. Spring-balance	D. B. Olmstead	310,712	Jan. 13	710	193	30	141
Curtain-pole knob	W. H. Edsall	311,237	Jan. 27	1440	393	30	285
Curtain-poles. Extension-bracket for	J. H. Tucker and A. Godfrey	312,233	Feb. 10	1054	290	30	551
Curtain-ring fastening	G. W. Eddy	310,658	Jan. 13	637	176	30	127
Curtain roller. Window	H. H. Meyer	311,775	Feb. 3	409	111	30	425
Cut-off and reversing gear	E. Gannaway	313,313	Mar. 3	401	99	30	850
Cut-off. Antomatic electrical	J. S. Heaton	312,120	Feb. 10	891	243	30	532
Cut-off for cisterns	L. B. Smith	310,326	Jan. 6	228	62	30	43
Cut-off for hose-nozzles	J. Dow	310,189	Jan. 6	40	11	30	10
Cut-off mechanism. Valve	B. G. Martin	313,060	Mar. 3	64	17, 18	30	789
Cut-off valve	G. H. Reynolds	310,318	Jan. 6	213	57, 58	30	40
Cut-off valve	J. W. McFarland	310,903	Jan. 20	950	259	30	190
Cut-off-valve gear	J. B. Pitchford	310,310	Jan. 6	198	54	30	38
Cut-off-valve gear							
Cutter: *See* Axle-cutter. Glass-tube cutter. Bung-cutter. Paper-cutter. Bung-hole cutter. Rotary cutter. Capsule-cutter. Shoe-nail cutter. Check-cutter. Sprue-cutter. Cigar-cutter. Thread-cutter. Cigar-butt cutter. Tobacco-cutter. Edging-cutter. Washer-cutter. Ensilage-cutter. Wick-cutter. Feed-cutter.							
Cutter-head	T. Fitzsimmons	310,571	Jan. 13	529	145	30	107
Cutter-head	J. A. Roberts	311,679	Feb. 3	285	79	30	403
Cutting and marking. Convertible implement for	I. M. Pribyl	312,292	Feb. 17	1150	314	30	577
Cutting device. Fabric	F. R. Lewis	313,340	Mar. 3	443	112	30	858
Cutting oats, &c. Machine for	F. Burckhardt	313,967	Mar. 17	1302	340	30	1035
Cylinder engine. Multiple	D. D. Hardy	313,730	Mar. 10	940	243	30	961
Cylinder engine. Oscillating	W. J. Partridge	310,609	Jan. 13	577	159	30	117
Cylinder engine. Twin	J. L. Bogert	310,979	Jan. 20	1067	290, 290	30	211
Cylinder-lubricator	S. Townsend	313,033	Feb. 24	2140	582	30	766
Dam. Floating wing	H. P. Marvin and A. Arnold	313,747	Mar. 10	965	249	30	965
Damper	R. Hillson	312,635	Feb. 24	1608	441	30	672
Damper	D. Mannel and G. H. Burrows	310,696	Jan. 13	689	189	30	137
Damper	J. M. Read	310,224	Jan. 6	79	21	30	17
Damper	D. J. Dunn	312,449	Feb. 17	1353	373	30	617
Damper. Automatic stove	F. J. Gilman	314,121	Mar. 17	1477	385	30	1068
Damper for stove-pipes and flues	J. A. Lakin	312,477	Feb. 17	1400	386	30	624
Damper mechanism. Clock for governing	J. A. Lakin and C. J. Emerson, Jr.	313,003	Feb. 24	2092	570	30	758
Damper mechanism. Time	C. Ball and G. Lispenard	310,976	Jan. 20	1063	288	30	210
Damper-regulator	T. Evans	310,569	Jan. 13	526	144	30	107
Damper-regulator	J. A. House and C. H. Dimond	310,943	Jan. 20	1016	274	30	200
Damper-regulator. Automatic	R. H. Thompson	311,388	Jan. 27	1656	.....	30	325
Decoration. Fabric for	R. H. Thompson	311,389	Jan. 27	1657	.....	30	329
Decoration. Fabric for	G. Gibson	312,837	Feb. 24	1880	515, 516	30	721
Decorticating-machine	J. Danz, Jr.	311,877	Feb. 10	547	150	30	459
Decoy	A. Hoeber	310,202	Jan. 6	56	15	30	13
Demijohn or bottle	R. M. Ross	310,467	Jan. 6	385	107	30	75
Dental drill	A. W. Eldredge	313,411	Mar. 3	519	136	30	874
Dental engine	A. Garner	310,407	Jan. 6	324	89	30	63
Dental impression-cup	J. Spyer and R. S. Ingalls	310,233	Jan. 6	91	24	30	20
Dental plate	J. F. Clement	312,818	Feb. 24	1850	508	30	715
Dental plugger	T. Cogswell	312,092	Feb. 10	856	235	30	516
Dental tool	A. A. Stillman	313,382	Mar. 3	490	126	30	866
Dental tool-rack and case	J. E. Low	313,434	Mar. 3	550	144	30	879
Denture. Artificial	E. V. McCandless	312,142	Feb. 10	919	250	30	527
Deoxidizing the surface of sheet metal	J. Ketchum, Jr.	314,453	Mar. 24	1907	509	30	1158
Depurator	O. E. Halin	314,015	Mar. 17	1337	348	30	1042
Derrick	T. B. Elliott	310,263	Jan. 6	133	38	30	27
Derrick and carrier. Grain and hay	H. Breer	313,402	Mar. 3	508	133	30	871
Desiccating apparatus	M. Suess	313,029	Feb. 24	2136	.....	30	766
Designs in relief. Making ornamental and other							

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Desk	D. N. Butterfield	310,877	Jan. 20	917	250	30	185
Desk-pad, portfolio, and calendar. Combined	W. R. Cole	311,103	Jan. 20	1245	341	30	243
Desk. School	J. H. Talbott	311,928	Feb. 10	626	173	30	473
Dials. Machine for ruling	R. L. Taft	312,227	Feb. 10	1047	287	30	540
Die or nipple holder	S. J. Wakeley	314,087	Mar. 17	1428	373	30	1059
Die-stock	F. E. Wells	311,549	Feb. 3	128	37	30	373
Digger: *See* Post-hole digger. Potato-digger.							
Dish-warmer	R. V. Lewis and H. C. Conger	310,291	Jan. 6	172	48	30	34
Dish washer and drier	J. J. W. Place	313,764	Mar. 10	990	255, 256	30	970
Disinfectant	R. A. Fisher	314,820	Mar. 31	2425	.....	30	1279
Disinfecting apparatus	R. Thayer	311,271	Jan. 27	1496	408	30	296
Disinfecting apparatus for water-closets	A. M. Loryea	314,500	Mar. 31	2098	560	30	1218
Disinfecting baled rags, &c	S. W. Parker and H. Blackman	311,360	Jan. 27	1619	443	30	318
Disinfecting water-closets, &c. Automatically	W. J. Longley and C. Elkin	311,192	Jan. 27	1372	376	30	273
Distillates. Apparatus for separating and distributing	G. H. Perkins	314,715	Mar. 31	2260	600	30	1248
Distillation of hydrocarbons. Apparatus for the	R. Dean	314,368	Mar. 24	1800	479	30	1138
Distillation of petroleum. Process of and apparatus for the fractional	R. Dean	310,497	Jan. 6	425	117	30	82
Ditching-machine	O. M. Allaben	313,043	Mar. 3	5	1, 2	30	779
Ditching-machine	J. C. Harker	312,629	Feb. 24	1596	437	30	670
Ditching-machine	J. C. Harker	312,631	Feb. 24	1600	438, 439	30	670
Ditching-machine	A. Long	314,859	Mar. 31	2473	655	30	1287
Ditching-machine	S. M. Murray and J. C. Stryker	311,668	Feb. 3	272	75	30	400
Ditching-machine	W. Pulver	312,758	Feb. 24	1773	488	30	702
Ditching-machine	S. F. Welch	312,049	Feb. 10	792	217	30	503
Dividers and calipers	C. S. Barber	313,275	Mar. 3	344	85	30	839
Dividing-instrument. Draftsman's	P. S. Marks	310,450	Jan. 6	368	102	30	72
Dock	J. S. Vanness	312,234	Feb. 10	1055	290	30	551
Door-check	D. Jennings	312,859	Feb. 24	1910	524	30	726
Door-check	T. M. Kenney	312,127	Feb. 10	869	245	30	523
Door-check	E. Nigell	310,844	Jan. 13	874	236	30	171
Door-check	L. Pentz	311,604	Feb. 3	195	55	30	385
Door-check	A. B. Walker	310,752	Jan. 13	758	207	30	149
Door-check. Pneumatic	W. Gilfillan	311,742	Feb. 3	363	100, 101	30	417
Door-closer	E. H. Brown	310,179	Jan. 6	26	7	30	7
Door-hanger	J. A. Carr	312,969	Feb. 24	2044	558	30	750
Door-hanger	G. W. Hey	314,177	Mar. 17	1545	405	30	1060
Door-hanger	E. T. Prindle	312,294	Feb. 17	1152	315	30	577
Door-hanger	O. Seely	310,229	Jan. 6	86	23	30	19
Door-hanger	W. E. Warner	311,697	Feb. 3	309	85	30	407
Door. Hanging	C. W. Emerson	314,005	Mar. 17	1322	345	30	1040
Door-key	T. Taylor	313,692	Mar. 10	981	230	30	951
Door-opener	E. G. Worley	313,464	Mar. 3	507	153	30	887
Door or shutter bolt	A. W. Harris	313,328	Mar. 3	417	104	30	853
Door or window screen	O. G. Newton	312,374	Feb. 17	1255	346	30	597
Door-plate	S. Porter	311,782	Feb. 3	417	113	30	426
Door-securer	E. A. Bullock	312,426	Feb. 17	1324	365	30	611
Door-spring	W. Gilfillan	311,307	Jan. 27	1542	419	30	303
Door spring and bell. Combined	W. Brien and S. A. Wall	312,806	Feb. 24	1834	503	30	712
Door stop and holder	S. W. Jay and M. J. Garvey	311,896	Feb. 3	484	132	30	440
Doors and shutters. Bar for securing	C. H. Knaner	313,942	Mar. 17	1250	325	30	1025
Doors. Apparatus for operating warehouse	G. L. Brownell	314,219	Mar. 24	1598	422	30	1100
Doors. Stay-roller for sliding	J. H. Lawrence	313,685	Mar. 3	60	16	30	799
Double-acting lock	M. Schwerin	313,113	Mar. 3	99	25	30	795
Double-tree	J. T. Dougine	310,801	Jan. 13	818	229	30	160
Double-tree	W. L. Long	313,433	Mar. 3	549	144	30	879
Doubling and winding yarn or thread upon bobbins. Machine for	J. and J. Horrocks	313,869	Mar. 17	1137	206, 207	30	1005
Draft-equalizer	C. Bellmann	310,977	Jan. 20	1064	289	30	210
Draft-equalizer	M. A. Davidson	314,319	Mar. 24	1732	461	30	1125
Draft-equalizer	C. Kieser	311,838	Feb. 3	486	133	30	440
Draft-equalizer	J. Putman	310,850	Jan. 13	800	218	30	172
Draft-equalizer	G. C. Roth	313,374	Mar. 3	472	129	30	804
Draft-equalizer	W. B. Steele	311,042	Jan. 20	1154	314	30	228
Draft-spring	J. M. Rohrer	311,260	Jan. 27	1471	402	30	291
Drafting. Perspective delineator for	W. E. Speir	312,175	Feb. 10	981	268	30	537
Drafting the arm-size of garments. Apparatus for	G. S. Gates	310,606	Jan. 13	648	178	30	129
Draftsman's tool	T. G. R. Christian	314,316	Mar. 24	1729	460	30	1124
Drawer	M. Meyer	310,299	Jan. 6	185	51	30	36
Drawer-handle	C. M. Burgess	311,953	Feb. 10	605	182	30	479
Drawer-pull	E. J. Blackham	312,798	Feb. 24	1825	501	30	711
Drawer-pull	J. Wise	311,158	Jan. 20	1317	362	30	256
Drawing-board	F. Weber	312,535	Feb. 17	1483	405	30	638
Drawing-frames, &c. Clearer-holder for	J. Walker	313,790	Mar. 10	1025	363, 364	30	976
Drawings, engravings, &c. Producing transfers of	I. Ramsdell	313,106	Mar. 3	92	.....	30	794
Drier: *See* Clothes-drier. Fruit-drier. Lumber-drier. Paper-board drier. Paper drum and barrel drier. Sand-drier.							
Drier	D. Grove	313,416	Mar. 3	525	137, 138	30	875
Drier	T. S. Wiles	314,500	Mar. 24	1962	529	30	1171
Drill: *See* Corn-drill. Dental drill. Grain-drill. Ratchet-drill. Rock-drill. Seed-drill. Vertical drill.							
Drill core catch or retainer. Diamond	A. Ball	314,777	Mar. 31	2372	628	30	1269

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Drill-jar. Rope	L. Wheeler	311,157	Jan. 20	1317	362	30	256
Drilling and tapping apparatus	J. Van Norman	314,065	Mar. 17	1424	373	30	1059
Drilling-machine	E. Anderson	311,709	Feb. 3	324	89, 90	30	410
Driving-wheels. Shipper device for bevel friction	F. I. Pearce	312,890	Feb. 24	1946	533	30	734
Drum-cover	G. W. Brown	312,804	Feb. 24	1832	502	30	712
Drums or barrel-bodies. Machinery for drying	G. W. Laraway	310,690	Jan. 13	681	187	30	136
Dry closet, &c	I. D. Smead	314,884	Mar. 31	2509	665, 666	30	1294
Drying fabrics, yarn, &c. Machine for	J., M., C., and L. Jefferson	310,683	Jan. 13	671	184, 185	30	134
Drying-machine. Continuous-acting centrifugal	E. C. Roettger	314,880	Mar. 31	2505	664	30	1294
Dumb-bell for electrical exercising apparatus. Electrode	J. H. Shaw	310,733	Jan. 13	734	200	30	145
Dumb-waiter	S. A. Morse	311,253	Jan. 27	1460	399	30	289
Dumb-waiter clamp	D. D. La Baw	310,687	Jan. 13	679	186	30	135
Dust-catcher	C. G. Rollins	311,036	Jan. 20	1142	311, 312	30	226
Dust-collector	W. Cook	311,395	Jan. 27	1528	416	30	301
Dust-collector	J. M. Sprinkel	313,028	Feb. 24	2134	581	30	766
Dust-separating machine	P. Van Gelder	314,498	Mar. 24	1979	527, 528	30	1170
Dyes. Steam-box for fixing	W. Thomas	314,629	Mar. 31	2153	572	30	1228
Dyeing yarns. Apparatus for	C. Corron	311,568	Feb. 3	147	42	30	376
Ear-drum. Artificial	J. H. Nicholson	312,577	Feb. 17	1535	419	30	650
Ear-tube	H. E. Waite	312,308	Feb. 17	1168	319	30	581
Earthenware vessels. Press for forming	H. E. Merrill and W. E. Dempsey	310,705	Jan. 13	701	192	30	139
Easel	T. C. Vail	310,481	Jan. 6	403	111	30	78
Easel. Hand-	H. A. Sawyer	313,026	Mar. 10	800	210	30	935
Easel. Picture-exhibiting	J. D. Richards	310,319	Jan. 6	215	58	30	41
Eaves trough hanger	G. Reznor	313,709	Mar. 10	995	257	30	971
Eccentric-rods. Safety-guard for	W. H. Diffenderfer	310,655	Jan. 13	633	175	30	126
Edge-burnishing machine	R. Ashe	313,155	Mar. 3	157	39	30	806
Edger	W. Dunbar	311,422	Jan. 27	1705	464	30	333
Edger. Gang	W. A. Campbell	312,250	Feb. 17	1079	297, 298	30	564
Edging-cutter	A. Rodgers	310,321	Jan. 6	217	59	30	41
Egg-carrier	J. A. Berry	312,319	Feb. 17	1185	324	30	584
Egg-carrier	J. L. Joyce	314,942	Mar. 31	2594	687	30	1306
Egg-carrier	J. Maguire	313,435	Mar. 3	552	144	30	880
Egg-preserver. Rotating	C. U. Chamberlin	311,470	Feb. 3	12	.....	30	351
Eggs. Composition for preserving	J. Gresham	312,991	Feb. 24	2075	566	30	755
Ejector for vacuum-brakes	H. H. Gorringe and A. O. Tengvall	314,237	Mar. 24	1619	428	30	1103
Elector. Hydraulic	W. E. Jefferson	314,581	Mar. 31	2669	658	30	1217
Elastic woven fabric	J. Du Shane	312,985	Feb. 24	2067	564	30	754
Electric apparatus. Automatic cut-out for	S. H. Short	312,942	Feb. 10	1065	293	30	554
Electric-apparatus cut-out	W. R. Patterson	311,914	Feb. 10	608	167	30	469
Electric-arc-light cables. Joint for	I. L. Roberts	311,853	Feb. 3	508	.....	30	444
Electric battery	I. L. Roberts	314,722	Mar. 31	2273	603, 604	30	1250
Electric battery	A. M. Young	311,630	Feb. 3	227	64	30	391
Electric battery	H. A. Clark	311,174	Jan. 27	1349	370	30	269
Electric cable	W. H. Eckert, J. A. Seely, and E. A. Eckert.	313,305	Mar. 3	391	96, 97	30	847
Electric cable	W. H. Eckert, J. A. Seely, and E. A. Eckert.	313,410	Mar. 3	518	136	30	874
Electric-cable hanger	H. F. Campbell	313,053	Mar. 3	18	5	30	782
Electric circuit	W. A. Shaw	311,682	Feb. 3	292	80	30	404
Electric circuit	T. T. Smith	311,616	Feb. 3	206	59	30	368
Electric-circuit connection	W. H. Sawyer	311,681	Feb. 3	289	80	30	404
Electric-circuit opener	J. B. May	313,091	Mar. 3	69	19	30	790
Electric circuits. Automatic cut-out for	W. R. Patterson. (Reissue)	10,563	Feb. 24	2150	585	30	769
Electric conductor	E. C. Townsend	310,748	Jan. 13	754	205, 206	30	149
Electric conductors. Underground housing and insulation for	G. S. Maxwell	313,605	Mar. 10	772	203	30	930
Electric contact-breaker	A. Man	313,746	Mar. 10	902	248, 249	30	964
Electric currents. Apparatus for utilizing the current force of flowing water in producing	E. Weston	310,763	Jan. 13	774	210	30	152
Electric currents. System of generating and regulating	J. S. Adams	311,166	Jan. 27	1398	365, 366	30	265
Electric-light tower	N. S. White	314,208	Mar. 17	1580	418	30	1087
Electric lights. Protecting incandescent	W. H. O'Beirne	314,976	Mar. 31	2643	699	30	1316
Electric lights. Suspending	E. A. Colby	312,552	Feb. 17	1503	410	30	643
Electric lights. Apparatus for treating carbons for incandescent	A. H. Bauer	312,698	Feb. 24	1689	465	30	686
Electric lighting by secondary batteries. System of	W. M. Thomas	312,589	Feb. 17	1552	422	30	653
Electric lighting. Circuit for systems of	O. Gassett	310,663	Jan. 13	643	177	30	128
Electric lighting. System of	A. Reckenzaun	313,884	Mar. 17	1159	302	30	1009
Electric machine and electric motor. Dynamo	H. R. Boissier	310,782	Jan. 13	797	216	30	157
Electric machine. Dynamo	W. P. Freeman	313,488	Mar. 10	625	162	30	902
Electric machine. Dynamo	W. M. Mordey	312,745	Feb. 24	1756	483, 484	30	699
Electric machine. Dynamo	F. G. Waterhouse	311,547	Feb. 3	123	36	30	372
Electric machine. Dynamo	E. Weston	310,762	Jan. 13	771	209	30	152
Electric-machine regulator. Dynamo	B. F. Orton	311,141	Jan. 20	1296	357	30	253
Electric-machine regulator. Dynamo	F. G. Waterhouse	313,561	Mar. 10	715	187	30	919
Electric machines. Armature for dynamo	C. F. Brush	310,876	Jan. 20	917	250	30	185
Electric machines. Armature for dynamo	C. F. Brush	312,807	Feb. 24	1835	503	30	713
Electric machines. Armature for dynamo	F. K. Fitch	312,111	Feb. 10	874	239	30	519
Electric machines. Armature for dynamo	C. L. Healy	314,242	Mar. 24	1625	430	30	1105
Electric machines. Armature for dynamo	W. Stanley, Jr	313,894	Mar. 17	1170	305	30	1011
Electric machines. Armature for dynamo	H. R. Boissier	310,780	Jan. 13	795	215	30	156
Electric machines. Brush-holder for dynamo	W. P. Freeman	313,489	Mar. 10	626	163	30	902
Electric machines. Commutator for dynamo	E. R. Gill, Jr	313,720	Mar. 10	919	239	30	958
Electric signal-controlling apparatus. Automatic							

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Electric signal. Visual	F. M. Godfrey	310,412	Jan. 6	328	90	30	64
Electric signaling apparatus	J. P. Tirreli	313,784	Mar. 10	1013	261 262	30	974
Electric signaling apparatus	F. B. Herzog	314,292	Mar. 24	1606	452 453	30	1118
Electric signaling circuit	T. D. Lockwood	314,386	Mar. 24	1523	485	30	1142
Electric-wire conduit	D. Brooks, Jr.	314,791	Mar. 31	2390	632	30	1272
Electric-wire conduit	J. S. Du Bois	314,568	Mar. 31	2074	554	30	1214
Electric wires to poles. Device for securing	G. L. Broomhall	310,931	Jan. 20	993	269	30	197
Electrical apparatus. Demonstrative	J. D. Culp	311,725	Feb. 3	341	94	30	413
Electrical cable	H. A. Clark	310,879	Jan. 20	919	250	30	185
Electrical conductor	S. F. Shelbourne	313,380	Mar. 3	478	125	30	866
Electrical conductor	C. M. Thompson and C. R. Eberle	312,673	Feb. 24	1657	457	30	682
Electrical conductor	H. C. Watt	310,345	Jan. 6	252	69	30	48
Electrical conductor-binder	J. Brady	310,177	Jan. 6	22	6	30	7
Electrical conductors. Connection for	E. H. Johnson	311,130	Jan. 20	1281	352	30	250
Electrical conducting material	C. S. Bradley	312,603	Feb. 24	1831	.....	30	712
Electrical connecting-cord	W. H. Sawyer	311,611	Feb. 3	203	57	30	387
Electrical indicator	F. J. Sprague	314,891	Mar. 31	2519	667	30	1296
Electrical purposes. Clamp for	W. S. Platt	313,616	Mar. 10	790	207	30	933
Electrical reporting. Receiving-instrument for	W. M. Pease	312,503	Feb. 17	1442	396	30	631
Electrical-wire conduit	M. H. Devey	314,655	Mar. 31	2190	580 581	30	1234
Electrical wires. Metallic curbing for containing	P. H. Griffin	310,271	Jan. 6	148	41	30	30
Electricity. Apparatus for distributing	O. Gassett	310,664	Jan. 13	645	177	30	128
Electricity. Apparatus for measuring	J. Canderay	310,252	Jan. 6	117	32 33 34	30	24
Electricity. Apparatus for the distribution of	O. Gassett	310,665	Jan. 13	647	177	30	129
Electro-dynamic motor	F. J. Sprague	313,546	Mar. 10	695	182	30	915
Electro-dynamic motors. Regulator for	F. J. Sprague	313,247	Mar. 3	315	78	30	834
Electro-magnetic comb	W. T. McGinnis	312,487	Feb. 17	1412	389	30	626
Electroplating apparatus	D. Appleton	313,569	Mar. 10	725	190	30	922
Electrotype-plate and holder	A. W. Marshall	312,569	Feb. 17	1526	416	30	648
Electrotype shell and base	G. W. and J. R. Cummings	313,812	Mar. 10	1051	269 270	30	981
Elevator: *See* Cash-carrier elevator. Portable elevator. Grain-elevator. Threshing-machine elevator. Hay-elevator. Water-elevator.							
Elevator	T. Bell	313,162	Mar. 3	172	42	30	809
Elevator	P. F. Corbett	310,183	Jan. 6	33	9, 10	30	8
Elevator	C. W. Hays	311,489	Feb. 3	37	11	30	356
Elevator	C. W. Levalley	311,335	Jan. 27	1585	433	30	311
Elevator	C. W. Levalley	311,336	Jan. 27	1586	434	30	312
Elevator	C. W. Levalley	311,337	Jan. 27	1588	434	30	312
Elevator	V. W. Mason	311,504	Feb. 3	59	18	30	360
Elevator	W. F. Rau and C. Münch	311,783	Feb. 3	418	113	30	427
Elevator	G. H. Reynolds	313,241	Mar. 3	308	77	30	833
Elevator	S. T. Richardson	311,369	Jan. 27	1630	446 447	30	320
Elevator	G. H. Roehm	313,887	Mar. 17	1163	303	30	1010
Elevator	I. S. Smith, Sr.	310,738	Jan. 13	741	201	30	147
Elevator	U. P. Smith	314,736	Mar. 31	2288	607	30	1253
Elevator-brake. Automatic	C. K. Rogers	313,451	Mar. 3	578	149	30	884
Elevator-cage and safety attachment	G. H. Reynolds	313,240	Mar. 3	303	76	30	832
Elevator-chain	C. W. Levalley	311,334	Jan. 27	1581	432 433	30	311
Elevator for hoisting and lowering and automatically discharging barrels, &c.	H. McQuire	311,773	Feb. 3	405	110	30	424
Elevator-gate	A. U. Grummann	311,120	Jan. 20	1264	346	30	247
Elevator-gate. Automatic	R. Lade	312,276	Feb. 17	1128	309	30	573
Elevator guide-posts. Chair for	C. G. Otis	310,713	Jan. 13	710	194	30	141
Elevator safety appliance	G. H. Reynolds	314,721	Mar. 31	2272	603	30	1249
Elevator safety attachment	A. M. Baker	311,279	Jan. 27	1511	412	30	299
Elevators and hoists. Automatic safety-brake for	D. C. De la Jeanniere	311,649	Feb. 3	251	70	30	396
Elevators. Device for preventing accidents in	M. L. Wright	313,842	Mar. 10	1096	284 285	30	988
Elevators. Electrical safety device for	R. M. Curtiss	314,167	Mar. 17	1530	401	30	1078
Elevators. Machinery for opening and closing automatically safety-covers for	A. J. Blaikie	312,699	Feb. 24	1692	465 466	30	687
Elevators, &c. Valve for hydraulic	G. H. Reynolds	314,720	Mar. 31	2267	602	30	1249
Elliptic spring	W. Davison	314,919	Mar. 31	2562	678	30	1302
Embroidering implement	J. C. Rorick	313,770	Mar. 10	996	257	30	971
Embroidery-holder	J. B. West. (Reissue)	10,553	Jan. 13	964	245	30	176
Embroidery show-box	M. H. Pulaski	314,542	Mar. 24	2034	543	30	1160
End-gate fastener	B. J. Swenson	314,154	Mar. 17	1515	397	30	1075
End-gate. Wagon	G. H. Williams	314,407	Mar. 24	1848	493	30	1148
Engine: *See* Air-compressing engine. Pumping-engine. Caloric engine. Road-engine. Condensing-engine. Rotary engine. Cylinder-engine. Rotary steam-engine. Dental engine. Single-acting engine. Fire-engine. Steam-engine. Gas-engine. Steam or vapor engine. Hydraulic engine. Traction-engine. Oscillating engine. Wind-engine. Pulp-beating engine.							
Engine reversing-gear	J. C. Debes	313,579	Mar. 10	737	194	30	924
Engine-reversing mechanism	R. Scheidler	311,921	Feb. 10	614	170	30	471
Engines. Regenerator for compound	T. Hulme	310,826	Jan. 13	852	231	30	167

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Ensilage-cutter	J. Y. Smith	311,538	Feb. 3	107	32	30	369
Envelope	A. A. Bishop	311,946	Feb. 10	652	179	30	477
Envelope	G. W. Crane	310,495	Jan. 6	421	117	30	82
Envelope	K. H. Pedrick	311,915	Feb. 10	608	167	30	469
Envelope	R. Sneider	311,208	Jan. 27	1393	380	30	277
Envelope	J. B. Oliver	313,100	Mar. 3	81	21	30	792
Envelope for mailing barbed articles	W. L. Finley	313,717	Mar. 10	916	238	30	957
Eraser. Ink-	C. Walpuski	314,759	Mar. 31	2314	.....	30	1258
Erasing compound. Ink-	G. B. St. John	313,962	Mar. 17	1273	332	30	1030
Escapement	C. W. Frick	310,403	Jan. 6	320	88	30	62
Evaporating-pan and furnace							
Evaporator: *See* Sorghum-evaporator.							
Excavator	R. R. Osgood	313,613	Mar. 10	785	206	30	932
Exercising apparatus. Electrical	J. H. Shaw	311,361	Jan. 27	1646	450	30	323
Expansible bit	G. H. Hill	313,735	Mar. 10	946	245	30	962
Explosive compounds. Protected nitrate of ammonia for use in	R. S. Penniman	312,010	Feb. 10	747	.....	30	495
Extensible stand	C. Denecke	314,808	Mar. 31	2409	637	30	1276
Extension-table	L. M. Doddridge	313,406	Mar. 3	513	134	30	873
Extractor: *See* Cartridge-shell extractor. Staple-extractor. Stump-extractor. Nail-extractor.							
Extracts from cereals. Preparing	H. Lehrenkrauss	312,869	Feb. 24	1926	.....	30	726
Eye-water	M. M. Lamontagne	312,131	Feb. 10	904	.....	30	524
Eyeglass-frame	S. B. Ondyke	311,602	Feb. 3	193	55	30	385
Eyeglass-springs. Machine for making	E. J. Watson	311,548	Feb. 3	125	36	30	372
Eyeglasses or spectacles	C. Slotterbek	311,615	Feb. 3	208	59	30	388
Eyes. Apparatus for testing the	F. A. Hardy	311,185	Jan. 27	1363	373	30	271
Fabric for window-shades, book-covers, &c	S. Bancroft, Jr.	313,799	Mar. 10	1037	.....	30	978
Fabric for wrappers	C. H. Leonard	314,857	Mar. 31	2470	654	30	1287
Fabric-turfing implement	C. M. Hinkle	314,023	Mar. 17	1346	351	30	1045
Fabrics. Machine for turfing	M. F. Connett, Jr.	313,710	Mar. 10	907	236 237	30	956
Fabrics. Manufacturing illuminated	R. K. Slaughter	314,349	Mar. 24	1777	472	30	1133
Fan attachment	H. P. Watts	312,413	Feb. 17	1396	380	30	607
Fan. Automatic	C. Bailey	314,775	Mar. 31	2369	627	30	1268
Fan. Automatic	G. Schmidt	312,149	Feb. 10	971	265	30	536
Fanning-mill	P. M. Fabing and J. Ackermann	311,733	Feb. 3	353	97	30	415
Fanning-mill	E. H. Pease	312,157	Feb. 10	955	260 261	30	533
Fare-box, indicator, and recorder	C. H. Maltby	311,019	Jan. 20	1120	306	30	221
Fare-register	C. A. Neuert	313,513	Mar. 10	656	170 171	30	907
Farm-gate	D. A. Dickinson	312,442	Feb. 17	1342	370	30	614
Farm-gate	R. S. Robison	313,372	Mar. 3	470	122	30	864
Farm-gate	J. Ulrich	314,756	Mar. 31	2311	614	30	1258
Farm-gate	J. K. Wilmot	312,311	Feb. 17	1171	320	30	787
Fascine-binder	A. M. Kanters	313,340	Mar. 3	430	108	30	856
Faucet	H. H. Orbits and M. Willet	313,443	Mar. 3	569	147	30	882
Faucet	N. Styne	313,249	Mar. 3	319	78	30	834
Feed-actuating mechanism	J. H. Wright	312,058	Feb. 10	805	220	30	506
Feed-bag	J. Conway	314,915	Mar. 31	2556	676	30	1301
Feed-box for animals	L. Doty	311,880	Feb. 10	550	151	30	450
Feed-cutter	A. M. Forrester	313,662	Mar. 10	850	221	30	945
Feed-cutter	E. F. Sherman	314,266	Mar. 24	1661	441 442	30	1111
Feed-rack	M. Thomas	314,273	Mar. 24	1671	444	30	1113
Feed-rack and manger. Combined	W. S. Downing	310,261	Jan. 6	131	34	30	27
Feed-trough	J. Blattner	310,554	Jan. 13	508	140	30	104
Feed-water heater	G. H. Babcock	314,415	Mar. 24	1858	495	30	1149
Feed-water heater	T. Evans	310,570	Jan. 13	528	145	30	107
Feed-water heater	J. A. Grant	312,716	Feb. 24	1716	471	30	691
Feed-water heater	W. Schwartz	313,890	Mar. 17	1165	303	30	1010
Feed-water heater	J. Welsh	310,968	Jan. 20	1053	286	30	207
Feed-water heater and purifier	D. Cochrane	313,257	Mar. 3	363	90	30	842
Feed-water heater for steam-boilers	F. Doyle	314,521	Mar. 24	2006	535	30	1175
Feed-water. Heating and purifying	W. Baragwanath	314,559	Mar. 31	2062	550 551	30	1212
Feed-water in steam-boilers. Purifying	H. Stollwerck	313,838	Mar. 10	1086	282 283	30	987
Feed-water trap. Steam	H. Creamer	313,854	Mar. 17	1117	290	30	1001
Feeder. Steam-boiler	C. A. Rickard	313,954	Mar. 17	1266	330	30	1029
Feeder. Stock	E. R. Harman	312,462	Feb. 17	1374	379	30	690
Feeding-trough	J. S. Moody	313,227	Mar. 3	287	72	30	829
Felly-clamp	G. M. Dillard	314,232	Mar. 24	1614	427	30	1103
Felly-inserting device	J. G. Roh	314,197	Mar. 17	1570	415	30	1084
Felt having a cross-section varying in thickness throughout its width. Producing	C. B. Dolge	314,369	Mar. 24	1802	479	30	1138
Felt. Manufacture of hair-faced wool	C. B. Dolge	314,810	Mar. 31	2411	638	30	1276
Felted fabrics. Producing	C. B. Dolge	314,809	Mar. 31	2410	637	30	1276
Fence	F. A. Bartgis	314,419	Mar. 24	1864	496	30	1151
Fence	W. H. Boggs	313,848	Mar. 17	1110	288	30	1000
Fence	F. Bremerman	313,169	Mar. 3	182	44	30	810
Fence	W. H. Brevoort	310,555	Jan. 13	509	140	30	104
Fence	D. Camp	310,550	Jan. 13	514	141	30	105
Fence	N. Knaub	314,184	Mar. 17	1554	407	30	1081
Fence	J. Presler	314,605	Mar. 31	2118	565	30	1222
Fence	T. F. Van Luven	310,624	Jan. 13	595	164	30	119
Fence	E. B. Miller	311,138	Jan. 20	1291	355	30	252
Fence and post lifter	G. De Walt	312,440	Feb. 17	1341	369	30	614
Fence. Barbed	F. D. Ford	311,426	Jan. 27	1710	465	30	334
Fence. Barbed-wire	F. D. Ford	311,740	Feb. 3	361	100	30	417
Fence. Barbed-wire	F. D. Ford	312,454	Feb. 17	1365	377	30	618

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Fence. Iron	H. L. Jones	313,825	Mar. 10	1066	274	30	984
Fence latch. Wire	L. R. Orr	311,603	Feb. 3	194	55	30	385
Fence lock. Worm	J. J. Iglehart	313,672	Mar. 10	850	223	30	947
Fence machine. Barb	L. Cook	312,820	Feb. 24	1853	508, 509	30	716
Fence machine. Wire	L. W. Fillebrown, S. S. Gray, and J. A. Fillebrown.	314,442	Mar. 24	1894	506	30	1156
Fence-making machine	G. Q. Adams	312,063	Feb. 10	812	222	30	507
Fence-making machine	N. P. Bradish	314,646	Mar. 31	2176	577	30	1232
Fence. Portable anchor	J. Du Bois	311,065	Jan. 20	1188	326	30	234
Fence-post	B. B. Adams	314,303	Mar. 24	1716	456	30	1122
Fence-post	E. R. Annable	311,710	Feb. 3	325	90	30	410
Fence-post	W. W. Carpenter and A. S. Dudley	310,250	Jan. 6	111	31	30	23
Fence-post	A. D. Doubleday	310,800	Jan. 13	818	221	30	160
Fence-post	A. Handley	314,377	Mar. 24	1709	481	30	1140
Fence-post	J. L. Smolley	312,524	Feb. 17	1470	402	30	636
Fence-post	A. E. Stephenson	312,919	Feb. 24	1981	541	30	738
Fence-post	P. Vanbriggle	311,693	Feb. 3	305	83	30	406
Fence-post. Metallic	W. Nendel and W. I. Knowlton	314,870	Mar. 31	2402	661	30	1291
Fence-strips. Device for making barbed	J. W. Ells	310,394	Jan. 6	309	86	30	60
Fence tool. Wire	J. B. Barron	314,779	Mar. 31	2375	628	30	1269
Fence. Wire	F. H. Bissell	314,785	Mar. 31	2381	630	30	1270
Fence. Wire	A. Clark	314,430	Mar. 24	1880	502	30	1153
Fence. Wire	H. B. Rains and G. Tarkington	314,877	Mar. 31	2501	663	30	1293
Fence-wire. Barbed	W. Edenborn	313,929	Mar. 17	1236	321	30	1022
Fence-wire coupling	N. H. Fuller and H. S. Hallock	311,490	Feb. 3	25	7	30	353
Fence-wire fastener	E. S. Lenox, F. H. Daniels, and J. D. Curtis.	310,633	Jan. 13	858	233	30	168
Fence-wire strainer	S. W. Fulton	310,505	Jan. 6	434	119	30	84
Fence-wires. Device for measuring the strain on	A. Overbagh	310,845	Jan. 13	875	236	30	171
Fences. Device to be used in constructing	J. Ulrich	313,634	Mar. 10	808	212	30	936
Fences. Making barbed	F. D. Ford	310,813	Jan. 13	833	226	30	163
Fences. Metallic post for wire	T. J. Cox	314,654	Mar. 31	2189	590	30	1234
Fencing. Barbed	F. W. Brainerd	314,512	Mar. 24	1997	532	30	1173
Fencing. Die for making barbed	A. P. Thayer	311,150	Jan. 20	1309	360	30	255
Fencing. Die for making barbed	A. P. Thayer	312,404	Feb. 17	1294	357	30	605
Fencing. Die for making barbed	A. P. Thayer	313,031	Feb. 24	2138	581	30	766
Fencing. Machine for making wire and picket	T. B. Harrison	314,933	Mar. 31	2580	682, 683, 684	30	1306
Fencing. Making barbed metallic	E. Jordan	314,183	Mar. 17	1551	406, 407	30	1081
Fencing. Metallic	I. Kinney	312,864	Feb. 24	1921	526	30	727
Fender: *See* Fire-fender. Plow-fender.							
Fermented, fermentable, or distilled liquids. Apparatus for treating	C. W. Ramsay	313,237	Mar. 3	300	75	30	831
Ferro-nickel and ferro-cobalt. Making malleable	H. Marbeau, Aîné	310,901	Jan. 20	948	.....	30	190
Fertilizer-distributer	J. E. Clark	314,652	Mar. 31	2186	579	30	1234
Fertilizer-distributer	N. A. Currie	312,334	Feb. 17	1201	329	30	567
Fertilizer-distributer	J. B. Denton	314,920	Mar. 31	2563	678	30	1303
Fertilizer-distributer	E. Ostensen	311,444	Jan. 27	1728	471	30	338
Fertilizer-distributer and cultivator	H. A. Cammbell	312,329	Feb. 17	1194	327	30	585
Fertilizer-distributer and planter	F. M. and W. E. King	310,208	Jan. 6	63	17	30	14
Fertilizers. Apparatus for drying	H. Breer	313,401	Mar. 3	507	132	30	871
Fertilizers. Machine for mixing	W. B. Chisolm	311,291	Jan. 27	1524	415	30	300
Fiber-disintegrating machine	T. A. Smith	314,268	Mar. 24	1664	442, 443	30	1112
Fiber preparatory to being felted. Machine for disintegrating	W. S. Archer	314,642	Mar. 31	2170	576	30	1231
Fibrous materials, &c. Chain and chain-wheel for machinery for preparing	J. Good	311,577	Feb. 3	160	45	30	378
Fibrous materials. Machine for drawing or spreading	J. Good	311,310	Jan. 27	1544	420	30	304
Fifth-wheel heads. Die for	N. Eccles	312,828	Feb. 24	1870	512	30	719
Fifth-wheel. Vehicle	T. Smith	314,068	Mar. 17	1400	363	30	1055
File for holding blanks	S. M. Meek	314,598	Mar. 31	2108	562	30	1220
File-holder	W. H. Phelps	312,012	Feb. 10	750	205	30	495
File. Paper	W. Bright	311,951	Feb. 10	663	181	30	479
File. Paper	W. H. H. Clague	312,086	Feb. 10	847	231, 232	30	514
File. Paper	F. D. Weber	310,758	Jan. 13	768	208	30	151
Filter	A. C. De los Rios	312,167	Feb. 10	998	272	30	541
Filter	J. Mallié	312,281	Feb. 17	1135	311	30	574
Filter	R. C. Moore	313,946	Mar. 17	1254	327	30	1026
Filter	H. Roeske	314,150	Mar. 17	1511	396	30	1074
Filter	F. X. Snitznagel	312,527	Feb. 17	1472	403	30	637
Filter	A. N. Wilson	314,221	Mar. 24	1662	448	30	1115
Filter. Capillary	J. A. Tupper	311,452	Jan. 27	1737	473	30	340
Filtering apparatus	C. W. E. Pieske	311,257	Jan. 27	1464	400, 401	30	290
Filtering device	W. E. Lindsley	312,735	Feb. 24	1738	478	30	695
Filtering-paper	G. H. Billings, E. W. Carter, and D. R. Smith.	311,223	Jan. 27	1423	387	30	282
Filtering-paper	E. W. Carter and D. R. Smith	313,174	Mar. 3	189	46	30	812
Finger-ring	R. A. Kullmann	313,084	Mar. 3	59	16	30	789
Fire-alarm box. Automatic	W. C. Hess	310,424	Jan. 6	339	93	30	66
Fire-alarm signal-box	J. Young	313,040	Feb. 24	2146	584	30	768
Fire-arm. Breech-loading	W. H. Elliot	314,570	Mar. 31	2076	555	30	1214
Fire-arm. Breech-loading	J. Hurst and H. Schnitz	312,564	Feb. 17	1521	414, 415	30	647
Fire-arm. Breech-loading	E. L. Lake	310,689	Jan. 13	689	187	30	135
Fire-arm hammer	S. S. Hopkins	311,323	Jan. 27	1560	425	30	307
Fire-arm lock	J. B. Bull	313,170	Mar. 3	183	44	30	811
Fire-arm magazine	R. F. Cook	313,851	Mar. 17	1113	289	30	1001

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Fire-arm magazine	L. P. Diss	313,856	Mar. 17	1119	290	30	1002
Fire-arm. Magazine	A. Burgess. (Reissue)	10,555	Feb. 3	522	141, 142	30	447
Fire-arm. Magazine	R. S. Chaffee	314,363	Mar. 24	1791	476, 477	30	1136
Fire-arm. Magazine	W. B. Franklin	314,823	Mar. 31	2428	641, 642	30	1279
Fire-arm. Magazine	J. D. Greene	312,201	Feb. 10	1013	276	30	543
Fire-arm. Magazine	W. Mason	311,079	Jan. 20	1211	332	30	238
Fire-arm. Magazine	W. Mason	312,139	Feb. 10	914	248	30	536
Fire-arm. Magazine	G. N. Spencer	310,328	Jan. 6	231	63	30	44
Fire-arm. Magazine	W. H. Bliss	313,048	Mar. 3	13	4	30	781
Fire-arm. Revolving	W. Trabue	314,494	Mar. 24	1974	525	30	1169
Fire-arm. Revolving	W. Trabue	314,754	Mar. 31	2309	613	30	1257
Fire-arm. Revolving	C. J. Ebbets	311,732	Feb. 3	351	97	30	415
Fire-arm safety-lock	J. C. Kelton	313,212	Mar. 3	254	64	30	824
Fire-arm sight-protector	J. Hermle	311,755	Feb. 3	382	105	30	421
Fire-arm stock	R. S. Chaffee	314,515	Mar. 24	1999	533	30	1173
Fire-arms. Feeding mechanism for breech-loading	W. Morrison	313,755	Mar. 10	977	252	30	967
Fire-engine. Chemical	S. S. Wheeler	312,939	Feb. 24	2004	548	30	743
Fire-engine system. Electric	J. E. Prunty	311,145	Jan. 20	1301	358	30	254
Fire-engines. Relief-valve for steam	J. H. Bowley	311,805	Feb. 3	443	120	30	432
Fire-escape	H. Chamberlain	313,709	Mar. 10	907	236	30	955
Fire-escape	I. Farrar and J. A. Powers	311,889	Feb. 10	577	158	30	464
Fire-escape	E. W. Fiegenbaum	314,287	Mar. 24	1691	451	30	1117
Fire-escape	T. P. Hall	310,675	Jan. 13	659	181	30	131
Fire-escape	C. W. Joynt	311,661	Feb. 3	265	73	30	398
Fire-escape	Z. Ludwig	312,874	Feb. 24	1932	528, 529	30	799
Fire-escape	L. B. McDonald	310,603	Jan. 13	570	158	30	115
Fire-escape	R. H. Nichols	311,669	Feb. 3	273	76	30	400
Fire-escape	G. W. Putnam	313,024	Feb. 24	2139	579	30	765
Fire-escape	F. Shickle	312,908	Feb. 24	1906	538	30	735
Fire-escape	F. Shickle	312,909	Feb. 24	1908	538	30	736
Fire-escape	F. Shickle	312,910	Feb. 24	1908	538	30	736
Fire-escape	G. Scheidt and J. A. Rehard	311,039	Jan. 20	1148	313	30	227
Fire-escape	D. S. Thomas	314,628	Mar. 31	2151	572	30	1227
Fire-escape	E. Watts	314,355	Mar. 24	1784	474	30	1135
Fire-escape	H. Wettstein	312,683	Feb. 24	1669	459, 460	30	683
Fire-escape	H. Wettstein	312,684	Feb. 24	1671	460	30	684
Fire-escape	F. A. Bone	312,076	Feb. 10	833	227	30	511
Fire-escape. Automatic	J. Barnett	312,793	Feb. 24	1818	499	30	709
Fire-escape ladder	R. M. Wilson	314,899	Mar. 31	2536	671	30	1298
Fire-escape ladder	J. W. Evans	311,239	Jan. 27	1442	393	30	286
Fire-escape ladder and ventilating-flue. Combined	H. Wettstein	312,415	Feb. 17	1306	361	30	607
Fire-escape. Portable	J. M. Giblin	310,888	Jan. 20	929	253	30	187
Fire-extinguisher	J. S. Shrawder	311,204	Jan. 27	1389	379	30	276
Fire-extinguisher	A. M. Granger	313,724	Mar. 10	928	241	30	959
Fire-extinguisher. Automatic	C. L. Horack	310,432	Jan. 6	348	95	30	68
Fire-extinguisher. Automatic	C. L. Horack	313,423	Mar. 3	535	141	30	877
Fire-extinguisher. Automatic	D. C. Stillson	311,068	Jan. 20	1223	335	30	240
Fire-extinguisher. Automatic	W. A. Reid	312,899	Feb. 24	1955	535	30	733
Fire-extinguishing apparatus	J. R. Smith	314,987	Mar. 31	2514	666	30	1295
Fire-extinguishing apparatus	F. Fröhlich	310,404	Jan. 6	321	.....	30	62
Fire-extinguishing compound	J. M. Giblin	310,887	Jan. 20	928	.....	30	187
Fire-extinguishing compound	J. M. Giblin	310,889	Jan. 20	930	.....	30	187
Fire-extinguishing compound	J. R. Smith	314,886	Mar. 31	2513	.....	30	1295
Fire-extinguishing compound	J. H. Peirce	314,148	Mar. 17	1509	395	30	1074
Fire-extinguishing hand-grenades. Hermetical seal for liquid	J. W. Ells	312,620	Feb. 24	1587	435	30	668
Fire-fender	P. McCauley	312,143	Feb. 10	921	250	30	527
Fire-front	G. Russell	312,513	Feb. 17	1458	399	30	634
Fire-iron stand and support for coal-vases. Combined	P. T. Hamborg	313,419	Mar. 3	529	139	30	876
Fire-kindler. Automatic	N. Archibald	311,462	Feb. 3	4	1	30	349
Fire lighter and kindler	W. Crook	310,892	Jan. 20	922	252	30	186
Fire-place	R. R. Jones	313,675	Mar. 10	861	224	30	948
Fire-place	T. C. Nativel	313,441	Mar. 3	567	146	30	882
Fire-place and chimney	G. L. Morrison	312,003	Feb. 10	737	201, 202	30	492
Fire-place heater	I. Hayes	310,277	Jan. 6	154	43	30	30
Fire-place. Open	C. M. Burgess	311,160	Jan. 20	1319	302	30	257
Fire-shovel	J. C. Kerner	313,501	Mar. 10	642	.....	30	905
Fire-proof building material	W. H. Turner	313,458	Mar. 3	587	150	30	886
Fish-inclosure	G. A. Dupuis	311,068	Jan. 20	1191	327	30	234
Fish-line stake	J. H. N. Guilford	313,418	Mar. 3	527	138, 139	30	875
Fish-plate-fastening machine	T. P. Taylor	314,751	Mar. 31	2306	613	30	1257
Fish-pole holder	G. H. McKinney	311,346	Jan. 27	1599	437	30	314
Fish trap and bucket	E. F. Trent	313,695	Mar. 10	885	230	30	952
Fishing-reel	R. A. Carter	313,917	Mar. 17	1210	315, 316	30	1018
Flanging-machine	R. A. Carter	313,918	Mar. 17	1213	316	30	1018
Flanging-machine	H. W. Shepard	314,615	Mar. 31	2130	567	30	1224
Flanging-machine							
Flask: *See* Molder's flask.							
Flax, &c. Treatment of	J. R. Dry	314,921	Mar. 31	2564	.....	30	1303
Flood-gate	H. T. Day	312,437	Feb. 17	1338	309	30	613
Flood-gate	F. M. Monger	314,865	Mar. 31	2487	659	30	1291
Floor-board clamp	A. B. Patten and F. E. Sprague	311,029	Jan. 20	1132	309	30	224
Floor-clamp	T. A. Southwick	312,526	Feb. 17	1471	403	30	636
Floor or area covering	P. H. Jackson	314,677	Mar. 31	2211	587	30	1238
Flooring-clamp	A. Redman	311,608	Feb. 3	199	56	30	396

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Flour, &c. Apparatus for feeding	A. D. Northrup	311,670	Feb. 3	276	76	30	401
Flour-bolt	J. B. Alifree	313,132	Mar. 3	152	37, 38	30	805
Flour-bolt	J. F. Ayres	310,772	Jan. 13	786	212, 213	30	155
Flour-bolt	W. F. Cochrane and G. T. Smith	311,873	Feb. 10	541	148	30	457
Flour-bolt	J. C. Frazier	310,572	Jan. 13	530	145, 146	30	107
Flour-bolt	G. T. Smith and W. F. Cochrane	312,914	Feb. 24	1974	539	30	737
Flour-bolt attachment	J. M. R. Kennedy	314 137	Mar. 17	1498	391	30	1071
Flour-bolt. Centrifugal	C. E. Mover	313.756	Mar. 10	979	252	30	968
Floor. Making sweet-potato	J. A. Whitcomb	310.927	Jan. 20	966	.....	30	196
Flour-mills. Disintegrating apparatus for	A. C. Nagel, R. H. Kaemp, and A. W. F. G. Linnenbrügge.	312,215	Feb. 10	1034	283	30	547
Flour-packer	H. P. Chapman	311.811	Feb. 3	450	122	30	433
Flour-packer	L. Creveling	310.496	Jan. 6	423	117	30	82
Flower-pot	O. Kaiser	314,682	Mar. 31	2218	589	30	1240
Flower-pot holder. Wire	W. J. Heaser	313,067	Mar. 10	855	222	30	946
Flower-pot stand	A. H. Perkins	312.159	Feb. 10	958	261	30	533
Flower-stand. Revolving	W. Butcher	311,408	Jan. 27	1682	459	30	330
Flue-cleaner	F. L. McGahan	313,509	Mar. 10	651	169	30	907
Flue-welding device	J. Rademacher and R. A. Lemon	312,895	Feb. 24	1951	534	30	733
Fluid-meter	C. C. Barton and J. Thomson	313.159	Mar. 3	165	40, 41	30	807
Fluid regulator and cut-off	J. T. Hambay	311,747	Feb. 3	372	102	30	418
Fluids. Apparatus for propelling	H. Thiéry	314,489	Mar. 24	1968	524	30	1168
Fluids. Apparatus for the conveyance of	J. F. Bennett	312,318	Feb. 17	1181	323, 324	30	583
Folding chair	L. K. Smedes	313,381	Mar. 3	479	125	30	866
Folding table	J. Benedict	310,345	Jan. 6	105	29	30	22
Folding table	J. W. Stowell	313,632	Mar. 10	806	211	30	936
Folding table	E. Tucker	312,009	Feb. 10	783	214	30	501
Food for infants and invalids	W. R. Barker and A. L. Savory	313,157	Mar. 3	160	.....	30	806
Foot-warmer	M. E. Boyd	311,283	Jan. 27	1514	413	30	299
Forge	J. L. Osgood	311,358	Jan. 27	1615	442	30	317
Forging bolt-blanks. Machine for	J. Bruderer and O. C. Bardict	310,646	Jan. 13	621	172	30	124
Forging machine. Nut	F. A. Hasenclever	310,680	Jan. 13	667	183	30	133
Fork: *See* Hay-fork. Stone and potato fork. Hay and manure fork.							
Fork-forming machine	P. D. Dupont	312,964	Feb. 24	2066	564	30	754
Foundry-plant	J. H. Whiting	314,768	Mar. 31	2357	623, 624	30	1266
Fountains. Floating apparatus for producing illuminated	F. J. Bolton	312,958	Feb. 24	2029	554	30	747
Frame: *See* Awning-frame. Picture-frame. Bag, pocket-book, or purse frame. Steam-engine frame. Window-frame.							
Fresco-work	E. S. Miragoli	311,509	Feb. 3	67	20	30	361
Friction-coupling	J. C. Blevney	310,173	Jan. 6	15	5	30	6
Friction-coupling	H. E. Eberhardt	311,179	Jan. 27	1356	371, 372	30	270
Friction-slide	C. F. Oxley	313,444	Mar. 3	569	147	30	883
Fruit and nut gatherer	G. W. Hogan	310,429	Jan. 6	344	94	30	67
Fruit-drier	P. D. and J. H. Coryell	313,810	Mar. 10	1049	269	30	960
Fruit-jar	J. G. Briggs	314,099	Mar. 17	1442	378	30	1062
Fruit-jar	M. R. Gannaway	314,289	Mar. 24	1693	451	30	1117
Fruit-jar	J. B. Wilson	312,505	Feb. 17	1560	425	30	654
Fruit-jar	J. B. Wilson	312,506	Feb. 17	1561	425	30	655
Fruit-jar fastening. Wire	W. F. Hannes	314,332	Mar. 24	1752	467	30	1128
Fruit-jars. Machine for holding and handling	B. F. Jones	312,642	Feb. 24	1618	445	30	674
Fruit-picker	J. Brown and M. G. Alcorn	312,320	Feb. 17	1191	326	30	585
Frying-pan	H. F. Bock	310,365	Jan. 6	275	76	30	53
Frying-pan	J. Mason and G. W. Winsor	310,864	Jan. 13	896	242	30	175
Fuel and other granulated materials. Machine for mixing and molding artificial	E. F. Loiseau	311,341	Jan. 27	1503	436, 437	30	313
Fuel. Artificial	H. Aigner	314,007	Mar. 17	1441	377	30	1062
Fuel. Artificial	G. Leeler	313,086	Mar. 3	61	.....	30	789
Funnel. Ventilating measure	L. Bolus and P. Elleperman	313,049	Mar. 3	15	4	30	781
Furnace: *See* Blast-furnace. Metallurgical furnace. Boiler-furnace. Ore-furnace. Calcining and chloridizing furnace. Ore-roasting furnace. Cupola-furnace. Puddling and heating furnace. Gas-furnace. Regenerative furnace. Glass-furnace. Regenerator-furnace. Glass-annealing furnace. Smelting-furnace. Glass annealing and flattening furnace. Smoke-consuming furnace. Glass-melting furnace. Steel-ladle-drying furnace. Hot-air furnace. Tire-heating furnace.							
Furnace	G. Gulickson	310,582	Jan. 13	645	150	30	110
Furnace	M. Kearney and M. C. Hawley	313,939	Mar. 17	1246	324	30	1024
Furnace ash-pan and screen	R. S. T. Clasel	312,331	Feb. 17	1196	328	30	586
Furnace-door	W. O. Nightengale	312,578	Feb. 17	1536	419	30	650
Furnace-doors. Device for opening and closing	H. H. Dreyer	313,304	Mar. 3	389	96	30	847
Furnace for burning liquid hydrocarbons	J. Buffet	313,403	Mar. 3	510	133, 134	30	872
Furnace for heating disks	A. McDonald	310.902	Jan. 20	949	239	30	196
Furnace for manufacturing iron and steel	J. Henderson	312,632	Feb. 24	1603	439, 440	30	671
Furnace for reducing zinc and other metals	J. Quaglio	312,759	Feb. 24	1774	489	30	702

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Furnace for the combustion of bituminous coal	N. W. Pratt and G. E. Palmer	312,655	Feb. 24	1632	450	30	677
Furnace for the manufacture of iron direct from the ore	C. Adams	310,104	Jan. 6	2	1	30	3
Furnace-front	W. Lowe	310,835	Jan. 13	860	233	30	169
Furnace-grate	S. D. Fisher	311,971	Feb. 10	696	191	30	484
Furnace-grate	F. V. Medynski	310,215	Jan. 6	71	19	30	15
Furnace-grate	J. A. Price	312,293	Feb. 17	1151	314	30	577
Furnace-grate	M. A. Foster	310.194	Jan. 6	46	13	30	11
Furnace grate-bar attachment	C. H. Holt	312,472	Feb. 17	1392	384, 385	30	622
Furnace grate. Boiler	T. C. Craven	311,475	Feb. 3	17	5, 6	30	351
Furnaces of locomotive-boilers. Supplying air to the	F. E. Fahrig	314,925	Mar. 31	2568	679	30	1303
Furnaces. Steam and air injector for	J. C. Pringle and J. W. Holdsworth	313,768	Mar. 10	994	257	30	971
Furniture. Combined article of	D. E. Darnell	312,098	Feb. 10	863	236	30	517
Furrower, marker, and coverer	W. A. Lawrence	313,504	Mar. 10	645	167, 168	30	905
Furrower, marker, and fertilizer-distributer combined	E. L. Zaliuski	313,150	Mar. 3	150	37	30	804
Fuse. Electric shell	A. J. Hellings	310,420	Jan. 6	336	92	30	65
Gage: *See* Lathe-gage. Thickness-gage. Marking-gage. Track-gage. Rule-gage. Water-gage.	W. K. Kidder	310,831	Jan. 13	855	232	30	168
Gage. Combination	C. P. Orne	311.516	Feb. 3	82	24	30	364
Galvanic battery	A. Dun	312,339	Feb. 17	1209	333	30	588
Galvanic battery porous cup	A. Dun	312,340	Feb. 17	1210	333	30	588
Galvanic element	P. K. Dealy	310,388	Jan. 6	302	83	30	58
Galvanic elements. Apparatus for emptying and charging	N. M. Beach	312,704	Feb. 24	1819	499	30	710
Game	F. B. Stannon	310,325	Jan. 6	226	62	30	43
Game-counter	L. F. Frazee	313.663	Mar. 10	851	221	30	945
Game of fractions	L. F. Frazee	314,325	Mar. 24	1747	465	30	1127
Gang-plank for ferry-boats	W. J. Spalding	311,385	Jan. 27	1453	451, 452	30	324
Gang-plank for vessels	C. Marshall	311,503	Feb. 3	58	17	30	360
Garden-drill and seed-sower. Combined	I. Pick	310,309	Jan. 6	198	53	30	38
Garden implement	F. Tucker	314.549	Mar. 24	2042	544	30	1181
Garment	G. Frega	314.526	Mar. 24	2015	538	30	1176
Garment-clasp	C. C. Shelby	312,297	Feb. 17	1155	317	30	578
Garments. Cutting and fitting	D. S. Thompson	311,691	Feb. 3	304	83	30	406
Garter	P. H. Klein, Jr	311,131	Jan. 20	1282	352, 353	30	251
Garter-slide	J. Ring	310,616	Jan. 13	585	161	30	118
Gas and electric light fixture. Combined	W. M. Casler	312,431	Feb. 17	1329	367	30	612
Gas and other machines. Cooling attachment for	A. O. Granger and J. H. Collins, Jr.	311,483	Feb. 3	29	9	30	354
Gas apparatus	J. J. Johnston	312,729	Feb. 24	1732	476	30	695
Gas. Apparatus for manufacturing	B. C. Smith	314,484	Mar. 24	1900	521, 522	30	1167
Gas. Apparatus for manufacturing	A. L. Allen	310,467	Jan. 6	411	113	30	79
Gas. Apparatus for manufacturing oil	T. G. Springer and G. W. Jeremy	314,460	Mar. 24	1838	490	30	1145
Gas. Apparatus for the manufacture of	T. Clough	314,653	Mar. 31	2188	580	30	1234
Gas. Apparatus for the manufacture of	A. P. Guyer	314,376	Mar. 24	1808	481	30	1140
Gas-burner	W. M. Jackson	310,945	Jan. 20	1018	275	30	201
Gas-burner	A. B. Lipsey	312,279	Feb. 17	1132	310, 311	30	574
Gas-burner	B. Martin	312,367	Feb. 17	1248	344	30	595
Gas-burner	O. D. McClellan	313,508	Mar. 10	650	169	30	906
Gas-burner	W. M. Noel	313,634	Mar. 10	1082	281	30	986
Gas-burner	T. Thorp	314,630	Mar. 31	2155	573	30	1228
Gas-burner	G. W. Browne	312 895	Feb. 24	1833	503	30	712
Gas-burner. Safety	M. L. Pence	312,792	Feb. 24	1948	533	30	732
Gas-burner. Safety	F. Dittmar	314,000	Mar. 17	1315	344	30	1038
Gas-burner safety attachment	J. J. Johnston	312,728	Feb. 24	1732	476	30	694
Gas. Composition of matter for the manufacture of	V. H. Becker	313,047	Mar. 3	13	3	30	781
Gas-condensers. Cooling coils of	H. Mercer	310.841	Jan. 13	867	235	30	170
Gas-conducting mains. Preventing leakage from	A. W. Cadman	312,811	Feb. 24	1841	506	30	713
Gas conveying and distributing system	C. G. Mayer	314,039	Mar. 17	1366	356	30	1048
Gas-cooling apparatus	E. C. Merrill	313,750	Mar. 10	971	251	30	906
Gas cut-off	C. H. Andrew	314,284	Mar. 24	1688	449, 450	30	1116
Gas-engine	G. Daimler	313,922	Mar. 17	1220	318	30	1020
Gas-engine	G. Daimler	313,923	Mar. 17	1222	318	30	1020
Gas-engine	L. H. Nash	312,494	Feb. 17	1421	391, 392	30	628
Gas-engine	L. H. Nash	312,496	Feb. 17	1426	392, 393	30	628
Gas-engine	L. H. Nash	312,497	Feb. 17	1429	393, 394	30	629
Gas-engine	L. H. Nash	312,498	Feb. 17	1432	394	30	629
Gas-engine and pump. Combined	A. W. Schleicher	314,727	Mar. 31	2278	605	30	1251
Gas-engine gas-governor	E. Schrabetz	312,906	Feb. 24	1964	537	30	735
Gas-engine igniter	L. H. Nash	312,499	Feb. 17	1435	394, 395	30	630
Gas-fluid	A. F. Zimmerling	313,795	Mar. 10	1033	.....	30	978
Gas-furnace	W. Swindell	310,745	Jan. 13	750	204	30	148
Gas. Furnace for generating illuminating	S. I. Anthony	311,403	Jan. 27	1675	457	30	329
Gas generating and burning device	R. A. Bury and R. M. Bidelman	313,575	Mar. 10	730	192	30	922
Gas-generating apparatus	A. O. Granger	311,484	Feb. 3	31	9	30	355
Gas-generating apparatus	I. James	311.493	Feb. 3	45	13	30	357
Gas-generator	F. Claues	311,161	Jan. 20	1320	363	30	257
Gas-generator	L. Mond	311,441	Jan. 27	1724	469, 470	30	537
Gas-governor. Automatic	M. O. Gorman	310.580	Jan. 13	542	149	30	110
Gas-lighter. Electric	J. Geary	314,119	Mar. 17	1474	384	30	1068
Gas-lighter. Electric	C. W. Weiss	314,088	Mar. 17	1430	374	30	1060

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Gas-lighting apparatus. Knob for electric	F. Lane	311,840	Feb. 3	487	133	30	440
Gas-machine	W. C. Strong	311,858	Feb. 3	513	139	30	445
Gas machine. Hydrocarbon	H. Allender	314,412	Mar. 24	1853	494	30	1149
Gas-mains. Carrying off leakage from	G. Westinghouse, Jr	312,777	Feb. 24	1708	495	30	706
Gas-mains. Detecting leaks in	G. Westinghouse, Jr	312,541	Feb. 17	1492	407	30	640
Gas-mains. Detecting leaks in	G. Westinghouse, Jr	312,542	Feb. 17	1493	407	30	641
Gas-mains. Detecting leaks in	G. Westinghouse, Jr. (Reissue)	10,561	Feb. 17	1566	427	30	656
Gas. Manufacturing	J. J. Johnston	312,730	Feb. 24	1733	476, 477	30	695
Gas. Manufacturing	T. G. Springer and G. W. Jeremy	314,486	Mar. 24	1962	523	30	1167
Gas-meter	G. Fajen	312,106	Feb. 10	869	238	30	518
Gas. Method of and apparatus for enriching and burning water	C. J. Esmes	311,967	Feb. 10	688	188	30	483
Gas-motor	G. M. Ward	311,714	Jan. 27	1405	384	30	279
Gas-pipe holder	C. G. Duffy	312,193	Feb. 10	1005	274	30	542
Gas-pressure regulator	J. D. Averell	313,846	Mar. 17	1107	297	30	999
Gas-pressure regulator	L. G. Francis	312,560	Feb. 17	1516	413	30	646
Gas. Process of and apparatus for manufacturing	J. Hanlon	311,124	Jan. 20	1267	347, 348, 349	30	248
Gas. Process of and apparatus for manufacturing	J. Hanlon	311,125	Jan. 20	1272	349, 350, 351	30	248
Gas. Process of and apparatus for manufacturing	T. G. Springer	314,739	Mar. 31	2291	608	30	1253
Gas-purifying apparatus	A. O. Granger	313,861	Mar. 17	1125	292	30	1003
Gas-regulator	T. Angell	310,240	Jan. 6	98	27	30	21
Gas-regulator	J. and W. Goodson	313,321	Mar. 3	408	102	30	851
Gas regulator or governor	J. H. Luther	312,483	Feb. 17	1407	388	30	625
Gas regulator or governor	J. H. Luther	312,484	Feb. 17	1408	388, 389	30	625
Gas-retort	A. C. Swain	310,744	Jan. 13	749	203	30	148
Gas-retort door	J. Bartle	314,780	Mar. 31	2376	629	30	1270
Gas under pressure. System for distributing	W. A. Hoeveler and T. J. McTighe	312,470	Feb. 17	1389	383, 384	30	622
Gas-valve. Automatic	I. B. Milliner	310,605	Jan. 13	573	158	30	116
Gas-works. Discharging tar from hydraulic mains in	A. Hutchison	312,565	Feb. 17	1523	415	30	647
Gas-works. Hydraulic main for	C. W. Isbell	311,585	Feb. 3	170	48	30	380
Gases. Apparatus for generating, heating and illuminating	J. J. Newell	314,871	Mar. 31	2493	661	30	1292
Gases. Apparatus for regulating or controlling from a distance the flow of	F. L. Muratori and E. Cros	314,188	Mar. 17	1560	409	30	1082
Gases or fluids under pressure. Regulator for	J. S. Hazard	314,020	Mar. 17	1342	349, 350	30	1044
Gate:							
See Elevator-gate. Flood-gate. End-gate. Railway-gate. Farm-gate. Swinging gate.							
Gate	C. L. Burden	312,427	Feb. 17	1324	365	30	611
Gate	H. H. Clement	312,432	Feb. 17	1331	367	30	612
Gate	R. T. Davis	313,855	Mar. 17	1119	290	30	1002
Gate	J. De Bois	311,066	Jan. 20	1189	326	30	234
Gate	C. W. Estelle	312,621	Feb. 24	1589	435	30	669
Gate	H. A. Filley	312,832	Feb. 24	1876	514	30	720
Gate	G. Gibson	310,408	Jan. 6	325	.....	30	63
Gate	A. H. Hatmaker	312,466	Feb. 17	1377	380	30	621
Gate	J. Lockwood and W. Crary	311,339	Jan. 27	1501	435	30	313
Gate	G. C. Milgate	313,226	Mar. 3	280	72	30	828
Gate	W. R. Pitt	312,380	Feb. 17	1260	348	30	598
Gate	W. Schnitz	313,688	Mar. 10	870	228	30	950
Gate	W. T. Vann	314,632	Mar. 31	2158	573	30	1229
Gate	Z. B. Coes and G. W. Miller	310,796	Jan. 13	813	220	30	150
Gate	A. H. Brainard and Z. B. Coes	310,247	Jan. 6	107	30	30	22
Gear. Driving and reversing	H. W. Fowler	310,265	Jan. 6	137	39	30	28
Gear. Friction	S. Wilcox	312,790	Feb. 24	1802	406	30	707
Gear. Reversing	H. H. Hudson	314,380	Mar. 24	1813	482, 483	30	1141
Gear-wheel	A. Plamondon	314,472	Mar. 24	1944	517	30	1164
Gearing	G. H. Ashby	312,064	Feb. 10	815	222	30	507
Gearing. Belt	J. T. Baggs	310,359	Jan. 6	269	74	30	52
Gearing. Friction	G. M. Wheeler	310,867	Jan. 13	898	243	30	175
Generator:							
See Gas-generator. Steam-generator. Hot-air generator.							
Glass annealing and flattening furnace	H. Estep	314,524	Mar. 24	2011	536	30	1175
Glass-annealing furnace	G. Leuffgen	313,347	Mar. 3	439	111	30	857
Glass can-cap	T. G. Otterson and C. C. Voorhies	313,229	Mar. 3	288	73	30	829
Glass cruets. Manufacture of	D. A. McNair	311,197	Jan. 27	1381	378	30	275
Glass. Decorating	W. Hyland	313,671	Mar. 10	858	.....	30	947
Glass-furnace	J. Ashcroft	311,054	Jan. 20	1169	320	30	231
Glass-furnace	J. V. Ebel	310,804	Jan. 13	822	223	30	161
Glass jar for fire extinguishing compounds, &c	J. R. Smith	314,785	Mar. 31	2512	666	30	1295
Glass jars, bottles, &c. Machine for forming	D. W. Norris	314,975	Mar. 31	2640	699	30	1315
Glass lamps, &c. Mold for	J. M. Wood	312,312	Feb. 17	1171	321	30	581
Glass-melting furnace	G. H. Benjamin	312,423	Feb. 17	1316	363	30	609
Glass mosaic for decorating rooms and other purposes	R. Nielson	313,099	Mar. 3	81	21	30	792
Glass pendants. Manufacture of	W. Somerville	314,069	Mar. 17	1401	365	30	1055
Glass roller for skates, casters, &c., and producing the same	S. C. Mendenhall	314,969	Mar. 31	2631	696	30	1314
Glass rollers. Manufacture of	S. C. Mendenhall	314,970	Mar. 31	2633	697	30	1314
Glass rollers. Manufacture of	S. C. Mendenhall	314,971	Mar. 31	2635	697	30	1315
Glass shade-holders. Manufacture of	T. B. Atterbury	313,399	Mar. 3	506	132	30	871
Glass through the annealing-oven. Apparatus for conveying sheets of	B. Mayer	312,141	Feb. 10	917	249	30	526
Glass-tube cutter	E. K. Rolline	310,914	Jan. 20	966	263	30	193

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Invention.	Name.	No	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Glass. Window	J. G. Pennycuick	312,220	Feb. 17	1149	314	30	577
Glassware. Device for holding and shaping	G. Leuffgen	313,346	Mar. 3	438	110, 111	30	857
Globe	F. P. Montgomery	313,752	Mar. 10	974	251	30	967
Glove-fastener	W. S. Frost	310,573	Jan. 13	532	146	30	108
Glove-fastening	J. Blomstrom	311,101	Jan. 20	1249	340	30	243
Glove-fastening	J. H. Vantassel	311,391	Jan. 27	1658	453	30	325
Glove-fastening	E. Griswold	314,174	Mar. 17	1542	404	30	1079
Gloves, garters, &c. Fastening device for	C. C. Shepherd	312,391	Feb. 17	1276	352	30	602
G'uing slate and other frames. Machine for	J. H. Clemons and J. W. Bower	312,433	Feb. 17	1331	367	30	612
Gluing-table	E. Ewing	311,823	Feb. 3	465	.....	30	436
Gold-leaf. Booking	W. E. Harris	312,847	Feb. 24	1890	.....	30	722
Gold, silver, and lead from ores. Extracting	B. Jackson	313,595	Mar. 10	761	200	30	928
Governor	W. B. Mason	312,137	Feb. 10	909	248	30	525
Governor	W. B. Mason	312,138	Feb. 10	912	248	30	525
Governor	R. McKenna	310,538	Jan. 13	864	234	30	169
Governor. Ball	B. Brazelle	313,168	Mar. 3	180	44	30	810
Governor. Engine	R. J. Smith	314,889	Mar. 31	2516	667	30	1295
Governor. Marine-engine	T. Malcolmson. (Reissue)	10,559	Feb. 10	1067	293	30	554
Governor. Steam	G. W. Bigelow	310,363	Jan. 6	272	75	30	52
Governor. Steam-engine	A. E. Hardy	314,528	Mar. 24	2018	539	30	1177
Governor. Steam-engine	J. M. Mason	311,770	Feb. 3	402	109	30	424
Governor. Steam-engine	T. N. Perrine	312,893	Feb. 24	1849	534	30	732
Governor. Steam-engine	J. W. Thompson	310,479	Jan. 6	400	111	30	77
Governor. Steam-engine	J. W. Thompson	314,353	Mar. 24	1781	474	30	1134
Governor. Steam-engine	J. D. Adams	310,165	Jan. 6	3	1, 2	30	3
Grading machine. Road	R. Long	312,480	Feb. 17	1403	387	30	624
Grading machine. Road	A. Nichless	312,576	Feb. 17	1534	419	30	649
Grain-adjuster for binders	R. Brown	314,102	Mar. 17	1448	379	30	1063
Grain-binder	H. R. Ingledue	311,492	Feb. 3	41	11, 12, 13	30	357
Grain-binder	F. Ogden	312,154	Feb. 10	947	257, 258, 259, 260	30	532
Grain-binder. Automatic	P. F. Hodges	312,469	Feb. 17	1381	382, 383	30	621
Grain-binder knotting mechanism	J. F. Appleby	312,790	Feb. 24	1814	498	30	709
Grain-binders. Cord-holder for	N. T. Remy	314,056	Mar. 17	1384	362	30	1051
Grain-binders. Mechanism for actuating	J. S. Davis	311,420	Jan. 27	1700	463	30	332
Grain-binding machine	W. Butterfield	312,428	Feb. 17	1326	366	30	611
Grain-cleaner	D. Best	313,911	Mar. 17	1197	311	30	1016
Grain-cleaning machine	J. D. and H. Hasselbusch	314,123	Mar. 17	1479	385, 386	30	1068
Grain-cutting machine	W. Eberhard	313,483	Mar. 10	619	161	30	801
Grain-drill	A. D. Clark	313,808	Mar. 10	1047	268	30	980
Grain-drill	J. M. Westcott	311,397	Jan. 27	1664	454	30	326
Grain-drill	N. B. Wood	311,051	Jan. 20	1165	318, 319	30	229
Grain-drill agitator	J. B. Cottom	312,975	Feb. 24	2051	560	30	751
Grain-drill draft mechanism	J. F. Keller	313,341	Mar. 3	431	109	30	856
Grain-elevator. Pneumatic	R. W. Milbank	310,905	Jan. 20	952	260	30	191
Grain from vehicles. Device for unloading	J. H. Brown	311,468	Feb. 3	10	3	30	350
Grain, &c. Gradnal-reduction machine for	W. D. Gray	311,829	Feb. 3	473	129, 130	30	438
Grain-huller	F. Burckhardt	313,984	Mar. 17	1301	339	30	1035
Grain-huller	F. Burckhardt	313,989	Mar. 17	1304	340	30	1036
Grain. Reducing	A. C. Nagel, R. H. Kaemp, and A. W. F. G. Linnenbrügge	310,709	Jan. 13	707	192	30	140
Grain-scourer	G. A. Dawson	313,712	Mar. 10	911	237	30	956
Grain-scourer	A. L. Teetor	310,476	Jan. 6	396	110	30	76
Grain scouring and cleaning machine	H. Dietz	314,439	Mar. 24	1891	505	30	1156
Grain-screen	D. D. Mook	312,744	Feb. 24	1755	482	30	699
Grain separator and cleaner	L. Lockwood	311,904	Feb. 10	598	163, 164	30	467
Grain separator and cleaner	E. Sherman	310,734	Jan. 13	735	200	30	146
Grain separator and scourer	J. Damp	311,727	Feb. 3	344	95, 96	30	414
Grain separator and smutter. Combined	H. L. Martin	312,369	Feb. 17	1240	344	30	596
Grain-separator blast-regulator	J. Grube	314,668	Mar. 31	2202	585	30	1237
Grain-separators, &c. Blast-regulator for	J. Grube	312,992	Feb. 24	2078	566	30	756
Grain-separators. Measuring, sacking, and registering attachment for	J. Forrest	310,503	Jan. 6	432	119	30	84
Grain-winnower	A. Strott	312,929	Feb. 24	1993	545	30	741
Graining-machine	J. Decker	312,260	Feb. 17	1095	302	30	567
Grapple for lifting and moving barrels	A. Flansburgh	311,478	Feb. 3	23	7	30	353
Grate	P. E. Blow	313,222	Mar. 3	354	88	30	841
Grate	E. Card	314,240	Mar. 24	1599	422	30	1100
Grate	J. W. Houston	310,514	Jan. 6	444	123	30	87
Grate	H. C. Williamson	313,904	Mar. 17	1186	308	30	1014
Grate	N. L. Austin	311,633	Feb. 3	233	65	30	392
Grate-bar	J. B. Crawley	312,614	Feb. 24	1581	432, 433	30	667
Grate-bar	C. F. Palmer	311,517	Feb. 3	83	24	30	364
Grate-bar	W. J. Sibley	312,927	Feb. 10	773	210	30	500
Grate-bar	E. A. Jackson	310,437	Jan. 6	354	97	30	69
Grate-front	R. S. T. Cissel	314,108	Mar. 17	1456	381	30	1064
Grates. Shaking attachment for	D. Block	314,645	Mar. 31	2176	577	30	1232
Grater	J. S. Adams	311,167	Jan. 27	1331	367	30	266
Grating. Iron	W. Schoendelen	314,062	Mar. 17	1392	363	30	1053
Grease-cup	J. A. Honck	312,904	Feb. 10	1021	279	30	545
Grease-cup. Automatic	J. A. Field	314,370	Mar. 24	1803	479	30	1138
Grinding-mill	S. C. Schofield	310,916	Jan. 20	972	264	30	194
Grinding-mill	F. Wilson	311,626	Feb. 3	222	63	30	391
Grinding-mill							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Grinding-mill. Roller	F. Wegmann. (Reissue)	10,571	Mar. 10	1101	286	30	990
Grinding-mill. Roller	W. H. Wakeford	310,236	Jan. 6	93	25, 26	30	20
Grinding-mills. Sweep-coupling for	E. M. Wilcox and W. J. Hopkins	313,144	Mar. 3	140	34	30	602
Grinding or polishing surfaces. Wheel for	J. E. Compton	310,799	Jan. 13	816	221	30	160
Grindstone apparatus	J. I. Mettler	313,877	Mar. 17	1151	300	30	1007
Grist-mill	C. J. Blum	313,166	Mar. 3	178	43	30	809
Grooving and seaming machine	H. H. Franklin	314,822	Mar. 31	2426	641	30	1279
Guano-distributer	S. H. Bell	310,642	Jan. 13	616	170	30	123
Guard: *See* Car-wheel guard. Razor-guard. Hose-guard. Saw-guard. Ink-well guard. Window-guard. Pump-guard.							
Gun. Compressed-air multiple	L. S. Chichester	310,392	Jan. 6	295	81	30	57
Gun. Machine	J. S. Whitney	311,551	Feb. 3	130	37, 38	30	373
Gun. Magazine	J. C. Kelton	313,213	Mar. 3	255	64	30	824
Gun. Magazine	J. M. and M. S. Browning	312,183	Feb. 10	913	271	30	539
Guns in turrets by electricity. System of firing battery	T. R. Timby	312,231	Feb. 10	1052	288, 289	30	550
Guns. Loading device for breech-loading	R. J. Gatling	311,874	Feb. 10	702	192	30	486
Guns. Safety-lock for concealed-hammer	F. F. Knous	313,001	Feb. 24	2089	570	30	758
Gypsum, stucco, or the like. Manufacture and preservation of articles of	M. Dennstedt	314,114	Mar. 17	1462	.....	30	1065
Hair-crimper	E. J. Brooks	314,170	Mar. 17	1443	378	30	1062
Hair-dye	D. Stoltz	313,121	Mar. 3	108	.....	30	797
Hame	H. Latshaw	312,868	Feb. 24	1925	527	30	728
Hame	O. P. Letchworth	311,767	Feb. 3	400	109	30	423
Hame	N. G. Schwalen	314,063	Mar. 17	1393	364	30	1053
Hame-fastener	C. K. Dickson	313,927	Mar. 17	1232	320	30	1021
Hame-fastener	O. T. Jensen	313,336	Mar. 3	425	106	30	855
Hame-strap-loop connection	H. A. Fontaine and T. A. Kosters	313,582	Mar. 10	742	195	30	925
Hammer. Bush	W. H. Harper	314,291	Mar. 24	1695	452	30	1118
Hammer lifter. Drop	A. Williams	310,969	Jan. 20	1054	286	30	208
Hammer. Power	M. Deering	312,896	Feb. 24	1906	511	30	718
Hammock	M. R. Ewing	312,988	Feb. 24	2072	565	30	755
Hammock and cradle stand	S. Kops	313,002	Feb. 24	2091	570	30	758
Handle: *See* Anger-handle. Plow-handle. Bagor satchel handle. Saw-handle. Brush-handle. Shawl-strap handle. Bucket-handle. Stove-door handle. Coffin-handle. Tool-handle. Drawer-handle. Trowel-handle. Knife-handle.							
Handle	W. W. and F. H. Chilton	311,870	Feb. 10	537	147	30	457
Handle-clamp	C. G. Udell	313,558	Mar. 10	712	186	30	919
Handle for orange-boxes, &c	C. W. Bryan	313,051	Mar. 3	16	4	30	782
Handle for pot and other covers	G. E. Palmer	310,716	Jan. 13	714	195	30	142
Hanger: *See* Cable-hanger. Electric-cable hanger. Card or print hanger. Pipe-hanger. Door-hanger. Shaft-hanger. Eaves-trough hanger. Stove-door hanger.							
Harness	J. W. Regan	313,529	Mar. 10	674	176	30	911
Harness	E. E. Whipple	311,399	Jan. 27	1608	455	30	327
Harness and neck-yoke for double teams	R. R. Noyes	310,305	Jan. 6	193	52	30	37
Harness. Bitting and driving	R. C. Irvine	313,673	Mar. 10	859	223, 224	30	947
Harness for horses	J. W. Conradt	313,850	Mar. 17	1112	289	30	1000
Harness-hook	J. Wagner	310,233	Jan. 6	92	25	30	20
Harness-loop clamp	J. Wagner	312,679	Feb. 24	1664	458	30	683
Harness-maker's stitching-horse	J. F. Best	312,073	Feb. 10	886	225, 226	30	510
Harness-pad	H. A. Fontaine	314,821	Mar. 31	2426	640	30	1279
Harness-rack	G. F. Walter	312,938	Feb. 24	2004	548	30	743
Harness thill-holder	J. W. Watts	313,266	Mar. 3	336	82	30	837
Harness-trimming	J. G. Eberhard	313,169	Mar. 3	227	56	30	818
Harrow	J. H. Barley	310,170	Jan. 6	12	4	30	5
Harrow	G. F. Clark	310,793	Jan. 13	809	219	30	159
Harrow	E. P. Clay	312,254	Feb. 17	1064	299	30	565
Harrow	E. P. Clay	312,255	Feb. 17	1065	299	30	565
Harrow	B. F. Crow	313,474	Mar. 10	609	157	30	809
Harrow	C. Drew, A. W. Leisner, and P. Nelson.	310,499	Jan. 6	428	118	30	83
Harrow	J. and J. McIndoo	312,570	Feb. 17	1528	416	30	648
Harrow	C. W. McKelvey	313,357	Mar. 3	451	114	30	860
Harrow	E. D. and O. B. Reynolds	311,367	Jan. 27	1627	445	30	319
Harrow	T. W. Robinson	312,106	Feb. 10	969	264	30	536
Harrow	T. Rogers	313,534	Mar. 10	681	178, 179	30	913
Harrow	G. W. Siddons	312,523	Feb. 17	1469	402	30	635
Harrow	A. W. Thomas	311,544	Feb. 3	118	35	30	371
Harrow and seeder. Combined	J. S. Corbin and A. G. Hill	312,554	Feb. 17	1507	411	30	644
Harrow, clod-crusher, and stalk-cutter. Combined	D. M. McElhaney	311,842	Feb. 3	490	134	30	441
Harrow. Disk	R. K. Swift and L. E. Phelps	310,475	Jan. 6	394	109, 110	30	76
Harrow. Rotary	H. H. Monroe	312,150	Feb. 10	941	256	30	531
Harrow, sled, and marker. Adjustable	W. R. Locke	311,903	Feb. 10	596	163	30	467
Harrow. Sulky	C. La Dow	312,476	Feb. 17	1397	386	30	623
Harrow. Wheel	M. Chandler	313,654	Mar. 10	842	219	30	943
Harrow. Wheel	B. Maltby	313,354	Mar. 3	447	113, 114	30	859
Harrow. Wheel	E. F. Stoddard	312,772	Feb. 24	1788	493	30	705

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Harvester	R. Dutton and R. Eickemeyer	312,450	Feb. 17	1354	373, 374, 375	30	617
Harvester	G. G. Hunt	310,944	Jan. 20	1017	275	30	201
Harvester	J. W. Reams	310,316	Jan. 6	208	56	30	39
Harvester	J. F. Steward and R. H. Dixon	314,272	Mar. 24	1670	444	30	1113
Harvester-binder	J. C. McLachlan	313,094	Mar. 3	72	20	30	791
Harvester-binders. Cord-holder for	A. S. Avery and L. W. Osborn	311,656	Jan. 20	1172	321	30	231
Harvester. Corn	F. J. Randall and G. B. Snow	311,526	Feb. 3	90	26, 27, 28	30	366
Harvester. Corn	R. K. Charles	314,365	Mar. 24	1796	477, 478	30	1137
Harvester. Cotton	D. B. Haselton	313,421	Mar. 3	532	140	30	876
Harvester. Cotton	D. B. Haselton	313,422	Mar. 3	533	140, 141	30	876
Harvester. Cotton	G. W. Purcell	310,314	Jan. 6	204	55	30	39
Harvester-covering	J. F. Steward	311,542	Feb. 3	115	33, 34	30	371
Harvester. Grain-binding	J. S. Davis	312,824	Feb. 24	1861	510, 511	30	717
Harvester. Grain-binding	W. W. Marsh and M. E. Blood	311,997	Feb. 10	729	199, 200	30	490
Harvester. Grain-binding	J. Miller	313,878	Mar. 17	1151	300	30	1007
Harvester. Grain-binding	J. F. Seiberling	310,324	Jan. 6	220	60, 61, 62	30	42
Harvester. Grain-binding	J. F. Seiberling	311,040	Jan. 20	1149	313, 314	30	227
Harvester. One-wheel	M. Van Matteson	313,136	Mar. 3	128	31	30	800
Harvester. One-wheel	M. Van Matteson	313,137	Mar. 3	130	32	30	800
Harvester-platforms. Mechanism for supporting and adjusting the elevation of	J. F. Appleby	314,774	Mar. 31	2365	626, 627	30	1268
Harvester-rake	M. Van Matteson	313,135	Mar. 3	125	31	30	800
Harvester-wheel	J. F. Mertz and B. Lorton	312,883	Feb. 24	1940	531	30	731
Harvesters and mowers. Cutter and cutter-guard for	R. Brown	314,103	Mar. 17	1449	379	30	1063
Harvesters. Cleaning mechanism for cotton	G. Beckman	313,278	Mar. 3	349	86	30	839
Harvesters. Picking mechanism for cotton	G. Beckman	313,276	Mar. 3	345	85	30	839
Harvesters. Picking rod or burr for cotton	G. Beckman	313,277	Mar. 3	347	86	30	839
Harvesters. Sheaf-carrier for self-binding	H. S. Chapman	314,364	Mar. 24	1795	477	30	1137
Harvesting-knife	F. Stafford	311,792	Feb. 3	429	116	30	429
Harvesting-machines. Mechanism for raising and lowering	J. F. Appleby	310,928	Jan. 20	987	268	30	196
Hasp	J. S. Williams	311,934	Feb. 10	633	174	30	475
Hasp-lock	E. Hambujer	313,590	Mar. 10	755	199	30	927
Hasp-lock	C. Neblett	314,147	Mar. 17	1509	395	30	1074
Hat and coat hook	J. D. Mack and J. G. Newbury	314,501	Mar. 31	2100	560	30	1210
Hat-bodies. Machine for forming	J. Gill	311,926	Feb. 3	469	127	30	437
Hat-bodies. Machinery for scalding and felting	J. S. Taylor	313,127	Mar. 3	116	28	30	798
Hat-brims. Apparatus for curling and setting	L. H. Hoyt	314,171	Mar. 17	1492	389	30	1071
Hat-forming machine	D. Almond	312,602	Feb. 24	1568	429	30	665
Hat-sizing machine	G. W. Elwell and B. Fay	311,512	Feb. 3	151	43, 44	30	377
Hat-sweat	M. Haslam	311,751	Feb. 3	379	104	30	420
Hat-ventilator	M. J. Nascimento	314,048	Mar. 17	1376	359	30	1050
Hatter's tank	C. H. Merritt	314,461	Mar. 24	1914	511	30	1160
Hatch. Elevator	P. M. Wilson	312,782	Feb. 24	1804	496	30	707
Hatchway-cover. Elevator	W. H. Skerritt	311,664	Feb. 3	295	81	30	404
Hatchway-guard for elevators. Automatic	C. K. Rogers	313,450	Mar. 3	577	148	30	884
Hatchway-lock. Spring	W. J. Ritchey	310,330	Jan. 6	216	58	30	41
Hatchway. Self-closing	T. H. Hulbert	313,210	Mar. 3	251	63	30	823
Hatchway. Self-closing	R. D. Thackston	311,089	Jan. 20	1226	335	30	240
Hatchway. Self-closing	R. D. Thackston	311,090	Jan. 20	1226	336	30	240
Hatchway. Self-closing	R. D. Thackston	311,091	Jan. 20	1227	336	30	240
Hatchway. Self-closing	T. B. Elliott	314,721	Mar. 24	1734	462	30	1125
Hay and grain derrick and carrier	W. Taylor	313,966	Mar. 17	1277	333	30	1031
Hay and manure fork. Horse	J. H. Hittle and A. D. Davis	313,333	Mar. 3	422	105	30	854
Hay and stock rack. Combined	H. McCoffee	314,860	Mar. 31	2475	655, 656	30	1288
Hay and straw stacker	T. C. McNichols	310,700	Jan. 13	693	190	30	138
Hay-carrier	H. K. Vandewalker	311,545	Feb. 3	119	35	30	371
Hay-carrier and track-frame	I. N. Matlick	310,951	Jan. 20	1027	278	30	203
Hay during the process of baling. Device for removing dust, &c., from	J. S. Sherman	313,960	Mar. 17	1271	331	30	1030
Hay-elevator	P. F. Fleming	310,810	Jan. 13	829	225	30	102
Hay elevator and carrier	R. H. Morris	312,151	Feb. 10	944	257	30	531
Hay elevator and carrier	B. Oborn	314,872	Mar. 31	2495	662	30	1292
Hay elevator, conveyer, and stacker	I. N. Matlick	310,952	Jan. 20	1028	278	30	203
Hay-fork. Horse	F. A. Dennett	311,738	Feb. 3	347	96	30	414
Hay-fork. Horse	G. and N. R. Johnson	310,949	Jan. 20	1025	278	30	202
Hay-fork. Horse	S. Miller	314,044	Mar. 17	1371	357	30	1049
Hay-fork. Horse	R. L. Short	312,020	Feb. 10	772	210	30	499
Hay-fork. Horse	H. D. Robinson	311,531	Feb. 3	98	29	30	367
Hay-ladder	J. Stormer	314,746	Mar. 31	2301	611	30	1255
Hay-rack	J. E. Offutt	312,650	Feb. 24	1625	447	30	676
Hay rake and tedder. Combined	C. Perrin	311,847	Feb. 3	496	136	30	442
Hay rake and tedder. Combined	A. W. Force	312,453	Feb. 17	1364	376	30	618
Hay-rake. Horse	E. F. Stoddard	314,621	Mar. 31	2137	569	30	1225
Hay-rake. Horse	E. F. Stoddard	314,622	Mar. 31	2140	570	30	1225
Hay-rake. Horse	E. F. Stoddard	314,623	Mar. 31	2142	570	30	1226
Hay-rake. Horse	E. F. Stoddard	314,624	Mar. 31	2145	570, 571	30	1226
Hay-stacker	W. Klinker	314,853	Mar. 31	2466	652	30	1286
Hay-tedder	J. Keller	311,991	Feb. 10	723	198	30	489
Hay-tedder	J. Skinner	311,614	Feb. 3	207	58	30	367

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Hay-tedder	J. D. Tracy	313,535	Mar. 10	709	185	30	918
Hay tedder and rake. Combined	S. L. Denney	312,336	Feb. 17	1204	330, 331	30	587
Head-light. Locomotive	J. R. McCormick	314,700	Mar. 31	2238	595, 596	30	1244
Head-section	J. R. Lariew	313,743	Mar. 10	958	248	30	964
Hearing. Device to assist	L. Ehrlich	311,180	Jan. 27	1358	372	30	270
Heated surfaces. Fabric for covering	H. W. Johns	310,205	Jan. 6	60	16	30	14
Heater: *See* Feed-water heater. Water-heater. Fire-place heater. Stove and range water-heater.							
Heating and cooling coil and producing the same	F. Wilhöft	311,552	Feb. 3	132	38	30	373
Heating apparatus	S. Dobbs	314,320	Mar. 24	1733	461, 462	30	1125
Heating apparatus	E. Körting	314,945	Mar. 31	2507	688	30	1309
Heating apparatus	E. Kraschevitz	310,445	Jan. 6	362	99, 100	30	70
Heating apparatus. Hot-air	J. L. Hamilton	311,313	Jan. 27	1551	422	30	305
Heating apparatus. Steam	S. H. Purdy	313,446	Mar. 3	572	147	30	883
Heating device. Steam	E. A. Wood	311,704	Feb. 3	319	87	30	409
Heating street-cars and other vehicles. Apparatus for	J. E. Thoroughgood	311,151	Jan. 20	1310	360, 361	30	255
Hedge	R. M. Duvall	313,408	Mar. 3	515	135	30	873
Hedge-trimmer and mower. Combined	J. V. Lattner	311,333	Jan. 27	1579	431	30	311
Heel-burnishing machine	O. G. Critchett	313,185	Mar. 3	220	53, 54, 55	30	817
Heel-burnishing machine	A. L. F. Mitchell	312,573	Feb. 17	1530	418	30	648
Heel-burnishing-machine jack	E. E. Spencer	310,470	Jan. 6	389	108	30	75
Heel-jack	E. Bailey	311,098	Jan. 20	1234	338	30	242
Heel or toe plate	J. P. Kannaley	311,009	Jan. 20	1167	302	30	218
Heel. Rubber	H. V. Deemar	313,291	Mar. 3	568	91	30	843
Heel-stiffener	H. Pelant	313,682	Mar. 10	868	226	30	949
Heeling-block	E. B. Allen	314,411	Mar. 24	1852	494	30	1146
Hinge and stay. Trunk	J. E. Ladd	310,288	Jan. 6	169	47	30	33
Hinge. Lock	S. Tuerk	313,457	Mar. 3	586	150	30	886
Hinge-lock for shutters	S. M. Carnes	314,105	Mar 17	1452	380	30	1063
Hinge. Spring	W. Gilfillan	310,409	Jan. 6	325	89	30	63
Hinge. Strap	B. D. Palmer	311,518	Feb. 3	83	24	30	365
Hinge. Trunk	E. Andrews	312,947	Feb. 24	2015	550	30	744
Hinges. Hood for shutter	C. W. Barnekow	310,637	Jan. 13	611	168	30	122
Hitching-strap	S. Birdsall	310,643	Jan. 13	617	170	30	123
Hobby-horse	W. Spitznass	314,351	Mar. 24	1778	473	30	1133
Hoe	G. W. Perrine	312,218	Feb. 10	1078	284	30	548
Hoe	L. Sauer	313,244	Mar. 3	312	77	30	833
Hoe	R. J. Whitehurst	313,972	Mar. 17	1284	335	30	1032
Hog-cholera remedy	D. Shulte	314,545	Mar. 24	2038	.....	30	1180
Hog-ringing device	P. Drais and A. Hegler	312,445	Feb 17	1347	371	30	615
Hoist. Power	C. W. Baldwin	313,156	Mar. 3	158	39	30	806
Hoist. Steam	C. Bezançon	312,423	Feb. 17	1318	363	30	609
Hoisting and conveying apparatus	J. O'Neill	311,671	Feb. 3	276	76, 77	30	401
Hoisting and conveying apparatus. Bucket-hook for	A. E. Brown	311,285	Jan. 27	1517	414	30	299
Hoisting and conveying machines. Automatic dump-bucket for	A. E. Brown	314,101	Mar. 17	1445	378, 379	30	1063
Hoisting apparatus	D. Gilchrist	310,667	Jan. 13	648	178, 179	30	129
Hoisting apparatus	W. H. Maddock and A. Michaels	312,737	Feb. 24	1744	479, 480	30	697
Hoisting apparatus	D. C. Prescott	313,104	Mar. 3	89	23	30	793
Hoisting apparatus. Coal	D. C. Niblick	313,880	Mar. 17	1154	300, 301	30	1008
Hoisting apparatus. Wagon	J. E. Bird	313,803	Mar. 10	1041	267	30	979
Hoisting-block	F. Shickle	312,663	Feb. 24	1644	453	30	679
Hoisting-bucket	L. G. Ladd	314,031	Mar. 17	1358	353	30	1047
Hoisting-bucket	G. E. Newell and L. G. Ladd. (Reissue.)	10,351	Jan. 13	902	244	30	176
Hoisting-machine	W. H. Lotz	314,606	Mar. 31	2231	593, 594	30	1243
Hoisting-machine	E. S. and W. A. McKinlay	311,251	Jan. 27	1455	397, 398	30	288
Hoisting machinery. External friction-brake band for	D. H. Merritt	312,146	Feb. 10	935	254, 255	30	530
Holder: *See* Bag-holder. Bluing-holder. Book-holder. Bouquet-holder. Caustic-holder. Cigar-holder. Copy-holder. Embroidery-holder. File-holder. Fish-pole holder. Gas-pipe holder. Harness thill-holder. Lamp-holder. Lamp-chimney holder. Lathe-tool holder. Merchandise holder. Necktie-holder. Pen-holder. Pen and pencil holder. Pencil-holder. Rein-holder. Sack-holder. Sash-holder. Soap-holder. Stencil-holder. Stencil-plate holder. Stereotype-plate holder. Ticket-holder. Trace-holder. Whip and rein holder.							
Hominy, grits, &c. Manufacturing	F. Burckhardt	313,992	Mar. 17	1299	339	30	1035
Hominy-mill	C. C. Jesse	313,337	Mar. 3	426	107	30	855

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Hook: *See* Button-hook. Harness-hook. Hat and coat hook. Ice-hook. Rein-hook. Snap-hook. Whiffletree-hook.							
Hook	J. Davis	314,168	Mar. 17	1537	402	30	1078
Hook	R. Ely	311,968	Feb. 10	690	189	30	484
Hook. Swinging	F. J. Herrick and A. McManus	311,246	Jan. 27	1451	396	30	287
Hoop machine. Barrel	A. Bitzert	313,207	Mar. 3	246	62	30	822
Hoop-nailing machine	A. C. Batcheller	313,645	Mar. 10	822	215	30	940
Hoop-sawing machine	J. Hartmann	314,835	Mar. 31	2444	645	30	1282
Hoop-skirt	E. Stronse	311,159	Feb. 3	515	139	30	445
Hop-scales from their steme. Machine for separating	J. Müller	314,146	Mar. 17	1508	395	30	1073
Hop-strings. Securing	O. Shute	314,198	Mar. 17	1571	415	30	1085
Hopper tube for keeping clean saloon-hoppers in railway-cars, &c. Saloon-	J. Martin	312,876	Feb. 24	1934	529	30	730
Horse and mule shoes. Manufacture of toe-calks for	C. H. Perkins	312,011	Feb. 10	748	204	30	495
Horse-bit	A. Thornton	314,081	Mar. 17	1412	369	30	1057
Horse-blanket	A. G. McPherson	312,880	Feb. 24	1938	530	30	730
Horse-blanket-fastening device	W. I. Winne	314,902	Mar. 31	2540	672	30	1299
Horse-checking device	C. A. Bradford	310,872	Jan. 20	911	248	30	181
Horse-cover	H. Rea	314,718	Mar. 31	2266	602	30	1248
Horse-detacher	T. M. Ferguson	310,608	Jan. 13	828	224	30	162
Horse-power	S. Cox	311,233	Jan. 27	1435	391	30	284
Horse-power	K. S. Knutson	313,214	Mar. 3	257	65	30	824
Horse-power brake	B. J. Irish	310,436	Jan. 6	354	97	30	69
Horse-power motor	P. Fisher	311,737	Feb. 3	358	99	30	416
Horse-rake	J. M. Long	312,645	Feb. 24	1621	446	30	675
Horse-shield	N. E. Springstun	311,267	Jan. 27	1483	406	30	293
Horses. Device for controlling runaway	L. Roll	310,322	Jan. 6	219	60	30	42
Horses getting their tails over the lines. Device for preventing	J. Thompson	313,254	Mar. 3	325	80	30	835
Horses. Vehicle device for checking	E. B. Taylor	313,897	Mar. 17	1173	306	30	1012
Horseshoe	J. Johnson	314,583	Mar. 31	2091	558	30	1217
Horseshoe-block	G. G. Snyder	314,890	Mar. 31	2518	667	30	1295
Horseshoe-calks. Treating stock for	C. H. Perkins	312,505	Feb. 17	1445	396	30	632
Horseshoe-nail	J. C. Simpson	310,231	Jan. 6	88	23	30	19
Hose case or box. Fire	J. T. Hawkins	311,752	Feb. 3	380	104	30	420
Hose-coupling	S. R. Hackley	310,672	Jan. 13	656	180	30	130
Hose-coupling	S. Lightburne, Jr.	310,834	Jan. 13	859	233	30	168
Hose-coupling	C. E. Mark	314,699	Mar. 31	2238	595	30	1244
Hose-coupling	H. C. Sergeant	314,066	Mar. 17	1397	365	30	1054
Hose-guard. Railway	W. X. Stevens	310,331	Jan. 6	296	64	30	45
Hose or tubing	E. D. Esmes	314,440	Mar. 24	1892	505	30	1156
Hose-patch	G. W. Towle, Jr.	312,406	Feb. 17	1296	358	30	605
Hot-air furnace	B. W. Felton	313,065	Mar. 3	30	10	30	785
Hot-air furnace	A. Mann	311,502	Feb. 3	57	17	30	359
Hot-air furnace	T. Nugent	311,845	Feb. 3	493	135	30	441
Hot-air furnace	E. A. Tuttle	311,152	Jan. 20	1312	361	30	256
Hot-air furnace	E. A. Tuttle	311,153	Jan. 20	1313	361	30	256
Hot-air generator for fire-places	J. S. Deardorff	313,998	Mar. 17	1313	343	30	1038
Houses fire-proof. Device for rendering wooden	J. N. Glover	311,309	Jan. 27	1543	420	30	304
Hub-cap	A. F. Taylor	310,332	Jan. 6	238	65	30	45
Hub. Vehicle	P. Gilles and M. Link	310,576	Jan. 13	536	147	30	108
Hub. Vehicle-wheel	J. C. Hollingsworth	314,024	Mar. 17	1347	351	30	1045
Huller: *See* Grain-huller.							
Hydrant	H. Ruppel	313,452	Mar. 3	579	149	30	884
Hydrant	W. Ryle	310,853	Jan. 13	883	239	30	173
Hydrant	G. A. Warner	313,265	Mar. 3	335	82	30	837
Hydrant	P. White	312,686	Feb. 24	1673	461	30	684
Hydrant	S. N. Knight	314,689	Mar. 31	2223	591	30	1241
Hydraulic engine	N. J. Tubbs	314,276	Mar. 24	1675	445, 446, 447	30	1114
Hydraulic motor	N. Yagn	310,770	Jan. 13	785	212	30	154
Hydrocarbon-burner	J. A. Cowles	312,976	Feb. 24	2052	560	30	751
Hydrocarbon-furnace	O. D. Orvis	313,101	Mar. 3	82	21	30	792
Hydrogen. Manufacture of	G. E. Moore	314,342	Mar. 24	1766	.....	30	1131
Ice by hand-power. Apparatus for hoisting and conveying	H. R. Conger	313,289	Mar. 3	365	91	30	843
Ice-chest for beer	A. B. Wroth	314,984	Mar. 31	2654	702	30	1319
Ice-chest pail. Sanitary	W. W. Woolsey	313,463	Mar. 3	596	152	30	887
Ice-cream freezer	G. M. Mills	314,863	Mar. 31	2483	657, 658	30	1290
Ice-cream freezer	T. A. Naylor	312,287	Feb. 17	1443	313	30	576
Ice-cream freezer	C. W. Packer	313,760	Mar. 10	984	254	30	969
Ice-cream. Packing and preserving	M. T. Fussell	310,206	Jan. 6	141	.....	30	28
Ice-creeper	J. J. Temple	313,898	Mar. 17	1170	306	30	1012
Ice-cutting machine	I. Crowfoot	313,995	Mar. 17	1309	342	30	1037
Ice-elevator mechanism	J. R. Eccles	312,616	Feb. 24	1583	433	30	667
Ice-harvesting apparatus	C. B. Church	314,651	Mar. 31	2184	579	30	1233
Ice-hook	J. G. Bodenstein	311,639	Feb. 3	240	67	30	394
Ice-machine	J. C. Kitton	311,013	Jan. 20	1112	304	30	220
Ice-machine	J. C. Kitton	314,337	Mar. 24	1758	469	30	1130
Ice-machine	A. T. Ballantine	313,045	Mar. 3	7	2	30	780
Ice-making apparatus. Compressor for	E. Rogers	314,723	Mar. 31	2275	604	30	1250
Ice-pick	D. Boyd	310,176	Jan. 6	21	6	30	6
Ice-scraper	L. Hallowell	311,746	Feb. 3	371	102	30	418
Ice-scraper	G. J. Dickson. (Reissue)	10,548	Jan. 6	501	138	30	96
Ice-tongs	W. Dimond	314,109	Mar. 17	1538	402	30	1078
Ice-tongs	P. H. Jackson	314,026	Mar. 17	1351	351, 352	30	1045
Illuminating basements	O. B. Fahnehjelm	312,452	Feb. 17	1362	376	30	618
Incandescent light							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Incandescents. Manufacture of	E. Weston	310,761	Jan. 13	770	209	30	151
Incrustation-preventive	H. Girard	310,410	Jan. 6	327	.....	30	64
Indicator:							
See Base-ball or cricket field indicator. Movement-indicator. Railway-switch indicator. Electrical indicator. Station-indicator.							
Indicator	G. H. Preston	313,235	Mar. 3	297	74, 75	30	830
Indicator-lock	C. and W. Pearson	313,232	Mar. 3	294	74	30	830
Induction-coil	F. E. Fisher	314,816	Mar. 31	2419	639	30	1278
Inhaler	C. B. Harness	311,314	Jan. 27	1551	422	30	305
Inhaler	A. M. Long	313,745	Mar. 10	961	248	30	964
Inhaler	W. K. Mayo	311,907	Feb. 10	602	165	30	468
Inhaler	E. Nitz	311,776	Feb. 3	410	111	30	425
Inhaler	G. B. Snow	312,771	Feb. 24	1786	493	30	705
Inhaler	W. B. Spencer	314,485	Mar. 24	1961	522	30	1167
Inhalers. Gas-mixer for	L. M. Davis	312,435	Feb. 17	1336	368	30	613
Injector	J. Jenks	314,533	Mar. 24	2023	540	30	1178
Injector	O. Westphal	312,591	Feb. 17	1554	422, 423	30	653
Injector and ejector. Combined	T. J. Hart	314,446	Mar. 24	1899	507	30	1157
Injector and ejector. Combined	J. M. Marty	314,595	Mar. 31	2103	561	30	1219
Injector. Feed-water	J. Loftus	311,500	Feb. 3	55	16	30	350
Ink-grinder	W. Y. Schmucker	313,246	Mar. 3	313	78	30	834
Ink-mixer. Draftsman's	W. W. Redfield	313,239	Mar. 3	302	76	30	831
Ink-well guard	A. M. Rittenhouse	311,678	Feb. 3	284	79	30	403
Inkstand	T. B. Cleveland	311,415	Jan. 27	1692	461	30	331
Insect-powder ejector	J. Jaeger	311,004	Jan. 20	1100	301	30	217
Insect-powder gun	C. and E. E. Chinnock	312,252	Feb. 17	1092	298	30	565
Insecticide	J. B. Hoag	312,270	Feb. 17	1105	.....	30	569
Insecticide composition	F. M. Howard	314,531	Mar. 24	2022	.....	30	1177
Insufflator	A. Kibele	310,444	Jan. 6	361	99	30	70
Insulated electrical conductor	W. P. Thomas and E. J. Frost	312,405	Feb. 17	1295	358	30	605
Insulating, &c. Manufacture of compounds to be used for	A. Muirhead	310,957	Jan. 20	1034	.....	30	204
Insulators and other glass articles. Press for the manufacture of	G. W. Weyman	310,484	Jan. 6	407	112	30	79
Insulators. Clamp for binding wires to	W. H. Sawyer	313,377	Mar. 3	475	124	30	865
Invalid-supporter	S. J. and M. G. Rhoads	312,763	Feb. 24	1778	490	30	703
Iron:							
See Corner-iron. Tuyere-iron.							
Iron and steel. Ingot	J. P. Witherow, H. W. Oliver, Jr., J. F. Wilcox, and G. E. Tener.	314,505	Mar. 24	1988	.....	30	1172
Iron and steel. Making ingot	J. P. Witherow, H. W. Oliver, Jr., J. F. Wilcox, and G. E. Tener.	314,506	Mar. 24	1989	.....	30	1172
Iron and steel. Manufacturing	B. Bayliss, Jr.	313,079	Mar. 3	52	14, 15	30	787
Iron and steel. Manufacture of	J. Grottenthaler	311,830	Feb. 3	477	.....	30	438
Iron. Making sheet	W. D. Wood	310,354	Jan. 6	263	.....	30	50
Iron. Manufacture of	J. J. Johnston	312,641	Feb. 24	1616	444, 445	30	674
Iron or steel. Machine for splitting bars and sheets of	C. M. Carnahan	314,221	Mar. 24	1600	422	30	1100
Iron. Pile for sheet	D. B. Oliver	310,711	Jan. 13	709	193	30	141
Iron. Purifying pig	J. P. Witherow	314,504	Mar. 24	1987	530	30	1172
Iron. Removing silicon from wrought	W. A. O. Wuth	311,159	Jan. 20	1318	.....	30	257
Iron. Surface-coating	P. H. Conradson	311,294	Jan. 27	1527	.....	30	301
Iron. Utilizing waste hoop	W. E. Harris	314,378	Mar. 24	1910	481	30	1140
Ironing-table	W. H. Bell	313,290	Mar. 3	352	87	30	848
Ironing-table	B. F. Snyder	311,384	Jan. 27	1652	451	30	324
Ironing-table and clothes-holder. Combined	M. Chilcoat	310,702	Jan. 13	806	219	30	158
Isatine and substituted isatins. Manufacture of	P. J. Meyer	310,604	Jan. 13	571	.....	30	116
Jack:							
See Boot or shoe jack. Lifting-jack. Carriage-jack. Screw-jack. Compound jack. Wagon-jack. Heel-jack. Heel-burnishing-machine jack.							
Jack	J. Beecher and T. P. Smart	311,716	Feb. 3	331	92	30	411
Jar:							
See Fruit-jar. Glass jar.							
Jar or other covered vessel	W. H. Clarke	314,169	Mar. 17	1457	381	30	1064
Jetty	F. A. Hyatt	314,940	Mar. 31	2592	686	30	1308
Jetty	F. A. Hyatt	314,941	Mar. 31	2593	686, 687	30	1308
Jewel-box	W. Schott	312,766	Feb. 24	1781	491	30	704
Jeweler's press	L. P. Bosworth	313,650	Mar. 10	838	218	30	942
Jewelry. Electric	A. Hall	313,726	Mar. 10	930	241	30	960
Jewelry manufacture	T. W. Foster	312,833	Feb. 24	1877	514	30	720
Jib-furler	W. P. and A. M. Cutler	311,964	Feb. 10	686	188	30	493
Joint:							
See Rail-joint. Tube-joint. Railway-rail joint.							
Joint-locking device	E. L. Gaylord	313,193	Mar. 3	220	57	30	810
Joint-locking device	E. L. Gaylord	313,194	Mar. 3	220	57	30	810
Joints for fastenings. Machine for preparing miter-	E. L. Gaylord	313,198	Mar. 3	273	58, 59	30	820
Journal-bearing	C. E. Barrett	310,532	Jan. 13	505	139	30	103
Journal-bearing	F. W. Johnstone	312,860	Feb. 24	1911	524	30	726
Journal-bearing	P. S. Reeves	314,476	Mar. 24	1949	519	30	1165
Journal-bearing	G. T. Smith	313,545	Mar. 10	693	181, 182	30	915
Journal-bearing	F. W. Thayer and A. S. Howell	314,079	Mar. 17	1411	368	30	1057
Journal-bearing for car-axles	C. E. Candee	312,430	Feb. 17	1329	366	30	612
Journal-box composition	J. H. Hungate	310,627	Jan. 13	892	.....	30	167
Journal-box. Self-lubricating	F. Siebert	314,731	Mar. 31	2983	606	30	1252
Jug. Stone	J. B. Brackett	312,180	Feb. 10	969	269	30	539

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Jute-machine	J. C. Delavigne	312,100	Feb. 10	865	237	30	517
Kaleidoscope	R. Leach	314,586	Mar. 31	2093	550	30	1217
Kettle attachment	W. W. Lamme	312,478	Feb. 17	1401	396	30	624
Key:							
See Door-key. Watch-key.							
Key	J. H. Zeilin	312,545	Feb. 17	1497	408	30	642
Key-fastener	E. McDonald	310,452	Jan. 6	370	102	30	72
Key-ring	G. W. Miller	310,301	Jan. 6	187	52	30	36
Key-ring attachment	A. O. Jones	314,028	Mar. 17	1356	353	30	1046
Kiln:							
See Limekiln. Tile-kiln.							
Knife:							
See Miner's knife. Putty-knife.							
Knife	J. Nagel	310,606	Jan. 13	574	158	30	116
Knife and scissors. Combined	M. Kamak	310,439	Jan. 6	356	98	30	69
Knife-cleaning apparatus	W. Fabian and A. Teller	314,658	Mar. 31	2193	581, 582	30	1235
Knife, eraser, letter-opener, &c. Combined	W. W. Yonge	314,507	Mar. 24	1992	531	30	1172
Knife-grinding machine	E. R. Hyde and E. Valentine	310,861	Jan. 13	892	241	30	174
Knife-handle	C. Ibbotson	313,499	Mar. 10	640	166	30	905
Knitting-machine	J. Byfield	311,172	Jan. 27	1337	368, 369	30	268
Knitting-machine	J. Byfield	311,173	Jan. 27	1343	369, 370	30	268
Knitting-machine	C. Callahan	311,410	Jan. 27	1664	459, 460	30	330
Knitting-machine	W. D. Huse	313,593	Mar. 10	757	200	30	927
Knitting-machine	C. E. Norris	311,357	Jan. 27	1611	441, 442	30	317
Knitting-machine stop-motion	O. H. Edwards	311,238	Jan. 27	1441	393	30	285
Knob attachment	J. J. Gordon	313,722	Mar. 10	925	240	30	959
Knob attachment. Door-	N. Hawkes	311,753	Feb. 3	381	104	30	420
Knob. Door-	J. Bardsley	314,644	Mar. 31	2175	577	30	1233
Knobs. Securing shanks to glass	J. W. Haines	314,828	Mar. 31	2437	643	30	1281
Lace fastener. Shoe-	C. J. Johnson	313,338	Mar. 3	428	108	30	855
Lace-pin and flower-holder. Combined	T. J. Wilson	314,502	Mar. 24	1985	530	30	1171
Lace-pin and other similar fastenings	S. Pinover	314,471	Mar. 24	1942	517	30	1164
Lace-Shirt-	W. T. Gallt	314,661	Mar. 31	2195	583	30	1235
Laces. Tool for affixing metal tags to	A. D. Delaviere	311,571	Feb. 3	150	43	30	377
Ladder	H. Ayres	311,406	Jan. 27	1679	458	30	329
Ladder	S. Dennis	314,438	Mar. 24	1890	504	30	1155
Ladder	J. D. and L. M. Norton	310,218	Jan. 6	73	19	30	16
Ladder	J. M. Trimble	313,387	Mar. 3	488	127	30	867
Ladder and fire-escape. Extension-	J. P. T. Davis	312,979	Feb. 24	2056	561	30	752
Ladder and truck. Fire-	L. Harris	311,981	Feb. 10	711	195	30	487
Ladder. Flexible extension-	J. I. Ivester	312,354	Feb. 17	1233	339	30	302
Ladder for gathering fruit. Portable	H. Huber	310,434	Jan. 6	351	96	30	68
Ladder. Step-	C. Brand	311,949	Feb. 10	660	181	30	478
Ladder. Step-	D. A. Foster	314,118	Mar. 17	1473	384	30	1067
Ladder. Step-	S. A. Gardner	310,814	Jan. 13	834	226	30	163
Ladder. Step-	D. Smart	314,267	Mar. 24	1662	442	30	1112
Ladder. Step-	H. P. Spencer	313,690	Mar. 10	879	229	30	951
Ladder. Step-	L. S. Tibbals	311,272	Jan. 27	1496	408	30	296
Ladle-stopper	D. D. Lewis	311,902	Feb. 10	596	163	30	466
Lamp	P. Babcock, Jr	310,635	Jan. 13	607	167	30	122
Lamp	W. W. Batchelder	312,317	Feb. 17	1179	323	30	583
Lamp	T. Evans	313,192	Mar. 3	220	57	30	819
Lamp	J. Hinks	312,202	Feb. 10	1015	276, 277	30	544
Lamp	J. Kirby, Jr	314,250	Mar. 24	1635	432, 433, 434	30	1106
Lamp	M. Matthews	311,505	Feb. 3	60	18	30	360
Lamp	F. Rhind	312,762	Feb. 24	1777	490	30	703
Lamp	C. P. Bynon and J. Stewart, Jr	312,810	Feb. 24	1840	505	30	713
Lamp attachment	T. A. Fitzsimons	311,972	Feb. 10	697	191	30	485
Lamp. Automatic feeding and wick-raising	P. Neff	314,706	Mar. 31	2245	597	30	1245
Lamp-black. Apparatus for manufacturing	P. Neff	314,707	Mar. 31	2247	598	30	1246
Lamp-black. Apparatus for manufacturing	G. L. Pierpont	313,635	Mar. 10	1083	281	30	966
Lamp-bracket	R. M. Dill	310,392	Jan. 6	306	84	30	59
Lamp-burner	D. L. Durand	313,713	Mar. 10	913	238	30	957
Lamp-burner	E. J. Hale	312,267	Feb. 17	1102	304	30	568
Lamp-burner	T. Hipwell	314,178	Mar. 17	1548	405	30	1080
Lamp-burner	E. F. Trent	314,354	Mar. 24	1783	474	30	1134
Lamp-burner	C. Turner	311,453	Jan. 27	1739	474	30	340
Lamp-burner	C. G. Webber	310,346	Jan. 6	252	69	30	48
Lamp-chimney guard	F. Koenig	311,329	Jan. 27	1574	429	30	310
Lamp-chimney holder	J. Quimby, Jr	314,397	Mar. 24	1835	489	30	1145
Lamp-collar	A. Rincklake	312,385	Feb. 17	1296	349	30	600
Lamp-controlling mechanism	E. H. Amet	312,944	Feb. 24	2011	549	30	744
Lamp cut-out. Electric	W. M. Thomas	312,529	Feb. 17	1474	403	30	637
Lamp. Electric-arc	C. M. Ball	314,418	Mar. 24	1862	495, 496	30	1151
Lamp. Electric-arc	C. F. Brush	312,184	Feb. 10	995	271	30	540
Lamp. Electric-arc	P. Diehl	314,567	Mar. 31	2071	554	30	1214
Lamp. Electric-arc	W. P. Freeman	313,487	Mar. 10	624	162	30	902
Lamp. Electric-arc	W. Hochhausen	311,073	Jan. 20	1199	329, 330	30	226
Lamp. Electric-arc	M. N. Lynn	313,006	Feb. 24	2006	571, 572	30	759
Lamp. Electric-arc	C. O. Mailloux	313,436	Mar. 3	553	145	30	880
Lamp. Electric-arc	C. O Mailloux	313,437	Mar. 3	559	145	30	880
Lamp. Electric-arc	N. McCarty	310,837	Jan. 13	862	233	30	169
Lamp. Electric-arc	S. H. Short	310,736	Jan. 13	738	201	30	146

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Lamp. Electric-arc	B. B. Ward	311,546	Feb. 3	121	35	30	373
Lamp. Electric-arc	L. G. Woolley	310,630	Jan. 13	602	166	30	121
Lamp. Extension	G. and J. E. Bohner	311,224	Jan. 27	1423	388 / 389	30	282
Lamp. Extension	J. A. Evarts	312,194	Feb. 10	1006	274	30	542
Lamp. Extension	D. W. Parker and L. F. Griswold	311,520	Feb. 3	86	25	30	365
Lamp-extinguisher	A. Koegel	314,252	Mar. 24	1640	435	30	1107
Lamp-extinguisher	I. and S. Weinstein	312,414	Feb. 17	1307	361	30	607
Lamp-fixture	G. C. Thomas	314,060	Mar. 17	1412	368	30	1057
Lamp fixture. Electric	E. Weston	311,398	Jan. 27	1667	455	30	327
Lamp-fixture. Extension	R. B. Perkins	311,779	Feb. 3	413	112	30	426
Lamp-fixtures. Manufacture of articles of sheet metal for	R. Hoadley	311,321	Jan. 27	1558	425	30	307
Lamp for locomotives. Electric	M. N. Lynn	313,009	Feb. 24	2105	574	30	760
Lamp for marine and land purposes. Inextinguishable	J. R. Holmes	311,583	Feb. 3	168	47	30	380
Lamp. Focusing electric-arc	W. Hochhausen	311,074	Jan. 20	1204	330	30	237
Lamp. Gas	F. Siemens	313,779	Mar. 10	1005	260	30	973
Lamp. Hanging	A. H. Jones	311,076	Jan. 20	1207	331	30	237
Lamp. Hanging balanced electric	T. T. Smith	312,394	Feb. 17	1292	354	30	603
Lamp-holder. Incandescent	T. W. Bryant	310,373	Jan. 6	283	78	30	54
Lamp holder. Incandescent-electric	A. Swan	313,965	Mar. 17	1276	333	30	1031
Lamp. Incandescent electric	C. A. Hussey	310,516	Jan. 6	447	123	30	87
Lamp lighter and extinguisher. Automatic	B. B. Bunnell	313,297	Mar. 3	374	93	30	845
Lamp. Oil	W. P. Butler	314,165	Mar. 17	1528	401	30	1077
Lamp. Portable electric	T. T. Smith	311,617	Feb. 3	211	59	30	388
Lamp. Railway-car	J. Kirby, Jr	314,251	Mar. 24	1639	434	30	1107
Lamp regulator. Electric-arc	H. R. Boissier	310,781	Jan. 13	796	215 / 216	30	156
Lamp. Safety	W. J. H. Ryder	312,584	Feb. 17	1547	421	30	652
Lamp-shade	F. D. Mercereau	310,953	Jan. 20	1029	279	30	203
Lamp-shade holder	T. D. Cashin	312,813	Feb. 24	1843	506	30	714
Lamp-shade suspension device	D. W. Parker	311,519	Feb. 3	84	24	30	365
Lamp. Street	R. Krausse	310,209	Jan. 6	64	17	30	14
Lamp. Street	H. G. Schuette	310,728	Jan. 13	730	199	30	144
Lamp. Student	S. Russell	312,514	Feb. 17	1459	400	30	634
Lamp support. Electric	F. U. Adams	312,789	Feb. 24	1812	498	30	708
Lamp. Voltaic-arc	W. P. Patton	311,142	Jan. 20	1277	357	30	253
Lamps. Automatic cut-out for electric	W. Hochhausen	311,072	Jan. 20	1195	329	30	235
Lamps. Clock-work for mechanical	F. Cook and J. H. Pomeroy	310,651	Jan. 13	627	173	30	125
Lamps. Cut-out for electric-arc	H. R. Boissier	310,783	Jan. 13	799	216	30	157
Lamps. Feed-regulator for electric-arc	S. H. Short	312,243	Feb. 10	1066	293	30	554
Lamps. Focusing electric-arc	L. G. Woolley	313,039	Feb. 24	2145	583 / 584	30	768
Lamps. Lighting	S. E. Miller	312,285	Feb. 17	1140	312 / 313	30	575
Lamps. Socket for incandescent electric	S. Bergmann	311,100	Jan. 20	1240	340	30	242
Land-roller	H. A. Currier	313,813	Mar. 10	1052	270	30	981
Land-roller	E. Horton	314,246	Mar. 24	1629	431	30	1105
Land-roller and plow. Combined	H. Weddle	313,563	Mar. 10	718	188	30	920
Lantern	J. A. Blankley and C. H. Tallman	314,787	Mar. 31	2384	630 / 631	30	1271
Lantern	E. F. Cash	312,551	Feb. 17	1502	410	30	643
Lantern	G. C. Dressel	314,657	Mar. 31	2192	581	30	1235
Lantern	H. B. Hart	311,198	Jan. 20	1277	352	30	249
Lantern	R. L. Hull	313,425	Mar. 3	538	142	30	877
Lantern	W. H. Karges and C. E. Smith	314,383	Mar. 24	1817	483 / 484	30	1141
Lantern	J. B. Stetson	314,744	Mar. 31	2299	610	30	1255
Lantern	R. A. Stevenson	314,271	Mar. 24	1669	444	30	1113
Lantern. Signal	G. C. Dressel	313,303	Mar. 3	388	96	30	847
Lantern. Signal	A. H. Phillippi	310,464	Jan. 6	392	106	30	74
Lantern. Tubular	F. Dietz	310,188	Jan. 6	39	11	30	10
Lantern. Tubular	T. Phillips	310,221	Jan. 6	77	20	30	17
Lanterns and flags. Holder for signal	F. W. Coolbaugh	310,652	Jan. 13	627	173	30	125
Last	E. E. Dutton	312,558	Feb. 17	1513	412	30	645
Last. Shoe-maker's iron	J. Robertson and J. F. Tobin	310,723	Jan. 13	721	197	30	143
Lasting-machine	M. Brock	312,962	Feb. 24	2034	555	30	748
Lasting-machine	E. P. Richardson	311,850	Feb. 3	500	137	30	442
Lasting-machine	E. P. Richardson	311,851	Feb. 3	504	137	30	443
Latch	S. Ide	313,504	Mar. 10	760	200	30	927
Latch	P. L. Maltbie	310,900	Jan. 20	946	258	30	190
Latch and basp. Combined lock-	H. C. Stouffer	312,926	Feb. 24	1990	543	30	740
Latch and lock combined	F. J. Biggs	311,637	Feb. 3	238	67	30	394
Latch. Coach-	W. Schollhorn	314,611	Mar. 31	2123	566	30	1223
Latch. Door-	T. J. Morgan	312,575	Feb. 17	1533	418	30	649
Latch. Gate-	W. R. Lampton	310,528	Jan. 6	460	126	30	89
Latch. Gate-	R. Magruder	312,135	Feb. 10	907	247	30	525
Latch. Gate-	A. G. Rockfellow	311,787	Feb. 3	424	115	30	428
Latch. Reversible	D. H. Fitzgerald	311,575	Feb. 3	157	45	30	378
Latch. Reversible	W. E. Sparks	312,916	Feb. 24	1977	540	30	736
Latch. Reversible	W. E. Sparks	312,917	Feb. 24	1979	540	30	736
Latch. Reversible	W. E. Sparks	314,738	Mar. 31	2290	608	30	1253
Lath	J. Morrison, Jr	311,666	Feb. 3	270	75	30	399
Lath fastening. Metal-	A. B. Moore	313,228	Mar. 3	288	72	30	829
Lathe	E. S. Cobb	314,433	Mar. 24	1885	503	30	1154
Lathe	J. K. Cullen and J. W. See	312,615	Feb. 24	1582	433	30	667
Lathe	S. W. Putnam	313,447	Mar. 3	573	148	30	883
Lathe and planer tool	H. B. Steele	312,634	Feb. 10	780	213	30	501
Lathe. Car-wheel	J. J. Brewis	312,961	Feb. 24	2032	555	30	748
Lathe-dog	H. Salome	314,462	Mar. 24	1958	521	30	1166
Lathe. Drilling	B. H. Hadley	314,574	Mar. 31	2092	556	30	1216
Lathe for turning handles	H. Sheldon	312,298	Feb. 17	1155	316	30	578
Lathe for turning irregular forms	G. H. Ober	312,298	Feb. 17	1144	313	30	576

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Lathe for turning spirals	E. D. Mackintosh	312,736	Feb. 24	1742	479	30	696
Lathe-gage	J. A. Rothwell	314,544	Mar. 24	2037	544	30	1180
Lathe. Multiplex turning	E. J. Pennington and A. E. Gatchell	310,538	Jan. 6	482	134 / 135	30	92
Lathe-tail stock	A. Dodds	310,260	Jan. 6	130	37	30	27
Lathe-tool	T. and T. E. Ryan	312,223	Feb. 10	1043	286	30	548
Lathe-tool holder	J. M. Smith	310,739	Jan. 13	743	202	30	147
Lathe. Watch-case graving	C. Piqueres	310,910	Jan. 20	959	261 / 262	30	192
Lathe. Wood-turning	M. E. Tucker	313,839	Mar. 10	1068	283	30	967
Lathes. Indicator for feed-screws of engine-	J. C. Osborne	313,612	Mar. 10	783	206	30	892
Lawn-rake	L. Gibbs	314,373	Mar. 24	1806	480	30	1139
Lead and iron plate. Combined	J. Makin	312,465	Feb. 17	1410	349	30	626
Lead pipe. Boxing	A. Euston and J. P. Neville	312,163	Feb. 10	887	237	30	518
Lead vessels. Constructing	H. Egells	310,500	Jan. 6	429	118	30	83
Leather-cutting machine	D. Knox	312,643	Feb. 24	1619	445	30	674
Leather. Machine for putting out and cleaning	J. Hodskinson	311,582	Feb. 3	165	47	30	379
Leather-punching machine	N. W. Calhoun and J. G. Chambers	313,172	Mar. 3	185	45	30	811
Leather-rolling machine	D. Knox	311,498	Feb. 3	51	15	30	359
Leather-skiving machine	R. Bowden	313,167	Mar. 3	179	44	30	810
Leather-skiving machine	G. E. Stockwell	310,742	Jan. 13	746	202 / 203	30	148
Leather to a uniform thickness. Machine for reducing	W. W. Hubbard	312,272	Feb. 17	1106	306	30	589
Leather-working machine	J. A. Panton	313,271	Mar. 3	283	73	30	830
Leg. Artificial	J. F. Rowley	314,736	Mar. 31	2277	605	30	1250
Leg cord. Artificial	M. Spring	312,306	Feb. 17	1285	355	30	603
Loggin	G. C. Henning	314,840	Mar. 31	2450	647	30	1283
Level	J. W. Atkinson	312,548	Feb. 17	1500	409	30	642
Level. Pendulum	E. D. Cramer	313,200	Mar. 3	367	91	30	843
Level. Pendulum	J. G. Doherty	313,282	Mar. 3	369	91	30	843
Level. Rod-plumbing	W. Gurley	312,266	Feb. 17	1100	304	30	588
Leveling-instrument	E. A. Bostrom	314,511	Mar. 24	1996	532	30	1173
Leveling-instrument	C. C. Götze	313,723	Mar. 10	926	240	30	959
Leveling-rod	H. F. Bean	311,221	Jan. 27	1421	386 / 387	30	281
Leveling-rod	R. B. Seymour	310,731	Jan. 13	733	199	30	145
Life-boat	A. B. Boyles	311,868	Feb. 10	534	146 / 147	30	456
Life-raft	J. Cone and F. S. Groves	312,256	Feb. 17	1087	299	30	566
Lift. Hydraulic	W. H. Johnson	311,327	Jan. 27	1571	428	30	309
Lift. Hydraulic	J. S. Stevens, C. G. Major, and T. W. Barber.	312,921	Feb. 24	1963	541	30	730
Lift. Hydraulic	J. S. Stevens, C. G. Major, and T. W. Barber.	313,550	Mar. 10	700	183	30	916
Lifter: *See* Fence and post lifter. Stone-lifter. Hammer-lifter. Transom-lifter. Lead-lifter. Wagon-bed lifter.							
Lifting device	E. Paul	311,030	Jan. 20	1133	309	30	224
Lifting-jack	H. Anstin	314,908	Mar. 31	2546	673	30	1300
Lifting-jack	J. D. Baillie	310,973	Jan. 20	1060	287	30	209
Lifting-jack	J. Barrett	312,316	Feb. 17	1176	322 / 323	30	583
Lifting-jack	J. Barrett. (Reissue)	10,574	Mar. 24	2050	546	30	1182
Lifting-jack	A. H. Handlan, Jr	313,935	Mar. 17	1242	323	30	1023
Lifting-jack	J. W. Hawkins	314,937	Mar. 31	2589	685 / 686	30	1307
Lifting-jack	T. Maxon	312,878	Feb. 24	1936	530	30	730
Lifting-jack	T. Phares	314,716	Mar. 31	2263	601	30	1248
Lifting-jack	G. C. Wimpee	313,784	Mar. 10	1032	265	30	977
Lifting-jack, lever, wrench, and oil-holder combined	W. K. Mottram	312,747	Feb. 24	1760	485	30	699
Light: *See* Head-light. Signal-light. Incandescent light. Skylight.							
Lightning-conductor	J. R. Fricke	311,115	Jan. 20	1238	345	30	246
Lightning-rod holder	S. R. Lawshe	314,385	Mar. 24	1822	485	30	1142
Limb. Artificial	W. Lockwood	314,458	Mar. 24	1942	510	30	1159
Limekiln	A. B. Weeks	310,759	Jan. 13	768	208	30	151
Line-fastener. Automatic	S. and F. Seib	313,665	Mar. 17	1396	364	30	1054
Line-ring for hames	G. J. Letchworth	314,034	Mar. 17	1361	355	30	1047
Link for clothes or harness	A. C. Faivre	312,105	Feb. 10	869	238	30	518
Link or pitman	S. Arnold	311,558	Feb. 3	178	39	30	374
Links. Manufacture of	P. F. Greenwood	310,415	Jan. 6	331	91	30	64
Linophanies or translucent pictures. Manufacture of	E. O. Grünert	314,931	Mar. 31	2578	.....	30	1305
Liquid-meter	H. F. Gaskill	313,899	Mar. 17	1123	291 / 292	30	1002
Liquids. Apparatus for emptying barrels or other receptacles containing	B. F. Hudson	313,077	Mar. 3	50	13, 14	30	787
Load-lifter	W. Lucas	313,067	Mar. 3	61	17	30	789
Lock: *See* Alarm-lock. Indicator-lock. Bag-lock. Mail-pouch lock. Double-acting lock. Nut-lock. Fence-lock. Permutation-lock. Fire-arm lock. Revolver-lock. Fire-arm safety-lock. Time-lock. Hasp-lock. Trunk-lock. Hatchway-lock. Umbrella-lock. Hinge-lock. Valve-lock.							
Lock	J. H. Barnes and J. H. Woolaston	314,778	Mar. 31	2373	628	30	1269
Lock	E. J. Colby	312,819	Feb. 24	1851	506	30	716
Lock	T. Donahue, J. Roche, W. T. Goodwin, and W. W. Cone.	312,327	Feb. 24	1868	512	30	718
Lock	N. A. Hull	311,898	Feb. 10	589	161	30	465

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Lock	A. Kohlhof	311,992	Feb. 10	724	198	30	490
Lock	B. Moser	313,098	Mar. 3	77	21	30	791
Lock	B. Moser	313,439	Mar. 3	563	145, 146	30	881
Lock-bolt for doors	J. B. Schroder	313,898	Mar. 17	1164	303	30	1010
Locking and unlocking the doors of safes, &c.	G. L. Damon	311,419	Jan. 27	1667	462	30	332
Locking device for sliding doors	D. Hoke	311,760	Feb. 3	390	106	30	422
Locking mechanism for doors	D. W. Tower	314,401	Mar. 24	1842	400	30	1146
Locomotive	F. Newhouse	311,601	Feb. 3	102	501	30	385
Locomotive	E. L. Stream	314,747	Mar. 31	2302	611	30	1256
Locomotive ash-pan	C. M. Lake. (Reissue)	10,558	Feb. 3	526	142, 143	30	448
Locomotive-boiler	M. W. Hazelton	311,318	Jan. 27	1554	424	30	306
Locomotive-brake	J. H. Williams	314,209	Mar. 17	1581	419	30	1087
Locomotive draw-bar	T. C. Craven	311,963	Feb. 10	682	186, 187	30	482
Locomotive exhaust-nozzle	J. Wotapek	310,768	Jan. 13	782	211	30	154
Locomotive exhaust-nozzle	J. Wotapek	310,769	Jan. 13	784	211	30	154
Locomotive friction device	N. S. Shaler	313,959	Mar. 17	1270	331	30	1029
Locomotive-journal lubricator	E. Graham	311,744	Feb. 3	368	101	30	418
Log-boom	J. R. Allen	311,865	Feb. 10	530	145	30	455
Log-crib	C. C. Barker and T. Craney	313,294	Mar. 3	370	92	30	844
Log-loader	D. J. Saltsman	313,536	Mar. 10	684	179	30	913
Log-loader. Floating	C. C. Barker and T. Craney	313,293	Mar. 3	370	92	30	844
Logs. Apparatus for collecting scattered	A. McDougall	312,486	Feb. 17	1411	389	30	626
Loom cloth-guide	C. J. Sullivan	313,633	Mar. 10	807	211	30	936
Loom for weaving double pile fabrics	C. Coupland	311,961	Feb. 10	679	186	30	482
Loom for weaving double pile fabrics	C. Coupland	312,199	Feb. 10	1001	273	30	541
Loom let-off mechanism	J. D. Cottrell	312,708	Feb. 24	1705	469	30	689
Loom-shuttle	A. T. Atherton	314,907	Mar. 31	2545	673	30	1300
Loom-shuttle	J. C. Sergeson	312,520	Feb. 17	1465	401	30	635
Loom shuttle-box-operating mechanism	J. H. Crowley	313,578	Mar. 10	735	193, 194	30	923
Loom shuttle-motion	T. A. Weber	312,680	Feb. 24	1665	459	30	683
Loom-shuttle-operating mechanism	E. S. Winchester	310,970	Jan. 20	1055	286	30	208
Loom take-up mechanism	F. Kesselring	312,128	Feb. 10	900	245, 246	30	523
Low-water alarm	H. G. Brooks	310,786	Jan. 13	801	217	30	157
Lubricant	H. Riedel	311,529	Feb. 3	96	.....	30	367
Lubricating bearings. Device for	G. De Laval	311,906	Feb. 10	687	188	30	483
Lubricating compound	S. D. McMillan and C. H. Ham	311,347	Jan. 27	1509	.....	30	314
Lubricating-cup	J. H. Mars	314,593	Mar. 31	2101	560	30	1219
Lubricating-oil cup	J. E. Lonergan	314,695	Mar. 31	2229	593	30	1242
Lubricating-valve	M. Schneider	311,379	Jan. 27	1644	449	30	323
Lubricator: *See* Automatic lubricator. Axle-lubricator. Car-lubricator. Crank-pin lubricator. Cylinder-lubricator. Pulley-lubricator. Shaft-lubricator. Steam-cylinder lubricator. Steam-engine lubricator.							
Lubricator	I. Frechette	311,576	Feb. 3	158	45	30	378
Lubricator	F. L. McGahan	312,214	Feb. 10	1033	283	30	547
Lubricator	M. McMullin	312,283	Feb. 17	1137	312	30	575
Lubricator	F. Renders	313,951	Mar. 17	1264	329	30	1028
Lubricator	S. J. Stevenson	310,741	Jan. 13	745	202	30	147
Lubricator	S. Townsend	313,034	Feb. 24	2141	583	30	767
Lubricator	J. W. Cloud	312,973	Feb. 24	2048	559	30	750
Lubricator for locomotive or other engines	U. R. Nichols	313,608	Mar. 10	777	204	30	930
Lumber-boom	H. J. Morton	311,442	Jan. 27	1726	470	30	338
Lumber-drier	W. T. Smith	310,232	Jan. 6	89	23, 24	30	19
Lumber-stacker	G. F. Schneider	313,538	Mar. 10	686	180	30	914
Lunch-box. Folding	E. D. McCracken	314,041	Mar. 17	1368	357	30	1049
Magnet. Electro-	E. F. Recordon	312,511	Feb. 17	1455	399	30	634
Magnet. Electro-	J. A. Briggs	313,050	Mar. 3	15	4	30	781
Mail-bag	N. W. Given and R. A. Dunning	310,411	Jan. 6	327	90	30	64
Mail-bag	A. J. Gould	310,670	Jan. 13	654	179	30	130
Mail-bag	M. F. Stellwagen and A. A. Lytle	313,630	Mar. 10	804	211	30	935
Mail-bag catcher	P. B. Cassidy	311,228	Jan. 27	1428	390	30	283
Mail-bag tag attachment	W. P. O'Hara	313,369	Mar. 3	458	117	30	861
Mail-pouch lock and cord-case. Combined	O. B. Young	314,925	Mar. 31	2655	702	30	1319
Mallet, &c. Wooden	O. E. Walt	311,153	Jan. 20	1315	362	30	256
Malt, &c. Apparatus for crushing and grinding	E. Kanffeld	314,850	Mar. 31	2462	650	30	1285
Maltose. Manufacturing	L. Cuisinier	311,417	Jan. 27	1694	.....	30	332
Mandrel. Expanding-	G. Shelley	311,788	Feb. 3	424	115	30	426
Mangle	T. J. A. Sörenson	314,909	Mar. 24	1867	443	30	1112
Map-exhibitor	J. A. Whipple	314,465	Mar. 24	1847	492	30	1147
Marker. Land-	W. H. King	312,130	Feb. 10	902	246	30	524
Marking-gage	R. Steele	310,964	Jan. 20	1046	284	30	206
Marquetry	A. J. R. A. Chatain	310,381	Jan. 6	294	81	30	56
Mash-tub. Beer	L. S. Kuhn	313,430	Mar. 3	544	143	30	878
Mashes. Machinery for cooking	L. S. Kuhn	313,432	Mar. 3	548	144	30	879
Mashing and cooking grain. Method of and apparatus for	F. O. Kuns	311,590	Feb. 3	178	50	30	381
Mashing apparatus	J. F. Gent	313,070	Mar. 3	43	11	30	786
Mashing. Preparing maize for	L. S. Kuhn	313,431	Mar. 3	546	143	30	879
Mat: *See* Oil-press mat. Picture-mat.							
Match-box	S. W. Hoag	311,129	Jan. 20	1279	352	30	250
Match-box and cigar-cutter. Combined	R. M. Collard	311,230	Jan. 27	1430	390	30	283
Match-card	R. G. Britton	311,952	Feb. 10	664	182	30	479
Match-splint straightener	A. W. Jones	314,680	Mar. 31	2214	588	30	1230

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Matches. Apparatus for dipping	E. B. Eddy, G. H. Millen, and E. Mousseau.	313,064	Mar. 3	37	10	30	785
Matrix-stripe. Machine for justifying	J. H. White	311,400	Jan. 27	1069	455, 456	30	328
Mattresses. Material for filling	R. Stillwell	312,636	Feb. 10	781	.....	30	501
Measure. Liquid-	W. H. Gantner	311,304	Jan. 27	1537	418	30	303
Measure-spout	F. Etheridge	313,101	Mar. 3	228	57	30	818
Measuring and facing machine. Cloth	B. Heumann and F. B. Pease	310,495	Jan. 6	341	94	30	66
Measuring and inspecting machine. Cloth	C. C. Webber	310,757	Jan. 13	765	206	30	150
Measuring distances. Apparatus for	L. Cerebotani	310,253	Jan. 6	120	34	30	25
Measuring-jacket	H. Lingen	312,211	Feb. 10	1028	281	30	546
Measuring the flow of liquids. Apparatus for	W. A. M. Brown and J. M. Porter	314,914	Mar. 31	2554	675	30	1301
Measuring-vessel	G. C. Smith	312,030	Feb. 10	776	211	30	500
Meat-chopper	W. M. Mathes	313,376	Mar. 3	450	114	30	859
Meat-tenderer	S. Kesner	311,901	Feb. 10	595	163	30	466
Meat-tenderer	S. A. Moulton	311,199	Jan. 27	1383	378	30	275
Meat-tenderer	L. Stone	311,451	Jan. 27	1737	473	30	340
Meats. Preserving	G. Holgate	312,925	Feb. 24	2060	.....	30	756
Mechanical motor	M. Coon	310,258	Jan. 6	127	36	30	26
Mechanical motor	J. A. Emmert and L. P. Klutts	314,441	Mar. 24	1893	505	30	1156
Mechanical motor	F. D. Jones	313,566	Mar. 10	765	201	30	928
Mechanical motor	W. H. Anderson	311,220	Jan. 27	1418	386	30	281
Mechanical movement	J. H. Carrington	311,643	Feb. 3	247	68	30	395
Mechanical movement	S. A. Hand	313,324	Mar. 3	413	103	30	852
Mechanical movement	J. G. Meyers	312,001	Feb. 10	735	201	30	493
Mechanical movement	F. L. Palmer	313,220	Mar. 3	289	73	30	829
Mechanical movement	J. W. Portis	311,302	Jan. 27	1022	444	30	318
Mechanical movement	W. H. Rankin	312,760	Feb. 24	1775	489	30	703
Mechanical movement	G. M. Reed	311,447	Jan. 27	1732	472	30	339
Mechanical movement	F. M. Waters	310,924	Jan. 20	983	267	30	195
Mechanical movement. Alternating reversing	C. C. Burton	312,249	Feb. 17	1078	297	30	564
Mechanical movement for reversing motion	G. H. Perkins and O. Smith	314,469	Mar. 24	1938	516, 517	30	1163
Medical compound	R. Baumann	312,953	Feb. 24	2021	.....	30	746
Medical compound	J. Weller	311,930	Feb. 10	629	.....	30	474
Medical purposes. Pad for	W. W. Ray	313,238	Mar. 3	301	76	30	831
Medical still or vapor-generator	L. M. Emery	310,568	Jan. 13	524	144	30	106
(Medicine.) Cough remedy	M. M. Lamontague	312,132	Feb. 10	905	.....	30	524
(Medicine) Dyspepsia remedy	J. E. Wright	314,212	Mar. 17	1583	.....	30	1087
Medicine for croup, diphtheria, &c.	G. Erickson and W. Lindblom	311,884	Feb. 10	555	.....	30	460
(Medicine.) Liver and kidney diseases. Remedy for	G. P. Hilton	310,427	Jan. 6	343	.....	30	67
(Medicine) Vermifuge	A. Regan	314,477	Mar. 24	1950	.....	30	1165
Merchandise-holder	H. Meinhardt	312,742	Feb. 24	1752	482	30	698
Messenger-signal and fire-alarm apparatus	J. J. O'Neill	313,610	Mar. 10	778	204, 205	30	931
Metal bars. Apparatus for bending	J. H. Thomas	312,303	Feb. 17	1161	318	30	579
Metal-bending machine	O. C. Knipe	310,296	Jan. 6	167	46	30	33
Metal-bending machine	A. Urbahn	313,450	Mar. 3	568	151	30	886
Metal-bending machine	A. Urbahn	313,969	Mar. 17	1280	334	30	1031
Metal-bending machine	O. H. Mellum	314,256	Mar. 24	1645	.....	30	1108
Metal-cleaning composition	W. J. Wilder	313,700	Mar. 10	896	233	30	954
Metal. Coating	E. I. Braddock and D. A. Ritchie	311,284	Jan. 27	1515	413	30	299
Metal-coating apparatus	T. Scheffler	314,059	Mar. 17	1387	362	30	1052
Metal-drilling tool	W. Hamilton	311,748	Feb. 3	374	103	30	419
Metal-extracting apparatus	W. Hamilton	311,749	Feb. 3	377	103	30	419
Metal-extracting apparatus	J. L. Hornig	313,208	Mar. 3	248	62, 63	30	823
Metal-extracting apparatus	R. W. Kennedy	310,526	Jan. 6	458	.....	30	89
Metal rods. Coiling	J. F. Bogan	313,283	Mar. 3	356	88	30	841
Metal rods or wire. Device for reducing the diameter of	G. McDonald	311,999	Feb. 10	733	200	30	491
Metal-shears	J. N. Short	311,263	Jan. 27	1476	403, 404	30	292
Metal-slitting machine	A. F. Wendt	311,699	Feb. 3	312	85	30	408
Metals. Apparatus for recovering volatilized	B. Moebius	310,533	Jan. 6	472	129, 130, 131, 132, 133	30	91
Metals. Apparatus for the electrolytical separation and deposition of	H. R. Cassel	312,814	Feb. 24	1844	506	30	714
Metals by means of electrolysis. Apparatus for treating	C. Edwards	314,004	Mar. 17	1321	344	30	1039
Metals. Purifying	B. Moebius	310,302	Jan. 6	188	.....	30	36
Metals. Separation of	W. Hewitt	314,576	Mar. 31	2084	556	30	1216
Metallic fabric	J. J. Callow	313,805	Mar. 10	1044	.....	30	990
Metallic goods. Manufacturing perforated	E. Tyrrell and M. S. Shipley	312,590	Feb. 17	1553	422	30	653
Metallic strips. Machine for spirally winding	W. McKenna	310,454	Jan. 6	372	103	30	73
Metallurgical furnace							
Meter: *See* Fluid-meter. Gas-meter. Liquid-meter. Water-meter.							
Micrometer-gage	J. E. Sweet	313,352	Mar. 10	702	184	30	917
Middlings-purifier	E. T. Butler and T. McFeely	311,808	Feb. 3	447	121	30	432
Middlings-purifier	J. M. Case	310,181	Jan. 6	27	7, 8	30	7
Middlings-purifiers. Cleaning-brush for	C. Webner	311,022	Feb. 3	217	61	30	389
Milk-can	N. Gerber	311,975	Feb. 10	703	193	30	486
Milk-can	J. C. Milligan and J. Chaumont	311,440	Jan. 27	1723	469	30	337
Milk-cooler	G. S. Frasey	313,309	Mar. 3	396	98	30	849
Milking cows. Device for	G. S. Frasey	312,834	Feb. 24	1877	514	30	720
Mill: *See* Cane-mill. Coffee-mill. Coffee and spice mill. Corn-hulling mill. Fanning-mill. Grinding-mill. Grist-mill. Hominy-mill. Roller-mill. Rolling-mill. Stamp-mill. Windmill.							
Mill for grinding or pressing coffee, spices, &c.	O. Unger	310,336	Jan. 6	242	66	30	46

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Millstone-dress	J. R. Price	314,977	Mar. 31	2644	699	30	1316
Millstone-dressing machine	I. B. Baker	314,776	Mar. 31	2370	627 628	30	1309
Millstone-pick	J. Granger	313,725	Mar. 10	930	241	30	960
Millstone-pick handle	H. P. Dickson	311,476	Feb. 3	21	6	30	352
Miner's knife	G. Freund	313,414	Mar. 3	522	137	30	875
Mirror. Adjustable	S. K. Abbott	314,771	Mar. 31	2361	625	30	1307
Mirror. Adjustable	T. F. Lynch	312,568	Feb. 17	1525	416	30	648
Mirror-stand	C. Zornow	312,062	Feb. 10	812	221	30	507
Mirror. Toilet	F. J. Kaldenberg	310,950	Jan. 20	1026	278	30	202
Miter-sawing machine	L. D. Howard	314,843	Mar. 31	2454	648	30	1284
Mitten	A. B. Perlinsky	312,653	Feb. 24	1630	449	30	677
Mixer: *See* Paint-mixer.							
Mold: *See* Cigar-bunch mold. Collar-mold.							
Molder's flask	E. Friess	314,927	Mar. 31	2571	680	30	1304
Molder's flask	H. H. Garrett	313,315	Mar. 3	403	100	30	850
Molding. Wooden-surfaced	L. R. Harsha	314,833	Mar. 31	2442	645	30	1282
Moldings. Device for securing	C. Halstrom	310,678	Jan. 13	664	182	30	132
Monocycle	F. E. Mills	312,147	Feb. 10	938	255	30	530
Monument	A. Harroun	314,019	Mar. 17	1341	349	30	1043
Morse register	E. Estienne	314,525	Mar. 24	2013	536 537 538	30	1176
Mortar-pestles. Device for actuating	S. L. Hockert	311,580	Feb. 3	163	46	30	379
Mortising-machine. Chain	T. E. Daniels	313,924	Mar. 17	1296	318 319	30	1020
Mortising machine. Door	F. W. Stevens	312,669	Feb. 24	1652	456	30	681
Mosquito-bars. Adjustable fastener for	J. Spurrier	313,116	Mar. 3	102	26	30	795
Motion. Converting reciprocating into rotary	H. H. Barnard	311,407	Jan. 27	1680	458 459	30	330
Motion. Device for converting	W. H. Atkinson	310,169	Jan. 6	11	3	30	5
Motion. Device for converting	G. W. Richardson	311,610	Feb. 3	201	57	30	386
Motion. Device for converting	J. Stubbe	312,773	Feb. 24	1791	494	30	706
Motion. Device for transmitting	J. T. Pedersen	311,255	Jan. 27	1462	400	30	290
Motion. Mechanism for converting	J. E. Pencille	312,378	Feb. 17	1258	347	30	598
Motions of two or more bodies may be varied in any required manner independently of their actual motions. Apparatus whereby the relative	H. S. H. Shaw	312,171	Feb. 10	974	266	30	536
Motor: *See* Gas-motor. Steam-motor. Horse-power motor. Thermic motor. Hydraulic motor. Water-motor. Mechanical motor. Weight-motor. Spring-motor.							
Motor	W. J. Allen	313,641	Mar. 10	818	214	30	939
Motor	T. Dodds	313,188	Mar. 3	226	56	30	618
Motor	J. H. Forister	312,900	Feb. 24	2074	565	30	755
Motor	C. W. McGregor and L. H. Cordry	313,222	Mar. 3	265	67	30	825
Motor	J. A. Vlean	312,307	Feb. 17	1167	319	30	581
Movement-cure apparatus	M. G. Farmer	310,395	Jan. 6	310	86	30	60
Movement-indicator	H. T. Field	310,860	Jan. 13	890	241	30	174
Mowing and reaping machines. Driving-gear for	A. C. Latta	311,132	Jan. 20	1284	353	30	251
Mowing-machine	J. H. Jones	311,006	Jan. 20	1102	301 302	30	218
Mowing-machine	W. A. Knowlton	314,186	Mar. 17	1556	408	30	1082
Mowing-machine	E. Pridmore	314,541	Mar. 24	2033	542 543	30	1179
Mowing-machine pitman	D. C. Markham	311,996	Feb. 10	798	199	30	490
Music, books, &c. Device for holding	G. H. Northrop	312,153	Feb. 10	946	257	30	532
Music-box	J. A. Bradshaw	310,645	Jan. 13	619	171	30	124
Music-leaf turner	J. M. Branig	311,950	Feb. 10	661	181	30	479
Music-leaf turner	E. G. Hastings	310,199	Jan. 6	53	15	30	13
Music rack or holder	E. Tucker	312,040	Feb. 10	784	214	30	502
Music-sheet for mechanical musical instruments	P. Ehrlich	310,501	Jan. 6	430	118	30	83
Musical instrument. Mechanical	C. Donadoni	310,498	Jan. 6	427	118	30	82
Musical instrument. Mechanical	M. Gally	314,012	Mar. 17	1331	347	30	1041
Musical instrument. Mechanical	M. Hock	312,636	Feb. 24	1610	442	30	673
Musical instruments. Head of stringed	A. Hyde	310,560	Jan. 13	556	155	30	112
Musical instruments. Key-board attachment for	R. H. Bishop and W. Down	311,947	Feb. 10	654	179 180	30	477
Muzzle. Animal	F. M. Moore	310,842	Jan. 13	870	235	30	170
Nail: *See* Horseshoe-nail.							
Nail	J. M. Overell	313,681	Mar. 10	867	226	30	949
Nail-extractor	P. F. King	313,509	Mar. 10	766	202	30	928
Nail-machine	W. J. Hutchins	312,996	Feb. 24	2081	567 568	30	756
Nail-machine	P. C. Reed	313,108	Mar. 3	93	24	30	794
Nail-making machine. Wire	S. Loring and E. S. Morton	314,253	Mar. 24	1641	435	30	1106
Nail-packer	C. D. Godcharles	313,721	Mar. 10	924	240	30	959
Nail-plate feeder	G. W. McKim	313,010	Feb. 24	2110	575	30	762
Nails. Machine for making wrought	W. Truran	314,894	Mar. 31	2585	669	30	1296
Nailing-machine	L. Goddu	310,816	Jan. 13	836	226 227	30	164
Napkin pin or holder	A. L. Burlingame	311,640	Feb. 3	240	68	30	394
Neck-wear	H. A. Cables	314,794	Mar. 31	2394	634	30	1273
Neck-wear retainer	L. Eschner	310,660	Jan. 13	639	176	30	127
Necktie	J. H. Haulenbeek and G. F. Brown	312,118	Feb. 10	889	242	30	521
Necktie-fastener	A. Cifre	313,807	Mar. 10	1046	268	30	980
Necktie-fastener	F. S. R. Prentiss	314,396	Mar. 24	1834	488	30	1145
Necktie-fastening	J. S. Ripley	310,617	Jan. 13	585	161	30	118
Necktie-fastening	J. Weil	312,081	Feb. 24	1067	459	30	683
Necktie-holder	J. H. Riley and J. J. Walsh	313,530	Mar. 10	674	176	30	911

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Necktie, &c. Fastener for	H. A. Cables	313,171	Mar. 3	184	45	30	811
Needle-cases. Manufacture of metallic	W. Avery	313,797	Mar. 10	1035	266	30	978
Nest. Hen's	F. M. Brown	311,467	Feb. 3	10	3	30	350
Net. Mosquito	F. H. Holden	312,471	Feb. 17	1301	384	30	622
Net. Rotary fish	B. W. Clark	314,585	Mar. 31	2069	553	30	1213
Nozzle	C. Callahan	311,720	Feb. 3	335	93	30	412
Nursery-chair	B. C. Odell	313,881	Mar. 17	1156	304	30	1008
Nut-arbor	G. B. Foote	311,479	Feb. 3	24	7	30	353
Nut-bar	J. Gillespie	314,389	Mar. 24	1750	466	30	1138
Nut-lock	H. C. Burkhead	314,361	Mar. 24	1790	476	30	1136
Nut-lock	J. A. Campbell	310,985	Jan. 20	1074	292	30	212
Nut-lock	P. M. Crocker	312,655	Feb. 17	1510	412	30	644
Nut-lock	W. S. Clymer	314,112	Mar. 17	1460	382	30	1065
Nut-lock	W. H. Dinsmore	311,879	Feb. 10	549	151	30	459
Nut-lock	P. Hebert	314,575	Mar. 31	2083	536	30	1216
Nut-lock	C. A. Pennington	314,194	Mar. 17	1567	414	30	1084
Nut-lock	S. H. Raymond	313,623	Mar. 10	798	209	30	935
Nut-lock	A. C. Vaughan	312,677	Feb. 24	1662	458	30	682
Nut-lock	A. T. Woods	313,149	Mar. 3	149	37	30	804
Nut. Top-prop	E. Rothlisberger	313,771	Mar. 10	998	258	30	972
Nut. Top-prop	E. Rothlisberger	313,772	Mar. 10	999	258	30	972
Nut. Top-prop	E. Rothlisberger	313,774	Mar. 10	1000	258	30	972
Nut-trimming machine	T. Snape	312,031	Feb. 10	777	212	30	500
Oil and albuminoid matter from corn. Extracting the	F. V. Greene	313,665	Mar. 10	853	.....	30	946
Oil-burner	E. A. Edwards	314,922	Mar. 31	2565	678	30	1303
Oil-can	A. L. Day	311,965	Feb. 10	687	188	30	483
Oil-can	H. B. Hart	311,488	Feb. 3	37	10	30	356
Oil-can lamp-filling attachment	W. Bloomfield	311,465	Feb. 3	7	2, 3	30	350
Oil-cleaning apparatus	J. C. Thornton	313,663	Mar. 10	863	230	30	952
Oil-cup	E. Best	314,360	Mar. 24	1789	476	30	1136
Oil-cup cover	J. E. Zimmerman	314,638	Mar. 31	2166	575	30	1230
Oil. Eliminating the smell of coal	L. Blumenthal	312,605	Feb. 24	1572	.....	30	666
Oil from formed oil-cake. Extracting	J. L. Moss and N. Littell	313,440	Mar. 3	567	.....	30	882
Oil-press mat	A. Jones and T. Blake	314,679	Mar. 31	2213	588	30	1239
Oil-tank	C. A. Fisher	314,233	Mar. 24	1615	427	30	1103
Oil-tanks. Apparatus for removing paraffine from	J. W. Norton and F. H. Rouse	313,514	Mar. 10	658	172	30	908
Oil. Treating oleaginous seeds for the extraction of	A. E. Thornton	312,674	Feb. 24	1658	.....	30	682
Oil-vapors. Apparatus for separating	J. E. Bicknell	313,979	Mar. 17	1297	338	30	1034
Oils. Apparatus for freezing paraffine	J. Teagle	314,488	Mar. 24	1967	523	30	1168
Oils. Apparatus for refining	J. Thomas	314,490	Mar. 24	1969	524	30	1168
Oils. Manufacture of linseed and other	H. T. Yaryan	312,418	Feb. 17	1311	362	30	606
Oils. Oxidizing linseed and other	J. W. and F. R. Hoard	312,351	Feb. 17	1231	338	30	592
Oils. Refining, reducing, and separating hydrocarbon	E. W. Strain	311,543	Feb. 3	116	34	30	371
Oiler	J. J. and J. Q. Leavitt	314,692	Mar. 31	2226	592	30	1242
Oiler. Automatic	F. P. Crockett	311,109	Jan. 20	1252	343	30	245
Oiler. Car-axle	J. Gibbons	311,893	Feb. 10	582	159 160	30	464
Oiler for car-axles	J. Gibbons	311,071	Jan. 20	1194	328	30	235
Oiler for crank-pins. Automatic	J. M. Hartnett	314,934	Mar. 31	2584	684	30	1306
Oiling-can	F. W. Born	311,225	Jan. 27	1426	389	30	282
Oiling the arbors of shell-rollers. Device for	C. S. Tuttle and F. Twitchell	313,133	Mar. 3	123	30	30	799
Ordnance. Breech-loading	R. J. Gatling	311,973	Feb. 10	699	192	30	485
Ore-concentrator	J. Cherney and W. C. Davis	311,863	Feb. 3	519	140 141	30	446
Ore-concentrator	A. A. Kent	312,863	Feb. 24	1918	525	30	727
Ore-concentrator	K. F. Willkomm and C. Schumann	313,145	Mar. 3	141	35	30	803
Ore concentrator and separator	F. G. Corning	311,231	Jan. 27	1439	391	30	284
Ore crusher and pulverizer	H. R. Taylor	313,554	Mar. 10	708	185 184	30	918
Ore-furnace	E. F. Russell	310,619	Jan. 13	588	162	30	119
Ore-roasting furnace	J. F. Carter	311,056	Jan. 20	1176	322 323	30	232
Ores for amalgamation and desulphurizing the same. Preparing	C. R. Squire	312,586	Feb. 17	1549	.....	30	652
Ores for amalgamation. Treatment of	C. R. Squire	312,587	Feb. 17	1549	.....	30	652
Ores for smelting. Preparing iron	M. R. Conley	314,113	Mar. 17	1461	.....	30	1065
Ores, &c. Reducing and discharging	H. Bolthoff	312,957	Feb. 24	2027	553	30	747
Ores with superheated steam. Apparatus for treating	J. H. Mathews	313,748	Mar. 10	966	249 250	30	965
Organ pedal attachment	J. Swanson	311,688	Feb. 3	300	82	30	405
Organ. Reed	M. Clark	310,933	Jan. 20	998	271	30	197
Organ-reed	M. Gally	314,234	Mar. 24	1616	427	30	1103
Organ-reed	M. Gally	314,235	Mar. 24	1617	428	30	1103
Organ-stop action	M. S. Wright	310,239	Jan. 6	97	26	30	21
Oscillating engine	A. H. Hadley	314,932	Mar. 31	2578	682	30	1305
Oscillating engine	J. A. Powers	312,757	Feb. 24	1771	488	30	702
Oven and radiator. Warming	J. G. Mecham	311,908	Feb. 10	602	165	30	468
Oven for continuous working. Baking or cooking	W. Lorenz	314,144	Mar. 17	1504	302 303 304	30	1073
Overalls and pantaloons	J. Goldstein and C. H. Rombach	314,122	Mar. 17	1478	385	30	1068
Overshoe	S. C. Belknap and T. H. Fye	313,161	Mar. 3	172	41	30	808
Overshoe	L. Elliott	314,569	Mar. 31	2075	554	30	1214
Ox-shoe	H. Hotchkiss	312,352	Feb. 17	1232	338	30	592
Ox-shoes. Die for forging	W. Pearce	314,189	Mar. 17	1563	409 410	30	1083
Ox-shoes. Die for forging	W. Pearce	314,193	Mar. 17	1566	413 414	30	1083
Ox-shoes. Forging	W. Pearce	314,190	Mar. 17	1564	410 411	30	1083
Ox-shoes. Forging	W. Pearce	314,191	Mar. 17	1565	411 412	30	1083
Ox-shoes. Forging	W. Pearce	314,192	Mar. 17	1565	412 413	30	1083

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Package-wrapper	D. D. Kelley	310,206	Jan. 6	62	16	30	14
Packing	T. James	314,848	Mar. 31	2460	650	30	1285
Packing. Asbestus	J. Dewrance	311,729	Feb. 3	347	.....	30	414
Packing-case	J. C. Bauer	312,421	Feb. 17	1315	363	30	609
Packing for hydraulic pistons	A. B. See	311,380	Jan. 27	1644	450	30	323
Packing for pistons, &c. Spring	R. H. Taylor	313,251	Mar. 3	321	79	30	835
Packing. Piston	T. Barber	313,704	Mar. 10	900	234	30	954
Packing piston and valve rods	W. S. Colwell	313,180	Mar. 3	206	50	30	815
Packing-ring for pistons, pump-buckets, &c. Metallic	W. Buckley	313,960	Mar. 17	1298	338	30	1034
Packing. Steam-joint	A. A. Adams and W. Lee	311,707	Feb. 3	323	89	30	410
Pad: *See* Collar-pad. Saddle-pad. Collar sweat-pad. Stair-pad. Desk-pad. Truss-pad. Harness-pad.							
Paddle-wheel. Feathering	W. C. Burne	313,652	Mar. 10	839	218	30	943
Paddle-wheel. Feathering	P. C. Marsh	310,451	Jan. 6	360	102	30	72
Paddle-wheel. Feathering	J. Williams	310,350	Jan. 6	259	71	30	49
Pail	T. A. Cook	313,990	Mar. 17	1304	341	30	1036
Pail-wiring machine	H. Mann	314,698	Mar. 31	2237	595	30	1243
Paint	W. H. Wilber	311,401	Jan. 27	1673	.....	30	328
Paint-distributer	W. I. Armstrong	311,631	Feb. 3	228	64	30	392
Paint-distributer	L. Walkup	310,754	Jan. 13	760	207	30	150
Paint. Lime	W. I. Adams and W. R. Polk	310,550	Jan. 13	503	.....	30	103
Paint. Mixed	J. B. Wood	312,784	Feb. 24	1807	.....	30	708
Paint-mixer	D. J. Starrett	314,546	Mar. 24	2039	544	30	1180
Paint. Transfer	G. Kennerley and B. Creighton	312,474	Feb. 17	1395	.....	30	623
Paint-tub for wagon-wheels	M. T. Winton	311,217	Jan. 27	1410	385	30	280
Pan: *See* Amalgamating-pan. Frying-pan. Baking-pan. Locomotive ash-pan. Boiler ash-pan. Patty-pan. Evaporating-pan.							
Panel for use in the construction of cars, boats, &c	W. D. Mann	311,022	Jan. 20	1124	307	30	222
Panel-raising machine	J. Lobuits	312,364	Feb. 17	1243	342 / 343	30	594
Pannier and bustle	J. Schoenhof	312,518	Feb. 17	1463	400 / 401	30	635
Pantograph	M. Diamond	310,186	Jan. 6	37	11	30	9
Pants. Attachment for	J. J. Neubert	313,884	Feb. 24	1941	531	30	731
Pants. Attachment for	I. Stark	312,033	Feb. 10	779	212	30	501
Paper. Asbestus	S. Tingley	310,334	Jan. 6	240	65	30	45
Paper-bag machine	W. W. Cotton and A. Hewes	312,257	Feb. 17	1088	300 / 301	30	566
Paper-board drier	E. Andrews	314,640	Mar. 31	2169	575	30	1231
Paper box	C. M. Arthur	310,241	Jan. 6	99	27	30	21
Paper box	J. Heron	312,851	Feb. 24	1807	519	30	723
Paper box	L. Lybrand	310,599	Jan. 13	567	157	30	115
Paper box. Folding	C. W. Elliott	313,190	Mar. 3	227	56	30	818
Paper-clip	H. C. Yeiser	314,769	Mar. 31	2359	624	30	1267
Paper-cutter	A. D. Hoffman	310,513	Jan. 6	444	122	30	86
Paper-cutter. Mechanism for laying off sheets from a	L. Harlow and G. Parker	313,864	Mar. 17	1130	294	30	1004
Paper-cutting machines. Clutch for	E. P. Donnell	313,482	Mar. 10	618	160 / 161	30	900
Paper drum and barrel drier	G. W. Laraway	311,499	Feb. 3	53	15, 16	30	359
Paper for cigarettes. Manufacture of reticulated	E. Abadie	314,639	Mar. 31	2167	575	30	1231
Paper for roofing-felt, &c	C. W. Armour	311,938	Feb. 10	640	175	30	476
Paper for sheathing, &c	C. W. Armour	311,939	Feb. 10	641	176	30	476
Paper-hanging implement	O. L. Case	314,788	Mar. 31	2399	635	30	1274
Paper holder or file	T. F. Bourne	312,702	Feb. 24	1687	467	30	688
Paper. Machine for cutting sheets with oblique edges from webs of	J. Ball	311,539	Feb. 3	139	39	30	375
Paper. Machine for dampening webs of printing	G. Rosquist	311,361	Jan. 27	1472	402 / 403	30	291
Paper-machine stuff-regulator	C. Young	312,314	Feb. 17	1174	322	30	582
Paper-maker's cotton drying-felt, printer's machine-blanket, &c.	J. Crossley	313,994	Mar. 17	1308	.....	30	1037
Paper-making machines. Pulp-vat for	J. F. Selberling	312,300	Feb. 17	1274	352	30	901
Paper-making machines. Screen-plate or pulp-strainer for	F. Williams	313,037	Feb. 24	2143	583	30	767
Paper, &c. Making moldings, &c., from	B. Buts and O. J. Pflueger	311,409	Jan. 27	1683	459	30	330
Paper. Manufacture of tarred	M. Ehret, Jr	312,451	Feb. 17	1361	375	30	618
Paper or leatheroid. Manufacture of parchment	E. Andrews	312,945	Feb. 24	2013	550	30	744
Paper-pulp. Apparatus for beating and manipulating	J. Jordan	314,948	Mar. 24	1631	431	30	1106
Paper-pulp, &c. Bleaching	J. B. Fessy	311,425	Jan. 27	1709	465	30	334
Paper-pulp boiler	J. F. Marshall	312,875	Feb. 24	1934	529	30	729
Paper-pulp-digester valve	T. Atcheson	314,643	Mar. 31	2172	576	30	1231
Paper-pulp engines. Roll for	J. H. Horne	310,203	Jan. 6	57	16	30	13
Paper-pulp fabric for boxes, &c	J. A. Pease and G. J. Babson	314,054	Mar. 17	1361	360	30	1051
Paper pulp or stock and obtaining by-products therefrom. Treatment of yucca or ootal fiber for the production of	G. B. Walker	310,753	Jan. 13	759	.....	30	150
Paper shoe	T. C. Lord	311,018	Jan. 20	1119	305	30	221
Paper-smoothing compound	C. Walpuski	313,963	Mar. 3	333	.....	30	837
Paper-stock boilers. Screen or strainer for the blow-off of	B. F. Mullin	313,011	Feb. 24	2112	575	30	762
Paper to preserve it against the corrosive action of acids. Treating	I. Ramsdell	313,107	Mar. 3	92	.....	30	794
Paper tubes. Machine for cutting	M. F. Wilson	310,629	Jan. 13	601	165	30	120
Parer. Apple	D. H. Goodell	310,196	Jan. 6	49	14	30	12
Paring machine. Fruit	W. and C. S. Robb	313,532	Mar. 10	678	177 / 178	30	912

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Partition and ceiling. Fire-proof	C. Mettam	312,284	Feb. 17	1138	312	30	575
Pattern for drafting dresses. Adjustable	A. McDowell	310,297	Jan. 6	180	50, 51	30	35
Patty-pan	J. Chaumont	312,189	Feb. 10	1000	273	30	541
Pavement	E. Heylyn	311,579	Feb. 3	162	46	30	379
Pavement. Concrete	C. F. Rapp	312,897	Feb. 24	1953	534	30	733
Pavement. Street	K. Kühn	311,994	Feb. 10	726	199	30	490
Pavement. Terra-cotta	J. M. Freeman	310,662	Jan. 13	641	177	30	128
Pavements, &c. Stamping margins for	C. Sutton	312,225	Feb. 10	1045	286	30	549
Paving and other blocks. Mold-box for	J. Eisenhower	312,929	Feb. 24	1871	512	30	710
Paving-blocks for streets	F. J. Hoyt	312,639	Feb. 24	1613	443	30	673
Paving blocks or bricks. Composition for curing	T. A. Huguenin	313,923	Mar. 10	1064	.....	30	983
Paving. Manufacturing asphaltic powder suitable for	H. Kettmann	310,594	Jan. 13	560	.....	30	113
Pawl-and-ratchet mechanism. Stop and lock for	J. N. Williams	312,942	Feb. 24	2009	549	30	743
Peanut-cleaner	L. R. Edwards	312,617	Feb. 24	1585	434	30	608
Peanut-cleaner	J. Johnson	311,494	Feb. 3	46	13, 14	30	358
Peanut-cleaner	J. Johnson	311,495	Feb. 3	47	14	30	358
Peanut-cleaner	C. J. Syme	314,749	Mar. 31	2304	619	30	1256
Peanuts, &c. Machine for assorting	A. W. Ballard	311,712	Feb. 3	327	90	30	410
Peanuts. Machine for separating	A. Carter	312,812	Feb. 24	1843	506	30	714
Pen and pencil holder	W. W. Stewart	314,547	Mar. 24	2040	544	30	1180
Pen. Fountain	E. Tyrrell	311,861	Feb. 3	517	140	30	445
Pen. Fountain	P. E. Wirt	311,554	Feb. 3	133	38	30	374
Pen. Fountain	G. H. Allen	311,556	Feb. 3	137	39	30	374
Pen-holder	J. H. Anderson	310,771	Jan. 13	786	212	30	154
Pen-holder	C. R. Arnold	310,168	Jan. 6	10	3	30	5
Pen-holder. Double	F. L. Fischer	311,181	Jan. 27	1359	372	30	271
Pens, pencils, &c. Adjustable holder for	R. P. Scott	312,296	Feb. 17	1154	315	30	578
Pencil-clasp	B. H. Sheldon	311,613	Feb. 3	206	58	30	387
Pencil-holder	C. O. Patterson	311,361	Jan. 27	1621	443	30	318
Pencil-holder and slate-cleaner	I. B. Millner	310,840	Jan. 13	866	235	30	170
Pencil tip and tape-measure. Combined lead	E. B. Stimpson	313,383	Mar. 3	491	126	30	866
Perforating-machine	C. Hill	310,892	Jan. 20	933	254	30	188
Permutation-lock	S. Simpson, F. M. Lottridge, and W. Carter	312,664	Feb. 24	1646	453	30	680
Pessary	C. V. Petraeus	313,369	Mar. 3	466	.....	30	863
Phosphates. Solution of acid	C. Scheiblor	312,904	Feb. 24	1902	.....	30	735
Phosphatic slag. Treating	R. Brown, R. W. Barnes, and J. Bell	311,057	Jan. 20	1175	.....	30	232
Photo-engraving. Preparing pictures and photographs for	C. Dorey	312,337	Feb. 17	1207	332	30	588
Photograph-burnisher	M. T. Baldwin	311,463	Feb. 3	4	2	30	349
Photograph-burnishing machine	W. W. Walker	312,937	Feb. 24	2003	547	30	742
Photographers. Portable dark-room for	W. Clark	314,317	Mar. 24	1730	460 / 461	30	1125
Photographic camera	C. Prosch	312,581	Feb. 17	1542	420	30	651
Photographic-camera shutter	E. J. Palmer	313,761	Mar. 10	985	254	30	909
Photographic emulsion to photographic plates. Machine for applying	A. Loeffler	313,677	Mar. 10	863	225	30	948
Photographic lenses. Instantaneous shutter for	T. C. Roche	314,346	Mar. 24	1773	.....	30	1132
Photographic paper and sensitive emulsion therefor	B. J. Edwards	314,811	Mar. 31	2413	638	30	1277
Photographic plates. Apparatus for coating	F. Polster	314,195	Mar. 17	1568	414	30	1084
Piano action. Upright	A. Baus	314,310	Mar. 24	1723	458	30	1123
Piano-agraffe	P. Gmehlin	311,243	Jan. 27	1447	304 / 305	30	287
Piano-forte	O. Wessell, A. Nickel, and R. Gross	312,776	Feb. 24	1797	495	30	706
Piano-forte damper	C. F. T. Steinway	314,740	Mar. 31	2294	608	30	1254
Piano-frame	C. F. T. Steinway	314,742	Mar. 31	2296	609 / 610	30	1254
Piano music-rack	C. Baumeister	313,647	Mar. 10	827	216	30	941
Piano music-rack	J. Gramer	314,375	Mar. 24	1808	481	30	1140
Piano-pedal	C. F. T. Steinway	314,741	Mar. 31	2295	609	30	1254
Piano-pedal attachment	E. B. Haynes	311,754	Feb. 3	382	105	30	420
Piano-pedal attachment	T. C. Swing	311,043	Jan. 20	1154	315	30	228
Piano-pupils' monitor	J. A. Kieselhorst	313,502	Mar. 10	644	167	30	905
Pianos. Music-rack for upright	G. M. Guild	313,417	Mar. 3	526	138	30	875
Picker: *See* Fruit-picker.							
Picks. Machine for making	S. T. Tyler	313,900	Mar. 17	1178	307	30	1013
Picture-frame	L. R. Harsha	314,832	Mar. 31	2441	645	30	1282
Picture-frame mat-gage	E. L. Gaylord	313,197	Mar. 3	232	58	30	810
Picture-mat	A. S. Fontaine	314,008	Mar. 17	1327	346	30	1041
Pile-box	J. A. Walsh	311,606	Feb. 3	308	84	30	407
Pile-driver	J. W. Putnam	312,582	Feb. 17	1544	420	30	651
Pile-driving machine	T. Whitaker	313,637	Mar. 10	812	212 / 213	30	937
Pill-machine	A. F. Ward	311,620	Feb. 3	214	60	30	389
Pills. Making	W. E. Upjohn	312,041	Feb. 10	785	214	30	502
Pin: *See* Crank-pin. Napkin-pin. Lace-pin. Safety-pin.							
Pinions. Machine for polishing	G. Hunter and F. Leman	312,855	Feb. 24	1901	521 / 522 / 523	30	734
Pipe: *See* Conduit-pipe. Stove-pipe. Tobacco-pipe.							
Pipe and drain-tile mold	C. N. Earl and H. T. Hazard	310,859	Jan. 13	888	241	30	174
Pipe attachment. Steam	J. S. McDaniel	311,437	Jan. 27	1720	468	30	336
Pipe-bending machine	E. Devine	313,302	Mar. 3	386	96	30	847
Pipe-case	C. and H. Kock	310,287	Jan. 6	169	47	30	33
Pipe-coupling	W. R. Middleton	310,300	Jan. 6	186	51	30	36
Pipe-hanger	G. W. Blake	311,282	Jan. 27	1513	413	30	299
Pipe-line connection	G. Westinghouse, Jr	313,393	Mar. 3	494	129	30	868
Pipe. Machine for making	G. Russell and D. R. Wood	314,980	Mar. 31	2647	700	30	1317

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Pipe protector. Discharge and waste	W. W. Gage	313,068	Mar. 3	42	11	30	786
Pipe. Thread-protector for wrought-iron	M. Blakey	311,171	Jan. 27	1336	368	30	267
Pipe-welding furnaces. Lining for the grooves of	E. Peckham	313,102	Mar. 3	84	.....	30	792
Pipe-welding machines. Forming-tube for	G. Russell	313,537	Mar. 10	1085	282	30	987
Pipe-wrench	J. F. Guthrie	310,818	Jan. 13	840	228	30	165
Pipes. Automatic stop-plug for gas and oil	W. F. Cosgrove	313,903	Mar. 17	1307	341	30	1037
Pipes. Expansion-joint for steam and other	T. W. Duffy	311,178	Jan. 27	1354	371	30	270
Pipes. Protector for underground	W. and J. M. Rowbottom	310,727	Jan. 13	729	198	30	144
Piston	T. Barber	312,950	Feb. 24	2017	551	30	745
Piston	H. L. Brown	311,806	Feb. 3	445	121	30	432
Piston and diaphragm meter. Combined	C. C. Barton and J. Thomson	313,158	Mar. 3	161	40	30	806
Piston and valve rod	J. McGrail	311,665	Feb. 3	269	74	30	309
Pitman-rod	D. Michaels	310,707	Jan. 13	704	192	30	140
Plane	W. F. Achenbach	310,163	Jan. 6	1	1	30	3
Plane	W. Tidgewell	312,229	Feb. 10	1049	287	30	549
Plane. Bench	C. L. Mead	311,136	Jan. 20	1289	354	30	252
Plane. Bench	R. S. Sheldon	313,540	Mar. 10	667	180	30	914
Plane. Bench	W. Steers	310,473	Jan. 6	393	109	30	76
Plane. Chamfer	J. Mander	314,338	Mar. 24	1759	469	30	1130
Plane. Chamfering	R. V. Wicks	310,349	Jan. 6	257	70	30	49
Plane for picture-moldings	E. L. Gaylord	313,195	Mar. 3	231	58	30	819
Plane. Joiner's	W. Tidgewell	313,094	Mar. 10	884	230	30	952
Planer feed-roll	J. Connell	311,063	Jan. 20	1167	325	30	233
Planer presser-roll	S. M. Richardson	313,885	Mar. 17	1161	302	30	1009
Planing and shaping machines. Shipping device for metal	J. H. Wright	312,060	Feb. 10	810	221	30	506
Planing machines. Feed mechanism for wood	W. H. Gray	314,666	Mar. 31	2199	584	30	1236
Plant-protector	W. H. Brown	310,982	Jan. 20	1072	292	30	212
Plant-protector	S. Garrard	311,116	Jan. 20	1258	345	30	246
Planter and cultivator. Cotton-seed	J. F. Edmiston	310,191	Jan. 6	42	12	30	11
Planter and fertilizer-distributer. Seed	J. P. Lummus	314,187	Mar. 17	1559	408	30	1062
Planter and harrow. Combined seed	M. Kirkpatrick	314,141	Mar. 17	1501	392	30	1072
Planter and plow. Combined corn	J. Bollinger	313,296	Mar. 3	373	92	30	845
Planter. Automatic check-row corn	J. W. Clark and N. A. Palmer	314,431	Mar. 24	1881	502	30	1153
Planter check-line anchor. Corn	J. W. Clark and N. A. Palmer	314,432	Mar. 24	1885	503	30	1154
Planter. Check-row	J. Carden, Jr	313,906	Mar. 10	1045	268	30	980
Planter. Check-row corn	A. Anderson	313,466	Mar. 10	601	155	30	897
Planter check-rower attachment. Corn	J. C. Barlow	312,695	Feb. 24	1662	463, 464	30	685
Planter check-rower. Corn	N. E. Crothers	312,977	Feb. 24	2053	561	30	752
Planter check-rowing attachment. Corn	J. A. Withrow	312,783	Feb. 24	1906	496	30	706
Planter. Combined potato and tree	E. J. Hamre	314,830	Mar. 31	2438	644	30	1281
Planter. Corn	G. D. Haworth	314,229	Mar. 24	1621	429	30	1104
Planter. Corn	G. D. Haworth	314,340	Mar. 24	1622	429	30	1104
Planter. Corn	W. H. Hornor and A. Crotchett	312,853	Feb. 24	1809	520, 521	30	724
Planter. Corn	W. F. Johnson	313,596	Mar. 10	763	201	30	928
Planter. Corn	G. Leeper	311,766	Feb. 3	397	108	30	420
Planter. Corn	G. H. Meyer	311,351	Jan. 27	1605	439	30	315
Planter. Corn	W. L. Rucker	310,543	Jan. 6	492	130	30	94
Planter. Corn	M. and A. Runstetler	311,855	Feb. 3	510	138	30	444
Planter. Corn	L. Scofield	313,891	Mar. 17	1166	304	30	1011
Planter. Corn	M. A. Sheldon	311,382	Jan. 27	1648	450	30	323
Planter. Corn	J. P. Simmons	311,683	Feb. 3	294	80	30	404
Planter. Corn	C. Thompson	312,931	Feb. 24	1996	546	30	741
Planter. Corn	G. M. Williams	312,594	Feb. 17	1559	425	30	654
Planter. Cotton-seed	J. M. Howell	313,938	Mar. 17	1245	324	30	1024
Planter. Cotton-seed	R. B. Smith	312,393	Feb. 17	1280	354	30	602
Planter drilling attachment. Corn	A. C. Evans	311,574	Feb. 3	154	44	30	377
Planter. Potato	J. Hair	311,312	Jan. 27	1549	421, 422	30	305
Planter. Potato	W. F. Newbold	312,885	Feb. 24	1942	531	30	731
Planter. Seed	F. T. Williams	312,089	Feb. 24	1674	462	30	685
Planter. Self-dropping corn	L. Liedel	313,219	Mar. 3	261	66	30	825
Plaque	E. McLoughlin	311,772	Feb. 3	404	110	30	424
Plastic compound suitable for molding into various useful articles, such as screw-stoppers for bottles, jars, &c.	M. Mackay	310,890	Jan. 20	945	.....	30	190
Platform and platform-shifting mechanism. Double	O. P. Bushnell	311,956	Feb. 10	668	183	30	480
Plow	G. W. Bedinger	310,243	Jan. 6	102	28	30	21
Plow	T. M. Bissell	312,797	Feb. 24	1824	501	30	711
Plow	G. E. Blaine	311,564	Feb. 3	144	41	30	375
Plow	T. A. Blanchard	312,075	Feb. 10	831	226, 227	30	511
Plow	J. B. Brown	314,425	Mar. 24	1871	498	30	1152
Plow	W. E. Brown	310,249	Jan. 6	110	31	30	23
Plow	M. Call	314,362	Mar. 24	1791	476	30	1136
Plow	S. H. Clanton	312,817	Feb. 24	1849	507	30	715
Plow	W. A. Estes	312,559	Feb. 17	1514	413	30	645
Plow	O. K. Hamre	314,017	Mar. 17	1339	349	30	1043
Plow	J. Howard and H. W. Gibbs	314,673	Mar. 31	2207	586	30	1238
Plow	F. M. Mott	311,511	Feb. 3	69	20	30	362
Plow	M. L. Rinehart	310,227	Jan. 6	83	22	30	18
Plow	W. H. Ryer	311,449	Jan. 27	1734	472	30	339
Plow	J. C. F. Schenck	314,609	Mar. 31	2121	565	30	1223
Plow	G. O. C. Srygley	312,296	Feb. 17	1286	356	30	603
Plow	L. B. White	313,394	Mar. 3	497	129, 130	30	868
Plow and mold-board therefor	D. Harger	314,445	Mar. 24	1898	507	30	1157
Plow-beam and attachment	J. Logan	310,694	Jan. 13	687	188	30	136
Plow. Combination	J. L. Clower	313,473	Mar. 10	608	157	30	898
Plow. Convertible	H. D. Terrell	310,333	Jan. 6	238	65	30	45
Plow-feeder	G. C. Miller	311,909	Feb. 10	603	165	30	468
Plow-fender	W. H. Stone	311,857	Feb. 3	512	139	30	445

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Plow. Gang	J. W. Bartlett	310,775	Jan. 13	789	213, 214	30	155
Plow-handle	H. D. Spangler	311,790	Feb. 3	427	115	30	422
Plow. Hillside	W. Strait	313,122	Mar. 3	109	27	30	797
Plow. Hilling	R. Schuster	310,855	Jan. 13	885	235	30	173
Plow. Hilling	G. W. Mullin	313,838	Mar. 10	1081	280	30	986
Plow-point	J. R. Summerson	314,992	Mar. 31	2650	701	30	1317
Plow pulverizing attachment	J. L. Delano	312,438	Feb. 17	1338	360	30	613
Plow. Reversible	C. Myers	312,649	Feb. 24	1624	447	30	675
Plow. Reversible	M. C. Niles	314,980	Mar. 24	1649	437	30	1109
Plow. Rotary	A. D. Sewell	311,041	Jan. 20	1151	314	30	227
Plow. Side-hill sulky	D. O. Page	314,050	Mar. 17	1377	359	30	1050
Plow-stock. Double-foot	L. M. Brock	312,324	Feb. 17	1189	325	30	584
Plow. Sulky	O. H. Field	311,736	Feb. 3	356	98, 99	30	416
Plow. Sulky	T. H. Latimer	314,691	Mar. 31	2225	592	30	1241
Plow. Sulky	R. E. Linham	311,016	Jan. 20	1116	305	30	220
Plow. Sulky	E. D. Meagher and C. E. Tower	313,749	Mar. 10	908	250	30	906
Plow. Sulky	W. L. Casaday	313,298	Mar. 3	361	99, 90	30	842
Plow. Wheel	G. Moore	313,947	Mar. 17	1255	327, 328	30	1026
Plowshare attachment	S. Hamilton	311,980	Feb. 10	710	195	30	487
Plumber's trap	C. E. Heiss	314,670	Mar. 31	2204	585	30	1237
Pneumatic separator	D. Car-Skaden	310,251	Jan. 6	112	31, 32	30	23
Pocket and cap. Combined detachable	A. Heller	314,333	Mar. 24	1753	467	30	1128
Poke. Horse and mule	W. Simms	314,863	Mar. 31	2509	665	30	1294
Pole and shaft for vehicles	H. N. Timms	313,128	Mar. 3	117	28, 29	30	798
Pool-rack	C. Miller	311,843	Feb. 3	490	134	30	441
Pool-tables. Electric indicator for	E. Curtis	313,404	Mar. 3	511	134	30	872
Portable elevator	S. W. Rowell	312,387	Feb. 17	1208	350, 351	30	600
Post: *See* Fence-post.							
Post-hole digger	R. Cummings	313,476	Mar. 10	613	159	30	899
Pot: *See* Coffee-pot. Tea or coffee pot. Flower-pot.							
Potash. Apparatus for the manufacture of prussiate of	E. R. Carhuff	310,376	Jan. 6	288	79	30	55
Potassium. Manufacture of ferro-cyanide of	H. Bower	312,248	Feb. 17	1078	.....	30	564
Potato cleaning and grading machine	I. V. Puterbaugh	313,105	Mar. 3	91	23	30	793
Potato-digger	W. Benedict	311,635	Feb. 3	235	66	30	393
Potato-digger	S. Huber	313,670	Mar. 10	857	223	30	947
Powder: *See* Blasting-powder.							
Power: *See* Animal-power. Horse-power. Churn-power.							
Power-transmitter. Variable frictional	M. L. Metzger and A. Cooper	313,831	Mar. 10	1079	249	30	986
Power-transmitting device	J. Ward	314,207	Mar. 17	1579	418	30	1066
Preserving and transporting oysters, &c. Apparatus for	D. W. Simonson	314,732	Mar. 31	2284	606	30	1252
Preserving by gases. Apparatus for	G. Holgate	313,736	Mar. 10	947	245	30	962
Preserving food. Case for	J. J. Hoyt	313,076	Mar. 3	50	13	30	787
Preserving fruits, &c. Device for	M. A. Tipney	313,129	Mar. 3	119	29	30	798
Press: *See* Baling-press. Jeweler's press. Cider-press. Printing-press. Cotton and hay press. Wine and cider press.							
Press	J. H. Bock	313,914	Mar. 17	1205	314, 315	30	1017
Press	W. S. Ford	311,824	Feb. 3	406	126, 127	30	436
Press	S. T. Richardson	311,368	Jan. 27	1628	446	30	320
Press-box	G. B. Boomer	314,911	Mar. 31	2251	674	30	1300
Presses. Strain-indicator for screw	R. E. Boschert	312,600	Feb. 24	1826	502	30	711
Pressure-regulator	G. Westinghouse, Jr	310,347	Jan. 6	254	70	30	48
Pressure-regulator and cut-off	G. Westinghouse, Jr	312,543	Feb. 17	1494	407	30	641
Pressure-regulator and relief-valve	G. Westinghouse, Jr	310,348	Jan. 6	255	70	30	48
Printed sheets of paper. Machine for varnishing	J. T. Hawkins	310,200	Jan. 6	54	15	30	13
Printer's form	F. K. Tracy	314,495	Mar. 24	1975	525	30	1169
Printers' leads, slugs, &c. Machine for shaving	W. F. Klose	314,384	Mar. 24	1818	484	30	1142
Printer's quoin	J. N. O. Hankinson	312,645	Feb. 24	1869	518	30	722
Printer's quoin	W. Hendrickson	312,650	Feb. 24	1896	519	30	723
Printer's rule	A. D. Stern	312,302	Feb. 17	1161	317	30	579
Printing-bars. Machine for producing	O. Mergenthaler	313,224	Mar. 3	268	67, 68, 69, 70, 71	30	896
Printing-machine	E. Anthony	314,556	Mar. 31	2056	548, 549, 550	30	1211
Printing-machine	G. C. Gill	311,976	Feb. 10	704	193	30	486
Printing-machine	W. Scott	312,022	Feb. 10	767	209	30	498
Printing-machine	W. Scott	312,389	Feb. 17	1272	351	30	601
Printing machine. Chromatic	W. Scott	312,769	Feb. 24	1784	492	30	704
Printing-machine delivery apparatus	E. Anthony	314,555	Mar. 31	2053	547, 548	30	1211
Printing machine. Rubber-stamp hand	R. Gaiger	312,455	Feb. 17	1366	377	30	618
Printing-machine sheet-delivery apparatus	L. C. Crowell	313,473	Mar. 10	610	158, 159	30	899
Printing-plates. Producing gelatinous	W. B. Woodbury	310,466	Jan. 6	410	.....	30	79
Printing-press	C. B. Cottrell	314,166	Mar. 17	1529	401	30	1078
Printing-press	G. P. Fenner	311,735	Feb. 3	355	98	30	416

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Printing-press buffer-spring	J. T. Hawkins	313,205	Mar. 3	243	61	30	822
Printing-press card-feeding attachment	S. A. Spencer	314,203	Mar. 17	1575	417	30	1066
Printing-press receiving-table	A. Overend	312,217	Feb. 10	1037	284	30	547
Printing-press sheet-delivering apparatus	B. Huber	311,432	Jan. 27	1715	467	30	335
Printing-surfaces. Matrix for	J. O. Clephane	311,411	Jan. 27	1686	460	30	331
Printing-surfaces. Producing	J. O. Clephane	311,414	Jan. 27	1691	461	30	331
Printing-surfaces. Producing	O. Mergenthaler	311,350	Jan. 27	1603	438 / 439	30	315
Projectile	L. Hopson	313,075	Mar. 3	49	13	30	787
Projectile. Line-throwing	P. B. Roys	310,832	Jan. 13	882	239	30	172
Projectile. Pneumatic	W. T. Chamberlain	310,640	Jan. 13	625	173	30	125
Projectile. Pneumatic	W. T. Chamberlain	312,971	Feb. 24	2047	558	30	750
Projectile. Pneumatic	W. T. Chamberlain	312,972	Feb. 24	2048	559	30	750
Propeller	J. J. Williams	312,781	Feb. 24	1803	496	30	707
Propeller for boats. Hand	M. Bätz	312,071	Feb. 10	824	225	30	509
Propeller. Marine speed	J. S. Post	312,381	Feb. 17	1261	348	30	599
Propeller-wheel	N. Cain	310,789	Jan. 13	804	218	30	158
Propeller-wheels. Device for molding	J. Dalgarno	311,817	Feb. 3	457	124	30	435
Propelling device for boats	C. F. Smith	314,734	Mar. 31	2266	607	30	1252
Propelling vessels	S. and J. A. Secor	313,689	Mar. 10	877	229	30	951
Propelling vessels by exhaust steam	C. E. Burch	313,981	Mar. 17	1298	338	30	1034
Protector: *See* Pipe-protector. Tree-protector. Plant-protector. Telegraphic and telephonic instrument protector.							
Pruning implement	C. F. Dean	314,230	Mar. 24	1613	426	30	1102
Puddling and heating furnace	T. H. Bennett	311,802	Feb. 3	439	119	30	431
Puller: *See* Stump-puller.							
Pulley	E. L. Babcock	313,467	Mar. 10	603	156	30	897
Pulley	W. W. McCheesney	311,023	Jan. 20	1124	307	30	222
Pulley	P. Werum	312,682	Feb. 24	1668	459	30	683
Pulley	F. S. Taggart	313,553	Mar. 10	706	184	30	917
Pulley-block	A. J. Bell	311,109	Jan. 27	1333	367	30	267
Pulley-block. Rope	J. Withington	311,402	Jan. 27	1674	456 / 457	30	328
Pulley. Cone	H. W. Hill	312,122	Feb. 10	895	243	30	522
Pulley. Friction-clutch	J. A. Horton	313,497	Mar. 10	638	166	30	904
Pulley. Loose	F. Gleason	310 669	Jan. 13	653	179	30	130
Pulley lubricator. Loose	W. J. Ormsby	310,536	Jan. 6	490	134	30	92
Pulley lubricator. Loose	W. J. Ormsby	312 887	Feb. 24	1943	532	30	731
Pulley lubricator. Loose	W. A. Bole	314,780	Mar. 31	2367	631	30	1271
Pulley or crank disk and shaft. Combined	W A. Bole	314,788	Mar. 31	2386	631	30	1271
Pulley or crank-disks to shafts. Securing	W. H. Snelson	312,068	Feb. 24	1651	456	30	681
Pulley-sheave	S. L. Gould	310 940	Jan. 20	1009	273	30	199
Pulp-beating engine. Compound	A. A. Simonds	310,230	Jan. 6	87	23	30	19
Pulp-engines. Bed-plate for	A. B. Tower	311,312	Jan. 27	1398	382 / 383	30	278
Pulp from wood. Machine for grinding	W. H. Howell	314,841	Mar. 31	2457	649	30	1284
Pulp-grinder	E. P. Ely	310,659	Jan. 13	638	176	30	127
Pulp. Machine for the reduction of wood	T. C. D'Spain	312,378	Feb. 17	1208	332	30	588
Pulverizer	O. S. Richmond	313,951	Mar. 17	1265	330	30	1029
Pulverizer	H. C. Bates and G. Bryant	312,697	Feb. 24	1688	465	30	686
Pulverizer. Land	T., W., and J. Birch	313,572	Mar. 10	728	191	30	922
Pulverizing machine. Clay	H. F. Hodges	311,581	Feb. 3	164	47	30	379
Pump	G. H. Holt	312,859	Feb. 24	1897	520	30	723
Pump	A. H. Hutchinson	312,997	Feb. 24	2084	568	30	757
Pump	J. C. Mack	313,353	Mar. 3	446	113	30	859
Pump	H. Mortensen	314,705	Mar. 31	2245	597	30	1245
Pump	D. P. Stewart	314,078	Mar. 17	1410	368	30	1057
Pump	F. D. Maltby	313,603	Mar. 10	770	203	30	929
Pump. Air	A. L. Robbins	313,243	Mar. 3	310	77	30	833
Pump. Air	F. J. Weiss	314,706	Mar. 31	2252	623	30	1266
Pump and engine	A. Johnston	312,726	Feb. 24	1729	475	30	694
Pump. Anti-friction dredging	C. H. Booth	313,649	Mar. 10	837	217	30	942
Pump. Centrifugal	J. Richards	314,878	Mar. 31	2502	663	30	1293
Pump. Centrifugal	G. Yellott	312,788	Feb. 24	1811	498	30	708
Pump. Centrifugal	J. B. Brown	314,913	Mar. 31	2553	675	30	1301
Pump-chains. Device for replacing	H. T. Blackwell	311,638	Feb. 3	239	67	30	394
Pump condenser. Steam	C. H. Foster	314,117	Mar. 17	1472	384	30	1067
Pump. Double-acting submerged	H. Kleiman	310,596	Jan. 20	943	257	30	189
Pump. Ejector	G. W. Coonse	310,561	Jan. 13	516	141	30	105
Pump. Force	G. L. Holmberg	313,669	Mar. 10	856	223	30	947
Pump. Force	A. F. Nagle	313,879	Mar. 17	1153	300	30	1008
Pump. Force	J. B. Brown	314,912	Mar. 31	2553	674	30	1301
Pump-guard	G. Dinkel	311,678	Feb. 10	548	150	30	459
Pump. Magma	G. Greindl	313,415	Mar. 3	523	137	30	875
Pump. Rotary	D. L. Kelly	314,851	Mar. 31	2463	651	30	1286
Pump. Rotary	W. H. Birge	311,945	Feb. 10	651	178	30	477
Pump. Sand	V. G. Barney	312,069	Feb. 10	821	224	30	509
Pump. Sand and water	R. F. Barnes	312,951	Feb. 24	2018	551	30	745
Pump. Vacuum	A. Kux	312,644	Feb. 24	1630	446	30	674
Pump. Vacuum	W. P. Powers	313,521	Mar. 10	666	174	30	909
Pump. Well	W. H. Worthen	311,629	Feb. 3	226	63	30	391
Pumps and engines. Piston for compressor and other	C. A. Wilson	313,793	Mar. 10	1030	264 / 265	30	977
Pumping-engine. Compound steam	W. H. Worthen	314,161	Mar. 17	1523	399 / 400	30	1077
Pumping-engine. Direct-acting	C. P. Deane	313,479	Mar. 10	616	169	30	900
Pumping-engines. Construction of coverings or housings for the steam-cylinders of	G. Allen	313,907	Mar. 17	1190	310	30	1015
Pumping oil-wells. Apparatus for	S. Coons	313,991	Mar. 17	1305	341	30	1036
Punch	J. S. Shannon	310,917	Jan. 20	974	264 / 265	30	194
Punch. Belt	B. M. Hair	311,121	Jan. 20	1205	346	30	247
Punch. Blacksmith's	M. C. Brandenberg	314,647	Mar. 31	2477	577	30	1232
Punch. Conductor's	B. C. Smith	313,027	Feb. 24	2134	580	30	765
Punch. Draw-plate	M. Roesgen	314,543	Mar. 24	2037	543	30	1180
Punch or press. Hand	A. B. Barnard	312,696	Feb. 24	1687	464	30	686
Punch. Ticket	E. B. Hayes	314,241	Mar. 24	1624	429	30	1104
Punching and shearing machines. Double throat for	C. E. McBeth	310,602	Jan. 13	569	157 / 158	30	115
Punching-machine	T. M. Platts	314,474	Mar. 24	1946	518 / 519	30	1164
Putting-out machine	W. M. Hoffman	310,279	Jan. 6	157	44	30	31
Putty-knife	C. Ives	310,682	Jan. 13	671	184	30	133
Quartz-mill	A. E. Redstone	311,032	Jan. 20	1134	310	30	224
Quicksilver from lead. Freeing	A. Patchen	314,711	Mar. 31	2254	.....	30	1247
Quotation-indicating system. Audible	F. B. Herzog	311,757	Feb. 3	387	106	30	421
Rack: *See* Book and paper rack. Pool-rack. Feed-rack. Sheep-rack. Harness-rack. Stock-rack. Hay-rack. Tobacco-transporting rack. Hay and stock rack. Piano music-rack. Wagon-rack.							
Rack-bars. Machine for cutting teeth of	A. S. Granger	313,201	Mar. 3	238	60	30	821
Radiator	W. Hopkins	314,128	Mar. 17	1488	388	30	1070
Radiator	W. Kirkwood	313,082	Mar. 3	57	16	30	788
Radiator. Hot-water	W. H. Brown	310,981	Jan. 20	1069	291	30	211
Radiator. Steam	J. B. Arci and J. Chapman	310,633	Jan. 13	605	167	30	121
Radiator. Steam	J. B. Arci and J. Chapman	310,634	Jan. 13	606	167	30	121
Radiator. Steam	W. G. Cannon	310,375	Jan. 6	287	79	30	55
Radiator. Steam	W. H. Page	310,714	Jan. 13	711	194	30	141
Radiator. Steam	W. H. Page	310,715	Jan. 13	713	194	30	141
Radiator. Steam	L. H. Prentice	313,883	Mar. 17	1158	302	30	1009
Radiator-valve	J. A. Scollay	313,892	Mar. 17	1168	304	30	1011
Radiator valve. Steam	T. S. Hewitt	311,657	Feb. 3	202	72	30	397
Rag-cleaning machine	J. B. Hart and E. H. Walker	311,187	Jan. 27	1365	374	30	272
Rags and saving small rags of the same. Device for cleaning cut	J. B. Hart and E. H. Walker	311,186	Jan. 27	1364	374	30	272
Rail-cutting device	H. C. Krieto	311,589	Feb. 3	177	50	30	381
Rail-fastening device	B. Gallagher	311,162	Jan. 20	1321	363	30	257
Rail-joint	C. Fisher	313,067	Mar. 3	41	11	30	785
Rails in track. Securing girder	A. J. Moxham	313,512	Mar. 10	655	170	30	907
Rails. Making steel girder street	A. J. Moxham	310,457	Jan. 6	375	104	30	73
Railway	J. T. Campbell	310,878	Jan. 20	918	250	30	185
Railway	E. B. Meatyard	310,702	Jan. 13	697	191	30	138
Railway	J. V. Meigs	313,830	Mar. 10	1074	277 / 278 / 279 / 280	30	985
Railway	J. H. Pendleton	312,009	Feb. 10	745	204	30	494
Railway	C. Tiers and J. H. Pendleton	311,045	Jan. 20	1156	315	30	228
Railway-alarm mechanism	W. M. Pease	313,614	Mar. 10	787	207	30	932
Railway and bridge. Elevated	F. Sohnemann	314,728	Mar. 31	2279	605	30	1251
Railway and car-track for the same. Elevated	D. Moulton	312,004	Feb. 10	738	202	30	492
Railway and tramway. Cable	F. De Vooght	310,991	Jan. 20	1080	294 / 295 / 296	30	213
Railway. Cable	J. P. Hunt	312,721	Feb. 24	1723	473	30	693
Railway. Cable	J. B. Low and A. K. Grim	313,602	Mar. 10	769	202	30	929
Railway-chair	C. M. Seltzer and O. T. Moock	313,778	Mar. 10	1004	279	30	973
Railway-chair	F. E. Tapling	311,347	Jan. 27	1655	452	30	325
Railway chair. Street	B. F. Curtis	312,250	Feb. 17	1094	302	30	567
Railway clutch. Cable	N. A. Fisher	310,397	Jan. 6	313	87	30	61
Railway cross-tie. Metallic	A. Gottlieb	310,269	Jan. 6	144	40, 41	30	29
Railway-crossings. Automatic alarm for	J. T. Pritchard	311,607	Feb. 3	198	56	30	386
Railway. Electric	L. Daft	312,557	Feb. 17	1512	412	30	645
Railway. Elevated	J. Jenkinson	314,247	Mar. 24	1630	431	30	1105
Railway. Endless-rope	W. H. H. Sisum	312,913	Feb. 24	1972	539	30	737
Railway-frog	N. W. Boyd	312,801	Feb. 24	1828	502	30	711
Railway-frog	W. H. Dickson	312,443	Feb. 17	1343	370	30	615
Railway-frog	T. B. Jewett	310,591	Jan. 13	557	155	30	113
Railway-frog	I. A. Perry	313,308	Mar. 3	465	120	30	863
Railway frog and switch combined. Adjustable	J. W. and F. N. Eldridge	312,619	Feb. 24	1586	434	30	668
Railway-frog crossing	C. B. Price	310,613	Jan. 13	580	160	30	117
Railway-gate	S. J. Wetmore	311,277	Jan. 27	1502	410 / 411	30	297
Railway. Mine	J. C. Fowle, J. P. Christopher, and W. P. Smith.	314,010	Mar. 17	1329	347	30	1041
Railway-rail joint	J. A. Foley	313,661	Mar. 10	849	221	30	945
Railway-rail joint	J. L. Kimball	314,686	Mar. 31	2221	590	30	1241
Railway-rail joint	I. J. Miller, Jr.	312,490	Feb. 17	1416	390	30	627
Railway-rail joint	E. A. G. Roulstone	313,110	Mar. 3	95	24	30	794
Railway-rail joint	G. B. Wilt	311,454	Jan. 27	1740	474	30	340
Railway-rail joint, chair, and splice	W. F. Gould	310,581	Jan. 13	543	149 / 150	30	110
Railway rail. Street	T. L. Beaman	310,640	Jan. 13	614	169	30	123
Railway-rails. Device for connecting the ends of	E. S. Hovey	311,002	Jan. 20	1098	300	30	317
Railway-rails. Device for securing fish-plates to joints of	J. M. Burke	314,314	Mar. 24	1727	459	30	1124
Railway-signal	A. Hoffmann	313,936	Mar. 17	1242	323	30	1023
Railway-signal	C. R. Johnson	310,519	Jan. 6	450	124	30	88

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Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Railway-signal. Apparatus for actuating the lever of a	A. H. Stetson	313,895	Mar. 17	1171	305	30	1011
Railway-signal. Electric	W. T. Waters	314,760	Mar. 31	2314	615, 616	30	1258
Railway-signal. Electric	W. T. Waters	314,761	Mar. 31	2317	616, 617	30	1259
Railway-signal. Electric	W. T. Waters	314,762	Mar. 31	2323	617, 618, 619	30	1260
Railway-signal. Electrical	W. T. Waters	314,763	Mar. 31	2331	619, 620, 621, 622	30	1261
Railway-signal. Pneumatic	E. M. Chase	311,959	Feb. 10	672	184, 185	30	481
Railway-signals. Single-rail circuit for electric	H. D. Winton	311,650	Jan. 20	1163	318	30	229
Railway signaling apparatus	W. Hadden	312,627	Feb. 24	1564	436	30	669
Railway-sleepers. Treating	J. B. Blythe	313,912	Mar. 17	1198	312, 313	30	1016
Railway-spike	J. McMurtry	314,892	Mar. 31	2492	657	30	1290
Railway structure. Underground	R. R. Hazard	314,021	Mar. 17	1344	350	30	1044
Railway-switch	A. Ayres	311,801	Feb. 3	438	118	30	430
Railway-switch	A. E. Bach	313,798	Mar. 10	1036	266	30	978
Railway-switch	R. W. Farrell	310,306	Jan. 6	311	86	30	60
Railway-switch	J. W. Henderson	313,866	Mar. 17	1133	295	30	1004
Railway-switch	C. D. Walters	313,264	Mar. 3	333	82	30	837
Railway-switch. Automatic	C. S. Drake	313,922	Mar. 17	1233	320, 321	30	1022
Railway-switch. Automatic	A. Wulff	314,554	Mar. 24	2048	546	30	1182
Railway-switch indicator	G. Otte	311,846	Feb. 3	494	135	30	441
Railway-switches. Tie or connecting bar for	J. T. Richardson	311,148	Jan. 20	1305	359, 360	30	255
Railway system and car. Electric	M. H. Smith	310,902	Jan. 20	1042	262, 263	30	205
Railway-tie	A. A. Harison	313,072	Mar. 3	45	12	30	786
Railway-tie	E. N. Higley	312,717	Feb. 24	1717	472	30	691
Railway-tie	W. H. Knowlton	312,566	Feb. 17	1524	415	30	647
Railway-tie	W. McVey	312,881	Feb. 24	1939	530	30	730
Railway-tie	C. M. Van Orman	314,158	Mar. 17	1520	398	30	1076
Railway-tie	L. O. Vanderbilt and M. E. Campany	313,260	Mar. 3	330	81	30	836
Railway-tie. Metallic	C. H. Van Orden	314,757	Mar. 31	2312	615	30	1258
Railway tie or support	J. K. Clark	310,794	Jan. 13	810	219, 220	30	159
Railway-track	S. W. Hudson	310,281	Jan. 6	159	45	30	31
Railway-track. Street	F. J. Underwood	310,234	Jan. 6	92	24	30	20
Railway-track to be used in connection with variable railway-trucks	G. W. Bemis, Sr	313,978	Mar. 17	1496	337	30	1034
Railway-tracks and gas-pipe lines. System for the protection of	G. Westinghouse, Jr	314,089	Mar. 17	1432	374	30	1060
Railway-tracks. Apparatus for laying	C. R. Goodman	312,626	Feb. 24	1594	436	30	669
Railway traction-cables. Cable-way for	T. L. Johnson	310,284	Jan. 6	162	45, 46	30	32
Railways, &c. Automatic time-signal for	F. H. Young and F. I. Davis	311,706	Feb. 3	321	88	30	409
Railways. Carrying-pulley for cable	R. Gillham	312,024	Feb. 24	1591	436	30	669
Railways. Double cable for cable	T. L. Johnson	310,285	Jan. 6	165	46	30	33
Railways. Pneumatic block signal for	W. H. Schmelz	314,060	Mar. 17	1386	363	30	1052
Rake: *See* Harvester-rake. Horse-rake. Hay-rake. Lawn-rake.							
Rake and pitchfork. Combined	A. Alderman	313,843	Mar. 17	1105	287	30	999
Range or stove	I. Hayes	310,276	Jan. 6	153	42	30	30
Ratchet-drill	J. C. Imlay	314,449	Mar. 24	1902	508	30	1158
Rattan. Die for cutting	H. Heywood and D. F. Pratt	311,658	Feb. 3	263	72	30	398
Rattan-scraping machine	A. McDonald	314,042	Mar. 17	1368	357	30	1049
Razor-guard	A. V. Brokhalme	311,466	Feb. 3	8	3	30	350
Razor-guard	H. Dufuf	311,067	Jan. 20	1190	327	30	234
Razor-strop	B. F. Badger	312,603	Feb. 24	1580	429	30	665
Razor-strop	W. D. Evans	312,104	Feb. 10	868	238	30	518
Reamer	G. R. Stetson	312,920	Feb. 24	1962	541	30	738
Reaper. Hand	G. J. Parham	310,537	Jan. 6	481	134	30	92
Reclining-chair	J. P. Ellacott	311,882	Feb. 10	552	151, 152	30	459
Reed	J. B. Hamilton	312,115	Feb. 10	886	241	30	521
Reed-plates and reeds. Manufacture of	M. Bray	312,322	Feb. 17	1187	325	30	584
Reel: *See* Bolting-reel. Fishing-reel. Centrifugal reel.							
Reeling silk. Machine for	C. H. Knapp	312,865	Feb. 24	1922	526	30	727
Reflector	E. D. Peck	310,611	Jan. 13	579	160	30	117
Refrigerating apparatus	N. W. Condict, Jr., and T. Rose	311,092	Jan. 20	1165	325	30	233
Refrigerating apparatus. Air	C. P. Marshall	310,312	Jan. 6	68	18	30	15
Refrigerating-machine	C. G. Mayer	311,506	Feb. 3	61	18	30	360
Refrigerating-machine	A. Osenbrück	311,098	Jan. 20	1130	308, 309	30	223
Refrigeration for railway-cars, &c	W. H. Doughty	311,298	Jan. 27	1531	417	30	302
Refrigerator	W. S. G. Baker	310,975	Jan. 20	1061	288	30	209
Refrigerator	G. S. Brown	310,371	Jan. 6	221	77	30	54
Refrigerator	E. Z. Collings and C. F. Pike	311,813	Feb. 3	453	123	30	433
Refrigerator	E. Z. Collings and C. F. Pike	311,814	Feb. 3	454	123	30	434
Refrigerator	J. Linsley	310,211	Jan. 6	66	18	30	15
Refrigerator and filter	A. McClain	314,597	Mar. 31	2106	561, 562	30	1220
Refrigerator-car	T. N. Ely and J. W. Cloud	312,830	Feb. 24	1871	512	30	719
Refrigerator-door	G. A. McArthur	313,876	Mar. 17	1148	299	30	1007

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Refrigerator for preserving oysters, clams, &c	L. Faber	310,886	Jan. 20	226	253	30	187
Refrigerator, ice-box, and cool storage-room	J. Folger	313,308	Mar. 3	354	98	30	848
Refrigerator water-cooling attachment	J. R. Guenther	314,175	Mar. 17	379	404	30	1079
Refrigerators, &c. Non-conducting composition for	J. M. Ordway	310,461	Jan. 6	1544	105	30	74
Regenerative furnace	G. Leuffgen	313,348	Mar. 3	411	111, 112	30	858
Regenerative furnace	T. T. Morrell	313,754	Mar. 10	976	252	30	967
Regenerator-furnace	W. S. McKenna	314,861	Mar. 31	2481	656, 657	30	1289
Register: *See* Billiard-register. Fare-register. Car-register. Morse register. Cash-register. Time-check register.							
Register-front	S. Tuttle, Jr	311,154	Jan. 20	1314	361	30	256
Regulator: *See* Damper-regulator. Grain-separator blast-regulator. Electric-machine regulator. Pressure-regulator. Fluid-regulator. Roller-mill feed-regulator. Gas-regulator. Speed-regulator. Gas-pressure regulator. Temperature-regulator. Watch-regulator.							
Rein-holder	C. Schoch	312,517	Feb. 17	1462	400	30	635
Rein-holder	J. F. A. Winkelmann	314,356	Mar. 24	1785	475	30	1135
Rein-holder	O. M. Youngs	314,409	Mar. 24	1850	493	30	1148
Rein holder. Check	J. W. Trussell	313,131	Mar. 3	120	29	30	799
Rein-hook	D. Hutchinson	310,569	Jan. 13	555	154	30	112
Rein spring. Check	L. E. Champlain and G. G. Winans	312,330	Feb. 17	1195	327	30	585
Rein supporter and protector	J. A. Cushwa	310,983	Jan. 20	923	252	30	196
Respirator	M. Souvielle	314,070	Mar. 17	1402	366	30	1055
Revolver	J. T. Smith	311,383	Jan. 27	1650	451	30	324
Revolver-lock	J. T. Smith	314,067	Mar. 17	1398	365	30	1054
Revolving stand	E. R. H. Teeter	312,528	Feb. 17	1473	403	30	637
Rheostat	J. Doyle	311,890	Feb. 3	460	125	30	435
Rice. Flake	J. F. Gent	312,265	Feb. 17	1100	.....	30	568
Rigging-stretcher	H. H. Pickenpack	311,605	Feb. 3	195	55	30	385
Ring: *See* Finger-ring. Line-ring. Key-ring.							
Ring-traveler machine	R. J. Gilmore	310,577	Jan. 13	537	147, 148	30	108
Rings. Show-tray for	A. Friedenthal	312,835	Feb. 24	1879	514	30	720
Riveting-machine	R. H. Tweddell, J. Platt, and J. Fielding.	310,546	Jan. 6	497	137	30	95
Riveting-machine	R. H. Tweddell, J. Platt, and J. Fielding.	310,547	Jan. 6	498	138	30	95
Road-engine	A. O. Frick	314,172	Mar. 17	1541	403	30	1079
Roaster: *See* Coffee-roaster.							
Rock and ore crushing machine	D. R. Fraser	313,818	Mar. 10	1057	272	30	962
Rock-crusher	A. G. and J. M. Dyer	310,656	Jan. 13	634	175	30	126
Rock-crusher and pulverizer	A. G. and J. M. Dyer	311,235	Jan. 27	1437	392	30	985
Rock-drill	C. S. Westbrook	312,537	Feb. 17	1485	406	30	639
Rock-drill	C. S. Westbrook	312,538	Feb. 17	1488	406	30	640
Rock-drill	W. R. Willetts and H. Ball	314,897	Mar. 31	2533	670	30	1297
Rock-drill	G. F. Wynne	314,913	Mar. 17	1584	419	30	1068
Rock-drill. Core	L. D. Conner and C. F. Peebles	312,003	Feb. 10	857	235	30	516
Rock-drill. Hand-power	L. W. Tracy	312,304	Feb. 17	1163	318	30	590
Rock-drill. Steam	J. C. Githens	312,748	Feb. 17	1226	337	30	591
Rock-drill support	C. S. Westbrook	312,539	Feb. 17	1489	406	30	640
Rock-drill support	C. S. Westbrook	312,540	Feb. 17	1491	407	30	640
Rock-drill tripod	G. M. Githens. (Reissue)	10,572	Mar. 17	1589	420	30	1069
Rock-drill valve	G. R. Cullingworth	310,653	Jan. 13	632	174	30	126
Rock-drills. Rotating feed for steam	J. C. Githens	312,346	Feb. 17	1224	337	30	591
Rock-drills. Rotatory feed for	E. E. Quimby	312,383	Feb. 17	1254	340	30	599
Rock-drills. Rotatory feed for steam	J. C. Githens	312,347	Feb. 17	1225	337	30	591
Rock-drilling machine	H. F. Parsons	314,343	Mar. 24	1769	471	30	1131
Rock-drilling machine	J. M. Richardson	311,786	Feb. 3	422	114	30	427
Rock-drilling machine	L. W. Tracy	314,755	Mar. 31	2310	614	30	1257
Rock-drilling machines. Support for	J. B. Waring	312,412	Feb. 17	1304	360	30	607
Rock. Hardening and coloring serpentine	J. J. Pratt	313,522	Mar. 10	667	.....	30	916
Rock-pulverizer	D. C. Ebaugh	312,343	Feb. 17	1217	334, 335	30	589
Rocket	R. F. Linton	310,598	Jan. 13	566	156	30	114
Rocking-chair attachment	W. I. Bunker	313,707	Mar. 10	905	235	30	955
Rocking-chair. Platform	J. W. Kenna	313,429	Mar. 3	543	143	30	878
Rocking-chair spring attachment	W. I. Bunker	314,513	Mar. 24	1998	532	30	1173
Roll-feed mechanism. Intermittent	H. K. Jones	314,451	Mar. 24	1904	506, 509	30	1158
Roller: *See* Curtain-roller. Shade-roller. Land-roller. Window-screen roller.							
Roller-mill	S. R. Campbell	310,374	Jan. 6	285	78, 79	30	55
Roller-mill	F. Ferrier	312,623	Feb. 24	1590	435	30	669
Roller-mill	J. M. Finch	313,816	Mar. 10	1055	271, 272	30	962
Roller-mill	J. W. Galloway	313,312	Mar. 3	400	99	30	849
Roller-mill	N. W. Holt	310,430	Jan. 6	345	95	30	67
Roller-mill	J. D. Millar	311,508	Feb. 3	63	19	30	361
Roller-mill	G. T. Smith and W. F. Cochrane	312,392	Feb. 17	1277	353, 354	30	602
Roller-mill	J. Warrington	312,048	Feb. 10	791	216, 217	30	503
Roller-mill feed-distributer	J. Kincaid	314,667	Mar. 31	2222	500	30	1241

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Roller-mill feed-regulator	F. M. Tatlow	314,627	Mar. 31	2150	571	30	1227
Roller-mill feeder	J. W. Wilson	314,552	Mar. 24	2046	545	30	1161
Roller-mill pressure-indicator	E. Strong	311,927	Feb. 10	625	173	30	473
Roller-mill scraper	J. Warrington	314,278	Mar. 24	1678	447	30	1115
Rolling axles, spindles, and other metal articles. Machine for	M. E. Shay	311,924	Feb. 10	619	171, 172	30	472
Rolling irregular forms. Machine for	L. D. Farra	312,107	Feb. 10	870	238	30	518
Rolling-mill	J. Hemphill	313,206	Mar. 3	244	61, 62	30	892
Rolling-mill	F. H. Treat	314,083	Mar. 17	1416	370, 371, 372	30	1058
Rolling-mill appliance	D. H. Lentz	314,297	Mar. 24	1707	454, 455	30	1120
Rolling-mill feeding attachment	R. W. Hunt	312,640	Feb. 24	1614	443, 444	30	673
Rolling-mill feeding device	W. B. Chisholm, J. Walker, and E. H. Martin.	311,229	Jan. 27	1429	390	30	283
Rolling-mill feeding-table	R. W. Hunt	310,893	Jan. 20	934	254	30	188
Rolling-mill for rails	A. J. Moxham	312,213	Feb. 10	1031	282	30	546
Rolling-mill for rods	J. T. Rowley	311,990	Feb. 10	613	169	30	470
Rolling-mill for rolling leafed wire for the manufacture of barbed wire.	F. H. Treat	314,082	Mar. 17	1415	368, 370	30	1058
Rolling-mill for tramway-rails	H. Kochler	311,250	Jan. 27	1455	397	30	288
Rolling mill. Rail	H. C. Kriete	311,588	Feb. 3	175	49	30	381
Rolling-mills. Automatic feeding-table for	R. W. Hunt and M. M. Suppes	311,899	Feb. 10	590	161, 162	30	466
Roof	J. G. Staunton	314,076	Mar. 17	1408	367	30	1056
Roof. Adjustable	L. D. Vogel	313,559	Mar. 10	713	186	30	919
Roof and bridge truss	G. H. Pegram	314,262	Mar. 24	1653	438, 439	30	1110
Roof. Fire-proof composite	T. H. White	313,971	Mar. 17	1282	335	30	1032
Roof. Metal	L. L. Sagendorph	313,376	Mar. 3	473	123, 124	30	865
Roofs. Attaching slates to	G. Martin	313,506	Mar. 10	648	168	30	906
Roofing-bracket	E. Prescott	311,676	Feb. 3	283	78	30	402
Roofing cleats. Machine for bending tin	S. A. Phillips	312,013	Feb. 10	751	205	30	495
Roofing, Composite	W. Conltas	311,569	Feb. 3	148	.....	30	376
Roofing, &c. Composition for gravel or granite	T. Vaughan	310,625	Jan. 13	506	.....	30	119
Roofing. Compound for coating metallic	S. B. Johnston and S. Hunter	314,584	Mar. 31	2091	.....	30	1217
Roofing-felt. Manufacture of	W. H. H. Childs	314,429	Mar. 24	1879	501	30	1153
Roofing-finishing	L. D. Cortright	313,852	Mar. 17	1114	285	30	1001
Roofing for buildings	L. D. Cortright	313,853	Mar. 17	1116	289	30	1001
Roofing-machine. Sheet-metal	J. L. Helton	310,894	Jan. 13	848	230	30	166
Roofing material. Apparatus for manufacturing flexible	L. L. Sagendorph	310,544	Jan. 6	494	137	30	95
Roofing. Sheet-metal	L. L. Sagendorph	312,658	Feb. 24	1635	450	30	678
Rope-socket	J. H. Banser	310,360	Jan. 6	270	74	30	52
Rope-stopper	W. M. Ballivant	311,565	Feb. 3	145	41	30	376
Ropes and yarns. Manufacturing tarred	A. W. Montgomery	312,286	Feb. 17	1142	.....	30	576
Rose-engine	A. Schwitter	314,064	Mar. 17	1394	364	30	1053
Rotary cutter	W. D. Orcutt	311,201	Jan. 27	1386	379	30	275
Rotary engine	C. F. Jansson	313,500	Mar. 10	640	166	30	905
Rotary engine	C. H. Melville and T. W. Brown	310,531	Jan. 6	469	129	30	90
Rotary engine	F. C. Morton	310,843	Jan. 13	871	235, 236	30	170
Rotary engine	J. L. Mitchell	314,389	Mar. 24	1827	486	30	1143
Rotary engine. Concentric	J. B. Ewer	311,240	Jan. 27	1443	393, 394	30	286
Rotary engine or pump	R. H. Heenan and R. H. Froude	312,116	Feb. 10	887	241, 242	30	521
Rotary engine. Reversible	C. P. Case	313,055	Mar. 3	21	6, 7	30	782
Rotary engine. Reversible	C. P. Case	313,056	Mar. 3	28	7, 8	30	783
Rotary steam-engine	J. Beystrum	311,718	Feb. 3	332	92	30	412
Rotating apparatus. Hand-pressure	A. Schmid	310,323	Jan. 6	219	60	30	42
Roundabout	W. Sassack	314,881	Mar. 31	2507	665	30	1294
Roving-can	D. R. Kennedy	314,685	Mar. 31	2221	590	30	1240
Roving for spinning purposes. Machinery for the manufacture of	A. T. Atherton	311,096	Jan. 20	1231	337	30	241
Rowing apparatus	B. Doscher	314,001	Mar. 17	1317	344	30	1039
Rowlock	O. B. Fenner	314,659	Mar. 31	2194	582	30	1235
Rubber from rubber waste. Recovering	C. J. McDermott	311,135	Jan. 20	1287	.....	30	252
Rudder attachment	W. Johnson	313,339	Mar. 3	429	108	30	855
Rudders to boats. Attaching	J. F. Mumm	310,458	Jan. 6	376	104	30	71
Rule-gage	J. W. Hunt and J. Bressler	311,584	Feb. 3	169	48	30	380
Ruling and engraving machine	R. W. Bentley	313,648	Mar. 10	820	216, 217	30	941
Running-gear	G. W. Shaw	314,348	Mar. 24	1775	472	30	1133
Saccharine liquors and production and recovery of these reagents. Process of and apparatus for baryta or strontia treatment of	H. Leplay	310,448	Jan. 6	365	101	30	71
Sack-holder	L. H. Gnilford	314,930	Mar. 31	2576	692	30	1305
Sack-holder	J. W. Rush	314,300	Mar. 24	1713	455	30	1121
Sack-holder	C. D. Wood	310,353	Jan. 6	261	72	30	50
Saddle. Harness	B. F. Archer	313,153	Mar. 3	154	38	30	805
Saddle. Harness	W. H. Sipperly	311,856	Feb. 3	512	138	30	444
Saddle. Harness	W. H. Wheeler	310,238	Jan. 6	96	26	30	20
Saddle pad. Harness	E. E. Armstrong	311,940	Feb. 10	641	176	30	476
Safety-pin	H. St. John	313,691	Mar. 10	880	229	30	951
Sail-boat	I. Garrard	313,664	Mar. 10	852	221, 222	30	946
Sails. Reefing upper top	R. M. Belfrage	313,279	Mar. 3	351	86	30	840
Salt-grainer	R. M. Hunter	312,563	Feb. 17	1520	414	30	646
Sand-drier	A. V. Hartwell	313,732	Mar. 10	942	244	30	961
Sand-washing machine	C. W. Kilborn	314,852	Mar. 31	2465	651	30	1226

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Sash and door sticker	J. H. Glover	310,579	Jan. 13	540	148, 149	30	109
Sash-cord fastener	W. H. Christ	314,799	Mar. 31	2400	635	30	1274
Sash cord guide	D. Shealy	312,025	Feb. 10	771	210	30	499
Sash-fastener	J. Ashton	314,162	Mar. 17	1525	400	30	1077
Sash-fastener	D. E. Bedell	314,782	Mar. 31	2378	629	30	1270
Sash-fastener	O. Beneon	310,930	Jan. 20	991	269	30	196
Sash-fastener	W. Brown	311,288	Jan. 27	1521	414	30	300
Sash-fastener	F. M. Case	312,251	Feb. 17	1060	298	30	565
Sash-fastener	B. S. Curry	314,018	Mar. 31	2561	677	30	1302
Sash-fastener	R. S. Noble	314,974	Mar. 31	2639	698	30	1315
Sash-fastener	B. L. Rex	311,366	Jan. 27	1626	445	30	319
Sash-fastener	F. A. Weston and H. C. Trost	311,049	Jan. 20	1162	317, 318	30	229
Sash-fastener	N. Wilson	313,638	Mar. 10	814	213	30	938
Sash-fastener and sash-lift. Combined	G. L. Elliott	313,580	Mar. 10	738	194	30	934
Sash fastener and lift. Combined	F. W. Seymour	312,023	Feb. 10	770	209	30	499
Sash-fastening	J. C. Hibbs	312,368	Feb. 17	1103	305	30	568
Sash-fastening	E. O. Ladd	313,563	Mar. 10	645	167	30	905
Sash-fastening	T. S. Smith	314,350	Mar. 24	1777	473	30	1133
Sash-fastening	G. Thumshirn	313,258	Mar. 3	226	61	30	836
Sash-holder	F. Aurand and F. H. Sherer	312,315	Feb. 17	1176	322	30	582
Sash-holder	F. Burmeister	310,983	Jan. 20	1073	292	30	212
Sash-holder	N. Clark	311,672	Feb. 10	540	148	30	457
Sash-holder	C. A. Paul	310,220	Jan. 6	76	20	30	17
Sash-holder	A. L. Wilkinson	314,896	Mar. 31	2532	670	30	1297
Sash-holder and weather-strip. Combined	A. J. Davis	310,564	Jan. 13	521	143	30	106
Sash pull. Window	H. B. Sargent	313,687	Mar. 10	875	228	30	950
Sash raising and lowering device. Window	H. Eitel and J. E. Hunt	312,202	Feb. 17	1097	303	30	567
Sash-supporter	J. D. Simmons	314,201	Mar. 17	1573	416	30	1085
Sash-weight holder	J. Riley	314,606	Mar. 31	2120	565	30	1223
Sausage-stuffing machine. Hydraulic	F. W. Tuerk, Jr.	313,556	Mar. 10	710	185	30	918
Saw	J. Ledward	312,133	Feb. 10	905	247	30	524
Saw	A. Lord	311,445	Jan. 27	1719	468	30	336
Saw-arbor	H. D. Wolcott	314,637	Mar. 31	2165	574	30	1230
Saw. Drag	J. H. Hulburt	312,205	Feb. 10	1022	279	30	545
Saw. Drag	M. O. Smith	312,299	Feb. 17	1157	316	30	579
Saw. Drag	F. A. Strong	314,152	Mar. 17	1513	396	30	1074
Saw-fastenings. Device for adjusting	A. J. Linton and R. D. Stewart	312,870	Feb. 24	1927	527	30	728
Saw-filing machine	H. Sherman	310,735	Jan. 13	736	200	30	146
Saw-fitting tool	W. Golden	311,481	Feb. 3	26	7	30	353
Saw-frame rod	C. Tenney	310,866	Jan. 13	898	243	30	175
Saw-guard	J. G. Groff	311,486	Feb. 3	34	10	30	335
Saw-gummer	H. Van Nostrand	312,935	Feb. 24	2000	547	30	742
Saw-handle	F. A. Buell	314,562	Mar. 31	2067	552	30	1213
Saw-jointer	G. H. Mayer	314,040	Mar. 17	1367	356	30	1048
Saw-mill carriages. Steam-brake for	W. A. Campbell	314,650	Mar. 31	2189	578	30	1233
Saw-mill dog	E. and C. M. Drake	310,190	Jan. 6	41	13	30	10
Saw-mill dog	W. H. Snyder	314,071	Mar. 17	1403	366	30	1055
Saw-mill dog	H. M. Wilcox	314,279	Mar. 24	1679	447, 448	30	1115
Saw-mill dog	T. S. Wilkin	313,395	Mar. 3	800	130	30	869
Saw-mill head-block	H. C. Robb	313,531	Mar. 10	675	177	30	911
Saw-mill head-block	T. S. Wilkin	311,701	Feb. 3	316	87	30	408
Saw-mill roller	S. B. Pierce	314,470	Mar. 24	1941	517	30	1164
Saw-mill set-works	D. C. Prescott	310,848	Jan. 13	877	237, 238	30	172
Saw-mill set-works	T. S. Wilkin	313,396	Mar. 3	502	130, 131	30	869
Saw-set	W. Kopf	314,944	Mar. 31	2596	687	30	1309
Saw-set	J. B. Tupper	313,557	Mar. 10	711	185	30	919
Saw-swage	L. B. Young	312,061	Feb. 10	811	221	30	507
Saw-swaging machine	B. H. Miller	310,706	Jan. 13	705	192	30	140
Saw-tab	L. R. Beurmann	311,170	Jan. 27	1334	367	30	267
Saw-teeth. Machine for dressing	H. Fairbrother	313,581	Mar. 10	740	195	30	924
Saw-tooth	N. Johnson	313,427	Mar. 3	540	142	30	877
Saw-tooth. Insertible	J. E. Emerson	311,301	Jan. 27	1534	417	30	302
Saw-tooth. Insertible	J. C. Trullinger	311,692	Feb. 3	304	83	30	406
Sawing-machine	W. Lucas	311,501	Feb. 3	56	17	30	359
Sawing-machine	J. W. Poff	311,675	Feb. 3	282	78	30	402
Sawing machine. Band	J. V. Rowlett	313,025	Feb. 24	2132	580	30	765
Sawing machine. Circular	W. H. Doane and G. W. Bugbee	311,421	Jan. 27	1763	469, 464	30	333
Sawing machine. Circular	W. H. Gray	314,667	Mar. 31	2201	584	30	1237
Sawing machine. Circular	G. M. Hinkley	314,379	Mar. 24	1811	492	30	1140
Sawing machine. Scroll	A. Ball	310,491	Jan. 6	419	115, 116	30	81
Sawing machine. Scroll	A. S. Davis	310,563	Jan. 13	519	142	30	105
Scabbard for intrenching-tools	H. C. La Point and C. B. Hoppin	314,856	Mar. 31	2470	653	30	1227
Scaffold. Suspended	J. Worsley	313,465	Mar. 3	598	153	30	887
Scaffolding	J. T. Haskell	311,578	Feb. 3	161	46	30	379
Scale. Automatic weighing	H. C. Keeler	311,010	Jan. 20	1107	303	30	218
Scale. Automatic weighing	M. F. Koch	314,854	Mar. 31	2467	652, 653	30	1226
Scale. Automatic weighing	P. Morrison	311,198	Jan. 27	1382	378	30	275
Scale beam and poise	M. H. Wiener	312,779	Feb. 24	1800	495	30	707
Scale. Bent-lever	H. S. Davids	313,477	Mar. 10	613	159	30	889
Scale, envelope-opener, and cigar-cutter. Combined letter-	A. C. Clausen	314,801	Mar. 31	2402	636	30	1275
Scale. Farmer's weighing	R. A. Mitchell and J. Von Thurn	314,599	Mar. 31	2109	562	30	1220
Scale. Weighing	C. Becker	313,468	Mar. 10	604	156	30	897
Scale. Weighing	D. Hallock	311,745	Feb. 3	368	101, 102	30	418
Scale. Weighing	C. Richtmann	312,563	Feb. 17	1545	421	30	652

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Scale. Weighing and price	J. E. Pitrat	314,717	Mar. 31	2264	601	30	1048
Scales. Indicating-poise for lever	L. C. Irvine	312,857	Feb. 24	1908	523	30	725
Scarf, necktie, or cuff holder	L. F. Ward	312,047	Feb. 10	790	216	30	503
Scarf-shield	G. Selowsky	312,519	Feb. 17	1466	401	30	635
Scarf shield and pin. Neck	L. Eschner	312,102	Feb. 10	867	237	30	518
Scarfs. Retainer for the bands of neck	W. B. Clement	314,111	Mar. 17	1459	381	30	1065
Scissors	J. T. Willis	311,702	Feb. 3	317	87	30	408
Scourer: *See* Grain-scourer.							
Scourer for knives and forks, metal and glass	H. J. Keeler	311,249	Jan. 27	1454	397	30	288
Scow. Dumping	J. Murphy	313,679	Mar. 10	806	225	30	948
Scow. Dumping	A. Weber	311,698	Feb. 3	310	85	30	407
Scraper and excavator. Road	C. M. Jones	314,135	Mar. 17	1496	390	30	1071
Scraper. Road	R. N. Gowell	311,482	Feb. 3	26	8	30	353
Scraper. Road	W. E. Jacobs	314,392	Mar. 24	1816	483	30	1141
Scraper. Road	J. A. McKenzie	311,195	Jan. 27	1375	377	30	274
Scraper. Road	A. Woolsey	312,313	Feb. 17	1172	321	30	581
Screen: *See* Door or window screen. Grain-screen. Window-screen.							
Screen and storm door. Combined	C. Anderson	313,844	Mar. 17	1106	287	30	909
Screen and storm-door. Combined	G. F. Barber	312,949	Feb. 24	2017	551	30	745
Screen for coal, &c	S. T. Varian	313,962	Mar. 3	332	82	30	836
Screw-blanks. Machine for nicking	H. A. Harvey and C. S. Clark	314,936	Mar. 31	2587	685	30	1307
Screw-cutting machine	J. Van Denburgh	310,337	Jan. 6	243	66	30	46
Screw-cutting-machine attachment	F. Müller	311,200	Jan. 27	1384	379	30	275
Screw-cutting-machine attachment	F. Müller. (Reissue)	10,576	Mar. 31	2657	703	30	1320
Screw-head cap. Ornamental	G. B. Hakins	311,122	Jan. 20	1266	346	30	247
Screw-jack	A. R. Tiffany	313,967	Mar. 17	1278	373	30	1031
Screw-machine feeding device	H. Reynolds	311,785	Feb. 3	420	114	30	427
Screw-pointing machine	H. A. Harvey and C. S. Clark	314,935	Mar. 31	2585	684, 685	30	1306
Screw-tap	H. W. Bill	310,777	Jan. 13	793	214	30	156
Screws, bolts, and nuts. Machine for threading	E. P. Baville	311,099	Jan. 20	1236	338, 339, 340	30	242
Scrubbing-machine	J. F. Cameron	311,810	Feb. 3	449	122	30	433
Sea-bridle	W. W. Averell	310,351	Jan. 13	503	139	30	103
Seal	E. J. Brooks	312,963	Feb. 24	2036	556	30	748
Seal. Baggage	E. J. Brooks	314,164	Mar. 17	1527	400	30	1077
Seal-lock for car-doors	J. Forbes	314,009	Mar. 17	1328	346	30	1041
Seal-skin sacque, dolman, and ulster block	P. Weinberg, L. Clark, Jr., and E. Winkler.	312,536	Feb. 17	1484	406	30	639
Seal-skin sacque, dolman, and ulster block	P. Weinberg, L. Clark, Jr., and E. Winkler.	313,268	Mar. 3	339	83	30	838
Sealing milk-bottles	J. W. Wilder	311,932	Feb. 10	631	174	30	474
Seaming irregular-shaped cans. Machine for	W. H. Atkinson	311,632	Feb. 3	229	64, 65	30	392
Seaming-machine	E. Jordan	314,336	Mar. 24	1755	468	30	1127
Seaming machine. Sheet-metal	C. Hoff	314,448	Mar. 24	1901	508	30	1158
Seat: *See* Spring-seat. Window-cleaning seat. Wagon-seat.							
Seat. Removable school and church	S. Roush	311,854	Feb. 3	509	138	30	444
Secondary batteries. Apparatus for charging and discharging	W. Stanley, Jr.	313,117	Mar. 3	102	26	30	795
Secondary battery	C. S. Bradley	312,802	Feb. 24	1829	502	30	712
Secondary battery	S. Kallscher	311,007	Jan. 20	1103	302	30	218
Secondary battery	S. Kallscher	311,008	Jan. 20	1105	302	30	218
Secondary battery	J. W. Swan	312,599	Feb. 17	1565	427	30	655
Secondary battery and transporting the same	L. H. Rogers	310,724	Jan. 13	723	197, 198	30	143
Secondary battery or electric accumulator	S. Philippart, Fils	311,445	Jan. 27	1729	471	30	338
Secondary battery or electric accumulator	E. T. Starr	314,892	Mar. 31	2521	668	30	1296
Seed-drill	J. Hamilton	310,584	Jan. 13	548	151	30	111
Seed-drill	J. J., G. H., and F. V. Sweatt	313,250	Mar. 3	330	79	30	834
Seed linters and gins. Saw-cylinder for cotton	F. S. Strong	314,748	Mar. 31	2303	611, 612	30	1256
Seed. Removing fiber from cotton	W. Wall	310,628	Jan. 13	600		30	120
Seeder	H. H. Monroe	312,149	Feb. 10	940	256	30	530
Seeders. Drill-tooth regulator and compressor for	R. P. Ludwig	312,873	Feb. 24	1931	529	30	729
Seeding-machine	W. D. Arnett	312,791	Feb. 24	1815	498, 499	30	709
Seeding-machine	G. W. Miskimen	312,148	Feb. 10	939	255	30	530
Seeding-machine	A. G. Myers and J. B. Cottom	313,013	Feb. 24	2113	576	30	762
Seeding-machine. Force-feed	J. L. Riter	310,228	Jan. 6	81	22	30	18
Seeding-machine spring-hoe attachment	T. D. Galloway	313,719	Mar. 10	918	249	30	958
Seeding-machines. Spring-hoe for	J. B. Cottom	312,974	Feb. 24	2050	559	30	751
Seine	S. B. Sabens	311,377	Jan. 27	1642	449	30	322
Self-waiting table and desk. Combined	R. A. Payne	314,713	Mar. 31	2258	600	30	1247
Separating-machine	P. Van Gelder	314,497	Mar. 24	1976	526, 527	30	1170
Separating or concentrating materials of different specific gravities. Apparatus for	A. E. and W. L. Crow	312,333	Feb. 17	1198	328	30	586
Separator: *See* Grain-separator. Pneumatic separator.							
Sewer-cleanser	W. Jenks	312,206	Feb. 10	1023	280	30	545
Sewer-connection for water-closets	S. G. McFarland	310,298	Jan. 6	184	51	30	36
Sewer-gutter	G. W. Rader	313,620	Mar. 10	795	206	30	934
Sewing	A. A. Cuming	313,063	Mar. 3	36	9	30	785
Sewing. Book	D. M. Smyth	314,737	Mar. 31	2289	608	30	1253
Sewing linings or sweat-bands into hat-bodies. Mechanism for	J. A. Locke	312,280	Feb. 17	1134	311	30	574
Sewing-machine	W. F. Beardslee	311,943	Feb. 10	644	177	30	476
Sewing-machine	R. H. Hawthorne	312,467	Feb. 17	1379	381	30	621

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Sewing-machine	J. Kayser	312,962	Feb. 24	1914	525	30	726
Sewing-machine	J. W. Post	310,612	Jan. 13	579	160	30	117
Sewing-machine	J. W. Post	312,509	Feb. 17	1453	398	30	634
Sewing-machine	E. T. Thomas	310,477	Jan. 6	398	110	30	77
Sewing-machine	A. Watkins	313,970	Mar. 17	1281	334	30	1032
Sewing-machine attachment	C. S. Knowles	314,690	Mar. 31	2224	591	30	1241
Sewing-machine attachment for placing and ejecting bobbins	C. Miehling	310,954	Jan. 20	1030	279	30	203
Sewing-machine attachment for placing and ejecting bobbins	C. and C. Miehling	310,955	Jan. 20	1031	279	30	203
Sewing-machine binding attachment	R. Hilgner	310,922	Jan. 13	846	229	30	166
Sewing-machine binding attachment	C. Rntz	311,376	Jan. 27	1639	449	30	322
Sewing-machine bobbin-winder	J. H. Palmer	312,501	Feb. 17	1440	395	30	631
Sewing-machine bobbin-winding attachment	C. Hosch	311,968	Feb. 10	720	197	30	489
Sewing-machine bobbin-winding attachment	A. T. Moisson	311,508	Feb. 3	188	54	30	384
Sewing-machine. Button-hole	J. S. Freese	314,444	Mar. 24	1897	507	30	1157
Sewing-machine. Button-hole	D. Mills	313,358	Mar. 3	451	115	30	860
Sewing-machine. Button-hole	D. Mills	313,438	Mar. 3	562	145	30	881
Sewing-machine button-hole attachment	C. S. Batdorf	313,046	Mar. 3	8	3	30	780
Sewing-machine button-hole attachment	G. Rehfuss	310,911	Jan. 20	961	268	30	192
Sewing-machine button-hole attachment	G. Rehfuss	314,055	Mar. 17	1382	361	30	1051
Sewing-machine button-hole attachment	W. Schott	310,915	Jan. 20	967	263, 264	30	193
Sewing-machine button-hole-cutting attachment	E. B. Moore	314,046	Mar. 17	1373	358	30	1050
Sewing-machine darning attachment	F. W. Stewart	312,923	Feb. 24	1985	542	30	739
Sewing-machine feeding device	E. McDonald	313,945	Mar. 17	1253	327	30	1026
Sewing-machine for stitching button-holes, eyelet-holes, &c.	J. P. Hallenbeck and H. L. Phelps	310,677	Jan. 13	661	181, 182	30	132
Sewing-machine guide	S. S. Spear	314,270	Mar. 24	1667	444	30	1112
Sewing-machine guide-setter	C. T. Freeman	312,196	Feb. 10	1008	275	30	542
Sewing-machine hemstitching attachment	W. R. Parsons	311,673	Feb. 3	279	77	30	401
Sewing-machine. Lock-stitch	W. Barsby	313,705	Mar. 10	900	234, 235	30	954
Sewing-machine pitman	D. L. Keeler	314,949	Mar. 24	1634	432	30	1106
Sewing-machine presser-feet to their bars. Device for fastening	L. J. Trussell	311,795	Feb. 3	432	117	30	429
Sewing-machine presser-feet. Vertically-reciprocating	J. C. Goodwin	313,933	Mar. 17	1239	322	30	1023
Sewing-machine ruffler	J. M. Griest	311,119	Jan. 20	1262	346	30	247
Sewing-machine ruffler	M. G. Turner	312,306	Feb. 17	1106	319	30	580
Sewing-machine ruffling and gathering attachment	A. Johnston	313,428	Mar. 3	541	142	30	878
Sewing-machine ruffling attachment	O. A. Reynolds	310,465	Jan. 6	383	106, 107	30	74
Sewing-machine shuttle	J. and W. L. Heberling	311,490	Feb. 3	38	11	30	356
Sewing-machine shuttle	J. and W. L. Heberling	311,491	Feb. 3	40	11	30	356
Sewing-machine spool-holder	J. C. Roth	311,532	Feb. 3	99	29	30	368
Sewing-machine stand	T. L. Melone	310,455	Jan. 6	373	103, 104	30	73
Sewing-machine table	L. T. Jones	310,438	Jan. 6	335	97	30	69
Sewing-machine table-cover	G. A. Annett	313,908	Mar. 17	1191	310	30	1015
Sewing-machine tension. Automatic	R. W. Whitney	314,635	Mar. 31	2163	574	30	1230
Sewing-machine thread-regulating device	S. W. Wardwell, Jr.	310,462	Jan. 6	405	112	30	78
Sewing-machine treadle	F. L. E. Coulvier	314,806	Mar. 31	2408	637	30	1276
Sewing-machine trimmer	H. H. Fefel	311,734	Feb. 3	354	97, 98	30	415
Sewing-machine trimming attachment	J. Bigelow	313,802	Mar. 10	1040	267	30	979
Sewing-machine trimming attachment	T. S. Parker	314,710	Mar. 31	2231	599	30	1247
Sewing-machine. Wax-thread	A. S. Richardson	314,478	Mar. 24	1950	519	30	1165
Sewing machines. Feeding mechanism for boot and shoe	F. Chase	314,516	Mar. 24	2001	534	30	1174
Sewing mechanism. Button-hole	D. Mills	313,359	Mar. 3	453	115, 116	30	860
Sewing or embroidering machines. Fixing cords or braids to textile fabrics by means of	E. Cornely	311,644	Feb. 3	244	69	30	395
Sextant	P. Leuba	310,692	Jan. 13	684	188	30	136
Shade-roller. Spring	J. C. Lake	310,595	Jan. 13	561	156	30	113
Shaft and pulley bearing. Combined	G. Gerdom	312,561	Feb. 17	1518	413	30	646
Shaft-coupling	W. B. Turner	314,206	Mar. 17	1378	418	30	1086
Shaft. Flexible	M. G. Farmer	312,241	Feb. 10	1065	293	30	553
Shaft-hanger	V. Knecht	312,866	Feb. 24	1921	506	30	727
Shaft-hanger	W. J. Perkins	311,780	Feb. 3	414	112	30	426
Shaft-lubricator	W. Dame	312,822	Feb. 24	1859	510	30	715
Shaft-shackle	B. F. Lewis	314,694	Mar. 31	2228	592	30	1242
Shaft-support	J. H. Kleppinger	313,600	Mar. 10	767	202	30	929
Shaft tips. Die for making carriage	A. L. Howard	311,430	Jan. 27	1713	466	30	335
Shaft. Vehicle	J. S. and A. S. Scott	312,021	Feb. 10	706	209	30	498
Shafts. Vehicle	H. F. Jackson	314,296	Mar. 24	1700	454	30	1120
Shaping-machine reversing-gear	D. L. Ballard	310,774	Jan. 13	788	213	30	155
Shawl-strap	L. A. Beatty	310,641	Jan. 13	615	169	30	123
Shawl-strap handle	F. E. Baker	314,509	Mar. 24	1994	531	30	1172
Sheaf-carrier	W. N. Whiteley	311,550	Feb. 3	129	37	30	373
Shears: *See* Metal-shears.							
Shears	W. Schollhorn	314,729	Mar. 31	2281	606	30	1251
Sheathing and lath. Combined wooden	E. M. Byrkit	314,514	Mar. 24	1998	533	30	1173
Sheep-rack	E. J. Legate	310,887	Jan. 20	944	258	30	190
Sheep-stock	F. M. Swarts	312,403	Feb. 17	1293	357	30	605
Sheet and plate metal. Removing swells in	J. W. Britton	312,608	Feb. 24	1574	431	30	666
Sheet-delivery apparatus	L. C. Crowell	312,258	Feb. 17	1092	301, 302	30	566
Sheet-metal-cutting machine	C. Wais	312,236	Feb. 10	1056	290, 291	30	551
Sheet-metal-folding machine	W. J. Bayrer	314,311	Mar. 24	1723	458, 459	30	1123
Sheet-metal pipe. Manufacturing	J. F. Starr, Jr	312,301	Feb. 17	1159	317	30	579

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Sheet-metal-straightening apparatus	J. W. Britton	312,607	Feb. 24	1573	430	30	666
Sheet-metal trunk-covering and ornamenting the same	W. B. Gould	312,715	Feb. 24	1715	471	30	691
Sheet-metal tubes. Machine for forming and seaming	E. Jordan	310,895	Jan. 20	938	255, 256, 257	30	189
Shell	J. S. Pessenger	313,683	Mar. 10	868	226	30	949
Shell. Dynamite	J. F. Marvin	314,036	Mar. 17	1363	355	30	1047
Shell. Explosive	W. T. Chamberlain	312,705	Feb. 24	1700	468	30	688
Sheller: *See* Corn-sheller.							
Shield and blotter	M. R. B. Cowan	310,257	Jan. 6	127	36	30	26
Shingling-bracket	G. W. Adams	310 631	Jan. 13	604	166	30	121
Shingle-planing machine	T. S. Disston	312,444	Feb. 17	1344	370, 371	30	615
Shingle-sawing machine	W. J. Perkins	314,603	Mar. 31	2114	563, 564	30	1221
Ship-bottoms. Device for cleaning	N. A. Gustafson	313,822	Mar. 10	1063	274	30	963
Shipping box or crate	B. Shunk	312,173	Feb. 10	979	267	30	537
Shipping-case	C. Mitrucker	311,025	Jan. 20	1126	308	30	292
Shirt and necktie fastener	S. Fechheimer	310,601	Jan. 13	640	176	30	126
Shirt. Bosom	G. W. Pine	313,320	Mar. 10	665	173	30	909
Shirts. Combined re-enforce and stay for the backs of	J. M. Ide	313,870	Mar. 17	1142	297, 298	30	1006
Shoe	E. Anglim	313,271	Mar. 3	341	84	30	838
Shoe	G. S. Kann	310,440	Jan. 6	357	98	30	69
Shoe	T. F. Lemassena	314,588	Mar. 31	2095	550	30	1218
Shoe	W. E. Rose	310,725	Jan. 13	727	198	30	144
Shoe	W. Watkins	311,275	Jan. 27	1500	409	30	297
Shoe	C. H. Winter	312,056	Feb. 10	804	219	30	505
Shoe-clasp	J. C. Hammond, Jr., and T. E. King	314,609	Mar. 31	2093	585	30	1237
Shoe-clasp	J. L. Thomson	313,255	Mar. 3	325	80	30	835
Shoe-clasp	J. L. Thomson and J. J. Unbehend	313,385	Mar. 3	485	127	30	867
Shoe-clasp	J. J. Unbehend	313,388	Mar. 3	489	128	30	867
Shoe-clasp	J. J. Unbehend	313,389	Mar. 3	490	128	30	867
Shoe-clasp	J. J. Unbehend. (Reissue)	10,573	Mar. 17	1500	400	30	1067
Shoe-clasps. Attaching	J. L. Thomson	313,256	Mar. 3	327	80	30	835
Shoe-fastener	F. Jacob	312,723	Feb. 24	1725	474	30	693
Shoe-fastening	G. A. Colton	311,104	Jan. 20	1246	341	30	244
Shoe-fastening	H. H. Rodman	313,533	Mar. 10	680	178	30	912
Shoe-fastening	S. Vetsburg	314,550	Mar. 24	2043	545	30	1181
Shoe-heel	J. Howland	314,130	Mar. 17	1490	389	30	1070
Shoe machine. Wooden	F. Meinecke	310,216	Jan. 6	71	19	30	16
Shoe-maker's use. Last-stand for	T. and B. Hartley	311,315	Jan. 27	1353	422, 423	30	305
Shoe-maker's work-table	A. M. Bollinger	310,784	Jan. 13	800	217	30	157
Shoe-nail. Barbed-wire	H. K. Jones	313,078	Mar. 3	51	14	30	787
Shoe-nail cutter	T. A. Manchester	314,255	Mar. 24	1644	436	30	1108
Shoes. Rubber	C. Cleves	311,473	Feb. 3	15	4	30	351
Shoes. Inside stay for	J. Walden	310,340	Jan. 6	246	67	30	46
Shot-grading machine	C. C. Tracy	310,335	Jan. 6	240	65, 66	30	46
Shovel: *See* Fire-shovel.							
Shovel step or guard	K. H. Elliott	310,567	Jan. 13	524	143	30	106
Show-box	E. S. B. Tombs	314,803	Mar. 31	2584	668	30	1296
Shrimps. Preserving	Yee Fo	310,811	Jan. 13	831	.....	30	163
Shutter-bower	M. R. Tallman	314,750	Mar. 31	2305	612	30	1257
Shutter-fastener	J. S. Ryan and J. Conway	311,448	Jan. 27	1753	472	30	339
Shutter-fastener	A. Van Wie	313,561	Mar. 3	331	82	30	836
Shutter. Fire-proof	C. F. Brigham	312,549	Feb. 17	1501	409	30	643
Shutter. Window	F. D. Paradise	314,393	Mar. 24	1831	487	30	1144
Shutter. Window	H. E. Willer	312,053	Feb. 10	801	219	30	505
Shutter-worker and slat-operator. Combined	T. H. Smith	312,300	Feb. 17	1158	317	30	579
Shutter-worker	R. I. Brown	310,372	Jan. 6	262	78	30	54
Shutter-worker	J. A. Dyblie	310,566	Jan. 13	523	143	30	106
Shutter-worker	L. Tilton	314,493	Mar. 24	1978	525	30	1169
Siding-gage	J. H. Jenkins	314,134	Mar. 17	1495	390	30	1071
Sieve. Ash	C. Leffingwell	310,447	Jan. 6	364	101	30	71
Sieve-operating device	R. D. Yost	314,904	Mar. 31	2542	672	30	1299
Sifter	A. L. Henry	311,896	Feb. 10	586	160	30	465
Sifter. Ash	B. H. Cook	312,434	Feb. 17	1333	367, 368	30	613
Sifter. Ash	M. Reisch	313,109	Mar. 3	94	24	30	794
Sifter. Cinder	J. Carmichael	313,054	Mar. 3	20	5	30	782
Sifter for flour, &c	H. E. Fuller	310,405	Jan. 6	321	88	30	62
Sifter. Flour	W. N. Campbell	310,791	Jan. 13	807	219	30	158
Sign. Transparent	G. H. Kitchen	313,343	Mar. 3	433	109	30	856
Signal: *See* Car-signal. Railway-signal. Electric signal.							
Signal-light	C. Watts. (Reissue)	10 565	Feb. 24	2153	585, 586	30	769
Signal-staff	G. F. Folsom	314,394	Mar. 24	1746	465	30	1127
Signal transmission. Circuit-changer for latent	F. B. Herzog	314,394	Mar. 24	1703	453	30	1119
Signal transmission. Latent	F. B. Herzog	314,393	Mar. 24	1700	453	30	1119
Silo	T. R. Carskadon	310,378	Jan. 6	299	80	30	56
Silver-ware. Preventing tarnishing in	F. J. Blain and E. Rardon	312,654	Feb. 24	2022	.....	30	746
Single-acting engine	L. H. Nash	312,495	Feb. 17	1425	382	30	628
Single-tree straps. Die for	I. K. Campbell	312,966	Feb. 24	2040	557	30	749
Sink, sideboard, &c. Combined	A. H. Junod	312,999	Feb. 24	2067	569	30	757
Siphon	J. Low	310,863	Jan. 13	895	242	30	175
Siphon	A. D. Stansbury	314,467	Mar. 24	1966	523	30	1167
Siphon. Flushing	H. C. Lowrie	310,529	Jan. 6	460	127	30	69
Sirup, &c. Heater and evaporator for	H. Yaabo y Lazarte and E. P. Larée	311,799	Feb. 3	437	118	30	430
Skate	C. H. Johnson	311,763	Feb. 3	394	107	30	422

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Skate	C. E. Wardwell	310,923	Jan. 20	982	267	30	195
Skate foot-plate	J. V. Rowlett	313,624	Mar. 10	799	209	30	935
Skate foot-plate. Roller	J. V. Rowlett	313,625	Mar. 10	799	210	30	935
Skate foot-plate. Roller	E. H. Barney	312,952	Feb. 24	2030	552	30	745
Skate. Roller	J. C. Cropper	314,916	Mar. 31	2567	676	30	1302
Skate. Roller	P. J. Doherty	313,815	Mar. 10	1054	271	30	981
Skate. Roller	A. L. Kitselman	311,077	Jan. 20	1208	331	30	238
Skate. Roller	L. M. Lawless	313,744	Mar. 10	959	248	30	964
Skate. Roller	J. Lovett	311,841	Feb. 3	488	134	30	440
Skate. Roller	C. M. Raymond	313,022	Mar. 10	706	209	30	834
Skate. Roller	J. V. Rowlett. (Reissue)	10,570	Mar. 10	1100	286	30	990
Skate. Roller	L. M. Wisewell	311,936	Feb. 10	635	175	30	475
Skate. Roller	J. B. Elliott	314,812	Mar. 31	2414	638	30	1277
Skate. Unicycle	A. U. Grummann	311,655	Feb. 3	258	71, 72	30	397
Skid. Barrel	E. Henn	311,245	Jan. 27	1450	395, 396	30	287
Skylight	R. H. Reillé	311,784	Feb. 3	419	114	30	427
Skylight	J. Seton and W. Conolly	312,585	Feb. 17	1548	421	30	652
Skylight	W. B. Devereux	312,439	Feb. 17	1339	369	30	614
Slag-buggy	L. Klucber	314,688	Mar. 31	2223	.....	30	1241
Slating for black-boards, &c. Composition	W. P. Wise	314,636	Mar. 31	2165	.....	30	1240
Sled	S. Baum	314,217	Mar. 24	1594	421	30	1099
Sled	A. M. Brundage	310,180	Jan. 6	27	7	30	7
Sled	P. H. Cummins	311,726	Feb. 3	343	95	30	413
Sled	A. Delkescamp	312,940	Feb. 24	2057	562	30	752
Sled	W. Haslup	314,837	Mar. 31	2447	640	30	1283
Sled	G. W. Martin	312,646	Feb. 24	1622	446	30	673
Sled. Coasting	W. L. Brown	312,964	Feb. 24	2038	556	30	749
Sled. Iron	G. T. Sampson	312,388	Feb. 17	1272	351	30	601
Sled-propeller	J. Wissen	314,210	Mar. 17	1582	419	30	1087
Sled-propeller	F. W. Paul	313,516	Mar. 10	661	172	30	908
Sleep. Device for inducing	G. Frost	313,584	Mar. 10	745	196	30	925
Sleeve-supporter	S. M. Crites	310,881	Jan. 20	921	251	30	186
Sleigh. Bob	J. Rorubach	312,386	Feb. 17	1267	350	30	600
Sleigh. Bob	C. E. Ashcroft	314,557	Mar. 31	2059	550	30	1211
Smelting-furnace	H. A. Spear and A. P. Wight, Jr.	310,920	Jan. 20	978	266	30	194
Smoke-consumer for locomotives, stationary boilers, furnaces, and stoves	C. Martin	312,368	Feb. 17	1248	344	30	595
Smoke-consuming attachment for lamp and other chimneys	F. B. Giesler	313,071	Mar. 3	44	12	30	786
Smoke-consuming furnace	O. D. Orvis	313,611	Mar. 10	781	205, 206	30	931
Smoke-consuming furnace	H. C. Simpson	312,912	Feb. 24	1971	539	30	736
Smoke-stack	F. Armstrong	311,941	Feb. 10	642	176	30	476
Snap-hook	G. W. Gifford	311,427	Jan. 27	1710	465	30	334
Snap-hook	C. D. Murphy	314,667	Mar. 31	2469	660	30	1291
Snap-hook	G. D. Spielman	311,791	Feb. 3	427	116	30	428
Snap-hook	L. L. Mallick	314,592	Mar. 31	2101	560	30	1219
Snow and ice. Combined implement for removing	W. Briscoe and C. Gallagher	314,790	Mar. 31	2388	631, 632	30	1272
Snow from railway-tracks. Apparatus for removing	J. Hoagland and B. Zipfel	314,447	Mar. 24	1901	.....	30	1158
Soap	H. Zahn	311,555	Feb. 3	136	.....	30	374
Soap composition	G. H. Allen	312,601	Feb. 24	1567	429	30	665
Soap-holder	C. E. Whitaker	313,564	Mar. 10	718	188, 189	30	920
Soap-molding machine	M. Blakey	312,700	Feb. 24	1694	466	30	687
Sockets. Machine for making tapered threaded	F. R. H. Thomas	312,588	Feb. 17	1550	422	30	653
Soda-water apparatus	E. L. Young and L. Dyer	312,598	Feb. 17	1563	426	30	655
Solder. Machine for making wire	G. W. Wilkinson	312,941	Feb. 24	2008	549	30	741
Soldering-iron	D. Klump	314,536	Mar. 24	2027	541	30	1178
Soldering machine. Can	T. Leslie	313,218	Mar. 3	261	65	30	825
Soldering-pan	G. H. Perkins and O. Smith	314,468	Mar. 24	1920	515, 516	30	1102
Soldering the seams of sheet-metal cans. Apparatus for automatically	C. W. Wilson	314,698	Mar. 31	2535	670	30	1298
Sole-edge-trimming tool	D. S. Yeoman	312,544	Feb. 17	1497	408	30	649
Sole. Reversible cork	D., Jr., and S. Rather	312,510	Feb. 17	1454	398	30	634
Sorghum-evaporator	D. F. Wegner	314,765	Mar. 31	2350	622	30	1265
Sower, land-roller, and double revolving harrow. Broadcast	G. V. H. Whitbeck	313,565	Mar. 10	721	189	30	921
Sower. Wheelbarrow grass-seed	E. Ruhland	314,965	Mar. 24	1660	441	30	1111
Sowing device. Phosphate	J. C. Bauer	313,571	Mar. 10	727	191	30	922
Spanner	T. H. Haberkorn	310,819	Jan. 13	841	228	30	165
Spark and cinder arrester	G. D. Hunter	312,722	Feb. 24	1724	473, 474	30	693
Spark-arrester	J. W. Maloney	314,254	Mar. 24	1643	435	30	1108
Spark-arrester	J. S. Park	312,840	Feb. 24	1945	533	30	732
Spark-arrester	C. B. Loveless	314,697	Mar. 31	2235	594	30	1243
Spark arrester and consumer	I. Devell	310,565	Jan. 13	522	143	30	106
Spark-extinguisher	J. W. Ketcham	314,535	Mar. 24	2026	540	30	1178
Spars. Re-enforcing band for	J. A. Pattee	313,702	Mar. 10	988	235	30	969
Spectacle-case	L. J. Ingersoll	314,132	Mar. 17	1493	389	30	1071
Speculum. Rectal	F. B. Ives	312,123	Feb. 10	896	244	30	522
Speculum. Rectal	E. J. Corser	313,711	Mar. 10	910	237	30	956
Speed. Gearing for changing	G. W. Anderson	310,167	Jan. 6	7	3	30	4
Speed-governor	A. R. Corson	314,228	Mar. 24	1640	425	30	1102
Speed-regulator	H. Greer	312,840	Feb. 24	1884	516	30	721
Spike-blank	J. Booth	310,871	Jan. 20	910	248	30	183
Spindle-supporting bolster and step	L. L. Sweatt	314,153	Mar. 17	1514	397	30	1075
Spinning-frame stop-motion	W. Mason	311,193	Jan. 27	1374	376	30	274
Spinning-machines. Roving traverse motion of	H. S. Hall	313,495	Mar. 10	634	165	30	904
Spiral springs. Machine for securing the ends of	H. Borchardt	313,706	Mar. 10	902	245	30	955
Spiral springs. Machine for setting	T. E. Atkinson	312,948	Feb. 24	2016	550	30	745
Spirits and spirituous liquors by electricity. Apparatus for rectifying	M. E. Knight	311,662	Feb. 3	266	74	30	398
Spit	T. Bergmann	311,636	Feb. 3	236	66	30	393
Spittoon							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Splint	C. Davis	310,184	Jan. 6	35	10	30	9
Splint-cutting machine	J. D. Jones	311,496	Feb. 3	49	14	30	358
Sponge-gathering net	B. K. Moscopoulos	314,047	Mar. 17	1374	359	30	1050
Spooler. Doubling-	L. V. Richmond	310,722	Jan. 13	719	196	30	143
Spooling-machine bobbin-supporter	G. W. Dickerson	312,710	Feb. 24	1709	469	30	690
Spring: *See* Car-spring. Rein-spring. Carriage-spring. Vehicle-spring. Door-spring. Vehicle-seat spring. Draft-spring. Vehicle side spring. Elliptic spring. Velocipede saddle-spring. Printing-press buffer-spring. Wagon-bolster spring. Watch-case spring.							
Spring-clasp	E. S. Smith	311,536	Feb. 3	104	31	30	369
Spring-clasp	J. L. Thomson	313,257	Mar. 3	327	81	30	835
Spring-clasp	J. J. Unbehend	313,390	Mar. 3	491	128	30	868
Spring-jack and annunciator. Combined	L. Townsend and R. W. Moore	310,749	Jan. 13	755	206	30	149
Spring-motor	P. Byrne	312,703	Feb. 24	1698	467	30	688
Spring-motor	M. H. Howell	313,334	Mar. 3	423	106	30	854
Spring-motor for propelling vehicles	R. H. Garland	311,305	Jan. 27	1538	{418 / 419}	30	303
Spring-seat	R. Walker	312,775	Feb. 24	1796	494	30	706
Spring-seat support	B. G. Meinikheim	311,506	Feb. 3	186	53	30	383
Spring-washer. Nut-locking	J. Smith	314,888	Mar. 31	2515	666	30	1295
Sprinkling apparatus	N. O. Bartley	311,560	Feb. 3	140	40	30	375
Sprinkling-box	C. A. Fonerden	313,718	Mar. 10	917	239	30	957
Sprue-cutter	F. C. Fladd	311,738	Feb. 3	350	99	30	416
Square and miter. Combined drawing	J. Müller	311,911	Feb. 10	605	166	30	468
Square, bevel, and level. Combined	B. B. Merrill	312,743	Feb. 24	1753	462	30	698
Squib, match, and touch-paper safety-box	T. J. Foster	311,183	Jan. 27	1361	373	30	271
Stair-pad	T. Griffith	313,302	Mar. 3	240	60	30	821
Stair-pad	H. W. Mather. (Reissue)	10,550	Jan. 13	901	244	30	176
Staking and jeweling tool. Adjustable	C. J. Olin	313,363	Mar. 3	459	118	30	861
Stamp-batteries. Mortar-bed for	G. Masou and F. Fernandez	310,226	Jan. 6	179	49, 50	30	35
Stamp. Hand-	E. D. Chamberlain	314,315	Mar. 24	1728	460	30	1124
Stamp. Hand-	L. Myers	313,012	Feb. 24	2113	576	30	702
Stamp-mill	H. Bolthoff	312,956	Feb. 24	2025	{552 / 553}	30	746
Stamp-mill	W. Grosch	313,587	Mar. 10	751	198	30	926
Stamping-dies. Machine for feeding letters to	W. Löffelhardt	311,340	Jan. 27	1592	{435 / 436}	30	313
Stand: *See* Extensible stand. Mirror-stand. Flower-pot stand. Revolving stand. Inkstand. Sewing-machine stand.							
Stand for type-writers, &c	W. H. Trueman	313,785	Mar. 10	1016	262	30	975
Staple	J. Haight	312,460	Feb. 17	1373	379	30	620
Staple-extractor	T. Flanagan	314,116	Mar. 17	1471	384	30	1067
Staple-fastener for wooden vessels	W. O. Swett	314,204	Mar. 17	1576	417	30	1066
Starch, &c. Apparatus for drying	W. Duryea	312,341	Feb. 17	1212	{333 / 334}	30	589
Starch in amylaceous substances. Liquefaction, dextrination, and saccharification by means of malt of the	L. Cuisinier	311,646	Feb. 3	246	.....	30	395
Starch manufacture, &c. Apparatus for drying the by-products of	W. Duryea	312,342	Feb. 17	1215	334	30	589
Station-indicator	C. H. Jenne	311,586	Feb. 3	172	48	30	380
Station indicator. Railway-	J. Matzinger	314,037	Mar. 17	1363	{355 / 356}	30	1048
Stationery package	E. S. Peck	312,756	Feb. 24	1771	487	30	702
Stave and cask	A. C. Blount	312,955	Feb. 24	2022	552	30	746
Stave-dressing machine	J. B. Heverling	314,125	Mar. 17	1483	{387 / 388}	30	1009
Stave-dressing machine	J. B. Heverling	314,176	Mar. 17	1545	{404 / 405}	30	1080
Stave-jointing machine	E. D. and I. Buckman	314,648	Mar. 31	2178	578	30	1232
Steam and air brake	C. Phillips. (Reissue)	10,564	Feb. 24	2151	585	30	769
Steam and utilizing exhaust. Generating	C. Heinzerling	311,984	Feb. 10	717	196	30	488
Steam-boiler	H. F. Allen	314,308	Mar. 24	1721	458	30	1123
Steam-boiler	G. H. Babcock	314,416	Mar. 24	1860	495	30	1150
Steam-boiler	J. O. Draper	312,447	Feb. 17	1348	372	30	616
Steam-boiler	P. Fitzgibbons	313,307	Mar. 3	393	98	30	848
Steam-boiler	M. W. Hazelton	310,691	Jan. 20	932	254	30	198
Steam-boiler	M. E. Herbert	310,423	Jan. 6	338	93	30	66
Steam-boiler	H. C. Hoffmeister	312,718	Feb. 24	1718	472	30	692
Steam-boiler	P. I. Lynch	314,947	Mar. 31	2602	688	30	1310
Steam-boiler	J. M. McCulloch	313,944	Mar. 17	1252	326	30	1026
Steam-boiler	A. Pifre	312,379	Feb. 17	1258	347	30	598
Steam-boiler	C. Williams	313,566	Mar. 10	722	189	30	921
Steam-boiler and furnace	J. D. Randall and W. A. King	312,163	Feb. 10	967	{263 / 264}	30	535
Steam-boiler draft apparatus	M. M. Greenwade	310,198	Jan. 6	51	14	30	12
Steam by electricity. Generating	W. W. Vaughn and E. D. Eldridge	314,277	Mar. 24	1677	447	30	1114
Steam-cylinder lubricator	F. G. Kellogg	314,030	Mar. 17	1358	353	30	1046
Steam-engine	D. W. Amos	311,708	Feb. 3	323	89	30	410
Steam-engine	W. S. Arnold	310,489	Jan. 6	417	115	30	80
Steam-engine	S. L. Guess	313,802	Mar. 17	1127	293	30	1003
Steam-engine	D. D. Hardy	313,728	Mar. 10	933	242	30	960
Steam-engine	S. H. Howard	314,129	Mar. 17	1489	389	30	1070
Steam-engine	M. N. Lynn	313,005	Feb. 24	2094	571	30	750
Steam-engine	M. N. Lynn	313,008	Feb. 24	2102	{573 / 574}	30	760
Steam-engine	G. W. Price	313,445	Mar. 3	571	147	30	863
Steam-engine. Compound	H. L. Perrine	313,366	Mar. 3	462	119	30	862
Steam-engine frame	A. L. Ide	314,361	Mar. 24	1814	463	30	1141

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Steam-engine lubricator	W. H. Craig	314,214	Mar. 17	1585	420	30	1068
Steam-engine reversing-gear	W. A. Clarke	311,812	Feb. 3	451	123	30	433
Steam engine. Superheated-	M. P. W. Boulton and E. Perrett	312,950	Feb. 24	2030	554	30	747
Steam-engines. Apparatus for stopping	H. Oelert	314,406	Mar. 24	1922	514	30	1161
Steam-engines. Device for throttling	G. Parker	313,365	Mar. 3	461	119	30	862
Steam-generator	D. Harmon	313,387	Mar. 3	415	104	30	853
Steam-generator	J. Kangley and W. S. Cherry	311,900	Feb. 10	593	162	30	466
Steam-generator	W. H. Page	312,652	Feb. 24	1698	446	30	676
Steam-generator	N. W. Pratt	311,446	Jan. 27	1731	{471 / 472 / 473}	30	339
Steam-generator	N. W. Pratt	314,196	Mar. 17	1569	{414 / 415}	30	1084
Steam-generator	J. C. Stead	311,450	Jan. 27	1735	473	30	339
Steam-generator	A. Welte	311,305	Jan. 27	1562	454	30	296
Steam-generator	W. Zellner	313,970	Mar. 3	940	64	30	838
Steam-jet apparatus	L. Schutte	312,170	Feb. 10	972	265	30	530
Steam-motor	C. Heinzerling	311,983	Feb. 10	715	196	30	488
Steam-motor. Low-pressure	H. Davey	310,387	Jan. 6	301	83	30	58
Steam-muffler	C. H. De Witt	310,654	Jan. 13	632	174	30	126
Steam or vapor engine	A. Bown	310,369	Jan. 6	279	77	30	54
Steam-pipe covering	J. M. Hamwill	311,750	Feb. 3	378	103	30	420
Steam-pipe fittings. Non-conducting covering for	W. S. Seymour	313,958	Mar. 17	1269	331	30	1029
Steam-pipe vent	J. S. Venson	310,338	Jan. 6	244	67	30	46
Steam-supply system	N. W. Pratt	311,606	Feb. 3	197	56	30	386
Steam-trap	J. Dimelow	310,885	Jan. 20	925	253	30	186
Steam-trap	J. H. Fogarty	310,400	Jan. 6	316	87	30	61
Steam-trap	W. A. Foskett	311,113	Jan. 20	1256	344	30	246
Steam-trap	W. Vanderman	310,967	Jan. 20	1049	{285 / 286}	30	207
Steam trap. Return-	J. McGwin	311,507	Feb. 3	62	18	30	361
Steam-wheel	R. Powers	312,015	Feb. 10	758	207	30	497
Steamer for cooking food	C. A. Gibford	311,306	Jan. 27	1541	419	30	303
Steaming-table	R. E. Deane	310,185	Jan. 6	30	10	30	9
Steel. Hardening	N. C. Hubbell	310,433	Jan. 6	350	.....	30	68
Steel jars. Die for making	J. J. Davin	311,648	Feb. 3	251	69	30	396
Steel-ladle-drying furnace	D. H. Williams	313,701	Mar. 10	897	233	30	954
Steel trap	E. A. Cook, J. D. Shoots, and D. Staring	312,094	Feb. 10	858	235	30	510
Steep tubs and vats. Drop-valve for	J. Iribacker	311,247	Jan. 27	1452	396	30	288
Steering apparatus	F. H. Cathcart	311,869	Feb. 10	535	147	30	457
Steering apparatus	L. Heydt	313,733	Mar. 10	943	244	30	961
Steering apparatus. Automatic	C. H. Washburn	313,901	Mar. 17	1179	307	30	1013
Steering apparatus. Steam	E. J. Lewis	314,858	Mar. 31	2471	654	30	1287
Steering-wheels. Becket-clamp for	A. Dole	311,110	Jan. 20	1253	343	30	245
Stencil-holder	J. J. Callow	313,470	Mar. 10	805	156	30	898
Stencil-plate holder	H. E. Richter	312,384	Feb. 17	1206	349	30	600
Step. Door and terrace	E. N. and W. J. Gilfillan	314,374	Mar. 24	1907	480	30	1139
Steps. Folding	D. B. Rice, C. N. Sword, and F. M. Wilder	310,226	Jan. 6	62	22	30	18
Stereoscope. Reflecting-	A. K. Tuttle	313,809	Mar. 17	1176	306	30	1012
Stereotype-matrices. Machine for producing	O. Mergenthaler	312,145	Feb. 10	922	{250 / 251 / 252 / 253 / 254}	30	528
Stereotype-plate	M. Crane and J. L. Firm	311,175	Jan. 27	1351	370	30	260
Stereotype-plate holder	E. E. Pratt	311,504	Feb. 3	89	26	30	366
Stereotype-plates. Machine for shaving curved	A. D. McLean	314,391	Mar. 24	1829	487	30	1144
Stiffening-strip and producing the same	E. K. Warren	311,021	Feb. 3	216	61	30	389
Still. Pharmaceutical	J. Berry	313,163	Mar. 3	175	42	30	809
Stirrup	J. P. Ellacott	313,484	Mar. 10	621	161	30	901
Stirrup. Saddle-	S. A. Nolen	313,609	Mar. 10	778	204	30	931
Stitch-forming mechanism. Apparatus for guiding, straightening, and evening fabrics for presentation to	S. Arnold	313,909	Mar. 17	1192	{310 / 311}	30	1015
Stitches. Mechanism for making zigzag or irregular	J. Bigelow	313,801	Mar. 10	1639	267	30	978
Stock-rack	M. L. Robinson	313,373	Mar. 3	471	{122 / 123}	30	864
Stocking	C. E. Norris	311,356	Jan. 27	1610	440	30	316
Stocking or garment supporter	S. B. Ferris	314,813	Mar. 31	2415	638	30	1257
Stone and potato fork	W. O. Noyes	310,958	Jan. 20	1076	289	30	204
Stone. Apparatus for the manufacture of artificial	C. I. Walker	311,094	Feb. 3	306	83, 84	30	406
Stone. Artificial	J. D King	312,356	Feb. 17	1235	.....	30	593
Stone. Composition for the manufacture of artificial	J. L. Wray	312,057	Feb. 10	894	.....	30	506
Stone compositions. Manufacture of artificial	C. I. Walker	311,156	Jan. 20	1316	.....	30	256
Stone-drilling machine	L. McMurray	311,982	Jan. 20	1216	333	30	220
Stone-gathering machine	B. A. Weatherbee	312,237	Feb. 10	1058	291	30	552
Stone-lifter	R. N. Gowell	313,491	Mar. 10	628	163	30	903
Stone-lifter	T. Heathcote	314,243	Mar. 24	1626	430	30	1105
Stone-sawing machine	R. L. Barney	313,643	Mar. 10	819	{214 / 215}	30	939
Stone-sawing machine	V. G. Barney	312,068	Feb. 10	819	224	30	508
Stone-sawing machine	P. Gay	311,741	Feb. 3	362	100	30	417
Stone scouring and polishing machine	H. Young	314,905	Mar. 31	2543	672	30	1290
Stone-worker's lathe	J. O. Messerly	314,462	Mar. 24	1915	{511 / 512}	30	1160
Stool back. Piano-	J. D. Baldwin	313,642	Mar. 10	819	214	30	939
Stools, &c. Adjustable column or stand for	H. Hardy	314,831	Mar. 31	2440	644	30	1282
Stop-motion for hemp-spreaders, &c. Measuring	J. Good	311,978	Feb. 10	707	194	30	496
Stopper: *See* Bottle-stopper. Ladle-stopper. Bottle and jar stopper. Rope-stopper.							
Storage-batteries. Electrolytic liquid for	W. E. Case	313,058	Mar. 3	32	.....	30	784

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Storage-batteries. Preparing the elements of	A. K. Eaton	311,236	Jan. 27	1439	302	30	295
Store-service apparatus	M. Clark and J. T. Cowley	312,087	Feb. 10	848	232	30	514
Store-service apparatus	M. Clark and J. T. Cowley	312,088	Feb. 10	849	232, 233	30	514
Store-service apparatus	M. Clark and J. T. Cowley	312,089	Feb. 10	851	233	30	515
Store-service apparatus	M. Clark and J. T. Cowley	312,090	Feb. 10	852	233, 234	30	515
Store-service apparatus	M. Clark and J. T. Cowley	312,091	Feb. 10	854	234	30	515
Store-service apparatus	C. Fisher	314,814	Mar. 31	2416	639	30	1277
Store-service apparatus	C. B. Keen	311,328	Jan. 27	1572	428	30	309
Store-service apparatus	E. P. Osgood	312,752	Feb. 24	1766	486	30	701
Store-service apparatus	E. P. Osgood	312,753	Feb. 24	1767	486	30	701
Store-service-apparatus switch	E. L. Giles	310,815	Jan. 13	835	226	30	163
Store-service receiver	C. Fisher	314,815	Mar. 31	2417	639	30	1278
Store-service tracks. Turn-out for	W. H. and F. L. Wiggin	310,765	Jan. 13	779	210	30	153
Stove	T. Burkhard	310,647	Jan. 13	624	172	30	125
Stove	J. B. Crocker	314,286	Mar. 24	1691	451	30	1117
Stove	M. W. Gardner	311,653	Feb. 3	255	71	30	396
Stove	D. Liedahl	311,502	Feb. 3	181	51	30	382
Stove	J. W. and W. H. Owen and A. C. Boswell.	312,651	Feb. 24	1627	448	30	676
Stove	J. Shaaber	312,662	Feb. 24	1643	453	30	679
Stove	L. W. Turner and G. J. Capewell	310,623	Jan. 13	593	163, 164	30	119
Stove	W. E. Walker	313,560	Mar. 10	714	186, 187	30	919
Stove	S. A. H. Williamson	314,093	Mar. 17	1437	376	30	1061
Stove	G. G. Wolle	313,568	Mar. 10	723	190	30	921
Stove and range oven. Cooking	D. G. Littlefield	313,874	Mar. 17	1146	299	30	1007
Stove and range water-heater	J. A. Price	312,017	Feb. 10	762	207	30	497
Stove attachment. Gasoline-	J. and N. Forshaw	311,182	Jan. 27	1360	373	30	271
Stove. Coal-oil	C. Riesaner	311,939	Jan. 27	1469	401, 402	30	291
Stove. Cooking-	C. F. Hanneman	312,461	Feb. 17	1374	379	30	620
Stove-door	W. L. McDowell	311,771	Feb. 3	403	110	30	424
Stove-door handle	J. G. Whitlock	312,940	Feb. 24	2008	548	30	743
Stove-door hanger	W. Jaques	313,740	Mar. 10	954	246	30	963
Stove-door knob	W. J. Irwin	311,762	Feb. 3	393	107	30	422
Stove fire-grate	J. Dobeny	312,261	Feb. 17	1096	303	30	567
Stove foot-bar	H. A. Matthews	312,877	Feb. 24	1935	529	30	730
Stove. Gas-	W. M. Jackson	310,946	Jan. 20	1019	276	30	201
Stove. Gas-	W. M. Jackson	310,947	Jan. 20	1020	276, 277	30	201
Stove-grate	R. Walker	313,697	Mar. 10	880	232	30	953
Stove. Heating-	S. H. La Rue	310,596	Jan. 13	502	156	30	114
Stove. Heating-	P. K. McMinn	310,904	Jan. 20	951	259	30	191
Stove-hood	A. S. Fisk	310,398	Jan. 6	313	87	30	61
Stove-hood	M. C. Fisher	312,712	Feb. 24	1711	470	30	691
Stove. Hot-blast	F. W. Gordon	314,573	Mar. 31	2080	555, 556	30	1215
Stove. Hot-blast	D. Lamond	311,190	Jan. 27	1370	376	30	273
Stove. Hot-blast	W. Rotthoff	312,902	Feb. 24	1959	536	30	734
Stove. Oil-	J. F. Quimby	313,525	Mar. 10	670	175	30	910
Stove. Oil-	E. R. Walker	313,696	Mar. 10	896	231, 232, 6-0, 681	30	952
Stove. Oil or gas	W. A. Greene	314,929	Mar. 31	2573	418	30	1304
Stove or heater	T. J. Trew	314,305	Mar. 17	1577	418	30	1086
Stove. Parlor heating-	J. A. Orr and H. Selvard	311,139	Jan. 20	1293	355, 356	30	253
Stove. Parlor heating-	J. A. Orr and H. Selvard	311,140	Jan. 20	1294	356	30	253
Stove-pipe	G. W. Beebe	314,783	Mar. 31	2180	629	30	1270
Stove-pipe	H. M. Pickering	311,143	Jan. 20	1300	358	30	254
Stove-pipe attachment	C. W. McCutcheon	314,259	Mar. 24	1648	437	30	1109
Stove-pipe elbow	T. S. Evans and E. H. Bissett	313,858	Mar. 17	1122	291	30	1002
Stove-pipe hanger and fastener. Adjustable	J. Stewart	312,924	Feb. 24	1986	542	30	739
Stove-pipe heating attachment	J. H. Broadus	314,423	Mar. 24	1867	497	30	1151
Stove-pipe shelf and drum	J. Allingham	314,113	Mar. 24	1854	494	30	1149
Stove-pipe thimble	D. B. Robins	312,018	Feb. 10	702	208	30	497
Stove-pipe thimble. Adjustable	A. B. Kingsland	313,342	Mar. 3	432	109	30	656
Stove-pipe ventilator	J. Combs	313,809	Mar. 10	1048	269	30	990
Stove-pipe ventilator	J. P. Krabill	313,826	Mar. 10	1067	275	30	994
Stove-pipe water-cup	S. T. Alkin	313,273	Mar. 3	343	85	30	638
Stove-platform	I. Van Hagen	312,933	Feb. 24	1998	546	30	742
Stove-platforms. Heater for the crystallization of	I. Van Hagen	312,934	Feb. 24	1999	547	30	742
Stove-shelf	T. Keboe	313,940	Mar. 17	1248	325	30	1024
Stove. Vapor-	Z. Davis	311,459	Jan. 27	1745	475	30	341
Stove. Vapor-	Z. Davis	313,925	Mar. 17	1228	319, 320	30	1021
Stoves. Combined steeper and heat-distributer for oil-	B. Hunt	314,334	Mar. 24	1753	467	30	1129
Stoves. Feeding-chute for	W. D. Mayfield	312,739	Feb. 24	1749	481	30	697
Stoves, fire-bricks, &c. Compound for repairing	E. Ivett and A. George	314,182	Mar. 17	1551	.....	30	1081
Stoves for heating air. Attachment to	G. A. Vaughan	312,678	Feb. 24	1663	458	30	682
Stoves. Producing heat in portable	W. M. Jackson	310,948	Jan. 20	1023	277	30	202
Stoves. Removable oven for combined coal and gas burning	H. H. Sheldon	312,172	Feb. 10	977	267	30	536
Stoves. Wick-adjuster for oil-	R. P. Frost	314,928	Mar. 31	2572	660	30	1304
Strainer. Culinary	L. Kohn	313,676	Mar. 10	862	225	30	948
Strainer. Milk-	G. H. Cornell	310,404	Jan. 6	422	117	30	82
Strap: *See* Hitching-strap. Shawl-strap.							
Strap-buckler and wrench combined	T. P. Evans	311,423	Jan. 27	1706	464	30	334
Straps with rings, &c. Device for connecting	J. C. Parmerlee and A. Swift	310,719	Jan. 13	717	195	30	142

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Straw-stacker	L. W. Hasselman	311,317	Jan. 27	1553	423	30	306
Straw-stacker	A. Miller	311,137	Jan. 20	1290	354, 355	30	252
Straw-stacker	D. D., C. D., and P. J. Sprague	311,209	Jan. 27	1394	381	30	277
Stud for gloves, &c. Spring-	A. G. Mead and E. F. Pierce	312,571	Feb. 17	1528	417	30	648
Stuffing-box	T. Barber	313,703	Mar. 10	899	234	30	954
Stump-extractor	H. L. Boyle	310,644	Jan. 13	618	170	30	124
Stump-extractor	G. W. Stambaugh	314,619	Mar. 31	2135	582	30	1225
Stump-extractor	J. B. Wilson	310,767	Jan. 13	781	211	30	153
Stump-extractor	P. Hansen	313,325	Mar. 3	414	103	30	652
Stump-puller	H. H. Hall	311,656	Feb. 3	260	72	30	397
Submarine tunnels and tubes. Apparatus for laying	L. Virneisel	310,339	Jan. 6	245	.....	30	40
Sugar. Manufacturing hydrated grape-	F. Dickert	310,187	Jan. 6	58	11	30	10
Sulphur. Apparatus for refining	C. Drake	312,446	Feb. 17	1348	372	30	615
Sunshade and umbrella	J. W. Reed	310,225	Jan. 6	81	21	30	17
Superheater. Steam-							
Supporter: *See* Garment or stocking Sleeve-supporter. supporter.							
Surgical chair	G. Weber	313,636	Mar. 10	810	212	30	937
(Surgical) Illuminator. Electric mouth and throat	E. T. Starr	313,782	Mar. 10	1009	261	30	974
(Surgical) Illuminator for the mouth and similar purposes. Electric	E. T. Starr	313,783	Mar. 10	1011	261	30	974
Surgical needle	G. Wackerhagen	312,408	Feb. 17	1298	358	30	606
Surveying-instrument	W. L. Curtis	313,657	Mar. 10	846	220	30	944
Surveying-instrument	J. Hale	313,494	Mar. 10	633	164	30	903
Surveying-instrument	C. E. Taft	311,386	Jan. 27	1654	452	30	324
Surveying-instrument	J. H. Dolman	313,659	Mar. 10	847	220	30	944
Surveyor's instrument	J. B. Sharp	310,732	Jan. 13	734	200	30	145
Suspender-end	A. Brown	312,060	Feb. 10	838	228	30	513
Suspenders	J. Cadbury and J. G. Rollason	312,063	Feb. 10	843	229	30	513
Suspenders	M. Eisler	311,111	Jan. 20	1254	343	30	245
Suspenders	F. E. Flagg	310,309	Jan. 6	315	87	30	61
Suspenders	A. M. Freeman and J. B. Overmeyer	312,264	Feb. 17	1096	303, 304	30	568
Suspenders	T. O. Potter	311,916	Feb. 10	609	167, 168	30	469
Suspenders	T. O. Potter	311,917	Feb. 10	610	168	30	470
Suspenders	T. O. Potter	311,918	Feb. 10	611	169	30	470
Suspenders and shoulder-braces. Combined	E. D. Parrott	314,051	Mar. 17	1378	360	30	1050
Swinging gate	W. S. Bangs	311,714	Feb. 3	329	91	30	411
Swinging gate	G. S. Bartholomew and J. D. Abbott	313,976	Mar. 17	1294	337	30	1033
Switch: *See* Cash-railway Store-service-apparatus switch. switch.							
Switch	E. H. Allcutt	311,461	Feb. 3	2	1	30	349
Switch adjusting and locking mechanism	E. H. Johnston	311,433	Jan. 27	1716	467	30	335
Switches and signals. Apparatus for interlocking	G. Fullman	313,585	Mar. 10	745	196, 197	30	925
Switch-board	F. W. Harrington	310,890	Jan. 20	931	253	30	187
Switch-board	H. E. Waite	312,410	Feb. 17	1300	359	30	606
Switch-signal. Automatic	A. L. Wilkinson	312,239	Feb. 10	1061	292	30	552
Swivel-block	W. L. Coop	310,386	Jan. 6	300	83	30	58
Table: *See* Extension-table. Self-waiting table. Folding table. Sewing-machine table. Ironing-table. Shoe-maker's work-table.							
Table	T. C. Beach	313,295	Mar. 3	378	92	30	844
Table	N. and D. Kies	312,731	Feb. 24	1735	477	30	695
Table	A. M. Maxwell	313,604	Mar. 10	771	203	30	929
Table	H. J. Dargin	311,822	Feb. 3	463	126	30	436
Table-rail tenoning and grooving machine	E. Pleukharp and T. Shilling	313,020	Feb. 24	2194	578	30	764
Table-slide	J. Crockett	311,734	Feb. 3	340	94	30	413
Tablet. Record-	E. Woodward and G. W. Copeland	312,691	Feb. 24	1679	462	30	685
Tack-strip	C. P. Weaver	313,608	Mar. 10	890	232	30	953
Tacks. Furnace for bluing	H. M. Stevens	314,020	Mar. 31	2136	569	30	1295
Tag	S. E. Mower	312,948	Mar. 17	1258	328	30	1027
Tag and fastener	H. B. Brewster	310,785	Jan. 13	801	217	30	157
Tag-fastener	S. S. Sencenbaugh	313,539	Mar. 10	687	180	30	914
Tag-fastener	J. D. Hawkins	310,201	Jan. 6	56	15	30	13
Tag-holder	F. H. Laforge and J. R. Smith	311,331	Jan. 27	1577	430	30	310
Tag. Key-ring							
Tank: *See* Hatter's tank. Oil-tank.							
Tank	E. Hines	313,867	Mar. 17	1135	295	30	1005
Tanning apparatus	L. Simpson	313,542	Mar. 10	689	181	30	914
Tanning apparatus	L. Simpson	314,199	Mar. 17	1572	416	30	1085
Tanning apparatus	L. Simpson	314,200	Mar. 17	1573	416	30	1085
Tanning apparatus	L. Simpson and J. Davis	313,543	Mar. 10	690	181	30	915
Tanning apparatus	T. F. Colin	313,177	Mar. 3	197	.....	30	812
Tanning-extract. Manufacture of	J. Davis	313,478	Mar. 10	614	159	30	900
Tanning hides. Apparatus for	J. Patten	310,402	Jan. 6	380	105	30	74
Tap and die	T. G. Morse	312,212	Feb. 10	1029	281, 282	30	546
Tapping metal pipes and fittings. Machine for	F. Grinnell	311,311	Jan. 27	1546	420, 421	30	364
Tapping pipe-fittings. Machine for	J. L. Barker	312,604	Feb. 24	1570	430	30	665
Target. Flying	G. Ligowsky	311,768	Feb. 3	400	109	30	423
Target. Flying	C. F. Stock	313,120	Mar. 3	107	27	30	796
Target. Flying	C. F. Stock	314,745	Mar. 31	2300	611	30	1256
Target. Flying	C. F. Stock	313,119	Mar. 3	106	26	30	796
Targets. Apparatus for the manufacture of flying	F. Wisner	311,455	Jan. 27	1741	474	30	340
Tea or coffee pot	J. C. Thompson	310,478	Jan. 6	399	111	30	77
Tea-pots, jugs, &c. Lid for	E. P. Burne	311,934	Feb. 10	665	183	30	479
Teeth. Machine for forming spring-	C. Wentbrook	313,791	Mar. 10	1026	264	30	976
Telegraph. Automatic chemical	W. R. Patterson	311,921	Feb. 3	87	25	30	365
Telegraph-cable	W. R. Patterson	311,913	Feb. 10	607	166	30	469
Telegraph-cables. Apparatus for filling lead pipes of							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Telegraph-cables. Hanging	W. R. Patterson	311,523	Feb. 3	88	25	30	366
Telegraph-cables. Repairing	W. R. Patterson	311,522	Feb. 3	88	25	30	365
Telegraph. Chemical stock-quotation	T. A. Edison and P. Kenny	314,115	Mar. 17	1464	382, 383	30	1066
Telegraph. Combined audible stock-quotation system and fire-	F. B. Herzog	311,756	Feb. 3	383	105	30	421
Telegraph-conductors. Manufacture of	A. A. Cowles	310,258	Jan. 6	128	37	30	26
Telegraph. Multiplex	C. G. Burke	313,298	Mar. 3	377	93, 94	30	845
Telegraph. Municipal	J. C. Wilson	313,147	Mar. 3	144	36	30	803
Telegraph. Printing-	G. A. Cassagnes	313,175	Mar. 3	190	46, 47	30	812
Telegraph. Printing-	G. A. Cassagnes	313,176	Mar. 3	193	47, 48	30	812
Telegraph. Printing	G. M. Hathaway	310,587	Jan. 13	551	152, 153, 154	30	112
Telegraph. Printing	H. Van Hoevenbergh	313,786	Mar. 10	1017	262	30	975
Telegraph. Printing	J. E. Wright and J. H. Longstreet	311,218	Jan. 27	1410	365	30	280
Telegraph. Quadruplex	F. W. Jones	310,685	Jan. 13	674	186	30	134
Telegraph. Railway-car	L. J. Phelps	312,506	Feb. 17	1446	396, 397	30	632
Telegraph-wire. Apparatus for manufacturing compound	M. G. Farmer	310,993	Jan. 20	1086	297	30	215
Telegraph-wire. Manufacturing compound	M. G. Farmer	310,995	Jan. 20	1088	298	30	215
Telegraphs. Preventing false signals upon reversals in quadruplex	H. Van Hoevenbergh	313,787	Mar. 10	1019	263	30	975
Telegraphic and telephonic instrument protector	G. A. Cardwell	311,957	Feb. 10	670	184	30	480
Telegraphic apparatus	C. W. Williams, E. B. Ives, and G. S. Barnum.	313,402	Mar. 3	591	152	30	667
Telegraphic relay and telephone. Combined	H. C. Strong	312,670	Feb. 24	1654	456	30	681
Telegraphic repeater	J. Kölzer	311,330	Jan. 27	1575	429, 430	30	310
Telegraphy. Automatic	C. Westbrook	313,792	Mar. 10	1023	264	30	977
Telegraphy. Overcoming static disturbances in	F. W. Jones	310,684	Jan. 13	672	185	30	134
Telephone	H. Alabaster, T. E. Gatehouse, and H. R. Kempe.	314,304	Mar. 24	1717	456	30	1122
Telephone	F. Blake	314,312	Mar. 24	1724	459	30	1124
Telephone	W. Hadden	312,841	Feb. 24	1886	517	30	721
Telephone	W. Hadden	312,842	Feb. 24	1886	517	30	722
Telephone	J. Lowth	312,365	Feb. 17	1245	343	30	595
Telephone	J. Lowth	312,366	Feb. 17	1246	343	30	595
Telephone	W. R. Miller	312,492	Feb. 17	1419	391	30	627
Telephone	H. P. Pratt	310,961	Jan. 20	1040	281	30	205
Telephone	H. E. Waite	310,751	Jan. 13	757	206	30	149
Telephone	T. Wallace	312,533	Feb. 17	1460	405	30	638
Telephone and telegraph central offices. Office connection for	H. B. Lytle and J. A. McCoy	313,828	Mar. 10	1072	276	30	984
Telephone. Battery	T. D. Lockwood	312,871	Feb. 24	1928	527	30	728
Telephone-boxes. Memorandum-holder for	J. F. Gilliland	311,977	Feb. 10	707	194	30	486
Telephone-line switch	F. E. Fisher	314,818	Mar. 31	2422	640	30	1278
Telephone-lines. Automatic shunt for	C. D. Wright and C. A. Fisher	313,640	Mar. 10	817	214	30	938
Telephone. Mechanical	F. C. Ludlow	314,946	Mar. 31	2598	688	30	1309
Telephone night-bells. Mechanism for operating	F. E. Fisher	314,817	Mar. 31	2420	639, 640	30	1278
Telephone-receiver	H. Alabaster and T. E. Gatehouse	314,306	Mar. 24	1719	457	30	1122
Telephone-receiver	C. A. Randall	312,162	Feb. 10	964	261	30	534
Telephone-receiver	T. F. Taylor	314,155	Mar. 17	1515	398	30	1075
Telephone-receiver	T. F. Taylor	314,156	Mar. 17	1517	398	30	1075
Telephone-receiver	T. F. Taylor	314,157	Mar. 17	1519	398	30	1076
Telephone-receiver and circuit-breaker. Combined	W. H. Eckert, J. A. Seely, and E. A. Eckert.	313,409	Mar. 3	516	135	30	873
Telephone-receivers. Adjustable support for	J. M. Fitch	314,371	Mar. 24	1804	480	30	1139
Telephone signaling apparatus	J. H. Cary	310,379	Jan. 6	291	80	30	56
Telephone-switch	W. Hadden	312,843	Feb. 24	1887	517	30	722
Telephone switch-boards. Talking-strap for	F. E. Fisher	314,819	Mar. 31	2423	640	30	1279
Telephone system	W. A. Jackson and W. R. Cole	310,282	Jan. 6	160	45	30	39
Telephone-transmitter	G. M. Hopkins	314,841	Mar. 31	2452	647	30	1284
Telephone-transmitter	C. A. Randall	312,160	Feb. 10	959	262	30	534
Telephone-transmitter	C. A. Randall	312,461	Feb. 10	961	262, 263	30	534
Telephone-transmitter	H. E. Waite	312,409	Feb. 17	1299	359	30	606
Telephonic apparatus	C. A. Randall	312,896	Feb. 24	1952	534	30	733
Telephonic circuit and apparatus	L. A. Berthon	311,944	Feb. 10	646	177, 178	30	476
Telephonic communication. Circuit for	H. Alabaster and T. E. Gatehouse	314,305	Mar. 24	1718	457	30	1122
Telephonic connection	J. A. Harlan	313,731	Mar. 10	941	243	30	961
Telephonic transmitter	H. Alabaster and T. E. Gatehouse	314,307	Mar. 24	1720	457	30	1122
Telephonic transmitter	J. H. Guest	311,979	Feb. 10	709	194	30	487
Telephonic transmitter-support	H. B. Lytle and J. A. McCoy	313,828	Mar. 10	1071	276	30	984
Tellurian	W. G. and H. L. Short	311,264	Jan. 27	1478	404, 405	30	292
Temperature-regulator. Thermo-pneumatic	W. S. Johnson	314,027	Mar. 17	1353	352	30	1045
Tenoning and boring machine	R. Triller	312,530	Feb. 17	1475	404	30	637
Tenoning-machine	J. R. Brumby	314,792	Mar. 31	2390	632	30	1272
Testing-machine	C. C. Miller	313,607	Mar. 10	774	204	30	930
Therapeutic apparatus. Galvanic	T. Schmauser	312,660	Feb. 24	1637	451, 452	30	678
Thermal cut-out	W. Stanley, Jr.	310,472	Jan. 6	392	109	30	76
Thermic motor. Triple	W. S. Colwell	313,178	Mar. 3	198	48, 49	30	812
Thermic motor. Triple	W. S. Colwell	313,179	Mar. 3	203	49, 50	30	814
Thermic motor. Triple	W. S. Colwell	313,181	Mar. 3	207	50, 51	30	815
Thermic motor. Triple	W. S. Colwell	313,182	Mar. 3	210	51	30	816
Thermic motor. Triple	W. S. Colwell and A. J. Davis	313,183	Mar. 3	213	51, 52, 53	30	816
Thermo-electric battery	D. Lauterpack	313,215	Mar. 3	258	65	30	824
Thermometer	H. Weinhagen	310,925	Jan. 20	984	268	30	195

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Thermostat	G. R. Williams	311,933	Feb. 10	632	174	30	474
Thermostat. Electric	F. H. Prentiss and J. A. Tilden	313,523	Mar. 10	668	174	30	910
Thickness-gage	R. Morrison and J. P. Herron	310,908	Jan. 20	957	260, 261	30	192
Thill-coupling	J. B. Armstrong	310,358	Jan. 6	268	73, 74	30	51
Thill-coupling	G. W. Beaver	314,357	Mar. 24	1786	475	30	1135
Thill-coupling	G. W. Blair	311,464	Feb. 3	6	2	30	350
Thill-coupling	A. A. Dailey	312,097	Feb. 10	882	236	30	516
Thill-coupling	W. Danner and J. M. Billing	312,823	Feb. 24	1860	510	30	717
Thill-coupling	J. L. Downing	311,819	Feb. 3	459	125	30	435
Thill-coupling	E. A. Galatian and J. B. Taete	312,112	Feb. 10	876	240	30	519
Thill-coupling	W. Katon	312,125	Feb. 10	896	244	30	523
Thill-coupling	W. A. Kendall and F. R. Glover	310,207	Jan. 6	62	17	30	14
Thill-coupling	J. M. Miller	314,463	Mar. 24	1917	512	30	1160
Thill-coupling	J. L. H. Mosier	311,600	Feb. 3	191	54	30	384
Thill-coupling	T. P. Randall	313,528	Mar. 10	673	176	30	911
Thill-coupling	A. P. Skinner	314,733	Mar. 31	2285	607	30	1252
Thill-coupling	W. P. Tracy	310,490	Jan. 6	403	111	30	78
Thill-coupling	I. M. Richardson	313,242	Mar. 3	310	77	30	833
Thill-coupling belt	C. A. Bikle	310,948	Jan. 6	106	29	30	22
Thrasher and huller. Clover	E. T. Cook	314,605	Mar. 31	2406	636	30	1275
Thrasher band-cutter and feeder	G., L., and D. Neukomm	310,006	Feb. 10	741	203	30	493
Thrasher band-cutter and grain-feeder	G. W. Gould	310,671	Jan. 13	655	180	30	130
Thrasher-spreader	D. Young	311,705	Feb. 3	320	88	30	409
Thrasher. Traveling	R. H. Coon	313,299	Mar. 3	382	94	30	846
Thrashing-machine	D. Grubb	310,417	Jan. 6	333	91	30	65
Thrashing-machine band-cutter and feeder combined	R. Harding	310,679	Jan. 13	666	182	30	132
Thrashing-machine band-cutter and feeder combined	A. E. Preston	313,767	Mar. 10	993	256	30	970
Thrashing-machine elevator	C. A. Schoen	312,661	Feb. 24	1642	452	30	679
Thrashing-machine straw-carrier	D. D., C. D., and P. J. Sprague	311,210	Jan. 27	1396	382	30	277
Thrashing-machine straw-stacker	J. L. C. Cronyn	314,518	Mar. 24	2005	535	30	1174
Thread cutter and holder. Combined	S. A. Kintner	313,742	Mar. 10	957	247	30	964
Threshold	G. A. Weston and H. R. Prockter	314,090	Mar. 17	1433	374	30	1061
Ticket-case	J. P. Eastman	314,176	Mar. 17	1539	402, 403	30	1079
Ticket. Continuous mileage	S. E. Cilley	310,998	Jan. 20	1077	293	30	213
Ticket-holder	W. Patterson	310,610	Jan. 13	578	159	30	117
Ticket-holder							
Tie:							
See Bale-tie. Railway-tie. Bale and package tie.							
Tile. Fibrous-pulp roofing	J. T. Edson	310,192	Jan. 6	43	13	30	11
Tile for glass and other furnaces	J. Ashcroft	311,055	Jan. 20	1171	320	30	231
Tile for sidewalks, roofing, &c. Illuminating	C. E. Furman	311,891	Feb. 10	580	159	30	464
Tile. Illuminated	E. N. Higley	312,269	Feb. 17	1104	303	30	568
Tile-kiln	G. Jennings	311,660	Feb. 3	265	73	30	398
Tiling. Illuminating	C. H. Rose	312,222	Feb. 10	1042	285	30	546
Tiling, paving, and flooring slab or building-block. Composite	R. Marsh	313,221	Mar. 3	264	67	30	825
Till-alarm	G. A. Colton	312,707	Feb. 24	1702	468	30	689
Till recording and registering apparatus	H. Pottin	312,014	Feb. 10	752	205, 206	30	495
Tiller-wheel on steamboats, &c	J. A. Maxwell	310,213	Jan. 6	69	18	30	15
Timber. Apparatus for treating, seasoning, and preserving	J. B. Blythe	313,913	Mar. 17	1202	313, 314	30	1017
Time-check register	F. W. Griswold	313,934	Mar. 17	1240	323	30	1023
Time-lock	M. C. Hawkins	314,838	Mar. 31	2447	646	30	1283
Time-lock	E. Stockwell	312,925	Feb. 24	1967	542, 543	30	740
Time-lock	J. B. Young	314,282	Mar. 24	1683	448, 449	30	1116
Time-lock	J. B. Young	314,283	Mar. 24	1686	449	30	1116
Time-lock mounting	W. B. Hayden	312,119	Feb. 10	690	242	30	521
Time-piece	C. S. Lewis	312,479	Feb. 17	1402	386, 387	30	624
Time-piece	J. Pallweber	312,754	Feb. 24	1769	487	30	701
Time-register for seats	C. W. Allen	312,176	Feb. 10	983	268	30	536
Tin can, canister, &c. Hermetically-sealed	E. H. Cooke and H. T. Seymour	310,989	Jan. 20	1078	293	30	213
Tinner's and plumber's furnace	Z. Davis	312,825	Feb. 24	1864	511	30	718
Tire for wheels. Elastic	J. Leigh and R. W. H. McDowell	310,502	Jan. 13	894	242	30	175
Tire-heating device	S. Mansfield	314,388	Mar. 24	1826	485, 486	30	1143
Tire-heating furnace	M. L. Smith and B. Schad	314,202	Mar. 17	1574	417	30	1096
Tire-tightener	T. Rodes	312,900	Feb. 24	1957	535	30	734
Tire-tightener	N. J. Skaggs	310,918	Jan. 20	976	265	30	194
Tire-tightener	G. W. Rawson	311,363	Jan. 27	1623	444	30	319
Tire-upsetter	W. Cross	313,002	Mar. 3	36	9	30	784
Tobacco-booking machine	W. Jones	310,593	Jan. 13	559	155	30	113
Tobacco-box, &c	C. H. Scales	313,112	Mar. 3	97	25	30	795
Tobacco-cutter	T. H. Asbury	311,053	Jan. 20	1168	319	30	230
Tobacco-cutter	J. J. Hoppes	310,431	Jan. 6	347	95	30	68
Tobacco cutter and shaver. Combined	G. W. D. Upton	313,259	Mar. 3	329	81	30	836
Tobacco. Machine for dressing fine-cut	W. H. Benson	312,796	Feb. 24	1822	500, 501	30	710
Tobacco machine. Plug	G. Wildey and A. Rollins	313,903	Mar. 17	1184	368	30	1014
Tobacco-moistening device	C. H. Clark	314,223	Mar. 24	1603	423	30	1101
Tobacco-packing machine	W. R. Musser	314,539	Mar. 24	2030	542	30	1179
Tobacco-pipe	W. R. Chadsey	311,469	Feb. 3	12	4	30	351
Tobacco-pipe	T. Murphy	313,833	Mar. 10	1062	291	30	966
Tobacco-pipe	J. Pfeiffer	314,344	Mar. 24	1771	471	30	1132
Tobacco-plant slitter and cutter	D. Robinson	311,375	Jan. 27	1638	448	30	322
Tobacco-transporting rack	W. Sternberg. (Reissue)	10,560	Feb. 10	1069	294	30	554
Toboggan	J. R. McLaren, Jr.	312,879	Feb. 24	1937	530	30	730
Toilet-case and satchel. Combined	L. Johnston	312,355	Feb. 17	1234	339	30	592
Tongue support. Wagon	W. Bench	312,246	Feb. 17	1075	296	30	563

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Tongue support. Wagon	W. R. Spray	314,674	Mar. 17	1406	367	30	1056
Tonguing and grooving machine	F. B. Kearney	313,000	Feb. 24	2088	569	30	757
Tool: Combination	R. W. Archer	313,272	Mar. 3	342	84	30	838
Tool. Combination	T. E. Riddel	310,851	Jan. 13	881	238	30	172
Tool-handle	W. Nunley	310,950	Jan. 20	1078	281	30	205
Tools. Adjusting device for machinists'	F. I. Getty and F. Dickinson	314,663	Mar. 31	2197	583	30	1236
Tools and tool-blanks. Manufacture of cutting	M. A. Howell, Jr	310,280	Jan. 6	158	.....	30	31
Tooth. Artificial	J. A. Priest	310,849	Jan. 13	879	238	30	172
Tooth-crown. Artificial	W. S. How	313,737	Mar. 10	949	246	30	992
Tooth-crown. Artificial	W. S. How	313,738	Mar. 10	951	246	30	992
Tooth-crown. Artificial	M. L. Logan	310,294	Jan. 6	174	49	30	34
Top-prop	T. F. Lemassena	314,547	Mar. 31	2094	559	30	1218
Top-prop washer	E. Rothlisberger	313,773	Mar. 10	999	258	30	972
Top. Spinning	C. H. Fry, Jr	310,574	Jan. 13	533	146	30	108
Torch	J. H. J. Ronner	314,325	Mar. 31	2276	604	30	1250
Torch. Night signal	C. T. Lee	314,033	Mar. 17	1360	354	30	1047
Torpedo	T. Nordenfelt	312,579	Feb. 17	1538	419	30	650
Torpedo-boat. Submarine	P. B. Walker and H. G. Riggs	310,342	Jan. 6	247	67, 68	30	47
Torpedo for danger-signals upon railways	T. G. Palmer	310,718	Jan. 13	716	195	30	142
Torpedo for railway-signals	S. F. Allen	313,151	Mar. 3	151	37	30	805
Torpedo. Marine	J. A. Howell	311,325	Jan. 27	1563	{426 427	30	307
Torpedo-net	W. M. Bullivant	312,965	Feb. 24	2039	556	30	749
Torpedo. Railway	J. M. Clough	311,416	Jan. 27	1693	462	30	331
Torpedo railway-signal	T. G. Palmer	310,717	Jan. 13	715	195	30	142
Torpedoes. Apparatus for launching	J. A. Howell	311,326	Jan. 27	1568	{427 428	30	308
Tow-boat for canals	D. W. Cooke	313,920	Mar. 17	1215	317	30	1010
Tower and shield system of fortifications	T. R. Timby	312,230	Feb. 10	1051	{287 288	30	550
Tower and shield system of fortifications. Revolving	T. R. Timby	312,232	Feb. 10	1054	289	30	550
Tower. Skeleton	J. S. Adams	311,165	Jan. 27	1325	365	30	265
Toy	V. E. Rieber	313,952	Mar. 17	1265	330	30	1028
Toy	J. G. Webb	311,215	Jan. 27	1408	384	30	279
Toy block	J. B. Anderson	312,490	Feb. 17	1314	302	30	609
Toy. Building	W. Stranders	311,783	Feb. 3	431	116	30	429
Toy gravity-railway or parlor-sleigh	J. S. Baldwin	310,929	Jan. 20	989	269	30	196
Toy. Mechanical	W. H. Anderson	311,219	Jan. 27	1415	{385 386	30	281
Toy spring-gun	M. Bradley	310,873	Jan. 20	912	248	30	184
Toy spring-gun	G. Elsey	313,413	Mar. 3	521	136	30	674
Toy swing. Electro-magnetic	M. Bacon	312,178	Feb. 10	946	260	30	538
Toys. Faucet for	W. Newman	312,750	Feb. 24	1765	485	30	700
Trace-carrier	J. H. Philpott	313,519	Mar. 10	665	173	30	909
Trace-holder	H. A. Pott	313,765	Mar. 10	992	256	30	970
Trace-holder	J. Strong	311,686	Feb. 3	288	81	30	405
Track-gage	W. D. Dalton	311,418	Jan. 27	1696	462	30	332
Tracks. Adjustable chair for	W. E. Nickerson	311,214	Jan. 27	1461	399	30	290
Traction-engine	R. S. Angell	314,285	Mar. 24	1689	450	30	1117
Traction-engine	F. W. Bohn	310,960	Jan. 20	1068	291	30	211
Traction-engine	C. and E. E. Ervin	314,924	Mar. 31	2567	679	30	1303
Traction-engine	J. C. Harker	312,630	Feb. 24	1597	{417 438	30	670
Traction-engine	M. W. Hazelton	311,319	Jan. 27	1555	424	30	306
Traction-engine	J. Hershberger	312,633	Feb. 24	1605	440	30	672
Traction-engine	O. W. Kelly and L. F. Dieter	310,443	Jan. 6	359	99	30	70
Traction-engine	F. W. Robinson	311,530	Feb. 3	97	29	30	367
Traction-engine	W. H. Snyder	314,672	Mar. 17	1404	366	30	1035
Tramway. Tubular	A. E. Brown	313,985	Mar. 3	358	89	30	841
Tramways. Device for loading and unloading	C. M. Huson	312,274	Feb. 17	1117	{307 308	30	571
Transcycle	J. A. Enos	311,112	Jan. 20	1255	344	30	245
Transom-lifter	A. F. Pfeifer	311,256	Jan. 27	1463	400	30	290
Transom-lifter	J. H. Shaw	312,024	Feb. 10	770	210	30	499
Transom-lifter	J. F. Wollensak	310,352	Jan. 6	200	71	30	50
Transom-operator	S. Strong	312,224	Feb. 10	1044	286	30	549
Transplanter	J. B. Johnson	310,592	Jan. 13	558	155	30	113
Trap: *See* Animal-trap. Steel-trap. Ball-trap. Vermin-trap. Feed-water trap. Water-trap. Steam-trap.							
Traveling-bags, satchels, &c. Manufacturing	R. W. Chapman	311,059	Jan. 20	1179	{323 324	30	232
Treadle	C. H. Kingsbury	310,686	Jan. 13	678	186	30	135
Tree: *See* Double-tree.							
Tree-protector and lawn ornament	J. S. Hughes	313,424	Mar. 3	537	141	30	877
Tricycle	R. H. Andrews	310,968	Jan. 20	997	247	30	183
Tricycle	H. J. Gormley	314,236	Mar. 24	1618	428	30	1103
Tricycle	C. F. Hadley	313,863	Mar. 17	1128	293	30	1003
Tricycle	T. P. and J. B. Hall	310,676	Jan. 13	660	181	30	131
Tricycle	C. G. E. Hennig	310,998	Jan. 20	1092	299	30	216
Tricycle	C. G. E. Hennig. (Reissue)	10,575	Mar. 24	2051	546	30	1182
Tricycle	T. H Paessler	311,084	Jan. 20	1218	334	30	239
Tricycle. Lady's	L. P. Valiquet	313,469	Mar. 3	589	151	30	896
Tricycle-steering device	A. H. Overman and C. F. Hadley	313,018	Feb. 24	2120	578	30	763
Trimmer: *See* Wick-trimmer.							
Trimming-machine	E. Jordan	310,894	Jan. 20	937	255	30	189
Triturator	L. H. Witte	313,906	Mar. 17	1188	309	30	1014
Trough: *See* Feed-trough. Feeding-trough.							
Trowel-handle	C. Richardson	314,479	Mar. 24	1951	530	30	1165

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Truck	F. L. Bestor	310,362	Jan. 6	272	75	30	52
Truck	H. Martin	314,594	Mar. 31	2102	561	30	1219
Truck and bag-holder. Combined	C. H. Price and J. Stevenson	312,016	Feb. 10	750	207	30	497
Truck and ladder. Combined	J. C. Lowen	310,836	Jan. 13	861	233	30	169
Truck. Car	C. E. Candee	310,986	Jan. 20	1075	293	30	212
Truck. Car	I. H. Congdon	314,224	Mar. 24	1604	424	30	1101
Truck. Car	M. G. Hubbard	312,720	Feb. 24	1720	473	30	692
Truck. Car	H. C. McCarty	314,459	Mar. 24	1913	511	30	1159
Truck. Car	G. S. Strong and A. Mitchell	312,928	Feb. 24	1992	{544 545	30	740
Truck. Car	J. D. Trammell	314,402	Mar. 24	1843	491	30	1147
Truck. Car	D. S. Wing	310,485	Jan. 6	408	112	30	79
Truck. Hand	G. M. L. McMillen	310,214	Jan. 6	70	18	30	15
Truck. Reaper	E. Andrews	312,946	Feb. 24	2014	550	30	744
Trunk	G. Deimel	311,176	Jan. 27	1352	371	30	269
Trunk	O. R. Meredith, J. I. Gallacher, and C. F. Jones.	310,704	Jan. 13	701	191	30	139
Trunk	M. R. Redmond, G. P. McFarlane, and J. Mallon.	311,919	Feb. 10	611	169	30	470
Trunk-buffer and caster. Combined	S. M. Michelson	313,096	Mar. 3	75	20	30	791
Trunk-catch	T. F. Conklin	311,721	Feb. 3	336	93	30	412
Trunk-catch	J. O. Ford	312,195	Feb. 10	1007	274	30	542
Trunk-catch	J. Wayland	311,276	Jan. 27	1501	410	30	297
Trunk-catch	W. B. Coulter	311,232	Jan. 27	1434	391	30	284
Trunk-fastener	J. H. Medcraft	311,348	Jan. 27	1600	438	30	315
Trunk-fastener	L. E. Dupont	314,522	Mar. 24	2009	536	30	1175
Trunk-lock	W. Hoehn	311,759	Feb. 3	390	106	30	422
Trunk-lock	S. M. Michelson	311,439	Jan. 27	1722	469	30	337
Trunk-stay	J. Prousnitzer	310,922	Jan. 6	78	20	30	17
Trunk-tray	J. Cronin	311,570	Feb. 3	150	42	30	377
Truss	A. D. Winters	314,503	Mar. 24	1986	530	30	1171
Truss	O. Case	313,057	Mar. 3	32	8	30	784
Truss. Body	I. N. Foote	311,739	Feb. 3	360	99	30	417
Truss-pad							
Tub: *See* Bath-tub. Paint-tub. Mash-tub.							
Tube: *See* Ear-tube. Well-tube.							
Tube-joint	C. E. Emery	310,264	Jan. 6	135	39	30	27
Tube-making machine	J. J. Fisher and J. A. Herrick	311,477	Feb. 3	92	6	30	353
Tube-skelps. Machine for scarfing and bending	P. Patterson and H. E. Boyd	314,712	Mar. 31	2254	599	30	1247
Tubes. Sectional non-conductive covering for	W. M. Suhr	312,057	Feb. 10	782	213	30	501
Tug	T. Jacoby	311,969	Feb. 10	791	197	30	489
Tug and trace fastening. Hame	W. H. Tyler	311,796	Feb. 3	433	117	30	429
Tug. Draft	R. B. Ayres	314,909	Mar. 31	2547	673	30	1300
Tug. Hame	C. B. Lindsey and D. N. Goddard	310,693	Jan. 13	685	185	30	136
Tug. Harness	L. A. Blood	312,799	Feb. 24	1826	501	30	711
Tug. Shaft	H. F. Bock	310,366	Jan. 6	276	76	30	53
Tug. Shaft	H. F. Bock	310,367	Jan. 6	277	76	30	53
Tuning-hammer	F. W. Hale	310,673	Jan. 13	657	180	30	131
Tuning implement	F. W. Hale	310,674	Jan. 13	658	180	30	131
Tuyere	W. I. Mann	313,088	Mar. 3	63	17	30	789
Tuyere-iron	J. Hadley	312,698	Feb. 24	1505	437	30	670
Tuyere-iron	B. S. Logan	311,017	Jan. 20	1118	305	30	221
Tweezers and screw-driver. Combined	C. E. Giessner	311,308	Jan. 27	1543	420	30	304
Twist-drills. Machine for making	G. R. Stetson	312,401	Feb. 17	1292	{356 357	30	604
Tympan-sheet and compound for same	J. P. Babington	312,694	Feb. 24	1681	.....	30	685
Type for matrix-making	J. O. Clephane	311,412	Jan. 27	1687	460	30	331
Type-writing machine	J. C. Allen	312,546	Feb. 17	1496	408	30	642
Type-writing machine	E. S. Belden	310,244	Jan. 6	102	28, 29	30	22
Type-writing machine	M. C. Dodge	312,981	Feb. 24	2058	562	30	753
Type-writing machine	G. C. Garrison	312,113	Feb. 10	877	{240 241	30	520
Type-writing machine	G. Lucas	313,827	Mar. 10	1068	{275 276	30	984
Type-writing machine	N. F. Petit, Jr.	310,308	Jan. 6	196	53	30	37
Type-writing machine	G. W. N. Yost	313,973	Mar. 17	1285	{335 336	30	1032
Type-writing machines. Copy-holder for	W. H. Clarkson	311,992	Jan. 27	1594	415	30	301
Type writing machines. Inking-ribbon alarm for	A. O. Hall	314,016	Mar. 17	1338	348	30	1043
Umbrella	C. R. Hicks	313,668	Mar. 10	855	222	30	946
Umbrella	H. F. Sawtelle	313,111	Mar. 3	95	25	30	794
Umbrella-lock	E. H. Griffin	313,493	Mar. 10	632	164	30	903
Umbrella notch and runner	J. G. Powell	314,394	Mar. 24	1632	487	30	1144
Umbrella notches and runners. Mold for	J. G. Powell	314,395	Mar. 24	1633	488	30	1144
Umbrella runner and notch	F. Lecraft	311,015	Jan. 20	1115	304	30	220
Umbrella-sticks. Machine for forming ferrule-seats on	H. Plumb	312,636	Mar. 10	1084	{241 282	30	966
Umbrella-support	F. Haltz	314,290	Mar. 24	1694	452	30	1117
Unloading and elevating apparatus	M. J. McNelly	310,699	Jan. 13	672	180	30	137
Unwinding attachment for spools and bobbins	C. E. Wilkinson	311,625	Feb. 3	220	62	30	399
Valve	A. Bergès	314,784	Mar. 31	2380	630	30	1276
Valve	H. Hall	310,508	Jan. 6	440	121	30	86
Valve	B. W. Hoxie	311,833	Feb. 3	480	131	30	439
Valve	W. S. Jarboe	312,725	Feb. 24	1728	475	30	694
Valve	T. L. Rankin	312,164	Feb. 10	968	264	30	535
Valve	N. M. Stebbins	313,549	Mar. 10	699	183	30	916
Valve	D. F. Reese	314,719	Mar. 31	2366	602	30	1249
Valve and blow-off cock. Safety	W. Vanderman	312,042	Feb. 10	786	{214 215	30	502
Valve. Automatic air	D. Mercer	312,000	Feb. 10	734	{200 201	30	492
Valve. Balanced	A. Jackson	312,658	Feb 24	1909	523	30	725
Valve. Balanced slide							

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Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
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Valve. Balanced slide	P. McDermott	312,144	Feb. 10	922	250	30	827
Valve. Balanced slide	J. G. Miner	314,258	Mar. 24	1647	436, 437	30	1108
Valve box for water or other main and service pipes. Stop-	D. H. Sherman	313,541	Mar. 10	689	180	30	914
Valve. Check	W. Barker	314,216	Mar. 24	1593	421	30	1099
Valve. Check	W. Chappell	314,107	Mar. 17	1455	380	30	1064
Valve. Differential-pressure	A. Kaiser	313,080	Mar. 3	54	15	30	788
Valve. Disk and cone	T. Barber	311,042	Feb. 10	643	176	30	476
Valve for boilers. Signal	R. A. McLane	312,741	Feb. 24	1751	482	30	698
Valve for blowing-engines	P. L. Weimer	313,140	Mar. 3	135	33	30	801
Valve for steam-engine cylinders. Relief	T. M. Fell	310,935	Jan. 20	1001	271	30	198
Valve-gear	J. A. Stout	310,743	Jan. 13	747	203	30	148
Valve-gear. Steam-engine	M. N. Lynn	313,007	Feb. 24	2099	572, 573	30	760
Valve lever. Throttle	A. M. Stickney	313,896	Mar. 17	1172	306	30	1019
Valve-lock	M. Jones	313,211	Mar. 3	253	64	30	823
Valve-movement for direct-acting engines	W. D. Hooker	313,868	Mar. 17	1136	296	30	1005
Valve. Multiplex safety	G. W. Richardson	311,147	Jan. 20	1303	359	30	255
Valve. Relief	W. B. Coulter	311,723	Feb. 3	338	94	30	413
Valve. Reversing	E. L. Moore	314,341	Mar. 24	1704	471	30	1131
Valve-rod connection	J. B. Stanwood	313,961	Mar. 17	1272	332	30	1030
Valve. Safety	W. A. Campbell	314,049	Mar. 31	2181	578	30	1233
Valve. Safety	W. S. Jarboe	312,724	Feb. 24	1726	474	30	693
Valve. Safety	W. N. Nicholson and A. T. Allcock	310,459	Jan. 6	377	105	30	74
Valve. Slide	C. M. Giddings	314,120	Mar. 17	1475	385	30	1068
Valve. Steam	W. C. McKinnis	312,488	Feb. 17	1413	390	30	626
Valve. Steam-actuated	H. L. Perrine	313,367	Mar. 3	464	120	30	862
Valve. Steam-actuated	W. S. Phelps	313,684	Mar. 10	869	227	30	949
Valve. Steam-engine	D. D. Hardy	313,729	Mar. 10	938	243	30	961
Valve. Steam-engine	D. C. Harlow	313,496	Mar. 10	636	165	30	904
Valve. Steam-engine relief	H. G. Robinson	310,912	Jan. 20	962	262	30	192
Valve. Steam-engine reversing	A. Freeman	311,890	Feb. 10	578	158	30	464
Valve. Steam-engine rotary	J. L. Bogert	310,978	Jan. 20	1065	289	30	210
Valve. Steam oscillating	J. M. Kells	312,126	Feb. 10	898	244, 245	30	823
Valve-stems. Revoluble joint for screw	J. H. Blessing	310,870	Jan. 20	909	247	30	183
Valve. Stop and waste	P. Harvey	314,836	Mar. 31	2445	646	30	1283
Valve. Straight-way	P. B. Page	314,708	Mar. 31	2248	598	30	1246
Valve. Throttle	E. Lunkenheimer. (Reissue)	10,557	Feb. 3	525	142	30	447
Vapor-burner	C. V. Best	312,247	Feb. 17	1076	297	30	564
Vapor-burner	Z. Davis	311,818	Feb. 3	458	125	30	435
Vapor-burner	J. B. Wallace	314,404	Mar. 24	1845	491, 492	30	1147
Vapor-burner attachment	A. P. Avery	312,065	Feb. 10	816	223	30	508
Vapor-burner valve	D. E. Bangs	312,067	Feb. 10	818	223, 224	30	508
Vapor-burners. Flame-deflector for	E. A. Edwards	314,923	Mar. 31	2566	678	30	1303
Vaporizer and fumigator	G. S. Goodhart	312,459	Feb. 17	1372	378	30	619
Varnish	G. Reuss	314,007	Mar. 31	2119	.....	30	1223
Varnish. Manufacture of amber	J. W. Gousen	311,118	Jan. 20	1261	345	30	247
Vases having a body made of plastic material. Construction of	J. J. West	311,092	Jan. 20	1227	336	30	241
Vault-cover	W. H. Beckwith	314,781	Mar. 31	2377	629	30	1270
Vegetable boiler and cutter	C. Unger	314,064	Mar. 17	1423	372	30	1039
Vehicle	J. L. Mather	313,507	Mar. 10	649	169	30	906
Vehicle	J. W. Patterson and N. R. Jones	313,763	Mar. 10	980	255	30	970
Vehicle body and seat	D. A. Vanhorne	314,499	Mar. 24	1960	528, 529	30	1171
Vehicle-body support	T. D. Lines	313,350	Mar. 3	444	112	30	858
Vehicle-bolster stake	R. Gerner	313,199	Mar. 3	236	60	30	820
Vehicle-brake	F. C. Day	312,436	Feb. 17	1337	368	30	613
Vehicle-brake	P. H. Ingrahm	310,518	Jan. 6	440	124	30	87
Vehicle breeching attachment	J. C. Williams	312,416	Feb. 17	1309	361	30	608
Vehicle dash-board	K. J. Schuster	313,869	Mar. 17	1165	303	30	1010
Vehicle drop-perch	H. W. Pell	314,714	Mar. 31	2250	600	30	1247
Vehicle gear-iron	C. R. Wilson	311,094	Jan. 20	1229	337	30	241
Vehicle. Road	W. J. Brewer	312,900	Feb. 24	2032	554	30	747
Vehicle running-gear	A. K. Caverly	314,222	Mar. 24	1601	423	30	1100
Vehicle running-gear	M. Frear	313,486	Mar. 10	633	162	30	902
Vehicle running-gear	S. Gesner, Jr., and J. F. Stevens	311,654	Feb. 3	257	71	30	397
Vehicle running-gear	J. W. Vaughn	313,392	Mar. 3	493	129	30	868
Vehicle seat spring	T. S. King and C. E. Stivers	314,138	Mar. 17	1499	391	30	1072
Vehicle shifting-rail	G. Straw	310,474	Jan. 6	393	109	30	76
Vehicle side spring	C. Haendle	312,844	Feb. 24	1888	517	30	722
Vehicle side spring	J. H. Snodgrass	312,174	Feb. 10	980	267	30	837
Vehicle-spring	W. L. Bay	313,900	Mar. 10	1038	266	30	978
Vehicle-spring	W. Boughton	310,175	Jan. 6	20	5	30	6
Vehicle-spring	G. W. Bunn	311,807	Feb. 3	446	121	30	432
Vehicle-spring	A. H. Dickey	312,441	Feb. 17	1341	370	30	614
Vehicle-spring	J. Hauser	312,846	Feb. 24	1890	518	30	722
Vehicle-spring	J. J. Kalina	314,029	Mar. 17	1357	353	30	1046
Vehicle-spring	H. W. Moore	314,702	Mar. 31	2241	596	30	1245
Vehicle-spring	J. Priest	314,978	Mar. 31	2645	689	30	1316
Vehicle-spring	P. Quinn	313,596	Mar. 10	671	175	30	910
Vehicle-spring	F. L. Wbartenby	312,778	Feb. 24	1799	495	30	707
Vehicle. Two-wheeled	W. M. Buchnan	311,250	Jan. 27	1523	415	30	300
Vehicle. Two-wheeled	P. F. Hellerstedt	311,244	Jan. 27	1449	395	30	287
Vehicle. Two-wheeled	E. G. Selts	311,922	Feb. 10	616	170	30	471
Vehicle. Two-wheeled	D. P. Sharp	313,379	Mar. 3	478	125	30	865
Vehicle. Two-wheeled	J. G. Stocks	310,651	Jan. 13	500	163	30	119
Vehicle. Two-wheeled	R. F. Taliaferro and E. P. Mitchell	310,746	Jan. 13	752	205	30	149
Vehicle. Two-wheeled	J. Weesely	310,760	Jan. 13	769	268, 269	30	151

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Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
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Vehicle. Two-wheeled	O. Willson	312,690	Feb. 24	1677	462	30	685
Vehicle-wheel	J. Barbiere	311,280	Jan. 27	1512	412	30	299
Vehicle-wheel	J. H. Bissell	310,779	Jan. 13	794	215	30	156
Vehicle-wheel	J. E. Dewesse	314,580	Mar. 24	2007	535	30	1174
Vehicle-wheel	W. H. Harding	310,585	Jan. 13	549	151	30	111
Vehicle-wheel	R. F. H. Hövet	313,209	Mar. 3	250	63	30	823
Vehicle-wheel	F. M. Priestley	311,144	Jan. 20	1300	358	30	254
Vehicle-wheel	J. L. Yost	312,682	Feb. 24	1679	463	30	685
Vehicles. Power-accumulator for	L. Montgilion	310,907	Jan. 20	955	260	30	191
Vehicles. Umbrella-covering for	C. H. Butlin	311,809	Feb. 3	448	122	30	432
Velocipede	W. P. Benham	310,776	Jan. 13	792	214	30	156
Velocipede	S. B. Hill	312,634	Feb. 24	1606	440, 441	30	672
Velocipede	W. Hillman	311,320	Jan. 27	1557	424, 425	30	306
Velocipede	T. B. Jeffery	312,473	Feb. 17	1393	385	30	623
Velocipede	F. B. Powers	313,234	Mar. 3	295	74	30	830
Velocipede	C. E. Pratt and A. E. Wallace	310,540	Jan. 6	485	135	30	93
Velocipede	C. H. and J. I. Veeder	312,407	Feb. 17	1297	358	30	605
Velocipede	R. Von Malkowsky	310,548	Jan. 6	500	138	30	96
Velocipede	A. E. Wallace	312,411	Feb. 17	1301	359, 360	30	606
Velocipede	A. E. Wallace	314,633	Mar. 31	2160	574	30	1229
Velocipede	C. L. Work	314,160	Mar. 17	1522	399	30	1076
Velocipede-boats. Wind-guard for	J. Thompson	314,491	Mar. 24	1970	524	30	1168
Velocipede. Ice	C. Wünsch	311,802	Feb. 3	518	140	30	445
Velocipede-pedal	C. F. Hadley	313,323	Mar. 3	412	103	30	852
Velocipede. Railway	C. H. Copp	312,332	Feb. 17	1197	328	30	586
Velocipede-saddle	C. E. Pratt	312,219	Feb. 10	1039	285	30	548
Velocipede saddle-spring	W. Hillman	310,823	Jan. 13	848	230	30	166
Velocipede-spring clip	J. Knous	311,188	Jan. 27	1368	374	30	272
Velocipede treadle-motion	G. H. Griffiths	314,013	Mar. 17	1332	347	30	1042
Velocipede-wheel	A. M. White	310,857	Jan. 13	886	240	30	173
Veneer ornamental work. Open	F. Koskul	311,014	Jan. 20	1114	304	30	220
Ventilating-louver	G. Hayes	313,865	Mar. 17	1132	294, 295	30	1004
Ventilating the hull of a navigable vessel	E. E. Ferrin	313,066	Mar. 3	40	10	30	785
Ventilator: *See* Boot and shoe ventilator. Hat-ventilator. Stove-pipe ventilator.							
Ventilator	J. M. Ayer	312,177	Feb. 10	984	268, 269	30	538
Ventilator	C. E. Grannies	313,492	Mar. 10	631	164	30	903
Ventilator	L. Schanck	312,903	Feb. 24	1961	536	30	735
Ventilator	A. S. Seaman	314,8 2	Mar. 31	2508	665	30	1294
Vermin-trap	E. J. Jarvis	314,133	Mar. 17	1494	390	30	1071
Vertical drill	E. Smedley	313,114	Mar. 3	99	25	30	795
Vessel. Navigable	R. B. Condon	314,435	Mar. 24	1868	504	30	1155
Vessels and cars, &c. Apparatus for discharging contents of	A. E. Brown	314,424	Mar. 24	1869	498	30	1152
Vessels. Attaching tops to	D. W. Norris	311,777	Feb. 3	411	111	30	425
Vessels. Decreasing the frictional resistance to	F. D. Owen	312,500	Feb. 17	1439	395	30	631
Vessels. Elastic joint for the planking of	C. E. Mark	311,593	Feb. 3	181	52	30	382
Vessels. Leak-stopper for	J. B. Corey	312,614	Feb. 24	1580	432	30	667
Vessels. Mechanism relating to chain-stoppers and windlasses of navigable	J. J. Emery	311,573	Feb. 3	153	44	30	377
Violin. Piano	T. Oleson	314,540	Mar. 24	2032	542	30	1179
Vise	T. G. Hall	311,487	Feb. 3	36	10	30	356
Vise. Bench	W. Mickel	310,639	Jan. 13	865	234	30	169
Vise. Engraver's	H. Schmidt	314,610	Mar. 31	2122	566	30	1223
Vise. Saw	H. Flater	311,241	Jan. 27	1445	394	30	286
Voltaic batteries. Amalgamating zinc plates or bars for	W. S. Platt	313,615	Mar. 10	789	207	30	933
Wagon	J. C. Huggins	313,335	Mar. 3	423	106	30	854
Wagon-bed lifter	W. H. Thomas	312,098	Feb. 10	782	213	30	501
Wagon-body corner-iron	E. Hutchinson	310,517	Jan. 6	448	124	30	87
Wagon-bolster spring	T. S. King and C. E. Stivers	314,139	Mar. 17	1499	391	30	1072
Wagon-brake	B. Boech	310,174	Jan. 6	19	5	30	6
Wagon-brake	R. E. McClelland	313,073	Mar. 3	71	19	30	790
Wagon-brake	W. S. Smith	313,115	Mar. 3	100	26	30	795
Wagon-brake	N. L. Holmes	311,000	Jan. 20	1094	299	30	216
Wagon circle-post	J. J. Murphy	314,868	Mar. 31	2490	600	30	1291
Wagon. Dumping	G. W. Reed	312,295	Feb. 17	1153	315	30	578
Wagon. Dumping	W. P. Sumner	313,125	Mar. 3	114	28	30	797
Wagon. Dumping	F. T. Tarbox	313,126	Mar. 3	115	28	30	798
Wagon-jack	A. Mote and J. B. Brewster	312,746	Feb. 24	1759	484	30	699
Wagon-loading machine	A. L. Slawson	311,926	Feb. 10	623	172	30	472
Wagon-rack	W. A. Moore	313,753	Mar. 10	975	251	30	967
Wagon-seat	J. T. Dongine	310,802	Jan. 13	819	222	30	160
Wagon-seat	C. Zimmerman	314,410	Mar. 24	1851	493	30	1148
Wagon-stake. Detachable	R. D. Shutt	311,206	Jan. 27	1391	360	30	276
Wagon-top	H. W. Blood	314,098	Mar. 17	1441	377	30	1062
Wall-coping. Manufacture of	J. Francy	313,583	Mar. 10	743	196	30	925
Wall of buildings and other structures	W. H. Orr	312,375	Feb. 17	1256	346	30	597
Wall-paper-cutting machine	J. C. Van Horn	312,643	Feb. 10	787	215	30	503
Walls. Constructing hollow brick	H. Harwood	312,464	Feb. 17	1376	380	30	620
Walls. Deafening or filling for	L. E. Clawson	311,567	Feb. 3	147	42	30	376
Wardrobe and chiffonier. Folding	H. L. Mehrer	310,709	Jan. 13	709	191	30	137
Warp-slasher	S. R. Campbell	310,799	Jan. 13	905	218	30	158
Wash-board	H. C. Carter	313,653	Mar. 10	841	218	30	943
Wash-boiler	B. J. Gagnier	311,079	Jan. 20	1193	328	30	235
Wash-boiler	M. R. Walpole	311,095	Feb. 3	307	84	30	407

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Washer:							
See Dish-washer. Top-prop washer. Spring-washer.							
Washer-cutter	H. E. Koepka	310,527	Jan. 6	459	126	30	89
Washing-machine	F. B. Black	314,786	Mar. 31	2383	630	30	1271
Washing-machine	J. B. Blakemore and W. A. Roberts	314,163	Mar. 17	1526	400	30	1077
Washing-machine	H. T. Boydstun	314,313	Mar. 24	1726	459	30	1124
Washing-machine	P. J. Courtenay	314,318	Mar. 24	1731	461	30	1125
Washing machine	J. Donald	312,892	Feb. 24	2061	563	30	753
Washing-machine	L. K. Dutton	313,407	Mar. 3	514	135	30	873
Washing-machine	Z. M. Gelinas	314,372	Mar. 24	1805	480	30	1139
Washing-machine	J. Gillespie	313,318	Mar. 3	406	101	30	851
Washing-machine	A. J. and M. C. Guffin	310,507	Jan. 6	438	121	30	85
Washing-machine	J. K. Hunt	313,498	Mar. 10	638	166	30	904
Washing-machine	J. T. Leger	314,455	Mar. 24	1909	510	30	1159
Washing-machine	J. M. Lockhart	311,133	Jan. 20	1285	353	30	251
Washing-machine	F. McKimmy	310,698	Jan. 13	691	189	30	137
Washing-machine	B. and J. Wing	311,935	Feb. 10	634	174	30	475
Washing-machine. Hot-water-circulating	A. Huffer	314,846	Mar. 31	2458	649	30	1284
Watch	A. Chopard	311,566	Feb. 3	146	42	30	376
Watch	H. W. Hayden	312,848	Feb. 24	1892	{518 {519	30	722
Watch. Alarm-	C. Masmejan	311,504	Feb. 3	122	52	30	382
Watch-arbors. Making crowns for winding	G. E. Hart	314,834	Mar. 31	2443	645	30	1282
Watch-balance	J. E. A. Uhrig	311,797	Feb. 3	435	117	30	430
Watch-case	C. W. Harman and H. G. Skidmore. (Reissue.)	10,556	Feb. 3	524	142	30	447
Watch-case	D. O'Hara	313,360	Mar. 3	455	116	30	861
Watch-case	C. Schuets	312,907	Feb. 24	1965	537	30	735
Watch-case	C. W. Harman	313,326	Mar. 3	415	104	30	862
Watch-case. Anti-magnetic	C. K. Giles	312,458	Feb. 17	1371	378	30	619
Watch-case center	J. C. Dueber. (Reissue)	10,566	Mar. 3	594	153	30	888
Watch-case hinge	F. Rapp	313,448	Mar. 3	575	148	30	863
Watch-case hinge	F. Rapp	313,449	Mar. 3	576	148	30	884
Watch-case spring	T. L. Bear	311,563	Feb. 3	143	41	30	375
Watch-case spring	A. Grandjean	311,894	Feb. 10	583	160	30	464
Watch-cases. Machine for turning	J. Frossard	312,198	Feb. 10	1010	275	30	543
Watch-dials. Apparatus for figuring	H. G. Skidmore	310,313	Jan. 6	202	55	30	39
Watch-key	T. F. Proctor	310,737	Jan. 13	740	207	30	146
Watch-maker's tool	H. P. Pruim	312,221	Feb. 10	1041	285	30	548
Watch-movement box	F. Fitt	310,937	Jan. 20	1006	272	30	199
Watch-plates. Enlargement-ring for	W. E. Doolittle	311,297	Jan. 27	1530	416	30	302
Watch-regulator	D. H. Church	312,253	Feb. 17	1083	299	30	565
Watch-regulator	C. M. Howard	314,672	Mar. 31	2296	586	30	1238
Watch-regulator	G. P. Reed	311,609	Feb. 3	200	56	30	386
Watch-regulator	F. Terstegen	311,270	Jan. 27	1485	407	30	294
Watch repeating attachment	A. S. Galentine	314,288	Mar. 24	1692	451	30	1117
Watch-stem-winder mechanism	H. R. Smith and R. Folsom. (Reissue.)	10,554	Jan. 27	1747	476	30	342
Watch. Stem-winding	G. Hunter	312,856	Feb. 24	1907	523	30	725
Watch stem-winding and hand-setting attachment	H. A. T. Reinecke	310,865	Jan. 13	806	242	30	175
Watch stem winding and setting attachment	F. Fitt	310,936	Jan. 20	1003	272	30	198
Watch. Stop-	A. F. Blesch	313,281	Mar. 3	353	87	30	840
Water-closet	J. Muirhead	314,145	Mar. 17	1567	394	30	1073
Water-closet	W. Smith	314,617	Mar. 31	2133	568	30	1224
Water-closet	J. H. Hawley	311,982	Feb. 10	714	195	30	488
Water-closet-apparatus handle	J. L. Mott, Jr	312,353	Feb. 17	1254	{345 {346	30	596
Water-closet bidet attachment	T. Keyworth	311,587	Feb. 3	173	49	30	381
Water-closet bowls. Apparatus for flushing	G. R. Moore	311,589	Feb. 3	190	54	30	384
Water-closet cisterns. Valve mechanism for	M. T. F. O'Donnell	311,026	Jan. 20	1128	308	30	223
Water-closet flushing-valve	H. W. Mansur	311,342	Jan. 27	1595	436	30	314
Water-closet. Hopper	E. J. Brady	310,370	Jan. 6	280	77	30	54
Water-closet pan	C. C. Nash	311,443	Jan. 27	1727	470	30	338
Water-closet. Portable	M. Fox	310,401	Jan. 6	318	88	30	62
Water-closet seat	M. J. Smith	311,207	Jan. 27	1392	380	30	276
Water-closet tank or cistern	H. C. Apel	310,972	Jan. 20	1058	287	30	209
Water-closet valve	P. White	312,687	Feb. 24	1673	461	30	684
Water-closet valve	W. H. Ganta	313,314	Mar. 3	402	100	30	850
Water-currents. Velocimeter for	H. Flad	314,323	Mar. 24	1737	{463 {464 {465	30	1126
Water-distribution. Main for	S. B. Feeney	312,158	Feb. 10	956	261	30	533
Water-elevator	E. McAllister	311,664	Feb. 3	268	74	30	389
Water-elevator bucket. Windlass	C. W. Schmueser	314,061	Mar. 17	1392	363	30	1033
Water-gage	G. S. Chase	311,471	Feb. 3	13	4	30	351
Water-gage	R. L. Willis	311,093	Jan. 20	1229	336	30	241
Water-hammer preventive	F. L. Mentel	312,882	Feb. 24	1930	531	30	730
Water heater and circulator	P. Smith	314,735	Mar. 31	2267	607	30	1252
Water heater and purifier	G. H. Babcock and L. Pine	314,414	Mar. 24	1655	454	30	1149
Water-meter	P. H. Rosenkranz and F. Prophet	314,460	Mar. 24	1952	520	30	1165
Water-meter. Rotary	F. A. Hinds	314,126	Mar. 17	1484	398	30	1069
Water-motor	J. F. Sullivan	313,030	Feb. 24	2137	581	30	766
Water-proof compound	J. T. Elliott	313,412	Mar. 3	520	.....	30	874
Water-proof fabric. Colored	T. Hawley	310,275	Jan. 6	152	42	30	30
Waterproofing. Composition of matter for	I. V. Reagles	311,203	Jan. 27	1388	.....	30	276
Water. Purifying	T. W. Duffy	314,003	Mar. 17	1319	344	30	1039
Water-repellent fabrics. Preparation of a fluid for making	A. B. Conger	310,560	Jan. 13	515	.....	30	105
Water-tanks. Overflow-alarm for	F. A. Cushing	313,658	Mar. 10	847	220	30	944
Water-tower	J. B. Logan	311,905	Feb. 10	600	164	30	467
Water-trap	J. P. Putnam	311,085	Jan. 20	1220	334	30	239
Water-trap	J. P. Putnam	311,086	Jan. 20	1221	335	30	240

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Water-trap	J. P. Putnam	311,087	Jan. 20	1223	335	30	240
Water-trap	J. P. Putnam	311,146	Jan. 20	1302	358	30	254
Water-wheel. Double-acting	C. W. Ran	313,021	Mar. 10	796	209	30	934
Water-wheel. Turbine	W. H. Elmer	314,171	Mar. 17	1540	403	30	1079
Water-wheels. Valve-gear for high-speed	L. Lepley	311,591	Feb. 3	179	50.51	30	382
Watering stock. Device for	J. H. Gilbert	313,317	Mar. 3	405	101	30	851
Weather-strip	C. A. Binkley	310,364	Jan. 6	274	75	30	53
Weather-strip	G. W. Chinn	312,610	Feb. 24	1578	431	30	666
Weather-strip	J. Cotrell	313,921	Mar. 17	1219	317	30	1020
Weather-strip	S. Funk	311,925	Feb. 3	468	127	30	437
Weather-strip	S. J. Gard and J. Zaruba	310,406	Jan. 6	323	89	30	63
Weather-strip	D. H. Iseminger	314,532	Mar. 24	2022	540	30	1177
Weather-strip	J. H. Lamoureux	314,655	Mar. 31	2469	653	30	1286
Weather-strip	G. G. Wagner	311,302	Jan. 27	1659	453	30	325
Weather-strip	T. Weaver	311,929	Feb. 10	626	173	30	471
Weed-killing machine	J. P. Rand	311,525	Feb. 3	90	26	30	366
Weeder. Hand-	L. C. Hill	311,498	Jan. 27	1712	466	30	335
Weeding and thinning device for growing plants	J. N. Stevenson	313,631	Mar. 10	806	211	30	936
Weight-motor	E. S. Cain	313,708	Mar. 10	905	236	30	955
Welding compound	C. C. Fields	313,716	Mar. 10	916	.....	30	957
Well-boring apparatus	G. Platt	314,473	Mar. 24	1945	518	30	1164
Well-curb	M. Walker	310,341	Jan. 6	246	67	30	47
Well-drilling apparatus	J. Gardner	313,921	Mar. 10	1002	273	30	963
Well-drilling machine	W. E. Brown	310,875	Jan. 20	914	249	30	184
Well-fixture	J. T. Senn	311,923	Feb. 10	618	171	30	473
Well point. Drive-	J. E. Parker	313,882	Mar. 17	1157	301	30	1009
Well reamer	F. M. Gray	310,270	Jan. 6	147	41	30	29
Well-tube	J. Elliott	311,209	Jan. 27	1532	417	30	302
Well-tube	F. W. Miller	311,024	Jan. 20	1125	307	30	222
Well. Tube-	F. H. Smith	313,893	Mar. 17	1169	305	30	1011
Wells. Coupling device for sand-points in drive-	C. F. Lang and O. C. Stafford	312,867	Feb. 24	1925	527	30	728
Wells. Device for forming the interior of	D. J. Lord	314,387	Mar. 24	1625	485	30	1143
Wells. Rock-drilling mechanism for Artesian	J. Button	314,703	Mar. 31	2302	633	30	1273
Wells. Tubing and packing Artesian and oil	J. Bole	313,915	Mar. 17	1207	315	30	1017
Wheel:							
See Bicycle-wheel. Car-wheel. Carriage-wheel. Fifth-wheel. Harvester-wheel. Paddle-wheel. Propeller-wheel. Steam-wheel. Tiller-wheel. Vehicle-wheel. Velocipede-wheel. Water-wheel.							
Wheel	J. Frenier	313,931	Mar. 17	1238	322	30	1023
Wheel for belts or cables and means for driving them	C. M. Huson	312,275	Feb. 17	1124	{308 {309	30	573
Wheels. Manufacture of	G. D. Owen and R. Dyson	310,846	Jan. 13	875	236	30	171
Wheels. Manufacture of metal	J. R. Little	313,004	Feb. 24	2093	571	30	759
Wheelbarrow	H. W. Knowlton	314,185	Mar. 17	1534	407	30	1081
Wheelbarrow	J. W. Marshall	314,035	Mar. 17	1362	365	30	1047
Whiffletree	J. F. Collins	314,803	Mar. 31	2404	636	30	1275
Whiffletree. Elastic	J. F. Collins	314,804	Mar. 31	2405	636	30	1275
Whiffletree-hook	H. C. Bates	310,869	Jan. 20	908	247	30	183
Whiffletree-hook	M. H. Simmons	313,780	Mar. 10	1006	260	30	973
Whip	J. Holding	312,719	Feb. 24	1719	472	30	692
Whip and rein holder	J. J. Rose	312,901	Feb. 24	1958	535	30	734
Whip-socket	F. Baumgartner	313,100	Mar. 3	171	41	30	808
Whip-socket	E. W. Scott	312,768	Feb. 24	1783	492	30	704
Whip-socket	E. Shorkey and A. Rush	312,522	Feb. 17	1467	402	30	636
Whip-socket and rein-holder. Combined	E. M. Crumley	311,815	Feb. 3	455	124	30	434
Whip-socket and rein-holder. Combined	G. M. Custer	311,876	Feb. 10	546	150	30	458
Whip-socket fastener	J. W. Tillyer	313,032	Feb. 24	2139	581	30	766
Whisky. Making	F. M. Young	314,086	Mar. 17	1440	376	30	1062
Wick-adjuster	M. A. Morris	313,673	Mar. 10	865	225	30	948
Wick cutter and cleaner. Lamp-	H. Rieger	310,466	Jan. 6	385	107	30	75
Wick trimmer. Argand-lamp-	O. A. Stempel	314,743	Mar. 31	2299	610	30	1255
Wind-engine	D. H. Bausman	313,646	Mar. 10	824	215	30	940
Wind-engine	J. G. Hanover	310,419	Jan. 6	334	92	30	65
Winding yarn upon shuttle-bobbins or quills. Mechanism for	H. F. Straw	313,124	Mar. 3	111	27	30	797
Windlass	S. T. Richardson	311,370	Jan. 27	1632	447	30	320
Windlass	S. T. Richardson	311,371	Jan. 27	1634	447	30	321
Windlass	S. T. Richardson	311,373	Jan. 27	1636	448	30	321
Windlass	S. T. Richardson	311,374	Jan. 27	1637	448	30	321
Windmill	J. Q. Adams	311,937	Feb. 10	637	175	30	475
Windmill	J. Benoit	312,795	Feb. 24	1820	500	30	710
Windmill	P. T. Coffield	310,385	Jan. 6	299	82	30	57
Windmill	E. F. Lester	312,134	Feb. 10	906	247	30	525
Windmill	A. Wegley	310,237	Jan. 6	95	26	30	20
Windmill	G. W. Winters	313,148	Mar. 3	147	36	30	804
Windmill. Horizontal	A. De St. Aubin	311,177	Jan. 27	1353	371	30	270
Window	R. Adams	310,355	Jan. 6	264	72	30	50
Window	F. Keller	314,683	Mar. 31	2218	580	30	1240
Window	W. D. Mann	311,020	Jan. 20	1122	306	30	221
Window	M. S. Millard	311,252	Jan. 27	1457	{398 {399	30	289
Window	J. W. Naughton	312,005	Feb. 10	738	{202 {203	30	488
Window	E. Wagner	313,138	Mar. 3	131	32	30	801
Window-bead fastener	E. A. Johnson	313,674	Mar. 10	861	224	30	947
Window-cleaning seat	C. B. Porter	313,618	Mar. 10	791	208	30	933
Window-fastener	G. H. Kammacher	311,765	Feb. 3	396	108	30	423
Window-frame	H. E. Willer	312,052	Feb. 10	800	218	30	504
Window-guard	J. Polkowski	310,721	Jan. 13	718	196	30	143
Window-screen	J. R. Graver	311,827	Feb. 3	470	127	30	437
Window-screen	J. K. Proctor	310,312	Jan. 6	201	55	30	38

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Window-screen	M. L. Whitcomb	312,635	Feb. 24	1672	461	30	684
Window-screen roller	S. U. Tarney	311,044	Jan. 20	1135	315	30	228
Window-shade attachment	N. F. Acers	313,041	Mar. 3	1	1	30	779
Wine and cider press	G. Wager	312,235	Feb. 10	1056	290	30	551
Wine without bringing it in contact with atmospheric air. Apparatus for warming	F. Antal	314,773	Mar. 31	2364	625	30	1268
Wire-annealing apparatus	L. Williams	312,417	Feb. 17	1311	362	30	606
Wire. Annealing copper	W. Wallace and T. J. Wood	312,045	Feb. 10	788	.....	30	503
Wire. Barbed	H. C. Hart	312,463	Feb. 17	1375	379	30	620
Wire. Barbed	A. J. Upham	313,391	Mar. 3	492	128	30	868
Wire-barbing machine	F. W. Brainerd	310,178	Jan. 6	64	6, 7	30	7
Wire-barbing machine	E. R. Matteson and W. J. Hutchins	313,090	Mar. 3	65	18, 19	30	790
Wire-barbing machine	M. H. Pitts and I. R. Whiteman	313,103	Mar. 3	84	22	30	792
Wire-barbing machine	J. C. Ross	314,481	Mar. 24	1956	520, 521	30	1166
Wire-cloth. Manufacture of	B. Scarles	314,483	Mar. 24	1959	521	30	1166
Wire-coated articles. Manufacture of	E. Kellermann	310,441	Jan. 6	358	98	30	69
Wire. Copper-covered	J. Spruce	314,618	Mar. 31	2134	568	30	1225
Wire fabric. Loom for weaving	T. Patterson	312,008	Feb. 10	743	203, 204	30	494
Wire-machine. Barb	W. H. King	313,741	Mar. 10	955	247	30	963
Wire machine. Bottling	O. R. Chaplin	314,498	Mar. 24	1874	499, 500, 501	30	1153
Wire. Machine for making barbed	J. W. Nadelhoffer	314,601	Mar. 31	2111	563	30	1220
Wire. Machine for making compound	J. W. Ellis	310,805	Jan. 13	824	223, 224	30	161
Wire. Machine for screw-threading	A. Cavalli	312,084	Feb. 10	842	229, 230, 231	30	513
Wire. Machine for screw-threading	L. Goddu	310,817	Jan. 13	839	227, 228	30	164
Wire. Machine for straightening, measuring, cutting, and counting	C. Van Dersee	311,213	Jan. 27	1401	383, 384	30	278
Wire. Making	T. Midgley	310,956	Jan. 20	1033	280	30	203
Wire-netting machine	H. S. Combs	310,254	Jan. 6	123	34, 35, 36	30	25
Wire-splicer	P. A. O'Malley	312,560	Feb. 17	1541	420	30	651
Wire. Spool for barb	G. Case	312,970	Feb. 24	2046	558	30	750
Wire. Spool for barbed	G. Case	312,188	Feb. 10	999	272	30	541
Wire-stretcher	J. E. Blackmore	313,165	Mar. 3	177	43	30	809
Wire stretcher and support	C. Willsie	313,146	Mar. 3	142	36	30	803
Wire with metal. Apparatus for coating	M. G. Farmer	310,994	Jan. 20	1067	297	30	215
Wire-work	W. R. Boerner	312,701	Feb. 24	1695	466, 467	30	687
Wood and paper sorting machine. Centrifugal	H. Schlatter	310,469	Jan. 6	387	108	30	75
Wood-bending machine	J. R. Cross	314,229	Mar. 24	1612	426	30	1102
Wood. Machine for bundling kindling	J. C. Everett and R. Hardie	311,424	Jan. 27	1707	465	30	334
Wood. Ornamenting	D. McMullan	314,392	Mar. 24	1830	467	30	1144
Wood ornamentation	L. S. Hayes	312,849	Feb. 24	1895	.....	30	723
Wood ornamentation	W. H. Roystone	313,535	Mar. 10	683	179	30	913
Wood-peeling machine	L. Poole and F. P. Snow	314,876	Mar. 31	2190	603	30	1293
Wood-preserving apparatus	E. Z. Collings and C. F. Pike	310,880	Jan. 20	920	251	30	185
Wood-splitting machine	D. A. Greene	313,586	Mar. 10	749	197, 198	30	936
Wood-steaming apparatus	V. Wheat	310,926	Jan. 20	985	268	30	195
Wood-turning machine	M. E. Tucker	313,840	Mar. 10	1090	283, 284	30	968
Wood-working machinery. Device for conveying and precipitating dust arising from	D. D. Drummond. (Reissue)	10,568	Mar. 10	1097	285	30	969
Wrench: *See* Pipe-wrench.							
Wrench	I. Cressey	314,517	Mar. 24	2004	534	30	1174
Wrench	J. Forsbey and C. G. Hirlinger	314,572	Mar. 31	2079	555	30	1215
Wrench	J. Gibbons	311,892	Feb. 10	581	159	30	404
Wrench	W. L. Parker	311,202	Jan. 27	1387	379	30	276
Wrench	J. L. Phillips	310,960	Jan. 20	1039	281	30	205
Wrench	T. J. Wilson	314,095	Mar. 17	1439	376	30	1002
Wrench	H. F. Straw	313,123	Mar. 3	109	.....	30	797
Yarn for filling. Preparing colored	E. Wolf	310,351	Jan. 6	260	71	30	49
Yoke clamp. Neck	J. H. Markell	311,343	Jan. 27	1596	437	30	314
Yoke. Neck	J. H. Osborne	312,888	Feb. 24	1944	532	30	731
Yoke. Neck	H. Burns	313,052	Mar. 3	17	5	30	782
Yoke. Ox	J. W. Barron	310,638	Jan. 13	612	169	30	122
Zincography	J. Brooks	312,325	Feb. 17	1190	326	30	585
Zincographic-press bed							

ALPHABETICAL LIST OF DESIGNS.

Design.	Name.	No.	Date.	Official Gazette. Volume.	Official Gazette. Page.
Advertising-card	M. M. Dux	15,983	Mar. 24	30	1097
Advertising-sign	N. M. Harrison	15,991	Mar. 24	30	1097
Badge	F. Neubert	15,725	Jan. 13	30	102
Badge	O. Wettstein	15,880	Feb. 24	30	664
Badge	J. H. Whitehouse	15,922	Mar. 3	30	778
Badge or breastpin	D. F. Adams	15,756	Feb. 3	30	348
Bag, pocket-book, &c., frame	L. B. Prahar	15,957	Mar. 10	30	896
Bas-relief	A. Langenbahn, O. C. Evans, and C. Hiby.	15,835	Feb. 17	30	562
Basque. Lady's	L. Tully	15,691	Jan. 6	30	2
Bluing-strainer	J. C. Nobles	15,979	Mar. 17	30	998
Bottle	H. Humbert	15,697	Jan. 6	30	2
Bottle or similar vessel	J. M. Giblin	15,910	Mar. 3	30	778
Bottle-stand	F. A. Obrenschall	15,918	Mar. 3	30	778
Bracket	E. T. Harris	15,788	Feb. 10	30	453
Carbon filament	J. A. Hurdle	15,685	Jan. 6	30	2
Candy. Stick	T. E. Copelin	15,851	Feb. 24	30	663
Cane or umbrella head	F. J. Kaldenberg	15,840	Feb. 17	30	562
Carpet	M. F. Beal	15,782, 15,783	Feb. 10	30	453
Carpet	E. D. Chandler	15,967	Mar. 17	30	997
Carpet	A. Danby	15,713	Jan. 13	30	102
Carpet	H. Davis	16,003, 16,004	Mar. 31	30	1209
Carpet	E. Fisher	15,680, 15,681	Jan. 6	30	2
Carpet	E. Fisher	15,692 to 15,696	Jan. 6	30	2
Carpet	E. Fisher	15,817 to 15,829	Feb. 17	30	562
Carpet	E. Fisher	15,848	Feb. 17	30	562
Carpet	J. L. Folsom	15,768	Feb. 3	30	348
Carpet	J. L. Folsom	15,853 to 15,858	Feb. 24	30	664
Carpet	J. L. Folsom	15,882 to 15,909	Mar. 3	30	778
Carpet	J. L. Folsom	15,927 to 15,952	Mar. 10	30	896
Carpet	J. L. Folsom	15,968 to 15,971	Mar. 17	30	997
Carpet	J. L. Folsom	15,986	Mar. 24	30	1097
Carpet	J. L. Folsom	16,005	Mar. 31	30	1210
Carpet	E. C. Frost	15,682	Jan. 6	30	2
Carpet	A. L. Halliday	15,987 to 15,989	Mar. 24	30	1097
Carpet	A. Heald	15,719 to 15,721	Jan. 13	30	102
Carpet	A. Heald	15,742	Jan. 20	30	152
Carpet	A. Heald	15,769	Feb. 3	30	348
Carpet	O. Heinigke	15,859	Feb. 24	30	664
Carpet	O. Heinigke	15,911	Mar. 3	30	778
Carpet	O. Heinigke	15,973 to 15,975	Mar. 17	30	998
Carpet	O. Heinigke	15,992	Mar. 24	30	1098
Carpet	H. Hunt	15,860 to 15,865	Feb. 24	30	664
Carpet	H. Hunt	15,993	Mar. 24	30	1098
Carpet	W. L. Jacobs	15,866 to 15,876	Feb. 24	30	664
Carpet	N. Komori	15,995 to 15,996	Mar. 24	30	1098
Carpet	N. Komori	16,008 to 16,009	Mar. 31	30	1210
Carpet	W. McCallum	15,977 to 15,978	Mar. 17	30	998
Carpet	W. McCallum	15,999	Mar. 24	30	1098
Carpet	D. G. Melville	15,686	Jan. 6	30	2
Carpet	J. B. Neil	16,011 to 16,014	Mar. 31	30	1210

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Design.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Carpet	J. Pegel	15,801 to 15,806	Feb. 10	30	453
Carpet	J. Pegel	15,956	Mar. 10	30	896
Carpet	A. Petzold	15,793 to 15,795	Feb. 10	30	453
Carpet	E. Pyne	16,000	Mar. 24	30	1096
Carpet	O. Righter	15,958 to 15,964	Mar. 10	30	896
Carpet	F. E. Smith	16,001	Mar. 24	30	1096
Carpet	C. W. Swapp	15,700 to 15,709	Jan. 6	30	2
Carpet	C. W. Swapp	15,727 to 43,735	Jan. 13	30	102
Carpet	C. W. Swapp	15,840 to 15,846	Feb. 17	30	502
Carpet-molding	I. Holzmark	15,832	Feb. 17	30	502
Carriage-step	C. A. Babcock	15,757 to 15,762	Feb. 3	30	348
Chain. Watch	R. F. Simmons	15,879	Feb. 24	30	664
Chenille ornament	J. Dreyfuss	15,738	Jan. 20	30	182
Clock-case	A. S. Locke	15,976	Mar. 17	30	998
Clock-front	C. Kitschelt	15,997	Mar. 24	30	1096
Coffin-handle	W. R. McComas	15,955	Mar. 10	30	896
Costume. Lady's	M. Turner	15,689	Jan. 6	30	2
Costume. Miss's	L. Tully	15,690	Jan. 6	30	2
Curry-comb	W. P. Kellogg	15,954	Mar. 10	30	896
Curtain fabric	J. Ferguson	15,926	Mar. 10	30	896
Curtain fabric	J. Hartley	15,741	Jan. 20	30	182
Curtain fabric	J. Hartley	15,990	Mar. 24	30	1097
Curtain fabric	P. McCaffray	15,765	Feb. 3	30	348
Curtain fabric	E. G. Nuffer	15,683	Jan. 6	30	2
Curtain fabric	E. G. Nuffer	15,877	Feb. 24	30	664
Curtain fabric	W. H. Roberts	15,919	Mar. 3	30	778
Dish. Covered	I. W. Knowles, J. N. Taylor, and H. S. Knowles.	15,914	Mar. 3	30	778
Drawer-pull	C. Rowland	15,698	Jan. 6	30	2
Domino	C. Selkirk	15,745	Jan. 20	30	182
Fan	N. Plympton	15,878	Feb. 24	30	664
Fence-picket	G. Q. Adams	15,981 to 15,982	Mar. 24	30	1097
Filament	M. M. M. Slattery	15,839	Feb. 17	30	502
Finger-ring	W. F. Crafts	15,711	Jan. 13	30	102
Fire-place front	E. T. Schoonmaker	15,836 to 15,838	Feb. 17	30	502
Fire-place front	G. E. Sharpe	15,699	Jan. 6	30	2
Fringe or tassel block	W. Smith	15,726	Jan. 13	30	102
Gimp. Furniture	C. W. Jackson	15,912	Mar. 3	30	778
Glass sheet or pane	L. Heidt	15,972	Mar. 17	30	998
Hanger	D. Nickel	15,917	Mar. 3	30	778
Harness-mounting	J. M. Gwinnell	16,007	Mar. 31	30	1210
Jackets. Ornamentation of boys'	F. Goerte	16,006	Mar. 31	30	1210
Jar or bottle	S. F. Scott and S. B. Bryar	15,813	Feb. 17	30	502
Knob and escutcheon. Door	S. S. Niles	16,015	Mar. 31	30	1210
Knob. Door	H. E. Russell, Jr.	15,754	Jan. 27	30	264
Lamp	C. Kitschelt	15,722	Jan. 13	30	102
Lamp-chimney	H. Dietrich	15,852	Feb. 24	30	663
Lamp-reservoir	G. W. Woodward	15,781	Feb. 3	30	348
Medal	F. H. Chaffee and W. E. Colladay	15,925	Mar. 10	30	896
Money-box	I. Brooke	15,983	Mar. 24	30	1097
Nappy or dish	I. W. Knowles, J. N. Taylor, and H. S. Knowles.	15,753	Jan. 27	30	264
Necklace	F. W. Moore	15,915	Mar. 3	30	778
Necktie	J. R. Keiser	15,913	Mar. 3	30	778
Needle-work holder	F. Benjamin	15,812	Feb. 17	30	502
Oil-cloth	C. T. and V. E. Meyer	15,771 to 15,776	Feb. 3	30	348
Package-holder	G. H. Benedict	15,736	Jan. 20	30	182
Pail. Lard	F. A. Walsh	15,847	Feb. 17	30	502
Paper-cutter	T. C. Brecht	15,764	Feb. 3	30	348
Pendant	M. Bernhard	15,737	Jan. 20	30	182
Pendant	M. Bernhard	15,746	Jan. 27	30	264
Pendant	B. Dreyfus	15,739	Jan. 20	30	182
Pendant	B. Dreyfus	15,750	Jan. 27	30	264
Pendant	B. Dreyfus	15,766	Feb. 3	30	348
Pendant	C. A. Otto	15,687	Jan. 6	30	2
Plaque	W. H. Brownell	15,981	Mar. 3	30	778
Plaque-frame	W. H. Brownell	15,850	Feb. 24	30	663
Platter	E. Haviland	15,789	Feb. 10	30	453
Plow-beam	O. A. Essig	16,014	Feb. 17	30	502
Plush. Mohair	G. Bötticher	15,924	Mar. 10	30	896
Radiator leg or loop	G. W. Walker	15,779	Feb. 3	30	348
Registers. Border-frame for	A. Namur	15,916	Mar. 3	30	778
Rug	W. Gilmour	15,786	Feb. 10	30	453
Rug	W. Gilmour	15,953	Mar. 10	30	896
Rug	P. McCaffray	15,998	Mar. 24	30	1098

Alphabetical list of designs, January to March, inclusive—Continued.

Design.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Rug	A. Petzold	15,796 to 15,800	Feb. 10	30	453
Rug	W. T. Smith	15,778	Feb. 3	30	348
Rug	W. T. Smith	15,998	Mar. 17	30	998
Sash-fastener frame	W. E. Sparks	15,755	Jan. 27	30	264
Satchel-frame	B. Rice	15,744	Jan. 20	30	182
Scarf	J. R. Keiser	15,994	Mar. 24	30	1096
Scarf. Made-up	T. J. Flagg	15,830	Feb. 17	30	502
Scarf. Neck	S. Salomon	15,688	Jan. 6	30	2
Scarf. Neck	R. Waterhouse	15,921	Mar. 3	30	778
Scarf. Ornamentation of a neck	R. Waterhouse	15,920	Mar. 3	30	778
Settee-frame	J. C. Day	15,712	Jan. 13	30	102
Skating-rinks. Ornamentation of	H. C. De Baud and A. C. Couch	15,714	Jan. 13	30	102
Spoon, fork, or knife handle	C. T. Grosjean	15,716 to 15,717	Jan. 13	30	102
Spoon-handle	C. T. Grosjean	15,785	Feb. 10	30	453
Spoon-handle	C. T. Grosjean	15,831	Feb. 17	30	502
Spoon-handle	G. W. Shiebler	15,886	Feb. 10	30	453
Spoon or analogous article	C. T. Grosjean	15,715	Jan. 13	30	102
Spoon or fork	C. T. Grosjean	15,784	Feb. 10	30	453
Springs. Bracket for	W. I. Bunker	15,984	Mar. 24	30	1097
Statuary. Group of	J. Rogers	15,807	Feb. 10	30	453
Steam-trap case	E. C. Hawes	15,718	Jan. 13	30	102
Stool	J. Hofmann	15,790	Feb. 10	30	453
Stove. Cooking	H. C. Bascom	15,678 to 15,679	Jan. 6	30	2
Stove. Cooking	H. C. Bascom	15,763	Feb. 3	30	348
Stove. Cooking	J. L. Gobeille	15,740	Jan. 20	30	182
Stove. Parlor or heating	R. D. Andrews	15,810	Feb. 17	30	502
Tile floor or pavement	M. Wiese	15,760	Feb. 3	30	348
Trunk-iron	M. Maier	15,770	Feb. 3	30	348
Type	H. Brehmer	15,747 to 15,749	Jan. 27	30	264
Type	H. Brehmer	16,002	Mar. 31	30	1209
Type	P. J. Dawkins	15,767	Feb. 3	30	348
Type	H. Ihlenburg	15,751 to 15,753	Jan. 27	30	264
Type. Font of printing	C. H. Beeler, Jr.	15,811	Feb. 17	30	502
Type. Font of printing	J. M. Conner	15,986	Mar. 10	30	896
Type. Font of printing	J. Guildenstine	15,787	Feb. 10	30	453
Type. Font of printing	C. E. Heyer	15,694	Jan. 6	30	2
Type. Font of printing	C. E. Heyer	15,710	Jan. 6	30	2
Type. Font of printing	H. Ihlenburg	15,791	Feb. 10	30	453
Type. Font of printing	W. W. Jackson	15,743	Jan. 20	30	182
Type. Font of printing	W. W. Jackson	15,792	Feb. 10	30	453
Type. Font of printing	J. G. Mengel, Jr.	15,723 to 15,724	Jan. 13	30	102
Type. Font of printing	J. K. Rogers	15,777	Feb. 3	30	348
Type. Font of printing	J. West	15,923	Mar. 3	30	778
Type. Font of printing	J. West	15,985	Mar. 10	30	896
Upholstery fabric	J. Ferguson	15,815 to 15,816	Feb. 17	30	502
Upholstery fabric	D. B. Kerr	15,833 to 15,834	Feb. 17	30	502
Ventilator-cap	J. J. Mooney	16,010	Mar. 31	30	1210
Wash-board	M. A. Smith	15,809	Feb. 10	30	453

ALPHABETICAL LIST OF TRADE-MARKS.

Title.	Name.	No.	Date.	Official Gazette. Volume.	Page.
Aerated beverage	C. Stoddart	11,947	Feb. 10	30	454
Ale, beer, and other malt liquors	J. W. Koch	11,872	Jan. 20	30	182
Ale, beer, porter, and stout	W. Hogarth	d1,890	Jan. 27	30	264
Alloys used for coating metal articles	E. C. Converse	11,965	Feb. 24	30	664
Application for chapped hands, face, &c	O. A. Alter	12,032	Mar. 24	30	1096
Astringent extracts	L. Brown	11,902	Mar. 10	30	896
Baking-powder	Potter, Parlin & Co	12,045	Mar. 24	30	1096
Baking-powder	Potter, Parlin & Co	12,046	Mar. 24	30	1096
Bats, Indian-clubs, and dumb-bells. Base-ball	Prior & Hilgenberg	11,977	Feb. 24	30	664
Bats. Lawn-tennis	A. G. Spalding & Brothers	11,956	Feb. 17	30	562
Bats of all kinds, balls, Indian-clubs, croquet-mallets, and dumb-bells.	A. G. Spalding & Brothers	11,957	Feb. 17	30	562
Beer. Barley	G. R. Wheeler and J. A. Herold	11,904	Feb. 3	30	348
Beer. Bottled	J. Wassmer	12,012	Mar. 10	30	896
Beer. Bottled lager	Anthony & Kuhn Brewing Company	12,033	Mar. 24	30	1096
Beer. White beer and condensed white	Reichenkron & Mielke	12,006	Mar. 10	30	896
Belting for machinery. Certain	New York Belting and Packing Company.	11,897	Feb. 3	30	348
Beverage known as Jamaica rum and maple-sugar. Compounded	Steinhardt Bros	11,900	Feb. 3	30	348
Beverage. Sparkling or effervescing	Rumford Chemical Works	12,050	Mar. 24	30	1096
Boots and shoes for men, boys, women, and children	P. Cox Shoe Manufacturing Company.	11,879	Jan. 27	30	264
Boots, shoes, and clothing. Rubber	Goodyear Rubber Company	12,038	Mar. 24	30	1096
Brandy	Cook & Bernheimer	11,996	Mar. 10	30	896
Bronze-powders, bronze-liquids, and bronze-metal leaves	J. Marsching & Co	11,917	Feb. 10	30	454
Butter	J. Thallon	12,028	Mar. 17	30	998
Buttons	Rothschild Bros. & Co	12,049	Mar. 24	30	1096
Canned and preserved fruits, vegetables, oysters, &c	Thompson, Fry & Co	11,850	Jan. 6	30	2
Canned shelled fish	J. & E. A. Wyman	11,929	Mar. 3	30	778
Cards. Playing	Perfection Card Company	11,873	Jan. 20	30	182
Carpets, rugs, mats, and curtain fabrics	W. T. Smith	12,009	Mar. 10	30	896
Carriages, phaetons, buggies, spring-wagons, and other like vehicles.	H. W. Davis & Co	11,856	Jan. 13	30	102
Cement	F. G. Williams	12,013	Mar. 10	30	896
Chocolates	Huyler's	11,913	Feb. 10	30	454
Cigars	Burk, Rich & Co	11,964	Feb. 24	30	664
Cigars	Grommes & Ullrich	11,894	Feb. 3	30	348
Cigars	Kuttnauer & Co	12,002	Mar. 10	30	896
Cigars	M. R. Pearsall	11,976	Feb. 24	30	664
Cigars	J. C. Toner	11,851	Jan. 6	30	2
Cigars	Van Pietersom Bros	11,852	Jan. 6	30	2
Cigars and cigarettes	Loud, Claridge & Co	11,981	Feb. 24	30	664
Cigars and cigarettes	A. Shire	11,945	Feb. 10	30	454
Cigars, cigarettes, and smoking and chewing tobacco	Friend-Erskine Cigar Company	11,868	Jan. 20	30	182
Cloth. Italian	W. Schütte & Co	11,848	Jan. 6	30	2
Clothe and cassimeres for garments	E. T. Steel & Co	11,849	Jan. 6	30	2
Clothing. Oiled	Adler Bros. & Co	12,015	Mar. 17	30	998
Cod-liver oil. Preparation of	G. W. Laird & Co	11,986	Mar. 3	30	778
Coke	Balfour, Guthrie & Co	11,907	Feb. 10	30	453
Compound for removing blotches and freckles from the skin	J. B. Glenny	12,037	Mar. 24	30	1096
Cordial for summer complaints	L. H. Harris	11,896	Feb. 3	30	348
Corsets	T. C. Bates	11,878	Jan. 27	30	264
Cosmetics	M. E. Thompson	12,052	Mar. 24	30	1096
Cotton cloths	Hyde & Burton	11,846	Jan. 6	30	2
Cottons. Printed, dyed, colored, bleached, and unbleached	J. S. Bernheimer & Bro	11,948	Feb. 17	30	562
Crackers, biscuits, jumbles, snaps, cakes, wafers, and kindred articles.	Hetfield & Ducker	11,912	Feb. 10	30	453
Cultivator	Burton Handle Company	11,891	Feb. 3	30	348
Custard-powder	A. F. Bird	11,908	Feb. 10	30	453
Dental alloy	Keller Medicine Company	11,857	Jan. 13	30	102
Disinfectant and moth-destroyer in cake, powder, and liquid form.	W. H. H. Childs	11,994	Mar. 10	30	896
Drawers, overalls, and pantaloons	J. Eisner	11,880	Jan. 27	30	264
Dress-shields	Canfield Rubber Company	12,018	Mar. 17	30	998
Dress-shields	Frank & Gutmann	12,063	Mar. 31	30	1210
Drugs and medicines. Certain named	Allen & Hanburys	11,853	Jan. 13	30	102
Drugs or medicines used for venereal diseases	F. Rogers	11,862	Jan. 13	30	102
Extract taraxicum, olive-oil, tincture of laudanum, and insect-powders. Fluid	Weismann & Muellenbach	12,030	Mar. 17	30	998
Feathers for beds, pillows, and bolsters	Cold Blast Feather Company	12,059	Mar. 31	30	1210
Fertilisers. Chemical	Farmers' Fertilizer Company	11,866	Jan. 20	30	182
Figs	J. A. Iasigi	11,884	Jan. 27	30	264
Fire-extinguisher. Hand-grenade	Harden Hand Grenade Fire Extinguisher Company.	11,883	Jan. 27	30	264
Flour	Jimenes, Haustedt & Co	12,040	Mar. 24	30	1096
Flour	Jimenes, Haustedt & Co	12,041	Mar. 24	30	1096
Flour	Landes, Beall & Co	11,970	Feb. 24	30	664
Flour	Landes, Beall & Co	11,971	Feb. 24	30	664
Flour	St. Paul Roller Mill Company	11,889	Jan. 27	30	264
Flour. Wheat	L. Fuss and M. Backer	11,881	Jan. 27	30	264

Alphabetical list of trade-marks, January to March, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Flour. Wheat	L. Fuss and M. Backer	11,822	Jan. 27	30	264
Flour. Wheat	H. A. Hayden	12,021	Mar. 17	30	998
Flour. Wheat	S. Samper & Co	11,942	Feb. 10	30	454
Food for poultry. Egg	S. S. Myers	11,975	Feb. 24	30	664
Forgings. Metal	J. H. Williams & Co	11,905	Feb. 3	30	348
Gloves. Kid	C. T. Jones	11,924	Mar. 3	30	778
Gloves. Kid	A. Traver	12,033	Mar. 24	30	1098
Gloves. Kid and lambskin	Stern Brothers	12,010	Mar. 10	30	896
Guano. Manufactured	G. L. Arps	11,906	Feb. 10	30	453
Hair and general toilet wash	D. L. Grant	11,870	Jan. 20	30	182
Hair-dye	M. L. Kellogg	12,023	Mar. 17	30	998
Hair-pins. Spiral	H. G. Thompson & Sons	12,011	Mar. 10	30	896
Hats. Gentlemen's	E. Miller	11,885	Jan. 27	30	264
Hog products, lard, and meats	J. Morrell & Company	11,860	Jan. 13	30	102
Lamps. Reflector	D. R. Williams	11,954	Feb. 17	30	502
Leather. Oak-tanned harness	W. Flaccus & Son	11,867	Jan. 20	30	182
Leather of all descriptions	J. S. Rockwell & Co	11,898	Feb. 3	30	348
Liniment	A. C. Meyer	11,918	Feb. 10	30	454
Liniment	A. C. Meyer	12,004	Mar. 10	30	896
Linings and facings for ladies' apparel	C. D. Newell	12,068	Mar. 31	30	1210
Liquid for beautifying and preserving the nails	S. P. Zacharie	11,955	Feb. 17	30	502
Lozenges or other medicinal preparations in solid form	Burroughs, Wellcome & Co	11,993	Mar. 10	30	896
Macaroni	A. Cusimano & Co	12,034	Mar. 24	30	1098
Medicinal bitters	N. Kieffer	11,925	Mar. 3	30	778
Medicinal fluid extracts for internal use	Burroughs, Wellcome & Co	11,863	Jan. 20	30	182
Medicinal food products	Reed & Carnrick	12,048	Mar 24	30	1098
Medicine. Certain proprietary	J. E. Healy and C. Bigelow	11,967	Feb. 24	30	664
Medicine for certain named diseases, to be used externally and internally.	C. A. M. Pulliam	12,026	Mar. 17	30	998
Medicine for cholera, diarrhea, colic, and like diseases	C. R. Harrington	12,010	Mar. 17	30	998
Medicine for internal use. Fluid	Potter Drug and Chemical Company	11,874	Jan. 20	30	182
Medicine for purifying the blood	Scott Manufacturing Company	11,944	Feb. 10	30	454
Medicine for the cure of cramps	L. H. Harris	11,895	Feb. 3	30	348
Medicine for the cure of toothache	W. W. and C. E. Freeman and W. I. Newlove.	11,962	Mar. 3	30	778
Naphtha of 62° to 64° gravity Baumé	Scofield, Shurmer & Teagle	11,943	Feb. 10	30	454
Neuralgia-drops	G. G. Steketee	11,946	Feb. 10	30	454
Oil. Cotton-seed	Seitz & Goold	12,008	Mar. 10	30	896
Ointments, plasters, and liniments	T. L. Clingman	11,909	Feb. 10	30	453
Organ. Mechanical	M. Gally	11,869	Jan. 20	30	182
Organ or organette and music therefor. Small mechanical	M. Gally	12,000	Mar. 10	30	896
Oysters	W. K. Reeme	11,877	Jan. 20	30	182
Pails and analogous vessels. Lard	F. A. Walsh & Co	11,902	Feb. 3	30	348
Paper bags	Western Paper Bag Company	12,031	Mar. 17	30	998
Paper. Toilet	H. J. Howlett	12,066	Mar. 31	30	1210
Paper. Writing	Chapin & Gould	11,949	Feb. 17	30	502
Peptonized meat	Compagnie Peptones de Viande du Docteur Kochs, (Société Anonyme.)	11,892	Feb. 3	30	348
Perfume	Bean & Hurlbut	11,991	Mar. 10	30	896
Perfumery	F. R. Arnold & Co	12,056	Mar. 31	30	1210
Perfumery	Lorenz Bros	12,042	Mar. 24	30	1098
Perfumery	Lorenz Bros	12,043	Mar. 24	30	1098
Perfumery	J. B. Weaver and H. Schandein	11,887	Jan. 27	30	264
Perfumery	J. B. Weaver and H. Schandein	11,888	Jan. 27	30	264
Perfumery and toilet-soaps	Eastman & Brother	11,966	Feb. 24	30	664
Petroleum. Refined	Pratt Manufacturing Company	11,886	Jan. 27	30	264
Picture-frames. Covered	L. Pattberg & Bros	11,916	Feb. 10	30	454
Plasters. Corn	J. B. A. De Winter	11,910	Feb. 10	30	453
Plows and plow-castings	Wrenn, Whitehurst & Co	12,014	Mar. 10	30	896
Preparation for asthma, catarrh, hay-fever, and certain other diseases. Solid	H. H. Warner	11,903	Feb. 3	30	348
Preserve-jars	T. W. Synnott and C. D. Macqueen	11,979	Feb. 24	30	664
Refrigerators	A. J. Chase	11,864	Jan. 20	30	182
Remedy for catarrh	O. F. Burton	12,058	Mar. 31	30	1210
Remedy for stimulating the spine, &c	A. H. Covell	11,854	Jan. 13	30	102
Ribbons	J. & J. Cash	11,843	Jan. 6	30	2
Sad-irons	J. Sabold, Jr	12,051	Mar. 24	30	1098
Saddle-blankets, fly-nets, horse-sheets, lap-robes, and lap-dusters.	W. Ayres & Sons	12,016	Mar. 17	30	998
Salve	J. E. Healy and C. Bigelow	11,911	Feb. 10	30	453
Salve	J. E. Healy and C. Bigelow	11,968	Feb. 24	30	664
Salve	H. F. Tower	11,901	Feb. 3	30	348
Salve or ointment	Potter Drug and Chemical Company	11,876	Jan. 20	30	182
Satinets or woolen cloths or clothing made therefrom	A. G. Dewey & Co	11,997	Mar. 10	30	896
Sedative, anti-spasmodic, and diffusible stimulant	J. T. Davenport	11,855	Jan. 13	30	102
Shawls. Woven	W. A. Gardner & Co	11,844	Jan. 6	30	2
Sheet metal for packing and other purposes	D. P. Dieterich	12,035	Mar. 24	30	1098
Sheet-metal utensils and articles for household purposes, &c. Enameled	Lalance & Grosjean Manufacturing Company.	11,858	Jan. 13	30	102
Shirts, collars, and cuffs	Holmes & Ide	11,963	Mar. 3	30	778
Shoes. Boys', girls', children's, and infants'	T. M. Harris & Co	11,845	Jan. 6	30	2
Silesias, sateens, twills, and other textile cotton fabrics	Hyde & Burton	12,039	Mar. 24	30	1098
Silica cleaning and polishing preparations	Plymouth Silica Company	12,025	Mar. 17	30	998
Skins of a peculiar finish and boots and shoes made therefrom. Kid	W. T. Ash	11,990	Mar. 10	30	896
Soap. Bar	J. Blechele	12,057	Mar. 31	30	1210
Soap for laundry and general purposes	Procter & Gamble	11,920	Feb. 10	30	454
Soap for laundry and general purposes	Procter & Gamble	11,921	Feb. 10	30	454
Soap for laundry and general purposes	Procter & Gamble	11,923	Feb. 10	30	454
Soap for laundry and general purposes	Procter & Gamble	11,924	Feb. 10	30	454
Soap for laundry and general purposes	Procter & Gamble	11,925	Feb. 10	30	454
Soap for laundry and general purposes	Procter & Gamble	11,926	Feb. 10	30	454
Soap for laundry and general purposes	Procter & Gamble	11,927	Feb. 10	30	454

Alphabetical list of trade-marks, January to March, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Soap for laundry and general purposes	Procter & Gamble	11,928	Feb. 10	30	454
Soap for laundry and general purposes	Procter & Gamble	11,929	Feb. 10	30	454
Soap for laundry and general purposes	Procter & Gamble	11,930	Feb. 10	30	454
Soap for laundry and general purposes	Procter & Gamble	11,931	Feb. 10	30	454
Soap for laundry and general purposes	Procter & Gamble	11,932	Feb. 10	30	454
Soap for laundry and general purposes	Procter & Gamble	11,934	Feb. 10	30	454
Soap for laundry and general purposes	Procter & Gamble	11,935	Feb. 10	30	454
Soap for laundry and general purposes	Procter & Gamble	11,936	Feb. 10	30	454
Soap for laundry and general purposes	Procter & Gamble	11,937	Feb. 10	30	454
Soap for laundry and general purposes	Procter & Gamble	11,938	Feb. 10	30	454
Soap for laundry and general purposes	Procter & Gamble	11,959	Feb. 17	30	502
Soap for laundry and general purposes	Procter & Gamble	11,960	Feb. 17	30	502
Soap for laundry and general purposes	Procter & Gamble	11,961	Feb. 17	30	502
Soap for laundry and general purposes	Procter & Gamble	11,962	Feb. 17	30	502
Soap for laundry and general purposes	Procter & Gamble	11,963	Feb. 17	30	502
Soap for laundry and toilet purposes	Procter & Gamble	11,922	Feb. 10	30	454
Soap for toilet and general purposes	Procter & Gamble	11,919	Feb. 10	30	454
Soap in cakes for laundry and general purposes	Procter & Gamble	11,939	Feb. 10	30	454
Soap in cakes for toilet, bath, and laundry. Hard	L. & J. Oakley	11,861	Jan. 13	30	102
Soap in oblong cakes. Tallow	Procter & Gamble	11,933	Feb. 10	30	454
Soap. Laundry	G. F. Whitney	12,055	Mar. 24	30	1098
Soap. Laundry and toilet	J. S. Kirk & Co	12,067	Mar. 31	30	1210
Soap. Medicated	Potter Drug and Chemical Company	11,875	Jan. 20	30	182
Soap. Toilet	Colgate & Co	11,995	Mar. 10	30	896
Soaps. Toilet and laundry	H. & G. A. Roever	11,941	Feb. 10	30	454
Solution for the removal of corns, bunions, and warts	J. H. Myers	11,988	Mar. 3	30	778
Spectacles and eyeglasses	J. King	11,958	Feb. 17	30	502
Spectacles and eyeglasses	A. Schweizer	11,978	Feb. 24	30	664
Spices	Ricker, Cromble & McLaren	12,070	Mar. 31	30	1210
Spokes, rims, hubs, and other carriage wood-ware	Crane & McMahon	12,060	Mar. 31	30	1210
Spokes, rims, shafts, bows, sawed fellies, hubs, rim-strips, and other carriage wood-ware	Crane & McMahon	12,062	Mar. 31	30	1210
Stove-polish and polishing compounds, both liquid and solid	D. W. Raymond	11,940	Feb. 10	30	454
Stoves of all kinds, portable ovens, and cooking utensils for the same.	Quick Meal Stove Company	12,047	Mar. 24	30	1098
Teas	Fraser, Farley & Varnum	12,064	Mar. 31	30	1210
Teas	Fraser, Farley & Varnum	12,065	Mar. 31	30	1210
Tinsel on small spools. Frosted	Klein, Baer & Co	12,001	Mar. 10	30	896
Tobacco, cigars, and cigarettes. All kinds of fine-cut chewing, granulated and other kinds of smoking	J. Schriber & Co	12,007	Mar. 10	30	896
Tobacco, cigars, and cigarettes. Chewing and smoking	Pace & Sizer	12,005	Mar. 10	30	896
Tobacco, cigars, and cigarettes. Plug and twist chewing and smoking	W. A. Whitaker	11,980	Feb. 24	30	664
Tobacco. Havana leaf	J. B. Creagh	11,893	Feb. 3	30	348
Tobacco. Leaf	Loeb & Block	11,972	Feb. 24	30	664
Tobacco. Leaf	Weil & Co	12,054	Mar. 24	30	1098
Tobacco. Plug	Bostic Bros. & Wright	12,017	Mar. 17	30	998
Tobacco. Plug	P. McNamara & Co	12,003	Mar. 10	30	896
Tobacco. Plug	Perkins & Ernst	12,044	Mar. 24	30	1098
Tobacco. Smoking	Z. I. Lyon & Co	11,847	Jan. 6	30	2
Tobacco. Smoking	Rassfeld & Albers	12,069	Mar. 31	30	1210
Tobacco. Smoking and chewing	Easley Bros	11,865	Jan. 20	30	182
Toilet powders, pomades, washes, and perfumes	F. La Manna	11,973	Feb. 24	30	664
Toilet-water	F. La Manna	11,969	Feb. 24	30	664
Twine used for binder attachments for harvesting-machines	I. J. Truman and A. H. Isham	11,953	Feb. 17	30	502
Underwear. Men's and boys'	Hess, Mayer & Co	11,871	Jan. 20	30	182
Valves and hydrants	Chapman Valve Manufacturing Company.	12,029	Mar. 17	30	998
Valves. Water, steam, and other	D. P. Dieterich	12,036	Mar. 24	30	1098
Varnishes of all kinds	J. A. Shephard	12,027	Mar. 17	30	998
Vehicles for carrying passengers. Wheeled	P. Herdic	12,022	Mar. 17	30	998
Velvets, velveteens, corduroys, mole-skins, silesias and linings.	J. & R. Edmondson	11,999	Mar. 10	30	896
Washes, white or colored, for use on walls, fences, &c	A. A. Hasson	12,020	Mar. 17	30	998
Washing-liquid	L. Kuhlmann & Bro	12,024	Mar. 17	30	998
Watch-cases. Filled	H. Muhr's Sons	11,974	Feb. 24	30	664
Water-proof clothing	D. Jannopoulo	11,914	Feb. 10	30	454
Water-proof clothing	D. Jannopoulo	11,952	Feb. 17	30	502
Whips. Certain	L. H. Lee	11,859	Jan. 13	30	102
Whisky, brandy, and gin	Childs & Co	11,950	Feb. 17	30	502
Whisky. Malt	Duffy Malt Whiskey Company	11,998	Mar. 10	30	896
Whisky. Malt	Rosskam, Gerstley & Co	11,899	Feb. 3	30	348
Whisky. Rye and bourbon	S. C. Herbst	11,951	Feb. 17	30	502
Wine of a dark-red color	J. Muench	11,987	Mar. 3	30	778
Wines and liquors	Kuhl, Boehmke & Co	11,915	Feb. 10	30	454
Wood-ware for vehicles	Crane & McMahon	12,061	Mar. 31	30	1210

ALPHABETICAL LIST OF LABELS.

Title.	Name.	No.	Date.	Official Gazette.	
				Volume.	Page.
"Æsculapian Compound"	A. J. McFarland	4,400	Mar. 31	30	1210
"Ahlstrom's Hand Fire-Extinguisher"	C. N. Ahlstrom	4,362	Mar. 3	30	778
"Ammoniated" (for Soap)	G. K. Morehead	4,307	Jan. 6	30	2
"Arlington Skirt Manufacturing Co." (for Skirts)	J. Mayer	4,331	Feb. 3	30	348
"Aydelott's Base Ball Cards"	J. S. Aydelott	4,363	Mar. 3	30	778
"Balsam of Wintergreen"	A. M. Robinson, Jr	4,379	Mar. 10	30	906
"Bass' Chicken Cholera Cure"	J. H., S., and S. J. Bass	4,309	Jan. 13	30	102
"Bellevue Disinfectant"	Trades Chemical Company	4,350	Feb. 17	30	562
"Blackberry Brandy"	Cook & Bernheimer	4,364	Mar. 3	30	778
"C. T. Raynolds and Co's Specially Prepared Paints"	C. T. Raynolds & Co	4,333	Feb. 3	30	348
"Canton Black" (for a Water-Proof Oil Dressing)	Canton Paint and Oil Company	4,365	Mar. 3	30	778
"Canton Black" (for a Water-Proof Oil Blacking)	Canton Paint and Oil Company	4,366	Mar. 3	30	778
"Canton Waterproof Oil Dressing for Boots & Shoes"	Canton Paint and Oil Company	4,367	Mar. 3	30	778
"Cereal Acid Phosphates"	M. Kalbfleisch's Sons	4,388	Mar. 17	30	998
"Clark's Hog Remedy"	S. A. Clark	4,304	Jan. 6	30	2
"Cocaine Tooth Ache Drops"	C. E. Lloyd and S. D. Pilsbury	4,399	Mar. 31	30	1210
"Collins' Anti-Periodic or Fever and Ague Cure"	Collins Brothers Drug Company	4,394	Mar. 31	30	1210
"Corset Finish" (for Silesias and Umbrella Cloths)	Rhode Island Lining Manufacturing Company.	4,386	Mar. 17	30	998
"Covell's Genuine old Dr. Spencer's Queen of Pain or minute Cure of the period."	A. H. Covell	4,321	Jan. 27	30	264
"Domestic Parlor Illuminator." (for Burning Fluid)	J. Erb	4,305	Jan. 6	30	2
"Dr. Brooks' Diphtheria Cure"	A. W. Hutchinson	4,348	Feb. 17	30	562
"Dr. Chandler's Hemlock Plaster"	E. M. Valentine & Co	4,375	Mar. 3	30	778
"Dr. Desbrough's Anti-Bilious Blood and Liver Pills"	G. Desbrough	4,380	Mar. 24	30	1098
"Dr. Geo. Desbrough's Anti-Dyspeptic Stomach Powder"	G. Desbrough	4,389	Mar. 24	30	1098
"Dr. McCoart's World Renowned Specific"	J. McCoart	4,361	Feb. 24	30	664
"Dr. Schilling's Health Preserving Corset"	Detroit Knitting & Corset Works	4,382	Mar. 17	30	998
"Drew's Yeast Powder"	F. L. Hooper & Co	4,357	Feb. 24	30	664
"Eaton's Celebrated Vegetable Cordial"	C. R. Harrington	4,398	Mar. 17	30	998
"English Labor-Saving Soap"	G. C. Edwards	4,311	Jan. 13	30	102
"F. Arnold Robert's French vinous essence"	F. A. Robert	4,378	Mar. 10	30	906
"F. Arnold Robert's Prune Juice"	F. A. Robert	4,377	Mar. 10	30	906
"Falke's Sulphuret Cream." (for Chapped Hands, &c)	J. Falke	4,330	Feb. 3	30	348
"Favorite" (for Boys', Girls', Children's, & Infant's Shoes)	T. M. Harris & Co	4,355	Feb. 24	30	664
"Gallagher's Liquid Polish" (for Stoves)	P. Gallagher	4,383	Mar. 17	30	998
"Genuine Concord Wagon Colors"	Jones & Co	4,358	Feb. 24	30	664
"Go-Go Vegetable Soap"	S. Jacobs	4,340	Feb. 10	30	454
"Gold and Silver Medal American Silks"	Cooper & Conard	4,338	Feb. 10	30	454
"Goodstock" (for Shirts, Coats, and Jackets)	W. T. Gallt	4,325	Jan. 27	30	264
"Granulated Soft Soap"	W. C. Barnard	4,351	Feb. 24	30	664
"Guesnard's Cuban Flavored Smoking Tobacco"	T. Guesnard	4,395	Mar. 31	30	1210
"Hair Soap"	A. B. Hall and H. C. Bailey	4,339	Feb. 10	30	454
"Hop Sarsaparilla" (for a Medicine)	W. Hiscox & Co	4,368	Mar. 3	30	778
"Howell's Deck" (for Paint)	C. H. Howell & Co	4,370	Mar. 3	30	778
"Indian Corn Cure"	C. E. Lloyd and S. D. Pilsbury	4,313	Jan. 13	30	102
"Iverton Mills" (for Spools of Sewing Thread)	Willimantic Linen Company	4,337	Feb. 3	30	348
"Jamaica Tonic-Punch," (for a Beverage)	W. C. Dunn	4,322	Jan. 27	30	264
"Kickapoo Indian Salve"	J. E. Healy and C. Bigelow	4,356	Feb. 24	30	664
"Kuhl's Drawing & Healing Salve"	A. Kuhl	4,349	Feb. 17	30	562
"L. C. Thomas, Pine Tar and Wild Cherry Cough Drops"	L. C. Thomas	4,374	Mar. 3	30	778
"Landrethe' Extra Early Peas"	O. Landreth	4,312	Jan. 13	30	102
"Lautz Brothers and Co's Acme Soap"	Lautz Bros. & Co	4,359	Feb. 24	30	664
"Lautz Brothers and Co's Acme Soap"	Lautz Bros. & Co	4,360	Feb. 24	30	664
"Liquid Cathartic"	F. J. Carrall	4,352	Feb. 24	30	664
"Liniment"	E. B. Bean and T. S. Haight	4,320	Jan. 27	30	264
"London and Paris" (for Ready-Made Clothing)	Schloss Bros. & Co	4,343	Feb. 10	30	454
"Marine Bronze" (for Paint)	C. H. Howell & Co	4,369	Mar. 3	30	778
"Marine Cement"	C. H. Howell & Co	4,373	Mar. 3	30	778
"Marine French" (for Paint)	C. H. Howell & Co	4,372	Mar. 3	30	778
"Marine White" (for Paint)	C. H. Howell & Co	4,371	Mar. 3	30	778
"Mathis' Family Liniment"	C. B. Mathis	4,314	Jan. 13	30	102
"Medical Lake" (for Mineral Water)	Wolf & Monahan	4,318	Jan. 20	30	182
"Medical Lake Ginger Ale"	Wolf & Monahan	4,319	Jan. 20	30	182
"Mercer Co Kentucky Pure Small Grain Bourbon"	Strauss, Pritz & Co	4,345	Feb. 10	30	454
"Mrs. W. W. Hadley's Indian Preparation"	W. W. Hadley	4,347	Feb. 17	30	562
"New Meyer" (for Boots and Shoes)	Kunkel & Griffiths	4,341	Feb. 10	30	454
"Novelty Pop Corn Works" (for Pop Corn)	C. A. Andrews	4,340	Mar. 17	30	998
"Orange Elixir" (for a Laxative)	Orange Elixir Company	4,342	Feb. 10	30	454
"Our Own" (for Cigars)	H. Frantz and E. C. Stewart	4,324	Jan. 27	30	264
"Pectoral Mucilage" (for a Medicine)	J. Harvey	4,396	Mar. 31	30	1210
"Perfection" (for Playing Cards)	Perfection Card Company	4,317	Jan. 20	30	182
"Peruvian Bark Tonic Bitters"	A. G. Schmidt	4,335	Feb. 3	30	348
"Phinney's Camphor Ice"	H. F. Phinney	4,326	Jan. 27	30	264
"Rice's No Rubbing Washing Fluid"	W. A. Rice	4,387	Mar. 17	30	998
"Roderic's Wild Cherry Cough Balsam"	C. S. Foss	4,329	Feb. 3	30	348
"S. L. Tucker's Rheumatic X Liniment"	S. L. Tucker	4,392	Mar. 24	30	1098
"Sawyer's Sick Headache Powders"	A. Sawyer	4,334	Feb. 3	30	348
"School Sewing Box"	L. J. Kirkwood	4,397	Mar. 31	30	1210
"Silver Steel" (for Axes, Hatchets, and similar Edge-Tools)	W. H. Crossman & Bro	4,353	Feb. 24	30	664
"South American Pile Cure"	J. Dougherty	4,354	Feb. 24	30	664

Alphabetical list of labels, January to March, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
"Sparkling Phosa" (for a Beverage)	Rumford Chemical Works	4,391	Mar. 24	30	1096
"Spencer's Cooling Remedy." (for Burning or Sweating Feet)	E. W. Spencer	4,315	Jan. 13	30	102
"Standard Quality" (for Cotton Goods)	Rhode Island Lining Manufacturing Company.	4,365	Mar. 17	30	998
"The Atkinson Dress Shirt"	H. Mayer & Co	4,306	Jan. 6	30	2
"The Boston Brown Bread Mixture"	H. E. Pearson	4,332	Feb. 3	30	348
"The Bracket Disinfectant Holder and Evaporator"	A. H. Kidney	4,398	Mar. 31	30	1210
"The Complexion Ointment"	J. Bard	4,327	Feb. 3	30	348
"The English Correct Style Wankenphast"	Laird, Schober & Mitchell	4,308	Jan. 6	30	2
"The Hamburg Compressed Corn Beef Company. (for Compressed Corn Beef.)	J. H. Schmitt	4,344	Feb. 10	30	454
"The Mexican Syphilitic Treatment"	L. W. Eckels	4,328	Feb. 3	30	348
"The People's Benefactor or the Great Household Remedy"	R. Drake	4,346	Feb. 17	30	562
"The Preventive Capsule"	E. Gutmann	4,376	Mar. 10	30	896
"The Reece Button-Hole Machine Silk"	C. Curtis	4,310	Jan. 13	30	102
"The 8 Shilling Coiled Spring Health Preserving Corset"	Detroit Knitting & Corset Works	4,321	Mar. 17	30	998
"Warner's White Wine of Tar Syrup"	C. D. Warner	4,316	Jan. 13	30	102
"Westport Mills." (for Writing Paper)	Beebe Holbrook Company	4,393	Mar. 31	30	1210
"White Bronze" (for Burial Caskets, &c)	D. D. Dunklee	4,323	Jan. 27	30	264
"Windham Thread"	Willimantic Linen Company	4,336	Feb. 3	30	348

DISCLAIMERS.

Invention.	Patentee.	No. of patent.	Date of patent.	Disclaimer filed.	Official Gazette. Vol.	Page.
Flooring. Hollow tile	Balthasar Kreischer. (Reissue)	5,174	Dec. 3, 1872	Mar. 12, 1885	30	998
Scoop	Thomas B. Davis. (Reissue)	10,226	Oct. 31, 1882	Jan. 2, 1885	30	102
Steam-heater	William B. Dunning	10,391	Oct. 3, 1883	Mar. 23, 1885	30	1210
Trunk	Charles A. Taylor	128,925	July 3, 1872	Mar. 7, 1885	30	998

OFFICIAL GAZETTE

OF THE

UNITED STATES PATENT OFFICE.

VOLUME XXXI.

APRIL 7 TO JUNE 30, INCLUSIVE,

1885.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1885.

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DIGEST OF DECISIONS OF THE COMMISSIONER OF PATENTS AND OF THE UNITED STATES COURTS IN PATENT CASES.

INDEX OF PATENTS AND PATENTEES FOR THE QUARTER YEAR, APRIL 7 TO JUNE 30, 1885.

ERRATA.

315,014, page 9, in title, names of assignees, after "himself," insert *Jesse P. Forbes.*

315,179, page 49, claim 14, line 3, and claim 15, line 4, strike out comma after "series."

315,181, page 50, second claim, line 3, third claim, line 4, and fourth, fifth, sixth, seventh, and eighth claims, line 3 of each claim, strike out comma after "closed."

315,182, page 50, second, third, fourth, fifth, sixth, and seventh claims, line 3 of each claim, strike out comma after "closed."

315,560, page 153, strike out all after number—title, drawing, claims—and insert CANCELED.

315,598, page 161, in title, names of assignees, for "George Hull" read *George E. Hall.*

315,708, page 189, in title, name of patentee, for "Alfred V. Brokhalme" read *Alfred V. Brokhahne.*

315,823, page 220, in title, after residence of inventor, insert *assignor to Wm. G. Bell, Boston, Mass.*

316,366, page 357, in title, for "assignor of one-half his right" read *assignor.*

317,007, page 540, name of assignee, for "Ward H. Willetts" read *Ward W. Willetts.*

317,786, page 741, in title, name of inventor, for "George W. Hodesty" read *George W. Hadesty.*

318,378, page 898, in title, residence of inventor, for "Hernel Hempstead" read *Hemel Hempstead.*

318,594, page 958, in title, strike out "assignor of one-half to Charles F. Bidwell, Indianapolis, Ind."

318,656, page 973, in title, for "assignors of three-fourths" read *assignors of one-half,*" and after "all of same place," insert *and said Reynolds assignor of his remaining right to said assignees.*

318,925, page 1037, in title, for "assignor" read *assignor of one-half.*

319,032, page 1070, in title, after "(No specimens)" insert *Patented in Canada April* 20, 1885, *No.* 21,458.

319,560, page 1205, in title, name of assignee, for "Stephen O. Parker" read *Stepen O. Parker.*

319,791, page 1261, in title, name of assignee, for "John H. Conway" read *John N. Conway.*

319,892, page 1285, in title, name of assignee, for "F. R. Malmey" read *F. R. Maloney.*

320,014, page 1324, strike out all after number—title, drawing, and claims—and insert WITHDRAWN.

320,045, page 1332, strike out all after number—title, drawing, and claims—and insert WITHDRAWN.

320,143, page 1356, strike out all after number—title, drawing, and claims—and insert WITHDRAWN.

320,428, page 1432, in title, after residence of inventor, insert *assignor of one-half to George F. Howard, of same place.*

320,471, page 1453, in title, foreign patents, after number of English patent, insert *and in Germany October* 24, 1883, *No.* 27,533.

320,480, page 1454, name of inventor, for "Lonis C. Lane" read *Louis C. Lane.*

320,987, page 1585, in title, residence of inventor, for "Schaarbeck" read *Schaerbeek.*

321,159, page 1625, after residence of inventor, insert *assignor of a part to Emma L. Hayward.*

321,176, page 1629, strike out all after number—title, drawing, and claims—and insert WITHDRAWN.

ANNOUNCEMENTS—VOL. XXXI.

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Order—Revoking order disbarring James F. Lingafelter 1173

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OFFICIAL GAZETTE

OF THE

UNITED STATES PATENT OFFICE.

APRIL–JUNE, 1885.

THE

OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

VOL. 31—No. 1. TUESDAY, APRIL 7, 1885. PRICE—$5 per year.

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Order No. 249.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., April 4, 1885.

The following sub-classes of Class 46, "Games and Toys," Division XXVII, are hereby transferred to Class 21, Division X:

Roller-skates,
Skates,
Skaters' appliances.

The following sub-classes of Class 46, "Games and Toys," Division XXVII, are hereby transferred to Class 128, Division XX:

Baby-jumpers,
Baby-walkers,
Dumb-bells and clubs,
Exercising-machines.

R. G. DYRENFORTH, *Acting Commissioner.*

Issue of April 7, 1885.

Patents	473	No. 314,986 to No. 315,456,	inclusive.
Designs	19	No. 16,016 to No. 16,034,	inclusive.
Trade-Marks	43	No. 12,071 to No. 12,113,	inclusive.
Labels	5	No. 4,401 to No. 4,405,	inclusive.
Reissues of patents	3	No. 10,577 to No. 10,579,	inclusive.
Total issue	543		

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	1	.....	Nebraska	1	.....
Arizona Territory	.....	.....	Nevada	.....	.....
Arkansas	1	.....	New Hampshire	1	.....
California	15	.....	New Jersey	21	1
Colorado	.....	.....	New Mexico Territ'y	1	.....
Connecticut	21	1	New York	103	20
Dakota Territory	1	.....	North Carolina	2	.....
Delaware	.....	.....	Ohio	40	1
District of Columbia	7	.....	Oregon	1	.....
Florida	1	.....	Pennsylvania	50	2
Georgia	2	.....	Rhode Island	5	1
Idaho Territory	.....	.....	South Carolina	1	.....
Illinois	34	5	Tennessee	2	.....
Indiana	24	3	Texas	3	.....
Iowa	10	1	Utah Territory	.....	.....
Kansas	4	.....	Vermont	5	.....
Kentucky	2	.....	Virginia	1	1
Louisiana	1	.....	Washington Territ'y	1	.....
Maine	5	2	West Virginia	2	.....
Maryland	5	.....	Wisconsin	8	.....
Massachusetts	39	1	Wyoming Territory	1	.....
Michigan	17	1	United States Army	.....	.....
Minnesota	4	1	United States Navy	.....	.....
Mississippi	2	.....			
Missouri	18	5	Total to citizens of the United States	463	45
Montana Territory	.....	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Australia	1	.....	France	2	1
Austria	1	.....	Germany	4	.....
Barbadoes	.....	.....	Italy	.....	.....
Belgium	.....	.....	New Zealand	.....	.....
Bermuda	.....	.....	Norway	1	.....
Brazil	.....	.....	Russia	.....	.....
Canada	3	.....	Scotland	1	.....
Chili	.....	.....	Spain	.....	.....
Colombia, U. S. of	.....	.....	Sweden	.....	.....
Cuba	.....	1	Switzerland	1	.....
Denmark	.....	.....			
Ecuador	.....	.....	Total to citizens of foreign countries	29	3
England	15	1			

DESIGNS.

16,016.—BOTTLE.—*John W. Donnell*, St. Louis, Mo. Application filed February 2, 1885. Term of patent 7 years.

16,017.—NECKTIE.—*Cathrine Dudgeon*, New York, N. Y. Application filed February 11, 1885. Term of patent 3½ years.

16,018.—ORNAMENTATION OF INDIA-RUBBER SOLES.—*Lewis Elliott*, New Haven, Conn., assignor to *L. Candee & Co.*, same place. Application filed March 9, 1885. Term of patent 14 years.

16,019.—CARPET.—*Arthur L. Halliday*, Yonkers, N. Y., assignor to *The Bigelow Carpet Company*, Clinton, Mass. Application filed February 28, 1885. Term of patent 3½ years.

16,020 to 16,023, inclusive.—OIL-CLOTH.—*Charles T. Meyer* and *Victor E. Meyer*, Bergen, N. J., assignors to *Edward O. Sampson*, New York, N. Y. Applications filed February 28, 1885. Term of patents 3½ years.

16,024.—CARPET.—*William McCallum*, Yonkers, N. Y., assignor to *The Bigelow Carpet Company*, Clinton, Mass. Application filed February 7, 1885. Term of patent 3½ years.

16,025.—RUBBER SOLE.—*Lawrence F. Norman* and *Edward E. Bennett*, Boston, Mass. Application filed March 9, 1885. Term of patent 3½ years.

16,026.—BOTTLE.—*William Pountney*, Port Jervis, N. Y. Application filed February 7, 1885. Term of patent 7 years.

16,027.—BOTTLE OR JUG.—*William Pountney*, Port Jervis, N. Y. Application filed February 7, 1885. Term of patent 7 years.

16,028.—ORNAMENTATION OF PICTURE-FRAMES.—*Theodore Schreppel*, New York, N. Y. Application filed February 20, 1885. Term of patent 3½ years.

16,029 and 16,030.—CANDY OR CONFECTIONERY.—*August Schwarzschild* and *Nelson Greenfield*, New York, N. Y. Applications filed February 10, 1885. Term of patents 3½ years.

16,031.—CASING FOR PULLEYS.—*Edward O. Stearns*, Syracuse, N. Y. Application filed March 10, 1885. Term of patent 7 years.

16,032.—FONT OF TYPE.—*Thomas W. Smith*, London, England. Application filed February 18, 1885. Term of patent 7 years.

16,033.—MEDICINE-SPOON.—*Emily C. Underhill*, New York, N. Y. Application filed February 24, 1885. Term of patent 14 years.

16,034.—CURTAIN FABRIC.—*Joseph Blair*, Philadelphia, Pa. Application filed March 2, 1885. Term of patent 3½ years.

TRADE-MARKS.

[Certificates of registration of Trade-Marks numbered 8,191 and upward are registered under the act of March 3, 1881.]

12,071.—PEPTONE-WINE.—*Joaquin Bernet*, Havana, Cuba. Application filed February 26, 1885.

"The monogram 'J B' and the picture of a cow."

12,072.—VEGETABLE DEPURATIVE.—*Jerome E. Blanc*, New York, N. Y. Application filed March 5, 1885.
"The word-symbol 'INNOCENT' beneath a vignette representing a girl dressed seated upon the ground holding out a branch in her right hand."

12,073.—LINIMENT.—*John Boyle*, Brooklyn, N. Y. Application filed February 24, 1885.
"The word 'MARBLE.'"

12,074.—ROOT AND HERB CORDIAL.—*Collins Brothers Drug Company*, St. Louis, Mo. Application filed February 16, 1885.
"The letters and words 'DR. JACKSON'S' and the cut or picture of a tropical scene, with natives in the foreground gathering roots and herbs."

12,075.—ROLLER-SKATES.—*Diamond Roller Skate Company*, Richmond, Ind. Application filed March 10, 1885.
"A picture of a roller-skate inclosed in a diamond field."

12,076.—MEDICINE TO BE USED EXTERNALLY AND INTERNALLY.—*Caleb L. Hammond*, North Java, N. Y. Application filed March 9, 1885.
"The words 'KING OF CURES,' surmounting the picture or representation of a bottle with the trade-mark attached thereto, and having on its right a child pointing at the said bottle, and on the left the picture of a fowl."

12,077.—COTTON FABRICS.—*Herbst Brothers*, New York, N. Y. Application filed February 24, 1885.
"The arbitrarily-selected word 'HELION.'"

12,078.—CANDY.—*J. Morningstar*, New York, N. Y. Application filed March 9, 1885.
"A star in a circle and the word-symbol 'RIDGEWOOD.'"

12,079.—GOLD, SILVER, NICKEL, AND OTHER WATCHES, AND EIGHT-DAY AND OTHER CLOCKS.—*Eugene Naegele*, Philadelphia, Pa. Application filed February 20, 1885.
"A representation of an ace of clubs."

12,080.—MEDICINE FOR NEURALGIA AND RHEUMATISM.—*Charles L. Ostrich*, Anna, Ill. Application filed February 12, 1885.
"The words 'OSTRICH'S NILE' and the representation of an ostrich carrying in his bill a paper box containing a bottle of Nile oil."

12,081.—MEDICINAL SPECIFIC FOR COLD-SORES.—*Henry A. Robinson*, Foxcroft, Me. Application filed February 25, 1885.
"The words 'BALM OF TULIPS.'"

12,082.—MEDICINAL PLASTER.—*Seabury & Johnson*, New York, N. Y. Application filed March 9, 1885.
"A central seal containing a landscape under the word 'BENSON'S,' and a seal on each side thereof containing the words 'SEABURY & JOHNSON' and the word 'CAPCINE.'"

12,083.—CERTAIN-NAMED RUBBER GOODS.—*Stephen Ballard & Co.*, New York, N. Y. Application filed March 13, 1885.
"The arbitrarily-selected word 'ATLAS.'"

12,084.—PLAIN WOVEN SILKS.—*Bates, Reed & Cooley*, New York, N. Y. Application filed March 2, 1885.
"The words 'NON PAREIL.'"

12,085.—SHIRTS.—*Elijah F. Bermingham*, New York, N. Y. Application filed March 11, 1885.
"The words 'BALANCED YOKE.'"

12,086.—COMPOUND FOR COATING WALLS.—*Church Finish Company*, Grand Rapids, Mich. Application filed February 3, 1885.
"The word 'ANTI-KALSOMINE' or 'ANTI-CALCIMINE.'"

12,087.—LEMON GINGER, A REMEDY FOR COUGHS, &c.—*Collins Brothers Drug Company*, St. Louis, Mo. Application filed February 16, 1885.
"The picture of a short branch with two lemons and with five leaves, associated with the words 'COLLINS' LEMON GINGER WITH PURE ROCK CANDY.'"

12,088.—CHAMPAGNE WINE.—*Alfred De Montebello & Co.*, Château de Mareuil Sur Ay, Marne, France. Application filed March 13, 1885.
"The words 'DUC DE MONTEBELLO.'"

12,089.—PORTABLE STOVES.—*Robert E. Dietz*, New York, N. Y. Application filed March 2, 1885.
"The arbitrary word 'TUBULAR.'"

12,090.—LEAD-PENCILS AND PEN-HOLDERS.—*Eagle Pencil Company*, New York, N. Y. Application filed March 14, 1885.
"The word-symbol 'CROWN,' or emblem of a crown, or both."

12,091.—LEAD-PENCILS.—*Eagle Pencil Company*, New York, N. Y. Application filed March 14, 1885.
"The word-symbol 'RECORDER.'"

12,092.—LEAD-PENCILS.—*Eagle Pencil Company*, New York, N. Y. Application filed March 14, 1885.
"The word-symbol 'MERCANTILE.'"

12,093.—LEAD-PENCILS.—*Eagle Pencil Company*, New York, N. Y. Application filed March 14, 1885.
"The word-symbol 'RUBBER PERFECTION.'"

12,094.—LEAD-PENCILS.—*Eagle Pencil Company*, New York, N. Y. Application filed March 14, 1885.
"The word-symbol 'OBELISK,' or the emblem of an obelisk, or both."

12,095.—LEAD-PENCILS AND PEN-HOLDERS.—*Eagle Pencil Company*, New York, N. Y. Application filed March 17, 1885.
"The word-symbol 'AUTOMATIC DROP.'"

12,096.—COFFEE, EITHER GREEN OR ROASTED.—*George W. Earhart*, Columbus, Ohio. Application filed March 11, 1885.
"The symbol of a branch of the coffee-plant, with the flowers, leaves, and ripening berries arranged across an elliptical panel, the several parts of which are colored, and having views of a berry arranged at the base and on opposite sides of the stem of the branch."

12,097.—BUTTONS.—*I. E. Hirsh & Co.*, Newark, N. J. Application filed February 9, 1885.
"A shield bearing the title 'AMERICAN BUTTON CO.,' the letters 'A B C' being prominently displayed."

12,098.—TOP ROLLS FOR COTTON, SILK, AND LIKE MANUFACTURE.—*Frank L. Huston*, Providence, R. I. Application filed March 3, 1885.
"A pictorial representation of the term 'TOP ROLL.'"

12,099.—FURNITURE.—*Dr. Jaeger's Sanitary Woollen System Company, (limited,)* London, England. Application filed March 6, 1885.
"The fac-simile autograph 'PROF. DR. G. JAEGER.'"

12,100.—MEDICINAL TONIC.—*Richard E. Kunzé*, New York, N. Y. Application filed March 17, 1885.
"The words 'AMAZONIAN TONIC OR SOUTH AMERICAN REJUVENATOR.'"

12,101.—FLUID EXTRACT OF BEEF.—*Liston Beef Company*, Chicago, Ill. Application filed March 17, 1885.
"The picture of a girl and a dish or dishes carried by her."

12,102.—LISTON'S EXTRACT OF BEEF.—*Liston Beef Company*, Chicago, Ill. Application filed March 17, 1885.
"The picture of a cow and calf."

12,103.—CERTAIN STOVE-PIPE ELBOWS.—*Lock Seam Elbow Company*, Indianapolis, Ind. Application filed February 11, 1885.
"The representation of a pair of elephants harnessed to a longitudinal half of a stove pipe elbow and pulling in opposite directions, and the representation of a stove-pipe elbow bearing the words 'THE LOCK SEAM ELBOW.'"

12,104.—STOCKINGS AND UNDERWEAR.—*Lord & Taylor*, New York, N. Y. Application filed February 25, 1885.
"The word 'VICTOR.'"

12,105.—STOCKINGS AND UNDERWEAR.—*Lord & Taylor*, New York, N. Y. Application filed February 25, 1885.
"The words 'ANCHOR DYE.'"

12,106.—LUBRICATORS, EJECTORS, AND CUPS.—*Peerless Oil Ejector Company*, Quincy, Ill. Application filed March 7, 1885.
"The word 'PEERLESS.'"

12,107.—CERTAIN-NAMED MEDICAL COMPOUNDS.—*James Henry Pullen*, Winn, Me. Application filed February 27, 1885.
"The word 'OPELEKA.'"

12,108.—FLOUR.—*The Saint Paul Roller Mill Company*, St. Paul, Minn. Application filed July 30, 1884.
"The words 'ORANGE BLOSSOM,' with a representation of an orange-blossom within a clipped circle."

12,109.—COMPOUND OF RED LEAD AND OIL ADAPTED TO REMAIN IN A SOFT OR PASTY CONDITION.—*John A. Shephard*, Burlington, Iowa. Application filed February 2, 1885.
"The pictorial representation of a crown."

12,110.—HATS.—*South Norwalk Hat Company, (Co-operative,)* South Norwalk, Conn. Application filed March 12, 1885.
"A circle inclosing a globe which incloses a triangle."

12,111.—WHITE LEAD.—*Southern White Lead Company*, St. Louis, Mo. Application filed February 6, 1885.
"A crescent-shaped symbol."

12,112.—WHITE LEAD.—*Southern White Lead Company*, St. Louis, Mo. Application filed February 6, 1885.
"The name or designation 'SOUTHERN COMPANY.'"

12,113.—PLOWS.—*Arabella G. Starke*, Richmond, Va. Application filed January 26, 1885.
"The word 'BOY.'"

LABELS.

4,401.—Title: "GREAT FIVE" (FOR FIVE CENT CIGARS.)—*Joseph Beitman*, Kansas City, Mo. Application filed March 17, 1885.

4,402.—Title: "R. & M. TONIC CONFECTION."—*Reinhold & Marsh*, Worcester, Mass. Application filed March 17, 1885.

4,403.—Title: "WESTPORT MILLS." (FOR WRITING PAPER.)—*Irwin N. Megargee*, Philadelphia, Pa. Application filed March 11, 1885.

4,404.—Title: "THE PREVENTIVE CAPSULE COMPANY'S REMEDIES."—*Emil Gutmann*, New York, N. Y. Application filed March 14, 1885.

4,405.—Title: "NATURAL MINERAL WATER."—*Edwin O. Gale* and *William P. Block*, Chicago, Ill. Application filed March 17, 1885.

DISCLAIMER.

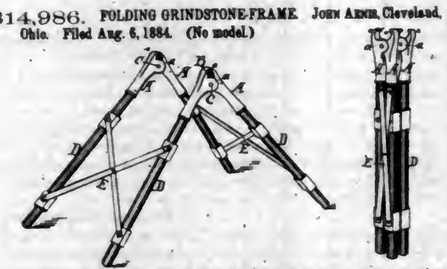
167,455.—*Rhodes Lockwood*, Boston, Mass. Patent dated September 7, 1875. IMPROVEMENT IN INDIA-RUBBER ERASERS. Disclaimer filed March 27, 1885, by the patentee.

"Enters his disclaimer to that part of the subject-matter of the said specification and claim, which embraced in the following language, to wit: 'Instead of tumbling the erasers, as described, they might be ground away uniformly by other means, so as to present proper erasing faces and corners,' includes, as within his invention, india-rubber erasers whose erasive surface is substantially different from that produced by tumbling, substantially as described in the specification, so that the claim as now limited shall read thus: 'I claim as a new article of manufacture, a soft finished erasive surface produced by tumbling the erasers, substantially as herein described.'"

PATENTS

GRANTED APR. 7, 1885.

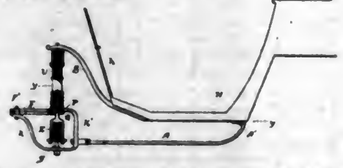
314,986. FOLDING GRINDSTONE-FRAME. JOHN AENE, Cleveland, Ohio. Filed Aug. 6, 1884. (No model.)



Claim.—1. The combination, with the socketed arms A A, having prongs *e e*, and provided with disks *a a*, and united by bolt C, of the intermediate friction wheel or wheels, B, substantially as described, and for the purpose specified.

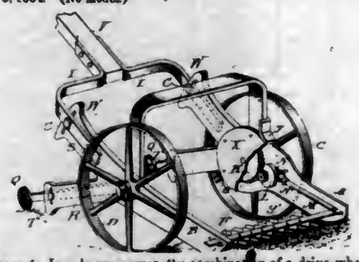
2. The folding grindstone-frame consisting of the hinged joint composed of the socketed arms A A, having prongs *e e*, and provided with the disks *a a*, united by bolt C, and the intermediate friction wheel or wheels, B, and the legs D D, provided with the pivoted braces E E, all substantially as described.

314,987. CARRIAGE-COUPLING. JOHN C. BARNEY, Peoria, Ill. Filed June 2, 1884. (No model.)



Claim.—In combination with the front axle and fifth-wheel, brace K', the coupling C, so joined to said brace as to permit said coupling to turn in a vertical plane at right angles to said axle, the bifurcated rod A, having its single end joined to said coupling with a pivotal connection the axial center of which is parallel to said vehicle-axle, and connections for pivotally securing the bifurcated ends of the rod A to the under side of the vehicle, as and for the purpose specified.

314,988. LAWN-MOWER. DAVID BEARLY, New Castle, Ind. Filed Feb. 5, 1884. (No model.)



Claim.—1. In a lawn-mower, the combination of a drive-wheel, C, supporting-wheel D, the axles of said wheels, side bars, A B, having the rear projecting arms, R S, provided with the curved slots, connecting-yoke E, adjustable arms T', adjustable handle-braces I, fixed cutter-bar *g*, provided with reversible knives *g'*, reversible reciprocating cutter-bar F, gear-wheel K on the axle of the drive-wheel shaft O², pinion O, and cam-wheel L, fixed to said shaft, the boss *y* on the side plate A, lever M, provided with aperture N, passing over said boss and pivoted to the boss, and also provided with friction-rollers N' N², adapted to engage the cams on said wheel L, and with a slot at its forward end for receiving the cutter-bar F, to which it is pivoted, the shield X, and the removable rim of the plate A, substantially as and for the purposes set forth.

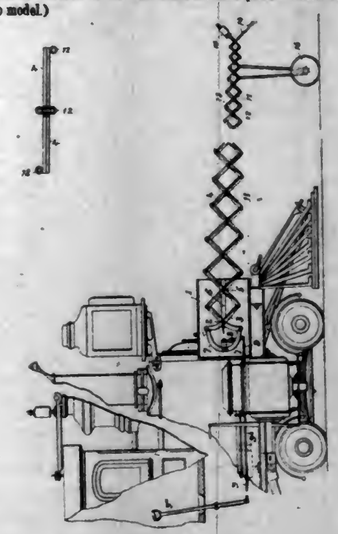
2. The combination of the wheel D, drive-wheel C, side plate A, provided with the boss *y*, and the rim J, having a removable portion, the covering-plate X, the side plate B, having the slot Z for the reciprocating cutter-bar, the fixed cutter-bar *g*, having reversible knives, the reversible reciprocating cutter-bar F, the gear-wheel K, the shaft O², the pinion O, and cam or wave wheel L, secured to said shaft, the lever M, provided at its forward end with a horizontal slot and a pivot for engaging the reciprocating cutter-bar, and having the opening N, adapted to pass over the boss *y*, the pivots *y'*, connecting said lever to said boss, and the friction-rollers N' N², attached to said lever and engaging the cams or waves on the wheel L, substantially as and for the purposes set forth.

314,989. JOURNAL-BEARING. RICHARD BEDDALL, Malden, Mass. Filed Jan. 26, 1885. (No model.)



Claim.—The improved journal-bearing herein described, the same consisting of the body A, provided with the depressions C, flanges *m*, grooves *t r*, and oil-duct *b*, the auxiliary bearing B, provided with the flanges *d*, grooves *l*, and holes *i*, and the metallic fastenings *a a*, constructed, combined, and arranged to operate substantially as set forth.

314,990. RAILWAY-GATE AND MEANS FOR PREVENTING INJURY TO STOCK ON RAILWAYS. WILLIAM BELL, Verona, Miss., assignor of one-half to Le Vert Kimball, same place. Filed Oct. 11, 1884. (No model.)



Brief.—A lazy-tongs device is secured to the front of the locomotive, arranged to be extended to a distance in front of the same and to be operated from the cab, and carrying at its extremity a whistle and steam-nozzle having flexible tube-connection with the engine.

Claim.—1. In combination with a locomotive-engine, a lazy-tongs attachment having means of operation from the cab and capable of being extended to a distance in front of the engine, substantially as and for the purpose set forth.

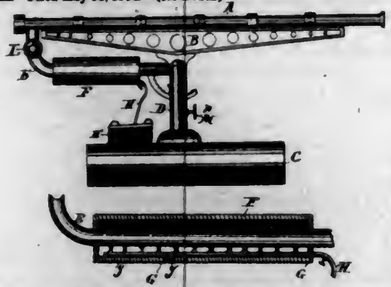
2. In combination with a grooved or slotted frame mounted on the forward engine-truck, a lazy-tongs having a pin projecting into said groove, and means of operating said tongs from the cab, as shown.

3. In combination with an extensible arm or attachment to the forward end of the engine, a whistle mounted on said arm, and flexible tube-connection with said whistle, substantially as set forth.

4. In combination with an extensible arm or attachment to the forward end of an engine, a nozzle mounted on the forward end of the same and having flexible tube-connection with the engine, substantially as shown.

5. An extensible arm supported on the forward truck of an engine and having a flanged wheel at its forward end, for the purpose set forth.

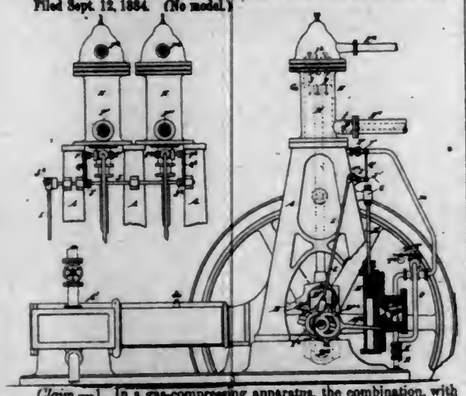
314,991. PNEUMATIC CANNON. WASHINGTON G. BENEDICT, Boston, Mass. Filed May 31, 1884. (No model.)



Claim.—1. The combination, with the supply-pipe of a pneumatic cannon, of a heating-chamber surrounding the same, a series of burners inside the chamber in proximity to the pipe, and a fuel-supply reservoir communicating with the burners, all being so attached as not to interfere with the working of the gun, substantially as described.

2. The combination, with the supply-pipe of a pneumatic cannon, of a heating-chamber surrounding the same and flexible connections leading from the fuel-supply reservoir to the heating-chamber, whereby the heat-supply may be maintained without interfering with the training of the gun.

314,992. GAS-COMPRESSOR. LOUIS BLOCK, New York, N. Y., assignor to the De La Vergne Refrigerating Machine Company, same place. Filed Sept. 12, 1884. (No model.)



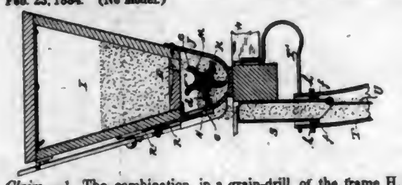
Claim.—1. In a gas-compressing apparatus, the combination, with the compression-cylinder H, of the valve or cock P', actuated by the engine so as to forbid the passage of oil during the period while the compression-cylinder is taking gas, substantially as herein specified.

2. In a gas-compressing apparatus, the oil valve or cock P', operated by the engine, in combination with the adjustable valve or cock K, adapted to control the area of aperture open, substantially as herein specified.

3. In a gas-compressing apparatus, the valves or cocks P' P², operated by the engine, in combination with a pump or measuring device, M, adapted for joint operation, as herein specified.

4. In a gas-compressing apparatus, the oil-pump M, relief-valve T, regulating-valve K, and the valves P' P² and their several connections, and operating means, all arranged to serve relatively to the compressing-cylinder H and its connections, substantially as herein specified.

314,993. GRAIN-DRILL. GEORGE G. BLUNT, Petersburg, Ill. Filed Feb. 23, 1884. (No model.)



Claim.—1. The combination, in a grain-drill, of the frame H, the rigid tubes S S, attached rigidly to the said frame, and having on their lower ends the stops or flanges *f f*, the tubes T T, entered by the tubes S S, and having therein the screws A A, located above the said flanges, and having thereon the lugs *g g*, the springs T' T', attached to the said frame and passing between the said lugs, and the hinged shears A' A', attached to the tubes T T, substantially as and for the purposes specified.

2. The combination, in a grain-drill, of the fixed and rigid tubes S S having the stops or flanges *f f* on their lower ends, the vertically-yielding tubes T T, having the screws A A located thereon above the said flanges, and arranged for contact therewith when the tubes T T are in their lowest position, and the hinged shears A' A', attached to the tubes T T, substantially as and for the purposes specified.

3. The combination, in a grain-drill, of the fixed and rigid feed-tubes S S, the vertically-movable tubes T T, having thereon the outwardly-projecting lugs *g g*, located near the upper ends of the said tubes, the spring-arms T' T', secured to the frame H, and passing around the upper ends of the tubes T T and between the said lugs, substantially as and for the purposes set forth.

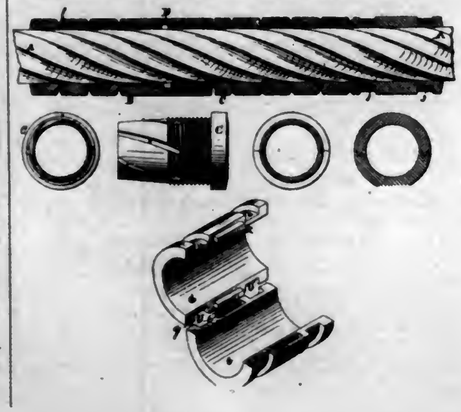
314,994. SEAL. EDWARD J. BROOKS, East Orange, N. J., assignor to E. J. Brooks & Co., New York, N. Y. Filed June 21, 1884. (No model.)



Claim.—An improved self-fastening seal composed of a hard and brittle seal part, having a permanent recess, an internal spring-catch distinct from the shackle, and a narrow threading-hole leading to said catch, and a flexible flat shackle having snap-catches at both extremities adapted to interlock successively with said internal catch, whereby the shackle is adapted to be made and packed for shipment separate from the seal part, and to be united therewith preliminary to the sealing operation by inserting one shackle end, and fastened at the sealing operation by inserting the other shackle end, as herein specified.

314,995. COVERING FOR CABLES OR ROPES USED TO PROPEL VEHICLES. CHESTER BULLOCK, New York, N. Y. Filed July 7, 1884. (No model.)

Brief.—Loose rings are held in place upon the cable between clutch-rings, which consist of threaded and slotted sections screwed into outer sections having inclined inner surfaces which force the slotted portions against the cable. Sectional rings divided longitudinally are secured to cable by wire wrapped around them where splices occur.



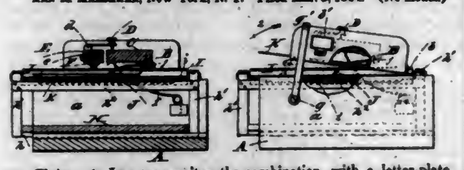
Claim.—1. The clutch-ring D, consisting of the part B and part C, with slots *x x*, united by one part being screwed into the other, in combination with traction-cables, substantially as described.

2. The clutch-ring D and the intermediate plain or loose rings, H, in combination with traction-cables, as shown, and for the purpose set forth.

3. The sectional ring G and wires *j j*, in combination with traction-cables, as shown, and for the purpose set forth.

4. The sectional rings G and plain or loose rings H, in combination with traction-cables, as described, and for the purpose set forth.

314,996. TYPE-WRITING MACHINE. LEE S. BURRIDGE and NEWMAN R. MARSHMAN, New York, N. Y. Filed Mar. 3, 1884. (No model.)

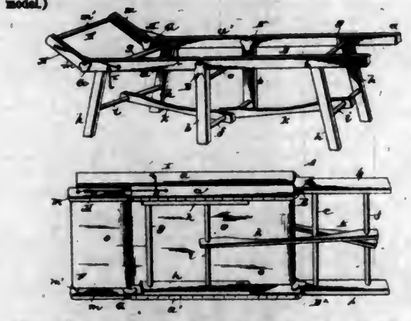


Claim.—1. In a type-writer, the combination, with a letter-plate, C, and a support for the same constructed to hold and guide it always parallel to its normal position, of a type-plate, E, extending on each side of said support and arranged to slide in a line parallel with the line of letters upon the said plate C on guides firm with the said plate, a stylus, D, a paper-carrying impression device, as I, and means, substantially as described, for intermittently moving the said device at right angles to the letter and type plates by the downward movement of said plates, substantially as herein set forth.

2. The combination, with a letter-plate, C, secured to supports B, which have an oscillatory movement on fixed bearings, of a type-plate, E, fitted to slide in and through the said supports parallel with the said letter-plate, a stylus, D, hinged to the said type-plate, an impression device, substantially as described, arranged upon a support sliding at right angles to the said type-plate, and means, as J *k*³, for moving said impression device by depression of the type-plate, substantially as set forth.

3. In combination with a letter-plate and type-plate, C E, and impression bar or roller I of a type-writer, a wire fork, K, movable upon a pivot, *k*, for holding and adjusting the ink-ribbon, for the purpose specified.

314,997. COT. CHARLES B. CAMP, Sturgis, Mich., assignor to the Perfection Manufacturing Company, Toledo, Ohio. Filed Aug. 15, 1883. (No model.)



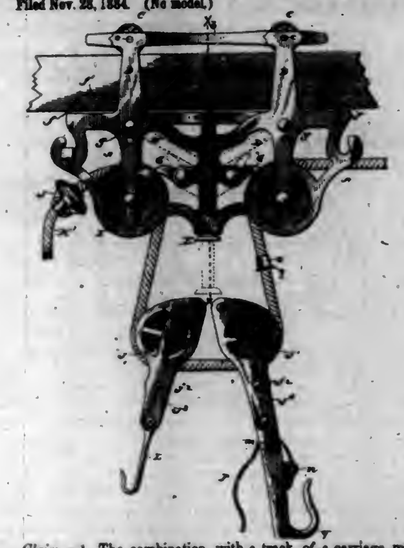
Claim.—1. In a folding cot, the combination, with the sectional side rails, of the bars *m*, forming continuations of said side rails, the hinges for securing the side rails and side bars together, and the springs connected at their opposite ends to the side rails and side bars, all of the above parts combined as described.

2. The combination, with the side rails, A, short rails *a'*, the side bars *m*, hinged to the outer ends of the short rails, and springs for yieldingly holding the side bars in an elevated position, of the legs *b* and *h*, cross-bars *f* and *i*, and brace-rods connecting the end cross-bar with the central cross-bar.

3. The combination, with the side rails and legs constructed and arranged substantially as described, of the hinges B, connecting the side rails and central legs, and consisting of an inner plate provided with curved bearings for the ends of the rails, and with studs, and an outer plate provided with openings registering with the studs, all of the above parts combined as described.

4. In a folding cot, the combination, with side rails and a flexible covering secured thereto, of yielding side bars pivotally secured to the ends of the side rails, a cross-bar connecting the outer ends of the side bars, a pillow secured to said cross-bar and to the flexible covering and resting between the side bars, substantially as and for the purpose described.

314,998. HAY-ELEVATOR. PETER F. CHAMBARD, Fayette, Ohio. Filed Nov. 28, 1884. (No model.)



Claim.—1. The combination, with a track, of a carriage mounted thereon, arms for locking the load in a stationary position, an arm and a pivoted pawl adapted to engage a thimble or like device simultaneously with the upward movement of the arm and the unlocking of the carriage-arms D, substantially as set forth.

2. The combination, with a track, of a carriage mounted thereon, arms pivoted to said carriage and adapted to engage recesses on the under side of the track, a vertically-moving bar connected with said arms, a pivoted pawl having its end connected with said vertically-movable bar, and a flanged thimble on the rope, substantially as described.

3. The combination, in a hay elevator or carrier, with a carriage suspended from and adapted to travel upon a suitable track, of a dog having its inner end resting in a recess in an arm, E, and adapted, when said arm is raised by the load-carrying devices, to be lowered to engage a thimble, Q, on the draft-rope, substantially as set forth.

4. In a hay elevator and carrier, the combination, with a suitable track, of a carriage mounted and adapted to travel thereon, an arm or arms for locking the carriage in a stationary position, detent devices independent of the locking-arms, and a vertically-movable bar adapted to unlock the carriage and lock the load simultaneously, substantially as set forth.

5. The combination, with a suitable track having a recess upon its under side, of a carriage carrying bifurcated arms having idlers, and an arm pivotally connecting the inner ends of said bifurcated arms, and adapted, when raised, to release said arms from engagement with the recess on the under side of the track, as set forth.

6. The combination, with a suitable track, of a suspended carriage, arms for locking said carriage, a trip-arm pivotally connecting the inner ends of said arms, said trip-arm having a slot, and a pin located midway the length of said slot, a dog or dogs having their rear ends resting in said slot, substantially as set forth.

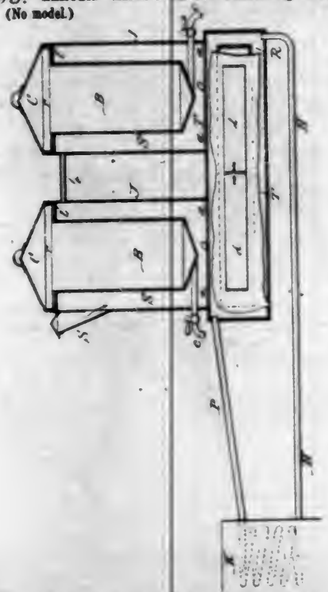
7. In a hay-elevator, the combination, with a suspended carriage and the load-carrying devices, of a draft-rope, a stop on said draft-rope, and bail attached to said carriage, substantially as set forth.

8. The combination, with a suitable track, of a carriage suspended therefrom and adapted to travel thereon, arms for locking said carriage, a trip-arm pivotally connecting the inner ends of said arms, a dog or dogs operated by said trip-arm, a draft-rope, load-carrying devices on said draft-rope, a stop on said rope, a bail on the carriage to engage the same, and a thimble on said rope, as set forth.

9. The combination, with a suitable track having a pulley suspended therefrom and a weighted rope passing through said pulley, of a carriage mounted on said track, arms pivoted to said carriage and pivotally connected at their inner ends by a slotted trip-arm, dogs operated by said trip-arm, pulleys mounted between the sides of said carriage, said weighted rope passing through said pulleys, load-carrying devices suspended from said rope between the pulleys, a stop on said rope, a bail to engage the same, and a thimble on said rope, substantially as set forth.

10. The combination, with the casing J⁴, of pivoted plates, a roller mounted between said plates, near the upper ends thereof, a hook pivoted between the lower ends of said plates, and a sliding spring-pressed catch to engage said hook, said catch being operated by a rope passing over the pulley mentioned, as set forth.

314,999. HEATER. HENRY B. CRASK, Portland, Oreg. Filed May 1, 1884. (No model.)

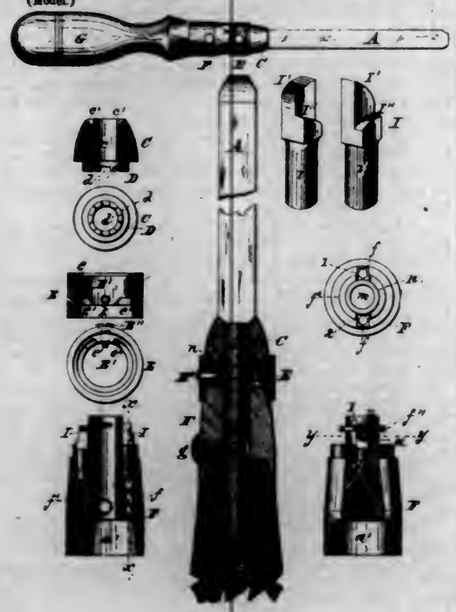


Claim.—1. The water-jackets J, located above the water-table, combined with the receptacles B, the said water-table T open under the jackets, and having ingress and egress pipes, and means within the stove or range independent of water-main pressure for heating the circulating water, as set forth.

2. The water-jackets J, located above the water-table, and having the spout S, and a connecting-pipe between them near the top, combined with the receptacle B, the water-table T, having the openings O, and pipes P and H, and the heating-coil K, as set forth.

3. The plate, coffee, &c., heater consisting of the water-table T, having the oven R, openings O, and pipes H and P, the coil K, and the jackets J, and inclosed receptacles B, located above the water-table, all combined substantially as set forth.

315,000. RATCHET MECHANISM FOR BIT-BRACES, SCREW-DRIVERS, &c. WILLIAM R. CLARKSON, Buffalo, N. Y. Filed Nov. 5, 1884. (Model.)



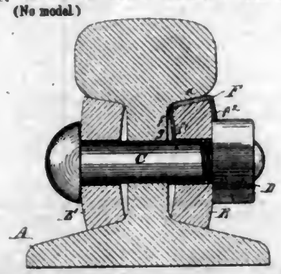
Claim.—1. In ratchet screw-drivers, the combination, with the ferrule F, having recess *a'* for the reception of the handle G', and central passage, *m*, for the passage of the shank B of the screw-driver, of the ratchet-sleeve C, having annular projection D on its under side provided with serrations or notches *d*, and two oppositely-operating dogs, I, said dogs being located within parallel recesses placed diametrically opposite each other and in a line coinciding with the center line of the aperture *m*, and within the ferrule F, as and for the object specified.

2. The combined ferrule and dog-case hereinbefore described, consisting of an annular sleeve having in its lower end a recess for the reception of the operating-handle, centrally a passage for the reception of the screw-driver shank, and at diametrically opposite or nearly opposite points recesses *f* for the reception of the dogs, said recesses *f* being arranged parallel with the central line of the central aperture, *m*, and the upwardly-projecting portion *n*, provided with a collar, *f'''*, having notches 1 2, as and for the object stated.

3. The combination, with the combined stock and ferrule F, having the dogs I, of the cam-sleeve E, having the double inclines *e e'* within its interior passage, E', said dogs being located within recesses in the stock F, the axial line of which is parallel with the central aperture for the reception of the shank B of the screw-driver, and the sleeve E, constructed to surround the stock F, whereby the revolution of said sleeve causes the depression of either one of the said dogs, substantially in the manner as and for the object specified.

4. The dogs I, having the cylindrical shank *i*, angular portion with cam I'' and incline I, said dogs being located within the stock F in recesses the axial line of which is parallel with the central line of the stock, in combination with a sleeve surrounding said stock and engaging projections on the dogs, whereby by revolving said sleeve the dogs are depressed, substantially in the manner as and for the object specified.

315,001. NUT-LOCK. JOHN B. CLEMENTS, St. Louis, Mo. Filed July 17, 1884. (No model.)



Claim.—1. In a nut-locking device, the combination of the rail A, fish-bar B, bolt C, and nut D, the fastening-plate F, bearing against the corner of the nut, said plate extending over the upper face of said fish-bar and secured between the vertical faces of the rail and fish-bar, substantially as shown and described.

2. The combination of the rail A, fish-bar B, having the groove *e*, the bolt C, the nut D, the fastening-plate F, seated in said groove, and having its rear arm, *f*, bent between the faces of the rail and fish-bar, and its front arm, f^2, bent down to secure the nut, substantially as and for the purposes set forth.

315,002. CAR-AXLE LUBRICATOR. ERASTUS L. CLEVELAND, Pittsburg, assignor of one-half to Allen C. Milliken, Bennett Station, Pa. Filed Feb. 6, 1885. (No model.)



Claim.—1. The brush-shaft having an elongated opening, and plates having side flanges located in said opening, in combination with a brush located between said plates, and set-screws adapted to bear against the latter, substantially as set forth.

2. The brush-shaft having an opening and clamping-plates located in said opening, in combination with a brush located between said plates, substantially as set forth.

3. The lubricator consisting of a box divided by a partition-wall into two chambers, the outer chamber surrounding the lower end and sides of the inner compartment, an opening in the partition-wall, and a wick located in said opening, in combination with a brush and shaft located in the inner chamber, substantially as set forth

4. The brush-shaft and brush, in combination with a lubricating box or casing divided into two compartments and a wicking establishing communication between the same, substantially as set forth.

5. The combination, with the box or casing divided into two compartments, of yielding bearings within the inner compartments, a brush-shaft and brush, and a wicking located in a slot in the partition-wall, substantially as set forth.

6. The combination, with the box or casing divided into two compartments, of the brush-shaft and brush mounted in yielding bearings located within the inner casing, said brush-shaft being adapted to be revolved by the shaft or axle to be lubricated, substantially as set forth.

7. The combination, with the box or casing divided into two compartments, and a wicking located in the slot of the partition-wall, of the brush-shaft located in yielding bearings, the brush, and friction-disks on said brush-shaft, adapted to engage friction-disks on the axle or shaft to be lubricated, substantially as set forth.

8. In a lubricator, the combination, with a box or casing, of a brush-shaft and brush, said brush-shaft being mounted in yielding bearings within the casing, and friction-disks on said brush-shaft, adapted to be revolved by disks on the shaft to be lubricated, substantially as set forth.

9. The combination, in a lubricator, with a box or casing divided into two compartments, and a wick establishing communication between the same, of a brush-shaft carrying a brush, and located in yielding bearings within the inner compartment of the box or casing, friction-disks on said brush-shaft, and an axle having disks to engage the same, substantially as set forth.

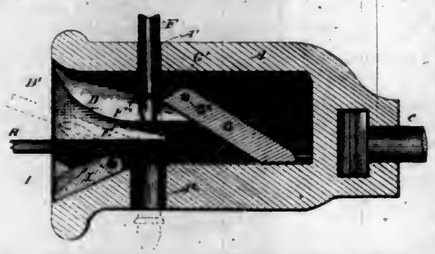
315,003. VELOCIPEDE. JOHN C. CLINE, Philadelphia, Pa. Filed Aug. 15, 1883. Renewed Aug. 14, 1884. (No model.)



Claim.—1. In a velocipede, the combination, with a frame having a straight axle, a double-crank axle carrying the propelling-wheels, and a seat for the operator at or near the double crank, of an oscillating or rocking body mounted on said frame, and mechanism connecting the frame and body for rocking the latter, substantially as described.

2. In a velocipede, the combination, with a frame having a straight axle, a double-crank axle carrying the propelling-wheels, having pivoted bearing and a steering-rod, and a seat for the operator at or near the double crank, of an oscillating or rocking body mounted on said frame, and mechanism connecting the frame and body for rocking the latter, substantially as described.

315,004. CAR-COUPLING. ANDREW B. CLINTON, Milford, N. Y. Filed Dec. 4, 1884. (No model.)



Claim.—1. The combination, with the draw-head A, having the chamber D, of the gravity-pawl G, pivoted within said chamber, and the pin F, having the weight F' and thimble F^2, the chain or chains F^2, the levers J, and the standards L, substantially as shown and described.

2. The combination of the draw-head A, having the chambers D E, the gravity-pawl G, pivoted within the chamber D and extending into the chamber E, the pin F, having a flange, F^4, and the plate I, having the finger I', and means for the lateral movement of the plate, substantially as shown and described.

3. The combination of the car B, the levers J, the standards L, chains F^2, pin F, having the weight F', and the thimble F^3, provided with the flange F^4, with the draw-head A, having the chambers D E, gravity-pawl G, and guiding-plate I, having the finger I', and the operating levers or rods I^2, substantially as shown and described.

4. The combination, with the draw-head A, of the gravity-pawl G and the pivot for the same, comprising the body portion G^2 and the screw-threaded head G^3, substantially as shown and described.

5. The guiding-plate I, provided with the finger I' and with operating rods P, in combination with and mounted in a draw-head, A, for lateral movement therein, substantially as specified.

315,005. HAME-TUG. CHARLES J. COOPER, Chicago, Ill. Filed Dec. 10, 1883. (No model.)



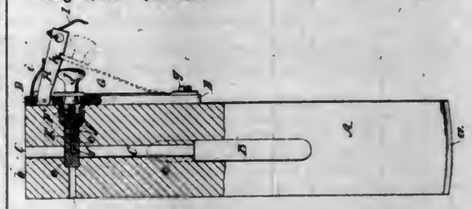
Claim.—1. As an improved article of manufacture, a hame-tug consisting of a three-sided metallic casing provided with a series of top perforations for the reception of the trace-hook, a filling of lighter material bolted or otherwise secured to said casing, and a retaining-pin for confining the trace-hook within the desired perforation, substantially as shown and described.

2. In a hame-tug, the combination of a casing having top perforations for the reception of the trace-hook, a strengthening-plate located beneath the upper side of said casing and correspondingly perforated, a filling secured within the casing and recessed below the perforations of the casing and strengthening-plate, and a locking device for confining the trace-hook within any desired perforation, substantially as shown and described.

3. In a hame-tug, the combination of an outer casing provided with a series of top perforations for the reception of the trace-hook and series of side perforations for the reception of a retaining-pin, a filling secured within the casing and recessed below the top perforations and opposite the side perforations of the casing, and a locking-pin adapted to pass through the desired side openings and recess and confine the trace-hook within the recess, substantially as described and shown.

4. In a hame-tug, the combination of the outer casing, A, provided with perforations *h* and *r*, the recessed filling B, secured to said casing, the locking-pin *m*, the clip F, and the trace-loop G, substantially as shown and described.

315,006. WEDGE. CHARLES R. COUNTRYMAN, Sherman, Wyo. Filed Aug. 30, 1884. (No model.)



Claim.—1. The combination, with the wedge A, having a hole, B, and channel C, of the plug E, crossing the channel C and having the passage *f* and nipple F, and a hammer, G, and devices for setting and releasing the hammer, substantially as shown and described.

2. The combination, with the wedge A, having a hole, B, and channel C, of the plug E, having a passage, *f*, and nipple F, and fastened to a plate, D, to which plate a spring-pressed hammer, G, and trigger H are attached, all substantially as shown and described.

315,007. MANUFACTURE OF TIN-FOIL. JOHN J. CROOKE, New York, N. Y. Filed Aug. 8, 1884. (No specimens.)

Claim.—1. In manufacturing tin-foil, the process of forming the plating or covering strip, the same consisting in welding many sheets or laminæ of tin to an alloy base by successive applications and rolling, substantially as described.

2. The improved process of manufacturing tin-foil, the same consisting in first forming a plating or covering strip by applying sheet after sheet of tin to a slab of alloy and welding each sheet by rolling, and thereafter uniting said laminated plating or covering strip to a base or core of lead by rolling, substantially as described.

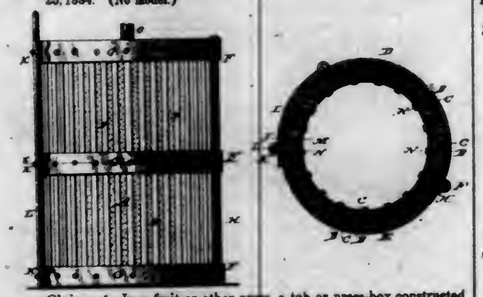
315,008. TIN-FOIL. JOHN J. CROOKE, New York, N. Y. Filed Aug. 14, 1884. (No specimens.)

Claim.—As a new article of manufacture, compound tin-foil consisting of a base or core of lead plated or covered with laminæ of tin sheets built up and welded together, substantially as described.

315,009. PROCESS OF MAKING TIN-FOIL. JOHN J. CROOKE, New York, N. Y. Filed Feb. 14, 1885. (No specimens.)

Claim.—The improved process of manufacturing tin-foil, the same consisting in facing a leaden base or core with a plating or covering consisting of sheets of tin built up and welded together by successive applications and rolling, substantially as described.

315,010. CIDER-PRESS. PARMER R CROSS, Lowell, Ind. Filed Nov. 25, 1884. (No model.)



Claim.—1. In a fruit or other press, a tub or press-box constructed of suitably-connected staves, with an interior straining-lining of perforated metal or wire netting, substantially as and for the purpose herein set forth.

2. In a fruit or other press, a tub or press-box constructed of suitably-connected staves with intermediate spaces, and having a metallic straining-lining, said box or tub being constructed in two sections hinged together, substantially as and for the purpose herein set forth.

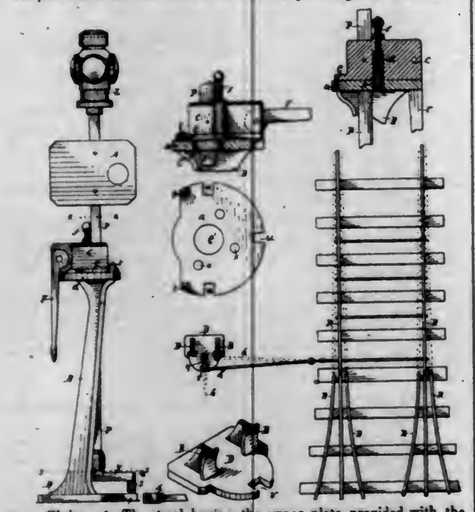
3. In a fruit or other press, a tub or press-box constructed of suitably-spaced staves in two sections, connected by the hinged bands provided with staples and hinged hasps, and a vertical connecting-rod, substantially as and for the purpose herein shown and specified.

4. The combination, with the press-box constructed of suitably-spaced staves with a metallic straining-lining, of the holding-strips secured vertically interiorly to the staves over the lining, substantially as and for the purpose herein shown and specified.

5. In a fruit or other press, the press-box constructed of suitably-spaced staves in several sections, suitably hinged and connected by means of the bands, which also serve to connect the staves, in combination with the metallic straining-lining, the interior re-enforcing strips, and the follower, substantially as and for the purpose herein shown and specified.

315,011. SWITCH-STAND. LEWIS M. CURRY, Jackson, Mich., assignor of one-half to Oswald F. Jordan, same place. Filed Feb. 16, 1884. (No model.)

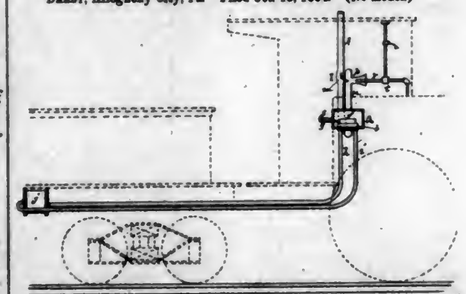
Brief.—A block or carriage, to which the hand-lever is pivoted, is centrally pivoted in the top plate of the stand to rotate in a horizontal plane, and carries in a recess therein a locking-pin shouldered to retain it in the recess, and vertically movable therein to pass into or out of locking-holes which are arranged in the top plate to correspond with the different positions of the switch, and are covered by a flange on the block.



Claim.—1. The stand having the upper plate provided with the lock-holes, in combination with a carriage adapted to rotate, and provided with a lock-pin and with a base-flange adapted to cover said lock-holes, substantially as described.

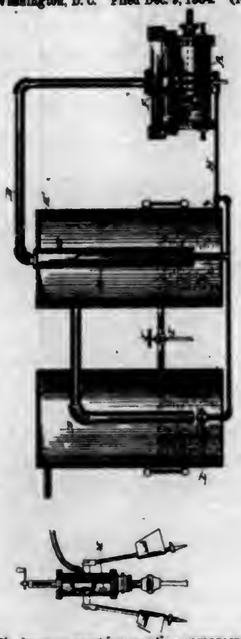
2. The combination, in a switch-stand, of the plate provided with the lock-holes, the carriage provided with the lock-pin recess, and a lock-pin having the shoulders adapted as set forth, substantially as described.

315,012. MEANS FOR OPERATING CAR-BRAKES. GEORGE W. DARBY, Allegheny City, Pa. Filed Oct. 16, 1884. (No model.)



Claim.—As a means for operating car-brakes by atmospheric-air pressure on one side of a piston in connection with a complete or partial vacuum on the other side, the combination of a valve-chest containing openings or ports for the admission or withdrawal of air from a cylinder and pipes communicating therewith, a valve that shall slide over, close, open, and operate said air-ports, an exhaust-pipe supplied with an inlet for live steam, and a stop-cock or means for controlling the same.

315,013. OPERATING COMPRESSED-AIR APPARATUS. ANTHONY C. DOUGLASS, Washington, D.C. Filed Dec. 9, 1884. (No model.)

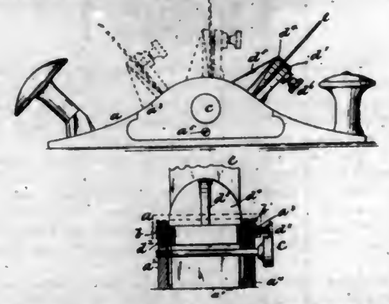


Claim.—1. The improvement in operating compressed-air apparatus, which consists in first compressing air in pumps kept cool by forcing water into the interior of the pump-cylinder, and then passing the mixed air and spray through a body of free water kept at a substantially uniformly-cold temperature by the injection of fresh cold water and the withdrawal of the water heated by the air, substantially as and for the purpose specified.

2. The improvement in operating compressed-air apparatus, which consists in first compressing the air in pumps kept cool by forcing jets of water into the interior of the pump-cylinder, and then passing the mixed air and spray through a body of free water kept at a substantially uniformly-cold temperature by the injection of cold water at a low point in said water and the withdrawal at a high point of the water heated by the air, substantially as and for the purpose specified.

3. The improvement in operating compressed-air apparatus, which consists in first compressing the air in pumps kept cool by forcing water into the pump, then subjecting the mixed air and spray to jets of cold water, and then passing the same through a body of free water kept at a substantially uniformly-cold temperature by the admission therein at a low point of said jets of cold water and the withdrawal at a high point of the heated water, substantially as and for the purpose specified.

315,014. BENCH-PLANE. JAMES DUNCAN, Coshocton, Ohio, assignor to himself, William W. Bostwick, and Frank C. Hay, all of same place. Filed Jan. 24, 1885. (No model.)



Claim.—1. The improved planing implement hereinbefore described, having cheeks provided with guides made in the arc of a circle extended on opposite sides of a line vertical to the throat in the base-plate, a bit-carrying frame supported by the guides, and movable thereon to either side of the vertical line aforesaid, and a clamp, substantially as and for the purposes set forth.

2. In a bench plane or scraper, the improved bit-carrying frame composed of the main frame adjustable longitudinally in the stock and provided with a transverse slot or bit-opening and having a bearing-plate projected upward flush with the front side of the opening, a clamping-plate supported loosely in the bit-opening in and carried by the main frame, and having on its rear side lugs or retaining means, which engage on and hold it from vertical movement in the frame, and a clamping-bolt threaded in the upper end of the clamping-plate to clamp the bit against the fixed bearing-plate, substantially as set forth.

3. The combination of the stock provided on one side with a flange, a^4, and on its other side with the immovable cheek a^3, having in its inner face a guide-channel formed on the arc of a circle, a removable cheek, a^2, having its lower edge loosely jointed with and secured to the flange a^4, so that its top portion may be slightly inclined inward, and having in its inner face a guide-channel formed in the arc of a circle parallel with and corresponding to the guide-channel in the inner face of the immovable cheek, a sliding bit-carrying frame having curved end guides, d^2, fitted into the guide-channel in the cheeks, and a stationary clamping-bolt passed through the cheeks midway the lower and upper edges thereof, substantially as and for the purposes set forth.

4. The bench plane and scraper hereinbefore described, composed of the base-plate, the two jaws, one of which is movable, having formed therein curved guide-channels having their ends approximately at the lower edges of the cheeks, a bit-carrying frame having its edges fitted into the guide-channels and adjustable longitudinally from one end to the other thereof, whereby it may be set to carry a plane-bit or a scraper-bit and a clamping device, substantially as set forth.

315,015. CAR-COUPLING. WILLIAM DUNN, New York, N.Y., assignor to Calvin B. McQuesten, same place. Filed Feb. 27, 1885. (No model.)



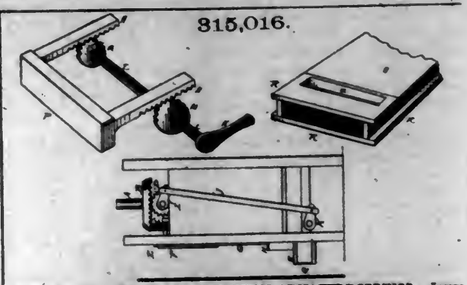
Claim.—1. The combination, in a car-coupler, of a hook for engaging the connecting-link, and a pivot for fastening said hook to the draw-head, which consists of a crank-pin that is flat-sided in the middle to fit into an angular hole in the hook, and has circular bearings in the draw-head, one of which is larger and one smaller than the said flat-sided part, as and for the purpose set forth.

2. In combination, the draw-head A, the hook B, having hole D, and the crank-pin E F, having the circular bearings G H and the flat-sided part I, for the purpose described.

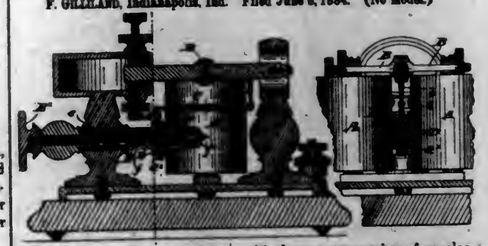
315,016. TILE-MAKING ATTACHMENT FOR BRICK-MACHINES. J. B. FOSTER, Zurich, Ontario, Canada. Filed Sept. 12, 1884. (No model.)

Claim.—A tile-forming attachment, in combination with a brick-making machine, consisting of driving bar or rod J, crank K, shaft L, cogged disks M, toothed racks N, and block P, acting in conjunction with the other parts of machine, and operated thereby for the purpose of pushing forward the clay into tile-molds and expelling the same, substantially as shown and specified.

315,016.



315,017. MEANS FOR ADJUSTING ARMATURE-SPRINGS. JAMES F. GILLILAND, Indianapolis, Ind. Filed June 6, 1884. (No model.)

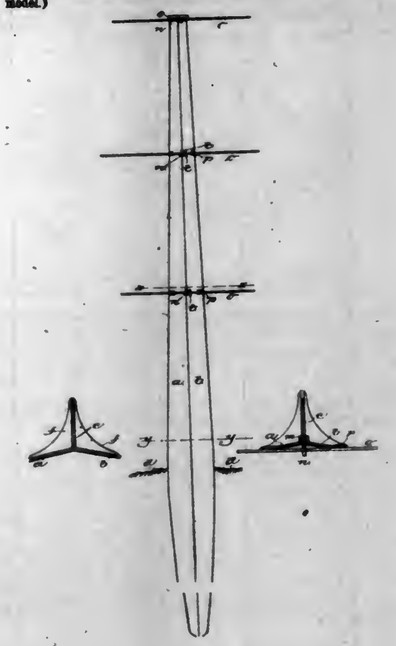


Claim.—1. The combination, with the armature-spring of an electro-magnet, of an adjusting device consisting of a rod, a nut adapted to slide thereon, and a screw adapted to operate said nut, said nut being connected to said spring; substantially as set forth.

2. The combination of the armature-spring, the hollow rod, the nut mounted and adapted to slide thereon, the screw within said rod and adapted to operate said nut, and an arm or projection on said nut to which said spring is connected, substantially as set forth.

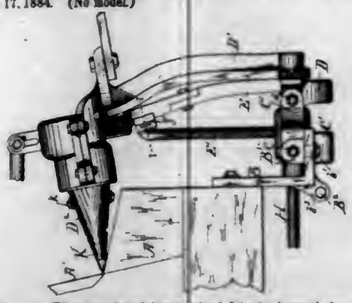
3. The combination of the armature-spring, the hollow rod having a slot in one side, the nut D, consisting of two parts, one within and the other without said rod, connected by a screw or pin passing through said slot, a screw mounted in the frame-work of the instrument and passing within said rod into the inner portion of said nut, and a connection between the outer portion of said nut and said spring, substantially as set forth.

315,018. FENCE-POST. LOUIS GODDU, Winchester, Mass., assignor to the Goddu Improvement Company of Maine. Filed Apr. 4, 1883. (No model.)



Claim.—The improved metal post for wire fences, having a body composed of the webs *a*, *b*, and *c*, radiating from a common line of junction in different planes, the edges of two of them, as *a* and *b*, provided at opposite points with notches *p*, with hooks *n* between and in line with said notches held in the thickened portions *m*, and holes *t* at the side of said hooks, all as shown and described.

315,019. NAIL-PLATE FEEDER. JOHN C. GOULD, Chicago, Ill. Filed May 17, 1884. (No model.)



Claim.—1. The barrel and its standard D', the latter being adjustable along a circling line, as specified, and both barrel and standard swinging to and from the knives, in combination with the saddle upon which the standard is supported, substantially as described.

2. In a nail-plate feeder, the combination of the barrel, the standard D', and foot D, the standard being adjustably secured upon the foot, substantially as specified.

3. In a nail-plate feeder, the combination of the pivoted saddle, the foot pivoted in the saddle, the standard D', adjustable upon the foot, and the barrel and its operating-segment supported upon the standard, all combined and operating substantially as specified.

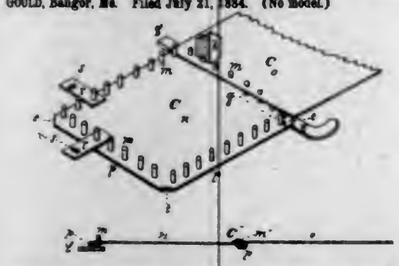
4. The combination, in a nail-plate feeder, of the foot D, the standard D', with the flaring head, pivotal pin H², the ball H', and the segment E, substantially as specified.

5. The combination, in a nail-plate feeder, of the saddle and the parts borne thereby, with the L-brackets, and the adjustable pivot-blocks supported on such brackets, substantially as specified.

6. The combination, in a nail-plate feeder, of the vibrating segment for operating the barrel and its actuating-arm, the latter being connected to the segment at the point and in the manner shown.

7. In a nail-plate feeder, the barrel and its nose, in combination with the springs, the barrel being recessed to receive the rear ends of the springs, substantially as specified.

315,020. METHOD OF RIVETING SHEETS OF METAL. JOSHUA P. GOULD, Bangor, Me. Filed July 21, 1884. (No model.)



Claim.—1. The method of preparing a thin sheet of metal for being riveted to another, consisting of perforating one or more of its edges with rivet-holes, supplying the rivet-holes with rivets, and soldering the rivets to the sheet sufficiently to hold the rivets in place while being transported.

2. The method of riveting together thin sheets of metal, consisting of preparing a thin sheet, *n*, of metal for being riveted to another by perforating one or more of its edges with rivet-holes, supplying the rivet-holes with rivets, and securing the rivets in position in the rivet-holes in any suitable or convenient manner, placing a second sheet of metal, *o*, so that one of its edges shall overlap the rivets on one edge of the sheet *n*, and forcing the rivets through the overlapping sheet *o* by the impact under the hammer of a piece of soft wood or any suitable penetrable material placed on the sheet *o* and over the rivet to be forced through said sheet, a thin piece of iron being slipped under the joints to support the rivets while being forced through the overlapping sheet *o* and headed down, all as shown and described, and substantially as and for the purpose specified.

315,021. DECORATION OF POTTERY-WARE. CHARLES GRAHAM, Brooklyn, N. Y. Filed Aug. 23, 1884. (Model.)

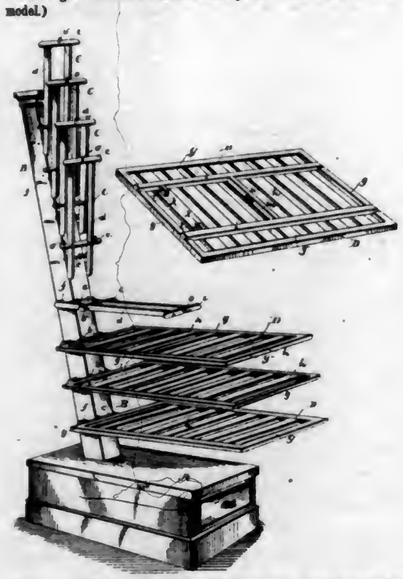


Claim.—1. The method described of decorating ceramic ware by coating with a glaze presenting a different color or shade from the body, and etching through the said glaze at points or lines so as to expose the ground in contrast therewith, thereby presenting ornamental or distinguishing figures, substantially as herein specified.

2. The method described of decorating cylindrical and analogous surfaces of pottery by printing the desired figures, with ground adapted to resist the action of acid, transferring the same by paper or analogous flexible material to the surfaces previously glazed, filling by hand between the lines if necessary, and then exposing to acid until the glazing is bitten through at the exposed points, substantially as herein specified.

3. Ceramic ware having a body and glazing of different tints or shades with the glazing removed in ornamental or distinguishing figures, so as to present a body in contrast therewith, as herein specified.

315,022. PRINTER'S DRYING-RACK. HENRY F. GRAY, Columbus, Ohio, assignor to Lewis T. Strader, same place. Filed June 19, 1884. (No model.)



Claim.—1. The combination, with a base and a post secured thereto, of a frame hinged to the post with the ends thereof extending rearwardly along the sides of the post and constructed to be tilted upwardly and moved laterally, whereby one of the rearwardly-projecting ends of said frame is brought in front of the post for the purpose of holding the frame in elevated or closed positions, substantially as set forth.

2. The combination, with a post secured to a suitable base, of frames pivotally secured at suitable intervals apart to the post with the ends thereof extending rearwardly along the sides of the post, the pivotal connections or hinges for securing the frames to the post being constructed to permit the frames to be moved laterally when in their elevated position, whereby one of the rearwardly-projecting ends of each frame is brought in front of the post for the purpose of holding the frames in elevated or closed positions, substantially as set forth.

3. The combination, with an inclined post secured to a base, of frames, hinges pivotally securing the frames to the post and constructed to permit the frames when in their elevated position to be moved laterally and retained in that adjustment, said frames being provided with pins or projections on their end beams, and trays fitting on said frames and provided with perforations adapted to receive the said pins or projections, substantially as set forth.

4. The combination, with a base, the post secured thereto and provided with the laterally-projecting pins, and the laterally-movable frames

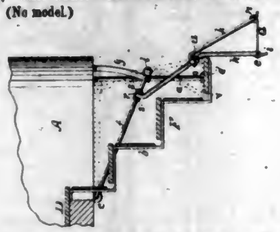
pivotally secured to the post and having rearwardly-projecting ends, of the trays removably secured to the frames, all of the above parts combined and operating substantially as set forth.

315,023. RUBBER TUBE FOR SYRINGES, &c. JOHN W. GRAY, Hartford, Conn. Filed Dec. 30, 1884. (No model.)



Claim.—A rubber tube, A, for syringes or similar uses, having its walls made of increasing or varying thickness toward the point where it is attached, substantially as shown and described.

315,024. CAR-STEP. GEO. C. HADLEY, Mumford, N. Y. Filed Feb. 11, 1885. (No model.)



Claim.—1. In combination with the steps of a railway-coach, the supporting-rods *f f* and guides *g g*, secured to the coach, the adjustable step G, with suspenders *h h*, and braces *k k*, for supporting said step, substantially as shown and described.

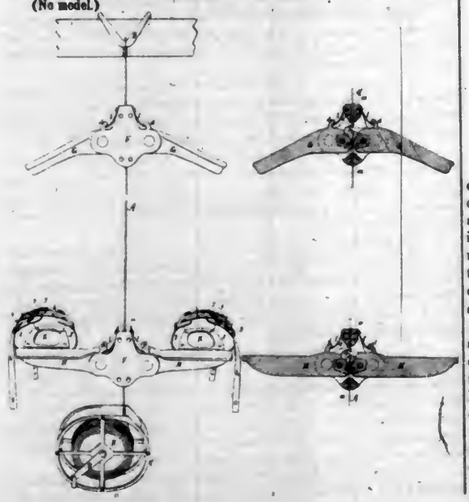
2. In combination with the adjustable step G of a railway-coach, the suspension-rods *h h*, each connected by a movable joint with said step, and the braces *k k*, attached by movable connections with the step, the said braces being connected at their upper ends with the suspension-rods *h h* by sliding loops or joints *o*, substantially as and for the purpose set forth.

3. In combination with the fixed step d^2 of a flight of steps of a railway-coach, the suspension-rods *h h* and braces *k k*, for supporting the adjustable step G, the said suspension-rods being provided at their lower ends with the downward-projecting points or studs *i i*, substantially as and for the purpose set forth.

4. In combination with the fixed steps of a railway-coach and the adjustable step G therefor, the lever-rods *f f*, guides *g g*, suspension-rods *h h*, and braces *k k*, the rods *h h* being connected with the lever-rods by movable joints at points within the guides, substantially as shown.

5. The combination, in car-steps, of the suspension-rods *h h*, braces *k k*, and step G, the said rods and braces being joined to the step by movable joints, the braces connected with the rods by sliding loops *o o* and burrs *u u* on the rods to form stops for the braces to rest against, substantially as described.

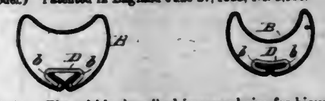
315,025. FIRE-ESCAPE. GEORGE M. HEATH, Rockingham, Vt., assignor, by mesne assignments, to said Heath, and Joseph Josiah Barnes and Laurentius F. Barnes, both of Westminster, Vt. Filed Nov. 24, 1884. (No model.)



Claim.—1. The fire-escape, substantially as described, consisting of the wire, its duplex hook, the two boxes or carriers, and the two sets of jawed levers and their springs, the lower pair of said levers having means of applying or fastening the feet of a person to their longer arms, so as to enable him to move said arms either upward or downward by his feet, all being essentially and to operate as and for the purpose set forth.

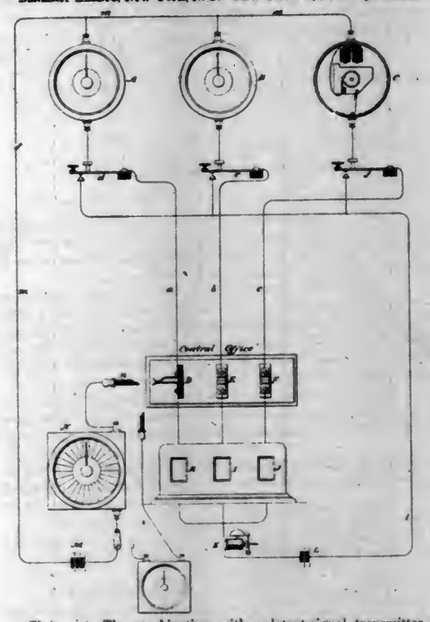
2. The combination of the coiling-box and its drum, and the crank for revolving the latter with the fire-escape, substantially as described, consisting of the wire, its duplex hook, the two boxes or carriers, and the two pairs of jawed levers and their springs, the lower pair having means of securing the feet of a person to their longer arms, so as to enable him to move them either upward or downward by his feet, all being essentially as represented.

315,026. RIM FOR VELOCIPEDE-WHEELS. RICHARD HEELEY, Birmingham, County of Warwick, England. Filed Aug. 22, 1884. (No model.) Patented in England June 27, 1883, No. 3,189.



Claim.—The within-described improved rim for bicycles, tricycles, and other vehicles, consisting of a sheet-metal rim, B, having inwardly-turned lips *b b*, and a binding-strip, D, having inverted wings, the two being combined by pressure to form, substantially as shown and described, an internal joint.

315,027. ELECTRIC SIGNALING APPARATUS AND CIRCUIT. FRANCIS BENEDICT HERRON, New York, N. Y. Filed Nov. 20, 1884. (No model.)



Claim.—1. The combination, with a latent-signal transmitter located at a sending-station and in direct circuit-connection with the receiving-station, and apparatus to release and respond to said transmitter at a receiving-station, of a calling apparatus at the sending-station, an instrument to respond thereto at the receiving-station, and circuit-connections, substantially as described, whereby the call denoting that the transmitter has been set and is ready to be released can be sent in without releasing or affecting said transmitter, substantially as hereinbefore set forth.

2. The combination, with a latent-signal transmitter at a sending-station and apparatus to release and respond to said transmitter at a receiving-station, of a calling apparatus at the sending-station, and at the receiving-station a call-receiver which continues to indicate that a call has been received after the calling apparatus at the sending-station has ceased to operate, and circuit-connections, substantially as described, whereby the call denoting that the transmitter has been set and is ready to be released can be sent in without releasing or affecting said transmitter, substantially as hereinbefore set forth.

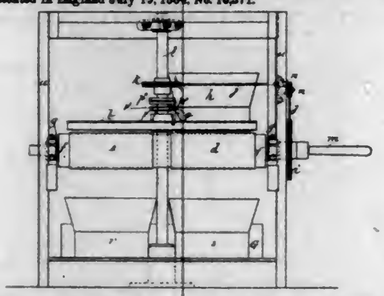
3. The combination, with a latent-signal transmitter at a sending-

station and apparatus to release and respond to said transmitter at a receiving-station, of a calling apparatus at the sending-station, an instrument to respond thereto at the receiving-station, and two circuits, in one of which are the latent-signal transmitter and the releasing and responding apparatus, and in the other of which are the call-operating and call-receiving apparatus, substantially as and for the purpose described.

4. The combination of a latent-signal transmitter and a calling key or device at a sending-station, apparatus to release and respond to said latent-signal transmitter, and an instrument to respond to the said call at a receiving-station, a wire leading from the receiving to the sending station, two return-wires, and circuit-changers whereby the circuit can be completed through one or the other of the return-wires at will, according as it is desired to bring into action the latent-signal transmitter at the one station or the call-responding instrument at the other station, substantially as hereinbefore set forth.

5. Two or more latent-signal transmitters placed in separate rooms or sub-stations and connected by separate circuits with the central station or office, a battery and circuit-connections at the central office for releasing any of the transmitters, as desired, and two signal-receiving instruments combined with a switch at the central office and connected so that either receiving-instrument may be introduced into any of the separate circuits so as to receive the signal at pleasure, substantially as described.

315,028. MAGNETIC SEPARATOR. CHARLES F. HILDER and ERNEST SCOTT, Newcastle-upon-Tyne, England. Filed Nov. 26, 1884. (No model.) Patented in England July 19, 1884, No. 10,371.

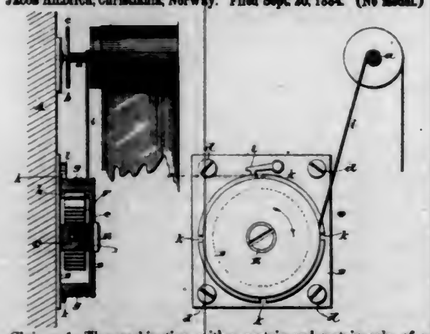


Claim.—1. In combination with a feed-belt and a discharge-belt traveling side by side, a series of magnets which rotate over said belts, and devices which free the particles of iron from said magnets as the latter pass above said discharge-belt, as set forth.

2. In combination with a feed-belt and a discharge-belt arranged in proximity to one another, a series of electro-magnets rotating above said belts, and circuit closing and breaking devices whereby said magnets are caused to pick up the particles of iron as they pass above the feed-belt and to drop the said particles as they pass over the discharge-belt, substantially as set forth.

3. The combination of the disk *b*, carrying the magnets *c*, with contact making and breaking devices, and the belts *d e*, which are moved simultaneously with the rotation of said disk, substantially as set forth.

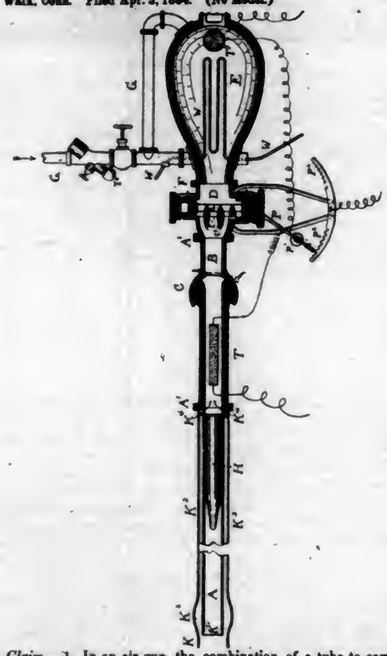
315,029. SELF-ACTING MECHANISM FOR SHADES AND BLINDS. JACOB HILDITCH, Christiania, Norway. Filed Sept. 20, 1884. (No model.)



Claim.—1. The combination, with a curtain and curtain-pole, of a spring-actuated roller journaled on a stud secured to the window-frame, and provided with a notched periphery, a pawl for engaging the notched periphery of the roller, and a cord connecting the roller and curtain-pole.

2. The combination, with a plate secured to the window-frame and provided with a stud, of a pulley provided with an inwardly-extending collar fitting on said stud, and having its periphery grooved, a screw fitting in said stud and against the pulley, a spring secured to the pulley and plate, a curtain-pole, a cord connecting the latter with the pulley, and a pawl secured to the plate and engaging the notches formed in the pulley, substantially as set forth.

315,030. PNEUMATIC ORDNANCE. EBENEZER HILL, South Norwalk, Conn. Filed Apr. 3, 1884. (No model.)



Claim.—1. In an air-gun, the combination of a tube to carry and guide the projectile, a chamber for a heating cartridge back of the projectile-tube, a magazine for holding air previous to the discharge of the gun, and a discharge-regulating valve intermediate of said magazine and cartridge-heating chamber, substantially as described.

2. In an air-gun, the combination, with an air-magazine and discharge-regulating valve, of a universal-jointed heating cartridge-chamber forward of said discharge-regulating valve, and a projectile-carrying chamber connected to said universal-jointed chamber, substantially as described.

3. The combination, with the barrel of a gun, of a nozzle surrounding the muzzle of the barrel to form a space around it, said nozzle being expanded to form an enlargement about the end of the barrel and extended forward of the muzzle, substantially as described.

4. The combination, with the barrel of a gun, of a nozzle around the muzzle of the barrel, said nozzle having a tubular connection with the interior of the gun at a point back of the projectile-space in the barrel, substantially as described.

5. The combination, with the barrel of a gun, of a nozzle around the muzzle of the barrel, said nozzle extending forward of the muzzle, and having a tubular connection with the interior of the gun at a point back of the projectile-space therein, substantially as described.

6. The combination, with the barrel and an air-magazine of an air-gun, of a discharge-valve intermediate of said barrel and magazine, and pistons of different areas connected with said valve on opposite sides thereof, and operating the same by pressure from the air-magazine, substantially as described.

7. The combination, with the discharging-tube and air-magazine of an air-gun, of a discharge-valve intermediate of said tube and magazine, pistons of different areas working in corresponding chambers and connected with said valve, one of said pistons being formed with an air-duct for the passage of air from the magazine to the chamber of said piston, substantially as described.

8. The combination, with the discharging-tube and air-magazine of an air-gun, of a discharge-valve intermediate of said tube and magazine, differential pistons working in corresponding chambers and connected to said valve, an air-duct in one of said pistons for the passage of air from the magazine into the chamber of said piston, cushioning-plates back of said pistons, and ducts for the passage of air from the air-magazine to the back of said plates to act thereon, substantially as described.

9. The combination, with the discharging-tube and air-magazine of an air-gun, of a discharge-valve controlling the passage of air from the

magazine to the discharge-tube, differential pistons connected with said valve working in corresponding chambers by pressure from the air-magazine, and a discharge-valve in the chamber of one of the pistons, operating, after being moved in one direction, to automatically return, substantially as described.

10. The combination, with the discharging-tube and air-magazine of an air-gun, of a discharge-valve, differential pistons connected with said valve and actuated in their chambers by air-pressure, an outlet-valve to the chamber of one piston, and a pendulum or equivalent mechanism for operating said outlet-valve, substantially as described.

11. The discharge-valve provided with numerous openings and bars at right angles to the axes of the differential pistons, and with corresponding openings and bars in the seat located in the breech of the gun, as and for the purposes hereinbefore set forth.

12. The combination, with the air-magazine and projectile-tube of an air-gun, of one or more chambers containing cartridges that generate heat when fired, and means connected with said cartridges for firing the same simultaneously with the discharge of the gun, substantially as described.

13. The combination, with the projectile-tube and air-magazine of an air-gun, of a superheater in the air-magazine to increase the expansive force of the air, substantially as described.

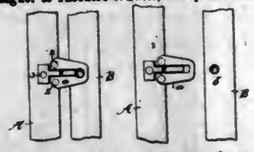
14. In an air-gun, the combination, with the barrel, discharge-regulating valve, air-magazine, and a pipe for connecting the magazine with an air-reservoir, of a check-valve in said connecting-pipe operating to cut off communication between said reservoir and magazine upon a sudden increase of pressure occasioned by a break in said pipe, substantially as described.

15. The combination, with the barrel, discharge-regulating valve, and air-magazine of an air-gun, and an air-supply conduit to connect the magazine with an air-reservoir, of a valve, X^3, arranged in the said air-supply conduit, a spring, Y, acting on the stem of said valve, and a hood, X', over said valve, substantially as described.

16. The combination, with the barrel, discharge-regulating valve, and air-magazine of an air-gun, and an air-supply conduit to connect the magazine with a reservoir, of a spring-actuated valve, X^3, arranged in the said air-supply conduit, and a relief-valve, Z, located substantially as described, to give a pressure back of the valve X^3, substantially as specified.

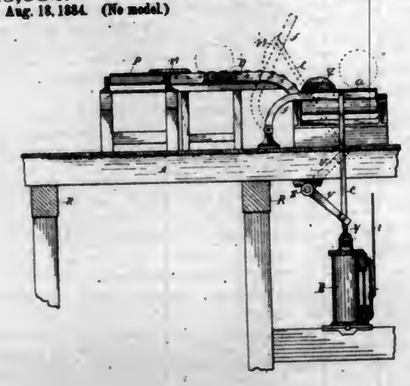
17. The combination, with the barrel, discharge-regulating valve, and air-magazine of an air-gun, and an air-supply conduit to connect the same with an air-reservoir, of a valve, X^4, arranged in the said air-supply conduit, a spring, Y, acting on the stem of said valve, a hood, X', over said valve, and a relief-valve, Z, to give a pressure back of said valve, substantially as described.

315,031. FASTENING FOR CORSETS. LUCIAN HILL, North Brookfield, Mass., assignor to Theodore C. Bates, same place. Filed Feb. 2, 1885. (No model.)

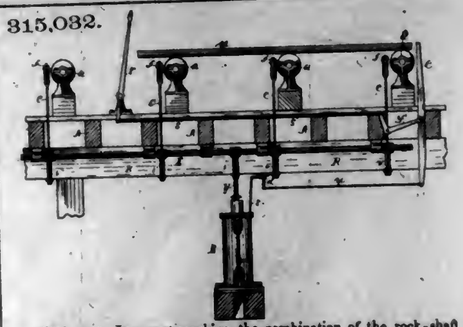


Claim.—As an improvement in corset-steels, the part A, provided with a plate having a slot of a size to readily admit the entrance of a headed stud therein, and provided with a spring-tongue projecting into the said slot to confine the stud in the slot, the said spring-tongue being free to be moved out of the said slot from both sides of the said plate, as and for the purpose set forth.

315,032. LOG-TURNER. WILLIAM R. HILL, Kalamazoo, Mich. Filed Aug. 18, 1884. (No model.)



315,032.

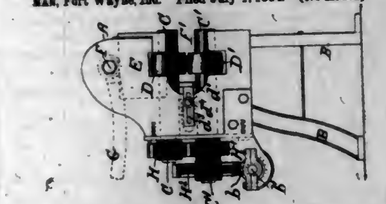


Claim.—1. In a cant-machine, the combination of the rock-shaft provided with an arm for pivotal connection with the engine-piston and with arms for connection with the cant-levers, cant-levers pivoted at one end, and bars pivotally connecting the arms of the rock-shaft with the free ends of the cant-levers, substantially as set forth.

2. The combination of the engine, cant lever or levers, a suitable lumber-transfer device, and a centrally-pivoted throttle-lever having one end extended beyond the plane of the transfer device and the other end pivotally connected by suitable means with the engine-throttle, for the object stated, all substantially as set forth.

3. The combination of the engine, cant lever or levers, a suitable lumber-transfer device, a throttle-lever centrally pivoted to a bell-crank and having one end extended beyond the plane of the transfer device, suitable means pivotally connecting the other end with the engine-throttle, a pivoted hand-lever, and a rod pivotally connecting said hand-lever and bell-crank, all substantially as set forth.

315,033. SAW-STRAIGHTENING MACHINE. ANDREW E. HOFFMAN, Fort Wayne, Ind. Filed July 1, 1884. (No model.)



Claim.—1. In a saw straightening and stretching machine, the combination, with a cam-shaft, of an adjustable bearing-block, an adjustable shaft, a companion shaft located underneath said adjustable shaft, both shafts being provided with beveled rolls adapted to have frictional contact with each other, and the means inserted between said shafts whereby the upper or adjustable shaft is automatically returned to a normal position when released from the pressure of the cam-shaft, substantially as and for the purpose set forth.

2. A saw straightening and stretching machine having the opening F' between the shafts C C', whereby a hand or endless saw may be inserted between the rolls D D', substantially as set forth.

3. In a saw straightening and stretching machine, the combination, with the shafts C C', of the beveled rolls D D', the spur-wheels H H', the worm-wheel H^3, the worm *b*, and the driving-shaft *b'*, substantially as set forth.

4. The combination, with the shafts C C' and the rolls D D', of the adjustable guides d' d^2, substantially as and for the purpose set forth.

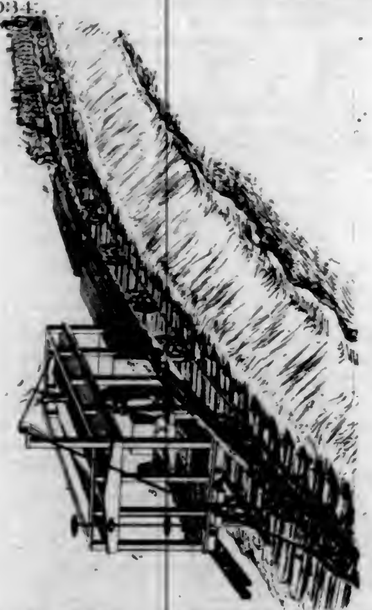
315,034. RAILWAY-TRACK LAYER. DANIEL F. HOLMAN, Chicago, Ill. Filed Sept. 29, 1883. (No model.)

Brief.—Provides a continuous sectional and jointed tramway supported at the sides and above the level of the car-platforms. The ends of the sections are located at the middle of the sides of the cars, and are united by a hinge having a yielding connection. The tramway rests on brackets vertically adjustable in a socket-piece resting in pockets on the sides of the car. Said brackets have anti-friction rollers. Similar brackets are connected by a stake end driven under the load in the car. A platform is suspended by hangers in front of the car-door.

Claim.—1. In a railway-track layer, a continuous jointed tramway supported on a plane above the level of the car-platform and composed of a series of sections connected together at their meeting ends by means of hinges attached to the tramway-sections, substantially as described, and for the purpose set forth.

2. In a track-layer, a continuous sectional and jointed tramway having the ends of its sections maintained at or about the middle portions of the sides of the cars, substantially as described.

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3. In a railway-track layer, a continuous sectional and jointed tramway arranged above the level of the car-platform and having the ends of its sections meeting at points substantially over the middle portions of the side of the car, substantially as and for the purpose described.

4. The combination, with a bracket for supporting the tramway of a track-layer, of a socket-piece constructed to receive the leg of the bracket and adapted to fit in a pocket on the side of a car, substantially as described.

5. The bracket E, adapted to support a tramway, and provided with rollers upon its portion on which the tramway is supported, substantially as described.

6. The combination, in a track-layer, of the elevated tramway with a vertically-adjustable bracket, E, provided with anti-friction rollers upon which the tramway rests, and with anti-friction rollers constituting bearings for the sides of the tramway, substantially as described.

7. The combination, with a sectional tramway for track-layers, of a hinge connecting two meeting ends of the sections and having a yielding connection with one of said sections, substantially as described.

8. In a railway-track layer in which a tramway is supported alongside of a train of platform-cars, the combination, with a box-car, made up with the train, of a stake provided with anti-friction rollers for supporting the tramway at a point opposite the box-car and adapted to be driven under the load in said box-car, and a chain connecting the stake with the car, substantially as described.

9. The combination, with a box-car, of the platform supported by means of hangers in front of the car-door, substantially as and for the purpose described.

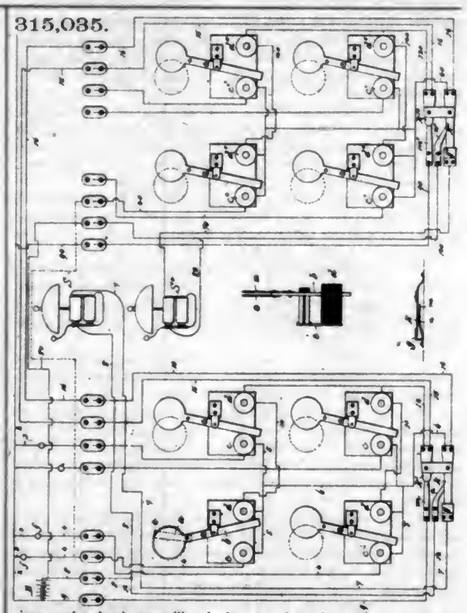
315,035. MEANS FOR RESETTING ANNUNCIATOR-DROPS. C. W. HOLTZER, Brookline, Mass. Filed May 19, 1884. (No model.)

Brief.—All the resetting-magnets are in multiple series, and are controlled by the same key and the same battery, so that all the annunciator-drops are reset by a single depression of the key.

Claim.—1. An annunciator consisting of a series of indicating-instruments, each comprising a pivoted magnetized bar and two electro-magnets by which the said bar is moved in opposite directions on its pivot, combined with a series of normally-open independent branch circuits, one passing through one of the magnets of each instrument, and a series of branch circuits connected together in multiple arc, and each passing through the coils of the other magnets of a series of the said instruments and circuit-controlling devices, whereby an electric current is caused to traverse the said circuits, substantially as described.

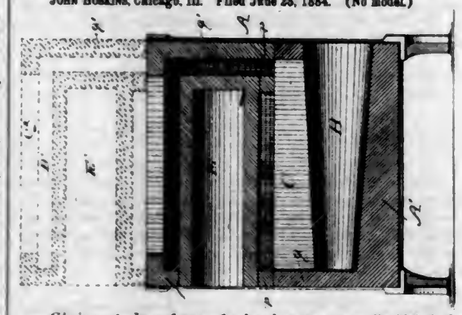
2. An annunciator having sections located at different points, each section composed of a series of indicating-instruments, each comprising a pivoted magnetized bar and two electro-magnets to act on opposite sides thereof, combined with a series of independent normally-open branch circuits, each including the coil of one of the magnets of the said indicating-instruments, and a series of branch circuits connected together in multiple arc, each including the coils of the other magnets of a series of the said instruments, the said branches including different sections of the annunciator, and a circuit-controlling device at each section of the annunciator, whereby a current is applied to the said connected branches and energizes the magnets in circuit therewith at all the sections of the annunciator, substantially as described.

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3. In an annunciator, an indicating-instrument composed of a pivoted magnetized bar provided with a visual signal and electro-magnets to act in opposite sides of the said bar, combined with a counter-balance pivotally connected with the said bar and frictionally held in adjusted position thereon, substantially as described.

315,036. MUFFLE-FURNACE FOR ASSAYING AND ANNEALING. JOHN HOSKINS, Chicago, Ill. Filed June 28, 1884. (No model.)



Claim.—1. In a furnace for burning gaseous or liquid fuel, the combination of a muffle-chamber, D, having an opening, C', and a combustion-chamber, B, provided with an opening leading into it, and with a passage, C, connecting it with the muffle-chamber, and wholly and permanently inclosed elsewhere, substantially as described, and for the purpose set forth.

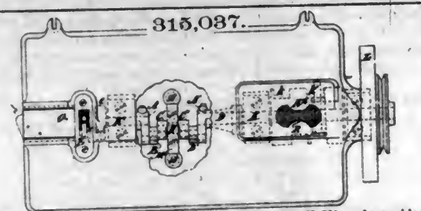
2. In a furnace, the combination of an inwardly-tapering combustion-chamber, B, oven or muffle-chamber D, having an opening, C', and passage C, connecting the muffle-chamber and combustion-chamber, substantially as described, and for the purpose set forth.

3. In a furnace, the combination, with a combustion-chamber, B, oven or muffle-chamber D, having an opening, C', and passage C, connecting the muffle-chamber and combustion-chamber, of one or more ovens or muffle-chambers, D', each having an opening, C², as and for the purpose set forth.

315,037. SEWING-MACHINE. AUGUSTE J. HURTU, Paris, France. Filed Oct. 2, 1883. (Model.)

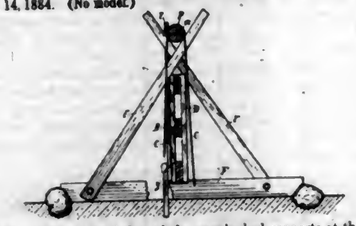
Claim.—In a sewing-machine, the combination, with a reciprocating needle, of a fixed spool or shuttle, N, a driving-shaft, K, provided with a crank, A', a shaft, K', provided with a crank, A, a hook on said

315,037.



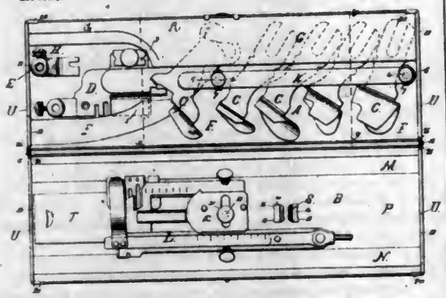
shaft, a shaft, H, arranged eccentrically to the shafts K K', and provided with cranks C C', the connecting-rod B', pivotally connected to the crank A' of the shaft K and the crank C' of the shaft H, and the connecting-rod B, pivotally connected to the crank A of the shaft K' and the crank C of the shaft H, substantially as specified.

315,038. PORTABLE FENCE. GEORGE H. IVES, Martin, Mich. Filed Aug. 14, 1884. (No model.)



Claim.—A fence consisting of the panels, bed-supports at the ends thereof, stakes pivoted at their lower ends to the ends of the bed-supports and crossed over the panels, the rider-sections having the gains in the engaging surfaces of their lapped ends, the lock-pins in said gains, and the binders attached to the bed-supports and passed over the lapped ends of the rider-sections, substantially as set forth.

315,039. BOX OR CASE FOR SEWING-MACHINE ATTACHMENTS. ALLEN JOHNSTON, Ottumwa, Iowa. Filed Jan. 17, 1885. (No model.)



Claim.—1. In a box or case, a support to hold a series of attachments having flat shanks, said support being provided with a narrow and deep groove to receive said shanks, and having a flat bearing-surface to support the attachment outside of the groove, substantially as described.

2. The hemmer-support composed of face-pieces, one having an inclined flat top, and the other provided with a narrow and deep groove the bottom of which forms a continuation of said top, substantially as described.

3. The support to the lower part or bottom of the box, provided with a groove and bearing outside said groove for retaining the hemmers or folding-guides in place, and a deep space or well to contain the ruffler, substantially as described.

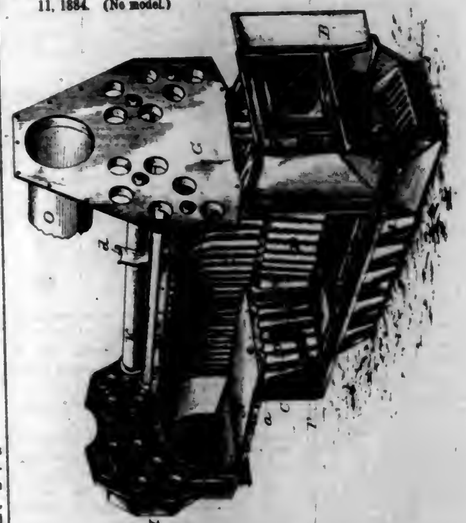
4. The support in the upper part or lid of the box, provided with a space to receive a tuck-marker, and also with a retaining post or pin set in the middle of said space perpendicularly to the top of said upper part or lid, and adapted to pass through a slot, for upholding the tuck-marker when the said lid is closed, substantially as described.

5. The two-part hinged box having the support in the lower part provided with a groove, and a bearing outside the groove for retaining the hemmers or folding-guides in place, and with a well or space for the ruffler, and the support in the upper part provided with a space for a tuck-marker and a retaining post or pin for securing it in place, substantially as described.

6. In combination with the support for the hemmers or folding-guides, the bar and the screw pins and nuts for holding the bar in place, so that the shanks of said hemmers or guides can be inserted under the same, substantially as described.

7. A pin provided with a pronged disk for attaching the same to its support, substantially as described.

315,040. HOT-AIR FURNACE. OTIS JONES, Chicago, Ill. Filed Sept. 11, 1884. (No model.)

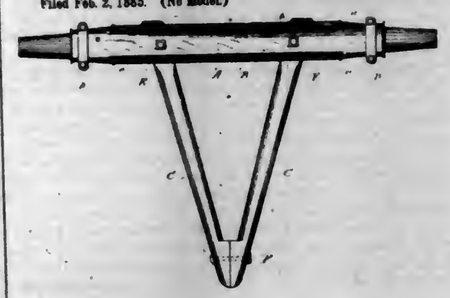




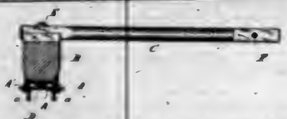
Claim.—1. The combination, in a hot-air furnace, of the fire-box C, the fire-plate D' at the rear thereof, with an air-space between it and the wall of the fire-box, and pipes P, arranged to introduce air into the same, with the elevated combustion-chamber N, having its bottom plate, e, arranged to project over the mouth of the air-space, substantially as shown and described, whereby a current of air is mingled with the gases as they enter the combustion-chamber, and the ashes and soot drawn from said chamber are prevented from entering the air-space, as set forth.

2. The combination, in a heating-furnace, of a fire box or body, C, and a series of horizontal tubes, H, arranged above the body, with the plates *b c*, constructed substantially as shown and described, whereby they are adapted to support the tubes, as set forth.

315,041. VEHICLE-AXLE. PATRICK D. KEARNEY, South Bend, Ind. Filed Feb. 2, 1885. (No model.)

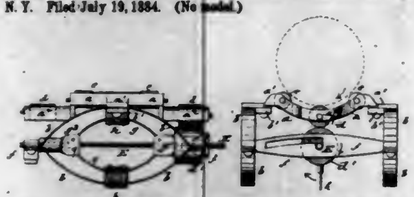


315,041.



Claim.—An axle-truss composed of a single piece of thin metal bent so as to approximate the shape of an inverted letter U, and having the lower cross-section of the flanges thereof nearly of oval shape, as described, and for the purposes set forth.

315,042. CAR-AXLE LUBRICATOR. FRANK J. LEIBMAN, New York, N. Y. Filed July 19, 1884. (No model.)



Claim.—1. A lubricating attachment for car-axle boxes, consisting of a spring-supported frame, contact-rollers supported by said frame, a transmitting-roller below one of said contact-rollers, a spindle keyed to said transmitting-roller and supported vertically below the center of the axle, and flexible wipers applied by spring-wires to said spindle and adapted to rotate in opposite direction to the journal and form contact therewith, substantially as set forth.

2. The combination of a supporting-frame, *a*, elliptical springs *b b* for cushioning said frame, central rollers, *d d*, side rollers, *e e*, a longitudinal spindle, E, parallel to the axis of the axle, a friction-roller, *d'*, on said spindle forming contact with one of the center rollers, and wipers A A, applied by spring-wires *g g* to said spindle, substantially as set forth.

3. The combination of cushioning-springs, transverse brace-pieces connecting the ends of the springs, transverse frame supported on said springs, central and side rollers supported in bearings of said frame, a transmitting-roller below one of the central rollers, a spindle turning in bearings of the transverse brace-pieces, spring-wires attached to the said spindle, and flexible wipers attached to the spring-wires, substantially as set forth.

4. The combination, with the supporting-frame, elliptical cushioning-springs, central rollers on said frame, side guide-rollers, a longitudinal spindle supported in bearings of transverse brace-pieces, a friction-roller in contact with one of the central rollers, and wipers attached by spring-wires to the spindle, said spindle being swiveled at one end to the transverse rear brace-piece and guided in a slot of the transverse front brace, so as to be moved sidewise when the springs are compressed for inserting or removing the attachment, substantially as set forth.

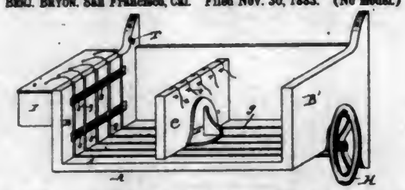
5. The combination of supporting-springs having transverse end braces, a spindle supported in bearings of said braces, friction-rollers for imparting rotary motion to the spindle, spring-wires attached at one end to a fixed sleeve and at the other end to a sliding sleeve of the spindle, and wipers attached to said spring-wires, said wipers following the motion of the supporting-springs, substantially as set forth.

315,043. ART OF KNITTING STOCKINGS. HARRY LENNARD, Dundas, Ontario, Canada. Filed Jan. 25, 1884. (Model.) Patented in Canada Feb. 7, 1884, No. 18,634.



Claim.—The improvement in the art of knitting stockings which consists in knitting a tubular web to the desired length for the leg and foot portions in any well-known way, then severing the stitches of the web where the heel is to be formed a suitable distance, then running on the loops of the upper portion of the severed part about three rows of stitches above the severed edge onto the needles, then knitting about eight rows of loops the whole width of the half of the heel, then narrowing one stitch or loop at each side every two courses, continuing this operation until the desired form of the upper half of the stocking-heel is formed, then drawing off the remaining loops from the needles, then running on the loops of the lower portion of the severed part again about three rows of loops from the edge, as in the preceding case, and repeating the same work so as to obtain the same form for the lower half of the heel as already described for the upper half, then again drawing off the loops from the needles, then raveling off the three rows of loops that were left on above where the severed loops were picked onto the needles until the union of the heel parts with the leg and foot portions is left perfect, then uniting the selvage edges and the looped ends of the heel parts, and knitting the toe in any well-known way, substantially as described.

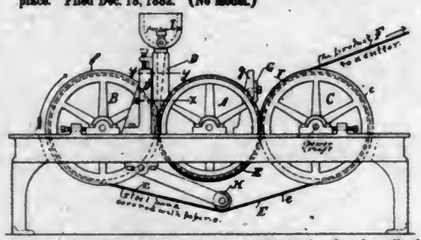
315,044. PACKAGE-COMPRESSOR. GEO. W. LUCK, GEO. BOOLE, and BENJ. BRYON, San Francisco, Cal. Filed Nov. 30, 1883. (No model.)



Claim.—1. A package-compressor consisting of the bed A and fixed head B, with grooves *g* extending down the head and over the bed, transverse grooves *s s* in the head having the cord-holders *s' s'* therein, and the movable follower C, nut E, and screw D, substantially as set forth.

2. A package-compressor consisting of the fixed head B, having the cord-holder I secured upon it, the bed A, the movable follower C therein, said follower being provided with the cord-hooks *t t* on the back thereof, the nut E, secured to the follower C and extending down through the bed A, and the operating-screw D, all constructed, arranged, and combined substantially as set forth.

315,045. MACHINE FOR MAKING PRINTERS' LEADS. NATHAN R. LYMAN, Chicago, Ill., assignor of one-half to Joseph P. Ellacott, same place. Filed Dec. 13, 1882. (No model.)



Claim.—1. The combination, as a mold, of a band and a roller having a groove, *a*, substantially as set forth.

2. The combination of a band and a roller provided with a groove, *a*, and a non-conducting surface, substantially as set forth.

3. A band and a roller having a groove, *a*, when arranged to form a mold, in combination with a roller, B, substantially as set forth.

4. The combination of a band, a roller provided with a groove, *a*, and a non-conducting surface, and a roller, B, substantially as set forth.

5. A band and a roller provided with a groove, *a*, in combination with a funnel having a passage communicating with the passage formed by the grooved roller and band, substantially as set forth.

6. The combination of a band, a roller provided with a groove, *a*, and a non-conducting surface, and a funnel, substantially as set forth.

7. A band and a roller provided with a groove, *a*, in combination with a roller, B, and a funnel having a passage communicating with the passage formed by the grooved roller and band, substantially as set forth.

8. The combination of a band, a roller provided with a groove, *a*, and a non-conducting surface, a roller, B, and a funnel, substantially as set forth.

9. The combination of a band provided with a non-conducting surface and a roller provided with a groove, *a*, substantially as set forth.

10. The combination of a band provided with a non-conducting surface and a roller provided with a groove, *a*, and a non-conducting surface, substantially as set forth.

11. The combination of a band provided with a non-conducting surface, a roller provided with a groove, *a*, and a roller, B, substantially as set forth.

12. The combination of a band provided with a non-conducting surface, a roller provided with a groove, *a*, and a non-conducting surface, and a roller, B, substantially as set forth.

13. The combination of a band provided with a non-conducting surface, a roller provided with a groove, *a*, and a funnel, substantially as set forth.

14. The combination of a band provided with a non-conducting surface, a roller provided with a groove, *a*, and a non-conducting surface, and a funnel, substantially as set forth.

15. The combination of a band provided with a non-conducting surface, a roller provided with a groove, *a*, a roller, B, and a funnel, substantially as set forth.

16. The combination of a band provided with a non-conducting surface, a roller provided with a groove, *a*, and a non-conducting surface, a roller, B, and a funnel, substantially as set forth.

17. The combination of a band, a roller provided with a groove, *a*, and a funnel provided with a non-conducting surface, substantially as set forth.

18. The combination of a band, a roller provided with a groove, *a*, and a non-conducting surface, and a funnel provided with a non-conducting surface, substantially as set forth.

19. The combination of a band, a roller provided with a groove, *a*, a roller, B, and a funnel provided with a non-conducting surface, substantially as set forth.

20. The combination of a band, a roller provided with a groove, *a*, and a non-conducting surface, a roller, B, and a funnel provided with a non-conducting surface, substantially as set forth.

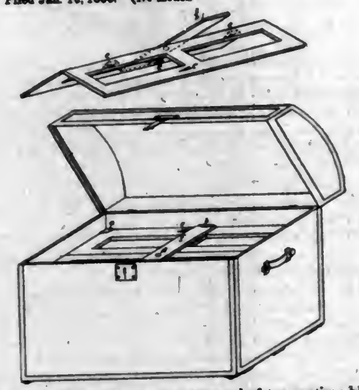
21. The combination of a band provided with a non-conducting surface, a roller provided with a groove, *a*, and a funnel provided with a non-conducting surface, substantially as set forth.

22. The combination of a band provided with a non-conducting surface, a roller provided with a groove, *a*, and a non-conducting surface, and a funnel provided with a non-conducting surface, substantially as set forth.

23. The combination of a band provided with a non-conducting surface, a roller provided with a groove, *a*, a roller, B, and a funnel provided with a non-conducting surface, substantially as set forth.

24. The combination of a band provided with a non-conducting surface, a roller provided with a groove, *a*, and a non-conducting surface, a roller, B, and a funnel provided with a non-conducting surface, substantially as set forth.

315,046. INSIDE TRUNK-BRACE. JACOB M. MARCH, Washington, D.C. Filed Jan. 16, 1885. (No model.)



Claim.—1. In a trunk, a brace composed of two sections hinged together, in combination with the keeper pivoted thereto, substantially as described.

2. In a trunk, a brace composed of two longitudinal sections hinged together, substantially as described, in combination with a keeper pivoted thereto, substantially as described, and for the purposes set forth.

3. The combination of a trunk-brace composed of two sections hinged together, substantially as described, with a keeper pivoted thereto, and a socket attached to the walls of the trunk to receive the ends of the keeper, all substantially as described, and for the purposes set forth.

4. In a trunk, a combined corner-brace and socket having top and bottom shelves or supports, the former being made smaller to allow of a more ready admission of the brace, substantially as set forth, and for the purposes herein described.

5. The combination of a trunk provided with corner-braces and keeper-sockets with the hinged brace provided with the pivoted keeper, substantially as described, and for the purpose set forth.

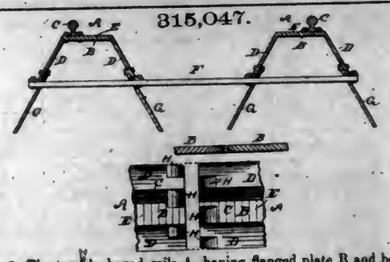
6. In a trunk, the longitudinally-hinged brace provided with the pivoted keeper *f* and the retaining-springs *e e*, located so as to engage opposite sides of said keeper, all substantially as described, and for the purpose set forth.

315,047. ROAD OR TRAMWAY FOR VEHICLES. MOSES A. MARTINDALE, Elkhart, Ind. Filed Jan. 17, 1884. (No model.)

Brief.—Metal plates are secured to the sides of the trough-shaped bed-plates below the tie-bars, so that a deeper hold may be had in soft ground. The ends of the sections of the bed-plates have beveled ends, which interlock and are so secured together.

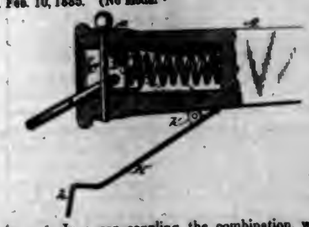
Claim.—1. The combination, with the trough-shaped rails A and connecting gage-bars F, of the plates G, substantially as shown and described.

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2. The trough-shaped rails A, having flanged plate B and beveled ends H, interlocking with each other, and elongated bolt-holes, substantially as shown and described.

315,048. CAR-COUPLING. JOSEPH MCCREADY, New Brighton, Pa. Filed Feb. 10, 1885. (No model.)



Claim.—1. In a car-coupling, the combination, with the draw-head, of the spring-actuated bumper-case, the link-guiding apron pivoted at its rear end to the draw-head, and the connecting-rods attached at one end to the bumper-case and at their other ends to the apron, substantially as set forth.

2. The combination of the draw-head having longitudinal slots in its sides, the bumper-case arranged therein and having perforated lugs projected rearwardly from its opposite sides, the transverse shaft placed through the openings in the lugs and having its ends extended through the slots in and beyond the draw-head, the spring, the apron having its forward end adapted to guide the link and hinged at its rear end to the draw-head, and the rods connecting the transverse shaft and the apron, all arranged and operating substantially as and for the purposes specified.

315,049. DRILLING-MACHINE. THOMAS MCFARLAN, Cincinnati, Ohio, and HENRY E. NOTTINGHAM, Covington, Ky. Filed July 26, 1884. (No model.)



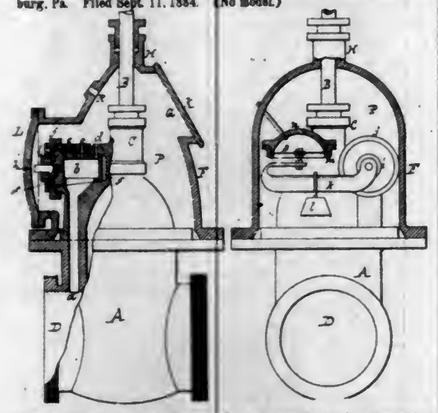
Claim.—1. In a feed mechanism for drilling-machines, the combination, substantially as specified, of the spindle-carrier C and feed-spindle D, having a pinion to engage the rack of the spindle-carrier, and a screw-threaded end to receive the nut G, with clutch E, secured upon said spindle, a worm-gear, H, between said nut and clutch, and lever I, secured to said nut to engage and disengage the clutch for the purpose of stopping or starting the feed, as described.

2. The combination, substantially as specified, of the feed-spindle D, having its outer end screw-threaded to receive a nut, G, and a notched collar or disk outside of the nut, with lever I, hinged upon said nut, and having a bar, *i*, to be thrown in or out of engagement with the notch in the disk F, for the purpose of disengaging the feeding mechanism and rapidly moving the drill-spindle by means of the said lever, or of coupling the feed-spindle with feeding gear-wheel.

3. In a drilling-machine such as described, the combination of the spindle-carrier C with driving-spindle D, having its outer end screw-threaded, and having secured upon it the clutch E, and disk or collar F, with the nut G; having the notch *g*, to receive a pin on the collar F, loose gear-wheel H between the nut and disk E, and the lever I, having the cross-bar *i*, said lever being connected to the nut, and bar *i* arranged to be engaged or disengaged from the notch in collar F to couple or uncouple the feeding mechanism, substantially as specified.

4. In an upright drill, the combination, substantially as specified, of the spindle, its movable bearing, and the spindle-carrying head with the grooved cog M, mounted in the head B, and engaging the pinion on the feed-spindle D, and the chain N, secured to said wheel M so as to wind or unwind as the spindle and carrier move up or down, and having a weight at its opposite end to counterpoise the spindle and spindle-carrying head.

315,030. GAS-REGULATING VALVE. ALEXANDER MCLENNAN, Pittsburg, Pa. Filed Sept. 11, 1884. (No model.)



Claim.—1. A new and improved gas-regulating valve, consisting of a shell containing a movable gate provided with a stuffing-box and stem for operating the same, a means for attaching the same to suitable pipes, in combination with a narrow channel-way leading from the gas-passage in said shell into a hollow key provided with one or more small holes through which the gas is allowed to enter a surrounding chamber, a weighted lever attached to said key, and a flexible diaphragm in connection therewith, whereby said key shall be turned on its axis to open or close the several passage-ways therein by the increase or decrease of gas-pressure within the receiving and distributing chamber.

2. The combination of a valve-shell containing a general gas-passage, a vertical channel-way closed at its top by a hollow key provided with a surrounding case, and one or more openings through both, a weighted lever attached to said key, and a flexible diaphragm whereby said key may be turned on its axis by a pressure of gas within a close chamber provided with an opening for the adjustment of said weight, and an opening for the application of an exhaust or general-delivery pipe.

3. The combination, with a valve-chest, of the shell having a vertical passage extending therefrom, a hollow key having a stem, and provided with openings in its side, a surrounding case therefor provided with similar openings, the weighted graduated lever connected at one end to the sleeve-stem, and the flexible diaphragm pivoted to the other end of said lever, the same being clamped between a stationary ring and a hemispherical cap secured therein, substantially as described.

4. The combination, with the chest and the shell having the vertical passage extending therefrom, of the conical hollow key communicating with the upper end of said passage and formed in its side with openings, and a surrounding sleeve having like openings which coincide with those of the key, said key connecting with the diaphragm and being somewhat smaller than the interior of its case, whereby minute openings are formed that lead to the outside of the shell, substantially as described, and for the purposes set forth.

315,051. MOTOR. DAVID L. MILLER, Madison, N. J. Filed Apr. 23, 1884. Renewed Mar. 7, 1885. (No model.)

Claim.—1. The herein-described mechanism for converting motion, consisting of shaft A, plate or bar B, provided with racks *b*, pinions C C, loosely mounted upon the shaft and provided with ratchet-hubs D D, and shells or disks F F, provided with pawls G and springs H, all substantially as shown and described.

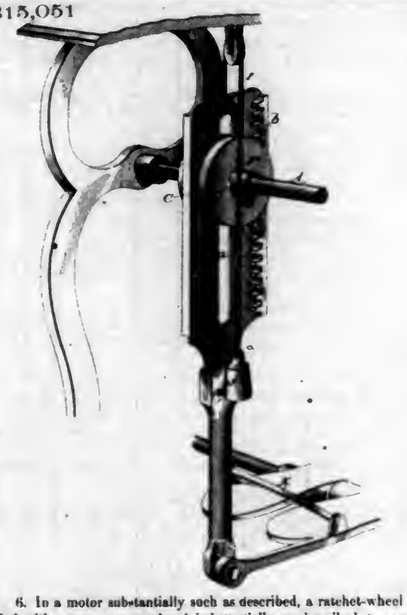
2. In a motor substantially such as described and shown, the combination of a ratchet-wheel having an encircling band of non-resonant material and a pawl or pawls arranged to engage with said rachet, substantially as shown and described.

3. In a motor substantially such as shown and described, the combination, with a rotary disk carrying pawls, of a ratchet-wheel having a non-resonant band to form a rest for the ends of the pawls when not in actual engagement with the teeth of the ratchet, substantially as and for the purpose explained.

4. The combination, substantially as described and shown, of a shaft, A, a disk secured to said shaft and provided with pawls G, having shoulders *d*, pinion C, provided with ratchet-hub D, and non-resonant band E, all constructed and arranged to operate substantially as shown and described.

5. In combination with a ratchet-wheel, a non-resonant band by the side of the teeth, a disk carrying pawls provided with a beveled end to engage with the ratchet and a shoulder to bear upon the non-resonant band, and a shaft extending through the disk and ratchet-wheel, and rigidly connected with one of said parts.

315,051



6. In a motor substantially such as described, a ratchet-wheel provided with a non-resonant band, substantially as described, to prevent vibration of the metal of said wheel.

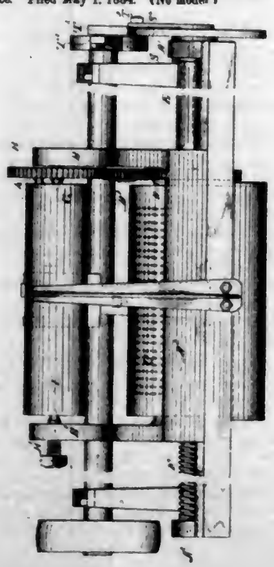
7. In combination with the pinions of a motor, substantially as described, a rack, B, having toothed metal strips *b* and non-resonant strips *b'*, interposed between the body or plate of the rack and the toothed metal strips, substantially as shown.

8. In combination with a pinion, a metal rack-bar having a non-resonant strip secured to it to prevent vibration and consequent sound, substantially as explained.

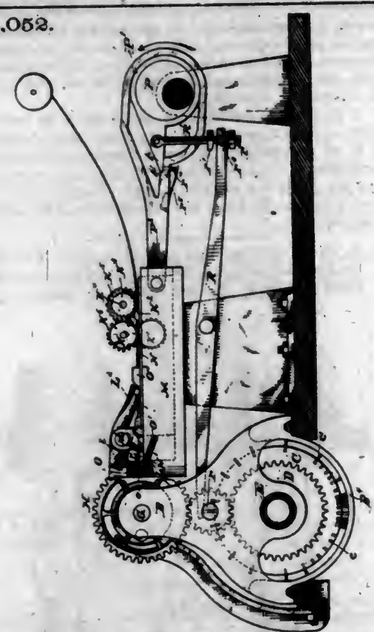
9. In combination with shaft A, rack B, and ratchet mechanism such as described and shown, a counter-balance connected with said rack, substantially as and for the purpose set forth.

10. In combination with shaft A, rack B, and ratchet mechanism such as described and shown, a foot-treadle connected with the rack-bar and provided with a strap or bar to pass over the toes of the operator, as and for the purpose set forth.

315,052. MACHINE FOR INSERTING PINS IN MUSIC-BARRELS. HENRY B. MORRIS, Ithaca, N. Y., assignor to the Autophone Company, same place. Filed May 1, 1884. (No model.)



315,052.



Claim.—1. A machine for inserting pins in music-rollers, organized with a stepwise-movable pattern which governs the insertion of the pins, substantially as set forth.

2. A machine for inserting pins in music-rollers, organized with a stepwise-movable pattern which governs the insertion of the pins and with a variable feed-motion, substantially as before set forth.

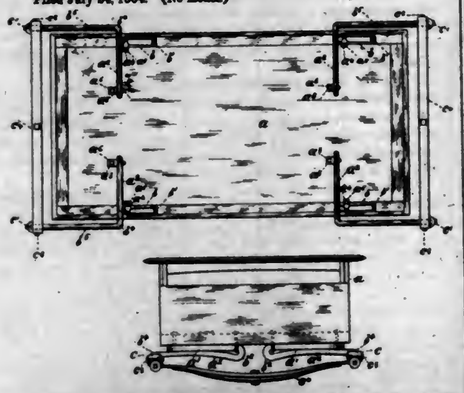
3. The combination, substantially as before set forth, of the stepwise-movable pattern-roller, the feed-carriage provided with centers for the support of the music-roller, and a driver for turning the music-roller synchronously with the pattern-roller.

4. The combination, substantially as before set forth, of the stepwise movable pattern, the feeler-lever, the pin-driver, and means controlled by the feeler-lever for reciprocating the pin-driver.

5. The combination, substantially as before set forth, of the reciprocating slide carrying the pin-driver and provided with cams L^2 and O^2 and pawl K^2, the wire-feed rollers, the shears, the pin-transfer block, and lever O^2.

6. The combination, substantially as before set forth, of the feed-carriage for supporting the music-roller and the back-rest.

315,053. VEHICLE-SPRING. RICHARD MULHOLLAND, Dunkirk, N. Y. Filed July 24, 1884. (No model.)



Claim.—1. A torsion-spring having the rigid arm *b*, the double torsional arms a' a^2, one arranged above the other, and the outer arm, b^2, substantially as shown and described.

2. The combination of the within-described torsion-spring provided at its outer end with the spring-coupling *c*, substantially as shown and described, and for the purpose set forth.

3. The torsion-spring a' a^2, in combination with the coupling *c* and a leaf semi-elliptic spring, spring-bar, or its equivalent, substantially as shown and described.

4. A torsion-spring consisting of the portions a' a^2, the portion a' being secured to the vehicle by hooked plates, as specified, so as to be subject to torsional action, and the portion a^2 being left free to act, as described, in combination with the part or arm b^2, a coupling, and a leaf-spring or spring-bar, substantially as above set forth.

315,054. CONDENSER FOR WOOL-CARDING MACHINES. ISAIAH NEWELL, Haverhill, Mass. Filed Mar. 22, 1884. (No model.)

Brief.—The hubs of the disks are mounted upon diagonally-bored cylindrical collars mounted in turn upon a stationary shaft, whereby the faces of the disks of each pair are made to converge. The disks are driven by friction-gears on shafts parallel with the stationary shaft.



Claim.—1. The shaft, the diagonally-bored collars thereon, and the disks mounted loosely on the collar with their faces converged one toward the other, combined with the driving-gears to act against and rotate the said disks, and with means, substantially as described, to rotate the said gears, as set forth.

2. A shaft and two attached diagonally-bored collars, combined with two condenser-disks having their faces fluted or milled to act directly against the sliver between them, and mounted on the said collars, as described, whereby the faces of the said disks are made to converge each toward the other, and the disks are left free to be revolved upon the said collars in a plane inclined with relation to the axis of the said shaft, substantially as described.

315,055. ELECTRIC GAS-LIGHTING APPARATUS. JOHN A. NORTON, Brookline, Mass., assignor to Edwin E. Bean and Lucius C. Chase, trustees, both of Boston, Mass. Filed Mar. 18, 1884. (No model.)



Claim.—1. In an electric gas-burner containing electrodes and circuit-connections, the combination of a gas-burner pipe, a ring or band of conducting material inserted in the end thereof and carrying one electrode, a partition of insulating material interposed between said band and the pipe, and a burner-tip insulated from said band and inserted therein, substantially as described.

2. In an electric gas-burner containing electrodes and circuit-connections, the combination of a gas-burner pipe, a lining of insulating material inserted in the end of said pipe, a ring or band of conducting material inserted within said lining, and having attached to or formed upon it one electrode, and a burner-tip of insulating material inserted within said conducting ring or band, substantially as described.

3. In an electric gas-burner containing electrodes and circuit-connections, a burner-pipe having a tapering upper orifice lined with insulating material, a correspondingly-tapered burner-tip of insulating material, and an electrode formed upon or attached to a band of conducting material, the said electrode being held in place upon the burner by the interposition of said band between the insulated end of the burner-pipe and the burner-tip inserted in said band, substantially as described.

4. In an electric gas-burner, a fixed electrode supported on the gas-burner near the gas-escape orifice, a yielding elastic electrode, a movable support for said elastic electrode, and means of moving said support, the said elastic electrode having two contact-points, one making contact with the fixed electrode and the other simultaneously making contact with a conductor in circuit, substantially as described.

5. In an electric gas-burner, a fixed electrode supported on the burner near the gas-escape orifice, and a movable arm supported on the burner-pipe, the said arm having two elastic contact-points, one making contact with the fixed electrode and the other simultaneously making contact with the burner-pipe or other conductor in circuit, substantially as described.

6. In an electric gas-burner, a fixed electrode supported on the burner near the gas-escape orifice, an oscillating arm pivoted to or on the

burner-pipe, a coiled spring supported on the extremity of said arm, one end of said spring making contact with the fixed electrode and the other end making contact simultaneously with the burner-pipe or other conductor in circuit, and circuit-connections, substantially as described.

7. In an electric gas-burner, circuit-connections, a fixed electrode supported on the burner near the gas-escape orifice, a movable arm supported on said burner, and an electrode supported on said arm and adapted to make contact with said fixed electrode, and a means of short-circuiting the current received by the movable electrode from the fixed electrode to a conductor in the circuit, and thus preventing the passage of the current to ground by way of the arm, substantially as described.

8. In an electric gas-burner, the burner-pipe A, insulated fixed electrode E, pivoted arm P, and spring R, having contact-points S and U, substantially as described.

9. In an electric gas-burner, the combination of the pipe A, gas-cock H, the ratchet J, disk K, and projection I, attached to or formed integral with said gas-cock, disk M, having an elongated slot, V, and provided with a stop or pin, W, arm N, attached to or formed upon said disk M, coiled spring *b*, connected at one end to disk M and at the other end to a fixed support upon the gas-pipe, covering-plate Y, and a means of rigidly attaching said plate to the gas-pipe or other fixed support, substantially as described.

10. In an electric gas-burner, the pipe A, tapered gas-cock H, and tapering seat therefor in the pipe A, the ratchet J, disk K, and projection I, rigidly secured to or formed integral with the said gas-cock, disk M, having a central opening to receive the disk K, stop W and recess X, arm N, attached to or formed upon said disk, and covering-plate Y, in combination with the set-screw *a*, passing through said covering-plate Y and having a bearing in the body of the pipe, substantially as described.

11. In an electric gas-burner, the combination of the burner-pipe A, gas-cock H, ratchet J, disk K, projection I, covering-plate Y, and screw *a*, with the disk M, having a central opening to receive the disk K, stop W, arm N, and recess X, substantially as described.

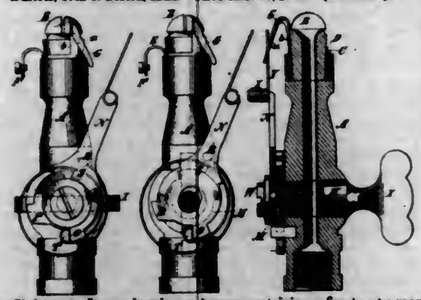
12. The combination of the burner-pipe A, valve H, ratchet J, disk K, projection I, disk M, having an operating lever-arm, N, and an arm, P, carrying an elastic electrode, stop W and recess X, plate Y, screw *a*, spring *b*, and fixed electrode E, substantially as described.

13. In an electric gas-burner, the combination of the gas-pipe, a fixed electrode supported thereon near the gas-escape orifice, an oscillating arm supported on said pipe, and a spring contact-piece or electrode movably held upon said arm, and means for moving said contact-piece on its support, so as to reduce its pressure upon and to delay its period of contact with the fixed electrode, substantially as described.

14. In an electric gas-burner, the combination of the gas-pipe, a fixed electrode supported thereon near the gas-escape orifice, a movable arm supported on said pipe, and a coiled spring movably supported upon said arm, the said spring having two points or projections, one adapted to make and break contact with the fixed electrode and the other to make contact with the gas-pipe, so that by said last-mentioned contact the spring is rotated on the movable arm and the contact-point held less strongly and longer in contact with the fixed electrode, substantially as described.

15. In an electric gas-burner, the burner-pipe A, having a flattened side, *c*, insulated fixed electrode E, pivoted arm P, and spring R, having contact-points S and U, substantially as described.

315,056. **ELECTRIC GAS-LIGHTING APPARATUS.** JOHN A. NORTON, Brookline, Mass., assignor to Edwin R. Bean and Lucius C. Chase, trustees, both of Boston, Mass. Filed Mar. 18, 1884. (No model.)

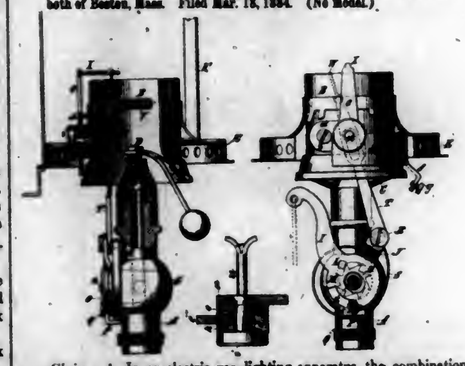


Claim.—1. In an electric gas-burner containing a fixed and a movable electrode, the fixed electrode G, supported near the gas-escape orifice, and bent over and formed so that the adjacent edges of the standing and bent parts shall be nearer together on one side than the corresponding edges of the said parts on the other side, substantially as described.

2. In an electric gas-burner, the combination of a movable electrode having a yielding elastic contact-point, and mechanism for actuating said electrode receiving motion from the gas-cock, and a fixed electrode, G, supported near the gas-escape orifice, and bent over and formed so that the adjacent edges of the standing and bent parts shall be nearer together on one side than the corresponding edges of the said parts on the other side, substantially as described.

3. In an electric gas-burner, the combination of the burner-pipe A, cock H, a means of turning said cock, recessed plate L, secured to the end of said cock, cam-plate M, having elongated slot Q, projection O, cam-shoulder P, pins R S, and arm N, a contact-piece connected to the upper end of said arm, screw V W, pin T, spring U, and a fixed electrode supported on the burner near the gas-escape orifice, substantially as described.

315,057. **ELECTRIC GAS-LIGHTING DEVICE.** JOHN A. NORTON, Brookline, Mass., assignor to Edwin R. Bean and Lucius C. Chase, trustees, both of Boston, Mass. Filed Mar. 18, 1884. (No model.)



Claim.—1. In an electric gas-lighting apparatus, the combination of an annular or hollow burner, an insulated fixed electrode secured to the outer wall of and having its contact-point extending above said burner, a movable electrode containing an elongated slot, a pivot-pin passing through said slot and fixed in the wall of the burner, a means of vibrating said electrode in one direction to move it into and out of contact with the fixed electrode, and a means of vibrating said electrode in the opposite direction, and also lowering it to cause it to pass below and out of contact with the fixed electrode, substantially as described.

2. In an electric gas-lighting apparatus, an insulated support and a fixed electrode, and in combination therewith a pin having a broad head and an enlargement adapted to form a rivet, and upon said pin, first, a washer of insulating material; second, a metal support for the electrode having an enlarged central opening; third, another washer of insulating material, and, fourth, a plate or bar having an opening to receive the enlargement of the pin, the said parts being pressed together, the enlargement of the pin being riveted or expanded in the opening of the last-mentioned plate to bind all parts firmly together, the electrode support being held between the washers and out of contact with the pin, substantially as described.

3. In an electric gas-lighting apparatus, and in an insulated fixed electrode and support therefor, the combination of the pin U, having a head, *i*, and rivet-enlargement *j*, washers *h* and *c*, of insulating material, and electrode-support *e*, having an enlarged central opening, and plate *a*, substantially as described.

4. In an electric gas-lighting apparatus, and in an insulated fixed electrode and support therefor, the combination of the pin U, having a head, *i*, and rivet-enlargement *j*, washers *h* and *c*, of insulating material, plate *a*, rectangular bar *d e*, having an enlarged opening at or near the angle to receive the pin U, and a means of detachably connecting a circuit-wire to said bar, substantially as described.

5. In an electric gas-lighting apparatus, and in an insulated fixed electrode and support therefor, the combination of the pin U, having a head, *i*, and rivet-enlargement *j*, washers *h* and *c*, of insulating material, plate *a*, bars *d* and *e*, held upon said pin between the washers, but not touching the pin, electrode X, supported by bar *e*, and a means of attaching a circuit-wire to bar *d*, substantially as described.

6. In an electric gas-lighting apparatus, the combination of an annular or hollow burner, a fixed pivot-pin passing through the wall of said burner, a fixed electrode rigidly secured upon said pin and insulated therefrom on the outside of said burner, and a movable electrode pivoted upon said pin on the inside of said burner, substantially as described.

7. In an electric gas-lighting apparatus, the combination of the annular or hollow burner B, fixed electrode *e* X, plate *a*, screw *b*, washers *h c*, pin U, having a head, *i*, bar *d*, a means of connecting a circuit-wire to said bar, and a movable electrode, substantially as described.

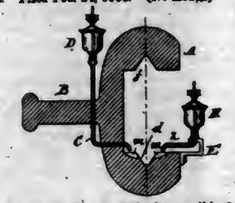
315,058. **METHOD OF MANUFACTURING FERRULES.** JOHN L. PARKER, Worcester, Mass. Filed Apr. 21, 1884. (No model.)

315,058.



Claim.—The method of constructing solid-end ferrules, as hereinbefore described, viz: perforating the end of the die-drawn sheet-metal shell A with an opening of less diameter than the interior diameter of the shell, inserting therein a solid plug, B, having a shoulder and an upper extension of greater length than the thickness of the shell, and upsetting or riveting said extension down upon the flange at the interior of the shell, as set forth.

315,059. **SELF-OILER FOR STEAM-ENGINES.** JAMES PARKINSON, Waltham, Mass. Filed Feb. 24, 1885. (No model.)



Claim.—1. In a device for oiling the lower slide for the cross-head of a steam-engine, the oil-cup D, provided with the tube or conduit C, in combination with the frame A, having the longitudinal groove or slide *d* and notch or transverse groove *m*, substantially as described.

2. In a device for oiling the lower slide for the cross-head of a steam-engine, the oil-cup H, provided with the tube *z*, in combination with the frame A, having the longitudinal groove *d* and notch or transverse groove *m*, substantially as set forth.

3. The frame A, having the slide or longitudinal groove *d* and notch or groove *m*, said frame being provided with the bracket E, for supporting the oil-cup H, substantially as described.

4. In a device for oiling the lower slide for the cross-head of a steam-engine, the oil-cups H D and tubes C *z*, in combination with the frame W, having the groove *d m m*, and bracket E, constructed and arranged to operate substantially as set forth.

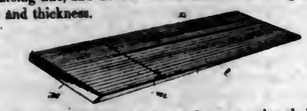
315,060. **CRANK-SHAFT.** PERRY A. PEER, Comstock, assignor of one-half to Bradley S. Williams, Malcolm B. Williams, and Homer Manvel, Kalamazoo, Mich. Filed Dec. 30, 1884. (No model.)



Claim.—A crank provided with a cast-metal covering on the exterior surface of its wrist, or its specified equivalents, substantially as set forth.

315,061. **SHINGLE.** WILLIS J. PERKINS, Grand Rapids, Mich. Filed June 12, 1884. (No model.)

Brief.—Consists of a planed shingle having longitudinal planer feed-marks, a coursing-line, and an ornamental butt. The shingles have uniform length and thickness.



Claim.—1. As a new article of manufacture, a planed shingle with planer feed-marks longitudinally of same, substantially as set forth.

2. As a new article of manufacture, a shingle provided with longitudinal planer feed-marks and a coursing-line, substantially as set forth.

3. As a new article of manufacture, a shingle provided with longitudinal planer feed-marks and an ornamented or trimmed butt, either with or without a coursing-line thereon, substantially as set forth.

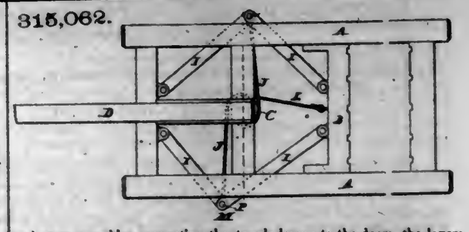
4. As a new article of manufacture, shingles provided with longitudinal planer feed-marks, and having uniform lengths and thicknesses, substantially as set forth.

315,062. **BALING-PRESS.** WILLIAM J. PERKINS, Elliottstown, assignor of two-thirds to Michael Dieterich, Dieterich, and Harden Lambert, Wheeler, Ill. Filed Dec. 9, 1884. (No model.)

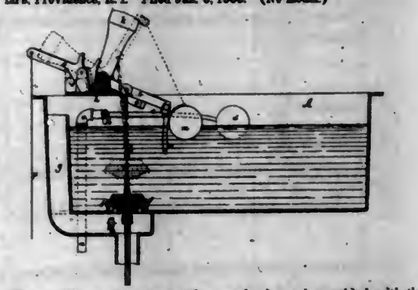
Claim.—1. In a hay or cotton press, the combination of the frame, platen, toggle-levers connecting the platen to the frame, drum, sweep, and ropes or cables connecting the toggle-levers to the drum, the levers being hinged at M in line with the opposite sides of the drum, substantially as shown and described, for the purpose set forth.

2. In a hay or cotton press, the combination of the frame, platen, toggle-levers connecting the platen to the frame, drum, sweep, ropes or cables connecting the toggle-levers to the drum, and rope or cable connecting the platen to the drum, the levers being hinged at M in line with the opposite sides of the drum, and being mortised out at V to receive the ropes, and the drum having mortises to receive the lever ropes or cables, and rounded at O, substantially as shown and described, for the purpose set forth.

315,062.

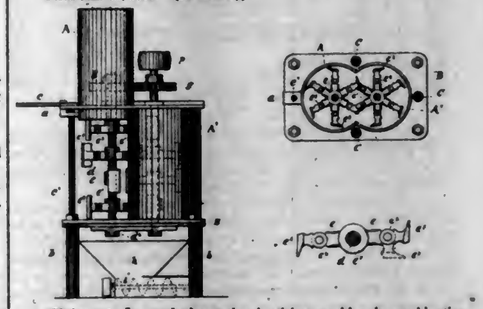


315,063. **MECHANISM FOR FLUSHING TANKS.** GEORGE C. PHILLIPS, Providence, R. I. Filed Jan. 8, 1885. (No model.)



Claim.—The combination of the angular lever *i*, provided with the tripping devices—viz., the weight *k*, the lever *o*, and line *p*—with the stop *r*, to arrest the said angular lever in its rearmost position, and with the valve and the ball-float *m*, connected to the angular lever by chains *l* and *n*, all being applied to a tank and the valve-seat of its educt, and arranged to operate substantially as set forth.

315,064. **CLAY-PULVERIZER.** GRANVILLE C. PRATT, Anoka, Minn. Filed Jan. 12, 1885. (No model.)



Claim.—1. In a reducing and pulverizing machine, in combination with a suitable casing, one or more rotary beaters having arms jointed to turn backward from their direction of rotation and provided at their extremities with blades or cutters.

2. A pulverizing-machine having two oppositely-revolving shafts carrying overlapping beaters rotating within a casing conforming to the peripheries of the beaters, and the said beaters being constructed with joints adapted to bend back from the direction of their rotation and bearing vertically-arranged cutters at their extremities.

3. A casing composed of two cylindrical segments, one of which is arranged to be raised and secured in suspension, in combination with two oppositely-revolving shafts carrying beater-arms which overlap, and which arms have joints permitting them to bend back from the direction of their rotation and are provided with cutters at their extremities, substantially as described.

4. In a rotary beater, the arms *c*, attached to the sleeve *c'*, and having joints c^2, and carrying cutters c^3 on their jointed portions, as set forth.

5. The combination of casing A A', shafts *d d'*, gear-wheels *g g*, and on said shafts beaters having joints d^3 and hoe-shaped cutters d^3, substantially as set forth.

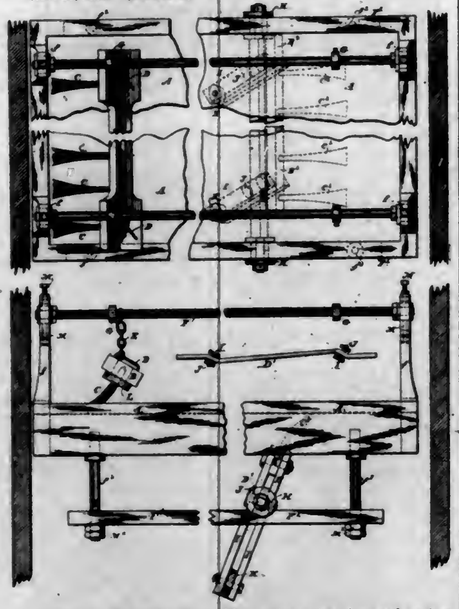
315,065. BUTTON-FASTENER. GEORGE W. PRENTICE, Providence, R. I. Filed Dec. 31, 1884. (No model.)



Claim.—1. A button-fastener composed of a table provided with attaching-prongs integral therewith, one of said prongs being bent horizontally into an elongated loop for the reception of the eye-shank of a button, the lower portion of said loop forming a table provided at its inner end with a penetrating attaching-prong, the prongs of the fastener adapted to be passed through a fabric and be clinched in the same direction, substantially as and for the purpose set forth.

2. The one-piece metallic button-fastener A, consisting of the plate *a* and the parallel prongs *b b*, and *c*, the prong *c* constituting the button-carrying prong and bent horizontally into an elongated loop, *a'*, forming the table a^3, all as shown and described, and for the purpose set forth.

315,066. BRUSHING APPARATUS FOR SIEVES. FREDERICK A. PREE, Gresford, near Wrexham, County of Denbigh, England. Filed Nov. 21, 1884. (No model.)



Claim.—1. In combination with a reciprocating sieve, rods or bars mounted thereupon above its surface and extending longitudinally thereof, and a brush extending transversely across the sieve and loosely suspended at each end from the rods or bars, as set forth.

2. In combination with a reciprocating sieve, bars or rods mounted thereupon above its surface and extending longitudinally thereof, a brush extending transversely across the sieve, and of a length less than the width thereof, said brush being provided with oblique staples and loosely suspended from the bars or rods, as shown.

3. In combination with a reciprocating sieve, a rail, F, parallel to the axis of the sieve and having a brush suspended at its ends therefrom resting on the sieve obliquely, but free to travel longitudinally along the sieve.

4. In combination with a reciprocating sieve, a brush, means whereby the latter is loosely suspended thereon so as to be free to take a given path and so that the bristles shall generally lie against the sieve in an oblique direction so as to secure motion therefrom, and a stopping device in the path of the suspension apparatus, whereby the center of gravity of the brush travels on after its point of suspension has stopped and the brush is caused to rise and turn over.

5. In combination with a reciprocating sieve, bars or rods extending longitudinally thereof above and below its surface and carried by the sieve, and brushes suspended from or carried by the bars or rods and resting obliquely against the sieve, as and for the purpose set forth.

6. In combination with a reciprocating sieve, longitudinal bars or rods mounted thereon above its surface and provided near their ends with offsets or shoulders, a brush shorter than the width of the sieve and lying transversely thereon, and a flexible suspension device connecting the brushes and rods or bars, as set forth.

7. In combination with a reciprocating sieve, longitudinal bars or rods mounted thereon above its surface and provided near their ends with offsets or shoulders, a brush shorter than the width of the sieve and lying transversely thereon, said brush having bunches of bristles arranged a distance apart equal to the width of a single bunch, and a suspending device for said brush, all arranged as shown, whereby when the brush moves in one direction over the sieve it will travel over a portion not covered by the brush in its previous travel.

8. In combination with a reciprocating sieve, bars or rods extending longitudinally thereof below its surface and carried by the sieve, a carriage adapted to be moved upon said bars or rods by the reciprocation of the sieve, counterweighted arms carried by the carriage, and a brush attached to said arms at their upper ends and bearing obliquely against the sieve, as set forth.

9. In combination with a reciprocating sieve, rods or bars secured thereto, as shown, a brush traveling on and guided by the latter, and adjusting devices, whereby the guides or bars may be raised or lowered to compensate for the wear of the bristles of the brush, as set forth.

10. In combination with a reciprocating sieve, longitudinal bars or rods thereon, a brush loosely suspended at each end from said bars or rods, and a device for causing the said brush to take a path in its return journey different from that taken in its forward journey.

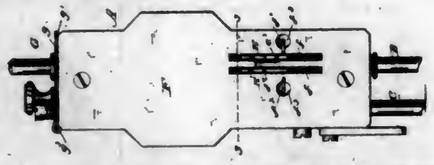
11. The combination of the rails F and stops G with the chains E, brush B C, and reciprocating sieve A, substantially as and for the purposes described.

12. In a sieving apparatus, the combination of the sieve, the rail F', attached to the sieve and having stops *f'*, a carriage traveling freely thereon, and counterweighted brush B C, pivoted on said carriage at a point above its center of gravity, by which means when the carriage strikes against the stops the *vis inertiæ* of the counter-weight of the brush assists the brush in turning over.

13. In a sieving apparatus, the combination of the adjustable rails F', the runners J, and axle D' with the brush B' C' and the pivoted counterweighted levers I, carrying the brush B' C' pressed against the sieve.

14. The combination of the sieve A, the brush B C, counterweighted levers I, and the carriage-axle H, said counterweighted levers being pivoted to the axle H so as to be free to rock both laterally and longitudinally of said axle.

315,067. SEWING-MACHINE. J. W. POST, New York, N. Y. Filed June 27, 1884. (No model.)



Claim.—1. A take-up mechanism for sewing-machines, consisting of the combination, with the needle-bar and slotted face-plate, of a cross-head secured to said needle-bar, a forwardly-projecting lug on said cross-head extending outward through said face-plate, and having a diagonally-slotted thread-eye, and a thread-guide on said face-plate adjacent to the slot therein, substantially as set forth.

2. A take-up mechanism for sewing-machines, consisting of the combination, with the needle-bar and slotted face-plate, of a cross-head to which said bar is secured, two forwardly-projecting lugs on said cross-head, extending outward through said face-plate and having lifting-shoulders and inclined upper portions, a stationary lug or projection on said face-plate, arranged between the lugs on the cross-head, and two thread-guides on the face-plate placed on opposite sides of the path of the lugs on the cross-head, substantially as set forth.

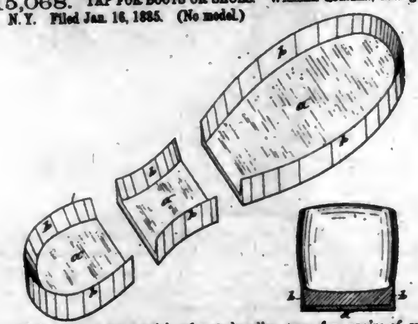
3. A take-up mechanism for sewing-machines, consisting of the combination, with the needle-bar and slotted face-plate, of a cross-head to which said bar is secured, two forwardly-projecting lugs on said cross-head extending outward through said face-plate, and having lifting-shoulders and inclined upper portions, a stationary lug or projection on said face-plate, arranged between the lugs on the cross-head, and two thread-guides on the face-plate, placed on opposite sides of the path of the lugs on the cross-head, said thread-guides each consisting of a bent wire having its point arranged in a recess in the face-plate, substantially as set forth.

4. A sewing-machine tension device consisting of the combination of two plates, one having a slightly-upturned end and the other a downwardly-turned portion or hook embracing said upturned end and a single holding and regulating screw passing through both of said plates, substantially as set forth.

5. A sewing-machine tension device consisting of the combination of two plates, each having two offset portions formed at right angles to each other, one of the said plates having a slightly-upturned end and the other a downwardly-turned portion or hook embracing said upturned end, and a single holding and regulating screw, substantially as set forth.

6. A sewing-machine tension device consisting of the combination of two plates, each having two offset portions, and a single holding and regulating screw passing through one of the said portions of both of said plates, leaving an unobstructed passage for the thread between the other of the said portions thereof, substantially as set forth.

315,068. TAP FOR BOOTS OR SHOES. WILLIAM QUINLAN, Oswego, N. Y. Filed Jan. 16, 1885. (No model.)



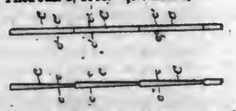
Claim.—As a new article of merchandise, tape for repairs of rubber boots or shoes, consisting of disks of elastic material reaching across the bottom and beyond the edges of the sole or shank or heel, and having integral with it marginal flanges by which to cement said tape to the edges of the parts to be repaired, substantially as described and shown.

315,069. HEEL-NAIL PLATE. FREEBORN F. RAYMOND, 2d, Newton, Mass. Filed Jan. 13, 1885. (No model.)



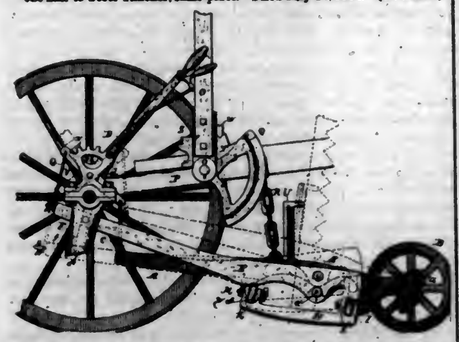
Claim.—A heel-nail plate comprising the narrow section *b'* of the plate, from which extend the nails *b*, having inclined surfaces *c c'* and the parallel surfaces c^2 c^2, all substantially as described.

315,070. WIRE HEEL-NAIL BLANK. FREEBORN F. RAYMOND, 2d, Newton, Mass. Filed Jan. 5, 1885. (No model.)



Claim.—As a new article of manufacture, a continuous length of heel-nails having parallel sides and the continuous tapering side or sides *c*, extending from one end of each nail to the other, and made from wire, as described, all substantially as and for the purposes described.

315,071. MOWER. ISAAC RAWSON, Harnellville, N. Y., assignor of one-half to Scott Thacher, same place. Filed May 14, 1884. (No model.)



Claim.—1. The combination, in a harvester, of two bars pivoted to each other, a shoe attached to one of said bars, and devices, substantially as described, for giving said bars a motion in opposite direction simultaneously, substantially as described.

2. The combination, in a harvester, of two adjustable bars pivoted together, a shoe attached to one of said bars and connected thereto at opposite sides of the pivotal point of the bars, substantially as described.

3. The combination, in a harvester, of two adjustable bars pivoted to each other, a shoe supported on said bars, and a guide connected with one of the bars to give the rear end of the same a slight backward motion as it descends, substantially as described.

4. The combination, in a harvester, of two adjustable bars, a shoe supported by said bars, and a pendant in which one of the bars moves, provided with a groove inclined downwardly and rearwardly to give the rear end of said bar a slight backward motion, substantially as described.

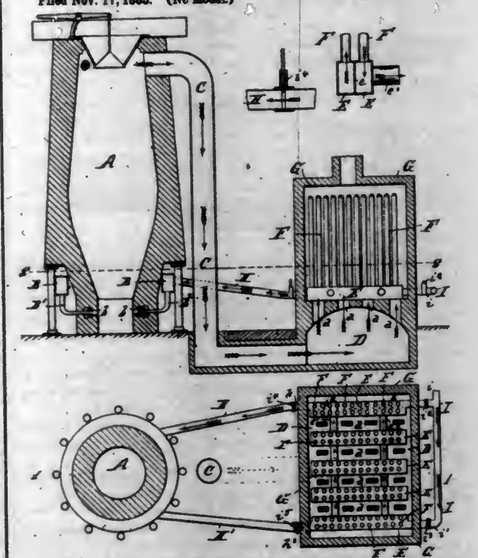
5. The combination, in a harvester, of two adjustable bars pivoted together, one carrying a shoe connected to it on opposite sides of the pivotal point, and the other supporting a spindle for the lead-wheel, substantially as described.

6. The combination, in a harvester, of two bars pivoted together, a shoe connected to one of them, a wheel connected to the other, and an adjusting-lever having its opposite arms connected with the free ends of said bars, substantially as described.

7. The combination, in a harvester, of two bars pivoted to each other, a shoe connected to one of them, a wheel connected to the other, and braces connecting the bar carrying the shoe to the frame, substantially as described.

8. In a harvester, and as a means for holding the cutting apparatus thereof in a vertical position during transportation, the combination, with the cutter-bar, of the adjustable bar A, having the curved rod U projecting therefrom, substantially as described.

315,072. HOT-BLAST STOVE. JOSEPH O. B. RICHARDS, St. Louis, Mo. Filed Nov. 17, 1883. (No model.)



Claim.—The combination, with the oven D, of the bed-pipes E, the pipes at each end provided with openings extending entirely through the same, branch pipes *c' c²*, and pipes F F, inlet-pipe I, with branches *i i'*, the discharge-pipes H H', and the valves i^2 i^3 i^4 i^5, as described.

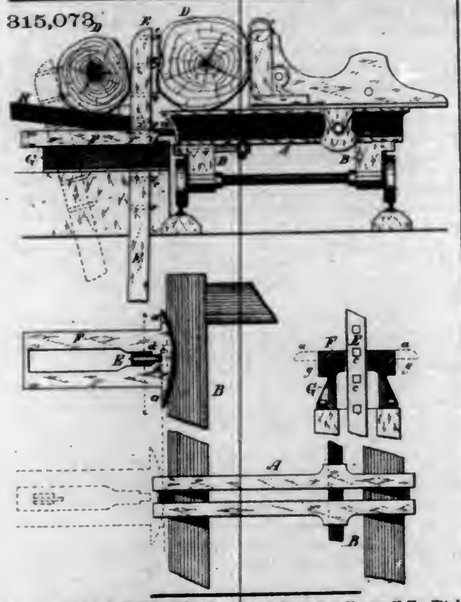
315,073. LOG-TURNER. GEO W. ROBINSON, Millview, Fla. Filed July 11, 1883. Renewed Jan. 17, 1885. (No model.)

Claim.—1. In a log roller and turner, the combination of the toothed stock E with the slotted sliding block F, having the rounded or beveled end *a*, substantially as and for the purposes set forth.

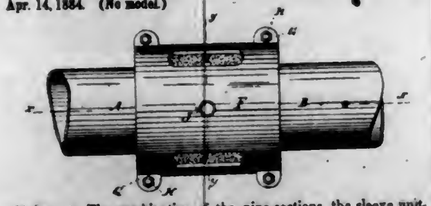
2. In a log roller and turner, the combination of the slotted block F, having the beveled end *a*, and being adapted to slide freely back and forth upon the slotted bed-block G, together with the toothed stock E, substantially as and for the purposes set forth.

3. The combination, in a log roller and turner, of the block F, slotted to receive the toothed bar E, and adapted to slide at right angles to the carriage upon the base-block G, and prevent the teeth in the bar E from coming in contact with the passing head-blocks A of the carriage, together with toothed bar E and base-block G, substantially as and for the purposes set forth.

315,073.



315,074. PIPE-COUPLING. JOHN B. ROOT, Port Chester, N. Y. Filed Apr. 14, 1884. (No model.)



Claim.—1. The combination of the pipe-sections, the sleeve uniting the sections, and the outer shell, said shell and sleeve being provided with holes for a service-pipe, for the purpose set forth.

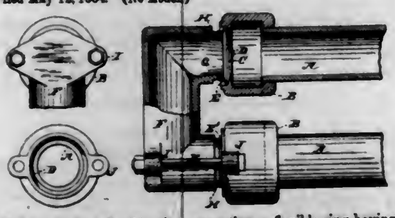
2. The combination of the pipe-sections, their connecting-sleeve, the outer shell made in halves and provided with the inner boss for receiving the end of a service-pipe, for the purpose set forth.

3. The combination of the pipe-sections, the connecting-sleeve, the outer shell made in halves and provided with the conical boss extending into the conical hole in the sleeve, substantially as described.

4. The pipe-sections, in combination with the outer shell made in halves, and provided with the longitudinal radial ribs or flanges, as and for the purpose set forth.

5. The outer shell provided with orifices for filling in the cement, and the longitudinal radial ribs, substantially as described.

315,075. PIPE-CONNECTION. JOHN B. ROOT, Port Chester, N. Y. Filed May 12, 1884. (No model.)

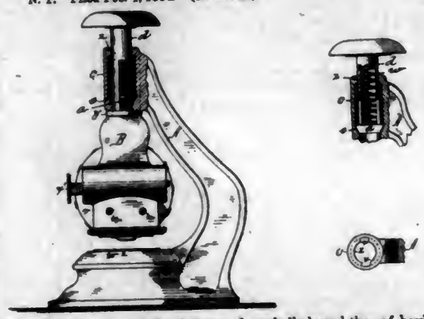


Claim.—1. In a flexible pipe-connection, a flexible ring having its outer edge expanded into a seat in one of the connecting parts, and its inner edge tightened around the other connecting part, as and for the purpose set forth.

2. In combination, in a flexible pipe-connection, a flexible ring having its outer edge expanded into a seat in one of the connecting parts, and its inner edge tightened around the other connecting part, and fastenings for uniting the connecting parts, as and for the purpose set forth.

3. In a flexible pipe-connection, the combination of a bend, flexible rings arranged between the ends of the bend and the connecting-sections of pipe, and fastenings for uniting the respective ends of the bend to the ends of the pipes, substantially as and for the purpose set forth.

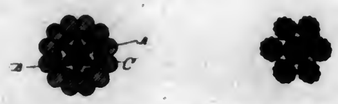
315,076. HAND-STAMP. WILLARD W. SAWYER and JOHN H. GOULD, Springfield, Mass.; said Gould assignor to William A. Force, Brooklyn, N. Y. Filed Feb. 1, 1884. (No model.)



Claim.—1. In a hand-stamp, the spindle-barrel thereof having a frictional bevel-faced bar-seat therein, the spindle slotted longitudinally and having a friction-bar passing through it whose ends are beveled to fit said seat, and a spring within the spindle to bear upon said bar, combined and operating substantially as set forth.

2. In a hand-stamp, the spindle-barrel thereof having a frictional bar-seat therein, the spindle slotted longitudinally, and having a friction-bar passing through it whose ends bear upon said seat, and a spring within the spindle to bear upon said bar, combined and operating substantially as set forth.

315,077. WIRE-ROPE OR CABLE. THOMAS SEALE, San Francisco, Cal. Filed Mar. 16, 1883. (No model.)



Claim.—1. A wire rope formed of strands laid round a center, each strand being composed of a core, a set of wires wound compactly round said core side by side, and a second set of wires of a larger size wound round the first set with the same lay as the latter, and fitting into each of the interstices or spaces formed by the first set, and meeting, substantially as described, to form a solid unbroken surface, as and for the purpose set forth.

2. A wire cable formed of strands composed of a heart of finer wires, and a covering of coarser wires having the same lay with the surface wires of the heart, and corresponding in number of wires with the spaces or interstices in this surface, as and for the purpose set forth.

315,078. ANGLE-HANGER FOR MECHANICAL TELEPHONE LINES. HENRY SELIGMAN, Irvington, N. Y., assignor to Emma Seligman, same place. Filed Feb. 18, 1884. (No model.)

Claim.—1. The combination of a line-wire and an angle-hanger, the said angle-hanger being provided with a sliding cord looped thereover and over said line-wire for equalizing the tension of the latter, as set forth.

2. The combination of the line-wire, the angle-hanger, the sliding cord attached to both ends of said angle-hanger and looped intermediately, as described, and a supporting device for allowing a universal swinging motion to the hanger, as described.

3. A line-wire for mechanical telephones and an angle-hanger therefor, consisting of a bow-shaped piece of wood, metal, or other suitable material provided with openings, in combination with a sliding cord attached at its ends to said bow and looped intermediately over the said line-wire and bow, as and for the purpose set forth.

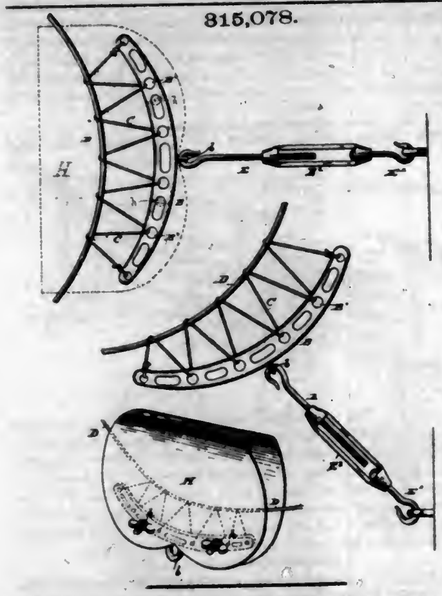
4. In combination with an angle-hanger substantially as hereinbefore described, a box or cover therefor, consisting of a piece of sheet metal bent at its center and secured at its edges to said hanger, which it incloses, as and for the purposes set forth.

5. In combination with the line-wire and a suitable angle-hanger therefor, a shield or guard secured to said hanger and embracing said line-wire, substantially as and for the purpose set forth.

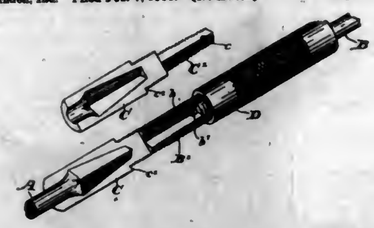
6. The combination, with the line-wire of a mechanical telephone, of a hanger therefor and an adjustable link supporting the same, substantially as and for the purposes set forth.

7. The combination, with the line-wire of a mechanical telephone, of an angle-hanger consisting of a suitable rigid frame and flexible cords looped thereon for engagement with said wire, as set forth.

315,078.



315,079. EXTENSION-SHANK FOR BITS, &c. ISAAC P. SHOTTS, Linden, Ind. Filed Feb. 7, 1885. (No model.)



Claim.—1. An extension-shank for bits, having a chuck formed on its lower end, said chuck consisting of two or more jaws having shanks on their inner ends, which fit into longitudinal notches in the lower end of the shank of the extension, the lower end of said jaws being enlarged, and a shoulder, *c'*, being formed a short distance above their lower ends, and a nut adapted to screw down onto said lower end of said extension around said jaws against said shoulder, substantially as set forth.

2. The combination, with the shank B of a bit-shank extension, of the enlarged portion B', having longitudinal notches *b*, the jaws C, provided with shanks C', said shanks C' being mounted in the notches *b* of the part B', and the nut D, the interior of which is screw-threaded, and is adapted to screw down onto said part B' and around said jaws, substantially as set forth.

3. The combination of the shank B, having an enlarged portion, B', said enlarged portion being provided with longitudinal notches *b*, the transverse pin *b'*, the ends of which project into said notches, the jaws C, having shanks C', said shanks being provided with transverse holes through which the ends of said pin *b'* are inserted, and the nut D, the interior of which is screw-threaded and adapted to screw down onto the portion B' and around the shank and upper portion of the jaws C, the exterior of which are formed screw-threaded, substantially as set forth.

4. The combination of the shank B, having an enlarged portion, B', said enlarged portion being screw-threaded, and provided with longitudinal notches *b* therein, the jaws C, formed with shanks C', which enter said longitudinal notches, said jaws being provided with a shoulder, *c'*, a short distance from the lower end of the shank, the part of said jaw above said shoulder being of the same size as the portion B' of the shank B, and screw-threaded, and the nut D, said nut D being internally screw-threaded, and adapted to screw down onto the part B' and surround a portion of the jaws C, whereby said jaws are easily clamped upon the end of a bit-shank, substantially as set forth.

5. The combination, with the shank B, jaws C, and nut D, said nut being provided with notches *d* in its outer end, of the spring E, secured in a groove in the part D, the catch of which is located at the end of said nut, whereby it engages with said notches and holds said nut in position, substantially as set forth

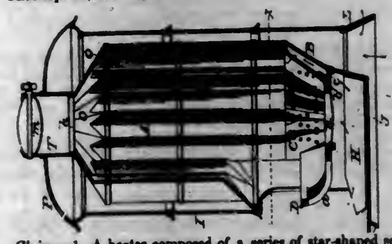
315,080. METHOD OF FILLING THE RECESSES IN THE TREAD OF CAR-WHEELS. SUSAN L. SINCLAIR, Allegheny, Pa. Filed Dec. 30, 1884. (No model.)

Brief.—The compound specified is a mixture of eight parts of pulverized iron ore, one part of salt, and one part of lime, ten parts of this mixture being used with one hundred parts of molten metal. The solution specified is one of sal-soda or any alkali and water.



Claim.—The method hereinbefore described for filling the recesses marked B, consisting of treating the molten metal with the compound herein specified, preparing the material of the mold with the solution as specified, and filling and knitting the said purified metal in said recess, substantially as specified.

315,081. SCHOOL-ROOM HEATER. ISAAC D. SHEAD, Toledo, Ohio. Filed Sept. 17, 1884. (No model.)



Claim.—1. A heater composed of a series of star-shaped sections, the lower section being inclined inward at its lower portion to form a fire-pot and provided with an inwardly-projecting perforated flange, *b*, for supporting the lining and grate, all being constructed substantially as shown and described.

2. In combination with the star-shaped fire-pot B, provided with the perforated flange *b*, the star-shaped lining C, provided with perforations, and arranged in relation to the walls of the fire-pot as shown, thereby forming an air-chamber into which the air is conducted and heated and then delivered through the perforations to the burning fuel, as set forth.

3. The combination, in a heater substantially such as described, of the body A, the star-shaped and inclined fire-pot B, perforated lining C, and the feeder D, arranged at the front opening of the fire-pot, all substantially as shown and described.

315,082. MEANS FOR PREVENTING GAS-EXPLOSIONS. SEBASTIAN STUTZ, Pittsburg, Pa. Filed Mar. 5, 1885. (No model.)
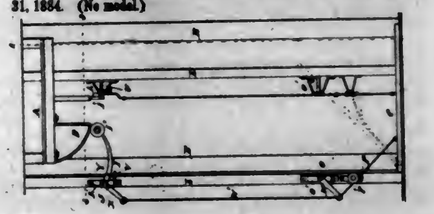


Claim.—1. The combination, with an underground gas-main, of a cover or casing having longitudinal side flanges, one or more escape or leakage pipes, and being put together by overlap-joints, and a series of supporting-yokes, substantially as set forth.

2. The combination, with an underground gas-main, of a cover or casing having longitudinal side flanges, one or more escape or leakage pipes, a series of supporting-yokes, and one or more partition-walls, substantially as set forth.

3. The combination, with an underground gas-main, of a cover or casing, a series of partition-walls having packing-grooves, and a series of supporting-yokes, substantially as set forth.

315,083. SELF-CLOSING HATCHWAY. RICHARD D. THACKSTON, St. Louis, Mo., assignor of one-half to Henry I. Coe, same place. Filed May 31, 1884. (No model.)



Claim.—1. In a self-closing hatchway, a check or stop to hold the door in suspension, in combination with a door, cage, and devices for opening the door as the cage ascends and descends.

2. In a self-closing hatchway, the combination of the cage, lever I, support to which the lever is secured by a shaft and bracket, arm O, rod connecting the arm to the lever, door, rope or chain connecting the door to the arm, and roller or pulley under which the rope or chain passes, substantially as set forth.
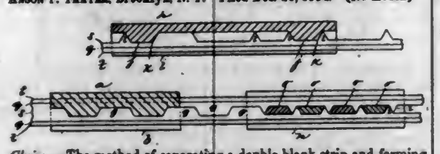
3. In a self-closing hatchway, the combination of the cage, lever I, shaft J, connected to a suitable support, spring U, secured by one end to the shaft, pin Y on the arm, against which an extension of the arm bears, stop projection V, and stop-pin X, arm O, rod N', door C, and chain or cord P, arranged and operating substantially as and for the purpose set forth.

315,084. METHOD OF MAKING METAL FENCE-BARBS. ANSON P. THAYER, Brooklyn, N. Y., assignor to Thomas W. Hall, same place. Filed Nov. 30, 1883. (No model.)



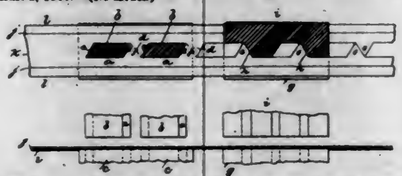
Claim.—The method of separating double blank stripe and forming barbs on the two rods produced therefrom at intervals along the same, consisting of, first, punching out the waste pieces *a a'* and forming diagonal cross-webs *d*, and, second, shearing said cross-webs apart diagonally, substantially as described.

315,085. METHOD OF MAKING BARBED METALLIC FENCING. ANSON P. THAYER, Brooklyn, N. Y. Filed Dec. 20, 1884. (No model.)



Claim.—The method of separating a double blank strip and forming barbs on the separated rods, consisting of, first, shearing the strip apart and forming two rods each having projections containing the material for two or more barbs, and the waste to be cut away between said barbs, alternating with notches between said projections of corresponding length, and, second, cutting away the waste material between two or more portions left remaining of each of said projections and forming barbs, substantially as described.

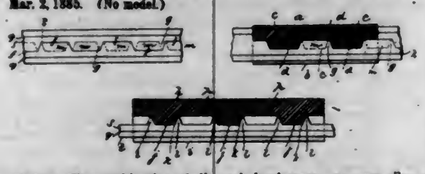
315,086. DIE FOR MAKING METALLIC FENCE-BARBS. ANSON P. THAYER, Brooklyn, N. Y., assignor to Thomas W. Hall, same place. Filed Mar. 2, 1885. (No model.)



Claim.—1. The combination of punches and dies adapted to punch out holes at intervals along a blank strip and form diagonal cross-bars separating said holes, with shearing-dies adapted to shear said cross-bars apart diagonally, and thereby form pointed barbs, substantially as described.

2. The combination of punching-dies *b c*, having parallel diagonal edges *c*, and shearing-dies *g i*, having diagonal cutting-edges *h*, substantially as described.

315,087. DIE FOR MAKING METALLIC FENCE-BARBS. ANSON P. THAYER, Brooklyn, N. Y., assignor to Thomas W. Hall, same place. Filed Mar. 2, 1885. (No model.)



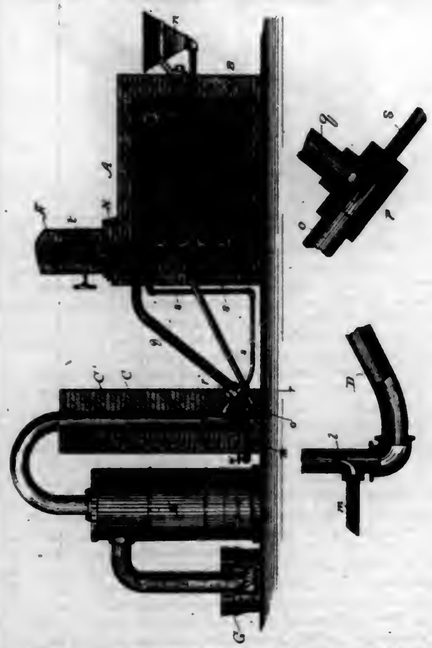
Claim.—The combination of dies *a b*, having one or more ribs, *c*, and grooves *d*, adapted to shear apart and form from one strip two rods having alternate projections *g* and corresponding notches of equal length, and dies *h i*, having one or more ribs, *j*, and corresponding grooves *k* fitting said ribs, the width of the ribs and grooves of dies *a b* being such that the projections *g*, formed thereby, include two or more barbs of one and the same rod and the waste between them, and the width of the ribs and grooves of dies *h i* being adapted to cut the waste from said projections and form two or more barbs therefrom, substantially as described.

315,088. FENCE. WILLIAM A. TILLMAN, Grape Vine, Tex. Filed Aug. 1, 1884. (No model.)



Claim.—The combination of upright posts having top cross-pieces provided with depending hooks at their ends, hooks pivoted at the bottom portion of the posts and extending laterally in opposite directions, and the panels comprising a series of longitudinal rails, the lower one of which is provided with staples at its ends, and provided with wire strands engaging the ends of the rails and extending longitudinally above the series of rails, the strands being engaged with the hooks upon the cross-pieces, substantially as and for the purpose set forth.

315,089. PROCESS OF AND APPARATUS FOR ROASTING ORES. ORVILLE H. TOBEY, Chicago, Ill., and WILLIAM W. TOBEY, New York, N. Y. Filed May 17, 1884. (No model.)

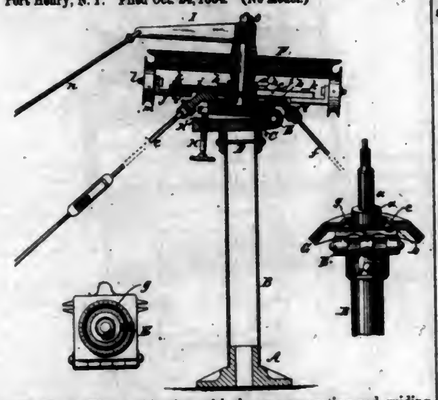


Claim.—1. The process herein described of removing the refractory constituents of ore by roasting, which consists in heating the ore in a comminuted state, commingling it with the products of combustion from a furnace and superheated steam, and impelling it through a flue, substantially as described.

2. An ore-roasting apparatus comprising, in combination, the following elements, viz: a furnace, A, a flue, C, a conduit, *q*, leading from the interior of the said furnace and communicating with the said flue, a steam-superheater, B, within the said furnace and communicating at one end with the steam-supply, and leading at its opposite end into the conduit *q*, an ore-conduit, D, passing through the furnace A and communicating with the said flue C, and means, substantially as described, to create a draft within the said conduit D to draw comminated ore through the same, and to force it through the said flue C, the whole being constructed and arranged to operate in the manner set forth.

3. In an ore-roasting apparatus, the combination, with the furnace A, steam-superheater B, flue C, and ore-coudnit D, provided with means, substantially as described, for creating a vacuum within the said conduit D to draw comminuted ore through the same, and to force the ore through the flue C, of a receptacle, E, provided with an outlet, and a receptacle, G, containing water and communicating with the said receptacle E at the said outlet, as and for the purpose set forth.

315,090. ADJUSTABLE ANGLE-SHEAVE. ANDREW TROMBLER, Port Henry, N. Y. Filed Oct. 24, 1884. (No model.)



Claim.—1. The combination, with the rope supporting and guiding sheave F, of the column B, cap C, and support E, hinged to the said cap, substantially as herein specified.

2. The combination of the cap C, the support E, hinged thereto, and provided with a sheave-supporting pintle, *a*, and the adjusting-screw H and semi-cylindrical nut H', substantially as herein specified.

3. The combination, with the hinged sheave-support E, of the plate G and guy ropes or rods *e f*, attached thereto, substantially as shown and described.

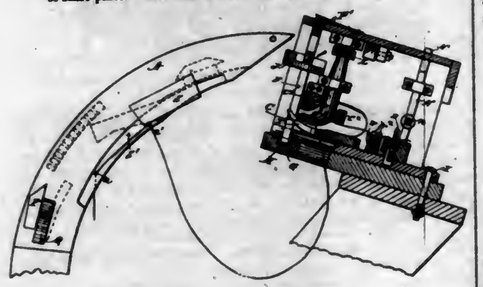
4. The combination, with the sheave-support E, of adjustable arms *i j* and rope-supporting sheaves *m*, as herein specified.

5. The combination, with the hinged sheave-support E and pintle *a*, of the arm I, for receiving the guy rope or rod *n*, as shown and described.

6. The combination, with the support E, provided with the T-shaped slot *g*, of adjustable arms *i j*, fastening-bolts *h*, and sheaves *m*, carried by the said arms *i j*, as herein specified.

7. The combination, with the sheave F, of the hinged support E, cap C, tubular standard B, and base A, as herein specified.

315,091. GRAIN-BINDER. GEORGE TYLER, Rock Creek, Ohio, assignor of three-fourths to Henry L. Lobdell and Augustus M. Barker, both of same place. Filed Jan. 7, 1884. (No model.)





Claim.—1. In a grain-binding machine, a knot-tying mechanism embodying a knot-tyer, cord cutting and holding mechanisms, and a knot-stripper, all combined with and adapted to be operated by the needle, substantially as described and set forth.

2. In a grain-binding machine, the combination of the needle A, provided with a cam-groove, *m*, with twine-holding mechanism consisting of the lever N and its friction-roller *n*, pawl D', and ratchet-wheel D, operated thereby, all operating together substantially as and for the purpose set forth.

3. In a grain-binding machine, the combination of the needle A, provided with a cam, S, with knot-stripping and twine-cutting mechanisms consisting of the knot-stripper T and the knife W, attached thereto, all operating substantially as and for the purpose set forth.

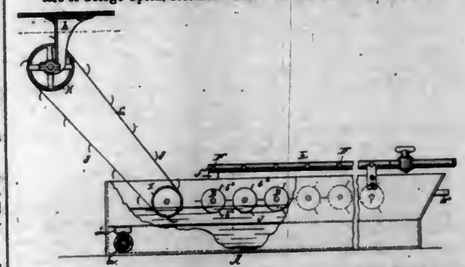
4. In a grain-binding machine, the combination of the needle A, provided with a double cam, E E', with the vertical stop F and the fixed bearings J, all operating together substantially as and for the purpose set forth.

5. In a grain-binding machine, the combination of the needle A, provided with a double cam, P Q, with the projection F' on the stop F, and the fixed bearing J, all operating together substantially as and for the purpose set forth.

6. In a grain-binding machine, the combination of the needle A, provided with holes *a a'*, for conveying binding-twine, the double cam E E', the cam-groove *m*, the toothed rack K, the cam S, the elongated recess S', and the double cam P Q, all operating substantially as and for the purpose set forth.

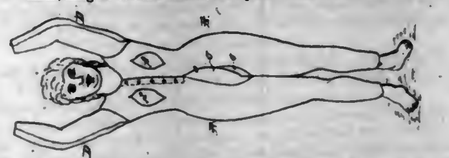
7. In a grain-binding machine, the needle A, provided with the raised cams E E', the slotted cam M, the toothed rack K, the raised cam S, and elongated recess S', and the raised cams P Q, in combination with the knot-tyer C, having the pinion L thereon, the knot-stripper T, the cutter W, the lever N, and twine-holder D, operated thereby, all constructed and operating together substantially as set forth.

315,092. APPARATUS FOR WASHING HAIR. MARIAN C. UPTON, Salem, and KING UPTON and HENRY WARDWELL, Peabody, Mass., executors of George Upton, deceased. Filed Feb. 23, 1884. (No model.)



Claim.—The tank A, provided with the overflow-pipe a^2, and screen J, arranged within said tank above and substantially parallel with the bottom of the tank, the rotating agitators B, having beater-arms, the supply-pipe E, with its perforated branch pipes arranged above and parallel with the agitators, as specified, and the carrier-belt G *g*, combined and arranged to operate substantially as and for the purpose set forth.

315,093. COMBINATION GARMENT. WILLIAM F. WARNER, Boston, Mass., assignor to John Holmes, same place. Filed Feb. 1, 1884. (Model.)



Claim.—1. A union garment comprising two halves, A, attached flaps *o* and *m*, attached arms D, and breast-pockets p^3, substantially as shown and described.

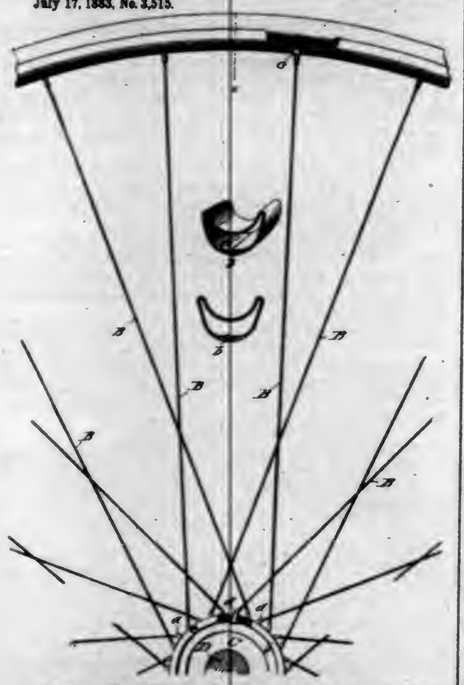
2. In a union garment, two webs, A, each provided with a gore, *c d e*, and their attached front and back flaps of different length, portions of the edges of the said two webs being united each to the other, while other portions thereof are united, as described, to form legs.

3. The two halves A, having the leg portions, attached front and rear flaps *o* and *m*, respectively, gore-pieces *c d e*, arm-pieces D, set in slits *p* in the said halves, and breast-pockets p^3, set in slits p^3 in said halves.

4. A union garment composed of two similar halves, each having the leg portions individually united on its own edges, the hip portions provided at front with attached flaps and at the rear with attached seat portions, which are connected at their lower edges to the front flaps, and are crossed and connected at their upper edges to the waist portions,

waist-gores interposed at the rear, and body portions provided with arm and breast slits, and seamed at the back, and adapted to be buttoned at the front, and arm-pieces individually united by their longitudinal edges and connected to the halves in their arm-slits, and the breast-pockets set in the breast-slit, substantially as described.

315,094. WHEEL FOR VEHICLES. GEORGE T. WARWICK, Springfield, Mass. Filed July 19, 1884. (No model.) Patented in England July 17, 1883, No. 3,515.



Claim.—1. The within-described improvement in the wheels of bicycles, tricycles, and other vehicles, consisting of a sheet-metal rim formed of one continuous piece bent to have its contiguous edges come opposite to each other, and having said edges secured in said position, in combination with a re-enforce, as *b*, of metal, brazed or soldered upon the outside lower surface of said rim, to be in effect integral therewith, for the purpose set forth.

2. In a velocipede, the combination of a spoke having an inner enlarged end and retaining-head thereon, and bent at one end of said enlargement to have its direction, when secured to the wheel, a tangent approximately to the perimeter of the hub, a flange upon the hub provided with radial perforations adapted to permit the spoke to be passed therethrough and turned therein to have its main body take a tangential position relative to the hub, and a draw-nut or similar means for uniting spoke and tire, all arranged as shown, and for the purpose set forth.

315,095. LIFE-PRESERVER. ELISHA WATERS and GEORGE A. WATERS, Troy, N. Y. Filed Aug. 4, 1883. (No model.)

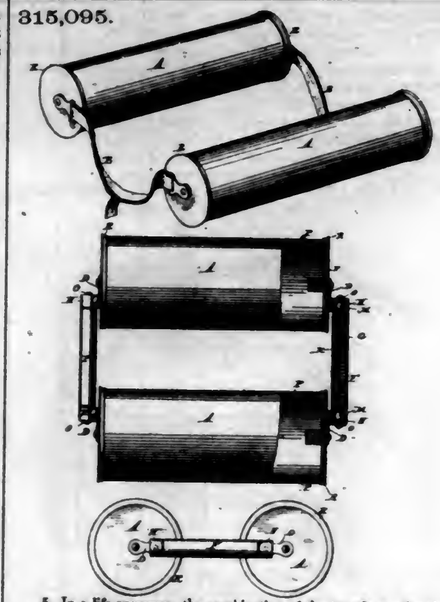
Claim.—1. The improved life-preserver consisting of two rigid elongated floats adapted to extend across the back and chest, respectively, combined with flexible devices connecting said floats permanently at both extremities, and adapted, as described, to pass beneath the arms of the wearer, whereby the preserver is adapted for instantaneous application without special adjustment or connection of its parts, and the floats retained in proper position when in use.

2. In a life-preserver, two rigid elongated cylindrical floats, *a a*, and two extensible connections, *b b*, uniting said floats permanently at their two ends, as described and shown.

3. In a life-preserver, the combination of two cylindrical floats and two connections uniting the ends of said floats and pivoted or swiveled thereto, whereby the floats are permitted to revolve in being placed in position upon the person.

4. In a life-preserver, two elongated rigid floats adapted, as described, to extend across the back and chest, respectively, and spring-connections, substantially as described, uniting said floats at both ends, whereby the float is adapted for application to persons differing in size without special adjustment, and the floats retained in proper position.

315,095.



5. In a life-preserver, the combination of the two floats, the plates pivoted to the ends of said floats, and the intermediate springs connecting said floats.

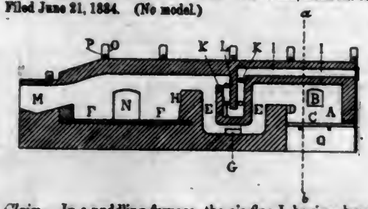
6. In combination with the floats and the connecting-springs, the sleeve or covering F, applied to said spring.

7. In a life-preserver, the combination of the rigid floats, the connecting-springs, and the connecting-cords adapted, as described, to limit the extension of the springs and to receive the weight of the user in the event of the breakage of the springs.

8. In combination with the two floats, substantially as described, the plates D, pivoted thereto, the springs, the caps applied to said springs, and a pivotal connection between said caps and the plates.

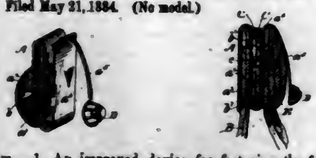
9. In a life-preserver, the combination of the paper body, the fibrous covering applied thereto, and the rings R, applied, as described, to the ends of said body.

315,096. PUDDLING-FURNACE. JOB WEBB, Alameda County, Cal. Filed June 21, 1884. (No model.)



Claim.—In a puddling-furnace, the air-flue I, having hanging wall L therein, arranged so that the said flue will pass first over the roof of the fire-chamber A, then down at the back of the rear wall thereof and between that wall and the hanging wall, then under the hanging wall, and finally up between the hanging wall and the rear wall of the fire-flue, and over the top of this wall into the puddling-chamber, the said air-flue having suitable air-inlet holes, substantially as herein described.

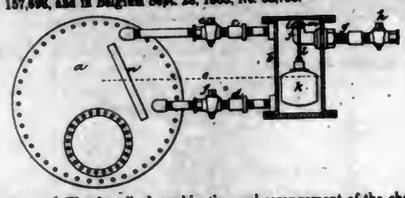
315,097. NECKTIE-FASTENER. JAMES A. WHITCOMB, Washington, D. C. Filed May 21, 1884. (No model.)



Claim.—1. An improved device for fastening the front ends of the collar and securing the necktie in position, consisting of a straight unbent front and rear arm and a connecting portion or body, points or spurs being disposed, as set forth, over the face of the arms and central portion and projecting in relation to each other, substantially as and for the purpose set forth.

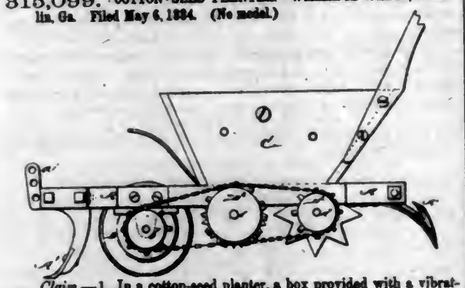
2. A collar and necktie fastener having a body portion comprising arms with projecting points or spurs, and provided with the front curved spring-arm adapted to project over the necktie, substantially as set forth.

315,098. FEED-WATER REGULATOR FOR STEAM-BOILERS. W. WHITE, London, England, assignor to William Stein, same place. Filed Oct. 4, 1883. (No model.) Patented in England May 7, 1883, No. 2,307; in Germany Sept. 21, 1883, No. 27,236; in France Sept. 24, 1883, No. 157,606, and in Belgium Sept. 28, 1883, No. 62,735.



Claim.—The described combination and arrangement of the chamber *b* and its inclosed float with the boiler by means of the connecting-pipes *c d*, and with the water-supply by means of the feed-pipe *g*, the combination operating, as set forth, to pass steam to the feed-pump and prevent its acting when the water is at or above its normal level, and to close the float-actuated valve and shut off the steam from the pump when the water falls below such level.

315,099. COTTON-SEED PLANTER. WILLIAM M. WILDER, Franklin, Ga. Filed May 6, 1884. (No model.)



Claim.—1. In a cotton-seed planter, a box provided with a vibrating partition, in combination with a toothed or saw shaped feed-wheel adapted to engage and actuate the partition, substantially as shown and described.

2. In a cotton-seed planter, a fertilizer-box having a vibrating side or end and suitable revolving stirring-arms, in combination with a slide adapted to regulate the quantity of fertilizer sown, and a saw or toothed wheel adapted to vibrate the side of box, substantially as shown and described.

3. The box C, divided by the swinging partition *c*, having a spring-arm, C^3, in combination with the toothed wheel D', substantially as and for the purpose set forth.

4. In a cotton-planter, the main frame A, provided with the opener A' and coverer A^2, the driving-wheel B, having the chain-wheels *b b*, and box C, in combination with the stirrers *c' c²*, carrying-wheels c^3, the chains C', and the vibrating partition *c* and saw-wheels D D', substantially as and for the purpose set forth.

315,100. LOOM-SHUTTLE. ISAAC L. WILBER, Taunton, Mass. Filed Sept. 6, 1884. (No model.)



Claim.—1. The combination, with a loom-shuttle body provided with the thread educt or eye, of the yarn-threading guide arranged in such body and fixed thereto by a screw, substantially as described, such guide consisting of a spring hooked at its rear part and provided in the hooked part with two holes, one larger in diameter and arranged directly over the other, as set forth.

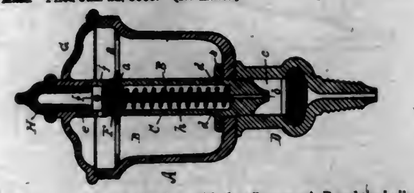
2. The yarn-threading guide consisting of a spring hooked at its rear part and having an ear extending laterally from the larger part, all substantially as set forth.

3. The combination of the yarn-threading guide consisting of a spring hooked at its rear part, as represented, and arranged and fixed, as described, in the shuttle-body, with the said body provided with the hole or passage for the escape of the yarn from the hook of the said guide and out from the shuttle, as explained.

4. The combination of the threading-guide, consisting of the spring hooked at its rear end and arranged, as described, in the shuttle-body, and provided with an ear extending laterally from it, the said guide, with the shuttle-body, provided with the delivery-eye and chambered to receive and hold such guide, and furnished with the shoulder or bearing for the free end of the guide to rest upon, the stopping-recess for the ear to enter, and the finger-receiving hole underneath the guide, all being substantially as represented.

5. The combination of the threading-guide, consisting of the hooked spring, as described, with the shuttle-body having a chamber for reception of such guide, and a thread-passage leading out of the said chamber, a shoulder or bearing for the guide in the upper part of such chamber, and a hole through the bottom of the chamber for access by the wearer's finger to the guide for moving it off the shoulder or bearing, all being substantially as set forth.

315,101. DIFFERENTIAL OIL-CUP. JOSEPH H. WILKINSON, Boston, Mass. Filed Jan. 22, 1885. (No model.)



Claim.—1. The combination, with the oil-reservoir B and the hollow post C, containing the ducts *b d d*, of the valve-rod E, screw-threaded at F, and the cap G, to which said rod is attached, substantially as set forth.

2. The combination, with the oil-reservoir B, hollow post C, containing the ducts *b d d*, of the valve-rod E, screw-threaded at F, securely affixed to the cap G and the graduated scale, whereby the relative position of the valve is shown and the flow of the lubricant regulated, substantially as shown and described.

3. In an oil-cup, a cap surmounting the same and cast integral with the valve-rod, whereby the valve is actuated, said cap having a tubular portion above said rod for the reception of oil, and said tubular portion being provided with apertures for the passage of the oil to the oil-cup, substantially as herein described.

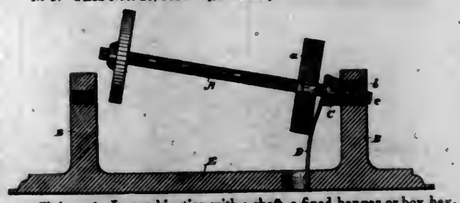
315,102. SABOT FOR ORDNANCE. FRANCIS H. WILLIAMS, Syracuse, N. Y. Filed Dec. 10, 1884. (No model.)



Claim.—1. The air-tight cylindrical sabot or buffer B, filled with oakum or other analogous yielding elastic material, substantially as and for the purposes specified.

2. The sabot or buffer formed of an elastic external air-tight case having supporting spiral springs within, and a filling of fibrous or other yielding material, substantially as described.

315,103. JOURNAL-BEARING. J. NEWTON WILLIAMS, New York, N. Y. Filed Nov. 20, 1884. (No model.)



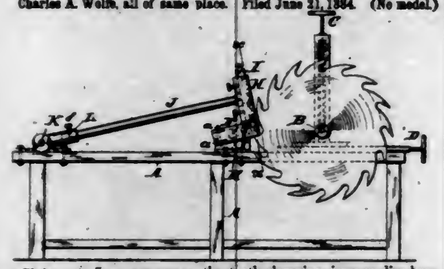
Claim.—1. In combination with a shaft, a fixed hanger or box having a bearing of greater diameter than said shaft, and a movable roller or bushing having an axial bearing for said shaft and tapered externally, substantially as and for the purpose set forth.

2. In combination with a shaft and fixed bearings therefor of a greater diameter than said shaft, a tapering collar or bushing on said shaft, and a spring adapted to press it to its bearing, substantially as set forth.

3. In combination with a shaft, a wheel thereon, fixed bearings for said shaft of greater diameter than the same, a tapering collar or bushing on said shaft, and a spring bearing between said wheel and bushing, substantially as and for the purposes set forth.

4. The combination of the shaft suitably supported at one end and at the other end provided with a collar attached thereto, with the standard, the cone-shaped bushing, and the interposed spring which bears against the collar and bushing, as and for the purposes set forth.

315,104. SAW-SWAGE. HARVEY R. WOLFE, Louisville, Ky., assignor to the Brennan & Co. Southwestern Agricultural Works, and Charles A. Wolfe, all of same place. Filed June 21, 1884. (No model.)

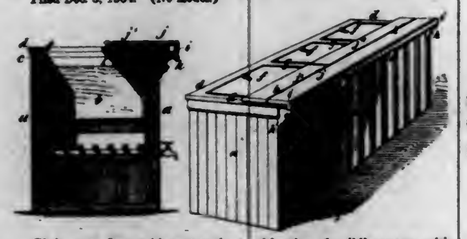


Claim.—1. In a saw-swage, the tooth-clamping jaws or dies having their upper portions adjacent to the point of the tooth beveled to form a taper recess, substantially as described.

2. The combination, with the tooth-clamping jaws having their upper portions adjacent to the point of the tooth beveled to form a taper recess, of a notched or serrated male die so shaped as to fit into the aforesaid taper recess, and supported upon or by a pivoted handle, substantially as described.

3. The combination, with the tooth-clamping jaws having their upper portions adjacent to the point of the tooth beveled to form a taper recess, of a double-ended notched or serrated male die so shaped as to fit into the aforesaid taper recess, and supported upon or by a pivoted swiveled handle, substantially as described.

315,105. REFRIGERATOR. ALBERT B. WOOD, New York, N. Y. Filed Dec. 3, 1884. (No model.)

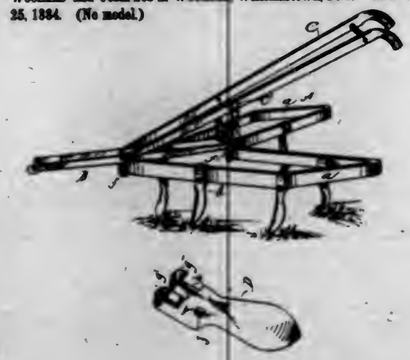


Claim.—1. In a refrigerator, the combination of a sliding cover with an overlapping counter, substantially as described.

2. In a refrigerator, the combination of a sliding cover with an overlapping counter, such counter being hinged in sections, substantially as described.

3. In a refrigerator, the combination of sliding covers *f* and overlapping counter *j j' j''*, hinged at *k*, substantially as described.

315,106. COMBINED HARROW AND CULTIVATOR. JESSE H. WOOLARD and JOSEPHUS L. WOOLARD, Williamstown, N. C. Filed July 25, 1884. (No model.)



Claim.—1. The combination, in a cultivator, of the V-shaped frames connected by integral parallel bars *a*, and carrying a series of adjustable teeth, the beam B, having hooks *f*, the handles, and the brackets C', substantially as set forth.

2. The combination, with the sides of the frame, of teeth having inwardly-extending hooks, and formed with a seat to receive the side of the frame, a hook fitting in the space between the hooks g^2 and bearing upon the front face of the tooth, and a bolt clamping said hook and the lower end of the tooth together, substantially as set forth.

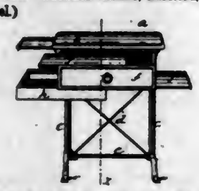
315,107. NET-STAFF. GILBERT L. BAILEY, Portland, Me. Filed Aug. 25, 1884. (No model.)



Claim.—1. Head K, having recess A, slots F F, and studs G G, in combination with staff E and elastic hoop C, substantially as herein described.

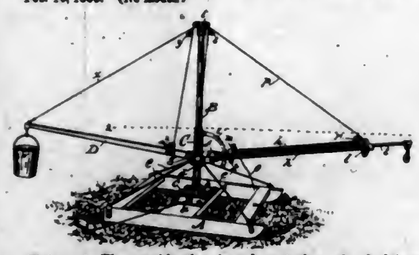
2. A net-staff head composed of one piece provided with a hollow cylindrical base, a recess in its upper surface, and slots or grooves in portions of its under surface opening into said recess, adapted to receive and support the ends of an elastic net-hoop, substantially as herein set forth.

315,108. TABLE. LEONARD BAILEY, Hartford, Conn. Filed Aug. 24, 1883. (No model.)



Claim.—In combination, the table *a*, having the main drawer *f*, bearing on its under side the laterally-opening drawer *h* and the slide *j*, and on its upper side the sliding cover *g*, all substantially as described.

315,109. HAY-STACKER. JAMES A. BALL, Thorntown, Ind. Filed Feb. 16, 1885. (No model.)



Claim.—1. The combination, in a hay-stacker, of a bed-frame, a mast erected upon the bed-frame, a sleeve adapted to rotate about said mast, a boom consisting of a fixed part hinged to said sleeve, and an extensible part adapted to slide along said fixed part, a pulley secured to the free end of said fixed part, a second pulley mounted upon the mast-head, a draft-rope secured to the inner end of the extensible part of the boom and passing over said pulleys, and means for detachably connecting the extensible part of the boom with the fixed part, whereby the boom is first raised by the draft-rope and afterward extended thereby, substantially as specified.

2. In a hay-stacker, the extensible boom consisting of a fixed part composed of two parallel bars united at their ends and having a space between them, a third bar arranged to slide between said parallel bars and having a cross-head engaging said bars, and a hook pivoted to said sliding part and adapted to engage said fixed part, all combined substantially as and for the purpose specified.

3. In a hay-stacker, the combination of a bed-frame, a mast erected on said frame, a sleeve adapted to rotate about the mast, an extensible boom hinged to the sleeve, a spar hinged also to the sleeve opposite the boom, a counterpoise-weight attached to said spar, and ropes and pulleys for raising said boom and spar, all substantially as specified.

4. The combination, with the mast, the sleeve thereon, and the boom hinged to said sleeve, of the ratchet-bar pivoted to the sleeve and adapted to engage the boom, substantially as and for the purpose specified.

5. The combination, in a hay-stacker, of the bed-frame, the mast hinged thereto, the collar secured to the mast, the stay-rods attached to the corners of said bed-frame and detachably connected with the collar, the sleeve adapted to rotate on the mast, and a boom hinged to said sleeve, all substantially as and for the purpose specified.

315,110. COMBINED WHIP-SOCKET, OIL-CAN, AND WRENCH. C. L. BARD, San Buenaventura, Cal. Filed July 26, 1884. (No model.)



Claim.—1. The whip-socket A, in combination with the bolt or pin E, by which it is pivoted to the vehicle, and a wrench with a slotted top bearing for the same, substantially as described.

2. The whip-socket A, having an encircling band, D, at its top, in combination with the bolt or pin E, secured to the band D, and journaled to a suitable part of a vehicle, and a wrench with a slotted top for the pin, substantially as herein described.

3. The whip-socket A, having the pivot-bolt E, by which it is secured to the vehicle, the wrench C, having a slotted top bearing, *m*, in which the bolt or pin E is journaled, and a means by which the wrench is supported from the vehicle, substantially as herein described.

4. The whip-socket A, having the pivot-bolt E, by which it is secured to the vehicle, the wrench C, having a slotted top, in which the bolt or pin E is journaled, and the stud H on the vehicle, adapted to enter a slot, *h*, in the wrench, substantially as herein described.

5. The whip-socket A, having bolt or pin E, by which it is pivoted to the vehicle, the oil-can B, secured to the base of the whip-socket, and having a pin, F, the wrench C, having stock or handle *c'*, with a slotted top bearing, *m*, in which the bolt or pin E is journaled, and an arm, *c*, with a socket, *f*, with which the pin F engages, and the stud H on the vehicle adapted to enter a slot, *h*, in the stock or handle of the wrench, substantially as herein described.

6. The whip-socket A, having pivot bolt or pin E, the oil-can B, secured to its base, and the wrench C, having a stock or handle, *c'*, with a slotted top bearing, *m*, forming modified sides or arms *m'*, said wrench being secured to the vehicle, and joining the whip-socket and oil-can by means of the bolt E, journaled in the slotted bearing, and pin F, fitting socket *f*, substantially as herein described.

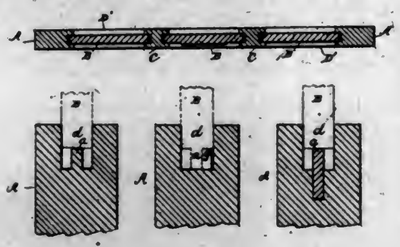
7. The whip-socket A, having hook *a* and pivot bolt or pin E, the oil-can B, having pin F, the wrench C, having slotted top bearing, *m*, and socket *f*, and the stud H, passing through slot *h* in the wrench and engaging with hook *a* on the whip-socket, substantially as herein described.

8. The whip-socket A, secured to the vehicle and having a tubular base with a spring, *n*, in combination with the oil-can B, telescoping with said base and bearing against the spring, substantially as herein described.

9. The whip-socket A, having pivot-bolt E, a tubular base and inclosed spring *n*, the wrench C, secured to the vehicle and joining the bolt, said wrench having arm *c*, with socket *f*, and the oil-can B, telescoping within the tubular base of the whip-socket and bearing against the spring, said oil-can having a pin, F, in its bottom engaging with the socket *f* in the wrench, substantially as herein described.

315,111. DOOR OR SHUTTER. EMERSON BELDEN, Green Island, N. Y., assignor of one-half to Albert Crampton, same place. Filed Dec. 19, 1884. (No model.)

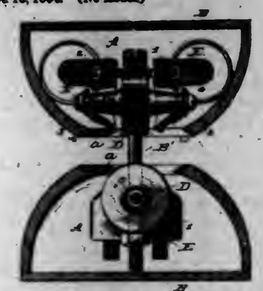
Brief.—Consists of a yielding stop between the edge of a panel and the bottom of a panel-inclosing groove.



Claim.—1. In a paneled door or shutter, a yielding stop between the edge of a panel and the bottom of a panel-inclosing groove in a stile, rail, or mullion, substantially as and for the purposes set forth.

2. In a paneled door or shutter, a projecting fillet or tongue of wood in the bottom of a panel-inclosing groove in a stile, rail, or mullion, integral with said stile, rail, or mullion, substantially as described, and for the purposes set forth.

315,112. GIMBAL-JOINT. ALEXIS P. BIENBORN, Hyde Park, Mass. Filed Sept. 18, 1884. (No model.)



Claim.—1. An improved gimbal-joint consisting of a concave shell having a central hole, a central disk with a connecting-rod attached thereto, and with studs, in combination with trucks adapted to bear upon the inner surface of the shell, the parts being arranged to operate all substantially as described.

2. In combination with the concave shaft having central hole, the disk D, and connecting-rod, the studs on said disk, the trucks pivoted on said studs, anti-friction rollers in the backs of the trucks bearing on the disk, and wheels in the truck bearing on the concave surface, all substantially as described.

315,113. ELECTRIC RAILWAY. BENSON BIDWELL, Philadelphia, Pa. Filed Sept. 4, 1884. (No model.)



Claim.—1. In an electric railway, a metallic line-circuit composed of tubular conductors having longitudinal slots and interior contact-surfaces, substantially as shown and described.

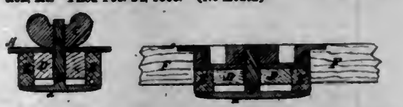
2. In an electric railway, a metallic line-circuit composed of tubular conductors having longitudinal slots and interior contact-surfaces, said conductors being suitably supported, with their slots turned downwardly or forming the bottom sides of the conductors, substantially as shown and described.

3. In an electric railway, a metallic line-circuit composed of tubular conductors having longitudinal slots, interior contact-surfaces, and an exterior covering or coating of non-conducting material, substantially as shown and described.

4. The tubular conductor C, having longitudinal slot *c*, and interior contact-surfaces, in combination with a movable contact-brush placed in the bore of said conductor, substantially as shown and described.

5. In an electric railway, the combination of a line of way, a car, an electric generator, and a line metallic circuit composed of tubes longitudinally slotted, in the bores of which are movable contact-brushes in circuit with said car, substantially as shown and described.

315,114. STOPPER FOR JUGS. JEFFERSON B. BRACKETT, Leeds Junction, Me. Filed Feb. 24, 1885. (No model.)

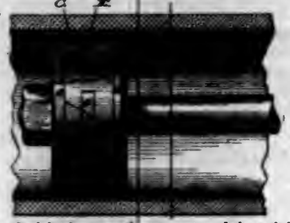


Claim.—The combination of the auxiliary or inelastic disk D and the elastic ring E, encompassing it and of greater depth relatively to it, with the plates A and *a*, having the ring and disk between them, and with the screw B and its nut C, the shank of the screw going through the plate A and the disk D, and all being to operate substantially as set forth.

315,115. PACKING FOR PISTONS. JAMES BRANDON, New York, N. Y. Filed Dec. 8, 1884. (No model.)

Claim.—The combination, with the outer packing-ring and the central body of a piston, and with a series of apertures affording free com-

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manication from the joint between the two outward through both heads of the piston, of an auxiliary ring fitted within a central annular recess in the periphery of the body to bear out centrally against the inner face of the packing-ring, substantially in the manner and for the purpose herein set forth.

315,116. APPARATUS FOR MAKING SAND MOLDS FOR CASTING METAL. EDWARD BERGLAUER, Berlin, Germany, assignor to Theodore Rolle, same place. Filed Dec. 27, 1884. (No model.)



Claim.—1. The combination of a pattern or pattern-plate having the pattern rigidly attached thereto, a flask, guides, and devices for maintaining the guides in a vertical position, such devices being molded in the sand and unattached to the flask or its appliances, substantially as described, and for the purpose set forth.

2. The combination of the flask G, the pattern or pattern-plate A, the guides *s*, and the guiding-pieces B, substantially as described, and for the purpose set forth.

3. The combination of the flask G, the pattern or pattern-plate A, and guides *s* with supports B, substantially as described, and for the purpose set forth.

315,117. SHIRT-NECKBAND PROTECTOR. DAVID N. BRISTOL, Lansingburg, assignor to Wilbur, Du Bois & Wilbur, Troy, N. Y. Filed Apr. 16, 1883. (No model.)



Claim.—A new article of manufacture, consisting of a shirt-yoke shield formed of the flexible strip D, marked at each end with corresponding figures indicative of the size of neck to which they are severally adapted and where the button-holes are to be made, substantially as shown and described.

315,118. SHIRT-YOKE SHIELD. DAVID N. BRISTOL, Lansingburg, assignor to Wilbur, Du Bois & Wilbur, Troy, N. Y. Filed Apr. 16, 1883. (No model.)

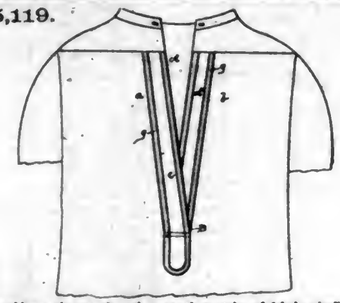


Claim.—The combination of a launderied shirt having a stand-up neckband, D, a button, F, to connect the ends of said band, and a shield, A, having the apertured tab B, said shield held by the tab to the button and concealing the yoke-seams, back opening, and unlaunderied fabric, as shown and described.

315,119. SHIRT. DAVID N. BRISTOL, Lansingburg, assignor to Wilbur, Krum & Wilbur, Troy, N. Y. Filed Apr. 10, 1884. (No model.)

Claim.—1. The herein-described method of facing and staying a shirt-opening, consisting of stitching a strip of fabric along one edge to the inner side of one fly-edge of said opening, turning in the other edge, and securing thereto one of the edges of a strip of fabric made about double the length of said opening and bound on both edges by a row of stitching extending from one end of said opening to the other, securing the opposite edge of said bound strip to said fly-edge by another row of stitching extending the length thereof; then securing the other half of the first stitched edge of said bound strip to the other fly-edge of said opening by a row of stitching extending from the bottom to the top of said opening; then turning the last stitched half of said bound strip reverse side up, superimposing thereon and stitching thereto along its loose edge from one

315,119.

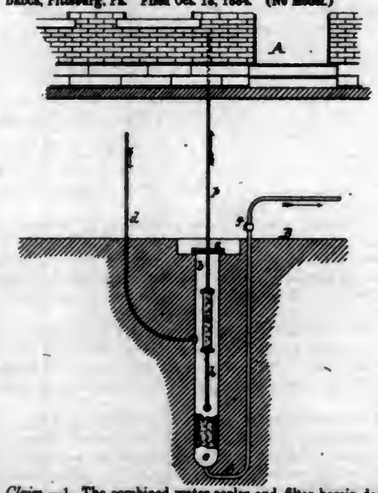


end of said opening to the other another strip of fabric similarly bound upon both edges and along one edge of the latter, and securing the other bound edge of the last-mentioned strip to the last-mentioned fly-edge of said opening the length thereof, substantially as described, and for the purposes set forth.

2. The combination, with a shirt having the back or sleeve opening A, and an inner facing formed of one or more strips, of the strip *c*, having folds secured to the shirt side and facing, substantially as shown and described.

3. The combination, with a shirt having the back or sleeve opening A, of the strips *c d*, the folded strips *d' e*, the binding *g'*, the run seam *i*, and the stitching *m n n' n''*, substantially as and for the purpose specified.

315,120. COMBINED WATER COOLER AND FILTER. JOHN M. BRUCE, Pittsburg, Pa. Filed Oct. 18, 1884. (No model.)



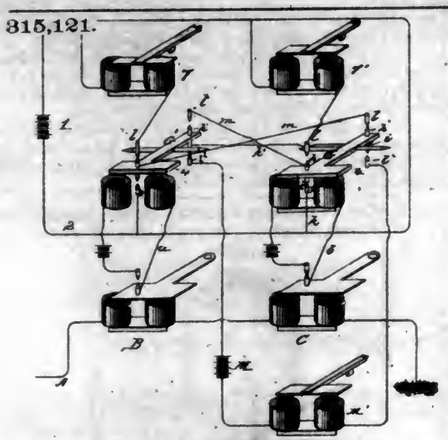
Claim.—1. The combined water cooler and filter herein described, consisting of a cylinder embedded in the earth, a water-supply pipe leading thereto, and a water-exit pipe provided with a cock leading therefrom, in combination with a supply-pipe leading from the cylinder to the house, said pipe being provided with a filter, substantially as described, and for the purposes set forth.

2. A cooler and filter consisting of the close vertical cylinder *b*, embedded in the earth for the purpose of keeping its contents cool, in combination with a pipe, *d*, leading to a supply of water under constant pressure, an outlet-pipe, *f*, in communication with and extending from the concave bottom of the cylinder upward above the earth, and provided with a cock or valve, *g*, through which any deposit of foreign matter within the cylinder may be forced out, a pipe, *h*, entering a chamber, *k*, filled with any good filtering medium or substance, and a delivery-pipe, *p*, leading therefrom into a dwelling-house, A, or other desirable points or places, as shown and described, for the purposes intended.

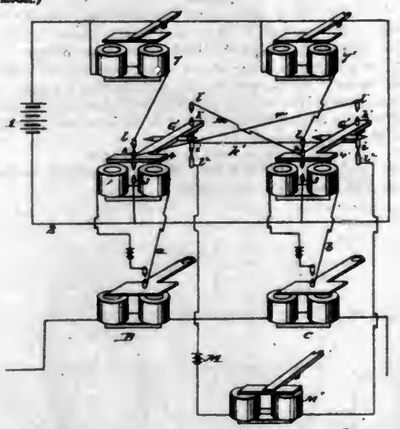
315,121. HARMONIC PRINTING-TELEGRAPH. GEORGE A. CARDWELL, Brooklyn, N. Y., assignor of two-thirds to Frederick K. Fitch, New York, and Joseph T. Murray, Newark, N. J. Filed Sept. 11, 1884. (No model.)

Claim.—The method of producing telegraphic signals which consists in the transmission of separate and distinct pulsatory currents of different characteristics, and effecting thereby independent relays which conjointly control printing, recording, or sounding devices, as set forth.

315,121.



315,122. HARMONIC PRINTING-TELEGRAPH. GEORGE A. CARDWELL, Brooklyn, N. Y., assignor of two-thirds to Frederick K. Fitch, New York, and Joseph T. Murray, Newark, N. J. Filed Oct. 1, 1884. (No model.)



Claim.—1. In a multiple telegraphic apparatus, the combination of two or more relays responsive to different currents, each controlling a receiving-magnet and its circuit, and conjointly controlling a third receiving-magnet and intermediate electro-magnetic devices, as set forth.

2. In a multiple telegraphic printer, the combination of two or more relays responsive to different currents, a printing-magnet, and intermediate electro-magnetic devices, as set forth, whereby a single character will be printed in obedience to the conjoint action of the two relays.

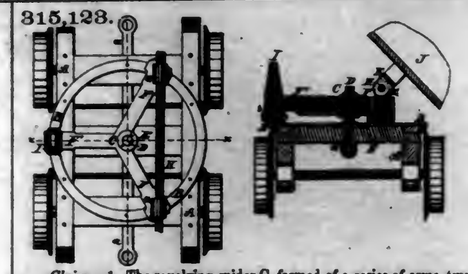
3. In a multiple telegraphic printer, the combination, with relays, printing-magnets, and intermediate devices, whereby said magnets will respectively respond to grouped or simultaneously-produced but independent currents, of printing-magnets and appurtenant devices, as set forth, which will respond to single or individual currents, substantially as described.

4. In a multiple telegraph, the combination of two or more relays, with their local-battery circuits, two or more secondary relays in said local circuits, one or more supplementary circuits, and generators, with a series or system of circuits and contacts, whereby the operation of two intermediate relays will effect an operation of two secondary relay-armatures and close a normally-open circuit upon a magnet, substantially as described.

5. In a printing-telegraph in which printing-magnets print in response to the action of single relays, the combination, with said relays and printing-magnets, of second relays, printing-magnets in supplementary circuit or secondary local, coupled secondary relay-armatures, contacts, and branches, whereby certain printing-magnets will respond to single currents, and others will respond to grouped or simultaneously-produced currents, and whereby, when certain currents are grouped, their individually-dependent printing-magnets will remain passive.

315,123. DUMPING-CAR. DOMINIC M. CAREY, Canton, Ohio. Filed Jan. 17, 1885. (No model.)

315,123.



Claim.—1. The revolving spider C, formed of a series of arms, two of which are provided with the hollow extensions G, and the third with the raised projection I, substantially as described.

2. The combination, with the frame A, provided with turn-table, and the body J, of the spider C, formed of a series of arms, two of which are provided with the hollow extensions G, and the third with a raised projection, I, and a rod, H, passing through said hollow extensions and a part of the body J, to hinge the latter, substantially as described.

3. The combination of the body J, provided with plates K, having projecting apertured lugs or ears, the spider C, formed with hollow extensions G, fitting between the ears of plates K, and the rod H, passing through said ears and the hollow extensions, substantially as described.

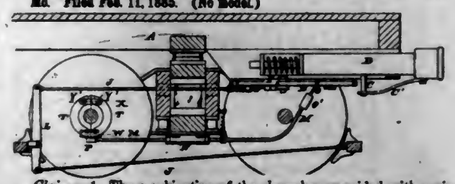
4. The combination of the body J, provided with plates K, having apertured lugs or ears, frame A, provided with turn-table plate B, spider C, rotatably secured to frame A by king-bolt D, and composed of a series of arms, two of which are formed with hollow extensions G, fitting between the ears of plates K, and the third with a raised projection, I, and a rod, H, passed through the ears of plates K, and the hollow extensions G, substantially as described.

315,124. STAPLE. WILLIAM CHISHOLM, Cleveland, Ohio. Filed Aug. 11, 1884. (No model.)



Claim.—A staple made of a strip of suitable metal, having that portion of the strip for the bow thereof transversely semicircular or flat, and the prongs extending therefrom flat and slightly tapering, twisted into a screw-like form, and having the terminal ends chisel-shaped or pointed, substantially as herein described, and for the purpose set forth.

315,125. AUTOMATIC CAR-BRAKE. WILLIAM CLAYTON, St. Louis, Mo. Filed Feb. 11, 1885. (No model.)



Claim.—1. The combination of the draw-bar provided with a pin or projection, push-bar connected to the brake-beams, rock-shaft provided with an arm and connected to the push-bar by a yoke and block, and expansible segments secured to one of the axles of the truck and adapted to bear against the arm on the rock-shaft, substantially as set forth.

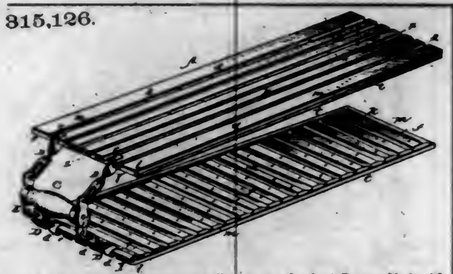
2. The combination of the draw-bar provided with a pin or projection, push-bar connected to the brake-beams, rock-shaft provided with an arm and connected to the push-bar, and segments for operating the parts secured to one of the axles by plates and pins, and being connected by springs, substantially as set forth.

3. The combination of the draw-bar provided with a pin or projection, push-bar connected to the brake-beams, rock-shaft connected to the push-bar, arm on the rock-shaft, plates secured to one of the axles, pins projecting from the plates, segments having perforations to receive the pins on the plates, springs connecting the segments, and bars secured to said plates and slotted to receive pins on the segments, all arranged and operating substantially as shown and described, for the purpose set forth.

315,126. OIL-MAT. WILLARD W. CLOCK, La Grange, Ga. Filed Jan. 31, 1885. (No model.)

Claim.—1. In a mat for cotton-seed-oil presses, the combination of the following instrumentalities, to wit: two foraminous leaves jointed or hinged together at one of their ends and provided on their adjoining sides or faces with a series of ribs or corrugations, and on their opposite sides or backs with a series of grooves or channels, substantially as described.

315,126.

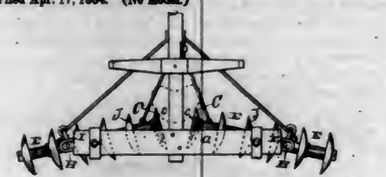


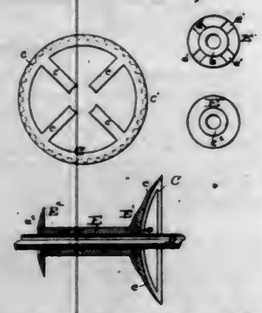
2. In a mat for cotton-seed-oil presses, the leaf B, provided with the ribs *f*, holes or ducts *k*, and channels *d*, substantially as set forth.

3. The improved cotton-seed-oil-press mat herein described, the same consisting of the leaves A B, respectively provided with the flanges *t*, ribs or corrugations *f*, holes or ducts *k*, grooves or channels *d*, jointed links D, the bars E, and handle C, constructed, combined, and arranged to operate substantially as described.

4. An oil-press mat provided on its inner face with transverse ribs, and with side and end flanges, on its outer face with longitudinal grooves, and in its body with holes opening between the ribs of the inner face and within the grooves of the outer face, substantially as described.

315,127. DISK-HARROW. ADAMS CORBIN, Jr., Gouverneur, N. Y. Filed Apr. 17, 1884. (No model.)





Claim.—1. As a new article of manufacture, a harrow-disk having a substantially continuous periphery or rim, C, and arms or spokes *c* projecting inwardly from said peripheral rim toward a common center, said spokes being connected together only by rim C, substantially as set forth.

2. As a new article of manufacture, a harrow-disk having a continuous periphery or rim, C, and arms or spokes *c* projecting inwardly from said peripheral rim, the inner ends of the spokes being formed upon arcs of a circle, whereby said spokes are adapted to be mounted upon and partially encircle an axle or bearing, said spokes being connected together only by rim C, substantially as set forth.

3. In a harrow, the combination of a gang-axle, two or more sleeves, E, each provided with a hub, *e*, and flanges E' E², disks mounted upon said hubs *e*, between the flanges E' E² on adjacent sleeves, and means, substantially such as described, for clamping said sleeves and disks together, as described.

4. The herein-described sleeve for a disk-harrow, provided at one end with a flange, E', and a hub, *e*, and at its opposite end with a flange, E², adapted to engage with the disk having inwardly-projecting spokes, substantially as set forth.

5. The herein-described sleeve for a disk-harrow, provided at one end with a flange, E', having the ribs or projections *e'*, and provided at its opposite end with a flange, E², substantially as and for the purposes set forth.

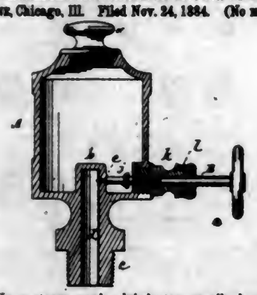
6. In combination with sleeve E, having a flange, E', at one end, provided with ribs *e'*, and the flange *e²* at the opposite end, the disk C, provided with inwardly-projecting spokes, which lie between the ribs *e'*, substantially as set forth.

7. The herein-described sleeve for a disk-harrow, provided at one end with a flange, E', and a hub, *e*, and at its opposite end with a flange, E², and a recess, *e³*, substantially as and for the purposes set forth.

8. In a disk-harrow, the combination of the axle, the imperforate disks, the perforated disk at the inner end of the axle, and means for locking the axle and the sleeves to the disks to compel a perforated disk to rotate with the imperforate disks, substantially as set forth.

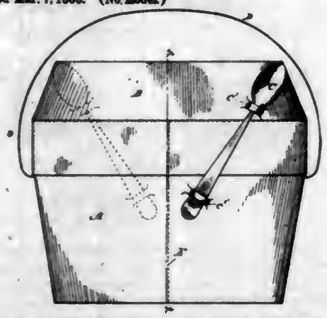
9. In a disk-harrow, the combination of two disk-gangs, each provided at its inner end with a spoked or perforated disk and with a series of imperforate disks, the concave sides of the disks being toward the center of the harrow, substantially as set forth.

315,128. LUBRICATOR FOR STEAM-ENGINE CYLINDERS. RICHARD T. CRANE, Chicago, Ill. Filed Nov. 24, 1884. (No model.)



Claim.—In a steam-engine lubricator, an oil-chamber provided with an outlet-passage, *c*, and a valve-seat, in combination with a valve provided with a projection or extension, *h*, of uniform diameter from end to end, and also flattened or cut in a straight line from end to end, fitting the passage *c*, except upon one side, whereby when the valve is moved from the valve-seat there will be a small open passage, *i*, for the flow of oil from the oil-chamber to the part to be lubricated, substantially as and for the purpose specified.

315,129. ICE-CREAM BOX. FREDERICK W. CROCKER, Macedon, N. Y. Filed Mar. 7, 1885. (No model.)



Claim.—1. An ice-cream box composed of the body or base A, cover B, handle D, and catches or loops C' C', for the purpose shown and described.

2. In combination with an ice-cream box composed of the body or base A, cover B, handle D, catches or loops C' C', the papier-maché spoon, substantially as shown and described.

315,130. CUTTER-HEAD FOR RIFLING-MACHINES. WILLIAM H DAVENPORT and JOSEPH W. DAY, Uxbridge, Mass. Filed Aug. 22, 1884. (No model.)



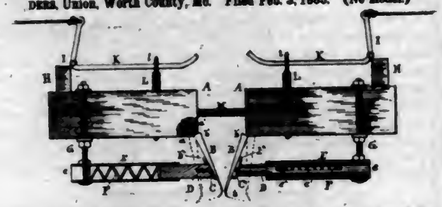
Claim.—1. In a cutter-head for rifling gun-barrels, the shoe or gib herein described, made from rawhide or other analogous material, as and for the purpose set forth.

2. The combination, in a cutter-head provided with the cutter C, and means for adjusting and operating the same, of the rawhide shoe or gib E, constructed and arranged substantially as shown and set forth.

3. The cutter-head A herein described, consisting of the shell A', having the opening *a*, adapted to receive the cutter C, the oppositely-formed opening *a'*, connected by the tie *a²*, and means, substantially as shown and described, for adjusting and operating the cutter, in combination with the rawhide shoe E, secured to the shell back of the cutter C, the whole constructed and arranged as and for the purpose set forth.

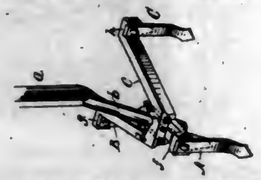
4. In a gun-barrel-rifling machine, the combination, with a cutter-head having a cutter and means for adjusting the same, of the rawhide shoe or gib detachably secured to said head opposite the cutter, substantially as and for the purpose herein set forth.

315,131. CAR-COUPLING. MORDECA A. DAVIDSON and SIMEON F. SANDERS, Union, Worth County, Mo. Filed Feb. 3, 1885. (No model.)



Claim.—The combination of draw-head A, swinging apron B, having loops b^2 b^3, loop C, plungers D D, tubes E, and hangers G, the tubes secured at their rear ends to the hangers.

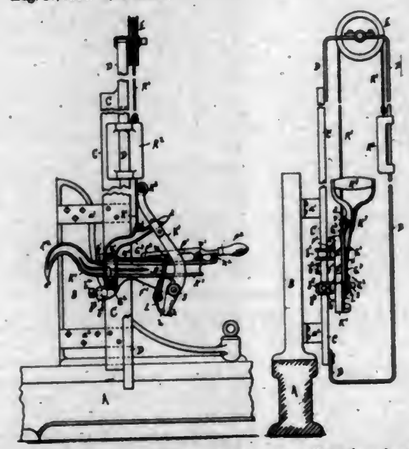
315,132. HARROW ATTACHMENT FOR CULTIVATORS. CALVIN R. DAVIS, Indianapolis, Ind., assignor to the Kimberlin Manufacturing Company, same place. Filed Nov. 12, 1884. (No model.)



Claim.—1. The above-described harrow attachment for cultivators, consisting of the triangular frame *c*, having the socket *d*, arms *e*, *g*, and *h*, and harrow-teeth A, B, and C, all combined in the manner specified.

2. The combination, with a plow-standard, of frame *c*, having inclined socket *d*, arms *e*, *g*, and *h*, and harrow-teeth secured thereto, all substantially as and for the purpose specified.

315,133. SAW-MILL DOG. WARREN A. DURRIN, Hersey, Wis. Filed Aug. 16, 1884. (No model.)



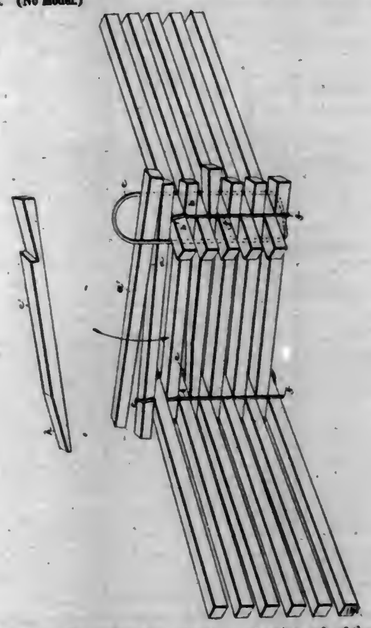
Claim.—1. A standard, C, mounted on a saw-mill carriage, in combination with the lever-dog supporting-plate F', vertically adjustable on said standard, said bed-plate being provided on opposite sides with lugs b' b^2 in different vertical planes, which clasp said standard, and being provided with a third lug, b^3, in a vertical plane different from those of the lugs b' b^2, a standard-clasping piece, b^3, and a set-screw, b^4, which is supported and held by the lug b^3, and which secures the clasp b^2 against the standard, substantially as set forth.

2. The combination of standard C, mounted on a saw-mill carriage, bed-plate F', mounted on said standard, arms G' G², extending out from said bed-plate, bar G³, secured across said arms G' G², which curves backward and upward, catch *d* on the free end of said bar G³, lever-dog K' K³, fulcrumed between the bed-plate, bar G³, and arms G' G², cam L, pivoted to the bed-plate and adapted to the lever-dog, and hand-lever H', adapted to turn said cam, and thus operate the lever-dog, substantially as set forth.

3. In combination with a suitable support, arms G' G², secured thereto, bar G³, secured across said arms, lever-dog K' K³, held between said arms G' G², bar G³, and the support, graduated bar M', which takes under the arm G' and at that point forms the fulcrum for the lever-dog, and adjusting-lever P', secured to the lever-dog and adapted to the graduated bar M', substantially as set forth.

4. The combination of the bed-plate F, arms G' G², secured to said bed-plate, bar G³, secured across said arms, lever-dog K' K³, held between said bed-plate, arms G' G², and bar G³, graduated bar M', which takes under the arm G' and forms the fulcrum for the lever-dog, adjusting-lever P', secured to the lever-dog and adapted to the graduated bar M', cam L, pivoted to the bed-plate and adapted, when turned, to depress the point of the lever-dog, and bar N, pivoted to said cam and provided with a projecting end which takes over the top of the lever-dog, whereby when the cam is turned in the opposite direction the point of the lever-dog is raised, as set forth.

315,134. FENCE. DAVID M. EMMITT, Columbia, Mo. Filed July 3, 1884. (No model.)



Claim.—1. The combination, with the overlapping ends of the rails of the two adjacent sections or panels of a worm-fence, of wire loops encircling said ends in the two sets of opposite angles, and a top rail secured within and completely encircled by a twisted loop on the upper end of one of the said loops, substantially as set forth.

2. The combination, with the overlapping ends of the rails of the two adjacent sections or panels of a worm-fence, of a wire loop encircling said ends in one set of opposite angles, a wire loop encircling all except two of said ends in another set of opposite angles, and rails secured within and completely encircled by twisted loops on the upper ends of said loops, substantially as set forth.

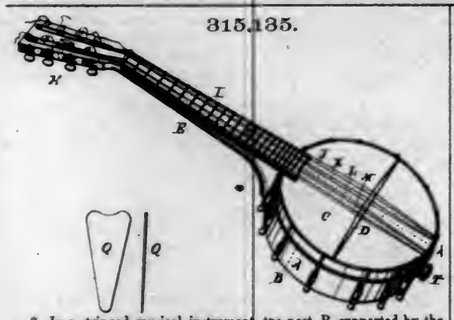
3. The combination of the overlapping ends of the rails of a worm-fence, and loops arranged at or approximately at right angles to each other and locking the adjacent ends of the panels, one of the rails of one or more of the panels being provided with wedge-shaped ends, substantially as and for the purpose set forth.

315,135. STRINGED MUSICAL INSTRUMENT. JOHN FARRR, Hartford, Conn. Filed May 3, 1884. (No model.)

Claim.—1. A banjolin having the long bridge D and the short post P pressing against opposite sides of the membrane C, substantially as described.

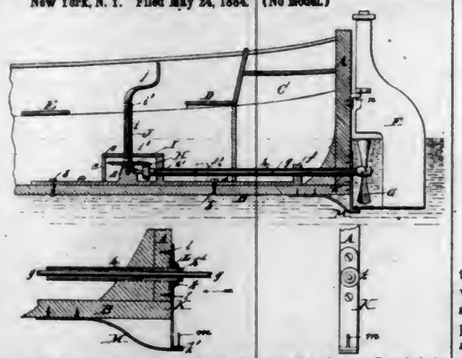
2. In a stringed musical instrument, the bridge D, extending entirely across the membrane C, and having its ends supported by the upper edges of the annular body A, substantially as described.

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3. In a stringed musical instrument, the post P, supported by the continuation F, and having its upper end in contact with the lower surface of the membrane C, substantially as described.

315,136. MOUNTING SCREW-PROPELLERS. RASMUS FORSHOLM, New York, N. Y. Filed May 24, 1884. (No model.)



Claim.—1. The combination of the propeller-shafts *g* J and their connecting gearing with an inclosing continuous water-tight casing, *h c i*, projecting with its upper inner end above the water-line, and packed around its lower outer end to the boat, substantially as set forth.

2. As a ready device for applying screw-propellers to boats, a fastening-plate, *a*, carrying a continuous water-tight casing formed of a chamber, *c*, and sleeves or tubes *h i*, secured at an angle to each other, with their inner ends to the said chamber, and having also shafts *g* J mounted in bearings within the said casing and gearing together within the said chamber *c*, substantially as set forth.

3. The combination, with the stern of a boat and with a sleeve or tube, *h*, incasing the propeller-shaft and protruding through the said stern, of an exteriorly-attachable stern plate, K, having a perforated boss, *k*, surrounding the outer end of the said tube, and a packing, L, interposed between the said boss and tube, substantially as set forth.

315,137. SCREW-DRIVER. ZACHARY T. FURBISH and FRANKLIN L. HAMLEN, Augusta, Me. Filed Jan. 7, 1885. (No model.)



Claim.—1. In a screw-driver, the combination, with a barrel or pipe having a series of teeth at its lower end, of a revoluble shank carrying spring-actuated pawls, a shipping-plate located and adapted to move on said shank, and a blade connected with the shank to be turned thereby, substantially as set forth.

2. The combination, in a screw-driver, with a pipe or barrel provided at its lower end with a series of teeth, of a revoluble shank, spring-actuated pawls on said shank, a shipping-plate located in a recess in said shank, a blade connected with said shank, and a cap, substantially as set forth.

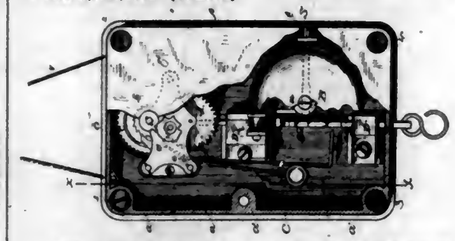
3. In a screw-driver, the combination, with a handle-carrying pipe or barrel provided at its lower end with a series of teeth, of a revoluble shank having a spindle working in a nut rigid in the barrel, spring-actuated pawls on said shank, a shipping-plate, a blade connected with said shank, and a cap, substantially as set forth.

4. In a screw-driver, the combination, with a handle carrying a pipe having a series of teeth at its lower end, of a revoluble shank having a spindle turning in said pipe, vertical grooves or recesses in said shank, pawls located in said recesses, spiral springs bearing against the lower ends of said pawls, a shipping-plate having its ends adapted to fit recesses or seats on the front faces of the pawls, a cap, and a blade, as set forth.

5. In a screw-driver, the combination, with a handle having a pipe or barrel provided at its lower end with a series of teeth, of a revoluble shank mounted to turn loosely upon the lower end of said barrel or pipe, pawls located in vertical grooves or recesses of said shank, spiral springs bearing against the lower ends of the pawls, a shipping-plate located in a groove or recess of said shank, a cap, and a blade, substantially as set forth.

6. In a screw-driver, the combination, with a handle having a pipe or barrel provided at its lower end with a series of teeth, of a revoluble shank having an integral spindle mounted to turn in said pipe, said pipe having diametrically-opposite grooves or recesses and a circumferential groove or recess, pawls having their ends beveled off in opposite directions, said pawls being located in said vertical recesses, spiral springs bearing against the lower ends of said pawls, seats or recesses in said pawls, said seats having their upper walls inclined, as shown, a shipping-plate having extensions provided with inclined upper faces, a cap, and a blade, substantially as set forth.

315,138. BURGLAR-ALARM. ALEXANDER C. GIBSON, Chicago, Ill. Filed Apr. 11, 1884. (No model.)



Claim.—1. In a burglar-alarm, the combination, with the gearing-train and motive-power mechanism herein described, of the retaining-wire secured to the escapement-arbor and formed with the portion *g*, the slotted slide-bar having a cord attached to one or both ends, the guide-plates D' D'' between which said bar moves, the former bearing a pulley and the clapper and gong, all substantially as described.

2. In a burglar-alarm, the combination, with the gearing-train and motive-power mechanism, and the retaining-wire formed with the square right-angle portion *g*, of the slide-bar formed with slots 5 and 6, having beveled sides and provided with the pin 8, the guides D' D'', the pulley bearing in said guide D', the cords attached to each end of the slide-bar and the bell, all substantially as set forth.

3. In a burglar-alarm, the combination, with the slide-bar D, formed substantially as described, of the tightening or regulating screw *s'*, said screw adapted to be adjusted, as set forth.

4. In a burglar-alarm, the combination, with the slide-bar, formed substantially as described, of the tightening or regulating screw *s'* and spring *u*, said screw having its bearing in standard *s* and guide *t*, and said spring secured to said standard, all constructed and operated substantially as set forth and shown.

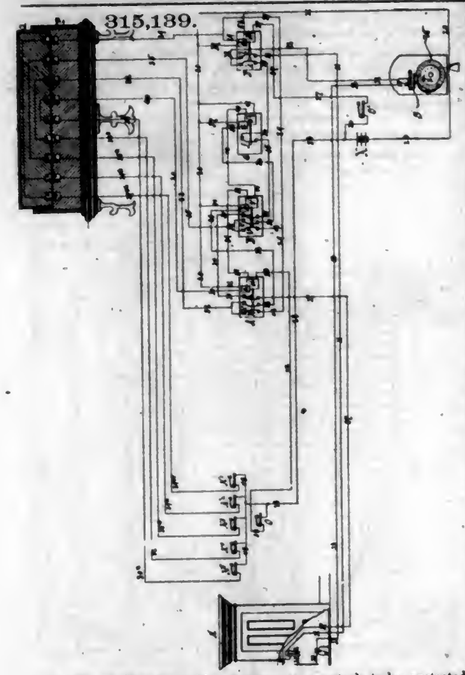
5. In a burglar-alarm, the combination of the motive-power mechanism and gearing-train herein described, secured to a back plate formed with screw-box projections and inclosed in a perforated casing, the guide-plates D' D'', the adjustable slotted bar adapted to move between said plates, and stops for limiting its movement in either direction, and the wire C, for retaining the escapement in engagement with the escape-wheel, substantially in the manner and for the purpose described.

315,139. ELECTRIC BURGLAR-ALARM. ALVAH W. HALL, Meriden, Conn. Filed Aug. 21, 1884. (No model.)

Brief.—Keys K' K^2 K^3 K^4 K^5 must be operated in a particular permutation in order to close a branch circuit and prevent alarm apparatus at S from being released when door at H is opened. The special permutation depends upon a permanent circuit-disposer, P Q, which has a removable section, Q, in which the wires registering with those in P are disposed in such a way as to complete circuit of battery X on successive depressions of keys K, &c., in an order corresponding to the particular arrangement of wires in section Q. In this way the special permutation for any special case is determined by the device P Q, and the keys at K, &c., must be depressed in an order of sequence corresponding thereto, or an alarm will be sounded by change in circuit at S.

Claim.—1. The combination, with a structure or receptacle to be protected and an alarm or signal station, of two electric circuits connecting the same, burglar-alarm mechanism in one of said circuits and electro-magnetic mechanism in the other, and means for operating the same arranged to control the operation of the alarm, substantially as herein set forth.

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2. The combination, with a structure or receptacle to be protected and a signal-station, of two electric circuits connecting the same, of burglar-alarm mechanism included in one circuit, a series of co-operating electro-magnetic instruments, and means for operating the same connected with the other circuit and arranged to control the operation of the alarm mechanism, substantially as herein set forth.

3. The combination, with a structure or receptacle to be protected and a signal or alarm station, of two electric circuits connecting the same, of burglar-alarm mechanism in one circuit, a series of electro-magnetic circuit-closers, and keys or contact-makers in branches of the other circuit for controlling the alarm-circuit, and electrical connections so formed that a predetermined order of operation of the circuit-closers is necessary to prevent the sounding of the alarm, as and for the purpose specified.

4. The combination, with a structure or receptacle to be protected and a signal or alarm station, of two electric circuits connecting the same, burglar-alarm mechanism in one circuit, a series of double-circuit instruments and keys or contact-makers for operating the same included in branches of the other circuit, and electrical connections to one of said instruments so arranged that its operation sets the alarm in action, and to the other instrument or instruments so arranged that the proper operation of the same prevents the alarm from sounding, as and for the purpose specified.

5. The combination, with a structure or receptacle to be protected and a signal or alarm station, of two electrical circuits connecting the same, burglar-alarm mechanism included in one of said circuits, a series of double-circuit instruments and keys or contact-makers in branches of the other circuit, and electrical connections between the several instruments, and between the instruments and the alarm mechanism, as herein described, whereby the successive operation of the instruments in a predetermined order is necessary to prevent the sounding of the alarm, as and for the purpose set forth.

6. The combination, with a structure to be protected and a signal or alarm station, of two circuits connecting the same, burglar-alarm mechanism in one of said circuits, a series of double-circuit instruments and keys or contact-makers for controlling the alarm and included in branches of the other circuit, of a detachable key for varying the connections between the contact-makers and the double-circuit instruments, whereby the order of operation of the contact-makers for operating the double-circuit instruments in a given order may be varied, as and for the purpose set forth.

7. The combination, with an electrically-operated mechanism, of a series of double-circuit instruments for controlling the same, the said instruments being electrically connected in such manner that they must be successively operated in a given order to secure the control of the said mechanism, substantially as herein described.

8. The combination, with an electrically-operated mechanism, of a series of double-circuit instruments for controlling the same, the said instruments being electrically connected in such manner that they must be successively operated in a given order to secure the control of the said mechanism, and a double-circuit instrument electrically connected with the mechanism to be controlled and the double-circuit instruments in such manner that the operation of one or more of the latter out of a given order severs connection between the mechanism to be controlled and the double-circuit instruments, as set forth.

9. The combination, with an electrically-operated mechanism, of a series of double-circuit instruments for controlling the same electrically connected to form a combination, or a system in which the several instruments must be operated successively in a given order to secure the control of the said mechanism, and a double-circuit instrument electrically connected with the controlling-instruments in such manner that the operation of the latter out of a given order disarranges the combination, as and for the purpose set forth.

10. The combination, with an electrically-controlled mechanism in one circuit and a series of double-circuit instruments and keys or contact-makers adapted to control the said mechanism, and included in branches, of a second circuit and electrical connections through the instruments so arranged that the said instruments must be successively operated in a given order to secure the control of the said mechanism, as and for the purpose set forth.

11. The combination, with an electrically-operated mechanism in one circuit, of a series of double-circuit instruments, and keys or contact-makers for operating the same, connected with branches of a second circuit, electrical connections so arranged that the double-circuit instruments must be operated successively in a given order to secure control of the said mechanism, and detachable combination-keys or sets of contacts electrically connected for varying the connections between the keys or contact-makers and the double-circuit instruments, as and for the purpose set forth.

12. The combination, with an electric circuit and burglar-alarm mechanism connected therewith, of a second or controlling circuit divided into a number of branches, double-circuit instruments electrically connected together and to the alarm-circuit, and included in the branches of the controlling-circuit, keys or contact-makers in other branches of the circuit, and a combination-key or set of electrically-connected contacts for connecting the branches containing the contact-makers with those containing the double-circuit instruments, as and for the purpose set forth.

13. The combination, with branches of an electric circuit, of a series of electro-magnetic instruments, each of which, when operated by an electric current, closes a normally-open path or circuit, contact-makers or keys for operating said instruments, and electrical connections between said instruments arranged to form an electrically-operated combination, or a system in which the instruments to be all operated must be operated successively in a given order, substantially as herein set forth.

14. The combination, with an electric circuit divided into a number of parts or branches, of a series of co-operating electro-magnetic instruments connected with a portion of said branches, circuit-connections between the instruments forming an electrically-operated combination, keys or contact-makers included in other branches of the circuit, and combination-keys for connecting in different orders the branches containing the keys with those containing the instruments operated by the same, as and for the purpose set forth.

15. The combination, with the alarm-circuit and an electro-magnetic alarm connected therewith, of a second or controlling circuit, a series of double-circuit instruments connected with branches of the same and arranged to control the alarm-circuit, operating-keys or contact-makers in branches of the circuit connected with the secondary or releasing magnets of the double-circuit instruments, and a restoring or setting key in a branch of the circuit including the main magnets of all the instruments, as and for the purpose set forth.

16. The combination, with the alarm-circuit and an electro-magnetic alarm connected therewith, of a second or controlling circuit, a series of double-circuit instruments connected with branches of the same and arranged to control the alarm-circuit, operating-keys or contact-makers in branches of the circuit connected with the secondary or releasing magnets of the double-circuit instruments, a restoring or setting key in a branch including the main magnet of one of said instruments, and a restoring or setting key in a separate branch including the main magnets of all the others of the series, as and for the purpose set forth.

17. The combination-key herein described, consisting of a metal holder filled with insulating material, and contact points or plates embedded in the material, a portion of the plates being connected together in pairs, and the rest in a group of three or more, as set forth.

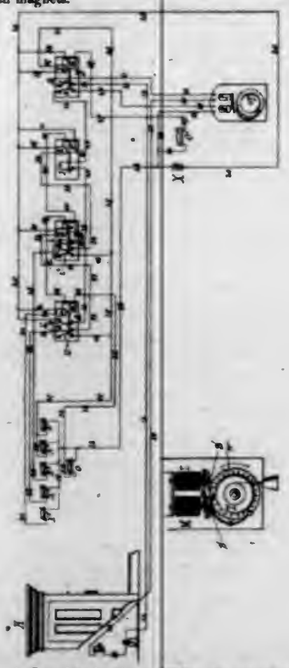
18. The combination, with the key containing a number of contact-plates connected together partly in pairs and the rest in a group, of a socket or lock for the same containing contact-plates corresponding in number and position with those in the key, as set forth.

19. A burglar-alarm system comprising the following elements combined and arranged in the manner specified: a structure to be protected containing a circuit-breaker or equivalent, a signal or alarm station containing an electro-magnetic alarm operated by the movement of the part of the structure to be protected with which the circuit-breaker is con-

nected, a second or controlling circuit, keys or contacts located in the vicinity of the structure to be guarded and included in branches of the controlling-circuit, a series of double-circuit instruments at the signal-station in branches of the controlling-circuit connected with those containing the keys, electrical connections between said instruments, a branch of the alarm-circuit controlled by the instruments for preventing or sounding the alarm, and branches of the controlling-circuit containing keys for restoring or resetting the double-circuit instruments after they have been operated.

315,140. **BURGLAR-ALARM.** ALVAH W. HALL, Meriden, Conn. Filed Aug. 21, 1884. (No model.)

Brief.—A mechanical alarm at the alarm-station is held from operation by a detent controlled by an electro-magnet, I, in circuit with the circuit-closer at the protected station. If the door H should be opened, the alarm would ring by reason of release of detent S. There is another detent for the same alarm mechanism, controlled by another electro-magnet, M, in a normally-open circuit. This detent is ordinarily inactive. A set of keys, K^3 K^4 K^2 K^1 K', are located near protected station, and when operated in their proper order—*i. e.*, trying for each particular combination—will act successively on instrument A B C, &c., and close circuit of magnet M and lock the alarm, so that the door H may be opened without giving an alarm. If operated in any but the proper succession, the alarm will be given, when door is opened, by de-energizing both magnets.



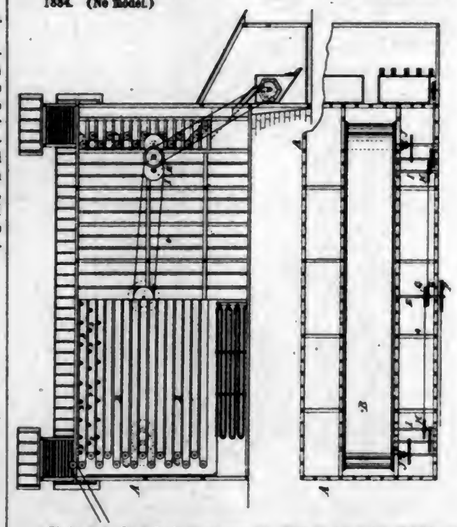
Claim.—1. In a burglar-alarm system, the combination, with a structure to be protected, a signal-station, and two circuits connecting the same, of an electro-magnetic burglar-alarm connected with one of said circuits, a magnet in the other circuit for controlling the operation of the alarm, and electrical devices for operating the magnet, as and for the purpose set forth.

2. In a burglar-alarm system, the combination, with a structure to be protected, a signal-station, and two circuits connecting the same, of an electro-magnetic alarm in one of said circuits, a magnet for controlling the same included in the other circuit, a series of double-circuit instruments for operating said magnet, and keys for actuating the double-circuit instruments, as herein set forth.

3. In a burglar-alarm system, the combination, with a structure to be guarded, a signal-station, and two circuits connecting the same, of an alarm controlled or operated by an electro-magnet in one of said circuits, an electro-magnet in the other arranged to prevent the operation of the alarm, and a series of double-circuit instruments and keys in branches of the circuit for operating said magnet, as and for the purpose set forth.

4. In a burglar-alarm system, the combination, with a structure to be guarded, a signal-station, and two circuits connecting the same, of an alarm controlled or operated by an electro-magnet in one of said circuits, an electro-magnet in the other arranged to prevent the operation of the alarm, a series of double-circuit instruments and keys connected in branches of the circuit to form an electrically-operated combination for operating the said electro-magnet, and a double-circuit instrument connected with the other instruments and with the alarm-magnet for causing the same to sound when the combination is disarranged, as and for the purpose specified.

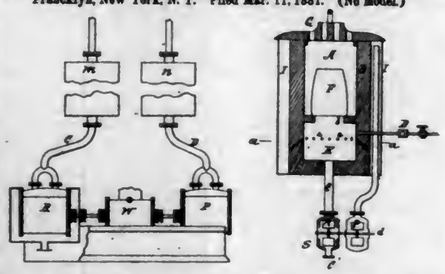
315,141. **DRYING APPARATUS.** ORLANDO B. HARDY, San Francisco, Cal., assignor to the Giant Powder Company, same place. Filed Feb. 11, 1884. (No model.)



Claim.—1. In a drying apparatus consisting of a series of horizontal belts, means for driving said belts, consisting of pulleys or rollers over which the discharge end of each belt passes, and a centrally-located driving mechanism, with mechanism for transmitting motion to each roller directly, substantially as described.

2. In a drying apparatus, a series of belts placed one above another, a means for driving said belts, consisting of chain-wheels fixed to the alternate roller-shafts at one end, and similar wheels fixed to the other alternate shafts at the opposite end, and having chains connecting the wheels of each series, gearing by which the rate of speed is determined, and a central driving shaft and pulleys, with belts extending to the opposite ends of the apparatus, substantially as herein described.

315,142. **APPARATUS FOR THE COMBUSTION OF GASEOUS FUEL.** JAMES HENDERSON, Bellefonte, Pa., assignor of one-half to Charles G. Francklyn, New York, N. Y. Filed Mar. 11, 1881. (No model.)

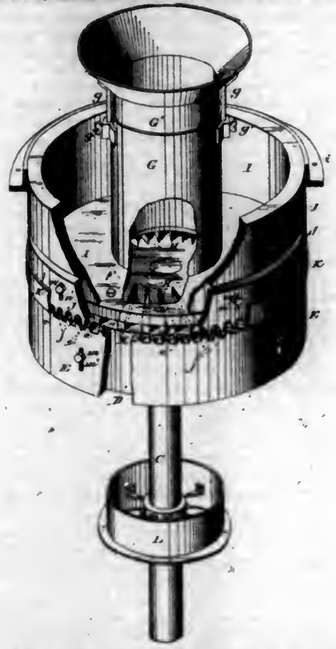


Claim.—1. The combination, substantially as before set forth, of the combustion-chamber of the furnace, air-heating devices, a gas-meter for measuring the gas, and an air-meter for measuring air, connected with said furnace, whereby the gas to be burned and the air in a heated condition required for its combustion are both supplied in measured quantities to the said combustion-chamber.

2. The combination, substantially as before set forth, of the combustion-chamber of the furnace, the gas-meter, and the air-meter, both connected with said furnace, and the gas-expansion chamber arranged between the gas-meter and the combustion-chamber of the furnace, whereby gas under strong initial pressure may be permitted to expand before it is mixed with the air at a lower initial pressure.

3. The combination, substantially as before set forth, of the gas-furnace, the pressure gas-meter, and the air-meter driven by said pressure gas-meter, whereby the initial pressure of natural gas is utilized in supplying a measured quantity of air for its combustion.

315,143. **MACHINE FOR BREAKING WHEAT.** HARRY HUDSON and MILES TOBEY, Salinas, Cal. Filed June 2, 1884. (No model.)



Claim.—1. In a machine for breaking wheat, the combination of a rotating disk having a narrow annular band of teeth on its outer rim, a stationary band or cylinder placed above the teeth, and having on its under rim a series of apertures communicating with the teeth and the spaces between them, and a band or hoop encircling the cylinder on its outer surface and covering the outer sides of the apertures to prevent the wheat from being discharged outwardly through said apertures, substantially as herein described.

2. In a machine for breaking wheat, a rotating disk having on its rim a series of teeth the tops of which are on a level with the surface of the disk, said teeth being arranged tangentially to the periphery of the disk, in combination with a stationary band or cylinder placed above the teeth and having a corrugated or notched surface on its bottom rim, between which and the underlying teeth the grain is caught and broken, and a guard-hoop on the outer surface of the cylinder covering the outer sides of the apertures formed by the corrugated rim of the cylinder, to prevent the grain from discharging directly through said apertures and force it to fall down between the teeth and discharge therefrom, substantially as herein described.

3. In a machine for breaking wheat, the rotating disk D, having the encircling-band E, with the series of teeth *e*, the tops of which are on a line with the surface of the disk, in combination with the overlying cylinder I, having the encircling-band J, the bottom rim of which is corrugated or notched to form a series of apertures, *j*, over the teeth and communicating therewith, and the guard-hoop K on the band J covering said apertures, all arranged substantially as and for the purpose herein described.

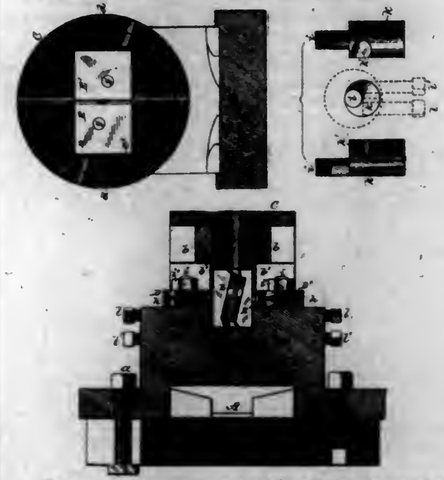
4. In a machine for breaking wheat, the rotating disk D, having the vertically-adjustable and removable encircling-band E, with the teeth *e*, in combination with an overlying stationary band or cylinder having on its bottom rim a notched or corrugated surface over the teeth *e*, substantially as herein described.

5. In a machine for breaking wheat, a rotating disk provided with an annular series of teeth on its rim, in combination with the stationary overlying cylinder I, having the vertically adjustable and removable encircling-band J, the bottom rim of which is over the teeth and is corrugated or notched, substantially as herein described.

6. In a machine for breaking wheat, the rotating disk D, having the encircling-band E, with the teeth *e*, the tops of which are on a level with the surface of the disk, the annular cap-plate F, secured to the disk, and the ribs or feeders H, between the cap-plate and the disk, whereby the grain is carried outwardly to the teeth, in combination with the stationary cylinder I, having the encircling-band J, with a notched or corrugated under rim over the teeth, and the guard-hoop K, encircling the band J and covering the apertures formed by the notched surface, substantially as herein described.

7. In a machine for breaking wheat, the rotating disk D, having the encircling-band E, with teeth *e*, the annular cap-plate F, secured to the disk, the bottomless feed-vessel G, secured to the center of the cap-plate and communicating with the disk, and the ribs or feeders H, between the cap-plate and disk adapted to receive and carry the grain from the feed-vessel to the teeth, in combination with the stationary cylinder I, having the encircling-band J, with a notched or corrugated under rim over the teeth, and the guard-hoop K, encircling the band J and covering the apertures formed by the notched surface, substantially as herein described.

315,144. **MACHINE FOR SPIRALLY SCORING WIRE.** HORACE K. JONES, Hartford, assignor to the Russell & Erwin Manufacturing Company, New Britain, Conn. Filed Sept. 3, 1884. (No model.)



Claim.—1. The combination, substantially as hereinbefore described, of the revolving head and the radially-adjustable die-blocks within said head and provided with bearings for roller-dies.

2. The combination, substantially as hereinbefore described, of the revolving head, the die-blocks radially adjustable in said head, and the roller-dies angularly mounted in said blocks.

3. The combination, substantially as hereinbefore described, of the revolving head, radially-adjustable blocks in said head, and roller-dies mounted in said blocks provided with one or more annular scoring-ribs.

4. The combination, substantially as hereinbefore described, of the revolving head, the scoring-dies and their radially-adjusting blocks within said head, and a clamp for preventing the rotation of wire while free to move through the head.

5. The combination, substantially as hereinbefore described, of the revolving head containing scoring-dies, the rotary clamp-disks mounted on eccentric studs, and the adjusting-screws for rotating said studs and thereby adjusting the clamp-disks with reference to each other and to the axial center of the revolving head.

6. The combination, substantially as hereinbefore described, of the revolving head, the scoring-dies, and the blocks within said head, and a guide for maintaining wire in a right line while passing through said head.

7. The combination, substantially as hereinbefore described, of the revolving head, the die-blocks, the two roller-dies angularly mounted in said blocks and within said head, and the guide-plates secured to one of the die-blocks.

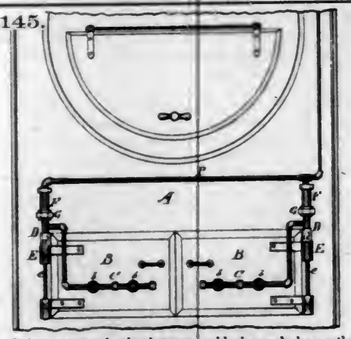
8. The combination, substantially as hereinbefore described, of the two revolving roller-dies, their blocks adjustable with reference to each other, and the guide-plates.

9. The combination of the bed-plate, the revolving head, and the two standards, each provided with an inwardly-projecting journal-hub for said head, substantially as described.

315,145. **SMOKE-CONSUMING FURNACE.** ADELBERT T. KINNEY, Cleveland, Ohio. Filed Nov. 20, 1884. (No model.)

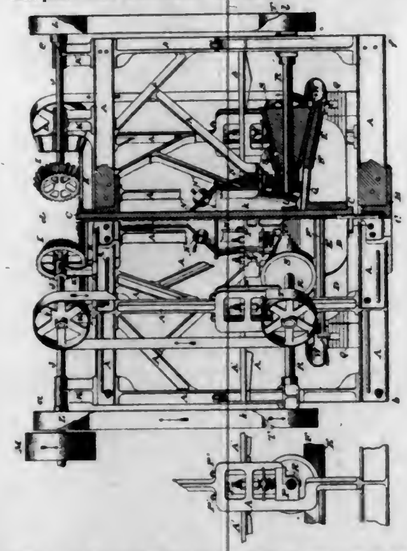
Claim.—In smoke-consuming furnaces, the combination, with the furnace-doors having holes *b b*, of the steam-pipes C C, provided with holes *c c* opposite said holes *b b*, said pipes being connected with supply-pipe P from boiler by means of swivel-joint, consisting of hollow plug D, tube F, fitted and turning on said plug, each having hole *h* arranged

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to open and close communication between said pipe and plug as the doors are opened and closed, substantially as specified.

315,146. PULVERIZING APPARATUS. WILLIAM A. KONEMAN and HIRAM H. SCOVILLE, Chicago, Ill.; said Scoville assignor to Azel F. Hatch, same place. Filed Mar. 14, 1884. (No model.)



Claim.—1. The combination, in a pulverizing apparatus, of a surrounding frame, A, step B, resting upon foundation of frame A and secured to said frame, vertical shaft or axle C, rotating in and supported by step B and held in its vertical position by a top bearing, also supported by the frame A, driving wheel or gear H, fastened to vertical shaft or axle C, and in engagement therewith a driving-pinion, the spider D, fastened to axle C, and bed-plate F, fastened to spider D, a series of conical rolls, and means for imparting to them independent and positive rotation, substantially as and for the purpose set forth.

2. The combination, in a pulverizing apparatus, of frame A, hopper-frame N, firmly held suspended by frame A, inner and outer bearings, P, supported by frame A and hopper-frame N, roller-axles R, rotating in bearings P, conical rolls S, held by axles R, bed-plate F, and mechanism for revolving said rollers independent of said bed-plate, substantially as and for the purpose set forth.

3. The combination, in a pulverizing apparatus, of frame A, bed-plate F, having the deflection in its surface from S toward the center, as shown and described, and rollers S, rotating on bed-plate F, substantially as and for the purpose set forth.

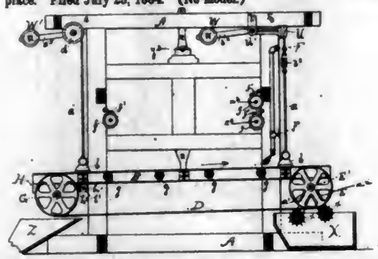
4. The combination, in a pulverizing apparatus, of a rotating bed-plate, F, independently-rotating conical rolls S, and retarding-guards U, adjusted between conical rolls S and held suspended from floor A' in stationary position over the rotating bed-plate, substantially as and for the purpose set forth.

5. The combination, in a pulverizing apparatus, of bed-plate F, rotating rolls S, roller-axles R, bearings P, adjusting rods and screws P' and P², for raising and lowering roller-axles R, and springs P³ on bearings P, substantially as and for the purpose set forth.

6. The combination, in a pulverizing apparatus, of frame A, bed-plate F, rotating rolls S, roller-axles R, bearings P, pulleys T, fastened to axles R, and power-connection with pulleys T, substantially as and for the purpose set forth.

7. The combination, in a pulverizing apparatus, of frame A, shaft C, spider D, bed-plate F, rollers S, trough-supporting brackets V, fastened to spider D, and centripetally-discharging trough W, supported by and resting in supporting-brackets V, substantially as and for the purpose set forth.

315,147. ORE-CONCENTRATOR. WILLIAM A. KONEMAN and HIRAM H. SCOVILLE, Chicago, Ill.; said Scoville assignor to Azel F. Hatch, same place. Filed July 25, 1884. (No model.)



Claim.—1. In an ore-concentrator or vanning-machine, a vanning-surface vibrating in a horizontal plane, combined with a cam and operative mechanism adapted coincidently with said vibration to lift said surface gradually and drop it suddenly, whereby each point of said vanning-surface is caused to describe a triangular path, as described.

2. In an ore-concentrator or vanning-machine, a vanning-surface provided with mechanism adapted to vibrate said surface in a horizontal plane, a cam and operative mechanism to coincidently lift said surface gradually and drop it suddenly, combined with adjusting-screw and its adjuncts, whereby said horizontal and vertical vibrations may be altered, regulated, and controlled while the machine is running.

3. The combination, in an ore-concentrator or vanning-machine, of a vanning-surface horizontal transversely, but higher at one end than at the other, a cam and operative mechanism, whereby said surface may be coincidently vibrated horizontally and vertically, the upward and downward movements being made different in speed and direction, as described, and sluices for delivering upon said surface the pulverized ore and gangue and water, whereby said pulverized ore and gangue are subjected simultaneously to both horizontal and vertical vibrations in the presence of a thin sheet of running water.

4. In an ore-concentrator or vanning-machine, a swinging frame set higher at one end than at the other, and a crank and operative mechanism to control the horizontal swing or vibration of said frame, combined with a cam and operative mechanism to cause the higher end of said frame to be lifted gradually and dropped suddenly, for the purpose set forth.

5. The combination, in a vanning-machine, of a swinging frame set level transversely, but lower at one end than the other, and an endless belt mounted thereon, having its upper surface moving toward the higher end of the frame, with vibrating levers to cause said frame to swing, and a cam connected with the higher end of said frame to periodically cause it to rise gradually and drop suddenly, whereby the mineral matters having different specific gravities upon the surface of the belt will be differently affected and caused to separate.

6. The combination, in a vanning-machine, of a swinging frame set level transversely and lower at one end than at the other, and an endless belt mounted on said frame, having its upper part moving toward the higher end of said frame, with vibrating levers provided with fulcrums adjustable longitudinally as to said levers, and a cam adjustably connected with the higher end of said frame to periodically cause it to rise gradually and drop suddenly through a greater or less distance, as may be desired, whereby the movements of said frame and belt as to oscillation and as to rise and drop may be separately or jointly varied to adapt the machine to the separation of ores under various conditions, substantially as set forth.

7. The carrier-frame B, provided with the drums E G, the intermediate rollers, *g g*, the belt D, carried and supported on said rollers, the guides H, and the sliding boxes *i*, fitted to said guides, combined with the screws h^3 h^3, which penetrate said boxes *i*, bevel-gears h^3 h^3, attached to said screws, shaft *i'*, and bevel-gears *h' h'* on shaft *i'* in mesh with bevel-gears h^3, whereby the two boxes *i* may be simultaneously moved to adjust the tension of the belt D.

8. The combination, in an ore concentrating or vanning machine, of a suspended swinging carrier-frame, B, drums E G, and traveling belt D, mounted thereon, with the belt wipers or scrapers *x x*, also carried by said frame, the driving-chains c^3 c^3 and their connecting-gearing, whereby motion is transmitted from the wheel V on the main frame to the wipers

while the frame B is in motion, substantially as and for the purpose set forth.

9. The combination, in an ore concentrating or vanning machine, of an oscillating and traveling belt, suitable drums to support said belt, and a swinging carrier-frame, B, with the vibrating arms R at their lower ends, jointed to said carrier-frame, adjustable pivotal slides R^2 for said arms, whereby the length of vibration is regulated, the crank-rods *n*, and the driving-cranks P, substantially as and for the purpose set forth.

10. The combination, in an ore concentrating or vanning machine, of oscillating frame B, belt D, adjustable vibrating arms R, rods *n*, cranks P, shaft *l*, cam N, fastened to and rotated by said shaft *l*, stirrups *o*, radial arm S, connecting-rod T, slide S', mounted in the radial arm S, made longitudinally adjustable, adjusting-screw *s*, and arms U, whereby the height to which the frame B is raised and dropped at each revolution of said cam N may be adjusted, substantially as described.

11. The shaft *u'*, arm S, and the arms U, attached thereto, combined with link-block S', fitted to slide longitudinally in said arm S, the screw *s*, mounted on said arm to move and hold said link-block, and the connecting-rod T, jointed to said block, whereby with a uniform reciprocation of said connecting-rod the angular movement of the arm S may be varied at will.

12. The connecting-rod T, the arm S, link-block S', which is longitudinally adjustable in the arm S, and the adjusting-screw *s* for the said block, combined with the bevel-wheel s^2 and bevel-wheel *s'* in mesh therewith, the chain-wheel *t*, and the chain *t'*, whereby said screw may be rotated at will to shift the adjustment of the link-block S'.

13. The connecting-rod T and the arm S, provided with a curved slot whose radius equals the length between centers of said connecting-rod, combined with a slide, S^2, fitted to slide in said slot, a link-block, S', a joint-pin, s^4, penetrating said slide, and adapted to connect with said connecting-rod T, and the adjusting-screw *s*, passing through said block S', and in pivotal engagement with said arm S, whereby the position of the joint-pin s^4 may be shifted without changing the angular position of said arm S.

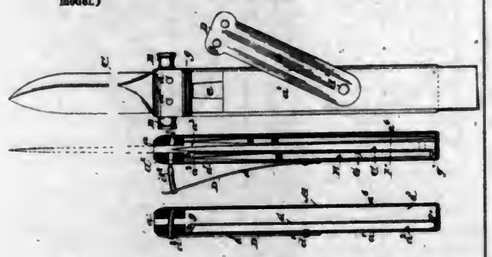
14. In combination with the suspended swinging frame B and its belt D, the vibrating levers R, jointed at their lower ends to said frame, the reciprocating connecting-rods *n*, combined with the pivot or fulcrum pins R^2, longitudinally adjustable as to said levers R, whereby the relative lengths of the arms of said levers may be varied, as and for the purpose set forth.

15. A swinging frame, B, its belt D, and a vibrating lever, R, on each side of said frame, jointed thereto at their lower ends, and reciprocating connecting-rods, combined with adjustable pivot or fulcrum pins R^2, adjusting-screws R'; for the same bevel-gears, *y*, attached to said screws, and the shaft y^3, provided with bevel-gears *y'* in mesh with the bevel-gear *y*, whereby both of said pins R^2 may be coincidently raised or lowered.

16. The traveling belt D, its frame B, and supporting-cords *d'* at the lower end, combined with the drums *d*, upon which said cords are wound, the sprocket c^3, chain c^3, the sprocket, ratchet, and pawl *f f*, on shaft c^4, and counter-weight W', whereby the pitch of the frame B may be adjusted at will.

17. The combination, in an ore concentrating or vanning machine, of a reciprocating frame, B, traveling endless belt D, adjustable vibrating arms R, shaft *l*, cranks P, and cam N, mounted thereon, crank-rods *n*, connecting-rod T, and radial arm S, whereby the lift of said frame is controlled, as set forth.

315,148. COMBINATION-TOOL. WILLIAM J. KRIE, HENRY A. HANNEL, and THOMAS W. MCMANUS, St. Louis, Mo. Filed Aug. 4, 1884. (No model.)

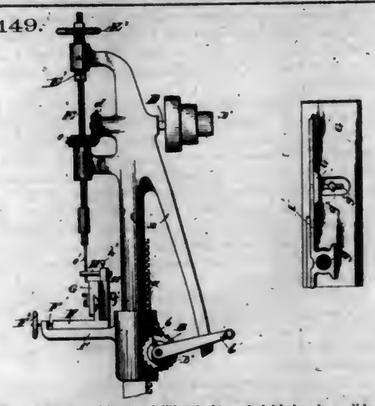


Claim.—1. The combination, with a hollow handle, A, of a pivoted partition, G, and a removable slide, *a'*, substantially as described.

2. The combination of the hollow handle A, the removable slide *a'*, the perforations a^2, opening *a*, the holder D, having pins d^2, a hammer, B, and a tool adapted to receive said pins d^2 and be held in the handle by them, substantially as described.

315,149. DRILLING-MACHINE. LEVI L. LANE, Akron, Ohio, assignor to the Whitman & Barnes Manufacturing Company, same place. Filed Sept. 11, 1884. (No model.)

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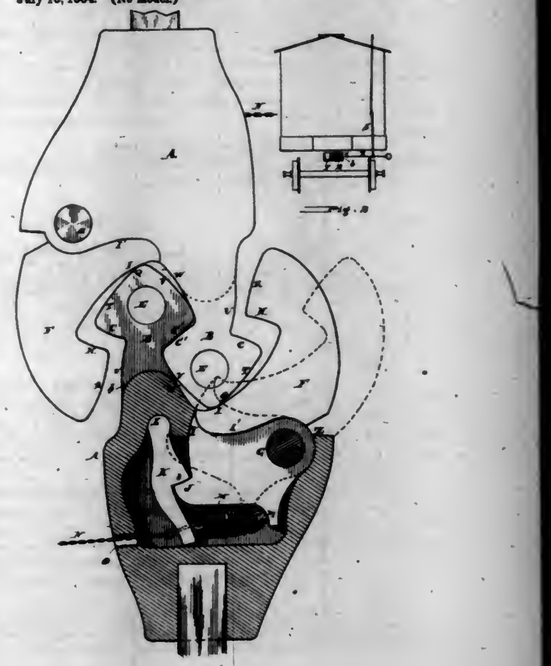


Claim.—In a machine for drilling knife and sickle heads, a slide-rest adapted to support the heads, and provided with a pin or equivalent device adapted to fit the lateral bore of the heads, and a gage with notches to correspond with the holes to be drilled, attached to said slide-rest, and an adjustable pawl to engage the said notches and act as a stop, the parts being so arranged that by the action of the pawl and gage the holes in the cutter-bar head may be drilled in the proper position relative to each other and to the said lateral bore of the head, substantially as set forth.

315,150. BESSEMER PROCESS. GEORGE LAUDER, Pittsburg, Pa. Filed Oct. 2, 1884. (No specimens.)

Claim.—The process herein described of treating pig metal in a pneumatic converter, consisting of first blowing only a certain portion of the entire charge of melted pig to the point of decarburization; second, adding to the decarburized metal in the converter the residue of the charge of melted pig metal; and, lastly, blowing the entire charge until it is desiliconized, but stopping the blow before or as soon as decarburization commences, the quantity of the residual charge bearing the same proportion to the entire charge that the required percentage of carbon in the resulting steel product bears to the percentage of carbon in the pig metal previous to the pneumatic treatment, substantially as described.

315,151. CAR-COUPLING. ARTHUR H. LEA, Philadelphia, Pa. Filed July 18, 1884. (No model.)



Claim.—1. A car-coupler having the rigid spear-headed projection B, and hinged jaw F, provided with a locking-pawl, K, combined, substantially as described, so that the projection B and jaw F each serve the double purpose of a retaining-hook and guard when engaged with a similar coupler.

2. A car-coupler, substantially as described, having the surfaces C and C′ of the head B and the surface H of the jaw F composed of cylindrical segments, centered, substantially as specified, so that when engaged with a similar coupler at least one of the heads B is always supported on both sides, the surface C sliding in surface-contact with the surface H, and the surfaces C′ C′ sliding in tangent contact.

3. A car-coupler, substantially as specified, having the surfaces C C′ and T of the head B and the surfaces H and I of the jaw F curved, substantially as specified, so that all horizontal and rotatory movements of the two similar couplers, when engaged, shall take place by one curved surface sliding on another.

4. A car-coupler consisting of two jaws adapted to close upon and retain a spear-headed projection from another coupler between them, and having curved surfaces C′ and I, substantially as specified, upon which all forward and backward movements of the head within the jaws take place by sliding.

5. In a car-coupler, substantially as specified, the combination of the hinged jaw F and pawl K with the spring M, attached to and having constant action on both jaw and pawl, as and for the purpose described.

6. In a car-coupler, substantially as specified, the hinged jaw F, having a shoulder, J, and pawl K, having a shoulder, *k*, both of which shoulders have curved surfaces, concentric when the jaw F is closed with the center of motion of the pawl K.

7. In a car-coupler, substantially as described, the coupler body or block A, having an opening, P, in combination with the jaw F, hinged in the body at G, and both body A and jaw F having curved surfaces Y and Z centered at G.

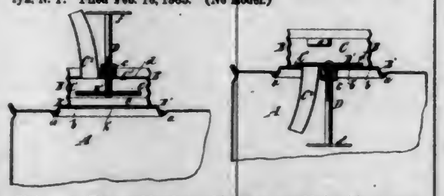
8. In a car-coupler, substantially as specified, the movable jaw F, having its inner surface, I, equal in vertical depth to the draw-head A, and adapted to rest against the draw-head when closed.

315,152. BURGLAR-ALARM. IRA G. LEEE, San Francisco, Cal. Filed May 8, 1884. (No model.)



Claim.—An alarm for doors, consisting of a gong secured to the door and having a hole through the center to admit the shank of the door-knob, a hammer having an elastic arm, a plate to which said arm is attached and which is provided with a notch, a pivoted angular lever, G, a central hub, B, disk I, and arm secured thereto, all constructed and arranged to sound an alarm when the knob is turned in either direction, as herein described.

315,153. FAUCET FOR SHIPPING-CANS. JOHN MARSHALL, Brooklyn, N. Y. Filed Feb. 16, 1885. (No model.)

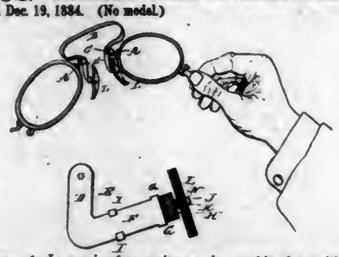


Claim.—1. The combination, with a can provided with a screw-threaded neck or socket, of a reversible bung closed at one end, and provided at that end with a pouring-spout and a nut or hub, and a valve-stem fitted to the nut or hub, and having at its inner end a valve seating upon the closed end of the bung, and closing the inner end of the pouring-spout, substantially as described.

2. The combination, with a can provided with a screw-threaded neck or socket, of a reversible bung fitted thereto, closed at one end, and provided at that end with a pouring-spout and vent-opening, and a nut or hub, and a valve-stem fitted to the nut or hub, and provided at its inner end with a valve seating upon the closed end of the bung, and closing the inner end of the pouring-spout and the vent-opening, substantially as described.

3. The combination, with a can provided with a screw-threaded neck or socket, of a reversible bung fitted thereto, closed at one end, and provided with a pouring-spout and a nut or hub, and having a cross-bar at its other or open end, and a valve-stem fitted to the nut or hub, and provided at its inner end with a valve seating upon the closed end of the bung, and closing the inner end of the pouring-spout, substantially as described.

315,154. EYEGLASSES. FRANCIS W. MCALLISTER, Baltimore, Md. Filed Dec. 19, 1884. (No model.)



Claim.—1. In a pair of nose-glasses, the combination, with the inwardly-bent arms secured to the clips securing the ends of the spring, of the nose-pieces pivoted at the ends of the said arms to rock in a plane transverse to the arms, as and for the purpose shown and set forth.

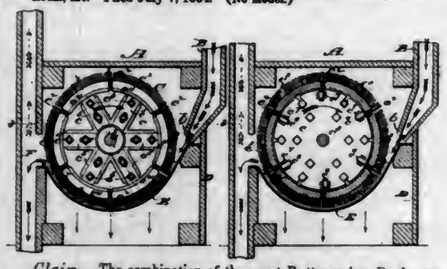
2. In a pair of nose-glasses, the combination, with the inwardly-bent arms secured to the clips securing the ends of the spring and formed with pivots at their inwardly-pointing ends, of the nose-pieces pivoted at their middles upon the said pivots, as and for the purpose shown and set forth.

3. In a pair of nose-glasses, the combination of an inwardly-bent arm, secured at the end of its upwardly-bent portion to the clip securing the end of the spring, with a plate provided at its outer end with a nose-piece and sliding adjustably upon the inwardly-bent portion of the arm, as and for the purpose shown and set forth.

4. In a pair of nose-glasses, the combination of the inwardly-bent arms, secured to the clips securing the springs and formed with lips or flanges at the edges of their outer ends, with plates of the same width as the inwardly-bent portions of the arms, provided with lips or flanges at their inner ends, and with nose-pieces at their outer ends, the said lips or flanges clamping the edges of the opposite portions, as and for the purpose shown and set forth.

5. A pair of nose-glasses comprising inwardly-bent arms having lips or flanges at the edges of their inwardly-pointing ends and secured at their upwardly-pointing ends upon the clips securing the ends of the springs, plates of the same width as the inwardly-bent portions of the arms formed with lips or flanges at their inner ends, and with shoulders and pivots at their outer ends, the said lips or flanges of the arms and plates clamping the edges of the opposite portions, and nose-pieces pivoted at their middles upon the pivots rocking in a plane transverse to the plane of the arms, all constructed and arranged as and for the purpose shown and set forth.

315,155. WHEAT-SCOURER. THOMAS MCCUDDEN, St. Louis, and ALFRED F. SHARLOCK, Festus, assignors of one-third to Daniel Foley, St. Louis, Mo. Filed July 7, 1884. (No model.)



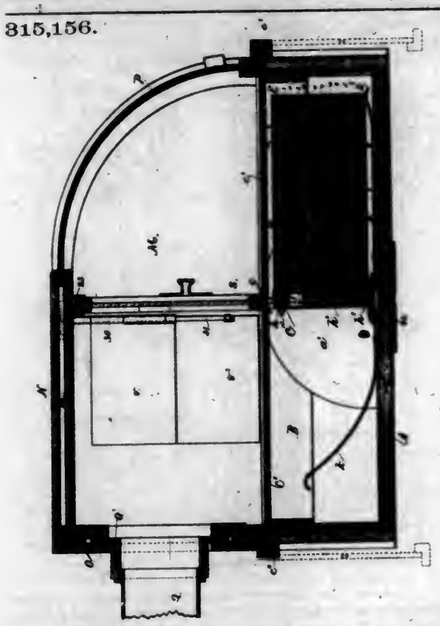
Claim.—The combination of the spout B, the casing D, the concave E, and the scourer C, consisting of the heads *c c*, the shaft c^3, the radially-adjustable brushes *c′ c′*, and the beaters c^2 c^2, said spout being constructed to deliver the wheat along the entire length of the horizontal scourer, substantially as described.

315,156. PORTABLE CAMERA. SCOTTO C. NASH, Harrisburg, Pa. Filed June 14, 1884. (No model.)

Claim.—1. The combination, with a camera, of a box and a series of plate-holders united by a belt, a roller for moving the plate-holders up into position successively, and means for holding the plate in its position while the picture is being taken, substantially as set forth.

2. The combination, with the belt and plate-holders, of a box surrounding the same, means for moving such belt of plate-holders, a camera above and connected to the plate-holder box, and lids to the plate-holder box, substantially as set forth.

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3. The box B, with a movable bottom, A, and side pieces, *a′*, in combination with the belt and plate-holders, the roller for moving the same, and the partition and roller within the belt and between the sides *a′*, substantially as set forth.

4. The combination, with the plate-holders, of a belt, clamping-plates to connect the belt to the plate-holders, and a polygonal roller with teeth for moving the plate-holders and belt, substantially as set forth.

5. The combination, with the box A B, of the plate-holders, the belt connecting the same, the polygonal roller for moving the belt, and the springs upon which the outer ends of the plate-holders rest, substantially as set forth.

6. The combination, with the plate-holders and the belt connecting the same, of the polygonal roller, a square axle passing through the same, the journals for the axle, and the knobs upon the ends of the axle, substantially as set forth.

7. The combination, with the plate-holders, the belt connecting the same, and the means for moving the belt, of a box inclosing the parts and sliding covers composed of slats upon a flexible material, substantially as set forth.

8. In combination with the lens-holder and a flat septum attached to the same, a camera-box having a double front end, with a space between the two parts of the end, into which the septum is received and within which it can be moved laterally, substantially as set forth.

9. The combination, with the plate-holders and a belt to connect the same, of a box, sliding lids for the same, and a camera that can be reversed, so as to take pictures upon plates at either side of the plate-holders, substantially as set forth.

10. The camera-box having a front end and sides with segmental grooves, in combination with a cover formed of slats united by flexible material, the ends of the slats being within the grooves, substantially as set forth.

11. The forked stop, spring, turning-head, and notched case, in combination with the plates *n* and the plate-holders or focusing-frame, substantially as specified.

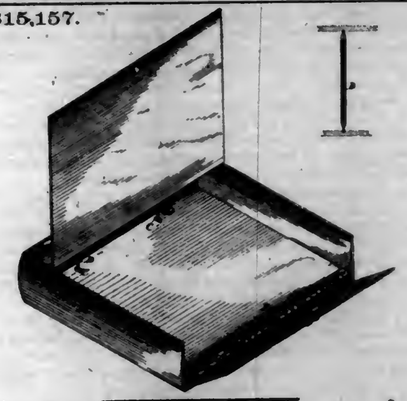
12. The combination, with the camera-box, of sectional shields within the box, and the axes of the same extending through the camera-box, and turn buttons or heads for the same, substantially as set forth.

13. The combination, with the plate-holders, the belt for connecting the same, and the roller for moving the belt, of a counting device for indicating the plates that are brought successively into place for the pictures, as set forth.

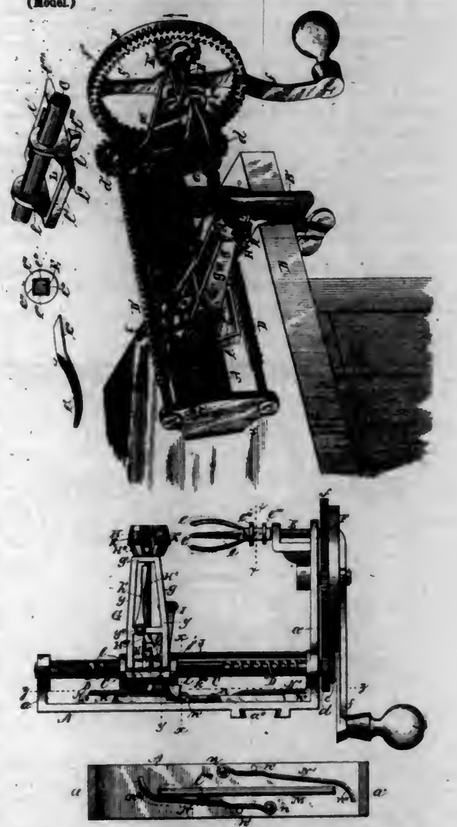
315,157. LETTER-FILE BOX. GEORGE V. NAUERTH, Cincinnati, and JOHN M. JENKINS, Carthage, assignors to the Globe Files Company, Cincinnati, Ohio. Filed Dec. 12, 1883. (No model.)

Claim.—In combination with the flexible walls of a file-box, the pointed rods, one or more, introduced into the perforations of the index-sheets and secured between the walls, substantially as described.

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315,158. FRUIT-PARING MACHINE. WILLIAM A. C. OAKS, Antrim, N. H., assignor to the Goodell Company, same place. Filed Dec. 14, 1883. (Model.)



Claim.—1. In a fruit-paring machine, in combination, substantially as described, a drive-wheel, a guide-shaft on which the paring-knife-carrying frame slides, two feed-screws, said guide-shaft and feed-screws all geared with and rotated by the drive-wheel, a rotating fruit-holding fork, a rocking frame which reciprocates the knife-carrying frame, and a trip mechanism which throws said rocking frame into gear alternately with the feed-screws.

2. In a fruit-paring machine, in combination with the two feed-screws, the knife-carrying frame, and the guide-shaft on which it reciprocates, a frame which carries segment-nuts adapted to gear alternately with the two feed-screws, substantially as described, and for the purpose specified.

3. In a fruit-paring machine, in combination with the two feed-screws, the knife-carrying frame, guide-shaft on which it reciprocates, a swinging frame provided with segment-nuts adapted to gear alternately with the feed-screws, and also provided with a lug or projection, and a rib, M, and springs N N', adapted to tilt the swinging frame, substantially as and for the purpose specified.

4. In a fruit-paring machine, in combination with a sliding knife-carrying frame and feed-screws adapted to move it in opposite directions, a swinging frame adapted to gear the sliding frame with the feed-screws alternately, substantially as and for the purpose specified.

5. In a fruit-paring machine, in combination with the guide-shaft C, a knife-holding frame, and a feed-screw for moving the knife-holding frame parallel with the fruit-holding fork, a shaft having its bearing in the knife-holding frame and having the fruit-paring knife secured to its upper end, and a crank at its lower end, and a cam wheel or disk mounted on the guide-shaft and adapted to oscillate the paring-knife, substantially as and for the purpose specified.

6. In a fruit-paring machine of the class herein described, the combination of a knife-carrying frame, a fruit-holding fork, a feed-screw for reciprocating the knife-frame past said fork, an oscillating knife having a shaft, H', and a rotating shaft, C, provided with a device for oscillating said shaft H' and knife, substantially as described.

7. In combination, the shaft C, sliding cam-disk K, knife-carrying frame G, having a slot, *h*, knife H, shaft H', and crank H''', substantially as and for the purpose specified.

8. In combination, the guide-shaft C, sliding knife-carrying frame, and knife fixed to the shaft H', and the upper bearing-plate, *g'*, having an oblique slot, *h*, which permits the knife to yield, substantially as and for the purpose specified.

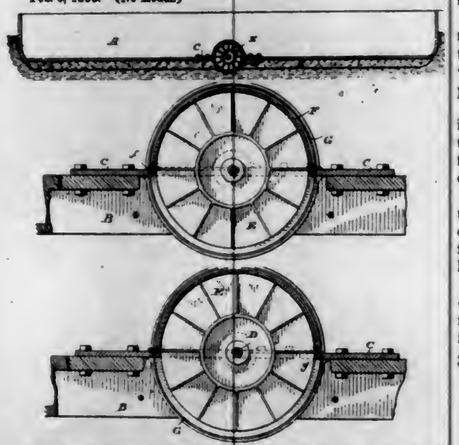
9. In a fruit-paring machine, in combination, a knife-carrying frame having a slot, *h*, a paring-knife fixed to a shaft, H', and a spring, *h'*, adapted to press the shaft H' obliquely in the slot *h*, substantially as and for the purpose specified.

10. In a fruit-paring machine, the fork-prongs *e'*, constructed from steel blanks, bent in their cross-sections, and formed as described, for the purpose specified.

11. In a fruit-paring machine, the fork-prongs constructed from steel blanks, bent and formed as described, and secured to the shaft E by rings *e'''*, substantially as set forth.

315,159. CANAL-BOAT PROPELLER.

Patrt & O'Connor, Mount Savage, Md., assignor of one-half to James T. O'Connor, same place. Filed Feb. 6, 1885. (No model.)



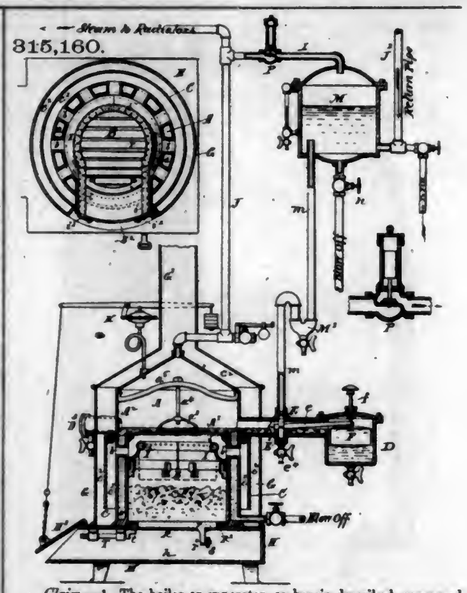
Claim.—1. The combination, with a vessel having a central longitudinal channel, of a wheel operating in said channel, a detachable cover for the interior portion of said wheel, and an adjustable slide for covering the exterior portion thereof, substantially as set forth.

2. The combination, with the vessel A, having the central longitudinal channel, B, of the bed-plate C, formed with aperture *f*, groove *g'*, and slot *g*, of the sliding shield G, adapted to register with said aperture, and the slots *g g'* to close the channel at that point, substantially as described.

3. The combination, with the vessel A, having a central longitudinal channel, B, provided with the slots *g'*, of the bed plate C, having aperture *f*, the sliding shield G, a suitable wheel, E, and a removable hood or cover therefor, substantially as described.

315,160. STEAM-GENERATOR.

William A. Pentecost, Worcester, Mass. Filed June 30, 1884. (No model.)



Claim.—1. The boiler or generator, as herein described, composed of the lower section, having outer and inner shells surrounding the fire-chamber B, with annular water-space *a*, the series of radial tubes *b*, the bottom plate, A', secured to the inner shell, and the dome A^2, secured to the outer shell of said lower section, with the internal braces for supporting the center of said plate A', substantially as shown.

2. The combination, with the boiler A, having the lower section or water-leg, *a*, surrounding the fire-chamber, and the series of radial tubes *b*, of the petticoat-sheet C, attached at the central joint and extending downward past said tubes, substantially as shown, and for the purpose set forth.

3. The combination, with the boiler having the lower annular section surrounding the fire-chamber, and provided with a series of radial tubes or openings, *b*, of a deflector or bridge-plate, as I, extending inwardly and upwardly in front of said tubes, substantially as and for the purpose set forth.

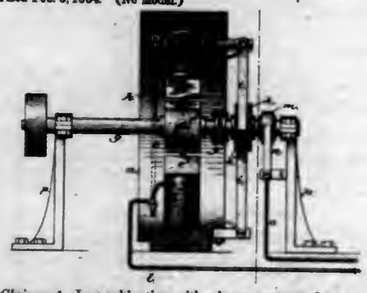
4. The combination, with the boiler having the fire-chamber B in its lower section, and provided with a series of radial tubes, *b*, and entrance-door B^3, of a deflector, as I, detachably supported within said fire-chamber in front of the tubes *b*, and formed in sections which can be conveniently removed and replaced through said doorway, as set forth.

5. The combination, with the boiler having fire-chamber B and tubes *b*, as shown, of a deflector or rim, I, extending upward within said chamber in front of said tubes, and provided with air-passage *i* and perforations for admitting air to the fire-chamber, and shutters *i'*, for regulating the inflow of air to said passages, substantially as set forth.

6. The combination, with a generator constructed substantially as described, and having an internal regulating apparatus, of the sliding rod *f*, supported in the shell of the generator, as and for the purpose set forth.

315,161. ELECTRO-MAGNETIC MOTOR.

Charles G. Perkins, New York, N. Y., assignor to the Imperial Electric Light Company, same place. Filed Feb. 8, 1884. (No model.)



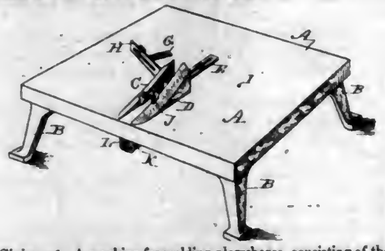
Claim.—1. In combination with electro-magnets forming the field of an electro-magnetic motor, a revolving armature provided with adjustable extensions.

2. The electro-magnetic motor consisting of a cylindrical shell or form having electro-magnets arranged radially on the interior thereof, in combination with a revolving armature provided with adjustable extensions.

3. The combination, substantially as shown and described, consisting of the cylindrical shell *a*, electro-magnets *b*, metallic springs *i*, commutator *h*, rotating armature *e*, provided with adjustable extensions *e''* shafts *g g'*, metallic ring *m*, spring *n*, conductors *o k l*, and bearings *p*.

315,162. DEVICE FOR WELDING PLOWSHARES.

Totten Poling, Menlo, Iowa. Filed Oct. 2, 1884. (No model.)

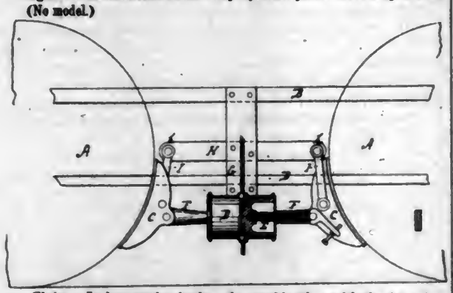


Claim.—1. A machine for welding plowshares, consisting of the following elements: a bed-plate, A, supported on legs B, having two swages, C and D, cast upon its upper surface, an adjustable guide, E, an adjustable guide, H, combined with an adjustable and transferable guide-carrier, G, and a clamp, J, combined with a lever, K, all substantially as shown and described, to operate in the manner set forth.

2. In a machine for welding plowshares, the combination of swages C and D with a clamp, J, and lever K, as and for the purpose set forth.

315,163. LOCOMOTIVE-BRAKE.

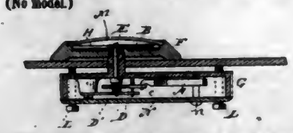
George H. Poor, St. Louis, Mo., assignor to the American Brake Company, same place. Filed Aug. 4, 1884. (No model.)



Claim.—In locomotive-brakes, the combination, with the face-plate which supports the brake-cylinder and the brake-heads actuated thereby, of a cross or hanger bar secured to the face-plate in a plane parallel with the locomotive-frame and in juxtaposition to the brake-heads, and the outer ends of which are provided with hanger-studs, to bring the hangers in alignment with the center of the shoes, substantially as and for the purposes specified.

315,164. HEAT-INDICATOR FOR OVENS.

Stephen Porter, Boston, Mass., assignor of one-half to Ira E. Fairbanks, same place. Filed Sept. 8, 1884. (No model.)



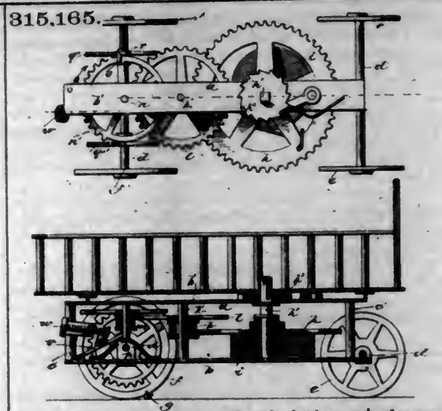
Claim.—1. In a heat-indicator for ovens and other similar hot-air chambers herein described, the combination of the expansion-bar A, elbow-lever C, pinion D and shaft E, supporting-plate G, covering-frame N, provided with adjusting-screws L, and an index, B, mounted upon said shaft E.

2. In a heat-indicator of the character described, the combination of the expansion-bar A, elbow-lever C, pinion D and shaft E, supporting-plate G, covering-frame N, provided with adjusting-screws L, screw-threaded sleeve H, indicator-plate F, and an index, B, mounted upon the shaft E, all substantially as herein set forth, and for the purpose herein specified.

315,165. CRADLE.

Andrew D. Post, Keyport, N. J. Filed Apr. 4, 1884. (No model.)

Claim.—1. In a rolling cradle, the combination, with the cradle



proper mounted on wheels, one of its axles having a pair of segmental gear-wheels, of a third segmental gear engaging alternately with one or the other of the gears, and operated by a train of gearing to roll the cradle to and fro, as set forth.

2. In a rolling cradle, the combination, with the cradle-frame mounted on wheels, one pair provided with stops, and the axle of which has a pair of segmental gears, of a third segmental gear engaging alternately with one or the other of the pair, and having a hook-arm and a train of gearing, arranged and operating as set forth.

3. In a rolling cradle, the combination, with the cradle proper mounted on wheels, of the train of gearing supported beneath the same, and connecting with the wheels to roll them to and fro, and stops on the wheels for limiting the movement of the cradle, as set forth.

4. In a rolling cradle, the combination, with the frame provided with the driving-wheel, power-spring, and pawl and ratchet, the intermediate gearing, and segmental gear-wheel, of the axles for the carrying-wheels, one of which is provided with the pair of segmental gear-wheels engaging alternately with the other segmental gear-wheel, as set forth.

5. In a rolling cradle, the combination, with the cradle-frame proper, and its carrying wheels and axles, of a train of gearing connecting with a pair of gears on the axle of one of the wheels, and alternately operating one or the other of the gears, as and for the purpose set forth.

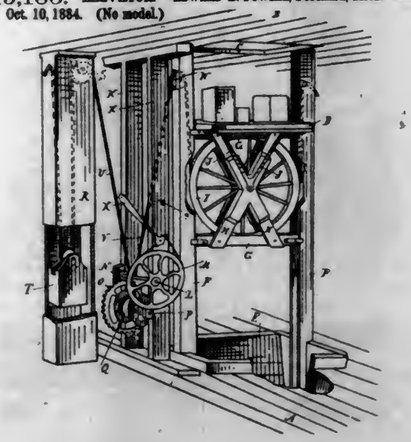
6. In a rolling cradle, the combination, with the cradle proper mounted on wheels, one of its axles having a pair of gear-wheels, of a third gear engaging alternately with one or the other of the gears on the axle, a train of gearing for operating the third gear, and a brake engaging with the hub of the gears on the axle, as set forth.

7. In a rolling cradle, the combination, with the frame provided with the driving-wheel, its spring-pawl and ratchet, and power-spring, the intermediate gear-wheel, and the segmental gear-wheel having a hook-arm, of the segmental gear-wheels provided with radial arms on their rims at the ends of their lines of teeth, and fixed upon one of the axles of the cradle, and the brake engaging the hubs of the segmental wheels on the axle, substantially as specified.

8. A rolling cradle having its larger wheels on the propelling-axle provided with stops on their rims, substantially as specified.

315,166. ELEVATOR.

Edward B. Powell, Portland, Mich. Filed Oct. 10, 1884. (No model.)



Claim.—1. The combination, with an elevator-platform and its support, of a weight heavier than said platform and its support, constructed and arranged to cause said platform to ascend to the level of the upper floor when the load is removed from the platform after being depressed below said upper floor, substantially as described.

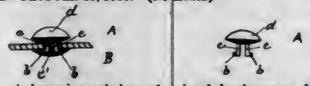
2. The combination, with an elevator-platform and its support, of a weight heavier than said platform and its support, a brake for regulating the speed of the descent of said platform, and means, substantially as described, operating on the brake-wheel to cause said platform to ascend when loaded, substantially as specified.

3. A support for the platform of an elevator, consisting of cross-heads working between vertical guides and secured together by means of cross-ties, within which is journaled a grooved wheel, substantially as and for the purposes specified.

4. The combination, in an elevator, of the vertical guides F, platform D, resting upon a support composed of cross-heads and cross-ties carrying a grooved wheel, the shafts L and P, carrying, respectively, a brake-wheel and pinion and spur-wheel and drum, pulleys S and W, weight T, cables U and V, and band-brake X, the parts being constructed, combined, and operating substantially as and for the purposes described.

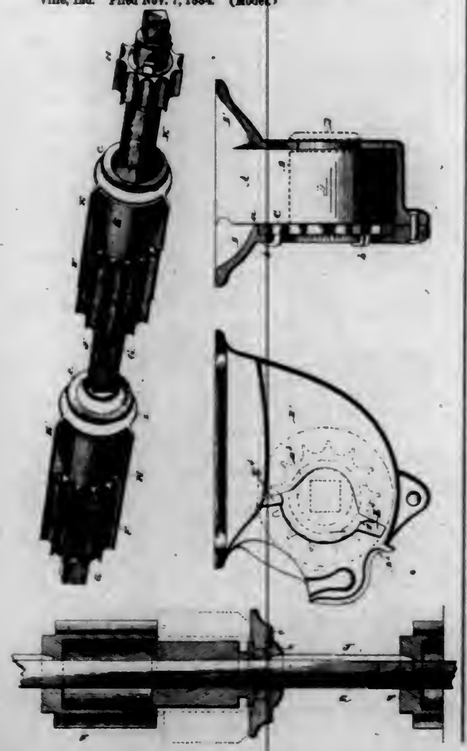
5. In combination with an elevator-platform, a rope supporting the same in its bight, one end being attached to a pulley-drum, a weight overbalancing said platform, and a rope carrying said weight and attached to and wound on said pulley-drum, whereby the weight exerts a positive force to return or keep the platform at a fixed position, substantially as described.

315,167. BUTTON AND FASTENING. GEORGE W. PRENTICE, Providence, R. I. Filed Jan. 20, 1885. (No model.)



Claim.—A button consisting of a head having two depending shanks, each shank being provided at its outer end with an enlarged projection, and a washer having a slot extending inward from the outer edge, the inner end of said slot being provided on each side with a notch and indentation to engage the shanks and enlarged projections of the button when attached to fabric, combined and adapted for use substantially as and for the purpose set forth.

315,168. FORCE-FEED SEEDING-MACHINE. J. L. RITTER, Brownsville, Ind. Filed Nov. 7, 1884. (Model.)



Claim.—1. The combination, with a seed-cup and a feed-wheel, of a rose-washer resting against one face of the seed-cup and provided with bent fingers which overlap or rest against the opposite side of said face, substantially as set forth.

2. The combination, with a seed-cup having a depressed seat in one face thereof and a feed-wheel, of a rose-washer resting in said depressed seat and provided with bent fingers, which latter overlap or rest against the opposite side of said face and hold the washer in position.

3. The combination, with a seed-cup and a feed-wheel, of a rose-washer resting against one face of said cup, and the bent fingers rigidly secured to said washer and holding it in position, substantially as set forth.

4. The combination, with a seed-cup having an opening in one side wall thereof, and a sleeve having a groove therein, of a cut-off gate or gates for locking the sleeve against endwise movement within said opening.

5. The combination, with a seed-cup having an opening in one side wall, and a rotating and non-sliding sleeve having a grooved end, of the cut-off gate and the web for locking the sleeve against displacement, substantially as set forth.

6. The combination, with a seed-cup, the rotating and longitudinal movable feed-wheel, and the sleeve, of the cut-off gates and web for locking the sleeve against endwise movement.

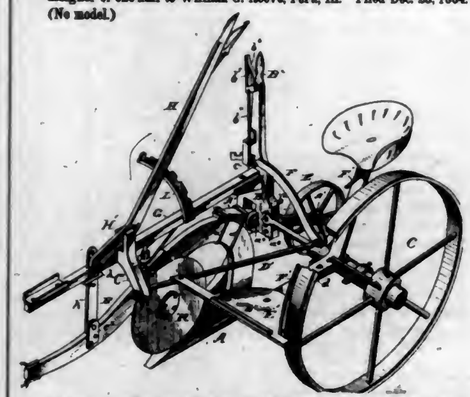
7. The combination, with a series of seed-cups, feed-wheels, and cut-off gates, of a shaft and a support or distance-piece located between the feed wheel of one seed-cup and the cut-off gate or gates of the next adjacent cup, substantially as set forth.

8. The combination, with a series of seed-cups, feed-wheels, and cut-off gates, of a rotating and longitudinally-sliding shaft and supports or distance-pieces located between the cut-off gate or gates of one seed-cup and the feed-wheel of the next adjacent cup.

9. The combination, with a series of seed-cups, feed-wheels, and cut-off gates, of a shaft and distance-pieces or supports located on the shaft, the opposite ends of each of said pieces resting, respectively, against the hub of a feed-wheel and the hub or collar of the next adjacent cut-off gate.

10. The combination, with a series of seed-cups, feed-wheels, and cut-off gates, of the angular rotating and sliding shaft and the rods or bars resting on said shaft and bearing against the adjacent ends of the feed-wheels and cut-off gates, substantially as set forth.

315,169. SULKY-PLOW. SAMUEL ROCKAFELLOW, Muscatine, Iowa, assignor of one-half to William G. Reeve, Peru, Ill. Filed Dec. 23, 1884. (No model.)



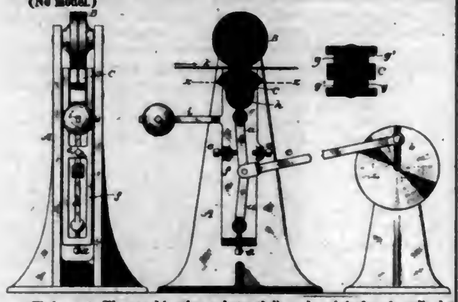
Claim.—1. The combination of the plow-beam B and the wheel-beam A′, firmly attached together, the sulky-axle D, the bifurcated standard and lever B′ B², having a series of holes, *b*′, and hinged or pivoted to the wheel-beam and to the axle, the arc F, and the pawl *b*⁴, all adapted for adjusting and holding the sulky in a level position and the plow in an upright position, substantially as and for the purposes described.

2. The combination of the plow-beam B and the wheel-beam A′, the sulky-axle D, the standard and lever B′ B², hinged or pivoted to the wheel-beam and to the axle, the bar G, attached to the standard, the sector L, the lever H, having its forward portion inclined upward, the arm K, pivoted to the lever and to the plow-beam, and the pawl C⁴, all adapted to raise and lower the plow, substantially as and for the purposes described.

3. The combination, with a plow-beam, of the rolling-colter attachments consisting of the swivel-rod G², constructed with the outward bend *d*′ and the elongated horizontal axle, and swiveled in the bearing H², the slotted plate *d*², formed on or attached to the bearing, the lever-plate *f f*², and the set bolt and nut *f*², substantially as and for the purposes described.

4. The combination, with the sulky-axle D, of the driver's seat N, supported upon the spring-bar N′, near the sulky-wheel, the foot-board E′, the support-rod *d*, the brace-rod D′, and the guard and brace rod F′, attached to the foot-board and to the seat, substantially as and for the purposes described.

315,170. WIRE-NOTCHING MACHINE. HENRY E. RUSSELL, Jr., New Britain, and HORACE K. JONES, Hartford, assignors to the Russell & Erwin Manufacturing Company, New Britain, Conn. Filed Apr. 14, 1884. (No model.)



Claim.—1. The combination, substantially as hereinbefore described, of a movable bed-die, and a compressing-die reciprocating toward and from said bed-die, and moving therewith during its forward movement.

2. The combination, substantially as hereinbefore described, of a movable bed-die, a rocking segmental die mounted in guide-bearings, and mechanism, substantially as described, for moving the segmental die toward and from said bed-die, and for forwardly moving both of said dies, and permitting the compressing-die to rock rearwardly independently of the bed-die, as set forth.

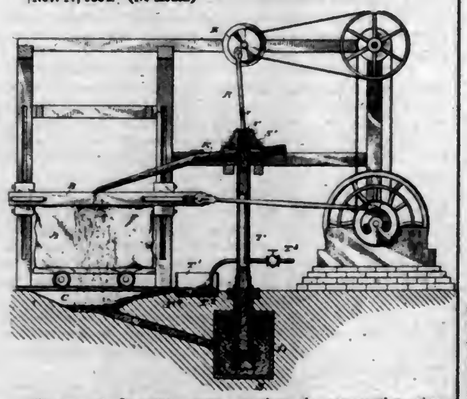
3. The combination, substantially as hereinbefore described, of the two dies, the toggle-lever, and the crank-plate for forcing said dies together, and then moving them forward.

4. The combination, substantially as hereinbefore described, of a segmental die supported on a toggle-lever, a pivoted frame in which said die and lever are mounted, and means, substantially as described, for vibrating said lever and frame, and thereby causing the die to intermittingly rise and fall and to rock to and fro, as set forth.

5. The combination, substantially as hereinbefore described, of the two dies, the toggle-lever and its vibrating mechanism, and the vibrating frame containing one of said dies and said toggle-lever.

6. The combination, substantially as hereinbefore described, of the pivoted circular-faced bed-die, the segmental compressing-die supported on a toggle-lever, a pivoted frame in which said segmental die and the toggle-lever are mounted, and means, substantially as described, for vibrating said lever and frame, for advancing the compressing-die, rocking it, and returning it from the bed-die.

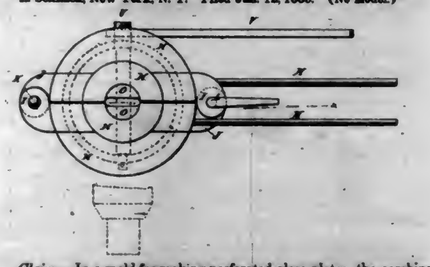
315,171. SAND AND WATER FEED MECHANISM FOR STONE-SAWING MACHINES. WILLIAM L. SAUNDERS, Jersey City, N. J. Filed Nov. 17, 1884. (No model.)



Claim.—1. In a stone-cutting machine, the combination, with a stone-saw and mechanism for operating the same, of a hopper and discharge-way adapted to collect and convey the sand and water running from the stone, an automatically-operated reciprocating pump for elevating the collected sand and water, a trough leading from the pump to the saw, and a distributing device carried by the pump and adapted to prevent the settling and clogging of the material discharged thereby, substantially as described.

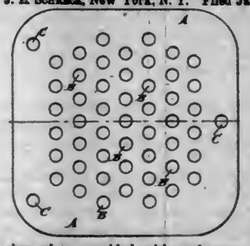
2. In a stone-sawing machine, the combination of a sand-and-water-discharge way and collecting-tank, a reciprocating tube provided at its lower end with an upwardly-opening foot-valve located within said tank, (whereby the contents thereof are continually agitated,) and at its upper end with a discharge-surface, whereby the mixture is prevented from settling and clogging, a suitable conduit for receiving and conveying the mixture to the stone, and mechanical connections, substantially as described, for imparting motion to the tube.

315,172. MOLD FOR MAKING PERFORATED GLASS PLATES. J. E. SCHERER, New York, N. Y. Filed Jan. 12, 1885. (No model.)



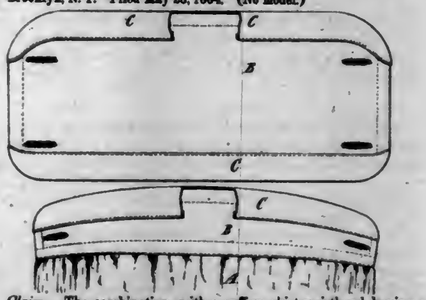
Claim.—In a mold for making perforated glass plates, the combination, with the base A, the lower die, C, having perforations P, and the upper die, H, of the follower R, having upwardly-projecting pins Q and side slots, S, and the eccentrics T, shaft U, and handle V, substantially as herein shown and described, whereby perforated glass plates can be readily cast and removed from the mold, as set forth.

315,173. PERFORATED GLASS PLATE FOR MAKING MEDICINAL TABLETS. J. E. SCHERER, New York, N. Y. Filed Jan. 12, 1885. (No model.)



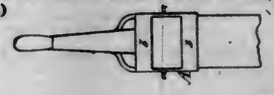
Claim.—A glass plate provided with perforations for making medicinal tablets, substantially as herein shown and described, whereby the said plate will be unaffected by quicksilver and acid ingredients in the medicated mass, as set forth.

315,174. CUFF AND WRISTBAND FOR SHIRTS. JOSEPH B. SEE, Brooklyn, N. Y. Filed May 28, 1884. (No model.)

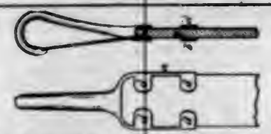


Claim.—The combination, with a cuff or shirt-wristband having a finished edge, of a supplemental cuff or band applied to and covering both the inner and outer sides of the cuff or wristband at the edge portion thereof, and secured by stitching through the cuff or wristband and the supplemental cuff or band, substantially as herein described.

315,175. ROPE OR STRAP ATTACHING DEVICE FOR BUCKLES, SNAP-HOOKS, &c. WILLIAM C. SLY, Cleveland, Ohio. Filed Dec. 1, 1884. (No model.)



315,175.



Claim.—The improved fastening for hooks, buckles, and the like, consisting of the plate or frame A, having bars *a a*, united by cross-bars *b b*, having lugs or points *c c*, and ears *d d*, constructed and applied to straps or cords substantially in the manner and for the purpose set forth.

315,176. VEHICLE-SPRING. STEPHEN G. SMITH, Hannibal, Mo. Filed Dec. 27, 1884. (No model.)



Claim.—1. The combination, with a pair of springs having return-bends, of a lock-plate shaped to receive the inner ends of both springs, and bolts for securing said ends to said plate.

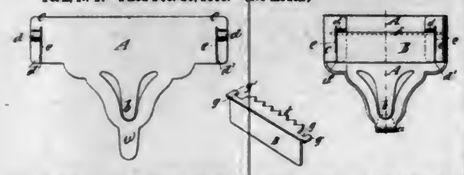
2. The combination, with a lock-plate provided on one face with a transverse rib, the opposite faces of which latter are concaved, and with side flanges, of a pair of springs having return-bends at their inner ends, and bolts passing through the flanges outside of the springs, for the purpose of locking the latter to the lock-plate, substantially as set forth.

3. The combination, with a lock-plate having flanged ends and sides, of springs bent as described, and the bolts passing through the side flanges outside of the short ends of the springs, for the purpose of locking the springs to the box.

4. The combination, with a lock-plate, springs having return-bends, and bolts for locking the springs to the plate, of clips embracing the short ends of the springs and plate, for securing the plate to vehicle body or axle, substantially as set forth.

5. A lock-plate for binding a pair of springs together, consisting of a casting provided with flanged ends and sides, one of its faces being provided with a pair of symmetrical curves, and its side flanges provided with perforations for receiving lock-bolts, substantially as set forth.

315,177. LEVER-BUCKLE. WILLIAM E. SMITH, Ansonia, Conn., assignor to John C. Hotchkiss, same place, and Burkard Goodman, New York, N. Y. Filed Feb. 20, 1885. (No model.)



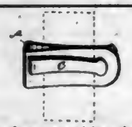
Claim.—1. In a lever-buckle, the combination, with the plate provided with ears doubled or bent inward and slotted, and having the portions of the ears inward of said slots depressed to form trunnion-bearings, of the lever having trunnions or pivots resting in said bearings and projecting beyond the slots and under the portions of the ears outside the slots, substantially as herein described.

2. In a lever-buckle, the combination, with the plate A, provided with the ears *c*, having slots *e* and depressions *d*, forming trunnion-bearings, of the lever B, having trunnions *g*, resting in said bearings, projecting under the portions of the ears outside said slots, and provided with ears *g'*, which project inward on the outer sides of the depressed bearings *d*, substantially as and for the purpose herein described.

3. In a lever-buckle, the combination, with a plate, A, provided with ears *c*, having slots *e*, and the depressed bearings *d*, of the lever B, having trunnions *g*, which rest in said bearings and project under the portions of the ears outside the slots, the lever bearing against and being supported by the portions of the ears below the bearings *d*, substantially as herein described.

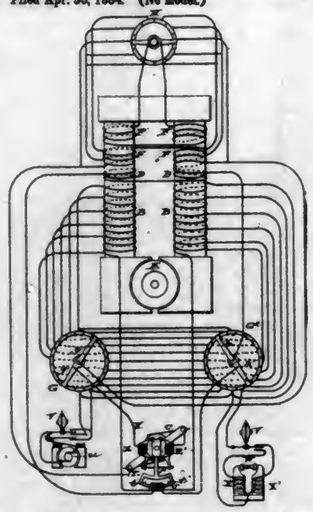
315,178. TICKET-CLIP. WILLIAM SOUTER, Leeds, Mass. Filed Sept. 22, 1884. (No model.)

315,178.



Claim.—The ticket-clasp comprising the approximately U-shaped spring-metal plate having curved jaws, with their concavities normally in contact to automatically clamp the interposed garment, one of said jaws having a spring clasp or tongue punched out of said jaw, substantially as shown and described, and for the purpose set forth.

315,179. ELECTRO-DYNAMIC MOTOR. F. J. SPRAGUE, New York, N. Y. Filed Apr. 30, 1884. (No model.)



Claim.—1. In an electric motor or generator, a field-magnet having sectional coils and other coils in a shunt around a variable number of the sections and independent of the armature-circuit, in combination with means for varying the number of sections around which said independent coils are shunted, substantially as set forth.

2. In an electric motor or generator, a field-magnet having sectional coils and other coils in a shunt around a variable number of the sections and independent of the armature-circuit, in combination with means for varying the number of sections around which the independent coils are shunted, and means for reversing the current in said independent coils, substantially as set forth.

3. In an electro-dynamic motor, the combination of sectional field-magnet coils, other field-magnet coils in a shunt around a variable number of such sections, means for varying the number of sections around which the latter coils are shunted, and means for varying the armature-current, substantially as set forth.

4. In an electro-dynamic motor, the combination of sectional field-magnet coils, independent field-magnet coils in a shunt around a variable number of such sections, the armature in a shunt around a variable number of such sections, means for varying the number of sections around which the independent coils are shunted, and means for varying the number of sections around which the armature is shunted, substantially as set forth.

5. In an electro-dynamic motor, the combination, with sectional field-magnet coils, of other field-magnet coils in a shunt around a variable number of such sections, the armature in a similar shunt, means for varying the number of sections around which the other coils are shunted, means for reversing the current in said other coils, means for varying the number of sections around which the armature is shunted, and means for reversing the armature-current, substantially as set forth.

6. In an electro-dynamic motor, the combination of main field-magnet coils, differential field-magnet coils in series with the armature, and means for varying the potential existing at the armature-terminals, substantially as set forth.

7. In an electro-dynamic motor, the combination of the armature in a shunt around a variable number of field-coils and differential field-coils in series with the armature, substantially as set forth.

8. In an electro-dynamic motor, the combination of main field-magnet coils in shunt relation to the armature, provided with means for varying their magnetizing effect, and differential field-magnet coils in series with the armature, substantially as set forth.

9. In an electro-dynamic motor, the combination of sectional field-magnet coils, independent field-magnet coils in a shunt around a variable number of the sections, means for varying the number of sections around which said independent coils are shunted, and differential field-coils in series with the armature, substantially as set forth.

10. In an electro-dynamic motor, the combination of sectional field-magnet coils, independent field-magnet coils in a shunt around a variable number of the sections, the armature in a similar shunt, means for varying the number of sections around which said independent coils are shunted, means acting similarly upon the armature-shunt, and differential field-coils in series with the armature, substantially as set forth.

11. In an electro-dynamic motor, the combination of main field-magnet coils in shunt relation to the armature, differential field-magnet coils in series with the armature, and means for varying the magnetizing effect of the said differential coils, substantially as set forth.

12. In an electro-dynamic motor, differential field-coils in series with the armature, wound partly in sections, and having extra coils in a shunt around a variable number of such sections, substantially as set forth.

13. In an electro-dynamic motor, differential field-coils in series with the armature, wound partly in sections, and having extra coils in a shunt around a variable number of such sections, in combination with means for varying the number of sections around which said extra coils are shunted, and means for reversing the current in said extra coils, substantially as set forth.

14. In an electro-dynamic motor, the combination of main field-magnet coils having means for varying their magnetizing effect, and differential field-magnet coils in series, with the armature having means for varying their magnetizing effect, substantially as set forth.

15. In an electro-dynamic motor, the combination of main field-magnet coils having means for varying their magnetizing effect, means for varying the armature-current, and differential field-magnet coils in series, with the armature provided with means for varying their magnetizing effect, substantially as set forth.

16. In apparatus for regulating an electro-dynamic motor, the combination, with sectional field-coils and independent field-coils in a shunt around a variable number of the sections, of means acting automatically upon variations in speed of the motor for varying the number of sections around which said independent coils are shunted, substantially as set forth.

17. In apparatus for regulating electro-dynamic motors, the combination, with sectional field-coils, of independent field-coils in a shunt around a variable number of such sections, the armature in a similar shunt, means acting automatically upon variations in speed of the motor to vary the number of sections around which said independent coils are shunted, and automatic means acting similarly upon the armature-shunt, substantially as set forth.

18. The combination, with an electro-dynamic motor having main field-coils and differential field-coils in series with the armature, of an electro-magnetic device in series with the armature for automatically maintaining the commutator-brushes at the points of least spark, substantially as set forth.

19. The combination, with an electro-dynamic motor, of an electro-magnetic device for automatically maintaining the commutator-brushes at the points of least spark included both in the armature and the main field circuits, substantially as set forth.

20. The combination, with an electro-dynamic motor having main field-magnet coils and independent variable field-magnet coils, of an electro-magnetic device in the circuit of said independent coils for automatically maintaining the commutator-brushes at the points of least spark, substantially as set forth.

21. The combination, with an electro-dynamic motor, having main field-coils and independent variable field-coils, of an electro-magnetic device included both in the armature-circuit and in the circuit of said independent coils for automatically adjusting the commutator-brushes to the points of least spark, substantially as set forth.

22. An electro-magnetic device for maintaining the commutator-brushes of an electro-dynamic motor at the non-sparking points included in the armature-circuit, the circuit of the main field-coils, and the circuit of the cumulative or differential independent field-coils, substantially as set forth.

23. The combination, with movable commutator-brushes of an electro-dynamic motor, of two electro-magnets in the armature-circuit acting oppositely upon the brushes, substantially as set forth.

24. The combination, with the movable commutator-brushes of an electro-dynamic motor, of two electro-magnets in the armature-circuit acting oppositely upon said brushes, and an electro-magnetic device in the one or more field-circuits opposing both said armature electro-magnets, substantially as set forth.

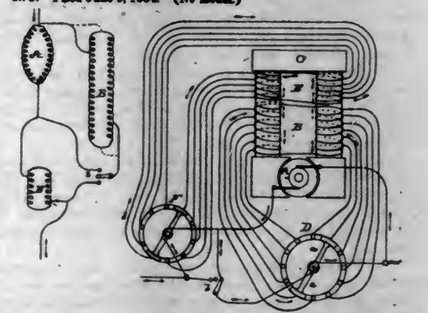
25. In an electro-dynamic motor, the combination of sectional field-coils, electrical connections from the junctions of the sections to contact-blocks, and two arms in electrical contact with said blocks and forming terminals of a circuit including other or independent field-coils, substantially as set forth.

26. The combination of sectional field-magnet coils, a circular commutator, two movable arms bearing on said commutator and forming terminals of a shunt-circuit including other independent field-coils, and connections from the junctions of said sectional coils to the plates of said commutator, whereby the current in the shunt is varied and reversed by the movement of said arms, substantially as set forth.

27. The combination of sectional field-magnet coils of an electro-dynamic motor, a circular commutator, two pairs of movable arms bearing on said commutator, one pair forming terminals of a shunt-circuit including the armature, the other forming terminals of a shunt-circuit including other or independent field-coils, and connections from the junctions of said sectional coils, whereby the armature-current is varied and reversed by the movement of one pair of arms, and the independent field-coil current is similarly affected by the other pair, substantially as set forth.

28. The combination, with a circuit of a constant difference of potential, of an electro-dynamic motor connected therewith, having main field-magnet coils in shunt relation to its armature and differential field-magnet coils in series with the armature and outside the terminals of the armature and main field-shunts, substantially as set forth.

315,180. ELECTRO-DYNAMIC MOTOR. F. J. SPRAGUE, New York, N. Y. Filed June 9, 1884. (No model.)



Claim.—1. The combination, in an electric motor or generator, of a series of sections of field-coils connected together in a continuous closed circuit, each section being wound from end to end of that portion of the core inclosed by the series, and means for reversing the current in more or less of said coils, substantially as set forth.

2. The combination, in an electric motor or generator, of a series of sections of field-coils connected together in a continuous closed circuit, and each section wound from end to end of that portion of the core inclosed by the series, and means for changing the connections of the supplying-circuit from one section to another of the series, substantially as set forth.

3. The combination of a series of field-magnet wires, each wound from end to end of a core, and all connected together to form a continuous circuit, connections from the ends of the wires to suitable contacts, and terminals of the supplying-circuit movable upon said contacts, substantially as set forth.

4. An electro-dynamic motor having field-coils in shunt relation to its armature, said field-coils being in a continuous constantly-closed circuit, as described, in combination with means for changing the terminals of the supplying-circuit to different points of said field-coils, substantially as set forth.

5. The combination, in an electro-dynamic motor, of the armature, main field-coils in shunt relation to the armature, differential field-coils in series with the armature, and means for varying the relation between the number of effective ampère-turns of the shunt field and the number of the series field, substantially as set forth.

6. The combination, in an electro-dynamic motor, of the armature, main field-coils in shunt relation to the armature, differential field-coils in series both with the armature and the main field-coils, and means for varying the relation between the number of effective ampere-turns in the shunt coil and the number in the series coil, substantially as set forth.

7. The combination, in an electro-dynamic motor, of the armature, main field-coils in shunt relation to said armature and differential field-coils in series with said armature, and means for varying the total number of effective ampère-turns in the field-coils without changing the relation between the direct and differential turns, substantially as set forth.

8. The combination, in an electro-dynamic motor, of the armature, main field-coils in shunt relation to the armature and differential coils in series with the armature, and means for varying the total number of effective ampere-turns in the field-coils and the relation between the direct and differential ampère-turns, substantially as set forth.

9. The combination, in an electro-dynamic motor, of the armature, main field-coils in shunt relation to the armature, differential field-coils in series with the armature, means for reversing the current in more or

less of the main field-coils, and means for reversing the current in more or less of the differential field-coils, substantially as set forth.

10. The combination, in an electro-dynamic motor, of the armature, main field-coils in shunt relation to the armature and in a continuous constantly-closed circuit, differential field-coils in series with the armature, also in a continuous constantly-closed circuit, means for shifting the supplying-terminals to different parts of the main field-coil circuit, and means for shifting the supplying-terminals to different parts of the differential field-coil circuit, substantially as set forth.

11. The combination, with an electro-dynamic motor having main field-coils in shunt relation to the armature, and differential field-coils in series with the armature, of a switch for shifting one terminal of said shunt coils to inside or outside the said differential coil, substantially as set forth.

12. The combination, with the field-magnet of an electro-dynamic motor having its coils in a continuous closed circuit, of connections from different parts of said coils to contact-blocks, and independently-movable arms forming circuit-terminals adjustable upon said contact-blocks, substantially as set forth.

13. The combination, with two parallel ranges of field-magnet coils, of connections from each end of a range to the farther end of the other range, substantially as set forth.

14. The combination, in an electro-dynamic motor, of field-coils in a continuous closed circuit, means for shifting the terminals of the supplying-circuit to different points of said field-coils, and means for varying the armature-current, substantially as set forth.

15. The combination, in an electro-dynamic motor, of field-coils in a continuous closed circuit, means for shifting the terminals of the supplying-circuit to different points of said field-coils, and means for shifting one or both terminals of the armature-shunt to different parts of said field-coils, substantially as set forth.

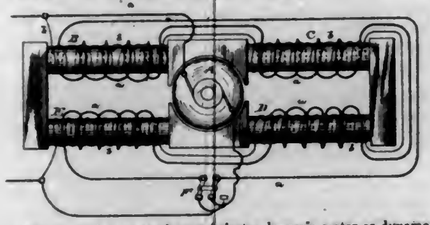
16. The combination, in an electro-dynamic motor, of field-coils in a continuous closed circuit, means for shifting the terminals of the supplying-circuit to different points of said field-coils, and means for varying the relation between the number of field-coils around which the armature is shunted and the number with which it is in series, substantially as set forth.

17. The combination, in an electro-dynamic motor, with sectional field-coils in a continuous closed circuit, of connections from the sections to blocks of a commutator, two arms upon said commutator, connected with the supplying-circuit terminals, and one or two arms connected with one or both terminals of the armature-shunt, substantially as set forth.

18. The combination, with an electro-dynamic motor having field-coils in a continuous closed circuit, a commutator, connections to said commutator from different parts of said closed field-circuit, supplying-terminals movable upon said commutator, and a speed-governor connected with the motor for moving said terminals, substantially as set forth.

19. A field-magnet whose coils are wound in two or more layers each comprising two or more strands of wire, each strand being wound from end to end of the core, or of a definite portion of the core, and all said strands being connected together in a continuous series, substantially as set forth.

315,181. ELECTRIC MOTOR AND GENERATOR. F. J. SPRAGUE, New York, N. Y. Filed July 19, 1884. (No model.)



Claim.—1. A compound wound electro-dynamic motor or dynamo-electric generator having its two field-coils proportioned substantially as hereinbefore set forth—that is, so that the number of turns in the shunt-coil bears the same relation to the number in the series-coil as the resistance of the shunt-coil bears to the sum of the resistances of the series-coil and the armature.

2. An electro-dynamic motor having series and shunt field-magnet coils the magnetizing effects of which are equal, or nearly so, and opposed, if circuit is closed, to both sets of coils when the motor is at rest.

3. An electro-dynamic motor having one set of field-coils in series with the armature and another in a shunt around both the armature and the series-coil, the magnetizing effects of which are equal, or nearly so, and opposed, if circuit is closed, to both sets of coils when the motor is at rest.

4. The combination, with an electro-dynamic motor having series and shunt field-magnet coils whose magnetizing effects are equal, or nearly so, and opposed, if circuit is closed, to both sets of coils when the motor is at rest, of means for modifying the magnetizing effect of said series-coils, substantially as set forth.

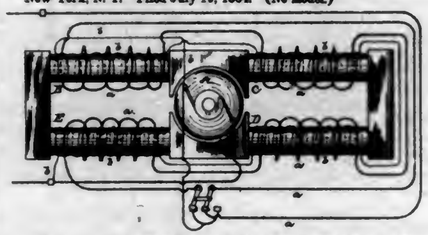
5. The combination, with an electro-dynamic motor having series and shunt field-magnet coils whose magnetizing effects are equal, or nearly so, and opposed, if circuit is closed, to both sets of coils when the motor is at rest, of means for short-circuiting the said series-coils, substantially as set forth.

6. The combination, with an electro-dynamic motor having series and shunt field-magnet coils whose magnetizing effects are equal, or nearly so, and opposed, if circuit is closed, to both sets of coils when the motor is at rest, of means for reversing the current in the said series-coils, substantially as set forth.

7. The combination, with an electro-dynamic motor having series and shunt field-magnet coils whose magnetizing effects are equal, or nearly so, and opposed, if circuit is closed, to both sets of coils when the motor is at rest, of an electro-magnetic device in the armature-circuit for modifying the magnetizing effect of the said series-coils, substantially as set forth.

8. The combination, with an electro-dynamic motor having series and shunt field-magnet coils whose magnetizing effects are equal, or nearly so, and opposed, if circuit is closed, to both sets of coils when the motor is at rest, of a short-circuiting and reversing switch for said series-coils and an electro-magnetic device in the armature-circuit for moving said switch, substantially as set forth.

315,182. ELECTRIC MOTOR AND GENERATOR. F. J. SPRAGUE, New York, N. Y. Filed July 19, 1884. (No model.)



Claim.—1. A compound wound electro-dynamic motor or dynamo-electric generator having its two field-coils proportioned substantially as hereinbefore set forth—that is, so that the number of turns in the shunt-coil bears the same ratio to the number in the series-coil as the sum of the resistances of the shunt-coil and the armature bears to the resistance of the armature.

2. An electro-dynamic motor having two sets of field-magnet coils whose magnetizing effects are equal, or nearly so, and opposed, if circuit is closed, to both sets of coils when the motor is at rest, one of said sets being in series with the armature and the other in a shunt around the armature alone.

3. An electro-dynamic motor having two sets of field-magnet coils whose magnetizing effects are equal, or nearly so, and opposed, if circuit is closed, to both sets of coils when the motor is at rest, one of said sets being in series with the armature and the other in a shunt around the armature alone, in combination with means for modifying the magnetizing effect of said series-coils, substantially as set forth.

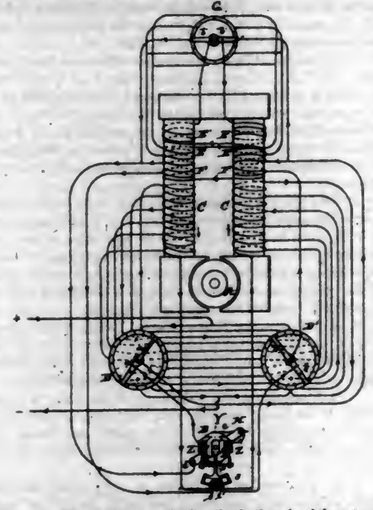
4. An electro-dynamic motor having two sets of field-magnet coils whose magnetizing effects are equal, or nearly so, and opposed, if circuit is closed, to both sets of coils when the motor is at rest, one of said sets being in series with the armature and the other in a shunt around the armature alone, in combination with means for short-circuiting the said series-coils, substantially as set forth.

5. An electro-dynamic motor having two sets of field-magnet coils whose magnetizing effects are equal, or nearly so, and opposed, if circuit is closed, to both sets of coils when the motor is at rest, one of said sets being in series with the armature and the other in a shunt around the armature alone, in combination with means for reversing the current in said series-coils, substantially as set forth.

6. An electro-dynamic motor having two sets of field-magnet coils whose magnetizing effects are equal, or nearly so, and opposed, if circuit is closed, to both sets of coils when the motor is at rest, one of said sets being in series with the armature and the other in a shunt around the armature alone, in combination with an electro-magnetic device in the shunt field-circuit for modifying the magnetizing effect of the said series-coils, substantially as set forth.

7. An electro-dynamic motor having two sets of field-magnet coils whose magnetizing effects are equal, or nearly so, and opposed, if circuit is closed, to both sets of coils when the motor is at rest, one of said sets being in series with the armature and the other in a shunt around the armature alone, in combination with a short-circuiting and reversing switch for said series-coils, and an electro-magnetic device in the shunt field-circuit for moving said switch, substantially as set forth.

315,183. ELECTRO-DYNAMIC MOTOR. F. J. SPRAGUE, New York, N. Y. Filed Jan. 19, 1885. (No model.)



Claim.—1. The method herein described of maintaining the commutator-brushes of an electro-dynamic motor at the points of least spark, which consists in automatically increasing the negative lead of the brushes simultaneously with an increase in the armature-current, and the reverse.

2. The method herein described of maintaining the commutator-brushes of an electro-dynamic motor at the points of least spark, which consists in varying the negative lead of the brushes by the differential action of the armature and field currents, an increase in the said armature-current causing an increase of the negative lead, and an increase in the field-current causing a decrease in the negative lead, (or the reverse,) substantially as set forth.

315,184. MACHINE FOR MAKING, REPAIRING, AND CLEANING ROADS. GEORGE W. TAFT, Abington, Conn. Filed Mar. 6, 1884. (No model.)

Brief.—A curved scraper-plate jointed to the front of a vertically-swinging thrust-frame has a rear locking-arc and bolt, with a lever projecting up through the platform on the wheeled carriage for adjusting and securing its angle with the draft, and to its upper edge a universal jointed connecting-link to a lever pivoted on a locking-plate for adjusting the scraper-pitch. The ends of the scraper are hung from crane-arms slid vertically by racks and arc-levers, by rods fitting angular sockets in such arms, and held adjustably by pins. A plow-point with vertical and lateral cutting-edges has lips and a bolt to detachably secure it to the scraper. End wings are detachably and adjustably hinged to the scraper ends to act as mold-boards.

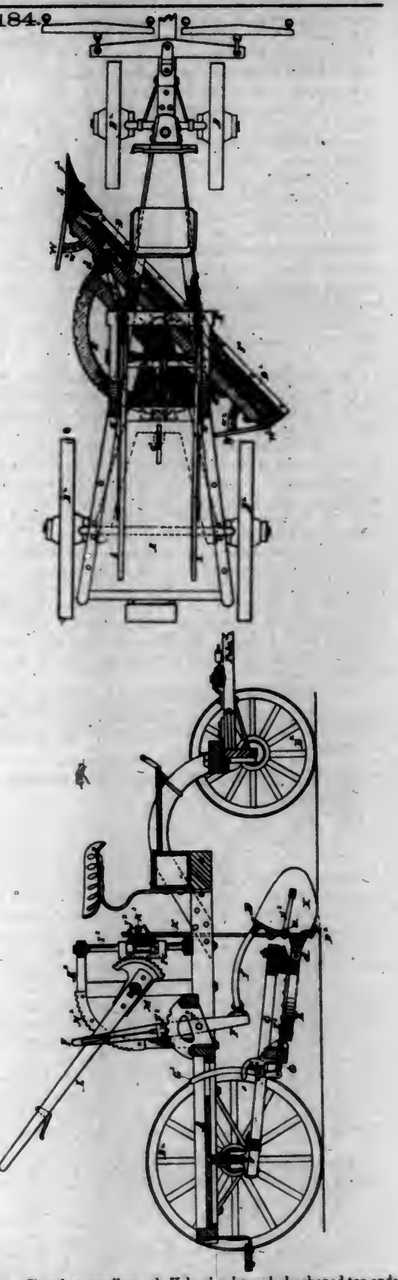
Claim.—1. The combination of the body or platform A, mounted on front and rear axles and wheels, the blade D, supported by a vertically-adjusting frame, and a horizontally-adjusting segment in rear of said blade and hinged for backward and forward tipping action, the hand-lever F, its fulcrum-support plate F', the locking devices F^2, and the connecting-link F, having compound or universal joint attachments, substantially as and for the purposes set forth.

2. In a road-machine having a scraper-blade mounted at the front of a thrust frame or support, and adapted for angular adjustment in relation to the direction of draft, and inclined adjustment in relation to the plane of the road, and hinged for backward and forward tipping action, the actuating-lever, as F, for effecting or retaining such tipping action of the blade, located in relation to the lifting-levers L, platform A, and blade-supporting frame, as shown, whereby said lever is conveniently under control of the attendant at his position upon the platform of the machine, substantially as set forth.

3. The latch-bolt lever G', fulcrumed at G^2, and extending upward through the platform A, as shown, in combination with the latch-bolt G, the semicircular notched plate E', and supporting-frame C, for the purpose set forth.

4. The swinging crane J, provided with the rectangular end or socket J', in combination with the blade-suspending rod K, having a rectangular recessed end passing through said socket, and the retaining-pin K' arranged therein, substantially as shown and described.

5. In combination with the adjustable scraper or blade and blade-elevating racks and levers, the crane-arms J, provided with rectangular



end sockets, J', and suspending rods K, having irregularly-shaped top ends passing through and non-rotative in said sockets, and means for retaining said rods in connection with said arms, substantially as and for the purpose set forth.

6. In a road-machine having a scraper or blade supported beneath a carrier-frame or body mounted upon wheels, the combination, with said blade D, its supporting-frame, and traveling wheels, of the wing or plate W, connected to its end, substantially as described, and provided with means for effecting its adjustment to different degrees of lateral inclination relatively to the direction of movement of the carrier, substantially as and for the purpose set forth.

7. In a road-grading machine, the combination, with a diagonally-reversible scraper-blade supported beneath a carriage body or frame

mounted on wheels, of guards or landside-plates, as W, attached to the ends of said blade in such relation thereto that they will respectively assume a rearwardly and outwardly inclined position in relation to the direction of draft when their particular end of the blade is adjusted to its forward position, for the purpose set forth.

8. In a road-machine mounted on traveling wheels, the combination of a diagonally-reversible scraper-blade suspended for vertical and horizontal adjustment in relation to the carriage or supporting body, and a plate or wing connected to the end of said blade by a hinging-piece, W′, and extensible brace W², which permit adjustment or detachment of said wing, substantially as and for the purpose described.

9. In a road-scraper or grading-machine, the combination, with a carrier, body, or frame mounted on wheels, of a diagonal scraper-blade supported thereon and hinged for backward and forward pitch adjustment, a plow-point rigidly attached to said blade, mechanism for independently raising and depressing the respective ends of said blade, and devices for imparting the backward and forward action to said blade from the operator's position upon the machine, whereby the dip of the plow-point can be regulated at will, substantially as and for the purpose set forth.

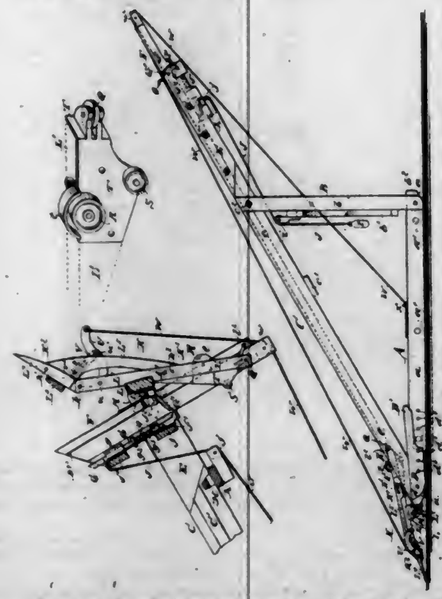
10. The pilot-iron or share S, having cutting-edges s s^2, overlocking lips S^2, and fastening-stud u, disposed in the manner shown and described, in combination with the blade D of a road-machine, substantially for the purpose set forth.

11. The combination, with a curved scraping-blade in an adjustable road-machine, of the detachable pilot-iron S, having lateral and vertical cutting-edges s s^2, and provided with upper and lower lips, S^2, locking over the end of the blade, and the fastening device u, whereby ready and convenient attachment and detachment with the blade can be effected, substantially as hereinbefore set forth.

12. In a road-machine, the combination of the curved metal blade suspended in connection with a carrying-frame mounted on forward and rear axles and wheels, and supported by an adjustable segment and thrust frame in rear thereof, the detachable pilot-iron S, having a curved back plate, S′, and cutting-flanges s and s^2, disposed as shown, and the adjustable wing or plate W, attached to the blade and sustained at an outward inclination in relation to the cutting-flange s^2, as and for the purposes set forth.

13. A detachable side guard-plate, as X, provided with attaching-ears x and braces x', adapted for use in combination with the scraping-blade D in an adjustable road-machine, substantially as and for the purpose set forth.

315,185. HAY-STACKER. PHILO F. TERRY, Green City, Mo. Filed Oct. 31, 1884. (No model.)



Claim.—1. In a hay-stacker, the carrier track-frame made with carrier-retaining hooks P at the upper end of its main portion, and with a pivoted dumping-section at the upper end provided with hooks O, in combination with projecting pins or gudgeons on the carrier adapted to enter the hooks O P, substantially as shown and described.

2. In a hay-stacker, the carrier track-frame made with carrier-retaining hooks P at its upper end, hooks N at its lower end, and a pivoted dumping-section, F, at its upper end, having hooks O, in combination with projecting pins or gudgeons on the carrier adapted to enter the hooks, substantially as shown and described.

3. In a hay-stacker, the combination of the carrier track-frame made with hooks P, and a pivoted dumping-section, F, at its upper end, a bolt, G, having a projection, G′, by which said section is held in line with the main-track section, hooks O on the dumping-frame F, pivots or gudgeons L^2 on the carrier engaging the hooks O P, and a trip-bar on the carrier adapted to draw the bolt to allow the dumping-frame and carrier to swing for discharging the load, substantially as shown and described.

4. In a hay-stacker, the combination of the carrier track-frame made with hooks P, a pivoted dumping-frame, F, at its upper end, means for latching the frame F in line with the main-track section, and means for releasing it automatically by the advance of the carrier, substantially as specified, combined with a suspended weight connected to the dumping-track section to swing it backward when the load is discharged from the carrier, substantially as shown and described.

5. In a hay-stacker, the combination, with the track-frame C, hooks P, and a catch, H, the pivoted track-section F, a slide-bolt, G, having an upturned end, G′, and hooks O, of the trip-bar X on the carrier, and weight and cord I J, substantially as shown and described.

6. In a hay-stacker, the combination of the carrier K, made in two sections, K′ K^2, hinged together at k, and slotted connecting-bars L^2, means for supporting the carrier to run on the track-frame, and means for drawing the carrier up the frame, substantially as shown and described.

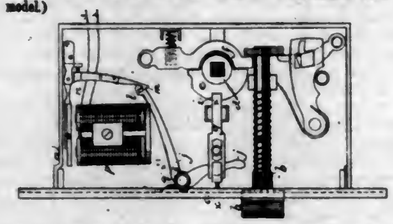
7. In a hay-stacker, the carrier K, made in two sections, K′ K^2, hinged together at k, and slotted connecting-bars L^2, in combination with the levers U, pivoted to sections K′ at u, and loosely connected to said bars L^2, the pins v', and the draft-ropes W, substantially as shown and described.

8. In a hay-stacker, the carrier K, made with rear wheels, M, pilot-wheels Q, running on the inner faces of the track-bars, and wheels R S, running on the top and bottom edges of the track-bars, substantially as shown and described.

9. In a hay-stacker, the combination of a track-frame, C, having an upper dumping-section, F, a carrier, K, made in two sections, K′ K^2, hinged to each other, connecting-bars L^2, levers U and links V, draft-ropes W, connected to levers U, and passing over the outer ends of the dumping-section F, a spring-pressed bolt, G, a trip-bar on the carrier, and a suspended weight, I, connected to the dumping-frame F, the whole constructed and combined to operate substantially as shown and described.

10. In a hay-stacker, the track-frame C, the base-frame A, levers D, pivoted at d d' to the track and base frames, respectively, in combination with means for locking the levers in different positions, substantially as shown and described.

315,186. KNOB LOCKING AND RELEASING MECHANISM FOR LOCKS. GEORGE E. THAYER, Boston, Mass. Filed June 4, 1884. (No model.)



Claim.—1. The combination, with the operative parts of a door-lock, of a locking-slide engaging therewith, a spring-impelled lever engaging the slide, a device for holding said lever, and an electro-magnet for releasing the device, whereby the lever may operate the spring-slide and release the lock, substantially as described.

2. The combination, with the operative parts of a door-lock, of a locking spring-slide engaging therewith, a spring-impelled lever engaging the slide, a detent upon one arm of a lever, an electro-magnet and an armature therefor engaging with the detent, the arrangement being such that when the magnet is energized the detent is disengaged, and the lever operates the slide to release the lock, substantially as described.

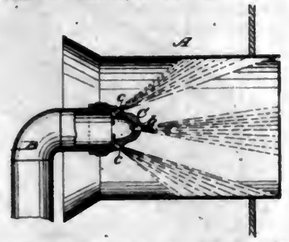
3. The combination, with the operative parts of a lock, of a locking spring-slide engaging therewith, a spring-actuated lever which automatically operates the slide when released, and is adapted to be moved to its normal position by the operation of the lock, and an electro-magnet and armature engaging with the said lever and controlling its movements, substantially as described.

4. The combination, in a door-lock, of a sliding bolt, a rotary shank, and connections between the shank and bolt, a spring-actuated slide engaging therewith, a spring-actuated bell-crank lever engaging said slide, one end of the lever being controlled by an electro-magnet and armature, and the other being operated by the head of the bolt, the arrangement being such that when the bell-crank lever is released it withdraws the slide and the bolt may be operated, which operation automatically sets the bell-crank to its normal position, substantially as described.

5. The combination, in a door-lock, of a bolt, a rotary shank having a notched tumbler connected thereto, a pivoted lever between the tumbler and bolt, a spring-slide normally engaging the notch in the tumbler, a spring-actuated lever normally held by a detent on one arm engaging the armature of an electro-magnet, the other arm normally bearing on the slide, and serving to operate the same to release the tumbler, and to be operated by the head of the bolt to be automatically set, and conducting-wires extending to a distant point, as and for the purpose set forth.

6. The combination of the electro-magnet located in the casing of a door-lock, the wires 2 3, extending therefrom to the inner edge of the door, the spring-bolts r r in the edge of the door, connected with said wires, the contact-screws t t in the casing, and wires 2′ 3′, leading to different parts of the building, as set forth.

315,187. DEVICE FOR FEEDING AIR TO FURNACES. WILLIAM THOMAS, Pittston, Pa. Filed July 23, 1884. (No model.)



Claim.—In devices for producing a forced draft and feeding air to furnaces, the combination, with the cylindrical air-tube A, open at both ends, of the steam-pipe B and the jet-nozzle C, screwing on said pipe and arranged to enter centrally within said tube, and constructed with a central jet-orifice, b, and a series of diverging smaller jet-apertures, c, in rear of the central orifice, essentially as shown and described.

315,188. METHOD OF PRODUCING IMITATION STONE. HIRAM S UTLEY, Chicago, Ill. Filed Jan. 13, 1885. (Specimens.)

Claim.—1. The herein-described method of producing an imitation stone, the same consisting in coating glass with varnish, then sprinkling on said varnish while more or less raw granulated porcelain, and then applying a coat of colored varnish and covering the whole with a suitable backing.

2. The herein-described method of producing an imitation stone, the same consisting in coating glass with varnish, then sprinkling over the same while raw a mixture of granulated porcelain and slate, and then applying a further coating composed of colored varnish and afterward a backing for the whole, for the purpose set forth.

3. The herein-described method of producing an imitation stone, the same consisting in coating glass with varnish, then sprinkling over the same while raw a mixture of granulated porcelain and slate, and then applying a coating of colored varnish, and afterward adding sand thereto, and then a backing.

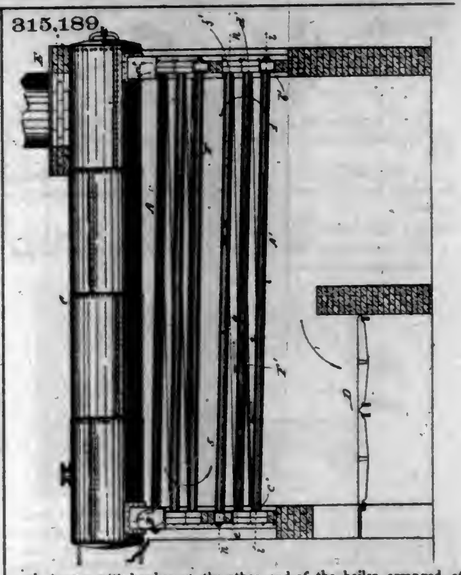
4. The herein-described method of producing an imitation stone, the same consisting in coating glass with varnish, then sprinkling over the same granulated porcelain, then applying over the latter a coating of colored varnish, and adding sand or other absorbent thereto, in the manner set forth.

315,189. WATER-TUBE BOILER. JOHN W. VAN DYKE, Brooklyn, N.Y. Filed July 16, 1884. (No model.)

Claim.—1. The combination, with two or more horizontal headers arranged at either end of a boiler or steam-generator, each of said horizontal headers having chambers, each chamber containing two openings at or nearly at the same horizontal plane, of pipes connecting each header with a header at the other end of the boiler, arranged at a higher level than the first header, and with the connections shown, whereby the water is caused to circulate horizontally, or nearly so, through each header-chamber, and then through a pipe to the opposite header at a higher level than the first header, and thence horizontally through the second header-chamber, and through a pipe returning again through the heating-space, substantially as described.

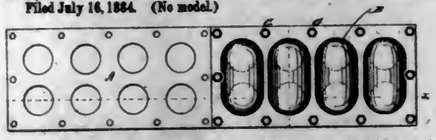
2. The combination, with two or more horizontal headers arranged at either end of a boiler or steam-generator, each of said headers being divided by vertical partitions into chambers, each chamber containing two openings at or nearly at the same horizontal plane, of pipes connecting

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each header with headers at the other end of the boiler, arranged at higher and lower levels than the first header, and with the connections shown, whereby the water is caused to circulate horizontally, or nearly so, through each header-chamber, and then through a pipe to the opposite header at a higher level than the first header, and thence horizontally through the second header-chamber, and through a pipe returning again through the heating-space, substantially as described.

315,190. STEAM-GENERATOR. JOHN W. VAN DYKE, Brooklyn, N.Y. Filed July 16, 1884. (No model.)



Claim.—1. A header for boilers, which consists of a pipe or tube supporting plate having a series of holes arranged therein in pairs, and a cover constructed to form a partition between adjacent pairs of tubes, and provided with independent chambers above the general surface of the cover, and each corresponding in position with one pair of tubes, thereby allowing of independent circulation between each pair of tubes beneath said cover, substantially as described.

2. A header for boilers, which consists of a pipe or tube supporting plate provided with partitions and holes arranged in pairs, and with chambers or depressions in said plate surrounding said pairs of pipes or tubes, and separating each pair from the adjacent pair, and a cover adapted to fit said plate, and provided with corresponding chambers projecting above the surface of the cover, and corresponding in shape with the chambers in the plate below, and adapted, in combination with the plate below, to separate each pair of tubes or pipes from the adjacent pair, substantially as described.

3. A header for circulating pipe or tube boilers, which consists of a pipe or tube supporting plate provided with partitions and holes arranged in pairs, for supporting such pipes or tubes, and a cover provided with a flat under surface adapted to form a joint with the plate beneath, and with a chamber or chambers covering each pair of tubes, each chamber being separated from the next chamber by the flat portion of the cover, substantially as described.

4. In combination with the pipe-plate A, the cover fitting thereon, and provided with independent chambers B B B, separated by partitions, and each corresponding with one pair of holes in the plate below, and with screw-bolts G, for fastening said cover on the plate below, substantially as described.

315,191. BUTTON. PATRICK H. WALSH, Waterbury, Conn. Filed Feb. 11, 1885. (No model.)

Claim.—1. The combination of the clasp A, provided with a stud, C, and the inwardly-projecting clutch or bar h, with the buckle-frame B, having rearwardly-projecting perforating-teeth i i, and a catch, a, as set forth.

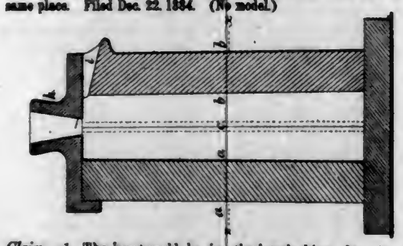
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2. In a button, the clasp A, provided with the loop *r'*, combined with the buckle-frame B, having the slot *r*, as and for the purpose set forth.

3. The clasp A, having loop *r'*, bar A, and stud C, combined with the buckle-frame B, having slot *r*, teeth *i i*, and the catch or snap *a*, as set forth.

315,192. MOLD FOR CASTING COPPER INGOTS. WILLIAM R. WALTON, Ansonia, Conn., assignor to the Ansonia Brass and Copper Company, same place. Filed Dec. 22, 1884. (No model.)

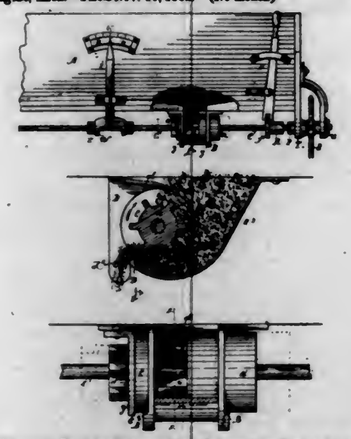


Claim.—1. The ingot-mold having the interlocking edges beveled backwardly from the inner surface of the mold to receive the luting, and an overflow-opening at the top of the mold, substantially as set forth.

2. The mold for copper ingots formed of metal and having a surface of china-clay and oil, and a dressing of finely-pulverized charcoal, as and for the purposes set forth.

3. A tapering mold for copper ingots having the largest end at the bottom to allow the ingot to contract downwardly, and a lateral escape between the pouring-gate and the top of the ingot-mold for allowing the copper to overflow, substantially as and for the purposes specified.

315,193. GRAIN FORCE-FEEDING MACHINE. JASPER P. WARNER, Dowagiac, Mich. Filed Nov. 16, 1883. (No model.)

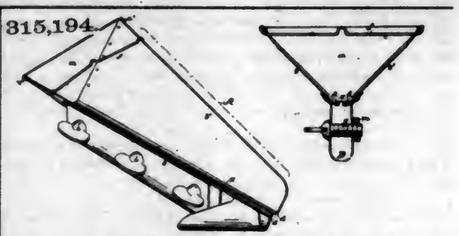


Claim.—1. In a seeding-machine, the combination of the box A, supporting-arms *w*, wheel S, having clutch-hub P, sliding collar R, having rim *f*, engaging with the forked lever F, shaft C', and locking-pin *b*, fitting within the recess of the collar, as and for the purposes specified.

2. In a grain-feeding device, the combination of the two-part feed-cup B B', the part B having an upper feed-apron, *d*, and a raised discharge-apron, d^2, cast onto the bottom and located below the feed-wheel, said parts being integral, and a feed-wheel having a corrugated feeding portion with a cylinder portion of greater diameter cast in one piece, said feed-wheel adapted to turn and to slide laterally within the feed-cup, said cylinder portion acting when forced into the cup as cut-off by meeting the raised portion *d'*, the whole when arranged and combined as set forth.

315,194. SORTING-SPOUT FOR TACK-MACHINES. CHARLES P. WEAVER, Morristown, Pa., assignor of one-half to Gottlieb Harman, same place. Filed Oct. 9, 1884. (No model.)

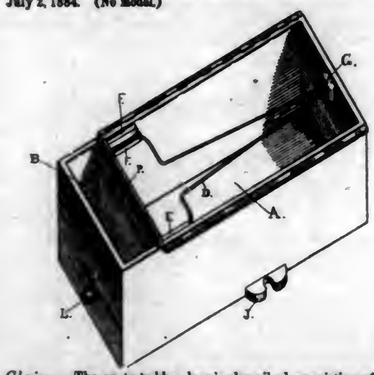
Claim.—1. The combination of the side plates, *b b'*, of the spout, one or both adjustable laterally, with the elastic trough B, having its upper edges secured to said side plates, and with means for laterally contracting or expanding said trough, as set forth.



2. The combination of the spout having adjustable side plates, the elastic trough B and its bolts, and the supplementary chute D, as set forth.

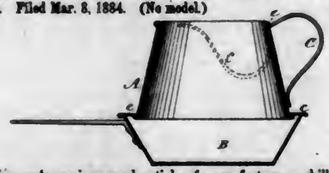
3. A sorting-spout, the opposite side plates, *b b'*, of which have inwardly-turned flanges at the lower edges, as specified.

315,195. PASTE-HOLDER. PHILIP WEBB, San Francisco, Cal. Filed July 2, 1884. (No model.)



Claim.—The paste-holder herein described, consisting of a two-compartment box having a paste-chamber, A, provided with a socket, G, and guide-cleats F, for holding the removable spring brush-cleaner D, and the water-chamber B, having discharge-opening L, the box being provided with the sliding cover and pasting-tablet C, having catch M and legs K, as set forth.

315,196. SKILLET-CAP. FRANK R. WELLS, Lagonda, Ohio, assignor to himself, William Washington Neal, and Philip Haerr, all of same place. Filed Mar. 8, 1884. (No model.)

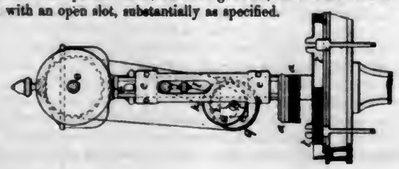


Claim.—As an improved article of manufacture, a skillet cap or cover consisting of a hollow body portion open at both ends, the raised flange c around the lower end of said body portion, and the handle C, pivoted at one end to the upper end of the body portion, and bent so that its other end bears against the side of the skillet-cap, and constructed to fold within the same, substantially as set forth.

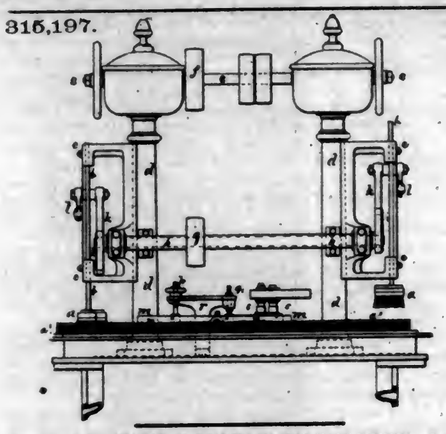
315,197. MACHINERY FOR COMBING WOOL, COTTON, &c. JOHN H. WHITEHEAD, Leeds, County of York, England. Filed Apr. 12, 1883. (No model.) Patented in England Nov. 7, 1882, No. 5,319.

Claim.—1. The knife made in two parts, n' n^2, in combination with the standard *r* and separate adjusting-screws *p q'*, substantially as set forth.

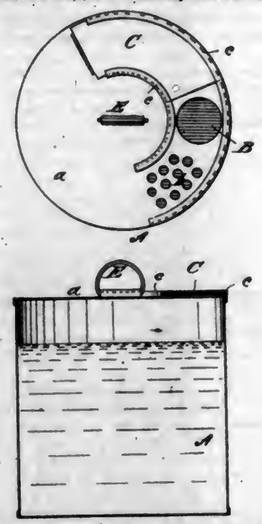
2. The combination, with the dabbing-brushes and mechanism for operating the same, substantially as specified, of the large circular comb provided with pins or teeth, and the guides *t*, each made of a straight rod with an open slot, substantially as specified.



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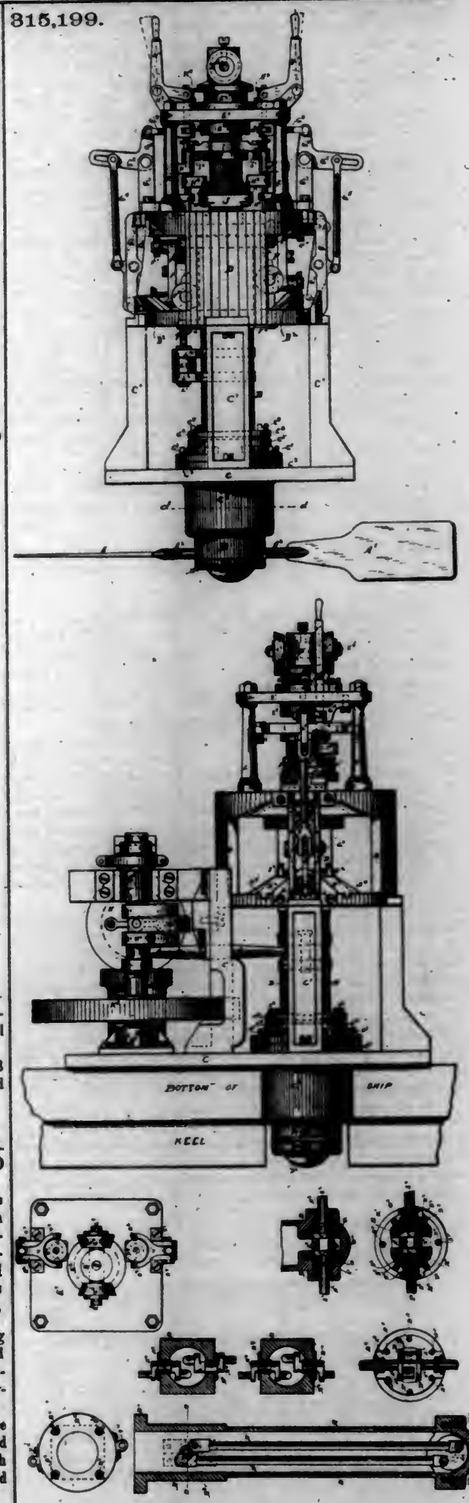
315,198. BUCKET OR RECEPTACLE FOR MALT LIQUORS. SAXO W. A. WIENELL, New York, N. Y. Filed Sept. 5, 1884. (No model.)



Claim.—1. As a new article of manufacture, a bucket or receptacle having a top, *a*, provided with a large opening, B, and small openings *b*, and a movable cover constructed to close said large and small openings, substantially as described.

2. The bucket or receptacle A, formed with the large opening B and series of small openings *b*, and provided with the flanges *c c* and sliding cover C, substantially as and for the purposes set forth.

315,199. STEAMSHIP-PROPELLER AND MACHINERY THEREFOR. ROBERT WILCOX, St. Kilda, Victoria. Filed Dec. 10, 1884. (No model.) Patented in England May 15, 1884, No. 7,774.

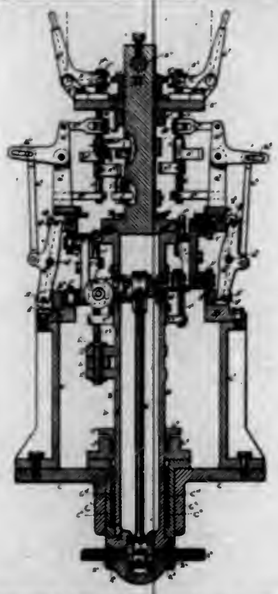


Claim.—1. A steamship-propeller consisting of two duplicate sets of oar-shaped blades having reciprocations in a horizontal plane and a feathering motion, combined with vertical partly-rotating trunks provided with separate bearings for the said blades, and within said trunks separate cranks and feathering-rods whereby said propellers may be located beneath the bottom of the ship forward of the run, and the several sets arranged to give simultaneous propelling-strokes on each side of the keel, as set forth.

2. The combination, with a partly-rotating trunk, of two reciprocating feathering-blades mounted on separate shafts with separate cranks, and the rods which give the feathering motion to the propeller-blades separately located within said trunk, whereby said oars are separately operated and controlled, substantially as set forth.

3. The reciprocating trunk B, the oar-shafts A^2 A^2, journaled in the lower end of said trunk, with cranks A^2 A^2 at their inner ends, combined with the rods B^1 B^1, respectively connected at their upper ends with cranks B^2 B^2, and the cam-tracks D^2 D^2, whereby said oars are caused to feather during each alternate stroke.

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4. The reciprocating trunk B, the oar-shafts A^2 A^2, journaled in the lower end of said trunk, with cranks A^2 A^2 at their inner ends, and the rods B^7 B^7, respectively connected at their upper ends with cranks B^6 B^6, combined with movable cam-tracks D′ D′ D^2 D^2, provided with a rock-shaft controlled by the reciprocation of said trunk to move said cam-tracks alternately into and out of the path of the friction-rollers which control said cranks B^6, substantially as shown and described.

5. The reciprocating trunk B, the oar-shafts A^2 A^2, journaled in the lower end of said trunk, with cranks A^2 A^2 at their inner ends, the rods B^7 B^7, respectively connected at their upper ends with cranks B^6 B^6, movable cam-tracks D′ D′ D^2 D^2, provided with a rock-shaft, G^2, and rocking arms G^3, connected at the ends, respectively, with the movable cam-tracks D′ and D^2, combined with the connecting-rod G^4, connected at its upper end with a rock-shaft, H, which is provided with tappets H^6, and the lugs J′, attached to and reciprocated by said trunk B, for the purpose of moving said trackways alternately and coincidently with the reciprocation of said trunk to feather the oars, as set forth.

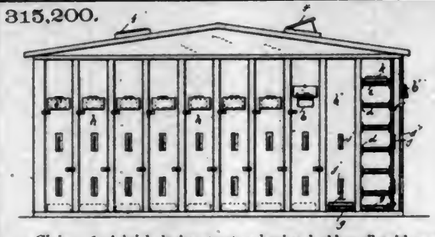
6. The reciprocating trunk B, the oar-shafts A^2 A^2, journaled in the lower end of said trunk, with cranks A^2 A^2 at their inner ends, the rods B^7 B^7, respectively connected at their upper ends with cranks B^6 B^6, movable cam-tracks D′ D′ D^2 D^2, provided with a rock-shaft, G^2, and rocking arms G^3, connected at the ends, respectively, with the movable cam-tracks D′ and D^2, an endwise-movable rock-shaft, H, provided with tappets H^6 H^7 H^8, combined with lugs J′ I′, carried by the reciprocating trunk B, and a lever, H′, whereby said shaft H may be moved endwise to disengage tappets H^6 from the lugs J′ and engage tappets H^6 and H^7 with lugs I′, and thereby reverse the relative movements of the cam-trackways D′ D^2 and the oar-blades, as set forth.

7. The reciprocating trunk B, the oar-shafts A^2 A^2, journaled in the lower end of said trunk, with cranks A^2 A^2 at their inner ends, and the rods B^7 B^7, respectively connected at their upper ends with cranks B^6 B^6, whereby the oar-blades are vibrated and feathered, as described, combined with the circular track E^2, attached to the frame E′, and the wheels E^3, attached to the said trunk, whereby said trunk is suspended, as set forth.

315,200. MANUFACTURE OF BRICK. NATHANIEL S. WILLET, Newark, N. J. Filed Aug. 28, 1883. (No model.)



315,200.



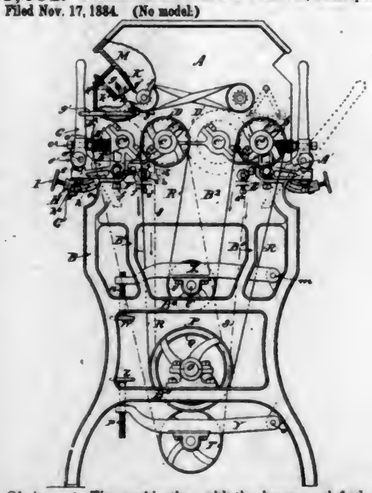
Claim.—1. A brick-drying structure having double walls with openings *a b* therein, and having racks composed of uprights and cleats to receive the brick-boards, and having steam-pipes laid therein, all substantially as set forth.

2. In combination, a brick-drying structure arranged with hollow walls and having steam-pipes or other apparatus for producing artificial heat, and provided with racks formed of uprights and cleats, and provided with rollers to receive brick-boards, and said brick-boards adapted to receive the bricks, all substantially as herein set forth.

3. A brick-drying structure provided with hollow walls, uprights, and cleats, and an inclined table or support adapted to be varied to direct the brick-board from one side of the drying structure to the other, substantially as set forth.

4. A drying structure heated by steam, having double walls and damp-air flues, as *a* and *b*, removable doors, as *h h′*, uprights *c*, cleats, as *d*, rollers, as *e*, and means, as *m*, for returning the brick-boards, all substantially as set forth.

315,201. ROLLER-MILL. JOSEPH L. WILLFORD, Minneapolis, Minn. Filed Nov. 17, 1884. (No model.)



Claim.—1. The combination, with the hopper and feed-roll of a roller-mill, of a spring-controlled hinged valve, a cam arranged to bear on said valve, and means for operating the cam, whereby the valve may be held in a closed position, or the cam may be set to predetermine the point to which the valve may open under pressure of the material in the hopper, all substantially as described.

2. The combination, in a roller-mill, with the hopper and feed-roll, of a hinged valve having an arm attached thereto, a spring bearing on the arm, a rod carrying a cam engaging with the arm, and means for operating the rod, all substantially as described.

3. The combination, in a roller-mill, with the hopper and feed-roll, of a hinged spring-controlled feed-valve, a cam arranged to bear on said valve, and connected means for operating the cam and withdrawing the movable grinding-roll, whereby the feed-valve is positively closed as the grinding-rolls are separated, and whereby as the rolls are moved together the cam is moved from the feed-valve and set to determine the point to which the valve may open under pressure of the material in the hopper, as and for the purpose set forth.

4. The combination, with the pivoted bell-crank levers carrying the movable roll, of a rod carrying eccentrics adapted to bear on said levers, an operating-lever for said eccentrics having an arm extending beyond its pivot, and an adjusting-screw arranged to bear against the short arm of the lever, all substantially as described, whereby a fine adjustment of the rolls may be secured and the rolls may be separated and returned to the same adjustment without changing the position of the adjusting-screw.

5. The combination, with the pivoted bell-crank supports carrying the yielding roller, of eccentrics arranged to bear on the horizontal arms of said supports, lever G, for operating said eccentrics, arm G′, slotted projection H, clamping-screw A^2, and adjusting-screw I′, all substantially as described, and for the purpose set forth.

6. The combination, in a roller-mill, of a flat-sided bar and screws for raising said bar, with arms journaled on the bar and carrying the yielding roller, all substantially as described.

7. The combination, in a roller-mill, of a bar having two or more flat sides, screws for vertically adjusting the bar and set-screws for clamping the bar, with arms journaled on said bar and carrying the yielding roller, all substantially as described.

8. The combination, in a roller-mill, of a bar extending across the mill, said bar being rectangular in cross-section and having cylindrical ends, arms mounted on said bar and carrying the yielding-roller, screws for adjusting said bar, and set-screws for clamping said bar, all substantially as described.

9. The combination, with a pair of grinding-rolls, of an adjustable rod arranged beneath said rolls, arms loosely mounted on said rod, each arm extending under both rolls, and cleaning devices mounted on said arms and adapted to bear on the rolls, substantially as described.

10. A roller-mill having its supporting-frame outwardly extended at a point below the roll-pulleys, said outwardly-extended portions being open to permit the roll-belts to pass therethrough, as and for the purpose set forth.

11. In a roller-mill, the frame B, having the vertical webs B^2, and the projecting portions below said webs, said projecting portions being open to permit the roll-belts to pass therethrough, substantially as described.

12. In a roller-mill, the frame B, having the webs B^2, the open projecting portions below said webs, and the spiders B′, substantially as described.

13. The combination, in a roller-mill, with the roll-pulleys, of a frame having open outwardly-extended portions below the roll-pulleys, and roll-driving belts passing through said projecting portions, as described, and for the purpose set forth.

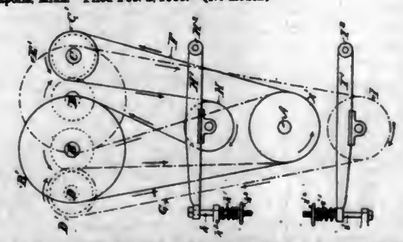
14. The combination, in a roller-mill, with the roll-pulleys, of a supporting-frame having open projecting portions below the roll-pulleys, a shaft having belt-pulleys within the supporting-frame, and driving-belts from the shaft-pulleys to the roll-pulleys passing through said open projecting portions of the frame, substantially as described.

15. The combination, with the casing A, and the grinding-rolls provided with belt-pulleys, of the supporting-frame B, extended outwardly below said pulleys, the shaft O, having pulleys P and Q, arranged within the frame, and belts passing between said pulleys and the roll-pulleys through said projecting portions of the frame, substantially as described.

16. The combination, with the casing A and the grinding-rolls C C^3 C′, provided, respectively, with pulleys D D^2 D^3 D′, of the supporting-frame B, projecting outwardly below the roll-pulleys, the counter-shaft O, having pulleys P and Q, belts R and S, arranged as described, and passing through the projecting portions of the frame, and idlers U and T, and means for adjusting the idlers, all substantially as described.

17. The combination, in a roller-mill, with the roll-pulleys and the frame having the open projecting portions, of roll-driving belts passing through said projecting portions, levers pivoted within the frame and extending to its front, belt-tightening pulleys mounted in the levers, and means for adjusting the forward ends of said levers, substantially as described.

315,202. MECHANICAL MOVEMENT. JOSEPH L. WILLFORD, Minneapolis, Minn. Filed Feb. 2, 1885. (No model.)



Claim.—1. The driving mechanism consisting of a counter-shaft provided with belt-pulleys, four belt-pulleys carried by rolls located above said counter-shaft, an idler-pulley located above the counter-shaft, and another idler-pulley located below the counter-shaft, in combination with one open belt passing under one of the pulleys on the counter-shaft, over two of the roll-pulleys, and under the upper idler, and a second open belt passing under another pulley on the counter-shaft, over the other two roll-pulleys, and under the lower idler, substantially as described, and for the purpose set forth.

2. In combination with the shaft A, having pulleys A′ and A^3, the rolls or shafts D B E C, provided, respectively, with pulleys D′ B′ E′ C′, the idlers H and I, and the belts F and G, the belt F being arranged under the pulley A′, over the pulleys B′ and C′, and under the idler H, and the belt G being arranged under the pulley A^3, over the pulleys D′ and E′, and under the idler I, all substantially as described.

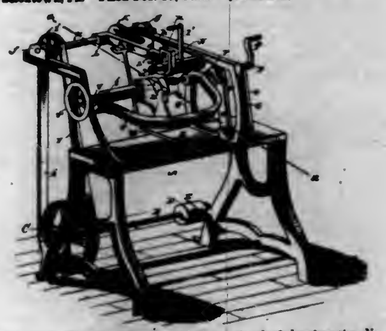
3. In combination with the shaft A, having pulleys A′ and A^3, and the rolls or shafts D B E C, provided, respectively, with pulleys D′ B′ E′ C′, the idler H, located above shaft A, and mounted in the open spring-controlled lever H′, the idler I, located below the shaft A, and mounted in the open spring-controlled lever I′, and the belts F and G, the belt F passing under the pulley A′, over the pulleys B′ and C′, and under the idler H, and the belt G passing under the pulley A^3, over the pulleys D′ and E′, and under the idler I, all substantially as described.

4. The belt-tightener consisting of an open pivoted lever, an idler-pulley journaled therein, a threaded bolt extending through the end of the lever and through a fixed stud, a spiral spring surrounding the bolt, and means for regulating the tension of the spring, substantially as described.

5. In combination with the shaft A, having the equal pulleys A′ A^3, the rolls D B E C, provided, respectively, with the pulleys D′ B′ E′ C′, the pulleys B′ and E′ being of greater diameter than the pulleys D′ and C′, the belt-tighteners H and I, and the belts F and G, the belt F passing under pulley A′, over pulleys B′ and C′, and under tightener H, and belt G passing under pulley A^3, over pulleys D′ and E′, and under tightener I, substantially as described.

6. The combination of the rolls D, B, E, and C, provided, respectively, with pulleys D′, B′, E′, and C′, said pulleys E′ and B′ being of greater diameter than pulleys D′ and C′, with the driving-belts, each arranged over one large and one small pulley, as and for the purpose set forth.

315,203. HEEL-TRIMMING MACHINE. DANIEL A. WILLIAMSON, Watsontown, Pa. Filed Feb. 13, 1885. (No model.)



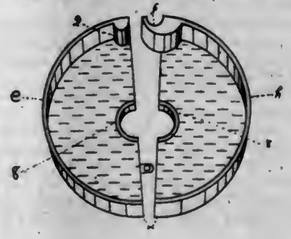
Claim.—1. The combination of the rock-shaft having the die, the pivoted arm having the swiveled extension, and the cutter-head journaled to said extension, substantially as described.

2. The combination of the rock-shaft having the die, the pivoted arm having the swiveled extension, the cutter-head journaled to said extension, and the sliding yoke, and the screw for controlling the yoke, substantially as described.

3. The combination of the hinged frame, the rock-shaft journaled in said frame, and having the die, and a clamp for securing the heel of the shoe against the die, with the pivoted arm having the cutter-head and the yoke for bearing against the die to guide the cutter-head, substantially as described.

4. The combination of the hinged frame, the rock-shaft journaled in said frame, and having the die, and a clamp for securing the heel of the shoe against the die, with the pivoted arm having the swiveled extension, the cutter-head journaled in said extension, and the sliding yoke for bearing against the die, for the purpose set forth, substantially as described.

315,204. GUARD FOR SHIELDING SET-SCREWS IN PULLEYS. SETH H. WOODBURY, Lynn, Mass. Filed Feb. 3, 1885. (No model.)

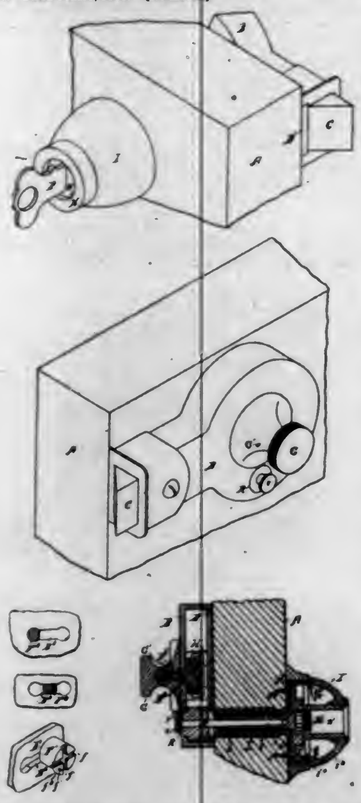


Claim.—1. The combination of a pulley, a set-screw, and a set-screw guard or shield, said guard or shield being adapted to conceal the set-screw, substantially as shown, and being detachably connected to the pulley, substantially as and for the purposes described.

2. A set-screw guard or shield composed of a flanged disk or shell having a central opening provided with a yielding or flexible bushing, and adapted to be sprung or locked round a shaft or pulley-hub, as and for the purposes described.

3. A set-screw guard or shield composed of the half or part *e*, having rib 2, and the half *h*, having groove *f*, whereby they are locked together at one end and adapted to be clasped about a shaft or pulley-hub, substantially as and for the purposes stated.

315,205. LATCH-LOCK. HARLAN P. YOUNG, Lowell, Mass., assignor of six-ninths to Charles R. Kimball, Abel Wheeler, Amasa H. Smith, Frank M. Merrill, Frank W. Stevens, and Albert W. Moore, all of same place. Filed Oct. 29, 1883. (No model.)



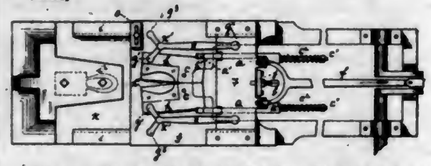
Claim.—1. The combination of the outside case, the plate provided with an externally-threaded tube, the inside case provided with an internally-threaded tube, said tubes being adapted to engage with each other, the lever-plate provided with a cylindrical projection having a central longitudinal many-sided hole, the levers pivoted to the last-named plate, the ward-plate, the hub provided with a many-sided hole, means for preventing said hub from making a complete revolution, and the many-sided spindle fitting the holes in said hub and lever-plate, as and for the purpose specified.

2. The combination of the bolt provided with a hole, the U-shaped spring, and means of attaching the same to said bolt, and the shank extending through the case and into the hole in the bolt, its head slotted, as described, as and for the purpose specified.

3. The combination of the bolt provided with a hole, the U-shaped spring, and means for attaching the same to said bolt, and the shank, its head slotted, as described, having an enlarged quadrant for limiting the rotary movement of the shank, as and for the purpose specified.

4. The combination of the bolt provided with a hole, the U-shaped spring, and means of attaching the same to said bolt, and the shank, its head slotted, as described, having an enlarged quadrant and pin projecting from said quadrant, as and for the purpose specified.

315,206. HORSESHOE-MACHINE. WILLIAM D. YOUNG, Pittsburg, Pa., assignor to Shoenberger & Co., same place. Filed Aug. 9, 1884. (No model.)



Claim.—1. In a machine for bending horseshoe-blanks, the combination of a sliding carrier, a mandrel, bending-jaws pivoted to the carrier, a reciprocating head for actuating the carrier, and connecting mechanism for imparting a lateral movement to the jaws from the reciprocating movement of the head, substantially as and for the purposes specified.

2. In a machine for bending horseshoe-blanks, the combination of a pair of pivoted bending-dies traveling first in right lines and then having a lateral motion, so as to bend the blank and thicken up the heel of the same, a mandrel, and mechanism, substantially as described, for imparting the double movement to the jaws, substantially as and for the purposes specified.

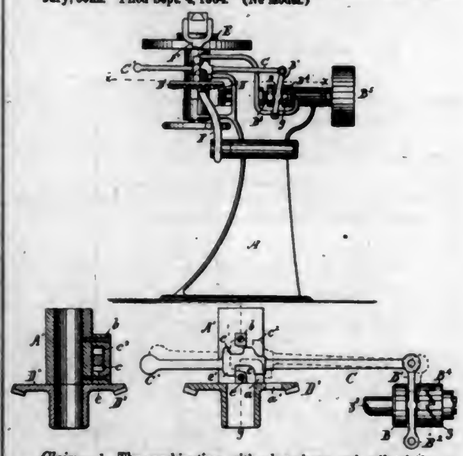
3. In a machine for bending horseshoe-blanks, the combination of the pivoted bending-jaws, devices for imparting a reciprocating movement thereto, guides for causing the jaws to move in a right line, and devices for imparting a lateral movement to the jaws after they have passed the guides, substantially as and for the purposes specified.

4. The combination, in a machine for bending horseshoe-blanks, of reciprocating bending-jaws having first a motion in right lines to bend the blank into U form against the mandrel, and then a lateral motion to thicken up the heels of the blank and compress them about the mandrel, with locking-bars *a*, which hold the jaws open during the rectilinear motion thereof and advance therewith, said locking-bars having suitable stops, which check their motion and release the gripping-jaws at a determined period of their motion, substantially as and for the purposes described.

5. The combination of the bending-jaws A, which are pivoted upon a reciprocating carrier, with the locking-bars *a*, and spring c^3, adapted to press said bars toward said carrier, substantially as and for the purposes described.

6. The combination, with the bending-jaws A A, of the reciprocating carrier G, a suitable stop for checking the advance of said carrier, and devices, substantially as specified, for imparting a lateral movement to the jaws when the carrier comes in contact with the stop, substantially as and for the purposes described.

315,207. HAT-MACHINE CLUTCH. GEORGE YULE, Newark, N. J., assignor, by mesne assignments, to the Hat Curling Machine Company, Danbury, Conn. Filed Sept. 4, 1884. (No model.)



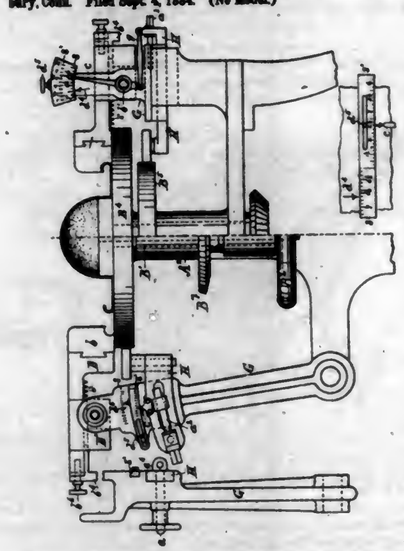
Claim.—1. The combination, with a hat-clamp and a clutch for rotating such clamp, of a shifter to disengage such clutch, a lug upon such shifter, and a dog revolving with the hat-clamp and adjusted to engage the lug and move the shifter in a given position of the hat-clamp.

2. The combination, with a hat-clamp and a clutch for rotating such clamp, of a shifter to disengage said clutch, a lug upon such shifter, a dog revolving with the hat-clamp, and means for adjusting the lug upon the shifter to or from the path of the revolving dog at the pleasure of the operator.

3. The combination, with a hat-clamp and a clutch for rotating such clamp, of a shifter to disengage such clutch, a dog revolving with said hat-clamp and adjusted to engage the shifter in a given position of the hat-clamp, a lug upon the shifter to engage the dog, and a stop for limiting the motion of the shifter when the hat-clamp is in the desired position.

4. The combination, with a hat-clamp and a clutch for rotating such clamp, of the slotted disk revolving with said clamp, the shifter provided with lug to rest upon the disk, and means for sustaining the lug above the disk at the pleasure of the operator.

315,208. HAT MACHINE SCALE. GEORGE YULE, Newark, N. J., assignor, by mesne assignments, to the Hat Curling Machine Company, Danbury, Conn. Filed Sept. 4, 1884. (No model.)



Claim.—1. The combination, with a vibrator and a tool-carrier adjustable thereto, of a scale marked with graduations indicating the position of a specific tool for operating upon hats of specific sizes, and an adjustable stop to set other and different tools into agreement with the same scale.

2. The combination, with a vibrator and a tool-carrier adjustable thereto, of an adjustable scale provided with graduations marked partly with the series of crown-measures and partly with the series of brim-measures, as described, a stationary index, and means for adjusting the crown-graduations thereto, and an index pointing to the brim-measures upon the scale, and actuated by the setting of the vibrator for operating upon hats having crowns of specific sizes and brims of specific widths.

3. The combination, with a vibrator and a tool-carrier adjustable thereto, of a scale marked with figures indicating the crown sizes of hats, an adjustable scale marked with figures indicating the brim sizes of hats, and means for setting or adjusting the brim-scale by reference to the crown-scale, so that the brim may be operated upon with reference to the crown of the hat, substantially as herein set forth.

4. The combination, with a vibrator and a tool-carrier adjustable thereto, of a fixed crown-scale and a movable brim-scale, the one having marks indicating crowns of specific sizes, and the other having marks indicating brims of specific widths, the brim-scale being adjustable to the other, as described, and having an index actuated by the setting of the holder for operating upon brims of specific widths.

5. The combination, with a vibrator, of a tool-carrier adjustable thereto, an enlarged scale and index to show the position of the carrier on the vibrator, and means, substantially as described, for producing the increased movement of the index upon the enlarged scale by the adjustment of the carrier.

6. The combination, with an adjustable tool to operate upon the edge of a hat-brim, of a scale constructed with a continuous series of graduations, the divisions at one end of the scale having figures for indicating crown sizes, and those at the other end of the scale being twice as great, and marked with figures indicating the brim sizes of the hats to which the tool is adjusted.

7. The combination, with a vibrator, a tool-carrier adjustable therewith, and an adjustable scale having divisions marked for both crown and brim sizes, as described, of a stationary index for the crown-divisions, and a movable index applied to the brim-divisions, and actuated by the adjustment of the vibrator.

8. The combination, with a rotating hat-clamp, the cam rotated therewith, and a tool-carrier vibrated by an adjustable shoe fitted to such cam, of a dial indicating the measure of the hat-brim operated upon, and an index actuated by the setting of the shoe for operating upon such brim.

9. The combination, with a rotating hat-clamp, the cam rotated therewith, the rocking arm or support, and the vibrator or shoe adjustably attached thereto, of the dial, the index-hand attached to a pinion-shaft, and the rack operating to rotate the pinion when the shoe is adjusted.

10. The combination, with the movable dial, of the continuous scale having graduations for both crown and brim measures, as described, a stationary index, and means for securing the dial with any of the crown-graduations opposite such index.

11. The combination, with a tool-carrier and an adjustable shoe for vibrating the carrier, of a movable dial provided with brim and crown scales, as described, a stationary pointer, and means for securing the dial in any relation to such fixed pointer, a central arbor actuated by the setting or adjustment of the shoe, and an adjustable hand, and means for securing the same to the arbor, for a brim-scale index.

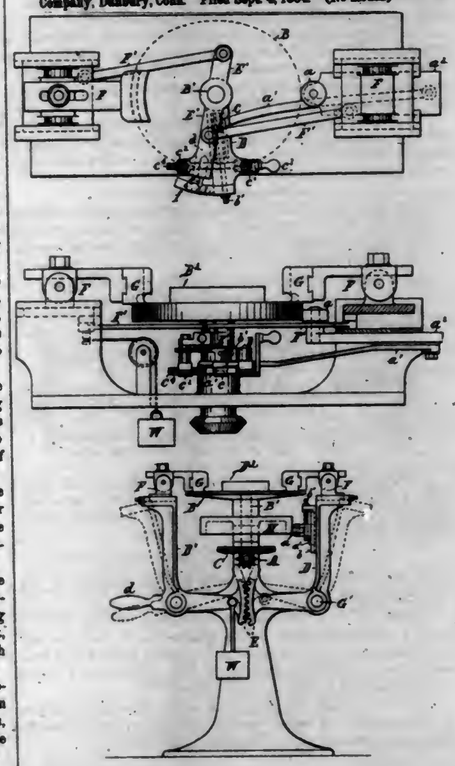
12. The combination, with two tool-carriers coupled together, as described, of a scale applied to one of such carriers, and adjusted to indicate the position of both carriers for tools adapted to operate simultaneously upon the same hat.

13. The combination, with two tool-carriers coupled together, as described, of a scale applied to one of such carriers and means for adjusting the carriers in relation to one another, so that both may operate simultaneously upon a hat whose size is marked and indicated upon said scale.

14. The combination, with two tool-carriers coupled together, as described, of a scale applied to one of such carriers and stops for setting the carriers with both tools in their operative positions.

15. The combination, with two tool-carriers coupled together, as described, of a scale applied to one of such carriers, stops for setting the carriers with both tools in their operative positions, and means for adjusting one or both of said stops in relation to the carrier, so as to bring both tools into suitable positions for operating simultaneously upon a hat whose size is indicated upon said scale.

315,209. HAT-MACHINE-TOOL VIBRATOR. GEORGE YULE, Newark, N. J., assignor, by mesne assignments, to the Hat Curling Machine Company, Danbury, Conn. Filed Sept. 4, 1884. (No model.)



Claim.—1. In a machine for manufacturing hats, the combination of a tool-carrier held movably, as described, a vibrator having a fixed movement, a lever intermediate to the carrier and vibrator, a variable and adjustable attachment upon the lever for actuating the carrier a greater or less distance by the uniform throw of the vibrator, and a connection between the lever and vibrator, such connection having the same fixed movement as the vibrator for all the variable movements of the tool-carrier.

2. In a machine for manufacturing hats, the combination of a tool-carrier held movably, as described, a vibrator having a fixed movement, a lever intermediate to the carrier and vibrator, a connection between the vibrator and lever, and means for attaching such connection to the lever at various distances from its fulcrum, and thereby actuating the carrier a greater or less distance by the same vibrator.

3. The combination, with a rotating hat-clamp and two or more vibrating tool-carriers, of a vibrating coupler for imparting a similar motion to each carrier, and means, substantially as described, for vibrating such coupler, and thereby vibrating the connected tools simultaneously.

4. The combination, with two or more movable tool-carriers and a coupler for imparting a similar movement to each, of a vibrator having a fixed movement, a lever intermediate to the vibrator and the coupling device, and an adjustable connection between the vibrator and lever for changing the leverage of the latter, and actuating the coupler a greater or less distance by the same vibrator.

5. The combination, with two or more movable tool-carriers and a coupler for imparting a similar movement to each, of a vibrator for actuating the coupler, and an adjustable connection provided with the screw *b'*, for adjusting the coupler to or from the vibrator, so as to vibrate the tool-carriers back and forth at different distances from the hat-crown to operate upon brims of different widths.

6. The combination, with two or more movable tool-carriers and an oscillating arm and coupler for imparting a similar movement to each, of a lever pivoted upon the center of oscillation, and adjustably connected with the coupler-bar, a vibrator having a fixed movement, and means for connecting the vibrator to the lever at various distances from its fulcrum, for varying the movement of the tool-carriers, and also altering their distance from the hat-crown, substantially as set forth.

7. The combination, with the hat-clamp, its spindle, and the tool-carriers movable at opposite sides thereof, of the coupler E', its arm *d*, and the lever D, all pivoted upon the said spindle, the arm and lever being adjustable to and from one another, the vibrator for actuating the arm, the adjustable pin *c* in the arm, and the connection from the vibrator to the adjustable pin, substantially as and for the purpose set forth.

8. The combination, with the tool-carriers and a coupler for imparting to each a similar movement, of an adjustable and variable vibrating mechanism constructed and operated to actuate the coupler a greater or less distance, and to thereby operate the carriers and tools for hats of different shape or ellipticity.

9. The combination, with two or more movable tool-carriers, of a coupler for imparting a similar motion to each, means for pressing the carriers toward the hat, and means for locking the coupler with the carriers in an inoperative position, as when withdrawn from the hat.

315,210. GAS-STOVE. HERMANN ZSCHETZSCHOCK, Leipsic, Germany.
Filed Feb. 14, 1884. (No model.) Patented in Belgium Apr. 14, 1883, No. 64,563; in France Apr. 21, 1883, No. 155,023, and in Germany Dec. 28, 1883, No. 23,333.



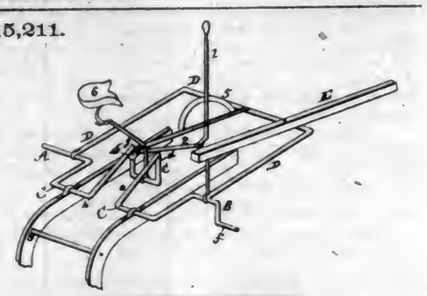
Claim.—In a gas-stove, a series of pipes, T, of less length than the width of the stove, placed horizontally above the gas-burner *a*, and a number of inclined pipes or flues, R, in the upper part of the stove, arranged in the manner and for the purpose described.

315,211. WHEEL-PLOW. GEORGE W. AKINS, Nashville, Ill. Filed June 23, 1884. (No model.)

Claim.—1. In a wheel-plow, in combination with the wheels and frame, a continuous axle-bar having spindle A on its land side, crank-arm B and spindle *f* on the furrow side, a double crank having parts *d* and *e*, forming a bend or curve at *g*, and lever attachment at 4 near said bend, substantially as set forth and described.

2. In a wheel-plow having an axle with a double crank, said crank so bent as to form the parts *d* and *e*, in combination with the operating-lever and supporting-frame, substantially as set forth.

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315,212. WASHING-MACHINE. ERASTUS W. ALLEN, Seneca, Kans.
Filed June 6, 1884. (No model.)



Claim.—The combination, with the vertical shaft having at its lower end a disk provided at its four corners with downwardly-extending lugs or projections, of the downwardly-extending curved loops formed from a single or continuous piece of wire, and retained in position by means of a clamping-disk forced in an upward direction upon the said shaft by means of a nut upon the lower end of the latter, substantially as and for the purpose set forth.

315,213. BRAKE-SHOE. RICHARD N. ALLEN, Cleveland, Ohio. Filed Oct. 13, 1884. (No model.)



Claim.—A brake-shoe for railway-cars and other vehicles, composed of compressed paper and lead or other equivalent soft metal, substantially as and for the purpose described.

315,214. GEAR-WHEEL. RICHARD N. ALLEN, Cleveland, Ohio. Filed Dec. 26, 1884. (No model.)



Claim.—A gear-wheel composed of a rim provided with metal gears and a web projecting inwardly from its inner face, a hub, side plates, and a center or body of compressed paper or equivalent non-sonorous material, the several parts being secured together substantially as and for the purpose described.

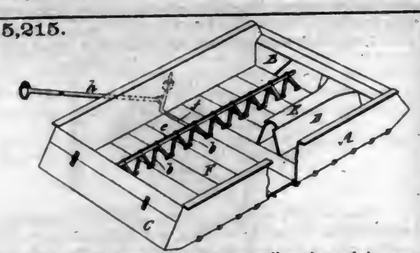
315,215. BOILER ASH-PAN. JAMES C. ANDERSON and FRANK H. LATIMER, Winnipeg, Manitoba, Canada. Filed Sept. 13, 1884. (No model.)

Claim.—1. The combination, with the ash-pan, of air-chambers D, extending from one end of the pan to the other, and hoods E, supported above and extending the entire length of said chambers, substantially as set forth.

2. The combination, with the ash-pan A, provided with transverse end air-spaces and dampers B C, of the longitudinal air-chambers, D, connected at their ends with the spaces B, and having the hoods E, supported above them throughout their entire length, as described.

3. The combination, with the ash-pan, of the air-chambers D, pro-

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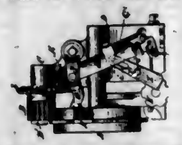


vided with the strengthening-brackets *a*, extending above their upper surface, and the hood E, supported by said brackets.

4. The combination, with the ash-pan A, of the slats F, journaled at their corners in the sides of the pan, and lugs *d* on the said slats, rod *e*, A-shaped arms *b*, connecting the rod *e* and the slats, as shown, and the operating-shaft *f* and lever, all constructed and arranged substantially as set forth.

5. The combination, with an ash-pan, of the hinged slats F, fitted for operation by arms *b* and rod *e*, contained in the air-chamber, as specified.

315,216. KNOTTING MECHANISM FOR GRAIN-BINDERS. JOHN F. APPLEBY, Minneapolis, Minn., assignor to the Minneapolis Harvester Works, same place. Filed Jan. 7, 1884. (No model.)



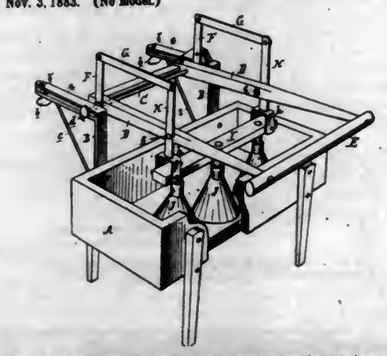
Claim.—In a grain-binder, the combination, with the knotter cam and gear wheel and mechanism for gripping the binding-cord, of a movable knife for severing the binding-cord between the cord-gripping mechanism and the knotter, the laterally-swinging knotter, and a single cam for actuating the cord-gripping mechanism and the movable knife, and the mechanism for swinging the knotter and thereby disengaging it from the loop, as described.

315,217. LAMP-EXTINGUISHER. EBENEZER S. BACON and JOSEPH H. BACON, Detroit, Mich. Filed Apr. 9, 1884. (No model.)



Claim.—The combination, with a lamp-burner having a gallery, E, provided with a perforated plate, of the lever passing through one of the holes in the perforated plate, and provided with prongs C^9, passing through the adjacent holes of said plate, the lever having the cap C^9 at its inner end, substantially as and for the purpose described.

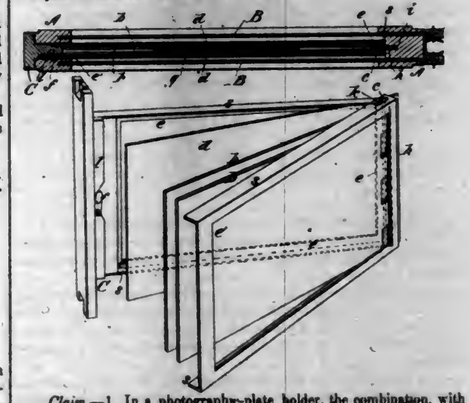
315,218. WASHING-MACHINE. JAS. BALLARD, Lapeer, Mich. Filed Nov. 3, 1883. (No model.)



Claim.—1. In a washing-machine, the combination of the supporting-shaft, the beaters, and the links and levers, as described, connecting the two, with the bracket B, having horizontal bifurcated arms integral therewith, removable block *b'*, for filling the space between their free ends, set-screw *b*, securing said ends and retaining the block in position, and the brace *c*, all constructed, arranged, and operating substantially as and for the purposes specified.

2. In a washing-machine, the combination, with the brackets B, having bifurcated horizontal arms *a*, of the shaft C, supported by and operating in said bifurcated arms, the standards F, pivoted to said shaft, links G, levers H, arms D, pivotally attached to the said levers H at a distance from their ends, bar I, pivotally attached to and supported by the levers H below their pivotal point *e*, and the beaters J, carried by the said bar I, substantially as shown and described.

315,219. PHOTOGRAPHIC PLATE OR SHEET HOLDER. ERASTUS B. BARKER, New York, N. Y., assignor to E. & H. T. Anthony & Co., same place. Filed Nov. 18, 1884. (No model.)



Claim.—1. In a photographic-plate holder, the combination, with the septum of the holder, of an open hinged or swinging frame constructed to clamp or hold the marginal portions of the sensitive sheet on or against the septum, substantially as specified.

2. A septum for a photographic-plate holder, made substantially as herein shown and described, consisting of pivoted boards, in combination with pivoted open frames constructed to clamp the marginal portions of the sensitized sheets on or against said boards, essentially as described.

3. The combination, with the septum-boards and the pivoted frames, of the separating spring or springs *g*, substantially as described, whereby the edges of the sensitized sheets will be firmly held between the septum-boards and the edges of the pivoted frames, as set forth.

4. The pivoted frames *e e'*, constructed with flanges or lips *a*, substantially as shown and described, whereby the frames will fold one within the other, with the septum-boards between, as set forth.

5. The outer frame, *e'*, constructed with a slot, *k*, as shown and described, whereby said frame is made to slide longitudinally upon the other frame and the septum, to facilitate the opening and closing of the several parts and the insertion and removal of the photographic sheets, as set forth.

6. The fastening *f*, in combination with the pivoted frame *e'* and the septum head or stop *l*, as shown and described.

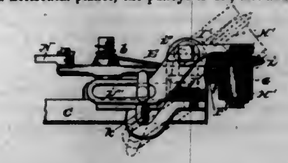
7. The combination, with the extremity of the frame *e'*, of the projecting fin *h*, as and for the purposes shown and described.

8. The frame *e*, fixedly secured to the septum head or stop *l*, and serving to carry both the outer pivoted frame and septum-boards, substantially as specified.

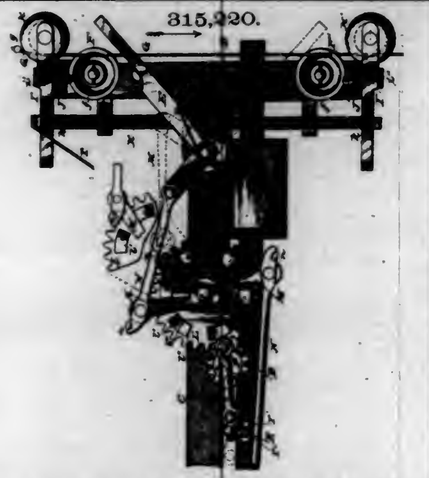
315,220. CORN-PLANTER CHECK-ROWER. ALDEN BARNES and MONROE BARNES, Bloomington, assignor to Chambers, Baring, Quinlan Company, Decatur, Ill. Filed Feb. 9, 1883. (Model.)

Claim.—1. The combination, with a check-row wire and with forked levers adapted to be oscillated thereby, of push bars or rods connected with said levers and a central revolving plate or wheel connected with the seed-slide, and provided with a series of projections whereby an intermittent rotary motion is given to the central wheel by either rod, substantially as and for the purpose specified.

2. In a check-rower, in combination with the tappet-wire, the horizontally-swinging forked lever and the guide-pulleys F F, rotating in or about in horizontal planes, the pulleys H H', also adapted to rotate in



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horizontal planes and journaled to the ends of swinging levers I I', by means of which they may be turned downward to retain the tappet-wire or upward to doff or release it, substantially as and for the purpose specified.

3. In combination with the tappet-wire, horizontally-swinging forked lever, guide-pulleys F F' and H H', and slotted levers I I', which carry the pulleys H H', the rock-shaft K, having cranks which operate in said slotted levers to swing them, substantially as and for the purpose specified.

4. In combination with the tappet-wire, horizontally-swinging forked levers, and horizontally-rotating guide-pulleys F F', the swinging levers I I', carrying pulleys H H', adapted to carry said pulleys outwardly and upwardly to doff the tappet-wire, substantially as and for the purpose specified.

5. In combination with the elbow-shaped forked lever, and the drive-pinion L, having ratchet-lugs l' on its upper side, the pawl M, journaled, as described, and adapted to engage with said ratchet-lugs, and link N, connecting the forked lever and pawl M, substantially as and for the purpose specified.

6. In combination, the elbow-shaped forked lever E, link N, pawl M, and drive-pinion L, having ratchet teeth or lugs l', substantially as and for the purpose specified.

7. In combination with the elbow-shaped forked lever, pinion L, having ratchet-lugs l', and oscillating pawl M, the link N, provided with a detent, *n*, adapted to engage with the pinion L, substantially as and for the purpose specified.

8. In combination, with the drive-pinion L, having ratchet-lugs l', and the swinging pawl M, adapted to coact with said lugs in giving intermittent rotary motion to said pinion, the link N, actuated by any suitable mechanism and adapted to swing the pawl M, and provided with a detent, *n*, for arresting the movements of the pinion L, substantially as and for the purpose specified.

9. In combination, the elbow-shaped forked lever, link N, swinging pawl M, drive-pinion L with ratchet-lugs l', and pinion P, the crank-pin of which is connected with the seed-slide-actuating lever, substantially as and for the purpose specified.

10. In a check-rower, in combination with the elbow-shaped levers E E, links N N, and pawls M M, the pinion L, having ratchet-lugs l', adapted to receive motion from one of the pawls, while the other pawl together with its connected link and forked lever, remains stationary, substantially as and for the purpose specified.

11. In a check-rower, in combination with the elbow-shaped levers E E, links N N, and pawls M, the pinion L, geared with the pinion P, which is adapted to move the seed-slides, substantially as described, and said pinion L having ratchet-lugs l', adapted to receive motion from one of the pawls, while the other pawl, together with its connected link and forked lever, remains stationary, substantially as and for the purpose specified.

12. In combination with the tappet-wire and forked lever and a grooved pulley journaled on a vertical axis, a cylindrical pulley, also journaled on a vertical axis connected to a swinging arm, by means of which said cylindrical pulley may be swung to or away from the grooved pulley, substantially as and for the purpose specified.

13. In combination with the forked lever and link N, adapted to impart movement to a pawl which gives an intermittent movement to the pinion L, a detent, *n*, fixed to the link N and adapted to arrest the motion of the pinion L, substantially as and for the purpose specified.

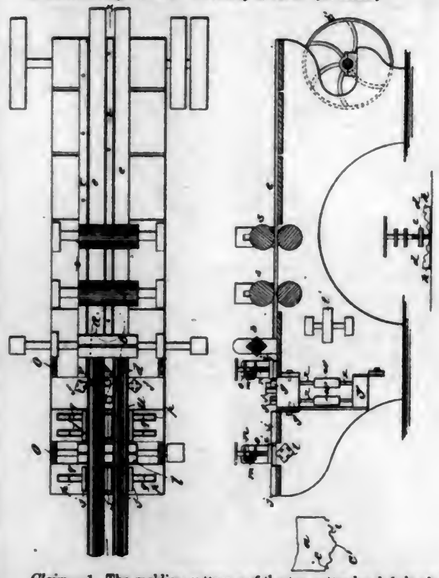
315,221. DOOR CHECK AND HOLDER. THOMAS E. BARROW and HARRY WADE, Mansfield, Ohio. Filed June 4, 1884. (No model.)



Claim.—1. The combination of the base-plate, the rocking plate pivoted thereto, the spring for holding said plate in normal position, the vertical stud secured to or forming part of the rocking plate, and the headed bracket attached to the door and adapted to be engaged and held by the vertical stud, substantially as specified.

2. The combination, with the base-plate, of the rocking plate pivoted thereto, the spring located between the plates, the vertical stud and cushion, the set-screw, and the bracket, all constructed and arranged substantially as specified.

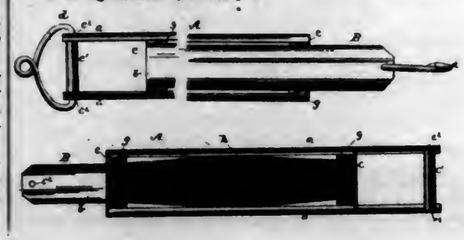
315,222. WOOD-MOLDING MACHINE. HENRY BAXTER and AUGUST F. ANTON, Memphis, Tenn. Filed July 2, 1884. (No model.)



Claim.—1. The molding-cutters *a* of the top cutter-head, *b*, having two double and reversed molding-bits, *c*, and central separating parts, *c'*, in combination with two outer edge-trimmers, *f*, and two intermediate edge-trimmers, *g*, and center guides, *i*, the edge-trimmers *f* being adjusted for dressing the outer edges of two strips, *e*, of suitable width for two moldings, *d*, each, and the intermediate edge-trimmers, *g*, being arranged one in advance of the other along the planer-bed, substantially as described.

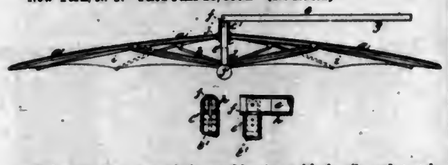
2. The combination, with the molding-cutters *a*, of the top cutter-head, *b*, having two double and reversed molding-bits, *c*, and center separating part, *c'*, of two edge-guides, *i*, two sets of edge-trimmers, *f g*, two sets of center guides, *i*, and two sets of edge-guides, *j*, the intermediate edge-trimmers, *g*, being arranged one in advance of the other along the planer-bed, substantially as described.

315,223. SPRING-LINK. WILLIAM R. BELDING, Eureka Springs, Ark. Filed Aug. 13, 1884. (No model.)



Claim.—In a traction compression-link, the combination of parts *a a* and *b b*, joined together at one end by a circular head, *c*, with hollow rod *c'*, held in place by loops *d*, cups *g*, fitting into the closed ends of links A and B, and rubber compression-block A, fitting into the cylinder at its middle, and tapering smaller at each end until it fits into cups *c*, substantially as shown and described, and for the purposes set forth.

315,224. UMBRELLA OR PARASOL CANOPY. WILLIS H. BELKNAP, New York, N. Y. Filed June 21, 1884. (No model.)



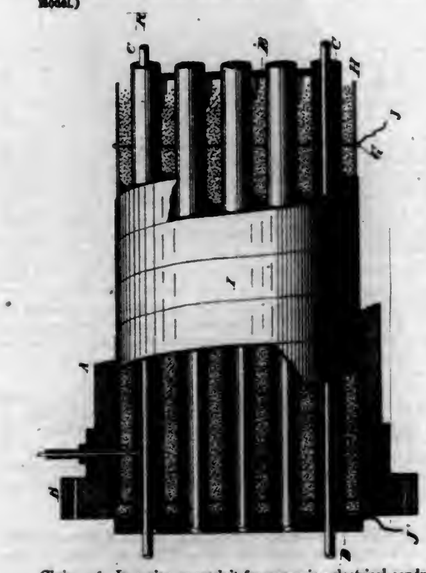
Claim.—1. In a parasol, the combination, with the ribs and stretchers and their respective notched flanges, of a jointed stick free to slide in the notched flange of the ribs, and secured at one end to the notched flange of the stretchers, the joint of said stick being so located as to be above the notched flange of the ribs when the parasol is open, thereby allowing the projecting part of the stick to be folded toward the top of the parasol, substantially as and for the purpose set forth.

2. The combination, with a parasol in which the stick is secured to the lower notched flange and slides freely through the upper notched flange, and provided with a knee-joint which allows the projecting part to be folded over when the parasol is opened, of a tubular support into which the folded part of the stick fits, the end of said tubular support being grooved to fit over the link of the knee-joint, thereby locking the same in open position by the resilience of the ribs of the parasol and by a stop-pin in the lower part of the stick, substantially as set forth.

3. In a canopy-parasol, in combination, the stick *e e'*, provided with the knee-joint *f*, the notched flange *d*, secured to the part *e'* of the stick, the notched flange *c*, provided with the sleeve *c'*, grooved at its upper end, the ribs *a a*, and the stretchers *b b*, substantially as set forth.

4. In combination, the jointed stick *e e'*, the notched flange *d*, and stretchers *b b*, the notched flange *c*, and ribs *a a*, the spring *g* in the part *e* of the stick, and the tubular holder *h*, having an end groove and the groove *h'*, substantially as and for the purpose set forth.

315,225. UNDERGROUND CONDUIT FOR ELECTRICAL CONDUCTORS. GEORGE H. BENJAMIN, Short Hills, N. J. Filed July 11, 1884. (No model.)



Claim.—1. In a pipe or conduit for conveying electrical conductors under ground, separate wire or conductor conveying tubes consisting of an inner tube formed from fibrous material treated with a resinous material, and provided with an envelope formed from layers of tin-foil and lead.

2. In a pipe or conduit for conveying electrical conductors under ground, a separate wire or conductor conveying tube consisting of an inner tube treated with a non-inflammable material and a resinous material, and an outer envelope formed from layers of tin-foil and lead.

3. In a pipe or conduit for conveying electrical conductors under ground, separate wire or conductor conveying tubes made from any fibrous material treated with any non-inflammable substance and resinous substance, and provided with an envelope composed of lead or an alloy of lead, substantially as described.

4. In a pipe or conduit for conveying electrical conductors under ground, a separate wire or conductor conveying tube made of any fibrous material treated with a resinous material, and provided with an envelope composed of lead or an alloy of lead.

5. In a pipe or conduit for conveying electrical conductors under ground, separate wire or conductor conveying tubes made from an inner resin-treated tube provided with a metallic envelope, in combination with plates or disks of metal or wire-cloth, supporting and in electrical contact with the resinous or the metallic portion of said tubes, substantially as described.

6. In an underground conduit, the combination, substantially as set forth, of the separate conductor-conveying tubes, the metallic supporting plates or disks, and the means for connecting them together, consisting of the connecting-wires, all the disks in contact with the metallic envelope, and all the disks in contact with the resinous envelope, the arrangement being such that the wires which connect one set of disks are insulated from the opposite set of disks, and the means for connecting said tubes and disks to earth.

7. In a pipe or conduit for conveying electrical conductors under ground, a plate or disk of wire-cloth for supporting and connecting the wire-conveying tubes together, and provided with openings through which the said tubes are inserted, substantially as described.

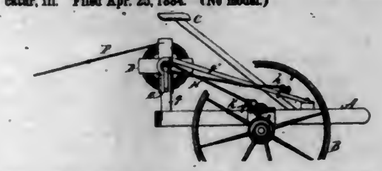
8. In a pipe or conduit for conveying electrical conductors under ground, a plate or disk of wire-cloth for supporting and connecting the inner or outer envelope of said tubes together, in combination with the means for connecting said plates or disks together, consisting of wires attached to their outer edge or circumference, and electrically connected thereto or insulated therefrom, substantially as described.

9. In a pipe or conduit for conveying electrical conductors under ground, the combination, with an outer inclosing-pipe, of two or more tubes contained therein, made of an inner tube treated with a resinous material and a non-inflammable substance, and provided with a metallic envelope, plates or disks of metal or wire-cloth for connecting and supporting said tubes, the non-inflammable fibrous insulating material, the building-paper envelope, and the electrical conductors for connecting the tubes and conduit to earth, substantially as described.

10. In a pipe or conduit for conveying electrical conductors under ground, the combination of an inclosing-pipe made of rolled sheet-iron in asphalt, with two or more tubes contained therein, made of the materials and treated as described, plates or disks of metal or wire-cloth, a non-inflammable fibrous insulating material of mineral wool around and between said tubes, an envelope of building-paper, and electrical conductors for connecting tubes and conduit to earth, substantially as described.

11. In a pipe or conduit for conveying electrical conductors under ground, the combination, substantially as set forth, of the conducting-wires within said conduit, and the means whereby the induced currents induced by the currents conveyed on said conducting-wires can be absorbed and carried out of the inclosing pipe or conduit, consisting of the resinous tube, its metallic envelope, the metal or wire-cloth supporting plates or disks, and the ground-connecting wires.

315,226. CORN-PLANTER CHECK-ROWER. JAMES E. BERING, Decatur, Ill. Filed Apr. 25, 1884. (No model.)



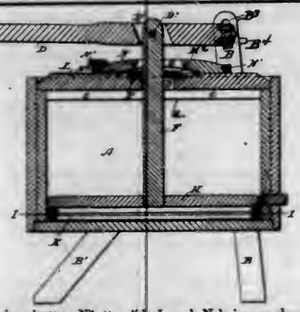
Claim.—In combination, the reel having an extended shaft, *e*, and a crank, *e'*, corn-planter frame and standards *g*, and cord H, wound on the shaft *e* and secured to the planter-frame, substantially as and for the purpose specified.

315,227. CHURN. CONRAD BERST, Orrville, Ohio. Filed June 16, 1884. (No model.)

Claim.—1. The combination, with the dasher H and plunger F, and operating means, as described, of the lid L, hollowed out and slotted in the center as shown and described, the supplemental lid N, secured upon lid L and concaved underneath, and slotted, as described, so that the parts N and L form the space M^2, and the washer P, placed upon the plunger F and lying between the lids N and L in the space M^2, as and for the purpose set forth.

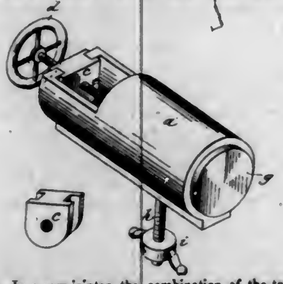
2. The combination, with the dasher, plunger-arm, and operating means, of the lid L, having the undercut cleat N' on one side, the plane cleat N^2 on the other, the secondary lid N, let under cleat N', and held

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by the overlapping button N², the lids L and N being so shaped as to form a space, M², between them, and the washer P, set over the part F and lying in the space M², as set forth.

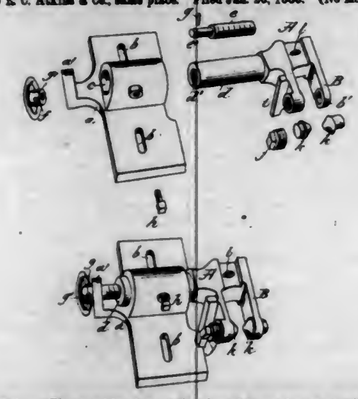
315,228. SAW-JOINTING DEVICE. GEORGE S. BLACK, Indianapolis, Ind., assignor to E. C. Atkins & Co., same place. Filed Jan. 26, 1885. (No model.)



Claim.—1. In a saw-jointer, the combination of the tubular body *a*, having lugs *b b* and nut *c*, the threaded shaft *e*, hand-wheel *d*, and emery-block *g*, substantially as described.

2. In a saw-jointer, the combination, with the tubular body or sleeve *a*, having a threaded shank, *h*, provided with nut *i*, of an adjustable emery-block, *g*, supported in said sleeve, substantially as described.

315,229. SAW-GUIDE. GEORGE S. BLACK, Indianapolis, Ind., assignor to E. C. Atkins & Co., same place. Filed Jan. 26, 1885. (No model.)



Claim.—The combination of the slotted base-plate *a*, having a lug or bearing, *a'*, and a sleeve, *c*, provided with set-screw *h*, the saw-guide A, having arms B B, lug *i*, and a longitudinally-grooved hollow shank, *d*, the threaded spindle *e*, for engaging said shank, said spindle being provided with a smooth reduced portion, *e'*, at its rear end, and the hand-wheel *f*, having a hub, *g'*, secured to said spindle by a pin or bolt, *g*, substantially as shown and described.

315,230. HANGING DOORS. FRANCIS B. BOALT, Binghamton, N. Y. Filed Oct. 18, 1884. (No model.)

Claim.—1. The combination of the transverse stop K, applied to the lintel-rails of the casing, with the suspended doors, their hangers, the pivoted axles of the supporting-wheels, and the holding-down bar, all constructed and adapted to operate substantially in the manner and for the purposes described.

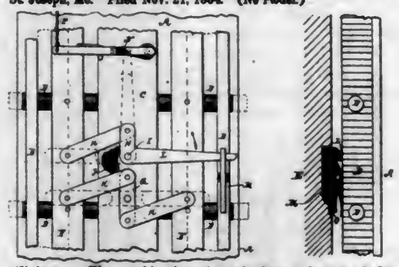
315,230.



2. The combination, with the box door-frame and the supporting-rails, of a suspended door, the wheels E', axles E, and hangers G, pivoted by the pins *a* upon the axles, and secured by their lower ends to the front and rear edges of the door, substantially as described.

3. The combination, with a box door-casing and a door which is suspended by means of removable hangers and wheels connected with horizontally-pivoted axles, of the vertical removable piece A³, substantially as and for the purposes described.

315,231. BOLT-WORK FOR SAFES. THOMAS M. BRIDTHALL, Maryville, assignor to himself and George R. Mann and Nathan P. Ogden, St. Joseph, Mo. Filed Nov. 21, 1884. (No model.)



Claim.—1. The combination of a safe-door, a door-jamb fitted for it to close against, a bolt fitted to slide from the door into the jamb, a spring for extending the bolt, and a latch fitted to hold the bolt retracted, the latch being movably mounted on the door with its actuating portion in the path of the door-jamb, substantially as shown and described, whereby the act of closing the door brings the said actuating portion of the latch against a portion of the door-jamb and springs the latch, thereby setting the bolt free to be extended into the jamb by the said spring, as set forth.

2. The combination, with a sliding bolt in a safe-door, of a lever pivoted to the door, a spring for rotating the lever, and a connection between the lever and the bolt, substantially as described, whereby a continuous circular movement of the lever in one direction will first extend the bolt to lock the door and then retract the bolt to unlock the door, as set forth.

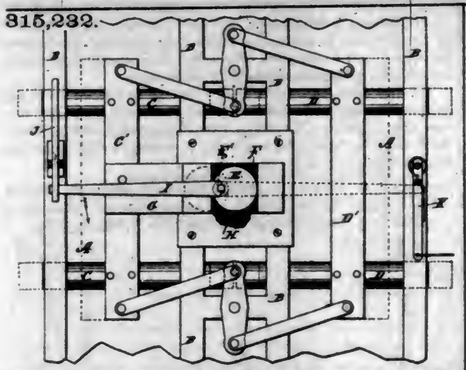
3. The combination, with a sliding bolt in a safe-door, and a rotary lever pivoted to the door and connected with the bolt to slide it first out and then in while rotating in one direction, of a spring-latch fixed to the door in the path of the rotary lever to hold the same with the bolt retracted, and a time trip-latch attached to the door in the path of the rotary lever to retain it with the bolts extended, substantially as shown and described.

315,232. BOLT-WORK FOR SAFES. THOMAS M. BRIDTHALL, Maryville, assignor to himself and George R. Mann and Nathan P. Ogden, St. Joseph, Mo. Filed Nov. 24, 1884. (No model.)

Claim.—1. The combination of a door-bolt having a transverse slot, an eccentric engaging said slot and mounted on a shaft which is journaled in the lock-frame, a spring attached to the eccentric to revolve it, a radial arm attached to the eccentric, and two latches pivoted to the lock-frame in the circular path of the said arm at opposite sides of the circle, substantially as shown and described.

2. The combination of a bolt having a transverse slot fitted to slide in a lock-frame, an eccentric journaled in the lock-frame and engaging

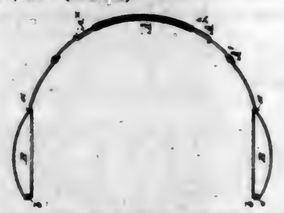
315,232.



said slot, devices for stopping the revolution of the eccentric at opposite points in its circle of revolution, and a spring to revolve the eccentric, substantially as shown and described, whereby a single revolution of the eccentric will first extend and then retract the bolt, as specified.

3. The combination, with a safe-door, of a bolt fitted to slide therein, a spring acting on said bolt to extend it, a spring-latch on the door adapted to retain the bolt against the action of the extending spring, and a latch movably fixed to the door-jamb in the path of the aforesaid spring-latch, substantially as described, whereby the latches may be set either to engage each other or not, as may be desired.

315,233. EAR-MUFFLER. ANDREW L. BRITTON, Philadelphia, Pa. Filed Mar. 31, 1884. (No model.)

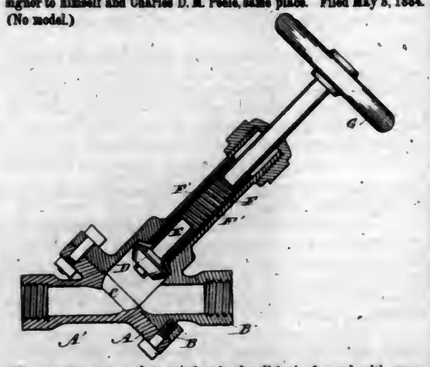


Claim.—1. Pad-frames having eyes on opposite sides, in combination with the head-piece formed of sections hinged together, each end of one of the sections being passed freely through one set of eyes of the pad-frames, and having eyes jointed to the other set of eyes thereof, said eyes being integral with the respective parts, substantially as and for the purpose set forth.

2. An ear-muffler having a pad-frame formed with eyes *a a'*, and an eye, *b*, opposite thereto, the eyes *a a'* interlocking, and a head-piece which is passed freely through one of the eyes *a a'*, and having an eye, *c*, which is freely connected with the eye *b*, substantially as and for the purpose set forth.

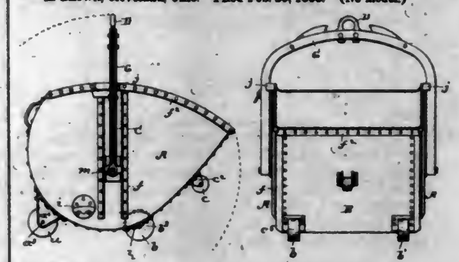
3. The head part A, consisting of two wires, each having eyes A× and *c* integral therewith, in combination with pad-frames B, having eyes *b* and *a*, substantially as and for the purpose set forth.

315,234. VALVE-COCK. HENRY J. K. BROOKS, Bloomfield, N. J., assignor to himself and Charles D. M. Poole, same place. Filed May 8, 1884. (No model.)



Claim.—A valve-cock consisting in the disk A, formed with aperture O and the oblique neck A', the disk B, formed with the oblique neck B' and the neck F, the block-tin sleeve F", cast in the neck F and screw-threaded internally, screw-threaded valve-stem E, provided with the valve D, and an operating-handle, substantially as set forth.

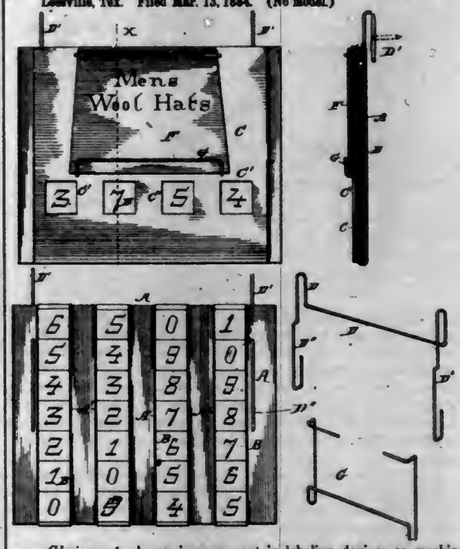
315,235. CASTER-WHEEL FOR HOISTING-BUCKETS. ALEXANDER E. BROWN, Cleveland, Ohio. Filed Feb. 25, 1885. (No model.)



Claim.—1. A hollow caster-wheel for hoisting-buckets, provided with an interior circumferential strengthening rib or ribs, substantially as set forth.

2. A hollow cast-metal caster-wheel for hoisting-buckets, having the holes necessary for the extrication of the core used in casting the wheels securely closed up by plugs fastened therein, for the purpose of preventing the entrance into the interior of such wheels of the fine coal or other material, into masses of which the wheels of hoisting and conveying buckets have to be placed.

315,236. INDICATOR FOR MERCHANDISE. SAMPSON H. BROWN, Leesville, Tex. Filed Mar. 13, 1884. (No model.)



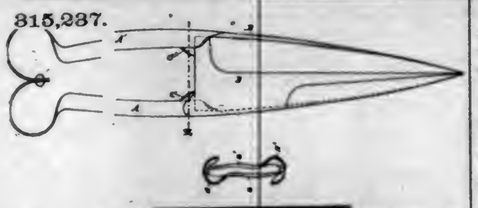
Claim.—1. As an improvement in labeling devices or marking devices, the combination of a frame consisting of a rear portion provided with vertical grooves or recesses, and a front portion provided with openings corresponding or registering with the said grooves, and endless bands of suitable material, stamped with numbers ranging from 0 to 9, and adapted to work around the rear portion of the frame in the vertical grooves of the same, as set forth.

2. As an improvement in labeling or marking devices, the combination of a frame consisting of a rear portion provided with vertical grooves or recesses, and a front portion provided with openings corresponding or registering with the said grooves, endless bands of suitable material stamped with numbers ranging from 0 to 9, and adapted to work around the rear portion of the frame in the vertical grooves of the same, and the metal catches herein shown and described, as set forth.

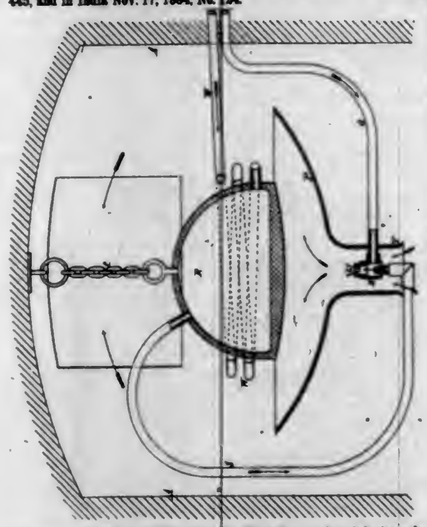
315,237. ANIMAL-SHEARS. THOMAS BROWN, Sheffield, County of York, England. Filed May 27, 1884. (No model.) Patented in England Jan. 4, 1884, No. 693.

Claim.—A pair of shears consisting of a bow, two shanks attached thereto, two blades on said shanks, and two curved guards attached, respectively, to said shanks and forming parts thereof, each guard receiving in its concavity the corner of the opposite blade and shielding the shearer's hand from being injured thereby, besides acting as a stop for said blade, substantially as set forth.

315,237.



315,238. APPARATUS FOR COMBUSTION OF LIQUID FUEL. EDWARD C. BURGESS, Islington, County of Middlesex, England. Filed July 22, 1884. (No model.) Patented in England May 5, 1884, No. 7,249; in France July 2, 1884, No. 163,111; in Germany July 6, 1884, No. 29,614; in Belgium July 7, 1884, No. 65,704; in Italy Sept. 30, 1884, XXXIV, 200; in Austria Oct. 3, 1884, No. 1,709; in Luxemburg Oct. 17, 1884, No. 445, and in India Nov. 17, 1884, No. 124.

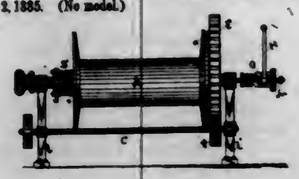


Claim.—1. The combination, substantially as hereinbefore described, of a retort, a water-pipe connecting with the interior of the retort for delivering water thereinto, a shield arranged below the retort and having an opening therein, a pipe connecting at one end with the interior of the retort and provided at the other end with injector-nozzle arranged in the opening of the shield for delivering steam from the retort to said injector-nozzle, and a pipe for delivering liquid hydrocarbon about the said nozzle in the opening of the shield, as and for the purposes set forth.

2. The combination, substantially as hereinbefore described, of a retort, a water-pipe connecting with the interior of the retort for introducing water thereinto, a shield arranged under the retort and constructed with a central pendent tubular neck, a pipe connected at one end with the interior of the retort and at the other end provided with an injector-nozzle arranged within the tubular neck of the shield, and a pipe for delivering liquid hydrocarbon about the said nozzle, substantially as set forth.

3. The combination, substantially as hereinbefore described, of a retort, a pipe convoluted around the retort and connected with the interior thereof for introducing water thereinto, a shield arranged under the retort and constructed with a central tubular mouth, a pipe connected at one end with the upper part of the retort and provided at its other end with an injector-nozzle arranged within the tubular mouth, and a pipe for delivering liquid hydrocarbon about the said nozzle, as and for the purpose set forth.

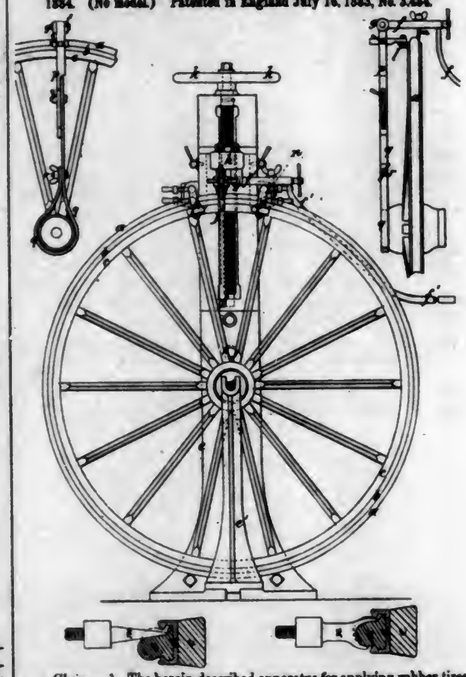
315,239. FRICTION-DRUM. WILLIAM J. CARLIN, Allegheny, Pa. Filed Mar. 2, 1885. (No model.)



Claim.—1. A friction-drum hoist having its drum loosely mounted on a hollow shaft, in combination with a clutch-operating spindle passing through said hollow shaft, and adapted to receive endwise thrust, and clutching mechanism, substantially as described.

2. The combination, with drum A, having grooved sleeve S, and the rotating gear E on slotted hollow shaft B, adapted to frictional contact with said drum, of the rocking shaft N, eccentric P, stirrup O, spindle R, flange *w*, loose collar *u*, and pin *m*, connecting said flange and spindle, substantially as described.

315,240. DEVICE FOR SETTING INDIA-RUBBER TIRES. WILLIAM H. CARMONT, Manchester, County of Lancaster, England. Filed Jan. 8, 1884. (No model.) Patented in England July 16, 1883, No. 3,484.



Claim.—1. The herein-described apparatus for applying rubber tires to wheels, said apparatus consisting of a frame adapted to receive or to be applied to the wheel, and a lever pivoted to the frame and carrying a tool to force the tire into the groove of the wheel, substantially as set forth.

2. The combination of the fixed frame, having bearings for the wheel, with a block adjustable in said frame, and having pivoted thereto a lever carrying a tool to force the rubber tire into the groove of the wheel, substantially as set forth.

3. The combination of a frame consisting of a fixed standard having holes and detachable standards of different heights with an adjustable block on said standard, and a lever pivoted to the block and carrying a tool to force the tire into the groove of the wheel, substantially as described.

4. The combination of the frame for the wheel with a lever pivoted to the frame and carrying a tool to force the tire into the groove of the wheel, and a guide-roller, *i*, on the frame, substantially as specified.

5. The herein-described apparatus for applying rubber tires to wheels, the said apparatus consisting of the frame for the wheel, an adjustable block, *h*, thereon, and two pivoted levers carrying tools, one of a knife form and the other of a clamp form, substantially as set forth.

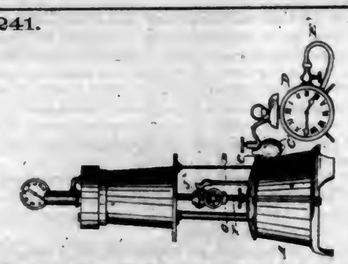
315,241. VULCANIZER. FRANK H. CHIDESTER, Massillon, Ohio. Filed Dec. 8, 1884. (No model.)

Brief.—Improvement on Patent No. 300,953, dated June 24, 1884.

Claim.—1. In a vulcanizer, the combination of a hydrocarbon-reservoir, an air-reservoir adjacent thereto, means, substantially as set forth, for allowing the escape of the air from said reservoir, and a clock-work constructed and arranged substantially as set forth, to operate the said air-releasing devices.

2. The combination of the steam-generator, the chamber provided with a diaphragm or partition, the duct communicating with the steam-generator and with the chamber upon one side of said diaphragm or partition, and an adjustable bar or block provided with a needle-orifice, substantially as described.

315,241.

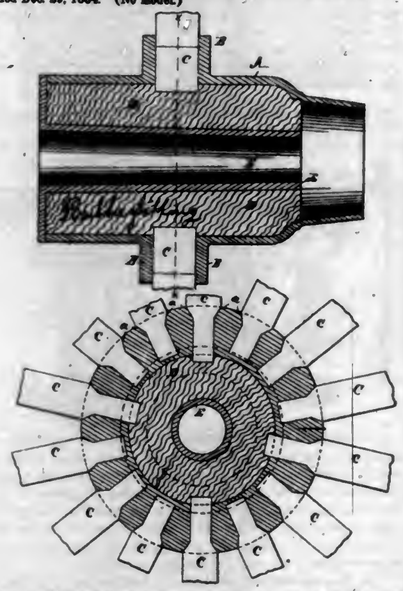


3. The combination, with the needle-point and the part having the needle-orifice, of a valve-rod united to the point by a flexible joint, substantially as set forth.

4. The combination, with the air-reservoir and the devices which store air therein under pressure, of the timing mechanism, the valve or stop-cock attached to the timing mechanism, the escape-duct communicating with the air-reservoir and with the aperture at or through said valve or stop-cock, and tripping devices, substantially as described, operated by the clock to open said valve or stop-cock, as set forth.

5. The combination, with the air-reservoir, of a timing mechanism and an air-escape duct, a stop-cock or valve for said duct, and an intermittingly-moving rod operated by the timing mechanism to release said valve or stop-cock, substantially as set forth.

315,242. VEHICLE-HUB. FRANKLIN P. CIRCLE, Springfield, Ohio. Filed Dec. 29, 1884. (No model.)



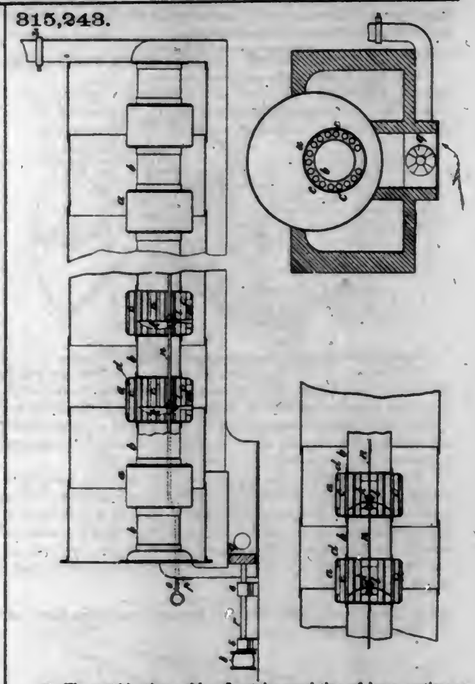
Claim.—The metallic hub A, cast in one piece and provided with the flanges B, having bevel-edged mortises, as described, a portion of said mortises preferably extending entirely through the metal of the hub, in combination with the rubber filling D, (provided with the axle-box opening,) located upon the inside of the hub, and extending substantially from one to the other end of the hub, substantially as and for the purpose described.

315,243. STEAM-BOILER. WILLIAM CLARK, Plumstead, England. Filed June 24, 1884. (No model.) Patented in England Mar. 31, 1884, No. 5,714, and in Belgium Mar. 31, 1884, No. 64,686.

Claim.—1. A flue-tube having raised sections *a* and small sections *b*, arranged alternately, in combination with the angle-plates *d*, formed with flanges, as shown, and connecting the raised sections to the small sections, and tubes fitted within the raised sections, with their ends resting in said plates and opening outside of the small sections, substantially as described.

2. The combination, with a flue-tube, of an arched water-tube located within the same and provided with extensions connecting said tube at its ends and a point intermediate thereof to the flue-tube, and at such points communicating with the water-space outside of the flue-tube, substantially as described.

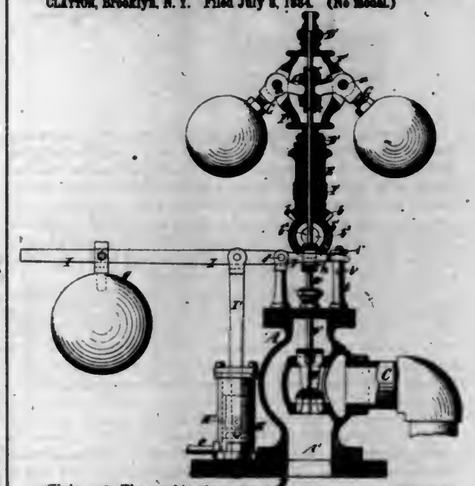
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3. The combination, with a flue-tube consisting of large sections *a* and small sections *b*, as above described, of the plates or shields *k*, pivoted to the said large sections and arranged to be raised and lowered, substantially as and for the purpose set forth.

4. The combination of the flue-tube having raised or enlarged portions, the retarding-shields located therein, the water-circulating tubes located inside the tube within such enlarged portions, and the air-propeller for returning the unconsumed gases back to the fire-grate beneath the same, substantially as and for the purpose set forth.

315,244. COMBINED PRESSURE AND SPEED GOVERNOR. JAMES CLAYTON, Brooklyn, N. Y. Filed July 8, 1884. (No model.)

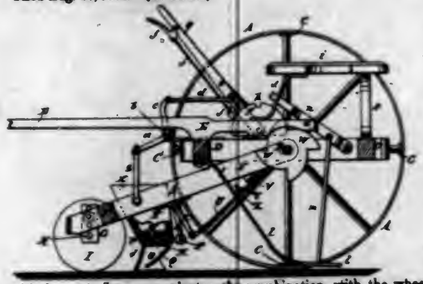


Claim.—1. The combination, with the speed-governor with its valve D, valve-stem D', and valve-box A, adapted to be secured to the steam-chest of a steam-engine, of a lever, I, connected at one end with the valve-stem D', and weighted at the other end, and a pressure-governor consisting of a cylinder having an air-inlet, *c*, and a piston or plunger connected with and operating upon the lever I, substantially as herein described.

2. The combination, with the valve-shell A, valve D, and valve-spindle D' of a speed-governor, of the weighted lever I, so connected with said valve-spindle as to afford lost motion or play between them, the press-

ure-governor H H', and the rod I', connecting the said lever and pressure-governor, substantially as herein described.

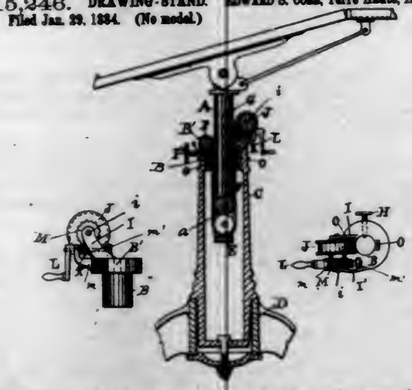
315,245. CORN-PLANTER. FERDINAND CLEMENS, What Cheer, Iowa. Filed Aug. 29, 1884. (No model.)



Claim.—1. In a corn-planter, the combination, with the wheels and axle A B, the hinged frame F, the seed-boxes K, and the seed-dropping slides P, of the rock-shaft S, having arms R and T, the sliding bar U, the spring X, and the cam-wheel W, substantially as herein shown and described, whereby the said seed-dropping slides will be operated by the revolution of the said wheels and axle, as set forth.

2. In a corn-planter, the combination, with the main frame D, of the spring-shoe *l*, with one end connected to the carrying-frame, and its lower end disposed contiguously and about horizontally with the ground, the connecting-rod *m*, and the foot-lever *n*, said rod having one end secured to the upper side of the horizontal part of the shoe, and its upper end connected to said lever inside of its fulcrum, substantially as herein shown and described.

315,246. DRAWING-STAND. EDWARD S. COBB, Terre Haute, Ind. Filed Jan. 29, 1884. (No model.)



Claim.—1. In a drawing-stand, the combination, with a supporting-base having a cylindrical or hollow standard, of a movable collar fitting within and upon the hollow standard, a table-top, and another standard slotted at its lower end and having a sheave mounted in said slot supporting the table-top and vertically movable within and rotating with the collar, a reel located on the collar, and a tape passing through the lower slotted part of the movable standard under the sheave secured in said slot, one end of said tape being attached directly to said collar and the other end to the reel, substantially as set forth.

2. In a drawing-stand, the combination, with a table-top and a supporting-base having a cylindrical hollow standard, of a movable collar fitting within and upon the hollow standard, a reel located on the collar and a tape, and a vertical movable and rotating standard slotted at its lower end and having a sheave mounted in said slot, supported within the collar by the tape passing through the slotted lower end of the movable standard and secured to the collar at one end and at its other end to the reel mounted on said collar, the said movable standard being provided with a vertical slot or groove and the said collar with a set-screw passing therethrough and into said groove, whereby while the said movable standard may be raised or lowered independently of the collar it can only be rotated in connection therewith, substantially as set forth.

3. In a drawing-stand, the combination, with a table-top and a supporting-base having a cylindrical hollow standard, of a movable collar fitting within and upon the hollow standard, a movable standard slotted at its lower end and having a sheave mounted therein vertically movable within the collar and rotating therewith, a reel mounted on said collar and provided with a worm-wheel rigid with its barrel, and a worm-shaft and crank, and a tape secured at one end to the collar, thence passing down alongside of the movable standard and under the sheave secured in a slot in the lower part of said standard, and up alongside the opposite side of said standard to the barrel of the reel, substantially as set forth.

4. In a drawing-stand, the combination of a table-top and a supporting-base having a cylindrical or hollow standard, C, collar B, standard A, slotted at its lower end and having a sheave mounted therein, reel J, and tape F, secured to the collar and reel and passing through the slot in the base of the standard A, and thereby supporting the latter, substantially as set forth.

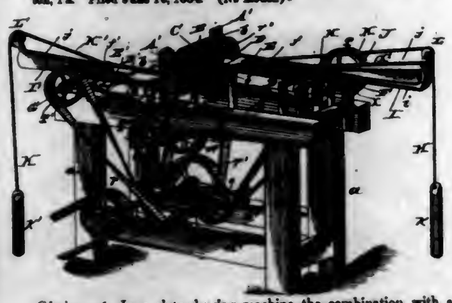
5. In a drawing-stand, the combination, with a table-top, of a supporting-base having a cylindrical or hollow standard, C, standard A, having sheave E, collar B, having vertical inner grooves, O O, reel J, and tape F, substantially as set forth.

6. In a drawing-stand, the combination, with a table-top, of a supporting-base having a cylindrical or hollow standard, C, standard A, having sheave E secured within a slot in its lower part, and vertical exterior groove, G, collar B, having flange B', provided with a horizontal perforation, screw H, adapted to pass through said perforation in the flange B', reel J, mounted on the flange B', and tape F, one end of which is secured to the collar B and the other end to the reel J, substantially as set forth.

7. In a drawing-stand, the combination, with a table-top, of a supporting-base having a cylindrical or hollow standard, C, having a threaded hole, *c*, near its upper edge, standard A, having sheave E secured within a slot in its lower part, and vertical exterior groove, G, collar B, having flange B', provided with a horizontal perforation, screw H, reel J, mounted on the flange B', tape F, secured to the collar and the reel, and set-screw I', substantially as set forth.

8. In a drawing-stand, the combination, with a table-top, of a supporting-base having a cylindrical or hollow standard, C, vertically-movable standard A, having sheave E in its slotted lower end, collar B, having flange B', brackets I I', shaft *i*, reel J, and worm-wheel M rigid therewith, worm-shaft K, and crank L, supported on bearings rising from the flange of the collar B, and the tape F, secured to the collar and the reel, substantially as set forth.

315,247. SLATE-SHAVING MACHINE. ROBERT A. COFFIN, Slatington, Pa. Filed June 16, 1884. (No model.)



Claim.—1. In a slate-shaving machine, the combination, with a grinding or shaving roller having a lateral reciprocating motion in addition to its rotation, of two rollers similar in size, situated, respectively, above and below the shaving-roller and turning in opposite directions, so that the slate may pass in one direction between the shaving-roller and roller above it and in the reverse direction between the shaving-roller and roller below it, for the purpose of operating alternately on the lower and upper surfaces of the slate, substantially as specified.

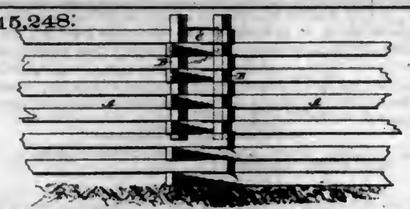
2. In a slate-shaving machine, the combination, with the roller C, collars P P', rods Q *q*, threaded sleeve N, guide-bar O, and shaft M, of the rollers B and B', rotating in opposite directions, for the purpose of allowing the slate to pass between the rollers C and B in one direction and between the rollers C and B' in the opposite directions, substantially as described.

3. In a slate-shaving machine, the combination, with the rotating and longitudinally-reciprocating roller C, and the rollers B B', rotating in opposite directions to each other, of the ways D D', slides E E', and rack-bars F F', reciprocating, respectively, upon the ways D D', substantially as specified.

4. In a slate-shaving machine, the combination of the roller B and the rotating and longitudinally-reciprocating roller C with the ways D, slide E, rack-bar F, provided with the pin *x*, pinion *g*, and cam-arm H substantially as specified.

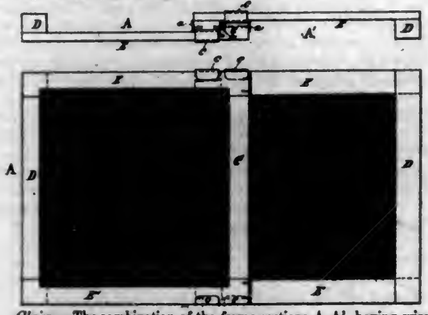
5. In a slate-shaving machine, the combination, with the ways D, slide E, rack-bar F, provided with the pins *x* and *x'*, of the pinion *g*, cam-arm H, slide-frame I, provided with the ways *i* and *j*, cord K, and weight *k*, substantially as specified.

315,248. FENCE. JOHN McL. COFFMAN, Washington, Ohio. Filed Sept. 22, 1884. (No model.)



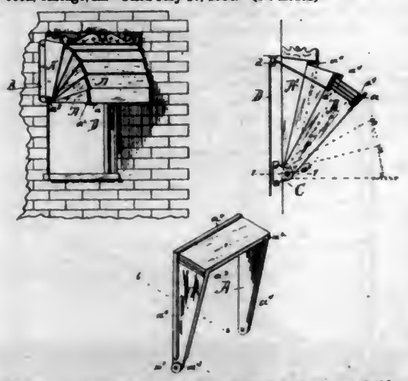
Claim.—The combination of a rail fence with the lock, consisting of two pieces of timber and a wire for connecting them together, the two pieces of the lock being dropped down over the overlapping ends of the rails, so as to catch in the angles formed thereby, and supported in position by means of the wire, substantially as specified.

315,249. WINDOW-SCREEN. DANIEL COOK, Philadelphia, Pa. Filed July 30, 1884. (No model.)



Claim.—The combination of the frame-sections A A', having wire-cloth B, inner stiles, C, shouldered at *c*, outer stiles, D, rails E E, and clasps H, whereby the device may be used as described.

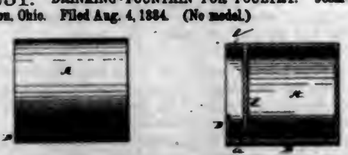
315,250. WINDOW AND DOOR AWNING OR SHADE. GEORGE W. COOK, Chicago, Ill. Filed July 17, 1884. (No model.)



Claim.—1. In awnings consisting of a series of connected side and top slats forming frames arranged to slide one within the other, as herein shown, the combination of the incased strengthening and lock rods a^4, applied to the edges and projecting alternately in opposite directions from the two sides of each slat, substantially as set forth.

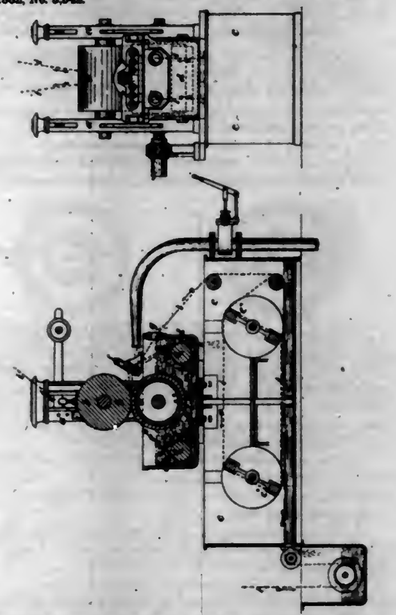
2. The combination, in an awning consisting of a series of folding frames, as set forth, of the friction-bars a^3 with the inside rods, a^4, of each slat.

315,251. DRINKING-FOUNTAIN FOR POULTRY. JOSEPH COOK, Akron, Ohio. Filed Aug. 4, 1884. (No model.)



Claim.—A drinking-fountain for poultry, consisting of a hollow earthenware cylinder, A, having longitudinal ribs B upon its under side, closed at one end, and having a partition, C, near the other, said partition being provided with an orifice, *a*, near its lower edge, the rim *c*, and partial head D, extending across said rim, substantially as shown and described.

315,252. APPARATUS FOR WASHING PIECE-GOODS. BENJAMIN DAVIES, Adlington, and JAMES ECKERSLEY, Blackrod, County of Lancaster, England. Filed Nov. 20, 1884. (No model.) Patented in England July 26, 1882, No. 3,542.



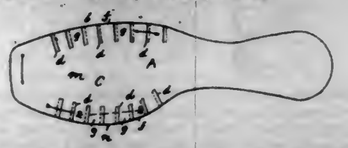
Claim.—The combination, in a washing-machine of the class hereinbefore mentioned, of the additional box or cistern *d d*, with its rollers *e e*, and with the multiple guide *f f*, (or its equivalent,) whereby we are enabled to pass the fabric several times through the machine, and thus thoroughly wash and rinse the fabric at one operation.

315,253. BREECH-LOADING FIRE-ARM. JAMES B. DAVIS, Washington, D.C. Filed Dec. 22, 1884. (No model.)



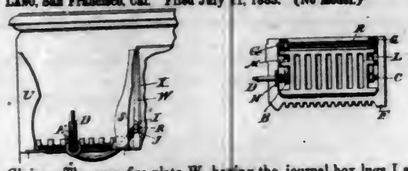
Claim.—In combination with a pistol-stock, a barrel pivoted to said stock on a vertical pin, and a spring bearing against said pivot to press it to the rear, a spring-catch in the stock and notches in the edges and center of the barrel to engage therewith, and a rebounding hammer having a point which in its forward movement extends through the recoil-shield, but is thrown back by a spring between said hammer and shield, all substantially as set forth.

315,254. INNER SOLE FOR BOOTS OR SHOES. GEORGE W. DAY, Haverhill, Mass. Filed July 7, 1884. (No model.)



Claim.—An inner sole for boots and shoes, having inclined or diagonal transverse slits through its thickness at each side edge, the slits on one side inclining in a direction the reverse of the slits on the other side of the sole, substantially as and for the purpose specified.

315,255. STOVE-GRATE. FRANK H. DE GUERRE and WILLIE W. DE LANO, San Francisco, Cal. Filed July 11, 1883. (No model.)



Claim.—The oven fire-plate W, having the journal-box lugs I and J, in combination with the pivot-rod R, the lever-arms L and M, the grate A, having the pivots B and C and the adjusting-lever D, and the curved fire-bricks S and U, constructed and operated substantially as and for the purposes set forth.

315,256. WICK-SCRAPING ATTACHMENT FOR LANTERNS. P. O. DEWEY, Reading, Mass. Filed Sept. 1, 1884. (No model.)

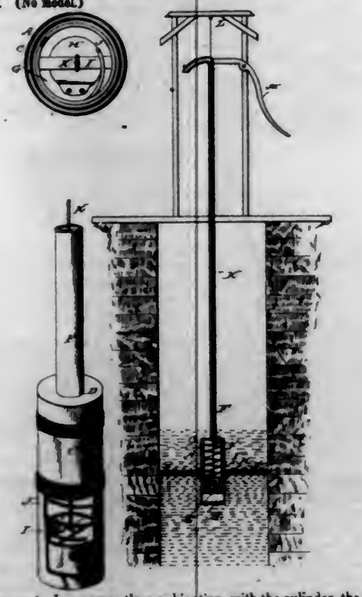


Claim.—1. A lantern having a lamp-holder provided with a slot, *s*, and a lamp having a ratchet-rod passing through said slot, combined with a wick-scraping attachment composed of a sleeve mounted on the ratchet-rod, a scraping-arm at the inner end of the sleeve within the lamp-holder, and an operating device or handle outside of the lamp-holder, the slot *s* serving for the passage of the ratchet-rod and the sleeve of the scraping attachment, as set forth.

2. The improved lamp-wick-scraping attachment composed of a loose sleeve mounted on the ratchet-rod of the lamp, a scraping-arm, *c*, at the inner end of said sleeve, and an operating-handle at the outer end of said sleeve, as set forth.

3. The combination, with a lamp-burner, of the wick-scraping arm journaled on the ratchet-rod of the burner, and provided with V-shaped serrations arranged to act on the wick, as set forth.
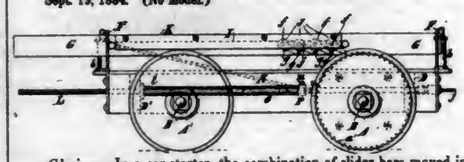
315,257. PUMP. WILLIAM H. DILLON, Glasgow, Ky. Filed Jan. 9, 1885. (No model.)



Claim.—1. In a pump, the combination, with the cylinder, the vertically-reciprocating plunger having upwardly-extending tubing, and the interior supplemental cylinder having the cross-bar at its top, all provided with upwardly-opening valves, of a rope or chain connecting the said supplemental cylinder with the stationary pump-frame, and a coiled spring interposed between the cross-bar at the upper end of the interior supplemental cylinder and the upper end of the plunger-chamber, substantially as and for the purpose herein set forth.

2. The combination, with the plunger consisting, essentially, of a cylinder having an upwardly-opening valve at its lower end, and provided with the pump-tubing extending upwardly from its upper end, of the interior supplemental cylinder having an upwardly-opening valve at its lower end and a cross-bar at its upper end, and a spring interposed between said cross-bar and the top of the plunger-chamber, substantially as and for the purpose herein set forth.

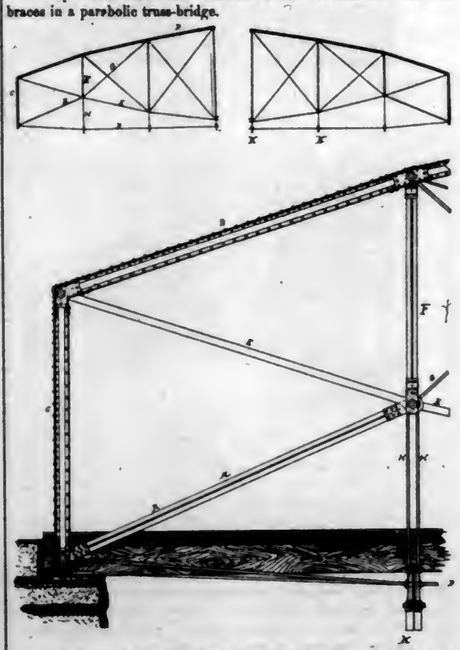
315,258. CAR-STARTER. CHARLES F. DODGE, Pocahontas, Ill. Filed Sept. 19, 1884. (No model.)



Claim.—In a car-starter, the combination of slider-bars moved in one direction by the motive agent of the car, a spring for moving said slider-bars in the opposite direction, car-wheels, ratchet-wheels arranged upon the car-wheels in such position that the peripheries of the ratchet-wheels will be approximately flush with the portions of the car-wheels which are adapted to bear upon the top of the rails, pawls arranged upon the slider-bars at an incline in the direction of the rotation of the wheel when the car is moving forward, and in such manner that at least two of them will engage with the teeth of a ratchet-wheel to rotate the car-wheel, substantially as specified.

315,259. BRIDGE. WILLIAM O. DOUGLAS, Binghamton, N. Y. Filed Oct. 18, 1884. (No model.)

Brief.—The ends of the wind-truss chords are connected with strut-braces in a parabolic truss-bridge.



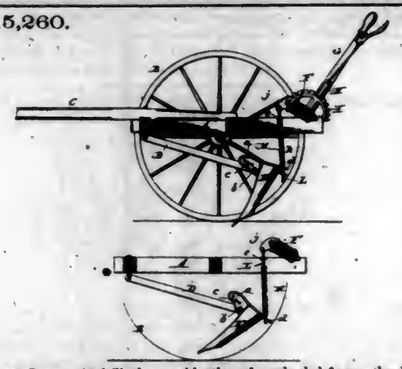
Claim.—The combination of a tension floor-line chord, B, with a strut-brace, A, or its described equivalent in a parabolic truss-bridge, whereby a point in the end post is fixed so rigidly as to resist the pull of the chords B, making both flanges of the wind-truss always in tension, substantially as illustrated and described.

315,260. GRAIN-DRILL. WILLIAM C. DOWNEY, Springfield, Ohio. Filed Sept. 22, 1884. (No model.)

Claim.—1. In a grain-drill, a tubular hoe, in combination with a drag-bar pivoted to the forward side of said hoe and a depressing-spring connected to the rear side of the hoe, substantially as shown and described, whereby the pressure of the spring is applied directly to the hoe, but the latter permitted to tip backward when required.

2. In a grain-drill, a drag-bar combined with a tubular hoe pivoted at its forward side to said bar, a depressing-spring acting upon the rear side of the hoe, and means, substantially such as described and shown, for effecting the compression of the spring.

315,260.



3. In a grain-drill, the combination of a wheeled frame, the drag-bar, the tubular hoe jointed to the rear end of said drag-bar, a spiral spring acting upon the rear side of the hoe, a rocking bar on the frame, and a sliding rod or rods extending through the spring and connecting the hoe with the rock-bar.

4. In a grain-drill, the wheeled frame provided with drag-bars, in combination with hoes pivoted to said bars, a rock-shaft located on the rear end of the frame, devices, substantially as shown, for operating and locking said shaft, rods extending from said shaft to the rear sides of the individual hoes, with a sliding connection at one end, and spiral springs mounted on said rods and acting to depress the hoes, as described.

5. In a grain-drill, the combination of the tubular hoes, the lifting-rods therefor, the devices for adjusting said rods, and the pressure-springs of a length less than that portion of the rods on which they play, whereby the parts may be adjusted to apply the proper pressure to the hoes when the latter are in their normal operative positions and the hoes permitted without readjustment of the parts to drop below the normal position free from the influence of the spring in passing furrows and other depressions in the surface.

6. In a grain-drilling machine, the wheeled frame and its drag-bars, each provided with a tubular hoe, in combination with the rock-bar, the spiral depressing-springs, and the loose lifting-rods connecting the rock-bar and hoes, said bars elongated, as described and shown, to permit the hoes to descend below their normal operative positions free from the influence of the springs.

7. In combination with the hoes, the depressing-springs, the lifting-rods for the hoes, and the operating devices for said rods, the rods being prolonged, as described and shown, to permit the independent vertical play of the hoes in an operative position free from the pressure of the springs.

315,261. ANEMOMETER. EATON A. EDWARDS, Fort Meade, Dak. Filed June 6, 1884. (No model.)



Claim.—1. An anemometer consisting, essentially, of a vane, a longitudinally-moving spindle mounted thereon, a pressure-disk mounted at one end of said spindle, a pointer connected with the end of the spindle opposite the disk, and a dial, substantially as described.

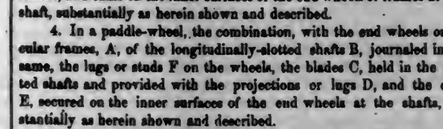
2. In an anemometer, the sliding spindle *d*, spring *f*, disk *g*, and an indicating device, in combination with vane B, substantially as shown and described.

3. The combination, with a vane, of disk *g*, sliding spindle *d*, spring *f*, and pointer *h*, movably connected to that end of the spindle opposite the disk, substantially as described, for operation as specified.

4. The combination, with the standard A, provided with a dial, *b*, of the anemometer-vane pivoting on said standard, and the pointer *c*, connected therewith and extending to the face of the dial, substantially as set forth.

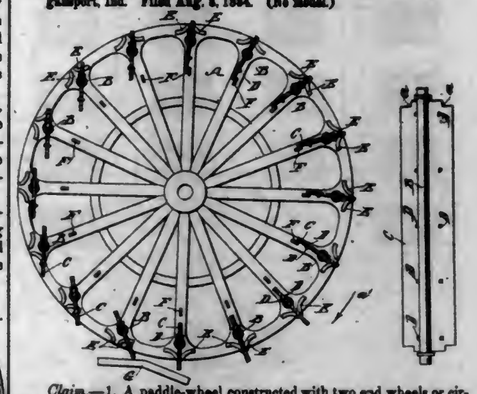
315,262. ROLL FOR MAKING INDIA-RUBBER SOLING. LEWIS ELLIOTT, New Haven, Conn., assignor to L. Candee & Co., same place. Filed Mar. 9, 1885. (No model.)

Brief.—Improvement on Patent No. 282,423, dated July 31, 1883.



Claim.—The herein-described improvement in rolls for making india-rubber soling, consisting in constructing one of the rolls with depressions longitudinally on the roll, corresponding to the variation in the thickness of the sole, substantially as described, and whereby the line of the sole to be cut will be in the direction of the length of the sheet rolled, substantially as described.

315,263. FEATHERING PADDLE-WHEEL. WILLIAM EMMETT, Logansport, Ind. Filed Aug. 8, 1884. (No model.)



Claim.—1. A paddle-wheel constructed with two end wheels or circular frames, in which a series of shafts are journaled at the rims, and blades or paddles held in longitudinal slots in the said shafts, substantially as herein shown and described.

2. In a paddle-wheel, the combination, with two end wheels or circular frames, of a series of longitudinally-slotted shafts journaled in the said wheels, and paddles or blades held in the slots of the shafts and provided with stops on each side of the shaft, substantially as herein shown and described.

3. In a paddle-wheel, the combination, with two end wheels or circular frames, of longitudinally-slotted shafts journaled in the end wheels, blades held in the slotted shafts, stops or studs on the surfaces of the said blades, and cams on the inner surfaces of the end wheels or frames at each shaft, substantially as herein shown and described.

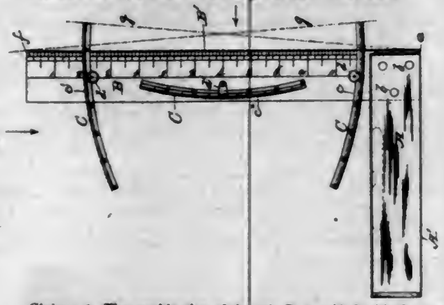
4. In a paddle-wheel, the combination, with the end wheels or circular frames, A, of the longitudinally-slotted shafts B, journaled in the same, the lugs or studs F on the wheels, the blades C, held in the slotted shafts and provided with the projections or lugs D, and the cams E, secured on the inner surfaces of the end wheels at the shafts, substantially as herein shown and described.

5. In a paddle-wheel, the combination, with the end wheels or circular frames, A, of the slotted shafts B in the same, the paddles or blades C, held in the slotted shafts B and provided with shoulders *a*, stops or studs on the said blades, and cams E, secured on the inner surfaces of the end wheels at the shafts, substantially as herein shown and described.

6. In a paddle-wheel, the combination, with the end wheels or frames, of longitudinally-slotted shafts journaled in the wheels, blades or paddles held in the slotted shafts to slide transversely to the longitudinal axis of the said shafts, and a cam-track held below the wheel and

adapted to act on the blades to tilt the same, substantially as herein shown and described.

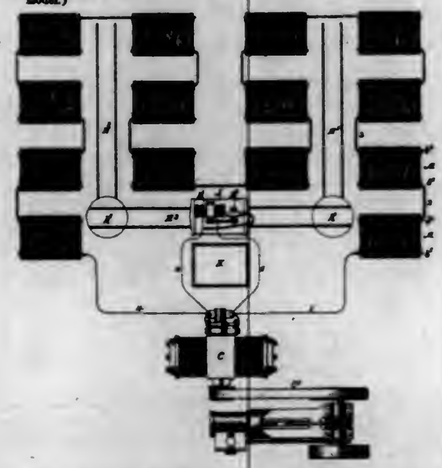
315,264. COMBINED LEVEL, SQUARE, AND BEVEL. MATTHEW EDERTON, West Upton, Mass. Filed Sept. 12, 1884. (No model.)



Claim.—1. The combination of the rule B, provided with the segment slots or grooves c c' c^2, with the segment part or gage C and its holding screws or latches d d', substantially as and for the purpose set forth.

2. The combination of the spirit-level A and rule B, provided with the segment slots or grooves c c' c^2, with the segment gage part C and holding screws or latches d d', constructed and arranged substantially as shown and described, for the purposes stated.

315,265. APPARATUS FOR REFINING COPPER BY ELECTROLYSIS. MOSES G. FARMER, New York, N. Y. Filed Nov. 12, 1884. (No model.)



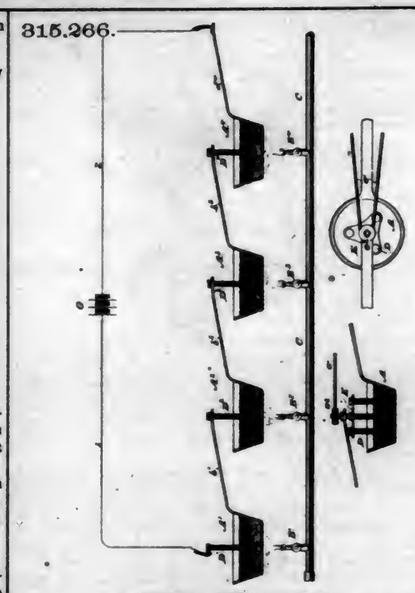
Claim.—1. A plant of electro-deposition consisting of a series of vats arranged in rows, tracks extending between the different rows, an electric generator having its opposite poles connected with the several vats in series, an electric motor, a car moved upon said track and driven by said electric motor, a pump, also carried upon said car and actuated by said motor, and electrical connections from said generator with said electric motor.

2. The combination, substantially as hereinbefore set forth, of a series of vats, an electric generator supplying current thereto, the track extending into proximity to each of said vats, the car moving upon said track, the electric motor carried upon said car, the pump actuated by said motor, and circuit-connections from said generator to said electric motor, whereby currents are supplied thereto.

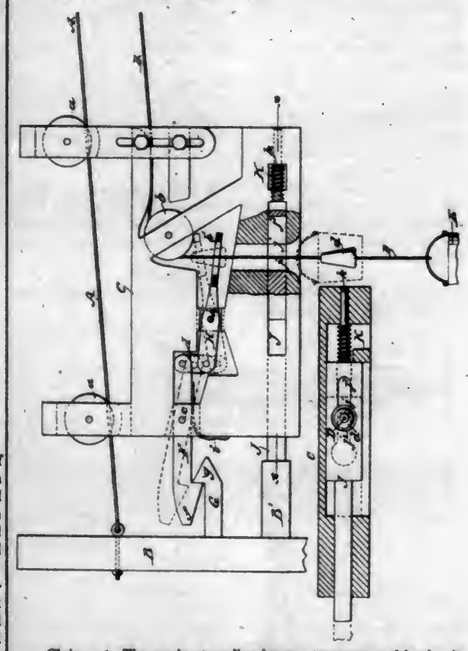
315,266. APPARATUS FOR OBTAINING ALUMINIUM. MOSES G. FARMER, New York, N. Y. Filed Jan. 30, 1885. (No model.)

Claim.—An apparatus for obtaining aluminium, consisting of a series of conducting-cells, ladles, each ladle having a handle of conducting material integral therewith and adapted to extend upward above the bowl of the next succeeding ladle, means, substantially such as described, for applying heat to the separate cells of said series, and a series of anodes respectively applied to said cells, which anodes are respectively suspended from said handles.

315,266.



315,267. WATER-CARRIER. JAMES F. FINK, Lake, Wash. Filed Aug. 22, 1884. (No model.)



Claim.—1. The carrier traveling upon a tramway, and having its actuating-rope passed over a pulley or support in said carrier and connected to a bucket, said rope having a conical stop affixed to it above the bucket, in combination with the spring-actuated slide having its opening through which said stop passes provided with an extension of less width than the greatest diameter or width of said stop, said slide being acted upon when brought to a state of rest to cause its greater width of opening to come into line with said stop, substantially as and for the purpose set forth.

2. The sliding bar J, pressed forward by the spring K and arranged to reach in front of the carrier C, and slotted, as shown, at j j' j^2, the rope D, stop d, and projection B, substantially as and for the purposes set forth.

3. The carrier C, provided with the pulleys a and pulley b, latch F, lever H, and sliding bar J, in combination with the bucket-rope D, tram A, and stationary latch G, the rope D being provided with the stop d, substantially as and for the purposes set forth.

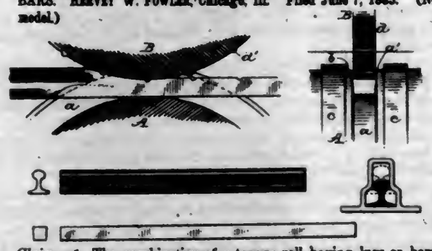
315,268. SUPPORT FOR BED-SLATS. FREDERIC G. FORD, Rexbergh, Pa. Filed Mar. 26, 1884. (No model.)



Claim.—1. A support consisting of a bracket formed of a plate and two wings having right-angle extensions, to the outer edge of which the said plate is connected, said extensions projecting above the plate and there rounded outward, and a plate rounded to fit said projections, said plate provided at one edge with a right-angle tongue extending from one side and a flange on the corresponding other side of the same edge, substantially as and for the purpose specified.

2. A support consisting of a bracket formed of two wings with right-angle extensions and a plate connecting them, the wings being provided with lugs, and a plate provided at one edge with a right-angle tongue and a flange on the other side of the same edge, both the plate and the flange having lugs on their bearing-surfaces, substantially as and for the purpose specified.

315,269. ROLL FOR REDUCING OLD RAILS TO HOMOGENEOUS BARS. HERVEY W. FOWLER, Chicago, Ill. Filed June 7, 1883. (No model.)



Claim.—1. The combination of a tongue-roll having lugs or bars on its tongue-face, and a grooved roll provided with a seat on each side of its groove for supporting the flange of a railway-rail, and thereby co-operating with the tongue-roll in enabling the tongue of the latter to force said rail-flange foremost into the groove, substantially as described.

2. The combination of a tongue-roll and a roll having a groove and a seat on each side of said groove, and a rail-flange guide for each seat, substantially as described, whereby a rail bearing upon said seat is accurately located with its web centrally over the groove and the head of the rail located for proper engagement by the tongue.

3. The combination, with the grooved roll having a rail-flange seat on each side of the groove, of adjustable annular rail-flange guides for each seat, substantially as described.

4. The combination of the rail-reducing tongue-and-groove rolls and a guide-box which is considerably deeper than the height of a rail, has a head-guide much deeper than the thickness of a rail-head and but little wider than said head, and a flange or foot guide but little wider than a rail-flange, but much deeper than the thickness of said flange, substantially as described, whereby a rail passing through said box to the rolls can at its rear end freely rise and fall while the web of the rail is maintained in a vertical position, as set forth.

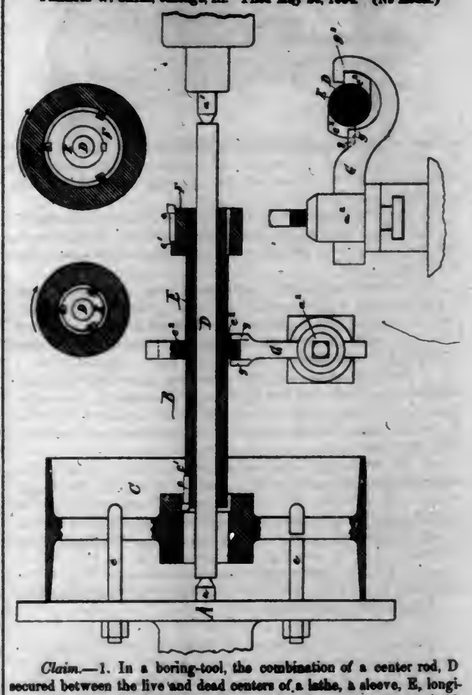
315,270. CAM. HERVEY W. FOWLER, Chicago, Ill. Filed June 26, 1884. (No model.)



Claim.—1. A cam provided with ordinary working-surfaces, and also with working-surfaces capable of movement independently of the movement of the cam, substantially as described.

2. A grooved cam wheel or disk having portions of the working-surfaces of its cam-groove composed of the peripheral surfaces of one or more disks rotatively mounted on said wheel at points more or less removed from the axis thereof, substantially as described.

315,271. COMBINED BORING-BAR AND CENTERING-MANDREL. PHILETUS W. GATES, Chicago, Ill. Filed May 26, 1884. (No model.)

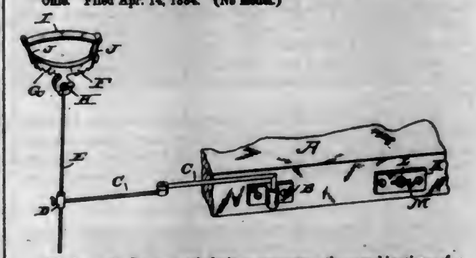


Claim.—1. In a boring-tool, the combination of a center rod, D secured between the live and dead centers of a lathe, a sleeve, E, longitudinally sliding on said center rod, a suitable clamping device for holding the sleeve firm with the lathe-carriage, and suitable cutters inserted into the end of said sleeve, substantially as and for the purpose described.

2. The combination of the guiding center rod, D, longitudinally-sliding sleeve E, and the removable cutter-head F, suitably fitted and keyed to said sliding sleeve, substantially as and for the purpose described.

3. The combination of the guiding center rod, D, sliding cutter-bearing sleeve E, having lugs e^2, and the clamp-rod G, having suitable diametrical bearing for said lugs, and side projections, g, substantially as and for the purpose described.

315,272. DEVICE FOR EMBALMING. CHARLES W. GATE, Hamilton, Ohio. Filed Apr. 14, 1884. (No model.)



Claim.—1. In an embalming apparatus, the combination of a corpse-supporting board, an adjustable arm-rest secured thereto, an escutcheon secured to said board, and the pump-clasp shank adapted to engage said escutcheon, substantially as and for the purpose set forth.

2. In an embalming apparatus, the combination of a corpse-supporting board, the socket B, secured thereto, and the adjustable arm-rest pivoted in said socket, substantially as and for the purpose set forth.

3. In an embalming apparatus, the combination of the corpse-supporting board, an escutcheon secured thereto, and the pump-clasp shank adapted to engage therewith, substantially as and for the purpose set forth.

315,273. COMBINED STOP AND CHECK VALVE. LEANDER G. GILBERT, Buffalo, N. Y. Filed May 27, 1884. (No model.)

Claim.—1. The combination, with a valve-casing, of a cage provided with a valve-support, a stem attached to said cage, a ball-valve

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arranged within the cage, and a locking-screw whereby the valve can be secured in the cage against said valve-support, thereby enabling the valve to be lifted from its seat with the cage when desired, substantially as set forth.

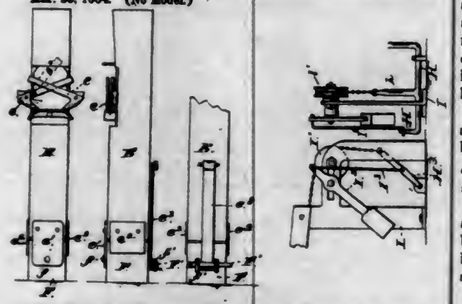
2. The combination, with a ball-valve and its casing, of a cage, C, provided with a valve-support, and a tubular stem, D, attached to the cage, and a screw-rod, I, adapted to bear against the valve B, substantially as set forth.

3. The combination, with a ball-valve, B, and its casing, of a cage, C, provided with a valve-support, and inclosing said valve, a tubular stem, D, provided with an internal screw-thread, *j*, and a screw-rod, I, arranged within the stem D, and adapted to bear against the valve B, substantially as set forth.

4. The combination, with the valve-casing A, having a cylindrical enlargement, A′, and valve-seat *b*, of a cage, C, arranged in the enlargement A′ of the casing, and provided with a valve-support, a ball-valve, B, confined within the cage C, screw-stem D, and screw-rod I, substantially as set forth.

5. The combination, with the valve-casing A, having a cylindrical enlargement, A′, and valve-seat *b*, of a cage, C, arranged in the enlargement A′, and provided with a valve-support, ball-valve B, confined in the cage C, hollow screw-stem D, secured to the cage B, and screw-rod I, extending through the sleeve D and into the cage C, substantially as set forth.

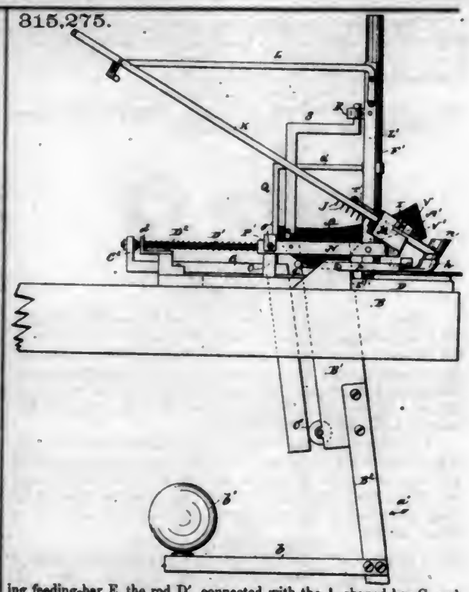
315,274. GATE. RANDOLPH F. HASEMAN, New Madison, Ohio. Filed Mar. 25, 1884. (No model.)



Claim.—1. In an automatic gate, the combination of the trip-shaft having the trip-crank H^3, and provided with the crank H and crank-arm *h*, with the lever I^3, pivoted to a suitable support, and having a weight at its lower end, and a pitman connecting the upper end of said lever with the rod H^3 and with the chain G, secured to arm *h*, and connected at the opposite end to the gate-operating mechanism, substantially as and for the purpose set forth.

2. In a gate, and in combination therewith, the base-block F, having stud *f* and hooks *f′*, the swing-post E, having perforated plate *e′* and strap e^2, and the key F, all arranged and operating substantially as described, whereby the swing-post may be removed, as and for the purposes specified.

315,275. AUTOMATIC BUTTON-FASTENING MACHINE. ALBERT HALL, Cypress Hill, N. Y. Filed Oct. 13, 1884. (No model.)



Claim.—1. In an automatic button-fastening machine, the combination, with a rocking hammer, of an upright tube passed through a slot in the hammer and adapted to contain buttons, a sliding bar operated by mechanism connected with the hammer and adapted to shift the buttons from the tube to the hammer-head, and of a chute for conducting the points or tacks to the hammer-head, substantially as herein shown and described.

2. In an automatic button-fastening machine, the combination, with a pivoted hammer, of a downwardly-projecting bar connected with the hammer, an L-shaped bar arranged to slide on the base and adapted to be acted upon by the hammer-bar, and of a sliding bar connected with the L-shaped bar and adapted to carry the buttons under the hammer-head, substantially as herein shown and described.

3. In an automatic button-fastening machine, the combination, with the pivoted hammer A, of the bars B′ B^2, the L-shaped bar C, the sliding feeding-bar E, the rod D′, connected with the L-shaped bar C, and the spring D^2, surrounding the rod D′, substantially as herein shown and described.

4. In an automatic button-fastening machine, the combination, with a pivoted hammer, of an upright adapted to turn on its longitudinal axis and provided with an arm or projection, an arm or projection on the hammer adapted to act on the arm or projection on the upright, and of a chute containing points or tacks for fastening the buttons, which chute is supported by the above-mentioned pivoted upright, substantially as herein shown and described.

5. In an automatic button-fastening machine, the combination, with a pivoted hammer, of a receptacle for containing the buttons, a sliding bar for pushing forward the buttons, and of a laterally-swinging chute containing the points or tacks, substantially as herein shown and described.

6. In an automatic button-fastening machine, the combination, with a pivoted hammer, of a receptacle for containing the buttons, a sliding bar for pushing forward the buttons, a laterally-swinging chute containing the points or tacks, and of a latch pivoted on the lower end of the said chute, substantially as herein shown and described.

7. In an automatic button-fastening machine, the combination, with a pivoted hammer, of a receptacle for containing the buttons, a sliding bar for pushing forward the buttons, a laterally-swinging chute containing the points or tacks, and of the L-shaped latch T, the spring T′, and the stop I, substantially as herein shown and described.

8. In an automatic button-fastening machine, the combination, with a pivoted hammer, of the receptacle for the buttons, the sliding bar for pushing the buttons forward, the pivoted standard L′, the arm N on the same, the stop P, and the chute K, held on the pivoted upright L′, substantially as herein shown and described.

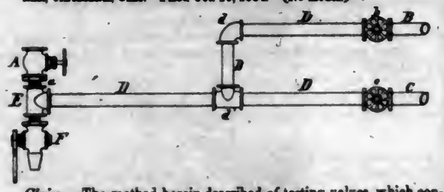
9. In an automatic button-fastening machine, the combination, with the pivoted hammer, of a receptacle for containing buttons, a bar for pushing the buttons forward, which bar is operated by mechanism connected with the hammer, the pivoted upright L′, provided with the arm R, the arm S on the hammer, the arm N on the upright, the tube Q′, containing a spring, the rod Q^2, pivoted to the arm N and passing into the tube Q′, and of the stop P, substantially as herein shown and described.

10. In an automatic button-fastening machine, the combination, with a pivoted hammer, of a receptacle for containing the buttons, a sliding bar for moving forward the buttons, which bar is operated by mechanism connected with the hammer, a pivoted upright adapted to turn on its vertical axis, arms for turning the upright by means of the hammer, a chute held on the pivoted upright, and a spring-latch held at the lower end of the chute, substantially as herein shown and described.

11. In an automatic button-fastening machine, the combination, with the anvil or base plate D, of the spring-pressed jaws A, the hammer A, and the pivoted lever *p*, projecting under the front ends of the jaws, and having a pin, *q*, projecting under the rear end of the hammer, substantially as herein shown and described.

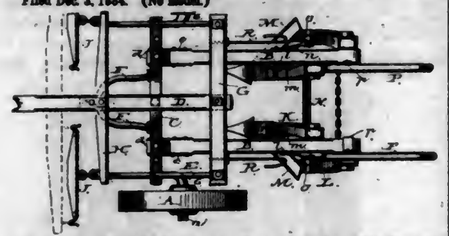
12. In an automatic button-fastening device, the combination, with a pivoted hammer, of the jaws A, the spring *l*, an automatic feeding device for passing buttons and tacks under the hammer, and of the guard *n* of one of the jaws A, substantially as herein shown and described.

315,276. METHOD OF TESTING GLOBE-VALVES. GUSTAV F. HAMMER, Cincinnati, Ohio. Filed Oct. 10, 1884. (No model.)



Claim.—The method herein described of testing valves, which consists in forcing a column of water at normal temperature directly against the valve to be tested, through the medium of steam-pressure behind or in rear of the water-column, substantially as and for the purpose described.

315,277. WHEEL-CULTIVATOR. FRANK HAMMERS, Hebron, Iowa. Filed Dec. 3, 1884. (No model.)

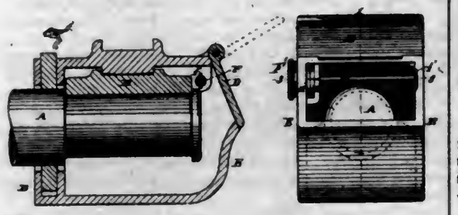


Claim.—1. In a wheel-cultivator, the combination, with the supporting-wheels, of the arch portion C, having bifurcated lower ends, and the rods E, substantially as herein described.

2. In a cultivator, the wheels A, beams B, and tongue D, in combination with the arch portion C, having bifurcated ends in which are adjusted the blocks *d*, the bars E, forming the shafts for the wheels, and also the means for attaching the single-trees, the curved bar F, secured to the portion C, and the cross-bar G, all constructed to operate substantially as described, and for the purpose herein set forth.

3. In a cultivator, the beams B, in combination with the standards K and L, the braces *l* and *n*, with bifurcated ends engaging bars *m*, cultivator-teeth secured to the standards K, diagonally-placed knives or cutters connected to both standards, and a transverse bar, N, all constructed and arranged to operate as herein described.

315,278. CAR-AXLE BOX. MICHAEL C. HARNEY, St. Louis, Mo., assignor of one-half to William N. Brennan, same place. Filed Aug. 30, 1884. (No model.)



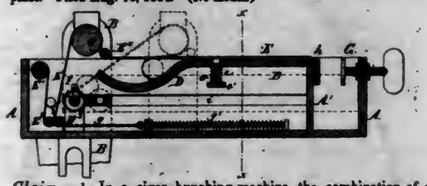
Claim.—1. A movable pin or bar in front of the bearing-brass of a car-axle box, for the purpose set forth.

2. A movable pin or bar in front of the bearing-brass of a car-axle box working endwise of the pin in the wall of the grease-box and having a tooth thereon, and one or more tumblers upon the pin, substantially as and for the purpose set forth.

3. A movable pin or bar in front of the bearing-brass of a car-axle box working endwise of the pin in the wall of the grease-box and having a tooth thereon, and a tumbler turning on the pin and having recess or recesses to receive the tooth of the pin, and a notch allowing the tooth to be drawn through the tumbler, substantially as set forth.

4. The combination, in a car-axle box, of a movable pin or bar in front of the bearing-brass working endwise in the wall of the grease-box and having a tooth on the side, two or more tumblers loose upon the pin, having each a notch, allowing the passage of the tooth, the wall of the grease-box through which the pin works having a notch at one side of the pin-socket, allowing the passage of the pin-tooth when the pin is in a certain position.

315,279. CIGAR-BUNCHING MACHINE. CARL H. HAUGK, Brooklyn, N. Y., assignor of two-thirds to Carl Vogt and Charles Vogt, both of same place. Filed Aug. 16, 1884. (No model.)



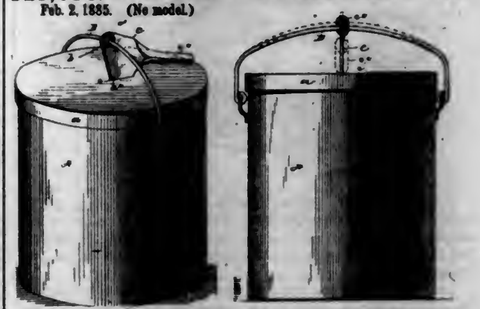
Claim.—1. In a cigar-bunching machine, the combination of a yielding table, an adjustable rolling band or apron, a reciprocating spring-cushioned pressure-roller, and a spring-actuated tension-rod applied to the rolling-band, substantially as and for the purpose set forth.

2. The combination of the supporting-frame, a yielding table, a reciprocating carriage having a spring-cushioned pressure-roller, a rolling band or apron attached at its front end to an adjustable roller and at the rear end to the supporting-frame, and a spring-actuated tension-rod extending transversely across the rolling-band, substantially as set forth.

3. In a cigar-bunching machine, the combination of a supporting-frame, a rolling-apron connected at both ends thereto, a yielding table, a reciprocating carriage provided with a pressure-roll and adapted to traverse said frame, a slotted arm attached to said carriage and extended downward therefrom, a hanger depending from said frame, a bell-crank lever fulcrumed in said hanger, and actuating-lever connected to the short arm of said angular lever, the long arm thereof being provided with a projection or roller which plays in the slot of said arm and pushes back the carriage, substantially as set forth.

4. In a cigar-bunching machine, the combination of a supporting-frame, a rolling-apron connected at both ends thereto, a yielding table, a reciprocating carriage provided with a pressure-roll and adapted to traverse said frame, a slotted arm attached to said carriage and extended downward therefrom, a hanger depending from said frame, a bell-crank lever fulcrumed in said hanger, an actuating-lever connected to the short arm of said angular lever, the long arm thereof being provided with a projection or roller which plays in the slot of said arm and pushes back the carriage, and a retracting device whereby the carriage is restored to its normal position, substantially as set forth.

315,280. CAN-FASTENER. FRANK J. HEADLEY, Milton, N. J. Filed Feb. 2, 1885. (No model.)



Claim.—1. The combination, with a can or other vessel having a notch in its cover, of the locking-lever comprising the point at its bottom and the handle, the lever being adjusted upon the bail and adapted to operate to elevate or spring the latter and compress the top of the vessel, substantially as and for the purpose set forth.

2. The combination, with a can or other vessel having a bail provided with a notch, and provided with a notch in its cover, of a locking-lever comprising a main portion having the point at its bottom and the eye or perforation by which it is adjusted upon the bail and seated in said notch, substantially as and for the purpose set forth.

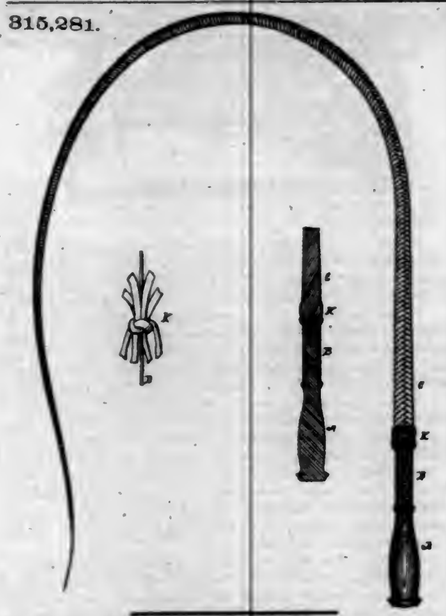
3. The combination of a can or other vessel having a top provided with a notch or recess, the bail having the centrally-disposed notch, and a locking-lever having a handle, and comprising the main portion formed with the point at its bottom and the eye or perforation, the lever being adjusted upon the bail and its point being adapted to engage the notch in the can-top, substantially as and for the purpose set forth.

315,281. WHIP. MICHAEL J. HEAPHY, Lincoln, Nebr. Filed Jan. 8, 1885. (No model.)

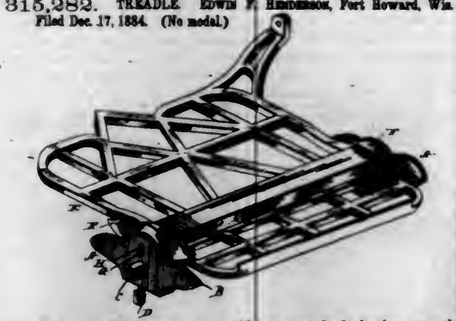
Claim.—1. A whip in which the connection between the lash C and stock A is made by means of separate thongs of leather formed into a knot, K, substantially as and for the purpose set forth.

2. The combination of the stock A, ornamental ferrule B, connecting-knot K, and lash C, when used in the manner and for the purpose specified.

315,281.



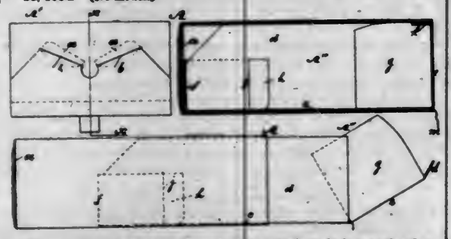
315,282. TREADLE. EDWIN F. HENDERSON, Fort Howard, Wis. Filed Dec. 17, 1884. (No model.)



Claim.—1. The combination, with the standards having curved bearing-surfaces and apertures, of the treadle having rockers resting and adapted to oscillate on said bearing-surfaces, and the projections setting and working loosely in the apertures, substantially as and for the purposes specified.

2. The combination, with the standards having curved bearing-surfaces, and the treadle provided with rockers, of the connecting-rod and screws whereby the standards are adjustably secured together, substantially as and for the purposes specified.

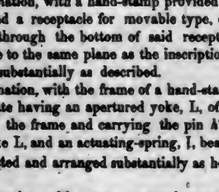
315,283. PAPER BOX. DAVID HERON, Philadelphia, Pa. Filed Oct. 21, 1884. (No model.)



Claim.—1. A paper box formed of an exterior tubular portion having one end thereof open and one end closed, the closed end being formed of flaps, and an interior portion having slotted sides, and an end having locking-tongues, the other end thereof having flaps resting within the box, and a top flap, substantially as and for the purpose set forth.

2. A box formed of an exterior tubular portion having an open end, and an interior portion or body having a bottom, *c*, sides *d*, having slots *j*, ends *e f*, flaps *g*, and tongues *h*, said interior portion being adapted to slide in and out of the exterior portion, and when drawn out to have its front end let down, exposing the interior of the box without disturbing the exterior portion, substantially as and for the purpose set forth.

315,284. DOOR-CHECK. CHARLES E. HEWITT, Brandon, assignor to himself and Josiah Walter Symons, Forest Dale, Vt. Filed Sept. 17, 1884. (Model.)



Claim.—A door-stop constructed with a base-piece having means of attaching it to the floor, a head-piece pivoted to the base and adapted to hold the edge of the door, and said head carrying a spring adapted to enter a notch of the base, and a tongue forming a stop to the spring and head, and being itself stopped by a shoulder of the base, substantially as shown and described.

315,285. HAND-STAMP. BENJAMIN B. HILL, Philadelphia, Pa. Filed Dec. 3, 1883. (No model.)

Claim.—1. In a self-inking hand-stamp having a tilting die, a frame having a slot for the passage of one of the trunnions, a portion of one side of the frame forming the slot constructed to move laterally in said slot to allow of the passage of the trunnion, and to be substantially flush with the inner face of said side of the frame, in combination with a stud on such movable portion, and a guide attached to the tilting die and operating in connection with said stud, substantially as described.

2. The combination, with a hand-stamp provided with a permanent inscription-plate and a receptacle for movable type, of a plate, O, and screws P, passing through the bottom of said receptacle, for adjusting the face of the type to the same plane as the inscription-plate, independent of the handle, substantially as described.

3. The combination, with the frame of a hand-stamp having slotted sides, and a die-plate having an apertured yoke, L, of the lever H, pivoted to the side of the frame and carrying the pin *h'*, working in the aperture in the yoke L, and an actuating-spring, I, bearing on an arm of said lever, constructed and arranged substantially as herein set forth and described.

4. The combination, with a type-receptacle provided with a spring for securing the type in place, of adjusting-screws passing through the bottom of said receptacle, and constructed and arranged to adjust the position of the type lengthwise, substantially as described.

5. The combination, with a type-receptacle and the spring N, of the plate O and the adjusting-screws P, substantially as described.

315,286. HAND-STAMP. BENJAMIN B. HILL, Philadelphia, Pa. Filed Dec. 15, 1883. (No model.)

315,286.



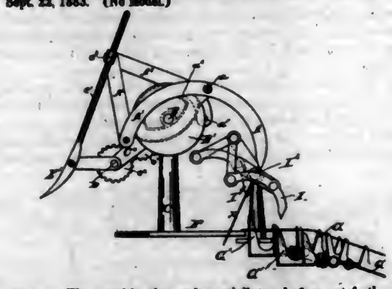
Claim.—The combination, with the die-plate of a self-inking stamp, of two guides connected with said die-plate, and two pins connected with the frame, one pin guiding the die-plate toward the ink-pad and the other holding it while the impression is being given, substantially as described.

315,287. PIPE-COUPLING. JOHN H. HOBART, Oakland, assignor to Thomas H. Williams and David Bixler, San Francisco, Cal. Filed Dec. 29, 1884. (No model.)



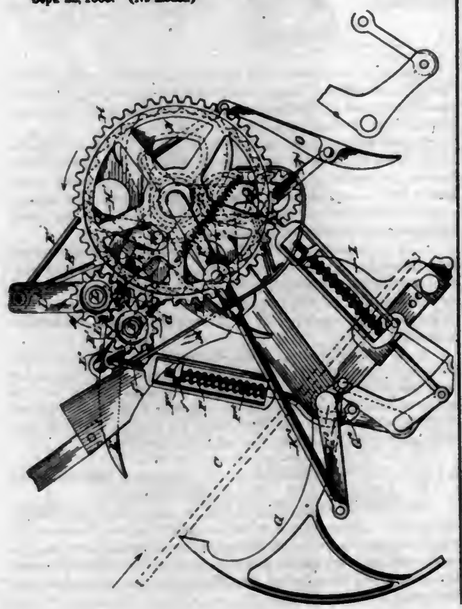
Claim.—In a joint or coupling for pipes, the sleeve B, provided with angle-irons C and D, in combination with the packing-rings E, secured between the irons, and the sections A, having a diameter smaller than the sleeve, substantially as described.

315,288. GRAIN-BINDER. PLINY F. HODGES, Chicago, Ill. Filed Sept. 22, 1883. (No model.)



Claim.—The combination, substantially as before set forth, of the binding-arm, an oscillating lever connected by a link to the heel of said binding-arm for controlling the movement of the same, and an orbitally-moving discharging-arm the stem of which is controlled by the pivot-pin connecting said oscillating lever and link.

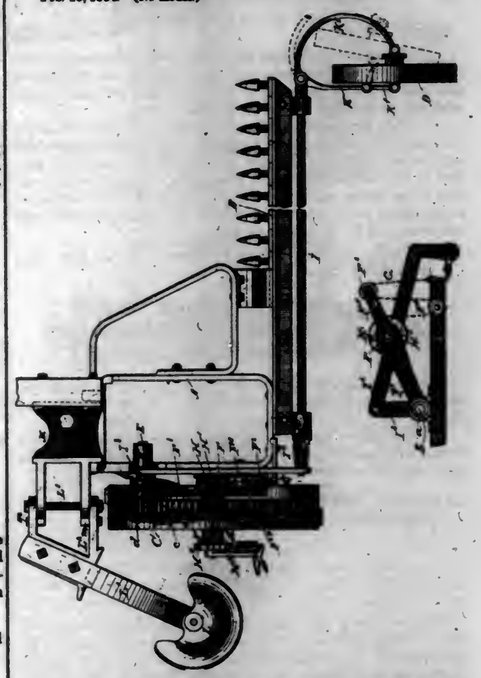
315,289. GRAIN-BINDER. PLINY F. HODGES, Chicago, Ill. Filed Sept. 22, 1883. (No model.)



Claim.—1. The combination, substantially as before set forth, of the packer-shaft, the rock-shaft, in bracket-arms of which the packer-shaft is supported, and the loose wheel on the rock-shaft for driving the wheel fixed to the packer-shaft.

2. The combination, substantially as before set forth, of the binding mechanism, a clutch adapted to drive it, and a packer-shaft adapted to yield to the accumulated sheaf, so as to trip or throw the said clutch, and mechanism whereby the packer-shaft is then moved farther in the direction in which it yielded, so as to throw the packers out of operative position.

315,290. GRAIN-BINDER. PLINY F. HODGES, Chicago, Ill. Filed Feb. 15, 1884. (No model.)



Claim.—1. The combination, substantially as before set forth, of the drive-wheel, the hollow crank-axle thereof, the main frame pivotally connected at one end with the crank of said axle, the chain-drum and chain for suspending the main frame, and the shaft for operating said chain-drum supported in said hollow axle.

2. The combination, substantially as before set forth, of the drive-wheel, the hollow crank-axle thereof, the main frame pivotally connected at one end with the crank of said axle, the chain-drum and chain for suspending the main frame, the shaft for operating said chain-drum supported in said hollow axle, and means, substantially such as described, for locking the shaft to the axle.

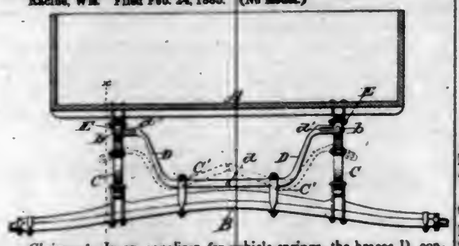
3. The combination, substantially as before set forth, of the hollow axle of the drive-wheel, the forwardly-projecting crank of said axle, the main frame pivotally connected at its forward end to said crank, the chain-drum supported by its shaft in the hollow axle, the rearwardly-projecting arm of said axle, and the chain for suspending the main frame.

4. The combination, substantially as before set forth, of the drive-wheel, the hollow axle thereof provided with a forwardly-projecting crank-arm, the main frame pivoted at its forward end to said crank-arm, the chain-drum and chain for suspending the main frame, the transverse rock-shaft connected at one end with the axle of the grain-wheel, and provided with a crank at the other end, the arm I^2 on the crank-arm of the axle of the drive-wheel, and the connecting-rod for connecting arm I^2 to the crank on said rock-shaft.

5. The combination, substantially as before set forth, of the grain-wheel, the axle journaled in the hub of said wheel, a drag-bar for said grain-wheel, and the vertically-pivoted link for connecting the rear end of said drag-bar and said axle.

6. The combination, substantially as before set forth, of the grain-wheel, the axle journaled in the hub of said grain-wheel, a drag-bar for said grain-wheel, the vertically-pivoted link for connecting the rear end of said drag-bar with said axle, and a second vertically-pivoted link for connecting the said axle to the front end of said drag-bar.

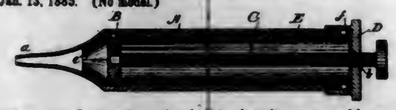
315,291. EQUALIZER FOR VEHICLE-SPRINGS. GEORGE S. HOSMER, Racine, Wis. Filed Feb. 24, 1885. (No model.)



Claim.—1. In an equalizer for vehicle-springs, the braces D, connected together at their inner ends by the pivot *d*, and with each of their outer ends bent upward and provided with the slot *d'*, substantially as shown and described, and for the purpose set forth.

2. In an equalizer for vehicle-springs, the combination of braces D, connected at their inner ends by the pivot *d*, each of the said braces having its outer end bent upward and provided with the slot *d'*, the axle-clips C', in which the said braces are pivoted, springs C, between the body of the vehicle and its axle, and the clips E, provided with bolts *b* for connecting them to the slots *d'* of braces D, substantially as described and shown, and for the purpose set forth.

315,292. SYRINGE. HENRY H. HOWELL, New York, N. Y. Filed Jan. 13, 1885. (No model.)



Claim.—1. In a syringe, the shell having the contracted inner end, and the flange at its outer end, substantially as and for the purpose set forth.

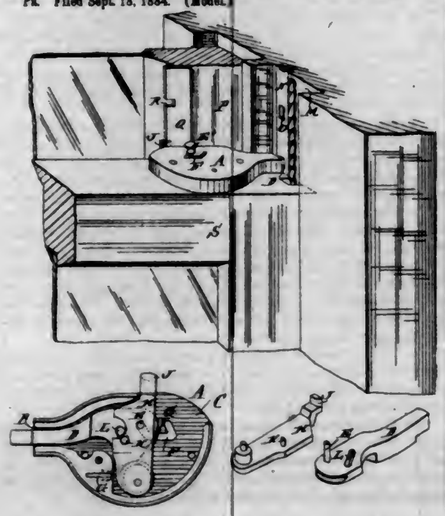
2. The combination, with the tube A, piston B, and stem C of a syringe, of the shell E, placed in the tube A, and adapted to receive the piston and stem, substantially as described.

315,293. SCREW ADAPTED FOR ICE-CREEPERS. MARY A. IRRIS, Springfield, Ohio. Filed July 9, 1884. (No model.)



Claim.—As a new article of manufacture, a screw the head of which is square and has two transverse V-shaped grooves formed in the face thereof, the length and greatest breadth of the grooves being equal, or nearly so, to the width of the screw-head, to thereby form four pyramidal points, one at each corner of the screw-head, substantially as and for the purpose described.

315,294. SASH-FASTENER. EDWIN A. JOHNSON, Allegheny City, Pa. Filed Sept. 18, 1884. (Model.)



Claim.—1. The combination, with a swinging hook-bolt pivoted at one end to a base-plate or casing and projecting therefrom at the other end, of a sliding bolt having its outer end guided to pass beyond the end of the base-plate or casing and its inner end pivoted to the swinging bolt by a joint, as described, whereby the two bolts may be moved together, either by the other, substantially as herein shown and described.

2. The combination, with the casing A, having an end opening, B, and a side opening, C, of the sliding bolt D, having a slot, L, the pin E, projecting from the bolt D through the U-shaped slot F in the top of the casing, the spring G, and the swinging bolt H, provided with the pin K, projecting through the slot L, substantially as herein shown and described.

3. The combination, with a sash, of a notched plate or strip secured to the inner surface of one side rail, the notched edge of the strip or plate projecting from or being flush with the inner edge of the rail, substantially as herein shown and described.

315,295. LEVER ATTACHMENT FOR HAND-SHEARS. PATRICK KEARNS, Philadelphia, Pa. Filed Jan. 27, 1885. (No model.)

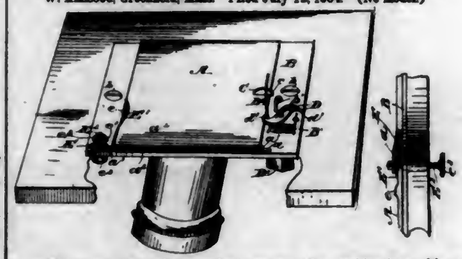


Claim.—1. As a new article of manufacture, a lever attachment for application to ordinary tinner's shears, the same consisting of a hand-lever and two clips pivotally attached thereto, said clips adapted, as described and shown, to be applied to the shear-arms without drilling or altering the latter.

2. The improved attachment for metal-working shears, consisting of the hand-lever, the angular arm pivoted thereto, and provided with a clip at one end, the link E, and the clip G, pivoted to said link.

3. A hand-lever provided with two adjustable clasps or clips adapted to encircle the arms of an ordinary pair of shears, substantially as described and shown.

315,296. INSTANTANEOUS SHUTTER FOR CAMERAS. HARRY W. KELLOGG, Greenfield, Mass. Filed July 12, 1884. (No model.)



Claim.—1. In a photographer's camera, the combination, with an instantaneous shutter, of an opening-spring mechanism and a closing tensioned spring, said springs being of unequal resiliency, and situated at opposite sides of the door, substantially as described.

2. In a photographer's camera, the combination, with an instantaneous shutter hinged at its lower side, of a self-setting exposing device consisting of a coiled spring having a spring-finger, which, acting eccentrically with a cam operated by a thumb-nut, is brought into engagement with the under side of a lug rigid on the shutter, and the closing mechanism, substantially as described.

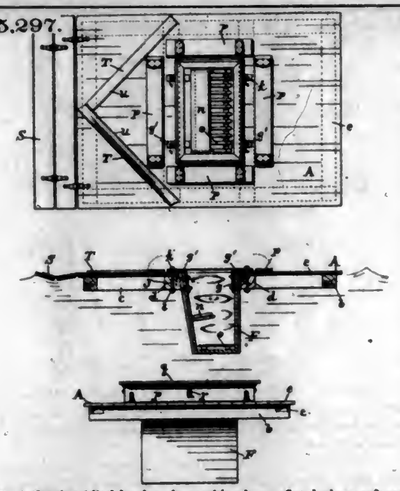
3. In a photographer's camera, the combination, with an instantaneous shutter having a self-setting exposing device, of a closing mechanism consisting of a coiled spring, E, having a spring-finger, E', extending from the main coil and engaging with the lug or projection *e* on the shutter, and a tension-screw, E², for varying the exposure, substantially as described.

4. In a photographer's camera, the combination, with an instantaneous-flash shutter or light-door hinged at its lower side, of the opening and closing devices situated at opposite sides of the bottom of the door, and acting conjointly, a thumb-nut for operating said opening and closing devices, and a metal plate upon which the shutter and all the operating mechanism is mounted, substantially as described.

315,297. DUCK-SHOOTING BLIND. BENJAMIN F. KEELY, Baltimore, Md. Filed Jan. 28, 1885. (No model.)

Claim.—1. A floating blind having, in combination, a flat deck or raft provided with an opening, and a water-tight tub smaller across the bottom than the top, and entered through the raft-opening from the upper side and made fast therein, substantially as set forth, whereby the tub may be detached from the raft by allowing it to rise through the said opening, as set forth.

315,297.



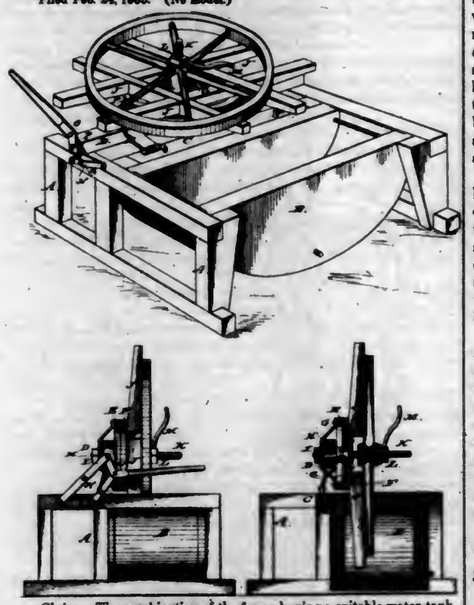
2. A floating blind having, in combination, a flat deck or raft provided with an opening, and a water-tight tub smaller across the bottom than the top, and having one side straight and the opposite side inclined and made fast in the said raft-opening, and provided on the inclined side with a seat, as set forth.

3. In a floating blind, the combination of a flat deck or raft having an opening, and provided with bolts having a projecting head, and a submerged tub having position within said opening, and provided with metal plates, each having a slot to take over one of the said bolt-heads, as set forth.

4. In a floating blind, the combination of a flat deck or raft having an opening, with an attached tub below the opening, and hinged boards or storm-flaps at each side of the opening, as set forth.

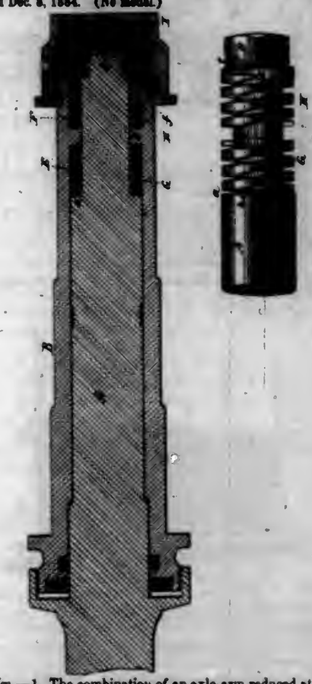
5. In a floating blind, the combination of a flat deck or raft having an opening, with an attached tub below the opening, hinged boards or storm-flaps at each side of the opening, and a cover fitted over said storm-flaps, as set forth.

315,298. TIRE-SETTER. WILLIAM KEHLER, East Ringgold, Ohio. Filed Feb. 24, 1885. (No model.)



Claim.—The combination of the frame having a suitable water-tank, and provided with a longitudinal beam adjoining the latter, a beam hinged to the said longitudinal beam and adapted to rest upon the ends of the frame, and carrying a circular track, and a wheel-rest frame and attaching device mounted to revolve thereon, jointed braces connecting the ends of the frame with the ends of the hinged beam, and a bell-crank lever fulcrumed to a strap which is pivoted to one of the ends of the frame, and having its short arm connected pivotally with one end of the hinged beam, substantially as and for the purpose herein set forth.

315,299. CARRIAGE-AXLE. HENRY KILIAN, New Haven, Conn. Filed Dec. 8, 1884. (No model.)



Claim.—1. The combination of an axle-arm reduced at its outer end to form a shoulder, *a*, the axle-box fitted to the axle-arm, and constructed with an internal annular flange, *b*, about midway of the length of the said reduced portion at the forward end of the axle, and so as to form two independent chambers, E F, around the axle-arm at the outer end, a helical spring, G, arranged in the inner chamber, and so that its inner end takes its bearing against said shoulder on the axle-arm, and its outer end against the inner side of said flange, a second spring, H, arranged in said chamber F, its inner end taking its bearing against the outside of said flange *b*, and its outer end upon the nut D on the outer end of the axle, and bearing against the outer end of said spring H, substantially as described.

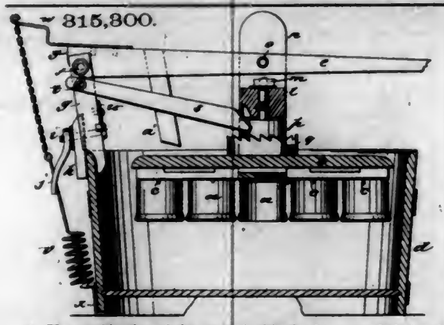
2. The combination of an axle-arm reduced at its outer end, the helical spring around said reduced portion of the axle, the convolutions of which are outward and forward in the direction of revolution of the wheel, a box arranged upon said axle-arm, and with a shoulder to take a bearing against the inner end of said spring, a nut fixed at the outer end of the axle-arm, and so as to bear against the outer end or convolution of said spring, a stop against which the said spring will bear, to prevent its forward revolution with the wheel, with an oil-cap fitted to the box over the nut, substantially as described.

3. The combination of an axle-arm reduced at its forward end, and so as to form a shoulder, *a*, around the arm, the box B, constructed to fit the axle-arm, and with an internal annular flange, *b*, midway of the length of said reduced portion of the arm, and so as to form a chamber, E, between the shoulder on the arm and the inner side of said flange, and a second chamber, F, upon the outer side of said flange, a helical spring, G, arranged in said inner chamber, E, and a like helical spring arranged in said outer chamber, F, a nut upon the end of the axle-arm, so as to bear against the outer end or convolution of the spring in the outer chamber, the convolutions of the said springs being outward and forward in the direction of the revolution of the wheel, and a stop to prevent the revolution of either of said springs with the wheel, with an oil-cap over the nut and fixed to the box, substantially as described.

315,300. WASHING-MACHINE. HENRY D. KING, Nevada, Mo. Filed Mar. 22, 1884. (Model.)

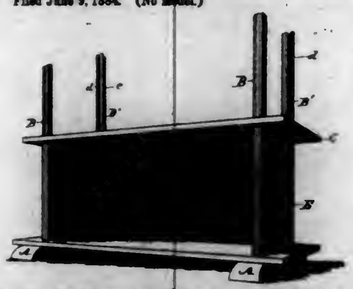
Claim.—1. The combination of pawl *s* with the dasher *b*, having ratchet-collar *q* and center stud, *p*, and connected by the vertical pivot *k* with the cheek-block *l*, pivoted to lever *e*, said pawls and said lever *e* being pivoted to the standard *g*, attached to the side of the tub, substantially as described.

315,300.



2. The combination of the strut *a'* with the lever *e* and dasher *b*, said dasher being suspended from the lever and the lever being pivoted to the standard *g*, substantially as described.

315,301. PORTABLE BOOK-CASE, &c. WILLIAM H. LACKEY, Akron, Ohio. Filed June 9, 1884. (No model.)

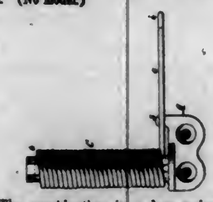


Claim.—1. A book-case or what-not composed of a base, longitudinally-grooved upright posts or standards secured to the base, with shelves provided with apertures to receive the upright posts, and back and side panels between the shelves, held in the longitudinal grooves in the standards, substantially as set forth.

2. The combination, in a portable book-case, with the upright posts detachably secured to sills or a base, of the eyebolts fitting over said posts, the doors secured to said eyebolts, and the intervening filling-pieces, as and for the purposes specified.

3. A book-case and what-not combined, the same consisting of a series of perforated shelves fitting over a series of upright posts, and a series of inclosing side and end pieces, the shelves protruding at each side and beyond the end panels to form a what-not, substantially as specified.

315,302. DOOR-SPRING. SALEM T. LAMB, New Albany, Ind. Filed May 16, 1884. (No model.)



Claim.—1. The combination, in a door-spring, of a bracket supporting a pillar slotted at its upper end, and a coiled spring bent at the upper end to form a cross-piece adapted to the slots in the pillar and extended at the lower end to form an arm projecting radially from the pillar, substantially as set forth.

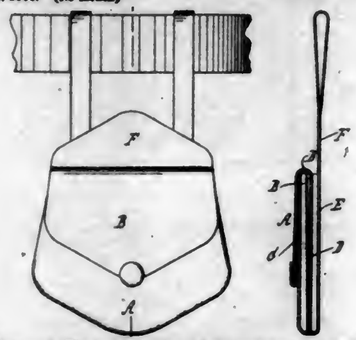
2. The bracket provided with a pillar slotted at its upper end and with a lip, *s*, in combination with a spring coiled around the pillar provided with a cross-bar at its upper end and with an arm at the lower end, substantially as specified.

3. The bracket provided with a pillar supporting a coiled spring, from which extends an arm, *c*, and a lip, *s*, upon the bracket, arranged substantially as set forth.

4. The combination, with the bracket provided with a pillar supporting a spring having a radially-projecting arm, of a covering-hood having a slot, *y*, and slit *a*, for the purpose specified.

5. The bracket provided with a pillar adapted to support the coiled spring C, the said pillar having webs *t* and channels *x*, for the purpose set forth.

315,308. HAND-BAG. JULIUS LANDSBERT, Hoboken, N. J. Filed Feb. 12, 1885. (No model.)



Claim.—1. The bag A, having a front pocket or pockets, B, a rear pocket, D, and a flap, F, extending upward above the front pocket or pockets from the back of the rear pocket, to form a guide into the latter, substantially as described.

2. The bag A, having a front pocket or pockets, B, a rear pocket, D, and a flap, F, extending from the back of the rear pocket upward above the front pocket or pockets, to form a guide into the rear pocket, said guide-flap having attached devices at its upper edge for suspending the bag from a belt, substantially as described.

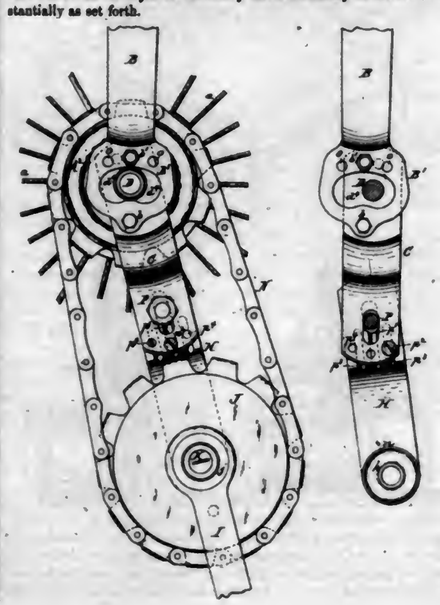
315,304. BICYCLE. EMMIT G. LATTA, Friendship, N. Y. Filed Feb. 5, 1885. (No model.)

Claim.—1. In a bicycle, the combination, with the driving-wheel hub A, provided at its ends with chain-wheels A^3, recessed in their outer sides, of the fork-arms B, bent into the recesses of the wheels, and a connecting-bolt, D, substantially as set forth.

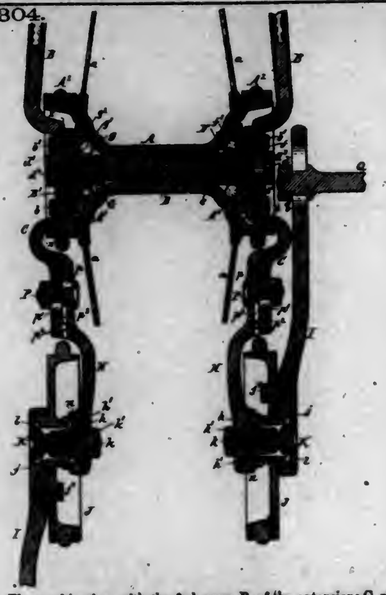
2. In a bicycle, the combination, with the driving-wheel hub A, provided at its ends with chain-wheels A^3, recessed in their outer sides, of the fork-arms B, bent into the recesses of the wheels, a connecting-bolt, D, and downward extensions C, bent around the lower portions of the chain-wheels, substantially as set forth.

3. In a bicycle, the combination, with the driving-wheel hub provided with chain-wheels A^3 and the fork-arms B, of the cranks and crank-wheels I J, endless chains N, and supporting-arms C H, extending downwardly from the fork-arms between the upright portions of each endless chain, substantially as set forth.

4. The combination, with the fork and driving-wheel, of an adjustable support in which the driving-wheel is journaled, and whereby said wheel can be adjusted forwardly and backwardly in the fork, substantially as set forth.



315,304.



5. The combination, with the fork-arms B, of the extensions C, pivotally secured to the same, a bolt, D, connecting the extensions C, and a driving-wheel journaled on the bolt D, substantially as set forth.

6. The combination, with the fork-arms and the driving-wheel hub provided with chain-wheels A^3, of the cranks and crank-wheels I J, and adjustable supporting-arms whereby the cranks and crank-wheels can be adjusted forwardly or backwardly, substantially as set forth.

7. The combination, with the fork-arms and the driving-wheel hub provided with chain-wheels A^3, of the cranks and crank-wheels I J, fork-extensions C, and supporting-arms H, pivoted to said extensions, substantially as set forth.

8. The combination, with the fork-arms and the driving-wheel hub provided with chain-wheels A^3, of the cranks and crank-wheels I J, endless chains N, and supporting-arms H, made vertically adjustable, for raising and lowering the cranks and crank-wheels, substantially as set forth.

9. The combination, with the fork-arms and the driving-wheel hub provided with chain-wheels A^3, of the cranks and crank-wheels I J, fork-extensions C, and supporting-arms H, provided, respectively, with slots *p p'* and connecting-bolt P, substantially as set forth.

10. The combination, with the fork-arms and the driving-wheel hub provided with chain-wheels A^3, of the cranks and crank-wheels I J, fork-extensions C, supporting-arms H, provided, respectively, with slots *p p'*, set-screw p^3, and grooves p^3, and connecting-bolts P, substantially as set forth.

11. The combination, with the fork-arms and the driving-wheel hub provided with chain-wheels A^3, of the cranks and crank-wheels I J, and supporting-arms for the same detachably connected with the fork-arms, substantially as set forth.

12. The combination, with the fork-arms, the driving-wheel hub provided with chain-wheels, and the cranks and crank-wheels, of supporting-arms pivoted to the fork-arms and carrying the driving-wheel, and the crank-wheels on opposite sides of their pivots, whereby the driving-wheel and crank-wheels can be adjusted simultaneously in opposite directions, substantially as set forth.

13. The combination, with the fork-arms B, provided with ears B', having elongated openings d^4, of the fork-extensions C, secured to the ears B' by bolts *b b'*, a bolt, D, connecting the extensions C C, and the driving-wheel hub journaled on the bolt D, substantially as set forth.

14. The combination, with the fork-arms B, extensions C, and driving-wheel hub A, of the connecting-bolt D, provided with threaded portions d^2 *e*, nut *d'*, and head *d*, stationary cone F, applied to the threaded portion *c*, and movable cone G, applied to the threaded portion d^2, substantially as set forth.

15. The combination, with the crank-wheel J, provided with a hub, *j*, of the crank I, secured upon the hub *j*, substantially as set forth.

16. The combination, with the crank-wheel J, provided with a threaded hub, *j*, of the crank I, screwed upon the hub *j*, and secured by a bolt, *j''*, substantially as set forth.

17. The combination, with a wheel, *J*, provided with a grooved hub, of a fixed cone, *h*, provided with a threaded opening, a movable cone, K, provided with a threaded bolt, *k*, working in said opening, and a nut, *k'*, substantially as set forth.

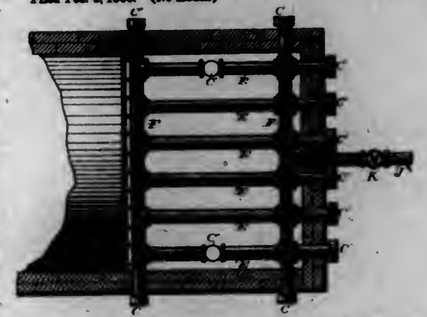
315,305. PROCESS OF MANUFACTURE OF SCISSORS. ALBERT LLOYD and WILLIAM F. GLYDON, Birmingham, County of Warwick, England. Filed Apr. 15, 1884. (No model.) Patented in England Jan. 10, 1884, No. 1,121; in Belgium Mar. 22, 1884, No. 47,231; in Austria-Hungary Apr. 30, 1884, No. 10,905 and No. 19,060.



Claim.—1. The process for the manufacture of scissors from metallic wire or rods of uniform gage, consisting in taking a section of wire of uniform gage and of sufficient length and thickness, bending the section at the middle part to form the shank, then subjecting the metal at one side of this bend to the action of flattening or pressing dies to form the blade, and then bending the ends of the section to form the finger-bows, substantially as set forth and shown.

2. In the manufacture of scissors from wire or rods of uniform gage, the method consisting in first drawing a portion of the rod or wire section to a diminished thickness or diameter to form the finger-bows and shank, then bending the metal at the middle part to form the shank, next subjecting the metal at one side of such bend to the action of pressure or flattening dies to form the blade, and finally bending the ends to form finger-bows, as shown and described.

315,306. FEED-WATER HEATER. WILLIAM LOVE, Port Huron, Mich. Filed Feb. 5, 1885. (No model.)

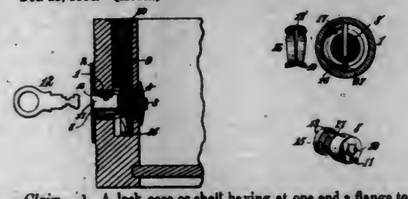


Claim.—1. In a feed-water heater, the combination of a series of horizontal pipes arranged in the top of the smoke-box and supporting the arch thereof with the boiler and the connecting-pipes, substantially as and for the purpose described.

2. In a feed-water heater, the combination of the boiler with a series of horizontal pipes arranged in the top of the smoke-box and having their ends projecting therefrom, and each provided with a removable cap, substantially as and for the purpose set forth.

3. In a feed-water heater, the combination of the boiler with a series of horizontal pipes and vertical connecting-pipes located in the smoke-box, each of said pipes having one or both of its ends projecting through the outside of said smoke-box, said projecting ends being provided with removable caps, substantially as and for the purpose described.

315,307. LOCK. WASHINGTON I. LUDLOW, Cleveland, Ohio. Filed Dec. 23, 1884. (Model.)



Claim.—1. A lock case or shell having at one end a flange to serve as an escutcheon or face plate, and threaded at the other end for receiving a nut whereby the case or shell can be securely confined in its seat without other fastening devices, substantially as described.

2. In combination with the case carrying the key-barrel and locking mechanism of a lock, a screw-threaded extension on the case or barrel to receive a nut for confining it in its seat, and a lock-bolt entering

the case or barrel at right angles thereto, said bolt being actuated by the key-barrel and locking mechanism and operating-key, substantially as described.

3. The combination of a lock-case having at its outer end a flange serving as an escutcheon, a key-barrel arranged in the case, a lock-bolt arranged at right angles to and entering the rear end portion of the case behind the escutcheon-plate, and connected with the key-barrel at a point between the escutcheon-plate and the rear end of the case, and locking mechanism operated by the key-barrel, substantially as described.

4. The combination of a locking-bolt having a flattened rear portion, a seat for a wrist-pin, and a flaring opening contracted at the intersection with the seat for the wrist-pin, with the lock-case and the key-barrel having a wrist or eccentric pin, substantially as described.

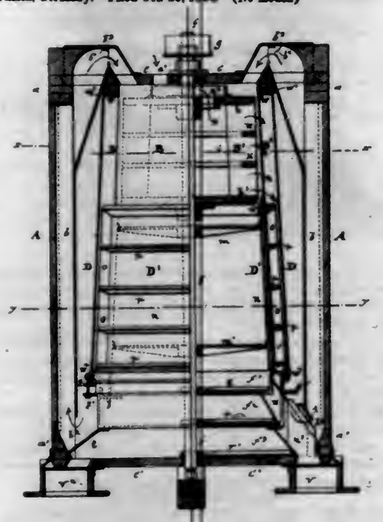
5. The combination of the bifurcated spring-tumbler having an opening for a fastening-screw, and the key-barrel provided with an annular groove in which the spring-tumbler is fitted, with the lock-case having an opening for the locking-bolt and a hole for the passage of the tumbler-fastening screw, substantially as described.

6. The combination of the key-barrel having a keyway, an annular groove, and a spline or transverse rib arranged in said groove, with a lock-case having a bifurcated spring-tumbler, around which the spring-barrel can rotate, and a key for operating said barrel, substantially as described.

7. The combination of the key-barrel having a keyway, an annular groove, and a stop arranged in said groove at one side of or out of line with the keyway, with a lock-case having a tumbler or stop adapted to engage with the stop of the key-barrel, and a key for operating said barrel and serving as a pull when the bolt is unlocked, substantially as described.

8. The combination of the key-barrel having a diametric keyway, an annular groove, and a stop or spline arranged in said groove, with a lock-case provided with a stop adapted to engage with the stop of the key-barrel and limiting the movement of the latter, substantially as described.

315,308. FLOUR-BOLTING MACHINE. MORITZ MARTIN, Bitterfeld, Prussia, Germany. Filed Oct. 29, 1884. (No model.)

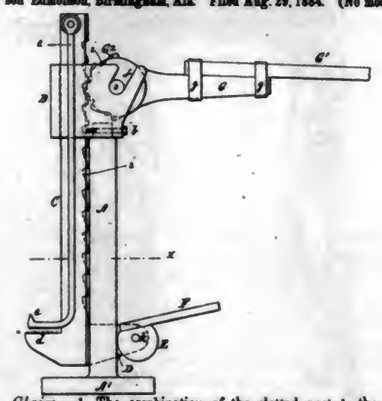


Claim.—1. The combination, in a flour-dressing machine, of a vertical main cylinder in the form of a truncated cone, a rotary main bolting-reel within said cylinder, a preparatory bolting-cylinder concentric to the main bolting-cylinder above said main bolting-reel, and a preparatory rotary bolting-reel within said preparatory bolting-cylinder, substantially as described.

2. The combination, in a flour-dressing machine, of a vertical main bolting-cylinder in the form of a truncated cone, a rotary conical main bolting-reel within said cylinder provided with vertical beaters and circumferential shelves, a preparatory vertical conical bolting-cylinder concentric to the main bolting-cylinder above said main bolting-reel, and a preparatory conical rotary bolting-reel within said preparatory bolting-cylinder provided with vertical beaters and circumferential shelves, substantially as described.

3. The combination, in a flour-dressing machine, of an inclosing-case provided with a feed-opening in its top, a main vertical conical bolting-cylinder within said case, a conical preparatory bolting-cylinder within said main cylinder, a rotary preparatory bolting-reel within said preparatory cylinder and below said feed-opening, a main bolting-reel within said main bolting-cylinder and below said preparatory bolting-reel, and vertical and inclined channels connecting the lower part of said main bolting-cylinder with the upper part of said preparatory bolting-cylinder, substantially as described.

315,309. POWER-JACK. JOHN W. MASSEY, Shuqualak, Miss., as signor to himself, Madison Edwards, Gholson, Miss., and Thomas Jefferson Edmonson, Birmingham, Ala. Filed Aug. 29, 1884. (No model.)



Claim.—1. The combination of the slotted post A, the sliding rack-bar C, the bar or plate D, attached to the rack-bar and arranged to pass through the slot in said post, one or more turning eccentrics, E, carried by the plate or bar on the opposite side of the post to that of the rack-bar, and the treadle-lever or presser F, applied to control the motion or adjustment of the eccentrics, substantially as specified.

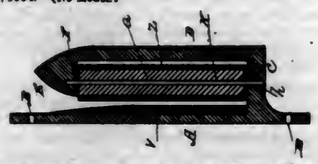
2. In a rack-and-pinion power-jack, the combination, with the sliding rack-bar C, and the bracket B, having inclined slots *f*, of the compound lever G G′, having its sections united by one or more clips, *g*, the toothed head or pinion G^2, fast on the inner end of the one lever portion, G, and the fulcrum or shaft *s*, essentially as shown and described.

315,310. METAL TABLE. HENRY A. MATTHEWS, Waterbury, Conn. Filed Mar. 13, 1884. (No model.)



Claim.—The herein-described sheet-metal top or scalp for tables, having figures defined thereon to indicate the position of men in a game, the surface of said figures impressed to form an uneven surface, the depressions being less in area than the figure, the salient parts of the figure retaining the same general plane as the surface of the table-top, substantially as described.

315,311. REIN-HOLDER. LUTHER A. MCCORD, Clinton, S. C. Filed June 5, 1884. (No model.)

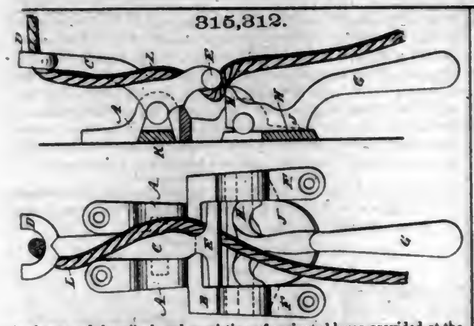


Claim.—As an improved article of manufacture, the rein-holder herein described, consisting of the base-plate A and the recessed parallel arm D, having its upper end pointed, as at E, the rubber-covered cam-shaped roller G, journaled centrally and vertically in the said recessed arm, and the base-strip V, secured to the inner side of the base-plate nearly its entire length, and tapering at its upper portion opposite to the tapering or pointed head of the said recessed arm, the whole being adapted to operate without the use of springs, substantially as specified.

315,312. CLOTHES-LINE FASTENER. THOMAS MCCOY, Lawrence, Kans. Filed Nov. 20, 1883. (No model.)

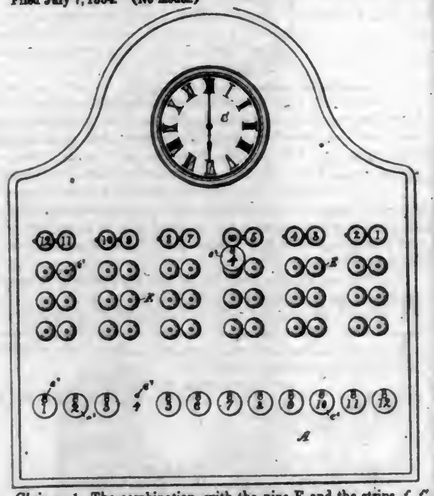
Claim.—1. A clothes-line or rope holder made substantially as herein shown and described, and consisting of a pivoted lever provided at the upper end with a fork or loop, through which the rope can be passed, and at its lower end with a cross-piece, combined with a lever provided at its upper end with a cross-piece, between which two cross-pieces the rope is jammed or clamped, and an attaching-plate, as set forth.

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2. In a rope-holder, the combination, with the plate B, of the lever C, provided at its upper end with a fork, D, and at its lower end with a cross-piece, E, which lever is pivoted on the plate B near the lower end of the said lever, and of the lever G, pivoted to the plate B, and provided at its upper end with a cross-piece, H, substantially as herein shown and described.

315,313. ANNUNCIATOR. JAMES E. MCDUFF and JOHN P. DOHERTY, Providence, R. I., assignors of one-third to Perley W. Cameron, same place. Filed July 7, 1884. (No model.)



Claim.—1. The combination, with the pins E and the strips *f f′*, mounted in a suitable frame, of a clock provided with the ring F, having a series of contact-points, and an arm secured to the hour-hand arbor of the clock and arranged to move into engagement with the contact-points, all substantially as and for the purposes set forth.

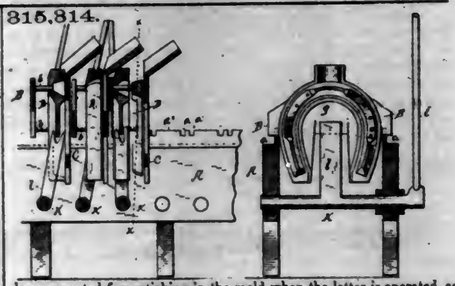
2. The combination, with the frame A, the clock C, carrying the arm *c*, the ring F, having the raised contact-points, and the bell D, of the strips *f f′*, the pins E, provided with the cross-pins *e*, the springs e^2, the pins *e′*, and the disks e^3, and a suitable battery and connections from the battery to the clock, bell, and strips *f*, and from the strips *f′* to the contact-points of the ring F, as described.

315,314. APPARATUS FOR CASTING HORSESHOES. THOMAS MCGRANE, New York, N. Y., assignor to John J. McGrane and Margaret A. McGrane, both of same place. Filed Feb. 21, 1884. (No model.)

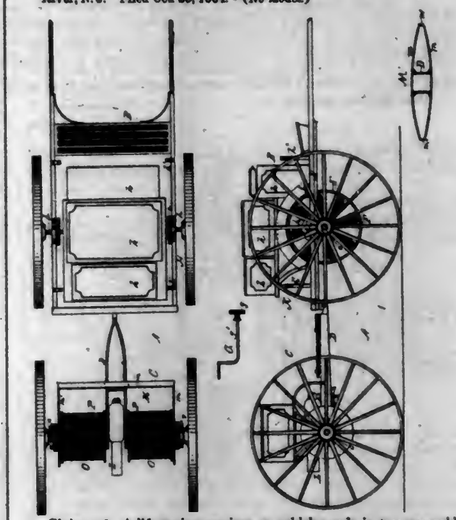
Claim.—1. In apparatus for casting horseshoes and horseshoe-blanks, the combination, with the bearing-frame A, of the lever *l*, rock-shaft *k*, hand-lever *i*, mold D, the back plate, C, and bridge B, having pins *b*, and secured immovably to the frame, as and for the purpose set forth.

2. In apparatus for casting horseshoes and horseshoe-blanks, the combination, with the mold D, provided with perforations, of the bridge B, provided with pins *b*, adapted to enter said perforations, and the back plate, C, whereby the mold is guided and supported and the blank or shoe prevented from sticking in the mold when the latter is operated, as and for the purpose set forth.

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315,315. LIFE-SAVING APPARATUS. CHAS. H. MCLELLAN, Tom's River, N. J. Filed Oct. 25, 1884. (No model.)



Claim.—1. A life-saving carriage or vehicle made in two separable sections, mounted on wheels, and connected by a detachable perch or trail, the rear section of said carriage having a gun mounted on its axle with reels on either side thereof for a line journaled on said axle, substantially as shown and described.

2. In a life-saving apparatus, a carriage or vehicle composed of two separable sections, each section being mounted upon wheels, and each carrying a portion of the life-saving appliances, one the gun and whip-line, the other the hawser, said sections, when separated, being capable of and designed for conjoint use, substantially as and for the purpose described.

3. A carriage or vehicle for use in life-saving service, composed of two detachable sections mounted on wheels, the front section having a hawser-reel on its axle, with boxes supported above the same, and the rear section having a gun for firing the shot-line, with reels for the whip-line, substantially as shown and described.

4. In combination with the axle of a life-saving gun-carriage, section C, and the truss M, comprising the cross-bars *m m* and arms *m′ m′*, the said cross-bars being placed one over and the other under the trail, for preventing springing of the axle from the recoil of the gun, substantially as shown, and for the purpose set forth.

315,316. SULKY-FRAME FOR PLOWS. SOLOMON MERCER, Bird's Run, Ohio. Filed Jan. 15, 1885. (No model.)



Claim.—The combination of a wheeled frame having a transverse end piece, a disk pivoted upon the middle of the said end piece in a vertical plane having a series of perforations near its edge, a bolt fitting in the perforations in the disk and in a perforation in the rear end piece, an arm projecting laterally from the disk and having a number of perforations near its outer end, and a chain secured at one end to the arm and at the other end to the wheeled frame in the center line of the same, as and for the purpose shown and set forth.

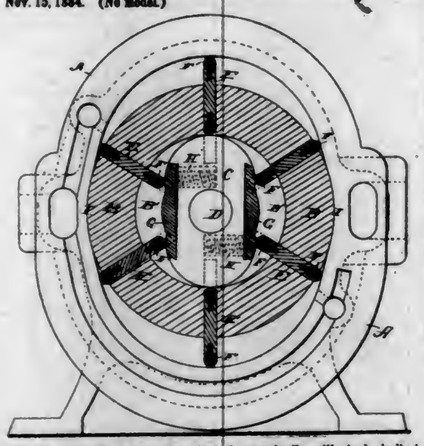
315,317. TORCH. CHRISTOPH F. MOELLER and JULIUS W. MAISER, Newark, N. J. Filed June 27, 1884. (No model.)



Claim.—1. The combination of an outer tube, A, having a handle, A^3, at the lower end and a collar, *a*, at the upper end, a telescoping inner tube, A', containing the oil-reservoir, and having a packing, *b*, at the lower end, and a cap, A^3, at the upper end, substantially as set forth.

2. The combination, in a torch, of the tube A', containing the oil-reservoir, a cap, A^3, attached thereto, and a wick-tube, C, screwed into the upper end of the cap, said wick-tube having an inwardly-bent tooth or serration at the lower end to retain the wick, substantially as described.

315,318. ROTARY ENGINE. JOHN MOFFET, New York, N. Y. Filed Nov. 15, 1884. (No model.)



Claim.—1. In a rotary engine, the vertically-elliptical shell A, having an enlarged horizontal diameter, forming extended lateral abutments I I, in combination with a rotary cylinder, B, provided with sliding piston-blades E E, having a hardened-steel bearing or packing strip, F, on each edge, substantially as described.

2. In a rotary engine, the combination, with the fixed cams C C, of the steel bearing-plates G G, and the spiral springs H H, let into said cams to form cushions for the inner ends of the sliding pistons, substantially as described.

3. In a rotary engine, the combination of the vertically-elliptical shell A, having an enlarged horizontal diameter, forming lateral abutments I I, the shaft D, rotary cylinder B, provided with radial slots and recessed ends, the fixed cams C, having yielding bearing-plates G G, and the sliding piston-blades E E, having packing-strips F F, substantially as described.

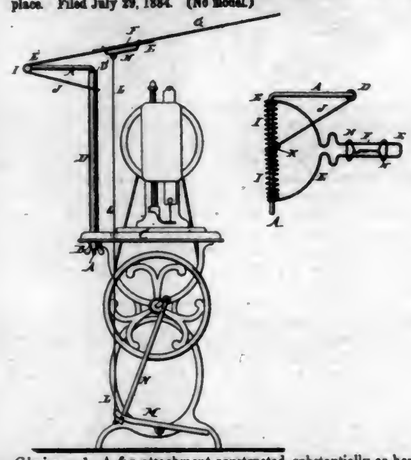
315,319. DENTAL PLATE. JAMES K. MORRE, Des Moines, Iowa, assignor of one-half to S. L. Edwards, same place. Filed June 20, 1884. (No model.)



Claim.—1. The herein-described method of producing a polished surface on a dental cast or mold, which method consists in applying tea-lead or its equivalent to the surface of a cast or mold and then covering the surface of the tea-lead with mercury, substantially as set forth, for the purposes specified.

2. The herein-described method or process of producing dentures or dental plates of uniform thickness and polished surfaces, which process consists in fastening tea-lead to the surface of a cast or mold by means of an adhesive varnish, then fastening teeth to the cast by means of wax, then placing a second covering of tea-lead over the first and over the wax at the side of the teeth, then covering it with varnish, then forming a cast on top of the tea-lead coverings of the first or lower cast, then separating the two casts and polishing their tea-lead surface with mercury, then placing a rubber plate between the two polished surfaces of the cast or molds, then fastening the separable parts of the flasks to maintain a space between the mating and polished surfaces of the casts while the rubber plate is being vulcanized and hardened in a common way.

315,320. FAN ATTACHMENT. ALBERT NAWADNY, New Orleans, La., assignor to Alexander L. Apfel and Camille A. Band, both of same place. Filed July 29, 1884. (No model.)

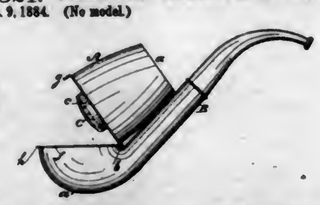


Claim.—1. A fan attachment constructed substantially as herein shown and described, and consisting of the bent rod A, provided with a tube, D, and hand-nut B, the fan-holder E, having stem F, spiral springs I, and hook ends J K, and the connecting-wire L, to adapt the attachment to be applied to a support and operated by a treadle, as set forth.

2. In a fan attachment, the combination, with the bent rod, of the looped fan-holder, with its arms formed with springs embracing said rod, and one end of one of said springs provided with an arm connected to a tube surrounding the upright portion of said rod, substantially as and for the purpose set forth.

3. The combination, with the table C and treadle M of a sewing-machine, of the attachment rod A, tube D, and nut B, the fan-holder E, with springs embracing said rod, one of said springs having an arm connected to the upright portion of the tube, and the connecting-wire L, whereby the fan attachment can be readily connected with and operated from the sewing-machine, as set forth.

315,321. TOBACCO-PIPE. LEONHARD NAX, Philadelphia, Pa. Filed Oct. 9, 1884. (No model.)



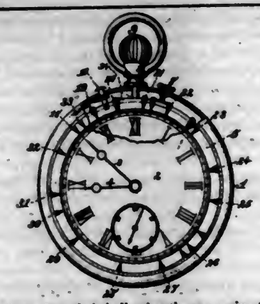
Claim.—A tobacco-pipe having a bowl formed of upper and lower sections, the upper section having a perforated diaphragm secured thereto and projecting into said lower section, and the lower section having a recessed plate secured to it, the said diaphragm and the said plate being connected by a hinge, substantially as and for the purpose set forth.

315,322. POINT-INDICATOR FOR TIME-PIECES. EDGAR A. NELSON, Washington, D. C. Filed Oct. 4, 1884. (No model.)

Claim.—1. In a time-point indicator for public conveyances, the combination, with a dial containing the usual time-divisions, of an annulus having removably secured thereto markers indicating the varying periods of time alloted to distances between successive stations or points and the time of proper arrival at such stations or points, the annulus being adjustable relatively to the dial, substantially as described.

2. In a time-point indicator for public vehicles, the combination, with a watch-dial, of an adjustable annulus having movable symbols of distinct characters mounted thereon and registering with the divisions of

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the dial, the one class of symbols indicating the successive times upon the up-trip and the others the times upon the down-trip, and both showing the time allotted for the passage from one point to another, substantially as described.

3. In a time-point indicator for public vehicles, the combination, with a watch-dial having the ordinary hour and minute hand, of an annulus surrounding said dial and adjustable relatively thereto, symbols of distinct characters adjustable upon said annulus and registering with a series of the time-divisions of the dial, and means for locking and adjusting said annulus, substantially as described.

4. In a time-point indicator for public vehicles, the combination, with a watch-dial having the ordinary hour and minute hand, of an annulus surrounding said dial and having adjustable marks or symbols of distinct character, whereby the successive times upon both the up and down trip are indicated and read in the same direction, substantially as described.

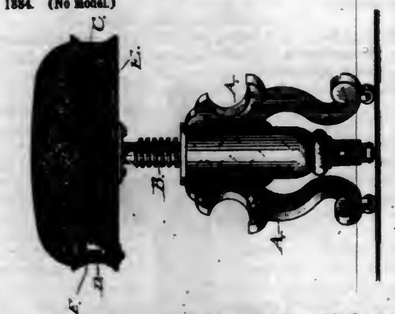
5. The combination, with a watch-dial, of a surrounding annulus having a series of teeth upon its lower face equal in number to the time-divisions of the dial, a spring-actuated latch-post having a lug which is normally thrown into engagement with the teeth of said annulus and released by pushing said post inward, and a pinion engaging with said teeth and rotated by a button outside the case, substantially as described.

6. The combination, with a watch having a dial, 2, and hour and minute hands 3 and 4, of an annulus, 5, having teeth 6, and a spring-actuated latch-post, 10, having a lug, 14, substantially as described.

7. The combination, with a watch-dial, 2, of an annulus, 5, adjustable relatively thereto, and pointers 17, adapted to be secured at any desired points of the annulus, substantially as described.

8. The combination, with a watch-dial, 2, having a minute-hand, 3, and hour-hand 4, of an annulus, 5, having teeth 6, a spring-actuated latch locking said annulus, and points 17, adjustably mounted thereon to represent varying intervals of time and having distinguishing colors, substantially as described.

315,323. PIANO-STOOL. FLORENCE ORR, Normal, Ill. Filed Nov. 24, 1884. (No model.)



Claim.—1. In a piano-stool, the combination, with the standard A and screw B, of a seat, C, provided with a downwardly-swinging side, D, a removable receptacle, E, within the seat, the said receptacle having closed top and sides, and an open end, through which the sheet-music is inserted, as herein set forth.

2. In a piano-stool, the seat C, provided with a hinged side, D, in combination with the receptacle E, having an open end, *e*, and a strap, F, substantially as and for the purpose described.

315,324. PROCESS OF PAINTING. FREDERICK G. PAINTER, Philadelphia, Pa., assignor of one-half to Walter G. Dabbs, same place. Filed June 19, 1884. (No model.)

Claim.—1. The mode herein described of imitating inlaid wood-work, the said mode consisting in, first, coating those portions of a surface of wood which have to represent inlaid work with a material impervious to wood-stains and removable by a solvent; second, applying

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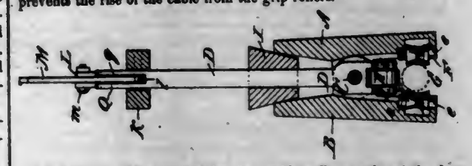


to the surface of the wood a stain of any desired tint; and, third, coating the surface with a solvent which does not affect the permanency of the stain, but removes the said coating, and thereby exposes the surface of the wood whenever the said coating is applied, all substantially as set forth.

2. The mode herein described of imitating inlaid wood-work, the said mode consisting in, first, coating those portions of a surface of wood which have to represent inlaid work of one kind of wood with a material impervious to wood-stains and removable by a solvent; second, applying to the surface of the wood a stain of any desired tint; third, coating those portions of the stained surface which have to represent another kind of inlaid wood with the said removable material; fourth, imparting to the surface of the wood a stain differing in tint from that first applied, and continuing these operations as many times as the different imitations of different kinds of inlaid wood may demand, and, finally, applying the solvents by which the several coatings of material impervious to stains are removed and the imitations of different inlaid woods exposed, all substantially as set forth.

315,325. CABLE-RAILWAY GRIP. JOHN H. PARKINSON, Bodie, Cal., assignor to himself and Joseph D. Kerbaugh, same place. Filed July 8, 1884. (No model.)

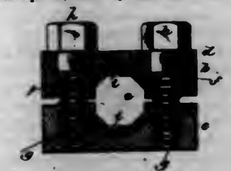
Brief.—Horizontally-pivoted jaws carrying vertical eccentrically-pivoted rollers are actuated through a vertically-movable wedge, the lower end of the frame to which said jaws are pivoted having a roller which prevents the rise of the cable from the grip-rollers.



Claim.—1. The combination, in a cable-railway grip, of the jaws A B, pivoted together and to the bar D on a pin, C, rollers E, eccentrically pivoted in the opposing faces of the jaws, an anti-friction roller, H, journaled to the end of the bar D, a wedge, I, fitted to slide on the bar and to enter between the jaws, springs O to open the jaws, and the lever M, pivoted on the bar D and linked to the wedge by a yoke, L, head K, and rods J, substantially as shown and described.

2. The combination of the jaws A B, carrying the eccentrically-pivoted gripping-rollers E E, the bar D, wedge I, springs O, lever M, cross-head K, screw-rods J, and adjusting-nuts *i k*, substantially as shown and described.

315,326. ROCK-DRILL CHUCK. A. INGRAM PARSONS, New York, N. Y. Filed Apr. 10, 1884. (No model.)



Claim.—1. The combination, in a rock-drill spindle, of a socketed head split longitudinally into two jaws, clamping-screws engaging such jaws to vary their proximity, and removable brasses or bearing-blocks arranged in said jaws, substantially as shown and described.

2. The combination, in a rock-drill spindle, of a socketed head split longitudinally into two jaws, clamping-screws engaging such jaws to vary their proximity, and removable brasses or bearing-blocks arranged in said jaws, and provided with notched edges, which are also engaged by the said screws, substantially as shown and described.

3. The combination, with a drill-spindle having a tubular split portion and a drill-rod, of brasses interposed between the drill-rod and drill-spindle, and adapted externally to the interior of the tubular portion of the drill-spindle and internally to the exterior of the drill-rod, substantially as specified.

4. The combination, with a drill-spindle having a tubular split portion and a drill-rod, of brasses interposed between the tubular split por-

tion of the drill-spindle and the drill-rod, and shaped to conform to the contiguous surfaces of these parts, and a bolt or bolts which serve to tighten the tubular split portion of the drill-spindle and engage with the brasses so as to retain the same in place, substantially as specified.

315,327. SCRAP-BOOK. CALVIN PATTERSON, Brooklyn, N. Y. Filed May 8, 1884. (No model.)



Claim.—A scrap-book having leaves formed into pockets, a trimming-pallet permanently secured to one of the covers of the book, retaining-bands passing over said pallet, and a cutting-board normally retained by the bands, substantially as and for the purpose specified.

315,328. CHARM FOR WATCH-CHAINS. FRANK T. PEARCE and JOHN HOAGLAND, Providence, R. I. Filed June 9, 1883. (No model.)

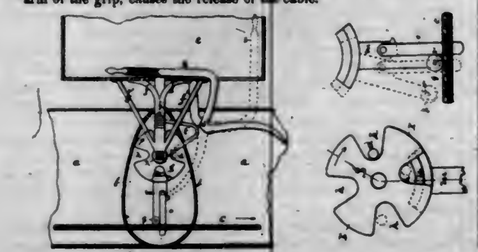


Claim.—1. An improved charm of normally-complete exterior configuration, having an opening in one side and a concealed tube extending inwardly from said opening, in combination with a telescopic case held normally in the tube by friction between the outer member of the case and the tube, and being capable of being drawn out of or pressed into said tube by drawing or pressing the interior member of the casing, substantially as described

2. The charm consisting of the outer portion, A, having the concealed internal tube, C, and pivoted loop B, in combination with the telescopic case D, held removably in said tube by friction, as set forth.

315,329. GRIPPER FOR CABLE RAILWAYS. JACOB L. PEARSON, Philadelphia, Pa. Filed Nov. 10, 1884. (No model.)

Brief.—A notched and grooved wheel, to which the grip is attached through a segmental traveler or head which travels the grooves in the wheel, whereby an intersecting cable is passed without releasing the hold upon the lower cable. The grip proper consists of a main pivoted arm, carrying a roller in its lower end, which acts upon the upper side of the cable, and an arm pivoted to said main arm, and having an upturned shoe which bears against the under side of the cable when draft is applied thereto. A pivoted lever, when forced against the main arm of the grip, causes the release of the cable.



Claim.—1. The hanger *f*, attached to the body of a car, a wheel provided with the notches *h* and grooves *i i'*, the arm *m*, with its traveler *n*, and the bar *o*, pivoted in said arm, in combination constituting a cable-gripper for passing a transverse cable without letting go of or relaxing its hold on the main cable, substantially as set forth.

2. The hanger *f*, arm *m*, journaled therein, and bar *o*, pivoted in said arm, in combination constituting a cable-gripper for use where no transverse cable is to be passed, substantially as set forth.

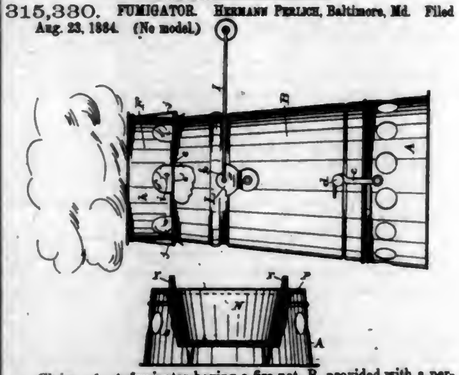
3. The lever *s*, in combination with the arm *m* and bar *o*, constituting the gripper proper, supported from a railway-car for the purpose of causing the gripper to relax its hold on the main cable, substantially as set forth.

4. A notched and grooved wheel in combination with a cable-gripper, substantially as and for the purposes set forth.

5. The double wheel *g g'*, arranged in the connections of a gripper with its car for passing a transverse cable, substantially as set forth.

6. A notched and grooved wheel provided with means for its support, and with a traveler arranged to slide in its grooves, in the manner and for the purposes substantially as set forth.

315,330. FUMIGATOR. HERMANN PERLICH, Baltimore, Md. Filed Aug. 23, 1884. (No model.)

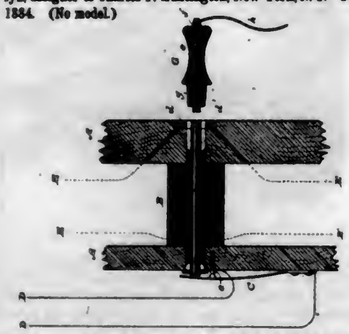


Claim.—1. A fumigator having a fire-pot, B, provided with a perforated top plate, *e*, and surmounted by a smoke-dome, F, having a perforated crown, and side walls with air-inlets, as set forth.

2. A smoke-dome for fumigators, having a perforated crown, *g*, and side walls with air-inlets *i*, and provided with spring-clamps *j* for its attachment to the top of the fumigator, as set forth.

3. In a fumigator, the combination of a fire-pot, B, provided with a top plate having perforations, a smoke-dome, F, having perforations in its crown and air-inlets in its wall, an ash-pan having holes in its side wall, and an imperforate receptacle, N, having an outward top flange, P, provided with draft-perforations, said receptacle occupying the ash-pan, as set forth.

315,331. ELECTRICAL SWITCH-BOARD. THOMAS J. PERRIN, Brooklyn, assignor to Charles P. Huntington, New York, N. Y. Filed June 25, 1884. (No model.)



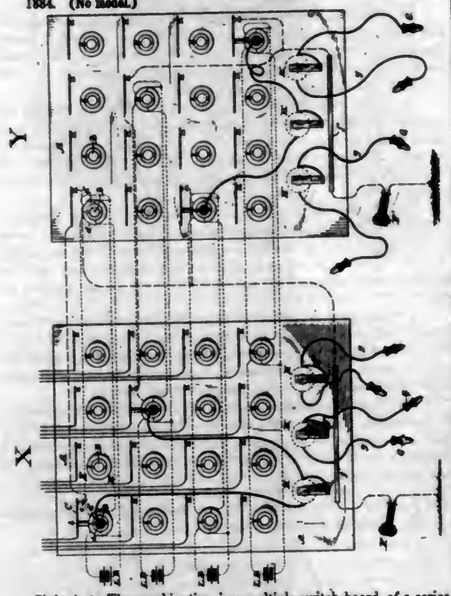
Claim.—1. The combination, substantially as set forth, in a multiple series of switch-boards, of the subscribers' lines and their terminals, each of which comprises the separable contacts, the electro-magnet, the sliding core, the circuit of a local battery including the coil of said magnet, and the normally-open terminals of the local circuit.

2. The combination, substantially as set forth, in a multiple switch-board, of a main line, its separable terminal contacts, a testing or indicating electro-magnet at each of said separable terminal contacts, a local-battery circuit which includes the coils of all of said magnets, the local-battery terminals at each magnet, and the plug for separating the contacts of the main line and completing the local-battery circuit.

3. The combination, substantially as set forth, in a multiple switch-board, of a main line, its separable terminal contacts on the several boards, a testing or indicating electro-magnet at each of said separable terminal contacts, a local-battery circuit which includes the coils of all of said magnets, the local-battery contacts at each magnet, the plug for separating the contacts of the main line and completing the local-battery circuit, and operators' instruments, which are normally included in the main line, but are disconnected therefrom by the separation of the main-line contacts.

4. The combination, substantially as set forth, in a multiple series of switch-boards, of the subscribers' lines, a terminal in each board corresponding to each line and electrically connected therewith, a test or indicating magnet at each terminal in each board, a local circuit which includes all the test-magnets of each line, and a circuit-closer which completes said local circuit whenever the line is in use, whereby the operator at any board is apprised of the line being in use by the magnetic condition of the core of said magnet at that board.

315,332. MULTIPLE SWITCH-BOARD. THOMAS J. PERRIN, Brooklyn, assignor to Charles P. Huntington, New York, N. Y. Filed Sept. 30, 1884. (No model.)



Claim.—1. The combination, in a multiple switch-board, of a series of main lines, the terminal or connection where each of said main lines enters each switch-board, and a visual-indicator at each of said terminals or connections on each board, the visual-indicators of each line being automatically operated on all the boards whenever any terminal of said line is plugged.

2. The combination, in a multiple switch-board, of a series of main lines, the connections of each of said main lines on each switch-board, the local circuit for each main line running to each of said connections, the electro-magnets in said local circuit, and the endwise-moving spindle in the core of said magnet, which is projected from the face of the board whenever said local circuit is completed.

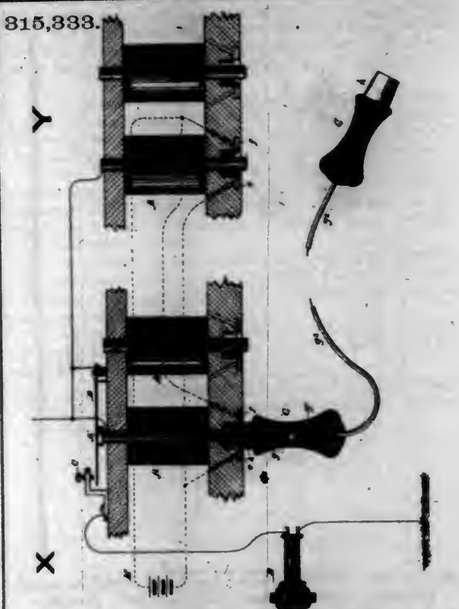
3. The combination, in a multiple switch-board, of the main lines, the connections of each main line with each board, an electro-magnet having a hollow core at each of said connections, a local circuit for each main line, which includes the coils of said magnets, the endwise-moving spindles within the hollow cores of said magnets, the armatures carried by the spindles, and the local-circuit terminals at each magnet.

4. In a multiple switch-board, the combination of an electro-magnetic coil at each main-line connection on said board, an endwise-moving spindle or core within each of said coils, and means, substantially such as described, for causing the projection of the cores from the faces of the boards whenever its corresponding main line is in use.

315,333. MULTIPLE SWITCH-BOARD. THOMAS J. PERRIN, Brooklyn, N. Y., assignor to Charles P. Huntington, Greenville, Miss. Filed Oct. 4, 1884. (No model.)

Claim.—1. The combination, substantially as set forth, in a multiple switch-board, of the main line, its connections or terminals on the several boards, operator's instruments normally connected with the main line at its particular board, an electro-magnet at each of said connections

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or terminals, a local circuit, which includes the coils of said magnets, its contacts at each terminal, plugging or line-connecting devices which complete said local circuit whenever the terminal of said line is plugged to, and devices, actuated by the electro-magnet at the terminal of said line on its particular board, which disconnect the operator's instruments from the main line.

2. The combination, substantially as set forth, in a multiple switch-board, of a main line, its terminals or connections on the several boards, an electro-magnet at each of said terminals, a local circuit, which includes the coils of said magnet, contacts of said local circuit at each terminal, plugs and cords for connecting the subscribers, an armature for one of said magnets on one of the boards, and the main-line contacts, which are separated when said armature is attracted, whereby when said local circuit is completed by plugging to the line terminal on any board the main line is broken at the separable contacts.

3. The combination, substantially as set forth, in a multiple switch-board, of the main line, its connections or terminals on the several boards, an electro-magnet at each of said terminals, a local circuit, which includes the coils of said magnets, the contacts of said local circuit at each terminal, plugs and cords for connecting the subscriber, and operator's instruments normally directly connected with the line through the armature-spring B and contact C.

315,334. CIRCUIT FOR TELEPHONE-EXCHANGES. THOMAS J. PERRIN, Brooklyn, N. Y., assignor to Charles P. Huntington, Greenville, Miss. Filed Nov. 4, 1884. (No model.)

Claim.—1. The combination of the general calling-circuit, the general calling-battery located at the central office, the subscriber's line, a calling-key at the subscriber's station connected in the subscriber's line, its contact connected with the calling-circuit, and the subscriber's annunciator at the central office.

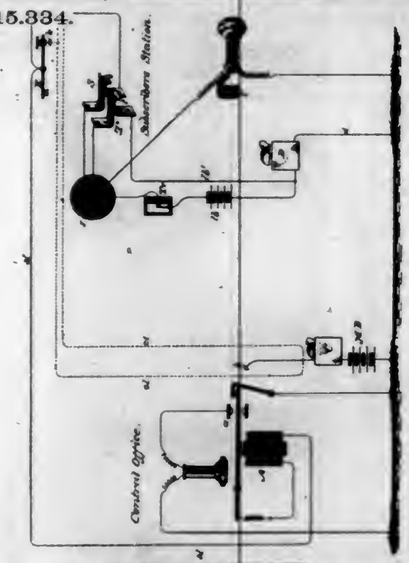
2. The combination of the general calling-circuit, the calling-battery therein at the central office, the subscriber's line, the key in the subscriber's line, its stop connected in the calling-circuit, the subscriber's annunciator at the central office, the annunciator-drop permanently connected with the earth, and the stop of the annunciator connected with the pole of the calling-battery.

3. The combination of the general calling-circuit, the calling-battery therein at the central office, the subscriber's line, a key at the subscriber's station connected in the subscriber's line, its stop connected with the calling-circuit, a gong-bell at the subscriber's station, and the subscriber's annunciator at the central office.

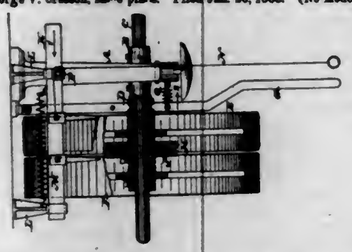
4. The combination of a general calling-circuit, the battery and gong-bell therein at the central office, a key at the subscriber's station connected in the subscriber's line, and its stop connected with the calling-circuit.

5. In a telephone-exchange system, the combination of subscriber's apparatus at the subscriber's station, the subscriber's line, a general calling-circuit, a general calling-battery therein at the central office, and short-circuiting devices which ground the calling-battery at the central office when a subscriber calls.

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315,335. PULLEY. ANTONIO C. PESSANO, Philadelphia, Pa., assignor to George V. Cresson, same place. Filed Jan. 20, 1885. (No model.)



Claim.—1. A loose or dead pulley on a sleeve which is mounted on the shaft of the tight pulley and an automatic shifting device bearing against the belt, whereby when the loose pulley is moved toward the tight pulley the belt is automatically shifted from the loose to the tight pulley by the lateral pressure of the shifting device against said belt, substantially as and for the purpose set forth.

2. A tight pulley and a sliding dead-pulley, each having a contact disk or flange which face one another, said dead-pulley being mounted on a sleeve which is mounted on the shaft of the tight pulley, substantially as and for the purpose set forth.

3. A tight pulley and a loose pulley, in combination with a shifter-bar which is disconnected from the shifter-lever and presses against the belt on the loose pulley for automatically shifting the same from the loose to the tight pulley, substantially as and for the purpose set forth.

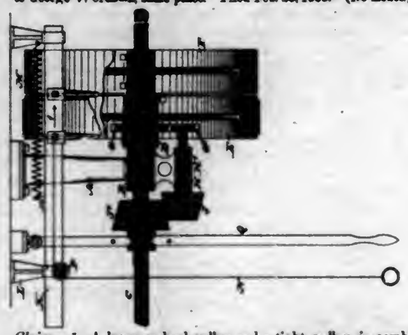
4. A tight pulley, a loose pulley, and a shifting-lever connected with the latter, in combination with a shifter-bar which is disconnected from said lever and presses against the belt on the loose pulley and automatically shifts said belt from the loose to the tight pulley, substantially as and for the purpose set forth.

5. A tight and a loose pulley, and a lever connected with the loose pulley, in combination with a shifter-bar provided with fingers on opposite sides of the belt, one of said fingers pressing against the belt on the loose pulley for automatically shifting the same from the loose to the tight pulley, substantially as and for the purpose set forth.

6. A tight pulley and a loose pulley, each provided with a contact disk or flange, a shaft carrying the tight pulley, a hanger having a bearing for said shaft, a sleeve continuous of said bearing forming the bearing for the loose pulley, a lever connected with the loose pulley, and a shifter-bar for the belt pressing laterally thereon, combined and operating substantially as and for the purpose set forth.

7. A tight pulley and a loose pulley with a clutch or engaging device, a shifter-bar for the belt pressing laterally thereon, a lever connected with the loose pulley, a returning cord or chain connected with the shifter-bar, and a returning-spring connected with said lever, combined and operating substantially as and for the purpose set forth.

315,336. PULLEY. ANTONIO C. PESSANO, Philadelphia, Pa., assignor to George V. Cresson, same place. Filed Feb. 23, 1885. (No model.)



Claim.—1. A loose or dead pulley and a tight pulley, in combination with gearing connected with the loose pulley and adapted to receive power from the shaft of the tight pulley, for imparting motion to said loose pulley and causing the automatic shifting of a belt from the loose to the tight pulley, substantially as described.

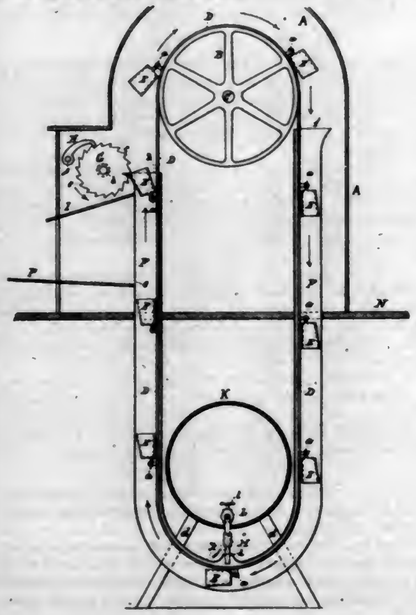
2. A loose or dead pulley, a tight pulley and a shaft bearing the same, and a belt-shifting device independent of the shifting-lever, in combination with gearing intermediate of said shaft and the loose pulley and engaging therewith, whereby a belt may be shifted from the loose to the tight pulley without shifting either pulley, substantially as and for the purpose set forth.

3. A loose or dead pulley, a tight pulley and a shaft therefor, a belt-shifting device, gearing connected with the loose pulley and adapted to be engaged with the shaft of the tight pulley, and a lever for putting said gearing in and out of communication with said shaft, said parts being combined and operating substantially as and for the purpose set forth.

4. A loose or dead pulley, a tight pulley, and a belt-shifting device, in combination with gearing connected with the loose pulley, and receiving power from the shaft of the tight pulley, whereby the loose pulley may be operated and the belt automatically shifted from the loose to the tight pulley, substantially as and for the purpose set forth.

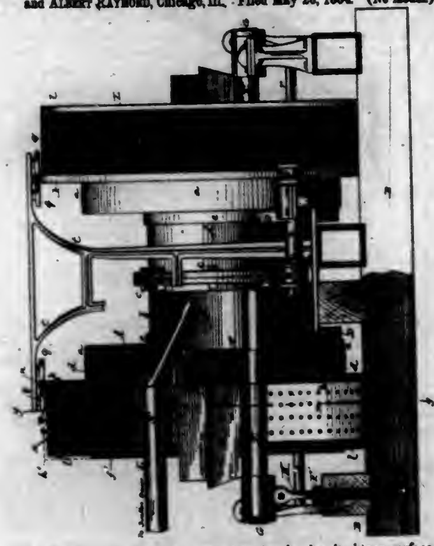
5. A loose or dead pulley, a tight pulley, a belt-shifting device adapted to bear against the belt, and a cord or chain for returning said shifting device, in combination with gearing connected with the loose pulley and adapted to be operated by the shaft of the tight pulley, substantially as and for the purpose set forth.

315,337. LIQUID-ELEVATOR. ADELBERT H. PHILLIP, Philadelphia, Pa. Filed Oct. 21, 1884. (No model.)



Claim.—The combination of the case A, band or sprocket wheel B, belt D, hinged buckets E, tube F, and tank K, for elevating and discharging liquids, substantially as described.

315,338. MACHINE FOR REDUCING ORES, &c. GEORGE RAYMOND and ALBERT RAYMOND, Chicago, Ill. Filed May 26, 1884. (No model.)



Claim.—1. A vertically-revolving ring having its inner surface inclined transversely to effect the distribution and delivery of the material, the internal crushing-roll inclined on the periphery, the annular screen at the side of the ring to receive the material, and the elevating devices, substantially as shown, to return the material from the screen to the ring, said members combined substantially as shown.

2. In a machine for reducing refractory materials, two vertically-revolving rings united by a tubular body, in combination with an internal shaft provided with two crushing wheels or rolls arranged to act within the respective rings.

3. The revolving tubular body provided at opposite ends with the surfaces *d*, in combination with the shaft E, the wheels F thereon, and mechanism, substantially such as shown, for urging the two ends of the shaft downward independently.

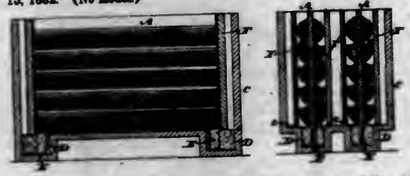
4. The revolving tubular body, the rolls supporting the same, the shaft E, provided with wheels F, the boxes applied to said shaft, the vertical rods attached to the boxes, and the springs acting to urge the rods downward, said members combined for joint operation, as set forth.

5. In combination with the vertically-revolving rings or drums, the gravitating crushing-rolls therein, the roll-shaft, the boxes thereon, the rods and springs acting to urge the rolls downward, and adjustable stop devices, substantially as described, to limit the approach of the rolls toward the rings.

6. In combination with the vertically-revolving ring or cylinder and an internal crushing wheel or roll, an annular screen located at the side of the ring, and mechanism, substantially as described, for imparting a rotary motion to the ring in one direction and to the screen in the opposite direction.

7. The body for a crusher having the two annular faces or tracks at opposite ends and the intermediate cylindrical portion of smaller diameter.

315,339. SECONDARY BATTERY. EDWARD T. REICHERT, Philadelphia, Pa., assignor of one-half to Henry D. Welsh, same place. Filed Dec. 15, 1882. (No model.)



Claim.—1. In a secondary battery, an electrode consisting of a plate, A, having attached to its sides, and integral therewith, a series of concave troughs, *a*, which are open on top, as shown, and filled with active material.

2. In a secondary battery, a porous plate or partition having grooves in its side or sides and across its lower edge to facilitate the circulation of the electrolytic fluid, substantially as set forth.

3. In a secondary battery, a double cell formed of three detachable plates or partitions which have lateral projections at their ends, said projections fitting together and closing the ends of the cell, substantially as shown.

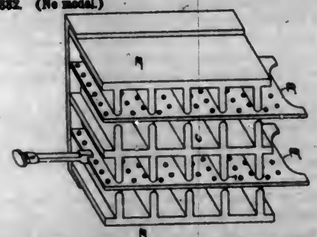
4. In a secondary battery, a series of separable porous plates, which form the walls of a cell open at the top, in combination with an electrode or electrodes inclosed therein, said plates fitting closely to the sides and ends of said electrodes, substantially as and for the purpose set forth.

5. In a secondary battery, a series of separable porous plates or partitions provided with wedges or cords for holding them in place, in combination with an electrode or electrodes inclosed within the cell formed by said plates, the latter fitting the sides and ends of said electrodes, substantially as shown.

6. An electrode consisting of a solid wall, having troughs attached thereto and integral therewith along their middle line and open on top, said troughs curving upward on each side of said wall, substantially as and for the purpose set forth.

7. An electrode provided with troughs on each side of the central wall thereof, in combination with plates arranged in proximity to said wall to prevent bulging, substantially as set forth.

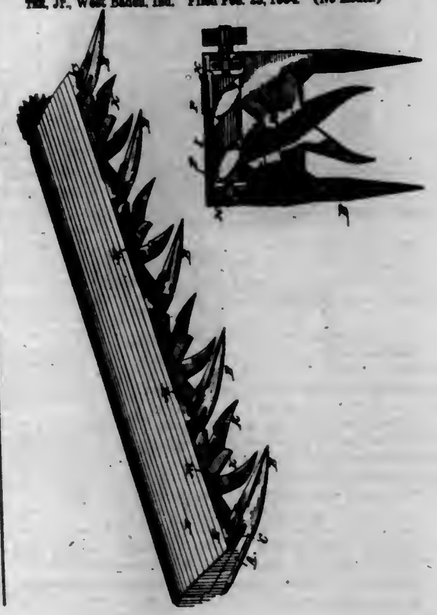
315,340. SECONDARY BATTERY. EDWARD T. REICHERT, Philadelphia, Pa., assignor of one-half to Henry D. Welsh, same place. Filed Dec. 15, 1882. (No model.)



Claim.—1. The non-conducting outer wall or partition, B, and the inner detachable wall or partition, C, of non-conducting material, which divides the space inclosed by said outer wall into two chambers or cells, in combination with electrodes introduced, respectively, into said cells, and provided with polarizable material on both sides thereof, said walls or partitions being provided with lateral flanges or ridges which extend nearly or quite to said electrodes, for the purposes set forth.

2. In a secondary battery, an interior partition the bottom of which forms partly or wholly the bottom of a cell and has its under side provided with feet, in combination with an electrode in said cell, substantially as set forth.

315,341. CUTTING APPARATUS FOR HARVESTERS. JOHN A. RITTER, Jr., West Baden, Ind. Filed Feb. 23, 1884. (No model.)



Claim.—1. The combination of a finger-bar in a harvester having recesses in its upper side of the shape of a half-star, stationary cutters of star shape secured in the said recesses and having some of their arms projecting beyond the forward edge of the bar, rotary cutters pivoted concentric with the stationary cutters and corresponding in size and shape to the same, and a cover hinged over the top of the finger-bar and over the cutters, as and for the purpose shown and set forth.

2. In a harvester, the combination of the finger-bar having fingers upon its forward edge and half-star-shaped recesses in its upper side, star-shaped stationary cutters, star-shaped revolving cutters, a spirally-grooved shaft revolving in the rear of the finger-bar, and a cover hinged over the top of the finger-bar and the cutters, as and for the purpose shown and set forth.

315,342. BASIN ATTACHMENT FOR BATH-TUBS. JOHN ROBINSON and WILLIAM J. ROBINSON, Philadelphia, Pa. Filed Apr. 21, 1884. (No model.)

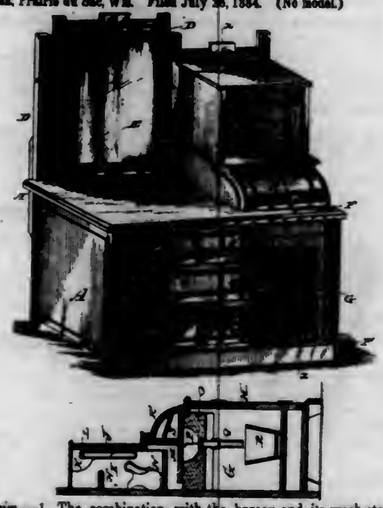


Claim.—1. A basin having at its bottom a laterally-projecting foot, E, and at top upwardly-projecting links D, in combination with a bath-tub having ears B, both said foot and links being connected with the basin on the same side contiguous with the tub, and said ears being fixed to the tub and having the links D depend therefrom, substantially as and for the purpose set forth.

2. A basin having at top upwardly-projecting links D, and at bottom a laterally-projecting foot, E, in combination with a bath-tub having ears B, the foot and links being on the side of the basin contiguous with the tub, and said side formed right-lined, substantially as and for the purpose set forth.

3. A bath-tub having secured to it ears B, and a basin provided at top with upwardly-projecting links D, and at bottom with a laterally-projecting foot, said links and foot being on the same side contiguous with the tub, and said links being removably fitted to said ears B, and depending therefrom, substantially as and for the purpose set forth.

315,343. COMBINED WASH-STAND AND DRESSING-CASE. HENRY ROSE, Prairie du Sac, Wis. Filed July 26, 1884. (No model.)



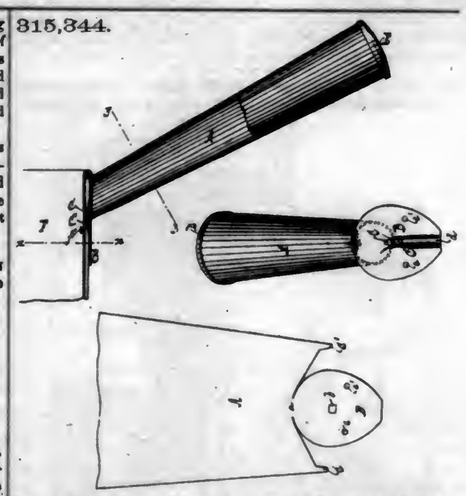
Claim.—1. The combination, with the bureau and its wash-stand extension, of the upper casing, I, having a hinged door, J, provided with the outwardly-projecting rounded cover R', and inwardly-projecting shelf M, and having the inclined slab S, as shown and set forth.

2. The combination of the casing I, having fixed shelves N N, and hinged door J, having the fixed horizontal bottom part or shelf, M, outside projecting cover, R', and inclined board or slab S, so arranged that shelf M forms a top for the wash-stand, on which casing I is placed when the door is closed, substantially as and for the purpose set forth.

315,344. HANDLE FOR CULINARY VESSELS. AARON ROSENZWEIG, New York, N. Y. Filed Dec. 18, 1884. (No model.)

Claim.—1. A tubular handle, A, having the flange B joined thereto

315,344.



by a neck, *a*, and provided with the tongues C C', passing through the central portion of the flange and secured thereupon, substantially as described.

2. A tubular handle, A, having the flange B, provided with the hole *b*, and having the tongues C C' passing through the said hole and secured on the flange, substantially as described.

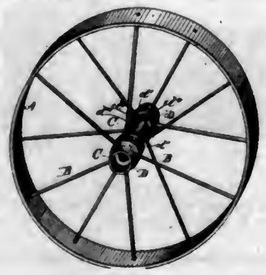
3. A tubular handle for a culinary vessel formed of one piece of sheet metal, which is struck up, with the flange B, provided with a hole or holes, *b*, an indentation, *d*, in said flange, and the tongues C C', substantially as described.

315,345. HEARTH GUARD OR SHIELD. WILLIAM J. SANDERS, Gilmer, Tex. Filed May 22, 1884. (No model.)



Claim.—The herein-described hearth guard or shield, the same consisting of a rectangular plate of sheet metal cut out to form the inside openings, D and E, of different size, and bent at right angles at the point where the smaller opening, D, in the vertical or upright part F opens into the larger opening, E, in the horizontal part G, thereby forming projections or inside shoulders, H H, having notches K K, adapted to be bent to fit the sides of the grate, substantially as and for the purpose set forth.

315,346. IRON WHEEL. PHILIPP SCHEMBER, Pekin, Ill. Filed Oct. 13, 1884. (No model.)



Claim.—1. In a wheel, in combination with a cylindrical hub having annular ribs *c*, with recesses *c'*, and spokes formed of rods bent substantially as described, the bands D, having an enlarged portion and contracted portion and recesses *d*, and a rim secured to the outer ends of the spokes, substantially as and for the purpose specified.

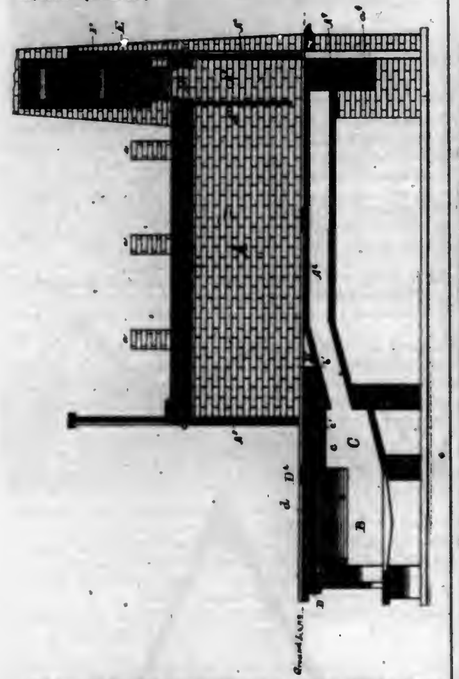
2. In a wheel, the combination of a cylindrical hub having recesses *c'*, spokes formed of rods bent substantially as described, and having the bend resting on the bottom of said recesses, a band overlapping the recesses and bends, and having slots through which the spokes project, and a rim secured to the outer end of said spokes, substantially as described.

315,347. SASH-PULLEY. JOHN B. SCHRODER, Cincinnati, Ohio. Filed Jan. 9, 1885. (No model.)



Claim.—The pulley A, having within it the central chamber and opening, *a*, and the non-wearing bearing C, molded within said chamber and around the journal B, substantially as shown and described.

315,348. DRIER. GEORGE W. SHARER, Terre Haute, Ind. Filed July 26, 1884. (No model.)



Claim.—1. In a drier, the combination of a drying-chamber having an inlet and outlet for air between its ends, a furnace having a flue which forms part of the bottom of the drying-chamber, and an air-passage above the furnace, its upper wall forming a continuation of the bottom of the drying-chamber and having its outlet within said drying-chamber, substantially as described.

2. In a drier, the combination of a drying-chamber having an inlet and an outlet for air between its ends which are provided with doors, a furnace having a flue, part of which is deflected below the bottom to form opening D', and the remainder forming the bottom of said drying-chamber, and an air-passage above the furnace and having its upper wall overlapping the deflected part of the flue to form a continuation of the bottom of said drying-chamber provided with a track for bridging said opening D', substantially as described.

3. In a drier, a drying-chamber having door A^6 at one end, door A^6 at the other, intermediate door, A^7, passage A^8, formed by doors A^6 and A^7, and the opening D' in the bottom of the drying-chamber, substantially as described.

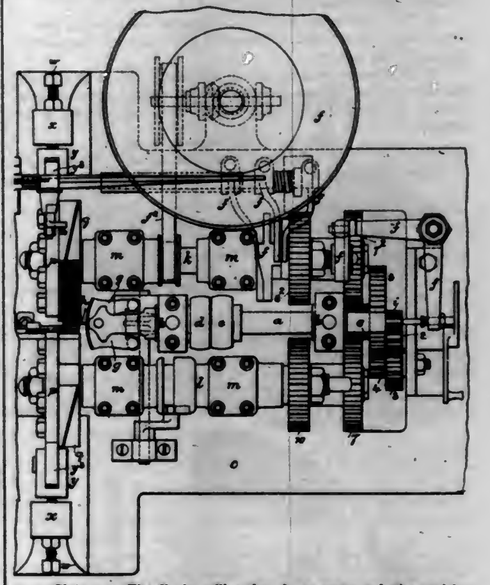
4. In a drier, the combination of a drying-chamber having hollow side walls forming flues *a'*, opening D', and passage A^9, of a series of flues forming the bottom of said drying-chamber, the outer ones of which are connected with the flue-space in the hollow walls of said drying-chamber, substantially as described.

5. In a drier, the combination of several drying-chambers separated from each other by a thin partition, and each having doors A^6, A^6, and A^7, and passage A^9, a breaching having a separate passage for the several drying-chambers, and a chimney with which the breaching communicates, substantially as described.

6. In a drier, the combination of a drying-chamber having a flue in its bottom and provided with doors A^6, A^6, and A^7, and passage A^8, a flue, A^9, connected with said passage, a chimney divided into two parts by a vertical partition, one part connected with said flue A^9, and a breaching connected with passage A^9 and the other part of the chimney, substantially as described.

7. In a drier, the combination of a furnace having a distributing-vault and flues opening into said vault, and the tops of said furnace and vault provided with tile, and an air-passage located above said tile, substantially as described.

315,349. MACHINE FOR ROLLING SCREWS. JOHN SHELDON, Birmingham, County of Warwick, England. Filed Sept. 15, 1884. (No model.) Patented in England Feb. 22, 1884, No. 4,106; in Belgium Aug. 2, 1884, No. 65,931; in France Aug. 5, 1884, No. 163,638; in Canada Oct. 13, 1884, No. 30,375, and in Austria-Hungary Oct. 30, 1884, No. 29,957 and No. 47,278.



Claim.—1. The die for rolling threads on screws and other articles, provided with two or more sets of projecting ribs arranged on different and successive sections, and having the face plain in each section in advance of the ribs thereon, substantially as described.

2. The die for rolling threads on screws and other articles, provided with three or more sets of projecting ribs arranged on different and successive sections of the die, the face of the die in advance of the ribs in two or more sections being plain and in the others covered with ribs, substantially as described.

3. The die for rolling threads upon screws and other articles, provided with two or more sets of projecting ribs upon different and successive sections of the die, the ribs of the first section being triangular and those of succeeding sections trapezoidal in cross-section, substantially as described.

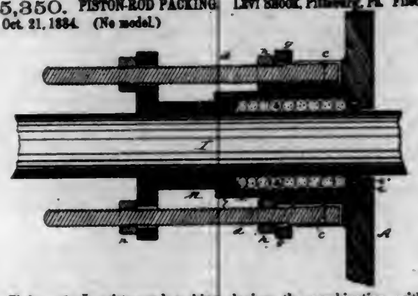
4. A die for rolling threads on screws and other articles, the same having projecting ribs of a triangular cross-section for acting first upon the blank, and projecting ribs of like elevation or pitch, but of trapezoidal section, for acting afterward upon said blank, substantially as described.

5. The combination, with the two roller-dies turning in the same direction, of the rotatory holder having jaws for clamping the blank during the action of said dies, and the toothed gearing connecting positively the shafts of said dies with that of said holder, substantially as described.

6. The machinery for worming or threading metallic screws or other articles with threads of a diameter not exceeding that of the screw-shank, by rolling blanks between dies to form first a V-shaped spiral groove of

suitable depth, and then widening the said groove at the bottom, said machinery comprising the co-operating dies with the ridges, part of them V-shaped, and part of them trapezoidal in cross-section, arranged and operating, as explained, so as to roll in and extend the metal of the blank without expanding the same, and thereby increasing the diameter of the threads beyond that of the original blank, substantially as described.

315,350. PISTON-ROD PACKING. LEVI SHOCK, Pittsburg, Pa. Filed Oct. 21, 1884. (No model.)



Claim.—1. In piston-rod-packing devices, the combination, with the ordinary stuffing-box, of an additional stuffing-box attached thereto, and adapted to slide laterally thereon in conformity with the vibrations of the rod, substantially as described.

2. The combination, with box B, of the extension-box F, bolts *d*, nuts A, ring *l*, rod I, babbitted follower M, and nuts *n*, and the packing, substantially as described.

3. In piston-rod-packing devices, the box F, adapted for movable attachment to an ordinary stuffing-box, upon which it moves or slides laterally, the ring *l*, and the adjustable follower M, substantially as described.

315,351. PLOW. DANIEL D. SELLS, Edna Mills, Ind. Filed Jan. 16, 1885. (No model.)



Claim.—The combination of the beam A, point B, bracket C, and plate G, provided with the holes *g*, of the beveled regulating-wheel D, turning on the axis *d*, support E, composed of the arms E' and *e*, projections F, provided with holes *f*, and pin H, substantially as specified.

315,352. REVOLVING FIRE-ARM. DEXTER SMITH, Springfield, Mass. Filed Feb. 5, 1885. (No model.)



Claim.—1. In a revolving fire-arm, the combination, with the frame and barrel joint parts and the extractor-stem thereof; of a disk hung in the joint to reciprocally rotate on the joint-pin, said disk having an arm thereon engaging with the extractor-stem, a spring attached to one of the cheek-pieces of said joint having a pin thereon engaging with said disk, and means, substantially as described, for disengaging said pin from the disk by rotating the joint parts, substantially as set forth.

2. In a revolving fire-arm, the grooved and perforated cheek-piece *m*, the joint part *n*, having a slot therein, the disk *o*, pivoted in the joint and having an arm thereon and the groove *x* therein, the spring *a*, lying in the groove in said cheek-piece and having a pin thereon engaging with the groove in said disk, and the pin *z*, combined with the extractor-stem of the arm, substantially as set forth.

3. In combination with the barrel and frame joint of a revolving fire-arm having the pin *z* near said joint, the grooved and armed disk *o*, and the spring *a*, secured to the frame and having an arm in the line of movement of pin *z*, and also having a pin thereon engaging with said disk, substantially as set forth.

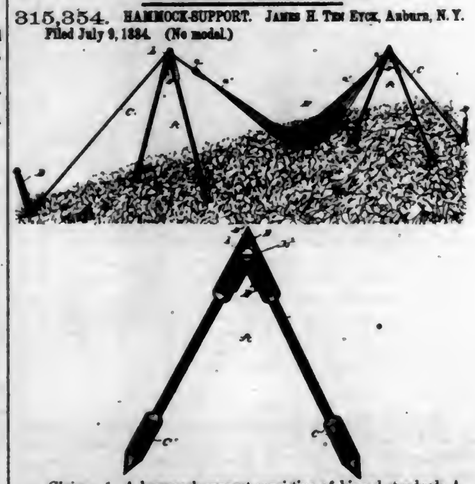
4. In combination with the barrel and frame joint of a revolving fire-arm having the pin *z* near said joint, the disk *o*, pivoted in said joint and having arm *i* and the grooves *x x'*, and the spring *a* on the frame, having an arm in the path of movemeot of pin *z*, and having a pin thereon engaging with said disk, substantially as set forth.

315,353. CARPET. JOHN S. SMITH and SAMUEL SMITH, Glasgow, Scotland. Filed Sept. 2, 1882. (No model.) Patented in England Nov. 9, 1881, No. 4,908.



Claim.—As a new article of manufacture, a carpet or other fabric in which warp-threads of one color overlie weft-threads of the same color only on both sides of the fabric, and the warp in crossing from one face to the other lies between the plies for a throw of the weft before passing to the other ply, the said fabric being evenly two or three ply throughout, and having on one side a correct counterpart or reverse of the pattern on the other side, while the warp and weft of one ply do not show through the weft of another ply, substantially as described.

315,354. HAMMOCK-SUPPORT. JAMES H. TEN EYCK, Auburn, N. Y. Filed July 9, 1884. (No model.)



Claim.—1. A hammock-support consisting of hinged standards A, having orifices *b*, roller *b'*, and hook B, substantially as shown and described.

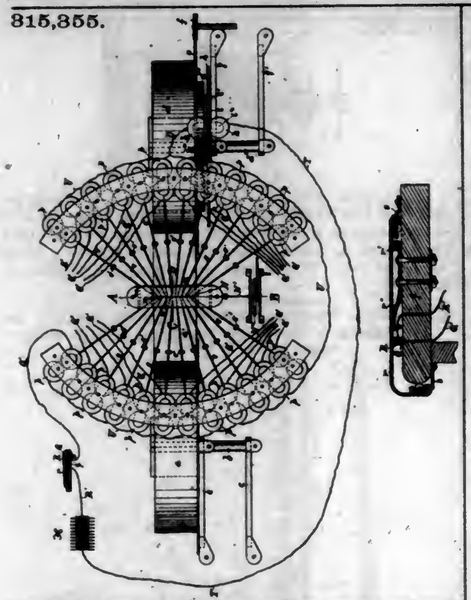
2. The hinged standards A, having tapered ends C', and recess *b*, in combination with frictional roller *b'* and hook B, substantially as shown and described.

315,355. PASSENGER-RECORDER. AUGUSTUS TORREY, Detroit, Mich., and DENNIS J. CASEY, Cylon, Wis. Filed June 25, 1884. (No model.)

Brief.—The record shows whether the passengers are going into or out of the carriage.

Claim.—1. In a passenger-recording device, the combination of the following instrumentalities: steps *q*, yielding plate *r*, electrodes Q R, an armature-lever and markers, a battery and electro-magnets, and wires

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leading thereto for electrically operating said armature-lever and markers, as described, the ribbon *a'*, and mechanically-operated roller *d* for feeding it, and the mechanically-operated lever N', provided with its marker N, to indicate upon the ribbon *a'* the time that the conveyance has been running, as well as the time at which the recording-marks have been made, substantially as described.

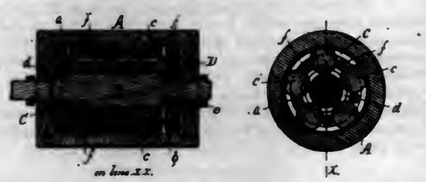
2. In a passenger-recording device, a stationary step, *q*, and yielding plate *r*, with their electrodes Q R, an armature-lever, a marker, a battery, and electro-magnets and wires leading thereto for operating electrically said armature and lever, as described, combined with the brake, electro-magnet R in the circuit and its armature, means applied to roller *d* regulating its speed by said brake, ribbon *a'*, and independent mechanical means applied to roller *d* to feed the ribbon *a'*, substantially as described.

3. In a passenger-recording device, a reel carrying the ribbon *a'*, a guide roller or support, *l*, and a mechanically-operated roller, *d*, combined with the series of electro-magnets *p p*, armature-levers *o o*, and markers *n n*—one for each of the treadles *q*—and battery *x*, connected by means of wires to electro-magnets *p p*, and brake-magnet *k* in the main circuit, as and for the purpose set forth.

4. In a passenger-recording device for the purpose set forth, the mechanically-operated roller *d* and its brake-drum *d''*, in combination with the ratchet or gear wheel *h*, its brake *h''*, and electrically-operated locking and releasing pawl *i*, as and for the purpose set forth.

5. In a recording device for the purpose set forth, the stationary step *q*, having hinged to it the yielding plate *r*, and the interposed springs *r'' r''*, in combination with the flexible guards and packings *s* at the junction of the outer edges of said step and yielding plate, as described.

315,356. ANTI-FRICTION BEARING. THOMAS TRIPP, East Stoughton, Mass. Filed Jan. 23, 1885. (No model.)



Claim.—1. In an anti-friction bearing, the combination, with a rotary shouldered shaft, of separator-disks provided with interior hubs and annular grooves, and securely attached thereto, substantially as herein described.

2. In an anti-friction bearing of the class herein described, the combination, with a rotary shouldered shaft to which are affixed annularly-grooved disks, of two series of rolls contained between the latter, whereby end-thrusts and displacement of the rolls are prevented, substantially as stated.

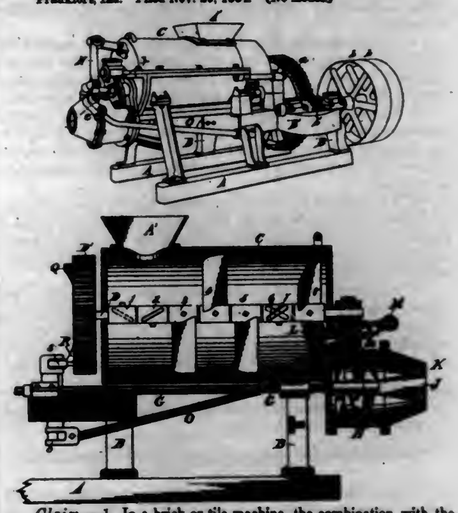
3. In combination, the shouldered shaft B, circular plates C D affixed thereto, and provided with the annular grooves *a b* and hubs *d e*, and two series of rollers, *c c*, *f f*, adapted to travel, respectively, in the manner and for the purposes substantially as herein set forth.

315,357. COATING GUN-COTTON. MAX VON FÖRSTER, Berlin, Prussia, Germany. Filed Dec. 11, 1884. (No specimens.) Patented in Germany Mar. 9, 1883, No. 22,808, and July 31, 1883, No. 26,014; in Italy Aug. 20, 1883, XVII, 15,774, and in Austria-Hungary Dec. 13, 1883, No. 33 and No. 2,486.

Claim.—1. The process of applying a coating to trinito-cellulose or pure gun-cotton, consisting in treating the latter with a solvent which will dissolve part of the gun-cotton and leave a hard film when dry, substantially as described.

2. As a new product, compressed pure trinito-cellulose having a coating of the same mixture, substantially as described.

315,358. BRICK AND TILE MACHINE. WILLIAM W. WALLACE, Frankfort, Ind. Filed Nov. 29, 1884. (No model.)



Claim.—1. In a brick or tile machine, the combination, with the mixing and feeding cylinder, of the feeding-cylinder H, and the shaft G, having the feeding-auger 13, located beyond the blades 8 and 9 of the mixing and feeding shaft, so as to receive the clay endwise therefrom, substantially as described.

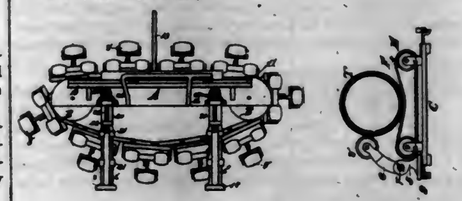
2. In a brick or tile machine, the combination, with the mixing-cylinder and mixing and feeding shaft, of the feeding-cylinder H, and the shaft G, having the conveyer-blades 12, and feeding-auger 13, located beyond the blades 8 and 9 of the mixing and feeding shaft, and the inclined passage forming the communication between the cylinders C and H, substantially as described.

3. In combination with the feeding-blades 8 and 9 upon a pug-mill shaft, the scraper L, automatically operated by connecting mechanism on the driving-gear, whereby the scraper is positively brought down upon the blades 8 and 9 and automatically pushed back by the revolution of the blades, substantially as specified.

4. In combination with the scraper L, operated by plunger M, the operating mechanism consisting of pitman O, cranks T *t*, and cams Q R, substantially as specified.

5. In combination with the cylinder C, the scraper L, operated by a plunger, M, and suitable driving devices, and provided with a stuffing-box, *w*, for securing it in position on the head of the cylinder, substantially as specified.

315,359. TILE-TABLE. WILLIAM W. WALLACE, Frankfort, Ind. Filed Dec. 1, 1884. (No model.)



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Claim.—1. A tile-carrier composed, substantially, of traveling sections C, provided with supporting-pulleys E, and one or more transverse endless belts, F, for receiving the tile, substantially as specified.

2. In combination with the sections C, having the endless belts F, working on pulleys, the guiding-pulley S, secured upon one side of the section, for preventing the tile being carried laterally off of the endless belts, substantially as specified.

3. The combination of the section C, having an attached laterally-projecting lug, 9, the links 1, pivoted to the said sections, and the links 2, pivoted to the ends of the links 1, and having a curved end to strike the lug on the section C and turn it to a horizontal position, substantially as described.

4. The combination, with the endless chain, of the tramway 10, the slide 11, moving thereon, the bar 12, hinged to the slide, the cutting-frame carried by the bar, and means, substantially as described, whereby the slide can be moved by the chain, substantially as described.

5. The combination, with the endless chain having the lug 17, of the tramway 10, the slide 11, moving thereon, the bar 12, hinged to the slide and having the attached lug 16, the cutting-frame carried by the bar, and the swinging link pivoted to and extending across the slide, substantially as described.

6. The combination, in a tile-machine, of the side sills and the carrier traveling horizontally thereon, with a supporting-leg at each end of the sills, composed of sections sliding one upon the other and adjustable lengthwise, for raising or lowering one or both ends of the sills with the carrier, substantially as described.

7. The combination of the side sills, A, the tile-carrier traveling thereon, a supporting-leg at each end of the sills, composed of two sections sliding one upon the other, and having the ears 20 and 21, the screw 23, engaging the ear 20, and the bevel gear-wheels 24 and 25, for raising and lowering one or both ends of the sills and carrier, substantially as described.

315,360. WEARING-APPAREL. JOSEPH WALTEMEYER and HENRY J. ENNIS, Washington, D. C.; said Ennis assignor to said Waltemeyer. Filed Sept. 27, 1884. (No model.)

Claim.—The combination, with the garment B, of the non-elastic strap A, having one end, *a*, permanently attached to the garment, and the other end, after passing through the link D in the end of the ear E secured to the garment, permanently attached to the slide C, working upon the said strap A, as set forth.

315,361. WHIFFLETREE. CHARLES R. WALTER and JACOB E. BLACKBURN, Fredericktown, Ohio. Filed Dec. 11, 1884. (No model.)



Claim.—1. A whiffletree provided on its outer end with a slotted head for the reception of the trace, a spring having one end secured to the whiffletree and the other end extending outward and provided with an enlarged head, substantially as described, and for the purposes set forth.

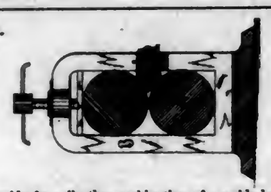
2. A whiffletree provided on its outer end with a thimble, slotted head, and projecting spring-stop, said whiffletree being also provided with a bar-spring having its inner end secured thereto, the outer end of said spring having an enlarged head, substantially as and for the purposes set forth.

3. A whiffletree provided on its outer end with a slotted head, the recessed casting E, and the bar-spring F, having the enlarged head-piece, the parts being united and secured in the manner and for the purposes specified.

315,362. GUIDE-BOX. BENJAMIN WEAVER, Pittsburg, Pa. Filed Nov. 19, 1884. (No model.)

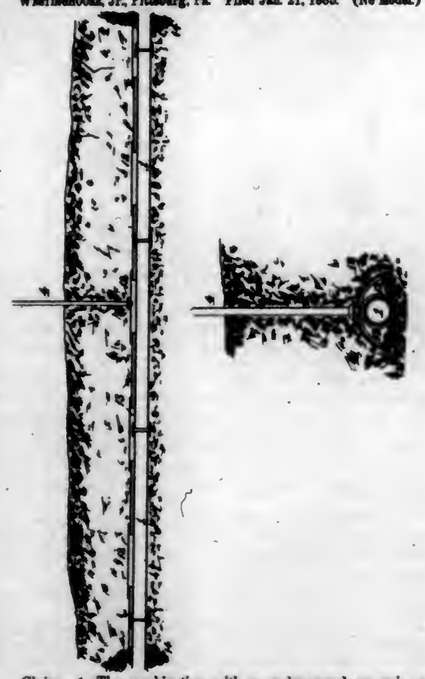
Claim.—1. In a guiding device for rolls, the combination, with the guide-box C, of grooved guides adjusted vertically in said box by means of a wedge inserted in a longitudinal groove in the bottom of the guide and a screw passing through the top of the guide-box and bearing on the guide, substantially as described.

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2. In a guide for rolls, the combination of a guide-box, having set-screws G G in its top, with the guides D D', having the grooves d^2 d^2 on one side and the grooves d d' on their bottoms, the wedge H, fitting the groove on the bottom of said guides, and the set-screw A, for adjusting said wedge, all constructed and arranged substantially as described.

315,363. MEANS FOR DETECTING LEAKS IN GAS-MAINS. GEO. WESTINGHOUSE, Jr., Pittsburg, Pa. Filed Jan. 21, 1885. (No model.)



Claim.—1. The combination, with an underground gas-main, of a superposed sectional cover extending laterally beyond and partially around the main, so as to form a continuous compartment adjoining the upper and side portions thereof for a determined section of its length, packing-partitions fitting around the main and closing the ends of said compartment, and a deflector-pipe extending from an opening in said cover to a point above the surface of the ground, substantially as set forth.

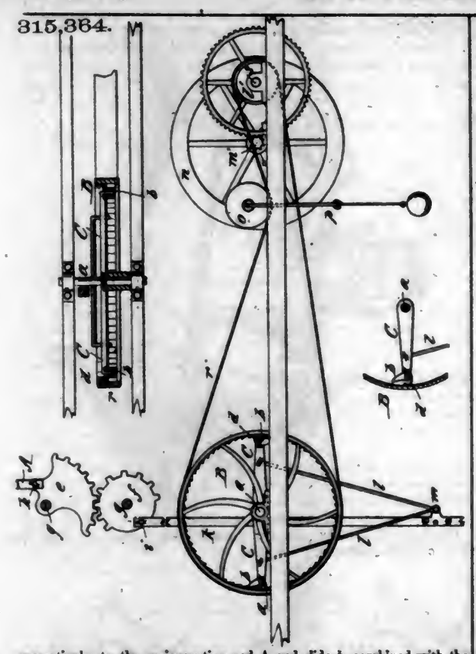
2. The combination, with an underground gas-main, of a superposed sectional cover composed of a series of adjoining but disconnected sections, each bent into the form of a segment of a circle or polygon and projecting laterally beyond the main on each side thereof, a series of packing-partitions surrounding the main and closing the ends of the compartments and the space between the main and the cover, so as to divide said space into separate compartments, and a series of detector-pipes, each extending from an opening in one of said compartments to a point above the surface of the ground, substantially as set forth.

315,364. MECHANISM FOR CONVERTING MOTION. DANIEL D. WILEY, GEORGE L. WILEY, and CHARLES W. WILEY, Lanark, Ill. Filed Sept. 26, 1884. (No model.)

Claim.—1. The combination, with the wheel B, provided on its interior with ratchet-teeth and a plain surface, of the arms C, pawls *b*, and the springs *d*, secured at one end to the pawls and bearing at the opposite end on the plain part of the wheel, as shown, whereby the action of the pawls will be noiseless in their backward movement, as described.

2. The equalizing-gear, consisting of the segments *f e*, connected

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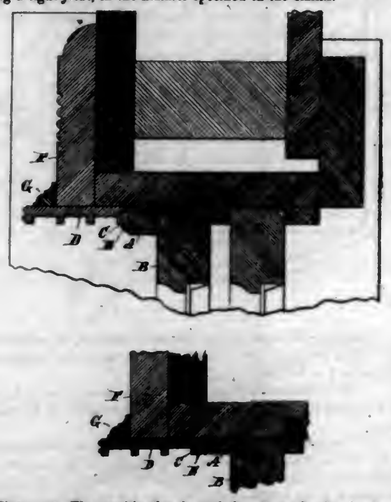


respectively, to the reciprocating rod A and slide *k*, combined with the said rod and slide and connections from the slide to a ratchet-wheel, substantially as described.

3. The combination of rod A, gearing *f e*, slide *k*, rods *l*, arms C, pawls *b*, and ratchet-wheel B, substantially as described, for operation as specified.

315,365. WINDOW-FRAME. HENRY E. WELLER, Milwaukee, Wis. Filed Jan. 16, 1885. (No model.)

Brief.—In a window-frame, an independent blind way-strip and strengthening-bracket, G. The way-strip and stop-bead are connected, forming a tight joint, in the manner specified in the claims.

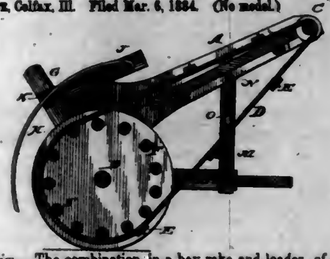


Claim.—1. The combination, in a window-frame having fixed sash retaining ways formed therein, of a separate and independent removable blind-retaining way-strip, D, located inside of the lower sash, sash-retaining stop A, interposed between said removable blind way-strip, and the inner sash-stop provided at its front edge with a rabbet or recess, C, for the reception of the rear edge of said blind way-strip D, and a bead or molding, E, adapted to overlap and retain in place the rear edge of the blind way-strip while it covers the joint between the contiguous edges of said stop and blind way-strip, substantially as set forth.

2. The combination, with the respective sides of a window-frame, of the forward-projecting way-strip D, the front edge of which extends past and in front of the front surface of the outside casing, F, of the stay-strip or molding, G, having bearings against the front surface of said casing F and the outer surface of said way-strip, substantially as and for the purpose specified.

3. The combination, in a window-frame, of the forward-projecting way-strip D, stop A, having recess C, for the reception of the rear edge of said way-strip, bead E, covering the joint between the contiguous edges of said stop, and way-strip and stay-strip or molding G, having bearings against the front surface of the casing F and outside surface of the projecting edge of said way-strip, as set forth.

315,366. COMBINED HAY RAKE AND LOADER. HENRY L. WILLMOTH, Calfax, Ill. Filed Mar. 6, 1884. (No model.)



Claim.—The combination, in a hay rake and loader, of an inclined elevator-frame forming bearings at its ends, a drive-drum journaled in the lower end of the elevator-frame, a roller journaled in the upper end of the elevator-frame, an endless apron passing over the drum and the roller and having transverse toothed cross-strips, a rake-frame hinged to the drive-axle and having flexible teeth secured at their upper ends in a cross-piece and passing through another cross-piece of the frame, a forwardly-extending draft-frame hinged to the drive-axle and having two perforated uprights bearing against the sides of the elevator, a rod passing through the elevator-frame and the uprights, springs secured to the rear ends of the draft-frame and to the upper ends of the rake-frame, and a hook hinged upon the elevator and engaging a lug upon the rake-frame, all constructed and combined as and for the purposes shown and set forth.

315,367. FIRE-PLACE. ISAAC C. WILLIAMS, Auburn, W. Va. Filed May 23, 1884. (No model.)



Claim.—The combination, with the parlor fire-place, of the top plate, N, having the lid-apertures, and provided with holes, as described, the rectangular plate O, having the depending flange, and pins *o'*, to enter the said holes of the plate N, substantially as shown and described.

315,368. APPARATUS FOR TRANSMISSION OF MESSAGES BY ELECTRICITY. GRANVILLE T. WOODS, Cincinnati, Ohio, assignor, by direct and mesne assignments, to the American Bell Telephone Company, Boston, Mass. Filed Apr. 9, 1884. (No model.)

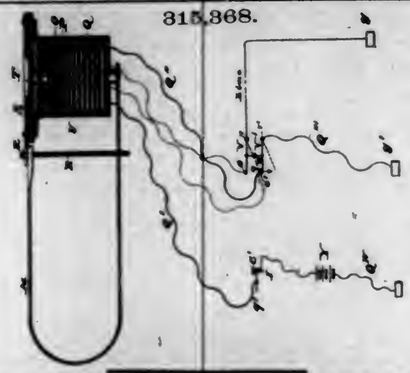
Claim.—1. In combination with and forming a part of a system for electric transmission of messages, a key for varying or breaking an electric current, having contacts 1 D, respectively composed of carbon and a refractory metal, arranged and operating as set forth.

2. In a system for electrical transmission of messages, a sounder having a helix of high resistance in the line-circuit, surrounded by a helix of low resistance in circuit with the transmitter and local battery, the line being connected to a switch which is adapted to cut the low-resistance helix into the line, while the high-resistance helix is thrown out of action.

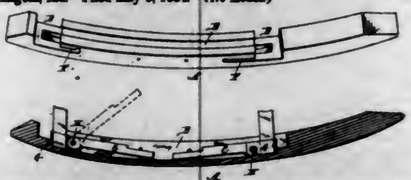
3. A transmitter whose finger-key has a turn-bar having two contact-points of diverse conductibility, substantially as and for the purpose set forth.



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315,369. DETACHABLE ROCKER FOR CHAIRS. GARDNER WORK, Angola, Ind. Filed May 5, 1884. (No model.)



Claim.—1. A detachable rocker provided with the cut-away portions D near each end, the open slots or recesses F, the groove B in its top, and a clamp, C G H, by which the chair-leg is connected to the rocker, substantially as shown.

2. The combination of the rocker having a groove in its top, recesses D, and slots F, with the clamp, the pivotal bolt of greater length than the width of the groove, and the clamping-lever, substantially as shown.

315,370. BARREL-TAP. SYDNEY W. YATTAW, Minoville, N. Y. Filed Nov. 26, 1884. (No model.)



Claim.—1. The combination of the tap A, formed with the shoulder K, center piece, C, provided with openings F and D, and packing B, having the opening G, all arranged substantially as herein set forth.

2. The cap A, formed with the shoulder K, and the flat portion H, in combination with the center piece, C, provided with a plug-opening, F, a wrench-opening, D, and projecting lug I, and the packing B, having the opening G, substantially as described.

315,371. MILK CAN OR CARRIER. ROBERT B. ANDERSON, Bay City, Mich. Filed Nov. 14, 1884. (No model.)

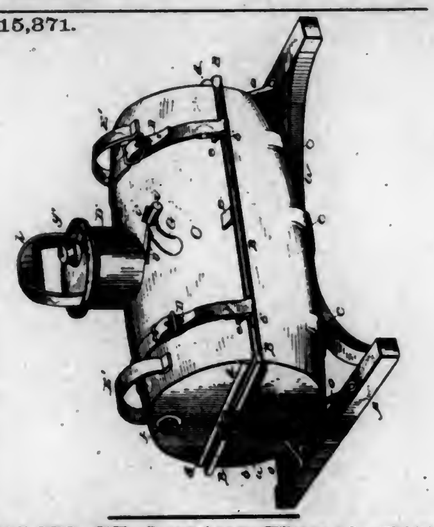
Claim.—1. The combination of the base A, having inwardly-curved front piece and the vertical standards, the frame B, having the pintles, and the can or vessel having the supporting lugs or flanges *d* and *e*, substantially as described.

2. The combination of the base A, having the standards *a' a'*, having bearing-recesses in their tops, the rectangular frame having, the pintles, which rest in said slots, and provided with the loops *b'*, the can having the flange *d* and lugs *e*, and ribs *c*, and the straps D D, for securing the can, substantially as described.

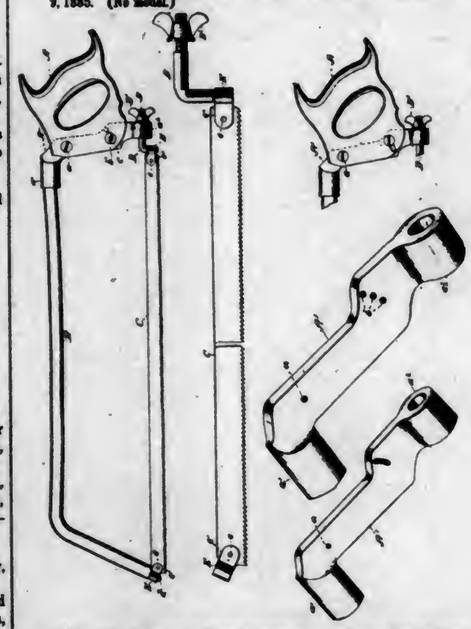
3. The combination, with the frame B and the supporting-base, of the can C, having vent *f* and handles E' E', and provided with the collar D' and a suitable spout, and the straps D D, by which the can is secured in the frame, substantially as described.



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315,372. SAW. EMANUEL ANDREWS, Williamsport, Pa. Filed Feb. 9, 1885. (No model.)



Claim.—1. In a saw of the character described, an adjustable handle pivoted at a point near its front upper corner to the handle-casting, substantially as described.

2. The combination of the handle A, the handle-casting A', and the pivoting-bolt *a*, constructed and arranged substantially as described and shown.

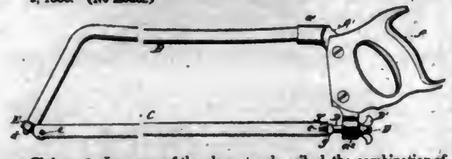
3. The combination of the slotted handle A, the handle-casting A', to which it is pivoted, the bolt *a*, by which the handle is pivoted to the handle-casting, the adjusting-bolt *c*, and the holes *b* in the handle, and the holes *b'* in the handle-casting, by means of which the pivotal adjustment is maintained, substantially as described.

4. The combination of the pivoted adjustable handle A, the handle-casting A', provided with the socket *a'*, and the metal back B, removable both from the handle-casting and from the saw, substantially as described.

5. In a saw of the character described, the combination of back B, provided with the downward-projecting pin *d*, the handle-casting A', the shank D, with downward-bent end, and the saw-blade C, provided with the loops E E, substantially as and for the purposes set forth.

6. In a saw of the character described, the combination of the pivoted adjustable handle A, the handle-casting A', provided with sockets *a a'*, the back B, provided with the downward-projecting pin *d*, and the shank D, with its downward-bent end and tightening-nut D', with the saw C, provided with end loops, E E, substantially as described.

315,373. SAW. EMANUEL ANDREWS, Williamsport, Pa. Filed Feb. 9, 1885. (No model.)

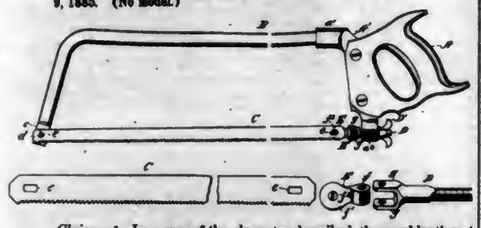


Claim.—1. In a saw of the character described, the combination of the saw-blade C, having a closed slot near each end, the shank D, the loop or tongue E, and screws or rivets for attaching the blade to said parts, substantially as described.

2. In a saw of the character described, the combination of the saw-blade C, provided with an oblong slot, *e*, near each end, the flat-headed shank D, having a thumb-nut, D', and screw or rivet *g*, the tongue or loop E, having the extension *f'*, and screw or rivet *f''*, and the frame and handle of the saw, substantially as described.

3. A saw-blade for meat and metal saws, having an oblong closed slot near each end adapted for detachably connecting said saw at one end to the frame, and at the other end to a straining device connected with the other end of the frame, substantially as described.

315,374. SAW. EMANUEL ANDREWS, Williamsport, Pa. Filed Feb. 9, 1885. (No model.)

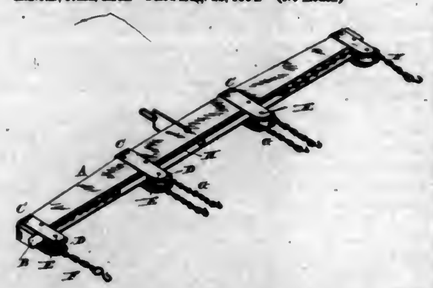


Claim.—1. In a saw of the character described, the combination of the saw-blade C, provided at one end with a closed slot for removable attachment to the outer end of the frame, and a straining-shank, D, connected with the inner end of the frame and removably attached to the inner end of said blade, substantially as described.

2. In a saw of the character described, the combination of the back or frame having a flat outer end, the saw-blade C, provided near each end with a slot, *e*, the shank D, having a bifurcated head, the loop or tongue E, pivoted to the head of said shank, and screws or rivets for attaching the saw-blade to said back B, and loop or tongue E, substantially as described.

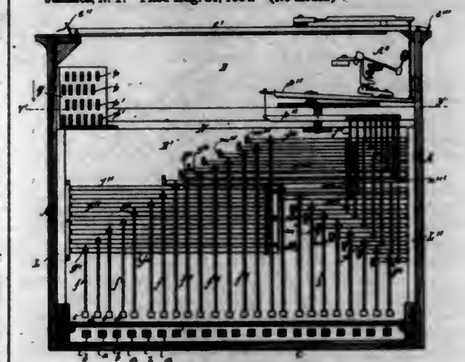
3. In a saw of the character described, the combination of the handle A A', the back or frame B, having a flat outer end, *c*, provided with a set-screw, *d*, having an oblong head, the saw-blade C, provided with an oblong closed slot, *e*, near each end, the shank D, having a bifurcated head and provided with a nut, D', and the loop or tongue E, its screw or rivet *f''*, and bolt E', substantially as described and shown.

315,375. DRAFT-EQUALIZER. GEORGE W. ARNOLD and FRED E. ARNOLD, Iouia, Mich. Filed Aug. 22, 1884. (No model.)



Claim.—The combination, in a draft-equalizer, of the beam A, the clips C, and pulleys D, the chain F, extending along the beam in the groove B and around the pulleys at the end of the beam, and the chain G, extending around the intermediate pulley, substantially as specified.

315,376. ZITHER. KILIAN ARNOLD, Brooklyn, and JOHN J. GERBER, Jamaica, N. Y. Filed Aug. 21, 1884. (No model.)

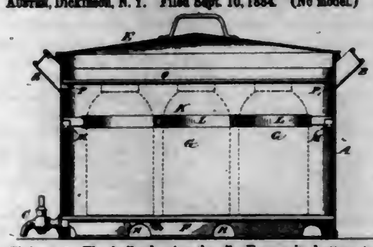


Claim.—1. In a zither, the combination of leading-strings, the pitches of which are changed by fingering in the usual manner, accompanying-strings, a series of hooks therefor for changing their pitches, and a series of pedals connected to and controlling the hooks, whereby the pitches of the accompanying-strings are under control of and changed at the will of the operator without interrupting the performance, substantially as described.

2. In a zither, the combination, substantially as hereinbefore shown and described, with the accompanying-strings *a''*, of the additional bridges *v w*, the hooks *t'*, the wires *t*, the levers *s s'* and *p p'*, the arms *n n'*, the rock-shafts *k k'*, arms *j j''*, rods *i i''*, and the pedals *a b*.

3. In a zither, the combination, substantially as hereinbefore shown and described, with the accompanying-strings *a''*, of the additional bridge *w'''*, the block *w''*, the rods *w''*, the arms *u''*, the arms *u'*, the rod *i''*, and the pedal A'.

315,377. BOILER FOR HEATING FRUIT IN JARS. FRANCES M. AUSTIN, Dickinson, N. Y. Filed Sept. 10, 1884. (No model.)



Claim.—1. The boiler having the ribs F upon its bottom to support the jars, and the brackets M, in combination with the frame I, provided with openings for admitting the upper ends of the jars, and resting upon the brackets M, for the purpose set forth, substantially as described.

2. The boiler having the ribs F upon its bottom to support the jars, and the brackets M, in combination with the frame I, provided with openings for admitting the upper ends of the jars, and resting upon the brackets M, and the rods O, supported in the ears P, all arranged for the purpose set forth, substantially as described.

315,378. MECHANICAL MOVEMENT. JEROME BACON, Oshkosh, Wis. Filed Jan. 29, 1885. (No model.)

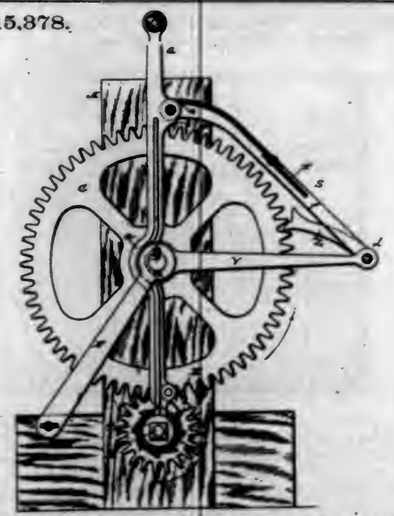
Claim.—1. The combination, with the shafts B and E, the engaging wheels, and the ratchet on lever-shaft, of the main lever pivoted on the lower shaft and the stop bent at *a* to span the upper shaft, the lower pawl, K, the arm S, its links V, and the upper pawl, Z, pivoted at the elbow-joint, substantially as specified.

2. The combination, with the shafts and their engaging gear-wheels, and the ratchet on the lever-shaft, of the lever G, having the lower pawl and provided with the elbow-arm, and links having at the joint an upper pawl, the stop-lug on the lever, and the stop shoulder or bearing on the arm, substantially as specified.

3. The combination, with the main lever having a pawl at its lower end, and the engaging wheels and ratchet, of the bifurcated arm, the links connected to the branches of this arm, and the pawl pivoted at the joint of said links and arm, substantially as specified.

4. The combination, with the upper shaft or journal, the lower shaft, and the engaging gear-wheels mounted on these shafts, of the main operating-lever pivoted on the lower shaft, and having a lower pawl operating a ratchet to turn said shaft, the arm pivoted to said lever and hav-

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ing links connected to the upper shaft, the spring, and the upper pawl pivoted at the elbow-joint, substantially as specified.

5. The combination, with the upper shaft or journal, the lower shaft, and the engaging gear-wheels mounted on these shafts, of the main operating-lever pivoted on the lower shaft, and having a lower pawl operating a ratchet on said lower shaft, the arm pivoted to said lever, its links, and the pawl engaging the upper gear-wheel, and a steadying-brace extending from the upper shaft or journal downward to a bearing, substantially as specified.

315,379. TOY. CHARLES A. BAILEY, Middletown, Conn. Filed Aug. 16, 1884. (No model.)



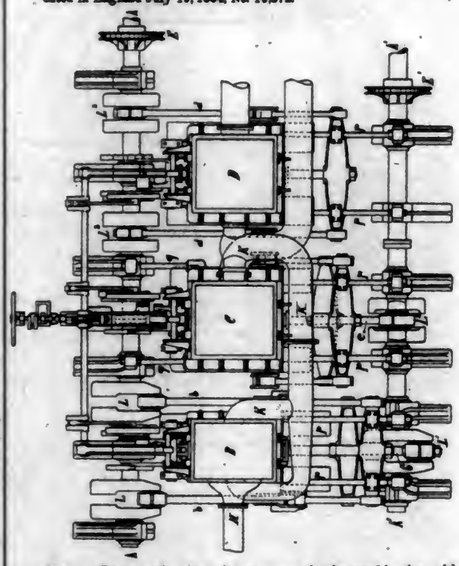
Claim.—As an improved article of manufacture, the rolling toy described, consisting of the body A, the bell H, and its frame G, removably secured to the side walls of the said body, the axle at one end having the wheels concentrically connected, and the straight axle at the opposite end having the wheels eccentrically connected thereto, substantially as specified.

315,380. TOY. CHARLES A. BAILEY, Middletown, Conn. Filed Aug. 16, 1884. (No model.)



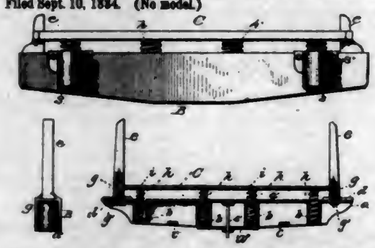
Claim.—A swinging toy consisting of a carriage having a crank-axle, a vibratory lever having a laterally-bent slotted arm, a link connecting the vibratory lever with the crank-axle, and a swing suspended above the carriage and having a lateral projection engaging the slot of the lever-arm, substantially as specified.

315,381. ENGINE FOR TWIN-SCREW VESSELS. EDWARD BAUDUIN, Pola, Austria-Hungary. Filed Oct. 23, 1884. (No model.) Patented in England July 19, 1884, No. 10,372.



Claim.—In an engine for twin-screw vessels, the combination, with the two propeller-shafts, of a single set of engines comprising three or more cylinders, one of which carries connecting-rods at each end, each of which rods is connected to one of the said shafts, the remaining cylinders carrying connecting-rods at one end only, and being each connected to but one of said propeller-shafts, substantially as and for the purpose described.

315,382. BOLSTER-SPRING. SARAH C. BLAINE, Chattanooga, Tenn. Filed Sept. 10, 1884. (No model.)



Claim.—1. In wagons or other vehicles, the combination of a bolster formed with the top and bottom portions, *a' a''*, sides *a a*, and inner pockets, *b*, the parts being united integrally, springs resting in said pockets, and the sub-bolster formed or provided on its under surface with pins or recesses for engaging the upper ends of the springs, substantially as described.

2. In wagons or other vehicles, the combination of a bolster formed at its ends with an elongated slot, and having the pockets *b* and springs *h*, the standards *c*, adjustable in said slots, and provided with nuts by which they are secured, and a sub-bolster formed at its ends to embrace the standards, and friction-rolls which bear against the sides of said standards, substantially as described.

3. The combination, with a wagon-bolster and standards, of a sub-bolster formed at its ends to embrace the standards, and having friction-rollers journaled therein, substantially as and for the purpose described.

4. In wagons or other vehicles, the combination, with a bolster formed of two sides having between them integral spring-bearing cups or receptacles, of detachable spring-bearing cups or pockets secured to opposite sides thereof, and bolts for securing said pockets, passing through the sides of the bolster, and serving in addition to strengthen the parts, substantially as described.

315,383. COOKING-STOVE. NATHAN O. BOND, Washington, D. C., assignor of two-thirds to William T. Criswell and Louis C. Furman, both of same place. Filed Feb. 7, 1885. (No model.)

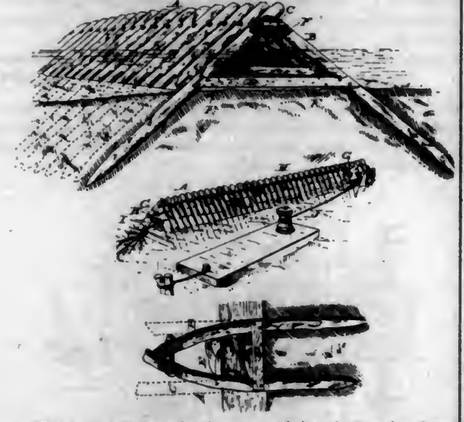


Claim.—1. The combination, with the combustion-chamber of a portable furnace, of a flue-extension for supporting cooking utensils, having a downward opening, the wall of said chamber which adjoins the said extension rising above it at a suitable angle, whereby the side of a utensil placed upon the extension may abut against the same.

2. The combination, with the combustion-chamber of a portable furnace, of a flue-extension for supporting cooking utensils, the wall of said chamber which adjoins the said extension rising above it at a suitable angle, and a movable damper located a short distance in front of said rear wall, and extending across the combustion-chamber and from the bottom to near the top, whereby the products of combustion may be directed against the rear wall or permitted to pass directly to the extension-flue, as and for the purpose described.

3. The combination, with the combustion-chamber of a portable furnace, having an opening, of a flue-extension for supporting cooking utensils, the wall of said chamber which adjoins the said extension rising above it at a suitable angle, and a movable damper located a short distance in front of said rear wall, and extending across the combustion-chamber and from the bottom to near the top, whereby the products of combustion may be directed against the rear wall or permitted to pass directly to the extension-flue, as and for the purpose described.

315,384. JETTY, BREAKWATER, OR SIMILAR STRUCTURE. EBEN M. BOYNTON, West Newbury, Mass., assignor to J. B. Watkins, Lawrence, Kans. Filed Feb. 18, 1885. (No model.)



Claim.—1. A jetty or breakwater consisting of two series of unsawed tree piles, the first series driven with their upper ends inclined forward toward the approaching waves or water, and the second series inclined backward or in the opposite direction and resting upon the first series.

2. In combination with a series of unsawed piles, A, driven in an inclined position equal to or less than the average incline of heavy waves, a second series of similar piles, B, driven at an opposite inclination, and serving to brace the first series, and fastenings C, uniting the upper ends of the piles A and B, substantially as shown and described.

3. In combination with unsawed piles A and B, inclined in opposite directions, fastenings C, uniting their upper ends, and cross ties or braces D, connecting the piles at a point near the water-bed line.

4. The herein-described structure, consisting of unsawed piles A B, inclined in opposite directions, fastenings C, cross-brackets D, and stringers F, all substantially as shown.

5. In combination with the structure consisting of unsawed piles A B, fastenings C, and cross-ties D, ballast E, placed upon said cross-ties, substantially as shown, and for the purpose explained.

6. A breakwater or jetty consisting of two series of piles driven with their lower ends separated, and having their upper ends sprung and drawn together and firmly united, substantially as shown and described.

7. A jetty or breakwater having its interior filled with tree-tops or unbound brush, substantially as shown and described.

8. In combination with a jetty or breakwater frame having an open interior, a sheave or pulley journaled in said frame, and a chain or band passing about said sheave and serving to draw tree-tops and brush into the same, substantially as and for the purpose set forth.

315,385. COMPOUND MATERIAL SUITABLE FOR THE MANUFACTURE OF LINED COFFEE AND SUGAR BAGS AND OTHER USEFUL PURPOSES. THOS. BRIGGS, Manchester, County of Lancaster, England. Filed Apr. 17, 1884. (Specimens.) Patented in England Feb. 16, 1884, No. 3,404; in France Mar. 19, 1884, No. 161,053, and in the East Indies Jan. 15, 1885.

Brief.—The material called "union" is formed by a loosely-woven cotton fabric filled with paper-pulp, the pulp being confined, as much as possible, to one side of the fabric, and in making the compound material for the manufacture of bags according to this invention the adhesive material is applied to the pulpy or paper side of the union, which is then combined by pressure with the woven jute or other fabric.

Claim.—The improved compound material for the manufacture of lined coffee and sugar bags and for other useful purposes, by the combination (by means of a suitable adhesive water-proof substance or composition) of woven jute or other similar fibrous substance with the material above referred to and known as "union," substantially in the manner and for the purposes hereinbefore set forth.

315,386. TYPE-WRITING MACHINE. LEE S. BURRIDGE and NEWMAN R. MARSHMAN, New York, N. Y. Filed Mar. 22, 1884. (No model.)



Claim.—1. The combination, with the base-plate A and the letter-plate C, stationarily mounted thereon, of bearings movably connected with said plate, and a type-plate, E, fitted to slide parallel with the said letter-plate and mounted on said movable bearings, a stylus, F, upon the said type-plate, an impression device, as I, and means, substantially as described, for feeding the paper the distance between the letters by the vertical movement of the type-plate, as described.

2. The combination of a laterally-movable type-plate, E, carrying below its type-surface a plate, H, perforated opposite the type-face of each letter, and an ink-ribbon, *i*, interposed between the type-surface and the said perforated plate, with a stationary impression-stud, I, and means, substantially as described, for moving the paper over the said stud.

3. The combination of the laterally-movable type-plate E with the stationary impression-stud I, the slotted frame L, and mechanism, substantially as shown and described, for moving said frame L as each letter is printed, the parts being constructed, arranged, and operating as and for the purposes set forth.

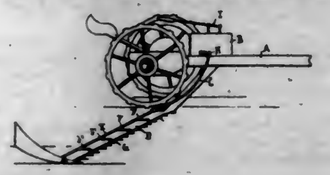
4. In a type-writing machine, the combination of the overhanging arms B, rigidly secured at one end only to the bed A, a letter-plate, C, firmly secured to the free end of said arms, with the short arms D, pivotally secured to the free ends of arms B, and the type-plate E, free to slide in and through the said arms D, as and for the purpose set forth.

5. In a type-writing machine, a support, B, consisting of an overhanging arm or reach with the letter-plate rigidly secured upon the said arm, and having at one end a downward-projecting branch, *b*, fixedly secured to the bed-plate or main support of the machine.

6. In a type-writing machine, the combination of a base-plate and a letter-plate fixedly mounted thereon, with a type-plate and bearing for the same moving independent of the letter-plate and loosely connected with the base-plate, and arranged to receive and guide said type-plate, substantially as described.

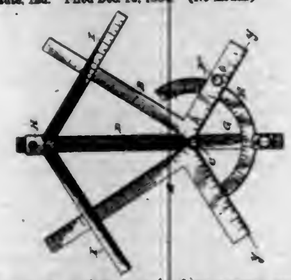
7. In a type-writing machine, the combination of a stationary letter-plate with a type-plate sliding parallel with said letter-plate, and pivoted arms provided with bearings for the said type-plate, whereby an equal leverage is maintained for the same, and the arms carry the minimum of weight, substantially as described.

315,387. REAPING AND MOWING MACHINE. LOUIS A. COUTEAU, Léouville, France. Filed Mar. 6, 1885. (No model.) Patented in France June 11, 1884, No. 162,682, and in England June 13, 1884, No. 8,944.



Claim.—In the construction of reaping and mowing machines of all kinds, the combination, with the knife-bar D and the cutting-blades G, of the reservoir B, the flexible tube C, the pipe E, branches F, tap H, and pump I, substantially as described, for the purpose set forth.

315,388. PLOTTER FOR TINNERS' USE. CHRISTIAN D. COWGILL, Terre Haute, Ind. Filed Dec. 10, 1884. (No model.)



Claim.—1. In a plotter, a pair of try-squares connected pivotally at their outer angles, substantially as and for the purpose herein set forth.

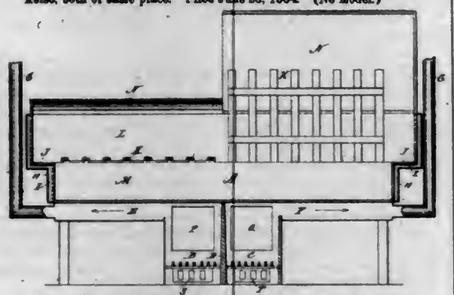
2. In a plotter, the combination, with a pair of try-squares connected pivotally at their outer angles, of a central arm mounted upon the same pivot, substantially as and for the purpose herein set forth.

3. The combination, with a pair of try-squares connected pivotally at their outer angles, and one of which is provided with a segmental arm, of an arm pivoted upon the common center, and having a pointer or indicator registering with the said segmental arm, substantially as and for the purpose herein set forth.

4. The combination, with a pair of try-squares connected pivotally at their outer angles, of a straight arm pivoted upon the common center, and a slide mounted upon the latter, and having a pair of pivoted arms, substantially as and for the purpose herein shown and specified.

5. In a plotter, the combination of a pair of try-squares connected pivotally at their outer corners, one of said squares being provided with a segmental arm, and the other of said squares being provided with a binding-screw for connecting it to the said segmental arm, a straight arm pivoted upon the common center, and a slide mounted upon the said straight arm, and provided with pivoted arms adapted to register with the long arms of the try-squares, substantially as and for the purpose herein shown and specified.

315,389. FEED-COOKING APPARATUS. JOSEPH J. COX, Lawrence, Kans., assignor of two-thirds to Constant J. Cartwright and Clarence Z. Kelso, both of same place. Filed June 28, 1884. (No model.)



Claim.—1. The feed-cooking apparatus having the long boiler combined with a furnace having separate chambers located under the center of the boiler, and separate flues for said chambers extending to opposite ends of the boiler, substantially as shown and described.

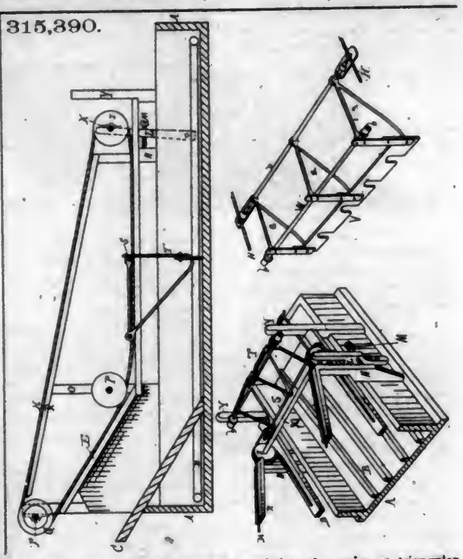
2. The combination, with the boiler A, of the separate furnaces B C, arranged under the center of the length of the boiler, and provided with the flues E F, respectively, extending to the ends of the boiler, and with the dampers S T, substantially as herein shown and described.

315,390. SALT-GRAINER. JOSEPH CUSSON, Bay City, Mich., assignor to Samuel Cusson, same place, and John King, South Bay City, Mich. Filed Sept. 10, 1884. (No model.)

Claim.—1. In combination with a salt-grainer, endless cables carrying a scraper, arranged to enter the grainer at one end, travel the entire length thereof, and in returning to its starting-point to pass over the top thereof and down inclined ways, substantially as and for the purposes set forth.

2. The combination, in a salt-grainer, of the shafts F and K and endless cables H, carrying a scraper, T, with the standards L N and set-bolts M, substantially as and for the purposes described.

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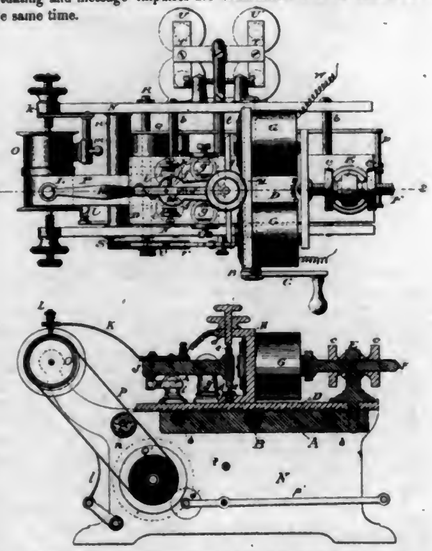


3. A scraper for salt-grainers, consisting of a series of triangular frames, *a*, carrying the scraper-plate V, and the rod W, provided with friction-rolls *b*, substantially as specified.

4. In a device for collecting salt from a salt-grainer, the combination of the grainer A, horizontal ways D, inclined ways E R, shafts F K, wheels G I, the endless cables H, passing over said wheels, adjustable standards L N, set-bolts M, pulleys P, and scraper T, when constructed, arranged, and operating substantially in the manner and for the purposes set forth.

315,391. AUTOGRAPHIC TELEGRAPH. SYLVESTER P. DENISON, New York, N. Y., assignor of one-half to Robert D. Radcliffe, same place. Filed June 17, 1884. (No model.)

Brief.—An autographic telegraph in which the stylus is in the same circuit with its actuating main-line electro-magnet, whereby the actuating and message impulses are transmitted over the same line at the same time.



Claim.—1. An automatic autographic telegraph-instrument having the operating stylus or electrode attached to the armature of an electro-magnet fixed to one pole of a permanent magnet, and vibrating over the surface of the substance on which the message is written or is to be recorded, said electro-magnet placed in the main line and actuated by certain changes of polarity introduced into the current on said line, substantially as set forth.

2. The operating stylus or electrode L, its arm K, the armature I of an electro-magnet in the main line, said magnet being fixed to one pole of a permanent magnet, in combination with means for reversing the polarity of the current, substantially as set forth.

3. The vibrating stylus or electrode attached to the armature of an electro-magnet fixed to one pole of the permanent magnet, both the stylus and electro-magnet being in the main-line circuit, in combination with means for reversing the polarity of the current, whereby the changes of polarity actuate the magnet and the circuit is preserved for the transmission of the message-impulses, substantially as set forth.

4. The combination of the following parts: means for reversing the polarity of the current of the main line, an electro-magnet fixed to one pole of a permanent magnet, an armature, I, with its arm J and contact-spring M, and the relay-points *h h'*, by which the feed mechanism is actuated and brought into exact unison with the changes of polarity on the line and the vibrations of the operating electrode or stylus, substantially as described.

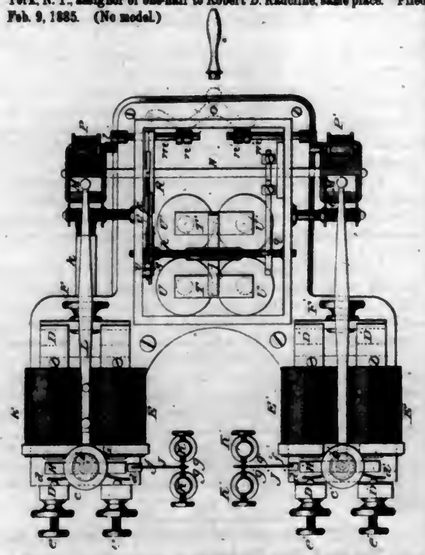
5. The combination of the electro-magnets U U' with the contact-points *h h'* and the contact-spring M on the arm J, operated independently of said electro-magnets, by which the said magnets are alternately energized and a tilting motion given to the connected armatures T T', substantially as described.

6. The combination of the mechanism for feeding the paper under the electrode, consisting of the electro-magnets U U', the tilting connected armatures T T', the shaft *t*, the rocking lever *s*, the pawls *r r'*, the connecting-rod *u*, the escapement *v*, the ratchet-wheel S, the drums Q Q', the friction-roller *o*, and the belt P, substantially as set forth.

7. The combination of means for reversing the polarity of the main-line current, the feed mechanism, the relay-points *h h'*, the contact-spring M, the armature I, and the electro-magnet fixed to one pole of a permanent magnet, with the operating stylus or electrode, both the said stylus and electro-magnet being in the main-line circuit, whereby the operation and synchronism of all parts are produced and maintained, and at the same time the circuit of the line is preserved for the transmission of the impulses caused by the contact of the transmitting-electrode with the ink of the written message, substantially as herein set forth.

8. The combination of the parts operating the stylus or electrode and the feed mechanism with the cylinder O, the slide-bars *b b'*, and the screw B, by means of which the electrode may be shifted from opposite the center of the transmitting-strip to that of the receiving-strip, and the machine thus converted into either a transmitter or receiver, as desired, substantially as set forth.

315,392. AUTOGRAPHIC TELEGRAPH. SYLVESTER P. DENISON, New York, N. Y., assignor of one-half to Robert D. Radcliffe, same place. Filed Feb. 9, 1885. (No model.)



Claim.—1. An automatic autographic telegraph-instrument having the operating stylus or electrode vibrating over the surface of the substance on which the message is written or is to be recorded attached to or connected with an armature pivoted in the field of a permanent magnet, the said armature being polarized by a helix placed in the main line and actuated by certain changes of polarity introduced into the current on said line substantially as set forth.

2. The stylus or electrode M, the arm L, rigidly attached to the armature H" in the circuit of the main line, and pivoted at its center, in combination with a means for reversing the polarity of the current, substantially as described.

3. The stylus or electrode M, the arm L, rigidly attached to the armature H", which is pivoted at its center, both the armature and the stylus being in the circuit of the main line, in combination with a means for reversing the polarity of the current, whereby the changes of polarity cause the vibrations of the armature, and the circuit is preserved for the transmission of the message-impulses, substantially as set forth.

4. The combination of the following parts: means for reversing the polarity of the current of the main line, the armature H", with its field-magnets, the contact-springs J", and the relay-points *g" g"*, and battery connections and magnets by which the feed mechanism is actuated and brought into exact unison with the vibrations of the operating stylus or electrode, and means for causing changes of polarity on the line, substantially as described.

5. The combination of the electro-magnets U U' with the relay-points *g" g"*, and the contact-springs J", attached to and operated by the armatures H", by which the said magnets are alternately energized, and by the connected armatures T T' a rocking motion given to the shaft *h*, substantially as described.

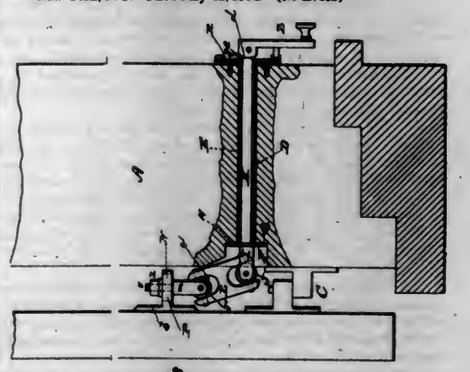
6. The combination of the mechanism for feeding either of the two strips of paper under the electrodes, consisting of the electro-magnets U U', the tilting connected armatures T T', the shaft *h*, the rocking lever S, the pawls *k k'*, the connecting-levers *u v*, the escapement V, the ratchet-wheel R, the drums O O', the friction-rollers P P', and the cam-lever *o*, by which one of the said rollers is made to engage with its drum while the other is withdrawn, substantially as herein described.

7. The pole-changer *q*, consisting of three plates on the periphery of a rocking wheel and two contact-rollers operated by a means other than that of the current passing through it, substantially as herein shown and described.

8. The combination of the pole-changer *q* with the feed mechanism operated by a local battery for reversing the current on the main line, whereby the said current is not taxed to reverse its own polarity, and at the same time the motions of the various parts and the action of the main and local circuits are made reciprocal and the operation of the entire machine automatic, substantially as herein set forth and described.

9. The combination, in one machine, of two electrodes or styluses with their operating armatures and magnets with a single feed mechanism having two feed-drums and friction-rollers, the several parts connected by a circuit-controlling mechanism whereby either stylus may be operated at will, and the same machine be thus used for transmitting or receiving, substantially as herein set forth and described.

315,393. SHUTTER-WORKER. RUSSELL G. DUDLEY, Jersey City, N. J., assignor to the Dudley Shutter Worker and Burglar Alarm Company New York, N. Y. Filed July 12, 1884. (No model.)



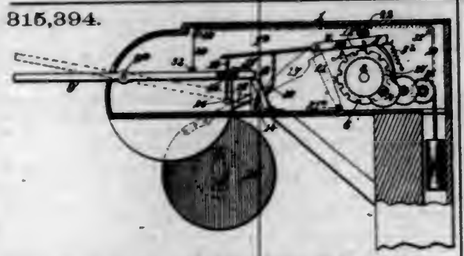
Claim.—1. In a shutter-worker, the combination, with the operating-shaft K, running horizontally through the casing, of the shutter-lug P, the fork-bolt *m*, and the double gimbal-joint, whereby said shaft is connected to said fork-bolt, substantially as specified.

2. In a shutter-worker, the combination, with a shaft running horizontally through the casing, of a double gimbal-joint and devices for connecting the same with a shutter, substantially as specified.

315,394. SIGNALING APPARATUS FOR RAILROADS. J. PARR DUNN, New York, N. Y. Filed Apr. 12, 1884. (No model.)

Claim.—1. The combination, with a disk having its periphery divided to represent equal increments of time, of mechanism for giving rotation to said disk, a detent-lever engaging with and arresting the rotation of said disk, an actuating-lever operated by a passing train, and a semaphoric signal which is displayed by the operation of the actuating-lever, substantially as described.

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2. The combination, with a disk having its surface divided to represent equal intervals of time, of mechanism for rotating said disk, a detent engaging with the disk and arresting said rotation, a pivoted lever carrying said detent, and a gravity-pawl hinged upon the end of said lever and drawing upon the periphery of the disk as the detent rises from it to initiate the rotation of the latter, substantially as described.

3. The combination, with a disk having its periphery divided by notches into equal portions, of a pivoted lever having a detent which engages with said notches, an actuating-lever projecting beyond the casing and connected to the detent-lever, and a dog locking the actuating-lever upon the disengagement of the detent, and tripped from beneath it by the rise of the detent-lever upon the engagement of its detent with the notches of the disk, substantially as described.

4. The combination, with a rotating time-disk, of a detent-lever, an actuating-lever connected therewith, a signal carried upon a pivoted weighted arm, a pin mounted upon the actuating-lever and overlying the signal-arm, and a dog locking the weighted end of the latter as the signal is dropped and tripped from beneath it by the detent-lever upon its engagement with the disk, substantially as described.

5. The combination, with a notched time-disk having a fixed rotation, of a detent-lever by which it is released and arrested, a pivoted actuating-lever connected with and operating the detent-lever, and a cord leading from the actuating-lever to the drum of the clock-gearing, by which rotation is given the disk, whereby the drum is wound after each fractional rotation, substantially as described.

6. The combination, with a notched time-disk, of a releasing-lever having a detent engaging with the notches in said disk, a pivoted actuating-lever connected with the releasing-lever, a semaphoric signal thrown down by the actuating-lever, and a gravity-pawl hinged behind the inner end of the arm carrying the signal and locking the latter in view during a partial rotation of the disk and releasing it as said rotation is arrested, substantially as described.

7. The combination, with a disk having its periphery equally divided by notches, of a detent resting upon it and engaging at intervals with said notches, a pivoted lever carrying said detent, a pivoted actuating-lever connected with the detent-lever, a dog automatically locking the same during the movement of the disk, and a spring-actuated hinged bar mounted upon the locomotive and engaging with a spring-dog when the bar is depressed, substantially as described.

8. The combination, with the notched time-disk, of a weighted lever carrying a detent engaging with the notches in said disk, an actuating-lever connected with and operating the detent-lever, and a cord connected to the inner end of the actuating-lever and passing over the pulleys to the drum carrying the weight-cord, by which movement is given to the gearing which rotates the time-disk, said cord being wound upon the drum in a direction opposite to that of the weight-cord, whereby the latter is rewound by the movement of the actuating-lever, substantially as described.

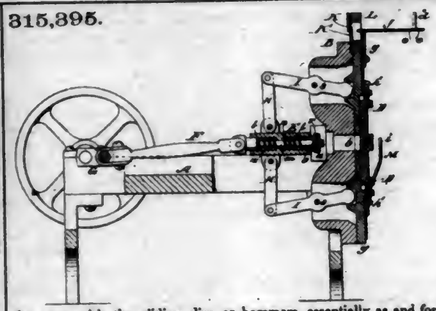
9. The combination, with a weighted and pivoted actuating-lever, of a pin mounted upon or near its end, a semaphoric signal carried by a weighted arm, and a dog pivoted behind the rear end of the arm carrying the signal, by which said signal is locked in view, substantially as described.

10. The combination, with the notched time-disk, of a pivoted releasing and arresting lever having a detent engaging with the notches in said disk, an actuating-lever connected with it, a signal carried by a pivoted arm and thrown down into sight by the action of the actuating-lever, a pawl hinged behind the end of the signal-supporting arm, and a cord leading from said pawl to the inner end of the detent-lever, by which the pawl is tripped as the detent engages with a notch upon the disk, substantially as described.

315,395. FORK-POINTING MACHINE. PHILIPPE D. DUPONT, Summerville, Vt. Filed May 15, 1884. (No model.)

Claim.—1. In a machine for pointing or sharpening the prongs of forks and other like articles, the combination, with the pointing dies or hammers D and D′, arranged to alternately approach and recede from each other in pairs, as described, of a reciprocating slide or sliding stock having combined with it a spring-transmitter and devices connecting

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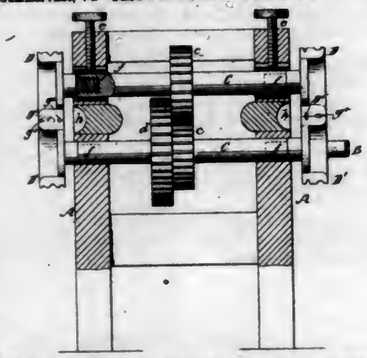


the same with the sliding dies or hammers, essentially as and for the purpose herein set forth.

2. The reciprocating stock or box E, provided with opposite end spiral springs, *n n*, in combination with the rod *m*, one or more adjusting-nuts, *r u*, the driving connecting-rod F, the toggle levers or rods H, the pivoted arms I, and the radially-sliding dies or hammers D D′, arranged for operation together alternately in pairs, substantially as shown and described.

3. In combination with the fork-prong pointing or sharpening dies D D′, the plate J, with its adjustable stop *d*, and the knives K K′, essentially as and for the purpose specified.

315,396. FORK-PRONG-ROLLING MACHINE. PHILIPPE D. DUPONT, Summerville, Vt. Filed June 12, 1884. (No model.)



Claim.—1. In a machine for rolling fork-prongs, the diametrically-divided rolls D D′, made hollow or dished on their sides, substantially as herein shown and described.

2. The combination, with the frame of the machine and shafts which carry and drive the rolls, of one or more pairs of diametrically-divided rolls made hollow or dished on their sides and arranged to occupy an overhanging position on their shafts outside of the frame, essentially as described.

3. The diametrically-divided positively-driven rolls D D′, constructed with edging and side flattening rolling-grooves, the walls of one groove projecting at right angles to the walls of the other groove for action on the several sides of the prongs of a fork-blank under changed positions of the blank as fed to the machine, substantially as specified.

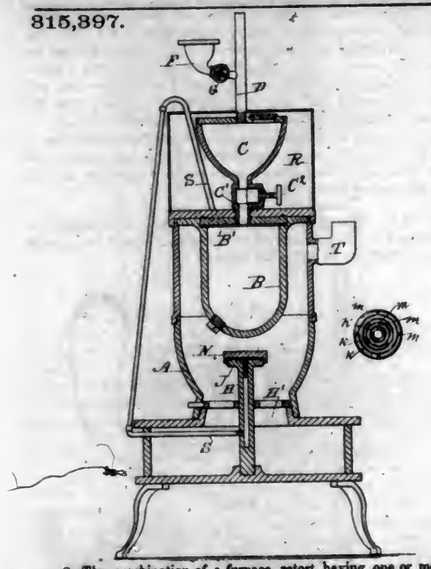
4. In a machine for rolling fork-blanks, the frame of the machine constructed with one or more exterior side grooves or recesses, *h*, in combination with one or more pairs of diametrically-divided positively-driven rolls, D D′, arranged on the outside of said frame, essentially as and for the purposes herein set forth.

5. The combination of the frame A, having exterior side recesses, *h h*, the shafts B C C, the gears *b c c d*, and the diametrically-divided rolls D D′ outside of the frame on its opposite sides, essentially as specified.

315,397. FURNACE FOR NIGHT-SOIL. ANDREW ENGLE, Metz, Iowa. Filed Mar. 3, 1884. (No model.)

Claim.—1. An apparatus for utilizing night-soil and sewage and dispensing with sewer-gas in dwellings, towns, and cities, composed of the following elements, to wit: a bowl or basin and tube adapted to receive and convey sewage, a reservoir adapted to receive and retain sewage, having a valve or gate for discharging its contents, a retort and furnace combined and adapted to cremate sewage in the retort and convert it into gas and charcoal, and a tube, superheater, or burner adapted to convey and consume the gas generated in the retort.

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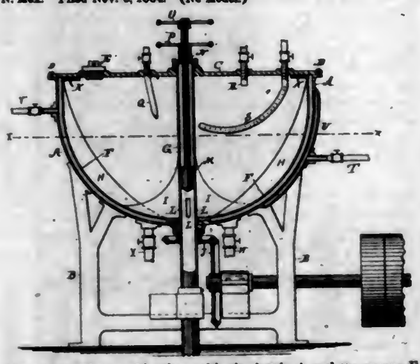
2. The combination of a furnace, retort having one or more gas-conveying tubes attached, a reservoir having a discharge-valve or cut-off, and one or more privy bowls or basins, to operate in the manner set forth, for the purposes specified.

3. The combination of a furnace, a retort having an opening adapted for removing charcoal therefrom, a reservoir having a valve or cut-off adapted for emptying the contents into the retort, one or more privy bowls or basins in position to discharge their contents into the reservoir, a tube to convey gas from the retort, and a superheater to receive and distribute gas within the furnace, for the purposes specified.

4. A superheater and gas-burner composed of a tube having a closed bottom and an annular flange or plate at its top provided with concentric grooves and intersecting transverse grooves in its top face, and a cover adapted to close the grooves and to cause the gas to be distributed from the circumference of the burner, substantially as shown and described.

5. The combination of one or more furnaces, one or more retorts, one or more reservoirs having discharge-valves or gates, one or more privy bowls or basins, one or more gas superheaters and burners, one or more furnace-flues, and one or more ventilating-flues above the privies with or without a chimney in a building, to operate in the manner set forth, for the purposes stated.

315,398. CENTRIFUGAL ORE-FILTER. THOMAS T. EYRE, Carlisle, N. Mex. Filed Nov. 6, 1884. (No model.)



Claim.—1. The combination, with the kettle A and the screen F, vertically journaled therein, of the cover C, secured thereon with screw or swing bolts, and the screw-plug E, fitted in the lid, as shown and described.

2. The combination, with the kettle A and screen F, vertically journaled therein, and the removable cover C, of the pipe S, passing through the cover at some distance from the edge thereof, bent toward center, closed at the end, and perforated along its sides, as and for the purpose specified.

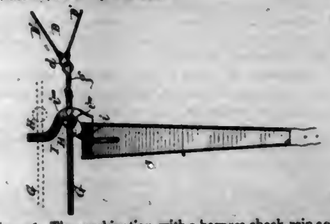
3. The combination, with the kettle A and the screen F, of the hollow vertical shaft G, supporting the screen, and the valve M, provided with a screw-shank and external hand-wheel, O, and a check-nut, P, the hollow shaft being provided with ports L, substantially as shown and described.

4. The combination, with the kettle A, the screen F, and its vertical shaft G, of the ribs H, extending from or near the top of the screen down its sides to near its center of revolution in a spiral direction, as shown and described.

5. The combination, with the kettle A, the screen F, and its vertical shaft G, of the arms I, secured at their inner ends to the said shaft, secured along their bottoms to the screen, and extending away from the shaft spirally, as and for the purpose specified.

6. The combination, with the kettle A and the screen F, vertically journaled therein, of the passage U, extending from near the top to near the bottom of the kettle and connected therewith throughout its height by perforations in the kettle, and the pipe T, connected with passage U, as shown and described, for the purpose specified.

315,399. HARNESS CHECK-REIN. JAS. FOWLER, Burlington, Iowa. Filed Oct. 13, 1884. (No model.)

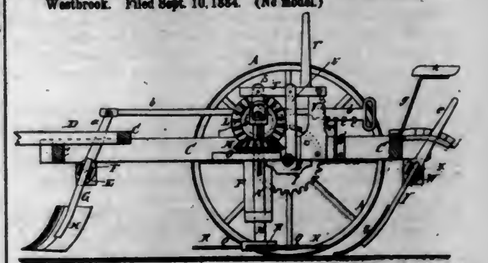


Claim.—1. The combination, with a harness check-rein and an auxiliary rein secured thereto, provided with an adjustable stop or ball, and extending to within reach of the driver within the vehicle to which the draft-animal is harnessed, of a check-rein hook or holder having curved sides, substantially as described, adapted to operate with said auxiliary rein and stop, substantially as and for the purpose specified.

2. A harness check-rein hook constructed, substantially as described, with a contracted slot in its lower portion, a concave rear side, i″″, and convex front side, i″″, in combination with the check-rein D and auxiliary line G, provided with a ball or stop, H, substantially as and for the purpose specified.

3. A harness check-rein hook constructed, substantially as described, with a contracted slot in its lower portion and an enlarged hole in its upper portion, and a concave rear side and convex front side.

315,400. COMBINED COTTON SWEEP, CHOPPER, &c. THOMAS J. FOWLER, Birmingham, Ala., assignor, by mesne assignments, to John C. Westbrook. Filed Sept. 10, 1884. (No model.)

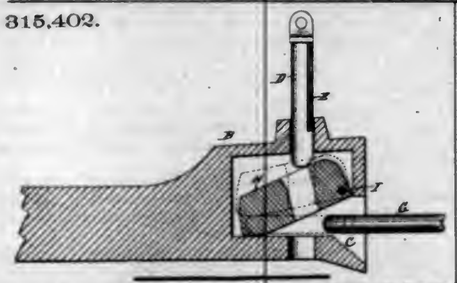


Claim.—In a combined sweep, chopper, and dirter, the combination, with frame C, the axle B, having a gear-wheel, I, the shaft K, parallel with said axle, and having a gear-wheel, J, meshing with the gear-wheel I and beveled gear L at its inner end, the bracket P, depending from the frame C, the vertical shaft N, loosely mounted therein, and provided with horizontal blades Q R on its lower end, the beveled pinion M, connected to shaft N by a tongue and groove, and meshing with bevel-gear L, the coupling S, swiveled to the upper end of shaft N, the pivoted lever T, connected to said swiveled coupling, and the rack V, adapted to be engaged by said lever T, substantially as set forth.

315,401. CAR-COUPLING. JEFFERSON FULLER, Huntington, W. Va. Filed Oct. 9, 1884. (No model.)

Claim.—The combination, with a draw-head, a link-pin, and means for supporting it in the draw-head when raised, of a lever extending across the end of the car, two rods, L, attached to the car, forming loops to hold the ends of the lever loosely, shoulders upon the lever increasing its thickness to bear endwise against the said rods or loops, and a rope or chain connecting the middle of the lever with the link-pin, substantially as shown and described.

315,402.



315,402. COMPOSITION OF MATTER FOR LINING AND FACING MOLDS. WILLIAM N. GARTSIDE, Richmond, Ind. Filed Sept. 19, 1884. (No specimens.)

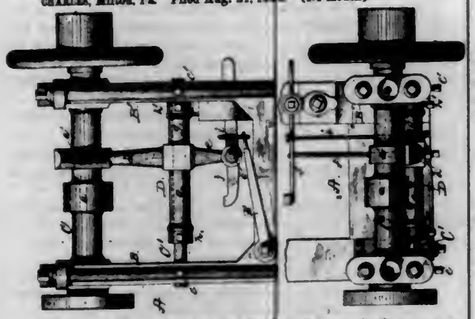
Claim.—1. The composition for facing or lining molds or cores, composed of pulverized mica and pulverized asbestus, in about the proportions specified, and substantially as set forth.

2. A composition for facing or living molds for cores, composed of pulverized mica, pulverized asbestus, and sand, in about the proportions specified, and substantially as set forth.

3. A composition for facing or lining molds or cores, composed of pulverized mica, pulverized asbestus, and starch-dust, in about the proportions specified, and substantially as set forth.

4. A composition for facing or lining molds or cores, composed of pulverized mica, pulverized asbestus, sand, and starch-dust, in about the proportions specified, and substantially as set forth.

315,408. NIPPER-BAR FOR NAIL-MACHINES. CHARLES D. GODCHARLES, Milton, Pa. Filed Aug. 21, 1884. (No model.)



Claim.—1. In combination, the fixed shaft C', set in the rear posts of a nail-cutting machine, and provided with adjustable collars having set-screws, the nipper bar or lever D, formed with the laterally-extended sleeve *g* and lever-arms *d e*, the rod *f*, and nipper *j*, all substantially as described.

2. In combination with the main shaft of a nail-cutting machine, a fixed shaft or bar secured in the rear posts of the machine and provided with adjusting-collars, the nipper, and nipper-rod *f*, and the nipper bar or lever, formed with a laterally-extended sleeve to fit over the fixed shaft and held in position by adjustable collars, substantially as described.

315,404. CONVEYER FOR THRASHING-MACHINES. DAVID H. GOOD, Canada, Kans. Filed Nov. 25, 1884. (No model.)

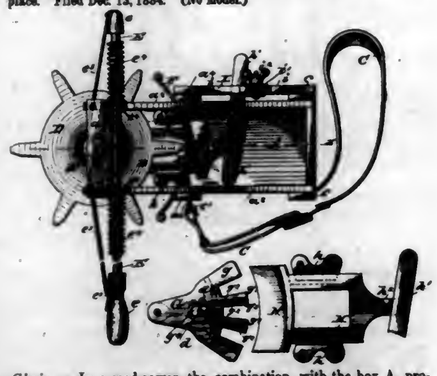


Claim.—1. In a grain-conveyer, the combination of a trough, shaft-hangers secured upon the sides of them and having rounded lower ends, an endless apron or carrier traveling upon suitable rollers, one of which is a drive-pulley therefor, a yoke, a transverse shaft extending through the said yoke, and oblong openings in the lower ends of the said hangers, which are thereby caused to rest upon the yoke without strain upon the shaft, a segmental track, a tubular collar extending downwardly from the said yoke, and a shaft having its bearings in said collar and gearing with the transverse shaft, and conveying motion to the latter, substantially as and for the purpose set forth.

2. The combination, with a feed-chute and frame of a thrashing-machine and a segmental track suitably attached thereto and composing a pair of semicircular arms the outer one of which is lower than the inner one, of a conveyer and a supporting-yoke provided with a downwardly-extending tubular collar screw-threaded at its lower end, and having washers and a nut, whereby it is mounted adjustably upon the said track, substantially in the manner and for the purpose set forth.

3. In a conveyer for thrashing-machine feeders, the combination of the machine-frame, the double segmental track, the yoke laterally adjustable thereon, and the conveyer-frame mounted upon said yoke, as and for the purpose shown and set forth.

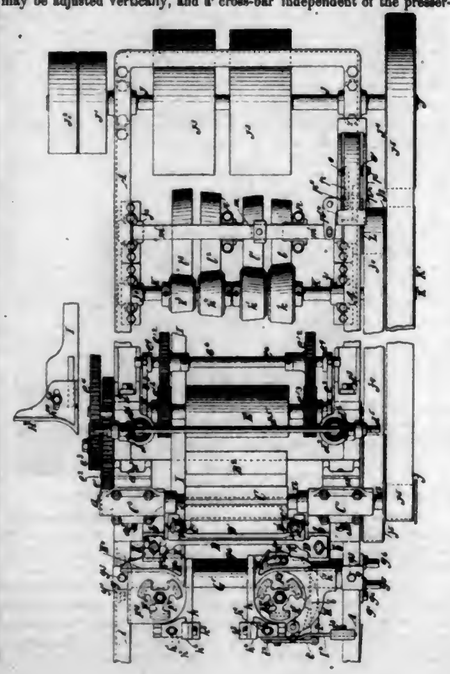
315,405. BROADCAST SEED-SOWER. HENRY A. GORE, Goshen, Ind., assignor of two-thirds to Edward W. Walker and Hiram W. Rex Ton, same place. Filed Dec. 13, 1884. (No model.)



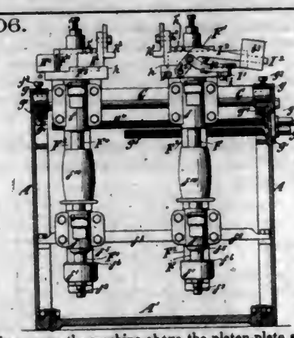
Claim.—In a seed-sower, the combination, with the box A, provided with the slot *a*, and a seed-casting device, of the vibrating plate G, provided with the arms *g g'* and projections g^2, the closing-plate H, lever A', link h^2, and detaining-piece i^4, moving on the strip I and controlled by the screw i^2, substantially as specified.

315,406. WOOD-PLANING MACHINE. WILLIAM H. GRAY and ALFRED HUTCHINSON, Brooklyn, N. Y., assignors to the Glen Cove Machine Company, (Limited,) same place. Filed Jan. 26, 1885. (No model.)

Claim.—1. In a wood-planing machine, the combination, with a platen-plate and an upper cutter-head and its journal-boxes above the platen-plate, of a presser-bar and pockets or housings wherein said bar may be adjusted vertically, and a cross-bar independent of the presser-



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bar extending across the machine above the platen-plate and connecting the pockets or housings and journal-boxes, substantially as herein described.

2. The combination, with the platen-plate B^2 and upper cutter-head and journal-boxes C C', of a presser-bar, D', and a cross-bar, D, connecting the journal-boxes C', and provided with pockets or housings *c*, wherein the ends of the presser-bar are adjustable vertically, and which are kept in line by the cross-bar D, substantially as herein described.

3. The combination, with the side cutter-head of a wood-planing machine, of a chip-breaker movable toward and from the work, a weight, and connections through which the weight produces a variable pressure of the chip-breaker upon the lumber, such pressure being decreased as the thickness of the cut increases, substantially as herein described.

4. The combination, with a side cutter-head, F', a head-plate, F^2, below the same, and a chip-breaker, H, pivoted at h^2, and movable on the head-plate toward and from the work, of the weight i^3, and the levers I' I^2, and rod i^4, through which the chip-breaker is pressed against the work with a force which decreases as the thickness of the cut increases, substantially as herein described.

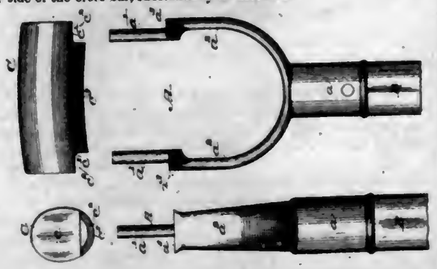
5. The combination, with the side cutter-spindle, F^4, and head-plate F^3 of a wood-planing machine, of a frame, F^2, wherein the spindle is journaled, and which supports the head-plate F^3, a cross-bar, G, supporting the frame F^2, and along which said frame is movable, and slotted plates *g'*, in which the ends of the bar G are supported, and which are bolted to the side frames of the machine, and screws g^2, whereby said slotted plates, with the bar G and parts supported thereby, may be adjusted vertically to compensate for wear of the head-plate F^3, substantially as herein described.

6. In a wood-planing machine, the combination, with a side cutter-head and a side or edge guide, I, extending lengthwise of the machine, of a chip-breaker, H^4, having a slotted connection with said guide, whereby provision is afforded for the adjustment of the chip-breaker in a direction lengthwise of the machine relatively to the cutter-head and guide, substantially as herein described.

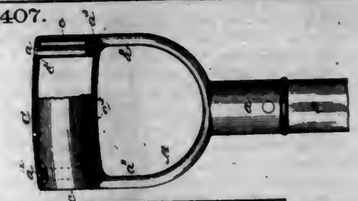
7. In a wood-planing machine, the combination, with the driving and driven feed-shafts K L, arranged parallel with each other near the front end of the machine and their reversely-set conical friction-wheels arranged as described, the wheels on the shaft K being fast thereon, and the wheels on the shaft L being connected in pairs and having a sliding connection with the shaft L, of a belt and pulleys for driving the shaft K, levers at the front end of the machine, connections through which the pairs of sliding friction-wheels are moved in one or other direction by the movement of said levers, the counter-shaft E^2 and feed-rolls geared therewith, and a belt and pulleys for transmitting a variable rotary motion from the shaft L to the shaft E^2, substantially as herein described.

315,407. SHOVEL OR SPADE HANDLE. PATRICK W. GROOM, St. Louis, Mo., assignor to Groom Shovel Company, same place. Filed Sept. 15, 1884. (No model.)

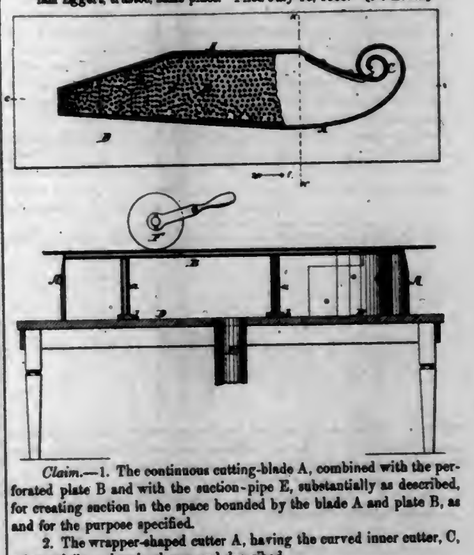
Claim.—The combination, in a shovel or spade handle, of the part A, having the projections *a' a'*, with a cross-bar, C, which is perforated to receive the projections which pass through and are riveted upon the upper side of the cross-bar, substantially as described.



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315,408. MACHINE FOR CUTTING CIGAR-WRAPPERS. OSCAR HAMMERSTEIN, New York, N. Y., assignor, by mesne assignments, to William Eggert, trustee, same place. Filed July 10, 1883. (No model.)

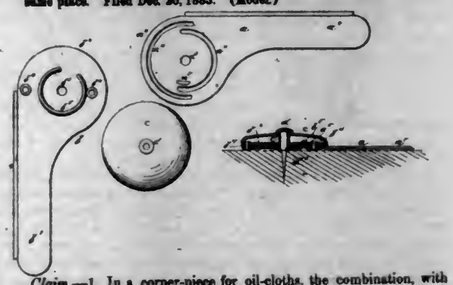


Claim.—1. The continuous cutting-blade A, combined with the perforated plate B and with the suction-pipe E, substantially as described, for creating suction in the space bounded by the blade A and plate B, as and for the purpose specified.

2. The wrapper-shaped cutter A, having the curved inner cutter, C, substantially as herein shown and described.

3. The continuous cutting-blade A, combined with the plate B, which is placed therein beneath the cutting-edge, and with the roller F and suction-pipe E, the plate B being constructed to permit the air to be drawn from above it to the space below it, as set forth.

315,409. CORNER-PIECE FOR OIL-CLOTHS. WILLIAM HORNING, Johnstown, N. Y., assignor to Francilia A. Horning and Eliza J. Vibbard, same place. Filed Dec. 20, 1883. (Model.)



Claim.—1. In a corner-piece for oil-cloths, the combination, with a metal plate formed with two concentric semicircular slots of different radius, of a second plate secured to the first by eyelets passing through and moving in said slots, substantially as and for the purpose described.

2. In a corner-piece for oil-cloths, two metal plates formed with concentric semicircular slots, and secured together by eyelets through these slots, in combination with a concavo-convex cap covering the plates at their joint, and a securing pin or tack formed with an enlargement or shoulder of a length corresponding to the thickness of the plates and the concavo-convex cap, substantially as and for the purpose herein specified.

315,410. METHOD OF UNLOADING GRAVEL-CARS. EDWARD HUBER and HENRY M. BARNHART, Marion, Ohio. Filed Jan. 23, 1885. (No model.)

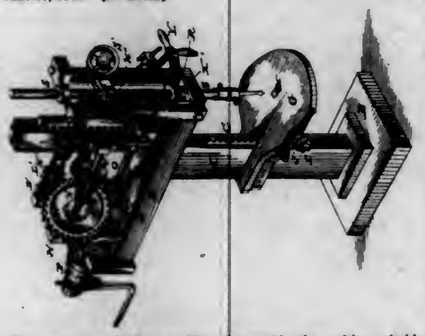
Claim.—The method of unloading or discharging gravel and the

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like from railroad-cars by means of a plow or scraper, which consists in moving the latter over the cars while the train is in motion in the same direction, substantially as and for the purpose herein set forth.

315,411. AUTOMATIC DRILL. JAMES HUGHES, Auburn, N. Y. Filed June 23, 1884. (No model.)

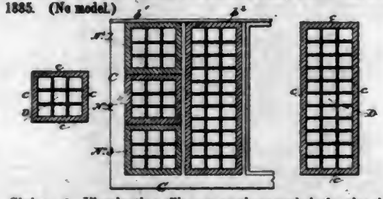


Claim.—1. In a drilling-machine, the combination, with a suitable frame, of a vertically-movable drill-carrying frame having a forwardly-extending arm, a guide-rod traveling in a perforation in the said arm, and provided with adjustable sleeves or stops, and having at its lower end a lateral extension, mechanism connecting the latter with a reversing-lever, a clutch arranged to be operated by the said lever, and sliding upon and revolving with a horizontal shaft having at its front end a worm arranged to operate the drill-carrying frame, and a pair of spur-wheels adapted to engage the said double clutch and to receive motion from the main shaft of the machine, substantially as set forth.

2. In a drilling-machine, the combination of a vertically-traveling drill-carrying frame having a vertical rack-bar, a shaft having a pinion at each end, one of the said pinions engaging the said rack-bar, a horizontal shaft having a worm at one end engaging the other of the said pinions, and having means, as described, for having its motion reversed at each end of the line of travel of the drill-carrying frame, and a hand-wheel at the end of the horizontal shaft for adjusting the drill independently of the reversing mechanism, as and for the purpose shown and set forth.

3. In an automatic reversing mechanism for a drilling-machine, the combination of the shaft D', operating the drill-feeding mechanism, the pinion C', having half-clutch F', revolving upon shaft D', and meshing with a pinion receiving motion from the drive-shaft, the sliding collar G', turning with the shaft D', having half-clutches at both ends, and means, substantially as set forth, for sliding it upon shaft D', spring E', bearing against pinion C', and pinion L', having half-clutch K', and meshing with a cog-wheel receiving motion from the drive-shaft, as and for the purpose shown and set forth.

315,412. ILLUMINATING TILING AND GRATING FOR COVERING VAULTS, ROOFS, &c. THADDEUS HYATT, Brooklyn, N. Y. Filed Mar. 17, 1885. (No model.)



Claim.—1. Illuminating tiling or gratings made in fractional panel-sections without dead-work borders on their junction sides or edges, and adapted to abut directly together to fill the panel-spaces without sacrifice of light, substantially as set forth.

2. Illuminating tiling or gratings made with light-holes arranged on the honey-comb principle, and divided into fractional sections directly across the field of light-holes, without dead-work borders on the dividing or junction lines, and adapted to abut directly together and form a continuous light-field in panel-spaces, substantially as herein shown and described.

3. Illuminating tiling or gratings made with light-holes arranged on the honey-comb plan or in groups of oblique-angled triangles, and disposed in parallel lines transverse to the light-field, said tiling being divided into fractional sections in transverse lines parallel with and outside of the lines of light-holes, and adapted to abut directly together to form a continuous light-field tile in panel-spaces, substantially as set forth.

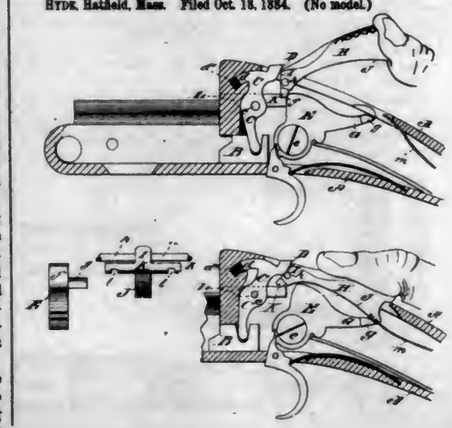
4. Illuminating tiling or gratings made with an underlying sustaining-grating of cast iron or other supporting material, and an overlying facing of concrete or hydraulic cement, and divided into fractional sections adapted to abut together to fill panel-spaces, said sections being made without dead-work borders on their junction sides, and presenting a deep raw or unfinished edge of hydraulic cement at the junction edges, adapted to abut together and be secured in a homogeneous manner with hydraulic cement when laid into their panels, substantially as herein set forth.

5. Illuminating-tiling made in fractional sections fitted into panel-spaces with their junction edges abutting and secured together and to the panel-frame by cementation, substantially as herein set forth.

6. Illuminating-tiling made in fractional sections fitted into panel-spaces, and secured to the panel-frame and to each other by hydraulic cement deposited in the junction-seams of the fractional sections and in the construction-seams of the panel-frame, substantially as set forth.

7. Illuminating-tiling made with a hardened cement or concrete surface, and divided into fractional sections in lines crossing the light-field, without dead-work borders, and presenting on said dividing-lines raw edges of the cement, adapted to abut directly together and be secured in a homogeneous manner by similar hydraulic cement in a plastic state when the fractional sections are laid into panel-spaces, substantially as herein shown and described.

315,413. LOCK MECHANISM FOR CONCEALED-HAMMER GUNS. A. HYDE, Hatfield, Mass. Filed Oct. 13, 1884. (No model.)



Claim.—1. In a breech-loading gun of the character described, the barrel-locking bolt, a pivoted lever bearing thereon, a spring bearing on said lever, a pivoted hammer having usual trigger mechanism, and an action-lever pivoted, substantially as described, to bear on one side of the pivot on the bolt-operating lever and on the other side to bear on the hammer when said lever is actuated, the combination being and operating substantially as described.

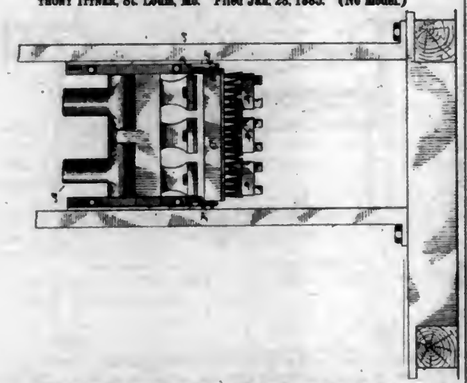
2. In a concealed-hammer gun, the combination of a barrel-locking bolt, a pivoted operating-lever engaging therewith, a spring bearing on one side of said lever, a pivoted hammer having the usual trigger mechanism, an action-lever pivoted in the upper portion of the frame, having an extension above its pivot engaging the bolt-operating lever and an extension below its pivot engaging the front of the hammer when suitably actuated, substantially as described.

3. In a concealed-hammer gun, the pivoted hammer having a rearward extension, (and usual trigger mechanism,) and the action-lever, pivoted, as described, so as to enter the top of the frame in rear of its pivot and bear directly on the extension of the hammer, combined substantially as described.

4. A slotted gun-frame, a pivoted hammer within said frame in line with the slot, and an action-lever pivoted in the frame, having a projection which enters the slot in front of the hammer-pivot and a projection in rear of the hammer-pivot, said projections engaging the hammer alternately when suitably actuated, the combination being and operating substantially as described.

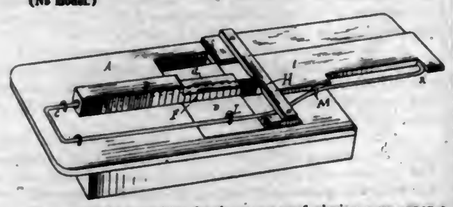
5. In a concealed-hammer gun, the combination of a sliding locking-bolt, an operating-lever engaging therewith, a spring bearing on one side of said lever, a pivoted hammer in usual location and having rear extension, an action-lever pivoted in the frame and having engagement above its pivot with the bolt-lever and below its pivot with the face of the hammer, (when said lever is actuated in one direction,) said action-lever engaging also the rearward extension of hammer when actuated in a reverse direction, all being and operating substantially as stated.

315,414. BRUSHING ATTACHMENT FOR BRICK-MACHINES. ANTHONY ITTNER, St. Louis, Mo. Filed Jan. 23, 1885. (No model.)



Claim.—The combination, with the frame of a brick-press, of a brush, C, and adjustable brackets E F, substantially as and for the purpose set forth.

315,415. CAPSULE-MACHINE. JOHN KRENDEL, Detroit, Mich., assignor to the Globe Capsule Company, same place. Filed Dec. 12, 1883. (No model.)



Claim.—1. In a machine for the purpose of placing a cap upon a capsule-body, the two-part adjustable jaw having an enlarged portion for holding said cap in line with the capsule, and a reciprocating plunger constructed to compel the open end of said capsule to enter the open end of the cap, substantially as set forth.

2. A two-part adjustable jaw provided with a central bore, such bore being enlarged at a portion thereof, and the sliding cam K, for opening and closing the jaw and moving a slide at one end, and provided with the plunger C, to compel the joining of the cap to the body of the capsule, substantially as described.

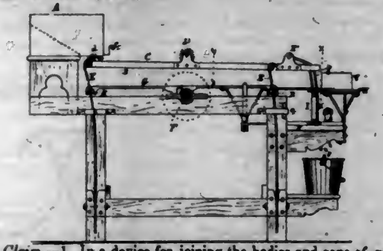
3. In a device for the purposes described, and in combination, the fixed half of a jaw projecting over a slide which has a reciprocating motion and to which is secured the movable half of the jaw, such jaw being provided with suitable mechanism, substantially as specified, for opening and closing such jaws, substantially as and for the purposes set forth.

4. In a machine for the purposes described, and in combination, a fixed half of a jaw projecting over a slide to which is secured the movable half of the jaw, such slide being provided with mechanism to give it the necessary reciprocating motion, a guide the bore of which is in axial line with the bore of the jaw when the two parts thereof are brought together, and a plunger reciprocating between the two parts of the jaw, substantially as and for the purposes specified.

5. In a machine for the purposes described, and in combination with the two-part jaw, the plunger and arm and slide, such arm being adapted to reciprocate in one direction a slide upon which the movable part of the jaw is secured, and to give a reciprocating motion in the opposite direction to the slide which forms a point of resistance at the end of the jaw, and in its reciprocation to close or disclose the discharge-opening through the bed of the machine, the parts being constructed, arranged, and operating substantially as and for the purposes specified.

6. A device for the purposes described, consisting of the bed A, guide B, attached to said bed, plunger C, working through said guide, slide D, working on the bed, two-part jaw F G, one part being fixed to the bed and the other to the slide D, and the slide I, operated by the curved arm K, the parts being constructed, arranged, and operating substantially as and for the purposes set forth.

315,416. CAPSULE-MACHINE. JOHN KRENDEL, Detroit, Mich. Filed Mar. 26, 1884. (Model.)



Claim.—1. In a device for joining the bodies and caps of gelatine capsules together, a series of chambers arranged in pairs adapted to deliver from one chamber of the pair the body of the capsule and from the other the cap thereof upon a grooved carrier, and turning devices, substantially as described, arranged in the paths of the bodies and the caps, for compelling a presentation of the closed end of said body and cap in their passage along the carrier, substantially as described.

2. In a device for joining the bodies and caps of gelatine capsules together, and in combination with the chambers arranged in pairs adapted to deliver from one chamber of the pair the body of the capsule and from the other the cap thereof, a grooved carrier, turning devices, substantially as described, for compelling a presentation of the closed end of said body and cap in their passage along the carrier, and a series of tubes or pipes arranged in pairs, one of said pipes being constructed to receive the body of the capsule and the other the cap from the conveyer or carrier, and to deliver the same to the joining mechanism, substantially as and for the purposes specified.

3. In a device for joining the bodies and caps of gelatine capsules together, and in combination with the chambers arranged in pairs adapted to deliver from one chamber of the pair the body of the capsule and from the other the cap thereof, a grooved carrier, turning devices, substantially as described, for compelling a presentation of the closed end of said body and cap in their passage along the carrier, a series of tubes or pipes arranged in pairs, one of said pipes being constructed to receive the body of the capsule and the other the cap from the conveyer or carrier, and to deliver the same to the joining mechanism, a fixed jaw, a device for compelling the body and cap to present their open ends toward each other, a reciprocating jaw constructed to hold such body and cap in position against the fixed jaw, and a plunger or rod to compel the open end of the body of the capsule to enter the open end of the cap, substantially as and for the purposes set forth.

4. The combination, in a capsule-machine, of a series of capsule-holders, a series of pairs of guides, one of each pair constructed to conduct the bodies and the other of each pair to conduct the caps, a series of medicament-holders for filling the capsules, and a series of cappers for jointing the caps to the bodies, substantially as described.

5. The combination, in a capsule-machine, of a series of channels for the conveyance of the parts of the capsule to the holders, with a series of turning devices constructed and arranged to catch in the open mouths of such portions of the capsules as are traveling wrong end foremost, to turn them over, and a series of pushing devices to cause the capsule-bodies to enter the caps thereof, substantially as described.

315,417. CAPSULE-MACHINE. JOHN KREMER, Detroit, Mich. Filed Mar. 26, 1884. (No model.)

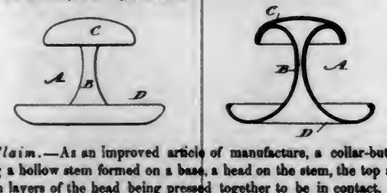


Claim.—1. A hand-tool for the purposes described, carrying upon its upper face a series of ring-cutters coincident with holes through said face, and removable and adjustably secured in place by thin plates bearing on two or more cutters, and set-screws for securing said plates, substantially as described.

2. In a hand-tool for cutting off capsules, the plate B, carrying the capsule-cutters, and provided with shafts constructed to give said plate an eccentric motion, in combination with a plate carrying the mold-pins, and provided with bearings for the shafts, and stops, as the studs E, arranged between the plates to regulate the length of the capsules, substantially as described.

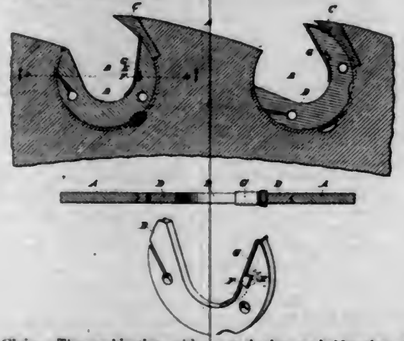
3. A hand-tool for cutting capsules, consisting of the following elements: a circular plate, B, provided with one or more series of holes, *b*, ring-cutters C, held in place by the plates D and set-screws *c*, the shafts G, provided with eccentrics *f*, the cranks H, coupling-bars I, and handles J, the parts being constructed, combined, and operating substantially as and for the purposes specified.

315,418. COLLAR-BUTTON. GEORGE KREMENTZ, Newark, N. J. Filed Feb. 16, 1885. (No model.)



Claim.—As an improved article of manufacture, a collar-button having a hollow stem formed on a base, a head on the stem, the top and bottom layers of the head being pressed together to be in contact, and the edges of the head being bent down to form a curved top surface for the head, the head, stem, and base being formed of a single piece of sheet metal, substantially as herein shown and described.

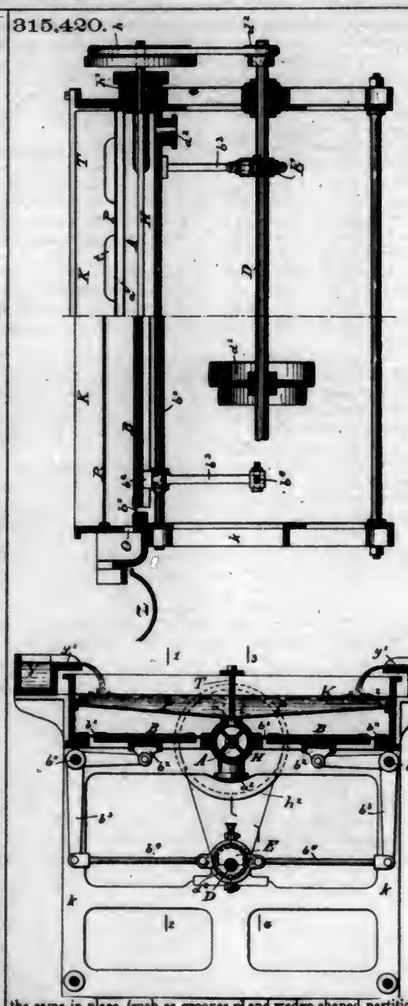
315,419. PROTECTOR FOR INSERTIBLE SAW-TEETH. ANDREW KRIMER, Columbus, Ohio, assignor to James Ohles, same place. Filed Feb. 19, 1885. (No model.)



Claim.—The combination, with a mouth-piece or holder-plate for insertible saw-teeth having the dovetail transverse notch in its forward edge, of the detachable protector constructed to conform to the shape of the forward edge of the mouth-piece, and provided with the transverse dovetail lug adapted to engage the notch in the mouth-piece, whereby the said protector is secured thereto, as shown and described.

315,420. SELF-CLEANING PULP-STRAINING MACHINE. RUDOLF KRON, Unterstrass, near Zurich, Switzerland. Filed Jan. 8, 1885. (No model.)

Claim.—1. The combination, with a box (as K) and flues with overflows, (as Y y',) of two inclined screen-plates, (as P,) means for holding



the same in place, (such as grooves p' and wedge-shaped partition-plates T,) flues (as A) located at the lower end of said screen-plates, with slots (as a') and outlet, (as a^2,) a fan-valve, (as H,) mechanism for working the same, (as driving-shaft D and pulleys d^2 h^2,) and means for rinsing said flues, (as inlet a^3,) all as shown and described, and for the purpose set forth.

2. The combination, with a box (as K) containing two screen-plates, (as P,) of means for holding said plates in place, said means consisting of grooves (as p^2) and wedge-shaped partition-plate, (as T,) all substantially as shown and described, and for the purpose set forth.

3. The combination, with screens for sifting paper-pulp, (as P,) of flues (as A) for leading off the impurities, and mechanism for the purpose set forth, said mechanism consisting of a fan-valve, (as H,) driving-shaft, (as D,) and pulleys, (as d^2 and h^2,) all to operate as set forth, and substantially as shown and described.

4. The combination, with screens for sifting paper-pulp (as P) and a box with outlet (as K O) which contains the same, and feeding-flues with overflows, (as Y and y',) of an elastically-attached bottom plate, (as B and b',) and mechanism for shaking the same, as driving-shaft D, eccentric disks, (as E,) angular levers, (as b^2,) eye-pieces, (as b^3,) and connecting-links, (as b^4,) all to operate as set forth, and as shown and described.

5. The combination, substantially as shown and described, of the box K with outlet O, the inclined flat screens P, located therein, the grooves p', integral with the box and the partition-plate T, the feed-flues with overflows Y y', the flue A, for the impurities, with slot a' and outlet a^2, and the fan-valve H, the elastically-attached floor-plate (as B b') of the box, the frame *k*, mechanism for shaking said floor-plate, as shaft D, eccentrics E, rods b^1, angular levers b^2, and eye-pieces b^3, and

mechanism for operating the said fan-valve, as pulleys h^2 and d^2, all to operate as set forth.

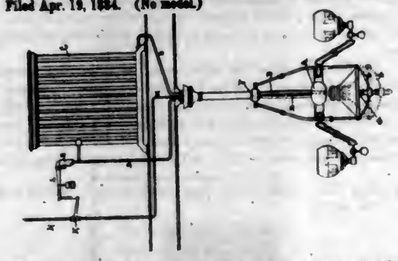
315,421. TELEPHONE. LÉON DE LOCHT-LABYE, London, County of Middlesex, England. Filed Nov. 15, 1883. (No model.) Patented in England Oct. 11, 1882, No. 4,832, and in Austria June 9, 1883, No. 30 930.



Claim.—1. The hereinbefore-described improvement in telephones, consisting in the combination of a permanent magnet or electro-magnet provided at its pole or poles with a coil or coils of copper wire interposed in the telephonic circuit, and an armature of soft iron or magnetized steel communicating vibrations by means of a rigid lever to or from a rigid body, which constitutes the medium for the transmission and reception of the sonorous vibrations, the whole being arranged and operating substantially as hereinbefore described, and illustrated in the accompanying drawings.

2. In a telephone, the combination of an armature-lever, a hammer screwed upon the end of the said lever so as to be capable of adjustment, and the body with which said hammer coacts, substantially as hereinbefore described, and illustrated in the accompanying drawings.

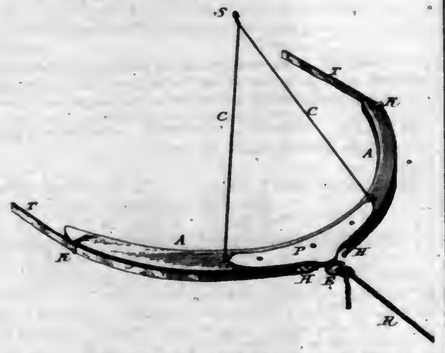
315,422. HEATING DEVICE. GEORGE L. LAVERY, Boston, Mass. Filed Apr. 19, 1884. (No model.)



Claim.—1. A heating device consisting of a generator, A, pipe B, radiator C, pipe D, regulating-valve E, all filled with water or other liquid, in combination with a chandelier, F, whereby is utilized the heat radiated at one or more of its burners, substantially as shown, and for the purpose set forth.

2. The combination of the generator A, pipe B, radiator C, pipe D, valve E, all filled with water or other liquid, the chandelier F, burner G, gas-supply pipe H, and valve K, substantially as shown, and for the purpose set forth and specified.

315,423. HOISTING SINGLE-TREE. WILLIAM LOUDEN, Fairfield, Iowa. Filed Feb. 18, 1885. (No model.)



Claim.—1. The single-tree A, provided with eyes or keepers at or near its ends K K, through which the harness-traces pass, and the hitching-hooks H H, or their equivalents, placed at or near its center, and to which the harness-traces may be attached, substantially as shown and described.

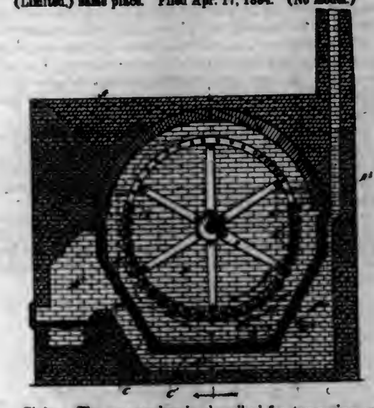
2. The single-tree A, provided with the plate or casting P, having the hooks H H, or their equivalents, and the eye or hook E, for the purpose shown and described.

3. The single-tree A, constructed and arranged substantially as set forth, in combination with a suspending cord or strap, or with suspending cords or straps, substantially as and for the purpose set forth.

4. The combination and arrangement of the single-tree A, suspending-cords C C, and the hook or snap S, substantially as shown and described.

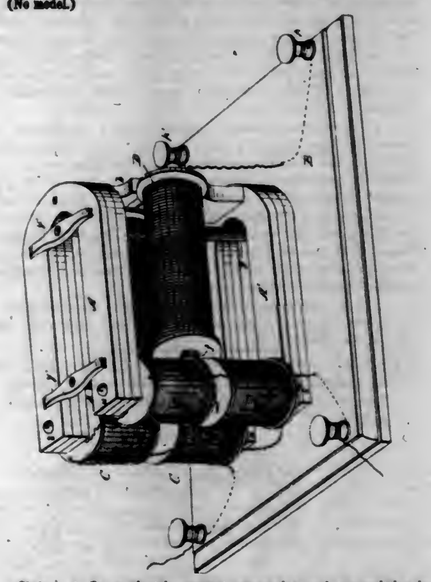
5. The plate P, bolted or riveted to the single-tree A, and having eyes or hooks, to which the suspending-cords C C may be attached, substantially as herein shown and described.

315,424. PROCESS OF TEMPERING WIRE SPRINGS, &c. MELVIN N. LOVELL, Erie, Pa., assignor to the Lovell Manufacturing Company, (Limited,) same place. Filed Apr. 17, 1884. (No model.)



Claim.—The process herein described for tempering springs and other light articles—viz., inserting said articles in an oven—from which the products of combustion are excluded—at a part of the oven where the heat is considerably below the final heat required, advancing them gradually by a conveyer to that part of the oven where the heat is brought to the degree specified, and then immediately withdrawing and plunging them into a cooling-bath, substantially as set forth.

315,425. INDUCTION APPARATUS FOR TELEGRAPHY. JOHN C. LUDWIG, San Francisco, Cal., assignor of three-fourths to Louis A. Garnett, same place, and John Hewston, Jr., Brooklyn, Cal. Filed June 23, 1884. (No model.)



Claim.—1. In an electric-current generating and transmitting instrument, the combination, with one or more pairs of magnetically-polarized cores having opposing poles adjacent to each other, of coils of wire surrounding said cores and connected, as described, and a stationary electro-magnet having a pole inductively adjacent to but separated from the poles of each opposing pair of said cores, substantially as described.

2. In an electric-current generating and transmitting apparatus, the combination of two permanent magnets arranged at a proper distance apart and having soft-iron pole-pieces of opposite character projecting

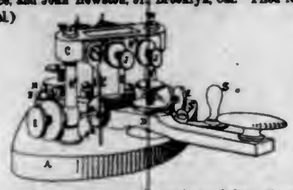
toward each other, coils of wire surrounding said pole-pieces and connected to give uniformity of direction to currents resulting from induction of opposite magnet-cores, and a stationary electro-magnet having its soft-iron core or cores inductively adjacent to the poles of each pair of opposed pole-pieces, substantially as described.

3. In an electric-current generating and transmitting instrument, the combination of the permanent magnets A A', having soft-iron pole-pieces of opposite character extending toward each other, the coils surrounding said pole-pieces and connected together, as described, and the stationary electro-magnet D, having the polar portions of its cores inserted between and isolated from the opposing pole-pieces, substantially as described.

4. The combination, in an inductive electric generator, of two magnetically-polarized cores having poles adjacent to each other, coils of wire surrounding said cores, and a stationary electro-magnet having a polar portion of its core inductively adjacent to said cores, substantially as described.

5. The combination, with the magnetically-polarized cores, the surrounding connected coils, and the stationary electro-magnet with polar portions or a polar portion adjacent to the poles of said cores, of suitable means for causing an intermittent flow of electricity through the coils of said electro-magnet, substantially as described.

315,426. **RHEOTROPE OR CURRENT-REVERSING KEY.** JOHN C. LUDWIG, San Francisco, Cal., assignor of three-fourths to Louis A. Garnett, same place, and John Howston, Jr., Brooklyn, Cal. Filed Nov. 28, 1884. (No model.)



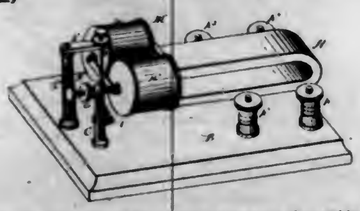
Claim.—1. In a current-reversing telegraph-key, the combination, with a pivoted key-lever, of two metallic arms projecting therefrom at angles to its axis and insulated from each other, each of said arms being arranged to vibrate between a separate pair of contacts, and the contact on each side of each arm being electrically connected with an opposite contact of the other arm, substantially as described.

2. In a current-reversing telegraph-key, the combination, with a pivoted key-lever, of two metallic arms projecting therefrom at angles to its axis and insulated from each other, two metallic contacts for each of said arms and on opposite sides of the same, respectively, each contact of each arm being electrically connected with an opposite contact of the other arm, means for connecting said arms, respectively, to opposite poles of a battery, and for connecting both contacts of either arm, respectively, with the terminals of a working-circuit, substantially as described.

3. In a current-reversing telegraph-key, the combination, with a pivoted key-lever having metallic trunnions which are insulated from each other and metallic bearings supporting said trunnions, of two metallic arms projecting radially from said trunnions, respectively, a pair of opposite metallic contacts for each of said arms, the contact on each side of each arm being electrically connected with the contact on the opposite side of the other arm, suitable means for connecting the trunnion-bearings with opposite poles of a battery, and means for connecting both contacts of either of the metallic arms with the respective terminals of a working-circuit, substantially as described.

4. A pivoted telegraph-key lever formed of non-conducting material and having metallic trunnions insulated from each other, substantially as described.

315,427. **POLARIZED TELEGRAPHIC RELAY.** JOHN C. LUDWIG, San Francisco, Cal., assignor of three-fourths to Louis A. Garnett, same place, and John Howston, Jr., Brooklyn, Cal. Filed Dec. 18, 1884. (No model.)

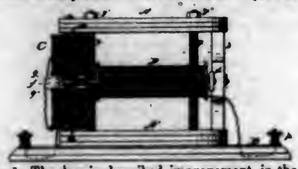


Claim.—1. In a telegraphic receiving-instrument, the combination, with a permanent and an electro magnet having its two cores similarly polarized by one of the poles of said permanent magnet, of an oscillating neutral armature having its opposite ends arranged within attractive distance of the electro-magnet cores, respectively, substantially as described.

2. The combination, with the permanent magnet, of the electro-magnet having its yoke-piece in contact with one of the poles of said permanent magnet, and the oscillating neutral armature pivoted in front of the poles of said electro-maguet, substantially as described.

3. The combination, with the permanent magnet, the electro-magnet having its cores polarized by one of the poles of said permanent magnet, and the neutral armature pivoted to oscillate in front of the poles of said electro-magnet, of a local circuit arranged to be closed and opened by said armature, substantially as described.

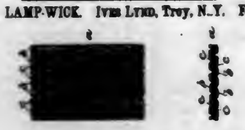
315,428. **GENERATION OF INDUCED CURRENTS FOR TELEGRAPHIC AND OTHER PURPOSES.** JOHN C. LUDWIG, San Francisco, Cal., assignor of three-fourths to Louis A. Garnett, same place, and John Howston, Jr., Brooklyn, Cal. Filed Jan. 3, 1885. (No model.)



Claim.—1. The herein-described improvement in the art of generating induced electric currents for telegraphic and other purposes, the same consisting in varying the magnetic character of a stationary body of metal adjacent to magnetically-polarized cores surrounded by coils of wire included in a circuit, whereby currents of alternately-opposite direction are induced in said coils and flow upon the circuit, essentially as set forth.

2. The herein-described improvement in the art of generating induced currents of electricity for telegraphic and other purposes, which consists in alternately magnetizing and demagnetizing a stationary body of iron within inductive proximity to magnetically-polarized cores surrounded by coils of wire in circuit, whereby reversed currents are set up in said coils and caused to traverse the circuit, essentially as set forth.

315,429. **LAMP-WICK.** IVES LYRD, Troy, N. Y. Filed Apr. 5, 1884. (No model.)



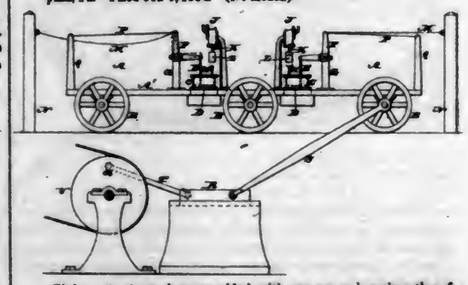
Claim.—The lamp-wick *a*, knit with the ribs *b* and passages *c*, substantially as described.

315,430. **SHOE-MAKER'S PINCHERS.** JOHN G. LYNN, Cincinnati, Ohio, assignor of one-half to Richard Woolley, Jr., same place. Filed Jan. 9, 1885. (No model.)



Claim.—In a shoe-maker's tool, the combination, substantially as specified, of the jaw A and fulcrum B with jaw C, having the fulcrum D projecting longitudinally forward from it, for the purpose set forth.

315,431. **MECHANICAL MOVEMENT.** JOSEPH MORWITZ, Philadelphia, Pa. Filed Oct. 9, 1884. (No model.)



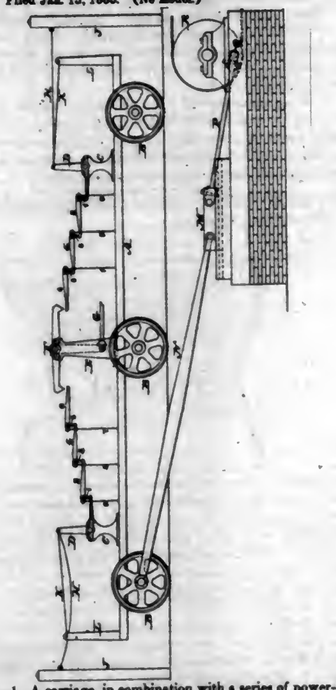
Claim.—1. A carriage provided with presses and engines therefor, and levers connected with the piston-rods of said presses, in combination with ropes connected with said levers, and attachments, as described, independent of the carriage, substantially as and for the purpose set forth.

2. A carriage provided with a press, an engine therefor, a lever connected with the piston-rod of said press, and a rope, which latter is connected with said lever, and an attachment, as described, independent

of the carriage, in combination with a stop-rope attached to said lever and the carriage, substantially as and for the purpose set forth.

3. A carriage with presses, engines therefor, levers connected with the piston-rods of said presses, ropes connected with said levers, and attachments, as described, independent of the carriage, in combination with the slide R, connecting-rods S T, and power-wheel U, substantially as and for the purpose set forth.

315,432. **MECHANICAL MOVEMENT.** JOSEPH MORWITZ, Philadelphia, Pa. Filed Jan. 13, 1885. (No model.)



Claim.—1. A carriage, in combination with a series of power-transmitting levers, a prime motor therefor, and elbow-levers, said power-transmitting levers being located one on the other and connected with the floor of the carriage, whereby the elbow-levers are operated, substantially as and for the purpose set forth.

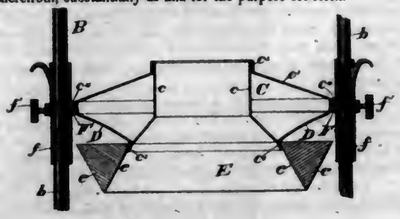
2. A carriage provided with levers and a motor therefor, in combination with ropes connected with said levers, and attachments, as described, independent of the carriage, substantially as and for the purpose set forth.

3. A carriage provided with levers, a motor therefor, and a rope, which latter is connected with said lever, and an attachment, as described, independent of the carriage, in combination with a stop-rope attached to said lever and the carriage, substantially as and for the purpose set forth.

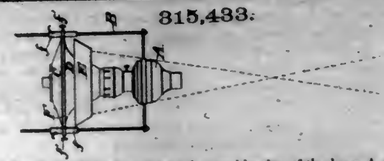
4. A carriage with levers, a motor therefor, ropes connected with said levers, and attachments, as described, independent of the carriage, in combination with the slide M, connecting-rods N P, and power-wheel R, substantially as and for the purpose set forth.

315,433. **REFLECTOR.** SAMUEL C. MOWER, Milwaukee, Wis. Filed Nov. 12, 1884. (No model.)

Claim.—1. In a lighting apparatus, the combination, with an inverted truncated-cone or bell shaped reflector held in an adjustable frame above and around the light, of a prismatic collar or base of glass depending therefrom, substantially as and for the purpose set forth.



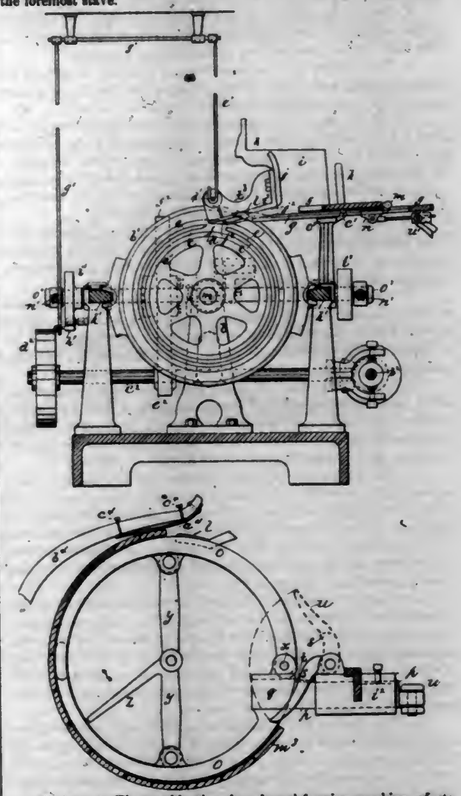
315,433.



2. In a lighting apparatus, the combination of the lamp A, pendent frame B, reflector-frame C, having core *c*, with flanges c^2 c^3, cover or roof *c'*, and fastening-collar c^4, reflector D, prismatic glass collar E, and supporting-ring F, provided with sliding sleeves *f f* and adjusting-screws *f' f'*, substantially as shown and described, and for the purpose set forth.

315,434. **BARREL-MAKING MACHINE.** FREDERICK MYERS, New York, N. Y. Filed Nov. 14, 1883. (No model.) Patented in England Dec. 31, 1883. No. 5,967.

Brief.—The staves, fed by a reciprocating pusher from a suitable feed-table, are shoved over a bulger and between two fixed disks having annular grooves therein, the outer rims of the grooves being notched at one point. To take the strain off from the ends of the staves while they are bent to bulge form, a collapsible bulge-supporting ring is so supported that the centers of the staves ride over it. When the barrel is about two-thirds completed, this ring is automatically separated from its support by the foremost stave.



Claim.—1. The combination, in a barrel-forming machine, of stationary receiving and retaining disks having a circular groove to receive the staves, the bulge-supporting ring, and means for pushing the staves into and around in the grooves to make the barrel-forms, the outer rim of the groove being notched for the entry of the staves into the grooves, substantially as described.

2. The combination, in a barrel-forming machine, of stationary receiving and retaining disks having a circular groove to receive the staves through a notch in the outer rim of the groove, the bulge-supporting ring, and guides for guiding the staves to the notches opening to said grooves, substantially as described.

3. The combination, in a barrel-forming machine, of stationary receiving and retaining disks having a circular groove to receive the staves through a notch in the outer rim of the groove, the bulge-supporting ring, guides for guiding the staves to the notches opening into said grooves, and

a pusher to push the staves through the guides into the grooves and also around in said grooves to make the barrel-form, substantially as described.

4. The combination, in a barrel-forming machine, of stationary receiving and retaining disks having circular grooves to receive the staves through notches in the outer rims of said grooves, the bulge-supporting ring, guides for guiding the staves into said grooves, a pusher to push the staves into the grooves, and a bulger to bulge the staves while being pushed into the grooves, substantially as described.

5. The combination of the stationary grooved receiving and retaining disks having a notch in the outer rim of the groove through which the staves are pushed into the grooves, the bulger by which the staves are bulged prior to entering said grooves, and the bulge-retaining ring which maintains the bulge of the staves while being trussed by pressing said staves against the outer rims of the grooves of the disks, substantially as described.

6. The combination, in a barrel-forming machine, of the grooved stationary receiving and retaining disks and the bulge-supporting ring, said ring being detachable from its support when partly inclosed by the staves and thereafter being carried and supported by the staves during the completion of the barrel-form, substantially as described.

7. The combination, in a barrel-forming machine, of the grooved stationary receiving and retaining disks, a bulge-supporting ring, and means, substantially as described, for automatically detaching the ring from its support by the first and advancing stave of the partial barrel-form, substantially as and for the purpose specified.

8. The combination, in a barrel-forming machine, of stationary grooved receiving and retaining disks and a detachably-supported and collapsible bulge-supporting ring, substantially as described.

9. The combination, in a barrel-forming machine, of grooved stationary receiving and retaining disks, a bulge-supporting ring, and truss-hoop carriers, substantially as described.

10. In a barrel-forming machine having a pair of stationary grooved receiving and retaining disks, a central bulge-supporting ring and truss-hoop carriers for simultaneously trussing both ends of the barrel-form, the grooves of the disks having a bevel or inclined bottom corresponding to the curves described by the stave ends when closed by the truss-hoops over the bulge-supporting ring, substantially as described.

11. The combination, with the stationary grooved retaining-disks, of the bulge-supporting ring having a socket-head, *q*, fitted to the end of a sliding bar, *p*, said bar having means for withdrawing it and releasing the ring, substantially as described.

12. The combination, with the stationary grooved retaining-disks, of the bulge-supporting ring having a socket-head, *q*, fitted to the end of sliding bar *p*, having a lever, *w*, and spring *v*, to withdraw said bar to detach the ring, said bar also having a retaining-ledge, *t*, and being provided with a holding-catch, *z*, substantially as described.

13. The combination, with the stationary grooved retaining-disks, of the bulge-supporting ring *o*, ring-supporting bar *p*, latch *s*, retracting-lever *w*, and spring *v*, said latch having an arm, *u*, arranged to be raised by the partly-completed barrel-form to automatically trip the latch for detaching the ring from its support, substantially as described.

14. The combination of the pivoted and vertically-shifting table *g*, stave-guides j^3, attached to said table, and reciprocating pusher *f* on said table, with the stationary grooved receiving and retaining disks and truss-hoop carriers, said table, guides, and pusher being arranged to deliver the staves into the grooves of the retaining-disks, and said table having lifting mechanism to raise it out of the range of the truss-hoop carriers, substantially as described.

15. The combination of the pivoted and vertically-shifting table *g*, staves-guides j^3, bulger *l*, and the pusher *f*, reciprocating on said table, with the truss-hoop carriers, and stationary grooved receiving and retaining disks *a*, said table, guide, bulger, and pusher being arranged to bulge the staves and deliver them into the grooves of the retaining-disks, and said table having lifting mechanism to raise it out of the range of the truss-hoop carriers, substantially as described.

16. The combination of the pivoted and vertically-shifting table *g*, stave-guide j^3, bulger *l*, and the pusher *f*, arranged on said table, with the stationary grooved receiving and retaining disks *a* and the bulge-supporting ring *o*, said table, stave-guides, bulger, and pusher being arranged to bulge the staves and deliver them into the grooves of the retaining-disks and onto the bulge-supporting ring and adapted to be raised out of the range of the truss-hoop carriers, substantially as described.

17. The bench *h*, located above the feeding-table and pusher, guides *i* and *j*, adapted to control the staves in falling from the pile or bench onto the feeding-table, and the stops *k*, arranged to prevent the staves that may fall on the pusher from being carried backward thereon, in combination with the feeding and reciprocating pusher, substantially as described.

18. The combination, with the stationary grooved retaining-disks adapted to receive the barrel-form, bulger *l*, located midway between the disks and adapted to bulge the staves previous to entering the disks, the bulge-retaining ring located in the plane of the bulger, and the presser a^4, said presser being arranged to bear on and confine the staves to the bulger and the bulge-retaining ring, substantially as described.

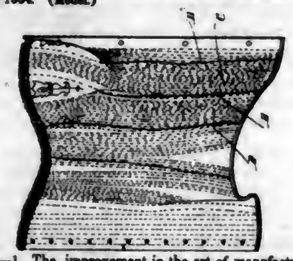
315,435. ENVELOPE FOR PACKING FURNITURE. JOHN T. MYGATT, New York, N. Y. Filed June 3, 1883. (No model.)



Claim.—1. The herein-described wrapper for furniture, it consisting of a sheet of paper cut upon the lines *a*, whereby there are formed flap portions adapted to protect the legs of the article being wrapped and other portions adapted to cover the main or body part of the article, substantially as set forth.

2. In combination with a box-like casing adapted to cover a projecting portion of a piece of furniture and provided with flanges *m*, a sheet of paper cut upon the lines *a* to form flap portions for wrapping the article of furniture and provided with an aperture through which projects the box-like casing, substantially as set forth.

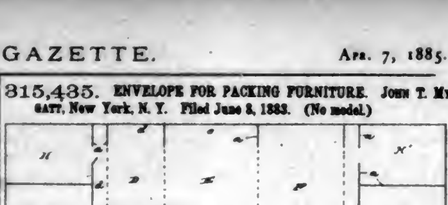
315,436. CORSET. WILLIAM A. NETTLETON, Bridgeport, Conn. Filed May 31, 1884. (Model.)



Claim.—1. The improvement in the art of manufacturing corsets, which consists, first, in forming the inner and outer plies separately of sections stitched together, and, secondly, in stitching series of cords or bone-pockets between the plies, said cords or pockets being so located that not only shall the joining-seams in the plies not register with each other, but none of said seams shall register with the cord or pocket seams, after which the corset is finished in the ordinary manner.

2. As a new manufacture, a corset whose inner and outer plies are formed of sections separately stitched together, in which the inner and outer joining-seams do not register, and having cord or bone pockets stitched therein, which cross the joining-seams at a more or less acute angle.

315,437. TOY. JOHN B. NICHOLS, New York, N. Y. Filed July 25, 1884. (No model.)



Claim.—1. As an improved article of manufacture, a toy consisting of the runners *a*, the curved cover *c*, formed with the closed forward end, *d*, the side pieces, *e*, the seat-supports *f* and seat *g*, and the tongue *r*, secured between the forward ends of said runners, as set forth.

2. In a toy, the combination, with the runners *a*, provided with the slots *s*, of the axles *t* in the said slots, and the wheels *u* on the ends of the axle, substantially as herein shown and described.

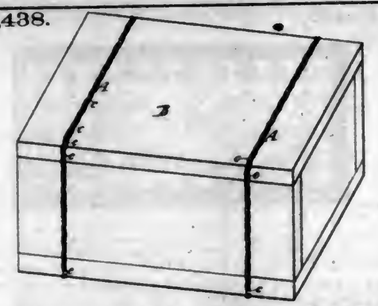
315,438. BAND FOR STRAPPING BOXES, BALES, &c. GRANVILLE NICHOLSON, New York, N. Y., assignor to John L. Clark, same place. Filed Feb. 24, 1885. (No model.)

Claim.—1. The band for strapping boxes and bales, consisting of wires braided together flatwise, and formed with ranges or rows of holes or interstices *b*, which lap on each other and are continuous throughout the length of the band, and which are of a size to receive the bodies and exclude the heads of nails or other fastening devices, substantially as herein described.

2. The combination, with a box or bale, of a band consisting of wires braided together flatwise, and having ranges or rows of holes or interstices which lap on each other throughout the length of the band, and fastening devices *c*, inserted through the holes or interstices *b* and securing the band to the box or bale, substantially as herein described.

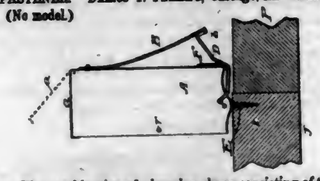
3. The band for strapping boxes and bales, consisting of wires braided together flatwise, and having ranges or rows of holes or inter-

315,438.



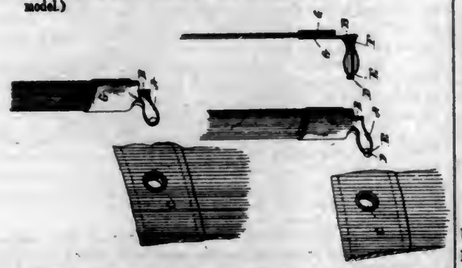
stices *b*, which lap on each other throughout the length of the band, and are adapted to receive the bodies and exclude the heads of fastening devices, the band being galvanized or tinned, whereby its wires are secured together at their points of crossing, substantially as herein described.

315,439. COMBINED BURGLAR-ALARM, MATCH-SAFE, AND SASH-FASTENER. DARIUS T. PHILLIPS, Chicago, Ill. Filed Sept. 15, 1882. (No model.)



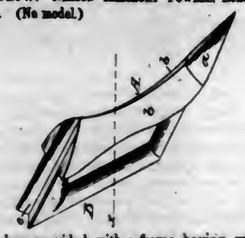
Claim.—The combination of a burglar-alarm consisting of the spring, the wire catch, and the fuse with and by means of a match-box provided with a screw for securing said box and alarm to and in their operative position on a door-frame, substantially as described.

315,440. BUTTON. JAMES R. POLLOCK, Mansfield, Ohio, assignor of one-half to Joseph P. Rummel, same place. Filed Jan. 13, 1885. (No model.)



Claim.—The combination, with the split knob of the button, of the lock-pin having an annular groove near its outer end, the inner end resting upon a spring, whereby the pin is kept in normal position and the parts expanded, and at the same time permitted to yield when passing through the button-hole or eyelet, substantially as specified.

315,441. PLOW. NELSON ALBRIGHT POWELL, Lenoir, N. C. Filed Nov. 14, 1884. (No model.)

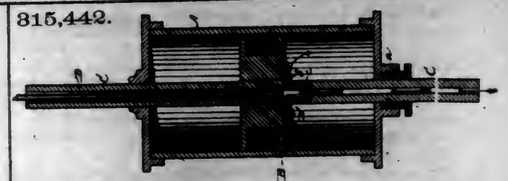


Claim.—A plow provided with a frame having grooves upon its upper, under, and rear sides, and a curved front section having angular sides and attached thereto a suitable point, substantially as and for the purpose set forth.

315,442. PUMP. JAY W. POWERS, Winnetka, Ill., assignor of two-thirds to Morris J. Moth and Robert S. Moth, same place. Filed Aug. 30, 1883. (No model.)

Claim.—The pump-cylinder A, having a hollow rod, C, passing

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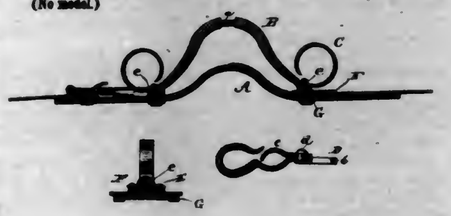
through both ends of the cylinder, and carrying a piston-head, B, and an enlargement, *c*, within said rod, having ports *b* opening out just below the piston, in combination with an operating-rod, D, passing through the hollow rod, and having a head, D', within the enlargement of said rod, substantially as and for the purpose set forth.

315,443. UNDERGROUND GAS-MAIN. ALEXANDER RANDOL, Tarentum, assignor of two-thirds to John M. Arnold, Pittsburg, and George S. McKee, Allegheny City, Pa. Filed Feb. 5, 1885. (No model.)



Claim.—In combination with the gas-pipe A, the air-pipe B, inclosing the same and leaving an air-space between them, the outlet-pipe *a*, communicating with said air-pipe, the inlet-pipe *c*, also communicating with said air-pipe, and the blower C, whereby air is forced through inlet-pipe *c* into air-pipe D, in order that it may carry off through outlet-pipe *a* all gas escaping from pipe A, substantially as set forth.

315,444. ANTI-FRICTION PAD-TREE. HENRY T. RICHMOND, Malvern, Iowa, assignor of one-half to James P. Munger. Filed Jan. 31, 1885. (No model.)



Claim.—1. A pad-tree provided with an oscillating yoke having bearings secured to the pad on either side, substantially as and for the purpose set forth.

2. The yoke B, having journals *e e*, in combination with links E E and bearing-plates F F, said links spanning said journals *e* transversely to the axis of the said yoke, substantially as and for the purpose set forth.

3. The yoke B, having journals *e*, in combination with links E, bearing-plates F, pad A, and screw-plate G, said links, bearing-plates, and screw-plates being suitably secured to said pad A, substantially as described.

4. An anti-frictional pad-tree composed of the yoke B, having the journals *e*, links E, pad A, means for securing said links to said pad, and check-hook D, substantially as described.

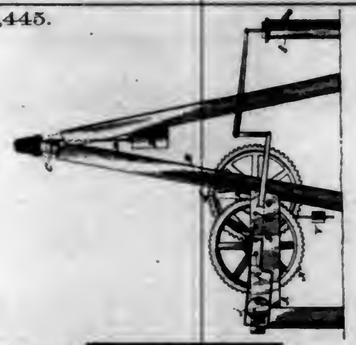
5. An anti-friction pad-tree composed of an oscillating yoke, transverse links forming a pivotal connection with said yoke, bearing-plates, screw-plates, and a check-hook, substantially as described.

6. The check-hook D, composed of two parts pivotally connected, in combination with yoke B, having journals *e*, links E, pad A, and means for securing said links to said pad, substantially as described.

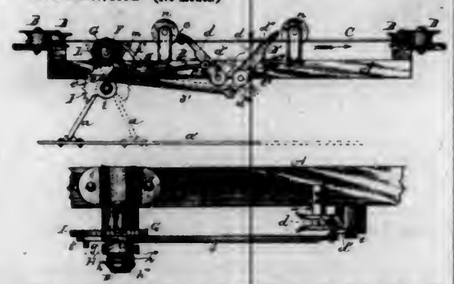
315,445. PUMP-DRIVER. JOHN WESLEY RUNYAN, Catawba, Ohio. Filed Feb. 13, 1885. (No model.)

Claim.—The combination of the pump *f*, the lever *e* therefor, the crank P, connected with lever *e*, the weight E, the train of gearing connecting the weight and crank, the ratchet U upon a shaft of the train of gearing, the pendulum Q, the frame A, the pivot R, hanging the pendulum on the frame, the pawl S, pivoted to the pendulum above its center and curved near its point, the pawl T, pivoted to the pendulum below the center of the latter, the stud *c*, fixed in the frame, and the rollers *a* and *b*, journaled on this stud, the pawls S and T, supported upon the rollers, substantially as and for the purpose specified.

315,445.



315,446. CORN-PLANTER CHECK-ROWER. WILLIAM B. RUSH, Decatur, Ill., assignor to the Chambers, Boring, Quinlan Company, same place. Filed Oct. 23, 1884. (No model.)



Claim.—1. In a check-rower, in combination, the forked lever D, formed of parts *d d'*, forked lever D', formed of parts *d'' d'''*, rods J J', and an oscillating plate, to which the rods J J' are hinged or journaled, substantially as and for the purpose specified.

2. In a check-rower, in combination, guide-pulleys for guiding and directing the tappet-wire across the corn-planter machine, forked levers on which the tappet-wire acts, one lever at a time, and a connecting-rod extending from each forked lever to a plate, which they oscillate, each forked lever adapted to remain stationary, while the other actuates the oscillating plate, substantially as and for the purpose specified.

3. In a check-rower, in combination, the forked levers D D', each formed of two parts, substantially as described, the rods J J', and oscillating plate I, located at one side of the forked levers D D', substantially as and for the purpose specified.

4. In combination, the forked levers D D', constructed of two parts, substantially as described, rods J J', springs *k k'*, and an oscillating plate, to which both rods J J' are journaled, substantially as and for the purpose specified.

5. In combination with the levers D D', rods J J', oscillating plate I, and springs *k k'*, the adjustable plate K, for regulating the tension of the springs, substantially as and for the purpose specified.

6. In a check-rower of the type herein specified, in combination, forked levers located near the center of the planter, and adapted to act either one, while the other one does not move, on connecting-rods which extend to and are journaled to an oscillating plate, substantially as and for the purpose specified.

7. In a check-rower, in combination, the forked levers D D', rods J J', oscillating plate I, oscillating segment G, and clutch H, substantially as and for the purpose specified.

8. In a check-rower, in combination, the forked levers D D', rods J J', oscillating plate I, oscillating segment G, clutch H, shaft F, plate L, and lever *a*, substantially as and for the purpose specified.

9. In a check-rower, in combination, a bar, A, adapted to be secured transversely on a planter, forked levers D D', journaled to the bar A near its mid-length portion, and each formed of two parts, substantially as described, rods J J', and an oscillating plate to which the rods J J' are journaled, and which imparts movement to the planter seed-slides through suitable intermediate devices, substantially as and for the purpose specified.

10. In combination, levers D D', rods J J', springs *k k'*, plates I and G, clutch H, spring *h'''*, shaft F, plate L, lever *a*, and detent *m*, substantially as and for the purpose specified.

315,447. PANEL FOR UPRIGHT PIANOS. C. F. THEODOR STEINWAY, New York, N. Y. Filed Mar. 26, 1884. (No model.)

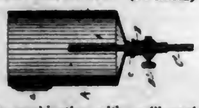
Claim.—1. As an article of manufacture, a panel for musical instruments, consisting of a frame of two parts, a backing of wire-gauze stretched in said frame and clamped between said parts, and open-work filling of plastic material cemented to said backing of wire-gauze, substantially as described.



2. A panel for the case of piano-fortes, organs, &c., composed of an exterior frame, a lining or backing of wire-gauze, an open-work filling of plastic material cemented to said backing of wire-gauze, and ornamental figures integral with and cast in relief upon said open-work filling, substantially as described.

3. A panel for the case of piano-fortes, organs, &c., composed of an exterior frame, a lining or backing of wire-gauze, an open-work filling of plastic material cemented to said backing of wire-gauze, a layer or coating of cement applied to the back of said gauze for anchoring said filling in cemented position, and ornamental figures integral with and cast in relief upon said open-work filling, substantially as described.

315,448. MILK-SETTING APPARATUS. MARVIN O. STODDARD, Poultney, Vt. Filed June 16, 1884. (No model.)



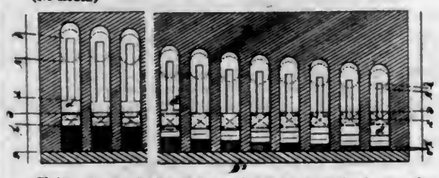
Claim.—1. The combination, with a milk-setting can provided with a cock or faucet at bottom, of a sliding tube adjustable through the valve or plug of said faucet, substantially as and for the purposes set forth.

2. The combination, with a milk-setting can provided with a cock or faucet at bottom, of a sliding tube fitting the neck or inlet to said faucet, arranged to pass through the orifice in the plug or valve of the faucet and be clamped or held in position by the plug, substantially as and for the purposes set forth.

3. In combination with a milk-can surrounded by a water jacket or tank, a cock or faucet the neck of which communicates with the interior of the can, and the sliding tube made adjustable through the orifice of the valve in the faucet, substantially as shown and described.

4. The herein-described milk-setting apparatus, composed of a milk-holding can, a surrounding water jacket or tank, a cock or faucet the neck of which communicates with the interior of the can, and the sliding removable tube arranged to pass through the orifice in the valve or plug, substantially as shown and described.

315,449. REED-BOARD. FRANK STOWE, Worcester, Mass., assignor to the Munroe Organ Reed Company, same place. Filed Apr. 17, 1882. (No model.)



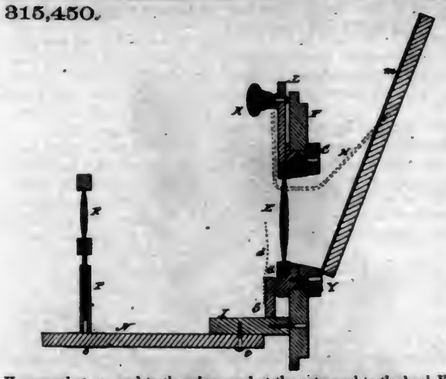
Claim.—1. A tube-board for musical instruments having a series of reed-cells which are severally prolonged in excess of the length of the reeds contained therein in a proportionally increasing order downwardly of the scale, with the lower-toned reeds inserted to a proportionally greater longitudinal distance beyond the position of air-inlet than are the higher-toned reeds, substantially as and for the purpose hereinbefore set forth.

2. The tube-board having its cells formed as hereinbefore specified, each successive cell in descending order being made with a proportionally increased length in excess of the length of the reed-block contained therein, and having air-passages to said cells located in relation to the respective reeds in the order shown and described.

315,450. ADJUSTMENT FOR SOLAR CAMERAS. WM. C. STRONG, Kent's Hill, Me. Filed Mar. 22, 1883. (No model.)

Claim.—1. The combination, with the foundation F, having a circular hole near its center, of the two flanged collars C, fitted to the said hole, the lever L, secured to the inner collar and provided with the knob K, pivoted to it, the mirror *m*, hinged to the outer collar, and the cord

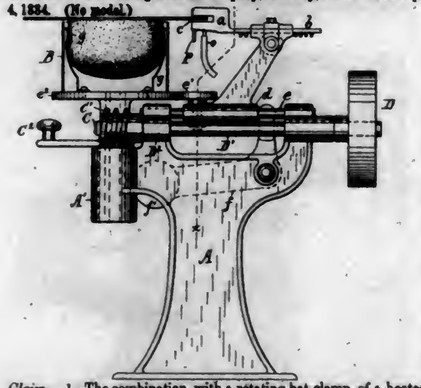
315,450.



H, secured at one end to the mirror and at the outer end to the knob K, to be wound thereon, substantially as described, whereby the mirror may be both rotated and elevated or depressed by means of the said knob.

2. The combination, with the foundation F, the mirror *m*, and lens E, secured thereto, as described, and the cross-piece I, also secured to the foundation F, of the lens-bar N, pivoted at *i* to the cross-piece I, the lens R, and the telescoping joint P, supporting the lens and provided with the slide O, fitted to the bar N, as shown and described, whereby the lens R may be raised or lowered, may be caused to approach or recede from the lens E, and may be swung horizontally out of parallel therewith, as described.

315,451. HAT-BRIM SOFTENER. EDMUND TWEEDY, Danbury, Conn., and GEORGE YULE, Newark, N. J., assignors, by direct and mesne assignments, to the Hat Curling Machine Company, Danbury, Conn. Filed Sept. 4, 1884. (No model.)



Claim.—1. The combination, with a rotating hat-clamp, of a heated softening-iron having a mouth formed with imperforate lips adapted to admit the edge of the brim and to radiate heat upon its opposite sides.

2. The combination, with a rotating hat-clamp, of a heated iron having a mouth and imperforate lips constructed to embrace the brim with pressure upon its opposite sides.

3. The combination, with a rotating hat-clamp and a table for supporting the hat-brim, of a heated iron having a mouth to receive the edge of the brim and a beveled under lip to lift the brim gradually from the table.

4. The combination, with a brim-softening tool and a hat-clamp, of a worm-wheel for rotating the clamp, a worm and pulley arranged to drive the worm-wheel, and an eccentric connection between the worm-wheel and worm, for rotating or stopping the hat-clamp at pleasure.

5. The combination, with a brim-softening tool and a hat-clamp, of a hat-clamp spindle mounted in an eccentric sleeve, a worm-wheel fitted to said spindle, a rotating worm in bearings adjacent to the worm-wheel, and a handle for turning the eccentric sleeve to disengage the worm-wheel from the worm.

6. The combination, with a brim-softening tool, of a hollow hat driving and protecting clamp open at the top, and adapted to receive and protect the crown of the hat from heat and moisture.

7. The combination, with a brim-softening tool, of a hollow hat-driving clamp open at the top to receive the crown of the hat, and means, substantially as described, for securing hats of different sizes in said clamp.

8. The combination, with a brim-softening tool, of a rotating hollow hat-driving clamp formed of expansible staves adapted to embrace the outside of the hat-crown.

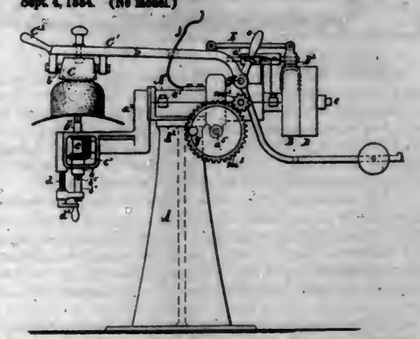
9. The combination, with a brim-softening tool, of a rotating hollow hat-driving clamp and a block inserted within the hat to resist the pressure of such clamp.

10. The method herein described for holding hats during the process of brim-softening, consisting in clamping the crown upon the outer side.

11. The method herein described of protecting the hat-crown during the brim-softening process, consisting in covering the hat-crown with a hollow hat-driving clamp.

12. The combination, with a hat-clamp, a brim-softening iron, and means for rotating the hat in reference to the tool, of mechanism, substantially as described, for vibrating the tool, and an adjustable attachment for varying the extent of such vibrations, as and for the purpose set forth.

315,452. HAT-IRONING MACHINE. EDMUND TWEEDY, Danbury, Conn., and GEORGE YULE, Newark, N. J., assignors, by direct and mesne assignments, to the Hat Curling Machine Company, Danbury, Conn. Filed Sept. 4, 1884. (No model.)



Claim.—1. The combination, with a yielding iron or tool carrier, a hat-block spindle, and means for revolving such spindle, of an intermediate axis of motion intersecting the hat block or spindle, and means for automatically moving the spindle and tool-carrier in relation to one another about said axis.

2. The combination, with a yielding iron or tool carrier, a hat-block spindle, and means for revolving such spindle, of an intermediate axis of motion intersecting the hat block or spindle, and means for automatically oscillating or reversing the movement of the spindle and tool-carrier in relation to one another about said axis.

3. The combination, with a yielding iron or tool carrier, a hat-block spindle, and means for revolving such spindle, of an intermediate axis of motion intersecting the hat block or spindle, means for automatically moving the spindle and tool-carrier in relation to one another about said axis, and means for adjusting or varying the extent of such movement.

4. The combination, with a yielding iron or tool carrier, a hat-block spindle, and means for revolving such spindle, of an intermediate axis of motion intersecting the hat-block, means for automatically moving the spindle and tool-carrier in relation to one another about said axis, and means for automatically arresting such movement at a fixed point.

5. The combination, with a yielding iron or tool carrier, a hat-block spindle, and means for revolving such spindle, of an intermediate axis of motion intersecting the hat-block, mechanism for moving the spindle and tool-carrier in relation to one another about said axis by the hand of the operator, mechanism for producing the same movement automatically, and means for bringing either mechanism into operation separately.

6. The combination, with a yielding iron or tool carrier, a hat-block spindle, and a driving-arbor for revolving the same, of an intermediate axis of motion intersecting the hat-block, and mechanism connected with said driving-arbor for moving the spindle and tool carrier in relation to one another about said axis.

7. The combination, with a yielding iron or tool carrier, a hat-block spindle, and a driving-arbor for revolving the same, of an intermediate axis of motion intersecting the hat-block, mechanism for moving the spindle and tool-carrier in relation to one another about said axis by the hand of the operator, and a clutch for connecting the said hand-moving mechanism with the said driving-arbor, and thereby moving the spindle and tool-carrier in relation to one another automatically.

8. The combination, with a yielding iron and a hat-block spindle mounted to move or turn about an intermediate axis of motion in the manner described, of the worm-wheel, worm, and worm-spindle for producing such turning motion by hand, the hat-block-driving arbor mounted upon said axis of motion, the intermediate shaft connected with the worm-spindle, the intermediate bevel-wheel upon such shaft, adjacent to the arbor, the shifting-clutch provided with two opposed bevel-wheels revolving with the arbor, and means for shifting and securing

either of the two opposed bevel-wheels in gear with the intermediate bevel-wheel, as and for the purpose set forth.

9. The combination, with a hat-block spindle, of a driving-arbor provided with mechanism for revolving the same, a tool-carrier mounted above the hat-block upon a vertically-swinging carrier-lever, a shipper for shifting the driving mechanism, and a connection from the carrier-lever to the shipper for automatically stopping said mechanism when the tool is removed from the hat.

10. In a hat-ironing machine, the combination, with a yielding tool-carrier and a spindle for supporting the hat-block, of two mechanisms, one for rotating the said spindle and turning the hat around in the plane of its brim and one for shifting the spindle in relation to the iron and presenting the tip and side crown continuously to its action.

315,453. CUSHION FOR WATER-PIPES. JAMES O. WADDELL, Elizabeth, assignor to the Waddell Manufacturing Company, Newark, N. J. Filed June 5, 1884. (No model.)



Claim.—1. The combination, with a water-supply pipe having an outlet to be controlled by a cock, faucet, or valve, and a nipple or aperture independent of said outlet, of an elastic and expansible pocket the mouth of which is in communication with the nipple or aperture, and a closed air-chamber, larger than the pocket, surrounding and inclosing said pocket, and in which air will be compressed by the expansion of said pocket, substantially as and for the purpose herein described.

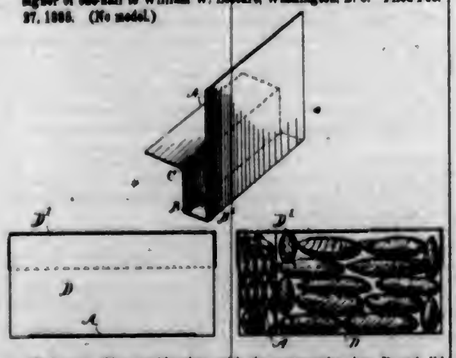
2. The combination, with a water-supply pipe having an outlet to be controlled by a cock, faucet, or valve, and a nipple or aperture independent of said outlet, of an elastic and expansible pocket having its mouth in communication with said nipple or aperture, and a tubular casing surrounding the pocket and forming a guard to prevent undue expansion of said pocket, substantially as and for the purpose herein described.

3. The combination, with a water-supply pipe having an outlet to be controlled by a cock, faucet, or valve, of an elastic and expansible pocket in communication with the supply-pipe, and an air-chamber inclosing the said pocket and securing the latter in air-tight communication with the supply, substantially as herein described.

4. The combination, with a base-piece with which the supply-pipe is to be connected, a nipple projecting upward therefrom, and an outlet to be controlled by a cock, faucet, or valve, of the flanged pocket E, made of elastic material and capable of expansion, and the air-chamber F, screwed to the said base-piece and serving to secure the said pocket upon the nipple and to said base-piece, substantially as herein described.

5. The combination of the base-piece C, with which the supply-pipe is to be connected, the elastic pocket E, and air-chamber F, connected in an air-tight manner with said base-piece, said pocket being in uninterrupted communication with the supply-pipe, and the external shell or casing, A, connected with the base-piece, communicating through the base-piece with the supply-pipe, and having an outlet to be controlled by a cock, faucet, or valve, all substantially as herein described.

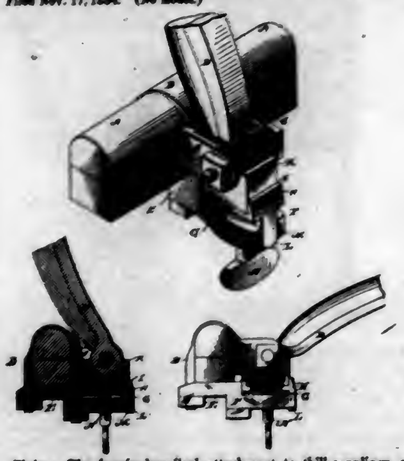
315,454. PAPER BOX. THEODORE S. WEST, Alexandria, Va., assignor of one-half to William W. Lester, Washington, D. C. Filed Feb. 27, 1885. (No model.)



Claim.—1. The combination, with the rectangular box D and lid D', of a rectangular piece, preferably of pasteboard, slightly narrower than the inside width of the box, and so scored transversely as to form three compartments when bent at its scores and inserted into the box, substantially as specified.

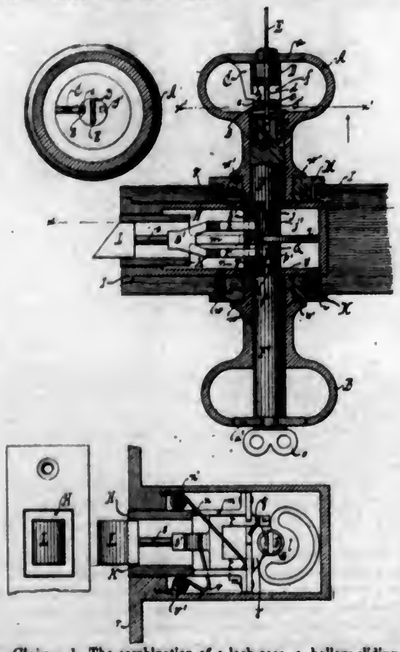
2. The combination, with the box D and lid D', of the rectangular piece A, provided with the scores B B' and C, substantially as specified.

315,455. THILL-COUPLING. CHRISTOPHER C. WEBSTER, Elkton, Md. Filed Nov. 17, 1884. (No model.)



Claim.—The herein-described attachment to thill-couplings, comprising the base-plate E, recessed at its forward end to provide a seat, G, the cushion-plate H, received in the latter and provided with vertical flanges I J, the rear flange, J, being higher than the other, a guide-lug, L, working vertically through a recess, M, of the base-plate, and a screw, N, connected to the cushion-plate, as set forth.

315,456. LOCK AND LATCH COMBINED. JOSEF WUBR, New York, N. Y. Filed Nov. 13, 1884. (Model.)



Claim.—1. The combination of a lock-case, a hollow sliding bolt, a latch sliding within the bolt, a rotating hub acting on the bolt, two rotating and independent knob-spindles connected with the hub to project the bolt, and two knobs independently rotating on the spindles and connected with the latch for retracting it within the bolt.

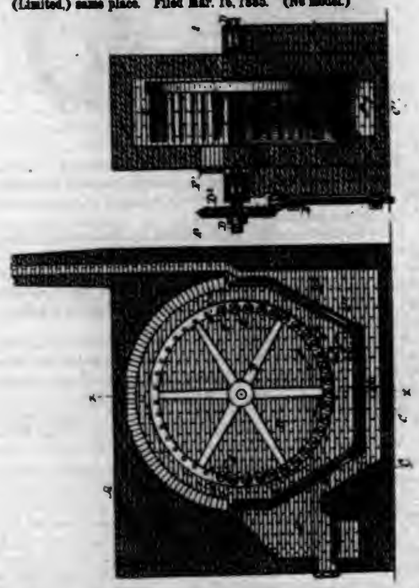
2. The combination of a lock-case, a hollow sliding bolt, a spring normally holding the bolt retracted, a latch sliding in the bolt, a spring normally holding the latch projected, a rotating hub having a cam for projecting the bolt, two rotating and independent knob-spindles connected with the hub, and each having a device at its outer end for its rotation, and two knobs independently rotating on the spindles and connected with the latch for retracting it within the bolt, substantially as described.

3. The combination of a lock-case, a sliding bolt, a hub for projecting the bolt, two rotating and independent spindles connected with the bolt, and the outside spindle having a slot in its outer end, a longitudinally-movable tumbler-hub adapted to rotate in the outside knob, a stationary tumbler fixed to the knob, and a key for moving the tumbler-hub inward and disengaging it from the stationary tumbler of the knob, substantially as described.

4. The combination, with a lock-case, a sliding bolt, and a rotating hub acting on the bolt, of two rotating and independent knob-spindles connected with the hub, the outside spindle having an annular recess, *h*, and a slot, *h'*, in its outer end, a spring arranged in the annular recess, a longitudinally-movable tumbler-hub journaled to rotate in the outside knob and acted on by the spring, a stationary tumbler rigid on the outer knob, and a key for moving the tumbler-hub inward to disengage it from the tumbler of the knob, substantially as described.

5. The combination of a lock-case, a sliding hollow bolt, a rotating hub having a cam for projecting the bolt, a latch sliding in the bolt and having arms *t t' t''*, the latter provided with the projections *u*, two rotating and independent spindles connected with the hub, and two knobs rotating on the spindles, and each having a projection, *q*, at its inner end acting on the projections of the arms of the latch, substantially as described.

315,457. APPARATUS FOR TEMPERING WIRE SPRINGS. MELVIN N. LOVELL, Erie, Pa., assignor to the Lovell Manufacturing Company, (Limited,) same place. Filed Mar. 16, 1885. (No model.)



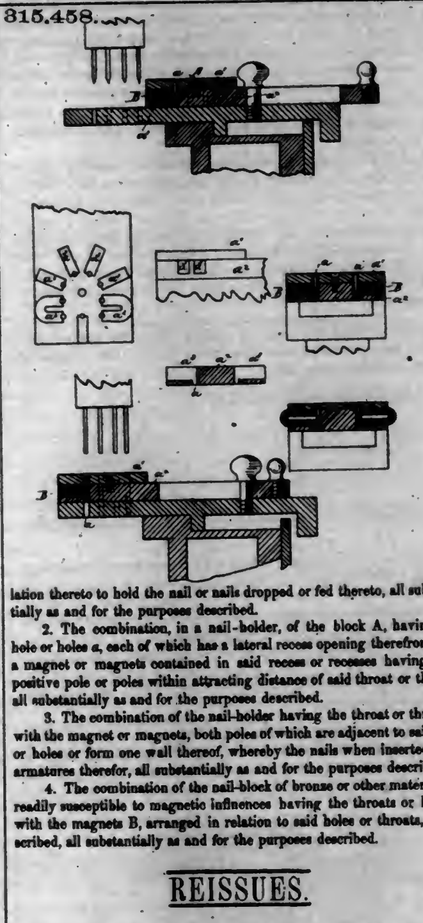
Claim.—1. The combination of a furnace having a fire box and flue, an oven having an inlet-opening at the end next to the flue, and an outlet-opening at the end next the fire-box, and a revolving wheel within said opening, substantially as described, whereby the articles to be tempered are admitted to the oven at the coolest point and taken out at the hottest, as set forth.

2. The combination of a furnace having a fire box and flue, an oven having walls formed of iron plates exposed to said fire-box and flue and provided with an inlet-opening next to the flue, and an outlet-opening next to the fire-box, and a revolving wheel mounted within said oven and geared to revolve from the coolest to the hottest plate, and having means for holding the articles to be tempered and convey them in front of said plates from the coolest to the hottest, for the purpose mentioned.

3. In an apparatus for tempering springs and other light articles, the combination within the masonry A, of the furnace A', flues A^3 and A^4, oven B, having iron walls C C' C^2, and openings E and E', the conveyer-wheel D, mounted within said oven and geared to revolve from the plate-wall C^2 toward wall C, and having means, substantially as shown, for holding and carrying the springs or other articles.

315,458. NAIL HOLDER AND CARRIER. FREEBORN F. RAYMOND, 2d, Newton, Mass. Filed Jan. 2, 1885. (No model.)

Claim.—1. A nail-holder having one or more throats or holes, each of which has one or more magnets or magnetic surfaces arranged in relation thereto to hold the nail or nails dropped or fed thereto, all substantially as and for the purposes described.



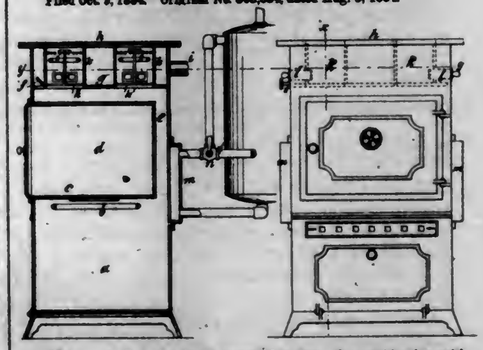
2. The combination, in a nail-holder, of the block A, having the hole or holes *a*, each of which has a lateral recess opening therefrom, and a magnet or magnets contained in said recess or recesses having their positive pole or poles within attracting distance of said throat or throats, all substantially as and for the purposes described.

3. The combination of the nail-holder having the throat or throats *a* with the magnet or magnets, both poles of which are adjacent to said hole or holes or form one wall thereof, whereby the nails when inserted form armatures therefor, all substantially as and for the purposes described.

4. The combination of the nail-block of bronze or other material not readily susceptible to magnetic influences having the throats or holes *a* with the magnets B, arranged in relation to said holes or throats, as described, all substantially as and for the purposes described.

REISSUES.

10,577. GAS COOKING-STOVE. WILLIAM N. HILSTED, Brooklyn, N. Y. Filed Oct. 9, 1884. Original No. 303,634, dated Aug. 5, 1884.



Claim.—1. In a closed-top gas cooking-stove, the combination, with a lower or oven burner, and one or more supplementary burners arranged below a pot-hole or pot-holes in the top plate, of a casing containing each supplementary burner extending downward from the top plate, and constructed to receive fresh air to support combustion at said supplementary burner, and flues or passages whereby the hot products of combustion from the lower burner may be made to pass through the casing or casings of the supplementary burner or burners to make the heat available at the pot hole or holes, or may be made to pass around the casing or casings when one or more of the supplementary burners is in use, substantially as herein described.

2. In a closed-top gas cooking-stove, the combination, with a lower or oven burner and one or more supplementary burners, of a casing containing each supplementary burner, and constructed to receive air to support combustion in its contained burner, flues, or passages, and a damper whereby the hot products of combustion from the lower burner may be made to pass through or around the one or more casings of the supplementary burner or burners on their way to the escape-pipe, substantially as herein described.

3. In a closed-top gas cooking-stove, the combination, with the oven *d*, and the lower burner, *b*, for heating the same, of the flue *c*, extending upward past the oven, the cylinders *k*, and appropriate dampers, as described, by which the surplus heat from the lower burner, *b*, may be concentrated upon one or more cooking-holes in the top plate of the stove.

4. The combination, with a stove, of supplementary burners in the cylinders *k*, fitted with dampers and with air-pipes *l*, substantially as described, by which any one or more of them may be used independently, if desired.

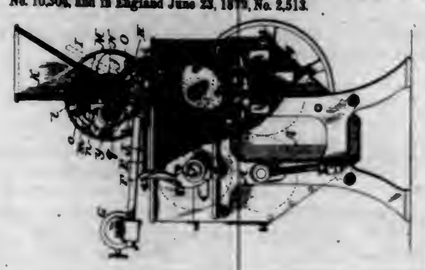
10,578. **NUT-LOCK.** JAMES H. SHERMAN, Bangor, Me., assignor of one-half to Ezra L. Sterns, same place. Filed Mar. 12, 1885. Original No. 307,147, dated Oct. 28, 1884.



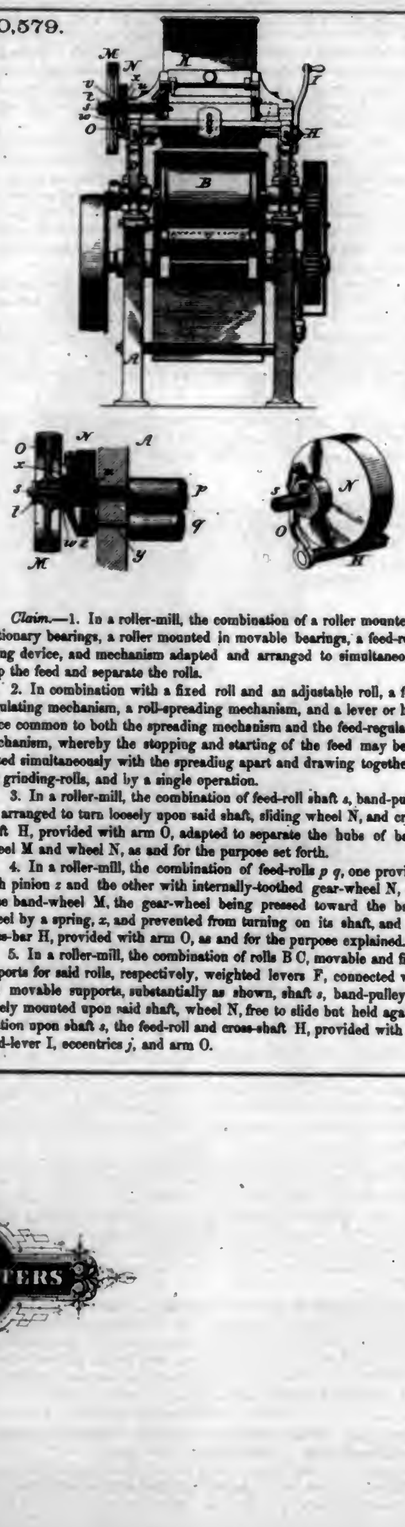
Claim.—1. In a nut-lock formed with the washer-plate *b* and locking-plate *a* formed integral, the folding lip or clamp *i*, folding or bending down onto or outside of the locking-plate *a* when pressed over the nut D and against the washer-plate *b*, to hold or clamp the plate *a* in position and prevent it from springing off and releasing the nut.

2. In a nut-lock, the combination of the washer-plate *b*, formed with the clamping-lip *i*, to bend or clamp onto the plate *a*, and the nut-locking plate *a*, formed with the flange *g*, when used to form a nut-lock, as shown and described.

10,579. **ROLLER GRINDING-MILL.** FREDERICK WEBMANN, Zurich, Switzerland. Filed Oct. 24, 1884. Original No. 276,104, dated Apr. 17, 1883. Patented in Germany June 19, 1879, No. 9,926, and Dec. 4, 1879, No. 10,304, and in England June 23, 1879, No. 2,513.



10,579.



Claim.—1. In a roller-mill, the combination of a roller mounted in stationary bearings, a roller mounted in movable bearings, a feed-regulating device, and mechanism adapted and arranged to simultaneously stop the feed and separate the rolls.

2. In combination with a fixed roll and an adjustable roll, a feed-regulating mechanism, a roll-spreading mechanism, and a lever or hand piece common to both the spreading mechanism and the feed-regulating mechanism, whereby the stopping and starting of the feed may be effected simultaneously with the spreading apart and drawing together of the grinding-rolls, and by a single operation.

3. In a roller-mill, the combination of feed-roll shaft *s*, band-pulley M, arranged to turn loosely upon said shaft, sliding wheel N, and cross-shaft H, provided with arm O, adapted to separate the hubs of band-wheel M and wheel N, as and for the purpose set forth.

4. In a roller-mill, the combination of feed-rolls *p q*, one provided with pinion *z* and the other with internally-toothed gear-wheel N, and loose band-wheel M, the gear-wheel being pressed toward the band-wheel by a spring, *x*, and prevented from turning on its shaft, and the cross-bar H, provided with arm O, as and for the purpose explained.

5. In a roller-mill, the combination of rolls B C, movable and fixed supports for said rolls, respectively, weighted levers F, connected with said movable supports, substantially as shown, shaft *s*, band-pulley M, loosely mounted upon said shaft, wheel N, free to slide but held against rotation upon shaft *s*, the feed-roll and cross-shaft H, provided with the hand-lever I, eccentrics *j*, and arm O.

PHOTO LITH. NORRIS PETERS WASH. D.C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—Northern District of New York.

CANAN *v.* POUND MANUFACTURING COMPANY.

Decided March 10, 1885.

1. Where the meaning of the Revised Statutes is plain, the court cannot recur to the original statutes to see if errors were committed in revising them; but it may do so when necessary to construe doubtful language used in the revision.
2. Section 4887 is not to be construed as requiring the limitation to be expressed in the patent, but merely as controlling the effect or duration of the grant.
3. A patent granted for the term of seventeen years from the date of its issue, and not limited upon its face to expire at the time of expiration of a foreign patent granted to the same party, *held* to be valid for the term of such foreign patent.
4. The usual license-fee exacted for the use of a patented invention is a proper measure for the damages sustained by its unlawful use.

WALLACE, *J.*:

The defendant insists that the plaintiff's patent is void because it is granted for the term of seventeen years from the date of its issue, August 12, 1879, and is not limited upon its face to expire December 5, 1883, the time of the expiration of the plaintiff's Canadian patent for the same invention. This position is founded on the language of section 4887 United States Revised Statutes, which declares—

> That every patent granted for an invention which has been previously patented in a foreign country shall be so limited as to expire at the same time with the foreign patent, or, if there be more than one, with the one having the shortest term, and in no case shall it be in force more than seventeen years.

Reading this section without reference to the context, it would fairly authorize the argument that the limitation should be expressed upon the face of the patent; and if this were the true meaning of the law a serious question would arise whether a patent issued in disregard of the mandate would not be void; but the section is to be read in connection with sections 4883, 4884, and 4885, and resort may be had for interpretation to the pre-existing statutes; and thus read there seems to be no room for fair doubt that section 4887 is not to be construed as requiring the limitation to be expressed in the patent, but merely as controlling the effect or duration of the grant.

Sections 4883, 4884, and 4885 prescribe the formalities by which patents shall be authenticated, and what they are to recite and contain. Section 4884 enacts that—

> Every patent shall contain a short title or description of the invention or discovery, * * * and a grant to the patentee, his heirs or assigns, for the term of seventeen years, of the exclusive right to make, use, and vend the invention, &c.

There is an apparent conflict between the requirements of this section and those of section 4887, but upon resorting to the original sources of the provisions it will be seen that this conflict is apparent only. Where the meaning of the Revised Statutes is plain, the court cannot recur to the original statutes to see if errors were committed in revising them, but it may do so when necessary to construe doubtful language used in the revision. (*United States* v. *Bowen*, 100 U. S. 508.)

Sections 4883, 4884, 4885, and 4887 are reproduced from sections 21, 22, 23, and 25 of the act of July 8, 1870, revising and amending the statutes relating to patents. The first three sections relate to the regulations which are to be observed by the executive department respecting the form and contents of the instrument which they are to issue to the patentee. Section 25 relates to the rights which may be acquired by an inventor or discoverer who has previously patented his invention in a foreign country. It did not enact that his patent should "be limited so as to expire" at the same time with his foreign patent, but declared that his patent should "expire at the same time" with the foreign patent. Obviously, Congress was considering the effect and extent of the grant to such a patentee, the estate with which he would be invested when his patent had been issued, and not the formal requisites or terms of the instrument evidencing the grant. This is very clear by reference to the other provisions of that section, all of which relate to conditions which may defeat his patent. The change of phraseology in section 4887, by which the words "shall be so limited as to expire at the same time" are substituted in place of the words in section 25, "shall expire at the same time," should not be interpreted as intended to control the provisions of section 4884. The word "limited," as used in reference to the term of duration of a patent when the invention has been first patented in a foreign country, originated in section 6 of the patent act of 1839, where it was declared that—

> Every such patent shall be limited to the term of fourteen years from the date or publication of such foreign letters patent.

In the case of *Smith* v. *Ely* (5 McLean, 76) it was held that the patent to Morse for the electric telegraph was void under this section because, having first been patented in France, the patent did not upon its face limit the term of the grant to fourteen years from the date or publication of the foreign patent. The court held that the patent was issued not only without authority of law, but in violation of it. This conclusion was overruled by the Supreme Court in *O'Reilly* v. *Morse*, (15 How., 62,) where the point was distinctly made that the patent was void because it ran fourteen years from the date of its issue, instead of that length of time from the date of the French patent; but the court held that the only effect of the French patent was to limit the monopoly to fourteen years from the date of that patent. From that time to the present the general prac-

tice of the Patent Office, it is understood, has been to issue patents, where a foreign patent has been obtained by the patentee, reciting a grant for the full term authorized by law in the case of ordinary patents, without any limitation upon the face of the instruments. If it had been intended in the revision of the statutes to introduce a new rule or change the construction which had been placed by the Supreme Court and the executive department upon the former provisions of law, plain and unequivocal language would have been employed which would have demonstrated that intention beyond a doubt.

In several cases in this circuit and other circuits similar patents have been under consideration and been treated as valid for the term of the foreign patent, although upon their face they specified a longer term. (*Weston* v. *White*, 13 Blatch., 364; *Henry* v. *Providence Tool Co.*, 3 B. & A., 501; *Reisner* v. *Sharp*, 16 Blatch., 383; *DeFlorez* v. *Reynolds*, 17 Blatch., 436; *Holmes Electric Co.* v. *Metropolitan Co.*, 21 Fed. Rep., 458.) The point now taken was not considered in these cases, but it could not have escaped the attention of the judges. No court would direct a decree or order a preliminary injunction upon a patent void upon its face, and the circumstance that the point was not adverted to implies that it was not thought to have any merit. It is therefore held that the plaintiff's patent is valid, but that the term of the grant expired at the expiration of the Canadian patent. The plaintiff is entitled to recover for infringements committed by defendants prior to December 5, 1883, by the manufacture and sale of four machines. These were all made during the last year which remained of the unexpired term of the patent. The plaintiff's evidence tends to show that he was accustomed to charge and receive one hundred dollars for the use of his invention as late as in 1881 for each shovel to which it was applied, and that the defendant's superintendent recognized this sum as a fair royalty in 1881 after examining the device. Although the plaintiff's evidence is rather weak, it is sufficient to authorize a recovery of one-third of his usual license-fee.

Judgment is ordered for plaintiff for one hundred and thirty-three dollars, with interest.

Supreme Court of the United States.

ROWELL *et al. v.* LINDSAY *et al.*

Decided January 5, 1885.

1. In this patent, which is for an improved cultivator, the claim covers the combination of a beam, shank, brace-bar, and bolt. In view of the prior state of the art, to sustain it it must be construed so as to confine it substantially to the form described.
2. A patent for such a combination is not infringed by the use of any smaller number of its elements, either separately or in connection with others differing in form and arrangement from those for which they are substituted, unless the substituted elements are mechanical equivalents and were known to be such at the time the patent was granted.
3. Where infringement is alleged, a device in one patented combination, to be the equivalent of a device in another, must perform the same functions.
4. In this case one of the purposes of plaintiffs' brace-bar is to strengthen the shank, and thus decrease the quantity of material in it. The curved top of defendants' shank, which is alleged to be an equivalent, does not perform this material function, but, on the contrary, requires an increase of the quantity of material. Hence it is not an equivalent, and there is no infringement from its use in connection with the other elements of plaintiffs' combination.

APPEAL from the Circuit Court of the United States for the Eastern District of Wisconsin.

Mr. J. J. Dick for the appellants.

Mr. E. E. Wood and *Mr. E. Boyd* for the appellees.

Mr. Justice WOODS delivered the opinion of the Court.

The appellants John S. Rowell and Ira Rowell were the plaintiffs in the circuit court. They brought their bill in equity against Edmund J. Lindsay and William Lindsay, the appellees, to restrain the infringement of Reissued Letters Patent No. 2,909, dated March 31, 1868, granted to the plaintiffs for a new and improved cultivator. The invention was illustrated by the annexed drawings, and was described in the specification as follows:

Fig. 1.

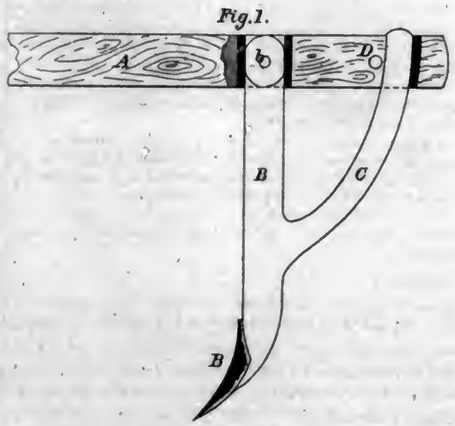


Fig. 2.

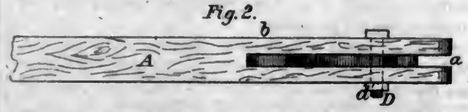


Figure 1 is a side elevation of the tooth in a beam shown in longitudinal section. Fig. 2 is a top view of the beam, with the tooth in position.

This invention consists in applying to the shank of the tooth a curved brace-bar, the upper end of which passes through a slot or mortise in the beam, and is held in position by a clamping-bolt, which passes transversely through the slot or mortise near the brace-bar, and forces the sides of the beam together against the brace-bar, so as to clamp it in any required position, and thereby adjust the tooth in any inclination, at the same time allowing it to yield to immovable obstacles without breaking.

In the drawings, A represents one of the beams of a cultivator; B, the shank pivoted at *b*; B', the tooth; C, a curved brace-bar, extending in the arc of a circle outward and upward from the rear side of the shank B, and its upper end passing vertically through a longitudinal slot or mortise, *a*, in the beam A, and D a bolt passing transversely through the slot or mortise, and having a head, *d*, on one end and a nut, *d'*, on the other, by which the side walls of the slot or mortise can be clamped against the brace-bar with any required force, thereby holding the latter in position when operating in the field.

It is evident that in a device thus constructed and operating the brace-bar C can be so clamped that the tooth will retain its position when working in arable soil, but will yield when coming in contact with an immovable obstacle, and pass over it without breaking, the shank turning back upon its pivot *b*, and the brace-bar being forced up through the slot. The same arrangement also allows the shank to be adjusted in any position for deep or shallow cultivating.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

The combination of the slotted beam A, shank B, brace-bar C, and bolt D, when the parts are constructed and arranged to operate as and for the purposes herein specified.

The answer of the defendants, among other defenses, denied infringement of the letters patent. The plaintiffs contended that infringement of their letters patent was made out by the evidence, which tended to show that the defendants constructed and sold seeding-machines made according to the specification of letters patent granted to John H. Thomas and Joseph W. Thomas, dated June 30, 1874, for an improvement in sowing-machines. This invention related to the drag-bars and shovel-standards of broad-cast seeders, and consisted, mainly, in the manner of attaching the standards to the drag-bar. The invention can be readily understood from the annexed drawings, by which the specification was illustrated.

Fig. 1.

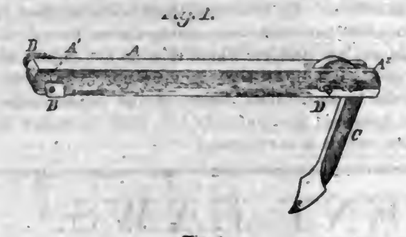
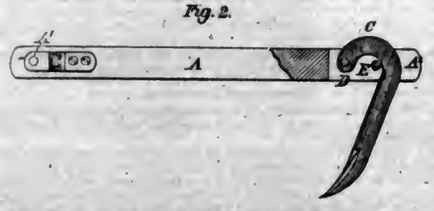


Fig. 2.



The bar A is cut so as to leave a slit in the rear end, as at A^2, to receive the shank of the shovel C. This is secured in the slit by the bolt D. Another threaded bolt is passed through the bar A in such place as to sustain the shovel when in proper position. The ends of the bifurcated bar are drawn down by the bolt E or by the united action of the bolts E and D until clamped against the standard of the shovel with such force that the friction shall maintain the shovel in position while passing through mellow earth, but not so tight but that it will yield to an excessive resistance before force enough is applied to break the shovel. The advantages of the invention are thus stated:

By the form given to the standard we obtain not only the gripe on the pivoted end, but also a gripe against the sides of the standard, so that from its form it must be moved in the direction of its length. A much less restraining force will then hold the standard with requisite tenacity. Our device has its distinguishing feature in that construction, as shown, by which the shank is itself so bent as to give effect to the double action of the joint at the eye and the compressing-bolt *E*. By making it in one piece its construction is greatly cheapened as compared with that class where an arm has to be welded into the shank.

The claim of this patent was as follows:

In combination with the drag-bar A, bifurcated at A^2, the curved shovel-standard C, bent as shown, and pivoted by a bolt at D and clamped by bolt E, substantially as shown and described.

Upon final hearing upon the pleadings and proofs the circuit court dismissed the bill and the plaintiffs appealed.

The evidence shows that the shanks or standards of plows, cultivators, and seeding-machines have been used in a great variety of forms. In some the upper end of the brace entered the beam in the rear, and in others in front of the shank. In some the upper end of the shank and the brace were so formed and united as to present an elliptical figure. Many, perhaps the majority, were without braces. In some the upper end of the shank was made with a head in the form of an elliptical or circular plate, called an "enlarged head." This performed the function of a brace. The patent of the plaintiffs, therefore, stands on narrow ground, and to sustain it it must be so construed as to confine it substantially to the form described in the specification. The patent of the plaintiffs is for a combination only. None of the separate elements of which the combination is composed are claimed as the invention of the patentee, therefore none of them standing alone are included in the monopoly of the patent.

As was said by Mr. Justice Bradley in the case of the corn-planter patent, (23 Wall., 224:)

When a patentee, after describing a machine, claims as his invention a certain combination of elements, or a certain device or part of the machine, this is an implied declaration as conclusive, so far as that patent is concerned, as if it were expressed, that the specific combination or thing claimed is the only part which the patentee regards as new. True, he or some other person may have a distinct patent for portions not covered by this, but that will speak for itself. So far as the patent in question is concerned, the remaining parts are old or common and public.

See, also, *Merrill* v. *Yeomans*, (94 U. S., 573;) *Water Meter Co.* v. *Desper*, (101 U. S. 332-337;) *Miller* v. *Brass Co.*, (104 U. S. 350.) These authorities dispose of the contention of the plaintiffs' counsel that their patent covers one of the separate elements which enters into the combination—namely, a slotted wooden beam—because, as they contend, that element is new, and is the original invention of the patentees. The patent being for a combination, there can be no infringement unless the combination is infringed.

In *Prouty* v. *Ruggles* (16 Peters, 336) it was said:

This combination, composed of all the parts mentioned in the specification, and arranged with reference to each other and to other parts of the plow in the manner therein described, is stated to be the improvement and is the thing patented. The use of any two of these parts only, or of two combined with a third which is substantially different in form or in the manner of its arrangement and connection with the others, is, therefore, not the thing patented. It is not the same combination if it substantially differs from it in any of its parts. The jogging of the standard into the beam and its extension backward from the bolt are both treated by the plaintiffs as essential parts of their combination for the purpose of brace and draft. Consequently the use of either alone would not be the same improvement nor infringe the patent of the plaintiffs.

To the same effect see also *Stimpson B. & S. Railroad Co.*, (10 How., 329;) *Eames* v. *Godfrey*, (1 Wall., 78;) *Seymour* v. *Osborne*, (11 Wall., 516;) *Dunbar* v. *Myers*, (94 U. S., 187;) *Fuller* v. *Yentzer*, (id., 288.) But this rule is subject to the qualification that a combination may be infringed when some of the elements are employed, and for the others mechanical equivalents are used which were known to be such at the time when the patent was granted. (*Seymour* v. *Osborne*, *ubi supra*; *Gould* v. *Rees*, 15 Wall., 187; *Imhaeuser* v. *Buerk*, 101 U. S., 647.)

In the light of these principles we are to inquire whether the defendants use the combination described in the patent of the plaintiffs. The contention of the defendants is that the brace-bar, which is one of the elements of the combination covered by the patent of the plaintiffs, is not, nor is its equivalent, found in the machines made and sold by them. It is plain, upon an inspection of the drawings, that the defendants do not use a brace-bar similar in shape or position to that described in the plaintiffs' patent. But the plaintiffs insist that the top of the shank, curved as shown in the Thomas patent, is the equivalent of the brace-bar forming one of the elements of their invention, and as the contrivance of the defendants embodies this equiv-

alent device in combination with all the other elements covered by the plaintiffs' patent, that the infringement is established. Whether the first-mentioned device is the equivalent of the latter, is the question for solution. We think the contention of the defendants that it is not is well grounded. The specification and drawings of the plaintiffs' patent and the testimony of the plaintiffs' witnesses show that one purpose of the brace-bar used in the plaintiffs' combination was to strengthen and support the shank between the tooth and the beam. The use of the brace-bar enabled the plaintiffs to make the shank with less material, and at the same time to increase its strength. This function is not performed by the curved portion of the shank used by the defendants, which has not the slightest tendency to support and strengthen the shank between the tooth and the beam, where the greatest strain comes. On the contrary, the defendants, by reason of the absence of the brace-bar, are forced to make their shank of larger diameter than that used by the plaintiffs in order to give it the requisite strength to prevent bending. Instead of stiffening the shank between the tooth and the beam, it rather brings an increased strain upon that part of the shank. We find, therefore, that the curved upper part of the shank used by defendants does not perform one of the material functions of the brace-bar of the plaintiffs' combination. It cannot, therefore, be the equivalent of the latter, for where one patented combination is asserted to be an infringement of another, a device in one to be the equivalent of a device in the other must perform the same functions. As, therefore, there is one element of the plaintiffs' patented combination which the defendants do not use and for which they do not employ an equivalent, it follows that they do not infringe the plaintiffs' patent. The decree of the circuit court, which dismissed the plaintiffs' bill, must therefore be affirmed, and it is so ordered.

FOREIGN PATENT LAWS.

PATENT LAW OF QUEENSLAND.

The following is from an official copy of the patent law of Queensland, kindly furnished for publication by W. P. Thompson, F. Inst. P. A., Liverpool, England.

An act to amend and consolidate the law relating to patents for inventions, and the registration of designs and trade-marks. Assented to October 13, 1884.

Be it enacted by the Queen's Most Excellent Majesty, by and with the advice and consent of the Legislative Council and Legislative Assembly of Queensland in Parliament assembled, and by the authority of the same, as follows:

PART I.—PRELIMINARY.

1. This act may be cited as "The Patents, Designs, and Trade-Marks Act, 1884."

2. This act is divided into parts, as follows: Part I, Preliminary; Part II, Patents; Part III, Designs; Part IV, Trade-Marks; Part V, International and Intercolonial Arrangements; Part VI, General.

General Definitions.

3. (1.) In and for the purposes of this act, unless the context otherwise requires, "examiner" includes examiners, if more than one; "the court" means the Supreme Court of Queensland; "law officer" means her Majesty's Attorney-General for Queensland; "The minister" means the colonial secretary or other minister charged with the execution of this act; "registrar" means the Registrar of Patents, Designs, and Trade-Marks; "prescribed" means prescribed by any of the schedules to this act, or by general rules under or within the meaning of this act; 'patent" means letters patent for an invention; "patentee" means the person for the time being entitled to the benefit of a patent; "invention" means any manner of new manufacture the subject of letters patent and grant of privilege within section 6 of the statute of monopolies—that is, the act of the twenty-first year of the reign of King James the First, chapter 3, entitled "An act concerning monopolies and dispensations with penal laws and the forfeiture thereof"—and includes an alleged invention; "design" means any design applicable to any article of manufacture, or to any substance, artificial or natural, or partly artificial and partly natural, whether the design is applicable for the pattern, or for the shape or configuration, or for the ornament thereof, or for any two or more of such purposes, and by whatever means it is applicable, whether by printing, painting, embroidering, weaving, sewing, modeling, casting, embossing, engraving, staining, or any other means whatever, manual, mechanical, or chemical, separate or combined, not being a design for a sculpture, or other thing within the protection of "The sculpture copyright act" of the year 1814, (fifty-fourth George the Third, chapter 56;) "copyright" means the exclusive right to apply a design to any article of manufacture or to any such substance, as aforesaid, in the class or classes in which the design is registered; "British possession" means any territory or place situate within her Majesty's dominions, and not being or forming part of the United Kingdom, or of the Channel Islands, or of the Isle of Man, and all territories and places under one legislature, as hereinafter defined, are deemed to be one British possession for the purposes of this act; "legislature" includes any person or persons who exercise legislative authority in the British possession, and where there are local legislatures as well as a central legislature, means the central legislature only; "summary conviction" means a conviction under the summary jurisdiction acts—that is to say, the acts regulating the duties of justices of the peace and any acts amending or in substitution for them.

Transitional Provisions.

4. The acts mentioned in the first schedule to this act are hereby repealed to the extent in the said schedule indicated. But this repeal shall not—

(a.) Affect the past operation of any of those enactments, or any patent or copyright or right to use a trade-mark granted or acquired, or application pending or appointment made, or compensation granted, or order or direction made or given, or right, privilege, obligation, or liability acquired, accrued, or incurred, or anything duly done or suffered under or by any of those enactments before or at the commencement of this act; or

(b.) Interfere with the institution or prosecution of any action or proceeding, civil or criminal, in respect thereof, and any such proceeding may be carried on as if this act had not been passed; or

(c.) Take away or abridge any protection or benefit in relation to any such action or proceeding.

5. (1.) There shall be an office, called the "Patent Office" at a convenient place, with such officers and clerks as the Governor in Council shall appoint, at which the business of this act required to be transacted at the Patent Office shall be transacted.

(2.) The Patent Office shall be under the immediate control of an officer, called the "Registrar of Patents, Designs, and Trade-Marks," acting under the superintendence and direction of the minister.

(3.) Any act or thing directed to be done by or to the Registrar may, in his absence, be done by or to any officer for the time being in that behalf authorized by the minister.

(4.) Until other provision is made in that behalf, the registrar-general shall be and act as Registrar of Patents, Designs, and Trade-Marks.

6. This act, except where it is otherwise expressed, shall commence from and immediately after the 31st day of December, 1884.

PART II.—PATENTS.

Application for and Grant of Patent.

7. (1.) Any person, whether a British subject or not, may make an application for a patent.

(2.) Two or more persons may make a joint application for a patent, and a patent may be granted to them jointly.

8. (1.) An application for a patent must be made in the form set forth in the second schedule to this act, or in such other form as may be from time to time prescribed; and must be left at or sent by post to the Patent Office in the prescribed manner.

(2.) An application must contain a declaration to the effect that the applicant is in possession of an invention, whereof he, or, in the case of a joint application, one or more of the applicants, claims or claim to be the true and first inventor or inventors, and for which he or they desires or desire to obtain a patent, and must be accompanied by either a provisional or complete specification.

(3.) In the case of a joint application, the declaration may be made by one of the applicants.

(4.) A provisional specification must describe the nature of the invention, and be accompanied by drawings, if required.

(5.) A complete specification, whether left on application or subsequently, must particularly describe and set forth the nature of the invention, and in what manner it is to be performed, and must be accompanied by drawings, if required.

(6.) A specification, whether provisional or complete, must commence with the title, and in the case of a complete specification must end with a distinct statement of the invention claimed.

9. The registrar shall refer every application to an examiner or examiners, who shall ascertain and report to the registrar whether the nature of the invention has been fairly described, and the application, specification, and drawings (if any) have been prepared in the prescribed manner, and the title sufficiently indicates the subject-matter of the invention.

10. (1.) If the examiner reports that the nature of the invention is not fairly described, or that the application, specification, or drawings has not or have not been prepared in the prescribed manner, or that the title does not sufficiently indicate the subject-matter of the invention, the registrar may require that the application, specification, or drawings be amended before he proceeds with the application.

(2.) Where the registrar requires an amendment, the applicant may appeal from his decision to the law officer.

(3.) The law officer shall, if required, hear the applicant and the registrar, and may make an order determining whether and subject to what conditions, if any, the application shall be accepted.

(4.) The registrar shall, when an application has been accepted, give notice thereof to the applicant.

(5.) If after an application has been made, but before a patent has been sealed, an application is made, accompanied by a specification bearing the same or a similar title, it shall be the duty of the examiner to report to the registrar whether the specification appears to him to comprise the same invention; and, if he reports in the affirmative, the registrar shall give notice to the applicants that he has so reported.

(6.) Where the examiner reports in the affirmative, the registrar may determine, subject to an appeal to the law officer, whether the invention comprised in both applications is the same, and if so he may refuse to recommend that a patent be granted on the application of the second applicant.

11. (1.) If the applicant does not leave a complete specification with his application, he may leave it at any subsequent time within nine months from the date of application.

(2.) Unless a complete specification is left within that time, the application shall be deemed to be abandoned.

12. (1.) Where a complete specification is left after a provisional specification, the registrar shall refer both specifications to an examiner for the purpose of ascertaining whether the complete specification has been prepared in the prescribed manner, and whether the invention particularly described in the complete specification is substantially the same as that which is described in the provisional specification.

(2.) If the examiner reports that the conditions hereinbefore contained have not been complied with, the registrar may refuse to accept the complete specification unless and until the same shall have been amended to his satisfaction; but any such refusal shall be subject to appeal to the law officer.

(3.) The law officer shall, if required, hear the applicant and the registrar, and may make an order determining whether and subject to what conditions, if any, the complete specification shall be accepted.

(4.) Unless a complete specification is accepted within twelve months from the date of application, then (save in the case of an appeal having been lodged against the refusal to accept) the application shall at the expiration of those twelve months become void.

(5.) Reports of examiners shall not in any case be published or be open to public inspection, and shall not be liable to production or inspection in any legal proceeding other than an appeal to the law officer under this act, unless the court or officer having power to order discovery in such legal proceeding shall certify that such production or inspection is desirable in the interests of justice and ought to be allowed.

13. On the acceptance of the complete specification the registrar shall advertise the acceptance in the *Gazette*, and the application and specification or specifications with the drawings (if any) shall be open to public inspection.

14. (1.) Any person may at any time within two months from the date of the advertisement of the acceptance of a complete specification give notice at the Patent Office of opposition to the grant of the patent on the ground of the applicant having obtained the invention from him, or from a person of whom he is the legal representative, or on the ground that the invention has been patented in this colony on an application of prior date, or on the ground of an examiner having reported to the registrar that the specification appears to him to comprise the same invention as is comprised in a specification bearing the same or a similar title and accompanying a previous application, but on no other ground.

(2.) Where such notice is given the registrar shall give notice of the opposition to the applicant, and shall, on the expiration of those two months, after hearing the applicant and the person so giving notice, if desirous of being heard, decide on the case, but subject to appeal to the law officer.

(3.) The law officer shall, if required, hear the applicant and any person so giving notice and being, in the opinion of the law officer, entitled to be heard in opposition to the grant, and shall determine whether the grant ought or ought not to be made.

(4.) The law officer may, if he thinks fit, obtain the assistance of an expert, who shall be paid such remuneration as the law officer shall appoint

15. (1.) If there is no opposition, or, in case of opposition, if the determination is in favor of the grant of a patent, the registrar shall report the facts to the minister.

(2.) The minister shall thereupon submit the application for the consideration of the Governor in Council, who may direct a patent to be sealed with the Great Seal of the Colony.

(3.) A patent shall be sealed as soon as may be, and not after the expiration of fifteen months from the date of application, except in the cases hereinafter mentioned—that is to say:

(a.) Where the sealing is delayed by an appeal to the law officer or by opposition to the grant of the patent, the patent may be sealed at such time as the law officer may direct.

(b.) If the person making the application dies before the expiration of the fifteen months aforesaid, the patent may be granted to his legal representative and sealed at any time within twelve months after the death of the applicant.

16. Every patent shall take effect and be expressed to take effect as of the day of the application: *Provided*, That no proceedings shall be taken in respect of an infringement committed before the publication of the complete specification: *Provided, also*, That in case of more than one application for a patent for the same invention the sealing of a patent on one of those applications shall not prevent the sealing of a patent on an earlier application.

Provisional Protection.

17. Where an application for a patent in respect of an invention has been accepted, the invention may during the period between the date of the application and the date of sealing such patent be used and published without prejudice to the patent to be granted for the same; and such protection from the consequences of use and publication is in this act referred to as provisional protection.

Protection by Complete Specification.

18. After the acceptance of a complete specification, and until the date of sealing a patent in respect thereof, or the expiration of the time for sealing, the applicant shall have the like privileges and rights as if a patent for the invention had been sealed on the date of the acceptance of the complete specification: *Provided*, That an applicant shall not be entitled to institute any proceeding for infringement unless and until a patent for the invention has been granted to him.

Patent.

19. Every patent when sealed shall have effect throughout the colony and its dependencies.

20. (1.) The term limited in every patent for the duration thereof shall be fourteen years from the date from which it takes effect.

(2.) But every patent shall, notwithstanding anything therein or in this act, cease if the patentee fails to make the prescribed payments within the prescribed times.

(3.) If, nevertheless, in any case, by accident, mistake, or inadvertence, a patentee fails to make any prescribed payment within the prescribed time, he may apply to the registrar for an enlargement of the time for making that payment.

(4.) Thereupon the registrar shall, if satisfied that the failure has arisen from any of the above-mentioned causes, on receipt of the prescribed fee for enlargement, not exceeding ten pounds, enlarge the time accordingly, subject to the following conditions:

(a.) The time for making any payment shall not in any case be enlarged for more than three months.

(b.) If any proceeding shall be taken in respect of an infringement of the patent committed after a failure to make any payment within the prescribed time and before the enlargement thereof, the court before which the proceeding is proposed to be taken may, if it shall think fit, refuse to award or give any damages in respect of such infringment.

Amendment of Specification.

21. (1.) An applicant or a patentee may, from time to time, by request in writing left at the Patent Office, seek leave to amend his specification, including drawings forming part thereof, by way of disclaimer, correction, or explanation, stating the nature of such amendment and his reasons for the same.

(2.) The request and the nature of such proposed amendment shall be advertised in the prescribed manner, and at any time within one month from its first advertisement any person may give notice at the Patent Office of opposition to the amendment.

(3.) Where such notice is given the registrar shall give notice of the opposition to the person making the request, and shall hear and decide the case subject to an appeal to the law officer.

(4.) The law officer shall, if required, hear the person making the request and the person so giving notice, and being in the opinion of the law officer entitled to be heard in opposition to the request, and shall determine whether and subject to what conditions, if any, the amendment ought to be allowed.

(5.) Where no notice of opposition is given or the person so giving notice does not appear, the registrar shall determine whether and subject to what conditions, if any, the amendment ought to be allowed.

(6.) When leave to amend is refused by the registrar, the person making the request may appeal from his decision to the law officer.

(7.) The law officer shall, if required, hear the person making the request and the registrar, and may make an order determining whether, and subject to what conditions, if any, the amendment ought to be allowed.

(8.) No amendment shall be allowed that would make the specification, as amended, claim an invention substantially larger than or substantially different from the invention claimed by the specification as it stood before amendment.

(9.) Leave to amend shall be conclusive as to the right of the party to make the amendment allowed, except in case of fraud; and the amendment shall in all courts and for all purposes be deemed to form part of the specification.

(10.) The foregoing provisions of this section do not apply when and so long as any action for infringement or other legal proceeding in relation to a patent is pending.

22. (1.) In an action for infringement of a patent, and in a proceeding for revocation of a patent, the court or a judge may at any time order that the patentee shall, subject to such terms as to costs and otherwise as the court or a judge may impose, be at liberty to apply at the Patent Office for leave to amend his specification by way of disclaimer, and may direct that in the meantime the trial or hearing of the action shall be postponed.

23. Where an amendment by way of disclaimer, correction, or explanation has been allowed under this act, no damages shall be given in any action in respect of the use of the invention before the disclaimer, correction, or explanation, unless the patentee es-

tablishes to the satisfaction of the court that his original claim was framed in good faith and with reasonable skill and knowledge.

24. Every amendment of a specification shall be advertised in the prescribed manner.

Compulsory Licenses.

25. If on the petition of any person interested it is proved to the Governor in Council that by reason of the default of a patentee to grant licenses on reasonable terms—

(*a.*) The patent is not being worked in the colony; or

(*b.*) The reasonable requirements of the public with respect to the invention cannot be supplied; or

(*c.*) Any person is prevented from working or using to the best advantage an invention of which he is possessed, the Governor in Council may order the patentee to grant licenses on such terms as to the amount of royalties, security for payment, or otherwise as the Governor in Council, having regard to the nature of the invention and the circumstances of the case, may deem just, and any such order may be enforced by mandamus.

Register of Patents.

26. (1.) There shall be kept at the Patent Office a book, called the "Register of Patents," wherein shall be entered the names and addresses of grantees of patents, notifications of assignments, and of transmissions of patents, of licenses under patents, and of amendments, extensions, and revocations of patents, and such other matters affecting the validity or proprietorship of patents as may from time to time be prescribed.

(2.) The register of patents shall be *prima facie* evidence of any matters by this act directed or authorized to be inserted therein.

(3.) Copies of deeds, licenses, and any other documents affecting the proprietorship in any letters patent, or in any license thereunder, must be supplied to the registrar in the prescribed manner for filing in the Patent Office.

Fees.

27. (1.) There shall be paid in respect of the several instruments described in the third schedule to this act the fees in that schedule mentioned, and there shall likewise be paid, in respect of other matters under this part of the act, such fees as may be from time to time prescribed by the Governor in Council; and such fees shall be paid into the consolidated revenue.

(2.) The Governor in Council may from time to time reduce any of those fees.

Extension of Term of Patent.

28. (1.) A patentee may, after advertising in manner directed by any rules made under this section his intention to do so, present a petition to the Governor in Council, praying that his patent may be extended for a further term; but such petition must be presented at least six months before the time limited for the expiration of the patent.

(2.) Any person may enter a caveat, addressed to the clerk of the Executive Council at the Council office, against the extension.

(3.) If the Governor in Council shall be pleased to refer any such petition to the court, the court shall proceed to consider the same, and the petitioner and any person who has entered a caveat shall be heard by himself or by counsel on the petition.

(4.) The court shall, in considering their decision, have regard to the nature and merits of the invention in relation to the public, to the profits made by the patentee as such, and to all the circumstances of the case.

(5.) If the court report that the patentee has been inadequately remunerated by his patent, it shall be lawful for the Governor in Council to extend the term of the patent for a further term not exceeding seven, or in exceptionable cases, fourteen, years; or to order the grant of a new patent for the term therein mentioned, and containing any restrictions, conditions, and provisions that the court may think fit.

(6.) It shall be lawful for the judges of the Supreme Court, or any two of them, of whom the Chief Justice shall be one, to make from time to time rules of procedure and practice for regulating proceedings on such petitions, and subject thereto such proceedings shall be regulated according to the existing procedure and practice in cases of petitions to the court.

(7.) The costs of all parties of and incident to such proceedings shall be in the discretion of the court, and the orders of the court respecting costs shall be enforcible in the same manner as other orders of the court.

Revocation.

29. (1.) The proceeding by *scire facias* to repeal a patent is hereby abolished.

(2.) Revocation of a patent may be obtained on petition to the court.

(3.) Every ground on which a patent may, at the commencement of this act, be repealed by *scire facias* shall be available by way of defense to an action of infringement, and shall also be a ground of revocation.

(4.) A petition for revocation of a patent may be presented by—

(*a.*) The attorney-general;

(*b.*) Any person authorized by the attorney-general;

(*c.*) Any person alleging that the patent was obtained in fraud of his rights, or of the rights of any person under or through whom he claims;

(*d.*) Any person alleging that he, or any person under or through whom he claims, was the true inventor of any invention included in the claim of the patentee;

(*e.*) Any person alleging that he, or any person under or through whom he claims an interest in any trade, business, or manufacture, had publicly manufactured, used, or sold, within the colony, before the date of the patent, anything claimed by the patentee as his invention.

(5.) The plaintiff must deliver with his petition particulars of the objections on which he means to rely, and no evidence shall, except by leave of the court or a judge, be admitted in proof of any objection of which particulars are not so delivered.

(6.) Particulars delivered may be from time to time amended by leave of the court or a judge.

(7.) The defendant shall be entitled to begin, and give evidence in support of the patent, and if the plaintiff gives evidence impeaching the validity of the patent the defendant shall be entitled to reply.

(8.) Where a patent has been revoked on the ground of fraud the registrar may, on the application of the true inventor made in accordance with the provisions of this act, grant to him a patent in lieu of and taking effect from the same date as the date of revocation of the patent so revoked, but the patent so granted shall cease on the expiration of the term for which the revoked patent was granted.

Crown.

30. (1.) A patent shall have to all intents the like effect as against her Majesty the Queen, her heirs and successors as it has against a subject.

(2.) But the officers or authorities administering any department of the service of the crown may, by themselves, their agents, contractors, and others, at any time after the application, use the invention for the services of the crown on terms to be before or after the use thereof agreed on, with the approval of the minister, between those officers or authorities and the patentee, or, in default of such agreement, on such terms as may be settled by the minister after hearing all parties interested.

Legal Proceedings.

31. (1.) In an action or proceeding for infringement or revocation of a patent, the court may, if it thinks fit, and shall on the request of either of the parties to the proceeding, call in the aid of an assessor specially qualified and try and hear the case wholly or partially with his assistance. The action shall be tried without a jury, unless the court shall otherwise direct.

(2.) The remuneration, if any, to be paid to an assessor under this section shall be determined by the court, and be paid in the same manner as the other expenses of the execution of this act.

32. (1.) In an action for infringement of a patent the plaintiff must deliver with his statement of claim, or by order of the court or the judge, at any subsequent time, particulars of the breaches complained of.

(2.) The defendant must deliver with his statement of defense, or by order of the court or a judge, at any subsequent time, particulars of any objections on which he relies in support thereof.

(3.) If the defendant disputes the validity of the patent, the particulars delivered by him must state on what grounds he disputes it, and if one of those grounds is want of novelty, must state the time and place of the previous publication or use alleged by him.

(4.) At the hearing no evidence shall, except by leave of the court or a judge, be admitted in proof of any alleged infringement or objection of which particulars are not so delivered.

(5.) Particulars delivered may be from time to time amended, by leave of the court or a judge.

(6.) On taxation of costs regard shall be had to the particulars delivered by the plaintiff and by the defendant, and they respectively shall not be allowed any costs in respect of any particular delivered by them unless the same is certified by the court or a judge to have been proven, or to have been reasonable and proper, without regard to the general costs of the case.

33. In an action for infringement of a patent, the court or a judge may on the application of either party make such order for an injunction, inspection, or account, and impose such terms and give such directions respecting the same and the proceedings thereon as the court or a judge may see fit.

34. In an action for infringement of a patent, the court or a judge may certify that the validity of the patent came in question, and if the court or judge so certifies, then in any subsequent action for infringement the plaintiff in that action, on obtaining a final order or judgment in his favor, shall have his full costs, charges, and expenses as between solicitor and client, unless the court or judge trying the action certifies that he ought not to have the same.

35. Where any person claiming to be the patentee of an invention, by circulars, advertisements, or otherwise, threatens any other person with any legal proceedings or liability in respect of any alleged manufacture, use, sale, or purchase of the invention, any person or persons aggrieved thereby may bring an action against him, and may obtain an injunction against the continuance of such threats, and may recover such damage, if any, as may have been sustained thereby, if the alleged manufacture, use, sale, or purchase to which the threats related was not in fact an infringement of any legal rights of the person making such threats: *Provided*, That this section shall not apply if the person making such threats with due diligence commences and prosecutes an action for infringement of his patent.

Miscellaneous.

36. Every patent may be in the form in the second schedule to this act, and shall be granted for one invention only, but may contain more than one claim; but it shall not be competent for any person in an action or other proceeding to take any objection to a patent on the ground that it comprises more than one invention.

37. (1.) If a person possessed of an invention dies without making application for a patent for the invention, application may be made by, and a patent for the invention granted to, his legal representative.

(2.) Every such application must be made within six months of the decease of such person, and must contain a declaration by the legal representative that he believes such person to have been the true and first inventor of the invention.

38. A patent granted to the true and first inventor shall not be invalidated by an application in fraud of him, or by provisional protection obtained thereon, or by any use or publication of the invention subsequent to that fraudulent application during the period of provisional protection.

39. A patentee may assign his patent for the whole colony or any place in or part of the colony.

40. If a patent is lost or destroyed, or its non-production is accounted for to the satisfaction of the registrar, the Governor in Council may at any time cause a duplicate thereof to be sealed.

41. The law officer may examine witnesses on oath and administer oaths for that purpose under this part of this act, and may from time to time make, alter, and rescind rules regulating references and appeals to the law officer and the practice and procedure before him under this part of this act; and in any proceeding before the law officer under this part of this act the law officer may order costs to be paid by either party, and any such order may be made a rule of the court.

42. The exhibition of an invention at an industrial or international exhibition, certified as such by the minister, or the publication of any description of the invention during the period of the holding of the exhibition, or the use of the invention for the purpose of the exhibition in the place where the exhibition is held, or the use of the invention during the period of the holding of the exhibition by any person elsewhere, without the privity or the consent of the inventor, shall not prejudice the right of the inventor or his legal personal representative to apply for and obtain provisional protection and a patent in respect of the invention or validity of any patent granted on the application: *Provided*, That both the following conditions are complied with, namely:

(*a.*) The exhibitor must, before exhibiting the invention, give the registrar the prescribed notice of his intention to do so; and

(*b.*) The application for a patent must be made before or within six months from the date of the opening of the exhibition.

43. The registrar shall from time to time prepare and publish such indexes, abridgments of specifications, catalogues, and other works relating to inventions as the minister may direct.

44. The minister may at any time require a patentee to furnish him with a model of his invention on payment to the patentee of the cost of the manufacture of the model, the amount to be settled in case of dispute by the auditor-general.

45. (1.) A patent shall not prevent the use of an invention for the purposes of the navigation of a foreign vessel within the jurisdiction of the Supreme Court of Queensland, or the use of an invention in a foreign vessel within that jurisdiction: *Provided*, It is not used therein for or in connection with the manufacture or preparation of anything intended to be sold in or exported from Queensland.

(2.) But this section shall not extend to vessels of any foreign state of which the laws authorize subjects of such foreign state, having patents or like privileges for the exclusive use or exercise of inventions within its territories, to prevent or interfere with the use of such inventions in British vessels while in the ports of such foreign state, or in the waters within the jurisdiction of its courts, where such inventions are not so used for the manufacture or preparation of anything intended to be sold in or exported from the territories of such foreign state.

Existing Patents.

46. (1.) The provisions of this act relating to applications for patents and proceedings thereon shall have effect in respect only of applications made after the commencement of this act.

(2.) Every patent granted before the commencement of this act, or on an application then pending, shall remain unaffected by the provisions of this act relating to patents binding the crown, and to compulsory licenses.

(3.) In all other respects (except with regard to fees payable in respect of granting a patent) this act shall extend to all patents granted before the commencement of this act, or on applications then pending, in substitution for such enactments as would have applied thereto if this act had not been passed.

(4.) All instruments relating to patents granted before the commencement of this act required to be left or filed in the Supreme Court shall be deemed to be so left or filed if left or filed before or after the commencement of this act in the Patent Office.

PART III.—DESIGNS.

Registration of Designs.

47. (1.) The registrar may, on application by or on behalf of any person claiming to be the proprietor of any new or original design not previously published in Queensland, register the design under this part of this act.

(2.) The application must be made in the form set forth in the first schedule to this act, or in such other form as may be from time to time prescribed, and must be left at or sent by post to the Patent Office in the prescribed manner.

(3.) The application must contain a statement of the nature of the design, and the class or classes of goods in which the applicant desires that the design be registered.

(4.) The same design may be registered in more than one class.

(5.) In case of doubt as to the class in which a design ought to be registered, the registrar may decide the question.

(6.) The registrar may, if he thinks fit, refuse to register any design presented to him for registration, but any person aggrieved by any such refusal may appeal therefrom to the law officer.

(7.) The law officer shall, if required, hear the applicant and the registrar, and may make an order determining whether and subject to what conditions, if any, registration is to be permitted.

48. (1.) On application for registration of a design the applicant shall furnish to the registrar the prescribed number of copies of drawings, photographs, or tracings of the design sufficient, in the opinion of the registrar, for enabling him to identify the design; or the applicant may, instead of such copies, furnish exact representations or specimens of the design.

(2.) The registrar may, if he thinks fit, refuse any drawing, photograph, tracing, representation, or specimen which is not, in his opinion, suitable for the official records.

49. (1.) The registrar shall grant a certificate of registration to the proprietor of the design when registered.

(2.) The registrar may, in case of loss of the original certificate, or in any other case in which he deems it expedient, grant a copy or copies of the certificate.

Copyright in Registered Designs.

50. (1.) When a design is registered, the registered proprietor of the design shall, subject to the provisions of this act, have copyright in the design during five years from the date of registration.

(2.) Before delivery on sale of any articles to which a registered design has been applied the proprietor must (if exact representations or specimens were not furnished on the application for registration) furnish to the registrar the prescribed number of exact representations or specimens of the design, and if he fails to do so the registrar may erase his name from the register and thereupon his copyright in the design shall cease.

51. Before delivery on sale of any articles to which a registered design has been applied the proprietor of the design shall cause each such article to be marked with the prescribed mark or with the prescribed word or words or figures denoting that the design is registered, and if he fails to do so the copyright in the design shall cease unless the proprietor shows that he took all proper steps to insure the marking of the article.

52. (1.) During the existence of copyright in a design the design shall not be open to inspection except by the proprietor or a person authorized in writing by the proprietor, or a person authorized by the registrar or by the court, and furnishing such information as may enable the registrar to identify the design, nor except in the presence of the registrar or of an officer acting under him, nor except on payment of the prescribed fee, and the person making the inspection shall not be entitled to take any copy of the design or of any part thereof.

(2.) When the copyright in a design has ceased, the design shall be open to inspection, and copies thereof may be taken by any person on payment of the prescribed fee.

53. On the request of any person producing a particular design, together with its mark of registration, or producing only its mark of registration, or furnishing such information as may enable the registrar to identify the design, and on payment of the prescribed fee, it shall be the duty of the registrar to inform such person whether the registration still exists in respect of such design, and if so, in respect of what class or classes of goods, and stating, also, the date of registration and the name and address of the registered proprietor.

54. If a registered design is used in manufacture in any foreign country and is not used in this colony within six months of its registration in this colony, the copyright in the design shall cease.

Register of Designs.

55. (1.) There shall be kept at the Patent Office a book, called the "Register of Designs," wherein shall be entered the names and addresses of proprietors of registered designs, notifications of assignments and of transmissions of registered designs, and such other matters as may from time to time be prescribed.

(2.) The register of designs shall be *prima facie* evidence of any matters by this act directed or authorized to be entered therein.

Fees.

56. There shall be paid in respect of applications and registration and other matters under this part of this act such fees as may be from time to time prescribed by the Governor in Council, and such fees shall be paid into the consolidated revenue.

Industrial, International, and Intercolonial Exhibitions.

57. The exhibition at an industrial, international, or intercolonial exhibition, certified as such by the minister, or the exhibition elsewhere during the period of the holding of the exhibition, without the privity or consent of the proprietor of a design or of any article to which a design is applied, or the publication during the holding of any such exhibition of a description of a design, shall not prevent the design from being registered or invalidate the registration thereof: *Provided*, That both the following conditions are complied with, namely:

(*a.*) The exhibitor must, before exhibiting the design or article, or publishing a description of the design, give the registrar the prescribed notice of his intention to do so; and

(*b.*) The application for registration must be made before or within six months from the date of the opening of the exhibition.

Legal Proceedings.

58. During the existence of copyright in any design—

(*a.*) It shall not be lawful for any person, without the license or written consent of the registered proprietor, to apply such design or any fraudulent or obvious imitation thereof in the class or classes of goods in which such design is registered, for purposes of sale, to any article of manufacture or to any substance artificial or natural or partly artificial and partly natural; and

(*b.*) It shall not be lawful for any person to publish or expose for sale any article of manufacture or any substance to which such design or any fraudulent or obvious imitation thereof shall have been so applied, knowing that the same has been so applied without the consent of the registered proprietor.

Any person who acts in contravention of this section shall be liable for every offense to forfeit a sum not exceeding fifty pounds to the registered proprietor of the design, who may recover such sum as a simple contract debt by action in any court of competent jurisdiction.

59. Notwithstanding the remedy given by this act for the recovery of such penalty as aforesaid, the registered proprietor of any design may (if he elects to do so) bring an action for the recovery of any damages arising from the application of any such design,

or of any fraudulent or obvious imitation thereof, for the purpose of sale, to any article of manufacture or substance, or from the publication, sale, or exposure for sale, by any person, of any article or substance to which such design or any fraudulent or obvious imitation thereof shall have been so applied, such person knowing that the proprietor had not given his consent to such application.

60. The author of any new and original design shall be considered the proprietor thereof, unless he executed the work on behalf of another person for a good or valuable consideration, in which case such person shall be considered the proprietor; and every person acquiring for a good or valuable consideration a new and original design, or the right to apply the same to any such article or substance as aforesaid, either exclusively of any other person or otherwise, and also every person on whom the property in such design or such right to the application thereof shall devolve, shall be considered the proprietor of the design in the respect in which the same may have been so acquired, and to that extent, but not otherwise.

PART IV.—TRADE MARKS.

Registration of Trade-Marks.

61. (1.) The registrar may, on application by or on behalf of any person claiming to be the proprietor of a trade-mark, register the trade-mark.

(2.) The application must be made in the form set forth in the second schedule of this act, or in such other form as may be from time to time prescribed, and must be left at or sent by post to the Patent Office in the prescribed manner.

(3.) The application must be accompanied by the prescribed number of representations of the trade-mark, and must state the particular goods or classes of goods in connection with which the applicant desires the trade-mark to be registered.

(4.) The registrar may, if he thinks fit, refuse to register a trade-mark; but any such refusal shall be subject to appeal to the law officer, who shall, if required, hear the applicant and the registrar, and may make an order determining whether, and subject to what conditions, if any, registration is to be permitted.

(5.) The law officer may, however, if it appears expedient, refer the appeal to the court; and in that event the court shall have jurisdiction to hear and determine the appeal, and may make such order as aforesaid.

62. Where registration of a trade-mark has not been or shall not be completed within twelve months from the date of the application, by reason of default on the part of the applicant, the application shall be deemed to be abandoned.

63. (1.) For the purpose of this act, a trade-mark must consist of or contain at least one of the following essential particulars:

(a.) A name of an individual or firm printed, impressed, or woven in some particular and distinctive manner; or

(b.) A written signature or copy of a written signature of the individual or firm applying for registration thereof as a trade-mark; or

(c.) A distinctive device, mark, brand, heading, label, ticket, or fancy word or words not in common use.

(2.) There may be added to any one or more of these particulars any letters, words, or figures, or combination of letters, words, or figures, or of any of them.

(3.) *Provided*, That any special and distinctive word or words, letter, figure, or combination of letters or figures or of letters and figures used as a trade-mark before the passing of this act may be registered as a trade-mark under this part of this act.

64. A trade-mark must be registered for particular goods or classes of goods.

65. When a person claiming to be the proprietor of several trade-marks which, while resembling each other in the material particulars thereof, yet differ in respect of (a) the statement of the goods for which they are respectively used or proposed to be used, or (b) statements of numbers, or (c) statements of price, or (d) statements of quality, or (e) statements of names of places, seeks to register such trade-marks, they may be registered as a series in one registration. A series of trade-marks shall be assignable and transmissible only as a whole, but for all other purposes each of the trade-marks composing the series shall be deemed and treated as registered separately.

66. A trade-mark may be registered in any color, and such registration shall (subject to the provisions of this act) confer on the registered owner the exclusive right to use the same in that or any other color.

67. Every application for registration of a trade-mark under this part of this act shall as soon as may be after its receipt be advertised by the registrar in the *Gazette*.

68. (1.) Any person may, within four months of the first advertisement of the application, give notice in duplicate at the Patent Office of opposition to the registration of the trade-mark, and the registrar shall send one copy of such notice to the applicant.

(2.) Within two months after receipt of such notice, or such further time as the registrar may allow, the applicant may send to the registrar a counter-statement in duplicate of the grounds on which he relies for his application, and if he does not do so, shall be deemed to have abandoned his application.

(3.) If the applicant sends such counter-statement, the registrar shall furnish a copy thereof to the person who gave notice of opposition, and shall require him to give security in such manner and to such amount as the registrar may require for such costs as may be awarded in respect of such opposition; and if such security is not given within fourteen days after such requirement was made or such further time as the registrar may allow, the opposition shall be deemed to be withdrawn.

(4.) If the person who gave notice of opposition duly gives such security as aforesaid, the registrar shall inform the applicant thereof in writing, and thereupon the case shall be deemed to stand for the determination of the court.

69. A trade-mark, when registered, shall be assigned and transmitted only in connection with the good-will of the business concerned in the particular goods or classes of goods for which it has been registered, and shall be determinable with that good-will.

70. Where each of several persons claims to be registered as proprietor of the same trade-mark, the registrar may refuse to register any of them until their rights have been determined according to law, and the registrar may himself submit or require the claimants to submit their rights to the court.

71. (1.) Except where the court has decided that two or more persons are entitled to be registered as proprietors of the same trade-mark, the registrar shall not register in respect of the same goods or description of goods a trade-mark identical with one already on the register with respect to such goods or description of goods.

(2.) The registrar shall not register with respect to the same goods or description of goods a trade-mark so nearly resembling a trade-mark already on the register with respect to such goods or description of goods as to be calculated to deceive.

72. It shall not be lawful to register as part of or in combination with a trade-mark any words the exclusive use of which would by reason of their being calculated to deceive or otherwise be deemed disentitled to protection in a court of justice, or any scandalous design.

73. (1.) Nothing in this act shall be construed to prevent the registrar from entering on the register, in the prescribed manner, and subject to the prescribed conditions, as an addition to any trade-mark—

(a.) In the case of an application for registration of a trade-mark used before the passing of this act, any distinctive device, mark, brand, heading, label, ticket, letter, word, or figure, or combination of letters, words, or figures, though the same is common to the trade in the goods with respect to which the application is made.

(b.) In the case of an application for registration of a trade-mark not used before the passing of this act, any distinctive word or combination of words, though the same is common to the trade in the goods with respect to which the application is made.

(2.) The applicant for entry of any such common particular or particulars must, however, disclaim in his application any right to the exclusive use of the same, and a copy of the disclaimer shall be entered on the register.

(3.) Any device, mark, brand, heading, label, ticket, letter, word, figure, or combination of letters, words, or figures, which was or were before the passing of this act publicly used by more than three persons on the same or a similar description of goods shall, for the purposes of this section, be deemed common to the trade in such goods.

Effect of Registration.

74. Registration of a trade-mark shall be deemed to be equivalent to public use of the trade-mark.

75. The registration of a person as proprietor of a trade-mark shall be *prima facie* evidence of his right to the exclusive use of the trade-mark, and shall, after the expiration of five years from the date of the registration, be conclusive evidence of his right to the exclusive use of the trade-mark, subject to the provisions of this act.

76. A person shall not be entitled to institute any proceeding to prevent or to recover damages for the infringement of a trade-mark unless, in the case of a trade-mark capable of being registered under this act, it has been registered in pursuance of this act, or of an enactment repealed by this act, or, in the case of any other trade-mark in use before the passing of this act, registration thereof under this part of this act, or of an enactment repealed by this act, has been refused. The registrar may, on request, and on payment of the prescribed fee, grant a certificate that such registration has been refused.

Register of Trade-Marks.

77. There shall be kept at the Patent Office a book, called the "Register of Trade-Marks," wherein shall be entered the names and addresses of proprietors of registered trade-marks, notifications of assignments and of transmissions of trade-marks, and such other matters as may be from time to time prescribed.

78. (1.) At a time not being less than three months nor more than six months before the expiration of fourteen years from the date of the registration of a trade-mark, the registrar shall send notice to the registered proprietor that the trade-mark will be removed from the register unless the proprietor pays to the registrar before the expiration of such fourteen years (naming the date at which the same will expire) the prescribed fee; and if such fee be not previously paid he shall, at the expiration of two months from the date of the giving of the first notice, send a second notice to the same effect.

(2.) If such fee be not paid before the expiration of such fourteen years, the registrar may after the end of three months from the expiration of such fourteen years remove the mark from the register, and so from time to time at the expiration of every period of fourteen years.

(3.) If before the expiration of the said three months the registered proprietor pays the said fee, together with the additional prescribed fee, the registrar may without removing such trade-mark from the register accept the said fee as if it had been paid before the expiration of the said fourteen years.

(4.) Where after the said three months a trade-mark has been removed from the register for non payment of the prescribed fee, the registrar may, if satisfied that it is just so to do, restore such trade-mark to the register on payment of the prescribed additional fee.

(5.) Where a trade-mark has been removed from the register for non-payment of the fee or otherwise, such trade-mark shall nevertheless, for the purpose of any application for registration during the five years next after the date of such removal, be deemed to be a trade-mark which is already registered.

Fees.

79. There shall be paid in respect of applications and registration and other matters under this part of this act such fees as may be from time to time prescribed by the Governor in Council, and such fees shall be paid into the consolidated revenue.

PART V.—INTERNATIONAL AND INTERCOLONIAL ARRANGEMENTS.

And whereas by the one hundred and third section of the act of the Imperial Parliament, called "The patents, designs, and trade-marks act, 1883," it is enacted as follows, that is to say:

(1.) If her Majesty is pleased to make any arrangement with the government or governments of any foreign state or states for mutual protection of inventions, designs, and trade-marks, or any of them, then any person who has applied for protection for any invention, design, or trade-mark in any such state shall be entitled to a patent for his invention or to registration of his design or trade-mark (as the case may be) under this act in priority to other applicants, and such patent or registration shall have the same date as the date of the protection obtained in such foreign state, provided that his application is made in the case of a patent within seven months and in the case of a design or trade-mark within four months from his applying for protection in the foreign state with which the arrangement is in force; *Provided*, That nothing in this section contained shall entitle the patentee or proprietor of the design or trade-mark to recover damages for infringements happening prior to the date of the actual acceptation of his complete specification or the actual registration of his design or trade-mark in this country, as the case may be.

(2.) The publication in the United Kingdom or the Isle of Man during the respective periods aforesaid of any description of the invention, or the use therein during such periods of the invention, or the exhibition or use therein during such periods of the design or publication therein during such periods of a description or representation of the design, or the use therein during such periods of the trade-mark, shall not invalidate the patent which may be granted for the invention or the registration of the design or trade-mark.

(3.) The application for the grant of a patent, or the registration of a design, or the registration of a trade-mark under this section must be made in the same manner as an ordinary application under this act: *Provided*, That in the case of trade-marks any trade-mark the registration of which has been duly applied for in the country of origin may be registered under this act.

(4.) The provisions of this section shall apply only in the case of those foreign states with respect to which her Majesty shall from time to time by order in Council declare them to be applicable, and so long only in the case of each state as the order in Council shall continue in force with respect to that state.

And by the one hundred and fourth section of the said act it is further enacted as follows, that is to say:

(1.) Where it is made to appear to her Majesty that the legislature of any British possession has made satisfactory provision for the protection of inventions, designs, and trade-marks patented or registered in this country, it shall be lawful for her Majesty from time to time by order in Council to apply the provisions of the last preceding section, with such variations or additions (if any) as to her Majesty in Council may seem fit, to such British possession.

(2.) An order in Council under this act shall, from a date to be mentioned for the purpose in the order, take effect as if its provisions had been contained in this act; but it shall be lawful for her Majesty in Council to revoke any order in Council made under this act.

Be it enacted as follows:

80. (1.) If her Majesty is pleased by order in Council to apply the provisions of the said one hundred and third section of the imperial act, called "The patents, designs, and trade-marks act, 1883," to the colony of Queensland, then any person who has applied for protection for any invention, design, or trade-mark in England, or in any foreign state with the government of which her Majesty has made an arrangement under the said section for mutual protection of inventions, designs, or trade-marks, or any of them, shall be entitled to a patent for his invention or to registration of his design or trade-mark (as the case may be) under this act in priority to other applicants, and such patent or registration shall take effect from the same date as the date of the protection obtained in England or such foreign state, as the case may be: *Provided*, That his application is made in the case of a patent within twelve months and in the case of a design or trade-mark within six months from his applying for protection in England or the foreign state with which the arrangement is in force: *Provided*, That nothing in this section contained shall entitle the patentee or proprietor of the design or trade-mark to recover damages for infringements happening prior to the date of the actual acceptance of his complete specification or the actual registration of his design or trade-mark in this colony, as the case may be.

(2.) The publication in Queensland, during the respective periods aforesaid of any description of the invention, or the use therein during such periods of the invention, or the exhibition or use therein during such periods of the design, or the publication therein during such periods of a description or representation of the design, or the use therein during such periods of the trade-mark, shall not invalidate the patent which may be granted for the invention or the registration of the design or trade-mark.

(3.) The application for the grant of a patent, or the registration of a design, or the registration of a trade-mark under this section must be made in the same manner as an ordinary application under this act: *Provided*, That, in the case of trade-marks, any trade-mark the registration of which has been duly applied for in the country of origin may be registered under this act.

(4.) The provisions of this section shall in the case of foreign states apply only in the case of those foreign states with respect to which her Majesty shall from time to time by order in Council declare the provisions of the aforesaid section of the said imperial act to be applicable, and so long only in the case of each state as the order in Council shall continue in force with respect to that state.

81. (1.) Where it is made to appear to the Governor in Council that the legislature of any British possession has made satisfactory provision for the protection of inventions, designs, and trade-marks, or any of them patented or registered in Queensland, the Governor in Council may from time to time, by order in Council, apply all or any of the provisions of the last preceding section relating to the protection of inventions, designs, and trade-marks patented or registered in England, with such variations or additions, if any, as to the Governor in Council may seem fit, to inventions, designs, and trade-marks, or any of them, patented or registered in such British possession.

(2.) An order in Council under this section shall, from a date to be mentioned for the purpose in the order, take effect as if its provisions had been contained in this act; but it shall be lawful for the Governor in Council to revoke any such order in Council.

PART VI.—GENERAL.

Proceedings at Patent Office.

82. There shall be a seal for the Patent Office, and impressions thereof shall be judicially noticed and admitted in evidence.

83. There shall not be entered in any register kept under this act, or be receivable by the registrar, any notice of any trust expressed, implied, or constructive.

84. The registrar may refuse to recommend that a patent be granted for an invention, or to register a design or trade-mark, of which the use would, in his opinion, be contrary to law or morality.

85. Where a person becomes entitled by assignment, transmission, or other operation of law to a patent, or to the copyright in a registered design, or to a registered trade-mark, the registrar shall on request and on proof of title to his satisfaction cause the name of such person to be entered as proprietor of the patent, copyright in the design, or trade-mark, in the register of patents, designs, or trade-marks, as the case may be. The person for the time being entered in the register of patents, designs, or trade-marks as proprietor of a patent, copyright in a design or trade-mark as the case may be, shall, subject to any rights appearing from such register to be vested in any other person, have power absolutely to assign, grant licenses as to, or otherwise deal with, the same and to give effectual receipts for any consideration for such assignment, license, or dealing: *Provided*, That any equities in respect of such patent, design, or trade-mark may be enforced in like manner as in respect of any other personal property.

86. Every register kept under this act shall at all convenient times be open to the inspection of the public, subject to such regulations as may be prescribed; and certified copies, sealed with the seal of the Patent Office, of any entry in any such register shall be given to any person requiring the same on payment of the prescribed fee.

87. Printed or written copies or extracts, purporting to be certified by the registrar and sealed with the seal of the Patent Office, of or from patents, specifications, disclaimers, and other documents in the Patent Office, and of or from registers and other books kept there, shall be admitted in evidence in all courts of justice and in all proceedings without further proof or production of the originals.

88. (1.) The court may on the application of any person aggrieved by the omission without sufficient cause of the name of any person from any register kept under this act, or by any entry made without sufficient cause in any such register, make such order for making, expunging, or varying the entry as the court thinks fit, or the court may refuse the application, and in either case may make such order with respect to the costs of the proceedings as the court thinks fit.

(2.) The court may in any proceeding under this section decide any question that it may be necessary or expedient to decide for the rectification of a register, and may direct an issue to be tried for the decision of any question of fact, and may award damages to the party aggrieved.

(3.) Any order of the court rectifying a register shall direct that due notice of the rectification be given to the registrar.

89. The registrar may, on request in writing, accompanied by the prescribed fee—

(a.) Correct any clerical error in or in connection with an application for a patent, or for registration of a design or trade-mark; or

(b.) Correct any clerical error in the name, style, or address of the registered proprietor of the patent, design, or trade-mark; or

(c.) Cancel the entry or part of the entry of a trade-mark on the register: *Provided*, That the applicant accompanies his request by a statutory declaration made by himself, stating his name, address, and calling, and that he is the person whose name appears on the register as the proprietor of the said trade-mark.

90. (1.) The registered proprietor of any registered trade-mark may apply to the court for leave to add to or alter such mark in any particular, not being an essential particular within the meaning of this act, and the court may refuse or grant leave on such terms as it may think fit.

(2.) Notice of any intended application to the court under this section shall be given to the registrar by the applicant, and the registrar shall be entitled to be heard on the application.

(3.) If the court grants leave, the registrar shall, on proof thereof and on payment of the prescribed fee, cause the register to be altered in conformity with the order of leave.

91. If any person makes or causes to be made a false entry in any register kept under this act, or a writing falsely purporting to be a copy of an entry in any such register, or produces or tenders or causes to be produced or tendered in evidence any such writing knowing the entry or writing to be false, he shall be guilty of a misdemeanor.

92. Where any discretionary power is by this act given to the

registrar, he shall not exercise that power adversely to the applicant for a patent, or for amendment of a specification, or for registration of a trade-mark or design, without (if so required within the prescribed time by the applicant) giving the applicant an opportunity of being heard personally or by his agent.

93. The registrar may in any case of doubt or difficulty arising in the administration of any of the provisions of this act apply to the minister for directions in the matter.

94. A certificate purporting to be under the hand of the registrar as to an entry, matter, or thing which he is authorized by this act, or any general rules made thereunder, to make or do, shall be *prima facie* evidence of the entry having been made, and of the contents thereof, and of the matter or thing having been done or left undone.

95. (1.) Any application, notice, or other document authorized or required to be left, made, or given at the Patent Office or to the registrar, or to any other person under this act, may be sent by a prepaid letter through the post, and if so sent shall be deemed to have been left, made, or given respectively at the time when the letter containing the same would be delivered in the ordinary course of post.

(2.) In proving such service or sending it shall be sufficient to prove that the letter was properly addressed and put into the post.

96. Whenever the last day fixed by this act, or by any rule for the time being in force, for leaving any document or paying any fee at the Patent Office shall fall on Christmas Day, Good Friday, or on a Saturday or Sunday, or bank holiday, or any day observed as a day of public fast or thanksgiving, herein referred to as excluded days, it shall be lawful to leave such document or to pay such fee on the day next following such excluded day, or days if two or more of them occur consecutively.

97. If any person is, by reason of infancy, lunacy, or other inability incapable of making any declaration or doing anything required or permitted by this act or by any rules made under the authority of this act, then the guardian or committee, if any, of such incapable person, or if there be none, any person appointed by any court or judge possessing jurisdiction in respect of the property of incapable persons, upon the petition of any person on behalf of such incapable person, or of any other person interested in the making such declaration or doing such thing, may make such declaration or a declaration as nearly corresponding thereto as circumstances permit, and do such thing in the name and on behalf of such incapable person, and all acts done by such substitute shall for the purpose of this act be as effectual as if done by the person for whom he is substituted.

98. (1.) The Governor in Council may from time to time make such general rules and do such things as they think expedient, subject to the provisions of this act—

(*a.*) For regulating the practice of registration under this act;

(*b.*) For classifying goods for the purposes of designs and trade-marks;

(*c.*) For making or requiring duplicates of specifications, amendment, drawings, and other documents;

(*d.*) For securing and regulating the publishing and selling of copies, at such prices and in such manner as the Governor in Council think fit, of specifications, drawings, amendments, and other documents;

(*e.*) For securing and regulating the making, printing, publishing, and selling of indexes to and abridgments of specifications and other documents in the Patent Office, and providing for the inspection of indexes and abridgments and other documents;

(*f.*) For regulating the presentation of copies of Patent Office publications to patentees and to public authorities, bodies, and institutions at home and abroad;

(*g.*) Generally for regulating the business of the Patent Office, and all things by this act placed under the direction or control of the registrar or of the minister.

(2.) Any of the forms in the first schedule to this act may be altered or amended by rules made by the Governor in Council as aforesaid.

(3.) General rules may be made under this section at any time after the passing of this act, but not so as to take effect before the commencement of this act, and shall, subject as hereinafter mentioned, be of the same effect as if they were contained in this act, and shall be judicially noticed.

(4.) Any rules made in pursuance of this section shall be published in the *Gazette*, and shall forthwith be laid before both houses of Parliament, if Parliament be in session at the time of making thereof, or if not, then as soon as practicable after the beginning of the next session of Parliament.

(5.) If either house of Parliament, within the next forty days after any rules have been so laid before such house, resolve that such rules, or any of them, ought to be annulled, the same shall after the date of such resolution be of no effect, without prejudice to the validity of anything done in the meantime under such rules or rule or to the making of any new rules or rule.

99. The registrar shall in every year make a report respecting the execution by or under him of this act which shall be laid before both houses of Parliament, and therein shall be included for the year to which each report relates all general rules made in that year under or for the purposes of this act, and an account of all fees, salaries, and allowances, and other money received and paid under this act.

Offenses.

100. (1.) Any person who represents that any article sold by him is a patented article, when no patent has been granted for the same, or describes any design or trade-mark applied to any article sold by him as registered which is not so, shall be liable for every offense on summary conviction to a fine not exceeding five pounds.

(2.) A person shall be deemed, for the purposes of this enactment, to represent that an article is patented or a design or a trade-mark is registered if he sells the article with the word "Patent," "Patented," "Registered," or any word or words expressing or implying that a patent or registration has been obtained for the article stamped, engraved, or impressed on, or otherwise applied to the article.

101. Any person who, without the authority of her Majesty, or any of the royal family, or of the Governor, or of any government department, the proof whereof shall lie on him, assumes or uses in connection with any trade, business, calling, or profession, the royal arms, or arms so nearly resembling the same as to be calculated to deceive, in such a manner as to be calculated to lead other persons to believe that he is carrying on his trade, business, calling, or profession by or under such authority as aforesaid, shall be liable on summary conviction to a fine not exceeding twenty pounds.

102. (1.) The registers of patents and of proprietors kept under any enactment repealed by this act shall respectively be deemed parts of the same book as the register of patents kept under this act.

(2.) The registers of trade-marks kept under any enactment repealed by this act shall be deemed parts of the same book as the register of trade-marks kept under this act.

103. Nothing in this act shall take away, abridge, or prejudicially affect the prerogative of the Crown in relation to the granting of any letters patent or to the withholding of a grant thereof.

THE OFFICIAL GAZETTE OF THE United States Patent Office.

[*BY AUTHORITY OF CONGRESS.*]

VOL. 31—No. 2. TUESDAY, APRIL 14, 1885. PRICE—$5 per year.

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The Official Gazette.

The OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Issue of April 14, 1885.

Patents	534	No. 315,459 to No. 315,992, inclusive.
Designs	16	No. 16,035 to No. 16,050, inclusive.
Trade-Marks	33	No. 12,114 to No. 12,146, inclusive.
Labels	10	No. 4,406 to No. 4,415, inclusive.
Reissues	1	No. 10,580.
Total issue	594	

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Argentine Republic	1	.....	Germany	6	.....
Austria-Hungary	1	.....	Italy	1	.....
Barbadoes	.....	.....	Mexico	1	.....
Belgium	.....	.....	Netherlands	.....	.....
Bermuda	.....	.....	Norway	.....	.....
Brazil	.....	.....	Russia	.....	1
Canada	3	.....	Scotland	.....	.....
Central America	.....	.....	Spain	.....	.....
Columbia, U. S. of	.....	.....	Sweden	.....	.....
Cuba	.....	.....	Switzerland	3	.....
Denmark	4	.....			
Ecuador	.....	.....	Total to citizens of foreign countries	32	1
England	9	.....			
France	3	.....			

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	.....	1	Nebraska	3	.....
Arizona Territory	.....	.....	Nevada	.....	1
Arkansas	1	.....	New Hampshire	9	.....
California	15	1	New Jersey	30	.....
Colorado	4	.....	New Mexico Territ'y	.....	.....
Connecticut	16	1	New York	92	14
Dakota Territory	2	.....	North Carolina	1	.....
Delaware	.....	.....	Ohio	51	1
District of Columbia	1	.....	Oregon	1	.....
Florida	1	.....	Pennsylvania	50	8
Georgia	2	.....	Rhode Island	6	.....
Idaho Territory	.....	.....	South Carolina	4	.....
Illinois	42	7	Tennessee	4	.....
Indiana	17	.....	Texas	6	1
Indian Territory	.....	.....	Utah Territory	.....	.....
Iowa	11	.....	Vermont	2	.....
Kansas	9	1	Virginia	4	.....
Kentucky	7	.....	Washington Territ'y	.....	.....
Louisiana	.....	.....	West Virginia	1	.....
Maine	.....	.....	Wisconsin	15	.....
Maryland	11	4	Wyoming Territory	.....	.....
Massachusetts	52	2	United States Army	.....	.....
Michigan	27	.....	United States Navy	.....	.....
Minnesota	6	.....			
Mississippi	2	.....	Total to citizens of the United States	518	42
Missouri	12	.....			
Montana Territory	1	.....			

DESIGNS.

16,035 and 16,036.—WINDOW-SHADE PULL.—*John G. Brothwell*, Torrington, Conn., assignor to *The Turner & Seymour Manufacturing Company*, same place. Applications filed March 9, 1885. Term of patents 7 years.

16,037.—BRACKET FOR SHADE-ROLLERS.—*Stewart Hartshorn*, Millburn, N. J. Application filed January 14, 1885. Term of patent 14 years.

16,038.—CARPET.—*Arthur L. Halliday*, Yonkers, N. Y., assignor to *The Higelow Carpet Company*, Clinton, Mass. Application filed February 7, 1885. Term of patent 3½ years.

16,039 and 16,040.—SEWING-MACHINE CASE.—*Nicholas A. Hull*, Peru, Ind. Applications filed February 18, 1885. Term of patents 3½ years.

16,041.—CARPET.—*Norie Komori*, New York, N. Y., assignor to *The Bigelow Carpet Company*, Clinton, Mass. Application filed February 12, 1885. Term of patent 3½ years.

16,042.—DECORATIVE PATTERN FOR DISHES.—*Charles A. May*, Trenton, N. J., assignor to *Spencer M. Alpaugh* and *Frank A. Magowan*, same place. Application filed November 22, 1884. Term of patent 3½ years.

16,043.—DECORATIVE PATTERN FOR DISHES.—*William Wood*, Lawrence, Mercer county, assignor to *Spencer M. Alpaugh* and *Frank A. Magowan*, Trenton, N. J. Application filed November 22, 1884. Term of patent 3½ years.

16,044.—GONG FOR BELLS.—*Charles A. Bailey*, Middletown, Conn. Application filed February 14, 1885. Term of patent 7 years.

16,045.—WATCH AND CLOCK DIAL.—*Orlando Kling*, Idaho Springs, Colo. Application filed March 7, 1885. Term of patent 14 years.

16,046.—BUCKLE-FRAME.—*Luther C. Voorhees*, New York, N. Y. Application filed January 29, 1885. Term of patent 3½ years

16,047.—CARPET.—*Jacob B. Campbell*, Yonkers, N. Y., assignor to *The Bigelow Carpet Company*, Clinton, Mass. Application filed February 7, 1885. Term of patent 3½ years.

16,048.—HANDLE FOR DISHES.—*Charles Edward Haviland*, Limoges, France. Application filed February 3, 1885. Term of patent 14 years.

16,049.—CARPET.—*Milton R. Loudon*, Jersey City, N. J., assignor to *The Bigelow Carpet Company*, Clinton, Mass. Application filed February 20, 1885. Term of patent 3½ years.

16,050.—CARPET.—*Frank E. Smith*, New York, N. Y., assignor to *The Bigelow Carpet Company*, Clinton, Mass. Application filed February 7, 1885. Term of patent 3½ years.

TRADE-MARKS.

[Certificates of registration of Trade-Marks numbered 8,191 and upward are registered under the act of March 3, 1881.]

12,114.—WATCH-KEYS.—*J. S. Birch & Co.*, New York, N. Y. Application filed February 24, 1885.
"A fac-simile of the name of 'J. S. BIRCH.'"

12,115.—BLANC-MANGE POWDER.—*Alfred F. Bird*, Philadelphia, Pa. Application filed March 18, 1885.
"The word 'BIRD'S.'"

12,116.—MEDICINAL POWDERS.—*Alfred F. Bird*, Philadelphia, Pa. Application filed March 18, 1885.
"The word 'BIRD'S.'"

12,117.—EGG-POWDER.—*Alfred F. Bird*, Philadelphia, Pa. Application filed March 18, 1885.
"The word 'BIRD'S.'"

12,118.—LIQUID PURGATIVE COMPOUNDS.—*California Fig Syrup Company*, Reno, Nev., and San Francisco, Cal. Application filed February 14, 1885.
"The words 'SYRUP OF FIGS.'"

12,119.—BONELESS COD-FISH.—*Cassell, Livermore & Co.*, Boston, Mass. Application filed February 28, 1885.
"A representation or figures of a covered Concord wagon, a span of horses, and their harness."

12,120.—BAKING-POWDER.—*William P. Clotworthy*, Baltimore, Md. Application filed March 16, 1885.
"The arbitrary word 'ORANGE.'"

12,121.—MALT WHISKY.—*The Duffy Malt Whiskey Company*, Baltimore, Md. Application filed March 19, 1885.
"A monogram composed of the letters 'D M W Co.'"

12,122.—KNIVES.—*Eagle Pencil Company*, New York, N. Y. Application filed March 17, 1885.
"The word-symbol 'MAGIC.'"

12,123.—CHEESE.—*William P. Harvey & Co.*, Baltimore, Md. Application filed September 8, 1884.
"The word 'TAMBELL.'"

12,124.—BLACK COTTON FABRICS.—*Hyde & Burton*, New York, N. Y. Application filed March 3, 1885.
"The arbitrary words 'ETHIOPIAN FAST BLACK,' printed in black letters and arranged in a horizontal line."

12,125.—RAZORS.—*C. Klauberg & Bros.*, New York, N. Y. Application filed February 14, 1885.
"The word 'DAMASCENE.'"

12,126.—DEODORIZERS AND DISINFECTANTS.—*Koch Microcide Company, (Limited,)* Philadelphia, Pa. Application filed March 18, 1885.
"The word 'MICROCIDE.'"

12,127.—BLOOD-PURIFYING COMPOUNDS.—*Mexican Medicine Company*, Austin, Tex. Application filed February 17, 1885.
"The letters 'M M M,' in combination with a Mexican landscape."

12,128.—ARTICLES OF JEWELRY.—*Eugene Naegele*, Philadelphia, Pa. Application filed March 20, 1885.
"A representation of an ace of clubs."

12,129.—OARS, SWEEPS, AND SCULLS.—*The New York Boat Oar Company*, New York, N. Y. Application filed March 5, 1885.
"The device, design, or stamp of an eagle with outstretched wings, bearing in each claw an oar."

12,130.—PAINTS AND PAINT COMPOUNDS FOR PROTECTIVE AND PRESERVATIVE PURPOSES.—*Paraffine Paint Company*, San Francisco, Cal. Application filed March 20, 1885.
"The characters 'P & B' and the figure of a rooster within a ring or band."

12,131.—FAMILY LINIMENT.—*Gilbert L. Vrooman*, Carthage, N. Y. Application filed January 30, 1885.
"The words 'KING OF THE WORLD.'"

12,132.—CORSETS AND OTHER SIMILAR ARTICLES.—*Warner Brothers*, New York, N. Y. Application filed February 27, 1885.
"A human head arranged at one side of a corset."

12,133.—COMPOUND PREPARATION OF COD-LIVER OIL.—*Samuel J. Bendiner*, New York, N. Y. Application filed March 12, 1885.
"The arbitrary word 'MALTOLINE.'"

12,134.—FABRICS FOR LADIES' AND CHILDREN'S DRESSES.—*Gustave Bossange*, New York, N. Y. Application filed March 10, 1885.
"The representation of a castle, a flag, and the word 'WARBURG.'"

12,135.—BONELESS FISH.—*Cassell, Livermore & Co.*, Boston, Mass. Application filed February 28, 1885.
"The figures of a fish and a bird or hawk, the latter grasping by his claws the former."

12,136.—CERTAIN NAMED MEDICINAL COMPOSITION.—*Carl Ringbauer*, Cleveland, Ohio. Application filed February 24, 1885.
"The word 'SEEHOFERISCHER.'"

12,137.—SILK-VELVET.—*A. Wimpfheimer & Bro.*, New York, N. Y. Application filed March 11, 1885.
"The representation of a ship."

12,138.—CIGARS AND ALL OTHER MANUFACTURED TOBACCO.—*Joseph De Susini*, New York, N. Y. Application filed February 19, 1885.
"The words 'LE PETIT CAPORAL.'"

12,139.—ORANGE WINE.—*Florida Wine Company*, of Florida, and Philadelphia, Pa. Application filed March 23, 1885.
"The representation of an orange."

12,140.—CURED PORK.—*George Fowler*, Kansas City, Kans. Application filed March 23, 1885.
"The representation of a harp."

12,141.—CIGARS, CIGARETTES, AND MANUFACTURED TOBACCO.—*Gustav Fuchs*, Chicago, Ill. Application filed June 5, 1884.
"The word 'BULL-HORN.'"

12,142.—WHITE AND YELLOW OF EGG PRESERVE AND EGG ALBUMEN.—*S. Berg Nachfolger*, Dresden, Saxony, Germany, and Korotscha and Berditscheff, Russia. Application filed March 16, 1885.
"Three eggs, each bearing one of the three letters 'S. B. N.,' the initials of registrant's firm."

12,143.—CERTAIN NAMED DRUGS AND CHEMICALS FOR DYEING.—*The Stamford Manufacturing Company*, New York, N. Y. Application filed March 9, 1885.
"The word 'SANFORD.'"

12,144.—MILK, CREAM, BUTTER, AND CHEESE.—*Pikesville Dairy Company*, Baltimore, Md. Application filed February 17, 1885.
"The pictorial representation of an interior barn scene, comprising cows, a milkmaid, a group of children, and a female figure with a child in arms."

12,145.—ESSENCE OF COFFEE.—*Peter Cooley Tomson*, Philadelphia, Pa. Application filed March 24, 1885.
"The word-symbol 'TOMSON'S.'"

12,146.—LYE.—*Peter Cooley Tomson*, Philadelphia, Pa. Application filed March 24, 1885.
"The arbitrary word-symbol 'TOMSON'S.'"

LABELS.

4,406.—Title: "GALLAGHER'S CONCHAS" (FOR CIGARS.)—*James Gallagher, Jr.*, New Haven, Conn. Application filed March 21, 1885.

4,407.—Title: "DR. HART'S RHEUMATIC REMEDY."—*Hart Rheumatic Remedy Company*, Buffalo, N. Y. Application filed March 20, 1885.

4,408.—Title: "LISTON'S EXTRACT OF BEEF."—*Liston Beef Company*, Chicago, Ill. Application filed March 11, 1885.

4,409.—Title: "GRAYDON'S FLUID EXTRACT OF BEEF."—*Liston Beef Company*, Chicago, Ill. Application filed March 11, 1885.

4,410.—Title: "PROF. GRAYDON'S FLUID EXTRACT OF BEEF."—*Liston Beef Company*, Chicago, Ill. Application filed March 11, 1885.

4,411.—Title: "PROF. LISTON'S EXTRACT OF BEEF."—*Liston Beef Company*, Chicago, Ill. Application filed March 11, 1885.

4,412.—Title: "LISTON'S EXTRACT OF BEEF."—*Liston Beef Company*, Chicago, Ill. Application filed March 11, 1885.

4,413.—Title: "PROF. GRAYDON'S PURE FLUID EXTRACT OF BEEF."—*Liston Beef Company*, Chicago, Ill. Application filed March 11, 1885.

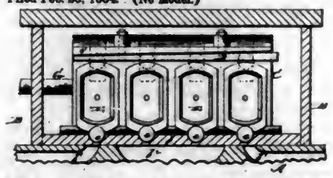
4,414.—Title: "MALTOLINE." (FOR A MEDICAL COMPOUND.)—*Samuel J. Bendiner*, New York, N. Y. Application filed March 12, 1885.

4,415.—Title: "LOCKHART'S HOT SPRINGS SPECIFIC."—*R. P. Lockhart*, Selma, Ala. Application filed March 23, 1885.

PATENTS

GRANTED APR. 14, 1885.

315,459. BALANCED SLIDE-VALVE. JAMES E. BAKER, Madison, Wis. Filed Feb. 23, 1884. (No model.)



Claim.—1. In a balanced slide-valve, the combination, with the valve formed with supporting-flanges and having recesses in its main body alongside and upward through the supporting-flanges, of the valve-seat formed with recesses at its edges alongside the valve, and the rolling or rocking supports, substantially as described and shown.

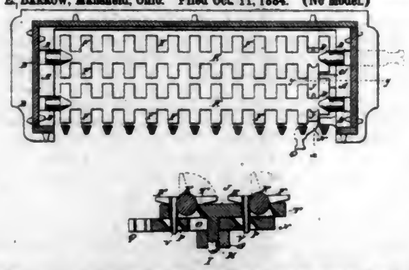
2. In a balanced slide-valve, the combination of a valve with a series of rocking supports having bearing-surfaces and circular lugs at each end, the one at the upper end engaging with and rolling within the recesses in the side and body of the valve, and the lower one engaging in like manner within the recesses of the seat, substantially as shown and described, and for the purpose set forth.

3. In a balanced slide-valve, the combination of the valve formed with a wedge-shaped supporting-flange, and provided with an adjustable wedge-shaped piece, with the seat and the supporting-rockers, substantially as shown and described.

4. In a balanced slide-valve, the valve C, formed with a wedge-shaped supporting-flange, *c'*, and provided with an adjustable wedge-shaped piece, D, in combination with the case B, having seat *b*, and the supporting-rockers E, substantially as and for the purpose set forth.

5. In a balanced slide-valve, the valve C, formed with steam-exhaust C', flanges *c* and *c'*, and the recesses or slots c^2, in combination with the wedge D, rockers E, having lugs *e e'*, and the chest or case B, having seat *b* and recesses b^2, all constructed and arranged to operate substantially as and for the purpose set forth.

315,460. COMBINED SHAKING AND DUMPING GRATE. THOMAS E. BARROW, Mansfield, Ohio. Filed Oct. 11, 1884. (No model.)



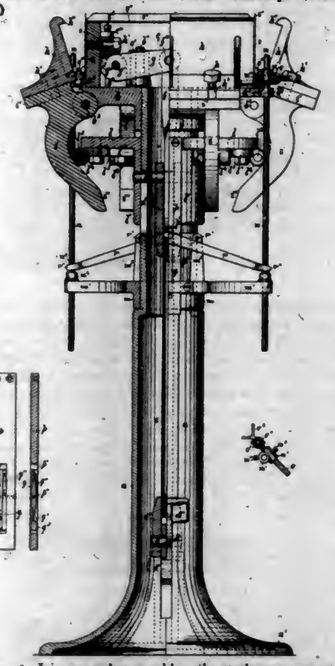
Claim.—1. A combined shaking and dumping grate consisting of the grate-bars capable of being rotated and reciprocated, and provided with pins V, in combination with the transverse sliding bar N, having elongated slots to receive said pins, and being adapted to be operated by a shaker-iron to tilt or shake the grate-bars, substantially as set forth.

2. A combined shaking and dumping grate consisting of the grate-bars mounted in bearings at their ends and carrying vertical pins, in combination with the cross-bar J, having pin I and slots to receive the pins on the grate-bars, the sliding bar N, having an elongated slot to receive the pin I and slots to receive the pins on the grate-bars, and the bracket G, substantially as set forth.

3. A combined shaking and dumping grate consisting of the grate-rest having cavities or elongated bearings B, grate-bars E, having pins V, cross-bar J, pin I, sliding bar N, having slots O P, and the bracket G, substantially as set forth.

4. In a grate, the bracket G and transversely-sliding bar N, having elongated apertures P, the end walls of which incline toward the rear end of the bar, in combination with the grate-bars carrying pins V, which protrude into the apertures P, substantially as and for the purpose set forth.

315,461. PAPER-BOX MACHINE. BERNARD E. BECKER, Boston, assignor to J. Arthur Nelson, Brockton, Mass. Filed Apr. 9, 1884. (No model.)



Claim.—1. In a paper-box machine, the stationary support *b*, having former *c*, and hinged levers *i*, combined with folders *k k'*, made adjustable to and from the former *c* upon the levers *i*, substantially as set forth.

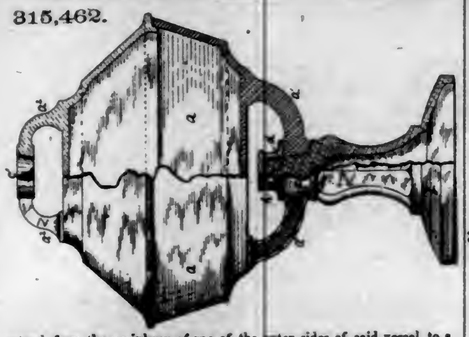
2. In a paper-box machine, the standard *a*, the platen *b*, box-former *c*, and hinged folders *k k'*, attached to levers *i i*, in combination with vertically-movable plate *l*, its rollers *l'*, and intermediate connecting mechanism to the treadle-lever *d*, substantially as set forth and described.

3. In a paper-box machine, the herein-described box support and releasing mechanism, consisting of vertically-movable rods *n n*, laterally and vertically adjustable corner supports, o^3 o^3, levers *r r*, and automatic pawls *q q*, journaled to the vertically-movable bars *p p*, and actuated by and connected to the treadle-lever *d*, substantially in a manner and for the purpose as set forth.

315,462. GLASSWARE. BENJAMIN BENNETT, Pittsburg, Pa. Filed Oct. 10, 1884. (No model.)

Claim.—1. The combination of a glass vessel, having arms which

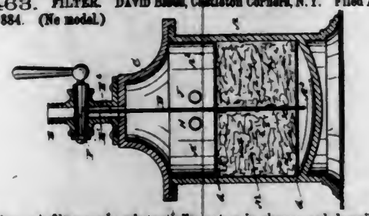
315,462.



extend from the periphery of one of the outer sides of said vessel to a socket situated below the same and connected with said arms, with a stem or similar projection capable of being connected with and detached from said socket, substantially as and for the purposes described.

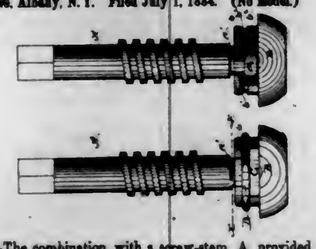
2. The combination of a glass vessel having integral arms which extend from the periphery of one of the outer sides thereof, a socket situate below said side and connected with said arms, with a stem or similar projection, one end of which is capable of being inserted within the socket, and being fastened thereto by means of a screw-nut which is screwed upon the projecting end of said stem and between said socket and the said side of said vessel, substantially as and for the purposes described.

315,463. FILTER. DAVID BIGGS, Castleton Corners, N.Y. Filed Apr. 11, 1884. (No model.)



Claim.—A filter made substantially as herein shown and described, and consisting of an upright cylindrical vessel divided into two compartments by an upright partition extending from the top to within a short distance of the bottom of the vessel, each compartment containing a filtering medium which is held between two perforated plates, of which the lower one is a short distance above the bottom of the partition, and each compartment having a separate outlet-cock at the side, and at the top of the vessel an inlet-pipe having a three-way cock, by means of which water can be admitted into either compartment, as set forth.

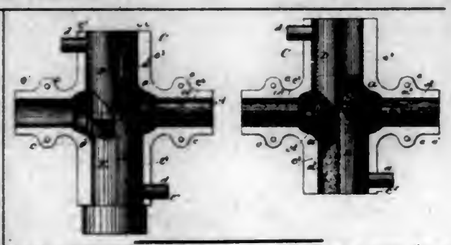
315,464. REVOLUBLE JOINT FOR SCREW VALVE-STEMS. JAMES H. BLEMING, Albany, N.Y. Filed July 1, 1884. (No model.)



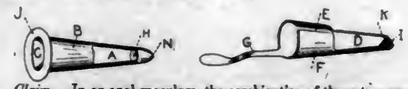
Claim.—The combination, with a screw-stem, A, provided with a circular flange, *a*, as herein described, of a valve, B, provided with a central hub, *b*, having a slotted opening, *b'*, with an undercut enlargement, *b²*, formed in one side of said hub, a filling-in piece, C, adapted to fit into the slotted opening *b'*, and form a complement to the concavity of the inner end of said opening, and a circular clamping device for securing said filling-in piece in the slotted openings *b*, substantially as and for the purpose herein specified.

315,465. APPARATUS FOR MAKING DRY-SAND CORES. JAMES H. BLEMING, Albany, N.Y. Filed July 30, 1884. (No model.)

Claim.—A core-box for forming cores of the character herein described, consisting of the corresponding parts C, semi-cylindrical slides D, and destructible model B, the said several parts being constructed, combined, and arranged to produce the required form of said core in the manner substantially as specified.

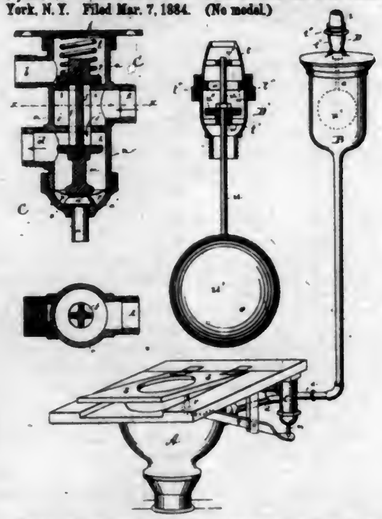


315,466. ANAL SPECULUM. ALBAN B. BOTSFORD, Grand Rapids, Mich. Filed May 2, 1884. (No model.)



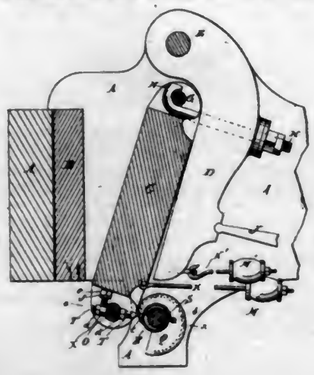
Claim.—In an anal speculum, the combination of the outer cone, B, having the slot A, the bell-shaped rim J, and the inner cone, F, having the slot E and handle G, with the rib I, fitting in the socket H of the outer cone, forming a journal-bearing, all substantially as shown and described, and for the purpose set forth.

315,467. WATER-CLOSET. LOUIS BRANDT and JOHN BRANDT, New York, N.Y. Filed Mar. 7, 1884. (No model.)



Claim.—The combination, in the flushing-tank valve D, of the following elements: upper casing, *t*, having valve-seat *w* at its lower edge, lower casing, *t'*, encircling nut *t''*, rod *u*, float *u'*, disk *u''*, rest *w'*, and cross-guide *w''*, substantially as specified.

315,468. STONE AND ORE CRUSHER. DANIEL BRENNAN, Jr., Bayonne, (Salterville P. O.,) N.J. Filed Nov. 7, 1884. (No model.)

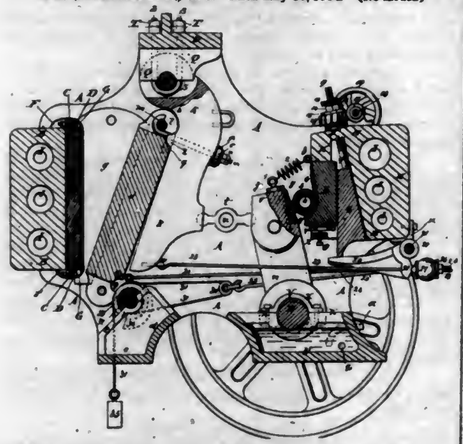


Claim.—1. In a stone and ore crusher, the combination, with a frame and the forward part of a movable jaw, of a ratcheted and a spring-actuated cam, and pawl-connection between the said frame and the said lower end of the forward part of the movable jaw, substantially as herein shown and described.

2. The combination, with the frame A and the lower end of the forward part, C, of the movable jaw of a stone and ore crusher, of the cam Q, having toothed section U, the spring S, and the adjustable pawl T, substantially as herein shown and described, whereby the movement of the said lower end of the forward part of the movable jaw will be limited, as set forth.

3. The combination, with the frame A, the lower end of the forward part, C, of the movable jaw of a stone and ore crusher, the cam Q, having toothed section U, the spring S, and the adjustable pawl T, of the eyebolt X, the screw-sleeve *e*, and the jam-nut *f*, substantially as herein shown and described, whereby the said pawl will be held from being swung back by the pressure of the said spring, as set forth.

315,469. STONE AND ORE CRUSHER. DANIEL BRENNAN, Jr., Bayonne, (Salterville P. O.,) N.J. Filed May 19, 1884. (No model.)



Claim.—1. In a stone and ore crusher, the ends B H of the frame, having cavities I, transverse to the length of the frame, extending therethrough, the said cavities increasing in diameter after passing through the sides of the frame, substantially as set forth.

2. In a stone and ore crusher, the combination, with the sides A of the frame, the shaft R, and the movable jaws *k j*, of the head-block P, having bearing-flanges Q, and the U-bolts S, substantially as herein shown and described, whereby the said movable jaws will be firmly supported and held against upward thrust and rearward pressure, as set forth.

3. In a stone and ore crusher, the combination, with the rear part, *k*, of the movable jaw, having curved shoulder *s*, and the forward part, *j*, having slotted upper end, of the pin *l*, the hook-bolt *m*, and the spring *p*, substantially as herein shown and described, whereby the said forward part of the jaw will be hinged to the rear part, will be firmly supported against upward thrust and rearward pressure, and will have a slight yield when its lower part is subjected to undue strain, as set forth.

4. In a stone and ore crusher, the combination, with the rear part, *k*, of the movable jaw having projection *r*, of the forward part, *j*, having recess *q*, substantially as herein shown and described, to strengthen the connection between the said parts of the jaw, as set forth.

5. In a stone and ore crusher, the combination, with the sides A of the frame, and the eccentric shaft W, having intermediate bearings, Y, of the oil-chamber U, having inlet and outlet pipes Z *a*, and the bearings X, substantially as herein shown and described, whereby the said eccentric shaft can be kept lubricated and cool and will be firmly supported, as set forth.

6. In a stone and ore crusher, the eccentric shaft W, made, substantially as herein shown and described, with spirally-arranged eccentrics V, and with bearings Y, between the adjacent eccentrics, whereby the pressure will be distributed and the said shaft firmly supported, as set forth.

7. In a stone and ore crusher, the combination, with the sides A of the frame and the cam-shaft *f*, of the foot-block *c*, having flange *d*, and a series of bearings, *e*, substantially as herein shown and described, whereby the said cam-shaft will be firmly supported, as set forth.

8. In a stone and ore crusher, the combination, with the front end, B, of the frame, having recessed projections C, and the stationary jaws E, having recesses G in their ends, of the bolts D, substantially as herein shown and described, whereby the said jaws will be securely held in place and can be readily reversed, as set forth.

9. In a stone and ore crusher, the pitman *v*, made, substantially as herein shown and described, with a forked lower end to receive an eccentric, a recess in its upper forward part to receive a toggle-bar, and a recess in its upper rear part to receive a bearing-block, as set forth.

10. In a stone and ore crusher, the combination, with the rear part, *k*, of the movable jaw, and the pitman *v*, of the toggle-bar *t*, having apertured middle part, substantially as herein shown and described, whereby the said toggle-bar will break if exposed to undue pressure to prevent injury to the machine, as set forth.

11. In a stone and ore crusher, the combination, with the pitman *v* and the recessed and toothed back block, L, of the separable bearing-block *y*, and the roller 4, having end teeth, 5, substantially as herein shown and described, whereby the said pitman is provided with a movable and varying resistance-bearing, as set forth.

12. In a stone and ore crusher, the combination, with the back block, L, the supporting-bar N, and the set-screws O, of the spring 7, substantially as herein shown and described, whereby the said back block will be held to its seat and kept from injuring the said set-screws by its movements, as set forth.

13. In a stone and ore crusher, the combination, with the rear end, H, of the frame, the wedges 8, having projecting lower ends, the jaw-rods 23 24, and the springs 27, of the elbow-levers 20 and the supporting-shaft 21, substantially as herein shown and described, whereby the said springs will be kept at the same tension, as set forth.

14. In a stone and ore crusher, the combination, with the lower ends of the forward parts, *j*, of the movable jaws, the shaft *f*, the rods 25, and the elbow-levers 20, of the pulley 30, the rope 31, the weight 35, the cams 34, and the unequal pulleys 32 33, substantially as herein shown and described, whereby the lower ends of the movable and stationary jaws are kept at a uniform distance apart, as set forth.

15. In a stone and ore crusher, the combination, with the worms 17 and worm-shaft 18, the inclined web J, and the wedge-screws 9, of the perforated worm-wheels 13, the nut 14, having perforated flange 15, the locking-pins 16, the stay-bar 10 and its standards 11, and screw-bolts 12, substantially as herein shown and described, whereby the wedges can be adjusted together or separately, as set forth.

16. In a stone and ore crusher, the combination, with the pitman *v* and the back-block bearing K, of the spring 2, substantially as herein shown and described, whereby the said pitman will be held in place should the toggle-bar break, as set forth.

315,470. BARBED FENCE-WIRE MACHINE. ORLANDO P. BRIGGS, Chicago, and CHARLES S. LOCKE, Joliet, assignors to David H. Donovan, Chicago, Ill. Filed June 1, 1882. Renewed Sept. 20, 1884. (No model.)

Brief.—The main wires are drawn intermittingly from a continuously-revolving flier through an intermittingly-rotated tube which rotates quicker than the flier. Thus the twist formed between the flier and the tube is transferred by the tube at intervals to the barbed cable. Two barbs are fed across each other and between the main wires. The ends of one of the barbs are first caught by advancing benders, which bend the barb partially around the wires. The twisting-tube is rotated slightly backward to bring the ends of the other barb in line with its benders, which then catch the ends of this barb and bend it partially around the wires. The tube then rotates forward and finishes the wrapping of both barbs around the wires.

Claim.—1. In a machine for twisting and barbing fence-wire, the combination, with a continuously-rotating flier which supplies the plain wire, with mechanism for intermittently carrying forward the cable, and with barbing mechanism arranged to operate when the cable is longitudinally at rest, of an intermittent twister, as D D², located intermediate to the flier and spooler, and having a speed when in motion greater than that of the flier, substantially as described, and for the purposes set forth.

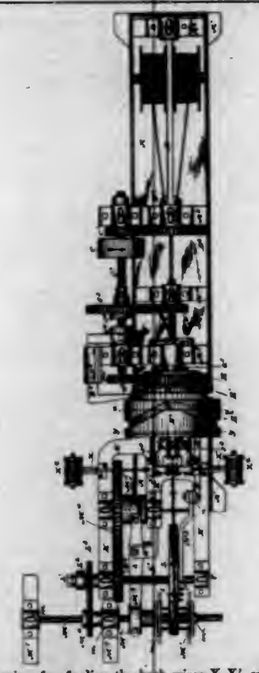
2. In a machine for barbing fence-wire, the combination, with intermittent mechanisms for barbing the wire and for carrying the same forward to the spools, of cams for producing the intermittent motions of these mechanisms, arranged and rotating around the axis of the fence-wire, substantially as shown.

3. In combination with the continuously-rotating flier, with intermittent mechanism for carrying forward the cable, with an intermittent and intermediate twister, and with barbing mechanism arranged to operate when the cable is longitudinally at rest, the continuously-rotating spur E, having connected therewith a series of cams arranged to rotate about the axis of the wire, and constructed and connected to actuate the said intermittent mechanisms, substantially as described.

4. In combination with the continuously-rotating spur, E, carrying the actuating-cams, and with the intermittently-rotating twister, D D², provided with a pinion, D', the driving-shaft C', having the fixed pinion C⁴, and the loose spur C⁵, provided with the clutch C⁶, together with the sliding gland C⁷, actuated from a cam carried by the spur E, substantially as described.

5. In combination with a central support, D², for the fence-wires,

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and with mechanism for feeding the barb-wires X X', so as to intersect each other between the fence-wires in proximity to the support D^2, two pairs of opposite plungers, I I, and suitable actuating mechanism therefor, said plungers being constructed and arranged to sever the barbs and to successively carry their ends forward in planes substantially parallel to the plane of the fence-wire and on opposite sides thereof, as set forth.

6. In combination with the central support, D^2, for the fence-wires, the stationary head H, having two pairs of opposite curved recesses, as shown, combined with the curved plungers I I, fitted to said recesses, and actuated by suitable mechanism to reciprocate them in pairs successively for the formation of a four-pointed barb, substantially as set forth.

7. In combination with the rigidly-supported cylinder F', arranged about the axis of the fence-wires, and provided with grooves f^2 to receive the bars G, said bars G provided with studs g, the plunger I, connected with said bars, and the continuously-rotating cam G', surrounding the cylinder F', and engaged with the studs g by the grooves g', substantially as described, and for the purposes set forth.

8. In combination with barbing mechanism, with mechanism for carrying forward the fence-wire, and with the central twister, D D^2, and its connections, the stationary shaft F, the cylinder F', supported from the shaft F, and the cams E', E^2, and G', arranged and provided with means for being continuously rotated on the cylinder F', substantially as described, and for the purposes set forth.

9. In combination with means for holding the fence-wires spread a short distance at the rear of their convergence in the twisted cable, and with mechanism for feeding and supporting the barb-wires, so as to intersect each other in the crotch of the fence-wires thus produced, the two pairs of opposite plungers I, provided with notches i^2, two of the plungers having sharpened ends i^3, said plungers being thereby adapted to sever the barbs and to seize their opposite ends, and means for successively actuating said plungers in the direction indicated, to reverse the ends of the several barbs and to form a four-pointed barb whose ends cross each other exterior to the cable, substantially as set forth.

10. In combination with the curved plungers I and the reciprocating bars G, the adjustable connecting-rods I^2, joining the plungers and bars to regulate the distance between them, substantially as described.

11. In combination with the plungers I and reciprocating bars G, the rods I^2, pivoted to the plungers, the eyes g^2, pivoted to the bars, and means for adjustably securing the said rods I^2 in said eyes, substantially as described.

12. In combination with the head H, having grooves h, and with the barbing-plungers I, located in said grooves, the adjustable bearing-plates i, external fixed plates, I' i^2, and the set-screws i', substantially as and for the purposes set forth.

13. In combination with the twister D D^2, operating to support the fence-wires at the point at which the barbs are applied, and with the two pairs of plungers I, arranged, as shown, and operating to bend the barbs successively, of mechanism for giving a partial backward rotation to the fence-wires after the first barb is bent, whereby the ends of the barbs may cross each other at a right angle, substantially as set forth.

14. In combination with the twisting-tube D and means for successively engaging it with and releasing it from the mechanism by which it is forwardly rotated, the ratchet O, secured to said tube, the pawl O', suitably arranged to backwardly rotate the twister, and means for actuating said pawl, substantially as and for the purposes set forth.

15. In combination with a pair of feed-rolls having their axes substantially parallel with the direction of the fence-wire, the shaft of one of said pair of rolls extended backward and intermittently engaged with a part in rotation about the axis of the fence-wire, substantially as described.

16. In combination with the feed-roller shaft J^3, provided with a pin gear-wheel, as shown, one or more pins projected from a part having a rotating movement about the axis of the fence-wire in position to engage the pin-wheel, substantially as described.

17. In combination with the two pairs of feed-rolls arranged and supported at the sides of the barbing mechanism, as shown, the prolonged shafts J^3 of one upper and one lower roller, the pin gear-wheels J^{10}, secured to said shafts, and the several pins j^9 and j^7, projected in opposite directions from connected rotating parts and severally engaging said wheels, substantially as described.

18. In combination with the plungers I and with the grooved support H for said plungers, the metal parts J', apertured to guide the barb-wires when fed forward, and having their faces shaped to coincide with the outer walls of the grooves h, substantially as described, and for the purposes set forth.

19. In combination with the head H, having grooves h, and with the plungers I, fitted to said grooves, the barb-wire feed-roller supports J, provided with lugs J', secured to the head, said lugs being faced to form prolongations of the outer walls of the grooves h and apertured to guide and support the barb-wires, substantially as described.

20. In combination with the cam E^2 and sprocket L, provided with a ratchet, l^2, the slide N, engaged with the cam E^2, and provided with the pawl N^2, engaged with the ratchet l^2, substantially as described.

21. In combination with the sprocket-shaft L', suitably actuated, as described, the spool-shaft M, having a sliding spool, M', the cam M^4, and the spool-shifting lever M^3, together connected and operating substantially as set forth.

22. In combination with the cutting-plungers I, the longitudinally-adjustable barb-wire supports J^7, arranged and operating substantially as set forth.

315,471. ROOF-PAINT COMPOSITION. DANIEL BROBST, Portland, Mich. Filed Feb. 13, 1884. (No specimens.)

Claim.—The composition, substantially as herein described, consisting of coal-tar, asphalt, salt, alum, gypsum, Roman cement, sulphur, pine-resin, benzine, slaked lime, tallow, and copperas, in about the proportions specified.

315,472. ART OF ORNAMENTING GLASS. EDWIN L. BROWN, Chicago, Ill. Filed Oct. 20, 1884. (Model.)



Claim.—1. The art of ornamenting glass consisting of, first, forming by sand-blast or analogous process the positive design upon the face, and, secondly, the negative design upon the back, substantially as and for the purposes specified.

2. The art of ornamenting glass by sand-blast or analogous process consisting of forming the design both upon the front and back of the glass, the outlines of the two coinciding with each other, substantially in the manner and for the purposes set forth.

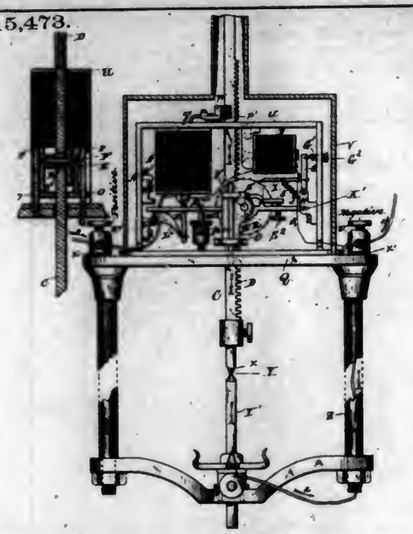
3. The art of ornamenting glass by sand-blast or analogous process by producing the positive design upon the front and the negative upon the back, whereby the outlines of the two may coincide when viewed directly from the front, substantially as described.

4. As a new article of manufacture, an ornamental glass the design upon which is formed upon one side of the glass by sand-blast or equivalent process, and its counterpart or negative upon the opposite side, substantially as described.

315,473. ELECTRIC-ARC LAMP. WILLIAM F. BUCKLEY, Cleveland, Ohio. Filed July 5, 1884. (No model.)

Claim.—1. The combination of the frame A', the solenoid, and shunt-magnet secured to the frame, the shunt-magnet being connected in shunt-circuit with the main circuit, posts P, frame O on said posts,

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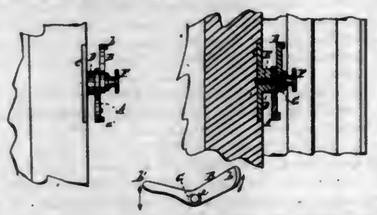


shaft F, journaled in frame O, and ratchet-wheel E, pinion T, and drum R, fast to said shaft, pivoted lever K, having bend K^3, lever S, pivoted to lever K and bearing against the drum, armature G, pivoted to the frame A', a pawl pivoted to said armature and engaging with the ratchet-wheel, rod C, having rack D, which engages with pinion T, cam-lever L^2, pivoted to frame A' and supporting the free end of lever K, rod L', connected to cam-lever L^2 and to the core of the solenoid, and a stop to regulate the play of lever K, substantially as described.

2. The combination of the solenoid, the pivoted lever K, pivoted cam-lever L^2, supporting the free end of lever K, and connected to the core of the solenoid, and a stop for limiting the play of lever K, substantially as described.

3. The combination of the solenoid, the pivoted lever K, pivoted cam-lever L^2, supporting the free end of lever K and connected to the core of the solenoid, a stop for limiting the play of lever K, the dash-pot, and the dasher connected to lever K, substantially as described.

315,474. SASH-HOLDER. FREDERICK H. BULTMANN, Cleveland, Ohio. Filed Dec. 27, 1884. (No model.)



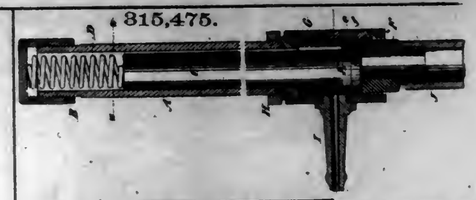
Claim.—1. In window-sash fasteners, the counterweighted arms A B, pivoted or jointed upon the stem E, supported in the boss of the plate, arranged with the weighted ends of said arms respectively opposite to each other, that the counter-weight of one arm may hold the sash up, and the counter-weight of the other prevent its being raised without releasing the engagement of the said arms with the casing, substantially as and for the purpose set forth.

2. In window-sash fasteners, the stem E, inserted in the boss, and provided with an eccentric, G, in combination with the arms A B, having counterweighted ends arranged respectively opposite to each other, and hung one upon the stem E and the other on the eccentric G, constructed substantially as described, and for the purpose set forth.

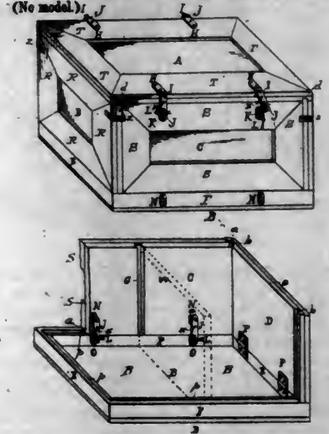
315,475. SAFETY-VALVE. THOMAS BURKE, New York, N. Y. Filed May 9, 1884. (No model.)

Claim.—In a safety-valve for kitchen boilers and heaters, the combination, with a metallic tube, A, of a piston, C, which fits closely in said tube, and provided at the lower end with a valve-disk which operates in a valve-box, a pressure-spring inserted between the screw-cap B and the upper end of said piston, an adjusting-cap, B, adapted to regulate the pressure on the piston-valve, and the valve-box G, all combined and arranged substantially as and for the purpose set forth.

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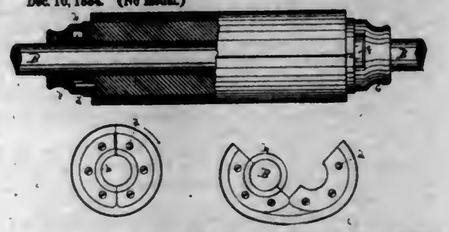


315,476. EGG-CARRIER. JOHN BURNS, Chicago, Ill. Filed Mar. 11, 1884. (No model.)



Claim.—In two-compartment knockdown egg-carriers, the recessed base B E F, in combination with the sides and ends C D, constructed as specified, the elbow-catches z, the cover A, partition W, straw-board compartments e, and suitable catches, N H J O M, as and for the purpose described.

315,477. BUFFING-ROLL. JOHN G. BUZZELL, Lynn, Mass. Filed Dec. 10, 1884. (No model.)



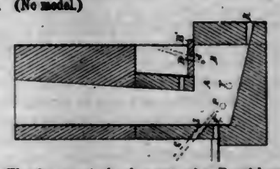
Claim.—1. The combination of the fixed cams C C, the springs or pads p p, the rings b b, and the pins d d in a buffing-roll, as set forth.

2. The combination of the fixed cams C C with a divided buffing-roll having the pins d d, or their equivalent, for closing the same, substantially as set forth.

3. In combination with a buffing-roll having a pin, d, at each end, the right and left cams C C, constructed substantially as herein described.

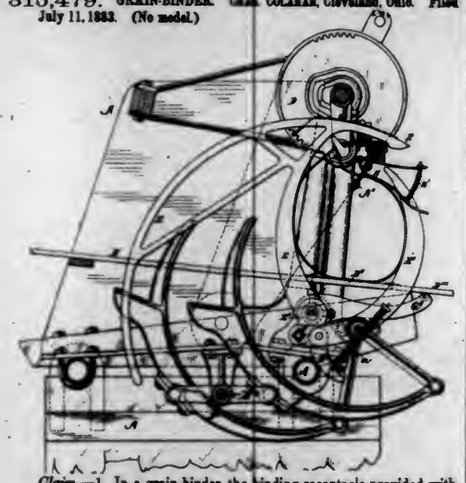
4. The combination of the divided buffing-roll secured to the shaft, having the pins d d, or their equivalent, for closing the same, with the right and left cams C C, loose upon the shaft, substantially as set forth.

315,478. FURNACE. JEAN F. COIGNET, Lyons, France. Filed Aug. 23, 1884. (No model.)



Claim.—The furnace A, having extension B, with perforated roof-plate B', and having also slag-exits F, metal-exit K, and apertures C, the tuyeres I, having multiple air-exits and adapted to be projected into the charge, all combined and operating as and for the purposes set forth.

315,479. GRAIN-BINDER. CHAS. COLAHAN, Cleveland, Ohio. Filed July 11, 1883. (No model.)



Claim.—1. In a grain-binder, the binding-receptacle provided with an upper and a lower leaf or plate adapted to yield, the one above and the other below, by the increasing bulk of the inflowing grain, whereby the grain in the formation of the bundle is equally compressed by the receiver on opposite sides, substantially as shown.

2. In a grain-binder, the binding-receptacle provided with an upper and a lower leaf or plate capable of expansion above and below by the increasing bulk of inflowing grain, in combination with the binder-arm and a compressor-arm, the latter arranged to support and compress the bundle while being bound on the side opposite from the binder-arm, whereby the grain is compressed on four sides in forming the bundle, substantially as shown.

3. In a grain-binder, the combination of the lower yielding surface provided with the plates D″ D‴, resting on the arm G″, with its tubular shaft G′ and its tripping-arm G‴, and the clutching-pawl *b*, its plate *b′*, pinion B″, clutch-pins *b″ c′*, and the continuously-revolving shaft B‴, operating substantially as shown, and for the purpose described.

4. In a grain-binder, the yielding adjustable plate H, combined with and placed on the opposite side of the binding-receptacle from the yielding plates D″ D‴, which are supported by the tripping-lever G, whereby the space between said plates may be so regulated that the tripping pressure will be given by a greater or less quantity of grain, substantially as shown.

5. The combination of the packing devices, the tripping-arm G″, supporting the yielding plates D″ D‴, the rock-shaft G′, and the clutching-arm G‴, as shown and described.

6. In a grain-binder, a compressing-arm, E′, hinged to the heel of the binder-arm at a point projecting from its rock-shaft, and having a movable yielding fulcrum on the frame or a stationary part of the machine, substantially as shown.

7. In a grain-binder, a compressing-arm, E′, hinged to the heel of the binder-arm at a point projecting from its rock-shaft and fulcrumed on the frame or a stationary part of the machine, in combination with the yielding plates D″ D‴, the tripping devices, and the packers, operating as and for the purposes substantially as shown.

8. In a grain-binder, the compressing-arm E′, supported upon and actuated by the heel of the binder-arm E, and provided with the spring-arm E‴, substantially as shown.

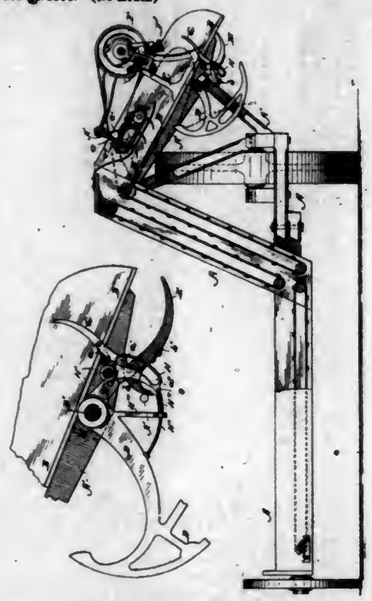
9. In a grain-binding machine, the binding-receptacle having the yielding plates D″ D‴ and capable of yielding in opposite directions by the pressure of the increasing bulk of the inflowing grain, in combination with the packers F F′, substantially as shown.

10. In a grain-binder, a yielding table, D″ D‴, supported on a pivoted arm, G″, in combination with its shaft G′, pivoted trip-arm G‴, and a clutching device consisting of a continuously-revolving plate, *b′*, having clutch-pin *c′*, provided with a pawl, *b*, and a lug, *b″*, on a pinion, B‴, which is loose on its shaft B‴, constructed and operating substantially as and for the purpose shown.

11. In a grain-binder, an automatic tripping device consisting of the rock-shaft G′, its actuating-arm G″, the tripping-arm G‴, pivoted loosely thereon, the projection or lug *g″* on said rock-shaft, in combination with the clutching device or plate *b′*, pawl *b*, its clutch-pin *c′*, pinion B‴, and lug *b″*, substantially as shown.

12. In an automatic grain-binder, the combination of the shaft B‴, its loose pinion B‴, lug or pin *b″*, the plate *b′*, secured on said shaft, its pivoted pawl *b*, clutch-pin *c′*, and tripping-arm G‴, operating substantially as shown.

315,480. GRAIN-BINDER. CHAS. COLAHAN, Cleveland, Ohio. Filed Oct. 24, 1883. (No model.)



Claim.—1. In combination with an automatic grain-binder, a packing-chain rake, its frame, and supports which adapt it to yield vertically and longitudinally, whereby the grain may be gathered into the receiver without liability of thrashing it from the straw in the process of forming the gavel.

2. The combination of the receiver B and the automatic grain-binder with the yielding adjustable gathering and packing rake R″, constructed and operating as shown and described.

3. In a grain-binder, the sprocket-rake-carrying wheels R and R′, with their axles secured in relative fixed positions by the rod S, combined with adjustable longitudinal spring *s′* and the supporting-frame T, as shown and described.

4. In a grain-binder, the combination of a yielding tripping-finger against which the grain is steadily packed by a rake, a binder-arm, an independent compressor, and means connecting the compressor and the tripping-finger with the binder-arm, whereby when the binder-arm is set into motion it will cause the tripping-finger to recede from the grain-receptacle.

5. In a grain-binder, the binding-arm and its shaft D″, actuating the compressor, in combination with the tripping mechanism, operating substantially as shown and described.

6. In a grain-binder, the tripping-finger G, connected by means of arms H and rod H″ to arm H‴, and compressor E, pivoted to arm D, and combined with the binder-arm or its shaft, whereby the tripping-finger and compressor are alternately brought in contact with the grain in the grain-receptacle, substantially as shown, and for the purposes shown and described.

7. The combination, with the tripping-finger G, its rocking pivotal link *a*, its cam crank-arm H, with its rock-shaft H′, and cam-disk I, for moving the shipping-lever I″ and causing the pawl J to engage the ratchet C‴ of the power-wheel C″ to start the binder, substantially as shown and described.

8. The combination of the power-wheel C″, its ratchet-hub C‴, with the shaft L and its clutching-pawl J, secured thereto, and the lever I″, and mechanism for tripping the lever, whereby the binder is set in operation, substantially as shown and described.

9. The combination of the binder-arm D with the arm H‴, the rod H″, spring H⁴, crank H, and tripping-finger G, substantially for the purposes described.

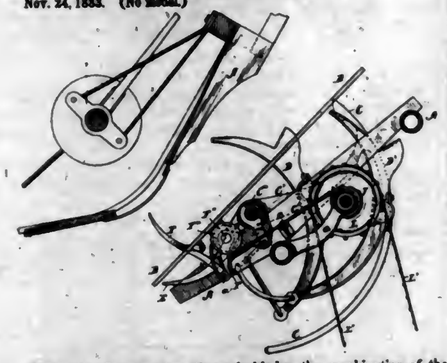
10. The combination of the tripping-finger G, pivoted on its swinging link *a*, its friction-roller *a′*, traveling in the cam slot or groove *a″*, of the rocking crank H and its shaft H′, and lever-shifting disk I, operating to move the clutch-lever I″, substantially as shown and described.

11. The combination, in a tying-bill, of the slotted shaft V, journaled in the supporting-frame C, the cam V″, the pinion W, the pivoted finger or jaw U, and shank-extension U′, the spring *v′*, operating within said supporting-frame and gear-wheel, and the main cam and gear wheel F, as shown and described.

12. The tying-bill supported in the frame C, the cam V‴, for opening the pivoted jaw U, and the shank-extension U′ of said jaw, by which it is closed, vibrating within the frame and rocking on its pivot *s* at each revolution of the main cam and gear wheel F, as shown and described.

13. The tying-bill, its moving jaw U, pivoted at *s*, and the friction-roller U″, its shank-extension U′, the slot *r*, and spring V′, constructed and operating as described.

315,481. GRAIN-BINDER. CHAS. COLAHAN, Cleveland, Ohio. Filed Nov. 24, 1883. (No model.)



Claim.—1. In an automatic grain-binder, the combination of the stopping and tripping finger F, the crank F′, and its shaft F″, the pivoted yoke, the lever-moving cam F‴, the yoke-lever *c*, and the drive-wheel L and its shaft for alternately stopping and starting the binding devices, substantially as shown and described.

2. The combination of the power-wheel L, the shaft J, the gear-wheels I I′, sprocket-wheel G′ H′, and chain H, substantially as shown and described.

3. The combination of the power-wheel L and its clutch-halves for alternately stopping and starting the reciprocating packing-arms D D′ and their crank-shaft J′, and its clutch-half *f′*, and the shaft J, its clutch-half *f‴*, and its pinion I′, actuating the binding device at stated intervals, substantially as shown and described.

4. The crank C″, with its slot therein, in combination with the binder-arm shaft C′, and its projection C‴, and the tripping-fingers F with the connecting device, whereby the tripping device may be withdrawn from the receiver, substantially as shown and described.

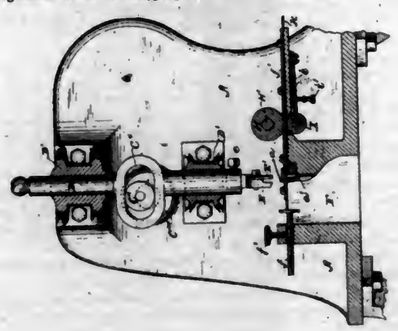
5. The swinging crank-arm C″, combined with the binder-arm or its shaft, and projection C‴ thereon for controlling and actuating the tripping-finger, substantially as shown and described.

6. The combination of the packers D D′, tripping-finger F, crank F′ and its shaft F″, cam-wheel F‴, lever *c*, power-wheel L, and clutch-halves *f f′ f″ f‴*, substantially as and for the purposes set forth.

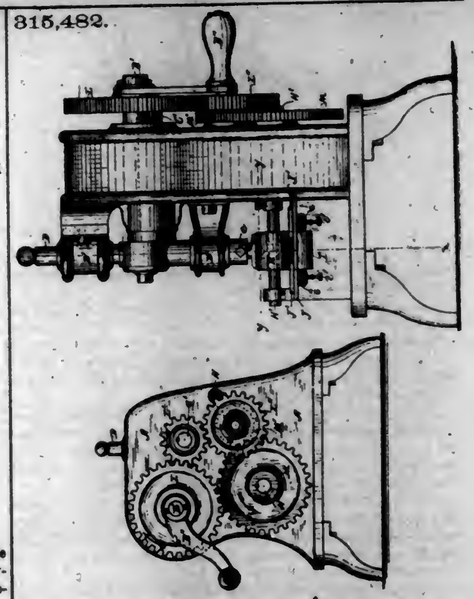
315,482. TAG CUTTING AND PUNCHING MACHINE. CHAS. COLAHAN, Cleveland, Ohio. Filed Feb. 11, 1884. (No model.)

Claim.—1. In an automatic punching and cutting machine, the combination of the gear-wheels L L′ L″ M M′ with the shaft *c′*, operating the shaft D and its punch and cutter, and shaft H′, operating the feed-rollers, substantially as shown and described.

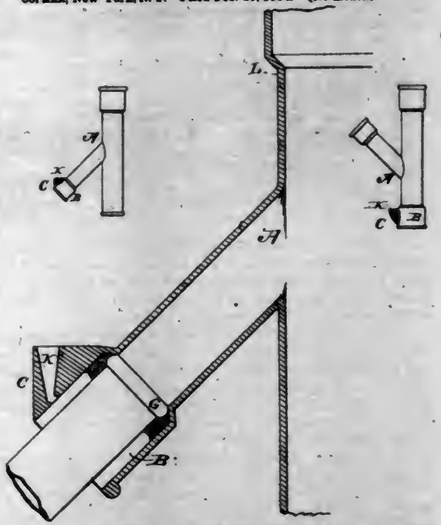
2. The combination of the interchangeable feed-gear wheels L″ M′, adjustably secured in the circular slot N, and the wheel L′, in combination with the shaft C′, and the vertically-reciprocating shaft D and its die and cutter, with the feed-rollers H I, whereby the machine may be regulated, as and for the purposes shown and described.



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315,483. FILLING ATTACHMENT FOR THE HUBS OF PIPES. C. COPMAN, New York, N. Y. Filed Feb. 29, 1884. (No model.)



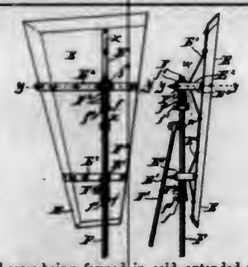
Claim.—A section of pipe provided on one end with the hub B, opening downwardly, the lip C being secured in a direction diagonal to the plane of the hub, and upwardly-inclined aperture K, leading to the interior of the same in connection with a section of pipe having one end adapted to enter said hub, substantially in the manner described, and for the purposes set forth.

315,484. WINDMILL. RICHARD M. COSBY, Indianapolis, Ind. Filed Oct. 3, 1883. (No model.)

Claim.—1. In a windmill, the combination of the sail E, braces E′ on the back of said sail, said braces being bent out for a portion of their length and having bearings *e′* formed therein, the arm F, on which the sail is mounted, the collar *f*, mounted on said arm, and the spring F², mounted on said arm between the sail-bearing and said collar, one end being secured to each, substantially as described, and for the purposes specified.

2. In a windmill, sails provided on their backs with longitudinal stays or braces, said stays being extended out at suitable points and

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bearings for the sail-arms being formed in said extended-out portions, substantially as shown and specified.

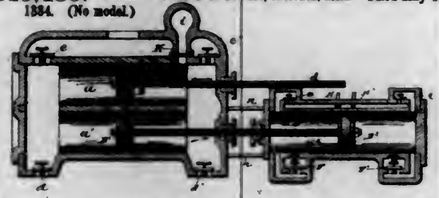
3. The combination, with the sail E, of the strap E', riveted to said sail and bent up at suitable intervals with bearings formed in said bent-up portions, and the straps or stays E', having slots which fit over the ends of the bearings, the ends of said stays being riveted to the edges of the sail, thereby strengthening said sail and securing a rigid bearing for the arm, substantially as set forth.

4. In a windmill, a sail provided on its back with longitudinal and lateral stays or braces, in which are formed the bearings for mounting said sail on its arm, said longitudinal and lateral stays being bent out from the sail at the points of intersection and secured together, and said bearings being formed at said points, substantially as set forth.

5. In a windmill, the combination, with the sails, of a longitudinal stay or brace secured thereto having bearings for the arm of said sail formed therein, and lateral braces extending across and secured to said sail and said longitudinal stay at the points where said bearings are formed, substantially as set forth.

6. A sail for windmills, the upper and rear edges whereof are bent forward, said sail being thus adapted to offer greater resistance to the wind, and also thereby strengthened, substantially as shown and specified.

315,485. PUMP. JOSEPH D. DAVIES, Natchez, Miss. Filed May 1, 1884. (No model.)



Claim.—1. In a pump, the combination, with a main cylinder having outlet-valves and a piston, and an auxiliary cylinder provided with a piston and supply-valves in communication with the main cylinder, of a cushion-cylinder connected with the piston in said auxiliary cylinder by a piston-connecting rod, substantially as set forth.

2. In a pump, the combination, with a main cylinder having outlet-valves and operating-piston, and an auxiliary cylinder in communication with the main cylinder and provided with a piston and supply-valves, of a cushion-cylinder having its axial line on the prolongation of the axial line of the said auxiliary cylinder, said cushion-cylinder being connected with the auxiliary cylinder by an independent piston-connecting rod, substantially as set forth.

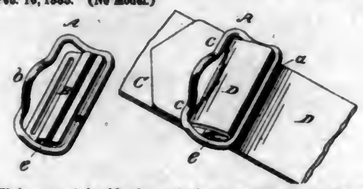
3. In a pump, the combination, with a main cylinder having outlet-valves and an operating-piston, and an auxiliary cylinder provided with supply-valves and a piston in communication with the main cylinder, of a cushion-cylinder provided with valves for admitting air, gas, or liquid, and a rod connecting the piston in the auxiliary cylinder with a piston in the cushion-cylinder, substantially as set forth.

4. In a pump, the combination, with a main cylinder having outlet-valves and an operating-piston, and an auxiliary cylinder having supply-valves in communication with the main cylinder, of a cushion-cylinder provided with check-valves for alternately admitting and preventing the escape of air, gas, or liquid, and further provided with safety-valves and a rod connecting a piston in the auxiliary cylinder with the piston in the cushion-cylinder, substantially as set forth.

5. In a pump, the combination, with a main and auxiliary cylinder having their axial lines parallel and communicating directly with each other, the main cylinder being provided with a piston and two delivery-valves, and the auxiliary cylinder with two supply-valves, of a cushion-cylinder situated longitudinally opposite the auxiliary cylinder, and a rod connecting a piston in the auxiliary cylinder with a piston in the cushion-cylinder, substantially as set forth.

6. In a pump, the combination, with a main cylinder provided with suitable supply and delivery valves and operating-piston, of one or more air chambers communicating with the main cylinder, and devices for shutting off the air-chambers from the cylinder at pleasure, substantially as set forth.

315,486. BUCKLE. CHARLES T. DE FOREST, New York, N. Y. Filed Feb. 16, 1885. (No model.)



Claim.—1. A buckle-frame for lever-buckles, having its tuck-bar shaped to form a recess beneath at the middle with bearing-points, each side resting on the strap D, which it secures, and leaving an open space between such bar and the said strap.

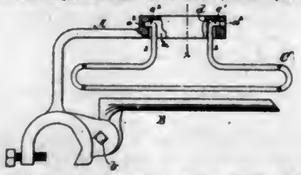
2. A buckle-frame having its tuck-bar shaped to form a recess beneath at the middle, and also provided with an extension or lip on the front side, substantially as specified.

3. A buckle-frame having a tuck-bar with protuberances *c c'* underneath, resting as bearings on the secured strap D, as set forth.

315,487. COMPOSITION MASTIC FOR COVERING ROOFS, TELEGRAPH-WIRES, AND THE LIKE. ANDREW DERROW, Paterson, N. J. Filed Apr. 15, 1884. (Specimens.)

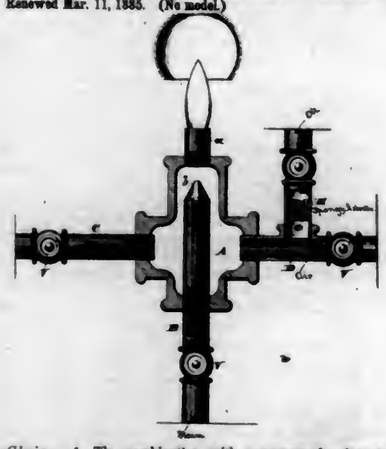
Claim.—The bituminous mastic composition consisting of hard crude Trinidad asphaltum, beeswax, and oil, in the proportions specified.

315,488. BOBBIN-SUPPORTER FOR SPOOLING-MACHINES. WILLIAM F. DRAPER, Hopedale, Mass. Filed Mar. 3, 1884. (No model.)



Claim.—The gravitating springy arms provided with free ends or lugs *c' c²*, and the overhanging head A, provided with recesses to receive the said free ends or lugs of the arms, and with the stop located between the arms to prevent one arm from engaging or catching the other, combined with a trough or bobbin-rest, to operate substantially as described.

315,489. OXYHYDROCARBON HEAT AND FUEL ECONOMIZING APPARATUS. JOHN T. DYBART, Shippensville, Pa. Filed Feb. 9, 1884. Renewed Mar. 11, 1885. (No model.)



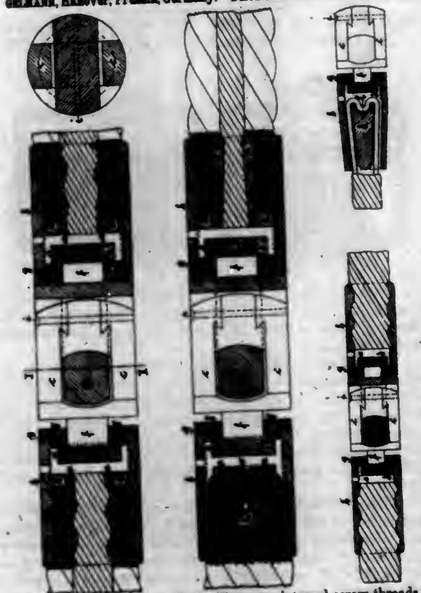
Claim.—1. The combination, with a vacuum-chamber provided with a burner-tube and having pipes connected therewith admitting gas, air, and oil or burning-fluid, of a steam-jet constructed to draw gas, air, and oil or burning-fluid into the chamber and force the same through the burner-tube, substantially as set forth.

2. The combination, with a vacuum-chamber provided with a burner-tube, gas and air supply pipes, and a steam-jet constructed to produce a partial vacuum in the said chamber, of an oil or burning-fluid supply pipe provided with a perforated plate supporting spongy asbestos or other absorbing material for the purpose, substantially as set forth.

3. The combination, with a vacuum-chamber and air-supply pipe, of an oil or burning-fluid supply pipe entering the said air-supply pipe, and provided with a bed of asbestus or other absorbent, and a steam-jet pipe constructed to produce a partial vacuum in the chamber, and thereby feed the oil or burning-fluid to a flame, substantially as set forth.

4. An apparatus for the more perfect combustion of gas, or gas and oil or burning-fluid, consisting of a vacuum-chamber provided with a burner-tube, a gas-supply pipe connected with the chamber, an air-supply pipe connected with the chamber, a steam-jet pipe passing within the chamber, an oil or burning-fluid supply pipe provided with a perforated plate supporting a bed of asbestus or other absorbent, and regulating-valves, the whole constructed and arranged in the manner substantially as set forth.

315,490. COUPLING FOR HEMP AND WIRE ROPES. ANTON ENGELMANN, Hanover, Prussia, Germany. Filed June 17, 1884. (No model.)



Claim.—1. A shell provided with coarse internal screw-threads for engaging with the end of a rope, and internal threads for holding a collar, in combination with said collar, a coupling eye or link, and a collar, *d*, detachably fastened on the bolt of said eye within said shell in order that said eye may be held by collars, substantially as set forth.

2. The collars or disks *d d'*, having interlocking ratchet-teeth which allow them to turn in one direction only, in combination with a coupling-eye having one of said disks or collars fast on its bolt and the other loose thereon, and the shell *b*, which is screw-threaded on the latter collar, and provided with coarse internal screw-threads for holding a rope, substantially as set forth.

3. In a rope-coupling, the combination of the shell *b* and the inner coupling-box, *a*, with the collar *h*, whereby they are connected, substantially as set forth.

4. The removable dovetailed insertion-pieces, in combination with the eyes or links and the screws *i*, which fasten them thereto.

315,491. MECHANISM FOR MOVING STREET-CARS ON CURVES. NOBLE A. FISHER, Sacramento, Cal. Filed Feb. 2, 1884. (No model.)

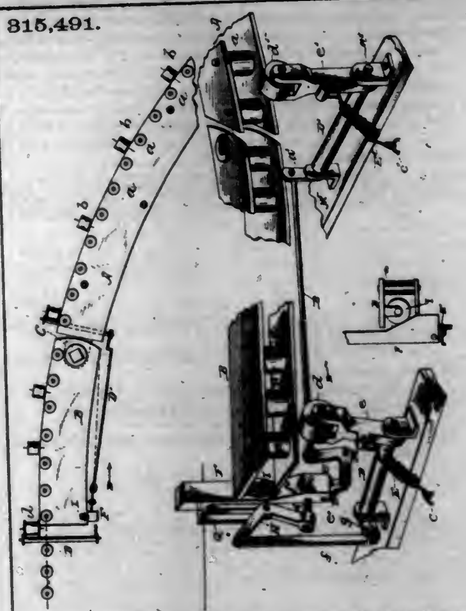
Brief.—At the entrance of curves a pivoted swinging section, which carries the cable-pulleys, is automatically unlocked, and is swung laterally by contact with the grip, thereby preventing the deflection of the cable otherwise incident upon entering curves where the pulleys are on an immovable support. The pivoted section is automatically returned to normal position by a wedge surface acting upon a roller on the section.

Claim.—1. A railway having a plate provided with a hinged apron or section to prevent deflection of the rope or cable, substantially as specified.

2. The combination, with a railway having a plate provided with a hinged section to prevent deflection of the rope or cable, of an inclined slide-bearing and means for operating the same to move the hinged section, substantially as specified.

3. The combination, with the plate adapted to move laterally, of a vertically-inclined slide-bearing, angle-lever carrying a pin for engaging the slide-bearing, and means for operating the same, substantially as specified.

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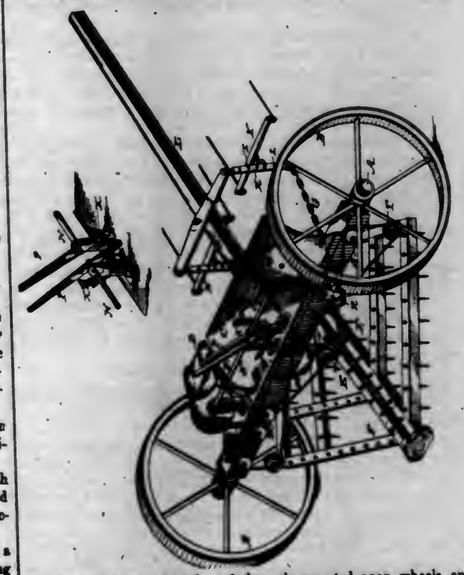


4. The combination, with the hinged section or apron, of the vertically-inclined slide-bearing engaging the same, a transverse rock-shaft having a vertical spring-arm, and intermediate devices for inserting and withdrawing the pin of the angle-lever from the slide-bearing, substantially as specified.

5. The combination, with the plate having a hinged section, of a rock-shaft having a fixed vertical arm provided with a spring, devices for connecting the said rock-shaft to a vertical slide-bearing, and a rock-shaft having a similar arm, and devices connecting with the rock-shaft for locking and unlocking the slide-bearing, substantially as specified.

6. The plate having its hinged section provided with a roller adapted to engage a vertical inclined slide-bearing, substantially as specified.

315,492. SULKY-HARROW. EDWIN FRENCH and FRANK PARVIN, Emporia, Kans.; said Parvin assignor to Armelder F. Pack, same place. Filed Apr. 5, 1884. (No model.)



Claim.—The combination of the axle mounted upon wheels, and having the pulleys S S pivoted near its ends, and the pulleys R R piv-

oted in pairs about midway between the middle and the ends of the axle, the triangular harrows hinged together at their adjoining bases, and provided with the pulleys T T at their apices and pulleys V V at their bases, the pulleys O O, having means for turning them, substantially as set forth, and the two pairs of ropes or chains secured to the pulleys O O, passing between the pulleys R, the outer ropes passing over pulleys S and under pulleys T, and secured to the middle of the axle, and the inner ropes passing under pulleys V and secured to the middle of the axle, as and for the purpose shown and set forth.

315,493. MUSICAL REED. MENOTTI GALLY, New York, N. Y. Filed Aug. 9, 1884. (No model.) Patented in England May 14, 1884, No. 7,708.

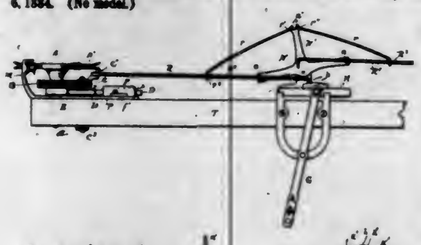


Claim.—1. A musical reed-block having a cruciform slot for the tongue, substantially as described.

2. A cruciform tongue for a musical reed, composed of a single piece of metal, substantially as described.

3. The combination, with a reed-block having a cruciform slot, of a reed-tongue of corresponding form, substantially as described.

315,494. CHECK-ROWER. JAMES G. GIBSON, Peoria, Ill. Filed Oct. 6, 1884. (No model.)





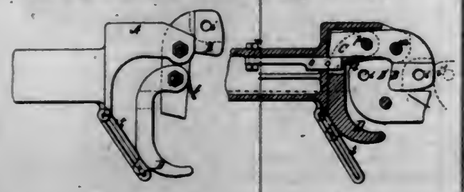
Claim.—1. The four-armed hub A, gear-wheel B, and square block E, all rigidly connected together on the same axis, in combination with the pinion C, the push-bar D, slotted to make room for the bearings of said pinion, shoulder *d* on said push-bar, semi-cylindrical cup F, and spring *f* in said cup and about said bar, substantially as and for the purpose specified.

2. In combination with two rods adapted to be intermittently reciprocated and a block connected to the feed-slide of a planter, a T-piece through eyes at the ends of the cross-arms of which pass said rods, and links attached to the third arm of said T-piece and connected to said rods with fastenings that permit a limited play thereat, substantially as and for the purpose set forth.

3. The block H, having holes A therein, ways to permit longitudinal motion thereof, and a lever for transmitting the movements of said block to the feed-slide of a corn-planter, in combination with the hooked rods R R', adapted to be intermittently reciprocated, the T-piece N, pivoted to a bearing-head projecting from said ways, eyes *n* at the ends of the cross-arms of said T-piece, through which pass said rods, and the links *r*, attached by the eyes *n* and prongs *n'* to the end of the arm N', and secured at their other ends to said rods by means of their double shoulders r^2 and slots R^2 in said rods, as and for the purpose specified.

4. In a check-rowing device of the kind herein described, the ways J, bearing-head K, notches L L', and ridges K', in combination with the T-piece N, projection *m'*, lug *m*, bolt and nut m^2, and spring m^3, as set forth.

315,495. CAR-COUPLING. JOHN GOETTEL, St. Paul, Minn., and WILLIAM F. HOWE, Chicago, Ill. Filed Apr. 14, 1884. (No model.)



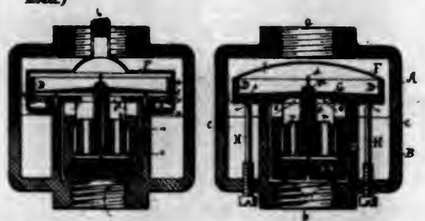
Claim.—1. In a car-coupling, the combination, with a pivoted coupling-hook having a rear extension behind its pivot, of a bent or hooked guard pivoted thereto, and means, substantially as described, for locking them when closed, substantially as and for the purpose set forth.

2. In a car-coupling, the combination, with a pivoted coupling-hook and a movable guard, of a hinged latch adapted to engage and lock the hook and guard when the device is coupled, substantially as and for the purpose set forth.

3. In a car-coupling, the hook B, pivoted in the draw-head, and formed with a rearwardly-extending arm, C, in combination with the movable guard D, and means for locking them closed, substantially as and for the purpose set forth.

4. In a car-coupling, the hook B C, provided with the spring *b*, in combination with the hinged guard D and latch *e*, and means, substantially as described, for lifting this latch from the top or side of the car, as and for the purpose set forth.

315,496. GAS-GOVERNOR. THOMAS GORDON, Philadelphia, Pa., assignor of one-half to Emanuel Stein, same place. Filed June 7, 1884. (No model.)



Claim.—1. In a governor for regulating the flow and pressure of gas to a burner, a valve with vertical perforations, in combination with an annular gas-chamber, and a disk to close the gas-exit port, substantially as set forth.

2. The combination of an outer annular gas-tight chamber, an inner annular chamber provided with exit-ports, a valve with vertical perforations and with a neck supporting a disk, and a guide-rod secured to the base of the inner chamber and serving to guide the valve and disk vertically, whereby the gas-ports to the supply-pipe of the burner are opened or closed in whole or in part by the greater or less pressure of gas within the inner annular chamber, substantially as and for the purpose set forth.

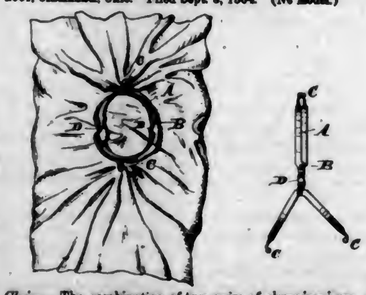
3. The combination of the shell A B, provided with an annular extension forming a chamber, C, the flanged plate D, provided with gas-ports and a central opening, the inner central chamber, E, provided with gas-ports and a vertical guiding-rod, and the valve *e* and disk G, moving upon said rod and serving by the action of the gas to open or close gas-exit ports in the plate D, substantially as set forth.

4. The perforated plate F, in combination with the flanged plate D, arranged and operating substantially as set forth.

5. In a gas-governor, one or more regulating-screws, in combination with the plate D, and operating to open or close, more or less, one or more gas-exit ports in said plate, as set forth.

6. In a gas-governor, the combination of the cap or plate F, having a cylindrical extension, 4, and a rod extending into a gas-burner and to be affected by the heat therefrom, and the flanged plate D, having an extension-piece, 2, forming an annular chamber, 3, with said plate, whereby the gas-ports 8 and 5 are fully or partially opened to each other as the rod may be more or less expanded by the heat of the burner, said parts being constructed, arranged, and operating substantially as and for the purpose set forth.

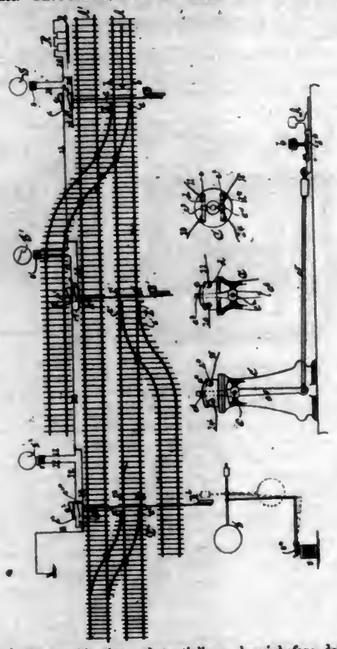
315,497. SUPPORTER FOR WEARING-APPAREL. DAVID GREENHOOT, Cincinnati, Ohio. Filed Sept. 3, 1884. (No model.)



Claim.—The combination of two pairs of clamping-jaws, each pair hinged together at both ends, and having said adjacent ends connected together, respectively, by elastic rubber bands or springs, as described.

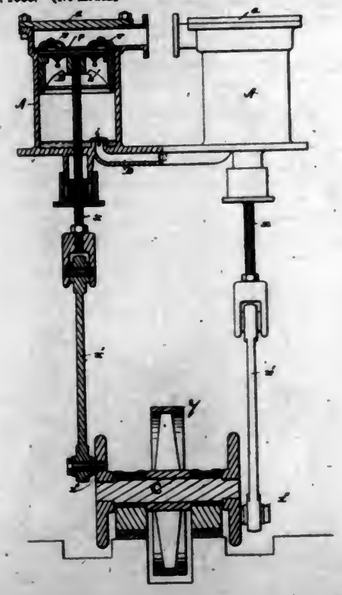
and provided at the middle of each pair with smooth engaging fingers adapted to be overlapped by the closing of the jaws, and to be held firmly in engagement by the lateral spring of the jaws themselves, substantially as described.

315,498. CIRCUIT FOR ELECTRIC SWITCH-SIGNALS. ALVAH W. HALL, Meriden, Conn., assignor to the Hall Railway Signal Company, same place. Filed Feb. 28, 1884. (No model.)



Claim.—The combination, substantially as hereinbefore described, of the switches B B', (two or more,) the signals S S', the circuit-changing devices c c', c' c'', connected to the respective switch-rails, the main circuit, including the devices e e', and the extra circuits, including the devices ϵ' ϵ'', respectively.

315,499. ICE-MACHINE. WILLIAM H. HANEY, Cincinnati, Ohio. Filed Jan. 12, 1885. (No model.)



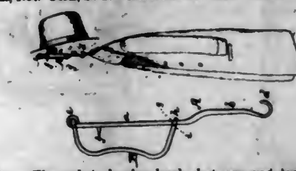
Claim.—1. In an ice-machine of the class designated, a removable plate or false head seated at the upper end of and within the compression-cylinder, and provided with lift-valves, substantially as and for the purpose indicated.

2. In an ice-machine of the class designated, in combination with the compression-cylinder provided with the removable valve-plate *p*, a perforated piston, B, provided with lift-valves v', substantially as and for the purpose set forth.

3. In combination with the compression-cylinder of an ice-machine of the class designated, a piston constructed, as described, of a hollow webbed ring and a removable valve-plate seated thereon, substantially as and for the purpose set forth.

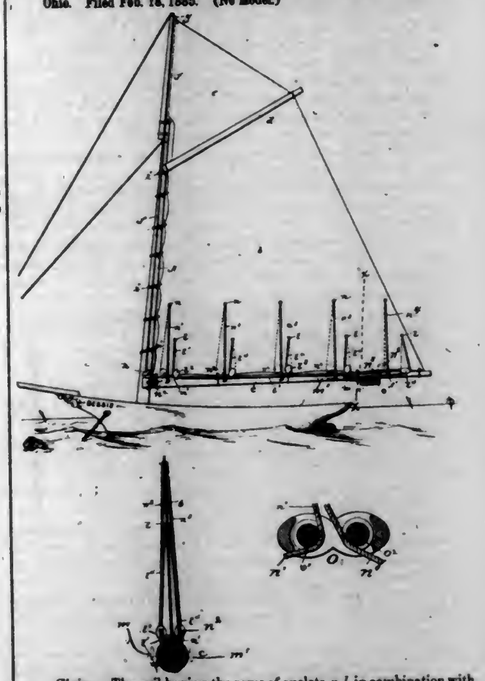
4. In an ice-machine, a compression-cylinder provided with an oil-receptacle at its lower end, and a piston having an extended lower peripheral edge adapted to immerse in said receptacle, provided interiorly with a groove or trough communicating with the external periphery, substantially as and for the purpose set forth.

315,500. COMBINED BUTTON-HOOK AND COAT-HANGER. GUSTAV HEILES, New York, N. Y. Filed Feb. 20, 1885. (No model.)



Claim.—The rod A, having hook *d* at one end, loop *e* at the other end, projecting prong *f*, and aperture *g*, in combination with the bent rod B, which is hinged to the rod A by the loop *e*, the whole constituting a button-hook, coat and hat support, substantially as herein shown and described.

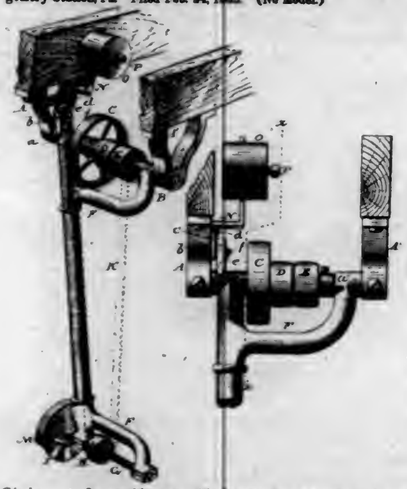
315,501. DEVICE FOR REEFING SAILS. LEE HERING, Isle St. George, Ohio. Filed Feb. 18, 1885. (No model.)



Claim.—The sail having the rows of eyelets *n l*, in combination with the mast, the gaff, the boom, blocks l^2 n^2, arranged along the boom, block l^2, secured near the outer end thereof, and block *o*, having sheaves o' o^2 secured to the boom, reef-line l', secured to the inner end of the boom, passing through the luff-eyelet of the row *l*, through block l^2 at inner end of boom, and block l^2 at outer end thereof, reef-points l^3, secured to the boom, passing through eyelets *l*, blocks l^2, and secured to the reef-line l', reef-line *n'*, secured to inner end of boom, passing through luff-eyelet of row *n*, through block n^2 at inner end of boom, and through block *o*, reef-points n^3, secured to the boom, passing through eyelets *n*, blocks n^2, and secured to the reef-line *n'*, leech reef-line n^4, secured to outer end of boom, passing

through leech-eyelet *n*, a block, n^3, and block *o*, and secured to the reef-line n', and cleats secured to the boom for the free ends of the reef-lines, substantially as shown and described.

315,502. CIRCULAR SAWING MACHINE. LEVI HOUSTON, Montgomery Station, Pa. Filed Feb. 24, 1885. (No model.)



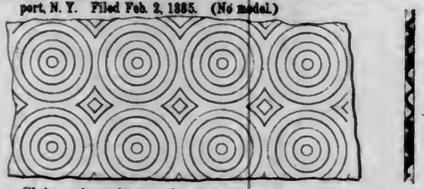
Claim.—1. In combination with hangers or supports A A', and shaft B, mounted therein, saw-frame F, mounted on said shaft, as shown, and provided with an upright slotted arm or yoke, *b*, arm N, pivoted to the hanger A, provided at its upper end with a weight and at its lower end with a stud to engage the yoke, as and for the purpose set forth.

2. In a sawing-machine, the combination, with suitable hangers or supports, and with a shaft extending from one to the other, of a saw-frame carried by the shaft and provided above its pivotal point with an arm, a counterweighted lever journaled in the bracket above the saw-frame and provided with a depending arm to engage with and be moved by the slotted arm or yoke on the swinging frame.

3. In combination with hangers A A', shaft B, carried thereby, saw-frame F, mounted upon the shaft B, and provided above the shaft with slotted arm or yoke *b*, lever N, pivoted to hanger A, provided at its upper end with weight O and at its lower end with a stud to engage with the yoke or arm *b*.

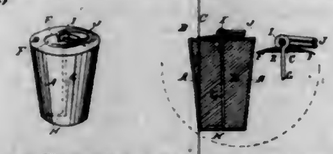
4. In combination with a swinging saw-frame, a pivoted arm or lever provided with a counter-weight above its center of motion, and a connecting arm or bar extending from the frame to the lever, substantially as described and shown.

315,503. CARPET-LINING. WILLIS H. HOWES and JOHN JACK, Lockport, N. Y. Filed Feb. 2, 1885. (No model.)



Claim.—As an improved article of manufacture, a carpet-lining and analogous paper or fabric having a series of groups of annular concentric undulations arranged in relation to each other, as described, and for the object specified.

315,504. STOPPLE-RECEPTACLE. LEWIS S. HOTT, Boston, Mass., assignor to Albert G. Smalley, same place. Filed Jan. 5, 1885. (No model.)



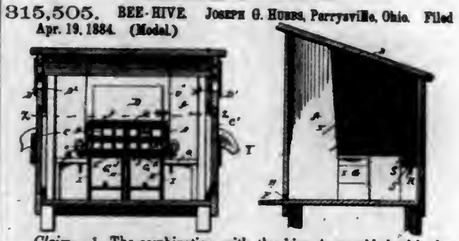
Claim.—1. The receptacle A, having converging or parallel sides forming a chamber, *b*, for the reception of a stopple, in combination with the aggregate devices E J G, constituting the pull, substantially as and for the purpose described.

2. In a flexible stopple-receptacle, the combination of the perforated convex annular flanged cover E, confining the circular elastic edge of the receptacle-orifice C, the double lift-ring J, and right-angled strengthening-bar G, whose circular head I doubly operates to receive said double ring and to oppose the severed ends K of the same to prevent its rotation, substantially for the purpose specified.

3. In a stopple-receptacle, the combination of a convex perforated binding-cover, E, and bar G with the double lifting-ring J, having opposing ends K K, abutting against each side of the bolt-head I, substantially as described.

4. In combination with an open-topped elastic chambered stopple-receptacle, the double lifting-ring J, the perforated annular flanged convex cover E, and strengthening-bar G, all operating as and for the purpose herein set forth.

315,505. BEE-HIVE. JOSEPH G. HUBBS, Perrysville, Ohio. Filed Apr. 19, 1884. (Model.)



Claim.—1. The combination, with the hive A, provided with the doors C, C', and D, of the brood-chambers G G, and the comb-frame box K', removably secured within the hive and surrounded on three sides by the wire screen U, extending from the bottom of the comb-frame box to the roof of the hive A, substantially as specified.

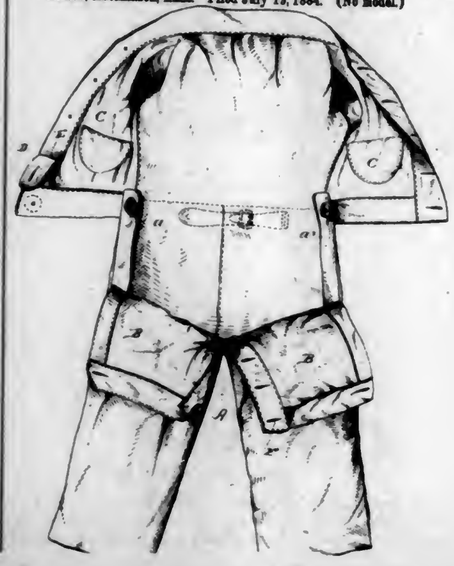
2. The combination, with the comb-frame box K', having a bottom opening provided with a cross-rod and a tin-lined cover, of the notched tin separating-slats and the honey-boxes, substantially as specified.

3. The combination, with frame A, the brood-chambers G G, and the bench Q, of the comb-frame box K', provided with a metal bottom strip having perforated projecting ends, the eye-rods securing the strip to the bench, the hook-rods suspending the opposite ends of the comb-frame box from the roof, and the wire screen U, substantially as specified.

4. In a bee-hive, the combined frame-box comprising the tin separating-strips, two or more honey-boxes fitted together in the space inclosed by each two strips, and a hinged tin-lined cover made in sections, so that either one of the sections may be raised to permit the withdrawal of the boxes separately from the box, as set forth.

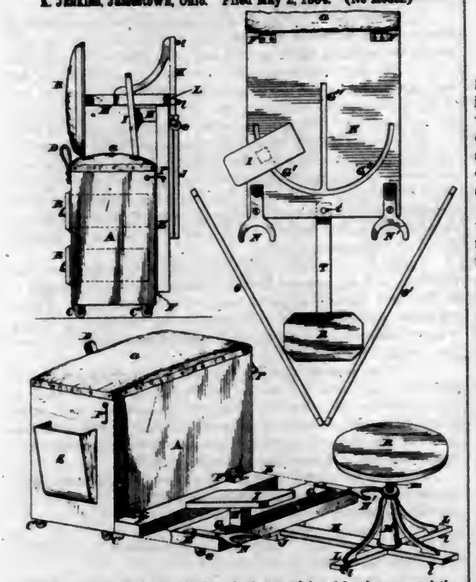
5. In a bee-hive, the combination, with the outer casing of the hive provided with a door, D, of the comb-frame box K', detachably suspended within the casing adjacent to and on a line with the door, and a wire screen, U, surrounding the comb-frame box on three sides, as and for the purpose set forth.

315,506. COMBINED BLOUSE AND PANTALOON-OVERALLS. S. JACOBS, Hutchinson, Kans. Filed July 19, 1884. (No model.)



Claim.—As an improved article, a combined pair of pants and a blouse, the rear of which is formed continuous, and the front of the blouse separated from and adapted to overlap the front of the pants, and provided with a tag, as D, for connecting the same, the said pants having the vertical lateral flaps *a a*, provided with a button at their upper ends, and the falling front composed of the parts B B, which open well into the legs, and are adapted to be buttoned at their outer and adjacent edges, respectively, as shown and described.

315,507. SHOE-DEALER'S STOOL AND FOOT SUPPORT. GEORGE K. JENKINS, Jamestown, Ohio. Filed May 2, 1884. (No model.)



Claim.—1. A boot and shoe dealer's article of furniture, consisting of the customer's seat A, platform E, foot-rest I, and coupled salesman's stool R, all combined in a single structure, for the purpose specified.

2. A boot and shoe dealer's article of furniture, consisting of the customer's seat A, hinged platform E F F, foot-rest I, guide J, arm K, and salesman's stool R, all combined in a single structure, for the purpose specified.

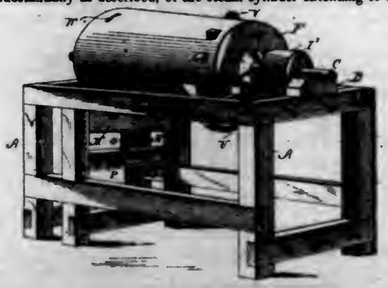
3. A boot and shoe dealer's article of furniture, consisting of the customer's seat A, platform E, provided with groove G and foot-rest I, mounted therein, and the salesman's stool R, coupled to said platform, all combined in a single structure, for the purpose specified.

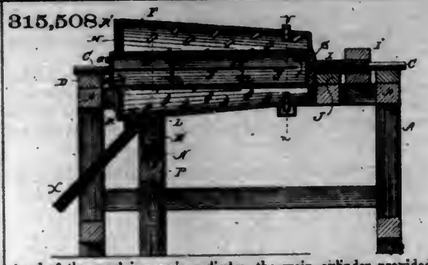
315,508. GRAIN-DRIER. ELLIOTT W. JOHNSON, Tumassburg, N. Y., assignor to Mary E. Johnson, same place. Filed June 3, 1884. (No model.)

Claim.—1. The combination, in a grain-drier, with a steam-cylinder, of a partition extending nearly the entire length of the same and dividing said cylinder into two compartments having communication at one end, port-heads located in said compartments and having holes or openings, and an inlet and outlet opening communicating with said compartments, substantially as set forth.

2. In a grain-drier, the combination, with a stationary steam-cylinder, of a grain-cylinder inclosing the same, a series of radially-arranged buckets on said grain-cylinder, a discharge-opening, and a series of interiorly-arranged conveyers, substantially as set forth.

3. The combination, with the frame having bearings and vertical guides substantially as described, of the steam-cylinder extending to the

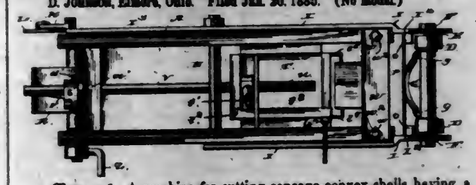




head of the revolving grain-cylinder, the grain-cylinder provided with inclined grain-buckets extending within the cylinder, as described, conveyer-cleats on the interior of said cylinder except near the grain-discharge, a grain-discharge opening located at one end of the cylinder, the semicircular feed-trough located adjacent to the other end of the cylinder, and adjustable back heads, and mechanism, substantially as described, for adjusting the tail of the rotary cylinder, as set forth.

4. The combination, with the frame and revolving cylinder provided with the inclined grain-buckets projecting outwardly from its periphery and extending inwardly for several inches, of the semicircular feed-trough beneath the revolving cylinder, substantially as specified.

315,509. MACHINE FOR CUTTING WOODEN VESSELS. WILLIAM D. JOHNSON, Elmora, Ohio. Filed Jan. 20, 1885. (No model.)



Claim.—1. A machine for cutting concavo-convex shells having a rounded upper edge, the same comprising in its construction an oscillating or revolving shaft having a curved knife which is secured at both its ends to said shaft, and a facing oscillating or revolving knife attached to a shaft whose axis is located parallel with the shaft carrying the curved knife, the knives being so arranged with relation to each other that the path of one is intersected by the path of the other, substantially as described.

2. The combination of the trough, the shaft having spurred pinions, the curved cutter secured to said shaft, the side arms secured to a rock-shaft that is journaled in the trough, and provided with racks for engaging with the pinions, and the cutter that is secured between the pivoted oscillating side arms, substantially as described.

3. The combination of the trough, the shaft having spurred pinions, the curved cutter secured to said shaft, side arms that are secured to a rock-shaft that is journaled in the trough, and provided with racks for engaging with the pinions, a cutter that is secured between the pivoted side arms, and a shaft having a crank and a connecting-rod for oscillating the side arms, substantially as described.

4. The combination of the trough, the driving-shaft, the cam-wheel affixed thereto, the pivoted lever that enters the groove of the cam-wheel, the dog pivoted to the lever, the screw-threaded feed-rod journaled in the trough, the sliding feed-box that engages therewith, and the ratchet-wheel that is fixed to the feed-rod, substantially as described.

5. The combination of the trough, the feed-box that is adapted to slide therein, the threaded feed-rod that is journaled in the trough, and a lever secured to the feed-box, and having a threaded opening that is adapted to be connected to or disconnected from the threaded rod, substantially as described.

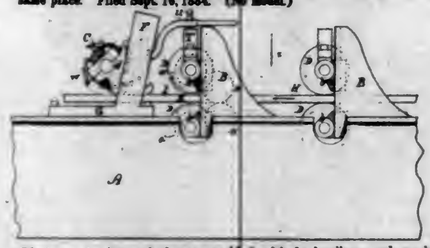
6. The combination of the trough, the shaft having the spurred pinions, the curved cutter secured to said shaft, side arms that are pivoted to the trough and provided with racks for engaging with the pinions, a cutter that is secured between the pivoted side arms, a driving-shaft having a crank and a connecting-rod for oscillating the pivoted side arms, the cam-wheel affixed to the driving-shaft, the pivoted lever that enters the groove of the cam-wheel, the dog pivoted to said lever, the screw-threaded feed-rod journaled in the trough, the feed-box that engages therewith, and the ratchet-wheel that is fixed to the feed-rod, substantially as described.

7. The combination of the trough, the shaft having spurred pinions, the curved cutter secured to said shaft, side arms that are pivoted to the trough and provided with racks for engaging with the pinions, a cutter that is secured between the pivoted side arms, a driving-shaft having a crank and a connecting-rod for oscillating the side arms, the cam-wheel affixed to the driving-shaft, the pivoted lever that enters the groove of the cam-wheel, the dog that is pivoted to said lever, the screw-threaded feed-rod journaled in the trough, the ratchet-wheel fixed thereto, and a feed-

box provided with a lever having a threaded opening that is adapted to be engaged with or disconnected from the threaded feed-rod, substantially as described.

8. The combination of the feed-box having the fixed serrated dog on one side and the serrated dog pivoted to the box on the opposite side, the cam journaled in the side of the box, and connected to the pivoted dog by a loop, and a lever secured to the cam for rotating the cam and moving the pivoted dog, substantially as described.

315,510. **PRESSURE AND FEED MECHANISM FOR WOOD-PLANERS.** JOHN KANE, Rochester, N. Y., assignor to James S. Graham & Co. same place. Filed Sept. 16, 1884. (No model.)



Claim.—1. A wood-planer provided with feed-rollers, each made continuous and of larger diameter at one end than at the other, said larger and lesser parts of the rollers being cylindrical, and the rollers turned or driven by substantially the usual positive-motion mechanism independently of the boards passing between them to urge the boards against the cutters, substantially as set forth.

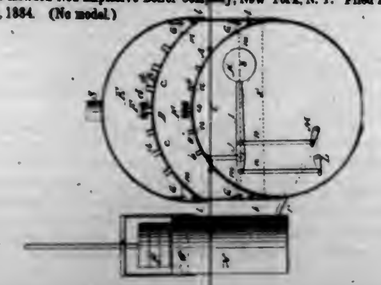
2. A wood-planer provided with cylindrical feed-rollers made larger at one end than at the other, put together in sets or pairs in such manner that the larger ends of the two rollers in either pair shall be adjacent or vertically opposite, while the large ends of the rollers in one pair shall be horizontally opposite the small ends of those in the other pair, said rollers being rotated by positive-motion mechanism independently of the passing boards in substantially the usual manner, substantially as and for the purpose set forth.

3. A wood-planer provided with cylindrical feed-rollers made of larger diameter at one end than at the other, substantially as shown, put together in pairs with the large ends of the rollers of each pair together or vertically opposite, the large ends of the rollers in either pair being horizontally opposite the small ends of those in the other pair, and a pressure-bar provided with a divided shoe for pressing upon the boards as they pass through the planer, each part or section of the shoe being suspended or held so as to independently adjust itself to the surface of the board beneath it, substantially as and for the purpose set forth.

4. A wood-planer provided with cylindrical feed-rollers made of larger diameter at one end than at the other, substantially as shown, put together in pairs with the large ends of the rollers together or vertically opposite, the large ends of the rollers in either pair being horizontally opposite the small ends of those in the other pair, and a pressure-bar formed in independent parts or sections, each provided with a shoe for pressing upon the boards as the latter pass through the planer, each part or section of the pressure-bar being provided with a weighted lever, substantially as and for the purpose set forth.

5. A wood-planer provided with cylindrical feed-rollers made larger in diameter at one end than at the other, substantially as shown, put together in pairs with the large ends of the rollers in either pair adjacent or vertically opposite and horizontally opposite the small ends of those in the other pair, and a pressure-bar formed in independent parts or sections, each provided with a shoe for pressing upon the boards as the latter pass through the planer, each part or section of the pressure-bar being provided with a weighted lever and an adjusting-screw for the latter to regulate the distance the section of the pressure-bar descends, substantially as specified.

315,511. **STEAM-BOILER.** THOMAS KAYS, Newton, N. J., assignor to the Lawson Non-Explosive Boiler Company, New York, N. Y. Filed May 27, 1884. (No model.)



Claim.—1. In a steam-boiler adapted to carry a permanent bulk of water and having a diaphragm or partition dividing the main or upper steam-space from a lower steam and water space, with apertures in said partition of less aggregate area than the opening through which the steam is led from the steam-space to the cylinder of an engine, the arrangement within the steam-space of the boiler, above or beyond said partition, of a second partition or diaphragm, also having openings in it of less aggregate area than the steam-supply opening to the engine, and whereby three consecutive steam-spaces are formed in the boiler, substantially as specified.

2. A steam-boiler having its steam-space divided into a series of consecutive compartments in communication with each other by apertures in the partitions which separate said compartments, the aggregate areas of said apertures increasing for each successive compartment, but the aggregate area of the apertures in each partition being less than that of the opening through which the steam is led from the steam-space to the engine-cylinder, essentially as and for the purposes herein set forth.

3. In a steam-boiler having its steam-space divided into two or more compartments, the separating diaphragm or diaphragms of said steam chambers or compartments studded with small bore tubes of greater length than diameter in or about in the proportions specified and of less aggregate area than the opening through which the steam is led from the steam-space of the boiler to the cylinder of the engine, substantially as and for the purposes specified.

4. The within-described boiler having three steam spaces or compartments, C D E, separated from each other by arched diaphragms A B, fitted with upwardly-projecting tubes *b d*, of different aggregate areas and of less aggregate area in each partition than the opening through which the steam is led from the steam-space to the cylinder of the engine, essentially as specified.

5. The combination, with the outer shell of the boiler and the arched perforated diaphragms A B, dividing the steam-space of the boiler or either of them, of the valves G in the angular spaces formed by the junction of either diaphragm with the sides of the boiler, constructed to pass the steam from their one end when closed, and the blow-off cocks *k*, substantially as and for the purposes herein set forth.

6. The combination of the tubes *b* or *d* and either arched diaphragm A or B, separating the steam-space of the boiler, with the valves G G and blow-off cocks *k k*, essentially as described.

315,512. **SPLINT.** WILLIAM D. KEARNS, Pittsburg, Pa. Filed Feb. 2, 1885. (No model.)

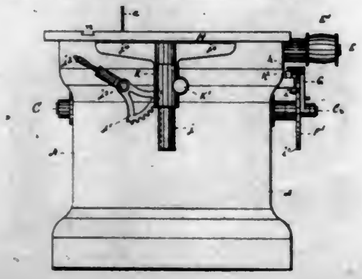


Claim.—1. A dorsal splint for treating fracture of the forearm or wrist, having a suitable brachial surface retroflexed directly at the wrist without substantial depression at that point to extend over the metacarpal dorsal surface of the hand at a retroflexed angle from the forearm, substantially as described.

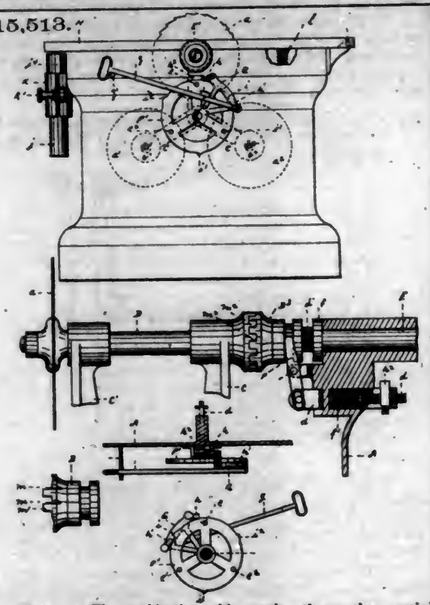
2. A palmar splint for treating fracture of the forearm or wrist, having a suitable brachial surface retroflexed beyond the flexors of the thumb and bent downward at or near the middle joint of the digital phalanges, substantially as described.

3. The combination of a dorsal splint for treating fractures of the forearm or wrist, having a suitable brachial surface retroflexed directly at the wrist without substantial depression at that point to extend over the metacarpal dorsal surface of the hand at a retroflexed angle from the forearm, with a palmar splint made the substantial counterpart of the said dorsal splint, and provided with a retroflexed support for the palmar surface of the hand, substantially as described.

315,513. **CIRCULAR SAWING MACHINE.** RICHARD E. KIDDER, Worcester, Mass. Filed May 10, 1884. (No model.)



315,513.



Claim.—1. The combination, with a series of saw-arbors carried concentrically about a central axis, and having clutches, substantially as described, of the driving-shaft having a sliding clutch adapted to engage the clutches upon the saw-arbors, as and for the purpose set forth.

2. The combination, with a series of saw-arbors arranged concentrically about a central rotating axis, and having clutches, substantially as described, of a driving-shaft having a sliding clutch to engage the several clutches upon the saw-arbors, pivoted fork F, sliding bar *d*, and spring *f'*, by which the sliding clutch on the driving-shaft is held against the engaging clutch upon the saw-arbor, as and for the purpose set forth.

3. The combination, with a series of saw-arbors arranged concentrically about a central rotating axis, and having clutches, substantially as described, of a driving-shaft and sliding clutch thereon adapted to engage the several clutches on the saw-arbors, springs *d'*, held between the sliding clutch and a fixed collar, *f'*, on the driving-shaft, pivoted fork F, and connected sliding bar extending through the frame, whereby the sliding clutch may be disconnected from the clutch upon the saw-arbor, as and for the purpose set forth.

4. The combination, with a series of saw-arbors arranged concentrically about a rotating axis, and a driving-shaft, with means of connecting said driving-shaft with said saw-arbors, of a locking-wheel, F', attached to said rotating axis, and having a series of holes, *e e' e²*, to receive the end of a sliding bar or pin in the frame, said holes being so arranged in the rim of the locking-wheel relatively with the positions of the several saw-arbors that locking the wheel F' by any one of the holes *e e' e²* will hold the corresponding saw-arbor in axial line with the driving-shaft, as and for the purpose set forth.

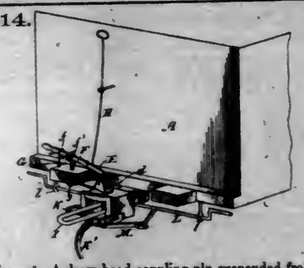
5. The combination, with a series of saw-arbors arranged concentrically about a rotating shaft, and a driving-shaft so placed that the successive saw-arbors may be brought into axial line therewith, with means for connecting the driving-shaft and the opposing saw-arbor, of the locking-wheel F', having holes *e e' e²* and teeth *i i' i²*, the sector G, carrying pawls *h* and *h'*, and sliding bar *d*, entering the holes in the wheel F', actuated by a spring suitably connected therewith, and having a wedge-shaped block, h^2, as and for the purpose set forth.

6. The combination of a rotating shaft, C, carrying a series of saw-arbors arranged concentrically about said shaft, and having an attached locking device, whereby the shaft C may be securely locked in position, shaft E, carrying driving mechanism which may be connected or disconnected with a saw-arbor brought into axial line therewith, and means connecting the driving mechanism on shaft E and the locking devices on shaft C so they will be operated conjointly, as and for the purpose set forth.

7. The combination, with the driving-shaft E and a series of saw-arbors, D, carried in a revolving frame or spider, whereby each of the saw-arbors may be brought in line with said driving-shaft, of a toothed clutch, D^2, having springs *m* between the teeth, as described, and for the purpose set forth.

315,514. **CAR-COUPLING.** OSMAN S. KING, Painesville, Ohio. Filed July 23, 1884. (No model.)

315,514.



Claim.—1. A draw-head coupling-pin suspended from a lever having its outer end engaging under a pin, *f*, projecting from the car-frame, in combination with a locking-lever, G, pivoted about the middle of its length to the frame, and having its end G' connected with the draw-head, substantially as described.

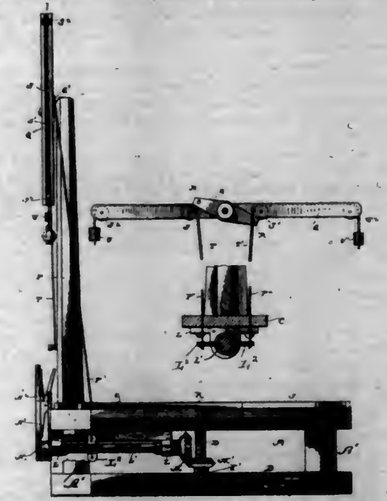
2. The combination of a draw-head, its coupling-pin, and operating-lever E with the standard F and locking-pins *f* and *f'*, substantially as and for the purpose described.

3. The combination of a draw-head, its coupling-pin, stirrup *d*, and bail *d'* with the lever E, its standard F, and locking-pin *f*, substantially as and for the purpose described.

4. The combination of a draw-head provided with a link-supporting bail-piece, K, its curved arm K', connecting-rod, and crank-lever with the coupling-pin D, lever E, and the lever G, connected to the draw-head, substantially as described.

315,515. **RAILROAD CROSSING AND TARGET.** JAMES W. KOEHLER, Greenville, Pa. Filed Sept. 10, 1884. (No model.)

Brief.—A turn-table mounted upon a vertical shaft has a gear-wheel which meshes with a like wheel upon a horizontal shaft. An upright post carries a target with lanterns for night use, and said target is connected with the horizontal shaft in such a way as to turn with it and indicate by its position which way the turn-table is placed.



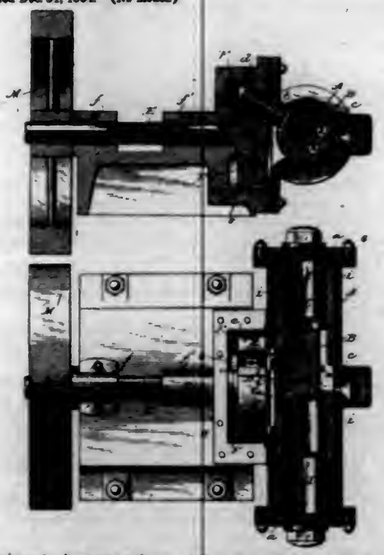
Claim.—1. The combination, with the bed-plate B and top plate, C, provided with the annular depression E, and connected by intermediate knees, of the vertical central shaft, with a miter-gear at its lower end and the turn-table at its upper end, the horizontal shaft, with a miter-gear engaging the miter-gear of the vertical central shaft, the lever, spring-pawl, and rack, the target-pole, target-lever having plate Q' and pulleys S S' S^2, connecting-wires P' P^2, and the cords and weights, substantially as specified.

2. The combination, with the bed-plate, connecting-knees, and the top plate having the annular depression in its upper face and the track-sections around said depression, of the vertical shaft having the miter-gear at its lower end, the horizontal shaft having the miter-gear at its inner end, and the lever, spring-pawl, and rack at its outer end, the target-lever with plate Q', the connecting-wires, and the weighted cords, substantially as specified.

3. The combination of the turn-table, the horizontal shaft having projecting arms, gears connecting said shaft with the turn-table, and a lever for actuating the shaft, the target-pole, the target-lever pivoted thereto, and connected to the arms of the horizontal shaft, whereby the

target-lever will be moved when the turn-table is shifted, substantially as described.

315,516. STEAM-ENGINE. WILLIAM J. LANE, Poughkeepsie, N. Y. Filed Dec. 31, 1884. (No model.)



Claim.—1. A steam-engine consisting of a cylinder provided with induction and eduction ports, a piston working therein having corresponding ports, a crank-shaft set in bearings at right angles to the piston, with a crank connected to a wrist-pin fixed in the piston, substantially as described.

2. In a steam-engine, a cylinder having induction and eduction ports, a piston working therein, and having corresponding ports opened and closed by the longitudinal and rotary reciprocation of the piston, and a wrist-pin fixed in the piston and connected directly to the crank, substantially as described.

3. In a steam-engine, a cylinder having an induction-port and a substantially elliptical side opening, a piston having induction and eduction ports arranged to take steam by the lateral and longitudinal reciprocation of the piston, and by the same movements to exhaust through said elliptical opening, and a wrist-pin fixed to the piston and moving in the elliptical opening, said wrist being connected to the crank-shaft, substantially as described.

4. In a steam-engine, a cylinder having an induction-port and a substantially elliptical side opening, a piston having induction and eduction ports arranged to take steam by the lateral and longitudinal reciprocation of the piston, and by the same movements to exhaust through said elliptical opening, a wrist-pin fixed to the piston and moving in the elliptical opening, said wrist-pin being connected directly to the crank, and an exhaust-chamber covering the elliptical opening and inclosing the crank, all substantially as described.

5. In a steam-engine, a piston having chambered ends and a solid center carrying a wrist-pin, and having also ports with corresponding ports and a wrist-pin aperture in the cylinder, substantially as described.

6. In a steam-engine, a piston having chambered ends and a solid center carrying a wrist-pin, and having also ports with corresponding ports and a wrist-pin aperture in the cylinder, and inwardly-projecting cylinder-heads to reduce clearance, substantially as described.

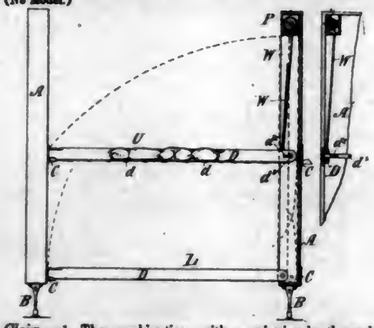
7. In a steam-engine, a cylinder having an induction-port, *e*, and an aperture, C, a piston having a wrist-pin set therein and projecting through the aperture C, induction-ports *k k'*, having elongated mouths, and eduction-ports *l l'*, arranged to move across the aperture C as the piston reciprocates.

8. In a steam-engine, an automatic cut-off consisting of a rotary cylindrical valve having ports on its opposite sides, said valve being located in a cylinder in the steam-supply passage, and connections between said valve, and a governor arranged to cause the valve to rotate in unison with the movement of the induction-valve at a prescribed rate of speed of the engine, and to move in advance of the induction-valve when the speed of the engine exceeds the prescribed limit, substantially as described.

9. In combination with the induction-port e and piston and its cylinder-ports, the cylinder, and rotary valve *q*, having ports 7 7, the governor, and the connections between the governor and the valve *q*, all substantially as described.

10. In combination with the cylinder and piston and the wrist-pin set in the side of the piston, a crank connected to said piston, and an exhaust-chamber inclosing the crank, having a port for discharging steam therefrom situated above the lowest part of the circle described by the path of the crank, substantially as described.

315,517. BERTH FOR SLEEPING-CARS. GUSTAVE LEVE, New York, N. Y., assignor to Ferdinand S. M. Blun, same place. Filed Aug. 20, 1884. (No model.)

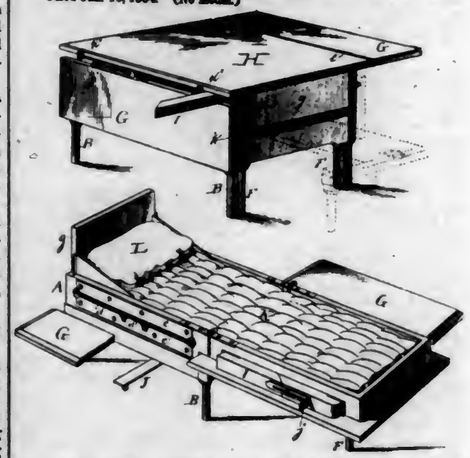


Claim.—1. The combination, with a swinging-berth cupboard, of a berth-frame made up of side rails, D D, and cross bars and slats, a spring-pulley attached to said cupboard, a cord working on said pulley and attached to said berth-frame, and means for holding the latter in a horizontal position, substantially as specified.

2. The combination, with the swinging-berth cupboard A, of the bracket or support B, hinged thereto, said bracket having adjustable sleeve b^4 and a sliding bolt, substantially as and for the purpose described.

3. The combination, with the cupboard A, of the rail-support C, having hinged flap c^4, adapted to fold up flush with the cupboard-face, substantially as and for the purpose set forth.

315,518. COMBINED TABLE AND BED. ISAAC LEVY, Chicago, Ill. Filed Jan. 16, 1884. (No model.)



Claim.—1. The combination, with hinged frames A H and leaves G, provided with pins *e*, of plates *c c'*, secured to one frame, plate *c'* provided with notches *d'*, as set forth.

2. The combination, with hinged sections A H, of adjustable frame E, provided with legs F and hinged end piece, *k*, as and for the purpose set forth.

3. The combination, with the hinged sections A H, of adjustable frame E, provided with lug *b*, legs F, and hinged end piece, as and for the purpose set forth.

4. The combination, with frame A, provided with bottoms C D, and frame H, hinged to frame A, of adjustable frame E, provided with legs F and hinged end piece, *k*, frame A provided with a recess for piece *k*, as set forth.

315,519. ARTIFICIAL LIMB. WILLSHIRE LOCKWOOD, St. Louis, Mo. Filed Jan. 3, 1885. (No model.)

Claim.—1. The combination, in the ankle-joint of an artificial leg, of a round hollow shell, A, which is made in two parts screwed together

315,519.

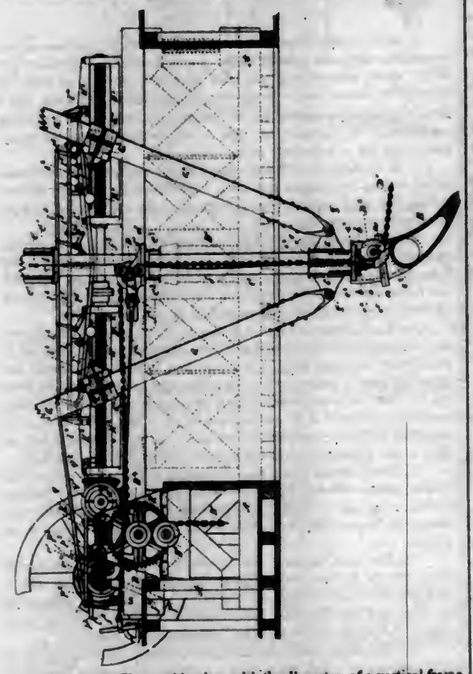


with the two rods D D, with semi-globular heads B B, inclosed in the shell-cavity, all substantially as described, and for the purpose specified.

2. The combination, in an artificial leg, of the three tendons T T T, with spherical or rounded ends X X X, and the hollow sockets C C C, substantially as described, and for the purpose specified, as set forth.

315,520. SUBMARINE ROCK-BREAKER. THOMAS F. LOONEY, East New York, N. Y. Filed June 14, 1884. (No model.)

Brief.—A rock-breaker is reciprocated vertically by toggle-bars, (hinged to a vertical frame carrying each breaker and having guides on the float or scow,) which are spread or approached to each other by right and left hand screws having driving-gear and reversing clutch, and playing through nuts swiveled to boxes through which the toggle-bars pass, and in which they are held in adjustment by weighted lever-clamps engaging racks on the bars, and having cross-rods and rollers running on rails or frames controlled by bell-cranks, links, rods, and hand-levers to control the clamps. A chain for advancing the scow runs from an anchor under a pulley on the breaker to a windlass driven by "fast" or "slow" gear to "take in" or "pay out," respectively. A hinged clamp on the breaker locking this chain thereto may be controlled by a spring-held frame and a cord leading around two fixed and one movable pulley. The latter has a lever controlling it, and thus the chain.



Claim.—1. The combination, with the disrupter, of a vertical frame to which the same is attached, a float, guides upon the float for the frame, an anchor, a chain passing from the same, a wheel on the frame, beneath which the chain passes, and a wheel on the float over which the chain passes to the windlass, substantially as set forth.

2. The disrupter, the frame for the same, the chain D', and its chain-wheels, in combination with a clamp upon the frame for grasping the chain and raising the disrupter and frame, substantially as set forth.

3. The combination, with the disrupter, its frame, chain, and chain-wheels, of a hinged clamp, a sliding frame for opening or closing the clamp, a spring to force down the frame, and a chain to raise the same, substantially as set forth.

4. The combination, with the disrupter, its frame and chain-wheel, of the hinged clamp, the chain, the sliding frame to open and close the clamp, the chain or wire rope to operate the same, and the pulleys $f' f^3 f^4$, and lever for moving the pulley f^3, substantially as set forth.

5. The combination, with the disrupter and its frame, of the hinged toggle-bars, the racks upon the bars, the boxes receiving the bars, and lever-clamp mechanism acting against the rack-teeth, the trunnions, nuts, right and left handed screws, and mechanism for rotating such screws, substantially as set forth.

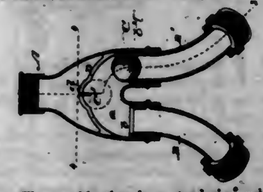
6. The toggle-bars, racks, boxes, and clamps in combination with the weighted levers to operate the clamps, the cross-shafts, rails, and means for raising and lowering the rails to actuate the clamps, substantially as set forth.

7. The combination, with the toggle-bars, boxes, and clamps, of the levers k', the cross-bar k^4, the rollers l, rails l', and bars l^3, the bent levers l^4, links l^5, rods l^6, and actuating-lever l^7, substantially as set forth.

8. The disrupter, its frame, the toggle-bars, nuts, and right and left handed screws, in combination with the gearing for actuating the screws and the coupling for disconnecting and connecting the reversing-gear, substantially as set forth.

9. The combination, with the disrupter and its frame, of the float, the guide for the frame, the chain, the chain-wheels, the chain-windlass, and the gearing for giving a slow powerful movement in drawing in the chain and a more rapid movement in paying out the chain, substantially as set forth.

315,521. INLET-NOZZLE FOR STAND-PIPES. SIMEON LORD and WILLIAM H. DAILEY, St. Louis, Mo. Filed July 7, 1884. (No model.)

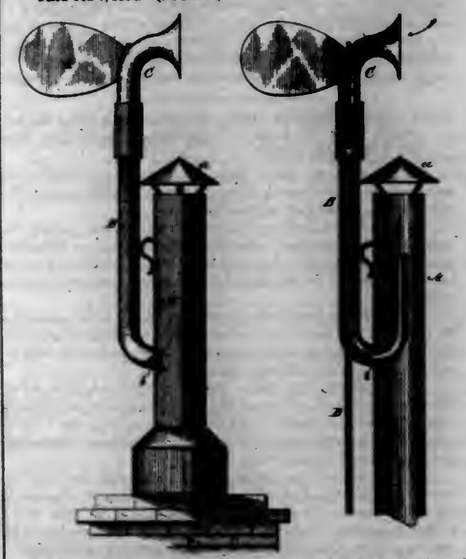


Claim.—1. The combination, in a stand-pipe, substantially as described, of the chamber *a*, the inlets B B', having, respectively, the valve-seats *b b'*, the ball-valve C, and the guard D.

2. The combination, substantially as described, of the chamber *a*, the inlets B B', having, respectively, the valve-seats *b b'*, the ball-valve C, and the guard D, curved upward in the chamber.

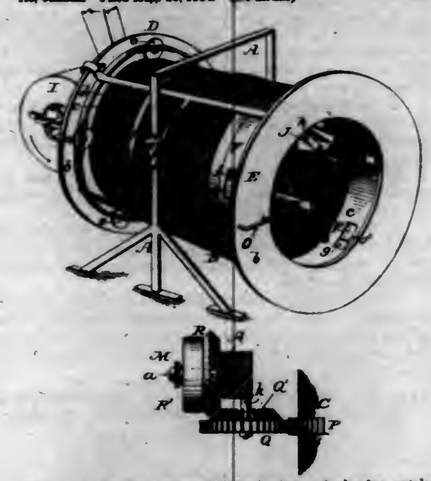
3. The combination, substantially as described, of the chamber *a* in the pipe, the inlets B B', having, respectively, the valve-seats *b b'*, the ball-valve C, and the guard D, curved upward, and also having the pocket *d*.

315,522. VENTILATOR. CHARLES B. LOVELESS, Worthington, Miss. Filed Oct. 7, 1884. (No model.)



Claim.—In a ventilator, the combination, with a discharge-pipe, of a suction-pipe extending above it and provided with a revolving cowl, and at or near its lower end with an induction-tube of less diameter than the suction-pipe, substantially as and for the purpose specified.

315,523. GRAIN-CLEANER. FREDERICK M. LYNETT, Toronto, Ontario, Canada. Filed Aug. 29, 1884. (No model.)



Claim.—1. In combination with main frame A, having notched plate N, rocking frame B, provided with spring-lever M, having stud *i* to enter the notches of the plate, and screen C, supported and adapted to rotate within frame B.

2. In combination with a rotary cylindrical screen, spiral conveyer-blades secured to the interior walls thereof, buckets extending from one blade to another, stationary scattering-plates located within the cylinder and adapted to spread the material raised and deposited upon them by the buckets, and a fan arranged, substantially as described and shown, to produce a current of air through the cylinder.

3. In a screening apparatus such as described, the combination of a rotary screening-cylinder having end plate, *b*, partially closing the discharge end of the cylinder, hoop *c*, provided with outlets *f*, encircling-band F, provided with outlets *g*, and fan I, said parts being constructed and arranged substantially as shown and described, whereby the material operated upon may be held for any desired length of time under the action of the fan.

4. In combination with a stationary frame, A, a rocking frame, B, provided with a lateral axle, *k*, and having trunnions *a* journaled in said stationary frame, a driving-wheel, R R', journaled upon one of the trunnions *a*, a rotary cylindrical screen, C, provided with gear-ring P, and gear-wheel Q Q', mounted upon axle *k*, and serving to transmit motion from the driving-wheel R R' to the screen, the parts being arranged substantially as described and shown, whereby the adjustment of the screen may be varied without changing the position of the driving-wheel.

315,524. ELECTRIC LAMP. MIRABEAU N. LYNN, Rising Sun, Ind., assignor to the Ohio Power and Light Company, Dayton, Ohio. Filed Nov. 5, 1883. (No model.)

Claim.—1. In an electric lamp, the sectional and slotted guide secured to the vertical post by the bent arm, in combination with the carbon-carrier, substantially as described.

2. In an electric lamp, and in combination with the carbons, the carbon-carriers, intermediate connecting mechanism, and the differential pulleys, the fusee, barrel, and connecting mechanism, whereby a constant and uniform feeding force is applied to the pulleys, substantially as described.

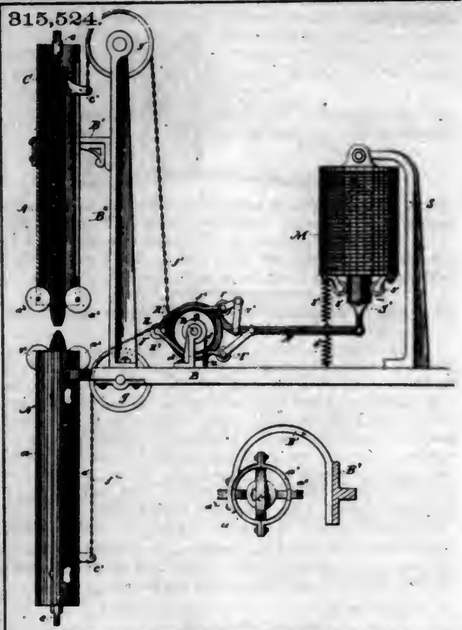
3. As a means for effecting the uniform rotation of the mechanism for controlling the feed of the carbons, and in combination therewith, the fusee, barrel, and operating-spring arranged to operate upon the carbon-feeding mechanism, substantially as described.

4. In an electric lamp, and in combination with the carbon-carriers, the differential pulleys and connecting-chains, a spring-motor operating with a constant and uniform force to feed the carbons, and a brake actuated by an electro-magnet and operating in opposition to the spring-motor, substantially as described.

5. In an electric lamp, and as a means for effecting the feed of the carbons and formation of the arc, a rotating drum with which the carbon-carriers are connected, a spring-motor operating upon said drum with a uniform power, and a brake actuated by an electro-magnet operating upon said drum in opposition to the spring-motor, substantially as described.

6. In an electric lamp, and in combination with the rotating drum, differential pulleys, connecting-chains, and carbon-carriers, the fusee, and barrel located within the drum and geared thereto, substantially as described.

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7. In an electric lamp, and in combination with the carbon-carriers, connecting-cords, and rotating drum provided with the differential pulleys, a spring-motor acting upon said drum in a direction to cause the approach of the carbons, a brake-rim, also applied to said drum, and a friction-brake and actuating electro-magnet, said brake being applied in opposition to the spring-motor with a force proportional to the resistance of the arc, substantially as described.

8. In combination with the rotating drum, attached carbon-carriers, spring feeding mechanism, and brake mechanism, the balanced carbon-carriers, the small pulleys, reversely-wound cords, and attached springs, substantially as described.

9. In an electric lamp, and in combination with the rotating drum, attached carbon-carriers, and feeding mechanism, the lever carrying the links, friction-rollers, and the rubber roller, substantially as described, said rollers operating on a brake-rim attached to the drum and the lever operated by an electro-magnet, as and for the purpose set forth.

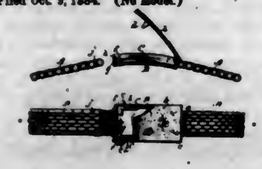
10. In an electric lamp, as a means for controlling and effecting the movements of a drum to which the carbon-carriers are attached, and in combination with said drum, a lever operated by an electro-magnet and supported upon a brake-rim by two rollers, one journaled in the lever and the other in a supplemental lever pivoted at one end to the first-mentioned lever and at the other connected by a link, and a third lever connected to the first-mentioned lever and carrying a friction-clamp applied to and operating upon the brake-rim, substantially as described.

11. In an electric lamp, the combination of the carbon-carriers, the tubular guides within which they move back and forth, the friction-wheels on the carriers, and the friction-wheels mounted on the tubes and adapted to support the inner ends of the carbons, substantially as described.

12. The combination of the tubular guides in which the carriers work with the carriers having the arms projecting through the slots in the tubes, the cords to which said arms are connected, the pulleys and the shaft, and the differential pulleys for imparting to the carriers simultaneous motions of different degrees, substantially as described.

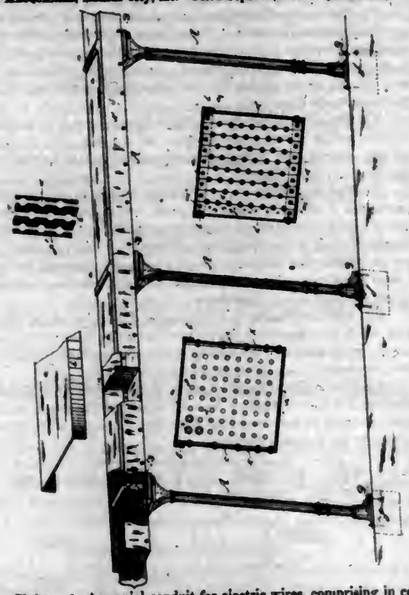
13. The combination, with the movable carriers and the main shaft, of the pulleys by which the carriers are given simultaneous though unequal motions, the drum mounted on said shaft, and the fusee and barrel motor connected to said drum, substantially as described.

315,525. CHAIN BRACELET. WILLIAM I. MACOMBER, Providence, R.I. Filed Oct. 9, 1884. (No model.)



Claim.—In a bracelet, the combination of the chain A, the box B, secured to one end of the chain and provided at its forward end with the catch-piece *g*, having upright pins A, adapted to enter the spaces between the links of the chain, the hinged cover *b*, closing downward in the direction of the chain, and provided at its under side with the opposite hooks, *d d*, the oppositely-arranged springs C C, provided with a projecting stud, *e*, and adapted for locking engagement with the hooks *d d*, which are held between the springs C C and the sides of the box, substantially as described.

315,526. AERIAL CONDUIT FOR ELECTRIC WIRES. DONALD B. MACQUARRIE, Kansas City, Mo. Filed Sept. 22, 1884. (No model.)



Claim.—1. An aerial conduit for electric wires, comprising in combination a continuous chamber opening upward, a cover therefor removable in sections, and a series of posts or columns which support the continuous chamber and are provided with laterally-extending flanges or projections for supporting the cover during access to the chamber, substantially as described.

2. The combination, with the metallic side sheets, K, and the flanged bottom sheet, K', of the rectangular plate *g*, rigidly secured to each sheet, and provided with perforations *d*, substantially as described.

315,527. COMPENSATING PENDULUM. AIMÉ MAILLÉ, Boston, Mass. Filed July 5, 1884. (No model.)



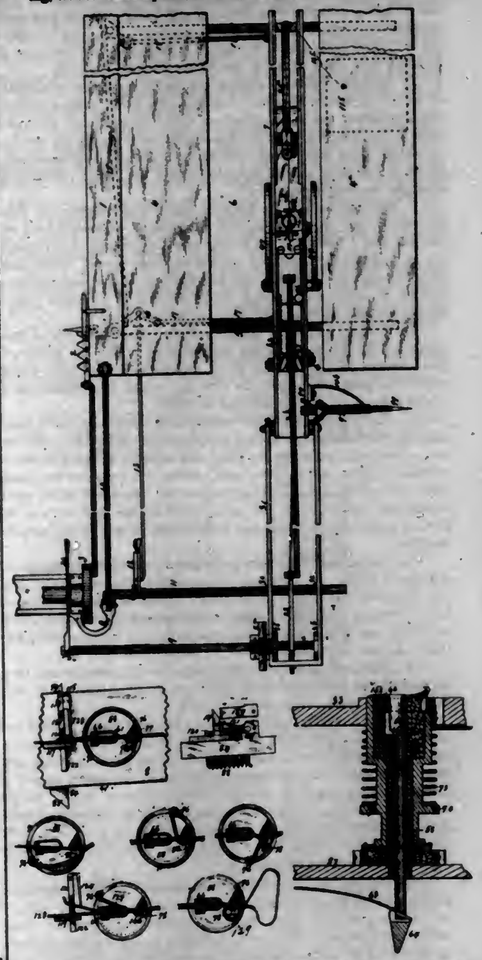
Claim.—1. In a compensating pendulum, the combination, with the supporting-bars having different rates of expansion, of the weight-sustaining levers and adjusting device operating upon the said bars, whereby the lever-arms are adjusted simultaneously, substantially as described.

2. The central and side bars having different rates of expansion, combined with the weight-sustaining levers, and the adjusting-screw passing through the three bars, having oppositely-inclined threads engaging the side bars, and having a rotary without longitudinal movement in the central bar, substantially as described.

3. The central and side bars having different rates of expansion, combined with the weight-sustaining levers, and adjusting-screw passing transversely through the lower ends of the bars, as described, and device for taking up the lost motion at the screw-threads, substantially as and for the purpose described.

4. In a compensating pendulum, the combination of the central and side bars with the levers *a*, pins *p* and *f*, rods *g*, yoke *r*, and weight or pendulum-bob, substantially as described.

315,528. GRAIN-BINDING MACHINE. SIMON L. MCCULLOCH, Wheeling, W. Va. Filed Apr. 26, 1883. (Model.)



Claim.—1. The combination, in a self-binding harvester, of the grain-receiving platform provided with a slot or opening parallel with the finger-bar, with a grain gathering, bundling, and binding mechanism, which reciprocates in said opening and is adjustable laterally therein, substantially as and for the purposes set forth.

2. The combination, in a self-binding harvester, of a platform with a grain-binding device which reciprocates across said platform at right angles to the fall of the grain, and a guide-trough supported from the finger-bar of the machine in which said binding device reciprocates, substantially as and for the purposes set forth.

3. A self-binding harvester having its platform and grain-binding mechanism sustained by the finger-bar, substantially as and for the purposes set forth.

4. The combination, in a self-binding harvester, of a finger-bar, with a grain-platform and binder mechanism sustained by said finger-bar, and devices for adjusting the binder mechanism fore and aft relatively to the finger-bar, substantially as and for the purposes described.

5. The combination, in a self-binding harvester, of a reciprocating binding mechanism carrying an oscillating binder-arm, with independent compressing-fingers which oscillate in a vertical plane at right angles to the fall of the grain and in opposition to the encircling movement of the binder-arm, substantially as and for the purposes described.

6. The combination, in a self-binding harvester, of a reciprocating binding mechanism having an arm for gathering the bundle of grain, with a pair of independent oscillating compressing-fingers adapted to press the bundle of grain inside of the path of the outer end of the gathering-arm, so that the latter will not catch on the bundle, substantially as and for the purposes described.

7. The combination, in a self-binding harvester, of a reciprocating binding mechanism having an arm for gathering the bundle of grain and encircling the same with the band, with independent pivoted elastic compressing-fingers which oscillate in a vertical plane at right angles to the fall of the grain and in opposition to the inward movement of the gathering-arm, substantially as and for the purposes described.

8. In mechanism for gathering and binding grain, the combination of a traveling carrier provided at one end with a cord holding and knotting mechanism, and on the other end with a reciprocating grain gathering and binding arm having a presser-foot for delivering the spool end of the cord to the holding and knotting mechanism, and compressing-fingers oscillating on an axis on the guide-frame of the carrier, substantially as and for the purposes described.

9. The combination of a traveling carrier which sustains the holding, cutting, and tying devices, with a binder-arm pivoted thereto and provided with a heel-extension having lateral projections, and a trough, box, or guide having ways and stops in the sides thereof, which, operating in conjunction with the lateral projections of the heel-extension, give the necessary movements to the binder-arm to cause it to encircle the grain, substantially as and for the purposes described.

10. The combination of the reciprocating binder-arm and its heel-extension with the trough having guideways for raising the binder-arm into a position for gathering the grain, and stops for throwing it over to encircle the grain, and a spring for throwing it back to release the sheaf, substantially as and for the purposes described.

11. The combination of the reciprocating binder-arm and its heel-extension with the trough having guideways for raising the binder-arm into a position for gathering the grain, and stops for throwing it over to encircle the grain, and weighted pawls at the outer ends of the guideways over which it passes during its backward movement, which pawls depress the heel-extension and cause it to enter the guideways on the forward motion of the binder-arm, substantially as and for the purposes described.

12. The combination of the oscillating lever which actuates the reciprocating carrier and its binder-arm, provided with a segmental gear, with a pivoted lever, also provided with a segmental gear and connected to the vibrating compressor-fingers, which operate in conjunction with the binder-arm to form the gavel for the purpose of communicating a vibration thereto, substantially as and for the purposes described

13. The combination of the oscillating lever 23, provided with teeth 55, with the lever 50, having geared segment 53 and spring 54, substantially as and for the purposes described.

14. In a tying mechanism, a rotary barrel or casing notched and provided with a pin or hook, as described, in combination with a stationary standard inclosed thereby and having a notch corresponding with the notch in the barrel, a vertically-projecting pin or hook, a groove or recess extending around the standard from the base of the pin, the pin or hook on the barrel being arranged on the side of the notch opposite to the pin on the standard, and devices for laying the cord between the pins or hooks and holding it during the tying of the knot, substantially as and for the purposes described.

15. The combination of a stationary standard, notched as described, having a pin projecting from its end off the center and in line with its axis, and a groove around it for receiving the cord, a notched rotary barrel surrounding said standard and having a coacting hook arranged on the side of the notch opposite to the stationary pin, devices for laying and holding the binder-cord across the top of the standard between the two pins or hooks, a pinion arranged on the barrel and meshing in a rack adapted to give the barrel a rotation, and a spring mounted on the barrel to retract it after the rack ceases to operate, substantially as and for the purposes described.

16. The combination of the slotted post 117 with laterally-reciprocating spring gripping and holding jaws for grasping the leading end of the binding-cord, substantially as and for the purposes described.

17. The combination of the laterally-reciprocating holder having a lower rigid jaw and a shorter upper spring-jaw, with a recessed, perforated, or slotted post, into and out of which the spring-jaw passes, to enable it to grasp and release the cord, and a knife which reciprocates with the holder and severs the cord at the instant the holder grasps the same in a new place, substantially as and for the purposes described.

18. The combination of the trough with the carrier reciprocating therein, the laterally-moving holder and cutter-slide mounted in the carrier and having an inclined end, a tripping-pawl mounted on the trough in the path of the inclined end, for actuating the slide, and devices for restoring the slide to position, substantially as and for the purposes described.

19. The combination of the traveling carrier moving in a guide-trough, the tying mechanism mounted on the carrier and provided with an axially-moving stem carrying a hook for completing the knot, a spring connected with the stem for holding it in a depressed position, a wedge-shaped block attached to said spring, and a tripping-pawl supported by the guideways in the path of the wedge-shaped block on the spring and coacting therewith so as to raise and project the stem during the inward movement of the carrier, and to permit it to pass freely over it without raising the stem during the outward movement of the carrier, substantially as and for the purposes described.

20. The discharging-spear having an arm projecting into the path of the carrier, in combination with the traveling carrier provided with a tripping-post for striking the arm of the spear to turn it with its shaft, and a retracting-spring for bringing it back to its normal position, substantially as and for the purposes described.

21. The combination of an oscillating discharging-spear having an arm projecting into the path of the carrier, with the traveling carrier having a projecting arm or tappet which strikes the rear arm or projection of the spear in the passage of the carriage, and thereby causes it to turn on its bearings, substantially as and for the purposes described.

22. The bundle-discharging spear mounted upon a vertical oscillating shaft journaled at the side of the carrier-frame and capable of a longitudinal movement in its sheath and an oscillating movement with its shaft, in combination with a projection spring and a guide for forcing it back into the sheath against the projection spring, substantially as and for the purposes described.

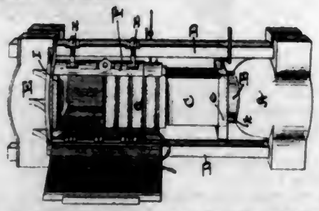
23. The discharging-spear having a projecting arm, in combination with the carrier having a tripping-post, and a spring, 107, for throwing the arm into the path of the carrier, substantially as and for the purposes described.

24. The combination, in a self-binding harvester, of a grain-binding mechanism which reciprocates in a guide or trough across the platform and is capable of adjustment relatively to the finger-bar to suit different lengths of grain, levers pivoted to said finger-bar, links or rods connecting said levers with the guide-trough, a rod connecting said levers, and a lever for adjusting the position of the binding mechanism, substantially as and for the purposes described.

25. The combination, in a self-binding harvester, of the finger-bar with rod or bars supported thereby and extending backward therefrom, and the guide-trough of the binding mechanism mounted on said rods or bars, substantially as and for the purposes described.

26. The combination, in a reaper, of the finger-bar with a divided platform, one part of which is fastened directly to the finger-bar and the other sustained by rods extending back from the finger-bar, substantially as and for the purposes described.

315,529. OIL-PRESS. JOHN H. MCGOWAN, Cincinnati, Ohio. Filed Dec. 16, 1884. (No model.)



Claim.—1. In an oil-press, a compress-box adapted to contain the material for pressure built up directly in successive layers provided with a door at one side and with hollow walls, arranged as return-channels for the circulation and distribution of a heating agent around the oil-bearing material during the pressing operation, substantially as set forth.

2. In an oil-press, a compress box or casing having open vertical grooves channeled in its inner sides and provided with vertical lining-bars whose interstices register with said channels, substantially as and for the purpose set forth.

3. A compress-box or casing for oil-presses constructed of two or more sections or segments, in combination with linings composed of vertical slats for the inner sides, with suitable interstices for the out-drainage of the oil between said linings and the casing, as set forth.

4. In an oil-press, a compress box or casing having one or more sides provided with interior openings or channels for the circulation of steam or other heating medium, and a separable side or door similarly provided, substantially as set forth.

5. In an oil-press, a compress box or casing constructed with hollow sides for the circulation of steam or other heating agent, and a hinged door similarly constructed, and a flexible or jointed pipe-connection permitting the opening of the door without destroying said connection, substantially as set forth.

6. In a laterally-imperforated oil-press, a compress box or casing provided with interior vertical drainage-channels opening through the casing below, in combination with a platen-block provided with a drip-gallery arranged beneath the drainage-channels of the compress-box, substantially as set forth.

7. A compress box or casing consisting of two or more segments or sides, said segments or sides being made hollow and provided with division-partitions perforated alternately above and below to constitute a substantially continuous channel throughout for the passage of a heating medium, substantially as set forth.

8. In combination with an oil compress box or casing having removable linings, a block or plate removably secured within the casing to the head or cross-bar of the press, as and for the purpose set forth.

9. In an oil-press, in combination with a compress box or casing provided with vertically-channeled inner surfaces, a division-mat provided with horizontal channels registering with those of the casing, substantially as set forth.

10. In an oil-press, in combination with a compress box or casing provided with interior drainage-channels, a division-mat constructed with drainage-channels at opposite sides extending in different directions, substantially as set forth.

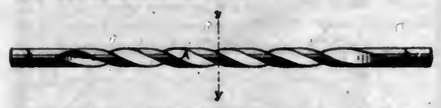
11. In an oil-press, in combination with a compress box or casing provided with interior drainage-channels, a division-mat consisting of a metal plate provided at either or both sides with a series of contiguous slats, the interstices between whose meeting surfaces constitute drainage-channels, substantially as set forth.

12. A division-mat for oil-presses, consisting of a metal plate provided at one or both sides with slats, each alternate slat being removable, substantially as set forth.

13. A compress box or casing for oil-presses, having its inner sides recessed and provided with removable linings filling said recesses and constituting a flush plane surface when in place, substantially as set forth.

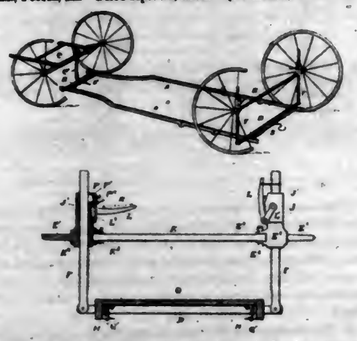
14. In an oil-press, a laterally-imperforate compress-casing having its inner surface provided with continuous vertical drainage-channels opening interiorly, substantially as set forth.

315,530. MANUFACTURE OF DRILLS. SAMUEL MOORE, Providence, R. I. Filed Jan. 23, 1885. (No model.)



Claim.—The method described of manufacturing twist-drills, the same consisting in rolling a blank into the form shown in Figs. 1 and 3, with a shank at each end, and twisting such blank into the form shown in Fig. 5, dividing the same into two equal sections on the transverse line *y y*, to form two drills at each operation from a single blank, as set forth.

315,531. DRAFT-WAGON. GARRARD S. MORGAN and WILLIAM R. MORGAN, Peoria, Ill. Filed Apr. 25, 1884. (No model.)



Claim.—1. In a draft-wagon, the side bars, A, having transverse openings therethrough, in combination with end bars, B D, removable in said openings, and the oppositely-threaded screws S S', connecting with said side bars, A, whereby the same may be brought nearer together or moved farther apart, substantially as set forth.

2. In a draft-wagon, a bed consisting of side bars, A, and end bars, D B, king-bolt C', secured to the end bar B, and passing through the front axle, C, and a jack for vertically adjusting said king-bolt, in combination with the uprights F, pivoted to the ends of the end bar D, openings in the rear axle, E, for receiving said uprights, and jacks J, for adjusting vertically said uprights, substantially as and for the purpose specified.

3. In a draft-wagon, the side bars, A, having transverse openings therethrough, in combination with the end bars, B D, removable in said openings, the oppositely-threaded screws S S', connecting with said side bars, and the platform G, adapted to be held in place between the said side bars, substantially as and for the purpose specified.

4. In combination with the end bars, B D, and side bars, A, removable thereon, the feet H, for the purpose set forth.

5. As a means whereby to raise and lower the notched uprights F and king-bolt C', the sleeve J', notched pawl-block P, spring P', and knob P², in combination with the notched block L², lever L, links L', and cord or wire rope R, as set forth.

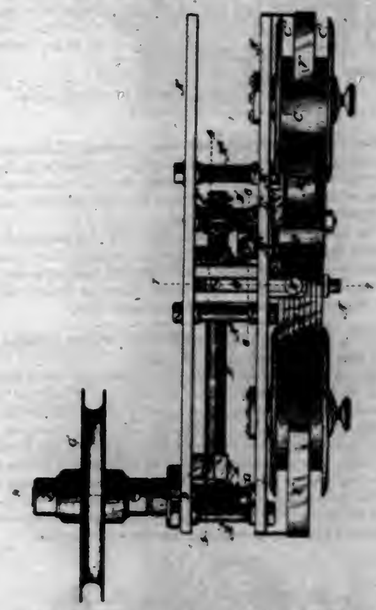
6. In a draft-wagon, the side bars, A, having transverse openings therethrough, in combination with the end bars, B D, removable in said openings, the screws S S', connecting with said side bars, the platform G, and eyes G', projecting therefrom and adapted to receive the feet H of the said side bars, as set forth.

7. In a draft-wagon, a bed consisting of side bars, A, and end bars, B D, in combination with the king-bolt C', secured to the end bar B, and passing through the front axle, C, a jack for vertically moving said king-bolt, the uprights F, joined to the ends of the end bar D, openings in the rear axle, E, for receiving said uprights, jacks for raising said uprights, and means, substantially as shown, whereby the central portion of said axle E may be removed to permit passage from the rear end of the wagon-bed to the center or front thereof.

8. In a draft-wagon, the side bars, A, having transverse openings therethrough, in combination with the end bars, B D, removable in said openings, the elongated nuts S² S², secured to said side bars, the oppositely-threaded screws S S', turning in said nuts, and means for revolving said screws, substantially as and for the purpose specified.

9. The wheel-bearings E', sleeve portions E², bosses E², projecting therefrom, and pins E⁴, in combination with the axle E, as described.

315,532. COMBINED SPRING-MEASURER AND TRACK-INDICATOR. GEORGE W. MORRIS, Pittsburg, Pa., and WILLIAM FRICK, Chicago, Ill. Filed Apr. 19, 1884. (No model.)



Claim.—1. The car-truck, the springs thereof, and the car-body, in combination with a springometer wholly mounted on said truck and provided with a projecting push-rod engaged and actuated by the car-body when jolted, substantially as described.

2. The rigid portion of a car-truck, the springs intermediate the fixed and rigid portions thereof, and a springometer wholly mounted on said portion, in combination with a push-rod engaging with the movable portion of said truck or the car-body, whereby the mechanism of the springometer for indicating the flexure of the springs is actuated, substantially as described.

3. The car-truck, the springs thereof, and the car-body, in combination with a springometer wholly mounted on said truck and provided with a push-rod engaged and actuated by the car-body when jolted, and a belt-connection between the springometer and the truck-axle, substantially as and for the purpose described.

4. A movable carriage, a rack-bar thereon, and a pencil supported by said carriage, in combination with a push-rod, a rack-bar rigidly connected therewith, and a pinion engaging the carriage rack-bar, and in turn actuated by the push-rod rack-bar when the push-rod is depressed from its normal position, substantially as described.

5. The supply and receiving rollers and the record-strip wound thereon, in combination with a feed-roller having a connection with the receiving-roller independent of the record-strip and guide-roller between

said feed-roller and supply-roller; and a pencil, between which and the guide-roller the record-strip travels, substantially as described.

6. The supply and receiving roller and the record-strip wound thereon, in combination with a feed-roller, under and against which the strip travels, a pressure-roller connecting the receiving and feed rollers, and a tension-spring simultaneously actuating the feed and pressure rollers, whereby said latter rollers are maintained in uniform frictional contact, the strip pressed upon the receiving-roller and maintained under tension as it passes thereto from the supply-roller, substantially as described.

7. The supply and receiving rollers, the record-strip wound thereon, and the feed-roller connected with the receiving-roller, in combination with a belt-wheel, an intermediate shaft, and a worm-gear connecting said shaft, feed-roller, and belt-wheel, substantially as described.

8. The supply and receiving rollers, the record-strip wound thereon, the guide-roller, and means for actuating the supply and receiving roller and maintaining the record-strip under tension, in combination with a pencil, a movable carriage therefor, a rack-bar on said carriage, a push-rod and a rack-bar therefor, and a pinion engaging said rack-bar, substantially as and for the purpose described.

315,533. SASH-BALANCE. THOS. MORTON, New York, N. Y. Filed Sept. 13, 1884. (No model.)

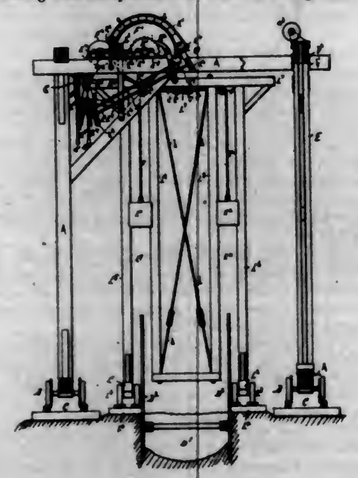


Claim.—1. The herein-described clip for attaching the chain to the weight-securing hook or loop, formed of a single piece of metal in U-shaped form, the arms of the clip being sprung laterally in opposite directions and perforated, so that said arms both face on a line with each other, as and for the purpose set forth.

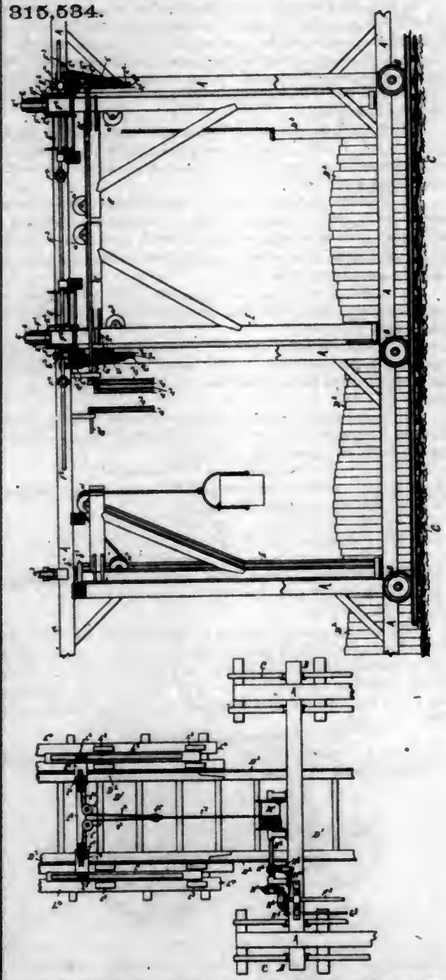
2. The combination, with the sash-chain, of a clip connected to the lower end of the same, and comprising two arms which are bent laterally in opposite directions, eyes formed in said arms, and the weight-securing hook or loop having its arms of equal length, the upper hooked ends of the arms engaging with the eyes of the clip, as set forth.

315,534. TRENCH-BUILDING MACHINE. WALTER S. MORTON, St. Paul, Minn. Filed June 6, 1884. (No model.)

Brief.—A frame mounted on trucks for running on tracks carries a series of derricks, the hoisting-chains for which run through the centrally-perforated upper derrick-steps and bearing-plates, and around pulleys tangentially arranged thereto, to windlasses which have friction-drums driven by friction-wheels from a common driving-shaft. A pair of shafts for each drum run to one vicinity, and may be oscillated, one to slide the bearings of the drum to contact it with the driving-shaft wheels, and the other to throw alternately a pulley or a brake-strap into contact with its ratchet or the friction-drum, respectively. A supplemental frame carries lagging-driving hammers operated from the above driving-shaft.



315,534.



Claim.—1. A frame-work running upon a track and supporting a system of derricks, a separate hoisting drum or spool for each of said derricks and mounted upon said frame and connected to said derricks by suitable hoisting-chains, a revolving shaft common to all of said drums, and means whereby the revolution of said shaft may be imparted to or withdrawn from said drums or spools, substantially as and for the purpose set forth.

2. The combination of frame A, derricks E, provided with suitable hoisting chains and pulleys, a drum or spool, E', for each of said derricks, and adapted to receive one end of each of said hoisting-chains, a friction-drum, F', attached to each of said chain-drums, a revolving shaft, F^2, common to all of said drums, and provided with friction-pinions F^2, and means whereby each of said friction-drums may be thrown in or out of contact with one of said friction-pinions, substantially as described.

3. The frame A, carrying winding-drums E', centrally-perforated socket-plates b^2, mounted on said frame, and guide-pulleys a^2, mounted tangentially over said socket-plates, in combination with derricks E, provided with centrally-perforated top steps, b', which turn in the socket-plates b^2, chain-pulleys a^2, mounted on the derricks tangentially beneath the top steps, b', chain-pulleys a', mounted on the derricks, and hoisting-chains which pass over the pulleys a', under the pulleys a^2, through the perforations in the steps b', and socket-plates b^2, over the guide-pulleys a^2, and thence to the winding-drums E', whereby said hoisting-chains may be wound on said drums irrespective of the position of the derricks.

4. The combination of the frame A, carrying the derricks E, provided with suitable hoisting-chains, drums E', mounted in sliding boxes E^2 upon said frame and adapted to receive one end of said hoisting-chains, friction-drums F', friction-pinions F^2, mounted upon a revolving shaft, F^2, shaft G', and means whereby the oscillation of said shaft G' will move said sliding boxes to connect and disconnect said friction-drums and friction-pinions, substantially as set forth.

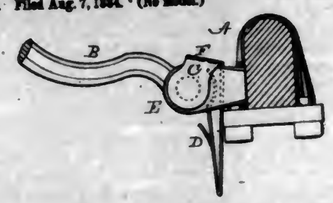
5. The combination of drums E', the ratchet-wheels H' on the shafts of said drums, pawls which engage with said ratchet-wheels, shaft G^2, and mechanism connecting said shaft with said pawls, whereby the oscillation of the said shaft will release or engage the pawls with their respective ratchet-wheels, substantially as herein set forth.

6. The combination of the frame A, carrying the derricks E, provided with suitable hoisting-chains, drums E', mounted in sliding boxes E^2 upon said frame and adapted to receive one end of said hoisting-chains, friction-drums F', friction-pinions F^2, mounted upon a revolving shaft, F^2, ratchet-wheels H', pawls H^2, shafts G' G^2, and means whereby the oscillation of said shafts will move said sliding boxes to connect and disconnect said friction-drums and friction-pinions and connect and disconnect said pawls from said ratchets, substantially as described.

7. The combination of the derricks E, provided with suitable hoisting-chains, drums E', upon which are wound said hoisting-chains, friction-drums F', and ratchet-wheels H', mounted upon the shafts of the drums E', brake-straps K', adapted to said friction-drums F', pawls H^2, which engage with said ratchet-wheels H', shafts G^2, and mechanism connecting said shafts to the brake-straps K', and the pawls H^2, whereby the oscillation of said shafts will simultaneously release the pawls and apply the brakes, or vice versa, substantially as set forth.
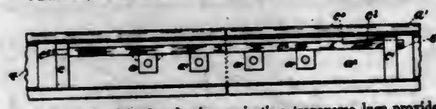
8. The combination of a frame, A, running upon a track, C, and supporting a system of derricks, a constantly revolving shaft, F^2, upon said frame, means for operating said derricks from said shaft, a movable frame for supporting lagging-driving hammers L^{11} L^{12}, and means whereby the motion of said revolving shaft will elevate said hammers, substantially as and for the purpose specified.

315,585. ANTI-RATTLER FOR THILL-COUPLINGS. WILLIAM E. MURBARGER, Dayton, Ohio, assignor of one-half to Thomas C. Dobbins, same place. Filed Aug. 7, 1884. (No model.)



Claim.—The anti-rattler F, with ears C to hold the coupling-pin, and clip D to retain the same in position in the jack-clip, substantially as set forth.

315,586. SAFETY-BAR FOR RAILROAD FISH-PLATES. TIMOTHY O'DONNELL, Jr., Bradford, Pa. Filed Mar. 3, 1884. (No model.)



Claim.—The fish-plate having projecting transverse lugs provided with sockets, in combination with a locking-bar supported in the sockets, one end of the bar being shouldered and the other having a notch, and a spring secured to one of the lugs and engaging with the notch in the locking-bar, substantially as described.

315,587. RUBBER TIRE FOR WHEELS. ALBERT H. OVERMAN, Chicopee, Mass. Filed Jan. 30, 1885. (No model.)



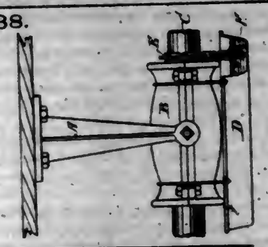
Claim.—1. A rubber tire having an open space located eccentric to its center and on the side of the rim of the wheel, for permitting the inner portion of the tire to cushion, substantially as set forth.

2. A rubber tire having an inclosed space located eccentric to its center and on the side of the rim of the wheel, for permitting the inner portion of the tire to cushion, substantially as set forth.

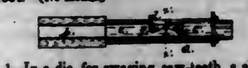
315,588. LUBRICATOR FOR SHAFTS. CHARLES PAGE and LOUIS GOUILLOUD, Montreal, Quebec, Canada, assignors of one-third to Thomas F. G. Foley, same place. Filed Sept. 15, 1884. (No model.)

Claim.—The lubricating device herein described, consisting of the chain E, oil-dish D, and hook or guide F, arranged in said dish, in combination with a shaft and journal-box, substantially as and for the purpose specified.

315,588.



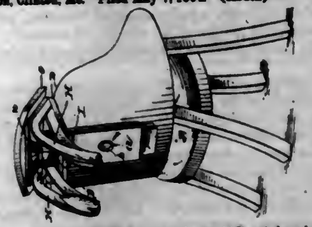
315,589. SAW-SWAGE. AMOS S. PARKS, Bay City, Mich. Filed Dec. 19, 1884. (No model.)



Claim.—1. In a die for swaging saw-teeth, a shaft arranged with journals near its ends for supporting the same, as described, one end of the said shaft extending beyond the said journal and arranged to receive a lever or means of rotating the said shaft, and having a portion between the said journals with a flat or level surface, and with the sides of one portion of the said surface cut away to form a raised part in the center thereof, substantially as shown, and for the purpose described.

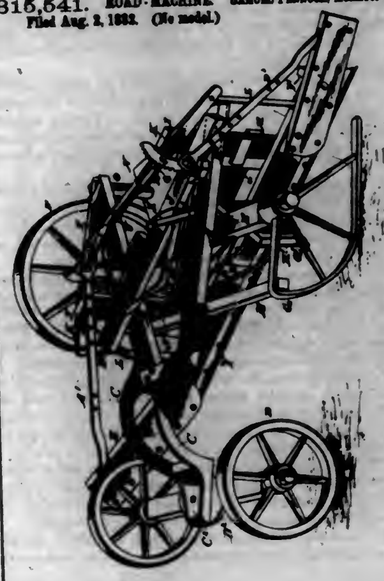
2. In a saw-swage, the combination of the anvil *i*, arranged to rest against one edge of the tooth, with a die, *e*, located and arranged to rest against the opposite edge of the said tooth, and provided with a level surface, *e*, and the raised and rounded portion A, substantially as described, and for the purpose set forth.

315,540. HEAD-REST FOR BARBERS' CHAIRS. THOMAS W. PATTERSON, Clinton, Mo. Filed May 7, 1884. (Model.)



Claim.—The combination, with the staff B, of the plate D, having the beveled sleeve F, and the arms I, and the plate K, to which the head-rest is secured, said plate having arms H, that are pivoted at their outer ends to the outer ends of the arms I, for the purpose set forth, substantially as described.

315,541. ROAD-MACHINE. SAMUEL PENNOCK, Kennett Square, Pa. Filed Aug. 2, 1882. (No model.)



Claim.—1. In a road-machine, the combination, with a supporting-frame, a scraper vertically movable, guiding-posts for holding the scraper against endwise movement, and means for imparting independent vertical adjustment to its ends, of front reeving-gear, and a frame connecting the supporting-frame with the said running-gear, and arranged to permit the same to be turned to coincide with the central line of draft, or to form any angle therewith, substantially as set forth.

2. In a road-machine, the combination, with a supporting-frame, a scraper-bar located diagonally to the line of draft, and devices for imparting vertical adjustment to the ends of the scraper-bar, of a goose-neck connected with the forward end of the supporting-frame, and a fifth-wheel supported on the forward axle and extending in front and rear thereof, and supporting the forward end of the goose-neck thereon, the parts being constructed and arranged to allow the forward wheels to be turned at any angle to the central line of draft, substantially as set forth.

3. In a road-machine, the combination, with a frame mounted on wheels, of an oblique scraper suspended therefrom, and a removable runner located forward of the rear end of the scraper, substantially as set forth.

4. In a road-machine, the combination, with a frame mounted on wheels, of an oblique scraper suspended therefrom, and a skeleton runner located forward of the rear end of the scraper, substantially as set forth.

5. In a road-machine, the combination, with a frame mounted on wheels, of an oblique scraper suspended therefrom, and a removable runner arranged to be mounted on the axle of the rear running-gear of the frame and arranged to replace the wheel located forward of the rear end of the scraper, substantially as set forth.

6. In a road-machine, the combination, with a frame mounted on wheels, of a scraper suspended therefrom, a runner located forward of the rear end of the scraper and supported solely by the axle of the rear running-gear of the machine, and by a beam attached to the frame of the machine located in front of the said axle, substantially as set forth.

7. In a road-machine, the combination, with an elevated supporting-frame, of an adjustable scraper suspended therefrom, and a runner located forward of the rear end of the scraper and arranged so as not to interfere with the escape of the accumulations thereof, substantially as set forth.

8. The combination, with an elevated supporting-frame, of a vertically-adjustable scraper-bar suspended therefrom and provided with removable and interchangeable cutting-edges and guide-bars, and frames, substantially as described, to retain the scraper against lateral and longitudinal displacement, substantially as set forth.

9. In a road-machine, the combination, with a scraper, of means for imparting independent vertical adjustment to its ends, and guides pivoted to the scraper and arranged to hold it rigidly in place, except as to vertical adjustment, substantially as set forth.

10. In a road-machine, the combination, with a scraper-bar, of a series of interchangeable and reversible plates secured thereto and forming a continuous straight cutting-edge, substantially as set forth.

11. In a road-machine, the combination, with a scraper-bar, of a series of interchangeable and reversible curved plates secured to the scraper and forming a continuous cutting-edge, substantially as set forth.

12. In a road-machine, the combination, with a scraper-bar suspended from the machine by rigid supports, of a series of interchangeable and reversible plates secured to the bar and forming a continuous cutting-edge, substantially as set forth.

13. In a road-machine, the combination, with an oblique scraper depended from the frame of the machine by rigid supports, of devices for imparting independent vertical adjustment to the ends of the scraper, and cutting-plates adapted to be rigidly secured to the scraper, and to be interchanged plate for plate, and to be reversed edge for edge, substantially as set forth.

14. In a road-machine, the combination, with an oblique scraper suspended under the frame of the machine, of vertically-adjustable extensions respectively secured to the forward and rear ends of said scraper, and means to independently elevate and depress said extensions and to hold them in any desired adjustment, substantially as set forth.

15. In a road-scraper, the combination, with the supporting-frame, the scraper-bar, the forward axle, and a goose-neck connected with the forward end of the supporting-frame, of a king-bolt connecting the forward end of the goose-neck with the front axle, and broad turning-bearings on either side of the king-bolt and interposed between the front axle and forward end of the supporting-frame, substantially as set forth.

16. In a road-machine, the combination, with a scraper-bar, of a vertically-adjustable extension secured to its rear end, and a block secured to the rear face of the extension and bearing upon the working-face of the scraper-bar, whereby the extension is braced and the desired angle between it and the said bar maintained, substantially as set forth.

17. In a road-machine, the combination, with a supporting-frame mounted on wheels, and an oblique scraper suspended beneath the same, of an earth-carrier located forward of the rear end of said scraper, and means to vertically elevate or depress it, substantially as set forth.

18. In a road-machine, the combination, with an elevated supporting-frame and an oblique scraper suspended therefrom, of an earth-carrier located forward of the rear end of the scraper, and means to elevate or depress it, substantially as set forth.

19. In a road-machine, the combination, with a supporting-frame and an oblique scraper suspended beneath the same, of an earth-carrier located forward of the rear end of the scraper, and means to elevate and depress it, and to lock it above the cutting-edge of the scraper, substantially as set forth.

20. In a road-machine, the combination, with a supporting-frame and an oblique scraper suspended beneath the same, of an earth-carrier located forward of the rear end of the scraper, and means to elevate and depress it, and to prevent its lower edge from falling below that of the scraper, substantially as set forth.

21. In a road-machine, the combination, with an elevated frame and an oblique scraper suspended therefrom, of an adjustable earth-carrier located forward of the rear end of the scraper and pivotally secured to the elevated supporting-frame, substantially as set forth.

22. In a road-machine, the combination, with a supporting-frame and an oblique scraper suspended beneath the same, of an earth-carrier located forward of the rear end of the scraper, and rods attached to it and forming both the means of bracing it and of attaching it to the frame of the machine, substantially as set forth.

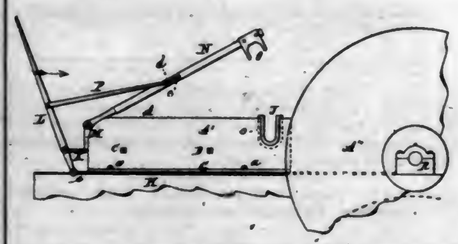
23. In a grading-machine, the combination, with a supporting-frame, an oblique scraper, and curved arms attached to each side of the front end of the frame and forming an arched front frame, of the forward axle, and a fifth-wheel interposed between the forward axle and the forward ends of the curved arms, substantially as set forth.

24. In a grading-machine, the combination, with an elevated supporting-frame, an oblique scraper suspended from said frame, and means for imparting independent vertical adjustment to the ends of the scraper, and devices for locking the ends of the scraper in any desired vertical adjustment, of upwardly-curved arms connected to the forward end of the supporting-frame, and a fifth-wheel interposed between the front axle and forward end of said curved arms, substantially as set forth.

25. In a grading-machine, the combination, with the main supporting-frame and a vertically-adjustable scraper-bar, and means for supporting the same against deflection for direct resistance, of guides attached to the main frame and arranged to embrace said supporting devices, whereby said scraper-bar is held against forward endwise movement and horizontal vibratory movement, substantially as set forth.

26. In a grading-machine, the combination, with an oblique scraper-bar and a carrying-frame, of an earth-carrier or stop located in front of said scraper-bar, and so arranged as to stop the earth, which is being acted on by said scraper and carry it ahead, and means to elevate said stop above the upper edge of said scraper, and means for adjusting and locking said stop between the lower edge of said scraper and its upper edge, substantially as set forth.

315,542. MACHINE FOR TRIMMING THE ENDS OF SLEEVE-NUTS. HENRY P. PEIFFER, Cleveland, Ohio, assignor to the King Iron Bridge and Manufacturing Company, same place. Filed July 30, 1884. (No model.)



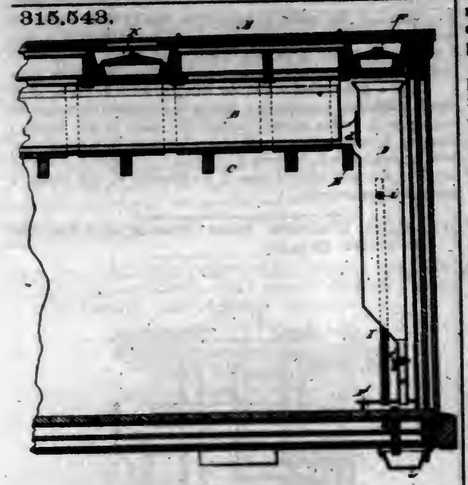
Claim.—1. In a machine for trimming the ends of sleeve-nuts, a sliding carriage consisting of the sides A' and B, having in the ends thereof an opening or notch to receive, respectively, the ends of a sleeve-nut, brace-bolts C and D, draw-bar, and lever for moving the carriage, constructed and arranged to operate in relation to and in combination with the saws, substantially as and for the purpose set forth.

2. In combination with the carriage A, the arm N and clamp secured to the end thereof, with link P, connecting the arm to the lever, said link being attached to the arm by a pin adapted to move in a slot, *c*, in said arm, for operating the same in the manner substantially as and for the purpose set forth.

3. In combination with the sliding carriage consisting of the sides A' and B, provided with openings *c*, a removable nut holder or holders, constructed and arranged in the manner and for the purpose substantially as described.

315,543. REFRIGERATOR-CAR. CHARLES F. PIERCE, Chicago, Ill. Filed Feb. 1, 1883. (No model.)

315,543.



Claim.—1. The combination, in a refrigerating-car, of an elevated ice-pan and a drip-trough located below said pan, with one or more lower reservoir cooling-chambers located within the car in position to receive the contents of the ice-pan, substantially as described.

2. The combination, in a refrigerating-car, of an elevated ice-pan and a drip-trough located below said pan, with one or more reservoir cooling-chambers connected by a spout or spouts with the elevated drip-trough, whereby water from the pan will flow into and accumulate in the cooling-chamber, substantially as described.

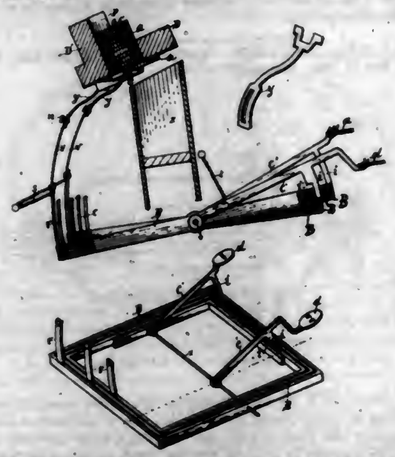
3. The combination, in a refrigerating-car, of an elevated ice-pan with a reservoir cooling-chamber located alongside the wall of the car, and means, substantially as described, for discharging accumulated water from the cooling-chamber.

4. The reservoir cooling-chamber D, located alongside one of the car-walls, in combination with a trap located in the top of the car, as and for the purpose described.

5. The combination, in a refrigerating-car, of an elevated ice-pan with a reservoir cooling-chamber which receives the drippings from the ice-pan, and the stand-pipe I, which connects with the cooling-chamber, substantially as described.

6. The combination, with the reservoir cooling-chamber and stand-pipe, of chamber F', into which the stand-pipe and a spout pass, the cooling-chamber being open at its top end, and means being provided for conducting off the water from said chamber F', substantially as described.

315,544. MONEY-CHANGER. ARTHUR L. PRATT, Kalamazoo, Mich. Filed Oct. 20, 1884. (No model.)



Claim.—1. In a money-changer, the combination of a series of coin-pockets adapted for the bottom coin to be pushed from beneath the coins above, a series of push-forks for pushing out the coins, a series of levers fulcrumed in the lower side of the case and having rear bars connecting with the push-forks, and a series of key-levers provided with suitable projections for operating the levers, which connect with the push-forks, substantially as set forth.

2. In a money-changer, the combination of a series of coin-pockets provided at the open bottom with the coin-rests, a series of rectangular frame-levers, one within the other, and fulcrumed substantially at their center in the lower part of the case, push-forks having flexible handles connecting with the rear bars of the rectangular frame-levers, and a series of key-levers provided with projections for pressing upon one or more of the frame-levers at a single movement, substantially as set forth.

3. In a money-changer, the combination of the coin-pockets having the narrow coin-rests below the open bottom of the pockets, the push-forks adapted to engage the under face of the coin-pocket block and to straddle the coin-rests during the sweep of said push-forks in pushing out the coins, and suitable levers for pushing said forks, substantially as set forth.

4. In a money-changer, the combination of a series of coin-pockets, a series of push-forks having downwardly-extended handles, a series of levers fulcrumed in the lower portion of the case, and having rear bars connecting with the fork-handles, springs for assisting the rear part of the fulcrumed levers to fall to place in pulling back the push-fork, and key-levers having the projections for pressing on the fulcrumed lever, all substantially as set forth.

5. In a money-changer, the combination of a coin-pocket provided at the bottom with the narrow coin-rests, a lever fulcrumed at the lower side of the case and having a rear bar parallel with said fulcrum, a double push-fork the handle thereof connecting with said rear bar, and a key-lever provided with a projection of suitable length for pressing on the fulcrumed lever to give the double push-fork a sufficient sweep to push two coins out of the coin-pockets, substantially as set forth.

315,545. DRAWING-BOARD AND T-SQUARE. CLIFFORD H. PRESCOTT, Lawrence, Mass. Filed Dec. 20, 1884. (No model.)



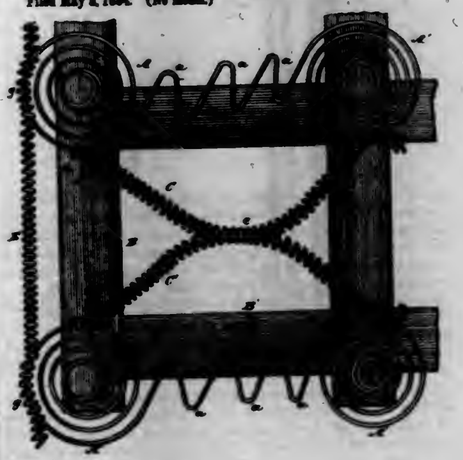
Claim.—1. The combination, with a drawing-board having a groove in one of its edges and a guide-rod located therein, of a T-square connected to the rod and adapted to slide thereon, substantially as and for the purpose set forth.

2. The combination, with a drawing-board having a groove in one of its edges and a guide-rod adjustable therein, of a T-square connected to said rod and adapted to slide thereon, substantially as and for the purpose specified.

3. The combination, with a drawing-board having a groove in one of its edges and a guide-rod terminating at its ends in angular slotted extensions and held within the groove by set-screws entering the slots of said extensions, of a T-square connected to the rod and adapted to slide thereon, substantially as and for the purpose described.

4. A drawing-board having in one of its edges a groove and a guide-rod, in combination with the head of a T-square provided with a saddle consisting of notched projections, and an eye for connecting the head to the rod, substantially as and for the purpose set forth.

315,546. BED-SPRING. ERASMUS H. PROWER, Siloam Springs, Ark. Filed May 5, 1884. (No model.)



Claim.—In a bed-bottom, the combination, with the frame, of the spiral springs A A', made integral by means of the joining spring portions *a*, and the intermediate curved springs, C C', extending in an unbroken line across the bed-bottom, and interwoven at their central point between the spirals A A', and interlacing with them at a point central of the spirals and frame-pieces B, whereby the vertical and tensile strains are uniformly taken up and distributed, substantially in the manner and for the purpose set forth.

315,547. DRILL-JAR. ERNST GEBEL, Johnstown, Pa. Filed Jan. 7 1885. (No model.)



Claim.—1. A drill-jar having an elliptical or oval-shaped plunger-head, substantially as and for the purpose set forth.

2. A drill-jar having a vertically-slotted tube, A, and a plunger adapted to reciprocate vertically within said tube, and having a plunger-head elliptical in cross-section, adapted to rest and slide within said tube A and the slots therein, substantially as and for the purpose set forth.

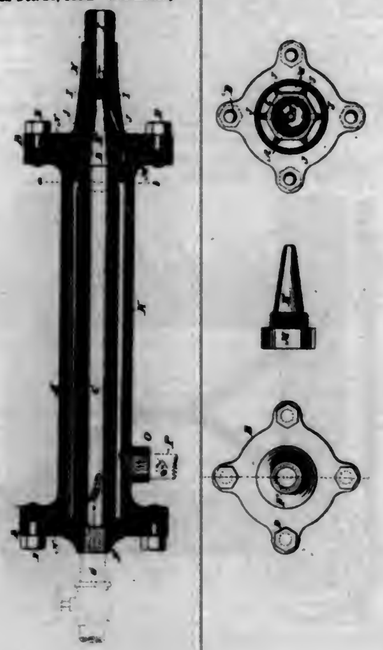
315,548. STRAW-CARRIER FOR STACKING-MACHINES. ALFRED B. REEVES and MARSHAL T. REEVES, Columbus, Ind., assignors to Reeves & Co. and Joseph I. Irwin, same place. Filed June 2, 1884. (No model.)



Claim.—1. The combination, with a folding straw-carrier, of guides *e e*, each formed in two parts, having their opposed ends overlapping and provided with plates *f*, substantially as and for the purpose specified.

2. In a straw-carrier, a conveyer-trough, a conveyer-belt arranged to traverse said trough, guard *g*, and ways *e e*, all combined substantially as and for the purpose specified.

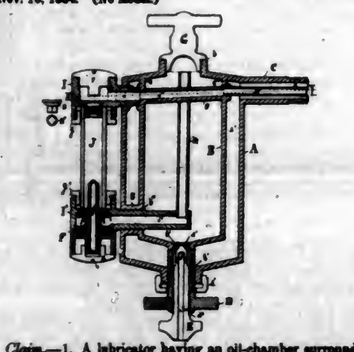
315,549. HYDROCARBON-BURNER. JAMES REILLY, Brooklyn, N. Y. Filed Dec. 20, 1884. (No model.)



Claim.—1. The casing A, closed at its ends by heads B and containing a central steam-pipe, C, combined with the extension H, passage I, series of apertures J in the head B, and hollow cone E, the inner end of the cone being upon the front end of pipe C, substantially as set forth.

2. In a hydrocarbon-burner, the casing A, heads B, having shoulders N, which enter corresponding recesses in the ends of the casing, and steam-pipe C, passing centrally through the casing A and forming a chamber, K, in combination with the hollow cone E, communicating with the steam-pipe C, the series of apertures J, passing from the chamber K to the outer walls of cone E, the extension H, and passage I, substantially as set forth.

315,550. LUBRICATOR. FRANCIS J. REINHARD, Detroit, Mich. Filed Nov. 10, 1884. (No model.)



Claim.—1. A lubricator having an oil-chamber surrounded and inclosed by an exterior chamber for water and steam, in combination with a transparent tube through which the oil passes in visible quantities in its course from the oil-chamber to the part to be lubricated, substantially as set forth.

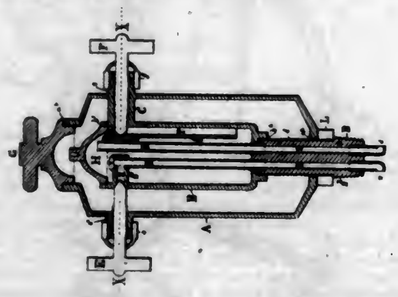
2. In combination with an interior oil-chamber, B, an exterior water and steam chamber, A, a valve, D, for admitting water from the latter to the former in regulated quantities, and a tube for discharging the oil from the upper part of the oil-chamber as water is introduced at the bottom of the oil, substantially as set forth.

3. In combination with an exterior and interior chamber, A and B, the tubular regulating-valve D, determining the communication between the two, and the central valve, E, for exhausting the contents of the interior chamber through the exterior chamber, substantially as set forth.

4. The combination of the external chamber, A, the internal chamber, B, the glass-holders I I', the intermedial indicating-glass, J, and the induction and discharge pipes *i' i*, substantially as set forth.

5. A lubricator combining in its construction an oil-chamber and a steam and water chamber arranged in the same plane and separated by a single partition, through which heat may be transmitted from the steam and water to the oil, together with valves and pipes for transmitting the water to the oil-chamber in regulated quantities to displace the oil, substantially as set forth.

315,551. LUBRICATOR. FRANCIS J. REINHARD, Detroit, Mich. Filed Nov. 10, 1884. (No model.)



Claim.—1. A lubricator having an oil-chamber surrounding and inclosing an interior steam and water chamber, in combination with a transparent tube filled normally with oil, through which the water falls in visible quantities in its course from the water-chamber to the bottom of the oil-chamber, substantially as set forth.

2. In combination with an exterior oil-chamber, an interior water and steam chamber, a valve, F, and tube for admitting water from the latter to the former in regulated quantities, and a tube for discharging

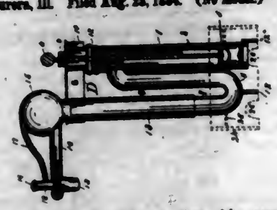
oil from the upper part of the oil-chamber as it is displaced by water introduced into said chamber, substantially as set forth.

3. The exterior oil-chamber and interior water and steam chamber cast in one piece and connected by the neck C, substantially as set forth.

4. The combination of an exterior oil-chamber, A, an interior water and steam chamber, B, and the plug D, connecting the two, and also forming a standard to support them both at the same time that it forms an extension of the interior pipes, S and O, substantially as set forth.

5. The combination of the exterior and interior chambers, A and B, the plug D, connecting the two, the steam and oil pipes 1 S and 3 O, the water-pipe P, and valves E and F, arranged in relation thereto, substantially as set forth.

315,552. OIL-CAN AND LAMP-FILLER. MARCUS C. REHARDS, Oswego, assignor of one-half to John R. Chase and William C. Budleng, both of Aurora, Ill. Filed Aug. 22, 1884. (No model.)



Claim.—1. In an oil-can, the combination, with a pump, of a siphon-tube, 6 7, extending downward and upward, and connected at its part 7 with the discharging-pipe, substantially as and for the purpose described.

2. In an oil-can, the combination of a pump, the siphon-tube 6 7, telescopic tube 13, and a discharging-pipe communicating with the telescopic tube, substantially as and for the purposes set forth.

3. In combination, the pump, siphon-tube 6 7, telescopic tube 13, reservoir or chamber 15 surmounting the same, discharging-pipe 14, small pipe 17, and tubes 18 and 19, the combination being and operating substantially as and for the purposes set forth.

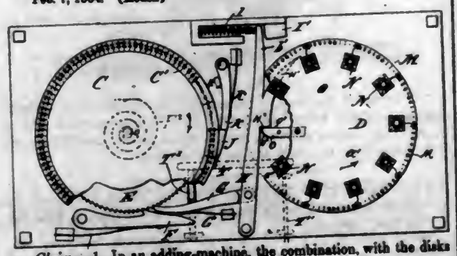
4. In combination with the pump and with its described siphon, a discharging-spout receiving the oil from the siphon, and arranged to be raised, lowered, or turned around upon the siphon-tube, as and for the purposes set forth.

5. In combination, the pump, siphon, discharging-spout, reservoir 15, tubes 13, 14, 17, 18, and 19, and the removable cap 8, the combination permitting all these parts to be together inserted in or removed from the can.

6. In combination with the removable cap 8 and with the removable tube 13, the wire rod or spring 23, serving to hold or release this cap, all substantially as shown and described.

7. In combination with the pump and siphon, an air-chamber communicating by a pipe with an air-inlet opening into the discharging-spout, such spout serving, as described, for carrying back into the can an excess of liquid pumped into the lamp or other vessel.

315,553. CALCULATOR. JOHN L. RICHARDSON, Tuscola, Mich. Filed Feb. 7, 1884. (Model.)



Claim.—1. In an adding-machine, the combination, with the disks C D, of the projection O, the lever H, the pawl G, pivoted on the lever H and adapted to act on the disk C, and of the top plate provided with apertures around the disk D, substantially as herein shown and described.

2. In an adding-machine, the combination, with a top plate provided with two circular apertures, B and B, of which the latter is surrounded by one hundred small apertures, *a*, of the disks C D, divided into one hundred parts, the ratchet-wheel E, connected with the disk C, and provided with one hundred teeth, the lever H, adapted to be operated from the disk D, the pawl G, pivoted on the lever H, and adapted to act on the ratchet-wheel E, and of the locking-pawl F, acting on the ratchet-wheel E, substantially as herein shown and described.

3. In an adding-machine, the combination, with the top plate, A, provided with two apertures, B B', of which the latter is surrounded by one hundred small apertures, *a*, of the disks C D, each divided into one hundred parts, the projection O on the disk D, the lever H, the pawl G, pivoted to the same, the locking-pawl F, the ratchet-wheel E, united with the disk C, the spring I, acting on the lever H, and of the stop I', substantially as herein shown and described.

4. The combination, with the disk D, provided on its face with a series of indicative characters, of the polygonal-faced projections N, secured to the disk adjacent to the said characters, and provided on their faces with characters indicative of the order of the characters to which they are adjacent on the disk, substantially as set forth.

5. In an adding-machine, the apertured top plate provided with a series of apertures, *a*, around the aperture, a disk, D, within said aperture, provided with a series of indicative characters corresponding in number with the apertures *a*, and a series of polygonal-faced projections on said disk, and characters on said faces indicative of the order of those on the disk D adjoining said projections.

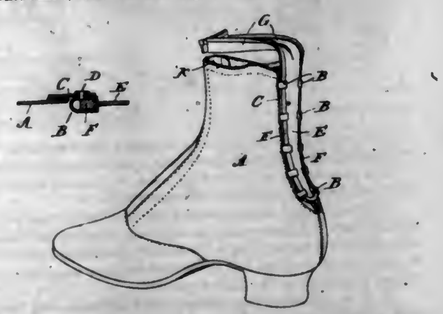
6. In an adding-machine, the combination, with the top plate having a circular aperture around which a series of apertures, *a*, is formed, the disk D within the said circular aperture, the pin V, adapted to be inserted in the apertures *a*, sliding bolt Q, its handle R, casing P, and spring S, said bolt having one longitudinal edge in alignment with the zero character on the disk, and extending into the circle described by the series of apertures.

7. In an adding-machine, the combination, with the top plate having circular apertures B B', the latter being surrounded by a series of apertures, *a*, of the disks C D, the former being provided with ratchet-teeth and the latter with mechanism for moving the former the space of one tooth in every revolution, spring F², for returning disk C to its normal position, and a lever or rod for releasing said ratchet mechanism, the check-block J on the periphery of disk C, provided with a curved outer edge and an end in alignment with the 0 0 mark of the said disk C, and the pawl K on the top plate in the path of the check-block J, substantially as set forth.

8. In an adding-machine, the combination, with the top plate provided with the apertures B B', of which the latter is surrounded by one hundred apertures, *a*, of means for operating the disk C from the disk D, the ratchet-wheel E, connected with the disk C, the spring F², connected with the disk C, the pawl G, the locking-pawl F, the pivoted lever T, the push-pin T', and the pin T², for acting on the pawl G, substantially as herein shown and described.

9. In an adding-machine, the combination, with a top plate having two apertures, B and B', of which the latter is surrounded by one hundred apertures, of the disks C and D, means for operating the former disk from the latter, which latter disk, D, is divided into ten sections, each containing the numerals from 0 to 9, inclusive, and of the truncated pyramids arranged on the disk, each pyramid having numerals produced on all four sides, substantially as herein shown and described.

315,554. SHOE-FASTENING. HENRY H. ROGMAN, Wilkes-Barre, Pa. Filed June 7, 1882. Renewed Aug. 18, 1884. (Model.)



Claim.—1. The combination, with a shoe, of U-shaped clips B, having the free ends of their body portion bent toward each other, and provided with eyelets D, for attaching the same to the edges of the opening in the shoe, and of the tongue E, provided with thickened edges F, substantially as herein shown and described, and for the purpose set forth.

2. The combination, with a shoe, of U-shaped clips B, attached to the edges of the opening in the shoe and having the ends of their shanks bent toward each other, of the tongue E, having thickened edges F, and of the straps G, formed at the other end of the tongue, substantially as herein shown and described, and for the purpose set forth.

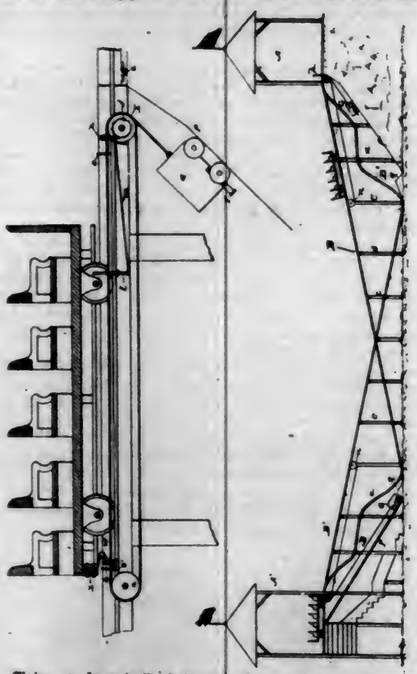
3. The combination, with the shoe A, of the U-shaped clips B, attached to the edges of the opening in the same, the tongue E, and the straps G, formed at the upper end of the tongue, and provided with the button J, attached to the end of one strap G, and the button-hole H, formed in the end of the other strap G, substantially as herein shown and described, and for the purpose set forth.

4. The combination, with the shoe A, provided with a button-hole, K, near its upper edge, in the front part of the shoe, of the clips B, the tongue E, and the straps G, formed at the upper end of the tongue, and provided with a button, J, and a button-hole, H, substantially as herein shown and described, and for the purpose set forth.

5. As an improved article of manufacture, a shoe-fastening clip, B, made U-shaped, and having the free end of the body portion bent toward each other, and provided with the eyelets D, substantially as herein shown and described, and for the purpose set forth.

315,555. ELEVATED RAILROAD. LAWRENCE O. ROOT, Minneapolis, Minn. Filed Sept. 30, 1884. (No model.)

Brief.—Steep inclines are formed under one end of each of the tracks which connect the stations, upon which weighted cars run. A rope is secured to the weighted car, passes over drums mounted under one end of the track, and is provided with weighted catches, which are engaged by hooks on the bottom of the passenger-car when it reaches that point impelled by its momentum. The passenger-car thus held is then carried to the top by the weighted car, which moves down the incline after the holding-pawl on the ratchet of the drum has been released.



Claim.—1. In an inclined elevated railroad, the combination, with two stations located any suitable distance apart, of tracks B B', each having a steep descent and ascending incline, and inclined tracks G, as shown and described, and for the purpose set forth.

2. In an inclined elevated railroad, the combination, with two stations, of tracks B B', connecting the same, each of said tracks having a steep descent and an ascending incline at their opposite ends, and a track, G, located at each station, said tracks each having a steep incline, and running beneath the tracks B B', as set forth.

3. In an inclined elevated railroad, the combination, with two stations, of a track connecting the same, drums arranged at one end of said track, a rope connecting said drums, a weight attached to one end of said rope, and a loop adapted to engage a hook on the car, rigidly attached to said rope, substantially as set forth.

4. In an inclined elevated railroad, the combination, with two stations, of a track connecting the same, drums arranged at one end of said track, a rope connecting said drums, a weight attached to one end of said rope, and means, substantially as described, for effecting the release of the weight, for the purpose set forth.

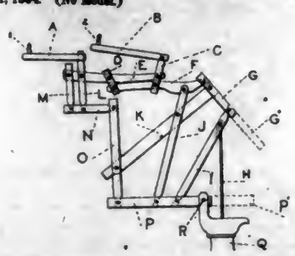
5. In an inclined elevated railroad, the combination, with two stations, of a track connecting the same, drums arranged at one end of said track, a rope connecting said drums, a weighted car attached to one end of said rope and adapted to travel on a steep incline, a loop rigidly secured to said rope, a hook on the rear under side of a car, and means, substantially as described, to effect the release of the weighted car, for the purpose set forth.

6. In an inclined elevated railroad, the combination, with two stations, of a track connecting the same, drums arranged at one end of said track, a rope connecting said drums, a weight attached to one end of said rope, a ratchet-disk on the drum E, a pivoted pawl to engage the same, an arm or lever, *l*, a rod connecting the pawl and lever, a loop rigidly attached to said rope, and means, substantially as described, carried by the car for engaging said loop.

7. In an inclined elevated railroad, the combination, with two stations, of a track connecting the same, drums arranged at one end of said track, a rope connecting said drums, a weight attached to one end of said rope, a ratchet-disk on the drum E, a pivoted pawl to engage the same, an arm or lever, *l*, a rod connecting the pawl and lever, a loop rigidly attached to said rope, a hook secured to the rear end of the car, and uprights *s s'*, substantially as and for the purpose set forth.

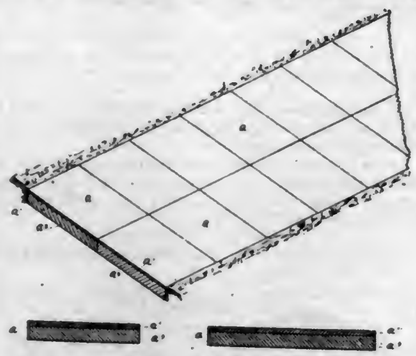
8. The combination, with the traction-rope, of a loop secured thereto, said loop having a weighted end, whereby it is held in a vertical position, as set forth.

315,556. LEVER-POWER. COLONEL SALISBURY, Wright, Mich. Filed Aug. 1, 1884. (No model.)



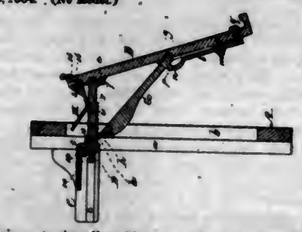
Claim.—The combination of the levers P, O, J, I, K, L, N, M, E, F, D, C, and G with the arms A B and the general fulcrum R, as shown and described, and for the purpose set forth.

315,557. ARTIFICIAL FLAG-STONE. AUGUSTUS S. SAMPSON and DANIEL G. PECK, Minneapolis, Minn. Filed Aug. 21, 1884. (No model.)



Claim.—A flag-stone of rectangular shape formed in a mold and allowed to harden before being laid in place, and composed of sand or like material, cement, and water containing the solution hereinbefore set forth, substantially as and for the purpose set forth.

315,558. MUSIC-RACK FOR PIANOS. THOMAS F. SCANLAN and OLONZO A. DUSHMORE, Boston, Mass., assignors to said Scanlan. Filed Nov. 28, 1884. (No model.)



Claim.—1. An adjustable support having a compound swinging and horizontal sliding movement, consisting, essentially, of the rack or rest B, pivoted at or near its upper edge to a horizontal slide, D, in combination with the pivoted supporting arm or brace G, for holding the rest when inclined at different angles, all operating substantially in the manner and for the purpose set forth.

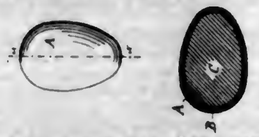
2. The combination, with the swinging rack or rest B, pivoted at or near its upper edge to a suitable support, of the pivoted arm or brace G, the toothed bar *i*, a device for supporting the upper end of the arm G in close proximity with the bar *i*, and a device, substantially as described, accessible from the front for raising the upper end of the arm G into engagement with the bar *i*, all operating substantially in the manner and for the purpose set forth.

3. The combination of the horizontal slide D, the box or support C, having the guideways *c*, the swinging rack or rest B, pivoted to the outer end of the slide D, the arm or brace G, pivoted at its lower end to the rack B, and adapted to engage with the toothed bar *i*, a device for supporting the upper end of the arm G in close proximity with the bar *i*, and means, substantially as described, for raising the arm G, to bring it into contact with the bar *i*, substantially as and for the purpose set forth.

4. The combination, with the swinging rack or rest B, pivoted at or near its upper edge to the horizontal slide D, and means for holding the rack at any desired angle, of the bent arm H, pivoted to the rack B above the slide D, and having an inclined portion, *r*, and the box or support C, having an edge or surface, *t*, against which the portion *r* bears when the lower edge of the rack is swung upward, whereby the upper edge of the rack is automatically thrown outward at the commencement of its swinging movement, substantially as and for the purpose described.

5. The combination, with the swinging rack or rest B, pivoted at or near its upper edge to the horizontal slide D, of the bent arm H, pivoted to the rack B, and provided with an inclined or angular portion, *r*, and having a portion, 15, bearing against the surface 16, whereby the rack B and arm H are caused to move together when the former is swung up on its pivots, and the box or support C, having an edge or surface, *t*, against which the portion *r* bears, all operating substantially in the manner and for the purpose set forth.

315,559. CONFECTIONERY. AUGUST SCHWARZSCHILD and NELSON GREENFIELD, New York, N. Y. Filed Feb. 4, 1885. (No model.)



Claim.—As a new article of manufacture, a candy consisting of the combination of a hard smooth exterior or shell composed of sugar or sugar compound with a soft interior composed of marshmallow or moonshiner stock, substantially as described.

315,560. CASTER. JAMES W. SEE, Hamilton, assignor to C. E. Jones & Bro., Cincinnati, Ohio. Filed Jan. 5, 1885. (Model.)



Claim.—1. In a caster, the anti-friction wheels formed by the combination of the metallic disks G into piles, each disk of a pile being independent of its fellow disks, substantially as and for the purpose set forth.

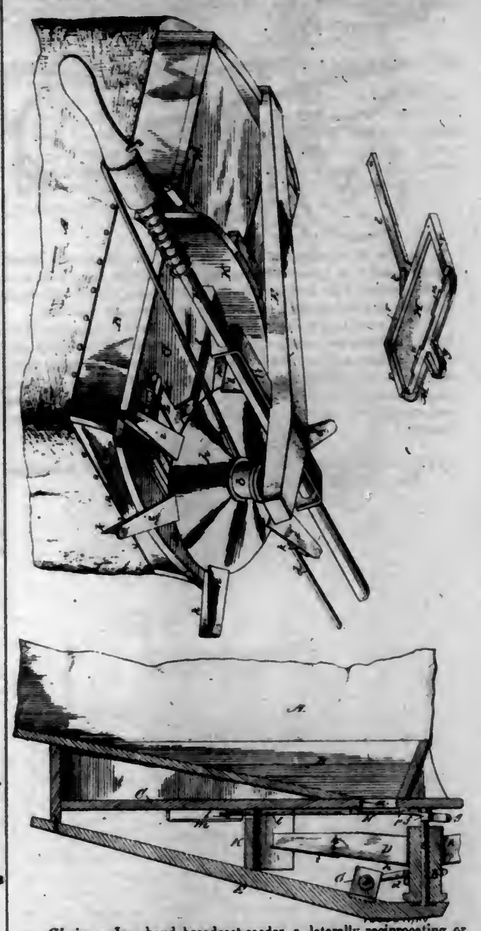
2. In a caster, the anti-friction rollers formed by the combination of the disks G into piles, the outer disk of each pile being provided with the struck-up hub I, substantially as and for the purpose set forth.

315,561. NECK-YOKE. AMOS D. SHEPARD, Chicago, Ill. Filed Oct. 30, 1882. (No model.)



Claim.—In a neck-yoke, the combination consisting of the bar A, the bands B C, provided with flanges B' and C', that interlock with each other, as specified, and a loop, D, held as described, substantially as and for the purpose set forth.

315,562. HAND BROADCAST-SEEDER. AMOS E. SHROCK and JOSEPH LEHMAN, Goshen, Ind. Filed Sept. 30, 1884. (No model.)



Claim.—In a hand broadcast-seeder, a laterally reciprocating or vibratory feeding-plate, cast at its front or outer edge with a frame and yoke and having an upwardly-projecting flanged rim extending along the rear and right and left sides, in combination with a suitable lever and gage-rod for operating the plate, and a clamping-rod extending across the plate upon the under side thereof, substantially as and for the purpose set forth.

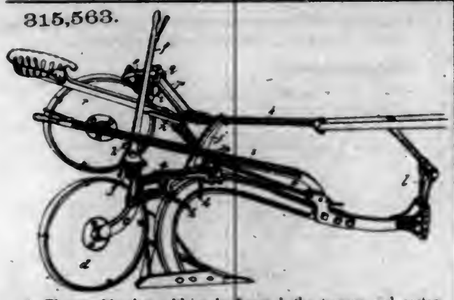
2. In a hand broadcast-seeder, a suitable grain holder and hopper, a distributing-wheel and means for operating it, and a transverse flange or strip secured to the under side of the base of the hopper in front of the discharge-opening, in combination with a feed-plate provided with a pivoted hand-lever and gage, said plate having an upwardly-projecting flanged rim along the rear and sides, and bearing-ribs upon the outer or under side of the plate, and a clamping-rod for holding the same in position, substantially as and for the purpose specified.

315,563. SULKY-PLOW. JACOB SHEKLER, Otterbein, and EDWARD E. SHEKLER, Indianapolis, Ind. Filed July 21, 1884. (No model.)

Claim.—1. In a sulky-plow, the combination, with main frame *k* and the tongue, of caster-wheels *d* and *r*, swiveled thereto, and the lever *f*, acting upon the swivel-standard of the rear wheel, *d*, whereby the operator may move the plow in any desired direction, substantially as shown and described.

2. In a sulky-plow, the combination, with main frame *k* and the tongue, and with caster-wheels *d* and *r*, the latter having a swivel-standard adjustable as to width and height, of the swivel-standard *c* of wheel *d*, and the lever *f*, operating to reciprocate said standard *c* by suitable connections, whereby the operator may allow wheel *d* to turn in the furrow, and permit the plow to turn in the ground without strain of wheel or plow, substantially as shown and described.

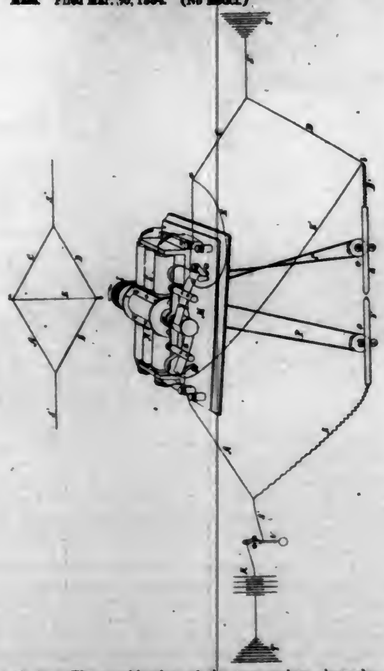
315,563.



3. The combination, with main frame *k*, the tongue, and caster-wheels *d* and *r*, of a plow-beam having a joint therein, and a hand-lever rigidly secured to the front section of said plow-beam, whereby the depth of furrow may be regulated, substantially as shown and described.

4. In a sulky-plow, the combination, with frame *k*, the jointed plow-beam, and the caster-wheels *d* and *r*, of the seat-lever *n*, fulcrumed upon the main frame and provided with the forward arm, *o*, connected to the hand-lever, and the rear arm carrying the seat to the rear of the line of support between caster-wheels *d* and *r*, whereby the weight of the seat and operator will counteract the downdraft, substantially as shown and described.

315,564. ELECTRIC-ARC LAMP. FRANK M. SPARROW, Mattapoisett, Mass. Filed Mar. 30, 1884. (No model.)



Claim.—The combination of the two carbon electrodes with a Wheatstone bridge, an electric circuit, and an electric motor adapted thereto, and provided with mechanism applied to it and to one or each of such electrodes, and suitably constructed to effect, by means of the motor as the carbons may be consumed, a positive movement of one or each of them toward the other, in order to maintain them practically at a uniform distance apart, as and for the purpose described.

315,565. PIPE-COUPLING. WILLIAM W. SPEER, Pittsburg, Pa. Filed Feb. 7, 1885. (No model.)

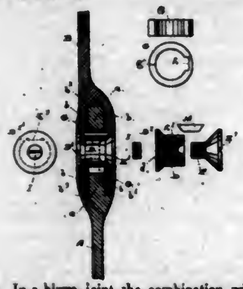


Claim.—1. A pipe-coupling lined with steel, substantially as set forth.

2. A sleeve for uniting the ends of pipe-sections in gas pipes or mains, consisting, essentially, of a cast-iron sleeve formed in one or more sections and provided with a steel lining, substantially as set forth.

3. A pipe-coupling consisting, essentially, of an iron sleeve having a steel lining and provided with internal annular grooves near each end for receiving packing, substantially as set forth.

315,566. HINGE-JOINT. MENZO SPENCE, San Francisco, Cal. Filed May 17, 1884. (No model.)



Claim.—1. In a hinge-joint, the combination, with the knuckles *a b b*, of the pivot formed of the parts D E and the ring G, substantially as described.

2. In a hinge-joint, the combination of the knuckles *a b b*, the two-part pivot D E, having enlarged conical heads, the ring G, and the wedge-piece H, substantially as described.

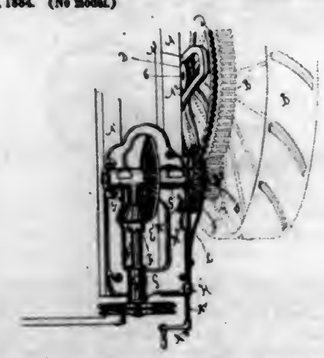
3. A center or pivot bearing for hinge-joints, consisting of the parts D E, the ring G, with slotted seat A, and the wedge H, with beveled ends, substantially as described.

4. The combination, with a screw, as E, that enters and is held in place within a threaded socket, as D, of the check-screw I, adapted to be set up against the end of the screw E, substantially as and for the purpose set forth.

5. A hinge-joint for artificial legs wherein the upper half or member and its knuckles are integral and the member is set off to one side of the center to bring the swell of the joint to one side, the lower half or member being practically in line with the middle knuckle, of which it is a continuation, substantially as described, for the purpose set forth.

6. The hinge-joint for artificial limbs, consisting of the strap A, with knuckle *a*, the strap B, having stationary knuckles *b b*, with one of which knuckles said strap B is practically in line, the reversible pivot D E, the ring G, and the check-screw I, all combined as described.

315,567. HARVESTER. JOHN F. STEWARD, Chicago, Ill. Filed Mar. 1, 1884. (No model.)

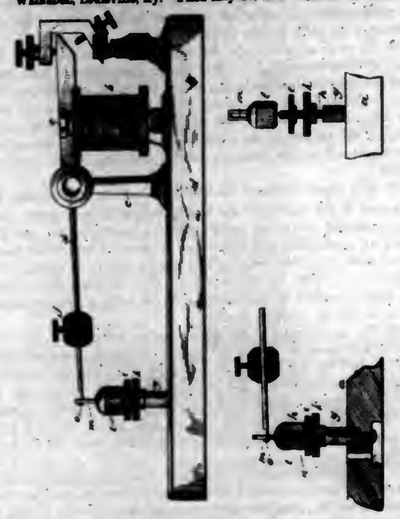


Claim.—1. The axle-supporting sector A^2, the axle provided with the pinion D and gear D′, and forming a common axis for said gear and pinion, and the gear B^2, the frame G having the sleeve G^2, adapted to form a support in common for the pinions B^2 and I, all combined substantially as described.

2. The frame G, constructed and arranged substantially as described, whereby it is adapted to form a support in common for the shafts E F′ K′ and the gear I, as set forth.

3. The combination, with the gear D′, of the gear-wheel B^2, when adapted to perform the office of a protecting-disk supported on the axle, and thus adapted to rise and fall with said gear D′ and form a protection thereto, substantially as described.

315,568. TELEGRAPHIC RELAY. FREDERICK STEINEL and CHARLES WEIDNER, Louisville, Ky. Filed May 17, 1884. (No model.)

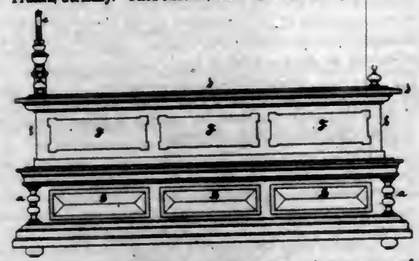


Claim.—1. The combination, in a relay, of the electro-magnet, the pivoted armature-lever *d*, provided with an adjustable weight, *f*, and a mechanical auxiliary to said weight normally disconnected from the armature-lever and taken up by said armature-lever while it is approaching the energized magnet for use in retracting the same when the circuit is broken, as set forth.

2. The combination, in a relay, of the electro-magnet, the pivoted armature-lever *d*, provided with an adjustable auxiliary weight, *l*, normally disconnected from and adapted to be taken up while the armature is approaching said magnet to assist in retracting the armature, as set forth.

3. The combination, in a relay, of the electro-magnet, the pivoted armature-lever *d*, having the hooked end *o*, and provided with the adjustable weight *f*, the auxiliary weight *l*, having the slotted projection *m*, to engage the said hooked end, and the post *g*, having the adjustable nuts *i* and *k* thereon, all substantially as and for the purpose set forth.

315,569. SAFETY APPARATUS FOR THE PRESERVATION OF THE DEAD UNTIL THEIR BURIAL. REINHARD STRAUSS, Schweidnitz, Prussia, Germany. Filed June 17, 1884. (No model.)



Claim.—1. In combination with the stationary lower part, *a*, of a corpse-preserver, a part, *b*, vertically movable therein, and a shaft, cords, pulleys, pawl, and ratchet, whereby said part *b* may be raised for inspection, held in an elevated position, and lowered at will, substantially as set forth.

2. In combination with an air-tight corpse-preserving apparatus, a lamp supported thereby and provided with tubes which allow the foul air to be drawn up from said apparatus by the lamp and consumed thereby, substantially as set forth.

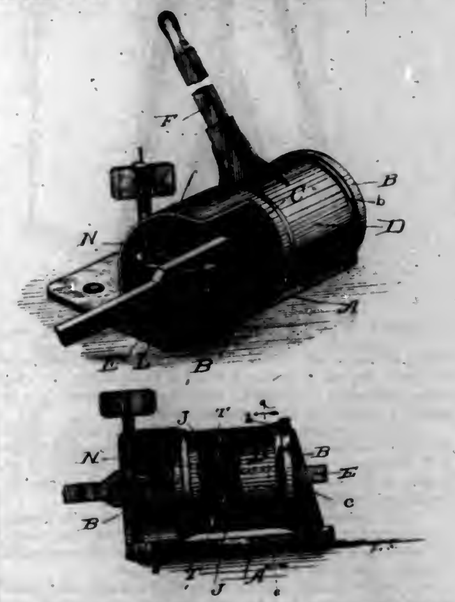
3. A coffin-supporting frame, in combination with a shaft, cords, and pulleys, and rods attached to said frame and vertically movable in tubular pillars by the rotation of said shaft, as set forth.

4. The combination of a bolt arranged to be attached to a supposed corpse, with a bar, *a′*, caused to drop by the withdrawal of said bolt, the door W, which flies open thereupon, the stud or rod *y*, carried by said door, and alarm mechanism tripped and caused to operate by the withdrawal of said stud or rod, substantially as set forth.

5. The combination of an air-tight coffin-receptacle with an ice-box arranged in a lower part of the apparatus, and a pipe, B, which makes communication between said ice-box and said coffin-receptacle, substantially as set forth.

315,570. SWITCH-STAND. ROBERT STRETCH, Tecumseh, Mich. Filed Apr. 18, 1884. (No model.)

Brief.—A base plate having cylinder-heads cast or bolted thereon, in which freely turns the cylinder. The cylinder has inclined grooves on its inside, in which grooves arms rigidly secured to the switch-bar passing through rectangular holes in the cylinder-head mesh or engage. A lever secured to the cylinder rotates it and operates the switch-bar. An arm secured to a signal-staff engages with a slot in the switch-bar, and any movement of the switch-bar is indicated by the signal.



Claim.—1. A frame forming a base-plate and having cylinder-heads cast or bolted thereon, a cylinder having a groove or thread placed therein or thereon turning freely in said heads, with a lever removably attached thereto, in combination with a bar attached to the switch-rails passing through slots or holes in said cylinder-heads, and having projecting arms engaging or meshing with the grooves on said cylinder, all constructed, operated, managed, and controlled substantially as described, and for the purposes set forth.

2. In a railroad-switch stand, the combination of the base-plate A, cylinder-heads B B, cylinder D, groove J, lever F, holes or slots C, bar or rod E, having projecting arms T T, and danger-signal H, with arm *f*, and slot L, all substantially as described, and for the purpose specified.

315,571. VOLTAIC-ARC LAMP. GEORGES A. TABOURIN, Marseilles, France. Filed Mar. 1, 1884. (No model.) Patented in France Nov. 9, 1883, No. 158,491; in Belgium Jan. 12, 1884, No. 63,819; in Luxemburg Jan. 12, 1884, No. 340; in Austria-Hungary Jan. 19, 1884, No. 12,110 960 and No. 25,181 948; in Italy Jan. 26, 1884, No. 16,370, and in England Jan. 26, 1884, No. 2,216.

Claim.—1. In an arc lamp, a bent tubular carbon-holder, in combination with feeding devices arranged within the holder and adapted to accommodate themselves to the curvature thereof, as described, for the purpose specified.

2. In an arc lamp, an electrode composed of two carbons, tubular holders for the same, arranged at an angle to each other, and feeding devices consisting of a spring-bearing for the carbons and an inert body arranged to exert constant pressure upon the spring-bearing, substantially as and for the purpose specified.

3. In an arc lamp, an electrode composed of two carbons, in combination with holders for the same, consisting of bent tubes having their legs arranged at an angle to each other for the reception of the carbons, and feeding devices contained within the holders and adapted to accommodate themselves to the curvatures thereof to feed the carbons toward each other and maintain their points in contact, for the purposes specified.

4. The combination, in an arc lamp, with one of the electrodes composed of two carbons, C C′, of the bent tubular holders T T′, and

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feeding devices for said carbons contained in said holders, consisting of the elastic supports or bearings S S' and F F', the followers $f f'$, and means, substantially as described, whereby a constant pressure may be applied to said follower, for the purposes specified.

5. In an arc lamp, the combination, substantially as described, of one of the electrodes composed of two carbons, C C', the tubular holders T T', bearings or supports F F', springs S' S', followers $f f'$, and the weights B B', said parts being arranged substantially as described, for the purposes specified.

6. In a voltaic-arc lamp, the combination, with one of the carbons, of a tubular holder therefor, arranged relatively to each other to form an annular passage between them open at both ends, and serving as a draft-flue, as described, and for the purposes specified.

7. The combination, with the carbon C^2, of a tubular holder inclosing the same, except at its point, and having draft-orifices at both ends, whereby an upward draft is induced at the point of incandescence or combustion, substantially as described, for the purpose specified.

8. The combination, with the carbon C^2, of a tubular holder inclosing the same, except at its point, and having a draft orifice or orifices at its upper end, and the cap H', having an axial orifice of less diameter than the body of the carbon, and draft orifices or ports formed around said axial orifice, substantially as described, for the purpose specified.

9. The combination, substantially as herein described, of carbons C C' C^2, a tubular holder carrying an armature and inclosing the latter carbon, except at its point, the screw-cap H', the weight B^2, the solenoid A^2, in the spool of which said holder is loosely fitted, the screw-plug l, having a tubular extension, l, and the spring S^2, for the purpose specified.

10. The combination, substantially as herein described, of the carbon C^2, a tubular holder for the same, a solenoid, in the spool of which said holder is loosely fitted, and a contact-piece connected with and passing through the core of the solenoid in contact with said holder, for the purpose specified.

11. The combination, with the solenoid A^2, having a spool provided with a tubular extension closed at both ends by tubular screw-plugs, and a tubular carbon-holder fitted loosely within said tubular spool of the solenoid and passing loosely through the screw-caps, and containing the feeding devices for the carbon, of a yielding or elastic bearing for said holder, to limit its movements in one direction by a yielding pressure, substantially as described, for the purpose specified.

12. The combination, in a voltaic-arc lamp, with the two carbons of the lamp, of three solenoids, A A' A^2, suitable electrical connections between the solenoids and carbons and the main line, and a shunt influenced by the solenoid A', whereby the solenoid A is automatically cut out of the circuit on the passage of an electrical current through said solenoids and through the lamp, substantially as described, for the purpose specified.

13. The combination, in a voltaic-arc lamp, substantially as described, of the two electrodes of the lamp, the solenoids A A' A^2, the latter having a resistance equal to or greater than the combined resistance of the solenoids A A', suitable electrical connections between the solenoids, the carbons, and main line, and a shunt whereby the solenoid A' is automatically cut out of the circuit on the interruption of the current through the lamp, for the purpose specified.

13. In a voltaic-arc lamp, the combination, substantially as described, with the solenoids A A', their tubular spool closed at both ends, a platinum wire or point projecting within the spool, and the movable copper rod R, contained and moving freely within said spool, and provided with a tubular armature, and supported from a yielding or elastic bearing, of the carbons of the lamp and suitable electrical connections between said carbons, the solenoids, and the main line, for the purposes specified.

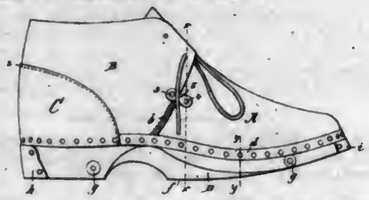
15. In a voltaic-arc lamp, the combination of the carbon-holder H, its armature K, the carbon C^2, the feeding devices for said carbon, contained within said holder and supported from a yielding bearing, and the solenoid A^2, surrounding said holder and in electrical connection therewith and with the carbon therein, with the carbons C C', arranged for operation as set forth, the solenoids A A', their electrical connections, and a shunt controlled by solenoid A', said parts being arranged substantially as and for the purposes specified.

16. The combination of the tubular carbon-holders T T', the carbons C C' and means for feeding the same, as described, contained within said holders, the braces D D' D^2, the solenoid A^2, and the described appliances influenced thereby and connected therewith, the solenoids A A' and the described appliances influenced thereby and connected therewith, and the electrical connections 1, 2, a^2, 3, 4, 5, 6, 7, 8, and 9, said parts being arranged for co-operation substantially as and for the purposes specified.

17. The combination, with the solenoid A^2, its tubular spool G, having extension G' and the described parts connected therewith, and the tubular holder H and the described parts connected therewith and contained therein, supported from the spool of the solenoid, of the sleeve g, and bridge or brace D, and means for adjusting the solenoid in said sleeve, substantially as specified.

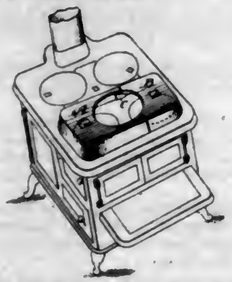
18. The combination, with the carbon-holder H, the carbon C^2, and the contact-spring S^2, of the solenoid A^2, the tubular spool G thereof, having extension G', the screw-plug I, having a tubular projection, i, and the spring-actuated contact I', contained in said projection, said parts being arranged for co-operation substantially as specified.

315,572. WOODEN-SOLED SHOE. ANDREW J. TEWKSBURY, Haverhill, Mass. Filed Nov. 10, 1884. (No model.)



Claim.—In a boot or shoe, the combination, with an upper, of a sole attached thereto, provided with a bearing-point, f, back of the ball and between the shank and ball, as shown, and for the purpose set forth.

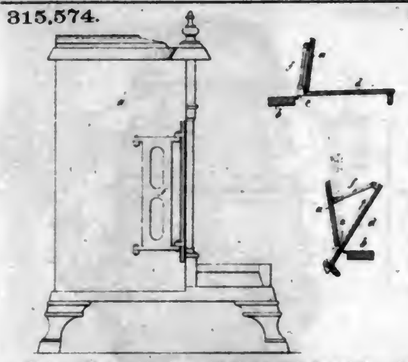
315,573. PORTABLE ELEVATED PLATFORM FOR STOVES, &c. MIRON G. TOURLEY, Englewood, Ill., assignor to Armena Patrick, same place. Filed Dec. 23, 1884. (No model.)



Claim.—The removable raised platform to increase the fire-space of cooking stoves and ranges when made with an eccentric division and with its joining edges covered by an underlap, substantially as described.

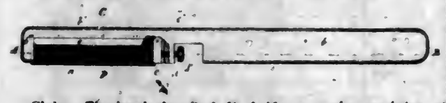
315,574. STOVE. HENRY TURNER, Boston, assignor to the Walker & Pratt Manufacturing Company, Watertown, Mass. Filed Nov. 24, 1884. (No model.)

315,574.



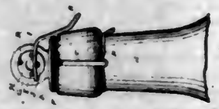
Claim.—The combination, with the stove-body and front, having an opening or space between them, of the doors and hangers having a pivotal or hinged connection, each at one end with the stove-body, and at the other ends with the doors, whereby the doors are guided and supported in their movement through the opening between the sides and front of the stove, all substantially as described.

315,575. DENTAL FILE HOLDER OR CARRIER. HERBERT E. WALES, Haverhill, Mass. Filed Feb. 19, 1885. (No model.)



Claim.—The herein-described file holder or carrier, consisting of the handle b, having the forwardly-projecting grooved bar b' and grooved end piece, b'', the adjustable grooved block c, and regulating-screw d d', as and for the purpose set forth.

315,576. BOTTLE-STOPPER FASTENER. JAMES T. WALKER, Troy, N. Y., assignor to Henry H. Wells, Washington, D. C. Filed Jan. 20, 1885. (No model.)



Claim.—1. In a bottle-stopper fastener, the combination, with the bail secured to the bottle and having a cross portion, of the button having an elastic packing, and an eye formed thereon, the eccentric fitted within said eye having pins projecting therefrom, and the lever held between the said pins and having a depression in its periphery, between which and the eye the bail is fitted, whereby the button is forced against the bottle.

2. The combination, in a bottle-stopper fastener, with an eccentric provided with pins extending from either side thereof, of the lever fitted between said pins and held in place by one or more of the pins being upset over and against the same.

3. The combination, in a bottle-stopper fastener, of an eccentric having a depression in its periphery, and a series of pins formed integrally therewith and projecting from either side of the lever having two members, each of which is fitted between the pins on the respective sides of the eccentric, two of the pins being upset over and against the lever.

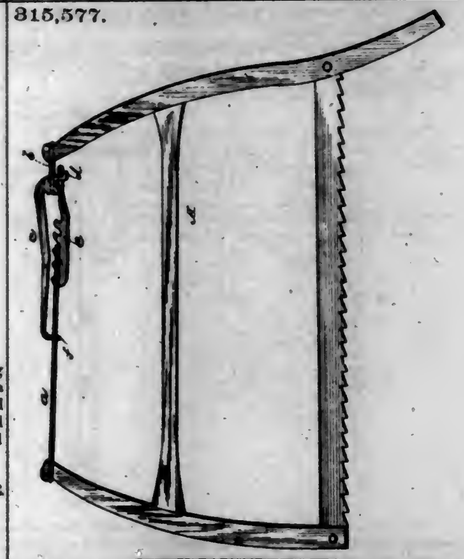
4. In a bottle-stopper fastener, the combination, with the bail, the button having an elastic packing, and an eye formed integrally therewith, of the eccentric fitted within said eye having projecting pins, and the lever fitted between the same, and a depression in its periphery, between which and the eye the bail is fitted.

315,577. BUCK-SAW. SAMUEL WALTER, Dallas City, Ill. Filed Oct. 17, 1884. (No model.)

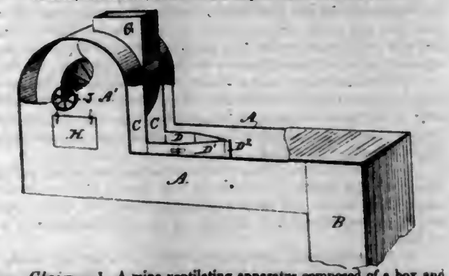
Claim.—In a buck-saw frame, the combination, with the two arms of the frame, of the long link a, secured at one end to the forward arm and at the other to the rack-bar c, said rack-bar engaging at one end with the lever c, the said lever being secured to the short link b, which engages with the rear arm of said frame, and the hook f on the end of said lever, by which the same is secured to the link a and the tension of the frame secured.



315,577.



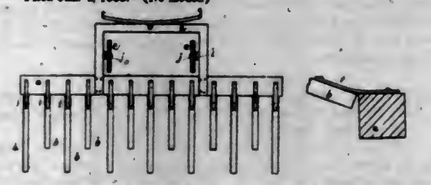
315,578. APPARATUS FOR VENTILATING MINES. MORTON L. D. WESTON, Des Moines, Iowa. Filed May 16, 1884. (No model.)



Claim.—1. A mine-ventilating apparatus composed of a box and air-conveyer having a fan-case and fan at one end and an elbow or downward opening at its opposite end, hinged or removable sections or doors in the top and bottom of the fan-case, an air-conveyer extending rearward from the fan-case toward the open elbow or downward, opening at the end of the box, hinged doors or adjustable sections at the end of such inner air-conveyer, and hinged doors or adjustable sections in the outer walls of the fan-case, substantially as shown and described, to operate in the manner set forth.

2. The box A A', having an open top, G, and hinged doors or removable sections on its opposite sides, in combination with a fan-case inclosing a rotary fan, and having hinged or removable sections G' and G^2, a horizontal extension at its base, and hinged doors D' at the end of the extension, to operate in the manner set forth, for the purposes stated.

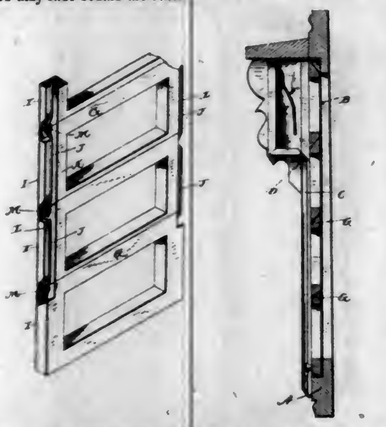
315,579. HARROW. JOHN R. WHITTEMORE, Chicopee Falls, Mass. Filed Jan. 4, 1883. (No model.)



Claim.—The draw-beam and the tooth-beam arranged with their upper faces on the same horizontal line, and the rear face of the draw-beam abutting square against the end face of the tooth-beam, in combination with a straight spring laid flat on the upper faces of said beams with one end rigidly secured to and across the draw-beam, and the other end extended and rigidly secured to the top face of the tooth-beam, substantially as and for the purpose set forth.

315,580. SHUTTER. HORATIO O. WEYMAN, Norfolk, Nebr. Filed Apr. 17, 1884. (No model.)

Brief.—Consisting of a series of shutter-sections with beveled ends provided with rods, and loosely joined together by rings, in order that one section may slide behind the other.



Claim.—1. The combination, with a suitable window-frame, of a sectional blind or shutter adapted to fit therein, said sections being provided with rods and rings adapted to loosely clasp said rods, whereby the sections may be raised one behind the other, substantially as set forth.

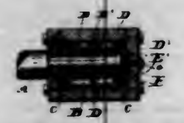
2. The combination, with a suitable window-frame, of a sectional blind or shutter adapted to fit therein, said sections being provided at their sides with plates, and rods secured to said plates, the upper ends of said rods being provided with rings through which pass the rods of the adjacent shutter, substantially as and for the purpose set forth.

3. The combination, with a suitable window-frame, of a sectional blind or shutter adapted to fit therein, the said sections being provided with beveled ends and adapted to slide behind each other, and springs adapted to secure the sections in any desired adjustment, substantially as and for the purpose described.

4. The combination, with a window-frame and box-casing having springs secured thereto, of a sectional and beveled blind or shutter adapted to fit therein, and provided with plates and rods having rings adapted to receive the rods of the upper adjacent blind, substantially as set forth.

5. The combination, with a window-frame, of a sectional shutter adapted to fit therein, said sections being beveled on their upper and lower ends and provided with recesses at their opposite sides, rods secured to the shutter above said recesses, rings adapted to clasp the rods of adjacent sections, and springs adapted to hold said shutter in any desired position, substantially as shown and described.

315,581. CAR-AXLE BOX. WILLIAM E. WILCOX, Cleveland, Ohio, assignor of one-half to Frederick H. Kelly, same place. Filed Feb. 6, 1885. (No model.)



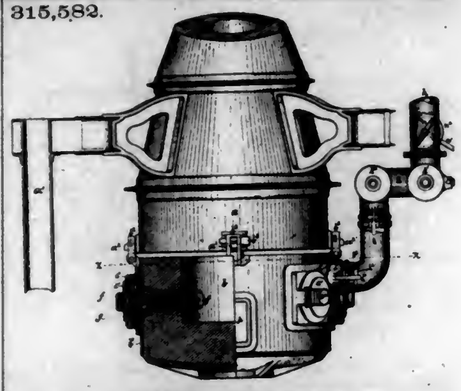
Claim.—In a car-axle box, the combination, with the anti-friction rollers B, provided with journals *b* and groove *b'*, of the rings C and the anti-frictional end bearing mechanism consisting of the plate E, balls E', and groove E^2 in the cap D^2, when constructed substantially as and for the purposes shown.

315,582. METHOD OF OPERATING CONVERTERS. JOHN F. WILCOX, Pittsburg, Pa., assignor to James P. Witherow and Henry W. Oliver, Jr., same place. Filed Feb. 7, 1885. (No model.)

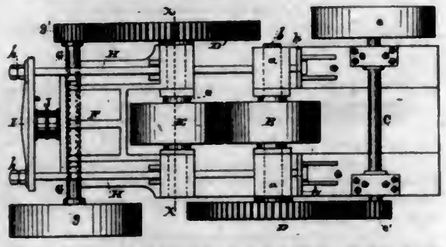
Claim.—In operating a Bessemer converter, the method of keeping the tuyeres clear of metal, which consists in maintaining a sufficient minimum pressure in the blast-pipe and tuyeres during the time the metal is not under blow, to counterbalance the pressure of the column of metal in the converter, substantially as and for the purposes described.



315,582.



315,583. ORE-CRUSHING MACHINE. WILLIAM E. WILD, San Francisco, Cal., assignor of one-half to George E. Ames, same place. Filed Sept. 26, 1884. (No model.)



Claim.—1. The combination, in an ore-crushing machine, of two crushing-rolls, a sliding frame, on which one of the rolls is mounted, and driving mechanism carried by the sliding frame, for rotating the roll on said frame independent of the other roll, substantially as herein described.

2. In an ore-crushing machine, the main frame A and the crushing-roll B, fixed thereon, and mechanism for driving it, in combination with the sliding frame F, the crushing-roll E, mounted thereon, and independent mechanism carried by said sliding frame for driving roll E, substantially as herein described.

3. The combination, in an ore-crushing machine, of a fixed roll, the sliding frame F, the roll E on the frame, and the mechanism carried by said frame for driving roll E, consisting of the shaft G, pulley *g*, pinion *g'*, and master-gear D', all arranged to operate substantially as herein described.

4. In an ore-crushing machine, the main frame A, fixed roll B, and mechanism for driving it, consisting of the shaft C, pulley *c*, pinion *c'*, and master-gear D, in combination with the sliding frame F, roll E, and mechanism carried by the sliding frame for driving the roll E, consisting of the shaft G, pulley *g*, pinion *g'*, and master-gear D', all arranged to operate substantially as herein described.

5. An ore-crushing machine comprising the main frame, fixed roll, driving mechanism therefor, the sliding frame, the roll and independent driving mechanism carried by said sliding frame, the bolts H, adjustable cross-plate I, and cushion J, all arranged to operate substantially as described.

315,584. ROOFING COMPOSITION OF TAR, CEMENT, &c. KARL WILDHAGEN, Trassberg, Brunswick, Germany. Filed July 14, 1884. (No specimens.) Patented in Germany Aug. 3, 1883, No. 23,440.

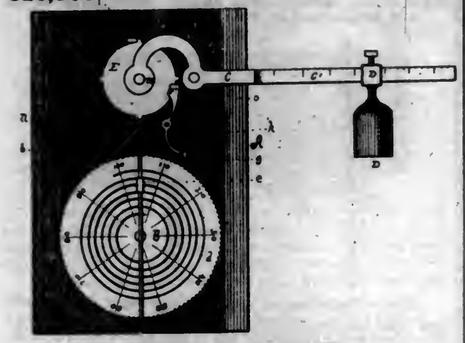
Claim.—1. A composition of matter consisting of four parts of vegetable fiber, two parts of pulverized mineral matter or coal-ashes, one part of mineral tar, and sufficient water to make the mixture plastic, for the purposes set forth.

2. A roofing consisting of a layer of vegetable fiber, mineral matter, and coal-tar mixed and made plastic, a layer of coal-tar thereon, a second layer of the said mixture on said coal-tar, and a mixture of cement and sand on the latter, the whole forming a mass of roofing material, substantially as set forth.

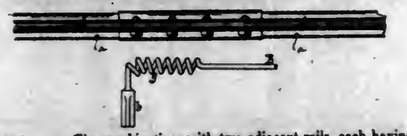
315,585. GRAIN-METER. ELWOOD N. WILLIAMSON, near Lodge, Ill. Filed Aug. 16, 1884. (No model.)

Claim.—The combination, with receptacles *e f*, of beam C C', weight D, wheel E, block *i*, and trip-pawl F, as and for the purpose set forth.

315,585.



315,586. RAILROAD-RAIL CONNECTION. HENRY D. WINTON, Wellesley Hills, Mass. Filed June 12, 1884. (No model.)

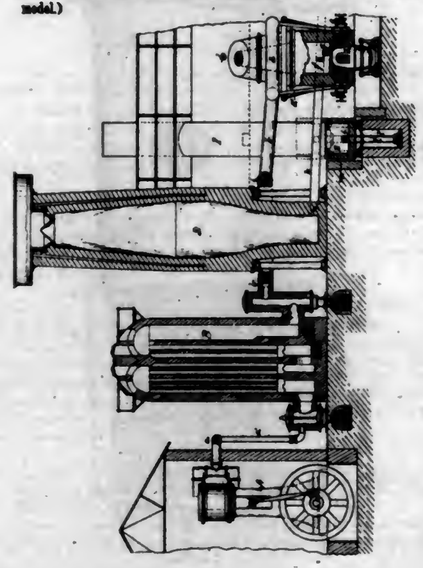


Claim.—1. The combination, with two adjacent rails, each having an aperture formed in its flange, said aperture extending to the edge thereof, so as to have open sharp edges, of a connecting device having a body and enlarged ends for insertion into the rail-flange apertures, and adapted to be secured therein and form good electrical contact by the compression of the open sharp edges upon the enlarged ends of the connector, substantially as described.

2. A device for electrically connecting adjacent rails in a track-circuit, consisting of a metallic wire or rod body having enlarged ends at an angle thereto, made homogeneous therewith, and adapted to be secured in apertures in the flanges of the rails, having open sharp edges at the sides of the flange, substantially as described.

3. A device for electrically connecting adjacent rails in a track-circuit, consisting of a metallic wire or rod body provided with enlarged ends made homogeneous therewith and at an angle thereto, for insertion into apertures in the flanges of the rails extending to the edges thereof, and having a spiral or helical spring at each end of the body, between the enlarged ends and such body, whose convolutions are at a right angle to, or approach a right angle to, the body, substantially as described.

315,587. APPARATUS FOR THE MANUFACTURE OF IRON AND STEEL. JAMES P. WITHEROW, Allegheny, Pa. Filed Jan. 16, 1884. (No model.)

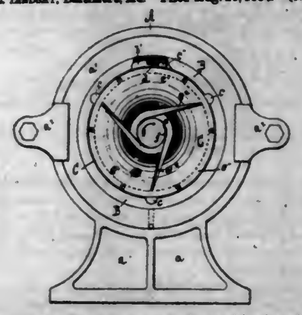


Claim.—1. The combination of a blast-furnace, a blast-heating stove, a converting-vessel, an intermediate distributing-receptacle, and connections for the blast and transfer of the metal, substantially as and for the purposes described.

2. The combination of a blast-furnace with a converter having side tuyeres, and a cinder-tap at or near the metal-line, substantially as and for the purposes described.

3. The combination of a blast-furnace and converter, blast-connections extending from the blast-furnace to the converter, and tuyeres provided with stoppers to control the blast at the converter, substantially as and for the purposes described.

315,588. GREEN-CORN-CUTTING MACHINE. ALEX. P. WOODS and WM. E. LINDSAY, Baltimore, Md. Filed Aug. 20, 1884. (No model.)



Claim.—1. In a green-corn cutter, the combination of the frame A, the head B, the ring C, the volute knives having the flexible supports and the covering-disk provided with a central opening for the knives to project through, and the slotted openings for the flexible supports, as herein specified.

2. In a green-corn cutter, the rotary head B, provided with the groove *b'*, the projection *d*, and the notches *c*, in combination with the head or ring C, on which are projections *c'*, whereby the ring C is conveniently removed and replaced, as herein set forth.

315,589. LACE AND THE ART OF MAKING THE SAME. DAVID WUILLEMIN, Courgevaud, Canton of Fribourg, Switzerland. Filed May 24, 1884. (No model.)



Claim.—1. The improved lace, consisting of suitable figures having understitches connected by threads carried under and over, and the whole having machine-embroidery finishing-stitches, and being without foundation or ground, as described.

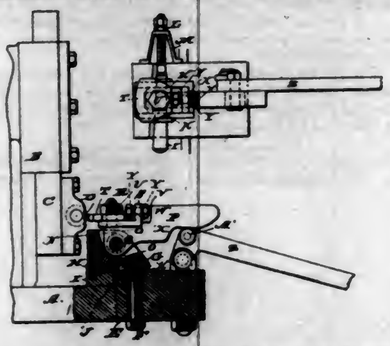
2. The hereinbefore-described process of manufacturing lace, consisting in marking the design or figures upon paper or other soluble ground and connecting said figures by threads, then completing the embroidery by suitable machine, and subsequently removing the ground, substantially as described.

315,590. REED FOR LOOMS. EDWARD ADAMSON, Pawtucket, R. I. Filed Oct. 20, 1883. (No model.)



Claim.—A reed composed of the ribs *c c'* and dents *a*, having the ends of the wires or dents *a* united together by solder at one side of the reed, and the opposite ends bent or lapped over each other to form a clinch, and having said wires or dents spaced apart by means of cords *b*, substantially as specified.

315,591. MACHINE FOR FORMING CLIPS ON HORSESHOES. ANDERS ANDERSEN, Copenhagen, Denmark, assignor to the Kjobenhavns Hestsko-fabrik, same place. Filed June 4, 1884. (No model.)



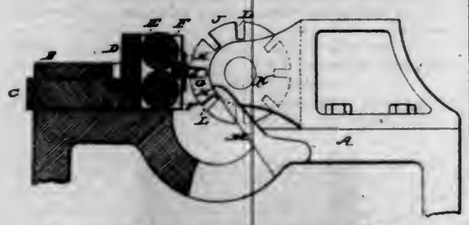
Claim.—1. In a machine for striking up clips or calks on horseshoes, the combination of a clamping device having means, substantially as described, for adjusting its jaws, and adapted to hold the article to be struck up in a horizontal position, with a vertically-sliding block having a presser-roller journaled transversely in the same, as and for the purpose shown and set forth.

2. In a machine for striking up clips or calks on horseshoes, the combination of the table formed with a longitudinal slot, and with longitudinal sliding ways, having notches in its sides, a jaw-block having a transverse groove in its under side and a screw-threaded perforation, a screw-bolt sliding in the slot in the table and fitting with its upper end in the threaded perforation, and a movable jaw pivoted upon the upper side of the jaw-block, as and for the purpose shown and set forth.

3. In a machine for striking up clips or calks on horseshoes, the combination of the lower jaw-block having a recess in its upper corner, and having means for adjusting it with the clamping-lever pivoted in the upper side of the jaw-block, and formed with an inwardly-facing shoulder in the upper side of its outer end, provided with an inwardly-projecting notted screw-bolt, the rectangularly-bent sliding piece sliding upon the upper side of the inner end of the lever, with its upwardly-bent portion upon the notted screw-bolt, and the upper jaw-piece, as and for the purpose shown and set forth.

4. In a machine for striking up clips or calks on horseshoes, the combination of the lower jaw-block having a recess in its upper corner, and having means for adjusting it, the upper clamping-lever pivoted in the upper side of the jaw-block and provided with adjustable jaw-pieces, and the elbow-lever pivoted at the end of its short arm upon the table and provided with a roller at the elbow bearing against the under side of the upper clamping-lever, as and for the purpose shown and set forth.

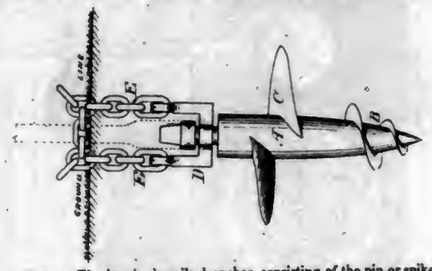
315,592. MACHINE FOR FORMING CLIPS ON HORSESHOES. ANDERS ANDERSEN, Copenhagen, Denmark, assignor to the Kjobenhavns Hestsko-fabrik, same place. Filed June 4, 1884. (No model.)



Claim.—1. The combination, in a machine for striking up clips or calks on horseshoes, of an adjustable block provided with a presser-roller, with a revolving disk having a number of radial incisions in its periphery for the reception of the blanks, and an arm secured in a position inclined toward the presser-roller at the side of the disk at its lower half, as and for the purpose shown and set forth.

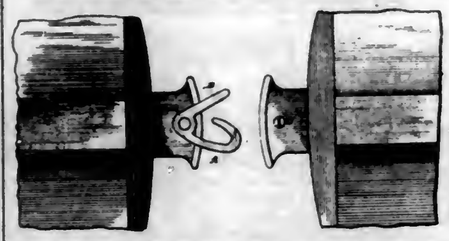
2. The combination, in a machine for striking up clips or calks on horseshoes, of an adjustable block having a recess in its face, two anti-friction and supporting rollers journaled transversely in the inner portion of the recess, a plate secured across the face of the recessed block and having a transverse slot having beveled edges, a roller placed inside this plate and bearing against the inner rollers, with a revolving disk having incisions in its edge for the reception of the blanks, and an inclined stripper-arm, as and for the purpose shown and set forth.

315,593. GROUND-AUGER ANCHOR. HENRY BOEHMER and GERHARD BOEHMER, Cleveland, Ohio. Filed Feb. 19, 1885. (No model.)



Claim.—The herein-described anchor, consisting of the pin or spike A, provided with the gimlet-screw B at the point, and the spiral bladed wings C, and having the swiveled loop D, with cords or chains E, for the purposes specified.

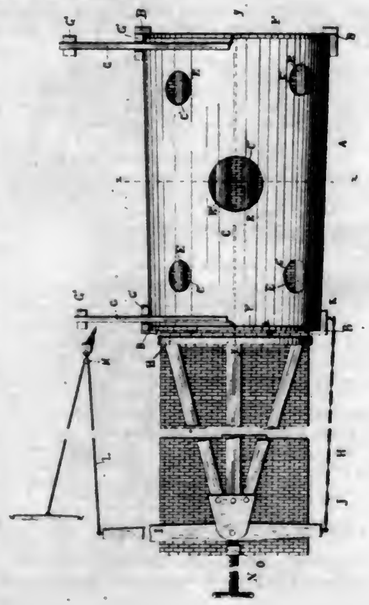
315,594. CAR-COUPLING. CHARLES W. BOND, Toledo, Ohio. Filed Jan. 17, 1885. (No model.)



Claim.—In a rail-car coupling, the pivoted hook A, provided with a trip, B, in combination with a coupling-pin, C, upon the opposite car, substantially as and for the purposes set forth.

315,595. COKE-OVEN. EDMUND J. ROWEN, Maynard, Ohio, assignor to Thomas Kelley, same place. Filed Nov. 6, 1884. (No model.)

Claim.—1. A coke-oven having an inlet-opening at one end and an outlet at its opposite end and having its floor inclined downward toward its discharge or outlet end and provided on such floor with a longitudinal series of rails arranged side by side and a slight distance apart, substantially as set forth.



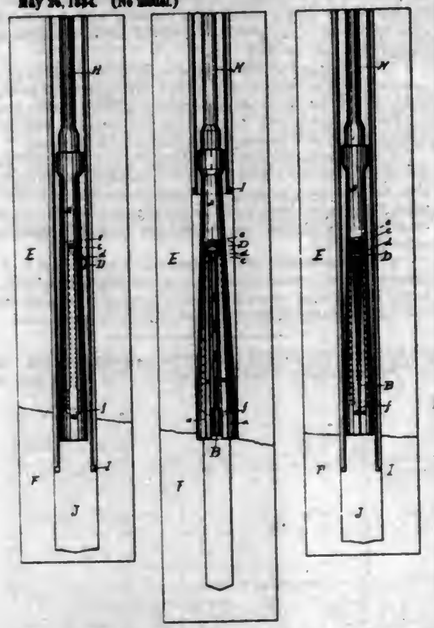
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2. The combination, with a coke-oven, of the pusher, the lever I, and the fulcrum-chain J, whereby the fulcrum of lever I may be set from time to time nearer to the oven and the said lever may be given a movement lateral to the line of motion of the pusher, substantially as set forth.

3. In a coke-oven, the combination of the pusher, the lever I, and the screw N.

315,596. WELL-REAMER. WM. D. BRADEN, Denver, Colo. Filed May 26, 1884. (No model.)



Claim.—1. The combination, substantially as set forth, of the stock A and the normally-diverging arms *a a*.

2. The combination, substantially as set forth, of the stock, its normally-diverging arms, and the mandrel located between the arms.

3. The combination, substantially as set forth, of the stock, its normally-diverging grooved spring-arms, and the mandrel located between the arms.

4. In a reamer, the combination, substantially as set forth, of the stock, its normally-diverging arms, the mandrel located between the arms, and the lever for raising and lowering the mandrel that projects laterally from the arms, whereby the mandrel may be automatically adjusted as the reamer is raised or lowered.

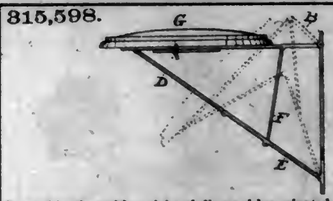
315,597. MANUFACTURE OF VARNISH FROM SLUDGE-TAR. E. M. BARNES, Brooklyn, N. Y. Filed Jan. 28, 1884. (Specimens.)

Claim.—The described process, consisting in treating sludge, as described, with a soap compound, whereby the acid is separated and the tar or oily parts of the sludge chemically combined with the soap, then driving off from the mass all free water, and treating the resulting mass with linseed-oil and turpentine, or equivalent substances, substantially as and for the purposes set forth.

315,598. BRACKET-SEAT. OSCAR E. BROOKS, Binghamton, N. Y., assignor of two-thirds to George Hull and Alexander D. Wales. Filed May 26, 1884. (No model.)

Claim.—A bracket consisting of a plate to fasten to a wall or standard, with a jointed horizontal bar hinged to the plate at or near the top,

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in combination with a jointed diagonal bar pivoted to the lower end of the wall-plate and outer end of the horizontal bar, a brace between the diagonal bar and the joint in the horizontal bar, a sliding bolt mounted on the horizontal bar to lock the same in an extended position, and a seat mounted on the outer end of said horizontal bar, all substantially as shown and described.

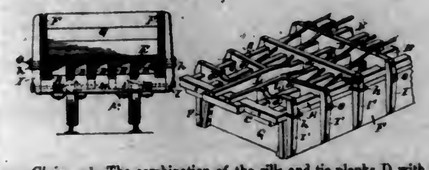
315,599. DEVICE FOR FORMING OPENINGS IN WIRE FENCES. WILLIAM M. CLOW, Will County, Ill. Filed July 11, 1884. (No model.)



Claim.—1. The combination of the fence-post A, having the hinge-hooks H, with the rotating bar B, having the arm C, terminating in the hook D, the fence-wires W, and hooks E, as and for the purpose set forth.

2. In a wire fence, the rotating bar B, having the hooks E, and arm C, terminating in the hook D, and arranged to be detachably connected to the fence-post A, in combination with the fence-wires W, as and for the purpose set forth.

315,600. FREIGHT-CAR. ISAAC H. CONGDON, Omaha, Nebr. Filed Feb. 9, 1885. (No model.)



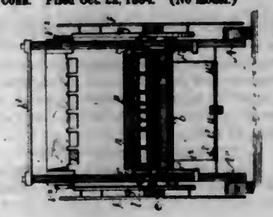
Claim.—1. The combination of the sills and tie-planks D with the side stakes, I, extending over the ends of said tie-planks, substantially as and for the purpose described.

2. The combination of the sills, the tie-planks D, and the supplementary tie-planks *d*, with the side stakes extending over the ends of said supplementary tie-planks, substantially as and for the purpose described.

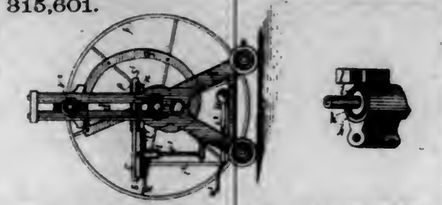
3. The combination of the sills and the side stakes with the cross-rods O, passing through said stakes and across all the sills, substantially as and for the purpose described.

4. The combination of the sills, the tie-planks D, supplementary tie-planks *d*, stakes I and I', extending over the ends of said planks, and the cross-rods O, substantially as and for the purpose described.

315,601. MACHINE FOR PRESSING BRICKS. SAMUEL P. CRAPTS, Hamden, Conn. Filed Oct. 22, 1884. (No model.)



315,601.



Claim.—1. In a brick-pressing machine, in combination with a bottom plunger and a drop-plunger above the same, a reciprocating pressing-case adapted to receive a molded brick and to be moved in between the plungers, and means, substantially as described, adapted to cause the plungers to enter the pressing-case and compress the brick therein, all substantially as and for the purpose set forth.

2. In a brick-pressing machine, in combination with the series of bottom plungers and the series of drop-plungers situated over the bottom plungers and falling toward the same, the reciprocating pressing-case adapted to be slid out to receive a series of molded bricks and then moved inward between the two series of plungers, and means, substantially as described, adapted to cause the opposing plungers to enter the divisions of the case to compress the bricks therein, all substantially as and for the purpose set forth.

3. In a brick-pressing machine, in combination with the sliding pressing-case, the movable pallet to which the bricks are transferred from the drying-pallets, and means for raising such movable pallet to cause the bricks placed thereon to enter the divisions of the pressing-case, substantially as and for the purpose described.

4. In a brick-pressing machine, in combination with the series of pressing-plungers, the sliding pressing-case adapted to be slid inward between two series of plungers and outward again, the vertically-movable pallet situated below the pressing-case when the latter is drawn out, adapted to receive a series of brick from the drying-pallets, and means for raising and lowering the movable pallet, all substantially as and for the purpose described.

5. In a brick-press, the combination, with the sliding pressing-case, of the vertically-moving platform adapted to receive and support a transfer-pallet carrying bricks placed thereon from drying-pallets, and means, substantially as described, adapted to raise the platform so as to bring the bricks on the movable pallet up into the divisions of the pressing-case, all substantially as and for the purpose set forth.

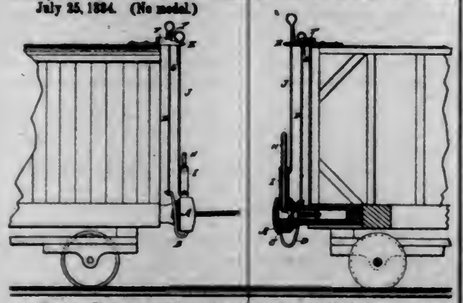
6. In a brick-pressing machine, the shaft *e*, having a longitudinal flat surface, *i*, and shoulders *m*, with groove *k*, for receiving bent pins in the cross-bar, as and for the purpose specified.

7. The combination, with the shaft *s*, of the cross-bar *l*, with its plungers *n*, and the anvil-block *b*, located under and forming a bearing for the shaft, as and for the purpose set forth.

8. The combination, with the shaft *s*, of the lifting-cams *g* and plunger-drop *v*, as and for the purpose described.

9. In a brick-press, the combination of shaft *e*, lifting-cams *g*, drop *v* and plungers *v'*, cross-bar *l*, plungers *n*, pressing-case *p*, and platform *t'*, substantially in the manner and for the purpose described.

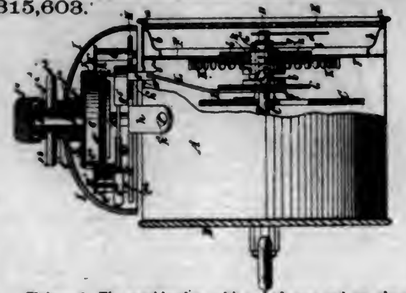
315,602. CAR-COUPLING. JOHN A. CRAIG, Lauderdale, Miss. Filed July 25, 1884. (No model.)



Claim.—In a car-coupling, the combination, with the draw-head A, of the link-lifter consisting of the bail-shaped rod B, with its side portions curved or extended at their lower ends forwardly and inwardly, said latter portions having upwardly-extended portions C, projecting up into the link passage or chamber, substantially as shown and described, and for the purpose set forth.

315,603. ALARM-CLOCK. WALTER D. DAVIS, Brooklyn, N. Y., assignor to the Ansonia Clock Company, Ansonia, Conn. Filed Nov. 3, 1884. (No model.)

315,603.



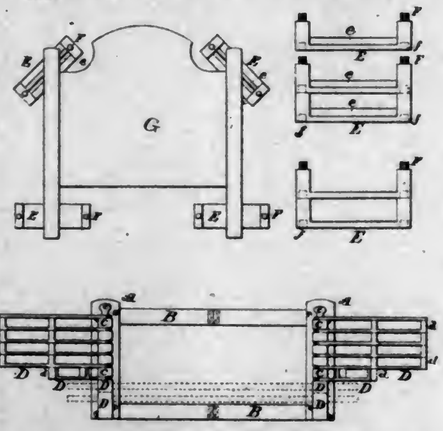
Claim.—1. The combination, with a clock-case and an alarm-bell upon the exterior thereof, of an alarm-movement arranged within the bell and comprising a hammer arranged to operate in a horizontal plane, and having an arm or projection extending downward through a slot in the case into the interior thereof, and a trip-lever serving to block the alarm-hammer by engaging with the downward projection thereon, substantially as herein described.

2. The combination, with a clock-case and an alarm-bell on the exterior thereof, of an alarm-movement and a frame therefor, all arranged within the bell, one plate of the alarm-movement having a cavity formed in a hub or projection from its upper side and containing therein the spring of the alarm-movement, substantially as herein described.

3. The combination, with the dial-plate F, having a central aperture, of the alarm-cam J, having a sleeve, *j*, extending through the dial-plate, the alarm-index on said sleeve, outside the dial-plate, the contrate-wheel K, fast on said sleeve inside the dial-plate, and the arbor and pinion m' m^3 for turning said contrate-wheel and alarm-cam, substantially as herein described.

4. The combination, with the clock-case A and the bell I, of an alarm-movement contained within the bell, and comprising the plate H, having arms h, which extend downward and outward in opposite directions and are attached to the case, substantially as herein described.

315,604. APPARATUS FOR DRYING PAINTED ARTICLES. GEO. DURHAM and CHAS. J. DURHAM, Malvern, Ohio. Filed Mar. 12, 1884. (No model.)

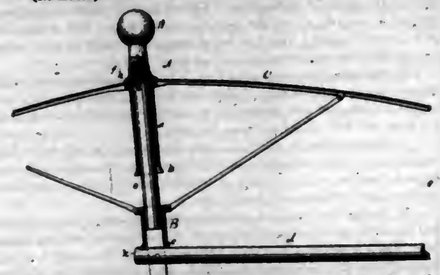


Claim.—1. The combination, with standards A, of independently-moving shelves D, hinged to each standard, one above the other, and spacing-blocks between the shelves to form supports therefor, the blocks at the free ends of the shelves being secured thereto to move therewith, substantially as described.

2. The combination of a series of blocks formed with upright end pieces and connecting-bars, the end pieces of one block being formed with a socket and those of the adjoining block with a pin to fit therein, and the whole constituting a support for painted or varnished articles, substantially as described.

3. The combination of standards A, bars B, formed in sections hinged together at their meeting ends, and secured to said standards at their outer ends, independently-moving shelves D, hinged to each standard, one above the other, and spacing-blocks between the shelves to form supports therefor, the blocks at the free ends of the shelves being secured thereto to move therewith, substantially as described.

315,605. PARASOL FOR CHILDREN'S CARRIAGES. GEO. A. ELLIS, Gardner, Mass., assignor to Henry Heywood, George Heywood, Alvin M. Greenwood, and Amos Merrill, all of same place. Filed June 30, 1884. (No model.)

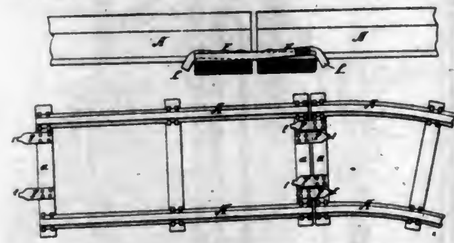


Claim.—1. A parasol with its top notch, A, provided with a tubular stem, *a*, projecting downwardly into the parasol, and an inner flange, *h*, at the top thereof, substantially as and for the purpose described.

2. A parasol with the following elements in combination: a tubular top notch, A, with inner flange, *h*, a runner, B, a hinge-stem, *d* and *e*, and a screw nut or cap, D, as and for the purpose described.

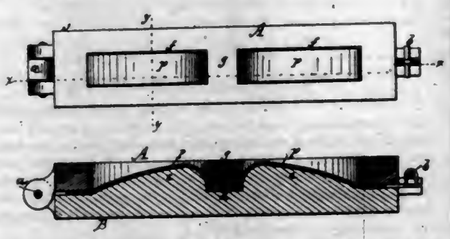
3. In combination, a parasol with a jointed standard in two parts, *d* and *e*, the part *d* being provided with a notch, *k*, a runner, B, with a flange, *c*, on the lower end of the same, a tubular top notch, A, with a flange, *b*, at its lower end, and an inner flange, *h*, a screw-thread, *f*, and shoulder *g*, and a nut or ornamental top, D, as and for the purpose described.

315,606. LOCK-PLATE FOR PORTABLE RAILWAYS. H. FRANKE, Brooklyn, N. Y. Filed Dec. 11, 1884. (No model.)



Claim.—The combination, in a portable railway, of the rails A A and end ties *a a* with the lock-plates F, having the hooks *f*, as and for the purpose herein shown and described.

315,607. DIE FOR PRESSING HARNESS-PADS. CHARLES H. FREEMAN, Rochester, N. Y. Filed Sept. 1, 1884. (No model.)

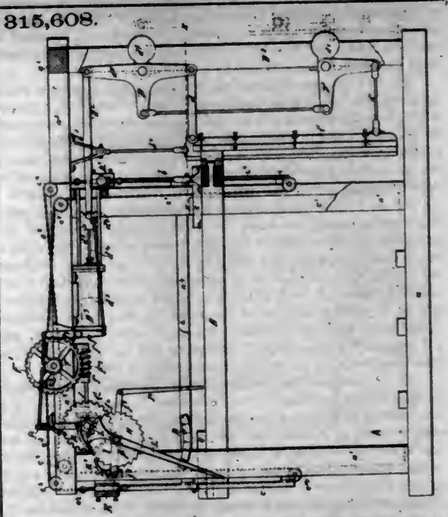


Claim.—The herein-described die for making double harness-pads, the same consisting of the two blocks A B, the lower block, B, provided with forms *c c* at opposite ends, with a plain depressed bed, *d*, between, the upper block, A, being provided with slots *f f*, which strike over the forms, and with a cross-bar, *g*, which strikes upon the bed, the whole arranged as described, and operating in the manner and for the purpose specified.

315,608. STONE-SAWING MACHINE. JOHN H. FREDER, Rutland, Vt. Filed Nov. 21, 1883. (No model.)

Claim.—1. In a stone-sawing machine, the combination of a fixed main frame, a vertically-adjustable saw-frame, one or more vertical bars having a path of travel which is constant in elevation, one or more sliding pieces, c^3, fast to said saw-frame and movable up and down upon said

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bar or bars, the levers or arms connected with said vertical bar or bars for imparting motion thereto, and the endless chains or ropes connected with the upper and lower sides of the cross-heads, substantially as and for the purposes set forth.

2. In a stone-sawing machine, the combination, with a fixed main frame, of one or more vertical bars working in a path of travel which is fixed or constant in elevation, a vertically-adjustable saw-frame sliding or movable upon said bar or bars, and pendulum-rods of equal lengths to support the saw-frame and the vertical bar or bars, substantially as described, and for the purposes set forth.

3. In a stone-sawing machine, the combination, with a fixed main frame, of one or more vertical bars working in a path of travel which is fixed or constant in elevation, a vertically-adjustable saw-frame sliding upon said bar or bars, pendulum-rods of equal lengths to support the saw-frame and the vertical bar or bars, substantially as described, a motor arranged substantially as specified, and secured on the main frame, and mechanism between the said motor and the vertical bar or bars, which imparts to the said bar or bars a reciprocating movement, substantially as explained, and for the purposes set forth.

4. The combination, in a machine for sawing stone, of a vertical bar, C, supported by the swinging rod b^2, mounted in stationary bearings, means to impart a reciprocating movement to said bar, the saw-frame B, sliding vertically upon bar C, said saw-frame being suspended by rods *b b'*, made of the same length as rod b^2, and means for adjusting and maintaining said saw-frame in close sliding contact with bar C, substantially as described, and for the purposes set forth.

5. The combination, in a stone-sawing machine, of a reciprocating saw-frame, B, pendulum-rods *b b'*, cross-heads E E, feed-shaft F, wheels or drums c^4 c^4, fast to said shaft F, the upper supporting-wheels set above the cross-heads, the lower wheels, c^5 c^{10}, below the cross-heads, and the endless chains or ropes connected to the upper and to the lower side of said cross-heads E E, and all said chains or ropes operated by wheels c^4 c^4, substantially as described, and for the purposes set forth.

6. The combination, in a stone-sawing machine, of the ratchet-wheel operated by a pawl, the adjustable cover or shield covering part of said ratchet-wheel and made adjustable to regulate the engagement of the pawl therewith, substantially as explained, and a stationary scale or index, in combination with said adjustable cover for indicating the rapidity of the downward feed of the saws, substantially as described, and for the purposes set forth.

7. In a feeding mechanism for stone-sawing machines, the combination of the ratchet-wheel H, pawl K, rock-lever f^4, for operating the same, an adjustable cover or shield interposed between the pawl K and said wheel H, the handle or lever L', applied in connection with said cover, and the holding-nut *l*, for maintaining the cover at any point to which adjusted, substantially as shown, and for the purposes set forth.

8. The combination, in a machine for sawing stone, of the vertical bar or bars arranged to impart movement to the saw-frame, substantially as described, said saw-frame being movable upon said bar or bars, pendulum-rods to suspend said saw-frame and the said vertical bar or bars, all the said rods being made of the same length in order to impart to the saw-frame and the vertical bar or bars like motion throughout the stroke, and the mechanism for operating the said vertical bar or bars, substantially as explained, and for the purposes set forth.

9. In a stone-sawing machine, the combination of the ratchet feed mechanism for producing an intermittent downward feed, substantially

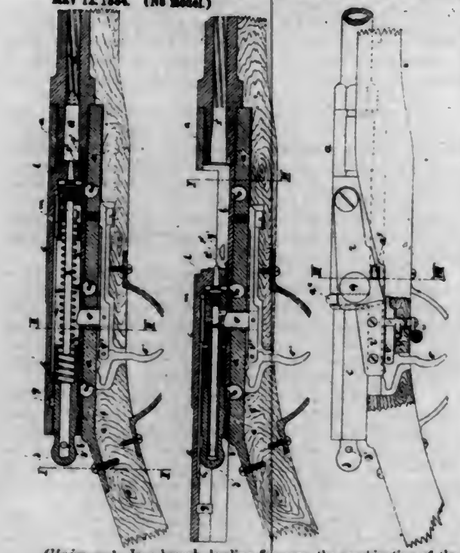
as explained, the reversing feed mechanism, the saw-frame B, means of suspending or supporting the saw-frame a driving-bar, C, supported by the same means, and an index for indicating the rapidity of the downward feed in the stone, substantially as set forth.

10. In a stone-sawing machine, the combination of a main frame, A, a separate vertically-moving reciprocating saw-frame, B, a vertical driving-bar, C, connected with the saw-frame and supported or suspended by the same means in order to take up the same motion throughout the stroke, the chains or ropes for moving the saw-frame, feeding mechanism for feeding said frame downwardly, and a cover or shield for the ratchet-wheel to regulate the extent of feed, substantially as set forth.

11. In a stone-sawing machine, the combination, with a main frame, of a separate moving saw-frame, B, means to support or suspend said saw-frame, means to adjust it vertically, and a separate vertical drive-bar, C, connected to the saw-frame by piece C^2, fast to the saw-frame and sliding upon bar C in its movement up and down, said bar C suspended by the rod b^2, made of the same length as rods b b', so as to cause said bar C to rise at each end of the stroke, the same as the saw-frame B, said rod b^2 working in stationary bearing b^3, elbow-levers D D', rods d d', rod d^2, post D^2, and rod d^3, connecting with the motor, the several parts being arranged and combined substantially as described.

12. In a stone-sawing machine, the combination of the saw-frame B, supported by pendulum-rods, a vertical bar, C, suspended by a rod or rods working in stationary bearings, said saw-frame connected with and made to move up or down upon said bar C, mechanism to transmit motion to said bar C, means to impart to it a reciprocating motion, means to raise or lower the saw-frame, a ratchet feed mechanism having a cover or slide adjustable over said ratchet-wheel to regulate the engagement of the pawl therewith, and a stationary scale or index to indicate the rapidity of the downward feed, substantially as and for the purposes set forth.

315,609. MAGAZINE-GUN. CONRAD GARNS, Berlin, Germany. Filed May 12, 1884. (No model.)



Claim.—1. In a breech-loading fire-arm, the combination of the spring-pressed hammer-bolt k and the longitudinally-movable dovetailed chamber c, which incloses it, with the dovetailed guideway b and the tube a, said chamber or casing running in contact with said guideway, substantially as set forth.

2. The combination of the hammer-bolt and its spring with the rotatable cylinder d, against which the rear end of said spring bears, and which is provided with a rib, e, the fixed guideway b, provided with a recess, f, for engaging with said rib, and the chamber c, provided with another recess similar to f, but arranged above said cylinder and normally farther forward than the last-mentioned recess, for the purpose set forth.

3. The combination of the hammer-bolt k and its spring with the longitudinal groove or chamber c, in which it works, the lock i, carried by said bolt, having a longitudinal tongue, m, which fits the recess of said chamber, and also provided with a notch or recess, m', on its under side, and a trigger provided with a nib or projection, o, which catches into said notch, substantially as set forth.

4. The extractor p', in combination with the breech-block l, to which it is pivoted, the longitudinally-movable chamber c, of which said breech-block forms part, the guide b, and the spring y', the latter operating to throw out the empty shells dislodged by said extractor, substantially as set forth.

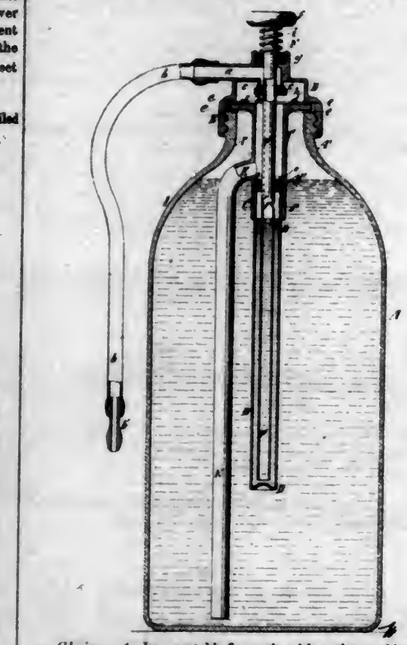
5. In combination with the chamber c and the side lap, r, attached thereto, the spring a^3, arranged to be pressed down by said side lap when the gun is properly closed, the spring-pressed hammer-bolt k, and the lock i, carried thereby, said lock being engaged and held by said spring a^3 whenever the gun is not properly closed.

6. The spring-pressed bolt and its lock i, in combination with the trigger having a nib engaging with said bolt, and the latch u u' v, arranged to be turned into position for preventing the withdrawal of said nib from said lock, substantially as set forth.

7. The combination of the movable chamber c, the side lap, r, attached thereto, the counter-piece r', which limits the rebound of said side lap and chamber, and the spring a^4, which holds the latter parts down in their place, substantially as set forth.

8. The hollow cylinder d, provided with the opening d^2 near its outer end for allowing inspection of its interior, in combination with the chamber c, which is closed at its rear end by said cylinder, the spring h, which is arranged within said chamber and bears against said cylinder, and the hammer-bolt k, which is actuated by said spring, substantially as set forth.

315,610. CHEMICAL FIRE-EXTINGUISHER. WILLIAM GEE, New York, N. Y., assignor of one-half to A. Ellwood Hendrick, same place. Filed Oct. 24, 1884. (No model.)



Claim.—1. In a portable fire-extinguisher, the combination, with a flask or receiver and a cap for closing the top thereof, of a tubular acid-receptacle, D, sealed at the lower end and depending from the top of the flask or receiver, and a hollow breaking rod or tube, F, open at the lower end, extending downward through the cap and into the acid-receptacle, and provided at a point above the acid in the receptacle with a side aperture, whereby the pressure above and below the acid will be equalized, substantially as herein described.

2. In a portable fire-extinguisher, the combination, with a flask or receiver and a cap for closing the upper end thereof, of the throat or neck C, extending downward within the flask or receiver, an acid-receptacle sealed at the lower end and depending from said throat or neck, a breaking rod or tube extending downward through the cap and throat or neck, and the discharge-pipe extending from the bottom of the flask or receiver to the throat or neck C, substantially as herein described.

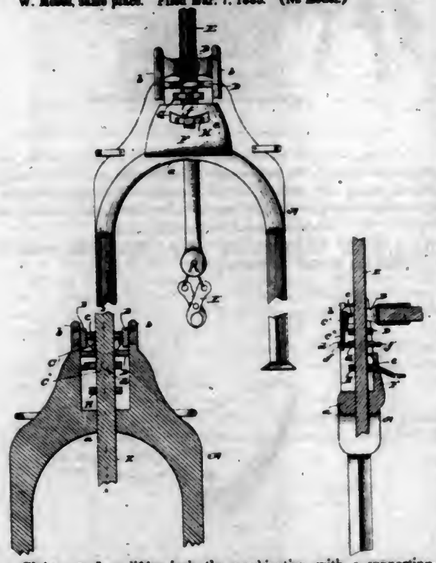
3. The combination of the flask or receiver A, the cap B, the throat or neck C, having the flange d, whereby it is held between the flask or receiver and cap, the acid-receptacle D, sealed at the lower end, the hollow breaking rod or tube F, having the side aperture, f', the packing-washer and guide g' above said side aperture, and the discharge-pipe E, extending to the throat or neck C above the washer and guide g', all substantially as herein described.

4. The combination, with a flask or receiver and a cap therefor containing a discharge-passage, of an acid-receptacle depending within the flask and sealed at the bottom, a breaking rod or tube extending downwardly through the cap and into the acid-receptacle, a discharge-pipe, and a valve on said rod or tube adapted to close by an upward movement thereof to cut off communication between said discharge-pipe and the passage in the cap, substantially as herein described.

5. The combination of the flask or receiver A, the cap B, having a discharge-passage, a, and a downwardly-presented valve-seat, c, the breaking rod or tube F and its valve h, the throat or neck C, the acid-receptacle D, sealed at the bottom, and the discharge-pipe E, extending to the throat or neck C, all substantially as herein described.

6. The combination of the flask or receiver A, the cap B, having a discharge-passage, a, and a downwardly-presented valve-seat, c, the breaking rod or tube F, with its raising-spring i and valve h, the throat, or neck C and its depending acid-receptacle D, sealed at the bottom, and the discharge-pipe E, extending to the throat or neck C, substantially as herein described.

315,611. LIFTING-JACK. GEORGE W. GIFFARD and JOSEPH L. ROBERTS, Great Bend, Kans., assignors of one-half to Clayton L. and Edward W. Moses, same place. Filed Mar. 7, 1885. (No model.)



Claim.—1. In a lifting-jack, the combination, with a supporting-frame, of a pivoted lever, a bracket pivoted thereto, and a disk located on said rod and connected with said bracket, substantially as set forth.

2. In a lifting-jack, the combination, with a supporting-frame, of a vertically-movable rod, a grappling device at the lower end of said rod, and means for actuating said rod, substantially as set forth.

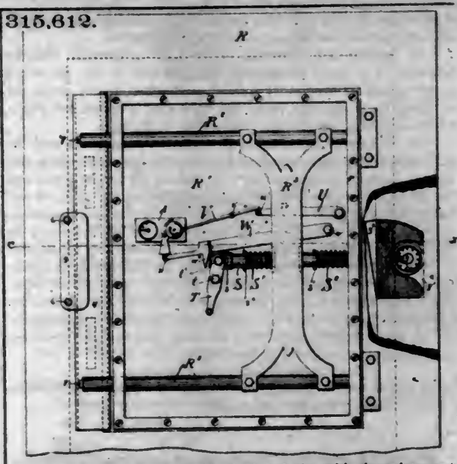
3. In a lifting-jack, the combination, with a supporting-frame, of a vertically-movable rod, a pivoted lever, a bracket composed of pivoted plates pivoted to said lever, a disk on said rod, said disk being connected with the pivoted bracket, substantially as set forth.

4. In a lifting-jack, the combination, with a supporting-frame, of a pivoted lever carrying a pivoted bracket, a vertically-movable rod, a disk on said rod, said disk being connected with the pivoted bracket, and a tripping-disk, substantially as set forth.

5. In a lifting-jack, the combination, with a supporting-frame, of a pivoted lever, a bracket pivoted thereto, a disk on said rod and connected with the pivoted bracket, a strip, F, and a tripping-disk having an extension, substantially as set forth.

6. In a lifting-jack, the combination, with a supporting-frame composed of uprights connected by a strip, a, having an elongated opening, and provided with upwardly-extending posts, of a pivoted lever carrying a pivoted bracket composed of pivoted plates, a strip, F, having an elongated opening, a disk on said rod, said disk having oppositely-extending lugs and connected with the pivoted bracket, and a tripping-disk having a finger-piece, substantially as set forth.

315,612. LOCK MECHANISM FOR SAFES. HENRY GROSS, Chicago, Ill. Filed Apr. 3, 1884. (No model.)



Claim.—1. In a time-lock for safes, the combination, with a guard for checking the operation of the bolt-work and a suitable indicator-pointer, of a revolving adjustable tripping device for releasing said guard, and gear-wheels connecting said tripping device with the pointer, substantially as described.

2. In a time-lock for safes, the combination, with a guard for checking the operation of the bolt-work and a suitable indicator-pointer, of a revolving plate in gear with said pointer and a tripping device for releasing the guard adjustably held in said plate, substantially as described.

3. In a time-lock for safes, the combination, with a guard for checking the operation of the bolt-work, of an indicator-pointer, a slotted revolving plate in gear with said pointer, a tripping device for releasing said guard, and means, substantially as described, for adjusting the tripping device at different points along the slot of said plate, substantially as set forth.

4. In a time-lock for safes, the combination with a guard for checking the operation of the bolt-work, of an indicator-pointer, a driving-spring for said pointer, a tripping device for releasing the guard in gear with said pointer, and a separate driving-spring for said tripping device, substantially as described.

5. In a time-lock for safes, the combination, with a guard for checking the operation of the bolt-work, of an indicator-pointer, a driving-spring for said pointer, a tripping device in gear with said pointer, a separate spring for said tripping device, and a key-post common to both the pointer and tripping device whereby they may be simultaneously set, substantially as described.

6. In a time-lock for safes, the combination, with a guard for checking the operation of the bolt-work, of an indicator-pointer, a supplemental adjustable tripping device or catch for throwing the guard into action, and gear-wheels connecting said tripping device with the indicator-pointer, substantially as described.

7. In a time-lock for safes, the combination, with a guard for checking the operation of the bolt-work, of a dog for holding said guard temporarily out of action, an adjustable supplemental tripping device for throwing the dog out of engagement with the guard, a main tripping device for throwing the guard out of action, a driving-spring for said tripping devices, and an indicator-pointer and gear-wheels connecting said tripping devices with the pointer, substantially as described.

8. In a time-lock for safes, the combination, with a guard for checking the operation of the bolt-work, of a dog or pawl for temporarily holding said guard out of action, an indicator-pointer, a supplemental tripping device for throwing the dog out of engagement with the guard having a supporting-post separate from that of the indicator-pointer, a main tripping device for throwing the guard out of action, and gear-wheels connecting the tripping devices and the pointer, substantially as described.

9. In a time-lock, the combination, with a guard for checking the operation of the bolt-work and an indicator-pointer, of a dog or pawl for holding the guard temporarily out of action, an adjustable supplemental tripping device for throwing the dog out of engagement with the guard, a main tripping device for throwing the guard out of action, and a revolving plate or disk for carrying said tripping devices, substantially as described.

10. In a time-lock for safes, the combination, with a guard for checking the operation of the bolt-work and a dog for holding said guard out of action, of a single indicator-pointer, a revolving plate having two slots therein, two tripping devices—one for the guard and one for the dog—adjustably held in said slots, two clock-movements, and gear-wheels for connecting said pointer and revolving plate, substantially as and for the purpose set forth.

11. In time-lock mechanism for safes, the combination, with the main bolt-work of the safe, of mechanism for throwing the main bolt-

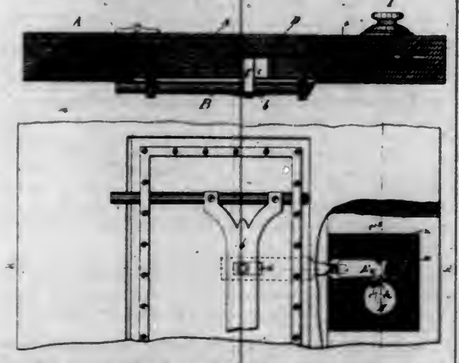
work to lock the safe and clock mechanism for automatically releasing said bolt-throwing mechanism, substantially as described.

12. In time-lock mechanism for safes, the combination, with the bolt-work, of a spring for throwing said bolt-work to lock the safe, a trigger or stop for temporarily restraining the action of said spring, and a tripping device operated by suitable clock-work to release said trigger and automatically lock the safe, substantially as set forth.

13. In time-lock mechanism for safes, the combination, with the bolt-work, of a spring for automatically throwing said bolt-work to lock the safe, a spring for automatically withdrawing the bolt-work to unlock the safe, a trigger or stop for temporarily restraining the action of said locking-spring, a guard for temporarily checking the action of the unlocking-spring, and tripping devices for said trigger and guard whereby the safe can be automatically locked and unlocked, substantially as set forth.

14. In time-lock mechanism for safes, the combination, with the bolt-work, of the sliding rod connected with the bolt-work, the coiled springs upon said sliding rod, the trigger for temporarily checking the movement of the bolt-work, the releasing-lever for said trigger, the latch-bar, the guard, and tripping devices for acting upon said guard, and the releasing-lever, substantially as described.

315,613. **LOCK MECHANISM FOR SAFES.** HENRY GROSS, Chicago, Ill. Filed Apr. 3, 1884. (No model.)



Claim.—1. In a burglar-proof safe, the combination, with a recessed wall, of a lock located wholly within said wall, substantially as described.

2. In a burglar-proof safe, the combination, with a recessed wall, of a permutation-lock located wholly within said wall, and having a spindle extending through the front face of the wall for operating the lock, substantially as described.

3. In a burglar-proof safe, the combination, with a recessed wall, of a permutation-lock located wholly within said wall, and having a conical arbor tapering toward its end extending through the front face of the wall, substantially as described.

4. In a burglar-proof safe, the combination, with a recessed wall and a permutation-lock located within said recess in the wall, of a recessed door and a bolt adapted to be moved within the recess of the door, substantially as described.

5. In a burglar-proof safe, the combination, with a recessed door and jamb, of a lock located within the recess of the jamb, and a latch-bar in connection with the bolt-work, whereby said lock shall throw the bolt-work, substantially as set forth.

6. In a burglar-proof safe, the combination, with the recessed door and jamb and the bolt-work having the latch-bar connected therewith, of the permutation-lock having the hook-bar adapted to engage with said latch-bar and throw the bolt-work, substantially as described.

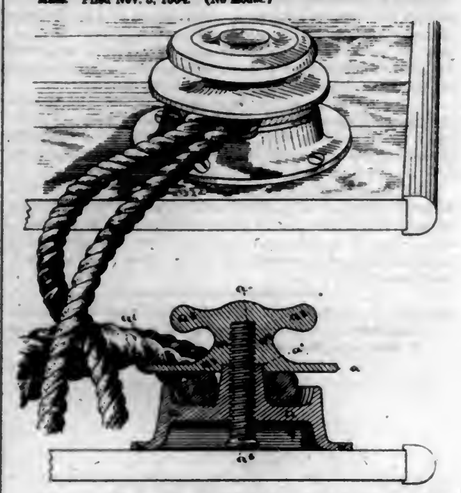
7. In a burglar-proof safe, the combination, with a wall having a recess of suitable size and shape to receive a permutation-lock, of said lock located wholly within said wall and removably held therein, substantially as described.

8. In a burglar-proof safe, the combination, with a recessed wall, of a permutation-lock located wholly within the said recess, and having a spindle, and a drive-wheel and a hub for its tumblers, adapted to bear against said spindle, substantially as described.

9. In a burglar-proof safe, the combination, with a recessed wall, of a permutation-lock located wholly within said wall, and having a spindle with a driving-wheel distinct from the lock, whereby the lock may be removed without removing the drive-wheel and spindle, substantially as described.

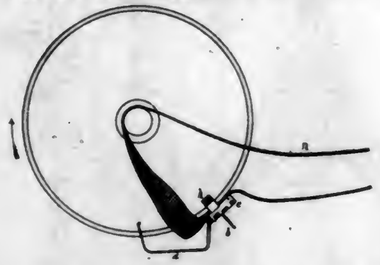
10. In a burglar-proof safe, the combination, with the recessed door and recessed jamb, and the bolt-work upon the inner face of the door, of the lock located within the recess of the jamb, the latch-bar connected to the bolt-work, the hook-lever for engaging with the latch-bar, and a drive-wheel and spindle for operating the hook-lever, substantially as described.

315,614. **CLAMP FOR ROPE HALTERS.** THOMAS HALL, Auburndale, Mass. Filed Nov. 3, 1884. (No model.)



Claim.—The above-described halter-clamp, consisting of the bed-plate *a*, having on it the hollow screw-threaded cone-stud *a'*, the closing-disk *a²*, having on it and integral with it the knob *a³* and connecting-neck *a⁴*, and the working-screw *x²*, all in combination substantially as described.

315,615. **BELT-REPLACER.** JAMES J. HARNSBERGER, Decatur, Ill. Filed Feb. 24, 1885. (No model.)



Claim.—1. The combination, in a belt-replacer, of bar *d*, rigid jaw *h*, pivoting jaw *f*, lever *b*, brace-rod *i*, stop *l*, and a suitable trip-lever adapted to be thrown by the belt as it passes into position on the pulley for the purpose of disconnecting the replacer from the pulley, as set forth.

2. The combination, in a belt-replacer, of a clamp-bar provided with a rigid jaw at one end and a pivoted jaw at the other, a clamp-lever connected with the pivoted jaw, a brace to secure the pivoted jaw in contact with the rim of the pulley, and a trip-lever for the brace adapted to be operated by the belt as it passes entirely on the pulley for the purpose of disconnecting the replacer from the pulley, as set forth.

3. The combination, in a belt-replacer, of clamp-bar *d*, spring *g*, rigid jaw *h*, pivoting jaw *f*, lever *b*, brace-rod *i*, stop *l*, and trip-lever *a*, all constructed and arranged to operate substantially as and for the purpose set forth.

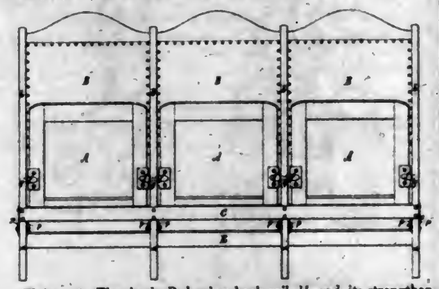
315,616. **WHEEL-SLED.** NATHAN HARPER, Newark, N. J. Filed Mar. 17, 1884. (No model.)



Claim.—1. An improved toy wheeled sled consisting, essentially, of runners rounded or beveled at their forward extremities, wheels journaled at the sides of said runners, and having only a lower portion below the horizontal line of the pivotal center project below or beyond the lower or beveled edges of said runners, the said rounded or beveled edges of the runners covering the dead-center of the wheel, and a top board, all said parts being arranged and combined substantially as and for the purposes set forth.

2. The improved wheeled sled consisting, essentially, of a sled having a top board extending centrally along the top of the runners, said runners having beveled or rounded forward extremities, angle blocks or pieces secured against the bottom of said top board and the inner sides of the said runners to brace said top board, and runners and wheels journaled between said blocks and runners and protected thereby, said parts being arranged and combined substantially as and for the purposes set forth.

315,617. **FOLDING CHAIR OR SETTEE.** HERBERT J. HARWOOD, Littleton, assignor, by mesne assignments, to the Harwood Manufacturing Company, Leominster, Mass. Filed May 26, 1884. (No model.)

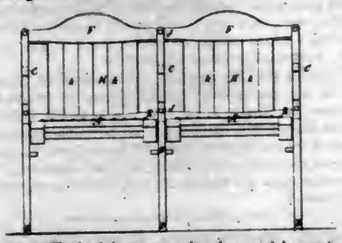


Claim.—1. The back B, having back rail, *b'*, and its strengthening-rail D, just above such rail *b'*, and the front legs, *a*, and their back parts, *b*, in combination with the seats A, pivoted to such front legs in front of the rail *b'*, whereby when the seat is down its rear edge rests against the rail *b'* and the whole is braced by the rail D, as set forth.

2. The back B, the front legs, *a*, and their back parts, *b*, the bar C, forming the sole connection of the legs *a*, in combination with the seat A, pivoted to the legs *a* above the bar C, and adapted to swing inward, whereby when the chair is folded the rear edge of the seat bears against the inner edge of the bar C, as set forth.

3. In a folding chair, the front legs having the rear notch, *d*, in combination with the rear legs, *c*, and the bar E, forming the sole connection of such rear legs, as set forth.

315,618. **FOLDING-SEAT SETTEE.** HERBERT J. HARWOOD, Littleton, assignor to the Harwood Manufacturing Company, Leominster, Mass. Filed Aug. 18, 1884. (No model.)



Claim.—1. The back bars connecting the sustaining-posts of each seat separate from the back bars of the next contiguous seat, in combination with one of such posts extended up to the back bars of the two seats, and with flexile or elastic connections uniting the back bars of the two seats, and fastened at their middles to the intermediate post by screw bolts and nuts, all being substantially as set forth.

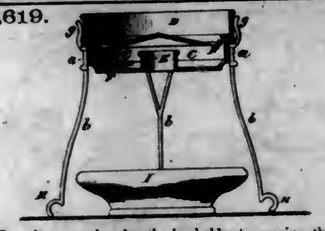
2. The folding seats pivoted to the parts between which they are arranged, and having the post between each two next contiguous seats extended up to the back bars thereof, separate from each other, and connected by flexile connections fastened at their middles to the said post, and at or near their ends to the said back bars, all being substantially as set forth.

315,619. **ICE-HOLDER FOR BUTTER-DISHES, &c.** FREDERICK H. HAWKINS, Brooklyn, N. Y. Filed Sept. 6, 1884. (No model.)

Claim.—1. An open frame combined with an ice-holder, the two relatively constructed so that the ice-holder will be supported in the frame above a space adapted to contain the butter or other dish directly under said ice-holder, whereby the contents of dish will not only be cooled by a downward flow of cool air, but will be within reach of persons at the table without lifting a cover.

2. An open frame and an ice-holder adapted to sit in the upper part thereof, in combination with a drip-vessel, C, having the central open

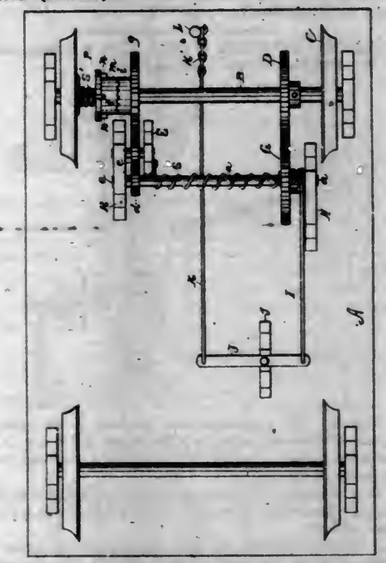
315,619.



tube, E, and arranged under the ice holder to receive the drip around said tube from perforations in a concave around an upward convexity of the ice-holder, substantially as shown and described.

3. The open frame, the ice-holder, and the drip-vessel, constructed, arranged, and combined so that the ice-holder and drip-vessel will bear the specified local relation to the frame and to each other, but be conveniently detachable, substantially as described.

315,620. **CAR BRAKE AND STARTER.** ASA L. HINLEY, Troy, N. Y., assignor of one-half to Henry J. McChesney, same place. Filed Sept. 5, 1884. (No model.)



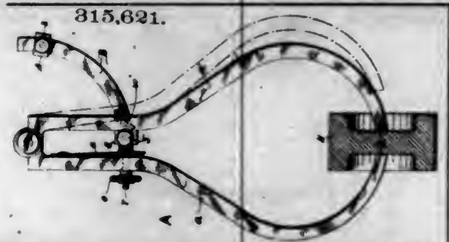
Claim.—1. A spring-controlled swinging shaft, *a*, provided with fixed gear-wheels, one at or near each end, and means for swinging said shaft, as lever J and connecting-links I K, in combination with a car-supporting axle provided with a fixed gear-wheel adapted to engage with the gear-wheel on the swinging end of said shaft, and provided with a loose gear-wheel adapted to engage with an intermediate reversing-gear, the latter engaging with the gear on the fixed end of said shaft, said loose gear-wheel being provided with a ratchet-wheel adapted to engage with a similar spring-controlled ratchet-wheel adapted to slide longitudinally upon said axle, but fixed to revolve therewith, substantially as and for the purposes set forth.

2. A shaft provided with a spring adapted to rotate it in end bearings, one of said bearings being fixed and the other adapted to slide upon its support toward and from a car-axle, and provided with two fixed gear-wheels, in combination with means for operating said sliding bearing, as lever J and connecting links and handle, and a car-axle provided with a fixed gear-wheel adapted to engage with one of the gear-wheels on said shaft, and with a loose gear-wheel adapted to engage, through a reversing gear-wheel, with the other gear-wheel on said shaft, said loose wheel having a ratchet-wheel adapted to engage with a similar ratchet-wheel on the axle, adapted to slide on said axle to engage and disengage with the ratchet of the loose wheel, but fixed to revolve with the axle, substantially as and for the purposes set forth.

315,621. **ADJUSTABLE STOP FOR CALIPERS.** IRVING L. HOLMES, Providence, R. I. Filed Aug. 26, 1884. (No model.)

Claim.—1. In calipers or other analogous instruments of precision, the combination, with the legs or wings and the quadrant-adjustably se-

315,621.

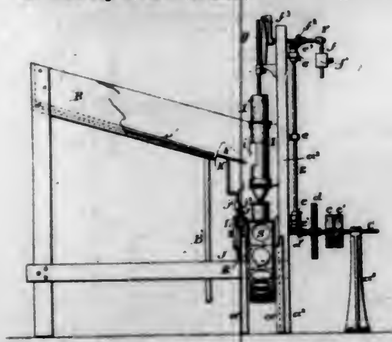


cured thereto, of one or more stops adjustably mounted upon the quadrant, substantially as shown, and for the purpose set forth.

2. The combination, with the arc or quadrant B, adjustably secured to the legs or wings *a a'*, of the independently-adjustable stop *s*, mounted upon said quadrant, substantially as shown and set forth.

3. As an improved article of manufacture, calipers composed of legs or wings *a a'*, jointed or otherwise connected at top, arc or quadrant B, adjustably secured to said legs by means of the spring *c*, nut *o*, and binding-screw *w'*, and further consisting of the sliding stop *s*, adjustably secured to the quadrant, all combined and arranged substantially as shown, and for the purpose herein set forth.

315,622. CAN-FILLING MACHINE. JOHN G. HOSKINS, Baltimore, Md. Filed Aug. 13, 1884. (No model.)



Claim.—1. The combination, with the tubes having openings in their sides, of the trough ending at said openings, and having its lower end arranged to dump a quantity of the contents of the trough through said openings, as set forth.

2. In combination, the tubes, the trough, the angular plate hinged in the end of the trough, with means for raising the plate, as and for the purpose set forth.

3. In combination, the filler-tubes, a table below, an endless chain for carrying the cans, and means for advancing said chain two steps at each motion, as set forth.

4. In combination, the trough, the pivoted plate K, the tubes I, with openings *i*, and the plungers I', as set forth.

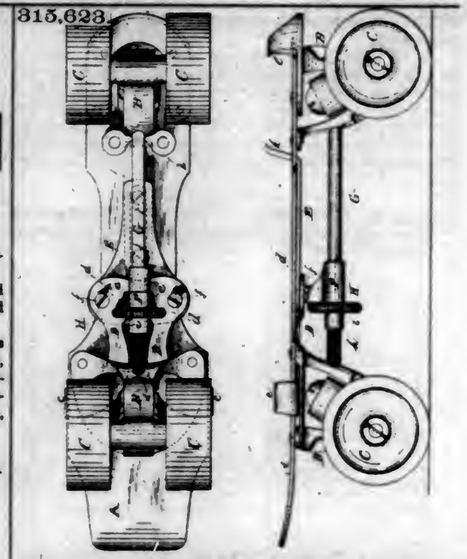
5. In combination, the trough B, tubes I, plungers I', rods G, cross-head *g'*, pitman *g*, and crank *f'*, as set forth.

6. In combination, the tubes I, the endless belt composed of links R, having circular openings, and the blocks O O', as set forth.

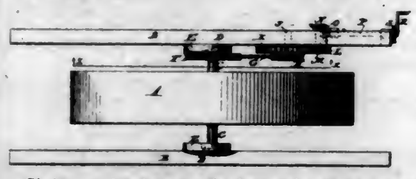
7. The endless belt composed of links R, having circular openings, in combination with blocks O and O', the block O having segments O^2 to engage said openings and serve as teeth, the openings also serving as can receptacles, as set forth.

8. In combination, the trough B, hinged plate K, tubes I, with openings *i*, the forked rod *j*, and mechanism to raise it periodically to correspond with the movement of the endless belt which carries the cans, as set forth.

315,623.



315,624. FRAME-ADJUSTING MECHANISM FOR HARVESTERS. GEORGE G. HUNT, Plano, Ill., assignor of one-half to the Plano Manufacturing Company, of Illinois. Filed Dec. 3, 1883. Renewed Mar. 18, 1885. (No model.)



Claim.—1. In a harvester, the frame and rack-plates, combined with the main wheel, the axle provided with the pinions and sheave, the endless chain, the sheave H and gear K, mounted in the main frame and having a common center, the pinions L and N, and the pinion O, having a hand-crank connected therewith.

2. In a harvester, the main frame and its curved rack-plates, the main wheel, the axle provided with the two pinions and sheave within the main frame, the sheave H and gear K, also located within the main frame, the endless chain, the pinion L, located within the frame, its shaft extended to the outside of the frame, the beveled gear N, applied to the outer end of said shaft, and the shaft P, mounted lengthwise of the frame, and provided at one end with the pinion O and at the opposite end with a hand-crank, R.

315,625. INFANT'S CRADLE. JOHNSON A. JACKSON and FREDERICK C. HAMMARS, Kenosha, Wis. Filed May 5, 1884. (No model.)

Claim.—1. The combination, with the carriage mounted upon wheels and provided with vertical standards connected at their lower ends with the axles B B', and cross-bars F F', connecting the upper ends of said vertical standards, of the crib or cradle and pivoted hangers con-



315,628. SKATE. JOHN C. HOWE, Worcester, Mass., assignor to Martin Bye, same place. Filed June 27, 1884. (Model.)

Claim.—1. A clamping device for skates, composed of two sole-clamps, D D, pivoted to and moving with the sliding plate E, and plate E, provided with a projection for entering the heel, in combination with means, substantially as described, for operating the clamps, substantially as set forth.

2. The combination, with sole-clamps D D, pivoted to and moving with the sliding plate E, and plate E, provided with a projection, *k*, for the purpose stated, of the stud F, supporting and guiding rod G, and nut H, turning on said rod G, for tightening the clamps, substantially as set forth.

315,625

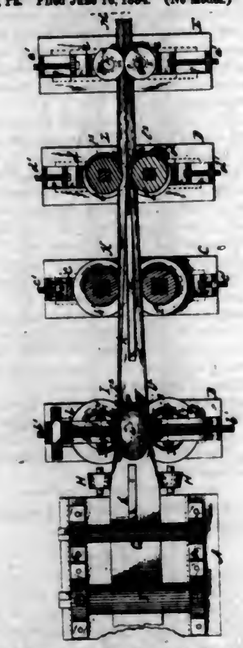


necting the latter near each corner thereof with said vertical standards, substantially as set forth.

2. The herein-described crib or cradle, comprising in its construction the axles B, carrying rollers at their ends, vertical standards connected with said axles, and connected at their upper ends by cross-bars serving as handles, the diagonally-arranged braces G G' G^2 G^2, a crib, and hangers pivotally connecting said crib with the vertical standards, substantially as set forth.

3. The herein-described crib or cradle body, comprising the woven-wire bottom K, connected to end strips, L, and side strips, M, pivoted in said end strips, and a rectangular frame having its sides and ends removably secured together, said frame being removably attached to the side and end strips, L M, substantially as set forth.

315,626. MACHINE FOR BENDING TUBE-SKELP. JOSEPH R. JACKSON, Pittsburg, Pa. Filed June 16, 1884. (No model.)



Claim.—1. In a machine for bending skelp, the combination, with the first set of bending or forming rolls, of horizontal tapering edge-rolls and a suspended guide or mandrel, substantially as and for the purposes specified.

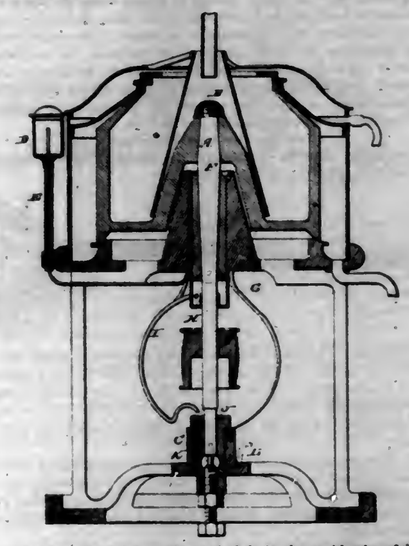
2. In a machine for bending skelp, the combination, with a tongued roll and two vertical rolls having their upper portions or ends cut away to form a groove which coacts with the tongued roll, of horizontal tapering guide and edging rolls, arranged in front of the said tongue-and-groove bending-rolls, substantially as and for the purposes specified.

3. In a machine for bending skelp, the combination of two vertical rolls having their ends cut away to form conjointly a U-shaped groove, and a suspended mandrel arranged in the groove between the rolls, substantially as and for the purposes specified.

4. In a machine for bending skelp, the combination of two grooved rolls, one of said rolls movable and adjustable on its shaft, the shaft of the adjustable roll provided with a collar, and a detachable liner interposed between the collar of the shaft and the roll thereon, substantially as and for the purposes specified.

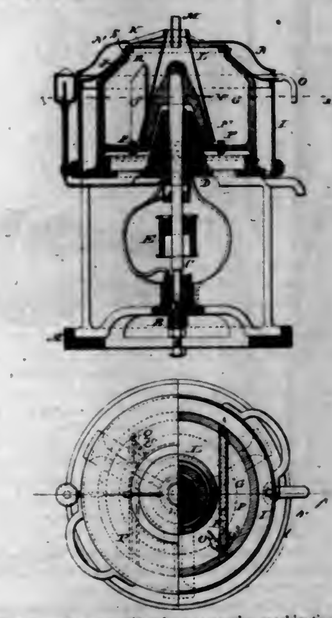
5. In a machine for bending skelp, the combination of horizontal tapering edging-rolls having a suspended mandrel arranged between them, a tongued bending-roll having two vertical rolls cut away at their ends to coact therewith, two vertical rolls cut away at their ends to form a U-shaped groove, and having a suspended mandrel arranged in said groove, and one or more sets of grooved vertical finishing or final rolls, substantially as and for the purposes specified.

315,627. LUBRICATOR. NIELS JACOBSEN and HANS PETER JENSEN, Aarhus, Denmark. Filed Sept. 20, 1884. (No model.) Patented in Denmark Oct. 23, 1882, No. 738.



Claim.—In a lubricator for vertical shafts, the combination of the upper bearing having the cup at its upper end and formed with a tube or conduit opening from the lower end of the bearing into the cup, the oil-cup having the outlet-tube opening into the conduit in the bearing, the casing at the lower end of the bearing, having the central upwardly-projecting flange, the pipe leading from this casing, the lower step formed with a cup at its upper end and with a cavity at its bottom, and the outlet-pipe, as and for the purpose shown and set forth.

315,628. CENTRIFUGAL CREAMER. NIELS JACOBSEN and HANS PETER JENSEN, Aarhus, Denmark. Filed Sept. 20, 1884. (No model.) Patented in Denmark Oct. 23, 1882, No. 738.



Claim.—In a centrifugal creamer, the combination of the stand having a central conical and vertical bearing, the drive-shaft journaled in the said bearing, the milk-receptacle provided with a central conical

portion having a conical recess in its under side and secured upon the upper end of the shaft, the vertical diametrically-opposite flanges or wings, the channels having perforations opening at the foot of the flanges in the bottom of the receptacle passing as secants across the bottom of the receptacle and opening at the edge of the same, the cream-tubes opening horizontally at the upper end of the receptacle, the conical feed-funnel fitting over the conical portion of the receptacle, the feed-tube, the jacket surrounding the receptacle and having an outlet-spout, and the annular cream-receptacle surrounding the upper portion of the milk-receptacle having an outlet-spout and having the cream-tubes opening into it, as and for the purpose shown and set forth.

315,629. SYSTEM OF IRRIGATION. GEORGE W. JESSUP, Cinnaminson, N. J. Filed Oct. 15, 1884. (No model.)



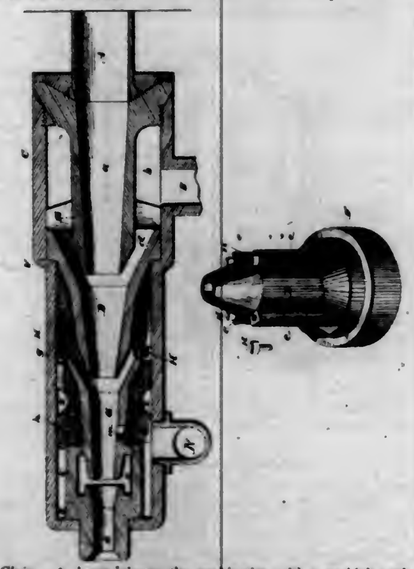
Claim.—1. The main conduit A, having the spouts B placed at intervals along its side, and the secondary conduit C, having the perforations *d*, in combination with the removable dam F, said conduits B and C being detached from each other, whereby the dam can be placed at any point in the main conduit and the secondary conduit moved along, as described.

2. The open-topped main conduit A, having the open-topped spouts B placed at intervals along its side, and the secondary open-topped conduit C, having the holes D, in combination with the clamping-dam F, said conduits B and C being detached from each other, as and for the purpose set forth.

3. The main conduit A, having one end closed and the other open, and the spouts B placed at intervals along its side, and the second main conduit A constructed like the first, in combination with the supports E, the open end of the first conduit resting on the closed end of the second, and both such ends held by a support, E, as set forth.

4. As a means of guiding water in a system for irrigating, the removable clamp-dam F, consisting of the arm *f*, having the curved plate *f'*, and the arm *f²*, having the curve *f³*.

315,630. INJECTOR. WILLIAM JOHNSTON, La Junta, Colo. Filed Oct. 15, 1884. (Model.)



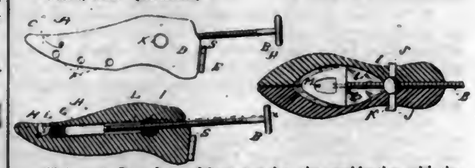
Claim.—1. In an injector, the combination, with a combining-tube and intermediate tube, of removable bearings adapted to form a rest for the end of the combining-tube, substantially as set forth.

2. In an injector, the combination, with a combining-tube and an intermediate tube, of a set of removable bearings secured to shoulders on the intermediate tube, adapted to receive and take the wear of the combining-tube, substantially as set forth.

3. In an injector, a set of removable spacing-lugs interposed between the intermediate and combining tubes, whereby the work done by the injector is increased, substantially as set forth.

4. In an injector, a set of removable spacing-lugs interposed between the combining and intermediate tubes, said spacing-lugs forming bearings between said tubes, substantially as set forth.

315,631. SHOE-STRETCHER. WILEY JONES, Norfolk, Va. Filed Feb. 4, 1885. (No model.)



Claim.—1. In a shoe and boot stretcher, the combination, with the divided last A, of the screw B and wedge G, provided with the additional screw M, all arranged substantially as shown and described.

2. The combination, in a shoe-stretcher having the last A, of the screw B and the grooves L and L with the larger wedge G', fitted detachably on the small wedge G, as and for the purposes described.

3. The combination, in a shoe-stretcher having the last A, with the screw B, the screw-threaded nut I, and its arms J and J, of a spur, K, on one of its arms, which spur passes through a slotted aperture in the corner of the compound bracket N, holding this bracket in place, as and for the purpose indicated.

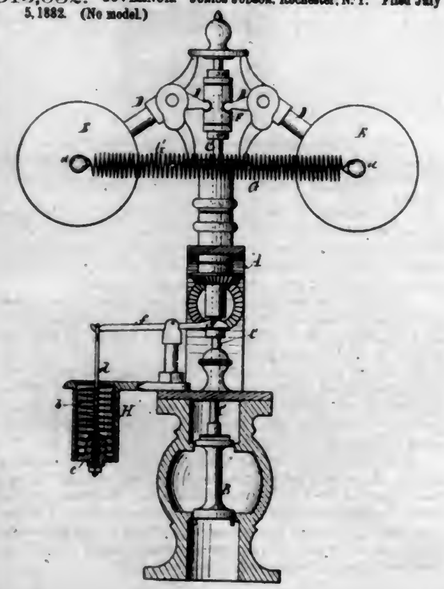
4. The combination, in a shoe-stretcher having the last A, with the screw B and the arms J and J, of a compound bracket, N, fitting detachably on the spurred arm and held in position by the spur K, which compound bracket consists of a slotted aperture at its corner for receiving the arm J, with the spur K, and having a roughened surface at its back to prevent slipping from the counter of the shoe, also having a slot for catching upon the hinge E, and a cavity for receiving the point of the wedge G, in the manner and for the purposes stated.

5. The combination, in a shoe-stretcher having the last A, of the hinge E and a slot at the top of this hinge to receive the compound bracket N, as and for the purpose described.

6. The combination, in a shoe-stretcher having the last A, of the hinge E and the screw B, with a metallic instep-plate, O, consisting at one end of an arm holding the headed pins P and P, and at the other end of the slots Q and Q and R for the reception of the screw and its arms J and J, as and for the purposes indicated.

7. The combination, in a shoe-stretcher having the last A, the screw B, and the grooves L and L, with a face-plate attached to each half of the last and containing an orifice or slot for gearing thereinto, of the headed pins P and P at the toe end of the instep-plate, all as shown and described substantially.

315,632. GOVERNOR. JUDSON JUDSON, Rochester, N. Y. Filed July 5, 1882. (No model.)



Claim.—In a governor, the combination, with the valve and longitudinally-reciprocating valve-spindle and governor-balls E E, of a spring or springs, G, acting to draw the balls downward and inward, and decreasing in force as the balls rise, and a spring-speeder, H, connected with the spindle and acting against the centrifugal action of the balls with increasing force as the balls rise, substantially as above set forth.

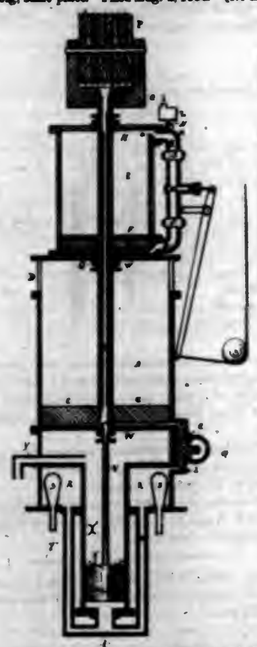
315,633. ELECTRICAL INSULATOR. HENRY KELLOGG, New Haven, Conn. Filed Oct. 17, 1884. (Specimens.)

Claim.—1. An insulating compound containing as essential ingredients asphaltum and caoutchouc of oil.

2. An insulating compound containing asphaltum, caoutchouc of oil, and asbestus.

3. An insulating compound containing asphaltum, caoutchouc of oil, and India red.

315,634. ELEVATOR. DAVID KENNEDY, Detroit, Mich., assignor to Kennedy & Greig, same place. Filed Aug. 2, 1884. (No model.)



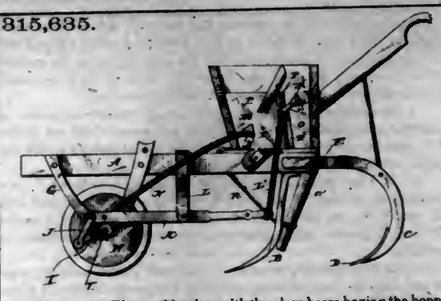
Claim.—1. The herein-described combined hoisting device and governor, consisting of the cylinders A E in axial line, the former having openings at one end, and the latter provided with the passage-way I, communicating with both ends of the cylinder, the plug-valves J, located near the end of such passage, and the sliding valve K, intermediately located between the plug-valves, rod B, passing through both cylinders and carrying the pistons C F, respectively working in the cylinders A E, frame O, secured to the upper end of the rod B, and carrying a system of pulleys, P, for the purpose described, the parts being combined, arranged, and operating substantially as and for the purposes specified.

2. The combination of the cylinders A and E, constructed substantially as described, each cylinder having a piston secured to a common piston-rod, B, the upper cylinder being also provided with communicating-pipe I and its valves, as described, with the condensing-chamber R, well U, and a pump connected therewith and actuated by the movement of the piston-rod B, substantially as and for the purposes set forth.

315,635. PLANTER. JEREMIAH H. KIMBRO and JOHN A. KIMBRO, Georgetown, Tex. Filed Sept. 16, 1884. (No model.)



315,635.

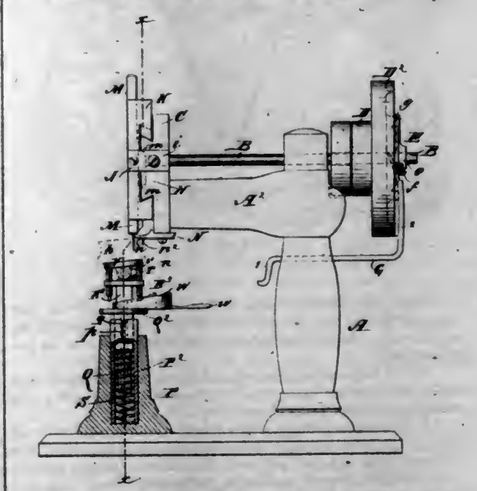


Claim.—1. The combination, with the plow-beam having the hopper provided with two seed-compartments and a discharge-compartment, of the oscillating levers fulcrumed in hangers beneath the plow-beam, the rods provided with fixed cups, and the rods provided with the hinged cups, and the cranked wheel for operating the levers, substantially as specified.

2. The combination, with the plow-beam having the hopper provided with the seed-compartments and the discharge-compartment, of the oscillating levers, the rods with rigid cups, rods with hinged cups, the opening-plow, discharge-tube, and the covering-plows, substantially as specified.

3. The combination, in a seed-planter, of the oscillating levers having pivoted rods with rigid cups at their upper ends, and pivoted rods with hinged cups at their upper ends, and a crank-wheel connected to said levers, as set forth.

315,636. MACHINE FOR PRICKING BOOT AND SHOE HEELS. T. P. KING, Chester, Ill. Filed July 25, 1884. (No model.)



Claim.—1. In a machine for pricking holes in boot and shoe heels the heel-carrier V, suitably supported upon a pedestal, combined with the cam W, supported by a table or plate intermediate of the pedestal and heel-carrier, whereby the said heel-carrier may be elevated or depressed independently of the adjustment of the vertically-movable parts of said pedestal, in order to accommodate the machine to high or low heels, substantially as herein set forth.

2. In a machine for pricking holes in boot and shoe heels, the heel-carrier V, supported upon a vertically-yielding stem within a pedestal, and pivoted centrally, as described, combined with devices—such as T—for inclining said heel-carrier toward or from a horizontal position, whereby the machine may be adjusted to heels in which the nails are to be driven either vertically or slantingly inward or outward, substantially as herein set forth.

3. In a machine for pricking holes in boot and shoe heels, the hollow pedestal P and sleeve P^2, combined with the externally-shouldered stem Q, provided with the plate Q^2, and spring S, whereby the work is permitted to yield under the stroke of the awl, substantially as herein set forth.

4. In a heel-pricking machine, the hollow stem Q, provided with the plate Q^2, in combination with the cam W and stem R, provided with the follower R^2, whereby the heel-carrier is raised or lowered, substantially as herein set forth.

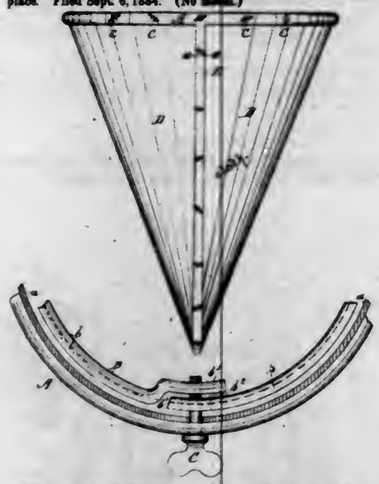
5. In a heel-pricking machine, the sleeve P^3, having the vertical groove or slot ρ, and the hollow stem Q, having the external pin, q, and the internal pin, s, in combination with the stem R, having the vertical groove r, whereby the work may be raised or lowered, but is prevented from turning on its carrier, substantially as herein set forth.

6. In a heel-pricking machine, the plate R^3, suitably supported as described, in combination with the pivoted heel-carrier V and the screws T T, whereby the heel-carrier may be oscillated and inclined at different angles, substantially as herein set forth.

7. In a heel-pricking machine, the adjustable heel-carrier V, substantially as described, in combination with the awl-head provided with the gage N, having the lips n n^2 at right angles to each other, whereby the work is properly guided for the action of the awl, substantially as set forth.

8. In a heel-pricking machine, the stationary plate C, movable plate K, and cam H, in combination with the awl-carrier M, having a seat formed by the shoulders m m, whereby the plate K has imparted to it a slight laterally-reciprocating motion and the awl a vertically-reciprocating motion, substantially as and for the purposes herein set forth.

315,637. AMALGAM-STRAINER. JEREMIAH KIRBY, Marysville, Mont., assignor to Alexandre Lamoreaux and John B. Noyes, both of same place. Filed Sept. 6, 1884. (No model.)



Claim.—1. The combination, with the bag, of the split and solid rings and the binding-screw, said screw clamping the rings upon the bag and the ends of the split ring together, substantially as and for the purpose set forth.

2. The combination, with the funnel-shaped bag, of the clamp-rings having the dependent clamp-strips, together with binding-screws, substantially as and for the purpose set forth.

3. The ring A, provided with a tongue, a, on the inside of it, and with a strip, E, also provided with a tongue, and securely fastened to or made solid with it, substantially as shown, and for the purpose specified.

4. The combination, with the bag, of the solid and split rings having the dependent clamp-strips and the clamp or binding screws, said rings and strips having tongues and grooves, substantially as and for the purpose set forth.

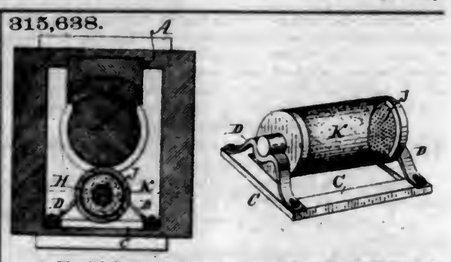
5. The combination, with the bag, of the solid and split rings and the binding-screw, said split ring being provided with a groove to receive a tongue of the solid ring, and with a slot in one end, its other end having an inwardly turned or bent portion lapping its first-named end, substantially as and for the purpose set forth.

6. The combination of ring A, provided with strip E, with split ring B, provided with a strip, F, securely fastened to or made solid with it, and having one end, b^2, of said ring turned inward and overlapping the other end, b', having the longitudinally-extending slot b^3, and thumb-screws C, for securing said rings to the edges of the funnel-shaped bag, substantially as described and shown, and for the purpose set forth.

315,638. LUBRICATOR FOR CAR JOURNALS. CHRISTIAN H. KOCK, Avoca, Iowa, assignor of four-fifths to Rudolph Schmer, Peter Wiese, J. J. Hipsley, and F. A. Xanten. Filed Aug. 23, 1884. (No model.)

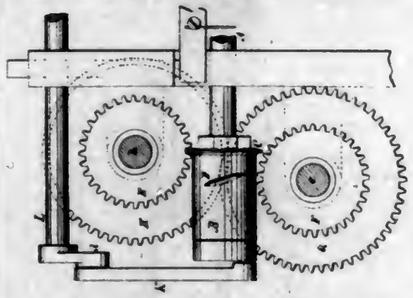
Claim.—1. A roller for distributing lubricants, composed of an axle having a fixed collar or flange at one end, a detachable collar at its opposite end, a detachable perforated cylinder, and a porous cylinder-cover, in combination with a car-axle box and an axle-journal, to operate in the manner set forth, for the purposes specified.

315,638.



2. The lubricating device consisting of the roller H H' H^2 J K, a frame, C, and elastic arched bearings D, in combination with a car-axle box and a journal, substantially as and for the purposes set forth.

315,639. MECHANICAL MOVEMENT. WILLIAM KOCH, New York, N. Y. Filed July 7, 1884. (No model.)

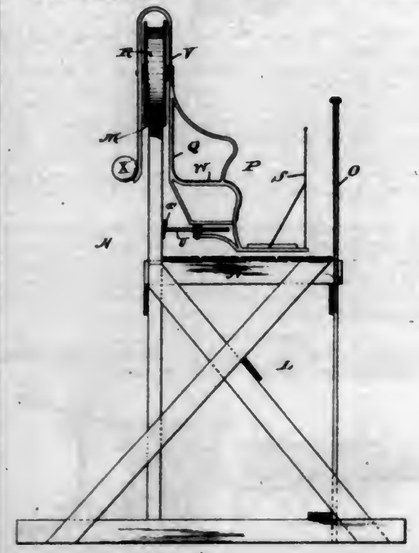


Claim.—1. A mechanism for giving a reciprocating motion to a sliding carriage or other object, consisting of a revolving drum on which is fixed a section of a worm, and a flange with a gap therein, and gear-wheels E and F and G and H, and shafts b and c, arranged substantially as described.

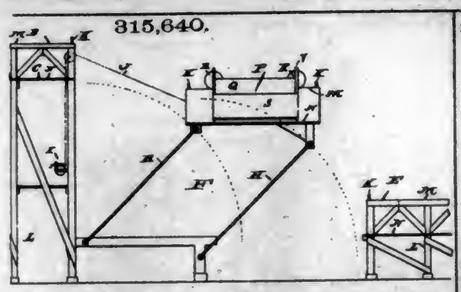
2. In a mechanism for producing reciprocating motion, a revoluble shaft provided with a flange, C, and a section of a worm, to operate as described, and for the purpose set forth.

3. In mechanism for giving a reciprocating motion, the combination of geared wheels E and F, G and H, a revolving flange, and a sectional worm, substantially as described.

315,640. INCLINE RAILWAY. CHARLES P. KRAMER, Hamilton, Ohio, assignor of one-third to James E. Campbell, same place. Filed Jan. 29, 1885. (No model.)



315,640.



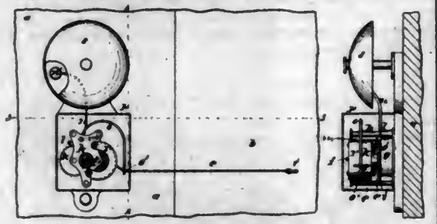
Claim.—1. In an inclined railway, the combination, with contiguous track portions E and B upon different levels, of an elevator-section of track adapted to receive a car, radius-bars H, linking such elevator-section to a firm base, and a winding-gear, I, or its equivalent, for lifting the elevator-section from the lower level to the higher level, substantially as and for the purpose set forth.

2. In an inclined railway, a trestle structure surmounted by a rail, a seat-car suspended from wheels adapted to run upon such rail, and a floor, N, supported by the trestle structure at a point below the bottom level of the car, substantially as set forth.

3. In an inclined railway, the trestle-structure surmounted by a rail and provided with a floor below the rail-level, and a seat-car provided with wheels engaging the rail and having its seat disposed below the level of the rail, substantially as set forth.

4. A trestle structure provided with a rail at its top and with a rail upon its ride below the level of said top rail, and a seat-car provided with wheels above the seat-level to engage the top rail, and with one or more wheels below its seat-level to engage the side rail, substantially as and for the purpose set forth.

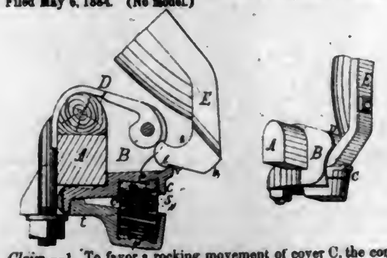
315,641. BURGLAR-ALARM. JOHN H. LUEBSEN, St. Louis, Mo. Filed May 1, 1884. (No model.)



Claim.—1. The combination of the main shaft f, drum d, ratchet-wheel e, spring g, cog-wheel i, spring-pawl j, scape-wheel k, cog-gear, shaft provided with pallet l, hammer-rod n, and vibrating arm o, having eye o', and a winding and releasing cord, c, connected to the drum through the eye of the arm and adapted to bear on the arm to keep the pallet at rest, as set forth.

2. The combination, with an alarm having a cord to wind it up to set the alarm and a spring to sound the alarm and wind up the cord when the latter is released, of the lever hinged to a fixed part and holding the cord against the pull of the spring by the pressure of the moving part on the opposite end of the lever.

315,642. THILL-COUPLING. HENRY A. LUTTGENS, Paterson, N. J. Filed May 6, 1884. (No model.)

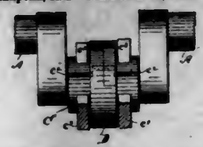


Claim.—1. To favor a rocking movement of cover C, the combination of the rounded spring-seats p and p' with thill-iron E.

2. Shoulder l of the thill-iron E, in combination with projection v of the spring-cover C.

3. A graduated elastic support of cover C, in combination with its projection v and shoulder l of thill-iron E.

315,643. STEAM-ENGINE. MIRANEAU N. LYNN and GEORGE N. WHEELER, Akron, Ohio, assignors to the American Electric Headlight Company, Indianapolis, Ind. Filed Dec. 23, 1884. (No model.)

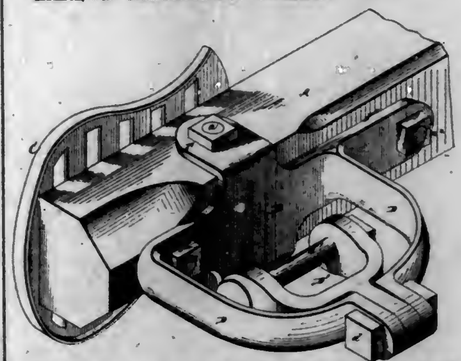


Claim.—1. In combination with the crank or wrist pin, the two or more pitmen provided with semi-annular yokes and applied to the crank, as described, the sectional ring or collar embracing said yokes and passing through slots or openings therein, as at c^4, substantially as described.

2. In combination with the crank or wrist pin, a series of pitmen, each provided with a semi-annular yoke having interlocking shoulders or projections, substantially as described.

3. In combination with the crank or wrist pin, a series of pitmen, each provided with a semi-annular yoke and interlocking shoulders or projections, the said yokes being applied directly to the crank, and retained in place by a ring or collar, substantially as described.

315,644. SPRING-HANGER. JACOB A. MACK and CHRISTIAN HANSON, Madison, Wis. Filed Nov. 20, 1883. (No model.)



Claim.—In a hanger for platform-springs, the plate b, formed with ears b', clasping the side of the cross-bar, the extension b^2, and bent arms D D, in combination with the yoke D', hinged between the lower ends of said arms, and provided with the bolt d', all constructed and arranged to operate substantially as and for the purpose herein set forth.

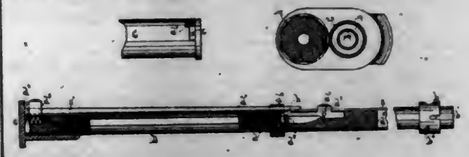
315,645. MAGAZINE FOR FIRE-ARMS. JOHN M. MARLIN, New Haven, Conn. Filed Dec. 6, 1884. (No model.)

Claim.—1. The removable magazine D, in combination with the sliding rod d', carried thereby, provided with the thumb-piece d^2 at one end and the hook h at the opposite end, and the plunger d^3, with the plunger-spring d, said plunger carrying the latch d^3, sliding in the slot s', and engaging with the said hook h, substantially as described.

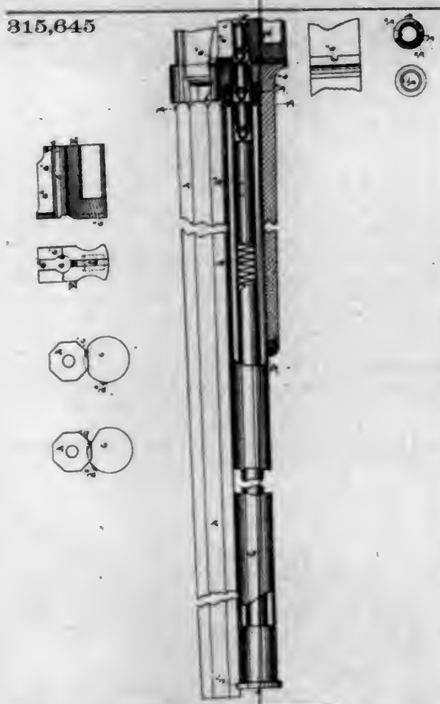
2. The combination of the magazine-case C, provided with the L-shaped slot x, and the removable magazine D, provided with the sliding rod d', adapted to engage with and hold the plunger d^3, and having the projecting stud d^3, to engage with said slot and lock the magazine in the magazine-case, substantially as described.

3. In combination with the magazine-case C, provided with the pin b^2, the magazine D, provided with the rotating sleeve b, having the slot b', engaging with said pin, and the stop b^3, actuated by the rotation of said sleeve inward and outward in the magazine, substantially as described.

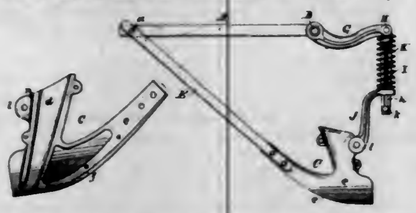
4. In combination with the magazine of the arm, adapted to receive and feed the cartridges backward into the carrier E, the carrier provided with the tongue e^3, and the frame-work of the arm provided with the groove e^4, fitted to receive said tongue and allow it to slide therein, substantially as described.



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315,646. SEEDING-MACHINE. ANDREW J. MARTIN and JOHN C. BAKER, Mechanicsburg, Ohio; said Martin assignor to the Mechanicsburg Machine Company, same place. Filed Dec. 22, 1884. (No model.)



Claim.—1. The shoe curved horizontally, having the trench-opening edge and provided with the seed-conductor, substantially as and for the purpose set forth.

2. The sectional shoe having the trench-opening edge curved horizontally to lift the soil, provided with the seed-conductor, and cut away at one side of its heel, substantially as and for the purpose set forth.

3. The combination, substantially as set forth, of the shoe having drag-bar connection with the frame, the thrust-bar jointed to the shoe, the hanger with which the thrust-bar has vertically-adjustable connection at its upper end, the hanger-spring acting on thrust-bar, and the supporting-shaft of the hanger, for the purpose described.

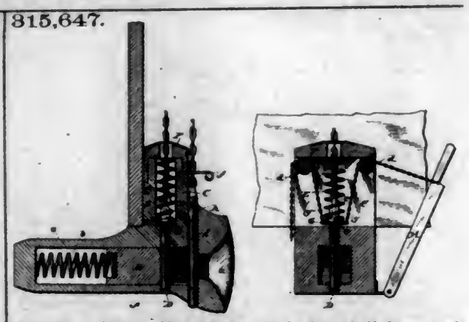
4. The combination of the hanger-supporting shaft, the hanger, its spring, the thrust-arm acted upon by the spring and having vertically-adjustable connection with the hanger, the stop for limiting the downward movement of the thrust-bar, and the shoe having drag-bar connection with the frame and to which the thrust-arm is jointed, substantially as and for the purpose set forth.

5. The combination of the axle, the crank-arms secured thereto, the shaft supported by the crank-arms, the hanger or series of hangers supported by the shaft, the hanger spring or springs, the thrust arm or arms, and the shoe or shoes, all substantially as and for the purpose set forth.

315,647. CAR-COUPLING. ORIN D. D. MARTIN, Augusta, Ga. Filed Feb. 26, 1885. (No model.)

Claim.—1. In a car-coupling, the combination, with a draw-head having a spring-actuated block located and adapted to slide therein, of a coupling-pin having an annular shoulder, supports on the upper side of the draw-head, a removable cap having an opening, a spiral spring

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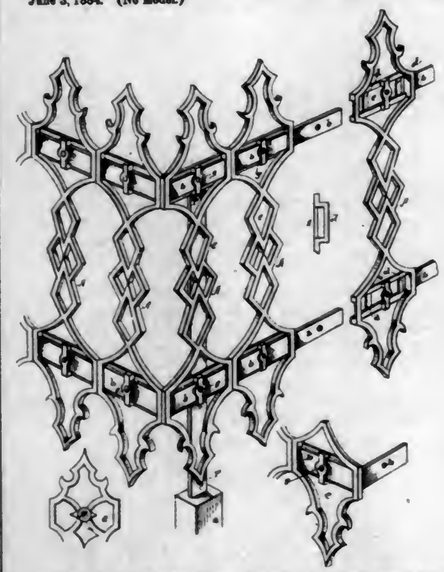
mounted on said pin, said coupling-pin also having a divided upper end, and a hook pivoted in said end, substantially as set forth.

2. In a car-coupling, the combination, with a draw-head having a spring-actuated block located and adapted to slide therein, and supports covered by a removable cap having an opening, of a coupling-pin having an annular shoulder, a spiral spring on said pin, a plate located on said pin below the shoulder, and pivoted levers connected with said plate, substantially as set forth.

3. In a car-coupling, the combination, with a draw-head having a spring-actuated block located and adapted to slide therein, supports on the upper side of said draw-head, idlers located between said supports, and a removable cap having a hole or opening, of a coupling-pin having an annular shoulder, a spiral spring mounted upon the upper end of said pin, a plate on the pin below the shoulder thereof, chains secured to said plate, and pivoted levers adapted to be connected with said chains, substantially as set forth.

4. In a car-coupling, the combination, with a draw-head and the coupling-pin, of a shaft located in brackets secured to the front of the car, a crank on said shaft, a lever connected with said crank, connections between the lower end of said lever and the pin, and arms on the end of said shaft, substantially as set forth.

315,648. IRON FENCE. GEO. W. MCCANN, Springfield, Ohio. Filed June 3, 1884. (No model.)

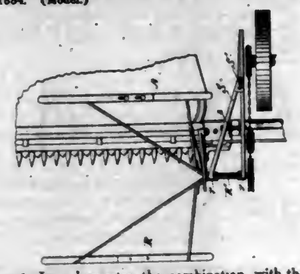


Claim.—1. A railless fence composed of pickets each provided with laterally-projecting arms on one side and sockets on the other, the several arms and sockets interlocking with each other and secured against withdrawal by bolts *g*, as set forth.

2. A picket-fence section provided with straight arms *b* and socket-loops *d*, adapted to receive and inclose similar arms, and with ends or terminals fashioned so that either end may be placed uppermost, as set forth.

3. The picket A, provided with the socket-loops *d* and the lateral arms *b b* in line therewith, and openings for the fastening-bolts *g*, as set forth.

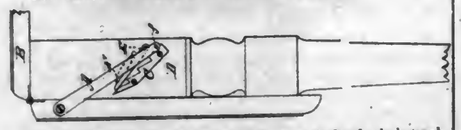
315,649. HARVESTER-REEL. LEWIS MILLER, Akron, Ohio. Filed Apr. 5, 1884. (Model.)



Claim.—1. In a harvester, the combination, with the elongated reel-shaft, of the adjustable pivoted bifurcated lever supporting the reel-shaft, as described, and extended back of its pivot to form a handle by which to adjust it, substantially as described.

2. In a harvester, the combination, with the elongated reel-shaft, of the pivoted adjustable bifurcated lever supporting said reel-shaft, as described, and extended back of its pivot to form a handle by which to adjust it, the reel-post interposed between the arms of the lever, and the cross-bolt passing through the arms of the lever and the reel-post and serving as the pivot for the lever, substantially as described.

315,650. AUTOMATIC SUPPORTING DEVICE. ALPHONSE MONTANT, New York, N. Y. Filed Nov. 18, 1882. (No model.)



Claim.—The combination, with the frame or body of a desk, trunk, or similar article, of a hinged back or top, a gravitating arm, A, pivoted to the said back or top, a pin, *f*, a fixed notched rack, C, and a spring, F, the whole being constructed and adapted to operate substantially as shown and described.

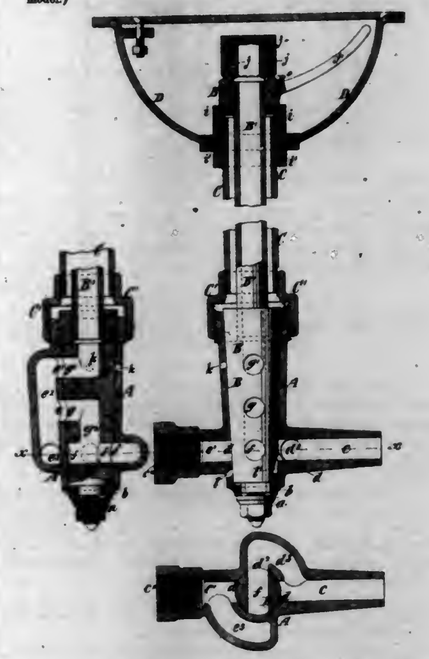
315,651. TRAVELING THRASHER AND SEPARATOR. WINTHROP NORTON, Orland, Cal., assignor of forty-nine and one-third one-hundredths to Charles John Russell Ballard, same place, and Hiram Mixner, Colusa County, Cal. Filed Oct. 21, 1884. (No model.)



Claim.—1. A traveling thrasher and separator adapted to operate in connection with a header, comprising the frame A, a portable engine mounted thereon, the thrasher arranged upon the said frame, the longitudinal endless carrier arranged upon the side of the thrasher, adapted to receive the grain from the header, and the transverse carrier adapted to carry the grain from the longitudinal carrier to the hopper of the thrasher, substantially as specified.

2. The machine described, comprising the truck or carriage A, adapted to be drawn by horse-power, the steam-engine, the thrasher arranged upon the frame A, to be drawn by horse-power, the longitudinal and transverse carriers, arranged as shown, and adapted to conduct the grain from the header-spout to the hopper of the thrasher, substantially as specified.

315,652. COCK FOR HOUSE-SERVICE AND STREET-WASHER CONNECTIONS. JOHN MOSS, Brooklyn, N. Y. Filed June 18, 1884. (No model.)



Claim.—The combination, with a cock-shell having in its plug-seat ports d d' d^2, a passage, d^3, connecting the port d^2, with the water-inlet ports e e', and a passage leading to the water-outlet of the shell, and with which the ports e e' communicate, of the plug having a direct waterway, f, and ports g g', ranging with the ports e e' in the plug-seat, and communicating, respectively, with the water-way f and the hollow head of the plug, substantially as and for the purpose herein described.

315,653. WHIP-CORE. HENRY MULLEN and JAMES NOBLE, Jr., Westfield, Mass. Filed Jan. 22, 1885. (No model.)

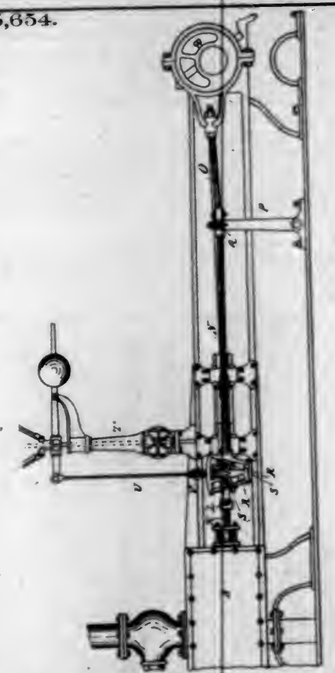


Claim.—An improved compound whip-core, substantially as described, composed of whale-bone, rawhide, and a suitable cement for the latter, the bone constituting the center of the core and the rawhide the covering thereof, said covering being cemented upon and wrapped around said bone, the outer edge thereof being lapped and cemented upon the covering, substantially as set forth.

315,654. VALVE-GEAR FOR STEAM-ENGINES. JACOB NEUERT, Sandusky, Ohio. Filed Nov. 5, 1884. (No model.)

Claim.—1. In an automatic cut-off, the reciprocating link N, provided at one end with two inversely-inclined slots, R R, in combination with the valve-stems G H, provided with the wrist-pins I M, and the vibrating end of said link suspended from a connection with the governor, substantially as and for the purposes specified.

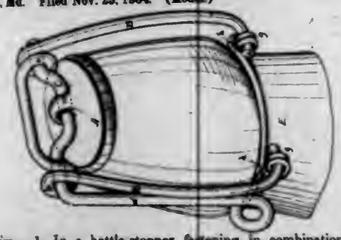
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2. In an automatic cut-off, the combination, with the valve-stem G, having a wrist-pin, I, of the valve-stem H, sleeved upon said stem G, the yoke L, secured to the stem H, and provided with a wrist-pin, M, and the reciprocating link N, provided with the inversely-inclined slots R R, in which said wrist-pins work, substantially as and for the purpose specified.

3. In an automatic cut-off, the combination, with the valve-stem G, sliding through the bearing J, and provided with a wrist-pin, I, and the valve-stem H, the yoke L, adjustably secured thereto and provided with a wrist-pin, M, of the reciprocating link N, having two inversely-inclined slots, R R, and the rod U, connecting said link directly with the governor, substantially as and for the purpose set forth.

315,655. BOTTLE-STOPPER FASTENER. WILLIAM PAINTER, Baltimore, Md. Filed Nov. 25, 1884. (Model.)



Claim.—1. In a bottle-stopper fastening, in combination with a stopper and a bail pivoted to one side of the bottle-neck, a compressing crank or cam attached to said bail above said stopper, and adapted to force the stopper to its seat, substantially as described.

2. In a bottle-stopper fastening, the combination of a swinging bail pivoted to one side of the bottle-neck, a crank or other similar compressing device pivoted to said bail, and a stopper pivoted to the compressing device, substantially as and for the purpose set forth.

3. In a bottle-stopper fastening, a neck-wire having its pivotal bearings at one side of the bottle-neck, a swinging bail pivoted therein, and having bearings at top formed by coils in the bail-wire, a crank pivoted to said bearings and having an actuating-lever, and a stopper pivoted to the crank, substantially as and for the purposes specified.

4. A bottle-stopper fastening having the bail pivoted at one side of the bottle-neck, and provided with a crank and stopper, substantially as described, the coils of said bail being adapted to embrace and guide the stopper into central position, as set forth.

5. The neck-wire having pivotal bearings for the bail, formed by coils located below the line of said neck-wire, and substantially in line with the side of the bottle-neck, said coils being held and bound together by the crossing of the wire, substantially as described.

315,656. ARTIFICIAL DENTURE. PHILIP A. PALMER, Chicago, Ill. Filed June 16, 1883. (Model.)

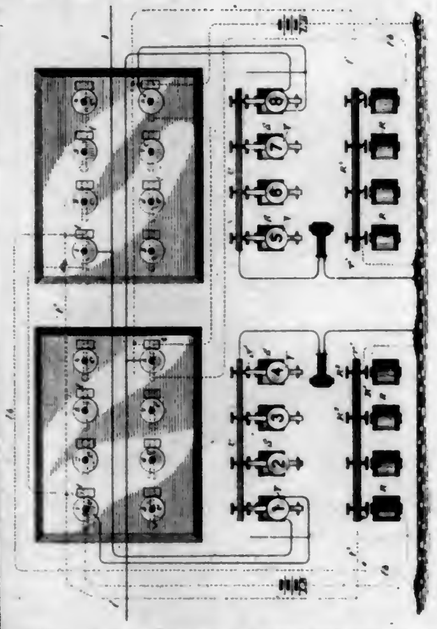
Claim.—A natural tooth provided with a protective band or cover permanently secured thereto, in combination with a removable partial artificial denture provided with one or more fastenings, whereby the natural teeth will not be clasped directly, substantially as shown and described.

315,657. DOOR-LOCK. FLOYD N. PERKINS, Bellefontaine, Ohio. Filed May 2, 1884. (No model.)

Claim.—1. The combination, with the tumbler I and bolt B', operated thereby, of the slide G, also operated by the tumbler I and adapted to cover the key-hole R and lock the squared spindle of the door-knob, substantially as shown and described.

2. The combination, with the tumbler I, having fingers K L M, and the bolt B', operated thereby, of the slide G, having shoulder *a*, against which finger K rests to hold the slide down when the bolt is thrown.

315,658. MULTIPLE SWITCH-BOARD. THOMAS J. PERRIN, Brooklyn, N. Y., assignor to Charles P. Huntington, Greenville, Miss. Filed Nov. 4, 1884. (No model.)



Claim.—1. The combination, in a multiple switch-board, of a main line, its terminal on each of the boards, an electric coil at each of said terminals, a local circuit in which said coils are included, the annunciator S, and relay R, and electric circuits and connections, substantially as set forth.

2. The combination, in a multiple switch-board, of the main line, its terminals on the several boards, an electro-magnetic coil at each of said terminals, a local circuit in which they are included, a movable contact included in said local circuit at each terminal, the annunciator S, and relay R, their circuits and connections, and a line-plug for making connections by means of which the local may be broken at its movable contact when the line is to be disconnected from that of another subscriber.

3. The combination of the line terminal-plate *c*, the electro-magnet coil, the local circuit in which said coil is included, the movable contact in said local circuit, and the plug formed with a movable slide or rod for opening the local circuit at said movable contact.

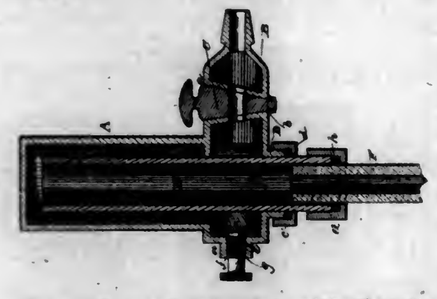
4. The combination of the main line, its terminals on the several boards, an electro-magnetic coil without a core at each of said terminals, a local circuit in which it is included, and a pair of iron plugs, for the purpose set forth.

5. The combination of the several sections of board, a main line, a metallic terminal or ring for said line on each board, a direct connection between said terminals and the main line at each board except the particular board to which the line belongs, an annunciator-magnet placed between the line and its terminal at its particular board, the operator's instruments which are thrown into the line by the fall of the annunciator-drop, and electric circuits and connections.

6. The combination of the several sections of board, a main line, its terminals on the several boards, a local circuit for said line, the coils in the local circuit at the several terminals of said line, the annunciator at the particular board of said line, a relay included in said local circuit by means of which the ground of the main line is thrown off and the ground of the local completed, an insulated contact arranged in proximity to each of said line terminals, and the electrical connections between said contacts and the local circuit.

7. The combination of the several sections of board, the main line, its several terminals, a local circuit which on its completion indicates at the several terminals of said line that the line is in use, an annunciator for said line at its particular board, a relay, also at said board, by which the ground of the main line through the relay is thrown off and the local circuit grounded when the relay is energized, an insulated contact at each of said terminals, and the electrical connections between said contacts and the local circuit, for the purpose set forth.

315,659. ADJUSTABLE WATER-LINE INDICATOR FOR STEAM-BOILERS. AUGUSTUS W. PRATT, Waterford, N. Y. Filed Dec. 10, 1884. (No model.)



Claim.—1. In a water-line indicator for steam-boilers, the combination, with a suitable casing, of a vertically-adjustable tube located therein, an indicating-tube adapted to be connected therewith, and a set-screw adapted to bear against the said tube, substantially as set forth.

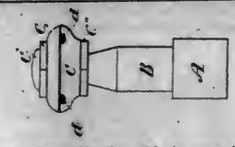
2. The combination, with a suitable casing having an opening at its lower end surrounded by an exteriorly-threaded flange, of a nut on said flange, a packing between the nut and flange, a tube passing through an opening in the nut, an indicating-tube adapted to be connected with said tube, and a set-screw adapted to bear against said tube, substantially as set forth.

3. The combination, with a suitable casing having an opening at its lower end surrounded by a downwardly-extending exteriorly-threaded flange, of a nut having an opening fitting said flange, a packing between the flange and nut, a metal tube passing through the opening in the nut, said tube being exteriorly threaded, a nut having an opening fitted on said tube, a packing, a glass indicating-tube connected with the metal tube, and a set-screw passing through a threaded opening in the casing and adapted to bear against the metal tube, substantially as set forth.

315,660. SUPPORTING-INSULATOR FOR TELEGRAPH-WIRES. HENRY PRENZEL, Philadelphia, Pa. Filed Jan. 21, 1885. (No model.)

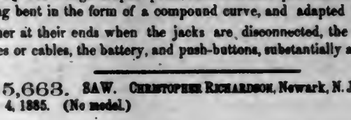
Claim.—In a supporting-insulator for electric wires, the lower half, C, having an internally-screw-threaded opening, and provided with a

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groove or grooves, *c*, in combination with the upper half, C', having an internally-screw-threaded opening, and the screw-threaded supporting-peg B, all substantially as and for the purpose described.

315,661. FLASK-PIN. SAMUEL C. PRICE, Detroit, Mich. Filed Dec. 10, 1884. (No model.)



Claim.—1. The plate A, consisting of the two circular parts *a b*, cast integral with each other and with the ear *c*, said ear carrying the pin B, in combination with the plate A' of corresponding shape and provided with a hole for the reception of said pin, both of said plates being provided with a flange, *d*, of the general shape of the contour of the plate, substantially as described.

2. The combination, with the plate A, consisting of the two circular parts *a b*, cast integral with each other and with the ear *c*, said ear carrying the pin B, of the plate A' of corresponding shape and provided with a hole for the reception of said pin, both of said plates being provided with a flange, *d*, of the general shape of the contour of the plate, and a hole in the center of the circular parts, substantially as and for the purposes specified.

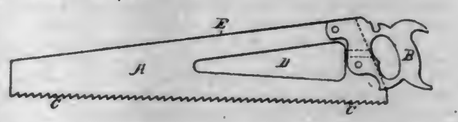
315,662. ALARM FOR RAILWAY-TRAINS. SMITH C. PULLMAN, Catskill, N. Y. Filed Oct. 13, 1884. (No model.)



Claim.—1. The jack having the non-conducting body provided with the forwardly-extending reduced projection having the wedge-shaped point, springs made of conducting material and secured to the body on opposite sides, the front ends of the springs extending beyond the wedge-shaped point, said extended portions of the springs being bent in the form of a compound curve and adapted to come together normally at their front ends to close the circuit, and conducting-wires attached to the springs, substantially as described.

2. The combination of the jacks having each the conducting body provided with the forwardly-extending reduced projection having the wedge-shaped point, springs made of conducting material and secured to the body on opposite sides, the front ends of the springs extending beyond the wedge-shaped point, said extended portions of the springs being bent in the form of a compound curve, and adapted to come together at their ends when the jacks are disconnected, the conducting wires or cables, the battery, and push-buttons, substantially as described.

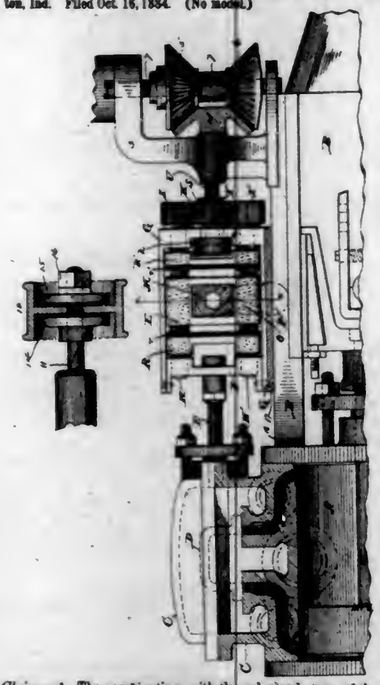
315,663. SAW. CHRISTOPHER RICHARDSON, Newark, N. J. Filed Feb. 4, 1885. (No model.)



Claim.—1. The combination, with the handsaw-blade A, having handle B attached thereto at the end, of the three-sided opening D, formed with its wider end at the butt of the saw and tapering toward the middle of the blade, as and for the purpose set forth.

2. The combination, with the tapering handsaw-blade A, of the aperture D, having one side thereof substantially parallel with the line of the teeth, and having the slot I, connecting the aperture with the wide end of the saw, and the metal at each side of said slot independently attached to the handle, substantially as shown and described.

315,664. CUT-OFF-VALVE GEAR. CHARLES H. ROBERTS, Washington, Ind. Filed Oct. 16, 1884. (No model.)



Claim.—1. The combination, with the valve and stem, of the frame G, screws H H', pinions I I', bars R R', cross-head L, operated by the eccentric and rock-shaft, and the gear K, operated by the shaft U, as set forth.

2. The combination, in a steam-engine, with the slide-valve having an intermittent motion, of means, substantially as described, whereby the travel of the valve may be regulated independently of the positive motion of the eccentric, as and for the purpose set forth.

3. The combination, with the governor and its operating mechanism, and the shaft 7, having friction-wheels 5 and 6, of the shaft U, having wheel 4 and gear K, and the frame G, having screws H H', pinions I I', adjustable bars R R', cross-head L, and the valve and stem, as set forth.

4. The combination, with the valve-gearing, substantially as described, of the governor 8 9, gears 12 and 13, and the shaft 11, having pulley 10 mounted upon said shaft between collars 14 15, the tension of which may be adjusted by the nut 16, as set forth.

315,665. ADJUSTABLE FOLDING TABLE AND IRONING-BOARD SUPPORT. HENRY P. SCHNECK, Jeffersonville, Ind.; Sophia Rosina Schneck, administratrix of said Henry P. Schneck, deceased, assignor to George Holzbog and George W. Schneck, same place. Filed Mar. 18, 1884. (No model.)

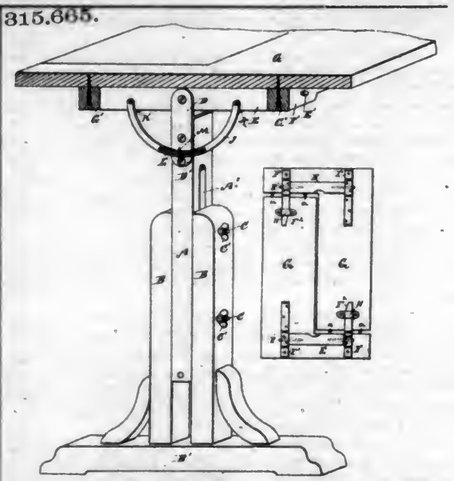
Claim.—1. In a folding table, the combination, with the legs adjustably connected together, of a top plate formed of two L-shaped sections, one pivoted to each of the said legs at their unbroken edges, whereby when the legs are separated the desired distance and the sections turned down against the inner surface of the legs the whole is made to serve as a support for an ironing-board, substantially as described.

2. In a folding table, the combination, with two legs adjustably connected together, of a top plate formed of two L-shaped sections and two cross-bars, each journaled to the under side of the said sections and parallel with their unbroken edges, and pivoted at the center of their length to the said legs, substantially as herein shown and described.

3. In a folding table, the combination, with two legs and a top plate formed of two L-shaped sections, one hinged to each leg, of a strip having a beveled end secured to the end piece of one section, and a beveled keeper on the longitudinal portion of the other section, substantially as herein shown and described.

4. In a folding table, the combination, with two legs connected together, of two bars pivoted to the upper ends of the legs, a top plate formed of two L-shaped sections pivoted to said bars, a curved slotted bar having its ends secured to the said bar, and a thumb-screw, substantially as herein shown and described.

315,665.



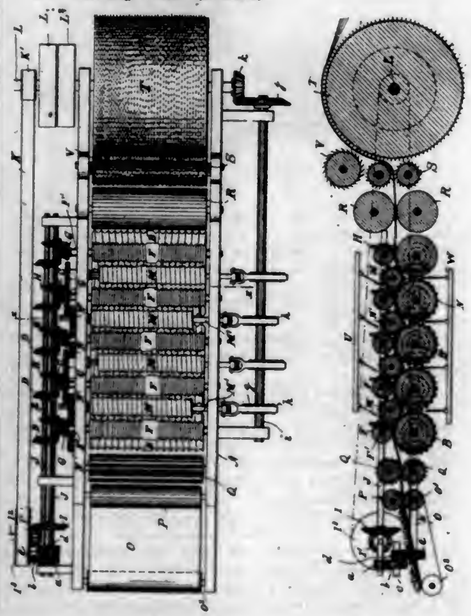
5. In a folding table, the combination, with the legs A, of the cross-pieces E, provided with journals E', and pivoted to the upper ends of the legs, and the top plate, G, formed of two L-shaped sections, and the plates F F', secured to the said sections and forming bearings for the cross-pieces, substantially as herein shown and described.

6. In a folding table, the combination, with the legs A, the cross-pieces E, pivoted to the upper ends of the legs, the top plate formed of L-shaped sections, one hinged to each leg, the semicircular slotted plate J, secured to the cross-piece E, and the thumb-screw M, substantially as herein shown and described.

7. In a folding table, the combination, with the legs A, provided with the forked plate D, provided with the toothed extensions D', of the cross-pieces E, pivoted in the said forks, the sectional L-shaped top plate pivoted to said cross-pieces, the slotted bar J, provided with teeth at its center, and the thumb-screw M, substantially as herein shown and described.

8. In a folding table, the combination, with the standards B and base B', of the slotted legs A, provided with the slotted plates N, the pivoted bars O O', and the bolts and nuts C C P R, substantially as herein shown and described.

315,666. FIBER-RUBBING MACHINE. ALEXANDER SCOTT, Crosby, N. C. Filed Aug. 9, 1884. (No model.)



Claim.—1. In a fiber-rubbing machine, the combination, with two or more spirally or transversely fluted rollers, of smaller transversely or spirally fluted rollers adjacent to them, and of additional transversely or spirally fluted rollers adjacent to the lower rollers, substantially as herein shown and described.

2. In a fiber-rubbing machine, the combination, with two or more spirally or transversely fluted rollers, B, of the smaller transversely or spirally fluted rollers F, adjacent to them, the spirally or transversely fluted rollers M, adjacent to the rollers B, between the rollers F, and devices for reciprocating the rollers M at the same time that they are being revolved, substantially as herein shown and described.

3. In a fiber-rubbing machine, the combination, with a series of spirally or transversely fluted rollers, B, of the transversely or spirally fluted rollers F above the rollers B, the spirally or transversely fluted rollers M above the rollers B and between the rollers F, the wringer-rollers R, and the picker-roller T, substantially as herein shown and described.

4. In a fiber-rubbing machine, the combination, with a series of spirally or transversely fluted rollers, B, of the transversely or spirally fluted rollers F above the rollers B, the spirally or transversely fluted rollers M above the rollers B and between the rollers F, the wringer-rollers R, the feed-rollers S, and the picker-roller T, substantially as herein shown and described.

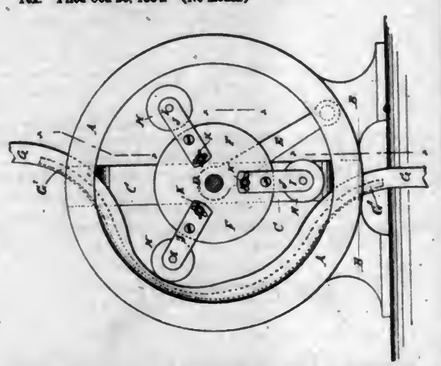
5. In a fiber-rubbing machine, the combination, with a series of spirally or transversely fluted rollers, B, of the transversely or spirally fluted rollers F above the rollers B, the spirally or transversely fluted rollers M above the rollers B and between the rollers F, the wringer-rollers R, the feed-rollers S, the cleaning-roller V, and the picker-roller T, substantially as herein shown and described.

6. In a fiber-rubbing machine, the combination, with the spirally or transversely fluted rollers B, of the smaller transversely or spirally fluted rollers F above them, the transversely or spirally fluted rollers M between the rollers F, the wringer-rollers R, the picker-roller T, the longitudinally-fluted rollers Q, and the belt O, substantially as herein shown and described.

7. In a fiber-rubbing machine, the combination, with the spirally or transversely fluted rollers B, of the smaller transversely or spirally fluted rollers F above them, the transversely or spirally fluted rollers M between the rollers F, the wringer-rollers R, the picker-roller T, the longitudinally fluted rollers Q, the belt O, and the pipes U W, for delivering jets of hot water upon the several rollers and the material between them, substantially as herein shown and described.

8. In a fiber-rubbing machine, the combination, with the rollers B, F, and M, of the gearing for revolving the rollers, the shaft *i*, the eccentric disks *h* on the same, and the rings *g*, surrounding the said disks, which rings are connected with the shafts of the rollers M, substantially as herein shown and described.

315,667. ROTARY FORCE-PUMP. JOHN SERDENKO, New Braunfels, Tex. Filed Oct. 20, 1884. (No model.)

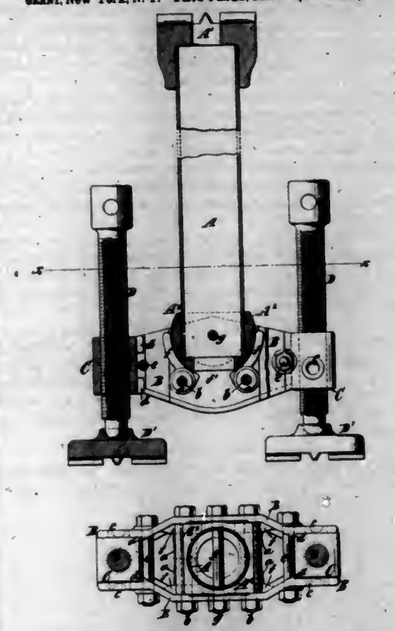


Claim.—1. A rotary force-pump constructed substantially as herein shown and described, and consisting of a tubular circular standard provided with one or more flexible tubes having interior half-tubes, and an interior cylinder attached to a crank-shaft and provided with adjustable bars carrying rollers, as set forth.

2. In a rotary force-pump, the combination, with the tubular standard A and the flexible tube or tubes G, having interior half-tubes, G', of the interior cylinder, F, the adjustable bars J, the rollers H, and the crank-shaft D, substantially as herein shown and described.

3. In a rotary force-pump, the flexible tubes G, made substantially as herein shown and described, with interior half-tubes, G', whereby the said flexible tubes will be kept from being injured by having sharp folds formed in their sides by the pressure of the rollers, as set forth.

315,668. COLUMN-SUPPORT FOR ROCK-DRILLS. HENRY C. SERGEANT, New York, N. Y. Filed June 2, 1884. (No model.)



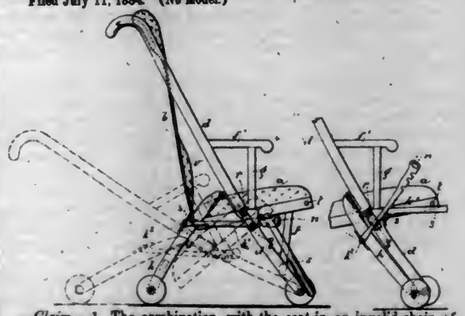
Claim.—1. In a rock-drill support, the combination, with a single column having an approximately cylindric foot the axis of which is horizontal, of a base-piece having between its ends an approximately cylindric seat the axis of which is transverse to the length of the base-piece, and to which the column-foot is fitted, and adjusting-screws fitting nuts in opposite ends of the base-piece, substantially as herein described.

2. The combination, with the column A, provided with the cylindric foot A^1, of the base-piece composed of the two plates B B, provided on their inner sides with the curved flanges *f f*, which form a seat for the column-foot, and bolts inserted through said plates and securing them together, substantially as herein described.

3. In a rock-drill support, the combination, with the column A, having the cylindric foot A^2, of the base-piece composed of plates B B, between which is a cylindric seat for the column-foot having its axis transverse to the length of the base-piece, the nuts C, clamped between said plates and provided with bosses or hubs *c*, fitting holes in said plates, and the screws D, fitting said nuts, substantially as herein described.

4. The combination, with the column A, having the cylindric foot A^2, of the base-piece composed of plates B B, provided with inwardly-projecting lugs *d d*, and curved flanges *f f*, forming a seat for the column-foot, and hubs or bosses *a a*, the nuts C C, arranged between said plates outside the lugs *d d*, the screws D D, and the clamping-bolts *b e*, all substantially as herein described.

315,669. INVALID-CHAIR. LEMUEL W. SERRELL, Plainfield, N. J. Filed July 11, 1884. (No model.)



Claim.—1. The combination, with the seat in an invalid-chair, of side pieces having handles at their upper ends and pivoted handles at the

front swinging down below the seat when not in use, substantially as set forth.

2. The combination, with the seat and the back, of side pieces rigidly connected to the seat-frame and having handles at their upper ends, swinging back legs pivoted at their upper ends, and means for holding the back legs in their proper position, and for swinging the said back legs forward to the front legs, substantially as set forth.

3. The combination, with the seat and back, of side frames rigidly attached to the seat-frame, handles at the upper ends of such side frames, short rigid arm-pieces, and hinged back legs fitted to be swung independently of the seat-frame, substantially as specified.

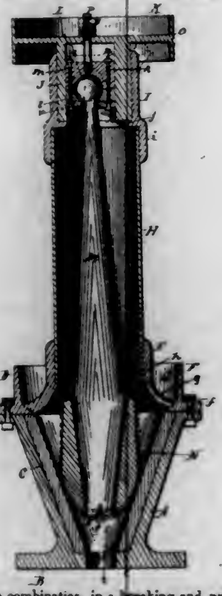
4. The combination, in an invalid-chair, of side pieces having handles at their upper ends, and the seat-frame, back, and arm-pieces rigidly connected, and movable handles at the front part of the seat-frame, substantially as set forth.

5. The side pieces having handles at their upper ends, the front legs, and wheels at the lower ends, in combination with the seat-frame, to which the side pieces are rigidly fastened, the back, and the back legs hinged at their upper ends and swinging independently of the seat, substantially as set forth.

6. The combination, with the seat, back, and side pieces rigidly connected together, of back legs pivoted at their upper ends, movable connections between the back legs, and side pieces, substantially as set forth.

7. The combination, with the seat and back, of side frames forming also the front legs, back legs pivoted at their upper ends, and movable notched links pivoted to the back legs and extending to the front legs, substantially as set forth.

315,670. ROCK BREAKER AND PULVERIZER. WILLIAM S. SHARPNECK, Denver, Colo. Filed June 11, 1884. (No model.)



Claim.—1. The combination, in a breaking and pulverizing machine, of a mortar, a pestle having its lower end loosely suspended therein, means, substantially as described, for giving motion to the pestle, and a ball-and-socket joint constructed to perform the double function of suspending the pestle and communicating motion to the same, substantially as described.

2. The combination, in a breaking and pulverizing machine, of a mortar, a pestle having its lower end loosely suspended therein, a driving-wheel, an eccentric connected with said driving-wheel, and a ball-and-socket joint carried by said eccentric and constructed to perform the double function of supporting the pestle and communicating motion to the same, substantially as described.

3. The combination, in a breaking and pulverizing machine, of a mortar, a pestle having its lower end loosely suspended therein, a driving-wheel, an eccentric connected with said driving-wheel, a ball-and-socket joint located in said eccentric, and means for raising and lowering said ball and socket in said eccentric, substantially as described.

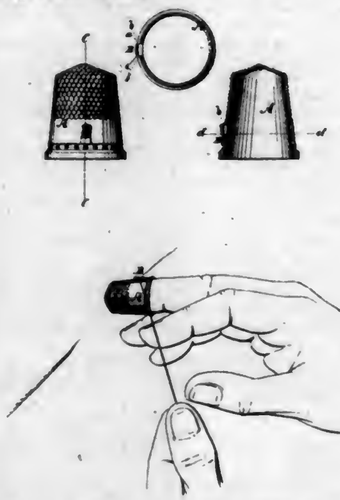
4. The combination, in a machine for breaking or pulverizing rock or similar material, of a mortar contracted toward its lower end, provided interiorly with a cylinder, C, and having a discharge-opening, a pestle having a tapered portion extending into said mortar and working therein, and a removable shoe or sleeve embracing said tapered portion, having its lower portion of semi-globular form, and secured to the tapered end of said pestle, substantially as described.

5. The combination, in a machine for breaking or pulverizing rock or similar material, of a mortar having a suitable discharge, a cap bolted to said mortar and provided with the throat E, an outer vertical band or ring forming a hopper, and a supply-opening, *g*, a pestle extending through said throat into said mortar, and devices above the cap for operating said pestle, substantially as set forth.

6. The combination, in a machine for breaking or pulverizing rock or similar material, of a mortar having a suitable discharge, a cap bolted to said mortar and forming a supply-hopper therefor, a cylinder, H, a head-casting secured to said cylinder H, the driving devices, a pestle extending through the cylinder and cap into the mortar, the upper end of said pestle being spherically enlarged to bear universally, and a bearing-box eccentrically located in the driving devices, substantially as set forth.

7. The combination, in a machine for breaking or pulverizing rock or similar material, arranged and constructed substantially as described, of a head-casting supported as set forth, and provided with an interior rib, *j*, a drive-pulley, K, having a hub extending into the head-casting and bearing on the rib of the same, a box located eccentrically in the hub, and a pestle bearing in said box, and a mortar forming a support for the whole, substantially as and for the purpose specified.

315,671. THIMBLE. WILLIAM P. SLENBY, Brooklyn, N. Y. Filed Aug. 16, 1884. (Model.)



Claim.—1. The thimble A, having the tongue B, formed by an incision out of its round body, said tongue being bent outwardly to form the cutting-edges *a b* and *e f*, substantially as described.

2. The thimble A, combined with the cutting-tongue B, which is bent and formed out of the round body of the thimble, as specified.

315,672. LOOP FOR BRIDLES. GEO. L. SMITH, Newark, N. J. Filed Jan. 26, 1885. (No model.)



Claim.—The herein-described guide for check-reins, &c., consisting of uprights A A, having ends *b b*, bent laterally toward each other, connecting-bar B, and loose sleeve or roller C.

315,673. ELECTRIC COUPLING. THOMAS T. SMITH, Finsbury, London, England. Filed Oct. 17, 1884. (No model.) Patented in England Aug. 31, 1882, No. 4,162.



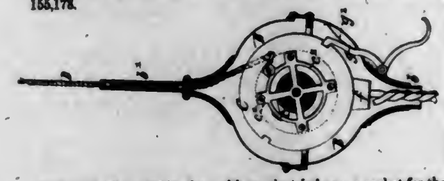
Claim.—1. The combination, with a screw-threaded and perforated ceiling-plate or rose, A, fixed main or branch wires leading therefrom, and insulated terminals *a a*, mounted on said plate or rose, of a detachable carriage, B, pierced to admit a single flexible cord containing the separately-insulated flow and return wires, and fitted with insulated terminals *b b*, connected, respectively, with the said flow and return wires, and adapted to be supported by the said terminals *a* in electric contact therewith, thereby attaching the carriage to the ceiling-plate, and an independent centrally-perforated screw-cap, E, adapted to be put in place after such attachment for preserving the contacts from sight, touch, and displacement, all substantially as herein described

2. The combination, with a perforated ceiling-plate or insulating-block, A, a pair of metal cheeks, *a a*, having bent ends, fixed conducting-wires connecting, respectively, to said metal cheeks, and a flexible cord or lamp-support containing both the flow and return wires, suitably insulated, of a detachable coupling-block or carriage, B, having insulated metallic side pieces, *b b*, adapted to be slid laterally between and rest upon the bent ends of the said cheeks *a a*, and a perforated screw cap or guard, such as E, fitting onto the said block A, for preventing the accidental displacement of the detachable part of said coupling, or the accidental touching of the fixed terminals *a a*, as set forth.

3. In an electric ceiling connector or coupling, the combination, with the main or branch wires and a pair of insulated fixed metal terminals, *a a*, of a sliding block or carriage, B, pierced to admit the wires leading to and from a lamp or lamps, and having insulated metal side pieces, *b b*, bent so as to form spring-tongues *b' b'*, and a stop or stops limiting the movement of the sliding block or carriage in one direction, and determining its proper position with respect to the said terminals *a a*, substantially as set forth.

4. The combination, in an electric coupling, of the perforated plate or rose A, insulated terminals *a a*, perforated sliding block or carriage B, insulated side pieces, *b b*, having bent portions *b' b'*, and a screw cap or guard, E, substantially as and for the purpose specified.

315,674. ELECTRIC-LIGHT APPARATUS. THOMAS T. SMITH, Finsbury, London, England. Filed Oct. 18, 1884. (No model.) Patented in England Aug. 31, 1882, No. 4,162, and in France Apr. 30, 1883, No. 155,178.



Claim.—1. The combination, with an electric lamp, a socket for the same, a ceiling connector or coupling, E, and a single flexible cord containing both the flow and return wires suitably insulated for conveying the current from the said coupling or connector to said lamp and lamp-socket, of a single spring reel or pulley, C, movable with the lamp, through which reel the current can pass to and from the lamp in all positions of the said reel and lamp, and means, substantially as described, for positively locking or releasing the said spring-reel to prevent the winding up or unwinding of the cord when the lamp is adjusted to or placed in its required position, as set forth.

2. In a pendent electric lamp, the combination, with the lead wires, suitable overhead connections, and a flexible cord containing both the flow and return wires suitably insulated, of the lamp-socket and lamp A, case or frame B, spring reel or pulley C, mounted to rotate within the said case and connected therewith by insulated springs *c c*, guides or nozzles *b b'*, conductors *e e*, and pawl *g* or its equivalent, substantially as and for the purpose described.

3. In a pendent electric lamp, the combination, with one or more lamps and lamp-sockets attached to a case or frame, and a flexible conductor or conductors conveying a current or currents of electricity thereto, of a ball or case, B, reel C, insulated springs *c c*, metallic disks or frames *c' c'*, and insulated stud-axles *d d*, substantially as described.

4. In a fitting for pendent electric lamps, the combination, with a flexible conductor or conductors supporting the lamp and conveying the current thereto, of a reel or bobbin mounted to rotate within a suitable case or ball, a pair of insulated stud-axles, and insulated springs, the said stud-axles and springs serving to elastically and electrically connect the wires or sets of wires in the flexible conductor with other wires or sets of wires in a conductor or conductors leading from the ball or case to the lamp, substantially as set forth.

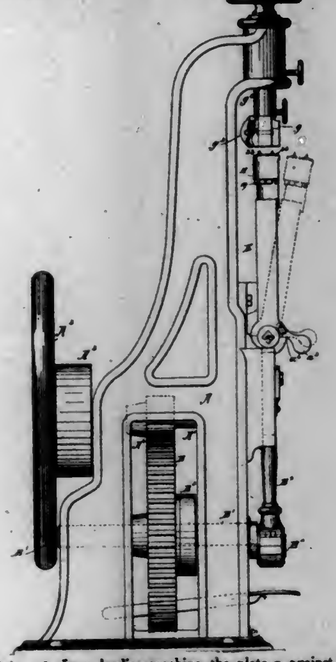
5. As a fitting for electric lamps, a closed divisible case or box, B, having guide-stems, apertures, or nozzles *b b'* for the passage of flexible cords or insulated conductors conveying a current to and from the lamp or lamps, and containing within it a spring reel or pulley adapted to wind up or pay out one or more of the said flexible conductors without breaking the continuity of the electric current, and to be secured in the desired position, substantially as set forth.

6. In a fitting for electric lamps, the combination, with a set of flow and return wires suitably insulated, and a pair of fixed insulated stud-axles, such as *d d*, suitably supported and in electric connection with the lamp, of a ball or case, B, reel C, insulated metal disks or frames *c' c'*, mounted on and making contact with the said axles, a spring or springs *c c*, and apertures or guides *b b'* for the passage of the insulated wires to and from the lamp, substantially as set forth.

7. In a fitting for electric lamps, the combination, with a single flexible cord containing wires in unbroken electrical connection with the lamp or lamps, of a single reel rotating around a fixed axle or axles, a spring or springs tending to wind up the cord upon the said reel, and a positive stop applied to the said reel for arresting its motion at any desired position of the lamp, substantially as set forth.

8. A standard or table electric lamp having within its base or body a spring-reel adapted to wind up or give out a single flexible conductor or cord containing both the flow and return wires suitably insulated, and a stop for locking or releasing the said reel at pleasure, the wires in the said flexible cord being in unbroken electrical connection with the conductors leading to the lamp-socket and lamp by means of insulated springs and stud-axles, substantially as and for the purpose set forth.

315,675. HEELING-MACHINE. HENRIE D. STONE, Boston, Mass., assignor to the Adams Manufacturing Company, Portland, Me. Filed Oct. 6, 1884. (No model.)



Claim.—1. In a heeling-machine, the plate *g*, against which the outer end of the heel is pressed, the reciprocating carriage, the arm E, connected therewith, and the driver-plate provided with the drivers *b'*, combined with the rod D and its connected supporting-plate provided with the guides 19, to operate all substantially as described.

2. In a heeling-machine, the plate *g*, against which the outer end of the heel is pressed, the carriage *c*, and the arm E, connected with the said carriage, and the driver-plate and drivers, and the rod D, provided at its upper end with the supporting-plate and extended into guides in the said arm, and the spring surrounding the said rod and normally keeping the supporting-plate elevated above the driver-plate, combined with means, substantially as described, to actuate the said parts, whereby the sole and heel of the boot and shoe are first held between the plate *g* and the supporting-plate, upward movement of the arm E after the sole and heel are held in place between the said plates effecting the elevation of the driver-plate to drive the fastenings, further upward movement of the arm after driving the fastenings and securing the heel to the boots and shoes consolidating or compacting the heel, as set forth.

3. In a heeling-machine, the carriage and its arm provided at top with awls, and the rod D and supporting-plate and spring *c'*, and the plate *g*, combined with means to move the carriage, the heel to be pricked being first caught between the supporting-plate and the plate *g* when the

supporting-plate and rod remain at rest, while the arm E and carriage continue to rise to enable the awls to penetrate the work, substantially as described.

4. In a heeling-machine, the supporting-plate provided with the conical pointed tubes 4 and open-ended nail-tube 5, combined with the rod, its plate d^2, a series of awls, and a driver, 7, and with means, substantially as described, to operate the said rod and plate.

5. In a heeling-machine, the carriage and the arm E, pivoted thereon, combined with the locking device to hold the arm in upright position, all operating substantially as described.

6. The carriage, the arm E, its plate, and the rod D, the plate attached to its upper end, and the spiral spring surrounding the shaft, combined with a projection to arrest the said rod as the arm E is lowered, substantially as described.

7. The arm E and its attached staple-drivers combined with the spring-supported rod held in bearings in the said arm, and provided with a supporting-plate having staple-guides, the said parts being constructed and combined to operate substantially as described.

315,676. SCOOP-BOARD FOR WAGONS. ANDREW J. SWEENEY, Pana, Ill. Filed Aug. 11, 1884. (No model.)



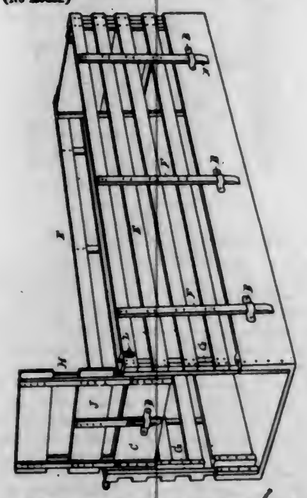
Claim.—1. A scoop-board provided with attaching-strips, one of which is laterally adjustable, as set forth.

2. A scoop-board provided with attaching-strips, one of which is laterally adjustable, and bracing-strips secured to the under side of said board, as set forth.

3. The combination, with a scoop-board provided on one side, near its ends, with slots, of strips, one of said strips being secured to the board by means of screws or bolts passing through a strip on the under side of the board and through said slots, whereby the said strip may be laterally adjusted, as set forth.

4. The combination, with a wagon, of a scoop-board having one of its attaching-strips laterally adjustable, and adapted to fit between the bolster and axle, substantially as set forth.

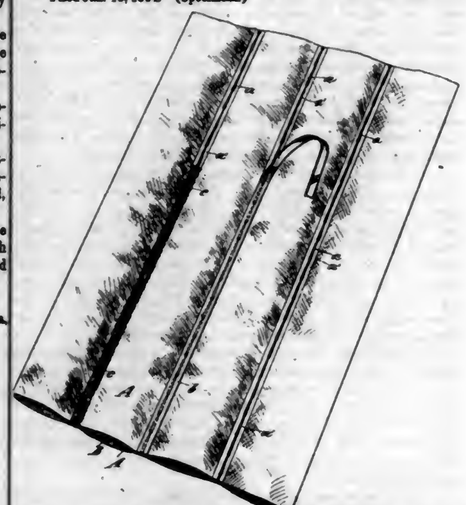
315,677. STOCK-RACK. JAMES O. TAFT, Howell, Mich. Filed Mar. 5, 1885. (No model.)



Claim.—1. A stock-rack consisting of the side racks, E, and suitable end-gates, the rear gate, H, of which is provided with means for engaging with a stake-socket upon the end-board of a wagon and locking itself to place, substantially as and for the purposes described.

2. In combination with a wagon-body, A, and end-board C, the rack E, provided with the rear gate, H, which carries a stake, J, provided with a spring-catch adapted to engage and lock into a stake-socket upon the end-board, substantially as and for the purposes specified.

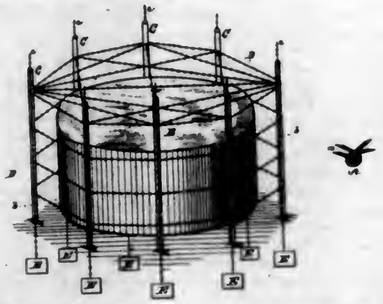
315,678. CARPET-LINING. WENDELL E. TURNER, Fall River, Mass. Filed Jan. 15, 1884. (Specimens.)



Claim.—1. A lining or packing material composed of two thicknesses of paper, A A, and an interposed filling, B, secured together by a line or row of stitching, *a*, and having a line or stripe of adhesive substance, *a'*, applied directly to the paper and line of stitching, whereby the line of stitching is cemented directly to the exterior of one of the thicknesses of paper A in the lining or packing, substantially as and for the purpose herein described.

2. A lining or packing composed of two thicknesses of paper, A A, and an interposed filling, B, secured together by a line or row of stitching, *a*, and having a line or stripe of adhesive substance, *a'*, applied directly to the paper and line of stitching, and a covering of granular or flocculent material secured by the adhesive substance over the line of stitching, substantially as and for the purpose herein described.

315,679. LIGHTNING-CONDUCTOR. FRANCIS R. UPTON, Orange, N.J. Filed June 25, 1883. (No model.)



Claim.—1. A lightning-conductor composed of barbed wire, with the barbs projecting all on one side of a plane through the axis of the wire, substantially as set forth.

2. The combination, with a building or support, of a lightning-conductor placed along or upon such building or support, and composed of barbed wire, with the barbs projecting all on one side of a plane through the axis of the wire, substantially as set forth.

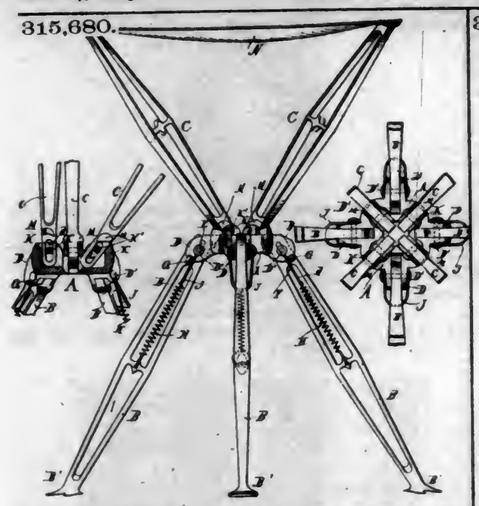
3. The combination, with an oil-tank or similar metallic structure provided with earth-connections, of a surrounding metallic netting composed of barbed wire, and also grounded, substantially as set forth.

315,680. FOLDING CHAIR. GEORGE E. VANDENBURGH, Stillwater, N.Y. Filed Sept. 5, 1884. (No model.)

Claim.—1. In a folding chair, the combination, with the center piece, A, having jaws D on the sides and jaws K on the top, the jaws K being arranged diagonally to the jaws D, and between them, of the legs B, pivoted in the jaws D, and the bars C, pivoted in the jaws K, substantially as herein shown and described.

2. In a folding chair, the combination, with the center piece, A, having the jaws D on the sides and jaws K on the top, the jaws K being

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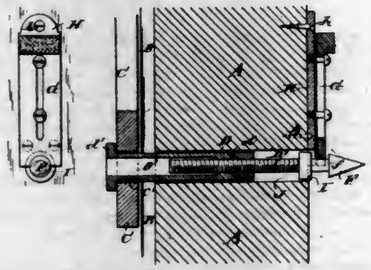
arranged diagonally to the jaws D, of the legs B, having slots E in their upper ends, the pivots D', the bars C, having slots L in the lower ends, and the pivots K', substantially as herein shown and described.

3. In a folding chair, the combination, with the center piece, A, having jaws D, provided with notches F, of the legs B, having longitudinal slots E, and lugs G, the pivots D', springs H, connected to crossbars of the legs B, and to the pivots D', and acting to move the legs longitudinally to cause the lugs to enter the notches, and of seat-support bars pivoted to the piece A, substantially as herein shown and described.

4. In a folding chair, the combination, with the center piece, A, having jaws D, provided with notches F, of the legs B, having slots E, and lugs G, the springs H, the bails J, the pivots D', and of seat-support bars pivoted to the piece A, said springs, together with their bails, acting to move the legs longitudinally and to cause the lugs G to enter their notches, substantially as herein shown and described.

5. In a folding chair, the combination, with the center piece, A, having the jaws B on the sides and jaws K on the top, the latter jaws being disposed diagonally to the jaws D, and the jaws K having inclined shouldered sockets, of the bars C, having slots L, which receive pivots K' of the said sockets, said bars also having incline-faced lugs M, and the legs B, pivoted in sockets of the jaws D, and having locking-lugs G fitting in notches of jaws D, substantially as and for the purpose set forth.

315,681. SHUTTER-BOLT. JOHN VON HOLLEN, Charleston, S.C. Filed Jan. 21, 1885. (No model.)

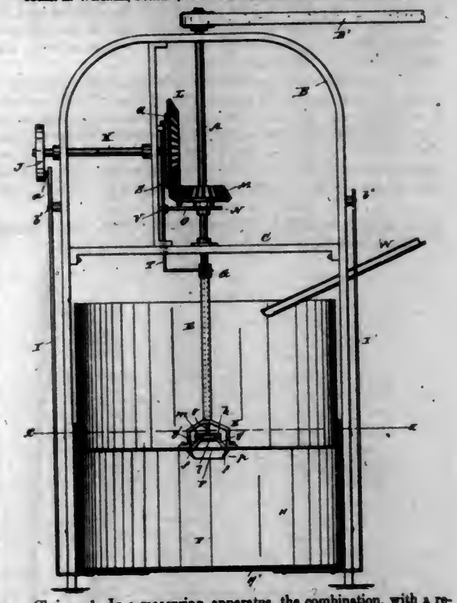


Claim.—1. The combination, in a shutter-fastening, and with the bar C, laid over the window-shutters, of an extensible catch, D, formed of two parts, D' D^2, screwed to each other, said part D' having a head or collar, *d'*, and the part D^2 having a conical head, F, and a sliding latch-bar, G, fitted to the window-frame or wall, and adapted to engage the catch-bar behind its head F, substantially as herein set forth.

2. As an improved article of manufacture, a catch for a shutter-bolt, made with a tubular screw-threaded part, D', having a head or collar, *d'*, and a screw-threaded and conically-headed part, D^2, adapted to be adjusted on the part D' to vary the length of the catch, and said part D^2 having the collar I, substantially as herein set forth.

3. The combination, with the parts D' D^2 of the shutter-bolt, screwed to each other and constructed with the collar or head *d'*, conical head F, and collar I, as specified, of the set-screw *d*, substantially as herein set forth.

315,682. GRAIN-MEASURING APPARATUS. OMAR P. WAGNER and OSCAR E. WAGNER, Pontiac, Ill. Filed Dec. 19, 1884. (No model.)



Claim.—1. In a measuring apparatus, the combination, with a revolving vessel having one or more gates in its bottom, of a fixed vessel in which the above-mentioned vessel revolves, substantially as herein shown and described.

2. In a measuring apparatus, the combination, with a revolving vessel having one or more gates in its bottom, of a fixed vessel in which the other vessel revolves, the said fixed vessel having a removable bottom or gate, and of devices for automatically opening the bottom of the fixed vessel from the gate or gates in the upper vessel by the closing of the said gate or gates, substantially as herein shown and described.

3. In a measuring apparatus, the combination, with the revolving vessel E, having gates F in its bottom, and the fixed vessel H, having a removable bottom, H', of the shaft K, operated from the shaft A, revolving the vessel E, and a rod connected with the gates F and serving to throw the shaft K in and out of gear with the shaft A, substantially as herein shown and described.

4. In a measuring apparatus, the combination, with the shaft A and the vessel E on the same, of the gates F in the bottom of the vessel E, the vessel H, having a removable bottom, H', the rods I I', connected with the bottom H', the shaft K, the cam-wheel J, the bevel cog-wheel L on the shaft K, the bevel cog-wheel M on the shaft A, the ratchet-wheel N, the pawl-lever O, the rods T *o*, connected with the gates F, and the lug V on the rod T, substantially as herein shown and described.

5. In a measuring apparatus, the combination, with the shaft A and a vessel on the same, of the cog-wheel M, loosely mounted on the shaft A, the ratchet-wheel N, rigidly mounted on the shaft A, the pawl-lever O, pivoted on the wheel M, the cog-wheel L, having a cam-groove, Q, the shaft K, the rod *o*, connected with the gates F in the bottom of the vessel E, the lug V on the rod T, the roller S on the rod T and projecting into the groove Q, and of a vessel arranged below the vessel E and having a removable bottom connected with the rods I I' and operated from a cam on the shaft K, substantially as herein shown and described.

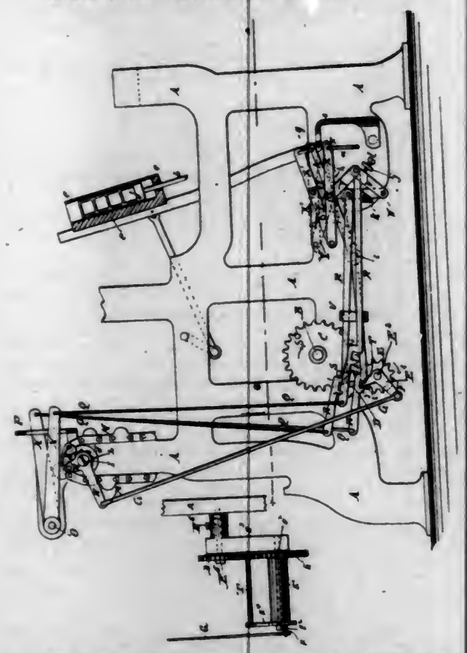
6. In a measuring apparatus, the combination, with the vessel H, having removable bottom H', of the revolving vessel E, provided with the hinged gates F, having crank-arms *g*, the shaft A, the rod *o*, passing through the said shaft, and provided with a slotted cross-piece on its lower end, into which cross-piece the pins or rollers on the cranks *g* pass, and of devices for throwing the shaft A in and out of gear with the wheels for operating the bottom H', said devices being operated from the gates F by means of the said rod *o*, substantially as herein shown and described.

7. In a measuring apparatus, the combination, with the vessel H, having gate H', of the revolving vessel E, having gates F, the downwardly-projecting pocket *p*, the shaft A, having a crutch or stirrup on its lower end, the rod *o*, arranged to slide in the shaft A and provided at its lower end with a slotted cross-piece, and the cranks *g*, formed on the ends of the pivot-rods of the gates F, and provided with pins projecting into the slotted cross-piece on the lower end of the rod *o*, and of devices for throwing the shaft A in and out of gear with the wheels for operating the gate H', substantially as herein shown and described.

8. In a measuring apparatus, the combination, with the vessel H, of the revolving vessel E, provided with the downwardly-swinging gates F, devices for operating the said gates, and of the spring-strips *s*, secured on the upper surface of the bottom of the vessel A, and projecting over those edges against which the free edges of the gates swing, substantially as herein shown and described.

9. In a measuring apparatus, the combination, with the vessel H, of the revolving vessel E, the shaft A, the cog-wheel M, loosely mounted on the same, a device for locking the cog-wheel on the shaft A, the cog-wheel L, mounted on the shaft K, the removable bottom H', operated from the shaft K, and the gates F, hinged on the bottom of the vessel E and connected with the device for locking the wheel M on the shaft A, substantially as herein shown and described.

315,683. SHUTTLE-BOX MOTION FOR LOOMS. LOUIS C. WERNER, Broad Brook, Conn. Filed Oct. 8, 1883. (No model.)



Claim.—1. The combination, with the jacks R, the rod *b*, carrying the shuttle-boxes and the pattern M, of the toggle-bars V, the long levers X, the short lever Y, the levers N, connecting-rods Q, and means for operating the jacks and pattern, substantially as herein shown and described.

2. The combination, with the jacks R, the rod *b'*, carrying the shuttle-boxes *f'* and the pattern M, of the toggle-bars V, the long lever X', the short lever Y', the shaft *i*, having arms *h h'*, the levers N, the connecting-rods Q, and means for operating the jacks and pattern, substantially as herein shown and described.

3. The combination, with the cylinder J, the wheel L, the pattern-chain M, the levers N, the rods Q, and the jacks R, provided with the shoulders 2, of the elbow-lever H, provided with the pawl K, the gear-wheel E, the two-armed plate E', the rod G, connecting one arm of the said plate to the elbow-lever, the rod T, adapted to engage the shoulders of the jacks, and means for operating said gear-wheel, substantially as herein shown and described.

4. The combination, with the cylinder J, the pattern-chain M, the levers N, the connecting-rods Q, and the jacks R, provided with the shoulders 1 2, of the elbow-lever H, provided with the pawl K, the connecting-rod G, the gear-wheel E, provided with the crank F and bar T, the intermediate gear-wheel, D, the gear-wheel C, having pins S, the shuttle-boxes *f f'*, and intermediate mechanism for communicating the motion of the jacks to the shuttle-boxes, substantially as herein shown and described.

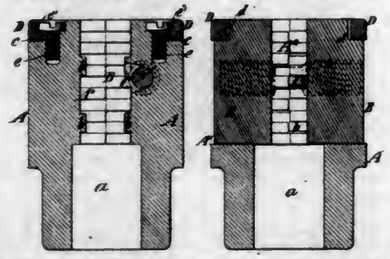
5. The combination, with the frame A and the toggle-bars V, of the stops *j k* and the set-screws *l*, substantially as herein shown and described.

315,684. DRILL-CHUCK. JOHN H. WESCOTT, Oneida, N. Y. Filed Aug. 6, 1884. (No model.)



Claim.—The combination, with a chuck having universally-moving jaws, of set-screws inserted between said jaws, so that they are capable of binding a drill or other tool or article set in the chuck independently of and between the gripping-surfaces of said chuck, but with an additional gripping action, substantially as and for the purpose herein described.

315,685. LATHE-CHUCK. JOHN H. WESCOTT, Oneida, N. Y. Filed Dec. 10, 1884. (No model.)



Claim.—1. The combination, with a chuck-body having slots or seats which extend to the circumference and to the outer end of the body, of jaws fitting said slots or seats, and a re-enforcing ring, D, encircling the outer end of the body, substantially as herein described.

2. The combination, with a chuck-body having slots or seats which extend to the circumference and outer end of the body, and having a circumferential rabbet, *c*, of jaws fitting said slots or seats, and a re-enforcing ring, D, encircling the chuck-body and fitting in said rabbet, substantially as herein described.

3. The combination, with a chuck-body having slots or seats which extend to its circumference and outer end, and having the rabbet *c*, of jaws fitting said slots or seats and notched at *d*, and a re-enforcing ring, D, encircling the chuck-body in said rabbet, and also forming a stop to the jaws, substantially as herein described.

315,686. LATHE TOOL-REST. OTIS C. WHITE, Worcester, Mass. Filed June 30, 1884. (No model.)



Claim.—1. The lathe tool-post, substantially as described, consisting of the base *a*, the spherically-socketed standard *b*, and cap *c*, arranged, and having mouths *f* and connected by screws *d*, as explained, and of the ball disposed within the socket of such standard and cap and divided into separate parts or sections *h*, and bored diametrically and chambered concentrically, and having within and around the chamber a spring for expanding the sections or forcing them apart relatively to each other, all being substantially as set forth.

2. The lathe tool-post composed of the recessed and socketed standard *b* and cap *c*, their connection-screws *d*, the series of bored and chambered ball-sections *h*, their expansion-spring C, and the tool-bearing D, arranged substantially and to operate as described.

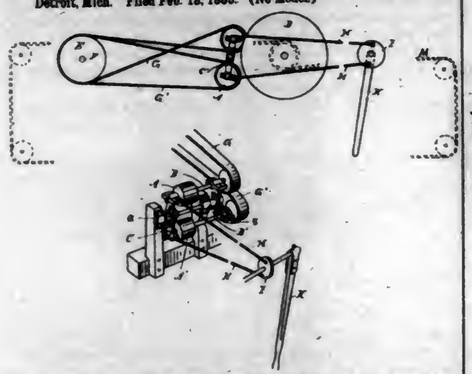
3. The chambered and bored ball B, having each of its sections *h* provided at its inner edge with an angular groove, *m*, and bevels *n*, as set forth, in combination with the recessed and socketed standard *b* and cap *c*, having the ball between them and connected by screws, all being essentially as represented.

4. The tool-post composed of the base and recessed and spherically-socketed standard and cap, their connection-screws, and the ball disposed within the socket of such standard and cap, and divided into separate parts or sections and bored diametrically and chambered concentrically, all being substantially as described.

5. The tool-post composed of the base and the recessed and spherically-socketed standard and cap, their connection-screws, and the ball disposed within the socket of the said standard and cap, and bored diametrically and divided into separate sections or quadrants connected by dowels, as set forth.

6. The tool-post provided with the tool-bearing D extending across it, (the said post,) substantially as set forth.

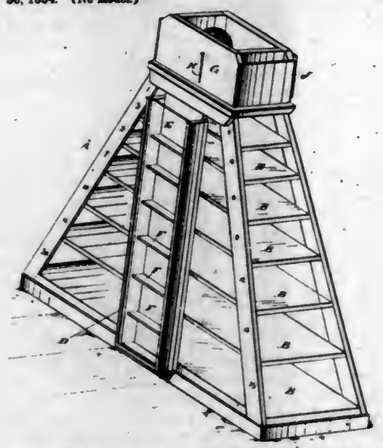
315,687. REVERSIBLE FRICTION-GEARING. J. HILL WHITING, Detroit, Mich. Filed Feb. 18, 1885. (No model.)



Claim.—1. In a reversible friction-gearing, two friction-pulleys journaled in an oscillating frame and revolving in opposite directions, and a friction-pulley in stationary bearings, in combination with the disks I, the rods H H, connecting said disks with the oscillating frame, and the lever K, positively oscillating the friction-pulleys in and out of contact with the friction-wheel, all arranged substantially as described.

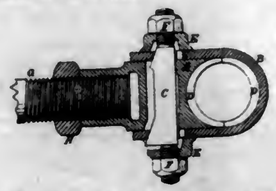
2. In a reversible friction-gearing, the combination of the friction-pulleys A A', journaled in an oscillating frame, C, of the counter-shaft F, belt-pulleys E E', and belts G G', for revolving the friction-pulleys in opposite directions, of the friction-wheel D, of the connecting-rods H H and crank-disk I, of the cable-drum L and cable M, and of the operating-lever K, all arranged substantially as described.

315,688. BAG-RACK. ROBERT E. WILLIAMS, Dallas, Tex. Filed July 30, 1884. (No model.)



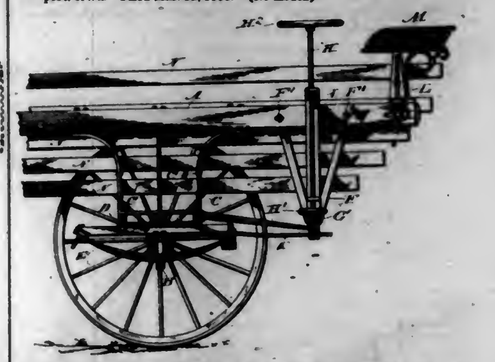
Claim.—The bag-rack having the sample-case disposed at one side thereof, and provided with a series of shelves and a transparent front, and the twine-box placed upon the top of the rack and having side compartments, substantially as and for the purpose set forth.

315,689. CONNECTING-ROD. DANIEL A. WOODBURY, Rochester, N. Y. Filed Sept. 25, 1884. (No model.)



Claim.—In a connecting-rod, the combination of the adjustable strap B and key C, provided with the cup-shaped washers E E and nuts F F, or their equivalent, substantially as shown and described.

315,690. HOOK-AND-LADDER TRUCK. DAVID T. YOUNG, Davenport, Iowa. Filed Mar. 12, 1885. (No model.)



Claim.—1. In combination with the frame and rear truck of a vehicle of the class described, a transverse screw-threaded shaft, a nut or sleeve mounted thereon, a rod loosely mounted in said nut or sleeve and rigidly connected with the running-gear of the truck, and devices for rotating said screw-threaded shaft, substantially as specified.

2. In a ladder-truck, the combination, with the frame-work, of a seat and tiller-rod arranged at a side thereof, in combination with a transverse screw-threaded shaft, a sleeve mounted thereon, and a loosely-connected and rigid bar rigidly attached to the running-gear below the fifth-wheel thereof, substantially as specified.

3. In a ladder-truck, and in combination with the side rails thereof, brackets attached thereto mounted upon the fifth-wheel of the running-gear, and provided with ladder-supporting rollers, and a transverse screw-threaded shaft mounted in brackets in rear of the ladder-supporting brackets, and carrying a sleeve loosely connected with a rigid bar fastened to the running-gear below said fifth-wheel, substantially as specified.

4. The combination of the frame A, brackets C, provided with the ladder-supporting devices C', the fifth-wheel D, the axle B, and the running-gear mounted thereon, with the rod K, the sleeve J, slotted as at J^2, and the shaft G, pinions G' H', and tiller H H^2, substantially as shown and described.

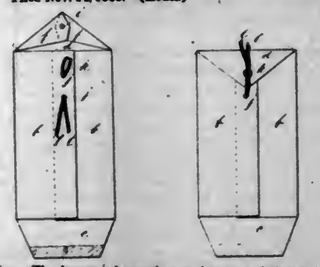
5. The combination of the frame-work A, the transverse screw-threaded shaft G, having the pinion G', the bracket F, the sleeve J, and the rod K, connected with the lower part of the running-gear, substantially as shown and described.

6. The combination of the frame A, the seat M, arranged at one side thereof, the tiller arranged at the same side and in front of the seat, the transverse shaft G, having the beveled pinion G', meshing with the pinion, H', of the tiller-rod, a sleeve, J, and a rod, as K, rigidly secured to the running-gear, substantially as shown and described.

315,691. PLASTER. THOMAS A. ABBOTT, Lowell, Mass., assignor to the National Plaster Company, same place. Filed Oct. 10, 1884. (No specimens.)

Claim.—The improved medicinal plaster herein described, consisting of menthol combined with the customary ingredients of adhesive plasters herein described, in about the proportions specified, and spread upon a suitable foundation, substantially as set forth.

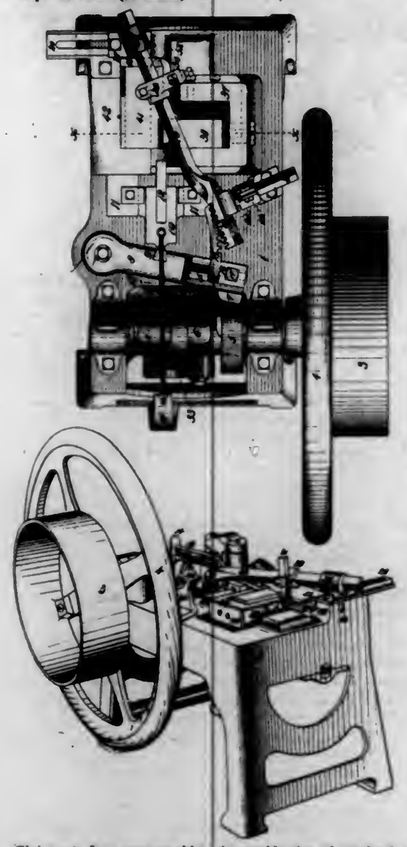
315,692. SAMPLE-ENVELOPE. ABRAHAM ACKERMAN, New York, N. Y. Filed Nov. 14, 1883. (Model.)



Claim.—The improved sample-envelope, consisting of back *a*, overlapping front flaps, *b*, pasting end flap, *c*, and tying end flap, *d f*, said front flaps, *b*, having two tie-holes, *j*, and the flap *d f* having tie-hole *i*, which coincides with one of the holes *j* when folded, the said tying end being secured preparatory to filling by a looped tie, *k*, so arranged in the holes that the bight of the loop extends from within the envelope

through upper hole *j* and hole *i*, and is secured by the ends of the loop drawn through it from the lower hole *j*, whereby the pull of the flap is crosswise or perpendicular to the loop, and thus is effectually secured by a running knot or noose, substantially as described.

315,693. SPIKE-MACHINE. JOHN H. ALKER, Allegheny, Pa. Filed Sept. 10, 1884. (No model.)



Claim.—1. In a spike-machine, the combination of a pair of gripping-dies, a stationary cutting and point-forming die, and a movable cutting and swaging blade, substantially as set forth.

2. In a spike-machine, the combination of a pair of gripping-dies, a stationary cutting and point-forming die adjustable, as described, for manufacturing spikes of varying lengths, and a reciprocating cutting and swaging blade adjustable on its carrier, substantially as set forth.

3. In a spike-machine, the combination of a pair of gripping-dies, a stationary cutting and point-forming die, one or more gage and guide blocks, and a reciprocating cutting and swaging blade, substantially as set forth.

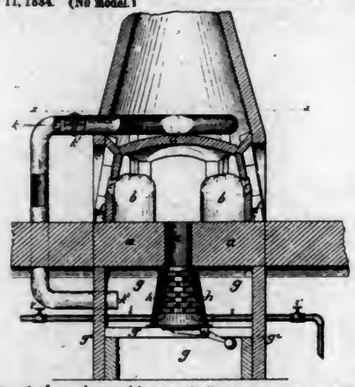
4. In a spike-machine, the combination of a pair of gripping-dies, a stationary cutting and point-forming die, one or more gage and guide blocks, said die and blocks being arranged in a suitable case, and a reciprocating cutting and swaging blade, substantially as set forth.

5. In a spike-machine, the combination of a vibrating die-box, a horizontal shaft operating said box, a crank-arm connected to said shaft, and provided at its upper end with an opening having a polygonal perimeter, a correspondingly-shaped stud provided with an eccentric journal, and a grooved cam mounted on the power-shaft and engaging said journal, substantially as set forth.

6. In a spike-machine, the combination of a vibrating lever, a segmental gear adjustably mounted on said lever, a reciprocating bar provided with a rack engaging said segmental gear, a cutting and swaging blade adjustably secured to the bar, and a stationary point-cutting and swaging die, substantially as set forth.

7. In a spike-machine, the combination of an adjustable point-cutting and swaging die, a cutting and swaging blade adjustably mounted on a bar reciprocating in a plane parallel with the face of the cutting and swaging die and mounted in adjustable bearings, whereby the bar may be adjusted in accordance with the adjustment of said die, and a vibrating lever having a jointed connection with said bar, substantially as set forth.

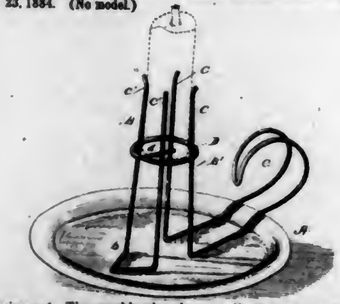
315,694. GLASS-FURNACE. JOSEPH ANDERSON, Pittsburg, Pa. Filed July 11, 1884. (No model.)



Claim.—1. In a glass-melting or similar furnace, the combination of a close chamber arranged under the bench, with air-heating flues arranged in or upon the crown and discharging in the said close air-chamber, and a gas pipe or pipes, also discharging in said chamber, whereby said furnace is adapted to burn natural gas, substantially as and for the purposes described.

2. In a glass-melting or similar furnace provided with a close chamber below the bench and surrounding the eye, a hollow pile or column of checker-work arranged in the same, reaching into the lower end of the eye, a gas pipe or pipes discharging into the lower part of the checker-work, and air-heating flues discharging into the chamber surrounding said checker-work, substantially as and for the purposes described.

315,695. CANDLESTICK. HERMANN AHLAUF, Drain, Oreg. Filed Oct. 23, 1884. (No model.)



Claim.—1. The combination, in a candlestick, of a series of vertical wire supports attached rigidly to the base, a wire ring embracing said supports and adapted to compress the same, and having one end bent between said supports to form a rest for the candle, substantially as set forth.

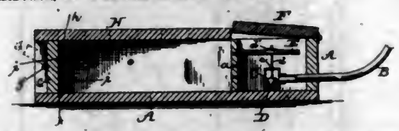
2. In a candlestick, the uprights *c c c' c'*, made of single pieces and attached rigidly to a base, one of said pieces projecting over the base so as to form a handle, and a ring with inwardly-projecting portion *d*, embracing the candle-holding rods, substantially as shown, and for the purpose set forth.

315,696. EVAPORATOR. JOSEPH W. BABBIT, Hiawatha, Kans. Filed Mar. 3, 1884. (No model.)



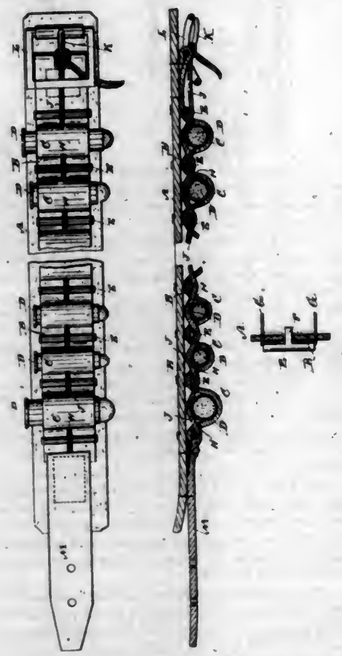
Claim.—An evaporator-pan having a longitudinally-corrugated bottom provided at one end with an intersecting transverse gutter, and abutting at the other end upon a smooth rounded and upwardly-curved section, the smooth bottom of which is on a level with the top of the raised parts formed by the corrugations in the bottom, substantially as and for the purpose herein shown and specified.

315,697. WATERING-TROUGH FOR ANIMALS. ALBERT P. BARBER, McDowell, Ill. Filed June 10, 1884. (No model.)



Claim.—A watering-trough for animals, consisting in the combination of the ordinary bottom, sides, and upper end wall of such a machine with a pivoted end gate, a lid suitably provided with drink-holes, a perforated cross-partition between the end walls, and a water-pipe provided at the exit end with a cut-off valve governed by a float, all constructed and arranged in the manner hereinbefore described, and for the purposes set forth.

315,698. CARTRIDGE-BELT. WILLIS P. BEACH, El Paso, Tex. Filed Feb. 2, 1885. (No model.)



Claim.—1. The combination, with a belt, of a strap held on the same by upright metal fasteners, which separate the pockets formed in said strap, substantially as herein shown and described.

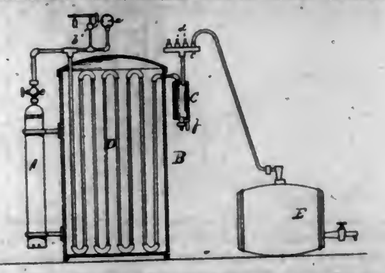
2. The combination, with a belt, of a strap held on the same by metal fasteners E between the pockets formed by the strap, the said fasteners having prongs passed through the strap and bent over or clinched on the inside of the belt, substantially as herein shown and described.

3. The combination, with a belt, of a strap forming pockets, and a cord passed through the several pockets, substantially as herein shown and described.

4. The combination, with a belt, of a strap secured on the same by metal fasteners E, and separating the formed pockets C, and of the cord J, passed through the pockets and over the fasteners, substantially as herein shown and described.

5. The combination, with the belt A, of the strap B, held on the same and forming pockets, and of the cord J, secured on one end of the strap B, passed through the pockets, and having its other end secured to the buckle-pin K, substantially as herein shown and described.

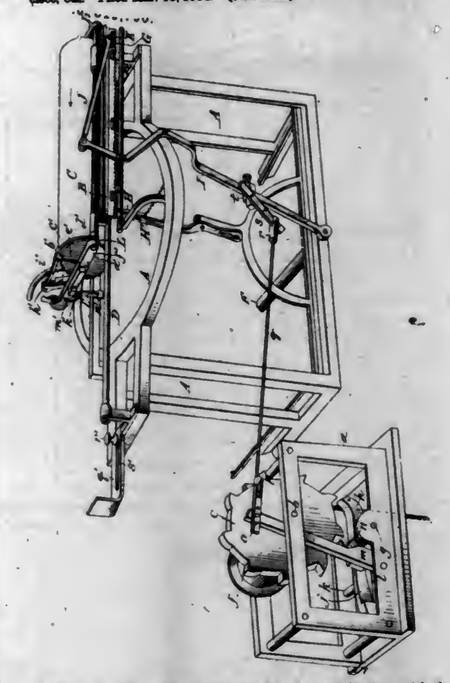
315,699. BEER COOLING AND PRESERVING APPARATUS. F. BERNDES, Newark, N. J., assignor, by direct and mesne assignments, of one-half to Frank Widmer, same place. Filed Oct. 11, 1884. (No model.)



Claim.—1. In a cooling and preserving apparatus, in combination, a receiver adapted to hold compressed carbonic-acid gas, a coil of piping connected therewith, and a pipe provided with a number of outlets adapted to be connected with a barrel of beer or other liquor, said outlet-pipe being connected with the coil of piping, for the purpose set forth.

2. In combination, a receiver adapted to hold compressed carbonic-acid gas, a coil of piping connected therewith, a vessel, as C, provided with a faucet or valve, an outlet-pipe provided with a number of said outlets and connected with said vessel, for the purpose set forth.

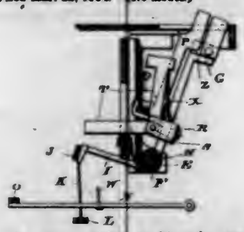
315,700. TYPE-WRITING MACHINE. EDWIN S. BELDEN, San Francisco, Cal. Filed Mar. 13, 1884. (No model.)



Claim.—1. In a type-writing machine, the combination, with the paper-roller carriage, vibratory lever I, and connecting-rod J, of a winding-drum, *f*, provided with a cord, weight, and ratchet-wheel, *e*, the ratchet-wheel *c*, mounted loosely on the shaft of the winding-drum, and having a spring-pawl, *d*, for engaging the ratchet *e*, the pawl *h*, having a lever-arm, *j*, the cam *l*, lever *m*, having a stop or pawl, *n*, said lever and cam being mounted on the same shaft, the adjustable plate *o*, connecting-rod *q*, adjustable plate *s*, and clamp *t*, substantially as and for the purpose described.

2. In a type-writing machine, the combination, with the reciprocating carriage B, and the roller C, having a gear-wheel, *a'*, of the arm *c'*, having lug *b'*, the pin *k'*, carrying the lug *m'*, the lever *n'*, having a lug, *o'*, the flanged stop *q'*, and the lever *h'*, having a pawl, *i'*, whereby a partial rotation is automatically imparted to the paper-carrying roller upon the withdrawal of the carriage, substantially as described.

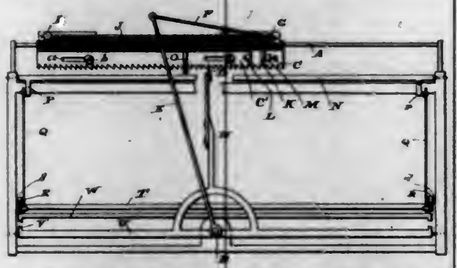
315,701. TYPE-WRITING MACHINE. EDWIN S. BELDEN, San Francisco, Cal. Filed Mar. 22, 1884. (No model.)



Claim.—1. In a type-writing machine, the combination, with a traveling carriage provided with rack C, and the pawl G, having a supplemental pawl, P, pivoted thereto, of the space-bar O, the pivoted spring-lever T, having a rabbeted head and adapted to act directly at all times as a stop to limit the movement of the supplemental pawl, and mechanism, substantially as specified, for actuating said lever T from the space-bar by pressure on said bar, substantially as described.

2. In a type-writing machine, the combination of a traveling carriage having a rack, C, the pawl G, having a supplemental pawl, P, pivoted thereto, the pivoted spring bell-crank lever T, having a rabbeted head and adapted to act at all times directly as a stop to limit the movement of the supplemental pawl, the space-bar O, having lever-bars N N, the lever U, and the adjustable rod W, substantially as described.

315,702. TYPE-WRITING MACHINE. EDWIN S. BELDEN, San Francisco, Cal. Filed Mar. 27, 1884. (No model.)



Claim.—1. In a type-writing machine, the combination, with the paper-carriage, of two adjacent ratchet-bars, C C', provided with lugs L M, one of said ratchet-bars being fixed and the other movable, the vibratory pawl D, flap-bar J, having lug K, the rock-shaft N, finger O, space-bar T, and connecting mechanism, substantially as shown and described.

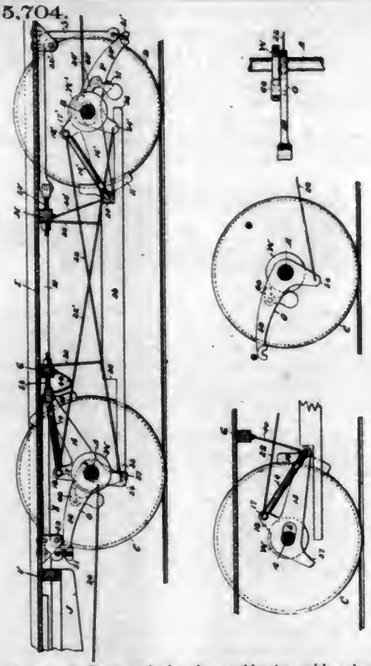
2. In a type-writing machine, the combination, with the paper-carriage, of the ratchet-bars C C', provided with lugs L M, the vibratory pawl D, flap-bar J, having lug K, the rock-shaft N, having finger O, the crank-arms P, connecting-rods Q, pivoted side lever-bars R, and space-bar T, substantially as shown and described.

315,703. TRANSPARENT PICTURE. HERMAN BENCKE and PIERRE LORILLARD, Jr., New York, N. Y. Filed Dec. 30, 1884. (No model.)



Claim.—The combination, with the transparent or translucent plate A, bearing the transparent or translucent picture B, of the backing D, removed a short distance from the said plate, substantially as and for the purpose set forth.

315,704. CAR BRAKE AND STARTER. BROR F. BERGH, New York, N. Y. Filed Aug. 20, 1884. (No model.)



Claim.—1. In a car-brake, the combination, with a brake-shoe hung from the axle by an arm recessed to embrace, slide, and swing upon the axle, of a chain or rod for causing the sliding movement of said arm, substantially as described.

2. In a car-brake mechanism, the combination, with the opposite wheels upon the same shaft, of brake-shoes, each hung from the axle by arms recessed to embrace, slide, and swing upon the axle, said arms being connected together, so as to cause the brakes to move in unison, by means of brace-rods, as 14 17, substantially as described.

3. A brake mechanism consisting of two pairs or sets of brake-shoes, each shoe carried by an arm that is recessed to move upon the axle, and brake-bars arranged between the brake-arms of the opposite sets of brake-shoes, substantially as described.

4. A car-starting device consisting of a rubber strap, a bell-crank attached to said strap and having means for clutching it to one axle, brake-arms swinging upon the other axle, and connecting-rods transmitting the movement of the brakes to the said bell-crank, substantially as described.

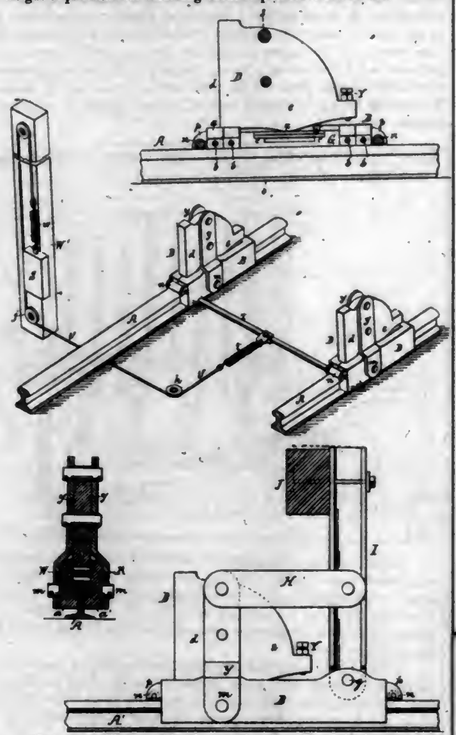
5. A car-starting mechanism consisting of brake-shoes and brake-arms constructed to swing upon one axle, a bell-crank swinging upon the other axle, connected to a rubber strap and having a device for clutching it to the shaft, said brake-arms and bell-crank being connected together so that the movement of the former is transmitted to the latter, substantially as described.

6. A car-starting mechanism consisting of two sets of brake-shoes and brake-arms, each set hung to swing upon one of the wheel-axles, a bell-crank hung to swing upon each axle, each bell-crank having means for clutching it to its axle, and a rubber strap attached to each bell-crank, the set of brake-arms upon one axle being connected with the bell-crank upon the other axle, whereby the application of the brakes to one set of wheels will operate the bell-crank upon the axle of the other set of wheels and stretch the rubber strap with which it is connected, so as to apply the power thereof in starting the car, substantially as described.

7. A car-starting mechanism consisting of two sets of brake-shoes and brake-arms, each set hung to swing upon one of the wheel-axles, brake-bars arranged to transmit the movement of one set of brakes to the other set, a bell-crank hung to swing upon each axle, means for clutching said bell-cranks to their respective axles, a rubber strap attached to each bell-crank, and rods connecting each set of brake-shoes and arms with the opposite bell-crank, whereby the simultaneous application of the brakes from either end of the car moves a bell-crank to stretch a rubber strap and provide a power that will start the car when the brakes are released, substantially as described.

315,705. DEVICE FOR ARRESTING LOCOMOTIVES AND CARS. MAXIMILIAN F. BOMANO, Philadelphia, Pa. Filed Sept. 12, 1884. (No model.)

Brief.—An improvement on Patent No. 293,846, dated February 19, 1884, which consists in making the shoe in two parts and pivoting the lever thereto by means of side bars secured to its sides. The lower part of this lever bears against flat springs resting on a friction-plate confined within the shoe and bearing against the top face of the rail. A bumper-beam for a locomotive may be attached to the device, extending across the track, and an elastic connection between the buffers, and a weight is provided for returning them to position on the track.



Claim.—1. The combination of the shoe B, made in two parts secured together, and the lever D, pivoted to the shoe with a friction-plate, G, a spring or springs interposed between the lever and shoe, and a device for restricting the movement of the lever, substantially as set forth.

2. The combination of the shoe, its friction-plate and spring, with the lever composed of a casting and two bars, *y y*, of wrought-iron or steel secured to the said casting and pivoted to the shoe, substantially as specified.

3. The combination of the shoe and its rollers *n n* and the friction-plate and spring with the lever D, pivoted to the said plate, substantially as described.

4. The combination of the two-part shoe B, the friction-plate G, and springs W, with the lever having bars *y y*, pivoted to the shoe, and a device for restricting the movement of the lever, substantially as set forth.

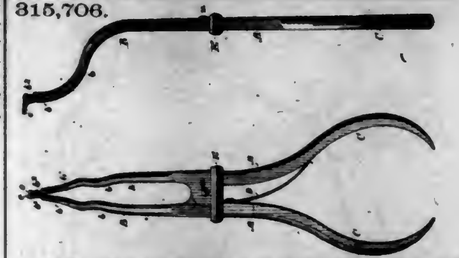
5. The combination of two arresting devices, one adapted to one rail and the other to the other rail of a track, and each device composed of a shoe, a lever pivoted thereto, a friction-plate, and a spring or springs with the bumper-beam J and bars I, pivoted to the shoes, and connected to the levers of the said arresting devices, substantially as specified.

6. The combination of the within-described arresting devices, one adapted to one rail and the other to the other rail of a track, a cross-bar connecting the shoes of the two devices together, a weighted rope or chain, part or parts of which being made elastic, and guide-pulleys for the said rope or chain, substantially as described.

315,706. FORCEPS FOR APPLYING RUBBER-DAM CLAMPS. F. A. BREWER, San Francisco, Cal., and W. STORER HOW, Philadelphia, Pa., assignors to the S. S. White Dental Manufacturing Company, Philadelphia, Pa. Filed Feb. 23, 1885. (No model.)

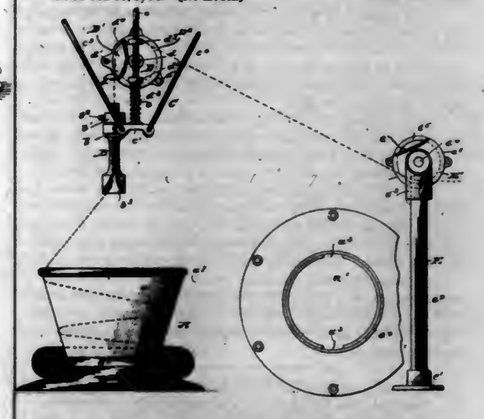
Claim.—1. A rubber-dam-clamp forceps having a bayonet operating end provided with studs or pins arranged at an angle to the longitudinal line of the forceps, substantially as described.

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2. The rubber-dam-clamp forceps having operating-pins arranged at an angle to the longitudinal line of the forceps, said studs or pins being notched or shouldered, substantially as described.

315,707. MACHINE FOR UNCOILING WIRE. ORLANDO P. BRIGGS, Chicago, Ill., assignor to the Thorn Wire Hedge Company, same place. Filed Oct. 18, 1884. (No model.)



Claim.—1. The combination, with a stationary conical wire-holder arranged with its axis vertical, of a wire-guide supported centrally over the said holder, substantially as and for the purpose set forth.

2. The combination, with a conical wire-holder detachably secured to a suitable base or support, of a wire-guide supported centrally over the said holder, substantially as and for the purpose set forth.

3. The combination, with a conical wire-holder detachably secured to a suitable base or support, of a wire-guide supported centrally over the said wire-holder, and a yielding guide over which the wire is trained after leaving said central guide, substantially as and for the purpose set forth.

4. The combination, with a wire-holder comprising a base, *a'*, and a conical shell, *a*, detachably secured to said base, of a wire-guide supported centrally over said wire-holder, substantially as and for the purpose specified.

5. The combination, with a wire-holder and the wire-guide B, supported centrally over the holder, of a spring-guide, D, and stationary guide E, substantially as and for the purpose set forth.

6. The combination, with the conical shell *a*, provided with lugs a^3 and a shoulder, a^4, of a base, *a'*, provided with notches a^2 and inclined faces a^4, substantially as and for the purpose set forth.

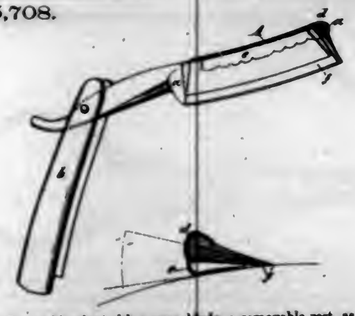
7. The combination, with the conical wire-holder A and the wire-guide B, of vertical supporting-rods *c c* for said guide, a wire-guide, D, constructed to slide upon said rods, and a spring or springs, d', adapted to sustain the said guide at the upper limit of its movement, substantially as and for the purpose set forth.

8. The combination, with the conical wire-holder A and the wire-guide B, of vertical supporting-rods *c c* for said guide, a guide D, comprising two parallel connected plates, D^2, provided with rims or flanges d^3 and lugs *d*, engaged with the rods *c*, and a pulley, d^2, and a spring or springs, d', sustaining said guide at the upper limit of its movement, substantially as and for the purpose set forth.

315,708. GUARD FOR RAZOR-BLADES. ALFRED V. BROKHALME, New York, N. Y. Filed Mar. 15, 1884. (No model.)

Claim.—1. A razor having a rest, as *e*, projecting laterally therefrom to trail upon the skin when shaving, and present its edge to the work at an angle of about fifteen degrees, substantially as and for the purpose specified.

315,708.



2. In combination with a razor-blade, a removable rest, as *c*, fitted to the back thereof, to trail upon the skin when shaving and present its edge to the work at an angle of about fifteen degrees, substantially as herein set forth.

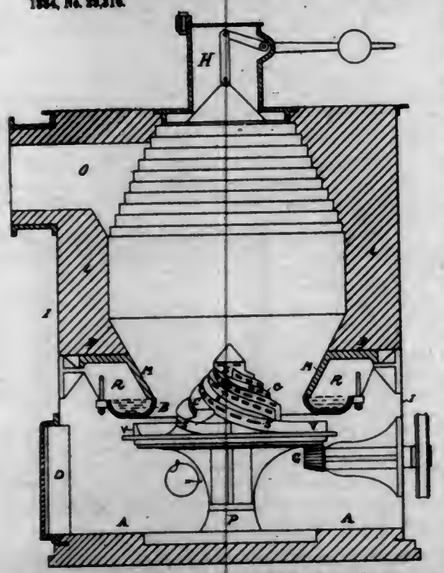
3. A semi-tubular attachment adapted to be slid onto the back edge of a razor-blade, with a longitudinal protuberance projecting laterally therefrom to such an extent relative to the width of the blade that a line drawn from its apex to the edge of the blade will make an angle of fifteen degrees, or thereabout, with the plane of the blade, substantially as and for the purpose set forth.

4. In combination with a razor-blade, a fender plate or bar extending out on one side of the blade only, and running longitudinally thereon at a close approach to the extreme cutting-edge of the blade to deflect said edge outward, substantially as and for the purpose set forth.

5. A reversible guard for razor-blades, consisting of the clasp or socket *d*, to secure the device on the back of the blade, and the fender-plate *f*, extending from one side of the clasp only, to cover one side of the blade, and constructed to press laterally thereon near the cutting-edge to deflect the same outward, substantially as and for the purpose herein set forth.

6. A combined razor guard and rest consisting of a fender-plate constructed to approach close to the cutting-edge of the blade, and provided with a lateral extension to trail upon the skin and present the cutting-edge of the blade to its work at an angle of about fifteen degrees, as and for the purpose set forth.

315,709. APPARATUS FOR MAKING GAS. EDWARD BROOK, Wigan, County of Lancaster, England. Filed Apr. 30, 1884. (No model.) Patented in England Oct. 11, 1883, No. 4,843; in France Apr. 4, 1884, No. 161,365; in Belgium Apr. 4, 1884, No. 64,737, and in Germany Apr. 18, 1884, No. 29,316.

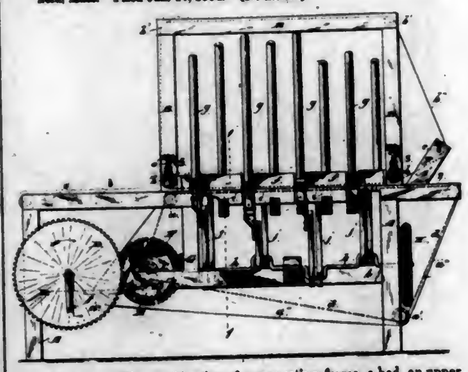


Claim.—1. In a gas-producer or apparatus for making gas, a rotating conical grate having spiral steps thereon, in combination with curved ribs V, central pivot, P, and gearing G, whereby ashes and incombustible material are moved outward toward its outer periphery in the manner and for the purposes specified.

2. In a gas-producer or apparatus for making gas, a rotating conical grate with spiral steps thereon, said steps being provided with perforations in their vertical sides in the manner and for the purposes set forth.

3. The improved gas-producer or apparatus for making gas, constructed with conical grate C, having spiral steps formed thereon for pushing the ashes and incombustible matter toward its outer edge or periphery, perforations S, ribs or vanes V, center pivot, P, means for rotating said grate, channel B, annular space between said conical grate and channel B, closed ash-pit A, into which the air or air and steam is or are blown by means of a steam-jet or other mechanical apparatus, and from whence it or they passes or pass into the fire partly through said perforations S in the conical grate and partly through the annular space between the conical grate and the under side of the channel B, hopper N, fire-brick walls L L, metallic walls M, supporting-plate E, and external iron casing, I.

315,710. HAND THRASHING-MACHINE. ALONZO E. BRUCE, Springfield, Mass. Filed Jan. 17, 1884. (No model.)



Claim.—1. The combination of a supporting-frame, a bed, an upper and a lower apron running over said bed, suitable driving and guiding drums or rollers therefor, one or more series of beaters hinged to the side or seats of the frame, a crank-shaft below the bed of the machine, and pitman-connections between the crank-shaft and the beaters, as and for the purpose set forth.

2. The combination of a supporting-frame, a bed, an upper and a lower apron, suitable driving and guiding drums or rollers, an auxiliary roller for guiding the upper apron, as shown, so as to form a feeding-space, and the beaters operating inside the upper apron, substantially as described.

3. In a machine of the character described, the combination of a suitable frame, a series of spring-seated rollers constituting the bed of the machine, an upper and a lower apron passing over said bed, a series of beaters hinged to the side of the frame and arranged to operate directly over or upon the bed-rollers, and suitable mechanism, substantially as described, for actuating the aprons and beaters.

315,711. MANUFACTURE OF HYDRAULIC CEMENT. ROBT. BRYCE, Louisville, Ky. Filed Mar. 14, 1885. (No specimens.)

Claim.—1. The process of manufacturing hydraulic cement, which consists in grinding together limestone and Leitchfield marl or shale in about the proportion described, then compressing it into bricks, and burning and grinding said bricks, as set forth.

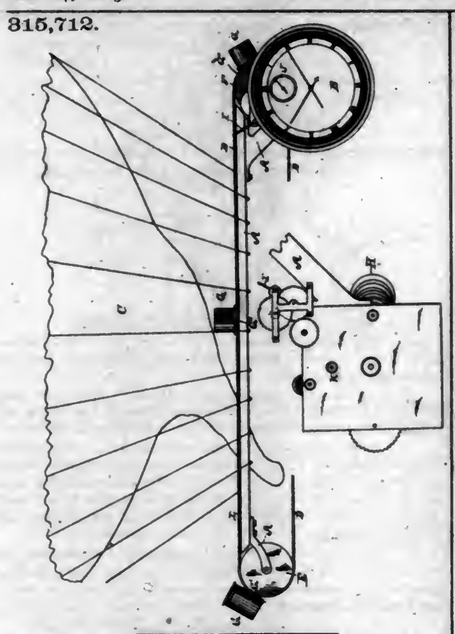
2. The process of manufacturing hydraulic cement, which consists in grinding together limestone and Leitchfield marl or shale in about the proportions described, then dampening the same, as described, and compressing it into bricks and immediately burning and grinding said bricks, substantially as and for the purpose described.

315,712. AERIAL DROP FOR EXPLOSIVES. MOSES L. S. BUCKNER, Shelbyville, Ky. Filed Sept. 17, 1884. (No model.)

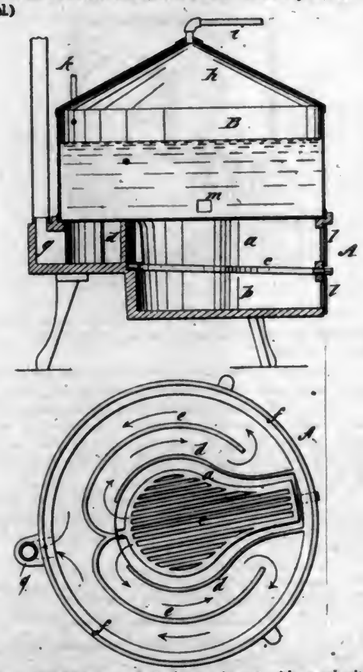
Claim.—1. The combination, with a series of explosive-carrying receptacles arranged to empty their contents in rotation, and means for rotating them, of clock-work connected with said means of rotation to start it to rotating at any given time, and a balloon for carrying the said apparatus.

2. The combination, with the frame A and the pulleys E and F, journaled therein, of the belt D, mounted to rotate on the pulleys, the receptacles G, attached to the belt, the spring H, and gear-wheels connecting it with the driving-pulley F, the clock B, provided with the setting-knob K and time-hand J, means connecting the clock with the pulley F, and the balloon C, supporting the frame A and attachments, substantially as shown and described, whereby explosives may be transported through the air for a given length of time, and then be dropped, as specified.

315,712.



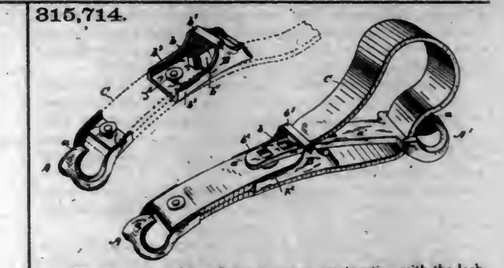
315,713. FOOD-STEAMER. LE ROY S. BUNKER, Valton, Wis., assignor to himself and James S. Meade, Newell, Iowa. Filed July 23, 1884. (No model.)



Claim.—In a food-steamer, the heater A, cast with an ash-pit, *b*, a vertical rim, *d*, around the upper edge of the sides thereof to form the fire-pot *a*, the outer flanged rim, *f*, the middle partition, *e*, and the outlet *g*, the said rims *d f* and partition *e* forming the back-and-forth flues leading to the outlet, said flues being in the same horizontal plane as the fire-pot, substantially as set forth.

315,714. HAME-FASTENER. MELANCTHON T. BURKE, La Crosse, Wis. Filed Aug. 22, 1884. (No model.)

315,714.



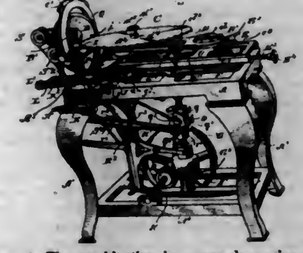
Claim.—1. In a hame-fastener, and in combination with the locking-plate B and clip A, as described, the strap C, doubled upon the cross-bar of the clip A, one end passing over and the other beneath the web of the plate B, said clip and locking-plate being fastened to the strap by rivets, as and for the purpose set forth.

2. In combination with the locking-plate B and clip A, constructed as described, and secured to the strap C, the clip A′, provided with a tongue for engagement with the locking-pin and the open hook for the passage of the free end of the strap, whereby the clip A′ may be adjusted and secured within the locking-plate by means of the said strap, substantially as described.

3. In a hame-fastener, and in combination with the locking-plate B, provided with the loop and beveled locking-pin, the clip A′, provided with the perforated tongue inserted beneath the loop, and the tightening-strap inserted between the said loop and tongue, said locking-plate B and clip A being provided with means for attachment to the hames, substantially as described.

4. In a hame-fastener, the combination of locking-plate B, provided with the loop and beveled pin, the clip A, strap C, fastened to the locking-plate and clip, and the clip A′, provided with an opening for the strap C, and a perforated tongue, said tongue being adapted to engage the pin *b*, and retained thereon by the strap when drawn under the loop, substantially as described.

315,715. SAW-SHARPENING MACHINE. LEWIS BUSH, Jr., Chicago, Ill., assignor to the American Machinery Company, same place. Filed Dec. 13, 1883. (No model.)



Claim.—1. The combination, in a saw-sharpening machine, of a saw-support, a rotating grinding-disk and disk-arbor, and a rotatable frame affording bearings for the disk-arbor and mounted upon the machine-frame with its axis of rotation in the same plane with the saw, and in alignment with a point in the grinding-face of the disk, substantially as and for the purpose set forth.

2. The combination, with the frame of a saw-sharpening machine, means, substantially as described, for supporting a saw in horizontal position thereon, and a grinding-disk and its arbor, of a rotatable frame mounted upon the machine-frame and constructed to afford bearings for the arbor, a pulley mounted upon the said arbor, idlers S and S′, mounted upon the machine-frame horizontally in line with the driving-pulley, and a belt passing over a suitably-located driving-pulley for actuating the pulley upon the arbor, substantially as and for the purpose set forth.

3. The combination, with a rotary grinding-disk and disk-arbor, means, substantially as described, for supporting a saw, means, substantially as described, for reciprocating the saw with reference to the grinding-disk, and feed mechanism, substantially as described, for rotating the saw, of an annular ring or frame, P, constructed to afford bearings for the grinding-disk arbor, and mounted in suitable guides upon the frame of the machine, so as to oscillate in a vertical plane, and having its axis of oscillation in line with the center of the grinding-disk, and intermediate driving-connections, substantially as described, between said frame and the mechanism for reciprocating the saw, constructed to oscillate the frame, substantially as and for the purpose set forth.

4. The combination, with the machine-frame, means, substantially as described, for supporting a saw thereon, means, substantially as described, for reciprocating the saw, a grinding-disk, and a disk-arbor, of

a ring, P, constructed to afford bearings for the disk-arbor, a frame, O, constructed to support said ring, a pulley, B^3, mounted upon the said arbor adjacent to the grinding-disk, and belt-connections, substantially as described, for operating said pulley, substantially as described.

5. The combination, with the machine-frame, means, substantially as described, for supporting a saw, and means, substantially as described, for reciprocating the saw, of a grinding-disk and disk-arbor, a pulley upon said arbor adjacent to the grinding-disk, a ring, P, affording bearings for the disk-arbor, an annular frame, O, supporting said ring, idlers S and S', mounted upon the machine-frame at the side of the frame O remote from the ring P, and a driving-belt passing from a suitable driving-pulley over said idlers to the pulley upon the grinding-disk arbor, substantially as and for the purpose set forth.

6. The combination, with the machine-frame and a grinding-disk, of a sliding plate, E, suitable guides for said plate upon the machine-frame, a support for the saw adjustably attached to the plate E, a vertical shaft, G', provided with a crank-pin, *g*, having operative connection with said plate, and means, substantially as described, for actuating said shaft, substantially as and for the purpose set forth.

7. The combination, with the machine-frame and a grinding-disk, of a sliding plate, E, supported in suitable guides upon the machine-frame, an arm, D, pivoted at one end to said plate, a clamping device for holding said arm in a desired position with reference to said plate, a clamping device for supporting the saw adjustably attached to said arm, a vertical shaft, G, provided with a crank-pin, *g*, having operative connection with said plate, and means, substantially as described, for rotating said shaft, substantially as described.

8. The combination, with the machine-frame, the sliding plate E, supported upon suitable guides upon the frame, and a support for the saw attached to said sliding plate, of a plate, E', connected with said plate E and adjustable longitudinally with reference to the latter, a vertical shaft, G, provided with a crank-pin, *g*, having operative connection with said plate E', and means, substantially as described, for rotating said shaft G, substantially as and for the purpose set forth.

9. The combination, with a grinding-disk and means, substantially as described, for supporting a saw, of a feed-finger, I, constructed to engage the periphery of the saw, an arm, J, pivoted to the machine-frame and constructed to support said feed-finger upon its free end, a sliding form-block, K, means, substantially as described, for reciprocating said form-block, and a spring or weight applied to retain the free end of the arm J in contact with the form-block during its reciprocatory movement, substantially as described.

10. The combination, with the machine-frame, a grinding-disk, and means, substantially as described, for supporting a saw, of a feed-finger, I, an arm, J, pivoted to the machine-frame and constructed to support said feed-finger upon its free end, a sliding plate, L, having bearings upon the machine-frame, a form-block, K, adjustably connected with the said sliding plate, means, substantially as described, for reciprocating the sliding plate, and a spring or weight applied to retain the free end of the said arm J in contact with the form-block, substantially as described.

11. The combination, with the machine-frame, a grinding-disk, means, substantially as described, for supporting the saw, and means, substantially as described, for reciprocating the saw with reference to the grinding-disk, of an arm, J, pivoted upon the top of the bed-plate of the machine-frame, provided with lateral extensions J^3 and J^3, having downwardly-projecting portions j^2 and j^3, constructed to rest upon the bed-plate, a sliding plate, L, upon said bed-plate beneath said arm, a form-block, K, adjustably connected with said plate L and constructed to engage the projection J^2 upon said arm, and means, substantially as described, for reciprocating said plate L, substantially as set forth.

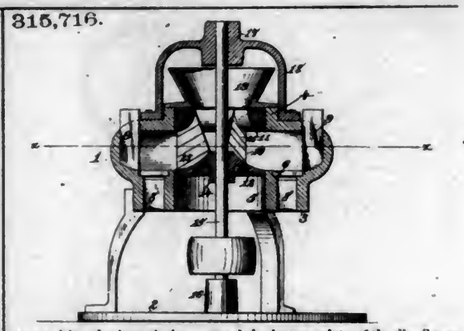
12. The combination, with the machine-frame, a grinding-disk mounted thereon, and means, substantially as described, for supporting and reciprocating a saw, of an arm, J, pivoted to the bed-plate A of the machine-frame, a feed-finger, I, pivoted to the free end of said arm J, a sliding plate, L, having bearings upon said plate A, a form-block, K, connected with the plate L and constructed to engage the free end of said arm J, a pitman, N, connected with said plate L, a rotating shaft, G, and means, substantially as described, upon said shaft constructed to operate said pitman, substantially as set forth.

13. The combination, with the machine-frame, a saw-support, a grinding-disk, and a disk-arbor, of a rotatable frame affording bearings for said arbor, said frame being supported in bearings upon the machine-frame and constructed to rotate about an axis lying in the grinding-face of the disk, a driving-shaft, G, mounted in the machine-frame, a cam, Q, upon said shaft, provided with vertically-separated cam-grooves *q* and *q'*, crossing each other at one point in the circumference of the cam, a lever, R, provided with a pivoted button constructed to engage the said cam-grooves and connected with the said frame, and means, substantially as described, for actuating the shaft G, substantially as set forth.

315,716. APPARATUS FOR GRINDING ORE AND OTHER MATERIALS. FREDERICK S. BURR and WILLARD M. FULLER, New York, N. Y. Filed June 16, 1884. (No model.)

Claim.—1. The combination of a circular casing, a central centrifugal distributer having a circular conical bottom plate, an annular grate

315,716.



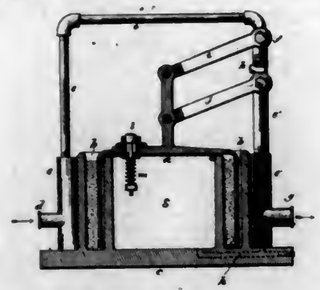
arranged in a horizontal plane around the bottom plate of the distributer in the bottom wall of the casing, and a hopper for feeding the distributer, substantially as described.

2. In a pulverizing-machine, the combination of an outer casing having a grated bottom formed of loose or adjustable bars with a feed-hopper and centrifugal distributing device, substantially as described.

3. In a pulverizing-machine, the combination of a centrifugal distributer consisting of a top ring, vertical webs, and an inclined bottom disk, forming pockets in said distributing device, with an exterior casing having an inner periphery, against which the material is thrown by the distributing device, a grated or sieve bottom, and a feed-hopper, substantially as described.

4. In a pulverizing-machine, the combination of the revolving distributing device having vertical webs provided with detachable wear-plates with an exterior casing having a grated bottom, and a feed-hopper, substantially as described.

315,717. GAS-PRESSURE REGULATOR. SAMUEL CABOT, Jr., Boston, Mass. Filed Jan. 7, 1885. (No model.)



Claim.—1. A gas-regulator provided with a safety-valve communicating with the reduced pressure-chamber, substantially as and for the purpose described.

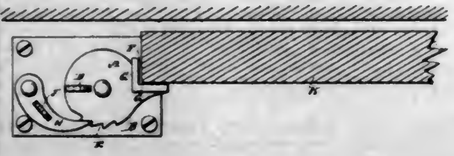
2. In a gas-regulator, the combination of the cock *f*, the inverted floating vessel *a*, and the safety-valve *l*, as and for the purpose described.

3. In a gas-regulator provided with a mercury-basin and a floating vessel, a safety-valve or equivalent device communicating with the low-pressure chamber therein, whereby leakage of gas into the latter may escape to the open air instead of blowing through said mercury, substantially as and for the purpose described.

4. In a gas-regulator, the combination, with a low-pressure chamber, of a safety-valve arranged upon the distribution service-pipe which communicates with said chamber, substantially as and for the purpose described.

5. As a new article of manufacture, a floating vessel for a gas-regulator provided with a safety-valve opening outward, substantially as and for the purpose described.

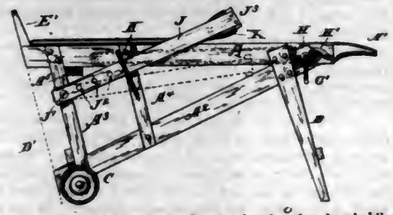
315,718. DOOR-CHECK. JAMES W. CALLAWAY, Temple, Tex. Filed Oct. 11, 1884. (Model.)



Claim.—1. The combination, with the plate B, of the pivoted disk A, having a notch, F, and teeth E, and the pawl H, pivoted on the plate B, substantially as herein shown and described.

2. The combination, with the plate B, of the pivoted disk A, having a notch, F, and of means for locking the disk in place, substantially as herein shown and described.

315,719. COMBINED TRUCK AND BAG-HOLDER. CALVIN W. CAMP, Camptown, Pa. Filed Oct. 13, 1884. (No model.)



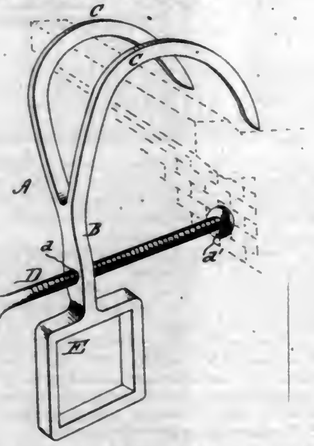
Claim.—1. The combination, with a truck, of spring bag-holding arms adjustably pivoted at opposite sides to the frame, substantially as specified.

2. The combination, with a truck, of spring bag-holding arms pivoted at opposite sides thereof, and guides for limiting the outward movement of said arms, and for retaining the same in contact with the sides of the frame-work of the truck, substantially as specified.

3. The combination, with the truck, of the spring-arms J, provided with the bag-holding heads or grippers J^3 J^4, and apertures J^2, the bolts J', and the guides K, substantially as shown and described.

315,720. SCAFFOLD-IRON. ANDREW H. CAMPBELL, Philadelphia, Pa. Filed Oct. 16, 1884. (No model.)

Brief.—A scaffold-iron has upper hooked ends, and a screw-rod provided with a buffer and an eye at its lower end.

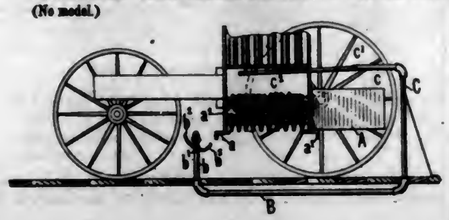


Claim.—1. A scaffold-iron having two or more upper hooked ends, C C, and a screw or bar, D, substantially as shown and described.

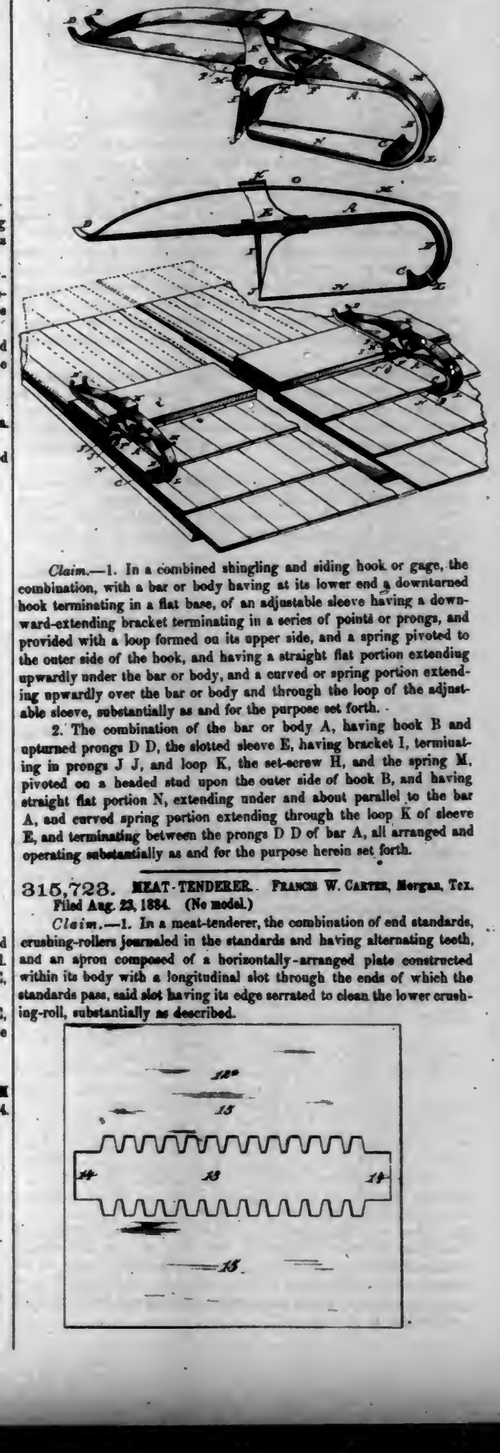
2. A scaffold-iron having two upper hooked ends, C C, an eye, E, and a screw-rod, D, substantially as shown and described.

3. A scaffold-iron having two upper hooked ends, C C, an eye E, and screw-rod D, having enlarged end *d'*, substantially as and for the purpose set forth.

315,721. APPARATUS FOR LIGHTING THE FIRES OF STEAM FIRE-ENGINES. LOUDON CAMPBELL, Alexandria, Va. Filed Mar. 1, 1884. (No model.)



315,722. SHINGLE AND SIDING GAGE. WILLIAM H. H. CAMPBELL, Wichita, Kans. Filed Feb. 24, 1885. (No model.)



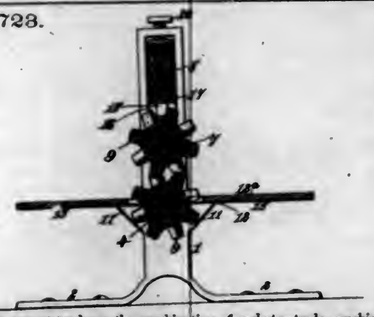
Claim.—1. In a combined shingling and siding hook or gage, the combination, with a bar or body having at its lower end a downturned hook terminating in a flat base, of an adjustable sleeve having a downward-extending bracket terminating in a series of points or prongs, and provided with a loop formed on its upper side, and a spring pivoted to the outer side of the hook, and having a straight flat portion extending upwardly under the bar or body, and a curved or spring portion extending upwardly over the bar or body and through the loop of the adjustable sleeve, substantially as and for the purpose set forth.

2. The combination of the bar or body A, having hook B and upturned prongs D D, the slotted sleeve E, having bracket I, terminating in prongs J J, and loop K, the set-screw H, and the spring M, pivoted on a headed stud upon the outer side of hook B, and having straight flat portion N, extending under and about parallel to the bar A, and curved spring portion extending through the loop K of sleeve E, and terminating between the prongs D D of bar A, all arranged and operating substantially as and for the purpose herein set forth.

315,723. MEAT-TENDERER. FRANCIS W. CARTER, Morgan, Tex. Filed Aug. 23, 1884. (No model.)

Claim.—1. In a meat-tenderer, the combination of end standards, crushing-rollers journaled in the standards and having alternating teeth, and an apron composed of a horizontally-arranged plate constructed within its body with a longitudinal slot through the ends of which the standards pass, said slot having its edge serrated to clean the lower crushing-roll, substantially as described.

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2. In a meat-tenderer, the combination of end standards, crushing-rolls journaled in the standards and having alternating teeth, and an apron composed of a horizontally-arranged plate constructed within its body portion with a longitudinal slot, the opposite edges of which are serrated or toothed, said standards passing through the ends of the slot, substantially as described.

3. In a meat-tenderer, the combination of end standards having slotted upper ends, crushing-rolls journaled in the standards and having alternating teeth, an apron supported upon the standards in a plane passing between the rolls, and having teeth for cleaning the lower roll, half-boxes resting upon the journals of the upper roll, and a wiper resting at its ends on the half-boxes and provided with pendent teeth, substantially as described.

4. The combination, in a meat-tenderer, of slotted end standards, upper and lower toothed crushing-rollers journaled therein, half-boxes resting on the journals of the upper roll, a wiper having its ends supported by the half-boxes and provided with pendent teeth to clear the upper roll, and springs acting on the ends of the wiper, substantially as described.

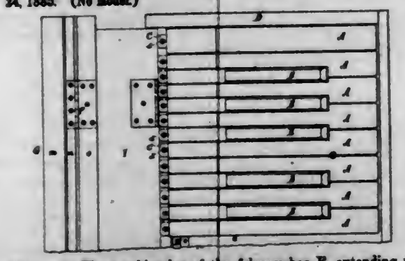
5. In a meat-tenderer, the combination of slotted end standards and having alternating teeth, half-boxes resting on the journals of the upper roll, a wiper having its ends supported by the half-boxes and provided with pendent teeth, and springs acting on the ends of the wiper, substantially as described.

6. A meat-tenderer consisting of slotted end standards, crushing-rolls journaled in the standards and having alternating teeth, an apron composed of a horizontally-arranged plate having a longitudinal slot the opposite edges of which are serrated or toothed, and through the ends of which the standards pass, half-boxes resting on the journals of the upper roll, a wiper having its ends supported by the half-boxes and provided with pendent teeth, and springs acting on the sides of the wiper, substantially as described.

7. In a meat-tenderer, the combination, with the standards in which the rolls are journaled, of lateral shoulders projecting from each edge of said standards, and an apron supported upon said shoulders and surrounding the standards, said apron lying in a plane passing between the rolls, and having teeth upon the edges of a central slot, between which the teeth of the lower roll pass at each revolution, substantially as described.

8. In a meat-tenderer, the combination of end standards, crushing-rolls having alternating teeth, an apron arranged in a plane passing between the rolls, and a wiper having its ends supported in the end standards directly above the upper crushing-roller, and provided with depending teeth, substantially as described.

315,724. DUMMY PIANO. JOHN CASEY, Chelsea, Mass. Filed Feb. 24, 1885. (No model.)



Claim.—1. The combination of the fulcrum-bar E, extending upward from the bottom board of the case, with the keys, and with the springs C, fixed to such keys and extending therefrom across the fulcrum-bar, and secured to the bottom board of the case by headed screws going through such springs and screwed into the said board, all being substantially as set forth.

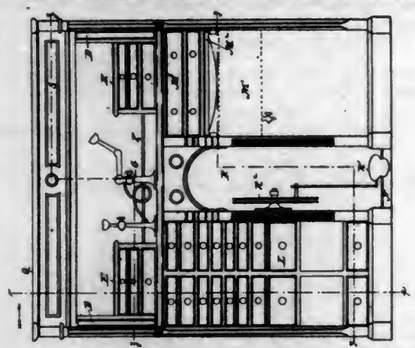
2. The combination of the fulcrum-bar E, adjustable laterally of it, as described, and extending upward from the bottom board of the case, with the keys, and with the springs C, fixed to such keys and extending therefrom across the fulcrum-bar, and secured to the bottom board of the case by headed screws going through such springs and screwed into the said board, all being substantially as set forth.

3. The combination of the screws *k*, to limit the rise of the keys, and applied to them and the bottom board of the case, as set forth, with such board, the fulcrum-bar E, applied thereto, and with the keys provided with springs to extend from them across and upon the fulcrum-bar, and connected with the bottom board by screws, all being substantially as represented.

4. The case, open at its rear, in combination with its cover thereof, constructed in sections, and hinged to each other, and having the rear-most one to project down in rear of the opening at the rear of the case, and hinged to the bottom of such case, as set forth.

5. The case, open in rear, and provided with the fulcrum-bar extending upward from the bottom board of such case, in combination with the cover constructed in sections hinged together, and having the rear-most one to project down in rear of the opening at the back of the case, and with the keys provided with flat springs extending from them rearwardly, and resting on the fulcrum-bar and secured to the case by screws, as represented, all being substantially as set forth.

315,725. PORTABLE LABORATORY FOR DENTISTS AND JEWELERS. N. W. CAUGHY, Baltimore, Md. Filed June 7, 1883. (No model.)



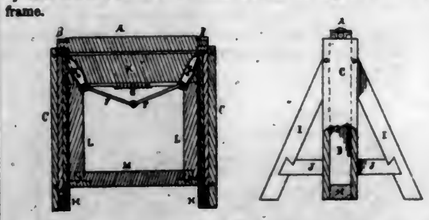
Claim.—1. The portable laboratory herein described, consisting of a secretary-case having a table-surface, A, with a central chamber, R, and compartments upon each side thereof, and the latticed aprons C P P' P², adapted to cover the table-surface and the front of the laboratory, substantially as shown and described.

2. The portable laboratory herein described, consisting of a secretary-case having a table-surface, A, with a central chamber, R, and compartments upon each side thereof, the vertical and rectilinearly sliding side screens, D, and the sliding latticed aprons C P P' P², substantially as shown and described.

3. The portable laboratory herein described, consisting of a secretary-case having a table-surface, A, with central chamber, R, and compartments upon each side thereof, the sliding side screens, D, the stationary gas-fixture G, arranged on the table-surface and communicating with the inlet-pipe H, emerging at the side, and the latticed aprons C P P' P², substantially as shown and described.

315,726. EXTENSION-TRESTLE. HENRY H. CHILDERS, Louisville, Ky. Filed Nov. 2, 1883. (No model.)

Brief.—The roller-frame slides in boxes provided with cushions. Racks having downwardly-facing teeth are fixed in the slides, and are engaged by spring-pawls centrally pivoted to said frame, and connected by their lower ends to links which are pivoted together midway said frame.

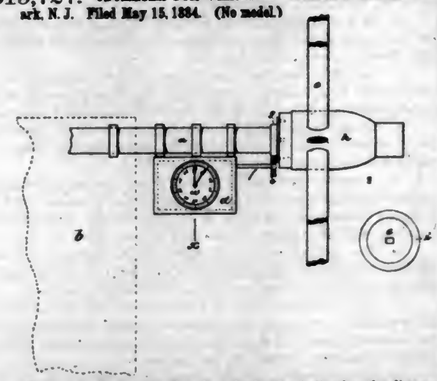


Claim.—1. The combination of the frame, including the standards L, the boxes C, secured on the outer faces of the said standards, the spring-pawls E, pivoted in the frame, the slides B, fitted within the boxes, the racks D, fixed to the slides, having downward-facing teeth in position to be engaged by the pawls E, and the roller A, journaled on top of the slides B, substantially as shown and described.

2. The combination of the frame, including the standards L, the boxes C, secured on the outer faces thereof, the slides B, fitted into the said boxes, the roller A, journaled on top of the slides B, the racks D, secured to the slides, having downward-facing teeth, the pawls E, pivoted near their middles in the frame to engage the racks, and the links F, pivoted at their outer ends to the lower ends of the pawls, and pivoted together midway the frame, substantially as shown and described.

3. The combination of the frame, including the standards L, the boxes C, secured on the outer faces thereof, the slides B, fitted into the said boxes, the roller A, journaled on top of the slides, the racks D, secured to the slides, the pawls E, pivoted to the frame to engage the racks, the trip-links F, pivoted to the lower ends of the pawls, and the cushions H in the bottoms of the boxes C, adapted to receive the fall of the slides, substantially as shown and described.

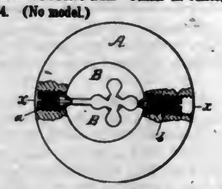
315,727. ODOMETER FOR VEHICLES. CHARLES F. CHURCH, Newark, N. J. Filed May 15, 1884. (No model.)



Claim.—1. In combination, in a device for indicating the distance of travel of a vehicle, the box *d*, adapted to be secured to a vehicle-axle, and having a glass face and dial-plate, *w*, the friction-wheel *e*, projecting shaft *f*, tubular bearing *j*, stop *k k*, cog *l*, cog *m*, pinion *n*, cog *o*, pinion *p*, cog *q*, working on the center shaft, *v*, and operating fast hand for indicating the fractional parts of a mile, the cog *r*, working on said center shaft, engaging the cog *s*, the pinion *t*, and face-wheel *u*, the hub of which carries the slow hand for indicating the miles, all said parts being arranged and operating substantially as and for the purposes set forth and shown.

2. In combination with the vehicle-axle *a* and wheel *c*, revolving thereon, the box *d*, having a dial-plate, indicating-hands, and a train of cog-wheels actuating the same, a shaft, *f*, engaging one of said train of cog-wheels at one end, projecting from said box and carrying a friction-wheel at the other, and said friction-wheel having its periphery engage the periphery of the hub of the wheel *c* or the band *g* thereof, all said parts being arranged and operating substantially as and for the purposes set forth.

315,728. SCREW-CUTTING DIE. PHILIP H. CLASS, Greenfield, Mass. Filed May 2, 1884. (No model.)



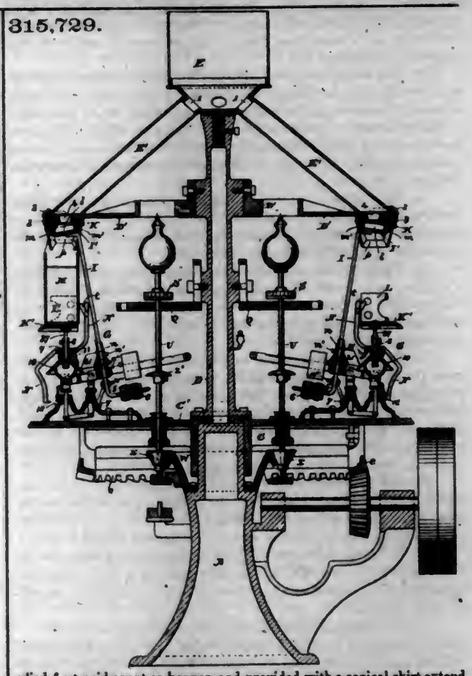
Claim.—1. The screw-cutting dies B, of semicircular form, having cutters centered eccentrically, combined with a holder constructed to receive the dies, substantially as described.

2. In a screw-cutter, the eccentric dies B, eccentrically-mortised holder A, and screws *a b*, combined substantially as described.

315,729. AUTOMATIC WEIGHING AND PACKAGE-FILLING MACHINE. CLEMENT C. CLAWSON, Newark, N. J., assignor of one-half to Thurber, Whyland & Co., New York, N. Y. Filed Nov. 12, 1884. (No model.)

Claim.—1. The combination, with a spout or hopper, and a gate for controlling the delivery of material therefrom, of a weighing-scale supplied from said spout or hopper, and provided with a conical skirt extending at the bottom over the end of the scale-beam or bearings of the scale-pan, substantially as described.

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2. In a weighing-scale, the scale-pan provided with a package-support, and a conical skirt below the same which extends at the bottom over the end of the scale-beam or bearings of the scale-pan, substantially as described.

3. In a weighing-scale, the package-support mounted on a carrier adjustable vertically in an underlying part of the scale-pan, substantially as described.

4. The scale-pan provided with the conical skirt, and also with the vertically-adjustable package-support arranged above the apex of the cone, substantially as described.

5. The combination, with the weighing-scale, the supply-gate, and its supporting-arm, of the shield at the base of said arm extending over the fulcrum of the scale, substantially as described.

6. The combination, with the package-support of a weighing-scale, of the gage-plates adjustably mounted upon rods projecting from the sides of said support, substantially as described.

7. In a weighing-scale, and in combination with the scale-pan adapted to support a box or package, the retaining-latch provided with the adjustable contact-finger to be struck by the package, substantially as described.

8. The combination, with the scale-pan adapted to support a carton or package, of the retaining-latch to be released by insertion of a package, and the stop for limiting the movement of said latch, and through it of said package, substantially as described.

9. The scale-pan of a weighing-scale provided with a retaining-latch having the part to be struck by the package at the back of said scale-pan, and the part for engaging the notch or stationary catch at the front of the same and pivoted thereto at an intermediate point, substantially as described.

10. The combination, with the scale-pan having the conical skirt and the vertically-adjustable package-support, of the latch pivoted to the collar at the top of the skirt, substantially as described.

11. The combination, with a weighing-scale having the scale-pan at the front end of the beam, of one or more weight-nuts arranged behind the fulcrum and supported under the beam by the bent screw-rod attached at the upper end to the said beam, substantially as described.

12. The combination, with a weighing-scale and a supply-gate connected therewith, so as to be operated by the movement of said scale, of one or more nut-weights additional to the usual scale-weights and adjustable on a screw-rod attached to the beam of said scale, substantially as described.

13. The weighing-scale having its beam supported on knife-edges which project into openings having each a steep inclination to the point where the apex of the knife-edge rests, in combination with a support-

ing-arm carried by the said beam, to which said arm is fastened at its lower end, and a supply-gate fixed to the upper end of said arm, substantially as described.

14. The combination of a scale-pan provided with a package-support having plates for holding the package upright thereon, the scale-beam, and a scale-frame, the scale-pan and scale-beam resting upon knife-edges, and the openings into which one or both pair of knife-edges enter having edges of steep inclination to prevent the scale-pan or scale-beam from riding on the knife-edges in inserting the packages, substantially as described.

15. The combination, with a weighing-scale carried by a rotary table, and the supply-gate connected with and operated by said scale, of the centrifugal balance-weight arranged in the opposite side of the fulcrum from said gate, substantially as described.

16. The combination, with an automatic weighing-scale comprising a supply-gate connected with and operated by the scale, of a friction device arranged to come into action at the end of the supply-gate's forward movement for preventing the rebound of the scale in closing the gate, substantially as described.

17. The combination, with a weighing-scale, a hopper, and a mouth-piece provided with a brush at the front thereof, of the supply-gate arranged to work out of contact with the other sides of the mouth-piece, but to make contact with the brush, so that the latter acts as a friction-pad to prevent rebounding of the scale, said supply-gate being attached to and carried by the upper end of a supporting-arm fixed at the lower end in the beam of said scale, substantially as described.

18. The combination, with the weighing-scale and supply-gate carried by an arm attached to said scale, of the mouth piece or hopper provided with brushes at both front and back of the delivery-opening, and with metallic plates at the sides thereof, substantially as described.

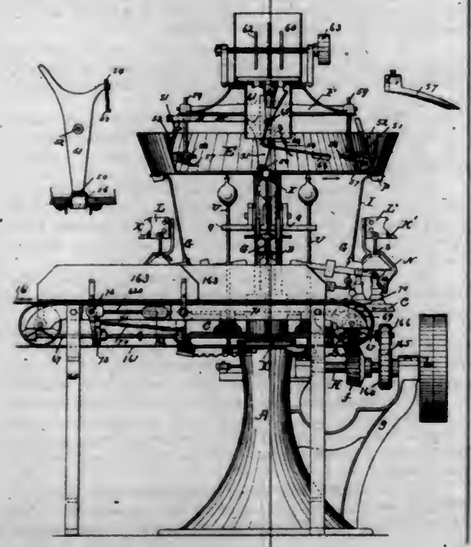
19. The combination, with the hopper, the weighing-scale, and the supply-gate, of the frusto-conical bushing removably supported in the delivery-opening between the gate and the body of said hopper, substantially as described.

20. The combination, with a series of weighing-scales carried on a rotating table, of a centrally-arranged hopper provided with a series of inclined chutes for delivering the material from the said hopper into the said scales, substantially as described.

21. In a package-filling machine, the combination, with a hopper, of a series of tubes extending from the bottom of said hopper, each tube at its upper end fitting over a boss on the hopper, substantially as described.

22. The herein-described automatic weighing and package-filling machine comprising in combination the following elements: a rotary table, the scales, the supply-gate, and supporting-arm to each scale, the centrally-arranged hopper, the series of inclined chutes, and the mouth-pieces, and removable bushings of frusto-conical form at the lower ends of the chutes, as set forth.

315,730. AUTOMATIC WEIGHING AND PACKAGE-FILLING MACHINE. CLEMENT C. CLAWSON, Newark, N. J., assignor of one-half to Thurber, Whyland & Co., New York, N. Y. Filed Nov. 12, 1884. (No model.)



Claim.—1. The combination, with a hopper and one or more automatic weighing-scales supplied from said hopper, and provided with a gate connected with and operated by said scales to control the delivery, of one or more inclined blades for forcing the material in the hopper through the delivery opening or openings, substantially as described.

2. The combination, with an annular hopper having one or more delivery-openings, of one or more inclined blades placed therein, substantially as described.

3. The combination, with a revolving hopper, of one or more inclined stationary blades set therein, substantially as described.

4. The combination, with the revolving hopper having one or more delivery-openings, of the raised pieces elevated above the bottom of the hopper at the delivery-openings for forcing the material into said openings, substantially as described.

5. The combination, with the revolving hopper having one or more delivery-openings, of the raised pieces at the said openings, and the stationary inclined blades set in said hopper, substantially as described.

6. The combination, with the revolving hopper having one or more delivery-openings, of the raised pieces at said openings, adjustable to act as valves, substantially as described.

7. The combination, with the revolving hopper, of the cut-off, and the float placed in said hopper and adapted to be lifted by the solid material therein, substantially as described.

8. The combination, with one or more automatic weighing-scales and a hopper for supplying material thereto, of a cut-off and float for maintaining constant the level in said hopper, substantially as described.

9. The combination, with the stationary bin, the stirrer in the bin, the spout, and the cut-off, of the revolving hopper, and the float connected with said cut-off, substantially as described.

10. A tapping apparatus for shaking down material in packages, comprising a tapping-arm or tapper movable vertically and arranged to strike the bottom of the packages, in combination with mechanism for operating said arm or tapper, substantially as described.

11. The combination, with an endless belt or conveyer, of a tapping-arm or tapper arranged under said belt or conveyer, and the mechanism for operating said arm or tapper, substantially as described.

12. The combination, with an automatic weighing and package-filling machine, of a tapping apparatus or attachment having a tapping-arm or tapper arranged to shake down the material by tapping the bottom of the packages, substantially as described.

13. The combination, with an automatic weighing and package-filling machine comprising a rotating table and automatic weighing-scales thereon, of the tapping attachment comprising an endless belt receiving motion from the said machine and placed in proximity thereto, a tapping-arm or tapper under said belt, and the mechanism for operating said arm or tapper, substantially as described.

14. The combination, with an automatic weighing and package-filling machine comprising the revolving table, the revolving hopper, the stationary inclined blades, the raised pieces at the delivery-openings in said hopper, the supply-gates, and the weighing-scales controlling said gates, of the tapping attachment receiving motion from said machine and placed in proximity thereto, substantially as described.

15. The combination, with a hopper and an automatic weighing-scale supplied therefrom, of a valve and cam for operating said valve to diminish the stream flowing from said hopper after the scale has received part of its charge, substantially as described.

16. The combination of the revolving hopper, the revolving automatic scales, the valves at the delivery-openings in said hopper, and the stationary cam for operating said valves to diminish the flow of material through said openings, substantially as described.

315,731. AUTOMATIC WEIGHING AND PACKAGE-FILLING MACHINE. CLEMENT C. CLAWSON, Newark, N. J., assignor of one-half to Thurber, Whyland & Co., New York, N. Y. Filed Nov. 12, 1884. (No model.)

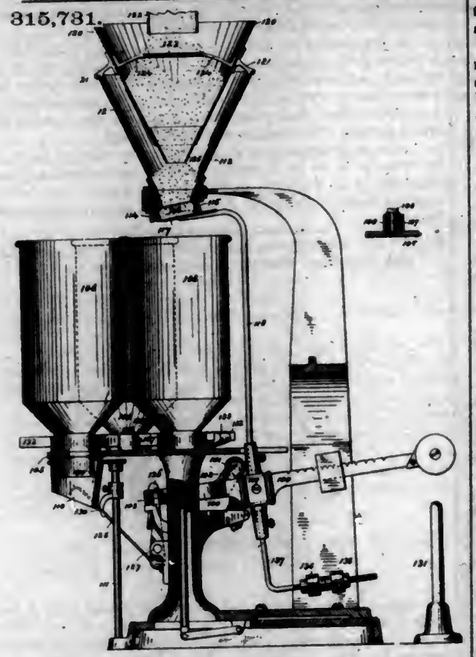
Claim.—1. The combination, with the scale and the supply-gate attached to the upper end of a supporting-arm which is fastened at the lower end to the scale-beam, and is carried by said beam, of the stop placed under the weighted end of the scale-beam to diminish or prevent the vibration of the scale when the scale-pan rises, substantially as described.

2. The combination, with a hopper, a spout, or a bushing having a contracted orifice, of a reservoir or funnel provided with a larger delivery-opening, and a supply-gate for closing and uncovering said opening, said hopper, spout, or bushing extending into said reservoir or funnel and terminating at a suitable distance from the bottom thereof, substantially as described.

3. The combination, with an automatic weighing-scale and the supply-gate controlled thereby, of the reservoir or funnel provided with a large delivery-opening, and a hopper, spout, or bushing provided with a smaller orifice, supported with said orifice in the funnel or reservoir at a suitable distance above the bottom thereof, substantially as described.

4. The combination, with the reservoir or funnel having the delivery-opening, and the hopper, spout, or bushing provided with a smaller or more contracted orifice, and arranged to project into said reservoir or funnel, of means, substantially as described, for varying the distance of said orifice above the bottom of said reservoir or funnel, as set forth.

315,731.



5. The combination, with the reservoir or funnel provided with the delivery-opening and the gate for closing and uncovering said opening, of the removable hopper having an orifice smaller than the said delivery-opening and supported above said reservoir or funnel with the orifice inside of the same at a suitable distance from the bottom thereof, substantially as described.

6. The combination of the reservoir or funnel, the hopper, and the removable bushing to the hopper, said bushing being disconnected from said reservoir or funnel, so as to be removable independently of the same, substantially as described.

7. The combination, with the weighing-scale and the supply-gate controlled thereby, of the funnel or reservoir provided with a delivery-opening which is closed and uncovered by said gate, and the hopper, spout, or bushing extending into said funnel or reservoir, substantially as described.

8. The combination, with a hopper and a tube or spout projecting into said hopper, of a disk or plate supported in said hopper below the mouth of the tube or spout, substantially as described.

9. The combination of the funnel or reservoir, the hopper supported above said funnel or reservoir, the spout or tube, and the plate supported in said hopper below the mouth of said tube or spout, substantially as described.

10. The combination, with the weighing-scale and supply-gate controlled thereby, of the reservoir or funnel provided with the delivery-opening, the hopper provided with a smaller orifice, the spout or tube, and the plate or disk supported in said hopper below the mouth of said spout or tube, substantially as described.

11. The combination, with an automatic weighing-scale and a hopper from which the supply of material to be weighed is taken, of a spout or tube delivering the material into the hopper, and a plate or disk supported in said hopper below the mouth of said spout or tube, substantially as described.

12. The combination, with a weighing-scale provided with a receptacle making part of the machine, and adapted to receive the charge weighed, of a self-engaging latch holding down the scale-pan, substantially as described.

13. In combination with a weighing-scale, a latch for holding down the scale-pan, provided with a device—such as a wire—arranged to be lifted by the edge of the package to be filled to release the latch, substantially as described.

14. The combination, with a weighing-scale provided with a dumping-receptacle for the material weighed, of a stationary spout for conveying the material when discharged into the package, and the automatic latch for holding down the scale-pan, adapted to be released by placing the package in proper position under or around said spout, substantially as described.

15. The weighing-scale provided with two or more open-bottomed movable receptacles, supported above the scale-beam and maintained in an upright position thereon, in combination with a reservoir, spout, or hopper for delivering the material into said receptacles, and a supply-gate connected with and operated by said scale, substantially as described.

16. In a weighing-scale, the scale-pan comprising a flat plate, and one or more open-bottom receptacles resting on said plate and attached to a frame pivoted to said plate, substantially as described, so that the receptacles can be turned around the pivot.

17. The combination, with the weighing-scale having two or more receptacles carried by a pivoted frame and resting upon a flat plate making part of the scale-pan, of a reservoir, hopper, or spout provided with a delivery-opening, and the supply-gate controlled by said scale, substantially as described.

18. The combination, with the flat plate, the two or more receptacles thereon, and the pivoted frame to which said receptacles are attached, of the movable stop for preventing the said frame being turned too far, substantially as described.

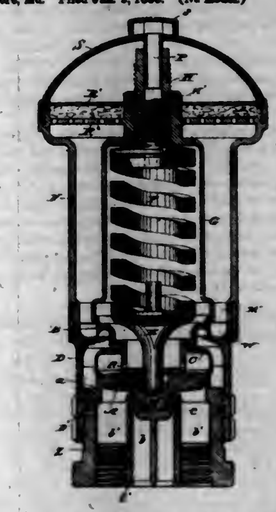
19. The combination, with a weighing-scale having one or more dumping-receptacles, of the hooks on the machine-frame for supporting a bag with the mouth open in position to receive the charge from said receptacles, and the latch for holding down the scale-pan provided with a releasing device—such as a wire—arranged in proximity to said hooks, substantially as described.

20. The combination of the weighing-scale, the hooks on the machine-frame, and the latch provided with an operating-wire arranged relatively to one of said hooks, as described, so that it is held up by the edge of a bag on said hooks.

21. The combination, with the scale-pan and scale-beam of a weighing-scale provided with dumping-receptacles for the material weighed, of the knife-edges for supporting said scale-pan and scale-beam, said knife-edges projecting into V-shaped openings, substantially as described.

22. The combination, with a weighing-scale provided with one or more dumping-receptacles, of a reservoir, hopper, or spout for delivering material into said receptacles, and a supply-gate attached to and carried by the upper end of the supporting-arm, which is itself attached to and carried by the scale-beam, substantially as described.

315,732. MUFFLER AND SAFETY-VALVE. JOSEPH M. COALE, Baltimore, Md. Filed Jan. 9, 1885. (No model.)



Claim.—1. The spring-case and muffler-case formed in a single casting with the wings and the perforated diaphragm R^2, substantially as and for the purposes hereinbefore set forth.

2. The spring-case, the imperforate muffler-case surrounding the same, arranged so that there shall be between the two a passage for the escaping steam from the valve, and the perforated diaphragm R^2, in combination with the perforated dome or cap S, surmounting the muffler-case, substantially as and for the purposes hereinbefore set forth.

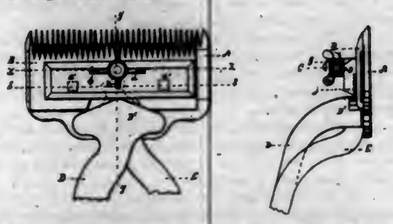
3. The combination of the spring-case, the imperforate muffler-case, the perforated dome or cap S, the diaphragm R^2, the auxiliary diaphragm R', and the filling material contained between said diaphragms, substantially as and for the purposes hereinbefore set forth.

4. The combination of the spring-case, the muffler-case, the tubular adjusting-bolt H, the perforated dome or cap, and the tubular stem P.

carried by said cap, substantially as and for the purposes hereinbefore set forth.

5. The muffler-case, the spring-case, and the adjusting-case formed in one, as described, in combination with the main and auxiliary valves, the valve case or shell, and the perforated dome or cap, these parts being constructed and arranged together for joint operation, substantially as hereinbefore set forth.

315,733. ANIMAL-SHEARS. GEORGE H. COATES, Worcester, Mass. Filed Aug. 4, 1883. (Model.)



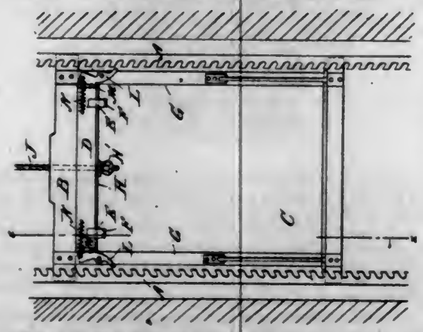
Claim.—1. The combination, with the fixed cutting-plate of a clipping-machine, of a handle, D, having a central boss, G, resting against the surface of the fixed cutter-plate, and two bosses, H H, entering holes in the fixed cutter-plate, and an attaching-screw, *l*, as and for the purpose set forth.

2. In a clipping-machine, the combination, with a fixed cutting-plate having an elongated or suitably-shaped opening to receive the button-shaped head of a connecting-bolt, a vibrating cutting-plate resting thereon, and a presser-plate resting on the vibrating cutting-plate, of a stud or bolt connected with and turning in the presser-plate, and having a button-shaped head formed of a radially-projecting spur or spurs adapted to pass through the opening in the fixed cutting-plate, and by a partial rotation of the bolt so set against the under side of the said plate as to securely unite the fixed cutting-plate and presser-plate with the vibrating plate held between them, as described, and for the purpose set forth.

3. In a clipping-machine, the combination, with a fixed cutting-plate having an elongated or suitably-shaped opening to receive the button-shaped head of a connecting-bolt, a vibrating plate resting thereon, and a presser-plate resting on the vibrating plate, of a screw-threaded bolt passing through and turning in the presser-plate, and having a head formed of a radially-projecting spur or spurs adapted to pass through the opening in the fixed cutting-plate, and by a partial rotation of the bolt be turned upon and against the under side of the fixed cutting plate, and a nut screwing upon said bolt and resting against the presser-plate, whereby its pressure upon the vibrating plate may be adjusted, as and for the purpose set forth.

4. In a clipping-machine, the combination of a presser-plate, a rotating stud or bolt passing through the presser-plate and having a head formed of radially-projecting spur or spurs, a fixed cutting-plate having an opening corresponding with the head of the bolt, and having recesses in its under surface to receive the projecting spur or spurs forming the head, said bolt having a nut resting on the presser-plate or other suitable connected means for the purpose of drawing the spurs forming the head of the bolt into said recesses after the bolt has been partially rotated and the spurs and recesses made coincident, whereby the bolt is prevented from turning, as and for the purpose set forth.

315,734. SAFETY ATTACHMENT FOR ELEVATOR-CARS. PHILIP COEN, Nuevo Laredo, Mex. Filed Aug. 6, 1884. (No model.)

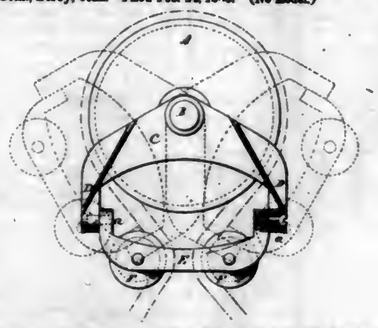


Claim.—1. The combination, with an elevator car or cage, of latches pivoted to the standards and adapted to engage with the vertical racks in the shaft, a bar held by the hoisting-cable against the bottom edge of the top cross-bar of the standards and adapted to lock the latches in place, and of means for throwing the latches outward when released, substantially as herein shown and described.

2. The combination, with an elevator car or cage, of the latches L, pivoted to the standards and having shoulders M on the inner edges, the bar H, connected with the cable and held by the same against the bottom of the top cross-bar of the car, the said bar H projecting slightly beyond the ends of the top cross-bar, and of means for throwing the latches outward, substantially as shown and described.

3. In an elevator car or cage, the combination, with the bar D, of the hook-clips E, the bar H, connected with the hoisting-cable and held below the bar D, the latches L, pivoted to the standards and having shoulders M, and of the springs N, substantially as herein shown and described.

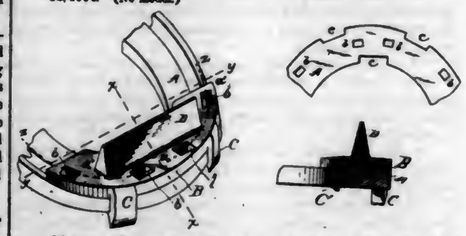
315,735. DEVICE FOR TRANSMITTING POWER. ALBERT L. COLBURN, Derby, Conn. Filed Feb. 24, 1885. (No model.)



Claim.—1. The combination of the principal grooved pulley A, the saddle E, hung to swing upon an axis at right angles to the axis of the pulley A, and guide-pulleys F F, hung in said saddle, their axes parallel with the axis of the principal pulley, substantially as described, and so that the plane of said guide-pulleys may be universally adjustable with relation to the plane of the principal pulley, substantially as described.

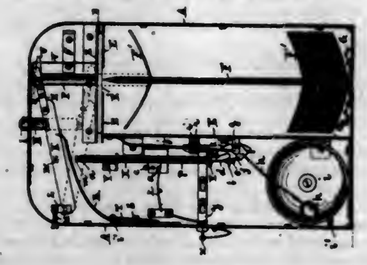
2. The combination of the principal grooved pulley A, the yoke C, hung concentric with the axis of said pulley, and so as to swing in a plane parallel therewith, the saddle E, hung in said yoke, the axis of said saddle being at right angles to the axis of the said pulley, and guide-pulleys F F, hung in said saddle, substantially as described.

315,736. HORSESHOE. RICHARD CONDON, Lyons, Iowa. Filed July 12, 1884. (No model.)



Claim.—The combination, with a horseshoe, A, having the recesses *c*, of the separate toe-plate B, provided with the lugs C C C, and the calk D, and having the nail-holes *b* located in the plate in position to be in range with the holes *b'* in the body of the shoe, substantially as and for the purpose described.

315,737. FARE RECEIVER, REGISTER, AND ALARM. WILLIAM A. CONNELLY, Boston, Mass. Filed Aug. 20, 1884. (No model.)



Claim.—1. A railroad-fare receiving and registering apparatus composed of a box or casing, A, the interior of which is divided into two separate compartments by a horizontal and perpendicular partition, E E, the larger compartment containing the operating mechanism and alarm, and the smaller compartment being provided with a slot or opening for the insertion of the tickets, and the rod or file F, upon which the tickets are filed, the smaller compartments being also provided with a door, A", which can be opened for the removal of the filed tickets without exposing the operating mechanism in the other compartment, substantially as set forth.

2. The casing A, the removable rod or file F, the tube P, rod Q, lever K, tube H, and rod I, in combination, as shown and described.

3. The combination, with a casing, A, of the rod I, provided with a knob, J, the tube H, lever K, spring R, and the tension-regulating device T S, the tube P, and rod or file F, as and for the purpose set forth.

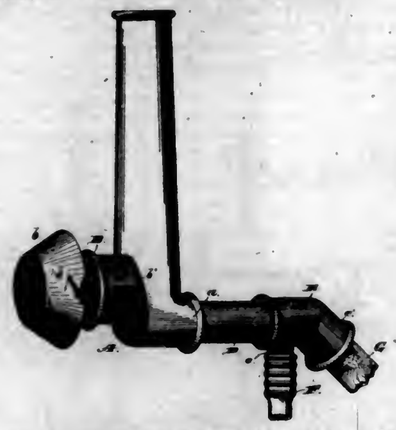
4. The combination of the casing A, rod I, lever K, provided with the pin W, the bar X, supported in bearings Y Y, spring Z, pin *a*, pawl and spring *c d*, cam *f*, and the alarm mechanism *h h i*, substantially as set forth.

5. The combination, in a casing, A, of the bar X, provided with a pin, *p*, the lever K, slotted lever *r*, spring *u*, pawl-carrier and pawl *t t'*, ratchet-wheel *w*, pointer *v'*, and dial B, as and for the purpose specified.

6. In a fare-registering apparatus, the combination of the slide *y*, pin *x*, the lever *r*, and projection *t''*, ratchet-wheel *w*, pointer *v'*, ratchet-wheel *c'*, hand or pointer *d''*, and dial B, whereby one hand or pointer is caused to move, while the other is stationary, as set forth.

7. The combination of the slide *y*, the pin *x*, lever *r*, projection *t''*, pawl-carrier *a'*, spring-pawl *b'*, ratchet-wheel *c'*, pawl *d'*, pointer *d''*, and dial B, substantially as set forth.

315,738. FLUE-CLEANER FOR STEAM-BOILERS. WM. H. COOPER, Quincy, Ill. Filed Dec. 18, 1884. (No model.)



Claim.—1. The apparatus for cleaning flues, consisting of a hollow cylinder provided with an axially-located jet-pipe, and means, substantially as shown, for connecting the same with a steam-supply, and a branch pipe or nozzle which extends laterally outward from said body, and is adapted at its outer end to fit within the end of a flue, so as to connect such flue with the interior of said body, substantially as specified.

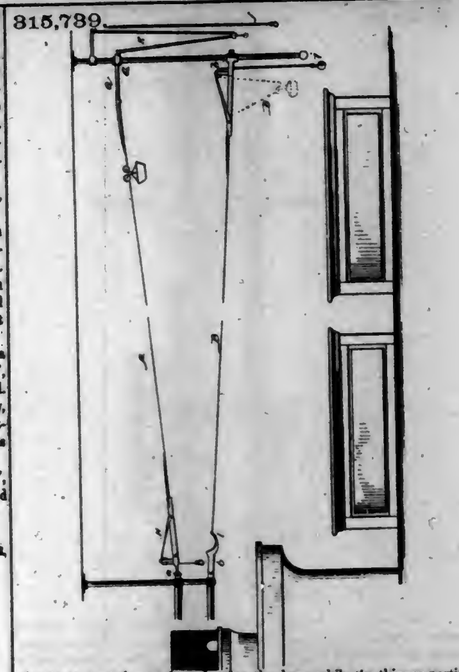
2. In combination with the body provided with the axially-located steam-jet pipe, and the laterally-arranged branch pipe, the nozzle adapted at its outer end to fit within the end of a flue, and at its inner end to fit into said branch pipe, and means whereby the latter and said nozzle may be secured together, substantially as and for the purpose shown.

3. The apparatus described for cleaning flues, consisting of the cylindrical body having an open upper end, and provided with the horizontal diaphragm and axially-arranged jet-pipe, and with the laterally-projecting branch pipes, the nozzle adapted at one end to fit within a flue, and at its opposite end to fit within the upper branch pipe, the L-shaped fitting adapted to receive a handle, and to have connected therewith a flexible hose, and the pipe extending between and operating to connect said fitting with the lower branch pipe of said body, substantially as and for the purpose set forth.

315,739. STORE-SERVICE APPARATUS. JAMES T. COWLEY, Baltimore, Md., assignor to Milton Clark, New York, N. Y. Filed Mar. 17, 1885. (No model.)

Claim.—1. In a store-service apparatus, the combination, with the wireway, of a lowering and raising device pivotally fixed to the bracket, the flexible portion thereof being of varying diameter, the thicker portion to prevent the car from leaving the drop, while the thinner portion permits the removal thereof, substantially as described.

315,739.



2. In a store-service apparatus, the combination of a wireway and a lowering and raising device, the flexible portion of which is of varying diameter, with a car attachment for retaining the car to the larger portion of said device, and to permit its removal from the smaller portion thereof, substantially as set forth.

3. In a store-service apparatus, the combination, with the wireway, of a support having an adjustable bracket to which the way is fixed, and a bracket extending in opposite direction from the way, in combination with the variable-sized flexible drop, substantially as described.

4. In a store-service apparatus, the combination of the double-incline ways with a sustaining-support having a lowering device on one side and an elevating device on the other side of said post, and with a switch for receiving the car and carrying it around to the track in front of said support, substantially as set forth and described.

5. A store-service apparatus consisting of wireways having flexible lowering and raising devices, the latter having a weight and a car on the flexible portion, whereby the weight will automatically lower the drop after the car has left it for the reception of the next car, substantially as described.

6. In a store-service apparatus, the carrying-wires arranged in pairs, inclined in opposite directions, but converging to the cashier's desk, said wires being rigidly fixed at each end and connected to brackets which are adjustably secured to the sustaining-posts, in combination with the drop mechanism to each wire for raising and lowering the cars, substantially as described.

7. In a store-service apparatus, the carrying-wires arranged in pairs, each being inclined to carry a car in opposite directions, said wires being connected by brackets which are adjustably fixed to the sustaining-posts, in combination with a car lowering and raising device, the flexible portion of said device being variable in diameter, substantially as set forth.

8. In combination with the forwarding and return wire tracks extending in pairs between the cashier's desk and a salesman's station, the brackets, receivers, and restorers at the ends of each track, substantially as shown.

9. The combination, in the store-service apparatus, of the wire tracks rigidly fixed at each end, the flexible receivers, and flexible restorers, with the side track or switch, and the car or carrier, substantially as described.

315,740. CONSTRUCTION OF PAVEMENTS. SAMUEL W. CRAGG, Baltimore, Md. Filed June 10, 1884. Renewed Mar. 13, 1885. (No model.) Patented in France Apr. 21, 1884, No. 149,126, and May 1, 1884; in Belgium Apr. 23, 1884, No. 64,912; in Italy June 30, 1884, XVIII, No. 16,815; in Austria Aug. 22, 1884, 34, 1,483, and in Spain Sept. 26, 1884, No. 6,075.

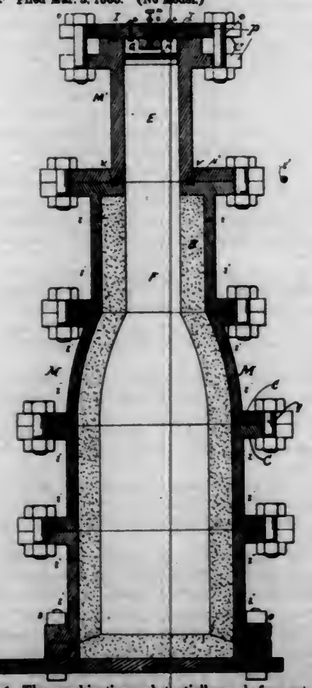
315,740.



Claim.—1. In a wood pavement, the foundation thereof made of concrete or other suitable material, in tiers or sections of different heights, which extend longitudinally of the road-bed or street, substantially as and for the purpose specified.

2. In a wood pavement, the blocks thereof of different lengths or depths, arranged in tiers or sections which extend longitudinally of the road-bed or street, substantially as and for the purpose specified.

315,741. MOLD FOR CASTING STEEL. JAMES HENDERSON, Bellefonte, Pa. Filed Mar. 3, 1885. (No model.)



Claim.—1. The combination, substantially as before set forth, of the flask pervious to gas, the head of the mold impervious to gas, and the cover of the head, for the purpose set forth.

2. The combination, substantially as before set forth, of the flask pervious to gas, the head of the mold impervious to gas, the cover of the head, and the chamber for the gas material, for the purpose set forth.

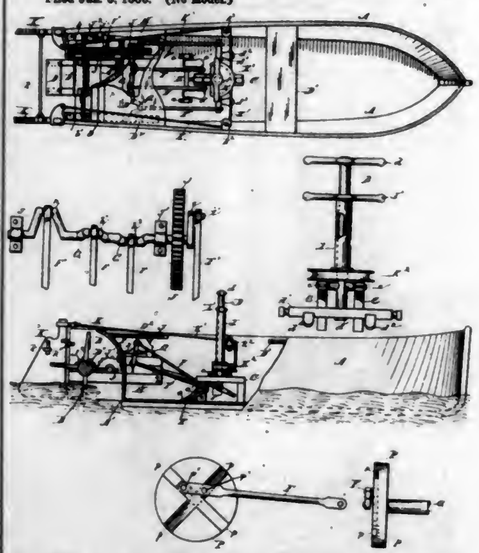
315,742. SEWING-MACHINE. ELISHA S. CRAM and EDGAR C. COVELL, Laconia, assignors of one-half to John S. Crane and B. Frank Drake, Lake Village, N. H. Filed Feb. 28, 1884. (No model.)



Claim.—1. The combination, with the stitch-forming mechanism of a sewing-machine having a shuttle adapted to take the loops of the needle-thread in the regular motion of the machine, of means, as the crank-pin E and the cam C, constructed with its reverse-motion needle-raising part *b* extended in a direction substantially at right angles to the line of the needle's motion, whereby the needle is caused to carry its thread-loop up away from the shuttle when the motion of the machine is reversed.

2. In a shuttle-sewing machine, the needle-driving cam C, constructed with its rear or reverse-motion needle-raising part *b* extended in a direction substantially at right angles to the line of the needle's motion, in combination with the crank-pin E, needle-bar A, and shuttle G, whereby the needle is caused to carry its thread-loop up out of the way of the shuttle when the motion of the machine is reversed.

315,743. MARINE VELOCIPEDE. SETH CURLIN, Covington, Tenn. Filed Jan. 8, 1885. (No model.)



Claim.—1. In a marine velocipede, the combination of a pivoted operating-bar, a sleeve having a handle, bar, and a drum, and also serving as an operating-bar fitted over said internal operating-bar, a train of multiplying-gear, means, substantially as described, for connecting said operating-bars with said gearing, a rudder, and a cord or rope connected with said rudder and drum, substantially as and for the purpose described.

2. In a marine velocipede, the combination of a pivoted operating-bar, a sleeve fitted over said bar and moving with it, and provided with a handle and drum, a crank-shaft having a pinion, a paddle-wheel mounted on a shaft in the stern of the skiff and provided with a smaller pinion, an intermediate pinion rudders pivoted to the skiff and connected by a rod, operating-rods F F', connecting with cross-bar *d'* and pedals *e'*, and cords or chains connecting the rudders to the said drum, substantially as and for the purpose set forth.

3. In a marine velocipede, the combination of a pivoted operating-bar having pedals at its lower end, a sleeve fitted to said bar and having a handle at its upper end in a plane below the handle of said operating-bar, a rock-shaft having pedals, a crank-shaft, rods connecting said bar and shafts, a train of multiplying-gear, and a propelling-wheel, substantially as shown and described.

4. In a marine velocipede, the combination of the operating-bar D, sleeve I, fitted over said bar, crank-shaft G, connected to said sleeve and bar by means of rods F F', pinions J J' J³, and propelling-wheel B, substantially as and for the purpose set forth.

5. The combination of the operating-bar D, having pedals d^3 at its lower end, sleeve I, fitted over said bar and turning freely thereon, shaft E, having pedals *e'*, from which and the operating-bar power is communicated to the shaft C, having cranks *h h' h²* and *i i'*, by means of connecting-rods F F', pinions J J' J³, and paddle-wheel B, as and for the purpose set forth.

6. The combination, in a marine velocipede, of a pivoted operating-bar, D, having cross-bar *d'* at its lower end, provided with pedals d^3, a sleeve, I, fitting loosely over said operating-bar, and having a drum, K', rigidly secured thereon, rock-shaft E, having pedals *e'*, shaft G, having cranks *h h' h²* *i i'*, connecting-rods F F', by means of which power is communicated from the pedals and operating-bar to the crank-shaft G, pinions J J' J³, paddle-wheel B, rudders K, connected by rod *k*, and cords or ropes K', whereby the rudders are simultaneously operated from said drum, substantially as shown and described.

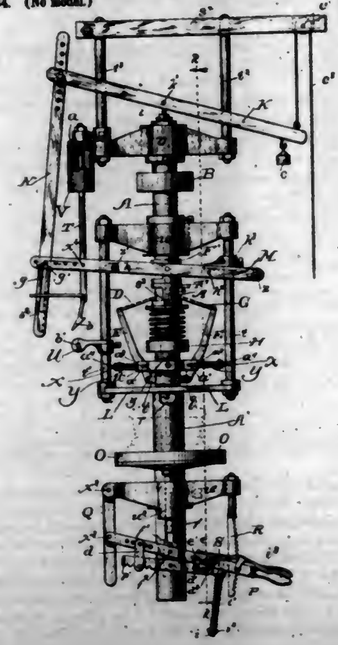
315,744. LAMP-COLLAR. ARTEMAS L. DAWSON, Elk Point, Dak., assignor of one-half to Charles H. Freeman, same place. Filed Mar. 24, 1884. (No model.)



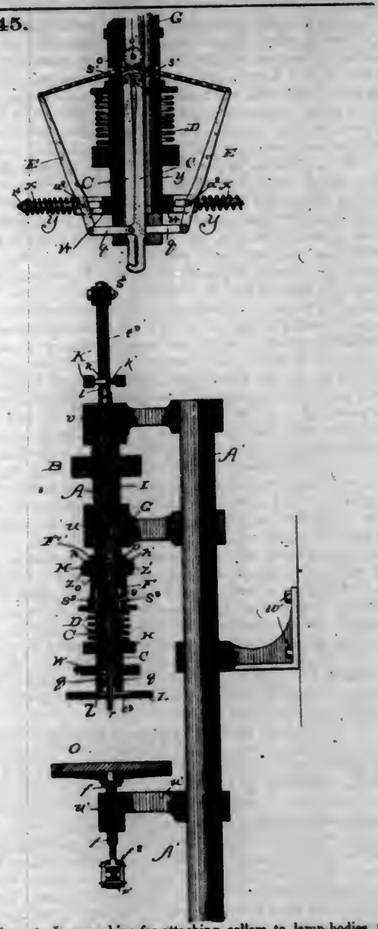
Claim.—1. As a new article of manufacture, a collar to be attached to a lamp-body, comprising an internally-screw-threaded tube having a stop consisting of one or more flanges or projections, *s*, upon its exterior surface, and an annular rim to encompass the tube below the stop, whereby, when the tube is inserted through the rim into the orifice in the lamp-body and the lower end turned up against the inner surface of the latter, the collar is secured in position, substantially as described.

2. The combination, with a neckless lamp-body, C, of a collar, said collar comprising an internally-screw-threaded tube, A, provided with a stop, *s*, and passing into the orifice of the lamp-body, and having its lower end turned outward and upward against the inner surface of the top of the said lamp-body to form a retaining-flange, and an annular rim, B, to rest upon the exterior of the lamp-body and cover the top of the same to any desired extent, and encircle the part of the tube which projects beyond the lamp below the stop *s*, substantially as described, and for the purpose set forth.

315,745. MACHINE FOR ATTACHING METAL COLLARS TO LAMPS. ARTEMAS L. DAWSON, Elk Point, Dak., assignor of two-thirds to Charles H. Freeman, same place, and George Bohner, Chicago, Ill. Filed May 14, 1884. (No model.)



315,745.



Claim.—1. In a machine for attaching collars to lamp-bodies, the combination of the following elements, viz: a frame for supporting the operating mechanism, and a rotary shaft carrying upon one extremity a longitudinally-reciprocating and laterally-oscillating pivoted burnisher adapted to pass through the collar to be attached and spread the tubular portion of the collar against the inner surface of the lamp-body, as set forth.

2. In a machine for attaching collars to lamp-bodies, the combination of the following elements, viz: a frame for supporting the operating mechanism, a rotary shaft mounted in the said frame, a longitudinally-reciprocating and laterally-oscillating burnisher pivotally connected to the said shaft to revolve with the same, and normally and automatically maintained in a rectilinear direction with the said shaft, and projecting beyond the end of the same, and adapted to be passed through the collar to be attached and spread the tubular portion of the said collar against the inner surface of the lamp-body.

3. In a machine for attaching collars to lamp-bodies, the rotary hollow shaft A, supported in bearings, a longitudinally-reciprocating and laterally-oscillating burnisher normally and automatically maintained within the said shaft in a rectilinear direction with reference to the sides of the same, comprising a blade, C, and burnisher-tip *r*, and pivotally supported within the said rotary shaft by means of a pin, s^3, passing through a longitudinal slot in the said shaft and through the blade C of the burnisher, the said burnisher-tip projecting beyond the end of the said shaft and adapted to pass through the collar to be attached and spread the tubular portion of the collar against the inner surface of the lamp-body, substantially as described.

4. In a machine for attaching collars to lamp-bodies, a rotary shaft, A, a laterally-oscillating and longitudinally-reciprocating burnisher upon the said shaft, and a fulcrumed arm, E, connected toward one end with the said burnisher, and adapted to control the pressure of the said burnisher upon its work independently of the will of the operator, substantially as described, and for the purpose set forth.

5. In a machine for attaching collars to lamp-bodies, the combination, with the rotary shaft A, longitudinally-reciprocating and laterally-oscillating burnisher normally and automatically maintained in a rectilinear direction with the said shaft, of a lever connected with the said burnisher, whereby the said burnisher may be advanced into a lamp-body, and a spring operating in opposition to the power exerted to advance the said burnisher into the lamp-body, to withdraw the burnisher from the same, when said lever shall be released, substantially as described.

6. In a machine for attaching metal collars to lamps, the combination, with the lever K, by means of which the burnisher is operated, through intermediate mechanism, to spread the tabular portion of the collar against the inner surface of the lamp-body, of mechanism for advancing the said burnisher into and withdrawing it automatically from within the said lamp-body, said mechanism comprising, in combination, the following elements, viz: a lever, M, secured upon a loose sleeve, F', upon the shaft A, a sleeve, F, secured to the said shaft to revolve with the same, and connected with the said burnisher by means of a pin, a^2, passing through a longitudinal slot in the said shaft and through the blade or extension C of the said burnisher, whereby the said burnisher may be advanced by the action of the lever K upon the lever M without moving the shaft A longitudinally, a helical spring, D, encircling the shaft A, and adjusted to be contracted with the advance of the burnisher and to expand and retract automatically the said burnisher, and means for regulating the tension of the said spring, the whole being constructed and arranged to operate substantially as described.

7. In a machine for attaching metal collars to lamps, the combination, with the mechanism for advancing and retracting the burnisher, of a pawl or catch, b, connected to the lever M, to move with the same, a stop, b', adjusted upon the frame of the mechanism to permit the pawl or catch b to engage with it when the moving end of the lever M shall have been advanced sufficiently far against the resistance of the spring D, and a pin, b^2, adjusted upon the connecting-link of the levers K and M, to disengage the pawl or catch b from the stop b' when the lever K shall have been released by the operator, whereby the expansion of the spring D shall be permitted at the proper time to retract the burnisher r, and at the same time force back the lever M, substantially as described.

8. The combination, with the frame, lever M, spring D, and pawl or catch b, in a machine for attaching collars to lamp-bodies, of an air-cushion operating to retard the reaction of the spring D upon the driving-shaft, substantially as described.

9. In a machine for attaching collars to lamp-bodies, the combination of the rotary shaft A, follower O, and a plate, L, having an opening through its center, and having the material around the said opening removed, to provide a seat for an annular plate, and an annular plate, Z, the center of the opening of which shall coincide with the center of the opening in the said plate L, as and for the purpose set forth.

10. The combination, with the plate L, of a machine for attaching metal collars to lamps, of the follower O, parallel to the said plate L, a lever, P, operated against the resistance of a spring to advance the said follower, whereby the lamp-body and collar shall be pressed between the said plate and follower, and operating by the recoil of the said spring to release the said lamp-body and collar, and a pawl upon the said lever engaging with a rack as soon as the desired pressure shall have been exerted against the said lamp-body to continue the pressure until released, substantially as and for the purpose set forth.

11. In a machine for attaching collars to lamp-bodies, the follower O, supported in an adjustable bearing, h', by means of a rod, f, having a longitudinal slot, f', toward one end, a link, Q, pivoted at one end to one side of the said bearing, a rack, R, secured to the opposite end of the same, a lever, P, pivoted at one end to the link Q, a lever, P', pivoted toward its center near the end of the rod f, adjustable link d, connecting corresponding ends of the levers P and P', bolt i, provided with a helical spring, i', and means for regulating the same, and inserted within the lever P and through an opening in the lever P', and a dog mechanism comprising the detent i^2, and means, substantially as described, for preventing and permitting engagement of the said detent with the teeth of the said rack, the whole being constructed and arranged to operate as and for the purpose set forth.

315,746. RIFLING FIRE-ARMS. Manuel Costa de Arguibel, Buenos Ayres, Argentine Republic. Filed June 2, 1884. (No model.)



Claim.—1. A fire-arm provided with rifling-grooves decreasing in depth from the breech toward the ends and merging into the bore, which is smooth beyond the ends of the grooves, substantially as described.

2. A fire-arm in which the rifling-grooves all terminate and gradually vanish into the bore at the rear of the muzzle, which has a smooth bore between the end and the vanishing points of the grooves, substantially as described.

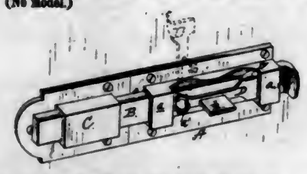
315,747. GAS-GENERATOR. Albert Detwiler, Milwaukee, Wis., assignor to Daniel Crooks and Charles A. Crooks. Filed May 13, 1884. (No model.)



Claim.—1. In gas-generators, the generating-chamber A, having a series of compartments the first of which has an opening from an air-supplying device, and the last of which has an aperture for the discharge of gas, said compartments communicating with each other near the bottom by the small apertures m m, and communicating in pairs one with another by the apertures p p near the top, in combination with a packing of alternate layers of charcoal s s and cotton waste or other absorbing material r r, substantially as set forth.

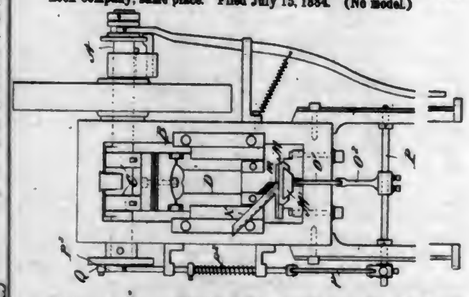
2. In gas-generators, an air-supplying chamber, D, the diaphragm t, rigidly affixed to the sides of said chamber and dividing said chamber into two air-tight compartments, the arm u, attached to said diaphragm and passing through the case of the chamber D in a stuffing-box, v, and adapted to transmitting a reciprocating motion to said diaphragm from the driving mechanism, each compartment of said chamber being provided with an aperture closed by a self-closing inwardly-opening valve, w, and an aperture with a self-closing outwardly-opening valve, y, and the air-ducts n' n' therefrom into the gas-generating chamber, in combination with the gas-generating chamber A, divided into vertical compartments having apertures o o and p p from one compartment to another for the passage of air, and other apertures, m m, for the passage of liquid, and an aperture, q, for discharging the gas, said compartments being packed with alternate layers of cotton waste r and charcoal s, and an aperture for supplying said chamber with naphtha, substantially as and for the purpose specified.

315,748. BOLT. James J. Devine, Philadelphia, Pa. Filed Oct. 3, 1884. (No model.)



Claim.—In combination with the base-plate and its bearers, and the flat sliding bolt fitted to move in the bearers, a locking-lever pivotally secured to the bolt, so that when the bolt is shot forward the locking-lever shall fall parallel with the bolt and between two bearers of the base-plate, substantially as and for the purpose set forth.

315,749. MACHINE FOR PUNCHING LOCK-PLATES. Thomas Donahue and William W. Cone, Terryville, Conn., assignors to the Eagle Lock Company, same place. Filed July 15, 1884. (No model.)



Claim.—1. The combination, with a punch and with a die having an L-shaped slot, of a sliding carriage provided with a tongue having an L-shaped cross-section, and of a hopper located between the sliding carriage and the die, substantially as herein shown and described.

2. The combination, with the die H and the punch F, of the inclined hopper K, the plate L at the base of the hopper, and the sliding carriage M, provided with a tongue, N, adapted to pass through the space between the lower end of the hopper and the plate L, substantially as herein shown and described.

3. The combination, with the punch F, of the die H, having an L-shaped slot, a b, and provided with a spring, d, substantially as herein shown and described.

4. The combination, with a die, of a vertically-movable punch provided with an adjustable gage held on an arm of the punch, substantially as herein shown and described.

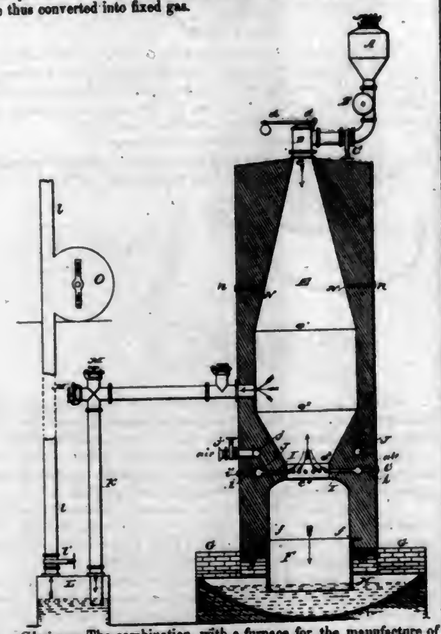
5. The combination, with the die H, of the punch F, the pivoted gage G, the spring G', and the adjusting-screw G^2, substantially as herein shown and described.

315,750. DENTIFRICE. Joseph E. Edmundson, Athens, Ohio; Margaret Edmundson administratrix of said Edmundson, deceased. Filed Apr. 23, 1884. (No specimens.)

Claim.—The herein-described dentrifice, having as essential ingredients borate of soda, chlorate of potash, and spirits of hartshorn and alcohol, combined with gum-camphor, carbonate of magnesia, bicarbonate of soda, prepared chalk, white castile-soap, red cinchona, orris-root, sugar, oil of winter-green, and carmine, or equivalents, employed in the proportions and compounded substantially as specified.

315,751. FURNACE FOR MANUFACTURING ILLUMINATING-GAS. Frederick Ebner, St. Louis, Mo. Filed Sept. 8, 1884. (No model.)

Brief.—Bituminous coal is distilled in the upper part of the furnace, while the coke from which the gas has been evolved is burned by the admission of air in the lower part of the furnace, and the gas evolved by distillation and that produced by combustion are passed together through the same eduction-pipe connecting with the side of the furnace above the air-inlets at a distance about one-third the height of the furnace. Tarry vapors and gas given off from the upper portion of the coal must pass down through heated coal and coke to the eduction-pipe, and are thus converted into fixed gas.



Claim.—The combination, with a furnace for the manufacture of illuminating-gas, of the tuyere-pipes I, air-chamber J, having the air-pipe j and valve j', the exit-pipe K, situated at a suitable distance above said tuyere-pipes, the hydraulic seal L, and an exhauster for removing the manufactured gas from the upper part of the furnace and promoting combustion in the lower part of the furnace by creating an indraft of air, substantially as shown and specified.

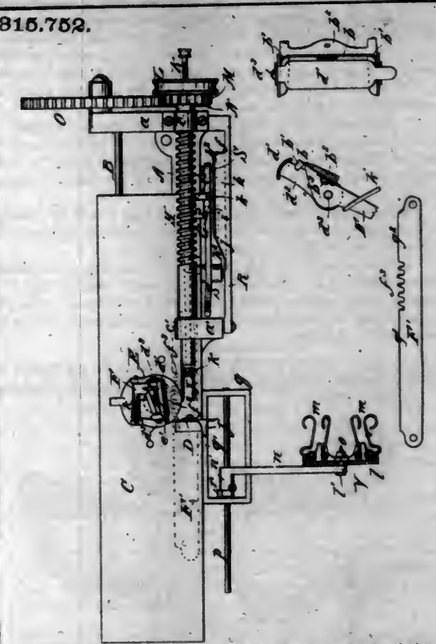
315,752. APPLE PARING AND SLICING MACHINE. William T. Elliott, Meredith, assignor to himself and Arthur Thompson, Warner, N. H. Filed June 10, 1884. (Model.)

Claim.—1. The rail R, provided with the bent switch-plate h^2, and cut away at f, in combination with the worm-shaft H, carrying the fork, and sliding knife-carrying table C, provided with the clutch G, arranged substantially as and for the purposes set forth.

2. The combination, with the clutch G and the worm-shaft H, of the rail R, cut away at f, channeled at h, and inclined at j, and provided with the bent switch-plate h^2, substantially as and for the purposes set forth.

3. The combination, with the fork J, of the apple-forking device

315,752.

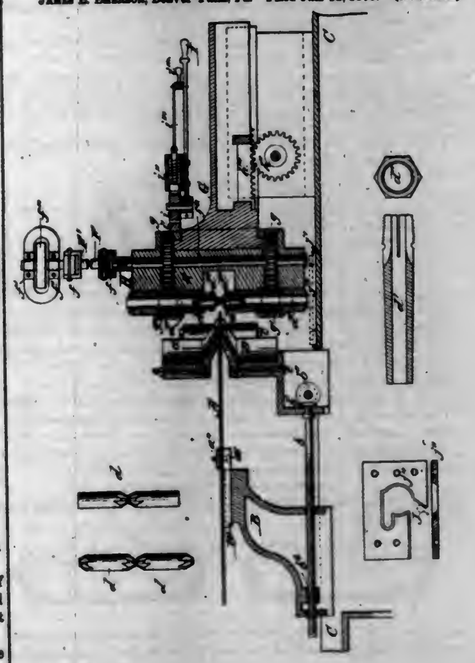


V, composed of the cup or frame l, pivoted loosely to the hand-piece n, the cup being adapted to receive and hold an apple and to revolve with the fork, substantially as and for the purposes set forth.

4. The frame A of the paring-machine provided with the frame q, in combination with the rod p, arm n, and revolving cup l, substantially as and for the purposes set forth.

5. The combination, with the fork J, of the revolving frame l, provided with the holding-arms m, for receiving and holding an apple, substantially as and for the purposes set forth.

315,753. MACHINE FOR MILLING RECESSES IN SAW-PLATES. James E. Emerson, Beaver Falls, Pa. Filed Jan. 12, 1885. (No model.)



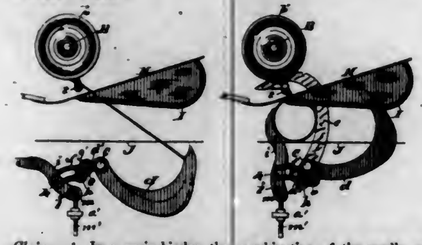
Claim.—1. In a machine for milling the edges of the recesses in saw-plates to receive insertible teeth and their fastenings, the combination of the adjustable hand-lever I, toothed pinion *i*, rack *i'*, movable cross-head H, pantograph guide-pin J, pattern *j'''*, sliding head G, revolving shaft *f'''*, and gear-wheels *g* and *g'*, with the revolving cutters *d*, constructed and operating as described.

2. In a machine for milling the edges of recesses in saw-plates to receive insertible teeth and their fastenings, the combination of the movable and adjustable rest B, having plate B', and clamping-screw *a'*, and carrying the saw A, with the saw-clamping device D, substantially as described.

3. The clamping device D, composed of parts D' and D'', having the clamping-jaws E attached thereto, and the means for adjusting one toward or from the other, substantially as described.

4. In a machine for milling the edges of the recesses in saw-plates, the combination of the cross-head H, sliding head G, shafts F and *f'''*, wheels *g* and *g'*, revolving cutters *d*, pattern *j'''*, pantograph guide-pin J, the movable rest B, carrying the saw-plate A, and clamping device D, substantially as described.

315,754. GRAIN-BINDER. LORENZO FICHER, Jr., and WILLIAM F. OLIN, Chicago, Ill., assignors to William Deering, same place. Filed Jan. 16, 1883. (Model.)



Claim.—1. In a grain-binder, the combination of the needle and the guard or separator arm, both supported and adapted to vibrate on coincident axes, with intermediate link mechanism, whereby a positive motion is imparted from the needle to the guard, substantially as and for the purpose described.

2. The combination of the needle provided with a heel-extension, the separator-arm, also provided with a heel-extension, and suitable linking mechanism adapted to impart motion from the needle to the separator, and to retain the latter in substantially a stationary position while said needle is completing its stroke, substantially as and for the purpose described.

3. The combination of the needle, the separator-arm, the link *f*, and link *g'*, substantially as described.

4. The combination of the needle, the separator-arm, the linking device, and the adjustable pivot *m*, as and for the purposes set forth.

5. The combination of the needle having the heel-extension, the compressor-arm, and the link *f*, pivoted to said heel-extension and to said compressor-arm, substantially as and for the purpose set forth.

315,755. WATCH-MOVEMENT BOX. EZRA C. FITCH, Newton, Mass. Filed Sept. 29, 1884. (No model.)



Claim.—1. A watch-movement-holding package composed of the holder 2 and its cover 3, composed of paper or other like material, and provided with the outwardly-projecting flanges 7 7 of the same material, and the metallic box *c*, formed to receive and fit closely against the flanges 7 7, and having a diameter greater than that of the holder, whereby a space is formed between the box and holder, as set forth.

2. A watch-movement-holding package composed of the holder 2 and its cover 3, composed of paper or other like material, and provided, respectively, with the shoulders 5 and 6, and with the outwardly-projecting flanges 7 7, and the metallic inclosing box *c*, formed to receive said holder and cover, as set forth.

315,756. WATCH-CASE. EZRA C. FITCH, Newton, Mass. Filed Oct. 1, 1884. (No model.)



Claim.—1. A watch-case having an inner cap provided with means, as described, for attachment to the case, and a back or cover secured to and bearing against the central portion of the cap, and separated from the cap at its margin, as set forth.

2. A watch-case having an inner cap which is threaded to engage with a corresponding thread on the case, and a back or cover secured to and bearing against the central portion of the cap, and separated from the cap at its margin, as set forth.

3. In a watch-case, the combination of the case-center provided with a screw-thread, the inner cap threaded to engage with the thread of the case-center, and the back secured to and bearing centrally against the cap and pressed by the latter against a seat on the case-center, as set forth.

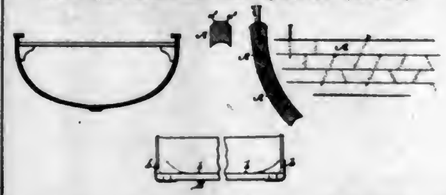
4. In a watch-case, the combination of the case-center, the connected back and cap having the marginal annular space, and a packing-ring placed in said space, as set forth.

315,757. HARNESS-SADDLE. WILLIAM H. FLORER, Uniontown, Kans. Filed Mar. 15, 1884. (No model.)



Claim.—The combination, in a harness-saddle, of the hollow metallic forms A, each of which has an integral extension at its inner end, a flexible strap connecting the two extensions, top plates resting on said forms and having flanges embracing the free edges of the same, and suitable coverings and finishings, substantially as set forth.

315,758. BOAT. JOHN FORBES, Jr., Plainwell, assignor of one-half to Isaac L. Lyon, Detroit, Mich. Filed May 29, 1884. (No model.)



Claim.—1. A boat made of narrow planks fastened together edgewise, said planks being convex on one edge and concave upon the other edge in cross-section, substantially as and for the purpose described.

2. A boat made of thin narrow strips concave at one edge and convex at the other in cross-section, said strips fastened together by nails passed through them edgewise, substantially as described.

3. A boat made of narrow strips concaved upon one edge and convexed upon the other, fastened together by nails passing through them edgewise, and in connection therewith a small ridge or ridges, *a²*, formed upon one edge of each plank, substantially as described.

4. A boat made of narrow strips convexed on one edge and concaved on the other in cross-section, said strips being punctured or bored at intervals for the passage of nails, and fastened together edgewise by nails passed through said holes and then driven through one or more adjacent planks, whereby said holes are made to serve as a guide for the nails, substantially as described.

5. A boat made of narrow strips concaved on one edge and convexed on the other in cross-section, and fastened together edgewise by nails passed through two or more adjacent planks in an angular direction, substantially as described.

6. A boat plank or strake consisting of a long narrow strip tapered somewhat at its extremities, made concaved on one edge and convexed on the other in cross-section, substantially as described.

7. A boat plank or strake consisting of a long narrow strip convexed upon one edge and concaved upon the other in cross-section, and slightly tapering toward its extremities, said strake or plank being perforated or bored at intervals for the passage of nails, substantially as described.

8. The combination, with a boat, of the removable keel B, provided with dowels *b b*, engaging with corresponding holes or recesses in the bottom of the boat, and clip *b' b'*, connected to the keel, and bent up and secured, respectively, to the stem and stern posts, substantially as described.

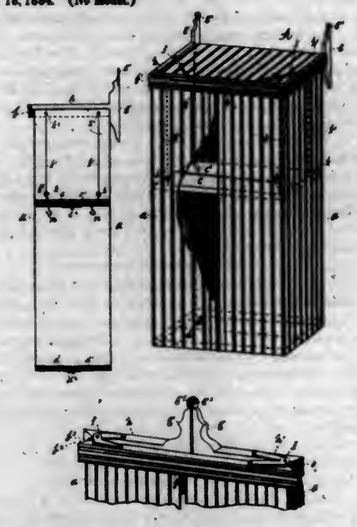
315,759. THILL-COUPLING. HARRIET K. FORBES, Columbus, Ohio. Filed Aug. 6, 1884. (No model.)



Claim.—1. In a thill-coupling, the clip-ears B' B², one of which is screw-threaded, as described, and both provided with projections *b*, in combination with the threaded bolt E, substantially as and for the purpose set forth.

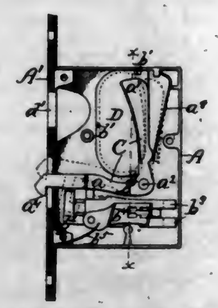
2. In a thill-coupling, the combination, with the clip-ears, one of which is screw-threaded, said ears having the projections *b*, of the pointed bolt E, the metallic piece D, a rubber cushion, and transverse supporting-plate C, substantially as described, and for the purpose set forth.

315,760. WARDROBE. GARRET A. GARRISON, Paterson, N. J. Filed Aug. 18, 1884. (No model.)



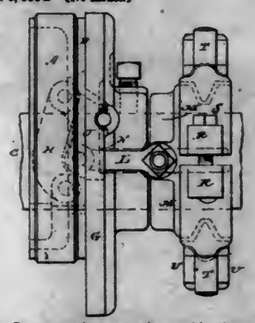
Claim.—The combination of the cloth *a*, the frame *b h*, for securing said cloth, the hinges *f*, for holding the frame *b* and *h* in position, brackets *g*, having eyes *g'*, for suspending the top and cloth, bottom *d d'*, for securing the bottom of the cloth, shelf *c c*, suspended from the top or frame *b* and *h* by cords *k'*, and hooks or pins *k²*, *k*, and *n*, substantially as described.

315,761. SLIDING-DOOR LOCK. WILLIAM GERWIEN, Chicago, Ill., assignor of one-half to John R. Scott, same place. Filed Oct. 28, 1884. (Model.)



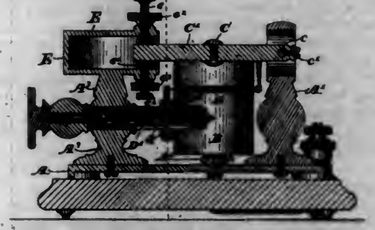
Claim.—In a door-lock, the combination, with the lock-case A, of the removable division-plate D and the angular latch-bolt C, provided with the slot *b*, substantially as and for the purpose set forth.

315,762. REVERSING-GEAR. CHARLES M. GIBBONS, Massillon, Ohio. Filed Dec. 6, 1884. (No model.)



Claim.—In a reversing-gear, the combination of the shifting-disk having the diametrical slot, the diametrical dovetailed rib, and the recess parallel with the slot, the rigid disk having the dovetailed groove in its face with means for taking up wear and having the recess and the perforation, the curved arm pivoted at one end in one end of the recess in the shifting-disk, the bell-crank pivoted in the recess in the rigid disk, the collar sliding upon and turning with the drive-shaft and having the V-shaped groove in its periphery, the connecting-rod pivoted to the arm of the bell-crank and to the sliding collar, the ring having the V-shaped rib and the diametrically-opposite studs, the bifurcated bell-crank having its ends pivoted upon the said studs, the connecting-rod pivoted to the other arm of the bell-crank and having means for adjusting its length, the hand-lever having the spring-lock, and the notched segment, as and for the purpose shown and set forth.

315,763. TELEGRAPHIC SOUNDER. JAMES F. GILLILAND, Indianapolis, Ind. Filed June 17, 1884. (No model.)



Claim.—1. In a telegraph-sounder, the combination of a hollow sounder-drum, and a vibrating sounder-bar extending through a hole into said drum, and adapted as it vibrates to come in contact with the inner sides of said drum or with points arranged therein, substantially as set forth.

2. In a telegraph-sounder, the combination of the magnets, the armature, the sounder-bar, and the hollow sounder-drum, said bar extending through a hole in the side into said drum, substantially as set forth.

3. In a telegraph-sounder, the combination of the sounder-bar and the hollow sounder-drum having sounding-points projecting inwardly from its head, between which said sounder-bar passes, and with which it comes in contact as it operates, substantially as set forth.

4. The combination of the sounder-bar and the hollow sounder-drum, said drum being provided with adjustable sounding-points *e e'*, extending inwardly toward the sounder-bar which enters said drum and passes between them, substantially as shown and specified.

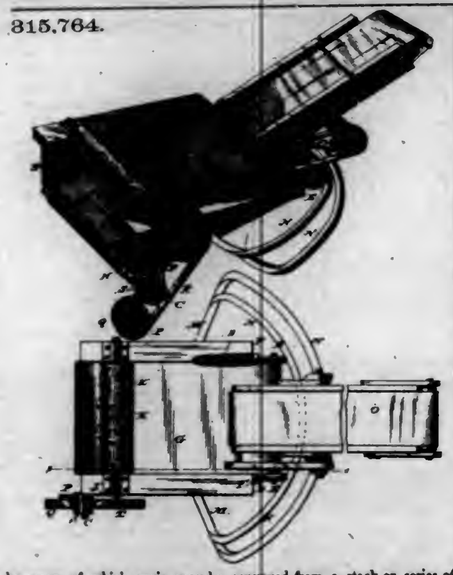
5. The combination of the magnets, the armature, the sounder-bar, the sounder-drum, the armature-spring, and the means of adjusting said spring, consisting of the nut *d*, the screw D', and the rod on which said screw slides, substantially as set forth.

315,764. FEEDER FOR THRASHING-MACHINES. DAVID H. GOOD, Canada, Kans. Filed Nov. 25, 1884. (No model.)

Claim.—1. In a feeder for thrashing-machines, an inclined revolving endless apron, in combination with a transverse roller with rows of radially-projecting rearwardly-extending arms, and means for causing said roller to revolve in the opposite direction to and at a less rate of speed than the apron, substantially as shown, and for the purpose set forth.

2. The combination, with thrashing-machines, the frame, and means, substantially as described, for carrying the grain to the cylinder, of brackets secured to the sides of the frame and connected by segmental or semicircular arms adapted to form a track for an adjustable conveyer,

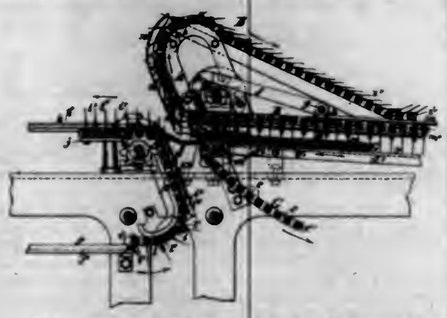
315,764.



by means of which grain may be conveyed from a stack or series of stacks to the feeder, substantially as and for the purpose herein set forth.

315,765. MACHINE FOR SPREADING HEMP, &c. JOHN GOOD, Brooklyn, N. Y. Filed July 17, 1884. (No model.)

Brief.—The sliver is delivered by one belt of pins, the lowermost portion of which is operative, with its pins presented downward, to a second belt, the uppermost portion of which is operative. The guiding-rails of each belt are carried beyond the chain-wheels, and so provided with cam-surfaces, and the dogs holding the pin-bars so constructed with channels and studs as to secure a vertical withdrawal and insertion of the pins from and into the sliver. A plate is made to work vertically between the bars of the first belt to clean its pins of sliver.



Claim.—1. The combination, with a belt of pins the lowermost portion of which is operative, with its pins presented downward, of a second belt of pins to the uppermost portion of which the fiber is to be delivered by the first belt of pins, driving-wheels for the first belt of pins, arranged at the delivery end thereof, and guides or guiding-rails whereby the downwardly-presented pins of the first belt are held in operative position, and which are extended forward of said wheels, whereby the direct travel of the first belt of pins is prolonged beyond its driving-wheels, substantially as and for the purpose herein described.

2. The combination, with the two belts, B C, of pins, arranged as described, and composed of endless chains, pin-bars capable of turning in the links of the chains, and dogs fast upon the ends of the pin-bars, of chain-wheels for supporting both of said belts, guides or guiding-rails m' m^6 for the dogs of the first belt, B, extending forward of the chain-wheels a^2 at the delivery end of the said belt, chain supports or guides n^2, inclined upward and forward from the forward ends of said guiding-rails, and stationary cams n^3, inclined correspondingly to said chain supports or guides and acting upon the dogs as the chains move upward and forward to hold the pins in vertical or nearly vertical positions as they withdraw from the fiber, substantially as herein described.

3. The combination, with two belts, B C, of pins, arranged as described, and each composed of pin-bars, endless chains in which said bars may turn, and dogs fast on the ends of said bars, of chain-wheels for supporting both of said belts, guides or guiding-rails for the dogs of the first belt, B, prolonged beyond the chain-wheels at the delivery end of that belt, whereby the direct travel of the first belt is prolonged beyond said wheels, inclined chain guides or supports n^2, and stationary cams n^3, acting upon the dogs of the first belt to cause its pins to withdraw vertically from the fiber, and correspondingly-inclined chain guides or supports j^3, and stationary cams l^2, acting upon the dogs at the receiving end of the second belt, C, to hold the pins thereof vertical, or nearly so, as they are carried upward into the fiber, substantially as herein described.

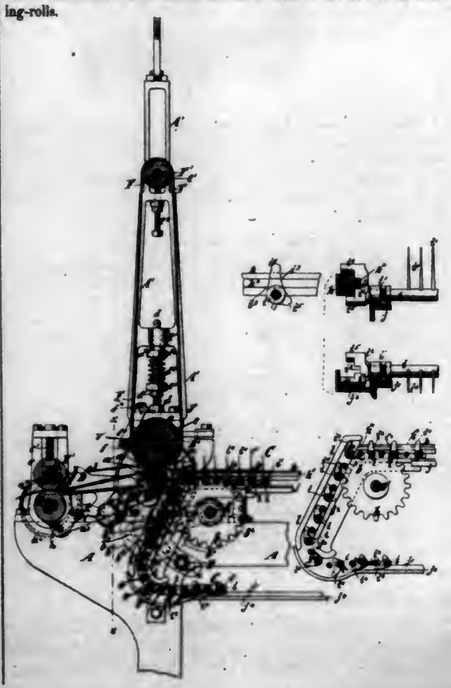
4. The combination, with two endless belts of pins, B C, arranged as described, and each composed of pin-bars i, chains i', and dogs i^3, having notches or channels i^5, and studs or pins i^4 and i^3, of chain-wheels a^2 at the delivery end of the belt B, and other chain-wheels, a, at the receiving end of the belt C, guides or guiding-rails m' m^6, for the dogs of the belt B, extending forward of the wheels a^2, and inclined chain guides or supports n^2 and stationary cams n^3 at the ends of the guiding-rails m' m^6, guiding-rails k k^6, for the dogs of the belt C, and inclined chain supports or guides j^3, and cams l' l^2, extending upward and forward at the receiving end of the belt C, all substantially as herein described.

5. The combination, with a pair of feeding-rolls and an endless belt of pins the lowermost portion of which is operative, with its pins presented downward, of a vertically-movable fiber-clearing blade or plate arranged within the belt of pins and working upward and downward between the pin-bars to throw or push off the fiber from the pins, and means of supporting and operating the said belts of pins and the said blade, substantially as herein described.

6. The combination, with a pair of feeding-rolls and an endless belt of pins the lowermost portion of which is operative, with its pins presented downward, and which comprises parallel pin-bars i, of the fiber-clearing blade or plate e, and the pivoted supporting-arms f therefor, provided with toes h, which project in the path of said pin-bars and are operated on by said bars to lift the said blade or plate and its said arms, substantially as herein described.

315,766. MACHINE FOR SPREADING AND DRAWING HEMP, &c. JOHN GOOD, Brooklyn, N. Y. Filed July 18, 1884. (No model.)

Brief.—One of the drawing-rolls has a metallic surface and the other is covered with rubber. A leather belt passes around the latter and a tension-roll. Cleaner-rubbers rest lightly against the leather belt, the lower drawing-roll, and the lower calendar-roll. The guides of the endless belt of backling-pin bars are carried beyond the chain-wheels, and so constructed as to deliver the sliver close to the bite of the drawing-rolls.



Claim.—1. The combination, with an endless belt of combing or hackling pins, of a pair of drawing-rolls, one having an exposed metallic surface and the other having a covering or jacket of india-rubber, means for operating said belt of pins and said rolls, and an endless leather belt passing around the rubber-covered roll and forming one of the working-surfaces, substantially as herein described.

2. The combination, with an endless belt of combing or hackling pins, of a pair of drawing-rolls, one having an exposed metallic surface and the other having a covering or jacket of india-rubber, upright frames or standards and a tension-roller, means for operating said belt of pins and said rolls above said drawing-rolls, and an endless leather belt passing around the rubber-covered drawing-roll and the upper tension-roller, and forming one of the working-surfaces, substantially as herein described.

3. The combination, with an endless belt of combing or hackling pins, of the small fluted drawing-roll B, the larger rubber-covered roll B', means for operating said belt of pins and said rolls, the upright frames A', the upper tension-roller, F', and screws for adjusting it, and the leather belt F, passing around the rubber-covered roll B' and the tension-roller F', substantially as herein described.

4. The combination, with an endless belt of pins, of a lower drawing-roll, B, an upper rubber-covered draw-roll, B', means for operating said belt of pins and said rolls, upright frames A, boxes v for said roll B', vertically movable in said frames, plungers d, bearing on said boxes, and spiral springs d^3, applied to said plungers, substantially as herein described.

5. The combination, with an endless belt of pins, of the lower drawing-roll, B, the upper rubber-covered roll, B', means for operating said belt of pins and said rolls, upright frames A', and the upper tension-roller, F', the leather belt F, and the fiber clearer or scraper f, bearing against the front of said belt, substantially as herein described.

6. The combination, with an endless belt of pins, of upper and lower drawing-rolls, means for operating said belt of pins and said rolls, and a fiber clearer or scraper, g, provided with weighted and pivoted arms g' g^6, whereby it is held against said lower roll, substantially as herein described.

7. The combination, with an endless belt of pins, of a pair of drawing-rolls, means for operating said belt of pins and said rolls, a trumpet-mouth or condenser forward of said rolls, a pair of delivery-rolls for the sliver, and a fiber clearer or scraper, h, provided with weighted and pivoted arms h' h^6, whereby it is held against the lower delivery-roll, substantially as herein described.

8. The combination, with a pair of drawing-rolls and means for operating them, of a belt of combing or hackling pins comprising endless chains, chain-driving wheels adjacent to said rolls, and guides for said chains in their movement toward the rolls extending forward of said chain-wheels, whereby the direct travel of the belt of pins is prolonged beyond said wheels, substantially as and for the purpose herein described.

9. The combination, with a pair of drawing-rolls and means for operating them, of endless chains and parallel rods armed with backling-pins and loosely fitting the chain-links, dogs fast upon the ends of said rods, driving-wheels for the chains adjacent to said rolls, and guides with which said dogs engage in the movement of the chains toward said rolls to hold the pins in an operative position, and which are prolonged beyond said wheels, whereby the direct travel of the belt of pins is prolonged beyond said wheels, substantially as herein described.

10. The combination, with a pair of drawing-rolls, means for operating them, and an endless belt of pins composed of endless chains, pin-bars capable of turning in the chain-links, and dogs fast on said pin-bars, of chain-wheels adjacent to said rolls, guides with which said dogs engage in the movement of the belt of pins toward said rolls to hold the pins in operative position, and which are prolonged beyond said wheels to prolong the direct travel of the belt of pins beyond said wheels, inclined chain-supports forward of said wheels, and stationary cams acting upon said dogs to hold the pins upright as they are withdrawn from the fiber, substantially as herein described.

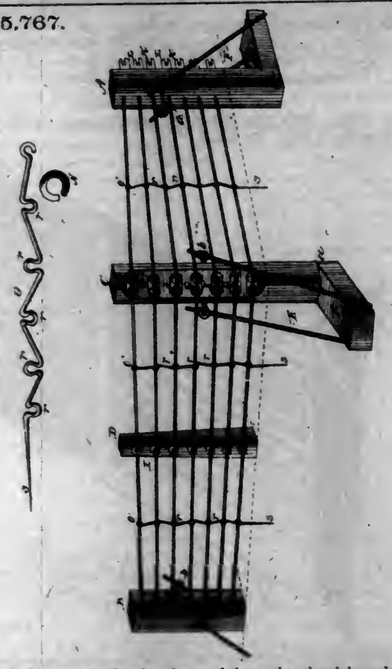
11. The combination, with a pair of drawing-rolls and means for operating them, of the endless belt of pins composed of pin-bars i, chains i', and dogs i^3, provided with notches and studs i^5 i^4, fast on said pin-bars, the chain-wheels b, the guiding-rails k k^6, prolonged beyond said wheels, and the inclined chain-supports and cams j^3 l, all substantially as herein described.

315,767. FENCE. EDWARD W. GOODWIN, Mulberry, Ohio. Filed Mar. 7, 1884. (No model.)

Claim.—1. The combination, with the wires, of the posts A B, having anchor-braces E at their lower ends to anchor and brace them in the ground, the stirrup-rods F, encircling the anchor-braces, and the links G, embracing the posts and bracing them above the ground, substantially as shown and described.

2. The combination, with a fence-post, of a wire-tightener consisting of a chair having notched cheeks and a shoulder or edge, j, cast entire, and a reel having hooked teeth adapted to engage with said shoulder or edge, substantially as described.

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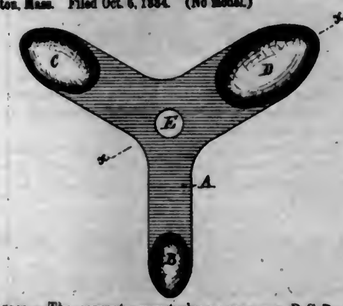


3. The combination, in a fence, of the anchored and braced posts A B, the friction-hangers I, attached to the post D, the wires placed in engagement therewith and passed through perforations in the posts A B, the slotted buttons attached to the ends of the wires at the post B, the chairs L, attached to the post A, and the reels K, connected to the opposite ends of the wires, substantially as shown and described.

4. The combination, with the wires, of the anchored and braced posts A B, the corner post, C, and the friction-plates Q, attached thereto by the aid of the friction-hangers I and the wires placed in engagement therewith, and passed through perforations in the posts A B, and a slotted button-holder, substantially as shown and described.

5. The combination, in a fence, of the tension and corner posts, A B, and C, anchored and braced as described, the friction-hangers I, and friction-plates Q, attached to the posts, the wires placed in engagement therewith and passed through orifices in the tension-posts, the slotted buttons attached to the ends of the wires at the distal tension-post B, the clutch-reels attached to the other ends of the wires at the controlling tension-post A, and the chairs of the clutch-reels, substantially as shown and described.

315,768. MULTIPLE MEASURING UTENSIL. PHEBE C. GOODWIN, Boston, Mass. Filed Oct. 6, 1884. (No model.)



Claim.—The separate receptacles or measures B C D, each of a different specific capacity, and attached to the connecting piece or arms A, substantially as and for the purpose set forth.

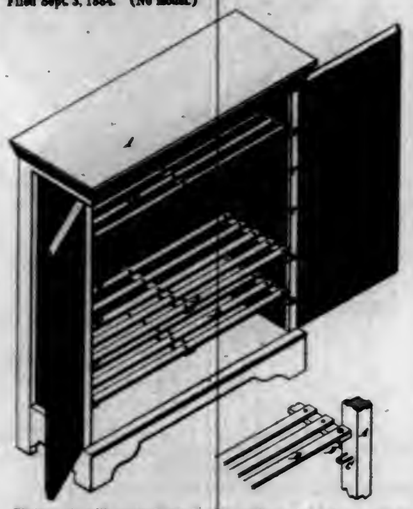
315,769. WICK-ADJUSTING MECHANISM FOR OIL-BURNERS. C. P. GOODRICH, Brooklyn, N. Y. Filed Nov. 18, 1884. (No model.)

Claim.—The combination, with a wick-tube, of a pair of rollers arranged at opposite sides and having spiral grooves extending in the same direction, substantially as specified.

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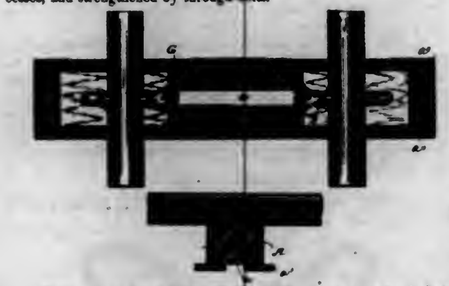
315,770. MILK AND FOOD SAFE. GEO. W. GORDON, Detroit, Mich. Filed Sept. 3, 1884. (No model.)



Claim.—A milk or food safe having walls or sides of open screen or reticulated work, open staples in the corner posts thereof, and removable shelves formed of open slat-work supported at the desired points by said open staples, substantially as described.

315,771. RAILROAD-TIE. LEVI HAAS, Chester, Pa. Filed May 9, 1884. (No model.)

Brief.—A railroad-tie consisting of a casting which incloses the sleepers, and which is provided with resting-flanges, rail and spike recesses, and strengthened by through-bolts.



Claim.—1. A railroad-tie consisting of the casing or frame A, having slot-opening *a*, flanges *a'*, central opening, B, rail-recesses C, spike-openings D, spike-recesses E, sleepers F, and notted bolts G, substantially as shown, and for the purpose described.

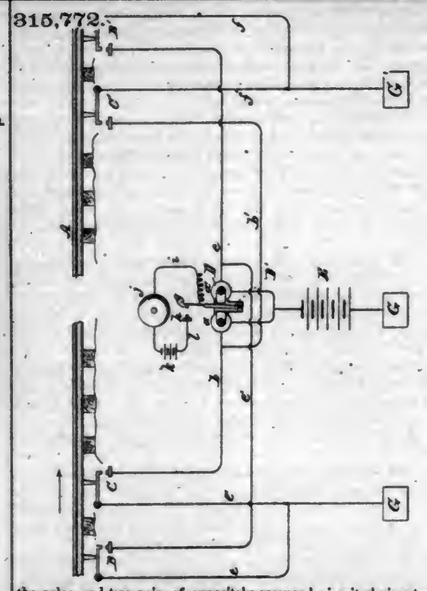
2. The combination, with the sleeper, of the covering-casting having near the ends transverse openings, with recesses crossing said openings, and a central longitudinal recess or opening, substantially as and for the purpose set forth.

315,772. RAILWAY-SIGNALING APPARATUS. WILLIAM HADDEN, Brooklyn, N. Y. Filed June 12, 1884. (No model.)

Claim.—1. In electric railway-signaling apparatus, two pairs of circuit-closing track-instruments, B C and C' B', located at opposite ends of the track-section to be protected and oppositely arranged with respect to each other, the inner track-instruments of both pairs being connected with one terminal of the same coil of the polarized relay D, and the outer track-instruments of both pairs being connected with one terminal of the other coil of said relay, in combination with the said polarized relay D and a local circuit adapted to operate a visible or audible signal, substantially as herein shown and described.

2. In electric railway-signaling apparatus, a polarized relay, D, adapted to maintain either an open or closed local circuit by the bias of

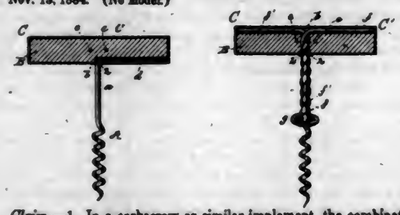
315,772.



the poles, and two pairs of oppositely-arranged circuit-closing track-instruments, B C and C' B', and circuits connected with the said track-instruments which are capable of reversing the current in the polarized relay D when a train enters and emerges from the section protected by the signaling apparatus, substantially as specified.

3. The combination, with the polarized relay D, of the battery E and its ground and line connections, the track-instruments B C B' C', the wires *b b' c c'*, and ground-wires *e e' f f'*, as specified.

315,778. CORKSCREW. EDWARD P. HAFF, Brooklyn, N. Y. Filed Nov. 13, 1884. (No model.)



Claim.—1. In a corkscrew or similar implement, the combination, with the metal shank, of the handle consisting of a core and an external casing made in two parts, completely inclosing said core, substantially as set forth.

2. In a corkscrew or similar implement, the combination, with the metal shank, of the handle consisting of a core to which said shank is directly attached, and an external casing made in two parts, completely inclosing said core, substantially as set forth.

3. In a corkscrew or similar implement, the combination of the handle, the metal shank bent parallel to the handle, and means securing said parts together, substantially as set forth.

4. In a corkscrew or similar implement, the combination of the grooved core, the shank bent into the groove in said core, and an external casing for said core, substantially as set forth.

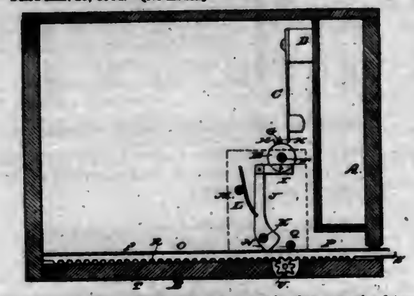
5. In a corkscrew or similar implement, the combination of the grooved core, the shank bent into the groove in said core, and the external casing made in two parts secured to said core, substantially as set forth.

6. In a corkscrew or similar implement, the combination of the grooved core, the shank passing through said core and bent into the groove, and the external casing, substantially as set forth.

7. In a corkscrew or similar implement, the combination of the transverse handle and the shank formed of two wires passing together through said handle and bent in opposite directions, substantially as set forth.

8. In a corkscrew or similar implement, the combination of the grooved core, the shank formed of two wires passing together through said core and bent together into the groove, and the external casing, substantially as set forth.

315,774. MECHANICAL MUSICAL INSTRUMENT. GEORGE B. HAWKINS, Norwood, N. Y., assignor of one-half to Henry G. Furt, same place. Filed Mar. 25, 1884. (No model.)



Claim.—1. In a self-playing instrument having a comb of tuned teeth, the combination of a tooth with a rocking picker-disk having means for rocking it, and provided upon its periphery with a picker-tooth and with two bristles one upon each side of the tooth, as and for the purpose shown and set forth.

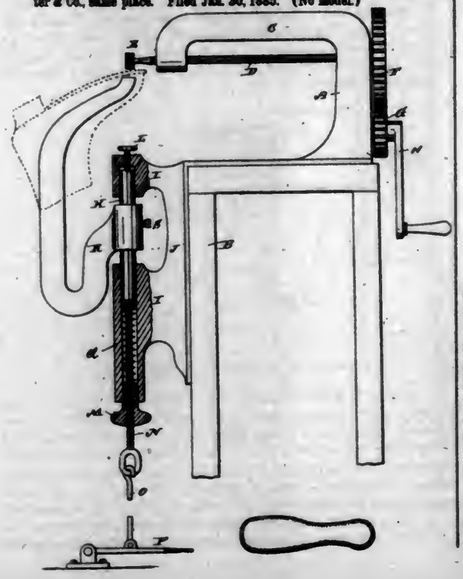
2. In a self-playing instrument, the combination of a lever having a spring for returning it to its original position, and adapted to be tilted by projections, depressions, or perforations upon a traveling sheet, a picker-disk having a picker-tooth, and two bristles upon the sides of the tooth, and a connecting-rod pivoted to the lever and to the picker-disk, and a toothed comb, as and for the purpose shown and set forth.

3. In a self-playing instrument, the combination of a traveling sheet having rows of projections, depressions, or perforations, a lever pivoted above the sheet and having a spring projecting from its forward edge bearing with its upper end against a lug, a connecting-rod pivoted at one end to the upper end of the lever, and a picker-disk having a tooth upon its periphery, and having the other end of the connecting-rod pivoted upon its face near its lower edge, as and for the purpose shown and set forth.

4. In a self-playing instrument, the combination of a revolving shaft having a pinion, an inflexible sheet having projections struck up from its upper surface, or depressions or perforations made therein, having one edge bent at a right angle, and provided with a cogged rack integral with it engaging the pinion, a pivoted spring-actuated lever, a connecting-rod, and a rocking picker-disk, as and for the purpose shown and set forth.

5. A sheet for self-playing musical instruments, having projections, depressions, or perforations upon its surface, having one edge bent at a right angle, and having a cogged rack struck up in it parallel with the bent edge, as and for the purpose shown and set forth.

315,775. MACHINE FOR EMBOSSING AND ORNAMENTING BOOT OR SHOE SOLES. WILLIAM D. HALL, Beloit, Wis., assignor to John Foster & Co., same place. Filed Jan. 30, 1885. (No model.)

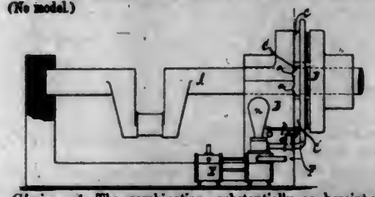


Claim.—1. In a machine for ornamenting and embossing the under sides of soles, the combination, with a shaft carrying a toothed die or wheel, of a vertically-movable shaft adapted to turn on its longitudinal axis, a horn held adjustably on the shaft, and a check-screw for limiting the upward movement of the shaft, substantially as herein shown and described.

2. In a machine for ornamenting and embossing the under sides of soles, the combination, with the shaft D, carrying the toothed die or wheel E, of the brackets I, the shaft K, the horn R, the spring Q, the rod O, and the foot-lever P, substantially as herein shown and described.

3. In a machine for ornamenting and embossing the under sides of soles, the combination, with the upright A and arm C, of the shaft D, the toothed die or wheel E, the brackets I, the shaft K, the rod N, the rod O, the lever P, spring Q, the nut M, and the horn R on the shaft K, substantially as herein shown and described.

315,776. END-THRUST PAD FOR PROPELLER AND OTHER SHAFTS. VALENTINE H. HALLOCK, Queens, N. Y. Filed Jan. 22, 1885. (No model.)

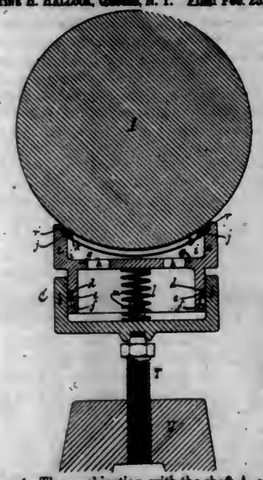


Claim.—1. The combination, substantially as hereinbefore described, with the shaft A and the pillow-block B, of a series of water-packed pads, C, secured to the pillow-block, and the flange D, which is securely fastened on the shaft in position to bear against the pads.

2. The combination, substantially as hereinbefore described, with the shaft A, the pillow-block B, the pads C, and the flange D, of the force-pump E, for injecting into all the pads the requisite supply of water.

3. The combination, substantially as hereinbefore described, with the shaft A, the pillow-block B, the pads C, and the flange D, of the force-pump E, its air-chamber *a*, and safety-valve *p*.

315,777. SUPPORTER-PAD FOR PROPELLER AND OTHER SHAFTS. VALENTINE H. HALLOCK, Queens, N. Y. Filed Feb. 25, 1885. (No model.)



Claim.—1. The combination, with the shaft A, and with the pillow-blocks or journal-boxes in which said shaft revolves, of a water-packed supporting-pad, substantially as shown and described.

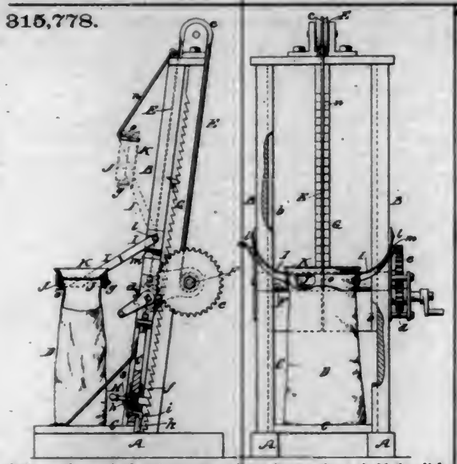
2. The combination, with the shaft A, its pillow-blocks or journal-boxes B B, and with the water-packed supporting-pad C, of the force-pump E, its air-chamber *a*, and safety-valve *p*, substantially as shown and described.

3. The combination, with the shaft A, its pillow-blocks or journal-boxes B B, and with the water-packed supporting-pad C, of the adjusting-screw T and base U, substantially as shown and described.

315,778. BAG HOLDER AND LIFTER. JOHN A. HAMICK, Traverse City, Mich. Filed June 19, 1884. (No model.)

Claim.—1. The combination, with the platform C, the guiding uprights B B, and the lifting-rope E, of the ratchet-rack G, and an automatic click or click-bolt arranged to engage with said rack to hold the

315,778.



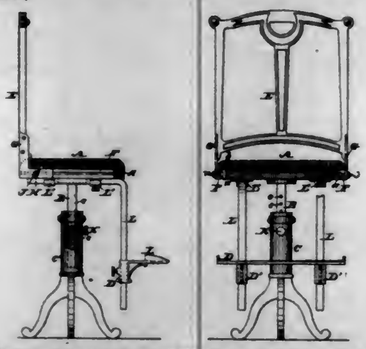
platform when raised, and an automatic catch operating to hold the click-bolt when released, substantially as specified.

2. A bag holder and lifter comprising the raising and lowering platform C, the guiding uprights B B, the swinging bag-holder frame I I, with its attached ring J, the upper ring or mouth-clamp, K, hinged to and fastening on or over the ring J, and a hook or fastening for retaining the bag-holding frame, with its attached rings, when raised, out of the way of the bag on the platform, essentially as described.

3. A bag holder and lifter comprising a raising and lowering platform for carrying the bag to be filled and raised, a pivoted or swinging bag-holder capable of being raised and lowered and of being opened and closed to hold the bag in an open position when being filled, and to be released from the bag and swung out of the way after the bag has been filled, and a ratchet-rack and automatic click or click-bolt arranged to hold the platform when raised, substantially as specified.

4. The combination, with the raising and lowering platform C and the ratchet-rack G, of the spring click-bolt H, the automatic catch *i*, arranged to engage with said bolt to hold the bolt released from the rack, and the stop *k*, for automatically releasing said catch from the bolt when the platform has completed its descent, essentially as described.

315,779. PIANO-STOOL. EDWARD B. HAYNES, Baltimore, Md., assignor to Archibald C. Haynes, same place. Filed Mar. 31, 1884. (No model.)

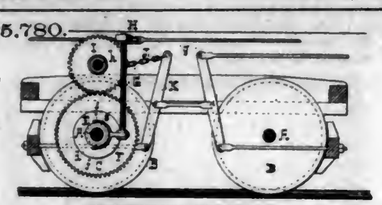


Claim.—A stool having the seat A, provided with sockets L', in combination with the angular-shaped arms L, and the adjustable foot-rest D, having sockets D', the vertical limbs of said arms L passing through said sockets D', substantially as and for the purpose set forth.

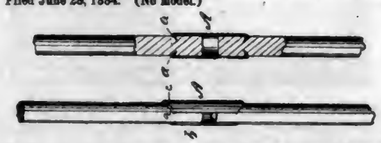
315,780. CAR-BRAKE. JOHN J. HENRY, Baltimore, Md., assignor of one-half to George Alexander Schaal, same place. Filed Oct. 23, 1884. (No model.)

Claim.—In a car-brake, the axle having a loose gear, with its hube provided with concentric annular V-shaped projections, combined with a fixed and a movable clutch on its axle, having similar projections, a gear fastened on an independent shaft interlocked with the first gear, a winding-chain which leads from the said independent shaft to a lever of any ordinary brake mechanism, and devices to operate the movable clutch, substantially as specified.

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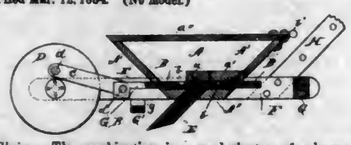


315,781. BELT-FASTENER. LEWIS W. HERRICK, Edmore, Mich., assignor to himself, Louis A. Roller, and Josiah H. Gibbs, all of same place. Filed June 28, 1884. (No model.)



Claim.—1. As an improved article of manufacture, a belt-fastener consisting, essentially, of the clip A, formed with an open side, *b*, through which the ends of a belt may be inserted, and with its ends inclined from the closed to the open side and toward each other, as shown at *c*, the said inclined ends being formed with inward-extending projections *a* along their inclined edges, substantially as set forth.

2. The clip A, having longitudinal opening *b*, for inserting the ends of a belt, and formed with its opposite ends inclined from the closed toward the open side and toward each other, the said inclined ends being formed along their edges with inward-extending projections *a*, rounded as shown at *a' a'*.

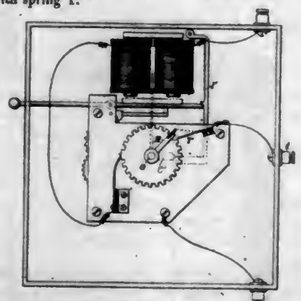
315,782. SEED-PLANTER. RODNEY L. HERRICK, Santa Barbara, Cal. Filed Mar. 12, 1884. (No model.)



Claim.—The combination, in a seed-planter, of a hopper, a frame supporting the hopper, a bottom for said hopper having front and rear perforations, a partition, *a*, located in said hopper between said bottom perforations, a block, *a'*, adapted to be inserted at either side of said partition *a* to cover either of the said perforations, a slide having two perforations and connected to the guide-wheel, substantially as set forth.

315,783. AUTOMATIC CALL FOR LATENT-SIGNAL TRANSMITTERS. F. BENEDICT HERZOG, New York, N. Y. Filed Mar. 5, 1885. (No model.)

Brief.—In setting the latent-signal mechanism arm R makes contact with spring T and closes circuit, ringing bell at central-office. On release of latent mechanism by act of central-office operator signal is turned in, and projecting piece of insulating material on arm R prevents contact with spring T.



Claim.—1. The combination, with a latent-signal transmitter at a sending-station, means to release it, and apparatus to respond to it and to calling apparatus at a distant station, and suitable circuit-connections between these two stations, of an automatic circuit-controlling call-transmitter at the sending-station, actuated by the latent-signal transmitter, whereby the receiving-station is without fail informed that the latent-signal transmitter is set, ready to be released, substantially as described.

2. The combination of two electric circuits connecting two stations, one circuit including a latent-signal transmitter placed at a sending-station, and the other circuit including call-receiving apparatus at the receiving-station, and an automatic circuit-controlling call-transmitter at the first station, actuated by the latent-signal transmitter, whereby the operation of the latter necessarily informs the receiving-station that the transmitter has been set, substantially as described.

3. The combination of a circuit including a latent-signal transmitter at a sending-station, means for releasing it, and apparatus for receiving its signal at a distant station, and an additional return-circuit including a call-receiver at a distant station, and at the sending-station an automatic circuit-controlling call-transmitter controlled by the actuation of the latent-signal transmitter, whereby the receiving-station is necessarily informed that the latent-signal transmitter is set, substantially as described.

4. The combination of a signaling system consisting of a central station electrically connected with two or more sub-stations, a latent-signal transmitter at each sub-station, apparatus to release it and respond to it at the central station, calling apparatus at the sub-stations, and a coil-receiving annunciator or indicator at the central station, together with means at the sub-stations whereby the actuation of the latent-signal transmitter automatically operates the call-transmitter, thus actuating the annunciator and informing the receiving-operator that the latent-signal transmitter is set, ready to be released, substantially as described.

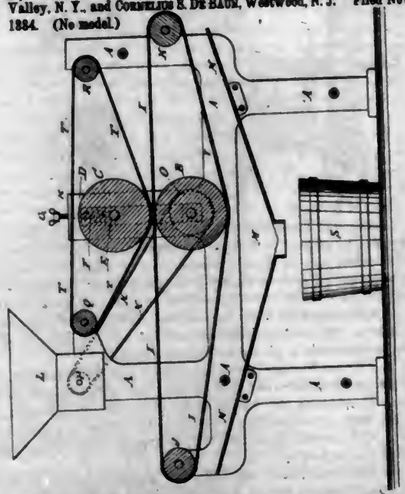
5. The combination of two or more separate circuits radiating from a central station, each circuit including a sub-station at which is a latent-signal transmitter, the central station at which is apparatus for releasing any desired one of the latent transmitters and for receiving its signal, together with an annunciator or indicator to indicate when a call is received, and an additional return circuit or circuits connecting at the central office with the annunciator, and at the sending-station with an automatic circuit-controlling call-transmitter actuated by the signal-transmitter to automatically connect the circuits, and thereby operate the annunciator, whereby the receiving-operator is informed that a latent transmitter is set and ready to be released, substantially as described.

6. The combination, with a spring-actuated automatic signal-transmitter at a sending-station, a call-receiver at the receiving-station, and suitable circuit-connections between the two stations, of an automatic circuit-controlling call-transmitter at the sending-station, actuated by the signal-transmitter when it is being wound, but not again operated by it at its unwinding, substantially as described.

7. The combination, with a latent transmitter, of the arm R, fixed to its spindle, and of the spring T, fixed to the frame in the path of the said arm, so that the arm makes electrical connection with the spring T in being set forward, substantially as described.

8. The combination, with an automatic signal transmitter, of the arm R, fixed to the spindle and tipped with an insulating-block, as shown, and of the spring P, fixed to the frame of the instrument in the path of the said arm, so that the arm makes electrical connection with the spring when turned in one direction and does not when turned in the other, substantially as described.

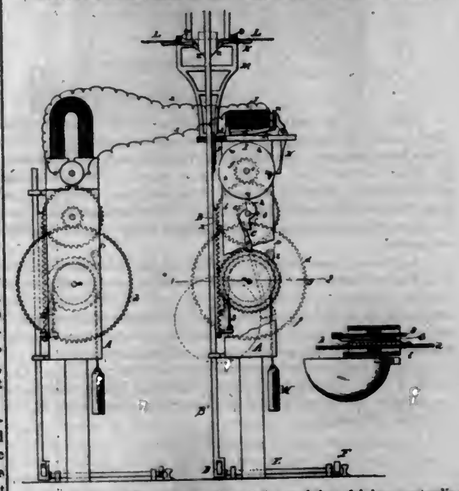
315,784. CIDER AND WINE PRESS. DAVID G. HENDRON, Spring Valley, N. Y., and CORNELIUS S. DE BAUN, Westwood, N. J. Filed Nov. 4, 1884. (No model.)



Claim.—1. A cider and wine press constructed substantially as herein shown and described, and consisting of the spring-pressed rollers B C, endless belt T and its guide-rollers Q R, the endless belt I and its guide-rollers J K, and the hopper-shaped spout M, extending below the belt I from roller J to roller K, as set forth.

2. The combination, with a grater, L, of the endless belt I below the grater, guide-rollers J K, the spring-pressed pressure-rollers B C, the endless belt T, the guide-rollers Q R, and a driving mechanism, and the hopper-shaped spout M, extending below the entire lower surface of the belt I, substantially as herein shown and described, whereby the juice will be expressed from the pomace as it comes from the grater in a continuous operation, as set forth.

315,785. ELECTRIC RAILROAD-SIGNAL. JUSTIN HINDS and LORENZO L. STEPHENSON, Boston, Mass. Filed May 16, 1884. (No model.)



Claim.—1. The combination of the rack-bar driving a retarding mechanism, a sliding bar connected to levers arranged to be operated by a passing train and having a bearing upon the rack-bar, and a weight for lifting the rack-bar after the sliding bar has been raised, substantially as specified.

2. In an electric railroad-signal, the combination, with a distant generator, of a signal device provided with a sliding bar and means for lifting it by a train, a rack-bar and weight, whereby the same is raised when the sliding bar is elevated, a detent holding the bars in their raised position, an electro-magnet connected with the generator and operating when excited to move the detent, and means, substantially as described, for retarding the descent of the bars, substantially as specified.

3. The combination, with the driving rack-bar and weight for lifting it, of an independent sliding bar connected to levers operated by the train and provided with a bearing, whereby the sliding bar can rise independently of the rack-bar, but carries the latter downward with it, for the purpose set forth.

4. The combination, with an independent sliding bar connected to levers operated by the train, of the sliding rack-bar, train of wheels having a ratchet connected to a toothed wheel gearing with the rack-bar turning on the pinion of a wheel, *d*, and pawls on said wheel engaging with the ratchet, substantially as set forth.

5. The combination, with the weighted rack-bar and the train of gear, of a disk carrying pins, an electro-magnet electrically connected with a distant generator, and a suspended lever carrying the armature and arranged to make contact with the said pins, substantially as set forth.

6. In a railway-signal, the combination of the sliding target-bar, the gears, disk, electro-magnet, armature and lever having an angular end, and pins on the disk having angular edges, substantially as set forth.

7. The combination, with the armature of the magnet and with the sliding bar, of an arm or lever arranged to bear on the armature and to be struck by a projection on the bar, substantially as described.

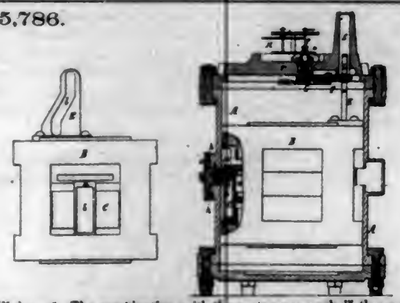
8. The combination of the sliding bar, one or more wings upon the same, one or more signal-panels hinged to a frame at the upper edges, and connections to swing the panels to different positions as the bar moves, substantially as specified.

9. The combination, with the frame, the sliding bar adapted to be operated by a passing train, and target-panels hung to the frame, of connections on the bar, whereby the latter are moved from the bar to vertical, horizontal, and inclined positions, substantially as described.

10. The combination of the sliding bar, counterbalanced lever P, connected to the lantern-frame, weight upon the bar, and flexible connection between the weight and lever, substantially as described.

315,786. REGISTERING DEVICE FOR WATER-METERS. FREEMAN W. HOOD, Boston, Mass. Filed May 31, 1884. (No model.)

315,786.



Claim.—1. The combination, with the meter case or shell, the main piston thereof, and the primary arbor of the regulator, of mechanism, substantially as described, consisting of the slotted standard, (projected from the piston-head or upper end,) the ratchet-wheel and its tubular and grooved spindle, (applied to the head of the case,) and the arm and its pawl, such arm being revoluble on the said spindle and extended into the slot of the standard, and all being arranged and to operate essentially as specified.

2. The meter case or shell provided with the hood extending from and opening through its upper head, in combination with the slotted standard projecting from the main piston, and with the ratchet-wheel and its spindle, and with the actuating-arm extended into the said standard and provided with a pawl, and arranged, as described, with the ratchet-wheel, all being substantially and to operate as set forth.

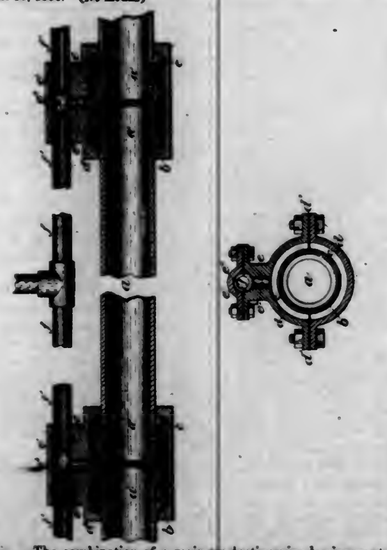
315,787. CARRIAGE-SHAFT TIP. ARTHUR L. HOWARD, New Haven, assignor to Woodruff, Miller & Co., Mount Carmel, Conn. Filed July 15, 1884. (No model.)



Claim.—1. As a new article of manufacture, a sheet-metal carriage-shaft tip having its outer end and wearing-point of greater thickness than the remaining portion, substantially as and for the purpose set forth.

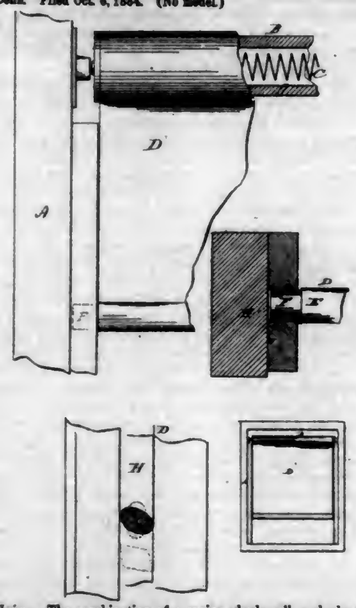
2. As a new article of manufacture, a sheet-metal carriage-shaft tip of gradual taper exteriorly from its inner to its outer end, and having its outer end and wearing-point of greater thickness than the remaining portion, substantially as and for the purpose set forth.

315,788. GAS-CONDUCTOR. JAMES HUNTER, Pittsburg, Pa. Filed Mar. 16, 1885. (No model.)



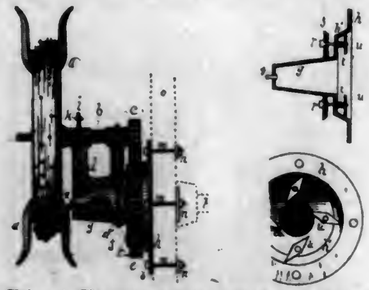
Claim.—The combination of a main conducting-pipe having waste-chambers around the joints, with a waste-conductor supported on said main conductor in coupling-boxes formed on said waste-chambers, and provided with removable caps, substantially as and for the purposes described.

315,789. CURTAIN-FIXTURE. JAMES A. ILLINGWORTH, Meriden, Conn. Filed Oct. 6, 1884. (No model.)



Claim.—The combination of a spring shade-roll, a shade one edge of which is attached to said roll, a bar in the free end of said shade constructed with an extension at each side the shade to form trunnions F, and a groove in each jamb into which said trunnions extend, said trunnions in width between opposite bearing-points greater than the width of the groove, but at other points narrower than the groove, the said shade attached to one edge of the bar and in line with the greatest width of the trunnions, substantially as described.

315,790. REEL FOR CHECK-ROW WIRE. CHARLES F. JAMES, Marcos, and FLOYD N. CARDER, Lincoln, Ill. Filed Jan. 22, 1885. (No model.)



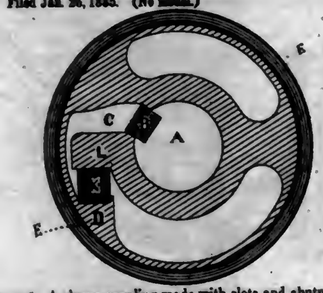
Claim.—1. The combination, in a reel for check-row wire, of tubular hub *g*, adapted to fit over the outer extremity of the hub of a planter-wheel and be securely attached to said wheel, a friction-plate having lateral motion on said hub *g* and partaking of its rotary motion, a cogged band, *e*, adapted to lie loosely on hub *g* or partake of the motion of the same, according as the tension-plate is tightened or loosened, and a pinion, *c*, rigid on a reel-shaft and arranged to mesh with the cogged band, substantially as and for the purpose set forth.

2. The combination of hub *g*, bearing *h'*, suitable means for securing the same to the wheel of a planter, friction-plate *f*, and suitable means for adjusting the same laterally with reference to bearing *h'*, a cogged band, *e*, on bearing *h'*, subject to the tension of plate *f*, and a pinion, *c*, on a reel-shaft in mesh with the cogged band, substantially as and for the purpose set forth.

3. The combination, with hub *g* and adjustable band *e*, of bearing *d d'*, loosely mounted on hub *g* and braced from the planter-frame, shaft *b*, pinion *c*, and reel *a*, as and for the purpose set forth.

4. The combination of bearing *h'*, projections *s*, cogged band *e*, friction-plate *f*, bolts *r*, springs *t*, and nuts *u*, for the purpose of transmitting power from a planter-wheel to a check-row-wire reel, as set forth.

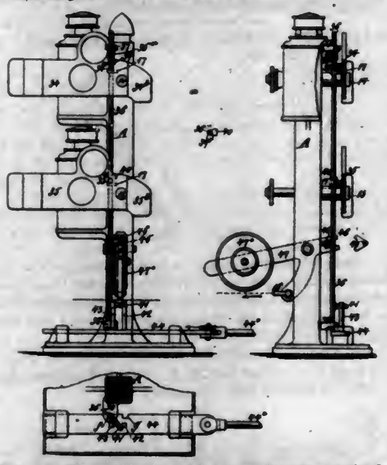
315,791. SHAFT-COUPLING. CHRISTOPHER R. JAMES, Jersey City, N. J. Filed Jan. 26, 1885. (No model.)



Claim.—1. A sleeve-coupling made with slots and abutments, substantially as shown and described.

2. A coupling having slots for keys, and with keys securing the ends of two shafts, all substantially as shown and described.

315,792. RAILWAY-SIGNAL. HENRY JOHNSON, Flixton, County of Lancaster, England. Filed Jan. 8, 1885. (No model.)



Claim.—1. The combination, with a semaphore-arm or visual signal, and a stop-plate having a connection with a switch to be moved therewith, of a rod arranged between said signal and stop-plate, a removable connection between the said signal and rod, and a connection between the said rod and stop-plate, whereby the said rod may be turned by the said plate to remove and replace the connection between the said rod and signal as the stop-plate is withdrawn from or replaced under the said rod, substantially as and for the purpose herein described.

2. The combination, with two semaphore-arms or visual signals, and a stop-plate having a connection with a switch to be moved therewith, of a rod arranged between said signal and stop-plate, a removable connection between the said rod and signal, and a connection between said rod and stop-plate whereby the said rod may be turned by the said plate to connect either signal and disconnect the other, according to the direction in which the said stop-plate moves with the switch, substantially as herein described.

3. The combination of the semaphores or signals 34 35, having projections 34* 35*, and the stop-plate 44, having two openings, as *f g*, the turning and longitudinally-moving rod or shaft 36, having projections 39 40, to act upon those 34* 35* on the signals, and geared with the said stop-plate, substantially as herein described.

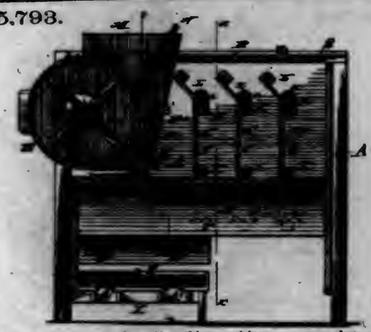
315,793. PEANUT CLEANER AND GRADER. JOHN JOHNSON, Norfolk, Va. Filed Apr. 15, 1884. (No model.)

Claim.—1. The combination, with a feed-hopper, fan-case, and fan, of a series of blast-chutes provided with regulating-valves and having their discharge ends terminating in a plane inclining backward, as described, and arranged below said feed-hopper, substantially as specified.

2. In a peanut-cleaner, the combination of the box or casing, a fan, and a series of adjustable transverse partition-screens, and an angular floor in the casing, substantially as set forth.

3. The combination of the box or casing having an inverted-V-shaped bottom, the hinged doors terminating above the lower edges of said bottom, the fan-case having two or more upwardly-inclined spouts

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or blast-openings, and the adjustable partition-screens, substantially as set forth.

4. The combination, with the box having an inverted-V-shaped bottom, of an adjustable partition-screen comprising a saddle straddling the said bottom, a series of vertical slats, and a cap-piece, substantially as set forth.

5. In a peanut-cleaner, an adjustable partition-screen provided at its upper edge with a hinged and adjustable gate, substantially as and for the purpose set forth.

6. The combination of the box or casing having an inverted-V-shaped bottom and provided with side doors terminating above the edges of the said bottom, the fan, the case of which is provided with a series of blast-openings, as described, and the adjustable partition-screens provided with hinged top gates, substantially as set forth.

7. In a peanut-cleaner, the combination, with the box or casing having an inverted-V-shaped bottom, of the picking-tables hinged to the sides of the same and provided with flanges, beveled bottom edges, and triangular openings surrounded by flanges, substantially as and for the purpose set forth.

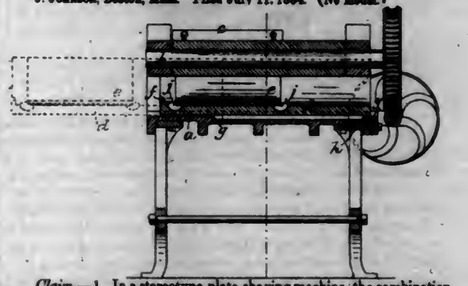
8. The combination, with the hinged picking-table, of the bench having an inclined top provided with guide-flanges and exit-openings, substantially as and for the purposes set forth.

9. The inclined picking-tables having openings surrounded by flanges that serve to deflect the nuts to either side, substantially as set forth.

10. The hinged picking-tables provided with ribs and outlets, in combination with the inclined bottom of a peanut-cleaning machine, substantially as described.

11. The combination of a fan-case having a series of parallel inclined blast-chutes directed upwardly, a hopper located over the same, and one or more partitions arranged in a case and provided with adjustable gates, substantially as described.

315,794. MACHINE FOR SHAVING STEREOTYPE-PLATES. WM. J. JOHNSON, Boston, Mass. Filed July 11, 1884. (No model.)



Claim.—1. In a stereotype-plate-shaving machine, the combination, with the revolving shaving-knife, of the concave frame *a* and the concave bed *d*, guided therein by longitudinal ribs, substantially as described.

2. The combination, with the rotating cutter, of the concave frame *a* and the concave bed *d*, guided therein by longitudinal ribs, said bed *d* provided with cavities *j j* and lug *f*, substantially as described.

3. In a stereotype-plate-shaving machine, the combination, with a longitudinally-movable bed having a concave face free from flanges, of a supporting-frame having flange *k*, which extends slightly over the concavity in the bed, to hold the plate down in the operation of shaving, substantially as described.

315,795. PAPER WREATH. CHARLES KAUFMANN, New York, N. Y. Filed Oct. 15, 1884. (Model.)

Claim.—1. In an imitation wreath, the combination, with a circular piece of paper or card-board, of separate pieces secured on the face

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of the same, the face of the circular piece being printed in colors to represent a wreath of leaves or flowers, substantially as herein shown and described.

2. In an imitation wreath, the combination, with the circular piece A, printed in colors, in imitation of a natural wreath, of separate leaves secured at their stem ends on the colored face of the piece A, substantially as herein shown and described.

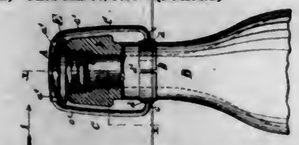
3. In an imitation wreath, the combination, with the circular piece A, printed in colors, in imitation of a wreath, of the leaves B, having tongues C passed through slots in the piece A, and secured to the back of the piece A, substantially as herein shown and described.

315,796. SNAP-HOOK. JAMES B. KENT, Delaware, Ohio. Filed Feb. 18, 1885. (No model.)



Claim.—The combination of the hook A B, having the slotted swell or enlargement E, and spring G, attached to the under side of the hook, and provided with the curved finger I, projecting through slot F, and having the laterally-projecting finger-piece H, the finger and finger-piece being integral portions of the spring, substantially as and for the purpose herein shown and described.

315,797. BOTTLE-STOPPER. ALONZO F. KENT, New York, N. Y., assignor to the New York Bottlers' Supplies Manufacturing Company, (Limited.) Filed Jan. 30, 1885. (No model.)



Claim.—1. In a bottle-stopper, the combination of the screw-cap A, bail C, and neck-band D, the said bail being attached with its central portion to the cap and pivoted with its ends to opposite points of the band, and the said band being free to turn and slide upon the neck B.

2. In a bottle-stopper, the combination of the screw-cap A, bail C, and neck-band D, the said bail being attached with its central portion to the cap, and having its ends *c* bent inward to act as pivots for the bail, and the said band having at opposite points a perforated rise, *d*, to receive the ends *c*, and being free to turn and slide upon the neck B.

3. In a bottle-stopper, the combination, with the screw-cap A and bail C, attached together and pivoted substantially as described, of the spring-band D, having a continuous rise, *d*, perforated at opposite points to receive the bail ends *c*.

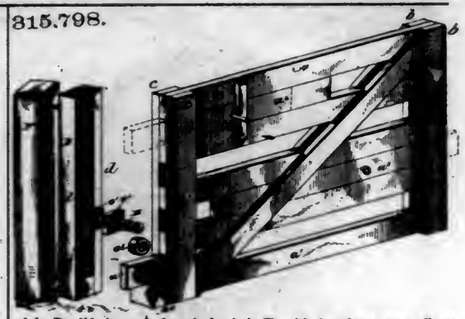
4. In a bottle-stopper, the combination, with the neck-band D and the bail C, pivoted thereto, of the screw-cap A, rigid upon the central portion of the said bail, and the packing-ring E, fitted underneath the cap-flange *a'*, to rest against the side of the bottle when the cap is swung aside, substantially as and for the purpose set forth.

315,798. FARM-GATE. JOHN H. LANEY, Indiana, Pa. Filed July 1, 1884. (No model.)

Claim.—1. In a gate, the headed bolt or rod E, provided with nuts a', a^2, and a^3, and combined with the uprights C B, swinging upright D, slide-bar a^3, and fixed bar *a*, substantially as described.

2. The vertically-adjustable gate, its posts F H, the swinging upright D, slide-bars a^3 a^2, and the bolt E, with its clamp-nuts, all combined substantially as described.

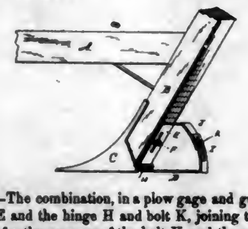
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3. In a gate, the combination of the upright C, the fixed and projecting guide-rail *a*, and slide-rail a^2 with the bolt E and its clamp-nuts, and the swinging upright D, as described.

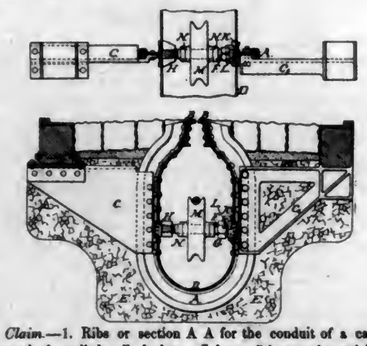
4. In a gate, the combination of the upright C, slide-rail a^2, fixed guide-rail *a*, and block a^4 with the swinging upright D and the bolt E, provided with clamp-nuts, all as described.

315,799. PLOW-GAGE. JAMES B. LAW, Darlington, S. C. Filed Aug. 9, 1884. (No model.)



Claim.—The combination, in a plow gage and guide, of the two sections D and E and the hinge H and bolt K, joining them, the section D being slotted for the passage of the bolt K, and the section E being slotted for attachment to and vertical adjustment upon a plow-standard, B substantially as shown and described.

315,800. CABLE RAILWAY. WILLIAM M. LEVERING, Philadelphia, Pa. Filed Feb. 3, 1885. (No model.)



Claim.—1. Ribs or section A A for the conduit of a cable road, composed of a rolled rail, deck or "I beams" bent substantially in the form shown, and extending nearly to the surface of the roadway, to the inner flange of which the slot-irons are riveted or bolted, and on the ends of which the slot-irons may rest, in combination with brackets formed of a single plate of rolled iron bent and united or bolted to the frame A A, and extending to and supporting the rails or rail-stringers, substantially as described.

2. A bracket for connecting the conduit of a cable railway to the tram-rails or rail-stringers, consisting of a single plate of wrought or rolled metal of nearly uniform thickness secured to the main frame of said conduit by bolting or riveting, and having suitable supports for the tram-rail or rail-stringer riveted or bolted thereto, substantially as shown.

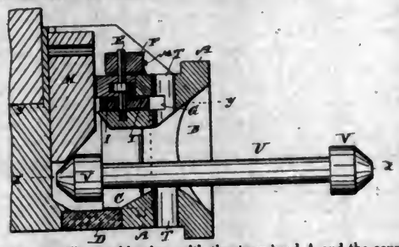
3. A permanent way for cable railways, consisting of a rolled rail, deck or I beam, A, bent in the form substantially as shown, forming a frame, in combination with the slot-irons B B, plate D, riveted to the interior of said frame, brackets C C', riveted or bolted to said frame and supporting the tram-rails or rail-stringers, and a continuous mass of concrete surrounding the same, substantially as shown and described.

4. In commutation with a cable-motor or other slotted conduit, jack-screws F, forming an integral part of the permanent construction, as and for the purpose set forth.

5. In a cable or other slotted conduit, the jack-screw F, forming a bearing or support for a cable-supporting pulley, and devices for keeping said jack-screw in position and preventing its rotation, substantially as shown and described.

6. A slot-iron for cable railways substantially of the form shown, having a general shape of an I-beam or T-beam with half a lower flange, with the flanges at an obtuse angle with the web, said web being rolled in a curved form to fit the bend in the rail forming the frame.

315,801. CAR-COUPLING. ISAAC LINTHICUM, Liberty, Nebr. Filed Nov. 28, 1884. (No model.)



Claim.—1. The combination, with the draw-head A and the coupling-pin U, of the vertically-sliding block K in the rear part of the same, substantially as herein shown and described.

2. The combination, with the draw-head A, of the pivoted wings H, the springs J J', the shaft E, the cam-piece I, the block or disk F, the chain M, the shaft O, and the drum or pulley N, substantially as herein shown and described.

3. The combination, with the draw-head A, of the pivoted wings H, the shaft E, the cam-piece I, the disk or block F, the chain M, the shaft O, the drum or pulley N, the disk Q, having a notch, R, and the locking-lever S, substantially as herein shown and described.

4. In a car-coupling, the combination, with the draw-head and the coupling-pin, of the sliding beveled bar and the magnet disposed below the said sliding bar, substantially as and for the purpose set forth.

315,802. LIGHTING DEVICE FOR STREET-LAMPS. A. PARLETT LLOYD and FRANK Y. MACDONALD, Baltimore, Md. Filed June 3, 1884. (No model.)

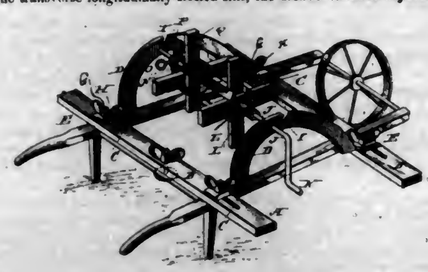


Claim.—1. In a street-lamp, the fulminate lighting device located at the burner, and the operating locking device located away from the burner, in combination with the intermediate connecting device, *h g b*, as set forth.

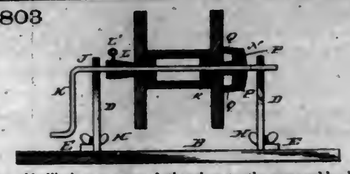
2. In a street-lamp, the fulminate lighting device located at the burner, and the intermediate connecting device, *h g b*, in combination with the locking device consisting of the tube *m*, having the slot, the cylinder *n* in such tube, and having the plug *p* and the notch, and the spring *o*, all combined and arranged as and for the purpose set forth.

315,803. FENCE-WIRE-WINDING DEVICE. WILLIAM LOGAN, Prairie du Sac, Wis. Filed Sept. 15, 1884. (No model.)

Claim.—1. In a device for winding fence-wire, the combination of the transverse longitudinally-slotted sills, the arched brackets adjustable upon the said sills by screws and thumb-nuts, the removable shaft having an adjustable conical sleeve, and a collar provided with arms having laterally-extending fingers, and a reel or spool adjustable upon the said shaft, substantially as and for the purpose set forth.

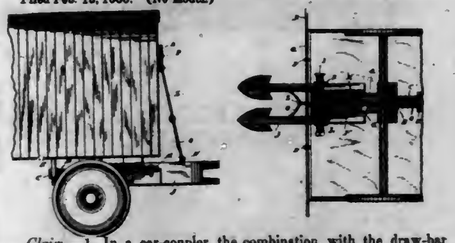


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2. In a device for winding fence-wire, the combination, with suitable supporting-brackets laterally adjustable upon transverse sills, of a shaft journaled removably in the said brackets, a conical sleeve adjustable upon the said shaft, and an adjustable collar having an inwardly-extending conical projection and provided with radial arms having inwardly-extending fingers, substantially as and for the purpose set forth.

315,804. CAR-COUPLING. HENRY C. MAGRUDER, Richmond, Va. Filed Feb. 18, 1885. (No model.)



Claim.—1. In a car-coupler, the combination, with the draw-bar having its forward portion tapered near its point of connection with said draw-bar, and provided with an aperture near its forward end, the bolt, and the coupling-hooks provided with apertures and fitting on said bolt, of the springs interposed between the washer and the nuts, whereby the coupling-hooks are allowed to give during the entrance of the opposite hook.

2. In a car-coupler, the combination, with the draw-bar and the coupling-hooks secured to said bar, of the rod extending through apertures in the coupling-hooks and above the draw-bar, whereby the hooks are kept in a horizontal plane.

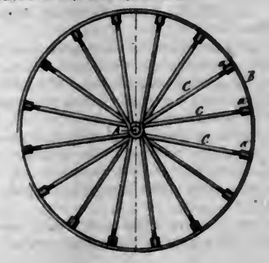
3. In a car-coupler, the combination, with the draw-bar and the coupling-hooks secured thereto, and each provided with a staple, of the bail, the rod, and the transverse bar having a U-shaped portion and cranks, whereby when the cranks are turned the coupling-hooks are elevated.

4. In a car-coupler, the combination, with the draw-bar having an aperture, the rod fitting in said aperture and surrounded by a spring, the depending bracket having a collar and supporting said rod, of the coupling-hooks provided with slots and apertures

5. In a car-coupler, the combination, with the draw-bar and the coupling-hooks secured to said bar, and the rod extending through the apertures in the coupling-hooks and above the draw-bar, of the bail connected with the hooks, the rod, and the transverse bar having a U-shaped portion and cranks, whereby when the cranks are turned the coupling-hooks are elevated.

6. In a car-coupler, the combination, with the draw-bar having an aperture in its forward portion, the bolt, the coupling-hooks having apertures, and the springs interposed between the washers and the nuts on the bolt, of the bail connected with the hooks, the rod, and the transverse bar having a U-shaped portion and cranks, whereby when the cranks are turned the coupling-hooks are elevated.

315,805. METALLIC WHEEL. JUSTUS W. MARSHALL, Cazenovia, N. Y. Filed Nov. 28, 1884. (No model.)



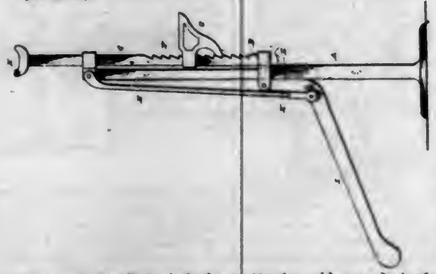
Claim.—In combination with the felly and axle, spokes formed in pairs of a continuous rod lapped at its center around the axle and screw-threaded at both ends, and two screw-threaded thimbles pivoted in the felly and screwed onto the two ends of the aforesaid rod, substantially as described and shown.

315,806. VENTILATED GARMENT. CHARLES I. E. MARTIN, Brooklyn, N. Y. Filed May 23, 1884. (No model.)



Claim.—A garment having a series of ventilating-apertures formed in its surface, said apertures being provided with overhanging flaps or shedding-lips, substantially as set forth, and for the purposes specified.

315,807. LIFTING-JACK. THOMAS MAXON, Dayton, Ohio, assignor of one-half to James W. Carpenter, same place. Filed Nov. 28, 1884. (No model.)



Claim.—1. In a lifting-jack, the combination, with a standard, of a lift-bar and a lever-handle with movable fulcrum-supports, said handle having its shorter arm at an angle to the longer arm and pivoted to the lower portion of the said lift-bar, the side of the shorter arm coinciding with the standard being straight and flat so as to rest against the same and lock the lift-bar, substantially as and for the purpose specified.

2. In a lifting-jack, the combination, with a standard, of a lift-bar having teeth on it, a bracket adjustable on said bar, a handle with an extension at an angle thereto, and suspensory links, substantially as and for the purpose specified.

3. In a lifting-jack, the combination, with a standard having a portion of its length narrowed, of a toothed lift-bar, an adjustable bracket on said bar, a handle with an extension at an angle thereto, and suspensory links, substantially as and for the purpose specified.

4. In a lifting-jack, the combination, with a standard narrowed through a portion of its length and provided with an extended head, of a toothed lift-bar beveled and shouldered at its upper end, a cap for said end, a bracket adjustable on said bar, a handle with an extension at an angle thereto, and suspensory links, substantially as and for the purpose specified.

5. In a lifting-jack, a lever-handle having its shorter end or arm at an angle to the longer, one edge or side of said arm being straight or flat, substantially as and for the purpose specified.

6. In a lifting-jack, in combination with a lift-bar beveled at its top, a cap with a beveled passage for the end of said bar, substantially as and for the purpose specified.

7. In a lifting-jack, the combination, with a standard having a portion of its length narrowed, of a lift-bar carrying a bracket, substantially as and for the purpose specified.

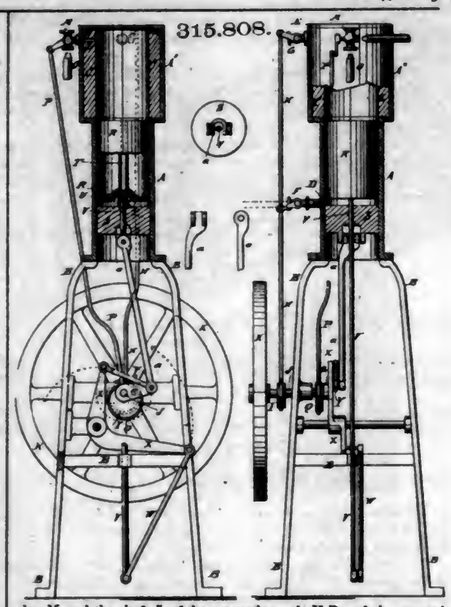
315,808. GAS-ENGINE. THOMAS MCDONOUGH, Montclair, N. J. Filed Nov. 11, 1884. (No model.)

Claim.—1. In a gas-engine, the combination, with the cylinder A, closed at its upper end to form a combustion-chamber, and open at its lower end, of the long piston R, the short piston S, below the same within said cylinder, inlet, exhaust, and ignition valves, and an operating mechanism, substantially as described.

2. In a gas-engine, the combination, with the combustion-chamber A', the cylinder A, the short piston S, and an operating mechanism, of the long piston R, substantially as herein shown and described, whereby the gas will be compressed, ignited, expanded, and discharged at each revolution, as set forth.

3. In a gas-engine, the combination, with the cylinder A, the combustion-chamber A', the inlet-valve F, the exhaust-valve G, the ignition

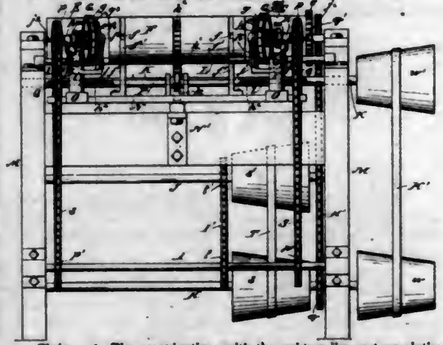
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valve M, and the shaft J, of the connecting-rods H P, and the eccentrics I Q, substantially as herein shown and described, whereby the said valves will be opened and closed at each revolution of the said shaft, as set forth.

4. In a gas-engine, the combination, with the two pistons R S and the shaft J, of the piston-rods V a, the connecting-rods W Y, the elbow-lever X, and the crank Z, substantially as herein shown and described, whereby motion will be given to the said shaft, and the said pistons will be made to move at the proper times and in the proper directions, as set forth.

315,809. TENTERING-MACHINE. ANDREW MCLEAN, New York N. Y. Filed Jan. 30, 1884. (No model.)



Claim.—1. The combination, with the guide-roller and regulating-roller and means for revolving the same, of the obliquely and independently arranged stretching and feeding wheels G G at opposite ends of said regulating-roller, and mechanism, substantially as described, for increasing or diminishing the speed of the said stretching-wheels either simultaneously or separately, as set forth.

2. The rollers F E D and means for revolving the same, in combination with the obliquely-arranged stretching and feeding wheels G G, spindle j^2, sprocket-wheels p on said spindles, shaft I, sprocket-wheels p' on the same, chains S, shafts H J, means for revolving the shaft H, oppositely-inclined pulleys s s' on said shafts H J, pulleys t t' on shafts I J, and the chain I', substantially as set forth.

3. The rollers A B C D E and their pinions a b c d e, the pinion c having a sliding movement on its shaft, the feeding and stretching wheels G G, and devices for driving said wheels from the roller D, substantially as set forth.

4. The combination of the gudgeon-blocks O, having upward-extending gudgeons O', with the head-pieces Q, pivoted on said gudgeons, set-screw l, vertically-adjustable journal-plates R R, secured to the ends of said head-pieces, and the stretching and feeding wheels G G, held to rotate in said journal-plates.

5. The combination, with the feeding and stretching wheels G G, the rollers A B C D E, and means for revolving the same, of the regulating-roller F, supports f', in which the shaft of said roller is journaled, pinion k^2, shaft L, shaft K, pinion k thereon meshing with pinion k', shaft H, sprocket-wheels q q', and chain H', for connecting shaft H with the shaft of the roller D, means for revolving the wheels G G from shaft H, the cone-pulleys w w' on said shafts H K, and a belt connecting said pulleys, substantially as set forth.

6. The feeding and stretching wheel G, composed of the conical casting g^2, segmental plates g^3, and spring g^4, the plates g^3 being formed with arms k^3 k^4, the latter having knobs k^5, in combination with the cone-nut j^3, and the adjusting-nut j^4, substantially as set forth.

7. The combination, with the cone g^2, plate g^4, and segmental plates g^3, having arms k^3, held to slide between said cone and plate, of the cone-nut j^3 and an adjusting-nut, j^4, substantially as set forth.

8. The segment-plates g^3, formed with a series of steps having serrations or teeth g i^2, and arms k^3, in combination with the cone g^2, plate g^4, cone-nut j^3, and an adjusting-nut, j^4, substantially as set forth.

9. The combination, with the obliquely-arranged stretching and feeding wheels G G and means for rotating the same, of the guide-roller D, its rings D^2, means for adjusting said rings toward or from each other, and means for revolving said roller D, substantially as set forth.

10. The cone-nut j^3, formed with the notches c', in combination with the adjusting-nut j^4, provided with the friction-pawl c^3, substantially as and for the purpose set forth.

11. The guide-roller D, composed of the slats d'', cut away to form slots d^3, and rims D^2, formed with the arms A and collar A' and circumferential groove k^2, in combination with the nuts k^3, yokes k^4, and the adjusting right and left hand screw-shaft D^3, arranged to operate substantially as and for the purposes set forth.

315,810. MOUTH-PIECE FOR BRASS MUSICAL INSTRUMENTS. C. MEISSER, Philadelphia, Pa., assignor to Peter Thomsen, same place. Filed Feb. 12, 1884. (No model.)

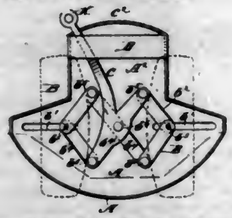


Claim.—1. A mouth-piece having its tube provided with a device in which are passages of different sizes, whereby the bore of said tube is varied in its width, substantially as described.

2. A mouth-piece of a brass musical instrument, provided with a disk having passages of different diameters, either of which may be placed in communication with said mouth-piece, thus varying the width of the bore in the tube of the mouth-piece, substantially as and for the purpose set forth.

3. A mouth-piece having a rotatable disk with passages of different diameters, and means for retaining said disk in position, substantially as and for the purpose set forth

315,811. GLOVE OR SHOE FASTENING. EDWARD W. A. METER, Boston, Mass. Filed Jan. 23, 1885. (No model.)



Claim.—1. In a glove and shoe fastening, the combination, with a slotted plate, of the lazy-tongs with their ends connected to the glove or shoe, and a lever with its arms connected to an upper and a lower member or link at opposite ends of said lazy-toogs, substantially as and for the purpose set forth.

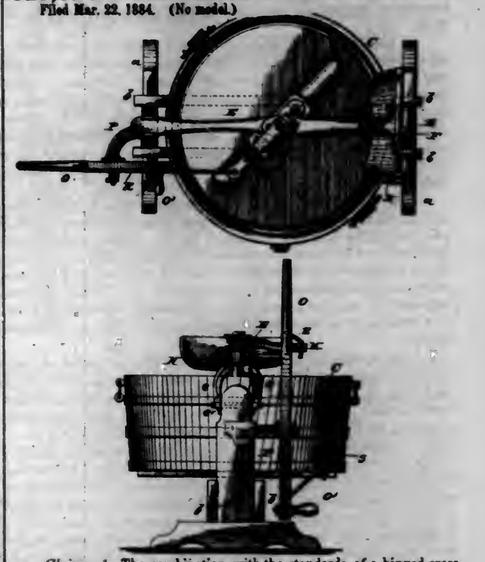
2. In a glove and shoe fastening, the combination, with a slotted plate, of the lazy-tongs with their ends connected to the glove or shoe by pins passed through the slots of said plate, and the lever with its arms connected to an upper and lower member or link at opposite ends of said lazy-tongs, substantially as and for the purpose set forth.

3. In a glove and shoe fastening, the combination, with the slotted plate and attaching-plates, of the lazy-tongs with their ends connected to said attaching-plates by pins passed through said slotted plate, and the lever with its arms connected to an upper and a lower member or link at opposite ends of said lazy-tongs, substantially as and for the purpose set forth.

4. In a glove and shoe fastening, the combination, with the plate having slots, of the lazy-tongs with their ends provided with pins passed through said slots, and connected to plates disposed upon the opposite side of the slotted plate, and the lever with its arms pivoted to an upper and a lower member or link at opposite ends of said lazy-tongs, said lever being pivoted about centrally of its said arms to the slotted plate, substantially as and for the purpose set forth.

5. In a glove and shoe fastening, the combination, with a plate having slots, and having teeth c^2 formed on one edge, of lazy-tongs on the said plate, the ends of which tongs are adapted to be connected with the glove or shoe, and a handle-lever extending from one member of the lazy-tongs and provided with a prong, c', adapted to engage with the teeth c^2, substantially as herein shown and described.

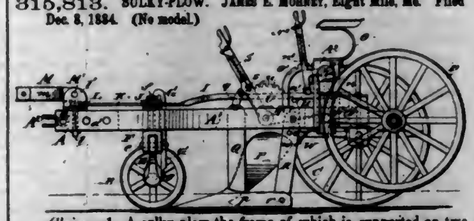
315,812. WASHING-MACHINE. JOHN E. MITCHELL, Keokuk, Iowa. Filed Mar. 22, 1884. (No model.)



Claim.—1. The combination, with the standards, of a hinged cross-bar and a supporting-bracket, which latter receives the free end of the cross-bar, and a ring arranged upon said cross-bar to engage the bracket, substantially as set forth.

2. The combination, with the standards A and B, of a cross-bar hinged to the standard A by arms e e below the top edge of the tub, a bracket projecting from the standard B, and a ring pivotally secured upon the cross-bar to engage said bracket, substantially as set forth.

315,813. SULKY-PLOW. JAMES E. MOHNEY, Eight Mile, Mo. Filed Dec. 8, 1884. (No model.)



Claim.—1. A sulky-plow the frame of which is supported on two furrow-wheels journaled on the outer end of horizontally-movable axle-arms pivoted at or near their inner ends to the frame, said axle-arms being connected to swing the furrow-wheels bodily toward and from each other by the swinging of one of the wheels, and a land-wheel journaled on a horizontally-movable axle-arm pivoted at its forward end to the rear end of the plow-frame opposite the rear furrow-wheel, substantially as herein set forth.

2. A sulky-plow the frame of which is supported on two furrow-wheels journaled on the outer ends of horizontally-movable axle-arms pivoted at or near their inner ends to the frame, said axle-arms being connected to swing the furrow-wheels bodily toward and from each other by the swinging of one of the wheels, and a land-wheel journaled on a horizontally-movable axle-arm pivoted at its forward end to the rear end of the plow-frame opposite the rear furrow-wheel, and said land-wheel axle-arm being vertically adjustable on the plow-frame, substantially as herein set forth.

3. A sulky-plow the frame of which is supported on two furrow-wheels journaled on the outer ends of horizontally-movable axle-arms pivoted at or near their inner ends to the frame, and connected to each other and to the tongue of the plow so as to be swung toward and from

each other by the swing of the tongue, and a land-wheel journaled to a horizontally-swinging axle-arm pivoted at its forward end to the rear end of the plow-frame opposite the rear furrow-wheel, substantially as herein set forth.

4. A sulky-plow the frame of which is supported on two furrow-wheels journaled on the outer ends of horizontally-movable axle-arms pivoted at their inner ends to the front and rear ends of the frame, said axle-arms being connected to swing the furrow-wheels bodily toward and from each other by the swinging of one of the wheels, the front furrow-wheel being vertically adjustable, and a land-wheel journaled on a horizontally-movable axle-arm pivoted at its forward end to the rear end of the plow-frame opposite the rear furrow-wheel, substantially as herein set forth.

5. A sulky-plow the frame of which is supported on two furrow-wheels journaled on the outer ends of horizontally-movable axle-arms pivoted at their inner ends to the front and rear ends of the frame, said axle-arms being connected to swing the furrow-wheels bodily toward and from each other by the swinging of one of the wheels, the front furrow-wheel being vertically and laterally adjustable, and a land-wheel journaled on a horizontally-movable axle-arm pivoted at its forward end to the rear end of the plow-frame opposite the rear furrow-wheel, substantially as herein set forth.

6. A sulky-plow the frame of which is supported on two furrow-wheels journaled on horizontally-movable axle-arms pivoted at their inner ends to the front and rear ends of the frame, said axle-arms being connected to swing the furrow-wheels bodily toward and from each other by the swinging of one of the wheels, the front furrow-wheel being vertically and laterally adjustable, and a land-wheel journaled on a horizontally-movable axle-arm pivoted at its forward end to the rear end of the plow-frame so as to be vertically adjustable, substantially as herein set forth.

7. In a sulky-plow, the combination of the plow-frame, a land-wheel, the furrow-wheel B, journaled to an axle-arm, E, pivoted to a head-block, F, which is pivoted on a pin, *f*, to the beam A, the rear furrow-wheel, C, journaled to an axle-arm, H, pivoted at H′ to the beam A, and the bar J, rigid on pivot-pin *f*, and connected pivotally to a bar, I, which is connected to the axle-arm H, substantially as herein set forth.

8. In a sulky-plow, the combination of the plow-frame, a land-wheel, the front furrow-wheel, B, journaled to an axle-arm, E, pivoted adjustably at *e* to a head-block, F, which is pivoted on a pin, *f*, to the beam A, the rear furrow-wheel, C, journaled to an axle-arm, H, pivoted at H′ to the beam A, the bar J, rigid on pivot-pin *f*, and connected pivotally to a bar, I, which connects with the arm H, and a brace-bar, G, connecting the axle-arm E to the plow-beam, and having a series of holes, *g′*, adapted to engage the pin *f*, substantially as herein set forth.

9. In a sulky-plow, the combination of the plow-frame, a land-wheel, the furrow-wheel B, journaled to an axle-arm, E, pivoted to a head-block, F, which is pivoted on a pin, *f*, to the beam A, the rear furrow-wheel, C, journaled to an axle-arm, H, pivoted at H′ to the beam A, the bar J, rigid on pivot-pin *f*, and connected pivotally to a bar, I, which is connected to the axle-arm H, and a link, K, connecting the arm J to the rear end of the tongue, substantially as herein set forth.

10. The combination, in a sulky-plow, of the plow-frame, a land-wheel, the furrow-wheel B, journaled to an axle-arm, E, pivoted to a head-block, F, which is pivoted on a pin, *f*, to the beam A, the rear furrow-wheel, C, journaled to an axle-arm, H, pivoted at H′ to the beam A, the bar J, rigid on pivot-pin *f*, and connected pivotally to a bar, I, which is connected to the rear axle-arm, H, a link, K, connecting the bar J to a plate or block, L, which is pivoted at *l* to the beam A, and has lugs *l′*, and a tongue, M *m*, fitted to the plate L, and adapted for reversal in the plate, substantially as herein set forth.

11. The combination, in a sulky-plow, of the plow-frame, the furrow-wheel B, journaled to an axle-arm, E, pivoted to a head-block, F, which is pivoted on a pin, *f*, to the beam A, the rear furrow-wheel, C, journaled to an axle-arm, H, pivoted at H′ to the beam A, the bar J, rigid on pivot-pin *f*, and connected pivotally to a bar, I, which connects to the rear axle-arm, H, and a land-wheel, D, journaled to an axle-arm, N, pivoted to a block, N′, which is vertically adjustable on the plow-frame, and means for holding and shifting the block N′, substantially as herein set forth.

12. The combination, with the plow-frame and the land-wheel D, journaled to an axle-arm, N, pivoted to the block N′, fitted to slide vertically on the plow-frame, of the lever N^2 n^2, and catch-plate O′, substantially as herein set forth.

13. The combination, with the plow-beam and the furrow-wheel B, journaled to an axle-arm, E, pivoted at *e* to the swinging head-block F, of the brace-rod G, connected pivotally at *g* to the arm E, and having a series of holes, *g′*, adapted to the head of the pivot *f* of the head-block F, substantially as herein set forth.

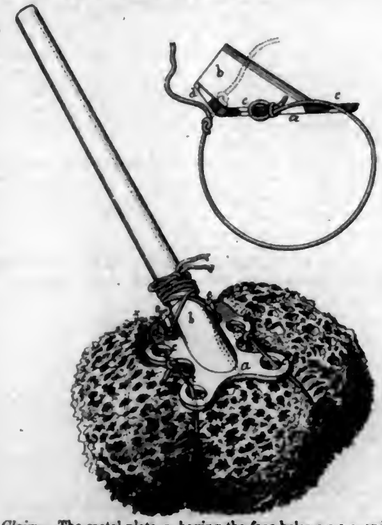
14. The combination, with the plow-beam A and plow P, of the standard Q, rigidly connected to the plow, the standard R, pivoted at *r* to the plow, the catch-plate U and lever S, hung independently on the pin T, the link *q*, and means for holding the lever S to the catch-plate U, and for holding the standard R to the plow-beam, substantially as herein set forth.

15. The combination, with the plow-beam A and plow P, of the standards Q R, the catch plate U and lever S, hung independently on the pin T, and the link *q* of the latch *s* on lever S, entering notches or holes of the plate U, substantially as herein set forth.

16. The combination, with the plow-beam A, plow P, having standards Q R, lever S, link *q*, and catch-plate U, of the lever V and pin V′, substantially as herein set forth.

17. The combination, with the plow-beam A and plow P, of the forward standard, Q, vertically adjustable on the said beam, the vertically-adjustable rear standard, R, having apertures for the latch to engage, and a notch, *w*, on its rear edge, and the brace W, secured to the under side of the plow-beam, and constructed to engage the notch with its lower end, substantially as set forth.

315,814. SPONGE OR MOP HOLDER. JAMES B. MORGAN, Davenport, Iowa. Filed Apr. 16, 1884. (No model.)



Claim.—The metal plate *a*, having the four holes *c c c c*, and provided with the flange with V-shaped notches *e e*, attached to the socket *b*, in combination with rod or handle and the fastening-cords, substantially as shown and described, and for the purposes set forth.

315,815. DRIVE-WELL POINT. MILES H. MORRIS, Chicago, Ill. Filed Dec. 30, 1884. (No model.)



Claim.—1. A drive-well point comprising a hollow perforated tube having the longitudinal ribs or segments whereon the outer screen may rest and the transverse ribs connecting said longitudinal ribs or segments, substantially as described.

2. A drive-well point consisting of a hollow perforated tube having vanishing grooves at each side of the perforations to form the ribs or projections whereon the screen may rest, substantially as described.

3. A drive-well point consisting of a hollow perforated tube having the longitudinal ribs or segments and the transverse connecting-ribs and the inwardly-projecting longitudinal ribs whereon the inner screen may rest, substantially as described.

4. A drive-well point consisting of a hollow perforated tube having exterior and interior ribs and an outer strainer and an inner screen, supported, respectively, upon said ribs, substantially as described.

5. A drive-well point consisting of a hollow perforated tube having inwardly-projecting longitudinal ribs of increasing thickness toward the taper end of the point, substantially as described.

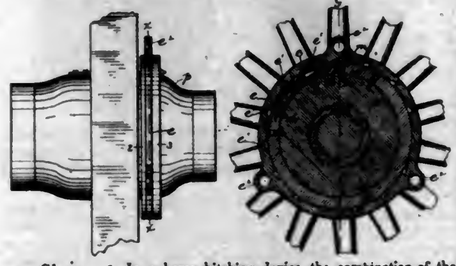
6. A drive-well point consisting of a hollow perforated tube having inwardly-projecting ribs and having channels between said ribs and opposite the projections of increasing size toward the taper end of the point, substantially as described.

7. A drive-well point having inwardly-projecting longitudinal ribs and having enlarged perforations at the base of and between said ribs, substantially as described.

8. A drive-well point consisting of a tube having segments between the series of perforations, said segments decreasing in breadth toward the taper end of the point, substantially as described.

9. A drive-well point consisting of a tube having segments between the rows of perforations, which segments are of decreasing breadth and of increasing thickness toward the taper end, substantially as described.

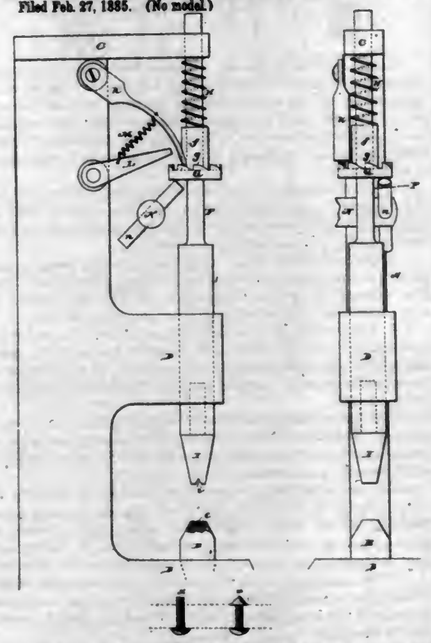
315,816. HITCHING DEVICE FOR VEHICLES. GEORGE MORSE, Gloucester, Mass. Filed July 19, 1884. (No model.)



Claim.—1. In a horse-hitching device, the combination of the grooved band on the wheel, having a spring-pawl in a recess below the general level of the groove, and a ring, *e*, notched on its inner periphery and filling the groove in the wheel-band, said ring *e* provided with one or more loops to which a strap may be attached, substantially as described.

2. The combination of the band *e*, adapted to be connected with a hitching-strap, the band *a*, supporting the band *e*, and having a slot, *m*, in its inner surface, and the wheel-hub having a spring-catch, *n*, adapted to enter said slot and thereby secure the band to the hub, as set forth.

315,817. RIVETING-MACHINE. THOMAS MORTON, New York, N. Y. Filed Feb. 27, 1885. (No model.)



Claim.—1. The combination of the reciprocating hammer-shaft having ratchet-teeth, the pawl for engaging with the ratchet-teeth as the hammer-shaft moves, and the pivoted arm connected to the pawl for limiting the action of the pawl, for the purpose set forth, substantially as described.

2. The combination of the standard A, the anvil secured thereto, the vertically-reciprocating hammer-shaft having ratchet-teeth, the pawl pivoted to the standard and engaging with the ratchet-teeth, the pivoted arm, and the spring connecting said arm to the pawl, substantially as described.

315,818. STEAM RADIATOR AND HEATER. THOMAS M. MORTON. Pittsburg, Pa. Filed Jan. 10, 1885. (No model.)

Claim.—1. An air-chamber containing a lining of non-conducting material, with pipes leading thereinto for the supply of air, in combination with an inner steam-chest provided with inlet and outlet pipes, and provided interiorly with a large and perforated non-metallic slab, and transverse tubes extending from the air-space in the main chamber into and through the steam-chest.

2. In combination with the air-chamber and lining of non-conducting material, the inner steam-chest provided with inlet and outlet pipes, and a cock for regulating the flow of steam therein, a pipe for drawing off the water of condensation, a series of transverse tubes extending from the air-space in the main chamber and through the steam-chest, and a large slab of earthenware or non-metallic substance within said steam-chest and around the transverse tubes, for the purpose of keeping the heat thereto.

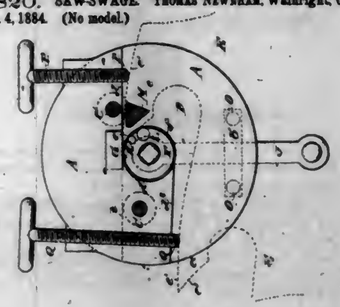
315,819. SHOE-FASTENER. MICHAEL NAYLON, Cleveland, Ohio. Filed Jan. 21, 1885. (No model.)



Claim.—1. In a shoe-fastener, the combination, with a spiral spring flattened or elliptical in cross-section, and a device for securing said spring to the shoe-upper, of a hook, B, secured to the upper for removably securing the opposite end of the spring to the shoe, substantially as set forth.

2. In a shoe-clasp, the combination, with a spiral spring with loops at the ends, as described, of the attachments B and C, each formed of a single piece of wire with pointed ends, and the loops *b* and *c*, the former bent to form a hook and the latter twisted, as shown, substantially as set forth.

315,820. SAW-SWAGE. THOMAS NEWNHAM, Wainright, Ga. Filed Dec. 4, 1884. (No model.)



Claim.—1. A saw-swage constructed with a groove or recess for the saw-blade, and an anvil-die, in combination with a coacting rotating die fitted with a series of swaging-rollers, the rearward swaging-rollers projecting farther beyond the periphery of the rotating die than the forward rollers, substantially as herein set forth.

2. A saw-swage constructed with a groove or recess for the saw-blade, and an anvil-die, in combination with a coacting rotating die fitted with a series of swaging-rollers, the rearward swaging-rollers projecting farther beyond the periphery of the rotating die than the forward rollers, and the forward rollers being smaller in diameter than the rearward rollers, substantially as herein set forth.

3. A saw-swage constructed with a saw-groove, D, and an anvil-die, G, in combination with a rotating die, F, fitted with one or more swaging-rollers projecting beyond its periphery, and the gage-screws P Q, fitted at opposite sides of the swaging-dies and entering the saw-groove, substantially as herein set forth.

4. A saw-swage constructed with a saw-groove, D, and an anvil-die, G, in combination with a rotating die, F, fitted with one or more swaging-rollers projecting beyond its periphery, the gage-screws P Q, the clamp-screws N O, and means for turning the rotating die, substantially as herein set forth.

5. A saw-swage constructed with a saw-groove, D, coacting anvil and rotating swaging-dies G F, and gage-screws P Q, as specified, in combination with the studs *b b'* and opposite clamping-screws, substantially as herein set forth.

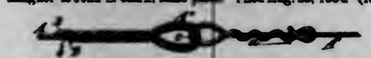
6. A saw-swage constructed with a groove, D, and dies G F, in combination with gage-screws P Q, studs *b b'*, clamp-block M, and screws N O, substantially as herein set forth.

7. A saw-swage constructed with its body portion in two sections, A B, having a groove, D, between them, and dies G F, in combination with gage-screws P Q, studs *b b'*, clamp-block M, and screws N O, substantially as herein set forth.

8. The rotatable saw-swaging die, constructed with a head or block, F, fitted with a series of swaging-rollers, the rearward rollers projecting farther beyond the periphery of the die-block than the forward rollers, substantially as herein set forth.

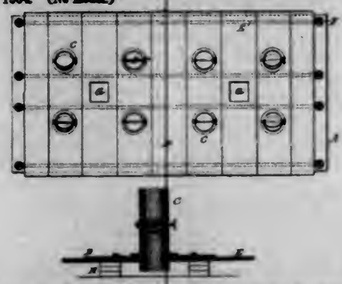
9. The rotatable saw-swaging die, constructed with a head or block, F, fitted with a series of swaging-rollers, the rearward rollers projecting farther beyond the periphery of the die-block than the forward rollers, and the forward rollers being smaller in diameter than the rearward rollers, substantially as herein set forth.

315,821. WIRE BALE-TIE. GRANVILLE NICHOLSON, New York, N. Y., assignor to John L. Clark, same place. Filed Aug. 23, 1884. (No model.)



Claim.—In a wire bale-band having at one end an eye, A*, the combination of the main or band wire A, having a portion, *b*, doubled or lapped upon itself, and one or more re-enforcing pieces of wire, B, which are separate and distinct from each other and from the band-wire A, the re-enforcing pieces being each doubled or lapped upon itself and intertwisted with the double or lapped portion of the main or band wire, substantially as herein described, whereby the main or band wire and the one or more separate re-enforcing pieces of wire combine to form an eye in which is a comparatively large body of metal.

315,822. KILN FOR BURNING BRICKS. JOHN O'BRIEN, Turner's Falls, Mass., assignor of one-half to Daniel Thomas, same place. Filed Dec. 9, 1884. (No model.)

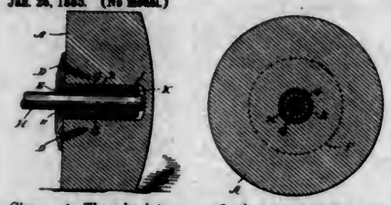


Claim.—1. In a kiln for burning brick, a temporary or removable covering of iron, having suitable openings for watching the burning, and suitable flues having dampers to control the draft.

2. The water-pipes E, provided for the support of the metal covering arranged upon the top of the kiln, as and for the purpose set forth.

3. The combination, with the temporary metal roof or covering, formed of strips or sheets joined together by half lock-joints, substantially as described, of the supporting-pipes adapted to be filled with water, as and for the purpose set forth.

315,823. SKATE-ROLLER. ELISHA W. OTIS, Chelsea, Mass. Filed Jan. 26, 1885. (No model.)



Claim.—1. The wheel A, having firmly secured within it the bushing B, in combination with the spindle H, provided with the washer J and pin K, or equivalent devices, and the series of rollers G, arranged substantially as set forth.

2. The wheel A, formed with a solid outer face of the natural wood, and provided with the flanged axial bushing, as described, in combination with the series of anti-friction rollers G, arranged between the spindle and bushing, and with a washer or collar secured on said spindle, and covering the outer end of said rollers and bushing, substantially as set forth.

3. The combination of wheel A, bushing B, sleeve C, rollers G, and spindle H, arranged substantially as set forth.

315,824. ORE-CONCENTRATOR. CHARLES W. PATTEN, San Francisco, Cal. Filed Aug. 17, 1883. (No model.)



Claim.—1. The combination of a concentrating-pan, spring legs or supports placed under the center thereof, and connected thereto at the upper ends by ball-and-socket joints that permit of universal motion of the pan upon them, and having their lower ends rigidly fixed, and mechanism combined with said pan for imparting to it longitudinal vibration and a transverse rocking motion upon said spring-supports, substantially as herein set forth.

2. The combination, with a concentrating-pan and spring-supports placed under the center thereof, and provided with universal joints and held rigidly at their lower ends, of the transverse shaft H, the cam, and the stop on the pan, substantially as described.

3. The combination, with a concentrating-pan and spring-supports placed under the center of said pan, and having universal-joint connections therewith, of the shaft H, the crank, the slide, the guide-rod, the cam, and the stop, substantially as and for the purpose set forth.

4. A concentrating-pan formed of stepped sections, the head or first section being inclined in two opposite directions longitudinally, spring-supports I J, and mechanism for imparting to said pan a longitudinal vibration and a transverse rocking motion, all combined substantially as herein described.

5. A concentrating-pan formed of stepped sections and having a discharge passage or channel, B, leading out from the pocket or gutter, formed by the rise of one section above the other, in an upwardly-inclined direction, as shown and set forth.

6. A concentrating-pan formed of stepped sections having a discharge passage or channel, B, leading out from the pocket or gutter, formed by the rise of one section above another, in an upwardly-inclined position for a short distance, a vertical channel, B', leading down from the upper end of channel B, and an outlet-channel, B^3, as set forth.

7. The combination, with the cam, stop, pan, and spring-support, of means for regulating the resistance of the spring-support to the cam, consisting of the open socket *w*, tappet W, and set-screw Y, substantially as described.

315,825. ORE-GRINDING MILL. ALMARIN B. PAUL, San Francisco Cal. Filed Dec. 7, 1883. (No model.)



Claim.—1. In an ore-mill, the combination, with the arrastra-compartment B, of screens in the outer walls thereof, an annular receiving and discharging trough, A, surrounding compartment B, and having outlets and conductors to receive and lead away the matter discharged through the screens, and the settling-compartment, substantially as set forth.

2. The combination, with the arrastra-compartment having screens, of the annular trough A, provided with outlets and conductors, and having its bottom formed of inclined plates, and the settler-compartment, as set forth.

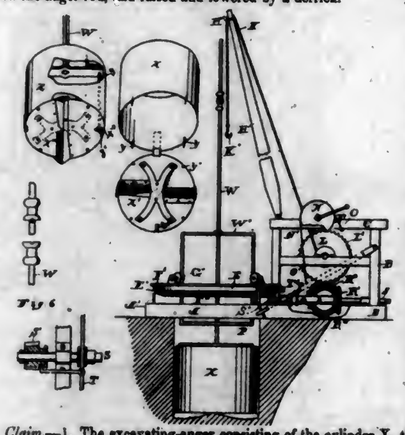
3. In an ore-mill of the arrastra kind, the combination, with the arrastra-compartment, screens in the outer wall thereof, and an annular receiving-trough, of a central settling-compartment having its bottom on a lower level than and provided with connections with said annular receiving-trough, consisting of suitable conductors that run under the bed of the arrastra-compartment.

4. The combination of the settling-compartment, the arrastra-compartment, and the receiving-trough having discharge-apertures and conductors that pass beneath the arrastra-compartment and discharge into the central compartment below the level of the arrastra-compartment, substantially as herein described.

5. The combination of the central settling-compartment, the arrastra-compartment, and the outer annular receiving-trough having outlet-apertures, and the bottom of inclined surfaces, and the inclined conducting-passages that pass under the arrastra-compartment and converge to and terminate at openings in the sides of the settler, as set forth.

315,826. APPARATUS FOR BORING WELLS. GUSTAVUS PECK, Storm Lake, Iowa. Filed Mar. 11, 1884. (No model.)

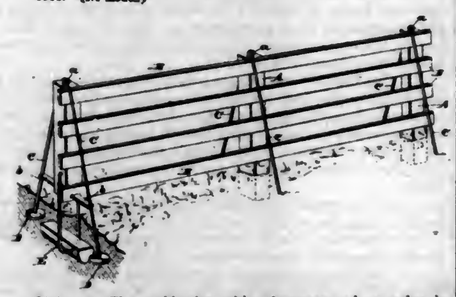
Brief.—An auger-bucket having hinged bottom with curved blades, and openings for engaging studs and a turn-button having an operating-rod, is operated by means of an annular cogged flanged wheel resting on a supporting-rim, and having guide-rollers and rollers engaging the stirrup on the auger-rod, and raised and lowered by a derrick.



Claim.—1. The excavating-auger consisting of the cylinder X, the hinged bottom thereof provided with cutting-blades, the lugs *y*, and the disengaging-rod *z*, substantially as described.

2. In combination with the excavating-auger, consisting, essentially, of the cylinder X, having a hinged bottom provided with an opening, x^2, the disengaging-rod *z*, and cutting-blades and lugs, the frame A, the rims E and F, the cog-gearing F'', the wheels G, rod W, and stirrup W', rollers G', and a derrick, all constructed and operated as set forth.

315,827. FENCE. DANIEL B. PECK, Jackson, Mich. Filed Dec. 21, 1883. (No model.)



Claim.—1. The combination, with a fence-post and an anchor depending from the post and embedded in the ground, of the braces C, secured to the tops of the posts and anchored at their free ends, and the rigid braces situated above the ground between the braces and post, and adapted to hold the lower ends of the posts against displacement, substantially as set forth.

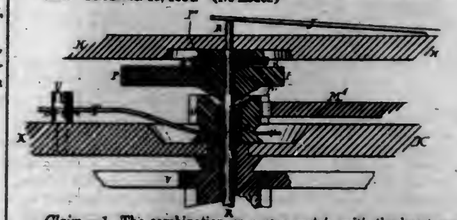
2. The combination, with the fence-posts provided with depending U-shaped rods, and anchors for holding the rods in position, of the braces C, secured to the posts and anchored at their free ends in the ground, and the rigid braces situated above the ground between the braces C and posts, and adapted to hold the lower ends of the posts against displacement, substantially as set forth.

315,828. SUBSTITUTE FOR BILLIARD-CUE CHALK. ANTHONY PEPLE, Brooklyn, N. Y. Filed Sept. 18, 1884. (No specimens.)

Claim.—1. The billiard-cue-tip preparation formed of a pigment corresponding generally in color to the cloth on the table and having a fine granular or silicious character so as to prevent the cue slipping upon the ball and to avoid injury or soiling of the billiard-cloth, substantially as set forth.

2. The billiard-cue-tip preparation formed of a pigment corresponding, or nearly so, in color to the cloth on the table and having a fine granular or silicious character and molded and pressed into blocks and covered with paper or other material on all but one side, substantially as set forth.

315,829. STOP-WATCH. PAUL V. PERRET, Chaux-de-Fonds, Switzerland. Filed Dec. 13, 1884. (No model.)



Claim.—1. The combination, in a stop-watch, with the heart-cam P, the axis R, passing through and secured to the heart-cam, and the plate K, of the pinion O and the wheel and pinion V, having a cannon-arbor passing through the plate K, and a tubular arbor, upon which the pinion O is revolved continuously, and through which the axis R passes, substantially as specified.

2. In a stop-watch, a cam, M, having notches 1, 4, and 7 and bearing-surfaces in two series, 2, 5, and 8 and 3, 6, and 9, formed as arcs of circles upon the periphery of the cam, in combination with the levers E F upon a pivot, F', and operated by said cam M and the push-piece A, pawl, and ratchet, substantially as specified.

3. The combination, in a stop-watch, with the axis R, springs J and Q, and pinion O, having a conically-recessed end, of the heart-cam P, collar P'', and cone P', said collar and cone being made in one with the heart-cam and upon opposite sides of the same, substantially as specified.

315,830. BAKING-POWDER. ANDREW PETERS, Brooklyn, N. Y. Filed May 20, 1884. (No specimens.)

Claim.—A baking-powder composed, essentially, of a boracic anhydride and a carbonate of an alkali, in substantially the proportions specified.

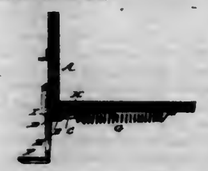
315,831. PHOSPHATE BAKING-POWDER. ANDREW PETERS, Brooklyn, N. Y. Filed Nov. 14, 1884. (Specimens.)

Claim.—A baking-powder composed, essentially, of a carbonate of an alkaline earth or of an alkali with metaphosphoric and pyrophosphoric acids, substantially in the proportions indicated.

315,832. BAKING-POWDER. ANDREW PETERS, Brooklyn, N. Y. Filed May 23, 1884. (No specimens.)

Claim.—A baking-powder containing as essential ingredients boracic acid and the carbonate of magnesia.

315,833. VEHICLE-STEP. WHARTON B. PHILBERT, Lisbon, Me. Filed Mar. 11, 1885. (No model.)

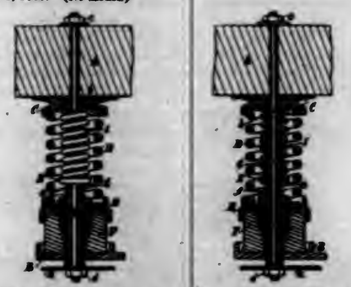


Claim.—1. In a vehicle-step, the combination of a bail or strap secured to the under side of the vehicle-bottom, a stirrup arranged to slide in the same, a bail connected to the outer ends of the said stirrup by a transverse hinge-rod, the outer end of said bail being bent upward or outward and covered with a plate forming the step, and a traction-spring the ends of which are secured, respectively, to the under side of the ve-

hicle-bottom and to the inner end of the stirrup, substantially as and for the purpose herein set forth.

2. In a vehicle-step, the combination of a bail or strap secured to the under side of the vehicle-bottom, a stirrup arranged to slide in the same, the stepping-bail connected to the outer ends of the said stirrup by a transverse hinge-rod, a traction-spring the ends of which are secured, respectively, to the under side of the vehicle-bottom and to the inner end of the stirrup, and a flat spring secured under the vehicle-bottom bearing downward against the hinge-rod, and having a downturned stop or catch at its outer end about even with the edge of the vehicle-body, substantially as and for the purpose herein set forth.

315,834. CAR-SPRING. ISAAC H. RANDALL, Boston, Mass. Filed Feb. 2, 1885. (No model.)



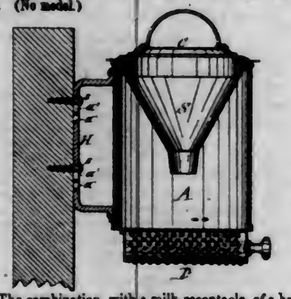
Claim.—1. The combination of the cap and plate C, two coiled springs, one within the other, and of different lengths, a central spindle or bolt, G, provided with a screw-thread on each end and a shoulder, *e*, a collar, H, above said shoulder, and a bearing, E, moving freely on said spindle or bolt, and supporting the outer spring, substantially as and for the purpose set forth.

2. In a compound graduated spring, a central spindle or bolt provided with a shoulder, *e*, formed by a tube fastened rigidly on a central rod, and providing a stop for the lower end of the interior spring, substantially as specified.

3. The combination of a graduated compound spring composed of coiled springs of different lengths and diameters and independent movable bearings for their bases, with a rubber spring, F, substantially as set forth.

4. The combination of the cap and plate C, two coiled springs, D and I, one within the other, and bearing, as to their upper ends, against said cap, a central spindle or bolt, G, having a shoulder, *e*, as a stop for the bearing for the base of the inner spring, an intermediate block, E, moving freely on said spindle or bolt and forming a bearing for the base of the outer spring, a rubber spring, F, box-seat B, and brace-rod *a*, substantially as specified.

315,835. MILK-CAN. CHARLES S. RAYMOND, Oswego, N. Y. Filed Feb. 12, 1885. (No model.)



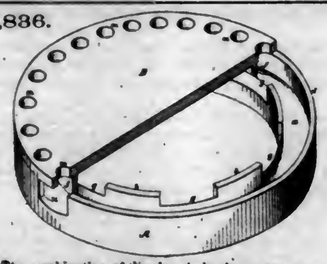
Claim.—1. The combination, with a milk-receptacle, of a handle by which to suspend it, and a drawer connected to the bottom of the receptacle, and perforated, substantially as and for the purpose set forth.

2. The within-described apparatus for receiving milk from the peddler and for paying for the milk, consisting of the pail A, having the handle H, provided with holes *a a*, and slots *a' a'* extending from said holes, the cover C upon the pail, and the drawer D on the bottom of the pail, all combined substantially as described and shown, for the purposes specified.

315,836. VAULT-COVER. JOHN RAYNALD, Philadelphia, Pa. Filed Nov. 3, 1884. (No model.)

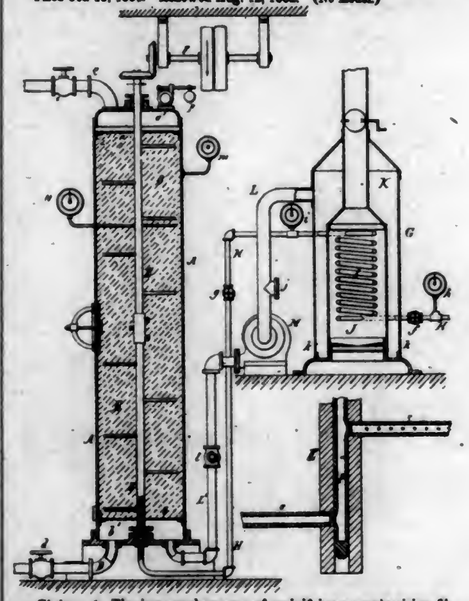
Claim.—1. The combination of the ring A, having a recessed internal flange, *b*, with a lid, B, having a recessed flange, *f*, in contact with the flange *b*, as set forth.

315,836.



2. The combination of the ring A, having a groove, *a*, recessed inner flange, *b*, and recessed outer flange, *d*, with the lid B, having a recessed flange, *f* and perforations *m*, as set forth.

315,837. REVIVIFYING FILTERING MATERIAL. JOSEPH W. J. REFORD, Jersey City, N. J., assignor to William Watt, Brooklyn, N. Y. Filed Oct. 15, 1881. Renewed Aug. 12, 1882. (No model.)



Claim.—1. The improved process of revivifying or carbonizing filtering or clarifying material which consists in forcing through the same a current of highly superheated steam without otherwise applying heat thereto or to the vessel, and simultaneously stirring the material, whereby the particles are all subjected to the action of the steam, and the revivification is accomplished with uniformity and rapidity, substantially as set forth.

2. The improved process of revivifying or carbonizing filtering or clarifying material which consists in forcing through the same first a current of heated air until it is thoroughly dry, and then a current of highly superheated steam to recarbonize and drive off its contained impurities without in either case applying heat to the exterior of the vessel containing it, substantially as set forth.

3. The improved process of revivifying or carbonizing filtering or clarifying material which consists in first saturating the material with aqueous moisture, then forcing a current of heated air through the same until said moisture is absorbed and carried off, and then forcing a current of highly superheated steam through the same without applying heat to the exterior of the vessel containing the material, substantially as set forth.

4. The process of treating filtering or clarifying material which consists in passing live or prime steam through it, digesting it for a time at a high temperature, drying it by suitable means, and then passing superheated steam through it, substantially as set forth.

5. The improved process of treating filtering or clarifying material which consists in injecting live or prime steam into it until it is saturated therewith, passing heated air through it until it is dried, and passing superheated steam through it, substantially as set forth.

6. The improved process of treating filtering or clarifying material which consists in injecting live or prime steam into it until it is saturated, passing heated air through it until it is dried, passing superheated steam through it to carbonize it, and finally passing cool or unheated air through it to cool it, substantially as set forth.

7. A filter consisting of a vessel or cylinder, A, and valved inlet and outlet pipes C and D, provided with a tubular shaft, E, having perforated tubular arms *e e*, and rotatively mounted therein, and with a pipe, H, whose bore communicates with the bore in the shaft, all combined and arranged substantially as set forth.

8. The combination, to form a filter, of cylinder A, pipes C and D, tubular shaft E, arms *e e* thereof, and expansible tube P, adapted to enter the bore of the shaft and capable of being inflated therein, substantially as set forth.

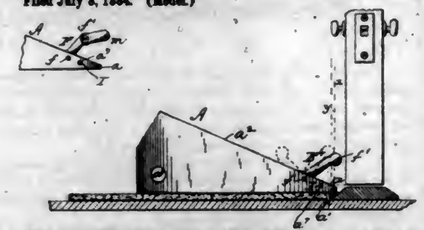
9. The carbonizing apparatus consisting of the combination of cylinder A, tubular shaft E, arms *e e* thereof, pipe H, superheater G, pipe L', and blower M, substantially as set forth.

10. The combination of cylinder A, tubular shaft E, hollow perforated arms *e e* thereof, pipe H, communicating with said shaft, superheater G, air-jacket K, air-pipes L L', blower M, and cocks in pipes H and L', substantially as set forth.

11. The combination, with a containing-vessel, A, of pipes H and L, cocks in said pipes, superheater G, and blower M, substantially as set forth.

12. The combination of vessel A, pipes H, L, and L', and blower M, with a superheater, G, consisting of a furnace, J, a coil, I, therein, and an air-jacket, K, thereabout, substantially as set forth.

315,838. BURGLAR-ALARM. WILLIAM H. REEVE, Philadelphia, Pa. Filed July 8, 1884. (Model.)



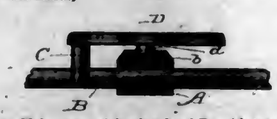
Claim.—1. In a burglar-alarm, the combination of a wedge-shaped box, a power gong or bell having an escape-wheel and pallet, a sliding plate or lock resting upon the bottom of the box, between the pallet and one of the side walls, and having lip *e*, and a trigger mechanism operated from the outside of the box, substantially as set forth.

2. The combination of box A, having openings a^4 a^5, the lid G, having perforated lugs *h* and pins *h'*, and bar I, substantially as shown and described.

3. The combination of box A, having removable lid G, with recess *g*, bell B, motor C, plate E, and trigger F, projecting through said recess, substantially as shown and described.

4. The combination of box A, having lid G, bell B, motor C, plate E, and trigger F, with end piece, *m*, substantially as shown and described.

315,839. SET-SCREW. FRANK A. RUBER, Chicago, Ill. Filed Nov. 19, 1884. (No model.)



Claim.—1. Male screw *d*, having head D, with lug or bolt C cast thereon or firmly secured thereto, in combination with female screw *b* in base A, having hole adapted to receive rod B, substantially as described, and for the purpose set forth.

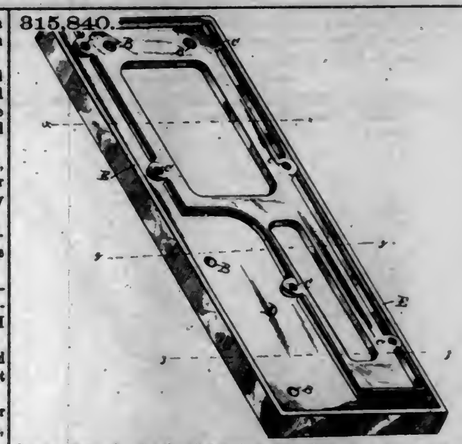
2. A base having a hole adapted to receive and guide a rod therein, and a second hole perpendicular thereto and having a female screw cut therein, in combination with a male screw fitting therein, and having a head or handle thereon with a lug or bolt attached thereto, the whole forming a set-screw, all substantially as described, and for the purpose set forth.

3. Male screw *d*, head D, and lug C in a set-screw, in combination with female screw *b*, base A, and rod B, all substantially as described, and for the purpose set forth.

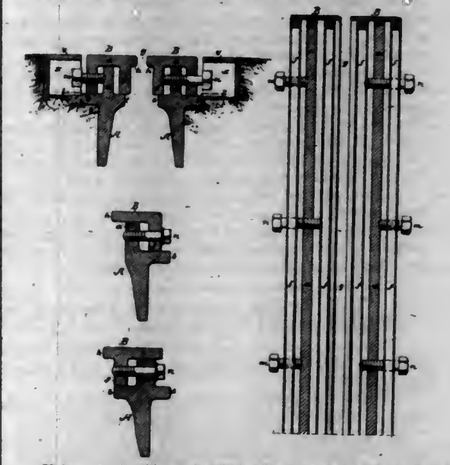
315,840. CAP-PLATE FOR STEAM-ENGINES. CHARLES H. ROBERTS, Washington, Ind. Filed Oct. 16, 1884. (No model.)

Claim.—A cap or foundation plate for steam-engines, to be interposed between an engine-frame and the masonry, adapted to be permanently secured to said foundation, and provided with tapped holes for securing the engine-frame thereto, and having a continuous flange, forming a gutter, whereby the oil-drippings from the engine may be led off from the low point *c*, as and for the purpose set forth.

315,840.



315,841. CONDUIT FOR CABLE OR ELECTRICAL RAILWAYS. EDWARD SANUM, Philadelphia, Pa., assignor to William Wharton, Jr., & Company, (Limited,) same place. Filed Mar. 6, 1885. (No model.)



Claim.—1. A cable or electrical railway conduit having a detachable slot-iron contained within the limits of the opening in the street-pavement, and combined with securing devices accessible from the surface of the street, all substantially as specified.

2. The combination of a cable or electrical railway conduit with a laterally-adjustable slot-iron and adjusting devices therefor contained within the limits of the opening in the street-pavement, and accessible from the surface of the street, as set forth.

3. The combination of a cable or electrical railway conduit with a removable and laterally-adjustable slot-iron, and with transverse set-screws serving both to adjust said slot-iron and to confine the same vertically to the conduit, as set forth.

4. The combination of the bar A, secured to or forming part of a conduit, with the slot-iron B, adjustable laterally on the bar, and with two sets of adjusting devices, one controlling the movement of the slot-iron in one direction, and the other controlling its movement in the opposite direction, as specified.

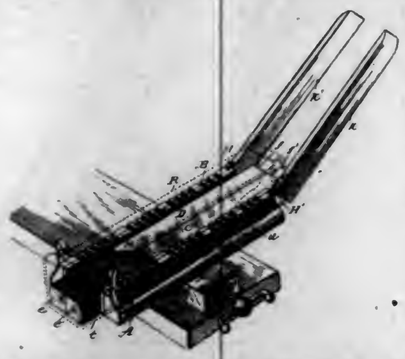
5. The combination of the bar A, secured to or forming part of a conduit, and having a shoulder below the top, with a slot-iron having one support upon the top of the bar and another on the shoulder below the top, as set forth.

6. The combination of the bar A, secured to or forming part of a conduit, with the channel-bar B, occupying an inverted position over the top of the bar A, and forming the slot-iron of the conduit, and with devices for laterally adjusting said slot-iron, as set forth.

7. The combination of the bar A, secured to or forming part of a conduit, the laterally-adjustable slot-iron B, and the two sets of transverse adjusting-screws *m* and *n*, one set of screws having a bearing on

the bar and being adapted to threaded openings in the slot-iron, and the other set having a bearing on the slot-iron and being adapted to openings in the bar, as set forth.

315,842. MACHINE FOR CRIMPING AND PREPARING ELASTIC FABRIC. GUSTAV SCHILLING, Detroit, Mich. Filed Dec. 22, 1883. (No model.)



Claim.—1. In a machine for preparing elastic fabric, in combination with the fixed and movable clamps attached to and forming the jaws of a vise, the compound clamp composed of two parts below the fabric and a third above the fabric, the latter having clasps affixed to it for binding all three together and firmly holding the crimped fabric between the three, substantially as described.

2. In a machine for preparing elastic fabric, the compound clamp composed of two parts indented along their outer upper edge, within which dents the two ends of the wires thrust through the fabric are received, and having their upper face within the dents together equal to the width of the shirred fabric, and a third binding part having affixed to it clasps for binding all three parts firmly together and firmly holding the crimped fabric between the three, substantially as described.

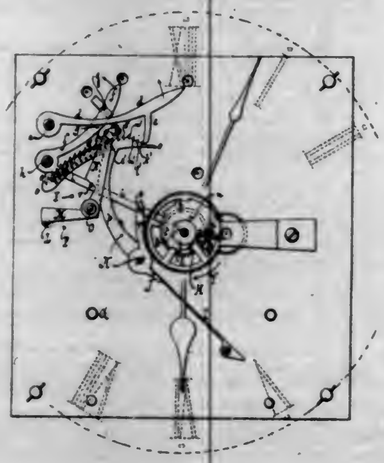
3. In combination with a fixed and movable clamp, within which the two ends of the wires thrust through the fabric are received, the two removable parts of the compound clamp herein described, each of which is adapted to be attached or detached readily from said fixed and movable clamps, substantially as and for the purpose described.

315,843. STRIKING MECHANISM FOR TIME-PIECES. CARL SCHOLLE, New York, N. Y. Filed Dec. 18, 1884. (No model.)

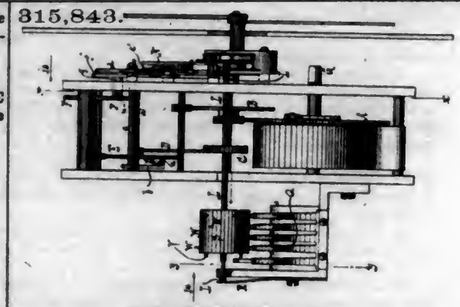
Claim.—1. A striking mechanism or alarm provided with a segment, *o*, for quarter-hours, and with pins (1 to 12) for the hours, substantially as set forth.

2. A striking mechanism or alarm provided with pins and with a cam, *w*, for moving the striking-drum S, substantially as set forth.

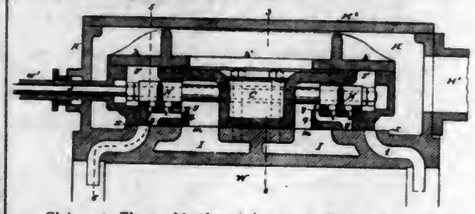
3. The combination, with the segment *o* and pins, (1 to 12,) of a cam, *w*, for moving the striking-drum S, substantially as set forth.



315,843.



315,844. VALVE FOR ENGINES. GEORGE SCHUHMANN, Reading, Pa. Filed Aug. 25, 1884. (No model.)

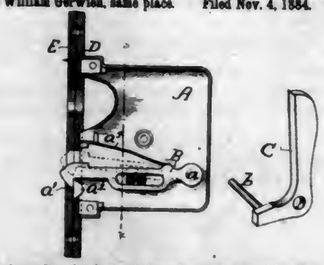


Claim.—1. The combination of the steam-cylinder, its steam and exhaust ports *i i*, the steam chamber or passage I, situated between the said ports, and the exhaust-chest H, with the box-like valve A, the ports and passages therein, and the distance-piece C, forming a seat for the cover-plate of the valve, all substantially as set forth.

2. The combination of the cylinder and its ports, the exhaust-chest H, the box-like valve in communication with the live steam and having an opening, *h'*, with the depressed distance-piece C, all substantially as set forth.

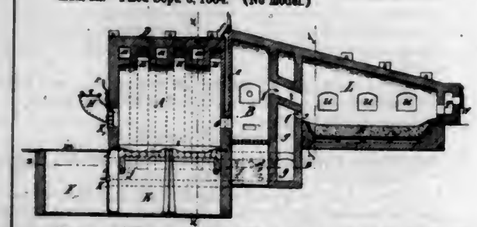
3. The combination of the cylinder, the exhaust-chamber H, the balanced box-like valve forming a steam-chamber, the ported plates *q q* of the valve, and the cut-off valves N N, having their seats on the said plates, substantially as specified.

315,845. LATCH. JOHN R. SCOTT, Chicago, Ill., assignor of one-half to William Gerwien, same place. Filed Nov. 4, 1884. (No model.)



Claim.—In a latch for sliding doors, the combination, with the pivoted latch-bolt B, provided with the elongated aperture a^4, of the escutcheon-plates F F', provided with elongated apertures b^2, and angular lever or levers C C', provided with the spindles *b b'*, whereby said latch is raised from a locked position, substantially as set forth.

315,846. METALLURGIC GAS-FURNACE. JOSEPH S. SEIBERT, Pullman, Ill. Filed Sept. 8, 1884. (No model.)



Claim.—1. The combination of the gas-producing chamber A, combustion-chamber B, separated by a wall having a communicating open-

ing therein, the gas-receptacle *g*, gas-chamber C, and damper *d*, substantially as described, and for the purposes set forth.

2. The combination of the gas-producing chamber A, the arch D, provided with flues *a*, said flues opening alternately in the sides of the arch, and chambers *b* and C, substantially as described, and for the purposes set forth.

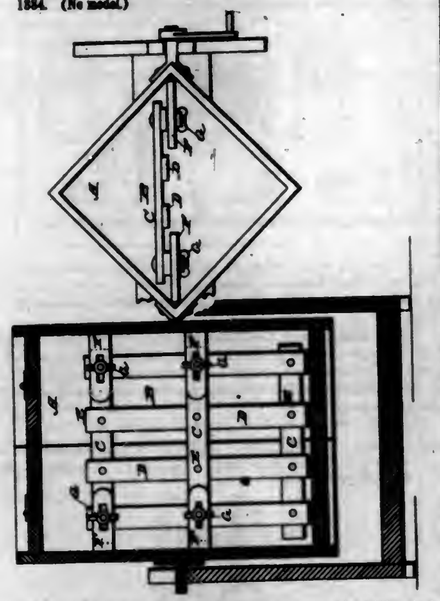
3. The combination of the gas-producing chamber A, the arch D, provided with flues *a*, said flues opening alternately in the sides of the arch, and the chambers *b* C, provided with doors for the removal of soot, substantially as described, and for the purposes set forth.

4. The combination of the gas-producing chamber A, the arch D, provided with flues *a*, the chambers *b* and C, and screen I, located in receptacle R, whereby the screen may be placed across the chamber C or retained in the receptacle, as specified.

5. The combination of the gas-producing chamber A, arch D, provided with flues *a*, the chambers *b* C, damper *d*, and gas-receptacle *g*, substantially as described, and for the purposes set forth.

6. The combination of the gas-producing chamber A, arch D, provided with flues *a*, the rear flues, *e*, having cover *f*, the chambers *b* C, gas-receptacle *g*, furnace L, and combustion-chamber B, having ports *t*, substantially as described, and for the purposes set forth.

315,847. CHURN. PETER J. SHIPPER, Fowler, N. Y. Filed Apr. 28, 1884. (No model.)



Claim.—In combination with a churn, a removable folding dash-frame consisting of two series of intersecting slats pivoted together at their points of intersection and provided with corner extensions pivoted to the frame by thumb-screws, whereby said corner extensions may be held in position to brace and fasten the frame in the churn, substantially as specified.

315,848. SAND AND WATER FEED MECHANISM. DAVID SHORTSLEEVE, Rutland, Vt., assignor to Edmund A. Horse, same place. Filed Oct. 4, 1884. (No model.)

Brief.—Water is pumped from a reservoir through a system of pipes to the stone-saws. Connected with the system of pipes is a chamber containing sand and water, communicating with the pipes through an oscillating valve that is operated from the pump-operating shaft. In the water-pipe at this point is a valve-chamber having a valve at each end for preventing backflow. The shaft of the sand-admitting valve is provided with an agitator. The sand and water once used is fed back into the sand-chamber and purified by the agitator and an overflow gutter.

Claim.—1. An automatic water and sand or water and shot feed, consisting of a water-supplying pump having suitable conducting-pipes and valves, and a valved sand-supplying chamber having its valve connected with the machinery of the pump and operated simultaneously with the pump, whereby water and sand are first mixed and then moved together to the points where they are required for use, substantially as described.

2. The combination, with stone-sawing, stone-rubbing, stone-dressing, or other analogous machinery requiring a water and sand or water and shot feed, of a water-supplying force-pump having suitable conducting-pipes and valves, a valve-chamber having valves for preventing the backflow of water, and a valved sand and water chamber or hopper, the valve of which is connected with the machinery of the pump and operated simultaneously with the pump, substantially as described

3. In combination with a water-supplying pump, a valve-chamber, E, having valves e^4 e^5, for preventing the backflow of water and sand between the strokes of the pump, a receiving and discharging chamber, E', having valve-seat e^3, oscillating valve *e*, and operating-shaft F, substantially as and for the purposes described.

4. The chamber E', having agitator F', valve *e*, and seat e^3, in combination with the valve-chamber E of a feed-pump, and valves e^4 e^5, for preventing the backflow of water and sand between the strokes of the pump, substantially as and for the purpose described.

5. The sand receiving and discharging chamber E', having cross-bar f^6, bearing f^5, and guard-funnel f^6, in combination with the valve-operating shaft F, valve *e*, and seat e^3, and valve-chamber E, having valves e^4 e^5, for preventing backflow of water and sand, substantially as and for the purpose described.

6. The combination of the pump-operating shaft C', a sand and water forcing pump having suitable conducting-pipes and valves, and a sand and water chamber E', having a discharge-valve and in communication with said pipes, valve-shaft F, flexible connecting-rod G, and cranks f' and e^2, whereby the valve-shaft arranged in one plane can be operated by the pump-shaft arranged in a reverse or different plane, and the valve *e* is operated at the proper time with respect to the strokes of the pump, substantially as and for the purpose described.

7. The combination, with an automatic water and sand or water and shot feed, comprising a pump, feeding-pipes having suitable valves, a sand and water chamber having a valve, *e*, and in communication with the pump, of a pump-operating shaft, C', a valve-operating shaft, F, the flexible connecting-rod G, composed of the parts *g g' g²*, and the cranks e^2 f', the shafts C' and F being arranged in reverse or different planes, substantially as and for the purpose described.

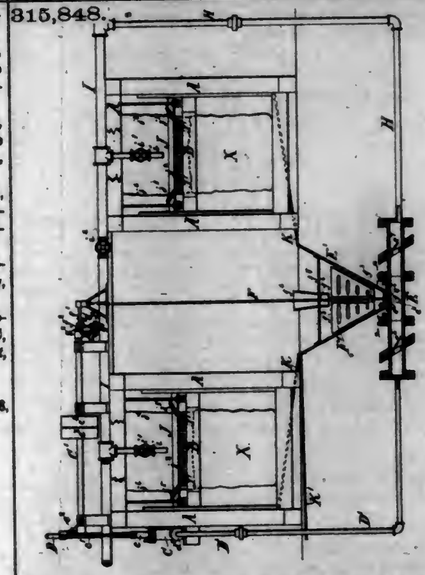
8. The sand and water apron for stone sawing, grinding, and polishing machines, comprising the permanent dash-board or apron J, and adjustable distributing-chutes J', attached to its under side by screws and slots, whereby the length and width of the apron may be varied, substantially as and for the purpose described.

9. The combination of the water-supply pump C, having suitable conducting-pipes and valves, the valved water and sand chamber E', valve-chamber E, having valves e^4 e^5, for preventing backflow of water and sand, and the chute K, substantially as and for the purpose described.

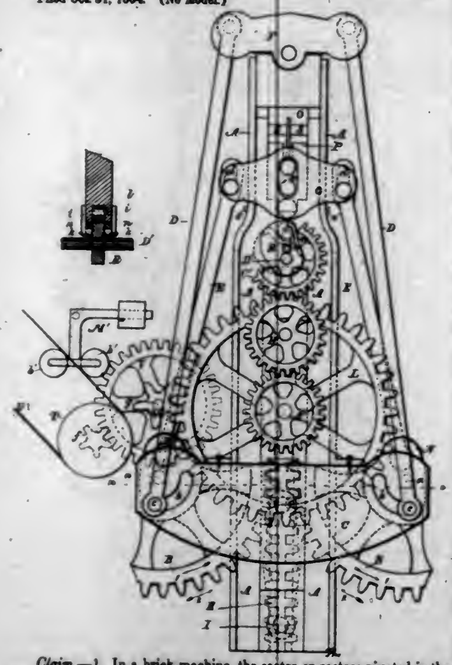
10. The combination of the pump C, having suitable conducting-pipes and valves, valved water and sand chamber E', valve-chamber E, having valves e^4 e^5, for preventing the backflow of water and sand, chute K, and the overflow-chute K', substantially as described.

11. The combination of the water-supplying pump C, having suitable conducting-pipes and valves, valved sand and water chamber E', valve-chamber E, having valves e^4 e^5, for preventing backflow of water and sand, apron or dash-board J, guards j^3, and frame A, substantially as described.

315,848.



315,849. BRICK-MACHINE. PETER L. SIMPSON, Minneapolis, Minn. Filed Oct. 31, 1884. (No model.)



Claim.—1. In a brick-machine, the sector or sectors pivoted in the sides of the machine and operated by a rack, as described, in combination with the connecting-rods pivoted to the sector or sectors, and the cross-heads carrying the upper and lower plungers, as set forth.

2. In a brick-machine, the sector or sectors pivoted to the sides of the machine, the compression-rods pivoted to the sector or sectors above and below their pivotal points, in combination with the plunger-carrying cross-heads, and suitable mechanism for reciprocating the sector or sectors, whereby the lower cross-head is thrust or drawn upward and the upper cross-head drawn or thrust downward simultaneously to compress the clay in the mold, as set forth.

3. In a brick-machine, the rack for operating the pivoted sector or sectors, having a guide-block secured thereto, and adapted to work in guides in the upright bars of the machine, in combination with a pitman and driving-wheel, whereby the sector or sectors are reciprocated or oscillated, as set forth.

4. In a brick-machine, the cross-head G, adapted to be raised by the sector or sectors B, and compression-rods E E, said cross-head being provided with a compression-plunger capable of a further movement to eject the brick from the mold, as set forth.

5. The cross-head G, operated as described, provided with a movable compression-plunger, P, in combination with the cam R, and devices, substantially such as specified, for returning the plunger to the bottom of the mold-cavity, as set forth.

6. The shaft D', provided with the cam R, and arm G', in combination with the plunger P, and pendant P', whereby the plunger is positively thrust upward to eject the brick from the mold and returned to the bottom of the mold-cavity, as set forth.

7. In a brick-machine, the sectors B B and rods E E, in combination with the bifurcated rods D D, adapted to project on each side of the sectors, whereby the sectors and rods E are free to work between the bifurcated ends of the bars, as set forth.

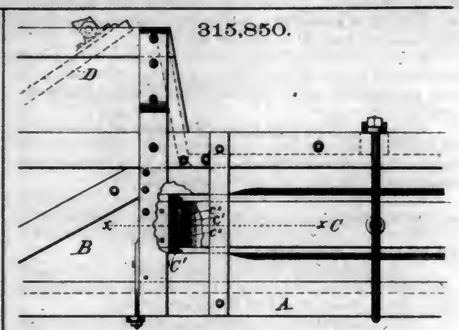
8. A brick-machine provided with sector or sectors which connect with the upper and lower plungers, said sectors being operated by a rack-bar which is raised and depressed by a pitman connected to a continuously-rotating shaft or wheel, as set forth.

9. In a brick-machine, a feed-box for filling the brick-molds with clay, connected directly to a cam-groove in the periphery of a drum or cylinder, by means of a projecting arm and friction-wheel, as set forth.

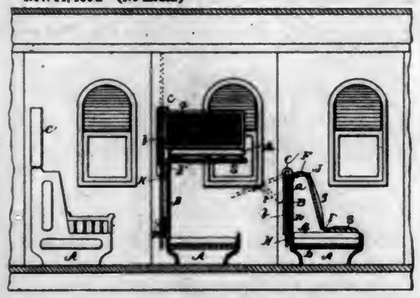
315,850. BALING-PRESS. JAMES R. SLAUSON and WILLIS D. SLAUSON, Racine, Wis. Filed Dec. 10, 1884. (No model.)

Claim.—In a hay or cotton press, a baling-chamber having grooves cut in the inner faces of its sides, in combination with retaining-plates having saw-teeth therein, substantially as herein described, and for the purpose set forth.

315,850.



315,851. SLEEPING-CAR. JOHN A. SLEICHER, Albany, N. Y. Filed Nov. 11, 1884. (No model.)



Claim.—1. In a sleeping-car, vertically-sliding partitions provided with one or more screens or panels hinged thereto to swing horizontally for the purpose of forming inclosed sections for berths, substantially as described.

2. In a sleeping-car, a combined covering for a seat-back and guiding-support for a sliding partition of a berth-section hinged at one end of said seat-back to swing to and fro from a horizontal to a vertical position, in combination with said partition and seat-back, substantially as and for the purposes set forth.

315,852. DRAWER-PULL. GEORGE E. SOMERS, Bridgeport, Conn., assignor to Bridgeport Brass Company, same place. Filed Jan. 12, 1885. (No model.)



Claim.—1. The combination, substantially as herein set forth, of a shank formed by bending the ends of a blank parallel with each other, the sides of said shank being connected at one end by a cross-piece, a handle adapted to engage the double end of said shank, and means—for example, a screw—for engaging the cross-piece from the inner side of the drawer to hold the device in place.

2. The double sheet-metal shank having parallel sides connected at one end, and shoulders near the ends of the sides, in combination with a handle adapted to engage the ends of the sides, and means—for example, a screw—for holding the device in place by engagement with the cross-piece at the double end of the shank.

3. The double sheet-metal shank having shoulders D and enlargements *a*, in combination with means for attachment, as a screw, the handle, and a ring or shell placed between the enlargements.

4. The combination, in a drawer-pull, with the handle and screw, of a sheet-metal shank formed by doubling a blank, one end of said shank consisting of a cross-piece, which, with the inner ends of the sides, is threaded to engage the screw, the other end of said shank consisting of the free ends of the blank which are adapted to be engaged by the handle.

5. A drawer-pull consisting of a handle, a screw, a ring or shell, E, and a sheet-metal shank formed by doubling a blank, said shank being screw-threaded at its inner end and sides for engagement by the screw, and having shoulders which rest against the drawer-front or escutcheon, and enlargements between which the ring or shell is held by a rivet.

315,853. INSERTIBLE SAW-TOOTH. NATHAN W. SPAULDING, San Francisco, Cal. Filed Dec. 26, 1884. (No model.)



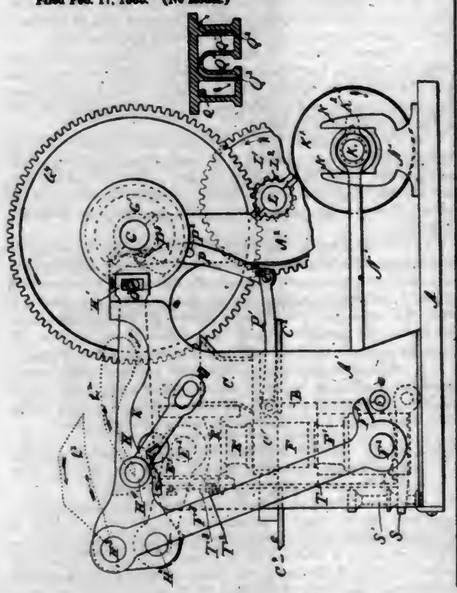
Claim.—A saw-plate or bit holder having a socket to receive a removable saw tooth or bit, and a sliding locking-wedge, which fits against the bit and locks it into the holder, in combination with a recess in the rear of the socket corresponding to a recess in the sliding wedge and registering therewith, and a transverse key fitting the openings in the socket and wedge and locking the parts together, substantially as described.

315,854. SHEET-METAL CAN. GEORGE W. TAYLOR, Baltimore, Md. Filed Oct. 17, 1882. Renewed Oct. 16, 1884. (No model.)

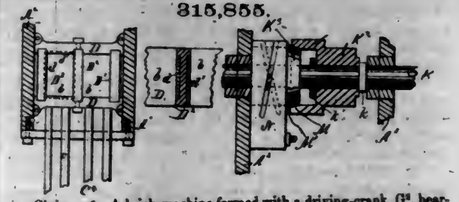


Claim.—In a sheet-metal can, the body having a depressed flange projecting inward at a right angle with the sides of the body, combined with a head the edges of which are turned down, as described, the said parts forming a groove for solder, substantially as specified.

315,855. BRICK-MACHINE. ALBERT D. THOMAS, Keokuk, Iowa. Filed Feb. 17, 1885. (No model.)



315,855.



Claim.—1. A brick-machine formed with a driving-crank, G^3, bearing a pitman, H, provided with a lever-pivot, H^4, and a camway-bearing, *k*, therefor, and having upper and lower plungers connected to pitman H at different points by link-bars, and governed by spur F^4 and tie E, adapted to produce from the motion of the crank a series of varied motions of the plungers, substantially as set forth.

2. In a brick-machine, the pitman H, provided with link-bar connections at different points from upper and lower plungers adapted to move the plungers toward each other at one time, and provided with pivot H^4, adapted to move and act upon a guideway, *k*, to produce a variable lever action of the pitman with its connected parts.

3. In a brick-machine, the pitman H, provided with link-bar connections at different points from upper and lower plungers, adapted to move the plungers toward each other at one time.

4. In a brick-machine, a pitman, H, provided with a link-bar connection, to which is attached a plunger for pressing brick, and having a pivot, H^4, adapted to move and act upon a guideway to produce a variable lever action of the pitman.

5. In a brick-machine, a pitman, H, provided with link-bar connection with one or more plungers for pressing brick, and with a pivot, H^4, adapted to move and turn upon a guideway to produce variable lever action and having a crosswise adjustable crank-connection adapted to adjust the leverage.

6. In a brick-machine, a pitman, H, provided with link-bar connections from different parts to plungers adapted to act toward each other to press brick, and having a crosswise adjustable crank-connection adapted to adjust the leverage of the pitman between the two sets of plunger-connections.

7. In a brick-machine, a pitman, H, provided with link-bar connections with one or more plungers adapted to press brick, and provided with a pivot, H^4, adapted to move and act along a guideway, in combination with a guideway having an adjustable portion, T^7.

8. In a brick-machine, a pitman, H, provided with a link-bar connection with a plunger adapted to press brick, and with a pivot, H^4, adapted to move and act along a guideway, combined with a slotted holder, R, connecting the pitman with a holding-pivot, R'.

9. A pivoted holder, R, combined with a compression apparatus having a plunger, and adapted to pull down the plunger or to prevent it from falling to come down upon the material to be compressed.

10. In a brick-machine, the combination of upper and lower plungers and a pitman-lever having connections to the plungers, with a part, R, from the pitman pivoted to a fixed support and adapted to draw down the plungers into the mold.

11. In a brick-machine, a pitman, H, provided with a link-bar connection to a plunger adapted to press brick, combined with a holder, T^8, adapted to engage with a part, T^9, connected with a support and adapted to control the action of the plunger during a portion of the travel of the pitman.

12. A sliding holder, T^8, adapted to engage with a part, T^9, connected with a pressure-plunger, and adapted to pull down the plunger or to prevent it from falling to come down to open the mold to receive the clay.

13. In a brick-machine, the combination of upper and lower plungers and a pitman-lever having connections to the plungers, with a part, T^9, connected with a stationary support and adapted to come in contact with a part connected with the pitman to draw down the lower plungers in the mold.

14. In a brick-machine, a pitman, H, provided with a link-bar connection with a plunger adapted to press brick, which link-bar is provided with a side spur, F^4, adapted to assist in moving the plunger.

15. In a brick-machine, a link-bar connection from a plunger adapted to press brick connected with a source of motion adapted to give it a sidewise or swinging motion at one end, and provided with a side spur, F^4, and bearing therefor, adapted to act during a part of the motion to cause a lengthwise motion of the link-bar.

16. In a pressing-machine, a link-bar, F^3, adapted to be moved sidewise at one end, provided with a spur at one side adapted to cause lengthwise motion of the link-bar.

17. In a brick-machine, a friction-clutch, K^2, provided with an operating-lever adapted to work as a lever pivoted around the driving-shaft, and engaged with bearings on each side in parts having oblique slots cut in them adapted to move the lever and part of the clutch sidewise along the shaft by the turning of the lever.

18. The device for operating a friction-clutch provided with oblique slots cut in stationary parts to hold the ends of an operating-lever on opposite sides of the shaft and adapted to move the lever and part of the clutch along the shaft by turning the lever.

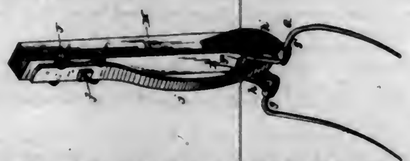
19. A brick-machine plunger adapted to move downward into the mold to press a brick therein, provided with a chamber in the plunger adapted to receive steam for heating the plunger-face, and having an upward-opening passage from a well or depression in the bottom of the chamber adapted to discharge water therefrom by means of passing steam.

20. In a brick-machine, a system of pipes and passages connected through a space within an upper compression-plunger and by an upward passage from the bottom of such space, to a space within a lower plunger adapted for the circulation of steam to heat both plungers and to discharge water from the bottom of the space in the upper plunger, substantially as set forth.

21. In a brick-machine, a mold provided with a lower plunger having a link-bar connection from a source of power adapted to push the plunger down to open the mold, combined with a separate part, S, under it, provided with a means of vertical adjustment adapted to determine the extent of the descent of the plunger to open the mold.

22. The combination of two plungers adapted to press on opposite sides of a brick or block with a pitman connected by link-bars directly with each plunger.

315,856. TEDDER. JOHN H. THOMAS, Springfield, Ohio. Filed July 31, 1884. (No model.)



Claim.—1. In a hay-tedder, a crank-shaft formed in sections having journal portions fast each on one end of each crank-shaft section, and suitable means for coupling said journal portion loosely to and adapting it to actuate or be actuated by the adjoining crank-shaft section, substantially as described.

2. In a hay-tedder, the crank-shaft made in sections, each complete in itself—that is to say, having each a journal portion and a crank rigidly united to said journal portion, and provided with means for coupling the journal portion loosely to and adapting it to actuate or be actuated by the adjoining section—substantially as described.

3. In a hay-tedder, a crank-shaft having a series of two or more cranks and made in sections having each a crank and a coupling journal portion rigidly secured to said crank, and provided with suitable means for coupling it loosely to and adapting it to actuate or be actuated by the adjoining section, substantially as described.

4. In a hay-tedder, the combination, with the crank portions of the crank-shaft, of the spools or enlarged wrists or wearing-surfaces applied thereto, substantially as described.

5. The hay-tedder teeth or fingers provided with the crank portion, in combination with the swiveling wearing-block on said crank portion, substantially as and for the purpose described.

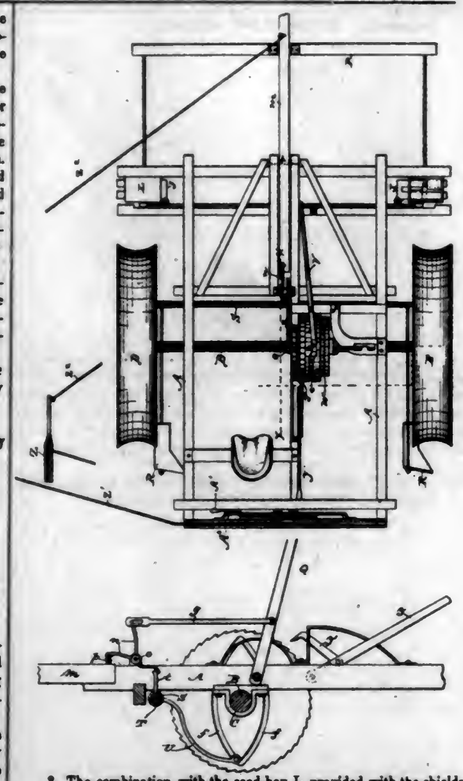
6. The combination of the tedder teeth or fingers pivoted in bearings in the fork-handle, the interposed connecting-crank, the wear-block on said crank, and the spring fast on the fork-handle, all substantially as described.

7. In a hay-tedder, the forks connected with and operated by means of the continuously-rotating cranks, in combination with the vibrating radius rods or links forming fulcrums for and connecting the fork-arms with the tedder-frame, and means for adjusting said links on the fork-arms relatively to the actuating-cranks, substantially as and for the purpose described.

315,857. CORN-PLANTER. ALBERT THURSTIN and FREDERICK JACOBY, O'Fallon, Mo. Filed Aug. 26, 1884. (No model.)

Claim.—1. The combination, with a wheel, D, and an axle, B, journaled to revolve in a corn-planter frame, of a drive-wheel, E, mounted to revolve on the axle, and provided with a circle of teeth on its hub, a disk, F, mounted on the axle B by means of a spline permitting longitudinal motion thereof, and a series of pins, *a*, provided with springs and fitted to project through the disk to engage the teeth in wheel E, as shown and described.

2. The combination, with a planter mounted on wheels D E, and provided with a pole, *m*, of the hill-markers R and the row-marker Z, located in a line with the driver's seat and with each other, the brace Z'', secured at one end to the row-marker, and pivoted at the other end to the pole *m*, passing in front of the wheels, and the brace Z', secured at one end to the row-marker, and pivoted near the other end to the frame, in line of the pole, to the rear of the seat, and passing to the rear of the wheels, substantially as shown and described.



3. The combination, with the seed-box L, provided with the shields *j j*, each less than one-half the length of the box, and in diagonally-opposite corners thereof the central longitudinal line of floor *k*, and the partition *k*, located transversely beneath the center of the box, of the single gate J, partly divided, forming two slides, *g g*, having seed-delivery openings *i*, adapted to register alternately with the partition *k* and the shields *j*, substantially as shown and described.

4. The combination, with the seed-box L, the spout M, having the fixed partition *k*, and the sliding gate J, of the lower gate, N, rigidly secured to and supported by the gate J, as shown and described.

5. The combination, with the hill-markers R, the rock-shaft S, provided with an arm, *t*, of the sleeve T, loosely mounted on shaft S, and provided with a slot engaging the arm *t*, the arm U on sleeve T, carrying a roller, and the cam I, having in it the groove *f*, to receive the said roller, as shown and described.

6. The combination, with the hill-markers R, the rock-shaft S, provided with the arm *t*, the sleeve T, loosely fitted on the rock-shaft, and provided with a slot engaging the arm *t*, the arm U on sleeve T, and the cam I, provided with the groove *f*, engaging the arm U, of the bell-crank lever *n*, the hand-lever Q, and the open link *p*, as shown and described.

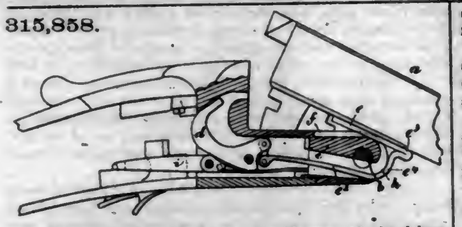
7. The combination, with the slide-gate of a corn-dropper, an operating-lever therefor, and a hill-marker hung to the rear of the dropper, of a cam having one groove to actuate the slide-gate lever, and another groove to actuate the marker, the two grooves being in a relation to each other corresponding to the space between the corn-dropper and the hill-marker, as described, whereby the advance of the machine will cause the marker to mark the hills previously planted by the dropper.

8. The combination, with a hill-marker provided with a square shank-hole, and having its foot or marking end extending to one side of the hole, of a supporting-arm having a square shank reversibly securable in the said square hole, substantially as shown and described.

315,858. BREECH-LOADING SMALL-ARM. HENRY TOLLEY, Birmingham, County of Warwick, England. Filed Nov. 18, 1884. (No model.) Patented in England July 12, 1884, No. 10,101.

Claim.—1. The combination, with the barrel and the hammer of a breakdown gun, of a body or breech-block having a curved bearing, *h*, and a mainspring arranged in the forward end of the body or breech-block, and having a doubled part, e^3, a curved part, e^4, an upper stand portion, *e*, acting on the barrel, and a lower portion, e^2, connected with the hammer, substantially as described.

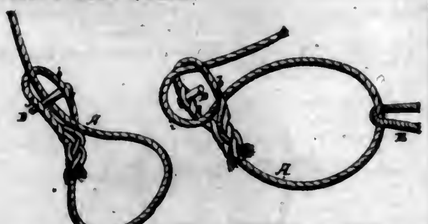
315,858.



2. The combination, with the barrel and hammer of a breakdown gun, of a body or breech-block having a recess, *f*, on its upper side and a curved bearing at its front end, and the mainspring having a stand portion, *e*, a doubled part, e^3, seated upon the barrel in front of the knuckle or joint end of the body, a curved part, e^4, and a lower portion, e^2, connected with the hammer, substantially as described.

3. The combination, with the barrel and hammer of a breakdown gun, of a body or breech-block having a seat for a doubled mainspring, a mainspring having an upper stand portion bearing upon the barrel and a lower portion connected with the hammer, whereby when the barrel is dropped down the stand side of the spring is depressed, causing a cramping or depression of the mainspring and a cocking of the hammer, substantially as described.

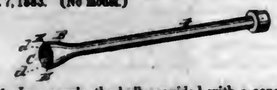
315,859. ROPE-BUCKLE. VINCENT P. TRAVERS, New York, N. Y. Filed June 6, 1884. (No model.)



Claim.—1. The rope A, having loop *b*, combined with the peg D, one end of which is secured in one side, *g*, of said loop, while the other end of said peg is free to rest upon the opposite side, *f*, of the loop, substantially as herein shown and described.

2. The peg D, having grooved end *d*, combined with the loop *b* on the rope A, substantially as and for the purpose specified.

315,860. SYRINGE-NOZZLE. ROSWELL VAN BORKEN, Newark, N. J. Filed Sept. 7, 1883. (No model.)

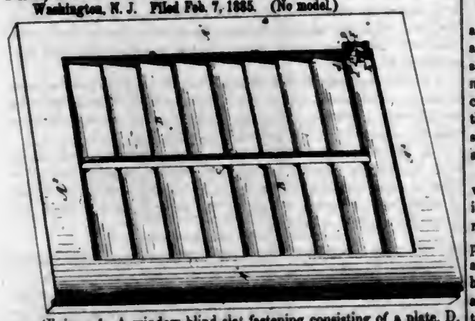


Claim.—1. In a nozzle, the bulb provided with a concave face provided with perforations, substantially as specified.

2. In a nozzle, the bulb provided with a concave face, and shoulder surrounding the same provided with perforations, substantially as specified.

3. In a nozzle, the bulb provided with a concave face, and shoulder surrounding the same, each provided with perforations, substantially as specified.

315,861. WINDOW-BLIND-SLAT FASTENER. JOHN M. VAN DYKE, Washington, N. J. Filed Feb. 7, 1885. (No model.)

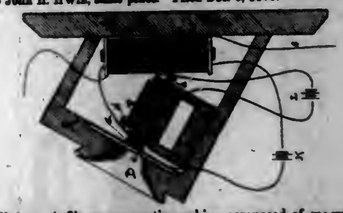


Claim.—1. A window-blind-slat fastening consisting of a plate, D, provided with a foot, *d*, adapted to be fastened to the slat, and a clamping-screw, E, arranged to pass through the plate and impinge against the frame of the blind, substantially as described.

2. The combination, with a window-blind frame, A, of a movable slat, B, bar C, plate D, secured to the slat at an angle therewith, and a clamping-screw, E, arranged to pass through the plate and impinge against the frame, substantially as described.

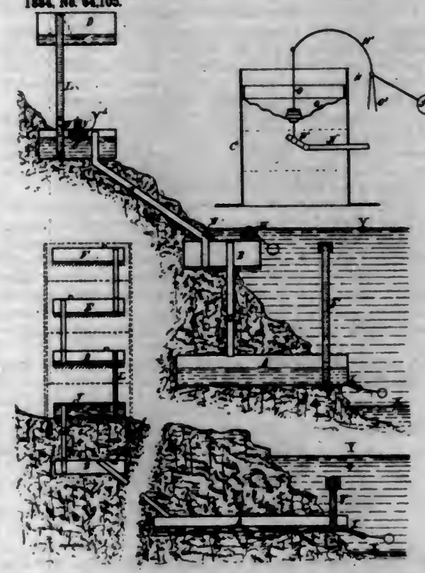
3. The combination, with a movable-slat window-blind, of a plate secured to one of the slats, provided with a clamping-screw, and a plate, F, secured to the frame of the blind to provide a bearing for the clamping-screw, substantially as described.

315,862. TELEPHONE. WILLIAM L. VOELKER, Morton, Pa., assignor to John H. Irwin, same place. Filed Dec. 6, 1879.



Claim.—A fibrous magnetic cushion composed of magnetized metallic particles to support one of the electrodes of a telephone, substantially as set forth.

315,863. APPARATUS FOR UTILIZING THE RISE AND FALL OF THE TIDE. CHARLES H. WALKER, Cannon Street, London, England. Filed Feb. 26, 1884. (No model.) Patented in England July 19, 1883, No. 3,560; in France Jan. 14, 1884, No. 159,704, and in Belgium Feb. 9, 1884, No. 64,105.

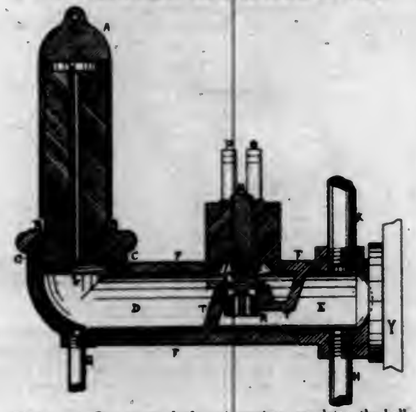


Claim.—1. An apparatus for raising liquids by the rise and fall of a body of water, said apparatus consisting of a vessel located adjacent to a rising and falling body of water, a pipe connecting said vessel with said body of water at or near low-water mark, and a second pipe connecting the same therewith at or near high-water mark, a second vessel connecting with the first through a pipe opening above the bottom of the second vessel for the passage of water and air from the first to the second, and a pipe for the delivery of the liquid from the latter tank, substantially as described.

2. An apparatus for raising liquids by the rise and fall of a body of water, consisting of the combination of a series of vessels communicating one with the other, and through which a liquid may be successively raised, and a vessel, such as A, connecting with one of said vessels by a pipe opening above the bottom of said vessel, and provided, also, with a pipe communicating with a rising and falling body of water at or near high-water level, and a valved pipe communicating with the same body at or near low-water mark, said vessel having a capacity at least equal to the joint capacities of the several vessels through which the liquid is to be raised, substantially as described.

3. The combination, with the tank A, having the pipes F and I, of the tank B, having an opening, H, provided with a flexible diaphragm operated by a lever and float, said tank B communicating with tank A through the pipe G, which opens near the top of the tanks A and B, a third vessel or tank, C, connected with B by a pipe, K, and having an opening closed by a floated valve, V', and a pipe leading from said tank C, for the discharge of the liquid, substantially as described.

315,864. STEAM DRAFT AND PRESSURE REGULATOR. NOBLE J. WATERMAN, Detroit, Mich. Filed Dec. 13, 1884. (No model.)



Claim.—1. In a steam draft and pressure regulator, the hollow bracket F F, provided with a pipe to connect the same with the steam-generator, and connecting with the end of the hollow piston B B, carrying the actuating-cylinder A, the said hollow bracket containing an interior perforated diaphragm dividing it into two chambers, the valve S S, seated therein, controlled and operated substantially as described.

2. In a steam draft and pressure regulator, a hollow supporting-bracket having a controlled valve seated as described, a cylinder and piston mounted on said supporting-bracket on the eduction side of said valve, and a condensing-pipe located between the valve and the cylinder, combined and arranged substantially as described.

3. In a steam draft and pressure regulator, the arrangement of a hollow bracket attached to a support and carrying a piston and operating-cylinder, said bracket being divided into two interior chambers by a perforated diaphragm carrying an adjustably-controlled valve seated in said perforation, whereby steam is permitted to pass from one chamber to the other at any desired pressure, one interior chamber of said bracket being connected with a steam-generator and the other with the operative piston and cylinder, substantially as described and set forth.

315,865. CULTIVATOR. SOLOMON F. WEAVER, Portis, KANS. Filed Sept. 24, 1884. (No model.)



Claim.—1. The combination, with a leveling-beam, of a frame or frames loosely attached thereto, plow-standards provided on their ends with plows, knives, or colters indirectly connected with the frame, and spring-guides secured to said frame, substantially as set forth.

2. The combination, with a leveling-beam having a parallel rod secured to arms fastened to the ends of the beam, of a frame or frames, each provided with grooved pulleys, between which fits said rod, plows, and colters indirectly connected to said frame, substantially as set forth.

3. The combination, with a leveling-beam having a parallel rod secured to arms fastened to the ends of said beam, of a frame or frames, each provided with pulleys between which fits said rod, beams loosely secured to the frame, plow-standards secured to said beams, plows secured to the plow-standards, and colters secured to beams indirectly connected to said frame, substantially as set forth.

4. The combination, with a leveling-beam, of a frame loosely attached thereto, laterally-adjustable beams secured to the frame and provided with holes or openings, vertically-adjustable plow-standards passing through said holes and provided on their lower ends with adjustable plows, and knives or colters adjustably secured to beams secured to said laterally-adjustable beams, substantially as set forth.

5. The combination, with a leveling-beam, of a frame loosely attached thereto, plows and colters indirectly attached to said frame, and spring-guides, the forward curved ends of which are adjustably secured to the front of the frame and adapted to travel in the furrow, the rear ends adapted to travel outside of the furrow, substantially as set forth.

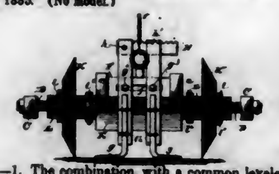
6. The combination, with a leveling-beam having a rod secured to cross-beams which are fastened on the ends of said beam, of a frame provided with grooved pulleys on its under side, between which fits said rod, spring-guides adjustably secured to the forward end of the frame and passing under said pulleys, and plows and colters indirectly secured to said frame, substantially as set forth.

7. The combination, with a leveling-beam, of a frame or frames loosely attached thereto, and laterally-adjustable beams secured to said frame or frames, vertically-adjustable plow-standards secured in openings in said beams, and provided on their lower ends with adjustable plows, knives or colters adjustably secured to said former beams, and serrated bars pivotally secured to the plow-beams, the serrations of which engage with an arched bar secured to the frame, substantially as set forth.

8. The combination, with a leveling-beam having a rod secured to cross-beam fastened to the ends thereof, of two or more frames provided with grooved pulleys, between which fits said rod, the travel of the frames on the rod being limited by collars secured to said rod, and adjustable plows and colters indirectly connected with said frames, substantially as set forth.

9. The combination, with a leveling-bar, of a frame or frames attached thereto, plow-beams adjustably secured thereto, plow-standards adjustably secured to the plow-beams, cultivator-beams secured to the plow-beams, a weight secured to and suspended over said frame, and spring-guides secured to the forward ends of and passing beneath said frame, substantially as set forth.

315,866. CULTIVATOR. SOLOMON F. WEAVER, Portis, KANS. Filed Jan. 10, 1885. (No model.)



Claim.—1. The combination, with a common leveler, of cultivator-sections hinged thereto and provided with cutting-disks adapted to support and guide the cultivator-knives, substantially as set forth.

2. The combination, with a cultivator-frame and means for attaching the draft thereto, of a pair of cultivator-knives secured to the frame in a lateral adjustment, and supporting-disks adapted to automatically adjust the said knives, substantially as set forth.

3. The combination, with a cultivator-frame hinged to a draft-rod, and an axle-rod secured in the rear ends of the frame, of a pair of cultivator-knives journaled on the axle-rod in a free lateral adjustment, and disks journaled on sliding hubs adapted to automatically adjust the knives, substantially as set forth.

4. The combination, with the axle-rod secured in the rear ends of the frame, and cutters journaled on the axle, of a pair of cutting-disks secured in lateral adjustment on sliding hubs, whereby the disks are adjusted at the required distance apart and the cutters automatically caused to follow the row, substantially as set forth.

5. The combination, with the axle-rod, the box-frame journaled thereon, and a rock bar or beam journaled in the frame, of a pair of cutter-standards secured in lateral adjustment to the rock-beam, and means for locking the standards in the required angular adjustment, substantially as set forth.

6. The combination, with the axle-rod and the box-frame journaled thereon, and a pair of cutter-standards secured to the frame in lateral and angular adjustment, of a bar adapted to hold the upper ends of the standards at the required distance apart, and a notched spring-bar adapted to hold the standards in the required angular adjustment, substantially as set forth.

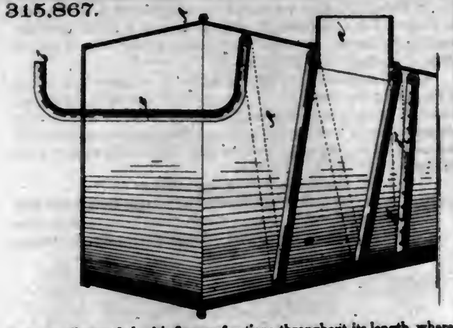
7. The combination, with the axle-rod and a cutter-frame journaled thereon in a free lateral adjustment, of beveled-faced disks mounted on the axle-rod, adapted to follow the irregularities of the row and automatically adjust the cutters, substantially as set forth.

8. The combination, with the frame carrying the cutters, and adapted to be laterally adjusted by means of rotary supporting-disks, of a block or frame secured to the draft-rod by means of one or more pairs of rollers, and a coupling connecting the cutter-frame with the roller-frame, substantially as set forth.

315,867. FURNACE. ROBERT H. WEIR, Boone, Iowa. Filed Apr. 10, 1884. (No model.)

Claim.—In combination with a fire-box, a pipe entering it at the top and extending to its bottom in the form of a continuous coil, its upper end being open for the reception of air, its lower end closed, and the bottom coil provided with fine perforations throughout its length, whereby highly-heated air is injected into the incandescent fuel, as and for the purpose set forth.

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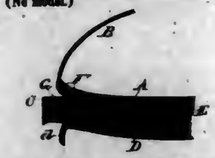
315,868. WELL-BORING MACHINE. WILLET C. WELLS, Tiffin, Ohio. Filed Feb. 7, 1885. (No model.)



Claim.—1. In a well-boring machine, the combination of a drill-stock having means for reciprocating it, and a weight secured rigidly and adjustably upon the said stock, as and for the purpose shown and set forth.

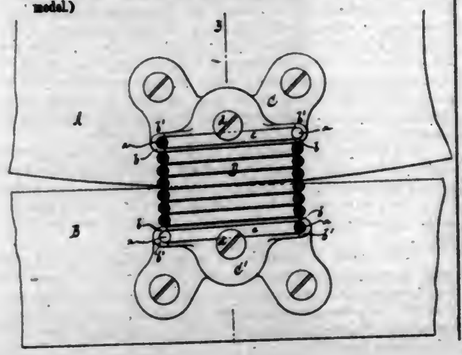
2. The combination of the well-tube, the drill-stock having means for reciprocating it within the well-tube, and a weight secured rigidly and adjustably upon the drill-stock, so as to strike the upper end of the well-tube at the end of each downstroke, as and for the purpose shown and set forth.

315,869. BOOT OR SHOE. STILLMAN A. WEST, RACINE, WIS. Filed Jan. 30, 1884. (No model.)



Claim.—As an improved article of manufacture, a boot or shoe having an insole split or divided along its edge, and one section turned up and the other down, with the inner surface of the upper next the split surfaces of the insole, and next to the upper the welt, the three thicknesses of leather being secured together by means of horizontal fastenings, and with their lower edges flush and fitting squarely against the upper face of the sole, substantially as set forth.

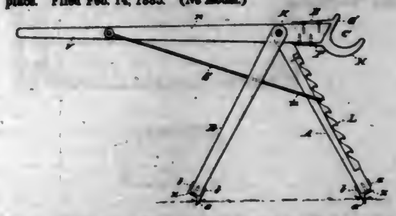
315,870. SPRING ATTACHMENT TO PLATFORM ROCKING-CHAIRS. SIEGFRIED WILLERSHAUSEN, New York, N. Y. Filed Oct. 2, 1884. (No model.)



Claim.—1. The combination, substantially as hereinbefore described, with the rockers of a chair and with its platform, of the spring D, the brackets C C', the semicircular grooves formed in said brackets, the cheeks *b b'*, formed at the ends of said grooves, and the screws for retaining the end coils of the spring in the semicircular grooves.

2. The combination, substantially as hereinbefore described, with the spring D, of the brackets C C', the semicircular grooves formed in the brackets, the cheeks *b b'*, formed at the ends of the semicircular grooves, and the screws for retaining the end coils of the springs in the grooves.

315,871. LIFTING-JACK. WM. C. WILLMORE, Vincennes, Ind., assignor of two-thirds to Sylvester Herrall and George L. Bailey, same place. Filed Feb. 14, 1885. (No model.)



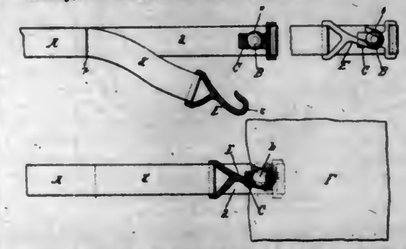
Claim.—The improved lifting-jack herein described, consisting of the legs A and B, the former having its forward longitudinal face provided with the ratchet-plate L, the tie-rod pivoted to the rear portion of the hand-lever, and adapted to engage the ratchet-plate, and the hand-lever pivoted between the said legs and provided at its power end with the casting C, having an engaging hook, H, and branches E and F, for attachment to the upper and lower sides of the said lever, substantially as shown and described.

315,872. METHOD OF CASTING CAR-WHEELS. WILLIAM WILMINGTON, Toledo, Ohio. Filed Mar. 2, 1885. (No model.)



Claim.—The method of incorporating a desired quantity of the elements composing rich ferro-manganese in varying quantities in the molten iron forming the different parts of chilled-tread cast-iron car-wheels, as described, which consists in reducing from a pig or cake condition to different degrees of fineness rich ferro-manganese, then placing the same in a pouring-ladle with molten chill-hardening cast-iron at the time or just before commencing to fill the mold of a car-wheel, and before the elements composing the whole of the ferro-manganese in the molten iron in the pouring-ladle have become homogeneous with the same, then pouring the same, and continuing the pouring while an increasing proportion of the ferro-manganese is being melted and disseminated, substantially as described, and for the purpose set forth.

315,873. CLASP FOR WEARING-APPAREL. ANDREW WINTERBURN, Albany, N. Y. Filed Nov. 5, 1884. (No model.)

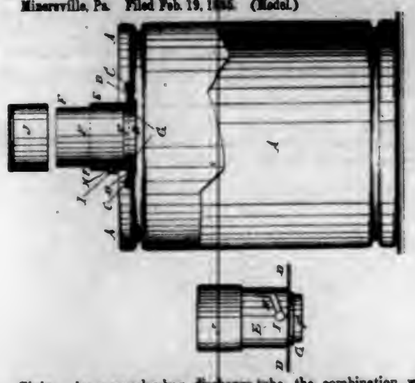


Claim.—1. In a supporter for hose or other articles of wear, the combination, with supporting-strap A, of the elastic branch straps *a a'*, one of which is provided with stud B, and the other with a hook, which will engage with the fabric of the article to be supported, drawn over the head of the stud on the side of its neck from which the line of pull of the supported article is exerted, whereby both the stud and the hook will be made to equally resist the pull of the article supported, all substantially as set forth.

2. In a supporter for hose or other articles of wear, the combination, with elastic branch strap *a*, secured to the stud B, provided with a rivet end, *b'*, by means of base-plate C, provided with slot *c*, bar *c'*, and per-

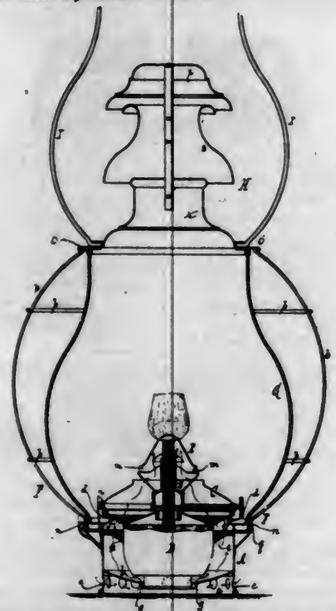
foration c^2, and washer D, as above described, of elastic branch strap a', provided with hook E, all substantially as and for the purposes set forth.

315,874. POWDER-KEG DISCHARGE-TUBE. AUGUSTUS H. WITMAN, Minersville, Pa. Filed Feb. 19, 1885. (Model.)



Claim.—In a powder-keg discharge-tube, the combination, with the tube E, having flanges D around its lower end and provided with the slot H, of the inner tube, F, having shoulders G around its lower end and provided with a pin, I, substantially as herein shown and described, whereby the discharge-tube can be snugly secured to the head of a powder-keg, and can be readily detached, as set forth.

315,875. LANTERN. FRANZ WLACH, Vienna, Austria-Hungary. Filed Nov. 6, 1884. (No model.) Patented in Belgium Apr. 15, 1884, No. 64,665; in Austria-Hungary Apr. 22, 1884, No. 7,344 and No. 17,628, and in France July 15, 1884, No. 161,271.



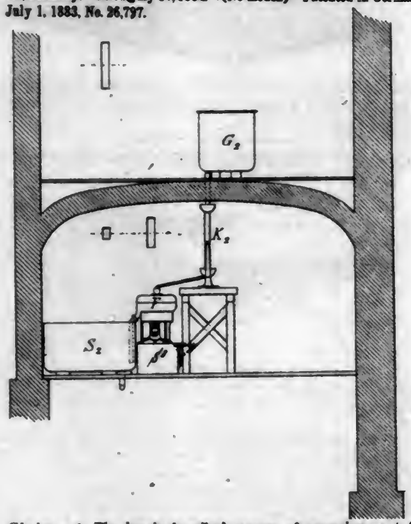
Claim.—1. In a lantern, the combination of the jacket A, having the bottom plate, *b*, having a central opening, the oil-fountain B, suspended in the jacket and having its base arranged in the opening of the bottom plate to form the annular air-passage *g*, the upper and lower annular foraminous plates, *f* and *e*, interposed between the jacket and the fountain, and a burner, substantially as described.

2. In a lantern, the combination of a shell, A, having a apertured bottom plate, *b*, and provided adjacent to its upper edge with a shoulder, an annular foraminous plate, *e*, secured to the shell below the shoulder, and an oil-fountain having an attached annular foraminous plate, *f*, suspending the fountain from the shoulder, said fountain and apertured bottom plate being arranged to form the air-passage *g*, substantially as described.

3. The combination, substantially as hereinbefore described, with the fountain B and the jacket A, of the air-passage *g*, the air-space surrounding the fountain, the foraminous plates *e f*, the wick-tube D, the side plates, *i*, openings *l*, and air-passage *m*.

4. The combination, with the wick-tube D, of the cone consisting of the sleeve *k*, the base-strips *j j*, connected with the sleeve, and the side plates, *i i*, provided with the openings *l l*, and having their upper ends arranged adjacent to each other and constituting between them the free air-passage *m*, transversely to the base-strips, substantially as shown and described.

315,876. PROCESS OF PREPARING AND PURIFYING WORT FOR BREWING PURPOSES. CONRAD ZOEGER, Frankfort-on-the-Main, Prussia, Germany. Filed July 17, 1884. (No model.) Patented in Germany July 1, 1883, No. 26,797.



Claim.—1. The herein-described process of preparing wort for brewing purposes, consisting in boiling the wort with hops, then cooling the wort and discharging and filtering it through a layer of hops in the wort-boiler, then refrigerating the wort for precipitating the albuminous matter therein, and then removing such matter and all solids contained in the wort by passing the latter through a centrifugal machine, substantially as and for the purpose set forth.

2. The process of purifying wort, removing coagulated albuminous matters therefrom, and preparing it for fermentation, consisting in passing the wort through a centrifugal machine, and while in the latter subjecting it to the action of a current of atmospheric air for oxygenating and cooling the liquid, substantially as herein set forth.

315,877. CAN-SOLDERING MACHINE. GEORGE ACKERMANN, Cincinnati, Ohio, assignor of five-sixths to Albert Fischer, August Baam, George Balz, and Chas. F. Loudon, all of same place, and John Wagner, Dayton, Ky. Filed July 14, 1884. (No model.)

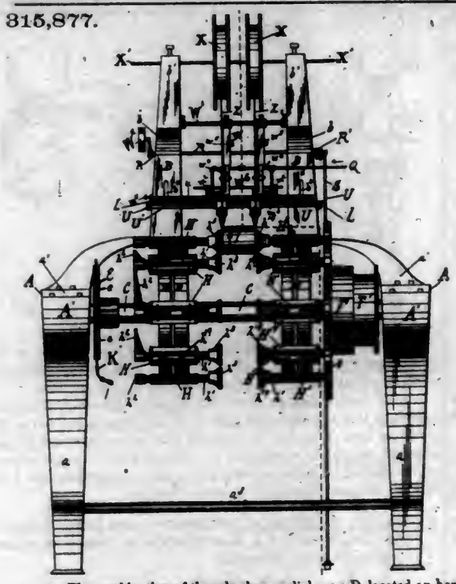
Claim.—1. Two series of opposing can-holders, H and H', each series arranged in an annular vertical row, each row rotating in a given vertical plane parallel to the plane of the opposing row, substantially as and for the purposes specified.

2. Two rows of opposing can-holders, each row having its can-holders disposed annularly equidistant from a common center and connected to said center and rotatable around the same, the holders in one row lying in a vertical plane at right angles to the axis of rotation, and the holders in the other row lying in a vertical plane at right angles to the axis of rotation, the planes in which the rows are being parallel to each other, the holders of one row being connected, respectively, to respective pinions *g*, arranged around and engaging with central operating-gear, G, substantially as and for the purposes specified.

3. Two series of opposing can-holders, H and H', each series arranged in an annular vertical row, each row rotating in a given vertical plane parallel to the plane of the opposing row, and devices for enabling the can-holders of one row to be adjusted nearer to or farther from the holders of the opposing row, substantially as and for the purposes specified.

4. The holder H, consisting of rod h', provided at one end with block h^3, and at the other end with handle h^2 and with slot h^{10}, and collar h^6, having pin h^9 and set-screw h^5, the latter entering slot h^{10}, and spring h^7, compressed between the end of box h and collar h^6, and fixed cam-surface h^8, against which pin h^9 impinges, substantially as and for the purposes specified.

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5. The combination of the wheels or radial arms D, located on horizontal shaft C, and carrying at their periphery the can-holders for clamping the cans between the holders of one annular row and the holders of the opposing annular row so that the longitudinal axis of each can will be horizontal, substantially as and for the purposes specified.

6. The combination of the parallel vertical wheels or radial arms D, located on horizontal shaft C, and carrying at their periphery the can-holders for clamping the cans between the holders of one annular row and the holders of the opposing annular row so that the longitudinal axis of each can will be horizontal, substantially as and for the purposes specified.

7. In combination, the two annular rows of can-holders, each row being in its own vertical plane, the planes being parallel to each other, and the carrying wheels or arms D, connected to shaft C, and the vertical wheel E, having notches *e* in its periphery and fixed to said shaft C, and the bent lever K, provided with tooth or projection *k*, substantially as and for the purposes specified.

8. In combination, the two annular rows of can-holders, each row being in its own vertical plane, the planes being parallel to each other, and the carrying wheels or arms D, connected to shaft C, and the vertical wheel E, having notches *e* in its periphery and fixed to said shaft C, and the bent lever K, provided with tooth or projection *k*, each of the can-holders in one of the rows being provided with a pinion, *g*, and engaging the vertical gear G, revolving loosely on shaft C, but fixed to pulley F, substantially as and for the purposes specified.

9. In combination with can-holders, between which the longitudinal axis of the can is horizontal, the longitudinally-adjustable slides M M, bed L, and soldering-iron carriers, substantially as and for the purposes specified.

10. The bed L, and soldering-iron carriers N, and the rack l^2, pinion l^3, and set-bolt b^2, substantially as and for the purposes specified.

11. The combination of the bed L, slides M M, soldering-iron carriers, screw m^4, and the rack l^2, pinion l^3, and set-bolt b^2, substantially as and for the purposes specified.

12. The combination of soldering-iron carriers N, pivoted on rods n^2, springs N^2, arms N', rod R, lever R', rod S, and treadle t', substantially as and for the purposes specified.

13. The combination of soldering-iron carriers N, pivoted on rods n^2, elastic connections N^2, arms N', rod R, lever R', rod S, provided with holes s', and treadle, substantially as and for the purposes specified.

14. The carrier N, provided with opening n^3, and sleeve or case O' in said opening n^3, and having pivot O^2, bearings in carrier N, and solder-iron O, and set-screw n^4, passing through one of the pivots O^2 and impinging on the solder-iron O, substantially as and for the purposes specified.

15. The combination of the solder-iron O and case O', located loosely within carrier N and pivotally connected to the latter, substantially as and for the purposes specified.

16. The carrier N, provided with opening n^3, and sleeve or case O', located loosely in said opening and having pivots O^2, journaled in carrier N, substantially as and for the purposes specified.

17. The combination of the carriers N, adjustable slide M, having ends m^3 m^3 and pipes 6 and 7, burners P P, and coupling 8, substantially as and for the purposes specified.

18. The shoe V, pivoted on axis U', and having conical opening *v*, and pawl V', substantially as and for the purposes specified.

19. The pivoted shoe V, having conical opening *v*, and pawl V', fulcrumed in projection *v'*, substantially as and for the purposes specified.

20. The lever W, carrying the sheave or wheel W^{12}, and guide 3 and pawl 2, substantially as and for the purposes specified.

21. The combination of the pivoted shoe V, carrying the pawl V', and lever W, carrying guide 3 and pawl 2, substantially as and for the purposes specified.

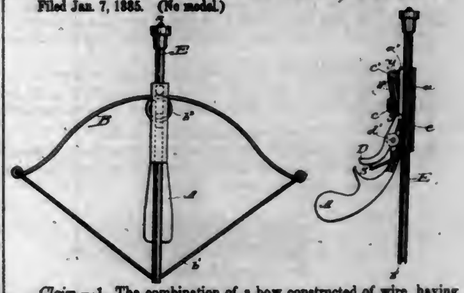
22. The combination of the pivoted shoe V, carrying the pawl V', and lever W, carrying guide 3 and pawl 2, and wheel W^{12}, substantially as and for the purposes specified.

23. The bed L and the carriers N, supported from bed L, and arm U, connected to the bed L, and shoe V, and rack and pinion, and set-bolt, substantially as and for the purposes set forth.

24. The lever W, composed of relatively-adjustable sections w^3 and w^4, and carrying guide 3 and pawl 2, in combination with pivoted shoe V and carrier N, connected to a common support, and rack, pinion, and set-bolt, substantially as and for the purposes set forth.

25. The combination of the vertical annular rows of can-holders, one row being in a plane parallel to the plane in which the other row is, the oscillating soldering-irons O O, the pivoted shoes V, having pawls V', levers W, having guides 3 and pawls 2, and sheave X, and solder-wires Z, substantially as and for the purposes specified.

315,878. CROSS-BOW AND ARROW. JAS. ALMOND, Brooklyn, N.Y. Filed Jan. 7, 1885. (No model.)



Claim.—1. The combination of a bow constructed of wire, having one or more convolutions in the center, the coils being formed on a plane with the bow, with a barrel having upon the under side a projecting hook to embrace and retain the bow and a projecting lug on the under side of the barrel to fit the angle formed by the convolutions in the bow, combined and arranged for attaching and detaching the bow from the barrel, substantially as described.

2. In an arrow-gun, the combination of the arrow, constructed, as described, with a notch in the rear and provided with a projecting pin, with the gun herein described, provided with a slotted barrel and a trigger which engages the projecting pin on the arrow when the latter is in position to be shot, and the bow and string, substantially as described.

3. In an arrow-gun, the combination of the barrel, constructed, as described, with a hook and a lug to hold the bow and retain it in position, and provided with a slot through which the projection on the arrow passes as the latter is shot from the gun, and provided with a trigger which engages directly with the projecting pin on the arrow, of the arrow provided with a projecting pin and a notch, and a bow and string, as set forth.

4. In an arrow-gun, the combination of the barrel provided, as described, with a hook and lug for retaining the bow in place and a trigger for engaging a projection on the arrow and thus holding the arrow when in position to be discharged, with an arrow provided with a notch or groove to engage with the string of a bow, and a projecting pin which extends at an angle to the notch or groove in the arrow, and a spring-bow and string, substantially as described.

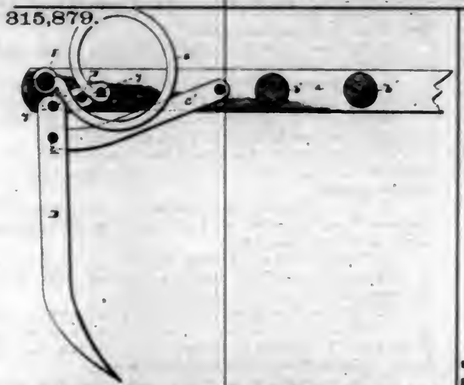
315,879. CULTIVATOR-TOOTH. ANDREW G. ANDERSON, Janesville, Wis. Filed Jan. 21, 1885. (No model.)

Claim.—1. The combination, with a drag-bar, tooth, and link connecting the tooth and drag-bar, of locking-bars pivoted to the tooth and drag-bar, a spring engaging the locking-bar, and an adjustable support for one end of the spring, substantially as set forth.

2. The combination, with the drag-bar, tooth, and links connecting the tooth and drag-bar, of locking-bars pivotally connecting the upper end of the tooth and the drag-bar, and a spring pivotally connected at one end with the locking-bars, and its opposite end supported on an eccentric-roller bearing, substantially as set forth.

3. The combination, with a yielding tooth and spring, of an eccentric roller with which one end of the spring engages, substantially as set forth.

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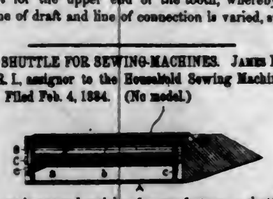


4. The combination, with a tooth pivotally connected to links attached to the drag-bar, of an eccentric roller and a spring having a forked end that engages said roller, substantially as set forth.

5. The combination, with a drag-bar composed of side pieces connected together, a tooth and links pivoted to the tooth and to the drag-bar, of locking-bars pivoted between the side pieces of the drag-bar and to the upper end of the tooth, and a spring situated between the side pieces of the drag-bar, one end of the spring engaging the locking-bars and the other end engaging an adjustable support, substantially as set forth.

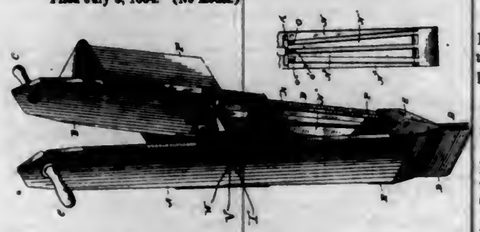
6. The combination, with a tooth secured to a drag-bar, of an eccentric abutment for the upper end of the tooth, whereby the angle formed by the line of draft and line of connection is varied, substantially as set forth.

315,880. SHUTTLE FOR SEWING-MACHINES. JAMES H. ANTHONY, Providence, R. I., assignor to the Household Sewing Machine Company, same place. Filed Feb. 4, 1884. (No model.)



Claim.—As an improved article of manufacture, a shuttle for sewing-machines having a longitudinal bore adapted to receive and hold a bobbin loosely without any journals, said shuttle having the interior surface or walls of its bore made truly cylindrical and smooth after it has been tempered, substantially as and for the purpose set forth.

315,881. HAND CORN-PLANTER. CHARLES B. ARNOLD, Glencoe, Ky. Filed July 3, 1884. (No model.)



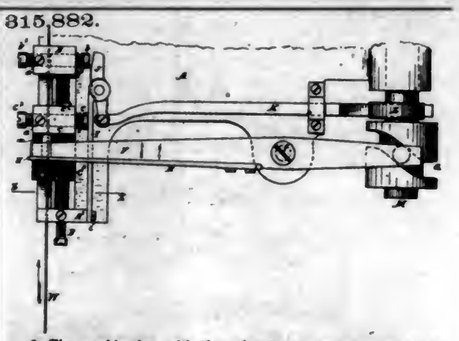
Claim.—The combination, in a hand corn-planter, with the leg B, provided with the strips N N³ at opposite sides on its inner face, tapering to a point from above downward, of the intermediate strips, N' N³, tapering from below upward, and the fabric P, for covering the strips to form the seed-tubes, as set forth.

315,882. MACHINE FOR FEEDING WIRE. OLIVER ARNOLD, Worcester, Mass., assignor to the T. K. Earle Manufacturing Company, same place. Filed Jan. 30, 1885. (No model.)

Claim.—1. The combination, in a wire-feeding mechanism, of the block C, with stops for limiting its movement in both directions, the operating-lever F, attached to said block by a yielding connection, and the actuating-cam G, adapted for positively imparting motion to said lever in both directions and in excess of the movement of the feed-block, as hereinbefore set forth.

2. The combination, with the movable jaw-block C in a wire-feeding device, of the operating-lever F, provided with the spring H, the stud *m*, the stops D and C², and the spring C², substantially as shown and described.

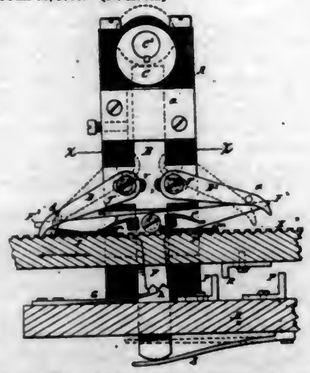
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3. The combination, with the grip pins or jaws *b* and *c*, of the spring-plate I, attached to the frame at *i*, the lever-head J, hinged to said spring-plate, the rod K, and cam L, as shown and described.

4. In combination, as shown, the stationary jaw-block B, having grip-pins *b b'*, the movable jaw-block C, having grip-pins *c c'*, the guide-rod E, the lever F, having the spring H and stud *m*, the spring C², the adjustable stop D, the spring-plate I, with lever-head J, the connection-rod K, the grooved lever-operating cam G, and rod-operating cam L on shaft M, said parts constructed as herein described.

315,883. MECHANICAL MOVEMENT. OLIVER ARNOLD, Worcester, Mass., assignor to the T. K. Earle Manufacturing Company, same place. Filed Jan. 30, 1885. (No model.)



Claim.—1. The combination of the reciprocating bar B, the pawls D D', the ratchet or gear E, the tumbler F, having arms F' F² and trip-plates I I', and the trip-dogs J J', substantially as and for the purposes set forth.

2. The oscillating tumbler F, springing trip-plate I, and dog J, having the lug *m* and incline *n*, in combination with the pawl D and ratchet-gear E, for the purposes set forth.

3. The combination of the reciprocating plunger B, carrying the pawls D D', the ratchet or gear E, the tumbler F, the elastic trip-plates or springs I I', slide-bar K, stops P R, and adjustable dogs J J', substantially as set forth.

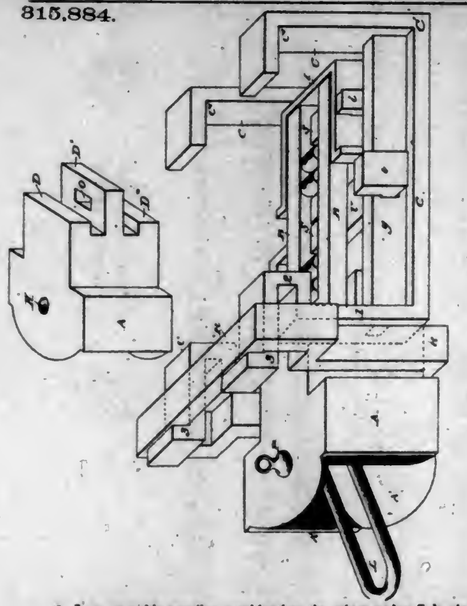
4. The combination of the plunger B, the pawls D D', laterally adjustable thereon, the rack or gear E, the tumbler F, with arms F' F² and trip-plates I I', the spring G, carrier E', slide K, adjustable dogs J J', cam C, and springs, as shown and described.

315,884. CAR-COUPLING. JAMES R. AVERY, Louisville, Ky. Filed July 3, 1884. (No model.)

Claim.—1. The combination, in a separable coupling combination, of a separable coupler having a coupling-link, L, and pin P, a circular front to link-opening having quarter-circle walls A' and A², converging from the contour of said front blending with the semicircle and three-quarter-circle walls of inner cavity, *a*, of elliptical form, and link-rest *a'* of crescent form, a pin-hole, H, with seat N, and a clutch end separable device having three sections, the central one with a vertical hole through its center, or equivalents, all substantially as and for the purposes specified.

2. In a separable coupling combination, the draw-bar B, having a vertical and a horizontal opening, each equal and bisecting the other longitudinally, provided with the guide-rest I, secured to the vertical end of said draw-bar with bar-key *i*, and mortise-holes provided therefor, or equivalents, all substantially as and for the purposes specified.

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3. In a separable coupling combination, the crimp-spring S, having depending right-angled ends with a hole through each provided with a small rod, chain, or other equivalent for security, and a separable pin, A, with a hole through its lower end, all substantially as and for the purposes set forth.

4. In a separable coupling combination, the attachment having connecting-bars C C with angles 1 2 3 front, and C' C' rear, and a mortise-hole in the vertical side of angles 1 and C' of each, guide-bar *g*, with a tenon on the ends of each and a mortise-hole through each equally distant from the corresponding ends, a co-ordinate bar, U, with a mortise-hole through each end provided with pins, bolts, keys, or other means of security, and a mortise-hole vertically through its center, or an equivalent bar, and a coupler-rest, R, having the form of a rectangled parallelogram or other required form, all substantially as and for the purposes specified.

5. The combination, in a separable coupling combination, of the coupler A, draw-bar B, springs S, and attachments, all substantially as set forth.

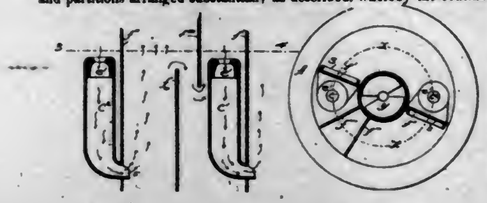
315,885. COMPOSITION OF MATERIAL FOR DAMP-PROOF SOCKS OR SOLES FOR BOOTS, &c. ROBERT J. BAGSALEY, Nottingham, England. Filed Jan. 31, 1885. (No specimens.) Patented in England Jan. 15, 1883, No. 230.

Claim.—The herein-described composition of matter, consisting of oxidized linseed-oil, caustic lime, borax, essential oil of almonds, flowers of sulphur, and pulverized or ground cork, in the proportions substantially as specified.

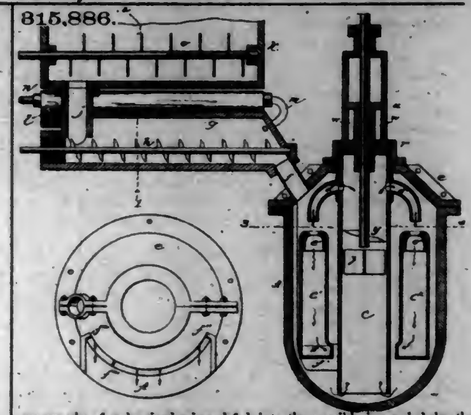
315,886. APPARATUS FOR REDUCING THE ORES OF PRECIOUS METALS. JOHN A. BAILEY, Detroit, Mich. Filed Aug. 11, 1884. (No model.)

Claim.—1. In an apparatus for the reduction of ores, the central tube with nozzles and contained propeller so arranged in a crucible containing molted metal as to create an upward current in the tube and through the recurved nozzles, and a downward current in tubes arranged beneath the said nozzles, thereby bringing the pulverized mineral into intimate contact with the molten metal, substantially as described.

2. In an apparatus for the reduction of ores, the combination of a central tube having nozzles and a contained propeller with the side tubes and partitions arranged substantially as described, whereby the continuous supply of pulverized mineral fed into the crucible is carried by the currents created one or more times through the molten metal, the refuse gathering at one side, where it may be removed, substantially as described.



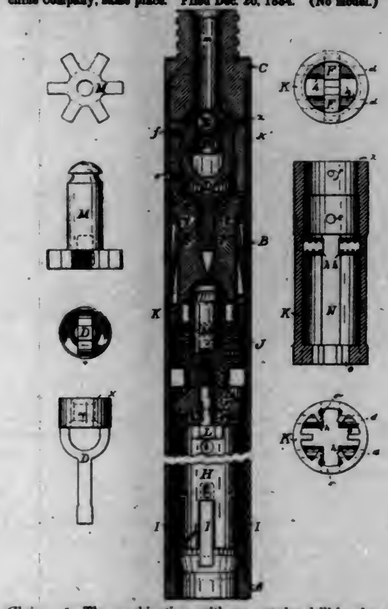
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3. In an apparatus for the reduction of ores, the combination of a transverse vertical diaphragm in a central tube containing a propeller with a crucible containing molten metal so arranged that the whirling motion set up by the action of the propeller will be broken and no vortex formed in the fluid metal, substantially as described.

4. The combination of the receiving-cylinder *k*, connected by chute *j* to the conveyer-box *g*, having suitable connections for the admission of steam or gas, and the discharge-chute *f*, with a crucible having a cover and central tube with nozzles containing a propeller and shaft and a transverse diaphragm, together with side tubes and partitions, all contained in a suitable furnace, subtantially as described, and for the purposes set forth.

315,887. CORE BREAKER AND LIFTER FOR ANNULAR ROCK-DRILLS. ALBERT BALL, Claremont, N. H., assignor to the Sullivan Machine Company, same place. Filed Dec. 20, 1884. (No model.)



Claim.—1. The combination, with an annular drill-head and core-barrel, of core grasping and lifting wedges I I, connected with the interior thereof, a clear space at all parts being left between said wedges and the exterior of the core, substantially as described.

2. The combination, with an annular drill-head and core-barrel, of the wedges I I within the core-barrel, the head G, with which said wedges are connected, the plunger-pin M, connected with the head G,

and the latches F, engaging with said plunger-pin, substantially as and for the purposes set forth.

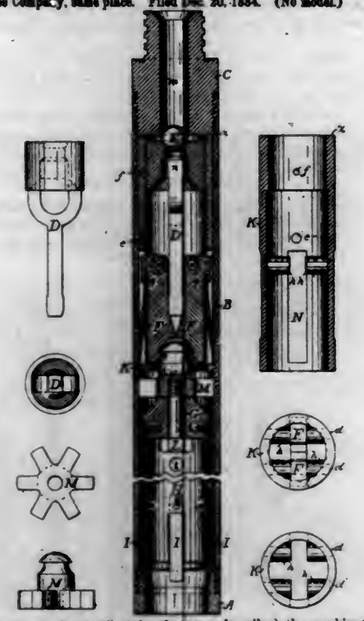
3. The combination, with an annular drill-head and core-barrel, of the cylinder H within the core-barrel, provided with water inlets and outlets, the wedges I I, attached to said cylinder, the head G, attached to said cylinder, and the plunger-pin M, attached to the head G by the bolt L, and the latches F, engaging with said plunger-pin, substantially as and for the purposes set forth.

4. The combination, with an annular drill-head and core-barrel, of the cylinder K, the coil-spring J, having a bearing against said cylinder, the plunger-pin M, operated by said spring, the latches F F, engaging with said plunger-pin, the head G, attached to said plunger-pin, and the wedges I I, connected with said head, substantially as and for the purposes set forth.

5. The combination, with an annular drill-head and core-barrel, of the plunger-pin M, the valve D, connected with said plunger-pin, the latches F, engaging with said plunger-pin, the spring J, operating the same when disengaged from the latches, and the head G, connected with said plunger-pin and adapted to carry the connected wedges I I, substantially as and for the purposes set forth.

6. The combination, with an annular drill-head and core-barrel, of the ball E, adapted to close the opening to the valve D, the valve D, operating upon the latches F, the plunger-pin, the spring J, operating the same when disengaged from the latches, and the head G, connected with said plunger-pin and carrying the connected wedges I I, substantially as and for the purposes set forth.

315,888. CORE BREAKER AND LIFTER FOR ANNULAR ROCK-DRILLS. ALBERT BALL, Claremont, N. H., assignor to the Sullivan Machine Company, same place. Filed Dec. 20, 1884. (No model.)



Claim.—1. In a drill of the character described, the combination of the ball E, the valve D, provided with an opening, *n*, adapted to be closed by said ball, and with a valve-stem, and latches F F, the plunger-pin M, and the wedges I I, connected thereto, said latches adapted to be disengaged from the plunger-pin by the action of the valve-stem, substantially as and for the purposes set forth.

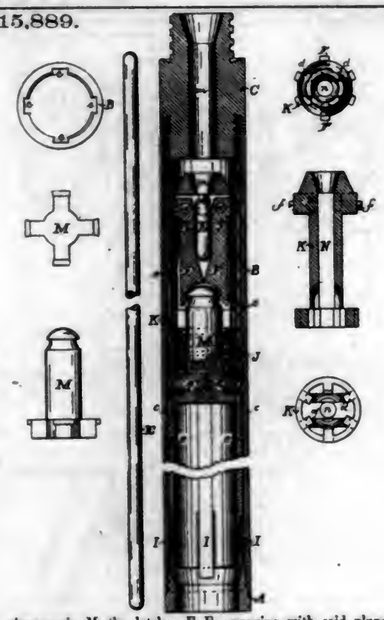
2. The combination, in a drill of the character described, of the ball E, the valve D, provided with an opening, *n*, adapted to be closed by said ball, and with a valve-stem, the latches F F, adapted to be disengaged from the plunger-pin M by the action of said valve-stem, the plunger-pin M, the head G, connected with said plunger-pin, and breaking and lifting wedges I I, substantially as and for the purposes set forth.

315,889. CORE BREAKER AND LIFTER FOR ANNULAR ROCK-DRILLS. ALBERT BALL, Claremont, N. H., assignor to the Sullivan Machine Company, same place. Filed Dec. 20, 1884. (No model.)

Claim.—1. In the core-barrel of an annular drill, the channels *c*, in combination with the long wedge-arms *e e*, carrying wedges I I, substantially as described.

2. The combination, with an annular drill-rod and core-barrel, of

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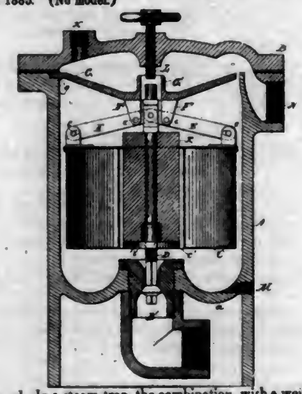


the plunger-pin M, the latches F F, engaging with said plunger-pin, and breaking and lifting wedges connected thereto, and the drop-rod E, adapted by contact to separate said latches and disengage them from said plunger-pin, substantially as and for the purposes set forth.

3. The combination, with an annular drill-rod and core-barrel, of the drop-rod E, the plunger-pin M, the latches F F, engaging with said plunger-pin, and breaking and lifting wedges connected thereto, the spring J, operating said plunger-pin, whereby the drop-rod by contact separates said latches and disengages the plunger-pin, which is operated by the spring, substantially as and for the purposes set forth.

4. The combination, with an annular drill-rod and core-barrel, of the drop-rod E, the plunger-pin M, the latches F F, engaging with said plunger-pin, the spring J, operating said plunger-pin, and the breaking and lifting wedges I I, connected with said plunger-pin, whereby the drop-rod separates the latches, disengages the plunger-pin whose spring operates said plunger-pin and the connected wedges, substantially as and for the purposes described.

315,890. STEAM-TRAP. JOB R. BARRY, Philadelphia, Pa. Filed Jan. 13, 1885. (No model.)



Claim.—1. In a steam-trap, the combination, with a weighted valve, I, having a rod, D, of a counterbalancing-cup, C, which, when empty, balances said valve and its weight, substantially as shown and described.

2. In a steam-trap, the combination, with the valve I, having a rod or stem, D, of weight X, secured on said rod, and an annular cup, C, connected to the latter by means of levers E E, said cup when empty balancing the valve and weight, substantially as shown and described.

3. In a steam-trap, the combination, with the valve, of a counterpoise which controls the opening and closing of said valve, the same consisting of a cup which, when empty, balances the valve as set forth, and which, when filled with water, tends to keep said valve closed, the valve opening under pressure when water in the cup is counterbalanced by water outside of the same, substantially as set forth and shown.

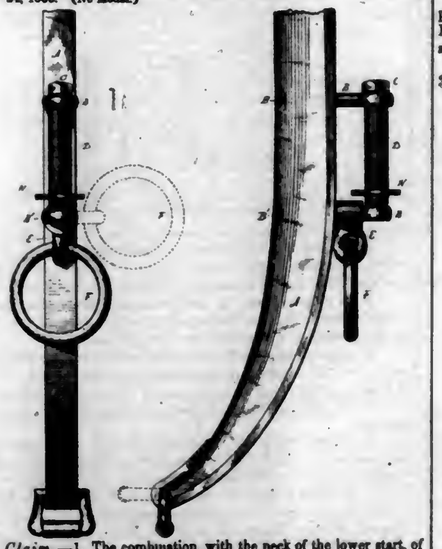
4. In a steam-trap, the valve shell or body A, having a central opening in its bottom for a valve, said bottom being concave, and forming an annular trough around the valve-seat, substantially as shown and described.

5. In a steam-trap, the combination, with the valve-rod D, of counterpoise C, levers E E, and support G, having lugs F F for sustaining said levers, substantially as shown and described.

6. In a steam-trap, the combination, with the body A, of the dish-shaped device G, forming a sediment-collector, said collector being located in the upper portion of the trap and above the valve, substantially as shown and described.

7. In a steam-trap, the combination, with a valve, I, having a seat in the bottom or one end of the trap, of the screw L, having its bearings in the top or other end of the trap, and aligned with the rod of said valve, substantially as shown and described.

315,891. HAME. GEORGE H. BARTLETT, Sunapee, N. H. Filed Feb. 24, 1885. (No model.)

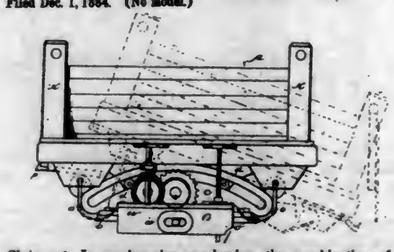


Claim.—1. The combination, with the neck of the lower start, of the loose sleeve provided with an eye carrying the pole-strap ring, as set forth.

2. The combination, with the draft-bolt, of the sleeve having a rigid washer located above its lower end, substantially as shown, and the lower start having about its neck a loose sleeve provided with an eye carrying the pole-strap ring, as set forth.

3. The combination, with the hame A, of the upper start, B, the draft-bolt C, provided with sleeve D, having the rigid washer H located above its bottom, and the lower start, B', having about its neck the loose sleeve E, provided with an eye carrying the pole-strap ring, as set forth.

315,892. DUMPING-CAR. GEORGE E. BLADE, Chattanooga, Tenn. Filed Dec. 1, 1884. (No model.)



Claim.—1. In car-dumping mechanism, the combination of sub-bolsters supported on the trucks, consisting of two sides divided by a space, *k*, and provided with corresponding arc-slots, the car-body having depending racks serrated on their under surfaces and moving in space *k*, friction-rolls borne by said brackets and working in the arc-slots, a main operating-shaft carrying cogs which mesh with the racks, and a counter-shaft for communicating motion to the main shaft, substantially as described.

2. In car-dumping mechanism, the combination, with the arc-slotted sub-bolsters, the car-body having depending concave and toothed racks, and the devices for operating said car-body, all as herein described, of the buffer-springs borne in projections on the racks and standards, and cords or chains connecting the springs of one with those of the other, as described.

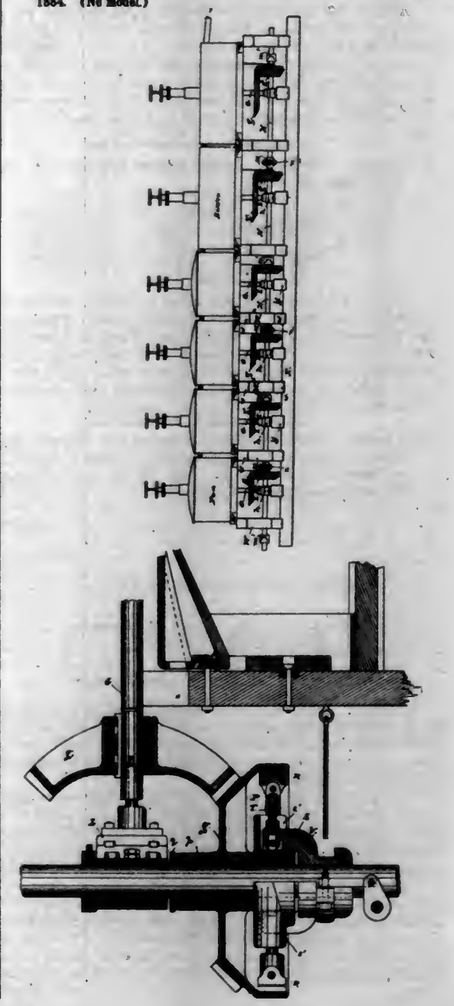
3. The combination of slotted sub-bolsters movably supporting the car-bed, racks depending from the under side of the latter, a main shaft extending between the standards for operating the bed, and carrying cogs which mesh with the racks, and a counter-shaft for communicating motion to the main shaft, substantially as described.

4. The combination, with the slotted sub-bolsters movably supporting the car-body, of chains and springs, whereby a yielding retrograde is given to the bed when dumped or tilted, as described.

5. The combination, with the car-body having pivoted sides provided with spring-stripe *q*, of the pivoted and weighted gravitating latches attached beneath the body, and the eccentric cam-shaft and its cams, substantially as described.

6. The combination, with the car-body and its pivoted sides, of the pivoted weighted and gravitating latches *p*, and the cam-bearing rods M, formed at one end with a crank, and chains secured to the platform and attached to the cranks, substantially as and for the purpose described.

315,893. AMALGAMATING-PAN AND SETTLER APPARATUS FOR TREATING ORES. MARTIN P. BOSS, Oakland, Cal. Filed Dec. 16, 1884. (No model.)



Claim.—1. The combination, in an apparatus for treating ores by the pan process, of a series of amalgamating-pans in line and close connection, and a series of settlers individually disconnected and separate from the pans, but connected in a series, and the two series being arranged upon the same level and connected together to discharge by overflow from one series into the other, substantially as set forth.

2. The combination, in an apparatus for treating ores by the pan process, of a series of connected pans and a series of connected settlers upon the same bench or level in relation to a line of driving-shaft, and mechanism connecting the upright shaft of each pan and settler with said driving-shaft, substantially as set forth.

3. The combination, with a series of pans in line upon the same bench or level, of a common driving-shaft having a set of gears, of which each one is connected to the shaft by a friction-clutch, and is set to engage with a bevel-gear fixed on the muller-shaft of each pan, substantially as set forth.

4. The driving-shaft composed of slip sections or lengths, each of which is provided with a flanged coupling on one end and a clutch-coupling on the other end, to engage with corresponding couplings of the adjacent sections, and the interposed removable rings, substantially as set forth.

315,894. BUTTON. ALONZO R. BOYNTON, Auburn, N. Y., assignor of one-half to Joseph Stumpe, same place. Filed Jan. 15, 1885. (No model.)



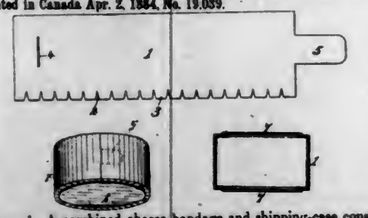
Claim.—The herein-described method of manufacturing buttons, consisting in first drilling one thread-perforation, thereupon partly withdrawing the drill and button from each other, at the same time traversing one relatively to the other, continuing this traversing motion, so as to plow a recess across the button, gradually approaching the drill and button toward each other during the last portion of the traversing motion, and lastly drilling the other hole, as and for the purpose shown and set forth.

315,895. NUT-LOCK. PATRICK T. BRADY, New York, N. Y. Filed Aug. 6, 1884. (No model.)



Claim.—The combination, with a head or bonnet constructed with a stuffing-box and provided with a screw-thread, a stem working in the head or bonnet, and a gland or nut fitting said thread, of a locking-cap slotted to enable it to be slipped laterally on the stem, fitting the gland or nut, and provided with one or more arms or ears engaging with the head or bonnet, and thereby preventing the turning of the gland or nut, substantially as herein described.

315,896. COMBINED CHEESE BANDAGE AND SHIPPING-CASE. FRANCIS W. BRIDTON, Foxborough, assignor of one-half to Harford Ashley, Belleville, Ontario, Canada. Filed May 19, 1884. (No model.) Patented in Canada Apr. 2, 1884, No. 19,039.

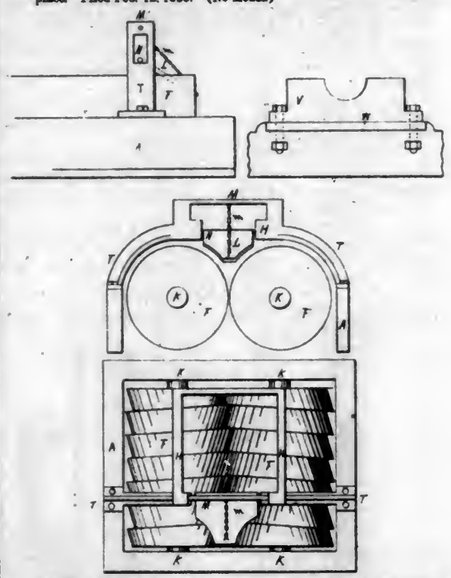


Claim.—1. A combined cheese bandage and shipping-case consisting of a strip of thick paper-board or equivalent material having inwardly-turned flanges at its upper and lower edges, and circular flat disks having their peripheral edges overlapping the inwardly-turned flanges, substantially as described.

2. A combined cheese bandage and shipping-case consisting of a strip of thick paper-board or equivalent material having inwardly-turned flanges at its upper and lower edges, and a slit adjacent to one end and a tongue on the other end, and paper or straw board disks adapted to overlap the inwardly-turned flanges of the strip, substantially as described.

3. A combined cheese bandage and shipping-case consisting of a thick paper-board or equivalent material strip having a transverse slit adjacent to one end and a tongue on the other end to enter the slit and lie inside, and provided with inwardly-turned flanges at its upper and lower edges, and the circular paper or straw board disks adapted to overlap and be cemented to the inwardly-turned flanges, substantially as described.

315,897. CLAY-CRUSHER. A. L. BREWER and HENDREK HEESEN, Tecumseh, Mich., assignors to themselves and H. Brewer & Co., same place. Filed Feb. 12, 1885. (No model.)



Claim.—1. In a clay-crusher, the combination, with the crushing-rolls, of a breaker hung on a shaft supported in slotted guides and free to rise and fall therein, substantially as shown and described.

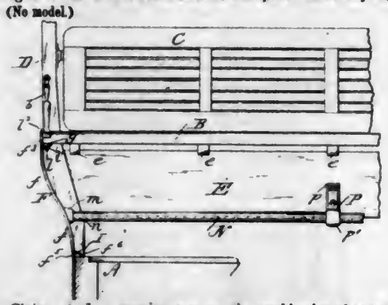
2. In a clay-crusher, the combination, with the crushing-rolls, of a swinging breaker hung over the opening between the rolls, near the delivery end thereof, substantially as shown and described.

3. In a clay-crusher, the combination, with the frame and crushing-rolls, of slotted supports, a shaft resting in said slots and free to rise and fall or turn therein, and a breaker secured to said shaft and extending toward the delivery end of the rolls, substantially as shown and described.

4. In combination with the frame A, the rolls F F, hopper H, slotted supports T T, shaft N, breaker L, cross-bar M, and chain *m*, substantially as shown and described.

5. In a clay-crusher, the combination, with the frame and the boxes which carry the shaft of one of the crushing-rolls, of a piece of wood interposed between each of said boxes and the frame, and fitted on each side, respectively, to the frame and the box, substantially as and for the purposes set forth.

315,898. STREET-CAR. GEORGE M. BRILL, Philadelphia, Pa., assignor of one-half to John A. Brill, same place. Filed July 21, 1884. (No model.)



Claim.—1. In a summer open car, the combination of posts D, the frame, the sills, and the metal panels F, connected with said frame, sills, and posts, substantially as described.

2. The combination of car-seat frame B, posts D, panels F, having supporting-lugs *g*, and feet or lugs f^6, and bolt-connections, substantially as and for the purpose set forth.

3. The combination of posts D, panels F, seat-frame B, and bed-post-bolt connection, substantially as shown and described.

4. The combination of posts D, metal panels F, having lugs *g*, with openings *g'*, and the bolt-holes f^6, the seat-rails b^5, having recesses or borings b^3, nuts b^4, and bolts b^2, substantially as shown and described.

5. In a summer or open car, the combination of posts D, the seat-frame, the sills, and side panels bolted or screwed to the sills and supporting and connected to the ends of the seat-frame, and provided with bearings for the foot bars or rungs, substantially as shown and described.

6. The combination of posts D, seat-frame B, and panels F, having cups or bearings *m*, and foot-bars N, substantially as shown and described.

7. The combination of posts D, seat-frame B, panels F, having cups or bearings *m*, foot-bars N, and brackets P, substantially as shown and described.

8. The combination of posts D, seat-frame B, panels F, bolt-connection b^2, and foot-bars N, substantially as shown and described.

9. The combination of posts D, panels F, having lugs *g*, with openings *g'*, the seat-frame B, having bolt-connection b^2, and arms *b*, having bolt *l*, connecting said arms to said frame and lugs, substantially as shown and described.

10. An imperforate metal panel for summer cars, having lugs f^6 and *g* and openings f^5, substantially as and for the purpose set forth.

11. An imperforate metal panel for cars, having lugs f^6 and *g*, openings f^5, and cups or boxes *m*, substantially as and for the purpose set forth.

12. As a new article of manufacture, a street-car panel made of metal, having lugs f^6 and *g*, circular ends f^3, with openings f^5, beaded edges R, and cups *m*, all formed integral, substantially as shown and described.

315,899. FAN-HOLDER. BLOOMFIELD BROWER, New York, N. Y., assignor of one-half to Edward Grey, same place. Filed Dec. 7, 1883. (No model.)

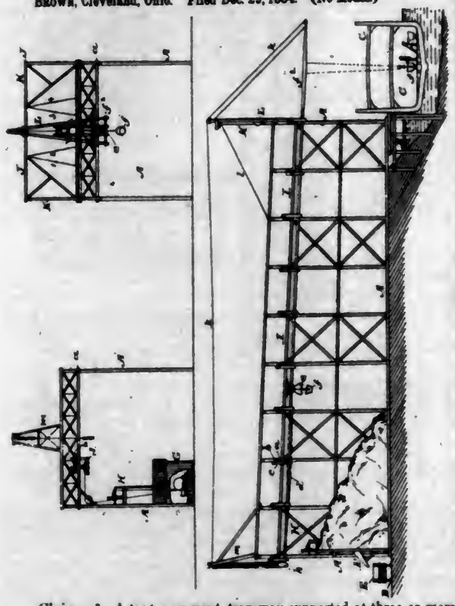


Claim.—1. A holder consisting of the rest formed by bars, as 2, and a curved tongue, which rest is supported a suitable distance from the wall or back board to provide a space between the rest and back board for the spreading butt of a fan, substantially as described.

2. A holder for fans and light articles, provided with one or more rests, 2 4, and one or more sets of opposed sockets, 11, all raised from the wall or back board, substantially as described.

3. A holder for fans and light articles, provided with one or more rests, 2 4, openings 12, and one or more sets of opposed sockets, 11, all raised from the wall or back board, substantially as described.

315,900. HOISTING AND CONVEYING MACHINE. ALEXANDER E. BROWN, Cleveland, Ohio. Filed Dec. 29, 1884. (No model.)



Claim.—1. A bridge or rigid tramway supported at three or more points and adapted to be moved bodily sidewise on a series of cross-beams or truck-like supports, substantially as and for the purposes set forth.

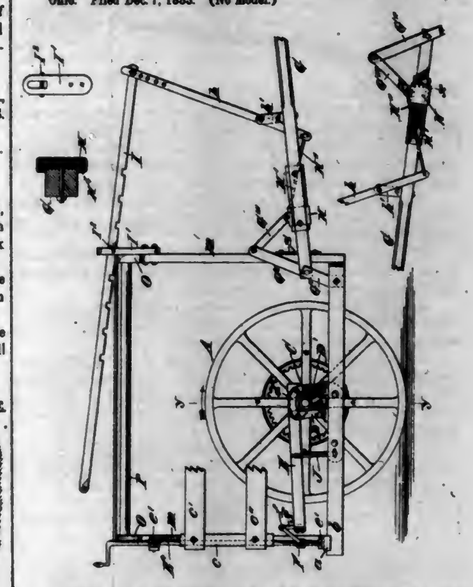
2. In combination with any suitable covered storage-building, a tramway for a hoisting and conveying machine, arranged beneath the roof of said building, and having its hinged apron projecting outwardly beyond and working wholly exteriorly of said building, all substantially in the manner and for the purposes set forth.

3. In combination with a shed or storage building, a laterally-adjustable tramway arranged inside thereof, and a hinged apron projecting beyond the building, an upwardly-projecting frame-work near the outer end of the tramway and exterior of the building, and a suitable supporting cross-beam at the end of the building, the whole arranged and operating together, so that said cross-beam affords proper support for the upper end of the projecting frame-work of the tramway, substantially as hereinbefore set forth.

4. A rigid tramway suspended by a series of truck-like carriers, and means for causing said carriers to move simultaneously upon suitable supporting cross-beams, substantially as and for the purposes set forth.

5. The combination of a series of truck-like tramway-supporting carriers with a single machine or mechanism for moving said carriers simultaneously, substantially as hereinbefore set forth.

315,901. HARVESTING-MACHINE. ROBERT BROWN, Springfield, Ohio. Filed Dec. 7, 1883. (No model.)



Claim.—1. In combination with the main harvester-frame, a yoke, E, hinged to the boxing of the axle at one end, and to the screw-threaded collar F at the other end, working on threaded shaft E', said yoke connected to the main frame by the links J, substantially as described.

2. In combination with the harvester-frame secured to the drive-wheel axle by the yoke E, the segmental standards D D', screw-threaded shaft E', screw-collar F, and links J *f*, pivoted to the yoke and the frame, substantially as described.

3. In combination with the main frame A, suspended upon the main drive-wheel axle, the tilting mechanism I *h* H'' G''', connected to the forward end of the main frame and to the tongue G, whereby the frame may be tilted upon the main axle, substantially as described.

4. The combination, with the tongue G, the adjustable sliding box H, attached to and moving on ways H', mounted on the tongue, the link H'', connected with said sliding box, the lever *h*, connected with the link H'' and fulcrumed upon the tongue, and the rod I, connected with the lever *h*, substantially as described.

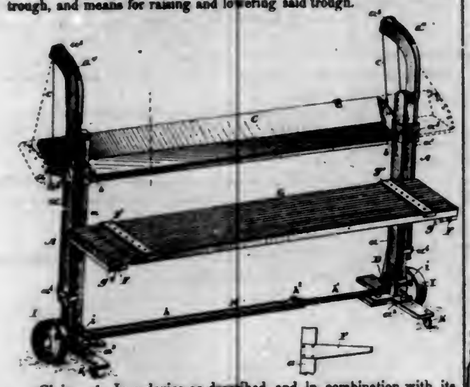
5. The combination, with the driving-wheel K, of the knotting mechanism and the sprocket-wheels K', K'', and L, mounted on the main frame, of the sprocket-wheel L'', mounted on the platform, and the sprocket-wheels M N on the elevated carrier-frame, and the single chain Q, adapted to drive the knotting mechanism simultaneously with the raking and elevating apparatus, substantially as described.

6. In combination with the stationary carrier-frame *m*, having the endless apron driven by the chain Q, the gravitating float-frame O, connected to carrier-frame *m* by parallel hinges S, and the endless apron driven by transmitters *m' n*, substantially as described.

7. In combination with the driving-rollers of an endless carrier, the elastic rubber bearing-surfaces T, and endless canvas carrier working thereon, substantially as specified.

315,902. PLASTERING, CALCIMINING, AND PAINTING MACHINE. THEODORE H. BROWN, Viroqua, Wis., assignor of one-half to H. C. Forsyth, same place. Filed Oct. 24, 1884. (No model.)

Brief.—A vertically and longitudinally extensible frame is mounted on wheels, and is provided with a longitudinally-extensible foot-board and trough, and means for raising and lowering said trough.



Claim.—1. In a device as described, and in combination with its base a^3, the rollers and casters, as and for the purposes set forth.

2. The combination, with a vertically and longitudinally extensible frame or scaffold, as described, of a longitudinally-extensible trough or hod, and means for raising and lowering the same, as specified.

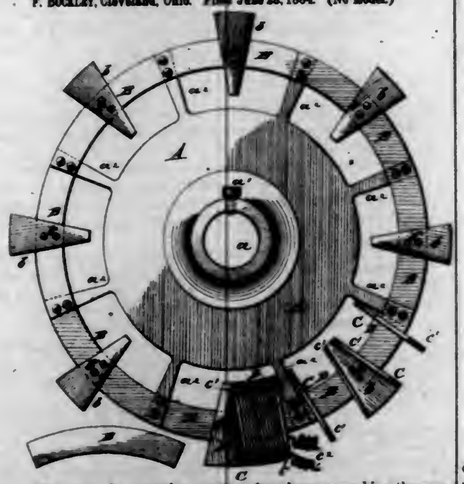
3. A vertically and longitudinally extensible scaffold or frame mounted on wheels and provided with a longitudinally-extensible foot-board, substantially as described.

4. The combination of extensible posts A A with the extensible trough C, and means for raising and lowering the same, the extensible foot-board G, and brackets F, substantially as described.

5. The combination of extensible posts having curved portions a' a', the extended bases for said posts, and a hod or trough suspended from said curved portions, substantially as described.

6. The combination, in a portable scaffold, of the following instrumentalities: vertically-extensible posts mounted on rollers, an extensible foot-board, an extensible tie-rod, H, an extensible hod or trough, and means for elevating and lowering the same and holding it at any desired height, substantially as described.

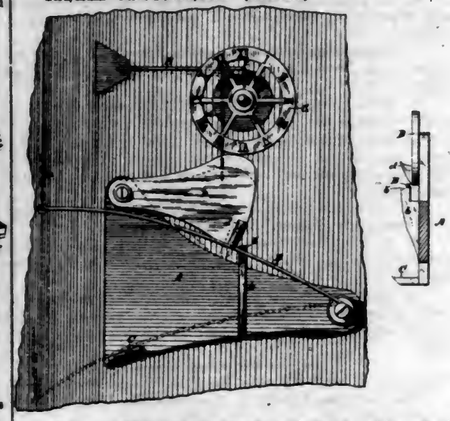
315,903. ARMATURE FOR DYNAMO-ELECTRIC MACHINES. W. F. BUCKLEY, Cleveland, Ohio. Filed June 23, 1884. (No model.)



Claim.—1. In a rotating armature for a dynamo-machine, the combination of the disk A, provided with the arms a^2 a^2, and the plates B B, and clips b b, properly insulated and arranged in sets forming the sections B' B', between the arms a^2 a^2 of the bobbins C C, composed of the insulating-plates c' c', and insulated wire c, properly wrapped, between said plates, substantially as specified.

2. In a dynamo-machine substantially as described, the combination of the disk having the radial arms, the armature-sections composed of the plates and clips, the long plates b^2, and the screws b^3, for connecting the extended ends of the said plates to the radial arms, substantially as set forth.

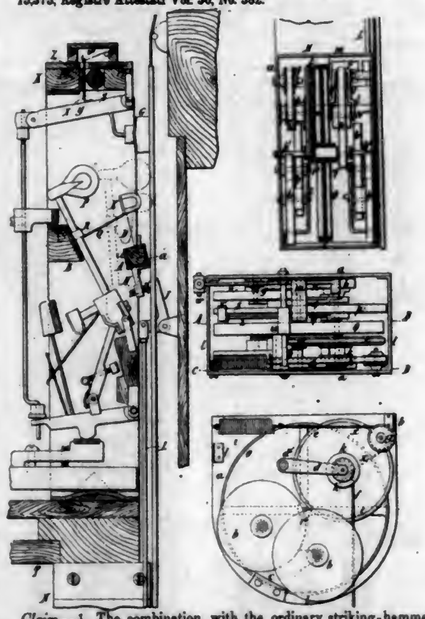
315,904. AUTOMATIC DAMPER-REGULATOR. JOHN BURGE, West Said, Mass. Filed Dec. 29, 1884. (No model.)



Claim.—1. The plate A, having the projection b, and lever B, pivoted to said plate A, in combination with the latch D, having the wedge-shaped point d, substantially as shown and described.

2. The disk F, adapted to be rotated and having the notch f, the arm E, connecting-rod e', and latch D, having wedge-shaped point d, in combination with lever B and projection b, all arranged and operating substantially as shown and described.

315,905. PIANO-FORTE. LUIGI CALDERA, Turin, Italy. Filed Nov. 6, 1883. (No model.) Patented in Italy, Registro Generale Vol. 17, No. 15,375, Registro Attestati Vol. 30, No. 382.



Claim.—1. The combination, with the ordinary striking-hammer, damper, and other parts of the action of a piano, of an auxiliary hammer located below the line of percussion of said main hammer, a flexible band or its described equivalent for connecting the two hammers, and means, substantially as set forth, for actuating the auxiliary hammer when the key of the main hammer is depressed, substantially as described.

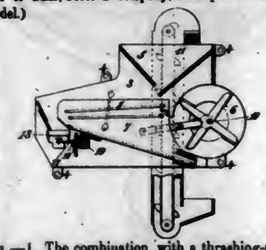
2. In a piano-forte, the combination, with the wires or strings and the ordinary main hammers, of the auxiliary hammer having spring-shanks, the shaft M, carrying the auxiliary hammers, means for oscillating said shaft, and flexible bands or their equivalents for connecting the auxiliary hammers with the main hammers, substantially as described.

3. In a piano-forte, the combination, with the wires or strings and the ordinary main hammers, of an oscillating shaft, flexible blades supported thereby, small hammers carried by said blades, the said hammers being connected with the main hammers, substantially in the manner shown and described, whereby they are restrained from vibrating except when corresponding keys of the piano-forte are depressed, substantially as described.

4. In a piano-forte, the combination, with the ordinary main hammer F and small hammer C, of the bar P, the block L, pivoted to said bar and provided with the piece Q', and having the piece d secured thereto, the bar U, secured to bar P, supporting blade i, having the piece f secured thereto, and the band e, connecting pieces d and f, substantially as described.

5. In a piano-forte, the combination, with the lever y, carrying damper G, of the spring V', connected therewith by a flexible band, and an eccentrically-journaled roller, S, substantially as described.

315,906. RECLEANING ATTACHMENT FOR CLOVER THRASHING AND HULLING MACHINES. HOWARD CAMPBELL, Richmond, Ind., assignor to Gaar, Scott & Company, same place. Filed Jan. 22, 1885. (No model.)



Claim.—1. The combination, with a thrashing-machine provided with a riddle, of a recleaner having a screen, and a moving conveyer arranged beneath the discharge end of the screen, for carrying the tailings from the screen of the recleaner to the riddle of the thrashing-machine, substantially as described.

2. The combination, with a thrashing-machine provided with a riddle, of a recleaner at one side thereof provided with a shaking shoe having a screen, and a moving conveyer operated by the movements of the shoe, for conveying the tailings from the screen to the riddle of the thrashing-machine, substantially as described.

3. The combination, with a thrashing-machine, of a recleaner at one side thereof provided with a shaking shoe having a screen, an inclined trough-shaped spout arranged transverse to the recleaner-frame and conveying the tailings from the screen through the wall of the thrasher, the riddle thereof, means for shaking the spout, and means for suspending the same, substantially as described.

315,907. COLLAR-BUTTON. FRANCIS G. CART, Charleston, S. C. Filed Feb. 4, 1885. (No model.)



Claim.—1. The herein-described collar-button having two pointed prongs depending from the periphery or edge of the outer head or disk on each side of the central or middle line of said head or disk, said prongs being inclined forward, and also diverging outward from the point of attachment, as and for the purpose set forth.

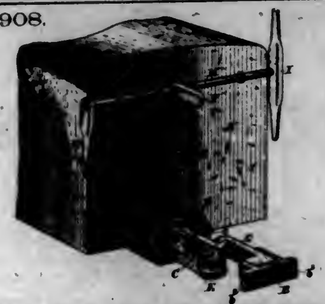
2. The combination, with the separable button comprising the inner and outer heads or disks and the connecting-stems, the latter being square in cross-section, so that said heads will not be permitted to turn, of two prongs depending from the edge of the outer head or disk and inclining or diverging laterally outward from the point of attachment, as and for the purpose set forth.

315,908. CAR-COUPLING. COURTLAND A. CHAMBERLAIN, Canton, N. Y. Filed Feb. 20, 1885. (No model.)

Claim.—1. The improved car-coupling link or arm herein described, the same consisting of an arm provided with an axial bearing at one end, and at the other or forward end with a front contacting surface and a rear engaging surface, the said front contacting surface comprising a plurality of inclined faces meeting in knife-edges essentially at right angles to each other, one of which said knife-edges lies in the plane passing through the said axial bearing aforesaid, as set forth.

2. In a car-coupling apparatus, the combination of the chair adapted to be secured to the end of a car, and provided with side and bottom bearing-flanges, and with a pivot pin or bolt, with the coupling link or arm having an axial bearing in its rear end and at its forward end a front

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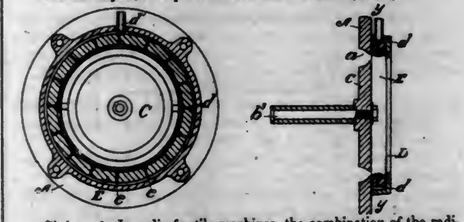


contacting surface and a rear engaging surface, the said front contacting surface comprising an upper and a lower inclined face meeting in a knife-edge lying in the plane which passes through the axial bearing aforesaid.

3. In a car-coupling apparatus, the combination of the car provided with the longitudinal binding and draft rods projecting from each end thereof with the chairs having means to secure the same to the rods, the coupling links or arms pivoted horizontally therein, and having gravity-operating knife-edged contacting and engaging faces, and the bumpers or stops, as set forth.

4. In a car-coupling apparatus, the combination, with the horizontally-pivoted gravity-operating coupling links or arms, of the link-lifting device described, the same comprising the lever F and the chain G, the rock-shaft H, provided at each end with arms or handles I and J, whereby the cars are adapted to be uncoupled either from the roof or from the ground at either side of the train without necessity to the operator of passing between the cars.

315,909. DIE FOR TILE-MACHINES. THOMAS E. CHANDLER and ELIHU DODDS, Indianapolis, Ind., assignors to Thomas E. Chandler and Franklin Taylor, same place. Filed Nov. 14, 1884. (Model.)



Claim.—1. In a die for tile-machines, the combination of the radially and automatically moving ring E, with the recessed dies A and D, as and for the purposes set forth.

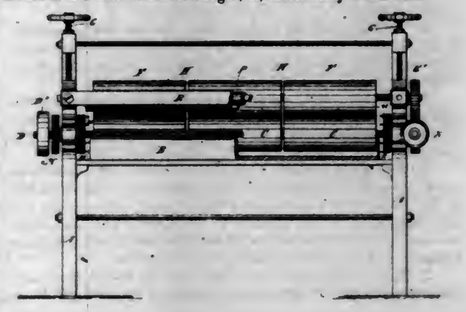
2. In a die for tile-machines, the lubricating-ring having a free radial movement within its recess, in combination with the dies A D and the core C, all arranged for joint operation as set forth.

3. In a die for tile-machines, the radially and automatically adjustable ring E, having its inner face elastic or cushioned, whereby the ring is made expansible and adjustable, to accommodate itself to and lubricate the surface of the passing tile, as set forth.

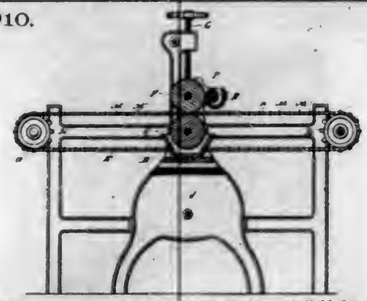
315,910. APPARATUS FOR DYEING HANKS OF WOOL. THOMAS G. CHARLESWORTH, Leicester, England. Filed Aug. 26, 1884. (No model.)

Claim.—1. The combination, with the divided rolls F, of the supplemental divided rolls P and the trough R, divided into sections corresponding with the rolls, substantially as described.

2. The combination, with the divided rolls F, of the supplemental divided rolls P and a series of troughs, R, substantially as described.

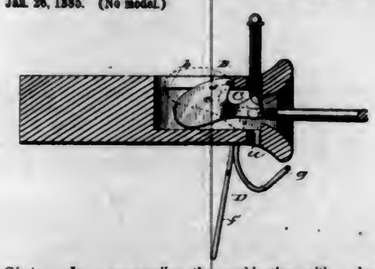


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3. The combination, with the divided rolls F C and divided trough B, of the endless traveling chains K, having on their inner or opposing edges the hooks M, on which the wool is suspended and fed sidewise to the rolls, substantially as described.

315,911. CAR-COUPLING. JOHN H. CONN, Englewood, Ill. Filed Jan. 26, 1885. (No model.)



Claim.—In a car-coupling, the combination, with a draw-head having an elongated slot on its upper side, of an eccentrically-pivoted pin-support, and a pivoted link-raiser comprising the operating lever or handle *f* and a forwardly-extending loop, *g*, substantially as set forth.

315,912. APPARATUS FOR COLLECTING AND DRYING THE SEDIMENTARY MATTER OF SEWAGE. ROBERT CORSCADEN, Providence, R. I. Filed Oct. 4, 1883. (No model.)

Brief.—Employs two or more sector-shaped basins having inlet and outlet valves, and placed below the bottom line of the bed of a sewer. The basins connect with a ventilating-chimney having a spiral flue in its wall connecting with a coil of pipe located beneath the floor of a drying-chamber and connecting with a furnace. A hoisting-engine travels on a circular track at the periphery of the drying-chamber and adjacent to trap-doors therein, and operates dumping-cars moving up the inclined bed of the basins. The roof of the heating-chamber has trap-doors and tracks radial to the circular track. An overflow-sewer connects with the chimney-flue at a point below the overflow-outlets of the catch-basins into the chimney-flue, and has two or more catch-basins placed below the line of the bed of the sewer and having a float. The main sewer has a valve regulating the escape of gases.

Claim.—1. The combination, with a sewer, of one or more series of sector-formed catch-basins or precipitating tanks arranged, as described, to freely receive the discharge of said sewer, substantially as described.

2. The combination, with the sewer and the catch-basins with which it is connected, of the chimney having a ventilating-flue for the catch-basins and an independent flue for the furnace, as set forth.

3. The combination, with a series of radial catch-basins, of a circular drain or sewer extending around and communicating with said catch-basins, as set forth.

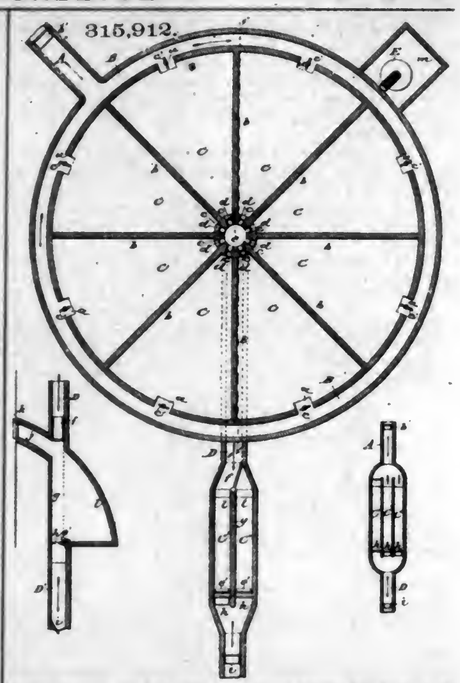
4. In an apparatus for treating sewage, the combination, with the drying-chamber, the heating devices, and the chimney, of the flue in the chimney and the openings thereinto for the escape of steam and effluvia from the drying-chamber, substantially as set forth.

5. In an apparatus for treating sewage, the combination, with the series of catch-basins or precipitating tanks with their gates, as described, of the sewer delivering thereinto, the discharge sewer or drain, and an automatic gate, *i*, as set forth.

6. The combination of a sewer with two or more catch-basins placed below the bottom line of the bed of the sewer, and having a deck or floor thereover, and man-holes or hatches, and a curved or inclined side extending under the man-hole and adapted for the up-and-down movement of an automatic car or shovel for removing the sedimentary deposit from the catch-basins, substantially as described.

7. The combination of a sewer provided with two or more catch-basins placed below the bottom line of the bed of the sewer, and a ventilating-chimney provided with a spirally-constructed flue made in the wall of the chimney, with a fire-chamber or furnace connected with the spiral flue, whereby the base of the chimney may be heated so as to insure a strong draft up the chimney-flue, substantially as described.

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8. The combination of a circular series of sector-formed catch-basins surrounding a centrally-arranged chimney, with a furnace or fire-chamber, heating-pipe, and heating-floor arranged over the heating-pipe, substantially as and for the purpose specified.

9. The combination of a circular series of sector-formed catch-basins surrounding a centrally-arranged chimney, with a furnace or fire-chamber, and a heating-floor with a circular track adapted for transporting a hoisting-engine from the man-hole of one of the catch-basins to the man-hole of another catch-basin, substantially as described.

10. The combination of a circular series of sector-formed catch-basins surrounding a centrally-arranged chimney, with a furnace or fire-chamber and heating-floor, and a cover or roof for the heating-floor provided with trap-doors and radial tracks adapted for transporting the sediment from the catch-basins and depositing the same on the heating-floor, substantially as described.

11. The combination of the spiral flue F', provided with the openings *z z*, made in the outer wall of the chimney, with the drying-floor H and roof I, substantially as described.

12. The combination of a sewer, A, and two or more catch-basins placed below the bottom line of the bed of the sewer, with a ventilating chimney-flue and a gate or valve, *b'*, adapted for the admission of only sufficient air to allow the gases of the sewers to be drawn up the chimney-flue, substantially as described.

13. The combination of a sewer and two or more catch-basins placed below the bottom line of the bed of the sewer, with a ventilating chimney-flue, and an overflow-sewer connecting with the chimney-flue at a point below the overflow-outlets of the catch-basins into the chimney-flue, substantially as described.

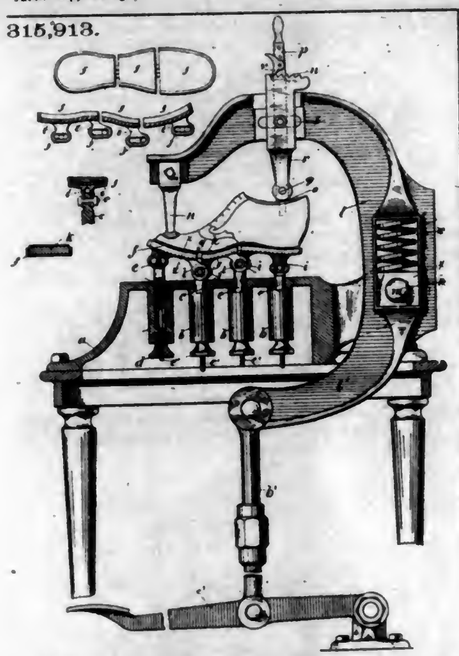
14. The combination of a sewer and a catch-basin placed below the line of the bed of the sewer, with a float adapted to prevent substances floating on the surface of the water from passing off with the overflow, substantially as described.

315,913. SOLE-LAYING MACHINE. PETER A. COUPAL, Boston, Mass., assignor to the Boot and Shoe Sole Laying Company, Portland, Me. Filed Sept. 23, 1884. (No model.)

Claim.—1. In a sole-laying machine, the sole-support composed of sections or plates, each jointed to two independently adjustable rods, as set forth.

2. The sole-support composed of flanged sections or plates, each jointed to two independently-adjustable rods, and provided with a continuous flexible covering held in place by the flanges of the plates, as set forth.

315,913.



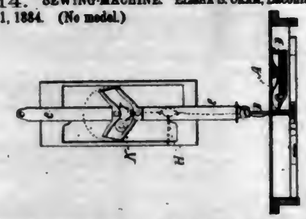
3. The combination of the rods, the sections or plates, each jointed to two of said rods, and the supporting-frame having sockets for said rods, and swiveled nuts engaged with threaded stems on the rods, as set forth.

4. The combination of the adjustable rods and the plates or sections having slotted ears, each plate being connected to two of the adjustable rods by bolts passing through the slots of its ears, as set forth.

5. In a sole-laying machine, the combination of the sole-support, and the jack having the slot *w*, and the block in said slot swiveled to a fixed support, whereby the jack is adapted to oscillate and to move vertically, and a supporting-spring whereby the jack is normally elevated, as set forth.

6. The combination of the jack having the slot *w*, the fixed pivot and the swiveled block thereon located in said slot, and the spring interposed between the block and the upper end of the slot, as set forth.

315,914. SEWING-MACHINE. ELISHA S. CRAM, Laconia, N. H. Filed Jan. 11, 1884. (No model.)

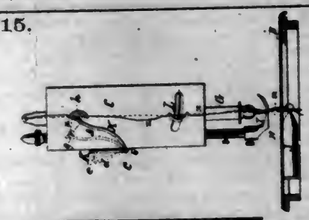


Claim.—In combination with the shuttle-carrier, needle, and needle-bar of a sewing-machine, and with means—such as the cam I and cam-pin K—for actuating the needle-bar thereof, wherein the needle-bar is raised more quickly in the reverse motion than in the direct motion of the machine, a shuttle shortened in the part forward of the shuttle-carrier to the extent and formed at the point substantially as set forth, whereby it is adapted to cast off and pass outside of the needle-thread loop in the reverse motion of the machine, for the purposes herein specified.

315,915. SEWING-MACHINE. ELISHA S. CRAM and EDGAR C. COVELL, Laconia, assignors of one-half to John S. Crane and B. Frank Drake, Lake Village, N. H. Filed Apr. 14, 1884. (No model.)

Claim.—The combination, with the stitch-forming mechanism of a sewing-machine having a take-up for tightening the needle-thread upon the shuttle-thread, of an additional take-up device comprising means, as the arms *e* and *f* and notched disk E, whereby the loop of the needle-thread is prevented from being taken by the shuttle when the motion of the machine is reversed.

315,915.

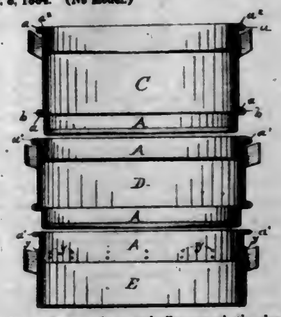


315,916. METHOD OF SEWING TO FASTEN THE ENDS OF SEWED SEAMS. ELISHA S. CRAM, Laconia, N. H., assignor of three-fourths to Edgar C. Covell, same place, and John S. Crane and B. Frank Drake, Lake Village, N. H. Filed May 9, 1884. (No model.)



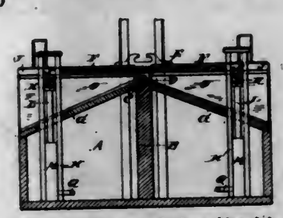
Claim.—The method of fastening the threads at the ends of seams in sewing, which consists in, first, sewing forward in the usual way; second, without breaking the sewing thread or threads beginning back a number of stitches; and, third, sewing forward again and making another set of stitches in the thread-holes of the first set of stitches.

315,917. DEVICE FOR JOINTS IN COOKING UTENSILS. THOMAS F. DEAN, Boston, assignor to Stillman W. Chamberlin, Somerville, Mass. Filed Mar. 8, 1884. (No model.)



Claim.—In a steam-cooker or similar vessel, the device herein described for forming a tight joint consisting of two continuous concentrical rings adapted to be united, in combination with the several removable compartments or sections of said cooker or vessel, substantially as and for the purposes set forth.

315,918. DUMPING-SCOW. JOHN DUNN, Jacksonville, Fla., assignor to himself and A. Ames Howlett, Syracuse, N. Y. Filed Oct. 3, 1884. (No model.)



Claim.—1. In a dumping-scow, the inner hinged decks or wings, disposed to stand normally flush with the main or fixed deck, said inner decks having their opposite hinged edges supported about centrally of the boat, and their outer free edges arranged to have movement within a well in the boat below the plane of the main deck, substantially as and for the purpose set forth.

2. In a scow, the combination, with the bulk-head B, of the trunnion-bar D on the top of the same, the inclined platforms G, the wings or leaves F, hinged on the said bar, and of devices for raising and supporting the wings at their free ends, substantially as herein shown and described.

3. In a scow, the combination, with the hinged wings or leaves F, of the standards H, passing through slots in the leaves or wings, the cylinders M, and the piston-rods L, supporting the outer free ends of said leaves or wings, substantially as herein shown and described.

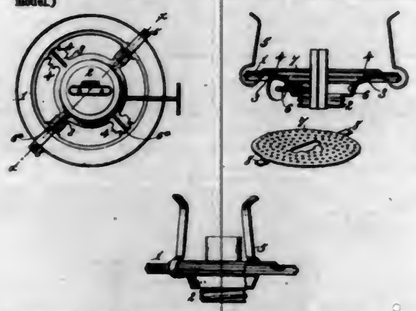
4. In a scow, the combination, with the hinged wings or leaves F, of the standards H, passing through slots in said leaves or wings,

the cylinders M, and the piston-rods L, having the cross-heads K, provided with the rollers N, supporting the outer free ends of the said leaves or wings, substantially as herein shown and described.

5. In a scow, the combination, with hinged wings or leaves, of cylinders arranged below the free ends of the wings, and containing piston-rods moving in guides and supporting the outer free ends of said wings or leaves, and a pump for pumping oil or water into the cylinders, substantially as herein shown and described.

6. In a scow, the combination, with hinged wings or leaves, of cylinders below the free ends of the wings, and containing pistons supporting the outer free ends of said wings or leaves, and of a multiple-way cock connected with a pump and with the cylinders below the several wings by pipes, substantially as herein shown and described.

315,919. LAMP-BURNER. DAVID L. DURAND, Derby, assignor to the Osborne & Chessman Company, Ansonia, Conn. Filed Nov. 15, 1884. (No model.)



Claim.—1. In a lamp-burner, the chimney-supporting ring, the screw-neck, and the radial arms having lateral lips for holding the chimney-springs, said ring, screw-neck, arms, and lips all struck up integral from a single piece of metal, substantially as and for the purpose described.

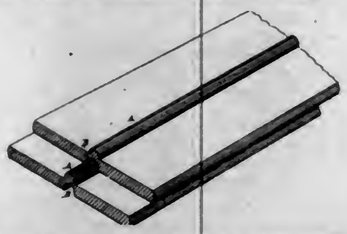
2. In a lamp-burner, the combination, with the chimney-ring, of the screw-neck connected thereto by radial arms having lateral lips, the whole struck from a single plate or piece of metal, apertures being formed at the extremity of each radial arm, substantially as described.

3. In a lamp-burner, the combination, with the chimney-ring 1 and the screw-neck 2, connected by radial arms 3, having lips 4, the whole struck from a single piece of metal, of the chimney-springs 5, having shanks 6, inserted in apertures 6*, substantially as described.

4. In a lamp-burner, a removable air-distributing plate having lugs projecting from its periphery, by which it may be attached to the burner substantially as described.

5. In a lamp-burner, a removable air-distributing plate, 7, having lugs 8, adapted to engage with the chimney-ring of the burner, substantially as described.

315,920. BAR OR PLATE FOR ELLIPTIC SPRINGS. HENRY B. DYE, Marquette, Mich. Filed July 24, 1884. (No model.)

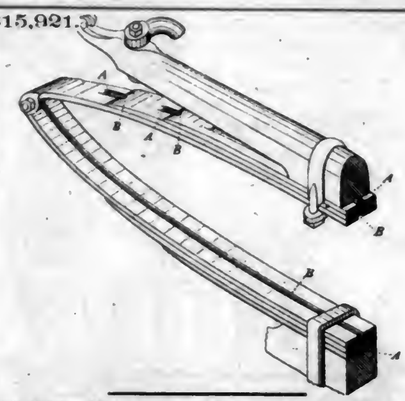


Claim.—A steel bar or plate for use in the manufacture of elliptic springs and half-elliptic springs, having the rib A and the groove B on opposite sides of the bar or plate, the rib and groove being essentially counterparts in size and shape, located the one over the other and running the entire length of the bar or plate, substantially as shown and described.

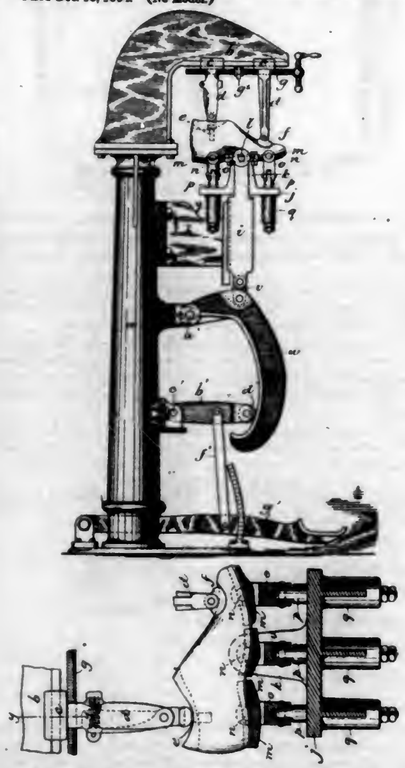
315,921. VEHICLE-SPRING. HENRY B. DYE, Marquette, Mich. Filed Aug. 1, 1884. (No model.)

Claim.—An elliptic spring composed of two or more leaves, each leaf being tapered toward the ends and provided with a longitudinal rib on one side and a corresponding groove on the other side, such rib and groove being of uniform size and depth throughout the length of the leaf, substantially as described.

315,921.



315,922. SOLE-LAYING MACHINE. ANDREW EPPLER, Jr., Boston, Mass., assignor to the Boot and Shoe Sole Laying Company, Portland, Me. Filed Dec. 18, 1884. (No model.)



Claim.—1. In a sole-laying machine, the combination of a series of independent pads or sections collectively forming a sole-support, the yokes pivoted to said pads so as to permit the latter to tip lengthwise of the sole, the spring-supported rods *p*, pivoted to the yokes so as to permit the same to tip crosswise of the sole, a jack or last-support, and means, as described, for applying pressure to a sole interposed between a last on the jack and the sole-support, as set forth.

2. In a sole-laying machine, the combination of the vertically-movable frame *i*, the plate or holder *j*, pivoted to said frame, a series of pads supported by said plate and capable of tipping crosswise of the sole, and mechanism, substantially as described, for pressing the frame *i* and the pads against a sole placed upon the lasted upper, as set forth.

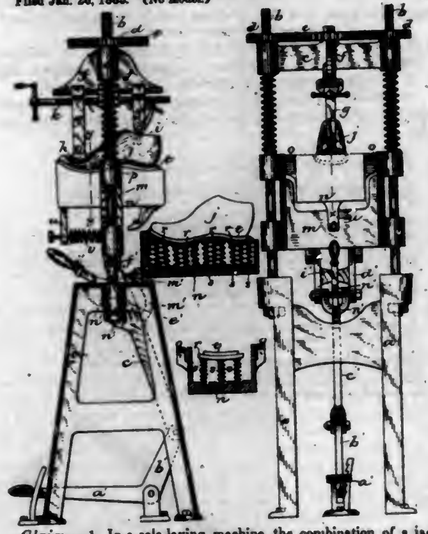
3. In a sole-laying machine, the combination of the vertically-movable frame *i*, the plate or holder *j*, pivoted to said frame, spring-supported rods *p* on said plate, the yokes *o*, pivoted to said rods, and the pads pivoted to the yokes, as set forth

4. The combination, with the vertically-movable frame and the pivoted pads supported thereby, of the pivoted curved arm or lever *w*, connected by a link to said frame, the pivoted lever *b'*, bearing at its free end against the concave side of the arm or lever *w*, and the treadle connected to the lever *b'*, as set forth.

5. In a sole-laying machine, the jack or last-support composed of the two sliding arms *d d*, one having a jack-spindle and the other a toe-rest, and a right-and-left screw swiveled to the supporting-frame and capable of moving the arms *d d* simultaneously toward and from each other, combined with a sole-support and means, substantially as described, for operating it, as set forth.

6. The jack or last-support composed of the two simultaneously-adjusted arms, combined with the pivoted pads, the pivoted supporting-plate therefor, the frame *i*, and means for pressing said frame toward the supported last, as set forth.

315,923. SOLE-LAYING MACHINE. ANDREW EPPLER, Jr., Boston, Mass., assignor to the Boot and Shoe Sole Laying Company, Portland, Me. Filed Jan. 26, 1885. (No model.)



Claim.—1. In a sole-laying machine, the combination of a jack or last-holder, a frame movable toward and from said jack, a bed or support pivoted to said frame, and a sole-support composed of independently-yielding sections or pads supported by the pivoted bed, as set forth.

2. In a sole-laying machine, the combination of a jack or last-holder, a frame movable toward and from said holder, a bed provided with a sole-support pivoted to said frame so as to be capable of rocking in the direction of the length of the sole-support, and a spring whereby the bed is normally turned on its pivots to raise the toe portion of the sole-support, as set forth.

3. The combination of the bed or plate *n*, a sole-support composed of a series of independent sections, *r*, a series of springs interposed between the sections and bed, whereby each section is supported in its normal position and permitted to tip in any direction therefrom, a jack or last-support, and means, substantially as described, for exerting pressure on a sole interposed between a last on the jack and the sole-support, as set forth.

4. In a sole-laying machine, the combination, with a movable sole-support and mechanism, substantially as described, for raising and depressing the same, of a jack or last-holder, a cross-head supporting said jack, nuts *d d*, swiveled in said cross-head, threaded supporting-standards engaged with said nuts, and means, as described, whereby said nuts may be rotated in unison to adjust the jack vertically, as set forth.

5. The combination of a jack, a sole-support, the vertically-movable frame carrying the sole-support, the link *d'*, having the lever or handle *i* pivoted to the frame, the link *c'*, pivoted to the link *d'*, and the treadle-lever having an arm, *b'*, pivoted to the link *c'*, as set forth.

6. The combination, with the frame *m* and its sole-support, of the links *d' c'*, having the stops *m' m'* and *s' s'*, and the treadle-lever *a'*, having the arm *b'*, as set forth.

315,924. SOLE-LAYING MACHINE. ANDREW EPPLER, Jr., Boston, Mass., assignor to the Boot and Shoe Sole Laying Company, Portland, Me. Filed Feb. 11, 1885. (No model.)

Claim.—1. In a sole-laying machine, a sole-support composed of a series of flexible straps, and a corresponding series of independently-adjustable holders for said straps, whereby the straps may be adjusted independently, as set forth.

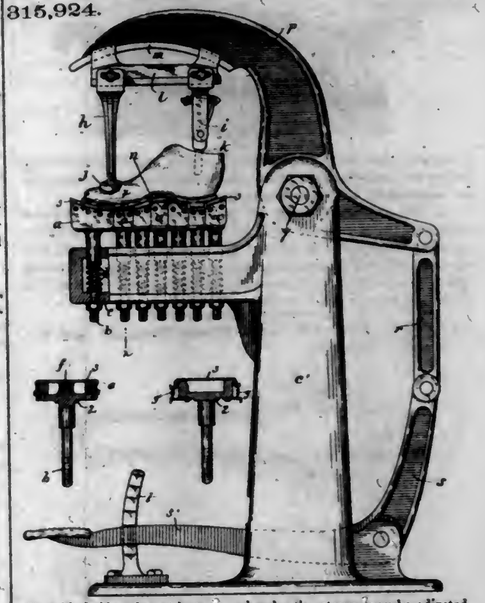
2. In a sole-laying machine, a series of independently-yielding sections or pads collectively forming a sole-support, each being composed of a spring-supported plate having ears or flanges, and a flexible sole-supporting strap secured thereto, as set forth.

3. The sole-supporting sections or pads, each composed of a plate having ears or flanges, a flexible strap secured thereto, and a yielding block or spring interposed between the plate and the central portion of the strap, as set forth.

4. In a sole-laying machine, a jack or last-holder combined with a segmental track, on which said last-holder is movable to vary the inclination of the last, as set forth.

5. In a sole-laying machine, the combination, with the yielding sole-support, of the jack, the lever *p*, having the segmental guide, on which the jack is adjustable to vary its inclination, and devices, substantially as described, for applying pressure to said lever, as set forth.

315,924.



315,925. TRAVELING-BOX FOR DOGS. LEMUEL E. EVANS, East Orange, N. J. Filed Dec. 27, 1884. (No model.)



Claim.—1. The combination of the box, lid C, opening E, and sliding door D, substantially as described.

2. The combination of the box, lid C, and at one end of said box the opening E, provided with a sliding door, D, and at the other end of said box the opening N, provided with an inwardly-swinging door, P, and food-vessel, substantially as described.

3. A traveling-box for animals, containing a lid, sliding tray I, opening E, door D, opening N, door P, food-vessel, and ventilating-apertures, substantially as described.

315,926. FIFTH-WHEEL. FRANCIS LA F. EZELL, Nashville, Tenn. Filed Jan. 29, 1885. (No model.)

Claim.—1. In a vehicle-coupling, the herein-described bolster-plate, consisting of the upper and lower flanges connected by a central web, and provided on its upper side with a seat for a spring, fastening-lugs, and sockets adapted to receive cushions for the bolts by which the upper half of the fifth-wheel is attached, having in its under side a centrally-

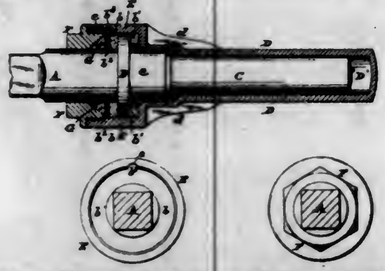
315,926.



arranged vertical socket, and provided with a rearwardly-extending flanged and perforated plate for the attachment of the reach or coupling-bar, substantially as and for the purpose herein set forth.

2. The combination, with the bolster-plate constructed with the spring-seat, the cushion-sockets, the king-bolt socket, and the rearwardly-extending flanged plate, as herein described, of the transom-plate having a centrally-located upwardly-extending perforated lug and constructed with flanges to support the lower half of the fifth-wheel, substantially as and for the purpose herein set forth.

315,927. AXLE-BOX. ALBERT POTTATHE, Chicago, Ill. Filed Aug. 21, 1884. (No model.)

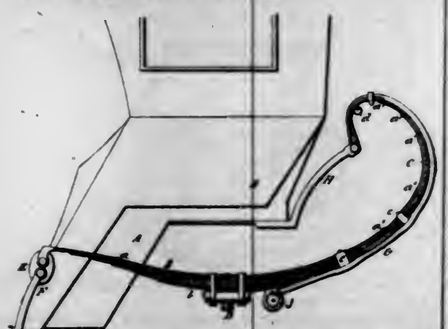


Claim.—1. The combination of the axle-box D, provided with an enlarged internally-screw-threaded flange or collar, E, having groove *e*, the nut F, locking ring or washer b^2, having outwardly-projecting teat, b^2, and axle A, provided with flange or collar B, essentially as set forth.

2. The combination of the axle-box D, provided with an enlarged internally-screw-threaded flange or collar, E, having groove *e*, the nut F, locking ring or washer b^2, having outwardly-projecting teat, b^2, packing or wear rings *b b'*, and axle A, provided with flange or collar B, essentially as set forth.

3. In an axle-box as herein described, the combination of the axle-collar B, locking-ring b^2, nut F, recessed to receive a packing, G, and the box D E, essentially as set forth.

315,928. SPRING FOR TWO-WHEELED VEHICLES. FREDERICK FORDER, Wolverhampton, England. Filed Feb. 9, 1885. (No model.) Patented in England Oct. 24, 1884, No. 14,972.



Claim.—1. A side spring, B C, for a two-wheeled vehicle, composed of plates or laminæ arranged substantially as described—that is to say, having the upper and longest lamina, *a*, of the forward part, B, arranged to form the shortest lamina of the hinder part, C, and the shortest and lower lamina, *b*, of the part B arranged to form the longest lamina of the part C, for the purpose set forth.

2. The combination, with a body, a front stay, a back stay, and an axle of a two-wheeled vehicle, of springs of substantially the form shown, connected to the front stay by a robbin or shackle and to the back stay by a loop that is set or arranged to extend backward and downward from its point of attachment to the spring to its point of attachment to the back stay, and the said loop and robbin or shackle, all constructed and adapted to operate substantially as set forth.

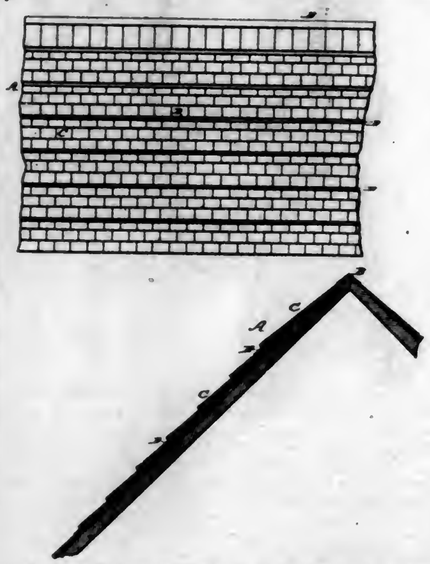
315,929. THILL-COUPLING. WILLIAM FUHRMAN, Tomah, Wis. Filed July 3, 1884. (No model.)



Claim.—In a thill-coupling, the combination, with the draw-irons having reduced screw-threaded ends held in place upon the axle by nuts, as shown, and having communicating vertical and circular recesses on their inner faces, of a bushing consisting of two disks having vertical slots and connected by a strip, as shown, and for the purpose set forth.

315,930. CONSTRUCTION AND PRESERVATION OF SHINGLE ROOFS. HENRY W. GATES, Kennedy, assignor of three-fourths to Elton S. Rich, East Randolph, N. Y. Filed Nov. 20, 1884. (No model.)

Brief.—Provides an overlapping ridge-cap of zinc, and interposes stripe of zinc between the rows of shingles and projecting below their laps.



Claim.—1. In a shingle roof, an overlapping ridge-cap constructed of zinc, substantially as and for the purpose herein set forth.

2. A shingle roof constructed with a strip or strips of zinc interposed between the rows of shingles, substantially as and for the purpose set forth.

3. In a shingle roof, a strip of zinc interposed between two rows of shingles and extending below the lower edge of the upper or overlapping row, substantially as and for the purpose set forth.

4. A shingle roof provided with plates or strips of zinc so arranged that rain or other moisture shall be deflected from such plates or strips onto the shingles, substantially as and for the purpose herein set forth.

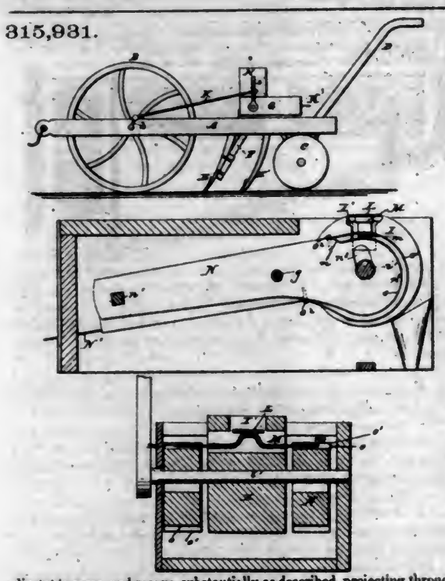
5. A shingle roof provided with a ridge-cap of zinc overlapping the shingles on both sides, and a strip or strips of zinc interposed between the shingles, substantially as and for the purpose herein shown and specified.

315,931. SEEDER. ALBERT GILMORE, Gilmore, Ohio. Filed May 21, 1884. (No model.)

Claim.—1. In a seeder, the combination, with the oscillating cylinder provided with the seed-socket, of the movable plunger, the bar supporting the plunger, the adjustable cams, and means, substantially as described, whereby the operator can from the outside immediately adjust the cams, substantially as set forth.

2. In a seeder, the combination of the oscillating cylinder provided with the seed-socket, the movable plunger, the bar supporting the plunger and projecting beyond the cylinder upon opposite sides, the vertically-

315,931.



adjustable cams, and means, substantially as described, projecting through the casing for carrying the cams, whereby they can be immediately adjusted, substantially as set forth.

3. In a seeder, the combination of the oscillating cylinder provided with the socket for the seed, the movable plunger, the adjustable cams, and the levers for supporting and adjusting the cams, substantially as set forth.

4. In a seeder, the combination of the cylinder provided with the seed-socket, the movable plunger, the bar supporting the plunger and having its ends projecting beyond the cylinder, the cams for actuating the bar, the crank of the oscillating cylinder, and the pitman connecting the crank with the ground-wheel, substantially as set forth.

5. In a seeder, the combination of the cylinder provided with a seed-socket, a movable plunger in said socket, one or more bars or projections carried by the plunger for operating it, and a cam or cams engaging with said bar or bars, and a hinge or axis for supporting the cam or cams and to permit the swing thereof, substantially as set forth.

6. In a seeder, the combination, with a cylinder provided with a seed-socket and a movable plunger, of a cam which engages with the said plunger, means, substantially as described, connected with said cam and extending to the outside of the casing to adjust the cam, and devices, substantially as set forth, for holding the adjusting devices in different positions, substantially as set forth.

7. In a seeder, the combination, with a cylinder provided with a seed-socket and a movable plunger, of a cam engaging with said plunger, formed with a groove or way bounded by two removable or separable metal strips, whereby, when worn, they may be replaced, substantially as set forth.

315,932. PRODUCTION OF CHLORINATED DERIVATIVES OF BENZALDEHYDE. ROBERT GNEHM, Basle, Switzerland, assignor to the Society of Chemical Industry, same place. Filed Feb. 26, 1885. (No specimens.)

Claim.—The process herein set forth of treating benzaldehyde with iodine and pentachloride of antimony under heat and separating the chlorinated substitution products of benzaldehyde thus produced by known methods, substantially in the manner above described.

315,933. AUTOMATIC AIR-VALVE FOR STEAM-RADIATORS. P. GORMLY, Philadelphia, Pa. Filed Oct. 27, 1884. (No model.)

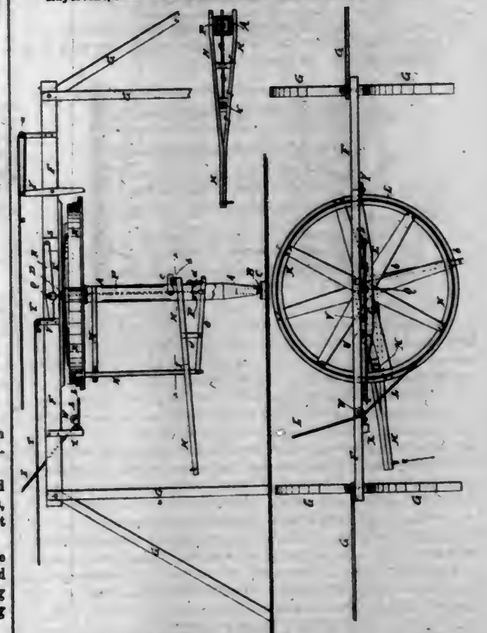


Claim.—1. The combination of the casing containing a chamber communicating with the radiator, and having an inclosed or guarded valve-seat, a valve adapted to said seat and contained within the guard, and a valve-carrier exposed on all sides to the air, as set forth.

2. The combination of the tubes A and B, the branch *d*, the transverse tube *f*, with valve-seat therein, the valve *m*, the yoke *t*, carrying said valve, and a support for said yoke, as set forth.

3. The combination of the tubes A and B, the branch *d*, the transverse tube *f*, with valve-seat, the valve *m*, the yoke *t*, carrying the same, the rod *w*, and the cross-bar *x*, as set forth.

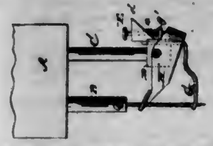
315,934. HORSE-POWER FOR HAY-CARRIERS. JOHN S. GRAHILL, Hayesville, Ohio. Filed Nov. 21, 1884. (No model.)



Claim.—1. The combination, with the loose wheel K, the vertical shaft A, the lock-bar N, and the lever O, of the interior swiveled rod, P, the lever R, and the cord T and guide-pulley U, substantially as herein shown and described, whereby the said wheel can be thrown into and out of gear with the said shaft from a point at a distance from the power, as set forth.

2. The combination, with the loose wheel K, of the brake-lever Y, and the cord Z and guide-pulley *a*, substantially as herein shown and described, whereby the said brake-lever can be operated from a point at a distance from the power, as set forth.

315,935. SEWING-MACHINE ATTACHMENT. GEORGE L. GRAY, Cook County, Ill. Filed Mar. 15, 1884. (No model.)



Claim.—1. A presser-bar having a slotted block removably secured to its lower end, in combination with a needle-bar and a presser-foot sliding vertically through said block, and provided with a projection through which passes a spring-actuated adjusting-screw, and a lever fulcrumed on the presser-bar, and having its forward end extended out to contact with the needle-bar and its rear end resting beneath the adjusting-screw, substantially as shown and described.

2. The presser-bar C and detachable block or frame D, formed with the slots *d d'* and projecting flange or frame d^2, and needle-bar B, in combination with the foot G, having a shank, *g*, and projection *g'*, the screw E, spring *e*, and lever H, substantially as and for the purpose set forth.

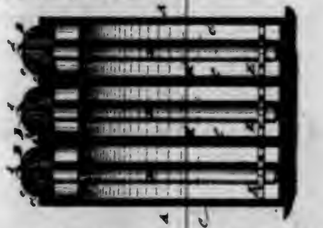
315,936. PLASTER COMPOUND. GEORGE L. GREGORY, Marion, assignor of one-half to the Fort Dodge Gypsum Stucco Company, Fort Dodge, Iowa. Filed Dec. 12, 1884. (No specimens.)

Claim.—1. The herein-described process of preparing a foundation coat of plastering ready for immediate use, consisting in, first, mixing fresh lime with glue; second, slaking this mixture; third, mixing hair

evenly through this liquid compound; fourth, mixing dry gypsum, ground and calcined, with dry, clean, sharp sand; and, fifth, adding this dry mixture of gypsum, ground and calcined, and the sand to the previous mixture, substantially as described.

2. A partially-liquid compound for a foundation coat of plastering, consisting of gypsum, ground and calcined, sand, fresh-slaked lime, hair, and water, and glue or its equivalent as a retarder, substantially in the proportions and ready for immediate use as described.

315,937. ELECTRIC BATTERY. ALFRED HAID, Rahway, N. J., assignor to the Excelsior Electric Apparatus Company, New York, N. Y. Filed Sept. 6, 1884. (No model.)

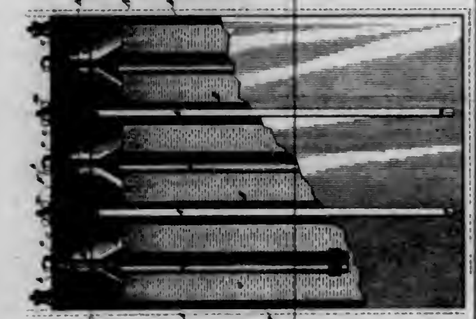


Claim.—1. A portable electric battery, consisting of a jar having partitions forming cells, negative electrodes forming the lining of the cells, screw-stoppers closing the openings of the jar, and positive electrodes attached to the stoppers and connected electrically with the negative electrodes of the adjoining cells, substantially as set forth.

2. The combination of a jar having partitions forming cells, negative electrodes forming the lining of the cells, screw-stoppers closing the top openings of the cells, positive electrodes attached to the stoppers and passed centrally through the same, means for holding the lower ends of the positive electrodes in position, and means whereby the positive electrode of one cell is electrically connected with the negative electrode of the adjoining cell, substantially as set forth.

3. The combination of a jar having transverse partitions forming cells, negative electrodes forming the lining of the cells, detaching screw-stoppers having center posts and circumferential contact-rims connected by metallic bands to said center posts, said rims forming contact with the exterior pole ends of the negative electrodes, and positive electrodes attached to said center posts, substantially as set forth.

315,938. GALVANIC BATTERY. ALFRED HAID, Rahway, N. J., assignor to the Excelsior Electric Apparatus Company, New York, N. Y. Filed Oct. 23, 1884. (No model.)



Claim.—1. In a portable or pocket battery, the combination, with silver negative electrodes in the form of linings for the cells and zinc positive electrodes, of an exciting solution containing as a depolarizer bisulphate of mercury or its described equivalent, as herein set forth.

2. A series of battery-cells composed of a molded plastic substance, each cell being independent, but connected at top and bottom to the next adjoining cell by the solid molded connections *a a*.

3. In a portable or pocket battery, the combination, with a series of cells, and metal rings at the openings or mouths of the same in connection with the negative electrodes, of a cover having soft-rubber washers for closing the cells, zinc rods secured to the cover and metal contact-strips passing through the cover, and means for clamping the same to the cells, as set forth.

4. In a portable or pocket battery, the combination, with a series of cells and metal rings with conical parts D secured to the mouth of the cells in connection with the negative electrodes, of a cover having conical recesses, zinc rods passing through the cover, soft-rubber washers around said rods and in the bottom of the recesses, metal contact-strips passing through the cover, and means for clamping the cover to the cells, as set forth.

315,939. RAILROAD STEP-LADDER. THOMAS A. HARVEY, East Saginaw, Mich. Filed Jan. 31, 1885. (No model.)



Claim.—1. In a railroad step-ladder, the combination, with a rail, of a bracket adapted to be secured to the side or front of the shelving, said bracket constructed with a chair to hold the rail, and a set-screw for binding the rail in the chair, the construction being such that the rail will project above the chair, substantially as and for the purpose described.

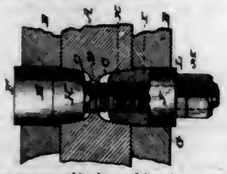
2. In a railroad step-ladder, the combination, with the ladder, of roller-fenders projecting laterally from the ladder and having rollers set to run horizontally, substantially as described.

3. The combination, with a step-ladder, of safety-guards to extend underneath the edge of the ledge, the construction being such that any weight upon the ladder will be relieved from the upper face of the ledge, substantially as described.

4. The combination, with a ladder provided with sheaves, of a track upon which said sheaves traverse, and brackets constructed with chairs to support said rails, said ladder provided with roller-fenders, substantially as described.

5. The combination, with the shelving, of brackets constructed with chairs and provided with a set-screw, a rail engaged in said chairs, and a ladder provided with flanged sheaves to ride upon said rail, said ladder provided toward its base with roller-fenders, substantially as described.

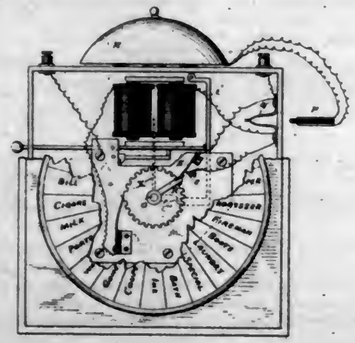
315,940. PITMAN-COUPLING FOR HARVESTERS. HORACE L. HEATON, Indianapolis, Ind., assignor of one-half to Frank Woodbridge, same place. Filed May 14, 1884. (No model.)



Claim.—In a compensating journal-bearing for harvester-pitmen or similar moving parts, the combination of the pitman-head A, having truncated conical recesses C C with rounded apices, bifurcated bearings B, screw G, having a truncate conical head, H, with rounded apex, bearing-nut I, having a truncate conical head, K, with rounded apex, and means, substantially as described, for locking the nut I K in place after it has been properly adjusted, whereby an open space is always left at the inner ends of the recesses in which the bearing parts H and K work, substantially as and for the purpose herein shown and specified.

315,941. BELL FOR LATENT-SIGNAL TRANSMITTERS. F. BENEDICT HERZOG, New York, N. Y. Filed Mar. 5, 1885. (No model.)

Brief.—When plug *p* is inserted in *q*, bell E is thrown into a circuit open at central office, so that an individual at sub-station may be signaled by central operator. This signal cannot be sent during the transmission of a latent signal or when latent-signal mechanism is set, by reason of spring S making contact with *s* and short-circuiting the bell if in circuit.



Claim.—1. The combination, at a sending-station, of a latent-signal transmitter, a bell or call receiving apparatus to be actuated from a distant station, a call-transmitting apparatus, and a circuit-controller by which the call-transmitter may be operated without releasing the latent-signal transmitter if set, substantially as described.

2. The combination of a latent-signal transmitter and a bell or call at a sending-station, a circuit-controller at a distant station for releasing the latent-signal transmitter and operating the call, and circuit-connections between the two stations, together with a cut-out at the sending-station, whereby the bell may be cut out when desired, substantially as described.

3. The combination of a latent-signal transmitter, calling apparatus for actuating receiving apparatus at a distant station, a bell or call receiving apparatus, and a cut-out therefor at each of two or more sub-stations, a circuit-controller at a central station for releasing the latent-signal transmitter and operating the call, and an annunciator for receiving the calls from the sub-stations, and circuit-connections between the two stations, together with means at the central station for operating any desired call provided that it is in circuit, substantially as described.

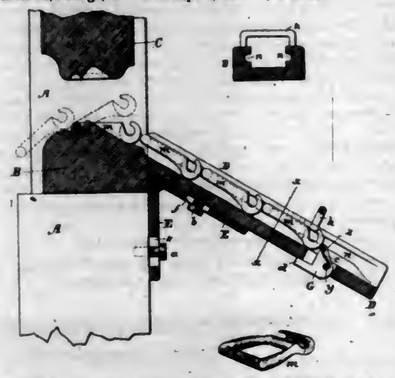
4. The combination, at a sending-station, of a latent-signal transmitter, call-receiving apparatus, a circuit-controller, and electrical connections whereby the call-receiving apparatus is automatically cut out of circuit by the operation of setting the latent-signal transmitter, substantially as described.

5. The combination, at one station, of a latent-signal transmitter, call-receiver, circuit-controller, and electrical connections whereby the call-receiver is always out of circuit during the operation of the latent-signal transmitter and is automatically cut in again after the signal-transmitter has sent its signal, substantially as described.

6. The combination, at one station, of a latent-signal transmitter, a call-receiver, a circuit-controller, and electrical connections whereby the call-receiver is automatically cut out of circuit by the act of setting the latent-signal transmitter to transmit its signal, remains out of circuit during the operation of the latter, and is again automatically cut into circuit when the transmitter has finished sending its signal, substantially as described.

7. The combination, at one station, of a latent-signal transmitter, call-receiver, and manually-operated cut-out, together with a circuit-controller and electrical connections, whereby the act of setting the latent-signal transmitter automatically cuts out the call-receiver during the operation of the latent-signal transmitter, if, during such operation, it is in circuit of the manually-operated cut-out, substantially as described.

315,942. MACHINERY FOR FEEDING DROP-PRESSES. EUGENE L. HOWE, Chicago, Ill. Filed Sept. 6, 1884. (No model.)



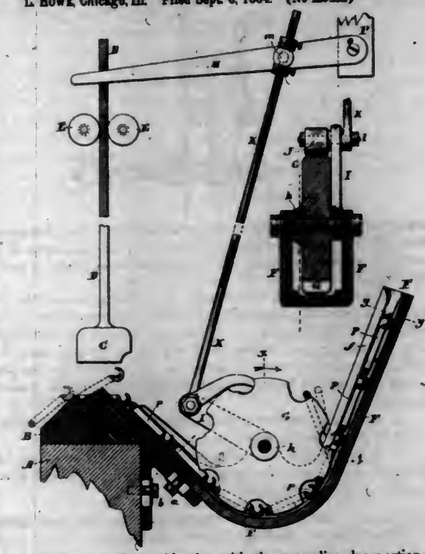
Claim.—1. In combination with an ordinary drop-press, an ascending or obliquely-arranged feeder-trough, D, adapted to receive and retain one or more chain-links or other devices, the relative arrangement of said feeder-trough with the die of the press being such that whenever a fresh article is inserted and pushed upwardly within said feeder-trough the preceding one may be forced onto the said die, discharging therefrom the one which may be on the die, substantially as hereinbefore set forth.

2. An obliquely-arranged feeder trough or device combined with an ordinary drop-press, and adjustable both longitudinally and vertically relatively to the lower die of said press, substantially as and for the purposes set forth.

3. In combination with the feeder-trough, an adjustable finger or hand stop, A, substantially as and for the purposes set forth.

4. In combination with an obliquely-arranged ascending feeder-trough, D, adapted to receive one or more chain-links or other blanks, a spring-catch or depressible retainer device, G, constructed and operating in a manner and for the purposes described.

315,943. MACHINERY FOR FEEDING DROP-PRESSES. EUGENE L. HOWE, Chicago, Ill. Filed Sept. 6, 1884. (No model.)



Claim.—1. In combination with the ascending leg portion of a feed-trough, a descending supply-leg, a connecting or intermediate curved portion, and means for periodically moving the contents of the feeder, substantially as and for the purposes hereinbefore set forth.

2. In combination with a drop-press, the feed trough or device F and a feed-wheel, G, the periphery of which is adapted to engage with the separate blanks in the feeder, substantially as and for the purposes described

3. In combination with the stationary die of the press, a feed-trough, F, and feed-wheel G, and means, such as described, for periodically moving said wheel through the medium of a device worked from the movable die of the press or its connections, substantially as hereinbefore set forth.

4. The combination, with a feeder device, F, having the open sides of its straight portions provided with ledges *f f*, of a feed-wheel, G, having notches across its periphery to accommodate the adjacent plain end bar and a coupler-hook end bar of each pair of links, and adapted to enter the central openings of the chain-links, so as to act positively against the plain end bars in moving forward the supply-column, substantially as set forth.

315,944. GARMENT-FASTENING. JAMES C. HYDE, West Haven Conn., assignor to the West Haven Buckle Company, same place. Filed Feb. 24, 1885. (No model.)



Claim.—1. The herein-described improvement in attaching device for garment-fastenings, consisting in the attaching-plate constructed with a transverse slot, *a*, flap *d*, projecting above said slot, and with a transversely-projecting tongue, *e*, on each side of the plate and below the said slot, substantially as described.

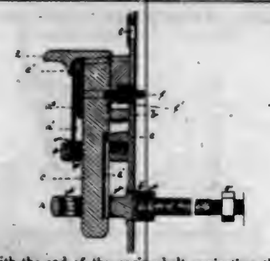
2. The herein-described improvement in attaching devices for garment-fastenings, consisting in the attaching-plate constructed with a transverse slot, *a*, flap *d*, spurs *b b*, and with a laterally-projecting tongue, *e*, on each side the plate below the slot, substantially as described.

315,945. SEAL-LOCK. JOHN F. INGRAM, Allegheny, assignor of one-half to John H. Noble, Hulton, Pa. Filed Nov. 13, 1884. (Model.)

Claim.—1. The combination of a sliding bolt provided with a locking-slot and a spring-bolt provided with a locking-lug with a case for containing said parts, having a face-plate with the end of the spring-bolt projecting through the face-plate and beyond the surrounding surface of the same, substantially as and for the purposes described.

2. In a seal-lock, a sliding bolt provided with a locking-slot, and a spring-bolt with a locking-lug, in combination with a case for containing said parts, having a face-plate provided with a seal-seat and a depressed

315,945.



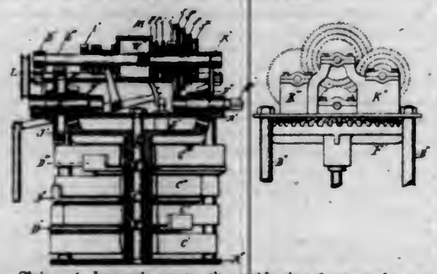
central portion, with the end of the spring-bolt projecting through the face-plate into the depressed portion below the seal-seat, so as to be operated by the finger when the seal is removed, substantially as and for the purposes described.

3. In a seal-lock, the combination of a sliding non-rotatory bolt having a downwardly-projecting lip for holding the upper edge of a seal resting against the face-plate, an outward projection of the case, having a slot for receiving and holding the lower end of the seal, and a deep open transverse recess extending across the case between the face-plate and the said outward projection, substantially as and for the purposes described.

4. A frangible seal having perforations formed therein, substantially as and for the purposes specified.

5. A flat frangible seal having a projecting tongue extending from an edge thereof, adapted to engage in a retaining-recess in the lock, substantially as and for the purpose specified.

315,946. SPRING-MOTOR. GEORGE JIRICKE and ALEXANDER MCKEE, Philadelphia, Pa. Filed Feb. 11, 1885. (No model.)

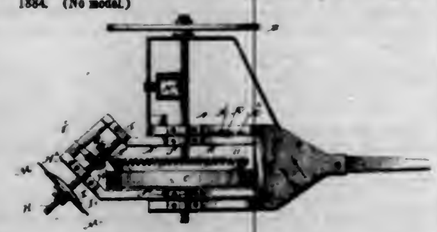


Claim.—1. In a spring-motor, the combination of a series of springs to a continuous train, with shields or frames, as described, a central rod provided with rings or collars to offer support to each individual spring or any number of them, the whole being supported by a rigid frame, substantially as and for the purpose described.

2. In a spring-motor, the combination, with a series of springs supported and connected with each other in the way described, of a train of gearing supported by brackets arranged as described, and mechanism for changing the speed of the gearing, consisting in a coupling, M, a cone of wheels, J''' J'' J' J'' with bushings and projections c' c'' c''' c^4, and a cone of wheels, i''' i'' i' i'', on a shaft, G'', and levers N and R', with a sector, S, on the shaft P, bell-crank lever T' T'', with roller V, and spring W', substantially as and for the purpose described.

3. In a spring-motor, the combination, with a series of springs arranged and supported as described, a rigid frame and a train of gearing, of the winding mechanism consisting in the bevel-wheels F' F'' F''', supported as described, and the ring X' in the recess of the wheel J', the frame Z', the eccentric Y' on the shaft G', substantially as and for the purpose described.

315,947. ROTARY PLOW AND PULVERIZER. COLUMBUS JOHNSTON, Clarksville, and SYLVESTER T. JOHNSTON, St. Louis, Mo. Filed Sept. 8, 1884. (No model.)



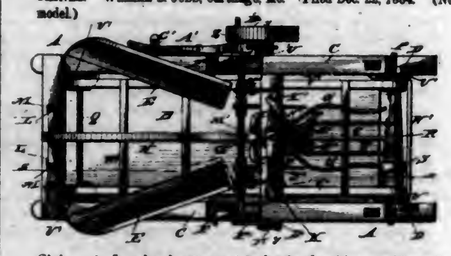
Claim.—1. The combination, with a table or cabinet having a pair of supports rigidly secured thereto, each support being provided on its inner face with two parallel guides curved upwardly near their outer ends, of a movable leaf and two supports rigidly secured thereto, each of said latter supports being provided with two lugs, which rest in the corresponding guides of the supports secured to the table.

2. The combination, with a table having the supports E and plates a, secured thereto, of the supports D, having lugs registering with the guides of the supports E, and lugs d^4, adapted to overlap the plates a, and the leaf B, secured to said supports D, substantially as set forth.

Claim.—1. The combination, with the main frame having the supporting-wheel, and the drive-wheel having the toothed ring on its inner face, of the cutter-shaft provided with the pinion having the half-clutch, the disk L, and knives M, the tilting frame, and mechanism, substantially as described, for tilting and holding the auxiliary frame, as set forth.

2. The combination, with the main frame having the supporting-wheel, and the toothed drive-wheel provided with the toothed ring on its inner face, of the auxiliary frame provided with the cutter-shaft having the disk provided with curved knives, the sliding clutch and its operating-lever, and the spring-actuated lever for operating the tilting frame, substantially as specified.

315,948. BAND-CUTTER AND FEEDER FOR THRASHING-MACHINES. WILLIAM S. JUDD, Carthage, Mo. Filed Dec. 22, 1884. (No model.)



Claim.—1. In a band-cutter and feeder for thrashing-machines, the combination, with the frame, of the pivoted inclined side guide-boards, the guards at the rear ends of the same extending around the side beams of the frame, and a coiled spring connecting the said guards under the frame, substantially as and for the purpose herein set forth.

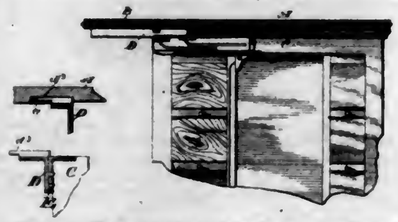
2. In a band-cutter and feeder for thrashing-machines, the combination, with the inclined side guide-boards pivoted at the front end of the frame and connected flexibly at their rear ends by a spring arranged under the frame, of a detachable vertical center-board, substantially as and for the purposes herein shown and specified.

3. In a band-cutter and feeder for thrashing-machines, the combination of the frame, the inclined swinging side guide-boards connected flexibly at their rear ends, and the transversely-arranged rock-shaft carrying the curved knives or band-cutters, substantially as and for the purpose herein set forth.

4. In a band-cutter and feeder for thrashing-machines, the combination, with the frame, a transverse operating-shaft, and suitable connecting mechanism, of a vertical tubular shaft, a slotted plate provided with hinged spreading-fingers constructed with a rearwardly-extending lug, a pivoted cam-disk, a vertical shaft mounted in the said tubular shaft, and a plate at the lower end of said shaft provided with permanent stirring-fingers, as and for the purpose shown and set forth.

5. The herein-described improvement in feeders and band-cutters for thrashing-machines, comprising the frame, the feeder, the inclined swinging and flexible side guide-boards, the detachable center board, a speed-regulating device, oppositely-oscillating spreading-fingers, mechanism whereby the upper ones may be raised out of action, band-cutting knives, operating mechanism, and mechanism for throwing the latter into or out of gear, substantially as and for the purpose herein shown and specified.

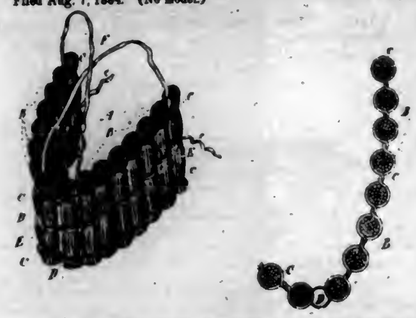
315,949. EXTENSION-LEAF FOR TABLES. THEODOR KUNDTZ, Cleveland, Ohio. Filed June 11, 1884. (No model.)



Claim.—1. The combination, with a table or cabinet having a pair of supports rigidly secured thereto, each support being provided on its inner face with two parallel guides curved upwardly near their outer ends, of a movable leaf and two supports rigidly secured thereto, each of said latter supports being provided with two lugs, which rest in the corresponding guides of the supports secured to the table.

2. The combination, with a table having the supports E and plates a, secured thereto, of the supports D, having lugs registering with the guides of the supports E, and lugs d^4, adapted to overlap the plates a, and the leaf B, secured to said supports D, substantially as set forth.

315,950. LIFE-PRESERVER. CONSTANT LEDOC, San Francisco, Cal. Filed Aug. 7, 1884. (No model.)



Claim.—1. A life-preserver constructed of a number of independent bunches, B, of the dried stalks or stems of tule-grass or other rushes, reeds, or halms of similar buoyant nature, said bunches being uninclosed or uncovered, and the interlacing wires C, by which the bunches are tied or woven together, substantially as herein described.

2. A life-preserver constructed of a number of independent bunches, B, of the dried stalks or stems of tule-grass or other rushes, reeds, or halms of similar buoyant nature, said bunches being uninclosed or uncovered, the interlacing wires C, by which the bunches are tied or woven together, and the rings D, by which the wires are jointed, substantially as herein described.

3. A life-preserver constructed of a number of independent bunches, B, of the dried stalks or stems of tule-grass or other rushes, reeds, or halms of similar buoyant nature, said bunches being uninclosed or uncovered, the interlacing wires C at and around each end, by which the bunches are tied or woven together, and the interlacing strips E of fabric tying and weaving the centers of the bunches together, substantially as herein described.

4. A life-preserver constructed of a number of independent bunches, B, of the dried stalks or stems of tule-grass or other rushes, reeds, or halms of similar buoyant nature, said bunches being uninclosed or uncovered, the interlacing wires C at and around each end, by which the bunches are tied or woven together, the interlacing strips E of fabric tying and weaving together their centers, and having loose ends e, forming the straps by which the preserver is adjusted to the person, substantially as herein described.

5. A life-preserver constructed of a number of independent bunches, B, of the dried stalks or stems of tule-grass or other rushes, reeds, or halms of similar buoyant nature, said bunches being uninclosed or uncovered, the interlacing wires C at and around each end, by which the bunches are tied or woven together, the interlacing strips E of fabric tying and weaving together their centers, and the shoulder-straps F, secured to said central strip, substantially as herein described.

6. The life-preserver A, consisting of the uncovered bunches B of tule-grass, (*Scirpus validus,*) the wires C, binding their ends together, and the fabric strips E, joining their centers, together with suitable tying and shoulder straps, substantially as herein described.

7. The life-preserver A, consisting of a number of uncovered bunches, B, of the lower or foot portion of the dried stalks or stems of the tule-grass, (*Scirpus validus,*) said bunches being tied or united together, and the whole having suitable tying and shoulder straps, substantially as herein described.

315,951. FILLING FOR RAILROAD-FROGS. GEORGE C. LUCAS, Cleveland, Ohio. Filed Dec. 29, 1884. (No model.)

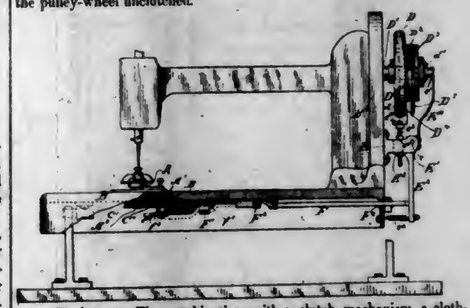
Brief.—Improvement on Patent No. 291,749, dated January 8, 1884.



Claim.—A filling for railroad-frogs made of cast-steel and in one piece, with flanges to fit the concaved sides of the respective rails, and a thin web connecting the flanges, and the filler provided with the rib or lateral blocking integral with the filler and located near the end of the point-rail to form a rigid union of the rails at this part, substantially as set forth.

315,952. STOP MECHANISM FOR BUTTON-HOLE SEWING-MACHINES. ERASTUS D. LUDLOW and GEORGE M. LUDLOW, Chicago, Ill. Filed Aug. 4, 1884. (No model.)

Brief.—The invention relates to devices for disconnecting the driving-power and applying a brake to stop the machine immediately upon the completion of a button-hole. A longitudinally-movable bar is located beneath the work-plate of the machine. An arm upon a movable part operated by the feed mechanism is adapted to engage the said bar, bearing its contiguous end downward and also laterally. This engages the lower shoulder, but frees the side shoulder of the bar, and when the arm advances beyond the end of the bar the latter springs upward and disengages its lower shoulder, allowing the brake to be applied and the pulley-wheel unclutched.



Claim.—1. The combination, with a clutch mechanism, a cloth-clamp, and a cam-plate or other movable part for actuating said cloth-clamp, of a wheel, C', actuated from the cam-plate or other moving part, and provided with an arm, c^3, a longitudinally-movable slide-bar supported in suitable bearings upon the machine-frame, connected with the clutch device, and provided with a curved portion, f^3, and with a rib or projection, f^4, adapted for engagement with the arm c^3 of the wheel C', and with shoulders f' f^2, a stop or bearing, F', constructed for engagement with said shoulders, and a spring applied to hold the bar at one limit of its longitudinal movement, said bar being constructed to yield laterally and vertically in its portion adjacent to the said wheel, substantially as and for the purpose set forth.

2. The combination, with a clutch mechanism, a cloth-clamp, and a cam-plate or other movable part for actuating said cloth-clamp, of a wheel, C', actuated from the said cam-plate or other moving part, and provided with an arm, c^3, a longitudinally-movable slide-bar supported in suitable bearings upon the machine-frame, connected with the clutch device, and provided with a curved portion, f^3, and a rib or projection, f^4, adapted for engagement with the arm c^3 of the wheel C', and with shoulders f' f^2, said bar being laterally movable at its end adjacent to the wheel C' and elastic in its middle part to permit a vertical movement of its said end, a stop or bearing, F', constructed for engagement with said shoulders, a spring applied to hold the bar at one limit of its longitudinal movement, and a spring applied to throw the said end of the bar adjacent to the wheel C' laterally, substantially as and for the purpose set forth.

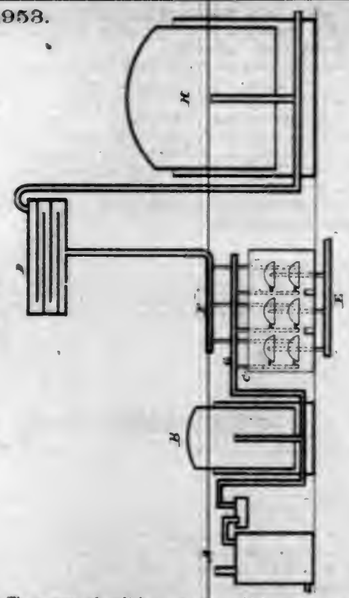
3. The combination, with a suitable clutch device, a cloth-clamp, and a cam-plate or other moving part of the mechanism for actuating said cloth-clamp, of a longitudinally and laterally movable bar, F, provided with a shoulder, f^2, a suitable stationary stop or bearing, F', constructed to engage the said shoulder, means actuated from the cam-plate or other moving part of the feed mechanism for moving said bar laterally, and a pivoted lever, G, provided with a projection, g^2, said bar F being provided with an inclined surface for engagement with the said projection g^2, whereby the said bar may be moved laterally, substantially as and for the purpose set forth.

4. The combination, with a suitable clutch device, a cloth-clamp, and a cam-plate or other moving part of the mechanism for actuating said cloth-clamp, of a longitudinally and laterally movable bar, F, provided with a shoulder, f^2, a suitable stationary stop or bearing, F', constructed to engage said shoulder, a spring applied to move the bar longitudinally, means actuated from the said cam-plate or other moving part for moving said bar laterally, and a pivoted lever, G, provided with projections g' g^2, said bar being provided with a shoulder, f^2, and an inclined surface, f^5, whereby the said bar may be moved longitudinally and laterally by said lever, substantially as described.

315,953. PROCESS OF PURIFYING WATER-GAS. ORAZIO LUGO, New York, N. Y. Filed Dec. 10, 1884. (No model.)

Claim.—1. The process of removing the carbonic oxide from water-gas, which consists in first converting the carbonic oxide contained therein into carbonic acid by passing the said gas in contact with heated ferric oxide; second, in passing it in contact with caustic alkali, the metallic iron formed being constantly restored to the condition of ferric oxide by passing through it an oxidizing agent alternately with the gas.

315,953.



2. The process of purifying water-gas, which consists in extracting the carbonic oxide from said water-gas by passing it in contact with heated ferric oxide, and then through a suitable alkali, and reoxidizing by means of steam the metallic iron which has been formed by the reducing action of the oxide of carbon, as set forth.

315,954. UNDERGROUND CONDUIT. ALBERT E. LITTLE, Chicago, Ill., assignor of a part interest to Robert B. Smith, same place. Filed Dec. 17, 1883. (No model.)

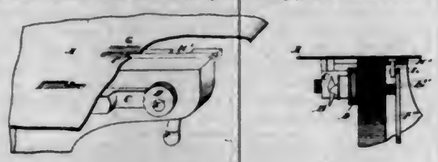


Claim.—1. In an underground electrical conduit, a supporting and insulating plate of glass or hard rubber having a soft rubber ring placed around its periphery between the disk and the side of the conduit, whereby the disk is held in proper position and not injured by the expansion and contraction of the conduit, substantially as shown and described.

2. An underground conduit or tube, A, having covers *a a*, flush with the surface of the ground, and lined with asbestus B, in combination with a series of perforated glass or hard-rubber plates, C, having a grooved soft-rubber ring, D, around their outer edge, substantially as and for the purpose set forth.

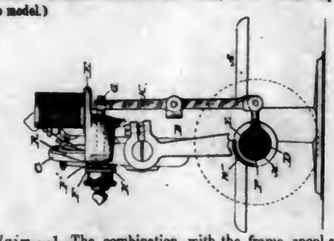
315,955. STITCH REGULATING AND FEEDING DEVICE. EDWARD MURPHY, New York, N. Y. Filed Feb. 4, 1884. (No model.)

Brief.—A slot is specially provided in the bed-plate with a scale upon its side; or the scale may be upon a sliding piece within the slot.



Claim.—The combination, with the cloth-plate of a sewing-machine, provided with an elongated slot, and with the cam-shaft and cams controlling the play of the feed device of the machine, of a reciprocating slide moving longitudinally within or beneath said slot, to be visible through the same, a scale upon the edge of the cloth-plate adjacent to the slot, and a radial arm or lever projecting from said cam-shaft and engaging the slide to determine its position, substantially in the manner, and for the purpose herein set forth.

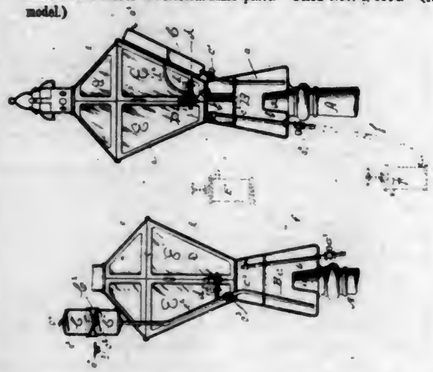
315,956. THREAD-CONTROLLING DEVICE FOR SEWING-MACHINES. EDWARD MURPHY, New York, N. Y. Filed Sept. 30, 1884. (No model.)



Claim.—1. The combination, with the frame, spool-stand, main shaft, and thread-clamping disks of a sewing-machine, of a horizontal rod mounted to reciprocate transversely to the frame in bearings under the spool-stand and to carry and actuate the clamping-disk fitted upon its outer end, an eccentric fitted upon the main shaft, an annular band encircling said eccentric, and a lever hinged at its upper end to the inner end of the reciprocating bar and at its lower end to the band, and which is pivoted intermediately to the frame of the machine, all substantially in the manner and for the purpose herein set forth.

2. The combination, in a sewing-machine, with the thread-clamping disks F F', mounted upon a horizontally-reciprocating rod, G, actuated mediately by an eccentric upon the main shaft, and with the spool-stand E, and an eye, T, fixed upon the needle-arm C of the machine, of a second eye, R, fixed upon the spool-stand, and through which the thread passing from the spool through the eye T is led before passing to the tension-disks, all substantially in the manner and for the purpose herein set forth.

315,957. STREET-LAMP. EDWIN NORTON, Chicago, Ill., assignor to himself and Oliver W. Norton, same place. Filed Nov. 4, 1884. (No model.)



Claim.—1. The combination of burner D, main reservoir B, located below the burner and adapted to contain compressed air, the supplemental tank C, located over said main reservoir, and a pipe connecting the reservoirs, through which oil is forced from the main reservoir by compressed air therein to the supplemental reservoir, substantially as specified.

2. The combination of main reservoir B, having socket *b*, supplemental tank C, filling-tube *c*, supply-pipe *d*, and air-pipe c^2, substantially as specified.

3. The combination of post A with reservoir B, having socket *b*, tank C, pipe *c*, furnished with cock *c'*, supply-pipe *d*, burner D, air-pipe c^2, and air-pump F, having tube *f*, connected to said air-pipe, substantially as specified.

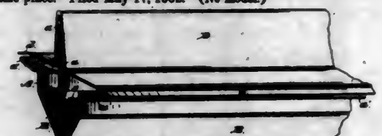
4. The combination, in a street-lamp, of main reservoir B, secured on top of the lamp-post, and provided with air-pipe c^2, with air-pump having tube *f*, connected to said air-pipe, and reservoir C, located above said reservoir B, and provided with a pipe, *c*, leading to reservoir B, substantially as specified.

5. The combination of post A with reservoir B, having socket *b*, to receive the end of the post, and metallic lamp-frame *e*, rigidly secured to the top of said reservoir B, substantially as specified.

6. The combination of main reservoir B with supplemental tank C, located above, connected with, and filled from said main reservoir by pressure of air therein, vent-opening c^4, and disk or diaphragm c^5, beneath said vent, substantially as and for the purpose specified.

7. The combination of main reservoir B, supplemental tank C, connected with said main reservoir, a removable can or chamber, C', having a hollow screw-nozzle coupling, c^6 c^6, and burner D, having a supply-connection with said tank C, substantially as specified.

315,958. SKYLIGHT. BERNARD OVERMAN and WILLIAM H. O'CONNOR, Washington, D. C.; said O'Connor assignor to Warren M. Whyte, same place. Filed May 17, 1882. (No model.)

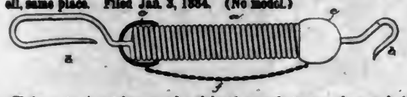


Claim.—1. A bar having two drip-gutters separated by means of an intermediate vertical web, and having their outer edges extended outward horizontally, and then upward to form supports for glass plates, in combination with a cap that embraces the upper portion of and is secured to said web, and is provided with bearings which extend laterally over the glass plates and correspond to the ledges of said gutters, substantially as and for the purpose specified.

2. In combination with the drip-gutters A A on each side of the web *a*, having their outer edges extended laterally outward, the molding B, placed beneath the same, and having its upper edges extended laterally outward and embraced by downward and inward turned outer portions of the gutter-edges, substantially as and for the purpose described.

3. The hereinbefore-described bar, composed of the vertical web *a*, the gutters A A on each side thereof, having their outer edges extended outward horizontally and then upward, and the molding B, in combination with the glass plates C and cap D, substantially as and for the purpose set forth.

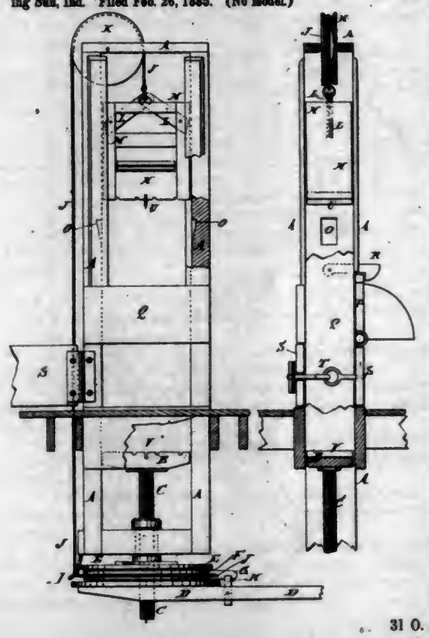
315,959. CLASP OR HOLDING DEVICE FOR WEARING-APPAREL. WILLIAM D. C. PATTISON, Marlborough, Mass., assignor to Horace S. Crowell, same place. Filed Jan. 3, 1884. (No model.)



Claim.—1. As an improved article of manufacture, a clasp or holder composed of a small spiral spring having at its ends sharp-pointed open hooks, suitable to penetrate and hold a fabric or garment, the shanks of the hooks being substantially in line with the center line of the said spring, or within the interior of the helical coils of wire composing the said spring, substantially as described.

2. The spiral spring and connected hooks or devices to engage a fabric, combined with a connecting device to limit the stretch of the spring, substantially as described.

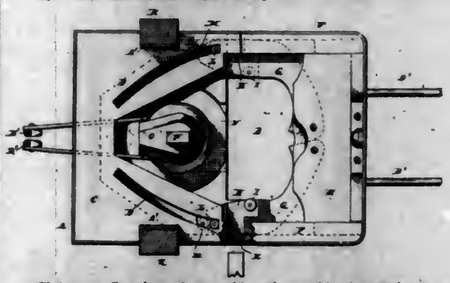
315,960. UPRIGHT-BEATER BALING-PRESS. JOHN J. PLATT, Rising Sun, Ind. Filed Feb. 26, 1885. (No model.)



Claim.—1. In an upright-beater baling-press, the combination, with the beater N, of one or more knives, U, substantially as herein shown and described, whereby each feed, as it is compressed by the beater, will be cut into two or more parts, so as to form two or more small bales at one operation, as set forth.

2. In an upright-beater baling-press, the follower B, made substantially as herein shown and described, with one or more grooves, V, to receive the knife or knives of the beater, whereby the said follower and knives are prevented from being injured, as set forth.

315,961. HORSESHOE-MACHINE. ZACHARIAH V. PURDY, Louisville, Ky. Filed Mar. 17, 1884. (No model.)



Claim.—1. In a horseshoe-machine, the combination of the frame carrying the piercing-tool and ejecting mechanism, the anti-friction cams for operating the same, the piercing-tool provided with removable beveled teeth and adapted to fit over the die, and the ejecting mechanism consisting of a lever-arm operated by a friction-roller on one of the cams, and having one end fixed to a fulcrum-shaft, the said shaft carrying lever-arms, which operate the push-bars adapted to throw the shoe from the die, the said bars moving in suitable slots in the end of the bed, all the parts operating to pierce the nail-holes in and "full" or crease the shoe-blank and to eject the same from the machine, substantially as described.

2. In a horseshoe-machine, the combination of the recessed bed carrying a slotted plate on one end and having an opening near the other, the said slotted plate on the bed, the reciprocating carriage moving on the bed, and operated by a cam on the main driving-shaft, the approaching slotted arms connected to said carriage, and having anti-friction bearings in the slots in the plate and at all contact-points, the beveled die, the piercing-tool having removable beveled teeth, the anti-friction cams operating the tool and ejecting mechanism, and the ejecting mechanism consisting of a lever having one long and two short arms, each connected to a fulcrum-shaft, and the push-bars connected to the short arms, being recessed on the ends and working in slots in the bed, all the parts operating to form horseshoe-blanks from bar metal, to pierce the nail-holes and full the shoes, and to eject the finished shoe from the machine, substantially as described.

3. In a horseshoe-machine, the combination, with the recessed bed having a cutting-edge on one side of a slot therein, the slotted plate, and sliding carriage, of curved slotted arms, the edge of the slot in one of the arms forming a cutting-edge for separating the blank-bar, the whole operating substantially as and for the purpose specified.

4. In a horseshoe-machine, the combination, with the recessed bed, the slotted plate, and the sliding carriage, of the slotted arms pivoted to the carriage, and guided by anti-friction bearings in the slots in the plate, and having all their contact-points provided with friction-rollers, substantially as described.

5. The combination, with the upright frame, the beveled die having a guide on its upper surface, and the shaft and cams, of the recessed piercing-tool fitting over the die and receiving the die thereon, and the removable beveled teeth on the said tool, the parts operating substantially as and for the purpose specified.

6. In combination with the recessed bed, the upright frame, and operating cams secured to a shaft journaled in the uprights, the ejecting mechanism consisting of a long lever-arm connected to a fulcrum-shaft, two short arms connected to the said shaft, and two bars connected to the short arms, and recessed at their free ends and adapted to slide in slots in the end of the bed, the whole operating to throw the finished shoe from the machine, substantially as described.

7. The combination, with the piercing-tool, the recessed bed, the carriage, and the slotted arms, of the beveled die provided with an extended base let into the bed, and a guide on the top adapted to enter a recess provided for it in the piercing-tool, substantially as described.

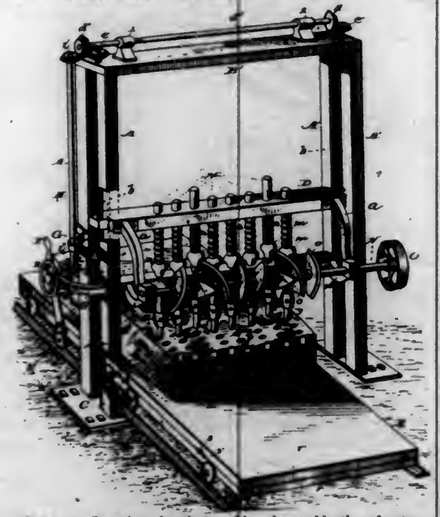
8. An ejecting mechanism for horseshoe-machines, consisting of a long lever-arm connected to a fulcrum-shaft, short arms connected to the said shaft, and bars pivoted to the said short arms and recessed at their free ends, the bars being adapted to slide in and be guided by slots in the bed of the machine, the whole device supported and operated substantially as and for the purpose specified.

9. Bending-arms for horseshoe-machines, each arm having a proper

curve, and provided near one end with a lateral slot, the bearing-points of the arms all being provided with friction-rollers, substantially as and for the purpose specified.

10. In combination with the punch and ejector of a horseshoe-machine, an operating mechanism therefor, consisting of a shaft bearing a wheel from which projects a tappet or pin which engages with a lever operating the ejector, and a cam having its bearing-surface made anti-frictional, said cam rotating in the frame supporting the punch, the parts operating substantially as and for the purpose specified.

315,962. STONE-DRESSING MACHINE. JOHN B. ROSS, Rahway, N.J. Filed Dec. 1, 1884. (No model.)



Claim.—1. In a stone-dressing machine, the combination of a stone-carrying platform, constructed of upper and lower sections provided on their abutting or contiguous faces with corresponding grooves and tracks, and a screw-shaft working in a shell between the sections, whereby the upper section may be moved sidewise, substantially as described.

2. The combination, with the beams D E, carrying the spring-actuated drill-rods, and the cam-shaft bearing the spirally-arranged cams, of the arms *a a*, connected to the beam D, and the arms *a' a'*, connected to the arms *a a*, and the beam E, for maintaining said beams relatively apart and constituting separable bearings for the cam-shaft, whereby the latter is movable, as set forth.

315,963. FARE REGISTER AND RECORDER. JOHN H. ROSS, Norwalk, Conn. Filed May 26, 1884. (No model.)

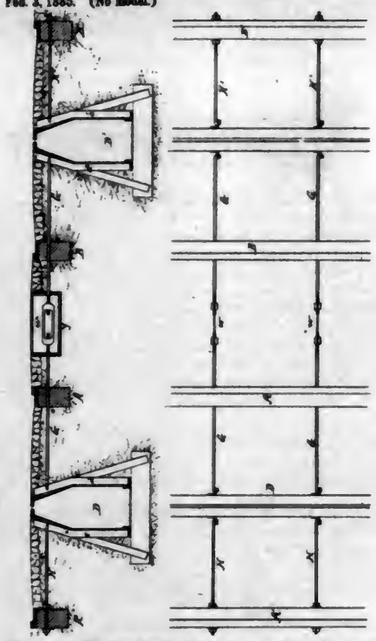


Claim.—1. The combination of the intermittingly-rotated toothed wheel H, the shaft 4, diametrically across said wheel, one end pivoted thereto, the other end screw-threaded, a correspondingly screw-threaded nut, 8, carrying the toothed wheel 9, the hollow center shaft, F, spindle 11 therein, arranged to bear upon said shaft 4, the slide U, arranged in a plane substantially parallel with the said wheel H, screw V in connection with said slide, and working through a fixed nut on the frame, the lever 14 18, one end arranged to bear upon said spindle, the other constructed to bear upon an arm, 19, extending from said slide, or escape therefrom, as the case may be, substantially as described.

2. In a registering apparatus substantially such as described, the combination of the wheel H, lever L, carrying pawl *d*, dog P, carrying the hammer, the slide U, arranged for longitudinal movement in a plane substantially parallel with the wheel H, and constructed with the arm *o* and shoulder 2, substantially as and for the purpose described.

3. A bell-hammer constructed with a spring-arm, combined with an inelastic arm extending along the back of the hammer, upon which the said spring will hold the hammer in its normal condition, substantially as described.

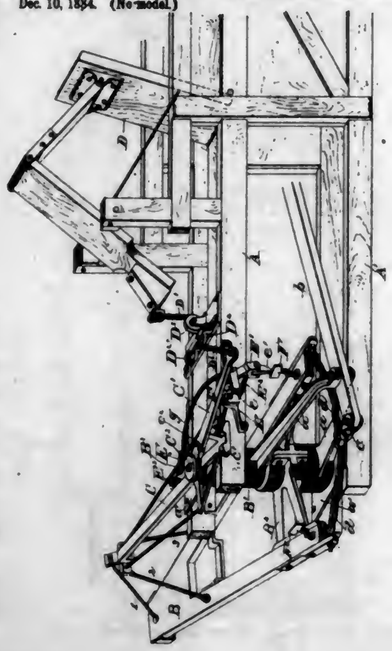
315,964. CABLE RAILWAY. EDWARD SAMUEL, Philadelphia, Pa., assignor to William Wharton, Jr., & Co., (Limited,) same place. Filed Feb. 3, 1885. (No model.)



Claim.—1. The combination of the two conduits of a double-track cable road with adjustable tie-rods connecting the inner sides of the said conduits together, substantially as specified.

2. The combination of the two conduits of a double-track cable road with adjustable tie-rods connecting the inner sides of the conduits, and the box *y*, containing the adjusting device and having a movable cover, as specified.

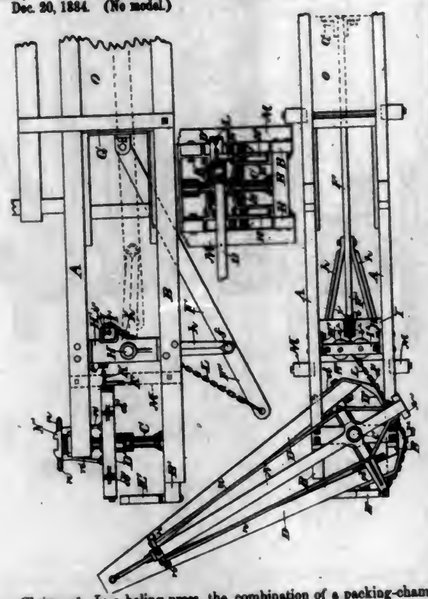
315,965. BALING-PRESS. WILLIS D. SLAUSON, Racine, Wis. Filed Dec. 10, 1884. (No model.)



Claim.—1. In a baling-press, the combination of a king-bolt and swing-post, a sweep, and a lever, C, connected therewith, both pivoted on the king-bolt, the sweep being connected with the baling-plunger, and the lever having a double-lipped catch on its free end, with a lever, C', beater and connecting-chain, a dog, E' *e'*, and bracket E E', and lugs projecting up from the rear end of the sweep, substantially as described.

2. The lever C, having double-lipped catch in its free end, in combination with lever C', and the beater-brackets E E', dogs E' *e'*, the sweep, and its lugs, as set forth.

315,966. BALING-PRESS. WILLIS D. SLAUSON, Racine, Wis. Filed Dec. 20, 1884. (No model.)



Claim.—1. In a baling-press, the combination of a packing-chamber and plunger and connecting-rod pivoted to the arms of a shaft forming a toggle-joint and a sweep having its ends connected by a plate and revolving on a post or standard, the said plate having shouldered recesses opposite each other, a lever pivoted on the said post and having a depending tripping-lug, a tripping-post with inclined upper surfaces, and a chain connecting the said lever with the end of the connecting-rod beyond the toggle-joint, substantially as set forth.

2. In a baling-press, the combination of the press-timbers A B, platform B', post C, sweep D, plate D', lever K, shaft H, with arms *h h*, plunger G, connecting-rod F F', and chain L, and tripping post and lug, substantially as set forth.

3. In a baling-press, the combination of the press-frame A B B' H' I I', post C, sweep D, plate D', sheaves *i' i² i³*, lever K, shaft H, with arms *h h*, plunger G, connecting-rod F F', and chain L, and tripping mechanism, substantially as set forth.

4. In a baling-press, the combination of the press-frame A B B' H' I I', post C, sweep D, plate D', with shouldered recesses *d d* and grooves *d'*, tripping-post E, shaft H, with arms *h h*, plunger G, connecting-rod F F', lever K, with tripping-lug K', sheaves *i' i² i³*, and chain L, substantially as set forth.

315,967. COMBINATION FISH-HOOK. CLARK L. SPENCER, Geneva, N. Y., assignor to Dominick E. Dempsey, same place. Filed July 24, 1884. (Model.)

Claim.—1. In combination with a fishing-hook, a removable needle for fixing live or other bait upon, substantially as described.

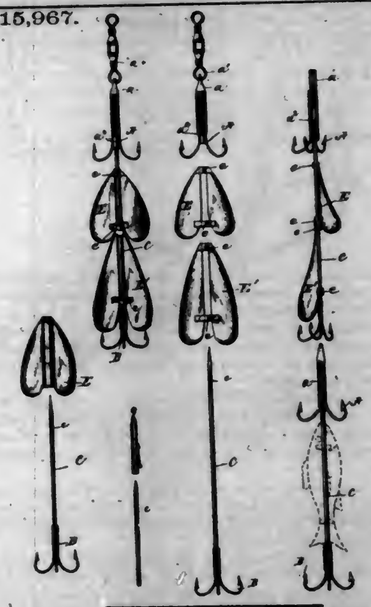
2. The combination of gang-hooks A, having a hollow stem, with needle C, having a screw-threaded end, and gang-hooks B, substantially as described.

3. A combination fishing-hook consisting of two gangs—viz., an upper gang, and a detachable bar carrying a lower gang—substantially as described.

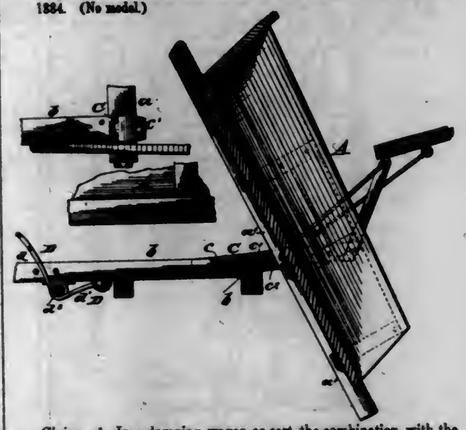
4. The combination of the gang-hooks A and B, and a needle, C, adapted to receive spinners or live bait interchangeably, substantially as described.

5. In a combination trolling and still-water fish-hook, the combination of a lower gang, B, a needle, C, an upper gang, A, secured to said needle by a detachable fastening, and one or more spinners constructed and applied on the needle, substantially as described.

315,967.



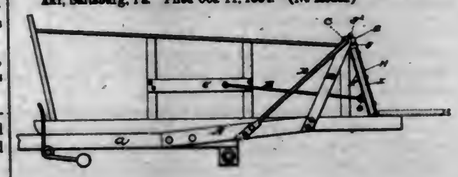
315,968. DUMPING-WAGON. THOMAS S. STEWART, Saltsburg, Pa., assignor of one-fourth to Henry B. Josselyn, Chicago, Ill. Filed Sept. 13, 1884. (No model.)



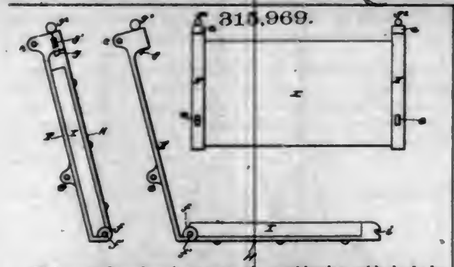
Claim.—1. In a dumping wagon or cart, the combination, with the body-rails, the shafts having their inner ends secured to the axle and beveled downward and backward, and any proper device to lock the body-rails on the shafts, of two hinges having their front leaves secured to the upper surfaces of the shafts, their joints lying immediately above the upper front edges of the bevels and their rear leaves loosely connected by their rear ends to the body-rails, and having the same length as the bevels, substantially as specified.

2. In a dumping wagon or cart, the combination of the body A, provided with the body-rails *a' a'*, the axle *a*, and shafts B B, with the clevises D D, connected by the rod d^2, the hinge-joints C C, and the hooks or staples c^2 c^2, substantially as specified.

315,969. END-GATE FOR DUMPING-WAGONS. THOMAS S. STEWART, Saltsburg, Pa. Filed Oct. 11, 1884. (No model.)



315,969.



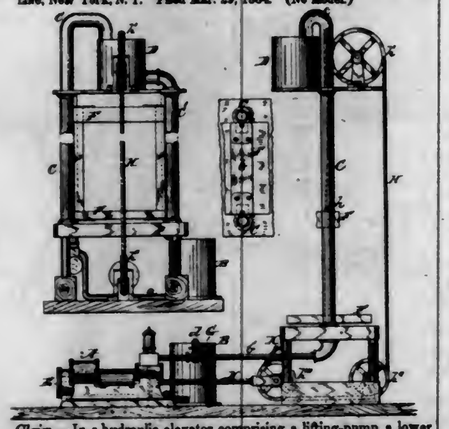
Claim.—1. In a dumping-wagon, the combination, with the body, shafts, side bars, A, secured to the rear ends of the shafts, standards B, fixed to the rear ends of the side bars, and actuating-rods E, of the end-gate C, hinged to the upper ends of the standards at *c c*, and composed of the straps F and H, hinges *f*, head-pieces G, board I, and suitable devices to connect and disconnect said head-pieces and board at will, substantially as specified.

2. In an end-gate for a dumping-wagon, the combination of the straps F, head-pieces G, and latch *g*, provided with detents g^2 and controlled by the spring *g'*, with the hinges *f*, straps H, board I, and notches *i i*, adapted to receive and hold the point of the latches, substantially as specified.

3. In a dumping-wagon, an end-gate having side straps forming part of said gate, to the lower end of which straps the end-board is hinged and to the upper end of which straps it is connected by automatic catches, substantially as specified.

4. In a dumping-wagon, an end-gate composed of vertical end straps carrying head-blocks on their upper ends and hinged at the lower ends to vertical straps, to which the end or covering board is fixed, and suitable devices to automatically engage the head-pieces to the end-board, substantially as specified.

315,970. HYDRAULIC ELEVATOR FOR BUILDINGS. ALLAN STIRLING, New York, N. Y. Filed Mar. 29, 1884. (No model.)



Claim.—In a hydraulic elevator comprising a lifting-pump, a lower water-tank, a cylinder containing a operating-piston connected with the cable supporting the car, and an elevated water-tank, the combination, with the pipes connecting said upper and lower tanks and the upper tank and the cylinder containing the operating-piston, of ways attached to or formed upon said pipes on which the elevator-car moves, substantially as described.

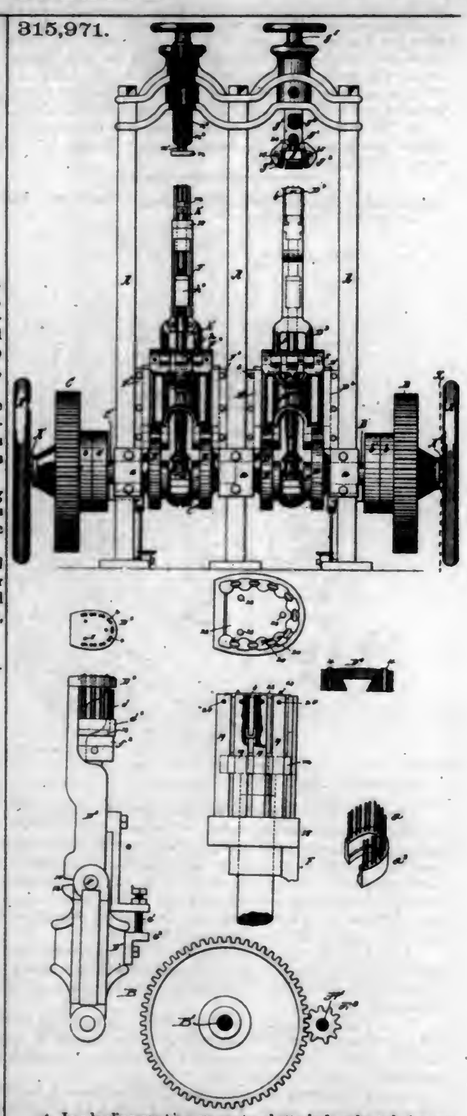
315,971. HEELING-MACHINE. HENRIE D. STONE, Boston, and ARTHUR C. ADELER, Natick, Mass., assignors to the Adams Manufacturing Company, Portland, Me. Filed Mar. 22, 1884. (No model.)

Claim.—1. The corrugator-plate *g*, and the post provided at top with the plate D^4, and the spindle and detachable awl holder or carriage moved by it, combined with means for reciprocating the said post and spindle, substantially as described.

2. The corrugator-plate *g*, and sleeve to hold it, and heel-lift corrugators, combined with the post to receive the boot or shoe and force its heel against the corrugator-plate to have the edges of the lifts corrugated or indented, as described.

3. The carriage and post pivoted to it, the perforated plate carried by the post, and the jointed spindle having its bearings in the post, and awl holder or carriage, combined with means, substantially as described, to operate the said post and spindle.

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4. In a beeling-machine, the post and attached perforated plate provided with conical projections concentric with the said perforations to countersink the inner sole where the awls enter and pass through the same, substantially as described.

5. In a beeling-machine, a post to receive the boot or shoe, and a plate thereon provided with projecting conical pointed steel tubes to not only act as guides for the awls, but also prevent lateral movement of the sole on the said plate and post when being pricked, and also form register-holes to enable the boot or shoe to be correctly placed in position with relation to the staple or fastening holes of a second plate on a second post through which the latter are driven into the sole and heel, substantially as described.

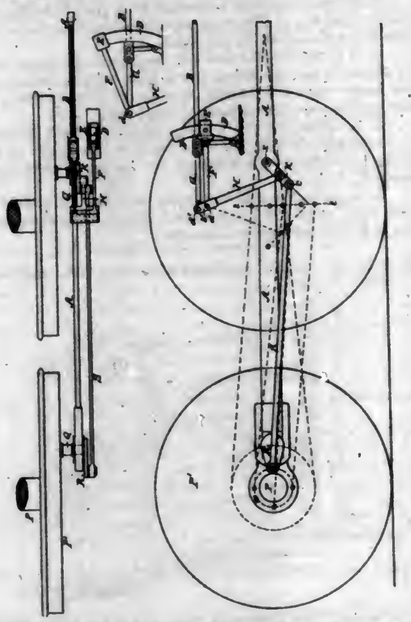
6. The post F and its attached staple or fastening guides 19, and plate 22, the heel-plate, combined with the driver-spindle and driver to act upon and drive the staples from between the said guides into and through the holes in the sole and heel, substantially as described.

7. The post F, its attached staple-guides, the plate 22, provided with the register-spurs 23, and the heel-plate *n*, combined with the driver-spindle and its driver, to operate substantially as described.

8. In a beeling-machine, corrugators, substantially as described, to corrugate the heel across its lifts, substantially as described.

9. In a beeling-machine, the heel-plate *n*, and the supporting-plate 22 for the sole, and the staple-guides 19, combined with the driver-plate and its attached drivers to act upon the crowns of the staples and force them through the sole from its inner side and into the heel, substantially as set forth.

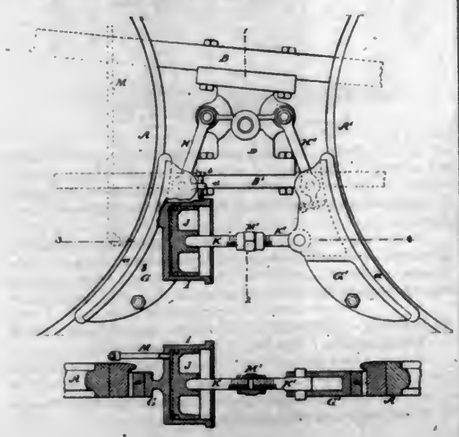
315,972. VALVE-GEAR. GEORGE S. STRONG, Philadelphia, Pa., assignor to John T. Morris, trustee, same place. Filed June 16, 1884. (No model.)



Claim.—1. The combination, in a valve-gear for steam-engines, of the following elements, namely: first, the fixed segment D, and the block adjustable thereon; second, the lever H, the connecting-rod A, link K, rod S, and return-crank R on the crank-pin of the crank-shaft or axle; and, third, the rod F, connecting the said adjustable block to the pin *d* of the lever H, to which lever is also connected the valve-rod, all substantially as set forth.

2. Valve-gear for steam-engines, in which the following elements are combined, namely: first, the fixed segment D, and a block, E, adjustable thereon; second, the lever H, having its fulcrum-pin connected to the said block, and having an arm, *b'*, connected to the valve-spindle; and, third, the connecting-rod A, link K, and rod S, and the return-crank R on the crank-pin of the shaft or axle, all substantially as set forth.

315,973. LOCOMOTIVE-BRAKE. GEORGE S. STRONG, Philadelphia, Pa. Filed Oct. 9, 1884. (No model.)



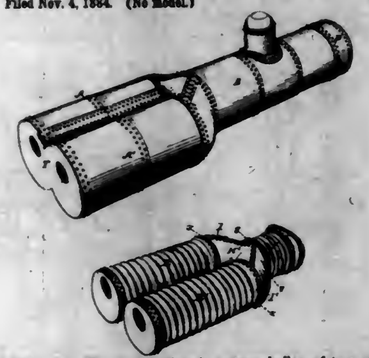
Claim.—1. The combination, in a steam-boiler, of two cylindrical shells placed side by side, and one cylindrical shell, with die-pressed gusset-plate H' and die-pressed side plates, I I', shaped and riveted or otherwise secured together and to the three shells, substantially as set forth.

2. The combination of the two outer shells, A A', and the shell of the barrel B, with the two die-pressed plates W and W', secured together and to the said shells, substantially as specified.

3. The within-described outer shells of the two fire-boxes, the same consisting of bent plates having flanges *x* for the shell of one box, bent plates without flanges for the outer shell of the other fire-box, the flanged plates Y, and strips *w*, all combined and riveted or otherwise secured together, substantially as specified.

4. The combination of the two outer shells of the fire-box with a flanged plate, T, made in one piece, and forming the head of the said outer shell of the fire-box, substantially as set forth.

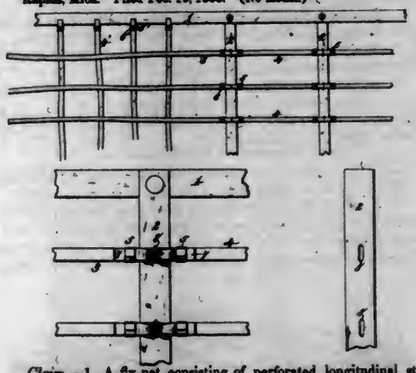
315,974. STEAM-BOILER. GEORGE S. STRONG, Philadelphia, Pa. Filed Nov. 4, 1884. (No model.)



Claim.—1. The suspended shoe G, having a cylinder, I, cast in one therewith, in combination with the shoe G' and piston J, acting thereon, substantially as described.

2. The combination of the suspended shoe G and cylinder I, carried thereby, with a piston in said cylinder, a shoe, G', carrying an adjustable rod, K K', acting on said piston, substantially as set forth.

315,975. FLY-NET. ELBRIDGE G. STUDLEY and PETER DOSCH, Grand Rapids, Mich. Filed Feb. 19, 1885. (No model.)



Claim.—1. A fly-net consisting of perforated longitudinal straps, transverse straps having their ends passed through the perforations, turned back, and secured to the body of the transverse straps, substantially as described.

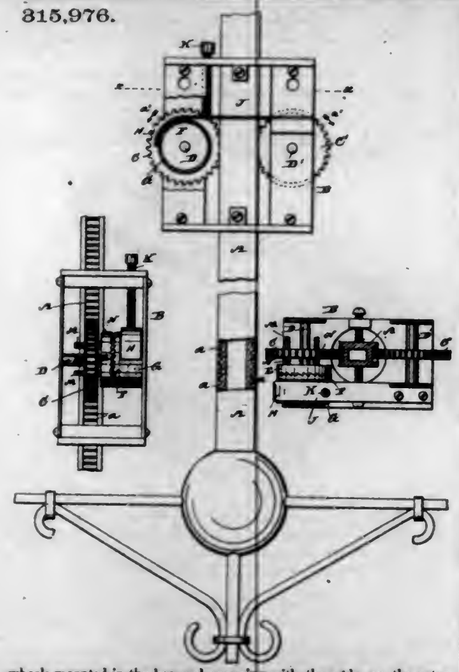
2. In a fly-net, the combination of longitudinal straps provided with perforations for receiving the ends of the transverse straps, transverse straps whose ends pass through said perforations and are folded back upon the bodies of such straps, and clips securing together the ends and bodies, substantially as described.

3. In a fly-net, the combination of the longitudinal straps 2, with perforations 8, the transverse straps 4, having their ends passed through said perforations, and metal clips 5, with punched concavity 6, substantially as described.

315,976. DROP-LIGHT AND CHANDELIER. JOHN TRIGGS, Mount Vernon, N. Y. Filed Dec. 8, 1884. (No model.)

Claim.—1. In a chandelier, the combination, with a box held on the fixed tube, of an extension or drop-light tube having racks, cog-

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wheels mounted in the box and engaging with the racks on the extension-tube, a clutching device connected with one wheel, and a retarding spring or lever resting on a pulley or disk connected with the clutching device, substantially as herein shown and described.

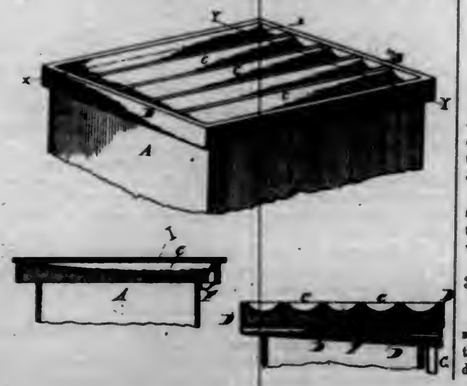
2. In a chandelier, the combination, with a box held on a fixed tube, of an extension or drop-light tube having racks, cog-wheels mounted in the box, a clutching device connected with one wheel, a disk or pulley connected with the clutching device, a spring or lever resting on the said disk, and a screw for adjusting the said spring or lever, substantially as herein shown and described.

3. In a chandelier, the combination, with the box B, of the rack-tube A, the cog-wheels C C', the clutch-disks E and F, rubber on the disk F, the spring J, provided with rubber, and the adjusting-screw K substantially as herein shown and described.

4. In a chandelier, the combination, with the box B, of the rack-tube A, the cog-wheels C C', the clutch-disks E F, the pins M, the springs N, and the retarding-lever J, acting on the disk F, substantially as herein shown and described.

315,977. ROOFING FOR BUILDINGS AND OTHER STRUCTURES. SETH G. TUPPS, Mainesville, Ohio. Filed Sept. 16, 1884. (No model.)

Brief.—Formed with substantially-level joists having attached to their upper edges gradually-graded inclined troughs provided with a water-opening at their ends inside of the facing-board, communicating with an inclined eave-trough. A slatted floor is placed over the troughed roof.



Claim.—1. A roof composed, substantially, of joists D, the upper edges of which are substantially level, and the shedding-surface formed of gradually-graded troughs C, attached to the upper edge of the joists, which troughs incline to one or more sides of the building in a gradually-increasing pitch sufficient to shed the water, substantially as specified.

2. A roof composed, substantially, of the substantially-level joists D, facing-board B, and gradually-inclined troughs C, substantially as specified.

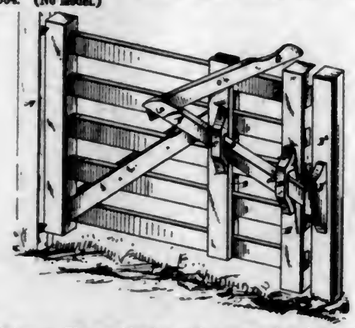
3. In combination with substantially-level joists D, double graded troughs C, pitching from the center outward, and forming a double water-shed for a roof, substantially as specified.

4. In a roof, in combination with the joists D, the graded troughs C, attached to the upper surface of said joists and lying between them, and formed with a water-opening, *d*, at the end of the troughs and inside the facing-board B, substantially as specified.

5. In combination with a graded troughed roof, the eave-trough F, secured upon the under side of the coping, so as to receive the water discharged by the troughs C through the opening *d*, substantially as specified.

6. In combination with the troughed roof C and substantially-level joists D, the slatted floor I, or its equivalent, resting upon the upper surface of the roof, substantially as specified.

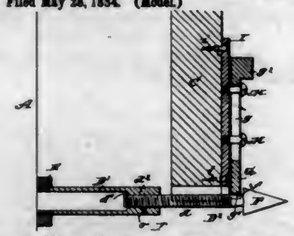
315,978. LATCH. JOHN McD. TURNER, Tribune, Tenn. Filed Aug. 8, 1884. (No model.)



Claim.—1. The combination, with a gate or door having brackets secured thereto on different horizontal planes, of a sliding locking-bar mounted in said brackets, a lever pivoted to the rear end of the latch or locking-bar, and a keeper, substantially as set forth.

2. The combination, with a gate or door having brackets secured thereto on different horizontal planes, of a sliding locking-bar mounted in said brackets, said bar or latch having a reduced forward end and recessed or cut away to form shoulders *b*, a lever pivoted to the rear end of the latch or locking-bar and to the gate, and a keeper, substantially as set forth.

315,979. SHUTTER-FASTENER. JOHN VON HOLLEN, Charleston, S. C. Filed May 28, 1884. (Model.)



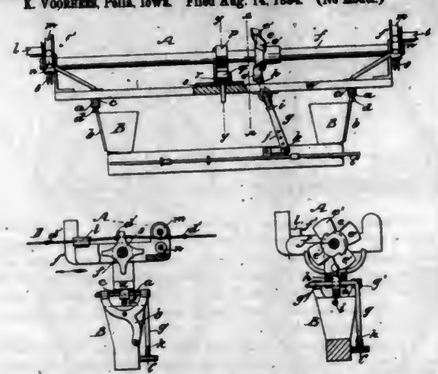
Claim.—1. The combination, in a shutter-bolt, of a catch, D, formed of two parts, D' D², screwed to each other, said part D² having a conical head, F, and a sliding latch-bar, G, fitted on the shutter, and adapted to engage the catch-bar behind its head F, substantially as shown and described.

2. As a new and improved article of manufacture, a catch for a shutter-bolt, made with a tubular screw-threaded part, D', and a screw-threaded and headed part, D², adapted to be adjusted on the part D' to vary the length of the catch, substantially as shown and described.

315,980. MANUFACTURE OF BEER. JOACHIM BARON VON ROSE, Breslau, Germany. Filed Feb. 10, 1885. (No specimens.)

Claim.—That improvement in the art of beer-making which consists in introducing into the mixture from which the beer is to be made the whole freshly-prepared green malt, in contradistinction to the usual dry crushed malt, substantially as described.

315,981. CHECK-ROW ATTACHMENT FOR CORN-PLANTERS. JOHN K. VOORHEES, Pella, Iowa. Filed Aug. 14, 1884. (No model.)

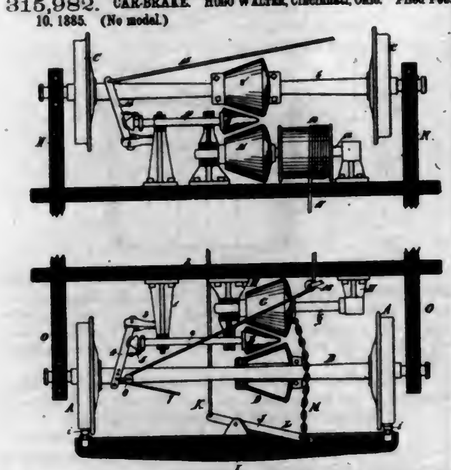


Claim.—1. In a check-row attachment for corn-planters, the combination, with the support *u*, connected adjustably to rods *a*, supported in armed or bifurcated bars *b*, fastened to the hoppers or to their supports, of the shaft *f*, carrying the cam *e*, and the right-angled bar or rod *g*, having the adjustable arm *h*, and connected to the dropping-plate C, substantially as and for the purpose set forth.

2. The rod *g*, for reciprocating the dropping-plate C, bent to form the horizontal portion *g'*, in combination with the adjustable arm *h* and the cam *e* of the shaft *f*, arranged substantially as described.

3. In a check-row attachment for corn-planters, the support *u*, connected adjustably to rods *a*, supported in armed or bifurcated bars *b*, fastened to the hoppers or their supports, in combination with the shaft *f*, carrying the cam *e*, and the right-angled bar or rod *g*, having the adjustable arm *h*, and connected adjustably to the dropping slide or plate C, the nut or cam *p* upon the shaft *f*, and the yielding or spring bearing *q* for said nut or cam *p*, substantially as and for the purpose specified.

315,982. CAR-BRAKE. HUGO WALTER, Cincinnati, Ohio. Filed Feb. 10, 1885. (No model.)



Claim.—1. In a car-brake, the combination of the two cones E and G, one of which is movable, and thereby capable of being brought into direct frictional contact with the other for operating the brake-lever J, substantially as described.

2. In a frictional car-brake, the combination of the cone-pulleys D G, the reciprocating shaft *e*, and cone-pulley E, operated by a shipping-lever, substantially as specified.

3. In combination with the shipping-lever 4 of the setting-shaft *e*, the continuous cable 7 and sheave 6, whereby a series of levers on different truck-frames may be simultaneously operated by the continuous cable 7, substantially as specified.

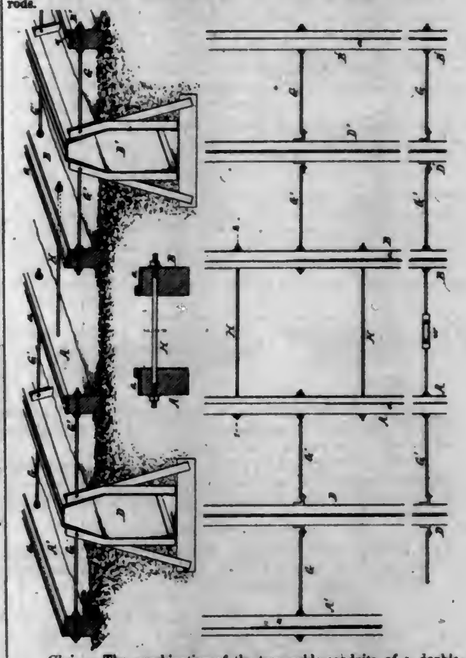
4. In combination with the cable 7 and shifting-lever 4, the winding-drum 13 and clutch-gears operated by axle *b* of the truck-frame N, substantially as specified.

5. In combination with the truck-frame N, the winding-drum 13, driven by shaft *b*, and intermediate transmitting devices and clutch mechanism for stopping and starting the same, substantially as specified.

6. In combination with the drum 13, operated by suitable driving mechanism, the drum P, arranged on the secondary shaft *g*, and chain M, connected to brake-lever J, whereby the series of brakes may be operated by the continuous cable 7, wound around said drums, substantially as specified.

315,983. CABLE RAILWAY. WILLIAM WHARTON, Jr., Philadelphia, Pa., assignor to William Wharton, Jr., & Co., (Limited.) same place. Filed Feb. 3, 1885. (No model.)

Brief.—The inner sills of a double-track cable railway are connected together and to the inner sides of the conduits by adjustable stay-rods.



Claim.—The combination of the two cable-conduits of a double-track cable road and the sills of the tracks with adjustable stay-rods, whereby the inner sills of the two tracks are connected together and to the inner sides of the two conduits, substantially as set forth.

315,984. CABLE RAILWAY. WILLIAM WHARTON, Jr., and EDWARD SAMUEL, Philadelphia, Pa., assignors to William Wharton, Jr., & Co., (Limited.) same place. Filed Feb. 3, 1885. (No model.)



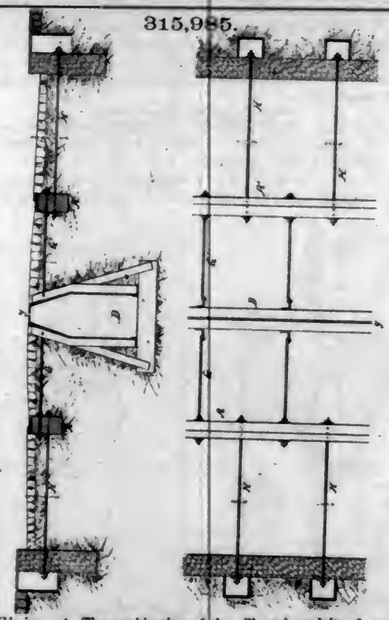
Claim.—1. The combination of the sills and conduit of a cable road with stay-rods connected to the conduit and anchored to the road independently of the sills, substantially as set forth.

2. The combination of the conduit of a cable road with adjustable stay-rods anchored to the road-bed, substantially as specified.

315,985. CABLE RAILWAY. WILLIAM WHARTON, Jr., and EDWARD SAMUEL, Philadelphia, Pa., assignors to William Wharton, Jr., & Co., (Limited.) same place. Filed Feb. 3, 1885. (No model.)

Brief.—The sides of the conduit are anchored to the rail-sills by rods, and the sills to the roadway.

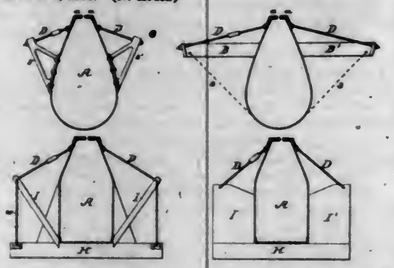
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Claim.—1. The combination of the sills and conduits of a cable road and stay-rods G G' with stay-rods H, connected to the said sills and anchored to the roadway, substantially as set forth.

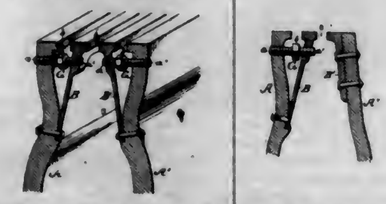
2. The combination of the sills and conduit of a cable road with adjustable stay-rods G G', connecting the conduit to the sills, and rods H, connected to the sills and anchored to the roadway, substantially as specified.

315,986. CABLE RAILWAY. WILLIAM WHARTON, Jr., Philadelphia, Pa., assignor to William Wharton, Jr., & Co., (Limited,) same place. Filed Feb. 3, 1885. (No model.)



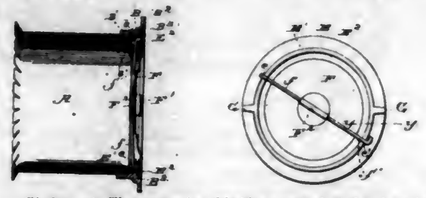
Claim.—The combination of a conduit having laterally-yielding upper side or sides with adjustable connections between the said laterally-yielding upper portions of the conduit, and attachments or extensions on one or both sides of the said conduit, substantially as set forth.

315,987. CABLE RAILWAY. WILLIAM WHARTON, Jr., Philadelphia, Pa., assignor to William Wharton, Jr., & Co., (Limited,) same place. Filed Feb. 3, 1885. (No model.)



Claim.—The combination of a cable-conduit and yielding slot-bars secured to the said conduit on one or both sides of the same, with adjustable connections between the said conduit and bars, substantially as set forth.

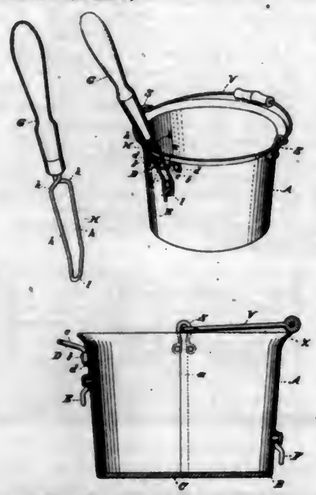
315,988. STOVE-PIPE THIMBLE. GEORGE W. WOODBORNE, Uhrichsville, Ohio, assignor of one-half to T. R. Woodborne. Filed July 31, 1884. (No model.)



Claim.—1. The stove-pipe thimble composed of the sheet-iron body A and the cast rim B, formed with flanges B' B^2, the flange B' being formed with a rabbet, *b*, fitted to receive the body A, and being cut out at b^2, whereby the slot D is formed between the flange B^2 and the end of body A, the flange B^2 being formed with a rabbet, B^3, and a notch, D', combined with a cap-ring having tongues G, substantially as and for the purposes set forth.

2. The combination of the stove-pipe thimble and the cap consisting of ring E, having notches *e e'*, the cover F, provided with bearing F^2, and the rod journaled in said bearings and having its ends *f f'* adapted to engage the notches *e e'*, substantially as set forth.

315,989. CULINARY VESSEL. GEO. H. ZIPP, St. Joseph, Mo. Filed July 10, 1884. (No model.)



Claim.—1. The culinary vessel having a wrought-iron or steel plate side wall welded at its meeting edges to form the side seam rolled outward at its upper edge to form a lip-flange, Z, rolled inward at its lower edge to form a bearing-flange, B, and the bottom C, brazed to the bearing-flange B, upon which it is placed from above downward, substantially as specified.

2. The culinary vessel described, having the horizontally-projecting brace-loop D near its upper edge, and below the same on its side wall the downwardly-projecting hook E, substantially as specified.

3. The culinary vessel having the bail-ears S and bail V, the downwardly-turned hooks E and F on opposite sides, and the brace-loop D above the hook E, substantially as specified.

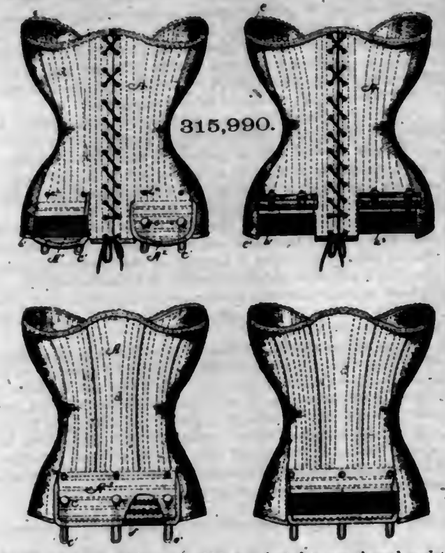
4. The combination, with the brace-loop and the hook below it, of the detachable handle having a loop, substantially as specified.

315,990. COMBINED CORSET AND GARMENT-SUPPORTER. ABRAHAM L. ZORKOWSKI, New York, N. Y., assignor to ISAAC NEWMAN, New Haven, Conn. Filed Aug. 21, 1884. (No model.)

Claim.—1. A corset having in the rear section thereof one or more openings, $a' a^2 a^3$, said openings bridged over with a strip, B, each of said openings having an overlying depending flap, A' A^2 A^3, connected at or near the upper edge to the rear section, A, and having their sides and lower edge free, said flaps supplied with interior horizontal stiffeners, *f*, and adapted and intended to lie flat under said strip B, and further adapted and intended to be rolled up as a garment-support and retained in such rolled-up position by employment of fastening devices, as *c c'* c^2, all arranged as set forth.

2. The within-described garment-supporter, consisting of one or more depending flaps, A' A^2 A^3, supplied with interior stiffeners, *f*, and

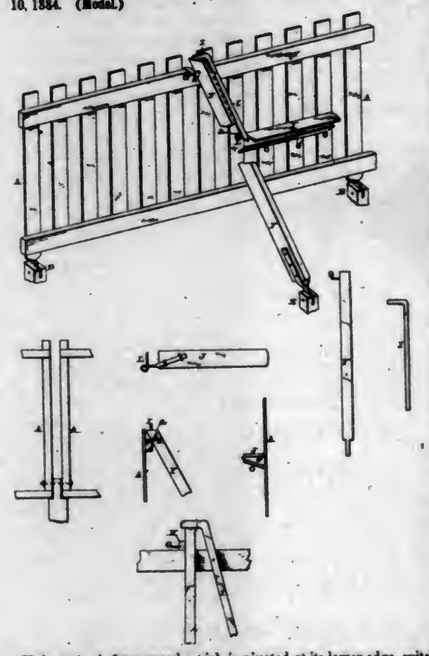
315,990.



having buttons *c* and loops *c'*, said loops adapted to pass through eyelet-holes c^2 and be returned over the respective rolled-up flap and then taken into and engage a coincident button, *c*, as and for the purpose intended, substantially as described.

3. A combined corset and garment-supporter, consisting of the following elements: a corset having upon its rear section one or more openings, $a' a^2 a^3$, said openings being bridged over with a strip, B, one or more integral depending flaps, A' A^2 A^3, said flaps having inserted therein horizontal parallel stiffeners *f*, and being provided with buttons *c* and loops *c'*, all arranged and constructed as set forth and shown, as and for the purpose intended, substantially as described.

315,991. FLOOD-FENCE. SAMUEL INGELS, Centre, Ind. Filed June 10, 1884. (Model.)



Claim.—1. A fence-panel which is pivoted at its lower edge, suitable posts or anchors to which the panel is loosely connected, a brace which is loosely connected at its lower end to a post or anchor, and which is provided with a suitable projection at its upper end, a catch or hook upon the gate, and a locking-lever and pivoted float which is operated by the rise of water, all combined and arranged substantially as shown.

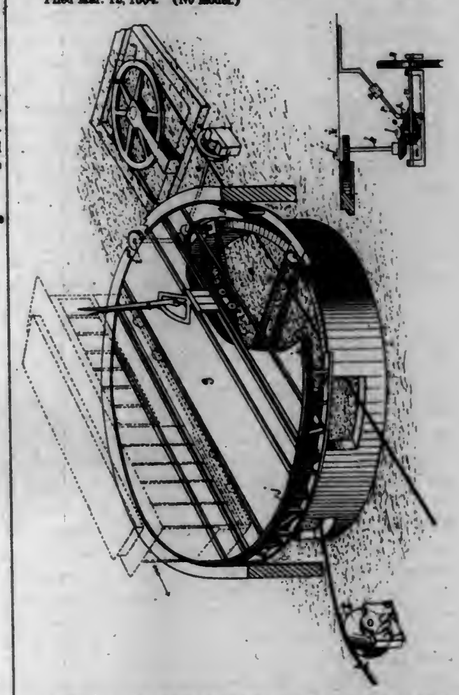
2. The combination of a panel of a fence which is pivoted or hinged at its lower edge, suitable posts or anchors to which the panel is loosely connected, a brace which is pivoted at its lower end to a post or anchor, and which is provided with a pin or projection at its upper end, a hook upon the top of the panel, a lever which engages with the upper end of the brace, and a float which engages with the lower end of the lever, and which is operated by the rise of the water, substantially as described.

3. The combination of a panel of a fence which is pivoted at its lower edge, suitable posts or anchors to which the panel is loosely connected, a catch upon the gate, a brace which is pivoted at its lower end, and provided with a horizontal pin or projection to engage with the catch, a pivoted lever, a float which is pivoted to the fence, and which is provided with a hook or catch to engage with the lower end of the lever, and which float is supported in a horizontal position until dislodged by the waters, substantially as described.

4. The combination of a fence-panel, a brace used in connection therewith, and a locking-lever pivoted on the panel and operated by a float, with a float and a cattle-guard, which is placed underneath the float, substantially as specified.

5. A panel of a fence hinged at its bottom, in combination with a brace which is also hinged at its bottom, a pin which projects horizontally from the side of the upper end of the brace, a hook or latch which is fastened to the panel to engage with the pin, a bent lever which is pivoted to the fence, and a float, substantially as shown, for holding the upper end of the bent lever against the top of the brace until operated by the water.

315,992. CABLE RAILWAY. HENRY ROOT, San Francisco, Cal. Filed Mar. 12, 1884. (No model.)

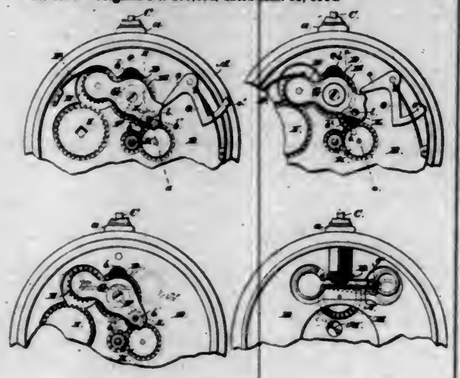


Claim.—1. The means for turning cars and transferring them from one track to the other, consisting of a horizontal table with parallel tracks and slots for the passage of the grip-shanks, and gears or frictional wheels, and a clutch or means by which they may be thrown out of or into contact, substantially as herein described.

2. A means for turning cars and transferring them from one track to another, consisting of a horizontal table with parallel tracks and slots for the passage of the grip-shanks equidistant from the center of rotation, a peripheral gear or frictional surface, and a wheel running in contact therewith, and shafts and gearing by which motion may be transmitted thereto, a clutch mechanism to engage or disengage the driving-shaft, and a pulley upon said shaft, upon which the main cable acts to drive it, substantially as herein described.

REISSUES.

10,580. STEM WINDING AND SETTING WATCH. DUANE H. CHURCH, Waltham, Mass., assignor, by mesne assignments, to Royal E. Robbins, Boston, Mass., and Thomas M. Avery, Chicago, Ill., trustees. Filed Mar. 14, 1885. Original No. 295,484, dated Mar. 18, 1884.



Claim.—1. As an improvement in stem winding and setting watches, in combination with the dial-wheels, and with a stem-driven train which is provided with a pivoted yoke, an intermediate wheel which is adapted to connect or to disconnect said dial-wheels and train, and by the movement of said yoke is shifted in a line perpendicular to its plane of rotation, substantially as and for the purpose specified.

2. As an improvement in stem winding and setting watches, in combination with the dial-wheels, and with a stem-driven train which is provided with a pivoted yoke, an intermediate wheel that is shiftable in a line perpendicular to its plane of rotation, and by the movement of said yoke is permitted to engage with or is disengaged from said dial-wheels and train, substantially as and for the purpose shown.

3. As an improvement in stem winding and setting watches, in combination with the dial-wheels, and with a stem-driven train which is provided with a pivoted yoke, an intermediate wheel that by the action of a spring is shifted in a line perpendicular to its plane of rotation into engagement with said dial-wheels and train, and by the motion of said yoke is shifted in the same line out of engagement with said parts, substantially as and for the purpose set forth.

4. As an improvement in stem winding and setting watches, a stem-driven train which is in part journaled upon a pivoted yoke, and an intermediate wheel that, by the movements of said yoke and the action of a spring, is shiftable in a line perpendicular to its plane of rotation, said parts being combined and arranged to operate in the order shown, whereby as said train is engaged with the spring-wheel it is automatically disengaged from the dial-wheels, and when engaged with said dial-wheels it is by the same operation disengaged from said winding-wheel, substantially as and for the purpose shown and described.

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DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

Supreme Court of the United States.

STEPHENSON *v.* BROOKLYN CROSS-TOWN RAILROAD COMPANY.

Decided March 23, 1885.

The decree of the circuit court dismissing a bill charging infringement of three letters patent is affirmed for the following reasons:

1. The first patent was for the combination of a rod, crank, or lever, and guiding-frame secured to the front door of a street-car, and combined with an operating-lever, which enables the driver to open the rear door. As there is no evidence of invention prior to date of the application, and as the state of the art at that time shows that neither the separate elements of the devices nor the combination is new, it is held that there was no patentable invention in the contrivance described in the patent, and hence no infringement.
2. The second patent was for two bell cords, provided with a system of pull-straps, passing along the sides of a street-car, within convenient reach of the seated passengers, for signaling purposes. As the evidence shows that long prior to the application such signaling appliances had been attached to the middle of street-car ceilings, there was no invention in changing them to the sides of the cars, and hence the patent is void.
3. The third patent was for a combination of a bonnet in which was fixed a mirror, and an opening in the front door of a street-car, by means of which the driver can see what is transpiring within the car without turning his head. As each element is old, and as neither element performs any new office or imparts any new power to the other, and as all combined do not produce any new result or any old result more cheaply or otherwise more advantageously, this is a mere aggregation, and not a patentable combination.

STATEMENT OF THE CASE.

John Stephenson, the appellant, was the plaintiff in the circuit court. He brought his bill to restrain the infringement by the Brooklyn Cross-Town Railroad Company, the appellee, of three letters patent. The first was a patent dated September 16, 1873, granted to John A. O'Haire and W. A. Jones, as assignees of John A. O'Haire, the inventor, for an improvement in operating car-doors. The second, dated March 30, 1875, was granted to the appellant for an improvement in signaling devices for street-cars. The third, dated September 7, 1875, was also granted to the appellant for an improvement in street-cars, consisting in placing a mirror in the hood of an ordinary street-car to enable the driver to see what was occurring in and behind the car.

The bill charged an infringement of each of these patents by the appellee in all of its cars.

The answer of the appellee denied infringement of any of the patents sued on; averred that all had been anticipated by specified American and foreign patents and by certain persons in this country, naming them; that none of the devices were patentable; and that the devices described in the second and third patents were in public use and on sale for more than two years prior to the application for letters patent therefor respectively.

Upon final hearing the circuit court dismissed the bill, and the plaintiff appealed.

APPEAL from the Circuit Court of the United States for the Eastern District of New York.

Mr. William Allen Butler, Mr. B. F. Thurston, and *Mr. Philip J. O'Reilly* for the appellant.

Mr. Francis Rawle for the appellee.

Mr. Justice WOODS delivered the opinion of the Court.

We shall consider each of the patents in the order above stated.

The invention described in the O'Haire patent consists of a combination and arrangement of devices by which the rear door of a street-car can be opened and closed by the driver from the front platform, where he stands, in order to let passengers into or out of the car. The drawing by which the specification is illustrated shows the frame of an ordinary street-car provided with a door which is supported upon and moves back and forth upon suitable pulleys and ways, which, it is said, may be arranged in any desired manner. Passing through the bar from which the hand-straps are suspended, and which is made hollow, is a rod or rock-shaft which has a lever or crank upon its front end within easy reach of the driver. Upon its rear end is a similar lever or crank carrying a roller, which works up and down in a rectangular guiding-frame secured to the rear edge of the door, and by which the door is opened and closed. The driver, by a slight push upon the front lever, can open the door, or by a pull toward him can close it without moving off his seat.

The claim is as follows:

The rod 4, crank or lever 3, and guiding-frame 6, secured to the door, and combined with an operating-lever for the driver, substantially as shown and described.

The infringement charged against the defendant was the use of cars containing an improvement in operating car-doors, described in the patent of George M. Brill, dated December 1, 1874. The device covered by this patent was substantially the same as that described in the O'Haire patent, except that the rock-shaft ran along the bottom of the car, instead of through the bar from which the hand-straps were suspended. There is no evidence to show that O'Haire's invention antedates the application for his patent, which was made on June 27, 1873. Considering the state of the art at that time, we are of opinion that the device covered by his patent does not embody anything new which the defendant infringes. The opening and closing of the rear door of a street-car from the front platform is not new. The specification of the O'Haire patent says:

I am aware that it is not new to operate the door from the front platform of the car, as this has heretofore been accomplished by means of an endless cord, which passes through the rods to which the holding-straps are secured, and I therefore disclaim such invention.

At the date of O'Haire's application it was well known, as is shown by the evidence, that doors and window-shutters guided by slides, both in vehicles and apartments, were opened and closed by mech-

anism used by persons placed in such situations that they could neither reach nor open and close the doors or shutters directly. The device of O'Haire must, therefore, to be the subject of a valid patent, embody some new means for accomplishing this end. The elements of which his contrivance was made up were the rod or rock-shaft reaching from the front to the rear of the car, the lever by which a rocking motion was given to the shaft, and the means used for communicating motion from the shaft to the door.

The testimony is conclusive to show that there is nothing new in the rock-shaft or in the lever by which it is moved. Long before the date of O'Haire's application the evidence is clear that rock-shafts operated by a lever or crank were used to open and close the doors of furnaces, and the window and door openings of sugar-refineries, by persons standing at a distance from the windows and doors to be opened and closed. A rock-shaft moved by a lever at the end of a railway-carriage for the purpose of opening and closing the sliding doors of the carriage was described in the English letters patent set out in the record of John Johnson, dated March 3, 1857. The use of a rock-shaft for a similar purpose—namely, the opening and closing of sliding window-blinds—is also shown in the patent of David Kidder, dated June 8, 1869. Rock-shafts for the same purpose are shown in the patent of Darwin D. Douglass, dated June 11, 1861, and the patent of W. H. Brown, dated February 23, 1864. The shaft in the Brown patent was moved by a lever, and in the Kidder and Douglass patents by a knob attached to its end, which is the well-known equivalent of a lever. It appears, therefore, that the use of a rock-shaft actuated by a lever for communicating motion was an old device which had been in use long before the date of the O'Haire patent.

It remains to consider the mode adopted by O'Haire for communicating motion from his rock-shaft to the door of the car. We find it to be one of a number of old and well-known devices for changing rotary into horizontal or rectilinear motion. The testimony shows that the devices long used for this purpose are a pinion or segment of a pinion whose teeth interlock with the teeth of a straight bar or rack or a rigid lever attached at one end to the rock-shaft, and having on the other a pin or roller working in a slot formed on the door or shutter to be moved. Sometimes the slot is in the lever and the pin or roller is on the door or shutter. These devices perform the same functions in substantially the same manner, and have long been recognized as mechanical equivalents. The device covered by the patent of O'Haire therefore consists of a rock-shaft with a lever attached for the purpose of giving the shaft a rocking motion, combined with a well-known and long-used device by which the rocking motion was changed into a rectilinear motion and communicated to the door of a car. No one of these devices can be claimed as new. If there is any ingenuity displayed in the contrivance described in the O'Haire patent, it must, therefore, be in the combination of these devices to attain a result. The claim of the patent is for such a combination; but, in our opinion, this combination was anticipated by the patents of both Douglass and Brown, before mentioned.

The inventions described in these patents are for the opening and closing of outside shutters from the inside of a house without opening the windows, and they consist of a rock-shaft passing through the wall of the house, to which a rocking motion is imparted from the inside of the house in the one case by a knob, and in the other by a lever or handle on the inner end of the shaft. By means of a pinion on the outer end of the rock-shaft applied to a toothed rack on the shutter a rectilinear sliding motion is imparted to the shutter, which is thus opened and closed. The rock-shafts in these patents are identical with the rod or shaft in the O'Haire patent; the lever in the Brown patent, by which the rock-shaft is moved, is the same as the lever in the O'Haire patent, and the knob in the Douglass shaft is its well-known equivalent; and the contrivance by pinion and rack for transmitting motion from the rock-shaft to the shutter is the well-known and long-used equivalent of the devices used for a similar purpose in the O'Haire contrivance. We find, therefore, that none of the separate elements of the devices described in the O'Haire patent are new, nor is the combination new. So far, therefore, we find no patentable invention in the contrivance described in the patent under consideration. It was said by this Court in *Smith* v. *Nichols* (21 Wall., 112) that—

> a mere carrying forward a new or more extended application of the original thought, a change only in form, proportions, or degree, the substitution of equivalents doing substantially the same thing in the same way by substantially the same means, with better results, is not such invention as will sustain a patent.

So in *Pennsylvania Railroad* v. *Locomotive Truck Company*, (110 U. S., 490,) Mr. Justice Gray, delivering the opinion of the Court, said:

> The application of an old process or machine to a similar or analogous subject, with no change in the manner of application and no result substantially distinct in its nature, will not sustain a patent, even if the new form of result has not before been contemplated.

These authorities are pertinent. (See also *Vinton* v. *Hamilton*, 104 U. S., 485; *Blake* v. *San Francisco*, 31 O. G.)

If, therefore, there is any patentable novelty in the O'Haire contrivance, it is in the placing of the rock-shaft inside the bar to which the hand-straps are attached. But the plaintiff's counsel, in order to bring the device used by the defendant within the monopoly of the O'Haire patent, insist that this is no part of the patented contrivance, and the testimony shows that the defendant does not use it. We are of opinion, therefore, that, construing the patent of O'Haire, in view of the state of the art at the date of its issue, as we are compelled to do, in order to leave any ground whatever on which it can be sustained, the defendent does not infringe.

We have next to consider the patent granted to the plaintiff, dated March 30, 1875, for an improvement in signaling devices for street-cars.

The specification thus states the object of the contrivance described in the patent:

> The prevalence of street-cars managed by the driver without the aid of a conductor makes it necessary that every possible facility should be provided for him as well as the passengers. The ordinary street-car has a signal-bell located at each end, with a bell-strap attached thereto, which runs centrally along the ridge or highest part of the ceiling. This strap, as thus located, is inaccessible to many passengers. My improvement is intended to remedy this trouble, and consists in a new combination and arrangement with a street-car of bells or gongs and of the cords or straps which operate them, whereby passengers can, without rising from their seats, signal to the driver. This is of primary importance to invalids, ladies, and children, and that more especially when the car is crowded.

The device covered by the patent consists of the placing of two bells attached to the rafters of the bonnet or hood of the driver's platform, one at each corner of the front end of the car. To the hammer of each bell is attached one end of a bell-cord, the other end of which is attached to the inner side of the rear wall of the car, the cords being led along the lower margin of the ceiling, one on each side the car, from which bell-pulls or hand-straps are suspended at intervals within easy reach of the seated passengers, so that they, without rising from their seats, can ring the bell.

The claim was as follows:

> In a street-car, two bell-cords, each provided with a system of pull-straps, and arranged in such manner as to pass along the lower margin of the roof on the opposite sides of the car and connect directly with a signal-bell or gong attached to the outside of the driver's end of the car, substantially as and for the purposes set forth.

We are of opinion that there is no patentable invention described in this patent. Bell straps or cords running from one end of an omnibus or street-car to the other under the middle of the ceiling were well known and in common use years before the application of Stephenson for his patent. The fact that they were so placed and used is mentioned in the specification. The evidence also establishes the fact that before the year 1870 it was a common practice to attach pendent bell-pulls or hand-straps to this central cord, so as to bring it within easier reach of the passengers. The evidence shows that many of the cars in which such hand-straps or bell-pulls were used were built and sold in New York. The use of such pendent hand-straps long before the application of Stephenson for the patent now under consideration is conclusively proven. It is also shown by the evidence that as early as the year 1861 a bell cord or strap running along the sides of the cars above the heads of the passengers was publicly used on street-cars in Boston and Philadelphia, and the same arrangement of the cord or strap was shown in the patent of Charles Carr, issued July 5, 1870. When, therefore, the patent of Stephenson for his improvement in signaling devices for street-cars was applied for in March, 1875, the only advance in the art which his specification showed was the applying to the cords running along the sides of the cars of the bell-pulls or hand-straps which had before then been attached to the cord running over the middle of the aisle. This, in our judgment, did not require the least degree of ingenuity, and cannot be called invention. *Hotchkiss* v. *Greenwood*, 11 How., 248; *Stimpson* v. *Woodman*, 10 Wall., 117; *Atlantic Works* v. *Brady*, 107 U. S., 192; *Slawson* v. *Grand Street Railroad Co.*, 107 U. S., 649; *King* v. *Gallun*, 109 U. S., 199; *Phillips* v. *Detroit*, 111 U. S., 604. The patent, therefore, by which the plaintiff seeks to embrace in his monopoly such an arrangement of the signal-cords and hand-straps of a street-car is void.

The third patent, which the plaintiff avers is infringed by the defendant, is for the improvement in street-cars granted to John Stephenson, the appellant, September 7, 1875, No. 167,585, on an application dated August 7, 1874. It is thus described in the specification:

> In running street-cars it has been found to be a serious source of trouble to have the driver continually turning around to ascertain when it is necessary to stop to permit passengers to enter or leave the car, as such constantly takes away his attention from his horses, and that frequently when it is most required.
>
> To obviate this trouble is the object of my present improvement. My invention, for this purpose, consists in combining a mirror with the front hood of the car, it being so arranged in connection therewith, and with an opening in the front end of the car, as to give to the driver a clear view of the inside of the car and through the entrance-door of the latter, and that without the necessity of his having to turn around for such purposes, thereby enabling him, without withdrawing his attention from the horses, to see when it is necessary to stop, either to receive a passenger or to allow one to get out.
>
> This mirror is set at a small angle to a horizontal plane, so that its upper edge will project rearwardly beyond its lower edge, it being placed at such angle as will enable it, through the opening F in the front end of the car, to give the best view of the interior of the car, and through the glass windows of the entrance-door A.

The claim was as follows:

> The combination of a bonnet, E, provided with a mirror, *b*, with an opening, or an opening covered by a transparent medium, F, in the front end of a street-car, substantially as and for the purposes set forth.

A combination is patentable only when the several elements of which it is composed produce by their joint action a new and useful result, or an old result, in a cheaper or otherwise more advantageous way. The elements of which the combination described in this patent is composed were all old and well known. They were a mirror, the hood of a street-car over the driver's platform, and a glass panel in the front end of the car over the door. We are of opinion that the alleged combination of these three elements, as described in this patent, is not patentable. There is, in fact, no combination, but a mere aggregation of separate devices, each of which performs the function for which, when used separately, it was adapted, and does not contribute to any new result the product of their joint use. The result attained is merely the reflection of an object in a mirror. The hood and the glass panel in the end of the car do not change in any degree the function of the mirror. It is used as a mirror only. The function of the hood is not changed by the mirror or glass panel, or both. It is a hood only on which, as in the wall of a room, the mirror is hung. The use of a glass instead of a wooden panel in the front end of the car simply removes an opaque obstacle between the mirror and the object to be reflected by it. Neither one of the three elements of the alleged combination performs any new office or imparts any new power to the others, and combined they do not produce any new result or any old result more cheaply or otherwise more advantageously. There is, therefore, no patentable combination. This conclusion is illustrated and confirmed by the following cases: *Hailes* v. *Von Wormer*, (20 Wall., 53); *Reckendorfer* v. *Faber*, (92 U. S., 347); *Pickering* v. *McCullough*, (104 U. S., 310).

It results from the views we have expressed that the decree of the circuit court dismissing the bill was right. It is therefore affirmed.

U. S. Circuit Court—Western District of Pennsylvania.

PHILLIPS, NIMICK & CO. v. D. W. C. CARROLL & CO., *et al.*

Decided March 2, 1885.

1. The first claim of complainants' patent—viz: 1. "In a flanging-machine of the kind herein described, the extension of the lower roll beyond the end of the upper roll in order to the better support of the plate at the point of bend and prevent the formation of a ridge or bead, substantially as set forth"—*held* to be infringed by a machine which, before set to work, has the outer faces of the two rolls flush, but is so organized that as the table upon which lies the plate to be flanged is raised to a perpendicular the upper roll is pushed back the thickness of the plate.
2. The defense of anticipation considered, and *held* that the evidence shows a failure to reduce the conception to practical use and its abandonment, thus leaving the field of invention open to others.
3. *Held*, further, that the patented improvement here involved more than the employment of mere mechanical skill, and may fairly be ascribed to the exercise of the inventive faculty.
4. Parties who employ a patented device ought not to expect a defense resting upon an alleged want of utility to find much favor with the court.

Messrs. Bakewell & Kerr, and *Mr. George H. Christy* for the complainants.

Mr. James I. Kay for D. W. C. Carroll & Co., *Messrs. Barton & Son*, *Messrs. Burleigh & Harbison*, and *Mr. D. F. Patterson* for Wilbur.

ACHESON, J.:

This suit is upon Letters Patent No. 227,061, granted April 27, 1880, to the complainants (as assignees of Russell and McDonald, the inventors) for an improvement in flanging-machines. The invention, the specification declares, relates to the class of machines referred to in Letters Patent No. 166,715, issued August 17, 1875, to R. C. Nugent and others, and is designed to obviate an obstacle to the successful use of such machines arising from the tendency of the plate while being flanged, especially if very heavy and very hot, to sag down a little, so as to form just outside the end of the lower roll an annular bead, bulge, or projection on the exterior base of the flange. To overcome this practical difficulty and prevent the sagging action and bulging effect, the inventors lengthen the lower roll so that its outer end will extend beyond the outer end of the upper roll a distance equal, or nearly equal, to the thickness of the plate to be flanged, thus affording a proper support to the plate.

The first claim of the patent reads thus:

1. In a flanging-machine of the kind herein described, the extension of the lower roll beyond the end of the upper roll in order to the better support of the plate at the point of bend and prevent the formation of a ridge or bead, substantially as set forth.

The infringing machine (which, undoubtedly, is of the same general kind described in the patent) when at rest and before set to work has the outer faces of the two rolls flush or even; but the shaft of the upper roll is provided with a spiral spring, and as the table upon which lies the plate to be flanged is raised to a perpendicular the upper roll is pushed back the thickness of the plate. Obviously, by means of this yielding spring the two rolls of the defendants' machine during the operation of flanging assume in respect to each other the relationship specified in the complainants' patent, and the practical result thereby contemplated is thus secured. It is therefore plain that the defendants' machine, as an operative apparatus, embodies the Russell and McDonald invention as embraced in their first claim. It, indeed, may be (although under the proofs this is an open question) that an automatic upper roll has an advantage over a rigid roll; but it is hardly necessary to say that the defendants are none the less infringers because of added improvements to the patented device. *De Florez* v. *Raynolds*, 3 Ban. & A., 292. The defendants, however, maintain that Russell and McDonald were not the original and first inventors of the improvement here in question. To sustain this defense reliance is placed upon the testimony of R. C. Nugent as to his prior use of a lower roll having a supporting-extension. The only instance of the use of a machine thus organized of which he speaks with any degree of certainty was the case of a small machine which he exhibited at the Cincinnati exposition. He says he had an idea the lower roll should project for the plate to rest on, and in that machine he allowed it to stick out, he thinks, about three-quarters of an inch beyond the top roll; but, finding the extension of no use, and, indeed, an impediment, he had it cut off. This machine, it must be remembered, was not flanging for the market, but was merely on exhibition. Moreover, such light work as it did was cold flanging. It had nothing to do with the treatment of heavy hot plates. If then, we should accept all that Mr. Nugent says on this subject as strictly true, it still follows, from his own account of the matter, that he not only failed to reduce his idea to practical use, but after an unsuccessful experiment abandoned his conception. Hence this field of invention was left open to others to enter. *Whitely* v. *Swayne*, 7 Wall., 685.

Again, it is contended that the supporting extension of the lower roll is within the scope of the prior Nugent patent, (No. 166,715), and that at the most this improvement involved merely the exercise of ordinary mechanical skill. We search, however, the Nugent patent in vain to discover any suggestion or hint that the lower roll is to be extended beyond the end of the upper one, or that any useful purpose would thereby be subserved. On the contrary, the drawing shows the two rolls to be so arranged that their outer ends are in the same vertical plane, and the specification describes them as projecting an equal distance beyond the outside of the frame-work.

The complainants—who had acquired the Nugent patent—in operating a flanging-machine built under it, experienced the practical difficulty already mentioned from the formation of a bead or ridge around the outside of the flanged plate. The solution of the problem how to obviate this defect involved, first, the discovery of the cause thereof, and then the application of an appropriate remedy. Now, the evidence indicates that neither the one nor the other was obvious. Indeed, the expert witnesses in this case yet differ as to the cause, and it is shown that it was not until after an experimental use of the complainant's original machine, extending over a period of, perhaps, several months, that the difficulty was met by the arrangement of the rolls devised by Russell and McDonald. I think, then, the improvement may fairly be ascribed to the exercise of the inventive faculty, and that it is the subject of letters patent within the general rule laid down in *Loom Company* v. *Higgins*, (105 U. S., 580.)

It is, however, strenuously urged that the organization of the rolls as specified in Russell and McDonald's first claim does not, in fact, prevent the formation of the objectionable bead or ridge; but surely such allegation comes with ill grace from parties who have seen fit to copy this arrangement. If it is inefficacious, why do they use it? To this searching query no satisfactory answer has been given.

The defendants' witnesses say the admitted difficulty, arising from the formation of the bead or ridge, can be and is obviated by placing the pivotal point of the table which holds the plate in a certain position with reference to the flanging-rolls. I am by no means persuaded that in this they are correct; but if they are right the defendants are at liberty to resort to that mechanical arrangement. So long, however, as they employ the patented improvement they ought not to expect a defense resting upon an alleged want of utility to find much favor with the court. But I may add that upon the question of utility the weight of the evidence, in my judgment, is clearly with the complainants.

Having reached the foregoing conclusions as respects the first claim of the patent in suit, I deem it unnecessary to determine whether or not there has been infringement of the second claim. Let a decree be drawn in favor of the complainants.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 31—No. 3. TUESDAY, APRIL 21, 1885. PRICE—$5 per year.

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The Official Gazette.

The OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883 in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Issue of April 21, 1885.

Patents	440	No. 315,993 to No. 316,432, inclusive.
Designs	9	No. 16,051 to No. 16,059, inclusive.
Trade-Marks	28	No. 12,147 to No. 12,174, inclusive.
Labels	15	No. 4,416 to No. 4,430, inclusive.
Reissues of patents	6	No. 10,581 to No. 10,586, inclusive.
Total issue	498	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama			Nebraska	3	
Arizona Territory			Nevada		
Arkansas	3		New Hampshire	3	1
California	6	1	New Jersey	23	2
Colorado	3		New Mexico Territ'y		
Connecticut	23	1	New York	91	14
Dakota Territory	1		North Carolina		
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Georgia	1		Rhode Island	11	
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Iowa	8		Utah Territory	1	
Kansas	7		Vermont	4	
Kentucky	3		Virginia	3	1
Louisiana	1		Washington Territ'y	1	
Maine	3	1	West Virginia		
Maryland	1		Wisconsin	8	1
Massachusetts	44	8	Wyoming Territory		
Michigan	6	1	United States Army		
Minnesota	3		United States Navy		
Mississippi					
Missouri	6	2	Total to citizens of the United States	404	42
Montana Territory					

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Australia			France	2	
Austria-Hungary	2		Germany	8	
Barbadoes			Italy		
Belgium	2		New Zealand		
Bermuda			Norway	1	
Brazil			Russia		
Canada	9	1	Scotland	3	
Chili			Spain		
Colombia, U. S. of			Sweden		
Cuba			Switzerland	1	
Denmark					
Ecuador			Total to citizens of foreign countries	45	1
England	17				

DESIGNS.

16,051.—FABRIC FOR SEAT-COVERINGS.—*Joseph Hodgson*, Philadelphia, Pa. Application filed March 2, 1885. Term of patent 3½ years.

16,052.—CARPET.—*Arthur L. Halliday*, Yonkers, N. Y., assignor to *The Higbee Carpet Company*, Clinton, Mass. Application filed February 7, 1885. Term of patent 3½ years.

16,053.—SAUCEPAN-HANDLE.—*John Finnegan*, Philadelphia, Pa. Application filed March 14, 1885. Term of patent 14 years.

16,054.—CURTAIN-POLE OR STAIR-ROD.—*Robert S. Gould*, East Orange, N. J. Application filed April 18, 1884. Term of patent 14 years.

16,055.—PARASOL-COVERING.—*Abraham G. Jennings*, Brooklyn, N. Y., assignor to *Abraham G. Jennings & Sons*, same place. Application filed December 18, 1884. Term of patent 14 years.

16,056.—CARPET.—*Norio Komori*, New York, N. Y., assignor to *The Higbee Carpet Company*, Clinton, Mass. Application filed February 12, 1885. Term of patent 3½ years.

16,057 to 16,059, inclusive.—HOT-AIR-REGISTER FRONT.—*Auguste Namur*, New York, N. Y., assignor to *The Tuttle & Bailey Manufacturing Company*, same place. Applications filed February 16, 1885. Term of patents 14 years.

TRADE-MARKS.

[Certificates of registration of Trade-Marks numbered 8,191 and upward are registered under the act of March 3, 1881.]

12,147.—WRITING-MACHINES.—*The American Writing Machine Company*, New York, N. Y. Application filed March 25, 1885.

"A representation of two winged hands."

12,148.—RUBBER CLOTHING AND OIL-CLOTHING.—*Elson, Hall & Co.*, Chicago, Ill. Application filed February 19, 1885.

"The picture of a duck with the word 'BRAND' thereon and the words 'SHEDS WATER' below."

12,149.—TOILET AND LAUNDRY SOAP.—*Empire Soap Company*, St. Louis, Mo. Application filed September 29, 1884.

"The representation of a statue of 'AMERICA,' embracing a buffalo, around which are grouped four figures, one of which represents the Goddess of Liberty and the others Indians."

12,150.—CRACKERS, BISCUITS, WAFERS, CAKES, AND KINDRED ARTICLES.—*F. A. Kennedy Company*, Cambridge, Mass. Application filed March 27, 1885.

"The word 'COLUMBIA.'"

12,151.—CRACKERS, WAFERS, BISCUITS, CAKES, AND KINDRED ARTICLES.—*F. A. Kennedy Company*, Cambridge, Mass. Application filed March 27, 1885.
"The word 'DAISY.'"

12,152.—CRACKERS, BISCUITS, WAFERS, CAKES, AND KINDRED ARTICLES.—*F. A. Kennedy Company*, Cambridge, Mass. Application filed March 27, 1885.
"The words 'FAIRY DESSERT.'"

12,153.—CRACKERS, BISCUITS, WAFERS, CAKES, AND KINDRED ARTICLES.—*F. A. Kennedy Company*, Cambridge, Mass. Application filed March 27, 1885.
"The word 'CHAMPION.'"

12,154.—FELON-CURE.—*Isaac Rosner*, Philadelphia, Pa. Application filed March 12, 1885.
"The word 'LIGHTNING.'"

12,155.—CAKE-SOAP.—*Jacob S. Wetmore*, Englewood, N. J. Application filed March 19, 1885.
"The word 'CARMEL' and a figure of a sprig or branches intended to represent olive-branches."

12,156.—SHOTGUNS AND RIFLES.—*Hermann Boker & Co.*, New York, N. Y. Application filed March 20, 1885.
"The letters 'I X L.'"

12,157.—CERTAIN CUFFS, COLLARS, AND SHIRT-FRONTS.—*Celluloid Novelty Company*, New York, N. Y. Application filed March 27, 1885.
"A monogram consisting of the letters 'C N C O.'"

12,158.—SPOOL-COTTON.—*Clark Thread Company*, Newark, N. J. Application filed March 30, 1885.
"Three concentric circles, respectively blue, gold, and blue upon a white background. Within the innermost circle is a gold space, and horizontally across said circle and extending beyond it is a blue bar having upon it in white one or more letters."

12,159.—FRENCH UTERINE SUPPOSITORIES.—*George Desbrough*, Utica, N. Y. Application filed March 21, 1885.
"The arbitrary word 'UTERICON' and monogram 'D R G D.'"

12,160.—PHYSIC.—*James J. Six Dykstra*, Chicago, Ill. Application filed November 26, 1884.
"The words 'GOLD DROPS.'"

12,161.—CIGARETTES AND SMOKING-TOBACCO.—*Lewis Ginter*, Richmond, Va. Application filed February 20, 1885.
"The words 'SUNNY SOUTH.'"

12,162.—CERTAIN COTTON TEXTILE FABRICS.—*Hyde & Burton*, New York, N. Y. Application filed March 28, 1885.
"The word 'MANCHESTER' in an elliptical field."

12,163.—LAMP-CHIMNEYS.—*George A. Macbeth & Co.*, Pittsburg, Pa. Application filed March 27, 1885.
"The arbitrary word-symbol 'PEARL TOP.'"

12,164.—LAMP-CHIMNEYS.—*George A. Macbeth & Co.*, Pittsburg, Pa. Application filed March 27, 1885.
"A circular figure having a series of beads or similar ornamentation within and close to the edge thereof."

12,165.—WASHING-POWDERS.—*L. & J. Oakley*, Newburg, N. Y. Application filed March 11, 1885.
"The word-symbol 'VASKA.'"

12,166.—RAW COFFEE.—*Ropes, Emmerton & Co.*, Salem, Mass. Application filed March 21, 1885.
"A diamond figure or field and the letter 'B' inclosed therein."

12,167.—HORSE-COLLARS.—*J. B. Sickles Saddlery Company*, St. Louis, Mo. Application filed March 30, 1885.
"The representation of a spoon and the letter 'R.'"

12,168.—WRITING-MACHINES.—*The American Writing Machine Company*, New York, N. Y. Application filed March 25, 1885.
"The word 'CALIGRAPH.'"

12,169.—OIL-DRESSING FOR LEATHER AND FABRICS.—*Canton Paint and Oil Company*, Saco, Me., and Boston, Mass. Application filed March 31, 1885.
"The words 'VAMPIRE BLACK' and the representation of a bat or vampire."

12,170.—THRASHING-MACHINES AND ENGINES.—*The Case & Willard Thresher Company*, Battle Creek, Mich. Application filed March 17, 1885.
"The arbitrarily-selected word 'ADVANCE.'"

12,171.—OARS, SWEEPS, AND SCULLS.—*The New York Boat Oar Company*, New York, N. Y. Application filed March 5, 1885.
"The device, design, or stamp of a crescent."

12,172.—WHISKY, BRANDY, WINE, AND GIN.—*Jacob Ross*, Chippewa Falls, Eau Claire, and Warsaw, Wis. Application filed March 2, 1885.
"The words 'RED TOP.'"

12,173.—LINIMENT.—*Samuel L. Tucker*, New York, N. Y. Application filed March 18, 1885.
"The design or symbol of a shield, stars, horseshoe, and anchor with cable."

12,174.—MEDICINE FOR DISEASES OF THE THROAT AND LUNGS.—*Harriette Romeyn Stafford Van Rensselaer*, Brooklyn, N. Y. Application filed March 31, 1885.
"The autograph signature 'J. R. STAFFORD, PRACTICAL CHEMIST.'"

LABELS.

4,416.—Title: "MARBLE LINIMENT."—*John Boyle*, South Brooklyn, N. Y. Application filed February 2, 1885.

4,417.—Title: "DR. FREEST'S SODA FLAKE CRACKERS NUMBER ONE."—*Richard M. De Freest*, Lansingburg, N. Y. Application filed March 18, 1885.

4,418.—Title: "BROWNS BRONCHIAL BALSAM."—*Hughes & Watson*, Jacksonville, Fla. Application filed March 27, 1885.

4,419.—Title: "MATTSON'S IMPROVED IRRIGATOR FOUNTAIN SYRINGE."—*Mattson Rubber Company*, New York, N. Y. Application filed March 6, 1885.

4,420.—Title: "LONDON LINIMENT."—*Moellering Medicine Co.*, Fort Wayne, Ind. Application filed March 28, 1885.

4,421.—Title: "DR. JUG'S MEDICINE."—*J. H. Naemyth & Co.*, Stratford, Ontario, Canada. Application filed March 2, 1885.

4,422.—Title: "MYRRH TOOTH SOAP."—*F. T. Phillips*, Olney, Ill. Application filed March 28, 1885.

4,423.—Title: "DOUBLE WATERPROOF." (FOR METALLIC CARTRIDGES.)—*Phoenix Metallic Cartridge Company*, South Coventry, Conn. Application filed March 27, 1885.

4,424.—Title: "DUNSTER'S LONDON CORDIAL GENEVA."—*O. A. Richards*, Boston, Mass. Application filed March 27, 1885.

4,425.—Title: "FRENCH DEPILATORY." (FOR A MEDICINAL COMPOUND.)—*Eugene E. Siddall* and *Charles F. Graves*, Findlay, Ohio. Application filed March 28, 1885.

4,426.—Title: "DUPLEX KNEE" (FOR CLOTHING.)—*Spitz Bros. & Mork*, Boston, Mass. Application filed March 27, 1885.

4,427.—Title: "TASTELESS VEGETABLE PILULES."—*Israel Bidaman*, New York, N. Y. Application filed March 27, 1885.

4,428.—Title: "ABIETENE POROUS PLASTER."—*Derrick F. Fryer*, Oroville, Cal. Application filed March 31, 1885.

4,429.—Title: "THE MOST RELIABLE FAMILY MEDICINE."—*Peter F. Laplant*, New Bedford, Mass. Application filed February 9, 1885.

4,430.—Title: "PORTER'S SILVER POLISH."—*Alfred Porter*, Manchester, N. H. Application filed January 28, 1885.

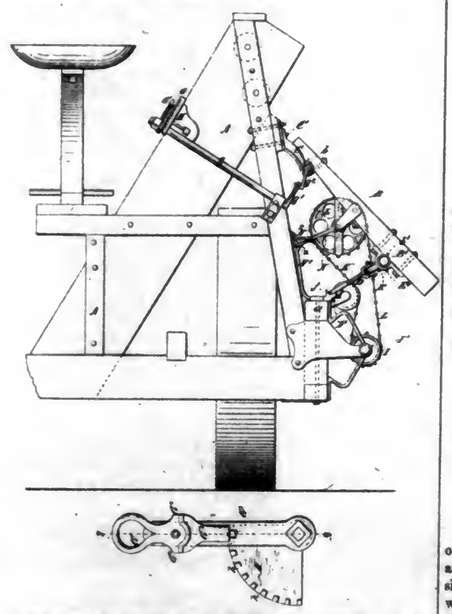
DISCLAIMER.

314,920.—*Joseph B. Denton*, Newtown, N. Y. Patent dated March 31, 1885. IMPROVEMENT IN FERTILIZER-DISTRIBUTERS.
Disclaimer filed April 16, 1885, by the patentee.
Enters his disclaimer to the following claim, to wit:
"1. In a fertilizer-distributer, the combination, with the frame B, the wheel A, provided with the pins O, and the hopper E, of the hinged board F, having its free end projecting beyond the hopper and provided with the opening K, the box J on the free end of the said board, and the arms N on the box, substantially as herein shown and described."

PATENTS

GRANTED APR. 21, 1885.

315,993. ADJUSTABLE BINDER FOR HARVESTERS. JOHN F. APPLEBY, Minneapolis, Minn., assignor to the Minneapolis Harvester Works, same place. Filed Dec. 29, 1883. (No model.)

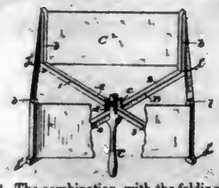


Claim.—1. The combination, in a self-binding harvester, of an inclined bed-frame for supporting the binding mechanism, suspended from the main frame by means of a horizontal bar and eyes through which the said bar is inserted, rockers pivoted to the under inclined sides of the said bed-frame and serving to hold the same at the proper angle of inclination, suitable tracks formed in or upon a portion of the main frame of the harvester and affording the bearings for the curved faces of the said rockers, respectively, ears provided with suitably-formed slots and projecting from the said tracks in inclined planes parallel with and affording bearings for the inclined sides of the said rockers, bosses affixed to and projecting from the sides of the rockers into the said slots, and means for adjusting the position of the frame supporting the binding mechanism in the direction of the length of the grain delivered from the harvester.

2. In a self-binding harvester, a rock-shaft connected by means of a crank and pitman with the sliding frame upon which the binding mechanism is erected, and also connected with a radius-bar provided with a movable retaining-pawl, and with a double wiper-cam having a hand-piece to which force can be applied in either direction for the purpose of moving the retaining-pawl radially inward, in combination with a curved rack, substantially such as described, affixed to the main frame of the harvester, as and for the purposes set forth.

3. The rockers D D, pivoted to the bed-frame of the binding mechanism, and provided, respectively, with the laterally-projecting bosses *d*, having the washers *d'* affixed to their outer ends, in combination with the inclined ledges *f*, provided with the triangular slots *f'*, as and for the purposes set forth.

315,994. FRAME FOR TRANSPARENCIES. WILLIAM H. BALL, Springfield, assignor of one-half to Edward Sachs and David Prader, Dayton, Ohio. Filed Mar. 27, 1884. (No model.)



Claim.—1. The combination, with the folding arms having uprights and pivoted at their central portions, of a handle having slots of different depths, as and for the purpose specified.

2. The combination, with the folding arms A and B, pivoted at their central portions and provided with uprights *b* at their outer ends, of the handle C, having the slots *c* and *d*, of different depths, the former adapted to receive the arm A and the latter the arm B, to lock both arms in an extended position, as shown and described.

315,995. WHEEL. ROSCOE BEAN, Springfield, Ohio. Filed Nov. 1, 1884. (No model.)



Claim.—1. A wheel consisting of two hub-disks having each an outer rim, from which extends a series of lugs whose sides are tapered, and having two apertures for each lug, one of said apertures being on each side of said lugs, and each having an inner rim whose exterior is tapered, whereby a flaring seat is formed for the spokes between said lugs and rim, a tube to which said disks are fitted, and the sets of spokes forced between said lugs and the inner rim, and passing through said apertures, and secured to the tire, each aperture receiving one spoke.

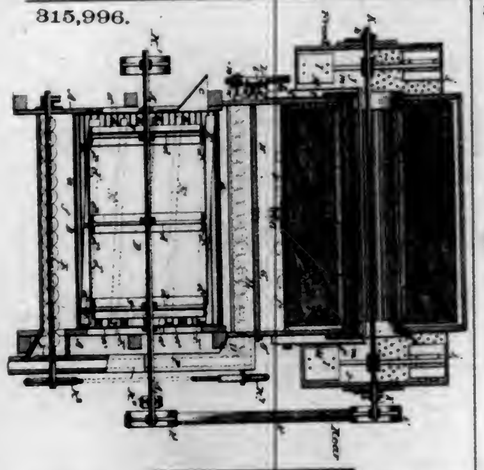
2. In a wheel, a hub-disk constructed with an outer rim, from which extends a series of lugs having tapering sides, with two apertures for each lug, one of said apertures being on each side of said lugs, and having an inner rim whose exterior is tapered.

315,996. MACHINE FOR CLEANING GRAIN. MARCUS D. BEARDSLEE, Milwaukee, Wis., assignor to the Milwaukee Dust Collector Manufacturing Company, same place. Filed Jan. 23, 1884. (No model.)

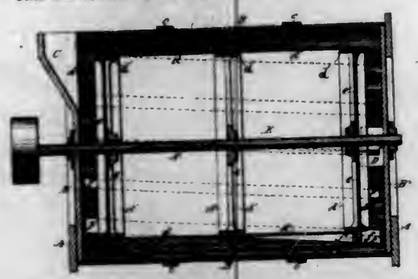
Claim.—In a grain-scourer and dust-collector, the stationary drum B, the revolving drum D, screw-conveyers E and H, and driving-connections, substantially as described, in combination with the balloon F, suction-fans I I, knocker G, inverted-U-shaped flue N, vertical adjustable flues M M, and the connecting-box A^2, substantially as shown and described, and for the purpose set forth.



315,996.



315,997. GRAIN-SCOURER. MARCUS D. BEARDSLEE, Milwaukee, Wis. Filed Jan. 23, 1884. (No model.)



Claim.—1. In a revolving drum for grain-scourers, spider-disks having beveled flanges projecting horizontally on each side, and supporting-studs that project radially therefrom and between the flanges, in combination with metallic cylinder-sections fitting around the beveled flanges of the disks, and spiral-shaped beaters fastened onto the supporting-studs, substantially as set forth.

2. In a grain-scourer, a revolving drum composed of spider-disks provided with beveled flanges projecting horizontally on each side of their rims, and supporting-studs projecting radially outward therefrom, metallic cylinder-sections fitting around the beveled flanges of the disks, and spiral beaters fastened onto the supporting-studs, in combination with the driving-shaft, and a stationary drum made of corrugated spaced staves, substantially as set forth.

3. In a grain-scourer, the combination of the spider-disks *c*, having studs *f*, the sheet-metal sections *d*, and beaters F, having corrugated faces attached to studs *f* and arranged spirally upon the face of the said metal sections, substantially as described and shown, and for the purpose set forth.

4. In a grain-scourer, the combination of an inner revolving drum consisting of the spider-disks *c*, having studs *f*, the sheet-metal sections *d*, heads *c'*, and beaters F, having corrugated faces attached to studs *f*, and arranged spirally upon the face of the said metal sections, with an outer stationary cylinder consisting of a series of staves, *a*, having corrugated inner faces, connecting-hoops C, and end plates, B' and B², substantially as shown and described.

315,998. SPRING BED-FRAME. GEORGE E. BEDELL, Herkimer, N. Y. Filed Dec. 13, 1883. (No model.)

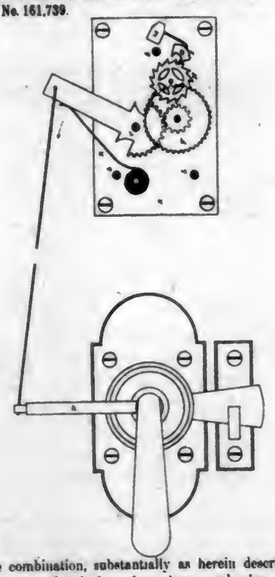
Claim.—The side bars of a bed-bottom, formed of two strips of wood of about equal size from end to end placed side by side one above the other with their extremes rigidly held together, the two secured to cross-bars E E by bolts *e e*, the strips forming the side bars separated and bowed in their middle, in combination with support D between them, constructed and arranged substantially as described, for the purposes stated



315,998.

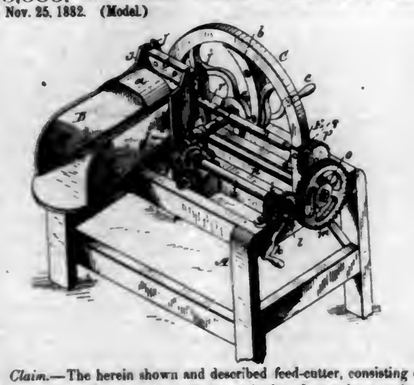


315,999. ALARM FOR SHOP-DOORS. ANTOINE BENÉZIT, Villeneuve-sur-Lot, France. Filed Dec. 30, 1884. (No model.) Patented in France Apr. 26, 1884, No. 161,739.



Claim.—The combination, substantially as herein described, with the spindle of a door or other lock, and an alarm mechanism secured to the door, consisting of a spring-motor, a train of gearing, and an alarm-bell controlled by the spring-motor, of a fulcrum-lever provided with a toothed segment connected with the lock-spindle, and arranged to set the spring-motor in operation, as described, for the purpose specified.

316,000. FEED-CUTTER. FRANZ BLOCKI, Sheboygan, Wis. Filed Nov. 25, 1882. (Model.)



Claim.—The herein shown and described feed-cutter, consisting of the frame A, box B, vertically-slotted panel-plate J, cast in one piece with the cross-bar *j*, embracing the sides of the box B at the end, and forming fixed bearings for one of the feed-rolls, vertically-moving hanger G, carrying the other feed-roll, shaft D, loosely connected at one end to the feed-roll F, its other end working through the swiveled bearing E, transverse shaft *d*, fly-wheel C, carrying concave-shaped cutters *b*, keyed to the end of said shaft, longitudinal shaft *h*, intermeshing pinions *f* and *g*, shaft *n*, and the train of gearing *p*, *o*, *m*, and *l*, all combined, arranged, and operating substantially as shown and described.

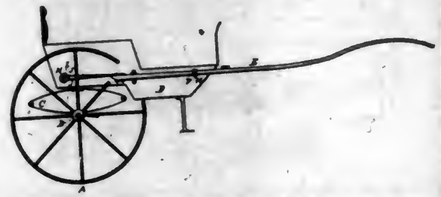
316,001. SCREW-TOP FOR OIL AND OTHER CANS. J. FRANK ELY and CLARENCE R. CIPPERLY, Mayville, N. Y. Filed Dec. 20, 1884. (No model.)



Claim.—1. The means herein described for securing screw-caps to cans, consisting of the bent metallic strip B, having loops or openings *c*, the lower one of which engages with the loop *d* of the can C, while the upper one is pivotally adjusted upon the stud or post *a*, beneath the flange or head *b*, substantially as and for the purpose specified.

2. The retaining-strip B, provided with a loop or opening, *c*, at each end, in combination with the loop *d* of the can C and the post *a*, having flange or head *b*, upon the screw-cap A, substantially as and for the purpose specified.

316,002. TWO-WHEELED VEHICLE. THEODOR BOETTCHER, Mendota, Ill. Filed Nov. 26, 1884. (No model.)

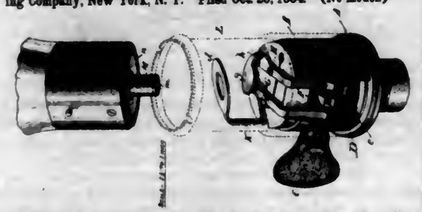


Claim.—1. In improvements in road-carts, the pivot attachments consisting of disk-pivots G and collar-plates H, rabbeted together, as described, with the sleeves F, bolted solid to the disks, in combination with the body D and shafts E, substantially as and for the purpose specified.

2. The springs consisting of the eyes I and prongs J J, the eyes being hung to turn on spools K, and the prongs brought together so as to leave a wedge-shaped space between them, and combined with the shafts E and body D, as and for the purpose specified.

3. The combination of the spring I J J, spools K, constructed as specified, in combination with the disk, sleeve, and collar attachment F G H, shafts E, body D, and stops O, substantially as and for the purpose specified.

316,003. SOCKET OR HOLDER FOR INCANDESCENT LAMPS. P. H. BRANGS, Newark, N. J., assignor to the United States Electric Lighting Company, New York, N. Y. Filed Oct. 20, 1884. (No model.)



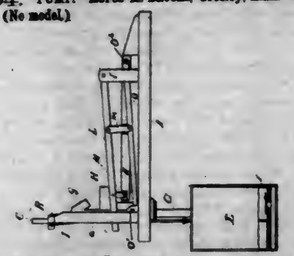
Claim.—1. The combination, with an incandescent-lamp base having one terminal on the base and the other on a projection from the base, of a socket, an insulating-block secured therein and containing a switch, and spring-contacts secured to said block in position to register with the lamp-terminals when the lamp is inserted in the socket, substantially as set forth.

2. The combination, with an incandescent-lamp base having one terminal on the base and the other on a projection from the base, of a socket, an insulating-block secured therein and containing a switch, a spring contact-plate secured to the block, and a contact-ring supported by a metal strip secured to the block, the contacts being in position to register with the terminals of the lamp when said lamp is inserted in the socket, substantially as set forth.

3. The case, the insulating-block B, and switch mechanism contained therein, the strips G and H, the latter having an arm bent over the center of the block B, and the strip K, with the perforated plate *d*, in combination with a lamp-base provided with terminal plates that bear upon the ring *d* and arm *g*, respectively.

4. The combination, with a lamp-base having concentric terminal plates secured thereto, of a socket, an insulating-block containing a switch, and contact-strips secured thereto in position to register with the lamp-terminals when the lamp is inserted in the socket, as set forth.

316,004. PUMP. RUFUS M. BROOKS, Greeley, Kans. Filed Apr. 29, 1884. (No model.)

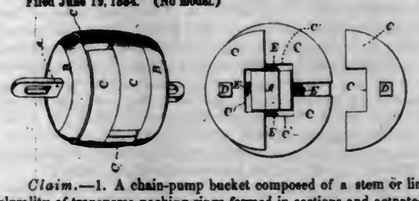


Claim.—1. In a cattle-pump, the combination of the piston, the platform, the levers L and O, the hangers M and *m*, and means for connecting the platform and the piston, substantially as and for the purposes specified.

2. The combination of the piston-rod, the supporting-bar B, the depending links I, the suspended levers J, having their inner ends connected with the piston-rod, and provided on their under sides with a series of notches, *j*, the platform, means, substantially as described, for connecting said platform and the outer ends of the levers J, whereby the depression of the platform will effect the operation of the said levers, substantially as and for the purposes specified.

3. The herein-described cattle-pump, consisting of the pump-stock, the piston with filling distended by springs, and piston-rod, the supporting cross-bar provided with depending links, the levers pivotally suspended in said links and provided with a series of notches whereby their pivots may be varied, the levers L, the links *l*, the levers O, hangers M *m*, and the platform, substantially as set forth.

316,005. CHAIN-PUMP BUCKET. RUFUS M. BROOKS, Greeley, Kans. Filed June 19, 1884. (No model.)



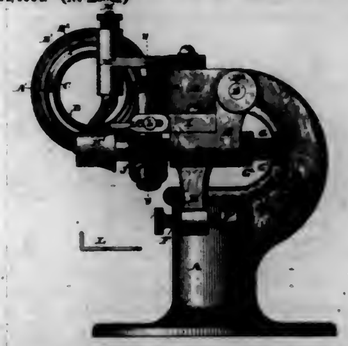
Claim.—1. A chain-pump bucket composed of a stem or link, a plurality of transverse packing-rings formed in sections and actuated by springs, the joints of the sections of one ring alternating with those of the adjoining ring or rings, substantially as set forth.

2. The combination of the link, the end plates, and the spring-actuated sections, said sections and end plates being provided on their adjoining faces with interlocking slots and projections, substantially as set forth.

3. A pump-bucket consisting of a link provided with transverse openings formed at right angles to each other, end plates, B, held to such links and provided with slots *b*, the sections C, provided with projections D, entering slots C', and the springs E, all arranged substantially as and for the purposes specified.

4. The herein-described pump-bucket, composed of the link, the end plates provided on their inner faces with slots, the packing-sections having their faces next said plates provided with studs or projections adapted to enter the slots in said plates, and the springs, substantially as set forth.

316,006. LEATHER-SKIVING MACHINE. JAMES H. BUSELL, Boston, Mass., assignor of one-half to Albert Leavitt, same place. Filed Nov. 24, 1884. (No model.)



Claim.—1. The ring-knife C, in combination with a work supporting and feeding roll arranged with its axis in the plane of revolution of the cutting-edge of the knife, substantially as described.

2. The ring-knife C, in combination with the longitudinally-curved work feeding and supporting roll H', arranged with its axis in the plane of revolution of the cutting-edge of said knife, substantially as described.

3. The combination of the ring-knife C with a work feeding and supporting roll arranged with its axis in the plane of revolution of the cutting-edge of said knife, a pivoted stand for supporting said roll, and a screw-pivot for said stand, whereby said roll is rendered adjustable about an axis eccentric to said knife, and also in a direction parallel to the axis of said knife, substantially as described.

4. In combination with the ring-knife C, the adjustable spindle D, the pendent stand E, the adjustable spindle G, and the feed-roll H', all arranged and adapted to operate substantially as described.

5. The combination of the shaft B, provided with the worm-thread B^2, the ring-knife C, the oblique shaft J, the worm-wheels J^3 and H, the worm J', and the feed-roll H', all arranged and adapted to operate substantially as described.

6. In combination with the ring-knife C and the feed-roll H', the presser-foot M, arranged to press upon the material in close proximity to the cutting-edge of the knife, substantially as described.

316,007. CHURN. HARLAND S. CARR, Wymore, Nebr. Filed July 26, 1884. (No model.)



Claim.—1. A revolving churn-body provided with an imperforate tube extending between and opening out of its opposite ends, and having a gathering-hood secured over the receiving end of said tube and projected in the direction of motion of the body, substantially as set forth.

2. A revolving churn-body provided with an imperforate tube extended between and opening out of its opposite ends, and gathering-hoods arranged over the receiving and discharging ends of the tube, and projected in reverse directions, substantially as set forth.

3. The combination of the main frame, the churn-body journaled thereon, and the tub supported in the main frame below the churn-body, and adjustable to and from the same, substantially as set forth.

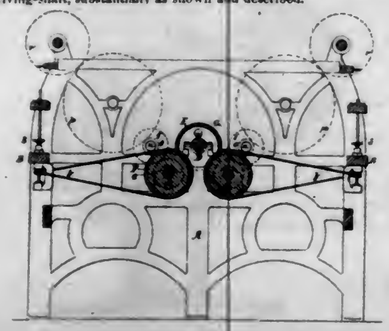
4. The herein-described churn-body, provided near its periphery with tubes extended through it from end to end, and arranged at an angle to the axis, and perforated plates extending from end to end of the body, and from the periphery thereof to the tubes, and arranged parallel with said tubes, substantially as set forth.

5. A revolving churn-body having an imperforate water-conducting tube extending within and opening at its opposite ends out of the body, whereby water may be conducted therethrough, substantially as set forth.

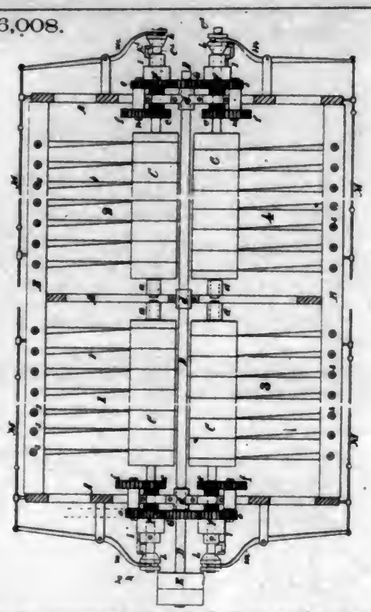
316,008. SPINNING AND TWISTING MACHINE. WILLIAM T. CARROLL, Worcester, assignor to the J. B. Parker Machine Company, Clinton, Mass. Filed Oct. 20, 1883. (No model.)

Brief.—The band-cylinders are formed in four or more sections, each of which is connected to one and the same auxiliary driving-shaft by separate and independent gearing, and clutch mechanism permitting the independent connection or disconnection of any one of them

Claim.—1. The combination of the cylinders C and spindles and drawing-roll actuated therefrom, arranged in separately-operative sections, the auxiliary operating-shaft D, the gears G and F, for transmitting motion from said shaft to said cylinder, and the clutch devices I, arranged for connecting the cylinders with and disconnecting them from the auxiliary driving-shaft, substantially as shown and described.

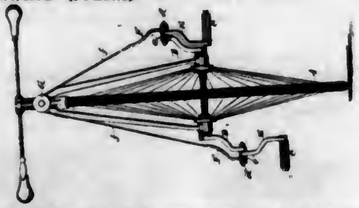


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2. The combination of the cylinders C and spindles and drawing-rolls actuated therefrom, arranged in separately-operative sections, the auxiliary shaft D, the gears G and F, for transmitting motion from said shaft to said cylinder, the clutch mechanism I, arranged for connecting the cylinders with and disconnecting them from said auxiliary shaft, and the shipper devices *m*, constructed and arranged substantially as shown and described.

316,009. BICYCLE. WILLIAM CLEMSON, Middletown, N. Y. Filed Dec. 31, 1884. (No model.)



Claim.—1. In a bicycle, the combination, with a large wheel and axle, the latter provided on its ends with the outwardly-curved crank-arms, of the pedal-arms journaled to said crank-arms and curved to conform to the shape of said crank-arms, substantially as shown.

2. The combination, with cranks secured on the ends of the large wheel-axle and pendent pedals journaled thereon, of an elastic tie connecting the pendent pedals, and adapted to hold the same steady when not engaged by the foot, substantially as set forth.

3. The combination, with a pair of cranks secured on the ends of the large wheel-axle and curved outwardly therefrom, of a pair of pendent pedals journaled on the crank-pins, the shanks of said pendent pedals being curved inwardly to conform, or nearly so, to the shape of the cranks, and an elastic tie passing over a pulley secured to the head and connecting the upper ends of the pendent pedals, substantially as set forth.

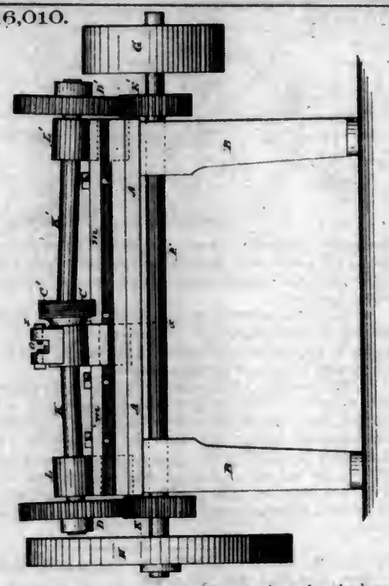
316,010. MACHINE FOR FORMING SCREW-THREADS ON BOLTS. JOHN C. COCHRANE, Farmingdale, N. J., assignor of one-sixth to Wm. H. Brooks, Alexandria, Va. Filed Mar. 22, 1884. (No model.)

Claim.—1. In a machine for forming screw-threads on bolts or rods, a pair of rolls provided with annular threads and secured to spindles mounted in vibrating arms of unequal length so as to open or close upon the blank and impress the screw-threads upon it, substantially as set forth.

2. The combination of a pair of rolls having annular screw-forming threads and operating spindles with arms of unequal length having bearings for said spindles, one or both of which spindles are made to vibrate, in the manner shown and specified.

3. The combination of the front and back spindles of the threading-rolls and their bearings with the link N, having an adjusting-screw and

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nuts at its back end, and connected at the opposite end to the lever M, arranged to operate as shown and described.

4. The combination of the lever M, attached to lugs on the rocker-arm L by pivot-screws *a a*, and the adjustable link N, connected to said lever and to a lug on the rocker-arm L', with a pair of annularly-threaded rolls secured to spindles journaled in said rocker-arms, as and for the purpose specified.

5. The combination of the adjustable support J for the blank while between the rolls, with the rolls having annular threads and mounted in vibrating arms of unequal length, substantially as and for the purpose specified.

6. The combination of a pair of annularly-threaded rolls secured to spindles mounted in arms, one or both of which vibrate, with a lever attached by pivot-screws to the front arm and connected by a link, N, and an adjustable eyebolt to a lug on the rear arm, all arranged to operate as shown and specified.

7. The combination of a pair of supporting-arms of unequal length and annularly-threaded rolls mounted on spindles, one or both of which vibrate, with the adjustable bearing P', for supporting the blanks, and the support J, all arranged substantially as set forth.

8. The machine for forming screw-threads herein described, consisting of a bed-plate, a pair of rolls having annular threads and secured to spindles mounted in arms of unequal length, one or both of which spindles vibrate, and operated by a lever and adjustable link-connection, with a support, J, an adjustable bearing for the blanks, and suitable gearing, all substantially as specified.

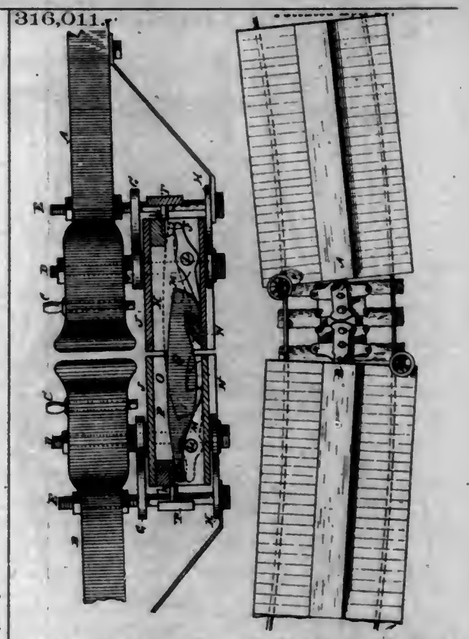
316,011. CAR-COUPLING. PHILIP F. CORBETT, Boston, Mass. Filed Aug. 11, 1884. (No model.)

Claim.—1. In a car-coupling, the combination, substantially as set forth, of two draw-heads, each provided with a rabbet or lug, tilting gravitating coupling-levers pivoted, respectively, in said draw-heads sidewise of said lugs, and each provided with a hook at its forward end and with a right-angle arm at its rear end, devices for depressing said right-angle arms, and intermediate levers pivoted in said draw-heads, the forward ends of said intermediate levers being adapted to release the hooked ends of said coupling-levers, while their rear ends are adapted to be actuated by the depression of said right-angle arms, whereby the depression of one of said arms will release both of said coupling-levers.

2. In a car-coupling, the combination, substantially as set forth, of a coupler-head provided with a rabbet or lug, a tilting gravitating coupling-lever pivoted in said coupler-head sidewise of said lug, and provided with a hook at its forward end and a right-angle arm at its rear end, and a releasing-lever pivoted in said coupler-head in rear of said lug, one end of said releasing-lever projecting beneath said right-angle arm, while the opposite end is adapted to disengage the hook of the connecting coupler-head from said lug when said lever is actuated by said arm.

3. In a car-coupling, the combination, substantially as set forth, of a draw-bar, a supplementary coupler-head attached thereto and provided with a rabbet or lug, a tilting gravitating coupling-lever pivoted in said coupler-head sidewise of said lug, and provided with a hook at its forward end and a right-angle arm at its rear end, and a releasing-lever

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pivoted in said coupler-head in rear of said lug, one end of said releasing-lever projecting beneath said right-angle arm while the opposite end is adapted to disengage the hook of the connecting coupler-head from said lug when said lever is actuated by said arm.

4. In a car-coupler, the springs 9, in combination with the coupler-head J and stud 18, substantially as described.

5. In a car-coupler, the plate 15, provided with the slot 16, in combination with the coupler-head J and stud 18, substantially as set forth.

6. In a car-coupler, the lever T, provided with the stud *h*, in combination with the arm S, hooked lever Q, and means for actuating said lever T, substantially as described.

7. In a car-coupler, the pivoted lever 5, in combination with the pivoted lever T, having the stud *h*, and with the lever Q, having the arm S, substantially as set forth.

8. In a car-coupler, the sliding bar W, in combination with the pivoted lever X, pivoted lever T, having the stud *h*, and lever Q, having the arm S and hook R, substantially as described.

9. In a car-coupler, the pivoted lever *t*, in combination with the locking-lever *q*, pivoted lever X, and bar W, substantially as set forth.

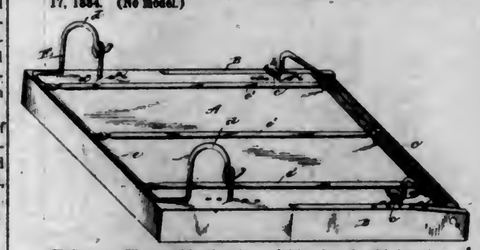
10. In a car-coupler, the rod 4, in combination with the locking-lever *q*, arm X, and bar W, substantially as described.

11. In a car-coupler, the rod 3, in combination with the lever *t*, locking-lever *q*, lever X, and bar W, substantially as set forth.

12. In a car-coupler, the cap *w*, in combination with the locking-lever *q* and levers *t x*, substantially as set forth.

13. In a car-coupler, the cap *y*, in combination with the locking-lever *q* and levers *t x*, substantially as described.

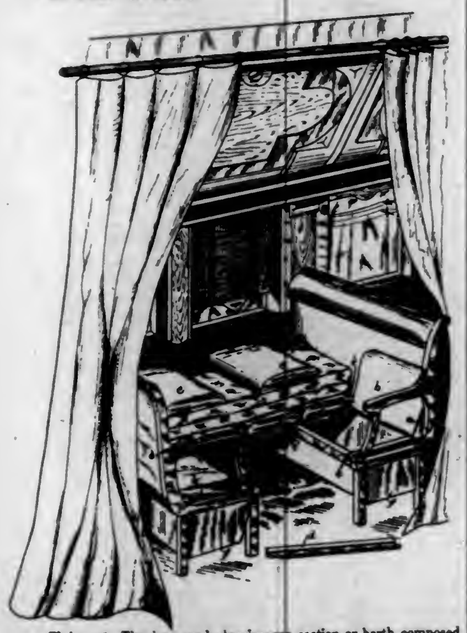
316,012. PLAITING-BOARD. JOHN CURTIS, Marion, Va. Filed Sept. 17, 1884. (No model.)



Claim.—1. The combination, in a plaiting-board, with board A, of a roller journaled at one end thereof, and a spring presser-arm having its free portion resting on said roller.

2. The combination, with the board A, having a rolled journaled at one end thereof, of spring presser-arms located one at each end of the board, and tapes connecting said arms, substantially as set forth.

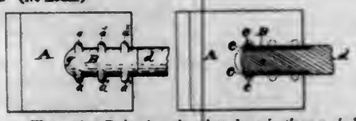
316,013. SLEEPING-CAR. E. WALDO CUTLER, Boston, Mass. Filed Mar. 2, 1885. (No model.)



Claim.—1. The improved sleeping-car section or berth composed of the cushions *b b'*, made in two parts, the backs *c c'*, made in two parts, the seats and backs resting upon suitable supports and capable of being readily removed, the bars *d d'*, and the boxes *f f*, substantially as above described.

2. A sleeping-car seat composed of the cushions *b b'*, made in two parts, the back *c c'*, made in two parts, each resting on proper supports and capable of being readily removed, and the boxes *f f*, substantially as above described.

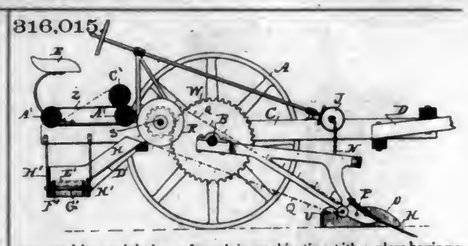
316,014. SPADE. GILBERT J. DUNHAM, Albany, N. Y. Filed Nov. 7, 1884. (No model.)

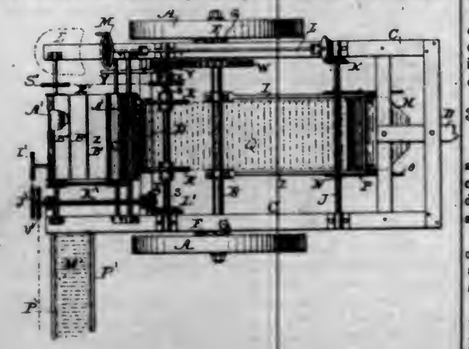


Claim.—The socket B, having the slotted projections *a a' a²*, or their equivalent, as described, in combination with the blade A, having the recess E, provided with the notches *c c*, or their equivalent, as described, or vice versa, substantially as and for the purpose specified.

316,015. POTATO-DIGGER. ASHFORD T. DOWDEN, Prairie City, Iowa. Filed Aug. 18, 1884. (No model.)

Claim.—1. An endless carrier composed of iron rods having hooks on their ends, and metal straps having hooks on their ends and rigidly





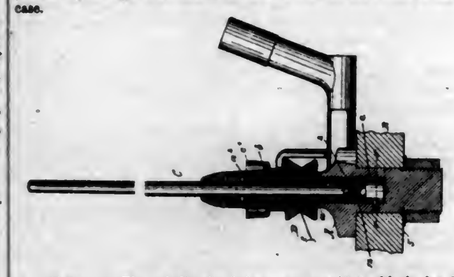
connected by straight bars of wood, in combination with a plow having a shaft, U, and a driver-shaft, S, having fixed sprocket-wheels R, substantially as shown and described, to operate in the manner set forth, for the purposes specified.

2. The endless carrier Q, the reversely-inclined grate D', the vine-carrier Z, the self-adjusting roller C', the transverse carrier E', and the elevator M, arranged and combined with a carriage and plow to operate in the manner set forth, for the purposes stated.

3. The improved potato-harvester composed of the following elements, to wit: a two-wheeled carriage, an adjustable frame carrying a plow, and pivoted guards at the sides of the plow, an endless carrier extending backward and upward from the plow, a vine-carrier at the rear and top end of the inclined carrier, a grate extending backward and downward from the inclined carrier, a transverse and horizontal carrier at the rear and lower end of the grate, and an elevator inclined outward from the end of the horizontal carrier, substantially as and for the purposes set forth.

316,016. BEARING FOR SPINDLES. WILLIAM F. DRAPER, Hopedale, Mass. Filed Feb. 8, 1884. (No model.)

Brief.—The bolster fits loosely in the bolster-case, and is held in position therein by a pin in said bolster-case fitting in a groove in the side of the footstep, which footstep is joined to the bolster-case by a pin passing through an extension of the same and the end of the bolster-case.



Claim.—1. The spindle, the bolster-case provided with the lug 5, and the bolster placed therein loosely and provided with the head a^2 and slotted at its upper end, combined with the step pivoted to the said bolster, a part of the footstep being removed, the remaining part of the footstep being provided with an extension, 2, to enter the lower end of the bolster, and with a groove to engage the said lug, substantially as described.

2. The spindle, the bolster-case closed at its lower end and provided with a lug, 5, and the bolster placed therein loosely and provided at its upper end with a slotted head, a^2, combined with the step pivoted to the said bolster, and provided with an extension, 2, to enter the lower end of the bolster, and with a groove to engage the said lug, substantially as described.

3. The bolster-case, spindle, and the bolster provided with the head a^2, and the footstep having the upward extension entering the lower end of the bolster-case loosely, combined with the elastic or yielding packing interposed between the said bolster and bolster-case, substantially as described.

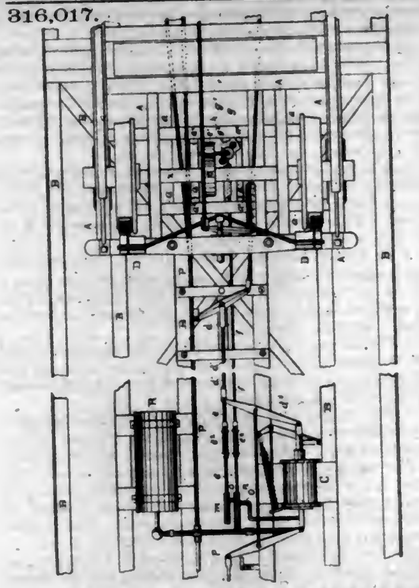
316,017. AUTOMATIC PRESSURE-REGULATOR FOR AIR-BRAKES. WARREN DUNBAR, Minneapolis, Minn. Filed July 23, 1884. (No model.)

Claim.—1. An air-brake pressure-regulator combining telescopically-sliding tubes for operating a cut-off slide in the air-supply pipe and controlling an air-escape channel between said slide and the brake-cylinder, and a governor arranged to be actuated by the rotation of the car-axle, substantially as set forth.

2. The combination, with an air-brake for railways, of a governor operated by a car-axle by means of friction-wheels and suitable gearing and actuating cut-off devices for regulating the air-supply to the cylinder, substantially as and for the purpose set forth.

3. The friction-wheels *c* and *c'*, gear-wheels *g' g²*, and governor *g*, when combined with a car-axle and a pressure-regulator, as and for the purpose set forth.

316,017.

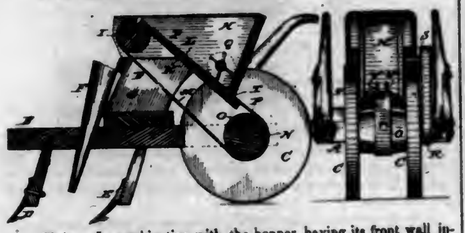


4. The combination, with the cylinder air-supply pipe, of concentric sliding tubes operating a cut-off slide in said pipe, and controlling a channel for the escape of air between said cut-off and the brake-cylinder, substantially as and for the purpose set forth.

5. The combination of fixed tubes *m* and *n* and sliding tubes *m' n'*, having solid heads m^2, n^2, and *s*, slide *s'*, and packing n^3, with pipes *p*, *o*, o^2, and *o'*, substantially as set forth.

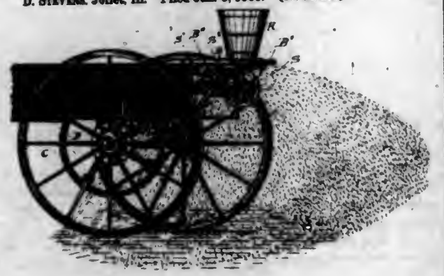
6. The combination, with sliding tubes for the purpose set forth, of connecting-rods *e* and *f*, having couplings e^2, the lever *l*, slide *i*, and governor *g*, constructed and operated substantially as and for the purpose set forth.

316,018. COTTON AND CORN PLANTER. LEVI EASLEY, Whitt, Tex. Filed May 27, 1884. (No model.)

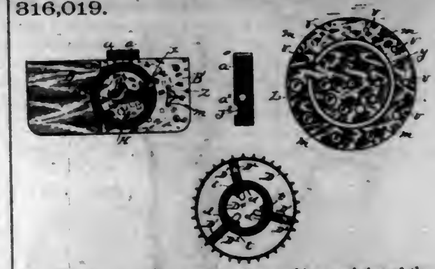


Claim.—In combination with the hopper having its front wall inclined and formed with a guide-groove, L, the inner wall of which is cut out, the belt having its side edges working in the groove, and having hooks V attached to the same between the side edges, said hooks projecting through the cut-out portion of the groove, so as to have free communication with the seed in the hopper, as set forth.

316,019. BROADCAST SEED-SOWER. LLOYD EBERHART and IRVING D. STEVENS, Joliet, Ill. Filed Jan. 5, 1885. (No model.)



316,019.



Claim.—1. A broadcast seeding-machine consisting of the shaft S^3, provided with the sprocket-wheel S' and bevel-wheel S, vertical shaft J, provided with the bevel-pinion P and distributer F and agitator J', cap-plate B', having the seed-holes *a'* and slot *z*, circular revolving disk L, having the seed-holes *v*, holes *m*, and slot *y*, slides *a*, having the holes a^2 and notches J^3, and hopper H, all constructed and arranged as and for the purpose set forth.

2. In a broadcast seeding-machine, the combination of the table B, slides *a*, having the seed-holes a^2 and notches J^3, circular revolving disk L, having the two annular rows of seed-holes *v*, annular slot *y*, and holes *m*, cap-plate B', having the seed-holes *a'* and slot *z*, and hopper H, as and for the purpose set forth.

3. The sprocket-wheel D, having the spokes D', provided with the slides D^2, and slotted ring D^4, connected to said spokes and slides by means of studs integral therewith passing through the slots *t* and *d* in said ring, and adapted to be attached to the wagon-wheel, as and for the purpose set forth.

4. In combination with a seeding-machine, the sprocket-wheel D, having the spokes D', slides D^2, and plate D^4, adapted to operate said slides, substantially as and for the purpose set forth.

5. In a seeding-machine, the circular plate L, having the two annular rows of graduated seed-holes, and annular slot *y*, substantially as shown and described.

316,020. SCARF-PIN, &c. WILLIAM C. EDGE, Newark, N. J. Filed Apr. 21, 1884. (No model.)

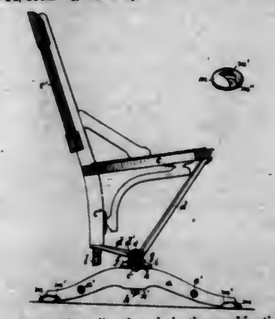


Claim.—1. The swiveled hollow head B, combined with notched tube *f*, shank A, pin *g*, and spring *h*, substantially as herein shown and described.

2. The pin A, provided with claws *a a*, which point downwardly, in substantially the same direction as the pin, as set forth.

3. The pin A, having claws *a*, combined with the swivel-head B, substantially as herein shown and described.

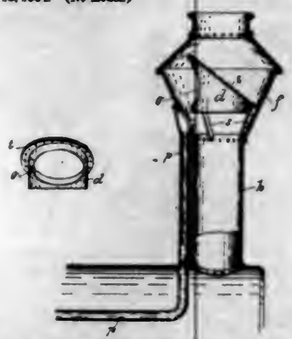
316,021. SPRING VIBRATING CHAIR. JACOB EDSON, Boston, Mass. Filed Jan. 14, 1884. (No model.)



Claim.—1. In a spring vibrating chair, the combination, with chair-frame *c c' c''* and the rigid cross-bar *d'*, secured to it, of the flat spring *f*, secured midway to the bar *d'*, and in its ends to the base parts *a a*, substantially as and for the purpose set forth.

2. In a spring vibrating chair, the seat *c*, the cross-bar *d'*, secured to it, and the flat spring *f*, with its elastic packing *g* and holding-bolt *e e'*, in combination with the base parts *a a*, elastic packings *i i*, angle-plates *h h*, and holding-bolts *k k'*, all arranged and combined substantially as and for the purpose set forth.

316,022. SPARK-ARRESTER. JAMES ELA, Indianapolis, Ind. Filed Nov. 13, 1884. (No model.)

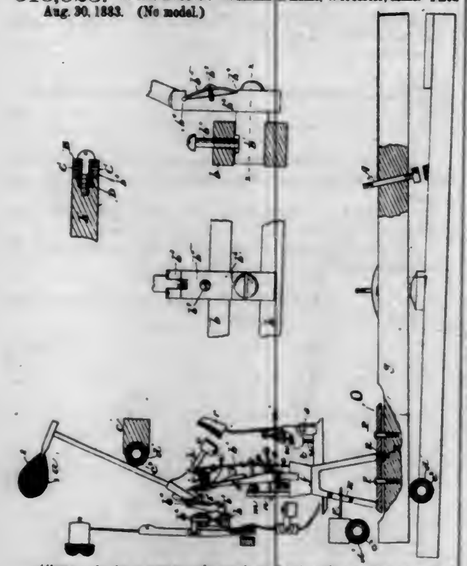


Claim.—1. The barrel *b*, provided with the deflector *d*, having the inclined top *t* and side opening, *o*, the deflector supported above the mouth of the barrel by straps *s* and within the flare *f*, all combined substantially as described.

2. The barrel *b*, provided with deflector *d*, having inclined top *t* and opening *o*, the deflector supported above the mouth of the barrel by suitable straps, *s*, and within the flare *f*, and one or more pipes connected to the lower portion of said flare for leading back to the fire-box, for returning the products of combustion thither, all combined substantially as described.

3. A spark-arrester for locomotives, wherein a deflecting-top having an inclined top and an opening in front is fixed above the mouth of the barrel, so that the opening in the deflector will be substantially over the opening of a return-pipe leading to the fire-box connected with the bottom of the flare, in combination with such barrel and returning-pipe, substantially as and for the purpose described.

316,023. PIANO-ACTION. WILLIAM C. ELLIS, Worcester, Mass. Filed Aug. 30, 1883. (No model.)



Claim.—1. In a piano-action, a butt having the portion operated upon by the jack formed, as described, to afford a positive bearing for the jack against said butt at the limit of the movement of said jack in either direction or at any intermediate point thereof, substantially as and for the purpose specified.

2. In a piano-action having a jack or similar portion contacting with other portions only upon or during the movement of the action, an independent cap or section of hard rubber secured to said contacting portion of said jack, or equivalent moving portion, substantially as set forth.

3. In a piano-action, a rest or stop for a hammer or key lever, said rest consisting of a rubber tube coated with cloth or felting, as set forth.

4. In a piano-action, a key having a bushing of yielding rubber located in the pin-opening in the key, surrounding the center pin, and having an enlarged portion projecting from the under side of said key to form a bearing-washer for the same, substantially as set forth.

5. The combination, in a piano-action, of a key having a vertical opening, a center pin extending into said opening, threaded at one end to engage the balance-rail and provided with a shoulder or nut, an elastic washer resting on said shoulder or nut, having a shoulder interposed between the bottom of the key and the pin-shoulder, and the cylindrical portion embracing the central pin in the vertical key-opening, substantially as set forth.

6. In a piano-action, the pivoted back catch adapted to move to contact with the hammer when the same moves to strike the cord or wire, and thereby prevent unnecessary vibration of said hammer against said cord, and an adjustable stop to regulate the normal position of the back catch, substantially as set forth.

7. In a piano-action, the combination of the pivoted back catch adapted to move to contact with the hammer when the same moves to strike the cord or wire, an adjustable stop to limit the movement of the back catch, and a spring normally holding the back catch in a retracted position, substantially as set forth.

8. The combination of the slotted rail *b*, the hammer-supporting blocks *b'*, adapted to slide in the slot of said rail, and means for positively holding said blocks and the hammers in any position to which they may be adjusted, as set forth.

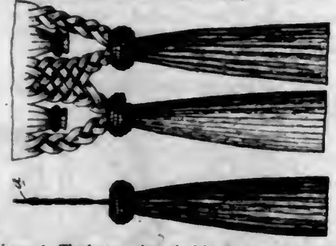
9. The slotted ear or projection b^2, having open recesses for a pivot-pin, b^4, combined with said pin, and the spring b^3, projecting into said recesses and adapted to retain the pivot-pin therein, said spring bearing at one end against a shoulder and being adjusted by a screw, as set forth.

10. In a piano-action, the combination of a wooden part or parts having a metallic threaded bushing inserted therein, as described, and a screw inserted in said bushing, the latter preventing shrinkage of the bearing-surface under the head of the screw, as set forth.

11. In an upright piano, the jack support or base having the vertical slot E, combined with the fixed pin F, entering said slot and supporting the jack laterally, as set forth.

12. The combination, with a piano-key and the jack-supporting rocker secured thereto, of metallic protuberances R R, secured, respectively, to the key and rocker, and enabling the rocker to be inclined by the adjustment of its attaching-screws, as set forth.

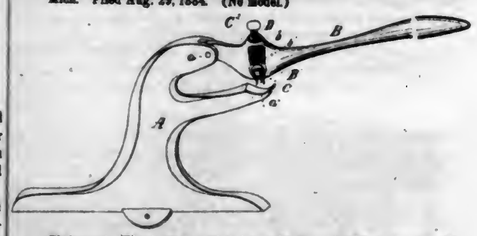
316,024. LEATHER TRIMMING. FERDINAND L. A. ERNST, New York, N. Y. Filed May 20, 1884. (Specimens.)



Claim.—1. The improved method in the manufacture of leather trimmings, which consists of fastening two finished skins of leather back to back to produce one sheet of leather having two finished faces, then slitting the stock into an edge fringe, and then bunching the fringe in any suitable manner.

2. As an improvement in the manufacture of leather ornaments, a trimming or other ornament made of two skins or pieces of dressed leather having their finished surfaces outward, as specified

316,025. BUTTON-SETTING INSTRUMENT. GUYON T. FISHER, Ionia Mich. Filed Aug. 29, 1884. (No model.)

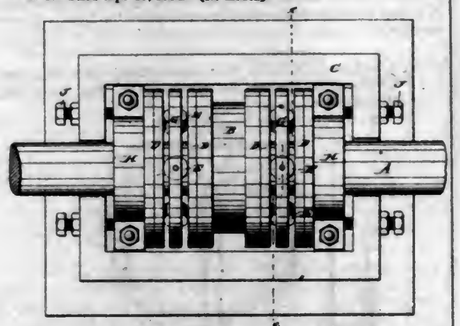


Claim.—1. The button-setting lever B, formed with a mortise, B', and having an opening, *b*, and slot E, extended from respectively the upper and lower sides of said mortise, and provided with the jaws C, having stem C^3, and a tension-spring, substantially as set forth.

2. In a button-setter, the lever B, provided with a mortise, B', and devices therein, substantially as described, for holding the button, and having a slot, E, cut through the base of said mortise, fitted to receive the shank of the button, and having its inner end formed with an enlargement or lateral wing, E', fitted to receive the upper portion of the fastener, substantially as set forth.

3. The combination of the support provided with a base or seat, *a'*, the lever B, provided with mortise B', having slot E, formed with a wing, E', and opening *b*, and shoulder *b'* therein, the jaws C, stem C', and the tension-spring, substantially as set forth.

316,026. ANTI-FRICTION BEARING. JOHN FLANNERY, New York, N. Y. Filed Sept. 15, 1884. (No model.)

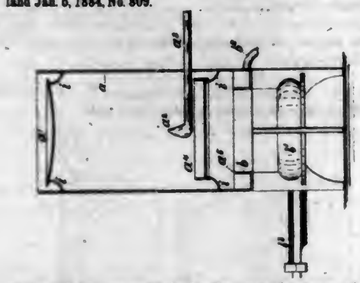


Claim.—1. The combination, with a propeller-shaft and its box, of a fixed collar on the shaft and a disk carrying anti-friction rollers mounted on the shaft between the fixed collar and the ends of the box, substantially as herein shown and described.

2. The combination, with the propeller-shaft A, the fixed collar B, and the box C, of the disks D, the disk G, mounted on the shaft and provided with friction-rollers E, and means for adjusting the disks D, substantially as herein shown and described.

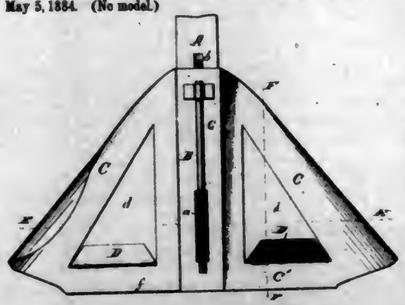
3. The combination, with the propeller-shaft A, the fixed collar B, and the box C, of the plain disks D, the disk G, provided with the rollers E, the journal-piece H, and the screws J, substantially as herein shown and described.

316,027. GAS-STOVE. THOMAS FLETCHER, Warrington, County of Lancaster, England. Filed Mar. 6, 1884. (No model.) Patented in England Jan. 5, 1884, No. 809.



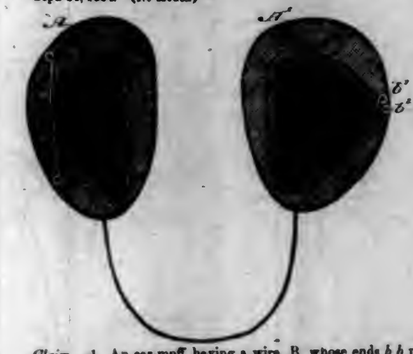
Claim.—In an apparatus for heating water by means of gas, a casing, *a*, dash-plate *a'*, shallow tray a^4, an annular water-vessel, a^5, surrounding the opening *b*, and a jet-tube, a^2, in combination with a suitable gas-burner, substantially as and for the purposes described.

316,028. CHURN-DASHER. WILLIAM H. GIBBS, Lyons, Iowa. Filed May 5, 1884. (No model.)



Claim.—The combination of the shaft A, provided with a series of notches, *b*, the churn-dasher B, having a socket to receive the shaft, and provided with the spiral-shape wings C, having the openings *d*, the upwardly-inclined lips D, and the horizontal flanges *f*, and the spring G, attached to the dasher, and provided with the bent portion *a*, adapted to catch in the notches *b*, to hold the dasher at any required position on the shaft, substantially as and for the purposes described.

316,029. EAR-MUFF. CYRUS E. GILLESPIE, Edwardsville, Ill. Filed Sept. 30, 1884. (No model.)

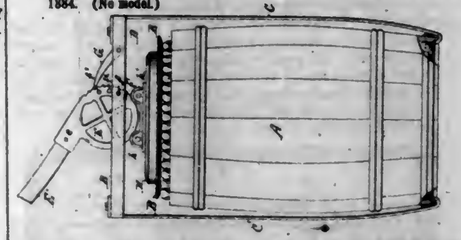


Claim.—1. An ear-muff having a wire, B, whose ends *b b* project and cross each other, and are adapted to be pushed toward each other, substantially as and for the purpose described.

2. An ear-muff whose ear-opening is surrounded by an elastic, expansible, and contractible frame in the form of an elastic wire, which extends entirely around the ear-opening, and whose ends cross each other, substantially as and for the purpose described.

3. The combination of the muff A and the wire B, the ends *b b* of the wire projecting from the hem *a'* around the ear-opening, as and for the purpose described.

316,030. BARREL-PRESS. WILLIAM R. HALLETT, Batchtown, Ill., assignor of one-half to Dr. James R. Douglas, same place. Filed Oct. 27, 1884. (No model.)



Claim.—1. The combination of the side bars, C C', cross-bar D, the cam-wheel E, having the series of holes *f'*, the pivot-bolt, and hand-lever, substantially as and for the purposes set forth.

2. The combination of the side bars, C C', carrying the cross-bar D, the cam-wheel E, pivoted eccentrically to any of the holes *f'*, also having the teeth at f^2, the pawl G, and hand-lever, substantially as and for the purpose set forth.

3. In combination with the platen or follower H, the bearing-rollers A A', substantially as set forth.

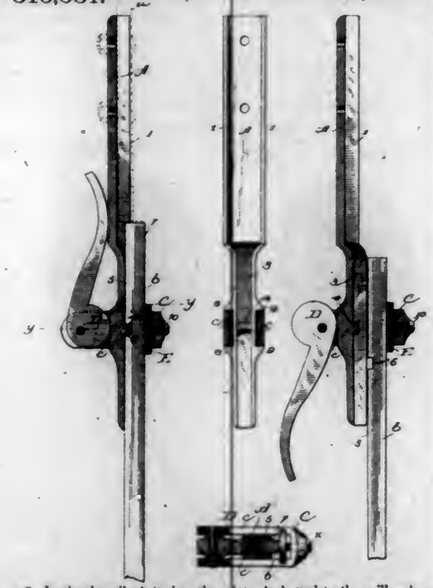
4. The improved barrel-press consisting of the barrel A, its head B, the side bars, C C', the cross-bar D, the cam-wheel E, pivoted eccentrically and having teeth f^2, the pawl G, the hand-lever, and the platen and its rollers A A', all combined and operating substantially as and for the purposes set forth.

316,031. CONNECTION FOR WINDMILL AND PISTON RODS. S. HANEY, Cedar Falls, Iowa. Filed Sept. 24, 1884. (No model.)

Claim.—1. A connecting device for windmill and piston rods, consisting of a plate secured at one end to one of the rods and adapted at the other end to receive the other rod, a yoke embracing the plate and the unattached rod, and means for operating the said yoke, whereby the plate and rod are held firmly together, substantially as described, and for the purpose set forth.

2. A connecting device for windmill and piston rods, consisting of a plate secured at one end to the mill-rod, and adapted at the other end to receive the pump-rod, a yoke embracing the said plate and the pump-rod, and an eccentric journaled in the ends of the yoke, substantially as described, and for the purpose set forth.

316,031.

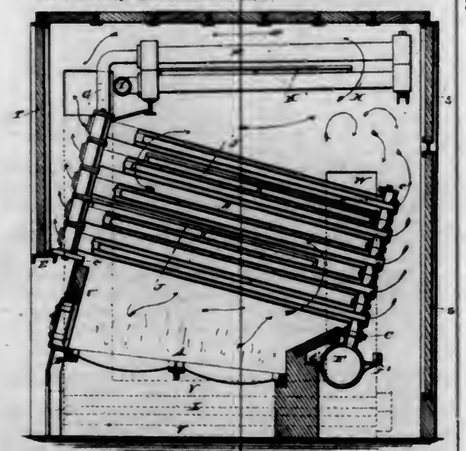


3. In the described device, the plate A, bolted to the mill-rod and having the groove or channel 3, the rod *b*, the yoke C, and the eccentric; all substantially as described.

4. In the described device and in combination with the plate A, having the channel 3, the rib 4, and notch 6 in the mill-rod, substantially as described, and for the purpose set forth.

5. In the described device and in combinstion, the plate A, rod *b*, yoke C, eccentric D, the adjustable plate E, and the screw 10, all substantially as described, for the purpose set forth.

316,032. STEAM-BOILER. GEORGE G. M. HARDINGHAM, 191 Fleet Street, County of Middlesex, England. Filed Mar. 15, 1883. Renewed Oct. 23, 1884. (No model.) Patented in England Oct. 18, 1882, No. 4,956; in France Mar. 15, 1883, No. 154,316; in Belgium Mar. 15, 1883, No. 44,300; in Austria-Hungary Mar. 15, 1883, No. 10,683 and No. 39,085; in Italy Mar. 15, 1883, No. 15,238; in Spain Mar. 15, 1883, No. 4,106, and in Germany Mar. 15, 1883, No. 26,563.

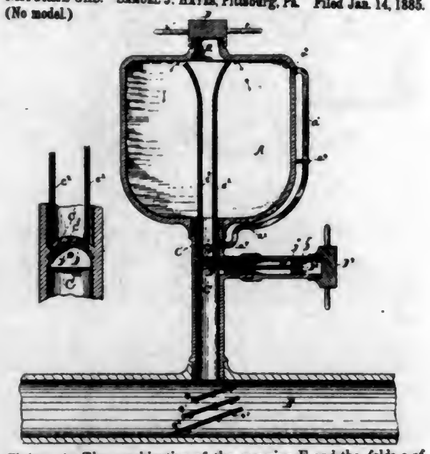


Claim.—1. In a steam-boiler substantially as described, a series of outer tubes, *a*, a series of inner tubes, *f*, and connecting terminal chambers *b*, in combination with each other and with connections *n*, and cup-packings *j*, expanded by the pressure of the contained fluid and forming the joint between the parts *a* and *b* to allow longitudinal movement to the tubes *a*, the latter being secured to the chambers by means of screw-glands applied to the inner tube or tubes, which serve as stays to resist longitudinal strain, all arranged and operating substantially as and for the purposes herein described.

2. In a steam-boiler of the compound water and fire tube type, the malleable metal outer or water tube having at each end a cast-metal chamber adapted for connection by packed joints to the adjoining section, in combination with one or more malleable metal inner or fire tubes, the latter traversing the outer tube and its terminal chambers longitudinally and being removable, substantially as and for the purposes set forth.

3. In a steam-boiler substantially as described, the combination of the fire-tubes *f* and water-tubes *a*, arranged as described, and held by terminal chambers which make close joints to compel all the products of combustion to pass among the said tubes *a*, and the deflector K, arranged to allow a portion of the gases to pass directly to the discharge-flue and to compel a portion to pass into the lower ends of the tubes *f*, as herein specified.

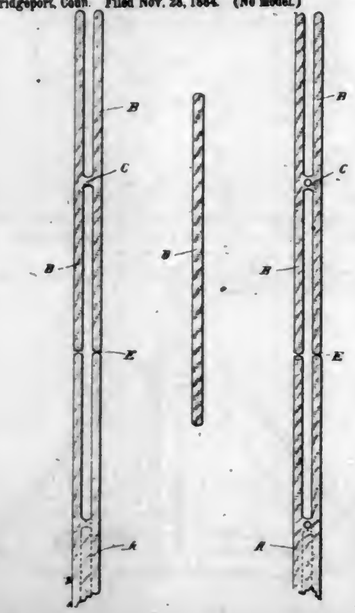
316,033. APPARATUS FOR CARBURETING AND ODORIZING NATURAL GAS. SAMUEL J. HAYES, Pittsburg, Pa. Filed Jan. 14, 1885. (No model.)



Claim.—1. The combination of the gas-pipe E and the folds *e* of absorbent material arranged therein with pipe C, above said material, the reservoir A, and the pipe or pipes C^3, extending into the upper part of said reservoir to afford gaseous pressure on the contents of the latter, substantially as set forth.

2. The combination of the pipes E C and absorbent *e* with reservoir A, the pipes C^3, the perforated partition C', and the cut-off slide D, substantially as set forth.

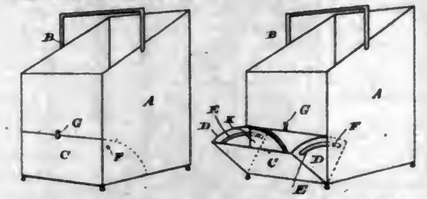
316,034. MANUFACTURE OF CORSET-STAYS. MAX W. HENIUS, Bridgeport, Conn. Filed Nov. 28, 1884. (No model.)



Claim.—1. The method of forming single and double corset-stays at a single operation, which consists in blanking out a single stay between the two sides of the last half of one double stay and the two sides of the first half of the next double stay, and at the same time separating the completed double stay from the strip.

2. The herein-described improvement in the art of manufacturing corset-stays, the same consisting, first, in feeding to the press a strip of metal the width of a double stay; secondly, in blanking out a single stay between the two parts of the last half of one double stay and the two parts of the first half of the next double stay; and, thirdly, in separating the completed double stay from the strip of metal.

316,035. COAL SCUTTLE OR HOD. HUGH C. HIWAN, Oakland, Cal. Filed Oct. 8, 1884. (No model.)



Claim.—1. A coal-scuttle provided with a hinged outwardly-opening trough, consisting of the front plate, C, hinged by its lower edge to the front edge or sides of the scuttle, and having side wings or plates, D D, provided with slots engaging with studs or pins F, secured to the sides of the scuttle, substantially as shown, for the purpose set forth.

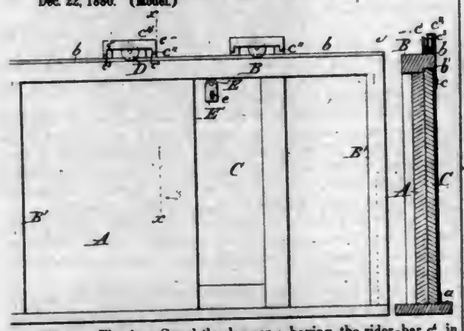
2. A coal-scuttle having a hinged outwardly-opening trough provided with side wings or plates, D D, operating within guards K K, secured to the sides and bottom of the scuttle, substantially as shown, for the purpose set forth.

316,036. COLORING-MATTER DERIVED FROM NAPHTHOL. OTTO HOFFMANN, Mainkur, near Frankfort-on-the-Main, Germany, assignor to Leopold Cassella & Co., Frankfort-on-the-Main, Germany. Filed Feb. 20, 1884. (No specimens.) Patented in Germany Jan. 19, 1884, No. 28,065; in England Jan. 28, 1884, No. 2,269, and in France Jan. 31, 1884, No. 160,032.

Claim.—1. The process herein described for producing green coloring-matters, (either as a substance or as a green color on material to be dyed,) which consists in the reaction of nitrosonaphtholsulphonic acids or their salts upon iron or its salts, or in the reaction of nitrous acid upon naphtholsulphonic acids treated with iron or its salts, substantially as set forth.

2. The green coloring-matter herein described, derived from naphthol, soluble in cold water, insoluble in alcohol, benzole, or glacial acetic acid, and decomposed by strong mineral acids.

316,037. DOOR-HANGER. HIRAM A. HOLMES, Epsom, N. H. Filed Dec. 22, 1880. (Model.)

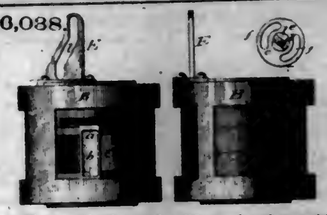


Claim.—The door C and the hanger *c*, having the rider-bar c^4, in combination with the roller D, consisting of the parts d^3 d^2 and axle *d*, and the track-rail *b*, the roller straddling and bearing on the rail, the hanger bearing directly over the rail, the bearing c^7, resting on the axle *d* of the roller, all combined and arranged as and for the purpose set forth.

316,038. DEVICE FOR REGULATING THE THROW OF WATER-METER PISTONS. FREEMAN W. HOOD, Boston, Mass. Filed Dec. 17, 1884. (No model.)

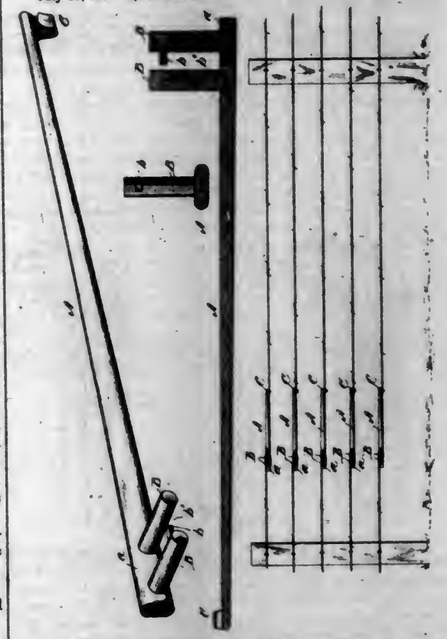
Claim.—1. The combination of the recessed extension of the auxiliary valve of the piston with the duplex cam and its spindle, and slotted disk, and a set-screw to each of the slots of such disk applied to the shell or case, substantially as represented.

316,038.



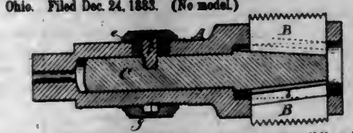
2. The combination of the slide *t* and spring *u* with the auxiliary valve C, and with the spindle *d*, provided with the duplex cam and slotted disk, as described.

316,039. WIRE-STRETCHER. JOHN B. IRVINE, Sherman, Tex. Filed July 11, 1884. (No model.)



Claim.—As an improved article of manufacture, the herein-described wire stretcher and tightener, comprising the bar or lever A, having the flattened end *a*, the cylindrical pins B B, projecting laterally from the face of said flattened end, and arranged apart, as described, the pin *b*, projecting laterally from the inner face of one of the pins B, near the outer end thereof, and extending nearly across the space between the pins, and the single curved hook-piece C, projecting from the other end of the lever, substantially as and for the purpose set forth.

316,040. EXPANDING SCREW-TAP. JAMES M. JOHNSON, Cleveland, Ohio. Filed Dec. 24, 1883. (No model.)
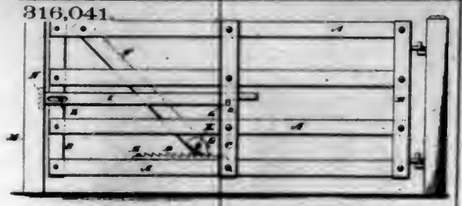


Claim.—The combination of the mandrel A, the sliding dies B, having inclined edges, the sliding core C, having a pin, *f*, setting through a slot, *e*, in the mandrel, and the jam-nuts *g*, all arranged to operate in the manner and for the purposes specified.

316,041. SWINGING GATE. EDGAR A. JONES, Three Rivers, Mich. Filed May 13, 1884. (No model.)

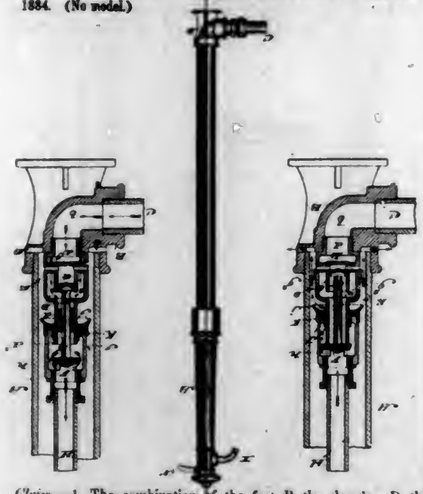
Claim.—1. The combination, with the pivotal bars and a depending arm pivoted to one of said bars and engaging at its lower end a ratchet secured to another bar, of a post having a series of latch-keepers therein, a sliding latch provided with a shoulder, and a pin passing through said gate and forming a bearing or stop for said shoulder, substantially as set forth.

316,041.



2. In a swinging gate, the combination, with the pivotal bars and a depending arm secured to one of said bars and adapted to automatically secure said gate in vertical adjustment, of a sliding latch, the forward end of which is provided with an elongated slot, by means of which the latch is held against vertical movement, the rear end of said latch being cut away, as shown, by means of which the gate is held in locked adjustment, substantially as set forth.

316,042. HYDRANT. JAMES JONES, St. Louis, Mo. Filed Oct. 18, 1884. (No model.)



Claim.—1. The combination of the foot B, the chamber D, the tube H, the extension J, the valve F, the stem L, the valve M, the chamber G, and the hollow arms *g g*, as and for the purpose described.

2. The combination of the chamber D, the tube H, the extension J, the stem L, the valves F M, and the chamber G, said chamber above the valve M communicating with the interior of the chamber D, and below the valve M communicating with the space without the chamber D.

316,043. COUCH. THEODORE R. JONES, Utica, N. Y. Filed Dec. 13, 1883. (No model.)



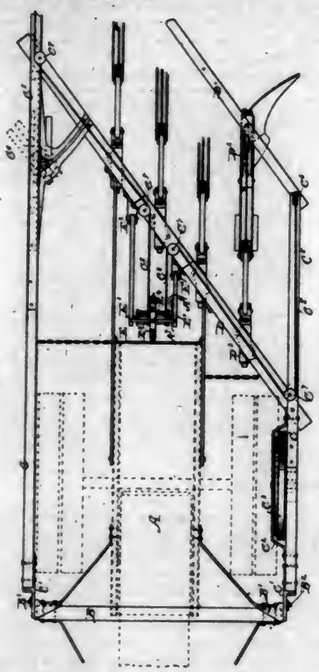
Claim.—The combination, with the frame of the lounge having the two side rails, B B', and the back having the braces K, of the two sets of sockets I I and I' I', one of said sets being placed below the rail B and the other above the rail B', the latter or upper set, I', being provided with toothed or notched extensions, slotted as described, and the screw-bolts by means of which the sockets I' may be screwed up against and held upon the rails, as set forth.

316,044. COMBINED COLLAR-BUTTON AND NECKTIE-FASTENER. GEORGE T. KELTING, Washington, D. C. Filed Aug. 21, 1884. (No model.)



Claim.—A combined collar-button and necktie-holder, consisting of the combination, with a button formed with a shank, *a*, of a bar, B, provided with depending end hooks, substantially as set forth.

316,045. GANG-PLOW. FRANK F. LANDIS, Waynesborough, Pa. Filed May 28, 1884. (No model.)



Claim.—1. The combination, with the motor A, of the transverse draft-bar, the pivotally-connected side draft-bars hinged to the frame forward of the traction-wheels' axle, and provided with one or more following wheels, and the diagonally-disposed gang draft-bar, substantially as shown and described.

2. The combination, with the longitudinal draft-bars, diagonal gang draft-bar, a casting secured thereto and having a bore in line with the line of draft, and a coupler having a cylindrical body adapted to fit said bore, and means for canting the coupler, substantially as specified.

3. In combination with the front diagonal draft-bar, longitudinal draft-bars provided with upwardly-inclined beams having pulleys of a rear diagonal gang-bar connected by cords or chains and intermediate pulleys with each plow of the gang, an elevating cord or cords, and means, substantially as specified, for operating the same.

4. The combination, with a front diagonal draft-bar, of a gang of plows connected thereto, a rear diagonal gang-beam connected to the plows by chains and intermediate pulleys, and a cord, or cords or their equivalents connected to the rear gang-beam and to a windlass adapted by a suitable lever to be thrown into and out of operation, whereby the gang of plows may be elevated at will, substantially as specified.

5. In a gang-plow, a pivotally-supported windlass carrying cords or their equivalents connected with the gang, and connecting devices arranged and operated by means of the power generated by the motor, substantially as specified.

6. A pivotally-supported windlass connected with the gang by means of cords or their equivalents and adapted to be thrown into contact with the ground or with the moving part of the motor, substantially as and for the purpose set forth.

7. The combination of the motor, the gang of plows, an intermediately-arranged system of cords and pulleys for elevating the plows, and a windlass adapted to be operated by power developed by the motor to wind the cord or cords, and a pawl and ratchet to maintain the cords in a wound condition upon the windlass, substantially as specified.

8. The combination of a gang of plows pivotally connected with the gang draft-beam, a cord or cords, a windlass, and a stop upon said cord to determine the limit of action of the windlass, substantially as specified.

9. The combination of a pivotally-supported friction-pulley having a pinion and winding-drum, a windlass operated by the pinion of the friction-pulley, and a cord connected with the friction-pulley drum and

with a lever constructed to embrace the cord from the main windlass and to be operated by a stop thereon, whereby the friction-pulley is withdrawn from the moving part of the motor when said stop comes in contact with said lever, substantially as specified.

10. The combination, with the fly-wheel of the motor, of a pulley, A^3, supported in the lever A^5, and having a drum and a pinion, A^4, the windlass A^6, having the gear A^7, the ratchet A^7, and pawl A^8, the rod A^9, and lever A^{10}, with the cords C^8 and C^9, the former having a stop, C^{13}, and the latter connected to the lever C^{11}, and the pulleys C^{10} and C^{12}, substantially as shown and described.

11. The combination of the windlass A^6, the cord C^8, having stop C^{13}, the pulley A^3, the cord C^9, pulleys C^{10} C^{12}, and lever C^{11}, substantially as shown and described.

12. The combination, with the front diagonal draft-bar, of a casting bored in line of draft, a canting head mounted in said bore and provided with a standard having a lever, and means for maintaining the lever in an upright position, and means for pivotally connecting a plow-beam to said head, substantially as specified.

13. A compound plow-beam, comprising the beam proper, F^3, pivoted at F^2 between plates F, forming a main beam, and adapted, as by bolts F^3, to be adjusted substantially as specified.

14. The compound plow-beam, comprising a connecting-link, as D^{12}, and the beam F, embracing the same, and a lever pivoted to the link, the free end of which is pivotally connected to the beam, and means for operating the lever, whereby the point of the plow is upwardly inclined, substantially as specified.

15. The combination, with gang-plow beams and a series of cords to elevate the same, of a series of levers with chains connected to said beams to raise the forward end of each plow-beam during the first movement of the cords, elevating the gang-beam, substantially as specified.

16. A jointed plow-beam having a lever at the joint for directing the point of the plow, as described, in combination with a tilting head at the front end of the jointed beam, substantially as specified.

17. A jointed beam having a lever at the joint, the free end of the lever being pivoted to the front end of the beam, and the lever itself being pivoted to the rear end of the connecting-link, the pivot of the free end of the lever working in a slot formed in the rear end of the link, said slot serving to limit the movement of the lever, substantially as specified.

18. The combination of the beam F, the link D^{12}, and the lever F^2, pivoted at F^2 at the rear end of said link, the front end of said lever being provided with the rod or bolt F^{10}, having bearings in the front end of the beam F and riding in a slot formed in the front end of said link, substantially as shown and described.

19. The link D^{12}, having the depending pivot D^{13}, provided with the semispherical base D^{14} and the projecting flange or shoulder D^{15}, substantially as shown and described.

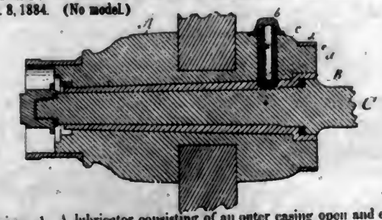
20. The caster-frame D^{16}, having the cup-shaped projection or top D^{17} and the recess D^{18}, in combination with the pivot D^{13}, box D^{19}, and adjusting-screw D^{20}, substantially as shown and described.

21. The canting-head comprising the cylindrical body D^2, the standard D^3, and lever D^4, and vertical slot provided with transverse bearings for the pivot D^{11}, in combination with the casting D^3, having the standard D^4, apertured for receiving a latch-pin or other retaining device formed on or as a part of or attached to said lever, substantially as shown and described.

22. The combination of the pivot D^{13}, having the rounded base D^{14} and shoulder or flange D^{15}, with a caster-frame having the cup-shaped projection or top, the upper edges of which are inclined, substantially as specified.

23. In combination with the frame of a traction engine or motor, a gang-plow frame provided with a follower or supporting wheel journaled thereon, substantially in line with the axle of the motor, as described.

316,046. AXLE-LUBRICATOR. JOHN A. LANE, Boston, Mass. Filed Feb. 8, 1884. (No model.)



Claim.—1. A lubricator consisting of an outer casing open and exteriorly threaded at its upper end and having a perforation at its lower end, in combination with a cap, *b*, having a tube, *a*, substantially as set forth.

2. A lubricator consisting of an outer casing open and threaded exteriorly at its upper end, in combination with a cap, *b*, having a tube, *a*, and a packing located in the lower end of said outer casing, substantially as set forth.

316,047. BICYCLE. GEORGE W. MARBLE, Chicago, Ill. Filed Aug. 30, 1884. (No model.)

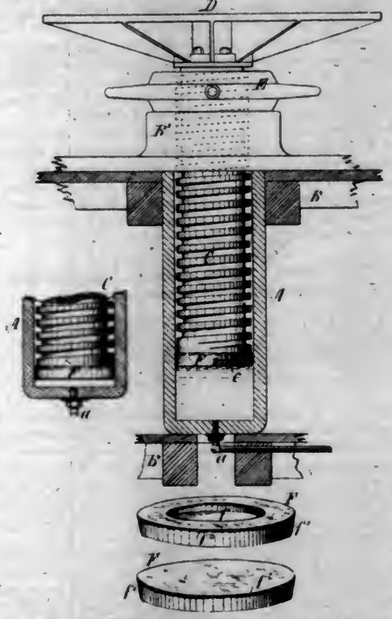


Claim.—1. The combination, in a bicycle, with a fork the legs of which extend below the bearings of the drive-wheel, and said bearings having a spherical bearing-chamber, of the drive-wheel, the journals of the axles of which are spherical and correspond to the said bearing-chamber, as hereinbefore set forth.

2. The combination, in a bicycle, of a fork the legs of which extend below the bearings of the drive-wheel, the said bearings suitably connected to the inner surface of said legs, consisting of a pillow and cap, which, when secured together, form a spherical bearing-chamber, in the inner annular surface of which are circumferential grooves or pockets, and friction-balls adapted to independently revolve in said grooves or pockets, with a drive-wheel the journals of the axles of which are spherical and adapted to fit the spherical chamber of said bearings.

3. The combination, with the drive-wheel, the forks having legs which extend in a line below the bearings of the drive-wheel, said bearings connected to the inner side of said legs and in alignment therewith, the rear wheel, and a backbone connected, as set forth, to the said fork, of the pedals journaled in the extremities of said legs, and means for imparting their motion to the drive-wheel.

316,048. HYDRAULIC PRESS. DAVID C. MAYO, Montreal, Quebec Canada. Filed May 15, 1884. (No model.)

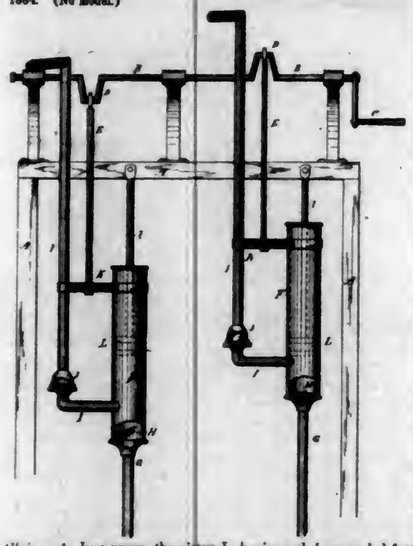


Claim.—1. In a hydraulic press having a vertically-moving ram, a piston or packing composed of a flat disk of vulcanized rubber independent of said ram, but adapted to move therewith.

2. In combination with the ram or piston, a loose packing composed of vulcanized rubber hardened at its upper face or edge, substantially as described.

3. The combination, with a hydraulic cylinder and the ram C, having the reduced end *c*, of the rubber piston or packing F, having the recess *f*, and adapted to move with the cam, substantially as and for the purpose specified.

316,049. PUMP. WILLIAM C. MCCLAY, Santa Ana, Cal. Filed Dec. 1, 1884. (No model.)

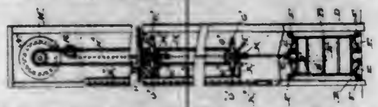


Claim.—1. In a pump, the piston L, having rod *l* suspended from and held stationary by a frame-work, A, in combination with the cylinder F, having suction-pipe G, with valve H, the discharge-pipe I, having valve J, and a means for reciprocating said cylinder and discharge-pipe, consisting of the crank-shaft B, supported by frame A, and the hanger E, connected with the crank-shaft and with the cylinder and pipe, substantially as herein described.

2. The stationary pistons L, the cylinders F, and discharge-pipes I, of two pumps provided with suction and discharge valves H J, in combination with the means by which said cylinders and discharge-pipes are simultaneously reciprocated in opposite directions, consisting of the crank-shaft B, having the oppositely-located cranks D, and the hangers E, connected with said cranks, and with the cylinders and discharge-pipes, and the straps K, substantially as herein described.

3. The pistons L, having rods *l*, the cylinders F, having valves H, and the reciprocating discharge-pipes I, having valves J, all forming two pumps, as described, in combination with the frame A, from which the piston-rods *l* are rigidly suspended, the crank-shaft B, supported by the frame and having the opposite cranks, D, the hangers E, suspending the cylinders and discharge-pipes from cranks D, and the straps K, all arranged and operating substantially as herein described.

316,050. DUMB-WAITER. WELLINGTON B. MOYER, Reading, Pa. Filed Feb. 12, 1885. (No model.)



Claim.—1. As an improvement in the construction of dumb-waiters and hoists for dwelling-houses, &c., a hand hoisting device consisting, essentially, of the following elements: a frame or three-legged crab having bearings therein for a sprocket and retaining-roller shafts, a sprocket-shaft provided with a sprocket-wheel and ratchet within the frame, and a brake disk and crank exterior to the frame, two retaining-rollers on opposite sides of the sprocket-wheel, in combination with the well-case and a dog or pawl secured thereto, as and for the purpose set forth.

2. As an improvement upon the usual dumb-waiter-drum shaft, a sprocket-wheel or its equivalent secured to the end of the same exterior to the casing of the well, and in combination with the lowest floor hoisting device, and the intermediate duplications of the same upon the several floors above by a sprocket-chain or its equivalent, with the ratchet-pawls in contact with the ratchets controlled independently and in unison from each separate landing for the cage, substantially as and for the purpose specified.

3. The combination of the several hand hoisting devices, as shown and described, the ratchet-wheels, pawls with their cord, the sprocket-chain, drum-shaft, hoisting-rope, cage or waiter, and counter-balance, substantially as and for the purpose set forth.

4. The elastic spring-guide consisting, essentially, of the following elements: a bracket in which the guide-roller lever is fulcrumed, having an extension provided with a spring-seat and pin therein, a guide-roller arm bifurcated to receive the roller journaled therein, the arm extended rearward from its fulcrum, and provided with a cup-recess to receive an elastic spring having a loose disk therein upon which a thumb-screw impinges, and the spring set upon the pin and entered within the recess and retained in contact by combination with the dumb-waiter or cage and the corners of the well, as and for the purpose set forth.

5. In combination with a dumb-waiter, and for the purpose described, a shelf provided with hinges or their equivalent, whereby one-half or more of the same may be turned out of the way, as set forth.

316,051. BINDINGS OF BOOKS. MICHAEL MULQUEEN, Chicago, Ill. Filed Mar. 2, 1883. (No model.)

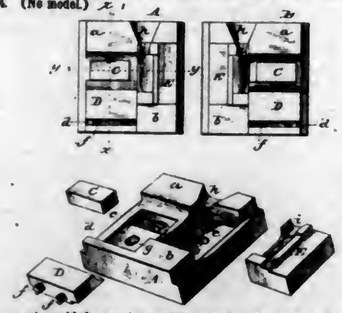


Claim.—1. The combination, with the back and lids of a spring-back book, of a sheet of rubber connecting the lids and back, substantially as and for the purpose set forth.

2. The combination, with the back and lids of a spring-back book, of a sheet of rubber secured to the inner concave face of the back and attached at its margins to the lids, substantially as and for the purpose set forth.

3. The combination, with the back B and lids C, of a sheet, D, of rubber, attached to the lateral margins of the said back, and secured at its edges to the lids C, substantially as and for the purpose set forth.

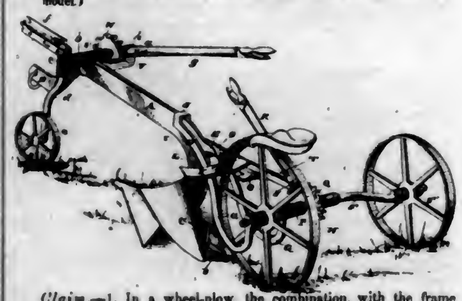
316,052. MOLD. HORATIO A. NEWCOMB, Greenfield, Mass. Filed May 16, 1884. (No model.)



Claim.—1. A mold for use in casting bolsters for cutlery-handles and for like work, having yielding walls adapted to fit closely to the handle, and to be pressed back by the scales and tang, substantially as described and shown.

2. The herein-described mold, consisting of sections A B, provided with fixed portions *a b*, and yielding blocks C D E, springs *f*, and screws F, all constructed, combined, and arranged to operate substantially as described and shown.

316,053. WHEEL-PLOW. WILLIAM NEWLIN, Attica, assignor of one-half to James S. Warwick, Lafayette, Ind. Filed Jan. 13, 1885. (No model.)



Claim.—1. In a wheel-plow, the combination, with the frame journaled on a cranked axle, the forward end of the frame being joined by a yoke, of a beam pivoted to said frame, and a foot-lever for elevating the rear of said beam, substantially as set forth.

2. In a wheel-plow, the combination, with a cranked axle and a furrow-wheel and a land-wheel journaled thereon, of a frame the rear end of which is journaled to said axle, a plow-beam pivotally secured to the front end of said frame, a seat secured to the said frame above the furrow-wheel, and a foot-lever journaled to the frame and engaging the plow-beam behind the pivotal connection of said beam and frame.

3. In a wheel-plow, the combination, with the frame, and a foot-rest and seat secured to the forward end thereof, of a beam pivoted to said frame and provided with a rearwardly-projecting nose, and a foot-lever journaled to said foot-rest and adapted to engage said nose, whereby the beam is elevated and lowered, substantially as set forth.

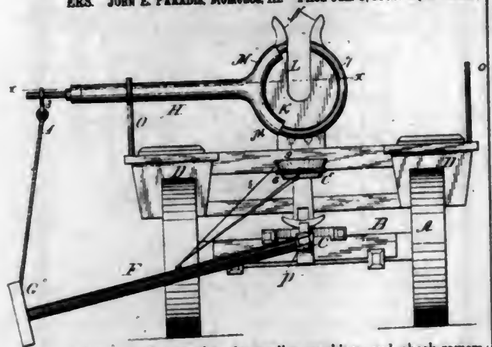
4. In a wheel-plow, the combination, with the frame and a beam secured thereto, of a sleeve rigidly secured on the forward end of said beam and a crank-axle, and a furrow-wheel journaled in said sleeve, and devices for elevating and lowering the said furrow-wheel, substantially as set forth.

5. In a wheel-plow, the combination, with the frame and a beam pivoted thereto, of a sleeve rigidly secured on said beam, and a crank-axle journaled in said sleeve, and a sector-bar secured thereon, and a lever and dog for locking the axle in any desired position on the shaft, substantially as set forth.

6. In a wheel-plow, the combination, with a plow-beam provided with a horizontal sleeve at its front end, of an arm journaled in said sleeve and provided at one end with a vertical bearing, a vertical axle journaled in said bearing and provided at its lower end with a horizontal spindle, a wheel journaled on said spindle, and a tongue pivoted to the upper end of the vertical axle.

7. In a wheel-plow, the combination, with a plow-beam provided with a horizontal sleeve at its front end, of an arm journaled in said sleeve and provided at one end with a vertical bearing, a lever and sector for turning and locking the arm in any desired rotary adjustment, a vertical axle journaled in the bearing in said arm and provided at its lower end with a horizontal spindle, a wheel journaled on said spindle, and a tongue pivoted to the upper end of the axle, substantially as set forth.

316,054. MARKER FOR SEEDING-MACHINES AND CHECK-ROWERS. JOHN E. PARADIS, Momence, Ill. Filed Jan. 3, 1885. (No model.)



Claim.—1. In a marker for seeding-machines and check-rowers, the combination of frame K, having opening L and track 7, lever H, having slot 8, track-arms M, marker-rod F, marker G, connecting rope or chain 4, and frame C, substantially as and for the purposes set forth and described.

2. The combination of a frame having opening L therein and track 7 thereon, track-arms M, lever H, having key 2, connecting-loop 3, rope or chain 4, and marker G, substantially as set forth.

3. The combination of marker-rod F, marker G, seat E, traversing rod 6, pulley 9, rope 5, ball-and-socket joint P, and frame C, substantially as set forth.

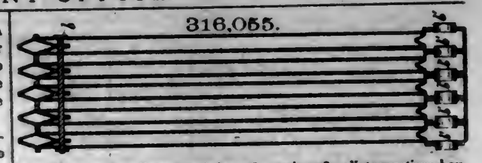
4. The combination of lever H, having track-arms M, frame K, provided with track 7, guards N, and opening L, connecting rope or chain 4, marker-rod F, and marker G, ball-and-socket joint P, and frame C, substantially as set forth.

5. In combination with a marker having an overhead movement from side to side, shifting-lever H, track-arm M, connecting rope or chain 4, and frame K, having opening L, and guards N N, substantially as set forth.

6. In combination with a marker, frame K, having opening L therein, and a slide carrying a lever-bar across said opening, whereby the lever and marker may be shifted from side to side of a seeding-machine and check-rowers without interfering with the reins, substantially as set forth.

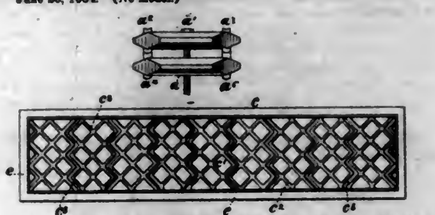
316,055. STEAM-RADIATOR. JOHN B. PIERCE and JOSEPH BOND, Buffalo, N. Y. Filed Dec. 23, 1883. (No model.)

316,055.



Claim.—A radiator consisting of a series of radiator-sections having plain or smooth straight openings b^2 b^4, in combination with a series of plain short tubes or nipples of equal diameter throughout, the whole combined and put together substantially as and for the purposes described.

316,056. STEAM-RADIATOR. JOHN B. PIERCE, Buffalo, N. Y. Filed June 20, 1884. (No model.)

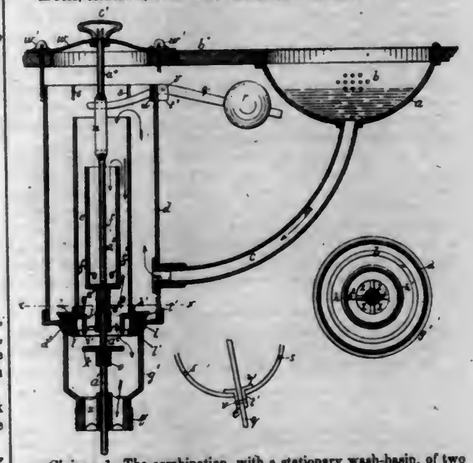


Claim.—1. A radiator screen-top consisting of the sides or frame *e*, having the intermediate gratings or open-work, *c'*, divided into sections across the top by openings c^3, substantially as and for the purposes described.

2. A radiator screen-top having a surrounding frame, *e*, in which the intermediate grating or open-work portion, *c'*, is divided into separate and distinct sections, as and for the purposes specified.

3. A steam-radiator section adapted to set vertically, and having the nibs a^2 a^3 a^4 a^5, arranged two on each side of a section, in combination with a bolt for securing them together, substantially as described.

316,057. COMBINED WASTE AND OVERFLOW VALVE. WILLIAM A. PITT, Glenbrook, Conn. Filed Jan. 3, 1884. (No model.)



Claim.—1. The combination, with a stationary wash-basin, of two upright receiving-cylinders, arranged one within the other and open at the top, the outer cylinder communicating directly with the waste-pipe, and provided with a valve-seat to receive a valve on the bottom of the second cylinder, and a valve-stem having a slotted link-connection with a weighted lever, all arranged and operating as set forth.

2. The combination, with the cylinder *d*, communicating with the discharge-pipe *c* and provided with a valve-seat, of the cylinder *e*, having a valve adapted to fit said seat, and having a central discharge-passage controlled by a valve opening and closing automatically, with the valve-stem and weighted lever, all arranged and operating as and for the purpose set forth.

3. The cylinder *d* and chamber *g'*, having valve-seat *d''*, in combination with the cylinder *e*, provided with valve *g*, having projections *i i'* and central open bridge, *j*, and valve *k*, with attached valve-stem, as and for the purpose set forth.

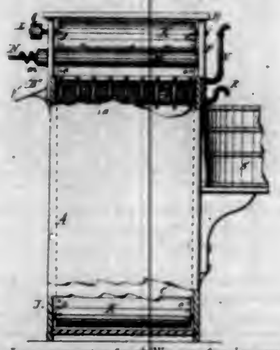
4. The combination, with the basin *a* and pipe *c*, of the cylinders *d*, *e*, and *f*, valves *g* and *k*, with valve-stem, slotted link *n*, and weighted lever *q*, all arranged and operated as and for the purpose set forth.

5. The combination, with the cylinders *d*, *e*, and *g'*, having the valve-seat *d'*, of the valve-plate *h*, provided with projections *i*, and rubber packing-ring *l*, having its upper and lower edges recessed to adapt it to receive and inclose the edges of the said plate and projection, as set forth.

6. The combination, with the cylinders *d e g'*, with valve-connection and pipe *c*, of the open bridge-piece *j*, valve *k*, cylinder *f*, valve-stem with slotted link *n*, and weighted lever *q*, as and for the purpose set forth.

7. The cylinder *d*, provided with slots in its upper edge, in combination with the plate *t*, constructed as shown, valve-stem having slotted link *n*, and lever *q*, as and for the purpose set forth.

316,058. APPARATUS FOR EXTRACTING PARAFFINE FROM OILS. CHARLES H. PRENTISS, Cleveland, Ohio. Filed Dec. 17, 1884. (No model.)

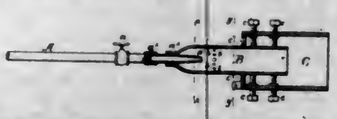


Claim.—1. In an apparatus for chilling or freezing paraffinized oil for extracting therefrom paraffine, a tank consisting of an ice-box and oil-freezing compartment in open relation with each other by means of an opening, D, for the passage and interchange of the refrigerant agent, and in said compartment an endless apron or belt adapted to revolve therein around the partition C', for the purpose of carrying the oil to be frozen down through and upward through the refrigerant agent, substantially as described, and for the purpose herein set forth.

2. In combination with the revolving belt K, the conduits M and O, arranged, respectively, on each side of said belt, and having therein conveyers adapted to be in close proximity to the surface of the belt, and scrapers *e* and *e'*, constructed and arranged to co-operate for the purpose specified, and substantially as described.

3. An apparatus for chilling or freezing oils, consisting of a tank having two compartments—viz., an ice-box and an oil-freezing compartment—in communication one with the other by an opening in the partition C, rollers G and T, and belt adapted to revolve on said rollers in the compartment B of the tank, conduits M and O, arranged, respectively, on each side of the ascending part of the belt, and having therein conveyers, scrapers, and oil-induction pipe, overflow-pipe, and vessel S, constructed and arranged in the manner substantially as described, and for the purpose specified.

316,059. GAS-BURNING APPARATUS. ALEXANDER RANDOL, Tarentum, assignor of six-tenths to George S. McKee, Allegheney City, and John M. Arnold, Pittsburg, Pa. Filed Dec. 26, 1884. (No model.)



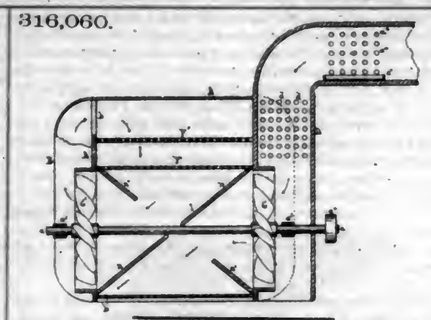
Claim.—The chambers B and C, in combination with burner *a'*, which discharges into the former, and the screws *c*, which pass inward through said chamber C, and bear against said chamber B at different points of its periphery in cross-section, to allow lateral as well as longitudinal adjustment, substantially as and for the purpose set forth.

316,060. WOOL-DRIER. DAVID H. RICE, Lowell, assignor to C. G. Sargent's Sons, Graniteville, Mass. Filed June 5, 1884. (No model.)

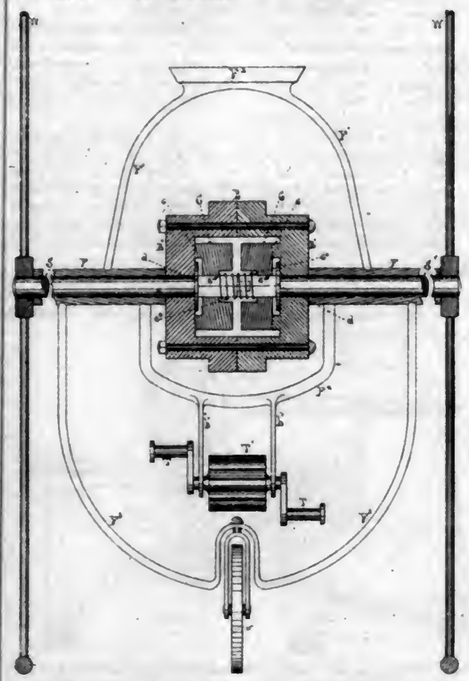
Claim.—1. In a fiber-drying machine, the combination of the air-conduit D, the cold-water pipe a^4, the steam-pipe *d*, the fan, and the traveling perforated apron F, substantially as described.

2. In a fiber-drying machine, the combination of the air-conduit D, the cold-water pipe a^4, the steam-pipe *d*, the fan, suitable mechanism for giving an alternate or intermittent character to the blast of air passing through the traveling apron with the said apron, substantially as described.

316,060.



316,061. CLUTCH FOR TRICYCLES. DAVID H. RICE, Lowell, Mass. Filed Nov. 12, 1884. (No model.)



Claim.—1. In combination with the shafts S S', the two disks B' B', revolving freely thereon and provided with ratchet-teeth *e e*, and the clutches C C, attached to and capable of sliding longitudinally upon said shafts, each provided with the corresponding ratchet-teeth, *e e*, and suitable mechanism for pressing the clutches against the disks, substantially as described.

2. In combination, the shafts S S', the disks B' B', provided with ratchet-teeth *e e*, the clutches C C, provided with corresponding ratchet-teeth, *e e*, and a single spring bearing with equal pressure outwardly upon said clutches, substantially as described.

3. In combination with the shafts S S', provided with angling splines *s' s'*, the longitudinally-moving clutches C C, provided with corresponding angling grooves, *d'*, and with ratchet-teeth *e e*, and the revolving disks B' B', provided with corresponding ratchet-teeth, substantially as described.

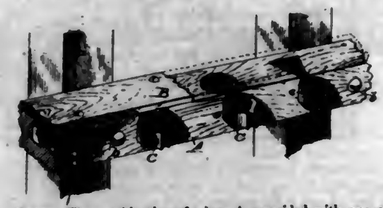
4. In combination with the revolving box B, formed with teeth *b b* around its periphery and with ratchet-teeth *e e* on its internal faces, the shafts S S', and the longitudinally-sliding clutches C C, attached thereto and provided with corresponding ratchet-teeth, *e e*, substantially as described.

5. The combination of the shafts S S', the disks B' B', provided with ratchet-teeth *e e*, the longitudinally-moving clutches C C, provided with similar teeth, *e e*, and having the length of space on said shafts between them over which they are capable of moving either singly or simultaneously toward each other less than the depth of the ratchet-teeth of both said clutches, substantially as described.

6. In combination with the disks B' B', provided with ratchet-teeth *e e*, the clutches C C, provided with corresponding teeth, *e e*, and the shafts S S', one of which is provided with a socket and the other with a projection revolving and taking a bearing in said socket, substantially as described.

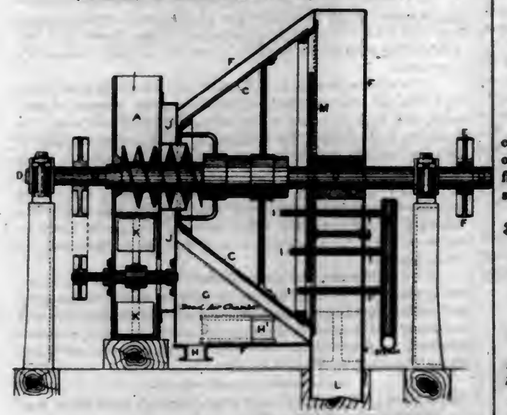
7. In combination with the disks B' B', the shafts S S', splines *s' s'*, and collars *d' d'*, substantially as described.

316,062. SPRING HOLDING DEVICE. CHRISTOPHER RIEDIGER, New York, N. Y. Filed Jan. 17, 1885. (No model.)



Claim.—The combination of a bar, A, provided with one or more recesses, D, with a spring-clamp, C, having an enlargement, *a*, adapted to fit or be held in said recess, substantially as shown and described.

316,063. GRAIN CLEANING AND DRYING MACHINE. JOHN RITCHIE, Liverpool, County of Lancaster, England. Filed Oct. 9, 1884. (No model.) Patented in England Feb. 29, 1884, No. 4,114.



Claim.—1. In a grain cleaner and drier, the combination of a casing, a rotary conical cage therein, a suction-fan at the smaller end of the cage communicating with the casing, and steam-pipes at the larger end of the cage adapted to discharge superheated steam into the latter in a direction contrary to the feed or travel of the grain.

2. In a grain cleaner and drier, the combination of a casing, a revolving screen therein, a suction device at one end of said screen, and a steam-nozzle at the other end, all arranged to operate set forth.

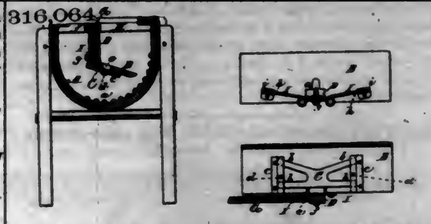
3. In a grain cleaner and drier, the combination of casing F, shaft D, cone C, provided with a feeding device, a suction-fan at the smaller end of the cone and communicating with the casing by a passage, J, nozzle I at the large end of the cone, adapted to project steam into the interior thereof, and dead-air chamber G immediately below the cone to receive the heavier particles of dust and dirt, and provided with an outlet.

4. In a grain cleaner and drier, the combination of casing F, hopper A, shaft D, provided with cone C, and with Archimedean screw B for feeding material to the cone, suction-fan K, passage J, connecting the casing with fan K, dead-air chamber G, provided with an outlet, nozzles I, adapted to discharge steam into or upon the grain, and disk M, placed upon the shaft D and partially closing the rear end of the cone, as set forth.

316,064. WASHING-MACHINE. MARTIN W. ROBINSON, Somerville, Mass., and HENRY W. MARRINER, Belfast, Me. Filed Nov. 27, 1883. (No model.)

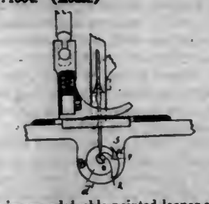
Claim.—1. In a washing-machine, the combination, with the tub A, having a corrugated rubbing-surface, *a*, and brace H, of the oscillating and sliding dasher B, the single arm or hanger D, formed integral with its frame C, the oscillating shaft G, carrying said hanger on its inner end, a spring connected with the dasher by guides, and gears for oscillating the shaft, all constructed to operate as herein set forth.

316,064.



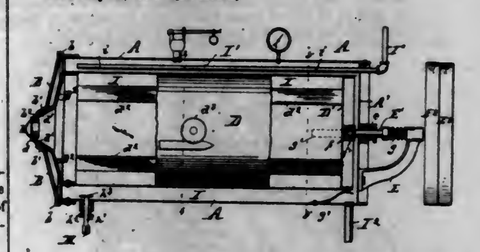
2. In a washing-machine, the combination, with the tub A, the oscillating hanger D, formed integral with its frame C, and the slotted dasher B, sliding thereon toward and from the side of the tub, of the spring I, secured at or near the center of its length to the hanger D and at its opposite ends within guides *i i*, secured to the dasher, whereby the ends of the spring are adapted to slide in the said guides as the dasher is moved upon the frame C, all constructed to operate as and for the purpose described.

316,065. OSCILLATING LOOPER FOR SEWING-MACHINES. T. C. ROBINSON, Boston, assignor of one-half to E. R. Welch, Cambridge, Mass. Filed Mar. 27, 1884. (Model.)



Claim.—The improved double-pointed looper or oscillating hook for chain-stitch sewing-machines, having one point deflected from the plane of the other, and having its side *a'* formed in a single continuous curve from the point 2 to the recess which terminates the hook proper, substantially as shown and described.

316,066. COFFEE-ROASTER. JOHN C. SALSBURY, St. Louis, Mo. Filed May 26, 1884. (No model.)



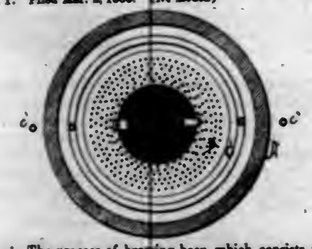
Claim.—1. The improved machine for roasting coffee, consisting, essentially, of an outer stationary cylindrical casing, A, closed in the rear and having a hinged door, B, in front, the inner cylindrical casing or coffee-drum, D, having its front supported to turn in said hinged door, while its rear portion turns with the spindle or shaft, the annular steam-space I between said cylindrical casing and the drum, the perforated steam-pipe I', by means whereof superheated steam can be admitted to surround the said coffee-drum while same is being revolved, as and for the purposes set forth.

2. In an apparatus for roasting coffee, the combination of the outer stationary cylindrical case, A, closed in the rear by plate A' and in front by a hinged door, B, having a central flange and opening, *b' b'*, the coffee-drum D, its rear plate having the socket-bearing *f*, with cheeks f^3 f^4, the front plate, D^2, made conical to project at *d'*, with opening *d*, the revolving shaft E', having lateral pins *f' f'*, by means whereof said coffee-drum can be removed from or inserted in its outer casing, and capable of being revolved, in the manner and for the purposes set forth.

3. In an apparatus for roasting coffee, the combination of the outer casing, A, closed in the rear by plate A', in front by a hinged door, B, having central opening and flange, *b' b'*, the coffee-drum D, its rear plate having socket-bearing *f*, cheeks f^3 f^4, the front plate, D^2, thereof made conical, with opening *d*, the revolving shaft E', having lateral pins *f' f'*, the annular space I, having perforated steam-pipe I', exhaust-pipe I^2, by means whereof said coffee-drum and its contents can be subjected to the action of superheated steam and at same time revolve, substantially as and for the purposes set forth.

4. The combination of the movable truck J, having top rails, j', extending beyond the front of the truck, the coffee-drum D, closed at one end, the other end made conical and having a central opening, d, the grooved wheels d^2 d^3, forming part of the drum, by means whereof it can be supported, moved, and turned on top of said truck, as and for the purposes set forth.

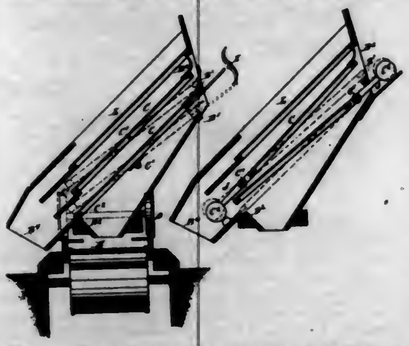
316,067. PROCESS OF BREWING BEER. JEAN SCHAFHAUS, New York, N. Y. Filed Mar. 2, 1885. (No model.)



Claim.—1. The process of brewing beer, which consists in drawing off the wort from the mash in the tun until it begins to run cloudy, then stirring and sparging the grains remaining in the tun with water heated to from 70° to 75° Reaumur, then drawing off the wort from the grains remaining in the tun until nearly all the extract remaining therein is obtained, then pumping the said wort into a tun into which a crib filled with hops, juniper-berries, cloves-gum, and salt (in proportions mentioned) has been set, then boiling the said wort at a high degree, then using the same for the purpose of sparging the hops remaining in the hop-kettle, substantially as described.

2. The process of brewing beer, which consists in drawing off the wort in the mash-tun until it begins to run cloudy, then stirring and sparging the grains remaining in the tun with water heated to from 70° to 75° Reaumur, then drawing off this latter wort until nearly all extract has been obtained from the grains remaining in the mash-tun, then pumping the wort thus obtained into the tun, then boiling the said wort until the same is clear, then pumping the same into the sparger of the hop-kettle and sparging the hops remaining in the kettle therewith, substantially in the manner described.

316,068. SCREENING APPARATUS. CARL SCHLICKEYSEN, Berlin, Germany. Filed Apr. 28, 1884. (No model.) Patented in Germany Sept. 27, 1883, No. 23,876; in France Nov. 30, 1883, No. 158,886; in England Jan. 7, 1884, No. 904, and in Belgium Apr. 1, 1884, No. 64,697.



Claim.—1. In combination with a movable frame, B D, having a chute for the screened material and a chute for the refuse and material to be again subjected to treatment, an oscillating screen having its axis above the center, and stops, as B′ B^2, all arranged as described, whereby the force of each charge will throw the screen forcibly against the stops B′, and the gravitating material will operate the screen reversely against the stop B^2, as set forth.

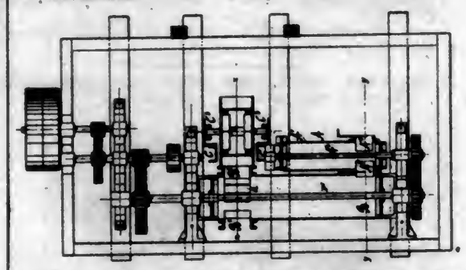
2. In combination with the movable frame B, having chutes, as shown, the pivoted screen C, having counter-weights C^2, the grating L, and stops B′ B^2, as set forth.

3. The combination, with the supporting-frame, of the finer and coarser screens C, having their axis and counter-weights arranged reversely, and the stops B′ B^2, as herein specified.

4. The combination, with the screen C, pivoted at C′, of the lever J, carrying weight C^2, the apron B^2, and the stops B′ B^2, as set forth.

5. The combination, with the movable frame B D and screening apparatus, as described, of the carrying-apron E, receiving therefrom and elevating or carrying buckets G, as and for the purposes set forth.

316,069. APPARATUS FOR MIXING MORTAR, CONCRETE, &c. CARL SCHLICKEYSEN, Berlin, Germany. Filed June 23, 1884. (No model.) Patented in Belgium Feb. 29, 1884, No. 64,527, and in England Mar. 1, 1884, No. 4,224.



Claim.—1. In a machine for mixing concrete, two or more mixing-troughs, each having revolving shafts and arms, arranged side by side, and the exit end of the primary trough connected with the entrance end of the secondary trough by separate gateways controlled by adjustable gates or valves combined with a single power and connections, whereby two or more ingredients are mixed in the primary trough and automatically carried to the next trough, mixed with other ingredients, and automatically carried in the opposite direction from the second trough, as set forth.

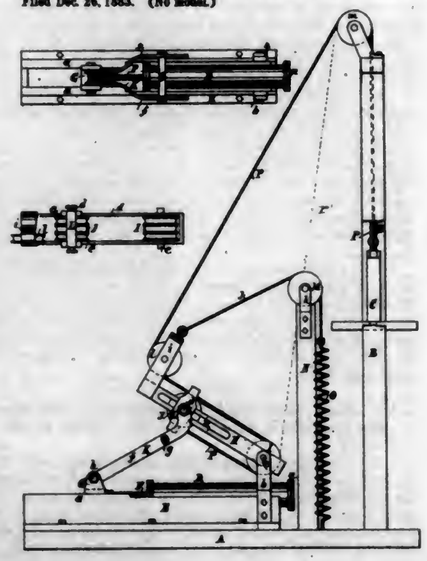
2. The construction of the mixing-troughs, and especially constructing the second trough with mixer-arms provided with spar-like projections, with upper slot-openings, with about radial upper hopper-walls, and with yielding parts, for the purpose of preventing jamming, substantially as set forth.

3. In a mixing-trough, in combination with a revolving shaft carrying knives, the series of correspondingly broad plates or aprons of sheet metal, each fixed at one end to the wall, and provided with means for tightening at the opposite end, arranged, as shown, so that the edges of the knives touch the yielding apron, and thus prevent jamming, as herein specified.

4. In a mixing-trough, the yielding aprons B^2, having a beveled or inclined receiving end, in combination with provisions for adjusting and tightening the other end, and with a revolving shaft having blades or knives revolving in contact with or near such apron, substantially as herein specified.

5. In combination with the knife-shaft of a horizontal clay-mixer, one or more ejecting-wings mounted opposite the discharge-openings in such manner that the mixed material as it arrives is discharged or pressed out, but so that they remain stationary in case of jamming of stones between the wings and wall to avoid breakage while the shaft continues to turn, all substantially as herein specified.

316,070. HYDRAULIC ELEVATOR. HENRY F. SHAW, Boston, Mass. Filed Dec. 26, 1883. (No model.)



Claim.—1. In a hydraulic elevator in which, for hoisting or lowering the load, one set of sheaves has movements to or from another sheave or set of sheaves, adjustable guides for the set of sheaves having said rectilinear movements, whereby it may be caused to move in a direction having any desired angle with the direction of the motion of the piston, substantially as set forth.

2. In a hydraulic elevator in which, for hoisting or lowering the load, one sheave or set of sheaves has movements to or from another set of sheaves, guides for the sheave or set of sheaves having said rectilinear movement set at an angle with the direction of the motion of the piston, substantially as set forth.

3. In combination with a cylinder, piston, and piston-rod, a pivoted support or frame, bearing-guides for a set of sheaves having rectilinear movements, and an arm or connection connecting said piston-rod with said sheave or set of sheaves, substantially as set forth.

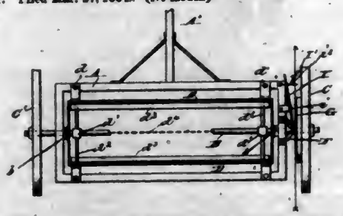
4. In combination with a cylinder, piston, and piston-rod, frame H, sheaves I and J, carriage L, and connecting-arm K, substantially as specified.

5. In a hydraulic elevator, the combination, with the cylinder, piston, and piston-rod, of a pivoted support or frame, H, having guides for sheaves J, connecting-arm K, pivoted with relation to piston-rod and said support or frame, substantially as specified, and counter-balance, as the spring O, substantially as and for the purpose set forth.

6. The combination of cylinder, piston, and piston-rod, pivoted frame H, sheaves I and J, arm K, and hoisting-rope P, substantially as set forth.

7. The combination of a cylinder, piston, and piston-rod, pivoted frame H, sheaves I and J, arm K, hoisting-rope P, rope j, and counter-balance, as the spring O, substantially as described.

316,071. FERTILIZER-DISTRIBUTER. JOEL E. SIMPSON, Newark, N. Y. Filed Mar. 27, 1884. (No model.)



Claim.—1. In a fertilizer-distributer, a frame having a box for the reception of material secured thereto, said frame and box mounted upon a shaft having scraper-blades attached thereto, and gear-pinion loosely mounted thereon, in combination with the bearing and driving wheels having gear-rim attached thereto, and intermediate gearing for rotating the shaft by the forward movement of the driving-wheel, substantially as described, and for the purpose set forth.

2. In a fertilizer-distributer, a frame provided with a box for the reception of the fertilizing material, said frame and box supported by an axle or shaft extending from side to side of the frame through said box, the axle having scraper-blades, a sliding clutch keyed thereto, and a gear-pinion having clutch-teeth mounted thereon, in combination with the bearing and supporting wheel having internal gear-rim attached thereto, and adapted to operate the loose pinion upon the shaft through an intermediate gear-pinion, whereby the axle or shaft is rotated by the forward movement of the driving-wheel, as and for the purpose set forth.

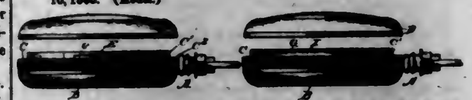
3. In a fertilizer-distributer, a frame provided with a box for holding the fertilizing material, mounted upon an axle or shaft and driving-wheels, and having a disk provided with clutch-teeth secured thereto, in combination with a sliding clutch keyed to said axle or shaft, and clutch-operating lever, whereby to hold the shaft against rotation when the machine is moved forward upon its supporting-wheels, substantially as described, and for the purpose set forth.

4. In a fertilizer-distributer, a single axle passing through the material-holding box, and provided within said box with scraper-arms and blades, in combination with bearing and driving wheels mounted upon the ends of said axle or shaft, and having suitable gear-wheels for the rotation of said axle or shaft, sliding clutch operated by a lever placed upon the shaft between the driving-wheel and frame, whereby to rotate or hold the shaft stationary, as and for the purpose described.

5. In a fertilizer-distributer, the combination of the following-named elements, to wit: a frame, A, having tongue A′, fertilizer-holding box D, having apertures d^4, shaft or axle B, having clutch H, lever I, wheels C C′, gear-pinions E F, and internal gear-rim, G, constructed as described, and serving to rotate the shaft or axle backward while the driving-wheels move forward, as and for the purpose set forth.

6. In a fertilizer-distributer, the combination of the following-named elements, to wit: a frame, A, having tongue A′, fertilizer-holding box D, having apertures d^4, for the discharge of the fertilizing material, shaft or axle B, mounted upon wheels C C′, provided with internal gear-rim, G, and gear-pinions E F, clutch H, operated by lever I, toothed clutch-disk A^2, secured to the frame and serving to hold the shaft or axle from rotating when the driving-wheels are moved forward, as and for the purpose described.

316,072. WATCH-CASE. GEORGE C. SMITH, Chicago, Ill. Filed Dec. 10, 1883. (Model.)



Claim.—1. A watch-case body or center provided on its face or faces with cam projections, in combination with a bezel or back, or both, having projections adapted to engage said cam projections on the center, substantially as described.

2. A watch-case center provided upon its face with cam projections, in combination with a bezel having corresponding cam projections, substantially as and for the purpose described.

3. A watch-case center having on its face an annular flange or rim provided with cam projections, in combination with a bezel having a rim similarly provided with cam projections, substantially as described.

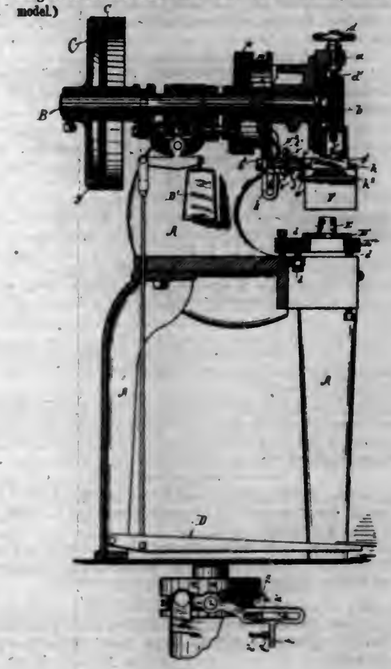
4. A watch-case center having on its face a rim provided with the curved cam projections G, in combination with a bezel provided with the curved cam projections H, substantially as described.

5. The watch-case having one or both of its faces provided with a flange notched substantially as described, in combination with a back or bezel, or both, provided with a flange notched substantially as shown, for the purpose set forth.

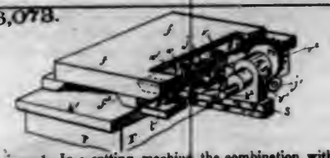
6. A watch-case center provided on one or both of its faces with an annular flange notched in two or more places, as shown, in combination with the back or bezel, or both, having their internal flange notched in a manner to fit upon the flanges on the center, and be secured thereto by a partial revolution, the said clamping-flanges being entirely covered by said back or bezel, or both, substantially as and for the purpose specified.

7. As a new article of manufacture, a watch-case center adapted to inclose and support the movement, having its bezel-face provided with cam projections, in combination with a bezel carrying the crystal, and having its center face provided with corresponding cam projections, whereby the said bezel may be detachably secured to said center and leave the outer surface entirely free from obstructions or flanges, substantially as and for the purpose specified.

316,078. LEATHER-CUTTING PRESS. CHARLES F. STACKPOLE, Lynn, assignor to Nathan J. Simonds, Woburn, Mass. Filed Aug. 25, 1884. (No model.)



316,073.



Claim.—1. In a cutting-machine, the combination, with a cutting-die and a cutting-block, of two sliding plates adapted to move in different directions and to connect said block with its support, and mechanism for automatically moving said plates between each cut, whereby said block will be caused to cross the face of the die in diagonal lines, and to meet said die at a different point at each cut, substantially as set forth.

2. In a cutting-machine, the combination, with a stationary cutting-die and a horizontally-movable cutting-block, of a lever connected with the latter, and mechanism for operating said lever, whereby said block will be moved backward after each cut to uncover the said die, substantially as set forth.

3. In a cutting-machine, the combination of the dovetail block-supporting plate *h*, and suitable connecting-piece, with the slotted lever *k* and its actuating-cam arranged to slide the block backward and forward, for the purposes and substantially as described.

4. In a cutting-machine, the combination, with the vertically-sliding head *a*, of the piece *b* and adjusting-screw *d'*, substantially as described.

5. In a cutting-machine, the bracket *l*, in combination with lever *l'*, pawl and ratchet *v j*, and shaft *j'*, provided with eccentric pin *w*, substantially as described.

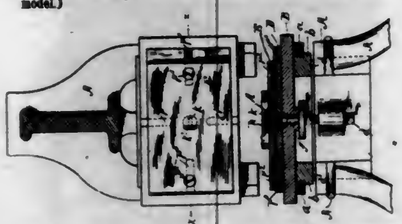
6. In a cutting-machine, the combination of grooved plate h^3, provided with slotted lug *w'*, with the eccentric pin *w*, adapted to act in the slot in said lug, and shaft *j'*, provided with its operating-lever and ratchet mechanism arranged to shift the plate laterally, substantially as set forth.

7. In a cutting-machine, the combination of shaft *j'* and its worm *v'* with gear v^2 and its shaft and eccentric pin k^2, substantially as described.

8. In a cutting-machine, the lever *k* and its actuating-cam, in combination with the eccentric k^2, the worm and gear mechanism, and the shaft *j'* and its lever-actuating mechanism, whereby the forward and backward throw of the block is varied, substantially as described.

9. In a cutting-machine, the combination, with a cutting-die, a cutting-block, and two sliding plates adapted to move in different directions and to connect said block with its support, of a lever for shifting the said block forward and backward to cover and uncover the die, and two simultaneously-operated eccentrics, one connected with one of the said sliding block-supporting plates, and serving to move the same laterally, and the other engaging said lever and serving to vary the length of the connection between the latter and the said block-supporting plate, substantially as set forth.

316,074. LEATHER-CUTTING PRESS. CHARLES F. STACKPOLE, Lynn, assignor to Nathan J. Simonds, Woburn, Mass. Filed Aug. 25, 1884. (No model.)



Claim.—1. In a leather-cutting machine, the block supporting and shifting mechanism consisting of the slotted plates E and D and eccentric *h*, substantially as described.

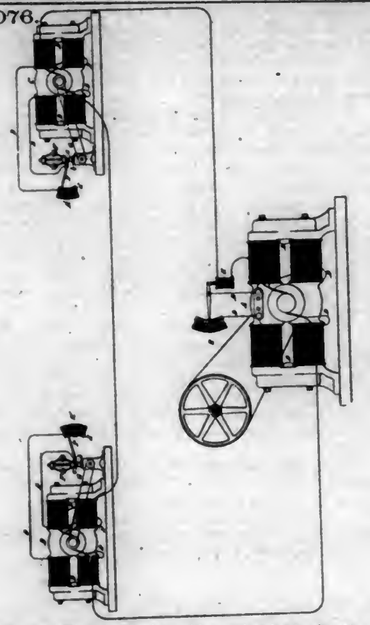
2. In a leather-cutting machine, the bed-plate B, provided with shaft *f*, carrying an eccentric pin arranged to project into a slot in the plate D, and adapted to slide the plate D backward and forward on the bed-plate as the eccentric shaft revolves, substantially as described.

316,075. WATER AND ALKALI PROOF FABRIC. JAMES H. STEBBINS, Jr., New York, and PAUL CASANAJOR, Brooklyn, N. Y. Filed Nov. 7, 1884. (Specimens.)

Claim.—As a new article of manufacture, the water and alkali proof fabric prepared by treating a woven vegetable fabric with sulphuric acid and alkalies, substantially in the manner above set forth.

316,076. SYSTEM FOR THE TRANSMISSION OF POWER BY ELECTRICITY. WILLIAM L. STEVENS, Boston, Mass. Filed July 3, 1884. (No model.)

316,076.



Claim.—1. The combination, with an electric circuit and a generator and two or more motors connected in series therein, of means for maintaining in the circuit an approximately-uniform strength of current and controlling mechanism for each motor for maintaining uniform speed, and gradually varying in inverse proportion to variations in its load the magnetic intensity of the field-magnets, substantially as herein set forth.

2. The combination, with an electric circuit and a generator and two or more motors connected in series therein, of a current-regulator and automatic controlling mechanisms operated by variations in the speed of rotation of the motors to gradually and directly vary the magnetism of the fields of the motors, all substantially as herein set forth.

3. The combination, with an electric circuit and generator and two or more motors connected in series therein, of a current-regulator for maintaining an approximately-uniform current strength, centrifugal governors driven by the motors, and means controlled thereby for gradually varying the magnetism of the field-magnets of the motors, all substantially as set forth.

4. The combination, with an electric circuit and generator and two or more shunt-wound or derived field-circuit motors connected in series therein, of a current-regulator for maintaining an approximately-uniform current strength, centrifugal governors driven by the motors, and variable resistances or rheostats included in the field-circuits of the motors, and controlled by the centrifugal governors, in the manner and for the purpose set forth.

316,077. SAFETY-BOX FOR ELECTRIC CIRCUITS. WILLIAM L. STEVENS, Boston, Mass. Filed Sept. 10, 1884. (No model.)



Claim.—1. The combination of the sectional holder, the sheathed or incased safety-strip, and the clamp, constructed and arranged in substantially the manner specified.

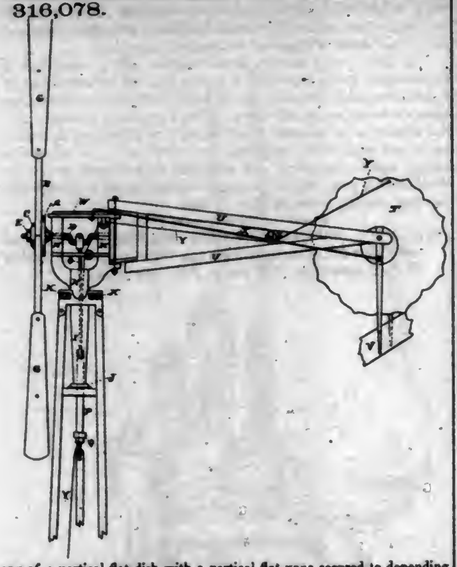
2. The combination, with the part D of a safety-strip holder having contact-plates secured thereto, of the part E, with corresponding contact-plates, a sheathed or incased safety-strip connecting the said contact-plates, and a clamping device for binding the parts D and E together, as herein set forth.

3. The combination, with a fusible safety-strip, of an envelope of non-conducting incombustible material consolidated by pressure, as and for the purpose set forth

316,078. WINDMILL. WILLIAM O. SWINNERTON, San José, Cal. Filed Mar. 20, 1884. (No model.)

Claim.—1. In a windmill, and in combination with a wheel-supporting frame turning about a vertical axis, a regulating device consisting of a vertical flat disk with a vertical flat vane secured to depending bars and at right angles to the disk, a tail-frame hinged to the wheel-frame, and having the horizontal axle or shaft of the vertical disk journaled in its outer end, and a rod connecting the disk with the wheel-frame, substantially as herein described.

316,078.

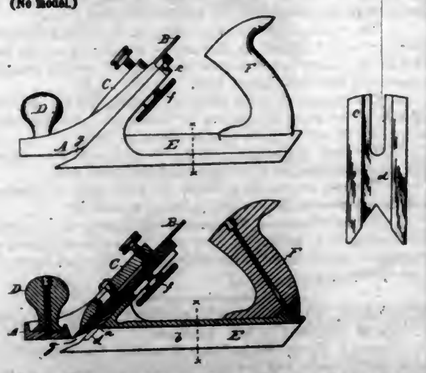


2. A flat vertical disk with a shaft or axis journaled transversely upon the outer ends of the tail-frame of a windmill, a flat vane fixed to depending arms in a plane at right angles with the disk, in combination with a rod having one end connected with the arms below the shaft of the disk, and the other end connected with an arm upon the wheel-frame, substantially as herein described.

3. The hollow tubular slide moving through the vertical hollow cone, and having a neck formed integral with its lower end, in combination with a pump-rod having a ⊃-shaped clamp upon its upper end to fit the neck of the slide, and a holding-pin, substantially as herein described.

4. In a wind-wheel, the radial arms having blocks fixed to them, with outer concave surfaces, in combination with wheel-vanes fixed to these concave surfaces, so as to be curved about an axis which is radial to the wheel, substantially as herein described.

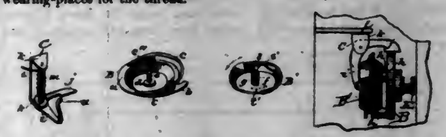
316,079. PLANE. JUSTUS A. TRAUT, New Britain, Conn., assignor to the Stanley Rule and Level Company, same place. Filed Feb. 25, 1885. (No model.)



Claim.—The combination of the gage E, having the longitudinal angular groove *b*, with the stock proper, A, adjustable up and down upon the oblique front end of said gage, substantially as described, and for the purpose specified.

316,080. SEWING-MACHINE SHUTTLE. IRA J. TUTTLE, Wheatville, N. Y., assignor to the Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Filed June 12, 1884. (No model.)

Brief.—Application A. A slot narrowing at one end directs the hook to the loop of needle-thread. The shuttle is made in two parts, one of which rotates on the other. The case of the stationary part projects outward and has a lug and bearing for the arm of a holder. The post at the central part of the rotary portion of the shuttle is shorter than the sleeve on the stationary part, thus affording a space for holding lubricating material. An adjustable tension-plate is located against the inner face of the stationary part of the shuttle. It may be turned to present different wearing-places for the thread.



Claim.—1. A sewing-machine shuttle consisting of the combination of two parts having central bearings, to adapt one part to rotate on the other, the case of the stationary part projecting partly outside of the case of the rotary part, whereby said stationary part is adapted to be pressed against by the shuttle-holder to retain the shuttle in its carrier, substantially as set forth.

2. A sewing-machine shuttle consisting of the combination of two parts, one of which is adapted to rotate on the other, one of said parts being provided with a central post or journal, and the other with a central sleeve or journal-box closed at one end, to adapt it for the retention of lubricating material, substantially as set forth.

3. A sewing-machine shuttle consisting of the combination of two parts, one of which is provided with a central post or journal, and the other with a central sleeve or journal-box closed at one end, and of greater length than said post or journal, whereby said sleeve or journal-box is adapted for the reception of lubricant-holding material contiguous to the end of said post or journal, substantially as set forth.

4. A sewing-machine shuttle consisting of the combination of two parts having central bearings, to adapt one part to rotate on the other, the rotary part being provided on its outer face with lugs forming a recess between them for the reception of the shuttle driver or pusher, and the stationary part projecting partly outside of the rotary part, so that it may be pressed against by the shuttle-holder, substantially as set forth.

5. A sewing-machine shuttle consisting of the combination of two parts having central bearings, to adapt one part to rotate on the other, the rotary part being provided on its outer face with lugs for the reception of the shuttle driver or pusher, and the stationary part having a projecting portion extending outside of the rotary part, and being provided on its outer face with one or more lugs for engagement with the shuttle-holder, to prevent said part from rotating, substantially as set forth.

6. A sewing-machine shuttle having a point or hook and a rearwardly-tapering needle slot or recess in front of the said point or hook, to insure the proper engagement of the latter with the needle, substantially as set forth.

7. A sewing-machine shuttle consisting of the combination of two parts having central bearings, to adapt one part to rotate on the other, the stationary part projecting partly outside of the rotary part, and the latter being provided with a flange having an inclined or cam-shaped portion, serving as a take-up for the under thread, substantially as set forth.

8. A sewing-machine shuttle consisting of the combination of two parts, one of which is adapted to rotate on the other, the stationary part being provided with a spring tension-plate bearing against its inner surface, substantially as set forth.

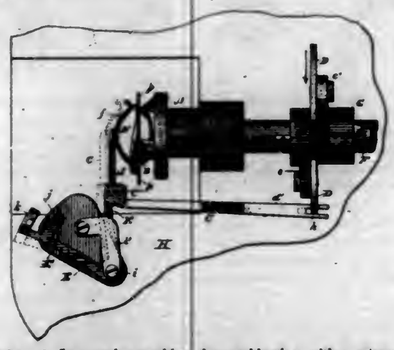
9. A sewing-machine shuttle consisting of two parts, one of which is adapted to rotate on the other, combined with a spring tension-plate pivotally attached to the interior of the stationary part of said shuttle, and thus adapted to be changed in position to compensate for wear, and means for retaining said plate in any position to which it may be adjusted, substantially as set forth.

10. A sewing-machine shuttle consisting of two parts, one of which is adapted to rotate on the other, combined with a spring tension-plate pivotally attached to the interior of the stationary part of said shuttle, said tension-plate being provided with a series of recesses, and the said stationary part of the shuttle having a screw for adjusting the tension, and also adapted for engagement with said recesses, to hold said plate in any desired position, substantially as set forth.

11. A sewing-machine shuttle consisting of two parts, one of which is adapted to rotate on the other, combined with a spring tension-plate bearing against the interior of the stationary part of said shuttle, and a tension-regulating screw passing through said stationary part and impinging against said tension-plate, substantially as set forth.

316,081. SHUTTLE SUPPORTING AND OPERATING MECHANISM FOR SEWING-MACHINES. IRA J. TUTTLE, Wheatville, N. Y., assignor to the Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Filed Oct. 21, 1884. (No model.)

Brief.—Division (case B) of application (case A) filed June 12, 1884. The shuttle is supported, held stationary, and its functions secured without a shuttle-race, the loops of needle-thread being carried around the shuttle in forming the stitches, thus obviating in a measure friction and wear. An intermittently-acting shuttle-holder is provided. As the needle descends and the shuttle-hook approaches the same, the shuttle is held between its holder and carrier with sufficient firmness to insure the engagement of the said hook with the loop of thread thrown out by the needle. As the thread is carried around the shuttle, the shuttle-holder is operated to release the shuttle and permit the thread to pass around the shuttle and over the beveled faces of the arms or lugs of the carrier.



Claim.—1. In a sewing-machine, the combination, with a rotary-shuttle carrier and its shaft, of a shuttle, a holder for retaining said shuttle in its carrier, and mechanism for vibrating said holder, whereby the latter will be caused to hold said shuttle firmly and loosely alternately, substantially as set forth.

2. In a sewing-machine, the combination, with the shuttle-carrier and its shaft, of a shuttle, a holder for retaining said shuttle in its carrier, a double cam, and connections between said cam and holder for moving the latter, substantially as set forth.

3. In a sewing-machine, the combination, with a shuttle-carrier and its shaft, of a shuttle, a shuttle-holder, a bell-crank lever to which said holder is attached, a bar connected to said lever and having pins carrying anti-friction rollers, and a double cam acting against said rollers to operate said holder, substantially as set forth.

4. In a sewing-machine, the combination, with the shuttle and its carrier, of a shuttle-holder and a pivoted support with which said holder is connected, whereby said holder is adapted to be swung aside to permit of the insertion or removal of the shuttle, substantially as set forth.

5. In a sewing-machine, the combination, with a rotary shuttle and its operating mechanism, of a shuttle-holder, a lever by which said holder is carried, a second lever to which the holder-carrying lever is pivoted, said second lever having a spring-arm provided with a perforation or recess, and a fixed pin adapted to engage with said recess, substantially as set forth.

6. In a sewing-machine, the combination, with a rotary shaft and a shuttle-carrier comprising a plurality of arms or lugs having their outer faces beveled to facilitate the passage of the loops of needle-thread, of a shuttle having a projecting or bulging portion adapted to be embraced by said arms and a holder for retaining said shuttle in its carrier, substantially as set forth.

7. In a sewing-machine, the combination, with a rotary shaft, a shuttle-carrier having a plurality of arms or lugs, the outer faces of which are beveled to facilitate the passage of the needle-thread, and a shuttle-holder, of a shuttle having a projecting or bulging portion adapted to be embraced by said arms, and a rim which is gently forced against the ends of said arms when the said holder is pressed against the shuttle, substantially as set forth.

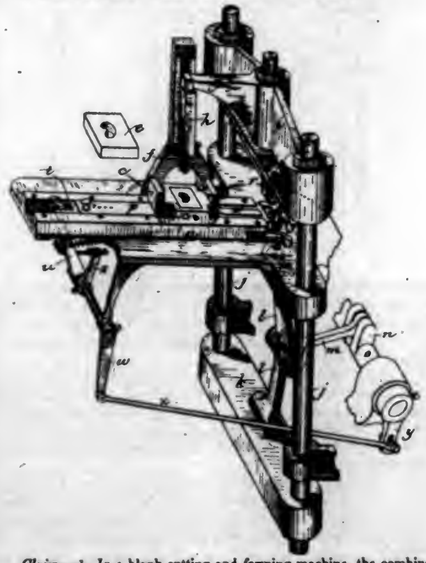
8. In a sewing-machine, the combination, with a rotary shaft, a shuttle-carrier having a plurality of arms or lugs, and a shuttle-holder, of a shuttle formed in two parts, one of which is adapted to rotate on the other, the rotary part of the said shuttle having a projecting or bulging portion adapted to be embraced by said arms or lugs, and a rim adapted to impinge against the ends of said arms, substantially as set forth.

9. In a sewing-machine, the combination, with a rotary shaft, a shuttle-carrier having a plurality of arms or lugs, and a shuttle-holder, of a shuttle formed in two parts, one of which is adapted to rotate on the other, the rotary part of the shuttle having a recess for the reception of one of said arms, which thus serves as a driver, and the stationary part of the shuttle being provided with a lug or projection whereby it is held from rotation, substantially as set forth.

10. In a sewing-machine, the combination, with a rotary shaft, a shuttle-carrier, and a shuttle-holder, of a shuttle formed in two parts, one of which is adapted to rotate on the other, the stationary part of said shuttle having a bearing, between which and said carrier the rotary part of said shuttle is supported, substantially as set forth.

11. In a sewing-machine, the combination, with a rotary shaft, a shuttle-carrier having a plurality of arms or lugs, and a shuttle-holder, of a shuttle formed in two parts, one of which is adapted to rotate on the other, the rotary part of said shuttle having a projecting or bulging portion adapted to be embraced by said arms, a recess adapted to receive one of said arms, which thus serves as a driver, and a rim adapted to impinge against the ends of said arms, and the stationary part of the shuttle having a lug adapted for contact with said holder to prevent said part from rotating, substantially as set forth.

316,082. MACHINE FOR FORMING BOX-TOES. T. FRANK TYLER and EUGENE H. TAYLOR, Lynn, Mass.; said Taylor assignor to Thaddeus W. Tyler, same place. Filed Feb. 14, 1885. (No model.)



Claim.—1. In a blank cutting and forming machine, the combination of the fixed and reciprocating cutting-dies, the fixed and movable forming-dies, the reciprocating feeding-slides, whereby the blanks are moved from the cutting to the forming dies, and mechanism, substantially as described, for operating said movable cutting and forming dies and feeding-slides, as set forth.

2. The combination of the reciprocating and fixed forming-dies and the inclined or diagonal spring-ejector in the fixed die, whereby the formed blanks are ejected upwardly and laterally, as set forth.

3. The combination of the reciprocating and fixed forming-dies, the spring-ejector in the fixed die, and devices, substantially as described, whereby the ejector is locked when depressed, and released when the reciprocating die is raised, as set forth.

4. The combination of the cutting and forming dies and the feeding-slide of the spring u', whereby the blanks are held while being moved from the cutting to the forming dies, as set forth.

5. The fixed forming-die q, having the guard-plate w', combined with the reciprocating die r and the feeding-slide, as set forth.

6. The fixed forming-die q, having the guard-plate w', combined with the reciprocating die r and the spring u', as set forth.

7. The combination of the reciprocating forming-die r, and the fixed forming-die q, having the guard-plate, and the arresting-strip a^2, whereby the formed blanks are prevented from being raised by the die r, as set forth.

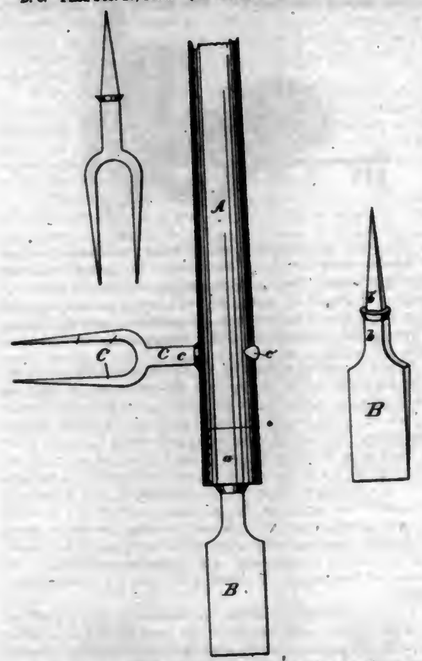
316,083. WALL-DECORATING MATERIAL. OLIVER E. VAIL, Chicago, Ill. Filed Sept. 13, 1884. (Specimens.)

Claim.—1. The wrinkling of paper by soaking, squeezing, and drying for the purpose of wall decoration and other ornamentation, all substantially as described.

2. A corrugated decorative paper made substantially in the manner and for the purpose declared, all substantially as described.

3. An article to be used for wall-paper, wall decoration, and other ornamentation presenting an ununiform and wrinkled surface, produced by soaking or wetting paper and squeezing or otherwise wrinkling and drying the same with wrinkled or ununiform surface left remaining, all substantially as described.

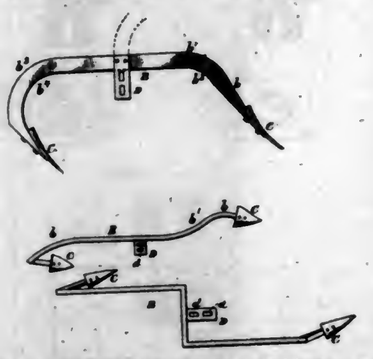
316,084. WEED-EXTRACTOR. FRANÇOIS VOLLERT, Washington, D. C. Filed Feb. 27, 1885. (No model.)



Claim.—1. A garden implement consisting of a handle, a cutter fitted to the end of the handle and forming a prolongation thereof lengthwise, and a fork fitted to the handle and projecting outwardly from the handle at right angles to the same.

2. The combination of the handle A, provided with a longitudinal orifice in the end of the same, and provided also with a transverse perforation, the cutter B, provided with a tang, b', which extends into the longitudinal orifice, and the fork C, provided with a tang, c', which is fitted into the transverse perforation.

316,085. CULTIVATOR ATTACHMENT. JAMES E. WALKER, Conway, Iowa. Filed July 8, 1884. (No model.)



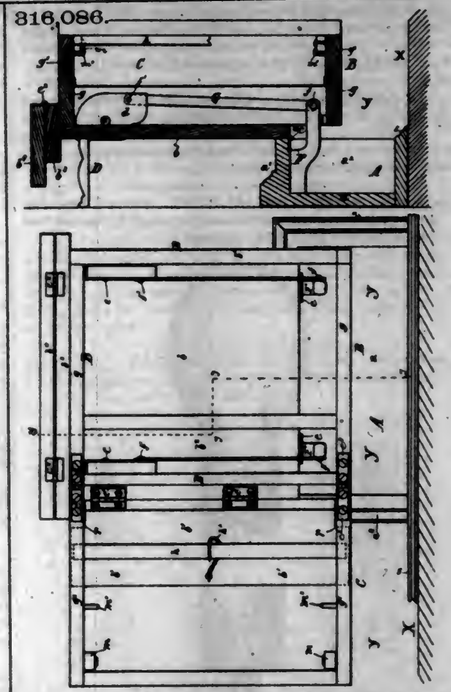
Claim.—1. The beam B, bent at $b\ b'\ b^2\ b^3\ b^4$, substantially as shown, and provided with shovel-seats at the ends, substantially as and for the purpose described.

2. In a corn-cultivator, the combination of the standards a a and the bent beams B B, carrying at their ends the narrow shovels C C, the whole adapted to be used as and for the purpose set forth.

3. The shovel-beam B, constructed with a shank, D, having one or more holes, d, adapting it to receive the standards a therethrough, substantially as shown and described.

316,086. FOLDING BEDSTEAD. FRANCIS H. WALKER, Chicago, Ill. Filed Dec. 3, 1883. (No model.)

316,086.



Claim.—1. The combination of section B, comprising walls $b\ b'\ b^2$ and side portions, g, with low base A and section C, the portions being connected by hinges, as at $c\ c'\ c^2$, substantially as and for the purpose described.

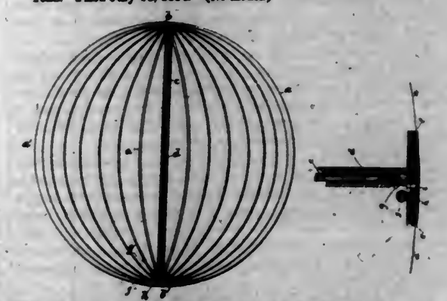
2. The combination of the low base A, section B, comprising walls $b\ b'\ b^2$ and side portions, g, a cap covering portion attached to section B, and the section C, substantially as and for the purpose described.

3. The combination of the low base A, section B, comprising walls $b\ b'\ b^2$ and side portions, g, cap-piece b^3, with piece b^3 hinged to it, and section C, substantially as and for the purpose described.

4. The combination, with the base A and section B, having the projecting cover, of the bracket-like supporting-legs D, having shanks which are extended through the perforations d^2 in the front wall of section B, and pivoted at e, standard F, attached to the base A, and connecting-bar G, pivoted to the said standards and legs D, substantially as and for the purpose described.

5. The combination, with the low base A, of the section B, comprising walls $b\ b'\ b^2$ and portions g, hinged thereto, section C, hinged to section B, and chain h', connecting the hinged wall b' and section C, substantially as and for the purpose described.

316,087. FOLDING GLOBE. LORENZO D. WASHINGTON, Knoxville, Tenn. Filed July 11, 1884. (No model.)

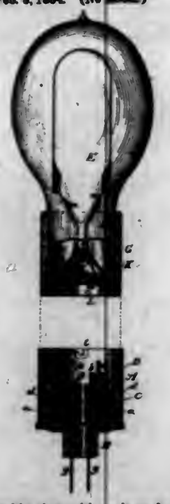


Claim.—1. In a folding globe, the combination, with a central extensible shaft having heads or disks provided with grooves, one of the said heads having an inwardly-opening spring-pressed valve, of a series of elastic ribs hinged to wires in the said grooves, and a flexible air-tight covering, substantially as set forth.

2. In a folding globe, the combination, with the flexible ribs *a*, of a central shaft having heads or disks *b* and *b'*, to which said ribs are hinged, said shaft consisting of a rod, *c*, having a spring catch or lock, *g*, and a sleeve, *d*, having a recess for the engagement of said catch, substantially as set forth.

3. In a folding globe, the combination, with a central shaft formed in two sections, one of which is adapted to slide on the other, of a spring-catch attached to one of said sections and a valve attached to the other, said valve having a projection for releasing said catch when the valve is lifted from its seat, substantially as set forth.

316,088. INCANDESCENT-LAMP HOLDER. EDWARD WESTON, Newark, N. J., assignor to the United States Electric Lighting Company, New York, N. Y. Filed Feb. 8, 1884. (No model.)



Claim.—1. The combination, with an incandescent lamp and base, having contact-plates to which the conductors of the lamp are connected, of a socket, pins *c* in the recesses therein, springs for forcing said pins toward the contact-plates, and conductors adapted to connect said pins with the circuit, substantially as set forth.

2. The combination, with an incandescent lamp, a base secured to its neck having a plate of insulating material, of a socket or holder, said base and socket being provided with terminals and spring-actuated contacts, and connected by a bayonet-joint consisting of a pin and a slot having an inward, a sidewise, and an outward turn, substantially as set forth.

3. The combination, with an incandescent lamp and base having contact-plates to which the conductors of the lamp are connected, of a socket having recesses therein, caps *b*, covering the recesses, pins *c*, having stops *e*, situated in the recesses and passing through the caps, springs for forcing the pins toward the contact-plates, and conductors for connecting said pins with the circuit, substantially as set forth.

4. The combination, with an incandescent lamp and base having contact-plates to which the conductors of the lamp are connected, of a socket consisting of a cylindrical shell, a block of insulating material contained therein, closed metal cylinders connected with the line-wires fixed in the insulating-block, and spring-actuated pins contained in the cylinders and arranged to impinge upon the contact-plates of the base when the lamp is placed in the socket, as set forth.

5. The combination, with an incandescent lamp, a metal cylinder surrounding its neck, a packing of plaster-of-paris between the neck and the cylinder, and a recessed insulating-plate secured in the cylinder and having contact-plates to which the conductors of the lamp are joined, of a socket consisting of a cylindrical shell partly filled by an insulating material and containing spring-actuated contacts.

6. The combination, with a cylinder, a block of insulating material partly filling the same, and spring-actuated contact-pins contained in metal cylinders set in the insulating-block, of an incandescent lamp, a cylinder of metal surrounding the neck of the lamp, a packing of plaster-of-paris between the neck and the cylinder, and a recessed and perforated plate of insulating material secured in the cylinder and provided with contact-plates to which the conductors of the lamp are connected, substantially as described.

7. The combination of an incandescent lamp, a metal shell or cylinder surrounding its neck, and a packing of plaster-of-paris between the neck and the cylinder, the inner surface of the cylinder being provided with pins for retaining and preventing the loosening of the plaster, substantially as set forth.

316,089. REGULATOR FOR DYNAMO-ELECTRIC MACHINES. EDWARD WESTON, Newark, N. J., assignor to the United States Electric Lighting Company, New York, N. Y. Filed Feb. 12, 1884. (No model.)



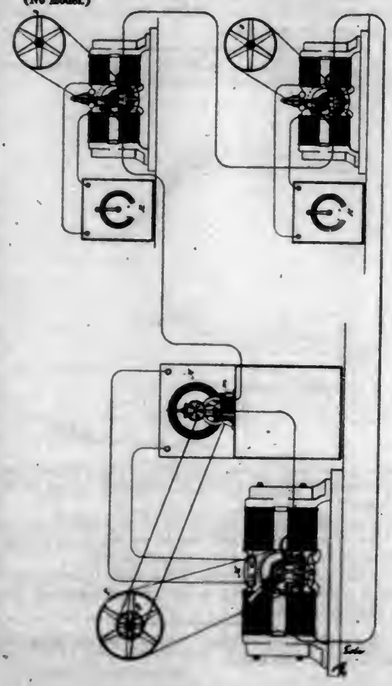
Claim.—1. In a regulating mechanism, the combination of a shaft, two oppositely-toothed ratchet-wheels thereon, a bar pivoted on the shaft, situated between the wheels, and carrying on each side and above each wheel a pawl adapted to engage therewith, means for oscillating said bar, an electro-magnet and armature, and mechanism controlled thereby for lowering the pawls alternately into engagement with the ratchet-wheels, substantially as set forth.

2. In a regulating mechanism, the combination, with a shaft and the ratchet-wheels carried thereby, of a pivoted bar, pawls supported thereon, means for oscillating the bar, pivoted arms extending beneath the pawls, an electro-magnet and hinged armature, the bar M, attached to the armature and parallel to the magnet, the spring S, secured to the bar M and acting to oppose the force of the magnet, and the rod *n*, connecting the bar M with the said pivoted arm, substantially as set forth.

3. In a regulating mechanism, the combination, with a shaft and the ratchet-wheels carried thereby, of the pawls, devices for actuating them, arms *g h*, pins supported in said arms extending beneath the pawls, and adjustable to various positions between the pawls and ratchet-wheels, an electro-magnet and armature, and mechanism controlled by the movement of the armature for adjusting the arms *g h*, substantially as set forth.

4. In a regulating mechanism, the combination, with a shaft and the ratchet-wheels carried thereby, of the pawls, devices for actuating them, arms *g h*, eccentric pins *k l*, supported in said arms and extending beneath the pawls, an electro-magnet and armature, and mechanism controlled by the movement of the armature for adjusting the arms *g h*, substantially as set forth.

316,090. SYSTEM FOR THE TRANSMISSION OF POWER BY ELECTRICITY. EDWARD WESTON, Newark, N. J., assignor to the United States Electric Lighting Company, New York, N. Y. Filed May 5, 1884. (No model.)



Claim.—1. The combination, with an electric circuit, a generator, and two or more motors connected in series therein, of a regulator for maintaining an approximately uniform strength of current and automatic controlling mechanism connected with each motor and operated by variations in the speed of rotation of the same to gradually vary the effect or relations of the magnetic forces acting to produce their rotation, substantially as herein set forth.

2. The combination, with an electric circuit, a generator, and two or more motors included in series therein, of a current-regulator connected with the generator, automatic controlling mechanism for each motor, and means, as described, operated or controlled thereby for shifting the position of the commutator-brushes of each motor in accordance with variations in its load or work to be performed.

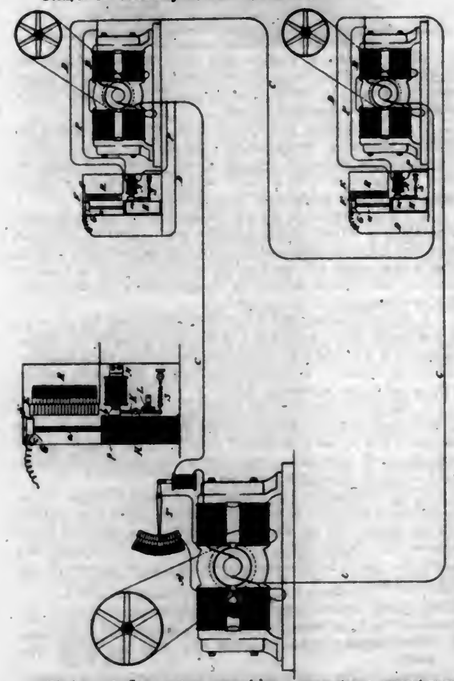
3. The combination, with an electric circuit of a generator and two or more motors included in series therein, of a current-regulator, centrifugal governors driven by the motors, and means for shifting the commutator-brushes of the motors connected with and operated by the governors, as set forth.

4. In a system of electrical distribution, the combination, with a circuit, a generator, and two or more derived or shunt field-circuit motors included therein, of a current-regulator, centrifugal governors driven by the motors, and means for shifting the commutator-brushes of the motors connected with and operated by the governors, as set forth.

5. The combination of a motor, a centrifugal governor driven by the motor, mechanism controlled by the governor for shifting the commutator-brushes, and a stop to prevent the governor from carrying the brushes by the maximum points, substantially as described.

6. The combination of a motor, a centrifugal governor driven by the motor, mechanism controlled by the governor for shifting the commutator-brushes, and a stop for preventing the governor from carrying the brushes by the neutral points, substantially as described.

316,091. ELECTRO-MAGNETIC MOTOR. EDWARD WESTON, Newark, N. J., assignor to the United States Electric Lighting Company, New York, N. Y. Filed May 17, 1884. (No model.)



Claim.—1. In a system comprising a generator, a current-regulator, and two or more motors in series in the circuit from the generator, the combination, with a motor, of a shunt or derived circuit around the same, a rheostat or resistance included in the shunt, a movable contact for varying the said resistance, and a retarding device—such as a dash-pot—for restraining or impeding the movement of the contact, whereby the variation of resistance is effected gradually.

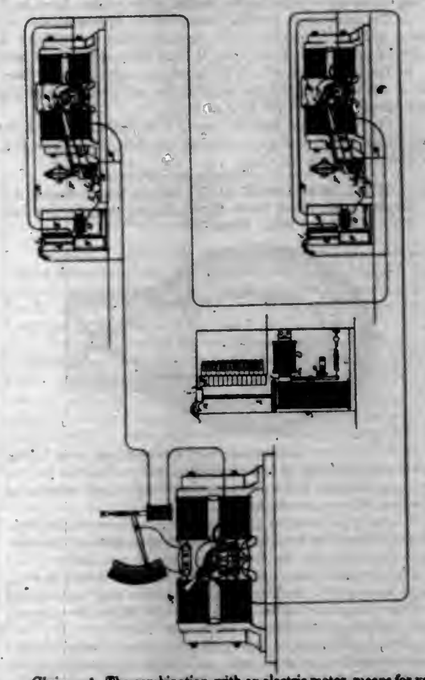
2. In a system comprising a generator, a current-regulator, and two or more motors in series in the circuit of the generator, the combination, with a motor, of a shunt or derived circuit around the same, a variable resistance in the shunt, a movable retarded contact for varying the resistance, and means, substantially as described, for setting the contact in motion upon a predetermined increase in the opposition to the flow of current through the motor, substantially as set forth.

3. In a system comprising a generator, a current-regulator, and two or more motors in series with the generator, the combination, with each motor, of a retarded shunting-switch, and an electro-magnet in a shunt or derived circuit for operating the shunting-switch, in the manner described.

4. In a system of the kind described, the combination, with a motor, of a shunt-circuit, a rheostat or series of resistance-coils therein, a contact arranged to move automatically in one direction over the series of coils, and a retarding device—such as a dash-pot—connected with the contact in a manner to oppose and retard its movement, as herein specified.

5. In a system of the kind described, the combination, with a motor, of a shunt-circuit, a rheostat or series of resistance-coils therein, an automatically-movable contact for varying the resistance, a retarding device for opposing and retarding the movement of the contact, and a locking device for preventing the movement of the contact, as and for the purpose specified.

316,092. ELECTRO-MAGNETIC MOTOR. EDWARD WESTON, Newark, N. J., assignor to the United States Electric Lighting Company, New York, N. Y. Filed June 12, 1884. (No model.)



Claim.—1. The combination, with an electric motor, means for varying the effect of the magnetic forces that produce its rotation, and a centrifugal governor for controlling said means, of motion-transmitting mechanism connecting the governor with the motor, a circuit-closer operated by the disarrangement of said mechanism and included in a circuit containing an electro-magnet, and a retarded circuit-closer brought into operation by the excitement of the said magnet for gradually shunting the motor out of circuit, as and for the purpose specified.

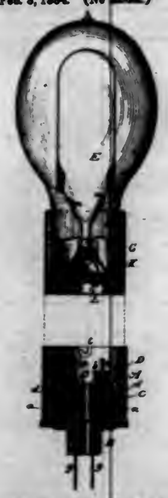
2. The combination, with an electric motor or adjustable brush-holder, and a centrifugal governor for shifting or controlling the same, of a cord or belt for transmitting motion from the motor to the governor, and a hindered or retarded circuit-closer, held out of operation through intermediate mechanism by the belt or cord, and adapted on the disarrangement of the belt to close a shunt or path for the current around the motor, as set forth.

3. In a system of the kind described, the combination, with each of two or more motors run in series in the same circuit, of a current-regulator for maintaining an approximately-uniform flow of current, means for varying the effect of the magnetic forces producing the rotation of the motors, and a centrifugal governor for controlling said means, a belt or cord connecting the motor and the governor, and a circuit-closer adapted to close a shunt or path for the current around the motor upon the disarrangement of the belt or cord, substantially as set forth.

2. In a folding globe, the combination, with the flexible ribs *a*, of a central shaft having heads or disks *b* and *b'*, to which said ribs are hinged, said shaft consisting of a rod, *c*, having a spring catch or lock, *g*, and a sleeve, *d*, having a recess for the engagement of said catch, substantially as set forth.

3. In a folding globe, the combination, with a central shaft formed in two sections, one of which is adapted to slide on the other, of a spring-catch attached to one of said sections and a valve attached to the other, said valve having a projection for releasing said catch when the valve is lifted from its seat, substantially as set forth.

316,088. INCANDESCENT-LAMP HOLDER. EDWARD WESTON, Newark, N. J., assignor to the United States Electric Lighting Company, New York, N. Y. Filed Feb. 3, 1884. (No model.)



Claim.—1. The combination, with an incandescent lamp and base, having contact-plates to which the conductors of the lamp are connected, of a socket, pins *c* in the recesses therein, springs for forcing said pins toward the contact-plates, and conductors adapted to connect said pins with the circuit, substantially as set forth.

2. The combination, with an incandescent lamp, a base secured to its neck having a plate of insulating material, of a socket or holder, said base and socket being provided with terminals and spring-actuated contacts, and connected by a bayonet-joint consisting of a pin and a slot having an inward, a sidewise, and an outward turn, substantially as set forth.

3. The combination, with an incandescent lamp and base having contact-plates to which the conductors of the lamp are connected, of a socket having recesses therein, caps *b*, covering the recesses, pins *c*, having stops *e*, situated in the recesses and passing through the caps, springs for forcing the pins toward the contact-plates, and conductors for connecting said pins with the circuit, substantially as set forth.

4. The combination, with an incandescent lamp and base having contact-plates to which the conductors of the lamp are connected, of a socket consisting of a cylindrical shell, a block of insulating material contained therein, closed metal cylinders connected with the line-wires fixed in the insulating-block, and spring-actuated pins contained in the cylinders and arranged to impinge upon the contact-plates of the base when the lamp is placed in the socket, as set forth.

5. The combination, with an incandescent lamp, a metal cylinder surrounding its neck, a packing of plaster-of-paris between the neck and the cylinder, and a recessed insulating-plate secured in the cylinder and having contact-plates to which the conductors of the lamp are joined, of a socket consisting of a cylindrical shell partly filled by an insulating material and containing spring-actuated contacts.

6. The combination, with a cylinder, a block of insulating material partly filling the same, and spring-actuated contact-pins contained in metal cylinders set in the insulating-block, of an incandescent lamp, a cylinder of metal surrounding the neck of the lamp, a packing of plaster-of-paris between the neck and the cylinder, and a recessed and perforated plate of insulating material secured in the cylinder and provided with contact-plates to which the conductors of the lamp are connected, substantially as described.

7. The combination of an incandescent lamp, a metal shell or cylinder surrounding its neck, and a packing of plaster-of-paris between the neck and the cylinder, the inner surface of the cylinder being provided with pins for retaining and preventing the loosening of the plaster, substantially as set forth.

316,089. REGULATOR FOR DYNAMO-ELECTRIC MACHINES. EDWARD WESTON, Newark, N. J., assignor to the United States Electric Lighting Company, New York, N. Y. Filed Feb. 12, 1884. (No model.)



Claim.—1. In a regulating mechanism, the combination of a shaft, two oppositely-toothed ratchet-wheels thereon, a bar pivoted on the shaft, situated between the wheels, and carrying on each side and above each wheel a pawl adapted to engage therewith, means for oscillating said bar, an electro-magnet and armature, and mechanism controlled thereby for lowering the pawls alternately into engagement with the ratchet-wheels, substantially as set forth.

2. In a regulating mechanism, the combination, with a shaft and the ratchet-wheels carried thereby, of a pivoted bar, pawls supported thereon, means for oscillating the bar, pivoted arms extending beneath the pawls, an electro-magnet and hinged armature, the bar M, attached to the armature and parallel to the magnet, the spring S, secured to the bar M and acting to oppose the force of the magnet, and the rod *n*, connecting the bar M with the said pivoted arm, substantially as set forth.

3. In a regulating mechanism, the combination, with a shaft and the ratchet-wheels carried thereby, of the pawls, devices for actuating them, arms *g h*, pins supported in said arms extending beneath the pawls, and adjustable to various positions between the pawls and ratchet-wheels, an electro-magnet and armature, and mechanism controlled by the movement of the armature for adjusting the arms *g h*, substantially as set forth.

4. In a regulating mechanism, the combination, with a shaft and the ratchet-wheels carried thereby, of the pawls, devices for actuating them, arms *g h*, eccentric pins *k l*, supported in said arms and extending beneath the pawls, an electro-magnet and armature, and mechanism controlled by the movement of the armature for adjusting the arms *g h*, substantially as set forth.

316,090. SYSTEM FOR THE TRANSMISSION OF POWER BY ELECTRICITY. EDWARD WESTON, Newark, N. J., assignor to the United States Electric Lighting Company, New York, N. Y. Filed May 5, 1884. (No model.)

Claim.—1. The combination, with an electric circuit, a generator, and two or more motors connected in series therein, of a regulator for maintaining an approximately uniform strength of current and automatic controlling mechanism connected with each motor and operated by variations in the speed of rotation of the same to gradually vary the effect or relations of the magnetic forces acting to produce their rotation, substantially as herein set forth.

2. The combination, with an electric circuit, a generator, and two or more motors included in series therein, of a current-regulator connected with the generator, automatic controlling mechanism for each motor, and means, as described, operated or controlled thereby for shifting the position of the commutator-brushes of each motor in accordance with variations in its load or work to be performed.

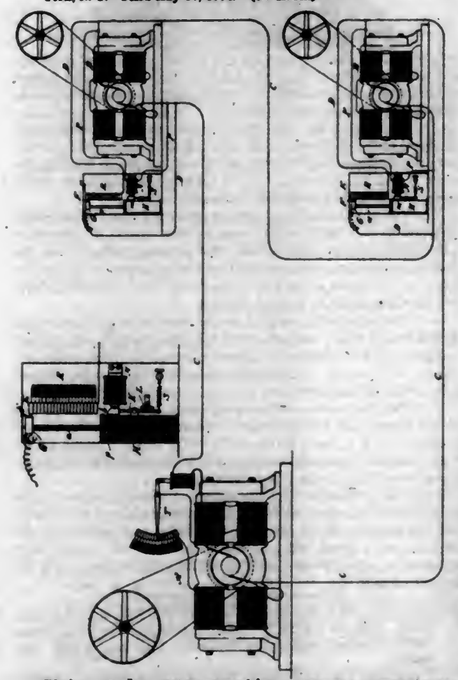
3. The combination, with an electric circuit of a generator and two or more motors included in series therein, of a current-regulator, centrifugal governors driven by the motors, and means for shifting the commutator-brushes of the motors connected with and operated by the governors, as set forth.

4. In a system of electrical distribution, the combination, with a circuit, a generator, and two or more derived or shunt field-circuit motors included therein, of a current-regulator, centrifugal governors driven by the motors, and means for shifting the commutator-brushes of the motors connected with and operated by the governors, as set forth.

5. The combination of a motor, a centrifugal governor driven by the motor, mechanism controlled by the governor for shifting the commutator-brushes, and a stop to prevent the governor from carrying the brushes by the maximum points, substantially as described.

6. The combination of a motor, a centrifugal governor driven by the motor, mechanism controlled by the governor for shifting the commutator-brushes, and a stop for preventing the governor from carrying the brushes by the neutral points, substantially as described.

316,091. ELECTRO-MAGNETIC MOTOR. EDWARD WESTON, Newark, N. J., assignor to the United States Electric Lighting Company, New York, N. Y. Filed May 17, 1884. (No model.)



Claim.—1. In a system comprising a generator, a current-regulator, and two or more motors in series in the circuit from the generator, the combination, with a motor, of a shunt or derived circuit around the same, a rheostat or resistance included in the shunt, a movable contact for varying the said resistance, and a retarding device—such as a dash-pot—for restraining or impeding the movement of the contact, whereby the variation of resistance is effected gradually.

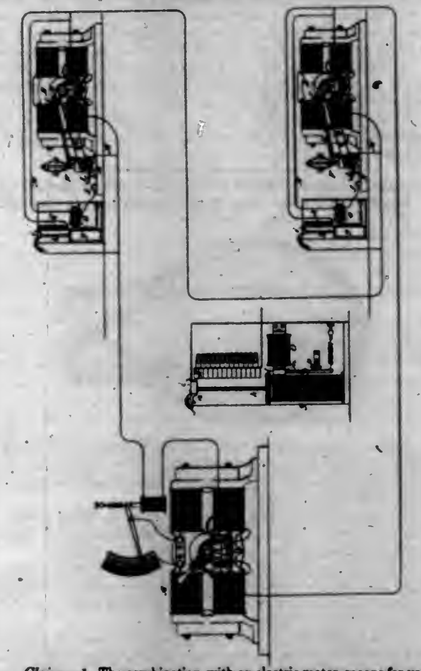
2. In a system comprising a generator, a current-regulator, and two or more motors in series in the circuit of the generator, the combination, with a motor, of a shunt or derived circuit around the same, a variable resistance in the shunt, a movable retarded contact for varying the resistance, and means, substantially as described, for setting the contact in motion upon a predetermined increase in the opposition to the flow of current through the motor, substantially as set forth.

3. In a system comprising a generator, a current-regulator, and two or more motors in series with the generator, the combination, with each motor, of a retarded shunting-switch, and an electro-magnet in a shunt or derived circuit for operating the shunting-switch, in the manner described.

4. In a system of the kind described, the combination, with a motor, of a shunt-circuit, a rheostat or series of resistance-coils therein, a contact arranged to move automatically in one direction over the series of coils, and a retarding device—such as a dash-pot—connected with the contact in a manner to oppose and retard its movement, as herein specified.

5. In a system of the kind described, the combination, with a motor, of a shunt-circuit, a rheostat or series of resistance-coils therein, an automatically-movable contact for varying the resistance, a retarding device for opposing and retarding the movement of the contact, and a locking device for preventing the movement of the contact, as and for the purpose specified.

316,092. ELECTRO-MAGNETIC MOTOR. EDWARD WESTON, Newark, N. J., assignor to the United States Electric Lighting Company, New York, N. Y. Filed June 12, 1884. (No model.)

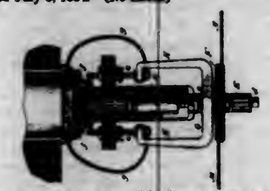


Claim.—1. The combination, with an electric motor, means for varying the effect of the magnetic forces that produce its rotation, and a centrifugal governor for controlling said means, of motion-transmitting mechanism connecting the governor with the motor, a circuit-closer operated by the disarrangement of said mechanism and included in a circuit containing an electro-magnet, and a retarded circuit-closer brought into operation by the excitement of the said magnet for gradually shunting the motor out of circuit, as and for the purpose specified.

2. The combination, with an electric motor or adjustable brush-holder, and a centrifugal governor for shifting or controlling the same, of a cord or belt for transmitting motion from the motor to the governor, and a hindered or retarded circuit-closer, held out of operation through intermediate mechanism by the belt or cord, and adapted on the disarrangement of the belt to close a shunt or path for the current around the motor, as set forth.

3. In a system of the kind described, the combination, with each of two or more motors run in series in the same circuit, of a current-regulator for maintaining an approximately-uniform flow of current, means for varying the effect of the magnetic forces producing the rotation of the motors, and a centrifugal governor for controlling said means, a belt or cord connecting the motor and the governor, and a circuit-closer adapted to close a shunt or path for the current around the motor upon the disarrangement of the belt or cord, substantially as set forth.

316,093. ELECTRO-MAGNETIC MOTOR. EDWARD WESTON, Newark, N. J., assignor to the United States Electric Lighting Company, New York, N. Y. Filed July 3, 1884. (No model.)



Claim.—1. The combination, with the commutator of a dynamo-electric machine or motor, of brushes bearing upon and capable of movement around the commutator, and holders therefor supported or mounted in centers at the end and in line with the axis of the armature-shaft, substantially as set forth.

2. The combination, with the armature and commutator of a dynamo-electric machine or motor, of supports or standards secured to the journal-support, a brush-holder mounted between the standards in line with the armature-shaft, brushes carried by the holder, and means for turning the holder for adjusting the position of the brushes, as set forth.

3. The combination, with the commutator of a dynamo-electric machine or motor, of the standards D E, the brush-holder and brushes L L, the double pulley-wheel F, and cords M N, all substantially as set forth.

4. The combination, with the bearing B, and cast in one piece therewith, of the standards D E, the brush-holder and brushes L L, double pulley-wheel F, and cords M N, as set forth.

5. The combination, with the bearing B, of the standards D E, the brush-holder, the pivots *c d*, for centering the same, the brushes L L, and means for turning the same.

316,094. INCANDESCENT LAMP. EDWARD WESTON, Newark, N.J., assignor to the United States Electric Lighting Company, New York, N. Y. Filed July 3, 1884. (No model.)



Claim.—1. In an incandescent lamp, the leading-in wires having eyes formed by bending the wire back upon itself and uniting the two parts, in combination with a carbon conductor and clamps for securing the same to the wires, as set forth.

2. In an incandescent lamp, the combination of the leading-in wires, having eyes formed by bending the wire back upon itself, and the vitreous seal surrounding the two parts of the wires, all as set forth.

3. In an incandescent lamp, the combination of the leading-in wires, having eyes formed by bending the wire back upon itself and twisting the two parts together, and the vitreous seal surrounding the wires and extended up around the twisted portions, as set forth.

4. The combination, with the carbon conductor, of wires attached to both faces of the ends of the same, and twisted together along a portion of their length and sealed into the vitreous material of the lamp, all as set forth.

316,095. ELECTRIC INCANDESCENT-LAMP BRACKET. EDWARD WESTON, Newark, N. J., assignor to the United States Electric Lighting Company, New York, N. Y. Filed July 18, 1884. (No model.)



Claim.—1. The combination, with a base or supporting block and hinged levers forming electric-circuit terminals secured thereto, of a bracket-arm and connecting-plate having pins adapted for engagement with the hinged levers, and screws for binding the pins and levers in contact, substantially as herein set forth.

2. The combination, with a base or supporting block and bifurcated terminal levers hinged thereto, of a bracket-arm and connecting-plate, terminal pins projecting from the plate and formed for engaging with the levers, and screws for binding the pins and levers in contact, as set forth.

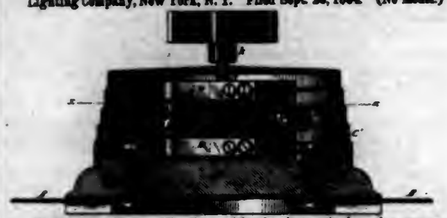
3. The combination, with a base or supporting block and circuit-terminal levers hinged thereto, of a bracket-arm and connecting-plate, terminal pins projecting therefrom and formed for engaging with the levers, and screws accessible through perforations in the bracket-plate, and arranged for binding the pins and levers in contact, as set forth.

4. The combination, with a recessed base or supporting block, hinged bifurcated terminal levers secured within the recess, and screws passing through the levers, of a bracket-arm and connecting-plate having pins adapted for engagement with the levers, and perforations in position to permit access to the screws for securing the plate when the same is in position, as set forth.

5. The combination, with a recessed base or supporting block, metal terminal plates secured therein, levers hinged to the plates, and screws passing through the levers, of a bracket-arm and connecting-plate having pins adapted for engagement with the levers, and perforations in position to permit access to the screws for securing the plate when the same is in position, as set forth.

6. The combination, with a recessed base or supporting block, hinged terminal levers within the same, springs for forcing one end of the levers away from the base, and screws for drawing them up, of a bracket-arm and connecting-plate having pins with heads that enter slots in the levers, as and for the purpose set forth.

316,096. ELECTRICAL SWITCH OR CIRCUIT-CONTROLLER. EDWARD WESTON, Newark, N. J., assignor to the United States Electric Lighting Company, New York, N. Y. Filed Sept. 26, 1884. (No model.)



Claim.—1. The combination, with circuit-terminals and a spring-impelled contact-lever, of a spindle and loose cam or button with limited range of movement around the spindle for operating the contact-lever in substantially the manner as described.

2. The combination, with opposed sets of contacts constituting terminals of independent severed circuits, and a spring-impelled contact-lever pivoted in position to close one of said circuits or breaking the other, of a spindle carrying a cam or button adapted to impart movement to the lever in substantially the manner set forth.

3. The combination of opposed contacts constituting the terminals of independent severed circuits, a contact-lever pivoted in position to move from one set of contacts to the other, a spring tending to keep the lever in engagement with one set of contacts, and a spindle and cam for imparting movement to the lever by engaging with a projection therefrom in substantially the manner set forth.

4. The combination, with the pivoted lever carrying the bar or pin R, and formed with a projection, *t*, of the spiral spring S, the opposed contacts G H K L, and a spindle and cam for engaging with a roller carried by the projection *t* and imparting movement to the lever, substantially as and for the purpose set forth.

5. The combination, with the slotted lever carrying the contact-pin R, and formed with a projection, *t*, of the spiral spring S, the opposed contacts G H K L, and a spindle and a cam or button arranged to turn in the slot in the lever and to engage with a roller carried by the projection *t*, as and for the purpose specified.

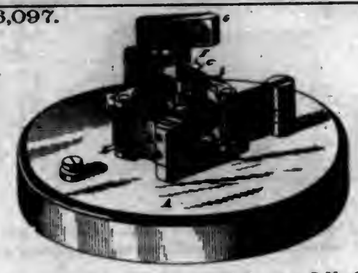
6. The combination, with opposed sets of circuit-terminals, of a lever pivoted in position to be moved from contact with one set of terminals into contact with the other, a spring acting upon said lever in one direction, and a spindle with a notched cam or button for engaging with a projecting part of the lever and moving the same in substantially the manner set forth.

316,097. SWITCH OR CIRCUIT-BREAKER FOR ELECTRIC CIRCUITS. EDWARD WESTON, Newark, N. J., assignor to the United States Electric Lighting Company, New York, N. Y. Filed Nov. 28, 1884. (No model.)

Claim.—1. The combination, with circuit terminals or contacts, and a spring-impelled lever having two contacts adapted to engage with the circuit-terminals, of a spindle, and a cam or button thereon for acting upon the lever and forcing the same into the position in which it completes the circuit between the line-terminals or permitting it to recede from such position, as herein set forth.

2. The combination, with two contacts or sets of the same, forming the terminals of a severed circuit, of a pivoted spring-impelled lever having contact-surfaces at the ends and adapted to engage with the line-contacts, a spindle and cam thereon for operating the lever and making or breaking the circuit between the line-contacts, as and for the purpose specified.

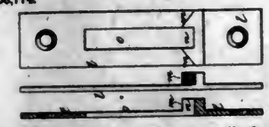
316,097.



3. The combination, with the two terminal contacts L M, of the V-shaped frame or lever having contacts at its ends and pivoted in position to bring said contacts into engagement with the contacts L M, a spring tending to bring the said contacts into engagement, a spindle, and cam or button acting upon the frame or lever for controlling its position, as herein described.

4. The combination, with the line-terminals L M, of the V-shaped lever C, carrying contacts K and the roller *d*, the spindle, and cam or oval button with notches therein for shifting the lever by impinging upon the roller *d*, as herein described.

316,098. LATCH AND LOCK COMBINED. EDWIN R. WETHERED, Woolwich, County of Kent, England. Filed Jan. 19, 1884. (Model.) Patented in England Jan. 31, 1882, No. 482; in France Aug. 4, 1882, No. 150,467; in Germany Aug. 10, 1882, No. 22,143, and in Belgium Aug. 16, 1882, No. 58,774.



Claim.—1. The combination, with a normally-flush or non-protruding latch-bolt adapted to be held back by a tooth or detent until lifted and then automatically shot forward, and a recess, *d'*, in the lock-case, of a striking-plate provided with an incline, *m*, adapted to project into such recess and serving to lift and liberate said bolt, and also provided with a recess, *n*, behind this incline, to prevent the door being opened until said bolt has been withdrawn within the lock-case, substantially as shown and described.

2. The combination, with the front or door plate, A, having the projection *f* on its inner side, and a recess, *d'*, in its outer face, of the bolt having a projection, *e*, and of the striking-plate *l*, as made with the double inclines, adapted to project into the recess *d'*, and with the recess *n* between such inclines and the bolt-hole *o*, all substantially as shown and described.

3. In a latch-lock, the non-pivoted and normally non-protruding latch-bolt, adapted and arranged to be lifted and automatically slid forward, and having a projection, *e*, in combination with a stud or projection, *f*, on the lock-case, and whereby the bolt is normally held back, with its edge flush with the edge of the door.

4. A striking-plate for mortise latch-bolts, having the bolt-hole *o* and having inclines *m*, the door-plate having a recess, *d'*, combined with a shooting bolt which is normally held back flush with the edge of the door, all as set forth.

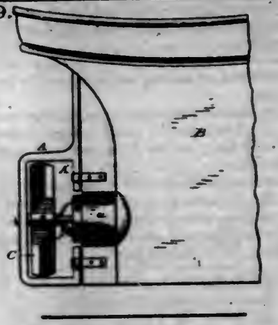
5. In combination, the striking-plate *l*, having the projection with double inclines, the recess *n*, and bolt-hole *o*, the front plate having a recess, *d'*, and projection *f*, the normally-flush bolt having the projection *e*, and a spring or weighted handle to drive it forward when raised by either of the inclines, all substantially as and for the purpose set forth.

316,099. COMBINATION-RUDDER FOR VESSELS. JAMES WHITE, 19 Swan Street Borough, WILLIAM ROSS, 60 Trinity Square Borough, JOHN T. CREASY, 36 Warner Street Borough, County of Surrey, and WILLIAM H. GRIFFIN, Jr., 7 Fenchurch Street, County of Middlesex, England. Filed Oct. 18, 1884. (No model.) Patented in England Aug. 7, 1884, No. 11,020.

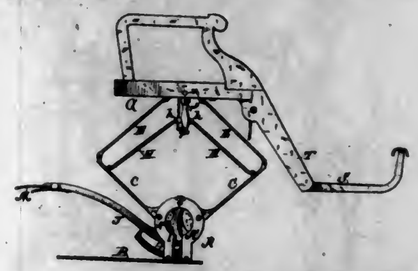
Claim.—The combination of the rotary propeller-shaft *c* and the collar *b*, which turns therewith and has a convex outer face, with block *a*, in which the end of said shaft turns, and which has a concave face corresponding to the convexity of said collar, the propeller, and its spindle, the latter being mounted at the outer end in the rudder, and having its inner end connected to said block by a universal joint, substantially as set forth.



316,099.



316,100. DENTIST'S CHAIR. OTIS C. WHITE, Hopkinton, Mass. Filed Apr. 16, 1883. (Model.)



Claim.—1. The combination, substantially as hereinbefore set forth, of the supporting-frame, the rotatable spindle mounted therein, the gear carried loosely by the spindle, the clutch for rigidly connecting the gear with the spindle, and the pedal-lever provided with a segmental gear engaging with the gear on the spindle.

2. The combination, substantially as hereinbefore set forth, of the supporting-frame, the rotatable spindle mounted therein, the independent gears carried loosely by the spindle, the pedal-lever provided with a pair of segmental gears engaging with the gears on the spindle, the clutch mechanism, the independent pedals carried by the pedal-lever, and connections between the clutch mechanism and the pedals for rigidly connecting the gears with the spindle.

3. The combination, substantially as hereinbefore set forth, of the supporting-frame, the rotatable spindle mounted therein, the gear carried loosely by the spindle, the clutch for rigidly connecting the gear with the spindle, the pedal-lever provided with a segmental gear engaging with the gear on the spindle, and the springs for returning the lever to its normal position.

4. The combination, substantially as hereinbefore set forth, of the supporting-frame, the screw-spindle mounted therein, the independent gears carried loosely by the spindle, the clutch mechanism for connecting said gears rigidly with the spindle, the pedal-levers provided with segmental gears engaging with the gears on the spindle, the independent pedals carried by the pedal-lever, the connections between the pedals and the clutch mechanism for rigidly connecting the gears with the spindle, and the levers mounted in the supporting-frame that engage with the screw-spindle and are raised and lowered thereby.

5. The combination, substantially as hereinbefore set forth, of the supporting-frame, the rotatable screw-spindle mounted therein, the pedal-lever provided with segmental gearing engaging with the spindle, the chair-body, and the pivoted levers arranged between the chair-body and the spindle, for the purpose specified.

6. The combination, substantially as hereinbefore set forth, of the supporting-frame, the rotatable screw-spindle mounted therein, the pedal-lever provided with segmental gearing engaging with the spindle, the chair-body, the levers C, provided with segments that engage with the spindle, and the levers E, that are jointed to the levers C, and are connected with the chair-body.

7. The combination, substantially as hereinbefore set forth, of the supporting-frame, the chair-body, the two sets of levers jointed together, and also jointed to the supporting-frame and to the chair-body, the stay-rods jointed at one end to one set of said levers, the collar connecting the other ends of said rods, and the guide F, on which the collar slides.

8. The combination, substantially as hereinbefore set forth, of the chair-body, its rising and falling supporting-frame, the loosely-seated bolt that connects the chair-body to its frame, and on which the chair-body turns, a pivoted lever attached at one end to the bolt, and a piv-

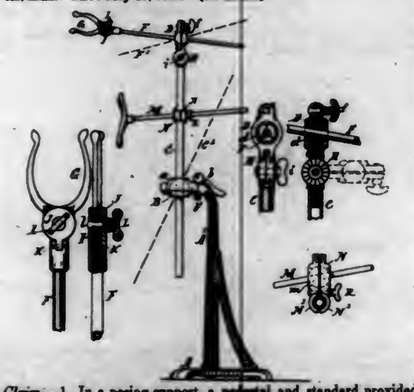
oted cam-lever attached thereto that bears against the chair-body and rocks the lever, thereby tightening or loosening the bolt in its seat, for the purpose specified.

9. The combination, substantially as hereinbefore set forth, of the chair-body, the foot-rest, and a sliding section or panel between the chair-body and foot-rest.

10. The combination, substantially as hereinbefore set forth, of the chair-body, the foot-board, the two panels arranged between the foot-board and the chair-body, and the sliding section or panel interposed between the other panels.

11. The combination, substantially as hereinbefore set forth, of the chair-body, the foot-board, the levers, screw-rods, and nuts for elevating the foot-board, the independently-sliding section or panel, and the lugs or projections on the panel, with which the foot-board engages when it is moved vertically, for the purpose specified.

316,101. PHOTOGRAPHIC POSING-SUPPORT. Otis C. White, Worcester, Mass. Filed July 19, 1884. (No model.)



Claim.—1. In a posing-support, a pedestal and standard provided with a ball-socket carrying a split or sectional ball with a longitudinally-adjustable support-rod arranged thereon, and a device, as cam-lever E, for clamping and releasing the ball and rod within the socket, substantially as hereinbefore set forth.

2. In a posing-support, the combination, with a pedestal and standard provided with a ball-socket, sectional ball, and clamping device, of a vertically-adjustable rod provided at its upper end with a ball-socket carrying a sectional ball with a laterally-adjustable head-rod, and devices for clamping the same at any position of adjustment, as set forth.

3. In a posing-support, the combination, with a pedestal and standard provided with a sectional ball-and-socket adjusting-joint carrying a main supporting-rod, as C, of a swiveled ball socket and joint adjusting devices attached to said rod, and provided with a sectional ball carrying the laterally-adjustable rod F, and the adjustable fingers or head-supporters G, attached to the end of said rod by a clamping-socket, I, as described.

4. The combination, with the main support-rod C and lateral head-rod F, of the ball-socket D, hinged to the said main rod, as at H, for angular adjustment, the sectional ball supporting said head-rod therein, and means for securing the parts at position of adjustment, substantially as hereinbefore set forth.

5. In a posing-support, the combination, with the pedestal and standard provided with a ball-socket and clamp devices carrying a sectional ball, with the upright adjustable rod C, having at its upper end the clamping ball-socket, sectional ball, and laterally-adjustable head-rod F, of an adjustably-attached ball-socket, N, carrying a sectional ball, *m*, and the adjustable rod M, with the support-pad S, for the purposes set forth.

6. The combination, with the upright supporting-rod C, of the compressible ball-socket N, having adjustable clamping-jaws N', for attaching it to said rod, and a sectional ball for carrying the intermediate lateral support-rod M, as set forth.

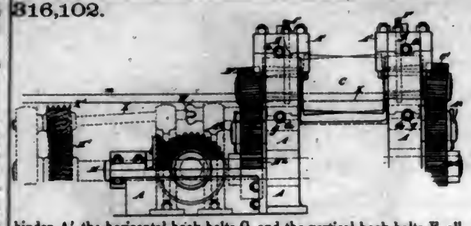
7. The combination, with the rod F and adjustable fingers G, of the clamping-socket I, having the hinged side plate, J, substantially as set forth.

316,102. MACHINE FOR STRAIGHTENING METAL BARS, &c. Levi D. York, Portsmouth, Ohio. Filed Apr. 4, 1884. (No model.)

Claim.—1. In a metal-straightening machine, substantially as described, the combination of two rolls, as B C, and toothed gearing for rotating them in the same direction with a third roll independent of the first two, a supplemental shaft, and friction-gearing for impelling said third roll, as and for the purposes set forth.

2. In combination with the rollers B C and wedge-blocks E, the bearing-blocks D, having inclined surfaces, the guides *a*, removable

316,102.

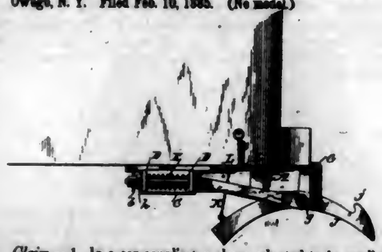


binder A', the horizontal hook-bolts G, and the vertical hook-bolts F, all arranged and adapted to serve with the frame A and nuts *f g*, as set forth.

3. The idle gear-wheels I J, mounted one on the front and the other on the back of the machine, and arranged intermediately between a single driving-shaft, H, and two skewed rolls, B C, in combination with such shafts and rolls, and with the gear-wheels H^2 B' H^2 C', and with a third roll, K, as herein specified.

4. In a straightening-machine, the positively-driven skewed rolls B C and relatively free roll K, in combination with each other, and with means, as H' X', for driving the latter with yielding force at about the same surface velocity, as and for the purposes herein specified.

316,103. CAR-COUPLING. Chas. A. Akerly and David T. Easton, Owego, N. Y. Filed Feb. 10, 1885. (No model.)



Claim.—1. In a car-coupling, a clamp adapted to be applied to the draw-head and consisting of a bottom plate provided at its opposite ends with bearing-arms, the top plate having its ends bent down and secured to the outer ends of the said arms, and bolts connecting the top and bottom plates at points slightly in from the juncture of the bearing-arms with the body of the bottom plate, substantially as set forth.

2. The combination of the retaining-loops or keepers, the follower-plates held between said keepers and extended laterally beyond the same, the draw-head having at its rear end a shank or stem extended between the keepers and through the follower-plates, a spring on said shank, the bearing-arms extended laterally from the forward end of the draw-head, the coupling-bar pivoted on one of said arms, the side bars connected at their forward ends to the bearing-arms and extended rearwardly through the lateral extension of the follower-plates and secured, substantially as set forth.

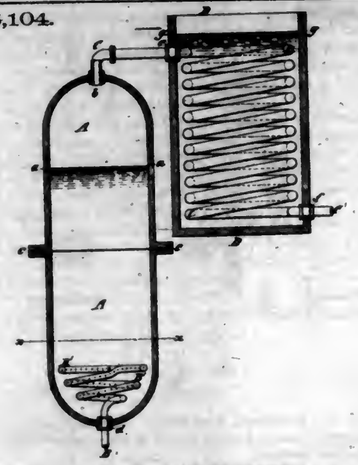
3. The improved car-coupling herein described, consisting of the draw-head having at its rear end a shank or stem, retaining-loops or keepers located on opposite sides of such shank, follower-plates placed on the shank within the keepers and extended laterally beyond the same, the spring placed on the shank between the follower-plates, the base-plate secured to the under side of the draw-head near its forward end and provided with bearing-arms, the top plate secured on the draw-head and having its ends bent down and secured to the ends of the bearing-arms and extended thence rearwardly through the follower-plates, the coupling-hook pivoted between its ends on one of the bearing-arms, having its forward end provided with an upwardly-facing hook and its rear end made the heavier, and a cord or chain secured at one end to the rear end of the coupling-bar and extended thence upward and outward through suitable guides to the side of the car, substantially as set forth.

316,104. EXTRACTING GLYCERINE FROM FATTY MATTERS. R. T. Barrett, New York, N. Y. Filed July 23, 1884. (No model.)

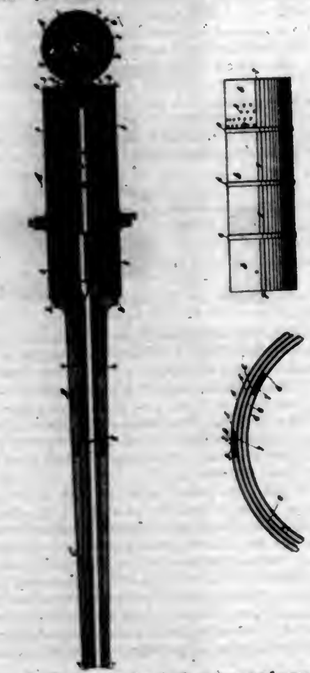
Claim.—The improvement in the art of extracting glycerine from fatty matters, consisting in passing through said matters steam at a pressure and temperature sufficient to decompose it, and to take up in suspension the separated glycerine, afterward condensing the steam and glycerine together, and finally evaporating the water from the glycerine, substantially as herein described.



316,104.



316,105. ORDNANCE. R. T. Barrett, New York, N. Y. Filed Jan. 22, 1885. (No model.)

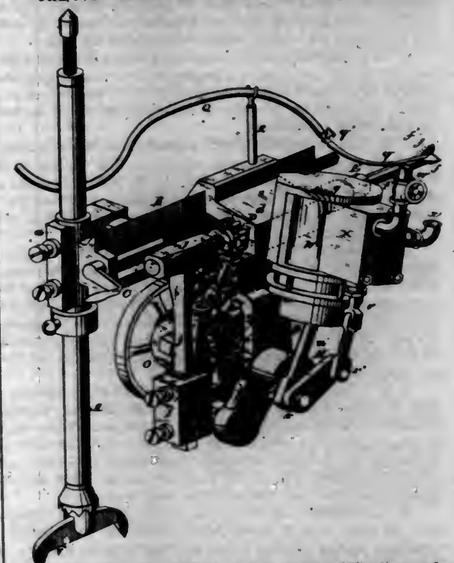


Claim.—1. The combination, in the rear part of a cannon, of a series of concentric cylinders made of rolled steel plates and arranged one within another, and cast iron, steel, or other metal cast between, within, and around the said cylinders, substantially as herein described.

2. The combination, in the rear part of a cannon, of a series of concentric cylinders made of rolled steel plates, perforated and arranged one within another, and cast-iron or other metal cast between, within, and around the said cylinders and entering their perforations, substantially as herein described.

3. The combination, in a cannon, of a section having a series of tubes provided within and through its walls, parallel with the bore, a water-supply pipe connected with said tubes for introducing water through them for cooling the gun between its successive discharges, and a second section connected with the first-mentioned section, and also provided with tubes for water, the two sections having within their abutting ends an annular groove, through which the tubes in the two sections communicate, substantially as herein described.

316,106. POWER ROCK-DRILL. Charles G. Barlow and George T. Emery, Nevada City, Cal., assignors, by direct and mesne assignments, of one-half to Joseph W. Sprague, same place, and Richard H. Lane, New York, N. Y. Filed Jan. 14, 1884. (No model.)

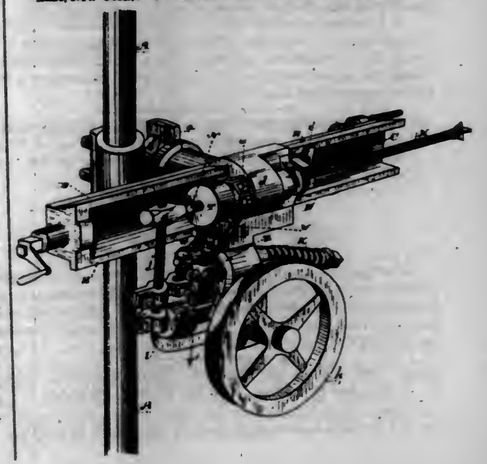


Claim.—1. In a rock-drill, the body-bar D, the drill-arbor *e*, swinging hammer-head I, and hammer J, in combination with the modified eccentric G, a yielding surface between said eccentric and hammer-holder, and a means for holding said surface against the eccentric, substantially as herein described.

2. In a rock-drill, the body-bar D, drill-arbor *e*, swinging hammer-head I, and hammer J, in combination with the modified eccentric G, arm Y on the hammer-head, swinging arm Y', pivoted in said arm, and having the roller *l* impinging on the eccentric, the cushion *y* between said arms, the rod Z, connected with the swinging arm Y', and spring K on the rod, all arranged and operating substantially as herein described.

3. In a rock-drill, the sliding body-bar D, the drill F, and arbor *e*, with which it is connected, in combination with the vibrating hammer J, shaft H, and intermediate devices for operating the hammer, the worm N on shaft H, shaft M, gear *m*, chain-pulley O on said shaft M, chain-pulley P on the drill-arbor *e*, and the endless chain *p*, all arranged and operating substantially as and for the purpose described.

316,107. MACHINE ROCK-DRILL. Charles G. Barlow, Nevada City, Cal., assignor, by direct and mesne assignments, of three-fourths to George T. Emery and Joseph W. Sprague, same place, and Richard H. Lane, New York, N. Y. Filed June 17, 1884. (No model.)



Claim.—1. In a machine rock-drill in which the drill-bit is driven by a blow delivered directly upon its head, a drill-containing arbor seated in the frame or body of the machine, and adapted to have a line movement therein, an elastic cushion or clamp within the arbor and embracing the drill-bit, a screw-gland for tightening the cushion on the drill-bit, and an elastic cushion or spring between the front of the arbor and the frame of the machine, substantially as herein described.

2. In a machine rock-drill in which the drill-bit is driven by a blow delivered directly upon its head, a rotating hollow drill-containing arbor seated in the frame or body of the machine, and a two-part tapering chuck in the rear end of the arbor and embracing the rear of the drill-bit, substantially as described.

3. In a machine rock-drill having a mechanism for delivering a blow, the hollow arbor M, seated within the frame or body of the machine in line with the blow-delivering mechanism, and the drill-bit N, seated in said arbor and adapted to receive the blow directly upon its head, and a cushion, O, and chuck S, located within the arbor at opposite ends, substantially as herein described.

4. In a machine rock-drill in which the drill-bit is driven by a blow delivered directly upon its head, a hollow drill-containing arbor seated within the frame or body of the machine, and adapted to have a line movement therein, a screw-band, Q, on its forward end, and the spring or elastic band or packing R, between said ring and the frame, the annular or elastic cushion or clamp O, seated in its forward end and embracing the drill, and the screw-gland P, by which it is compressed upon the drill-bit, substantially as herein described.

5. In a machine rock-drill having a mechanism for delivering a blow, the hollow arbor M, through which the drill-bit passes, having a rectangular tapering socket in its rear end, the two-part tapering chuck S, fitting in said socket and embracing and engaging the drill-bit to effect its rotation, the perforated screw-cap T, and means for rotating said arbor, in combination with the drill-bit N, adapted to receive the blow directly upon its rear end, substantially as herein described.

6. In a machine rock-drill having a mechanism for delivering a blow, the hollow arbor M, through which the drill-bit passes, having a rectangular tapering socket in its rear end, with an elastic washer, *s*, at its base, the two-part tapering chuck S, fitting in said socket and embracing and engaging the drill-bit, the perforated screw-cap T, and means for rotating the arbor, consisting of the chain-pulley *u*, endless chain U, and means for driving it, substantially as described, in combination with the drill-bit N, adapted to receive the blow directly upon its rear end, substantially as herein described.

7. In a machine rock-drill having a mechanism for delivering a blow, the hollow arbor M, seated in the frame or body of the machine and adapted to have a line and a rotary movement therein, the screw-band Q on its forward end, and the spring or elastic band or packing R, whereby the line movement is controlled, the annular elastic clamp or band O, seated in the forward end of the arbor, and the screw-gland P, by which it is compressed upon the drill-bit, the chuck S, seated in the rear of the arbor and engaging the drill-bit, the perforated screw-cap T, and means for rotating the arbor, all arranged as herein described, in combination with the drill-bit N, adapted to receive the blow directly upon its head, substantially as herein described.

8. In a machine rock-drill having a mechanism for delivering a blow, the cross-bar B and sliding body-bar D, and the arbors M, seated in suitable bearings, one on said cross-bar at its forward end and the other on the body-bar, said arbors having the clamping-cushions O and the spring-cushions R, substantially as herein described, in combination with the drill-bit N, passing through said arbors and adapted to receive the blow directly upon its head, substantially as herein described.

9. In a machine rock-drill, the cross-bar B, feed-screw C, and nut *c* on said screw, in combination with the body-bar D, carrying the drill-bit and driving mechanism, said bar having a slotted arm, *d'*, passing through the nut and confined by a removable pin, *c'*, substantially as and for the purpose herein described.

316,108. COVER-FASTENING DEVICE FOR SEWING-MACHINES.

CHARLES H. BAILEY, Boston, Mass., assignor to the Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Filed Aug. 28, 1882. (No model.)



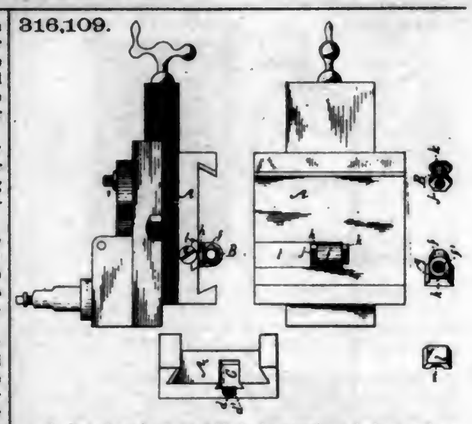
Claim.—The improved fastening-hook for the covers of sewing-machines, consisting of the metal fastening-plate *d* and the head or lug formed therewith, shown and described as bends 2 and 3, the latter having holding projections 4, corubined with rubber cast entirely around said head or lug in the form of a hook, as set forth.

316,109. CROSS-BAR SHOE FOR PLANING-MACHINES.

ALBERT B. BEAR, New Haven, Conn. Filed July 21, 1884. (No model.)

Claim.—1. In a planer cross-bar shoe, a groove, C, for the reception of a nut-block supporting the feed-nut, substantially as described.

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2. In a planer-head, a nut-block, *f*, supporting a feed-nut, and provided with a base, *g*, fitting a groove in the cross-bar shoe, as and for the purpose specified.

3. In a planer-head, the combination of the nut-block *f* with the slide *l*, fitted in a groove, C, substantially as described.

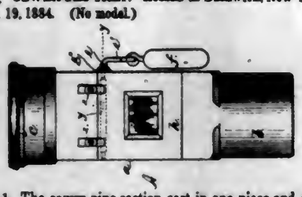
4. In a planer-head, the combination of the feed screw-nut B with the nut-block *f*, as and for the purpose specified.

5. In a planer-head, the combination of the cross-bar shoe A with the nut-block *f*, substantially as described.

6. In a planer-head, the combination of the cross-bar shoe A, the nut-block *f*, nut B, slide *l*, and screw *e*, substantially in the manner and for the purpose specified.

316,110. SEWER-GAS TRAP.

RUSSEL H. BRICKWITH, New York, N. Y. Filed Dec. 19, 1884. (No model.)

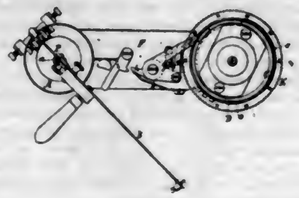


Claim.—1. The sewer-pipe section cast in one piece and composed of the square portion *a*, with an open side, and containing an inclined valve-seat and the round end portions, *b c*, the portion *b* capable of setting into the pipe below, and the portion *c* adapted to receive the pipe above, in combination with a removable plate having a glass therein, said plate fitting the open side of the square portion *a*, the square valve and the stem thereof made together and held in bearings in the portion *a*, contiguous to the removable plate, and a lever to the valve-stem and a weight upon the lever, substantially as set forth.

2. The sewer-pipe section cast in one piece and composed of the square portion *a*, with an open side, and containing an inclined valve-seat and the round end portions, *b c*, the portion *b* capable of setting into the pipe below, and the portion *c* adapted to receive the pipe above, in combination with a removable plate having a glass therein, said plate fitting the open side of the square portion *a*, the square valve and the stem thereof made together and held in bearings in the portion *a*, contiguous to the removable plate, a screw-nut upon the valve-stem, and a washer that is clamped by the nut against the outer surface of the portion *a*, and a lever to the valve-stem and a weight upon the lever, substantially as set forth.

316,111. STEAM-ENGINE PRESSURE-RECORDER AND SPEED-INDICATOR.

GILMAN W. BROWN, West Newbury, assignor to the Crosby Steam Gage and Valve Company, Boston, Mass. Filed Aug. 11, 1884. (No model.)



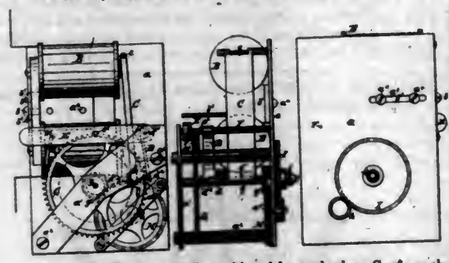
Claim.—1. The combination of the divided ratchet-annulus, the arm of the recorder, the reciprocating drum, and the cam fixed to the bottom thereof, with an angular lever and its pawl, such lever being fulcrumed to the said arm and to operate with the cam, and such pawl being to engage with the ratchet-annulus, as set forth, and such lever and pawl having springs for forcing the former against the cam and the latter against the ratchet-annulus, all being substantially as represented.

2. The combination of the lever-latch, the divided ratchet-annulus, and the arm of the recorder, with the reciprocating drum, the cam fixed to the bottom of such drum, the angular lever and pawl and their operative springs, and a tooth projecting from the said lever, all being substantially and to operate as set forth.

3. The combination of the friction-spring and the spindle of the drum with the divided ratchet-annulus, the arm of the recorder, the reciprocating drum and its cam, and with the angular lever and pawl, all being substantially and to operate as set forth.

316,112. ELECTRIC-CLOCK MOVEMENT.

JULIAN E. CAREY, New York, N. Y. Filed Mar. 3, 1884. (No model.)



Claim.—1. The combination, with a driven wheel, as G, of a rocking lever carrying a pawl capable of engaging with the teeth of said wheel, and two rigid stops arranged to act alternately as retaining means for the wheel, one of said stops being so shaped as to act also as an additional impelling-pawl, whereby the wheel is set or adjusted in its final position of rest after each step, substantially as specified.

2. The combination, with a driven wheel, of a rocking lever carrying a pawl and two rigid stops, one of which latter serves also as an additional impelling-pawl, and of suitable automatic means for imparting motion to said lever mechanism, all arranged to operate substantially as herein specified.

3. The combination, with magnet B, vertically-suspended armature C, driven wheel G, and rocking shaft F, of the arm D, having extensions *d* and d^3, engaging the one with the armature and the other with wheel G, and of arm E, carrying pawl *e* and stop or projection e^3, which latter two parts act both on wheel G, both arms D and E being carried by the shaft F, and the whole being arranged to operate substantially as herein specified.

4. The combination, with a driven wheel, as G, of a rocking lever carrying a pawl capable of engaging with the teeth of said wheel, and a rigid stop, as e^3, arranged to act alternately as a retaining means for the wheel and as an additional impelling-pawl, whereby the wheel is set or adjusted in its final position of rest after each step, substantially as specified.

5. The combination of a magnet, B, vertically-suspended armature C, driven wheel, as G, rock-shaft F, an arm carried on said rock-shaft, as *d*, with a gravity propelling-lever, E, arranged normally in a horizontal plane, its propelling-pawl *e* carried at its vibrating end, and a main controlling-stop carried upon said lever, substantially as described.

6. The combination of magnet B, vertical armature C, gravity-lever E, carrying pawl *e* and stop e^3, rock-shaft F, carrying lever D, with arms *d* and d^3, and wheel G, all constructed to operate substantially as described.

7. The combination of magnet B, vertically-arranged armature C, with arm *d*, rock-shaft F, and bell-crank lever D E, carrying pawl *e* and stops e^3 d^3, practically at right angles from their center of motion, for alternately engaging between the teeth of wheel G, substantially as described.

8. The combination of magnet B, vertical armature C, an arm, D *d*, mounted on shaft F, a gravity propelling-lever, E, with its propelling-pawl carried at its vibrating end, and an adjusting stop, all to operate wheel G, substantially as described.

9. The combination of an adjustable electro-magnet, an armature constructed to engage with an arm arranged upon a rock-shaft at right angles, or nearly so, with a gravity-lever which carries the propelling-pawl, and main stop for the driving-wheel, substantially as described.

10. The combination, with driven wheel G and gravity-lever E, carrying propelling-pawl *e* near its vibrating end, of a centrally-located adjusting-stop carried upon said lever, a rock-shaft, an arm, D, carrying stop d^3, and means for operating the same, substantially as described.

11. The combination of the electro-magnet B and vertical armature C, constructed to bear upon an arm carried by the rock-shaft for raising a gravity-lever upon which are mounted at its end a propelling-pawl and at its center the main controlling-stop, substantially as described.

12. The combination of the magnet B, vertically-arranged armature C, for engaging with an arm, *d*, carried by a rock-shaft, a gravity-lever carrying a propelling-pawl at its vibrating end, and a main controlling-stop with a vertical arm, D, carrying stop d^3, substantially as described.

13. The combination of an electro-magnet and a vertically-arranged armature constructed to engage with one arm of and vibrate a bell-crank lever carried by a rock-shaft, and carrying a propelling-pawl at the end of one of its arms and a stop at the end of its other arm, substantially as described.

14. The combination, with driven wheel G and lever E, carrying propelling-pawl *e* near its vibrating end, of a centrally-located adjusting-stop carried upon said lever, a rock-shaft, an arm, D, carrying stop d^3, and means for operating the same, substantially as described.

15. The combination of electro-magnet B and armature C, constructed to bear upon an arm carried by the rock-shaft for operating a lever upon which are mounted at its end a propelling-pawl and at its center the main controlling-stop, substantially as described.

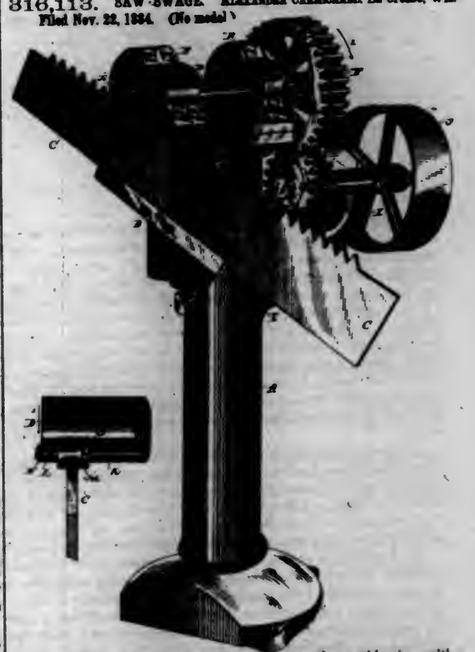
16. The combination of an electro-magnet, and an armature constructed to engage with one arm of a bell-crank lever carried by a rock-shaft, and provided with a propelling-pawl at the end of one of its arms and a stop at the end of its other arm, substantially as described.

17. In an electric clock, the combination, with an armature controlling the hand-moving mechanism, of a magnet and two sets of set-screws, whereby said magnet may be adjusted in two directions at right angles to each other, substantially as described.

18. In an electric clock, an electro-magnet and a vertically-arranged armature constructed so as to engage directly with an arm upon a rock-shaft, in combination with said rock-shaft, and with arms or levers mounted on the latter and carrying stops or pawls which operate the driven wheel, substantially as described.

316,113. SAW-SWAGE.

ALEXANDER CARMICHAEL, La Crosse, Wis. Filed Nov. 22, 1884. (No model.)

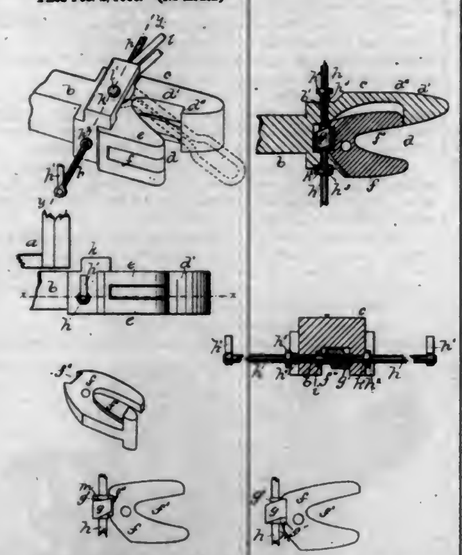


Claim.—1. In a saw-swaging apparatus, the combination, with a suitable base, or support, of a saw-rest adjustably supported thereon, a shaft mounted therein, and having connected to one end thereof suitable driving mechanism, and at its opposite end a longitudinal and transverse slot or recess, a tooth-dressing roller having end journals and loosely mounted within said recessed end of the driving-shaft, so as to rotate independently thereof upon coming in contact with the saw-teeth, and a button or latch pivotally connected to the projecting end of said driving-shaft, and adapted at its opposite end to engage with and hold the outwardly-projecting end of the journal of the tooth-dressing roller and said roller in position, substantially as set forth.

2. In a saw-swaging apparatus, a saw-rest adapted to be adjusted to receive saws of different widths and thicknesses, and also to hold the same at different degrees of inclination, and having in its upper face a longitudinal groove to receive the saws, substantially as and for the purpose set forth.

3. In a saw-swaging apparatus, the combination, with a suitable frame or support, of a saw-rest adjustably connected thereto, and adapted to receive and hold saws of different sizes and shapes and at different inclinations, and having a shallow groove along its upper side to permit of the transverse movement of the saws, a block or anvil mortised within said frame, a driving-shaft having a slotted or recessed end, a tooth-dressing roller journaled within said recess and adapted to rotate independently of the driving-shaft, and suitable mechanism for actuating said driving-shaft, substantially as set forth.

316,114. CAR-COUPLING. A. WELLS CASE, South Manchester, Conn. Filed Feb. 2, 1885. (No model.)



Claim.—1. In a car-coupler, in combination, a draw-head having a frontal opening with a hooked jaw on one side of the opening, a forked tongue swinging across the opening and having a socket back of the pivot on which the tongue swings, and a rotary cam-spindle bearing a cam that engages the socket in the tongue, all substantially as described.

2. In combination, in a car-coupler, a draw-head, *c*, with transverse opening *d*, the hooked jaw *d'* on one side of the opening, a swinging forked tongue, *f*, pivoted on one side of the line of the axis of the curved opening in the tongue, that has also a socket, *f''*, in its rear end, a rotary cam-spindle, *h*, bearing a cam-block, *g*, with a cam, *g'*, that engages the walls of the socket *f''* in the tongue, and by means of which the tongue is locked at either limit of its play, all substantially as described.

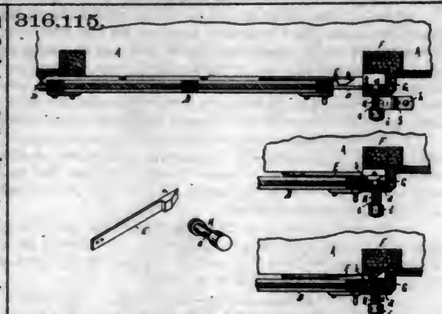
3. In a car-coupler, in combination, a draw-head, *c*, with transverse opening *d*, the hooked jaw *d'* on one side of the opening, the forked tongue *f*, swinging across the opening, having a socket back of the pivot, a cam-block, *g*, with a cam *g'*, with the portion between the faces of the cam narrower than the socket in the tongue, and a rotary cam-spindle whereby the cam may be operated, all substantially as described.

4. In a car-coupler, in combination, a draw-head, *c*, with transverse opening *d*, the hooked jaw *d'* on one side of the opening, a projection on the upper side of the head, forming a hunter and supporting a link, *l*, a forked tongue, *f*, swinging across the opening in the head, and a rotary cam engaging in the socket in the tongue and borne on a rotary cam-spindle, *h*, all substantially as described.

5. In a car-coupler, in combination, a draw-head, *c*, with transverse opening *d* and hooked jaw *d'*, the swinging tongue *f*, the cam-block *g*, borne on the cam-spindle *h*, and the elastic cushion *n* within the head, all substantially as described.

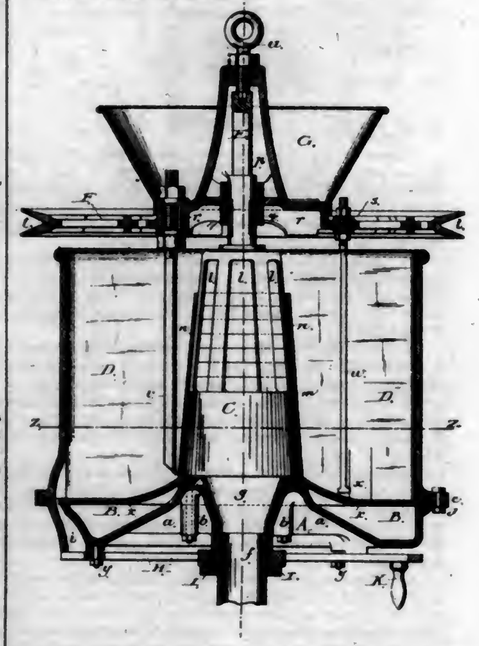
316,115. LOCK FOR SLIDING DOORS. GEORGE CASSADY, Valley Springs, Dak. Filed Sept. 27, 1884. (No model.)

Claim.—1. The combination of a sliding door, a spring-bar provided with a hooked end attached thereto, a door-jamb, a lip or strike secured to said jamb with which said hooked end engages, a sliding push-bolt which passes through said jamb and is adapted when pressed inward to disengage said hooked end from said lip or strike, said push-bolt being slotted or perforated, and a seal or lock which passes through said slot or perforation, and thus prevents the movement of said push-bolt.



2. The combination of the door A, hooked spring-bar *a*, strike *b*, push-bolt H, having perforation *e*, and seal *g*, substantially as set forth.

316,116. CONCENTRATOR. JOSHUA E. CLAYTON, Salt Lake City, Utah. Filed Dec. 9, 1884. (No model.)



Claim.—1. The combination of the pan and perforated diaphragm of a hollow central cone extending upwardly from the perforated diaphragm and having vertical slots in it, and a series of rings fitted to the cone for closing more or less of the discharge-openings and raising or lowering the discharge of tailings, substantially as herein described.

2. In a concentrator, the combination of a pan or tub having a chamber at the bottom and an inlet by which water may be admitted under pressure, a diaphragm fitted above said chamber, having holes through which jets of water may be discharged obliquely upward and outward into the pan, means for discharging the pulp or material to be worked around the central cone and above the perforated diaphragm, and a series of narrow slots or openings at the periphery of the diaphragm, through which the heavier concentrates may be continually discharged, substantially as herein described.

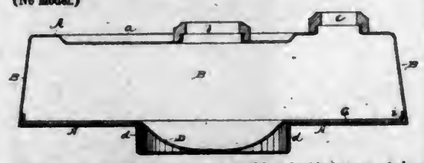
3. In a concentrator, a pan or tub having a central cone with adjustable discharge-openings near the top, a chamber at the bottom, into which water under pressure may be admitted, an inclined or conoidal diaphragm above said chamber, having jet-holes through which water may be thrown upward and outward into the mass within the pan, and a series of discharge-slots around the periphery of the diaphragm, in combination with the cover of the pan-scrapers or toe-pieces, and arms or rods set obliquely to the line of rotation and arranged to act successively in spiral lines upon the lower stratum of concentrates, substantially as herein described.

4. In a concentrator, a pan or tub having a central cone provided with discharge-openings, a hopper and tubes by which the material is deposited, a perforated diaphragm around the base of the cone, said diaphragm having holes through which jets of water are discharged upward and outward toward the periphery of the pan, and a series of discharge openings or slots at the periphery of the diaphragm, in combination with a flat annular disk having holes corresponding with the discharge-outlets, and means for adjusting said disk to open or close the discharge-outlets, substantially as herein described.

5. In a concentrator, a pan or tub having a central cone, a water-chamber beneath, and a perforated diaphragm through which jets of water are thrown obliquely outward and upward within the pan, in combination with a circular rotating feed-hopper having a series of outlet-tubes or feed-pipes extending through the bottom and down around the central cone to discharge the material at or near their inner circle of oblique jets, whereby the material is distributed upon the highest point of the diaphragm and acted upon successively by the jets as it passes toward the periphery of the pan, substantially as herein described.

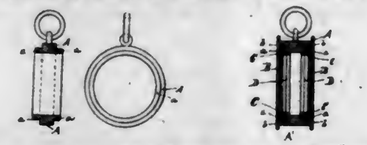
6. A concentrator consisting of a containing pan or tank having a water-chamber beneath, a diaphragm with perforations formed to give the water an oblique upward direction, a series of narrow scrapers set obliquely to their lines of rotation in the bottom zone of concentrations to assist in moving them steadily outward, the outlets, a hollow central cone provided with openings for the discharge of tailings, a series of rings fitted loosely around the cone to regulate the height of the discharge, and an annular rotating feed-hopper provided with outlet feed-tubes to distribute the material upon the diaphragm around the base of the cone, substantially as herein described.

316,117. LAMP. GEORGE M. CLOTE, Troy, N. Y. Filed June 24, 1884. (No model.)



Claim.—A metallic lamp provided with a double bottom of sheet metal, the inner bottom having a swaged-out well integral therewith, and the outer bottom having a well attached thereto and inclosing the well of the inner bottom, substantially as described, and for the purposes set forth.

316,118. LOCKET. CHARLES H. COOKE, Providence, R. I., assignor to J. B. Mathewson & Co., same place. Filed Oct. 15, 1884. (No model.)



Claim.—1. As a new article of manufacture, the locket consisting of a tubular-shaped body portion having its front and rear edges screw-threaded, and the caps constituting the front and rear of the locket adapted to the screw-threaded edges of the body portion, and removable therefrom, substantially as described.

2. The combination of a body, A, provided with a screw-flange, *a a*, on one or both sides, with a miniature or inner case, C, and a removable screw-cap, B, substantially as shown and described.

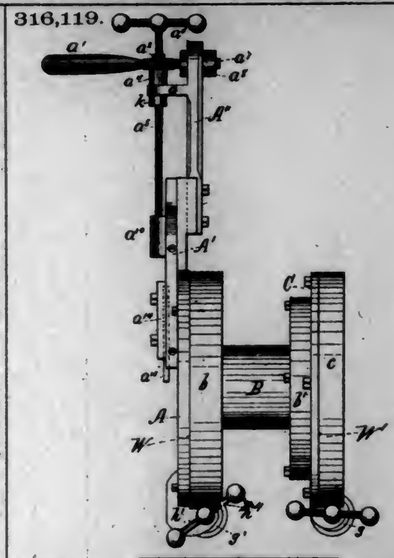
316,119. DEVICE FOR TURNING AXLES OR SHAFTS. JAMES H. COON, Des Moines, Iowa, assignor to the Capital City Tool Company, same place. Filed Sept. 15, 1884. (No model.)

Claim.—1. The rotating arm A' A'', with means for mounting and feeding forward a cutting-tool, in combination with two automatic chucks, substantially as described, and for the purpose set forth.

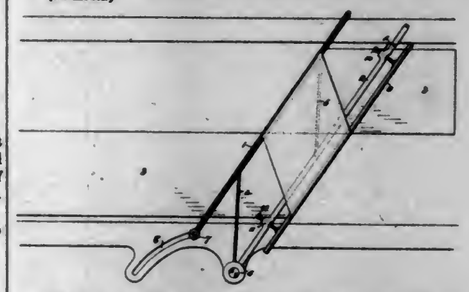
2. The cutting-tool a^{12}, with means for rotating it around a shaft, and means for feeding it inward toward the center of the shaft continuously as it rotates, in combination with chucks adapted to direct the cutting-tool around the shaft in a plane at right angles to the axis of the shaft, substantially as shown and described.

3. The cutting-tool a^{12}, with means for rotating it around a shaft, and means for feeding it inward toward the center of the shaft continuously as it is rotated, in combination with chucks W and W', adapted to direct the cutting-tool around the shaft in a plane at right angles to the axis of the shaft, and to prevent its being moved laterally along the shaft while operating, substantially as described, and for the purpose set forth.

316,119. [duplicate]



316,120. WEB-ASSOCIATING APPARATUS. LUTHER C. CROWELL, Brooklyn, assignor to R. Hoe & Co., New York, N. Y. Filed Dec. 2, 1882. (No model.)



Claim.—1. The herein-described web-transferring apparatus, consisting of a plurality of bars, as 1 2, pivotally connected to each other by rods, as 4 5, and to their supporting-frame, substantially as described.

2. The combination, with the bar, as 2, pivotally connected to the supporting-frame, of the bar, as 1, pivotally connected thereto by rods, as 4 5, and adjustably connected to the supporting-frame, substantially as described.

3. A web-transferring apparatus consisting of a plurality of bars, as 1 2, one of which is provided with an adjustable turning-edge, as 9, substantially as described.

4. The combination, with the bar, as 2, provided with the adjustable turning-edge, as 9, and pivotally secured to its supporting-frame, of the bar, as 1, connected to the former by rods, as 4 5, and adjustably secured to its supporting-frame, substantially as described.

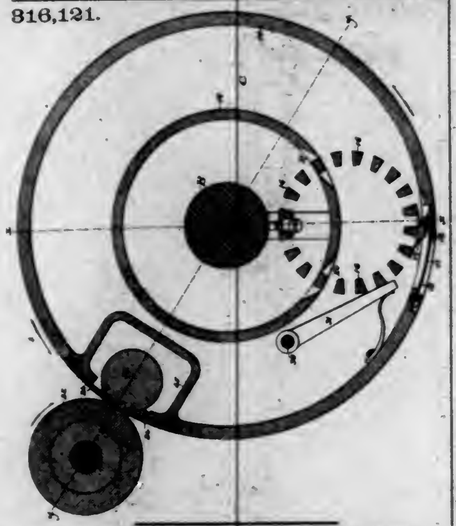
316,121. MECHANISM FOR PRINTING MARKS ON THE MARGINS OF SHEETS. LUTHER C. CROWELL, Brooklyn, assignor to R. Hoe & Co., New York, N. Y. Filed Feb. 14, 1883. (No model.)

Claim.—1. The combination, with the printing-block 12, mounted upon a rotating carrier, of the stationary flange 18, provided with recesses 20 21, the disk 15, provided with studs 16 and projection 17, and means for rotating said disk 15 with a step-by-step movement, all substantially as described.

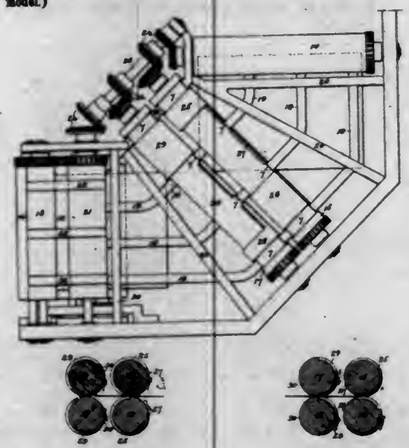
2. The combination, with the rotating disk or carrier A, provided with the flange 10, and carrying the movable printing-block 12, and ink-fountain and fountain-roll 25 26, of the inking-roll 22, and means for causing said printing-block to be periodically projected beyond the periphery of said flange, all substantially as described.

3. The combination, with the disk A, provided with the flange 10, movable printing-block 12, and ink-fountain and fountain-roll 25 26, of the inking-roll 22, stationary flange 18, having recesses 20 21, the disk 15, having studs 16 and projection 17, and means for advancing said disk 15 with a step-by-step movement, all substantially as described.

316,121.



316,122. FOLDING-MACHINE. LUTHER C. CROWELL, Brooklyn, assignor to R. Hoe & Co., New York, N. Y. Filed Feb. 25, 1884. (No model.)



Claim.—1. The combination, with two folding mechanisms arranged at right angles to each other, of an interposed sheet-feeding mechanism arranged to cause the sheets to take a lateral diagonal path of travel in passing from the first to the second mechanism, all substantially as described.

2. The combination, with mechanisms arranged to impart two folds to a sheet, said folds being at right angles to each other, of means for causing the sheet to take a lateral diagonal path of travel after receiving its first and before receiving its second fold, all substantially as described.

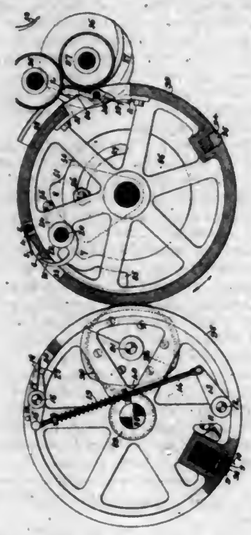
3. The combination, with mechanism, as the rolls 10 11, for advancing a sheet in one direction, of mechanism, as the cylinder 12, for advancing it in a direction at right angles to the first direction, and mechanism, as the rolls 15 16 and 17 18, for advancing the sheet in a lateral diagonal direction from the first to the second of these mechanisms all substantially as described.

4. The combination, with a sheet-folding mechanism, of a sheet-feeding mechanism arranged to advance the sheets in a lateral diagonal direction to present them to said folding mechanism, all substantially as described.

5. The combination, with a pair of rolls, as 10 11, of a pair of rolls, as 15 16, arranged at an angle thereto, and provided with biting portions, as 25 26 27, and means for directing the sheets from the first pair of rolls to the second pair, all substantially as described.

6. The combination, with the rolls 10 11, of the rolls 15 16 and 17 18, arranged at an angle thereto, and provided with biting portions, as 25 26 27 and 28 29 30, and the guides 19, substantially as described.

316,123. SHEET-DELIVERY APPARATUS. LUTHER C. CROWELL, Brooklyn, assignor to R. Hoe & Co., New York, N. Y. Filed Feb. 25, 1884. (No model.)



Claim.—1. The combination, with two rotating cylinders, as 98 99, provided with collecting and folding mechanisms, of means by which said folding mechanisms can be operated to impart either one or two transverse folds to the associated sheets, all substantially as described.

2. The combination, with two rotating cylinders, as 98 99, provided with collecting mechanism and folding mechanisms for imparting two transverse folds to the sheets, of means by which said collecting mechanism can be rendered inoperative, all substantially as described.

3. The combination, with two rotating cylinders, as 98 99, provided with collecting and folding mechanisms, of means by which said collecting mechanism can be rendered inoperative, and by which said folding mechanisms can be operated to impart either one or two transverse folds to the single or associated sheets, all substantially as described.

4. The combination, with two rotating cylinders, as 98 99, provided with cutting, collecting, and folding mechanisms, of means by which said collecting mechanism can be rendered inoperative, and by which said folding mechanisms can be operated to impart either one or two transverse folds to the single or associated sheets, all substantially as described.

5. The combination, with the cylinder 99, provided with the jaw 21, of the cylinder 98, provided with the blade 29, and means for operating said blade to press the fold-line of the paper against said cylinder 99; substantially as described.

6. The combination, with the cylinder or carrier 98, provided with the oscillating blade 29, arranged to lift the fold-line of the paper from the carrier, of the cylinder or carrier 99, provided with the jaw 21, arranged to fold the paper backward across the edge of the blade and then grasp it by the fold-line, substantially as described.

7. The combination, with the cylinder or carrier 98, provided with the blade 29, arranged to hold the fold-line of the paper away from the carrier, of the cylinder or carrier 99, provided with the jaw 21, arranged to fold the paper backward across the edge of the blade, and then grasp the fold-line and carry it forward without bending the sheet abruptly in the rear of said fold-line, all substantially as described.

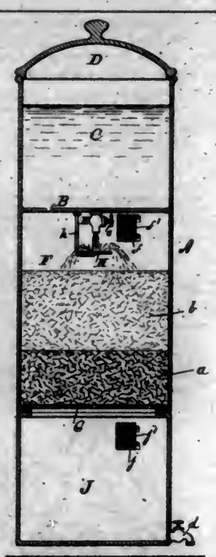
8. The combination, with the cutting-blade 93, provided with yielding check-pieces, as 9, of the cylinder 99, provided with the cutting-groove 95, the sides of which project beyond the periphery of the cylinder, substantially as described.

9. The combination, with the cylinder 99, carrying the rotating folding-blade 33, of the folding-rolls 96 97, provided with cams, as 37 41, for operating said blade, substantially as described.

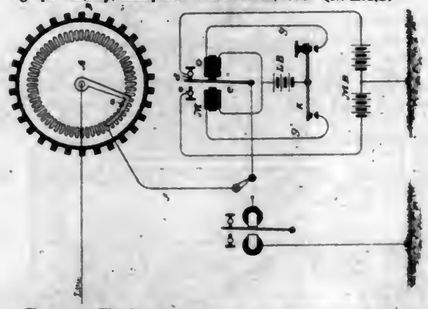
316,124. FILTER. WALTER DEARDEN, Trinidad, Colo. Filed Jan. 24, 1885. (No model.)

Claim.—The filter herein shown and described, having upper and lower water-compartments, C J, and intermediate filter-compartment, F, and partition B, provided with the cock E, held over a distributing-plate, H, the compartments F J being formed with the air-openings *f j*, substantially as and for the purposes set forth.

316,124.



316,125. TELEGRAPHIC TRANSMITTING APPARATUS. PATRICK B. DELANY, New York, N. Y., assignor to the Standard Multiplex Telegraph Company, same place. Filed Feb. 26, 1884. (No model.)



Claim.—1. The local transmitting arrangement consisting of the combination, substantially as set forth, of a transmitting-key, a local circuit in which the key is included, which circuit is closed when the key is on its front stop, a separate or branch circuit which is closed when the key is on its back stop, a freely-vibrating armature which is acted upon electro-magnetically by said circuits, a main line, and a transmitting battery which is thrown upon the line by the vibrations of said armature.

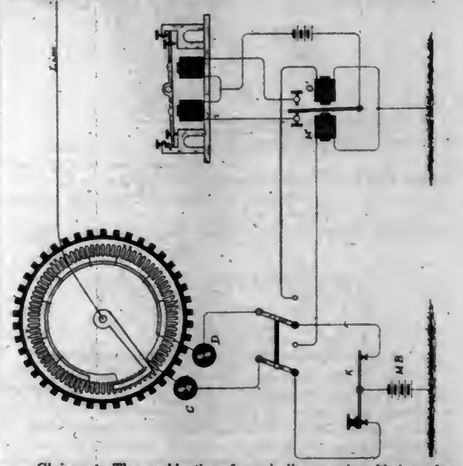
2. The local transmitting arrangement consisting of the combination, substantially as set forth, of a transmitting-key, a local circuit in which the key is included, which circuit is closed when the key is on its front stop, a separate or branch circuit which is closed when the key is on its back stop, magnetic helices and cores in said local circuits, a non-resilient armature controlled by said helices and cores, a main line, and a transmitting-battery which is thrown upon the line by the vibrations of the armature, which occur in response to the manipulation of the transmitting-key.

3. The combination, substantially as set forth, of the transmitting-key, two independent electro-magnets which are alternately energized by the manipulations of the key, the local circuits of said magnets, a freely-vibrating armature acted upon by said magnets, the main line, and the transmitting-battery which is thrown upon the line by the vibrations of the armature.

4. The combination, substantially as set forth, of the transmitting-key, the independent magnets M O, their local circuits, the freely-vibrating armature acted upon by said magnets, the split main battery M B, the poles of which are electrically connected with the opposite contact-stops, *c d*, against which the vibrating armature works, and the main line connected with said armature.

316,126. RECEIVING APPARATUS FOR SYNCHRONOUS TELEGRAPHY. PATRICK B. DELANY, New York, N. Y., assignor to the Standard Multiplex Telegraph Company, same place. Filed Feb. 29, 1884. (No model.)

316,126.



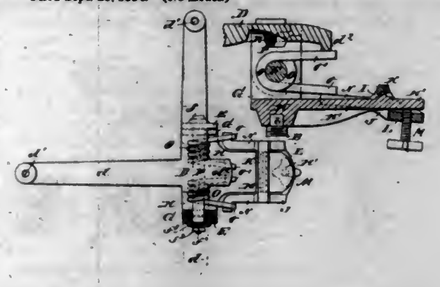
Claim.—1. The combination of a main line, a series of independent contacts at each end of the main line, synchronously-actuated apparatus for successively placing said contacts in connection with the main line, a branch circuit at one end of the line in which one or more of said contacts is independently connected, another branch line in which one or more of said contacts is independently connected, a transmitting key or instrument common to both lines, and arranged to transmit electrical impulses into the line through one branch when the key is in one position and through the other branch when the key is in another position, corresponding branch lines similarly connected to corresponding contacts at the other end of the main line, an independent electro-magnet included in each of said branch lines, and a freely-vibrating armature actuated by said electro-magnets.

2. The combination of a main line, a series of independent contacts at each end of the main line, synchronously-actuated mechanism for successively placing the line in communication with said contacts, two branch circuits at one end of the line, in each of which one or more of said contacts is independently connected, a transmitting key or instrument common to both of said branch lines, whereby the battery is thrown upon the main line through one branch and its contacts when the key is in one position and through the other branch and its contacts when the key is in the other position, and receiving mechanism at the distant station by means of which the transmitted signals are received.

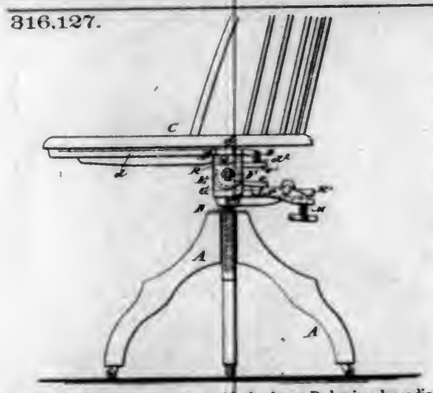
3. The combination of a main line, a receiving-relay consisting of two independent electro-magnets and a freely-vibrating armature, electric circuits by which each of said magnets may be independently energized to act upon the armature, transmitting mechanism, circuits, and connections at the distant station, and means by which one of said receiving relay-magnets is energized when the transmitting-instrument is in one position and the other of said magnets is energized when the transmitting-instrument is in the other position.

4. The combination of a main-line relay consisting of two independent electro-magnets included in independent or branch circuits, a freely-vibrating armature actuated by said magnets, a sounder consisting of two independent electro-magnets, and a freely-vibrating sounder-armature, and the local circuit of said sounder and its connections, whereby one of said sounder-magnets is energized when the relay-armature is on one contact and the other of said magnets is energized when the relay-armature is on its other contact.

316,127. TILTING-CHAIR. ADAM DEMAND, Sheboygan Falls, Wis. Filed Sept. 25, 1884. (No model.)



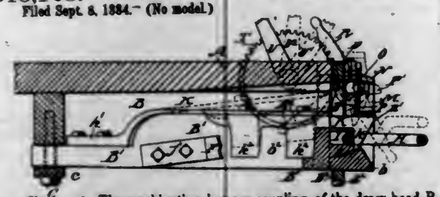
316,127.



Claim.—1. The combination, with the frame D, having depending lugs E and rearward extension d^3, of the plate H, formed with vertical lugs G on its upper surface and the rearward extension H', the pivot-bolt F, passing through the lugs E G, the rocking yoke J, through which the extension H passes, an adjusting-screw for the same, and the torsional springs O on the pivot-bolt, the ends of the said springs bearing on the yoke and extension d^3, respectively, substantially as set forth.

2. In a tilting-chair, the combination, with the frame D, the plate H, pivoted thereto, the springs O, and the yoke J, of the stop and shoulder P R, substantially as shown and described.

316,128. CAR-COUPLING. WILLIAM F. DENNEY, Millbrook, Mich. Filed Sept. 8, 1884. (No model.)



Claim.—1. The combination, in a car-coupling, of the draw-head B, consisting of the bar B', end parts, B^2 B^2, supported to yield laterally and pressed toward each other by springs, and a spring-metal coupling-bar, K, provided with a hook, *k*, adapted to enter the link-socket, and said socket having a notch, L, to receive the end of the hook *k*, substantially as shown and described.

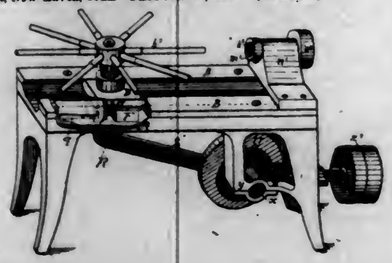
2. In car-coupling, the draw-head B, consisting of the bar B', end parts, B^2 B^2, supported on bars F F so as to yield laterally, and pressed toward each other by springs, and a spring-metal coupling-bar, K, provided with a hook, *k*, adapted to enter the link-socket, and said draw-bar being supported at the front end in a plate, D, adapted to rise and fall with the draw-bar, substantially as shown and described.

3. The combination, with the draw-head, center bar, B, and coupling-bar K, of the tongues or projections b^2 k^2, substantially as shown and described.

4. The combination, in a car-coupling and with the coupling-bar K, having a hook, *k*, shoulder *m*, standard M, and cross-head N, of the shaft O, provided with an arm, P, and end arms, R R, substantially as shown and described.

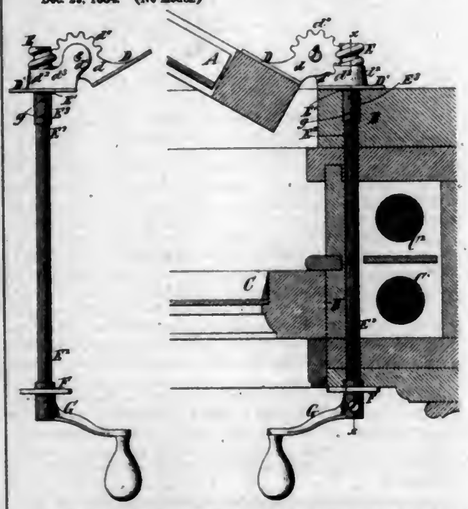
5. The combination, in a car-coupling and with the coupling-bar K, having a hook, *k*, shoulder *m*, standard M, and cross-head N, of the shaft O, pinion S, gear wheel or segment T, and lever U, substantially as shown and described.

316,129. MACHINE FOR SIZING PAPER TUBES. AMOS DICKERMAN, New Haven, Conn. Filed Jan. 29, 1884. (No model.)



Claim.—1. The improvement in the art of manufacturing heel-rands from a counter-stiffener blank which consists in holding the blank under pressure and then skiving off portions from the opposite edges suitable for the rands at a single operation, substantially as set forth, whereby the rands and the stiffener are left with properly-beveled edges.

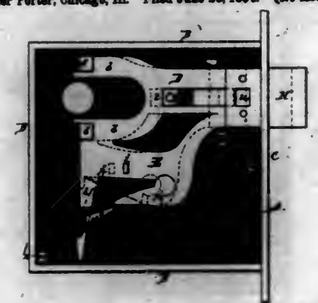
316,131. SHUTTER-WORKER. ALVIN H. DODD, Hudson, N. Y. Filed Dec. 29, 1884. (No model.)



Claim.—1. The combination, with the hinge composed of two leaves, D D', with their bearers, one of said bearers having the toothed segment d^6, of the worm E, projecting outside of and beyond the leaf D', and its stem E', projecting inward, through, and beyond said leaf, and having a bearing therein, the shaft E^2, made separate from the worm and its stem, and the sleeve E^3, made separate from the shaft and worm-stem, and connecting them together, substantially as herein described.

2. The combination, with the leaf D, with its bearer *d* and toothed segment d^6, of the leaf D', with its bearer *d'* and outwardly-projecting hub d^3, the worm E, outside the said hub, and its stem E', journaled in said hub, and projecting inward beyond the inner face of the leaf D', the operating-shaft E^2, and the separate sleeve and pins E^3 *g*, for connecting said shaft and the stem E', the bearing F, for the inner end of the shaft E^2, and the crank or handle G, made separate from the shaft and secured thereto inside the bearing F, all substantially as herein described.

316,132. LOCK. JOHN W. H. DOUBLER, Rockford, assignor of one-half to Miner Porter, Chicago, Ill. Filed June 26, 1884. (No model.)

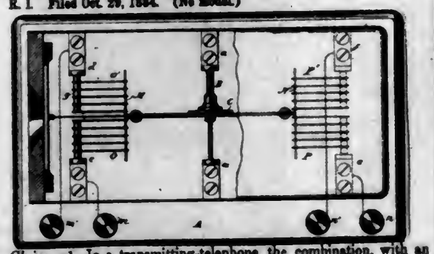


Claim.—1. The combination, with a combined lock and latch bolt, of an arm and fly connected therewith and arranged within the path of the key, the one being rigid and the other yielding, as and for the purposes set forth.

2. The combination, with a lock having tumblers made relatively interchangeable in corresponding pairs, of a key consisting of a shaft journaled and grooved to receive key-blades interchangeable in pairs correspondingly to the tumblers of the lock and fitted to the journaled portion of the shaft, and a clamping-screw to hold the blades in place, as and for the purposes set forth.

3. The combination, with the combined lock and latch bolt and its case having a longitudinal slot, of a spindle having shoulders and a knob and a plate longitudinally slotted and fitted on the spindle between its shoulders and knob, substantially as and for the purpose described.

316,133. TELEPHONE-TRANSMITTER. MOSES G. FARMER, Newport R. I. Filed Oct. 29, 1884. (No model.)



Claim.—1. In a transmitting-telephone, the combination, with an oscillating lever connected with the diaphragm, of pivoted electrodes resting upon said lever on opposite sides of the fulcrum, as and for the purpose specified.

2. In a transmitting-telephone, the combination, with an oscillating lever carrying metallic bars and connected with the diaphragm, of loosely-pivoted contact-strips constituting electrodes and resting upon the metallic bars, as set forth.

3. In a transmitting-telephone, the combination, with two independent electrodes or sets of contacts, of a metallic bar or support connected with the diaphragm, and circuit-connections by which the current is passed from one electrode or set of contacts to the other through the bar upon which they rest, as set forth.

4. In a transmitting-telephone, the combination, with an oscillating lever carrying metallic bars and connected with the diaphragm, of two electrodes or sets of contacts resting upon each bar, and circuit-connections by which the currents are passed from one electrode or set of contacts to the other through the bars upon which they rest, as and for the purpose set forth.

5. In a transmitting-telephone, the combination, with a rock-shaft, an insulating-disk carrying vertical arms, one connected with the diaphragm, the other with adjusting-springs, and horizontal arms with metallic bars at right angles thereto, of pivoted conducting strips or plates constituting electrodes and resting on the metallic bars, as set forth.

6. The combination, with the rock-shaft and insulating-disk, of the vertical arm E, and link-connection with the diaphragm, the arm D, and opposing springs connected therewith, the horizontal arms with ends bent at right angles, and the pivoted electrodes resting upon the ends, as herein set forth.

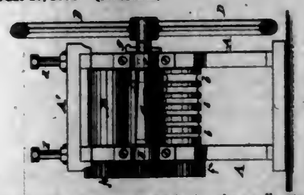
316,134. METALLIC SHINGLE. MOSES G. FARMER, Newport, R. I. Filed Jan. 8, 1885. (No model.)



Claim.—1. As a new article of manufacture, a copper-plated sheet-iron shingle, as described.

2. As a new article of manufacture, a sheet-iron shingle provided with nail-holes and copper-plated, as described.

316,135. JEWELERS' ROLLS. ABRAHAM PLATOW, Ellenville, N. Y. Filed June 27, 1884. (No model.)

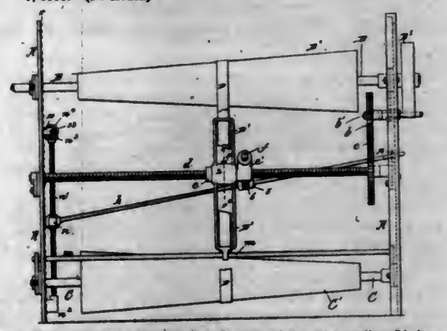


Claim.—1. As an improvement in jewelers' rolls, the combination of an upper adjustable smooth roll and an intermediate smooth roll with a lower roll that is provided with circumferential grooves of gradually-diminishing width and depth, substantially as set forth.

2. As an improvement in jewelers' rolls, the combination of an upper smooth and adjustable roll, an intermediate smooth roll, a lower roll that is provided with circumferential grooves of gradually-diminishing width and depth, and a detachable conically-tapering mandrel supported sidewise of one of the rolls, substantially as specified.

3. The combination, in jewelers' rolls, of an upper smooth and adjustable roll, a middle smooth roll, a lower roll having circumferential grooves of gradually-diminishing depth and width, a tapering mandrel alongside of the middle roll, secured in position by a key, a hand-wheel attached to the shaft of the middle roll, and gear-wheels on the shafts of the rolls and mandrel by which rotary motion may be communicated from the middle roll to the upper and lower rolls and mandrel, respectively, substantially as specified.

316,136. MECHANICAL MOVEMENT. JOHN F. POSS, Tewksbury assignor to the Hopedale Machine Company, Hopedale, Mass. Filed Mar 9, 1885. (No model.)

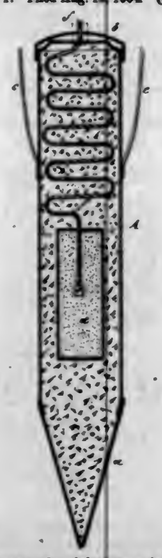


Claim.—1. The driving-shaft B, the driving cone-pulley B' thereon, the shaft C and driven cone-pulley thereon, the belt-shipper fork D', to control the belt D, connecting the said two cone-pulleys, a screw, and means to rotate it and the sleeve-nut, and means to connect the hub of the belt-shipper loosely therewith, combined with a speed-varying guide and means between it and the said nut *e* to effect the partial rotation of the said nut on the screw *d* independent of the movement given to the said nut by the said screw, whereby the speed of the shipper is made variable, substantially as described.

2. The driving-shaft B, the driving cone-pulley thereon, the shaft C and driven cone-pulley thereon, the belt-shipper fork D', to control the belt D, connecting the said two cone-pulleys, a screw, and means to rotate it and the sleeve-like nut *e*, and means to connect the hub of the belt-shipper loosely therewith, combined with a speed-varying guide, and means between it and the said nut *e* to effect the further rotation of the said nut on the screw *d* independent of the movement given to the said nut by the said screw, and with means to vary the position of the said guide, to operate all substantially as described.

3. A rotating driving-cone, a cone driven by it, the belt to connect the said cones, the belt-shipper, and the rotating screw-threaded shaft on which it is arranged to travel at uniform speed, combined with means, substantially as described, for traversing said shipper faster or slower than it would be traversed by said screw-shaft, as set forth.

316,137. EXPLOSIVE WEIGHT FOR TORPEDOES. JAMES E. GALLAGHER, Olean, N. Y. Filed Aug. 12, 1884. (No model.)



Claim.—1. An improved weight for exploding torpedoes, consisting of a cylindrical and pointed casing containing a filling for weighting the same, and provided with an explosive held in position in the casing by said filling, and a fuse extending from the explosive through the top of the casing, substantially as herein shown and described.

2. The combination, with the hollow weighted case A, of the cartridge *d* within the case, the cap *e* within the cartridge, and the fuse *f* extending from the cap through the upper end of the case, substantially as herein shown and described.

316,138. CURRY-COMB. WILLIAM T. GILL, Otterville, Mo. Filed Aug. 22, 1884. (No model.)



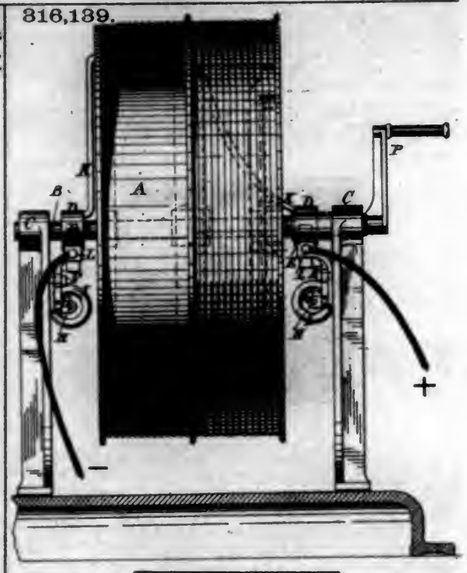
Claim.—1. In a curry-comb, the combination, with a handle, A, of the shank B in line therewith, a circular plate, C, consisting of a ring, *c*, and cross-bars *c'*, parallel series of toothed bars J, and a pivot, I, by which the center of the plate is journaled to the end of the shank.

2. In a curry-comb, the combination, with a handle, A', of the shank B in line therewith, having a downward projection provided with a lip, J, to form a support for the plate, a circular plate, C, consisting of a ring, *c*, and cross-bar *c'*, parallel series of toothed bars J, and a pivot, I, by which the center of the plate is journaled to the end of the shank.

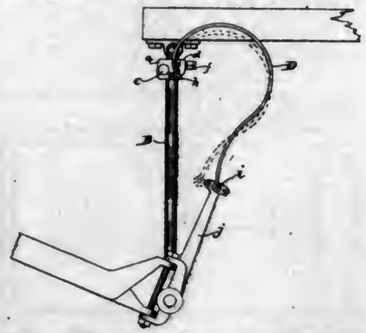
316,139. APPARATUS FOR THE TRANSMISSION OF AN ELECTRIC CURRENT TO MOVING OBJECTS. LOUIS GOLDSMID, Love Lane, London, and ALEXANDER L. FYFE, Loughborough Park, County of Surrey, England. Filed May 26, 1884. (No model.)

Claim.—In an apparatus for the transmission of electrical currents to movable objects, the combination, substantially as shown and described, consisting of the drums A A, fixed to shaft or axis B, having their bearings in standards C C, the metallic rings D, insulated from the shaft B, one of which is in electrical contact with one end of the positive conductor, while the other is in contact with the negative conductor, the brushes E, bearing upon the periphery of the metallic rings D, pivot F, swivel-nut G, the latter adapted to receive the screw H of the hand-wheel I, the internal gear, M, of the drums A A, adapted to engage with a pinion, O, rotated by the handle P, the whole forming a complete device.

316,139.



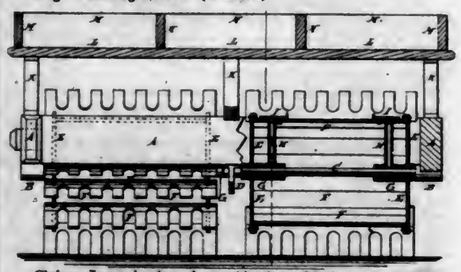
316,140. CULTIVATOR-SPRING. JOHN GOODHOUSE, Indianapolis, Ind. Filed Dec. 3, 1884. (No model.)



Claim.—1. The arch of a cultivator, the spring for lifting the plow-beam of said cultivator, the arm secured to said arch, the set-screw in said arm, and the bar to receive the hooked end of the spring, all combined substantially as shown and described, for the purpose specified.

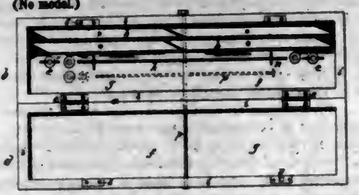
2. The fastening for securing a spring to a cultivator-arch, consisting of the clip *a*, arms *d* and *e*, set-screw *f*, and bar *g*, all combined substantially as specified.

316,141. SOD-GROUND PULVERIZER. ARIJAH L. GORDON, Helix, Oreg. Filed Aug. 9, 1884. (No model.)



Claim.—In a pulverizer, the combination, with the frame A and the shaft C, of the pairs of disks E, having long hubs G, and the sets of plates F, each having an inclined tapered and scalloped flange forming a series of broad pointed teeth, substantially as herein shown and described, whereby sods will be cut and torn in pieces without being turned or raised from their places, as set forth.

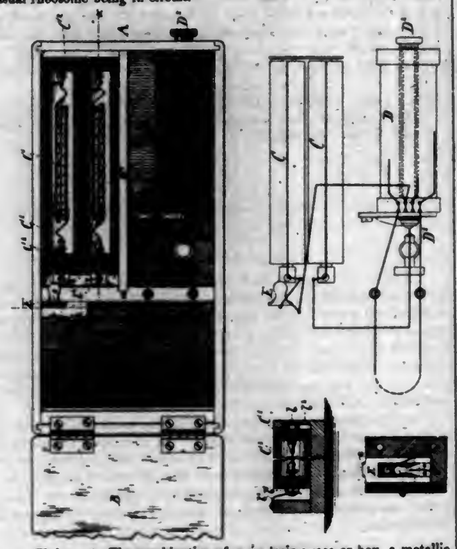
316,142. FOLDING TABLE. NORMAN N. GORDON, Rochester, N. Y., assignor of one-half to Rudolph Lichtenstein, same place. Filed May 8, 1884. (No model.)



Claim.—A folding table having the top board divided longitudinally along its center, and provided with strips *i*, secured to the under surfaces of the two parts of the top board along the sides and ends thereof, the two parts being joined by hinges at the line of division for the purpose of folding, said strips *i* at the two outer sides of the top board being provided with recesses *r* and metal plates *s*, in combination with cross-legs *k*, for supporting the table, provided with metal tips *o* at their upper ends, formed to enter said recesses *r*, and a cross-bolt, *p*, passed transversely through the strips *i*, all combined and arranged substantially as shown and described.

316,143. INDUCTION-MACHINE. PAUL HAERRY, New York, N. Y. Filed Mar. 21, 1884. (No model.)

Brief.—Chloride of silver and zinc electrodes (the former inclosed in a linen or other textile covering) are separated by several layers of blotting-paper or other absorbent, and bound together, then moistened, and placed in a glass tube to prevent evaporation. Two such cells are coupled in series by putting opposite ends against a common conductor, *b'*. A slide, *d'*, makes contact with primary of induction-coil when raised, the usual rheotome being in circuit.



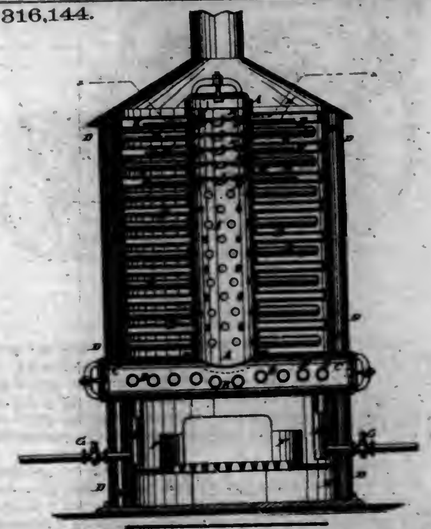
Claim.—1. The combination of an inclosing case or box, a metallic contact-plate located in a recess of the wall of the box, a transverse partition having contact-springs, dry piles or batteries, and inclosing-cylinders having detachable heads, said heads having contact-screws to which the electrodes are connected, substantially as set forth.

2. The combination of an inclosing case or box, a metallic contact-plate located in a recess of the wall of the box, a transverse partition having contact-springs, dry piles or batteries supported in said box and connected to the contact plates and springs, an induction-coil, and a vertically-sliding switch by which the induction-coil is thrown in or out of circuit with the piles, substantially as set forth.

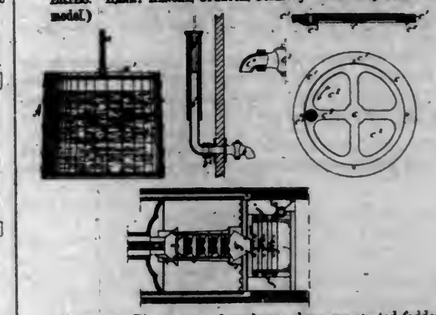
316,144. STEAM-BOILER. SAMUEL P. HEDGES, Greenport, N. Y. Filed Jan. 24, 1885. (No model.)

Claim.—In a steam-boiler, the combination, with the upright cylinder A, the outwardly-projecting tubes B, and the projecting ends of the plates H, inserted in the said tubes B, of the centrally-perforated and concaved plates I, substantially as herein shown and described, whereby the ascending water and steam will be separated and dry superheated steam delivered to the steam-pipe, as set forth.

316,144.



316,145. PROCESS OF AND APPARATUS FOR PRODUCING FODDER FROM RESIDUAL PRODUCTS OF DISTILLERIES AND BREWERIES. HENRY HENCKE, Gruneck, Germany. Filed July 23, 1884. (No model.)



Claim.—1. The process of producing dry concentrated fodder from the residual products of distilleries, breweries, and sugar and starch factories, which consists in the decantation of the waste under admixture of a glutinous solution for precipitation of the albuminous and heavier particles, the deoxidation of the waste freed from water by the addition of carbonate of lime, and the evaporation and drying of the waste mixed with carbonate of soda, substantially as specified.

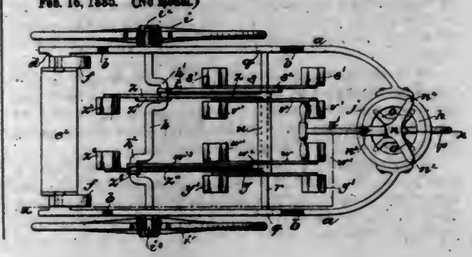
2. In an apparatus for obtaining concentrated fodder from waste, the combination of cock *b* with upright pipe *b'* and sleeve *b²*, adapted to slide on pipe *b'*, substantially as and for the purpose specified.

3. The combination of evaporator D with dome D' and pipe D², and with drying-pans T' T² T³ and heating-pipe *r*, substantially as specified.

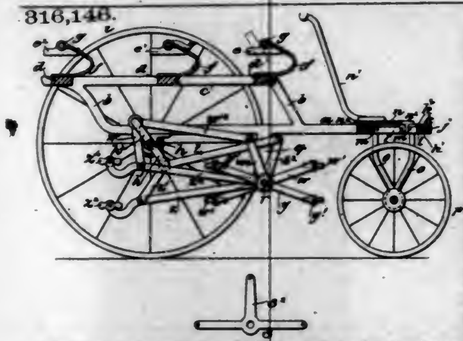
4. The combination of tank A' with heating-cylinders Z' Z² Z³, arranged in pairs, and with scrapers *f* and hopper *g*, substantially as specified.

5. The combination of tank A' with inclined plates *d e*, rollers Z' Z² Z³, set-screws *w*, weighted pivoted scrapers *f*, and with perforated hopper *g*, substantially as herein shown and described.

316,146. TRICYCLE. CARL G. E. HENNIG, Paterson, N. J. Filed Feb. 16, 1885. (No model.)



316,146.



Claim.—1. In a tricycle, the combination, with treadles placed upon the shaft *r* and connected with the cranks of the main crank-axle *h*, to which the drive-wheels are attached, of the treadles *s s'*, pivoted at their forward ends upon the shaft *r* and extending under and in rear of the main axle *h*, and connected to the cranks of the said main axle *h* to act with full leverage when the treadles on shaft *r* are at the dead-center, substantially as described.

2. The treadles *s y*, secured to shaft *r*, and treadles *v w*, attached to the sleeve *u*, placed loosely upon the shaft *r*, the treadles *s* and *w* being provided with rocker-arms s^2 w^2, respectively connected to the opposite cranks of the axle *h*, in combination with the treadles *s s'*, attached to the shaft *r* at their forward ends and reaching back under and in rear of axle *h*, and connected to the cranks h' h^2 thereof by connecting-rods $s' s^2$, substantially as described.

3. The springs *f*, supported upon the cross-piece *d*, in combination with the seats pivoted to the upper ends of the springs, substantially as described.

4. The side pieces *a* of the frame of the tricycle secured to the ring *j*, in combination with the inner rings, *k l*, and spider *n*, formed with lugs *m* and portions n^2, that overlap the ring *j*, the arms *o* being attached to the ring *l*, substantially as and for the purposes described.

316,147. VALVE-STOPPER FOR PERFUME AND OTHER BOTTLES. ISAAC W. HEYSINGER, Philadelphia, Pa. Filed Sept. 27, 1884. (No model.)



Claim.—1. As an article of manufacture, a spring-valve bottle-stopper consisting of a hollow barrel adapted to enter the neck of a bottle, and provided with an internal valve-seat at its upper end, and a support for an internal spring at its lower part, a valve reciprocating within said barrel against a spring adapted by its upward pressure to close the same, and a screw-threaded stem projecting from the said valve loosely through the said valve-seat, and provided with a screw-cap adapted to be firmly screwed down upon the top of the said barrel so as to draw up and firmly close the valve, or to be screwed backward so as to allow a greater or less reciprocation of the said valve within the said barrel, substantially as described.

2. In combination with the barrel B^3, the valve E^3, adapted to reciprocate within the same, and having a stem, E, projecting through and loosely fitted in and passing through the valve-seat B^4, and provided with an adjustable cap, D, constructed to be set at different distances along the said stem E so as to vary the length of reciprocation of the said valve E^3 in the said barrel B^3 and regulate the discharge of liquids passing through the said barrel, substantially as described.

3. In a bottle-stopper provided with an internal valve and spring, the flanged head B and barrel B', having the internal chamber, B^3, and provided with the opposite lips *b b'*, bent horizontally inward to retain and form a secure seat for the said internal spring, substantially as described.

4. In combination with the valve $E' E^3$, having the screw-threaded stem E and the flat rod E^2, the barrel B^3, in which the said valve reciprocates, the same being provided at its lower portion with turned-in lips *b b'*, adapted to engage against the flat sides of the rod E^2 and prevent the rotation of the same, substantially as described.

5. In combination with a bottle-stopper having the upwardly-acting internal valve, E^3, and the projecting stem E, the detachable and vertically-adjustable cap D, adapted to firmly fix the valve for transportation, and to be removed without impairing the action of the spring-valve, substantially as described.

6. The automatic spring-valve bottle-stopper having the head B provided with the opposite valve-seats, B^2 and B^4, connected by the opening B^5, in combination with the upwardly-closing spring-valve E^3, the projecting screw-threaded stem E, and the downwardly-closing screw cap or valve D^2, the same being so constructed as when operated to draw the opposite valves toward each other and firmly socket the same in their respective seats, or to be mechanically adjusted to open or close the same, substantially as described.

7. The stopper for perfume or other bottles, consisting of the flanged head B, provided with the barrel B', the internal cylindrical chamber, B^3, the valve-seats B^2 B^4, and the opening B^5, connecting the same, the elastic packing-ring C, the valve and stem E E' E^3, adapted to reciprocate in said cylinder or barrel B^3, the upwardly-acting spring F, supported at its lower end upon the shoulders *b b'*, and the screw-cap D D' D^2, the whole constructed and adapted to operate substantially as herein set forth.

8. The valve-stopper for perfume and other bottles, consisting of the barrel $B' B^3$, provided with the valve-seat B^4, and the upwardly-acting valve E^3, reciprocating therein in the manner of a loosely-fitting piston, and provided with a projecting stem, E, having attached thereto and reciprocating therewith an upper cap or valve, D^2, adapted to close the opening B^5 when pressed down upon the valve-seat B^2, the whole being so constructed that when the bottle is inverted and pressure is applied to the cap D the inner valve will be opened and the outer one closed, and when the pressure is released the internal valve, E^3, will be driven against its seat B^4, firmly closing the same, and at the same time ejecting a part or all of the liquid contained between the said valve E^3 and the said valve-seat B^4, substantially as and for the purposes described.

9. In combination with the bottle A, having the contracted neck A', the upwardly-acting internal valve, E^3, seated against the vent of said bottle, and provided with an upwardly-projecting stem, E, extending into and above the mouth of the said bottle, and the adjustable cap or stop D, adapted to be fixed at different distances along the said stem E in such manner that when closed down tightly it will engage with the top part of the bottle and firmly draw up the valve E^3 and hold the same against displacement, and when adjusted at other points along the said stem E will allow the valve to be opened to a greater or less extent by pressure upon said stem, substantially as and for the purposes described.

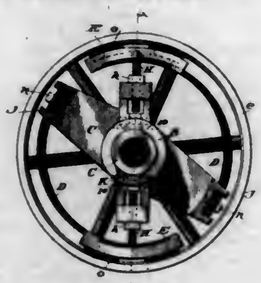
316,148. CORSET-STEEL CLASP OR FASTENING. LUCIAN HILL, North Brookfield, Mass., assignor to Theodore C. Bates, same place. Filed Feb. 9, 1885. (No model.)



Claim.—1. A corset-steel having attached to it a plate provided with a substantially round hole, and having a narrow slit leading out from the said eye to form the plate into a spring-jaw, combined with a second or opposed steel having a stud with an enlarged head to be forced longitudinally through the hole 2 of the said plate in the direction of its thickness and between the arms of the jaw, the latter springing together below the said head and operating to retain the stud in said hole, substantially as described.

2. In a corset-steel fastening, a steel having an attached plate provided with a countersunk eye and a narrow slot intersecting the said eye, as shown, forming the plate into jaws, combined with steel *b* and its attached headed stud of a diameter greater than the eye of the plate, the stud having the rounded head and entering the eye only in the direction of the thickness of the plate, all operating substantially as shown and described.

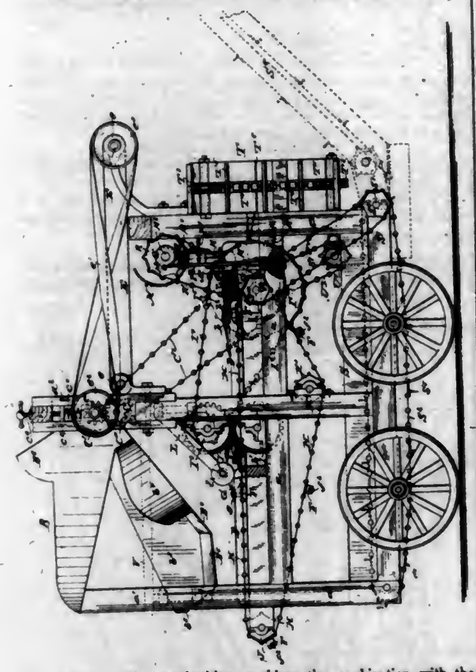
316,149. FRICTION COUPLING DEVICE. RICHARD H. HILL, Holyoke, Mass. Filed Jan. 4, 1884. (No model.)



Claim.—1. The combination of the pulley A with the carrier C, consisting of a hub having arms upon which are rigidly fastened at one end segments of a ring, D D, provided with movable shoes E E, having friction-pads fitting the friction-surface of the pulley A, all substantially for the purpose as set forth.

2. The carrier C, consisting of a hub having arms upon which are rigidly fastened at one end segments of the ring D D, having movable friction-shoes E E, fitting the friction-surface of the pulley A, substantially for the purpose as set forth.

316,150. CORN-HUSKING MACHINE. JOHN JOHNSTON and BURNET B. STEWART, Algonquin, Ill. Filed Aug. 15, 1884. (No model.)



Claim.—1. In corn-husking machines, the combination, with the ear-carrier, of the feed-table B, constructed with a platform, B', an opening, B^3, leading to the rolls C C', an opening, B^2, at the rear of the platform B', a downwardly-inclined platform, B^4, to receive the corn-ears, and a laterally-extending inclined platform, B^2, to discharge the ears to the carrier, substantially as shown and described.

2. The combination, in a corn-husking machine, of the feed-table B, having a platform, B', the stalk-feed rolls C C', the stalk-carrier E, the inclined platforms B^4 B^2 of the feed-table, the husking-brushes, and an ear-carrier placed below the feed-table for receiving the ears and carrying them to the husking-brushes, substantially as shown and described.

3. In a corn-husking machine, the carrier for unhusked ears, comprising a bed, D, having channels or gutters *d*, to receive the ears separately, and carriers F, placed across the bed and formed with notches *f*, to receive the butts of the ears and means for moving the carriers, substantially as shown and described.

4. In a corn-husking machine, the carrier for unhusked ears, comprising a bed, D, having channels *d*, and carriers F, placed across the bed and formed with notches *f*, to receive the butts of the ears, and a traveling chain or belt, to which said carrier is attached, substantially as shown and described.

5. The combination, with the carrier-bed D, having longitudinal grooves *d d*, of the longitudinally-moving ear-carrier F, extending across and down into said grooves *d*, and formed with notches or depressions in its upper surface to receive the stem of the ear, substantially as and for the purpose set forth.

6. The combination, in a corn-husking machine, of brushes arranged in pairs to rotate in opposite direction, with their concave peripheries facing each other, and said peripheries being elastically supported from the interior of the brushes, so as to yield to accommodate themselves to corn-ears of varying size, and means for carrying the ears to and between the brushes, substantially as shown and described.

7. The combination, in a corn-husking machine, of the ear-carrier bed D, having longitudinal grooves *d*, with the carriers F, having depressions or notches *f* extending across the grooves *d*, to receive the stem of the ear and support its butt, said plates being attached at their ends to endless chains, and the husking-brushes each comprising a rigid rim, a flexible toothed covering therefor, a hub, and an elastic connection between the said rim and hub, substantially as set forth.

8. A rotary brush for corn-husking machines, comprising a concave peripheral bushing rim and face, and means whereby it is supported from the interior of the brush on springs, so as to yield at the point of contact with the corn-ears, substantially as shown and described.

9. A rotary brush for corn-husking machines, comprising a concave peripheral rim and face, a hub, and springs whereby the rim *i* is supported from the interior, said springs curving from the center of the brush to its periphery in a direction reverse to the direction of rotation of the brush, substantially as shown and described.

10. A rotary brush for corn-husking machines, comprising brush material, a concave rim, *i*, a hub, i^2, and springs i', which curve in a direction reverse to the direction of rotation of the brush, said springs being secured to the rim *i* and hub i^2, so as to allow said springs and rim to yield to ears of varying size, substantially as shown and described.

11. In a corn-husking machine, the combination, with the ear-carrier and husking-brushes, of a presser consisting of a pivoted arm, L, and a roller, *l*, to rest on the ears, substantially as shown and described.

12. A corn-husking machine comprising a carrier for the ears, rotary brushes acting to brush the husks back toward and over the stems of the ears, a knife in the path of the carrier, and mechanism for automatically operating the knife to sever the stem and husk when the said carrier has brought the ear adjacent to the knife, substantially as set forth.

13. A corn-husking machine comprising a carrier for the ears, rotary brushes acting to brush the husks back over the butts of the ears, and a knife acting at the end of the carrier to sever the butts and husks from the ears, and a carriage which is fitted to slide to and from the carrier in its supports, substantially as shown and described.

14. A corn-husking machine comprising a carrier for the corn-ears, husking-brushes acting to brush the husks back over the butts of the ears, a knife, and a sliding carriage, said carriage being adapted to be forced back by the ear-carrier as the knife severs the butts and husks from the ear, substantially as shown and described.

15. A corn-husking machine comprising a carrier for the ears, husking-brushes acting to brush the husks back over the butts of the ears, a knife-carriage having a lower sliding knife, means whereby it is caused to rise to the point of severance of the butts and husks from the ears, to prevent back movement of the ears by the carrier, and an upper knife, which falls to sever the butts and husks from the ears, substantially as shown and described.

16. In a corn-husking machine, the knife-carriage constructed with a base-piece, M, standards M', the knife O, the head N, provided with an arm and fitted to the slide on the standards, bearings *m m* on the standards, shaft M^2, and open eccentric strap or band, M^4, which rests on the arm of the knife-head, substantially as shown and described.

17. In a corn-husking machine, the knife-carriage constructed with a base-piece, M, standards M', the knife O, the head N, fitted to slide on the standards, bearings on the standards, the shaft M^2, carrying collars Q, with tappets *q*, and devices for lifting the knife O, a lower knife, P, and a head, P', adapted to slide in the base-piece M, and lifting-rods P^2, substantially as shown and described.

18. The combination, with the knife-carriage bed-piece M, the knife P, head P', fitted to slide in the bed-piece, and the rods P^2, connected to the head P', of the collar Q, fixed on the driving-shaft M^2, and provided with tappets *q* and grooves *q'*, and the heads of the rods P^2 being bent twice to enter the grooves *q'*, and extend laterally by arms p^3 in the paths of the tappets, substantially as shown and described.

19. The combination, with the knife-head P', shaft M^2, grooved collars Q, and connecting-rods P^2, attached to the knife-head P', and resting in the grooves *q'* of the tappet-collars Q, of the spring p^4, substantially as herein shown and described.

20. The combination, with the supporting-frame, the ear-carriers, and the knife-carriage fitted to slide to and from the ear-carriers F, which force the knife-carriage backward, of a spring to move the carriage forward, substantially as shown and described.

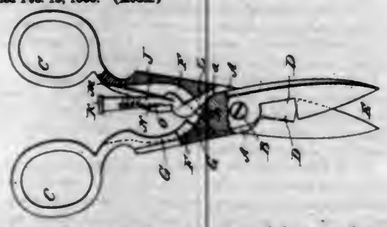
21. The combination, with the sliding knife-carriage, of the carriers F and the rollers f^2, by which the carriage is forced back, substantially as shown and described.

22. In a corn-husking machine, the combination of a carrier for the unhusked ears, rotary brushes acting at opposite sides of the ears to brush the husks back over the butts of the ears, knives acting at the end of said carrier to sever the butts and husks from the ears, a carrier, S, below the knives to convey the severed husks to a point of discharge, and a carrier, T, behind the knife to deliver the husked corn from the machine, substantially as shown and described.

23. A corn-husking machine comprising a feed-table, B, rolls C C', stalk-carrier E, unhusked-ear carrier D F H, brushes I I, acting to brush the husks back over the butts of the ears, knives O P, acting to sever the butts and husks from the ears, a carrier, S, to convey and discharge the severed husks, and a carrier, T, behind the knife to deliver the

husked corn from the machine, all constructed and adapted to operate substantially as shown and described.

316,151. BUTTON-HOLE CUTTER. MAX KANAK, New York, N. Y. Filed Feb. 13, 1885. (Model.)



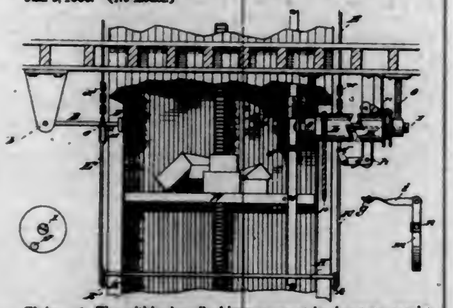
Claim.—1. The combination, with a button-hole cutter, of an adjusting-key sliding on one of the legs in the direction of its length and between the legs at the joint, substantially as set forth.

2. The combination, with a button-hole cutter, of a sliding key between the legs at the joint, and of a spring acting on the said key, substantially as herein shown and described.

3. The combination, with a button-hole cutter, of a sliding adjusting-key in the inner edge of one leg, which key has a beveled head, substantially as herein shown and described.

4. The combination, with a button-hole cutter, of the key J, having notches O, the spring M, and the pin N, substantially as herein shown and described.

316,152. ELEVATOR. FRANK S. KING, West Brimfield, Mass. Filed Jan. 6, 1885. (No model.)



Claim.—1. The within-described improvement in elevators, consisting of a movable bar, D, arranged in the doorway in close proximity to its top and the track of a lift, W, a clutch consisting of a splined section, H, a spindle, I, hung in bearings O O, and a constantly-revolving loose section, L, a crank-arm, J, upon spindle I, an operating-rod, M, having an arm, V, adapted to be moved by crank-arm J, and mechanism, substantially as shown and described, for connecting bar D and clutch-section H, and for converting a movement of the former to a motion of the latter, for the purpose set forth.

2. In an elevator, the combination, with two movable frames, B, having bars D, supported in position to intercept a projection from lift W before striking the top of the doorway, and arranged upon opposite doorways, of rods E E', framed to crank-arms *k k'* from shaft K, and adapted to convey a movement of the frame B upon either side to the mechanism operating the stopping-rod M, substantially as shown and described.

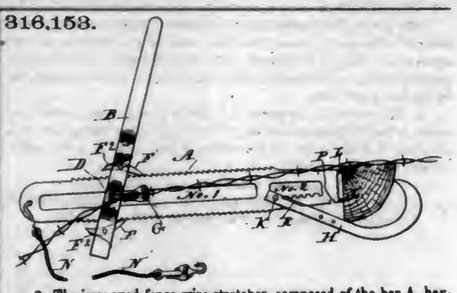
3. In an elevator, the combination, with rods E E' upon opposite doorways, and adapted upon an upward movement to operate mechanism for moving rod M, and so stopping the elevator, of superimposed frames B, arranged to operate as shown, and flexible connections from said frames to rods E E', adapted to be operative upon a movement of frames B, to lift only the connections interposed between said frames and the rods below the same, for the purpose as set forth.

316,153. FENCE-WIRE STRETCHER. CHRISTIAN KONRAD, Lacona, Iowa. Filed May 10, 1884. (No model.)

Claim.—1. The bar A, having ratchet-faced edges and slots Nos. 1 and 2, the lever B, having a loop, C, and carrying pawls F, the pivoted bearer G, carrying wire-clamping devices, the adjustable hook H, and the prop M, arranged and combined to operate in the manner set forth, for the purposes specified.

2. The bar A, having a slot, No. 2, with one edge thereof notched to produce a rack, and a notch, P, in its outside edge, and the lever H J K, having a cutting-edge, R, arranged and combined to operate in the manner set forth, for the purposes specified.

316,153.

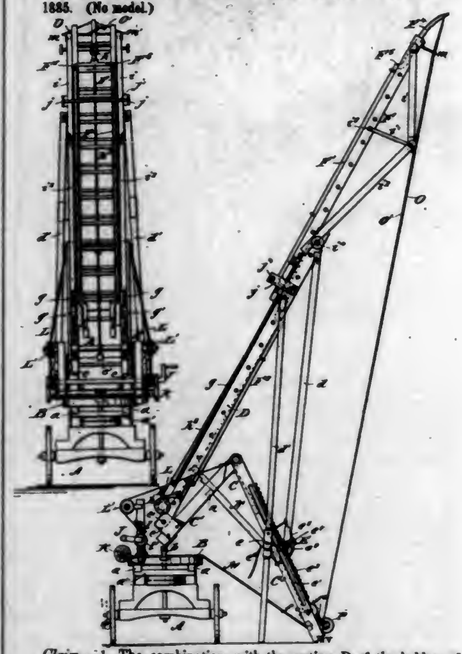


3. The improved fence-wire stretcher, composed of the bar A, having ratchet-teeth on its edges, and slots Nos. 1 and 2, a rack in the edge of slot No. 2, spurs L, and a notch, P, the lever B, carrying the wire-holding device G, and pawls F, the hook H J K R, the prop M, and the rope N, substantially as shown and described.

316,154. WASHING-LIQUID. LOUIS KUHLMANN, Brooklyn, N. Y. Filed Feb. 16, 1885. (No specimens.)

Claim.—A washing-liquid consisting of oil of spearmint, oil of tansy, oil of pennyroyal, oil of wintergreen, oil of caraway, coal-oil, and alcohol, substantially as and for the purpose specified.

316,155. FIRE-LADDER. CONSTANTIN LAZAREVITCH, Brooklyn, N. Y., assignor to himself and John C. Lazarevitch, same place. Filed Mar. 16, 1885. (No model.)



Claim.—1. The combination, with the section D of the ladder, of the folding support C, composed of two sections, C' C², hinged together and arranged to operate substantially as described.

2. The section C' of the folding support, hinged to the turn-table B, and having the lower section, D, of the ladder attached to it, in combination with the section C² of the folding support hinged to the section C' and arranged to support the ladder from the ground, substantially as described.

3. The section D of the ladder, provided with the braces *d*, in combination with the adjustable cross-piece E, placed upon the brace or support C of the ladder, substantially as and for the purposes set forth.

4. The support C, provided with ratchet-plates c^3, in combination with the bar E, provided with pawls c^3, and the section D of the latter provided with braces *d*, adapted to be attached to the cross-piece E, substantially as and for the purposes set forth.

5. The section D of the ladder, provided with the braces *d*, in combination with the adjustable cross-piece E, pawls c^3, windlass *f*, pulley *f'*, and rope f^3, all arranged to operate substantially as and for the purposes set forth.

6. The sectional folding brace or support C, hinged to the truck or turn-table B, in combination with the sections of the ladder and the windlass J and rope L, attached to the sectional brace or support, substantially as and for the purposes set forth.

7. The sectional folding brace or support C, hinged to the truck or turn-table B, in combination with the windlass J K and ropes L M, attached to the folding brace or support C, substantially as and for the purposes set forth.

8. The combination, with the section D of the ladder, of the water-pipes F^2, substantially as and for the purposes set forth.

9. The combination, with the section D of the ladder, and section F, sliding thereon, of the water-pipes F' F^2, adapted to be coupled together when the section F of the ladder is raised, substantially as described.

10. The combination, with the sections D F of the ladder, of the braces *i i' i²*, arranged to be attached to both sections, substantially as described.

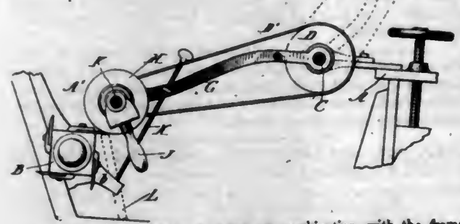
11. The combination, with the sections D F of the ladder and the water-pipes F' F^2, of the nozzle F^4 and connecting-pipe F^5, substantially as and for the purposes set forth.

12. The combination, with the sections D F, pipes F' F^2 F, and flexible nozzle F^4, of the ropes O O', eyes *m m'*, and the windlass P, arranged substantially as and for the purposes set forth.

13. The frame of the truck, provided with the pivoted lifter G, adapted for raising the ladder and brace or support C, substantially as and for the purposes set forth.

14. The lifter G, pivoted in the frame, and provided with arms or levers l^2, in combination with the windlass *k*, pulley *k'*, and ropes l^2, for turning the lifter upon its pivots, substantially as and for the purposes set forth.

316,156. PLANING-MACHINE ATTACHMENT. HENRY LEVERENTZ, Chicago, Ill. Filed Dec. 2, 1884. (No model.)



Claim.—In a planing-machine, the combination, with the frame thereof, of swinging frame G, loosely mounted upon shaft C, shaft F, mounted in frame G, sharpener H, adjustably mounted on shaft F, and adjusting and supporting screws K, all arranged as and for the purpose set forth.

316,157. BOW-GUIDE FOR VIOLINS. ALFRED MARTEL, Montreal, Quebec, Canada. Filed Apr. 18, 1884. (No model.)



Claim.—1. In a bow-guide, the reversed-U-formed bent cross-bar *a b b*, having holes at *c* and *d* for introducing the thumb-screw *e f*, arranged as described, and for the purposes set forth.

2. In a bow-guide, the cross-bar *a*, having legs *b b*, hinged at *g g*, and extra bends *h h*, all arranged to operate substantially as and for the purposes herein set forth.

316,158. BOOT OR SHOE. WALTER T. MARTIN, Danvers, Mass. Filed Jan. 5, 1885. (No model.)

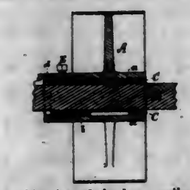


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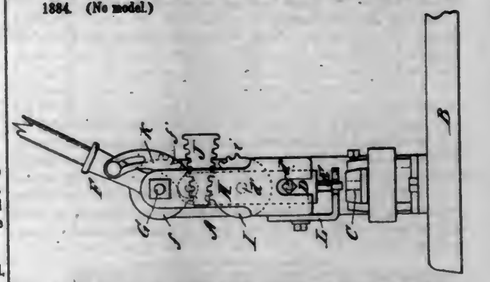
Claim.—In a boot or shoe upper, of a curved seam uniting two portions of leather, one of such portions provided with an integral overlapping flap or stay having its edge separated by transverse cuts or slits and united to the other portion by stitches, all substantially as set forth.

316,159. MECHANISM FOR LUBRICATING THE LOOSE PULLEY OF A SHAFT. JOHN MCCAFFERY, Lawrence, Mass. Filed Feb. 9, 1885. (No model.)



Claim.—The combination of the loose pulley and its shaft, and the sleeve arranged within the hub of the pulley and upon the shaft concentrically, and provided with oil-ducts extending into it, the said sleeve, from its outer end, with the collar chambered and encompassing an opening at its outer end around the shaft, and fixed to it by set-screws, and abutting against the hub of the pulley, all being substantially as represented, and the sleeve being fastened to the hub or free to revolve thereon, as set forth.

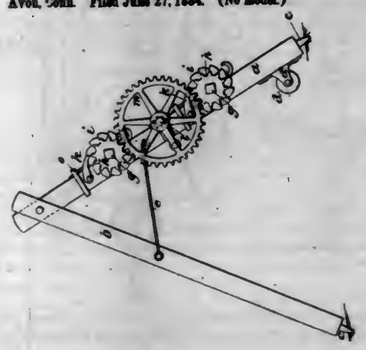
316,160. METAL-PUNCH. GILBERT MCDONALD, Augusta, Kans., assignor of two-thirds to David Bunn, Silver City, N. Mex. Filed July 29, 1884. (No model.)



Claim.—1. In a metal-punch, the combination, with a plunger and its operating-lever, of a wedge interposed between said plunger and lever, and operated by the latter, as set forth.

2. The lever F, having the cogs *f'*, and the plunger D, having cogged wheel I, in combination with the cogged wedge J, placed between the lever and roller, substantially as set forth.

316,161. WIRE CARRIER AND STRETCHER. WILLIAM J. MCKEE, Avon, Conn. Filed June 27, 1884. (No model.)



Claim.—1. In a wire carrier and stretcher, the bars *a*, having rollers *d* on the lower ends of their under sides, the spool-shafts *g g* and their operating mechanism, the braces *b*, hinged to the upper ends of the bars *a*, the hooked bars *e e*, and the spikes *c* in the lower ends of the bars and braces, substantially as set forth.

2. The combination, in a wire carrier and stretcher, of a frame, the shafts *g*, gear-wheels *h* and ratchets *i* thereon, pawls K, and the removable gear-wheel *m*, adapted to mesh with the said gears *h h*, whereby the wires may be stretched by or wound on the said shafts in the manner described.

316,162. CALENDAR. DANIEL M. MCLELLAN, Brooklyn, N. Y. Filed Sept. 18, 1884. (No model.)

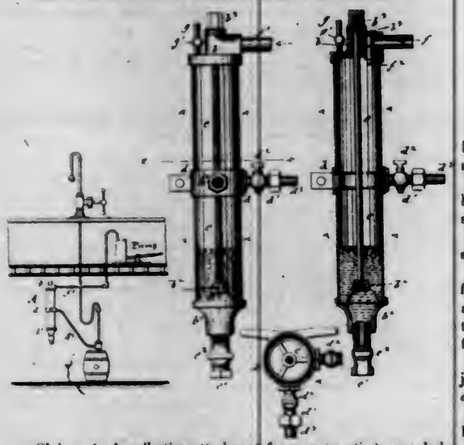


Claim.—1. A calendar consisting of a series of monthly slips having printed thereon the names of the days of the week and month, and the numbers representing the days of the month in excess of twenty-eight, and a back upon which said slips are attached, and so placed that the numbers from 1 to 28 imprinted on the said back shall be above the said slips, substantially as described.

2. A calendar consisting of a sheet having the monthly calendar of the last month of the series printed thereon, and of a series of slips attached thereto and placed to conceal a part of the said monthly calendar, said slips representing in proper order the several preceding months, and each having printed thereon the names of the days of the week and month, and the days of the month following the latest exposed date of the said last monthly calendar, substantially as described.

3. A calendar consisting of a sheet having the monthly calendar of the last month of the series printed thereon, the name of the month and year being printed in the space following the number representing the last day of the month, and of a series of slips attached thereto and placed to conceal a part of the said monthly calendar, said slips representing in proper order the several preceding months, and each having printed thereon the names of the days of the week and month, and the numbers representing the year and the days of the month following the latest exposed date of the said last monthly calendar, substantially as described.

316,163. ATTACHMENT FOR PNEUMATIC BEER-PUMPS. FREDERICK MOHN, Detroit, Mich. Filed Oct. 25, 1884. (No model.)



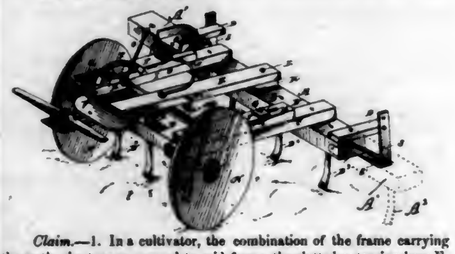
Claim.—1. A collecting attachment for a pneumatic beer and ale raising apparatus, consisting of a cylindrical vessel provided with a bottom discharge-spout, intermediate couplings for the air-conducting pipes, and with a valved air-supply pipe at the top, substantially as set forth.

2. A collecting attachment for a pneumatic beer and ale raising apparatus, composed of glass cylinders, top and bottom caps, an intermediate ring or rings, and a central screw-rod connecting the top and bottom caps, the bottom cap having a discharge-spout, the intermediate ring-couplings for the air-conducting pipes, and the top cap having a valved air-supply pipe, substantially as described.

3. The combination, in a pneumatic beer-raising apparatus, of a collecting-vessel with the air-conducting pipes leading from the pump or air-reservoir to the keg or kegs, substantially as set forth.

4. The combination, in a pneumatic beer and ale raising apparatus, of air-conducting pipes leading from the pump and air-reservoir to the kegs or barrels, and a collecting-vessel connected at the valved upper end to the air-pipe leading to the pump or air-reservoir, and at its middle part with an air pipe or pipes leading to the kegs, the vessel being provided with a bottom discharge-spout and stop-cock, substantially as set forth.

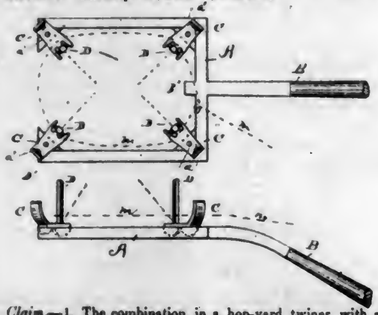
316,164. CULTIVATOR. STILLMAN A. MOULTON, San José, Cal. Filed Jan. 5, 1885. (No model.)



Claim.—1. In a cultivator, the combination of the frame carrying the teeth, the tongue secured to said frame, the slotted extension-bars F, the axle journaled in said bars, and the supporting-wheels, the axle being adjustable longitudinally on the frame, for the purpose set forth, substantially as described.

2. In a cultivator, the combination of the frame carrying the teeth, the tongue secured to said frame, the cranked axle journaled in blocks or bars that are adapted to be moved back or forth on the frame, a lever for turning the cranked axle, and a detent for securing said lever at any desired point, substantially as described.

316,165. HOP-YARD TWINER. EDWARD T. MULLIGAN, West Winfield, N. Y. Filed Apr. 16, 1884. (No model.)



Claim.—1. The combination, in a hop-yard twiner, with a frame having a handle, of pivoted arms having stops at their lower ends, springs *e*, and catch-frames, substantially as set forth.

2. In a hop-yard twiner, the combination, with a frame having a handle, and projection B', and grooves, of catch-frames and pivoted spring-actuated arms, substantially as set forth.

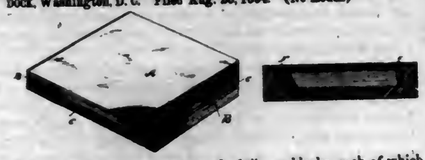
3. In a hop-yard twiner, the combination, with a frame, of pivoted spring-actuated arms and catch-frames, substantially as set forth.

4. In a hop-yard twiner, the combination, with a frame, of catch-frames, arms pivoted between the bifurcated ends of said catch-frames, and springs for holding said arms in a vertical position and allowing them to be lowered on a horizontal plane with the frame, substantially as set forth.

5. In a hop-yard twiner, the combination, with a frame having projection B', of pivoted arms, frames for supporting said arms, and springs *e*, substantially as set forth.

6. The combination, with the frame A, having handle B, projection B', and grooves *n'*, open at one end, of catch-frames secured in said grooves at the corners of the frame, arms D, having stops at their lower ends, and springs *e*, substantially as set forth.

316,166. PAVING-BLOCK. WILLIAM C. MURDOCK and EDWIN F. MURDOCK, Washington, D. C. Filed Aug. 20, 1884. (No model.)

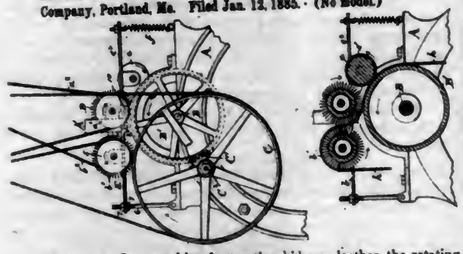


Claim.—1. A pavement composed of tiles or blocks, each of which has its opposite sides beveled outwardly from top to bottom or from bottom to top, as the case may be, so that any two of its intersecting sides will present reverse bevels, and said tiles or blocks being fitted together with their oppositely-beveled sides approximate, substantially as described.

2. A paving block or tile having its opposite sides beveled outwardly from top to bottom or from bottom to top, as the case may be, so that any two of its intersecting sides will present reverse bevels for the co-operation of the oppositely-beveled sides of other similarly-formed blocks or tiles, substantially as described.

3. A mold having the wedge-shaped pieces E E, set loosely in the mold and beveled under, substantially as described and shown, and for the purpose specified.

316,167. MACHINE FOR BRUSHING AND TREATING LEATHER. FRANCIS J. NELSON, Boston, Mass., assignor to the Batchelder Machine Company, Portland, Me. Filed Jan. 12, 1885. (No model.)



Claim.—1. In a machine for treating hides or leather, the rotating bed-roller B' and the rotating brush D, combined with the elastic-surfaced roller *e*, to act against the hide or leather on the roller B' in advance of the brush D, substantially as described.

2. The rotating bed-roller B' and the rotating brush D, combined with the rotating auxiliary brush *b'*, the brush D acting upon one and the brush *b'* upon the other side of the hide or leather, substantially as described.

3. In a machine for brushing leather, the two rotating brushes arranged to act upon both sides of the hide simultaneously, a hide-support, and a detaining or friction roller to act upon the hide on its way to and between the brushes, substantially as described.

316,168. VALVE. JEREMIAH O'MEARA, New York, N. Y. Filed Jan. 28, 1885. (No model.)



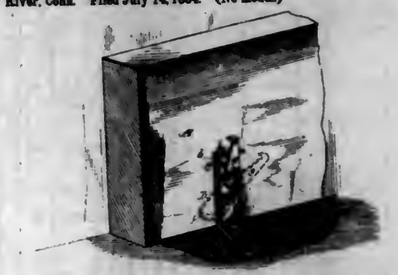
Claim.—1. The combination, with the socketed and flanged stem, of the valve having angular lugs to engage said stem, a pin to engage the socketed stem and valve, and a screw to retain the pin in such engagement and to release it, substantially as described

2. The combination, with the socketed and flanged stem, of the valve having angular lugs to engage said flanged stem, and provided with a screw-threaded hole, and the pin and screw therefor, substantially as described.

3. The combination of a socketed bonnet provided with a washer in the bottom of its socket, and superposed packing, a removable follower superposed upon the packing, a removable cap covering the socketed end of the bonnet, and a screw-threaded valve-stem movable longitudinally in said bonnet, to engage the lowermost washer therein and force it and its superposed packing out of the bonnet when the cap is removed, substantially as described.

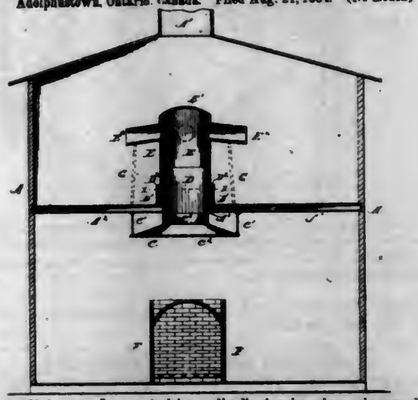
4. The combination, with the bonnet *j* and screw-cap or gland *o*, of a cap, *q*, fitting over said gland and secured thereto, and a pin, *t*, in said cap, engaging a hole or notch in the fillet or flange of the bonnet, to prevent the running off of the gland by the movement of the valve-stem, substantially as described.

316,169. CARPET-FASTENER. WELLINGTON L. PARMELEE, Deep River, Conn. Filed July 14, 1884. (No model.)



Claim.—In a carpet-fastener, an upright and vertically-slotted plate provided at its lower end with a claw and at its upper end with a keeper, in combination with a pivoted presser-foot provided with a cam-bearing flange, and having a handle for operating it, and bent, as shown, so as to engage with the keeper upon the end of the upright plate, substantially as and for the purpose specified.

316,170. MALT-DRIER. PERCIVAL PLATT and JAMES M. AITCHISON, Adolphustown, Ontario, Canada. Filed Aug. 21, 1884. (No model.)



Claim.—1. In a malt-drier, a distributing hot-air receiver made in sections removably connected together, and having radial arms for directing and discharging a supply of heated air over the top of the mass of malt or hops, substantially as described.

2. In a malt-drier, a distributing apparatus consisting of a receiving-section suspended from the bed of the kiln, a conducting or middle section resting on the bed of the kiln, and an upper or distributing section with arms, substantially as herein described.

3. In a malt-drier, a distributing apparatus consisting of a receiving-section suspended from the bed of the kiln and having a flaring mouth, a middle or conducting section having a surrounding sheath, and an upper section having radial arms for directing the heated air over the top of the mass of malt or hops, as herein described.

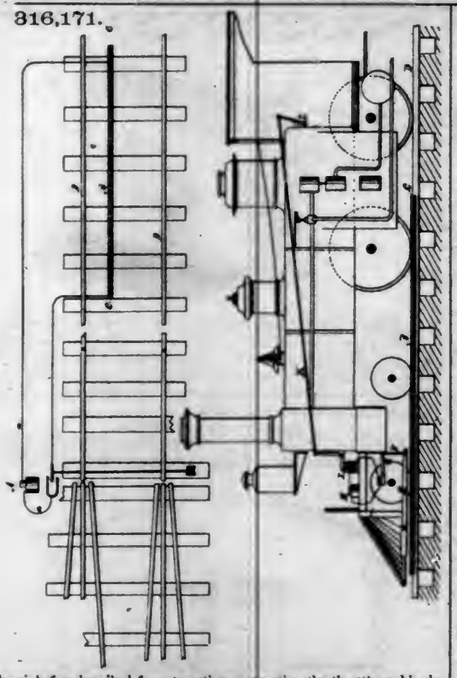
4. A malt-drier consisting of a malt-house having a bed for the malt and an exit-aperture at the top, a furnace located within the kiln, and a distributing apparatus consisting of a receiving-section suspended by rods from the bed of the kiln and having a flaring mouth, a middle or conducting section having a sheath resting upon the bed of the kiln and supporting the said middle section, and an upper section having a closed top or cap and radial arms, as herein shown and described.

316,171. MECHANISM FOR AUTOMATICALLY OPERATING THROTTLE AND BRAKE VALVES OF LOCOMOTIVES. THOMAS POTTER, Jersey City, N. J. Filed Sept. 11, 1884. (No model.)

Claim.—1. In combination, the movable rails of a switch or draw-bridge, a galvanic battery, and temporary magnet fixed adjacent to the main track of a railroad, a locomotive with a lever pivoted thereto and constructed to be operated by said magnet, and a series of levers and jointed arms connected with said pivoted lever, a galvanic battery fixed on said locomotive and connected with said series of levers, the throttle-valve and brake-valve of a locomotive, and an armature and mechanism connected therewith for operating said throttle and brake valves by the electric current of said galvanic battery on said locomotive, as and for the purpose described.

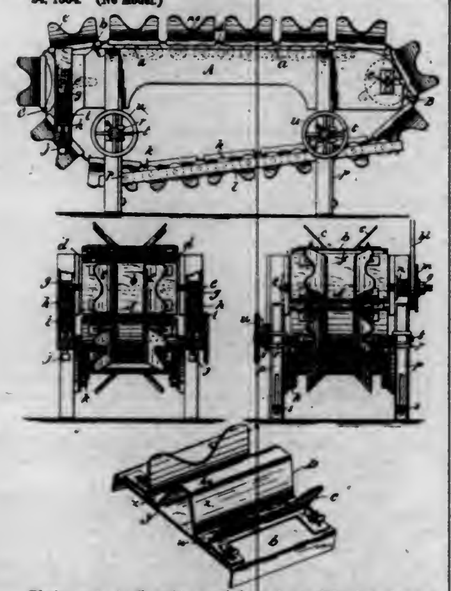
2. In a switch or draw-bridge, the combination of a galvanic battery fixed on the road side, a temporary magnet adjacent to the main track, a galvanic battery fixed on a locomotive, and the intermediate mechanism

316,171.



hereinbefore described for automatically operating the throttle and brake valves of the locomotive, and the mechanism constructed, combined, and arranged as stated for closing the battery-circuit on the locomotive, as and for the purpose described.

316,172. TILE-TABLE. GEORGE POTTS, Indianapolis, Ind. Filed Nov. 24, 1884. (No model.)



Claim.—1. A tile-table consisting of the following elements, namely: a frame having a series of friction-rollers forming a true bearing-surface, two reels mounted on shafts at opposite ends of said frame, one of which shafts rests in bearings on elastic supports and is adapted to yield and move in a vertical plane, and a series of tile-supports secured to an endless belt resting on said reels, and friction-rollers, all combined and adapted to co-operate substantially as specified.

2. In a tile-table, the combination, with an endless belt and a series of tile-supports secured thereto, the supporting-frame, the friction-rolls, and the reels, of the inclined ways having each a series of friction-wheels and adapted to support the under or return side of the belt, substantially as and for the purpose specified.

3. In a tile-table, the combination, with an endless belt having a series of tile-supports secured thereto at regular intervals, and a frame adapted to support said belt, of a reel having radial arms, the distance between the outer ends of which corresponds to the spaces between the tile-supports, said reel being mounted on bearings in said frame and adapted to carry said belt and tile-supports, substantially as specified.

4. In a tile-table, the tile-support consisting of a flat plate and a pair of angle-plates having opposed surfaces oppositely inclined to said flat plate and adjustably secured thereto, whereby said tile-support is adapted to receive and fit cylindrical tiles of different diameters.

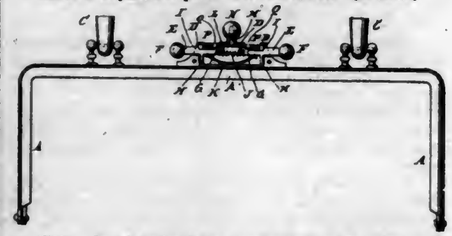
5. In a tile-table, the combination, with a tile-support consisting of a flat plate and two angle-plates adapted to be adjustably secured thereto and presenting opposed faces oppositely inclined to said flat plate, of the auxiliary support D, bent and formed substantially as shown and described, and adapted to co-operate therewith, for the purpose specified.

6. In a tile-table, the combination, with an endless belt having a series of tile-supports secured thereto, a frame supporting said belt, and a reel secured on a shaft having bearings in said frame and adapted to carry said belt, of the pulley mounted loosely on said shaft and connected therewith by a friction-clutch, all substantially as and for the purpose specified.

7. In a tile-table, the combination, with the frame and the endless belt of tile-supports mounted thereon, of the extension-legs having a rack formed thereon and actuated in pairs by a shaft mounted on the legs of said frame, and having a hand-wheel, a ratchet-wheel, and a pair of spur-pinions secured thereto, said pinions engaging the racks on said extension-legs, in the manner and for the purpose specified.

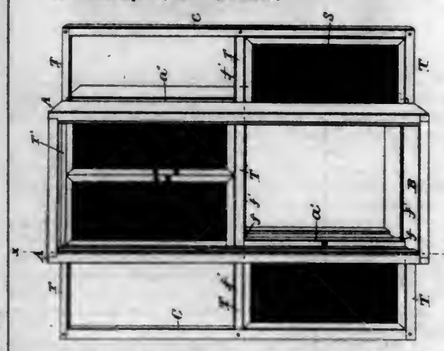
8. In a tile-table having tile-supports of substantially the length of a tile, a tile-support having notch *no* in its side plates, for the purpose specified.

316,173. FASTENING FOR BAG, POCKET-BOOK, OR PURSE FRAMES. LOUIS B. PRAHAR, Brooklyn, N. Y., assignor to himself and Charles S. Shepard, same place. Filed Mar. 6, 1885. (No model.)



Claim.—In a fastening for bag, pocket-book, or purse frames, the combination, with the case D, of the two latches E, the springs J K, and the plate and rod L M, substantially as herein shown and described, whereby the fastenings can be unlocked from the ends or center, as set forth.

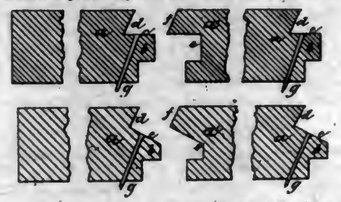
316,174. SLIDING WINDOW-SCREEN. JOHN C. PROCTOR, Wooster, Ohio. Filed Sept. 13, 1884. (No model.)



Claim.—In a window-frame, the combination, with slotted window-jambs A, of the horizontal guide-rails T, and the screens *s*, fitted between the guide-rails T, to slide thereon through the slotted jambs, substantially as and for the purpose specified.

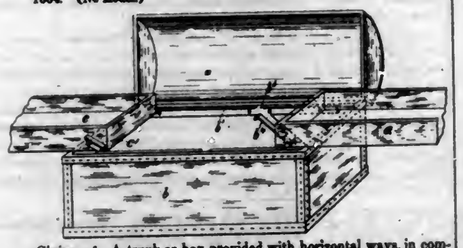
316,175. WOOD FLOORING, CEILING, OR DADO. ALFRED PURNET, London, England. Filed Nov. 13, 1884. (No model.)

Brief.—One edge of each board has a tongue and an inward inclined upper surface, and the other edge has a groove and an inclined surface which correspond, respectively, with said tongue and incline.



Claim.—The described improvements in wood flooring, consisting in forming one edge of the boards with a tongue, *b*, and inwardly-inclined surface *d*, adapted to take into and against the groove *e* and inclined surface *f* on the edge of the next board, as and for the purposes set forth, and represented in Figs. 1 and 2 of the drawings.

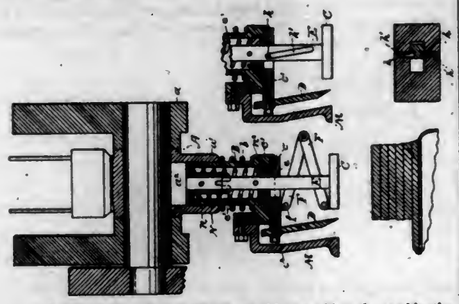
316,176. TRUNK. FRANK H. RAMSON, Buffalo, N. Y. Filed Sept. 10, 1884. (No model.)



Claim.—1. A trunk or box provided with horizontal ways, in combination with a tray having inclined flanges or ways a' and horizontal ways or flanges a^3 a^3, substantially as and for the purposes described.

2. In a trunk having a rest or support, b^3, the combination of the ways b', having openings b^3, and inclined ways b^4, with a tray provided with inclined flanges or ways c' c^3, as and for the purposes described.

316,177. HEEL-ATTACHING MACHINE. FREEBORN F. RAYMOND, 2d, Newton, Mass. Filed Feb. 2, 1885. (No model.)



Claim.—1. In a heel nailing or attaching machine, the combination of the block c', carrying the movable knife-block c and the knife D, and the bearing-block C and its post E, adapted to be moved automatically outward and connected with the knife-block to cause its movement in one direction or the other as it is moved toward the knife-block or away from it, all substantially as and for the purposes described.

2. The combination of the block c', the movable knife-holding block c, the breasting-knife D, the bearing-block C, the post E, spring e', and a device for moving the knife-block horizontally in the block c', operated by the bearing-block, all substantially as and for the purposes described.

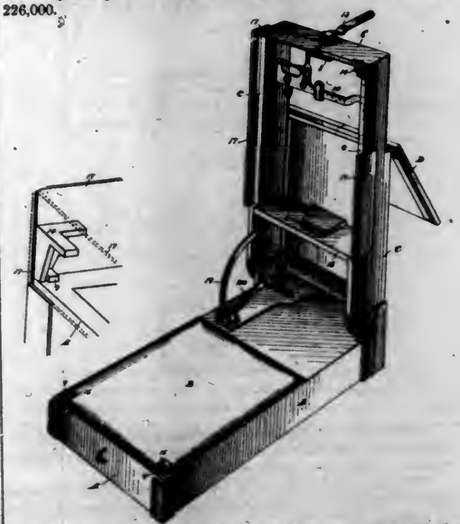
3. The combination of the arm a', block c, movable in relation thereto in opposition to the stress of the spring *b*, and carrying the presser-foot M, the heel-breasting knife D, and the bearing-block C, movable in said block c in opposition to the stress of the spring e', and a device connecting the block or its post to the knife-block, for causing its horizontal movement upon or during the vertical movement thereof, all substantially as and for the purposes described.

4. The combination of the bearing-block C, movable in relation to the block c', the knife-block c, horizontally movable upon the block c', breasting-knife D, the post E, having the guiding-recesses k', and the pins *k*, attached to the knife-block and entering the recesses, all substantially as and for the purposes described.

5. The combination of the post B, having the sleeve N, with the bearing-block c, its post E, and the spring *n*, all substantially as and for the purposes described.

316,178. FOLDING PLATFORM-SCALE. WILLIAM W. REYNOLDS, Rutland, Vt. Filed Jan. 6, 1885. (No model.)

Brief.—Improvement on the folding scale shown in Patent No. 226,000.

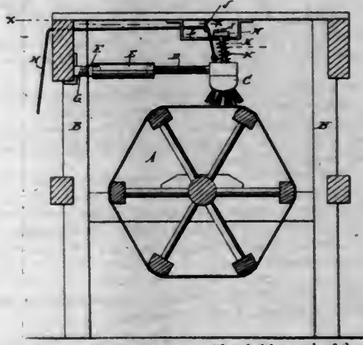


Claim.—1. The combination, with the base A, provided with the platform B, extending outward to the edges of the base and having the recesses or openings 15, of the cover C, cut away at *c* and provided with the legs 14, substantially as described.

2. The combination, with the base A, provided with the studs 9, the platform B, extending outward to the edges of the base and having the recesses or openings 15, of the cover C, cut away at *c* and provided with the legs 14, substantially as described.

3. The combination, with the base A, provided with the platform B, extending outward to the edges of the base and having the recesses or openings 15, of the cover C, cut away at *c* and provided with the legs 14 and the bands 17, substantially as described.

316,179. BRUSH FOR FLOUR-BOLTING MACHINES. JONATHAN B. RICHARDS, Pettigrew Mills, assignor to himself and James R. Pettigrew, Fayetteville, Ark. Filed Sept. 3, 1884. (No model.)



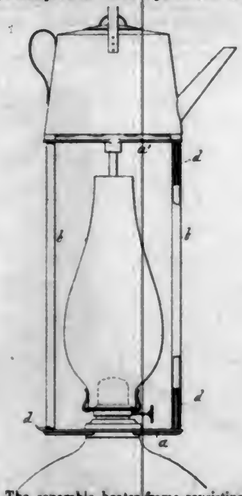
Claim.—1. The combination, with a bolting-reel, of the brushes C, the screw-spindles D, projecting from the same, the internally-threaded tubes E, and hinges by which the tubes E are hinged, substantially as herein shown and described.

2. The combination, with a bolting-reel, of the brushes C, the screw-spindles D, the tubes E, jaws G, and the screw-eyes F in the tubes E, substantially as herein shown and described.

3. The combination, with the reel A, of the swinging brushes C, the rods K, the springs N, the elastic washers M, the nuts I, and the frame L, substantially as herein shown and described.

4. The combination, with the reel A, of the swinging brushes C, the rods K, and the frame L, said brushes being disposed to overlap each other at their ends, substantially as described.

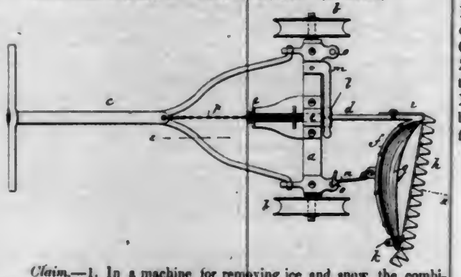
316,180. HEATER-FRAME FOR LAMPS AND GAS-BURNERS. A. M. RICKERBY, Brooklyn, N. Y. Filed Sept. 2, 1884. (No model.)



Claim.—1. The separable heater-frame consisting of tripods *a a'*, formed with pins *d* and ring-centers, and the tubular posts *b*, adapted to receive the pins of the tripod, substantially as described.

2. A heater-frame formed of two tripods and tubular connecting-posts, one tripod being formed to fit a lamp and the other a gas-burner, as specified.

316,181. MACHINE FOR REMOVING ICE AND SNOW. JACOB F RIETHMAYER, Lansdale, Pa. Filed Oct. 23, 1884. (No model.)



Claim.—1. In a machine for removing ice and snow, the combination of the shaft *d*, plow *g*, and the scraper *h*, substantially as described.

2. The combination of the rock-shaft *d* and the double plow *g* with the axle *a*, rollers *b*, and handle *c*, substantially as described.

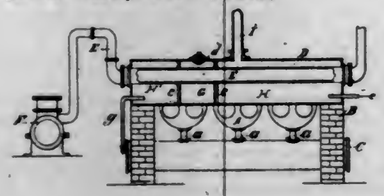
3. The combination, in a snow-plow, of the reversible shaft *d*, the double plow *g*, the ratchet *l*, the spring *m*, and the supporting-axle *a*, substantially as shown and described.

4. In a snow-plow, the detachable scraper *h*, combined with the plow *g* and the supporting-shaft *d*, as and for the purpose set forth.

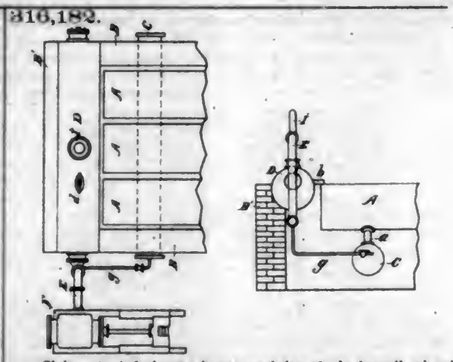
5. The scraper *h*, formed with teeth at opposite sides, combined with the reversible plow *g*, substantially as shown and described.

6. The shaft *d*, formed with arm *f*, forming a brace and support for the plow, as specified.

316,182. FEED-WATER HEATER. ALEXANDER RODGERS, Muskegon, Mich. Filed Sept. 10, 1884. (No model.)



316,182.



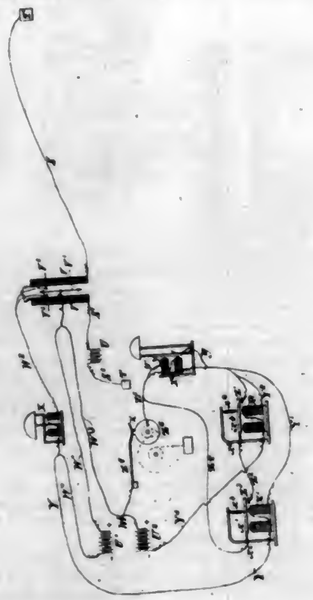
Claim.—1. A feed-water heater consisting of a horizontally-placed cylindrical drum extending across the boiler-arch in the rear of the boilers, and covering the space between the ends of said boilers and the back wall of the arch, said drum containing a passage for the exhaust-steam, chambers H and H', and filtering-chamber G and air-chamber I, all arranged for joint operation in the manner described.

2. In a feed-water heater, the combination of the drum D, containing chambers H H', and filtering-chamber G, with the air-chamber I and exhaust-pipe E, all arranged for joint operation in the manner described.

3. The combination, with an engine, a boiler or boilers, and a boiler-arch, of a feed-water-heating drum, D, placed horizontally across and closing the space between the rear ends of the boilers and the back wall of the boiler-arch, and an exhaust-pipe, E, that leads from the engine and passes through said drum, whereby the feed-water is heated by exhaust-steam and by direct action of the fire, substantially as described.

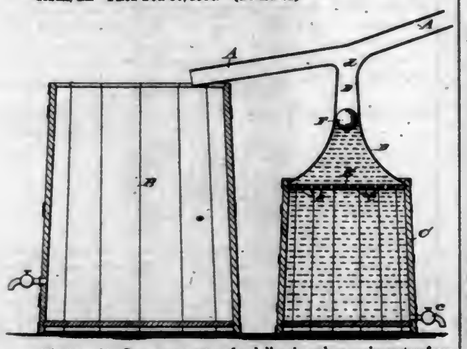
316,183. ELECTRIC ALARM AND SIGNAL. HENRY C. ROOME, Jersey City, N. J. Filed Sept. 15, 1884. (No model.)

Brief.—Galvanometer in line-circuit. Variation in strength of current on line allows or forces needle to swing against side contact and closes a local branch circuit. The two batteries in this circuit are of the same strength and are normally opposed, and are connected with relays X' X^2 and bell X^3 in such a way that a time-circuit closer, Z^3, will periodically make circuit for each battery, so as to give single tap on bell X^3. Only a single tap is given, because relays X' X^2 establish a short circuit, Z' Z^2 Z^4, around X^3 when both relays are acted upon; but if one battery weakens, U' or U^2, a continuous rheotomic alarm will be given on X^3, as when Z closes return branch, because short circuit around X^3 will be broken by retraction of the armatures X' or X^4, controlled by branch from defective battery.



Claim.—The combination, with the local alarming or signaling circuit of an alarm or signal apparatus, of two electric batteries, a circuit comprising the local circuit aforesaid and connecting the positive poles of the said batteries together and their negative poles together, a conductor common to both batteries, a periodical interrupter for the common conductor, an electric alarming or signaling device to which the said common conductor leads, electro-magnets arranged, one in a portion of the circuit between the alarming or signaling device and the one battery, and the other between the alarming or signaling device and the other battery, and branch connections whereby the said electro-magnets may shunt out the alarming or signaling device when both batteries are operative and the common conductor is closed, substantially as specified.

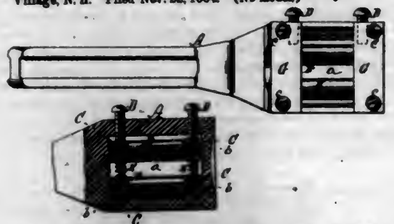
316,184. APPARATUS FOR DELIVERING CLEAN WATER INTO CISTERNS FROM ROOFS OF BUILDINGS. FRANÇOIS SANCAN, Thibodeaux, La. Filed Dec. 30, 1884. (No model.)



Claim.—1. In an apparatus for delivering clean rain-water from the roofs of buildings, the combination, with the leader A, of the vessel C, arranged in the line of the leader and provided with the perforated diaphragm E, the bottle-shaped hood D, and the ball-valve F, working in the said hood, and which valve is prevented from falling with the fall of the water by the diaphragm E, substantially as shown and described.

2. The combination, with the main tank B and the slanting leader A, of the receiver or vessel C, located in the line of the leader and constructed with the perforated horizontal partition E and the tapering neck D, connecting with the leader, and of the ball-valve F, working in the neck D above the partition E, substantially as herein shown and described.

316,185. DRILL-REST FOR LATHES. GEORGE A. SANDERS, Lake Village, N. H. Filed Nov. 22, 1884. (No model.)



Claim.—1. A drill-rest for lathes, provided with rolls B B, located in a cavity thereof in front of the drill-slot and mounted in bearing-blocks C C, one or both pairs of which are adjustable up and down, substantially as and for the purpose herein specified.

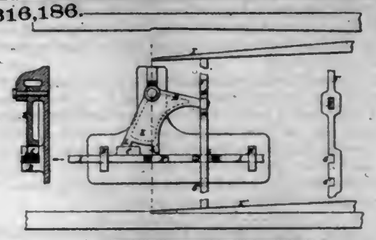
2. A drill-rest for lathes, having a cavity in one side around the drill-slot, and provided with rolls B B, mounted in bearing-blocks C C, sliding in ways in the cavity and adjustable to different distances apart by set-screws G G, substantially as herein set forth.

316,186. APPARATUS FOR MOVING AND LOCKING RAILWAY-POINTS. JAMES SAXBY, Tooting, County of Surrey, England. Filed Mar. 16, 1885. (No model.) Patented in England Oct. 23, 1884, No. 14,063.

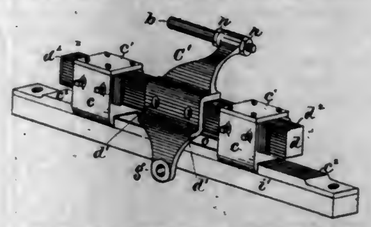
Claim.—Apparatus for moving and locking railway-points, consisting of a single push or pull rod, A, with its teeth, C, D, and D', in combination with the notched and toothed bell-crank lever H K, and the doubly-notched rod F, connecting the point-rails, arranged and operating substantially as herein described.



316,186.



316,187. VALVE-GEAR FOR STEAM-ENGINES. REINHARD SCHNEIDLER, Newark, Ohio. Filed June 11, 1884. (No model.)

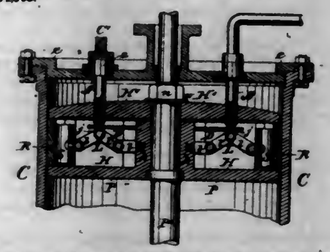


Claim.—1. In a steam-engine, the combination of the valve-rod, the bracket connected therewith, the guide-bar to which the latter is attached, the plate having guide-boxes in which said guide-bar operates, the engine-slide on which said plate is secured, and the connecting-rod pivotally connected to the lower end of said bracket, as and for the purpose set forth.

2. The combination, with the plate, guide-boxes, and guide-bar, of an oil-boat in said plate and means provided for allowing the waste oil therein to lubricate the cross-head and slide beneath it.

3. In a valve-movement for steam-engines, the combination, with the valve-rod and connecting-rod, of a bracket connected at its upper and lower ends with said valve-rod and connecting-rod, respectively, and a guide-bar operating in guide-boxes attached to the slide of the engine, said bracket being reversible, whereby it may be operated with the valve-gear described by either a crank or eccentric connection, substantially as set forth.

316,188. METALLIC PACKING-RING. LEOPOLD SCHNARL, Vienna, Austria-Hungary. Filed Oct. 29, 1884. (No model.) Patented in Belgium Oct. 1, 1884, No. 66,464; in England Oct. 1, 1884, No. 13,051; in Italy Nov. 22, 1884, XVIII, 17,439; XXXIV, 394; in Austria-Hungary Dec. 16, 1884, No. 38,376 and No. 59,191, and in France Feb. 9, 1885, No. 164,563.



Claim.—1. The combination, with the piston of a steam-engine and its packing-ring, of a toggle-lever, L, secured at one end to the hub of one of the piston-heads and carrying at the opposite end a pressure device arranged to impinge upon the inner periphery of the ring, and an adjusting-screw operating through one of the piston-heads upon the said lever to lengthen or shorten the same and regulate the pressure exerted upon said ring, as described, for the purposes specified.

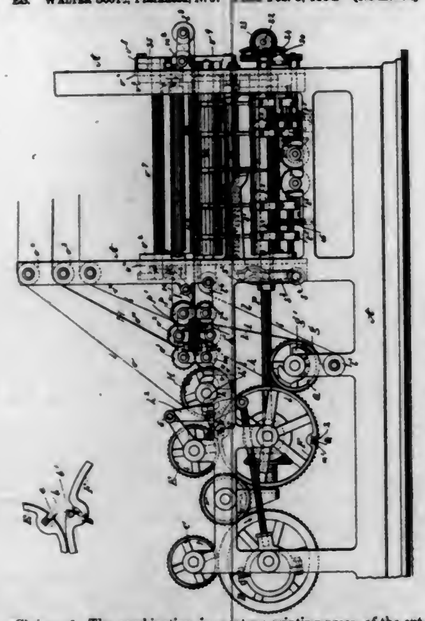
2. The combination, with the piston of a steam-engine and its packing-ring, of a toggle-lever, L, secured at one end to the hub of one of the piston-heads and carrying at its other end a yielding-pressure device arranged to impinge upon the inner periphery of the ring, and an adjusting-screw operating in one of the piston-heads upon said lever to lengthen or shorten the same and regulate the pressure exerted upon said ring, as described, for the purpose specified.

3. The combination, with the piston of a steam-engine, the packing-ring R, and a toggle-lever, L, secured at one end to the hub of one of the piston-heads and carrying at its other end a pressure device arranged to impinge upon the inner periphery of the ring, of a disk, D,

bearing upon the toggle-lever, and an adjusting-screw, A, operating through one of the piston-heads upon said disk to lengthen or shorten the lever and regulate the pressure exerted upon said ring, as described, for the purpose specified.

4. The combination, with the cylinder of a steam-engine provided in one of its heads with an opening, the piston P, and its packing-ring R, of a toggle-lever, a pressure device connected therewith and arranged to impinge upon the inner periphery of the lever, and an adjusting-screw operating through one of the piston-heads upon the lever to lengthen or shorten the same, said screw being arranged to project outside of the cylinder-head when the piston is at the limit of its movement toward said head, as described, for the purpose specified.

316,189. SHEET-DELIVERY APPARATUS FOR PRINTING-PRESSES. WALTER SCOTT, Plainfield, N. J. Filed Feb. 5, 1884. (No model.)



Claim.—1. The combination, in a rotary printing-press, of the cutting-cylinders E and F, the cylinders G and H, the grippers *g h*, the belts *l k*, and rollers *o' m p l' k' l² l³ l⁴*, whereby the second sheet is laid upon the first sheet and the two sheets are delivered through the rollers *l⁴* and *p*, substantially as set forth.

2. The combination, in a sheet-delivery apparatus, of the cutting-cylinders E and F, the latter being twice the diameter of the former, and provided with sheet-holding devices, such as the pins 2, adjacent to the slot *a*, the grippers and cylinders G H, and the belts and rollers for conveying the sheets and laying one upon the other, substantially as set forth.

3. The combination, with the cylinder E and cutter *e*, of the cylinder F, of twice the diameter of the cylinder E, and provided with two openings into which the cutter passes in cutting the sheets, and the sheet-holding pins 2, and the supporting-blade *b'*, notched for the grippers, substantially as set forth.

4. The combination, with the cutting-cylinders E and F, of the grippers *g h* and their cylinders G and H, the belts or tapes, the rollers *o' m p l⁴*, the guide-bars 6 8, one of which is movable to deflect or to guide one of the sheets, substantially as set forth.

5. The combination, with the cutting-cylinders, of the grippers and their cylinders and belts for conveying away the sheets, and the rollers *p* and *l⁴*, and the cutter *p'* for separating the sheets longitudinally, substantially as specified.

6. The combination, with the rollers *u* and *u'* and blade *v⁴*, in a sheet-folding mechanism, of the rollers *v v'*, the guides *w*, the rack 35, the sectors *v⁴*, and mechanism, substantially as specified, for giving motion to the same, substantially as set forth.

7. The combination, with the cutter *p'*, of the rollers *u u'*, drop-rollers *v v'*, and director *v⁴*, substantially as and for the purposes set forth.

8. The combination, with a rotary printing-press for printing upon a web of paper, of cutters for separating the paper transversely and longitudinally, rollers and belts for presenting and laying the second sheet upon the first, and for laying the two pairs of cut sheets face to face and conveying the same to a folding-machine, substantially as specified.

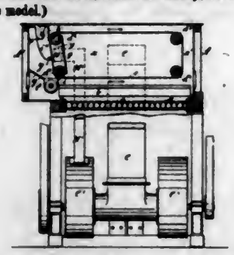
9. The combination, with the rollers *u u'*, of the drop-rollers *v v'*, director *v⁴*, guides and conveying-rollers *r⁶ t⁶*, and belts, folding-blade *s*, and rollers *r r'*, substantially as set forth.

10. The combination, with the cutter *p'*, of the rollers *u u'*, drop-rollers *v v'*, director *v⁴*, and the guides, substantially as set forth.

11. The combination, with the rotary printing-cylinder, of the cutting-cylinders E F, cutter *p'*, rollers *u u'*, drop-rollers *v v'*, director *v⁴*, and guides, substantially as set forth.

12. The combination, with a rotary printing-press, of the cutting-cylinders E F, the cutter *p'*, the rollers *m o'* and belts, the rollers *u u'*, drop-rollers *v v'*, director *v⁴*, and guides for directing the sheets, substantially as specified.

316,190. MACHINE FOR SEPARATING LIGHT AND HEAVY SUBSTANCES. HEINRICH SEEK, Dresden, Saxony, Germany. Filed Nov. 6, 1884. (No model.)

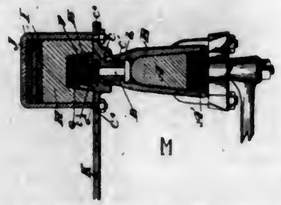


Claim.—1. In a machine for separating light and heavy substances by means of air-suction, the combination of the suction-casing, the continuously-traveling endless filtering-cloth arranged within said casing, rollers within said cloth for the latter to travel over, a plate within said cloth bearing against two of said rollers to form a chamber between the plate and cloth isolated from the other portion of the cloth, plates outside of the cloth and said two rollers to form a space, *y'*, opposite to space *y*, and isolated from the suction portion of the casing, an air-blast conduit leading into said space *y*, and a beater within said space *y'*, to strike said cloth, substantially as described.

2. In a machine for separating light and heavy substances by means of air-suction, the combination, with the suction-casing, the traveling endless filtering-cloth arranged within said casing and moving transversely of the length of the machine, and a shaking screen arranged immediately below the traveling cloth, of a dead-air chamber arranged at the side of the machine, guide-rollers for conducting the filtering-cloth past the dead-air space, a direct-blast apparatus for discharging air upon the inner side of the filtering-cloth while passing said dead-air chamber, and a knocking device for removing the matters adhering to the cloth and loosened by the air-blast, substantially as described.

3. In a machine for separating light and heavy substances by means of air-suction, the combination, with the traveling endless filtering-cloth, the air-compressing grate arranged directly beneath the latter, and the shaking sieve arranged beneath the grate, of a suction-casing containing the filtering-cloth, a dead-air chamber, rollers for conducting the filtering-cloth over or past the same, and a direct-blast apparatus for loosening the matters adhering to the cloth, substantially as described.

316,191. CLIP KING-BOLT. WILLIAM C. SHEPHERD, Cleveland, Ohio. Filed Aug. 26, 1884. (No model.)

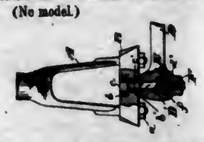


Claim.—1. The combination, with a clip having a hollow cylindrical bearing at its upper end and an annular shoulder below said bearing, of the plate having a boss adapted to fit within the cylindrical bearing of the clip, a recess adapted to receive the upper end of the clip, and a recess for the reception of a spring, a bolt the head of which rests against the annular shoulder of the clip, a spring encircling the bolt, and a nut for holding the bolt in position, substantially as set forth.

2. The combination, with the plate C, of the boss *c²*, for re-enforcing the plate and integral with the same, and provided with the annular recess *c³*, forming a seat for the spring E, substantially as set forth.

3. The combination, with a clip king-bolt, of the nut-lock G, and the part so arranged that the nut-lock is secured to and concealed by the head-block, substantially as set forth.

316,192. KING-BOLT. WILLIAM C. SHEPHERD, Cleveland, Ohio. Filed Aug. 26, 1884. (No model.)



Claim.—1. The combination, with a yoke and a bolt seated or journaled in said yoke and provided with an angular portion, of a brace-head having an opening therein corresponding in shape to the angular portion of the bolt, and with a recess in its lower face, a spring located within said recess and encircling the bolt, and a nut secured on the bolt and forming a seat for the spring.

2. The combination, with a yoke having a tapering seat or cavity formed therein, and a bolt having an angular portion and an enlarged tapering portion, which latter rests within said cavity, of a brace-head having an opening therein, which latter corresponds in shape to the angular portion of the bolt, a spring encircling the bolt, and a nut secured on the bolt and forming a seat for the spring, substantially as set forth.

316,193. SASH-CORD FASTENER. HENRY SMITH, Jr., Baltimore, Md. Filed June 6, 1884. (No model.)



Claim.—In a sash-cord fastener, the outer box, A, having the slotted upper end, and the slots *c*, with their branches *d* and *d'*, combined with the inner box, C, perforated to receive the cord, and having the pins *e*, which are adapted to pass through the said slot *c* and thence to the branches *d d'*, substantially as and for the purpose specified.

316,194. COLLAR OR SLEEVE BUTTON. ORVILLE T. SMITH, Brooklyn, N. Y. Filed Jan. 12, 1885. (No model.)

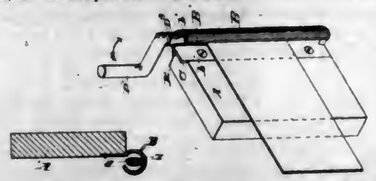


Claim.—The collar or sleeve button herein described, consisting of the tubular shank or post A, made in one piece without seam or joint, and having at the outer end a flange, *a*, and an upturned rim, *a**, both formed integral with the shank or post, and a cup-shaped head, C, fitting outside the flange and rim *a a**, and having its edge turned inward under the flange *a*, substantially as and for the purpose herein described.

316,195. MANUFACTURE OF CHLORINE. ERNEST SOLVAY, Brussels, Belgium. Filed May 20, 1884. (No specimens.) Patented in Belgium May 6, 1884, No. 65,070, and in France May 6, 1884, No. 161,933.

Claim.—The improved composition for use in the manufacture of chlorine, consisting of chloride of calcium, silica, alumina, and the residuum remaining after treatment of the composition in a previous operation, substantially as described.

316,196. EDGING SHEET METAL. WASHINGTON E. SPANGLER, Way Cross, Ga. Filed Sept. 8, 1884. (No model.)



Claim.—1. In a machine for edging tin or other metal plates, the combination, with the hollow cylinder B, having the lip *b*, for attachment to the support, and the slot B', of the flat shaft D, having the groove *d* on one edge and adapted to be rotated in the said cylinder, as set forth.

2. The machine for edging tin, consisting of the support provided with a stop, C, the cylinder slotted longitudinally and provided with a bearing, B², the shaft provided with journals D² D³ and held and rotatable in the cylinder and formed with a longitudinal groove, *d*, and a pin, E, the stop and pin being relatively so arranged that the cylinder makes more than three-fourths and less than a whole revolution, as set forth.

316,197. LEVER-SCREW FOR HOLDING WEIGHT-LEVERS OF ROLLS OF SPINNING-MACHINES. THOS. H. SPEAKMAN, Ware, assignor to George Draper & Sons, Hopedale, Mass. Filed Dec. 22, 1884. (No model.)

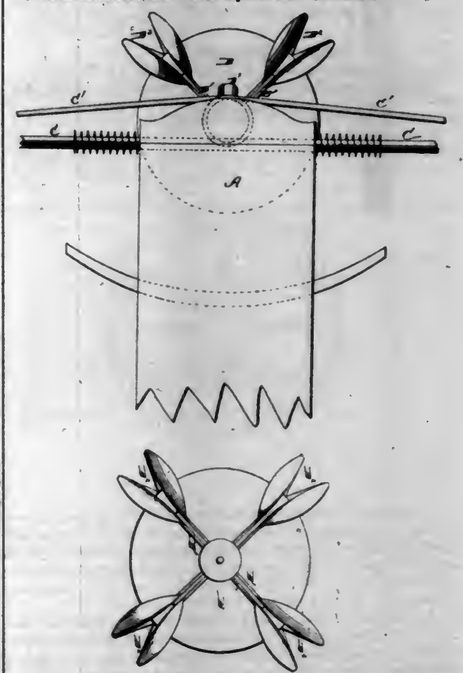
Brief.—The head of the lever-screw and the threaded shank thereof are made in two parts, the head being swiveled or loosely connected with and so as to turn in the shank.



Claim.—1. The lever-screw composed of the lever-holding head, and a screw-threaded shank having a head which may be engaged to rotate the screw, the lever-holding head being loosely connected to the threaded shank, to operate substantially as described.

2. The roller-stand, rolls therein, saddles, stirrups, and lever G, combined with the lever-screw, having its engaging-head loosely connected with its screw-threaded and headed shank, to operate substantially as described.

316,198. BROADCAST SEEDING-MACHINE. SAMUEL S. SPENCER, North Manchester, Ind. Filed May 14, 1884. (No model.)



Claim.—1. In a broadcast-seeder, a distributing-wheel provided with arms having their ends concaved both vertically and horizontally, substantially as shown and described.

2. In a broadcast-seeder, a distributing-wheel provided with radial arms having their ends concaved upon each side, whereby they are enabled to operate the same in reverse directions, substantially as shown and described.

3. In a broadcast-seeder, a distributing-wheel having its arms or wings formed with spoon-shaped ends, substantially as shown and described.

4. In a broadcast-seeder, a seed-box having its opening *a* provided with a cast frame having a flange, *c*, and malleable lugs *c'*, substantially as and for the purpose set forth.

5. In a broadcast-seeder, the combination of a distributing-wheel, B, having its wings formed with concave or spoon shaped ends, with a seed-box provided with a bow, a cord, and oscillating valve, substantially as shown and described, and for the purpose set forth.

316,199. CHAIN-PUMP BUCKET. MORRIS D. TEMPLE, Chicago, Ill. Filed Dec. 9, 1884. (No model.)

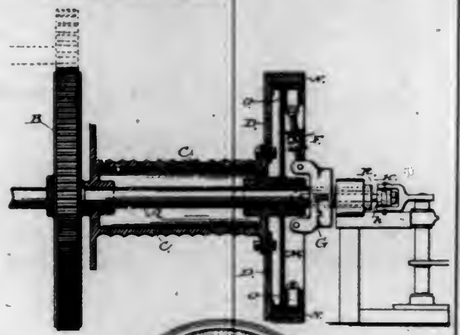
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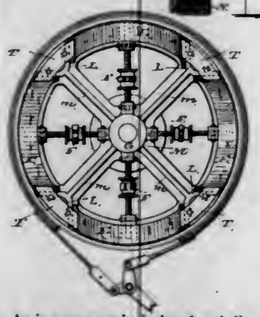


Claim.—1. In combination with the rubber *e*, the link *a*, provided with lugs or arms *d*, to be bent to press upon the rubber, substantially as specified.

2. In combination with a link, *a*, having shoulder *b*, rubber *e*, and means to expand said rubber, the lug or lugs *d*, substantially as specified.

316,200. FRICTION-CLUTCH. JOHN THOMPSON, Bucyrus, Ohio, assignor to the Bucyrus Foundry and Manufacturing Company, same place. Filed Sept. 24, 1884. (No model.)





Claim.—1. An improvement in devices for winding purposes, consisting of spur-wheel B, secured to shaft A, and drum C, running loose upon said shaft and provided with addition D, in combination with the casting M, provided with arms *m*, angle-pieces L, guides T, and shoes E, working between the guides, substantially as and for the purpose set forth.

2. The drum C, having the addition D, provided with the housing N, in combination with the shoes E, castings M, provided with the arms *m*, and angle-pieces L, formed therewith, turn-buckles F, and the clutch-head G, substantially as and for the purpose herein specified.

3. The drum C, having the addition D, provided with the housing N, in combination with the shoes E, castings M, provided with the arms *m*, and the angle-pieces L, turn-buckles F, clutch-head G, slotted shaft A, and suitable mechanism for operating the same, substantially as herein described, and for the purpose set forth.

4. The casting M, provided with the arms *m*, and angle-pieces L, in combination with the guides T, turn-buckles F, and clutch-head G, all constructed to operate substantially as and for the purpose set forth.

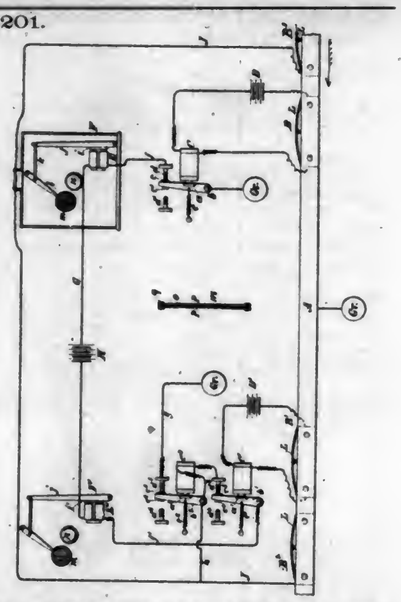
316,201. RAILWAY SIGNALING APPARATUS. CHARLES D. TEDALE, Boston, Mass., assignor of two-thirds to John D. Gould, New York, N. Y. Filed Aug. 5, 1884. (No model.)

Claim.—1. In railway signaling apparatus, the combination of the relays C C' and their respective local and line circuit connections, the circuit-closing track-instruments B^3 B^4, line J, branch A, relay C^2, whereby the main line G is deprived of a ground while a train is passing over the section being protected, as herein specified.

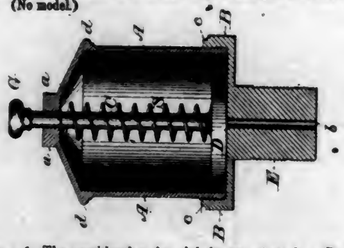
2. In railway signaling apparatus, the combination of the insulating-blocks K K', curved bar L, straight bar M, the contact-point *s*, contact-screw *t*, and arm *u*, forming an open and closed circuit track-instrument, as specified.

3. In railway signaling apparatus, a color-disk formed of colored gelatine or analogous material inclosed between protecting plates of mica, as herein specified.

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316,202. LUBRICATING-CUP. EDWARD A. WADHAMS, Milwaukee, Wis., assignor of one-half to E. Eldred Magie, same place. Filed Jan. 22, 1885. (No model.)



Claim.—1. The combination, in a lubricator, of the base B, the inverted cup A, detachable at the bottom from said base B, and piston D, substantially as and for the purposes set forth.

2. The combination, in a lubricator, of the inverted cup A, detachable base B, piston D, provided with stems C, and actuating-spring S, substantially as and for the purposes set forth.

3. The combination, in a lubricator, of the inverted cup A, externally threaded at the bottom, the base B, provided with the internally-threaded upturned flange *c c* and neck E, the feeding-passage *b*, and the automatic feeding-piston D, substantially as and for the purposes set forth.

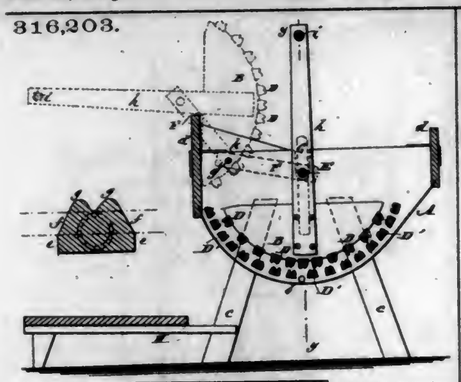
316,203. WASHING-MACHINE. SAMUEL L. WAGNER, Nepean, County of Carlton, Ontario, Canada. Filed Apr. 25, 1884. (No model.)

Claim.—1. In washing-machines having vibratory convex rubbers arranged to work within fixed concaves, the vibratory rubber B, having its clothes squeezing and rubbing bars D spaced at increasing distances apart from the center of its convex portion toward the ends thereof, substantially as specified.

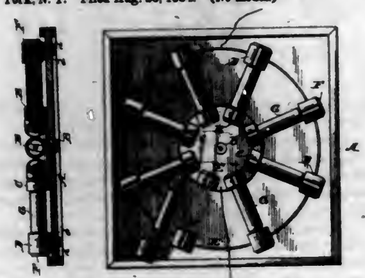
2. The combination, with the suds-box, of the fixed concave series of bars D', spaced at decreasing distances apart from the center of the series toward the ends thereof, essentially as shown and described.

3. The combination, with the suds-box provided with the convex series of bars D on the vibratory rubber, spaced at increasing distances apart from the center of the series toward the ends thereof, and the rubber provided with the fixed concave series of bars D', having a reverse spacing that is decreasing in distances apart from the center of said series toward the ends thereof, substantially as and for the purpose herein set forth.

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316,204. MICROPHONE. HENRY E. WAITE and SAMUEL H. BARTLETT, New York, N. Y. Filed Aug. 28, 1884. (No model.)



Claim.—1. The combination, with a diaphragm, of a number of carbon cylinders supported in carbon bearings, the said bearings being adjustable with relation to the cylinders, substantially as described.

2. The combination, with a diaphragm, of a number of spring-clamps secured thereto, supporting carbon blocks, and carbon cylinders supported in said blocks, substantially as described.

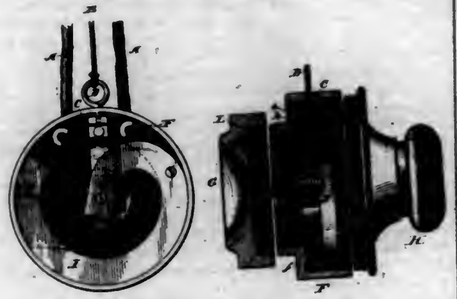
3. The combination, with a diaphragm, of a number of spring-clamps for holding carbon bearings, said clamps being provided with pins or projections entering the diaphragm and secured thereto by bolts passing through the diaphragm.

4. The combination, with a diaphragm, of a solid central bearing-block of carbon secured thereto, said block being provided with toes or projections bearing upon the diaphragm, and electrodes supported by said block, substantially as described.

5. The combination, with a diaphragm, of wood or similar material, of a strip or strips of cork secured around the edges of the diaphragm, substantially as described.

6. The combination, with the carbon cylinders G, of carbon bearing-blocks E F, adjustably supported in relation thereto, substantially as described.

316,205. MAGNETO-TELEPHONE. HENRY E. WAITE and SAMUEL H. BARTLETT, New York, N. Y. Filed Aug. 28, 1884. (No model.)



Claim.—1. The combination, with a telephone-case having holes, of a conducting-cord the terminals of which pass through the case, a clamp or plate adapted to bite or press the ends of the conductor against the sides of the holes, and a screw for holding said clamp, substantially as described.

2. The combination, with the telephone-case, of a magnet supported upon a shoulder in the body part and carrying a coil or helix connected to line, and a spring-arm of magnetic material, also secured to the shoulder and bent so as to bear against the diaphragm, and an adjusting-screw, substantially as described.

316,206. MAGNETO-TELEPHONE. HENRY E. WAITE, New York, N. Y. Filed Sept. 20, 1884. (No model.)



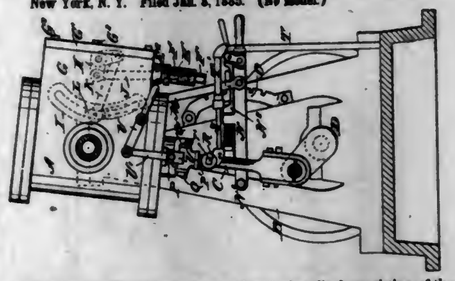
Claim.—1. In a magneto-telephone, the combination, with a diaphragm, of a permanent magnet, a coil or bobbin, and a split core adjustably secured to the magnet and supporting the coil, substantially as set forth.

2. The combination, in a magneto-telephone, of a diaphragm, a flat permanent magnet, a core and coil secured to one end of the magnet, and a metallic strip connecting the pole of the magnet and the diaphragm, substantially as described.

3. The combination, with the magnet and core and bobbin thereon, of a strip secured to the magnet provided with tongues or spurs adapted to secure the bobbin and hold it in place, substantially as described.

4. The combination, with the hollow case, of a flat permanent magnet secured thereon, an adjustable split core passing through one end of the magnet, a bobbin embracing the core, a magnetic diaphragm, and a strip of magnetic material secured to the end of the magnet and bearing upon the diaphragm, substantially as described.

316,207. OSCILLATING STEAM-ENGINE. CHARLES P. WALDRON, New York, N. Y. Filed Jan. 8, 1885. (No model.)



Claim.—1. The link mechanism herein described, consisting of the bell-crank lever H, pivoted to the cylinder, the segmentally-slotted plate I, fixed rigidly to the standard of the engine-frame, sliding block L therein, operating-lever N, and connecting-rods K M, substantially as set forth.

2. The slide-valve E, provided with the stem E', in combination with the sliding head F, placed on rod F', and connected to the link mechanism, substantially as described.

3. The cylinder A, provided with the pipe P, having cock Q, in combination with the lever U, pivoted to the frame and connected to the arm Q' of the cock by the rod U' and pivoted coupling U^2, substantially as described.

4. The cylinder A, provided with the pipe P, and coupled to the pipe S by the hinge-coupling R, in combination with the waste-pipe T, the pipe P being provided with a cock, Q, substantially as described.

5. The cylinder A, provided with the pipe P, having cock Q, and coupled to the pipe S by the hinge-coupling R, in combination with the waste-pipe T and lever U, attached to the cock Q by the link U' and pivoted coupling U^2, substantially as described.

6. The hinged coupling R, composed of the slotted shell *r* and core *r'*, fitted in the shell, the core being formed with a passage through it, and to receive the pipe P', substantially as described.

316,208. BUTTON OR KNOB. WILLIAM F. WARE, New York, N. Y. Filed Oct. 21, 1884. (No model.)



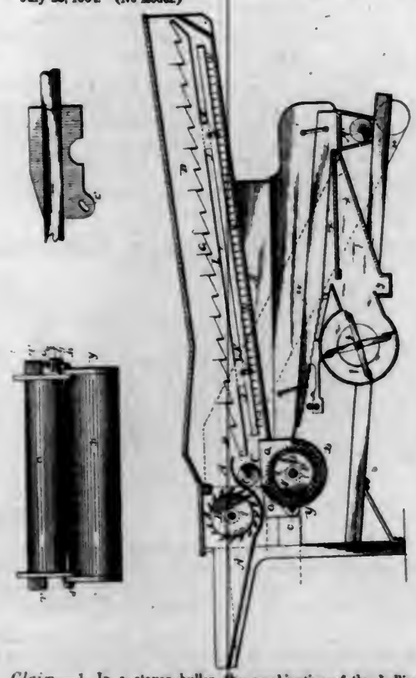
Claim.—As a new article of manufacture, the herein-described button or knob having the elongated head wedge-shaped toward the end, which end is similarly rounded on the upper and lower surfaces, and the shank connected with said head, substantially as shown and described.

316,209. PILE FOR MERCHANT-IRON. GEORGE WESTERMAN, Sr., Lockport, N. Y. Filed Aug. 28, 1884. (No model.)



Claim.—In the manufacture of merchant-iron from scrap, a pile having lengths of angle-iron at two or more of its edges, substantially as and for the purpose stated.

316,210. CLOVER-HULLER. DAVID WHITING, Ashland, Ohio. Filed July 23, 1884. (No model.)



Claim.—1. In a clover-huller, the combination of the hulling-cylinder N, the machine-frame, the concave Y, composed of sections *a b*, the pivot-rod *c*, sustaining the slotted sections *b*, the eyebolts *e*, lug *f*, nuts *g g*, and a bolt, *m*, for securing the said section when closed, substantially as set forth.

2. In a clover-huller, the combination, with the hulling-cylinder N, having a central axle, O, of hangers S, depending from beams T of the machine-frame, and having curved lower ends composed of parts W W, the boxes R, the lower end of which having a lug, V, between parts W W, and a screw, *x*, passing transversely through the said parts W and lug V, substantially as set forth.

3. In a clover-huller, the trough A, stemming-cylinder B, combined with the separating-frame D, worm-conveyer C, hulling-cylinder N, and concave Y, the worm-conveyer being located directly over the cylinder N and between the cylinder B and frame D, substantially as set forth.

316,211. MACHINE FOR SEPARATING METALS AND MINERALS. JOHN M. WILLIAMS, Salem, N. Y. Filed Feb. 21, 1883. (No model.)

Claim.—1. The herein-described concave pan, table, or trough, having inclined sides and end for receiving the material, and an adjustable frame, combined with a cam, tappet, spring-actuated piston or bar, and adjustable stop-screw or plug arranged to communicate an intermittent

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longitudinal movement to the pan, and to suddenly arrest the motion thereof, substantially as and for the purposes set forth.

2. In combination with the adjustable frame mounted in trunnions on the main frame or support, the concave pan, table, or trough, and the spring-hangers, each having one end connected with the pan and the other with the adjustable frame, substantially as and for the purposes set forth.

3. In combination with the movable pan, the driven shaft carrying a multiple cam-wheel, a roller supported on a sliding bar and arranged to bear against said wheel, the pins, movable connections, and adjustable spring and rod arranged to communicate transverse movements to the pan and to regulate and determine said movements, substantially as and for the purposes set forth.

4. In combination with the concave pan, trough, or table, an adjustable frame supporting the same, a friction-roller, multiple cam-wheel, adjustable spring, and intermediate articulated connections, whereby longitudinal movement and adjustment of the pan are permitted without interfering with the transverse movements, substantially as and for the purposes set forth.

5. In combination with the longitudinally-movable percussion-pan mounted in the adjustable frame, the spring-actuated piston or sliding bar, made adjustable as explained, and mounted in a casing connected with said frame, whereby the pan is thrown forward and the force of stroke thereof regulated, substantially as and for the purposes set forth.

6. The spring-actuated piston or sliding bar mounted in a casing supported upon the adjustable frame, the regulating-screw for adjusting the tension of the piston-spring, and the movable pan connected with the frame by spring-hangers, the piston being arranged to bear against the forward hanger, these parts being arranged or combined substantially as shown, and for the purposes set forth.

7. In combination with the movable pan, the adjustable frame supporting the same, the main frame, and the adjustable percussion-screw located on the main frame and in the path of the pan, substantially as and for the purposes set forth.

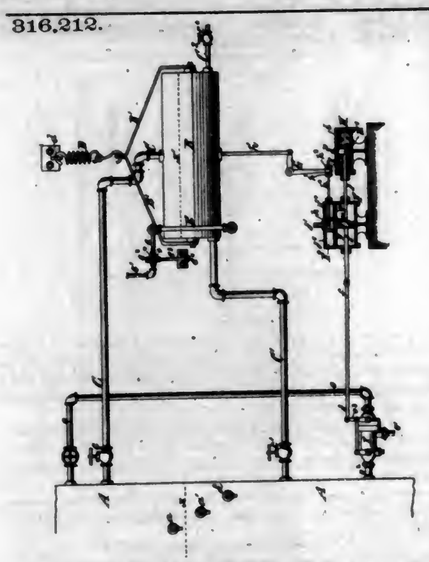
8. In combination with the pan-supporting frame, the herein-described percussion-screw provided with the elastic cushion and binding-screw, said percussion-screw being located in the path of the movable pan, whereby the movements of said pan and its length of stroke are determined, substantially in the manner and for the purposes set forth.

9. The movable water-pipes supported on each side of the pan by the adjustable arms, substantially as shown, said pipes being perforated and provided with movable elastic rings to govern the flow of water through the perforations, and with cocks or valves regulating the force of the water-supply, these parts being arranged or combined substantially as and for the purposes set forth.

10. The movable pan, table, or trough, the adjustable frame, the yielding connections uniting the two, the power-driven shaft mounted in annular hubs or trunnions and carrying the cam and cam-wheel, the tappet applied upon the pan, the articulated connections and adjustable spring, the spring-actuated piston or bar, and the percussion screw or plug, all combined and arranged for operation substantially as and for the purposes explained.

316,212. BOILER-FEED REGULATOR. CHARLES F. WILSON, Brooklyn, N. Y., assignor of one-half to M. Melvin Bemis, same place. Filed May 8, 1884. (No model.)

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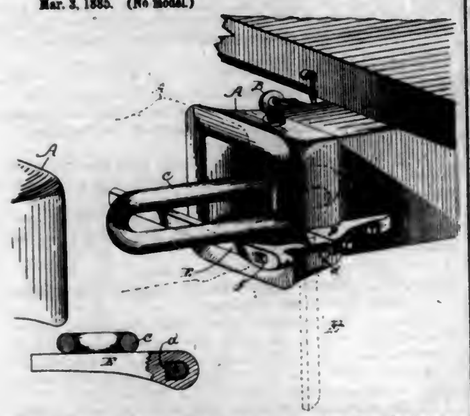


Claim.—1. The combination, with a steam-boiler, an outside vessel flexibly connected with the steam and water spaces of the boiler so that it may rise and fall with variations in the volume of water contained within it, and balancing devices for the vessel, of a steam cylinder and piston, whereby the admission of feed-water to the boiler may be controlled, and an induction-valve for said steam-cylinder so connected with the rising and falling vessel as to be controlled by the movements of said vessel, substantially as and for the purpose herein described.

2. The combination, with a steam-boiler, an outside vessel flexibly connected with the steam and water spaces of the boiler, and balancing devices for said outside vessel, of a steam cylinder and piston for controlling the admission of feed-water to the boiler, an induction-valve for said cylinder connected with and capable of movement by a rising and falling movement of said vessel, and a cataract cylinder and piston connected with the piston of the steam-cylinder and serving to retard the movements of the latter, substantially as and for the purpose herein described.

3. The combination, with the boiler A, of the rising and falling vessel B, flexibly connected with the steam and water spaces of the boiler, and provided with a steam-pipe terminating in a whistle, and formed with a valve shell or body, c^3, and a valve-stem or valve, c^3, attached to a fixed support and controlling the passage of steam to said whistle, substantially as herein described.

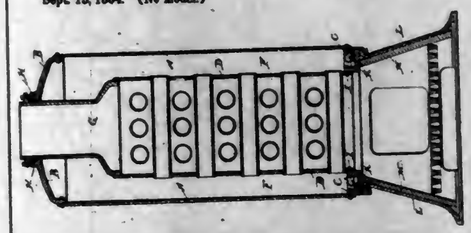
316,213. CAR-COUPLING. JOHN C. YEISER, Junction City, Ky. Filed Mar. 3, 1885. (No model.)



Claim.—1. In combination with a car-coupling link, the link-supporting arm E, having the oblong hole or slot *a*, and the arm D, extending beyond the face of the draw-head and provided with the lug or shoulder *e*, substantially as herein described.

2. The combination, with a railway-car draw-head, of the arm D, fastened to its side and having the rounded extension *d*, provided with the lug or shoulder *e* and nut or head *f*, and the link-supporting arm E, having the oblong hole or slot *a*, substantially as and for the purpose set forth.

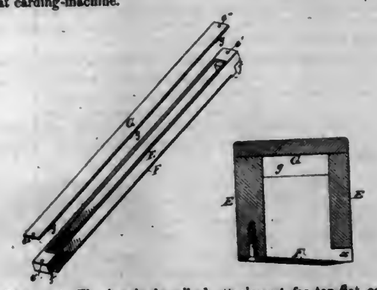
316,214. STEAM-BOILER. LOUIS ZELLER, Massillon, Ohio. Filed Sept. 15, 1884. (No model.)



Claim.—In a steam-boiler, the combination, with an inner casing provided at its lower end with an outwardly-projecting flange and an outer casing provided with inwardly-projecting flange adapted to rest on the outwardly-projecting flange of the inner casing, of a fire-box provided at its upper end with a flange which forms a seat for the outwardly-projecting flange of the inner casing, the said casings and fire-box being secured together by a single row of bolts, substantially as set forth.

316,215. CARDING-MACHINE. JOHN ABBOTT, Philadelphia, Pa. Filed Oct. 6, 1884. (No model.)

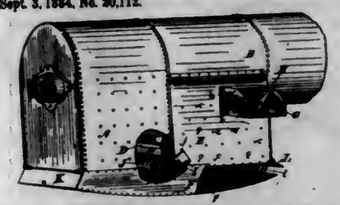
Brief.—A device for removing particles of foreign matter collected in a carding-machine, consisting of an elongated box open at the bottom, and provided with a knife or blade secured to the under side. This attachment can easily be substituted for any one of the top-flats of a top-flat carding-machine.



Claim.—1. The herein-described attachment for top-flat carding-machines, said attachment consisting of an elongated box of the length and width of an ordinary flat, and having a cleaner-knife at its under side, and at opposite ends openings adapted to fit the usual retaining-pins for the flats on the frame of the machine, substantially as set forth.

2. The herein-described attachment for top-flat carding-machines, said attachment consisting of an elongated box of the width and length of an ordinary flat, and adapted to be applied to the machine in place of the latter, the box having applied to its top a detachable lid, and to its under side a knife, substantially as set forth.

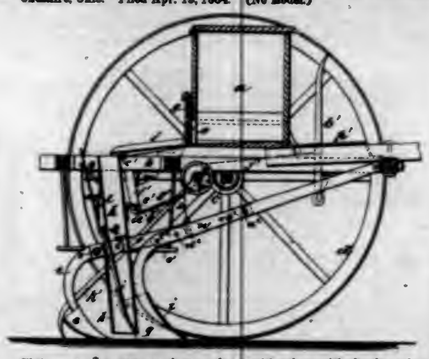
316,216. STRAW-BURNING FURNACE. JOHN ABELL, Woodbridge, Ontario, Canada. Filed Aug. 25, 1884. (No model.) Patented in Canada Sept. 3, 1884, No. 20,112.



Claim.—1. The perforated air-chamber I J, located on the bottom of the leg C between the furnaces A and E, substantially as and for the purpose specified.

2. A straw-furnace, C, provided with a damper, L, and fingers *l*, in combination with a corrugated plate, *f*, substantially as and for the purpose specified.

316,217. POTATO-PLANTER. ALVA J. AGEE and ALEX. FRASER, Cheshire, Ohio. Filed Apr. 15, 1884. (No model.)



Claim.—1. In a potato-planter, the combination, with the dropping-tube *h*, of the gate *j*, pivoted at *k*, and provided with the handle *m*, projecting up through the said tube, the spring *l*, the crank *o*, and treadle *p*, substantially as herein shown and described.

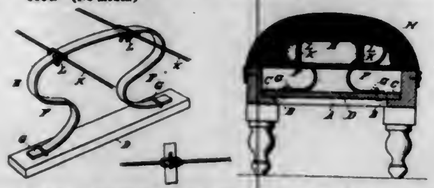
2. In a potato-planter, the combination, with the seed-box *a*, having the opening *e*, closed by the gate *g*, of the tube *h*, provided with the pivoted valve *j*, and the inclined chute *f*, leading from the opening of the seed-box to the dropping-tube, substantially as herein shown and described.

3. In a potato-planter, the combination, with the pivoted stocks *w*, carrying the furrow-opening hoes *i*, of the branches *v*, pivoted to the stocks *w* at a^2, and the stocks *t*, carrying the covering-hoes *s*, pivoted to the branches *v*, substantially as herein shown and described.

4. In a potato-planter, the combination, with the seed-box *a*, the chute *f*, and dropping-tube *h*, provided with the valve *j*, of the furrow-opening hoes *i*, secured to the pivoted branched stocks *w*, and the covering-hoes *s*, secured to the stocks *t*, secured to the branches of the stocks *w*, substantially as herein shown and described.

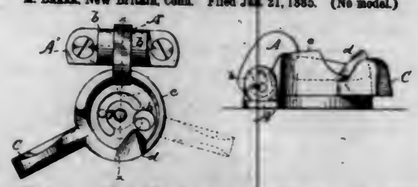
5. The dropping-tube *h*, pivoted to the frame at *c'*, and hooked to a pin, *c'*, by a hook, *d'*, having an arm, *g'*, to be unhooked by the attendant when the hoes are elevated, substantially as described.

316,218. UPHOLSTERING-SPRING. CHARLES H. AMES, Union City, Pa., assignor of one-half to H. M. Gage, Jamestown, N. Y. Filed May 27, 1884. (No model.)



Claim.—The combination of the cross-bars; the ribbon-springs respectively and independently secured to the slats, the stay-cords arranged above the springs and beneath the cushion, and the cords L, for securing the spring and stay-cords with relation to the cushion, all adapted to serve with a frame, substantially as shown and described.

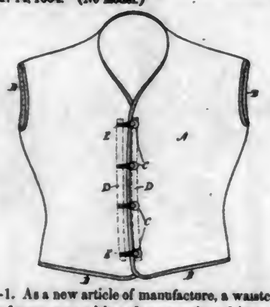
316,219. FASTENING FOR MEETING-RAILS OF SASHES. GEORGE M. BAKER, New Britain, Conn. Filed Jan. 21, 1885. (No model.)



Claim.—1. In a sash-fastener, in combination with a rotatable side acting cam, a hooked latch or keeper adapted to engage said cam, said hooked keeper being so pivoted in its supporting-plate that it may be swung laterally out of engagement with the cam when not in use, substantially as herein described, and for the purpose set forth.

2. The combination of the hooked latch, the side acting keeper-cam having the inclined flange for engagement with the hooked end of the latch, and the knocking-out cam, all substantially as described, and for the purpose specified.

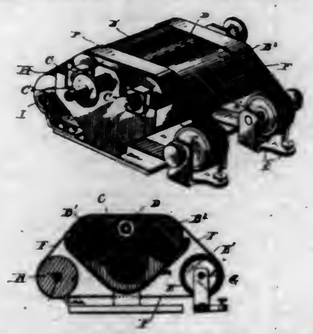
316,220. WAISTCOAT. PATRICK BAKER, Toronto, Ontario, Canada. Filed Mar. 14, 1884. (No model.)



Claim.—1. As a new article of manufacture, a waistcoat, A, or other garment made from a composition of paper-pulp and jute or other fibrous material, as specified, and having its edges B bound and provided with a strengthening-strip, D, to which the buttons C are secured, substantially in the manner specified.

2. The waistcoat herein described, made from an impervious flexible material composed of paper-pulp and jute or other fibrous material, as specified, and having its edges bound and provided with the strengthening-strips D D, secured to the inside thereof, the buttons C, secured to one of said strips, and the loops E, passing through the impervious material and fastened to the other strengthening-strip, substantially as herein shown and described.

316,221. SUCTION-BOX FOR PAPER-MAKING MACHINES. HENRY A. BARBER, Watertown, N. Y. Filed July 29, 1884. (No model.)



Claim.—1. The bands or belts passing over the rolls B B' B^2 and heads C, for the purpose of reducing friction on the wire-cloth or felt, said heads being movable and made to conform with the angles of the rolls, and to fit as nearly as practicable air-tight against the same, as described.

2. The perforated roll D, revolving against lower roll, B, at one side of the wire-cloth or felt against atmospheric pressure, substantially as specified.

3. The combination, with the box or trough A, provided with the rolls B' B^2 and the movable heads C, of the roll H, the pulleys E, having lateral and longitudinal adjusting mechanism, as described, and the bands F F, passing over the rolls B' B^2 H, heads C, and the pulleys E underneath the box or trough, as set forth.

4. The combination, with the box or trough, of the perforated roller D, connecting with an exhaust-power, the lower roller, B, and suitable guide-rolls, as set forth.

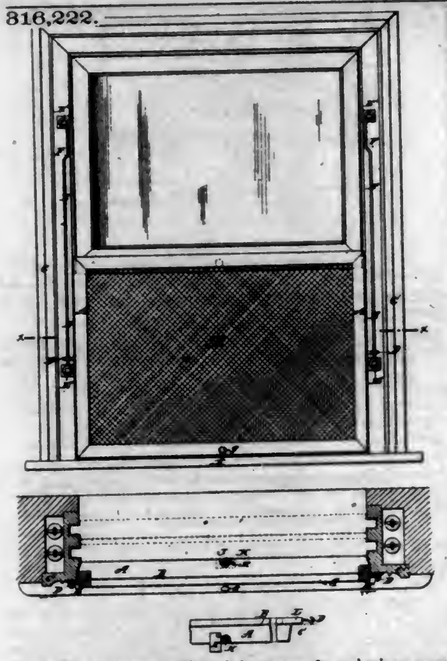
5. The combination, with the box or trough, of the roller D, connecting with the exhaust-power, the lower roll, B, guide-rolls B' B^2, and movable heads, C C, as set forth.

316,222. WINDOW-SCREEN HOLDER. HENRY C. BARLOW, Dallas, Tex. Filed May 21, 1884. (No model.)

Claim.—1. The combination, with a window-frame and a window-screen, of upright wires E, held on the inner surfaces of the uprights C of the frame, and provided with offsets or bends F near their upper ends, and of hook-eyes secured on the sides of the screen-frame and surrounding the wires E, substantially as herein shown and described.

2. The combination, with a window-frame and a window-screen, of upright wires E, held on the uprights C of the window-frame, the screen-frame A, having flanges or side pieces, L, the hook-eyes D, projecting from the outer edges of the same, substantially as herein shown and described.

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3. The combination, with a window-screen frame having a recess in the lower inner edge of its bottom rail, of the plate K, pivoted to the under side of the said bottom rail and adapted to cover and close the bottom of the said recess, substantially as herein shown and described.

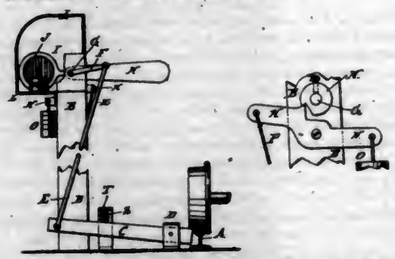
316,223. AUTOMATIC FIRE-EXTINGUISHING APPARATUS. CHAS. BARNES, Dayton, Ky. Filed Apr. 24, 1882. (No model.)



Claim.—1. In an automatic fire-extinguisher, the following parts in combination: a perforated distributer adapted to be secured to the end of a discharge-pipe and a valve located within the distributer and held to its seat within the discharge part by a fusible pin, B, passing through the neck of the distributer, substantially as specified.

2. In an automatic fire-extinguisher, the combination, substantially as before set forth, of the distributer A, adapted to be attached to the end of a discharge-pipe, and a valve located within the discharge part and having a stem extending into the neck of the distributer, with a fusible metal pin, B, passing transversely through the valve-stem and the neck of the distributer to retain the valve in place until released by heat.

316,224. RAILROAD SIGNALING APPARATUS. EMIL BAUMBACH, New York, N. Y. Filed Feb. 20, 1885. (No model.)



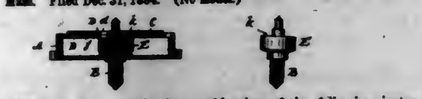
Claim.—In a railroad signaling apparatus, the combination, with the posts B, the crank-shafts F G, carrying the signal-arms, and the rods E, connected with the operating-levers, of the single-toothed ratchet-wheel M, the lever-pawl N, means for throwing the said lever-pawl into engagement with the said ratchet-wheel, and the rope or chain P and its guide-pulleys Q R, substantially as herein shown and described, whereby the signal on a following post will be withdrawn as the signal on a preceding post is displayed, as set forth.

316,225. STENCIL. FREDERICK BECK, New York, N. Y. Filed Feb. 10, 1885. (Model.)



Claim.—As a new article of manufacture, a stencil for use on uneven surfaces, the under side whereof matches the uneven surface over which it is placed when in use, substantially as and for the purposes as set forth.

316,226. WINDING-STOP FOR WATCHES. WEBSTER BELL, Boston, Mass. Filed Dec. 31, 1884. (No model.)



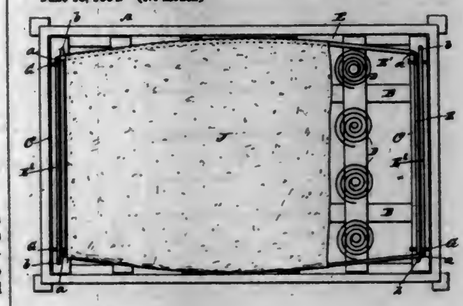
Claim.—1. In a watch, the combination of the following instrumentalities, to wit: a barrel for containing the spring, a winding-arbor for said spring, a hub disposed on said arbor within said barrel, and provided with a stud or projection, a disk having a portion of its periphery serrated, and a portion left plain or blank, said disk being journaled within said barrel and adapted to engage said stud, substantially as described.

2. The arbor B, provided with the stud *k*, the cap C, provided with the channels *z x*, the disk D, provided with the teeth *i*, and blank *v*, and the barrel A, constructed, combined, and arranged to operate substantially as set forth.

3. The cap C, provided with the hold *d*, in combination with the disk D, substantially as and for the purpose specified.

4. In a watch, the cap C, having the channel *z* and undercut hub *f* on its inner face, in combination with the flattened serrated annulus or disk D, having the blank *v*, and with a stud or projection on the barrel-arbor adapted to engage said disk, substantially as and for the purpose specified.

316,227. BED-BOTTOM. TRAVIS C. BENTLEY, Pattonville, Tex. Filed June 18, 1884. (No model.)



Claim.—1. A spring-bed formed of two U-shaped spring rods or frames having their end pieces or prongs crossed, and the ends of the prongs held in opposite ends of slats, and to which spring-frames a piece of canvas, ducking, &c., is secured, substantially as herein shown and described.

2. In a spring-bed, the combination, with two U-shaped spring rods or frames having their end pieces or prongs crossed and secured on opposite ends of slats, of spiral springs secured on transverse slats, and of a piece of canvas or ducking having its side edges secured to the U-shaped frames or rods, substantially as herein shown and described.

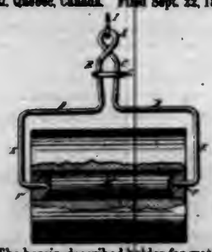
3. In a spring-bed, the combination, with two U-shaped spring-rods, E, having bends *a* at the inner ends of their prongs E², and prongs *b* on the outer ends of the prongs E², of the piece J, of canvas or ducking, secured on the spring-rods E, substantially as herein shown and described.

4. In a spring-bed, the combination, with the slats C', having apertures *d* at the ends, of the plates F, secured on the under sides of the slats C, and closing the lower ends of the apertures *d*, the U-shaped rods E, having end prongs, *b*, which are passed into the apertures *d*, and of the canvas J, secured to the rods E, substantially as herein shown and described.

5. In a spring-bed, the combination, with the slats C', having apertures *d*, of the plates F, the U-shaped spring-rods E, having end prongs, *b*, the piece of canvas J, secured on the rods E, and of the bands or cords G, passed around the prongs of the rods E and around the slats C', substantially as herein shown and described.

6. In a spring-bed, the combination, with the slats C', of the U-shaped spring-rods E, having their longitudinal parts E' bent outward, the crossed prongs E² on the ends of the parts E', and of the canvas J, having its side edges secured to the parts E' of the rods E, substantially as herein shown and described.

316,228. HOLDER FOR WATER-CLOSET PAPER. CHAS. S. BLACKMAN, Montreal, Quebec, Canada. Filed Sept. 22, 1884. (No model.)



Claim.—1. The herein-described holder for water-closet paper, made from a single piece of wire bent to form the central loop, A, inclined arms B C, horizontal bar D, ends E E, and pivots F F, combined with the loop G around said inclined arms, substantially as described.

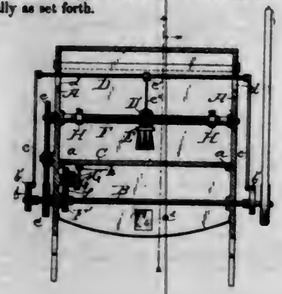
2. The herein-described holder for water-closet paper, made from a single piece of wire bent to form a central loop, with inclined arms B C extending therefrom, terminating in pivots F F, combined with the loop G around said inclined arms, and with the screw-eye I on said loop, substantially as described.

316,229. BLACK-LEADING MACHINE. EDWARD A. BLAKE, Chicago, Ill. Filed Jan. 26, 1884. (No model.)

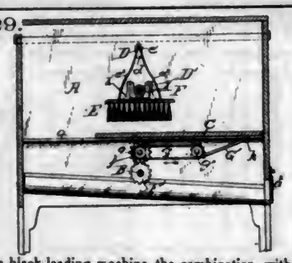
Claim.—1. The combination of the vertical reciprocating distributing-brush traveling at right angles to the bed, and said bed reciprocating longitudinally in said box-frame, substantially as set forth.

2. The combination, in a black-leading machine, of the brush E, boss D', screw F, vertically-reciprocating cross-bar D, and means for imparting the motion thereof to said brush, as hereinbefore described.

3. In a black-leading machine, the combination, with the drive-shaft B, eccentrics *b b*, links *c c*, cross-bar D, and sleeve *d'*, having arms depending therefrom to support brush E, of said brush-boss D' and screw F, substantially as set forth.

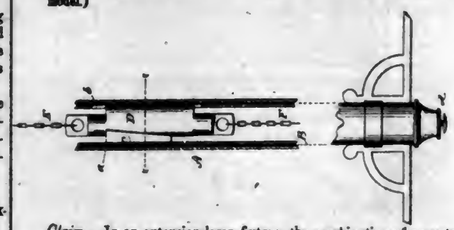


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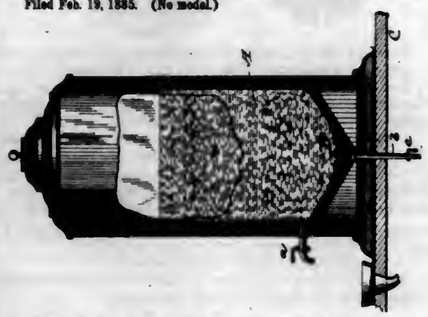
4. In a black-leading machine, the combination, with the boss D', right and left screw F, and brush E, of the collars H, arranged on said screw, and adapted to regulate the throw of the reciprocal motion of the brush.

316,230. EXTENSION CHANDELIER. ROLAND L. BREWER, Meriden, Conn., assignor to E. Miller & Co., same place. Filed Feb. 9, 1885. (No model.)



Claim.—In an extension-lamp fixture, the combination of an outer tube and an inner tube arranged telescopically, the one stationary and the other movable, said inner tube arranged with openings *a b* diametrically opposite each other, and the clamping-pieces C D, their adjacent faces alike inclined upward and toward the same side, the said piece C arranged in one of the said openings in the inner tube and supported against longitudinal movement, but free for lateral movement, the other arranged through the opening in the opposite side, but free for longitudinal movement independent of the inner tube, the said piece D adapted to be connected with the lifting device above and with a connection from the said piece D downward, substantially as and for the purpose described.

316,231. WATER-COOLER. JAMES O. BROOKBANK, Driftwood, Pa. Filed Feb. 19, 1885. (No model.)



Claim.—1. In a water-cooler, the conical base B, rigidly secured to the sides of the water-receptacle and provided at its lower portion with an exit-pipe, which is provided with a stop-cock and a faucet, *a*, substantially as shown, and for the purpose set forth.

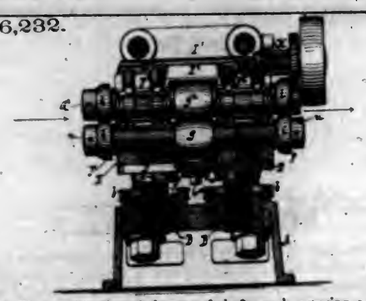
2. In a water-cooler, the receptacle A, having a conical-shaped bottom, a pipe attached to the terminal portion of said cone, which extends to the exterior of the cooler, and faucets *a c*, the parts being organized substantially as shown, and for the purpose set forth.

3. In a water-cooler, the receptacle A, having a conical-shaped bottom, a pipe, *b*, attached to the lower portion of the cone and extending through the base of the cooler, said pipe being provided with a stop-cock, *c*, and a faucet located above the cone-shaped bottom, substantially as shown, and for the purpose set forth.

316,232. ROLLING-MILL. AUGUSTUS P. BROWN, Brooklyn, N. Y. Filed Mar. 20, 1884. (No model.)

Claim.—1. The combination of the shafts G G' G², carrying the rolls *g g' g²* and the guide-rollers *h i*, with mechanism for adjusting said shafts in divergent lines, substantially as and for the purpose set forth.

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2. The combination of the set of shafts, each carrying a convex roll, frames carrying journal-bearings for the shafts, and capable of turning on their axes to adjust the shafts in divergent lines, and means for turning the frames and holding them in their adjusted position, substantially as described.

3. The combination of the shafts G G' G², carrying the rolls *g g' g²* and the guide-rollers *h i*, with mechanism for adjusting said shafts in divergent lines, and with mechanism for moving the shaft G toward and from the shafts G' G², substantially as and for the purpose set forth.

4. The combination of platforms, frames carried thereon and capable of turning on their axes, journal-bearings carried by the frames, shafts mounted in the journal-bearings, and each having a roll, and mechanism for turning the frames to adjust the shafts in divergent lines, substantially as described.

5. The combination of platforms, frames carried thereby and capable of turning thereon, journal-bearings on the frames, shafts mounted in the journal-bearings, and each having a roll, and mechanism for adjusting one of the shafts to and from the others, substantially as described.

6. The combination of the shafts G' G², each carrying a roll, mechanism for adjusting said shafts in divergent lines, a frame carrying the shaft G with its roll, means for adjusting the latter shaft with respect to the adjustment of the other shafts, and screws for moving the said shaft-carrying frame to adjust the shaft to and from the other shafts, substantially as described.

7. The combination, substantially as hereinbefore described, with the shafts G' G², carrying the rolls *g' g²*, of the shaft G, carrying the roll *g*, the platform D, resting on screws C C, the frame E, which supports the journal-boxes of the shaft G, the gears for turning the screws C C, and the adjusting-screws for turning the plate E.

8. The combination, substantially as herein described, with the shafts G' G², carrying the rolls *g' g²* and guide-rollers *h i*, of the shaft G, carrying the roll *g* and guide-rollers *h i*, the platform D, resting on screws C C, the frame E, which supports the journal-boxes of the shaft G, the gears for turning the screws C C, and the adjusting-screws for turning the plate E.

9. The combination, substantially as hereinbefore described, with the shafts G' G², carrying the rolls *g' g²*, the frames E' E², supporting the journal-boxes of said shafts, the platforms D' D², and the adjusting-screws for turning the frames E' E² upon the platforms, of the shaft G, carrying the roll *g*, the platform D, resting on screws C C, the frame E, supporting the journal-boxes of the shaft G, and the gears for turning the screws C C.

10. The combination, substantially as hereinbefore described, with the shafts G' G², carrying the rolls *g' g²* and guide-rollers *h i*, the frames E' E², supporting the journal-boxes of said shafts, the platforms D' D², and the adjusting-screws for turning the frames E' E² upon the platforms, of the shaft G, carrying the roll *g* and guide-rollers *h i*, the platform D, resting on screws C C, the frame E, supporting the journal-boxes of the shaft G, and the gears for turning the screws C C.

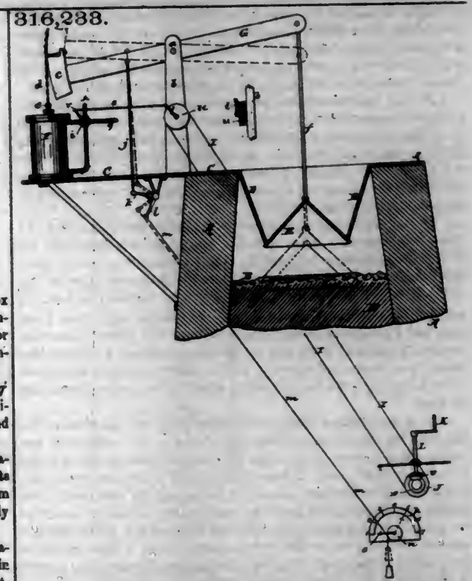
11. The combination, substantially as hereinbefore described, with the shafts G' G², carrying the rolls *g' g²* and guide-rollers *h i*, the frames E' E², supporting the journal-boxes of said shafts, the platforms D' D², and the adjusting-screws for turning the frames E' E² upon the platforms, of the shaft G, carrying the roll *g* and guide-rollers *h i*, the platform D, resting on screws C C, the frame E, supporting the journal-boxes of the shaft G, the adjusting-screws for turning the frame E upon the platform D, and the gears for turning the screws C C.

12. The combination of the set of divergent rolls with the frame E, having the cavity to form the oil-cistern N, substantially as described.

316,233. BLAST-FURNACE. FAYETTE BROWN, Cleveland, Ohio. Filed Nov. 12, 1883. (No model.)

Claim.—1. In combination with the beam or lever from one end of which the bell is suspended, and a compressed-air or other motor for operating said beam, all located at the top of the furnace, means, substantially such as described, located at or near the base of the furnace by which, through intermediate devices, the bell raising and lowering mechanism may be controlled from below.

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2. In combination with a blast-furnace, an indicator located below, preferably in the engineer's room, and intermediate mechanism for causing said indicator to register the height of the furnace-charge, substantially as set forth, whereby the engineer or other attendant stationed away from the furnace may be kept informed by visual inspection of said indicator as to the level of the charge in the furnace.

3. In combination with the gas-sealing doors and rock-shafts connected as described and located at the top of the furnace for opening and closing said doors, means, substantially such as described, located at or near the base of the furnace by which, through intermediate devices, the attendant below may control the door opening and closing mechanism.

316,234. BALING-PRESS. JOHN E. CHIDESTER, Waller, Tex. Filed Feb. 28, 1885. (No model.)



Claim.—1. In a continuous horse-power press, the combination of a revolving vertical sweep-shaft, a flat, wide bar secured at its middle to the lower end of this shaft, and having a longitudinal slot formed with

outwardly-facing shoulders, one at each side of its center and on opposite sides of the slot, and with recesses opposite to the shoulders, and a plunger-operating pitman having a bolt sliding in the slot of the bar and engaging the shoulders, and a pin secured at the rear of the bolt and passing in the recesses of the slot, as and for the purpose shown and set forth.

2. In a continuous horse-power baling-press, the combination of a revolving sweep-shaft, a flat, wide bar secured to the end of the shaft at its middle, and having a longitudinal slot formed with outwardly-facing shoulders, one at each side of the middle of the slot and on opposite sides of the same, and a plunger-operating pitman having a bolt sliding in the slot of the bar and bearing against the shoulders in the same, as and for the purpose shown and set forth.

3. In a continuous horse-power baling-press, the combination of a revolving sweep-shaft, a flat, wide bar secured at its middle to the end of the shaft, having a longitudinal slot formed with outwardly-facing shoulders, one at each side of the middle of the slot and on opposite sides of the same, and with recesses opposite to the shoulders, and having downwardly-projecting flanges at its ends, grooved upon their inner sides, and a plunger-operating pitman having a bolt sliding in the slot, having a pin secured at the rear of the bolt, and having a laterally-projecting lip at one side provided with a disk or roller traveling in the grooves of the flanges upon the flat slotted bar, as and for the purpose shown and set forth.

4. In a continuous horse-power baling-press, the combination of a flat, wide bar secured at its middle to the end of the sweep-shaft, and having a longitudinal slot provided with outwardly-facing shoulders, one at each side of its middle and on opposite sides of the slot, and having a step formed in the upper sides of its ends, provided with a pin at the middle, a plunger-operating pitman having a bolt sliding in the slot of the bar and bearing against the shoulders of the slot, a pulley having a grooved periphery and a wide hub or central sleeve, a chain secured to the grooved periphery of the pulley winding upon the same and secured at the head of the pitman, a chain winding upon the hub or sleeve of the pulley, a lever having a longitudinal slot pivoted upon a pin projecting through the said slot in a plane with the upper side of the slotted wide bar, having a bifurcated inner end engaging the pins at the ends of the slotted bar and having the chain attached to its outer end, and springs forcing the slotted lever toward the slotted wide bar, sliding the lever upon its pivotal pin with the slot, as and for the purpose shown and set forth.

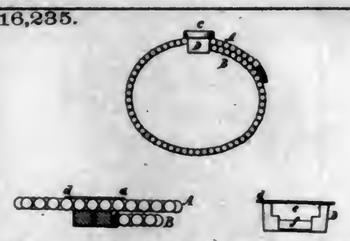
5. In a continuous horse-power baling-press, the combination of the press-box having a feed-aperture, a feeder-box secured over the said opening and having a reciprocating feeder-plunger, the sweep-shaft having segmental cogged flanges projecting laterally below its bearing, a shaft provided with a pinion journaled in the bearing above the cogged flanges and having a crank at its outer end, the pinion engaging the cogged flanges, a connecting-rod pivoted to the crank, and a lever having the connecting-rod pivoted to one end and the plunger pivoted to the other end, as and for the purpose shown and set forth.

6. In a continuous horse-power baling-press, the combination of the press-box formed into a feed-compartment having an aperture in its top and a baling-compartment, a feeder-box fitting over the opening in the feed-compartment, a plunger reciprocating in the feeder-box, a bolt engaging a perforation in the lower end of the feeder-box and having a spring forcing it outward, the said bolt being secured to the upper side of the forward edge of the plunger, a connecting-rod attached to the rear end of the bolt, a trigger pivoted at the rear edge of the plunger and attached at its upper end to the connecting-rod, and the presser-plunger provided upon its upper side with a stop engaging the trigger upon the plunger, as and for the purpose shown and set forth.

7. In a continuous horse-power baling-press, the combination of a vertical feeder-box having a feed-opening in one side formed with grooved ways in its jambs, a plunger reciprocating in the feeder-box, a three-sided frame sliding with its side pieces in the grooved ways of the feed-opening, having the inner sides of its side pieces grooved and having outwardly-projecting brackets at the upper ends of the side pieces, a gate sliding with laterally-projecting lugs at its upper edge in the grooved side pieces of the three-sided frame, having a serrated lower edge provided with a step upon its outer side, and having laterally-projecting lugs upon its side edges bearing against the inner sides of the side pieces of the three-sided frame, and springs secured to the sliding gate and to the ends of the brackets of the frame, as and for the purpose shown and set forth.

8. In a continuous horse-power baling-press, the combination, with the press-box having a vertical slot in its side for the insertion of the follower or dividing blocks, of a door hinged upon the inside of the box at the rear edge of the slot, a rod sliding in the side of the box attached to the door at its inner end and having a knob at its outer end, a spring forcing the said rod outward, and a flat spring secured to the upper end of the free edge of the door, projecting forward and inward to catch and support the follower-blocks, as and for the purpose shown and set forth.

316,235. SLIDE FOR BRACELETS. HENRY A. CHURCH, Providence, R. I. Filed June 9, 1883. (No model.)



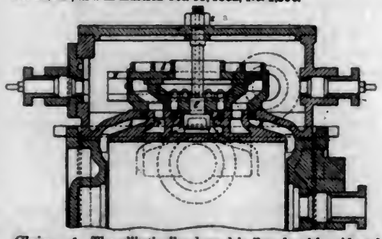
Claim.—1. An improved slide for bracelets, consisting of a loop of proper depth to receive the lapping ends of a band, and provided with inward shoulders or projections formed integrally with opposite sides for engaging the inner lapping end of the band or lateral projections thereupon, substantially as described.

2. An improved slide for bracelets, consisting of a loop of proper depth and width to receive the lapped ends of a band, and to permit the through passage of the outer end of the band, and provided on opposite sides with shoulders or catches to engage the inner lapped ends of the band or lateral projections thereupon, said shoulders or catches being supported entirely within the loop without requiring openings in the walls for their insertion, as set forth.

3. The improved slide for bracelets, consisting of a box-shaped loop having openings in its ends to receive and hold one end of the chain and to allow of the passage of the other end, and provided with a flange to receive the top plate, as described.

4. The combination, with the front or top plate, of the loop having the openings to receive and hold one end of the chain, and to admit of the passage of the other end and provided with the flange to receive the front plate, as described.

316,236. CIRCULAR SLIDE-VALVE. WALTER C. CHURCH, Brixton, County of Surrey, assignor to the Walter C. Church Engineering Company, (Limited,) London, England. Filed June 10, 1884. (No model.) Patented in England Jan. 31, 1882, No. 476; in France July 26, 1882, No. 150,321; in Belgium July 29, 1882, No. 58,616; in Germany July 30, 1882 No. 21,544, and in Austria Oct. 11, 1882, No. 1,896.

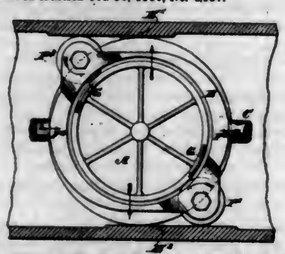


Claim.—1. The elliptically-shaped hollow *b*, with widened parts *b'* *b'*, formed in the bearing-piece B, substantially as described.

2. The tie-bolt C, connecting the stationary cover of the slide-case to the body of the cylinder, substantially as and for the purpose set forth.

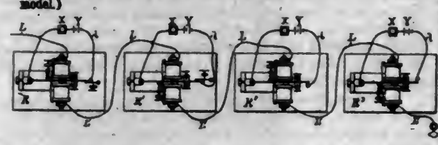
3. The slotted disk G', in combination with the helical spring and the adjusting-nut C' on the central tie-bolt, C, for the purpose of holding the slide down on its facing, substantially as described.

316,237. CIRCULAR SLIDE-VALVE. WALTER C. CHURCH, Brixton, County of Surrey, England. Filed Feb. 5, 1885. (No model.) Patented in England Jan. 21, 1880, No. 266; in France July 7, 1880, No. 137,676; in Germany July 16, 1880, No. 13,194; in Belgium July 29, 1880, No. 52,153, and in Austria Oct. 30, 1880, No. 4,187.



Claim.—The combination of the circular slide A and the loop or eye B of the slide-rod, having two diagonally-opposite rollers, F' F², with the two opposite rolling faces E' E of the slide-jacket, substantially as described.

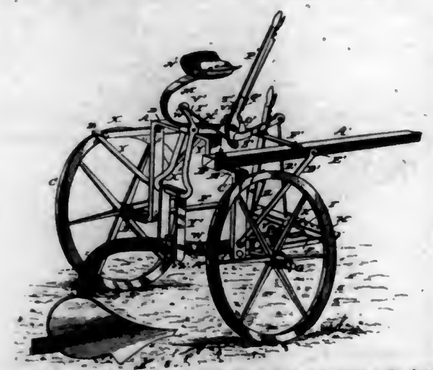
316,238. RELAY FOR TELEPHONE SYSTEMS. JOSEPH H. CLARKE and GEORGE W. MILLARD, Providence, R. I. Filed Mar. 27, 1884. (No model.)



Claim.—1. An improved relay system for telephones, consisting of a series of relays arranged to be operated by strong and weak currents of positive polarity and a series of strong and weak currents of negative polarity, the weak-current relays consisting each of a suitable base-board carrying a support, E, with two adjusting-screws, *e*, and a frame, C, having a cross-piece, *c*, an arm, D, a spring for controlling said arm, and a plate, F, and the strong-current relays having each the post A, in lieu of the supports E and the spring-plates F of the weak-current relays, as set forth.

2. The relay system consisting of a series of relays arranged to be operated by currents of opposite polarity and of greater and less intensity, the weak-current relays consisting each of a suitable base-board carrying a support, E, with two adjusting-screws, *e*, and a frame, C, having a cross-piece, *c*, an arm, D, a spring for controlling said arm, and a plate, F, and the strong-current relays having each the post A, in lieu of the supports and spring-plates of the weak-current relays, in combination with the key-board having the double keys *k'*, the battery, the wires *w*, running from the ends of the battery to closing-points on the key-board, and the wires *w'*, running from intermediate points of the battery to closing-points on said key-board, whereby currents of opposite polarity and of greater and less intensity are selected for the corresponding relays, as described.

316,239. SULKY-PLOW. PATRICK CLINES, Martinsburg, Mo. Filed Jan. 30, 1885. (No model.)



Claim.—1. The combination of the arched axle having the land-wheel journaled at one side, the draft-bail hinged at its rear ends to the ends of the axle, having the plow attached to it at its forward end, and having the stub-axle near the rear end of the furrow side of the bail, carrying the furrow-wheel, and means, substantially as shown, for raising or lowering the forward end of the bail, as and for the purpose shown and set forth.

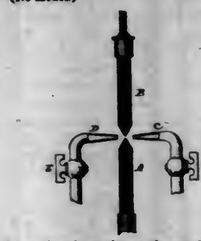
2. The combination of the arched axle having one part of its horizontal portion higher than the other, and having a longitudinal bar having inwardly-projecting perforated lips at its ends, secured at its middle to the upper end of the land side of the axle, the draft-bail hinged at its rear ends to the lower ends of the axle so as to swing under the same, and having the forward end of the plow-beam secured to it, the seat-support having the perforated forward end, and carrying the seat and the plow-raising levers, and pivoted at its rear end upon the highest portion of the arched axle, the tongue pivoted at its rear end upon the lower part of the arched axle, the brace secured movably to the tongue, and pivoted to the lower end of the furrow side of the axle, and the arm pivoted upon the upper side of the tongue, and having perforations provided with bolts corresponding to the perforations in the forward end of the seat-supporting bar and to the perforated lugs at the ends of the longitudinal bar, as and for the purpose shown and set forth.

3. The combination of the draft-bail having bar J, the clip K, sliding upon the bar, and having the forward end of the plow-beam secured to it, the hand-lever Q, pivoted upon the draft-bail, and the arm P, pivoted to the plate and to the lower end of the hand-lever, as and for the purpose shown and set forth.

4. The combination of the hand-lever P', the connecting-rod R', the short lever T', having the catch U', and pivoted concentric with the hand-lever, the short connecting-rod V', and the rear plow-raising lever, W', as and for the purpose shown and set forth.

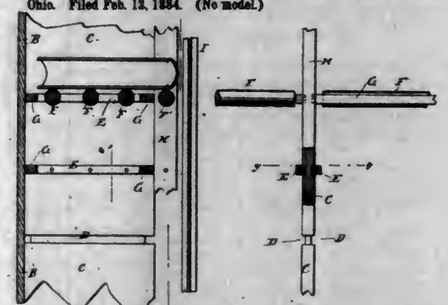
5. The combination of the bail Y', connected to the plow-raising mechanism, and having the perforations at its lower ends, the plates Z', having perforated ends, and having the lugs A'' pivoted in the perforations of the bail, the bolts B'', and the plow-beam having the transverse notches C'' in its lower edge, as and for the purpose shown and set forth.

316,240. ELECTRIC-ARC LAMP. LEDYARD COLBURN, Birmingham, Conn., assignor of one-half to Richard R. Colburn, same place. Filed Mar. 13, 1884. (No model.)



Claim.—In an electric-arc lamp, the combination of the two carbons A B with the tubes C D, applied to direct, respectively, a gas and an air jet between the points of the carbons, substantially as described.

316,241. ROLLER-SHELF BOOK-CASE. WALTER N. CONANT, Toledo, Ohio. Filed Feb. 13, 1884. (No model.)



Claim.—1. The combination, with the book-case frame A B, the rear rollers, F, and the vertical partitions C, having horizontal grooves D, of the cross-stripe E, substantially as herein shown and described, whereby the said partitions are held from warping, and a firm support is provided for the roller-journals, as set forth.

2. In a roller-shelf book-case, the combination, with the casing A B, the vertical partition C, having grooves D and edge recesses, the cross-stripe E, the rollers F, and the recessed binding-bars G, of the vertical front bars, H, substantially as herein shown and described, whereby the book-case is strengthened, and a support is provided for the front rollers, as set forth.

3. The combination, with the casing A B, the back rollers, F, the horizontal binding-bars G, and the vertical front bars, H, of the rollers F', substantially as herein shown and described, whereby the books are kept from contact with stationary parts of the book-case, as set forth.

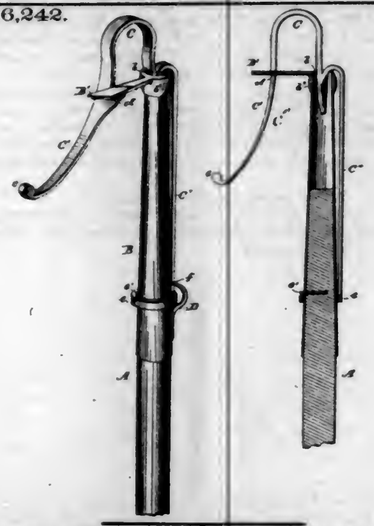
316,242. SHEPHERD'S CROOK. DANIEL CONNER, Amesville, Ohio. Filed May 3, 1884. (No model.)

Claim.—1. The improved shepherd's crook herein described, consisting of the staff having at its end a ferrule with a projecting arm, and a crook with a catch adapted to engage with the aforesaid projecting arm, and a hook to lock the ferrule and crook, substantially set forth.

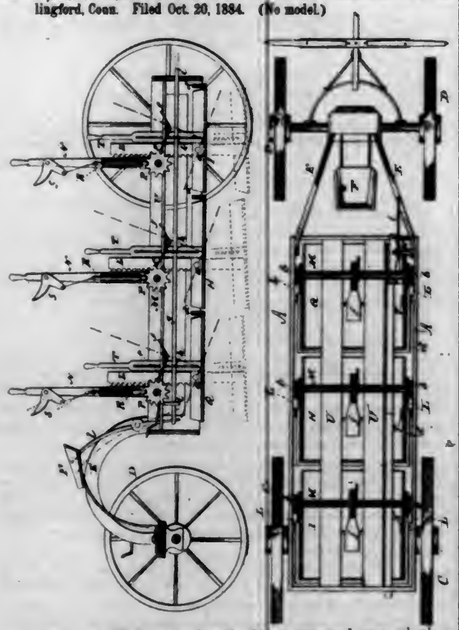
2. The improved shepherd's crook consisting of the staff A, ferrule B, having a projecting arm, B', and perforation *f*, the crook C, having bent portion C', provided with the projection *d*, and the bent portion C², provided with a ring, *e*, the pin *e'*, and the hook D, substantially set forth.

3. In the shepherd's crook, the staff A, provided with the ferrule B, having an open end to the projecting arm B', formed thereon, in combination with a crook, C, having bent portion C', with the catch *d*, and bent portion C², having a ring formed at its lower end, retaining-pin *e'*, and locking-hook D, substantially as shown, and for the purpose set forth.

316,242.



316,243. EARTH LOADER AND CONVEYER. MARCUS E. COOK, Wallingford, Conn. Filed Oct. 20, 1884. (No model.)



Claim.—1. The combination of a frame supported upon wheels, a platform transversely across said frame and hung in vertical slides movable in said frame, mechanism, substantially such as described, to impart up and down movement to said slides and to the platform, a lever attached to said platform by which it may be tilted backward or forward, and a guard attached to said slides and surrounding the rear end of the platform, substantially as and for the purpose described.

2. The combination of a frame supported upon wheels at the front and rear, two or more platforms transversely across said frame, each hung to vertical slides, transverse shafts supported in said frame, each carrying pinions corresponding, respectively, to teeth on said slides, a hand-lever upon each of said shafts by which rotation may be imparted to said shafts to raise or lower said slides and platform, a lever extending up from each platform and by which they may be tilted, and a bar connecting said tilting-levers, substantially as described, and so that the tilt of one platform is imparted to the others.

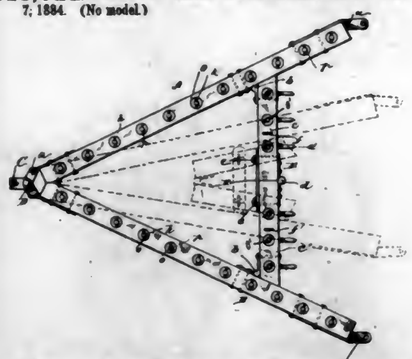
3. The combination of a frame supported upon wheels at the front and rear, two or more platforms transversely across said frame, each hung to vertical slides, transverse shafts supported in said frame, each carrying pinions corresponding, respectively, to teeth on said slides, a hand-lever upon each of said shafts by which rotation may be imparted to said shafts to raise or lower said slides and platform, a lever extending up from each platform and by which they may be tilted, a bar connecting said tilting-levers, and a hand-lever adjacent to the driver's seat, in connection with said bar, substantially as described, and whereby the driver may tilt the platforms.

4. The combination of a frame supported upon wheels, vertically-guided slides L, a platform hung to said slides, a hand-lever, T, extending upward from said platform, guard *d*, attached to said slides and surrounding the rear of the platform but independent thereof, transverse shaft M, pinions *b* thereon working into corresponding teeth on said vertical slides L, a ratchet on said shaft, a hand-lever hung loose upon said shaft, and a dog upon said lever arranged to engage said ratchet, substantially described.

5. The combination of a frame supported upon wheels, two or more pairs of vertically-guided slides, a platform hung to each pair of said slides, a vertically-slotted lever, T, extending up from each of said platforms, transverse shafts M, pinions *b* on said shafts corresponding to teeth on said vertical slides, a ratchet, P, on each of said shafts, a lever, N, hung to each of said shafts, a dog on each of said levers corresponding to the ratchet on its shaft, longitudinal bar *g*, in connection with each of said levers T, said bar extending forward, and a hand-lever, *l*, hung adjacent to the seat of the driver, said hand-lever *l* in connection with said bar *g*, substantially as and for the purpose described.

6. The combination of a frame supported upon wheels, two or more pairs of vertically-guided slides, L, a platform hung to each of said pairs of slides, a guard, *d*, attached to each of said pair of slides and surrounding the rear of the respective platforms, a hand-lever, T, extending up from each of said platforms, transverse shafts M, pinions *b* on said shafts corresponding to the teeth on said slides L, a ratchet, P, on said shafts, a hand-lever hung upon said shafts adjacent to said ratchets, and a dog, R, on said levers to engage said ratchets, substantially as described.

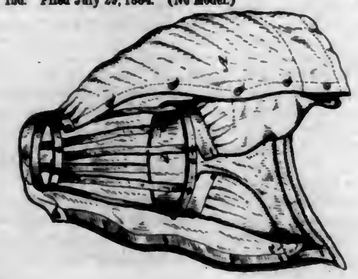
316,244. HARROW. SAMUEL H. COOK, Johnsonville, Ill. Filed Apr. 7, 1884. (No model.)



Claim.—1. In a reversible harrow, the two side beams provided at their ends with straps *a a a a* for the attachment of a clevis, whereby the opposite ends can be connected to each other, and provided with a sectional cross-bar having teeth G, said cross-bar being hinged to the side beams, substantially as shown, and for the purpose set forth.

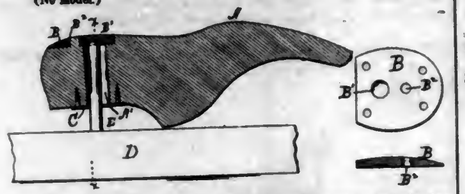
2. In a reversible harrow, the side beams adapted to be connected to each other at either end, and provided with straight teeth, as shown, in combination with the sectional cross-beam hinged thereto and provided with teeth G, for the purpose set forth, and staples *a e f f*, and strap F, substantially as shown and set forth.

316,245. WATER-PROOF GARMENT. LORETTO CORY, Shelbyville, Ind. Filed July 29, 1884. (No model.)



Claim.—The herein-described water-proof skirt, consisting of the circular A, provided with a band, *a*, near its lower end, and the protector B, detachably connected to said band and to a band, *c*, supported by a series of straps, *d*, from a waistband, *e*.

316,246. LAST. ARTHUR W. COX, Newark, N. J. Filed Feb. 4, 1885. (No model.)



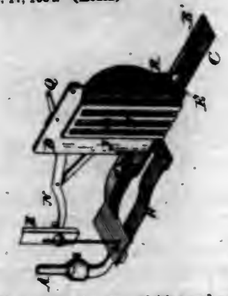
Claim.—1. The combination, in a last, with a wooden body having a spindle-socket formed through it near its rear end, of the metallic heel-plate secured on the body over the inner end of the spindle-socket, said plate being provided with a bearing for the point of the spindle, and with a perforation eccentric to such bearing and fitted to receive a wooden plug, substantially as set forth.

2. As a new and improved article of manufacture, a heel-plate for lasts, having one side conformed in curvature to the shape of the heel portion of a last, and provided in its other or inner side with an indentation forming a seat for the spindle of the jack, substantially as set forth.

3. A last heel-plate having one or its outer side conformed in curvature to the shape of the heel portion of a last, and provided in its inner side with an indentation, forming a seat for the jack-spindle, and having a perforation eccentric to said indentation and fitted to receive a plug, substantially as set forth.

4. A last substantially as herein described, consisting of a wooden body having a socket, A', formed through it near its rear end, a metallic wear-plate, C, secured to the last around the upper end of the socket A', and having an opening registering with such socket, and a heel-plate, B, secured on the heel portion of the last over the inner end of the socket A', and having in its inner face an indentation, B', registering with such socket, and forming a seat for the jack-spindle, and having a perforation, B^2, eccentric to the indentation B', substantially as set forth.

316,247. PLAITING AND RUFFLING ATTACHMENT FOR SEWING-MACHINES. ROBERT M. COX, Prairie City, Ill. Filed Apr. 5, 1883. Renewed Nov. 17, 1884. (Model.)



Claim.—1. The combination, in a plaiting and ruffling attachment for sewing-machines, of a supporting-frame, a single ruffler-blade, H, secured to a slide, E, a plate, I, having a series of vertical slots, secured to slide E, and a crank-pin adapted to work in either one of said slots and fixed into the face of a disk, K, all constructed and adapted to operate substantially in the manner and for the purposes described.

2. The combination of the supporting-frame, the reciprocating ruffler-blade, the slide under said frame, the vertically-slotted yoke I, a wrist-pin on disk K, working in one of the slots of said plate, a ratchet-wheel, M, on the shaft of the disk, a ratchet-lever, O, a vertically-vibrating lever, a needle-bar and a spring for actuating this lever, and an adjustable stop therefor, substantially as and for the purposes described.

3. The combination, with a supporting-frame, of a slide bearing a ruffler-blade, and a vertically-slotted plate or yoke, a disk having an actuating wrist-pin for said yoke, a ratchet-wheel on the shaft of the disk, a ratchet-bar, a lever to which this bar is pivoted, a needle-bar, and a retracting-spring, all constructed and adapted to operate substantially in the manner and for the purposes described.

4. The combination of the frame A', having the vertical plate D, bearing a journal, the disk on this journal having a crank-pin, L, a ratchet-wheel on this journal, a slide bearing a ruffler-blade, H, and a vertically-slotted plate, the pivoted lever N, the ratchet-bar O, spring O', and a spring friction-brake, substantially as described.

316,248. FORMATION OF METHOXY AND ETHOXY CHINALDINE. OSCAR DOEBNER, Berlin, Prussia, and WILHELM VON MILLER, Munich, Bavaria, Germany. Filed Feb. 14, 1884. (No specimens.) Patented in Germany Aug. 19, 1882, No. 24,317, and Oct. 2, 1883, No. 29,819; in Belgium Feb. 21, 1883, No. 60,517; in France Feb. 21, 1883, No. 153,873; in Italy Feb. 21, 1883, XXX. 157; XVI. 15,147; in England Feb. 21, 1883, No. 956; in Luxemburg Feb. 22, 1883, No. 255, and in Austria-Hungary Sept. 16, 1884, No. 26,849 and No. 41,286.

Claim.—As new chemical products, the herein-described oxy, methyl, and ethyl derivatives of chinaldine, substantially as set forth.

316,249. FORMATION OF THE HYDROBASE OF CHINALDINE. OSCAR DOEBNER, Berlin, Prussia, and WILHELM VON MILLER, Munich, Bavaria, Germany. Filed Feb. 14, 1884. (No specimens.) Patented in Germany Aug. 19, 1882, No. 24,317, and Oct. 2, 1883, No. 29,819; in Belgium Feb. 21, 1883, No. 60,517; in France Feb. 21, 1883, No. 153,873; in Italy Feb. 21, 1883, XXX. 157; XVI. 15,147; in England Feb. 21, 1883, No. 956; in Luxemburg Feb. 22, 1883, No. 255, and in Austria-Hungary Sept. 16, 1884, No. 26,849 and No. 41,286.

Claim.—As a new chemical product, the herein-described hydrobase of chinaldine, substantially as set forth.

316,250. SAFE. ARCHIBALD D. B. DOUGLAS, Seafield, Ardrossan, County of Ayr, Scotland. Filed Nov. 26, 1884. (No model.) Patented in England Aug. 28, 1884, No. 11,745.



Claim.—1. In a safe, vault, or other similar structure, the combination, with the rabbeted edges having undercut shoulders, of a strip of hardened steel filling the space between said shoulders and the beveled ends of the overlapping portions, and rivets uniting the latter, substantially as described.

2. In a safe, vault, or similar structure, the combination, with the wall-plates having rabbeted edges and undercut shoulders, of hardened strips filling the space between said shoulders and the beveled edges of the overlapping portions, an enveloping plate or plate covering the joint, and rivets connecting said plates to the wall-plates and to each other, substantially as described.

3. In a safe, vault, or similar structure, metallic wall-plates having their edges united by dovetails, equal portions of the wings being cut away upon each plate alternately, the parts being fastened by suitable rivets, substantially as described.

316,251. PREPARATION OF LITHOGRAPHIC PRINTING-SURFACES. JOSEF EBERLE, Vienna, Austria-Hungary. Filed Aug. 28, 1884. (No specimens.) Patented in Germany June 20, 1884, No. 30,472; in France July 11, 1884, No. 163,253; in England July 11, 1884, No. 10,073; in Austria-Hungary July 31, 1884, No. 16,838 and No. 34,287; in Belgium Aug. 12, 1884, No. 66,007, and in Italy Sept. 30, 1884, XVIII. 17,242; XXXIV. 178.

Claim.—The further treatment of a drawing, writing, or other design produced in any of the ways hitherto employed upon a lithographic printing-surface, consisting in covering the surface with printing-ink, in then rubbing it gently with very fine colophony, in then lightly melting this covering by applying an open flame to it, and in then leaving the stone to cool, whereby an impermeable coating is produced which will prevent the injurious effects of the subsequent and indispensable etching, and in finally brushing the stone with strong caustic gum of the usual composition until the design or writing has acquired the desired height, substantially as described.

316,252. COMBINED FOOT-WARMER AND HEATER. EDWARD B. ELROD, Flora, Ill. Filed Mar. 1, 1884. (No model.)



Claim.—1. In a foot-warmer provided with a cover and suitable foot-supports, a lamp placed between said supports, and provided with a filling-tube, and also with an oil-reservoir below the base of the warmer.

2. The combination of a suitable base, A, and arched cover C, having closed rear end, E, the inclined foot-rests N and the wings or guards M on each side, and the lamp H, substantially as herein set forth.

3. The combination of the base A, having the oil-reservoir beneath and the arched cover above, with the air-tube K, extending upward from said reservoir, the lamp H, the inclined foot-pieces N, and guards or wings M, substantially as herein set forth.

316,253. CHANGEABLE BUTTON. FRANK A. FOX, New York, N. Y., assignor to himself and James L. Gordon, same place. Filed Oct. 29, 1884. (No model.)

Brief.—The button is provided with a removable shell, which is adapted to be screwed upon the button-disk, thereby concealing its face.



Claim.—In a changeable button substantially as described, a disk having a threaded edge, combined with a removable covering-shell interiorly threaded, and adapted to entirely conceal the face of the disk, substantially as set forth.

316,254. CALENDAR-CLOCK. DANIEL J. GALE, Bristol, Conn. Filed Dec. 22, 1884. (No model.)



Claim.—1. The combination of the day-of-the-week shaft having the ratchet-wheel R, having the ends of its teeth cut off, the sleeve having the ratchet-wheel T and the cog-wheel U, the drive-pinion X, meshing with the cog-wheel U, the flat spring-pawl W, and the bell-crank-shaped lever E' F', pivoted upon the lifting-lever and engaging the registering-teeth of the ratchet-wheels, as and for the purpose shown and set forth.

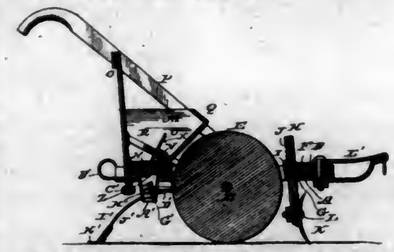
2. The combination of a driving-disk making one half-revolution each day, and having two long pins upon its face diametrically opposite to each other, and two shorter pins diametrically opposite to each other near the periphery of the disk and slightly in advance of the long pins, the day-of-the-month wheel having thirty-one teeth engaging the long pins upon the driving-disk, a short-month lever pivoted at one end near the periphery of the day-of-the-month wheel, having a lug at its outer end abutting against the inner edge of the rim of the said wheel, and having its outer end provided with an oblique upturned flange engaging the short pins of the driving-disk, and means, substantially as shown, for projecting the flanged end of the short-month lever more or less outward at the ends of the short months, as and for the purpose shown and set forth.

3. The combination of the driving-disk having the long pins diametrically opposite to each other upon its face near its arbor, and having the short pins near the periphery diametrically opposite to each other and slightly in advance of the long pins, the day-of-the-month wheel having thirty-one teeth upon its periphery engaging the long pins upon the driving-disk, the short-month lever having the oblique flanged free end abutting with a lug against the inner edge of the periphery of the day-of-the-month wheel, and having the rearwardly-projecting lugs T' and W' near its other end, which is pivoted near the periphery of the day-of-the-month wheel, the planet-wheel having forty-eight teeth, and the pattern-wheel having three long February cogs, the shorter February cog, and the four short-month cogs in each interval between a February cog and the inwardly-projecting pin upon the frame of the movement near the arbor of the day-of-the-month wheel engaging the teeth of the planet-wheel once in a month, as and for the purpose shown and set forth.

4. The combination of the day-of-the-month wheel, the planet-wheel having forty-eight teeth, having the pattern-wheel secured to it, and pivoted upon one of the arms of the day-of-the-month wheel, the said pattern-wheel having the differently-sized short-month teeth, the inwardly-projecting pin upon the movement-frame near the arbor of the day-of-the-month wheel, the short-month lever having the inwardly-projecting lug engaging the pattern-wheel and the inwardly-projecting lug W', and the cam-plate secured upon the movement-frame at the lower half of the day-of-the-month wheel, engaging the lug W' with its curved lower edge, as and for the purpose shown and set forth.

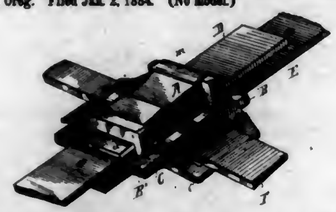
5. The combination, with the seven-toothed day-of-the-week ratchet-wheel, of the lifting-lever pivoted upon the movement-frame, means for raising its bent free end once in every twenty-four hours, the bell-crank-shaped lever pivoted upon the end of the lifting-lever, having its upper arm bent inward to engage the ratchet-wheel, and having its lower arm formed with an outwardly-bent eye, and the spring-wire secured at one end in the eye of the bell-crank lever, wrapped around a stud upon the lifting-lever, and bearing with its other end against the bent end of the lifting-lever, as and for the purpose shown and set forth.

316,255. COTTON-SEED PLANTER. JOHN N. GARDNER, Chesterfield S. C. Filed Sept. 19, 1884. (No model.)



Claim.—In a cotton-seed planter, the combination of a hopper with an opening in the bottom, a sowing-wheel arranged diagonally in the hopper above the opening in the bottom, and a forcing-wheel arranged diagonally in the feed-spout below the hole in the bottom of the hopper at about right angles to the plane of the sowing-wheel, both of said wheels receiving motion from a transverse shaft in front of the feed box or hopper by means of suitable bevel-gearing on said shaft, substantially as and for the purpose set forth.

316,256. TRACE OR HARNESS BUCKLE. DAVID G. GAY, Pleasant Hill, Oreg. Filed Jan. 2, 1884. (No model.)



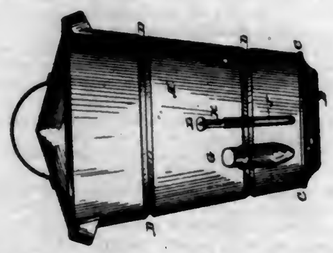
Claim.—1. In a buckle, the combination, with strap-holding bands and plate having lugs, as described, of a locking-tongue bar pivotally secured to one of the strap-bands, and provided with an engaging-lug, substantially as and for the purpose set forth.

2. In combination with a buckle-frame, the tongue-plate A, having the shouldered extension and the engaging-lug *a'*, as and for the purpose set forth.

3. In combination with a buckle-frame, the strap-bands B and B', one of which is provided with an engaging-lug, *b*, as and for the purpose set forth.

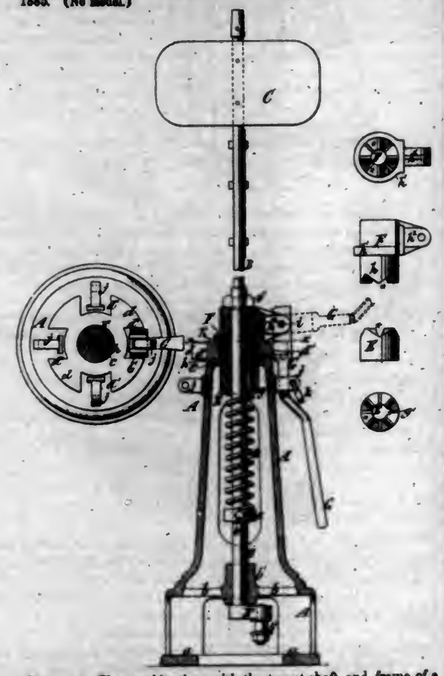
4. In a buckle, the frame or plate C, having lips *c'*, projections *c*, and lugs *g*, in combination with one or more of the strap-bands, as and for the purpose set forth.

316,257. CULINARY BOILER. CHARLES W. GEER, Bethel, Conn. Filed July 9, 1884. (No model.)



Claim.—The combination of the boiler having corrugations projecting inward, the pipe passing through the bottom of the boiler and secured thereto by means of two jamb-nuts and extending above the lowermost corrugation, and the lowermost tray having a notch in its edge for the passage of the pipe, as and for the purpose shown and set forth.

316,258. SAFETY SWITCH-STAND. CHARLES GRAHAM, Kingston, assignor of one-half to William F. Hallstead, Scranton, Pa. Filed Jan. 29, 1885. (No model.)



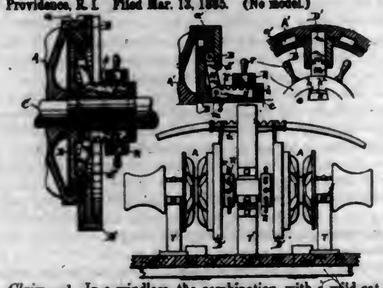
Claim.—1. The combination, with the target-shaft and frame of a safety switch-stand, of the clutch-pieces E F, fitting the shaft, the clutch-piece E being free to slide on the shaft, but held against turning thereon, the spring D, for supporting the clutch-piece E, and the handle G, pivoted to the clutch-piece F, and capable of being swung downward to engage with the stand and hold the clutch-piece F against turning, substantially as herein described.

2. The combination, with a stand, A, having a bearing, *c*, at the top, and a target-shaft, B, of the clutch-piece F, fitting and free to turn in said bearing, and within which the shaft may turn, the pivoted handle G, for turning said clutch-piece and locking it against turning by engagement with the stand, the sliding clutch-piece E, locked to the shaft, and the spring D, all substantially as herein described.

3. The combination, with the stand A, having notches *d'* at equidistant points around its circumference, of the target-shaft B, the clutch-piece E F, and spring D, arranged for operation, as described, and the handle G, pivoted to the clutch-piece F and adapted to engage with the notches *d'* in the stand when swung downward, substantially as herein set forth.

4. The combination, with the target-shaft B, of the clutch-pieces and spring E F D, placed thereon, and the collar *e*, the key or cotter *f*, between which said parts are secured on the shaft with the spring under tension, substantially as herein described.

316,259. LOCKING-GEAR FOR WINDLASSES. FRANCIS A. GRATER, Providence, R. I. Filed Mar. 13, 1885. (No model.)



Claim.—1. In a windlass, the combination, with a wild-cat loosely mounted on the main or driving shaft, of a driving-head rigidly secured to the shaft and having one or more locking-blocks, each connected by a suitable link with a screw-threaded key arranged in the hub of the driving-head, said keys engaging with an annular nut mounted upon said hub and provided with means for operating the same, whereby the axial movement of the nut causes the locking-blocks to move in an outward or radial direction, substantially as shown, and for the purpose set forth.

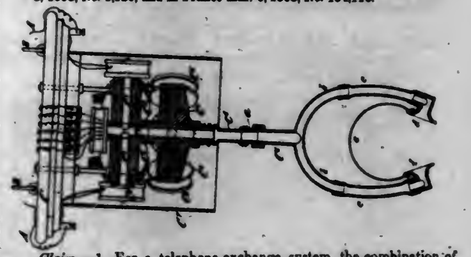
2. The combination, with a wild-cat mounted on the driving-shaft, of the locking device herein described, consisting of one or more locking-blocks, D, screw-threaded keys H, links M, connecting said blocks, and nut R, having handles *r* and sockets *r'* therein, said nut engaging with the keys H and mounted on the hub of the driving-head between suitable thrust-collars, said device being mounted within the driving-head of the windlass, all substantially as shown, and for the purpose set forth.

3. In a windlass having a wild-cat loosely mounted on the driving-shaft and a driving-head secured to said shaft, the combination therewith of one or more locking-blocks and screw-threaded keys mounted within the head, said keys being connected with the locking-blocks and provided with a suitably-arranged nut for operating the same, substantially as shown and described.

4. The locking device herein described, consisting of one or more locking-blocks, D, screw-threaded keys H, links M, connecting said blocks and keys, and nut R, engaging the keys H, the whole combined and arranged within the driving-head of a windlass, whereby said nut in its axial movement is adapted to slide the blocks D in an outward or radial direction, as and for the purpose set forth.

5. The locking device herein described, consisting of one or more locking-blocks, D', screw-threaded keys H, links M, and nut R, the whole combined and arranged within the driving-head of a windlass, whereby said nut in its axial movement causes the blocks D' to slide in an outward or radial direction for the purpose of interlocking with the pockets *a'* of the loosely-mounted wild-cat A', substantially as shown and set forth.

316,260. TELEPHONE. EDWIN T. GREENFIELD, New York, N. Y., assignor of one-half to the Holmes Burglar Alarm Telegraph Company, same place. Filed Oct. 6, 1884. (No model.) Patented in England Mar. 1, 1883, No. 1,120, and in France Mar. 6, 1883, No. 154,110.



Claim.—1. For a telephone-exchange system, the combination of a number of subscribers' service-lines and a multiple receiver located at a central office and having a number of diaphragms and electro-magnets and a sound-passage common to all, substantially as specified.

2. For a telephone-exchange system, the combination of a number of subscribers' service-lines and a multiple receiver located at a central office having a number of diaphragms and a corresponding number of electro-magnets arranged opposite the centers of the diaphragms and severally provided with a plurality of coils, substantially as specified.

3. For a telephone-exchange system, the combination of a number of subscribers' service-lines and a multiple receiver at a central office supported over the place occupied by the operator, and having a sound-passage terminating in a head-piece provided with sound-passages leading to the ears of the operator, substantially as specified.

4. For a telephone-exchange system, the combination of a number of subscribers' service-lines and a multiple receiver at a central office supported over the place occupied by the operator, and having a head-piece for the operator secured with a swiveling connection to the receiver, substantially as specified.

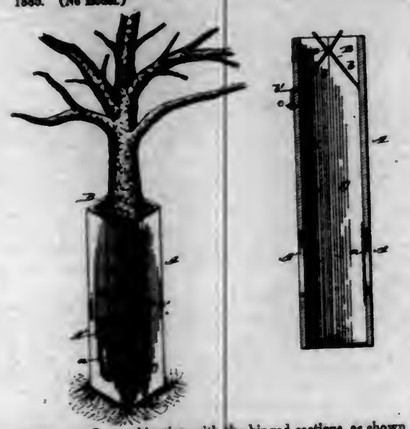
316,261. BUCKLE. WILLIAM H. HART, Jr., Philadelphia, Pa. Filed June 21, 1884. (No model.)



Claim.—1. An improved buckle, consisting of a frame and a tongue or tongues projecting into but not across the space inclosed by the said frame, said frame being provided with a tab or piece, for overturning or releasing purposes, on the same side of the frame as said tongue or tongues, substantially as described.

2. A buckle formed of a frame having a tongue or tongues projecting into but not across the space inclosed by the said frame, the portions of the cross-bar aside of the tongue or tongues being connected by a sleeve, substantially as and for the purpose set forth.

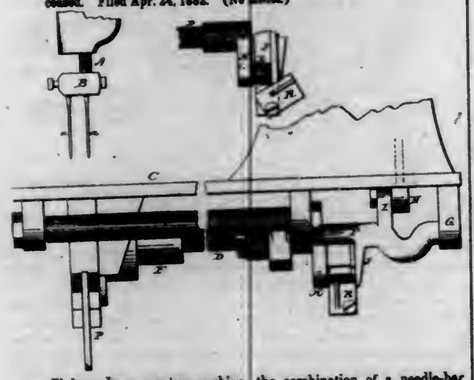
316,262. TREE-BOX. ADAM H. HATHAKER, Iuka, Ill. Filed Jan. 22, 1885. (No model.)



Claim.—1. In combination with the hinged sections, as shown, the spring-holders B, curved at their upper portions and provided with downwardly-projecting members, which are attached to the side pieces of the box, for the purpose set forth.

2. In a tree-box, the sections hinged to each other and provided with a fastening means, as shown, in combination with the spring-holders, the ends of which are attached to the side pieces of the box, the intermediate portion being curved and bent, so that when said springs are bent toward the side pieces their upper ends will extend over the same, substantially as described, and for the purpose set forth.

316,263. SEWING-MACHINE. ROBERT H. HAWKINS, New Haven, Conn.; Henry G. Newton administrator of said Robert H. Hawkins, deceased. Filed Apr. 24, 1882. (No model.)



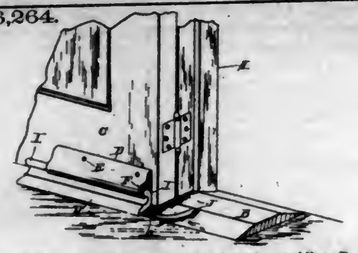
Claim.—In a sewing-machine, the combination of a needle-bar carrying two or more needles, a circular shuttle-race constructed with guides for two or more shuttles, a shuttle-driver, M, arranged upon a rock-shaft, D, concentric with the shuttle-race, the said shuttle-driver constructed with slots corresponding to the respective needles, two or more oscillating shuttles arranged in said race, the shuttle-race divided, one part stationary, the other hinged thereto, whereby said race may be opened, the rock-shaft D, provided with a crank, K, and the rock-shaft F, carrying the arm J, the said arm constructed with a groove to receive the crank-pin L, the outer wall of the said groove hinged to its arm, whereby said groove may be opened or closed, substantially as and for the purpose described.

316,264. WEATHER-STRIP. EDWIN V. HEAFORD, Cincinnati, Ohio. Filed Oct. 31, 1884. (No model.)

Brief.—A weather-strip consisting of a molding secured to the door, and a swinging strip secured thereto by a bead and groove. This groove is greater than a semicircle in diameter, so as to be capable of endwise adjustment only, and of supporting the strip without additional connection.

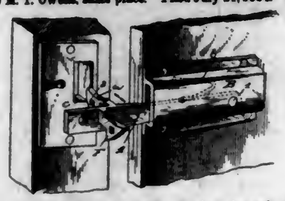


316,264.



Claim.—A weather-strip consisting of a molding, D, having a groove in its lower edge greater than a half-circle, in combination with the hinged strip H, forming an obtuse angle, and provided with a bead, I, greater than a half-circle, and an inclined curved support, J, all constructed and adapted to operate substantially as described.

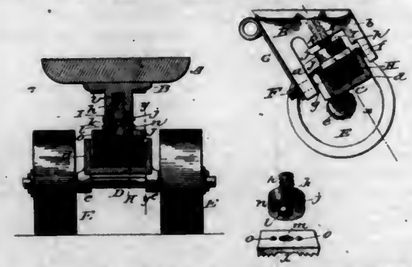
316,265. LATCH. JOHN W. HELTON, Waterloo, Iowa, assignor of one-third to M. T. Owens, same place. Filed July 21, 1884. (No model.)



Claim.—1. In combination with a latch and catch provided with a spring and adapted to catch automatically a lock having its bolt adapted to register with a hole in the catch, substantially as described.

2. A stop-bar formed out of the metal of the face-plate, having the flange 4 and faces 5, substantially as described.

316,266. ROLLER-SKATE. MEDAJAH C. HEDLEY, Richmond, Ind. Filed Mar. 24, 1885. (No model.) Patented in Canada Feb. 10, 1885, No. 21,069.



Claim.—1. In a roller-skate, the combination, with a sole-plate, of a hanger-frame, a truck pivotally connected therewith, a rubber cushion supported upon the roller-frame, a compression-screw above the cushion, and a plate interposed between the screw and the cushion, provided with a central socket to receive a projection on the screw, and serrated on its under face, whereby it is caused to protect the cushion from wear and prevent undue lateral expansion thereof.

2. In combination with sole-plate A and hanger-frame B, secured thereto, truck-frame C, pivotally connected with the hanger, cushion H, supported by the truck-frame, serrated plate J, provided with central recess, *m*, and screw I, provided with boss *j* and stud *l*, the inner end of said screw being seated in a threaded socket in the frame B, the stud *l* extending into a recess in the plate J, and the boss *j* bearing upon said plate, all substantially as described and shown.

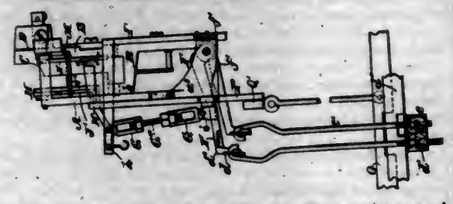
3. The combination, in a roller-skate, of a hanger-frame, a truck-frame, an elastic cushion, a compression-screw, and a plate interposed between the screw and the cushion, and serrated on the face, which rests upon the latter to prevent the lateral spreading of the cushion.

4. In a roller-skate, the combination of a hanger-frame, B, truck-frame C, formed with a box or chamber, *d*, and pivotally connected to frame B, an elastic cushion, H, seated within said box or chamber, a serrated plate, J, resting upon said cushion, and a screw, I, provided with a boss or enlargement, *j*, and screwing into a socket in frame B above the plate and cushion.

5. In a roller-skate, the combination, with the hanger-frame and truck-frame, of an elastic cushion supported by the truck-frame, a bearing-plate resting upon said cushion, and a compression-screw having a threaded stem screwing into a socket in the hanger, and provided with a boss or disk at its lower end to bear upon the plate, said disk and plate being provided, respectively, with shallow depressions and slight projections to lock the boss against accidental turning.

6. In a roller-skate, the combination, with a sole-plate, of a hanger-frame secured thereto, a truck-frame pivotally connected to said hanger-frame, an elastic cushion supported upon the truck-frame, a bearing-plate resting upon the cushion, and a compression-screw above and resting upon the plate, one of the bearing-faces in contact with the cushion being serrated to prevent undue spreading thereof.

316,267. TYPE-WRITING MACHINE. LEWIS H. HOSTER, Dayton, Ohio. Filed Oct. 4, 1883. (Model.)



Claim.—1. In a type-writer, the combination of stationary pawl D, pivoted movable pawl C, plate E, for forming a letter-space by the lateral movement of pawl C, the sliding stop *e*, secured to plate E and bearing against the side of the movable pawl, and provided with lug e^3, the stop d'''', to check the movement of said stop, spring E', connected to plate E, lug e^3 of stop *e*, and movable stop M, all mounted on the rocking standard B for operation, substantially as described.

2. In a type-writer, the combination of the rocking standard B, the pawl D, rigidly secured thereto, the pawl C, connected to said standard and having a lateral movement, rail *c*, connected with said standard to rock the same, the pivoted arms F, the rail *d*, connecting said arms together at their forward ends, and a rail, *d'*, suspended from rail *d*, substantially as described.

3. The combination, in a type-writer, of the rocking standard B, the pawl D, rigidly mounted thereon, the movable pawl C, connected with the rocking standard and capable of having a lateral movement imparted to it, the rail *c*, connected with the arm *c'* of the rocking standard, the pivoted arms F, the rail *d*, connecting the arms F at their forward ends, the rail *d'*, suspended upon the rail *d*, and the pivoted bell-crank lever H, connected with the arms F, said bell-crank lever H carrying the triggers J J' for operating the stops M N, substantially as described.

4. The combination, with the rail *d* and arms F, of the bell-crank H, connected thereto by means of a link, and carrying one or more trigger-catches, J J', adapted to operate stops N or M, substantially as described.

5. In a type-writer, the stationary pawl D and pivoted pawl C, in combination with the pivoted stop N, provided with an arm, N', and a movable trigger adapted to bear against the stop to move the same and to be moved out of engagement therewith so as not to move the same, substantially as described.

6. In a type-writer, the stationary pawl D and pivoted pawl C, in combination with the movable stop M, a trigger to engage with a part of said stop, all mounted upon the rocking standard B, and a lever to operate said trigger to move the stop from said pivoted pawl, substantially as described.

7. In combination with the stationary pawl D and the pivoted pawl C, the stops M and N, springs k^2 k^3, arms M' N', and triggers J J', mounted on bell-crank lever H, for throwing them out of position to allow of the longer lateral movement of the pivoted pawl C, substantially as described.

8. In a type-writing machine having stationary pawl D and a pivoted pawl, C, the pivoted stop N, trigger J', and pivoted lever-arm P, with pivoted link-connection adapted to be operated so as to throw trigger J' with its catch out of contact with the arm of stop N, whereby the latter is held in its normal position to act as a stop for the pivoted pawl C, substantially as described.

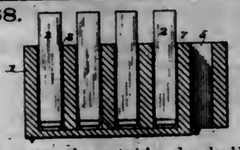
9. In a type-writer, the combination of the stationary pawl D, the pivoted pawl C, an oscillating frame upon which the pivoted pawl is mounted, movable stops M N, triggers to engage with some part of said stops, a lever to operate said triggers to move said stops, and a lever to move one of said triggers from engagement with its stop, substantially as described.

316,268. PRINTING APPARATUS. JOSEPH W. HORNER, New York, N. Y. Filed July 10, 1884. (Model.)

Claim.—1. The apparatus herein described for hand-printing, consisting of a box containing a series of type-cells having a space beneath to permit the insertion of the paper or other material, and a suitable series of type-cases, substantially as described.

2. The combination, with a series of type-blocks, of a single type-box and a series of type-cells having a rabbet below to permit the insertion of the paper or other material, and a shoulder against which the edge of the paper abuts to secure a proper alignment, substantially as and for the purposes set forth.

316,268.



316,269. SNAP-LOCK. GEORGE M. JEWETT, Bridgeport, Conn., assignor to the Smith & Egge Manufacturing Company, same place. Filed Feb. 24, 1885. (No model.)

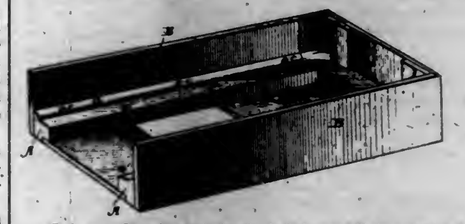


Claim.—1. The combination, in a snap-lock, of the body having a hook at one extremity thereof, with the case pivoted to the other end and adapted to close over the nose of the hook, and means, as described, for holding the body within the case, substantially as set forth.

2. The combination, with the body provided with a hook and having a recess, as shown, of a case pivoted to said body and adapted to embrace the same, and furnished with a teat or teats projecting inwardly, and adapted by the resiliency of the metal forming the case to hold within the recess in the body, as described.

3. The combination of body A, having hook B and recess C, case D, having teats E, with loop G and rivet F, holding all parts of the device in position, substantially as and for the purpose set forth.

316,270. BUGGY-BODY. CHARLES P. KIMBALL, Chicago, Ill. Filed Jan. 16, 1885. (No model.)

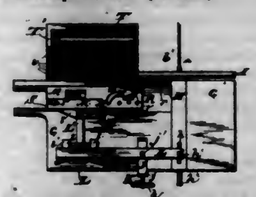


Claim.—1. In a buggy-body, the bed-piece or sill A, constructed with a lip, *a*, and an inclined plane, *a'*, and secured to the inner side of the panel by means of screws passed through said lips from the inside outward and downward, substantially as described.

2. In a buggy-body, the combination, with the panel, of a bed-piece or sill having an inclined upper surface and a lip, *a*, substantially as described.

3. The combination, in a buggy-body, of a sill or bed-piece having an inclined upper surface with a panel, substantially as described.

316,271. COUNTERSINKING-MACHINE. LEVI LYSANDER LANE, Akron, Ohio, assignor to the Whitman & Barnes Manufacturing Company, same place. Filed Sept. 11, 1884. (No model.)



Claim.—1. In a machine for countersinking, a support for the work and suitable mechanism for reciprocating it toward and from the countersink-tool, and a reciprocating feeding device adapted to engage holes in the work, and so arranged that the hole in the work that is engaged by the feeding device will be left opposite the countersink-tool, substantially as set forth.

2. In a countersinking-machine, the combination, with reciprocating mechanism adapted to support and carry the work to and from the countersink-tool, of a reciprocating feeding device provided with a spring-lever and pintle for engaging holes in the work, and so arranged that the pintle will successively engage holes separated by unequal spaces, and

will always leave the engaged hole opposite the countersink-tool, substantially as set forth.

3. In a countersinking-machine, the combination, with the part H and the attached plate I, adapted to support the work, and the adjustable wrist A', of the lever L, pivoted on an adjustable fulcrum, and the arm L' and reciprocating part S, substantially as set forth.

4. In a machine for countersinking, the plate I, connected with suitable mechanism for moving the plate toward and from the countersink-tool, and provided with the inclined plate T, in combination with the roller T', substantially as set forth.

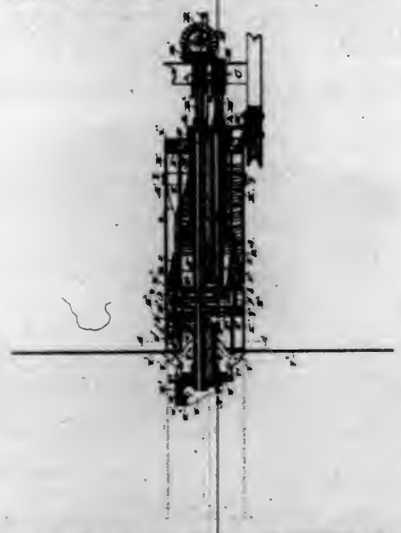
5. The plate I, provided with the slot I' and the springs I^3, of the adjustable part W, substantially as set forth.

6. In a machine for countersinking, the combination of the reciprocating blocks H and M, operating in the same plane, but moving at right angles to each other, and provided with suitable mechanism, preferably as described, by means of which the former is actuated by the latter, and the part H provided with plate I and attachments for carrying the work to and from the countersink-tool, and the part M provided with the lever R and the pintle *r*, for feeding the work along the plate I, substantially as set forth.

7. In a countersinking-machine, the combination, with the lever L and the arm L', hinged to the lever, of the part S, provided with the oblique face *s* and the incline *s'*, substantially as set forth.

8. The combination, with the disk D, having an adjustable wrist, the arm P, and the rod Q, connecting said wrist and arm, of the block M, arm N, for operating the block, a shaft, the arm P^2, and the disks P and P', connecting the arm P^2 and shaft, substantially as set forth.

316,272. GRAIN-BINDER. ISRAEL LANCASTER, Chicago, Ill. Filed Feb. 11, 1884. (No model.)



Claim.—1. In combination with the pivoted arms, means for causing them to close together to clasp and compress a gavel and to open to drop the bundle and receive another gavel, a ring adapted to engage and force a band over the closed arms onto the gavel, and means for actuating the ring, substantially as shown and described.

2. In combination with the series of pivoted gavel-receiving arms, links connecting the arms with a sleeve, a revolving cam, and connecting means between the sleeve and cam, whereby the rotation of the cam causes the arms to open and close, substantially as and for the purpose described.

3. In combination with the stationary supporting-shaft, the radial arms attached thereto, the lever-arms pivoted to their outer ends, the bars attached to the outer ends of these arms, the links connecting the inner ends thereof with a sleeve reciprocating on the shaft, and a revolving cam adapted to reciprocate the sleeve, substantially as shown and described.

4. The band conveying and placing ring, in combination with connecting-rods pivotally connected to the ring on opposite sides thereof and to revolving crank-arms, by which they are driven to reciprocate the ring, and means for revolving the arms, substantially as and for the purpose described.

5. The prepared bands strung upon a wire and fastened thereto by crimping the wire to cause it to clasp a portion of each band, substantially as shown and described.

6. The prepared bands for use in a binding-machine, strung upon the feeding-wire at equal distances from each other, and fastened and held in place by crimps in the wire, substantially as shown and described.

7. In combination with means for separating the bands from the carrying-wire, feed-wheels adapted to grip the wire between them and feed it along as they revolve, so as to bring the bands successively within reach of the separating mechanism, and means for driving such feed-wheels, substantially as shown and described.

8. In combination with the hollow shaft carrying the band-separating mechanism, means for revolving the shaft, the feed-wheels for gripping and feeding the band-carrying wire, and connecting-gearing between the shaft and wheels, whereby the wheels will be caused to rotate and feed the band-carrying wire, substantially as shown and described.

9. In combination with the revolving hollow shaft carrying the band-separating mechanism, the feed-wheels adapted to pull the band-carrying wire through the shaft, and suitable connecting-gearing between the shaft and feed-wheels, whereby the latter are by each revolution of the shaft rotated, so as to feed the wire along to bring a new band within reach of the separating mechanism, substantially as and for the purpose described.

10. The revolving hollow shaft carrying the separating-hook, the pinion driven by a worm on the shaft and meshing with and driving one of the pair of feed-wheels, and the gearing by which both the gear-wheels are caused to turn together, all in combination, substantially as and for the purpose set forth.

11. In combination with the hollow shaft carrying the band-separating hook, means for revolving the shaft once for every sheaf bound, feed-wheels for the band-carrying wire driven from the shaft through suitable connecting-gearing, to bring a new band within reach of the hook at each revolution of the shaft, the band-delivering spindle surrounding the shaft and driven by suitable mechanism, so as to take the bands separated from the wire by the hook and deliver them to the band-placing mechanism, substantially as shown and described.

12. In combination with the spirally-grooved band-delivering spindle, the series of band spreading and delivering conical spindles provided with series of staple-like projections arranged in spiral lines extending from the forward ends of the spindles to points near their rear and larger ends, and with spiral grooves extending around the spindles from the rear ends of the lines of projections to the bases or rear ends of the spindles, substantially as and for the purpose described.

13. The hollow shaft through which the band-carrying wire is fed, provided with the separating-hook, the spirally-grooved spindle surrounding the shaft, and means for rotating the spindle and shaft independently of each other, substantially as and for the purpose described.

14. The hollow shaft journaled in plate P, carrying the band-delivering spindle R, means for rotating the shaft F^6, journaled in shaft *p* and plate P', and carrying on its forward end the band-separating hook, and means for rotating the shaft, substantially as and for the purpose described.

15. In combination with the series of band spreading and delivering spindles, the gear-wheel S, meshing with and driving pinions on the shafts of a portion of the series, and the gear-wheel T, driven from a pinion on one of these shafts through an intermediate pinion, and meshing with and driving pinions on the remainder of the spindle-shafts, so that a portion of the spindles revolve in one direction and the rest in the other, substantially as and for the purpose described.

16. In combination with shaft G, carrying pinion S^2, the gear-wheel S, provided with teeth meshing with those of the pinion, and with others meshing with the teeth of pinions S^2, q^1, q^2, and q^4 on spindle-shafts *p*, p^1, p^2, and p^3, the pinion on shaft *p* driving gear-wheel T through an intermediate pinion, and the pinions q' q^2 q^3 q^4 on spindle-shafts p' p^2 p^3 p^4 meshing with gear-wheel T, substantially as and for the purpose described.

17. In combination with the band-carrying spool, the stationary shaft for supporting the binding mechanism, fixed in and supported by the spool, and means for detachably attaching the spool to and supporting it from the harvester-frame, substantially as shown and described.

18. In combination with the band-carrying spool, the stationary binding mechanism supporting fixed shaft within the spool, the shaft for operating the band-feeding and bundle-compressing mechanism, journaled within the fixed shaft, the shaft for driving the band-delivering spindles, journaled within the spool, and means for clamping one end of the spool to and supporting it from the binder-frame, substantially as shown and described.

19. In combination with the shafts F and G, provided with angular sockets in their ends, the driving-shafts D and E, provided with angular sockets open at one side, the short removable connecting-shafts D^2 and E', having ends adapted to fit in the sockets in the shafts, the lugs on the socket ends of the shafts D and E and on the corresponding ends of shafts D^2 and E', and pins passing through the lugs, substantially as shown and described.

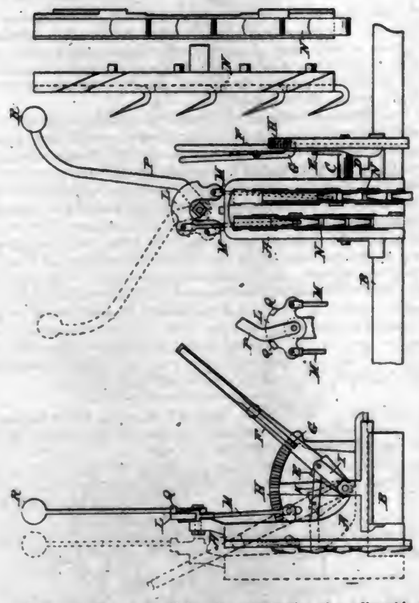
20. As a connecting means between the driving-shaft and the shaft to be driven thereby, journaled in a removable portion of the binding-mechanism support, a removable shaft having angular ends adapted to enter and engage angular sockets in the ends of the driving and driven shafts, substantially as shown and described.

21. In combination with the band-holding spool, the series of bars suitably suppported at or near their front ends, and extending rearward to form a slotted cylinder surrounding the spool, and acting as a guide for the band-carrying ring in its reciprocation to and from the slotted cylinder upon which the bands are delivered to be acted upon by the ring, substantially as shown.

22. The series of bars fixed to the peripheries of the gear-supporting plates P and P', and forming a longitudinally-slotted cylinder, the series of bars fixed at their front ends and forming a slotted cylinder extending rearward nearly to the cylinder inclosing the gearing, the pivoted bars adapted to be swung down to clasp a gavel, and a traveling ring adapted to travel over the cylinders and carry a band delivered onto the intermediate one over the pivoted bars onto the gavel, substantially as shown and described.

23. In combination with the spool and gear-inclosing slotted cylinders, means for delivering prepared bands up onto the gear-inclosing cylinder through an opening between the two cylinders, a toothed ring reciprocating over said cylinders and adapted to carry the band over the gear-inclosing cylinder and the gavel-inclosing bars onto the gavel, substantially as shown and described.

316,273. SAW-MILL DOG. DENNIS LANE, Montpelier, Vt., assignor to the Lane Manufacturing Company, same place. Filed Feb. 27, 1885. (No model.)



Claim.—1. In a saw-mill dog, the combination of an adjustable upright, a pair of vertically-moving slides supported in said upright, and provided with dogging-teeth projecting in opposite directions, a weighted lever and an oscillatory plate pivoted coincidentally to the upper part of the upright, said plate having a shoulder at each end to receive the blows of said weighted lever, and rods for connecting one of the dogging-slides to each end of said oscillatory plate, substantially as described.

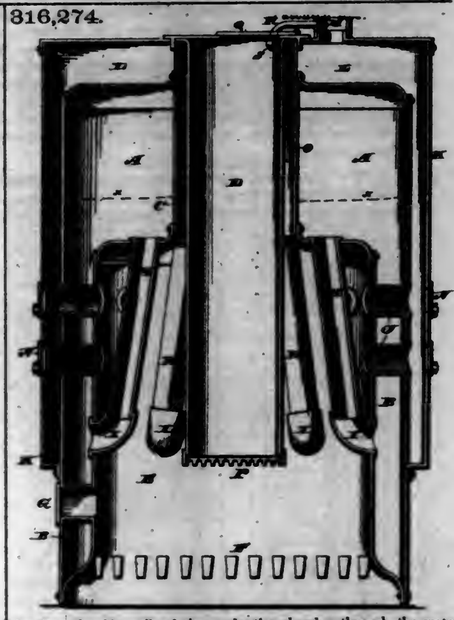
2. In a saw-mill dog, the combination, with the upright A, carrying oppositely-moving dogging-slides N N, of the rock-shaft C, having arm I and socket E, the rod or bar K, for connecting said arm and upright, the pawl-lever F, inserted in said socket, and the ratchet H, for locking the pawl, substantially as described.

3. In a saw-mill dog, the combination, with the upright A and a pair of oppositely-movable dogging-slides, N N, supported therein, of the weighted lever P and oscillatory plate L, pivoted coincidently at the upper part of the upright, said plate having shoulders Q Q, to receive the blows of said lever, and the rods M M, for connecting one of the dogging-slides to each end of said plate, substantially as described.

316,274. STEAM-HEATING BOILER. JOHN W. LATIMER, Newark, Ohio. Filed Jan. 3, 1883. (No model.)

Claim.—1. The combination, with the combustion-chamber, the steam-chamber, the water-jacket surrounding the combustion-chamber and opening at the top into the steam-chamber, and the heat-flues leading from the side walls of the combustion-chamber through the water-jacket to a common flue, of the water-legs connecting the water-jacket with the steam-chamber and passing through the combustion-chamber, and a fuel-magazine the lower end of which terminates below the water-legs, substantially as set forth.

316,274.



2. A steam-heating boiler consisting of three shells secured one within the other to form the chambers A, B, E, and L, flues connecting the chambers E and L, inclined water-legs connecting the chambers A and B and passing abreast of the inner ends of the flues, a magazine suspended from the outer shell and extending some distance within chamber E, a grate arranged in chamber E, and a passage through chamber B to afford access to chamber E above the grate.

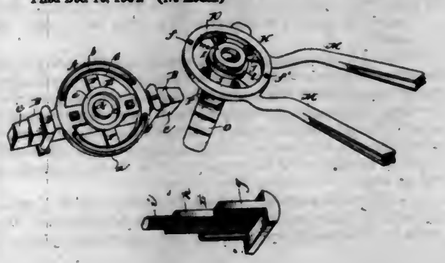
316,275. PLOW. WILLIAM A. LEE, Winfield, Kans. Filed Dec. 9, 1884. (No model.)



Claim.—1. In a plow, the combination, with a mold-board, of a frog secured to the back of the mold-board, a wheel-support from said frog, and a flanged wheel, said support having both a vertical and horizontal adjustment relative to said frog, substantially as set forth.

2. In a plow, the combination, with a mold-board provided with a bracket, as described, of a frog formed with a lug to receive the foot end of the plow-beam, and with a rearwardly-projecting arm having a slotted head, a wheel-support of angle form adjustably secured to said frog, and a wheel provided with an annular flange, substantially as set forth.

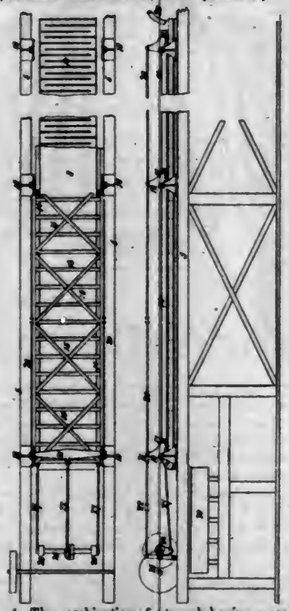
316,276. FIFTH-WHEEL. JOHN W. LEETE, South Meriden, Conn. Filed Dec. 16, 1884. (No model.)



Claim.—1. The herein-described fifth-wheel, comprising an upper and lower plate working face to face against each other, the lower plate being secured to the axle, and having slots *a b* at the front and rear, and bolts consisting of an oblong portion fitting in the slots and a tapering portion arranged in correspondingly-tapered perforations of the upper plate, and nuts for securing the bolts in the latter, as set forth.

2. The herein-described bolt, comprising the head and the body having the oblong main portion, diminished tapering portion, and threaded projection, as set forth.

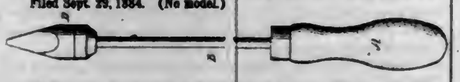
316,277. APPARATUS FOR MAKING GRANULATED CRYSTALLINE CARBONATE OF SODA. JAMES MACTEAR, Glasgow, County of Lanark, Scotland. Filed June 10, 1884. (No model.)



Claim.—1. The combination of a trough having a cooling-chamber beneath it with a frame carrying a series of scrapers, and levers, substantially as described, for intermittently raising and lowering the frame and for imparting a longitudinal reciprocating motion thereto, substantially as set forth.

2. The combination of the trough having a cooling-chamber beneath it and a frame carrying scrapers with bell-cranks supporting said frame, a cam for operating said bell-cranks, and a crank-shaft and connecting-rod for imparting a reciprocating motion to the scraper-frame, substantially as specified.

316,278. SOLDERING-TOOL. JAMES MACTEAR, Glasgow, Scotland. Filed Sept. 29, 1884. (No model.)



Claim.—1. As a new article of manufacture, a soldering-tool provided with a tip having a surface of nickel, as and for the purpose set forth.

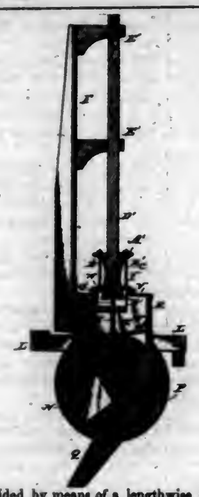
2. As a new article of manufacture, a soldering-tool having a tip composed of copper with a nickel surface, as described.

316,279. POTATO-PLANTER. JOHN D. MADDEN, Rochester, Minn., assignor to Martin F. Madden, same place. Filed Dec. 10, 1884. (No model.)

Claim.—1. The potato-holding receptacle consisting of a ring supported upon upright rods, and long and short pieces of spring-wire alternating with each other, wound in spirals around the ring and secured to the same at their upper ends, and having their lower ends converging toward the center of the receptacle; in combination with a plunger reciprocating with its lower end into the receptacle, and with a cutter placed at the lower end of the receptacle, as and for the purpose shown and set forth.

2. The combination, in a potato-planting attachment, of a revolving drum having pockets alternating at both sides of its middle and alternating in width, as described, a hopper fitting over the upper portion of

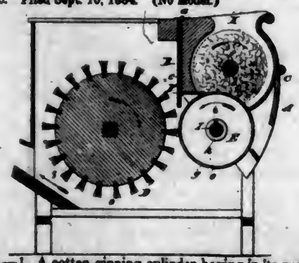
316,279.



the drum, and divided by means of a lengthwise and a transverse partition into four compartments, two of which compartments, diagonally opposite to each other, are provided with hinged gates at their lower ends, as described, and means, substantially as described, for quartering the potatoes and dropping the quarters into the compartments, as and for the purpose shown and set forth.

3. The combination of a cultivator-frame having a sprocket-wheel upon the hub of one wheel, and having a central opening-shovel in front and two covering-shovels at the rear, with a potato-planting attachment consisting of a drum having four pockets alternating upon each side of the middle of the drum and alternating in width and secured upon a shaft revolved by a sprocket-chain from the sprocket-wheel upon the cultivator-wheel, and having a double crank at one end, a hopper divided lengthwise and transversely into four compartments fitting over the upper portion of the drum, and having two downwardly-swinging gates for two diagonally-opposite compartments swinging into the wider pockets of the drum, a cross-shaped cutter secured upon the meeting ends of the upper edges of the partitions of the hopper, a potato-holding receptacle secured above and around the cutter, a reciprocating plunger having two grooves at its lower end crossing each other at right angles, and a curved pitman pivoted to the plunger and to the double crank upon the drum-shaft, as and for the purpose shown and set forth.

316,280. COTTON-GIN. CHARLES T. MASON, Jr., Sumter, assignor, by mesne assignments, to the Mason Cotton Gin Cylinder Company, Charleston, S. C. Filed Sept. 10, 1884. (No model.)



Claim.—1. A cotton-ginning cylinder having in its periphery openings, and in each of said openings a tooth having its point at or slightly above the level of the general surface of said cylinder, the said tooth being straight, flat, or tangential to the circumference of the cylinder, substantially as described.

2. A cotton-ginning cylinder having a periphery of thin metal containing openings or slots, and in each of said openings a tooth extending in a circumferential or nearly circumferential direction, and formed integrally of the metal of said periphery, the said tooth having the upper surface at its pointed end elevated above the adjacent portion of the periphery for a distance not exceeding the thickness of the metal sheet from which said tooth is formed, substantially as described.

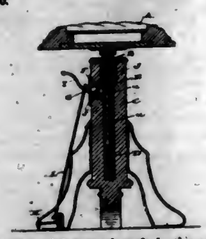
3. In a cotton-gin, a cotton-ginning cylinder having in its periphery a series of V-shaped openings, each opening forming a slot or recess, with a contained tooth constituting the solid middle portion of the V, the outer ends of the converging portions of said opening being rounded or concave, and the widths of said portions being substantially uniform on each side of the tooth, substantially as described.

4. In a cotton-gin, the combination of a stationary retaining bar or plate for the material to be acted upon, and a rotary cylinder having in its periphery openings, and in each of said openings a single tooth having its point disposed at or slightly above the general surface of said cylinder, substantially as described.

5. In a cotton-gin, the combination of a receptacle for the seed-cotton, a retaining bar or plate for the same, and a rotary cylinder having in its periphery openings, and in said openings teeth extending in a circumferential direction, having their points disposed at or slightly above the general surface of said cylinder, substantially as described.

6. In a cotton-gin, the combination of an adjustable breast, a stationary retaining plate or bar for the seed-cotton attached thereto, and a rotary cylinder having in its periphery openings and in said openings teeth extending in a circumferential direction, having their points disposed at or slightly above the general surface of said cylinder, substantially as described.

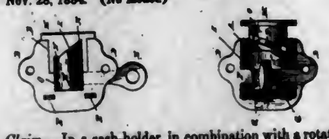
316,281. PIANO-STOOL. WILLIAM A. C. MATTHIE, Montreal, Quebec, Canada. Filed Dec. 5, 1884. (No model.) Patented in Canada Nov. 29, 1884, No. 20,670.



Claim.—1. In a revolving stool or chair, the combination, with the stand C, spindle B, having annular grooves *a*, and the flanged sleeve J, inserted in a socket in said stand, of the bracket G', secured in a recess in said stand, the spring-actuated bolt E, carried by said bracket, the pivoted pawl H, and operating-lever I, working through a slot in said bracket, substantially as and for the purpose specified.

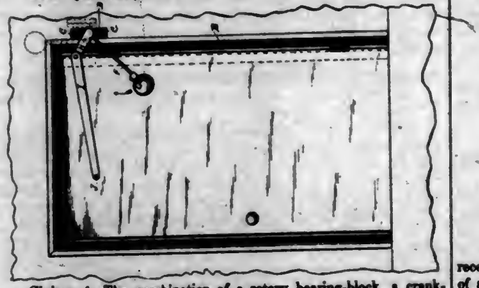
2. The combination, with the spindle B, stand C, spring D, and spring-actuated bolt E, of the pawl H, operating-lever I, the foot-treadle K, and the rod L, substantially as and for the purposes specified.

316,282. SASH-HOLDER. JAMES MCCORMICK, Princeton, Ind. Filed Nov. 28, 1884. (No model.)



Claim.—In a sash-holder, in combination with a rotating operating-bolt, a case for the same having a transverse slot provided with notches on one side for a thumb-piece on the said bolt to engage in, substantially as and for the purpose specified.

316,283. DOOR-CLOSER. JOHN MCDONALD, Middletown, assignor to himself and George M. McDonald, Harveysburg, Ohio. Filed June 26, 1884. (No model.)



Claim.—1. The combination of a rotary bearing-block, a crank-shaft journaled transversely in said block, a weight attached to one end of said shaft, and means, substantially as described, for connecting the crank-shaft with a door, substantially as and for the purpose specified.

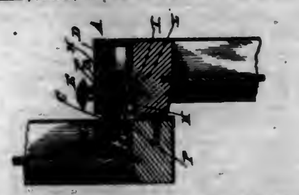
2. The combination, with a hinge, of a rotary bearing-block supported in connection with a part of the hinge, a weighted crank-shaft journaled in said block, and a pivoted link connecting the crank of said shaft with another part of said hinge, substantially as shown and described, and for the purpose specified.

316,284. STEAM-RADIATOR. THOS. L. MCKEEN, Easton, Pa. Filed Dec. 22, 1884. (No model.)



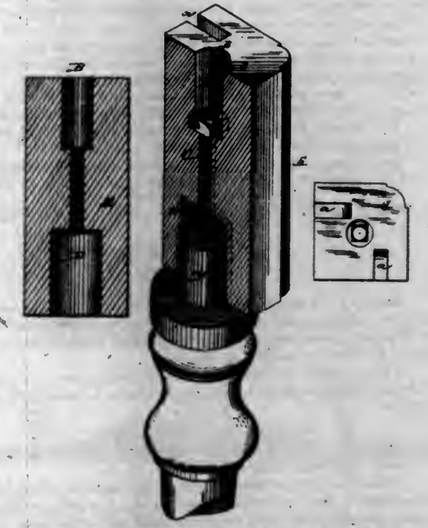
Claim.—In a valve for steam-radiators, the combination, with a cap having a conical seat provided with a vertical perforation, and having downwardly-extending rods connected at their lower ends by a cross-piece having a screw-threaded perforation, of a valve-stem constructed of less expensive metal than the supporting-rods, having its lower end screw-threaded and adjusted in the connecting-piece of the latter, and provided at its upper end with an inverted conical valve, and with a non-conducting handle, substantially as and for the purpose herein set forth.

316,285. FASTENING FOR MEETING-RAILS OF SASHES. THOS. L. MCKEEN, Easton, Pa. Filed Jan. 8, 1885. (No model.)



Claim.—The combination, in a sash-lock, of a slotted box secured to the upper rail of the lower sash, a bolt or locking-pin having a longitudinal aperture, a coiled spring fitting in said aperture, a binding-knob having a screw-thread fitting in said bolt, a pivoted latch-plate, a socket with a slot under its aperture, and a flat spring with a rounded projecting part at its angle, its free end playing in said slot, and its other end secured to the lower rail of the upper sash, all constructed and combined for the purpose herein set forth and described.

316,286. TABLE-LEG. CHARLES B. MCLAIN, Watsontown, Pa., assignor to Francis H. Miller and John G. Bower, same place. Filed Oct. 23, 1884. (No model.)



Claim.—In combination with the corner-piece of a table, having a recess formed in its upper end for the reception of the rectangular head of a bolt, a passage-way for the body portion of the bolt, and a cylindrical socket in the lower portion of the corner-piece, the leg having a cylindrical portion, D', with a central female screw-thread and a bolt, the parts being organized substantially as shown, and for the purpose set forth.

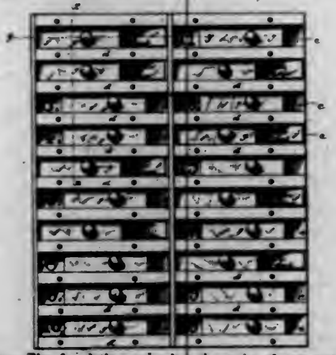
316,287. RECLINING-CHAIR. BERSHALL H. MEAD, Cleveland, Ohio, assignor of two-thirds to Solomon Schmuck and Chas. Frederick Hunger, both of same place. Filed Apr. 29, 1884. (No model.)

316,287.



Claim.—In a reclining-chair, the combination, with a seat, the back hinged to said seat, the rock-arms pivoted to the seat and provided at their upper ends with teeth, and the arm-rests pivotally secured to the back and to the rock-arms, and inclosing and concealing the teeth on said rock-arms, of pawls located within the arm-rests and engaging the teeth on the rock-arms, substantially as set forth.

316,288. INDICATOR. ALBERT A. MERRIFIELD, St. Albans, Vt. Filed May 21, 1884. (No model.)



Claim.—The foundation *a*, having the series of compartments *b*, the beveled or curved entrance *c* to said compartments, the partitions *d*, provided with guides or ways *e*, the slides *f*, arranged in said guides or ways to move back and forth within said compartments, and the blocks *i*, provided with fixed signals, symbols, or signs, or the like, combined and arranged substantially as and for the purpose described.

316,289. RETAINER FOR THE BANDS OF NECKSCARFS. WM. E. T. MERRILL, Philadelphia, Pa., assignor to William H. Hart, Jr., same place. Filed Feb. 20, 1885. (No model.)

Brief.—Improvement on Patent No. 301,065, dated June 24, 1884.



Claim.—1. An improved retainer or holder for a neckscarf, consisting of a plate provided with two jaws, the said jaws having crowns which project toward each other, and are adapted to bite or hold the band of the scarf, substantially as described.

2. In a retainer or holder for a neckscarf having jaws C C, the slit forming said jaws being rounded on its inner end, substantially as described.

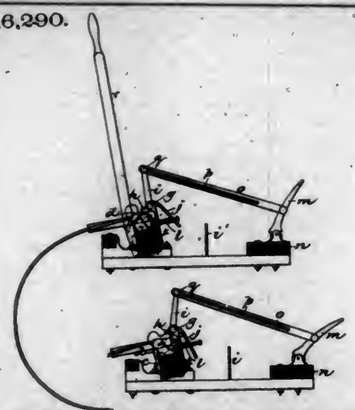
316,290. HORSE HAY-RAKE. SHERMAN R. NYE, Chicopee Falls, Mass. Filed Feb. 4, 1884. (No model.)

Claim.—1. The combination of ratchets secured to the wheels, the dogs pivoted to the rake-head or axle and having forwardly-projecting arms, a rock-shaft having cam projections placed above said arms, and a spring operating the rock-shaft to hold the dogs out of engagement by means of the cams bearing thereon, as set forth.

2. The combination of the ratchets secured to the wheels, the dogs pivoted to the rake head or axle and having forwardly-projecting arms, the rock-shaft having cams projecting above said dogs, a spring whereby the shaft is rocked and its cams thrown into engagement with the dogs, and automatic tripping mechanism, substantially as described, whereby the dogs are disengaged, as set forth.

3. The combination of the ratchets secured to the wheels, the automatic dogs pivoted to the rake head or axle and having arms or levers, the rock shaft or rod having cams adapted to act on said arms, a treadle,

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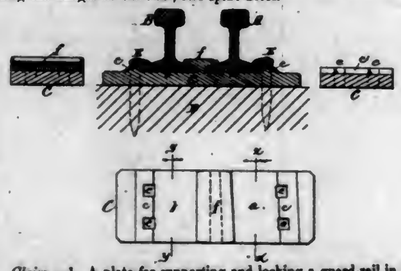


and a slotted link leading therefrom and connected to an arm or lever on the rock-shaft, whereby the rock-shaft may be turned to cause its cams to release the dogs, as set forth.

4. The combination of the ratchets secured to the wheels, the automatic dogs *d*, pivoted to the rake head or axle, and having arms or levers *d'*, the rock-shaft having cams *h* and a central lever, *i*, the pivoted treadle *m*, and the slotted connecting-link *o*, pivoted to the treadle and connected to the lever of the rock-shaft by a stud adapted to slide in the slot of said link when the rake head or axle is rotated to dump the load, substantially as and for the purposes specified.

316,291. GUARD-RAIL LOCK FOR RAILROADS. FAYETTE H. OR CUTT, Worcester, Mass. Filed Aug. 25, 1884. (No model.)

Brief.—A plate for securing the main and guard rails in place, having a central double-lipped tapered flange, and outer shoulders for holding the flanges of the rails, and spike-holes.



Claim.—1. A plate for supporting and locking a guard-rail in connection with the main rail, constructed, as shown, with a flat base having the rail-seats *a* and *b*, the central double-lipped tapered flange, *f*, the shoulders *c c* at the outer limit of the rail-seats, and the holes *e*, as described.

2. The combination, with the main rail B and guard-rail A, having its ends curved as shown, of the locking-plate C, provided with the double-lipped flange *f* and shoulder *c c*, adapted for supporting and embracing the base-flanges of said rails, in the manner and for the purpose set forth.

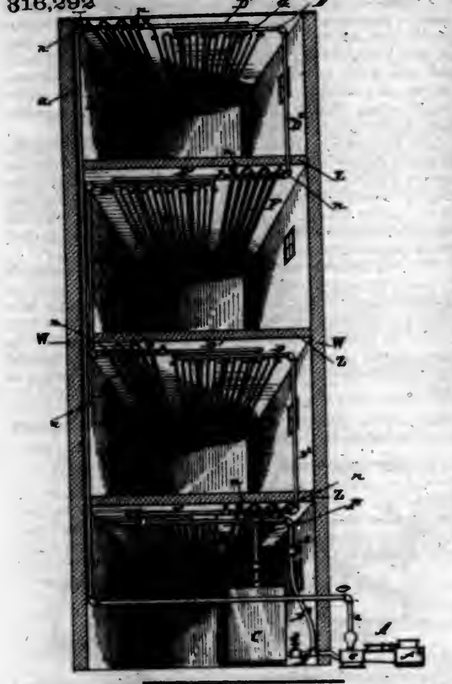
316,292. HOUSE-REFRIGERATING APPARATUS. THOMAS L. RANKIN, New York, N. Y., assignor to Jacob W. Stinkle, Chicago, Ill. Filed July 14, 1884. (No model.)

Claim.—1. The combination, with a tank for holding a saline solution and a pump connected therewith, of a system of pipes connected both with the tank and pump, extending through the rooms of a house or compartments of a structure, and provided with valves, in such manner that the saline solution may be circulated through the pump and pipes only, or through the tank, pump, and pipes, substantially as specified.

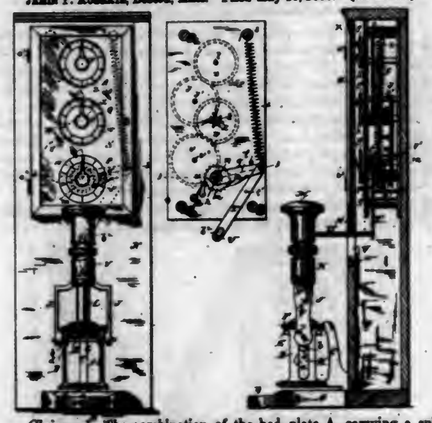
2. The combination, with the storage-tank, the saline-solution-circulating pipes, and the actuating-pump, of pipes extending through coils in said saline-solution pipes and adapted to have a highly-expansible gas passed through them and expanded within them from a compressed condition, substantially as specified.

3. In an apparatus to cool the rooms or compartments of a building, the combination, with the delivery-pipe D', and the receiving-pipe D, equal in capacity to the pipe D', of the cooling-coil G, composed of the secondary coils N, the united capacities of which equal the capacity of the pipe D' or D, so that the said coils N will deliver all of the cooling medium from the former to the latter pipe without checking the flow of said medium, substantially as specified.

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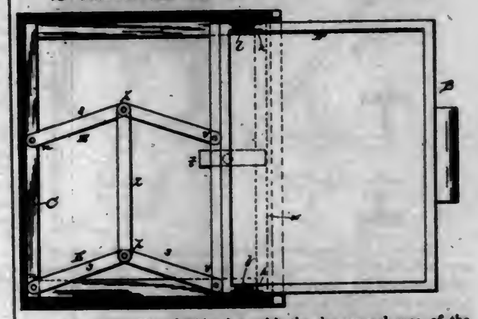
316,293. REGISTERING APPARATUS FOR CHECK-STAMPS. BENJAMIN P. ROGERS, Boston, Mass. Filed May 19, 1883. (No model.)



Claim.—1. The combination of the bed-plate A, carrying a suitable marking device and provided with an extension, O, a casing, N, supported by said extension and carrying a series of dials, one of which is adapted to indicate the number of times the marking device has been worked and the others the aggregate values of the articles marked, suitable mechanism within said casing for operating said dials, and a system of levers—such as *q*, T, and U—for connecting the marking devices outside of casing N with the registering mechanism inside of said casing, the several parts being constructed and arranged to operate substantially as described.

2. The combination of the bed-plate A, carrying a suitable marking device and provided with an extension, O, a casing, N, supported on said extension and carrying a series of dials, one of which is adapted to indicate the number of times the marking device has been worked and the others the aggregate values of the articles marked, a system of gear-wheels in said casing for transmitting motion from one wheel to another and to the hands of said dials, the ratchet-wheel *m* on the spindle *k*, the levers *q* T U, connecting the marking device with the registering mechanism, and the pawl *p* on lever *q*, engaging with the ratchet-wheel *m*, substantially as described.

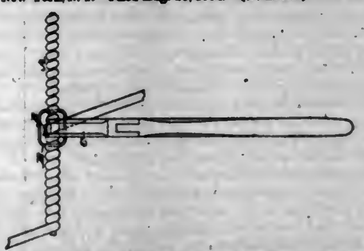
316,294. FURNITURE-DRAWER. EDWARD C. ROGERS, Broadford, Va. Filed Feb. 4, 1884. (No model.)



Claim.—1. The combination, with the drawer and case, of the jointed parallel-moving arms connecting the drawer to the case, the upper and lower roller-bearings at the sides of the drawer, the rollers, and the drawer-stop, substantially as specified.

2. The combination, with the case and drawer, of the parallel-moving arms connecting the rear of the drawer to inner rear wall of the case, the horizontal bar connecting the said arms, and the stop on the bottom of the drawer extending rearwardly to prevent the parallel arms from being crowded when the drawer is pushed back, substantially as specified.

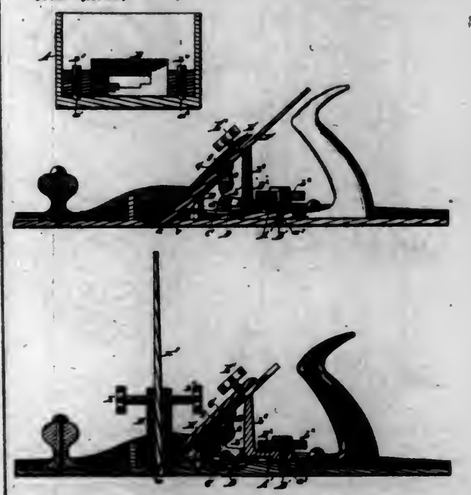
316,295. DEVICE FOR SPIRALING METAL. JAMES B. ROBINSON, New York, N. Y. Filed Aug. 25, 1884. (No model.)



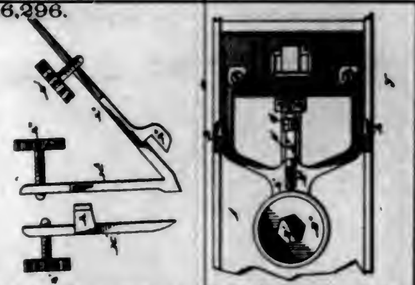
Claim.—1. In an apparatus for spiraling metal, the clamping-jaws C, provided with dies B B, in combination with the mandrel A, having a spiral thread, the said mandrel rotating in grooves formed in the said dies, substantially as and for the purpose set forth.

2. In an apparatus of the order stated, the dies B, secured to clamping-jaws, and having grooves within which a spiral mandrel and the metal thereon are rotated, substantially as and for the purpose set forth.

316,296. PLANE. LOUIS C. RODIER, Detroit, Mich. Filed Nov. 8, 1884. (Model.)



316,296.



Claim.—1. The combination of a plane-stock, a knife-rest provided near its lower end with a support which permits the rest to be tilted in the direction of the length of the stock and also transversely thereto, a spring to exert an upward pressure upon the rest, and means to regulate the longitudinal tilting of the rest, substantially as described.

2. The combination of a plane-stock, a knife-rest, screws passed through said rest near opposite sides thereof and bearing against said stock to permit the rest to be tilted in the direction of the length of the stock and transversely thereto, a spring to exert an upward pressure upon the rest, and means to regulate the longitudinal tilting of the rest, substantially as described.

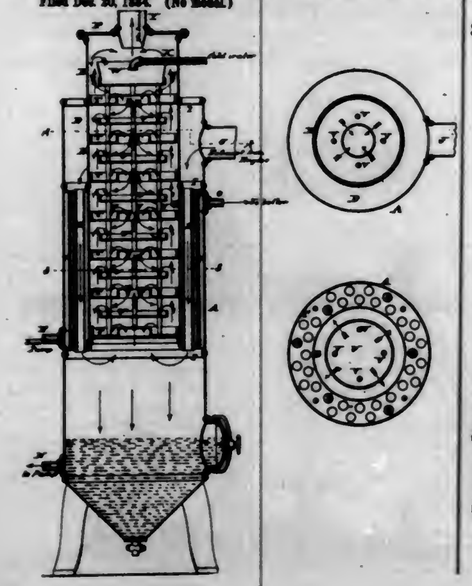
3. The combination of a plane-stock, a knife-rest, screws passed through said rest near the opposite sides thereof and bearing against said stock to permit the rest to be tilted in the direction of the length of the stock and transversely thereto, a spring to exert an upward pressure upon the rest, means to regulate the tension of said spring, and a screw to regulate the longitudinal tilting of the rest, substantially as described.

4. The combination of the plane-stock, the knife-rest, a support under the rest, a lug, G, supported by and capable of sliding longitudinally on the support and adapted to engage and move with a knife, a knife-clamp above the rest, and a screw engaging a screw-socket in the clamp for holding the knife upon the rest, substantially as described.

5. The combination, with a metallic plane-stock, of a removable toothing iron or scraper composed of two clamps provided each with a clamping-screw, one of said clamps being provided with a wing to engage with a knife-rest on the stock, substantially as described.

6. The combination, with a plane-stock provided with a knife-rest and knife-clamp, of a removable toothing iron or scraper attachment consisting of front and rear clamps constructed and arranged to be engaged with each other and provided with clamping-screws, said rear clamp provided with a wing, A^2, adapted to be engaged upon the knife-rest, the construction being such that said attachment may be removed and the knife be clamped upon the rest, and vice versa, substantially as described.

316,297. FEED-WATER HEATER. PHILIP ROHAN, St. Louis, Mo. Filed Dec. 20, 1884. (No model.)

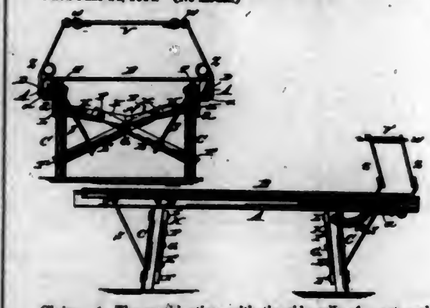


Claim.—1. In a feed-water heater, the combination of the receiver having a steam-space at top and a water-space at bottom, a water-jacket located within said receiver between said steam and water spaces, flues or tubes passing through said water-jacket and connecting said steam and water spaces, a vertical passage through which the exhaust-steam ascends, and a cold-water-supply pipe discharging into the upper portion of said passage, whereby the water is made to descend in opposition to the upward current of steam, substantially as set forth.

2. In a feed-water heater, the combination of the receiver adapted to contain water at its lower end, a case located within the receiver and connected thereto by rings, forming a water and a steam chamber, tubes forming a communication between the steam-chamber and the lower part of the receiver through the water-chamber, and drip-pans within the case, all arranged and operating substantially as shown and described, for the purpose set forth.

3. In a feed-water heater, the combination of the receiver adapted to contain water at its lower end, a case located within the receiver and connected thereto by rings, forming a water and a steam chamber, tubes forming a communication between the steam-chamber and the lower part of the receiver through the water-chamber, drip-pans within the case supported on vertical rods, and tank above the pans, all arranged and operating substantially as shown and described, for the purpose set forth.

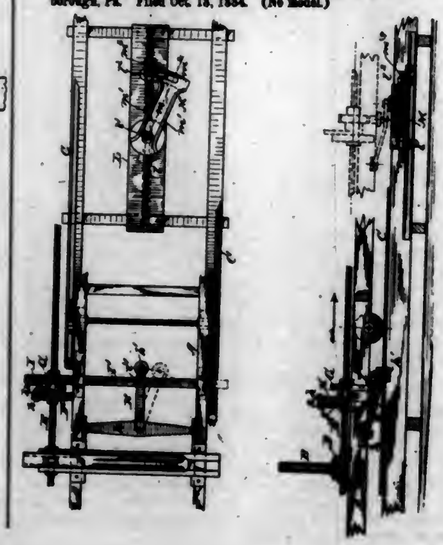
316,298. FOLDING BED OR COT. CHARLES T. SEGAR, Utica, N. Y. Filed June 24, 1884. (No model.)



Claim.—1. The combination, with the side rails of a cot, and the legs pivoted thereto, of the cross-levers E, pivoted to each other, to the locking-arms K, and to the lower portions of opposite legs, and the locking-arms K pivoted to the upper portions of said legs and to the extensions of said cross-levers, substantially as specified.

2. The combination, with the side rails and pivoted legs of a cot, of the cross-levers extended beyond their intersection, the locking-arms pivoted to the extensions thereof and pivoted to the legs, and the brace-rods connecting the cross-levers to the side rails, substantially as specified.

316,299. SAW-MILL SET-WORKS. WILLIAM H. SNYDER, Waynesborough, Pa. Filed Oct. 18, 1884. (No model.)



316,299.



Claim.—The combination, substantially as before set forth, of the feed-shaft of the head-blocks on the log-carriage of a saw-mill, the ratchet-wheel fixed to said shaft, the loose spur-wheel thereon carrying a pawl for turning said ratchet-wheel, the cross-sliding rack and the lever for sliding it both mounted on the log-carriage, and a stationary camway for vibrating the said lever.

316,300. MANUFACTURE OF HYDROCHLORIC ACID. ERNEST SOLVAY, Brussels, Belgium. Filed May 20, 1884. (No specimens.) Patented in Belgium May 6, 1884, No. 65,071; in France May 6, 1884, No. 161,939, and in Germany May 7, 1884, No. 29,846.

Claim.—1. The improved composition of matter for use in the manufacture of hydrochloric acid, consisting of chloride of calcium, silica, alumina, and the residuum from the manufacture of hydrochloric acid, substantially as described.

2. The improved composition of matter for use in the manufacture of hydrochloric acid, consisting of chloride of calcium, silicious clays, and the residuum from the manufacture of hydrochloric acid, substantially as described.

316,301. SHINGLE-SAWING MACHINE. FRANK STAHL, Cleveland, Ohio. Filed Jan. 23, 1885. (No model.)

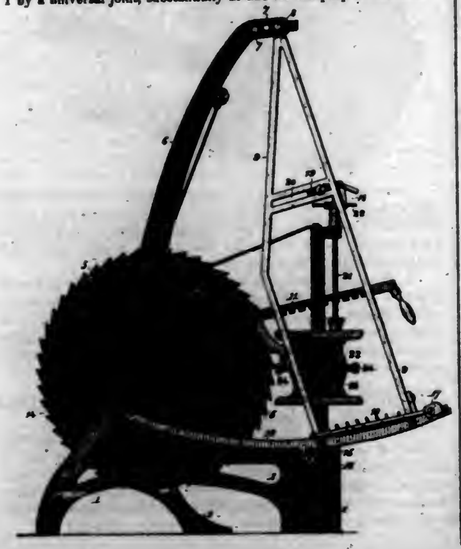
Claim.—1. In combination, a main frame, a saw, an oscillating bolt-frame suspended from said main frame, an oscillating gage, a cam-shaft which is partially rotated at each oscillation of the said bolt-frame, and a pair of cam-disks secured to said cam-shaft and having their cam-rims arranged to bear alternately against the oscillating gage on the respective sides of the axis upon which it oscillates, substantially as and for the purpose set forth.

2. The combination, in a shingle-machine, of a main frame, a saw, and an oscillating bolt-frame with a gage for regulating the insertion of the bolt, secured to said main frame or an arm thereof by a universal joint, as and for the purpose set forth.

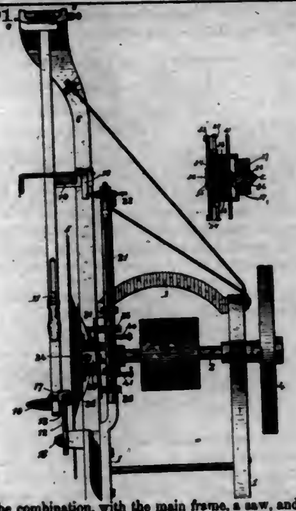
3. The combination, with a main frame, a saw, and an oscillating bolt-frame, of an adjustable gage for regulating the insertion of the bolt, consisting of a back plate secured to the frame by a universal joint, a face plate, guides for preventing the rotation of said face plate, and a screw threaded into one member and swiveled to the other, as and for the purpose set forth.

4. In combination, the main frame 1, the gage 23, the trunnions 24, upon which it oscillates, the yoke 27, secured to said main frame 1 and supporting said trunnions, the cam-shaft 21, the cam-disks 25 26, secured to said shaft on the respective opposite sides of the trunnions 24, and the set-screws 40 41, for impinging against the back of the gage and limiting its oscillation, as and for the purpose set forth.

5. The combination, with the main frame 1, the saw 5, and the oscillating bolt-frame 9, suspended from said main frame, of a gage, 23, for limiting the insertion of the bolt, trunnions 24, upon which said gage oscillates, yoke 27, supporting said trunnions and connected to the frame 1 by a universal joint, substantially as and for the purpose set forth.



316,301.

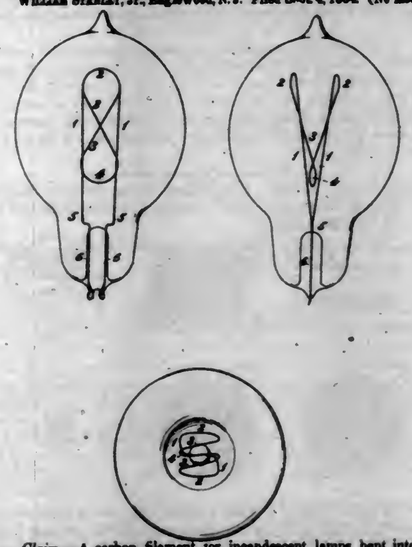


6. The combination, with the main frame, a saw, and an oscillating bolt-frame, of an adjustable gage for regulating the insertion of the bolt, consisting of a pair of plates, each having a hub projecting from their contiguous faces and one sliding within the other, as described, and an adjusting-screw threaded in one member and swiveled to the other, as and for the purpose set forth.

7. The combination, with a main frame, a saw, and an oscillating bolt-frame, of an adjustable gage for regulating the insertion of the bolt, consisting of a pair of plates, each having a hollow hub projecting from their contiguous faces, one sliding within the other, as described, a screw for moving them to and from each other, and means for preventing their rotation, as set forth.

8. The combination, with a main frame, 1, a saw, 5, and a bolt-frame, 9, of a gage, 23, consisting of the yoke 27, secured to the frame 1, the back plate, 31, oscillating on trunnions 24, supported by said yoke, and having a hollow hub, 33, projecting therefrom, the face plate 32, having the internally-screw-threaded hub 34, sliding within the hub 33 and held against turning therein, as described, and the screw 25, working in the threads of the hub 34 and swiveled to the plate 31, all substantially as and for the purpose set forth.

316,302. FILAMENT FOR INCANDESCENT ELECTRIC LAMPS. WILLIAM STANLEY, Jr., Englewood, N. J. Filed Sept. 4, 1884. (No model.)



Claim.—A carbon filament for incandescent lamps bent into the form of two outwardly-inclined lateral members having loops at two adjacent ends and two oppositely-inclined return-bends extending in reverse direction to said lateral members and connecting the loops thereof with an intermediate loop, substantially as set forth.

316,303. TRUSS. JAMES N. STARK and GEORGE P. BARTLETT, Woburn, Mass. Filed May 21, 1884. (No model.)



Claim.—A truss-pad having a concavo-convex apertured boss combined with a bolt of smaller diameter than the aperture of said boss, having a convex inner surface on its head adapted to fit the concave side of the boss, a washer having a concave surface adapted to fit the convex side of the boss, the truss-spring shank passing through an orifice in the bolt and bearing against the washer, and a nut or its equivalent engaged with the bolt and adapted to bear against said shank, as set forth.

316,304. BUTTON-FASTENER. EDWARD D. STEELE, Waterbury, Conn. Filed Jan. 2, 1885. (No model.)



Claim.—1. A button-fastener consisting of a head-bar having two prongs on one side and one on the opposite in a parallel plane, the single prong being bent parallel to the head-bar near its junction to form a loop, the lower cut edge of said head-bar forming a bearing to rest upon the material to which the fastener is attached, substantially as herein set forth.

2. The improved sheet-metal button-fastener consisting of the head-bar *d*, provided with the prongs *b b* and *a*, the prong *a* bent parallel to the head-bar, forming the loop *b*, the lower cut edge of said head-bar forming the bearing *a'*, adapted to engage or rest upon the material to which the fastener may be secured, all the said prongs to be passed through the material and subsequently clinched, substantially as described, and for the purpose set forth.

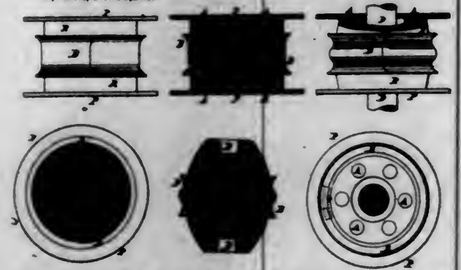
316,305. BUTTON-FASTENER. EDWARD D. STEELE, Waterbury, Conn. Filed Jan. 6, 1885. (No model.)



Claim.—1. A metallic button-fastener composed of a head-bar bent laterally and provided with prongs on the lower cut edge, the spaces between said prongs adapted to engage the upper surface of fabric when secured thereto, the said head-bar further provided on the opposite cut edge with a single prong, which is bent to form a loop for the reception of the shank-eye of a button, said prong projecting in the same direction as the remaining prongs and at a distance beyond the line of the outer ends of the head-bar, substantially as and for the purpose specified.

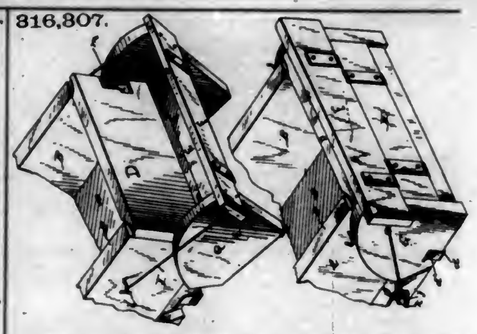
2. The one-piece metallic button-fastener consisting of a head-bar provided with a single prong at one side and three prongs at the opposite, the head-bar being bent laterally into a semicircular form, the lower cut edge forming a base to rest on the surface of fabric when secured thereto, the single prong being bent to form a loop for the reception of the shank-eye of a button, substantially as described, and for the purpose set forth.

316,306. SPRING. LOUIS STRAUS, London, County of Middlesex, England. Filed Feb. 9, 1885. (No model.) Patented in England Aug. 15, 1884, No. 11,293.



Claim.—A spring in which a rubber block to be acted on compressively has applied to it a discontinuous zone or belt of spring metal, substantially in the manner hereinbefore described.

316,307. END-GATE FOR WAGONS. HARRY STOW, Iola, Kans. Filed Apr. 7, 1884. (No model.)



Claim.—1. The combination, with a wagon-body, of the vertical end-gate D, a supplemental end-gate consisting of end boards, E F, hinged to each other and to the bottom of the wagon-body, and side plates, G, and means for holding the supplemental end-gate in a closed position or an open position, so as to form a feed-trough, substantially as shown.

2. The combination, in a wagon-body, of an end-gate proper, a supplemental end-gate, which is hinged to the wagon-body adjacent to the lower edge of the end-gate proper, and provided with side plates, G, and pivoted pins attached to the end-gate proper and adapted to engage with perforations in the side plates, G, substantially as shown.

3. The combination, with a wagon-body, of an end-gate provided with two hinged sections adapted, when the end-gate is moved rearward, to form, respectively, the bottom and rear side of a feed trough or receptacle, substantially as set forth.

4. The combination, with a wagon-body, of an end-gate provided with side plates, G, beveled to bear against corresponding faces of blocks secured to the side of the body, said end-gate being adapted to be moved to form a feed-trough or other receptacle, and supporting devices, substantially as described.

5. The combination, with a wagon-body, of an end-gate, constructed and operating substantially as described, and bent irons *d*, secured to the body, as and for the purpose set forth.

6. The combination, in a wagon-body, of an end-gate, constructed and operating substantially as described, and block H, secured to the sides of the body, and provided with projecting pins and swiveled hooks adapted to form connection with said pins, for the purpose described.

316,308. CYLINDER FOR CLOVER-HULLERS. FREDERICK STROBEL, Marion, Ohio. Filed Jan. 20, 1885. (No model.)



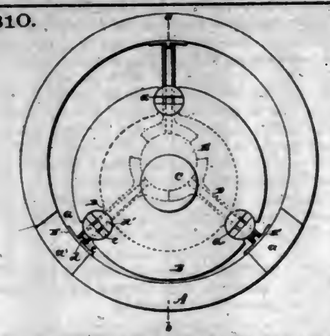
Claim.—1. In a cylinder for clover-hullers, the combination, with a suitable frame, of the herein-described sections, consisting of curved plates having longitudinal vertically-corrugated ridges provided with central transverse grooves, and having sharp notches in their outer edges or faces, substantially as and for the purpose set forth.

2. The combination, with the cylinder-frame consisting of a series of parallel equidistant bars and suitable heads or ends, of the toothed sections consisting of curved plates having perforated flanges and bolts whereby they are attached to the bars of the frame, said toothed plates being attached to the frame in alternate intersecting rows, substantially as and for the purpose set forth.

316,309. ROTARY ENGINE. JOHN C. TELFER, Palatka, Fla. Filed July 24, 1884. (No model.)

Claim.—1. In a rotary engine, the combination, with an outer cylinder, of an inner cylinder located within the outer cylinder and eccentric thereto, and pistons passing through the inner cylinder and bearing against the outer cylinder and working concentric with the latter, the inner ends of the pistons bearing against a shaft permanently located in the center of the outer cylinder, substantially as set forth.

316,310.



2. In a rotary engine, the combination, with an outer cylinder, of a cylinder located eccentrically within the outer chamber and so placed as to prevent contact with the latter, as described, and pistons bearing against a shaft fixed in a position in the center of the outer cylinder and passing through the inner cylinder bearing against the outer cylinder, substantially as set forth.

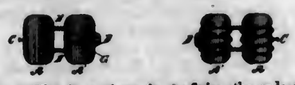
3. In a rotary engine, the combination, with an outer cylinder, of a cylinder located eccentrically therein and provided with slots, pistons provided on their outer ends with caps bearing against the outer cylinder, the pistons passing through said slots and having their inner ends bearing against a shaft rigidly secured to the center of said outer cylinder, substantially as set forth.

4. In a rotary engine, the combination, with an outer cylinder provided with steam entrance and exhaust ports, of a cylinder located eccentrically within the outer cylinder and provided with slots, grooved guides loosely placed in the slots, and pistons passing the guides and bearing against a shaft rigidly secured to the center of the outer cylinder and passing through said slotted guides, substantially as set forth.

5. The combination, with an outer cylinder provided with steam entrance and exhaust ports, of a cylinder located eccentrically within the outer cylinder and provided with slots, cylindrical slotted guides loosely placed within the slots, and pistons passing through the guides and having their inner curved ends bearing against a shaft fixed to the center of the outer cylinder and their outer ends provided with caps bearing against the outer cylinder, substantially as set forth.

6. The combination, with the cylinders A B, of pistons D, provided with caps F, guides G, axle E, and fixed shaft C, all of the above parts combined and adapted to operate substantially as set forth.

316,310. CLAMP FOR CONFINING THE ENDS OF BRAID, ROPES, &c. EDWARD W. TEN EYCK, Elizabeth, N. J. Filed Sept. 30, 1884. (No model.)



Claim.—1. The tie or clamp for confining the ends of braided or twisted strands, constructed of two plates hinged by one or more coiled springs or their equivalents, and adapted to be fastened, when closed, by a suitable catch, substantially in the manner and for the purpose herein set forth.

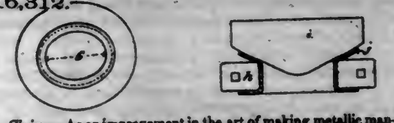
2. A tie or clamp for securing the ends of braided or twisted strands, constructed, substantially as herein described, of two plates hinged by an elastic extensible connection upon one side or edge, and adapted to be fastened together by a catch upon the other, and provided with internal pins or projections, substantially in the manner and for the purpose herein set forth.

316,311. ORNAMENTING SHEARS AND SCISSORS. TITUS B. TERRY, Toledo, Ohio. Filed Mar. 7, 1884. (No model.)



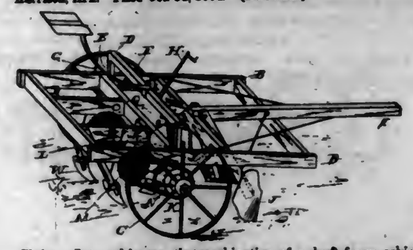
Claim.—As a new article of manufacture, a pair of shears or scissors having the blades plated with a metal different from that of which they are made, and having their handles japanned or coated with equivalent finish.

316,312. MANUFACTURE OF STEAM-BOILER MAN-HOLES AND ANALOGOUS DEVICES. JOSEPH TOADOFF, Leeds, County of York, England. Filed Dec. 17, 1883. (No model.) Patented in England Oct. 2, 1883, No. 4,695.



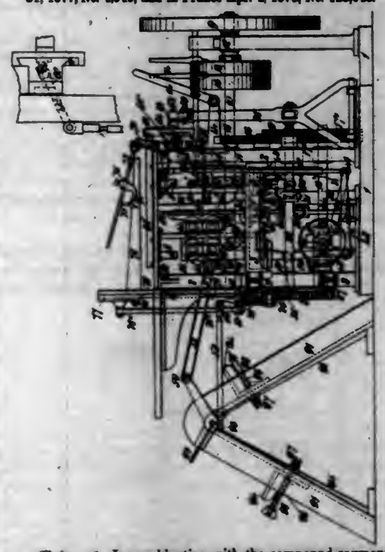
Claim.—As an improvement in the art of making metallic man-holes for steam-boilers and like articles, drawing a disk to the form of a tube and turning a flange on the open end thereof in dies, cutting out the metal, closing the opposite end, and then forming a similar flange on said opposite end by means of dies, in the manner substantially as described.

316,313. CULTIVATOR. JOHN A. TORRENCE and DAVID E. JERNIGAN, Harrison, Ark. Filed Oct. 31, 1884. (No model.)



Claim.—In a cultivator, the combination of a draft-frame which is suspended by chains from the arched axle of two transporting-wheels, the rod F, the lever H, scrapers J, sprocket-wheels O R, wheel S, hoes V, and plows, all constructed and adapted to operate substantially as and for the purposes described.

316,314. PAPER-FOLDING MACHINE. FRIEDRICH VON MARTENS, Frauenfeld, Switzerland. Filed Feb. 12, 1880. Patented in England Oct. 31, 1877, No. 4,049, and in France Apr. 4, 1878, No. 123,640.



Claim.—1. In combination with the compound segment-wheel 17, with its toothed segment 17×, steadying-segment 17××, and anti-friction pulleys or rollers 18, and the intermittent wheel 19, the horizontal transverse shaft 20, crank-arm 25, toothed wheel 26, internally-toothed circle 27, crank-arm 28, and pin-connecting rod 28×, saddle 77, horizontal folding-knife 76, and bed 78, the whole arranged and operating substantially as described and illustrated.

2. In a folding-machine, the combination of a traversing saddle, 61, hollow gripper-frame 65, arm-pieces 66, pivoted gripper-bar 67, spring gripper-arms 68, and locking-piece 69, substantially as described, for the purpose specified.

3. In a folding-machine, the combination of grooved folding-tables 4 5, a traversing saddle, 61, hollow gripper-frame 65, arm-pieces 66, gripper-bar 67, spring gripper-arms 68, and locking-piece 69, all substantially as described, for the purpose specified.

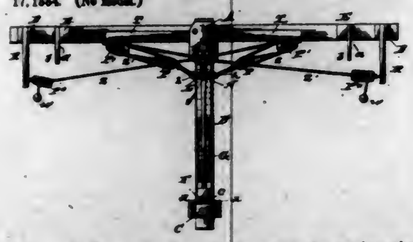
4. In a folding-machine, the combination of a gripper-frame bed, 60, longitudinally-grooved rectangular bar 60×, free to move on pivots

at each end, and a lever, 46×, operated as described, so as to cause said bar 60× to rock on its axis radially with the traversing gripper-frame and grippers, substantially as and for the purpose specified.

5. In a folding-machine, the combination of a gripper-frame bed, 60, longitudinally-grooved bar 60×, free to move on pivots at each end, lever 46×, connecting-rod 46, anti-friction roller and bell-crank lever 45, face-cam 44, shaft 40, with bevel-wheel, pinion 18××, shaft 18×, and the gripper-frame 65, arm-pieces 66, and gripper-arms 68, all substantially as described, for the purpose specified.

6. In a folding-machine, the combination of a vibrating lever, 38, operated as described, a connecting-rod, 39, an axis, 62, on which said connecting-rod works freely, and which passes through a saddle, 61, and is furnished at the inner face of said saddle with a crank-arm, 63, furnished with a spherically-headed crank-pin taking into the groove of a rocking bar, 60×, the gripper-frame and grippers, the arm 64, and locking-piece 69, all substantially as and for the purpose specified

316,315. GATE. LANSLATT D. WADE, Puyallup, Wash. Filed May 17, 1884. (No model.)

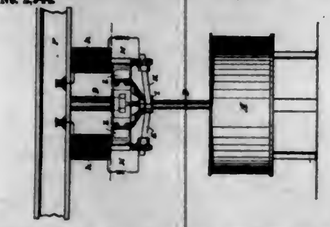


Claim.—1. The combination, with the post A, its cap-plate, pivot-bearing, and bar T, of the gate B, having the plate L, constructed as described, and secured on the upper end of the pivot-post, and provided with the upwardly-projecting pivot-pin and the outwardly and horizontally projecting T-shaped arm, the pulleys, and operating-ropes, substantially as specified.

2. The combination, with the gate B, of the pivot-head plate, constructed as described, and provided with the T-arm, the spring-latch, the latch-posts E E, the outer pulley-posts, D' D', the latch-post C, the cap-plate V, and horizontal bar of the gate-post A, the pulleys P P and P', arranged as shown, and the operating-ropes, substantially as specified.

3. The combination, with the gate B, having the pivot-head plate provided with a T-arm, and pivoted at its lower end in a bearing below it, of the gate-post A, having the slotted cap-plate extending over the head-plate of the gate, and the transverse bar carrying pulleys at its ends, the outer side posts, D D, also carrying pulleys, and the operating-ropes, substantially as specified.

316,316. ELECTRIC DRIVING APPARATUS FOR CENTRIFUGAL MACHINES. ALEXANDER WATT, Liverpool, County of Lancaster, England. Filed June 10, 1884. (No model.) Patented in England June 13, 1883, No. 2,944.



Claim.—1. In combination with an elastic suspension device for the driving-shaft of a centrifugal machine, an electric motor placed round the point of suspension, with its armature fixed to the shaft, the field-magnet being fixed to stationary supports.

2. The combination, with a flexible suspension-joint such as Weston's herein described, of the armature of an electric motor fixed to the shaft, and the field-magnet fixed to stationary supports, with their centers, when at rest, in the plane of the zero-line of oscillations, so that the electric mechanism is unaffected or but little affected by the oscillations of the shaft, substantially as described.

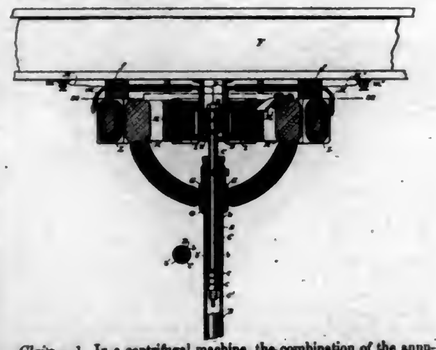
3. The combination, in mechanism for driving centrifugal machines, of the revolving annular armature fixed to the shaft, the annular electro-magnet encircling the same, and the commutator fixed on and revolving with the same shaft, placed as nearly as possible to the zero-line of oscillation, substantially as described and shown.

4. The combination, with the driving-shaft of a centrifugal machine, of an electric motor having its moving part attached to the shaft thereof and its commutator located as nearly as possible to the plane of least oscillation and connected with the line by brushes, also placed as nearly as possible to the plane of least oscillation, substantially as described.

5. In electrical driving mechanism for centrifugal machines, the combination, with the shaft B and bracket G, of the circular armature L and commutator I, insulated by rings of insulating material, *g* and J, of the fixed bracket D, spindle C, elastic supporting-buffer E, and the ball-joint E', whereby the point of oscillation is brought to the center of the bracket G, substantially as shown and described.

6. In electrical driving mechanism for centrifugal machines, the triple magnet composed of the ring H and the uprights A, in combination with the beam F, substantially as described.

316,317. ELECTRIC DRIVING APPARATUS FOR CENTRIFUGAL MACHINES. ALEXANDER WATT, Liverpool, County of Lancaster, England. Filed June 10, 1884. (No model.)



Claim.—1. In a centrifugal machine, the combination of the annular magnet H, fixed concentrically to the shaft to be driven, the annular armature I, just clearing the magnet and held stationary, and the commutator I, placed inside the magnet and held stationary, all as nearly as practicable in the same plane with the point of suspension, substantially as described.

2. The combination, with a flexible suspension-joint for centrifugal machines, of the field-magnet of an electric motor fixed to the shaft to be driven, and a fixed armature having its commutator so placed that the center of the pole-pieces, the contact-surface of the commutator, and the zero-line of oscillation shall all be in the same plane, substantially as shown and described.

3. In electrical driving apparatus for centrifugal machines, a ring electro-magnet fixed to the shaft to be driven by an arched bar in magnetic contact therewith, the whole forming a single magnet with three bars all wound with wire, substantially as described.

4. The combination, with the suspension-bracket D and suitable elastic packing, of the shafts C and B, and the commutator I, supported by said bracket and insulated therefrom, and the magnet H, attached to the said shaft B and revolving around the commutator and inside the stationary armature L, substantially as described.

5. In electrical driving apparatus for centrifugal machines, the combination, with the shafts B and C, of the triple electro-magnet H, the fixed armature L, and commutator I, the brushes K, attached to and moving with the said magnet H, and suitable conducting-wires, all substantially as described and shown.

316,318. WELL-TUBE FOR DRIVE-WELLS. WILLET C. WELLS, Tiffin, Ohio. Filed Feb. 19, 1885. (No model.)

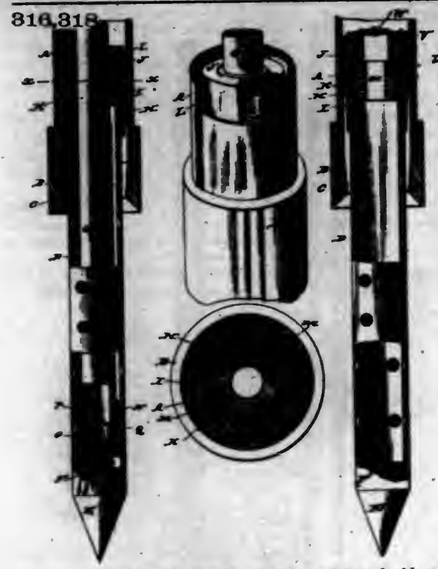
Claim.—1. The combination, with the well-tube having the shoe at its lower end, having the tapering bore, of the strainer having the tapering sleeve secured at its upper end corresponding in taper to the bore of the shoe, as and for the purpose shown and set forth.

2. The combination of the strainer having the sleeve at its upper end, formed with alternating threaded and smooth portions at its inner side, with the delivery-pipe provided at its lower end with the sleeve having alternating smooth and screw-threaded portions upon its outside, the said smooth and threaded portions corresponding in width to each other, as and for the purpose shown and set forth.

3. The combination of the strainer, having the drive-point and the concussion-block at its lower end, with the tubular drive-rod having the upwardly-opening delivery-valve within its lower end, as and for the purpose shown and set forth.

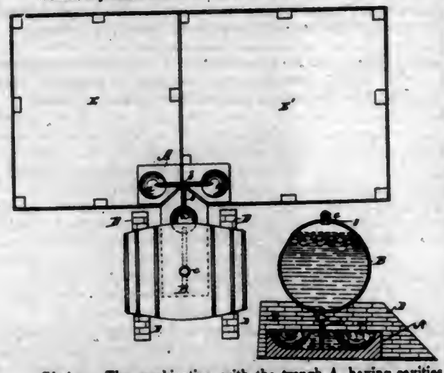
4. In a well-tube, the combination of the well-tube, the strainer having means for preventing it from slipping out of the lower end of the well-tube, and having the sleeve at its upper end formed with alternating smooth and screw-threaded portions upon its inner side, and the delivery-pipe having the sleeve at its lower end provided with alternating smooth

316,318



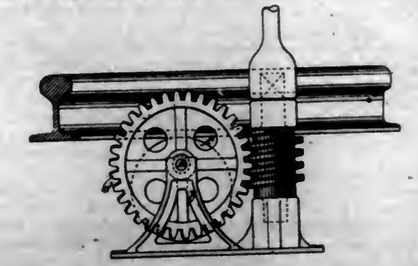
and screw-threaded portions upon its outer side, and formed with an internal valve-seat provided with an upwardly-opening valve, as and for the purpose shown and set forth.

316,319. APPARATUS FOR WATERING SWINE. HERMANN H. WEMPE, Capioma, Kans. Filed July 30, 1884. (No model.)



Claim.—The combination, with the trough A, having cavities *a* and connecting-canal *b*, made open, as specified, of the barrel B, having spigot *d*, and the parallel horizontal ways D, between which the trough is arranged and whereon the barrel is mounted and free to be rolled for effecting the discharge of its contents into the trough, as specified.

316,320. LIFTING APPARATUS FOR RAILROAD-RAILS. FRIEDRICH WESTMEYER, St. Johann-on-the-Saar, Prussia, Germany. Filed Dec. 29, 1884. (No model.) Patented in Germany Feb. 12, 1884, No. 27,901; in Belgium Feb. 14, 1884, No. 64,163; in France Feb. 16, 1884, No. 160,368, and in England Feb. 20, 1884, No. 3,661.



Claim.—1. In a lifting apparatus, the combination of a worm and a gear operated thereby for raising a railroad-rail, substantially as described.

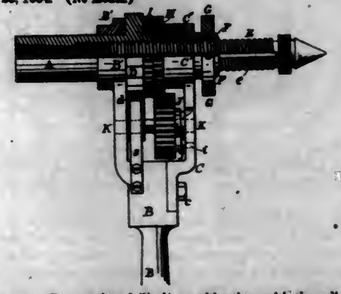
2. In a lifting apparatus, the combination of a lifting device adapted to engage a rail, a worm, and a gear operated thereby for raising the rail, substantially as described.

3. The combination, in a lifting apparatus, of a rotating wheel provided with an upright worm or screw and a nut engaging the worm or screw and elevated by the rotation of the wheel, substantially as described.

4. The combination of a rotating spur-wheel having a rigidly-attached upright worm or screw, a gear-nut arranged upon and engaging the worm or screw, and a pinion engaging the spur-wheel for rotating it, substantially as described.

5. The combination of a rotating wheel having a rigidly-attached worm or screw with a nut engaging the worm or screw and having a rigidly-attached lateral projection to engage under a rail, substantially as described.

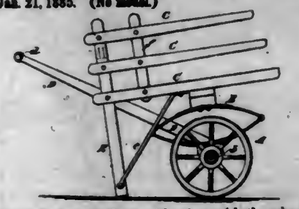
316,321. RATCHET-DRILL. EUCLID ANDERSON, Peekskill, N.Y. Filed Nov. 28, 1884. (No model.)



Claim.—1. In a ratchet-drill, the combination, with the splined spindle and screw A E and threaded sleeve F, of the differential spur-wheels H I J, one attached to the spindle, one attached to the threaded sleeve F, and one acting as intermediate, all operating together to effect the feed, substantially as shown.

2. In a ratchet-drill, the combination, with the splined spindle and screw A and E and threaded sleeve F, of the differential feed-gear H I J, pawl or lever *j*, for retaining intermediate in position, and the milled collar G, for independent feed, all operating together substantially as shown.

316,322. BRICK-TRUCK. DANIEL J. C. ARNOLD, New London, Ohio. Filed Jan. 21, 1885. (No model.)



Claim.—1. In a truck, the combination, with the wheels A and axle *b*, of the spring B, mounted upon said axle, the open-sided shelves C C, the bottom ones of which are secured to a cross-piece fastened upon said springs, said shelves also being secured to uprights E *f*, the forward ones depending and forming legs, and the arms D, connected at their lower ends to said axle and at their upper rear ends to a handle, *d*, substantially as and for the purpose set forth.

2. In a brick-truck, the combination, with the wheel or wheels A and axle *b*, of the springs B, mounted on the axle, and the open-sided shelves or racks C C, arranged in sets of two or more, one above the other, and in balancing arrangement over the axle, substantially as shown and described.

316,323. CAR-COUPLING. FREDERICK BALDT, Chester, Pa. Filed Mar. 12, 1885. (No model.)

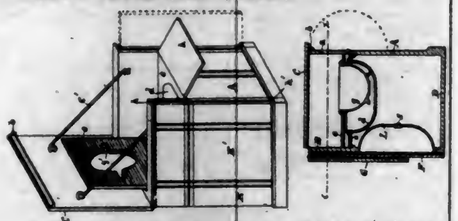


Claim.—1. The combination, in a car-coupling, of a bell-mouth, a hook pivoted therein, and having an extension, and a locking device for engaging with said extension when the same is forced back, substantially as set forth.

2. The combination, in a car-coupling, of a draw-head having an interior recess adapted to snugly contain two engaged hooks, a dog pivoted in said recess, the upper and lower front faces of said bell-mouth being curved, substantially as set forth.

3. The combination, in a car-coupling, of a draw-head provided with a bell-mouth, ears projecting from one side of said bell-mouth, a dog pivoted between said ears, and having an extension, *e*, together with a stop to limit the backward movement of the dog, and a locking device, substantially as set forth.

316,324. FOLDING BATH-STAND. CHARLOTTE C. BARNWELL, Beaufort, S. C. Filed Mar. 6, 1884. (No model.)

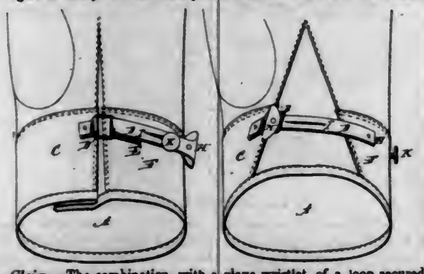


Claim.—1. A stand having a top, *e*, provided with a circular opening, *f*, and two notches, *g'*, in the edge of the opening, said notches being on opposite sides, and a commode-vessel suspended thereon, as set forth.

2. A stand having a closed back, a commode-seat at right angles to the back, a wash-basin suspended by its rim, and an extension hinged to the back for enlarging the latter into a table-top, whereby the stand in one position will serve as a commode-seat, and when turned in the other position—that is, with its front side down—will serve as a table-top, as set forth.

3. A stand having a top for supporting a wash-basin or commode-vessel, a closed back at right angles to the top, an extension hinged to the back for enlarging the latter into a table-top, and a supplemental side board, E', on two opposite sides of the said top, which slide or extend away from the back, whereby when the stand is turned in such position that its back may be used for a table-top the said side boards will serve as legs, as set forth.

316,325. GLOVE-FASTENING. JOHN BLOMSTROM, Rockford, Ill., assignor to Henry W. Price, same place. Filed Nov. 19, 1884. (No model.)



Claim.—The combination, with a glove-wristlet, of a loop secured to the outer side of one side thereof, a tuck-band secured at one end to the opposite outer side of the wristlet and passed through said loop, and formed with a slit or opening, and provided at its free end with a finger piece or tab, and a button secured to the same side of the wristlet to which the tuck-band is attached, substantially as set forth.

316,326. WITHDRAWN.

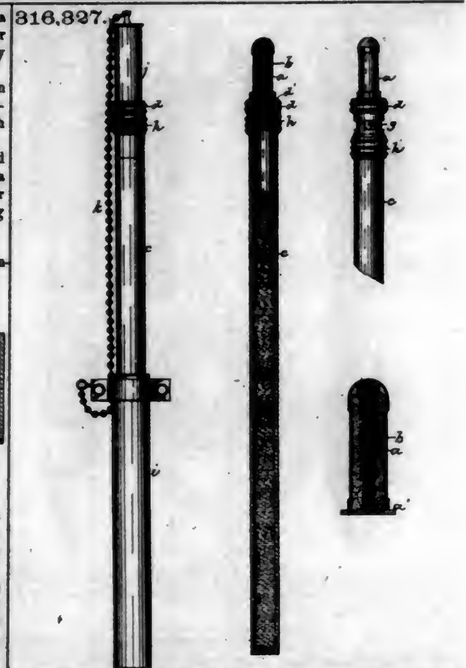
316,327. FIRE-KINDLER. GILMAN W. BROWN, West Newbury, Mass. Filed Dec. 8, 1884. (No model.)

Claim.—1. A fire-kindling package consisting of a shell of yielding material containing chemicals, as described, and an inclosed fragile holder containing another chemical, whereby by a blow on the outside of the yielding shell the fragile holder may be broken and its contents released, substantially as described.

2. The combination, with a flanged paper case, of a retaining-handle, chemicals retained within the case by a proper cover, and a glass vessel containing chemicals placed within the paper case, as set forth.

3. The combination, with a flanged paper case containing chemicals, and a fragile vessel of another chemical inclosed therewith, of a

316,327.



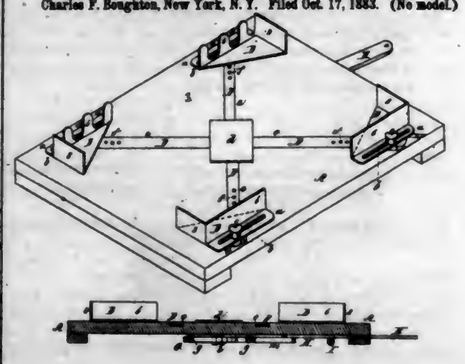
hollow handle secured to the flange of the case, and a stopper by which the aperture to said handle may be closed, substantially as described.

316,328. DEVICE FOR SECURING FURNITURE-STANDARDS TO THE FLOOR. JOHN M. BROWN, Philadelphia, Pa., assignor to Baker, Pratt & Co., New York, N. Y. Filed Mar. 22, 1884. (No model.)



Claim.—A cast-iron standard for seats, desks, &c., having two legs forming rigid parts of said standard, the one in rear of the other, combined with a socket hinged to the foot or lower end of one of the legs, substantially as described.

316,329. MECHANISM FOR EVENING SHEETS OF PAPER ON FLY-BOARDS OF PRINTING-PRESSES. M. WAGNER BRIDE, Hyde Park, and MITCHELL A. SALOMONS, Boston, Mass., assignors of one-third to Charles F. Boughton, New York, N. Y. Filed Oct. 17, 1883. (No model.)

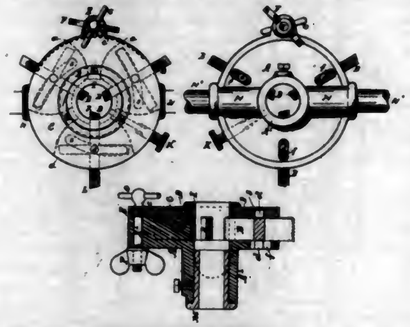


Claim.—1. The combination, with the fly-board of a printing-press, of the adjustable corner-gages, the diagonally-arranged sliding bars, and their actuating mechanism, whereby the sheets are adjusted at the corners as they are successively laid, substantially as specified.

2. The combination, with the diagonally-moving slides having a series of apertures near the ends, of the corner-pieces having vertical sides at right angles to each other, and longitudinally-slotted bases, and the pins and nuts whereby the gages may be adjusted in two directions, substantially as and for the purposes specified.

3. The combination, with the fly-board, of the diagonally-moving slides, the corner-pieces having vertical sides, the cam-wheel whereby the slides are advanced or retracted diagonally, and the lever by which motion is imparted to the cam-wheel, substantially as specified.

316,330. ADJUSTABLE SCREW-CUTTING DIE-STOCK. THOMAS M. BURKE, Fitchburg, Mass. Filed Apr. 28, 1884. (No model.)



Claim.—1. The combination, with the head-block A, having the central opening and side recesses, as *a*, of the reversible chasers B, mounted for radial adjustment within said recesses and having series of arms for working different diameters, provided with right-hand and left-hand thread-cutters at their respective ends, a ring for supporting the arms at working position, and means for securing the chasers at positions of adjustment, substantially as hereinbefore described.

2. The combination of the recessed head-block A, rotative dies B, having arms fitted for chasing different styled threads, mounted for radial adjustment in said head, the rotative face-plate C, having slots for moving said dies, the center thimble, I, and means for securing the parts at positions of adjustment, substantially as set forth.

3. The combination, with the rotative face-plate having inclined slots for moving the dies or chasers, of the gear-pinion meshing with teeth *c* on said plate and provided with a handle for turning and adjusting it, and means for locking or clamping said pinion in position for retaining the plate and dies as adjusted, substantially as set forth.

4. The die B, formed in separable parts B' B², fitted and locked together, substantially as set forth.

5. The removable non-rotative thimble I, having slots *i*, in combination with the revolvable dies B and supporting-head A, substantially as and for the purpose set forth.

6. The combination, with the head-block A and dies B, of the removable die-supporting ring or thimble having splines *m* and slots *i*, and the set-screw K, as shown and described.

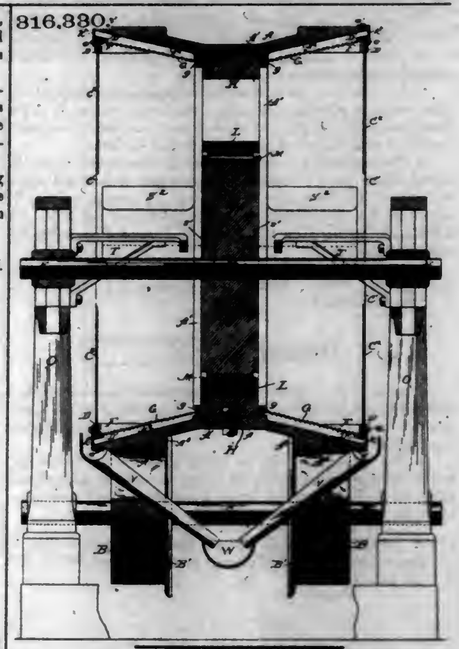
316,331. CRUSHING AND PULVERIZING MILL. JACOB CHERNEY, Denver, Colo., assignor of one-half to Francis Marion Davis, same place. Filed Nov. 21, 1884. (No model.)

Claim.—1. The drum of a crushing and pulverizing machine having an interior crushing-surface, an inclined surface between said surface and the edge of the drum, an end wall provided with a central and edge openings, an inclined screen over said inclined surface, and pockets on said screen, in combination with an interior crushing-roller, and a trough arranged in the drum to receive the coarser material from the pockets and deliver it to the crushing-surfaces, substantially as described.

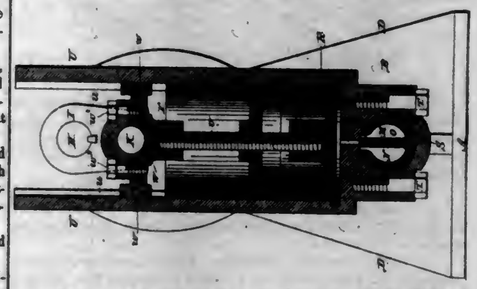
2. In combination, the drum-casting having a central groove and a grinding and crushing ring held therein, inclined or flaring surfaces extending from the ribs bordering said groove to the margins of the drum-casting, sectional end walls supported on flanged rings, and inclined screens supported on said flanged rings and in the grooves *g*, and brackets *k*, connecting the flanged rings and the edges of the casting, all substantially as described.

3. A revolving grinding and crushing drum having a central interior grinding and crushing surface and inclined or flaring surfaces, screens placed over said inclined surfaces, wings forming pockets on the screens, a central crushing-roller, and inclined troughs supported on brackets and having their upper ends near the inner periphery of the screens and their lower ends turned in front of the crushing-roller, all substantially as described.

316,330.



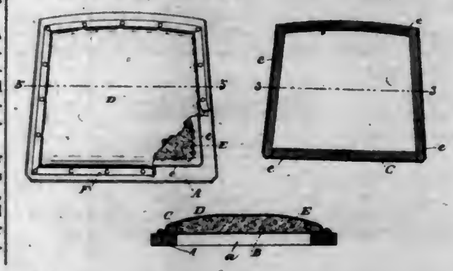
316,332. STEAM-ENGINE. JAMES CLARK, Medina, N. Y., assignor of one-half to Abiel Bowen, same place. Filed Jan. 3, 1885. (No model.)



Claim.—1. The combination of the frame having the cylindrical steam-chest with the shaft, the crank, the piston and rod, and the cylinder having a closed end that is pivoted upon the steam-chest, said cylinder having a single central port in its closed end, and said steam-chest being provided with an inlet and an exhaust port with which the cylinder-port registers alternately when the engine is in operation, substantially as described.

2. The combination of the frame having the cylindrical steam-chest with the shaft, the crank, the piston and rod and cross-head, and the cylinder having a closed end that is pivoted upon the steam-chest and having guideways for the cross-head, substantially as described.

316,333. CHAIR-SEAT. CHARLES CLOSTERMAN, Cincinnati, Ohio. Filed July 26, 1884. (No model.)



Claim.—1. The composite chair-seat consisting of a chair-seat frame, A, attached sheet-metal bottom B, loosely inserted rigid separate skeleton frame C, cover D, padding E, and binding F, all combined substantially as set forth.

2. In a chair-seat, the combination, with open-seat frame A, having tacked to it so as to bridge its opening a sheet-metal bottom, B, of less dimensions, padding E, and cover D, of the loosely-inserted rigid separate open frame or skeleton C, as and for the purpose set forth.

3. The combination of the seat-frame A, superimposed bottom B, secured thereto, cover D, fastened over the bottom to the frame, skeleton frame C, introduced between the cover and bottom, padding E, stuffed into the space between the cover and bottom and within the skeleton, and binding F, secured to the seat-frame and concealing the edges of the cover.

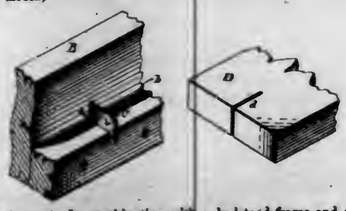
316,334. FORK. THOMAS CUTLE, Apponaug, R. I. Filed Nov. 11, 1884. (No model.)



Claim.—1. As an improved article of manufacture, a fork having a spring-slide working between its prongs, and the stem of said slide projecting from within the handle or shank of the fork and working between its prongs, as described.

2. The combination, with the hollow handle having the recessed end, of the slotted shank having the prongs, the rod and spring located within the shank, and the slide mounted upon the rod and working between the prongs, as set forth.

316,335. BEDSTEAD. GEORGE CROWTHER, Cincinnati, Ohio, assignor of one-half to Theodore Niesmt, same place. Filed Mar. 31, 1884. (No model.)



Claim.—1. In combination with a bedstead frame and slats, the slat-fasteners consisting of vertical plates or metallic tongues C, having spurs *c* and *c'*, the upper edges of the plates or tongues being formed to receive the ends of the slats in line therewith and transverse of the bedstead-frame.

2. The combination, with a bedstead-frame, of the tongues C, having spurs *c c'*, and arranged transverse of the rabbets, and the slats D, having longitudinal kerfs *d* in their ends occupied by the upper edges of the tongues.

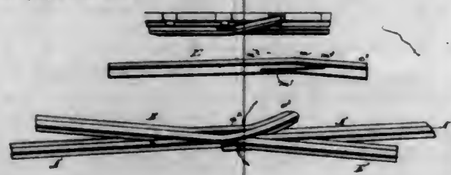
3. As a new article of manufacture, a slat-fastener for bedsteads, consisting of a tongue, C, having a body of rectangular form, provided with spurs *c* and *c'*, and an upper edge adapted to enter slat ends in line therewith.

316,336. RAILWAY-SWITCH. SETH CURLIN, Covington, Tenn. Filed Nov. 22, 1884. (No model.)

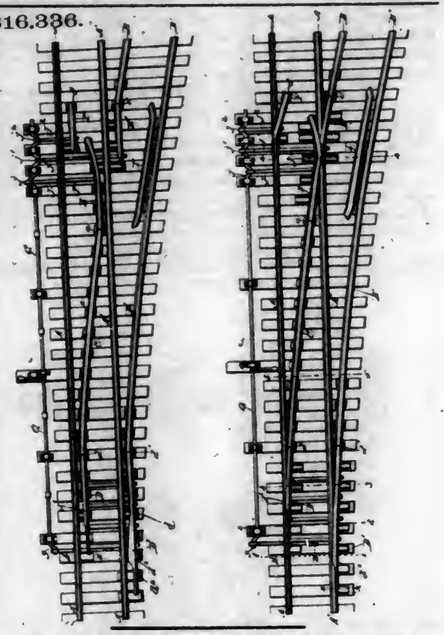
Claim.—1. In a switch substantially as described, the movable rail E, curved and bent as shown, and having a slit, as *s'*, arranged at different distances from the tread of the rail, the head being forced laterally so that the severed web shall have a bearing upon the main rail A', arranged and adapted to serve with a main rail and a siding or switch rail, as set forth.

2. In a switch as described, the combination, with the movable rail E, slit and bent as described, of the movable rail E', beveled and inclined and adapted to serve with the main rail A, and the arm a^3 of the rail E, as and for the purposes set forth.

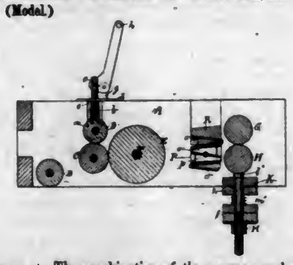
3. The combination, with the movable rails D D' and E E', constructed and arranged as shown, of the rock-bar G, having cranks *g j j'*, arranged at different angles, and connections, as H H' J J', as and for the purpose set forth.



316,336.



316,337. MACHINE FOR SLITTING CANVAS AND FOLDING THE EDGES THEREOF. ALEXANDER M. CUTLER, Bath, Me. Filed July 7, 1884. (Model.)

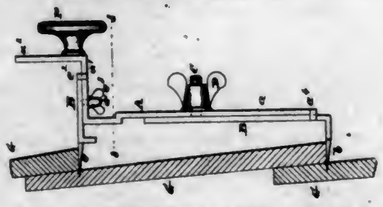


Claim.—1. The combination of the pressure and guide rollers C and D, the slitting-knife E, the pair or set of edge-turners O O, and the draft-rollers G and H, arranged in the frame A, and to operate substantially as set forth.

2. The combination of the pressure and guide rollers C and D, the slitting-knife E, the slotted carrier P, the edge-turners O O thereof, and the draft-rollers G and H, arranged in the frame A, and to operate substantially as represented.

3. The combination of the reversible carrier P, provided with sets of edge-turners applied to opposite sides of it, as set forth, with the pressure and guide rollers C and D, slitting-knife E, and the draft-rollers G and H, all being substantially as set forth.

316,338. SIDING GAGE OR DOG. AUGUSTUS C. L. DAVIS, Norfolk, Nebr. Filed Jan. 28, 1884. (No model.)



Claim.—In a siding-gage, the combination of a bar, A, having vertical lower part, *a*, formed with vertical slot a^3 and studs a^4, horizontal part a', formed with slot a^2, and vertical part a^3, the vertical bar B, embraced by the studs, adjustable on the vertical lower part, and provided with a point, *b*, and the adjustable horizontal bar E, having point *e* and the studs e^2 to embrace the horizontal part, as set forth.

316,339. MAIL-BAG CATCHER. HARRY DE LANOY, Hastings-on-the-Hudson, N. Y. Filed Apr. 2, 1884. (No model.)



Claim.—1. In a mail-bag catcher, the combination, substantially as before set forth, of the horizontal shaft, the catcher-arm projecting at an angle from said shaft to form a crotch, and the automatic stop held normally across the crotch by spring-pressure.

2. In a mail-bag catcher, the combination, substantially as before set forth, of the horizontal shaft secured to rotate in its bearings, the collar mounted to turn with said shaft, the catcher-arm secured to the collar, and the automatic stop held normally across the crotch by spring-pressure.

3. In a mail-bag catcher, the combination, substantially as before set forth, of the horizontal shaft, the catcher-arm and its collar secured to turn with said shaft, and the spring-actuated stop secured to the horizontal shaft, with its free end held normally across the crotch of the catcher.

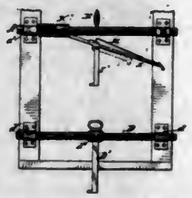
4. In a mail-bag catcher, the combination, with the horizontal shaft, of the catcher-arm secured to said shaft, and provided at its outer end with a rearward extension, and the detachable angle-rod secured to the horizontal shaft, with its free end terminating in a vertical plane with the end of the rearward extension of the catcher-arm, substantially as before set forth.

5. In a mail-bag catcher, the combination, substantially as before set forth, of the horizontal shaft secured to rotate in its bearings, the catcher-arm having its collar keyed to said shaft, but adapted to move longitudinally thereon, the pin G, secured to the shaft, the fixed pin H, and the spring to yieldingly support the catcher-arm against rearward movement.

6. In a mail-bag catcher, the combination, substantially as before set forth, of the horizontal shaft, the catcher-arm having its collar keyed to said shaft, but adapted to move longitudinally thereon, the spring-actuated stop secured to the horizontal shaft and held normally across the crotch of the catcher, and the spring to yieldingly support the catcher-arm against rearward movement.

7. In a mail-bag catcher, the combination, substantially as before set forth, of the horizontal shaft fixed longitudinally, but adapted to rotate in its bearings, the handle or lever fixed to said shaft, the catcher-arm keyed to the shaft, but adapted to slide longitudinally thereon, and the spring to yieldingly support the catcher-arm against rearward movement.

316,340. MAIL-BAG CATCHER. HARRY DE LANOY, Hastings-on-the-Hudson, N. Y. Filed Jan. 3, 1885. (No model.)



Claim.—1. In a mail-bag catching and delivering apparatus, the combination of the horizontal shaft, the catcher-arm, and the extension or delivering-arm secured to the catcher-arm, said catcher-arm being mounted to slide on the horizontal shaft, substantially as and for the purpose set forth.

2. In an apparatus of the character described the combination, with a horizontal shaft and a catcher-arm mounted thereon, of the adjustable extension secured to the catcher-arm, substantially as and for the purpose set forth.

3. The combination, with the horizontal shaft and the catcher-arm mounted thereon, of the adjustable extension pivoted to the catcher-arm, substantially as before set forth.

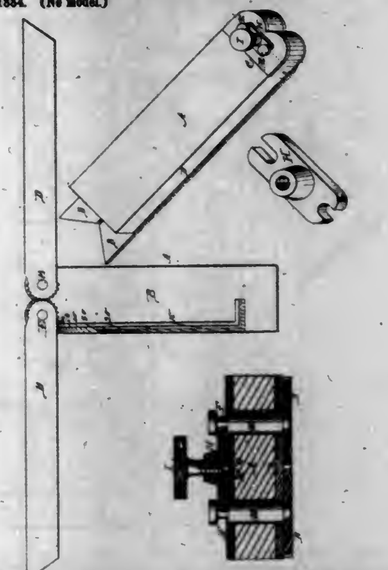
4. The combination, with the horizontal shaft, the catcher-arm, and an extension, of a lower horizontal shaft mounted to turn in bearings and provided with a delivering-arm, substantially as set forth.

5. The combination, with a mail-bag catcher, of an extension secured to the catcher-arm, and a lower horizontal shaft having an angular slot, and a delivering-arm adapted to fit and slide within said slot, substantially as before set forth.

6. The combination, with a mail-bag catcher, the catcher-arm of which is provided with an extension, of a lower horizontal shaft having a delivering-arm, said shaft being mounted to rotate and slide in a fixed bearing, substantially as before set forth.

7. The combination, with a mail-bag catcher, the catcher-arm of which is provided with an extension, of a lower horizontal shaft having a delivering-arm, said shaft being at one end mounted to rotate and slide in a fixed bearing, and near its other end journaled in a bearing formed in a movable support, substantially as specified.

316,341. BEVEL. JOHN W. H. DOUBLER, Rockford, Ill. Filed June 20, 1884. (No model.)



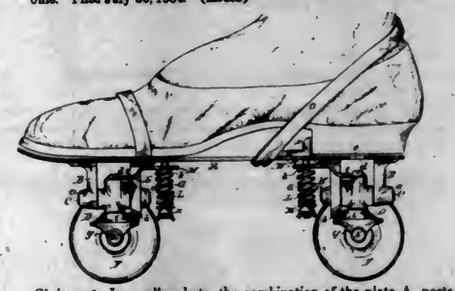
Claim.—1. The combination of the stock and the two blades, said blades having a pivotal connection with the stock and a gear-toothed connection with each other, substantially as and for the purpose set forth.

2. The combination, with the grooved stud-journals, of a clamping-bar slotted to engage the grooved portions of the journals, and made removable, substantially as and for the purpose set forth.

3. The combination, with the stock and with the slotted clamping-bar, to engage the stud-journals of the blades, of a clamping-screw having a screw-thread connection with the clamping-bar and a pin-stud connection with the stock, substantially as and for the purpose set forth.

4. The combination, with the blades geared at their pivotal ends to move together, of a stock provided at one side with a graduated scale, substantially as set forth.

316,342. ROLLER-SKATE. FREDERICK DRIFFILL, Sterling, Ill., assignor to Heaton J. Bromley, same place, and George A. Reynolds, Toledo, Ohio. Filed July 30, 1884. (Model.)

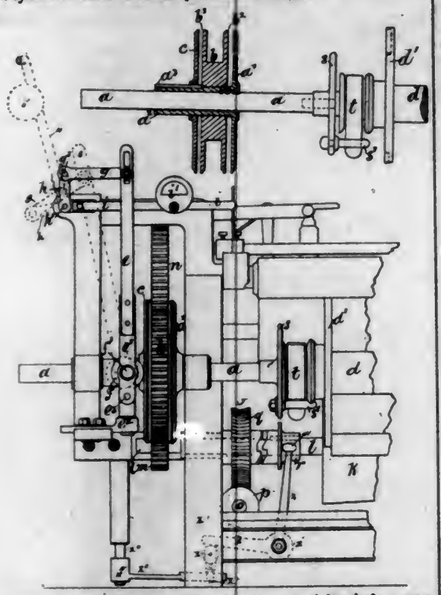


Claim.—1. In a roller-skate, the combination of the plate A, posts B and B', shaft C, provided with a bolster-base, the bifurcated plate H, the post G, and spring L, substantially as shown, and for the purpose mentioned.

2. In a roller-skate, the combination of the plate A, posts B and B', the latter provided with the gear *h*, the shaft C, having a bolster-base, the bench D, provided with the gear *i*, the axle E, the post G, the bifurcated plate H, and the spring L, substantially as shown, and for the purpose specified.

316,343. WINDING-ON MOTION FOR MACHINES FOR TAPING, SLASHING PAPER, &c. YATES DUXBURY, Jr., Over Darwen, County of Lancaster, assignor to Aspden Pickup Dickinson, Blackburn, England. Filed Feb. 27, 1884. (No model.) Patented in England Aug. 2, 1882, No. 3,692.

Brief.—The friction-plates of a winding-on motion are brought in contact with a spur-wheel mounted loosely on the shaft between them by a system of levers actuated by a movable weight.



Claim.—In combination with a yarn-beam and its shaft, a gear-wheel mounted looseiy on said shaft, actuating devices whereby said gear-wheel is caused to rotate, a friction disk or plate which is movable into and out of contact with the side of said gear-wheel, a lever whereby said friction-disk is thus shifted, and a weight and intermediate devices which hold said lever in position to maintain such frictional contact or free the gear-wheel therefrom, substantially as set forth.

316,344. COTTON-PICKER'S SACK. CHARLES H. DYE, Illinois Bend, Tex. Filed Apr. 23, 1884. (No model.)



Claim.—A cotton-picker's sack having an inlet at the top, an outlet at the side, and means by which said outlet may be closed or opened, substantially as and for the purpose specified.

316,345. PERMUTATION-PADLOCK. FREDERICK EGGE, Bridgeport, Conn. Filed Feb. 7, 1885. (Model.)

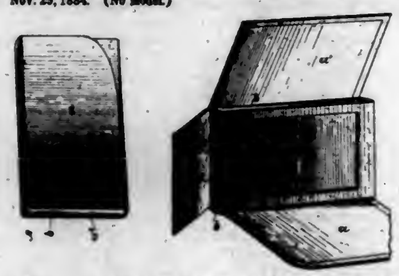


Claim.—1. In a lock, the combination, with a central plate provided with a projecting shackle and having a central elongated opening terminating in a circular enlargement, of the two side disks having hubs whose length and width are less than the diameters of said enlargement and opening, respectively, said hubs adapted to be placed in their assembled positions within said enlargement, and there held by a rivet extending through both disks and shackle, whereby when the lengths of said hubs are brought into alignment with said elongated opening the shackle may be withdrawn, substantially as set forth.

2. The combination, with the central plate having formed therewith the shackle-hook, and provided with the central opening having circular enlargement at the top thereof, of the disks having upon their inner surfaces pierced hubs whose ends are segments and whose sides are parallel and straight, said hubs being adapted to fit within the opening in the central plate, and the rivet passing through all the parts aforesaid and binding them in place.

3. The combination of plate A, having the shackle and opening B, as described, disks C, having pierced hubs D, and the rivet F, passed through and binding the several parts together.

316,346. POCKET-BOOK. ISAIAH S. EMERY, Rochester, N. Y. Filed Nov. 29, 1884. (No model.)



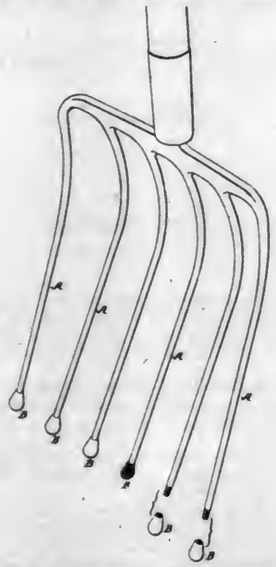
Claim.—1. A pocket-book having two flaps and an intermediate portion, as described, in combination with a frame attached or secured to said intermediate portion and open at one end, substantially as described.

2. A pocket-book composed of a central portion and two lapping portions, in combination with a collapsible open-faced frame having one end open, for the purpose described.

3. A pocket-book having two flaps and a central portion, in combination with a central open-faced frame secured thereto having one edge open, for the purpose described, and a flap adapted to close said opening, as specified.

4. As an improved article of manufacture, a pocket-book having a back made with three flaps, in combination with an open-faced frame having a slot or opening at one edge arranged to be closed by one of said flaps, all of the said flaps being adapted to be folded, as described.

316,347. FORK FOR DIGGING VEGETABLES. JOHN A. ERVIEN, Shoemakertown, Pa. Filed Mar. 23, 1885. (No model.)



Claim.—1. The within-described fork for digging or handling vegetables, said fork having tines provided with separately-made knobs applied to their ends, substantially as described.

2. The within-described fork for digging or handling vegetables, said fork having tines with threaded ends and tapped knobs applied thereto, substantially as described.

316,348. ANTI-FRICTION BEARING. JAMES E. EVANS, Cincinnati, Ohio. Filed Mar. 3, 1885. (No model.)

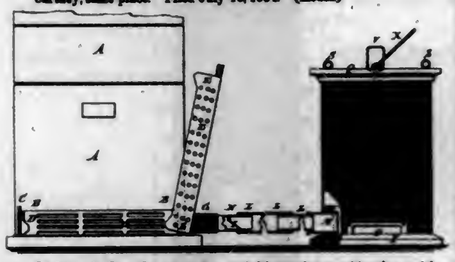
316,348.



Claim.—1. The combination, in anti-friction bearings, of an axle carrying at the ends rollers held frictionally thereon, and a cylinder having a bore larger than the axle and anti-friction rollers confined in the bore by the wheels, substantially as set forth.

2. The combination of the head or cylinder C, having a bore extending from end to end, axle extending through said bore, wheels on the axle closing the ends of said bore, and rollers interposed between the axle and cylinder, substantially as described.

316,349. COMBINED BEE SWARMER AND HIVER. SYLVESTER E. FERGUSON, Eureka Springs, Ark., assignor to himself and Austin McCartney, same place. Filed July 10, 1884. (Model.)



Claim.—1. In a bee swarmer and hiver, the combination, with a bee-hive, of a bee-trap having adjustable shutters to regulate the passage-ways for the bees, and to prevent the passage of the queen, a tubular conductor constructed to admit light, and provided with a hinged transparent door, and leading from said trap to a bee cage or hive having its ingress-openings arranged to permit the entrance of the working-bees, but to prevent the egress of the queen.

2. In a bee swarmer and hiver, the combination, with a bee-hive, of a trap provided with adjustable shutters to regulate the passage-ways for the bees and to prevent the passage of the queen, a conductor composed of straight and angular sections, one or more of the straight sections being illuminated, and the salient angles of the angular sections being also constructed to admit light, a transparent door within the conductor, the said conductor leading to a bee cage or hive having openings arranged to permit the entrance of the working-bees, but to prevent the egress of the queen, substantially as set forth.

3. A combined bee swarmer and hiver constructed substantially as herein shown and described, and consisting of the trap B C D E, the conductor G H L, and the cluster-cage N P O Y T, adapted to be used in connection with a bee-hive, as set forth.

4. In a combined bee swarmer and hiver, the trap B, constructed with slides C, a slotted door, D, and a perforated door, E, substantially as herein shown and described, to adapt it to be used in connection with a bee-hive, as set forth.

5. In a combined bee swarmer and hiver, the combination, with the trap B C D E, of the conductor G H L, substantially as herein shown and described, whereby the queen can be conducted from the trap B into a cluster cage or hive, as set forth.

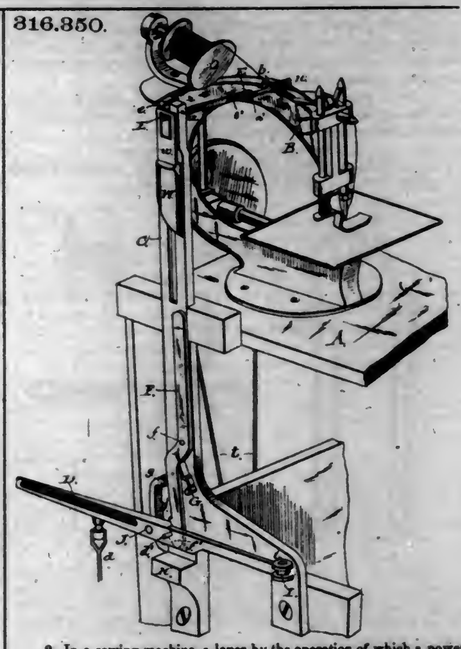
6. In a combined bee swarmer and hiver, the conductor constructed substantially as herein shown and described, and consisting of the wire-gauze section G, to admit light to the entrance of the conductor, the section H, having transparent drop-door I to admit light and to prevent the return of the queen, the elbow-section J, having transparent plate K to allow the direction to be changed, and the sections L, as set forth.

7. In a combined bee swarmer and hiver, the cluster-cage constructed substantially as herein shown and described, and consisting of the wire-gauze wall N, the frames P, the bottom Y, and the top Q, having slots R U and groove W, the eye-screws S, for securing the said top in place detachably, and the cluster-block T, having handle V, to adapt the said cage to be used in connection with the conductor and trap in swarming and hiving bees, as set forth.

316,350. SEWING-MACHINE. ALFRED A. FISHER and ALBERT HART, Brooklyn, N. Y. Filed May 7, 1884. (No model.)

Claim.—1. In a sewing-machine, a mechanism by which a power device is thrown in or out of gear with said sewing-machine, in combination with the pivoted jointed arm E, having a slotted end through which the thread of the sewing-machine passes, and a mechanism operated by the release of said arm from the thread upon the attempted passage by said arm of a knot in the thread, for operating the mechanism by which the power device is operated to throw said device out of gear with the sewing-machine, substantially as herein described.

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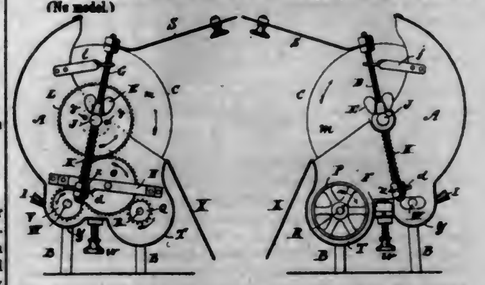


2. In a sewing-machine, a lever by the operation of which a power device is thrown in and out of gear with said sewing-machine, in combination with the pivoted jointed arm E, having a slotted end through which the thread of the sewing-machine passes, a weight tripped by the release of said arm from the thread upon the attempted passage by said arm of a knot in the thread, and a means affected by the falling weight for operating said lever to throw the power device out of gear with the sewing-machine, substantially as herein described.

3. In a sewing-machine, a lever by the operation of which a power device is thrown in and out of gear with said sewing-machine, in combination with the pivoted jointed arm E, having a slotted end through which the thread of the sewing-machine passes, a weight tripped by the release of said arm from the thread upon the attempted passage by said arm of a knot in the thread, and a swinging ratchet-lever engaging with the power-lever and operated by the falling weight to disengage and release said power-lever to throw the power device out of gear with the sewing-machine, substantially as herein described.

4. In a sewing-machine, the pivoted lever D, having a pin, d', and connected with the power device, and operating to throw said power device in and out of gear with the sewing-machine, in combination with the standard C, the jointed arm E, pivoted in its top and having one end slotted, through which said slotted end the thread b of the sewing-machine passes, the sliding weight W in the standard, adapted to be suspended from the other end of said arm E, and having a beveled lower end, and the pivoted ratchet-lever F, adapted to receive the weight W upon its upper end to engage with the pin d' of lever D with its lower end, substantially as and for the purpose herein described.

316,351. BRONZING-MACHINE. JOHN J. FLOYD, Boston, Mass., assignor to himself and Michael Merrigan, same place. Filed Jan. 7, 1885. (No model.)

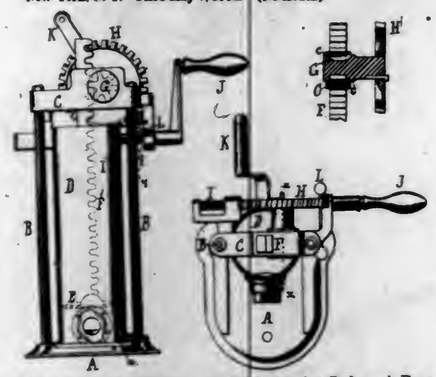


Claim.—1. In a paper-bronzing machine, the rods D G, provided with the springs K and nuts E, in combination with the shaft J, cylinder C, and case A, substantially as set forth.

2. In a paper-bronzing machine, the shaft J, provided with the fixed arm N, and the cylinder C, having the slot *g*, and provided with the brackets *z*, levers *t*, plate M, and spring *b*, combined and arranged to operate substantially as set forth.

3. In a paper-bronzing machine, the wiper F, provided with the adjusting-screws *w*, in combination with the bronzing roller or shaft W, brush U, and cylinder C, substantially as described.

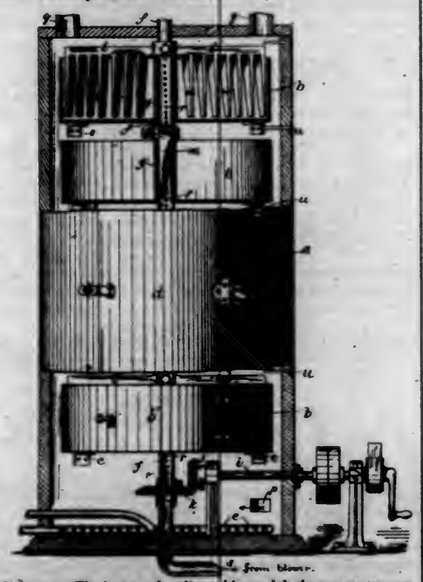
316,352. SAUSAGE-STUFFING MACHINE. CHARLES FORSCHNER, New York, N. Y. Filed May 7, 1884. (No model.)



Claim.—1. The combination of the solid bearing C, the rack F, and pinion G, the bearing being slotted to receive the rack, the pinion bearing journals *e e* as large in diameter as the pinion itself, and the bearing having an aperture of sufficient diameter to receive the pinion and its journals, for the purpose specified.

2. In combination with the piston E, driving-rack F, pinion G, and worm-wheel H of a sausage-stuffing machine, the worm-shaft I, provided with a peripheral groove, *f*, and pivoted latch L, carrying a thumb-piece, *i*, and weight *h*, arranged and operating substantially as and for the purpose herein specified.

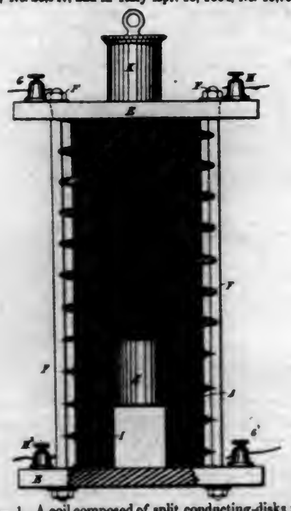
316,353. DRYING APPARATUS. JOHN W. FREE, Chicago, Ill., and JOSEPH P. BALDWIN, Cambridge, Mass., said Baldwin assignor to said Free. Filed Sept. 6, 1884. (No model.)



Claim.—1. The improved malt-machine and drying apparatus composed of the casing having a door or doors, *d*, the vertical series of fixed pans arranged in the casing and separated therefrom by annular spaces which permit an upward passage of air around and over the pans, as described, and provided with doors *b'*, coinciding with the doors *d* of the case, and means, substantially as described, whereby hot air is supplied to the casing, as set forth.

2. The stirrers composed of the arms projecting from the operating-shaft and the two series of wings or blades oppositely inclined to move the grain in different directions, as set forth.

316,354. COIL FOR INDUCTION AND OTHER ELECTRICAL APPARATUS. LUCIEN GAULARD and JOHN D. GIBBS, 18 Warwick Street, Regent Street, County of Middlesex, England. Filed June 23, 1884. (No model.) Patented in England Feb. 12, 1884, No. 3,173; in France Feb. 27, 1884, No. 160,603; in Belgium Feb. 29, 1884, No. 64,324; in Germany Mar. 12, 1884, No. 28,947, and in Italy Apr. 15, 1884, No. 16,750 391.

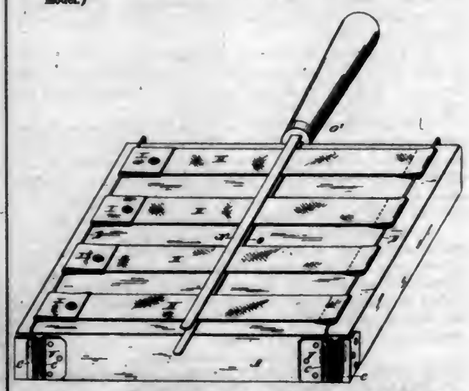


Claim.—1. A coil composed of split conducting-disks provided each with a pair of ears and connected in series outside the coil by means of said ears, said disks constituting the convolutions of the cells and being insulated from one another, except for the connection, as aforesaid, through said ears, substantially as described.

2. A coil composed of slit conducting-disks separated one from the other by continuous disks of insulating material and electrically connected in series at the edges of said disks outside the coil, substantially as described.

3. An induction-coil consisting of a primary and a secondary coil, each composed of slit conducting-disks connected in series, the disks of the primary coil being interleaved with those of the secondary coil, substantially as described.

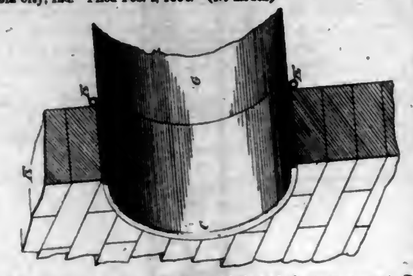
316,355. PLAITING APPARATUS. JOSEPH H. GOLLEHON, GEORGE G. BRITTON, and JOHN F. LUCAS, Marion, Va. Filed July 19, 1884. (No model.)



Claim.—1. The combination, in a plaiting apparatus, of the board, the holding device provided with a number of sockets, and the wires having turned-down ends, the wires being adjustable in relation to each other, substantially as shown.

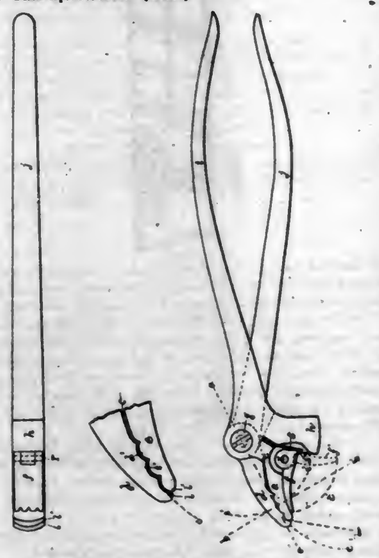
2. In a plaiting apparatus, the combination of the board provided with holding devices which have a number of sockets, the wires having turned-down ends to catch in the sockets, the strips, and the elastics which are secured to the stripe, substantially as set forth.

316,356. STOVE-PIPE THIMBLE. JEFFERSON H. GOSNEY, Columbia City, Ind. Filed Feb. 4, 1884. (No model.)



Claim.—A stove-pipe thimble consisting of the two cases A B, connected at their inner ends to form a chamber for the stove-pipe G, the case B being longer than the case A, all as set forth.

316,357. LASTING-PINCHERS. KASPER J. GREENWALD, Newark, N. J. Filed Apr. 30, 1883. (Model.)



Claim.—1. The combination, in lasting-pinchers, of the opposing jaws provided with the concave and convex teeth *d'* and *e'*.

2. In lasting-pinchers, the combination, with the lower jaw, *i*, of the upper jaw provided with lip *l*, arranged and operated as set forth.

3. The combination, in lasting-pinchers, of the opposing jaws provided with the concave and convex teeth *d'* and *e'*, the lower jaw being constructed with convex tip to prevent the cutting action of rectangular corners, substantially as shown and described.

4. Lasting-pinchers constructed with the handles *i j*, the hammer A, and the opposing jaws provided with the concave and convex teeth *d'* and *e'*, the jaws being curved at their outer ends, substantially as described, tangentially to a radial line drawn from the pivot *g* to the junction of the jaws near the tip of the same, the whole arranged and operated substantially as and for the purpose set forth.

5. The combination, with the lower jaw, *e*, and the hammer A, of the movable fulcrum *f*, pivoted at *r*, and provided with the spring *s*, substantially as and for the purpose set forth.

316,358. REGISTERING MEASURING-STAFF. HARLAN GIBBS, Nashua, N. H. Filed Apr. 22, 1884. (No model.)



Claim.—1. The combination, with a measuring-staff, of a train of registering devices arranged within a recess in said staff, a lever pivoted in said recess and having engagement with a pawl-carrying plate, and a spring-actuated trigger which locks said lever, substantially as specified.

2. In a registering-measure, the combination, with a disk having suitable numbering upon its periphery, of a ratchet rigid with said disk, a pawl carried by a reciprocating plate and imparting a step movement to said ratchet, a flange upon the latter, having a recess, and a push-pawl having its heel supported by said flange and operating the second disk once at each revolution of the first, substantially as described.

3. In a registering-measure, the combination, with a measuring-staff, of a series of registering-disks journaled in a chamber or recess in said staff, a ratchet formed or rigidly mounted upon the flat face of each disk, a slide-plate having a spring-pawl which actuates the first disk at each reciprocation of said plate, a spring-actuated pawl pivotally mounted on said plate and having its heel supported by a flange on the ratchet of the first disk, said flange having a recess nearly opposite the zero-point of the disk, and a lever pivoted in the recess of the staff and engaging with the slide-plate, whereby the second disk will be advanced a single space at each complete revolution of the first, substantially as specified.

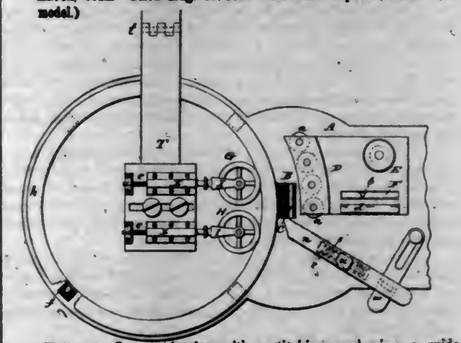
4. In a registering-measure, the combination, with the numbered disks having ratchets equally toothed, of a reciprocating plate carrying a spring-pawl having successive action upon one disk at each stroke of the plate, a push-pawl supported at one end by a recessed flange carried by the first disk, and having at each complete revolution thereof an operative engagement with the second disk, substantially as described.

5. In a registering-measure, the combination, with the registering-disks D and D', of the ratchets I and L, the former having a recess, n^3, the reciprocating plate F, having pawl G, the push-pawl N, carried by said plate, and having a pin, *n*, upon its heel, and means for reciprocating the latter, substantially as described.

6. In a registering-measure, the combination, with the peripherally-numbered disk D, having a ratchet, I, provided with the flange n, and recess n^2, of the reciprocating plate carrying a pawl, N, having its heel engaging with said flange, and a second disk, D', having ratchet L, substantially as described.

7. In a registering-measure, the combination, with the disks and a reciprocating pawl-carrying plate, of a pivoted lever, E, and a locking-trigger, P, having a hooked end, *p*, which engages with a pin upon the lever, substantially as described.

316,359. SEWING-MACHINE BINDER. JAMES F. J. GUNNING, New Haven, Conn. Filed Aug. 28, 1883. Renewed Sept. 29, 1884. (No model.)



Claim.—1. In combination with a stitching mechanism, a guide for the outer edge of the rim of the hat, consisting of several rolls, *a a*, arranged in a plate or holder, D, a stud, *b*, on the work-plate, extending up through a slot in the holder D, and a hinged serrated bar, *d*, arranged to engage and disengage the said stud, substantially as described.

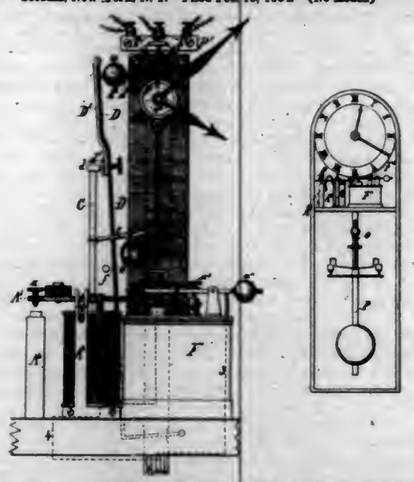
2. The combination of a stitching mechanism, a guide for the outer edge of the rim, a self-adjusting guide inside the crown at the rim, anti-friction rolls *f*, arranged to support the hat by its rim, substantially as described.

3. The combination of a stitching mechanism, a guide for the outer edge of the rim, a self-adjusting guide inside the crown at the rim, anti-friction rolls *f*, and the ring A, arranged to ride upon said rolls and over the feed beneath the rim, substantially as described.

4. The combination of a stitching mechanism, a guide for the outer edge of the rim, a ring to support the rim upon the under side, and a guide arranged to bear upon the inside of the hat at the rim, hinged so as to be turned upward to permit the introduction of the hat to the ring, substantially as described.

5. The combination of a stitching mechanism, the bar *n*, carrying the binder-guide, pivoted to the plate *r*, said plate *r* made adjustable on the work-plate, and a spring-latch, *w*, fixed to the work-plate, and adapted to engage the said bar and hold it in position on the work-plate, substantially as described.

316,360. ELECTRIC PENDULUM CLOCK. FRIEDRICH HASSCHEN and OTTO HASSCHEN, Philadelphia, Pa., assignors to themselves, and OSCAR SOEHREN, New York, N. Y. Filed Feb. 15, 1884. (No model.)



Claim.—1. An electric clock consisting of a pendulum, an oscillating current-reversing device supported on the pendulum, an electro-magnet, a balanced armature actuated by said electro-magnet, and mechanism actuated by the armature, whereby the pendulum is oscillated and the hands set in motion, substantially as and for the purpose set forth.

2. In an electric clock, a pendulum suspended by a spring from a supporting-plate, and connected by spiral conductors with the binding-post of the supporting-plate, substantially as set forth.

3. In an electric clock, the combination of an electro-magnet, a balanced armature provided with a fixed lever-arm, an oscillating crutch, a pendulum actuated by said crutch, and transmitting mechanism actuated by the lever-arm of the armature, whereby motion is imparted to the hands of the clock, substantially as specified.

4. In an electric clock, the combination of an oscillating pendulum, a battery, an oscillating reverser supported on the pendulum, an electro-magnet, a balanced armature, a fulcrumed disconnector operated by the armature, the reverser, electro-magnet, and disconnector being in circuit with the battery, whereby at each stroke of the pendulum a current is passed first in one direction through the electro-magnet and then in opposite direction, so as to neutralize the residual magnetism of the same, substantially as set forth.

5. In an electric clock, the combination of a pendulum having contact-stops, a reversing device supported on said pendulum, and consisting of a weighted oscillator that moves between said contact-points, and of contact levers and plates actuated by the oscillator, whereby the circuit is first closed and the current passed in one direction, and then reversed and instantly interrupted, substantially as set forth.

6. In an electric clock, a current-reverser supported on the bracket-plate of the pendulum, and constructed of an upright oscillating lever and of contact-levers actuated by the oscillator, whereby the circuit is closed, reversed, or interrupted, and induced sparks prevented, substantially as set forth.

7. In an electric clock, the combination of a pendulum having supporting bracket-plate, an upright oscillating lever fulcrumed to bearings of the bracket-plate and moving between contact-stops on the pendulum, lever-arms extending from the oscillator, and metallic connections supported on the bracket-plate, with which the arms of the oscillator form alternating contact at each oscillation of the pendulum, substantially as set forth.

316,361. FIRE-PROOF FLOOR. WILLIAM B. HAYDEN and CHARLES H. HAYDEN, Columbus, Ohio. Filed Nov. 13, 1884. (No model.)

Claim.—1. The combination of the flanged beam, the fire-proof flange-covers, of refractory material, each comprising an outer wall and two flanges, respectively overlying and underlying the beam-flange, and a tile or skewback constructed with a lateral shoulder resting upon and covering the overhanging flange of one of the covers, and with a downward-projecting shoulder resting against the outer wall of said cover, said tile or skewback having its lower surface flush, or approximately so, with the underlying flange of the cover, substantially as described.

2. The combination of a flanged beam and the separate flange-covers, each comprising two flanges, the upper one overhanging the beam-flange and the lower one underlying the said beam-flange, with

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the skewback having a lateral shoulder supported upon the overhanging flange of the cover, and a downward-projecting shoulder resting against the outer wall or edge of the cover, substantially as described.

3. The combination of the flanged girders, the separate flange-covers, each comprising two flanges, respectively overhanging and underlying the girder-flanges, and the skewbacks having lateral shoulders supported upon the overhanging flanges of the covers, and downward-projecting shoulders resting against the outer walls of the flange-covers, with the sectional tile arch springing from one skewback to the other, substantially as described.

4. The combination of a flanged girder and a flange-cover, comprising two flanges, respectively overhanging and underlying the girder-flange, with the skewback having a lateral shoulder supported upon the overhanging flange of the cover, and a downward-projecting shoulder resting against the outer wall or edge of the cover, the said cover and the skewbacks having their adjoining surfaces inclined downward in a direction away from the girder, substantially as described.

316,362. CARRIER FOR BINDERS, &c. CHARLES S. HENSLEY, Lawrence, Ind., assignor of one-half to William Hensley, same place. Filed Mar. 3, 1884. (No model.)

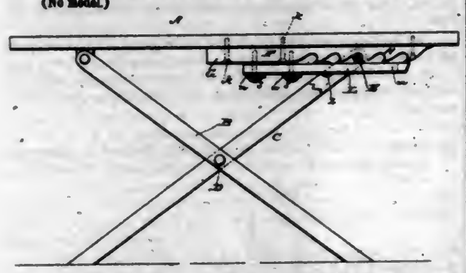


Claim.—1. In a straw-carrier, the combination, with the frame-work, of the sprocket-wheels C and C', mounted on shafts in said frame, the double chain-carrier belt D, having fingers D' pivoted thereon and provided with foot-pieces d', and a track, E, laid under the top part of said carrier-belt, on which the foot-pieces of the fingers travel forward, said track being provided with a trip, e, and a notch, e', at the rear end, which operates to raise the finger as it passes over it, substantially as described, and for the purposes specified.

2. In a straw-carrier, the combination, with the frame-work, of the sprocket-wheels C and C', mounted on shafts c and c', respectively, said shaft c' being divided in the middle, thus forming, practically, two shafts with a space between their adjacent ends, the double chain-carrier belt D, having fingers D' pivoted thereon, and provided with foot-pieces d', and a track, E, laid under the top part of said carrier-belt, on which the foot-pieces of the fingers travel forward, said track being provided with tripping devices at the rear end, which operate to raise the fingers as they pass over it, substantially as set forth.

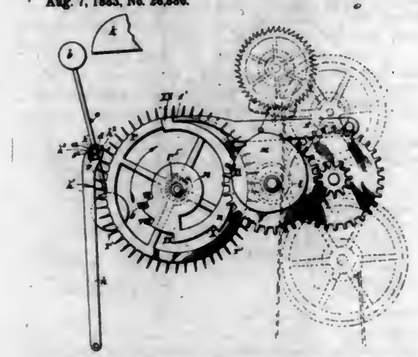
3. In a straw-carrier, the combination, with the carrier-belt thereof, having fingers provided with foot-pieces pivoted thereon, of a track laid under the top part of said carrier-belt, on which the foot-pieces of said fingers travel forward, said track being provided at its rear end with a trip, e, and a notch, e', whereby said fingers are raised to a vertical position as they pass up over them, substantially as set forth.

316,363. IRONING-TABLE. HORACE G. HOUSE, Oshkosh, Wis., assignor of one-half to J. B. Roberts, same place. Filed June 12, 1884. (No model.)



Claim.—In a folding cross-leg table, the longitudinal bar G, provided with the notches, as shown, and having the guide-screws s, and the slotted lock-bar L, engaging the guide-screws and having a lateral knob or projection, whereby it may be moved to close said notches or to open the same, in combination with a transverse catch-bar connecting the upper ends of the cross-legs, substantially as specified.

316,364. STRIKING-TRAIN FOR CLOCKS. ANDREAS G. HOVDE, Hönefos, Norway. Filed Nov. 15, 1883. (Model.) Patented in Germany Aug. 7, 1883, No. 26,886.



Claim.—1. In a clock, the combination, with a time-train, of a striking-train located to one side of the central arbor or axle and in gear with a wheel on said arbor, whereby the striking-train is wound up.

2. In a clock, a striking-train wound by the actuating-power of the time-train, the said striking-train located to one side of the center axle or arbor and consisting of a winding-up mechanism composed of a pinion and spring-actuated wheel, a movement mechanism composed of a spring-actuated hammer, a ratchet-wheel, and escapement-lever, and a regulating mechanism composed of a snail-wheel, a stopper, and a wheel for regulating said stopper, substantially as set forth.

3. In a clock, the combination, with the time-train, of a striking mechanism wound by the actuating-power of the time-train, consisting of a mutilated pinion, a spring-actuated toothed wheel, an escapement-lever in connection with a disk and ratchet-wheel mounted on a hammer-axle, and said spring-actuated wheel, and a stopper in connection with a snail or other shaped wheel, substantially as set forth.

4. In a clock, the combination, with the time-train, of a striking-train wound by the actuating-power of the time-train, consisting of a mutilated pinion mounted on the center arbor and adapted to engage and release hourly a spring-actuated wheel, a spring-actuated wheel adapted to store up and expend hourly a force sufficient to produce the required number of strokes, a snail-shaped wheel adapted to engage a stopper at required intervals, an escapement-lever adapted to engage a disk and said spring-actuated wheel, a ratchet adapted to allow said spring-actuated wheel to turn in one direction without engaging it and to engage it when it turns in the other direction, and a stopper adapted to arrest the motion of said spring-actuated wheel at required intervals, substantially as set forth.

5. In a clock, the combination of a toothed pinion mounted on the center arbor, said pinion adapted to engage a toothed spring-actuated wheel, a heart-wheel mounted on the center arbor and adapted to hold a stopper-lever at required elevations, a toothed spring-actuated wheel provided with a snail attachment, said spring-actuated wheel adapted to be wound up by said pinion, and said snail attachment adapted to engage said stopper-lever at required intervals, an axle provided with a balanced hammer and circular disk, both mounted firmly thereon, a toothed pinion mounted loosely on said axle and loosely attached to said disk, an escapement-lever provided with a leaf and adapted to engage said disk and said spring-actuated wheel, and a stopper-lever, the whole constructed and arranged for the purpose substantially as set forth.

6. In a striking-train for clocks, the combination of a spring-actuated hammer, a ratchet and escapement-lever adapted to arrest and release the movement of a spring-actuated wheel, a spring-actuated wheel adapted to store up and expend a sufficient amount of force to produce the required number of strokes, a wheel and lever combinedly adapted to regulate the number of strokes, and a pinion located on the center arbor, adapted to wind up and release said spring-actuated wheel at regular intervals, the whole constructed, arranged, and adapted to be wound by the actuating-power of the time-train, substantially as set forth.

7. In a striking-train for clocks, the combination, with the motive mechanism of the time-train, of a spring-actuated wheel forming a part of the striking-train, and located to one side of the center axle or arbor, and constructed and arranged to be wound up by said motive power the same amount each hour, and to reserve a sufficient force the first six hours to balance the required expenditure of force the second six hours, substantially as set forth.

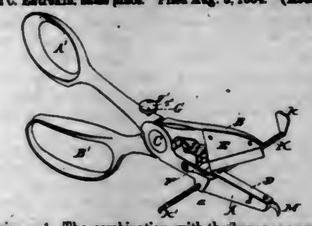
8. In a striking-train for clocks, the combination, with the motive-power mechanism of the time-train, of a mutilated pinion actuated by said motive power, constructed and arranged to engage a spring-actuated wheel forming a part of the striking-train, thereby winding up and releasing said spring-actuated wheel at regular intervals, substantially as set forth.

316,365. VEHICLE-WHEEL. GEORGE W. HOWELL, Covington, Ky. Filed Aug. 26, 1884. (No model.)



Claim.—The combination of the axle F, having the transverse perforation, the collars D, secured to the spokes and each having its inner face constructed with the transverse groove E, and the keys G, passing through the axle and resting in the grooves in the inner faces of the collars to conceal and guard the keys, substantially as described.

316,366. BUTTON-HOLE CUTTER. WILFORD C. HUDSON and JOHN BARRY, Chillicothe, Ohio; said Barry assignor of one-half his right to John C. Entrekin, same place. Filed Aug. 8, 1884. (Model.)



Claim.—1. The combination, with the lower or counter jaw and a spring secured at one end thereto and having its free end extending forward, of the upper jaw and the blade secured thereto, the free end of the spring forming an additional support to the goods and bearing on the lower or counter jaw and the blade working between the lower or counter jaw and the spring.

2. The combination, with the lower or counter jaw having a re-entrant angle, d'', and a spring secured to the lower or counter jaw and having its free end occupying the re-entrant angle, of the upper jaw and a blade secured thereto, the blade working between the lower or counter jaw and the spring.

3. The combination, with the lower or counter jaw and the bit D, having re-entrant angle d'', and of the yielding spring F, of the upper jaw and the blade secured to the upper jaw, the yielding spring being flush with the said bit and occupying the re-entrant angle d'' thereof.

4. The combination of the lower or counter jaw, A, having the separable bit D, formed with a cutting-edge, d, and re-entrant angle d'', the jaw B, having separable blade E, formed with concave heel e, pivot C, and the spring F, the concave heel being concentric with the pivot and the spring being secured to the lower or counter jaw yielding laterally having its free end occupying the re-entrant angle and its upper surface flush with the bit.

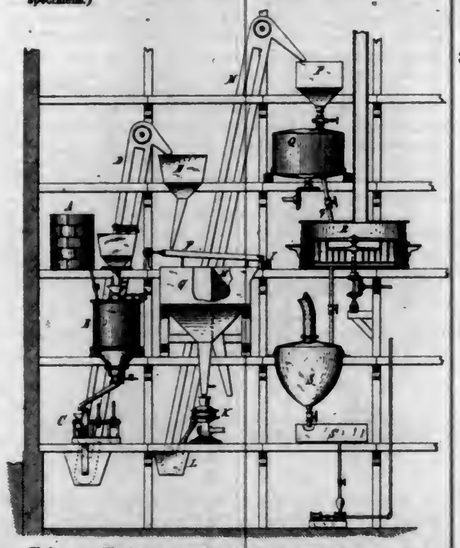
5. The combination of the jaws A and B, having handles A′ and B′, respectively, pivot C, having a circular scale, H, on the periphery thereof, and an adjustable gage-screw, G, working through one handle and bearing on the other handle, and having a head, *g*′, provided with graduations *g*″.

6. The adjustable gage K, having an upwardly-directed spur, *k*, for insertion in a button-hole, in combination with a jaw having a hole through which the gage is adjusted transversely of the jaw.

7. The combination of the gage K and the thread-picker *k*′.

8. The combination, with the lower or counter jaw, A, having a recess, *a*′, of the folding ripper hook or knife M, pivoted in the recess.

316,367. METHOD OF MANUFACTURING MALT LIQUORS FROM STARCH, &c. WILLIAM T. JESS, Buffalo, N. Y. Filed Mar. 27, 1885. (No specimens.)



Claim.—1. The herein-described method of producing a wort suitable for the manufacture of beer or ale, which consists in freeing the starchy portions of the kernels of Indian corn or maize from the husks and germs by steeping, whipping, and sifting, and then mashing the separated starchy material together with barley malt and draining off the wort, substantially as set forth.

2. The herein-described method of producing a wort suitable for the manufacture of beer or ale, which consists in freeing the starchy portions of the kernels of Indian corn or maize from the husks and germs by steeping, whipping, and sifting, then boiling the separated material to develop the starch, and then mashing the developed starch together with barley-malt and draining off the wort, substantially as set forth.

3. The herein-described method of manufacturing beer or ale, which consists in freeing the starchy portions of the kernels of Indian corn or maize from the husks and germs by steeping, whipping, and sifting, then mashing the separated starchy material together with barley-malt and draining off the wort, then boiling the wort, adding the hops, draining off the liquid, and cooling and fermenting the same, substantially as set forth.

316,368. PAPER HOLDER AND CUTTER. CHARLES C. JOHNSON, Springfield, assignor to Horace W. Thompson, Westminster, Vt. Filed Sept. 29, 1884. (No model.)

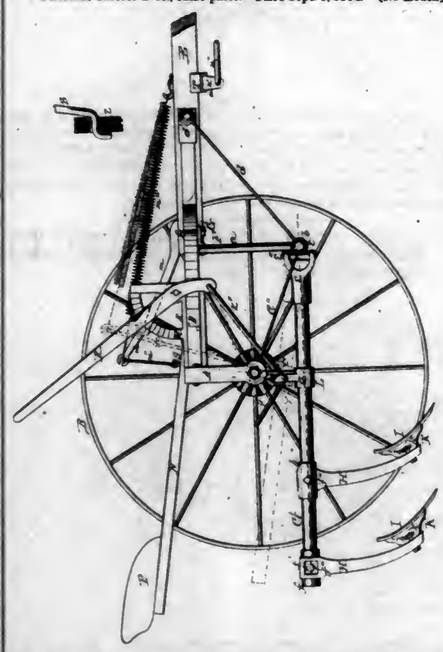


Claim.—1. The combination, with a cutter-bar adapted to rest on the roll of paper, and means for supporting the latter, a drag-bar arranged to rest upon the paper in rear of the back edge of the cutter bar or frame, and operating to throw and hold the free end of the web upwardly and away from the cutter, all substantially in the manner and for the purposes hereinbefore set forth.

2. The combination of a roll-supporting frame provided with slotted portions, a floating cutter-bar working in engagement with said slotted portions of the frame, and a drag-bar arranged in the rear of the back portion of said cutter-bar, all substantially as and for the purposes set forth.

3. In combination with the floating cutter-bar and the roll-supporting cutter-frame provided with slotted portion, a drag-bar pivoted to said cutter-bar, and also operating to effect the engagement of said cutter-bar with said slotted portions of the frame, all substantially as hereinbefore set forth.

316,369. CULTIVATOR. JAMES H. JONES, Rockford, Ill., assignor to Emerson, Talcott & Co., same place. Filed Sept. 8, 1884. (No model.)



Claim.—1. The combination, with the triangular frame consisting of the grooved axle-arms, and the axle-tree, curved bounds, and tongue, of a crank draft-bar, and braces connecting the draft-arms of said bar to the axle-arms and to stud-supports projecting laterally from the tongue, substantially as set forth.

2. The combination, with the main frame and with the cross-head fixed thereto, and having its rear edge of groove-clasp form, of a crank-formed draft-bar supported in the grooved cross-head, substantially as set forth.

3. The combination, with the segment-ratchet, and with a hand-lifting lever having a pivotal connection therewith, of an obliquely-arranged spring connected with the axial center of the ratchet and with the lever at a point rearward of its pivotal connection with the segment, substantially as and for the purpose set forth.

4. The combination, with the herein-described shovel-standard support, of a shovel-standard, said shovel-standard recessed on opposite sides to receive the standard-support, substantially as and for the purpose set forth.

5. The combination of a tubular or cylindrical drag-bar, a shovel-standard support with semi-tubular base to engage the drag-bar, a semi-tubular washer to engage the side of the drag-bar opposite the standard-support, a shovel-standard recessed to engage the standard-support, and a clamping-bolt extending through the parts to fix them in position on the drag-bar, substantially as and for the purpose set forth.

6. The combination, with the tubular or cylindrical drag-bar, of a socket-bracket placed thereon, and an eyebolt passed through the parts to fix the bracket in place, and as a connection to a cross-head of a center shovel, as and for the purpose set forth.

7. The combination, with the socket-bracket on the drag-bar, of a foot-lever, substantially as described, said foot-lever having a fulcrum-support in the socket-bracket and a link-connection with a lifting and holding lever, substantially as and for the purpose set forth.

8. The combination, with the main frame and with the drag-bar, of a socket-bracket fixed to the drag-bar, a foot-lever having its fulcrum-support in the socket-bracket, a hand-lever and a ratchet mechanism fixed to the supporting-frame, and a link connecting the foot-lever with the hand-lever, substantially as and for the purpose set forth.

9. The combination, with the socket-bracket fixed to the drag-bars, of an arched sway-bar to connect the drag-bars, said sway-bar fitted to engage the socket-brackets in a self-locking manner, and made adjustable to vary the distance between the drag-bars, substantially as and for the purpose set forth.

10. The combination, with the bracket-support having a fixed connection with the rear end of the tongue, of a lever-support pivoted to the free end of the bracket-support, capable of a limited upward swinging movement in the lengthwise direction of the cultivator, substantially as and for the purpose set forth.

11. The combination, with the arched sway-bar, and with the lever-support pivotally connected with a bracket-support on the tongue, of a link connecting the sway-bar to the pivoted support, substantially as and for the purpose set forth.

12. The combination, with the lever-support pivotally connected with the bracket-support on the tongue, of a lifting and supporting spring connecting the free end of the supporting-lever and with the forward portion of the tongue, substantially as and for the purpose set forth.

13. The combination, substantially as herein described, of a sway-bar connecting the drag-bars, a link connecting the sway-bar with a pivoted supporting-lever, and a lifting and supporting spring connecting the supporting-lever with the main frame, substantially as and for the purpose set forth.

14. In a cultivator, the herein-described evener, consisting of a central portion having a pivotal connection with the tongue, and provided with inclined end sockets, bent lever-arms fitted to the end sockets of the central portion, and outer ends fitted for the connection of single-trees, said lever-arms made reversible to produce a high or low draft, substantially as and for the purpose set forth.

15. In a cultivator, the combination, with a seat made adjustable lengthwise of the machine, of an evener having bent lever-arms made reversible, substantially as and for the purpose set forth.

316,370. CHECK-REIN CLASP. HAYMAN P. KENT, Providence, R. I., assignor to himself and Thomas W. Rounds, same place. Filed Nov. 21, 1884. (No model.)



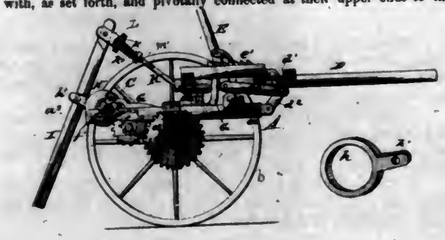
Claim.—1. In a check-rein locking-clasp, the combination of the hinged or pivoted jaws and means for locking the same in a holding position with the elastic bearing-pieces adapted to embrace the water-hook of a harness, substantially as described.

2. In a check-rein locking-clasp, the combination of the hinged or pivoted jaws, the bearing-pieces for the water-hook, the locking-hook pivoted to one of the jaws, and the spring adapted for holding the locking-hook in catch engagement with the opposite jaws of the clasp, substantially as described.

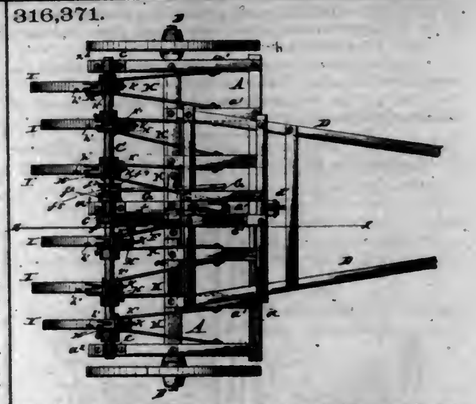
3. In a check-rein locking-clasp, the combination of the jaw E, provided with the pivoted hook F, with the jaw D, provided with two or more catch projections, whereby the clasp is adapted for water-hooks of different sizes, substantially as described.

316,371. HAY-TEDDER. WILLIAM E. KNOX, Springfield, assignor of one-half to James P. Martindell, Clark County, Ohio. Filed June 24, 1884. (No model.)

Claim.—1. The combination, in a hay-tedder, with the main frame, of the shaft C, carrying the alternate oppositely-directed fixed eccentrics provided with circumferential grooves, the tedder-arms connected therewith, as set forth, and pivotally connected at their upper ends to the



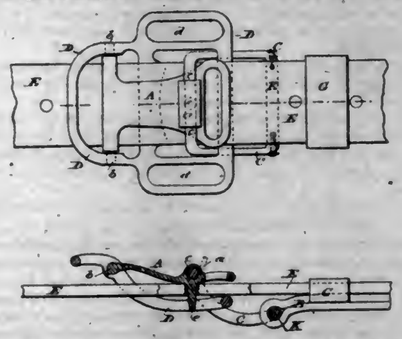
316,371.



main frame by the rods K, and the springs interposed between the stops *k* on the rods K and the nuts on the stems of the forked castings L, secured to the tedder-arms, substantially as shown and described.

2. The combination, with the main frame, of the thills pivoted at their rear ends thereto, near the middle thereof, and their cross-bars connected to the forward portion of the said frame by means of the pivoted links, the rod connecting the said links with the hand-lever which is pivoted at its lower end to the tedder-frame, the said lever carrying a pawl or detent, and the thill-frame carrying a rack, whereby the said tedder-frame may be raised and depressed, substantially as specified.

316,372. BUCKLE. ERNEST KRAFT, Hamilton, Ontario, Canada, assignor to Adolphus Kraft, same place. Filed Nov. 20, 1884. (No model.)



Claim.—1. In a trace-buckle, the combination, with the lever C, of the tongue-plate having an open socket to form a hinge for the cross-bar of such lever, substantially as specified.

2. In a trace-buckle, the combination, with the lever C, of the tongue-plate having an open socket to form a hinge for the cross-bar of such lever, and the frame D, having open sockets which are adapted to be closed after introduction of the tongue-plate to form its journals, all constructed as shown and specified.

3. In a trace-buckle, the combination of the lever C, provided with the bar K at one end, and hinged to the tongue-plate A at its opposite end, with the frame D, and arranged to raise and lower the tongue *e*, in the manner shown and set forth.

4. In the trace-buckle herein described, the combination of the lever C, attached to the tongue-plate A, as shown, with the frame D, to which the tongue-plate is journaled, and the tongue *e*, all constructed as and for the purpose specified.

316,373. COLORED LEAD FOR PENCILS. SAMUEL KRAUS, New York, N. Y., assignor to the Eagle Pencil Company, same place. Filed Mar. 5, 1885. (No specimens.)

Brief.—Composition consists of coloring-matter, ten pounds; talc or soapstone, five pounds; potter's clay, ten pounds. This composition is to be boiled in fat or oil.

Claim.—1. A colored pencil-lead made and possessing the characteristics substantially as hereinbefore set forth.

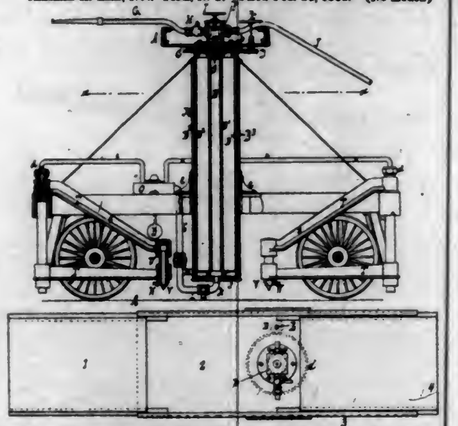
2. The improvement in the manufacture of colored pencil-leads, consisting in molding the same from a composition of the kind hereinbefore described, drying and baking the molded article, and subsequently boiling it in fat or oil, substantially as set forth.

316,374. ARTIFICIAL SLATE-PENCIL. SAMUEL KRAUS, New York, N. Y., assignor to the Eagle Pencil Company, same place. Filed Mar. 5, 1885. (No specimens.)

Brief.—Composition consists of coloring-matter, ten pounds; talc or soapstone, five pounds; potter's clay, ten pounds.

Claim.—As a new manufacture, a colored slate-pencil made and possessing the characteristics substantially as hereinbefore set forth.

316,375. FIRE-ESCAPE AND WATER-TOWER COMBINED. CHARLES A. LEE, New York, N. Y. Filed Feb. 28, 1885. (No model.)



Claim.—1. The combination, with a wagon-frame or other structure, of the automatic leveling device above described, and the feet V, constructed and arranged so as to be extended by the pressure of a column of water on the principle of the hydraulic ram, substantially as above described.

2. The combination of the automatic leveling device, the pipes S, arms T, and the extensible feet V, operated by the pressure of a column of liquid or fluid, substantially as described.

3. The combination of the outer stationary tube, B^3, the interior stationary tube, B', the fluid-tube B, sliding vertically within the interior tube, the valve F at the upper end of the said fluid-tube, the fluid-supply pipe J, the hose-pipe G, and the platform A, substantially as described.

4. The combination of the tubes B B', arranged to be moved one upon the other by fluid-pressure, the platform A, the valve F, the supply-pipe J, the pipe K, connecting with the tubes, the automatic leveling device, substantially as described, the feet V, and the wagon frame or structure, essentially as set forth.

5. The combination of the valve-chamber O, the valve P, the sleeve *b*, for opening the valves, and the pendulum Y, with the wagon frame or structure, the sliding feet V, and pipes connecting the valve-chamber with the feet for leveling the wagon frame or structure, substantially as described.

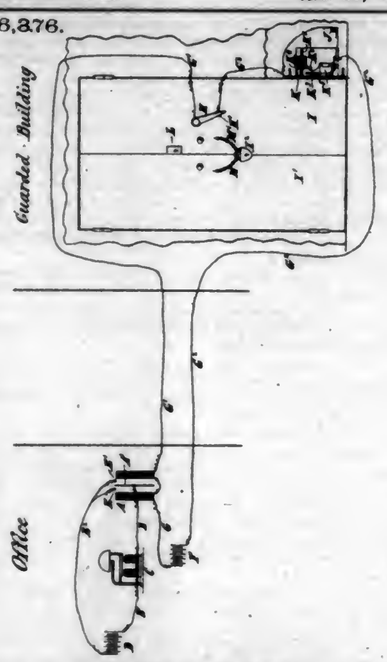
6. The sleeve *b*, in combination with the pendulum Y and the valves P of the pendulum-valve, substantially as described.

316,376. ELECTRIC BURGLAR-ALARM. FRANK G. LYON, Jersey City, N. J., assignor to the Holmes Electric Protective Company, New York, N. Y. Filed Sept. 29, 1884. (No model.)

Claim.—1. The combination of an electric circuit extending between a guarded building and an office where watchmen are kept, a door or like article in the guarded building, a lock, bolt, or analogous fastening for the door or like article, a circuit-closing device operating to fulfill its function when the door or like article is opened partially, a chain preventing the door or like article from being opened sufficiently wide to admit a burglar, but made of such length that the force by which the lock, bolt, or analogous fastening of the door or like article may be broken will not act to break the chain, and of such length that it will permit the door or like article to be opened wide enough for the circuit-closing device to operate, substantially as specified.

2. The combination of an electric circuit extending between a guarded building and an office where watchmen are kept, a door or like article in the guarded building, a lock, bolt, or analogous fastening for the door or like article, a circuit-closing device operating to fulfill its function when the door or like article is opened partially, a chain comprising swivels and preventing the door or like article from being opened sufficiently wide to admit a burglar, but made of such length that the force by which the lock, bolt, or analogous fastening of the door or like article may be broken will not act to break the chain, and of such length that it will permit the door or like article to be opened wide enough for the circuit-closing device to operate, substantially as specified.

316,376.



316,377. CONVEYER FOR EXCAVATORS, DREDGERS, &c. MICHEL MAROLLE, Paris, France. Filed Jan. 29, 1885. (No model.) Patented in England May 22, 1884, No. 8,097.



Claim.—1. The conveyer composed of the overhanging beam or girder, and the endless steel band or apron traveling over drums and rollers on said beam or girder, and adapted to receive and transport earth and like material, substantially as described.

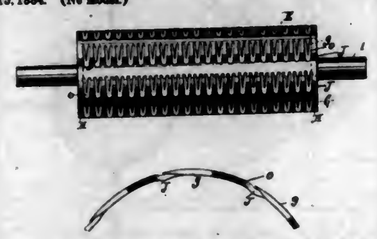
2. The combination, with an excavator or similar apparatus—such as a dredger or elevator—of a conveyer having an endless steel belt or apron onto which the material excavated or lifted is delivered by said excavator or dredger, substantially as described.

3. The combination of the beam or girder, the endless steel conveyer, belt or apron thereon, and the vehicle or vehicles supporting said parts, substantially as described.

4. The conveyer with endless steel belt or apron having the special disposition and arrangement of parts hereinbefore described.

5. The conveyer comprising, in combination, an overhanging beam or girder, a vehicle to which the same is pivoted, so as to swing laterally, a movable support between the pivot and the outer end of the beam or girder, and the endless steel belt or apron, adapted to receive and transport earth and like material, traveling over drums and rollers on said beam or girder, substantially as described.

316,378. COTTON-GIN. CHARLES T. MASON, Jr., Sumter, assignor to the Mason Cotton Gin Cylinder Company, Charleston, S. C. Filed Nov. 15, 1884. (No model.)

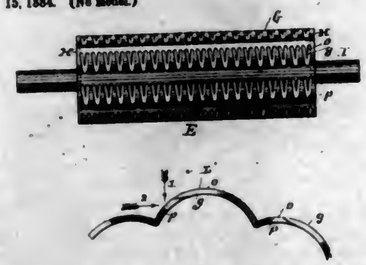


Claim.—1. A cotton-ginning cylinder having in its periphery openings, and a tooth in each opening lying in a circumferential direction, the said tooth having its body conforming to the curve of the periphery and its point at the level of the general surface thereof, and a shallow recess or depression in said periphery in front of the point of said tooth, substantially as described.

2. A cotton-ginning cylinder having in its periphery a series of openings, and a tooth in each of said openings lying in a circumferential direction, the said tooth having its body conforming to the curve of the periphery and its point at the level of the general surface of the cylinder, and a shallow recess or depression in said periphery extending longitudinally across the cylinder and in front of the points of the series of teeth, substantially as described.

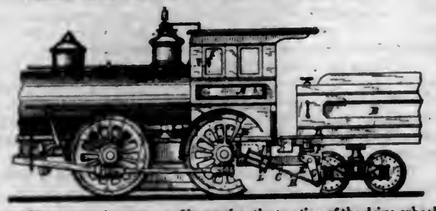
3. A cotton-ginning cylinder having a sheet-metal periphery, G, containing rows of openings *o* and contained teeth *g*, and longitudinal recesses or depressions J in said periphery extending in front of the points of said teeth, substantially as described.

316,379. COTTON-GIN. CHARLES T. MASON, Jr., Sumter, assignor to the Mason Cotton Gin Cylinder Company, Charleston, S. C. Filed Nov. 15, 1884. (No model.)



Claim.—A cotton-ginning cylinder having a longitudinally-corrugated periphery of sheet metal, and in each corrugation a series of slots, each slot containing a tooth formed of the metal of said periphery, and having its point at about the level of the circumjacent surface of said periphery, substantially as described.

316,380. TRACTION-INCREASER FOR LOCOMOTIVES. GEORGE P. MERRILL, Toledo, Ohio. Filed Feb. 11, 1885. (No model.)

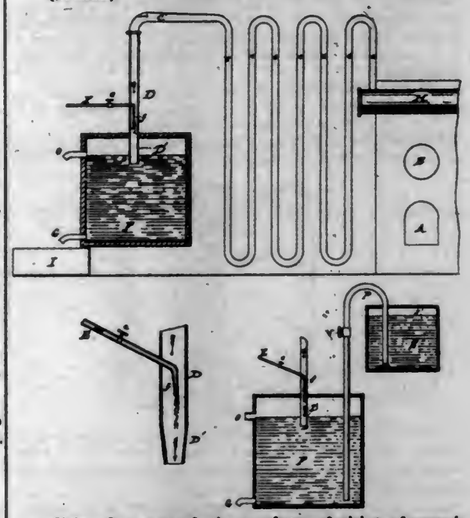


Claim.—1. As a means of increasing the traction of the drive-wheels of a locomotive-engine, the detachable frame consisting of the rails and the cross-pieces by which they are connected and secured in place, the said frame extending from a point in rear of the axle of the rear pair of drive-wheels a short distance to a position in advance of the axle of the forward wheels of the tender, the lever pivoted to the frame, and the operating-cylinder, substantially as described.

2. As a means for increasing the traction of the drive-wheels of a locomotive-engine, the rigid detachable frame situated beneath the cab in rear of the axle of the rear pair of drive-wheels and extending a short distance beneath the tender, in combination with the tender provided with the block E, the lever G, and the operating-cylinder.

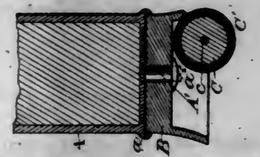
3. As a means of increasing the traction of the drive-wheels of a locomotive, the rigid detachable frame consisting of the parallel rails having the cross-pieces M, whose ends extend upward for attachment to the bottom of the cab, the said frame extending from a point in rear of the axle of the rear pair of drive-wheels to a point in advance of the axle of the forward pair of wheels of the tender, the operating-cylinder connected with the boiler by a pipe, as described, and the lever, all substantially as set forth.

316,381. APPARATUS FOR THE MANUFACTURE OF AMMONIUM SULPHATE. CORD MEYER, Jr., Mapoth, N. Y. Filed Nov. 16, 1882. (No model.)



Claim.—In apparatus for the manufacture of sulphate of ammonia, the combination of the hydraulic main H, purifier-coil C C, induction-pipe D, having a high-pressure steam-injector, E, inserted in it, and its lower end immersed in the acid liquor contained in a closed tank, F, said tank F, overflow-pipe O, outlet-pipe G, and receiving-vessel I, all substantially as shown and described.

316,382. CASTER. SIGMUND M. MICHELSON, Milwaukee, Wis. Filed Oct. 15, 1884. (No model.)

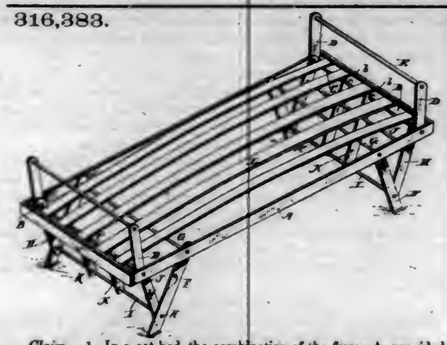


Claim.—1. In a furniture-caster, the combination of the revolving shell or cup B, cut away at one side, as shown, the axle *c*, and the roller C, projecting below the bottom of the shell, and also laterally beyond the cut-away face thereof, substantially as set forth.

2. In a furniture-caster, the combination of the furniture leg or socket A, having downward-projecting circular flange *a*, with the revolving inverted open-bottomed cup or shell B, having upper surface flush with the bottom of the leg or socket A, and outwardly-flaring or bell-shaped sides, the part B being secured to the part A by the pin A', having head a^2, and the upper part of the cup B filling up the space made by the flange *a* below the bottom of the part A, the axle *c*, having bearing within the periphery of the cup B, and the roller C, mounted on said axle and extending out beyond the vertical line of the top of the said cup, substantially as set forth.

316,383. COT-BED. WILLIAM H. MOORE, Gardiner, Me. Filed July 30, 1884. (No model.)

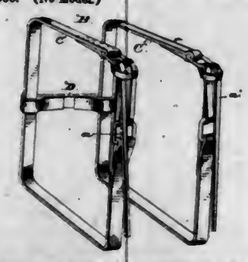
316,383.



Claim.—1. In a cot-bed, the combination of the frame A, provided with pivoted head and foot boards, notched end pieces, B B, and spring-slats, the legs pivoted to slat-bearing rods G G, the hooked side braces pivoted to rods I I, the connecting spring-rods J J, the notched struts K K, and the rods C, all constructed and adapted to operate substantially as described.

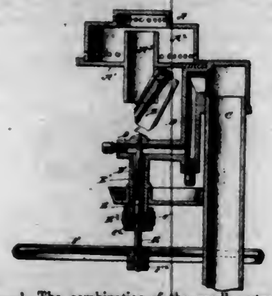
2. The combination of the pivoted legs, the hooked braces, and notched struts with the rods I J C and a cot-frame, as described.

316,384. TRUNK-STRAP. WILLIAM J. MUNCEY, Gunnison City, Colo. Filed Feb. 26, 1885. (No model.)



Claim.—The trunk-strap described, consisting of the straps C C', carrying rings at their ends, thongs of flexible leather secured to the rings at one end of the strap, and the guide-strap D, connecting the said straps C C', substantially as set forth.

316,385. HYDROCARBON-VAPOR BURNER. GARSON MYERS and JACOB B. WALLACK, Chicago, Ill., assignors to Myers Manufacturing Company, same place. Filed May 16, 1884. (No model.)

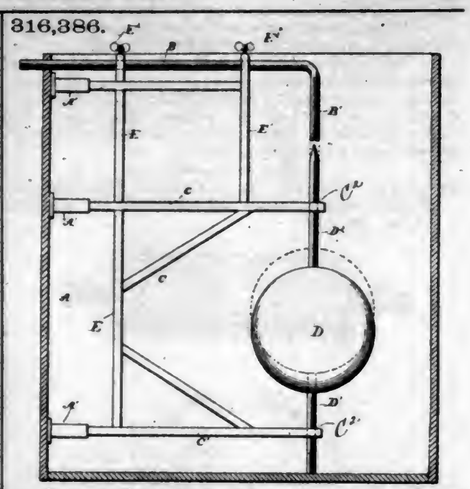


Claim.—1. The combination of the needle-valve having on its shaft a quick or high pitched screw-thread, a wheel adjustably secured to the valve-shaft, and a neighboring stationary part of the apparatus engaging the wheel, substantially as described.

2. The combination, with the stationary liquid-pipe, and the neighboring needle-valve provided with a high-pitched screw-thread, of a wheel adjustably secured to the valve-shaft and embracing the liquid-tube, substantially as described.

3. The combination, with the stationary liquid-pipe, and neighboring valve-shaft provided with a high-pitched screw-thread, of a wheel, F, having an open space embracing said liquid-pipe and bearing the words "Open" and "Shut," or their equivalents, substantially as and for the purpose set forth.

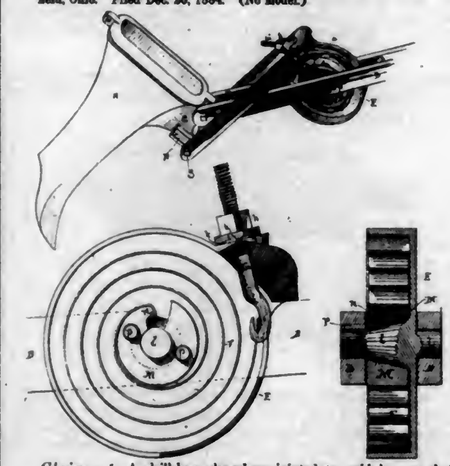
316,386. AUTOMATIC CUT-OFF. GEORGE W. PARKER, New Richmond, Ohio. Filed Aug. 7, 1884. (No model.)



Claim.—1. The combination of the supply-pipe having a pendent arm or end, the float held in proper guides and movable vertically below the said end, and a valve-rod projected upward from said float and made in sections, whereby the parts of same may be interchanged with ones of different length, and the supply be automatically shut off when the tank has been filled to different points, substantially as set forth.

2. The combination of the tank, the supply-pipe, the float-supporting frame arranged in the tank and adjustable laterally, substantially as described, and the float provided with a valve-rod, and supported and movable with said frame, substantially as and for the purposes set forth.

316,387. SPRING-HOE SEED-DRILL. CHARLES E. PATRIC, Springfield, Ohio. Filed Dec. 20, 1884. (No model.)



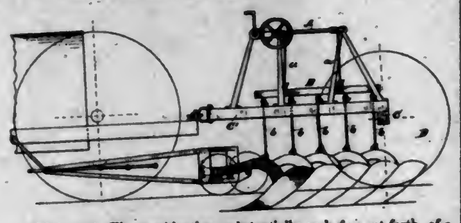
Claim.—1. A drill-hoe, drag-bars jointed to said hoe at their rear ends, a flat-coiled tension-spring, a cylindrical spring-case therefor, pivoted to said side bars, and tension-links connecting said spring-case with said drill-hoe below its hinge-joint with the drag-bar, combined with a tension-hook, and a screw-bolt seated in the periphery of the spring-case and connected with the outer end of the spring, whereby it may be drawn out or relaxed to adjust its tension, as set forth.

2. The coiled spring attached at its outer end to the tension-hook bolt provided with a screw-thread and a radially-serrated nut, combined with the spring-case provided with a radially-serrated seat for said nut, whereby said nut may be freely turned to adjust the tension of said spring, but securely held from turning backward under the action of the drill-hoe.

3. The flat coiled spring and the cylindrical spring-case provided with an interior axial pivotal hub or stud, combined with the loose spiral hub provided with locking-studs, whereby it is connected with the drag-bar, as set forth.

4. The drill-hoe having the slot provided with transverse serrations on its margins, combined with the coupling-plates, each of which is provided with a central rib adapted to enter and fit said slot, marginal ribs adapted to enter and engage said serrations, and a hollow stud adapted to form a bearing or joint with the tension-link and admit an axial clamping-bolt which binds the whole together at any point of adjustment desired.

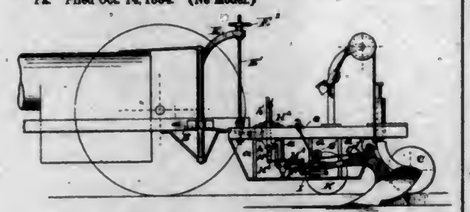
316,388. STEAM GANG-PLOW. EDGAR PENNEY, Waynesborough, Pa. Filed Oct. 14, 1884. (No model.)



Claim.—1. The combination, substantially as before set forth, of a traction-engine, a gang of plows hitched thereto, an independent truck, also hitched to the traction-engine, and a hoisting apparatus on said truck for hoisting the plows.

2. The combination, substantially as before set forth, of a traction-engine, a gang of plows hitched thereto, and an independent truck, also hitched to the traction-engine, carrying tanks for water and fuel, as well as a hoisting apparatus for hoisting the plows.

316,389. STEAM GANG-PLOW. EDGAR PENNEY, Waynesborough, Pa. Filed Oct. 14, 1884. (No model.)



Claim.—1. The combination, substantially as before set forth, of a traction-engine, the plow-frame of a gang-plow, and the loose hanger for suspending the forward end of said plow-frame at one side from said engine.

2. The combination, substantially as before set forth, of a traction-engine, the plow-frame of a gang-plow, and a crane-post and suspension-rod for suspending the forward end of said plow-frame at one side from said engine.

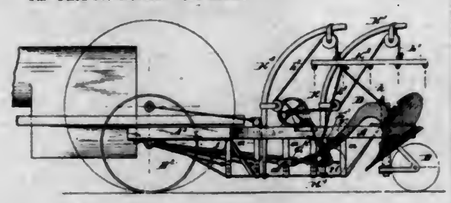
3. The combination, substantially as before set forth, of a traction-engine, the plow-frame of a gang-plow supported at its rear end on a caster-wheel, the loose hanger for suspending the forward end of said plow-frame at one side from said engine, and the crane-post and suspension-rod for suspending said forward end of the plow-frame at the other side from said engine.

4. The combination, substantially as before set forth, of the trussed hitching-beam, the sleeve on a strut thereof, the draw-head for coupling a plow-beam to said sleeve, and the hand-lever for adjusting the sleeve on the strut.

5. The combination, substantially as before set forth, of the trussed hitching-beam, the sleeve on a strut thereof, the draw-head for coupling a plow-beam to said sleeve, the elbow-lever fulcrumed on the draw-head and carrying a gage-wheel, and the hand-lever connected with the sleeve as well as with the said elbow-lever.

6. The combination, substantially as before set forth, of a plow hitched to the hitching-beam, the lifting rope or chain fastened at one end to the plow-frame and provided with a stop-collar, the sheave-pulleys on the hitched plow, and the guide-eye on the plow-beam.

316,390. STEAM GANG-PLOW. EDGAR PENNEY, Waynesborough, Pa. Filed Oct. 14, 1884. (No model.)



Claim.—1. The described self-supported main frame of a gang-plow designed to be drawn by a traction-engine, the distinguishing characteristic of which frame consists in being forked at the front and having said forked end supported on ordinary wheels, (not caster-wheels,) the axis of which lies in the vertical plane, or thereabout, of the axis of the rear axle of the traction-engine when applied thereto, substantially as before set forth.

2. The combination, substantially as before set forth, of the draft-rod, the slotted clip supported on the strut of the truss of the diagonal hitching-beam, the coupling-link carrying an adjustable gage-wheel, and the extension on the end of the plow-beam, which extension consists of two parts, one adjustable on the other, for canting the plow.

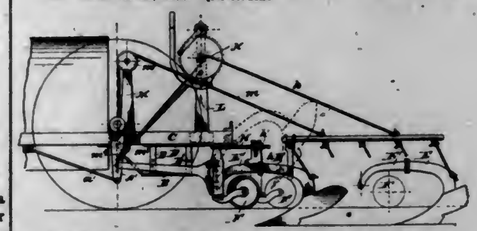
3. The combination, substantially as before set forth, of the diagonal lifting-bar, the ropes for connecting the rear ends of the plows with the lifting-bar, and the loop ropes or chains for connecting the front ends of the plows with the lifting-bar.

4. The combination, substantially as before set forth, of the draft-rod, the slotted clip supported on the strut of the truss of the diagonal hitching-beam, the coupling-link, and the plow-beam.

5. The combination, substantially as before set forth, of the coupling-link, the plow-beam, and the extension for connecting the plow-beam to the coupling link, said extension consisting of two parts, the shank of one and fork of the other of which are respectively eccentric to their circular heads, so that by giving a half-turn to either or both said parts of the extension the plow-beam may be shifted laterally with reference to the coupling-link.

6. The combination, substantially as before set forth, of the diagonal hitching-beam, the two crane-posts secured thereto, the hoisting-ropes, and the windlass located on said hitch-beam at a point between the crane-posts.

316,391. STEAM GANG-PLOW. EDGAR PENNEY, Waynesborough, Pa. Filed Oct. 14, 1884. (No model.)



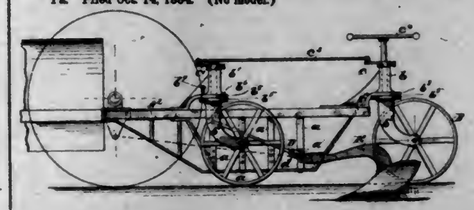
Claim.—1. The combination, substantially as before set forth, of a traction-engine the rear axle of which is provided, outside of the wheels, with downwardly-projecting arms, and a diagonal gang of plows spanning a wider area than that straddled by the rear wheels of the traction-engine, the end plows being connected with the arms of the aforesaid rear axle and the intermediate plows to the traction-engine at points between its rear wheels.

2. The combination, substantially as before set forth, of a traction-engine the rear axle of which is provided, outside of the wheels, with downwardly-projecting arms, the diagonal truss secured under the rear end of the frame of the traction-engine, a rod for connecting the laterally-projecting receding end of the truss to one of said arms, a diagonal gang of plows spanning an area wider than that straddled by the rear wheels of the traction-engine, and coupling-links provided with supporting-trucks at their rear ends for connecting the advance end plow to the other one of said arms and the remaining plows to the said diagonal truss.

3. The combination, substantially as before set forth, of the goose-necked plow-beam, the coupling-link for hitching it, and the caster-wheel truck carried by the coupling-link, as described, so that the wheel runs under the goose-neck of the plow-beam.

4. The combination, substantially as before set forth, of the coupling-link supported on a truck at its rear end, a plow-beam pivoted to said coupling-link, and a lifting-arm on said link, whereby the plow in lifting it will strike the said lifting-bar and lift the coupling also.

316,392. STEAM GANG-PLOW. EDGAR PENNEY, Waynesborough, Pa. Filed Oct. 14, 1884. (No model.)

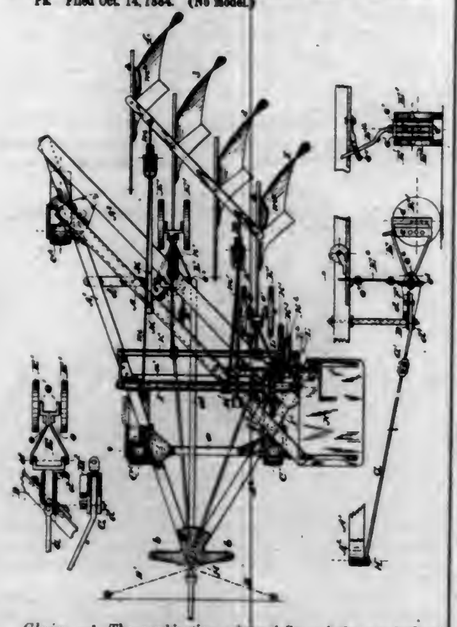


Claim.—1. The combination, substantially as before set forth, of the plow-frame, the diagonal gang of plows hitched thereto, and the wheels for supporting the rear end of the plow-frame, the said wheels being arranged to run abreast with the plowshares of the diagonal gang of plows.

2. The combination, substantially as before set forth, of the traction-engine, the plow-frame having a forked forward end directly attached to extension ends of the rear axle of the traction-engine, the diagonal gang of plows hitched to said plow-frame, and the wheels for supporting the rear end of the plow-frame, the said wheels being arranged to run abreast with the plowshares of the diagonal gang of plows.

3. The combination, substantially as before set forth, of the trussed hitching-beam, a strut thereof provided with a vertical series of holes, the draft-rod forked to embrace the strut, and having elongated longitudinal slots in the arms of its fork for the passage of a pin supporting it on the strut, and the plow-beam pivoted to the outer end of the fork of the draft-rod.

316,393. STEAM GANG-PLOW. EDGAR PENNEY, Waynesborough, Pa. Filed Oct. 14, 1884. (No model.)

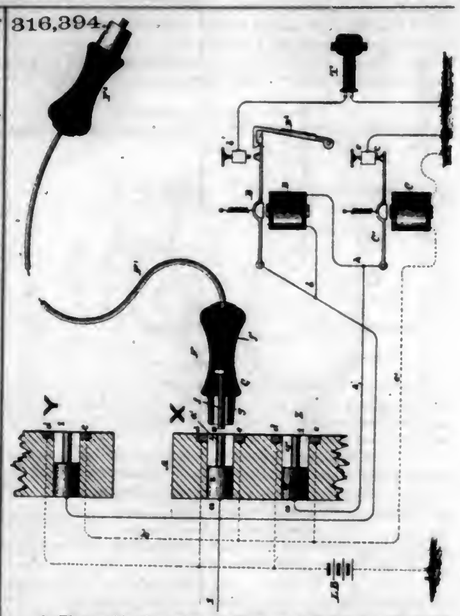


Claim.—1. The combination, substantially as before set forth, of the diagonal trussed hitching-beam, a diagonal gang of plows, and coupling devices, substantially such as described, for connecting the plow-beams with the truss of the hitching-beam.

2. The combination, substantially as before set forth, of a plow-beam, the coupling-link for connecting the plow-beam with the main frame, and a vertically-adjustable gage-wheel on the coupling-link.

3. The combination, substantially as before set forth, of a gang of plows, a winding-shaft provided with a spur-wheel and connected by ropes or chains with the front ends of the plows, a second winding-shaft, also provided with a spur-wheel and connected by ropes or chains with the rear ends of the plows, and a single endwise-movable pinion adapted to drive said winding-shafts either separately or conjointly.

316,394. MULTIPLE SWITCH-BOARD. THOMAS J. PERRIN, Brooklyn, assignor to Charles P. Huntington, New York, N. Y. Filed Oct. 3, 1884. (No model.)



Claim.—1. The combination, in a switch-board, of a main line, its terminal on its particular board, a normal ground-connection for said main line, a magnet included in said main line, the armature of said magnet also connected with the main line, its contact-stop toward which it is normally drawn, operator's instruments connected with said contact, and means, substantially such as described, for breaking the normal earth-connection of the line.

2. The combination of a main line, a normal ground-connection for the line, a magnet included in the line, the armature of said magnet also connected with the line, the contact-stop of the armature, toward which it is normally drawn, and operator's instruments connected with the contact-stop.

3. The combination, substantially as set forth, in a multiple switch-board, of a main line, its terminal connections on the several boards, an annunciator-coil included in said line at its particular board, the annunciator latch or drop, the annunciator-armature, and the contact of the operator's instruments, toward which said armature is normally drawn.

4. The combination, in a multiple switch-board, of a main line, its terminal connections on the several boards, an annunciator in the main line at its particular board, the operator's instruments, and line-contact, and the annunciator-armature or circuit-completing lever connected with the main line, which lever normally tends to complete the line-circuit through the operator's instruments, but is prevented from doing so whenever a calling-signal is received over the line.

5. The combination, in a multiple switch-board, of a main line, its terminal connections on the several boards, the operator's instruments at its particular board, the annunciator included in the line at said board, which annunciator prevents the circuit from being completed through the operator's instruments as long as a calling-signal is being received over the line, but permits the circuit to be completed when said calling-signal ceases, the local circuit, its contacts at the several terminals of said line, and the ground-relay.

6. The combination, in a multiple switch-board, of a main line, its terminal plugs or contact-pieces on the several boards, a local circuit which runs to the several terminals and is there merely connected with insulated local-circuit contacts, the annunciator in the main line at its particular board, the operator's instruments, and the ground-relay included in said local circuit.

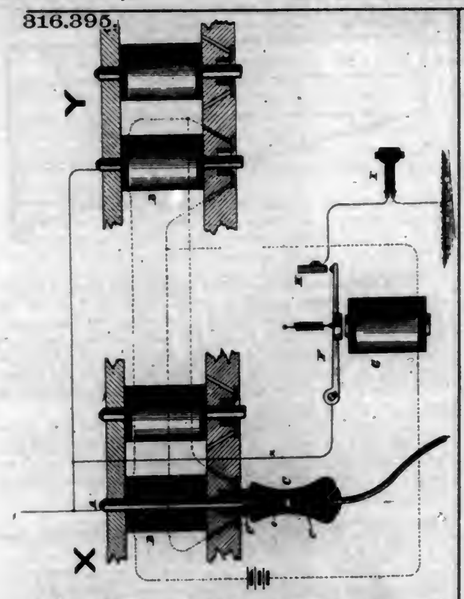
7. The combination, substantially as set forth, of the several sections of a multiple switch-board, the terminal plugs Z for the main line, fixed in the boards, the reduced ends of said plugs, the local batteries, the contacts of the local batteries at each of said terminals, and the plugs formed with yielding pins *f* to make contact with the line-terminals Z and with collars *g* to complete the local circuits, whereby the main lines are connected and the local indicating-circuits completed when the terminals are plugged to.

316,395. MULTIPLE SWITCH-BOARD. THOMAS J. PERRIN, Brooklyn, assignor to Charles P. Huntington, New York, N. Y. Filed Oct. 6, 1884. (No model.)

Claim.—1. The combination, substantially as set forth, in a multiple switch-board, of a main line permanently connected with its terminals on the several boards, a magnet at each of said terminals, a local circuit in which the coils of all of said magnets are included, and plugs or line-connecting devices which complete said local whenever one of the main-line terminals is plugged to.

2. The combination, substantially as set forth, in a multiple switch-board, of a main line permanently connected with its terminals on the several boards, and normally directly connected with operator's instruments on its particular board, plugging or line-connecting devices, and an electro-magnet which automatically cuts the operator's instruments out of the line when the terminal of said line is plugged.

316,395.



3. The combination, substantially as set forth, in a multiple switch-board, of a main line, the several connections of said line on the several boards, operator's instruments with which the main line is normally connected at its particular board, a local circuit, contacts at each of said connections or terminals for completing the local circuit whenever the terminal of said line is plugged to, an electro-magnet for said line included in said local circuit, and devices, actuated by the said magnet whenever the local circuit is completed, to cut the operator's instruments out of the main line.

4. The combination, substantially as set forth, of a main line, its several connections or terminals on the several boards, an electro-magnet at each of said terminals, a local circuit which includes the coils of all of said electro-magnets, contacts for completing said local circuit at each terminal, plugging or line-connecting devices which complete said local circuit whenever the terminal of said line is plugged, an electro-magnet for said line, also included in said local circuit, operator's instruments normally connected with the main line at its particular board, and devices, actuated by the latter magnet when the local circuit is completed, which throw the operator's instruments out of the main line.

5. The combination, substantially as set forth, in a multiple switch-board, of a main line, its several connections or terminals on the several boards, an electro-magnet at each terminal, the core of which is connected directly with the main line, a local circuit which includes the coils of said magnets, the contacts of said local circuit at each terminal, and plugging or line-connecting devices, substantially such as described.

6. The combination, substantially as set forth, in a multiple switch-board, of a permanently unbroken main line, its several connections or terminals on the several boards, an electro-magnet at each of said terminals, a local circuit in which the coils of said magnets are included, the contacts of said local circuit at the several terminals, a contact with which the main line is permanently connected at each terminal, and plugging or line-connecting devices which complete the local circuit and make contact with said line contacts whenever the terminals of said line are plugged.

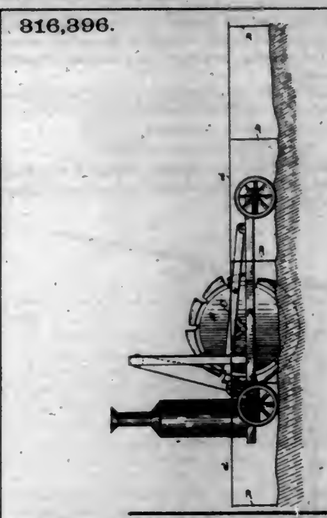
7. The switch-board plug herein described, constructed of a hollow handle of insulating material, an annular collar or circuit-completer rigidly secured around the nose or plugging end of the handle, a yielding contact-pin, and its spring carried within the handle, and the conducting-cord.

316,396. DITCHING-MACHINE. FAWCETT PLUMB, Streator, Ill. Filed Aug. 1, 1884. (No model.)

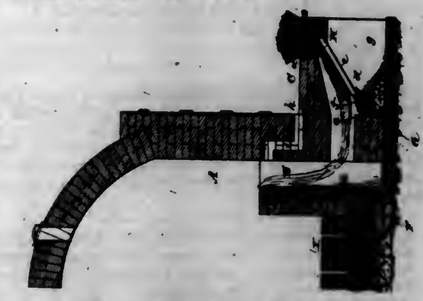
Brief.—A swinging excavator-wheel-carrying frame is adjusted by rope and windlass as required to maintain the relation of a pointer-arm to a grade-line mounted on stakes.

Claim.—In a ditching-machine, the combination, with a main frame mounted on wheels, a swinging frame pivotally secured to the main frame, an excavating-wheel mounted on the swinging frame, and ropes or chains and a drum for elevating the free end of the swinging frame, of a pointer rigidly secured to the swinging frame and grade-line secured to a row of stakes, substantially as set forth.

316,396.

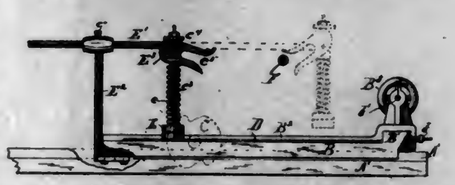


316,397. KILN FOR BURNING BRICKS, TILES, &c. FAWCETT PLUMB, Streator, Ill. Filed Jan. 8, 1885. (No model.)



Claim.—The combination, with a kiln having an enlarged base, of the vertical flues, the fire-boxes communicating with the vertical flues, the air-pipes entering the vertical flues below the fire-boxes, and the air-flues located outside of the fire-boxes and communicating with the vertical flues above the fire-boxes.

316,398. MACHINE FOR TRIMMING STEREOTYPE-PLATES. EDWIN E. PRATT and CHARLES S. PARTRIDGE, Chicago, Ill., assignors to the A. N. Kellogg Newspaper Company, same place. Filed May 17, 1884. (No model.)



Claim.—1. The machine for trimming the edges of stereotype-plates, consisting of a frame, a rotary cutter, and a reciprocating carriage or platen, said carriage being provided with a laterally-adjustable gage, a rear stationary guide, and a presser-foot, substantially as specified.

2. The cutter, the reciprocating carriage, the readily-adjustable gage, and the presser-foot and its lifting and releasing devices, all combined and operating substantially as specified.

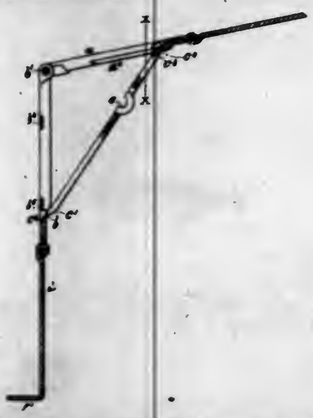
3. The combination, with the reciprocating carriage of a stereotype-trimming machine, of a presser-foot for holding the plate down upon the carriage, such presser-foot being supported upon and moving with the carriage, substantially as specified.

4. The combination, with the reciprocating carriage of a stereotype-trimming machine, of a presser-foot for holding the stereotype thereto, said foot being provided with a spring for depressing it, and a device, substantially such as shown, for lifting said foot, substantially as specified.

5. The combination, with the carriage of a stereotype-trimming machine, of a spring-depressed presser mounted on the carriage, a trigger-cam for raising and releasing the presser, and a stationary trip-arm, substantially as specified.

6. The combination, with the carriage of a stereotype-trimming machine, of the presser, the rod E', and bracket E², said rod being adjustable in the bracket, substantially as specified.

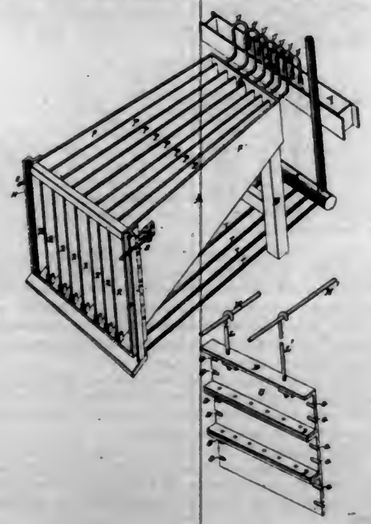
316,399. **BRACE-HINGE FOR TRUNKS.** FRANK H. RANSOM and AMOS W. SANGSTER, Buffalo, N.Y.; said Sangster assignor to said Ransom. Filed July 14, 1884. (No model.)



Claim.—A hinge for trunks, consisting of the parts *a a'*, each having secured thereto an angular strap, *e* and *f*, in combination with a brace having a curved end, *c'*, and a slight enlargement, *c²*, adapting it after being put in place and the hinge secured together to act as a joint and provided with a groove, *c*, to shut over the pin *b'* when closed, so that the brace may fit down in the groove and thereby leave a smooth surface, substantially as described.

316,400. **APPARATUS FOR REFRIGERATING PARAFFINE-OILS AND OTHER LIQUIDS.** HENRY H. ROGERS, New York, and CLARENCE VOSE, Brooklyn, assignors to the Pratt Manufacturing Company, New York, N.Y. Filed Dec. 19, 1884. (No model.)

Claim.—1. A refrigerating chamber or box slightly tapering in width from the front to the rear end, furnished with a door at its front end, and having its bottom inclining downward from the rear to the front, and its interior divided into a series of compartments by plane-surfaced hollow partitions communicating at bottom and top with a pipe or pipes for the introduction and outflow of the refrigerating liquid or fluid into and out of the partitions, substantially as and for the purpose described.



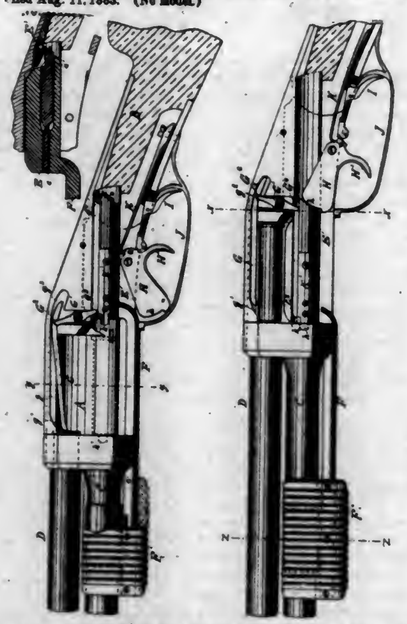
316,400.



2. A refrigerating chamber or box furnished with a door at its front end, having its bottom inclined downward toward the front end and divided into compartments by vertical plane-surfaced partitions extending longitudinally from front to rear, said partitions being hollow and furnished with strips so placed as to form a tortuous internal passage communicating at bottom and top with a pipe or pipes for the passage through the partitions of a refrigerating liquid or fluid, substantially as and for the purpose described.

3. A refrigerating chamber or box furnished with a door at one end, and either covered on top or not, divided into compartments by vertical plane-surfaced hollow partitions extending from end to end, arranged for a refrigerating liquid or fluid to pass or circulate through them, substantially as described.

316,401. **MAGAZINE FIRE-ARM.** SYLVESTER H. ROPER, Boston, Mass. Filed Aug. 11, 1883. (No model.)



Claim.—1. In a magazine fire-arm, a piston-breech suitably connected to and in combination with an actuating sliding handle situated forward of the receiver and serving as a means for supporting the barrel, and provided with a path of reciprocation in a line parallel with the axial line of the barrel.

2. In a magazine fire-arm, the combination of a piston-breech, a supporting-handle forward of the receiver and movable in the direction of the length of the barrel, means connecting the handle and piston-breech, and means whereby the piston-breech will be held in position during firing, substantially as specified.

3. In a magazine fire-arm, the combination of a piston-breech, a supporting-handle forward of the receiver, and means connecting the piston-breech and supporting-handle, so that when the supporting-handle is used the piston-breech will be moved in the same direction, substantially as specified.

4. In a magazine fire-arm, the combination of a piston-breech, a supporting-handle forward of the receiver movable in the direction of the length of the barrel, and means whereby, when the said supporting-handle is moved back and forth, motion will be transmitted to the piston-breech so as to cause the latter to move back and forth, substantially as specified.

5. In a magazine fire-arm, the combination, with a barrel and a tubular magazine, of a piston-breech, a device whereby the passage of a cartridge from a point opposite the magazine to a point opposite the barrel will be effected, and a supporting-handle forward of the receiver adapted to move in the direction of the length of the barrel to operate the piston-breech and to operate the device whereby the passage of a cartridge from the magazine to a point opposite the barrel is effected, substantially as specified.

6. In a magazine fire-arm, the combination, with a barrel, a superposed magazine, and a receiver, of a piston-breech, a finger whereby a cartridge ejected from the magazine will be caused to descend to the bottom of the receiver opposite the barrel, and a supporting-handle forward of the receiver adapted to move in the direction of the length of the barrel, substantially as specified.

7. The combination, with a barrel and magazine, of the piston-breech E, a supporting-handle, F', for reciprocating the same, situated forward of the receiver, the rocker G', deriving motion from the piston-breech, and the finger G, serving to relieve a cartridge which has been ejected from the magazine from the thrust of the magazine-spring, substantially as set forth.

8. In a magazine fire-arm, the combination, with a barrel and magazine, of a piston-breech, a supporting-handle situated forward of the receiver, for reciprocating the piston-breech in the direction of the length of the barrel, and a device operated by the piston-breech and serving to cause the passage of a cartridge from a point opposite the magazine to a point opposite the barrel, substantially as specified.

9. In a magazine fire-arm, the combination, with a barrel, a magazine, and a receiver, of a piston-breech, a supporting-handle situated forward of the receiver and adapted to reciprocate the piston-breech in the direction of the length of the barrel, and a cover for the receiver operated by the movement of the piston-breech, substantially as specified.

10. The combination, with the barrel C, magazine D, and receiver A, of the piston-breech E, a supporting-handle situated forward of the receiver and adapted to reciprocate the piston-breech in the direction of the length of the barrel, and the cover L, substantially as specified.

11. The combination of the piston-breech E, the firing-pin *e*, provided with the notch *e'*, the rocker E', and the recess in the stock, which receives the rear end of the piston-breech at the conclusion of its backward excursion, substantially as and for the purpose set forth.

316,402. **PENCIL OR CRAYON HOLDER.** MAX RUBIN, Philadelphia, Pa. Filed Sept. 20, 1884. (No model.)

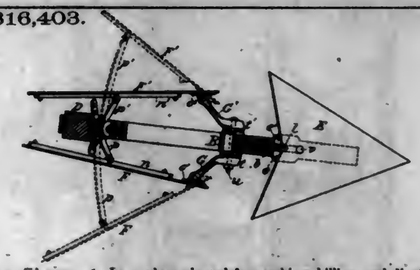


Claim.—1. As an improved article of manufacture, a pencil or crayon holder consisting, essentially, of the handle A, the tube B, attached to the lower end of the handle, and having its lower end slotted, as described, the sleeve C, constructed to slide on the handle, and having its lower end contracted, and a spring, F, extending diagonally across said contracted portion, whereby when the said clamp is slid down the spring will prevent the lead from dropping out, and when the clamp is slid up the lead will be exposed and clamped in place, substantially as set forth.

2. The combination, with a crayon or pencil holder having a split or slotted lead-tube fixed thereto, of a sliding sleeve mounted on the lower end of the holder, the lower end of the sleeve being contracted or made conical, and a spring extending diagonally across the open lower end of the sleeve, substantially as set forth.

3. The combination, with the holder A, having a bead, D, around its lower end, and the split or slotted tube B, of the sleeve C, mounted to slide on the holder, and formed with an inward-projecting flange, H, at its upper end, and having its lower end contracted, and a spring extending diagonally across the lower open end of said tube, substantially as set forth.

316,403.



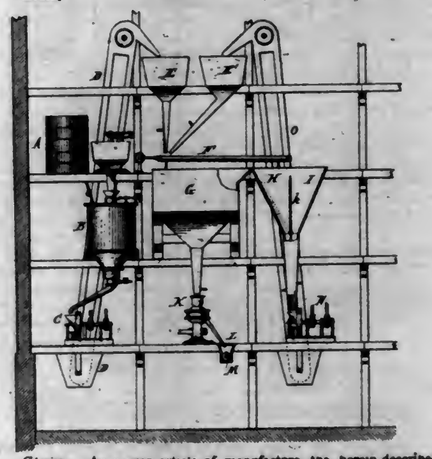
Claim.—1. In a plow adapted for marking, hilling, and digging potatoes, the shoe A, constructed, substantially as herein described, with front recesses, *b b*, slotted part *d*, and projecting side flanges, *c c'*, on the standard or share-beam *a*, the same also provided on its rear part with a projecting cylindrical head, B, having on its sides radial grooves *g g'* and on its top part a flanged support, *k*, and on the foot *i* of the shoe a projecting recessed part, *k*, as and for the purpose specified.

2. In combination with the cylindrical head B of the share-beam *a*, the curved arms G G', having bifurcated rear ends, the same arched at *r r'*, their front parts shaped into friction-collars *t t'*, substantially as described, and for the purpose specified.

3. In combination with arms G G', secured to the share-beam *a*, the hinges *o o'*, fastened to the wings F F', having curved lugs *w w'*, the same rising from the base of a cavity, *z z'*, in the metal, and provided with center holes, substantially as described, and for the purpose specified.

4. In combination with the hinges *o o'*, arms G G', fastened to cylindrical head B, and the wings F F', each mounted with rakes *n n'* and brace-bars *p p'*, said wings being interchangeable, substantially as described, and for the purpose specified.

316,404. **MANUFACTURE OF STARCH.** JOHN C. SCHUMAN, Akron, assignor to William T. Jobb, Buffalo, N. Y. Filed Mar. 23, 1885. (No model.)



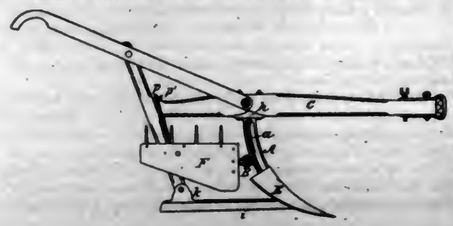
Claim.—As a new article of manufacture, the herein-described meal, consisting of the reduced starchy portions of the kernels of Indian corn or maize from which the husks or skins and the germs or chits have been removed entire, substantially as set forth.

316,405. **MANUFACTURE OF STARCH.** JOHN C. SCHUMAN, Akron, assignor to William T. Jobb, Buffalo, N. Y. Filed Mar. 23, 1885. (No specimens.)

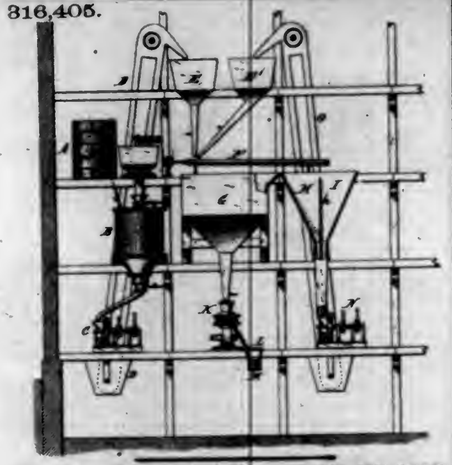
Claim.—1. The herein-described method of manufacturing a starch-meal from Indian corn or maize, consisting in first steeping the corn, whereby the starchy portions and the germs are swelled and the skins are toughened, then detaching the skins and germs from the starchy portions by whipping or beating without water, and then separating the skins and germs from the meal by sifting, substantially as set forth.

2. The herein-described method of preparing Indian corn for the separation of the skins and germs from the starchy portions, which consists in steeping the corn in warm water until the starchy portions and germs are expanded or swelled, and then chilling the corn by cold water, whereby the separation of the skins and germs from the starchy portions is facilitated, substantially as set forth.

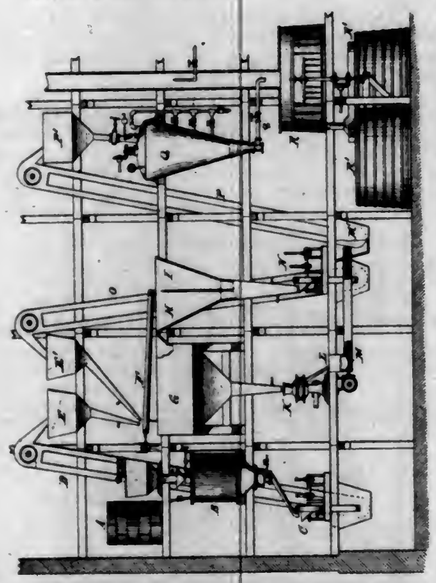
316,408. **COMBINED POTATO MARKER, HILLER, AND DIGGER.** ERNEST C. SCHRODER, Itaska, Ill. Filed May 9, 1884. (No model.)



316,405.



316,406. METHOD OF TREATING AND PREPARING STARCH. JOHN C. SCHUMAN, Akron, assignor to William T. Jebb, Buffalo, N. Y. Filed Mar. 23, 1885. (No specimens.)



Claim.—1. The herein-described method of preparing the mash, which consists in steeping the corn, then separating the starchy portions of the kernels from the husks, gluten, and germs by whipping or beating without water, and then sifting and washing the separated starch-meal, substantially as set forth.

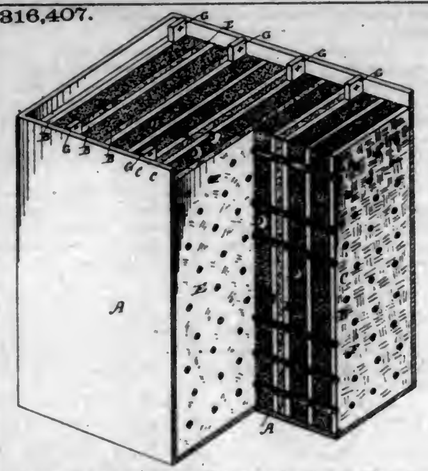
2. The herein-described method of preparing the mash, which consists in steeping the corn, then separating the skins and germs from the starchy portions of the kernels by whipping or beating without water, and then sifting, then boiling the starchy portions under pressure to develop the starch, and then washing the developed starch, substantially as set forth.

316,407. SECONDARY BATTERY. WILLIAM A. SHAW, Brooklyn, assignor to the Electrical Accumulator Company, New York, N. Y. Filed Oct. 20, 1883. (No model.)

Claim.—1. In the manufacture of electrodes for secondary batteries, the improvement consisting in uniting the active material to the conducting-support by welding or casting, substantially as described.

2. In the manufacture of electrodes for secondary batteries, the improvement consisting in uniting the active material in the form of a coherent sheet or plate to the conducting-support, also in the form of a

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coherent sheet or plate by welding or casting the latter thereon, substantially as described.

3. In the manufacture of electrodes for secondary batteries, the improvement consisting in uniting the active material in the form of a sheet of coherent lead sponge to the conducting-support by welding or casting, substantially as described.

4. In the manufacture of electrodes for secondary batteries, the improvement consisting in preparing a sheet of coherent lead sponge, and then fastening the same to a parallel plate constituting a support for the said sheet of lead sponge, substantially as described.

5. In electrodes for secondary batteries, the improvement consisting in uniting, in the manner described—by casting, for example—a flexible re-enforce or backing of fibrous fabric to the conducting-support of the electrode, substantially as described.

6. In electrodes for secondary batteries, the improvement consisting in uniting the active material to the conducting-support and then perforating both the active material and the support, substantially as described.

7. In the manufacture of electrodes for secondary batteries, the improvement consisting in uniting the active material to the conducting-support of a weldable, fusible, or plastic metal—such as lead—in or during the manufacture of the said support while the lead is in process of molding or casting, substantially as described.

8. In the manufacture of electrodes for secondary batteries, the improvement consisting in preparing a sheet of coherent lead sponge for the active material, uniting it to a conducting-support by welding or casting, incorporating into said conducting-support a flexible re-enforce or backing of fibrous fabric, and perforating the said active material and the conducting-support, substantially as described.

316,408. SECONDARY BATTERY. WILLIAM A. SHAW, Pittsburg, Pa., assignor to the Electrical Accumulator Company, New York, N. Y. Filed June 25, 1883. (No model.)



Claim.—1. In the manufacture of secondary batteries, the improvement consisting in consolidating lead oxide to form the active material by heat and pressure, substantially as described.

2. In the manufacture of secondary batteries, the improvement consisting in uniting the active material to the supporting material or conducting-support of metal—such as lead—by heat and pressure, substantially as described.

3. The improvement in secondary batteries consisting in uniting a compressed layer of active material by the aid of heat and pressure to the supporting material or conducting-support of a metal—such as lead—which is softened by heat, substantially as described.

4. The improvement in secondary batteries consisting in combining the active with the supporting material by placing it within the said supporting material and reducing the compound charge to the shape desired for the element by pressing out and spreading the said charge, so as to diminish its thickness and increase the surface-area, substantially as described.

5. The improvement in secondary batteries consisting in combining the active material with the supporting material in the form of a compound charge or ingot, and then reducing by rolling the said charge or ingot to the form desired for the element, in contradistinction to reducing the same by pressure in an ordinary press or in a pipe-press, substantially as described.

6. The method of making the elements of secondary couples by combining active material with a heated ingot of supporting material, the active material being placed within the ingot and also on its surface, and then reducing the whole by rolling while heated, whereby the active material is consolidated by heat and pressure, and is by the same means united to the conducting-support, the compressed surface-layer being united to the compressed active material within the support, substantially as described.

7. The improvement in secondary batteries consisting in placing the active material in or on the conducting-support, and then rolling the active material into the conducting-support, substantially as described.

316,409. SECONDARY BATTERY. WILLIAM A. SHAW, Pittsburg, Pa., assignor to the Electrical Accumulator Company, New York, N. Y. Filed June 25, 1883. (No model.)

Brief.—Applicant antedates August, 1881, by affidavit.



Claim.—1. An element for a secondary cell or couple, composed of a series of separate plates or disks provided with active material on the adjacent surfaces, assembled side by side and electrically connected, so that each plate is of the same polarity as the plate or plates adjacent thereto on either side, substantially as described.

2. An element for a secondary cell or couple, formed of a series of separate plates or disks coated on the adjacent faces with active material, assembled side by side and electrically connected, so that each plate is of the same polarity as the plate or plates adjacent thereto on either side, substantially as described.

3. In an element for a secondary cell or couple, active material of the same polarity divided by one or more porous layers of inactive material, substantially as described.

4. An element for a cell or couple of secondary battery, comprising a body or frame with a series of shelves, disks, or plates provided on adjacent surfaces with active material separated by porous layers of inactive material, substantially as described.

5. A body or conducting-frame for an element of a secondary cell or couple, having a series of shelves, disks, or plates projecting from and extending entirely around the central conductor, substantially as described.

6. A body or conducting-frame for an element of a secondary cell or couple, comprising a central conductor in the form of a rod, and a series of shelves or division-plates projecting from and extending entirely around said rod, substantially as described.

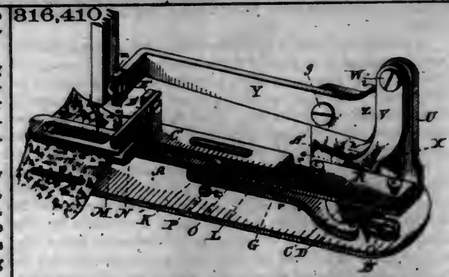
7. An element for a cell or couple of secondary battery, comprising a central conductor with a series of shelves or division-plates projecting from and extending entirely around said conductor, and layers of active material between said shelves or division-plates, substantially as described.

8. In a secondary battery, an element of a cell consisting of a number of conducting plates or disks combined with interposed porous layers, and also with active material, and electrically connected, so as to be of the same polarity, said element being arranged or disposed with respect to the opposing element so that the edges of said plates or disks are presented to said opposing element, substantially as described.

316,410. BUTTON-HOLE ATTACHMENT FOR SEWING-MACHINES. FRIEND W. SMITH, Jr., and S. STUART WILLIAMSON, Bridgeport, Conn. Filed Feb. 7, 1885. (No model.) Patented in Canada Feb. 25, 1885, No. 21,158.

Claim.—1. In a button-hole-sewing attachment for sewing-machines, the combination, with a cap provided with a vertical rack secured to a feed-bar, an oscillator, and wiper-wheel therefor, of a pinion stationary except as to revolution around its axis, and adapted to mesh with said rack, and step by step operate laterally against every portion

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of the latter circumferentially, and means for driving the pinion, whereby the said bar is fed back and forth, substantially as described.

2. In a button-hole-sewing attachment for sewing-machines, a wiper-wheel, ratchet-wheel, and pinion rigidly secured on the same short shaft, (the number of teeth in the ratchet being double the number of cams on the wiper-wheel,) in combination with the pivoted oscillator embracing at its rear extremity the said wiper-wheel, means for turning the ratchet, and the feed-bar adjustably connected to the oscillator, and having attached thereto a vertical rack, with which the pinion is adapted to engage, substantially as shown and described.

3. The combination of the operating-lever, pawl-lever, spring-pawl attached to the lower extremity of said pawl-lever, ratchet-wheel, pinion, and wiper-wheel secured on the same short shaft, oscillator pivoted to the bed-plate and embracing said wiper-wheel, feed-bar adjustably connected to the oscillator, rack attached to the feed-bar and engaging with said pinion, and means for clamping the goods at the forward extremity of the feed-bar, substantially as specified.

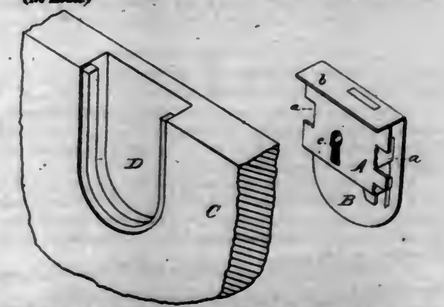
4. In a button-hole attachment for sewing-machines, the combination, with a ratchet-wheel and a wiper-wheel, both rigidly mounted on the same short shaft, of the oscillator pivoted to the bed-plate and having its rear extremity forked and embracing said wiper-wheel, and means for intermittently rotating said ratchet, whereby a positive vibration is imparted to the oscillator, substantially as set forth.

5. The combination, with the pivoted lever Y, adapted to be operated by the needle-bar of a sewing-machine, of the pawl-lever V, spring-actuated pawl X, pivoted to the lower extremity of the pawl-lever, ratchet-wheel D and wiper-wheel C, secured on the same short shaft, and the pivoted oscillator forked at the rear end and embracing said wiper-wheel, substantially as shown and described.

6. In a button-hole attachment for sewing-machines, the combination, with the oscillator and wiper-wheel therefor, and the feed-bar carrying a detachable cap containing a vertically-depending rack having a circumferential groove around its base, of a pinion meshing with said rack and adapted to be revolved intermittently, and a guide-pin projecting axially from said pinion within said groove, whereby continuous engagement of the rack and pinion is insured, substantially as and for the purpose described.

7. The combination, with the oscillator, forked as described, and the feed-bar carrying the vertically-depending rack, of the wiper-wheel, ratchet-wheel, and pinion, all rigidly secured on the same short shaft, cloth-clamp secured to the outer end of the feed-bar, and means for intermittently revolving said ratchet-wheel, substantially as shown and described.

316,411. CASE FOR LOCKS. HENRY L. SPIEGEL, Indianapolis, Ind., assignor to Frank W. Mix, New Britain, Conn. Filed Apr. 23, 1883. (No model.)



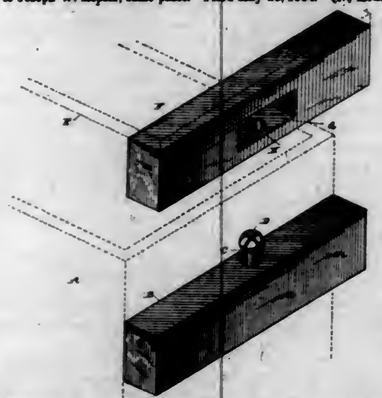
Claim.—1. A lock-case having a front plate formed with a rounded bottom, a cap-plate forming in connection with the front plate intervening spaces or grooves on the opposite edges of the lock-case, and a top plate extending over and beyond the cap-plate, the projecting edges of the front plate being adapted to fit within a countersunk recess around

the routed cavity within which the lock-case is inserted, substantially as set forth.

2. A lock-case having a front plate formed with a rounded bottom, a cap-plate secured to or connected with the front plate and constructed to form therewith intervening spaces or grooves on opposite edges of the lock-case, and a top plate extending over and beyond the cap-plate, in combination with a support having a routed cavity provided with a countersunk recess adapted to receive the outer and projecting edges of the front plate, substantially as set forth.

3. A lock-case having a front plate formed with a rounded bottom, a cap-plate secured to or connected with the front plate and constructed to form therewith intervening spaces or grooves on opposite edges of the lock-case to retain it in place within the routed cavity, and a top plate extending over and beyond the cap-plate, in combination with a support provided with a routed cavity of a depth sufficient to receive the projecting edge of the top plate flush therein, substantially as set forth.

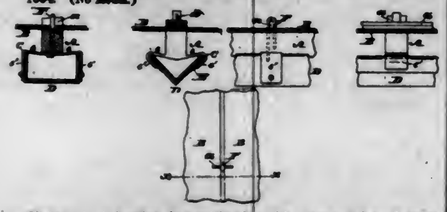
316,412. BOX-FASTENER. JOHN L. STEVENS, Chicago, Ill., assignor to Joseph W. Kepler, same place. Filed May 23, 1884. (No model.)



Claim.—1. The combination of a headed and slotted pin and a strip from which the said pin centrally projects with a strip having a hole or orifice for the reception of the pin, the strips being respectively secured to the box and to the cover thereof, substantially as and for the purpose specified.

2. The combination of a headed and slotted spring-pin and a strip in which the said pin is seated and from which it centrally projects with a slotted strip having a hole or orifice leading into the said slot for the reception and normal retention of the pin, the two strips being respectively secured to the box and to the cover thereof, substantially as and for the purpose specified.

316,413. SUPPORT FOR GUTTERS OF SKYLIGHTS, ROOFS, VAULTS, &c. J. FRANKLIN STOCKERT, Philadelphia, Pa. Filed Oct. 8, 1884. (No model.)



Claim.—1. A bearing, in combination with a gutter, plates forming a roof, and means for connecting said plates to said bearing, the said bearing being pendent from said plates and not sustaining the said roof, substantially as and for the purpose set forth.

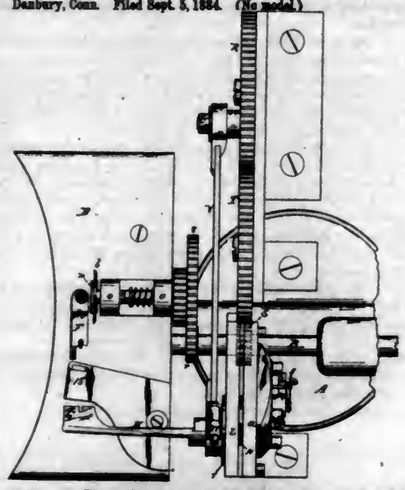
2. A bearing having the adjacent edges of two contiguous plates of a roof in contact therewith, in combination with means for binding said plates to said bearing, a gutter, a slide having arms sustaining said gutter, the said bearing being pendent from said plates, substantially as and for the purpose set forth.

3. The bearing A, in combination with slide C, gutter D, and plate B, substantially as described.

4. The combination of bearing A with slide C, gutter D, plates B, and covering-bar G, substantially as described.

5. The combination of bearing A with plates B, means for attaching said bearing A to plates B, slide C, and gutter D, substantially as and for the purpose set forth.

316,414. MACHINE FOR SEWING HAT-TIPS. EZRA J. SWARTOUT, Danbury, Conn. Filed Sept. 5, 1884. (No model.)



Claim.—1. The combination of a stitching mechanism, the slide I N, carrying the plaiting-blade, said slide arranged in a guide parallel with the axis of the needle, the said slide provided with a stud, *b*, plate provided with the opening *a'*, corresponding in shape to the path of movement required for the plaiting-blade, and in which said stud *b* will work, the tongue *d* hung in said opening, substantially as and for the purpose described.

2. The combination of a stitching mechanism, a plaiting-blade adapted to receive reciprocating movement in a path down and forward in its advance, up and rearward in its retreat, mechanism, substantially such as described, to impart such reciprocating movement to said blade, the advancing movement occurring at intervals of several stitches, and a pair of revolving cutters, substantially as described.

3. The combination of a stitching mechanism, a plaiting-blade arranged upon a slide in guides parallel with the axis of the needle, a crank, and rod connecting said crank with said slide, substantially as described, and whereby the reciprocating movement imparted to the blade is downward and forward in advance, and upward and rearward in retreat, and a pair of revolving cutters, substantially as specified.

4. The combination of a stitching mechanism, the slide I N, carrying the plaiting-blade, said slide arranged in a guide parallel with the axis of the needle, the said slide provided with a stud, *b*, plate provided with the opening *a'*, corresponding in shape to the path of movement required for the plaiting-blade, and in which said stud *b* will work, the tongue *d*, hung in said opening, and a pair of revolving cutters, substantially as described.

5. The combination of a stitching mechanism, a plaiting-blade adapted to receive reciprocating movement in a path down and forward in its advance, up and rearward in its retreat, mechanism, substantially such as described, to impart such reciprocating movement to said blade, the advancing movement occurring at intervals of several stitches, and a holder arranged in a plane parallel with the work-plate and movable in an elliptical path, substantially as described.

6. The combination of a stitching mechanism, a plaiting-blade arranged upon a slide in guides parallel with the axis of the needle, a crank, and rod connecting said crank with said slide, substantially as described, and whereby the reciprocating movement imparted to the blade is downward and forward in advance, and upward and rearward in retreat, and a holder arranged in a plane parallel with the work-plate and movable in an elliptical path, substantially as specified.

7. The combination of a stitching mechanism, the slide I N, carrying the plaiting-blade, said slide arranged in a guide parallel with the axis of the needle, the said slide provided with a stud, *b*, plate provided with the opening *a'*, corresponding in shape to the path of movement required for the plaiting-blade, and in which said stud *b* will work, the tongue *d*, hung in said opening, and a holder arranged in a plane parallel with the work-plate and movable in an elliptical path, substantially as described.

8. The combination of a stitching mechanism, a plaiting-blade adapted to receive reciprocating movement in a path down and forward in its advance, up and rearward in its retreat, mechanism, substantially such as described, to impart such reciprocating movement to said blade, the advancing movement occurring at intervals of several stitches, and a pair of revolving cutters, with a holder arranged in a plane parallel with the work-plate and movable in an elliptical path, substantially as described.

9. The combination of a stitching mechanism, a plaiting-blade arranged upon a slide in guides parallel with the axis of the needle, a crank, and rod connecting said crank with said slide, substantially as described, and whereby the reciprocating movement imparted to the blade is downward and forward in advance, and upward and rearward in retreat, and a pair of revolving cutters, with a holder arranged in a plane parallel with the work-plate and movable in an elliptical path, substantially as specified.

10. The combination of a stitching mechanism, the slide I N, carrying the plaiting-blade, said slide arranged in a guide parallel with the axis of the needle, the said slide provided with a stud, *b*, plate provided with the opening *a'*, corresponding in shape to the path of movement required for the plaiting-blade, and in which said stud *b* will work, the tongue *d*, hung in said opening, and a pair of revolving cutters, with a holder arranged in a plane parallel with the work-plate and movable in an elliptical path, substantially as described.

11. The combination of a stitching mechanism, a plaiting-blade arranged upon a slide in guides parallel with the axis of the needle, a crank, and rod connecting said crank with said slide, substantially as described, and whereby the reciprocating movement imparted to the blade is downward and forward in advance, and upward and rearward in retreat, and the welt-folder arranged between the work-plate and plaiting-blade, substantially as described.

12. The combination of a stitching mechanism, the slide I N, carrying the plaiting-blade, said slide arranged in a guide parallel with the axis of the needle, the said slide provided with a stud, *b*, plate provided with the opening *a'*, corresponding in shape to the path of movement required for the plaiting-blade, and in which said stud *b* will work, the tongue *d*, hung in said opening, and the welt-folder arranged between the work-plate and plaiting-plate, substantially as described.

13. The combination of a stitching mechanism, a plaiting-blade adapted to receive reciprocating movement in a path down and forward in its advance, up and rearward in its retreat, mechanism, substantially such as described, to impart such reciprocating movement to said blade, the advancing movement occurring at intervals of several stitches, a pair of revolving cutters, and the welt-folder arranged between the work-plate and plaiting-blade, substantially as described.

14. The combination of a stitching mechanism, a plaiting-blade arranged upon a slide in guides parallel with the axis of the needle, a crank, and rod connecting said crank with said slide, substantially as described, and whereby the reciprocating movement imparted to the blade is downward and forward in advance, and upward and rearward in retreat, a pair of revolving cutters, and the welt-folder arranged between the work-plate and plaiting-blade, substantially as described.

15. The combination of a stitching mechanism, the slide I N, carrying the plaiting-blade, said slide arranged in a guide parallel with the axis of the needle, the said slide provided with a stud, *b*, plate provided with the opening *a'*, corresponding in shape to the path of movement required for the plaiting-blade, and in which said stud *b* will work, the tongue *d*, hung in said opening, a pair of revolving cutters, and the welt-folder arranged between the work-plate and the plaiting-blade, substantially as described.

16. The combination of a stitching mechanism, a plaiting-blade adapted to receive reciprocating movement in a path down and forward in its advance, up and rearward in its retreat, mechanism, substantially such as described, to impart such reciprocating movement to said blade, the advancing movement occurring at intervals of several stitches, a holder arranged in a plane parallel with the work-plate and movable in an elliptical path, and the welt-folder arranged between the work-plate and plaiting-blade, substantially as described.

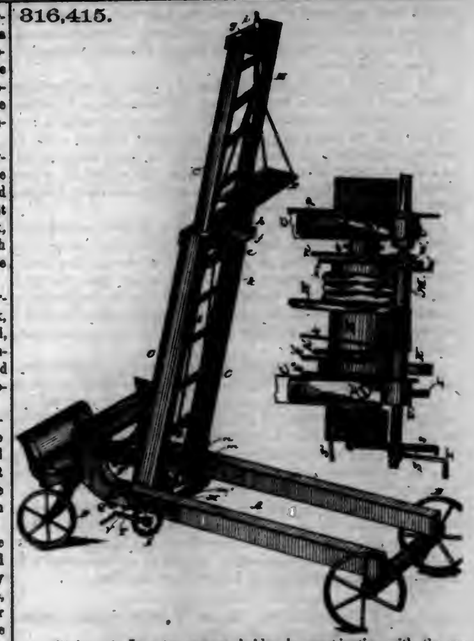
17. The combination of a stitching mechanism, a plaiting-blade arranged upon a slide in guides parallel with the axis of the needle, a crank, and rod connecting said crank with said slide, substantially as described, and whereby the reciprocating movement imparted to the blade is downward and forward in advance, and upward and rearward in retreat, a holder arranged in a plane parallel with the work-plate and movable in an elliptical path, and the welt-folder arranged between the work-plate and plaiting-blade, substantially as specified.

18. The combination of a stitching mechanism, the slide I N, carrying the plaiting-blade, said slide arranged in a guide parallel with the axis of the needle, the said slide provided with a stud, *b*, plate provided with the opening *a'*, corresponding in shape to the path of movement required for the plaiting-blade, and in which said stud *b* will work, the tongue *d*, hung in said opening, a holder arranged in a plane parallel with the work-plate and movable in an elliptical path, and the welt-folder arranged between the work-plate and plaiting-blade, substantially as described.

316,415. FIRE-ESCAPE LADDER. LORENS SWENSON, Cresco, Iowa. Filed Apr. 11, 1884. (No model.)

Brief.—An extension-ladder provided at its base with devices for elevating hose, and having guides for the same at the upper ends, and devices for elevating the ladder and hoist. A spring rewinds the hose and hoist-rope upon their reels.

316,415.



Claim.—1. In a fire-escape ladder, in combination with the sections C C' and truck A B, the shaft L, carrying the drum H for the hose-pipe, shaft M, carrying the ladder-elevating rope *k*, gear-wheels *m n* and *m' n'*, meshing into each other, and spring K, with suitable pawl-and-ratchet gear at the ends of the shafts L M to control the motion of said shafts, whereby the sections of the ladder and hose-pipe are elevated at the same time, substantially as described.

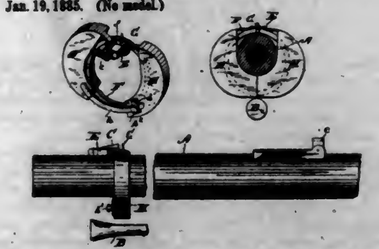
2. In a fire-escape ladder, the combination of the truck A B and sections C and C', fitting within each other, and having at the lower end the mechanism for elevating the hose, the mechanism for elevating the section of the ladder, as also the mechanism for elevating the safety-basket, and provided at its top with a pulley, *h*, and clamp *i* for holding and guiding the hose, and pulleys *e g* for the elevator-rope, all substantially as described, for the purpose specified.

3. In a portable fire-escape ladder, the combination, with the truck and movable sections of the ladder, of a hose-drum and gear-wheels *m n* on the axis of the movable sections, said drum being provided with side flanges to prevent the slipping of the drum, substantially as set forth.

4. In a portable fire-escape ladder, the combination, with the truck and movable sections, of a flanged hose-drum and gear-wheels *m n*, and one or more coiled springs wound upon a drum provided with flanges, substantially as and for the purpose set forth.

5. In a portable fire-escape ladder, the combination, with the truck and movable sections, of a hose-drum, a shaft for the rope of the ladder-sections and gearing therefor, a shaft for the basket-rope and gearing therefor, and a revolving shaft on the truck, to which one or more coiled springs and gearing therefor are attached, whereby the ladder may be raised, lowered, and adjusted substantially in the manner and for the purpose set forth.

316,416. SIGHT-PLUMB FOR FIRE-ARMS. SYDNEY W. TAYLOR, Newport, R. I., assignor to Edward G. Taylor, New York, N. Y. Filed Jan. 19, 1885. (No model.)



Claim.—1. A device for adjusting the sights of a gun in a vertical plane, consisting of a gravitating ring encircling the barrel, and pivoted

to said barrel at a point in a line with the front and rear sights, and provided with an upwardly-projecting pin directly over the pivot-point and in a vertical line with the center of gravity of the ring, substantially as shown and described.

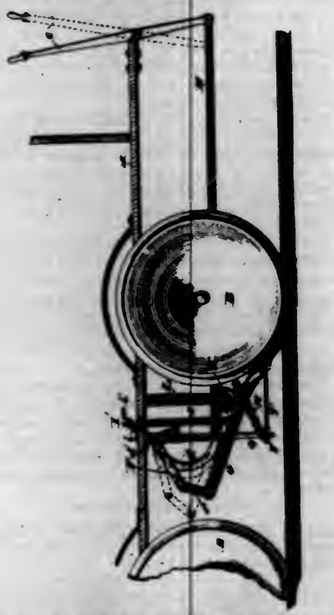
2. A device for adjusting the sights of a gun in a vertical plane, consisting of a pendulous weight having a pivot-bearing, and provided with an upwardly-projecting pin over the pivot-bearing and in a vertical line with the center of gravity of the weight, whereby when the weight is secured to a gun-barrel its pivot-bearing, being above the barrel and in a vertical plane with the gun-sights, the index-point will coincide with the line between the sights when the latter are in a vertical plane, substantially as shown and described.

3. A device for adjusting the sights of a gun in a vertical plane, consisting of a gravitating ring having a pivot-bearing, and provided with an upwardly-projecting pin over the pivot-bearing and in a vertical line with the center of gravity of the ring, whereby when the ring is secured to a gun-barrel and encircles the same with its pivot-bearing in a plane with the gun-sights the index-point will coincide with the line between the sights when the latter are in a vertical plane, substantially as shown and described.

4. A device for adjusting the sights of a gun in a vertical plane, consisting of a clamp, a gravitating ring secured to the clamp by a pivot, and provided with an upwardly-projecting pin over the pivot and in a vertical line with the center of gravity of the ring, whereby when the clamp is secured to a gun-barrel, the ring encircling the barrel and the pivot being in a plane with the gun-sights, the index-point will coincide with the line between the sights when the latter are in a vertical plane, substantially as shown and described.

5. In a device for adjusting the sights of a gun in a vertical plane, the combination of the clamp E, gravitating ring F, secured to the clamp by a pivot, and provided with the upwardly-projecting pin G, in a vertical line with the center of gravity of the ring E, and the covers H H, hinged to the clamp, substantially as shown and described.

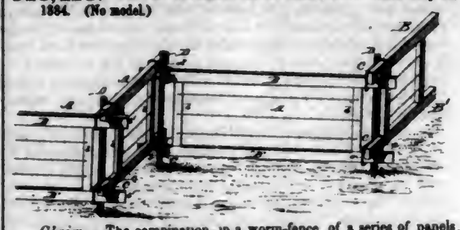
316,417. CAR-STARTER. ROBERT W. THOMPSON, East Rockport, Ohio. Filed Mar. 3, 1885. (No model.)



Claim.—1. In a car-starter, the combination, with a pinch-bar and devices connected to the rear end of said bar for imparting the necessary movements thereto, of a spring-actuated rod connected to the pinch-bar near its lower end for drawing the pinch-bar forward between the wheel and rail, substantially as set forth.

2. In car-starting apparatus, a pinch-bar to engage the rail and wheel in the usual manner of pinch-bars, a hand-lever or equivalent devices, and connecting mechanism for operating the pinch-bar from a desired location on the car, a spring for elevating and a guide-wheel for limiting the elevation of the pinch-bar, a spring for drawing the pinch-bar forward to engage the rail and wheel, and suitable mechanism operated automatically from the said lever to draw the pinch-bar from its engagement with the rail and wheel, substantially as set forth.

316,418. FENCE. S. CHESTER TOWN, Castile, N. Y. Filed May 22, 1884. (No model.)



Claim.—The combination, in a worm-fence, of a series of panels having projecting rails adapted to overlap each other, each panel having links C, bent as described, and secured to its rails at one end by means of staples, and a vertical post, D, inserted between the overlapping rails and the sides of the loop, substantially as set forth.

316,419. HAMMOCK-SUPPORT. VINCENT P. TRAVERS, New York, N. Y. Filed May 16, 1884. (No model.)

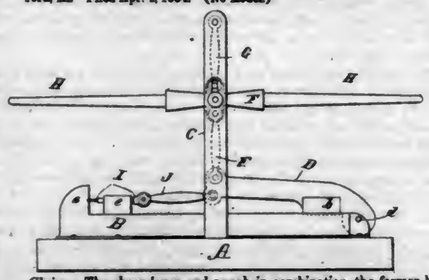


Claim.—1. The hammock-frame A, composed of the horizontal bottom bars, *a a*, and converging outwardly-flaring end bars, *b b*, in combination with the outwardly-projecting end booms, *d d*, all the said parts being rigidly connected, substantially as herein shown and described.

2. The combination of the bottom bars, *a a*, with the four separate socket-pieces *e e*, having webs *f*, and with the four converging and outwardly-flaring bars *b*, and two socket-pieces, *g g*, having webs *h*, substantially as described.

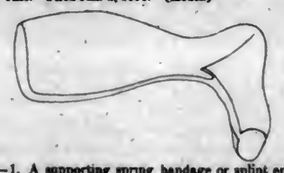
3. The combination of the bottom bars, *a a*, with the four socket-pieces *e e*, having webs *f*, and with the four converging outwardly-flaring bars *b*, the two socket-pieces *g g*, having webs *h*, and with the two outwardly-projecting booms *d*, substantially as described.

316,420. MACHINE FOR PUNCHING AND SHEARING METAL. WILLIAM H. TYDEMAN, Earlville, assignor of one-half to Jacob Reiff, Aurora, Ill. Filed Apr. 4, 1884. (No model.)



Claim.—The shear-lever and punch in combination, the former being pivoted at one end to its support and at its other end, upon the upper side, to a link connected to the pendent arm of a lever-socket, said socket having its upwardly-projecting arm connected to a link depending between supports, and said punch being connected to a link pivoted to the lower side of one end of the shear-lever, substantially as and for the purpose set forth.

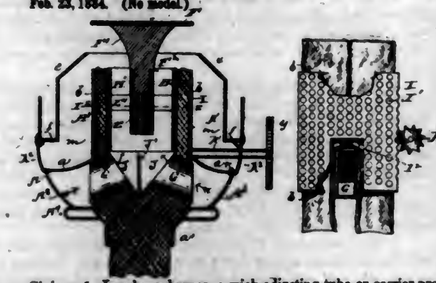
316,421. PLASTER-OF-PARIS SPLINT. JAMES P. WALLACE, Bellefontaine, Ohio. Filed Jan. 2, 1885. (Model.)



Claim.—1. A supporting spring bandage or splint encircling more than three-fourths of the limb, and composed of two outside pieces of textile fabric united by plaster-of-paris, the whole splint being made before being applied to the leg or other part, and forming, when set, a perfectly-fitting spring-splint, open along its anterior median line for inspection, and capable of being removed and replaced at will, substantially as shown and described.

2. The process of constructing a spring plaster-of-paris splint for treatment of fractures, &c., wherein the preparatory steps are all made without disturbing the limb or part treated, the process consisting of the measurement of the limb, the cutting of two pieces of textile fabric to the proper shape by means of an adjustable pattern having the contour of the limb, and the uniting the pieces by means of a solution of plaster-of-paris, and then molding the same to the limb, substantially as described and set forth.

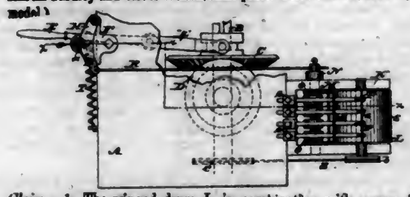
316,422. LAMP-BURNER. GEORGE H. WILSON, St. Louis, Mo. Filed Feb. 23, 1884. (No model.)



Claim.—1. In a lamp-burner, a wick-adjusting tube or carrier provided with teeth projecting inwardly from the top and bottom edges thereof, substantially as described.

2. In a lamp-burner, a wick-adjusting tube or carrier, I, having one or more slots, I², and provided with inwardly-projecting teeth at its top and bottom, in combination with an air-tube provided with one or more air-inlets, G, whereby the wick is drawn upward with the carrier in the usual way and downward positively past the air inlet or inlets, substantially as set forth.

316,423. STOP-MOTION MECHANISM FOR KNITTING-MACHINES. OLIVER WILSON and JOHN PALMER, Philadelphia, Pa., assignors to J. Martin Yardley and Oliver Wilson, same place. Filed Jan. 13, 1885. (No model.)



Claim.—1. The winged drum L, in combination with means for operating said drum, the shaft M, having the upright arms O, weighted guide-arms P, and stops Q, substantially as and for the purpose set forth.

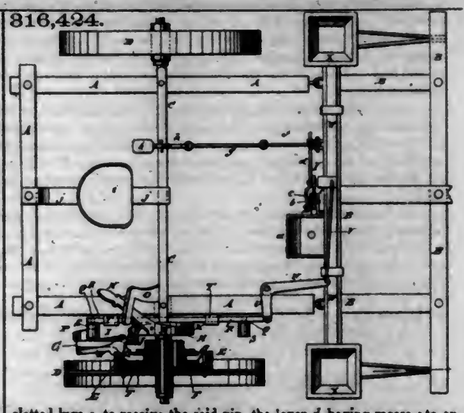
2. The winged drum L, in combination with the guide-arm P, upright arm O, to which said guide-arm P is pivotally secured, the shaft M, crank N, rod R, catch H, and spindle G, substantially as and for the purpose set forth.

3. A winged drum and means for operating the same, in combination with a guide-arm, an upright arm to which said guide-arm is pivotally secured, a shaft, a crank secured thereto, the catch H, a rod connecting said crank and catch, spindle D, having a shoulder, the spring J, lever E, spring T, wheel C, and driving-shaft B, said parts being arranged and combined substantially as and for the purpose set forth.

316,424. CORN-PLANTER. ALBERT J. WOOD, Wilder, Kans. Filed Nov. 18, 1884. (No model.)

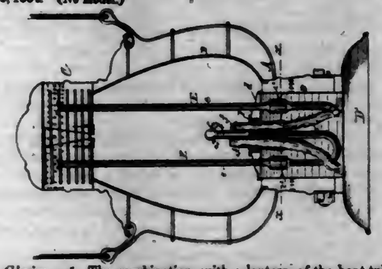
Claim.—1. The combination, with the drive-wheel and the seed-slide, of the rotary crown-gear E, the loose wheel F, provided with an arm, G, extending beyond the crown-teeth, the inclined plate P on the outer end of said arm, the pawl H, pivoted at its outer end to the outer end of the arm G, and constructed to engage the crown-teeth, the spring I, for pressing the pawl away from the crown-teeth, the fixed vertical guide-ring K, having notches M in its edge adapted to receive the opposite side of the pawl H from that which engages the crown-teeth, the forked lever N, having its arms within and adapted to close the notches M of the guide-ring to prevent the pawl H from entering therein, and to throw said pawl outward therefrom, and the sliding bar R, connected to the seed-slide and provided with projections in the path of the plate P, substantially as set forth.

2. In a corn-planter, the combination, with the seed-dropping slide Z, of the lever Y, pivoted to the said dropping-slides and having pin *b*, the



slotted lugs *c*, to receive the said pin, the lever *d*, having recess *e* to engage with the said pin, and the levers *f h*, and their connecting-rod *g*, substantially as herein shown and described, whereby the said dropping-slide of the said hopper can be operated from the dropping-slide of the seed-boxes, and can be readily thrown into and out of gear, as set forth.

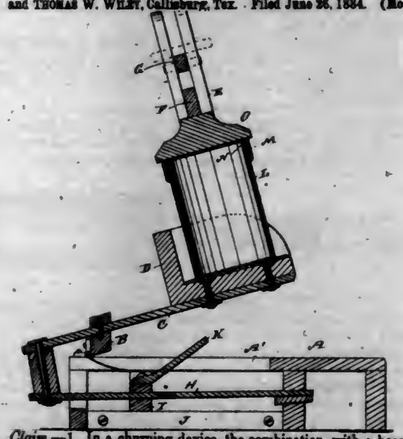
316,425. LANTERN. LUTHER B. WOOD, Omaha, Nebr. Filed Sept. 8, 1884. (No model.)



Claim.—1. The combination, with a lantern, of the bent tubes E, consisting of the long arms *e*, extending to the upper end of the lantern, the short arms *e'*, extending above the wick-tubes, and the enlargements or chambers *e²*, said chambers and the bent portions being within the oil-vessel, substantially as set forth.

2. A lantern constructed with the bent tubes E, formed with long and short arms *e e'* and enlargements or chambers *e²*, the bent portions and the enlargements being within the oil-chamber, and the short curved pipes *b*, held to turn on the short arms *e'*, and having flaring mouths *c*, extending over the wick-tubes, substantially as set forth.

316,426. CHURNING DEVICE. SYLVANUS B. WOOD, HERVEY WOOD, and THOMAS W. WILEY, Callisburg, Tex. Filed June 26, 1884. (Model.)



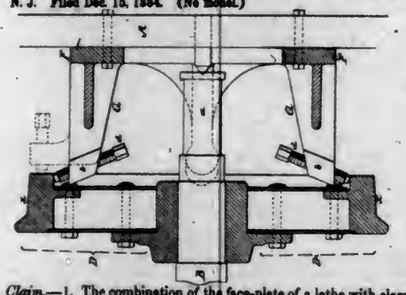
Claim.—1. In a churning device, the combination, with a base and a spring-bar held therein, of a cross-bar hinged to the said base and a churn-carrying bar secured to the said hinged and spring bars, substantially as herein shown and described.

2. In a churning device, the combination, with the base A and the spring-bar H, projecting from one end of the said frame, of the cross-bar B, hinged to the frame, the bar C, secured to the free end of the spring-bar and to the hinged bar, and the churn-holding platform D on the free end of the bar C, substantially as herein shown and described.

3. In a churning device, the combination, with the bar C, of the churn-holding platform or box D, mounted on the end of the said bar, and provided with the forked standards E, the lever F, pivoted to one standard, and the cam-lever G, pivoted in the other standard and acting on the free end of the lever F, substantially as herein shown and described.

4. In a churning device, the combination, with spring-bar H, fixed in base A at one end, of the bar I, held to slide in the base, and having a handle-bar, K, projecting through a slot in the top of the base, the bar C, connected with the spring-bar H, and a can-holding device on the bar C, substantially as herein shown and described.

316,427. CAR-WHEEL LATHE. WILLIAM WOODCOCK, Elizabeth, N. J. Filed Dec. 15, 1884. (No model.)



Claim.—1. The combination of the face-plate of a lathe with clamp-screws constructed to engage with the rim of a car-wheel, but free from the periphery thereof, as set forth.

2. The combination of the face-plate of the lathe with projecting arms having inclined bosses provided with set-screws adapted to engage with the inner face of the rim of a car-wheel, as specified.

3. The within-described attachment for car-wheel-turning lathes, the same consisting of a ring with a series of projecting arms or brackets carrying at the outer ends set-screws constructed to clamp the rim of a car-wheel, as specified.

316,428. ELECTRIC GAS-LIGHTER. E. HOWARD WRIGHT, Providence, R. I., assignor of one-half to Charles T. Heward and John W. Duxbury, both of same place. Filed Apr. 18, 1884. (No model.)



Claim.—1. In an electric gas-lighter, the combination, with two contact-points placed upon but insulated from a gas-bracket and electrical conductors from said points to the burner and battery, of a valve-plug having an elliptical upper end surrounded by a conductor and arranged to move with the plug, as described.

2. The combination, with the pipe or bracket A, having the stop a^3, the plates C c, and the wires a a', of the plug D, having the pins d, the elliptical holder d^3, surrounded by a conductor, a^3, and the holding-screw, as specified.

316,429. ELECTRIC GAS-LIGHTER. E. HOWARD WRIGHT, Providence, R. I., assignor of one-half to Charles T. Heward and John W. Duxbury, both of same place. Filed Apr. 18, 1884. (No model.)

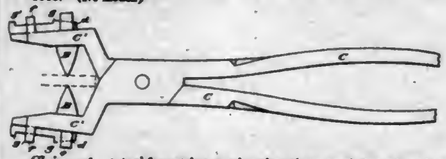


Claim.—1. The combination, with the handle having the partition and closing-caps, and a battery and an induction-coil placed within said handle, of the stem b and cap B', the armature E, and the contact-points arranged to separate when the circuit is closed, all substantially as described.

2. The handle A, having the partition a, the spring-plate d, having the button D, the cap a', the battery C, and induction-coil C', and the wires w w' w^3, in combination with the cap B, having the stem b, the cap B', the wire w^3, the magnet E, and the contact-points arranged to separate upon the closing of the circuit, as described.

3. The combination of the handle, the battery and induction-coil therein, the circuit-closer consisting of the spring-plate d, having the knob D and the plate d', the stem b, magnet E, armature, and the contact-points f f', as described.

316,430. TOOL FOR CUTTING OR TRIMMING GLASS. JOHN C. DERBY, New York, N. Y. Filed Aug. 28, 1882. Renewed Mar. 27, 1885. (No model.)



Claim.—1. A tool for cutting or trimming glass, consisting of a pair of pliers combined with cutting-wedges B, having hardened slightly-convex edges, which wedges are secured at their base ends to the jaws of the pliers, substantially as herein shown and described, and for the purpose set forth.

2. A tool for cutting or trimming plates of glass, consisting of the combination of wedges B B, having hardened edges, plier levers or handles C C, to which said wedges are removably connected and on which they are arranged facing each other edge to edge, with their edges out of contact when the levers C C are closed or brought together, substantially as set forth.

3. The combination of plier-levers C C, wedges B B, shanks c c on said wedges passing through sockets in said levers, eyes e s in said shanks, and keys d d, substantially as set forth.

4. The combination of plier-lever C, wedge B, having shank c, eye e in said shank, tapered key d, working in said eye, shoulders g g' on said key, and projection f on the lever C, having socket for confining said key between its said shoulders, substantially as set forth.

316,431. ANTI-FRICTION BEARING FOR ROLLER-SKATES. JAMES R. EVANS, Cincinnati, Ohio. Filed Jan. 29, 1885. (No model.) Patented in Canada Feb. 13, 1885, No. 21,097.



Claim.—1. The combination of an axle carrying at the ends rollers held frictionally thereon and a cylinder having a bore larger than the axle enlarged at the ends to form annular shoulders, and anti-friction rollers confined between said shoulders and the sides of the wheels, substantially as set forth.

2. The combination of the head or cylinder C, having a longitudinal bore enlarged at the ends, an axle extending through the said bore without contact provided with shoulders w and carrying wheels frictionally confined on the ends and arranged to close the open ends of the bore, substantially as set forth.

3. The combination of the head C, having a bore extending from end to end, axle extending through the said bore without contact with the face thereof and carrying wheels B B, anti-friction rolls, and oil-cup communicating with the said bore and arranged below the level thereof, substantially as and for the purpose described.

316,432. BUTTON-FASTENER. THOMAS E. KRAVY, Kent, Ohio, assignor of one-half to W. I. Caris, same place. Filed Feb. 11, 1885. (No model.)



Claim.—1. As an article of manufacture, a button-fastener consisting of a pin formed with a head or enlargement at one end and provided with a hollow head loosely inclosing the enlarged end of the pin, substantially as described.

2. In a button-fastener, the headed pin a, in combination with the hollow head c, having the perforation c' and formed with a convex top whose periphery is crimped to the bottom of the hollow head, substantially as described.

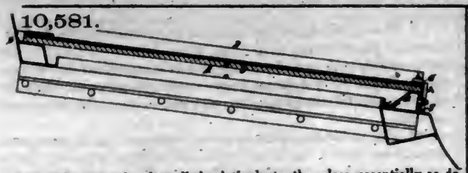
REISSUES.

10,581. SKYLIGHT. GEORGE HAYES, New York, N. Y. Filed Mar. 19, 1885. Original No. 106,157, dated Aug. 9, 1870; Reissue No. 8,675, dated Apr. 15, 1879.

Claim.—1. The arrangement of the vertical stay-plate e with the shell or body a of the rafter, molding d, rabbets b b, and gutters c c, substantially as specified.

2. The clip G, formed with corrugations A, made to constitute gutters, and arranged and applied relatively to the glass, essentially as described.

3. The arrangement of the end outlets, f f, with the hollow body of the lower transom, E, and escape-apertures g, substantially as specified.



10,582. METALLIC SKYLIGHT-BAR. GEORGE HAYES, New York, N. Y. Filed Feb. 17, 1885. Original No. 282,191, dated July 31, 1883.

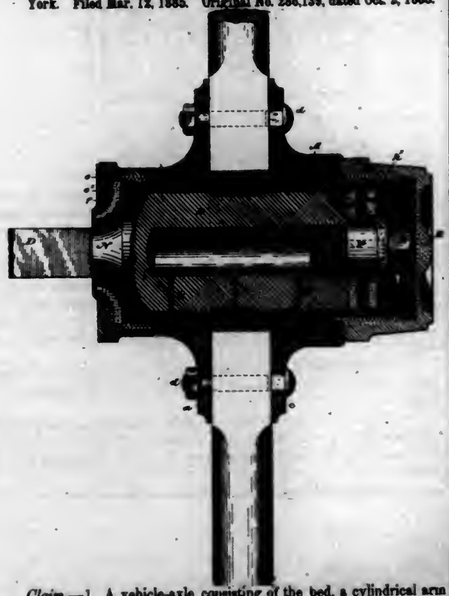


Claim.—1. A skylight bar or rafter composed of two parts, A B, in combination, the supporting-bar A of one piece of sheet metal having rigidity—such as galvanized iron—folded upward to form gutters a a, vertical central portion, b, and lateral flanges c c, for reception of glass plates, the part B of pliable or flexible metal—such as lead or copper—in shape sectionally as a letter Y, with triplicate webs, each of single thickness—the one forming stem d secured to bar A in the vertical central portion, b, thereof, and the webs e e, adapted to be bent horizontally after glazing, substantially as shown and described.

2. A separately-constructed triple-web device of flexible or pliable metal, for securing joints in glazing—one web, as a stem, adapted to be placed between joints to be secured thereby, and two other webs, branching upward therefrom at suitable angles, adapted to be bent or flattened down over the joints for securing the plates and protecting the joints against leakage, in combination with a sheet-metal supporting-bar in skylights or glazed structures, essentially as shown and described.

3. The tripartite device B of one thickness of pliable metal, having a stem-web, d, extending sufficient for attachment to a rigid sheet-metal supporting-bar (it being formed separately therefrom) for skylights and other glazed structures, and having two upward-branching webs or flanges, e e, adapted to be bent down over the joints after glazing, substantially as shown and described.

10,583. CARRIAGE-AXLE. WILLIS JONES, Brooklyn, N. Y., assignor, by mesne assignments, to the American Axle and Wheel Company of New York. Filed Mar. 12, 1885. Original No. 236,139, dated Oct. 2, 1883.



Claim.—1. A vehicle-axle consisting of the bed, a cylindrical arm of greater diameter than the cornerwise thickness of the bed, with its bearing-surface of substantially uniform diameter from end to end, and a neck of gradually-increasing thickness joining the bed and arm, and expanding from the cornerwise thickness of the bed to the full diameter of the arm, as set forth.

2. A vehicle-axle consisting of the bed, a cylindrical arm of uniform diameter exceeding the cornerwise thickness of the bed, and a neck at their junction expanding to the diameter of the arm, in combination with a hub fitting said cylindrical arm, and a collar attached to the inner end of the hub, having a flange contracted to a diameter less than that of the axle-arm, and adapted to bear against said neck on the axle, substantially as set forth.

3. The combination, substantially as hereinbefore set forth, with the axle, consisting of the bed D, the neck N, expanding to beyond the cornerwise diameter of the bed, and the hollow cylindrical arm B, of uniform diameter from its junction with said neck, of the hub A, having the projection b bearing against said axle at one end of the arm, and the collar e bearing against said neck at the opposite end of the arm.

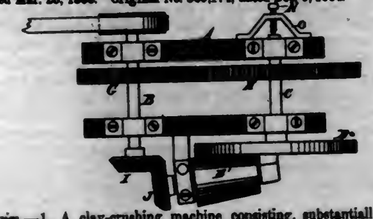
4. The combination of the axle having enlarged cylindrical arm B, and flange i, fixed at an invariable distance beyond its end, with cylindrical hub A, having the annular projection b entering the space between the end of the arm and said flange, and the washers g and w on opposite sides of said projection, substantially as set forth, whereby longitudinal shocks are resisted by said projection b and cushioned by said washers.

5. The combination, substantially as hereinbefore set forth, of the hollow cylindrical hub having the annular projection b, an axle having an enlarged arm, and the screw-threaded plug P, having shoulder s and flange i.

6. The combination, substantially as hereinabove set forth, of a vehicle-axle having its arm of a greater diameter than the cornerwise thickness of the bed, and having a neck between said arm and bed of gradually-increasing thickness from the bed to the arm, and a hole formed longitudinally in said arm, with a cylindrical hub fitting said arm and having an annular projection, b, a collar attached to said hub and surrounding said neck, a washer intervening between said neck and collar, a bearing-flange, i, fixed to the axle-arm, and the washers g and w, respectively intervening between the extremity of said arm and projection b, and between projection b and flange i.

7. The combination, substantially as hereinbefore set forth, of the bed of the axle D, the enlarged hollow arm B, and the neck N with the hub A, fitting said arm, and having annular projection b, the collar e, attached to said hub and surrounding said neck, the intervening washer, e', the screw-threaded hollow plug P, having shoulder s and flange i, the washers g and w, respectively intervening between the extremity of said arm and projection b, and between projection b and the flange i, and the cap H.

10,584. CLAY-CRUSHING MACHINE. WILLIAM W. WALLACE, Frankfort, Ind., assignor to the Wallace Manufacturing Company, same place. Filed Mar. 25, 1885. Original No. 309,174, dated Dec. 9, 1884.



Claim.—1. A clay-crushing machine consisting, substantially, of the vertical disk D and horizontal roll E, driven by suitable gearings from the main shaft, and adapted to crush the clay and carry it through vertically between the faces of said crushing parts and discharge the stones laterally over the face of the grinding devices, substantially as described.

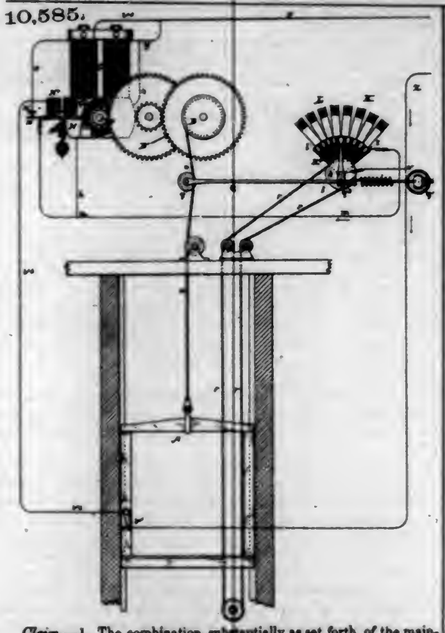
2. A clay-crushing machine consisting, substantially, of the vertical disk D, having radial grooves, and horizontal roll E, driven by suitable gearings from the main shaft, and adapted to crush the clay and carry it through vertically between the faces of said crushing parts and discharge the stones laterally across the faces of the grinding devices, substantially as described.

3. A clay-crushing machine consisting, substantially, of the vertical disk D and horizontal taper roll E, said disk being provided with radial grooves F, and driven by suitable gearing from the main shaft, and adapted to crush the clay and carry it through vertically between the faces of said crushing parts and discharge the stones laterally over the face of the grinding devices, substantially as described.

4. A clay-crushing machine consisting, substantially, of the vertical disk D, provided with radial grooves F, and taper roll E, and driven by suitable gearing on the main shaft, and adapted to crush the clay and convey it through vertically between the faces of said crushing parts and discharge the stones laterally over the face of the grinding devices, substantially as described.

10,585. ELECTRIC ELEVATOR. SCHUYLER S. WHEELER, Newburg, assignor to Charles A. Cheever, trustee, New York, N. Y. Filed Dec. 26, 1884. Original No. 273,208, dated Feb. 27, 1883.

10,585.



Claim.—1. The combination, substantially as set forth, of the main-line or generator circuit, an electric motor placed therein, a car, cage, or vehicle which is hoisted by the motor when the motor is driven in one direction, but which in descending drives the motor in the opposite direction, and mechanism under the control of the attendant in the car for increasing or decreasing the electric capacity of the motor-circuit, so as to increase or decrease the resistance of the motor to being thus driven by the descending car, whereby the speed of descent of the car may be regulated, as described.

2. The combination of the main-line or generator wires, the electric motor placed therein, the car, cage, or vehicle for raising and lowering matter, mechanism for automatically increasing or decreasing the power of the motor in proportion to the weight placed upon the car, for the purpose set forth, and mechanism to further increase or decrease the power of the motor, at the will of the operator, to raise or lower the car.

3. The combination of the main-line or generator wires, the electric motor placed therein, the car, cage, or vehicle to be raised or lowered by the motor, the switch having the moving base and moving switch-arm, means for automatically moving the switch-arm to vary the power of the motor, as set forth, to automatically increase or decrease the power of the motor proportionately to the weight thrown upon the car, and means under the control of the operator for moving the base of the switch to further increase or decrease the power of the motor to raise or lower the car.

4. The combination, substantially as set forth, of the main-line or generator wires, the electric motor placed therein, the car, cage, or vehicle to be raised and lowered by the motor, switch mechanism for automatically increasing or decreasing the power of the motor proportionately to the load thrown upon it, for the purpose set forth, means for adjusting such switch mechanism, and switch mechanism under the control of the operator for further increasing or decreasing the power of the motor to raise or lower the car.

5. The combination of an electric circuit and the two-part switch, each part of which is independently movable, a series of contacts on one part of the switch over which the other part of the switch moves, and means for increasing or decreasing the capacity of the electric circuit in response to the movement of either part of the switch.

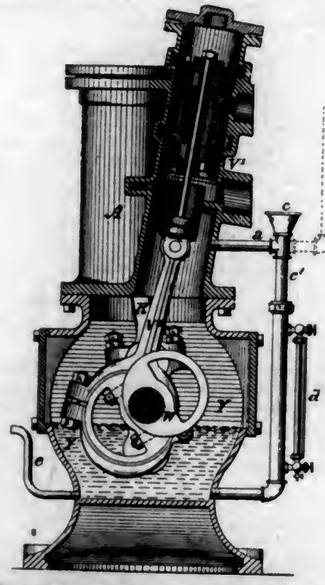
6. The two-part switch consisting of the pivoted moving base carrying a series of contacts and mechanism for adjusting them toward or from each other, and the pivoted moving switch-arm.

7. The combination of the main-line or generator circuit, the electric motor placed therein, a car, cage, or vehicle which is raised by the motor and which in its descent reverses the direction of the motor, brake apparatus, and a branch circuit thrown around the motor, in which circuit the coils of the brake-controlling magnets are placed, for the purpose set forth.

8. The combination of the main-line or generator wires, the electric motor placed therein, the car and cable, the hoisting-drum driven by the motor, mechanism for controlling the power of the motor, and the bar or rod Q, on which the strain of the cable is exerted, which operates the controlling mechanism and automatically increases or decreases the power of the motor proportionately to the strain upon the cable.

9. The combination of the main-line or generator wires, the electric motor placed therein, the car and cable, the hoisting-drum driven by the motor, mechanism for controlling the power of the motor, the bar or rod Q, on which the strain of the cable is exerted, which operates the controlling mechanism and automatically increases or decreases the power of the motor proportionately to the strain upon the cable, and means for adjusting the rod.

10,586. STEAM-ENGINE-LUBRICATING ATTACHMENT. H. HERMAN WESTINGHOUSE, New York, N. Y., assignor to the Westinghouse Machine Company, Pittsburg, Pa. Filed Mar. 25, 1885. Original No. 271,006, dated Jan. 23, 1883.



Claim.—1. As an improvement in the class of engines in which lubrication of the moving parts is effected wholly or in part by the splashing of the oil effected by the piston and valve-stem connections, the combination of a close oil-vat and a vent-pipe leading therefrom, substantially as set forth.

2. As an improvement in the class of engines in which lubrication of the moving parts is effected wholly or in part by the splashing of the oil effected by the piston and valve-stem connections, the combination of a close oil-vat and a vent and return drip-pipe, substantially as set forth.

3. In combination with a close oil-vat, Y, of a steam-engine, a vent-pipe, *a*, escape-opening or funnel *c*, and drip-pipe *c'*, substantially as set forth.

4. In combination with close oil-vat Y and the cylinders and valve-chambers A V, a water-escape pipe, *e*, entering a vat at or near the bottom and rising to the normal oil-level of the vat, substantially as set forth.

PHOTO LITH. NORRIS PETERS

DECISIONS
OF THE
COMMISSIONER OF PATENTS
AND OF UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

Supreme Court of the United States.

THOMPSON *et al. v.* BOISSELIER *et al.* THOMPSON *et al. v.* BOISSELIER *et al.*

APPEALS from the Circuit Court of the United States for the Eastern District of Missouri.

THE MCNAB AND HARLAN MANUFACTURING COMPANY AND JOHN HARLAN *v.* THOMPSON *et al.* EATON *et al. v.* THOMPSON *et al.*

APPEALS from the Circuit Court of the United States for the Southern District of New York.

Decided March 30, 1885.

1. The third claim of Reissued Letters Patent No. 978, granted to William S. Carr, June 12, 1860, for improvements in water-closets, (the original patent having been granted to him August 5, 1856, and as reissued extended, July 23, 1870, for seven years from August 5, 1870)—namely: "3. In a valve for water-closets, a cup-leather for controlling the motion of said valve in closing gradually, substantially as specified, said cup-leather moving freely in one direction, and closing against the containing-cylinder in the other direction, and the leakage of water in said cylinder allowing the movement of said cup-leather, as set forth"—construed, and the operation of the device explained.
2. In view of the state of the art, *Held*, that, for the purpose of securing the free passage of water in one direction and preventing its escape in the other direction otherwise than gradually, the defendants had used nothing which they did not have a right to use, and had not appropriated any patentable invention which Carr had a right to cover, as against the defendants' structure, by the third claim of his reissue. All that Carr did, if anything, was to add his form of orifice to the valve and cup-leather of an existing pump-plunger.
3. The third claim of the Carr reissue involves, as an element in it, the means of leakage set forth. The only point of invention, if it could be dignified by that name, was the special means of leakage shown by Carr, but which the defendants did not use.
4. To be patentable, a thing must not only be new and useful, but must amount to an invention or discovery.
5. Under recent decisions claim 3 of the Carr reissue must, in view of the state of the art, either be held not to involve a patentable invention, or, if it does, not to have been infringed.
6. The first claim of Letters Patent No. 21,734, granted to Frederick H. Bartholomew, October 12, 1858, for an improved water-closet, and extended, October 2, 1872, for seven years from October 12, 1872—namely: "1. The use of a drip-box or leak-chamber arranged above the closet and below and around the supply-cock, substantially as described"—must, in view of the state of the art, be limited to a drip-box arranged above or on top of the closet, and is not infringed by a structure in which the drip-box is cast on the side of the trunk, near the top, but below it, and not on top of it.

Mr. Edmund Wetmore and *Mr. G. G. Frelinghuysen* for Thompson, trustee, &c., *et al.*

Mr. L. Deane for Boisselier *et al.*

Mr. Justice BLATCHFORD delivered the opinion of the Court.

These are four suits in equity. The first one was brought in February, 1877, in the Circuit Court of the United States for the Eastern District of Missouri, by Charles F. Blake, as trustee of William S. Carr and Frederick H. Bartholomew, against Elizabeth E. Boisselier and John C. Kupferle, for the infringement of Reissued Letters Patent No. 978, granted to William S. Carr, June 12, 1860, for improvements in water-closets, the original patent having been granted to him August 5, 1856, and as reissued extended, July 23, 1870, for 7 years from August 5, 1870. The second suit was brought in February, 1879, in the same court by Charles F. Blake, as trustee of Sarah Bartholomew, against the same defendants, for the infringement of Letters Patent No. 21,734, granted to Frederick H. Bartholomew, October 12, 1858, for an improved water-closet, and extended, October 2, 1872, for seven years from October 12, 1872. The third and fourth suits were brought in July, 1879, in the Circuit Court of the United States for the Southern District of New York, by Charles F. Blake, as trustee, &c., and William S. Carr and Sarah M. Bartholomew—one against the McNab and Harlan Manufacturing Company and John Harlan, and the other against John Eaton and others—each for the infringement of the said Carr patent as reissued and extended, and of the said Bartholomew patent as extended.

In each of the two suits in Missouri a decree was made in May, 1880, adjudging that the patent sued on was not good and valid in law, and dismissing the bill. In each of the two suits in New York a decision was made in February, 1881, (19 *Blatchf. C. C. R.*, 73,) adjudging that the two patents were good and valid in law, and that the third claim of the Carr reissue and the first claim of the Bartholomew patent had been infringed, and awarding an account of profits and damages; and in January, 1882, a final decree was made in one suit for $1,200 damages and $118 74 costs, and in the other for $415 damages and $101.24 costs. The plaintiffs in interest in each of the Missouri suits and the defendants in each of the New York suits have appealed to this Court. The questions are the same in all of the suits and arise on the same proofs.

The third claim of the Carr reissue is the only claim of that patent which is alleged to have been infringed. So much of the specification of that reissue as relates to that claim is as follows:

Figure 1 is an elevation of my closet as in place for use. Fig. 2 is a plan of the cock and part of the plan of said closet, and Fig. 3 is a vertical section of my cock made use of in letting the water into and shutting the same off from said closet.

Similar marks of reference indicate the same parts in all the figures.

The nature of my said invention consists in a peculiar construction of cock, which is opened by the motion of the seat of the water-closet, and allows but little water to run into the pan of the closet until the weight is removed from the seat, when the cock, gradually closing of itself, allows the water to run for a limited and regulated time, sufficient to wash out the basin. * * *

In the drawings, *a* is the trunk on the upper end of the soil-pipe *b*, fitted with the pan *r* on the shaft or spindle *q*; and *c* is the basin setting onto the trunk *a*. These parts thus far are to be of any usual or desired character. *d* is a pipe supplying water from any suitable head, and said pipe is attached to the coupling 1, that screws onto the body *e* of the cock; and *f* is a pipe and coupling passing water (when admitted as hereinafter detailed) to the basin *c*, where it is to be fitted with the deflector, as usual.

The cock *e*, that supplies water to the basin, is constructed with a stem, A, passing nearly or quite air-tight through the leather washer 4, beneath the cap *n*, and the lower end of said stem A is formed with a valve, *g*, and with a cylindrical part, 3, fitting water-tight, or nearly so. The opening of the washer 2 between the coupling 1 of the pipe *d* and cock *e* and the sides of this cylinder 3 are formed with notches, or a groove, *x*.

It will now be seen that if the stem A be pressed down by the weight of the person acting on the seat *w*, rod *v*, and lever *p*, or by any other suitable means, the valve *g* will be forced away from the washer 2 and allow a dash of water to pass through the notch *x* sufficient to fill up the parts of the cock, and then that the cylinder 3, descending and filling the opening in the washer 2, will prevent, or nearly so, the passage of any more water into the closet. *i* is a spring around the stem A, which acts, in aid of the pressure of the water on the valve *g*, to close the same as soon as the force which opened the said valve is removed; but if this alone was used the concussion would be so great as to tend to break the parts, besides which sufficient water would not be supplied to the water-closet to cleanse the same.

I therefore make use of the following means, which cause said valve *g* to close slowly and in a regulated amount of time, thereby allowing the desired quantity of water to dash past the washer 2 at the time the notches or openings *x* are moving past the same. The upper part of the cock *e* is formed as a cylinder, *k*, in which is a disk, *l*, attached to the stem *h*, and a cup-leather, *m*, above the same. *n* is a cap of the cylinder *k*, which is formed with a short tube, 8, passing up through a hollow projection, 9, from the side of the trunk *a*, and secured thereto by a nut, 6. At the time the valve *g* is pressed down, as before stated, the water dashes momentarily onto the cock and fills the same, passing the cup-leather *m* and filling the cylinder *k*, and upon the pressure on the stem A being removed the cup-leather expands by the slight rise of the stem, and would retain the valve *g* open were the cylinder *k* water-tight, and therefore the closing of said valve will be regulated according to the extent of leakage provided in said chamber *k*; and for this purpose the leakage at the washer 4, around the stem A, may in some cases be sufficient; but I propose to use a screw, 9, entered through the cap *n*, with a head next the washer 4, and part of one side of the screw filed away, so as to adjust the amount of leakage and regulate the time during which the water will run into the closet.

* * * * * * * * *

I am also aware that a given amount of water leakage has been used to prevent a sudden motion in cocks, balances, meters, and a variety of other instruments, therefore I do not claim the same; but I am not aware that a cup-leather has ever before been so fitted and applied with a valve as to allow the water to pass the said cup-leather freely in the chamber in which it moves, and then act, when the power is relieved from the valve, upon the water in said chamber and gradually allow the valve to close.

The third claim of the Carr reissue is as follows:

3. I claim, in a valve for water-closets, a cup-leather for controlling the motion of said valve in closing gradually, substantially as specified, said cup-leather moving freely in one direction, and closing against the containing-cylinder in the other direction, and the leakage of water in said cylinder allowing the movement of said cup-leather, as set forth.

In the Carr apparatus the valve is combined with a containing-cylinder and a cup-leather in such manner that the valve is caused to close slowly, because the action of the cup-leather as a tight packing prevents the passage of water while the valve is closing, and the valve can open rapidly, because, as it opens, the cup-leather does not act as a packing, but permits the passage of water outside of it. In the containing-cylinder there is a piston which has on it centrally a cup-leather, and is provided with a small aperture, which permits the gradual escape of water from it. When the cylinder is filled with water, the valve is held to its seat by a spiral spring. When the valve-stem is depressed, the valve opens rapidly, because the cup-leather permits the water to pass freely outside of it. When the force which depressed the valve-stem is removed, the spring acts to shut the valve, but it shuts slowly, because the cup-leather acts as a tight packing, being forced outward against the inner wall of the cylinder by the pressure of the water. Therefore the water escapes slowly from the cylinder through the small aperture, and the valve cannot move faster in shutting than it is allowed to move by the escape of the water through the small aperture.

The apparatus alleged to infringe the two patents is the same in all of the suits. It has a brass casting, and is thus described by the plaintiffs' expert:

This brass casting of the defendants has at its lower part a cavity whose walls partially bound the variable chamber. This cavity is a cup-shaped piece of brass screwed to the bottom of the casting. A cylindrical brass plunger enters this cavity, and the upper end of it is formed into a valve. This brass plunger is packed to the top of the cavity by a cup-leather, which is secured between the upper part of the brass cup and an internal flange on the brass casting. The stem of the plunger and valve is surrounded by a coiled brass spring which always tends to lift the plunger and shut the valve. The plunger has also a small nick or groove cut in its periphery and extending from the top to the bottom of the plunger. When this contrivance is ready for operation, all parts of the cavity in the brass casting, including the variable chamber, are filled with water and the valve is held on its seat by the spiral spring, the plunger then being in its highest position. When it is desired to open the valve, force is applied to depress the valve-stem. This force compresses the spring, depresses the plunger, and opens the valve quickly, owing to the fact that the water can escape rapidly from the variable chamber, such rapid escape being due to the operation of the cup-leather, which now ceases to hug the plunger and acts as a valve, permitting the water to escape freely from the variable chamber. When the force which was applied to depress the stem and open the valve is removed, then the spring strives to shut the valve and elevate the plunger; and as soon as it commences to elevate the plunger the pressure of water causes the cup leather to hug the plunger tightly, so that it ceases to act as a valve and becomes a tight packing. As soon as this occurs water can only enter the chamber through the small groove in the periphery of the plunger, and the valve can shut no faster than this small flow of water permits it to shut.

It is shown by the evidence that cup-leathers had been used in the central valves of the plungers of pumps, the cup-leather contracting on the downstroke and allowing the water to pass by, and spreading out on the upstroke and raising the water, and that it was not new to employ a variable chamber to effect, by the gradual escape of water from it, the slow and gradual closing of a valve.

In George Hulme's English patent, No. 8,971, of November, 1841, is shown a device for keeping a valve open for any required length of time for the supply of water to the basins of water-closets generally.

The specification says:

To regulate the length of time that the valve F may be kept open for the flow of water from the reservoir to the basin of the closet after the pan or valve has closed, the barrel A A is furnished with the openings N N, communicating from the under to the upper side of the bucket D, and fitted with a cock, O. Now, by turning the cock O in such a position that the water-way through the cock O will be diminished, more time will be required for the bucket to displace the contents of the barrel, and *vice versa*.

The bucket D does not have a cup-leather, but has a central valve, E, to allow the water to pass.

The defendants have substantially the Hulme construction, using a cup-leather centrally, instead of the Hulme central valve. A central valve being old, and a cup-leather being old, and a central valve and a cup-leather combined being old, and a plunger with a central valve and a means of regulating the escape of the water from above it being old, and the device for the escape of the water, used by the defendants, being the same as in Hulme, it must be held that, for the purpose of securing the free passage of water in one direction and preventing its escape in the other direction otherwise than gradually, the defendants have used nothing which they did not have a right to use, and have not appropriated any patentable invention which Carr had a right to cover, as against the defendants' structure, by the third claim of his reissue. If Carr had made the defendants' form of structure when he made his own, he would not, in view of the state of the art, have made anything having patentable novelty in it; and, therefore, what he has claimed in claim 3 of his reissue has no patentable feature which the defendants' form of structure infringes. The action of the cup-leather in Carr's structure and in the defendants', to admit the free passage of the water while the valve is moving in one direction, and to prevent such passage while the valve is moving in the other direction, is due to the flexibility of the leather and to the pressure of the water on its different sides alternately, and to its position with reference to the wall of the chamber, and is the same as in the old central valve of a pump-plunger which was furnished with a cup-leather. The effect resulting from allowing the water, which cannot return through the passage by which it entered, to escape by a small orifice and gradually, and thus cause a gradual movement in a valve attached to the central stem, is due to the small orifice. All that Carr did, if anything, was to add his form of orifice to the valve and cup-leather of the pump-plunger; but the idea of having openings extending from one side to the other of a bucket, and thus regulating the closing of a water-valve by the slow escape of the water from the upper side of the bucket, through such openings, was fully exhibited in the apparatus of Hulme.

Claim 3 of Carr's reissue speaks of the cup-leather as—

moving freely in one direction and closing against the containing-cylinder in the other direction.

This action existed in the cup-leather of the old pump-plunger. The claim also says:

The leakage of water in said cylinder allowing the movement of said cup-leather, as set forth.

This means that the greater or less extent of the leakage allows a faster or slower movement of the cup-leather and a faster or slower closing of the valve. The claim involves, therefore, as an element in it, the means of leakage set forth. It says that the use of the cup-leather is—

for controlling the motion of said valve in closing gradually, substantially as specified.

But it is the gradual escape of the water through the small orifice which controls the motion of the valve. The cup-leather does not control such motion. The only action of the cup-leather is the same which it had in the old pump-plunger—to hold up a column of water and act as a packing to prevent the return passage of the water. In this condition of things it would seem that the only point of invention, if it could be dignified by that name, was the special means of leakage shown by Carr, of having a screw through the cap, with part of the screw filed away, and which is not used by the defendants, who use the same means of leakage as Hulme did.

The provision of the Constitution (Art. 1, sec. 8, subd. 8) is that the Congress shall have power—

to promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries.

The beneficiary must be an inventor and he must have made a discovery. The statute has always carried out this idea. Under the act of July 4, 1836, (5 *Stat.*, 119, sec. 6,) in force when these patents were granted, the patentee was required to be a person who had "discovered or invented" a "new and useful art, machine, manufacture, or composition of matter," or a "new and useful improvement in any art, machine, manufacture or composition of matter."

In the act of July 8, 1870, (16 *Stat.*, 201, sec. 24,) the patentee was required to be a person who had—

invented or discovered any new and useful art, machine, manufacture, or composition of matter, or any new and useful improvement thereof—

and that language is reproduced in section 4886 of the Revised Statutes. So it is not enough that a thing shall be new, in the sense that in the shape or form in which it is produced it shall not have been before known, and that it shall be useful, but it must, under the Constitution and the statute, amount to an invention or discovery.

To refer only to some more recent cases, adjudged since these suits were decided below, this principle was applied in *Vinton* v. *Hamilton*, (104 U. S., 485,) where, a cupola-furnace being old, and a cinder-notch being old, and the use of a cinder-notch to draw off cinders from a blast-furnace being old, and the cinder-

notch, in drawing off the cinder from a cupola-furnace, performing the same function as in the blast-furnace, it was held that the application of the cinder-notch to the cupola-furnace would occur to any practical man, and that there was nothing patentable in such application.

In *Hall* v. *Macneale* (107 U. S., 90) a cored conical bolt, in a safe, with a screw-thread on it, having existed before, and also a solid conical bolt, it was held to be no invention to add the screw-thread to the solid conical bolt.

In *Atlantic Works* v. *Brady* (Id., 192, 200) it was said, that it is not the object of the patent laws to grant a monopoly for every trifling device which would naturally and spontaneously occur to any skilled mechanic or operator in the ordinary progress of manufactures; and this doctrine was applied in *Slawson* v. *Grand Street Railroad Co.*, (Id., 649;) in *King* v. *Gallun*, (109 Id., 99;) in *Double Pointed Tack Co.* v. *Two Rivers Mfg. Co*, (Id., 117;) in *Estey* v. *Burdett*, (Id., 633;) in *Bussey* v. *Excelsior Mfg. Co.*, (110 Id., 131;) in *Pennsylvania R. R. Co.* v. *Locomotive Truck Co.*, (Id., 490;) in *Phillips* v. *Detroit*, (111 Id., 604;) in *Morris* v. *McMillin*, (112 Id., 244,) and in *Hollister* v. *Benedict Mfg. Co*, (113 Id., 59.)

In the case last cited the thing claimed was new in the sense that it had not been anticipated by any previous invention, and it was shown to have superior utility, yet it was held not to be such an improvement as was entitled to be regarded, in the patent law, as an invention. The claim was—

A stamp the body of which is made of paper or other material, and having a removable slip of metal or other material, displaying thereon a serial number or other specific identifying-mark corresponding with a similar mark upon the stub, and so attached that the removal of such slip must mutilate or destroy the stamp.

The part designed to become a stub when the stamp proper was separated therefrom, and displaying a serial number, was well known; and so was the constituent part of the stamp proper designed to be permanently attached to a barrel. The third element—namely, a constituent part of the stamp proper displaying the same identifying serial number as the stub, which part, after the stamp proper had been affixed to the barrel, bore such relation to the permanent part that it could be removed therefrom so as to retain its own integrity, but to mutilate, and thereby cancel, the stamp, by its removal—was not new, so far as the contents of such constituent part were identical with those on the stub. But the question turned on that feature of the third element whereby a removable part of the stamp proper, the contents of which identified the stamp with the stub after the stamp had been attached, could be so removed as to retain its own integrity, but mutilate, and thereby cancel, the stamp, by its removal. This was held not to be a patentable invention, and "not to spring from that intuitive faculty of the mind put forth in the search for new results or new methods, creating what had not before existed, or bringing to light what lay hidden from vision;" but to be only "the display of the expected skill of the calling," and involving "only the exercise of the ordinary faculties of reasoning upon the materials supplied by a special knowledge, and the faculty of manipulation which results from its habitual and intelligent practice" and to be "in no sense the creative work of that inventive faculty which it is the purpose of the Constitution and patent laws to encourage and reward."

On these principles claim 3 of the Carr reissue must, in view of the state of the art, either be held not to involve a patentable invention, or, if it does, not to have been infringed.

The specification of the Bartholomew patent says:

The nature of my invention consists in providing for water-closets a cistern, or drip or leak chamber, arranged upon the top of or over the trunk of a closet, and placing a supply-cock within or above said drip-box or cistern, so that any waste or leak or drip from the cock shall be conducted into the trunk, so as to insure the keeping of the floor dry. * * *

Figure 1 is a perspective view of a pan-closet, showing my drip-box arranged upon the top-plate of the closet, and the cock for supplying water to the same secured to the closet within the drip-box. * * *

The general form of the closet is such as is in common use. Upon the cover E, I cast a box, inclosure, or cistern, E, about one inch high, (more or less,) and broad enough to admit of placing the A-cock (I use a valve-cock) within the cistern, and (where it is practicable) so as also to receive the drip that may escape from the joint at the arm of the basin, called the "putty-joint." I screw the cock into the cover of the closet, and make a hole within the drip-box, or in the bottom of the cock, to admit the leak to fall into the trunk P, and not onto the floor.

The first claim of the patent, which is the only one alleged to have been infringed, reads thus:

1. I claim the use of a drip-box or leak-chamber arranged above the closet, and below and around the supply-cock, substantially as described.

The defendants' structure has a trunk and a supply-cock, and a drip-box arranged below and around the supply-cock, but the drip-box is cast on the side of the trunk, near the top, but below it, and not on top of it. The drip goes into the drip-box, and thence into the trunk and the soil-pipe. The following devices are shown to have been old: a drip-cup of drip-box; a pipe to convey away drippings, in machinery, from a drip-box arranged in connection with a cock; a drip-cup applied to the valve of a water-closet, the leakage from the valve falling into a saucer and thence finding its way, through a hole, into the inside of the trunk; a valve on the floor at the foot of the trunk; a valve attached to the trunk and below its top; a valve above its top; a valve with a drip-pan conducting the drip into the soil-pipe at the foot of the trunk; a valve on top of the trunk, and a provision, by means of a hollow arm, to conduct the drip into the trunk. In view of this state of the art, the claim must be limited, as defined by its language and that of the specification, to a drip-box "arranged upon the top of or over the trunk;" "arranged upon the top plate;" cast "upon the cover;" "arranged above the closet." The limitation imposed by the patentee must be presumed to have been made with good reason, and, even if there was anything patentable in the claim as it reads, it cannot, in view of the state of the art, be extended to cover any structure except one which has a drip-box arranged above or on top of the closet, and therefore has not been infringed.

From these considerations it results that the decrees in the Missouri suits must be affirmed, and those in the New York suits must be reversed, with directions to dismiss the bills, with costs.

Supreme Court of the United States.

BLAKE v. THE CITY AND COUNTY OF SAN FRANCISCO *et al.*

Decided March 2, 1885.

1. The second claim of the reissued Letters Patent No. 7,886, granted to Charles E. Blake September 18, 1877, is *held* to be invalid for lack of patentable novelty, unless strictly construed, and as thus construed is not infringed by the defendants.
2. When the public has acquired in any way the right to use a machine or device for a particular purpose, it has the right to use it for all the like purposes to which it can be applied, and no one can subsequently obtain a valid patent to cover the application of the device to a similar purpose unless a new and different result is obtained, which result will not be deemed as new or different if it is the same in character as the old result.

APPEAL from the Circuit Court of the United States for the District of California.

Mr. George W. Dyer for the appellant.
Mr. William Craig for the appellee.

Mr. Justice WOODS delivered the opinion of the Court.

This is an appeal from a decree dismissing a bill filed by the appellant to restrain the infringement by the appellees of reissued letters patent granted to the appellant, as the assignee of original letters patent issued to Thomas H. Bailey. The original patent was dated February 9, 1864, and the reissue No. 7,868 September 18, 1877. They were for a new and improved valve for water-cylinders of steam fire-engines and other pump-cylinders. The specification, which was substantially the same in both patents, stated that previous to the invention therein described the only valve used to relieve the pressure upon fire-hose to prevent them from bursting was one operated by hand. To obviate the defects of such a valve the inventor applied at some point between the engine or pump and the hose-nozzle a valve, which opened automatically by the pressure in the hose or the pump-cylinder, so as to discharge an additional stream, and thereby relieve the pressure. The specification then minutely described an automatic relief or safety valve, and added:

To enable the valve to be screwed down to bring all practical pressure upon the pump and hose in the trial of an engine, there is a hole, *d'*, drilled through the upper part of the screw-cap D and valve-stem *d* when the valve is down in its seat for the reception of a pin, by the insertion of which the valve-stem and cap can be connected rigidly, so that by slightly turning the cap the valve may be screwed down close to its seat.

The reissued patent contains two claims, the second of which only is found in the original. They were as follows:

1. The combination, with a pump-cylinder and hose of a fire-engine, of an automatic relief-valve arranged relatively thereto, substantially as specified.
2. The combination of the valve C, stem *d'*, spring E, adjustable cap D, and pin-hole *d*, whereby the valve may be either held upon its seat with a variable yielding pressure, or may be elevated therefrom, or held immovably thereon, as an ordinary screw-plug.

The answer of the defendants denied infringement, denied that Bailey was the original inventor of the devices described in his patent, and averred that his alleged invention had been in notorious public use many years before the application of a patent therefor by Bailey. The appellant does not contend that the appellees infringe the first claim of the reissued patent. He bases his demand for relief on the alleged infringement of the second claim only. We think that the proper construction of this claim is that it covers an automatic valve in combination with a contrivance consisting of a pin-hole and pin, by which the valve may be raised from its seat, so as to leave the valve-hole permanently open, or by which the valve may be rigidly closed upon its seat, making a closed or plug valve.

The evidence shows that Bailey was not the first to conceive the idea of a device for opening or closing rigidly an automatic valve. The same thing had been done by means of wedges and screws and other devices. He cannot, therefore, cover by his patent all the devices for producing this result, no matter what their form or mode of operation. The claim must be confined to the specific device described in the specification and claim—namely, a pin-hole and pin. If this construction of the claim be adopted, it is clear that no infringement is shown, for the appellees do not use a pin-hole and pin for holding their valve open or closed, but a screw, sleeve, or cap, and therefore one of the elements of the combination covered by the second claim of appellant's patent is wanting in the device used by the appellees. *Prouty* v. *Ruggles*, 16 Pet., 336. See also *Rowell* v. *Lindsay*, 31 O. G. 120, and cases there cited. But, if it be contended that the device covered by the second claim of the appellant's patent is infringed simply by the use of an automatic relief-valve which can be converted at will into an open or closed valve, the evidence in the record is abundant to show that long before the application of Bailey for the original patent automatic safety-valves which could be thus rigidly opened or closed were in common use for the purpose of relieving pipes and cylinders from the pressure of steam or water, and that the valve of the appellant did not materially differ from those which were in common use. This was virtually conceded by the appellant when, being under examination as a witness in his own behalf, he was asked by counsel for the appellees in what respect the valve described in his patent differed from any other automatic relief-valve, he replied:

It is about the same as others. It is similar to other automatic steam pump valves.

Upon this state of facts it was plain that the mere employment by the defendants of the old and well-known automatic safety-valve afforded no ground upon which to base the relief prayed for in the appellant's bill. Appellant's counsel therefore disclaimed any right to the exclusive use of an automatic safety-valve, and said:

We do not claim the valve any further than in this combination with a steam fire-engine.

If it be conceded, therefore, that the second claim of appellant's patent covered the use of an automatic relief-valve applied to a steam fire engine and hose, the question is presented whether the appellant's patent, thus construed, is valid.

It is settled [says Mr. Justice Gray, speaking for the Court] by many decisions of this Court * * * that the application of an old process or machine to a similar or analogous subject, with no change in the manner of application and no result substantially distinct in its nature, will not sustain a patent, even if the new form of result has not before been contemplated. (*Pennsylvania Railroad* v. *Locomotive Truck Company*, 110 U. S., 490, and cases there cited.)

It follows from this principle that where the public has acquired in any way the right to use a machine or device for a particular purpose it has the right to use it for all the like purposes to which it can be applied, and no one can take out a patent to cover the application of the device to a similar purpose. If there is any qualification of this rule it is that, if a new and different result is obtained by a new application of an invention, such new application may be patented as an improvement on the original invention, but if the result claimed as new is the same in character as the original result it will not be deemed a new result for this purpose. For instance, an automatic relief-valve used to relieve the pressure of steam produces no new result in character when used to relieve the pressure of water unless some further effect besides the mere relief of pressure is obtained. This qualification, there-

fore, will not affect the present case, because no new result in character is accomplished by the supposed invention of the plaintiff. Besides, it appears from the evidence that before Bailey's patent was applied for relief-valves were in common use both on land and at sea. They were commonly used on the steam feed-pumps of steamships. These pumps were usually fitted with nozzles for the attachment of hose, so that the feed-pump could in case of need be used as a steam fire-engine. It is therefore plain that in this state of the art Bailey could not obtain a valid patent for applying a similar valve to a portable steam fire-engine. He could not do this for two reasons: first, because the public had the right to use the valve for all similar purposes for which it was adapted, and, second, because the application of a valve which had been used on a stationary steam fire-engine on ships to a portable steam fire-engine on land did not require any ingenuity or involve invention. It is no answer to this to assert that the application of a relief-valve to a portable steam fire-engine is the invention of a new combination. There was no invention—the combination was already in public use on steamships. The application of the valve to a similar use on land was not a new combination or a new invention. We are of opinion, therefore, that, construing his patent as the appellant has been compelled by the testimony to do, Bailey invented nothing but the pin-hole and pin mentioned in his specification, and this is not used by the appellees.

The decree of the circuit court is affirmed.

U. S. Circuit Court—Southern District of New York.

TRAVERS *v.* PALMER.

Decided April 3, 1885.

Bill to enjoin infringement of letters patent for an improved hammock is dismissed because defendant uses but two of the six elements of complainant's combination and possibly an equivalent for a third element.

Messrs. Frost & Coe for the complainant.

Mr. Edwin H. Brown for the defendant.

COXE, *J.*:

This is an action to enjoin the alleged infringement of Letters Patent No. 217,964, issued to the complainant July 29, 1879, for an improvement in hammocks. In the specification attached to the patent the inventor declares that the object of his invention is to form a new and improved hammock, which shall be stronger, neater, and better adapted for its purpose than the hammocks now in use. He says:

My hammock A is made or woven into an elastic open-worked fabric of cotton or other fiber, and is made of any length and width. It may be made plain or in colors. At the ends of the hammock A are secured eyelet-rings *a*, of metal or other suitable material. Through these rings *a* the suspensory continuous cord C passes and forms a grommet, D, for the purpose of securing the cord C to the rings B, of metal or other proper material.

* * * * * * *

The hammock A is bound with any suitable material, thus giving said hammock a neat and tasteful appearance.

The claim is as follows:

The hammock herein described, consisting of the rectangular flexible open-worked fabric A, having a continuous outer flexible binding, provided with strengthening end cords, F, and a series of eyelets, *a*, in its ends, continuous cord C D, and rings B, as and for the purpose set forth.

The claim covers the following elements: first, the rectangular flexible open-worked fabric; second, the continuous flexible binding; third, the strengthening end cords; fourth, the eyelets; fifth, the continuous clew-line; sixth, the suspending rings.

The defense is non-infringement. An examination of the defendant's hammock, which is manufactured under patents issued to him in January and February, 1883, discloses the fact that he uses but two of these elements—viz., the material and the rings. He does not use the binding, the strengthening-cords, the eyelets, or the continuous clew-line. It is contended, however, that for these equivalents are adopted. That there is no outer flexible binding on defendant's hammock is conceded; but it is said that the selvage formed by weaving the edges of the fabric closer than the general body is an equivalent for the binding. This argument would be plausible were it not for the fact that the hammock offered in evidence as made in accordance with the complainant's patent also shows a selvage edge, not so wide, but similar in every other respect. There is, then, no substitute whatever for the binding, which, it is quite evident, is used for ornament only. The strengthening end cord, which in the drawing appears to extend entirely around the sides and ends of the hammock-body, is not found in the defendant's hammock. The lines of double sewing can hardly be regarded as an equivalent, and especially so in view of the fact that the same sewing appears on the complainant's hammock. The cord is intended to add additional strength to the sewing. Although the defendant uses no eyelets, it may be doubtful whether his loops, formed of many strings running out from the ends of the hammock-body, are not fair equivalents. It is, however, unnecessary to decide this question. The defendant does not use the continuous cord extending back and forth from the hammock-body to the ring. His cords are separate from and independent of each other. Of the six elements of the complainant's hammock the defendant uses but two, and possibly an equivalent for a third. As three of them are wholly absent from his hammock, it must be held that there is no infringement. *Williams* v. *Stolzenbach*, 30 O. G., 891; *Water Meter Company* v. *Desper*, 101 U. S., 332; *Blake* v. *City of San Francisco*, Supreme Court, March 2, 1885; *Voss* v. *Fisher*, 30 O. G., 1066; *Rowell* v. *Lindsay*, 31 O. G., 120; *Prouty* v. *Ruggles*, 16 Pet., 336; *Gould* v. *Reese*, 15 Wall., 187; *Seymour* v. *Osborne*, 11 Wall., 516, 555; *Gill* v. *Wells*, 22 Wall., 1, 14.

The bill is dismissed.

THE

OFFICIAL GAZETTE

OF THE

United States Patent Office.

[*BY AUTHORITY OF CONGRESS.*]

VOL. 31—NO. 4. TUESDAY, APRIL 28, 1885. PRICE—$5 per year.

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The Official Gazette.

The OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Indexes to Patents on Electricity.

Appendix No. 2 to the index to patents relating to electricity, covering the period of time from July 1, 1882, to June 30, 1883, has been issued, and is now for sale. These indexes, arranged alphabetically, numerically, and by classes, are completed to June 30, 1883, and comprise the following volumes:

Vol. 1. Index to patents relating to electricity granted by the United States prior to June 30, 1881, with an appendix, July 1, 1881, to June 30, 1882. One volume, 250 pages. In paper covers, $3; bound, $5.

Vol. 2. Appendix No. 2, July 1, 1882, to June 30, 1883. One volume, 50 pages. In paper covers, $1.50.

Vol. 3. Appendix No. 3, July 1, 1883, to June 30, 1884. One volume, 60 pages. In paper covers, $1.50.

Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., April 20, 1885.

SIR: I am directed by the Secretary to inform you that he has ordered that William C. Coxey, of Lancaster, Pennsylvania, be not recognized from and after this date as attorney in the prosecution of any claim or other matter before the Department of the Interior or any bureau thereof.

I am, sir, very respectfully, your obedient servant,

AMOS HADLEY,
Acting Chief Clerk.

The Commissioner of Patents.

31 O G—4—i

Issue of April 28, 1885.

Patents	496	No. 316,433 to No. 316,928, inclusive.
Designs	6	No. 16,060 to No. 16,065, inclusive.
Trade-Marks	24	No. 12,175 to No. 12,198, inclusive.
Labels	9	No. 4,431 to No. 4,439, inclusive.
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TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama			Nebraska	5	
Arizona Territory			Nevada		
Arkansas	2		New Hampshire	4	3
California	15	1	New Jersey	45	1
Colorado			New Mexico Territ'y		
Connecticut	25		New York	64	14
Dakota Territory			North Carolina		
Delaware	1		Ohio	41	3
District of Columbia	1		Oregon	3	
Florida	1		Pennsylvania	42	
Georgia	3	2	Rhode Island	5	
Idaho Territory	1		South Carolina	1	
Illinois	23	1	Tennessee	3	
Indiana	16	1	Texas	4	
Indian Territory	1		Utah Territory		
Iowa	9		Vermont	2	
Kansas	4		Virginia	3	
Kentucky	5		Washington Territ'y		
Louisiana	4		West Virginia	2	
Maine	6		Wisconsin	3	
Maryland	10		Wyoming Territory		
Massachusetts	62	2	United States Army		
Michigan	26		United States Navy		
Minnesota	4				
Mississippi	1		Total to citizens of the United States	465	32
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Montana Territory	1				

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Argentine Republic			Germany	5	
Austria-Hungary	1		Italy		
Barbadoes			Mexico	1	
Belgium			Netherlands		
Bermuda			Norway		
British Columbia	1		Russia		
Canada	6	1	Scotland		
Central America			Spain		
Columbia, U. S. of			Sweden		
Cuba			Switzerland		
Denmark	1				
Ecuador			Total to citizens of foreign countries	37	1
England	13				
France	9				

DESIGNS.

16,060.—HANDLE FOR DISHES.—*Charles Edward Haviland*, Limoges, France. Application filed February 3, 1885. Term of patent 14 years.

16,061.—FONT OF TYPE.—*Andrew Little*, New York, N. Y. Application filed March 16, 1885. Term of patent 3½ years.

16,062.—TABLE-WARE.—*François A. Nouseat*, Limoges, France, assignor to *Francis H. Bawo* and *Charles T. Dotter*, New York, N. Y. Application filed March 16, 1885. Term of patent 7 years.

16,063 and 16,064.—CARPET.—*Thomas J. Stearns*, Boston, Mass., assignor to *The Roxbury Carpet Company*, same place. Application filed April 2, 1885. Term of patent 3½ years.

16,065.—LEAVES OF BUTT-HINGES.—*Friend W. Smith*, Bridgeport, Conn. Application filed January 14, 1885. Term of patent 7 years.

TRADE-MARKS.

[Certificates of registration of Trade-Marks numbered 8,191 and upward are registered under the act of March 3, 1881.]

12,175.—CHEWING-GUM.—*Adams & Sons*, New York, N. Y. Application filed February 27, 1885.
"The words 'BLACK JACK.'"

12,176.—SHOE AND GLOVE LEATHER.—*Booth & Kent*, New York and Gloversville, N. Y. Application filed March 25, 1885.
"The word 'LILY' or its equivalent, the representation of a lily."

12,177.—CERTAIN PREPARATIONS OF COD-LIVER OIL.—*John Carnrick*, New York, N. Y. Application filed March 24, 1885.
"The representation of two fish, a crowned owl, and a cow."

12,178.—LAUNDRY AND OTHER SOAPS FOR SCRUBBING PURPOSES.—*Empire Soap Company*, St. Louis, Mo. Application filed March 27, 1885.
"The representation of a scrubbing-brush."

12,179.—LAUNDRY AND OTHER SOAPS.—*Empire Soap Company*, St. Louis, Mo. Application filed March 27, 1885.
"The representation of one side of a standard silver dollar and an eagle holding the same."

12,180.—LAUNDRY AND OTHER SOAPS.—*Empire Soap Company*, St. Louis, Mo. Application filed March 27, 1885.
"The word 'MAGNOLIA.'"

12,181.—LAUNDRY AND OTHER SOAPS.—*Empire Soap Company*, St. Louis, Mo. Application filed March 27, 1885.
"The words 'AUNT SALLY'S PLANTATION.'"

12,182.—DRESS-SHIELDS.—*Frank & Gutmann*, New York, N. Y. Application filed April 6, 1885.
"The word 'FEARLESS.'"

12,183.—PAPER-FILES, DESKS, AND OTHER APPLIANCES AND RECEPTACLES FOR PAPERS, DOCUMENTS, &c.—*The Globe Files Company*, Cincinnati, Ohio. Application filed April 4, 1885.
"The word 'GLOBE.'"

12,184.—PAPER-FILES AND OTHER RECEPTACLES FOR PAPERS, DOCUMENTS, &c.—*The Globe Files Company*, Cincinnati, Ohio. Application filed April 4, 1885.
"The word 'LEADER.'"

12,185.—PREPARED PAINT.—*Hartmann, Le Doux & Maecker*, New York, N. Y. Application filed April 3, 1885.
"The words 'RAHTJEN'S COMPOSITION.'"

12,186.—WHEAT SCOURERS, SEPARATORS, AND SMUTTERS.—*The Hercules Manufacturing Company*, Cardington, Ohio. Application filed December 24, 1884.
"The word 'HERCULES.'"

12,187.—ALL KINDS OF COTTON SHEETINGS AND SHIRTINGS.—*Jackson Company*, Nashua, N. H. Application filed March 7, 1885.
"The arbitrary word-symbol 'Ko' Ko Ko.'"

12,188.—ALL KINDS OF COTTON SHEETINGS AND SHIRTINGS.—*Jackson Company*, Nashua, N. H. Application filed March 7, 1885.
"The figure of an owl represented pictorially."

12,189.—LINIMENT FOR EXTERNAL USE.—*Jay Eye See Liniment Company*, San Francisco, Cal. Application filed March 31, 1885.
"The symbol 'JAY EYE SEE,' in words or pictorially."

12,190.—BAKING-POWDER.—*Jones Bros.*, New York, N. Y. Application filed April 6, 1885.
"The word 'ACME.'"

12,191.—FLOUR.—*Jones & Co.*, New York, N. Y. Application filed April 6, 1885.
"A heavy semicircular scroll, a light semicircular scroll with open circular space, and a five-pointed star."

12,192.—PEGS FOR BOOTS AND SHOES.—*Kearsarge Peg Company*, Bartlett, N. H. Application filed April 1, 1885.
"The representation of a triangular figure."

12,193.—NEWSPAPERS.—*Charles W. Leffingwell*, Chicago, Ill. Application filed March 23, 1885.
"The words 'THE LIVING CHURCH.'"

12,194.—MEDICINE FOR THE PREVENTION AND CURE OF SEASICKNESS. *Harry L. Moody*, New York, N. Y. Application filed March 27, 1885.
"A representation of Neptune."

12,195.—MEDICINES FOR DISEASES OF THE THROAT AND LUNGS.—*Henry M. O'Neil*, New York, N. Y. Application filed April 2, 1885.
"The words 'SHORT STOP.'"

12,196.—ROLLER-SKATES, MOP AND BRUSH HOLDERS, AND RUBBER FLOOR-SCRUBBERS AND WINDOW-CLEANERS.—*Victor Roller Skate Company*, Muncie, Ind. Application filed March 21, 1885.
"The word 'VICTOR.'"

12,197.—KNITTED ARTICLES OF WEARING-APPAREL.—*Charles H. Willcox*, New York, N. Y. Application filed April 6, 1885.
"The three letters 'C. K. M.'"

12,198.—FINE WRITING-PAPER.—*The Worthy Paper Company*, Agawam, Mass. Application filed April 7, 1885.
"The words 'MORRIS MILLS.'"

LABELS.

4,431.—Title: "MAX BRAUN'S TAPE METRONOME (MÆLZL'S TIME.")—*Max Braun*, Newark, N. J. Application filed April 4, 1885.

4,432.—Title: "LUBY'S PARISIAN HAIR RENEWER."—*Richard J. Desins*, Montreal, Quebec, Canada. Application filed April 1, 1885.

4,433.—Title: "STRETER'S HEALTH PILLS."—*Harris Fisher*, Eastman, Ga. Application filed April 7, 1885.

4,434.—Title: "MCARTHUR'S MAGICAL MIXTURE" (FOR A MEDICAL COMPOUND.)—*J. N. Gilbert* and *Green McArthur*, Columbus, Ga. Application filed February 24, 1885.

4,435.—Title: "TONIC PHOSPHATES."—*Hegeman & Co.*, New York, N. Y. Application filed March 27, 1885.

4,436.—Title: "DR. LA BLANCE'S DIARRHŒA AND DYSENTERY DROPS."—*Edgar B. Lucia*, East Brookfield, Mass. Application filed April 6, 1885.

4,437.—Title: "PEPTONIC EMULSION."—*Julius Schweitzer*, New York, N. Y. Application filed April 2, 1885.

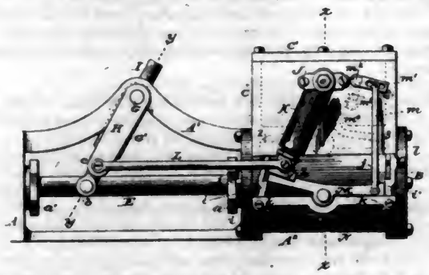
4,438.—Title: "PEPTONIZED EMULSION."—*Julius Schweitzer*, New York, N. Y. Application filed April 2, 1885.

4,439.—Title: "SAVE YOUR HORSE AND SAVE YOUR MONEY." (FOR HORSE MEDICINE.)—*Michael W. Wilson*, White Plains, N. Y. Application filed April 1, 1885.

PATENTS

GRANTED APR. 28, 1885.

316,433. **VALVE-GEAR FOR STEAM-ENGINES.** GUSTAV ADAMS and NILS NILSON, Dassel, Minn. Filed Feb. 14, 1885. (No model.)



Claim.—1. In combination with a steam-engine and its slide or controlling valve, a pivoted lever connected with and serving to actuate the valve-latches for holding the lever in a fixed position for a stated period, an oscillating cylinder in communication with the steam-chest or supply, and connected with the piston-rod of the engine, and a piston movable within said cylinder, provided with a block to strike and release the latches alternately, and adapted to rock the lever controlling the valve by reason of the steam-pressure upon it.

2. In combination with the slide or reversing valve of an engine, an oscillating cylinder communicating with the chest or supply thereof, and a piston movable within the cylinder and adapted to shift or throw the valve, substantially as explained.

3. In combination with an engine and its slide or controlling valve, an oscillating cylinder communicating with the fluid-reservoir, and a piston movable within said cylinder, connected with the piston-rod, and arranged, substantially as described and shown, to actuate the valve, as set forth.

4. In an engine, the combination, with the slide-valve, of a rocking lever, M, connected with said valve and adapted to impart motion thereto, a latch at each end of said lever to hold said ends alternately in an elevated position, an oscillating cylinder communicating with the steam-supply, and a piston having a shoe adapted to slide upon the rocking lever connected with the piston-rod and adapted, by reason of its movement therewith, to trip the latches, and by reason of the steam-pressure upon it to rock or tip the lever and throw the valve, all substantially as set forth.

5. In a steam-engine, the combination of a cylinder, a piston and its rod, a steam-chest, a slide-valve therein, an oscillating cylinder communicating with the steam-chest and provided with a piston having a block at its outer end, a rocking arm connected with the piston-rod of the engine and with the piston of the oscillating cylinder, a rocking lever pivoted to the side of the engine and connected with the slide-valve thereof, and spring-latches at the ends of the rocking lever, all combined and arranged to operate as set forth.

6. In a steam-engine provided with valve-controlling mechanism, substantially such as described and shown, a pipe, *f*, communicating with the steam-chest and with the oscillating cylinder, and adapted to serve as a pivot for the latter, as set forth.

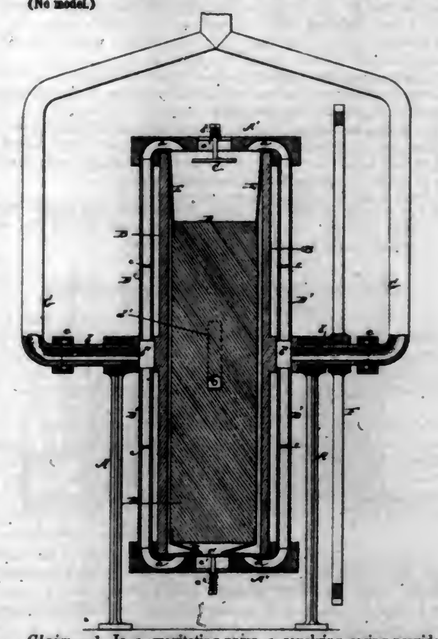
7. In a steam-engine provided with valve-controlling mechanism such as shown and described, and with an oscillating steam-cylinder for operating the same, bracket J, set-screw *e*, pipe *f*, and packing *g*.

8. In combination with cylinder B, piston D, and its rod E, steam-chest C, slide-valve F, arranged therein, oscillating cylinder K, piston *d* within said cylinder, rocking lever M, connected with the slide-valve, a spring-latch at each end of the rocking lever, arm I, connecting the piston-rod and rocking arm G, and arm H, connected with the piston *d* and adapted to impart motion thereto and to its cylinder K.

9. In an engine provided with valve-controlling mechanism such as described and shown, the combination of frame A', rocking arm G, provided with tubular arm G', and arm H, rod I, mounted in said tubular arm G' and connected with the piston-rod of the engine, as set forth.

10. In an engine provided with valve-controlling mechanism such as described and shown, the combination of frame or ledge A^3, rocking lever M, pivoted spring-latches at each end of the rocking lever provided with set-screws *l*, oscillating steam-cylinder K, provided with piston *d*, and shoe *h*, adapted to slide freely upon the rocking lever and to rock the same, as set forth.

316,434. **PUMP.** ALLEVI ANNIBALE, Chicago, Ill. Filed Apr. 10, 1884. (No model.)



Claim.—1. In a gravitating pump, a revolving casing provided with inlet and outlet passages for the water, and having its sides slotted, in combination with a gravitating piston placed therein, and having arms projecting through and moving in the slotted casing, and removable weights secured upon said arms, substantially as and for the purpose set forth.

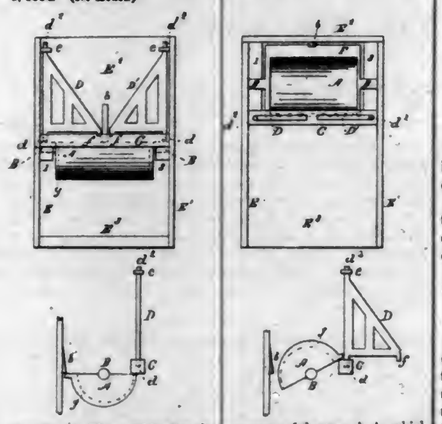
2. In a gravitating pump, a revolving casing having its ends or caps formed with cored passages for the inlet and outlet of water, and formed with slotted sides, and hollow trunnions connected by pipes with the outlet-passages of the caps, in combination with the piston provided with weighted arms working in the slots in the casing, the flexible water-proof bags connecting the adjacent ends of the piston and casing, and the escape-pipes connected to the ends of the hollow trunnions, substantially as shown and described.

3. In a gravitating pump, two or more casings, B B, having hollow trunnions *b*, journaled in the main frame and connected by pipes B' with the cored caps A' upon the ends of the casing, in combination with the pistons D, flexible bags E, gears F, and pipes G, secured to the trun-

nions by couplings *e*, allowing of the free revolutions of the pump, substantially as shown and described.

4. The casing B, provided with means, substantially as shown, for the inlet and outlet of water, and having its sides provided with slots *d'*, in combination with the piston D, cast with arms *d*, working in these slots, and the weights D', secured upon the arms outside of the casing by a bolt, d^2, substantially as and for the purpose set forth.

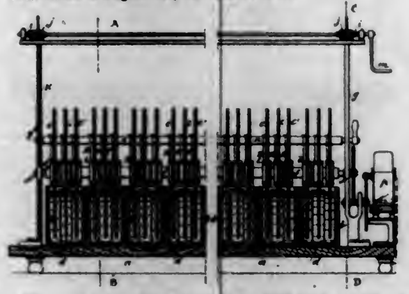
316,435. MANGER. JAMES W. BAKER, Providence, R. I. Filed Aug. 1, 1884. (No model.)



Claim.—1. The combination, in a manger, of the trough A, which admits of being turned over, with a rack composed of two triangular gates, D D', substantially as set forth.

2. The combination, in a manger, of a rack consisting of two triangular gates, D D', provided with pintles *d* d^2 and bolts *f*, with the sides E E', and frame C of the manger provided with bearings for the pintles *d* d^2 and cavities for the bolts *f*, substantially as described.

316,436. ELECTRIC BATTERY. ERNEST BAEIN, Paris, France. Filed Aug. 14, 1884. (No model.) Patented in France July 21, 1884, No. 163,413, and in Belgium July 23, 1884, No. 65,846.



Claim.—1. In an electric battery, the combination of the vase *b* and inner porous cell, *d*, with the carbon disks *c c'*, zinc disk *z*, rotary shaft *f*, copper bands F F', insulating bar *n*, and terminals *x*, the bands F F' resting on the hubs of the said disks, and the said disks, respectively, extending into the vase and cell, as set forth.

2. The combination of the shaft *f*, carrying the disks *c c'* and *z*, with the vase *b*, porous cell *d*, copper bands F F', frame *g*, bearings *f'*, shafts *k k*, worm-wheels *j*, screws *i i*, and crank *m*, substantially as herein shown and described.

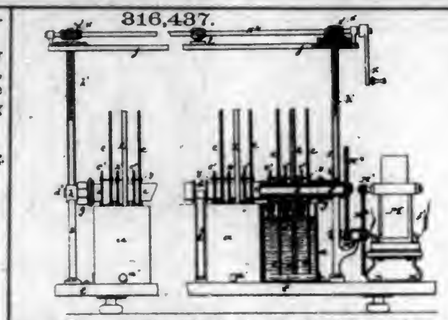
316,437. ROTARY ELECTRIC BATTERY. ERNEST BAEIN, Paris, France. Filed Oct. 17, 1884. (No model.) Patented in France Sept. 19, 1884, No. 164,391, and in Belgium Sept. 26, 1884, No. 66,420.

Claim.—1. The combination of rotary iron collars fixed on a transverse shaft supporting electrodes with a mercury bath which connects metallically with a conducting-wire, said collars dipping into said bath, substantially as herein shown and described.

2. The combination of the shaft *d*, carrying the disks *c c z* and collars *c' c' z'*, with the bearings *h*, vessel *a*, mercury-cups *m*, threaded shafts *h' h'*, worm-wheels *k'*, and screw-shafts k^2, substantially as herein shown and described.

3. The shaft *d*, combined with the non-conducting collars *e*, electrodes *c c z*, disks *c' c' z'*, mercury-cups *m*, and bath *a*, substantially as herein shown and described.

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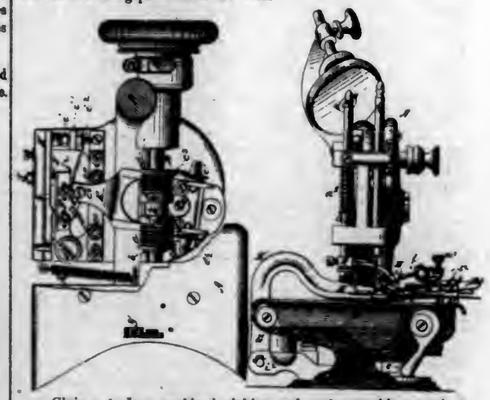


4. The combination of the electric motor M with intermediate gearing, shaft *d*, disks *c' c' z'*, electrodes *c c z*, mercury-cups *m*, bath *a*, and conducting-wires *f f'*, as described.

5. The mercury-cups *m*, combined with the metal bars *m'*, having terminals m^2, and with the disks *c' c' z'*, insulating-collars *e*, tie-pieces *y*, electrodes *c c z*, shaft *d*, and bath *a*, substantially as herein shown and described.

316,438. MACHINE FOR MAKING PLAITED GOODS. WILLIAM F. BEARDSLEE, Boston, Mass., assignor to the Manufacturers Special Machine Company, Danbury, Conn. Filed Mar. 22, 1883. (No model.)

Brief.—The operator can vary the width of the plaits by moving in or out a plate by one hand while the other hand is engaged in feeding the material, irrespective of the speed at which the machine may be running. The machine may be set within certain limits to make a prescribed number of stitches between the plaits. A smoothing-plate insures a uniform and even condition of the material as it passes to and is acted upon by the needle, and it prevents a retrograde movement of the upper thickness of the material. Lifting the presser-foot lifts also the plaiting-blade and the smoothing-plate above the work.



Claim.—1. In a combined plaiting and sewing machine, a pair of cams secured to the driving-shaft of the machine by means that will permit of their moving longitudinally upon the said shaft in either direction while revolving with it, and provided, respectively, with right and left spiral grooves or screw-threads some of the convolutions of which are concentric and some eccentric to the driving-shaft, in combination with a lever adapted to engage alternately with the said cams and to transmit the motion received therefrom to suitable mechanism by which the plaiting-blade is caused to reciprocate, for the purposes described.

2. In a combined sewing and plaiting machine, a sleeve situated upon and connected with the driving-shaft of the machine by means that will cause it to revolve therewith, and at the same time permit it to move longitudinally in either direction, provided with cams which are formed, respectively, with right and left spiral grooves or screw-threads some of the convolutions of which are concentric and some eccentric to the shaft, in combination with a lever adapted to engage alternately with the said cams and to transmit the motion received therefrom to suitable mechanism by which the plaiting-blade is caused to reciprocate, for the purposes described.

3. In a combined sewing and plaiting machine, a pair of cams secured to a sleeve which revolves with and is free to move longitudinally upon the driving-shaft of the machine by means that will permit of their adjustment thereon with relation to each other, and provided, respectively, with right and left spiral grooves or screw-threads some of the convolutions of which are concentric and some eccentric to the driving-

shaft, in combination with a lever adapted to engage alternately with the said cams and to transmit the motion received therefrom to suitable mechanism by which the plaiting-blade is caused to reciprocate, for the purposes set forth.

4. In a combined sewing and plaiting machine, the combination, with a pair of cams secured to the driving-shaft of the machine by means that will permit of their moving longitudinally upon the said shaft in either direction while revolving with it, and provided, respectively, with right and left spiral grooves or screw-threads some of the convolutions of which are concentric and some eccentric to the driving-shaft, of a pair of contact-rollers suitably arranged upon the vibrating lever which imparts the reciprocal motion to the plaiting mechanism, and adapted to engage with the said spiral grooves or screw-threads upon the said cams, substantially in the manner and for the purposes described.

5. In a combined sewing and plaiting machine, the combination, with a pair of cams secured to the driving-shaft of the machine by means that will permit of their moving longitudinally upon the said shaft in either direction while revolving with it, and provided, respectively, with right and left spiral grooves or screw-threads some of the convolutions of which are concentric and some eccentric to the driving-shaft, of a pair of contact-rollers arranged adjustably with relation to each other upon the vibrating lever which imparts the reciprocal motion to the plaiting mechanism, and adapted to engage with the said spiral grooves or screw-threads upon the said cams, substantially in the manner and for the purposes described.

6. In a combined sewing and plaiting machine, the combination, with a vibrating lever operated by suitable cams upon the driving-shaft of the machine, and which actuates mechanism which thereby imparts a reciprocal movement to the plaiting-blade, of a pair of lateral stops secured to a stationary part of the machine on opposite sides of and in such relation to the said vibrating lever that they limit the extent of its vibration in both directions, for the purpose described.

7. In a combined sewing and plaiting machine, the combination, with a vibrating lever operated by suitable cams upon the driving-shaft of the machine, and which actuates mechanism which thereby imparts a reciprocal movement to the plaiting-blade, of a pair of lateral stops secured to a stationary part of the machine by means which permit of their adjustment upon opposite sides of and with relation to the said vibrating lever for the purpose of limiting or regulating the extent of its vibration in either direction, for the purposes set forth.

8. In a combined sewing and plaiting machine, the combination, with a vibrating lever actuated by suitable cams upon the driving-shaft of the machine, of an intermediate cam-lever pivoted to a stationary part of the machine, and provided with a double-incline surface which receives the thrust of the said vibrating lever during its oscillation in either direction and transmits the motion thus received to suitable mechanism, which is thereby caused to impart a reciprocal movement to the plaiting-blade, for the purpose described.

9. In a combined sewing and plaiting machine, the intermediate cam or thrust plate adapted to receive the thrust of a vibrating lever actuated by suitable cams upon the driving-shaft of the machine and transmit the motion thus received to suitable mechanism, which is thereby caused to impart a reciprocal movement to the plaiting-blade, the said intermediate cam or thrust plate being secured to the said plaiting mechanism by means that will admit of its adjustment with relation to the position of the fulcrum of the said vibrating lever, for the purposes set forth.

10. In a combined sewing and plaiting machine, the combination, with a vibrating lever actuated by suitable cams upon the driving-shaft of the machine, and with an intermediate cam-surface or thrust-plate which receives the thrust of the said vibrating lever during its oscillation in either direction and transmits the motion thus received to suitable mechanism, which is thereby caused to impart a reciprocal movement to the plaiting-blade, of a retractile spring secured at one extremity to a stationary part of the machine, and at the other extremity to the plaiting mechanism at a point which will cause its elasticity to return the parts to their normal positions after the positive thrust of the vibrating lever has ceased, for the purpose described.

11. In a combined sewing and plaiting machine, a vibrating carrier-support hinged to a stationary part of the machine, and having the plaiter-blade carrier pivoted to its upper portion, in combination with a vibrating lever actuated by suitable cams upon the driving-shaft of the machine, and with an intermediate device for receiving the thrust of the said lever and imparting it to the said carrier-support, for the purpose described.

12. In a combined sewing and plaiting machine, a longitudinally-djustable bearing piece or stop upon the vibrating plaiter-carrier support for receiving the thrust of an intermediate cam-lever pivoted to a stationary part of the machine, and provided with a double-incline surface, which receives the thrust of a vibrating lever actuated by suitable cams upon the driving-shaft of the machine, the said bearing piece or stop being adapted to be varied in position with relation to the fulcrum of the intermediate lever for the purpose of regulating the extent of motion of the plaiter-carrier support, for the purpose described.

13. In a combined sewing and plaiting machine, in combination with a vibrating plaiter-carrier support hinged to a stationary part of the machine and reciprocated through the medium of an intermediate cam or thrust plate and a retractile spring by a vibrating lever which is actuated by suitable cams upon the driving-shaft of the machine, an adjustable stop mounted upon a stationary part of the machine in such relation to the said vibrating plaiter-carrier support that it may be adjusted to limit the inward or retractile movement of the latter, for the purpose set forth.

14. In a combined sewing and plaiting machine, a vibrating plaiter-carrier support actuated through the medium of a double-incline cam or thrust plate by a vibrating lever which receives its motion from suitable cams upon the driving-shaft of the machine, the said plaiter-carrier being hinged to a stationary part of the machine in such manner that when the parts are in their normal positions it will occupy a vertical or nearly vertical position, for the purpose set forth.

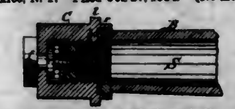
15. In a combined plaiting and sewing machine, the combination, with a plaiting-blade attached to a reciprocating carrier, of a projecting arm or lateral extension of the presser-bar by which the lower edge of the said plaiting-blade is elevated whenever the presser-bar is raised, but which allows the said blade to perform its work when the presser-bar is lowered, for the purpose set forth.

16. In a combined sewing and plaiting machine, an independent device for smoothing and retaining the material to be operated upon secured to a stationary part of the machine and formed of an elastic plate the lower edge of which coincides with or approximates the position of the needle in a line substantially at right angles to the direction in which the said material is fed to the needle, for the purposes set forth.

17. In a combined sewing and plaiting machine, a device for smoothing and retaining the material to be operated upon, consisting of a suitable elastic plate secured to a fulcrum mounted upon a stationary part of the machine, which fulcrum is formed with a lateral projection or arm provided with a set-screw or similar adjustable device, which bears against a stationary part of the machine, for the purpose described.

18. In a combined sewing and plaiting machine, the combination, with an independent device for smoothing and retaining the material to be operated upon, of a projecting arm or lateral extension of the presser-bar, which projects under the said smoothing and retaining device in such manner that when the presser-bar is raised the said smoothing and retaining device will also be elevated away from the parts underneath it, for the purpose described.

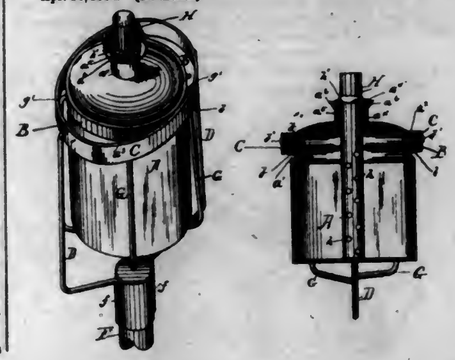
316,439. VEHICLE-AXLE. STRONG M. BENNETT and JAMES H. SULLIVAN, Mexico, N. Y. Filed Oct. 27, 1884. (No model.)



Claim.—1. In combination with the spindle and its wheel-retaining screw-cap, a jam-nut guided rectilineally in said cap, and a set-screw inserted through the end of the cap, and restrained from longitudinal movement, and having its screw-threaded end working in the jam-nut, substantially as set forth and shown.

2. In combination with the spindle S and box B, the screw-cap C, provided internally with longitudinal grooves *d d*, the jam-nut *n*, seated loosely in the screw-cap and provided with lugs *e e*, entering the aforesaid grooves, and the set-screw *f*, inserted through the outer end of the screw-cap and provided with a head and a collar, respectively, at the outside and inside of said cap, and engaging a screw-threaded eye in the jam-nut, substantially as described and shown.

316,440. TORCH-LAMP. CHARLES L. BEEBE, Chicago, Ill., assignor of one-half to the Chicago Manufacturing Company, same place. Filed Apr. 30, 1884. (No model.)



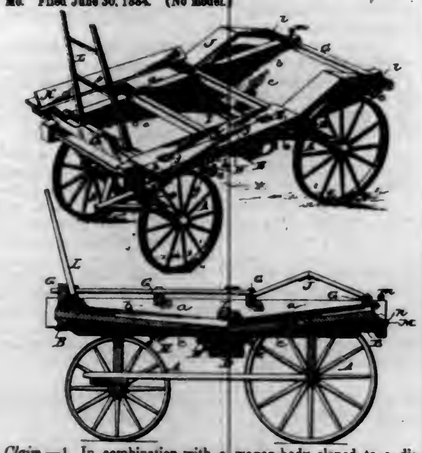
Claim.—1. In a torch-lamp, the combination of a glass oil-reservoir, A, provided with a corrugation, with a ring, B, secured to said reservoir by said corrugation, and frame D, pivoted to said ring, substantially as specified.

2. The combination, with glass reservoir A, provided with a bead or groove near its top having notches or depressions therein, of a ring, B, secured to said reservoir, and guards C, fitting in said notches and secured to said reservoir by said ring B, substantially as specified.

3. The combination of glass reservoir A, provided with a corrugation, with ring B, secured to said reservoir by said corrugation, an intermediate ring, C, pivoted to said ring B, and frame D, pivoted to said ring C, and provided with socket F, substantially as specified.

4. The combination, with glass reservoir A, having a corrugation provided with notches or depressions therein, of a ring, B, ring C, having pivots *b' b'* fitting in said notches, and frame D, pivoted to said ring C, substantially as specified.

316,441. GRAIN-RACK FOR WAGONS. MILAN M. BLEDSOE, Palmyra, Mo. Filed June 30, 1884. (No model.)



Claim.—1. In combination with a wagon-body sloped to a discharge-outlet, a drawer or receptacle placed beneath said outlet, substantially as and for the purpose explained.

2. The herein-described wagon-body, consisting of sides *a a*, bottom boards, *c c*, cross-bars G H, and yokes F, provided with bolts *g*, all substantially as shown and described.

3. In combination with a wagon-body, overhanging beams G, provided with ears *j*, and grain rests or boards K, provided with staples *k*, to pass over said hooks, as and for the purpose set forth.

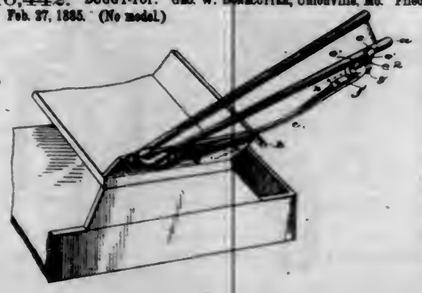
4. In combination with side-boards *a a*, one perforated and the other slotted, a rope-roll, M, having its journals seated, respectively, in the perforations and the slot, and the retaining-pin *m*, extending across the slot, as shown.

5. In combination with the inclined bottom of a wagon-body and with the discharge-opening thereof, a guard placed over the outlet to support the straw and prevent the outlet being clogged.

6. In combination with side-boards *a*, cross-beams G above the bottom, cross-bars H below the bottom, yokes F, pivoted to one set of cross-pieces and adapted to clasp the other set, and locking-bolts applied to said yokes, substantially as shown and described.

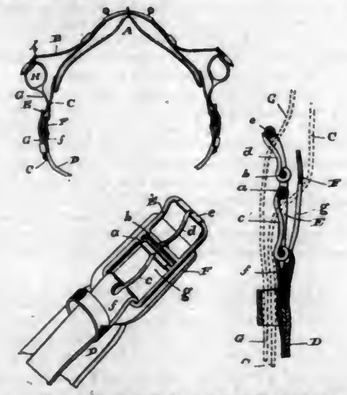
7. In combination with a separable wagon-body substantially such as described, and with its cross-bars, yokes F, for binding the parts together, provided with plates *e*, and slides A, carrying bolts *g*.

316,442. BUGGY-TOP. GEO. W. BONECUTTER, Unionville, Mo. Filed Feb. 27, 1885. (No model.)



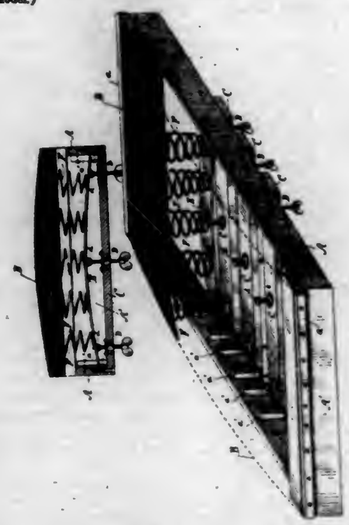
Claim.—The combination, with the back bow of a buggy-top, of a clamp secured thereto, the holder secured to the clamp and having the support A, the spring secured to the holder, and a loop secured to the lower end of the back bow to receive the free end of the spring, substantially as described.

316,443. HARNESS. CHARLES W. BURGTORF, Petaluma, Cal. Filed July 6, 1883. (No model.)



Claim.—In a single harness, the combination of the gig-saddle A, having straps B C on each side, the shaft-loops H H, having straps G G, the girth D, having end straps, *f f*, the slotted pads F F, and the double-loop buckles E E, having two central cross-pieces, *a b*, one of which is provided with a roller-bearing, the tongues *c d*, and the end roller-bearing, *e*, as and for the purpose described.

316,444. SPRING BED-BOTTOM. SANFORD S. BURR, Winnetka, assignor to the Burr Bed Company, Chicago, Ill. Filed Oct. 31, 1883. (No model.)

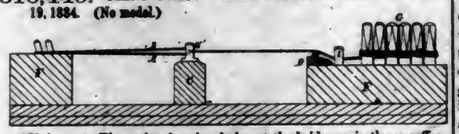


Claim.—1. In a bed-bottom, the combination, with the main frame and with the cover connected at its ends to said frame, of the movable slats, the supporting-springs mounted thereon, the stationary strips, and the vertical adjusters sustained upon the strips and bearing against the movable slats to regulate the position thereof and the tension of the springs, substantially as described.

2. In a bed-bottom, the combination, with the main frame, of the movable slats, the supporting-springs mounted thereon, the stationary strips, and the vertical adjusters connecting said strips with the movable slats, whereby the position of the slats and springs with relation to the strips may be regulated, substantially as described.

3. In a bed-bottom, the combination, with the main frame and with the cover connected at its ends to said frame, of the movable and flexible slats, the supporting-springs mounted thereon, the stationary strips, and the vertical adjusters connecting said strips with the movable slats, whereby the position of the slats and the tension of the springs and cover may be regulated, substantially as described.

316,445. PIANO-FORTE. GEORGE COOK, Boston, Mass. Filed Mar. 19, 1884. (No model.)



Claim.—1. The string-bearing holes at the bridge or in the agraffes thereof, arranged not only with part of them inclining in a direction opposite to that of the remainder, but with all of them in one plane at their ends next the bearing-blocks.

2. The strings from the bearing-block to the bearing-holes at or in the agraffes of the bridge, arranged in one plane and with part of them inclining in their said bearing-holes in a direction opposite to that in which the remainder may incline in their bearing-holes, all being substantially as represented.

3. The agraffes at the bridge arranged longitudinally thereof in one line with each other, and having part of their string-bearing holes inclining in a direction opposite to that in which the rest incline, and all of them in one plane or straight line at their ends next the bearing-block, the same being to cause all the strings where between the bearing-block and the agraffes to be in one plane, and part of the strings to incline in their bearing-holes of such agraffes in a direction opposite to that in which the rest incline in their bearing-holes, and part of the strings where between the agraffes and the hitch-pins to incline upward and the remainder downward, all being substantially as set forth.

316,446. CAR-COUPLING. THOMAS T. DEAVENPORT and JAMES M. DEAVENPORT, Okolona, Miss. Filed Sept. 25, 1884. (No model.)



Claim.—1. In a car-coupling, the combination, with a link-elevator, N, having a notch, *m*, in its bottom edge, of the pawl F, adapted to pass into the notch *m* and lock the link-lifter in the raised position, substantially as herein shown and described.

2. In a car-coupling, the combination, with the link-lifter N, of the shaft G, the pawl F, and the weight I on the bent end of the shaft, substantially as herein shown and described.

3. In a car-coupling, the combination, with the link-lifter N, of the shaft G, the pawl F, the weight I on the bent end of the shaft, the chain H, and the lever J, substantially as herein shown and described.

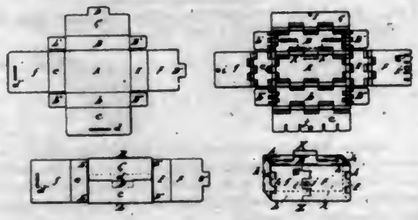
4. In a car-coupling, the combination, with the link-lifter N, of the shaft G, the pawl F, the weight I, the chain H, the lever J, and devices for locking the lever at the desired elevation, substantially as herein shown and described.

5. In a car-coupling, the combination, with the link-lifter N, of the shaft G, the pawl F, the weight I, the chain H, the lever J, and the plate K, having the flange K', substantially as herein shown and described.

6. The combination, with the draw-head A, of the inclined prongs L and the pivoted link-lifter N, having notches *m* and W in its bottom edge, and a notch, P, in its upper edge at the free end, substantially as herein shown and described.

7. The combination, with the draw-head A, having the sides of its opening inclined inward toward the inner end of the opening, of the downwardly and inwardly projecting prongs in the end of the draw-head at the bottom, and the pivoted swinging link-lifter N, substantially as herein shown and described.

316,447. BOX. GEORGE A. DUGUAY, Montreal, Quebec, Canada. Filed Jan. 29, 1885. (No model.) Patented in Canada Jan. 19, 1885, No. 20,915.



Claim.—1. The combination, in a packing-box made of paper or pasteboard of one single piece, of the longitudinal sides B *b*, having the internal small end sides, B' *b'* B'' *b''*, and inner lid, C *c*, also the covering end sides, E *e*, having the outer lid, F *f*, and the lids with fastenings by tongues D D' and incisions *d d'*, all substantially as set forth.

2. The packing-box made by separate plates A B *b*, B' *b'*, B'' *b''*, C *c*, and E *e*, F *f*, and said plates made of hard material joined together with the hinges *h*, and said hinges formed with the same piece of metal that these said plates are or not, or joined together with whatever mode of attachments, and the lids of the box fastening by the small tongues G *g*, fastening-buttons I *i*, and eyelets J *j*, or by whatever mode of fastening, and also the box provided or not with my handle K, substantially as and for the purpose hereinbefore set forth.

316,448. BOX-LOOP. ROBERT A. DUNSING, Bath, Me. Filed Feb. 26, 1885. (No model.)

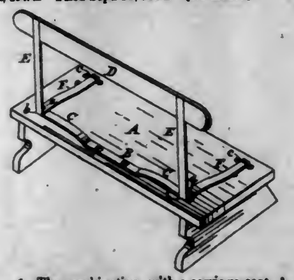


Claim.—1. The combination, with a harness-loop, of a strengthening plate or plates secured thereto, said plates fitting over the outer face of the loop, and having bent ends to engage the side walls of the latter, substantially as set forth.

2. The combination, with a harness-loop, of a strengthening plate or plates having downturned ends provided with holes or openings, and clips for securing said ends to the side walls of the loop, substantially as set forth.

3. The combination, with a harness-loop, of a strengthening plate or plates having downturned ends provided with holes or openings, clips for securing said ends, and prongs or barbs on the upper face of said plates, substantially as set forth.

316,449. SPRING-BACK FOR VEHICLE-SEATS. ALFRED FELLOWS, Clinton, Iowa. Filed Sept. 13, 1884. (No model.)

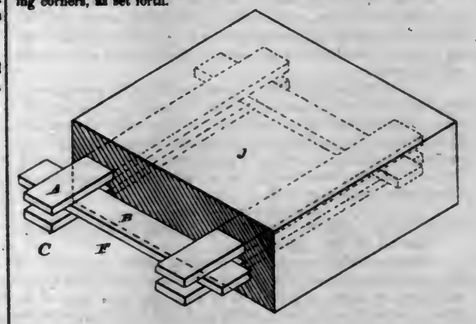


Claim.—1. The combination, with a carriage-seat, A, of the springs C C and the seat-back D, supported upon the springs by devices substantially as set forth.

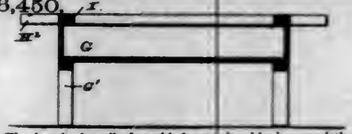
2. The combination, with the carriage-seat A, of the seat-back D, standards E, arms F, clips *e e*, and springs C C, substantially as and for the purposes set forth and described.

316,450. BLOCK PAVEMENT FOR STREETS AND SIDEWALKS AND MOLD FOR CONSTRUCTING THE SAME. HENRY G. FISKE, San Francisco, Cal. Filed Dec. 4, 1884. (No model.)

Claim.—1. A paving-block composed of plastic material capable of becoming hardened or set, and having embedded therein a wooden frame, C, consisting of two longitudinal pieces or strips, A A, on each side, and the end cross-pieces, B, said frame being formed with projecting corners, as set forth.



316,450.

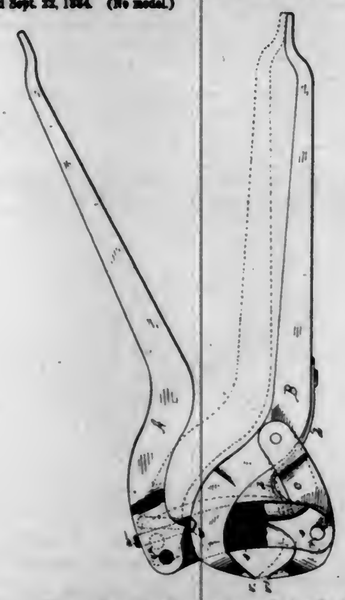


2. The herein-described mold for paving-blocks, consisting of the tray G, having legs G', the molding-frame H, provided with arms or handles H^2 and angular strengthening-straps H', and the separable metal frame I, all as and for the purpose described.

316,451. PROCESS OF MANUFACTURING CARBONATED MALT BEVERAGES. CHARLES H. PEIRCE, Philadelphia, Pa., assignor to the New Era Brewing Company, Milwaukee, Wis. Filed Mar. 6, 1884. (No specimens.)

Claim.—In the manufacture of carbonated malted beverages to be used as non-alcoholic substitutes for malt liquors, the process of imparting to such carbonated malted beverage the pungent acidity of malt liquors, which consists in adding lactic acid from an extraneous source to the carbonated malted beverage, substantially as described.

316,452. CUTTING-PLIERS. NAPOLEON GILL, Holyoke, Mass., assignor of one-third to Thomas W. Mann, same place. Filed Feb. 21, 1884. Renewed Sept. 22, 1884. (No model.)



Claim.—1. Improved cutting-pliers consisting of a handle, B, having thereon one of the cutting-jaws, an arm pivoted to said handle near its jaw, having on its free end the second cutting-jaw, a lever having its fulcrum bearing upon the handle near its jaw, and connected by pivoted links with said pivoted arm, and a spring to swing the jaw of the latter away from the jaw on the handle, combined and operating substantially as set forth.

2. Improved cutting-pliers consisting of a handle, B, having thereon one of the cutting-jaws, an arm pivoted to said handle near its jaw, having on its free end the second cutting-jaw, a lever having its fulcrum bearing upon the handle near its jaw, and connected by pivoted links with said pivoted arm.

3. Improved cutting-pliers consisting of a handle, B, having thereon one of the cutting-jaws, an arm pivoted to said handle near its jaw, having on its free end the second cutting-jaw, a lever having an adjustable fulcrum, and having its fulcrum bearing upon the handle near its jaw, and connected by pivoted links with said pivoted arm, and a spring to swing the jaw of the latter away from the jaw on the handle, combined and operating substantially as set forth.

316,453. ELECTROTYPE-BLOCK. PATRICK GLEESON, Chicago, Ill. Filed Feb. 12, 1884. (No model.)

Claim.—1. The electrotype or stereotype plate *a* and block *b* of about equal area, whereof the edges of the plate *a* are beveled upward and inward, as shown, and hooks *d*, formed of the upper edges of the plates *c* and removable plates *e*, fitting upon said beveled edges of the

316,453.

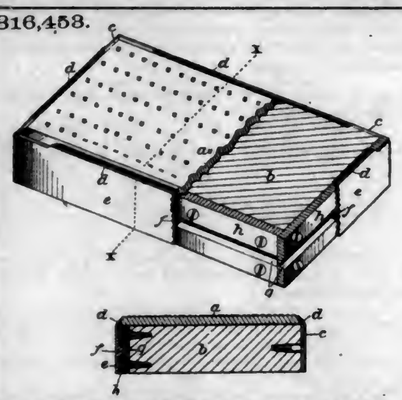


plate *a* and provided with mechanism, substantially as described, which will automatically bring the hooks *d* into their proper position by the action of the locking mechanism of a form in a chase, substantially as specified.

2. An electrotype and stereotype plate, *a*, with upward and inwardly beveled edges, and block *b*, provided with binders A, having grooves *g*, and clamps *c e*, having claws *d*, fitting upon said beveled edges of the plate *a*, and with tongues *f*, fitting into grooves *g*, substantially as specified.

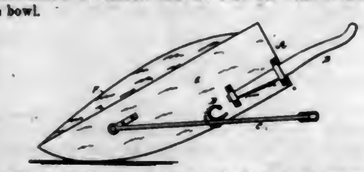
316,454. SHOE. CHARLES B. GODFREY, Milford, Mass. Filed Feb. 14, 1885. (No model.)



Claim.—In a shoe, the vamps A, quarters B, tongue C, ankle-piece H, and sole N, constructed, combined, and arranged substantially as set forth.

316,455. EARTH-SCRAPER. WILLIAM H. C. GOODE, Sidney, Ohio. Filed June 17, 1884. (No model.)

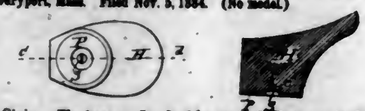
Brief.—Curved spring-stops on the sides of the bowl meet the bail when the bowl is inverted, to limit the turn-over of the bowl and prevent interference of the handles with the draft and assist in throwing back the bowl.



Claim.—1. The combination, with the body of a scraper and the bail pivoted thereto, of stops consisting of springs secured to the sides of said body, for supporting the same on the bail in a partially-elevated position when inverted, substantially as shown and described, and for the purpose hereinbefore set forth.

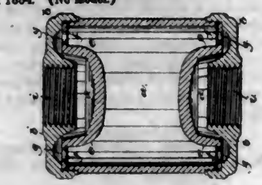
2. The combination, with the body of a scraper and the bail pivoted thereto, of curved spring-stops D, secured at one end of the sides of the scraper, for the purpose described.

316,456. HEEL FOR BOOTS OR SHOES. BENJAMIN F. HALL, Newburyport, Mass. Filed Nov. 5, 1884. (No model.)



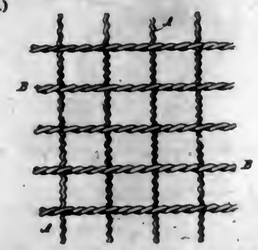
Claim.—The boot or shoe heel herein described, provided with the revoluble circular metal plate P, of smaller diameter than the tread-surface of said heel, and having the central countersunk screw-hole, O, the heel being centrally recessed to let the plate in flush with its tread-surface, substantially as described.

316,457. HARD-RUBBER FILTER-CASE. EDGAR K. HAYNES, Boston, Mass., assignor of one-half to George W. Gregory, same place. Filed June 30, 1884. (No model.)



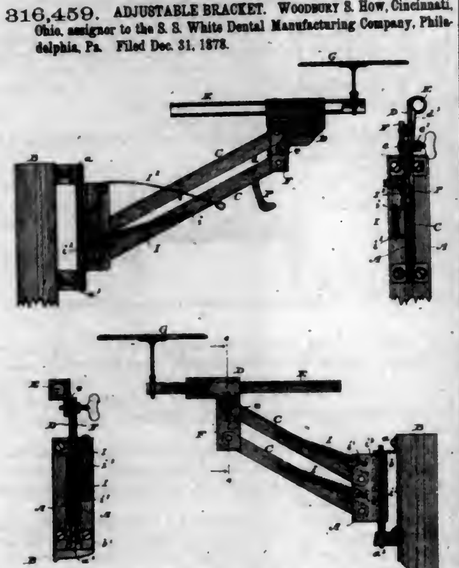
Claim.—A non-oxidizing, anti-corrosive filter composed of a shell or case of hard rubber containing suitable filtering material, substantially as set forth.

316,458. METALLIC FABRIC. WILLIAM HEWITT, Trenton, N.J., assignor to the Trenton Iron Company, same place. Filed Oct. 20, 1884. (No model.)



Claim.—As a new article of manufacture, a metallic fabric composed of a series of corrugated, kinked, or crimped strips, rods, or pieces of metal and of a series of wire cables, the strands of which respectively embrace and bind in each strip independently of every other strip, substantially as shown and described, and for the purposes specified.

316,459. ADJUSTABLE BRACKET. WOODBURY S. HOW, Cincinnati, Ohio, assignor to the S. S. White Dental Manufacturing Company, Philadelphia, Pa. Filed Dec. 31, 1878.



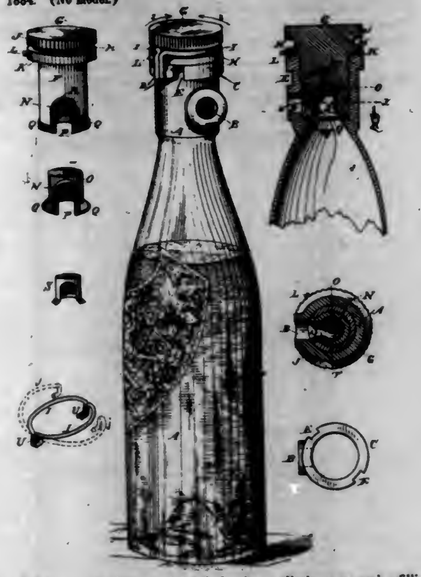
Claim.—1. The combination, substantially as hereinbefore set forth, of the crane-plate, the loosely-pivoted vertically-adjustable parallel arms, and an equipoising device, substantially as described, whereby said arms are maintained in equipoise at different points in the range of their adjustment and the object carried by the parallel arms readily and easily elevated and lowered and left at the desired point without the aid of clamps, ratchets, or tightening devices.

2. The combination, substantially as hereinbefore set forth, of the crane-plate, the pivoted vertically-adjustable parallel arms, a device, substantially as described, by which said arms are maintained in equipoise at different points in the range of their adjustment, and adjustable connections for said equipoise device whereby variations in weight at the outer ends of the parallel arms may be compensated.

3. The combination, substantially as hereinbefore set forth, of the pivoted parallel arms, the horizontal frame jointed to one side of the outer ends of said arms, the clamp-plate jointed to the other side of said outer ends of said arms, and by the same pivots that joint the parallel arms and horizontal frame together, and a clamp-screw passing through said horizontal frame and said clamp-plate.

4. The combination, substantially as hereinbefore set forth, of the horizontal frame at the outer ends of the pivoted parallel arms, an expansible and contractible spring socket or box carried by said frame, and an extension-rod fitted to move endwise in said socket when expanded, and be locked at the point desired by contracting said socket.

316,460. BOTTLE. LEWIS S. HOTT, Boston, Mass. Filed June 30, 1884. (No model.)



Claim.—1. An improved bottle having a discharging and refilling orifice, B, in one side of the neck, hermetically sealed and reopened by the rotation of a stopple, F, firmly locked to the bottle-neck, so as to have no perpendicular movement, but capable of freely rotating within prescribed limits to open and close the vessel through the co-operation of a spring binding-wire, I, inclined depressions D, and gaging-pin L, substantially as herein described and specified.

2. In an improved bottle provided with an orifice, B, in the neck, the annular projecting shoulder C, having duplicate openings E E, and duplicate inclined under portion provided with depressions D to admit and secure the parts U U of the locking-wire I, designed to attach the stopple to the bottle and to prevent any perpendicular movement of said stopple, as herein specified.

3. In an improved bottle, a rotating sealing-stopple, F, provided with a co-operating sealing elastic bushing, O, and auxiliary metal bushing or lining S, for the purpose herein set forth.

4. In an improved bottle, a stopple, F, of co-operating parts, having duplex projecting shoulders J K, an annular depressed bed, H, to receive a spring locking-wire, I, and the gaging-pin L, substantially as specified.

5. In an improved bottle, the combination, with a rotating stopple, F, of an elastic bushing, metal-lined, having an outwardly-beveled base rim or flange, Q, forming a yielding pressure-surface upon the opposing walls of the bottle-neck to hermetically seal the vessel, as described.

6. The combination of the bottle having the orifice B and the inner circumferential shoulder, V, the rotating stopple F, having beveled base-rim Q, and the locking-wire I, embracing the stopple and detachably secured to the bottle, whereby perpendicular motion of said detachable stopple is prevented and a reciprocatory movement of the same is permitted, as set forth.

7. In combination with the stopple F, a binding or locking spring-wire, of continuous length, molded to form two inwardly-projecting locking angles, U U, and reflexed elliptic arms i i, as set forth.

316,461. MACHINE FOR EDGING SHEET METAL. WILLIAM B. HUBER, Fremont, Nebr., assignor of one-half to Charles O. Lobeck, same place. Filed Sept. 8, 1884. (No model.)

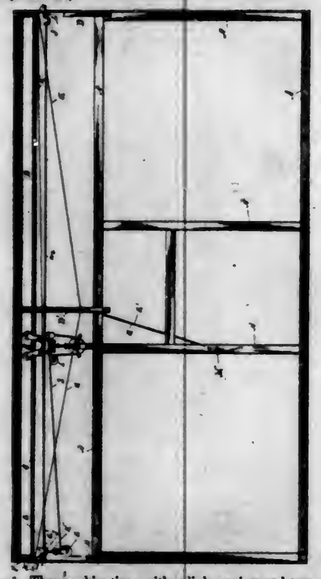
316,461.



Claim.—1. In a sheet-metal-seaming machine, a longitudinally-grooved base-plate having a hinged pressure-plate, in combination with a movable clamp adapted to hold the metal during the first part of the operation, and then to be projected into the grooved base-plate to complete the bending, substantially as and for the purpose set forth.

2. In a sheet-metal-bending machine, the base-plate A, having groove *a*, and hinged pressure-plate B, in combination with the plate B', formed with oblique slots *b'*, guard C, bolts *c c*, and pivoted handle D, substantially as and for the purpose set forth.

316,462. HAY ELEVATOR AND CARRIER. CHARLES E. HUNT, HENRY L. FERRE, and NATHAN B. HELM, Harvard, Ill. Filed Jan. 20, 1885. (No model.)



Claim.—1. The combination, with a link or ring and two opposite supports, each adapted to receive said ring, of means, substantially as shown and described, for detaching said ring from one of said supports and transferring it to the other.

2. The combination, with a pulley and a link attached thereto, and two opposite hooks, each adapted to receive and support said link, of means, substantially as shown and described, for lifting said link from either of said hooks and moving it to the other.

3. The combination, with a pulley and its supporting-link, and two opposite hooks, each adapted to receive and support said link, of a track of suitable material connecting said hooks, and means, substantially as shown and described, for lifting said link from either of said hooks, moving it along said track, and placing it in the other hook.

4. The combination, with a pulley and its supporting-link, and two opposite hooks, each adapted to receive and support said link, of a track of suitable material connecting said hooks, and two cords attached to said link, whereby, when the link is in either of said hooks, the drawing of one of said cords lifts the link from said hook, and the drawing of the other cord moves the link along said track to the opposite hook.

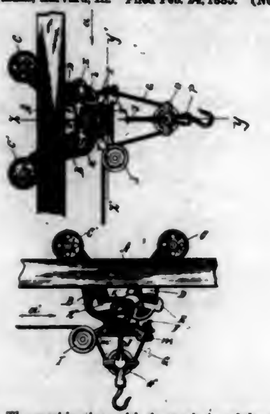
5. The combination of the pulley E, link K, hooks J J', eyes N N', and cords G G', said cords G G' being attached to said link and passed through said eyes N N', respectively, substantially as shown and described, and for the purpose set forth.

6. The combination of the hooks J J', the track *m*, eyes N N', pulley E, and link K, and the cords G G', attached to said link K and passing through the eyes N N', respectively, substantially as shown and described, and for the purpose set forth.

7. The combination, with the track C, carrier H, pulley E, and rope S, passing from said carrier over said pulley, of the two opposite hooks, each adapted to support said pulley, the link K, attached to the pulley, and the cords G G', attached to said link and adapted to transfer said link from one of said hooks to the other, substantially as shown and described, and for the purpose set forth.

8. The combination, with the track C, carrier H, pulley E, and rope S, passing from said carrier over said pulley, of the hooks J J' at one side of said track, the track *m*, connecting said hooks, the eyes N N' above the hooks J J', respectively, and the cords G G', fastened to said pulley and adapted to transfer it from one of said hooks J J' along the track *m* to the opposite hook, substantially as shown and described, and for the purpose set forth.

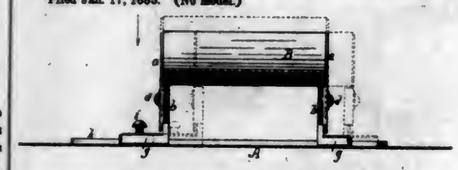
316,463. HAY-CARRIER. CHARLES E. HUNT, NATHAN B. HELM, and HENRY L. FERRE, Harvard, Ill. Filed Feb. 24, 1885. (No model.)



Claim.—1. The combination, with the track A and the carrier-frame B, moving thereon, of the tripping-block D, the opposite hooks, E K, provided with the coacting spurs E' K', respectively, means, substantially as shown and described, for locking said hooks in position, and the hanger O, provided with the headed shank J, adapted to trip said locking devices, substantially as shown and described, and for the purpose set forth.

2. The combination of the track-beam A, carrier-frame B, locking-hooks E K, provided with spurs E' K', respectively, the stop *b*, the lug F, having formed integrally with it the tripping-lever F' and latch F'' and the hanger O, provided with the headed shank J, substantially as shown and described, and for the purpose set forth.

316,464. PLASTERING-TROWEL. JOHN C. HUTHER, Rochester, N. Y. Filed Jan. 17, 1885. (No model.)



Claim.—1. The blade of a plastering-trowel, provided with an undercut or dovetail rib, *k*, secured thereto, in combination with standards *b b* for the handle, adjustably fitted to the rib *k*, with a fastening device, *i*, for the said standards, and the vertically-adjustable handle B, secured to the adjustable standards *b b*, substantially as shown and described.

2. In combination with the standards *b b*, extending upward from the blade of a plastering-trowel, the handle B, provided at its ends with supports *a*, adjustably connected with said standards, substantially as and for the purpose set forth.

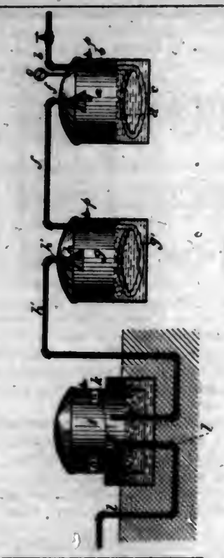
3. The combination of the standards *b b*, rising from the blade of a plastering-trowel, provided with vertical grooves *e e*, and the handle B, provided with supports *a a*, fitted to the grooves *e*, with fastening devices *d d*, to hold the standards and supports together, substantially as specified.

316,465. METHOD OF PURIFYING AND ODORIZING NATURAL GAS. JOSEPH KOUNTZ, Pittsburg, Pa. Filed Nov. 28, 1884. (No model.)

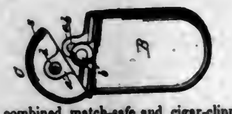
Claim.—1. As an improvement in the art of preparing natural gas for combustion, bringing it in contact with asafetida, substantially as and for the purpose described.

2. As an improvement in the art of preparing natural gas for combustion, passing it, first, through lime and water; second, through sulphuric acid and water, and, third, bringing it in contact with asafetida, substantially as and for the purpose described.

316,465.



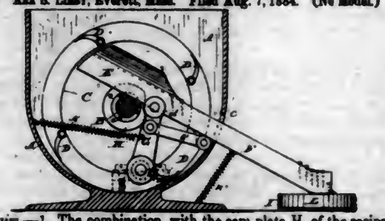
316,466. COMBINED MATCH-SAFE AND CIGAR-CLIPPER. EVERETT L. LAKE and LOUIS S. CRANDALL, Syracuse, N. Y., assignors to the Lake Manufacturing Company, same place. Filed May 7, 1884. (No model.)



Claim.—1. In a combined match-safe and cigar-clipper, a receptacle having upwardly-extending ears provided with countersunk holes, as described, in combination with a movable cover provided with conical pockets or depressions arranged to conform to said countersunk holes, and in conjunction therewith operate to shear off and reject outside the safe the point of a cigar, substantially as described.

2. In a combined match-safe and cigar-clipper, the combination of the receptacle B, provided with upwardly-extending ears *a*, having countersunk holes *b*, the cover C, with recesses *a'* and conical pockets *d*, the spring-tongue *e'*, provided with a cam-face, *f*, and a hinge-loop provided with the cam-faces *h h*, all substantially as and for the purpose set forth.

316,467. MACHINE FOR PICKING UP AND ARRANGING TACKS, &c. ASA S. LIBBY, Everett, Mass. Filed Aug. 7, 1884. (No model.)



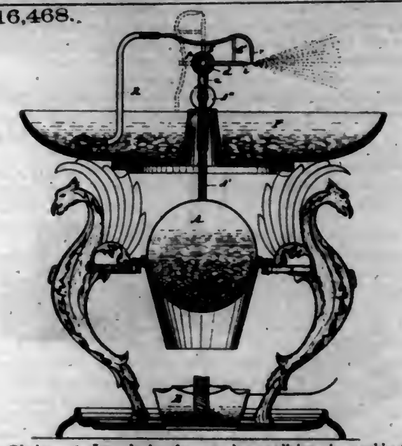
Claim.—1. The combination, with the cam-plate H, of the reciprocating trough E, the pivoted bar G, the link G', and spring A', whereby a reciprocating movement is given to the trough for the purpose of facilitating the delivery and distribution of the tacks, substantially as specified.

2. The combination, with the shaft B, carrying a disk, C, provided with a series of forked tack-lifting fingers, of the cam-plate, levers G and G', and reciprocating trough or carrier E, the whole arranged to operate substantially in the manner specified.

3. The cam-plate H, provided with pins *e*, in combination with the reciprocating trough or carrier E, whereby a jogging motion is imparted to said trough, as set forth.

316,468. APPARATUS FOR SPRAYING MEDICINES. PAUL LOCHMANN, Gohlis, near Leipsic, Saxony, Germany. Filed June 21, 1884. (No model.) Patented in Germany Sept. 19, 1883, No. 27,799, and in Austria-Hungary Feb. 8, 1884, No. 44,504 and No. 3,388.

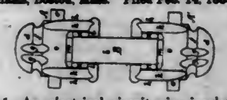
316,468.



Claim.—1. In a device for spraying medicines, in combination with the steam-escape pipe A', the pipe *a'''*, coupling A''', pipe *a*, plug *d*, with plug-case *p*, jet-pipe *i*, and jet-pipe *r*, arranged to operate in the manner and for the purpose substantially as described.

2. In combination with the jet-pipes *i* and *r*, the needles *o*, with collar *v* and knob *w*, and spring *e*, arranged to operate substantially as and for the purpose set forth.

316,469. ELECTRIC-WIRE INSULATOR. JOSEPH LOCKE and WILLIAM BOWKER, Medford, assignors, by mesne assignments, to themselves, and Robert Williams, Boston, Mass. Filed Feb. 14, 1885. (No model.)



Claim.—1. An electrical circuit-wire insulator having a dome-shaped head, and at the base thereof a wire-supporting groove extending in and around the body of such insulator, two legs projecting down from opposite sides of such body and provided with flanges, and its ribs arranged on them, as described, and grooves extending down through the head and body and across the wire-sustaining groove and between the ribs, all being substantially as represented.

2. An electrical circuit-wire insulator provided with two legs projecting down from opposite sides of it and having a flange extending inwardly from each leg at its lower part, as set forth, such legs and flanges being for aiding in fixing the insulator to a rail, as explained.

3. An electrical circuit-wire insulator provided with two legs projecting down from opposite sides of it, and also with a flange extending inwardly and outwardly from each leg at its lower part, and also having two ribs extending upward on each leg from its flange to or nearly to the top of the body and projecting from such leg and body, all being substantially as represented.

4. An electrical circuit-wire insulator provided not only with two legs projecting down from opposite sides of it, and also with a flange extending inwardly from each leg at its lower part, but with a chamber within the body and open at the bottom thereof, and also with a passage extending transversely through the said body and chamber, and being for reception of a wedge to act against a block when placed within such chamber, and to extend therefrom, as set forth.

5. The combination of a rail having flanges projecting from opposite sides of it at its top, with an electrical circuit-wire insulator arranged on such rail and having legs projecting down from it, the said insulator on opposite sides of the rail, and each leg provided with a flange to extend under the next adjacent flange of the rail, as set forth.

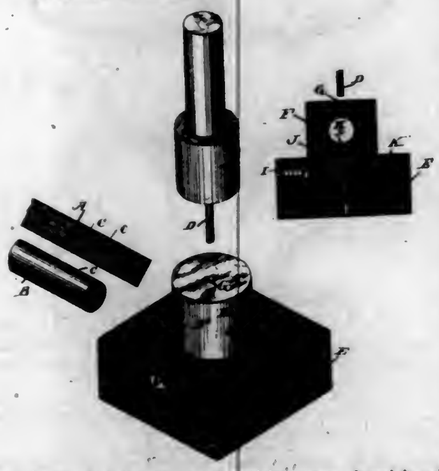
6. The combination of a rail having two flanges projecting from opposite sides of it both at its top and its bottom, as described, with two circuit-wire insulators, one of which extends upward and the other downward from it, the said rail, and each is provided with flanged legs, as described, to embrace the rail, as explained.

7. The current-wire insulator supporting-rail having two flanges projecting laterally from it at its edge and notched vertically, with each of the notches of one flange directly opposite one of those in the other, as explained.

8. The combination of an electric circuit-wire insulator provided not only with two legs projecting down from opposite sides of it, and having flanges extending from them inwardly at their lower ends, but with a chamber within the body and open at the bottom thereof, and also with a passage extending transversely through such body and chamber, in combination with a rail flanged at top and extended between such

legs, and with a block arranged on such rail and in the said chamber, and with a wedge driven into the said passage and over and upon the top of such block, all being substantially as set forth.

316,470. PUNCHING DEVICE. John M. Lowe, Hamilton, Ohio. Filed Dec. 15, 1884. (No model.)



Claim.—1. A die with a punch-receiving aperture through it, and with a bar-receiving aperture transverse to and intersecting the punch-receiving aperture.

2. A die with a punch-receiving aperture through it, and a bar-receiving aperture transverse to and intersecting the punch-receiving aperture, the bar-receiving aperture having a form and size adapted to closely fit the bar to be punched.

3. A die having a punch-receiving aperture through it, a bar-receiving aperture through it transverse to and intersecting the punch-receiving aperture, and a sub-die inserted separably in the die, and carrying a portion of the punch-receiving aperture and reaching to the bar-receiving aperture, combined substantially as set forth.

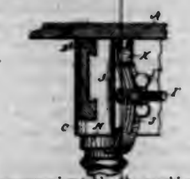
4. The combination of the die with two apertures, the separable sub-die, and a set-screw in the die engaging the sub-die, substantially as set forth.

5. The combination of the die-block and its set-screw, the die with its two apertures, and the sub-die within it, the foot of the sub-die being supported by the die-block, substantially as set forth.

316,471. MANUFACTURE OF DERIVATIVES OF AURINE. Chas. Lowe, Reddish, near Stockport, County of Lancaster, England. Filed Jan. 31, 1885. (Specimens.) Patented in England Nov. 22, 1882, No. 5,554.

Claim.—The crystalline basic red coloring-matter herein described, which, in combination with acids, forms crystalline salts—green by reflected light and red by transmitted light—said salts being insoluble in benzole, but soluble in alcohol or water, the latter solution dyeing silk or wool in red shades of color varying from pink to crimson, substantially as set forth.

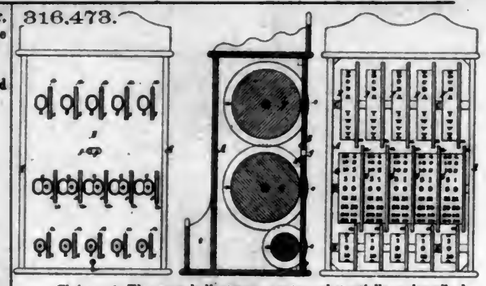
316,472. EXTENSION-TABLE. Joshua D. Mann, Springfield, Ohio, assignor of one-half to Samuel T. Mann, same place. Filed June 18, 1884. (No model.)



Claim.—In an extension-table, the combination, with the corner-posts and removable legs, of the clamping device for holding the legs in place, consisting of the binding-post I', secured to the corner-posts, the spring-clamp K, having the elongated slot J, said spring-clamp being adapted to engage with the leg, as described, and the thumb-nut I^2 to regulate the tension of the spring-clamp, substantially as described.

316,473. GAME COUNTER OR INDICATOR. Robert H. Martin, Peterborough, N. H. Filed Jan. 23, 1885. (No model.)

316,473.

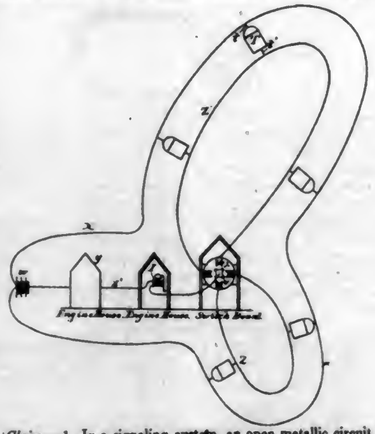


Claim.—1. The game indicator or counter, substantially as described, consisting of the box or case and its set of revoluble flanged wheels or cylinders, formed and lettered as described, and of the cover provided with the sight-openings and flange-receiving slots, and with the series of gates to the sight-openings of the middle set of such wheels, all being arranged essentially and to operate as and for the purpose or purposes as set forth.

2. The game indicator or counter consisting of the box or case provided with the card-holding receptacle or trough, as set forth, and with the set of revoluble flanged wheels or cylinders, figured and lettered as explained, and of the cover having the sight-openings and flange-receiving slots, and the series of gates to the sight-openings of the middle set of such wheels, all being substantially as explained

316,474. FIRE-TELEGRAPH SYSTEM. Lewis H. McCullough, Richmond, Ind., assignor to the Richmond Fire Alarm Company, same place. Filed July 31, 1884. (No model.)

Brief.—A metallic loop is run out from each pole of the battery, and the signal-boxes are connected in multiple arc between the loops.



Claim.—1. In a signaling system, an open metallic circuit, two or more circuit-closers in the same, each connected in two directions with each pole of the generator, and receiving apparatus at one or more stations for receiving the signal when any one of the circuit-closers is operated, substantially as set forth.

2. In combination with electric-circuit conductors, one running from each pole of a generator back to the same pole, two or more circuit-closers arranged in multiple-arc relation between the said conductors, and apparatus at one or more stations for receiving the signal when any one of the circuit-closers is operated, substantially as set forth.

3. In combination with a loop or loops connected at each end with one pole of a generator, a loop connected at each end to the opposite pole of the generator, circuit-closers arranged in multiple arc between loops which are connected to opposite poles, and apparatus at one or more stations for receiving the signal when any one of the circuit-closers is operated, substantially as set forth.

4. In a signaling system, an open metallic circuit, two or more signal-boxes in the same, each connected in two directions with each pole of the battery, and one or more gongs for receiving the box-signals.

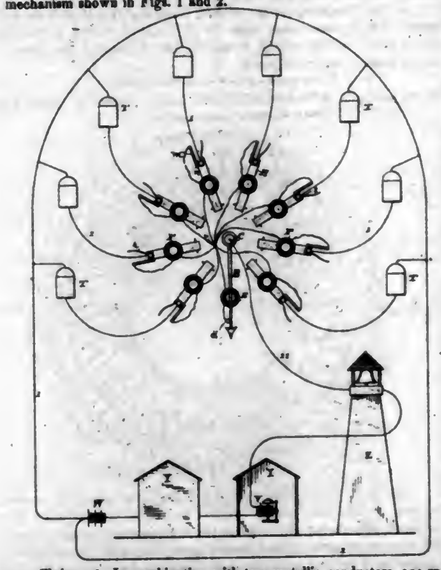
5. In combination with electric circuit-wires, one running from each pole of the battery back to the same pole, two or more signal-boxes arranged in multiple-arc relation between the said wires, and one or more gongs or bells for receiving the box-signals.

6. In combination with a loop or loops connected at each end with one pole of a battery, a loop connected at each end to the opposite pole

of the battery, signal-boxes arranged in multiple arc between loops which are connected to opposite poles, and one or more gongs or bells for receiving the box-signals.

316,475. NON-INTERFERING FIRE-TELEGRAPH SYSTEM AND APPARATUS. Lewis H. McCullough, Richmond, Ind., assignor to the Richmond Fire Alarm Company, same place. Filed Aug. 5, 1884. (No model.)

Brief.—A metallic loop is run out from one pole of battery and a single wire from the other pole. Signal-boxes are arranged in multiple arc between these box-connections, passing through a central office instrument, which will permit only one signal to be sent at a time by mechanism shown in Figs. 1 and 2.



Claim.—1. In combination with two metallic conductors, one running from one pole of a generator back to the same pole, and the other running out from the opposite pole, two or more circuit-closers in multiple-arc relation between the said conductors, and receiving apparatus at one or more stations for receiving the signal when any one of the circuit-closers is operated, substantially as set forth.

2. The combination, with two electric circuit-conductors, one running from one pole of a generator back to the same pole, and the other running out from the opposite pole, of two or more circuit-closers in multiple-arc relation between the said conductors, apparatus at one or more stations for receiving the signal when any one of the circuit-closers is operated, and apparatus at a central station, actuated by the operation of any circuit-closer, whereby every other circuit-closer is cut out of the circuit, substantially as set forth.

3. The combination, with two electric circuit-conductors, one running from one pole of a generator back to the same pole, and the other running out from the opposite pole through one or more gong or bell magnets to a hand at a central station, of a series of conductors, including signal-boxes running from the hand to the first-named conductor, and apparatus at a central station whereby, on the operation of any signal-box, the hand will be released and form a new circuit to the exclusion of the rest of the series.

4. The combination, with two electric circuit-conductors, one running from one pole of a generator back to the same pole, and the other running out from the opposite pole through receiving apparatus located at one or more stations to a hand at a central station, of a series of conductors, including circuit-closers running from the hand to the first-named conductor, and apparatus at a central station whereby on the operation of any circuit-closer the hand will be released and form a new circuit to the exclusion of the rest of the series, substantially as set forth.

5. The combination, with two metallic conductors, one running from one pole of a generator back to the same pole, and the other running out from the opposite pole, of two or more signal-boxes in multiple-arc relation between the said conductors, and one or more gong or bell magnets for receiving the box-signals, substantially as set forth.

6. The combination, with two electric circuit-conductors, one running from one pole of a generator back to the same pole, and the other running out from the opposite pole, of two or more signal-boxes in multiple-arc relation between the said conductors, one or more gong or bell magnets for receiving the box-signals, and apparatus at a central station, actuated by the operation of any signal-box, whereby every other box is cut out of the signal-circuit, substantially as set-forth.

7. In combination with a conductor running from one pole of an electric generator through gong or bell magnets, a series of conductors including signal-boxes branching from the said conductor and connected in two directions with the opposite pole of the generator, substantially as set forth.

8. In combination with a conductor running from one pole of an electric generator back to the same pole again, a series of conductors running from the said conductor to the opposite pole of the generator, each of the series including a signal-box, and all including common bell or gong magnets, substantially as set forth.

9. In combination with a conductor running from one pole of an electric generator back to the same pole again, a conductor running from the opposite pole through gong or bell magnets to a traveling conducting hand or pointer in a central office, and a series of conductors, including signal-boxes running from the conducting-stop of the said hand or pointer to the first-named copductor, substantially as set forth.

10. In combination with a conductor running from one pole of an electric generator back to the same pole again, a conductor running from the opposite pole through gong or bell magnets to a traveling conducting hand or pointer in a central office, a series of conductors including signal-boxes running from the conducting-stop of the said hand or pointer to the first-named conductor through a common releasing-magnet and through a series of magnets, each adapted, when operated, to move its armature-lever out into the path of the conducting hand or pointer, substantially as specified.

11. In combination with a conductor running from one pole of an electric generator back to the same pole again, a conductor running from the opposite pole through gong or bell magnets to a traveling conducting hand or pointer in a central office, a series of conductors, including signal-boxes, running from the conducting-stop of the said hand or pointer to the first-named conductor through a common releasing-magnet and through a series of magnets and their respective armature-levers, each magnet being adapted, when operated, to move its armature-lever out into the path of the hand or pointer, and means connected with the hand or pointer for breaking the original circuit and forming a new one when it comes in contact with any armature-lever, whereby on the operation of any signal-box its circuit is first completed through its own magnet and the common releasing-magnet, and afterward those magnets are cut out, together with all the other box-magnets, substantially as specified.

12. In combination with a series of open metallic circuits, including signal-boxes and suitable receiving apparatus, an apparatus located at a central station composed of the following parts: a traveling conducting hand or pointer, a stop for holding the same normally at rest, a releasing-magnet for the said stop, common to all the box-circuits, and a series of magnets, each in the circuit of a different signal-box, and adapted on the closure of the circuit to throw its armature-lever into the path of the hand or pointer, substantially as set forth.

316,476. ELECTRO-MECHANICAL GONG-STRIKER. Lewis H. McCullough, Richmond, Ind., assignor to the Richmond Fire Alarm Company, same place. Filed Aug. 5, 1884. (No model.)

Brief.—On the passage of an electric current hammer *h* is released, and, under action of spring *d'*, knocks pawl *g* out of engagement with ratchet I, which, under influence of its driving-spring, raises *k* and puts spring K under tension until said pawl is released by pin *f'*, when hammer *h'* strikes gong.

Claim.—1. The combination, with a spring-actuated ratchet, a pawl for retaining the same, a spring-actuated hammer for removing the pawl, and an electro-magnet for releasing the hammer, of independently-driven gong-striking mechanism connected to the ratchet, and means, made operative by the movement of the ratchet, for releasing the said mechanism, substantially as set forth.

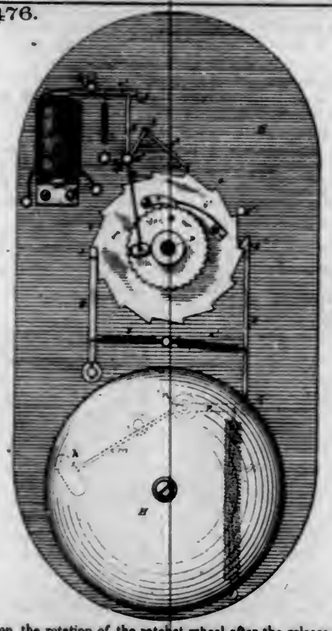
2. The combination, with a spring-actuated ratchet, a pawl for retaining the same, a spring-actuated hammer for removing the pawl, and means for releasing the hammer, of an actuating-spring for a gong-hammer, a pawl connecting the same with the ratchet, and means, made operative by the movement of the ratchet, for removing the said pawl, whereby the spring for the gong-hammer will be released to strike a blow, substantially as set forth.

3. In combination with a spring-actuated ratchet-wheel, a retaining-pawl therefor, and a hammer for removing the same by percussion, a spring detachably connected to the ratchet-wheel, so as to act against its driving-spring, and thereby cause the ratchet-wheel to move against its retaining-pawl after release without shock or jar.

4. In combination with a spring-actuated ratchet-wheel, a pawl for retaining the same, and means for removing the pawl, a second pawl for the same ratchet, connected to a retractile spring, and means made operative by the movement of the ratchet for removing the said pawl, and a gong-hammer, also connected to the said spring, substantially as described, whereby the ratchet-wheel is caused to move against its retaining-pawl after release without shock, and the hammer is operated.

5. The shaft d^2, spring d', arms *d*, *e*, and *e'*, pivoted arm e^3, pin *f*, and catch or hook a^2, in combination with the ratchet-wheel I and pawl

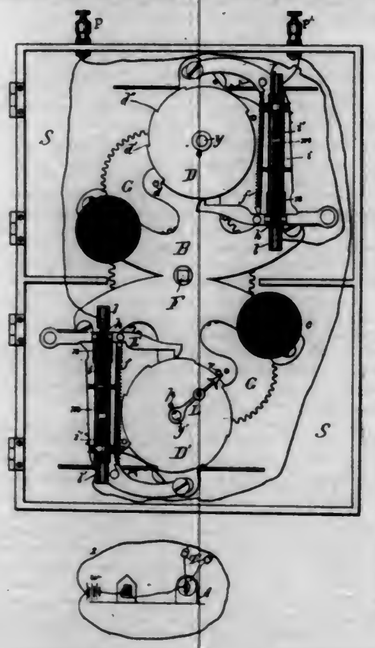
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g, whereby on the rotation of the ratchet-wheel after the release of the shaft d^2, and the consequent release of the ratchet-wheel, the parts are restored to operative position, as set forth.

6. In combination with an electro-magnet, its armature-lever, and a catch or hook thereon, the shaft d^2, spring d^3, arms *d*, *e*, and *e'*, pivoted arm e^2, and pin *f*, in combination with the ratchet-wheel I and pawl *g*, whereby on the passage of an electric current the shaft d^2 and ratchet-wheel I are released, and after release are restored to operative position, as set forth.

316,477. MULTIPLE SIGNAL-BOX FOR FIRE AND POLICE TELEGRAPHS. LEWIS H. MCCULLOUGH, Richmond, Ind., assignor to the Richmond Fire Alarm Company, same place. Filed Aug. 5, 1884. (No model.)



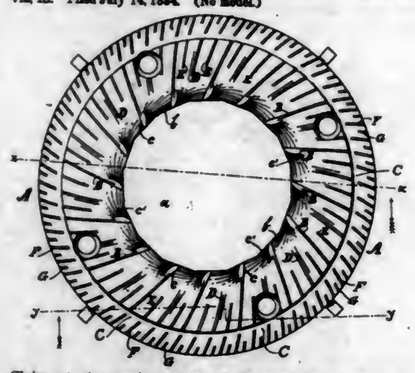
Claim.—1. In a signal-box for fire-alarm telegraphs, the combination of the wheel D, pivoted lever E, rods *i* and *i'*, one of which slides in air-tight bearings, and the exhausted tube *m*, whereby dust is prevented from collecting on the contact-surfaces and positive contact is made when the circuit-controller is operated, substantially as specified.

2. In combination with a signal-wheel adapted to open or close an electric circuit and suitable gearing therefor, a second signal-wheel, also adapted to open or close an electric circuit, and separate gearing therefor, and a motor for operating either set of gearing.

3. The signal-wheel D, and suitable gearing for operating the same, connected with the shaft F, the signal-wheels D', and suitable gearing for operating the same connected with the barrel H, and a motor connected with both shaft and barrel.

4. The circuit-wheels D', movable along the shaft *y'*, and the contact-lever E, in combination with the screw-threaded shaft *y'*, and the nut or hub L' and the spring Z, whereby the position of the wheels D on the shaft *y'* may be adjusted.

316,478. METALLIC GRINDING-PLATE. EMMETT M. MCKEE, Batavia, Ill. Filed July 14, 1884. (No model.)



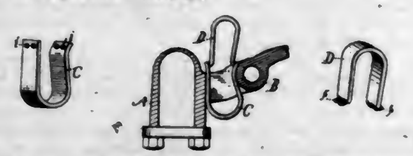
Claim.—1. An annular metallic grinding-plate having on its working-face an undressed annular portion or channel, C, a series of drifts arranged between the inner edge of the said plate and the said channel, and an outer series of drifts arranged between the said channel and the outer edge of the said plate, but not extending across the said channel, substantially as and for the purposes specified.

2. An annular metallic grinding-plate having a rounded-off inner edge, *b*, the annular depressed portion or channel C, the drifts B B, extending from the said channel to the edge *b* and forming gathering-points at the said edge, a series of drifts arranged between the drifts B B, and a series of drifts arranged between the channel C and the outer edge of the said plate, substantially as and for the purposes specified.

3. An annular metallic grinding-plate having a rounded-off inner edge, *b*, the drifts B, the channel or depressed portion C, the double drifts D D, and a series of drifts arranged between the said channel and the outer edge of the said plate, substantially as and for the purposes specified.

4. An annular metallic grinding-plate having a rounded-off inner edge, *b*, the drifts B, the channel or depressed part C, the double drifts D D, the drifts E E, and the drifts F and G, all made and arranged substantially as shown and described, and for the purposes set forth.

316,479. THILL-COUPLING. PATRICK B. O'BRIEN, New Haven, Conn. Filed Aug. 28, 1884. (No model.)



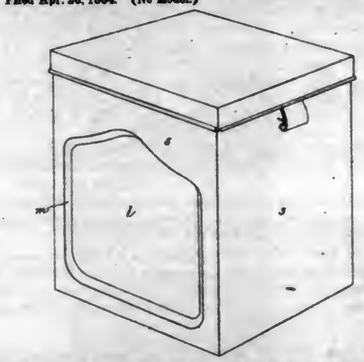
Claim.—1. In a thill-coupling, an auxiliary spring bearing between and expanding the limbs of an ordinary looped-shaped thill-coupling spring, substantially in the manner described.

2. In a thill-coupling, the looped-shaped spring D, provided with prongs *f* at its ends, as and for the purpose specified.

3. In a thill-coupling spring, C, the holes or seats *i* at its ends for the reception of corresponding points, *f*, of an auxiliary spring, substantially as described.

4. In a thill-coupling, the combination, with an ordinary looped-shaped spring, C, of an auxiliary spring, D, as and for the purpose specified.

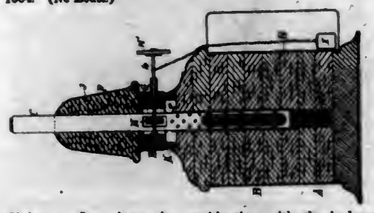
316,480. CRACKER-CAN. CHARLES E. PIERCE, Cambridgeport, Mass. Filed Apr. 26, 1884. (No model.)



Claim.—1. A rectangular sheet-metal can or box having an internal glass-holding flange, *n*, and an apertured side piece bent inwardly around its aperture to form a beveled flange, *m*, and bent downwardly at its upper edge to form a glass-holding flange, *o*, as set forth.

2. A sheet-metal can or box having an apertured and glazed side piece, an internal partition hinged at one edge to the box, and a fastening device for the swinging edge of said partition, as set forth.

316,481. LAMP. CHARLES J. A. PIRON, Paris, France. Filed Sept. 4, 1884. (No model.)

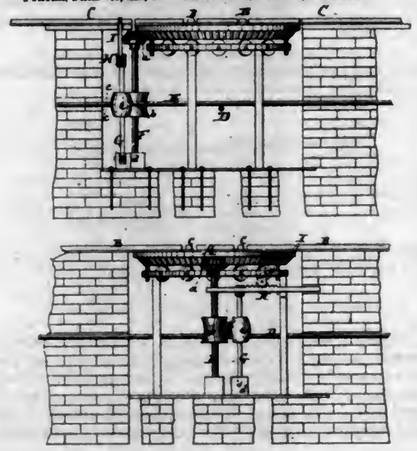


Claim.—1. In a lamp, the combination, with the body and contained rings of felt or analogous absorbent material, of a perforated wick-tube arranged centrally, and a textile tube closely fitted between said rings and tube, as set forth.

2. In a lamp, substantially as described, the combination, with rings of absorbent material, as B, and a perforated wick-tube, C, of a tube of flannel or the like, having one side provided with a furry surface, and arranged between the rings B and wick-tube, with portions of the furry side projecting into the perforations of said wick-tube, as and for the purposes set forth.

3. The wick-tube C, perforated as shown, in combination with the close-fitting capillaceous tube P, and with the absorbent rings B and body A, as herein specified.

316,482. TURN-TABLE FOR CABLE RAILROADS. CHARLES M PORTER, Philadelphia, Pa. Filed Oct. 3, 1884. (No model.)



Claim.—1. The combination of a turn-table with the cables D E, crossing each other, tracks B C, crossing each other, and with mechanism, substantially as described, for turning said turn-table by means of one of said cables, all arranged to permit the transfer of cars from one of said tracks to the other, as specified.

2. The combination of the turn-table A, cable E, shaft F, having pulley *b*, shaft G, having loose pulley *c*, and rod H, and lever I, all arranged for operation substantially as specified.

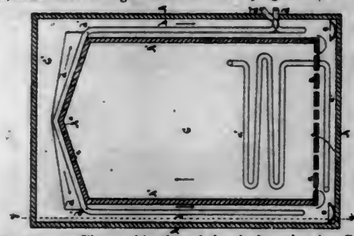
316,483. THILL-COUPLING. OLIVER M. RAUCH, Newton, Iowa. Filed Jan. 14, 1885. (No model.)



Claim.—The improved thill-coupling, composed of a base, A B, having perforations 1 and 2, a vertical flange or draw-iron, C, having a fixed pintle, F, a projection, D, having a latch, G, hinged thereto, a latch, H, pivoted to the latch G, and a thill-iron having an eye or tubular T-end, to operate in the manner set forth, for the purposes stated.

316,484. DRIER. DAVID H. RICE, Lowell, Mass., assignor to the St. Albans Manufacturing Company, St. Albans, Vt. Filed May 10, 1884. (No model.)

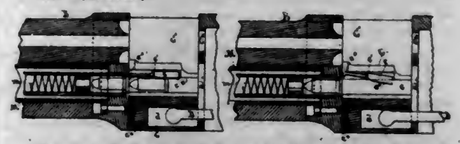
Brief.—Cold-water pipes are arranged between the partitions over the drying-chamber. The hot moisture-laden air passes through the openings in the top of the drying-chamber into a chamber above the same, and as it cools it falls into contact with the water-pipes, by which the moisture is condensed. The cooled air passes down between the walls of the inside and outside chambers into the heating-space at the bottom, from whence it again rises into the drying-chamber.



Claim.—1. The combination of the drying-chamber C, the condensing-chamber C', above the same and connected thereto by one or more hot-air passages, *c*, and the condensing-pipe *d'*, separated therefrom by a partition or partitions, *d d*, in the chamber C' and adapted to conduct the condensed air into one or more downward air-passages, *b*, substantially as described.

2. The combination of the chamber C, the chamber C', one or more air-passages, *b*, the perforated dividing-wall A^2, inclined downward toward the latter, and the partitions *d d* and condensing-pipe *d'*, substantially as described.

316,485. MAGAZINE-GUN. DAVID H. RICE, Lowell, Mass., assignor to the Marlin Fire Arms Company, New Haven, Conn. Filed Feb. 24, 1885. (No model.)



Claim.—1. In the carrier C, the combination of the chamber *c* and the lever *e*, pivoted in said carrier, and carrying upon one side of its pivot and at the forward end of said chamber the stop e^2, and upon the other side of its pivot and into the path of the cartridge in said chamber the vibrating edge e^3, substantially as described.

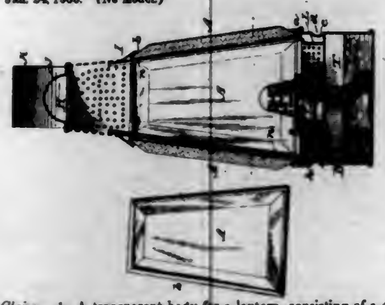
2. In combination with the magazine M and its spring *m*, the carrier C, provided with chamber *c*, and the lever *e*, pivoted in said carrier, and carrying upon one side of its pivot and at the forward end of said chamber the stop e^2, and upon the other side of its pivot and into the path of the cartridge in said chamber the vibrating edge e^3, substantially as described.

3. In the carrier C, the combination of the chamber *c*, the lever *e*, pivoted in said carrier, and carrying upon one side of its pivot and at the forward end of said chamber the stop e^2, and upon the other side of its

pivot and into the path of the cartridge in said chamber the vibrating edge e^3, and the lever-spring e^4, substantially as described.

4. In combination with the magazine M and its spring *m*, the carrier C, provided with the chamber *c*, the lever *e*, pivoted in said carrier, and carrying upon one side of its pivot and at the forward end of said chamber the stop e^2, and upon the other side of its pivot and into the path of the cartridge in said chamber the vibrating edge e^3, and the lever-spring e^4, substantially as described.

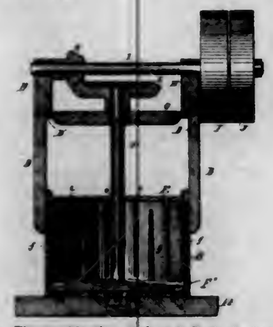
316,486. LANTERN. CHRISTOPHER RIEDNER, New York, N. Y. Filed Jan. 24, 1885. (No model.)



Claim.—1. A transparent body for a lantern, consisting of a series of glass plates, A, each bound by a metal strip, *b*, extending around the edges of the plate, the series of plates then being secured or fastened together, substantially as described.

2. A lantern consisting of the transparent body composed of the panels A, bound around with the metal strips *b*, united, as described, with the section B, consisting of the oil-reservoir T, having the slots *c*, and the perforated lining L, arranged above the oil-chamber and surrounding the burner, as shown, said section being hinged to the body at one side, with the spring-catch A at the opposite side, all being constructed and arranged to operate substantially as described.

316,487. PAINT-MIXER. CHARLES ROSE, Jr., Brooklyn, N. Y. Filed Dec. 30, 1884. (No model.)



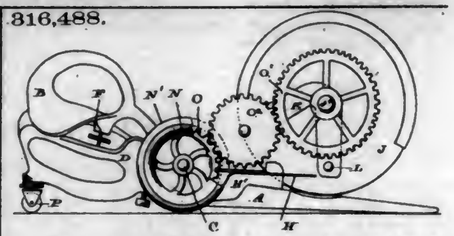
Claim.—1. The combination of the tub B, the horizontal shaft I, and the shaft F, carrying the stirrer-bar F' and arms *f*, with the uprights D, firmly secured to said tub and carrying at their upper ends bearings for said shaft I, and the bar G, constructed to perform the double function of connecting the uprights and a bearing for the upper end of the vertical shaft F, substantially as and for the purpose specified.

2. The combination of the tub B, the horizontal shaft I, and the vertical shaft F, carrying the stirring-bar F' and arms *f*, with the uprights D, firmly secured to the sides of said tub and carrying at their upper ends bearings for said horizontal shaft I, the bar G, constructed to perform the double function of connecting the upper end of the uprights and a bearing for the upper end of the vertical shaft, and the bar E, serving the twofold purpose of connecting and staying the lower ends of the uprights and as a support for the arms *e*, substantially as and for the purpose specified.

3. The frame for a paint-mixer herein described, consisting of the uprights D, having flat heads, D', the pillow-blocks H, provided with the feet *h* and carrying journal-bearings for the shaft I, the tie-bar G, secured between said heads D and *h* and forming a bearing for the upper end of the shaft F, and the tie-bar E, joining and bracing said uprights near their lower ends, and having secured thereto the arms *e*, substantially as herein shown and described.

316,488. TAILORS' SHEARS. SAMUEL C. RUGLAND, San Francisco, Cal. Filed Mar. 27, 1884. (No model.)

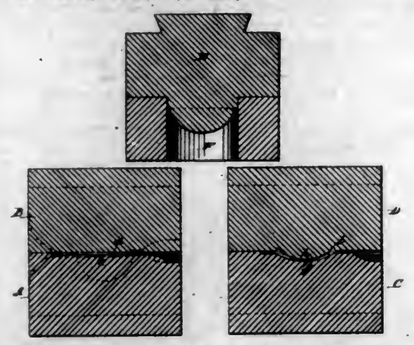
316,488.



Claim.—1. In tailors' shears, the combination, with the rotary cutter J, mounted in a split brace, E, of the adjustable curved shield M, substantially as shown and described.

2. In tailors' shears, the combination of the tapering shoe A, having a stationary blade, G, and guide-plates H I, the split brace E, adjustable handles B D, the rotary cutter J, and adjustable guide-roller L', mounted in the split brace, the wheels N N, and gears 0 0' 0^2, substantially as shown and described.

316,489. DIE FOR MAKING BELLS. HENRY T. RUSSELL, Chicago, Ill. Filed Sept. 12, 1884. (No model.)

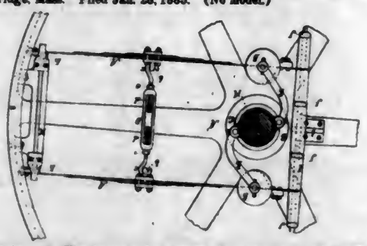


Claim.—1. An apparatus for the manufacture of gong-bells, consisting of three pairs of dies, one of the first pair having a sunken curved surface upon which the blank is forced by its fellow, the second pair of dies having upon one of the members a hollow of the form which the bell is to assume, and provided with a channel for the reception of superfluous material, the male die being of a form to force the metal into the female die, and the third pair of dies consisting of a female die having an opening of a diameter equal to the circumference of the completed bell and a male die of a shape to conform to that of the bell, adapted to force the bell into its fellow and free it from the superfluous material.

2. In an apparatus for forming bells from a bar of metal, the dies A and B, having the side openings, and the former having the upper sunken convex portion, *c*, substantially as described.

3. In an apparatus for the formation of gong-bells from a bar of metal, the combination, with the die A, having the side openings of different diameters, and the upper convex surface of greater depth at its edges, of the die B, having similar side openings and a plane lower surface adapted to be forced down upon the die A, substantially as and for the purpose set forth.

316,490. STEAM-ENGINE GOVERNOR. JOHN W. SARGENT, Cambridge, Mass. Filed Jan. 28, 1885. (No model.)

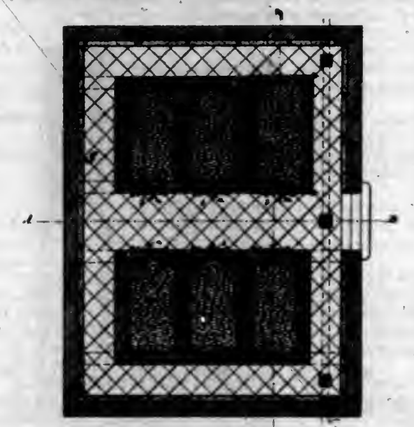


Claim.—1. The improved steam-engine governor, substantially as described, consisting of the two flat springs connected at or near their outer ends with the fly-wheel, the swivel and its hooked screws joining such springs at or near their middles, the weights applied to the springs, and the links or arms pivoted to such weights and to the sleeve of the cut-off cam, all being arranged and to operate essentially as set forth.

2. The combination of the pivotal bracket attached to the fly-wheel at its rim, and to the outer ends of the two springs of the governor, with such governor and fly-wheel, and with the cut-off cam applied to the fly-wheel shaft and to the governor, essentially as represented.

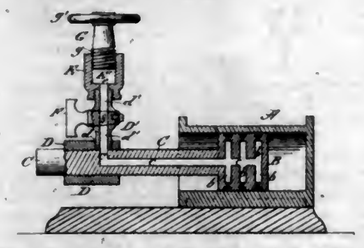
3. The combination, with the fly-wheel and with the governor, substantially as described, (consisting of the two flat springs, their tension-adjusting mechanism, the weights, and the arms or links, as set forth,) of the bracket provided with the lugs, and of the bracket for supporting the springs, all being adapted and to operate substantially as set forth.

316,491. PRESSURE-REGULATOR FOR FERMENTING-VATS. PAUL SCHAAR, Possneck, Sachsen-Meiningen, Germany. Filed Aug. 13, 1884. (No model.)



Claim.—In combination with a reservoir or vat, T, constructed substantially as described, the bung-hole plug E, screw-cap F, tube G, plug H, with perforated cap K, valve J, stem *r*, and spring *s*, arranged to operate substantially in the manner and for the purpose set forth.

316,492. LUBRICATOR FOR PISTONS AND CYLINDERS. ALEXANDER SIMPSON and ELLIS R. SIMPSON, Scranton, and MATHIAS SPEICHER, Archbald, Pa. Filed Mar. 14, 1885. (No model.)



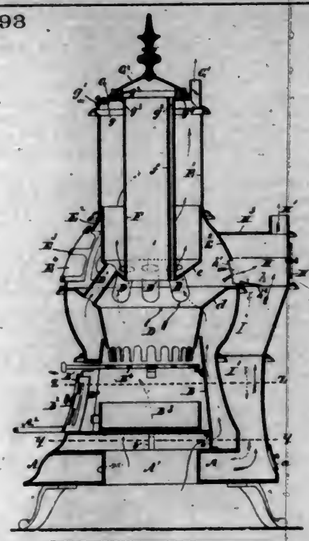
Claim.—1. In a lubricating device, the combination of the soft-tallow cup E, having the hole *e* and plug G, the plug D', having bore *d'*, and check-cock F, having opening *f*, piston-rod C, having bore *c* and *c'*, and piston-head B, having chamber or chambers *b* connected with bore *c*, radial holes *b'*, and ring B', having holes *b''*, with the cylinder A, all constructed to operate substantially as described.

2. In a device for lubricating with a semi-fluid or soft tallow, the combination of the cup E, containing the soft tallow, with a forcing-plug, G, check cock or valve F, and means for conveying the semi-fluid to and between the piston-head and cylinder, substantially as described.

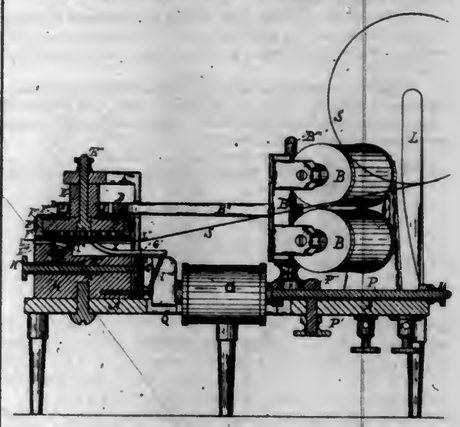
316,493. HOT-AIR STOVE. PETER H. SIBS and PHILIP HOMMEIER, Waterloo, County of Waterloo, Ontario, Canada. Filed June 2, 1884. (No model.)

Claim.—In a self-feeding hot-air stove, the combination of the base A, having central air-passage, A', and concentric flue around the air-passage A' within the base A, ash-box B, fire-pot D, having flange *d*, the series of radially-arranged air-tubes D', feeder F, and external casing, E E' E^2 E^3, whereby cold air passes up through the opening in the base of the stove, and is heated by contact with the ash-box and fire-pot, and ascends through the series of tubes into the annular space between the feeder and casting and out at the top, as set forth.

316,493



316,494. PRINTING-TELEGRAPH. A. BUTTLES SMITH, Brooklyn, N. Y., assignor to William B. Rankine and Benjamin W. Franklin, both of same place. Filed Apr. 23, 1884. (No model.)



Claim.—1. The combination, in a printing-telegraph, of a type-wheel which is caused to revolve, and controlled in its revolution by an escapement operated by the armature of an electro-magnet in an electrical circuit, the said type-wheel being provided at or near its periphery with type adapted to move independently of the type-wheel, and provided with springs, whereby they are made to assume a definite position relative to the type-wheel when not printing, and a second circuit in which there is placed an electro-magnet the armature whereof at stated times causes the type to move against the paper, substantially as and for the purposes set forth.

2. The combination, in a printing-telegraph, of a type-wheel rotated by an escapement controlled by a magnet in an electric circuit, the type being loose in the wheel and capable of independent movement, and a second electric circuit in which are two electro-magnets, the armature of one of which at stated times causes the type one by one to move against the paper, and the armature of the other feeds the paper, substantially as and for the purposes set forth.

3. The combination of the armature G' and bar G'', provided with a punch-button and retractile spring, and the feeding-pawls I and K, and the slot L', whereby the paper may be fed through the block H prior to the operation of the machine, substantially as and for the purposes set forth.

4. The combination, in a printing-telegraph, of an electric circuit in which is placed an electro-magnet, the armature whereof, acting through a lever, rotates and locks a type-wheel, and a second circuit in which there are placed two electro-magnets, one of which, operating

through its armature and lever, feeds the paper to the instrument, and the other, operating through its armature and lever, causes the printing to be done, substantially as and for the purposes set forth.

5. In a printing-telegraph, the combination of an armature which when attracted by its magnets sets the feeding mechanism, a retractile spring which both retracts the armature and feeds the paper, and magnets for the attraction of the armature, provided with means whereby they may be adjusted relative to the armature, substantially as and for the purposes set forth.

6. The combination, in a printing-telegraph, of the block H, the type-wheel F, the type-bearing posts P, the said block having the cut-away portion R, whereby the type may be readily removed and replaced, substantially as and for the purposes set forth.

7. The combination, in a printing-telegraph, of a horizontally-rotating type-wheel, paper passing below the type, and an inking device also placed below the type, so that the ink deposited upon the surface of the type will be retained thereon by gravity, and not tend to run down into the face or along the sides of the type, substantially as set forth.

316,495. SEAT AND OPERA-CHAIR. WILLIAM F. SPENCER, Richmond, Ind. Filed June 23, 1884. (No model.)

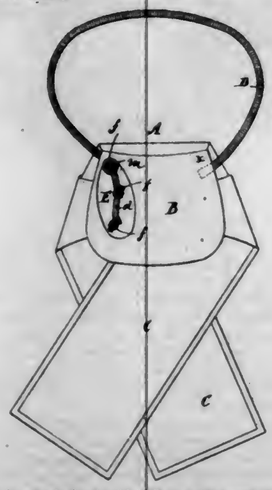


Claim.—1. In a chair, a metallic frame formed in a single piece and covered with cane and provided with projecting ears for securing said frame to the chair-frame.

2. In a chair, a metallic frame having an ornamental top formed integral therewith and provided with outwardly-projecting ears, and a back-rest secured on said frame below the ornamental top, substantially as set forth.

3. As a new article of manufacture, a chair consisting of a frame, a back-rest, and a seat, each formed of a single casting and covered with cane, and each provided with projecting ears for securing them to corresponding projections on chair-frame.

316,496. NECKTIE. WILLIAM S. SPURR, Franklin, Mass. Filed Feb. 14, 1885. (No model.)

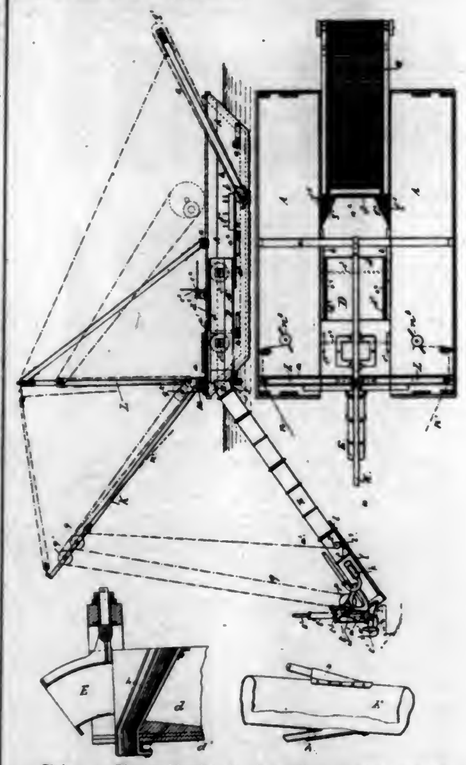


Claim.—1. In a neck-tie, the shield B, provided with the depression E, for receiving the knots *f*, substantially as and for the purpose specified.

2. The improved necktie herein described, the same consisting of the body A, provided with the flaps C C, the shield B, provided with the depression E and hole or eyelet *m*, and the elastic cord D, provided with the knots *f*, constructed, combined, and arranged to operate substantially as described.

316,497. HYDRAULIC EXCAVATING-MACHINE. ROY STONE, New York, N. Y. Filed Apr. 3, 1882. (No model.)

Brief.—A flooring connecting two floats constitutes an open sluice receiving material from an open traveling sluice-box run forward or back by a rack and gear with beveled, fixed, and shifting driving-pinions. Low boards contract the sluice-delivery toward a carrier-belt, the meeting of which with the sluice is covered by a flap. Gratings arrest what solid matter may overflow these boards. A suction-tube is pivoted to the sluice-box. Oppositely-placed nozzles discharging through hoods induce a suction-current. A parallel jet-tube, with curved nozzle passing through a flaring rim on the suction-tube's lower end, is automatically turned by chains as the suction-tube is swung. A cutter-bar reciprocated by a wiper-wheel with driving-chains is supported with its frame on the suction-pipe's lower end. The suction-pipe delivers through inclined grating-bars, which arrest over-sized matter and discharge it through a space below. Chains from lower suction-pipe end pass over pulleys on a supporting-boom and diverge to windlasses, to enable swinging both vertically and laterally of the pipe thereby.



Claim.—1. The combination, in a hydraulic excavating apparatus, of two floats, an open sluice between said floats, an induction-tube extending out from one end of the sluice, a pivot for supporting and connecting the induction-tube and jet-tubes for excavating, and induction-jets of water, substantially as set forth.

2. The combination, with the induction-tube, of an open sluice through which the water passes freely, means for supporting and moving the tube at the lower end, and a pivot at the upper end between the sluice and the induction-tube, substantially as set forth.

3. The combination, with the sluice-box and induction-tube, of floats at each side of the sluice-box, guide rails and wheels, and mechanism, substantially as set forth, for moving the sluice-box longitudinally between the floats, substantially as set forth.

4. The two floats with a flooring between them forming a sluice that is open for the free discharge of water, in combination with an induction-tube at one end of the sluice, the said flooring being below the water-level, and upon which the solid materials brought up by the current of water through the induction-tube pass, substantially as set forth.

5. The combination, with the induction-tube, floats, and sluice, of an elevating-apron receiving the materials from the bottom of the sluice, substantially as set forth.

6. The combination, with the induction-tube, of a movable sluice-box to which the induction-tube is attached, a stationary floor, the floats, and the elevator, substantially as set forth.

7. The combination, with the induction-tube and sluice, of the floats, an elevating-apron, the concentrators g^4, and the grated openings g^5 for the escape downwardly of water, substantially as set forth.

8. The combination, with the floats, sluice-box, and elevator-tube, of racks and gear-wheels to move the sluice-box endwise, and the bevel gear-wheels and movable bevel-pinion, whereby either a forward or backward movement is imparted to the sluice-box, substantially as set forth.

9. The combination, with the induction-tube, floats, and sluice, of an elevating-apron and a flap between the flooring of the sluice and the elevator, substantially as set forth.

10. The combination, with the floats and an open sluiceway between said floats, of an induction-tube, means for connecting the same at one end of the sluice, a range of bars upon which the materials from the induction-tube passes, and a range of inclined bars between the induction-tube and the sluice-box, there being a space for the free discharge downwardly of large substances arrested by the bars, substantially as set forth.

11. The combination, with the floats and induction-tube, of a hinge at the upper end of the induction-tube, a sluice-box upon which the water from the induction-tube passes, and a range of inclined bars between the induction-tube and the sluice-box, there being a space for the free discharge downwardly of large substances arrested by the bars, substantially as set forth.

12. The combination, in a hydraulic induction-tube, of a flaring metal rim, a boring jet-tube passing through such rim, and one or more water-nozzles introduced at the sides of the tube, and a hood at the junction of the nozzle and the tube, substantially as and for the purposes set forth.

13. The combination, with the induction-tube, of a boring jet-tube that is parallel with the induction-tube and provided with a curved end, and means for giving such tube a partial rotation, substantially as set forth.

14. The combination, with the induction-tube, of a boring jet-tube capable of being partially rotated, and ropes or chains passing from the same, substantially as set forth, whereby the jet-tube is automatically turned into the proper direction for loosening the material to be excavated in advance of the moving end of the induction-tube, substantially as set forth.

15. The combination, with a submarine induction-tube for excavating having its lower end open, of mechanism for supporting and moving such tube, and two or more jet-nozzles at opposite sides of the induction-tube to induce an upward current and to allow the induction-tube to be open from end to end and unobstructed, substantially as specified.

16. The combination, with the induction-tube, of two or more jet-nozzles at opposite sides of the induction-tube to induce an upward current, and a jet-tube at the lower end of the induction-tube to loosen the material to be excavated, substantially as set forth.

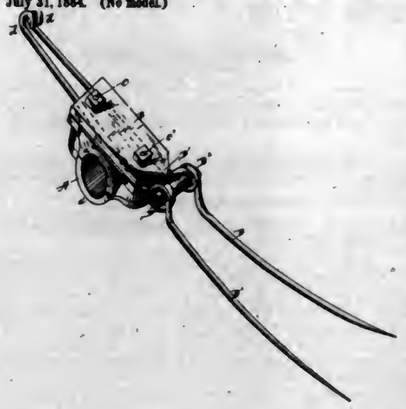
17. The combination, with the induction-tube, of a frame at the lower end connected to and supported by such tube, a cutter within said frame, and mechanism for reciprocating such cutter, substantially as specified.

18. The combination, with the induction-tube, of a frame at the lower end of such tube, a reciprocating cutter-bar and cutters, a chain, chain-wheel, and tappets, by means of which such cutters are moved, substantially as set forth.

19. The combination, with the induction-tube and its water-nozzles and supporting-boom, of two chains passing from the lower end of the tube over pulleys on the boom, and then diverging in opposite directions, and means for acting upon such chains to raise or lower such tube or swing it in either direction, substantially as set forth.

20. In combination with the induction-tube and the water-jets thereof, an elevator for receiving the material discharged by the tube and raising such material out of the water, substantially as set forth.

316,498. HAY-TEDDER. JOHN H. THOMAS, Springfield, Ohio. Filed July 31, 1884. (No model.)



Claim.—1. In a hay-tedder, the fork-tines made each in a single piece, in combination with a grooved crank-box and clamping-plate for uniting them to the crank, and means, substantially as described, for preventing endwise movement of the tines.

2. The crank-box provided with grooves diverging downwardly, in combination with a similarly-grooved clamping-plate for uniting the tedder-tines to said crank-box, substantially as described.

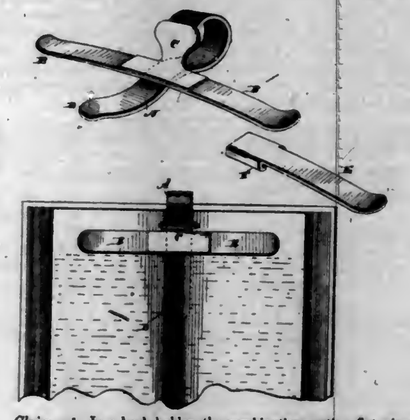
3. The crank-box provided with grooves for the reception of the fork-tines and a similarly-grooved plate or cap for clamping the tines to said box, in combination with means, substantially as described, for gaging the setting and preventing endwise movement of said fingers.

4. The tedder-fork tines formed each in a single piece provided with an eye for attachment to the swinging link or radius-bars, in combination with grooved crank-boxes and means for uniting the tines directly to said boxes and preventing their displacement, substantially as described.

5. In a hay-tedder, the crank-box provided with the diverging grooves and recesses and the similarly-grooved clamping and recessed cap-plate for uniting the forks to said box, in combination with fork-tines provided with ribs or collars, substantially as described.

6. In a hay-tedder, the grooved crank-box, in combination with the grooved clamping-cap provided with the cylindrical cross head or bar for uniting the fork-tines to said box, substantially as described.

316,499. BOOK-HOLDER. SIMON S. THOMAS, Davisborough, Ga. Filed June 5, 1884. (No model.)



Claim.—1. In a book-holder, the combination, with a flat piece of spring metal slightly curved near one end and curved to a hook shape at its opposite end, of a flat curved piece of spring metal secured to the hook-shaped end of the first-named piece and at right angles thereto, and provided with longitudinally-extensible arms, substantially as set forth.

2. As a new article of manufacture, a book-holder consisting, essentially, of a spring-metal strip bent as shown, and provided with a hook-shaped end, and the flat spring-metal strips or arms rigidly secured at right angles to the hook-shaped end of the strip A, the outer or free ends of said strips or arms being turned upwardly, substantially as and for the purpose set forth.

316,500. GOVERNOR FOR ELECTRIC MOTORS, &c. WILLIAM M. THOMAS, Grand Rapids, Mich., assignor of one-half to the Grand Rapids Electric Light and Power Company, same place. Filed July 5, 1884. (No model.)

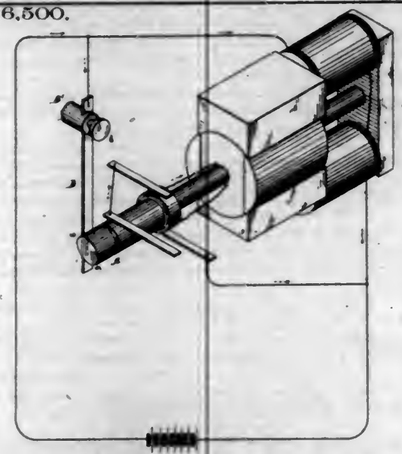
Claim.—1. The combination of an electric motor or other electrically-controlled machine and a vibrating governor actuated by the machine, said governor having a normal rate of vibration and serving to check the speed of the machine when the amplitude of vibration is abnormally increased, as set forth.

2. The combination of an electric motor or other electrically-controlled machine, a vibrating governor actuated by said machine, said governor having a normal rate of vibration and serving to check the speed of the machine when the amplitude of vibration is abnormally increased, and an electric circuit which governs the speed of the machine and is controlled by the vibrator.

3. The combination of an electric motor or generator, an electric circuit in which said machine is placed, and a vibrating governor actuated by the machine, having a normal rate of vibration and serving to check the speed of the machine when the amplitude of vibration is abnormally increased, by which the conditions of the circuit or branches of the circuit through the machine are controlled.

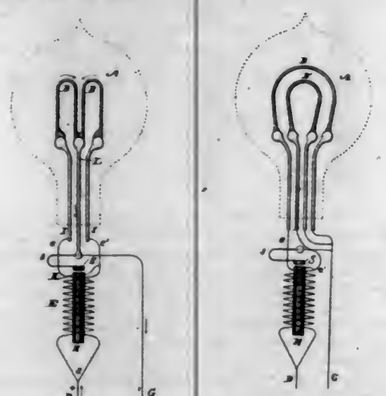
4. The combination, substantially as set forth, of an electric motor or generator, an electric circuit in which it is included, a vibrating gov-

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ernor actuated by the machine, having a normal rate of vibration and serving to check the speed of the machine when the amplitude of vibration is abnormally increased, the armature or field-magnet circuit in which said vibrator is included, a supplementary branch circuit thrown around said armature or field-magnet circuit, and contacts by which said supplementary circuit is completed by the vibrating governor when the speed of the motor has reached a given point.

316,501. AUTOMATIC CUT-OUT FOR INCANDESCENT LAMPS. WILLIAM M. THOMAS, Grand Rapids, Mich., assignor of one-half to the Grand Rapids Electric Light and Power Company, same place. Filed Nov. 24, 1884. (No model.)



Claim.—1. The combination of the differentially-wound magnet, its cut-out armature, circuit-connections, and the carbon or incandescent material or filament arranged in sections, each of which is included in a branch of the circuit.

2. The combination, in an electric lamp, of the incandescent material, independent sections or portions of which are each included in a branch of the circuit, circuit-connections, and an automatic cut-out for short-circuiting the lamp whenever either portion of the incandescent material is fractured.

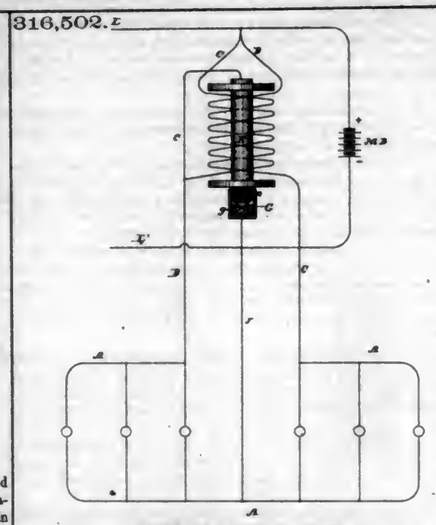
3. The combination, in an electric lamp, of the M-shaped carbon, the three electrical connections therewith, and the automatic cut-out.

316,502. ELECTRIC CUT-OUT. WILLIAM M. THOMAS, Grand Rapids, Mich., assignor of one-half to the Grand Rapids Electric Light and Power Company, same place. Filed Nov. 24, 1884. (No model.)

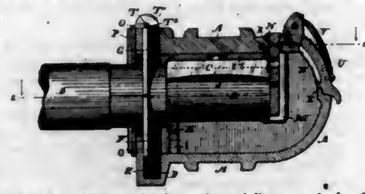
Claim.—1. The combination, with an automatic cut-out magnet, of a floating cut-out armature and their electric connections.

2. The combination of the differentially-wound cut-out magnet, the mercury-cup, the floating armature within the cup, and electric circuits, substantially as described.

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316,503. CAR-AXLE BOX. JAMES TIMMS, Columbus, Ohio, assignor of one-half to B. F. Rees, same place. Filed Sept. 25, 1884. (No model.)

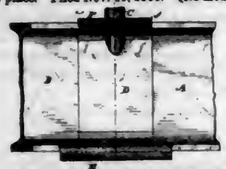


Claim.—1. The combination, substantially as set forth, of the axle, the box, the yielding packings G and F, the slide O, made in one piece and closely encircling the axle and moving up and down therewith, and the vertical guideways P, in which the slide moves.

2. In combination with the capped end bearing, K, having a semicircular groove Q, and the oil-box having a semicircular groove, Q', the bent rod R, with its bowed end R' entering the hole S in the box, substantially as set forth.

3. In combination with the oil-box and spring-packings F and G, the lugs T' and bent rod T, substantially as set forth.

316,504. HANGER FOR OVERHEAD TRAM-RAILS. HENRY R. TOWNE, Stamford, Conn., assignor to the Yale & Towne Manufacturing Company, same place. Filed Nov. 19, 1883. (No model.)



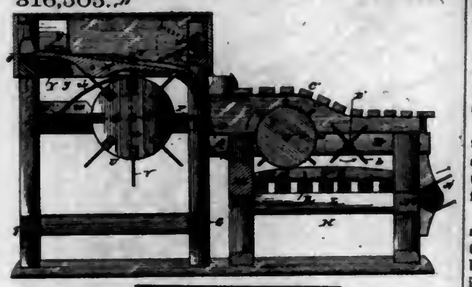
Claim.—1. A hanger for the abutting ends of an overhead tram-rail, consisting of a vertical supporting-rod, a plate, and a shoe, whereby the rail ends are supported vertically and laterally, substantially as set forth.

2. The combination, with the abutting ends of an overhead tram-rail, of a vertical supporting-rod, a plate, a shoe, and a cap, substantially as set forth.

316,505. COTTON-CLEANER. STEPHEN TUCKER, Winona, Tex. Filed Jan. 17, 1885. (No model.)

Claim.—The herein-described cotton-cleaner, comprising the hopper, an open bottom pivoted therein, a spiked cylinder located beneath said bottom, a pivoted gate for regulating the quantity of cotton fed from the hopper, a bed having spikes or projections, a cylinder having spikes or projections that pass between the spikes or projections of the bed as the cylinder is rotated, and a shaft having fingers for freeing the cotton from the cylinder and discharging it from the machine, substantially as described.

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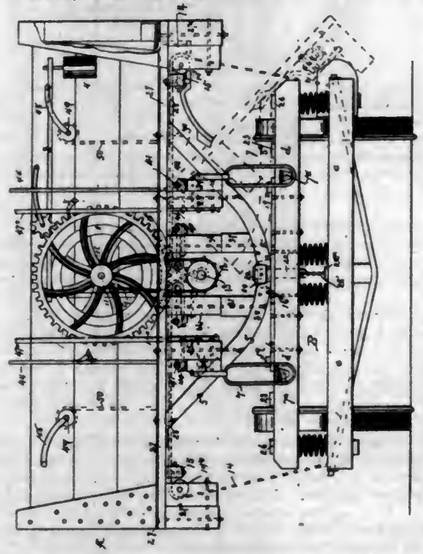
316,506. GAS-CONDUCTOR. JAMES D. UPPERMAN, Pittsburg, Pa. Filed Feb. 16, 1885. (No model.)



Claim.—1. The combination, with the joint of a natural-gas conductor, *a*, of the sectional casing *b*, having annular chambers *e*, containing a packing substance, a waste-chamber, *f*, and tubes *g*, extending from the chamber *f* through the chambers *e* and their walls, substantially as and for the purpose specified.

2. The casing *b*, made in halves, provided with end walls, b^3, and partitions *d*, forming annular end chambers or recesses, *e*, provided with holes *e'*, for filling the same with a plastic substance, substantially as and for the purposes described.

316,507. DUMPING-CAR. MATTHEW VAN WORMER, Malden, Mass. Filed May 19, 1884. (No model.)



Claim.—1. In a dumping-car, the weighted friction-lever 3, in combination with a friction-wheel, 2, gear-wheel 1, gear 12, chain, 9, and chain or rope 14, the combination being and operating substantially as shown and described.

2. The combination, with a side-dumping car-body supported on rockers, of trap-doors in the bottom of the car located at each side of its center, and arranged to be opened at will at either side, as set forth, and whereby, upon thus discharging a part of the load at one side only to shift the center of gravity, the car-body upon being released is left free to tilt by its own gravity and to dump at the opposite side of the car.

3. In combination, trap-doors in the car-bottom for discharging a portion of the load at either side of its center at will, a friction-wheel and friction weighted lever, and connections, substantially as described, with the car-body and with the truck, the combination permitting the dumping to be automatic and to be either abrupt or gradual by the mere lifting of the weighted lever, all as set forth.

4. In combination, the straight transom 27, extending across the car and over the outside sills, the projection 28, welded thereto at a point about midway between the outer sills, 27°, and the second stringers, 25, and the rockers having the ends abutting against these projections, all substantially as and for the purposes set forth.

5. In combination with a rocker having straight portions 5° extending beyond the arched portion, and with a horizontal rocker-bed, the safety-blocks 23 on the upper truck-bolster, and located at points inside the tracks, and the arch-bar, all substantially as and for the purposes set forth.

6. The described construction of rocker, consisting of two metallic sides connected by bolts, as set forth, and leaving the spaces between these sides open, the space between the bolts 16 16 receiving the center bearing, and the curved bolts 18 being adapted to come, when rocking, inside the inner curved face of the projections 19 on the bed, all substantially as and for the purposes described.

7. In combination with the yoke-plate 20 on the rocker, the king-bolt 22, chain or link 22', and bar 22° thereon, this bar, when the car-body stands substantially level, resting on the upper bolster.

8. In combination with a side-dumping car having plates 54 and chain 14 secured to the arch-bar between the wheels, the arch-bars made, as shown, to extend beyond the wheels, and brakes attached to the extremities of such bars at points outside the wheels, all substantially as shown and described, and for the purposes set forth.

9. In combination with the center posts, 41, of the car-body, the braces 42, made to surround and span the posts, and having the extension-bar 42° passing through the floor and cross ties or sills, as set forth.

10. In combination with the hinged trap-doors in the bottom of the car, the lever-latches 47, their rods 47', stringers 25, and hand-levers 47°, substantially as and for the purposes described.

11. In combination with the trap-doors 45, the devices for raising the same, consisting of the hand-levers 44, chains 50 and 52, and their connecting link, rod, or chain 51, and guide-roller 53, all substantially as set forth.

12. In combination with the horns 7° on opposite sides of each of the upper truck-bolsters, *d*, the side supports, 7 7, their chains 44° 44°, guide-roller, rod 43, and operating hand-lever 44.

13. In combination with the car-body, and with the stringers 36 36, the draft-timbers 37, resting on the rockers and supporting these stringers, and bolts 38, connecting together the rocker, the transom, the stringers, and draft-timbers, all as and for the purpose described.

316,508. BANJO. G. ARTHUR WASHBURN, Plainville, Conn., assignor to John C. Haynes & Co., Boston, Mass. Filed May 12, 1884. (No model.)



Claim.—1. In a banjo, the bracket E, provided with the guard J, for housing or concealing the lower end of the rod N, substantially as specified.

2. In a banjo, the bracket E, provided with the slot *i*, and having the guard J, in combination with the nut K and threaded rod N, provided with the hook *v*, substantially as specified.

3. In a banjo, the bracket E, having the slot *i*, a threaded stud *x*, and guard J, in combination with the nut K and threaded rod N, having the hook *v*, substantially as set forth.

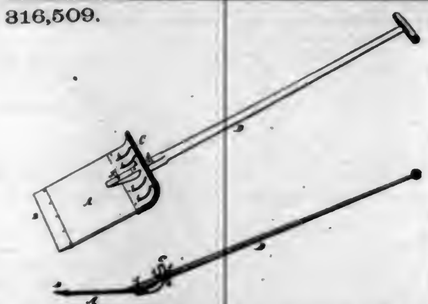
4. In a banjo, the combination of the following instrumentalities, to wit: the body A, provided with hole *f*, the head B, provided with the wire D, the threaded rod N, provided with the hook *v*, the bracket E, provided with the slot *i*, guard J, and stud *x*, the nut K, and screw *m*, constructed, combined, and arranged to operate substantially as specified.

5. In a banjo, a bracket provided with a guard in which the threaded end of the straining-rod is housed, and a nut interposed between said guard and the unhoused end of said rod, said nut being adapted to exert a strain on the rod, substantially as set forth.

6. In a banjo, a bracket having a guard in which the lower end of the straining-rod is housed, and a slot through which the straining-rod passes, in combination with a nut disposed on said rod within the slot, said nut being less in diameter than the surrounding or adjacent parts of the bracket, whereby the nut is prevented from being accidentally turned on the rod, substantially as specified.

316,509. SNOW-SHOVEL. CHRISTOPHER WATSON and CHARLES E. ADAMS, Paris, Ontario, Canada. Filed Mar. 12, 1885. (No model.)

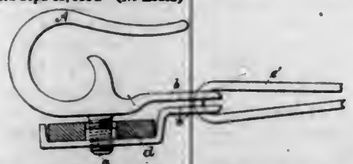
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Claim.—1. In a snow-shovel, the sheet-metal stay-head C, double curved, as shown, and provided with handle-openings *a a* and lugs *b d e*, struck out when forming the said openings *a c*, and corrugations *i i'*, substantially as specified.

2. In a snow-shovel, the combination of the double bent sheet corrugated metal stay-head C, blade A, and handle D, all constructed substantially as and for the purpose specified.

316,510. HARNESS CHECK-HOOK. RICHARD J. WELLER, Athens, Pa. Filed Sept. 13, 1884. (No model.)



Claim.—1. A harness check-hook composed of the upper hook part, A, and the lower loop-piece, E, constructed substantially as described and arranged to screw together, so that their crupper-strap loops shall coincide and admit the crupper-strap through both the upper and lower loops, for the purpose shown and described.

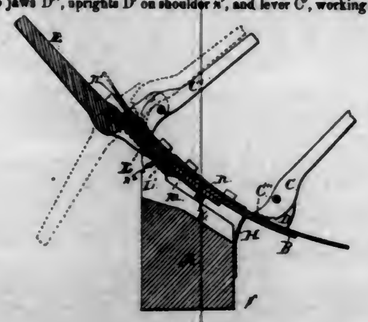
2. In a harness check-hook, the upper hook part, A, having the crupper-strap loop *b* on one end and the screw-threaded shank *a* on its under side, in combination with the lower part, E, having the screw-threaded hole *c* and crupper-loop *b'*, substantially as shown and described.

3. In a harness-pad, the combination of the upper hook part, A, having the crupper-loop *b* on one end, the screw-threaded shank *a* on its under side, the under part, E, with the screw-threaded hole *c* and loop *b'* on one end, in combination with the back-strap *d*, for the purpose shown and described.

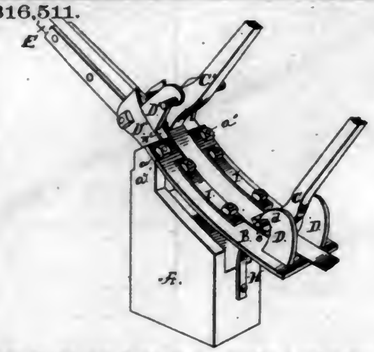
316,511. TIRE-SHRINKING MACHINE. DAVID A. WILLBANKS, High Shoals, Ga., assignor of one-half to Thomas C. Lacnius, same place. Filed Mar. 28, 1884. (No model.)

Claim.—1. The combination, with the curved plate B, having the uprights D and lever C, and provided at the upper end with the jaws D'', of the plate *n*, having the shoulder *n'*, uprights D', and lever C', and the lever E, connected with the plates B and *n* to move said plate *n*, as set forth.

2. The plate B, having the guide-strips I I, and provided with the uprights D and lever C at the lower end, and the jaws D'' at the upper end, in combination with the plate *n*, having the notches n^2 on its under side, the connection L, having the bent point L', and the confining-spring *m*, shoulder *n'* on plate *n* on a level with the plate B, and adapted to slide up jaws D'', uprights D' on shoulder *n'*, and lever C', working in ap-



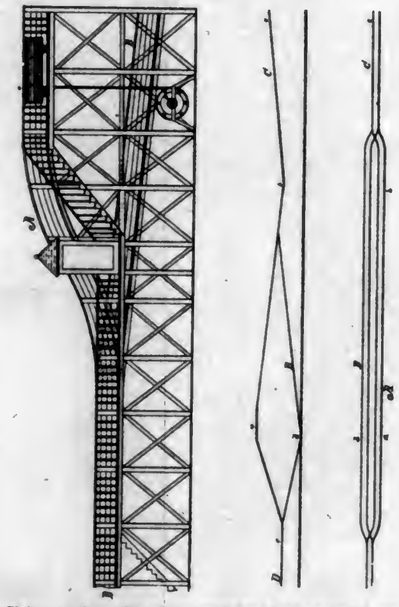
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rights D', and lever E, pivoted to connection L and to jaws D'', substantially as and for the purpose set forth.

316,512. GRAVITY-RAILWAY. JOSEPH P. YEARICK, Toledo, Ohio. Filed June 6, 1884. (No model.)

Brief.—The tracks converge at both ends into single tracks, and are provided with a starting-level, a reversing-point, and a stopping-level, from which they are raised to the starting-level.



Claim.—1. A gravity-railway consisting of two tracks, A and B, converging at either end into single tracks C and D, said tracks being provided with starting-level *a*, reversing-point *c*, and stopping-level *e*, arranged substantially as shown and described, for the purposes set forth.

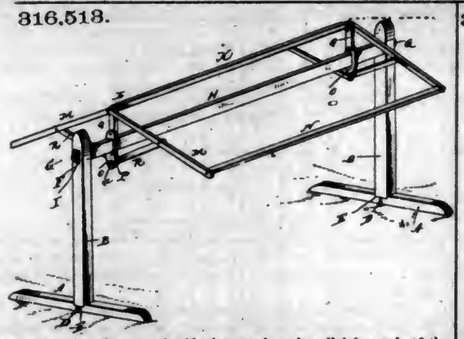
2. In a gravity-railway, in combination with tracks A, B, C, and D, grades or inclines *a b*, *b c*, *c d*, *d e*, and *e a*, substantially as shown and described, for the purposes set forth.

316,513. SHIFTING TOP FOR HAMMOCK-SUPPORTS. CHARLES W. ACKER, Watertown, N. Y. Filed Sept. 3, 1883. (No model.)

Claim.—1. The herein-described shifting frame comprising stationary end pieces, O, connecting-bars Q, pivoted to the top of said end pieces, side bars, M, pivoted to the top of said connecting-bars Q and extending divergently therefrom, longitudinal bars N, connecting the side bars, M, braces pivoted to the bottom of stationary pieces O and extending divergently to the side bars, M, to which they are pivoted, and the devices for supporting the same, substantially as set forth.

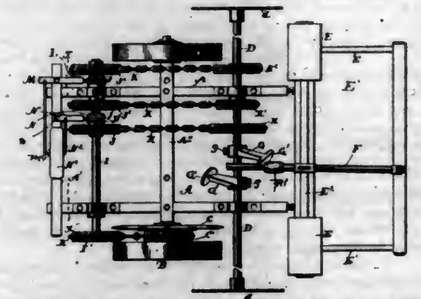
2. The combination, with the supporting-frame having the top bar, H, of the top frame, comprising the longitudinal top bar, divergent side bars pivoted thereto, longitudinal bars N, connecting the side bars, the stationary pieces supported on the top bar of the main frame, connecting-

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bars pivoted to the tops of said pieces and to the adjoining ends of the side bars, and divergent braces pivoted to the bottom of said pieces and to the side bars, substantially as and for the purpose set forth.

316,514. CORN-PLANTER CHECK-ROW. HENRY A. ALLEN, Tecumseh, Nebr. Filed Aug. 21, 1884. (No model.)



Claim.—1. The combination of the marker-shaft, the drive mechanism, the intermediate shaft connected with and actuated by the drive mechanism, a series of wheels secured on the marker and intermediate shaft and geared together, the comparative relative diameters of each wheel of one intergeared pair differing from that of the other pairs, and one wheel of each pair being loose on its shaft, and clutch mechanism whereby the wheel may be keyed on its shaft at will, substantially as set forth.

2. In a corn-planter, the combination, with the wheels J J', sleeved on their supporting-shaft, and the said shaft geared with and continuously operated by the driving mechanism, of the double-ended clutch keyed on the shaft between the said wheels and movable into engagement with one or the other thereof, substantially as set forth.

3. The combination of the marker-shaft, the intermediate shaft connected with the drive mechanism, a series of wheels arranged on the marker and intermediate shaft, the comparative relative arrangement of the wheels of each pair differing from that of the other pairs, and means whereby either pair desired may be operatively geared together, substantially as set forth.

4. The combination of the dropping-slide, the operating-arm F, the marker-shaft provided with cams arranged to engage arms F, wheels J J' J^3, arranged on the marker-shaft, the intermediate shaft, wheels H H' H^3, arranged thereon, and means whereby either pair of wheels desired on the intermediate and marker shaft may be operatively geared, substantially as set forth.

5. In a corn-planter, the combination of the shaft I, the wheels J J', the double-ended clutch keyed on the shaft between wheels J J' and movable into engagement with either one of the wheels J J', the lever N', link N^2, and lever N^3 substantially as set forth.

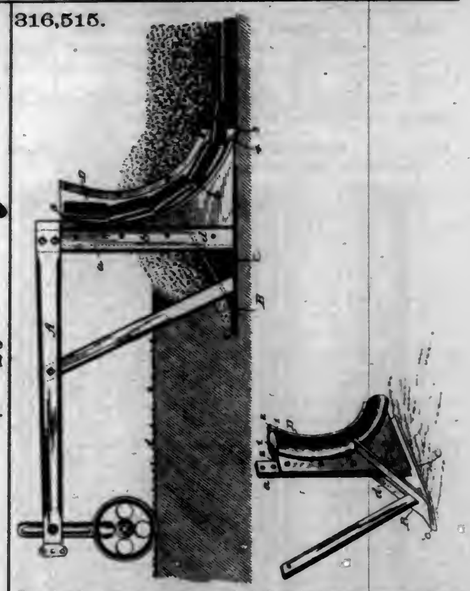
316,515. MACHINE FOR LAYING TILES. MILLARD F. ANDERSON, Corning, Iowa. Filed Feb. 3, 1885. (No model.)

Claim.—1. In a machine for laying tiles, &c., and in combination, a ditching shovel or plow and a feeding-tube adapted to discharge the tile against the one already laid at a point above the bottom of the ditch or trench, and in position substantially parallel thereto, substantially as described.

2. In a tile-laying machine, and in combination, a ditching plow or shovel, a curved feed-tube for the tile, and a guide-strip within said tube, substantially as described, and for the purpose set forth.

3. In a tile-laying machine, and in combination, a ditching plow or shovel, a curved feed-tube for the tile, a guide-strip within said tube

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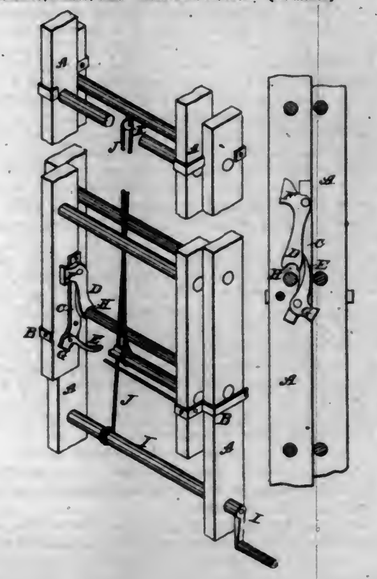


diverging from the inner front wall of the tube from its upper point of attachment to a point a little short of the discharge end of the tube, and a notch or shoulder, 4, all substantially as described, and for the purposes set forth.

4. In a tile-laying machine, a feeding and laying device, consisting of a curved tube provided with a guiding-strip within for the tiles, said strip being raised from the front wall of the tube at its lower end and forming a shoulder or notch, 4, substantially as described, and for the purpose set forth.

5. In a tile-laying machine, and in combination, a ditching-point, *c*, a vertical standard or bar, *a*, having a beveled front edge, a feed-tube, D, having a larger diameter than the thickness of the vertical bar, a colter, and plates *d d*, extending from the point *c* back to the feed-tube and secured thereto, the said plates inclining upward to the rear, whereby mold-boards are formed upon either side, all substantially as described, and for the purposes set forth.

316,516. EXTENSION-LADDER. JULIUS A. BALE and AUGUSTUS DEREMEY, Canton, Ohio. Filed Nov. 13, 1884. (No model.)

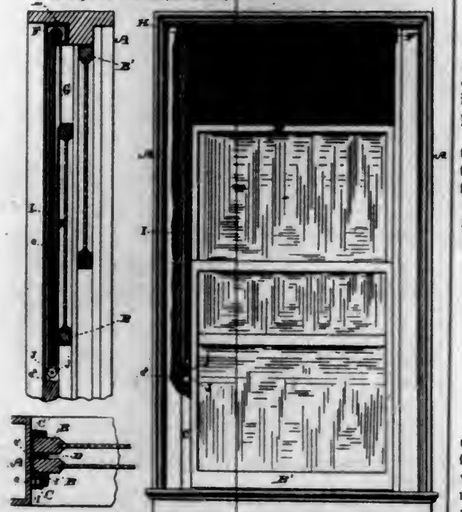


Claim.—1. The plates C, provided with the locking-dogs D and the tripping-dogs E, substantially as and for the purpose specified.

2. The locking-dogs D, provided with the recesses H, the weighted arms F, and the projections L, substantially as described, and for the purpose specified.

3. The tripping-dogs E, provided with the weighted arms G, substantially as described, and for the purpose specified.

316,517. WINDOW-SCREEN. WILLIAM BATEMAN, San Francisco, Cal. Filed Sept. 26, 1884. (No model.)



Claim.—1. In a window having a screen attached to its sliding sash and adapted to be unwound from a roller or drum by the movement of said sash in opening, the means by which the screen is wound up as the sash is closed, consisting of a cord attached to the roller or drum and to the sliding sash, substantially as herein described.

2. The sliding sash of a window, the roller or drum mounted in the casing, and the screen G on said roller and connected with the sash, in combination with the means by which said roller is rotated to wind up the screen as the sash closes, consisting of a cord attached at one end to and adapted to rotate the drum, and at the other to the window-sash, said cord being suitably guided in its course between its end connections, substantially as herein described.

3. The window-sash B, roller F in the top of the window-casing, and screen G on said roller and attached to the sash, in combination with the means by which the screen is wound up as the sash is raised, consisting of the pulley H on the roller, the guide-pulley J below, and the cord I, attached to pulley H, passing under and around pulley J and up to the sash B, to which it is secured, substantially as herein described.

4. The window-sash B, roller F in the top of the window-casing, and the screen G on said roller and attached to the sash, in combination with the means by which the screen is wound up as the sash is raised, consisting of the pulley H on the roller, the guide-pulley J in a recess, c^2, in the inner face of the bead C, and the cord I, attached to pulley H, passing down in a groove, c, made in the inner face of bead C, to and around said guide-pulley J, and up in a groove, c', made in the inner side of the bead to the sash B, to which it is secured, substantially as herein described.

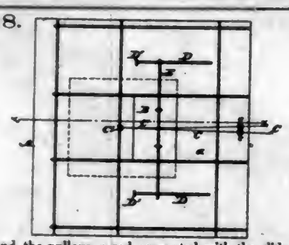
5. In a window having a screen attached to its sliding sash and adapted to be unwound from a roller or drum by the movement of said sash in opening, the cord I and pulleys H J, by which said screen is wound up as the sash is closed, in combination with the bead C, having grooves c c' and recess c^2, for receiving the cord I and pulley J, whereby they are concealed, substantially as herein described.

6. In a window having a screen attached to its sliding sash and to a winding roller or drum, as described, the combination of said roller or drum with the pulley H on its end, formed of a disk, h, separated from the roller end by a tube, h', and secured by a tapering pin, h^2, substantially as and for the purpose herein described.

316,518. AWNING. ANDREW J. BONNER, Jr., and PETER VANDEN BERGHE, Philadelphia, Pa.; said Vanden Berghe assignor to said Bonner. Filed June 5, 1884. (No model.)

Claim.—1. An awning having an opening and slide therefor, pulleys connected above and below said opening, a rope connected with the slide

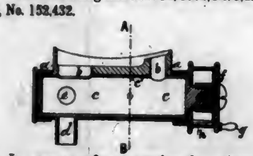
316,518.



passing around the pulleys, a rod connected with the slide, and rods secured to the awning, the rod on the slide riding on the rods on the awning, the parts being combined and operating substantially as and for the purpose set forth.

2. An awning having a window-opening and a slide, and rods D E, the rods D being connected with the awning and the rod E with the slide, the rod E bearing on the rods D, substantially as and for the purpose set forth.

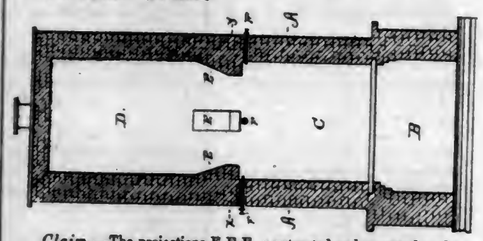
316,519. CORNET OR OTHER MUSICAL INSTRUMENT. WILLIAM BOOTH, Rochdale, County of Lancaster, England. Filed Dec. 26, 1884. (No model.) Patented in England Nov. 14, 1882, No. 5,432, and in France Dec. 4, 1882, No. 152,432.



Claim.—1. In apparatus for preventing the accumulation of moisture in wind-instruments, the combination of an outer casing secured to the instrument, and provided with an opening or openings communicating with the said instrument, and an opening communicating with the atmosphere, with a movable valve provided with openings corresponding with the said openings in the outer casing, substantially as herein set forth, for the purposes specified.

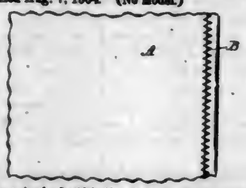
2. The combination, in apparatus for preventing the accumulation of moisture in wind-instruments, of the outer casing, a, provided with openings b, d, and a', with a movable valve, c, provided with openings b, e, and c', and actuated by means of the projection g, fixed on a disk, f, secured to the said valve, substantially as and for the purposes herein shown and described.

316,520. GAS-GENERATOR. JAMES BOWER, Waterville, N. Y. Filed Nov. 10, 1884. (No model.)



Claim.—The projections E E E, constructed and arranged as described, in combination with tubular sheath F, held in the wall of the generator at the base of the projections, and an oil-jet tube inserted and held therein by screw-threads and nuts, constructed and arranged substantially as described, for the purposes stated.

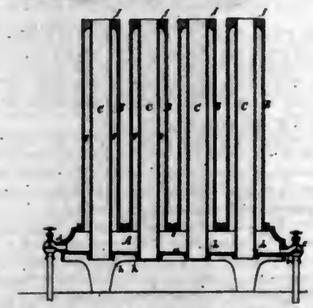
316,521. METHOD OF BINDING FABRICS. ERASTUS F. BRADFORD, Boston, Mass., assignor to the Singer Manufacturing Company of New Jersey. Filed Aug. 7, 1884. (No model.)



Claim.—That method of binding fabrics which consists in folding the binding snugly over the edge of the fabric and securing it thereto by a seam of stitches passing alternately through the body of the fabric inside

of the binding and through the fabric and the folded binding near both edges of the latter, whereby the binding will be snugly laid over the edge of the fabric and secured thereto with both of its edges closely felled down by the threads of the seam, substantially as set forth.

316,522. STEAM-HEATING RADIATOR. WILLIAM W. CARMAN, Exeter, N. H. Filed Jan. 5, 1885. (No model.)



Claim.—1. The combination of the chambered base A, provided with the conical seats in its bottom, with the pipes B, screwed into the top of such base and having conical seats in their tops, and with the pipes C, conical at their opposite ends to fit the two sets of seats and placed within the pipes B, all being substantially as set forth.

2. The combination of the chambered base A, provided with the inclined bottom and with conical seats therein, as set forth, with the pipes B, screwed into the top of such base and having conical seats at their upper ends, and with the pipes C, conical at their opposite ends to fit both sets of such seats, and placed within the pipes B, all being substantially as represented.

316,523. HAY-KNIFE. WALLACE H. CARTER, Hallowell, Me. Filed Nov. 29, 1884. (No model.)



Claim.—In a hay-knife, a blade having a diagonal-grooved face and a back portion of less thickness than the grooved portion, the grooves forming a serrated edge and extending to the margin of the back portion, substantially as described.

316,524. STORE-TONGS. JOHN D. COLBY and JOHN F. LUTHER, Lowell, Mass. Filed Sept. 25, 1884. (No model.)



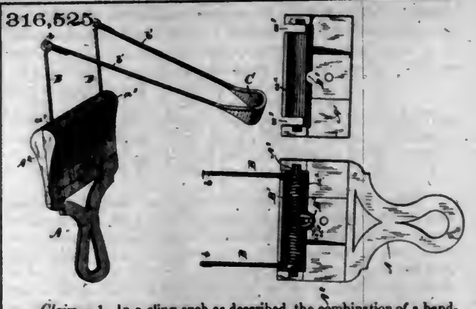
Claim.—1. The combination of the normally-open pivoted spring-controlled jaws, the stem, the divided handle consisting of a stationary part fixed to the stem and a movable hinged part, the intermediate lever jointed to one of the parts with its free end working against the opposite part, and the wire or rod connecting the movable jaw with the lever, substantially as and for the purposes set forth.

2. In store-tongs, the combination of two pairs of jaws placed at right angles, or thereabout, to one another, and connected so that they move bodily and together, a supporting stem or handle, and jaw-actuating mechanism operated by the hand which grasps the handle, substantially as and for the purposes hereinbefore set forth.

3. The combination of the fixed double jaw C C', the movable double jaw D D', the stem, and divided handle B B', the spring g, the wire or rod e, and the lever f, all constructed and arranged substantially as hereinbefore set forth.

316,525. SLING. ISAAC W. COOPER, Apollo, Pa., assignor to Joshua Cooper, same place, and A. S. Warner, Freeport, Pa. Filed Feb. 20, 1885. (No model.)

316,525.



Claim.—1. In a sling such as described, the combination of a hand-piece, two spring-arms mounted thereon, the holder, and cords connecting said holder to the spring-arm, substantially as described.

2. The hand-piece provided with a recess or shoulder near its upper edge, the torsional spring provided with carrying-arms located therein, and a holder attached to said arms, substantially as described.

3. The hand-piece or frame provided with a recess or socket near its upper edge for the reception of the torsional springs, and with grooves for the passage of the carrying-arms, in combination with said carrying-arms and a holder, and a cap-plate or retainer, substantially as described.

4. In combination with the hand-piece notched or grooved as described for the reception of the springs, the torsional springs provided with the carrying-arms and the retaining offset or loop, as set forth.

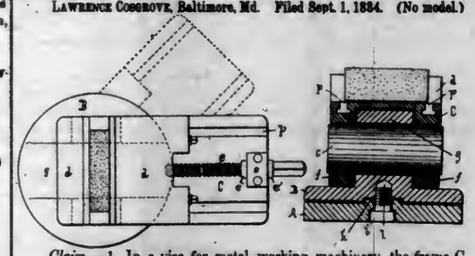
5. The improved spring consisting of the central loop, the two coiled sections, and the parallel carrying-arms, in combination with the handle, and means for securing the central loop to the handle, permitting the arms to move independently, and the holder and connecting-cords, substantially as described.

6. In combination with the hand-piece provided with a recess near its upper edge, the two carrying-arms, the holder connected thereto, the coiled torsional springs, and the retaining-pintle, substantially as described.

7. The combination, in a sling, of a hand-piece or holder and two torsional springs and two carrying-arms, said springs being secured within a cavity formed between the hand-piece and a retaining-cap, the carrying-arms attached to said springs passing through slots or openings in the holder, and the springs being anchored or held by a lateral offset or loop, substantially as described.

8. The combination, with two torsional springs mounted upon a frame or hand-piece, and provided with carrying-arms, of the holder, and the cords for attaching said holder to the arms, substantially as described.

316,526. WORK-HOLDER FOR METAL-WORKING MACHINES. LAWRENCE COSGROVE, Baltimore, Md. Filed Sept. 1, 1884. (No model.)



Claim.—1. In a vise for metal-working machinery, the frame C, provided with suitable gripping-jaws, in combination with mechanism, substantially as shown, by which the bearings f of the frame C are clamped and held to the bar c, whereby the frame C may be placed and held at any angle from a horizontal to a vertical plane, as herein set forth.

2. The combination of the frame C, provided with suitable clamping-jaws, the bearings f, provided with slots h, the screws i, and the bar c, attached to a suitable frame or bed-plate, as set forth.

3. In a gripping and holding vise, the combination, with suitable jaws, of the frame C, adapted to be set and held at any angle from a horizontal to a vertical plane, and provided with a pivoting center, l, whereby the frame is moved at right angles to its vertical adjustment.

4. The combination, with the frame C, of the trunnions c, bearings f, provided with the slots h, and binding-screws i, as herein shown and set forth.

5. The combination of the frame C, having a vertical adjustment, the base B, the base-plate A, pivoted to the base B, thereby forming a horizontal adjustment, and both adjustments provided with suitable graduations and dial-marks, whereby any given angle may be presented to the cutting tool or drill either in a horizontal or vertical plane.

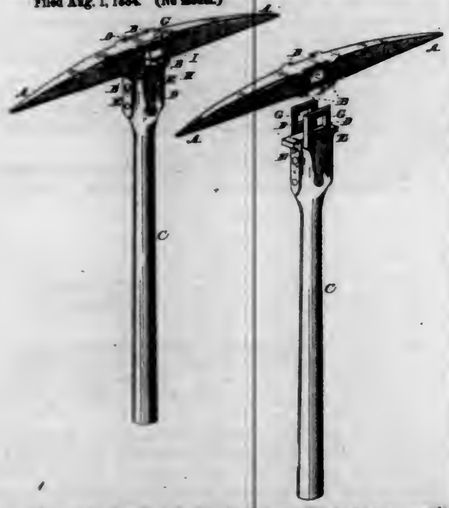
316,527. METHOD OF CARDING RAILROAD FREIGHT-CARS. CHARLES W. CUSHMAN, Buffalo, N. Y. Filed Jan. 2, 1884. (No model.)



Claim.—1. The within-described method of insuring the shipping from and direct return to a designated point of a car, consisting in securing to a car a billing-card indicating the shipping and terminal points of a car and the ownership of the same, and also a series of other cards, each indicating a line of road over which the car is to travel, with instructions to what road and by what route the car is to be returned, said cards being arranged in the order of the roads or sections thereof following each other in the course the car is to travel in passing from one terminal point to another.

2. The method of labeling or carding cars to facilitate their direct return to the shipping-point, which consists in employing a billing-card indicating the shipping and terminal points of the car's trip and the ownership of the car, said card to be applied to the car at the shipping-point and retained upon the car throughout the trip and until its return to the shipping-point, and a series of other cards, each indicating a line of road over which the car is to travel on its way from the shipping-point to the point of destination, and indicating the point at which the car is to leave said road on its return-trip and the line of road which it is to take at said last-named point, the cards of said series to be placed upon the car in succession one upon another, so as to expose one only at a time, the card indicating a particular line of road to be traversed as the car passes from one road to another outward bound being placed on the car when the car reaches said line, and said cards to be removed in reverse order one at a time, the card indicating a particular line of road to be taken as the car passes from one road to another when outward bound being removed as the car passes from said line when homeward bound, all substantially as set forth.

316,528. PICK. JAMES P. DAVIS and JUAN G. ROBBINS, Banner, Idaho. Filed Aug. 1, 1884. (No model.)



Claim.—In a pick, a handle having metallic straps permanently secured to its opposite sides and projecting beyond its end, said straps being provided with beveled edges on their sides, with transverse slots made through these projecting parts, and separate and independent plates secured to the front and back sides of the handle so that their ends are flush with the end of the handle, in combination with a pick-head having its sides dovetailed to fit between the beveled edges of the straps, while its under or concave side rests upon the plates secured to the front and back sides of the handle, said head being slotted to correspond with the slots in the straps and secured thereto by a tapering wedge-shaped key or cotter whereby adjustment for wear may be made, substantially as herein described.

316,529. SHUTTER-WORKER. LEON O. DION, Natick, Mass., assignor to John M. Fiske, trustee, same place. Filed Nov. 26, 1883. (Model.)

316,529.



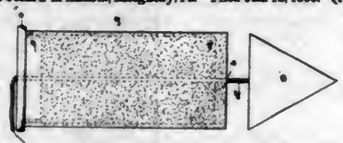
Claim.—1. A device for operating blinds or shutters, consisting of a shaft adapted to pass horizontally from the exterior to the interior of the window-frame and provided on its inner end with means for rotating it, a support or ear adapted to be attached to the blind, and flexible coupling composed of a spiral spring rigidly secured at one end to the shaft and at the other end to the ear, as set forth.

2. In a blind or shutter operating device, the combination of the crank-shaft E, the rotary lifter G, the shoulder or arm *i*, and a means for connecting said shaft E with a vertical pintle secured to the blind C and adapted to transmit motion from the said shaft to the said pintle and through it to the blind, substantially as described.

3. In a blind or shutter operating device, the combination of the crank-shaft E, the rotary lifter G, the shoulder or arm *l*, and a means for connecting said shaft E with a vertical pintle secured to the blind C and adapted to transmit motion from the said shaft to the said pintle and through it to the blind, substantially as described.

4. In combination with a blind or shutter pivoted by one of its vertical edges, the crank-shaft E, the revolving lifter G, the bracket K, with the shoulders or arms *i* and *l*, firmly secured to the pivotal edge of the blind or shutter, a flexible or universal joint connecting the shaft E with the bracket K, the latch *b*, and catch *d* or *e*, all arranged and adapted to operate substantially as described.

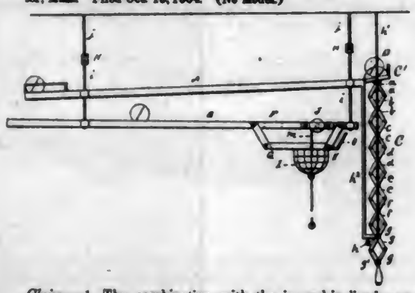
316,530. LINE-CHALKER AND PLUMB-BOB. JAMES L. DOWNIE and JOSEPH K. HARDIN, Allegheny, Pa. Filed Jan. 12, 1885. (No model.)



Claim.—1. The combination, with a suitable casing adapted to contain a marking material and having openings for the passage of a cord, of a bob attached to one end of said cord, substantially as set forth.

2. The combination, with a suitable casing adapted to contain a marking material having an opening at one end and a removable cap having an opening, of a plumb-bob and a cord attached to said bob and passing through the openings of the casing, substantially as set forth.

316,531. AUTOMATIC CASH-CARRIER. JOSEPH W. FLAGG, Worcester, Mass. Filed Oct. 18, 1884. (No model.)



Claim.—1. The combination, with the inward-inclined way of a cash-carrying system, of a series of parallel and pivoted bars or lazy-tongs moving in vertical guiding-rods, vertical guiding-rods *h'*, cage or box for retaining the carrier in its passage and allowing it to pass onto the inward-inclined way, and actuating mechanism for operating the said lazy-tongs, as and for the purpose set forth.

2. The combination, with the ways of a cash-carrying system and rods supporting said ways, of non-sound-conducting sleeves or ferrules interposed between said rods and the contact of said ways, whereby the ways are insulated and the communication of the sound-vibrations from the rolling carriers cut off from said supporting-rods, as and for the purpose set forth.

3. The combination, with the ways of a cash-carrying system and supporting-rods *j* and yokes H, of the sleeves *k*, inclosing the rods and cutting off the contact of the yokes H, as set forth and described.

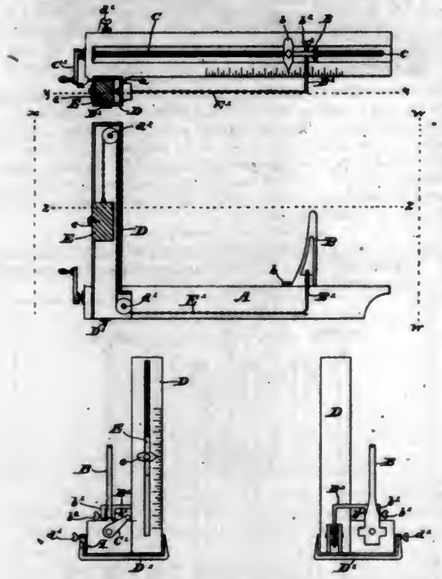
4. The combination, with the outward way of a cash-carrying system having openings to allow the carriers to pass, and vertically-moving receiving-baskets, of a short way suspended beneath the openings of the main outward way and between said way and the receiving-baskets, and a tilting gate in said suspended way, substantially as described, and operated by the receiving-basket, so the passage of the carriers from said suspended way will be determined by the position of the receiving-basket, as and for the purpose set forth.

5. The combination, with the outward way, B, of receiving-track G, tilting gate consisting of a frame, K', journaled in the way G, and having an arm, o, as and for the purpose set forth.

6. The cash-carrier consisting of a hollow sphere formed of two hemispheres properly locked together, and having one or more metallic bands extending around each hemisphere, said bands being recessed, so as to bring the bands flush with the outer surface of the hemispheres, as and for the purpose set forth.

7. The cash-carrier consisting of the hemispheres L L', having inclosing-bands *p'* and *q'*, joined together and recessed in the hemispheres, as and for the purpose set forth.

316,532. INDICATOR ATTACHMENT FOR SAW-MILL HEAD-BLOCKS. LORENZO W. FORBES, Wilkinson, Ind. Filed July 29, 1884. (No model.)



Claim.—1. The combination, with a saw-mill head-block, of a supplemental indicating device consisting of a post attached to the rear portion of the head-block base, provided with sheaves and a weight moving within or alongside said post, and a flexible connection running from said weight over said sheaves to the head-block, whereby as said head-block is removed back and forth said weight will be raised or lowered, and the position of the head-block indicated thus thereby, substantially as set forth.

2. The combination, in a saw-mill head-block, of the base A thereof, the head-block proper, B, means of moving the same, the post D, for supporting the weight, the weight E, mounted upon said post, and a rope or chain connecting said weight and said head-block, substantially as and for the purposes set forth.

3. The combination of the base, the head-block, the post D, secured to said base, and provided with scale or indicator marks upon its face, and a weight, E, supported by and moving within or alongside said post, and provided with an indicator-point, *e*, and a flexible connection running from said weight over sheaves or bearings in said post to said head-block, substantially as shown and specified.

4. The combination of the base, the head-block thereon, means of operating the same, the post D, the weight E upon said post, the arm B' on said head-block, and the chain or cord E', connecting said arm and said weight, substantially as set forth.

5. The combination of the base A, having scale or indicator marks on its surface, the head-block B, having indicator-point *b*, the screw-rod C, the post D, secured to the base A by the clamp D', and having similar marks and sheaves, *d'* and *d²*, and the weight E, provided with indicator-point *e*, and connected to the arm B' by the chain or cord E', which runs from said weight over said sheaves to said arm, substantially as set forth.

6. A saw-mill indicator consisting of a vertical standard secured to the traveling carriage of the mill, and provided with scale or indicator marks upon its face, and a vertically-moving digit working in said standard over the scale, and flexibly connected with and operated by the adjustable head-block of the traveling carriage.

316,533. PRIMARY AND SECONDARY BATTERY. GEORGE FOURNIER, Paris, France. Filed Aug. 22, 1884. (No model.) Patented in France Aug. 22, 1881, No. 144,699; in Belgium Nov. 9, 1881, No. 56,179, and in England Nov. 22, 1881, No. 5,104.



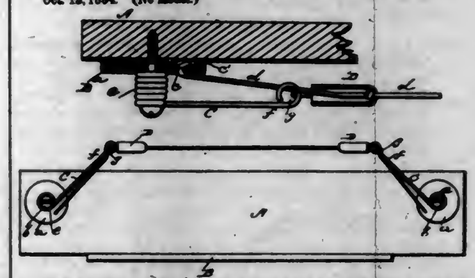
Claim.—1. An element for primary and secondary batteries, formed of a paste composed of a mixture of glycerine or glyceric acid and one or more metallic oxides capable of setting when mixed therewith, the said mixture being molded into any suitable form or applied to pieces of carbon or other conducting substance, substantially as and for the purpose above specified.

2. An element for primary and secondary batteries, composed of a plastic mixture of oxide of lead and glycerine, molded of any desired form, substantially as and for the purpose specified.

3. An element for primary and secondary batteries, formed of a plastic mixture which is composed of glycerine, lead oxide, peroxides of lead, and manganese, substantially as above described.

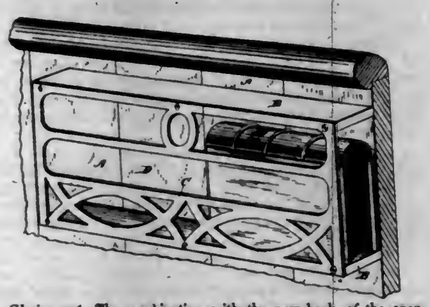
4. A single fluid primary battery formed by the combination of a metallic element and of an element consisting of glycerine and lead oxide, substantially as described, and for the purpose specified.

316,534. MUSIC-HOLDER. JOSEPH FRAMPTON, Willis, Tex. Filed Oct. 13, 1884. (No model.)



Claim.—In a music-holder, the combination of the base-board A, the tension-arms C, the frictional spiral springs *e*, the plates *a*, perforated to receive the screw, and having the countersunk perforation to receive the knots in the ends of the elastic cords, and the knot-receiver D, substantially as described.

316,535. BOOK-RACK FOR CHURCH-PEWS, &c. MATTHEW G. FRUTCHEY, Scranton, Pa. Filed July 30, 1884. (No model.)



Claim.—1. The combination, with the pew-back, of the open-ended book-rack consisting of the top and bottom portions and the side piece, C, having the longitudinal slot or opening therein, as described.

2. As a new article of manufacture, the herein-described book-rack, constructed of metal, and provided with the closed sides and open ends,

one of said sides having a longitudinal slot, D, as shown, substantially as described.

316,536. CAR-COVER. JOHN H. GAGE, Chicago, Ill. Filed Nov. 24, 1884. (No model.)



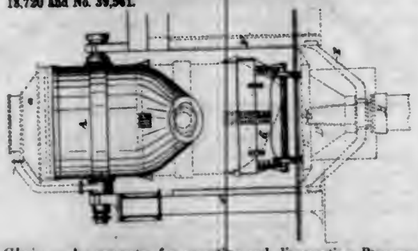
Claim.—1. A car-cover consisting of slanting hinged lids extending lengthwise of the car and hinged at or near the running-board, said covers being operated by means of bent levers having chains attached to their extremities, and trained over suitable shafts at the end of the car, the latter being provided with hand-wheels, substantially as and for the purposes specified.

2. The combination, with the body of a car, of the hinged lids H H, rigidly connected with the bent levers G G, chains I I, and shafts J J, with means for revolving said shafts and temporarily locking the same in position, substantially as described.

3. The combination, with the body of a car, of a stationary central running-board having one or more supports, E, sloping lids H H, operated by means of bent levers G G, chains for connecting the same with suitable winding-shafts, J J, and means for operating said shafts, substantially as described.

4. The combination, with the body of a car, of the hinged lids H H, rigidly connected with the bent levers G G, provided with counterweights L, chains I I, shafts J J, and hand-wheels for operating and means for locking the same in position, substantially as and for the purposes specified.

316,537. APPARATUS FOR MOUNTING AND DISMOUNTING BESSEMER CONVERTERS. PERCY C. GILCHRIST, London, and LEWIS G. FITZMAURICE, Bilston, County of Stafford, England. Filed May 14, 1884. (No model.) Patented in England May 16, 1884, No. 7,804; in France May 16, 1884, No. 162,161; in Belgium May 16, 1884, No. 65,181; in Luxemburg May 1884, No. 402, and in Austria-Hungary Sept. 12, 1884, No. 18,720 and No. 39,561.



Claim.—An apparatus for mounting and dismounting Bessemer converters, comprising the combination with the converter-standards and guides thereon, a track between said standards, a trolley constructed to support or hold the converter, a turn-table having a section of said track and adapted to carry the trolley with the converter superposed thereon, and capable while carrying such load of being turned or revolved to a horizontal angle of about forty-five degrees with the line of the track, and means, substantially as described, engaging the guides and turn-table, to raise and lower the turn-table with its load, all substantially as and for the purpose set forth.

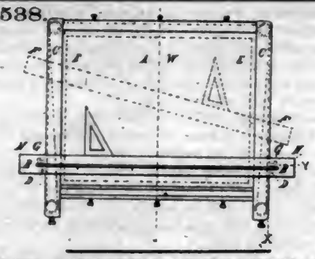
316,538. DRAWING-BOARD. SETH W. GOODWIN, Toledo, Ohio. Filed June 18, 1884. (No model.)

Claim.—1. The belt L and pulleys K and J, in combination with the rule B, for producing a parallel motion, substantially as shown and described.

2. In a drawing-board mechanism, the rule B and slotted bar C, in combination with the clasp G and its locking and releasing device, consisting of the screw P and spring O, substantially as shown and described.

3. In a drawing-board mechanism, the rule B, having the T-slot I in one or both of its ends, in combination with the bolts D and mechanism, substantially as described, for giving a parallel movement to the rule B.

316,538.

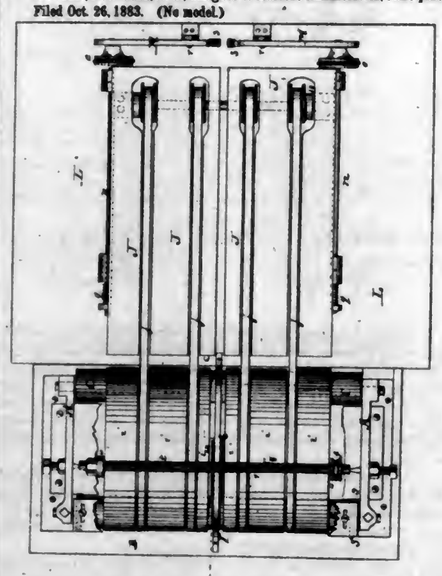


316,539. APPARATUS FOR SWAGING TUYERES. ROBT. GRACEY, Pittsburg, Pa. Filed Dec. 15, 1883. (No model.)



Claim.—In a tuyere-swaging machine, an adjustable grooved die formed with a tapering semi-hexagonal groove, in combination with a swaging-die having a tapering concaved groove corresponding with the taper of the semi-hexagonal groove in the stationary adjustable die, a power-shaft having an eccentric or crank mounted thereon, and a pitman connecting the said shaft and swaging-die, whereby a positive but uniformly reciprocating motion is given to the die, substantially as and for the purpose herein described.

316,540. MACHINE FOR STRIPPING LEAF-TOBACCO. OSCAR HAMMERSTEIN, New York, N. Y., assignor to Malvina Hammerstein, same place. Filed Oct. 26, 1883. (No model.)



Claim.—1. The combination of the shaft G, located as described, and saws *a b*, both on said shaft, with a device for supporting the stem part of the leaf, the endless bands *h i*, and mechanism, substantially as described, for supporting and moving them, all as set forth.

2. The combination of the shaft G and saws *a b* with the endless bands *h i j*, and means, substantially as described, for supporting and moving them, as set forth.

3. The combination of the shaft G and saws *a b* with the box or depression *m*, and with means, substantially as described, for revolving the shaft G and for feeding leaves of tobacco to the saws, as specified.

4. The combination of the shaft G and saws *a b* with the strip I and endless bands *h i*, substantially as described.

5. The slotted pivoted tables J, arranged in pairs, and combined with means, substantially as described, for tilting the same, and with endless bands *j*, that enter into their slots and are aligned therewith, substantially as specified.

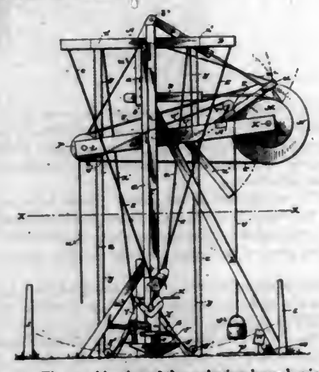
6. The combination of the slotted table J and its shaft *n* with the pivoted levers M, springs *s*, table L, and means, substantially as described, for turning the shaft *n*, as set forth.

316,541. DEAD-CENTER DEVICE FOR LATHES. JOSEPH HAMPSON, Newburg, N. Y. Filed Sept. 6, 1884. (No model.)



Claim.—The standard K, with shaft N, carrying the two gears I and J, and with stud H', carrying the gear D, with face-plate F and center *c*, in combination with the spur-gear G on the spindle S, and with the center c^2 on the tail-stock R on a lathe, to transform a common lathe into a dead-center lathe, substantially as specified.

316,542. MOTOR. THOMAS K. HANNEBERY, Bloomington, Nebr. Filed Feb. 17, 1885. (No model.)



Claim.—1. The combination of the swinging lever having the seat attached thereto, the shaft K, having the ratchet-wheel, and pawls attached to the lever for actuating the ratchet-wheel, substantially as described.

2. The combination of the vertical frame, the beam B, pivoted on the upper side thereof, said beam having the arms b' b^2, the swinging levers (one or more) secured to the beam, the shafts K and L, shaft K, having ratchet-wheel M, pulley N, and drum O, shaft L, having drum P, an endless belt connecting pulley N with drum P, and pawls pivoted to arms b' and b^2 and engaging with the ratchet-wheel, substantially as described.

3. The combination of the vertical frame and the horizontal frame, the beam B, pivoted on the vertical frame, said beam having arms b' b^2, the swinging levers (one or more) secured to the beam, shafts K and L, journaled in the horizontal frame, shaft K, having ratchet-wheel M, pulley N, and drum O, shaft L, having drum P, belt T, connecting drum P with pulley N, pawls pivoted to arms b' b^2 and engaging with the ratchet-wheel, and rock-shaft U, journaled in the horizontal frame and having tappet-arm *u* and brake-arm *w'*, substantially as described.

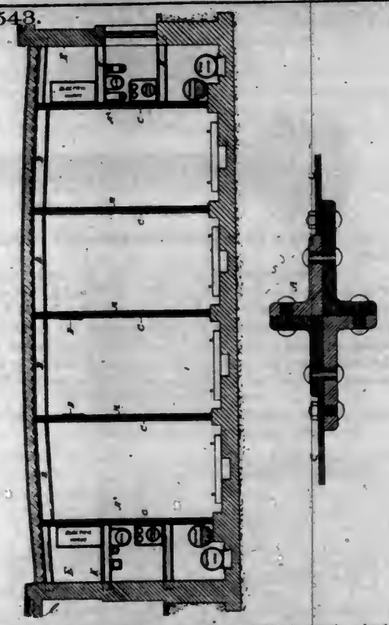
4. The combination of the frame, the pivoted beam B, the swinging levers (one or more) secured to the beam, a cross-beam, *x'*, secured to beam B, and foot-levers X, pivoted below the beam B and connected to the beam *x'*, substantially as described.

5. The combination of the frame, the pivoted beam B, the swinging levers (one or more) secured to the beam, cross-beam *x'*, secured to beam B, pivoted foot-levers X, connected to beam *x'*, and hand-levers Y, pivoted above the foot-levers and connected to beam *x'*, substantially as described.

6. The combination of the swinging lever, the seat pivoted thereto, and the spring-boards, substantially as described.

316,543. NON-RESONANT MATERIAL FOR THE CONSTRUCTION OF BUILDINGS, RAILWAY-TUNNELS, RAILWAY-CARRIAGES, AND SIMILAR STRUCTURES. ROWLAND R. HAZARD, New York, N. Y. Filed July 26, 1884. (Specimens.) Patented in England Aug. 6, 1884, No. 11,000, and in France Aug. 9, 1884, No. 151,159.

316,543.



Claim.—1. A material consisting of woven fabric, grating, lattice, or crimp of metal combined with a non-resonant substance, substantially as described.

2. A material consisting of woven fabric, grating, lattice, or crimp of metal overlaid on both sides with a non-resonant material, substantially as described.

3. A material consisting of woven fabric, grating, lattice, or crimp of metal combined with a vegetable or mineral fiber and with oxidized or solidified vegetable oil or equivalent, substantially as described.

4. As an article of manufacture, panels, plates, or sheets composed of woven fabric, grating, lattice, or crimp of metal combined with a non-resonant material, substantially as described.

316,544. MOLD FOR CASTING STEEL. JAMES HENDERSON, Bellefonte, Pa., assignor of one-half to Charles G. Francklyn, New York, N. Y. Filed Oct. 7, 1881. (No model.)

Brief.—The plunger downwardly bulges the bottom of the inverted cup of struck-up steel against the wooden block in the cartridge, which drives the bottom out of the cartridge and releases the load of the cartridge (saltpeter and charcoal or ice) upon the molten steel. Gases thus generated expand the cup (where lower edge dips into the steel) against the sides of the mold, thus sealing the joints.



Claim.—1. The combination, substantially as before set forth, of the mold closed at the bottom, the cover for the same, and the inverted cup of thin material arranged beneath the said cover, as and for the purpose set forth.

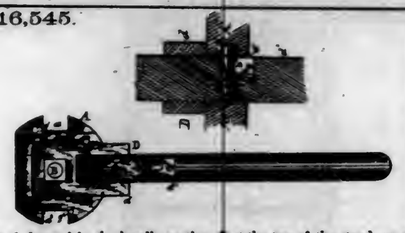
2. The combination, substantially as before set forth, of the mold closed at the bottom, the cover for the same, the inverted cup of thin material, and the cartridge-chamber, as and for the purpose set forth.

3. The combination, substantially as before set forth, of the mold closed at the bottom, the cover having an aperture, the inverted cup of thin material, the cartridge-chamber, and the plunger, for the purpose stated.

316,545. LOCK FOR RAILROAD SWITCH-STANDS. EDWARD HILLERY, Wasoca, Kans. Filed Oct. 6, 1884. (No model.)

Claim.—1. The switch-stand A, having in its top the vertical notches *a* a' a^2 and recesses g' at such notches, and the switch-rod B, passing through such top, in combination with the lever D, secured to the rod B, and consisting of the two portions *d* d', hinged together, and

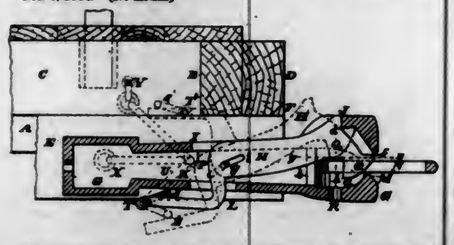
316,545.



a bolt, *b*, located in the handle portion *d'* at the top of the stand, as set forth.

2. The switch-stand A, having in its top the vertical notches *a a' a²* and recesses *g'* at such notches, and the switch-rod B, passing through such top, in combination with the lever D, secured to the rod B, and consisting of the two portions *d d'*, hinged together, the handle portion *d* having the recess *g* and the rib *f* in such recess, and the bolt *b* having the notch *b'* and the springs *c* and *c''* located in said recess *g*, all constructed, combined, and arranged as and for the purpose set forth.

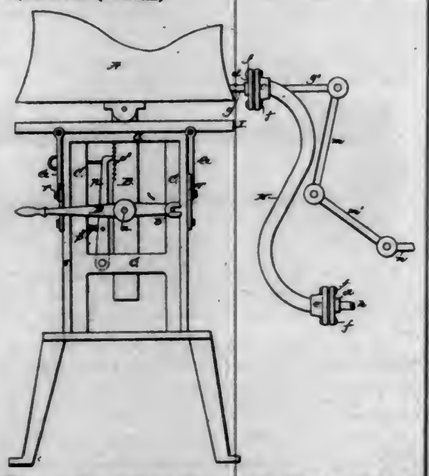
316,546. CAR-COUPLING. ANDREW A. HOPPER, St. Louis, Mo. Filed Dec. 6, 1884. (No model.)



Claim.—1. An automatic coupling-hook working in a draw-head and having a sloping end or nose from *f* to *h*, having a surface to abut against the draw-head from *d* to J, having a slot or aperture at *i*, through which a fulcrum bolt or pin passes, having a small back end extending through the bottom of the draw-head and backward to the lever S, all substantially as and for the purposes set forth.

2. In a draw-head for the automatic coupling of cars, the slots I J and K L, the walls *b c*, the chamber *a*, extending below the line O and upward to Q, and the pin or bolt *g*, all in combination with the automatic coupling-hook H, substantially in the manner and for the purposes set forth.

316,547. CORSET-PRESS. JAS. A. HOUSE, Bridgeport, Conn. Filed Sept 21, 1883. (No model.)

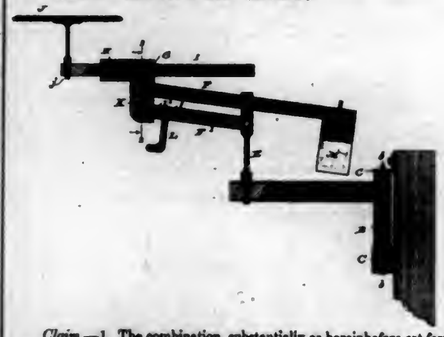


Claim.—1. In a corset-pressing apparatus, clamps or devices to engage and hold the edges of a corset extended over a mold, a mold pivoted to a mold-lifter, and means to operate said lifter to force the mold into the corset to press or shape the same, combined with a pipe and flexible connections to supply the said movable mold with gas, steam, or hot air to heat it, substantially as shown and described.

2. In a corset-pressing apparatus, the combination of the corset-holding clamps, the mold, and a carrier or lifter to which it is pivoted, a lever for operating such carrier or lifter to force the mold into the corset to be pressed, a pawl and ratchet to hold such mold in its operative positions, and a pipe and flexible connections for supplying a heating agent to the mold to heat it, substantially as described.

3. In a corset-pressing apparatus, the connecting-pipe *g* and a pipe, A, in connection with a suitable reservoir or source of supply for gas or steam, an intermediate flexible pipe, H, and clamping-plates to hold the ends of the flexible pipe and secure the connection of the same with the said pipes *g* A, substantially as described.

316,548. ADJUSTABLE BRACKET. WOODBURY S. HOW, Cincinnati, Ohio, assignor to the S. S. White Dental Manufacturing Company, Philadelphia, Pa. Filed Dec. 4, 1883. (No model.)



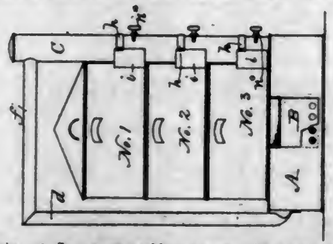
Claim.—1. The combination, substantially as hereinbefore set forth, of the jointed parallel arms, the horizontal frame carried at the outer ends of said arms, the turning connection at the inner ends of said arms, and the adjustable equipoise-weight mounted upon a rearward extension of one of said parallel arms.

2. The combination of the jointed parallel arms, the horizontal frame at the outer ends of said arms, the weighted and loosely-suspended handled pawl jointed to one of said arms, and a series of teeth with which the locking-point of said pawl normally engages, substantially as described.

3. The combination, with a box or casing having a lining or bushing, of an extensible bracket-arm fitted to move endwise in said casing, substantially as described.

4. The combination of the box or casing, the non-metallic lining or bushing thereof, and the extensible bracket-arm fitted to slide endwise in said casing, substantially as described.

316,549. STEAM COOKING APPARATUS. JOHN D. JOHNSON and WILLIAM H. LOSS, Newton, Iowa. Filed Jan. 2, 1885. (No model.)



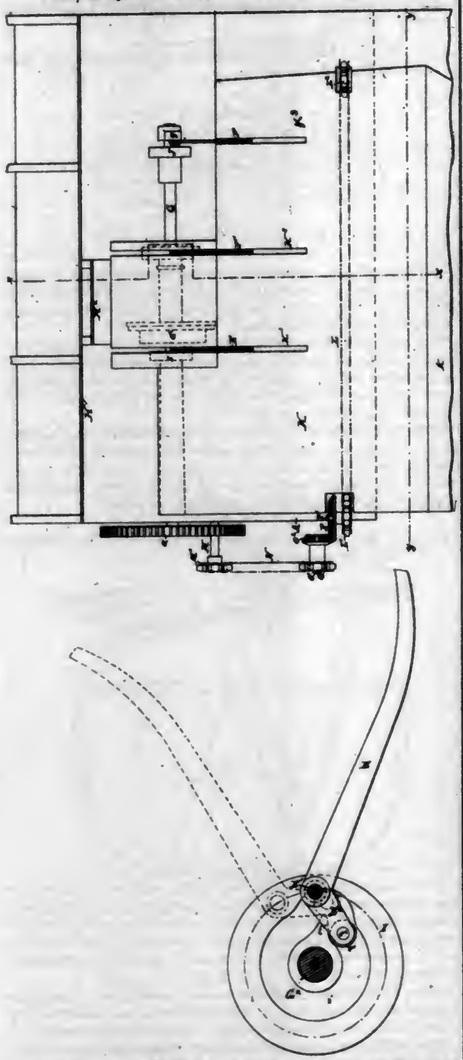
Claim.—1. In a steam cooking apparatus, the combination of a series of interchangeable open-topped vessels having circular beads on the under sides of their closed bottoms and steam-ports at their sides with a boiler having an open top and a circular groove adapted to receive the circular beads on the vessels, and a steam-conveying tube having valves coinciding with the ports in the vessels, and detachable vessel-covers having central openings and circular grooves corresponding with the circular groove in the top of the boiler, for the purposes stated.

2. The combination of a vessel provided with port *n*, the tube C, having a corresponding port, *n'*, the steam-valve *n''*, provided with a handle that extends through a slot in the tube C, the extension *i*, and the strap or hasp *h*, all arranged substantially as specified.

3. The improved cooking apparatus composed of the following elements, to wit: a boiler having an opening in its top and a circular groove around the opening, a feed-cup on its outside, and a steam-conveying tube fixed on the top and side of the boiler and braced by a post fixed to the opposite side of the boiler and extended horizontally to the top portion of the tube, a series of interchangeable open-topped vessels having circular beads on their bottoms to fit into the circular groove in the top of the boiler, and semicircular extensions on their sides provided with hasps to fasten and hinge them to the tube, and steam-ports to coincide with valves in the tube, and detachable vessel-covers having central openings and circular grooves around the openings, to operate in the manner set forth.

4. The combination of the boiler A, having a feed-cup, B, and a circular groove around an opening in its top, the tube C, having a bracing-post and handles *d f*, and valves *n'' n'''*, the open-topped vessels Nos. 1 2 3, having circular beads *g* on their bottoms, semicircular extensions *i*, steam-ports *n n'*, and hasps *h*, and detachable covers *m*, having central openings and circular grooves, *k*, substantially as and for the purposes specified.

316,550. DISCHARGING MECHANISM FOR GRAIN-BINDERS. S. V. KENNEDY, Minneapolis, Minn., assignor to the Minneapolis Harvester Works, same place. Filed Sept. 14, 1883. (No model.)



Claim.—1. In discharging mechanism for grain-binders, two or more suitably-curved rotating discharging-arms for lifting and tossing the bound sheaf in a prescribed direction, means for rotating the said arms, and means for imparting to one or more of them a short range of accelerated motion, whereby the bound sheaf is discharged when such motion is checked.

2. Two or more suitably-curved rotating arms for lifting the bound sheaf, and means for checking or slowing the movement of the said arms at a prescribed point in their paths of rotation, whereby the sheaf is tossed and discharged from such point by the momentum which has been imparted to it by the previous motion of the arms.

3. In combination with mechanism for moving a bound sheaf from the gavel-receptacle over the top of the binder and toward the grain-wheel, a rearwardly-inclined chute for conducting the bound sheaf to the ground in the rear of the machine between the binder and grain-wheel.

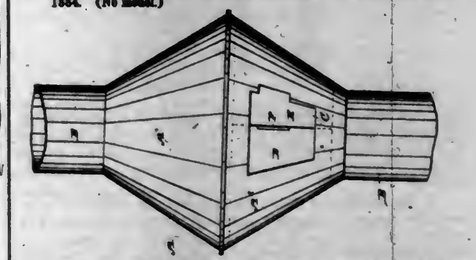
316,551. GLASS AND METHOD OF PRODUCING THE SAME. JOSEPH LOCKE, Medford, assignor to E. D. Libbey, Winchester, Mass. Filed Jan. 23, 1885. (Model.)



Claim.—1. As an improved article of manufacture, glass homogeneous throughout and presenting an etched surface in one color and an ornamented surface in another color, substantially as described.

2. That improvement in the art of producing ornamental glass which consists in first etching a portion of the surface of the material, and then painting or covering portions of the article with a stain, and by firing developing the color on the painted or stained portions, substantially as described.

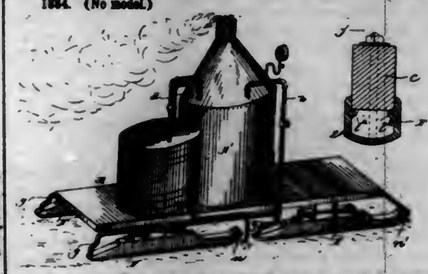
316,552. DRAFT-REGULATOR. GEORGE W. LORE, Fayette, N. Y., assignor to himself and Wilson H. Gilliland, same place. Filed Feb. 6, 1884. (No model.)



Claim.—1. A draft-regulator consisting of a casing formed of two truncated hollow cone-sections united at their bases and having their truncated ends connected with the ends of the pipes, said pipes extending into the cone-sections only a sufficient distance to unite them with said sections, the bottom cone-section being provided with a series of apertures which can be closed by a valve, substantially as herein shown and described.

2. In a draft-regulator, the combination, with the hollow truncated cone-sections A' A², united at the base edges, the lower section, A², having apertures C, of the cone-shaped valve-plate resting on the inner surface of the bottom section, A², and provided with apertures F, whereby a draft-regulator is provided having an unobstructed interior surface to prevent the collection of dust and soot, substantially as herein shown and described.

316,553. MEANS FOR TRANSPORTING LOADS OVER ICE AND SNOW ROADS. FRANKLIN B. LOWELL, Marinette, Wis. Filed Dec. 20, 1884. (No model.)

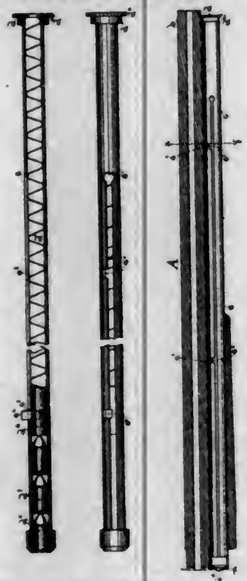


Claim.—1. The combination, with the sled having hollow shoes or runners with steam-discharge openings, of the steam-boiler with steam-

pipes connected flexibly to the hollow shoes, and the water-tank connected with the steam-boiler and provided with the discharge-pipes emptying in front of the rear runners, as set forth.

2. The combination, with the runners and the extension-beam, of the threaded eyebolt and the threaded adjusting-rod, substantially as specified.

316,554. MAGAZINE FOR FIRE-ARMS. JOHN M. MARLIN, New Haven, Conn. Filed Aug. 4, 1884. (No model.)



Claim.—1. The combination of the magazine-case *c*, provided with one or more internal shoulders, *c'*, with the longitudinally-slotted magazine *d*, provided with the spring *d'*, its plunger d^3, carrying pin c^3, and one or more notches, c^3, in slot *c*, with which said pin engages, substantially as described.

2. The combination of the magazine-case *c*, provided with one or more shoulders, *c'*, the magazine *d*, provided with the longitudinal slot *e*, and spring *d'*, its plunger d^3, carrying pin c^3, one or more notches, c^3, in said slot, with which said pin engages, and the magazine-head d^4, adapted to lock itself in a corresponding slot in the arm by the rotary movement of the magazine, substantially as described.

3. The combination, with the magazine *d*, of the spring *d'*, its plunger d^3, carrying pin c^3, flattened on two sides, and slot *e*, in which it slides, having an enlargement, *e'*, whereby the flattened pin may be introduced into said slot, substantially as described.

4. The combination, with the removable magazine *d*, of the longitudinal slot *e*, spring *d'*, its plunger d^3, carrying pin c^3, and one or more notches, c^3, in said slot, with which said pin engages, substantially as described.

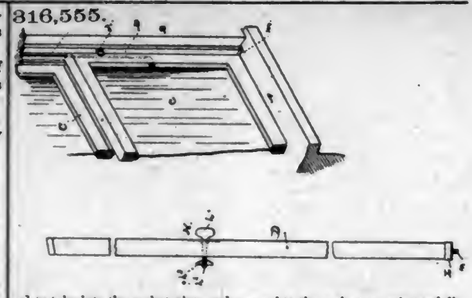
5. The combination, with the magazine *d*, of the spring *d'*, its plunger d^3, carrying the pin c^3, flattened on one or more sides, and the longitudinal slot *e*, in which it slides, having an enlargement, *e'*, whereby the flattened pin may be introduced into said slot, and one or more notches, c^3, in said slot, with which said pin engages, substantially as described.

6. The combination, with a removable cartridge-magazine, of spring *d'*, its plunger d^3, and suitable latch mechanism, which locks the plunger and spring back in the magazine-tube when the same is removed from the magazine, said latch mechanism being provided with a part projecting beyond the magazine to unlock it, with one or more suitable attachments in the magazine-case, which automatically engage with said projecting part of said latch and unlock the said latch mechanism by the movement of inserting said tube into its place or seat in said case, substantially as described.

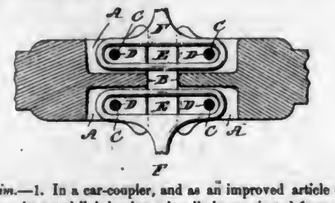
316,555. WINDOW-BEAD FASTENER. EGBERT E. MASTERS and LAVERGNE J. KIMBALL, Sacramento, assignors, by direct and mesne assignments, to said Masters, and Elden R. Brush, Oakland, Cal. Filed Jan. 25, 1884. (No model.)

Claim.—The combination, with the window-frame and sash-stop, of the sockets in the frame, the caps L on the ends of the stops having pins *m*, and the locks H, consisting of the socket-plate h^2, secure to the window-frame, and the bolt h', with wedge-shaped projections h^3, adapted to take into the socket-plate and secured to the sash-stop, substantially as herein described.

316,555.



316,556. CAR-COUPLING. BETSY ANN MAXEY, Knoxville, Ill. Filed Feb. 20, 1885. (No model.)

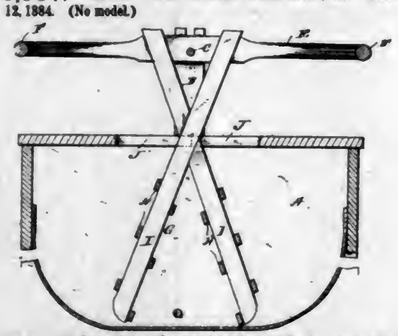


Claim.—1. In a car-coupler, and as an improved article of manufacture, an elongated link having a handle-bar projected from one of its arms midway its end and at right angles to the direction of elongation of the link, substantially as set forth.

2. In a car-coupler, the draw-head provided with mortises A A, open at the end and side of the draw-head and closed at top and bottom, said mortises being separated by an intermediate partition, and pin-holes being formed through the top and bottom walls of each of the mortises, substantially as set forth.

3. In combination with the draw-head provided with mortises open at the end and side, closed at top and bottom, separated by an intermediate partition, and having pin-holes formed through their top and bottom walls, links movable laterally into and out of said mortises and provided with right-angled arms, substantially as set forth.

316,557. CHURN. JOHN MCCLURE, Indian Grove, Mo. Filed July 12, 1884. (No model.)



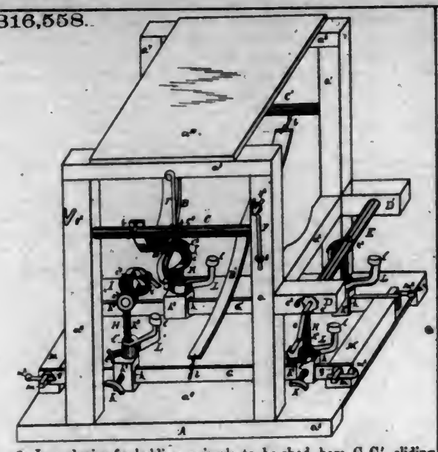
Claim.—1. In a churn, the combination, with the standards B B and the transverse shaft having bearings therein, of the levers E E, connected at their ends by cross-bars, and the dasher consisting of the X-shaped end pieces secured at their upper ends to the levers E E, and connected at their lower arms by the transverse slats H H', as described, for the purpose set forth.

2. The combination, with the churn-body having the concave bottom and the standards B B, of the dasher having the X-shaped end pieces, the transverse rectangular slats H H', secured to their lower arms, and the shaft C and levers E E, connected at their ends by cross-bars, substantially as specified.

316,558. DEVICE FOR HOLDING ANIMALS TO BE SHOD. THOS. P. MCCREIGHT, Brinkley, Ark. Filed Sept. 29, 1884. (No model.)

Claim.—1. A device for adjustably holding the feet of animals to be shod, comprising end pieces, M M', bars G G', sliding posts H, having set-screw h', swiveled cuffs I, and support L, having a ball, *l*, the parts being combined substantially as shown and described.

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2. In a device for holding animals to be shod, bars G G', sliding posts H, having holes *h*, to receive the bars, and thumb-screws h', to secure the same where desired, said posts having swiveled cuffs I and movable support L, the parts being combined substantially as and for the purpose set forth.

3. The combination of a post, H, having a hole, *h*, thumb-screw h', rounded shaft h^2, a cuff, I, having swivel connection with said shaft, and a support, L, having a sleeve, *l'*, to receive the said shaft, and a thumb-screw, l^2, and ball *l*, substantially as shown and described.

4. A device for securing and raising animals, composed of a frame, A, bands B B', rollers C C', levers F, and roller E, combined with a device for securing the feet of said animal, composed of end pieces, M M', bars G G', sliding posts H, which have thumb-screws h', cuffs I, swiveled to said posts, and support L, which has a ball, *l*, sleeve *l'*, and set-screw l^2, substantially as shown and described, for the purpose set forth.

316,559. BUDDING-KNIFE. KENNETH MCLENNAN, Berkeley, Cal. Filed Sept. 3, 1884. (No model.)



Claim.—1. In a budding knife, implement, or tool, a concavo-convex or gouge-shaped blade having its forward end curved and reduced to a cutting-edge, and a flat blade secured edgewise longitudinally on the convex surface of the concavo-convex blade and having its forward end approximately flush with the forward end of said blade curved and reduced to a cutting-edge, substantially as herein described.

2. In a budding knife, implement, or tool, a concavo-convex or gouge-shaped blade having its forward end reduced to a cutting-edge, and a flat blade secured on edge longitudinally on the convex surface of the concavo-convex blade and adapted to be adjusted longitudinally thereon, said flat blade having its forward end reduced to a cutting-edge, substantially as herein described.

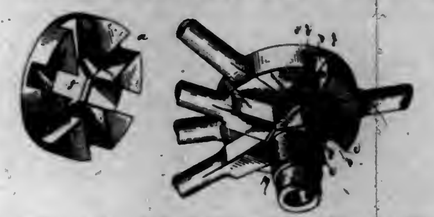
3. In a budding knife, implement, or tool, the concavo-convex elongated blade *c*, having its forward end reduced to a cutting-edge, in combination with the flat blade D, set on its back longitudinally on the convex surface of blade *c*, substantially as herein described.

4. In a budding knife, implement, or tool, the piece or bar C, having the concavo-convex blade *c*, made of its forward end, said blade having its end reduced to a cutting-edge, in combination with the flat blade D, set on its back and adapted to move in a groove made longitudinally in the convex surface of the blade *c* and continued in the surface of the body of piece C, the clamping-sleeve E, embracing the piece C and blade D, and the set-screw *e'* through the sleeve and blade D, whereby said blade may be fixed where adjusted, substantially as herein described.

5. In a budding knife, implement, or tool, the piece or bar C, having a semi-cylindrical body and a concavo-convex blade, *c*, as described, in combination with the flat blade D on the back of the body of the piece or bar, and of the blade *c*, substantially as herein described.

6. A budding knife, implement, or tool, consisting of the handle A, having a threaded socket, *a*, in one end, the piece or bar C, having a threaded shank, *c'*, adapted to enter socket *a*, and the concavo-convex or gouge-shaped blade *c*, formed with said piece or bar and having a cutting-edge on its forward end, said blade being adapted to cut the bark of the stock crosswise and raise it, and the adjustable flat blade D, set on its back longitudinally on the convex surface of the blade *c*, and having its forward end reduced to a cutting-edge adapted to make the longitudinal cut in the stock, substantially as herein described.

316,560. VEHICLE-WHEEL HUB. THOMAS G. W. MCMEEKIN and LUCINDA MCMEEKIN, Cedar Town, Ga. Filed Dec. 16, 1884. (No model.)



Claim.—1. In a vehicle-hub having an annular flange formed integral therewith and provided with dovetail spoke-sockets, the combination therewith of a movable shell having similar sockets adapted to alternate with the fixed sockets in a staggering position, the tubular portion of the hub having external threads, and the internally-threaded annulus adapted to hold the movable or shell section in engagement with the fixed section, substantially as specified.

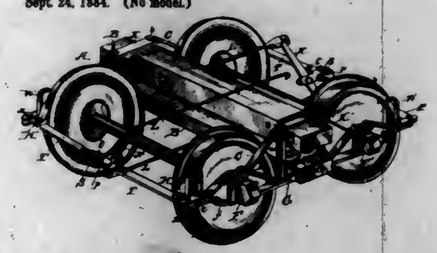
2. The hub having the tubular portion provided with the external flange having spoke-sockets and adjacent to the sockets a polygonal portion, the angles of the flat sides of which are presented about the middle of the said sockets, in combination with the shell, constructed as described, and provided with the polygonal aperture to engage the polygonal portion of the hub and provided with the threaded annulus adapted to engage the said shell, substantially as specified.

316,561. BLOW-OFF FOR STEAM-BOILERS. STEPHEN A. MOORE Springfield, Ill. Filed May 6, 1884. (No model.)



Claim.—The blow-off for steam-boilers, consisting of an exterior valved pipe and interior pipe connected thereto, and having its ends provided with the longitudinal straight slots *d*, the said slots being on its lower and opposite sides of the center of the pipe and of an area not exceeding that of the valved pipe, substantially as herein shown and described.

316,562. CAR-BRAKE. JOHN S. NAREY, New Albany, Ind. Filed Sept. 24, 1884. (No model.)



Claim.—1. The combination, with a car-truck, of brake-levers pivoted to the frame thereof outside of the supporting-wheels, and directly and movably connected to each other at their inner ends, means for operating said levers, and brake-shoes connected thereto inside of the pivot-points of the levers, substantially as set forth.

2. The combination, with a car-truck having truss-like side frames extending beyond the supporting-wheels, of brake-levers pivoted to said extensions outside of said wheels, and connected at their inner extremities by an encircling-dog having its inwardly-projecting arm arranged at an angle to said encircling portion, and means for operating said levers, substantially as set forth.

3. The combination, with a car-truck having truss-like side frames, said truss-frames being extended beyond the supporting-wheels, of brake-levers pivoted to said extended ends outside of said wheels and movably connected at their inner ends, means for operating said levers, brake-shoes pivotally connected to the levers between their extremities, and springs supported by the extended frames and adapted to bear against the brake-levers, substantially as set forth.

4. The combination, with a truck-frame having detachably-connected extremities projecting beyond the supporting-wheels, of brake-levers pivoted to the extremities of said extensions outside of said wheels, and connected at their inner ends by an encircling-dog provided with an angularly-arranged arm, means for operating said levers, slotted brake-shoes having convex bearings and pivoted to said levers inside of their pivot-points, and brackets secured to the extended frames and carrying U-shaped springs adapted to bear against the brake-levers, substantially as set forth.

5. The combination, with the truck-frame, of brake-levers pivoted thereto outside of the supporting-wheels, means for operating the same, and slotted brake-shoes pivoted to said levers, the slots being of a depth equal to the width of the levers and terminating in convex bearings, substantially as and for the purpose described.

316,563. KNITTING-MACHINE. JOHN H. OSBORNE, Philadelphia, Pa. Filed Apr. 30, 1883. (No model.)



Claim.—1. The needle-head, needles, and yarn-guides, in combination with one or more holding-down wheels supported close to the needles and arranged to press down upon the knitted fabric and prevent it riding upon said needles, the said holding-down wheel being arranged obliquely and furnished with teeth to engage with the needles, substantially as and for the purpose specified.

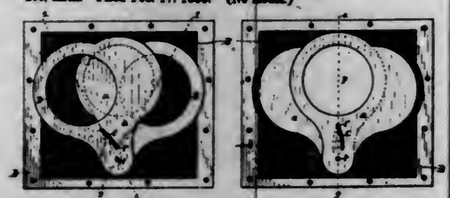
2. The combination of needle-head A, needles B, means to reciprocate said needles, yarn-guides F, supports H, and holding-down wheels G, consisting of a disk having teeth *g*, which project between the needles and mesh therewith, said wheels being arranged close to the rear of the ascending needles, substantially as and for the purpose specified.

3. A rotating needle-head, in combination with needles, means to reciprocate said needles, a yarn-guide, a stationary holding-down wheel provided with teeth to mesh with said needles, supported close to the ascending needles, and arranged to press down upon the knitted fabric and prevent it riding upon said needles, and means to adjust said wheel, substantially as and for the purpose specified.

4. A holding-down wheel for knitting-machines, which consists of a disk having its periphery beveled from its face inwardly and having notches or teeth formed in said periphery, substantially as and for the purpose specified.

5. The combination, with a rotating needle-head and its needles, means to reciprocate said needles, of a yarn-guide and a stationary toothed wheel supported close to said needles at the point where they ascend, the teeth of which pass between the ascending needles, being rotated by them, and arranged to prevent the fabric riding up off the said needles, substantially as and for the purpose specified.

316,564. PHOTOGRAPHIC SHUTTER. CULLEN C. PACKARD, Kalamazoo, Mich. Filed Feb. 17, 1885. (No model.)



Claim.—1. The improved shutter herein described, consisting of the plate A, provided with the openings *a* and *b*, and the plate B, provided with the openings *c* and *d*, in combination with the lens-tube C, substantially as and for the purpose specified.

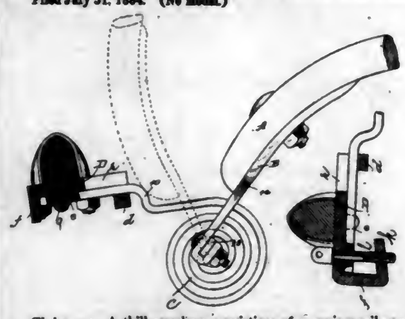
2. The combination, with the plate A, provided with the openings *a* and *b*, of the plate B, provided with the openings *c* and *d*, and the pin *e*, substantially as and for the purpose specified.

3. The combination, with the plate A, provided with the openings *a* and *b*, of the plate B, provided with the openings *c* and *d*, the pin *e*, and the lens-tube C, substantially as and for the purpose specified.

Claim.—1. In combination with a photographic camera-box, the shutter-case B, attached to the inside of said camera-box, back of the tube containing the lens, said shutter-case containing shutter-plates *a*, adapted to open or close apertures in the sides of the shutter-case B, the shutter-plates *a*, provided with slots *c*, adapted to be operated by means of pin *r*, passing through said slots, and a vertical slot, *v*, in the side of shutter-case, all in combination, as shown and described.

2. In combination with a photographic camera, the shutter-plates having apertures near their edge and pivotally connected to shutter-case, as shown, the slots in said plates being placed at an angle to a line passing through the center of apertures in said plates, and their points of pivoting the pin passing through said slots and the slot in one side of the shutter-case, as shown and described, and for the purpose set forth.

316,565. THILL-COUPLING. WILLIS J. PERKINS, Grand Rapids, Mich. Filed July 31, 1884. (No model.)



Claim.—1. A thill-coupling consisting of a spring-coil one end of which is connected to the shaft or pole branch and the other to the axle, said coil being located between said axle and the shaft or pole branch, substantially as described.

2. In combination with an elastic strap between the shaft or pole branch and axle, a clip-plate constructed to interlock with the end of the elastic strap, the strap being held in position by the weight of the shaft or pole or tension of the spring, or by both, substantially as described.

3. In combination with the coil-strap, a clip-plate having an opening and bar on its front edge, said plate and strap having an interlocking device, substantially as described.

4. In combination with the strap and plate having stud and hole, and with the bar *d* on the front edge of the plate, an abutment on the rear edge of said plate, substantially as described.

5. In combination with the abutment of the clip-plate, and with the end of the coil-strap, the arm *k*, and pin, all substantially as described.

6. The coil-strap combined with the thill and clip plate and having a stop-bend, all substantially as described.

7. In combination with an axle, a spring-coil connected at one end with the axle and at the other with the thill, said coil being adapted to support the shaft in an elevated position, and a stop for the shaft, all substantially as described.

316,566. DEVICE FOR REPAIRING HOSE. CHARLES P. PIERCE, Leominster, Mass. Filed Nov. 28, 1884. (No model.)



Claim.—A double-headed clamping-wire, H, for mending broken hose, constructed substantially as described.

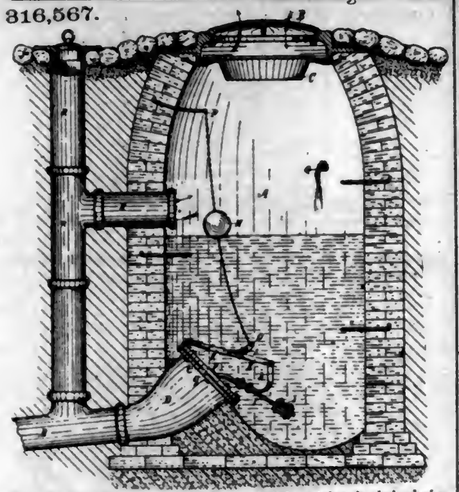
316,567. APPARATUS FOR THE INTERMITTENT DISCHARGE OF SEWAGE, &c. GEORGE S. PIERSON, Kalamazoo, Mich. Filed July 26, 1884. (No model.)

Claim.—1. The improved apparatus herein described, consisting, essentially, of a tank in combination with a valve and its actuating mechanism adapted to discharge the contents of the tank intermittingly, and air-passages connecting the interior of the tank, its outlet, and the outer air, each and all.

2. In combination with a tank, the improved valve and actuating mechanism adapted to discharge the contents of the tank intermittingly, the same consisting in a valve opening outwardly and actuated by an overbalancing weight, and a system of levers adapted to be held in equilibrium by a stop upon slightly passing the point of greatest compression of the valve upon its closing.

3. The combination, with a tank, of a valve adapted to be automatically actuated by an overbalancing weight, a float, and a system of levers

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adjusted to be held in equilibrium after slightly passing, in their closing motion, the point of greatest compression of the valve, and also adjusted to release the valve through the action of a float.

4. In the herein-described apparatus, the combination, with a discharging-valve, of an air-passage from the interior of the tank terminating in a basin having a perforated cover, substantially as in Fig. 2.

5. In the improved apparatus herein described, the combination, with a discharging-valve, of an untrapped air-passage connecting the interior of the tank, its outlet, and the outer air.

6. The combination of the actuating and locking levers, the outwardly-opening valve, and the stop arresting the closing motion of the levers.

7. In a valve or seat for the intermittent discharge of liquids, the combination, with a balancing weighted arm, of a hinge adjustable with reference to the contact of the valve and seat.

8. The mutual adjustment of the actuating and locking levers, the stop arresting their closing motion, and the outwardly-opening valve.

9. The combination, with an outwardly-opening valve, of an adjustable hinge adapting the valve to its seat.

10. The combination of a valve, an adjustable valve-hinge, and an overbalancing weight, for the purposes specified.

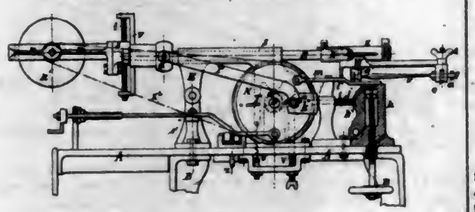
11. In a valve for the intermittent discharge of liquids, the combination, with a system of locking-levers, of an adjustable hinge adapting the valve to its seat.

12. The combination of a valve opening in the direction of pressure, and a system of locking-levers, substantially as and for the purpose specified.

13. In combination with a tank and automatic discharging-valve, an overflow-pipe connecting the interior of the tank and its outlet independently of the valve.

14. The combination of the tank with a valve and its accessory actuating mechanism adjustably and detachably connected to the tank, substantially as and for the purposes set forth.

316,568. MACHINE FOR SHARPENING AND SETTING SAWS. EMILE PRAT and AUGUSTE PRAT, Grenoble, France. Filed Mar. 12, 1885. (No model.) Patented in France July 31, 1884, No. 163,550.



Claim.—1. The slide R and means for reciprocating it, and also for tilting it automatically, and the file-carrier W and emery-wheel carriet *r*, combined and arranged to serve substantially as herein specified.

2. The regulating-stop V, in combination with the frame S, reciprocating slide R, hinge E, and cam O', all arranged to serve as herein specified.

3. The adjustable sets *f f'*, carried on the reciprocating slide R, in combination with the file-carrier W, and with means for feeding and holding a saw so as to present its teeth successively thereto, and with intermediate pieces, *p p'*, adapted to set the teeth, as herein specified.

4. In a machine for treating saws, the file-carrier W, fitted on the reciprocating slide R, with liberty to oscillate thereon, in combination with the slideway *z*, mounted on the fixed framing or table A, and with means, as O', for tilting the slide R and its attachments, as herein specified.

5. In a machine for treating saws, the arms H H, hinged at G G to the table A, in combination with the wheels H' H', adapted to carry a band-saw, I, and means, as *l l'*, for feeding the saw so as to present its teeth successively to sharpening or setting devices, and means, as F, for alternately holding and releasing the saw, as herein specified.

6. In a machine for treating saws, the clamp F, operated automatically so as to alternately hold and release the saw, in combination with means, as *l l'*, for feeding the saw step by step, and the reciprocating slide R and its attachments for treating the saw during the intervals between the feed movements, as herein specified.

7. In a machine for treating saws, the adjustable stops *f' f*, carried on the reciprocating slide R and its attachments, in combination with means, as *l l'*, for feeding forward, and means, as *k k'*, for supporting the saw, and arranged to set the teeth alternately to one side and the other by force transmitted from *f* to one tooth and from *f'* to the next tooth, substantially as herein specified.

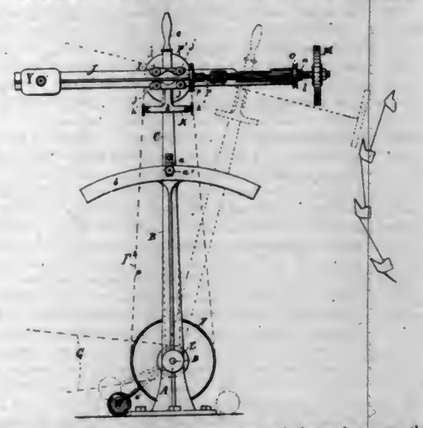
8. In a machine for treating saws, the combination, with means, as *l l'*, for feeding forward, of the jaws *k k'* and gage O, the stops *f f'*, carried on the slide R and its attachments, and the clamp F, for holding and releasing the saw alternately, as herein specified.

316,569. MAKING HARROW-TEETH. EDMUND D. REYNOLDS and OLIVER B. REYNOLDS, Brockton, Mass. Filed Apr. 14, 1884. (No model.)



Claim.—The improved method herein described of making irregularly-shaped harrow-teeth, consisting, essentially, in cutting the rhomboidal blank A on the diagonal line *a b*, and bending the lower portion of the blades out of a plane with the shanks, substantially as and for the purpose set forth.

316,570. MACHINE FOR GUMMING AND SHARPENING SAWS. JOHN RICHARDSON, San Francisco, Cal. Filed Mar. 22, 1884. (No model.)



Claim.—1. In a machine for gumming and sharpening saws, the frame C, pivoted at its base and adapted to be turned to an inclination on either side of a vertical line, and the grooved guide I, pivoted in the top of said frame and adapted to be turned to an inclination on either side of a horizontal line, in combination with the cross-head J, fitted in the grooved guide and adapted to be adjusted forward or back, the emery or file wheel M, mounted on the shaft L, and a mechanism for transmitting power to said wheel, substantially as herein described.

2. In a machine for gumming and sharpening saws, the pivoted frame C, in combination with the cross-head J, fitted in a supporting-guide, the shaft L, mounted on said cross-head, and the emery or file wheel M, mounted on said shaft, means for adjusting said shaft back and

forth, and mechanism for rotating the wheel, substantially as herein described.

3. In a machine for gumming and sharpening saws, the pivoted frame C and the grooved guide I, pivoted in the top of said frame and adapted to be adjusted as described, in combination with the cross-head J, fitted in the guide and adapted to be adjusted with said guide, and also forward or back, the shaft L, mounted in the cross-head, and emery or file wheel M, mounted on said shaft, means for adjusting said shaft back and forth, and mechanism for rotating the wheel, substantially as herein described.

4. In a machine for gumming and sharpening saws, the frame C, carrying the grinding mechanism, and the rocking shaft D, by which its base is pivoted, in combination with the weight W, weighted arm *w*, set on said shaft, and a set-screw, *w'*, whereby the movement of the frame is rendered easy, substantially as described.

5. In a machine for gumming and sharpening saws, the frame C, pivoted at the base, the shaft H, fixed in the top of the frame, and grooved guide I, pivoted or journaled on said shaft, in combination with the cross-head J, fitted and adapted to be adjusted in said guide, the shaft L, carrying the emery or file wheel M, and a connection between the guide I and frame C to hold the former at the place to which it is turned when adjusting the inclination of the cross-head, substantially as herein described.

6. In a machine for gumming and sharpening saws, the frame C, pivoted at its base, the shaft H, fixed in the top of said frame, and the grooved guide I, pivoted on said shaft, in combination with the cross-head J, fitted and adapted to be adjusted in said guide, the shaft L, carrying the emery or file wheel M, and the bar K, having a cross-base, *k*, embracing and set to the frame by adjusting-screws *k'*, and having its upper end set on the hub of guide I by a screw, l^2, substantially as and for the purpose herein described.

7. In a machine for gumming and sharpening saws, the frame C, the base of which is fixed on a shaft, D, mounted in bearings A, the shaft H, fixed in the top of the frame, and cross-head J, secured by means of a guide to said shaft, the shaft L, carrying the emery or file wheel, in combination with the means for transmitting the power from the bottom to the top of the frame, consisting of the pulleys E' F, loose on the shaft D, the pulley F', loose on the shaft, and the belts G F^2, arranged as shown, and suitable means for transmitting the power from pulley F' to the emery-wheel, substantially as herein described.

8. In a machine for gumming and sharpening saws, the frame C, pivoted guide I, and cross-head J, having an arm, *m*, in combination with the shaft L, mounted in a boxing formed on said cross-head and parallel therewith, the emery or file wheel M on the end of the shaft, suitable mechanism for rotating said shaft, and the means for adjusting it back and forth, consisting of the arm Q, in one end of which said shaft is journaled and confined, and the adjusting-screw P, passing through arm *m* and through a nut, *q*, in the end of arm Q, substantially as herein described.

9. In a machine for gumming and sharpening saws, the pivoted frame C, shaft H in its top and having the grooved guide I, in combination with the cross-head J, the shaft L, mounted in its end, the emery or file wheel M on said shaft, and means for adjusting said shaft and wheel back and forth, as described, and the means for transmitting power to said wheel, consisting of the pulley F', loose on shaft H, and to which power is transmitted in suitable manner, the pulleys S on the end of the cross-head, the pulley O, feathered on shaft L by means of sleeve N and screw *n* and slot *l*, and the belt or band T, all arranged and operating substantially as herein described.

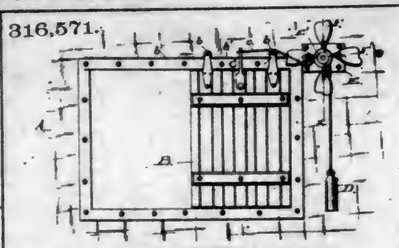
10. In a machine for gumming and sharpening saws, the frame C, having handle-arm *c* and arm *c'*, the shaft D, by means of which said frame is pivoted to adapt it to have an inclination on either side of a vertical line, the means for fixing said frame where adjusted, the shaft H, fixed in arms *c c'*, and having the grooved guide I, pivoted upon it, in combination with the cross-head J, fitted and set by screws in said guide, and adapted to have an adjustment therein back and forth and an adjustment therewith to an inclination on either side of a horizontal, the bar K, set to the frame and to the guide by suitable screws, whereby the latter adjustment of the cross-head is regulated and limited, the shaft L in said cross-head, and emery or file wheel M on the shaft, the screw P, suitably connected with cross-head and shaft L for giving the latter an adjustment back and forth, and suitable pulleys on shafts D H L and cross-head J, and belts for transmitting power to rotate the wheel M, substantially as herein described.

316,571. DEVICE FOR CLOSING DOORS. NATHAN H. RICHARDSON, Brooklyn, N. Y. Filed Feb. 4, 1885. (No model.)

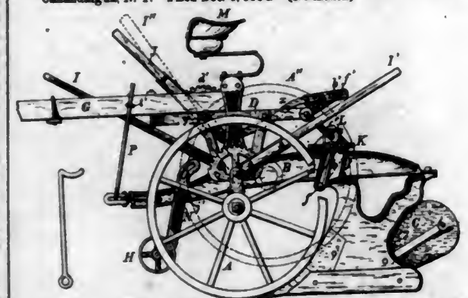
Claim.—1. In a door-closer, the flanged hub F, provided with the revolving wings F', and combined with suitable machinery, operated by the door, for revolving the same, whereby a door is prevented from slamming, substantially as herein described.

2. In combination with a door, the plate E, shaft E', the pulley *e*, ratchet *e'*, flanged hub F, provided with the wings F', pawl *f*, and spring G, all constructed to operate substantially as and for the purpose herein described.

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316,572. SULKY-PLOW. JOHN S. ROBINSON and EDSON C. ROBINSON, Canandaigua, N. Y. Filed Dec. 6, 1884. (No model.)



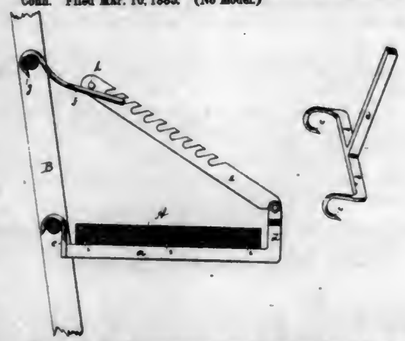
Claim.—1. The combination, in a sulky-plow, of the main frame D and bail L, provided with arms *c c'*, pivoted in the rearward extension of the said frame, and provided with crank *w*, connected with lever J by the slotted connecting-bar *x*, substantially as described.

2. The combination, with the main frame and plow of a sulky-plow, of the slotted circle-plates K K', attached together by bolts A A', substantially as described.

3. The combination, with the main frame and plow of a sulky-plow, of the circle-plate K', attached to the plow-beam, and the circle-plate K, provided with lugs *m m'*, and connected to the bail L by means of the divided blocks *l l'*, substantially as described.

4. The combination, with the main frame and plow of a sulky-plow, of the divided reversible blocks *l l'*, arranged to permit the adjustment of the plow at an angle with the frame, substantially as described.

316,573. SCAFFOLD-BRACKET. CHARLES H. ROCKWOOD, Marlborough, Conn. Filed Mar. 10, 1885. (No model.)



Claim.—1. The combination of bar *a* with cross-bar *b*, having hooks *c*, and with pivoted rack *e* and hook *g*, substantially as specified.

2. The combination of bar *a* with cross-bar *b*, having hooks *c*, and with upright *d*, rack *e*, pin *h*, hook *g*, having looped shank *f*, substantially as specified.

3. The combination of bar *a* with cross-bar *b*, hooks *c*, upright *d*, rack *e*, hook *g*, having upwardly and forwardly curved shank *f*, and with pin *h* and prongs *i*, substantially as and for the purpose described.

316,574. DOOR-LOCK. ROBERT G. ROLAND, Beech Grove, Ky. Filed July 31, 1884. (No model.)

Claim.—1. The combination, with a lock-case, as described, and with a bolt, D, having recesses *d d'* and spring C, of a key having a pivoted spring-actuated arm, L, having a short end, *l*, adapted to first unlock the spring from the bolt, and a longer end, *l'*, adapted to operate the bolt by the same movement of the key, as set forth.

2. The combination of the bolt and spring and the guards F, having spring *f* and lug *z*, with inclined face secured upon one of said guards, with the key having conical point and pivoted and spring-actuated arm L, as and for the purposes set forth.

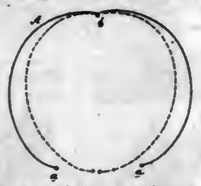
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3. The combination, with the body A, having recesses *a a' a^2*, the plate B, having slot *b*, the guards F, spring *f*, and lug *z*, the bolt D, and spring C, of the key having conical point, and the pivoted and spring-actuated arm L, as set forth.

4. The combination, with a lock-case having a cylindrical key-hole and a slot, *b*, in the back plate, of a key having a slotted cylindrical shank and a pivoted spring-actuated arm, L, a bolt, D, and spring C, and a lug, *z*, lying adjacent to the slot *b*, the whole adapted to serve as and for the purposes set forth.

316,575. NET OR VEIL. JOHN A. SCHERER, East Saginaw, Mich., assignor of one-half to Harry Stuart Derby, same place. Filed Dec. 10, 1884. (No model.)

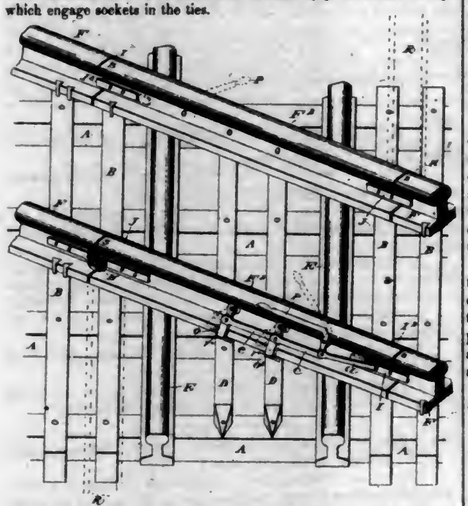


Claim.—1. A spring-net consisting of textile material attached to the body and ends of a spring, whereby the spring serves the three purposes of spreading the net, holding the same on the head, and folding it in a smaller compass when removed therefrom, substantially as described.

2. As a new article of manufacture, a friz-net herein described, consisting of a net and a spring, the net having one of its edges attached to the body of the spring and its corners to the ends thereof, substantially as described.

316,576. RAILROAD-CROSSING. MICHAEL SCHLESSMAN, Columbia City, Ind. Filed July 5, 1883. (No model.)

Brief.—Hinged rails of an upper track are secured by sliding bolts which embrace the webs of fixed rails, and also by pivoted arms or stops which engage sockets in the ties.



Claim.—1. In a railway-crossing, the laterally and horizontally movable rails F^2 F^2, hinged to the fixed rails F and locked in position by levers P and bolts I, constructed and operated as shown and specified.

2. In a railway-crossing, the combination of the unbroken rails E, movable rails F^2 F^2, hinged to fixed rails F, and passing over said unbroken permanent rails, and the locking-levers P, connected by links to the bolts I, all arranged for operation as shown and set forth.

3. A railway-crossing, as described, having the movable rails F^2 F^2, hinged to the fixed or permanent rails F, and crossing a lower unbroken track, in combination with the levers P, connected to the stops O O^2, engaging with the slots *r r* in the stay-dies D D to prevent the spreading of the rails, all as shown and specified.

4. The railway-crossing herein described, consisting of movable rails F^2 F^2, hinged to permanent rails F and crossing a lower unbroken track, in combination with levers P, connected to the stops O O^2, engaging with slots *r r* in the stay-dies D D and by links to the locking-bolts I, all arranged for operation as shown, and for the purposes set forth.

316,577. SAFETY-BRAKE FOR ELEVATORS. FRIEDRICH SCHNEELEIN, Munich, Bavaria, Germany. Filed Oct. 20, 1884. (No model.)



Claim.—1. In an elevator, the combination, with the upright guide, the cage, and a friction-brake arranged to travel with the cage and operating in conjunction with the guide, of the suspension device from which the cage is hung connected with and controlling said friction-brake to check the downward course of the cage on the breakage of the suspension device, as set forth.

2. In an elevator, the combination, with the upright guide, the cage, and safety appliances, consisting of a friction-roller and a brake-shoe arranged to travel along the guide with the cage, of the suspension device from which the cage is hung, arranged to control the brake-shoe and cause the same to be carried between the roller and guide on the breakage of said suspension device to check the downward course of the cage, as described.

3. In an elevator, the combination, with the upright guide, the cage, and safety devices carried thereby, consisting of a friction-roller and a brake-shoe arranged to travel along the guide, of the suspension device from which the cage or platform is hung, connected with and controlling the brake-shoe to check the downward course of the cage on the breakage of the suspension device by carrying said shoe between the roller and guide, as set forth.

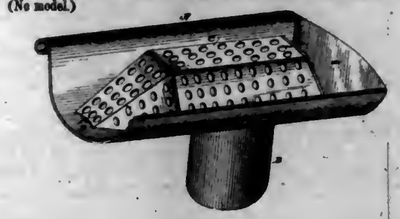
4. In an elevator, the combination, with the upright guide, the cage, and safety devices connected therewith, consisting of a friction-roller and a brake-shoe arranged to travel along the guide and a rotatable shaft with which said shoe is connected, of the suspension device from which the cage is hung connected with the shaft and appliances, such as described, to rotate said shaft on the breakage of the suspension device and carry the brake-shoe between the roller and upright guide to check the downward course of the elevator, as described.

5. In an elevator, the combination, with the upright guide, the cage, and safety devices carried thereby, consisting of a crank-shaft, a brake-shoe on the crank thereof, and a friction-roller, said brake-shoe and roller being arranged to travel along the upright guide, of the suspension device from which the cage is hung and a spring connected with said shaft, said spring operating to rotate the shaft and carry the brake-shoe between the roller and upright guide to check the downward course of the cage or platform on the breakage of said suspension device, as set forth.

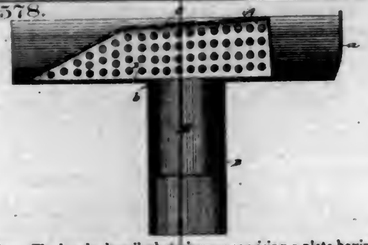
6. In an elevator, the combination, with the upright guide and the cage or platform, of safety devices carried by the latter consisting of a friction-roller and a brake-shoe arranged to travel along the guide and a crank-shaft connected with the brake-shoe of the suspension device and a spring connected with said shaft and operating to rotate the same on the breakage of the suspension device and check the downward course of the cage or platform, and an adjusting collar or nut for adjusting the tension of the spring, as set forth.

7. In an elevator, the combination, with the upright guide, the cage, the suspension device from which the cage is hung, and a friction-brake carried by said cage and operating upon one of the faces of the upright to check the downward course of the cage on the breakage of the suspension device, of a flexible packing connected with the cage and operating in conjunction with the brake upon the opposite face of the guide, as described.

316,578. EAVES-TROUGH. HENRY H. SCHUMANN and CHARLES MUTH, Troy, Pa.; said Schumann assignor to said Muth. Filed Jan. 23, 1885. (No model.)

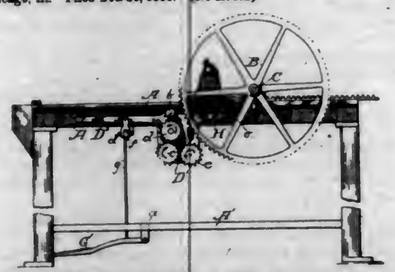


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Claim.—The herein-described strainer, comprising a plate having a downwardly-extending pipe, converging sides, inclined front end, and perpendicular rear end, of perforated sheet metal, substantially as set forth.

316,579. STEREOTYPE-SHAVING MACHINE. JAMES W. SMITH, Chicago, Ill. Filed Dec. 20, 1883. (No model.)



Claim.—1. In a stereotype-shaving machine, the carrier, racks extending therefrom, shaft C, having pinions thereon engaging said racks, and large gear B on the end of shaft C, in combination with an oscillating head loosely journaled on the end of the drive-shaft, and pinions journaled on studs extending from said head which are capable of revolving in opposite directions and derive motion from said drive-shaft and alternately engage said large gear B and the drive-shaft D.

2. In a stereotype-shaving machine, the oscillating head D', pinions *b* and *e*, capable of revolving in contrary directions, deriving motion from the drive-shaft, and alternately engaging the gear B, the shaft C, and its pinions, and the arms D^2 and H, extending in opposite directions from said head D' parallel with the side of the machine, in combination with the carrier and its rack, said carrier having a stop or block, *o*, engaging said arms, in the manner and for the purpose set forth.

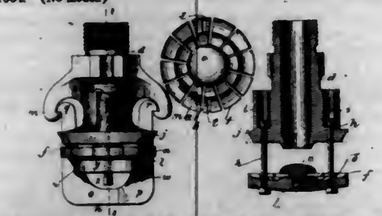
3. In a stereotype-shaving machine, the combination, with the oscillating head D' and arm D^2, extending therefrom, of the lever *f*, beam F, treadles G and G', and rods for connecting said treadles to said beam, in the manner and for the purpose hereinbefore set forth.

4. The combination, with the oscillating head having an arm, D^2, of the lever *f*, beam F, connecting-rods *g g'*, treadles G and G', and springs A A, substantially as set forth.

316,580. COMPOSITION FOR FUEL. CHARLES H. STERNBERG, Lawrence, Kans. Filed Feb. 17, 1885. (No specimens.)

Claim.—The artificial fuel herein described, consisting of rosin, asphaltum, slacked coal, powdered coal, or ground cinders, soot, powdered dry manure, and sawdust, wood-shavings, or ground corncobs, combined and prepared in the manner substantially as specified.

316,581. FIRE-EXTINGUISHER. WILLIAM H. STRATTON, New Haven, Conn., assignor to Stephen R. Smith, same place. Filed June 9, 1884. (No model.)



Claim.—1. In a sprinkler for automatic fire-extinguishers, the distributing-plate provided with the fixed central elevated sealing seat or valve, *c*, the openings *b*, extending through and through the said plate, and a circular ridge concentric with the valve, combined with a separable yoke, substantially as and for the purpose described.

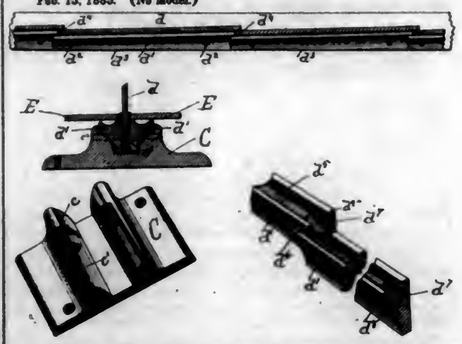
2. The combination, with the nozzle and its wells, of a distributing plate and pins arranged in said wells and connected with the plate to suspend it from the nozzle, substantially as described.

3. The combination, with the nozzle, of a distributing-plate having openings from face to back and elevations or ridges standing up from its active face and a dome-shaped raised piece or valve, substantially as described.

4. The combination, with a nozzle, of a distributing-plate having concentric ridges or elevations on its active face and a terminal or rim ridge and openings from face to back and a dome-shaped raised piece or valve, and means to suspend the plate from the nozzle, substantially as described.

5. The combination, substantially as shown and described, with the nozzle having an unbroken water-way, a deflecting-plate, and wells, of the distributing-plate provided with openings from face to back and a dome-shaped raised piece or valve, pins in said wells and connecting the nozzle and plate, and a separable yoke engaging the nozzle and plate to seal the nozzle and to open it upon occasion of fire, substantially as described.

316,582. SASH-BAR. HERBERT A. STREETER, Chicago, Ill. Filed Feb. 13, 1885. (No model.)



Claim.—1. The sash-bar consisting of a vertical rib or web, *d*, provided with side rails, d^2, having offsets d^4 to permit the plates lying thereon to overlap, substantially as specified.

2. The sash-bar consisting in the combination of vertical web or bar *d*, of wrought or bar iron, with cast-iron tapering side rails, *d'*, having offsets d^4 to permit the plates lying thereon to overlap, substantially as specified.

3. The sash-rail consisting of the web *d*, of wrought or bar iron, and cast-iron side rails, *d'*, secured thereto and furnished with grooves or channels d^5, the outer edge or lip, d^6, of said side rails being lower than the inner edge upon which the plates rest, substantially as specified.

4. The combination of wrought-iron bar *d* with cast-iron side rails, *d'*, having channels d^5, said side rails having shoulders d^6 at one end overlapping the opposite end of the adjacent side rail, substantially as specified.

5. The combination of the sash-rail with a chair for supporting the same, substantially as specified.

6. The combination of the cross-beams B, chairs C, secured thereto, and sash-rails fitting therein, substantially as specified.

7. The combination of chair C with sash-rail D, consisting of vertical bar *d*, provided with side rails or projections, d^2, substantially as specified.

8. The combination of bar *d*, tapering side rails d^2, and chair C, having part *c* conforming to the smaller end of said side rails, and part *c'* conforming to the larger end of said side rails, substantially as specified.

9. The combination of bar *d*, tapering side rails, d^2, chair C, and overlapping plates E, substantially as specified.

10. The combination, with bar *d*, provided with side rails, d^2, of cap F, fitting over said web, substantially as specified.

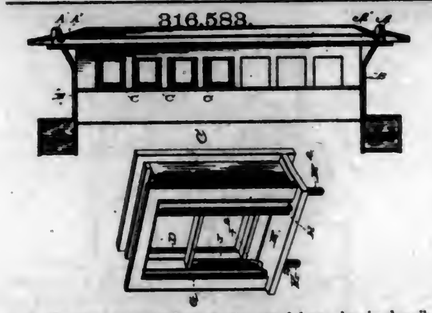
11. The combination, with bar *d*, provided with side rails, d^2, having offsets d^4, of cap F, having offsets *f'*, substantially as specified.

316,583. DUST-GUARD FOR CARS. ROBERT J. TRUESDAIL, Carlyle, Ill. Filed Nov. 3, 1884. (No model.)

Claim.—1. The combination, with a car, of deflectors provided with guide-grooves arranged at right angles to the length or line of motion of the car, and pipes opening at their upper ends at the lower ends or base of such grooves, and having their other ends extended below the car, substantially as set forth.

2. The combination, in a car-window, of a guard-frame held therein and provided in its side bars with vertical deflecting-grooves, and pipes opening at their upper ends through the sills at the base of said grooves and extended below the car, substantially as set forth.

316,583.



3. In a dust-protector for cars, the guard-frame herein described, having its side bars provided with deflecting-grooves and provided with depending pipes communicating at their upper ends with the lower ends of the guide-grooves, substantially as set forth.

4. The combination, with the window having its sill provided with openings, and pipes communicating with said openings and extended below the car, of the guard-frame held and movable vertically in the window and having its side bars provided with depending pipes communicating at their upper ends with the deflecting-grooves therein, and having their lower ends extended into the openings through the sill, substantially as set forth.

316,584. BREAST-PUMP. WILLIAM A. TURNER, Brooklyn, N. Y., assignor of one-half to William C. Wood, Washington, D. C. Filed Nov. 28, 1884. (No model.)



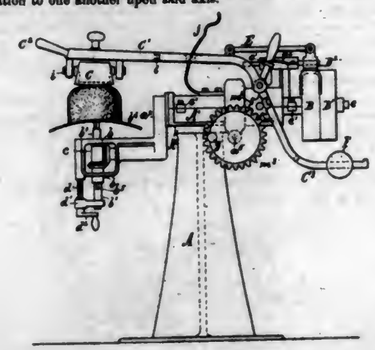
Claim.—1. In a breast-pump, the combination of the mouth-piece, the vacuum-bulb having a single opening therein, and the intermediate rigid coupling-piece provided with internal air-passages and the externally-accessible releasing-valve, substantially as described.

2. In a breast-pump, the combination of the mouth-piece, the vacuum-bulb having a single opening therein, the intermediate coupling-piece provided with air-passages, and the releasing-valve having a thumb-piece for conveniently controlling the entrance of air to the bulb, substantially as described.

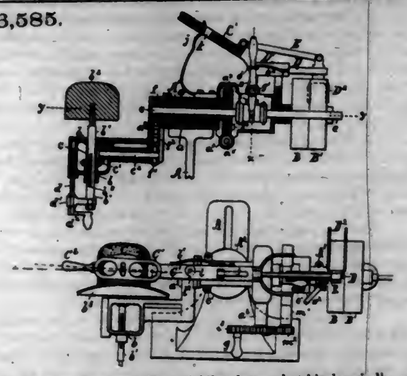
3. In a breast-pump, a valve operating as an exit-valve for the passage of air forced from the vacuum-bulb, and provided with a thumb piece, by which it is made to operate also as an externally-accessible releasing-valve, substantially as described.

316,585. HAT-IRONING MACHINE. EDMUND TWEEDY, Danbury, Conn., and GEORGE YULE, Newark, N. J., assignors, by direct and mesne assignments, to the Hat Curling Machine Company, Danbury, Conn. Filed Sept. 4, 1884. (No model.)

Claim.—1. The combination, with a yielding iron or tool carrier, a hat-block spindle, and means for revolving such spindle, of an axis of motion intersecting the hat-block at right angles to the hat-block spindle, means for adjusting the axis and tip of the hat-block in relation to one another, and means for moving or oscillating the spindle and tool-carrier in relation to one another upon said axis.



316,585.



2. The combination, with a yielding iron, a hat-block spindle, and means for revolving the spindle and adjusting it endwise, of an axis of motion at right angles to such spindle, and means for moving or oscillating the spindle and iron in relation to one another around said axis.

3. The combination, with a revolving hat-block spindle, an axial shaft at right angles to the spindle, and means for adjusting the spindle radially in relation to the axial shaft, of means for moving or oscillating said shaft, and thereby oscillating the iron and spindle in relation to one another.

4. The combination, with an axial shaft, of an arm sustaining a revolving hat-block spindle radially to the shaft, a yielding iron, and means for oscillating the shaft.

5. The combination, with an axial shaft, of an arm sustaining a revolving hat-block spindle radially to the shaft, means for oscillating the shaft and for adjusting the spindle radially thereto, and a yielding iron for pressing the hat.

6. The combination, with an axial shaft, of a revolving hat-block driver mounted central therewith, an arm affixed to said shaft and sustaining a hat-block spindle radially thereto, means for adjusting the spindle radially to the shaft, and means applied to the arm for connecting the hat-block spindle with the driver, and thereby revolving the hat-block.

7. The combination, with an axial shaft having an arm sustaining a revolving hat-block spindle radially to said shaft, of mechanism for rotating the shaft in opposite directions to oscillate the arm, and means operated by the shaft for automatically reversing such rotating mechanism.

8. The combination, with a shaft having an arm sustaining a revolving hat-block spindle radially to said shaft, of mechanism for rotating the shaft in opposite directions to oscillate the arm, means operated by the shaft for automatically reversing such rotating mechanism, means for disengaging such rotating mechanism from the shaft, and means for rotating or oscillating the shaft by hand.

9. The combination, with a hollow shaft and an arm sustaining a hat-block spindle radially to such shaft, of a central arbor extending through the shaft and provided with suitable connections to the spindle, reversible gearing connected with the arbor for oscillating the shaft, and adjustable means connected with said shaft for automatically reversing the motion of the shaft at the desired point.

10. The combination, with the hollow oscillating shaft and the revolving arbor extending through the same, of the arm affixed thereto and carrying the hat-block spindle in a bearing radially to the shaft, the bevel-gear shaft mounted with the bearing, the bevel-gears connecting said shaft with the spindle, and the chain-wheels and chain connecting the arbor and bevel-gear shaft.

11. The means for driving the hat-block spindle and adjusting it radially upon the oscillating arm, consisting in the bearing affixed to the arm, the feathered bush carried by the bearing, the gearing-connections to revolve said bush, and a screw mounted with the bearing for traversing and holding the spindle at the desired point in the bush.

12. The means for rotating and stopping the oscillating shaft, consisting in the shifting-clutch, the frog for moving said clutch, and the dogs attached to the oscillating shaft and operating to shift the clutch at the desired point.

13. The means for rotating the oscillating shaft at various speeds, consisting in the worm-wheel, worm and worm-spindle, the revolving arbor, the shifting-clutch wheels, the intermediate gear and its shaft, and means, as pulleys or gear-wheels, for transmitting a variable speed from the intermediate shaft to the worm-spindle.

14. The combination, in a hat-ironing machine, of the frame supporting an oscillating shaft horizontally, an arm attached to said shaft and carrying a revolving hat-block spindle in a bearing radially to said shaft, and an iron held by a carrier so as to rest freely upon the upper side of the hat-block.

15. The combination, in a hat-ironing machine, of the frame supporting an oscillating shaft horizontally, an arm attached to such shaft and carrying a revolving hat-block in a bearing radially to said shaft, and an iron mounted upon a pivot parallel with said shaft in a carrier above the hat-block so as to rest freely upon the upper side of the hat-block and to turn as the hat-block is inclined by the oscillation of the supporting-arm.

16. The combination, in a hat-ironing machine, of the frame supporting an oscillating shaft horizontally, an arm attached to such shaft and carrying a revolving hat-block in a bearing radially to said shaft, and a lever hinged to the frame above the shaft and carrying an iron in contact with the upper side of the hat when placed upon the block.

17. The combination, with a hat-block mounted upon a spindle in a radial bearing upon a vertically-oscillating arm, and oscillated by said arm in the manner described, of an iron mounted above the hat-block upon a vertically-swinging lever or arm constructed to yield in a horizontal direction when pressed by the hat brim or flange.

18. In a hat-ironing machine, the combination, with a yielding iron and means for applying it continuously to the tip and side crown of a hat, of a hat-block mounted upon a spindle having a longitudinal adjustment, as and for the purpose set forth.

19. The combination, with the axial shaft, its contained arbor, and the clutch-gearing, arranged as described, of the shell A', formed in two halves to insert the said parts, and provided with a fulcrum for the tool-carrier, substantially as shown and described.

316,586. PHOTOGRAPHIC AND CARD FILE. WILLIAM VERBECK, Oakland, Cal. Filed Mar. 20, 1884. (No model.)



Claim.—1. A holder or file consisting of a series of metal strips folded upon themselves, so that a card may be held between the elastic open ends, and having the closed ends or bights connected with each other by links or cords, substantially as herein described.

2. A holder or file consisting of a series of metal strips folded upon themselves, so that cards may be held between the open ends, the closed ends or bights being united by cords or links, in combination with covers within which two sets of clamps are secured near the top and bottom, substantially as herein described.

316,587. THRASHING-MACHINE. ALBERT H. WALKER, Elko, Md. Filed June 10, 1884. (No model.)

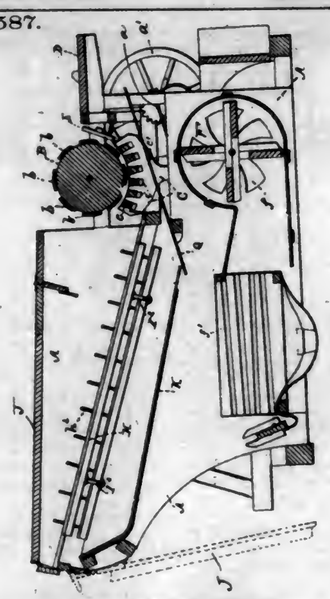
Claim.—1. A cylinder provided with sections *b*, having in their outer or circumferential faces inclined grooves b^3 and b', the grooves b' being inclined in an opposite direction to and made larger than the grooves b^3, substantially as and for the purpose specified.

2. The combination, in a thrashing-machine, with a straw-carrier and a fan, of the cover-board J, adjustable upon or over the rear end of the machine, whereby it may serve as a top for the machine, and as a chute by which to convey the straw and prevent the latter from mixing with the chaff, substantially as set forth.

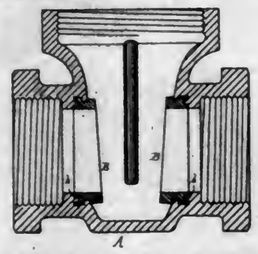
3. In a thrashing-machine, the combination, with the frame A, feed-board D, and cylinder B, properly journaled in the frame A, and provided with the sections *b b*, having the sets of grooves *b'* and b^3, of the frame C, provided with the bars *c c*, having the set of grooves c^2, substantially as specified.



316,587.



316,588. STRAIGHT-WAY-VALVE CASE. ADOLPH WEBER, Detroit, Mich., assignor of one-half to Henry W. Rood, same place. Filed Nov. 26, 1884. (No model.)



Claim.—A brass ring provided upon its outer edge face with a groove and upon its outer flat face with another groove standing at right angles, or nearly so, to the first-named groove, in combination with a cast-iron valve-case, substantially as set forth.

316,589. ARTIFICIAL LEG. ALBERT A. WINKLEY, Faribault, Minn. Filed Feb. 20, 1885. (No model.)



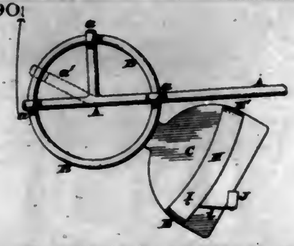
Claim.—1. In an artificial leg, the combination, with a socket for receiving the wearer's stump, and a second or outer socket in which the said stump-socket fits, of appliances for supporting the outer socket, and flexible or elastic connections for holding the stump-socket to its place on the stump independently of the outer socket, substantially as described, for the purpose specified.

2. The combination, with the sockets A, B, and C, connected together as described, of the stump-socket A and the flexible and elastic straps for supporting the stump-socket independently of the socket in which it fits.

316,590. TARGET-TRAP. AMOS WOERNER, Cincinnati, Ohio. Filed Feb. 24, 1885. (No model.)



316,590.



Claim.—1. The combination, in a target-trap, of a throwing-arm provided at its free end with a ring that carries a swinging target-holder, the latter being furnished with an automatic device that permits the discharge of the target, substantially as herein described.

2. The combination, in a target-trap, of the throwing-arm A, provided at its free end with a ring, B, that supports the swinging target-holder C, the latter being furnished with a standard, T, and an adjustable friction-wheel, R, for the purpose stated.

3. The combination, in a target-trap, of the swinging target-holder C, provided with anti-friction wheels O O', whereby said holder is supported on and travels around a ring, B'', the latter being applied to the free end of throwing-arm A, as herein described.

316,591. KNOB ATTACHMENT. ARTHUR H. WOOD, Lansing, Mich. Filed Aug. 20, 1884. (No model.)

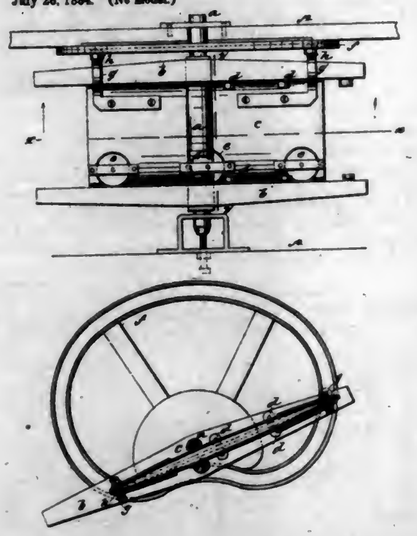


Claim.—1. In a door-knob, and in combination with the shank thereof having a recess in its side, a nut inserted in said recess between the end of the spindle and the opposite end of the recess, and held from lateral displacement in the action of the screw by means of a shoulder in the shank, substantially as and for the purposes described.

2. In a door-knob, the combination of the detachable shank A, having a recess, *a*, covered by the knob, spindle B, nut C, inserted in said recess, screw D, and knob E, all constructed, arranged, and operating substantially as and for the purposes set forth.

3. In a door-knob, the combination, with a detachable shank having a recess in its side, of a knob recessed to receive one end of said shank, a nut inserted in the recess in said shank and working within the recess in the knob, and a screw passing through said knob, shank, and nut and engaging with the spindle, substantially as and for the purpose specified.

316,592. PROPELLER. JOHN WOOLL, San Francisco, Cal. Filed July 26, 1884. (No model.)



Claim.—1. In a propeller, the combination, with the divided shaft carrying the transverse bars or ways, of the paddle traveling upon said ways or bars and moving through said shaft and acted upon by a cam-groove, substantially as and for the purpose set forth.

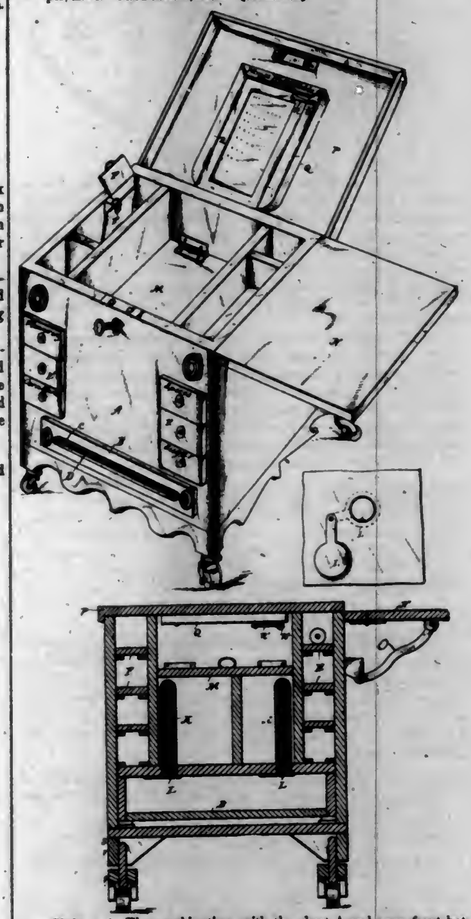
2. In a propeller, the combination, with the divided shaft carrying the transverse bars or ways, of the paddle traveling through said shaft and upon said bars or ways, and acted upon by a cam-groove, said paddle having wheels set in its lower edge, and running upon one of said ways or bars, substantially as and for the purpose specified.

3. In a propeller, the combination, with the divided shaft carrying the transverse bars or ways, of the paddle traveling through said shaft and upon said ways, and having arms provided with rolls or wheels moving in a cam-groove, substantially as and for the purpose described.

4. In a propeller, the combination, with the divided shaft having bulged portions and carrying the transverse bars or ways, of the centrally-bulged hollow paddle traveling upon said ways or bars and through said shaft, and acted upon by a cam-groove, substantially as and for the purpose set forth.

5. In a propeller, the combination, with the divided shaft carrying transverse bars or ways, of the paddle traveling through said shaft and upon said ways, and provided with arms having rollers or wheels running in a cam-groove, and with wheels traveling upon the lower way or bar, said upper way or bar having rolls or wheels resting against the upper edge of said paddle, substantially as and for the purpose specified.

316,593. VENTILATED FLOUR-CHEST. MIRA WRIGHTSMAN, Harper, Kans. Filed June 7, 1884. (No model.)



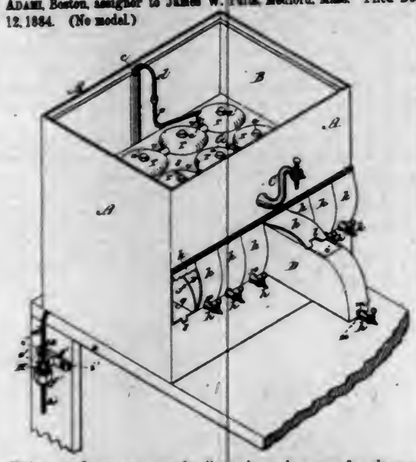
Claim.—1. The combination, with the chest A and open-front bottom drawer, B, of the divided compartments H I, the hinged pie-board M, and the ventilating-tubes K K, having the pivoted covers L at the ends of their vertical portions, as set forth.

2. The combination of the flour-chest having the lid F, provided with a frame, Q, with the hinged glass door R, attached to and closing

over the frame, and hooks and eyes for securing the door to the frame, the contents of the frame being seen through the door when the latter is closed, as and for the purpose set forth.

3. The combination, with the chest A, having the divided compartments H I, of the pie-board M, hinged to the inner face of the chest, so as to serve as a cover for the compartment, and the ventilating-tubes K, arranged within each compartment and supplying air to the same, as and for the purpose set forth.

316,594. APPARATUS FOR DISPENSING SODA-WATER. CONRAD ADAMI, Boston, assignor to James W. Tufts, Medford, Mass. Filed Dec. 12, 1884. (No model.)



Claim.—1. In an apparatus for dispensing soda-water, &c., the combination, with the casing A, provided with a series of separate horizontal chambers or cells, *g*, having open mouths accessible from the side of the apparatus, of the horizontal removable sirup-cans D, having gates or faucets *h* projecting from their front ends, and adapted to be slid into and out of the said horizontal chambers or cells *g* from the side of the apparatus, and the covers or doors *k*, pivoted at their upper ends and adapted to drop down over the front ends of the sirup-cans to conceal the same, substantially as described.

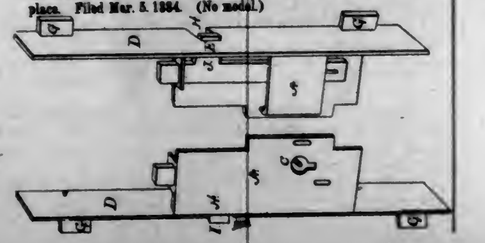
2. The combination, with an apparatus for dispensing soda-water, &c., provided with horizontal removable sirup-cans D, adapted to slide in and out from the side of the apparatus, and having gates or faucets *h* projecting from their front ends, of the covers or doors *k*, pivoted at their upper ends and having open slots *l* at their lower ends to fit over the necks of the sirup gates or faucets, and adapted to drop down over the front ends of the sirup-cans to conceal the same, substantially as set forth.

316,595. SPOOL OR BALL HOLDER. JOHN F. ADAMS, Irvington, N. Y. Filed Apr. 7, 1884. (No model.)

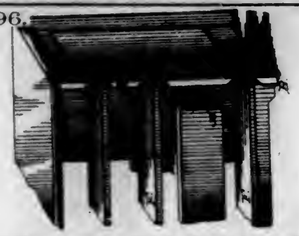


Claim.—A spool or ball holder consisting of the frame C, having the forwardly-extending arms *c*, between which is arranged the horizontal spindle for supporting the spool or ball, the tension device through which the thread or yarn is passed to prevent the too free unwinding of the same, and a fastening device connected to the frame by a hinge-joint, and adapted to attach the holder to the clothing of the user, all substantially as described.

316,596. FASTENING DEVICE FOR A SERIES OF DRAWERS. M BANCROFT, Whitestown, N. Y., assignor to W. B. Quigley & Co., same place. Filed Mar. 5, 1884. (No model.)

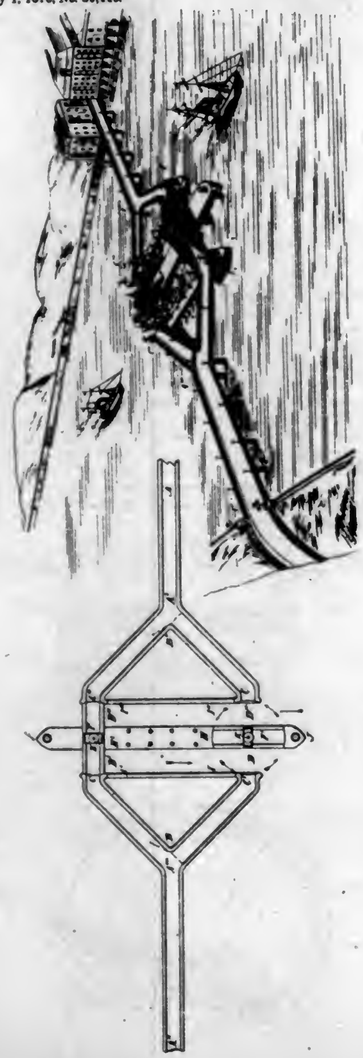


316,596.



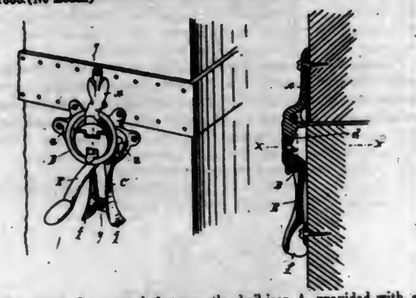
Claim.—The combination, with the frame of a furniture structure and drawers located therein and having notches in their sides, of a lock having the bolt of the same provided with a spur extending to one side, a bar located in a vertical recess in the frame, having catches engaging the notches in the drawers and having an opening engaging the spur of the lock-bolt, as and for the purpose set forth.

316,597. BRIDGE FOR FACILITATING THE PASSAGE OF SHIPPING, &c. FREDERIC BARNETT, 106 Queen Victoria Street, London, England. Filed Sept. 22, 1884. (No model.) Patented in England Oct. 19, 1875, No. 3,620; in France Feb. 17, 1876, No. 111,519, and in Belgium May 1, 1876, No. 39,446.



Claim.—In bridges for facilitating the passage of shipping without stopping the carriage or general traffic, a main or central pier and two fixed side piers and the two intermediate passages for vessels, in combination with centrally-pivoted swing-bridges, one at each end of the said main pier, and diagonal approaches to the two side piers connecting together and with the bridge to the shore, substantially as set forth.

316,598. BOX-FASTENER. FRANK W. BIRKWITH, Detroit, Mich., assignor of one-half to Henry W. Fairbanks, same place. Filed Feb. 5, 1885. (No model.)



Claim.—1. In a trunk-fastener, the bail-iron A, provided with a spring-bail, B, in combination with the casing C, and the hook-lever F, fulcrumed in said casing and adapted to draw the spring-bail down and around a stud projecting from the face of said casing, substantially as described.

2. In a trunk-fastener, the combination of the bail-iron A, provided with the spring-bail B, and bail-stud *d*, with the casing C, provided with the hook-lever E, and stud D, constructed, arranged, and operating substantially in the manner and for the purposes set forth.

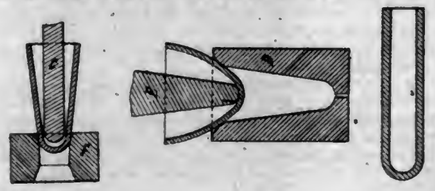
3. In a trunk-fastener, the combination of the bail A, provided with the spring-bail B, and bail-stud *d*, with the casing C, provided with the stud D, recesses *b* and *e* and ears *a* and *f*, and the hook-lever E, all constructed, arranged, and operating substantially in the manner and for the purposes set forth.

316,599. FENCE-POST. THOMAS E. C. BRINLY, Sr., and FREDERICK E. HEINE, Louisville, Ky. Filed Sept. 11, 1884. (No model.)



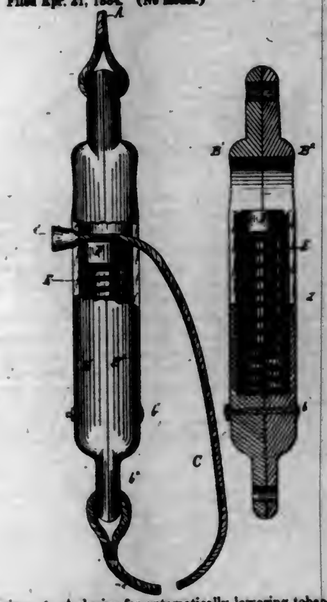
Claim.—The combination of the herein-described bell-shaped earthenware base formed with a top in which is provided the rectangular opening *a*, and with the horizontal bottom a^2 below the same, the right-angular post set in the opening *a* upon the bottom a^2, one flange of the post being formed with the openings D, the plastic filling *b*, set around the end of the post, the strands of wire passed through said openings, and the top rail or board, C, secured against one of the flanges of the post and resting upon the other flange, substantially as and for the purpose set forth.

316,600. PROCESS OF MAKING SEAMLESS TUBES. WILLIAM H. BROWN, New York, N. Y. Filed Jan. 26, 1885. (No model.)



Claim.—The process of manufacturing drawn seamless cylinders of steel from disks by subjecting the metal in a hot state during the earlier stages of the process to the folding operations necessary to change the shape from the flat to the cylindrical, and afterward subjecting it in a cold state to the drawing operations by which the cylinders are condensed, consolidated, tempered, and finished, substantially as herein described.

316,601. TOBACCO-DROPPER. MARTIN K. BRUBAKER, Mount Joy, Pa. Filed Apr. 21, 1884. (No model.)

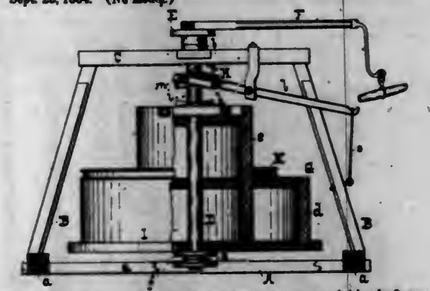


Claim.—1. A device for automatically lowering tobacco and other articles, consisting of a cord having one end fixed and the other detachable, a shell or casing which engages with the detachable end of said loop, and a plunger which automatically severs such engagement when the cord is relieved from the weight of the tobacco, substantially as set forth.

2. The combination of a casing having a key-hole slot in its upper part with an upwardly-spring-pressed plunger operating within said casement in proximity to said slot, and a loop-cord for inclosing tobacco and other articles, having one end secured to said casing, and the other end provided with an enlargement adapted to be passed through the large upper part of said slot and be drawn down behind the narrow lower part thereof, substantially as set forth.

3. The casing B, consisting of shells B' B^2, each of which has in its upper part a key-hole-shaped slot, D, in combination with spring E and plunger F, arranged and operating as stated within said casing, and the cord C, attached at one end to said casing, and provided with a conoidal ferrule, C', on its other end, said ferrule being adapted to pass through the large upper parts, D', of the said slots, but not to pass through the narrow lower parts, *d*, thereof, substantially as set forth.

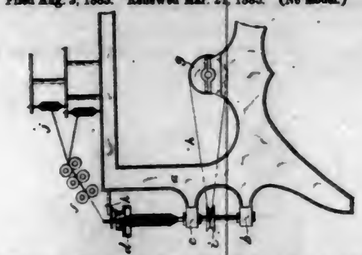
316,602. WINDLASS. RODNEY F. CARTER, South Ryegate, Vt. Filed Sept. 25, 1884. (No model.)



Claim.—In a windlass, a frame-work and a revoluble shaft supported therein with means to turn it, combined with a differential drum on the said shaft, adapted to be turned independently of the shaft, having at its upper end a toothed plate, a clutch fitted to engage with the

said toothed plate, and a spiral flange between the larger and smaller sections of the drum, substantially as and for the purpose specified.

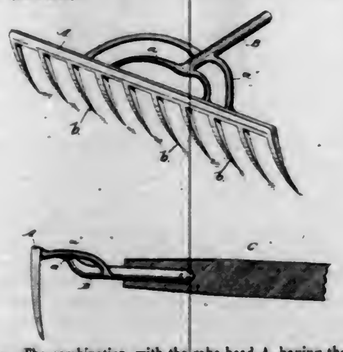
316,603. RING-SPINNING MACHINE. CHARLES H. CHAPMAN, Groton, Mass., assignor to the Eureka Spindle Company, of Massachusetts. Filed Aug. 3, 1883. Renewed Mar. 21, 1885. (No model.)



Claim.—1. The combination, substantially as shown and described, of the frame *a*, the steps, step-rail, bolsters, and bolster-rail, all substantially as usual, with the vertical spindles having their tops in line with the bite of the rolls, and mechanism to drive them, and the adjustable yarn-guiding plates, one for each spindle and hinged to the frame, and receiving within them the tops of the spindles, as and for the purpose set forth.

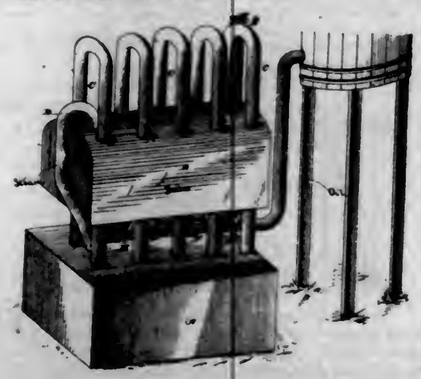
2. The receiving-board *m*, the frame *a*, to which said board is attached, the board *k*, hinged to said receiving-board, and the series of plates or boards *n*, adjustably attached to the board *k*, and provided with openings *o* therein, combined with the spindles projecting up into said openings, and means to drive said spindles, substantially as and for the purpose set forth.

316,604. RAKE. ALANSON P. CLARKE, Auburn, N. Y. Filed Dec. 8, 1884. (No model.)

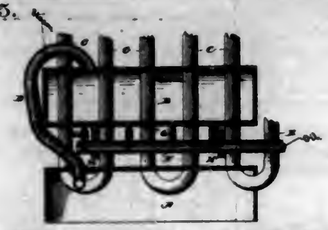


Claim.—The combination, with the rake-head A, having the teeth *b*, of the braces *a a'*, the former secured to the end of the tang and to the rake-head, the latter secured to the body portion of the tang on each side thereof and to said head, the above parts made integral with each other, and the said braces and tang formed out of line with the rake-head, as and for the purposes described.

316,605. HEATING-STOVE. AMERICUS V. COOK, Dexter City, Mo. Filed Dec. 23, 1884. (No model.)

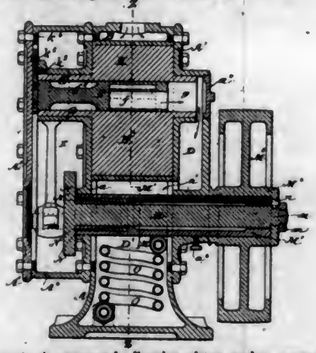


316,605.



Claim.—The heater consisting of the base A, the boiler B, supported above the base, the pipe D, leading from the boiler and communicating with the vertical coil of pipes C, said pipes C extending through and above the boiler and into the upper side of the base, and through which pipes the steam from the boiler circulates, and the pipe F, having burners G, located beneath the boiler, substantially as described.

316,606. VIBRATING-PISTON ENGINE. WILLIAM E. CREST, New York, N. Y. Filed Aug. 29, 1883. (No model.)



Claim.—1. A compound vibrating-piston engine, constructed with two sector-shaped working-chambers of unequal piston-area, pistons vibrating therein about a common axis, and communicating channels adapted and arranged to conduct the steam or air expelled from one chamber by the forward movement of its piston into the second chamber against its moving piston, substantially in the manner and for the purpose herein set forth.

2. In a vibrating-piston engine, the combination, with communicating chambers of unequal piston-area, of vibrating pistons working within said chambers and secured to and radiating from a common axial shaft to be subjected jointly and successively to unequal pressures upon their opposite faces, substantially in the manner and for the purpose herein set forth.

3. The combination, with the two piston-chambers, of a compound vibrating-piston engine, and with its exhaust and supply pipes and ports, of an oscillating valve interposed between said chambers and adapted to connect in its movements said exhaust and supply pipes and the supply and exhaust ports of said chambers, and to establish communication between the latter, substantially in the manner and for the purpose herein set forth.

4. The combination, in a compound vibrating-piston engine, with its working-chambers and with a hollow oscillating shaft, ports therein communicating with the supply and exhaust pipe of the engine and with said chambers, and an oscillating valve fitted within the shaft to participate in its movement, yet be free to oscillate independently thereof, of a valve-lever pivoted to said shaft, and devices for reversing the lever and valve in the movement of the shaft and pistons, substantially in the manner and for the purpose herein set forth.

5. The combination, in a vibrating-piston engine, with its steam-chest, working-chamber, and with a vibrating piston secured to a hollow rock-shaft, through which are formed the ports adapted to establish, in the movements of the shaft and piston, communicating passages between the steam-chest and working-chamber and the working-chamber and exhaust-pipes, of an automatic cut-off valve fitted upon the outer side of the shaft and adapted, in the movement of the latter, to cut off the admission of steam to its supply-ports, substantially in the manner and for the purpose herein set forth.

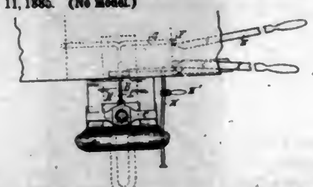
6. In a vibrating-piston engine, the combination, with two working-chambers arranged on either side of a common center, of two steam-chests placed opposite each other on either side of said center intermediate the working-chamber, and adapted to inclose self-adjusting balanced valve-seats supporting a central oscillating hollow piston-shaft, substantially in the manner and for the purpose herein set forth.

7. The combination, in a vibrating-piston engine, with its working-chamber, its hollow oscillating piston-shaft and pistons, the steam-supply ports in the shaft, and a steam-supply chamber or jacket inclosing the same, of self-adjusting balanced valve seats or bearings adjusted to the oscillating shaft on opposite sides thereof, and fitted with ports for the admission of steam to the shaft, substantially in the manner and for the purpose herein set forth.

8. The combination, in a vibrating-piston engine, of an exhaust-chamber and feed-water heater, with a base or pedestal supporting the main shaft of the engine, and its oscillating shaft, piston-chambers, and steam-supply chamber, all disposed and arranged relatively to each other, substantially in the manner and for the purpose herein set forth.

9. The combination, in a vibrating-piston engine, with its oscillating piston-shaft, main driving-shaft, crank-connections on said shafts, and the connecting-rod coupling the same, of a casing or chamber inclosing said connecting-rod and connections, and adapted to contain and retain a lubricating material to be automatically applied to said parts, substantially in the manner and for the purpose herein set forth.

316,607. CAR-COUPLING. PETER CURRIE, Hull, Quebec, Canada. Filed Feb. 11, 1885. (No model.)



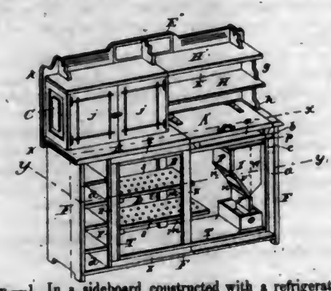
Claim.—1. The combination, with the yoke C and coupling-pin D, of the lever E, fulcrumed to the bottom of the car, and rock-shaft G, journaled to the under side of the draw-head, said shaft having a crank-arm, F, and prong H, for the purpose set forth.

2. The combination, with piston B, having pin J extending through a slot in the side of the draw-head, of lever I, fulcrumed to the under side of the car, and buffer-rod K, projecting outwardly from the mouth of the draw-head, for the purpose described.

3. The combination, with the piston B, of pin J, extending through a slot in the side of the draw-head, and rod K, projecting beyond the mouth of the draw-head to throw the piston in and out of connection with the link and pin, as set forth.

316,608. REFRIGERATOR-SIDEBOARD. ALONZO DOW and LEWIS H. GORHAM, Worcester, Ohio; said Dow assignor to Harvey Howard, same place. Filed Aug. 28, 1884. (No model.)

Brief.—Improvement on Patent No. 297,240, dated April 22, 1884.



Claim.—1. In a sideboard constructed with a refrigerator-apartment as shown and described, the combination, with the outer wall, F, and inner wall, T, of the marginal strips Z Z', arranged to connect together and thereby unite the separable walls F T around the opening for a side door, D, substantially as set forth.

2. In combination with the ice-pan P and condensing-sheet P', the metallic section P'', provided with tank *w* and sides *v v* to correspond with the margins *v' v'* of the ice-pan P, substantially as and for the purpose specified.

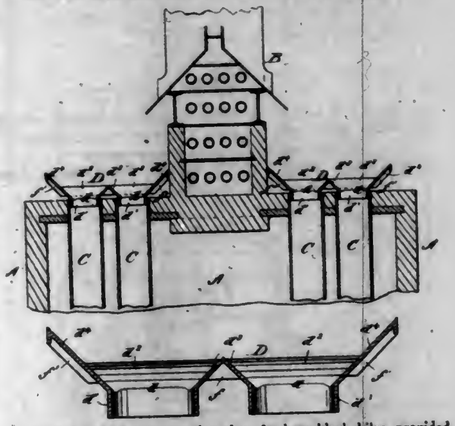
3. In combination with the inner box, B, separating-strips *c*, of the ice-receptacle I, supporting-strips *n n'*, tank *w*, and condensing-sheet P', substantially as and for the purpose specified.

4. In a refrigerator-sideboard, the combination, with the outer casing, A F, and detachable shelves H, constructed as shown, of a top cabinet, C, arranged to support one end of the detachable shelves H, substantially as and for the purpose specified.

316,609. COMPOSITION FOR PURIFYING GAS. JOSEPH DUKE, Glastonbury, County of Somerset, England, assignor to Henry Symons. Filed May 24, 1884. (No specimens.) Patented in England June 23, 1883, No. 2,961.

Claim.—The composition herein described for purifying gas, composed of monocalcic phosphate, sulphate of lime, and charcoal or pulverized peat, substantially as set forth.

316,610. TOP PLATE FOR BONE-BLACK KILNS. EDWARD P. EASTWICK, New York, N. Y. Filed Nov. 25, 1884. (No model.)



Claim.—1. A top covering-plate for bone-black kilns, provided with one or more openings, *a*, upwardly and outwardly inclined surfaces d^2 d^3 d^4, surrounding the openings, and with the downwardly-projecting flanges *f f'*, substantially as herein shown and described.

2. The apertured top covering-plate, D, for bone-black kilns, provided on its under side with the collars *d'*, surrounding the apertures, and with the upwardly and outwardly inclined surfaces d^2 d^3 d^4 on its upper surface, substantially as herein shown and described.

316,611. VAGINAL DILATOR. HIRAM G. FARR, Boston, Mass. Filed Sept. 24, 1884. (No model.)



Claim.—A vaginal dilator consisting of two arms, *a b*, with their cross-bars B B and connecting cross-piece A provided with openings *d c*, in combination with a syringe having a conical tip for moving one or both arms outwardly, substantially as and for the purpose described.

316,612. SELF-LUBRICATING AXLE. HIRAM G. FARR, Boston, Mass. Filed Dec. 18, 1884. (No model.)



Claim.—As an improvement in automatic or self lubricating axles for vehicles, the non-revolving journal A, with its central longitudinal chamber, *a*, for the reception of the lubricant, a longitudinal slot, *b*, at its top, communicating therewith and having a fibrous material, *c*, located therein, a screw-plug, B, and a nut, C, turned thereover, in combination with the revolving journal-box D, as described.

316,613. SURCINGLE. HIRAM G. FARR, Boston, Mass. Filed Dec. 18, 1884. (No model.)

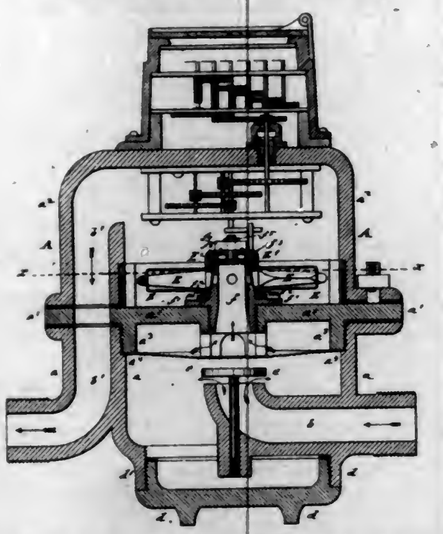


316,613.



Claim.—A surcingle consisting of a tubular webbing, A, and a pad, D, provided with a rigid bent brace, *c*, substantially as described.

316,614. ROTARY WATER-METER. HENRY FREDRIX, Newark, N. J. Filed Jan. 26, 1885. (No model.)



Claim.—1. In a water-meter, a casing consisting of a lower section having a supply-pipe and a detachable bottom, a horizontal partition, and an upper section or wheel-chamber provided with a discharge-pipe, substantially as set forth.

2. The combination, in a water-meter, of a casing having a supply-pipe at the lower part with a vertically-adjustable diaphragm arranged above the discharge end of the supply-pipe, substantially as set forth.

3. The combination, in a water-meter, of a casing having a lower section, a supply-pipe, and a diaphragm above said supply-pipe, a horizontal partition having a tubular journal, a water-wheel turning on said journal, and a screen located below the tubular journal, substantially as set forth.

4. In a water-meter, the combination of a tubular journal having discharge-openings, a circumferential flange with guide-lugs, and a raised rim at the upper end with a water-wheel the hub of which is retained on the journal, substantially as set forth.

5. In a water-meter, a water-wheel having curved tubular arms tapering toward the ends, beveled toward their convex edge, so as to reduce the friction with the water, substantially as set forth.

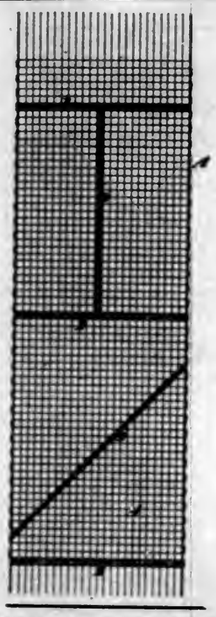
6. The combination, in a water-meter, of a casing, a horizontal partition, a tubular journal, a water-wheel having curved and tapering arms, and a metallic shell inclosing the arms of the water-wheel, substantially as set forth.

7. The combination of a casing consisting of a lower supply-chamber, a partition, and an upper or wheel chamber, a tubular journal attached to the partition, a screen below the lower end of the journal, a water-wheel having curved and tapering arms, and a circular abutment surrounding the water-wheel and having inwardly-projecting teeth, substantially as set forth.

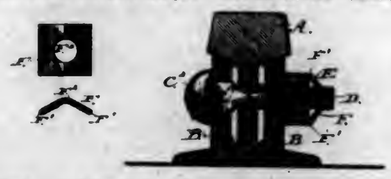
316,615. MANUFACTURE OF GALVANIZED WIRE-CLOTH. EDWIN GILBERT, Georgetown, Conn. Filed Jan. 12, 1885. (No specimens.)

Claim.—The improvement in the manufacture of galvanized wire-cloth, consisting in temporarily tacking the weft and warp wires together at intervals in the length of the cloth by a substance which will be melted off or removed by the heat of the galvanizing-bath, substantially as and for the purpose herein described.

316,615.



316,616. NUT-LOCK. SAMUEL M. GUSS, Reading, Pa., assignor of one-half to Jacob S. ARMON, same place. Filed Dec. 20, 1884. (Model.)

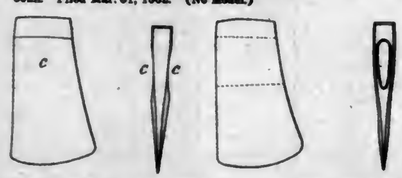


Claim.—1. In nut-locking devices, a V-shaped cross-sectioned elastic metallic washer, the perforation for the bolt having an interrupted or broken thread therein, substantially as shown, and for the purpose described.

2. In a nut-locking device, the combination, with a full-threaded bolt and nut, of an elastic V-shaped cross-sectioned washer broken-threaded in the apex of the same, substantially as and for the purpose set forth.

3. In a nut-locking device, the combination, with a threaded bolt and nut, of an elastic V-shaped cross-sectioned metallic washer, provided with a flat bearing-face, F', upon the base edges of the same, whereby abrasion of the nut is prevented and the same may be repeatedly used, as described, and substantially for the purpose specified.

316,617. MANUFACTURE OF AXES. HENRY HAMMOND, New Haven, Conn. Filed Mar. 31, 1882. (No model.)



Claim.—1. The process of making ax-polls from a single piece of metal by forming the blank to quite or near the form it is to have, except at its sides opposite to where the eye is to be located, and by displacing from each of those sides an amount of metal about equal in bulk to half the eye, and then by forming the eye with a punch or punches, which as it penetrates the metal forces those sides apart, and thus expands the blank at the eye portion to the ultimate shape desired.

2. The art or process of making axes wherein they are first roughly forged from a bar or block, then split for the insertion of the steel edge, then finished with the exception of the eye, and having the concavities C C upon the sides, and finally finished by cutting and forming the eye, substantially as described.

316,618. AX-BLANK. HENRY HAMMOND, New Haven, Conn. Filed Mar. 14, 1885. (No model.)



Claim.—A blank for an ax-poll, hatchet, or other analogous article, formed with concavities *c c*, the aggregate bulk of which concavities substantially corresponds with the bulk of the eye to be formed, which ax-poll is adapted to receive its ultimate external contour at the eye portion by the action of a perforating punch, (or punches,) which splits the blank centrally between the two concavities, and spreads the metal laterally, in substantially the manner set forth.

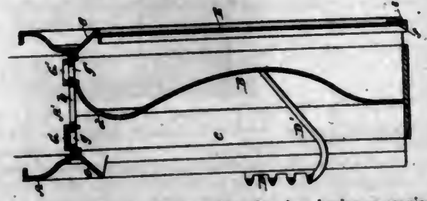
316,619. BOLT. CARL EMIL HAYM, Brooklyn, assignor of two-thirds to Christopher Reimmer and Charles E. Meier, New York, N. Y. Filed Feb. 18, 1885. (No model.)



Claim.—1. The bolt A, having the under face of the laterally-projecting portion of its head D made concave, to adapt it to receive, compress, and hold a packing, *a*, substantially as shown and described.

2. In combination with a bolt having the under side of its head made concave, the compressible packing *a*, applied substantially as and for the purpose set forth.

316,620. COMBINED HEATER AND VENTILATOR. FRANK R. HENRY, Murfreesborough, Tenn., assignor of one-fifth to James S. Baird, same place. Filed July 12, 1884. (No model.)



Claim.—1. The combination, with a fire-place having an opening extending centrally through it to connect two rooms on the same floor, and with a reversible fire-back fitted therein, constructed to connect from its grate or fire side with the smoke-flue or chimney, of valves in said fire-place covering upper openings connecting with the smoke-flue or chimney on opposite sides of said fire-back, substantially as specified.

2. The combination, with a fire-place having an opening extending centrally through it to connect two rooms on the same floor, and with a reversible fire-back therein, constructed to connect from its grate or fire side with the smoke-flue or chimney, of a detachable fire-place board or plate having an air-inlet near its lower end, and valves in said fire-place covering upper openings connecting with the smoke-flue or chimney on opposite sides of said fire-back, essentially as and for the purposes herein set forth.

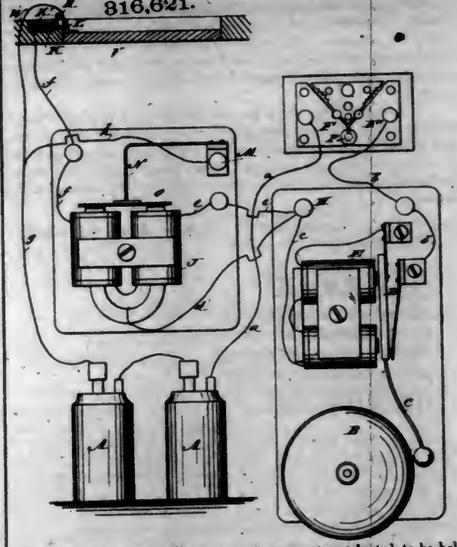
3. The combination, with the double or through fire place or frame A, having an intermediate upper smoke-outlet, *b*, to the flue or chimney, and with the reversible concave-convex fire-back B, having an upper sloping or bent extension, *d*, of the valves G G', controlling openings arranged in the upper portion of the fire-place for alternate connection, as required, from opposite sides of the fire-back with the smoke-flue or chimney, and the detachable fire place or board E, having a register lower opening and slide or door, substantially as shown and described.

316,621. ELECTRIC BURGLAR-ALARM. JOHN H. HILL, Long Island City, and JOSEPH P. BABCOCK, New York, N. Y. Filed Mar. 15, 1884. (No model.)

Claim.—1. In a burglar-alarm, the combination, with the electric generator, the electric bell, and the circuit-wires leading to the doors and windows, of an electro-magnet having its coils connected with the bell and line-wire, and its core connected with the bell and its armature with the line-wire, substantially as herein shown and described.

2. In a burglar-alarm, the combination, with an electric generator, an electric bell, and line-wires, of a magnet connected with the line-wire, and a short circuit through the armature and core of the said magnet when the magnet is energized, and an armature adapted to be held on the cores of the said magnet by the residual magnetism in the said magnet, and thus keep the line short-circuited, substantially as herein shown and described.

316,621.



3. In a burglar-alarm, the combination, with an electric generator, an electric bell, and line-wires, of the magnet J, connected with the line-wires and the bell, the armature O, and the spring N, adjusted so as to close a short circuit around said magnet when the latter is energized, the tension of which spring is less than the power of the residual magnetism in the magnet, substantially as herein shown and described.

316,622. LOCK FOR FIRE-ARMS. FREEMAN W. HOOD, Boston, Mass. Filed Jan. 26, 1885. (No model.)



Claim.—1. The combination of the two hammers B and C with a single trigger which is bifurcated at its upper end, forming a piece, *g*, which engages with one of said hammers, and a piece, *h*, which engages the other hammer, substantially as set forth.

2. In combination with the hammers B C and their mainsprings, a trigger bifurcated to form pieces *g h*, which respectively engage said hammers, and *h* spring-pressed movable lip, *j*, attached to said piece *h* and serving to press against spring *b*, so as to make its tension available, substantially as set forth.

3. The lifting-latch I, provided with a shoulder, *j*, in combination with the trigger to which it is pivoted, the spring *k*, bearing against said latch, the mainspring *b*, which is pressed and released by said shoulder, the hammer C, which is actuated by said spring, the latch I being extended considerably beyond the shoulder *j* to prevent said latch from impeding the action of the hammer, substantially as set forth.

4. The combination of a single-acting lock and a double-acting lock with a single trigger which engages the hammers of both locks, substantially as set forth.

5. The two hammers B C and their mainsprings *a b*, in combination with a trigger which engages and releases hammer B, and a spring-pressed latch pivoted to said trigger, which has a shoulder for operating mainspring *b*, said shoulder being too far from the latter spring to act thereon until after the release of hammer B, substantially as set forth.

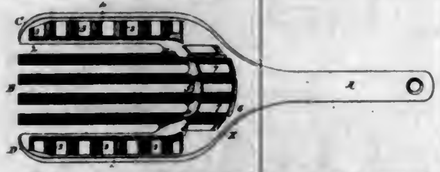
6. The mainspring *b*, provided with an offset, *m*, in combination with the lifting-latch I, having a shoulder, *j*, for acting against said offset, a hammer, C, operated by said mainspring, and a trigger to which said latch is pivoted, substantially as set forth.

7. The pin *n*, transversely movable with respect to the line of motion of the hammers, having a beveled end on one side and arranged in a line with the position of the hammers when cocked, in combination with said hammers, said pin being of a length slightly greater than the interval between the two hammers, and presenting its beveled face to one of the hammers as the latter is cocked, for the purpose set forth.

8. In combination with the two hammers B and C, the transversely-movable beveled pin *n*, of a length slightly greater than the interval between said hammers, and located opposite the places occupied by them when cocked, and the spring *p*, which causes the beveled end of said pin to protrude in the path of hammer B as the latter is cocked, substantially as set forth.

9. In combination with a fire-arm hammer, a locking-pin which is transversely movable with respect to the line of motion of said hammer, and another hammer which engages said pin and forces it across said line of motion, said pin being arranged on a line behind the position occupied by the first-mentioned hammer when the latter is down, substantially as shown.

316,623. GRATED SHOVEL. MARY P. C. HOOPER, New York, N. Y. Filed Feb. 25, 1884. (No model.)



Claim.—1. A grated shovel the bottom whereof is composed of longitudinal bars free at their forward ends and having their bodies diminished to provide narrow bearing-surfaces, substantially as described.

2. A grated shovel the bottom and sides whereof are composed of bars formed integral with the frame, which bars have diminished bodies providing narrow bearing-surfaces, substantially as described

3. A grated shovel the bottom, sides, and back whereof are composed of bars formed integral with the frame, which bars have diminished bodies providing narrow bearing-surfaces, substantially as described.

316,624. BUTTON. WILLIAM C. HOWARD, New York, assignor to Joseph P. Noyes & Co., Binghamton, N. Y. Filed May 14, 1884. (No model.)



Claim.—1. A hollow button-head consisting of a face-plate and a collet, with a tubular shank permanently secured thereto and terminating in spring clamping-jaws within the same, said head being adapted for use with a stemmed back plate, substantially as described.

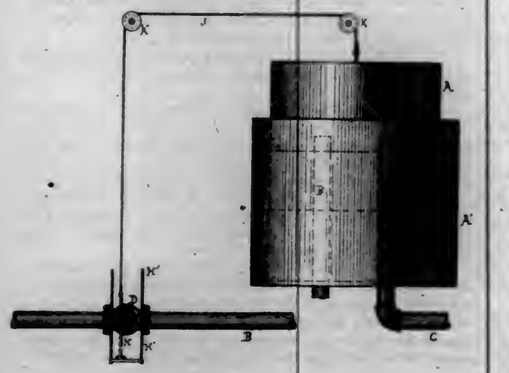
2. The combination, with a hollow button-head consisting of a face-plate and collet, and a tubular shank terminating in spring clamping-jaws within said button-head, of a stemmed back plate, substantially as described.

3. In a button, a tubular shank provided with a circular neck having one end provided with a flange and the opposite end split to provide spring clamping-jaws, substantially as described.

4. The combination, with the collet, of a shank provided with spring-jaws, radiating holding-arms, and a supporting-bead, substantially as described.

5. The combination, with the collet, of a shank provided with spring-jaws and a bead, between which said collet is clamped, substantially as described.

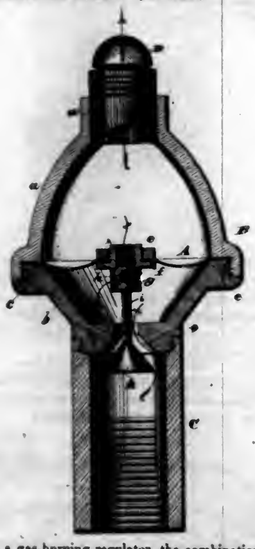
316,625. GAS-REGULATOR. JAMES HUNTER, Pittsburg, Pa., assignor of one-half to William D. Hartupee, same place. Filed Jan. 22, 1885. (No model.)



Claim.—1. A valve for opening and closing the gas-supply pipe of a regulator-tank, the stem of the valve being threaded so as to be capable of being moved toward and away from its seat without rotation by means of gearing driven by motion of the gas-regulator tank, in combination with a non-rotatory yoke or frame, within which said stem is mounted to prevent rotation thereof, substantially as and for the purposes described.

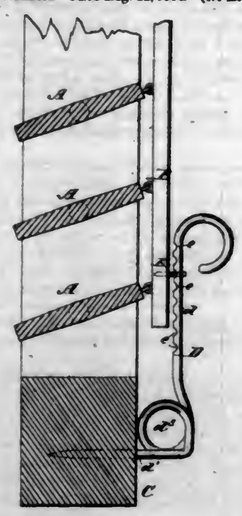
2. The combination of the regulator-tank A with the rack H, movable by the rise and fall of the tank, the pinion F', rotatory by the action of said rack, and a valve the stem of which is capable of being moved by said pinion without rotation, substantially as and for the purposes described.

316,626. GAS-REGULATING BURNER. WALTER M. JACKSON, Providence, R. I. Filed Mar. 27, 1884. (No model.)



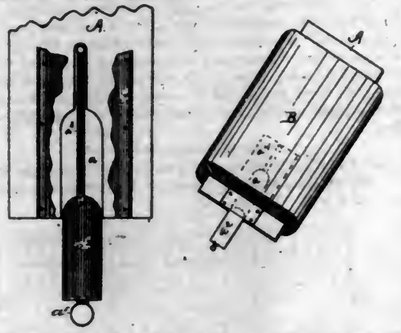
Claim.—In a gas-burning regulator, the combination, with a shell provided with a gas-tip, of a flexible diaphragm dividing the shell into upper and lower gas-chambers, a valve connected with the diaphragm and adapted to regulate the passage of gas into the lower gas-chamber, the valve-stem connection being provided with an opening or openings of less capacity than the gas-exit opening in the tip of the burner for regulating the position of the valve by the differential pressures of gas in the two gas-chambers, substantially as set forth.

316,627. WINDOW-BLIND-SLAT HOLDER. WILLIAM JENSEN, Victoria, British Columbia. Filed Aug. 22, 1884. (No model.)



Claim.—In a blind-stop, the holder D, formed with the spring-arm *d*, having a series of notches, *e*, the coil d^3, and with the spike d^4, in combination with the stop E, whereby, when the holder is applied to the lower part of the blind and the stop E to the slat-rail, the notches of the holder can engage with the stop to hold the slats in any desired position, substantially as herein shown and described.

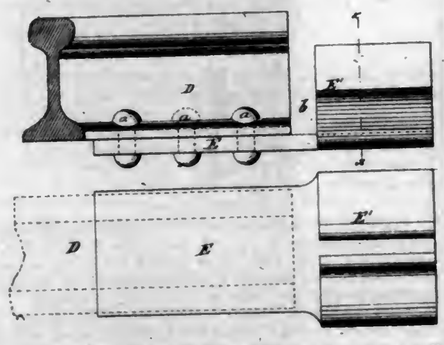
316,628. ADJUSTABLE TAG. JOHN W. JONES, Utica, N. Y. Filed Dec. 24, 1884. (No model.)



Claim.—The cloth-board A, recessed, as described, to accommodate the tag, and provided with a cover, as a^4, in combination with tag a^2, spring a^3, and tab a^5, substantially as described.

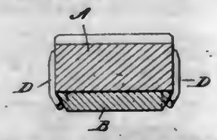
316,629. PORTABLE RAILWAY AND TRAMWAY. JAMES KERR, London, England. Filed Nov. 11, 1884. (No model.) Patented in France Apr. 30, 1884, No. 161,325; in Belgium May 1, 1884, No. 65,008, and in India May 1, 1884.

Brief.—A clamp for the ends of the rails of a portable railway, consisting of a plate portion bolted to the flanges of the end of one rail-section and a socket portion holding the end of the adjoining rail-section, and at such distance from the flat portion as to leave a space between the socket and the end of the fixed rail-section.



Claim.—The combination, with a rail-section, D, of a socket, E', having a projecting arm or portion, E, which is secured to the base of the rail-section, the socket being arranged entirely beyond the end of the rail-section, so as to maintain between the socket and rail-section a space, *b*, substantially as and for the purpose herein described.

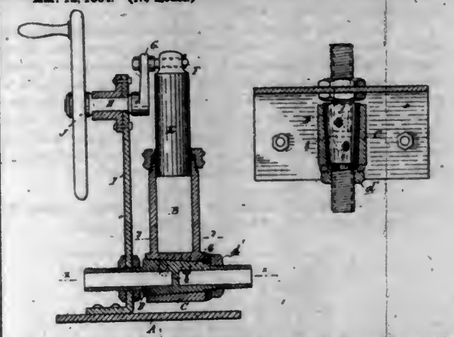
316,630. BRAKE-SHOE CLAMP. LEANDER KING, Georgetown, Ohio. Filed Sept. 6, 1884. (No model.)



Claim.—1. The combination, with a brake-block, of the clamps C D, of which the latter at the bottom of the block have inwardly-projecting flanges E, substantially as herein shown and described.

2. The combination, with the brake-block A, of the clamps C D, of which the latter at the bottom of the block have flanges E, and of the brake-shoe B, having beveled side edges provided with offsets or shoulders F at the bottom, substantially as herein shown and described.

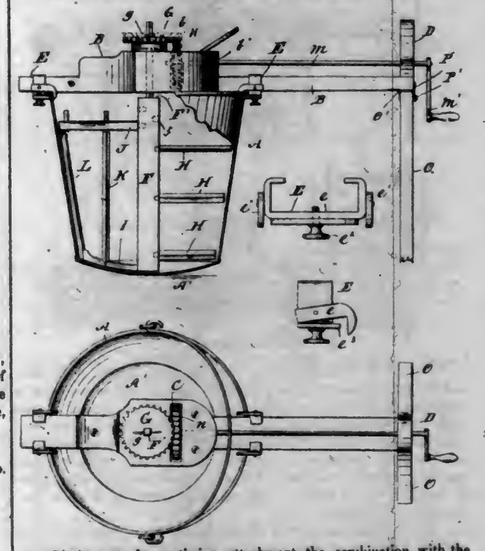
316,631. PUMP. GEORGE LEHARDY, Detroit, Mich., assignor of five-eighths to Samuel G. Kinney and Albert E. Pepper, same place. Filed Mar. 12, 1884. (No model.)



Claim.—1. An oscillating pump, the lower end of which is provided with a conically-bored hub, which has ports *c d* formed therein upon opposite sides of a central cross-line of the cylinder, and upon opposite sides of a plane passed through its axial line of oscillation, in combination with a hollow trunnion, conical upon a portion of its surface to engage with the conical bore of the hub, and in which there is a central cross-division wall, with the ports *e f*, one on each side of the wall, each having its major diameter in line with the bore of the trunnion, and arranged on either side of said plane diagonally opposite to the ports *c d*, substantially as shown, and for the purposes specified.

2. The combination, in an oscillating pump, of the cylinder B, provided with a hub, C, standard I, hollow trunnion D, having one end screwed into said standard and the other screw-threaded and provided with a nut for forcing said hub onto the trunnion as it becomes worn, piston E, wrist-pin F, crank G, shaft H, having a bearing in said standard, and means for driving said shaft, the parts being constructed, arranged, and operating substantially as and for the purposes described.

316,632. FRUIT-BUTTER STIRRER. JOSIAH P. LUCAS and JOHN M. LUCAS, Cadiz, Ohio. Filed Feb. 26, 1885. (No model.)



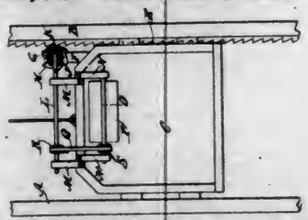
Claim.—1. In a stirring attachment, the combination, with the bearing-bar, of the pail-clamps having arms embracing the bearing-bar and adjustable longitudinally thereon, whereby the attachment may be adjusted to different-sized pails, and clamps whereby said pail-clamps may be secured at any desired point, substantially as set forth.

2. The combination of the bearing-bar provided near one end with a thickened portion, B', a vertical bearing formed through the part B', a horizontal bearing formed in said part B' and terminating in a mortise, C, formed in the upper side of the part B', a stirrer journaled in the vertical bearing and provided with a gear-wheel, a drive-shaft journaled in the horizontal bearings and having a gear-wheel meshed with the gear on the stirrer and located within the mortise C, an upright, D, mounted

on the outer end of the bearing-bar and provided with a bearing for the drive-shaft, a leg, O, pivoted to the bearing-bar, a latch by which to secure the said leg, and clamps adjustable on the bearing-bar, substantially as and for the purposes set forth.

3. The stirring attachment herein described, consisting of the bearing-bar provided with a vertical and horizontal bearing, the stirring-frame having its shaft journaled in the vertical bearing and provided with a gear-pinion, the horizontal shaft journaled on the bearing-bar and provided in its inner end with a gear meshed with the gear of the stirrer, a supporting-leg hinged to the outer end of the bearing-bar, a latch whereby to hold said leg at right angles to the bearing-bar, and clamps secured and adjustable on the bearing-bar, whereby to fit and clamp the device to various-sized vessels, substantially as set forth.

316,633. FAN ATTACHMENT FOR ELEVATORS. RICHARD MARSHALL, Brooklyn, N.Y. Filed Mar. 19, 1885. (No model.)



Claim.—1. The combination, with an elevator-cage, of a fan attached to the cage and connected with gearing, substantially as described, for revolving the fan as the cage is raised and lowered in the elevator-well, as set forth.

2. The fan P, journaled in the cage, in combination with shaft L, belt Q, and pulleys R S, and gear-wheels H, J, and K, the wheel H being arranged to run in contact with the rack E, substantially as and for the purposes set forth.

316,634. CIRCULAR SAWING MACHINE. WILLIAM MERRILL, East Saginaw, Mich., assignor of one-half to Sylvanis S. Mitts, same place. Filed Apr. 22, 1884. (No model.)

Claim.—1. The combination, with the frame supporting the saws, and the table B and frame supporting the same above the saw-supporting frame, of the transverse shaft arranged at the inner end of the said table, with its bearings in the said saw-supporting frame, and carrying a fixed miter-gear engaging a similar gear on a shaft of the adjacent table, and the arms connecting the table B with the said transverse shaft, whereby a hinge-joint is formed between the said shaft and table, whereby the latter can be raised for the removal of saws from the arbor, substantially as specified.

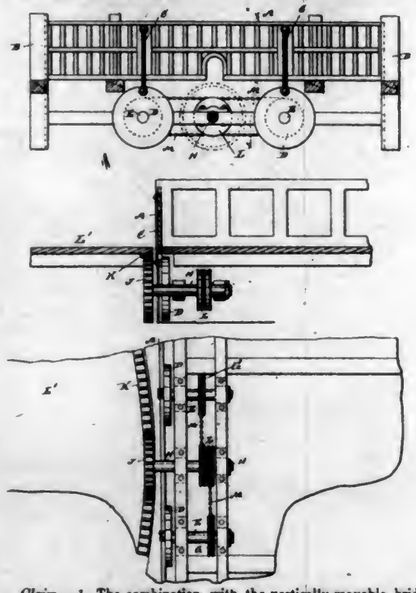
2. The combination, with the frame supporting the saws, and the table B and frame supporting the same above the saw-supporting frame, of the transverse shaft arranged at the inner end of the said table, with its bearings in the said saw-supporting frame, and provided with chain-wheels for receiving endless feed chains or belts, and adapted to serve the additional function of a hinge for the said table, whereby the same may be raised at one end in removing the saws from the arbor beneath, substantially as specified.

3. In a machine for sawing sticks of particular dimensions, the combination, with the tables B and P, of the transverse shafts arranged at opposite ends thereof, and provided with chain-wheels, the endless chains R' and G', passing over the said chain-wheels, the miter-gears *g* and *h*, fixed to the transverse shafts S and D', and engaging each other, the saws, means for operating the same, and means for operating the feed-chains, substantially as set forth.

4. In a machine for sawing sticks of particular dimensions, the combination of the frame A, transverse shafts I and D', the shaft D, having the fixed miter-gear *g*, the shaft S, having the engaging fixed miter-gear *h*, and the shafts respectively having fixed chain-wheels, as shown, the feed-chains passing over the wheels of the said transverse shafts, the shaft N, carrying the pinion M, the saws, arranged as described, and means for operating the said saws and shafts, substantially as specified.

5. A machine for sawing sticks of particular dimensions, consisting of two tables arranged at right angles to each other, and respectively provided with stock-feeding endless chains or belts having lugs fixed at the same distance apart with relation to each other, the chains of both tables being driven by the same gearing and rate of speed, and one of the tables having saws for cutting the sticks longitudinally, and the other table saws for cutting them transversely, substantially as specified.

316,635. AUTOMATIC DRAW-BRIDGE GATE. FREDERICK W. MEUER, Bay City, Mich., assignor to himself and Charles Hahn, same place. Filed Jan. 6, 1885. (No model.)



Claim.—1. The combination, with the vertically-movable bridge-gate, of rods connecting the gate with wheels below the bridge-floor, a segmental rack on the under side of the draw, and a wheel operated from the said rack and connected by suitable mechanism with the wheels for moving the gate, substantially as herein shown and described.

2. The combination, with a vertically-movable bridge-gate, of wheels arranged below the bridge-floor and connected by rods with the gate, a rack on the under side of the draw at the end of same, a cog-wheel on a shaft below the bridge-floor, and of chains for operating the wheels connected with the gate from the shaft carrying the cog-wheel, substantially as herein shown and described.

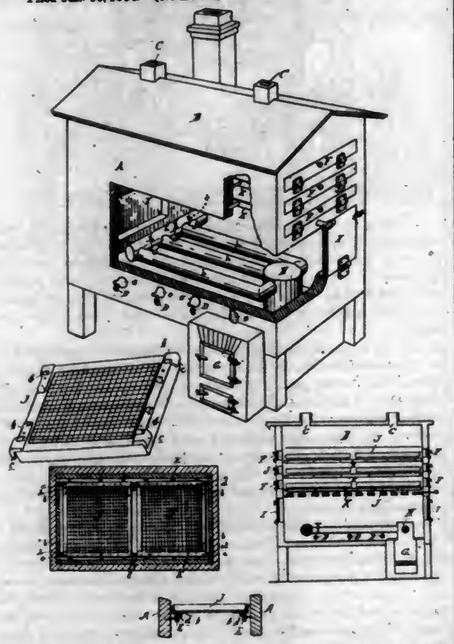
3. The combination, with the vertically-sliding gate A, of the wheels D on the shafts E, the grooved wheels G on the shafts E, the shaft H, the grooved wheels L on the shaft H, the endless chains M, the cog-wheel J on the shaft H, the rack K on the draw L', and of the rods C, connecting the gate A with the wheels D, substantially as herein shown and described.

316,636. INHALER OR RESPIRATOR. JOHN A. MILES, Charleston, S.C. Filed June 5, 1884. (No model.)



Claim.—A mouth-piece for an inhaler or respirator, having a central opening, a stem for attachment of a tube, and an elongated rim curved to conform to the gums and adapted to rest between the lips and gums, whereby the lips are exposed during the administration of the anæsthetic, substantially as set forth.

316,637. FRUIT-DRIER. SAMUEL L. MILLER, Washington, Mich., assignor to William W. Vaughan and Byron Norton, both of same place. Filed Jan. 16, 1884. (No model.)



Claim.—1. In combination with a fruit-drying chamber provided with tracks, screens provided with castings uniting the end and side bars, and upon which there are formed downwardly-projecting flanges *d* and turned-up offsets *c*, substantially as and for the purposes described.

2. In combination with a drying-chamber, A, and means for heating the same, the furnace G, located at one end thereof, the drum H, closed at the top and provided with lateral pipes *h*, terminating at the end opposite the drum in a cross-pipe, *h'*, each of the pipes *h* being provided with a damper, *i*, substantially as herein shown, and for the purposes described.

3. A fruit-drying chamber provided with adjustable means for admitting cold air near the bottom below the heating-pipes thereof, a perforated diaphragm between said heating-pipes and the drying-chamber, and a sliding damper constructed and arranged to close and disclose the openings in said diaphragm, substantially as and for the purposes described.

316,638. PILL-COUNTER. DAVID B. MOORE, St. Louis, Mo., assignor to himself and Gustavo J. Meyer, same place. Filed May 23, 1884. (No model.)

Claim.—1. In a pill-counter, the combination, with the perforated strip A, of the trough C, suspended from the same and adapted to serve both as a bottom and discharge-spout, as set forth.

2. In a pill-counter, the perforated strip A, having its end beveled and provided with the handle B, in combination with the sliding cover D, substantially as herein shown and described.

3. The combination, with the strip A, provided with a series of pill-counting holes, *a*, of the numbered plates *h*, as specified.

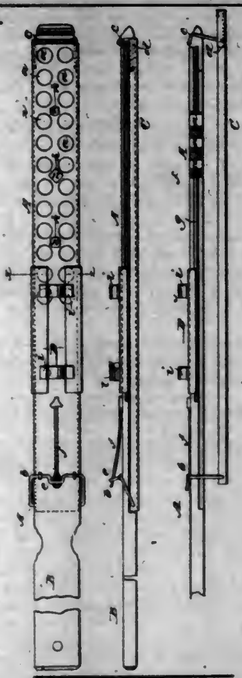
4. The combination, in a pill-counter, of the strip A, provided with holes *a*, the swinging spring-acted trough C, and a sliding cover, D, as specified.

5. The combination, in a pill-counter, of a strip, A, provided with a handle, B, a trough, C, stirrups *b c*, and spring *f*, as specified.

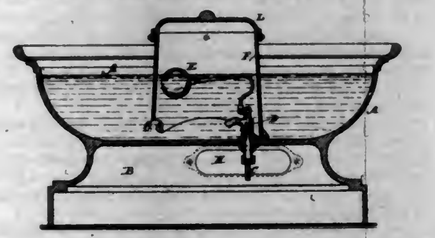
6. The combination, in a pill-counter, of the perforated strip A, provided with a handle, B, the trough C, stirrups *b c*, spring *f*, and sliding cover D, as described.



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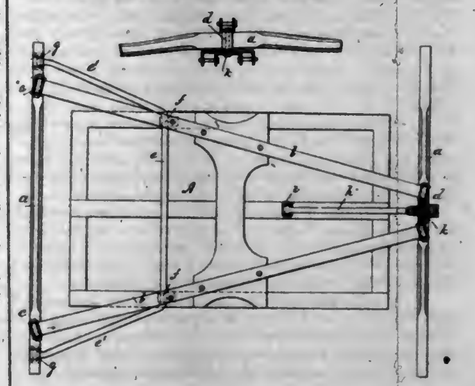


316,639. DRINKING-TROUGH FOR ANIMALS. JONATHAN MOORE, Brooklyn, N. Y. Filed Dec. 10, 1884. (No model.)



Claim.—The metallic basin forming a horse-trough, and a supply water-pipe, cock, and float near the middle thereof, in combination with a separate case open at the bottom and notched at one side and surrounding the cock and float, and a removable cover for the case, substantially as set forth.

316,640. SPRING-GEAR FOR VEHICLES. BENJAMIN P. MORRISON, Marion, Va. Filed Oct. 9, 1884. (No model.)



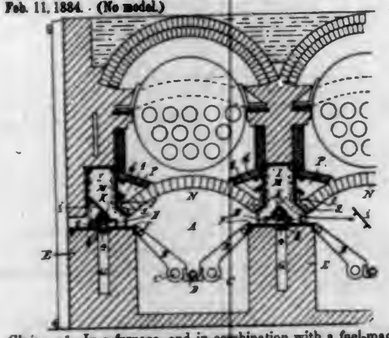
316,640.



Claim.—1. In a vehicle, the body A, axles *a a*, springs *b*, secured to the under side of the body at its middle and converging at their forward ends, the loop *d*, embracing the central part of the front axle and provided with a pair of shackles on one face, to which the converging ends of the springs are jointed, and a single shackle on the opposite face, as shown, shackles *c* on the rear axle, to which the diverging ends of the springs *b* are jointed, the rod *e*, journaled in bearings on the under side of the wagon-body, in rear of its center, and provided with bent ends *e'*, pivotally connected to the rear axle outside of the springs *b*, and the rod h, jointed at its rear end to the body in front of its center, and at its forward end in the single shackle of the loop *d*, substantially as set forth.

2. In a vehicle-spring of the character described, the loop *d*, provided on its under face with two shackles and on its upper face with a single shackle, substantially as shown and described.

316,641. BOILER-FURNACE. THOMAS MURPHY, Detroit, Mich. Filed Feb. 11, 1884. (No model.)



Claim.—1. In a furnace, and in combination with a fuel-magazine arranged in the side walls of the furnace, removable division-plates for the discharge-openings of said magazine, whereby the magazine may be cut off from the furnace for which it may be arranged to feed, substantially as described.

2. In a furnace, the combination of the fuel-magazine M, dust-pit G, dead-plate F, extending on either side of the dust-pit, and having a longitudinal aperture over the same, cross-bars *b*, connected with the opposite sides of said plate, rock-shaft *b'*, supported by said bars, and the reciprocating pusher H, and the parts being arranged substantially as and for the purposes specified.

3. In a furnace, and in combination with the grate-bar shakers and feeding devices thereof, a traversing reciprocating bar extending horizontally between and connected to said grate-bar shakers and feeding devices, whereby said shaking and feeding devices may be operated simultaneously by direct connection with said bar, as set forth.

4. In combination with inversely-operating feeding and shaking devices of a furnace, a reciprocating bar extending along the front side of the furnace, and connected with and imparting motion to said devices substantially as described, whereby the resistance to the movement of said bar is nearly uniform, as and for the purposes specified.

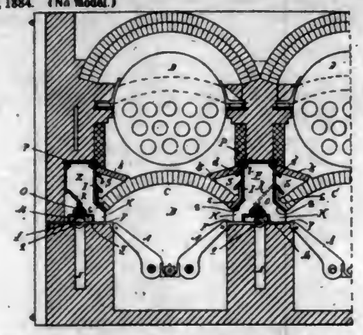
5. In a furnace, the combination, with the feeding devices thereof, of the mechanically-operated arm R, connected with rock-shaft, which forms the actuating device for the feeding mechanism, and having the lug *l*, adapted to receive a wrench, whereby the feeding devices may be operated by hand when said bars are detached, substantially as described.

6. In a furnace, and in combination with a reciprocating traversing bar operating mechanically the feeding and shaking devices of a grate or grates, gear-wheel *n*, and endless screw *o*, forming intervening devices between the motor and the traversing bar for the purpose of forming a locking device, substantially as and for the purpose described.

7. In a furnace or battery of furnaces, each provided with two mechanically-operated feeding and shaking devices for the grates, a single actuating motor, in combination with inversely-operating feeding and shaking devices for each grate, whereby a more uniform equilibrium in the driving-power is obtained, substantially as described.

8. In combination with the feeding and shaking devices of the grates of a furnace or battery of furnaces which are all connected and driven by one single motor and form a nearly-uniform load, a speed-governor, as described, attached to said motor and forming the means for altering the speed in a desired ratio, substantially as described.

316,642. FURNACE. THOMAS MURPHY, Detroit, Mich. Filed Sept. 10, 1884. (No model.)



Claim.—1. In a furnace, the combination of the fire-arch C, forming the top of the combustion-chamber, with the air-heating chambers S, formed by the arch, the side walls of the fuel-magazine, and a top supported by said arch and side walls, the said chamber being provided with air-inlet flues T, the parts being constructed and arranged to leave the central portion of the fire-arch unobstructed, substantially as described.

2. In a furnace, the combination of the fire-arch C, forming the top of the combustion-chamber, of the coking-plate upon which the fuel is coked along the sides of the combustion-chamber before being fed upon the grates, of the air-heating chambers S, formed by the fire-arch, side walls of the furnace, and a top supported by abutments on the arch and walls of the furnace, said chambers being arranged in the angles between the side walls of the furnace and the fire-arch and provided with air-inlet flues T, and of the ribbed arch-plate I, forming air-outlets on the abutments of the fire-arch, all constructed and arranged substantially as described.

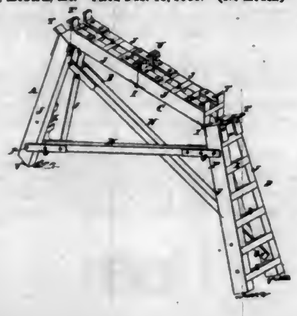
3. In a furnace, the combination of a fire-arch forming the top of the combustion-chamber, of two coking-plates arranged along the sides of the combustion-chamber and upon which the fuel is coked before it is fed upon the grates, and of two air-heating chambers located in the angles between the fire-arch and the side walls of the furnace, whereby said space is profitably utilized to heat the required amount of air to the necessary degree for smokeless combustion and without intercepting the radiant heat from the central portion of the fire-arch, substantially as described.

4. In a furnace, and in combination with fuel-magazines built within the side walls thereof and in proximity to the combustion-chamber, air-heating chambers placed contiguous to and running parallel with the magazines, so that the exposed sides of the latter are brought in contact with the air in the chambers, the air being introduced into these chambers at a comparatively low temperature through direct connection with the outer air, substantially as described.

5. In a furnace, substantially as described, and in combination with the air-heating chamber S, the arch-plate I, having lateral flange *b*, projecting within the air-heating chamber, substantially as and for the purposes described.

6. In a furnace, the fuel-magazine E, located within the side walls of the combustion-chamber and consisting of the combination of the arch-plates I, provided with abutments *a d*, coking-plate C, standards G G', and top plate, P, all combined, substantially as described, to form a girder adapted to support the superincumbent weight of the side walls of a furnace and of the fire-arch and the walls of the air-heating chamber, substantially as described.

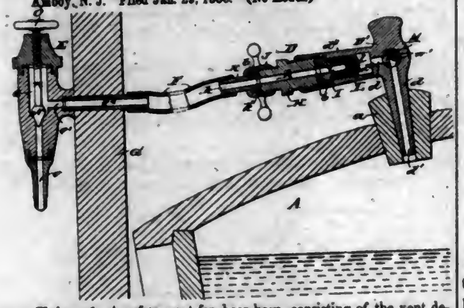
316,643. COMBINED SCAFFOLD AND LADDER. FREDRICK W. NIEHAUS, McGirk, Mo. Filed Feb. 13, 1885. (No model.)



Claim.—1. The combination of three or more sections hinged together end to end and provided on the side opposite to said hinges with lugs projecting therefrom, substantially in the manner and for the purpose set forth.

2. The combination of three or more sections hinged together end to end and adapted to form a skid and scaffold, said sections being provided at their meeting ends with lugs T T, which project therefrom, substantially in the manner and for the purpose set forth.

316,644. SAFETY-VENT FOR BEER-KEGS. NIELS OLSON, Perth Amboy, N. J. Filed Jan. 29, 1885. (No model.)



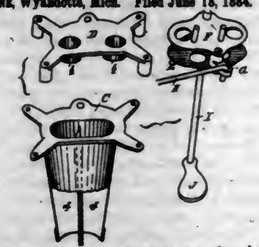
Claim.—1. A safety-vent for beer-kegs, consisting of the vent devices D E and an air-pipe, F, said vent device E having a valve to admit air to pipe F and the vent device D made with a case, D', having passage *d''* and chamber *d²*, and provided with a valve, I, and a retaining-plug, H, apertured at *h*, and said valve I having a sinuous air-passage, *i i' i² i³*, and the elastic nipple L, provided with an end slit, *l*, and the detachable coupling J, substantially as herein set forth.

2. In safety-vents for beer-kegs, the vent device D, made with air-passages *d'' m'*, a valve-plug, M, provided with a passage, *m*, a valve, I, provided with a sinuous air-passage, and an elastic nipple having an end slit, *l*, and a plug, H, holding valve I in place, and adapted to receive the air-pipe coupling, substantially as herein set forth.

3. In safety-vents for beer-kegs, the valve I of vent device D, made with a sinuous air-passage, *i i' i² i³*, and with an elastic nipple, L, having an end slit, *l*, substantially as herein set forth.

4. In safety-vents for beer-kegs, the valve I of vent device D, made with a sinuous air-passage, *i i' i² i³*, and with an elastic nipple, L, having an end slit, *l*, which is set out of line with the apertures *i³*, so that the slit shall close against the solid part of the end of the valve, substantially as herein set forth.

316,645. FERTILIZING ATTACHMENT FOR CORN-PLANTERS. GEORGE S. PAINE, Wyandotte, Mich. Filed June 18, 1884. (No model.)



Claim.—1. In combination with the hopper A and spout B, the feed-thimbles *b* and simultaneously-moving valve-plates E and F, arranged one above and the other below said thimbles, substantially as described.

2. The combination of the hopper A, spout B, simultaneously-moving valve-plates E and F, rock-shaft I, connected with and operated by said valve-plates, and the gate J, carried by said rock shaft, all constructed, arranged, and operating substantially in the manner and for the purposes specified.

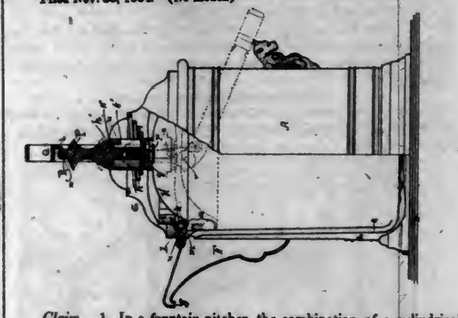
3. The combination of the hopper A, double spout B, having a fixed division, spiders C D, operating-arm G, valve-plates E F, attached thereto, rod H, rock-shaft I, and gate J, when constructed, combined, and operating substantially in the manner and for the purposes specified.

4. In combination with the hopper A and spout B, the spider D, provided with thimbles *b* and the simultaneously-moving valves E F, one arranged above and the other below said spider, substantially as described.

5. The combination, with the hopper A and the spout B, having spider C, of the spider D, having thimbles *b*, the valve E below said thimble, and the valve F above the spider D, and the arm G, connecting the two spiders C D, substantially as described.

6. The combination, with the hopper A, spout B, spiders C D, and the operating-arm G, of the valves E F, attached to said arm G and moving together, and the stirring-bars *e*, carried by the valve F, substantially as and for the purposes specified.

316,646. FOUNTAIN-PITCHER. WILLIAM PAINTER, Baltimore, Md. Filed Nov. 25, 1884. (No model.)



Claim.—1. In a fountain-pitcher, the combination of a cylindrical receptacle, a piston working air-tight therein for compressing the air in the cylinder, and an elevated duct through which the contents of the pitcher are discharged, substantially as described.

2. In a fountain-pitcher, the combination of a cylinder, a piston supported normally above said cylinder but capable of movement down into it, and an inclosing casing or guide for sustaining said piston central with the cylinder, substantially as described.

3. In a fountain-pitcher, a cylinder, a piston adapted to work air-tight therein, and a retracting-spring for withdrawing said piston from the cylinder, substantially as described.

4. In a fountain-pitcher, a cylinder and a piston cylindrical for a portion of its length, and having a recess, as described, in combination with an elastic packing-ring resting normally in said recess, whereby the ring is relieved from pressure when not in action, substantially as described.

5. The recessed piston and elastic packing-ring, combined with a stationary recessed cover, whereby upon the receding of the piston within the cover the said packing-ring is forced to return to its seat in the recess of said piston, substantially as and for the purposes set forth.

6. The piston, with its packing-ring, substantially as described, in combination with a valve for admitting air beneath said piston, as set forth, and an inclosing-case to support said piston and valve.

7. A double-walled piston, in combination with an inclosure for supporting and a spring for retracting the same, substantially as described.

8. In combination with the piston, recess, and packing-ring, the lip or flange adjacent to said recess, whereby the ring is prevented from becoming displaced from the piston, and at the same time said ring is concealed from view, substantially as set forth.

9. A cylindrical vessel, a cover for the same having within it a piston whose normal position is above the top of said cylinder, and a spindle for operating said piston, combined with a lever adapted to depress the spindle and piston, substantially as set forth.

10. A cylindrical vessel provided with a piston and a spindle extending therefrom, combined with a bail and a yoke which engages with said spindle, whereby when the bail is caused to swing upon its pivots the piston will be depressed, substantially as and for the purpose set forth.

11. A cylindrical vessel provided with a piston, retracting-spring, and spindle, in combination with a bail pivoted to said vessel, and a yoke pivoted to said bail and engaging with the piston and spindle, substantially as described, whereby the piston is depressed, and on releasing the bail the spring causes said bail to return to a vertical position, as set forth.

12. In a fountain-pitcher provided with an air-compressing device, a bail pivoted to said pitcher and connected with the air-compressing device, whereby the movement of the bail on its pivots actuates said air-compressing device and discharges the contents of the pitcher, substantially as set forth.

13. A fountain-pitcher provided with an air-compressing device, in combination with a lever for actuating said air-compressing device, said lever being adapted as a handle for carrying the pitcher, substantially as described.

14. A fountain-pitcher having a cover and an air-compressing device inclosed therein, in combination with a lever pivoted to said pitcher, and connected with the air-compressing device and adapted to retain the cover in place on the pitcher, substantially as described.

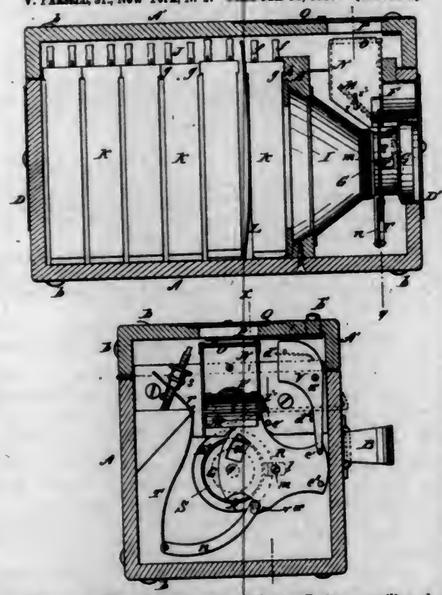
15. The piston, the cover inclosing the same, and the guiding-tube attached to said cover, in combination with the spindle having its bearing entirely within said guiding-tube, whereby the wearing-surface is concealed, substantially as described.

16. The retracting-spring, spindle, yoke, and bail pivoted out of line, as described, in combination with a stop attached to said bail for limiting its movement by contact with the yoke, whereby the yoke and bail are held by the action of the spring in line with each other and in vertical position, substantially as described.

17. In combination with the bail, yoke, spindle, and retracting-spring, the retaining notch or recess in said yoke for engagement with the spindle, as and for the purposes described.

18. The discharge-aperture in the form of a narrow slit, whose sides approach so near that the residual drops of liquid will be retained therein by capillary attraction and dripping prevented, substantially as set forth.

316,647. PHOTOGRAPHIC CAMERA. HENRY V. PARSELL and HENRY V. PARSELL, Jr., New York, N. Y. Filed Jan. 31, 1885. (No model.)



Claim.—1. The swinging apertured shutter R for controlling the main lens-tube, in combination with the link *n*, the spring T, and the trigger V, arranged for operation in connection with duplicate stops c' c^3 on the shutter, for giving a "time" or an instantaneous exposure of the sensitive plate, as desired, substantially as described.

2. The combination, with the swinging shutter that controls the main lens-tube, of the spring T, for actuating the shutter, the intermediate fulcrum, *r*, to said spring, and the tension-regulating nut *s*, arranged to bear on or against a backward extension of the spring, substantially as described.

3. The combination of the spring-button b', the trigger V, and the spring-actuated shutter R, having duplicate stops c' c^3, essentially as described.

4. In the finder of a photographic camera, the adjustable reflector M, pivoted intermediately at its height to vary its angle relatively to the tube and ground glass of the finder, and whereby said reflector is or may be balanced and be restrained from shifting or dropping by gravity, and be more readily adjusted, substantially as specified.

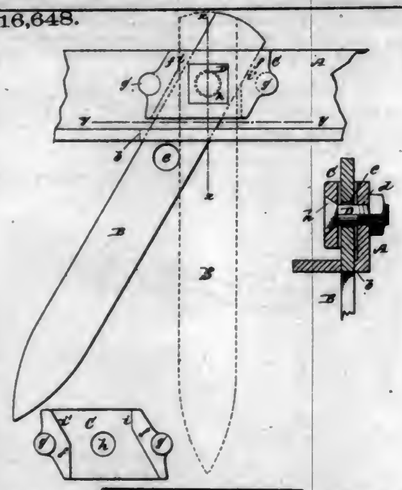
5. In combination with the box N of the finder, its ground glass O, lid or slide Q, and tube F, the angularly-adjustable mirror M, provided with a pivot, *i*, constructed to form a spring for holding said mirror when adjusted, essentially as described.

6. In a camera-box provided with a finder-tube, the pivoted and swinging cap D', arranged to control both the main lens-tube and finder-tube, essentially as described.

316,648. HARROW. ASAHEL H. PATCH, Clarksville, Texas. Filed Dec. 27, 1884. (No model.)

Claim.—In a harrow having teeth capable of adjustment into vertical and inclined or different positions, according to the direction in travel of the harrow, the combination, with the angle metal beam A, having a longitudinal slot, *b*, for each tooth, of the tooth B, provided with one or more upper apertures, *c*, the clamp C, constructed to form bearings for the swinging tooth to relieve it of working or lateral friction to its pivot, also provided with lugs *g g*, that engage with the beam, and the bolt D, substantially as specified.

316,648.



316,649. VELOCIPEDE. HERBERT J. PAUSEY and CHARLES T. CROWDEN, Clapham, County of Surrey, England. Filed Jan. 10, 1885. (No model.) Patented in England Sept. 6, 1884, No. 12,064.



Claim.—1. A one-track velocipede adapted for two tandem riders, and having a center driving-wheel, *a*, a front steering-wheel, *b*, and a trailing wheel, *c*, the pin or spindle for the driving-wheel *a* being mounted in two forks, *d* and *p*, which are free to turn or pivot independently of each other, the fork *d* forming part of the front framing consisting of the upright member *l*, which receives the adjustable front seat-bar or pillar, *k*, of the descending member *m*, which carries the bearing for the low or safety front crank and pedals, and driving-gear which transmits motion to the driving-wheel *a*, and of the backbone *e*, the neck e^3 of which is pivoted to the fork *f*, which carries the front steering-wheel, *b*, and the adjustable steering-handle *h*, the center line through the pivoting bolt or centers falling behind the center of the steering-wheel *b*, and the aforesaid fork *p* forming part of the back framing consisting of the upright member *q*, which receives the adjustable steadying-handle h' for the hind rider, and of the descending member q', which carries the bearing for the low or safety rear crank and pedals, and driving-gear which transmits motion to the driving-wheel *a*, the said member *q* having pivoted to it the backbone *s*, with adjustable seat-bar k', and the fork for the trailing wheel *c*, tooth-wheel or other gear being provided for transmitting the motion from the front crank and from the rear crank to the driving-wheel, all substantially as set forth.

2. In a one-track velocipede, the frame *e l m d*, provided with the adjustable seat-bar *k*, crank-bearing with low or safety crank and pedals, and pivot e^3, in combination with the fork *f*, pivoted thereto, and adapted to receive front steering-wheel having its center in advance of the center line through the pivot e^3, and adapted to receive an adjustable handle, *h*, the part *d* of the frame being forked and adapted to receive the main or driving wheel spindle, and in combination with driving-gear for transmitting the motion from the crank to the driving-wheel, substantially as set forth.

3. In a one-track velocipede, the frame *q q'*, provided with the adjustable handle h', crank-bearing with low or safety crank and pedals, and pivot s^3, in combination with the fork *p*, connecting the frame *q q'* to the axle of the driving-wheel, the backbone *s* and adjustable seat-bar k', the fork and trailing wheel, and driving-gear for transmitting the motion from the crank to the driving-wheel, substantially as set forth.

4. In a one-track velocipede, the frame *e l m*, provided with crank-bearing with low or safety crank and pedals, in combination with the bevel-wheel n^3 on said crank, and with the bevel-wheel n^3, spindle c^3, and bevel-wheel o^3, which gears with a bevel-wheel, o^3, on the driving-wheel, and with the box or boxes m^3 o^3 m^3, inclosing said gear, substantially as set forth.

316,650. SCREW OR DRIVE HOOK. WILLIAM C. PERKINS, Worcester, Mass., assignor to the Wire Goods Company, same place. Filed Jan. 27, 1885. (No model.)



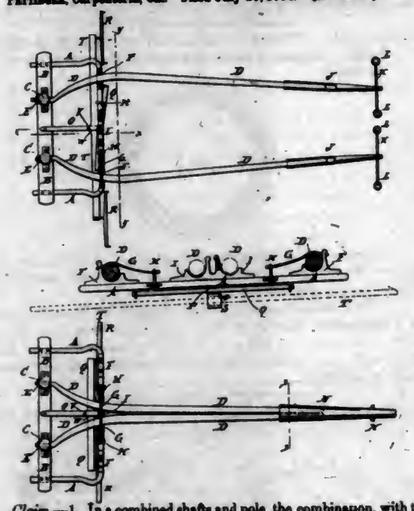
Claim.—1. In the art of making screw or drive hooks having a stop-ring or base thereon, the method of forming the screw or drive end and hook, as well as the stop-ring or base, all in one part from a single piece of wire or rod, substantially as shown and described.

2. The combination, with the screw or drive end and hook of a screw or drive hook made from a single piece of wire or rod, of a stop-ring or base made by raising or forcing up and compressing a portion of the surface of said wire or rod, substantially as shown and described.

3. The combination of a screw or drive hook made from a single piece of wire or rod with a stop-ring or base made by raising or forcing up and compressing a portion of the surface of said wire or rod, and one or more washers interposed between said stop-ring or base and the part to which the hook is attached, substantially as and for the purpose set forth.

4. The combination of a screw or drive hook made from a single piece of wire or rod and having a raised ring or base formed thereon, with one or more washers interposed between said ring or base and the part to which the hook is attached, substantially as and for the purpose set forth.

316,651. COMBINED SHAFTS AND POLE FOR VEHICLES. JOHN PETERSEN, Carpenteria, Cal. Filed July 25, 1884. (No model.)



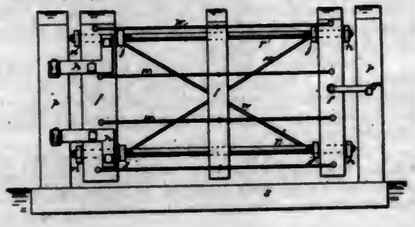
Claim.—1. In a combined shafts and pole, the combination, with the bent bar or hounds A, of the saddles F I F, the fastening springs and links G H, the cross-bar B, provided with the sockets C, and the pivoted shafts D, substantially as herein shown and described.

2. In a combined shafts and pole, the combination, with the bent bar or hounds A and the shafts D, of the cross-bar B, the saddles F I, and the sockets C, substantially as herein shown and described, whereby the said shafts can be turned into a central or a side position, as set forth.

3. In a combined shafts and pole, the combination, with the bent bar or hounds A and the pivoted shafts D, of the central double saddle, I, the side saddles, F F, and the fastening springs and links G H, substantially as herein shown and described, whereby the said shafts can be firmly secured in either position, as set forth.

4. In a combined shafts and pole, the combination, with the bent bar or hounds A and the cross-bar B, of the draw-bar O, provided with the socket S and the pins P V, substantially as herein shown and described, whereby a short double-tree, or both a short and a long double-tree, can be applied, according as two or three horses are to be used, as set forth.

316,652. GATE. JOSIAH PHILLIPPI, Bicknell, Ind. Filed May 23, 1884. (No model.)

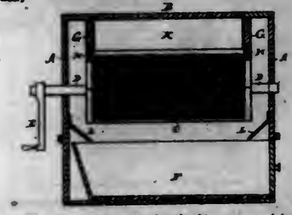


Claim.—1. In a gate, a series of uprights, *f*, connected by the transverse stay-rods *r*, whose ends are threaded to receive tightening-nuts *n* and inner jam-nuts, *j*, in combination with the L-shaped hinges *h*, substantially as described.

2. In a gate, the outer and central uprights, *f*, connected by stay-rods *r*, whose ends are threaded to receive tightening-nuts *n* and jam-nuts *j*, the fence-wires *w*, connecting the uprights on one or more sides, and the L-shaped hinges *h*, all combined substantially as described.

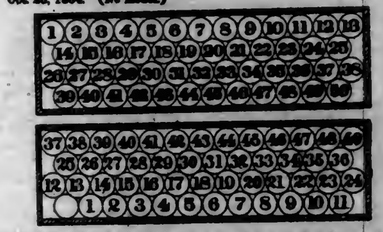
3. In a gate, the end and central uprights, *f*, connected by stay-rods *r*, whose ends are threaded to receive tightening-nuts *n* and jam-nuts *j*, the uprights further connected by means of fence-wires or boards on one or both sides of the uprights, the L-shaped hinges *h*, the outer posts, *p*, and sill *s*, all combined substantially as described.

316,653. ASH-SIFTER. SAMUEL J. PERRAMES, Philadelphia, Pa., assignor of one-half to CYRUS BOWMAN, same place. Filed Jan. 5, 1885. (No model.)



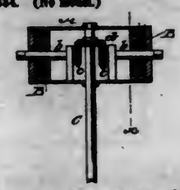
Claim.—The herein-described ash-sifter, comprising the box A, provided with the concaves G and wings K and L, the sieve C, having the door I and segmental projections H, and the drawer F, substantially as described.

316,654. BOX FOR CIGARS AND OTHER ARTICLES. EMANUEL PEKO, New York, N. Y., assignor to Soldenberg & Co., same place. Filed Oct. 28, 1884. (No model.)



Claim.—A box having two sets of consecutive figures in alignment, one set of figures being arranged in reverse order to the other set of figures, the aligned figures when added together always giving the full number of articles for which the box when full is adapted, as specified.

316,655. AUTOMATIC FAN. WALTER H. PETTMAN, Jersey City, N. J. Filed Nov. 18, 1884. (No model.)



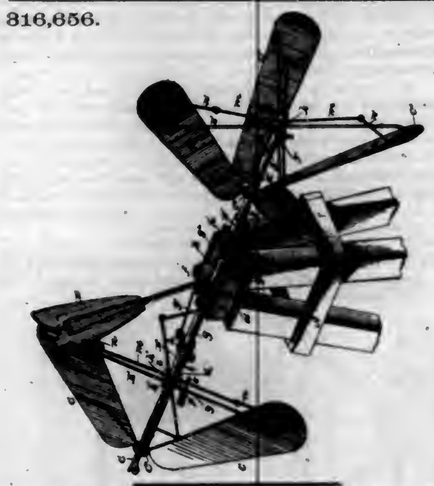
Claim.—1. In a rotary suspension-fan, the combination, with the suspension box or case A and fan-shaft C, of the duplicate springs B B' and the bevel-gears *c c* and *d*, essentially as shown and described.

2. The box A, the rotary shaft C, suspended therein, and the upper gear, *d*, on said shaft, and supporting the weight thereof, in combination with the spindles *b b*, springs B B, and the gears *c c*, meshing with the gear *d* on opposite sides of the vertical shaft C, substantially as set forth.

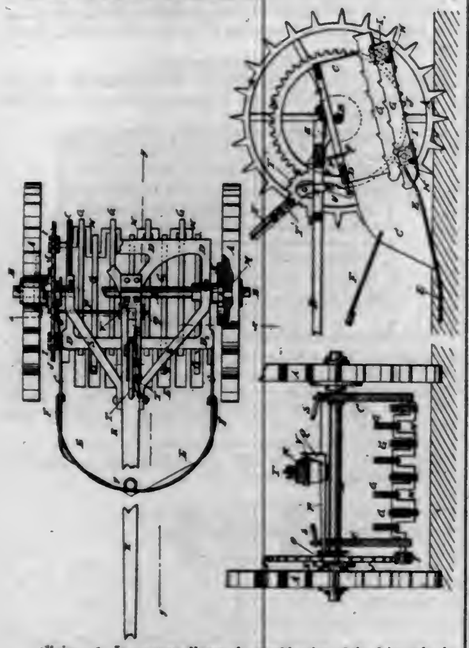
316,656. WIND-ENGINE. THOMAS D. POLLOCK, Duxbury, Nebr. Filed Nov. 3, 1883. (No model.)

Claim.—The combination, with the tower A, having the rotating boxing D, carrying the shaft B, having one wheel at one end and the other between the boxing and outer end, of the vertically-vibrating fan E, operated by crank *f*, having arms attached to sleeves F F', and arms G G', pivoted to the sleeves, and the hinged arms *p p'*, twisted around one of the rigid arms of each wheel, and having loops *s s'*, connected to one of the adjoining hinged arms of each wheel, as shown and described

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316,657. POTATO-DIGGER. BURTON D. PRESTON, Castalia, Ohio. Filed May 13, 1884. (No model.)



Claim.—1. In a potato-digger, the combination of the drive-wheels, axle B, and gear-wheel J, with the side plates, C, hung loosely on the axle B, frame D, connecting the upper edges of the side plates, slotted scoop E, the two crank-shafts H H, journaled in the lower edges of side plates, C, pinions I on said shafts meshing with wheel J, plates G, secured alternately to the opposite cranks of said shaft, tongue R, hinged at its rear end to the frame D, angle-lever T, and link U, connecting the frame D and tongue R, and lever P, mounted to slide in frame D in a plane at right angles with the tongue, and provided with a beveled extension, Q, extending upward to one side of the tongue and connected at its outer end with a clutch mechanism connecting the drive-shaft and gear J, whereby, when the forward end of the tongue is raised or the scoop elevated, the inclined extension Q will cause the lever P to operate the clutch mechanism to disengage the gear-wheel J from the drive-wheel, substantially as set forth.

2. The combination, with the drive-wheel A, provided with clutch-teeth L, of the axle B, gear-wheel J, mounted loosely thereon and provided with clutch-teeth K, frame D, side plates, C, plates G, crank-shaft H, pinion I on the same meshing with the gear-wheel J, tongue R, pivoted to frame D, spring O, secured at one end to frame D and engaging the gear-wheel J with its free end, bar P, secured rigidly at one end to the spring O and projecting at right angles thereto, beveled extension Q, projecting upon the side of the tongue opposite to wheel J, and an adjusting mechanism connecting the frame D and the tongue.

316,658. VIOLIN. JOSEPH PREISEL, Hirschberg, Germany. Filed Sept. 19, 1884. (No model.) Patented in Germany Aug. 7, 1881, No. 17,413, and in Austria-Hungary May 24, 1882, No. 5,129 and No. 20,195.



Claim.—In a violin or similar stringed instruments, the combination of the U-shaped case A, fitted into the neck B of the instrument, the pins *c*, with worm-wheels *b* fast on said pins *c* in the inside of the case A, the pegs *a*, provided with a screw-thread, and the strings S, substantially in the manner and for the purpose described.

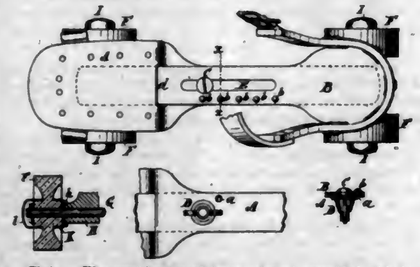
316,659. PROCESS OF EQUALIZING THE TENSION IN CIRCULAR SAWS. WILLIAM H. PRESSER, East Saginaw, Mich. Filed Oct. 10, 1884. (No model.)



Claim.—1. The herein-described process of stretching the central portions of a saw-blade by the application of heat to the outer ring portion of the saw, substantially as described.

2. The herein-described process of stretching the central portions of a circular-saw blade by creating a stretching force in the the saw-blade between its inner and outer portions by the application of friction to the outer ring portion, while the inner portion is kept cool, substantially as described.

316,660. ROLLER-SKATE. CADWALLADER M. RAYMOND, Boston, Mass. Filed July 30, 1884. (No model.)



Claim.—The combination of the toe-plate A, provided with the projection *a*, the slotted heel-plate B, provided with the depressions *b b*, and the clamping screw and nut C and D, the forward end of heel-plate B passing through a slot at the bent portion of the toe-plate A, substantially as set forth.

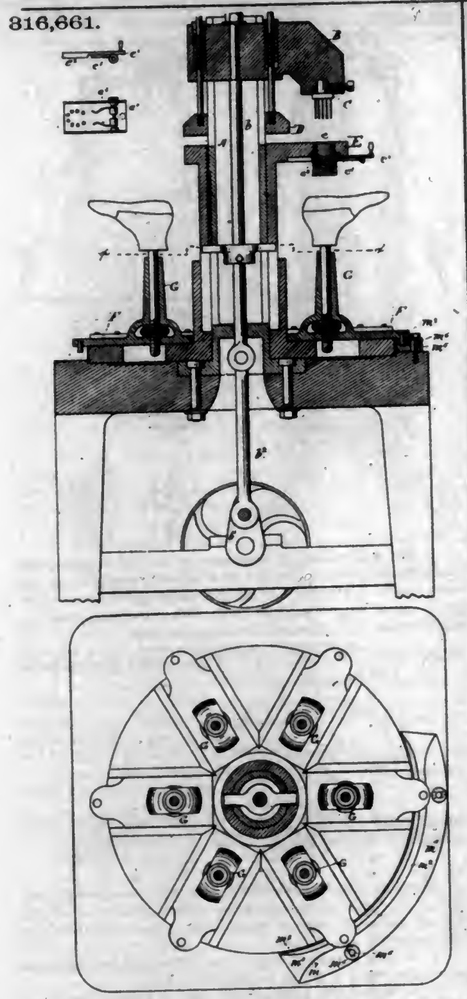
316,661. HEEL-NAILING MACHINE. FREEBORN P. RAYMOND, 2d, Newton, Mass. Filed Jan. 20, 1885. (No model.)

Claim.—1. The combination of two or more sliding jacks or heel-supports, mounted on a movable table and adapted to be brought successively into operative position, with a guide, substantially as specified, for automatically moving them in succession beneath the heel-attaching devices, all substantially as described.

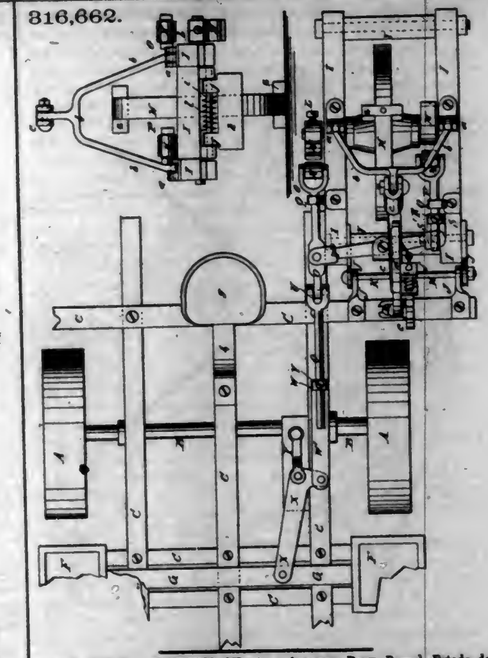
2. The combination, in a heel-attaching machine, of a pressure or templet plate, a reciprocating head carrying driving devices, and two or more automatically-operated radially-sliding jacks or work-supports adapted to be moved successively beneath the templet and driving devices, substantially as specified.

3. In a heel-nailing machine, a movable table carrying a series of jacks or work-supports adapted to be moved automatically into position, and mechanism, substantially as specified, for locking each of said jacks respectively in said position, substantially as described.

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4. In a heel-attaching machine, the guide having a flaring end, in combination with a series of jacks or work-supports, each carrying a pin on its end and adapted to be successively moved to said guide, substantially as described.

5. The combination of the central vertical column, A, with the revolving table F, arranged in relation to the column, as shown, and supporting two or more jacks or work-supports, the templet or pressure plate, the reciprocating head B, and a single gang or group of drivers carried thereby, all substantially as described.

316,662. CHECK-ROWING ATTACHMENT FOR CORN-PLANTERS. WILLIAM S. REEVE, Edwardsport, Ind. Filed Oct. 30, 1884. (No model.)

Claim.—1. A check-rowing attachment for corn-planters, constructed substantially as herein shown and described, and consisting of the frame I, the wheel H, having cams M, the unequal sliding rods O P, supported in bearings Q, the equal-armed lever T, connecting the said rods O P, the ends of said lever being connected, respectively, to one end of the rod P and to a point upon the rod O intermediate of its ends, and the elbow-lever X, pivoted to lug W', connected by a collar, W, to a jointed section or arm of the longer rod, as set forth.

2. The combination, with the planter-frame C and the seed-dropping slide G, of the frame I, the wheel H, the cams M, the unequal sliding rods O P, the equal-armed lever T, connecting the said rods, said lever having at one end arms embracing and pivoted to a lug, S', of a collar, S, adjustably connected to the rod P, and the elbow-lever X, pivoted to the longer rod, substantially as herein shown and described, whereby the said seed-dropping slide will be operated by the revolution of the said wheel, as set forth.

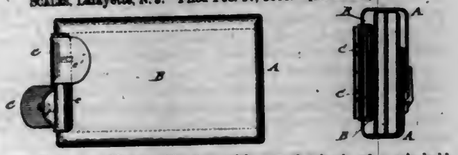
316,663. REFINING OIL, &c. ADOLPHE ROCK, Parral, Estado de Chihuahua, Mexico. Filed Dec. 13, 1884. (No specimens.)

Claim.—1. The herein-described process of refining oils and other hydrocarbons of a vegetable or animal nature, consisting in treating them by means of lime or other alkaline earth or earths and a body rich in oxygen and deoxidizable in presence of the above-mentioned alkali, such bodies being manganic or chromic combinations of potash, chromic acid, &c., substantially as set forth.

2. The herein-described process for separating the so-called "solids," such as stearine, margarine, &c., from the liquids, such as oleine, &c., in hydrocarbons of an animal or vegetable origin, consisting in combining the said solids, either temporarily or otherwise, with lime or other alkaline earths, and separating them in that state by specific gravity, substantially as set forth.

3. The herein-described method of separating the nitrogenous matters from oils and other hydrocarbons of animal or vegetable origin by means of lime or lime-water or other alkaline earth or earths, substantially as set forth.

316,664. COIN ATTACHMENT FOR POCKET-BOOKS. GEORGE W. SCALES, Lafayette, N. J. Filed Feb. 17, 1885. (No model.)



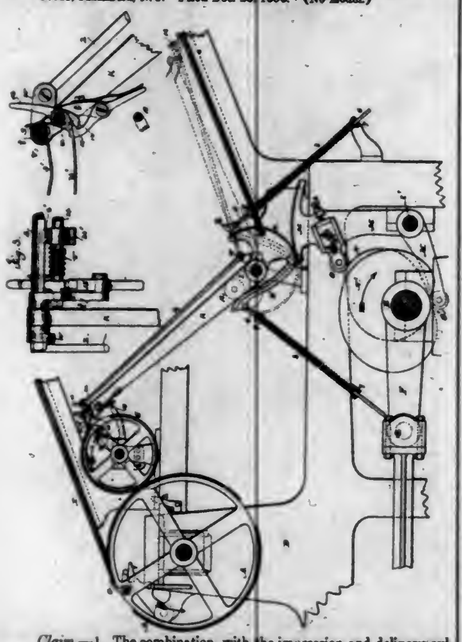
Claim.—1. The combination, with a pocket-book, of a coin-holding attachment consisting of coin-tubes of different width, closed at one end and open at the other end, and having individual closing-flaps at the open end of each coin-tube, substantially as set forth.

2. A coin-holding attachment for pocket-books and purses, consisting of coin-tubes of different width, closed at one end, and provided at the other open end with a closing-flap for each tube, and with means, substantially as described, for attaching the flaps to the tubes, substantially as set forth.

3. A coin-holding attachment for pocket-books and purses, consisting of coin-tubes of different width, closed at one end, and provided at the opposite end with a bent flange, and of closing-flaps, one for each tube, having hooks for locking the flaps to the flange, substantially as set forth.

4. A coin-holding attachment for pocket-books and purses, consisting of a bottom plate having side flanges and longitudinal separating-ribs, and a top plate secured to the bottom plate, said coin-holding tubes being closed at one end and open at the other end, and provided with a bent flange at the latter end, substantially as set forth.

316,665. DELIVERY APPARATUS FOR PRINTING-PRESSES. W. SCOTT, Plainfield, N. J. Filed Dec. 23, 1883. (No model.)



Claim.—1. The combination, with the impression and delivery cylinders, of a fly-frame and grippers, a delivery-table for the sheet and rack-segments, and lever and cams for actuating the fly-frame, substantially as set forth.

2. The fly-frame composed of the arms K upon the shaft I and gripper-shaft and grippers, in combination with the buffers R R' and their springs, substantially as and for the purposes set forth.

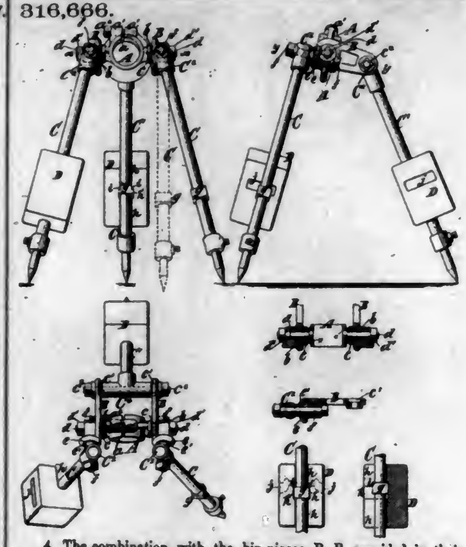
3. The combination, with the cams N and N' and one shaft, E, to which they are attached, of the shaft I' and bent lever M, the arms of which are at opposite sides of the respective cams, the rollers O and O' upon such lever, and an adjustable carrier for one of such rollers, whereby the respective cams move the levers in opposite directions and each roller is kept in contact with its cam, substantially as set forth.

4. The fly-frame having grippers at its outer end and the rock-shaft I, upon which the frame is swung, in combination with the segmental gears, the lever M, rollers O O', and cams N N', for actuating such fly-frame, substantially as set forth.

5. The combination, with the fly-frame K, of a cross-shaft, *s*, the arm *w*, and connecting-rod *z*, to rock the same, the grippers *s'*, carried by such shaft, arms *t* upon the cross-shaft *s*, a rock-shaft, *u*, with grippers *u'*, said shaft *u* being supported and working in said arms *t*, a latch, 15, upon the arms *t*, to hold the grippers open, and a spring to close the grippers when the latch is unlatched, substantially as set forth.

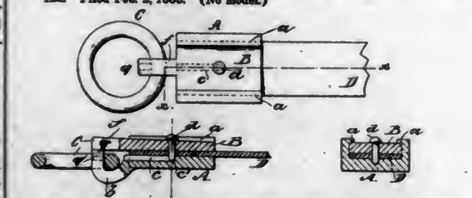
6. The combination, in a printing-press, of an impression-cylinder, a delivery-cylinder, grippers on the respective cylinders, a fly-frame and grippers, a delivery-table, segmental gears, lever and cams for actuating the fly-frame, and fly-buffers for lessening the inertia, substantially as set forth.

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4. The combination, with the hip-pieces B B, provided in their inner sides with seats *b* and in their front ends with seats *c*, of the split clamp or collar A, provided with trunnions *c* and tightening-bolts *d*, the legs C, each having a trunnion, *c'*, fitting the seat *c* in a hip-piece, and tightening-bolts *f*, all substantially as herein described.

316,667. STRAP-ATTACHING DEVICE. JOHN T. SHANNON, Carlisle, Ind. Filed Feb. 2, 1885. (No model.)



Claim.—1. The strap attachment herein shown and described, consisting of the hooked plate A and sliding plate B, arranged to hold the strap and to close the hook or hooks *b* of the plate A, substantially as herein described.

2. The plate A, grooved at *c* and flanged at *a*, and formed with the hook *b*, substantially as and for the purposes set forth.

3. The hooked plate A, formed with means to hold the plate B, and with the groove at *c*, in combination with the sliding plate B, pin *d*, and projection *f*, substantially as and for the purposes set forth.

4. The hooked plate A, formed with inclined flanges *a*, in combination with the sliding plate B, arranged for holding the strap and closing the hook, substantially as described.

5. The hooked plate A, formed with means to hold the plate B with the groove *c*, and with the slot *i*, to receive the end of the strap, in combination with the plate B, pin *d*, and projection *f*, substantially as described.

6. The hooked plate A, formed with means for holding the sliding plate B, and with the loop or keeper *h*, in combination with the plate B, pin *d*, and projection *f*, substantially as and for the purposes set forth.

316,668. BELT-FASTENER. WILLIAM H. SLEEP, St. Germans, County of Cornwall, England. Filed May 7, 1883. (No model.) Patented in England Dec. 9, 1882, No. 5,901; in France Apr. 18, 1883, No. 154,936, and in Belgium Apr. 21, 1883, No. 61,133.



Claim.—A belt-fastener having two end plates, screw-threaded rods passing through said plates for adjusting the same, and curved swinging tongues or plates provided with biting-surfaces and pivoted to said rods, substantially as described.

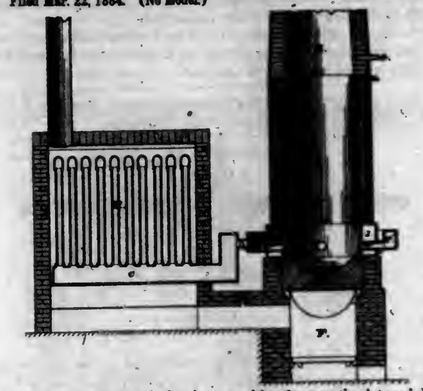
316,666. TRIPOD-SUPPORT FOR ROCK-DRILLS. HENRY C. SERGEANT, New York, N. Y. Filed Nov. 6, 1884. (No model.)

Claim.—1. The combination, with the hip-pieces and front and back legs of a tripod-support, of a split collar or clamp constituting a holder for a drill-back, and provided with trunnions which are journaled in the said hip-pieces, a bolt and nut for tightening the split collar or clamp, and bolts independent of the tightening-bolt for securing said trunnions to the hip-pieces, substantially as herein described.

2. The combination, with the hip-pieces B B, having conical seats *b*, of the split collar or clamp A, having conical trunnions *c*, a tightening-bolt, a^2, for contracting the collar or clamp A, and the tightening-bolts *d*, with their nuts *d'*, for securing the trunnions in the hip-pieces, all substantially as herein described.

3. The combination, with the hip-pieces B B, having conical seats *b* and *c'*, of the split collar or clamp A, having conical trunnions *c*, the bolt a^2, for contracting the collar or clamp A, the back leg, C', and its head C^2, having conical ends fitting the seats *c'*, and the tightening-bolts d c^2, substantially as herein described.

316,669. SMELTING-FURNACE. EDWIN G. SMITH and CHARLES BELL, Sacramento, Cal., assignors of one-third to B. B. Brewer, same place. Filed Mar. 22, 1884. (No model.)



Claim.—1. A water-jacket in a smelting-furnace, the internal diameter of which at the lower part is greater than that of the upper, the difference forming a shoulder or projection above and for protecting the tuyeres or air-passages from being clogged by the descending mass in the furnace, substantially as and for the purposes described.

2. An independent or auxiliary furnace, in combination with a water-jacket of different internal diameters, an independent bottom, hot-air oven, and pipe O, for the introduction of steam into the stack, substantially as and for the purposes set forth.

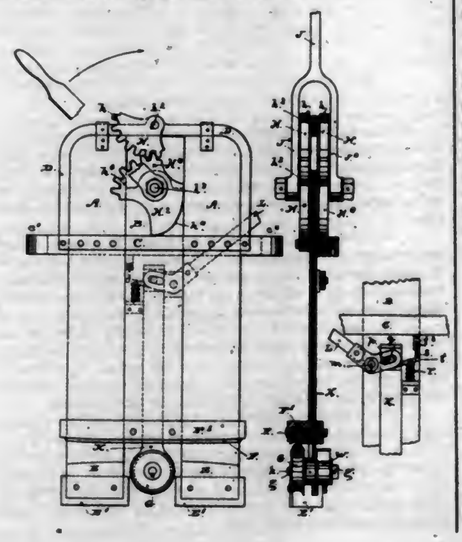
3. An independent bottom in a smelting-furnace, in combination with auxiliary furnace, water-jacket with projection over tuyeres, hot-air oven, and pipe O, for the introduction of steam into stack, substantially as and for the purposes described.

4. A water-jacket with projection over tuyeres or air-passages, in combination with the independent bottom, auxiliary furnace, hot-air oven, and pipe O, for the introduction of steam into the stack, substantially as and for the purposes described.

5. Pipe O, in combination with water-jacket with projection over tuyeres, independent bottom, auxiliary furnace, and hot-air oven, substantially as and for the purposes described.

316,670. GRIPPING DEVICE FOR CABLE RAILWAYS. REINALDO SOLANO, San Francisco, Cal., assignor of two-thirds to Frederick Bode and George E. Cox, same place. Filed Sept. 5, 1884. (No model.)

Brief.—Lower divided fixed grip-jaws and an upper movable jaw carried by a slide, which also has a cable-sheave which moves with the jaw, but also has a movement independent thereof. The slide carrying said jaw and sheave is actuated through toothed segments, one of which is pivoted in the fixed frame, and the other in the slide, the latter having a cam extension bearing upon a cross-bar of the frame.



Claim.—1. In a cable-gripping device, the combination of a suitable frame, fixed gripping-surfaces E E, movable gripping-surface F, and a cable-carrying sheave, G, located between the fixed gripping-surfaces and mounted on a slide, by which it is raised and lowered at the same time with as well as independently of the movable gripping-surface, substantially as herein described.

2. The combination, with a set of gripping jaws or surfaces in a cable-gripping device, of which one surface is composed of two separate jaws, or a jaw divided transversely by a center space, of the movable cable-carrying sheave G, located between said jaws or in said space, and connected to or with the mechanism that operates the other jaw of the grip to follow said jaw in its movements, and means connected with said sheave to move it independently of said jaw as well, substantially as herein described, for the purpose set forth.

3. In a cable-gripping device, the combination of a two-part gripping-surface, stationary, a gripping-surface movable toward and away from this opposite stationary surface, a cable-carrying sheave, G, located between the two parts of the fixed gripping-surface, a slide or carrier, K, for moving it up and down with relation to the fixed gripping-surface, a slide or carrier, B, having the movable jaw secured to it, and by which the jaw is operated, and connection of the sheave-carrier and the movable jaw-carrier in such manner that while the sheave can be locked to the movable jaw-carrier to preserve a certain position with respect thereto and move with it, an independent movement of the sheave is also allowed, for the purpose of raising and depressing it alone, substantially as herein described, for the purpose set forth.

4. In a cable-gripping device, a frame composed of separable and removable parts A A C C D, the sliding carrier F', to hold a gripping-surface, and the boxes or sockets E' E' on the plates A A, to hold the gripping-jaws E, substantially as hereinbefore described.

5. In a cable-gripping device, the combination of the toothed segment H, movable on a fixed center, the similarly-formed segment H^*, having an eccentric or cam-shaped portion, A^*, and movable on a center which is fixed to the slide B, a fixed bearing-surface, as C, in line with said cam-shaped portion, and a lever, J, connected with one of said segments, substantially as hereinbefore described, to operate as set forth.

6. The combination, with the slide B, of the toothed segments H H^*, one of which is mounted on a fixed center, and the other of which is fixed to the slide and has an eccentric or cam-shaped extension, and the fixed bearing-surface, against which the eccentric portion of said segment is held in working contact, and the lever J, as a means for rotating said segments, substantially as hereinbefore described.

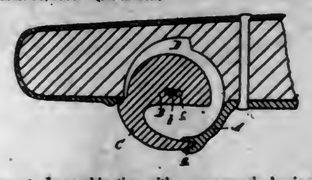
7. In a cable-gripping device, the combination of the principal slide B, to operate the movable jaw, an auxiliary slide, K, carrying a sheave G, and mechanism, connecting the two slides together, by which the operating mechanism of the principal slide is caused to move the two slides together and preserve the relative positions of the gripping-jaw and the sheave, said mechanism being adapted also to move the auxiliary slide independently, substantially as hereinbefore described.

8. The combination, with the auxiliary slide K, carried by the principal slide B, of the lever L, with slotted end *p*, the stud *q*, foot *t*, spring *r*, and stop *s*, substantially as hereinbefore described.

9. The combination, with the fixed grip-frame and movable bar or slide B, of the toothed segments H H, mounted on the frame, the segments H^* H^*, centered on the stud h^2, to which the slide B is attached, the stationary bearing-surfaces C on the frame, and the forked lever J, substantially as hereinbefore described, to operate as set forth.

10. A cable-gripping device comprising the following parts or elements: a fixed frame, a movable plate or slide carrying a gripping-jaw on the lower end and connected at the upper end to a lever or other equivalent operating device, a two-part or divided stationary gripping-surface mounted on the frame, and a cable-carrying sheave located in the space between the parts comprising its fixed gripping-surface, and connected by suitable mechanism with a lifting device above, to raise and depress the said sheave simultaneously with the said movable gripping-surface, as well as to enable the said sheave to be raised and depressed independently of the gripping-surface, substantially as hereinbefore described.

316,671. WAGON-POLE. NELSON E. SPRINGSTEEN, Detroit, Mich. Filed Mar. 18, 1885. (No model.)



Claim.—1. In combination with a wagon-pole having a holdback iron or stop and a rotating hook constructed and arranged with a pivoted plate to engage with a socket in the end of said holdback-iron, substantially as and for the purposes described.

2. A wagon-pole attachment consisting of a holdback iron or stop having a recess formed in its free end, a semicircular plate having an elongated slot and supported upon a pivot pin or bolt and carrying a locking-bolt, constructed and operating substantially as and for the purposes specified.

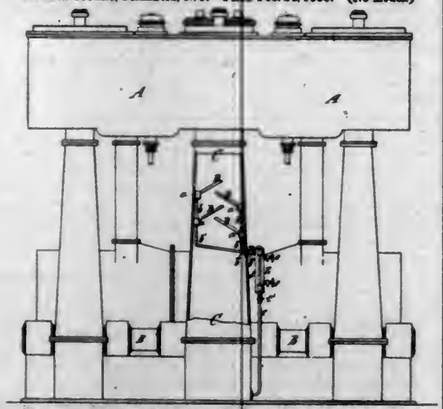
316,672. STAMP-PAD. CHARLES P. STEVENS, Boston, Mass. Filed May 31, 1884. (No model.)



Claim.—1. The box-body A, provided not only with the internal lining of elastic gelatinous composition, such as is generally used in the manufacture of the outer coverings of printers' inking-rollers, and with a pile of felt or like absorbent disks arranged within and fitting closely to such lining but having on the under side of it, the said box-body, a stratum of such elastic composition, all being substantially as set forth.

2. The combination of the box-body, its elastic lining, and the pile of felt or absorbent disks arranged within and closely fitting such lining with the box-cover and an interior stratum of elastic material arranged within it, such elastic lining and stratum being of the gelatinous composition generally used in the manufacture of the outer coverings of printers' inking-rollers.

316,673. MEANS FOR REMOVING OIL FROM EXHAUST-STEAM. SINCLAIR STUART, Plainfield, N. J. Filed Feb. 24, 1885. (No model.)



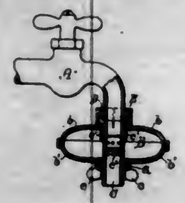
Claim.—1. The combination, with the exhaust pipe or passage of a steam-engine, of catch-plates and conductors arranged therein for intercepting oil and grease and conducting it to the exterior of such pipe or passage, substantially as herein described.

2. The combination, with the exhaust pipe or passage of a steam-engine, of inclined catch-plates D, arranged on opposite sides thereof alternately, collectors or gutters at the lower edges of such plates, and conductors or pipes leading therefrom to the exterior of the pipe or passage, substantially as and for the purpose herein described.

3. The combination, with the exhaust pipe or passage of a steam-engine, of catch-plates and conductors arranged therein for intercepting oil and grease and conducting it to the exterior of the pipe or passage, a receiver into which the oil and grease with water are delivered, a pipe leading from the receiver to the exhaust or condenser and provided with a valve, and a cock for drawing oil from the receiver, substantially as herein described.

4. The combination, with the pipe or passage C, and the receiver E, provided with a gage, *d*, and one or more of the cocks *e*, of the system of catch-plates D in the pipe or passage C, the pipe *b'*, delivering into the receiver, and the pipe and valve *c c'*, for controlling the escape of water from the receiver, substantially as herein described.

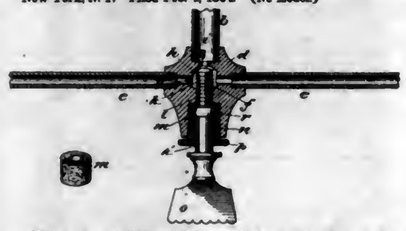
316,674. FILTER. REMI P. A. TURCOT, Providence, R. I. Filed Apr. 18, 1884. (No model.)



Claim.—1. The filtering-chamber composed of the sections *b b'*, in combination with the perforated tube C, having the enlarged portion *c'*, the diaphragm *c²*, and the thumb-pieces *c*, and the connection for holding the filter upon the faucet-nozzle, as described.

2. The chamber B, composed of the sections *b b'*, in combination with the perforated tube C, having the diaphragm, the split ring D, the nut E, and the washer G, as described.

316,675. STOP-VALVE FOR GAS-BURNERS. SAMUEL B. H. VANCE, New York, N. Y. Filed Feb. 4, 1884. (No model.)

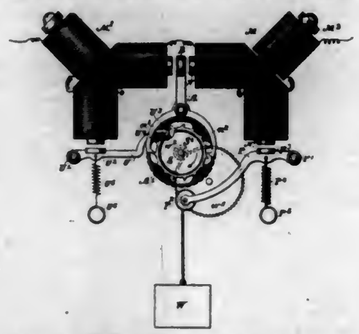


Claim.—1. An improved stop-cock formed by the combination of a casing having a valve-seat, *h*, and port *i*, cavity *f*, and socket *n*, with the screw-plug *k*, screwing into the casing with its tip approaching said seat and its stem projecting externally for operation, and a packing in the socket around the stem, and the retaining screw-thimble *p*, fitting against the same with a bore larger than and out of contact with the stem, substantially as and for the purpose set forth.

2. In a stop-cock, the combination, with a casing having an internal seat and ports leading to and from the same, with the screw-plug *k*, having the bead or enlargement *r* on its stem, with a packing around the stem at the location of said bead, and the thimble *p*, retaining said packing below said bead, substantially as and for the purpose set forth.

3. A stop-cock, substantially such as set forth, formed with the screw-plug *k*, having the enlargement or bead *r*, in combination with the cork sleeve *m* and thimble *p* with the surrounding casing *d*, substantially as and for the purpose set forth.

316,676. ELECTRO-MAGNET FOR PRINTING-TELEGRAPHS. H. VAN HOEVENBERGH, Elizabeth, N. J., assignor to the Baltimore & Ohio Telegraph Company, Baltimore, Md. Filed Aug. 16, 1883. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, of an electro-magnet consisting of a yoke-piece, two main cores united by said yoke-piece, each of said cores having two arms branching therefrom, an escapement device acted upon by one pair of said arms, and an impression-producing device acted upon by the remaining pair of said arms.

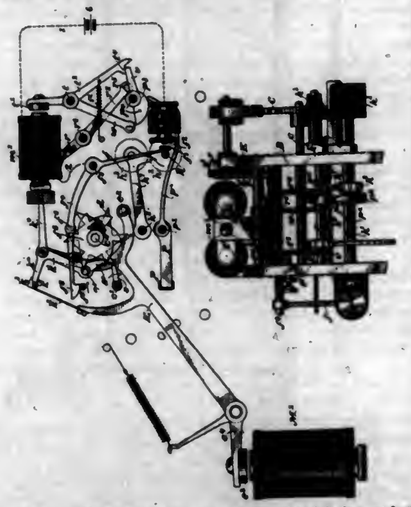
2. The combination, substantially as hereinbefore set forth, with an electro-magnet consisting of a main core having branches, and magnetizing-coils respectively surrounding said main core and its branches, of an escapement device applied to one or more of said branches and a unison device applied to the remaining branch or branches.

3. The combination, substantially as hereinbefore set forth, of the two compound electro-magnets developing four sets of poles, the escapement operated by the joint action of two of said sets, an impression-producing mechanism actuated by one of the remaining sets, and a unison device operated by the action of the other of the remaining sets.

4. The combination, substantially as hereinbefore set forth, of a type-wheel, an escapement device, an arresting device for stopping said type-wheel at the unison-point, an electro-magnet, which when traversed by alternating currents of the strength normally employed for actuating said escapement device restrains said arresting device from action, and which when traversed by currents of lesser but determined strength allows said arresting device to act.

5. In a printing-telegraph instrument, the combination, substantially as hereinbefore set forth, of a type-wheel, means for normally advancing said type-wheel through the agency of electric currents of a given strength, a unison-detent, and means, substantially such as described, operated through the agency of currents of less strength for permitting said unison-detent to move into a position to arrest said type-wheel and for simultaneously advancing said type-wheel until it is arrested by the detent.

316,677. PRINTING-TELEGRAPH. H. VAN HOEVENBERGH, Elizabeth, N. J., assignor to the Baltimore & Ohio Telegraph Company, Baltimore, Md. Filed Aug. 7, 1884. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, with a type-wheel, and means, substantially such as described, tending to advance the same, of a scape-wheel for permitting a step-by-step movement of said type-wheel, two independent shafts upon which said scape-wheel and type-wheel are mounted, an electro-magnet for releasing said scape-wheel from its anchor, a local circuit in which said electro-magnet is included, a cam-wheel moving with said scape-wheel, an arm resting upon said cam-wheel and receiving therefrom a to-and-fro movement, and a contact-point through which the connections of said local circuit are completed, which contact-point is prevented from remaining in a position to complete said local circuit while said scape-wheel is being actuated.

2. The combination, substantially as hereinbefore set forth, with a type-wheel and its shaft, of a scape-wheel, an escapement-anchor for permitting said scape-wheel to advance step by step, and an electro-magnet for controlling the movements of said escapement-anchor, a second electro-magnet for causing said anchor to release said scape-wheel, and a printing-platen for effecting impressions from said type-wheel, which platen is actuated when said second electro-magnet is vitalized.

3. The combination, substantially as hereinbefore set forth, with a type-wheel and a type-wheel shaft, of a scape-wheel, an escapement-anchor applied to said scape-wheel, means for controlling the movements of said anchor, a printing-platen for effecting impressions from said type-wheel, mechanism for causing said printing-platen to be actuated, means for causing said scape-wheel to be released from said anchor, an electro-magnet for controlling said mechanism, and means, substantially such as described, for causing the electro-magnet to be vitalized only when said type-wheel has been brought to rest.

4. The combination, substantially as hereinbefore set forth, with a type-wheel, a scape-wheel, an escapement-anchor for controlling the movements of said scape-wheel, and means for controlling the movements of said anchor, of a printing-platen for effecting impressions from said type-wheel, mechanism, substantially such as described, for actuating said printing-platen, a paper-feeding device controlled by the same mechanism, and means, substantially such as described, for actuating said paper-feeding device immediately before and immediately after an impression is effected, and for preventing it from being actuated during the time said printing-platen is effecting an impression.

5. The combination, substantially as hereinbefore set forth, of a type-wheel, a scape-wheel controlling the movements of the same, an anchor applied to said scape-wheel, means for controlling the movements of said anchor, a printing-platen, mechanism, substantially such as described, for effecting impressions from said type-wheel, mechanism for operating the same, and an independent paper-feeding device consisting of two rollers, one of which is actuated by said mechanism, while the other is actuated by impingement against the same, and means, substantially such as described, for raising the last-named roller from the first-named roller when an impression is being taken from said type-wheel.

6. The combination, substantially as hereinbefore set forth, with a type-wheel and means, substantially such as described, for imparting a step-by-step movement to the same, of a mechanically-operated device for effecting impressions from said type-wheel, a detent, and a stop for normally preventing said device from being operated, an electro-magnet for removing said detent from the path of said stop when it is desired to effect an impression, and a mechanically-operated device for again forcing said detent into the path of said stop after it has been withdrawn by the action of said electro-magnet.

7. The combination, substantially as hereinbefore set forth, of a type-wheel, a scape-wheel, an escapement-anchor for controlling the movement of said scape-wheel, a pallet carried upon said anchor and a second pallet movably supported upon said anchor, means for holding said second pallet in either of two positions relative to the first-named pallet and normally in engagement with said scape-wheel, and means, substantially such as described, for automatically moving said pallet from the path of said scape-wheel.

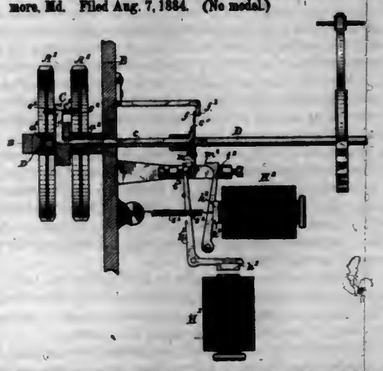
8. The combination, substantially as hereinbefore set forth, with an electro-magnet and its armature and armature-lever, of a scape-wheel, two escapement-pallets applied to said wheel, one of which is fixed upon said lever, while the other is supported upon an arm pivoted to said lever, a mechanically-operated device for releasing said pivoted pallet from engagement with said scape-wheel, and a second electro-magnet serving, when vitalized, to set said device in operation.

9. The combination, substantially as hereinbefore set forth, with an electro-magnet and its armature and armature-lever, of an escapement-anchor, one of the pallets of which is movable independently of the other, a scape-wheel to which said anchor is applied, mechanism for forcing said movable pallet out of engagement with said scape-wheel, a detent which normally prevents said mechanism from acting, an electro-magnet which, when vitalized, removes said detent from the path of said mechanism, a local circuit in which said second electro-magnet is included, and means, substantially such as described, for preventing the connections of said local circuit from being completed a sufficient length of time to vitalize said second electro-magnet during the time said scape-wheel is being actuated.

10. The combination, substantially as hereinbefore set forth, of an electro-magnet, its armature and armature-lever, a type-wheel, a scape-wheel for permitting a step-by-step movement of said type-wheel, an anchor for controlling the movements of said scape-wheel, one of the pallets of which anchor is movable independently of the other, means, substantially such as described, for releasing said scape-wheel from said anchor by the movement of said movable pallet, and an arm moving with said scape-wheel, which serves to throw said pallet into engagement with said scape-wheel when said type-wheel has reached its unison-point.

11. The combination, substantially as hereinbefore set forth, with a type-wheel and its shaft, of a scape-wheel for occasioning a step-by-step movement of said type-wheel, an escapement-anchor applied to said scape wheel, one of the pallets of which anchor is movable independently of the other, means, substantially as described, for effecting an impression from said type-wheel and for moving said movable pallet out of engagement with said scape-wheel, and an arm moving with said type-wheel, which automatically causes said pallet to re-engage said scape-wheel when said type-wheel has reached its unison-point.

316,678. PRINTING-TELEGRAPH. H. VAN HOEVENBERGH, Elizabeth, N. J., assignor to the Baltimore & Ohio Telegraph Company, Baltimore, Md. Filed Aug. 7, 1884. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, with two type-wheels and a clutch for locking one or the other of said type-wheels, of two electro-magnets, the one of which is normally inactive,

while the other is normally active, and means, substantially such as described, whereby said clutch is actuated in one direction by the first-named electro-magnet when it is rendered active, and in the opposite direction by the second-named electro-magnet when it is demagnetized.

2. The combination, substantially as hereinbefore set forth, of two independently-movable type-wheels, a type-wheel shaft, a clutch for locking one or the other of said type-wheels to said shaft, two electro-magnets for controlling the movements of said clutch, and their respective armatures and armature-levers, one of which levers actuates said clutch when its electro-magnet is rendered active, and the other of which levers causes said clutch to be actuated when its electro-magnet is demagnetized.

3. The combination, substantially as hereinbefore set forth, with two type-wheels, a type-wheel shaft, and a clutch for locking one or the other of said type-wheels to said shaft, of two electro-magnets and their respective armatures and armature-levers, one of which levers serves to impel said clutch in one direction, and the other in the opposite direction, substantially as described.

4. The combination, substantially as hereinbefore set forth, of two type-wheels, a clutch for locking one or the other of said type-wheels, which clutch consists of a bar longitudinally movable with reference to the axis of said type-wheels, a disk carried upon one extremity of said bar, and clutch-pins carried upon the other extremity of the same for engaging one or the other of said type-wheels, and two electro-magnets, their armatures, and armature-levers, which levers engage said disk, substantially as described.

5. The combination, substantially as hereinbefore set forth, of two type-wheels, a clutch for engaging one or the other of said type-wheels, a disk revolving with said type-wheels, two electro-magnets, their armatures and armature-levers, which levers respectively extend upon opposite sides of said disk, and means, substantially such as described, for causing one or the other of said armature-levers to actuate said disk at will.

6. The combination, substantially as hereinbefore set forth, of two independently-movable type-wheels, a clutch for engaging one or the other type-wheel, a type-wheel shaft for revolving said clutch, a disk secured to and revolving with said clutch, and having a slot or opening formed in its periphery, two electro-magnets, their armatures and armature-levers for controlling the operation of said clutch through said disk, and a guide-arm engaging said disk, and serving to prevent said clutch from being actuated except when it is in a given position.

7. The combination, substantially as hereinbefore set forth, in a printing-telegraph instrument, with the type-wheels A′ and A^2, of the clutch C, having the engaging pins c' and c^2, the disk c^3, secured to said clutch, the type-wheel shaft D, in which said clutch is carried, and the electro-magnets H′ and H^2 and their armature-levers k' and k^2, for controlling the movements of said clutch, substantially as described.

316,679. PRINTING-TELEGRAPH. H. Van Hoevenbergh, Elizabeth, N. J., assignor to the Baltimore & Ohio Telegraph Company, Baltimore, Md. Filed Feb. 9, 1884. (No model.)



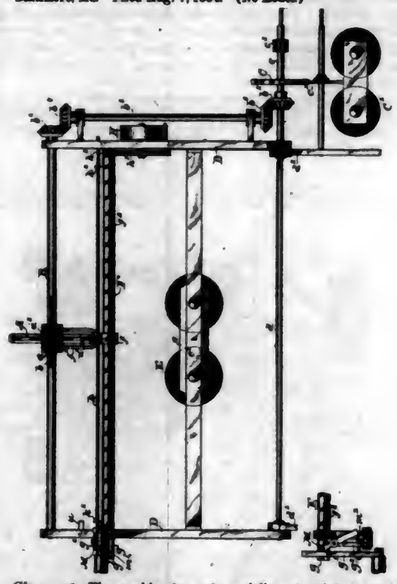
Claim.—1. In a printing-telegraph instrument, the combination, substantially as hereinbefore set forth, of a type-wheel having its characters formed positively, so that impressions taken therefrom will be the reverse of those characters as usually printed, means for revolving said wheel in the direction of the hands of a watch, and a paper-feeding device for advancing the tape for receiving the impressions in the direction of revolution of the type-wheel.

2. In a printing-telegraph instrument, the combination, substantially as hereinbefore set forth, of a type-wheel having its characters formed positively—that is to say, in the manner in which they ordinarily appear when printed—and means, substantially such as described, for effecting impressions therefrom upon the adjacent surface of a paper tape, which impressions will be negative—that is to say, the reverse of the characters as usually printed.

3. The combination, substantially as hereinbefore set forth, in a printing-telegraph instrument, of a type-wheel having its characters positive—that is to say, as they appear in print—and means for revolving said type-wheel in the direction of the hands of a watch.

4. The combination, substantially as hereinbefore set forth, in a printing-telegraph instrument, of a type-wheel the characters of which are positive, an inking-roller, and means, substantially such as described, for advancing a paper tape across the periphery of said type-wheel.

316,680. PAGE-PRINTING TELEGRAPH. H. Van Hoevenbergh, Elizabeth, N. J., assignor to the Baltimore & Ohio Telegraph Company, Baltimore, Md. Filed Aug. 7, 1884. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, of a type-wheel, a type-wheel shaft upon which it is carried, a threaded rod or worm-shaft, means, substantially such as described, for revolving said worm-shaft, and a nut connecting said type-wheel with said worm-shaft, whereby the movements of the latter actuate the type-wheel.

2. The combination, substantially as hereinbefore set forth, of a type-wheel, a type-wheel shaft along which the type-wheel is movable, means, substantially such as described, for revolving said shaft and type-wheel, a spirally-threaded rod, and a nut coupling said rod with said type-wheel, and means, substantially such as described, for revolving said threaded shaft.

3. The combination, substantially as hereinbefore set forth, of a type-wheel, a shaft upon which it is longitudinally movable, means, substantially such as described, for revolving said shaft and type-wheel, a spirally-threaded shaft, a mechanical connection between said type-wheel and said threaded shaft, whereby the revolution of the latter in one direction or the other causes said type-wheel to move upon its shaft in one direction or the other, means, substantially such as described, for turning said threaded shaft in one direction step by step, and a spring which is wound when said shaft is turned.

4. The combination, substantially as hereinbefore set forth, of a type-wheel, a shaft upon which it is longitudinally movable, means, substantially such as described, for revolving said shaft and type-wheel, a spirally-threaded shaft, a mechanical connection between said type-wheel and said threaded shaft whereby the revolution of the latter in one direction or the other causes said type-wheel to move upon its shaft in one direction or the other, a ratchet-wheel applied to said threaded shaft, a pawl, and means, substantially such as described, for causing said pawl and ratchet-wheel to turn said threaded shaft in one direction, a spring which is wound by the revolution of said shaft, a click which normally retains said shaft against the tension exerted by said spring, and means, substantially such as described, for releasing said shaft from said pawl and click when it has performed a predetermined number of revolutions.

5. The combination, substantially as hereinbefore set forth, of a type-wheel, a stationary shaft upon which it is laterally movable, means, substantially such as described, for revolving said type-wheel, and for moving it laterally along said shaft, and automatically-operated devices, substantially such as described, for causing said type-wheel to return to its starting-point when it has been moved laterally through a given distance.

6. The combination, substantially as hereinbefore set forth, of a type-wheel, a shaft upon which it is longitudinally movable, means, substantially such as described, for revolving said type-wheel, and for moving it laterally upon its shaft, a spring, and means, substantially such as described, for winding the same when said type-wheel is moved laterally, a releasing device for said type-wheel, which is automatically operated at a given point in the excursion of the type-wheel, whereby said spring is permitted to return the same to its starting-point, and a unison device consisting of a detent carried upon the type-wheel and a stop which intercepts the path of said detent at a particular point in the excursion of said type-wheel.

7. The combination, substantially as hereinbefore set forth, of a type-wheel, a shaft for the same, a groove and a feather coupling said type-wheel and shaft, an escapement-magnet, its armature and armature-lever, a mechanical connection, substantially such as described, between said lever and said type-wheel shaft, whereby a step-by-step movement is given to said type-wheel when said lever is actuated, and means, substantially such as described, for impelling said type-wheel laterally upon its shaft.

8. The combination, substantially as hereinbefore set forth, with a type-wheel and a shaft upon which it is longitudinally movable, of means, substantially such as described, for occasioning a longitudinal movement of the type-wheel in one direction, means tending to impel the type-wheel in the opposite direction, a pawl or click normally restraining this tendency, a longitudinally-movable rod, a releasing device for said pawl or click coupled with said rod, and means, substantially such as described, whereby said type-wheel serves to actuate said rod in one direction when near one limit of its excursion, and in the opposite direction when near the other limit of its excursion, thereby causing the releasing device to be actuated.

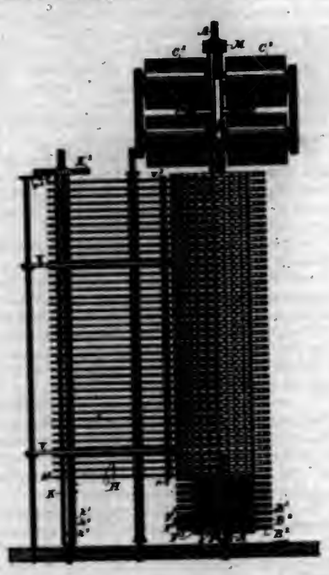
9. The combination, substantially as hereinbefore set forth, of the type-wheel A, the shaft B, upon which it is longitudinally movable, the escapement-magnet, its armature and armature-lever, the scape-wheel C, its shaft c, and the mechanical connection between said scape-wheel shaft and said type-wheel shaft, consisting of the gear-wheels b' and b^3, the shaft b^2, and the gear-wheels b^4 and b^5.

10. The combination, substantially as hereinbefore set forth, of a type-wheel, an axis for the same upon which it is longitudinally movable, a movable frame in which said axis is supported, an armature carried upon said frame, an electro-maguet to which said armature is applied, and means, substantially such as described, for vitalizing said electro-magnet and actuating said frame.

11. The combination, substantially as hereinbefore set forth, of a type-wheel, a shaft upon which it is longitudinally movable, a pivoted support for said shaft, and an electro-magnet and its armature applied to said support, whereby said support is actuated and said type-wheel caused to effect an impression when said electro-magnet is vitalized.

12. The combination, substantially as hereinbefore set forth, with a type-wheel, and means, substantially such as described, for causing the same to be moved laterally and to be revolved in front of a sheet of paper, of a pivoted frame in which said type-wheel is supported, and means, substantially such as described, for moving said frame toward and away from the paper.

316,681. PAGE-PRINTING TELEGRAPH. H. Van Hoevenbergh, Elizabeth, N. J., assignor to the Baltimore & Ohio Telegraph Company, Baltimore, Md. Filed Aug. 7, 1884. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, of a series of type-wheels, a type-wheel shaft carrying the same, means, substantially such as described, for actuating said shaft, a locking device for each type-wheel, means, substantially such as described, for actuating each of said locking devices in succession when its corresponding type-wheel is in any desired position, a printing-platen for effecting impressions from all of said type-wheels simultaneously, and an electro-magnet, its armature, and armature-lever for actuating said platen.

2. The combination, substantially as hereinbefore set forth, with a type-wheel shaft and a series of independently-movable type-wheels carried thereon, of a series of locking-levers and means, substantially such as described, for locking each of said type-wheels in succession, a printing-lever for effecting impressions from all of said type-wheels simultaneously, an electro-magnet for actuating the same, and means, substantially such as described, for unlocking said type-wheels.

3. The combination, substantially as hereinbefore set forth, of a series of type-wheels, means, substantially such as described, for causing said type-wheels to revolve, a series of locking-levers applied to said type-wheels respectively, means, substantially such as described, for causing said type-wheels to be successively locked through the agency of said levers, a printing-magnet, and a platen actuated thereby for effecting impressions from all of said type-wheels, and a local battery for actuating said printing-magnet.

4. The combination, substantially as hereinbefore set forth, with a series of type-wheels and a type-wheel shaft with which they are frictionally connected, of a series of ratchet-wheels respectively applied to said type-wheels, a series of locking-levers respectively applied to said ratchet-wheels, means, substantially such as described, for actuating said locking-levers in succession, a printing-platen for effecting impressions from said type-wheels, means, substantially such as described, for actuating said platen, a series of unison arms and stops respectively applied to said type-wheels, and means, substantially such as described, for causing said unison-arms to intercept the paths of said unison-stops.

5. The combination, substantially as hereinbefore set forth, with a series of type-wheels, and a type-wheel shaft carrying the same, of means, substantially such as described, for independently locking each of said type-wheels in any desired position, and a releasing device serving to unlock all of said type-wheels simultaneously.

6. The combination, substantially as hereinbefore set forth, of a type-wheel shaft and a series of type-wheels actuated thereby, means, substantially such as described, for causing said type-wheels to be successively locked in any desired position, means, substantially such as described, for effecting impressions from all of said type-wheels simultaneously, and for successively arresting the same at their unison-points, and means, substantially such as described, for causing said type-wheels to be released from their unison-detents preparatory to being again actuated.

7. The combination, substantially as hereinbefore set forth, of a telegraphic main line, a series of type-wheels, a type-wheel shaft for carrying the same, an independent device for actuating said shaft, a series of levers for independently locking said type-wheels in any desired positions, an electro-magnet located in said main line and responding to currents of greater strength than are employed for actuating said escapement device, an armature and armature-lever applied to said second magnet, a ratchet-wheel actuated by means of said armature-lever, and a radial series of pins and a shaft carrying the same, actuated by said ratchet-wheel, which pins are respectively applied to said locking-levers.

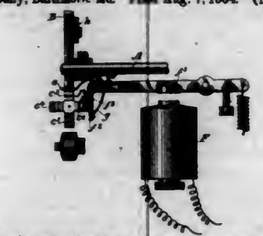
8. The combination, substantially as hereinbefore set forth, of a series of type-wheels, a type-wheel shaft with which said type-wheels are frictionally connected, means, substantially such as described, for actuating said shaft, a series of unison-levers respectively applied to said type-wheels, and means, substantially such as described, for causing said unison-levers to intercept or to be removed from the paths of said type-wheels at will.

9. The combination, substantially as hereinbefore set forth, of the type-wheel shaft, a series of type-wheels, means, substantially such as described, for actuating the same, and for causing them to stand in any desired positions independently of each other, a main line, an electro-magnet included therein for locking said type-wheels independently of each other, a local magnet for effecting impressions therefrom, and a second electro-magnet included in the main line for controlling the circuit-connections of said local magnet.

10. The combination, substantially as hereinbefore set forth, with a series of type-wheels and a type-wheel shaft with which they are frictionally connected, of a series of levers for locking the same, a spiral series of radial pins respectively applied to said locking-levers, and means, substantially such as described, for causing said pins to successively actuate said levers.

11. The combination, substantially as hereinbefore set forth, with a main line and a series of type-wheels, of an escapement-magnet, a battery, and a pole-changing key for vitalizing said escapement-magnet, a series of locking-levers and an electro-magnet responding to currents of increased strength and acting through means, substantially such as described, to actuate said locking-levers, a local circuit, a press-magnet included in the same, and an electro-magnet included in the main line for completing the connections of said local circuit through said press-magnet and causing it to be vitalized when the main-line circuit is interrupted, and keys respectively serving to cause an increase in the strength of the main-line current, and to interrupt the main-line connections.

316,682. TYPE-WHEEL FOR PRINTING-TELEGRAPHS. H. VAN HOEVENBERGH, Elizabeth, N. J., assignor to the Baltimore & Ohio Telegraph Company, Baltimore, Md. Filed Aug. 7, 1884. (No model.)



Claim.—1. A type-wheel for printing-telegraph instruments, having a segment of its periphery removable, in combination with similar segments and means, substantially such as described, for causing any one of said segments to replace the others.

2. A type-wheel for printing-telegraph instruments, having a portion of its periphery removed, in combination with segments of type-wheels, in form similar to the removed section, and means, substantially such as described, for causing any one of said segments to replace the others.

3. The combination, substantially as hereinbefore set forth, with the main portion of a type-wheel, of a series of type-wheel segments pivoted at right angles to the axis of the type-wheel, and means, substantially such as described, for revolving the same, whereby any one of said segments may be substituted for another.

4. The combination, substantially as hereinbefore set forth, with a type-wheel having a series of movable type-wheel segments, any one of which may be made to constitute a continuation of the periphery of the type-wheel, of an electro-magnet, its armature and armature-lever, and means, substantially such as described, for actuating said movable segments through the agency of said electro-magnet.

5. The combination, substantially as hereinbefore set forth, with a type-wheel having movable segments, any one of which may be substituted for another at the will of the transmitting-operator, of an electro-magnet, its armature and armature-lever, and a pawl carried by said lever, which pawl engages said movable segments when said type-wheel is arrested in a given position and serves to actuate the same when said type-wheel has been so arrested and said electro-magnet is vitalized.

6. The combination, with a type-wheel segment, a portion of the periphery of which is removed, of a series of type-bearing segments pivoted within said type-wheel, an electro-magnet for controlling the positions of the same, and means, substantially such as described, for normally retaining one of said segments in the circle of the periphery of said type-wheel.

316,683. TYPE-WHEEL FOR PRINTING-TELEGRAPHS. H. VAN HOEVENBERGH, Elizabeth, N. J., assignor to the Baltimore & Ohio Telegraph Company, Baltimore, Md. Filed Aug. 7, 1884. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, with a type-wheel and means for actuating the same, of an independently-movable type-wheel segment, and means, substantially such as described, for locking said segment to and unlocking it from said type-wheel.

2. The combination, substantially as hereinbefore set forth, of a type-wheel, a type-wheel segment having a greater radius than said type-wheel, and means, substantially such as described, for locking and unlocking said segment from said type-wheel.

3. The combination, substantially as hereinbefore set forth, with a type-wheel, of a type-wheel segment, means for locking said segment to said type-wheel, and a counterpoise applied to said segment.

4. The combination, substantially as hereinbefore set forth, with a type-wheel shaft and type-wheel rigidly secured thereto, of a sleeve surrounding said shaft, a type-wheel segment carried upon said sleeve, a pin for locking said segment to said type-wheel, and an electro-magnet for controlling said pin.

5. The combination, substantially as hereinbefore set forth, with a type-wheel and means for actuating the same, of a type-wheel segment having a greater radius than said type-wheel, a pin for locking said segment to said type-wheel, an electro-magnet, its armature and armature-lever, and a hook carried upon said lever, which hook serves to engage said pin and to unlock said segment from said type-wheel when the latter has been arrested in a predetermined position and the electro-magnet is vitalized, substantially as described.

6. The combination, substantially as hereinbefore set forth, of a type-wheel, a type-wheel segment having a greater radius than said type-wheel, means for locking said segment to and unlocking it from said type-wheel, and a printing-platen for effecting impressions from said type-wheel and type-wheel segment, substantially as described.

7. The combination, substantially as hereinbefore set forth, with a type-wheel and a type-wheel segment, of a pin for locking said segment to said type-wheel, a spring normally tending to press said pin toward said type-wheel, an electro-magnet, its armature and armature-lever for controlling the movements of said pin, a catch carried upon said lever for engaging said pin when said electro-magnet is magnetized to a given polarity, and a shoulder carried upon said lever, which shoulder extends into the path of said pin when said electro-magnet is magnetized with the opposite polarity, provided said pin is not in position to lock said type-wheel and segment.

8. The combination, substantially as hereinbefore set forth, with a type-wheel, a type-wheel segment, and means, substantially such as described, for locking the two together, of an electro-magnet, its armature and armature-lever, a catch carried upon said lever for engaging said pin, which catch retains said pin and prevents said segment from being moved when the latter is unlocked from said type-wheel.

9. The combination, substantially as hereinbefore set forth, of a type-wheel and type-wheel segment, a pin for locking the two together, and an electro-magnet, its armature and armature-lever, which lever permits said type-wheel and segment to be locked when said lever is in a given position, and which serves to prevent said segment from being actuated when said segment is unlocked from said type-wheel.

316,684. TYPE-WHEEL FOR PRINTING-TELEGRAPHS. H. VAN HOEVENBERGH, Elizabeth, N. J., assignor to the Baltimore & Ohio Telegraph Company, Baltimore, Md. Filed Aug. 7, 1884. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, of a type-wheel shaft and two type-wheels carried thereon, one of which is of greater diameter than the other and has a portion of its periphery cut away.

2. The combination, substantially as hereinbefore set forth, with a type-wheel shaft of a printing-telegraph instrument, of a type-wheel rigidly secured thereto, and a second type-wheel having a greater diameter than the first-named type-wheel loosely mounted upon said type-wheel shaft and having a portion of its periphery cut away.

3. The combination, substantially as hereinbefore set forth, of a type-wheel shaft, a type-wheel rigidly carried thereon, a second type-wheel having a greater diameter than the first-named type-wheel, and having a cut-away portion, and means, substantially such as described, for locking the second type-wheel to said shaft.

4. The combination, substantially as hereinbefore set forth, of a type-wheel shaft, a type-wheel rigidly secured thereto, a second type-wheel loosely mounted thereon, a device for coupling said type-wheels together, and an electro-magnet for controlling said device, and means, for printing from either of the type-wheels.

5. The combination, substantially as hereinbefore set forth, in a printing-telegraph instrument, with the type-wheel shaft and a type-wheel rigidly secured thereto, of a second type-wheel having a portion of its periphery cut away, a device for locking said second type-wheel to the first-named type-wheel at the will of the transmitting-operator, and means, substantially such as described, for unlocking said second type-wheel from the first-named type-wheel and holding it in such position that the portion of its periphery which is cut away is presented to the printing-platen of the instrument.

6. The combination, substantially as hereinbefore set forth, of a type-wheel shaft, two independently-movable type-wheels, a pin for locking said type-wheels together, and an electro-magnet, its armature and armature-lever serving to engage said pin and remove it from engagement with one of said type-wheels and to retain the other type-wheel in a given position at the will of the transmitting-operator.

7. The combination, substantially as hereinbefore set forth, with a type-wheel shaft and two type-wheels of different sizes carried thereon, the larger of which is cut away through a portion of its periphery, of a printing-platen for effecting impressions from the one type-wheel or the other accordingly as the portion of the latter type-wheel which is cut away is or is not presented to the printing-platen.

8. The combination, substantially as hereinbefore set forth, with a type-wheel shaft and two type-wheels, one of which is attached to said shaft while the other is movable upon the same, of means, substantially such as described, for coupling said type-wheels together, an electro-magnet, its armature and armature-lever, and a detent carried upon said movable type-wheel, which detent by contact with said lever arrests said type-wheel in a predetermined position.

9. The combination, substantially as hereinbefore set forth, with a type-wheel shaft and two type-wheels, one of which is rigidly supported upon said shaft while the other is movable thereupon, of a pin for locking said type-wheels together, an electro-magnet, its armature and armature-lever for controlling said pin, which pin serves as a detent for arresting said type-wheels in a given position, substantially as described.

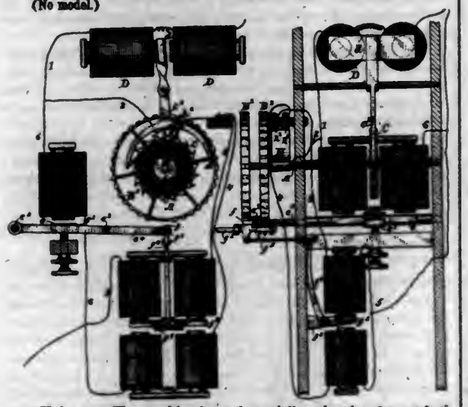
10. The combination, substantially as hereinbefore set forth, with a type-wheel shaft and two type-wheels carried thereon, of a pin for locking said type-wheels together, and an electro-magnet for withdrawing said pin from one of said type-wheels and for arresting the other of said type-wheels in a given position, which pin by making contact with said armature-levers serves to arrest said type-wheel in a predetermined position.

11. The combination, substantially as hereinbefore set forth, with two type-wheels one of which is movable independently of the other, and means, substantially such as described, for coupling the same together, of a unison-stop carried upon one of said type-wheels, and an electro-magnet, its armature and armature-lever for engaging said unison-stop and for controlling said coupling device, substantially as described.

12. The combination, substantially as hereinbefore set forth, with two type-wheels one of which is movable independently of the other, and a unison-stop carried upon one of said type-wheels, of a device for coupling said type-wheels together, and an electro-magnet, its armature and armature-lever for controlling said coupling device, which lever when in position to permit said type-wheels to be locked together is out of the path of said unison-stop.

13. The combination, substantially as hereinbefore set forth, with a type-wheel shaft and two type-wheels carried thereon one of which is movable independently of the other, of a pin for locking said type-wheels together, and an electro-magnet, its armature and armature-lever for controlling said locking-pin, which pin serves as a unison-stop, and is engaged by said armature-lever before said locking device is in position to be actuated by said armature-lever, substantially as described.

316,685. PLATEN-SHIFTING DEVICE FOR PRINTING-TELEGRAPHS. H. VAN HOEVENBERGH, Elizabeth, N. J., assignor to the Baltimore & Ohio Telegraph Company, Baltimore, Md. Filed Aug. 7, 1884. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, with two type-wheels and a type-wheel shaft, of a movable platen, two electro-magnets for controlling the position of the same, two contact-points, a circuit-closing point applied to said contact-points, and means, substantially such as described, for causing said circuit-closing point to complete electric connections through said electro-magnets at different points in the revolution of said type-wheels.

2. The combination, substantially as hereinbefore set forth, with two type-wheels and a type-wheel shaft, of two contact-points, a circuit-closing point applied to both of said contact-points and moving with said type-wheels, which circuit-closing point makes contact with one of said contact-points at one point in the revolution of the type-wheels, and with the other contact-point in another point of the revolution of the same, two electro-magnets which are respectively included in conductors leading from said contact-points, and a movable platen which is caused to stand in the plane of one or the other of said type-wheels, accordingly as one or the other of said electro-magnets is vitalized.

3. The combination, substantially as hereinbefore set forth, with two type-wheels, a type-wheel shaft, and means, substantially such as described, for actuating the same, of a press-lever, a printing-platen movable in said lever and applied to said type-wheel, an electro-magnet and its armature for moving said platen into the plane of one of said type-wheels, a circuit-closing device controlled by the movements of said type-wheels, whereby said electro-magnet may be caused to be vitalized when said type-wheels are in a given position, and means, substantially such as described, for moving said platen into the plane of the other type-wheel.

4. The combination, substantially as hereinbefore set forth, with the type-wheel shaft and two type-wheels of a printing-telegraph instrument, of a circuit-closing arm moving with said type-wheels, two circuit-closing springs, with which springs said circuit-closing arm makes contact at different points in the revolution of said type-wheels, and a platen-shifting device which is actuated in one direction when said circuit-closing arm makes contact with one of said springs, and in the opposite direction when it makes contact with the other of said springs.

5. The combination, substantially as hereinbefore set forth, with two type-wheels of a printing-telegraph instrument, of the press-lever, the platen *f*, movable in said lever, the electro-magnets F′ and F² and the armature f^2, which electro-magnets and armature serve to move said platen from the plane of one type-wheel into the plane of the other, the circuit-closing arm H, and the contact-arms h' and h^2, whereby the circuit-connections of either of said electro-magnets may be completed.

316,686. TRANSMITTER FOR PRINTING-TELEGRAPHS. H. VAN HOEVENBERGH, Elizabeth, N. J., assignor to the Baltimore & Ohio Telegraph Company, Baltimore, Md. Filed Aug. 7, 1884. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, of a series of transmitting-keys, two transmitting-arms respectively moving in directions at right angles to each other beneath the same, and a plate for supporting said keys, which plate is in the form of a section of a globe, means for arresting both of said arms either together or independently by any one of said keys, and means, substantially such as described, for transmitting impulses by the movements of said arms.

2. The combination, substantially as hereinbefore set forth, with a series of transmitting-keys and two transmitting-arms applied thereto and respectively moving in directions at right angles to each other, of a pole-changing device moving with one of said arms, and a circuit completing and interrupting device moving with the other of said arms, a battery from which positive and negative impulses are transmitted by means of the first-named device, and an artificial resistance around which the second device serves to complete and interrupt a shunt-circuit, and means, substantially such as described, for permitting both of said arms to move simultaneously, or either to move independently of the other.

3. The combination, substantially as hereinbefore set forth, of a series of transmitting-keys, two circuit-closing arms, and means, substantially such as described, for moving said arms beneath said keys either independently of each other or both simultaneously, means, substantially such as described, for transmitting positive electric currents by the movement of one of said arms and currents of increased strength by the other,

and means, substantially such as described, for determining the number and relation of the said currents by the key depressed.

4. The combination, substantially as hereinbefore set forth, with a series of transmitting-keys, of means, substantially such as described, for transmitting alternating positive and negative impulses of a number depending upon the lateral position of the respective keys, and means, substantially such as described, for transmitting currents of increased strength of the number dependent upon the longitudinal position of said keys.

5. The combination, substantially as hereinbefore set forth, with a series of keys, two circuit-controlling arms, and means, substantially such as described, for moving the same beneath said keys and for arresting the same by contact with any one of said keys which may be actuated, of means, substantially such as described, for transmitting currents of different characteristics by the movements of said arms, respectively, and for determining the number of such impulses of either characteristic by the position of the key which is actuated.

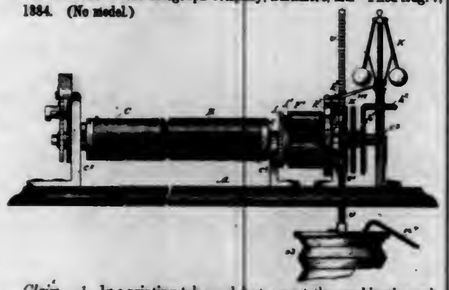
6. The combination, substantially as hereinbefore set forth, with a series of keys, of a plate for supporting the same, which plate is in the form of a segment of a globe, two curved arms extending at right angles to each other beneath said plate, two shafts respectively supporting said arms, and means, substantially such as described, for rotating said shafts both simultaneously until one or the other or both are arrested by contact with any one of said keys which may be depressed.

7. The combination, substantially as hereinbefore set forth, with a series of keys and two transmitting-arms extending beneath the same, of two revolving shafts frictionally connected with each other, carrying said arms, a pole-changing device moving with one of said shafts, a circuit-interrupting device moving with the other, a battery from which positive and negative impulses are transmitted by the action of said pole-changing device, and means, substantially such as described, for causing an increase in the strength of the current at any time transmitted through the action of said circuit pole-changing device.

8. The combination, substantially as hereinbefore set forth, with the arms C' and C^2 and the frictional gearing between the same, of the pole-changing device D', the circuit completing and interrupting device D^2, means, substantially such as described, for actuating said devices, the actuating-lever c^2, the contact-arm c^3, the battery E, the resistance c^5, and the circuit-connections for the same, substantially such as described.

316,687. AUTOMATIC GOVERNOR FOR PRINTING-TELEGRAPH TRANSMITTERS.

H. VAN HOEVENBERGH, Elizabeth, N. J., assignor to the Baltimore & Ohio Telegraph Company, Baltimore, Md. Filed Aug. 7, 1884. (No model.)



Claim.—1. In a printing-telegraph instrument, the combination, substantially as hereinbefore set forth, with a revolving shaft of the instrument, of a contact disk or wheel applied to said shaft, a friction-brake applied to said disk, and an automatically-operating governor for applying said brake with greater or less force to said disk, according to the rate of revolution of said shaft.

2. The combination, substantially as hereinbefore set forth, in a printing-telegraph transmitting-instrument, of the shaft *c*, the cylinder B, the revolving electro-magnet F', the disk *f*, attached to said shaft, the automatic governor, the contact-disk moving with said electro-magnet, and the brake applied to said contact-disk and controlled by said governor.

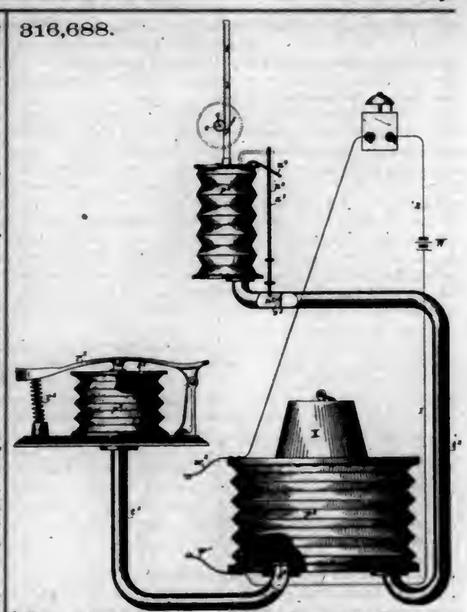
316,688. PNEUMATIC WINDING APPARATUS FOR PRINTING-TELEGRAPHS.

H. VAN HOEVENBERGH, Elizabeth, N. J., assignor to the Baltimore & Ohio Telegraph Company, Baltimore, Md. Filed Aug. 7, 1884. (No model.)

Claim.—1. The combination, substantially as hereinbefore set forth, with a printing-telegraph instrument and an actuating spring or weight, of a winding device consisting of a rack-bar and pinion for communicating motion to said spring or weight, a winding-bellows, means, substantially such as described, for causing said bellows to alternately expand and contract, a supply-bellows connected with said winding-bellows, and means, substantially such as described, for forcing air into said supply-bellows.

2. The combination, substantially as hereinbefore set forth, with a printing-telegraph instrument and a spring or weight for actuating the same, of a rack-bar for winding said spring or weight, a winding-bellows for actuating said rack-bar, a bellows for supplying air to said winding-

316,688.



bellows, and automatically-operated valves for controlling the supply of air furnished to said winding-bellows.

3. The combination, substantially as hereinbefore set forth, with a printing-telegraph instrument and a spring or weight for actuating the same, of a bellows, means, substantially such as described, for forcing air into said bellows, a tube leading from the first-named bellows to the second bellows, a valve contained within said tube, means, substantially such as described, for automatically opening said valve when the second bellows is exhausted, and for closing the same when it is expanded, and means, substantially such as described, for causing the movements of said bellows to wind said spring or weight.

4. The combination, substantially as hereinbefore set forth, with a printing-telegraph instrument, of a spring for actuating the same, a pinion and rack-bar for winding said spring, a bellows to which said rack-bar is attached, and means, substantially such as described, for causing said bellows to alternately expand and collapse.

5. The combination, substantially as hereinbefore set forth, with a printing-telegraph instrument and a spring for actuating the same, of a pinion and rack-bar for winding said spring, an expanding and contracting bellows or air-chamber, a source of compressed air, and means, substantially such as described, for periodically supplying air to said chamber, and for automatically releasing the air from said chamber when it has been expanded.

6. The combination, substantially as hereinbefore set forth, with a printing-telegraph instrument, of a spring or weight for actuating the same, a pinion and rack-bar for winding said spring or weight, an expanding and contracting air-chamber, a valve for closing said air-chamber, a source from which air is supplied to said chamber, a tube leading from said source to said chamber, a valve for closing said tube, and means, substantially such as described, for closing the first-named valve, and for automatically opening the second valve when the air is exhausted from said chamber, and for closing the second valve and subsequently automatically opening the first-named valve when said chamber is nearly filled.

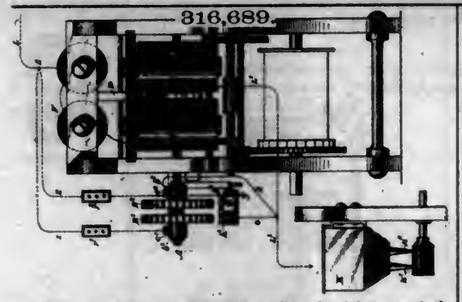
7. The combination, substantially as hereinbefore set forth, with a printing-telegraph instrument, of a bellows for communicating power thereto, an air-chamber for receiving air from said bellows, and an alarm-bell, a battery, a stationary contact-point connected with one pole of said battery, a contact-point carried upon a movable portion of said air-chamber, and connected with the other pole of said battery, whereby said bell will be automatically operated when said chamber is nearly exhausted.

8. The combination, substantially as hereinbefore set forth, with a printing-telegraph instrument, of a pinion and rack-bar for communicating motion thereto, a bellows to which rack-bar is attached, and means, substantially such as described, for causing said bellows to alternately expand and contract.

316,689. CHEMICAL PRINTING-TELEGRAPH.

H. VAN HOEVENBERGH, Elizabeth, N. J., assignor to the Baltimore & Ohio Telegraph Company, Baltimore, Md. Filed Aug. 7, 1884. (No model.)

316,689.



Claim.—1. The combination, substantially as hereinbefore set forth, with two type-wheels and means for revolving the same, of two insulated printing platens or electrodes, conductors connecting one of said type-wheels and one of said electrodes with the main line leading to the instrument, conductors connecting the remaining type-wheel and the remaining platen with the main-line conductor leading from the instrument, and means for impelling said electrodes toward said type-wheels.

2. The combination, substantially as hereinbefore set forth, with two insulated type-wheels and means for revolving the same, of a telegraphic main line, two insulated printing platens or electrodes, and means for transmitting an electric impulse from one of said type-wheels to its printing-platen and at the same time an impulse from the remaining of said platens to the corresponding type-wheel.

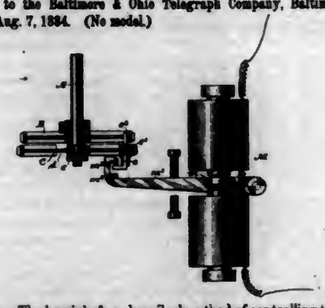
3. The combination, substantially as hereinbefore set forth, with two insulated type-wheels and means for revolving the same, of two insulated printing-electrodes, means for passing a chemically-prepared paper beneath said type-wheels and for causing said electrodes to press said chemically-prepared paper against said type-wheels, and means, substantially as described, for causing a positive current to pass from either type-wheel to its electrode at will, thereby causing an imprint to be made upon said chemically-prepared paper.

4. The combination, substantially as hereinbefore set forth, with a main line, two insulated type-wheels, and means for revolving the same, of two insulated printing-electrodes applied thereto, means for supporting a strip of chemically-prepared paper beneath said type-wheels, and means, substantially such as described, for causing an electric current to pass from one type-wheel to its electrode or from the other type-wheel to its electrode, thereby causing an impression to be effected from one or the other of said type-wheels upon said paper accordingly as an electric current is transmitted over said main line in one direction or the other.

5. The combination, substantially as hereinbefore set forth, with two or more type-wheels and means, substantially such as described, for effecting impressions therefrom upon chemically-prepared paper, of a chemical-solution reservoir having two outlets, and means, substantially such as described, for causing the paper to pass beneath said outlets to said type-wheels.

316,690. METHOD OF UNISONING PRINTING-TELEGRAPHS HAVING TWO TYPE-WHEELS.

H. VAN HOEVENBERGH, Elizabeth, N. J., assignor to the Baltimore & Ohio Telegraph Company, Baltimore, Md. Filed Aug. 7, 1884. (No model.)

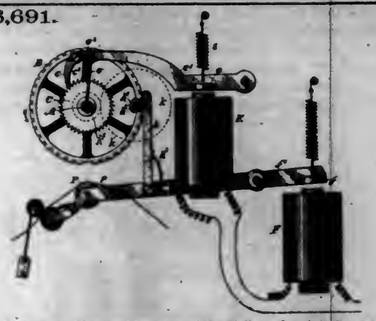


Claim.—The hereinbefore-described method of controlling two type-wheels, which consists in retaining one in a predetermined position while the other is free to advance, locking the two together, and by such operation bringing the second type-wheel into a position corresponding to that of the first, releasing both type-wheels when so locked, interposing a detent in the path of the same for securing a unison of both type-wheels, and revolving both until arrested thereby.

316,691. UNISON DEVICE FOR PRINTING-TELEGRAPHS.

H. VAN HOEVENBERGH, Elizabeth, N. J., assignor to the Baltimore & Ohio Telegraph Company, Baltimore, Md. Filed Aug. 7, 1884. (No model.)

316,691.



Claim.—1. The combination, substantially as hereinbefore set forth, with the type-wheel of a printing-telegraph instrument, of an electro-magnet, means, substantially such as described, for advancing the said type-wheel step by step through the agency of said electro-magnet, a printing-lever, and means, substantially such as described, for causing an advance movement of said type-wheel through the agency of said printing-lever when said lever moves away from said type-wheel.

2. The combination, substantially as hereinbefore set forth, with the type-wheel of a printing-telegraph instrument, and means, substantially such as described, for advancing it step by step, of a printing-lever, a rack-bar moving with said printing-lever, a toothed wheel or pinion engaged by said rack-bar and caused to rotate when said lever moves away from said type-wheel, and means, substantially such as described, for communicating the movement of said ratchet-wheel or pinion to said type-wheel.

3. The combination, substantially as hereinbefore set forth, with the type-wheel of a printing-telegraph instrument and means for advancing it, of a printing-lever, a toothed bar moving with said printing-lever, a ratchet-wheel or pinion to which said bar is applied, and a frictional gearing between said ratchet-wheel or pinion and said type-wheel.

4. The combination, substantially as hereinbefore set forth, with the type-wheel of a printing-telegraph instrument, of a ratchet-wheel moving with said type-wheel, a pawl for advancing said ratchet-wheel step by step, an electro-magnet for actuating said pawl, a printing-lever for effecting impressions from said type-wheel, a wheel caused to advance by the movements of said printing-lever away from said type-wheel, and a frictional gearing between the last-named wheel and said type-wheel.

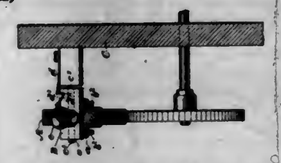
5. The combination, substantially as hereinbefore set forth, with the type-wheel of a printing telegraph-instrument, of a pawl and ratchet-wheel for actuating the same step by step, a click for engaging said ratchet-wheel when said pawl has caused an advancement of said type-wheel, a printing-lever for effecting impressions from said type-wheel while said ratchet-wheel is engaged by said click, and means, substantially such as described, for advancing said type-wheel to its unison-point after an impression has been taken therefrom and said ratchet-wheel has been released from said click.

6. The combination, substantially as hereinbefore set forth, with the type-wheel, and means, substantially such as described, for advancing the same step by step, of a printing-lever and a frictional connection between said lever and said type-wheel whereby the latter is advanced.

7. The combination, substantially as hereinbefore set forth, with the type-wheel of a printing-telegraph instrument, of an electro-magnet, its armature and armature-lever for effecting a step-by-step advancement of said type-wheel, a printing-lever for effecting impressions therefrom, a frictional connection between said printing-lever and said type-wheel whereby the latter is automatically advanced after an impression has been effected therefrom, and a device for arresting said type-wheel in a given position when it is so advanced, which device consists of an arm moving with said type-wheel and a detent carried upon the first-named armature-lever, which detent is in the path of said arm only when said arm is remote from said electro-magnet.

316,692. INKING-ROLLER FOR PRINTING-TELEGRAPH TYPE-WHEELS.

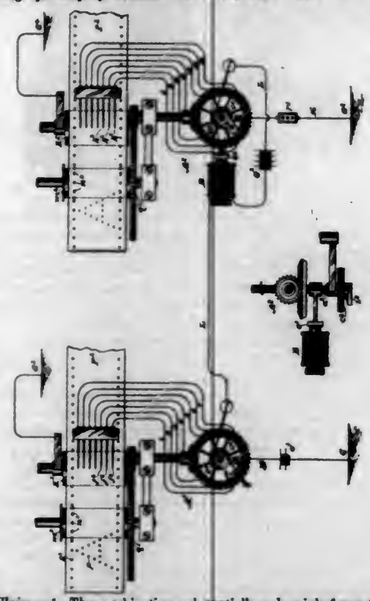
H. VAN HOEVENBERGH, Elizabeth, N. J., assignor to the Baltimore & Ohio Telegraph Company, Baltimore, Md. Filed Aug. 7, 1884. (No model.)



Claim.—The combination, substantially as hereinbefore set forth, with an inking-roller for printing-telegraph instruments, of a detachable

support for the same, an axis for said support, and a yielding spring for normally retaining said support upon said axis.

316,693. CHEMICAL OR FAC-SIMILE PRINTING-TELEGRAPH. H. VAN HOEVENBERGH, Elizabeth, N. J., assignor to the Baltimore & Ohio Telegraph Company, Baltimore, Md. Filed Aug. 7, 1884. (No model.)

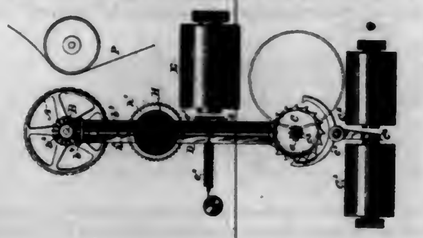


Claim.—1. The combination, substantially as hereinbefore set forth, of two regulated motors and a main line, two circuit-closing arms, respectively actuated by said motors and connected with the respective terminals of said main line, two series of contact-plates, respectively applied to said arms, a series of transmitting-points, respectively connected with the contact-plates applied to one of said arms, a series of receiving-styluses, respectively connected with contact-plates applied to the other of said arms, a battery and an electro-magnet included in the main line, two conductors, respectively connecting one of said contact-plates applied to each motor with the earth, and a battery included in one of said conductors.

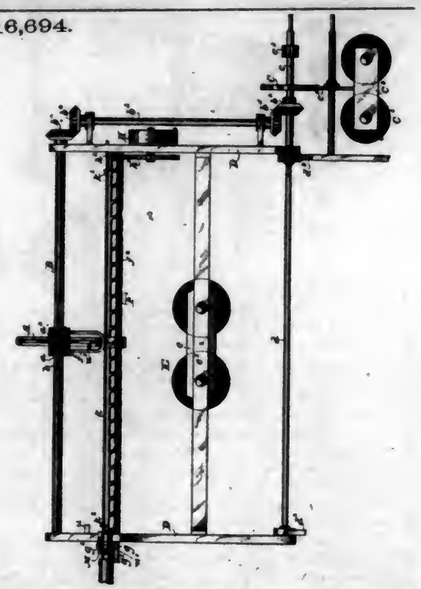
2. The combination, substantially as hereinbefore set forth, of two regulated motors and a main line, a battery included in said main line, an electro-magnet, also included in said main line, an armature moving with one of said motors and applied to said electro-magnet, a second battery, one pole of which is placed in connection with the main line through the action of the other of said motors, and a connection with the other pole of said battery, which is simultaneously established through the action of the first-named motor.

3. The combination, substantially as hereinbefore set forth, with a main line, a series of transmitting-points, and a circuit-controller for placing the same in connection with said main line in succession, of a paper-feeding device for causing a strip of paper to be moved beneath said points, two toothed wheels constituting a portion of said paper-feeding device, the teeth of which wheels enter perforations formed in the edge of said paper, and means for controlling the movements of said paper by the action of said circuit-controller.

316,694. METHOD OF PRINTING TELEGRAPHICALLY. H. VAN HOEVENBERGH, Elizabeth, N. J., assignor to the Baltimore & Ohio Telegraph Company, Baltimore, Md. Filed Aug. 7, 1884. (No model.)

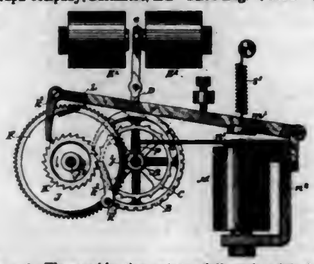


316,694.



Claim.—The hereinbefore-described method of printing telegraphically, which consists in moving a type-wheel transversely across the page upon which the impressions are to be made, revolving the type-wheel in each of a series of positions which it is thus caused to successively occupy for bringing the desired type before the paper, and impelling the type-wheel against the paper in each of these positions.

316,695. WINDING DEVICE FOR PRINTING-TELEGRAPHS. H. VAN HOEVENBERGH, Elizabeth, N. J., assignor to the Baltimore & Ohio Telegraph Company, Baltimore, Md. Filed Aug. 7, 1884. (No model.)



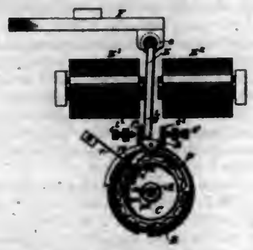
Claim.—1. The combination, substantially as hereinbefore set forth, with a type-wheel shaft, a scape-wheel, an escapement-anchor applied thereto, and an electro-magnet for actuating the same, of a spring or weight for actuating said shaft, and an independent electro-magnet included in an independent main line and its armature-lever for winding said spring or weight.

2. The combination, substantially as hereinbefore set forth, in a printing-telegraph instrument, with the type-wheel shaft, and means, substantially such as described, for permitting a step-by-step movement of the same, of a spring or weight for actuating said type-wheel shaft, a ratchet-wheel and pawl for winding said spring or weight, an electro-magnet included in an independent main line, its armature and armature-lever serving to actuate said pawl and at each successive movement in one direction to impart increased driving-power to said spring or weight, and a retaining pawl or dog applied to said ratchet-wheel.

3. The combination, substantially as hereinbefore set forth, of the escapement device of a printing-telegraph instrument, a spring or weight for actuating the same, an electro-magnet for winding said spring or weight, a unison-stop for said type-wheel, and an independent armature applied to said electro-magnet for arresting the type-wheel at its unison-point.

4. The combination, substantially as hereinbefore set forth, with the escapement device of a printing-telegraph instrument and a spring or weight for actuating the type-wheel of the instrument, of an electro-magnet, its armature and armature-lever for winding said spring or weight, a unison-stop applied to the type-wheel shaft of said instrument, and an independent armature applied to said electro-magnet, and serving to intercept the path of said unison-stop when said electro-magnet is vitalized by a current of a given character.

316,696. UNISON FOR PRINTING-TELEGRAPHS. H. VAN HOEVENBERGH, Elizabeth, N. J., assignor to the Baltimore & Ohio Telegraph Company, Baltimore, Md. Filed Aug. 7, 1884. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, with the type-wheel and type-wheel shaft of a printing-telegraph instrument, of a scape-wheel and escapement-anchor, a polarized armature and the electro-magnets for actuating the said escapement-anchor, a magnetic lever or rocker applied to said polarized armature, and a unison-stop actuated by said lever or rocker under the influence of currents of greater than normal strength.

2. The combination, substantially as hereinbefore set forth, with the type-wheel and type-wheel shaft of a printing-telegraph instrument, of an escapement device, a normally-polarized armature and electro-magnet for actuating said escapement device, a magnetic lever or rocker applied to said polarized armature, means, substantially such as described, for actuating said lever or rocker in one direction or the other through the influence of currents of greater than normal strength, accordingly as they are of one polarity or the opposite, and a unison device actuated by said lever or rocker.

3. The combination, substantially as hereinbefore set forth, with an escapement device for printing-telegraph instruments, of a unison-stop, a polarized armature and electro-magnets for actuating said escapement device, a magnetic lever or rocker applied to said polarized armature, and a unison-detent actuated by said lever or rocker.

4. The combination, substantially as hereinbefore set forth, of the escapement device of a printing-telegraph instrument, electro-magnets and an armature for actuating the same, a permanent magnet serving to normally polarize said armature to a given degree, a rocker applied to said polarized armature, which rocker is not actuated by the magnetism normally induced in said polarized armature, and a unison device which is operated through the influence of said polarized armature when said electro-magnets are traversed by currents of greater than normal strength.

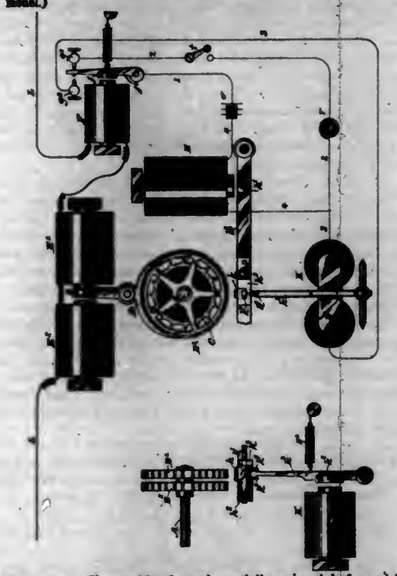
5. The combination, substantially as hereinbefore set forth, with the escapement device of a printing-telegraph instrument, a polarized armature, and electro-magnets for actuating the same, of a unison device, a lever of magnetic material applied thereto, and means, substantially such as described, whereby currents of greater than normal strength transmitted through said electro-magnets induce in said polarized armature sufficient magnetism to actuate said unison device through the lever applied thereto.

6. The combination, substantially as hereinbefore set forth, in a printing-telegraph instrument, of a permanent magnet, a soft-iron extension normally polarized thereby, a soft-iron lever applied to said extension, means, substantially such as described, for causing said extension to move from one to the other side of the axis of said lever, means, substantially such as described, for inducing in said extensions sufficient magnetism to actuate the same, and a unison device controlled by said lever.

7. The combination, substantially as hereinbefore set forth, with a permanent magnet and an armature normally polarized thereby, of two electro-magnets for actuating said polarized armature, a lever or rocker of soft iron applied to said polarized armature, which lever or rocker is centrally pivoted and located, as described, whereby the polarized armature is caused to present its extremities thereto upon opposite sides of its axis, a unison device actuated by said lever or rocker, and a yielding spring applied to said auxiliary armature, whereby it is normally held in one or the other of two positions.

8. The combination, substantially as hereinbefore set forth, with a permanent magnet and an armature normally polarized thereby, of two electro-magnets for actuating said armature, a lever or rocker of soft iron applied to said polarized armature, which lever or rocker is centrally pivoted and located, as described, whereby the polarized armature is caused to present its extremities thereto alternately upon opposite sides of its axis, a unison device actuated by said lever or rocker, and stops for limiting the movements of said lever or rocker.

316,697. PLATEN-SHIFTING DEVICE FOR PRINTING-TELEGRAPHS. H. VAN HOEVENBERGH, Elizabeth, N. J., assignor to the Baltimore & Ohio Telegraph Company, Baltimore, Md. Filed Aug. 7, 1884. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, with a type-wheel and a type-wheel shaft of a printing-telegraph instrument, of an escapement device for the same, an armature-lever responding to the impulses employed for actuating said escapement device, a local battery, two branch circuits which are alternately closed by the movements of said armature-lever, an electro-magnet included in one of said branch circuits, a movable platen, and means, substantially such as described, for shifting said platen from the plane of one of said type-wheels to that of the other when said electro-magnet is vitalized.

2. The combination, substantially as hereinbefore set forth, with two type-wheels, and means, substantially such as described, for actuating the same, of an electro-magnet, an armature applied to said electro-magnet, a front and back contact-stop applied to said armature-lever, a local battery, two branch circuits leading from said battery, the one or the other of which is completed accordingly as said armature-lever is or is not drawn toward its electro-magnet, a platen-shifting electro-magnet in one of said branch circuits, and a press-magnet included between said battery and said branch circuit.

3. The combination, substantially as hereinbefore set forth, with two type-wheels, and means, substantially such as described, for revolving the same, of an electro-magnet responding to electric impulses of whatever polarity, a press-maguet, a local battery, a branch conductor connecting one pole of said battery through said press-magnet, two branch conductors connected with said conductor, an armature and armature-lever applied to the first-named electro-magnet, two contact-stops applied to said armature-lever, with which said branch conductors are respectively connected, a movable platen applied to said type-wheels, a lever applied to said press-magnet, by which said platen is carried, a platen-transferring electro-magnet included in one of said branch conductors, and an armature and armature-lever applied to the last-named electro-magnet, whereby said platen may be caused to stand in the plane of one or of the other of said type-wheels, accordingly as said platen-transferring magnet is or is not vitalized.

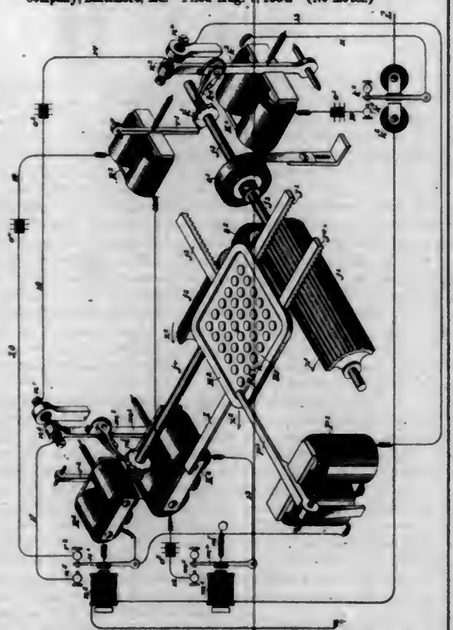
4. The combination, substantially as hereinbefore set forth, of two type-wheels, an escapement device for permitting a step-by-step movement of the same, a polarized armature and two escapement-magnets for actuating said device, an electro-magnet included in the circuit with the said escapement-magnets, an armature and armature-lever applied to the last-named electro-magnet, two contact-points for said armature-lever, two branch circuits, one or the other of which is completed accordingly as said armature-lever is in contact with one or the other of said points, a platen-transferring electro-magnet included in one of said branch circuits, and an artificial resistance included in the other, an armature and armature-lever applied to said platen-transferring magnet, a movable platen applied to said type-wheels, a mechanical connection, substantially such as described, between the last-named armature-lever and said platen, whereby said platen may be caused to stand in the plane of one or of the other of said type-wheels, and means, substantially such as described, for impelling said platen toward said type-wheels.

5. The combination, substantially as hereinbefore set forth, of two type-wheels, an escapement device for permitting a step-by-step movement of the same, an electro-magnet included in the circuit of the main line, an armature and armature-lever applied thereto, two contact-points applied to said armature-lever, a local battery, two branch circuits from the same, one or the other of which is completed accordingly as said armature-lever is or is not drawn toward its electro-magnet, a platen-transferring electro-magnet included in one of said branch circuits, and an artificial resistance included in the other, a movable platen applied to said type-wheels, a mechanical connection whereby said platen may be caused to stand in the plane of one or the other of said type-wheels, accordingly as said platen-transferring magnet is or is not vitalized, and a switch included in the circuit of said battery.

6. The combination, substantially as hereinbefore set forth, in a printing-telegraph instrument, of two type-wheels, and means, substantially such as described, for actuating the same, a printing-platen, and a press-magnet for actuating said platen, a platen-transferring electro-magnet, a local battery for vitalizing said platen-transferring and said press magnets, and means, substantially such as described, for completing the circuit of said battery either through said press-magnet independently of said platen-transferring magnet or through both of said magnets.

7. The combination, substantially as hereinbefore set forth, with two type-wheels, and means, substantially such as described, for actuating the same, of a movable platen, an electro-magnet for moving said platen, a local battery for vitalizing said electro-magnet, a press-magnet, and means, substantially such as described, for causing one or both of said electro-magnets to be vitalized by a current from said local battery when said type-wheels are brought to rest.

316,698. RECEIVER FOR PRINTING-TELEGRAPHS. H. VAN HOEVENBERGH, Elizabeth, N. J., assignor to the Baltimore & Ohio Telegraph Company, Baltimore, Md. Filed Aug. 7, 1884. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, of two or more series of independently-movable type, a flat support for the same, a printing roller or platen, means for moving said support in a direction parallel with its plane for bringing the series successively in line with said printing-platen, means for bringing the successive type in each series into line with said platen, which means may be operated independently of or simultaneously with each other, and means for actuating any one of said type thus brought into position.

2. In a printing-telegraph instrument, the combination, substantially as hereinbefore set forth, of two or more series of type, a printing-platen, means for causing said series to be successively moved across said platen, means for causing the type in each series to be successively moved across said platen, which means may be simultaneously set in operation, and an electro-magnet for actuating any type in said series.

3. The combination, substantially as hereinbefore set forth, of a series of type, a frame in which said type are carried, a pinion and rack-bar for advancing said frame in one direction, a pinion and rack-bar for advancing the same in a different direction, and means, substantially such as described, for actuating either one or both of said pinions at will.

4. The combination, substantially as hereinbefore set forth, in a printing-telegraph instrument, of a series of type, a flexible support for said type, a frame carrying said support, a pinion and rack-bar for moving said support in one direction, a second pinion and rack-bar for moving it in another direction, and means, substantially such as described, for actuating either one or both of said pinions at will.

5. The combination, substantially as hereinbefore set forth, in a printing-telegraph instrument, of a type-support, a series of type carried thereby and having their faces supported in a common plane, means, substantially such as described, for forcing any one of said type out of such plane, a rack-bar attached to said support, a pinion with which it gears, and electro-magnets for controlling the same substantially as described, whereby said support may be moved in a constant plane carrying all of said type in a straight line.

6. The combination, substantially as hereinbefore set forth, of a series of type having their faces in a common plane, a frame in which said type are carried, two pinions placed at an angle to each other, rack-bars extending from said frame and engaged by said pinions respectively, a ratchet-wheel applied to each of said pinions, two electro-magnets for driving said ratchet-wheels respectively, and means, substantially such as described, for vitalizing either or both of said electro-magnets at will.

7. The combination, substantially as hereinbefore set forth, of a series of type having their faces in a common plane, a frame in which said type are carried, two pinions placed at an angle to each other, rack-bars extending from said frame and engaged by said pinions respectively, a ratchet-wheel applied to each of said pinions, two electro-magnets for driving said ratchet-wheels respectively, means, substantially such as described, for vitalizing either or both of said electro-magnets at will, two retaining pawls or dogs respectively applied to said ratchet-wheels, a main line, a polarized and a neutral relay included in the circuit thereof, and two local circuits one of which is completed by the action of said polarized relay when traversed by currents of a given polarity, and the second of which is completed by the action of said neutral relay when traversed by currents of an increased strength and of either polarity.

8. The combination, substantially as hereinbefore set forth, of two or more series of type, a movable support for the same, two local batteries, a local electro-magnet in the circuit of one of said local batteries, means, substantially such as described, controlled by said local electro-magnet for moving said type-support in one direction, a second electro-magnet included in the circuit of the second local battery, and means, substantially such as described, controlled by said second electro-magnet for moving said type-support in another direction.

9. The combination, substantially as hereinbefore set forth, of a telegraphic main line, a polarized and a neutral relay, two local batteries the circuit-connections of which are controlled by said relays respectively, a series of type having their faces in a common plane, and means, substantially such as described, applied to each of said relays, whereby said type may be moved in one direction or another or in a resultant direction, substantially as described, by the action of said relays.

10. The combination, substantially as hereinbefore set forth, of a telegraphic main line, a polarized and a neutral relay, two local batteries the circuit-connections of which are controlled by said relays respectively, a series of type having their faces in a common plane, means, substantially such as described, applied to each of said relays, whereby said type may be moved in one direction or another or in a resultant direction, substantially as described, by the action of said relays, and means, substantially such as described, for returning said type to their normal position.

11. The combination, substantially as hereinbefore set forth, of a telegraphic main line, a polarized and a neutral relay included in the circuit of the same, two local circuits the connections of which are controlled by said relays respectively, two electro-magnets respectively included in said local circuits, a series of type, and means, substantially such as described, controlled by said electro-magnets for moving said type, springs or equivalent devices tending to return said type to their normal position, retaining-pawls for normally preventing said springs from acting, and an electro-magnet included in the circuit of the main line, and serving to cause said springs to be released from said retaining-pawls only when the main-line circuit is interrupted.

12. The combination, substantially as hereinbefore set forth, of a telegraphic main line, relays included in the circuit of the same, local circuits respectively controlled by said relays, electro-magnets respectively included in said circuits, their armatures and armature-levers, a series of type, and means, substantially such as described, controlled by said electro-magnets for moving said type in one direction or another or in a resultant direction, a printing-magnet for effecting impressions from said type, a local circuit for causing said printing-magnet to be vitalized, resting contact-stops applied to said armature-levers, through which the connections of the last-named circuit are formed when said electro-magnets are demagnetized, and means, substantially such as described, for causing said printing-magnet to be vitalized under the influence of a prolonged current traversing said main line.

13. In a printing-telegraph instrument, the combination, substantially as hereinbefore set forth, of a printing-platen, a series of type, a single flexible support for all of said type, a printing-lever extending above said printing-platen, and means, substantially such as described, for causing any one of said type to be placed between said platen and lever by moving them all simultaneously in any one of three directions.

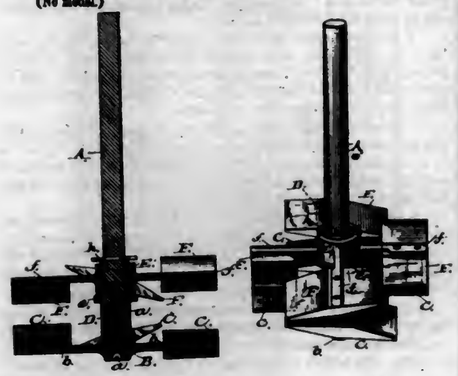
14. In a printing-telegraph instrument, the combination, substantially as hereinbefore set forth, of a series of type having their faces in a common plane, means, substantially such as described, for moving said type in any one of three directions simultaneously in the plane of their faces, and means, substantially such as described, for effecting impressions from any one of said type at will.

15. In a printing-telegraph instrument, the combination, substantially as hereinbefore set forth, of a series of type arranged in transverse and longitudinal series, and having their faces in a common plane, and means, substantially such as described, for moving said type in a direction parallel either to the transverse or to the longitudinal series or in a resultant direction.

16. In a printing-telegraph instrument, the combination, substantially as hereinbefore set forth, of the flexible plate H', the type *h*, the pinions j' and j^3, the rack-bars engaged by said pinions, the ratchet-wheels k' and m', the driving-pawls applied thereto, the electro-magnets for actuating said pawls, the retaining-pawls r' and r^3, the electro-magnets controlling the same, the printing-magnet P', and the local batteries for completing the circuit-connections of said electro-magnets respectively, all arranged substantially as described.

17. The combination, substantially as hereinbefore set forth, of a series of type, a supporting-plate for the same, an electro-magnet, its armature, and armature-lever responding to electric currents of alternating polarity to move said plate in a given direction, and an electro-magnet, its armature, and armature-lever responding to electric currents of a given strength for moving said plate in another direction, substantially as described.

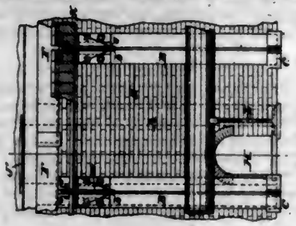
316,699. CHURN-DASHER. JAMES D. WALLACE, Salina, Ohio, assignor of one-half to W. H. Martin, same place. Filed Oct. 31, 1884. (No model.)



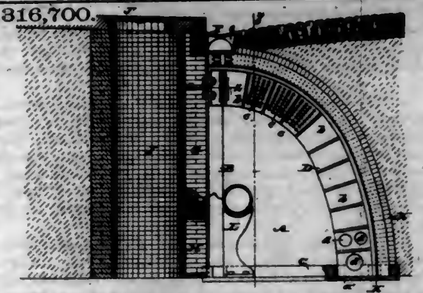
Claim.—1. The staff A, in combination with sleeve D, provided with a bearing-flange, *e*, at or near its center, a dasher with hollow hub encircling the sleeve, and arms carrying diamond-shaped blades having straight and inclined faces attached to the hubs, substantially as described.

2. The staff A, sleeve D, provided with a flange, *e*, the hub E, arms *f*, and diamond-shaped blades F, in combination with a hub, B, bearing against the lower end of the sleeve, said hub having a countersunk opening, the arms *b*, attached to the hub, and diamond-shaped blades C, attached to the arms, the screw *a*, and pin *h*, all constructed to operate substantially as described, and for the purpose herein set forth.

316,700. UNDERGROUND CONDUIT FOR ELECTRIC WIRES. WILLIAM WALTER, Philadelphia, Pa. Filed Sept. 12, 1884. (No model.)



316,700.



Claim.—1. An underground conduit having a metallic frame formed of standards and trusses, the latter rising from a base and joining the top of the standards, substantially as and for the purpose set forth.

2. An underground conduit having a metallic frame formed of standards, trusses, and a base, said trusses rising from the base and joining the tops of the standards, the trusses and standards being connected with the base and supported thereon, substantially as and for the purpose set forth.

3. An underground conduit having a frame formed of standards and trusses of T-iron, and a base on which said standards and trusses are supported, substantially as and for the purpose set forth.

4. An underground conduit below the street-pavement, in combination with a pit, J, below the sidewalk, the wall G of said pit being between the conduit and pit, and provided with a man-hole, and having the side standards of the conduit-frame fitted against said wall, substantially as and for the purpose set forth.

5. A frame for an underground conduit, having trusses of T-iron the webs whereof are perforated, substantially as and for the purpose set forth.

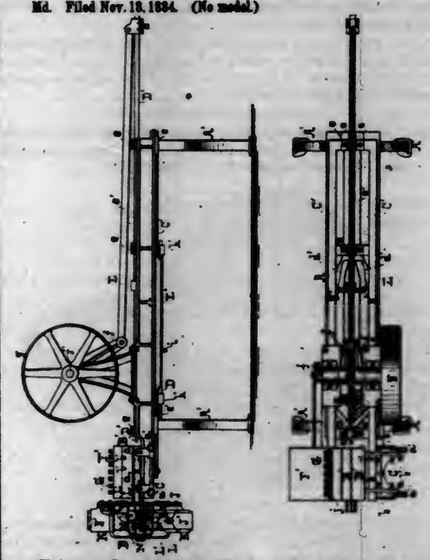
6. The standards B, having the trusses D, connected with the upper ends thereof, in combination with masonry or covering K, rising from the base of the conduit and supported on said trusses, substantially as and for the purpose set forth.

7. An underground conduit having the base C, standards B, and trusses D, in combination with the hollow metallic gutter F, substantially as and for the purpose set forth.

8. An underground conduit formed of the slotted base C, standards B, trusses D, having perforations *c*, and masonry G, substantially as and for the purpose set forth.

9. An underground conduit formed of the base C, standards B, trusses D, masonry G, having man-hole therein, in combination with the pit J, substantially as and for the purpose set forth.

316,701. GREEN-CORN CUTTER. SOLOMON D. WARFIELD, Baltimore, Md. Filed Nov. 13, 1884. (No model.)



Claim.—1. In combination with the cutting-head of a green-corn cutter, a clasping and centering device, in two parts, adapted to have a reciprocating motion radially of the axis of the ear, levers to which the

said clasping and centering devices are pivoted, means to open or separate the said levers and their attachments, toggle-bars to connect the said levers, and means, substantially as described, to bend the toggle and maintain its central position, substantially as and for the purpose specified.

2. In combination with the cutting-head of a green-corn cutter, a clasping and centering device, in two parts, adapted to have a reciprocating motion radially of the axis of the ear, levers to which the clasping and centering devices are pivoted, means to open or separate the said levers and their attachments, toggle-bars to connect the said levers, a toggle-rod to bend the toggle-bars and maintain their central position, and a spring to move the said toggle-rod, substantially as and for the purpose specified.

3. In combination with the cutting-head of a green-corn cutter, a clasping and centering device, in two parts, adapted to have a reciprocating motion radially of the axis of the ear, levers having their outer ends connected to the said clasping and centering devices, and having inclined offset surfaces, a moving cross-head with pins which bear against the said offset surfaces to open or separate the said levers, and toggle mechanism to close the same, substantially as and for the purpose specified.

4. A clasping and centering device for a green-corn cutter, in two parts, arranged on either side of the ear, slotted carriages for confining said parts, and means for their adjustment in every direction, combined with means to reciprocate the said carriages to and from the ear, substantially as specified.

5. A clasping and centering device for a green-corn cutter, in two parts, arranged on either side of the ear, the slotted carriages, the levers, and suitable adjusting means to admit of the parts being set in any direction to suit the center of the machine, combined with means to reciprocate the said clasping and centering devices to and from the ear, substantially as specified.

6. In combination with the feeding-hopper of a green-corn cutter, an inclined table for the ears on either side of the said hopper, devices whereby the ears are carried from the table to the hopper, one by one, and means for effecting the alternate action of the said devices, substantially as specified.

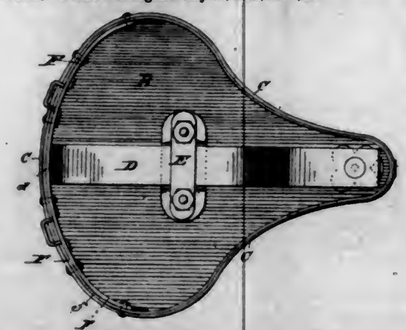
7. In a cutting-head for a green-corn cutter, the combination of an annular plate adapted for attachment to the machine, a series of knife-plates carrying knives which are movable radially of the plate, suitable holders for said knife-plates, a series of scrapers the scraping-edges of which are in the rear of the cutting-knives, said scrapers being pivoted to the said holders and having feet, and springs fastened to the rear side of the plate with their movable ends bearing against the said feet, substantially as and for the purpose specified.

8. In combination with the cutting-knives of a green-corn cutter, a series of interlocking splitting-knives secured in advance of the said cutting-knives, substantially as and for the purpose specified.

9. In combination with the cutting-knives of a green-corn cutter, a series of interlocking splitting-knives secured in advance of the said cutting-knives, and means for the radial adjustment of the said splitting-knives, substantially as specified.

10. In combination with the cutting-knives of a green-corn cutter, a series of splitting-knives carrying cutting-blades arranged obliquely to the line of movement of the ear, and with the cutting-edges parallel therewith, substantially as specified.

316,702. BICYCLE-SADDLE. THOMAS WARWICK, Aston Juxta, Birmingham, County of Warwick, England. Filed Aug. 4, 1884. (No model.) Patented in England May 14, 1884, No. 7,896.



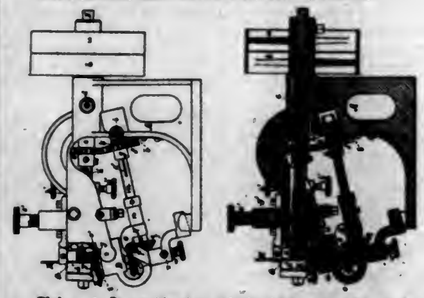
Claim.—In saddles for bicycles, tricycles, and other vehicles, a cover, B, a spring, D, bowed beneath the cover to have one end secured to the pommel and its other beneath the cantle, and a spring-band, F, compressed and secured beneath the cantle to have its ends extend to the widest part thereof and secured to one end of spring D, so as to compress it between its ends, all combined and operating to form a saddle having its seat-surface automatically stretched by its supporting-frame.

316,703. LUBRICATING COMPOUND. DYSON D. WARD, New York, N. Y. Filed Jan. 7, 1884. Renewed Oct. 24, 1884. (No specimens.)

Claim.—1. A lubricating compound made, as herein described, of paraffine, mineral oil, and talc, in about the proportions set forth.

2. A lubricating compound made, as herein described, of paraffine, mineral oil, talc, and alcohol, in about the proportions set forth.

316,704. MACHINERY FOR SKIVING LEATHER. JEREMIAH M. WATSON, Sharon, Mass. Filed Feb. 20, 1885. (No model.)



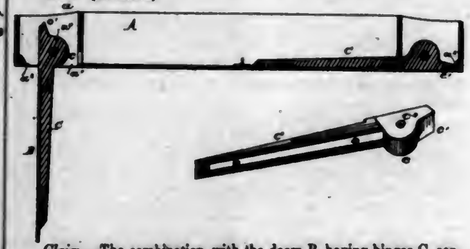
Claim.—1. In combination with the driving-shaft B and the feed-wheel C thereon, and with the rotary table E and its spindle *t*, the vertically-movable box or block *b'*, carried by the said shaft, and the vibratory head D, hinged to such block and to the frame of the machine and provided with mechanism for revolving the said spindle, such mechanism, as represented, consisting of the tilting sleeve or box *c*, bevel-gears *e f*, grooved sleeve *g*, rock-shaft *h*, fork *l*, shaft *m*, fork N, gears *q* and *r*, and tubular shaft *s*, the bevel-gear *e* being fixed on the driving-shaft, and all being substantially as set forth.

2. The combination, essentially as described, for revolving the spindle of the rotary table, such consisting of the tilting sleeve or box *c*, bevel-gears *e f*, grooved sleeve *g*, rock-shaft *h*, fork *l*, shaft *m*, fork N, gears *q* and *r*, and tubular shaft *s*, the gear *e* being fixed on the driving-shaft, and all being arranged as represented.

3. The combination of the knife H with the gage, the skiving-knife, and the feed-wheel, and with the rotary table having a circular groove in it, as described, to receive the point of the said knife, such feed-wheel and table being provided with mechanism for operating them, substantially as set forth, relatively to the said knives.

4. The combination of the skiving-knife carrier or supporting-block *d'* with the lever G, pivoted to such block, fulcrumed to the machine-frame, and provided with adjusting-screws *h' i'*, as set forth, and with the screw *k'*, arranged in the said frame and to bear against the knife-carrier, all being substantially and to operate as represented.

316,705. HINGE AND FRAME FOR VAULT-COVERS. MICHAEL S. WELLER, Charlestown, W. Va. Filed Feb. 13, 1883. Renewed Mar. 17, 1885. (No model.)



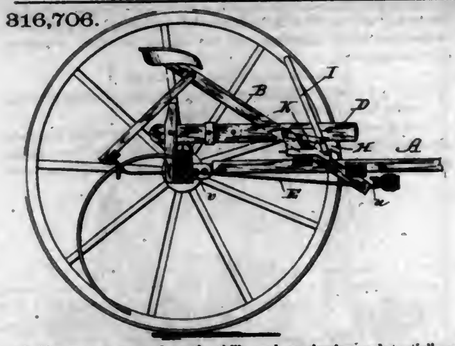
Claim.—The combination, with the doors B, having hinges C, constructed substantially as described, of the frame A, provided with boxes *a*, having closed back and sides, and cast integral with said frame, substantially as described, whereby the hinge is protected, for the purposes set forth.

316,706. HORSE HAY-RAKE. CYRUS A. WORDEN, Waukegan, Ill., assignor of three-fourths to William B. Worden, Francis H. Worden, and Clinton A. Worden, all of same place. Filed Jan. 16, 1884. (No model.)

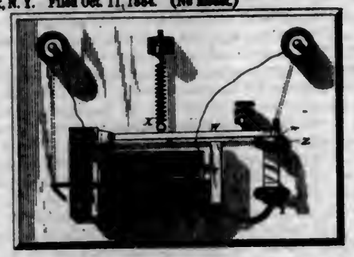
Claim.—1. In a horse hay-rake, the combination, with the rocking axle carrying rake-teeth, and with the thills hinged or pivoted to the axle and carrying the driver's seat, of the toggle-lever D, pivoted toward its rear end above the axle to a bearing projecting upward from the axle and pivoted toward its forward end in a sliding bearing upon a suitable support secured to the thills, and mechanism, substantially as described, for sliding the said forward bearing and toggle-lever back and forth and securing it at different points, as set forth.

2. In a horse hay-rake, the combination, with the rocking axle carrying rake-teeth, and with the thills hinged or pivoted to the axle and carrying the driver's seat, of the toggle-lever D, pivoted toward its rear end above the axle to a bearing projecting upward from the axle-bearing G, to which the toggle-lever D is pivoted toward its forward end, guide-plate F, fixed to a suitable support upon the thills in which the bearing G slides, curved notched plate H, fixed to a support on the thills, lever I, fulcrumed at its lower end to the said notched-plate, link K, connecting the lever I with the toggle-lever D, and spring-dog upon the lever I, operated by the hand for securing the said lever to the notched plate H, substantially as described.

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316,707. ELECTRIC-LIGHTING SYSTEM. EDWARD WESTON, Newark, N. J., assignor to the United States Electric Lighting Company, New York, N. Y. Filed Oct. 11, 1884. (No model.)



Claim.—1. The combination, in a system of electrical distribution with translating devices and electro-magnetic switches or circuit-controllers in derived circuits, of an electro-magnetic circuit-controller in the main circuit adjusted or adapted to complete the main circuit when the proper electro-motive force for positively operating the other circuit-controllers has been developed by the generator, as and for the purpose set forth.

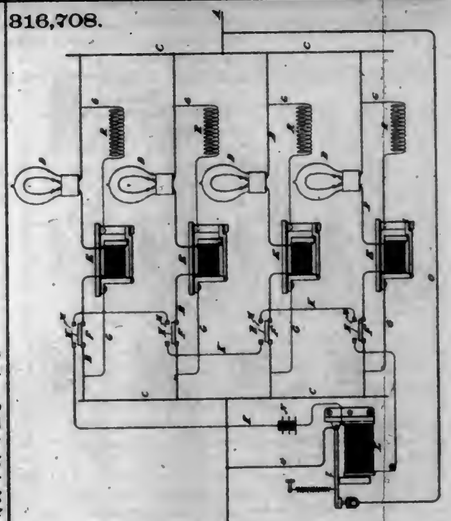
2. The combination, in a system of electrical distribution with incandescent lamps, circuit closers or controllers and electro-magnets for operating the same, all included in cross or multiple circuits, as described, of an electro-magnetic circuit-controller in the main circuit, adjusted or adapted to be brought into operation and complete the main circuit when the electro-motive force developed by the generator is sufficient for positively actuating the other devices connected with the circuit, as herein set forth.

3. The combination, in a system of electrical distribution with incandescent lamps, circuit closers or controllers, and electro-magnets for operating the same, all included in cross or multiple circuits, as described, of a switch in the main circuit operated by an electro-magnet with two coils, one of high resistance in a constantly-closed bridge between the terminals of the switch, the other of low resistance in the circuit controlled by the switch, these devices being constructed and adjusted in substantially the manner set forth.

316,708. ELECTRIC-LIGHTING SYSTEM. EDWARD WESTON, Newark, N. J., assignor to the United States Electric Lighting Company, New York, N. Y. Filed Nov. 26, 1884. (No model.)

Claim.—1. The combination, with a divided main line, incandescent lamps, switches, and resistances to be substituted for the lamps included in or connected with the divisions or branches of the circuit, of a shunt of low resistance around the divisions of the circuit, a supplemental circuit controlled by the lamp-switches, and a switch in the shunt of low resistance controlled by a magnet in the supplemental circuit, as set forth.

316,708.



2. In a multiple-series system in which the line is divided at intervals into a group or given number of branches, the combination, with each branch in a group, of an incandescent lamp, a manual switch, a resistance, and an automatic switch or cut-out for introducing the resistance in place of the lamp, and with the entire group of branches, of a shunt of low resistance, a supplemental circuit controlled by the lamp-switches, and an electro-magnet and devices operated thereby for controlling the shunt of low resistance, as and for the purpose set forth.

3. In a multiple-series system in which the line is divided at intervals into a group or given number of branches, the combination, with each branch in a group, of an incandescent lamp, a manual switch, a resistance, and an automatic switch or cut-out for introducing the resistance in place of the lamp, and with the entire group of branches, of a shunt of low resistance, a supplementary circuit containing a series of breaks that are opened by the movements of the lamp-switches and interrupt the lamp-circuits, and conversely, an electro-magnet in said supplemental circuit, and switch mechanism in the shunt of low resistance operated thereby, as set forth.

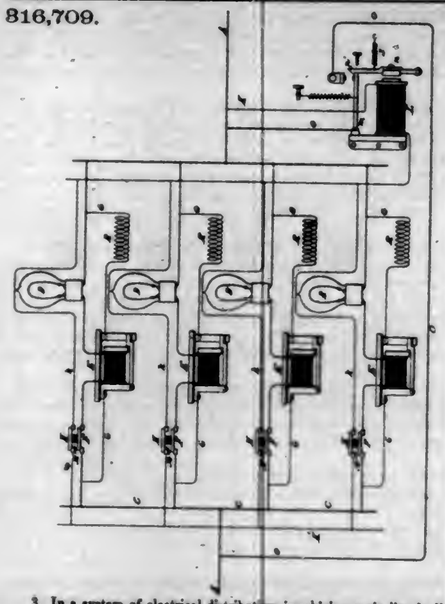
4. In a multiple-series system in which the line is divided at intervals into a group or given number of branches, the combination, with each branch in a group, of an incandescent lamp, a manual switch, a resistance, and an automatic switch or cut-out for introducing the same in place of the lamp, and with the entire group of branches, of a shunt of low resistance, an independent circuit containing a series of breaks that are opened and closed by the movements of the lamp-switches, a battery and electro-magnet in the independent circuit, and switch mechanism in the shunt operated or controlled thereby, as and for the purpose set forth.

316,709. ELECTRIC-LIGHTING SYSTEM. EDWARD WESTON, Newark, N. J., assignor to the United States Electric Lighting Company, New York, N. Y. Filed Nov. 26, 1884. (No model.)

Claim.—1. In a system of electrical distribution, in which a main line is divided at intervals into a group or given number of branches, the combination, with each branch in a group, of an electric lamp, a switch and a resistance arranged to be substituted for the lamp, and with each group of branches, of a shunt of low resistance around the same, a supplemental controlling-circuit having multiple or cross connections between its positive and negative wires, each containing a break controlled by a lamp-switch, a circuit-closer in the shunt-circuit, and an electro-magnet in the supplemental controlling-circuit for operating the same, as set forth.

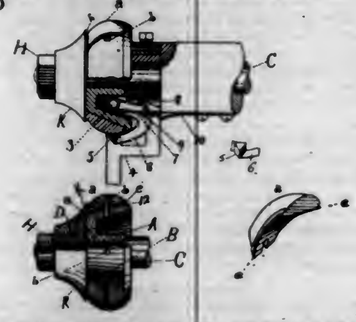
2. In a system of electrical distribution, in which a main line is divided at intervals into a group of a given number of branches, the combination, with each branch in a group, of an electric lamp, a manual switch, an automatic switch or cut-out, and a resistance for replacing the lamp, and with each group of branches, of a shunt of low resistance, a supplemental controlling-circuit having multiple or cross connections between its positive and negative wires, each containing a break controlled by a lamp-switch, a circuit-closer in the shunt-circuit, and a magnet in the supplemental controlling-circuit for operating the same, as and for the purpose described.

316,709.



3. In a system of electrical distribution, in which a main line is divided at intervals into a group or given number of branches, the combination, with each branch in a group, of an electric lamp, a switch and a resistance to take the place of the lamp, and with each group of branches, of a shunt-circuit of low resistance, a controlling-circuit derived from the main, and containing breaks that are controlled by the lamp-switches, an electro-magnet in the controlling-circuit, and a circuit-closer in the shunt-circuit operated thereby, as and for the purpose set forth.

316,710. HEEL-TRIMMING MACHINE. JOSEPH C. WETMORE, Lynn, Mass., assignor to Aaron F. Smith, same place. Filed Nov. 21, 1884. (No model.)



Claim.—1. In combination with a trimmer-tool of substantially the construction described, the guide-foot 5, having arm 6, adapted to reach into the hub of the trimmer and pivoted therein, as stated, and the spring 7, adapted to operate substantially as and for the purposes stated.

2. In combination with a trimmer-tool arranged to operate substantially as described, the guide or foot 5, having arm 6, adapted to reach into the hub of the trimmer and pivoted therein, as stated, and the spring 7 and supplemental spring 10, arranged to operate substantially as and for the purposes described.

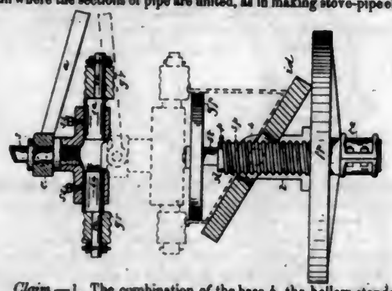
3. In combination with the revolving trimmer-tool adapted to operate substantially as described, the described guide or presser foot 5, adapted to operate against the top lift, as stated, and also permit of lateral movement across the path of the trimmer-tool on a line corresponding to the surface thereof, substantially as and for the purposes stated.

4. In combination with a rotary trimmer-tool adapted to operate substantially as described, the yielding non-revolving guide or foot 5, and stationary supporting-arm 4, arranged to operate as and for the purposes stated.

5. The combination of the hub A, carrying the recessed cutters, and sustaining-pins *b*, adapted thereto, plate D, loose on the driving-shaft, a tightening-nut on the shaft, adapted to clamp the cutters between the plate D and the rib of the hub, and the rand-guide, supported loosely on the plate D and extending over the edge of the same, all substantially as described.

316,711. EDGE-CURLING MACHINE. WILLIAM A. WHEELER, Indianapolis, Ind. Filed Feb. 16, 1885. (No model.)

Brief.—Curls over the edges of sheet-metal pipes which have been previously flanged by other machines, the object being to form a double seam where the sections of pipe are united, as in making stove-pipe elbows.



Claim.—1. The combination of the base *b*, the hollow standard *hs*, provided with arms, the vertical shaft *s*, having bearings in such arms, the chuck *ch*, mounted on such shaft, and the grooved rollers *gr*, mounted on the axle *ea* of the stub-axle *sa*, which stub-axle is adapted to fit in openings in said chuck, all combined substantially as described.

2. The base *b*, the hollow standard *hs*, providing bearings for a shaft carrying the chuck *ch*, having openings to receive the stub-axles, upon which the grooved rollers *gr* are mounted eccentrically, as shown, and the treadle *t*, having arm and lever connections for raising and lowering the shaft *s*, all combined substantially as described.

3. The chuck-head *ch*, having openings to receive the stub-axles *sa*, provided with eccentric axles *ea*, and the grooved rollers *gr*, mounted on such eccentric axles, all combined substantially as described.

4. The face-plate *fp*, having standards connected therewith, the inclined disk *id*, having pivotal bearings in such standards, the guide-plate *gp*, mounted on the upper end of the standard *st*, provided with the pin *p*, which is surrounded by a sleeve having a slot to receive such pin, and a coil-spring pressing against such pin passing through an opening in the inclined disk *id*, the whole connected to the hollow standard *hs*, all combined substantially as described.

5. The base *b*, supporting the hollow standard *hs*, having arms for carrying the shaft *s* in bearings therein, the chuck-head *ch*, connected with such shaft, the grooved rollers *gr*, mounted on eccentric axles connected with such chuck, the face-plate *fp*, provided with standards for carrying the inclined disk *id* in bearings therein, the guide-plate *gp*, for guiding the pipe-section, the standard *st*, having the pin *p*, connected with such guide-plate passing through the inclined disk and surrounded by the sleeve *sl*, slotted to receive the pin *p*, and the spring *sp*, pressing against such pin, the clamp-arm *ca*, the treadle *t* with its arm and lever connections to the shaft *s*, and driving mechanism, all combined substantially as described.

6. The stub-axle *sa*, having the eccentric axle *ea* connected therewith, in combination with the grooved rollers *gr*, for curling the pipe-edge mounted thereon, substantially as described.

7. The vertical shaft *s*, sustained in bearings, the chuck-head *ch*, connected with such shaft, the grooved rollers *gr*, mounted on axles connected with such chuck, the inclined disk *id*, pivoted to a support, the guide-plate *gp*, mounted on the upper end of the standard *st*, provided with the pin *p*, the sleeve *sl*, slotted to receive the pin *p*, and the coil-spring *sp*, pressing against such pin, the sleeve and its spring passing through openings in the inclined disk, the guide-plate and disk having connections to an arm and supporting-standard, all combined substantially as described.

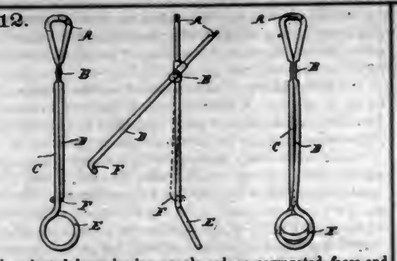
8. The guide-plate *gp*, mounted on the upper end of the standard *st*, provided with a pin, *p*, moving in the slot of a sleeve, *sl*, in which the standard slides, the sleeve surrounded by a coil-spring pressing against the pin *p*, which passes through an opening in an inclined disk having bearings in arms at the opposite sides thereof, the whole connected with a support, all combined substantially as described.

316,712. DEVICE FOR HOLDING SLEEVES OF GARMENTS. S. H. WARING, Bridgeport, Conn. Filed Feb. 9, 1885. (No model.)

Claim.—1. A sleeve-holder having a pair of jaws pivoted together, each of which is provided with a handle, one of said handles having a ring or cross-bar whereby the device may be grasped when in use, substantially as described.

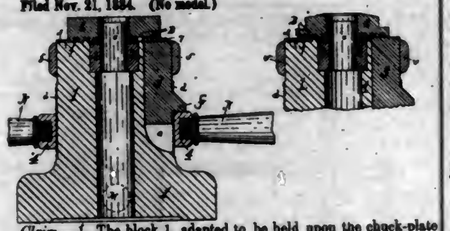
2. In a sleeve-holder, the jaws pivoted together and having handles C D, the former having a ring which is adapted to engage the thumb of the user, and the latter a hook which is adapted to engage handle C, whereby the jaws are held to their closed position.

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3. The pivoted jaws having roughened or corrugated faces and handles, one of which is provided with a hook to engage the other handle to hold the jaws closed, the other handle having a ring adapted to engage the thumb of the user.

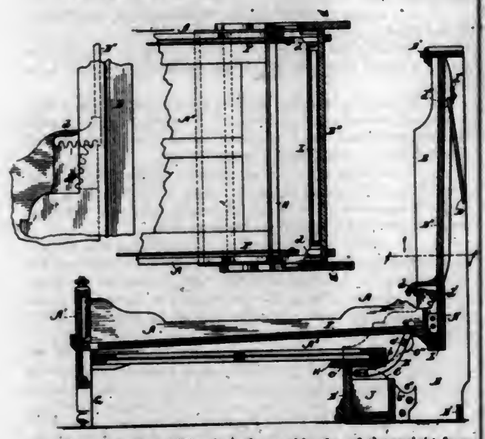
316,713. LATHE-TOOL. LUCIUS E. WHITON, West Stafford, Conn. Filed Nov. 21, 1884. (No model.)



Claim.—1. The block 1, adapted to be held upon the chuck-plate of a lathe or the drilling-table of a drilling-machine, having a scroll-thread, 7, upon its face adapted to receive the scroll-thread of the scroll-plate to be operated upon, substantially as described.

2. The block 1, adapted to be held upon the chuck-plate of a lathe or the drilling-table of a drilling-machine, having a screw-thread, *d*, and a scroll-thread, 7, adapted to receive the scroll-thread of the scroll-plate to be operated upon, in combination with the guide-bushing 2, threaded nut 4, sliding dogs 3 3 3, and ring 5, all substantially as described and set forth.

316,714. FOLDING BED. FITZALLAN B. WILLIAMS, Chicago, Ill., assignor of one-fourth to Waldo A. Williams, same place. Filed May 31, 1883. (No model.)



Claim.—1. In a folding bed, the combination of the upright frame with the sliding head-board and folding frame, the connection of the sliding head-board with the folding frame being substantially of the construction shown and described.

2. In a folding bed, the combination of the upright frame with the sliding head-board and the folding frame, the connections between the sliding head-board and both of said frames being substantially of the construction shown and described.

3. The combination of the stationary frame provided with segment-bearings having a projection at the lower part of the bearing-surface with the movable frame having its bearings the reverse of those upon the stationary frame and a projection at the upper part of the bearing-surface, links pivoted to the stationary and movable frames, legs G, pivoted to the movable frame, and bars F, pivoted to said legs and the links, substantially as and for the purpose specified

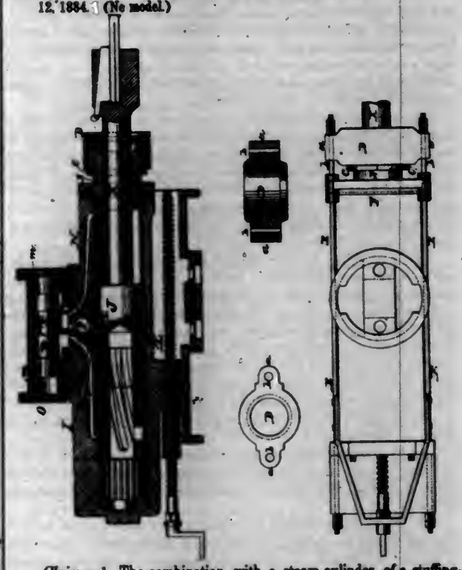
316,715. CORNICE. LOUIS WOELFLE, New York, N. Y. Filed Feb. 19, 1885. (No model.)



Claim.—1. A cornice composed of stripe *b b'*, secured to the wall and ceiling, a paper cove, A, made in sections and attached to faces of said stripe, and detachable moldings *d d*, covering the joints between said cove and stripe, substantially as described.

2. A cornice composed of stripe *b b'*, secured to the wall and ceiling, a paper cove, A, made in sections and attached to one of the exposed faces of said stripe, metallic face-pieces B, covering the joints between said cove-sections, and their inner faces conforming to the curve of the cove, and detachable moldings *d d*, covering the joints between said cove and stripe, substantially as described.

316,716. ROCK-DRILL. DE VOLSON WOOD, Beesten, N. J. Filed July 12, 1884. (No model.)



Claim.—1. The combination, with a steam-cylinder, of a stuffing-box consisting of the parts A C D, and rods E, secured to the cylinder, the forward ends of the latter supporting the said stuffing-box, substantially as set forth.

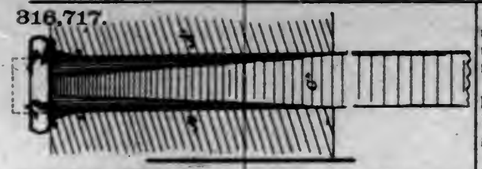
2. In a rock-drill, the stuffing-box composed of the parts A C D, the latter having apertures *b*, in combination with the side rods, E, which enter said apertures and retain the stuffing-box in place, substantially as described.

3. The combination, with the steam-cylinder I, provided with the ports M N, and the exhaust P, having a port, Q, passing to an annular space around the piston, of the piston J, provided with the annular recess L, connected with the exhaust, the piston R, provided with the small openings *m*, and the steam-chest O with the larger openings, *n*, and the piston R, also provided with the recess T, and into which the smaller openings, *m*, lead, the above parts being arranged and adapted to operate substantially as described.

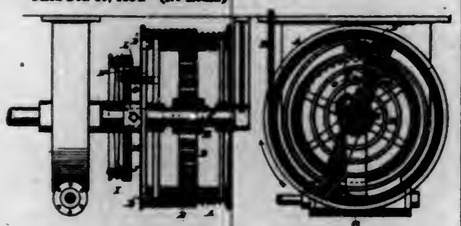
316,717. NAIL. JOHN YOUNG, Wheeling, W. Va. Filed Oct. 15, 1884. (No model.)

Claim.—A cut steel nail having an overlapping head with a concave swell, *a b c*, of homogeneous metal between the body and the head, substantially as and for the purpose described.

316,717.



316,718. HOISTING-MACHINE. CHARLES E. ALDEN, Philadelphia, Pa. Filed Dec. 19, 1884. (No model.)



Claim.—1. In a power-elevator, the combination of the winding-drum and shifting mechanism for the driving-belts, with auxiliary mechanism, substantially as set forth, by which any tendency of the cable becoming slack will automatically operate the shifting mechanism to stop the machine, substantially as and for the purpose specified.

2. In a hoisting-machine, a driving-shaft, in combination with a drum for the cable supported loosely thereon, and a spring connecting said shaft with said drum, substantially as and for the purpose specified.

3. In a hoisting-machine, a driving-shaft, in combination with a drum for the cable supported loosely thereon, and provided with lugs or stops, a spring connecting said shaft with said drum, and an arm secured to said shaft and arranged to press against said lugs on the drum, substantially as and for the purpose specified.

4. In a hoisting-machine, a driving-shaft, in combination with a drum for the cable supported loosely thereon, and provided with lugs or stops and a pin, a spring connecting said shaft with said drum, an arm secured to said shaft and arranged to normally press against said lugs on the drum, and provided with a spring-pawl adapted to be acted upon by the pin on the drum, and a shifting-wheel provided with ratchet-teeth for the reception of said pawl when freed from the action of said pin, substantially as and for the purpose specified.

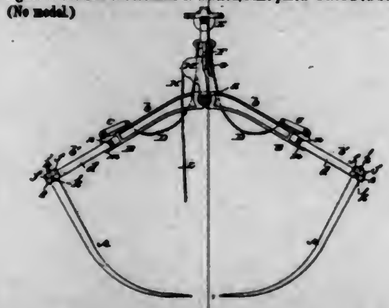
5. In a hoisting-machine, shifting mechanism for the belts, a driving-shaft in combination with a drum for the cable supported loosely thereon, and provided with lugs or stops and a pin, a spring connecting said shaft with said drum, an arm secured to said shaft and arranged to normally press against said lugs on the drum, and provided with a spring-pawl adapted to be acted upon by the pin on the drum, and an auxiliary shifting-wheel provided with ratchet-teeth for the reception of said pawl when freed from the action of the said pin and connected with the shifting mechanism proper, substantially as and for the purpose specified.

6. In a hoisting-machine, the combination of shaft C, drum A, and spring D, substantially as and for the purpose specified.

7. In a hoisting-machine, the combination of shaft C, drum A, having lugs D', and pin O, spring D, and arm K, having pawl L, and wheel I, having ratchet-teeth J, substantially as and for the purpose specified.

8. In a hoisting-machine, the combination of shaft C, drum A, having lugs D' and pin O, spring D, and arm K, having pawl L, and wheel I, having ratchet-teeth J, shifting mechanism F, chains S and r, and wheels Q R, connected together, substantially as and for the purpose specified.

316,719. HAY-FORK. CHARLES S. ABBOTSON, Yorktown, N. J., assignor of one-half to Jeremiah S. Watson, same place. Filed Dec. 20, 1883. (No model.)



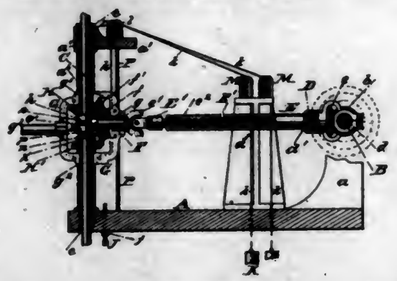
Claim.—1. In a hay-fork having the heads B, each formed of an arm, and a casting consisting of a cross-bar, and bifurcated arms connected at their inner ends with said arm of the head, substantially as and for the purpose set forth.

2. A tine having an offset at its end, and the cross-bar of the head having an eye through which the end of the tine is passed, and flanges between which the offset is seated, said offset and bar being bolted together, substantially as and for the purpose set forth.

3. In a hay-fork, a tripping device composed of the frame H', having the opening *p*, and provided with the catch G, dog J, spring K, normally operating to keep the dog J in engagement with the catch G, and the rope L, connected to the dog J, the said frame being pivoted to the heads of the fork, having the said catch G connected to it, the frame being formed at its upper end with walls, which inclose the dog J and spring K, substantially as and for the purpose set forth.

4. In a hay-fork, the heads carrying tines, and provided with chains connected therewith, in combination with an elevating-sheave and a tripping device, the latter having a common axis with said heads, and having the dog thereof held normally in engagement with a catch by means of a spring, substantially as and for the purpose set forth

316,720. SCREW-THREADING MACHINE. EDWARD N. ANDREWS, Rutherford, N. J. Filed Nov. 9, 1883. (No model.)



Claim.—1. In a tapping or drilling machine, the combination, with the spindle, of an adjustable clutch-collar secured thereon in substantially the manner described, whereby the spindle is capable of being moved through the collar without turning therein.

2. In a tapping or drilling machine, the combination, with the spindle and clutch mechanism, of a reciprocally-movable frame or head, and gears carried by said frame and adapted to revolve the spindle, substantially as set forth.

3. In a tapping or drilling machine, the combination, with the spindle and clutch mechanism, of a reciprocally-movable frame or head, reversibly-operating gears carried by the frame or head and adapted to revolve the spindle alternately in opposite directions, substantially as set forth.

4. In a tapping or drilling machine, the combination, with a frame or head and a spindle carried thereby, of a central clutch mechanism, and four gear-wheels, two of which are carried by an extensible shaft provided with a universal joint, as herein set forth.

5. In a machine of the kind described, the combination of a frame, a revoluble spindle carried thereby, a central clutch with loose gears having clutch devices, and located above and below said clutch, and means for revolving the spindle, as herein set forth.

6. In a tapping or drilling machine, in combination with the spindle, a reciprocally-movable frame or head carrying the same, and provided with gears of unequal diameters, and intermediate mechanism adapted to transmit to the spindle rotary motion in alternately-opposite directions at greater speed in one direction than the other, substantially as set forth.

7. In a tapping or drilling machine, the combination, with two driven bevel-gears, of two driving bevel-gears of unequal diameters and adapted to revolve the former in opposite directions at the same time, but at different speeds, substantially as and for the purpose set forth.

8. In a tapping or drilling machine, the combination, with the spindle, a reciprocally-movable frame carrying the same, and the motion-transmitting devices, of a weight suitably attached to said frame and adapted to counterbalance the same, substantially as set forth.

9. In a tapping or drilling machine, the combination, with the spindle, a reciprocally-movable frame or head carrying the same, and the motion-transmitting devices, of a weight suitably attached to said frame and adapted to sufficiently overbalance the same to raise it when released from downward-applied pressure, substantially as set forth.

10. The combination, in a drilling or tapping machine, of a movable head or frame, a spindle extending through the same, a clutch and bevel gears on the spindle, an extensible shaft provided with a universal joint, and gear-wheels thereon adapted to engage with the wheels on the spindles, as set forth.

11. The combination, in a drilling or tapping machine, of a movable head or frame, a spindle extending through the same, a clutch and bevel-gears on the spindle, an extensible shaft having a universal joint, and two bevel-gears of unequal diameters adapted to engage with the gear-wheels on the spindle, whereby the same is rotated and moved in a vertical line at different speeds, all as set forth.

12. In a tapping or drilling machine, the combination, with the main shaft and the drilling mechanism, of a coupling or yoke adapted to swing freely thereon during the operation of the drill, an extensible secondary shaft carried by the yoke and connected with the drilling mechanism, and intermediate gears between the main and secondary shaft, all substantially as set forth.

13. The combination of the revoluble sliding spindle having clutch-collar I, secured from turning thereon, but longitudinally movable on the spindle, the wheels H H', arranged at opposite sides of the said collar to turn freely upon the said spindle, and having devices for forming clutch-contact with the said collar, and means, substantially as described, causing the said wheels to revolve in opposite directions, for the purpose hereinbefore set forth.

14. The combination of the revoluble sliding spindle C, having the clutch-collar I, adjustable, but secured from turning thereon, the sliding frame G, provided with the clutch-carrying gear-wheels H H', revoluble on the spindle, and the wheels *f f'*, gearing with the aforesaid wheels H H', the extensible shaft E E', connected by a universal joint to the shaft of the said wheels *f f'*, the yoke D, cog-wheels *a b*, and shaft B, substantially as and for the purpose set forth.

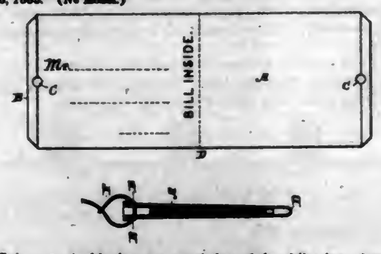
15. The combination of the revoluble sliding spindle C, having the clutch-collar I, and the sliding frame G, provided with the clutch-carrying gearing-wheels H H', revoluble upon the said spindle by a wheel or wheels, *f f'*, with the adjustable stop J, substantially as and for the purpose set forth.

16. The combination, with the spindle C, spindle-wheel frame G, shafts E E', yoke D, and shaft B, of the cord or chain *k* and weight K, the said cord being attached to the said sliding frame G and running over pulleys L, M, and the said weight being just heavy enough to counterbalance that portion of the said spindle-frame wheels and shafts not supported on the shaft B, as and for the purpose set forth.

17. In a tapping-machine, the combination of a spindle, C, having a longitudinal way or groove, with a clutch-collar, I, having a feather, *i*, entering the said groove, and provided also with a set-screw, *i'*, for adjusting its position longitudinally upon the shaft, while preventing it from turning, and thus adjusting the elevation of the spindle, substantially as specified.

18. In a tapping or drilling machine, the combination, with the spindle and clutch mechanism, of a reciprocally-movable frame or head-gears carried by said frame for imparting rotary movement to the spindle, and a guide for the frame, whereby it is maintained in proper position throughout its path of movement, as set forth.

316,721. SHIPPING-TAG. FRANK E. BACON, Gorham, Me. Filed Jan. 23, 1885. (No model.)



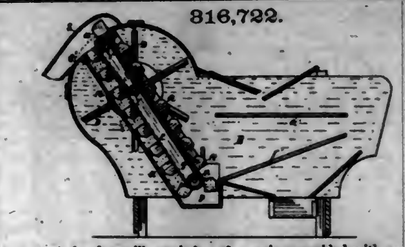
Claim.—1. A shipping-tag consisting of the following elements, viz: a folding main portion, perforated as shown, a folding portion, forming an invoice-protecting case secured to the main portion, and having one of its edges provided with perforations so arranged as to correspond with the perforations in the main portion when the parts are folded together, substantially as and for the purposes shown.

2. The folding blank A, having re-enforcing strips B at its ends and provided with perforations *c*, combined with the folding blank E, perforated at *m*, said blank E foldable upon blank A, the perforations *c* and *m* corresponding with each other, whereby the securing-cord may unite the folded parts, substantially as described.

316,722. GRAIN-CLEANING MILL. HENRY B. BALCH and FRANK BURRT, Kalamazoo, Mich., assignors of one-third to Henry L. Bishop, same place. Filed Oct. 16, 1884. (No model.)

Claim.—1. A grain-cleaning mill consisting of a casing provided with a grain-discharge in its lower portion, and with an opening through its upper rear wall, means within the casing for cleaning grain, and a grain-elevator extending from said grain-discharge to the opening through said upper rear wall, substantially as set forth.

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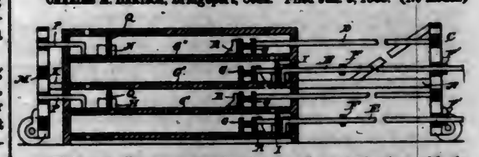


2. A fanning-mill consisting of a casing provided with an opening through its upper rear wall, suitable screens, a double fan, and an endless belt bearing elevator-cups, and extending from the lower grain-discharge from the screens up between the fans to said opening through the upper rear wall of the casing, substantially as set forth.

3. A grain-cleaner consisting of a casing, means therein for cleaning the grain, said casing having a grain-discharge in the lower portion and an opening through its upper rear wall, a slanting grain-bridge at the lower side of said opening, and an endless belt carrying elevator-cups, the backs thereof being constructed and arranged to form temporary extensions to said grain-bridge, substantially as set forth.

4. A fanning-mill consisting of a casing having an opening in the upper rear wall, screens, a double fan, a shaft having two sprocket-wheels near said opening, an idler near the grain-discharge from the screens, a sprocket-wheel on the fan-shaft between the fans, a sprocket drive-chain on the wheel between the fans and the wheel over it on the upper shaft, and a sprocket-belt bearing elevator-cups on the idler and on the other wheel on the upper shaft, substantially as set forth.

316,723. FURNACE FOR ROASTING COPPER AND OTHER ORES. CHARLES A. RANTSCH, Bridgeport, Conn. Filed Jan. 5, 1885. (No model.)



Claim.—1. In an ore-roasting furnace, the combination, with the reciprocating rakes, of independent scrapers journaled in sliding blocks, and scraper-rods adapted to push said scrapers forward, whereby the accumulated ore is placed within the field of operation of the rakes, substantially as set forth.

2. In an ore-roasting furnace, independent scrapers journaled in sliding blocks arranged on the floors of the furnace at the so-called "dead-points" thereof, beyond the field of the rakes, in combination with means for operating said scrapers, substantially as shown and described.

3. In combination with the rakes of an ore-roasting furnace, the sliding blocks having scrapers journaled therein, trips secured to the rakes and adapted to upset the scrapers, the scraper-rods provided with tappets, as described, the trucks, and means for imparting motion thereto, substantially as set forth.

4. The combination of the rakes G, trips J, scrapers I Q, journaled in sliding blocks H, trucks C, carrying rake-rods D and scraper-rods E, tappets F and F', secured on the scraper-rods, truck M, carrying rods P, rods A, extending inward from the sides of the truck C, rods K, extending inward from the truck M and passing through collars A' on the rods A, and tappets N N', secured on rods K, substantially as and for the purposes set forth and specified.

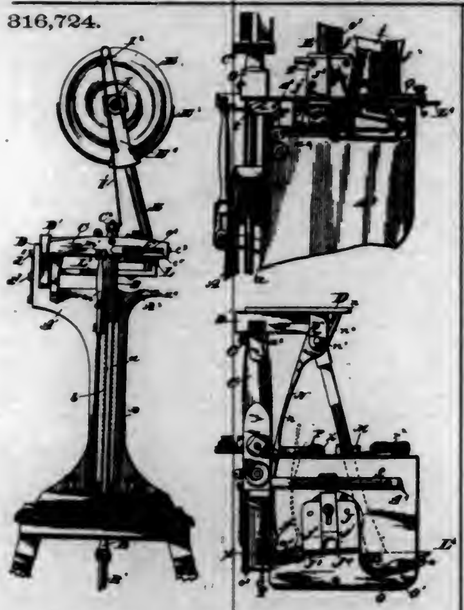
316,724. MACHINE FOR ATTACHING SHOE-BUTTONS. MARCUS J. BARTLETT, Chardon, assignor of one-half to Frederick H. Kelly, Cleveland, Ohio. Filed Dec. 29, 1884. (No model.)

Claim.—1. A machine for attaching buttons, consisting, essentially, of rotating containers, respectively for the buttons and button-fasteners, means, substantially as described, for discharging each in their proper position, a carriage for receiving the button-fasteners and uniting them with the buttons, a reciprocating device, substantially as described, for attaching the buttons to the work, and mechanism for delivering the buttons and attached fasteners to said reciprocating device, substantially as set forth.

2. In a machine for attaching buttons, a reciprocating cross-head with a recess and slotted under wall for receiving the buttons, a seat on the under side, around the slot, for the fasteners, and a slotted plate arranged to operate in the recess and engage the table, and be depressed thereby on the upstroke, and then press the button upward on the downstroke of the cross-head, substantially as set forth.

3. In a machine for attaching buttons, the combination, with devices, substantially as described, for discharging the buttons and button-fasteners in their proper positions, and a carrier for receiving the fasteners and uniting them with the buttons, of a vertically-reciprocating

316,724.



and laterally-movable cross-head for attaching the buttons to the work, provided with a recess for receiving the buttons, substantially as set forth.

4. In a button-attaching machine, the combination, with the cross-head C, provided with the recess *c*, slot *c'*, and the plate c^3, of the spring c^4 for tilting the plate upward, substantially as set forth.

5. In a button-attaching machine, the combination, with the cross-head C, of the guiding-plate D', provided with the grooves *d* and *d'*, and provided with pivotal bearings operating in slots, and the parts so arranged that the plate may move vertically and swing laterally, substantially as set forth.

6. In a button-attaching machine, the combination, with the plate D, provided with grooves *d* and *d'*, and arranged to slide vertically and swing laterally, of a cross-head engaging the said grooves, the spring *a'*, and the stop a^3, substantially as set forth.

7. In a button-attaching machine, the combination, with devices, substantially as described, for discharging the buttons and fasteners in their proper positions, and an intermittently-operating carrier constructed to unite the fastener and button, of a reciprocating cross-head having a recess for the reception of the button, and a movable arm located between the carrier and cross-head and constructed to move the buttons and fasteners from the carrier to the cross-head, substantially as set forth.

8. The combination, with the container E' and the tube E, of the block J, the trough J^3, and spring *j*, substantially as set forth.

9. The combination, with the block J, the trough J^3, and spring *j*, of the plates J^2 and J^4 and the pivoted plate J^5, substantially as set forth.

10. The combination, with the trough J^3 and the lever j^4, of the carrier L, arranged to engage the lever and actuate the trough near the rear terminus of the carrier's movement, substantially as set forth.

11. The combination, with the carrier L, of the plate *l* and springs l^2 and l^3, substantially as set forth.

12. A cylindrical hook-container provided with the openings *g* and ribs *g'* g^3, substantially as set forth.

13. The combination, with the container G, a sprocket-wheel, and spindle extending beyond the wheel, of the plates H', with openings arranged to form a rack and engage the sprocket on opposite sides, the block h^3, with inclined ends to engage the spindle, and the parts so arranged that, by reciprocating the parts H', the container is rotated in the same direction by opposite movements of the parts H', substantially as set forth.

14. The combination, with the container G, of the part F, consisting of the bars *f* and f^3, and the spring *f'*, arranged substantially as set forth.

15. The combination, with the bar *f* and spring *f'*, of the lever O and incline L^4, arranged to engage the lever and actuate the said spring near the end of the back movement of the carrier, substantially as set forth.

16. The combination, with a reciprocating cross-head and mechanism for delivering buttons and fasteners thereto, of a guiding-block depending from the table, an arm pivoted to said table and block, and devices for connecting said pivoted arm with the cross-head, whereby the arm is moved up to a horizontal position, for the purpose of forming an extension to the guiding-block, substantially as set forth.

17. The combination, with a reciprocating cross-head and slotted rod *m*, pivoted thereto, of the bell-crank M, lever L^2, and carrier L, substantially as set forth.

18. In a machine for attaching buttons, the combination, with mechanism, substantially as described, for delivering buttons and fasteners, and an attaching device, of the bell-crank lever M, the lever P, and arm N, substantially as set forth.

19. The combination, with the carrier-arm L^2, of the lever Q, provided with the incline *q* and shoulder q^2, substantially as set forth.

20. The combination, with the lever Q, of the lever R, provided with the shoulder *r'* and the extension *r*, reaching over the cross-head, substantially as set forth.

21. In a machine for attaching buttons, the combination, with mechanism, substantially as described, for delivering buttons and fasteners, and an attaching device, of the levers Q and R and the arm N, substantially as set forth.

316,725. SALT-DREDGE. HENRY B. BEACH, Meriden, Conn. Filed Dec. 3, 1884. (No model.)



Claim.—In a salt-dredge consisting of a receptacle for salt provided with a perforated top, the combination therewith of a clearer consisting of a spindle, A, provided with breaking-heads *a b*, and constructed with an extension, B, from the upper head, the said clearer arranged loosely in the bottle, with the extension of the spindle toward the perforated top substantially as described.

316,726. TOOL FOR FEATHER-EDGING BOOT OR SHOE SOLES. EDWIN F. BLODGETT, Lynn, Mass., assignor of one-half to AARON F. SMITH, same place. Filed Dec. 3, 1884. (No model.)

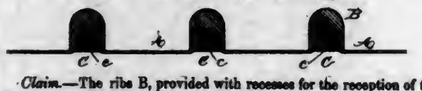


Claim.—1. In a sole feather-edging tool constructed substantially as described, the teeth *a*, with openings between the same and provided with a cutting-edge, *e*, and having one side, *f*, beveled relatively to said openings, substantially as and for the purposes stated.

2. In a sole feather-edging tool, in combination with the teeth *a*, provided with cutting-edge *e*, and a suitable hub, A, the guard B, extended upward past the ends of teeth *a*, and beveled, substantially as described.

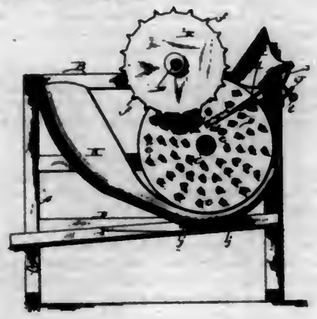
3. In a sole feather-edging machine, in combination with the teeth *a*, provided with cutting-edge *e*, and suitable hub, A, a guard provided with vertical face 3, located relatively to said teeth, substantially as described.

316,727. CARRIER-BELT. FREDERICK W. BLUM and ANDREW P. LIND, Hudson, Wis. Filed May 12, 1884. (No model.)



Claim.—The ribs B, provided with recesses for the reception of the belt A, and the corresponding binder-stripe, C, substantially as specified, for the purpose set forth.

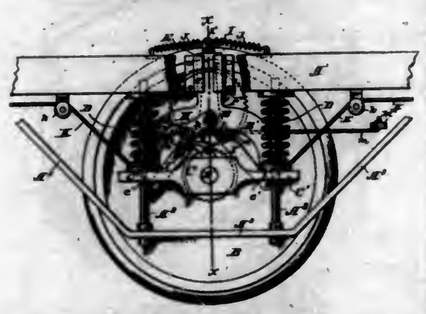
316,728. CORN-SHELLER. QUIN E. BOHANNON, Lincoln, Nebr. Filed Apr. 7, 1884. (No model.)



Claim.—A corn-sheller comprising a feed-hopper, a toothed disk, and a bladed wheel, arranged substantially as described and shown, a spring-blade extending from the lower portion of the feed-hopper and provided with the serrated end portion, a device for varying the tension of said spring-blade, and a curved metallic trough, perforated as specified, inclined toward its front and commonicating with a discharge-opening for the cobs, substantially as set forth.

316,729. WITHDRAWN.

316,730. CAR-STARTER. J. SMITH BROOS, Kankakee, Ill. Filed Jan. 3, 1884. (No model.)



Claim.—1. The combination, with a car-body and supporting-wheels therefor, of mechanism actuated by the rotation of the wheels in the forward motion of the car, constructed to lift the car-body above its normal position, toggles or equivalent supporting devices constructed to operate independently of the lifting mechanism for sustaining the car-body in its elevated position, means for releasing said supporting devices to permit the descent of the car, and mechanism operating by the downward movement of the car-body constructed to give an initial rotary motion to the car-wheels at the time of starting the car, substantially as and for the purpose set forth.

2. The combination, with a car-body and supporting-wheels or axles therefor, provided with circular bearing-surfaces, and suitable bearing-boxes for the axles movably connected with the car-body, of cams pivoted to the car-body and adapted to engage said bearing-surfaces, means for partially rotating said cams to bring them into engagement with the said bearing-surfaces, toggles connected with the said bearing-boxes and with the car-body for supporting the latter in its elevated position, and means operating by the downward movement of the car-body in its descent, constructed to impart an initial rotary motion to the car-wheels, substantially as described.

3. The combination, with a car-body, supporting-wheels and axles therefor, and bearing-boxes for said axles, of cams F, pivoted to the car-body above the said axles, circular bearing-surfaces G upon the axles, arms I, pivoted concentrically with said cams, means upon said arms constructed to temporarily engage the cams, means constructed to actuate said arms so as to partially rotate the cams, and means connecting the car-body and the bearing-boxes, constructed to support the car temporarily in its elevated position, substantially as and for the purpose set forth.

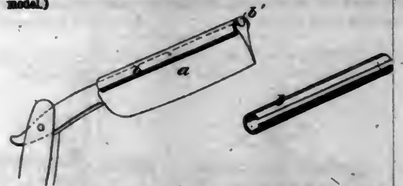
4. The combination, with a car-body, supporting-wheels and axles therefor, bearing-boxes for the axles, and springs located between the car-body and the bearing-boxes, of circular bearing-surfaces upon the axles or wheels, plates E, constructed to slide upon the car-body and engaged with the lower ends of the springs, a cam, F, pivoted to the said plates E in position to engage the said bearing-surfaces, means connecting the said sliding plates with the bearing-boxes, constructed to temporarily support the car in its elevated position, means for holding the said cams free from engagement with the said bearing-surfaces, and means for rotating the cams so as to cause their engagement with the opposed bearing-surfaces, substantially as described.

5. The combination, with a car-body, supporting-wheels and axles therefor, and bearing-boxes for said axles, of cams F, pivoted to the car-body above said axles and provided with recesses *f*, circular bearing-surfaces upon the car-axles, arms I, pivoted upon the bearing-pins of the cams F, pins *i* upon the said arms, engaged with the recesses *f* in said cams, springs *i'*, constructed to hold said pins *i* in engagement with the said recesses, springs J, constructed to retain said arms normally in one position, means for operating the said arms so as to cause the engagement of the cams with the bearing-surfaces, and means connecting the car-body and the bearing-boxes constructed to temporarily support said car-body in its elevated position, substantially as described.

6. The combination, with a car-body, suitable supporting-wheels and axles therefor, and bearing-boxes for said axles, of cams F, pivoted to the car-body, annular bearing-surfaces G upon the car-axle opposed to said cams, toggles H, connecting said bearing-boxes with the car-body, and provided with stops h^3, constructed to hold the arms of said toggles in a slightly-flexed position, and means for temporarily holding said toggles in their extended position, substantially as and for the purpose set forth.

7. The combination, with a car-body, suitable supporting-wheels and axles therefor, and bearing-boxes for said axles, of cams F, pivoted to the car-body above the axles, annular bearing-surfaces G upon the axles opposed to the said cams, toggles H, joining the car-body and the bearing-boxes, means actuated by the brake mechanism of the car constructed to partially rotate the cams to hold said toggles in their extended position, and springs interposed in the connections between the toggles and the brake mechanism, substantially as and for the purpose set forth.

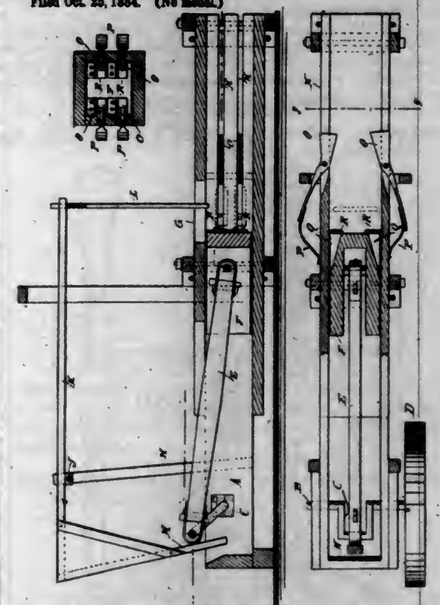
316,731. GUARD FOR RAZOR-BLADES. JAMES BRADY, Brooklyn, and ALFRED V. BROKHAHNE, New York, N. Y. Filed Mar. 10, 1884. (No model.)



Claim.—1. A removable attachment adapted to be secured to the back of an ordinary razor or knife blade, and embrace the same longitudinally, with rounded bearing sides or corners projecting laterally from the back of the blade for the whole length thereof, and adapted to roll or slide smoothly over the surface of a strop or hone, substantially as and for the purpose set forth.

2. A removable clasp adapted to be fitted to the back of an ordinary-handled knife or razor blade, and to project laterally therefrom to form a gage or rest for the blade along its whole length when placed on the hone or strop, and made of such thickness or projection as will present the edge of the blade at the correct sharpening angle to the surface of the hone or strop, substantially as herein set forth.

316,732. BALING-PRESS. ALLEN M. BRASHER, Alexandria, La. Filed Oct. 25, 1884. (No model.)



Claim.—1. In a baling-press, the combination, with the box A and reciprocating follower, of the crank-shaft B, the pitman E, the rocking lever K, the downwardly-projecting arm L on one end of the same, and the inclined arm M, fixed to the opposite end and having its lower end disposed in rear of the pitman E, which latter device impinges against the front side of said arm M to lift it, substantially as herein shown and described.

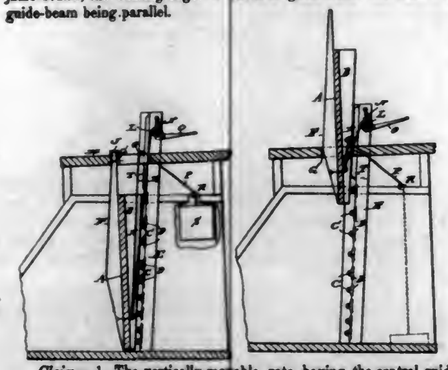
2. In a baling-press, the combination, with the baling-box A, hav-

ing an opening, G, of the reciprocating follower F, the crank-shaft B, the rocking lever K, having a downwardly-projecting arm, L, over the opening G on one end, and the inclined arm M, fixed to the opposite end, and the pitman E, with its rear end bearing or impinging against the front side of the lower end of the pendant or arm M, substantially as herein shown and described.

3. In a baling-press, the combination, with the baling-box A, of the follower F, the beveled grooves Q, the hinged plates R, for closing the grooves, the stops O, pivoted in the sides of the baling-box, and the springs P, for pressing the stops inward, substantially as herein shown and described.

316,733. FLOOD AND SLUICE GATE. JAMES S. BROWN, Eureka, Cal. Filed Sept. 26, 1884. (No model.)

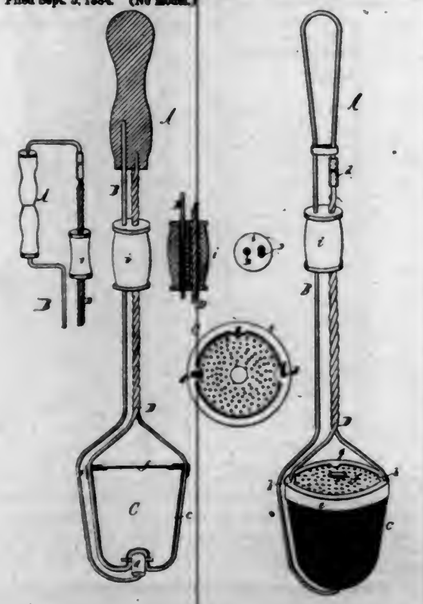
Brief.—A water-gate has a guide-beam with upward extension arranged centrally on one face, and two guide-beams arranged at the side edges of the opposite face and running on roller-trucks on inclined jamb-beams, the bearing-edges of the first guide-beam and the latter guide-beam being parallel.



Claim.—1. The vertically-movable gate having the central guide on one side and additional guides upon the opposite side at its vertical edges, the bearing-faces of said guides being parallel, in combination with the inclined beams to guide said gate in its movement, substantially as and for the purpose set forth.

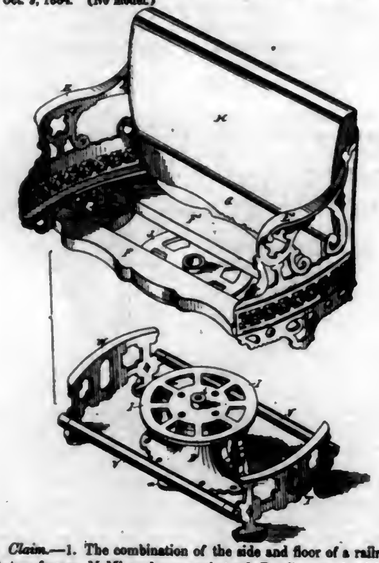
2. The vertically-movable gate having the central guide on one side, which guide has an upwardly-extended arm, said gate having upon the opposite side at its vertical edges additional guides, the bearing-faces of said guides being parallel, in combination with the inclined beams having trucks, substantially as and for the purpose set forth.

316,734. SOAP-HOLDER. CHARLES A. BRYANT, Wakefield, Mass. Filed Sept. 5, 1884. (No model.)



Claim.—In a soap-holder, the twisted wire with its strands parted or spread apart at the lower end, in combination with the receptacle having the thimble connected to it centrally of its bottom, the rod with its lower end entering said thimble, and the actuating-nut, substantially as and for the purpose set forth.

316,735. CAR AND SEAT. GEORGE BUNTIN, Boston, Mass. Filed Oct. 9, 1884. (No model.)

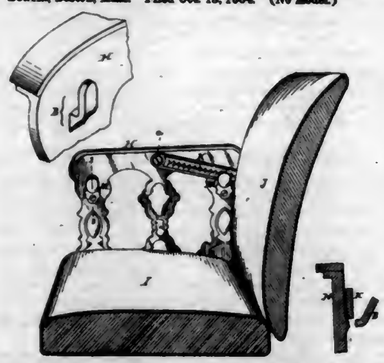


Claim.—1. The combination of the side and floor of a railroad-car with two frames, M M', and a central stand, D, all secured solely to the floor, with a double seat pivoted to the stand and having its bearings on the said frames, all substantially as set forth.

2. The combination of the car-seat frame, its plates M M and J, with the two supporting-frames W and W' and the central stand, to which the said seat is pivoted.

3. The combination of the pivoted car-seat frame and its plates M M, each having an orifice, v, with the frames W W' and a spring-bolt, g, on one of the frames, substantially as set forth.

316,736. REST FOR THE ARMS OF CAR-SEAT BACKS. GEORGE BUNTIN, Boston, Mass. Filed Oct. 13, 1884. (No model.)

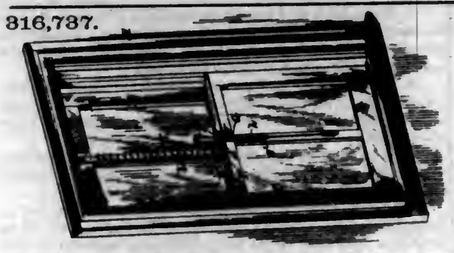


Claim.—The combination, with a car-seat frame, of two arm-rests, each consisting of a ledge, *m*, cast on the frame, and a retaining-plate, M, detachably secured to the frame, as set forth.

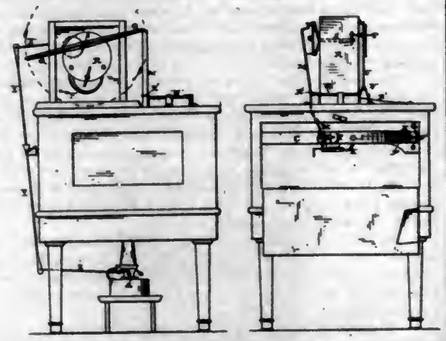
316,737. SASH-HOLDER. SAML. W. BUSARD, Jamesport, Mo. Filed Nov. 26, 1884. (No model.)

Claim.—The combination, in a sash-holder, of the upper sash provided with a vertical serrated bar, the lower sash-frame provided on its upper side with an angle-plate, D, slotted for the passage of the spring-bolt, and spring located in said angle-plate and normally tending to hold said bolt in engagement with the teeth of said rack-bar, a vertical bar, G, having a wedge portion designed to withdraw said bolt from the rack-bar, and an operating-cord depending from said wedge-bar, and a spring for maintaining the wedge portion of said bar out of engagement with the bolt, substantially as set forth.

316,737.



316,738. THERMOSTAT. JAMES I. CAMPBELL, West Elizabeth, Pa. Filed June 23, 1884. (Model.)



Claim.—1. In a heat-regulator, the combination of the wooden bar with two straps, rods, or wires attached to opposite sides thereof, with the lever which is operated by the expansion and contraction of the straps, substantially as shown.

2. In a thermostat, the combination of the wooden rod with the two straps, wires, or rods attached to opposite sides thereof, the set-screw for springing the rod upon one side, and the lever which is operated by the movement of the strap, spring, or rod upon the other side of the wooden bar, substantially as described.

3. The combination, in a thermostat, of the wooden bar, the two straps, wires, or rods attached to opposite sides thereof, a set-screw for springing the wooden bar upon one side, and a suitable spring which is placed between the wooden bar and the strap upon the opposite side of the bar from the set-screw, and a lever which is operated by the movement of the strap which has the spring applied thereto, substantially as set forth.

4. In a thermostat, the combination of the wooden bar, the two straps, wires, or rods attached to opposite edges thereof, one of the straps being provided with a screw and nut for regulating the tension of the strap, substantially as specified.

5. The combination, in a thermostat, of the wooden bar, the two straps, wires, or rods attached to opposite sides thereof, a set-screw for springing the wooden bar, a coiled spring which is placed between the side of the bar and the inner side of one of the straps, the pivoted lever, a revolving lever, and a mechanism for moving the revolving lever, operating the valve, and shutting off and turning on the heat, substantially as shown.

6. The combination of the wooden rod or bar, the straps, wires, or rods attached to opposite sides thereof, a set-screw for springing the bar upon one of its sides, a coiled spring, a pivoted lever, and a regulating-screw which is connected to the lever, a spring for bearing against the lever upon one side, a revolving lever, and the clock-work for operating the valve and turning on or shutting off the heat, substantially as described.

7. In a thermostat, the combination of the lever which is moved at its lower end by the expansion and contraction of a metallic strap, rod, or wire, a spring for bearing against the side of the lever and forcing it toward the strap, wire, or rod, a revolving lever, a mechanism for revolving the lever, a valve which is placed in a suitable opening, and a mechanism which is attached to the source of heat, substantially as set forth.

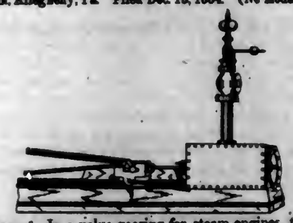
8. The combination of a lever which is moved at its lower end by the expansion and contraction of a strap, rod, or wire, a spring for bearing against the side of the lever, a revolving lever having arms of different lengths, a mechanism for revolving this lever, and which is provided with a crank, a valve which is connected to the crank, and a lever which controls the heat, the valve and the lever being operated at the same time, substantially as specified.

9. The combination of a thermostat substantially as shown, a lever which is connected thereto, a revolving lever having arms of different lengths, a mechanism for revolving the lever and which is provided with a crank, and connecting-rods which are attached to this crank and extending in opposite directions, a valve provided with a crank, and a lever which turns on and shuts off the heat, substantially as shown.

10. The combination of the thermostat and a vertical lever which is connected to and operated thereby, and which has its upper end to project through an opening in the top of the frame, with the pivoted lever Y, for operating the flame, and a suitable connection between the ends of the two levers, whereby the movement of one controls the movement of the other, substantially as set forth.

11. The combination of a thermostat, a pivoted lever, Y, and a lamp-burner provided with two leaves or reducers, suitable pivotal wires which are connected together, one of which is provided with a counter-weight, substantially as set forth.

316,739. VALVE-GEARING FOR STEAM-ENGINES. THOMAS H. CARLIN, Allegheny, Pa. Filed Dec. 15, 1884. (No model.)

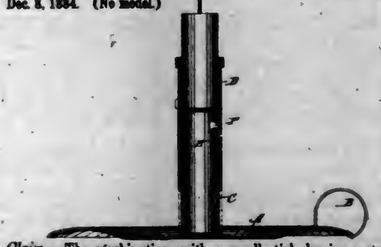


Claim.—1. In a valve-gearing for steam-engines, the combination of a slide-block having gear-teeth formed on or attached thereto, and extending over only a portion of the width of said block, with an adjustable lever for regulating the movement of said block, substantially as described.

2. In a valve-gearing for steam-engines, the combination of a slide-block and a lever, said block and lever being so constructed as to be geared with or detached from each other while the engine is in motion, substantially as described.

3. In a valve-gearing for steam-engines, the combination of a slide-block with a lever for moving said block, and means, substantially as described and shown, whereby said lever may be moved into or out of gear with the block.

316,740. CANDLESTICK. ELIJAH CARPENTER, Lafayette, Oreg. Filed Dec. 8, 1884. (No model.)



Claim.—The combination, with a candlestick having a stationary post and a sleeve to slide vertically thereon, of a spring within the post, having a nib projecting through a hole in the post to bear against the inner face of the sleeve, substantially as shown and described, for the purpose set forth.

316,741. STOVE-GRIDDLE. FRANCIS L. CARPENTER, Hartland, Vt. Filed May 12, 1884. (No model.)



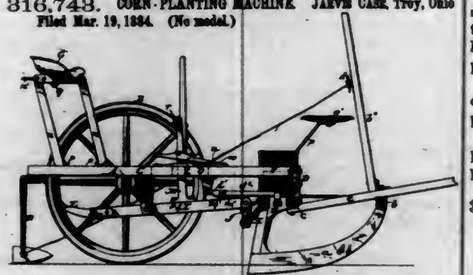
Claim.—The covers B B′, provided with recesses *d* and end holes or openings, *e*, in combination with the open metallic frame A, having lugs *a*, and the rod C, having nut *b*, handle *c*, and fork D, substantially as and for the purpose specified.

316,742. LANTERN. GEORGE A. CARPENTER, Limerick, Me. Filed Jan. 12, 1885. (No model.)



Claim.—In a tubular lantern, the combination of the globe-supporting plate hinged to tilt back and having the upwardly-extending wires, the cap secured to the upper ends of the wires and having the tube at its top cut away to form a flap, as described, provided with a handle, the tube projecting downward, registering with the lower tube, and cut away to form a flap on the side opposite to the flap of the lower tube, and the spring-latch secured at its ends to the upper end of the upper tube, and having its curved middle passed around the lower end of the upper tube formed with a handle, and with coils at the sides of the tube, as and for the purpose shown and set forth.

316,743. CORN-PLANTING MACHINE. JARVIS CASE, Troy, Ohio. Filed Mar. 19, 1884. (No model.)



Claim.—1. In combination with the wheeled frame and the runner-frame jointed to the forward end thereof, the foot-lever I, pivoted to the under side of the wheeled frame and jointed to the runner-frame as a means of raising the latter, the lever M, the upright arm secured rigidly to said foot-lever as a means of depressing the runners, and the pawl N, for locking the upright end and thereby fixing the elevation of the runners.

2. The wheeled frame and the runner-frame jointed thereto, in combination with the lever I, pivoted to the wheeled frame and jointed at its forward end to the runner-frame, the upright arm M, attached rigidly to the lever, the gravitating dog N, pivoted to said lever and extended in rear thereof, and a stop, *u*, on the main frame, whereby the runners are automatically locked when lifted and their release permitted by the pressure of the foot of the operator.

3. The wheeled frame and the runner-frame jointed thereto, in combination with the lever I, pivoted to the wheeled frame and jointed to the runner-frame, and the standard M, secured rigidly to said lever and extending above the main frame, said standard being provided with a foot-plate, *r*, and also extended above said foot-plate in form to be operated by hand, whereby the standard is adapted to serve the twofold purpose of depressing the runners when actuated by the foot and of elevating the runners when actuated by hand.

4. In combination with the wheeled frame, the main frame, the lever I, and its rigid standard M, the dog or pawl N, pivoted to said standard, and the stop *u*, constructed and adjustably secured to the wheeled frame, as described and shown.

5. In combination with the main frame, the runner-frame, the lever I and its rigid standard M, the dog N, and the plate O, provided with a shoulder, *t*, to support the runners in an elevated position, and also with an adjustable shoulder, *u*, to limit the descent of the runners.

6. In combination with the main frame and the runner-frame jointed thereto, the driver's seat and the supporting-standards n therefor, the lower ends of said standards being beveled, as described, to serve as stops to limit the swinging motion of the seat.

7. The coupling for a corn-planter, consisting of the plate *f*, having the arms or trunnions *h* and the spheroidal protuberance *g*, in combination with the plate *i*, recessed in the rear face to receive said protuberance, and provided with arms *k*, to engage the trunnions.

8. In a coupling for a corn-planter, the head *f*, having the lateral trunnions *h* and spheroidal protuberance *g*, in combination with the plate *i*, and the vertically-adjustable plate *k*, connected to the plate *i* by screws *m* below the trunnions and screws *l* above the trunnions.

9. In combination with the feed-bar and a driving-gear connected with the ground-wheel, the intermediate crank-lever provided with an elastic arm, whereby the yielding of the parts is permitted.

10. The wheeled frame, the runner-frame jointed thereto, and the reciprocating feed-bar on the runner-frame, in combination with the elbow-lever *l*, mounted on the wheeled frame and connected by intermediate gearing with one of the wheels, and the vibratory arm j^3, engaging at one end with the feed-bar and united at the opposite end by a horizontal pivot to the lever *l*, as shown.

11. In combination with the rotary dropper-plate having the studs thereon, a reciprocating plate or carrier, T, the stationary studs *b*′ and *c*′, and the horizontal swinging pawls S and R, pivoted to the carrier-plate and extended rearward, as described, to remain in engagement with the stationary studs throughout their entire movement, whereby they are caused to remain positively in engagement with the dropper-plate while acting to turn the same.

12. In combination with the rotary dropper-plate having studs thereon, the reciprocating plate or carrier T, and the horizontally-swinging pawls R and S, pivoted thereto and arranged to co-operate with stationary studs *c*′ and *b*′, said parts being constructed and arranged as described, so that each pawl during its advance encounters two studs on the dropper-plate, one in front and the other in rear of the pivot of the pawl.

13. In combination with a corn-planter, a standard at its rear, a marker hinged at its rear end, and a cord and break-pin connecting the marker and standard, substantially as described.

14. In a seed-mechanism, a rotary dropper-plate provided with studs or teeth, combined with a reciprocating pawl, S, mounted on a vertical pivot between its extremities and curved on its outer side, in combination with a stationary stud adapted to act on the two ends of the pawl alternately.

15. In a seed-dropping mechanism, the combination of a rotary dropper-plate, a covering-plate therefor, and vertically-adjustable supports for said plate.

16. In combination with a rotary dropper-plate and the covering-plate therefor, the adjustable supporting-screws *x*, whereby the covering-plate may be raised and lowered at will.

316,744. MACHINE-BRAKE. JOHN CHALLONER, Sr., OHIO, Wis. Filed Jan. 5, 1885. (No model.)



Claim.—1. A sewing-machine brake the ball casing or receptacle of which is provided with a bandway, and adapted to be adjusted for the inclinations of various bands or belts of sewing-machines, substantially as specified.

2. The combination, with the bracket having the vertical arm provided with a transverse internally-threaded aperture, of the ball casing or receptacle and a screw for connecting the same, substantially as specified.

3. The brake-ball composed of metal and a covering of rubber or other elastic material, substantially as specified.

4. The ball casing or receptacle having a bandway, and the inner wall opposite the said way provided with serrations, substantially as specified.

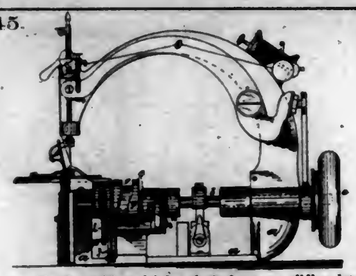
5. The brake described, consisting of the bracket having the vertical and horizontal arms, the casing having the removable cover, the inner serrated wall, and the screw-aperture, and the metal ball covered with rubber, substantially as specified.

316,745. SEWING-MACHINE. HENRY CHAMBURY, Newark, N. J. Filed Apr. 17, 1884. (Model.)

Claim.—1. In a sewing-machine, the combination, with the needle and a driving-shaft, of a hook, an eccentric, a strap carrying said hook, and a cam actuating said strap and hook, and revolving with and sliding on said shaft, substantially as set forth.

2. In a sewing-machine, the combination, with the needle and shaft *b*, of a sliding eccentric carried by said shaft, an eccentric-strap and a hook secured on said strap, and mechanism, substantially as described, to cause said eccentric to move longitudinally on said shaft, as set forth.

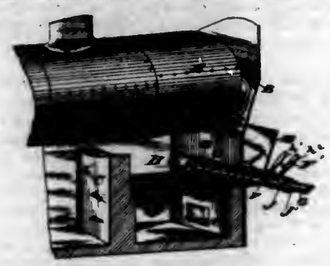
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3. In combination with a driving-shaft, *b*, a cam sliding laterally upon and revolving with the shaft, an eccentric and a strap having the hook secured thereon, and the needle, all said parts being arranged and operating substantially as and for the purposes set forth.

4. In combination, in a sewing-machine, with the driving-shaft and needle, the cam sliding on and revolving with said shaft, the eccentric, the strap having the slotted arm and hook, the cam projection, the lever and bar having the pin acting as a bearing for said arm, all said parts being arranged and operating substantially as set forth and shown.

316,746. COAL-FEEDING DEVICE. WILSON B. CHISHOLM and JOHN WALKER, Cleveland, Ohio. Filed Oct. 3, 1884. (No model.)



Claim.—1. The process or method herein described of feeding coal to a furnace, and consisting, essentially, in projecting coal from a container to a furnace by an air or steam blast admitted through suitable jet-orifices, in contact with the coal, and elevating or depressing the jet-orifices to give greater or less range to coal projected by the blast, substantially as set forth.

2. In an apparatus for feeding coal to a furnace by an air or steam blast, the pipe F, provided with suitable jet-orifices and a hand-lever, F′, and so arranged that the pipe may be turned to elevate or depress the jet-orifices, substantially as set forth.

3. In an apparatus for automatically feeding coal to a furnace, the combination, with a hopper arranged transversely to the furnace and communicating therewith through its entire length, and a perforated blast-pipe arranged longitudinally within the hopper and in the same plane with the opening between the furnace and hopper, of a deflecting-plate located within the furnace and adapted to be adjusted to any desired angle to deflect the coal as required, substantially as set forth.

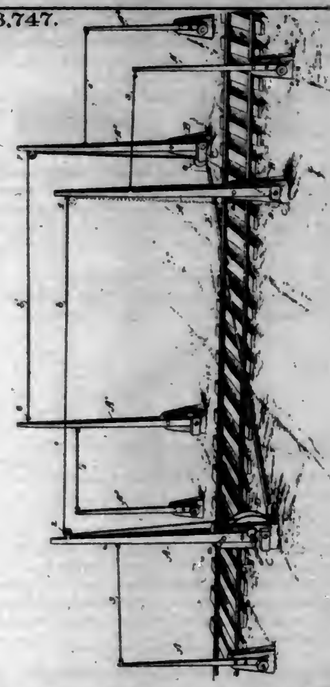
4. The combination of the pipe and the deflecting-plate H, and provided with suitable connecting mechanism, by means of which the tube and plate may be turned simultaneously in the same direction, substantially as set forth

5. In a device for automatically feeding coal to a furnace, the combination, with a hopper secured to a furnace and communicating therewith, the perforated pipe F, located within the hopper and provided at one end with a disk, I, having the ports *i* and a handle secured to said pipe, of the pipe or tube G, connected with a fan or steam-boiler and provided at one end with the disk J, having the ports *j*, the said ports being so arranged that when the pipe F, which is loosely connected with the pipe G, is turned in one direction the ports in the two disks register, and when turned in the opposite direction the blast is cut off, substantially as set forth.

316,747. RAILROAD-GATE. DAVID W. COPELAND, Syracuse, assignor to the Copeland Manufacturing Company, New York, N. Y. Filed June 6, 1884. (No model.)

Claim.—1. A gate consisting of bars pivoted on suitable posts on opposite sides of the roadway, said bars being provided with weights and combined with a rope attached to the top of one bar, passing over a suitable pulley on the other bar, and connected to a drum, whereby the bars are pulled down together, and the rope forms a part of the gate when the bars are down, substantially as described.

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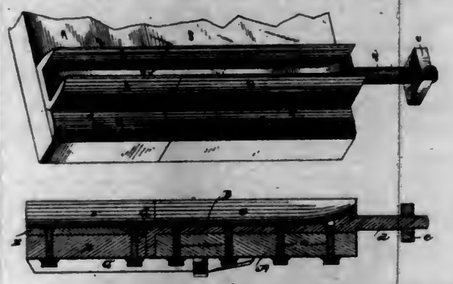


2. In combination with the pivoted bars A A, adapted, when lowered, to obstruct the road by the side of the railway, the rope connecting them at the tops and forming part of the gate when the bars are down, the pulley and drum for drawing the rope, the bar A′, and a rope, 3, attached to the top of bar A′ and connected to one of bars A, whereby both bars A A′ are drawn down simultaneously, all substantially as described.

3. Bars A A and A^2 A^2, pivoted on suitable posts on both sides of the railway and both sides of the roadway, and provided with suitable weights, a drum, D, a rope or ropes connecting the tops of the bars and forming part of the gate when the bars are down, suitable pulleys, and a passage-way for the rope under the track or rails, said ropes being connected to the drum, all combined substantially as described.

4. In combination with the bars A A, pivoted and weighted, and arranged on opposite sides of the road and on one side of the railway, and bars A^2 A^2 on the opposite side of the railroad, pivoted and weighted in like manner, pulleys 2, 7, and 8, ropes *b* and *b*′, connecting the upper ends of the bars and forming, when the bars are down, part of the gate, a suitable pipe, E, and a drum, D, ropes *b* and *b*′ being connected to the said drum, all substantially as described.

316,748. END-GATE. JAMES M. COPPERNOLL and JOHN W. BRANDOW, Jordanville, N. Y. Filed Mar. 5, 1885. (No model.)



Claim.—The combination, with the side-board of a wagon and the supplemental side strip, of the plates B and E, each having outwardly-extending wings, and a flange, E^2, the plate B having an integral rod threaded at its lower end and an outwardly-bent extension, G, on the lower plate to fit a recess in the lower end of plate E, substantially as set forth.

316,749. CYLINDER. HENRI MARIE LÉON CROUAN, Paris, France. Filed Aug. 29, 1884. (No model.) Patented in France Oct. 11, 1883, No. 157,969.



Claim.—A piston consisting of an annularly-recessed core having a screw-hole in its end and a channel extending from said screw-hole to the annular recess, an exterior shell fitting over the recess around the core, a plastic filling in the annular recess, and a screw-plug fitting in the screw-hole in the end of the core, as and for the purpose shown and set forth.

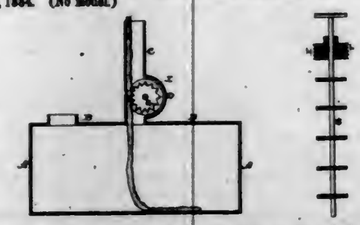
316,750. TOE-PIECE FOR EDGE-TRIMMING MACHINES. DANIEL DAVIS, Portland, Me. Filed Jan. 22, 1885. (No model.)



Claim.—1. The toe-piece last-section connected with a shank-tongue and a recess, in combination with an instep-block and a screw-fastening, substantially as and for the purposes described.

2. The new article of manufacture, consisting of a recessed toe-piece having a shank-supporting tongue formed on it and adapted to be rigidly secured to the instep-block of a boot and shoe trimming machine, substantially as described.

316,751. OIL-STOVE. ZEBULON DAVIS, Cleveland, Ohio. Filed Dec. 8, 1884. (No model.)

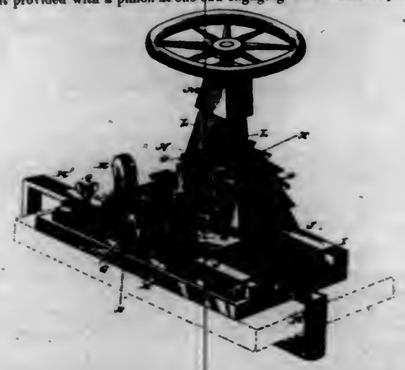


Claim.—1. The combination of the wick-tube, the cylinder cast as a part thereof, and having an enlarged opening in one end, with the ratchet-shaft, the ratchets placed thereon, and the screw-plug for closing the opening, substantially as shown.

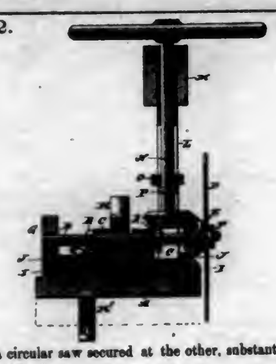
2. The combination of the reservoir, lid, wick-tube, and cylinder, all cast in a single piece, with the plug for closing the opening in the end of the barrel, the ratchet-shaft, and the ratchets on the shaft, substantially as set forth.

316,752. CIRCULAR SAWING MACHINE. PETER G. DE BLANC, New Iberia, La. Filed Jan. 29, 1885. (No model.)

Claim.—1. In a hand sawing-machine, the combination of a movable frame moving between fixed guide-bars, and carrying a horizontal shaft provided with a pinion at one end engaging with a stationary rack,



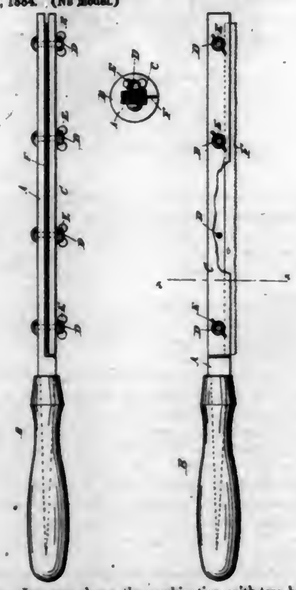
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and having a circular saw secured at the other, substantially as and for the purpose set forth.

2. In a hand sawing-machine, the combination of a movable frame moving between fixed guide-rails, and carrying a horizontal shaft provided with a pinion at one end engaging with a stationary rack, which causes the shaft to revolve as the frame moves back and forth, and having a circular saw secured to the other end, and also an upright frame to which is secured a shaft to the upper end of which is secured a fly-wheel and to the lower end the described gearing by which the motion of the wheel is communicated to the circular saw, and necessary clamps for fastening the entire mechanism in any desired place, substantially as and for the purpose set forth.

316,753. SAW-CLAMP. A. FLOYD DELAFIELD, Norwton, Conn. Filed Nov. 19, 1884. (No model.)



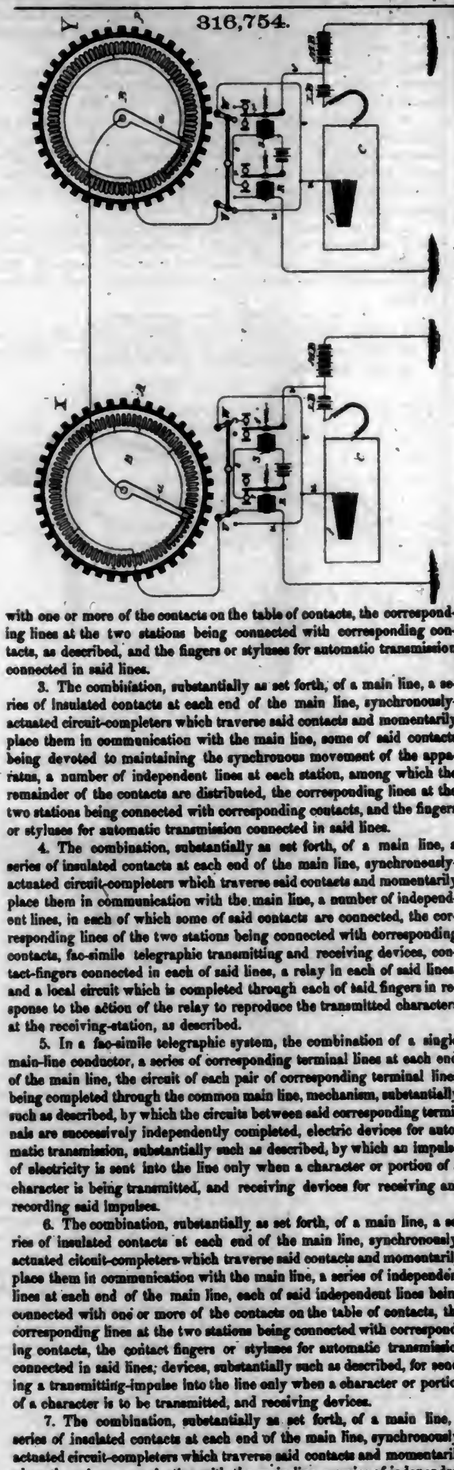
Claim.—In a saw-clamp, the combination, with two bars and screws for clamping them together and against the saw-blade placed between them, of a handle on which the clamp thus formed is held, substantially as herein shown and described.

316,754. SYNCHRONOUS TELEGRAPHY FOR FAC-SIMILE TRANSMISSION. PATRICK B. DELANY, New York, N. Y., assignor to the Standard Multiplex Telegraph Company, same place. Filed June 18, 1884. (No model.)

Claim.—1. In a fac-simile or autographic system, the combination of a single main-line conductor, a series of corresponding terminal lines at each end of the main line, the circuits of the pairs of corresponding terminal lines being successively completed through the common main line, and a contact finger or stylus connected with each of said lines.

2. The combination, substantially as set forth, of a main line, a series of insulated contacts at each end of the main line, synchronously-actuated circuit-completers which traverse said contacts and momentarily place them in communication with the main line, a series of independent lines at each end of the main line, each of said lines being connected

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with one or more of the contacts on the table of contacts, the corresponding lines at the two stations being connected with corresponding contacts, as described, and the fingers or styluses for automatic transmission connected in said lines.

3. The combination, substantially as set forth, of a main line, a series of insulated contacts at each end of the main line, synchronously-actuated circuit-completers which traverse said contacts and momentarily place them in communication with the main line, some of said contacts being devoted to maintaining the synchronous movement of the apparatus, a number of independent lines at each station, among which the remainder of the contacts are distributed, the corresponding lines at the two stations being connected with corresponding contacts, and the fingers or styluses for automatic transmission connected in said lines.

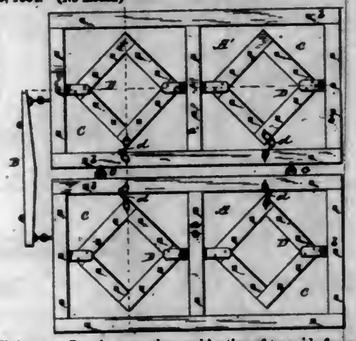
4. The combination, substantially as set forth, of a main line, a series of insulated contacts at each end of the main line, synchronously-actuated circuit-completers which traverse said contacts and momentarily place them in communication with the main line, a number of independent lines, in each of which some of said contacts are connected, the corresponding lines of the two stations being connected with corresponding contacts, fac-simile telegraphic transmitting and receiving devices, contact-fingers connected in each of said lines, a relay in each of said lines, and a local circuit which is completed through each of said fingers in response to the action of the relay to reproduce the transmitted characters at the receiving-station, as described.

5. In a fac-simile telegraphic system, the combination of a single main-line conductor, a series of corresponding terminal lines at each end of the main line, the circuit of each pair of corresponding terminal lines being completed through the common main line, mechanism, substantially such as described, by which the circuits between said corresponding terminals are successively independently completed, electric devices for automatic transmission, substantially such as described, by which an impulse of electricity is sent into the line only when a character or portion of a character is being transmitted, and receiving devices for receiving and recording said impulses.

6. The combination, substantially as set forth, of a main line, a series of insulated contacts at each end of the main line, synchronously-actuated circuit-completers which traverse said contacts and momentarily place them in communication with the main line, a series of independent lines at each end of the main line, each of said independent lines being connected with one or more of the contacts on the table of contacts, the corresponding lines at the two stations being connected with corresponding contacts, the contact fingers or styluses for automatic transmission connected in said lines; devices, substantially such as described, for sending a transmitting-impulse into the line only when a character or portion of a character is to be transmitted, and receiving devices.

7. The combination, substantially as set forth, of a main line, a series of insulated contacts at each end of the main line, synchronously-actuated circuit-completers which traverse said contacts and momentarily place them in communication with the main line, a series of independent lines at each end of the main line, each of said lines being connected with one or more of the contacts on the table of contacts, the corresponding lines at the two stations being connected with corresponding contacts, the fingers or styluses connected in said lines, the plates C, over which the styluses traverse, the relays R and R^1, the main batteries, the local batteries, their circuits and connections, and the switches.

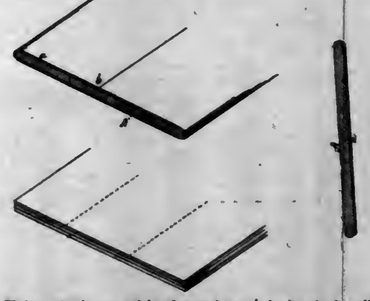
316,755. HARROW. LOUIS DELOSIA, Chautauqua, Kans. Filed Sept. 25, 1884. (No model.)



Claim.—1. In a harrow, the combination of two side frames coupled to each other and provided with a draft attachment, said frames inclosing harrow-sections, each pivotally secured at two opposite corners to the side frame in which it is located, substantially as shown, and for the purpose set forth.

2. The combination, in a harrow, of the rectangular frames A A', having hollow squares formed therein, said frames being coupled to each other and provided with a draft attachment, and frames D, pivotally secured at two opposite corners within said hollow squares, as shown, and connected on one side to the side bars by connections *d*, substantially as shown, and for the purpose set forth.

316,756. BELTING. ERNEST DEERING, Middletown, Conn. Filed Mar. 2, 1885. (No model.)



Claim.—1. As an article of manufacture, the herein-described belting, consisting of the fabric body having its working-surface covered with a separate layer of fabric, the said layer of fabric coated with a composition of which oil is the base, substantially as described.

2. The herein-described belting, consisting of the woven body A, having a fabric covering, *a*, enveloping the said body, the surface of the said covering coated with a composition of which oil is the base, substantially as described.

316,757. FIRE-ESCAPE. GEORGE DERRON, Princeton Junction, N. J. Filed May 22, 1884. (No model.)

Claim.—1. In a fire-escape, an extensible mast, A, composed of sections A', united by the ferrules A'', such ferrules having notches A^2 to receive rounds K, substantially as shown and described.

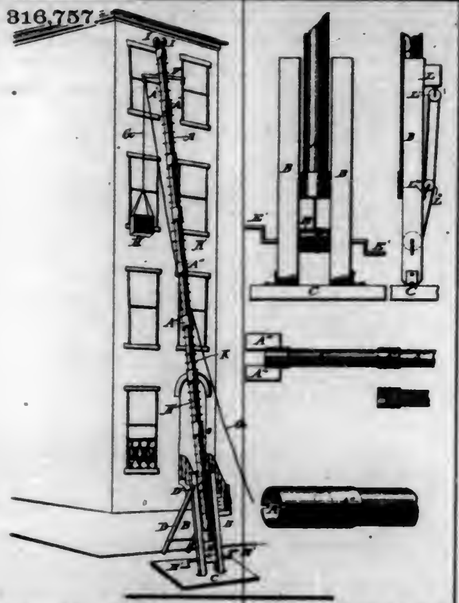
2. In a fire-escape, an extensible mast, A, composed of sections A', provided with the rounds K, and united by the ferrules A'', such ferrules having notches A^2, substantially as shown and described.

3. In a fire-escape, an extensible mast, A, composed of sections A', provided with the rounds K, and united by the ferrules A'', such ferrules having notches A^2 to receive rounds K, substantially as shown and described.

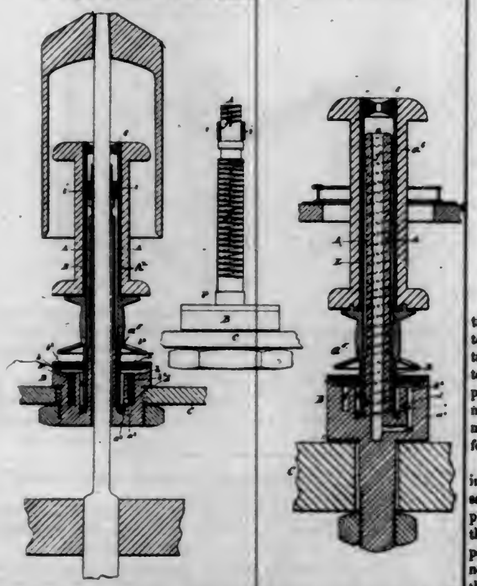
4. In a fire-escape, the base-block C, uprights B, and legs D, all connected by hinged or folding joints, as shown and described, provided with the windlass E, pulleys L'' and L''', and cross-piece L, all substantially as shown and described.

5. In a fire-escape, the section A'', provided with a ferrule A', such ferrule furnished with wings A''', substantially as shown and described.

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316,758. SPINDLE AND BEARING THEREFOR. JOHN B. DEWHURST, THOMAS H. DEWHURST, and ROBERT CONISTWAITE, Skipton, County of York, England. Filed June 9, 1883. (No model.) Patented in England Nov. 16, 1882, No. 5,464; in France Mar. 27, 1883, No. 154,402, and in Belgium Mar. 27, 1883, No. 60,884.



Claim.—1. The combination of the special bearing A, the oil-cup B, the wharve-tube E, and the intermediate loose tube, A^3, forming a bearing at top and bottom for the said parts A and E, a helical groove being formed between the special bearing and the wharve-tube for producing an upward and downward flow of oil between said bearing and tubes, substantially as set forth.

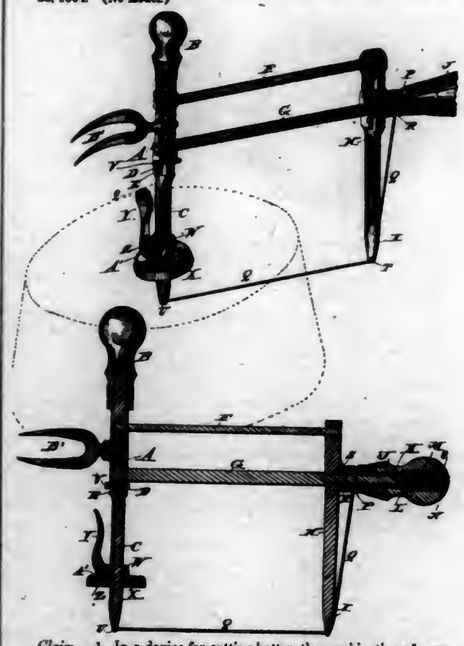
2. The combination of the special bearing A, the oil-cup B, the wharve-tube E, and the intermediate loose tube, A^3, forming a bearing at top and bottom for the said parts A and E, the tube A^3 having in its outer surface a helical groove for raising oil between said tube and the part E, and the bearing A having a reverse helical groove for returning oil between said tube and bearing, substantially as set forth.

3. The combination of the special bearing A, oil-cup B, and wharve-tube E, said bearing and tube having between them a helical groove for raising oil, which groove terminates below the top of the bearing, and a reverse helical groove above the first-mentioned groove for forcing down the oil and preventing overflow, substantially as set forth.

4. The combination, with the special bearing A, oil-cup B, and wharve-tube E, of the loose collar *i*, between and forming bearings for said parts A and E, there being formed between said parts a helical groove for carrying oil up to and over the outer surface of the collar *i*, and a reverse helical groove above said collar for returning the oil to the inner surface of the same, substantially as set forth.

5. The combination of the special bearing A, oil-cup B, and wharve-tube E, said oil-cup having an annular partition with apertures a^3, and a washer, *h*, of fibrous material, adapted to cover said apertures for limiting and regulating the feeding of the oil to the bearing, substantially as set forth.

316,759. DEVICE FOR CUTTING BUTTER. OREL K. DEXTER, Lowell, Mass., assignor of one-half to C. L. Simpson, same place. Filed Dec. 22, 1884. (No model.)

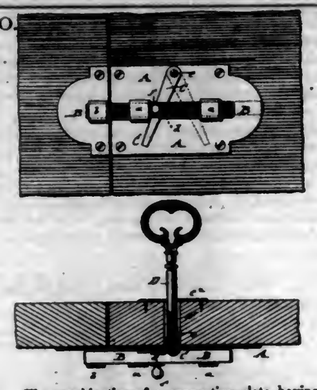


Claim.—1. In a device for cutting butter, the combination of a central rod having a handle at its upper end and a longitudinal groove extending from a notch in the lower end, a rod secured parallel to the central rod at a distance from the same, and having a longitudinal groove terminating in a notch at its lower end, a wire secured to the central rod passing down through the groove and in the notch, extending to the notch in the outer rod and resting in the groove in the said rod, and means, substantially as described, for securing the ends of the wire and for tightening the same, as and for the purpose shown and set forth.

2. The combination of the central rod having the transverse tapering perforation and the longitudinal groove extending from within the said perforation to the notch in the lower end of the rod, the brace-bar projecting from the central bar and having the reduced and screw-threaded end, the outer rod secured to the brace-bar near its reduced end parallel with the central rod, and having the longitudinal groove and the notch at its end, and having the flat lip at the point of connection with the brace-bar, the handle turning upon the end of the brace-bar having the radially-notched inner end and having the recessed or shouldered perforation, the spiral spring fitting around the reduced end of the brace-bar within the bore of the handle, the nut confining the said spring, the wire secured at one end to the inner end of the handle and wrapped around the same, passing down in the groove of the outer rod, extending from the notch of the said rod to the notch of the central rod, passing up in the groove of the said rod, and fitting with its end in the groove in the tapering perforation, and the plug fitting in the tapering perforation, as and for the purpose shown and set forth.

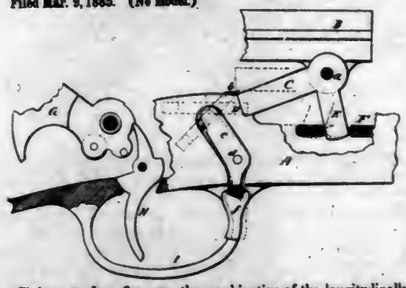
316,760. BOLT. CARL F. DIEHLMANN, Brooklyn, N. Y. Filed Oct. 29, 1884. (No model.)

316,760.



Claim.—The combination of a supporting-plate having angular keepers, a square slide-bolt adapted to slide in said keepers, provided with a knob on its outer face and with a recess on its inner face between said keepers, an oscillating arm pivoted to said plate and extending through said recess, the pivot of said arm being extended into a key-hole on the opposite side of the door, substantially as described.

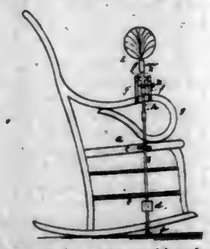
316,761. MAGAZINE FIRE-ARM. CARL J. EBERT, Hartford, Conn., assignor to Colts Patent Fire Arms Manufacturing Company, same place. Filed Mar. 9, 1885. (No model.)



Claim.—1. In a fire-arm, the combination of the longitudinally-reciprocating breech-piece, a locking-brace hinged to said breech-piece and extending rearward, a locking-shoulder on the receiver, against which said brace will abut in the closed position of the breech-piece, a bolt adapted to engage the said brace when in its locked position, and a lever hung in the receiver, engaged with said bolt, and extending outside the receiver to form a handle by which the said lever may be turned to throw the bolt and to release or lock the brace, substantially as described.

2. The combination of the breech-piece B, the brace C, hinged thereto and extending rearward, the shoulder D on the receiver against which the said brace may abut when the breech-piece is in its closed position, the bolt *b*, arranged in rear of the breech-piece in a diagonal position and so that its nose may engage or release the said brace, as the case may be, and a lever hung in the receiver, one arm, *e*, of which is engaged with said bolt, the other arm, *f*, extending downward to the forward end of the trigger-guard, substantially as described.

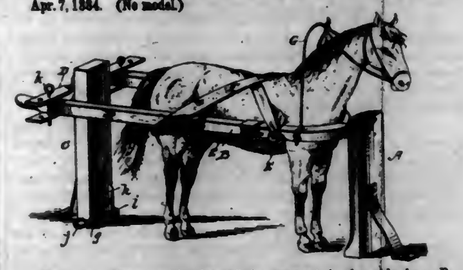
316,762. FAN ATTACHMENT FOR ROCKING-CHAIRS. JOHANNES EGEL, Newark, N. J. Filed May 3, 1884. (No model.)



Claim.—1. In a fan attachment for a rocking-chair, the combination, with the bearing-arms *f f*, adapted to be affixed to the chair, of a fan-holder pivoted on said arms, a connecting-rod, *h*, and a bar, *b*, adapted to move vertically and engage the floor and actuate the fan, substantially as and for the purposes set forth.

2. The combination, with the rocking-chair *a*, having brackets *c c* *f f* secured thereto, of the bar *b*, having weight *d* near its lower end, and rubber tip *p*, shank *k*, having journals *l l* between the brackets *f f*, the connecting-rod *h*, and the tubular receptacle *m*, adapted to hold a fan, all said parts being arranged and operating substantially as and for the purposes set forth.

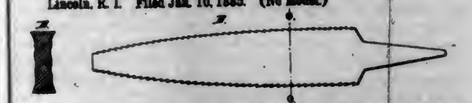
316,763. STOCK-HOLDER. THOMAS B. FAGAN, Van Wert, Ohio. Filed Apr. 7, 1884. (No model.)



Claim.—1. The combination of the support A, the side bars, B, curved at their front portions and hinged to said support, with a removable standard, provided with means, substantially as described, for adjusting and holding the extreme portions of the said bars B, and securing straps and band, substantially as set forth.

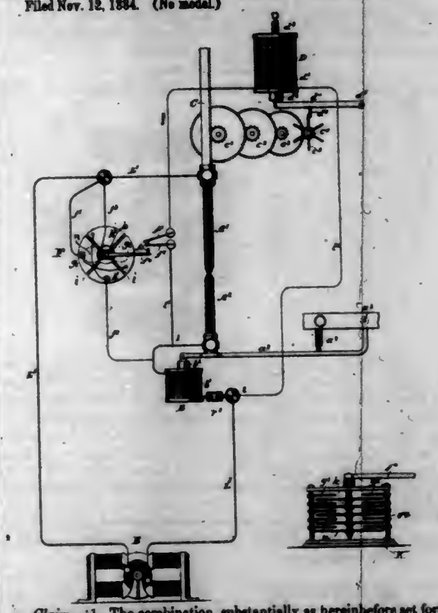
2. In a stock-holder, the side bars, B B, provided with supporting and adjusting means, substantially such as herein described, straps E F, and rod G, the parts being combined substantially as shown.

316,764. PROCESS OF CUTTING FILES. CRAWFORD M. FAIRBANKS, Lincoln, R. I. Filed Jan. 16, 1885. (No model.)



Claim.—The process of cutting flat files herein described, consisting in first preparing and cutting the edges only and subsequently preparing and cutting the sides, as and for the purposes specified.

316,765. ELECTRIC-ARC LAMP. MOSES G. FARMER, New York, N. Y. Filed Nov. 12, 1884. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, of the upper and the lower electrode of an arc lamp, an electro-magnetic device for controlling the movement of one of said electrodes toward the other, and a Thomson electrometer having its opposite plates connected with the respective electrodes, for controlling the operations of

said electro-magnetic device through the instrumentality of the changes in electrical potential at the electrodes.

2. The combination, substantially as hereinbefore set forth, of the upper and lower electrode of an electric-arc lamp, an electrometer having its respective plates connected with the respective electrodes, and actuated by changes in potential caused by the varying length of the arc, and a device for governing the approach of the electrodes, which device is controlled by said electrometer.

3. The combination, substantially as hereinbefore set forth, of the electrodes of an arc lamp, an electrometer having its positive and its negative quadrants connected with said electrodes and its movable plate connected with one of the same, and an electro-magnetic device included in a derived circuit or a branch of the main line, the connections of which are controlled by said electrometer.

4. The combination, substantially as hereinbefore set forth, of the electrodes of an electric-arc lamp, two electrifiable plates or two sets of the same, respectively connected with said electrodes, a movable electrified plate, an electro-magnetic device for regulating the arc of the lamp, and a circuit for said device having its connections controlled by the movements of said movable plate.

5. The combination, substantially as hereinbefore set forth, of the electrodes of an arc lamp, an electrically-charged plate moved to and fro by the variations in electrical potential occasioned by the variations in the length of the arc of the lamp, and a regulator controlled by the movements of said plate.

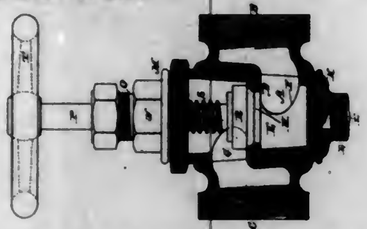
6. The combination, substantially as hereinbefore set forth, of an electro-magnetic regulator for electric lamps, and an electrometer statically charged by the currents passing to and from the arc, substantially as described, serving to control the operation of said regulator.

7. In an electric-arc lamp, the combination, substantially as hereinbefore set forth, of an upper electrode, the lower electrode, a yielding support for the same, an electro-magnet included in the main-line conductor and serving, when vitalized, to separate the lower electrode from the upper electrode, an electro-magnet serving to control the approach of the upper electrode toward the lower electrode, a conductor leading from opposite sides of the first-named electro-magnet and including the coils of the second electro-magnet, and means, substantially such as described, governed by the variations in the length of the arc of the lamp, to control the action of the second electro-magnet.

8. The combination, substantially as hereinbefore set forth, of the electrodes A' A^2, the device D, included in a branch circuit for determining the approach of the electrodes, the electrometer F, and the circuit-controlling device operated by said electrometer for controlling the operation of the device D.

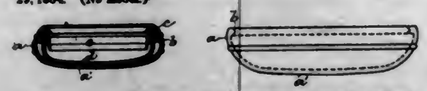
9. The combination, substantially as hereinbefore set forth, of an electro-magnetic regulator for electric lamps, an electrometer serving to control the operation of said regulator, and means, substantially as described, for charging the plates of said electrometer.

316,766. STOP-VALVE. NELSON R. FISHER, Johnstown, Pa. Filed Sept. 11, 1884. (No model.)



Claim.—The combination of the valve-casing having inlet and outlet openings, and having a central vertical socket with a port in its upper left-hand side and a port in its lower right-hand side, with a hollow bushing seated in said socket, and having ports adapted to register with the ports in the socket, and a diaphragm having a valve-seat in the center of the bushing, and a valve having a stem and hand-wheel for operating it, the bushing being adapted to be turned in the socket to cut off the flow of fluid while the valve is removed for repairs, substantially as shown and described.

316,767. WATCH-CASE. EZRA C. FITCH, Newton, Mass. Filed Sept 29, 1884. (No model.)



Claim.—1. A watch-case having an internal cap formed to bear against the inner surface of the back or cover of the case, as set forth.

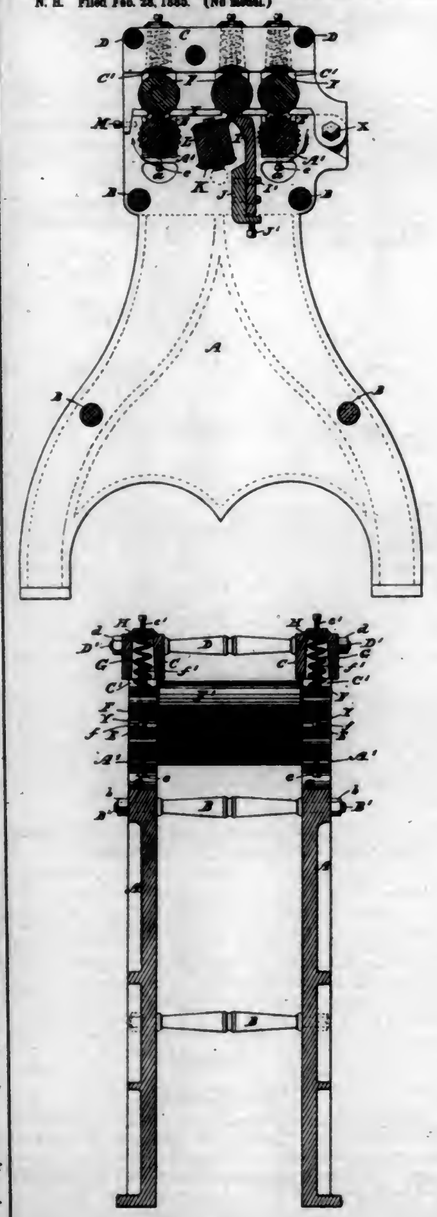
2. In a watch-case composed of a center and back made in a single piece, an internal cap secured to the case-center and bearing against the inner surface of the back, as set forth.

3. In a watch-case composed of a center and back made in a single piece, an internal cap secured to the case-center and projecting outside of the same, and a bezel formed to be applied to the projecting portion of the cap, as set forth.

4. In a watch-case composed of a center and back made in a single piece, an internal cap secured to the case-center, and a movement-holding ring fitted to the interior of said cap, as set forth.

5. In a watch-case composed of a center and back formed in a single piece, an internal cap secured to the case-center and projecting outside of the same, a movement-holding ring fitting the interior of the cap, and a bezel formed to be applied to the projecting edge of the cap, as set forth.

316,768. HOOP-PLANING MACHINE. GILBERT S. FOSTER, Concord, N. H. Filed Feb. 28, 1885. (No model.)

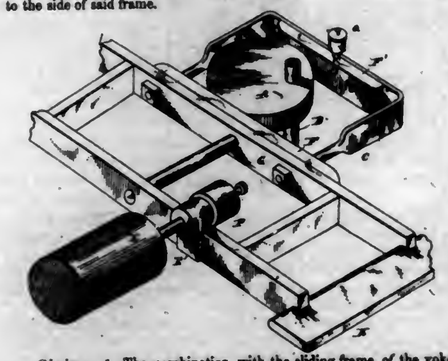


Claim.—1. In a hoop-planing machine, a pressure-bar, located substantially as shown, having slotted openings through which fastening-bolts are passed, and rendered adjustable vertically by means of screws threaded to a part of the frame of said planer and adapted to bear against the bottom of said pressure-bar, in the manner specified.

2. In a hoop-planing machine, the combination, with an adjustable pressure-bar, constructed substantially in the manner described, of a pressure-roll located directly over said pressure-bar and rendered adjustable by means of a screw threaded to a portion of the frame of said planer adapted to bear against the bottom of each of the journal-boxes carrying said pressure-roll, and means, substantially as described, for applying a variable pressure or tension upon the top of said journal-boxes.

316,769. MECHANISM FOR RECIPROCATING THE CONDENSING-CYLINDERS OF CARDING-ENGINES. ALBERT R. FOX, Kankakee, Ill., assignor of two-thirds to J. T. Dickson and A. G. Sells, same place. Filed Dec. 27, 1883. (No model.)

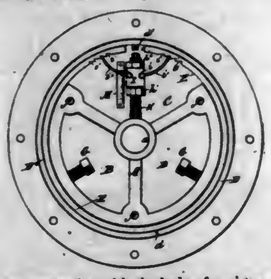
Brief.—The frame on which the condensing-cylinders are mounted is reciprocated by means of an eccentric working in a yoke which is bolted to the side of said frame.



Claim.—1. The combination, with the sliding frame, of the yoke having a bearing-piece secured to it, the bearing-piece secured to the frame by the ends of said yoke passing through it, and the eccentric-wheel operating between said bearing-pieces, substantially as specified.

2. The combination, with the sliding frame, of a bearing or journal box having an enlargement containing a rawhide-lined chamber, and a wing by which the box is secured to the frame, and a cylinder having a shaft with an enlarged end, which rests in the chamber and is retained by a screw, substantially as and for the purpose specified.

316,770. PISTON-PACKING. JACKSON GARRISON, Milnes, Va. Filed Aug. 16, 1884. (No model.)



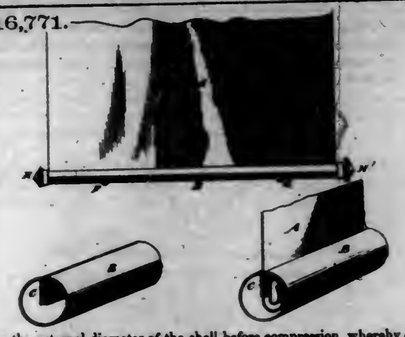
Claim.—1. In combination with the body of a piston, the stud H, provided with a square shank, the hollow adjusting-screw h', adjusting-block I, pawls i', spring K, and split ring E, provided with notches e', for receiving the ends of said pawls, substantially as described and shown, and for the purpose set forth.

2. In combination with the body of a piston, the stud H, provided with a square shank, the hollow adjusting-screw h', adjusting-block I, graduated scale M, for indicating position of said block, spring K, pawls i', and split ring E, provided with notches e', for receiving the ends of said pawls, substantially as described, shown, and specified.

316,771. BOTTOM BAR FOR WINDOW-SHADES. ANDREW H. GERDOM, Albany, N. Y., assignor of one-half to David Strasser, same place. Filed Aug. 20, 1884. (No model.)

Claim.—A bottom bar for window-shades, consisting of a central metallic shell having parallel clamping portions and of substantially uniform external curvature throughout its whole extent, in combination with end caps hollowed out cylindrically and of smaller internal diameter than the external diameter of the shell before compression, whereby during the clamping operation the said end caps are held in position wholly by the tendency of the shell to expand and are at the same time readily removable, substantially as and for the purposes set forth.

316,771.



316,772. HEATING APPARATUS. GEORGE GEBHER, Cumberland, Md. Filed Jan. 27, 1885. (No model.)



Claim.—The combination, with a stove, of a heating apparatus consisting of a dished bottom having a flange fitting into the open top of the stove, and having an oblique register-flange at its lower edge, a flat conical shield fitting with its lower edge upon the edge of the register-flange, a flange secured projecting downwardly at the joined edges of the shield and bottom, a drum projecting upward from the top of the shield and provided with a register-plate at its top, and a stove-pipe projecting from the open center of the dished bottom through the drum and through the side of the same, as and for the purpose shown and set forth.

316,773. LABEL. FRANK W. GOODWIN, Saxonville, Mass. Filed June 28, 1884. (No model.)



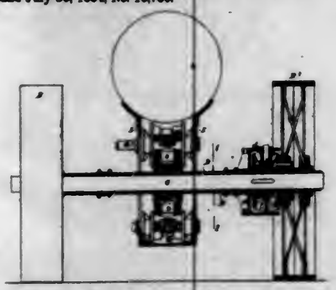
Claim.—1. The label herein described, having the end connections consisting each of a chain attached to the end of the label, an elastic band attached to the end of said chain, and an outer chain attached to the outer end of said elastic band, substantially as specified.

2. The combination, with the label A, of the chains, elastic bands, and split rings, substantially as specified.

3. The label A, having the upper and lower point projections, in combination with elastic attachment devices connected to the ends of said label, substantially as specified.

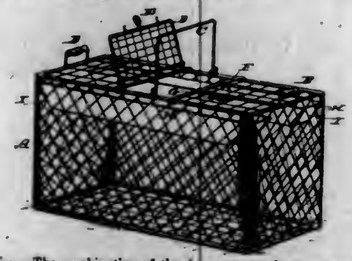
4. The combination, with the label A, of the chains B and F, the elastic bands D, the split rings or loops C, and the end fastenings, G, substantially as specified.

316,774. TRACTION-ENGINE. ALFRED GIBBS and RICHARD H. SHAW, Leeds, County of York, and JOHN WHITTINGHAM, Nantwich, County of Chester, England. Filed Feb. 20, 1885. (No model.) Patented in England July 30, 1884, No. 10,730.



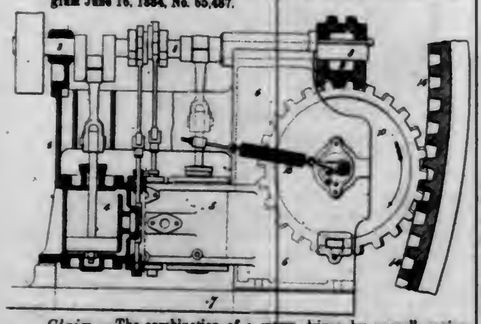
Claim.—The combination, with the locking and driving gear of traction-engines, steam-plow engines, and other engines of a like nature, of gimbal-rings interposed between the axle and the body of the engine, and of differential toothed gearing interposed between the wheels upon the axle and the outer gimbal-ring, to which the driving-power is applied, substantially as described.

316,775. WIRE FLOATING LIVE-BOX. JOSEPH F. HARDMAN, Rensselaer, Ind. Filed Sept. 27, 1884. (No model.)



Claim.—The combination of the box composed of wire-net, provided with handles at the ends and middle of its top, and provided with a hinged lid in its top, with floats consisting of air-tight sheet-metal boxes secured at the top of the box, and having the forward and rear ends beveled from the under side, as and for the purpose shown and set forth.

316,776. ENGINE FOR STARTING OR TURNING LARGE ENGINES. WILLIAM HARGREAVES and WILLIAM INGLIS, Bolton, County of Lancaster, England. Filed Aug. 4, 1884. (No model.) Patented in England Apr. 23, 1884, No. 6,702; in France June 14, 1884, No. 162,754, and in Belgium June 16, 1884, No. 65,487.

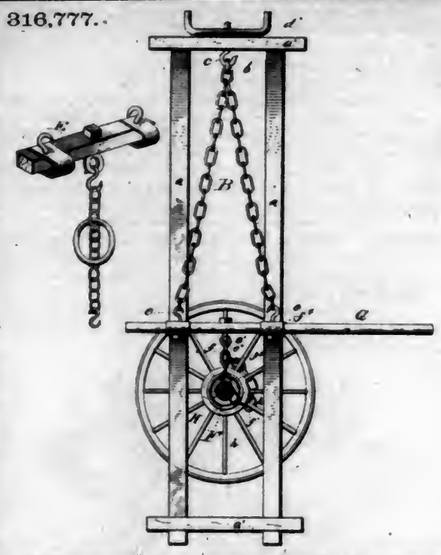


Claim.—The combination of a worm driven by a small engine with a worm-wheel pinion having its center capable of movement parallel to the axis of the worm, and by such movement entering into gear with or receding out of gear from the toothed fly-wheel or other wheel of a large engine, substantially as and for the purposes hereinbefore described.

316,777. HOISTING-JACK. GEORGE HARKINS, Aleppo, Pa. Filed Mar. 17, 1885. (No model.)

Claim.—1. The combination, in a hoisting-jack, of a suspended ring adapted to fit upon the outer end of a wheel-hub, and a fastening device for securing and holding the ring firmly in its operative position.

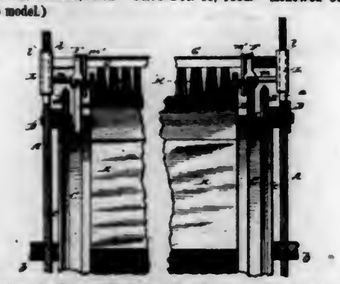
316,777.



2. The combination, in a hoisting-jack, of a suspended ring adapted to fit upon the outer end of a wheel-hub, with a fastening-chain secured at one end in proximity to the said ring and adapted to be passed around the spokes of the wheel, and then secured by means of a hook on its free end in such a manner as to prevent the slipping or displacement of the ring from the wheel-hub, as set forth.

3. The combination, with a hoisting-jack constructed as described, and consisting of the frame A, hoisting-chains B, and bar E, having hooks *a e*, of a ring adapted to fit upon the outer end of a wheel-hub, and connected by a suitable chain to the said bar E, and a fastening-chain secured at one end in close proximity to the ring and adapted to be passed around the spokes of the wheel, and secured by means of a hook on its free end in such a manner as to prevent the displacement of the ring from the wheel-hub, substantially as described.

316,778. MECHANISM FOR BRUSHING FLOUR-BOLTS. MILFORD HARMON, Jackson, Mich. Filed Dec. 15, 1882. Renewed Oct. 6, 1884. (No model.)



Claim.—1. In combination with a bolting-reel, a brush arranged on a line substantially parallel with the axis of the reel, mechanism adapted to move the brush toward and from the bolt-cloth on a line substantially radial to the axis of the reel, and mechanism adapted to move the brush on lines substantially parallel with the surface of the reel, substantially as set forth.

2. In combination with a bolting-reel, a brush arranged on a line substantially parallel with the axis of the reel, mechanism adapted to move the brush-back from the center of the reel, and a mechanism adapted to move the brush alternately in the direction of travel of the reel and in an opposite direction, substantially as set forth.

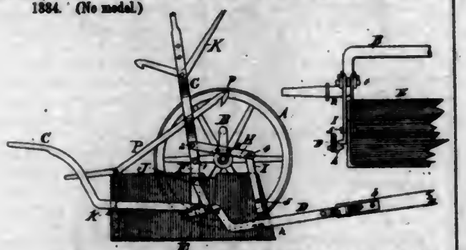
3. In combination with a bolting-reel, a brush arranged on a line substantially parallel with the axis of the reel mechanism operated by the reel and adapted to move the brush-back from the center of the reel, and mechanism adapted to move the brush alternately in the direction of travel of the reel and in an opposite direction, substantially as set forth.

4. In combination with a bolting-reel, a brush arranged on a line substantially parallel with the axis of the reel, mechanism operated by the reel and adapted to move the brush-back from the center of the reel, and mechanism operated by the reel and adapted to move the brush alternately in the direction of travel of the reel and in an opposite direction, substantially as set forth.

5. The bolt, the rocking brush pivoted and sliding at each end at the vertical wall of the casing, in combination with the rocking arm, the pitman, and crank-wheel, substantially as set forth.

6. The bolt and the casing, the brush pivoted at each end and sliding upon the vertical wall of the casing, in combination with the wheel N, attached to the brush, and arranged to traverse the reel to maintain the brush in suitable working relation to the bolting-surface, substantially as set forth.

316,779. SCRAPER. WILLIAM HARLUP, Sidney, Ohio. Filed Oct. 6, 1884. (No model.)



Claim.—1. An earth-scraper suspended on an axle supported on two carrying-wheels, to which the scraper is swiveled by means of link-levers connected to the center and forward end of the scraper, substantially as specified.

2. An earth-scraper suspended on an axle and supporting wheels by means of ears F, links H I, and lever G, substantially as specified.

3. The combination of a scraper-body, E, a lifting-lever, G, having a hinged connection therewith, link I, hinged to said body, and link H, hinged at one end to link I and at the other end to lever G, and a fulcrum for link H between link I and lever G, whereby the initial movement of the lever G elevates the front end of the scraper before raising it bodily out of the ground, substantially as described.

4. The combination of the scraper suspended from the axle, the draw-bars D, pivoted to said scraper, the links I, pivoted to the forward end of the scraper, with their ends terminating above said draw-bars, and a stop, *h*, secured to the draw-bar beneath the lower end of link I, so as to strike against the latter and limit its downward movement, substantially as described.

5. In combination with the scraper E, suspended upon the main axle by links H I, the draw-bars D, pivoted to the scraper at a point forward of the pivot I, and extended rearward, provided with a stop to strike the handle C, to prevent the rear end of the scraper from dropping down when it is carrying its load, substantially as specified.

6. In combination with the lever G, hinged to link H, and ear F, for suspending the scraper on the carrying-axle, the hooked lever K and catch *k*, for holding the scraper in an elevated position, substantially as specified.

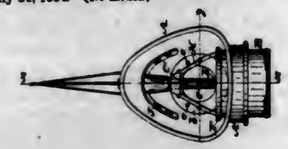
7. In combination with the scraper E, the forked lever G, swiveled to ears at either side of the scraper and to a swinging lever bolted to a carrying-axle, whereby the scraper and its load may be bodily elevated by depressing the lever G, substantially as specified.

316,780. INSOLE FOR BOOTS OR SHOES. LORENZO P. HAWKINS, Portland, Me. Filed Nov. 22, 1883. (No model.)



Claim.—A boot or shoe having a flexible sole consisting of two permanent soles, the inner made of waterproofed textile fabric, the two soles united by stitching embedded into the fabric, whereby is produced a very flexible sole having a smooth finish inside the boot or shoe.

316,781. CHIMNEY COWL AND VENTILATOR. WILLIAM G. HENRI, Philadelphia, Pa., assignor of one-half to Hall & Carpenter, same place. Filed July 31, 1884. (No model.)



Claim.—1. A cowl or ventilator having a rotating cap wider at the bottom thereof than at the top, provided with a conical deflector having openings in its rim, substantially as and for the purpose set forth.

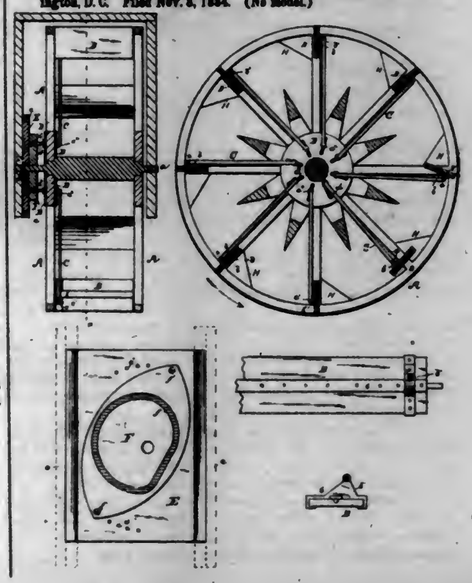
2. A cowl or ventilator having a rotary cap wider at the bottom thereof than at the top, and provided with a conical deflector having openings in its rim, and a depending flange surrounding the stationary tube thereof, substantially as and for the purpose set forth.

316,782. DEVICE FOR UNLOADING GRAVEL-CARS. EDWARD HUBER and HENRY M. RANSHART, Marion, Ohio. Filed Mar. 11, 1885. (No model.)



Claim.—The combination of the tender A, cars B B, scraper C, cables D and E, and the snatch-block F, all combined, arranged, and adapted to operate substantially as and for the purpose herein shown and specified.

316,783. FEATHERING PADDLE-WHEEL. JOHN P. HICKEY, Washington, D. C. Filed Nov. 3, 1884. (No model.)



Claim.—1. The combination, with a paddle-wheel, of a cam-grooved plate, the radially-slotted guide-plates D, fixed on the wheel-shaft *a*, the rods C, extending free alongside the wheel-arms, and having their lower ends bent laterally, and passing through the slots of said plate, also engaging with the cam-groove, the pivoted paddles B, and brackets attached to the latter, and having lugs *b'* arranged eccentrically, all as shown and described, to operate as specified.

2. In a paddle-wheel, the combination of cam F, provided with groove *f* and bolts *f'*, plate E, provided with a series of holes, *e'*, and guides *e*, a series of feathering-rods, C, provided with double eyes *c*, pins *c'*, collars c^2, and projecting ends c^3, guide-plates D, having slots *d*, and paddles B, pivoted in the framing of the wheel, and provided with projecting lugs *b'*, substantially as shown and described, and for the purpose set forth.

316,784. GEAR-CUTTER SHAPING-TOOL. ROBERT M. HILL, Lowell, Mass. Filed Apr. 7, 1884. (No model.)

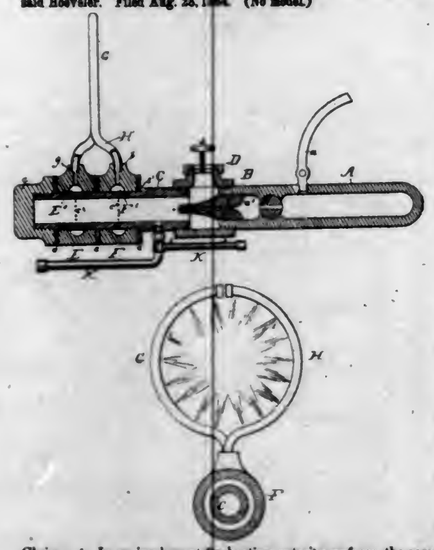


Claim.—1. The combination of the holder adapted to be held in a tool-post and provided with jaws, and the former having a set of shaping-notches, and means of adjusting said former to present any desired one of said notches to the work, and means, substantially as described, of holding said former rigidly in said holder, as and for the purpose specified.

2. The combination of the holder provided with jaws having concentric tapering holes, the former adapted to be turned about its center in said jaws, and provided with a series of shaping-notches and with an equal number of tapering holes, each of said holes being opposite one of said notches, and each capable of being brought in line with the holes in said jaws, and the tapering pin, as and for the purpose specified.

3. The former provided with shaping-notches, each of said notches having every line where such notch is cut by a plane perpendicular to the axis of said former equal in length and curvature to every other such line, and for the purpose specified.

316,785. HEATING AND SOLDERING IMPLEMENT. WILLIAM A. HOSEVELER and CHARLES KELLER, Pittsburg, Pa.; said Keller assignor to said Hoseveler. Filed Aug. 23, 1884. (No model.)



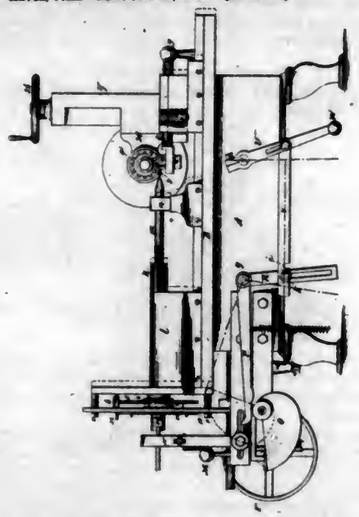
Claim.—1. In an implement for heating exterior surfaces, the combination, with a chamber or pipe for the reception of gas or burning-fluid, of two burners pivoted thereupon and adapted to be moved toward one another, substantially as described.

2. In a heating implement, the combination of a section of pipe forming a chamber for the reception of gas or burning-fluid with two semicircular burners secured in collars surrounding said chamber and adapted to be revolved thereupon, substantially as described.

3. The combination, with the perforated gas or fluid chamber C, of the block or collar E, pivoted upon said chamber and provided with an internal groove, E', port *g*, leading to a burner, G, and opening c^2 c^3 c^3, opening into the said chamber, substantially as described.

4. The combination of sections A and C, coupling B, having air-valve D, collars E and F, placed upon the section C and movable thereon and provided with grooves E' F', with burners G and H, substantially as described.

316,786. AUTOMATIC MILLING-MACHINE. EVERETT HORTON, New Haven, Conn. Filed Jan. 26, 1885. (No model.)



Claim.—1. The combination of the carriage B, rotating mandrel *k*, arranged longitudinally on said carriage, the transverse shaft C, carrying the cam O, and through which a longitudinal forward and back movement is imparted to said carriage, the disk 5, fixed to said mandrel, the vertically-guided slide 10, a pawl and ratchet between said slide and disk, and cams on said shaft C, through which an up-and-down movement is imparted to said slide, thereby imparting corresponding rotation to said mandrel, with a revolving tool arranged above said carriage, substantially as described.

2. The combination of the carriage B, rotating mandrel *k*, arranged longitudinally on said carriage, transverse shaft C, cam O thereon, and through which longitudinal back and forward movement is imparted to said carriage, disk 5, fixed to said mandrel, provided with a series of equidistant notches, the vertical slide 10, a pawl and ratchet between said slide and disk, cams on said transverse shaft, through which an up-and-down movement is imparted to said slide and a corresponding intermittent rotation to said mandrel, a dog arranged to engage successive notches in said disk to hold it at predetermined positions, and a tool arranged above the table to operate upon the work held by the said mandrel, substantially as described.

3. The combination of the carriage B, rotating mandrel *k*, arranged longitudinally on said carriage, transverse shaft C, carrying the cam O, and through which a longitudinal forward and back movement is imparted to said carriage, disk 5, fixed to said mandrel, vertical slide 10, cams on said shaft, whereby an up-and-down movement is imparted to said slide, ratchet 8, and gear 9, loose on the said mandrel, but concentric therewith, the said slide toothed corresponding to the said gear, pawl 21, hung upon said disk, to engage the teeth of said ratchet, and a tool arranged above the carriage to operate upon the work supported by the mandrel, substantially as described.

4. The combination of the carriage B, rotating mandrel *k*, arranged longitudinally on said carriage, transverse shaft C, carrying the cam O, and through which a longitudinal back and forward movement is imparted to said carriage, disk 5, fixed to said mandrel, said disk provided with a series of equidistant notches, vertical slide 10, cam on said shaft to impart up-and-down movement to said slide, a pawl and ratchet between said slide and disk, whereby intermediate rotation is imparted to said disk and mandrel, spring-dog 6, its nose arranged to engage successive notches on said disk, the lever 22, constructed with cams 23 and 24, the slide 10, provided with studs arranged to act upon said cams to impart vibratory movement to said lever, the lever also constructed with a cam, 27, adapted to throw said dog from and permit its engagement with said disk, and a tool arranged above the carriage, substantially as described.

5. The combination of the carriage B, rotating mandrel *k*, arranged longitudinally on said carriage, transverse shaft C, carrying the cam O, and through which a longitudinal back and forward movement is imparted to said carriage, disk 5, fixed to said mandrel, vertical slide 10

pawl and ratchet between said slide and disk, whereby intermittent rotation is imparted to said disk and mandrel, the vertically-movable longitudinal plate 12, and flange 16, forming a groove within which the lower end of the said slide 10 will run, and above the shaft, and cam 17 on said shaft C, adapted to work beneath said plate 12, and whereby up-and-down movement is imparted to said slide 10, substantially as described.

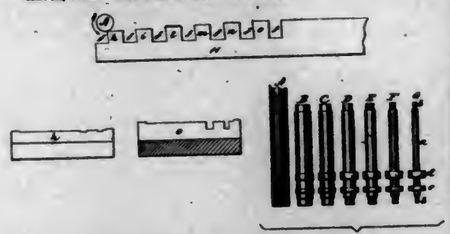
6. The combination of the carriage B, rotating mandrel *k*, arranged longitudinally on said carriage, transverse shaft C, carrying the cam O, and through which a longitudinal back and forward movement is imparted to said carriage, disk 5, fixed to said mandrel, vertical slide 10, pawl and ratchet between said slide and disk, whereby intermittent rotation is imparted to said disk and mandrel, the vertically-movable longitudinal plate 12, and flange 16, forming a groove within which the lower end of the said slide 10 will run, and above the shaft, the bar 20, below the shaft, parallel with and fixed to said plate 12, and cams 17 and 19 on said shaft, adapted to impart an up-and-down movement to said plate 12 and a corresponding up-and-down movement to said slide 10, substantially as described.

7. The combination of the carriage B, rotating mandrel *k*, arranged longitudinally on said carriage, transverse shaft C, carrying cam O, and through which a longitudinal back and forward movement is imparted to said carriage, disk 5, fixed to said mandrel, a clutch upon said transverse shaft, adapted to connect and disconnect the power therewith, lever L, connected to said clutch, and through which the clutch may be thrown into or out of engagement with the power, a spring-latch, N, adapted to engage said lever when the clutch is connected with the power, and a stop, 29, on said mandrel, adapted to disengage said latch at each full rotation of said disk, with pawl and ratchet through which intermittent rotation is imparted to said disk, substantially as described.

8. The combination of the carriage B, rotating mandrel *k*, arranged longitudinally on said carriage, transverse shaft C, cam O on said shaft, bell-crank lever P R, transverse shaft S, carrying a pinion in gear-connection with said carriage, and the connecting-rod V between said shaft S and said bell-crank lever, and through which a back and forward movement is imparted to said carriage, disk 5 on said mandrel, and a pawl and ratchet through which intermittent rotation is imparted to said disk and mandrel, substantially as described.

9. The combination of the carriage B, rotating mandrel *k*, arranged longitudinally on said carriage, the slide *i*, arranged on said carriage for longitudinal movement parallel with said mandrel, and by which said mandrel and slide the work may be supported, transverse shaft C, through which a longitudinal back and forward movement is imparted to said mandrel, disk 5 on said mandrel, pawl and ratchet through which intermittent rotation is imparted to said disk and mandrel, a clutch by which the power may be engaged or disengaged, lever L, extending from said clutch, a latch, N, arranged to engage and hold said lever when the power is engaged, and a stop on the mandrel, adapted to throw said latch from engagement with the lever at each full rotation of said disk and mandrel, substantially as described.

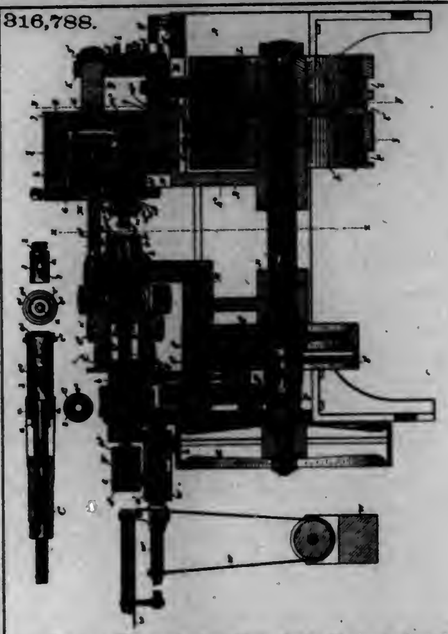
316,787. TOOL FOR TURNING METAL. EVERETT HORTON, New Haven, Conn. Filed Feb. 4, 1885. (No model.)



Claim.—1. The herein-described tool for metal turning, consisting of the cutter-bar constructed with a series of ribs diagonally across it, each rib presenting a cutting-edge, and each successive cutting-edge slightly above the previous cutting-edge, and all the ribs back of the cutting-edge flat upon their upper surface, the said surfaces parallel with each other and with the path in which the cutter is to be moved, substantially as described.

2. The cutter-bar H, constructed with a series of ribs diagonally across it, leaving corresponding diagonal recesses between the ribs, each rib presenting a cutting-edge, the forward edge of each rib formed as a cutter, each successive cutting-edge slightly above the preceding cutting-edge, the upper surface of all the ribs back of the cutting-edge flat, parallel with each other, and also parallel with the path in which the cutter is to be moved, substantially as described.

316,788. SCREW-MACHINE. ATLEE JOHNSTON, Ottumwa, Iowa. Filed Oct. 23, 1884. (No model.)



Claim.—1. The combination, with the chuck, of the longitudinal slide and the tool-holding turret mounted on an axis parallel with that of the chuck, and the automatic mechanism for revolving said turret to bring the tools successively in line with the said chuck, substantially as described.

2. The combination, with a turret and a threading-tool carried by said turret, of the axial gear and the mechanism operated thereby for revolving the said threading-tool, substantially as described.

3. The combination of the chuck, the longitudinal slide, the tool-holding turret mounted on an axis parallel with that of the chuck, the threading-tool, and the gears for revolving said tool, substantially as described.

4. The combination, with the longitudinal slide and the tool-holding turret mounted on a horizontal axis on said slide, of the locking-plate and projection for holding the turret stationary when the slide is moved forward to bring the tools into action, substantially as described.

5. The combination, with the longitudinal slide and the tool-holding turret mounted thereon, of the cross-slide and the shifting-wheel for turning said turret, substantially as described.

6. The combination, with the chuck and the mechanism for opening and closing the chuck-jaws to permit the rod or long stock to be fed forward, of the longitudinal slide, the cam and connections for reciprocating the same, the tool-holding turret mounted on a horizontal axis on said slide, and the mechanism for turning the turret step by step, substantially as described.

7. In a chuck, the combination, with the chuck-jaws, of the cam and connections for closing said jaws by a positive movement by means of a screw, substantially as described.

8. The combination, with the chuck-jaws, of the cam and connections for releasing and for closing said jaws both by the positive action of said cam, substantially as described.

9. The combination, with the chuck-jaws, of the cam, the rigid metal pieces, and the interposed spring for operating the chuck-jaws, the pressure in closing the jaws being communicated through said spring, substantially as described.

10. The combination, with the chuck-jaws and mechanism for opening and closing the same, of the adjusting devices at the inner end of the chuck-spindle for regulating the bite of the jaws, substantially as described.

11. The combination, with the chuck-spindle and the chuck-jaws, of the feed or chuck cam, the device acted upon by said cam, the tube inside the spindle, the spring interposed between the said device and the said tube, and the devices actuated by the tube to close said jaws, substantially as described.

12. The combination, with the adjustable wedges secured to the chuck-head, of the chuck-jaws movable longitudinally with respect to said wedges, substantially as described.

13. The combination, with the wedges united to form a ring, of the inclosed chuck-jaws formed in one piece of metal, said jaws being

beveled on the outside at the ends to correspond with the wedges, and being movable by means of a screw with respect to said wedges, substantially as described.

14. In a chuck, the combination, with the head, the wedges, and the chuck-jaw, of the screw-follower and the tube connected with said follower by a pin working in an oblique slot, substantially as described.

15. In a chuck, the combination, with the tube for operating the chuck-jaws and the nuts on the outer end of the tube, of the device for communicating motion to said tube and the spring interposed between said device and one of said nuts, substantially as described.

16. In a chuck, the combination, with the head, the ring therein, the follower connected with said ring by a screw-thread, and the tube connected with said follower by a pin working in an oblique slot, of the notched flange and locking-pin for adjusting the said ring in said head, substantially as described.

17. The combination of the chuck-head, the wedges, the chuck-jaws, and the screw-follower, substantially as described, so that the jaws are compressed automatically by the combined action of the screw and wedges, as set forth.

18. The combination, in a chuck, with the chuck-jaws and screw-follower, of the adjustable ring engaging the thread on said follower, substantially as described.

19. In a chuck, the combination, with the head, the ring, the follower connected with said ring by a screw-thread, and the tube so connected with the follower as to revolve the follower by its reciprocating motion, substantially as described.

20. In a chuck, the combination, with the head, the ring therein, and the follower connected with said ring by a screw-thread, substantially as described.

316,789. DEVICE FOR CONVERTING MOTION. HENRY B. KEEFER, Lancaster, Pa. Filed Jan. 19, 1885. (No model.)



Claim.—1. The combination of a shaft, B, and pulley D thereon, a carrier, A, and appliances for oscillating the same on the shaft, with guided arms W, connected at their inner ends to the carrier, and furnished at their outer ends with clutch-shoes adapted to the said pulley, substantially as specified.

2. The combination of the shaft B, carrier A, arms W, pulley D, and disk I, with its recessed flange *p*, substantially as set forth.

3. The combination of the pulley D, the gap *t* therein, and the internal flange, *v*, with a strap, *y*, applied to the periphery of the pulley, and secured at its ends to the flange, substantially as described.

4. The combination of the arm W and the cavity *e* therein, with the stripe *h*, fitted in the cavity and secured to the arm, substantially as described

316,790. MANUFACTURE OF BUCKLES. GEORGE R. KELSEY, West Haven, Conn. Filed Jan. 2, 1885. (No model.)



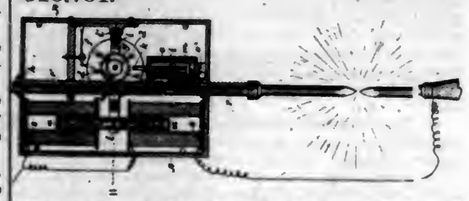
Claim.—The herein-described improvement in the manufacture of wire buckles, consisting in striking the ends of the frame flat upon one side, leaving the other rounded or convex in transverse section, then bending the ends from their extreme end toward the frame around the tongue to form the hinge, substantially as described.

316,791. ELECTRIC-ARC LAMP. WILLIAM W. KING, St. Louis, Mo., assignor of one-half to William Somerville, same place. Filed Apr. 1, 1884. (No model.)

Claim.—1. The combination, with a carbon-carrier, of a shaft geared thereto so as to be rotated by the movement of the said carrier, and two oscillating dash-pots with reciprocating pistons pivoted to two crank-arms on the said shaft, respectively, the two arms being substantially at an angle of ninety degrees to each other.

2. In an arc lamp, the combination, with the operating-pinion, of an upper rack-bar having the toothed portion above the axial line of the

316,791.



supporting-pinion of slightly less length than the unconsumed carbon extends beyond the ferrule.

316,792. CHECK-ROW LINE. OLE O. KITTLESON, Sterling, Ill. Filed Aug. 29, 1884. (Model.)

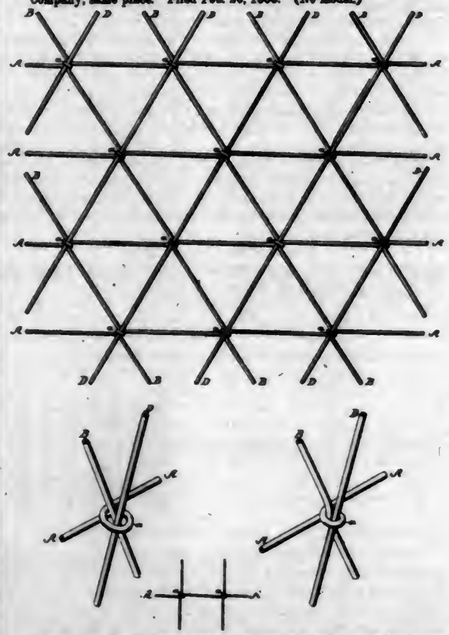


Claim.—1. The combination, with a check-row line, of stops constructed and connected thereto, substantially as described, and adapted to revolve on their axes in a direction parallel with the line, or lengthwise thereof, for the purpose set forth.

2. The combination, with stops consisting of shanks or bars provided with buttons at their ends, of a check-row line composed of wire sections having loops at their extremities through which the shank or bar of the stop passes at right angles or transversely to the length of the line, substantially as and for the purpose described.

3. In a check-row line, the combination, with the stops consisting of shanks or bars having buttons on their ends, of a line composed of wire sections formed with loops interlocking each other and passing over the bar or shank of the stops, substantially as and for the purpose specified.

316,793. WIRE FABRIC FOR FENCES, SCREENS, &c. WILLIAM KLOSE, Philadelphia, Pa., assignor to the Manly & Cooper Manufacturing Company, same place. Filed Feb. 26, 1885. (No model.)



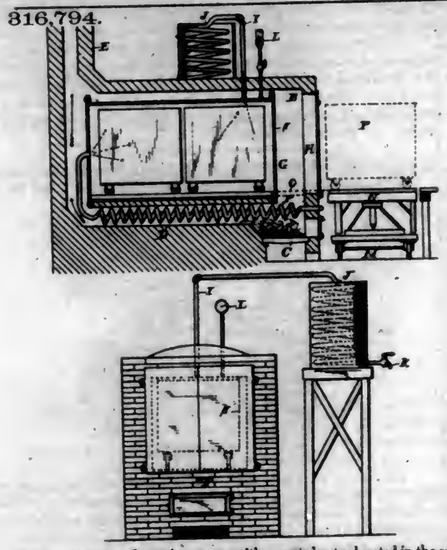
Claim.—1. A wire fence or screen consisting of longitudinal wires A, having at intervals loops *a*, in which are closely confined the transverse wires of the structure, as set forth.

2. The combination of the wires B and D, crossing each other diagonally, with the wires A, having loops *a*, which closely confine the wires B and D at the points where they cross each other, as set forth.

316,794. APPARATUS FOR DISTILLING WOOD. EBERHARD KOCH, New Orleans, La. Filed July 18, 1884. (No model.)

Claim.—1. The combination of a metallic retort having suitable external masonry, the forward side having air-tight doors, the retort having steam-tight doors at the forward side, with a steam-generator and

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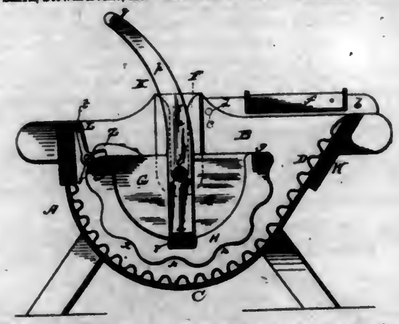
furnace adapted to heat the retort, with a superheater located in the said furnace to deliver superheated steam into the retort substantially as described.

2. The combination, with a furnace, as described, of a retort having flues at the front and rear ends, and a coil-pipe or superheater located in a horizontal flue, D, of said furnace and over the fire-chamber, substantially as described.

3. The combination of the retort provided with an air-tight door, a rail-track therein for a car-truck, a furnace having a flue, D, beneath the retort, a steam-superheating pipe-coil in said flue communicating with the interior of the retort, and a pipe leading from the latter to a condenser, substantially as described.

4. The combination of a retort having a coil-pipe or steam-superheater, F, connected therewith, the furnace, the steam-gage, the condensing apparatus, and the car provided with a turn-table and track, substantially as and for the purposes herein set forth.

316,795. WASHING-MACHINE. GEORGE W. LEACH and JAMES H. SMITH, Stewartsville, Mo. Filed Nov. 26, 1883. (No model.)



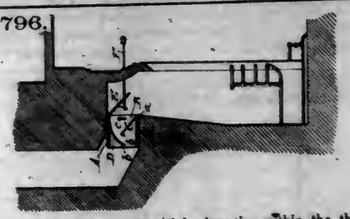
Claim.—As an improvement in washing-machines, the combination of the tub having the bearings *v* on its inner side walls beneath their upper edges, the angular bail L, journaled at opposite ends thereon in such position as to permit the free working of the rubber, and the rubber provided with the hook-bearings *z* on the upper horizontal side edges thereof, to engage the said bail, substantially as specified.

316,796. DRAFT-REGULATOR AND SOOT-ARRESTER FOR CHIMNEYS. FRANCIS H. LEONARD, Boston, Mass. Filed Oct. 11, 1883. (No model.)

Claim.—1. In combination with the frame A and the damper or regulator attached thereto, the internal removable frame provided with two deflectors, substantially as described and shown.

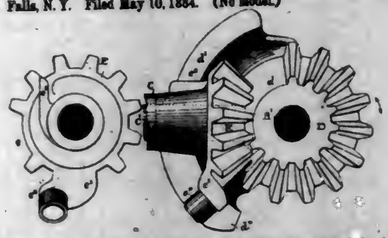
2. In combination with the frame or mouth-piece, the upwardly and rearwardly extending deflector C, having a backwardly-turned edge, in combination with the deflector D, constructed, as described, with the upwardly-turned edge.

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3. An external frame adapted for insertion within the throat of a chimney, in combination with an internal removable frame containing a deflector or guard rising from its lower side, substantially as described, whereby it is adapted to arrest soot, ashes, &c., which may descend the chimney.

316,797. STOP-MOTION GEARING. SYLVANUS D. LOCKE, Heosic Falls, N. Y. Filed May 10, 1884. (No model.)

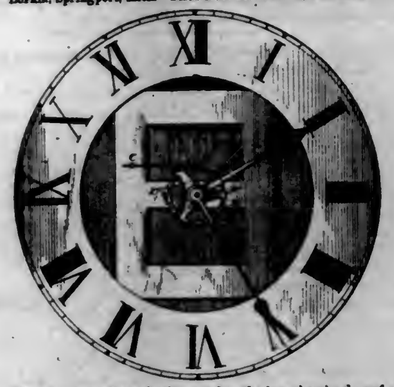


Claim.—1. A driving bevel-gear void of teeth for a definite interval and having a concentric flange arranged abreast said interval, in combination with a driven gear provided with an anti-friction roll pivoted on a stud set out from the periphery of said driven gear and adapted to ride or revolve along the flange of said driving-gear, substantially in the manner described, and for the purpose set forth.

2. The combination, with a driving bevel-gear having a blank space or definite dental interval and a concentric ledge or flange provided with an incline at its advancing end, of a driven bevel-gear arranged to mesh with the other and having a roll set out from its periphery to strike and be lifted by said incline and travel along the ledge.

3. The combination, with the driving bevel-gear having a blank space, concentric flange, and incline, as set forth, of the driven bevel-gear having an anti-friction roll set out from its periphery on one side of its hub and a shoe on the other.

316,798. HOUR-HAND MOVEMENT FOR TIME-PIECES. JOHN H. LUFKIN, Springport, Mich. Filed Nov. 10, 1884. (No model.)



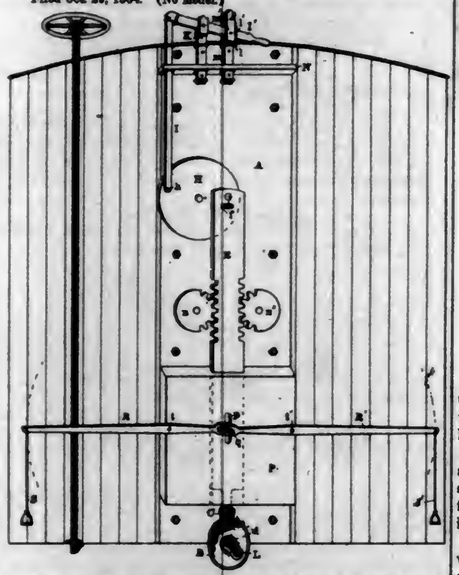
Claim.—A ratchet-wheel secured to the hour-hand arbor of a time-piece, and the spring-arm H, secured to the minute-hand arbor, and having a pin on its free end at an angle thereto, in combination with the spring D, secured to the frame of the time-piece, the said spring and wheel being arranged to move the hour-hand at the required intervals, substantially as described.

316,799. CONDIMENT. ROBERT F. MAIER, Newark, N. J. Filed Nov. 19, 1884. (No specimens.)

Claim.—1. A compound table, domestic, or culinary salt, consisting of chloride of sodium combined or mixed with a small proportion of hypophosphite to impart to the salt medicinal properties, substantially as set forth.

2. The compound table-salt herein described, consisting of chloride of sodium, hypophosphite of soda, chloride of potassium, sulphate of soda, and hypophosphite of lime, in the proportion substantially as set forth.

316,800. CAR-COUPLING. JOHN H. MCCORMICK, New Orleans, La. Filed Oct. 29, 1884. (No model.)

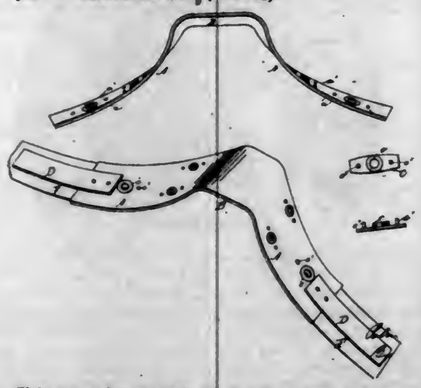


Claim.—1. The combination, in a car-coupling, of a vertically-operating coupling-bar having side teeth or racks, as described, with a pair of pivoted disks having teeth adapted to engage those of the coupling-bar, substantially as and for the purpose set forth.

2. In a car-coupling, the combination of the bar E, having side teeth, as described, and the pivoted disks *n n'*, having teeth adapted to gear therein, with the casing P and disk H, the latter provided with means for operating same, substantially as set forth.

3. In a car-coupling, the combination of a vertical bar provided with side teeth and coupling-pin, as described, the disks *n n'*, having teeth adapted to engage those of the bar, the casing P, provided with slot *p*, and the levers R R', having forked or slotted ends adapted to engage a pin projecting from the bar and through the aforesaid slot, substantially as and for the purpose specified.

316,801. HARNESS-SADDLE TREE. PATRICK MCFADDEN, Philadelphia, Pa. Filed Nov. 29, 1884. (No model.)

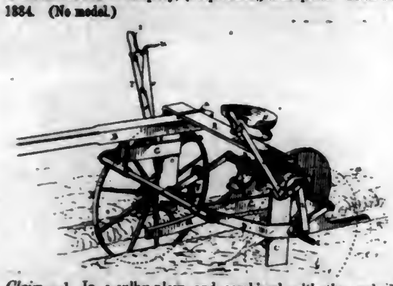


Claim.—1. A harness-saddle tree the sides or legs which have concave curves trending inwardly from the apex or bridge, and which are also curved from the front to the rear edge, the dip of the front curves being greater than that of the rear curves, substantially as shown and set forth.

2. In combination with a harness-tree plate the sides or legs of which have concave curves trending inwardly from the apex, and which are also curved from the front to the rear edge, having openings for the reception of the same, burrs or nuts having projecting threaded bosses and rivet-studs integral therewith, substantially as shown and set forth.

3. The combination, with a harness-saddle tree the sides or legs of which have concave curves trending inwardly from the apex, and which are also curved from the front to the rear edge, having burrs or nuts secured on its inner or under side, of shoes, also secured to said inner or under side and having openings for said burrs or nuts, substantially as shown, and for the purpose set forth.

316,802. WHEEL-PLOW. JAS. W. MEIKLE, Louisville, Ky., assignor to Thomas Meikle & Company, (Corporation,) same place. Filed Dec. 10, 1884. (No model.)



Claim.—1. In a sulky-plow, and combined with the arched axle thereof, a slotted vibrating arm pivoted in front of the axle and provided with an axle-spindle, the axle being passed through said slot, and thereby caused to act as a guide for said arm, as set forth.

2. In a sulky-plow, a vibrating arm pivoted in advance of the axle and provided with an axle-spindle, and with a loop or lug to constitute a slot to embrace the axle-bar, and thus cause said axle to act as a guide for said arm D, combined with a lifting bell-crank lever and a connecting-link, whereby said lever is connected with said arm, as set forth.

3. The pivoted arm D, with the lugs *d d* and extension *e*, and provided with the axle-spindle E, combined with the axle A, and the bell-crank lever J, and link I, connecting said lever and the extension *e* at a point behind the axle-spindle and guide, for the purpose set forth.

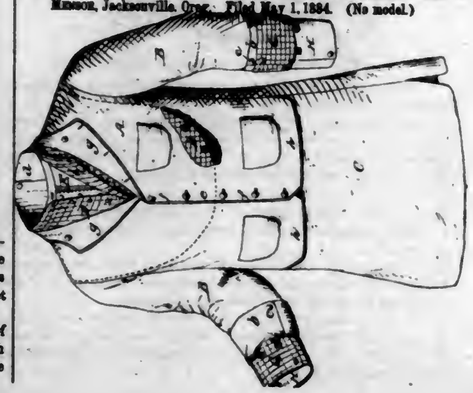
4. In a sulky-plow, an adjustable wheel mounted on an arm pivoted in front of the axle, and guided by contact with the axle, combined with a bell-crank lever and link jointed to said arm in rear of the axle, as set forth.

5. In combination, the axle A and the forward-projecting arms C C, rigidly secured thereto, the vibrating arm D, pivoted to the front end of one of said arms, and extending backward therefrom, embracing the axle for guidance and support, and a bell-crank lever attached to said arm at its rear extremity in rear of the axle, as set forth.

6. A hand-wheel provided with a ratchet, Q, a bell-crank lever connected with the bail, so as to raise and lower the same, and a hook-latch, R, pivoted to said lever, to operate the same by force of the team when in engagement with said ratchet Q, combined with a hand-piece, *u*, attached to said lever, and connected with said hook to control the same, said hand-piece being adapted to lie back out of the way when not wanted, and when in action to lie against the hand-piece *t* and lever-handle, so that by a single grasp of the hand the latch *r* is withdrawn and the hook R caused to engage with the ratchet Q.

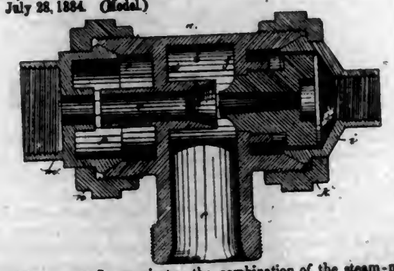
7. Combined with the ratchet Q and hook R, pivoted to the lifting-lever P, the let-off plate T, constituted by a plate bolted to the lower end of the axle, with holding-screws passed through slots, whereby said plate may be adjusted to position, as set forth.

316,803. COMBINED LAPEL VEST AND OVERSHIRT. ABE. W. MENSOR, Jacksonville, Oreg. Filed May 1, 1884. (No model.)



Claim.—As an improved article of manufacture, the vest A, having bosom-lapels *g*, lower lapels, *h*, tail portion C, sleeves B, having turn-over cuffs *b*, the detachable bosoms D E, the outer one of which is made to open and close in front, and the detachable cuffs G H, formed of like material with the said bosoms, for the purpose set forth.

316,804. EJECTOR. WILLIAM T. MESSINGER, Cambridge, Mass. Filed July 28, 1884. (Model.)

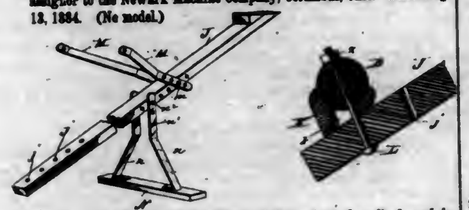


Claim.—1. In an ejector, the combination of the steam-nozzle, water-inlet chamber, and combining-tube with a vacuum-chamber in the body of the ejector communicating with the said combining-tube at its delivery end and an auxiliary vacuum-chamber extended to the ejector, substantially as and for the purpose set forth.

2. In an ejector, the main casting threaded at both ends and comprising a water-inlet chamber and combining-tube, combined with a steam-nozzle, a steam-inlet piece coupled upon one end of the main casting, and an outlet-piece having a liquid-delivery tube in line with the combining-tube coupled to the other end of the main casting, with which it forms a vacuum-chamber communicating with the combining-tube, substantially as described.

3. In an ejector, the main casting having a water-inlet chamber and combining and delivery tube integral therewith, combined with a diverging steam-nozzle connected with the said main casting at one side of the water-inlet chamber, an auxiliary delivery-tube arranged in line with the delivery end of the combining-tube, but separated therefrom by a small space, and a tight vacuum-chamber surrounding the delivery end of the combining-tube and the receiving end of the auxiliary delivery-tube, substantially as and for the purpose described.

316,805. SEAT FOR SEED-DRILLS. ABRAHAM MILLER, Newark, assignor to the Newark Machine Company, Columbus, Ohio. Filed Aug. 13, 1884. (No model.)



Claim.—1. In a machine substantially such as described, and in combination with the hopper thereof, a seat-supporting bar connected directly to the hopper and having a seat and foot supports attached thereto, substantially as described.

2. In a machine substantially such as described, and in combination with the hopper thereof, a detachable seat-supporting bar having a seat and foot support attached thereto, the latter pivotally, substantially as described.

3. In a machine substantially such as described, and in combination with the hopper and axle thereof, an adjustable seat-supporting bar pivotally connected to the hopper and having a seat attached thereto, substantially as described.

4. In a machine substantially such as described, and in combination with the hopper thereof, a single detachable and adjustable seat-supporting bar connected to the hopper and having a seat secured thereto, substantially as described.

5. In a machine substantially such as described, and in combination with the hopper and frame thereof, a seat-supporting bar provided with a seat and foot support, the latter connected to said bar, and the bar adjustably connected to the hopper, substantially as described.

6. In a machine substantially such as described, and in combination with the hopper thereof, a seat-supporting bar provided with a seat, and an adjustable foot-support pivoted to said bar, adjustably connected to the hopper, substantially as described.

7. In a machine substantially such as described, and in combination with the axle and hopper thereof, an adjustable seat-supporting bar provided with a seat and an adjustable foot-rest, the latter connected directly to said bar, substantially as described.

8. The combination of an axle, a hopper, a seat-beam connected at its lower end to the axle, and means, substantially as described, whereby its upper portion is connected to and supported from the hopper, substantially as set forth.

9. The combination of a seat, a seat-beam, a hopper, and adjustable straps connecting the seat-beam with the hopper, substantially as set forth.

10. The combination of a seat, a seat-beam, a pivotally-suspended foot-rest, and means, substantially as described, whereby the foot-rest may be lengthened or shortened to give greater or less play, and suspended nearer to or farther from the seat, substantially as described.

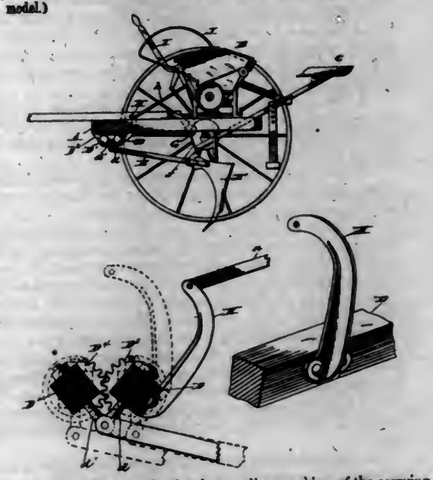
11. The combination of a seat-beam, an axle, an interposed clamp-block conformed on one side to the beam and on the other to the axle, and means, substantially as described, for securing the said parts together, substantially as described.

12. The combination of a perforated seat-beam, a slotted block made flat on one side and concave on the other, the perforated axle, and a tension bolt and nut, substantially as and for the purpose set forth.

13. The combination of a perforated seat-beam, a slotted block made flat on one side and concave on the other, the perforated axle, and a tension bolt and nut, substantially as and for the purpose set forth.

14. The combination of a seat, a seat-bar adjustable in length, a hopper, adjustable straps connecting the seat-bar and hopper, and an adjustable swinging foot-rest, substantially as and for the purpose set forth.

316,806. SEED-DRILL. ABRAHAM MILLER, Newark, assignor to the Newark Machine Company, Columbus, Ohio. Filed Aug. 23, 1884. (No model.)



Claim.—1. The combination, in a seeding-machine, of the carrying-frame, a rock-shaft having an upwardly-curved arm rigidly secured thereto, the alternate boots connected with said rock-shaft, a curved operating-lever hinged to the front of the hopper, and means, substantially as described, for securing said lever, substantially as set forth.

2. The boots, the drag-bars, a rock-shaft connected to every other drag-bar, and a link, in combination with a curved or bent lever fulcrumed upon the hopper, and means, substantially as described, for holding said lever also secured to the hopper, substantially as and for the purpose set forth.

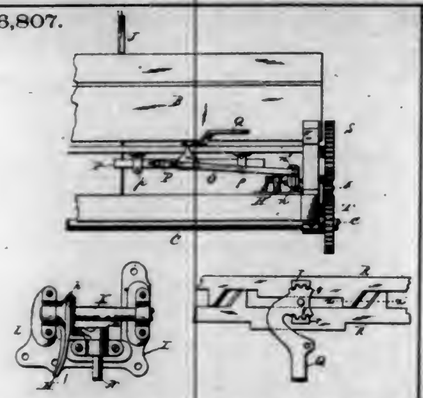
3. The combination of the carrying-frame, the two shafts geared together, one of them having an upwardly-bent arm, the depending arms, drag-bars and boots connected alternately with said arms, and a bent or curved lever fulcrumed to the hopper, and a bow or strap, also secured to the hopper, as and for the purpose described.

4. The combination of the frame, the hopper, the bent or curved lever fulcrumed on the front of the hopper, the notched bow, the rock-shaft having the curved arm connected with the lever, the depending arms, and the boots, each alternate one of which is connected with the depending arms of the rock-shaft, substantially as and for the purpose described.

316,807. SEED AND FERTILIZING DRILL. ABRAHAM MILLER, Newark, assignor to the Newark Machine Company, Columbus, Ohio. Filed Aug. 23, 1884. (No model.)

Claim.—1. The combination of the hopper and its contained feed mechanism and slides, boots, and mechanism for raising and lowering said boots, with devices, as plate V and crank-shaft K, the latter being connected to said plate and geared to the feed-operating shaft for opening and closing the feed-slides, substantially as and for the purpose set forth.

316,807.



2. The combination of the hopper, the reciprocating slides, the boots, mechanism, substantially as described, for hoisting the boots and closing the slides simultaneously, and devices, substantially as described, as link O, adjustably connected to the shaft N, whereby the throw of the slides may be adjusted to increase or diminish the openings between them, substantially as and for the purpose set forth.

3. The combination of the hopper, the slides in the bottom of the hopper, the lever by which they are reciprocated, the sliding bar, the link, the rock-shafts, the boots, and mechanism connected with said rock-shafts, substantially as described, for raising and lowering the boots, substantially as and for the purpose set forth.

4. The combination of the hopper, the slides, the boots, the link, the rock-shafts and their connections, and plate V, for raising or lowering the boots and simultaneously closing or opening the slides, substantially as and for the purpose set forth.

5. The combination, with a hopper, of horizontally-moving slides having upwardly-beveled edges which extend diagonally across their line of movement, as and for the purpose set forth.

6. The combination of the frame, the axle, the hopper, the boots, means for raising and lowering the boots, the pinions S T on the feed-roll shaft and axle, respectively, the intermediate pinion, U, plate V, rod W, and crank-shaft K, connected to said plate and geared to the feed-slide operating-shaft, substantially as described, whereby the said pinion is thrown out of gear when the boots are raised and re-engaged when they are lowered, substantially as and for the purpose set forth.

7. The combination of the hopper, the feed-slides, the carrying-frame, the boots, the hoisting-bar, its rigid arm rocking in bearings upon the frame, the rocking crank-shaft K, gearing with said arm, the link, the bar P, sliding in keepers, and the lever pivoted to the feed-slides, the hopper, and the sliding bar, substantially as and for the purpose set forth.

8. The combination, with the hopper, the two feed-slides, the sliding bar outside of the hopper, and means whereby motion is imparted to it simultaneously with the raising or lowering of the boots, of the lever pivoted between the slides and engaging them so as to cause them to move simultaneously in opposite directions, said lever being provided with a handle projecting rearwardly of the hopper, substantially as and for the purpose set forth.

9. The combination of the carrying-frame, the axle, the hopper, the feed-slides, the boots, the bar for raising or lowering the boots, the rocking arm mounted on the rocking crank-shaft, the second rock-shaft geared with the first and connected with the feed-slides, the pinions whereby motion is imparted from the axle to the feed-rolls, and mechanism connected with the first rock-shaft for disconnecting said pinions when the boots are raised, substantially as described.

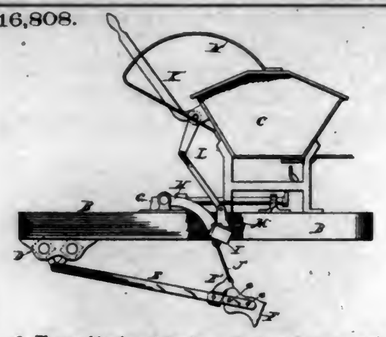
316,808. DEVICE FOR RAISING OR LOWERING THE BOOTS OR DRILLS OF SEEDING-MACHINES. ABRAHAM MILLER, Newark, assignor to the Newark Machine Company, Columbus, Ohio. Filed Aug. 23, 1884. (No model.)

Claim.—1. The combination of the frame, the hopper, the boots movably connected with the frame, the movable hoisting-bar arranged immediately in front of the hopper, and a lever pivoted to the hopper and connected by a link with the hoisting-bar, substantially as set forth.





316,808.



2. The combination of the frame, the hopper, the boots movably connected with the frame, a movable hoisting-bar connected with the boots, a lever pivoted to the front of the hopper and connected with the hoisting-bar, and the notched bow or rack secured to the hopper for holding the lever in any desired position, substantially as set forth.

3. The combination of the frame, the hopper, the seat in rear of the hopper, the boots movably connected with the frame, a hoisting-bar connected with the boots and adapted to be moved vertically past the side sills of the main frame, and the lever pivoted in front of the hopper and seat and bent outwardly above its fulcrum, substantially as and for the purpose set forth.

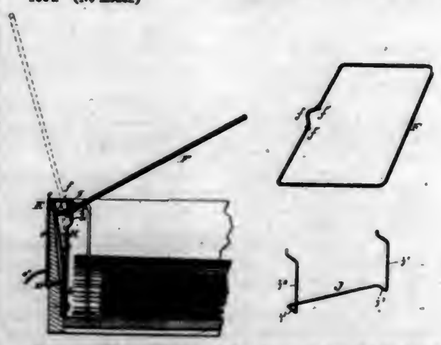
4. The combination of the frame, the curved arms pivoted upon the frame, the hoisting-bar to which said arms are rigidly secured, the boots or hoes, links for connecting said boots with the hoisting-bar, and a bent lever pivoted to the hopper, whereby said hoisting-bar is raised or lowered, substantially as and for the purpose set forth.

5. The combination of the hopper, the open frame, a hoisting-bar adapted to move freely up and down through an opening in said frame immediately in front of the hopper, rigid arms pivotally connecting said bar to the frame, the boots or hoes, links connecting said bar with said hoes, and a bent lever for raising or lowering the hoisting-bar, substantially as set forth.

6. The combination of the drag-bars, the boots, the hoisting-bar and the links J, with castings interposed between the drag-bars and rigidly secured thereto, substantially as shown and described, and having flanges which embrace the upper and lower edges thereof, substantially as and for the purpose set forth.

7. In a seeder, and in combination with the drag-bars thereof, castings E' *e'*, rigidly secured to and between the drag-bars by means of side flanges made integral with said castings, and bearing upon the upper and lower edges of said bars, and eyes to which the links connecting said castings with the hoisting-bar are attached, substantially as and for the purpose set forth

316,809. TEMPORARY BINDER. GEORGE V. NAUERTH, Cincinnati, Ohio, assignor to the Globe Files Company, same place. Filed Mar. 28, 1884. (No model.)



Claim.—1. The combination, with a drawer or tray and the holder J, of the front wall having a recess, a spring, H, secured at the bottom and extending into said recess, a rectangular clamp-frame or clip, F, having outturned portion *f*, and the sheath G, secured to the front wall forming a bearing for the frame or clip, and having a recess to receive the outturned portion of the latter, as set forth.

2. The combination of a drawer or tray having pits *a* in the bottom, sheath G, having an inturned lip, *g*, and a holder, J, having straight middle portion, *j*, bent portions *j''*, and prongs *j'''*, the prongs engaging the pits, as set forth.

316,810. MANURE-FORK. ADAM NOBEL, Tiffin, Ohio, assignor to John W. Nobel, same place. Filed Jan. 8, 1885. (No model.)

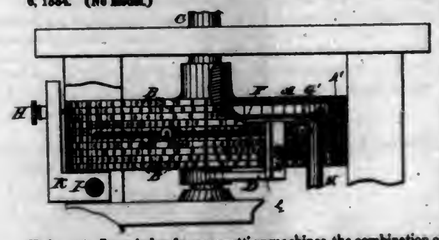


Claim.—1. In a manure-fork, the combination, with a pivoted fork-head, of a socket to which the same is pivoted, a spring-actuated bolt having a slot in it, and a lever pivoted to and having one end projecting through the socket into the slotted bolt and the other end exterior to the said socket, substantially as and for the purpose specified.

2. In a manure-fork, the combination, with a movable head and locking mechanism therefor, of an operating-lever having one arm exterior to the containing-socket, said arm being flattened and curved to conform to the shape of said socket, substantially as and for the purpose specified.

3. In a manure-fork, the combination, with a fork-head having a notched bearing-piece, of a socket slotted to contain said bearing-piece, a spring-actuated slotted bolt having an extension normally resting in one of the notches in the bearing-piece, and a lever pivoted in a slot in the socket, said lever having a short arm projecting into the slot in the bolt, and a longer arm flattened and curved to conform to the shape of the socket, substantially as and for the purpose specified.

316,811. INDEX FOR GEAR-CUTTING MACHINES. GEORGE G. NOBLE, New Berlin, assignor to A. Clarke Tanner, Canton, Ohio. Filed Nov. 6, 1884. (No model.)



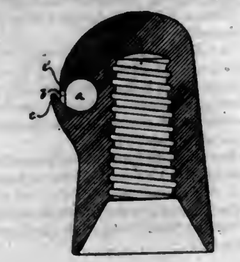
Claim.—1. In an index for gear-cutting machines, the combination of the loose outer wheel, consisting of a face-plate and a peripheral flange having index-holes, with the inner wheel, A', adapted to be locked to and released from said outer wheel, and the work-shaft C, on which the inner wheel is fixed, substantially as described.

2. In an index for gear-cutting machines, the combination of the loose wheel A, having an annular series of depressions or holes, B, and holes *b* at proper intervals thereon, and the inner or sectional wheel having holes adapted to register with the holes *b* in the outer wheel, and a detachable pin, *a*, for locking the two wheels together with the work-shaft or mandrel C, fixed to the inner wheel, substantially as described.

3. In an index for gear-cutting machines, the combination of the rod I, nuts J, arm K, block R, and locking-pin H, with the outer and inner index-wheels, A A', and work-shaft C, substantially as described.

4. In an index for gear-cutting machines, the combination of the curved rail F, adjustable stop G, and lever D, having a clamping or fastening device, E, with the inner and outer index wheels, A A', and work-shaft C, substantially as described.

316,812. TELEGRAPH-INSULATOR. JOHN O'BRIEN, New York, N.Y., assignor to William Brookfield, same place. Filed Dec. 18, 1884. (No model.)



Claim.—1. A telegraph-insulator constructed within its body with a transverse hole, *a*, extending in a straight line from side to side thereof, and provided with rectilinear entrance *b*, approximately the length of the transverse hole, and having its lower edge, *c*, extended laterally in an outward direction beyond the upper edge, *c'*, and terminating below said upper edge, *c'*, to leave the rectilinear side entrance unobstructed for the free lateral insertion of the line-wire, substantially as described.

2. A telegraph-insulator having constructed within its body a transverse hole, *a*, extending from side to side thereof, and provided with a rectilinear side entrance, *b*, arranged in a line oblique to the longitudinal axis of the insulator, said side entrance extending approximately the length of the transverse hole and having its lower edge, *c*, projecting laterally in an outward direction beyond, but terminating below, the upper edge, *c'*, to leave the oblique side entrance unobstructed for the lateral insertion of the wire, substantially as described.

316,813. DEVICE FOR USE IN SOLDERING OR MAKING EAVES-TROUGHS. ROBERT F. O'BRIEN, Beesville, Ma., assignor to Martha Ann O'Brien, same place. Filed Dec. 4, 1884. (No model.)



Claim.—1. The combination, with the main frame, of the hook-clamps hinged to one of the side walls thereof and the spring-actuated vertical clamps arranged in the opposite side wall of the said frame, substantially as specified.

2. In a device for forming eaves-troughs, the combination, with the main frame, having one of its side walls provided with recesses C, of the springs G', having the loops H, the clamps D, and links connecting the clamp with the spring, substantially as specified.

3. In a device for forming eaves-troughs, the combination, with the main frame, of the spring-actuated clamps having a shoulder, *e*, adapted to engage the upper edge of one of the side walls of the trough or frame and hold the same when not in use, substantially as specified.

4. The described device for clamping eaves-troughs while being united, consisting of the frame A, having its inner bottom and side walls grooved to receive the bridge-pieces B, the hook-clamps hinged to one of the side walls and adapted to be turned up over the horizontal edge thereof, and the spring-actuated clamps arranged in the opposite side wall and adapted to engage the upper edge of the said wall to hold the said clamps when not in use, substantially as specified.

316,814. WATCH-CASE. DANIEL O'HARA, Waltham, Mass. Filed Nov. 10, 1884. (Model.)



Claim.—1. In a watch-case, a movement-ring, A, having an exterior taper, and a central shell, B, having an interior taper and made separate from each other and adapted to fit closely the one within the other, substantially as and for the purpose described.

2. In a watch-case, a central shell, B, and the part of the case, such as a front or back cap or plate, or a bezel-ring and its crystal to close said central shell at its side, respectively made with tapering joints or surfaces and adapted to closely fit each other, substantially as described, for the purpose specified.

3. In a watch-case, a movement-ring, A, and the part of the case, such as a front or back cap or plate, or a bezel-ring and its crystal to close said ring on its side, respectively made with tapering joints or surfaces and adapted to closely fit each other, substantially as described, for the purposes specified.

4. In a watch-case, a movement-ring, A, having an exterior taper, J, and a central shell, B, having an interior taper, K, and made separate from each other, in combination with a central shell, B, and the part of the case, such as a front or back cap or plate or a bezel-ring and its crystal to close the case on its side, respectively made with tapering

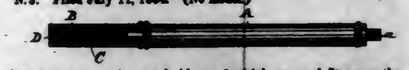
joints or surfaces and adapted to closely fit each other, substantially as described, for the purpose specified.

5. In a watch-case, a movement-ring A, having an exterior taper, J, and a central shell having an interior taper, K, and made separate from each other, in combination with a movement-ring and the part of the case, such as a front or back cap or plate, or a bezel-ring and its crystal to close the case on its side, respectively made with tapering joints or surfaces and adapted to closely fit each other, substantially as described, for the purpose specified.

6. In a watch-case, a front or back cap or plate, or a bezel-ring and its crystal adapted to be attached to the case with a taper-joint, and constructed with a flange or rim, K, overlapping the outer edge or periphery of the central shell, substantially as described, for the purpose specified.

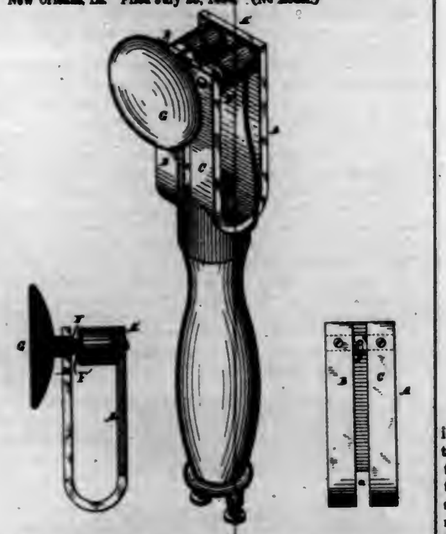
7. In a watch-case having its several parts making the case proper adapted to be attached together with a taper joint or joints, the combination of a tapered socket, N^2, and a tapered key pipe or plug, L^2, adapted to be entered into and to closely fit the taper of said socket, substantially as described, for the purpose specified.

316,815. CAP FOR PEN-HOLDERS. RICHARD W. PARKER, Newark, N.J. Filed July 11, 1884. (No model.)



Claim.—A cap for pen-holders, of which one end fits over the pen, and the other end is adapted to fit over or within the other end of the pen-holder, substantially as described.

316,816. TELEPHONE. THOMAS J. PERKIN, Brooklyn, N.Y., assignor, by mesne assignments, to the National Improved Telephone Company, New Orleans, La. Filed July 28, 1884. (No model.)



Claim.—1. The combination of the magnet or support A, an electro-magnet mounted on one end thereof, the opposite independently-vibrating ends or legs of said magnet or support, a connection between said legs, and an ear-piece mounted on said connection.

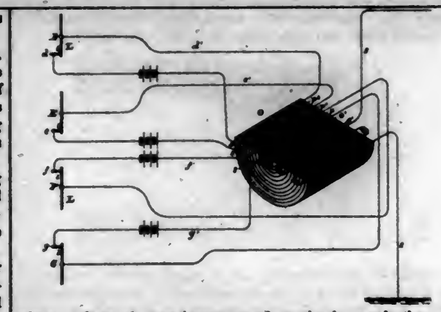
2. The combination, substantially as set forth, of the permanent magnet or support A, electro-magnets D E, mounted on the solid end thereof, independently-vibrating legs or sections of said magnet arranged opposite the poles of the electro-magnet, an armature-piece connecting said vibrating legs, and an ear-piece mounted on said armature.

3. The combination of the slotted permanent magnet A, bent in the middle into U shape, substantially as shown, the electro-magnets carried by the solid end of said permanent magnet, the vibrating legs or sections of said permanent magnet, and an ear-piece common to both of said legs.

316,817. INDUCTION-COIL. THOMAS J. PERKIN, New York, N. Y., assignor to the National Improved Telephone Company, New Orleans, La. Filed Sept. 23, 1884. (No model.)

Claim.—1. A compound induction-coil formed, substantially as set forth, of a core and a series of independent primary circuits wound alternately with layers of a continuous secondary line.

2. A compound induction-coil formed as follows: first, of a core on which the wire of one independent primary circuit is wound, over which



primary a layer of a continuous secondary wire is wound; then of a tubular iron sheath or cover on which is wound the wire of a second independent primary circuit, over which second primary a second layer of the same continuous secondary line is wound.

316,818. TELEPHONE. THOMAS J. PERKIN, New York, N.Y., assignor, by mesne assignments, to the National Improved Telegraph Company, New Orleans, La. Filed Feb. 20, 1884. (No model.)



Claim.—1. The combination, substantially as set forth, of the casing, the diaphragm, the tubular magnet, its helix, a transmitting-electrode, *g*, carried by the diaphragm, a tube of rubber, *d*, arranged within the tubular magnet, the other electrode, *f*, mounted on the end of said tube, the rod *e*, to which the tube *d* is connected, the spiral spring around said rod, the adjusting-nut on the end of the rod, and the electric connection *f'*, which extends through the tube *d* and connects the rod *e* and the electrode *f*.

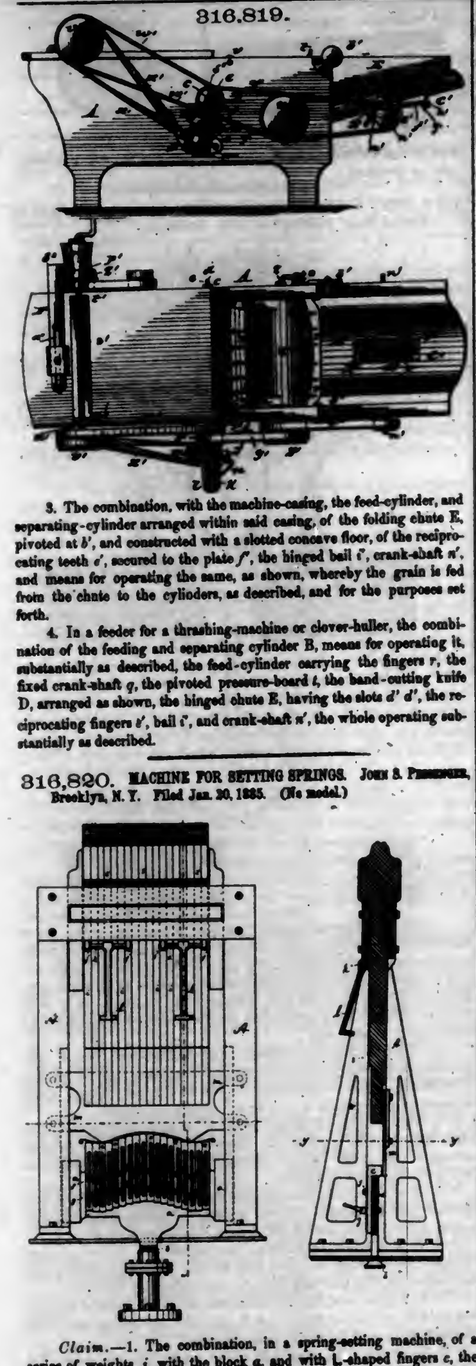
2. The combination, substantially as set forth, of the diaphragm, the magnet, its helix, the main line in which the helix is included, the electrode *g*, the opposite electrode *f*, the branch *i* of the main line in which said electrodes are included, the primary of the induction-coil in which said branch is included, and the secondary line of said induction-coil.

316,819. FEEDER FOR THRASHING-MACHINES AND CLOVER-HULLERS. MERRICK R. PERRINE, Berrien Springs, Mich. Filed June 21, 1884. (No model.)

Claim.—1. In a feeding-cylinder for a thrashing-machine or clover-huller, the combination of the heads *a a*, having the hollow journals *c* and the connecting-segments *b*, the rake teeth or fingers *h*, the crank-shaft *d*, slotted bracket *l*, pitman *n*, and crank-wheel *m*, whereby a rotary and reciprocating movement is given to the rake-fingers, as described, and for the purpose set forth.

2. The combination of the frame, the cylinders B and C, the pressure-board *t*, hinged at *v* to the frame, the bevel-knife D, partly encircling the cylinder C, the rigid crank-shaft *q*, carrying the rake-fingers *r*, and means whereby the parts are operated, as described, whereby the grain is fed to the separating-cylinder B and the band of the sheaf is severed, substantially as described.

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3. The combination, with the machine-casing, the feed-cylinder, and separating-cylinder arranged within said casing, of the folding chute E, pivoted at *b'*, and constructed with a slotted concave floor, of the reciprocating teeth *c'*, secured to the plate *f''*, the hinged bail *i'*, crank-shaft *n'*, and means for operating the same, as shown, whereby the grain is fed from the chute to the cylinders, as described, and for the purposes set forth.

4. In a feeder for a thrashing-machine or clover-huller, the combination of the feeding and separating cylinder B, means for operating it, substantially as described, the feed-cylinder carrying the fingers *r*, the fixed crank-shaft *q*, the pivoted pressure-board *t*, the band-cutting knife D, arranged as shown, the hinged chute E, having the slots *d' d''*, the reciprocating fingers *t'*, bail *i'*, and crank-shaft *n'*, the whole operating substantially as described.

316,820. MACHINE FOR SETTING SPRINGS. JOHN S. PRESSMER, Brooklyn, N.Y. Filed Jan. 30, 1885. (No model.)

Claim.—1. The combination, in a spring-setting machine, of a series of weights, *i*, with the block *a*, and with L-shaped fingers *c*, the working ends of which project above said block, substantially as specified.

2. The combination of block *a* with fingers *c*, and with mechanism for clamping said fingers separately against such block, substantially as specified.

3. The combination of block *a* with fingers *c*, bolts *e*, and eccentric levers *g*, adapted to clamp the fingers against the block, substantially as specified.

4. The combination of block *a* with fingers *c*, slotted longitudinally, and with bolts *d e* and eccentric *g*, substantially as specified.

5. The combination of block *a* with L-shaped fingers *c*, adapted to be clamped to the same, and with the shoes *k*, having downwardly-extending pins which fit into holes in the working-faces of the fingers, substantially as specified.

6. The combination of hammers *i* with laterally-adjustable crabs *l*, adapted to engage shoulders on said hammers, substantially as specified.

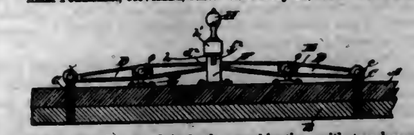
7. The combination, in a spring-setting machine, of the following elements: block *a*, fingers *c*, eccentric *g*, gage-plate *m*, hammers *i*, and crabs *l*, substantially as specified.

316,821. WASHING-MACHINE. JOHN B. PETTIT, Burlington, Iowa. Filed Oct. 8, 1883. (No model.)



Claim.—In a washing-machine, in combination with the tub and supporting-frame, the oscillating lever G, beater-carrying arms *c''*, having slots *c'''* and hinged to said lever, the beater E, and a bail, Q, hinged at one end to the frame and its middle part removably seated in slots *c'''* in the arms *c''*, substantially as described.

316,822. FASTENING FOR MEETING-RAILS OF SASHES. WILHELM POSTMANN, Cleveland, Ohio. Filed July 10, 1884. (No model.)



Claim.—1. In a sash-lock, the combination, with two levers centrally pivoted to one of the sashes and provided on their outer ends with bolts, of a knob pivotally attached to the inner or adjacent end of both levers, substantially as set forth.

2. In a sash-lock, the combination, with the socket or boss secured to a window-sash, two levers centrally pivoted on opposite sides of said boss, and bolts pivoted to the outer ends of said levers, of a movable block located within the sleeve or boss and pivotally connecting the inner ends of the levers, and a knob secured to the block.

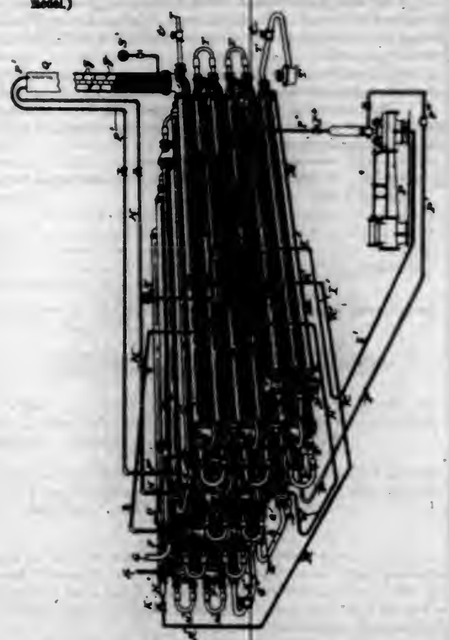
3. In a sash-lock, the combination, with the slotted socket or boss secured to a window-sash, two pivoted levers located in the same horizontal plane on opposite sides of the socket, and bolts pivoted to the outer ends of both levers, of a movable block located within the socket and loosely connecting the adjacent ends of the levers, a knob connected to the block for operating the levers, and a set-screw for locking the levers, substantially as set forth.

4. The combination, with the socket or boss, the levers, bolts pivoted to the levers, and the block connecting the inner ends of said levers, of the knob pivotally secured to the block, and having the cylindrical band adapted to fit around the outer end of the socket or boss, substantially as set forth.

316,823. BOX-FASTENER. GEORGE S. RANDALL, Marshfield, assignor to Howard C. Barnes, Boston, Mass. Filed Feb. 18, 1885. (No model.)

Claim.—In a box-fastener, the combination of the cross-piece D', having the flexible clasping-piece D *d d'*, the said flexible clasping-piece passing slightly above, then back of the cross-piece D', with the pin H', the cross-piece D' serving to hold the flexible clasping-piece, and also to check its outward motion, so that it cannot be bent beyond its limit of flexibility, substantially as described, and for the purpose set forth.

316,824. ICE-MACHINE. THOMAS L. RANKIN, New York, N. Y., assignor to Jacob W. Skinkle, Chicago, Ill. Filed Mar. 21, 1883. (No model.)



Claim.—1. In an apparatus for ice-making or refrigerating purposes, the combination, with the still thereof, of a feeding-tube provided on its interior with partial partitions so arranged as to cause the steam produced in the still to pass through the incoming feed-water and be condensed thereby, substantially as specified.

2. In an apparatus for refrigerating purposes, the combination, with the still A, provided with the partial end partitions, *a a*, of a feed-pipe, Q, provided with the alternate partial partitions *g g*, and receiving the enriched water from the absorber and delivering the gas from the still to the condenser through proper connecting-pipes, substantially as specified.

3. In an apparatus for refrigerating purposes, the combination, with an exterior coil having a medium flowing through it in one direction, and an interior coil having another medium flowing through it at a different temperature in an opposite direction, of conductors suitably formed to be inserted into the exterior coil and to rest on the interior coil, and thus hasten the equalizing of the temperatures of the two mediums, substantially as specified.

4. The combination, with the return-bend coils D and G, of the conductor-sections D, having hollow cylindrical bodies Y, and provided with the radial flanges Y' Y², substantially as specified.

5. In an apparatus for refrigerating purposes, a device to heat the enriched water returning from the absorber to the still by the exhausted water flowing from the still, which device is composed of the return-bend coil B, through which the exhausted water flows in one direction from the still, and the pipe P', passing through the coil B, and having the enriched water passing through it to the still in the opposite direction, substantially as specified.

6. In an apparatus for refrigerating purposes, the combination, with the still A, pipe M, and regulating air-chamber N, provided with the glass gage-tube *n*, of the delivery-tube O, carrying the exhausted water to the equalizer-coil B under pressure from the air-chamber, substantially as specified.

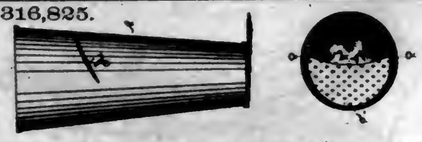
7. The combination, with the pump P, having connected the incoming-tube I', and outgoing-tube P', provided with the valve P''', of the receiver R, provided with the gage S, having the valve S², the tube L, having the valve L', and the connecting-tube P'', having the valve P⁴, substantially as specified.

316,825. COMBINED SHAKER AND STRAINER. ABRAHAM RASNER, Pittsburg, Pa. Filed Oct. 17, 1884. (No model.)

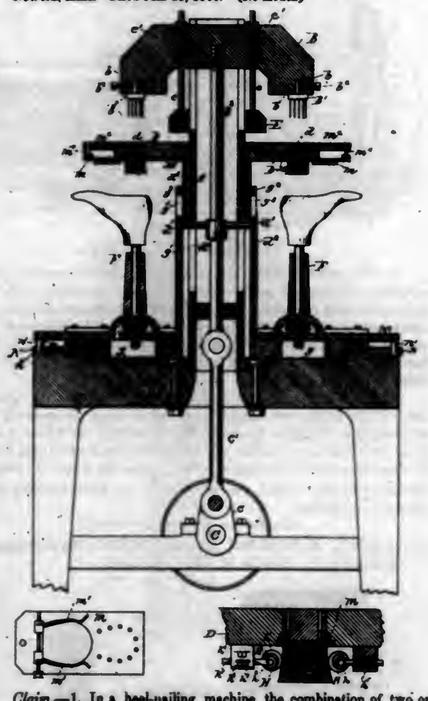
Claim.—1. A liquor-shaker having a strainer secured within its walls below the mouth, and extending partly across the interior thereof, substantially as described.

2. A liquor-shaker having a strainer secured within its walls below the mouth, and extending partly across the interior thereof at a downward inclination from the wall toward the center of the shaker, substantially as described.

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316,826. HEEL-NAILING MACHINE. FREEBORN F. RAYMOND, 2d, Newton, Mass. Filed Jan. 13, 1885. (No model.)



Claim.—1. In a heel-nailing machine, the combination of two or more jacks mounted on a table, two or more templets or pressure plates or blocks carried by a reciprocating plate or ring above the jacks, and two or more gangs or groups of nail-drivers attached to a reciprocating head and adapted to be simultaneously operated, whereby two or more heels are simultaneously attached to their respective boots or shoes, all substantially as described.

2. In a heel-attaching machine, in combination with two or more nail-drivers, the vertically-movable templet or pressure plate D, carrying a templet-block for each driving device, and two or more jacks or work-supports, all substantially as and for the purposes described.

3. The combination of the revolving table G, supporting two or more jacks or work-supports, the pressure-plate D, and two or more driving devices carried by the reciprocating head B, all substantially as and for the purposes described.

4. In a heel-nailing machine, the combination of the table G, two or more jacks horizontally movable thereon, and means, substantially as specified, for moving them simultaneously into operative position.

5. In a heel-nailing machine, the combination of two or more work-supports mounted on a bed, with the ring N, having eccentric slots and connected with the work-supports, substantially as described.

6. In a heel-nailing machine, the combination of the templet or pressure plate D, the presser ring or foot E, and the reciprocating head B, all substantially as and for the purposes described.

7. The combination, in a heel-nailing machine, of the presser foot or ring E, adapted to be moved vertically, the templet D, also vertically movable, and the reciprocating cross-head, all substantially as described.

8. The combination of the table G, carrying two or more jacks or work-supports, with the templet or pressure plate D, coupled or connected together, substantially as described, so that the movement of one causes the movement of the other, substantially as specified.

9. In a heel-nailing machine, the combination of the templet or pressure plate carrying a series of templet-blocks, a sliding top-lift holder underneath each block, and mechanism, substantially as specified, for reciprocating the templet-plate vertically, substantially as described.

10. The combination of the templet or pressure plate D with the plate or plates *m*, all substantially as and for the purposes described.

11. The combination of the pressure or templet plate having two or more templet-blocks, a sliding top-lift holder underneath each block, and mechanism, substantially as specified, to move them simultaneously into and out of operative position, all substantially as and for the purposes described.

12. The combination of the templet or pressure plate having the templet-block *d*, through which the drivers are reciprocated, and the plate *m*, forming a portion of the templet-plate, and also the top-lift holder, and adapted to be moved horizontally in relation to the block *d*, all substantially as and for the purposes described.

13. The combination of the templet or pressure plate D and the heel-holding device, substantially as specified, for holding the heel-blanks upon the under surface thereof, all substantially as and for the purposes described.

14. The combination of the templet-plate and the yielding eccentric heel-holders H, all substantially as and for the purposes described.

15. The heel-holders H, having eccentric or cam surfaces, and supported upon yielding arms or supports, substantially as and for the purposes described.

16. The combination of the head B, the presser foot or ring E, the rods *e*, and the springs *e'*, all substantially as and for the purposes described.

17. The combination of the templet or pressure plate D, the reciprocating rod B², the arms *d'*, and suitable operating mechanism, all substantially as and for the purposes described.

18. The combination of the column A, the head B, fitted thereto and vertically movable thereon, the templet or pressure plate D, also vertically movable thereon, the rod B², connected with the templet-plate, as specified, and the crank C, whereby, upon the revolution of the crank, the head and templet-plate are first moved downward and then upward, all substantially as and for the purposes described.

19. The combination of the head or column A, the head B, the presser ring or foot E, the presser plate or templet D, the rod B², and the crank *c*, all substantially as and for the purposes described.

20. The combination of the column A, the reciprocating cross-head, the presser foot or ring E, made vertically movable thereon, and the presser or templet plate D, made vertically movable upon said column, and also adapted to be revolved thereon, all substantially as and for the purposes described.

21. The combination of the bed G, having the sleeve *g'*, with the templet or presser plate D, having a sleeve, *d²*, which extends by or overlaps the upper portion of the sleeve *g'*, and connecting and operating devices, all substantially as and for the purposes described.

22. The combination of the revolving table, supporting two or more jacks or work-supports, devices for simultaneously moving the jacks, and a bolt or locking device for automatically locking the table to its bed, all substantially as and for the purposes described.

316,827. HEEL-NAILING MACHINE. FREEBORN F. RAYMOND, 2d, Newton, Mass. Filed Jan. 20, 1885. (No model.)

Claim.—1. In a heel-attaching machine, the combination of a series of jacks or heel-supports, a templet or pressure plate, a reciprocating head carrying a gang of awls, a gang of drivers, a top-lift attaching or spanking device, and mechanism, substantially as described, to bring three of said jacks simultaneously into operative position, whereby, upon one reciprocation of the cross-head, one heel is pricked, another heel attached to the boot or shoe, and the third heel spanked, all substantially as set forth.

2. In a heel-nailing machine, a templet or pressure plate having a yielding templet-block and a locking device for locking the block upon the heel-blank, all substantially as and for the purposes described.

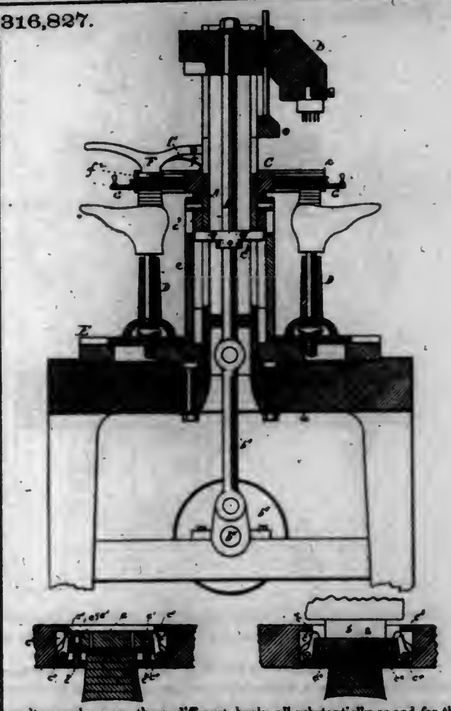
3. In a heel-nailing machine, the combination of the templet or pressure plate, a yielding templet-block, a locking device for locking it down upon the heel-blank, and a presser-block, *f²*, for moving it, all substantially as and for the purposes described.

4. In a heel-nailing machine, the templet or pressure plate C, having a series of movable templet-blocks, each of which is adapted to be moved vertically in relation to the templet or pressure plate and to be locked in its lowest position, all substantially as and for the purposes described.

5. In a heel-nailing machine, the combination of the templet or pressure plate, a series of yielding templet or clamping blocks carried thereby, and a series of sliding plates supported by said templet or clamping blocks, each of which forms a portion of a templet, a top-lift spanker, and a support for top-lift-holding device or top-lift-holding devices, all substantially as and for the purposes described.

6. In a heel-nailing machine, the combination, in a heel-attaching machine, of a series of jacks or heel-supports, a series of templet or clamping blocks adapted to be moved down upon the heel-blanks and to be automatically locked thereon, and the reciprocating head B, supporting the awls, drivers, and pressure-block *b²* in a position to operate simultaneously upon three different heels, all substantially as and for the purposes described.

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7. In a heel-nailing machine, the combination, in a heel-attaching machine, of a vertically-movable templet or pressure plate, C, supporting a series of templet-blocks, *c*, which are vertically movable in relation to the templet-plate, all substantially as and for the purposes described.

8. In a heel-nailing machine, the combination, in a heel-attaching machine, of the reciprocating pressure-block *b*, the templet-block *c*, vertically movable, and the templet and spanker plate G, horizontally movable in the templet-block, all substantially as and for the purposes described.

9. In a heel-nailing machine, the combination of a jack or heel-support, a templet or clamping block adapted to be automatically locked down upon the heel, and the reciprocating block for automatically unlocking the templet-block, all substantially as and for the purposes described.

10. In a heel-nailing machine, the combination of a jack or heel-support, a templet-block, and a lock for locking the same upon the heel-blank, a reciprocating driver-block carrying an unlatching device for automatically unlatching or unlocking the templet, and a transferrer or carrier for transferring the templet, the heel, and jack to a position under the pressure-block, all substantially as and for the purposes described.

11. In a heel-nailing machine, the combination of the templet or pressure plate C, the templet *c*, the posts or studs *c²*, and the springs *c'*, all substantially as and for the purposes described.

12. In a heel-nailing machine, the combination of the pressure or templet plate C and the latches or locks *c³*, all substantially as and for the purposes described.

13. In a heel-nailing machine, the combination of the templet or pressure plate C, the templet-block *c*, having the notches *c²*, and the automatic latches or locks *c³*, adapted to engage with the notches, as and for the purposes described.

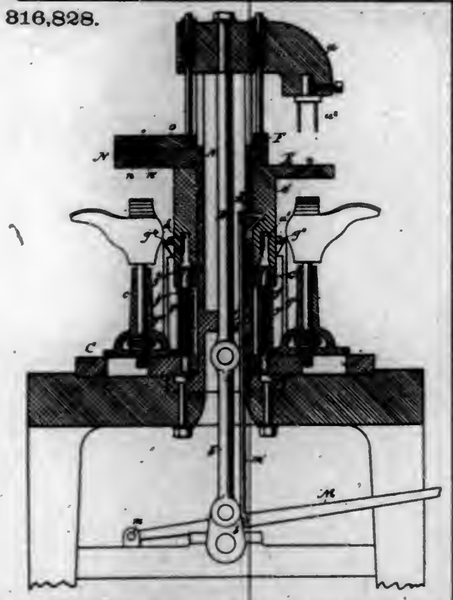
14. In a heel-nailing machine, the combination of the templet-block *c*, the sliding templet, and top-lift-holding device or spanker, and a lock or latch for automatically locking the sliding plate in operative position either as part of the templet or as a top-lift attachiog or spanking device, all substantially as and for the purposes described.

15. In a heel-nailing machine, the combination of the templet-plate C, the plate G, having the register-holes *g' g²*, and the lock or latch *g*, all substantially as and for the purposes described.

316,828. HEEL-NAILING MACHINE. FREEBORN F. RAYMOND, 2d, Newton, Mass. Filed Jan. 24, 1885. (No model.)

Claim.—1. In a heel nailing or attaching machine, the combination of the revolving table C, having a series of jacks or work-supports adapted to be brought successively into position under the templet or pressure plate E, said templet-plate, which is adapted, by mechanism

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substantially as specified, to have a vertical and a limited revolving movement, and the reciprocating head A, carrying heel-attaching devices, all substantially as described.

2. The combination of the revolving bed C, supporting a series of jacks or work-supports, a templet or pressure plate, E, and mechanism, substantially as described, to give it a vertical movement and limited revolving movement, all substantially as and for the purposes described.

3. The combination of the reciprocating head, a gang or group of awls, a gang or group of drivers carried in a fixed operative position thereon, a jack or work-support movable horizontally, and a templet or pressure plate movable horizontally, whereby the heel is adapted to be first presented to the awls and then transferred with the jack and templet to the nail-drivers, all substantially as described.

4. The combination of the templet-plate E, the column or post A, and stops P, all substantially as and for the purposes described.

5. The combination of the templet-plate E, the column A, the locking-pin H, and the slots or grooves h, all substantially as and for the purposes described.

6. The combination of the templet-plate E, having the sleeve e', provided with holes a^2, and the revolving table having the posts g', all substantially as and for the purposes described.

7. The combination of the templet or pressure plate E, having a sleeve, e', the ring or support G, and the springs g and posts, all substantially as and for the purposes described.

8. The combination of the templet-plate E, the treadle M, the connecting-rod m', and the pin or block m^3, all substantially as and for the purposes described.

9. The combination of the nail-holder o, the revolving nail-carrier n, and the templet or pressure block e, all substantially as and for the purposes described.

10. The combination of the revolving bed C, having the centering or registering posts g', the bed or support G, and the springs g, with the templet sleeve or supports e', all substantially as and for the purposes described.

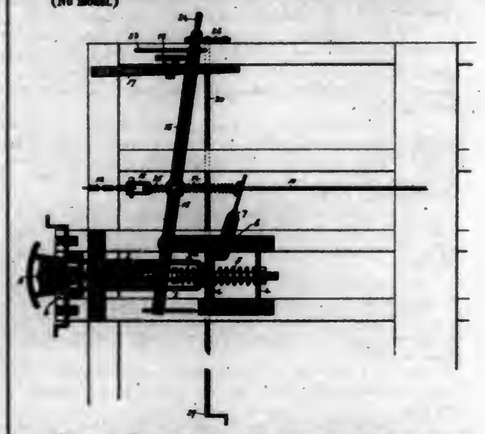
11. The combination of the templet or pressure plate E, the nail-carrier plate N, and the bar or ring F, all substantially as and for the purposes described.

12. The combination of the templet or pressure plate with the yielding pressure-ring F, for moving the same vertically downward, and the yielding pressure-ring G, and suitable lifting-springs for moving it vertically upward, all substantially as and for the purposes described.

13. The combination of the templet sleeve or support e', having a number of holes, a^2, and adapted to be revolved with the locking-posts g', the holes and locking-posts being arranged substantially as described, that the same holes will register with two or more sets of posts, all substantially as and for the purposes described.

14. The combination of the templet sleeve or support e', having a circular groove or recess for the reception of the pin m^2, said pin m^3, treadle-rod m', and treadle M, all substantially as and for the purposes described.

316,829. CAR-BRAKE. EDWARD J. ROBERTS, Ashland, Ky., assignor of one-fourth to Wm. W. Culbertson, same place. Filed Apr. 30, 1884. (No model.)



Claim.—1. The combination, with a draw-bar and a draw-head or buffer surrounding the same and moving independently thereof, of a pivoted lever engaging with the brake-rod at one end, and adapted to be engaged and operated by the moving draw-head at the other, substantially in the manner and for the purpose set forth.

2. The combination, with the movable draw-bar or buffer, a brake-rod, and a lever for transmitting motion from the former to the latter, of a detent and hand-connections for operating said detent, whereby the brakes are locked on, as and for the purpose set forth.

3. The combination, with a movable draw-bar or buffer, a brake-rod, and a lever for transmitting motion from the former to the latter, of a locking-arm connected with and carried by said brake-rod, a detent for engaging therewith at either extremity of its permitted movement, and hand-connections for operating said detent for preventing the automatic application of the brakes or locking them while applied, substantially in the manner and for the purpose set forth.

4. The combination of the pivoted brake-lever 7, the brake-rod 10, the spring 14, the lever 15, the spring 25, and the nut 16 on the brake-rod, all constructed and arranged substantially as and for the purposes set forth.

5. The combination of brake-lever 7, brake-rod 10, lock-arm 15, nut 16, and a detent for controlling the movement of the lock-arm, as explained.

6. The combination of the brake-lever 7, brake-rod 10, and lock-arm 15 with the spring-arm 17, having lug 18, and the shaft 20, having cam 19, as and for the purposes set forth.

7. The combination of buffer or draw-bar head 1, brake-lever 7, brake-rod 10, spring 14, lock-arm 15, and stop 18, as and for the purposes set forth.

8. In combination with locking-arm 15 and stop 18, the cam-shaft 20, having crank 29, for the purposes set forth.

9. In combination with stop-operating shaft 20, the hand-wheel 28 and the cable 21, connecting said shaft and wheel, whereby the former is operated by the latter, as explained.

10. In combination with the stop-operating shaft 20, the rock-lever 26, cable or chain 21, pulley or lever 27, and hand-wheel 28, all connected and adapted to operate substantially as set forth.

316,830. FIRE-HOSE MANIPULATOR. JAMES ROSY, Detroit, Mich. Filed Apr. 3, 1884. (No model.)

Claim.—1. The combination, with the hose-elevator B, of the auxiliary reel N, mounted upon said carriage, substantially as described.

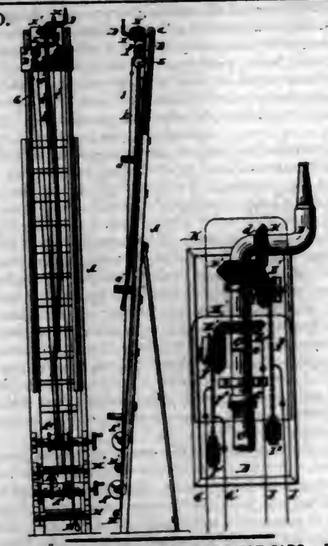
2. The combination, with the ladder A, of the hose-elevator B, hose d', hose-coupling d^2, swiveled thereon, nozzle D, swiveled to the coupling-gears E and E', H and H, and actuating-gears I, sprockets F and I'.

3. The combination, with a hose-elevator, of means for raising and lowering the same, and an auxiliary hose carried upon said elevators, substantially as described.

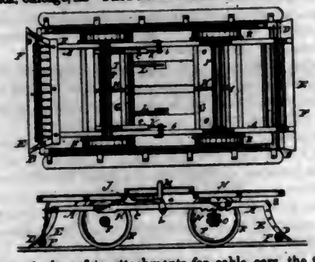
4. The combination, with the hose-elevator, of the auxiliary hose N, carried by a reel mounted upon said elevator, and mechanism for raising and lowering the latter, substantially as described.



316,830.



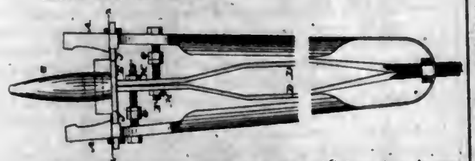
316,831. SAFETY ATTACHMENT FOR CABLE CARS. HENRY J. ROSEBACK, Chicago, Ill. Filed Dec. 29, 1884. (No model.)



Claim.—1. In safety attachments for cable cars, the frame A A B B, supporting the double-ended guards C D, which are provided with rollers F on rods E, in combination with spring H e, and arms K and L M, as and for the purpose specified.

2. The double-ended guards C D, in combination with the frame provided with racks N, the gear or pinions O, and levers or arms K L M, and springs H e, substantially as specified and shown.

316,832. BOTTLE-FORMING TOOL. WILLIAM L. ROORBACH, Philadelphia, Pa., assignor of one-half to S. Twitchell & Brother, same place. Filed Nov. 24, 1883. (No model.)



Claim.—1. In a bottle-forming tool, the spring-jaws A A, in combination with spring-arms D D, bits C C, bar E, having shoulders J, means for adjusting the throw of the bits, and the plug B, having recesses a, substantially as and for the purpose set forth.

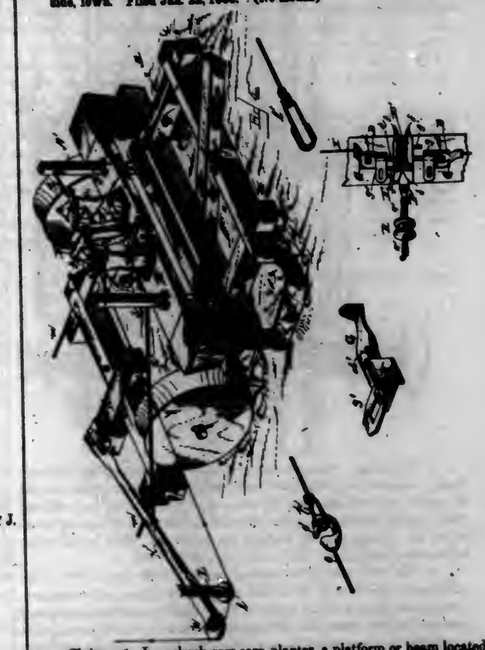
2. A bottle-forming tool having jaws A A, spring-arms D D, plug B, bits C, and screws F, each of said screws being provided with the two nuts G and H, for connecting the jaws and bits and adjusting the throw of said bits, substantially as and for the purpose set forth.

3. A bottle-forming tool having jaws A A, spring-arms D D, plug B, bits C, screws F, adjusting-nuts G and H, and a bar, E, having shoulders J, said bar guiding the jaws A A and limiting the closing motion thereof, substantially as and for the purpose set forth.

4. In a bottle-forming tool of the order stated, the bolt or pin F, provided with means for adjusting the throw of the bit C, substantially as and for the purpose set forth.

5. The jaws A, plug B, and bit C, in combination with the bar E, formed with shoulders J, substantially as and for the purpose set forth.

316,833. CHECK-ROW CORN-PLANTER. FRANKLIN A. ROSE, Riverside, Iowa. Filed Jan. 22, 1885. (No model.)



Claim.—1. In a check-row corn-planter, a platform or beam located above the seed-slide and provided with rigidly-attached columns, between which is pivoted a rotating cam with forked ends, said cam being provided with pins which strike against the ends of rock-bars attached to the upper ends of the column, said rock-bars being connected to pivoted bars which are attached to the seed-slides, substantially as shown, and for the purpose set forth.

2. In a check-row corn-planter, a pivoted forked bar provided with side projecting pins which abut alternately against a vertical plate attached to horizontal rock-bars, the ends of said rock-bars being connected by rods and pivoted levers to the seed-slide, the parts being combined and organized substantially as shown, and for the purpose set forth.

3. In a check-row corn-planter, the pivoted forked lever provided on each face with a longitudinal groove and on opposite sides with projecting pins, in combination with horizontal rock-bars provided at their inner ends with plates which have their ends bent at right angles to the body portion, and connecting-rods attached to the opposite ends of the rock-bars and to the upper ends of vertical pivoted bars which are attached to the seed-slides, substantially as set forth.

4. In a check-row corn-planter, the rock-bar G, provided at its end with a plate, the end of said plate being bent at right angles and turned upon itself, so as to provide a spring portion against which the pins of the rotary fork will abut, substantially as shown, and for the purpose set forth.

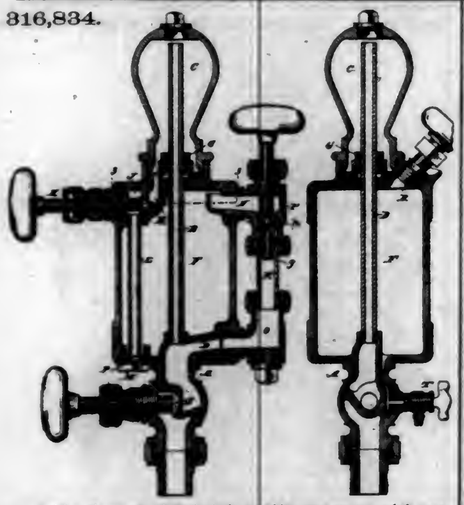
5. In combination with the seed-slide-operating mechanism, an angular bar, P, pivoted to the supporting-frame so as to be capable of a lateral movement, a spool, R, located upon the upper end of said bar, and springs r r, encircling said bar on each side of the pulley, substantially as shown, and for the purpose set forth.

316,834. LUBRICATOR. ROBERT RUDDY, Mount Vernon, N. Y., assignor to Nathan Manufacturing Company, New York, N. Y. Filed Mar. 9, 1885. (No model.)

Claim.—1. The combination, with the oil-cup, the sight-feed glass, and its connections, of the main steam-conduit A and the channel D, located within the body of the oil-cup, and extending upon the bottom of the same from the main steam-conduit to the lower sight-feed connection, said parts being cast in one with the cup, as hereinbefore set forth.

2. The oil-cup formed with a neck to receive the condensing-chamber or bulb C, said neck having an opening for the passage of the steam-pipe, in combination with the main steam-conduit A, the steam-pipe leading from said conduit up through the opening in the neck of the oil-cup into the condensing-chamber, and the packing nut or gland G, fitted to said opening and around the said steam-pipe above the outside of the oil-chamber, as hereinbefore set forth.

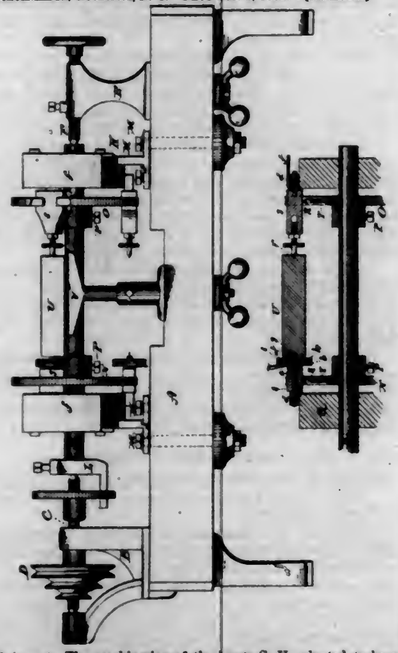
316,834.



3. The oil-cup, the sight-feed glass and its connections, and the condensing-chamber, in combination with the steam-conduit A and channel D, cast in one with the cup, the steam-pipe B, extending from the said steam-conduit up into the condensing-chamber through an opening in the top of the oil-cup, and the packing-nut or gland G, fitted to said opening above and outside of the oil-chamber, as set forth.

4. The combination, substantially as hereinbefore set forth, of the oil-cup cast in one with the double chamber H J, the main steam-conduit A, and channel D, the sight feed-glass and its connections, the condensing-chamber above the oil-cup, the steam-tube B, the packing-nut G, external to the oil-chamber, and the water-tube L, these parts being constructed and arranged together substantially as hereinbefore set forth.

316,835. LATHE FOR TURNING IRREGULAR FORMS. CONRAD SCHOMLEBER, Rochester, N. Y. Filed Feb. 2, 1885. (No model.)



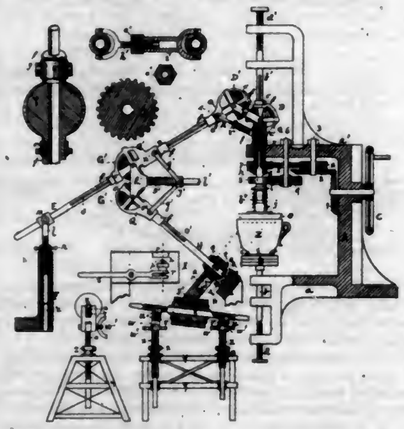
Claim.—1. The combination of the heads G H, adapted to be secured to the bed of a lathe, their surface circular except as to a portion at the front of each, which is made flat alike in both, the shaft K, supported in said heads, corresponding to the centers of the lathe, and adapted for connection with the mandrel of the lathe, whereby the rotation of the mandrel will be imparted to said shaft, corresponding disk, N O, fixed to and so as to revolve with said shaft, corresponding blocks, S, arranged in radial grooves in each of said disks, a spindle, *a*, through one of said blocks, parallel with the axis of the shaft carrying a shoe, *d*, upon its outer end, arranged to travel upon the periphery of the corresponding head, the said spindle constructed to engage the piece to be wrought, the block in the other disk provided at its outer end with a like shoe, *d*, arranged to travel upon the periphery of its corresponding head, and also fitted with a center to support its end of the piece to be wrought, substantially as and for the purpose described.

2. The combination of the two heads G H, adapted to be applied to the bed of a lathe, the surface of the two heads circular in shape except at the front, which is flat alike in both, the shaft K, supported in said heads and adapted to revolve with the mandrel of the lathe, the disks N O, fixed to said shaft, each disk constructed with corresponding radial grooves, blocks S, arranged in each of said grooves, a spring, T, arranged to draw said blocks toward the shaft, a spindle, *a*, through one of said blocks, carrying a shoe, *d*, upon its outer end arranged to travel upon the surface of the one head, disk *h*, loose upon the inner end of said spindle, and provided with points to enter and engage the piece to be wrought, the said disk adapted to be rotated upon the spindle, a stop arranged to fix said disk at different positions in such rotation, the other block provided with a shoe, *d*, to travel upon the surface of its head, and also with an adjustable center to engage the other end of the piece to be wrought, substantially as described.

3. The combination of the heads G H, circular in shape except at the front, where the surface of the two are alike flat, said heads adapted to be fixed to the bed of a lathe, set-screws M, whereby the heads may be adjusted with relation to the centers of the lathe, shaft K, supported in and so as to revolve in said heads with the mandrel of the lathe, disks N O, blocks S S, arranged in radial grooves in said disks, and radially adjustable in said disks, each block provided with a shoe, *d*, adapted to travel upon and follow the periphery of their respective heads, one shoe carrying a spindle constructed to engage one end of the piece to be turned and the other with a corresponding center to support the other end, substantially as described.

4. The combination of the heads G H, circular in shape except at the front, where the surface of the two are alike flat, said heads adapted to be fixed to the bed of a lathe, shaft K, supported in and so as to revolve in said heads with the mandrel of the lathe, disks N O, blocks S S, arranged in radial grooves in said disks, and radially adjustable in said disks, each block provided with a shoe, *d*, adapted to travel upon and follow the periphery of their respective heads, one shoe carrying a spindle constructed to engage one end of the piece to be turned and the other with a corresponding center to support the other end, and with a guard, *f*, parallel with the flat surface of each head, substantially as and for the purpose described.

316,836. MACHINE FOR PRINTING ON GLASSWARE. HERMANN SCHULZE-BERGE, Rochester, assignor to himself and Jesse H. Lippincott, Pittsburg, Pa. Filed Jan. 11, 1884. (No model.)



Claim.—1. The combination of a tapering printing-roller with a lathe for holding and revolving the article to be printed on, the shafts of the lathe and printing-roller being connected, substantially as described, in such manner that one of them shall revolve as many times for each single revolution of the other as the number of times that the diameter of the smaller (whether it be the printing-roller or the article) is most nearly contained in the diameter of the larger, substantially as and for the purpose described.

2. The combination of a revolving printing-roller provided with an elastic printing-surface with a lathe for holding and revolving the article to be printed on, each having a positive revolving motion communicated by gearing, substantially as described, operating both of them, so that one of them shall complete a single revolution in exactly the same time as that in which the other makes one, two, or more complete revolutions, irrespective of the relative surface speed of the printing-roller and object to be printed on, substantially as described.

3. In machines for printing on articles of tapering or irregular cylindroidal shape, a lathe for holding and revolving the article to be printed on, in combination with a tapering revolving printing-roller, the shafts of both being connected, so as to revolve at a given relative speed, substantially as described.

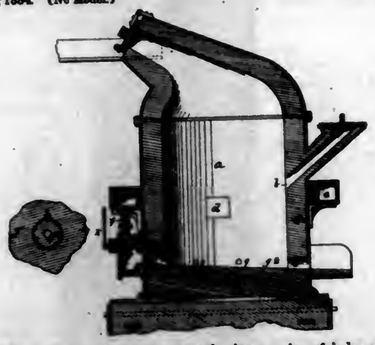
4. A tapering sector printing-roller, in combination with a lathe for holding and revolving the article to be printed on, having a positive motion on its axis, substantially as and for the purposes described.

5. In machines for printing on articles of tapering or cylindroidal or other irregular curved shape, a lathe for holding and revolving the article to be printed on, in combination with a tapering printing-roller and an inking-roller the shaft of which is set in bearings which are adjustable to a greater or less degree of horizontal inclination, substantially as and for the purpose described.

6. In machines for printing on articles of tapering, cylindroidal, or other irregular curved shape, a tapering printing-roller, in combination with a weighted lever for obtaining an adjustable yielding pressure of the printing-roller against the article to be printed on, constructed and arranged substantially as described.

7. In machines for printing on articles of tapering or cylindroidal shape, a lathe for holding and revolving the article to be printed on, in combination with a tapering revoluble printing-roller having a shaft which is adjustable, substantially as described, to conform the angle of inclination of the printing-surface to that of the surface to be printed on, the shafts of the printing-roller and lathe being connected, so as to revolve at a given relative speed, substantially as and for the purposes described.

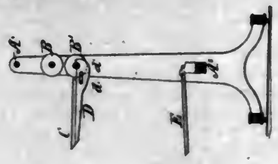
316,837. CONVERTER. HERMANN SCHULZE-BERGE, Rochester, Pa., assignor to Henry W. Oliver, Jr., and James P. Witherow. Filed Mar. 11, 1884. (No model.)



Claim.—1. A stationary converter having a series of independent tuyeres extending through its sides below the metal-line, so as to blow up through or around the same, in combination with a blast-main, independent pipes connecting said blast-main with the tuyeres, and independent valves arranged on a different level than the tuyere-nozzles, and between the blast-main and tuyeres, to regulate and control the blast supplied to each tuyere, substantially as and for the purposes described.

2. A converter or other furnace having a number of independent tuyeres extending through its sides, each tuyere constituting an intercepting air-trap consisting of an air-tight tube having enlarged mouth of equal or greater cubical capacity above its lower end than that of the tube above the mouth and an air-tight stopper or valve at its other end, substantially as and for the purposes described.

316,838. MANGLE. GEORGE SCOTT, Montreal, Quebec, Canada. Filed Jan. 23, 1884. (No model.)

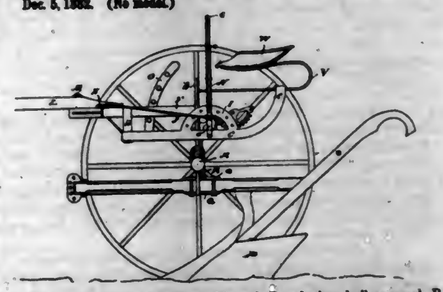


Claim.—1. The combination, in a mangling-machine, of the standards A A, an upper roller having fixed and a lower roller having adjustable bearings therein, of the levers D D, the table supported thereby, the said levers being fulcrumed on the standards and provided with sockets for the support of the journals of the lower roller, whereby the space between the upper and lower rollers may be increased or diminished by elevating or depressing the front end of the table, substantially as described.

2. The combination, with the frame, of the rollers B B', the levers D D, fulcrumed on the standards, the table C, secured to the levers upon one side of the fulcrum, and the roller B', supported upon the other side, the spring-board E, and the rod F, connecting the said board E with the table C, substantially as described.

3. The combination of the standards A A, having vertical slots *c* and fulcrum-pins *d*, with the levers D D, having horizontal slots *d'* and carrying table C, substantially as and for the purpose specified.

316,839. SULKY-PLOW. NATHANIEL SHAFFSTALL, Flint, Ind. Filed Dec. 5, 1882. (No model.)

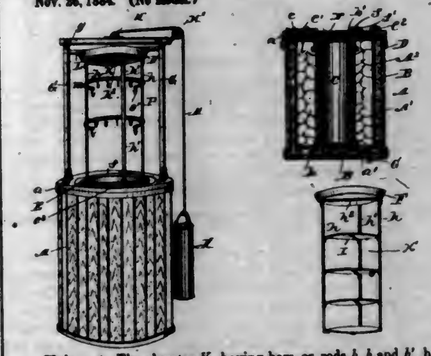


Claim.—1. In combination with arch B and plow bail or crank R, the segment elliptical gears S and T, meshed as shown and described, the former being fixedly attached to the plow-bail R, and the latter provided with lever-handle U, substantially as and for the purpose set forth.

2. The combination of the arch B, bars F, with brackets D and foot-rests E, side bars, C, forming an arch in the rear, the spring V, suitably attached to both arches, and seat W, substantially as and for the purpose set forth.

3. The combination of the arch B, the side bars, F F and C C, the tongue L, and bolt M, with bell-crank K, rod J, and lever G, all substantially as set forth and described.

316,840. MEAT-FREEZER. CHAS. N. SHAW, Potoskey, Mich. Filed Nov. 26, 1884. (No model.)



Claim.—1. The elevator K, having bars or rods A A and A', hoops or bands *o*, and hooks *o'*, arranged for the purpose herein shown and described.

2. A refrigerator having the removable lid F, elevator K, and hoops or bands *o*, in combination with the cover E and air-tight cover *a*, substantially as shown and described.

3. In a refrigerator, the chamber B, bottom *a'*, rim *b*, receptacle C, having packing *b'*, and chamber D, in combination with the hinged lid or cover E, removable cover F, and the elevator K, substantially as shown and described.

316,841. RIVET. SAMUEL W. SHOREY, Boston, Mass. Filed July 21, 1884. (No model.)

Claim.—1. A rivet composed of a solid head and conical-pointed shank, combined with a washer having a disk-like main portion and an integral tubular neck rising from the center of the main portion, and

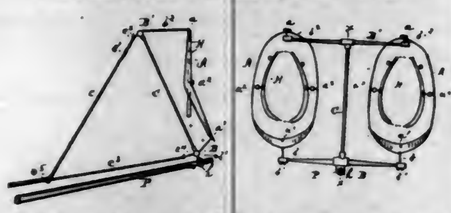
316,841.



being slightly contracted or lessened in diameter between its junction with said main portion and its opposite end, substantially as and for the purpose set forth.

2. A washer having a main portion or head provided with a central opening and a tubular neck integral with the head and rising therefrom, in the manner and for the purpose set forth.

316,842. COLLAR ATTACHMENT FOR DOUBLE HARNESS. DE WANE B. SMITH, Deerfield, N. Y. Filed Aug. 3, 1884. (No model.)



Claim.—1. The herein-described neck-yoke, consisting of a pair of balanced draft-collars, bent as described, and attached on each side at or near the angle of the bent portion to the hames of a harness to secure a direct and lateral motion of the same, an upper and lower draft-bar secured at each end to the upper and lower portions of the collars, a vertical support between the draft-bars for keeping the same separated, and flexible connecting-straps with the upper and lower draft-bars, substantially as described.

2. A neck-yoke consisting of a pair of balanced draft-collars, bent as described, and attached on each side at or near the angle of the bent portion to the hames of a harness to secure a direct and lateral motion of the same, an upper and lower draft-bar secured at each end to the upper and lower portion of the collars, a vertical support for keeping the draft-bars separated, in combination with two draft-cables rigidly joined at or near their longitudinal centers and adjustably attached to the upper and lower draft-bar, as described, for the purposes stated.

316,843. VENTILATING-COVER. RALPH J. SMITH, San Marcos, Tex. Filed Sept. 29, 1884. (No model.)



Claim.—As an improved article of manufacture, a ventilating-cover consisting of the cover A, the ventilating-tube B, projecting upward from the same, gauze C on the upper end of tube B, and the casing D E, surrounding the tube B, secured at its lower edge to the cover A, and provided with apertures *d*, the top of said casing being above the top of the tube B, substantially as shown and described.

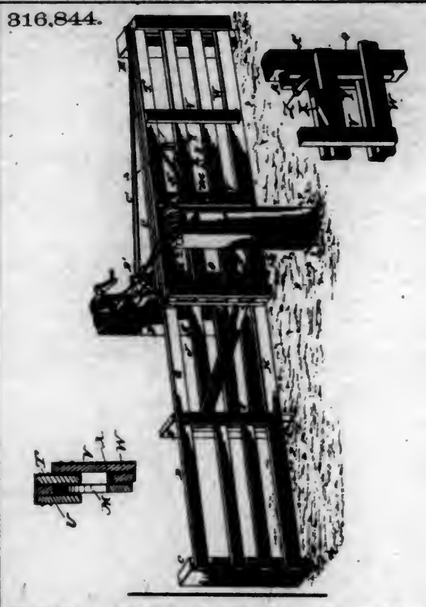
316,844. GATE. DANIEL G. SHOOT, Pioneer, Ohio. Filed July 7, 1884. (Model.)

Claim.—1. The combination of the abutment and fence posts having the horizontal top and bottom rails, the auxiliary gate having its vertical battens sliding with their ends upon the horizontal rails and having the outwardly-projecting inclined brace, and the gate-panel having its upper rails sliding upon the top of the outer batten and of the inclined brace of the auxiliary gate, as and for the purpose shown and set forth.

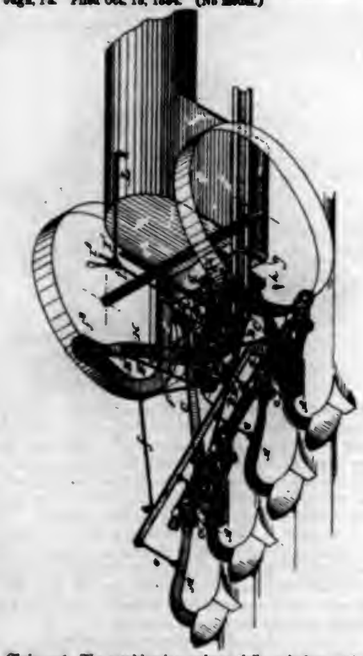
2. The combination of the abutment and fence posts having the horizontal top and bottom rails, the auxiliary gate having its end battens sliding with their ends upon the said rails, having the projecting lugs at the lower end of one of its outer battens, and having the outwardly-projecting inclined brace, and the gate-panel having its upper rails formed into a flanged way sliding upon the upper end of one end batten, and of the inclined brace of the auxiliary gate, and having its lower rail sliding between the lugs upon the end batten of the auxiliary gate, as and for the purpose shown and set forth.

3. The combination of the abutment-post having the inwardly-projecting wedge, the horizontal fence-rails secured at their outer ends to the abutment-post, the auxiliary gate sliding upon the said rails and having the pivoted catch upon one of its outer battens, and the gate-panel sliding upon the auxiliary gate and having the beveled stop formed with a shoulder at its outer end upon the middle of one of its horizontal rails, as and for the purpose shown and set forth.

316,844.



316,845. STEAM GANG-PLOW. WILLIAM H. SNYDER, Waynesborough, Pa. Filed Oct. 18, 1884. (No model.)



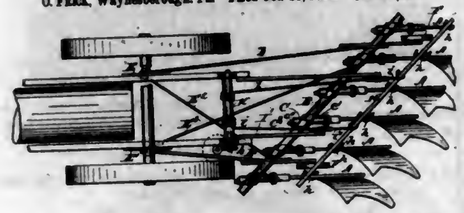
Claim.—1. The combination, substantially as before set forth, of the traction-engine, the draw-bars pivoted thereto, the hitching-beam; the plows coupled to the hitching-beam, the wheels for supporting the draw-bars, hitching-beam, and forward ends of the plows, and a hoisting-rig mounted on the traction-engine for lifting the entire plowing attachment above the ground.

2. The combination, substantially as before set forth, of a gang of plows, a traction-engine, and the described steam hoisting-rig mounted on said engine, and composed of a steam-cylinder, a hoisting chain or rope fastened to the piston-rod thereof, a crane and pulleys for supporting and guiding said rope, and a lifting-bar flexibly connected with the hoisting-rope and with the plows.

3. The combination, substantially as before set forth, of the diagonal hitching-beam of the plows of a steam gang-plow, the draw-bars and the wheels for supporting the hitching-beam on the ground at or near both ends, the hand-lever on the traction-engine, and the rod for connecting the lever with the advance end of the hitching-beam.

4. The combination, substantially as before set forth, of the members of the articulated hitching-beam, the coupling to which said members are pivoted, the draw-bar connected with said coupling, and the wheel for supporting the draw-bar.

316,846. STEAM GANG-PLOW. WILLIAM H. SNYDER and ABRAHAM O. PERK, Waynesborough, Pa. Filed Oct. 18, 1884. (No model.)



Claim.—1. The combination, substantially as before set forth, of the draw-bars attached to the traction-engine and provided with transverse holes at their rear ends, the diagonal hitching-beam passing through the holes in the rear ends of the draw-bars, the wheels for supporting the rear ends of the draw-bars, and the plows coupled to the hitching-beam.

2. The combination, substantially as before set forth, of the diagonal hitching-beam, a coupling applied thereto composed of a two-part clip with a coupling-head and a bolt for securing the parts to said beam, and the beam of a plow.

3. The herein-described coupling, composed of a two-part clip forming a divided diagonal sleeve with interlocking shoulders, a coupling-head adjustable by turning it on its longitudinal axis on the clip, and a single bolt, the whole adapted for use substantially as before set forth.

4. The combination, substantially as before set forth, of the gang of plows, the hoisting-rig on the traction-engine, the diagonal lifting-bar of which is connected with the forward ends of the plows, and the stop-bars.

316,847. VULCANIZED-FIBER ROLLER OR WHEEL, &c. FRANKLIN TAYLOR, Wilmington, Del., assignor to the Vulcanized Fibre Company, same place. Filed Jan. 30, 1885. (No model.)



Claim.—1. A compressed molded roller or wheel made of vulcanized fiber or like material and formed under pressure in a suitable die.

2. As a new article of manufacture, a roller or wheel of vulcanized fiber or like material having a rim relatively harder than the body of the wheel.

3. As a new article of manufacture, a roller of vulcanized fiber or like material having an anti-slipping periphery.

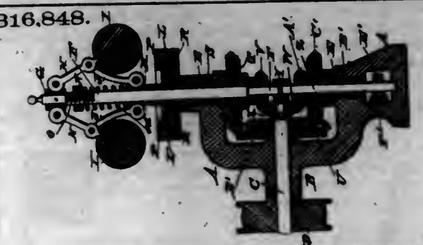
4. The herein-described method of making rollers of vulcanized fiber or like material, which consists in taking a blank of dry vulcanized fiber, centering it in a die upon a pin or spud, and then forming the wheel under pressure in said die.

5. The herein-described method of making rollers of vulcanized fiber or like material, which consists in taking a circular blank of dry vulcanized fiber of a somewhat less diameter than the die in which it is to be formed, and then flowing or forming the material into a roller of the desired shape under pressure in the die.

316,848. GOVERNOR. ANDERS THERKELSEN and JULIUS G. A. BROUN, Copenhagen, Denmark. Filed Jan. 27, 1885. (No model.)

Claim.—1. In a governor having means for regulating the flow of the motive medium by the differential speeds of a shaft and a sleeve revolving upon the said shaft, the combination of the vertical shaft having ball-bearing arms pivoted at their ends to the shaft, a sleeve sliding upon the shaft and connected to be slid by the divergence or convergence of the arms and having a laterally-projecting flange, a sleeve turning upon the shaft, having a laterally-projecting flange below the flange of the aforementioned sliding sleeve and receiving motion from the engine, and a stationary ring placed above the flange of the sliding sleeve, as and for the purpose shown and set forth.

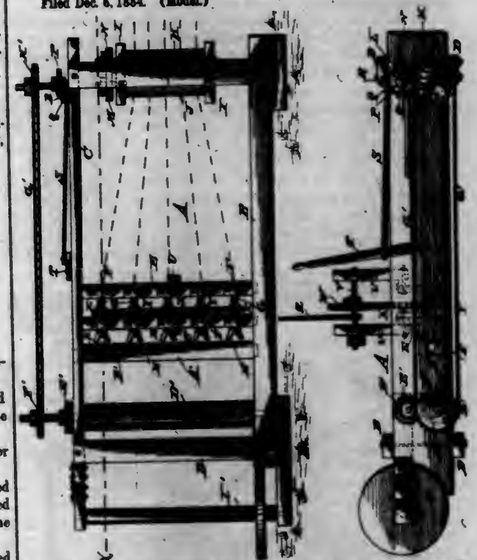
316,848.



2. In a governor, the combination of a shaft having means, as described, for revolving it at the main speed desired, and having a bevel-pinion secured upon it near its lower end, a shaft forming a separate continuation of the former shaft and having a pinion secured upon its lower end, a sleeve turning upon the lower shaft, having a bevel-pinion at its upper end and receiving its revolving motion from the engine, a bevel-pinion journaled upon a stud projecting laterally from the lower shaft, and a rack-bar connected with the means for regulating the flow of the motive medium and engaged by the pinion at the end of the lower shaft, as and for the purpose shown and set forth.

3. In a governor, the combination of the shaft F, having the ball-bearing arms pivoted to its upper end, the sleeve connected to the said arms and having flange L, the stationary ring P, the sleeve S, having flange R and bevel-pinion T, the drive-shaft C, having bevel-pinions U and D', the bevel-pinion V upon shaft F, the sleeve B', having bevel-pinions A' and G', the shaft Z, having pinion E' and sleeve and stud Y X, bevel-pinion W, and rack-bar F', connected to the means for regulating the flow of the motive medium, as and for the purpose shown and set forth.

316,849. MACHINE FOR MANUFACTURING PICKET FENCES. J B. THIEL, Dayton, Ohio, assignor of one-half to C. Wight & Son, same place. Filed Dec. 6, 1884. (Model.)



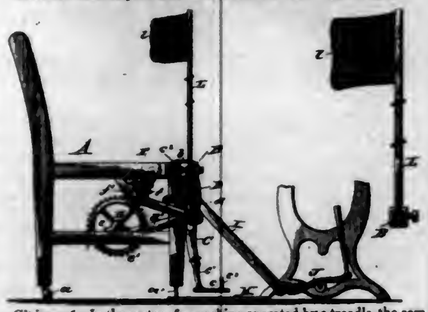
Claim.—1. In a machine for manufacturing wire picket fencing, the combination, with a central wire-feeding cylinder, K, of two feeding-cylinders, J and L, the shafts of which are provided with intermeshing pinions, one of which meshes with a pinion upon the shaft of the central feeding-cylinder, K, the wire passing over the said cylinder and between the cylinders J and L, as and for the purpose set forth.

2. The combination, with the wire-feeding cylinders having intermeshing pinions, as described, of the feed-cylinders connected by gearing at the discharge end of the machine, one of which is provided with a chain-wheel mounted upon its shaft, and connected by a drive-chain with a chain-wheel upon the shaft of the wire-feeding cylinder, and operating mechanism, substantially as and for the purpose set forth.

3. The combination of the frame, the twisters having Y-shaped arms or branches, mechanism for rotating the said twisters intermittingly and alternately in opposite directions, the picket-holding socket, the wire-feeding cylinders, the shafts of which have intermeshing pinions, as described, the feed-cylinders at the discharge end of the machine, mechanism for

conveying motion to the latter from one of the wire-feeding cylinders, mechanism for operating the latter, and a spooling-reel at the discharge end of the machine, all constructed and operating substantially as and for the purpose set forth.

316,850. MOTOR FOR SEWING-MACHINES. MELCHESEDECK Y. THOMPSON, Arkadelphia, Ark. Filed Nov. 25, 1884. (No model.)



Claim.—1. In the motor of a machine operated by a treadle, the combination, with a chair, A, for the operator, provided at its front with an oscillating transverse shaft having bearings in the chair, and having attached the levers C, provided with the adjustable foot-rests *c*, of the swinging rod D, connected by the pitman *d'* to the crank *e* of the shaft E, the gear-wheels *d* and *f'*, the shaft F, provided with the crank-arm *f*, and the connecting-rod I, pivoted to said crank-arm and to the treadle J, substantially as specified.

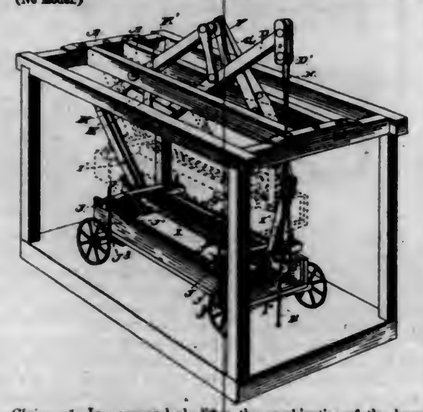
2. In a motor of a machine operated by a treadle, the combination, with the chair A, oscillating shaft B, and levers C, provided with the foot-rests *c*, of the swinging rod H, connecting-rod I, and treadle J, substantially as specified.

3. In a motor-machine operated by a treadle, the combination, with the chair A, shaft B, levers C, provided with the foot-rests *c*, and swinging rods D and H, of the pitmen *d'* and G, shafts E and F, gear-wheels *d* and *f'*, crank-arm *f*, connecting-rod I, and treadle J, substantially as specified.

4. In a motor mechanism for a machine, the combination, with the chair A, oscillating shaft B, and vibrating levers C, of the fanning device composed of the rod L and fan *l*, and adapted to be attached to either end of and vibrated by the shaft B, substantially as specified.

5. In a motor for a machine, the combination, with the chair A, provided with the pins *a*, of the metal straps K, provided with the holes *k*, adapted to receive the said pins and the front lower corners of the brackets upon which the bearings of the treadle are formed, so that the chair and treadle may be set and held at the desired distance apart, substantially as specified.

316,851. DEVICE FOR REMOVING WAGON-BODIES. PLEASANT M. THURMAN and WILLIAM T. THURMAN, Clarence, Mo. Filed Feb. 7, 1885. (No model.)



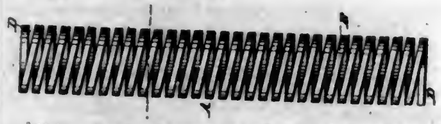
Claim.—1. In a wagon-body lifter, the combination of the levers B C, having their long arms extended inward each other, and their short arms projected out in opposite directions, together with means whereby to operate the long arms of the levers, substantially as set forth.

2. The combination of the levers B C, the bar D, connected rigidly with lever B, and the link G, connecting lever C and bar D, substantially as set forth.

3. In a wagon-body lifter, the combination of beams J, clamps J', having right-angled arms J³, and the nuts J³, substantially as set forth.

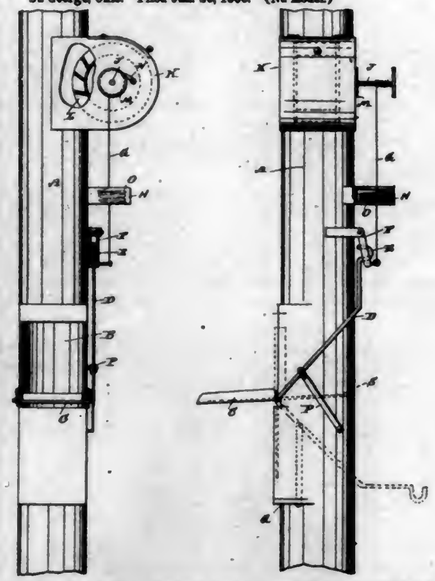
4. The wagon-body lifter herein described, consisting of the levers B C, devices for operating said levers, the body-frame I, the connecting-bars I', the beams J, the clamps J', having arms J³, and the nuts J³, substantially as set forth.

316,852. CORSET-SPRING. CHARLES THURY and SOSTHÈNE DE RASSECOURT, Paris, France. Filed May 15, 1884. (No model.) Patented in France July 11, 1883, No. 150,049.



Claim.—A spring for corsets and other garments, consisting of a flattened spring-coil formed of a flat strip of spring metal, substantially as set forth.

316,853. RAIN-WATER ESCAPE. ORION DE KAY TOWNSEND, Isle St. George, Ohio. Filed Jan. 26, 1885. (No model.)



Claim.—1. The combination, with a water-conducting pipe having a side opening, of a hinged gate adapted to close the said opening, a lever connected with the gate, a latch for locking the lever in place, and a water-wheel arranged in the pipe and connected by a cord with the latch, substantially as herein shown and described.

2. The combination, with a water-conducting pipe having a side opening, of a hinged gate for closing the said opening and having an inwardly-projecting portion adapted to close the pipe, of a lever connected with the gate, a latch for locking the lever in place, a water-wheel arranged in the pipe, and a cord connected with the shaft of the water-wheel and with the latch, substantially as herein shown and described.

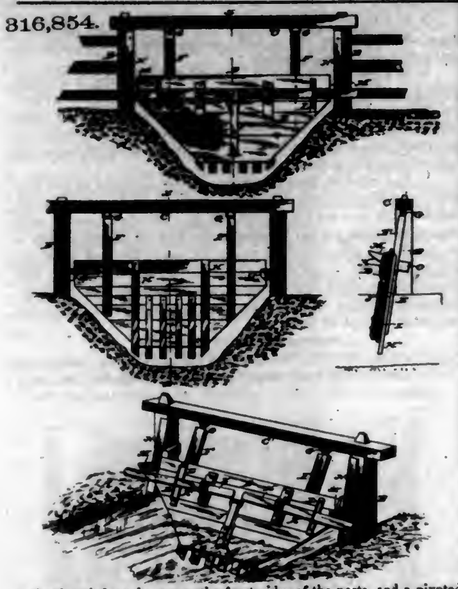
3. The combination, with the water-conducting pipe A, having the opening B, of the hinged gate C, the lever D, having the projection E, the pivoted catch F, the bracket-box H, the cord G, and the water-wheel L on the shaft J, on which shaft the cord is fastened, substantially as herein shown and described.

4. The combination, with the water-conducting pipe A, having an opening, B, of the hinged gate C, having the part S, the lever D, having a projection, E, the latch P, the latch F, the bracket-box H, the water-wheel L, and the shaft J, substantially as herein shown and described.

316,854. FLOOD-FENCE. CALVIN E. VAN AUKEN, Pleasant Lake, Ind. Filed Jan. 27, 1885. (No model.)

Claim.—1. In a water-gate, the combination of the posts or uprights, a cap connecting the same, a swinging gate hinged to the under side of the said cap-piece, a trap-door hinged to the lower front edge of the said gate, latches pivoted to the front side of the said gate and engaging beveled catches upon the front sides of the posts, and a pivoted or hinged rod connecting the inner ends of the latch-arms with the lower front edge of the trap-door, substantially as and for the purpose set forth.

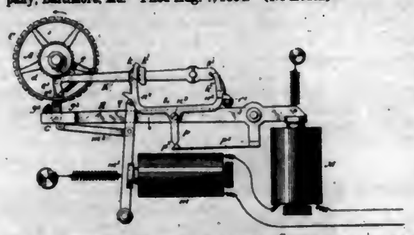
316,854.



2. A swinging water-gate suspended from the under side of a horizontal cap-piece, and having a series of vertical slats secured to its rear side and extending nearly to the bottom of the ditch, in combination with a trap-door hinged to the lower front edge of said gate and normally resting upon said slats, latch-arms pivoted to the front side of the gate and adapted to engage beveled catches upon the front sides of the posts, and a pivoted or hinged rod connecting the lower front edge of said trap-door with the inner ends of the pivoted latch-arms, substantially as and for the purposes herein set forth.

3. The combination of the posts, the cap-piece connecting the same, the swinging gate hinged to the under side of said cap-piece, and having downward-extending vertical slats on its rear side, a trap-door hinged to the lower front edge of said gate and resting normally upon the said slats, beveled catches secured to the front sides of the posts, buffer-blocks upon the inner sides of the posts, latch-arms pivoted upon the front sides of the gate and adapted to engage the beveled catches, and a pivoted or hinged rod connecting the inner ends of the said latch-arms with the lower front edge of the trap-door, all arranged and operating substantially as and for the purpose herein shown and specified.

316,855. UNISON FOR PRINTING-TELEGRAPHS. H. VAN HOEVENBERGH, Elizabeth, N. J., assignor to the Baltimore & Ohio Telegraph Company, Baltimore, Md. Filed Aug. 7, 1884. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, of a type-wheel shaft, two type-wheels carried thereon, a locking device for coupling said type-wheels to said shaft, a press-lever for effecting impressions from said type-wheels, a unison-arm which remains at rest while impressions are effected from one type-wheel, and means, substantially such as described, for moving said unison-arm into a position to unlock said type-wheels when impressions are taken from the other type-wheel.

2. The combination, substantially as hereinbefore set forth, with a type-wheel shaft and two type-wheels carried thereon, of a device for locking said type-wheels to said shaft, a unison-arm for unlocking said type-wheels and arresting them at their unison-point, a press-lever for effecting impressions from one or the other of said type-wheels, and a device, caused by the movements of said press-lever when impressions are being taken from one of said type-wheels, to move said unison-arm into position to unlock and arrest said type-wheels.

3. The combination, substantially as hereinbefore set forth, with a type-wheel shaft and two type-wheels, of a device for locking said type-wheels to said type-wheel shaft, two platen-faces which are respectively applied to said type-wheels, an electro-magnet for causing one or the other of said platen-faces to be presented to its type-wheel accordingly as said electro-magnet is or is not vitalized, an arm for releasing said shaft from said type-wheels, and means, substantially such as described, serving to move said arm into position to so release said shaft when a given number of impressions are successively effected from one of said type-wheels, but not to so operate when impressions are effected from the other of said type-wheels.

4. The combination, substantially as hereinbefore set forth, with two type-wheels and a type-wheel shaft, of two platen-faces respectively applied thereto, an electro-magnet for causing one or the other of said platen-faces to be presented to its type-wheel, an arm for arresting said type-wheels at their unison-point, and a pawl for actuating said arm, which pawl is caused to engage said arm when said electro-magnet is vitalized.

5. The combination, substantially as hereinbefore set forth, of two type-wheels, a printing-lever for effecting impressions from said type-wheels, an electro-magnet for determining from which of said type-wheels impressions shall be effected by said lever, a unison-arm for arresting said type-wheels at their unison-point, a pawl which is caused to engage said unison-arm and to advance it into a position to arrest said type-wheels when said electro-magnet is vitalized, and means, substantially such as described, for disengaging said pawl from said arm when it has advanced the same after an impression has been effected.

6. In a printing-telegraph instrument, the combination, substantially as hereinbefore set forth, with a press-lever and a unison-arm for the type-wheels, of a pivoted support carried upon said press-lever, an electro-magnet, its armature and armature-lever, which armature-lever is normally out of the path of said support, but which, when actuated, serves to turn said support upon its axis, and a pawl carried upon said support, which pawl, when the support is thus turned, engages said unison-arm and advances the same a predetermined distance each time said press-lever is actuated.

7. The combination, substantially as hereinbefore set forth, with two type-wheels and a press-lever for effecting impressions therefrom, of a unison-arm applied to said type-wheels, a pawl for engaging said unison-arm, which pawl is normally out of the path of said unison-arm, means, substantially such as described, for causing said pawl to engage said unison-arm and to advance it a predetermined distance during the movement of said lever away from said type-wheels, and a stop for throwing said pawl out of engagement with said arm each time it has so advanced the same.

8. The combination, substantially as hereinbefore set forth, with the printing-lever of a printing-telegraph instrument, of a unison-arm, a ratchet carried thereon, a support pivoted to said printing-lever, a pawl carried upon said support, an electro-magnet, a stop operated by said electro-magnet for causing said pawl to engage said ratchet during the upward movement of said printing-lever, and a second stop for causing said pawl to be disengaged from the ratchet during the downward movement of said printing-lever.

9. The combination, substantially as hereinbefore set forth, with the printing-lever H and the unison-arm K, of the frame L, pivoted to said lever, the pawl *k*, carried upon said frame, the ratchet *k'*, carried upon said unison-lever, and means, substantially such as described, for causing said pawl to engage said ratchet.

10. The combination, substantially as hereinbefore set forth, of two type-wheels, a printing-lever for effecting impressions from said type-wheels, a unison-arm applied to said type-wheels, a pawl actuated by said press-lever for moving said unison-arm into position to arrest said type-wheels, an electro-magnet for controlling the position of said pawl with reference to said unison-arm and for advancing the same into position to arrest said type-wheels when impressions are taken from one of the same, and a second pawl actuated by said printing-lever and serving to move said unison-arm out of the path of said type-wheels when impressions are effected from the other type-wheel.

11. The combination, substantially as hereinbefore set forth, with a type-wheel shaft and two type-wheels carried upon the same, of a ratchet-wheel secured to said shaft, a locking-pawl moving with said type-wheels, which pawl normally locks said type-wheels to said shaft, and a unison-arm serving to mechanically engage said pawl, and thereby disengage said type-wheels from said shaft and to arrest them at their unison-point.

12. The combination, substantially as hereinbefore set forth, of a type-wheel shaft, a ratchet-wheel applied to said shaft, two type-wheels loosely mounted upon said shaft, a pawl for locking said type-wheels to said shaft, and a unison-arm for mechanically engaging said pawl, thereby unlocking said type-wheels and arresting them at their unison-point, substantially as described.

13. The combination, substantially as hereinbefore set forth, with two type-wheels, the one carrying letters and the other carrying figures,

of a unison-arm, and means, substantially such as described, for causing said unison-arm to arrest said type-wheels at their unison-point when four successive impressions have been taken from said figure type-wheel.

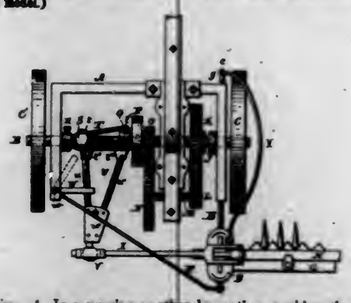
14. The combination, substantially as hereinbefore set forth, in a printing-telegraph instrument, of a figure type-wheel and a letter type-wheel, a unison-stop, and means for operating said unison-stop when impressions are effected from said figure type-wheel.

15. The combination, substantially as hereinbefore set forth, in a printing-telegraph instrument, of two type-wheels, means for effecting impressions from either of the same, a unison-stop, and means for operating the same when printing is effected from one of said type-wheels.

16. In a printing-telegraph instrument, a unison-stop and mechanical means for bringing the same into action by the printing-lever.

17. In a printing-telegraph instrument, a unison-stop and mechanical means for bringing the same into position to unison the instrument by the movements of the printing-lever.

316,856. MOWING-MACHINE. FRANK M. WATERS, Springfield, Ohio, assignor of one-fourth to John C. Oldham, same place. Filed Nov. 26, 1883. (No model.)

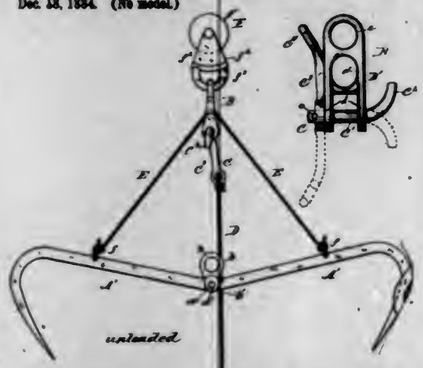


Claim.—1. In a mowing or other harvesting machine, the combination of the oscillating frame T U V and the spherical knob S, having the adjustable attachment R on the axle or frame, as and for the purpose described.

2. In a mowing or other harvesting machine, the combination of the eccentric Q, adjustable ball-coupling R S, oscillating frame T U V, and the adjustable guide-fork W, as and for the purpose set forth.

3. In a mowing or other harvesting machine, in combination with the cutting apparatus, the guard or handle Y, rigidly attached at its rear end to the shoe, carving thence upward, outward, and downward, and pivoted at its forward end to a fixed point in alignment with the drag-bar, substantially as and for the purpose set forth.

316,857. HORSE HAY-FORK. PHILLIP WERUM, Stryker, Ohio. Filed Dec. 18, 1884. (No model.)



Claim.—1. In a hay-fork, the combination of the supporting-frame provided with eyes and bifurcated lower portion which forms arms in which are mounted a rock-bar having a hook-shaped end and a lever, the pivoted tines having a ring or eye, and a cord or rope passing loosely through an eye of the supporting-frame and connected to the tines, as and for the purpose set forth.

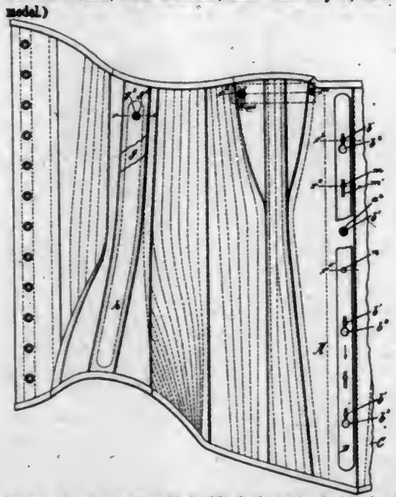
2. In a hay-fork, the combination of the pivoted tines having an eye or ring, a supporting-frame provided with two arms, and a rock-bar mounted in said arms and having a hook at one end and a lever at its other end adapted to bind against the face of the said frame, a tripping cord or rope connected to said lever, and a cord or rope passing through an eye of the frame and connected to the tines, substantially as shown and described.

3. In a hay-fork, the combination of a fork-supporting frame having a solid ring or eye with a pulley having divided cheek-plates and hooks, substantially as described.

4. In a hay-fork, the combination of a fork consisting of two tines pivoted together and having a suspending-ring, a supporting-pulley having divided cheek-plates, a tripping device comprising a frame provided with eyes and a hook-shaped rock-bar, and a cord or rope passing through one of said eyes of the tripping device and connected to the tines of the fork, substantially as shown and described.

5. In a hay-fork, the combination of a fork consisting of two tines and a suspending-ring pivoted together, a tripping device having a frame provided with eyes and a bifurcated portion, a rock-shaft mounted in the arms of the frame and having at one end a hook, as C^3, and a lever at its opposite end adapted to bind against the face of the frame, a trip cord or rope connected to said lever, a suspending-pulley connected to said tripping device, and a cord or rope passing through the tripping device and connected at its free ends to the tines of the fork, all arranged and adapted to serve as set forth.

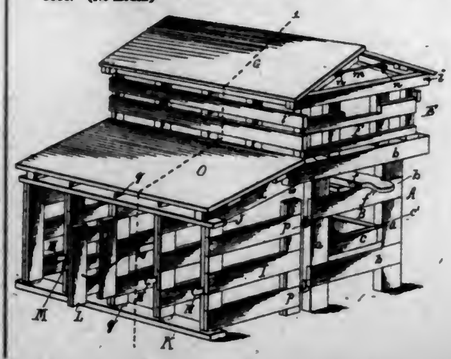
316,858. CORSET. CHARLES H. WILLIAMS, Worcester, assignor to Theodore C. Bates, North Brookfield, Mass. Filed May 26, 1884. (No model.)



Claim.—1. A corset provided with the broad steel a', inclosed by the cloth at one edge of the corset, and connected therewith by eyelets extended through both, and the steel B, provided with headed studs, combined with the sliding fastening-steel provided with slots b^2, and connected with and so as to slide longitudinally on the steel a' by means of the slots m' and headed studs m, as described, to operate substantially as described.

2. A corset provided with the breast-covering portion having an eyelet at each side thereof near its upper edge, as shown, combined with a single curved metallic distending-spring having two headed studs on its convex face, one near each end thereof, to enter the eyelets from the inside of the breast-covering portion, and so as to be readily attached and detached, substantially as shown and described.

316,859. STOCK-FEEDER. FRANCIS M. AGER, Vinita, Ind. Ter., assignor of one-half to Charles W. A. Lynch, same place. Filed Nov. 15, 1883. (No model.)

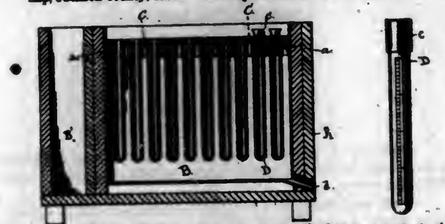


Claim.—1. The combination, in a portable stock-feeder, of the frame A, containing the supply-bin and feed-trough, an independent superstructure, arranged as described, and a series of sections forming stalls hung at the side of the frame and provided with gates, substantially as specified.

2. In a portable stock-feeder, a frame, A, containing the supply-bin and the feed-trough, the said supply-bin having the inclined sides and containing the inclined plates D, and slide-valves playing beneath the bottom of said bin, and stalls arranged at the side of the said frame A, consisting of sections hung thereto, and provided with doors carrying gravity-latches adapted to engage a keeper on the opposite pivoted sections, and a cord or rope attached to the door and crossing the stall, a'' constructed and arranged substantially as described.

3. In a portable stock-feeder, the combination, with the frame A, constructed and arranged as described, of a series of sections forming stalls at the side of the frame and provided with gates, a rope connected to each gate and passing through loops on one side of the stall, extended over and secured to the opposite side of the stall, substantially as set forth

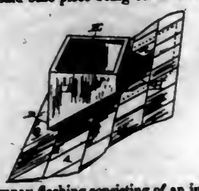
316,860. DEVICE FOR TESTING CREAM. NATHANIEL S. ANDREWS and JAMES M. BURNAP, Zwingle, assignors of one-third to Hiram F. Burnap, Jackson County, Iowa. Filed Apr. 4, 1883. (No model.)



Claim.—In an apparatus for testing cream, the box or receptacle A, lined with water-proof material and having unobstructed interior that may be heated or cooled, and provided on its sides with shoulders *a a*, the follow-board C, lined on its under side with water-proof material and provided with perforations over its entire surface and extending unbrokenly across the interior of the box or receptacle, and the graduated bottles D, placed in said follow-board and having each a rubber band, *c*, encircling its neck, all constructed and combined substantially as described.

316,861. CHIMNEY-FLASHING. TITUS H. APPLE, Meadville, Pa. Filed Aug. 18, 1883. (No model.)

Brief.—Consists of an inclined base-piece with vertical sides, having internal flanges at top, said base-piece being constructed with a triangular raised piece.



Claim.—1. A chimney-flashing consisting of an inclined base-piece provided with a double-inclined or triangular raised piece, H, in combination with the vertical sides, having the internal flanges, E, formed on them, substantially as described.

2. In a chimney-flashing, the combination of the chimney with the base-piece, as described, provided with the chimney-opening, and having on its edges the vertical pieces, joined at the corners, the upper edges of said pieces turned inwardly, forming a flange and arranged for inserting between the mortar joints, and with the triangular-shaped pieces, bent as shown, as and for the purpose herein set forth.

316,862. TOY SPRING-GUN. WILLIAM W. ARMINGTON, Providence, R. I. Filed Aug. 11, 1884. (No model.)



Claim.—1. In combination, in a toy shooting device, the cylindrical and bored-out body provided with the ridge *d*, a tubular barrel, one end of which engages with and is protected by said ridge, and a spring-actuated plunger, all said parts being arranged and operating substantially as and for the purposes set forth.

2. In a toy shooter or catapult, the combination of the body *a*, having the bore *b*, ridge *d*, and end centering-recess, *a'*, a tubular barrel secured on said body, and a spring-actuated plunger, said parts being arranged and combined substantially as and for the purposes set forth.

3. In a ball-shooter, the body *a*, having the bore *b* therein, and a barrel, *c*, secured thereround, in combination with a spring-actuated plunger, substantially as set forth.

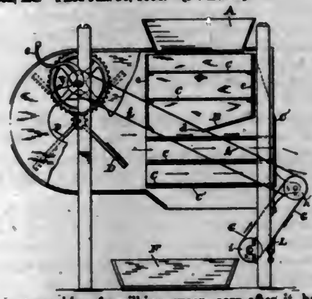
4. In combination, the cylindrical body *a*, having the bore *b*, and a pasteboard barrel tacked thereround and projecting beyond the end of said body, and the plunger *c*, attached to said body by the elastic cord, all substantially as and for the purposes set forth.

316,863. METHOD OF GENERATING CARBONIC-ACID GAS. CHAS. E. AVERY, Jacksonville, Fla. Filed Oct. 3, 1884. (No specimens.)

Claim.—1. In the manufacture of soda-water, mineral water, ginger-ale, or other aerated or carbonated beverages, the method of generating carbonic-acid gas against pressure by the reaction of the alkaline bicarbonates or the sesquicarbonates with the plaster-of-paris or terra-alba—*i. e.*, the sulphate of calcium or lime, hydrated or dehydrated, in the presence of water.

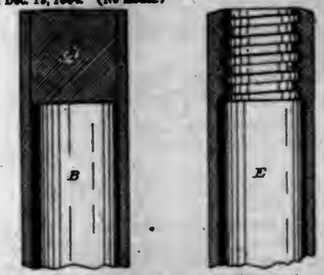
2. In the manufacture of soda-water, mineral water, ginger-ale, or other aerated or carbonated beverages, the method of charging the water or suitable solutions with carbonic-acid gas generated against pressure by the reaction of the alkaline bicarbonates with the sulphate of lime, hydrated or dehydrated—that is to say, either "plaster-of-paris" or "terra-alba," as they are commercially called, the reaction being induced by the presence of water.

316,864. MACHINE FOR SILKING GREEN CORN. JAMES B. BAKER, Aberdeen, Md. Filed Jan. 16, 1885. (No model.)



Claim.—A machine for silking green corn after it has been cut from the cob, comprising the upper screens with the inclosing sides *c c*, an inclined board, B, below the upper screens, a fan-blower at the front end of the machine, for directing an air-blast below the inclined board, the lower screens arranged for the air-blast to pass across and between them, an endless apron, G, and rollers *h i* at the rear end of the machine, as set forth.

316,865. PROSPECTING OR WELL-BORING TUBE. ALBERT RALL, Claremont, N. H., assignor to the Sullivan Machine Company, same place. Filed Dec. 19, 1884. (No model.)



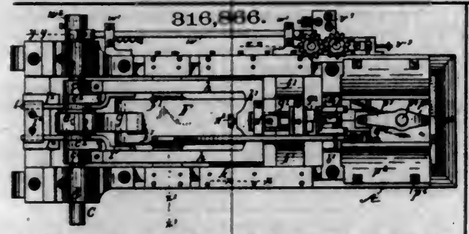
Claim.—1. The female part of a coupling-joint at the end of a tube or pipe, made by welding in a metal plug and screw-threading the same internally, substantially as described.

2. The male part of a coupling-joint at the end of a tube or pipe, made by welding in a metal plug, boring the same centrally, and screw-threading its projecting end externally, substantially as described.

3. The male or female part of a coupling-joint at the end of a tube or pipe, made by welding in a tubular plug and screw-threading it, substantially as described.

316,866. NUT-MACHINE. RICHARD T. BARTON, New Haven, Conn., assignor of five-sixths to Andrew H. Smith, same place. Filed Sept. 5, 1884. (No model.)

316,866.



Claim.—1. In a nut-machine, a die, B^4, composed of the three mutually-adjustable parts a', a^2, and a^3, as and for the purpose specified.

2. The combination, with the die-holder b', of the adjustable die B^4, fastened and adjusted therein, substantially in the manner and for the purpose specified.

3. In a nut-machine, the method of securing the dies g^3 in their holder by means of a grooved shoe and wedge, which are held in place by clamping cap and screws, substantially as described.

4. The combination of the holder n^4, dies g^3, and wedge o, secured by pinching-screw, with the head g', shoe m^2, and clamping-cap m^3, provided with a set-screw, substantially in the manner specified.

5. A remover for a nut-machine, consisting of a vertical slide, t^2, operated by a rock-shaft, u, and arm t^3, and carrying metal strips for knocking off the nuts, substantially as described.

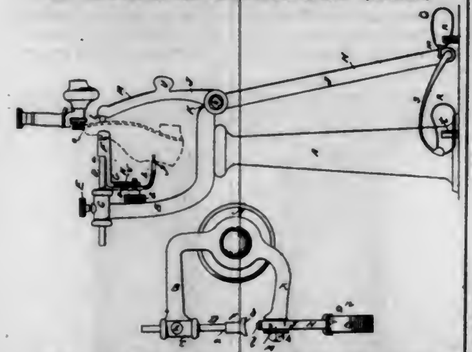
6. In the removing mechanism of a nut-machine, a lever, t^7, operating the rock-shaft and remover, and oscillated in one direction by a spring and in the opposite direction by a reciprocating and disengaging spring-latch, t^8, in the manner substantially as described.

7. In a nut-removing mechanism, the combination, with the lever t^7, for operating the rock-shaft and remover, of a hook, u^3, adapted to engage and hold the lever while disengaged from the latch, and to be released by an adjustable trip fixed on the head g', as and for the purpose specified.

8. The combination of the reciprocating spring-bar t^6, the lever t^7, operating the rock-shaft and remover, the spring-actuated hook u^3, adapted to engage and hold the lever while disengaged from the bar, and the adjustable trip u^3, fixed on the head g', all arranged in the manner and for the purpose specified.

9. In a nut-machine, the combination, with the slide F, of a link, s, adapted to impart forward motion to the head g' and dies g, and a latch, s^3, adapted to impart backward motion to the same by engagement with the stud s', fixed on the head, all arranged in the manner substantially as described.

316,867. JACK FOR BOOTS OR SHOES. ZOTIQUE BEAUDRY, Lynn, Mass. Filed Dec. 18, 1883. Renewed Dec. 15, 1884. (No model.)



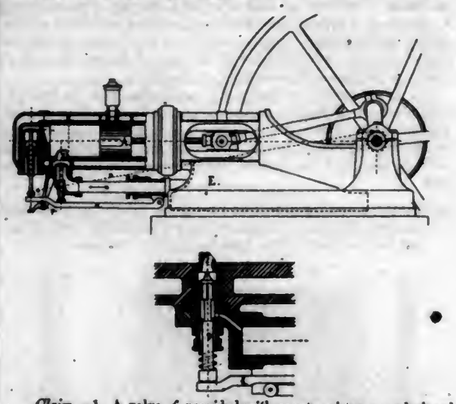
Claim.—1. A jack for boots or shoes having arm D, arranged on a stand, A, and arm M of lever J, pivoted to said stand, and both arranged to hold between them the boot or shoe at or near its toe for the rotation of the same in the operation of the burnisher or other tool.

2. In a jack for boots or shoes, an arm, D, arranged on a stand, A, and carrying a head-piece, F, having an arm, G, and arranged to swivel on said arm D, in combination with an arm, M, of a lever, J, pivoted to said stand and operated by its arm N to hold between them the boot or shoe at or near its toe for the rotation of the same in the operation of the burnisher or other tool.

3. In a jack for boots or shoes, a rod, D, supported on a stand and carrying a head-piece, F, arranged to swivel thereon, and provided with an adjustable arm, G, arranged to be set at its adjustment, in combination with means, substantially as described, for holding the boot or shoe against and on said head-piece and to its arm, substantially as and for the purpose described.

4. In a jack for boots or shoes, constructed substantially as described, a lever pivoted to the stand and arranged to hold the boot or shoe against a support on said jack, and to be operated by a loop, O or R, in combination with an abutment, n or t, substantially as and for the purpose specified.

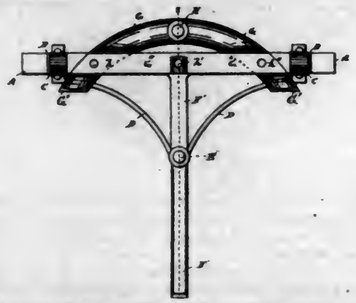
316,868. GAS-ENGINE. CARL BENZ, Mannheim, Baden, Germany. Filed June 10, 1884. (No model.)



Claim.—1. A valve, f, provided with counter-piston g, and placed in the conduit between the engine-cylinder and the gas-supply, substantially as described.

2. The combination of a cylinder and valve-face with an igniting-valve having a port, l, and a chamber, m, communicating with each other through aperture o, an air-supply pipe, s, and an auxiliary gas-supply pipe, r, the valve-face being provided with a pair of recesses adapted to communicate with the chamber m and with the pipes s and r in such a manner that by the motion of the valve the gas is cut off earlier than the air, and that at the moment when the valve-port communicates with the cylinder the chamber m possesses an explosive mixture, substantially as described.

316,869. FIFTH-WHEEL. FERDINAND G. BIPPUS, Evansville, Ind., assignor of one-half to John Albecker, same place. Filed Nov. 14, 1884. (Model.)



Claim.—1. A fifth-wheel for vehicles, consisting of a segment, G, having a chord, G″, and perch F′, the whole being formed of a single piece of metal, said perch having a boss, F, on its upper side, provided with a central opening for the passage of king-bolt E, the said segment G having an aperture for the passage of bolt H, the segment G′ having a curved slot, g, and chord G‴, extending beyond the periphery of said segment G′, in combination with removable bolt H, having washer h, elastic cushion h', and nut h'', as described, and for the purposes set forth.

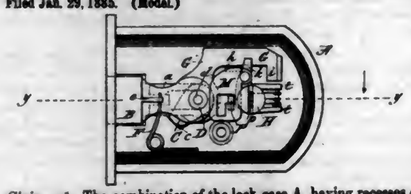
2. A fifth-wheel for vehicles, consisting of a segment, G′, provided with a chord, G‴, having ends extending beyond the periphery of said segment and provided with a curved slot, g, the perch F′, having a boss, F, on the upper side, said perch being curved upwardly and forming a portion of the chord G″ and of segment G, the whole being composed of a single casting or piece of metal, said segment G having an aperture for the passage of bolt H, in combination with removable cushioned bolt H, king-bolt d, and curved brace D, having a boss, D′, on its upper side, composed of a single piece of metal having ends provided with lugs with openings for the passage of the clips C, whereby said brace may be securely attached to the axle of the vehicle, substantially as shown and described, and for the purposes set forth.

316,870. FIRE-ESCAPE. HENRY E. BRAUNFELD, Philadelphia, Pa., assignor of one-half to Gustavus F. Scholler, same place. Filed Mar. 17, 1885. (No model.)



Claim.—A fire-escape having a block which is formed with a top loop, side hooks, a neck, and a bottom loop, and a rope which passes through the top loop and around the neck and under the side hooks, substantially as and for the purpose set forth.

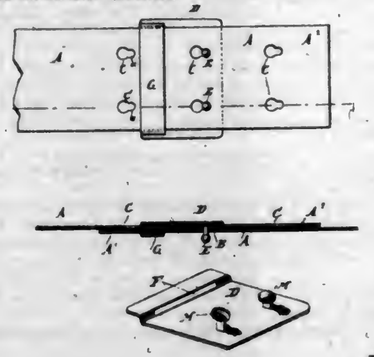
316,871. LATCH. EDWARD W. BRETTELL, Newark, N. J., assignor of one-half to Charles W. A. Romer and John H. Wilkins, both of same place. Filed Jan. 29, 1885. (Model.)



Claim.—1. The combination of the lock-case A, having recesses a c and slot b, the bolt B, having opening d, the sliding and rotating button E, having shank D and lug C, and the spring F, substantially as described.

2. The combination of the bolt B, dog G, having lug i, rotary cylinder H, having lug k, the notched tumblers p p p, inclosed in said cylinder, the pivoted guide-plate M, having L-shaped slot N, and the lock-case A, having post P, substantially as described.

316,872. BELT-FASTENING. SAMUEL BRETFIELD, New York, N. Y. Filed Feb. 24, 1885. (No model.)

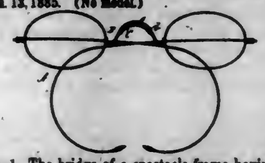


Claim.—1. The combination, with the belt A, having a series of apertures, C, at the end A^2, and apertures at the end A′ of the plate D, or a piece of leather having a slot, or a cross-piece forming a slot, at one edge and studs at the opposite edge, the end A^2 of the belt resting upon the plate D, and being held by the studs E, passed through the apertures in the end A^2 of the belt, the end A′ of the belt being passed through the slot F, or under the cross-piece forming the slot, and resting upon the end A^2 of the belt, and also being held by the studs E, which are passed through the apertures in the end A′, substantially as herein shown and described.

2. A belt-fastening consisting of a plate provided at one edge with a slot, or a cross-piece forming a slot, and at the other edge with two studs projecting from the upper surface of the plate, which studs are adapted to be passed through two thicknesses of leather overlapping each other on the said plate, the under side of the plate being smooth, substantially as herein shown and described.

3. The combination, with the plate D, having a slot, F, or a cross-piece forming a slot, of studs provided with hinged heads, substantially as herein shown and described.

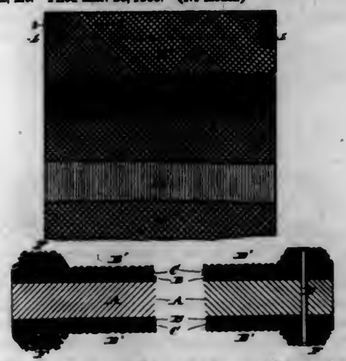
316,873. SPECTACLES. DANIEL V. BROWN, Philadelphia, Pa., assignor to Samuel L. Fox, trading as James W. Queen & Co., same place. Filed Jan. 12, 1885. (No model.)



Claim.—1. The bridge of a spectacle-frame having a longitudinal slit or kerf, substantially as shown and described.

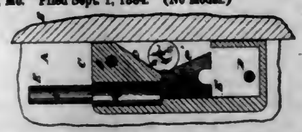
2. The combination, with the bridge B of spectacles having a central longitudinal slit or kerf, of a cork pad or cushion having a rib on its upper side which fits in and is clamped by the split bridge, substantially as shown and set forth.

316,874. WIRE MAT FOR OIL-PRESSES. ROBERT B. BROWN, St. Louis, Mo. Filed Mar. 20, 1885. (No model.)



Claim.—A mat for an oil-press having a stiff body-plate with a facing composed of one or more layers each of wire-cloth or fabric and absorbent material.

316,875. SASH-FASTENER. WILLIAM J. S. BRYAN and IRA BOUTELL, St. Louis, Mo. Filed Sept. 1, 1884. (No model.)

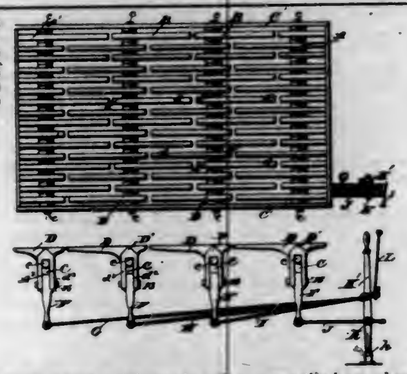


Claim.—In a sash-fastener, the combination of a case having a fixed incline, a sliding piece having an incline opening at one side of the inclines, a spring to press the sliding piece toward the fixed incline, and a cylinder or ball placed loosely in the opening and bearing on both inclines.

316,876. ROCKING GRATE-BAR. WILSON R. CHISHOLM and JOHN WALKER, Cleveland, Ohio. Filed Oct. 3, 1884. (No model.)

Claim.—1. The combination, with a series of rocking grate-bars and an arm depending from each series, of a lever and connecting-rods secured at one end to the several depending arms of the grate-bars, and

316,876.

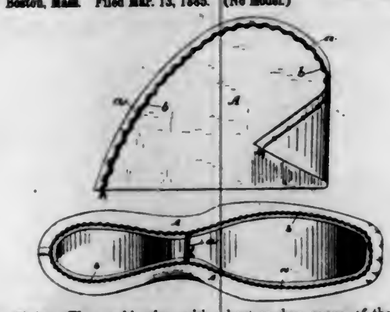


removably secured at their opposite ends to an operating-lever, whereby all or any number of the grate-bars can be rocked simultaneously.

2. In rocking grate-bars, the combination, with a supporting-bar arranged as aforesaid, of detachable grate-bars provided with jaws for embracing the supporting-bar, and adapted also to embrace the upper end of a rock-arm, and the parts so arranged that the rock-arm and engaging grate-bar are held in position by a single bolt, substantially as set forth.

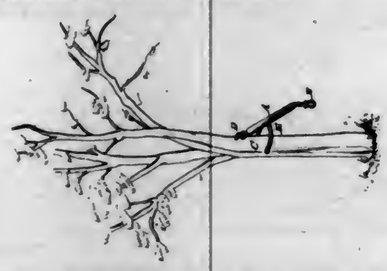
3. The combination, with rock-arms respectively secured in the jaws of grate-bars, of connecting-rods respectively pivoted to the rock-arms and extending in front of the furnace, and provided with hook ends or equivalent devices for engaging the wrist K on the lever K', and provided with the hook L or equivalent device for supporting any number of the connecting-rods, substantially as set forth.

316,877. PREPARING UPPERS FOR LASTING. WILLIAM C. CROSS, Boston, Mass. Filed Mar. 13, 1885. (No model.)



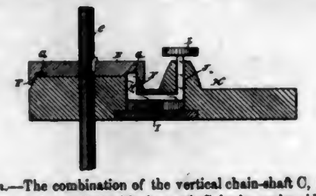
Claim.—The combination, with a boot or shoe upper, of the loop thread *b*, having each loop locked in place, and the draw-cord laid upon one face of the upper, and passing through the successive loops thereon from the same side, so that the loops shall extend around or over the draw-cord in the form of a continuous spiral, as and for the purposes hereinbefore set forth.

316,878. HORSE-HITCHING DEVICE. DAVID W. CROWTHER, Hagerstown, Md. Filed June 28, 1884. (No model.)



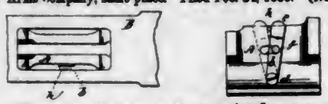
Claim.—The combination, with a tree having a hitching-bar hinged to it provided with means at its outer end for attaching it to the bridle or halter of an animal, of a guard bail or fender secured to the tree below the bar, whereby the tree is guarded against injury from the pending bar, as and for the purpose set forth.

316,879. CAR-BRAKE. CHARLES E. CURRIE, Butte, Mont. Filed Dec. 27, 1884. (No model.)



Claim.—The combination of the vertical chain-shaft C, the disk E, fixed thereon and provided with the teeth G in its under side, the base K, the detent H, provided with the downward stud I and the upward stud J, fitted to play vertically in the base, the spring around stud I, and the pedal L upon stud J, substantially as shown and described.

316,880. MAGAZINE FIRE-ARM. ISAAC CURTIS and LEANDER J. RUSSELL, New Haven, Conn., assignors to the Winchester Repeating Arms Company, same place. Filed Feb. 24, 1885. (No model.)



Claim.—1. In a carrier for magazine fire-arms, the combination therewith of a stop hung to the carrier-block and arranged in the chamber of the carrier which is adapted to receive a cartridge from the magazine, said stop made adjustable to different points in the length of the chamber, substantially as described, and whereby said carrier is adapted to the use of cartridges of various lengths.

2. A carrier, substantially such as described, for a magazine fire-arm, constructed with a slot through its side into the chamber which receives the cartridges from the magazine, combined with a stop hung to the carrier and arranged through said opening, and adapted to be adjusted to different positions with relation to the forward end of the breech-piece, substantially as described, and whereby the said carrier is adapted to the use of cartridges of various lengths.

3. In a magazine fire-arm, the combination of a carrier-block, A, having the chamber C longitudinally through it to receive the cartridges from the magazine, and constructed with a slot, *a*, through its side into said chamber, a spring-arm arranged upon the outside of the carrier-block, and made adjustable thereon in the direction of the length of the block, a stop on said arm extending through said slot into said chamber, and in which slot the said stud is made adjustable by the movement of the said arm, substantially as described.

4. In a magazine fire-arm, the combination of the carrier-block A, having a chamber, C, longitudinally through it to receive the cartridges from the magazine, and constructed with a slot, *a*, through its side into said chamber, a spring-arm arranged upon the outside of the carrier-block and carrying a stud, *f*, which extends through said slot *a* into said chamber C, and so as to form an adjustable stop within the said chamber C, and a stop adapted to hold the said arm at different positions, substantially as described.

5. In a magazine fire-arm, the combination of the carrier-block A, having a chamber, C, longitudinally through it to receive the cartridges from the magazine, and constructed with a slot, *a*, through its side into said chamber, a spring-arm arranged upon the outside of the carrier-block and carrying a stud, *f*, which extends through said slot *a* into said chamber C, and so as to form an adjustable stop within the said chamber C, and a stop adapted to hold the said arm at different positions, the said arm extending above the upper edge of the carrier-block, substantially as described.

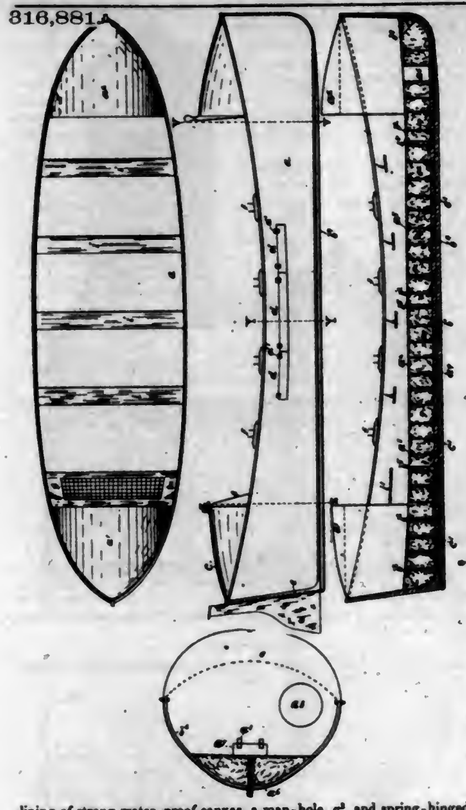
6. In a magazine fire-arm, the combination of the carrier-block A, constructed with a longitudinal chamber, C, to receive cartridges from the magazine, and with a slot, *a*, through its side into said chamber, a spring-arm, *b*, pivoted to said block upon its outside and below said slot, its upper end extending above the upper edge of the carrier and carrying a stud, *f*, extending through said slot *a* into the said chamber C, and so as to form a stop for cartridges entering said chamber from the magazine, with a stop adapted to hold the said arm at different positions, substantially as described.

316,881. LIFE-BOAT. DAVID P. DOBBINS, Buffalo, N. Y. Filed May 26, 1884. (No model.)

Claim.—1. A life-boat having the interior of the hold below the deck covered with a lining of strong canvas, in combination with a series of water-proof canvas sacks arranged below the water-line and filled with cork or other buoyant material, each sack being shaped so as to adapt it to conform to its position in the interior of the hold and to practically fill the portion in which it is placed, substantially as and for the purposes described.

2. A life-boat provided with air-cases a' a^2, each having an interior

316,881.



lining of strong water-proof canvas, a man-hole, a^3, and spring-hinged valves or scuppers a^3, arranged at the bottom of the case, and adapted to open outward if any water should get into the case and to spring shut as soon as the water leaves it, substantially as specified.

3. A life-boat the hold of which is filled with cork having air-cases above the deck provided with man-holes and spring-hinged scuppers, and having spring-hinged scuppers arranged in each side of the boat, whereby the boat is rendered unsubmergeable and the water shipped will be discharged through the scuppers, substantially as described.

316,882. LIFE-BOAT. DAVID P. DOBBINS, Buffalo, N. Y. Filed July 28, 1884. (No model.)

Claim.—1. In a life-boat, the combination, with the combined keel and keelson, made of one piece of material, of a ridge-keelson or strong-back, also made of one piece of material, reaching from the keelson to and supporting the deck, and running the whole length of the boat and dividing the hold into two longitudinal compartments, the whole being secured together by bolts, substantially as described.

2. The combination, with the combined keel and keelson formed in one piece and provided with a series of perforations or mortises, of the ribs or frames of the boat adapted to pass through the mortises and be secured, substantially as described.

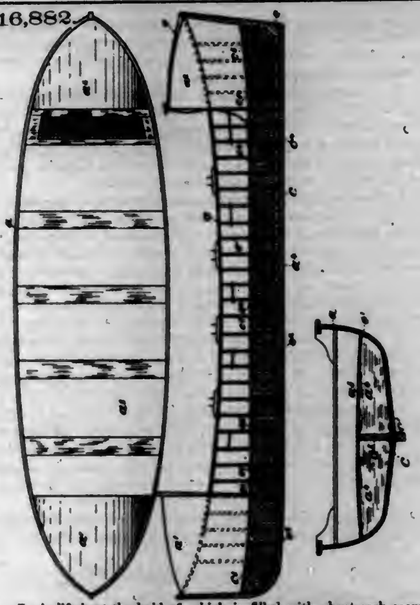
3. A life-boat provided with an iron keel-shoe secured by bolts passing through the keel-shoe, keel, and deck, and having a line secured to one end of the keel-shoe and to the stern of the boat, whereby the keel-shoe may be released from the deck and be used as a drag, substantially as described.

4. In a life-boat, the combination of keel and keelson combined, the frames of the boat formed in one piece, and passing through it, and a strong-back dividing the hold into two longitudinal compartments, substantially as and for the purposes described.

5. In a life-boat, the combination, with the combined keel and keelson formed in one piece, of a strong-back, also formed of one piece, and a deck-frame secured to the strong-back, the several parts being united together and to the stem and stern-posts by edge bolts, substantially as described.

6. A life-boat provided with a strong-back dividing the hold into two longitudinal compartments, in combination with a solid filling of sheet-cork made water-proof, as and for the purposes described.

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7. A life-boat the hold of which is filled with sheet-cork secured together and to the hull of the boat by dowels and bolts, the said cork being rendered water-proof by paraffine, whereby the boat is rendered tight and strong, is properly ballasted, and the hold is impervious to air and water, substantially as described.

316,883. TELEPHONE-TRANSMITTER. GEORGE W. DRAWBAUGH, Eberly's Mill, Pa., assignor to the People's Telephone Company, of New York. Filed Apr. 25, 1884. (No model.)



Claim.—1. In a telephone, a diaphragm, resistance-varying electrodes inclined and leaning against the rear side of said diaphragm by gravity, and not in electrical connection with one another, a movable electrode resting by gravity upon the upper inclined sides of the first-mentioned electrodes, and mechanism for changing the position of said movable electrode upon the inclined electrodes, substantially as described.

2. In a telephone, a diaphragm, resistance-varying electrodes inclined and having their free ends resting against said diaphragm by gravity, not in electrical connection with one another, and supported at their opposite ends so as to be free to oscillate, a movable electrode resting by gravity upon the first-mentioned electrodes and bridging them, and a support holding said movable electrode in position upon the inclined electrodes, substantially as described.

3. In a telephone, a diaphragm, resistance-varying electrodes inclined and having their free ends resting against said diaphragm by gravity, not in electrical connection with one another, and supported at their opposite ends so as to be free to oscillate, a movable electrode resting by gravity upon the first-mentioned electrodes and bridging them, and an adjustable support holding said movable electrode in position upon the inclined electrodes, substantially as described.

4. In a telephone, a diaphragm, resistance-varying electrodes inclined and having their free ends resting against said diaphragm, not in electrical connection with one another, and supported at their opposite ends so as to be free to oscillate, a movable electrode resting by gravity upon said inclined electrodes, and mechanism for sliding said movable electrode along the upper inclined sides of the inclined electrodes, the said mechanism being contained within the box or case and operated from the rear side thereof, substantially as described.

5. In a telephone, a diaphragm, resistance-varying electrodes inclined and having their free ends resting against said diaphragm by gravity, not in electrical connection with one another, and supported at their opposite ends so as to be free to oscillate, a movable electrode rest-

ing upon said inclined electrodes by gravity, mechanism for moving said movable electrode upon the inclined electrodes, and mechanism for holding said movable electrode in place and preventing its further movement of translation, substantially as described.

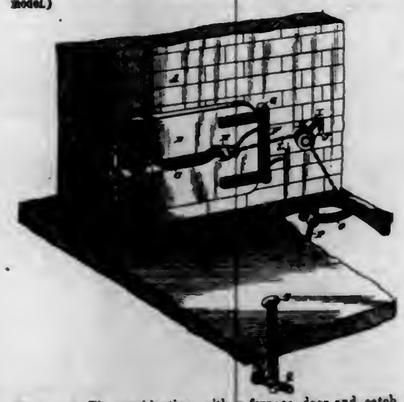
6. In a telephone, a diaphragm, resistance-varying electrodes inclined and having their free ends resting against said diaphragm by gravity, not in electrical connection with one another, and supported at their opposite ends so as to be free to oscillate, and an electrode pivoted horizontally and free to oscillate in a movable support, and resting by gravity upon said inclined electrodes, substantially as described.

7. In a telephone, a diaphragm, resistance-varying electrodes inclined and having their free ends resting against said diaphragm by gravity, not in electrical connection with one another, and supported at their opposite ends so as to be free to oscillate, an electrode of prismoidal form, having one side resting by gravity upon said inclined electrodes, and loosely pivoted horizontally in a movable support, and mechanism adapted to impart to said support and electrode therein a diagonally upward or downward movement, substantially as described.

8. The combination of the diaphragm F, electrodes K L, having independent pivots M N, supports I J, movable electrode T, pivoted in the yoke-piece O, yoke-piece P, pivot-connection between yoke-piece O and yoke-piece P, and pivot Q, substantially as described.

9. The combination of the diaphragm F, electrodes K and L, having independent pivots M N, support J, supports I, one of said supports I containing a slot, R, movable electrode T, pivoted in the yoke-piece O, yoke-piece P, pivot-connection between said yoke-pieces, pin on yoke-piece P entering the slot R, and the nut S, substantially as described.

316,884. FURNACE-DOOR. HERMAN H. DREYER, Genoa, Ohio, assignor of one-half to John H. H. Uthoff, same place. Filed Jan. 20, 1885. (No model.)



Claim.—1. The combination, with a furnace-door and catch, of a latch-lever pivoted to said door and provided at its inner end with an inclined arm, and a spring coiled upon the hinge-rod and having projecting ends bearing, respectively, against the furnace-front and against the under side of the latch-lever, substantially as herein described, for the purpose set forth.

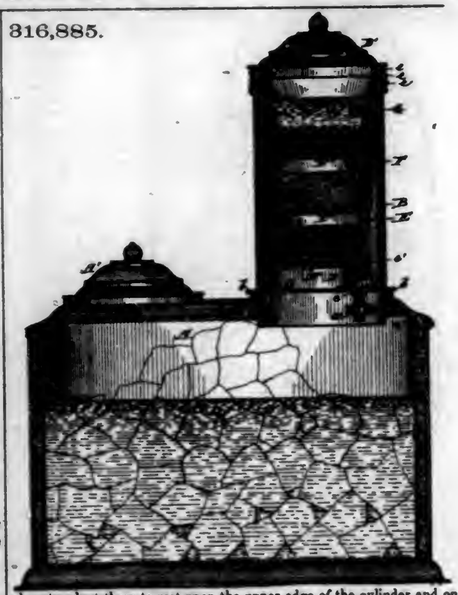
2. The combination, with a furnace-door and catch, of a latch-lever pivoted to said door and having at its inner end an inclined forwardly-projecting arm, a spring coiled upon the hinge-rod and having projecting ends bearing against the front of the furnace and against the under side of the inclined arm of the latch-lever, a rock-shaft journaled under the floor in front of the furnace and having cranks at both ends, a treadle-piece connected pivotally with the front arm of said shaft and extending upward through the floor, and a chain passing over a pulley in a suitably-pivoted block and connecting the rear end of said shaft with the inclined arm of the latch-lever, substantially as set forth.

316,885. FILTER. JAMES H. DUMONT, New York, N. Y. Filed Oct. 7, 1884. (No model.)

Claim.—1. The combination, in a filter attachment for water-coolers, of a vertical cylinder having vertical and horizontal flanges located at its lower end and a bottom provided with a suitable discharge-opening, and a cock for controlling the same, a series of tapering receptacles provided with reticulated bottoms and beaded at their upper edges to adapt them to rest on the upper edge of said cylinder and on each other, and located relatively to contain different grades of filtering material, substantially as set forth.

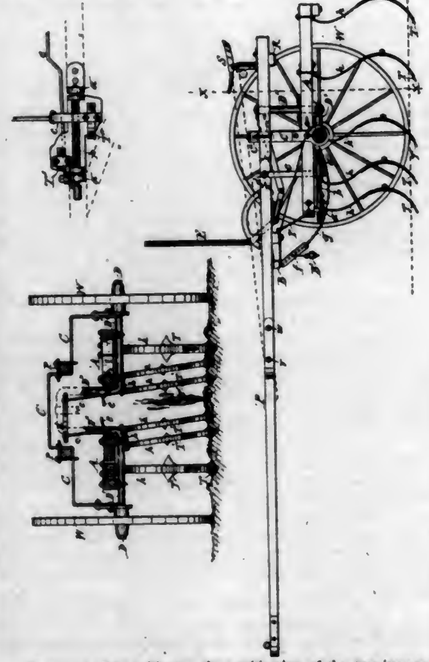
2. The combination, with a water-cooler, as specified, of a filter attachment consisting of a vertical cylinder having vertical and horizontal flanges located at its lower end and a bottom provided with suitable discharge-openings and cock for controlling the same, a series of tapering receptacles provided with reticulated bottoms and beaded at their upper

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edges to adapt them to rest upon the upper edge of the cylinder and on each other, and located respectively to contain different grades of filtering, substantially as set forth.

316,886. CULTIVATOR. FRANCIS M. EVERINGHAM, East Onondaga, N. Y. Filed Oct. 16, 1884. (No model.)



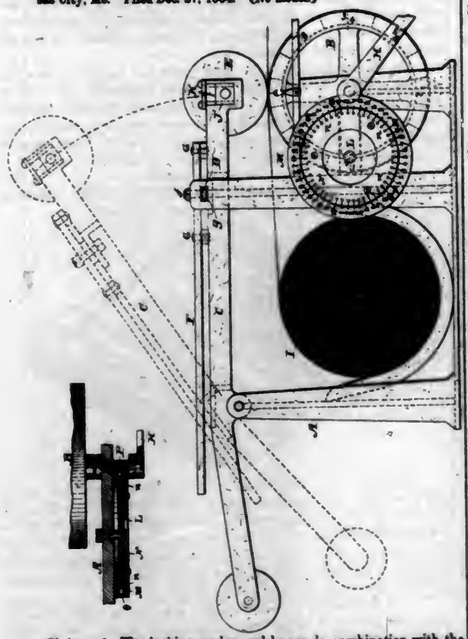
Claim.—1. In a cultivator, the combination of the two innermost teeth arranged movable laterally independent of the frame, two sets of teeth arranged stationary, respectively, near the outer sides of the machine, secondary laterally-movable teeth between the primary movable teeth and the stationary teeth, couplings connecting together all the laterally-movable teeth, and levers for operating the same, all combined to operate close to plants standing out of the regular row without moving all the cultivator-teeth laterally, and without leaving uncultivated strip of land in the track of the cultivator, substantially as specified.

2. In a cultivator, the combination of the two innermost teeth arranged movable laterally independent of the frame, two sets of cultivator-teeth arranged stationary, respectively, near the outer sides of the machine, secondary laterally-movable teeth arranged rearward from the innermost teeth, and between the same and the stationary outer teeth, couplings connecting all of the laterally-movable teeth together, and levers for operating the same, all combined to operate substantially in the manner specified and shown.

3. The combination, with the cultivator-frame, of the teeth T T, fixed to said frame at the extreme distances from the center of the line of draft, the hangers *a a*, secured to the frame at opposite sides of the aforesaid center, the plates *b b*, pivoted on the hangers, the teeth T' T', attached to the plates at opposite sides of the pivot thereof, arms *c c*, extended from the pivoted plates, the coupling-bar *d*, connecting said arms, and the treadles or levers *e e*, pivoted on the hangers and resting on the plates *b b*, substantially as described and shown.

4. A stiff or rigid tooth formed with broadened points *k k*, and narrowed central portion, *l*, in combination with a spring-shank having its end resting against the back of the narrow portion of the aforesaid tooth to sustain the same, substantially as described and shown.

316,887. CLOTH-MEASURING DEVICE. WILLIAM H. H. PEYE, Kansas City, Mo. Filed Dec. 27, 1884. (No model.)



Claim.—1. The locking wedge end levers, in combination with the tilting frame, whereby the said frame can be locked securely to the main and supporting frame, substantially as described.

2. In a machine for measuring cloth, the combination, with a tilting frame and a device for locking the same to the main frame, of an upper yielding cylinder and a lower cylinder, substantially as described.

3. The combination, with the two cylinders, between which the cloth is passed while being measured, of a tilting frame, balanced as described, and a locking device therefor, substantially as specified.

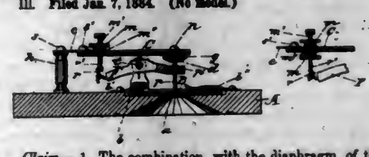
4. The combination, in a cloth-measuring machine, of a concave cradle, devices for registering the measure, the cylinders between which the cloth is moved while being measured, a tilting frame bearing the upper cylinder, E, and a device for locking this frame to the main frame of the machine, substantially as described.

5. In a device as described, two cylinders or rollers, combined with levers, locking-wedges, and a tilting frame, substantially as described.

6. The combination, with devices for registering cloth while being measured, of a cylinder having fixed journal-bearings in the main frame, a cylinder having elastic pressure-bearings on the end of a tilting frame, and means for locking this tilting frame to the main frame, substantially as described.

7. The combination, in a cloth-measuring machine, of the cylinder B, having on one end a device for registering fractions of a yard, a sprocket, P, on the shaft of this cylinder, a ratchet, L, a numbered circle, M, the revolving perforated dial N, adapted to receive a pin, and the pawl Q, all as described.

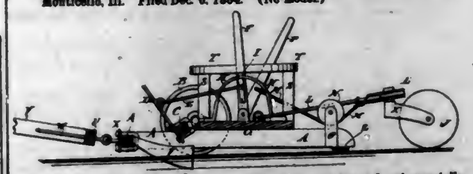
316,888. TELEPHONE-TRANSMITTER. J. ESSEN FULLER, Chicago, Ill. Filed Jan. 7, 1884. (No model.)



Claim.—1. The combination, with the diaphragm, of the approximately equal-armed lever F, having one end impinging on the diaphragm and supporting electrode *p'*, the lever C, carrying electrode *d*, and the adjustable connection between an intermediate portion of said lever C and the end of lever F opposite that which carries its electrode, substantially as described.

2. The lever C, pivoted at one end and carrying electrode *d* at the other end, the lever F, pivoted at about its middle and supporting at one end electrode *p'*, and the link connecting the other end of said lever with an intermediate portion of lever C, in combination with the diaphragm and intermediate mechanism operated thereby for imparting its direct movement to electrode *p'*, all as set forth.

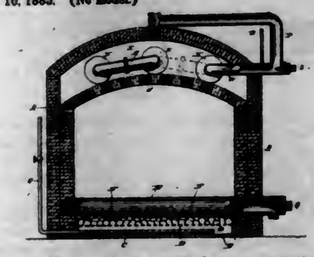
316,889. SOIL PULVERIZER AND LEVELER. ABSALOM C. FUNK, Monticello, Ill. Filed Dec. 6, 1884. (No model.)



Claim.—1. A soil pulverizer and leveler constructed substantially as herein shown and described, and consisting of a frame supported adjustably upon wheels, and provided at its forward part with twisted knives, to cut the soil or sod into strips, and at its rear end with a steel plate, to cut in pieces clods and shave off projecting parts of the soil, as set forth.

2. In a soil pulverizer and leveler, the combination of the frame A, mounted at its forward end on wheels B, the platform G midway on said frame, the frame L, hinged at its forward end midway upon the said platform and mounted at its rear end upon a caster-wheel, J K, the pulley N, mounted on the rear end of frame A, the lever P, pivoted on the platform, the catch-bar Q, the spring-detent R, and the chain M, attached at one end to the said lever, attached at the other end to the frame L, near the rear end thereof, and passing midway under the pulley N, substantially as shown and described.

316,890. LIQUID-FUEL FURNACE. CHARLES M. GEARING, Pittsburg, Pa., assignor of one-half to J. R. McKee, Jr., same place. Filed Jan. 10, 1885. (No model.)



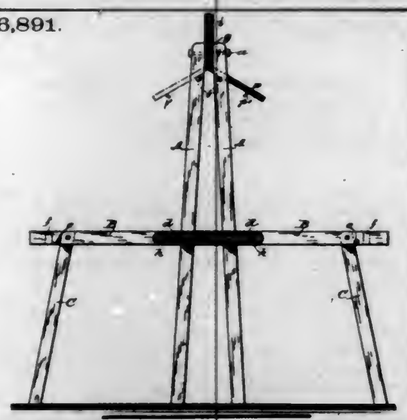
Claim.—The combination, with the pan or receptacle located in the bottom of the furnace, of the perforated diaphragm located in the pan, the fire-brick covering said diaphragm, the oil-supply pipe leading into the pan, and the perforated pipe and injector whereby a current of steam and air may be injected upon the ignited fuel, substantially as and for the purposes specified.

316,891. WASH-BENCH. JOHN B. GOUNDRY and WILLIAM S. MCLEOD, Van Buren, Wayne County, assignors of one-third to Edgar B. Drury, Ypsilanti, Mich. Filed Apr. 23, 1884. (No model.)

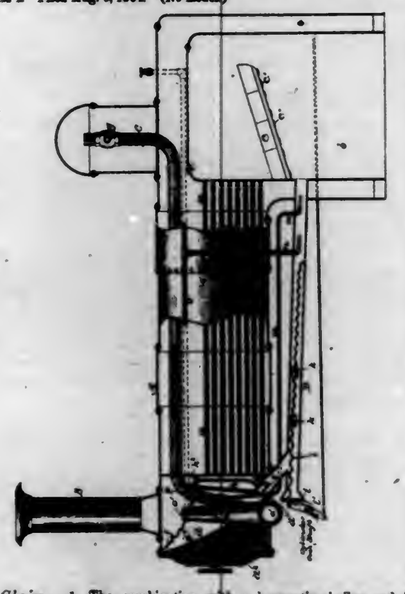
Claim.—1. The combination, with the supports or standards A and the block *g*, having pins *n*, of the pivoted wringer-stand having bottom holes and the central spring-encircled bolt or pivot-pin, substantially as described.

2. The combination, with the standards A, having cross-rods *o*, and the reversible wringer-support *i*, of the reversible drip-board *p*, having hooks *p'*, substantially as described.

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316,892. **LOCOMOTIVE SPARK ARRESTER AND CONSUMER.** G. H. GREGG, Hornellsville, N. Y., assignor to Charles F. Pike, Providence, R. I. Filed Aug. 6, 1884. (No model.)



Claim.—1. The combination, with a locomotive-boiler and its steam-pipe for conveying steam to the cylinder, of a spark-return flue connecting the smoke-arch with the fire-box, and one or more steam-jets within said return-flue, supplied with steam by way of the cylinder steam-pipe, substantially as described.

2. The combination, with a spark-return flue leading from the smoke-arch to the fire-box of a locomotive-boiler, of two steam-jets within said flue, one operating as a driver for forcing the sparks from the smoke-arch into and along the flue, and the other inducing a vacuum within the flue, between said first jet and the fire-box, substantially as described.

3. The combination, with a spark-return flue, and a steam-jet pipe within the entrance to said flue, of a water-jacket for the tip of said jet-pipe, substantially as described.

4. The combination, with a locomotive-boiler, and a spark-return flue below said boiler entering the fire-box, of a smoke-arch having funnel-shaped sides and bottom, and communicating with the return-flue by a downwardly and rearwardly inclined funnel-mouth, and the exhaust-pipe projecting upwardly through the funnel-shaped bottom of the smoke-arch, substantially as described.

5. The combination, with a locomotive-boiler, a spark-return flue below said boiler entering the fire-box, and a smoke-arch having funnel-shaped sides and bottom and communicating with the return-flue by a downwardly and rearwardly inclined funnel-mouth, of a live-steam-jet pipe located within said funnel-mouth, substantially as described.

6. The combination, with the boiler and a spark-return flue, of a smoke-arch having funnel-shaped sides and bottom, and filled in with fire-brick, substantially as described, whereby undue radiation and loss of heat from solid matters while in the smoke-arch are obviated, and enabling said heat to be utilized in the fire-box of the boiler, as set forth.

7. The combination, with the locomotive-boiler, spark-return flue, and blower-pipe, of a steam-jet pipe within the return-flue and coupled to the blower-pipe, substantially as described, whereby the return-flue can be made to properly operate, whether the locomotive is at rest or in motion, as set forth.

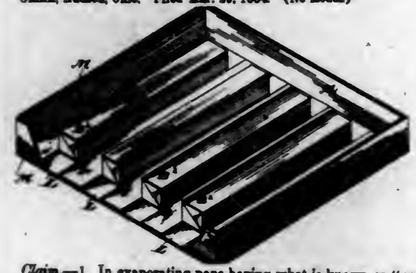
8. The combination, with a spark-return flue leading from the smoke-arch to the fire-box, and located below the main portion of the boiler of a locomotive, and provided with an open front end, of a damper or gate at its entrance, which is coupled to a rotating or rocking shaft operated by a rod from the cab of the locomotive, substantially as described, for variably admitting atmospheric oxygen to said flue, and thence to the fire-box, as set forth.

9. The combination, with a spark-return flue located below the main portion of a locomotive-boiler, of an agitating-rod within said flue, coupled to a cylinder-cock shaft, substantially as and for the purposes specified.

10. The combination, with a locomotive-boiler, of a spark-return flue leading from the smoke-arch to the fire-box above the grate, and provided with a series of openings at various points in its length, and with movable covers for said openings, substantially as described, whereby the interior of said flue may be readily inspected and clogged solid matter removed therefrom.

11. The combination of the spark-return flue, the steam-jet within said flue, supplied by steam from the cylinder steam-pipe, and provided with a check-valve which opens freely to the outward passage of steam, and closes under the influences of a vacuum within the steam-pipe, substantially as described, whereby the induction of solid abrasive matters to said steam-pipe and cylinder is prevented, as set forth.

316,893. **ART OF MAKING EVAPORATING-PANS.** GUSTAVE H. GRENN, Hudson, Ohio. Filed Mar. 29, 1884. (No model.)



Claim.—1. In evaporating-pans having what is known as "corrugated bottoms," the process or method herein described of forming ends or heads for the troughs, consisting, essentially, in slitting the ends of the metal sheet a suitable distance along the bottom edges of the troughs and folding the metal downward and inward in such a manner that transverse heads are formed without joints or soldered seams, except at the bottom of the pan, substantially as set forth.

2. In evaporating-pans having what is known as "corrugated bottoms," the process or method herein described of forming ends or heads for the troughs, consisting, essentially, in slitting the ends of the metal sheet a suitable distance along the bottom edges of the troughs and folding the metal downward and inward in such a manner that transverse heads are formed without joints or soldered seams, except at the bottom of the pan, and re-enforcing the folded heads on the inside, respectively, with metal strips or tongues integral with and held in position by horizontal sheets secured to the bottom of the pan, substantially as set forth.

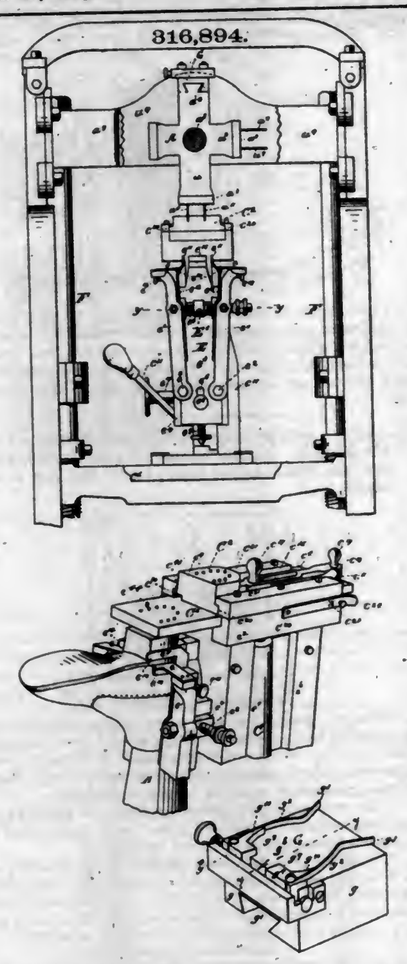
316,894. **HEEL-NAILING MACHINE.** HENRY A. HENDERSON, Lynn, assignor to F. P. Raymond, 2d, trustee, Newton, Mass. Filed Jan. 10, 1883. (No model.)

Claim.—1. In a heel-nailing machine, the revolving head having three arms which support, respectively, the awls, drivers, and spanker and top-lift holder, two of which arms are opposite or in line with each other, and the third projects at a right angle thereto, whereby the drivers and spanker and holder are adapted to be brought successively into operative position by a quarter-revolution of the head, and the spanker and holder adapted to be locked in their highest position to receive the top lift, all substantially as described.

2. The combination, in a heel-nailing machine, of the revolving head A, having arms a a^3 a^4, arranged to project therefrom, the disk a^{10}, notched as described, and the horizontal spring-bolt a^{13}, all substantially as and for the purposes set forth.

3. The combination of the spanker-block G and the top-lift grasping and gaging devices g^3 g^4, all substantially as and for the purposes described

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4. The combination of the top-lift block or spanker G with the blocks g^4, carrying the top-lift-grasping devices, and the right-and-left screw g^5, for moving the blocks to and from each other, all substantially as and for the purposes described.

5. The combination of the spanker G, the blocks g^4, having the shoulders or stops g^9, and yielding arms g^3, all substantially as and for the purposes set forth.

6. The combination of the block G and means for adjusting it laterally upon its supporting-arms a^4, and the top-lift-holding device upon the under surface of said block G, and fastened thereto, all substantially as and for the purposes described.

7. In a heel-nailing machine, the top-lift spanker having its operative surface made slightly concave, or shaped to consolidate the top lift or upper surface of the heel-blank from or near the center to the edge, in combination with a reciprocating cross-head and a jack, and adapted to be operated after the driving of the gang of attaching-nails, all substantially as and for the purposes described.

8. The combination of the post or bracket c, shaped substantially as indicated, and the tablet c^2, shaped as described, and fastened to the post, as set forth.

9. In a heel-nailing machine, the combination of the post c, having the spring-holding recess c^4, with the table c^2, having downwardly-extending portions for embracing one side and two ends of the post, the plates c^5, and the spring c^{10}, all substantially as described.

10. The combination of the table c^2, having the recess c^7, with the templet-plate c^3, having the lug or stop c^8, which enters said recess, all substantially as and for the purposes described.

11. The combination of the table c^2, having the recess c^7, with the templet-plate c^3, having the downwardly-projecting portion c^{12} and the sliding stop c^{13}, all substantially as and for the purposes described.

12. The combination of the nail-holder plate c^4, having the recess c^{16}, the nail-holder c^5, the revolving plate c^{11}, the templet-plate c^3, and the pin c^{14}, all substantially as and for the purposes described.

13. The combination of the templet-plate having the side notches, c^{20}, with the spring-arm c^{22}, having the latch or bolt c^{23}, which is adapted to enter the said notches through a hole in the side of the table, all substantially as and for the purposes described.

14. In a heel-nailing machine, the combination of a heel-support adapted to hold the boot or shoe in an inverted position, and to be moved horizontally below the downwardly-yielding side guide-plates, e, with said downwardly-yielding side guide-plates, e, all substantially as and for the purposes described.

15. In a heel-nailing machine, the centering devices for controlling the position of the boot or shoe in relation to the templet C', consisting of two independent vertically-yielding plates, e, the guiding-edges of which are adapted to enter the grooves or crease between the outsole and upper-leather of the boot or shoe, all substantially as and for the purposes described.

16. In a heel-nailing machine, the combination of a support for a boot or shoe adapted to be moved horizontally beneath the shoe-centering devices, the said shoe-centering devices consisting of the yielding side guides, e, and the upper-leather or counter guides e^{20}, attached to the under surface of said side guides, all substantially as and for the purposes described.

17. In a heel-nailing machine, the combination of a support for the heel of a boot or shoe, the yielding side guides, e, and means for adjusting them laterally independent of each other and in relation to the heel-support, all substantially as and for the purposes described.

18. In a heel-nailing machine, the combination of the side guides or guide-plates, e, the supporting-arms e', pivoted at e^9, and the right-and-left screw e^8, all substantially as and for the purposes described.

19. In a heel-nailing machine, as a means for locating the heel-blank, the plates or guides e^{21}, arranged in relation to each other and adapted to locate the heel-blank upon the sole of a boot or shoe by contact with its edge or sides, all substantially as and for the purposes described.

20. In a heel-nailing machine, the combination of the heel-blank guides e^{21} and their supports, and means for moving them horizontally to and from each other, all substantially as and for the purposes described.

21. The combination, in a heel-nailing machine, of the heel-blank guides e^{21}, their supports e', and adjusting-screws e^{19}, whereby the guides may be independently adjusted horizontally in relation to each other, all substantially as and for the purposes described.

22. In a heel-nailing machine, the combination of a boot or shoe centering device, e, the heel-blank guides e^{21}, their supports e', and the right-and-left screw e^8, for horizontally adjusting the centering device and heel-blank guides simultaneously, all substantially as and for the purposes described.

23. The heel-blank guides e^{21}, having the long spring-arms e^{22}, fastened to suitable supports, all substantially as and for the purposes described.

24. In a heel-nailing machine, the combination of the side guides or guide-plates, e, with the independent adjustable back stop, e^{15}, all substantially as and for the purposes described.

25. In a heel-nailing machine, the combination of a support for the heel of the boot or shoe, the side guides or guide-plates, e, back stop, e^{15}, and heel-blank guides e^{21}, all substantially as and for the purposes described.

26. In a heel-nailing machine, the combination of a support or jack for a heel of a boot or shoe adapted to have a horizontal movement imparted to it below the vertically-yielding side guides and the said vertically-yielding side guides, and means, substantially as described, for moving them vertically relatively to said support or jack for the purpose of adjustment, all substantially as and for the purposes described.

27. In a heel-nailing machine, the combination of a support for the heel of a boot or shoe, the heel-blank guides e^{21}, and means, substantially as described, for moving them vertically in relation to said heel-support for the purposes of adjustment, all substantially as and for the purposes described.

28. In a heel-nailing machine, the combination of a jack or support for a boot or shoe, adapted to be moved horizontally to and from a back stop, e^{15}, with the means described for moving said stop vertically in relation to the said jack or heel-support, all substantially as and for the purposes described.

29. The combination of a support for the heel of a boot or shoe, the heel-blank guides e^{21}, and means for adjusting them horizontally lengthwise the heel-support or last, all substantially as and for the purposes described.

30. The combination of a support for the heel of a boot or shoe, the side guides, e, the heel-blank guides e^{21}, the back stop, e^{15}, and means, substantially as described, for adjusting them horizontally lengthwise the heel-support or last to and from the post c, all substantially as and for the purposes described.

31. The combination of the plate c^4, supporting the independent side guides, c, the heel-blank guides c^{11}, and the back stop, c^{12}, with the adjusting-screw c^{17}, and the locking-screw c^3, all substantially as and for the purposes described.

32. In a heel-nailing machine, the combination of the plate c^4, supporting the boot or shoe and heel-blank-centering devices, with the carriage c^4, screw c^{18}, and locking-nut c^{19}, all substantially as and for the purposes described.

33. In a heel-nailing machine, the combination of the post c with the side guides, c, and connecting mechanism, substantially as described, whereby the guides are moved vertically and horizontally in relation to the post, all substantially as and for the purposes described.

34. The combination of the post c, the heel-blank guides c^{11}, and connecting mechanism, substantially as specified, whereby the guides are moved vertically and horizontally in relation to the post, all substantially as and for the purposes described.

35. In a heel-nailing machine, the combination of the post c, the back stop, c^{12}, and means, substantially as specified, for adjusting the back stop vertically and horizontally in relation to the post, all substantially as and for the purposes described.

36. In a heel-nailing machine, the combination of the templet C', the downwardly-yielding side guides, c, and respective means, substantially as described, for adjusting the said guides horizontally in a lateral or longitudinal direction, or vertically beneath the templet, all substantially as and for the purposes described.

37. In a heel-nailing machine, the combination of the vertically-yielding side guides, c, and the templet C', adapted to have a vertical movement imparted to it, all substantially as and for the purposes described.

38. The combination of the templet C', the yielding heel-blank guides c^{11}, and the respective means, substantially as described, for moving them horizontally in a lateral direction, or lengthwise the templet, or for moving them vertically in relation thereto and beneath it, all substantially as and for the purposes described.

39. In an organized heel-nailing machine, the combination of a support for the boot or shoe, the yielding side guides, c, the vertically-movable templet C', and a gang or group of awls or a gang or group of drivers, and means for reciprocating said gang, all substantially as and for the purposes described.

40. In an organized heel-nailing machine, the combination of a support for the boot or shoe, the yielding side guides, c, the vertically-movable templet C', and the nail-holder C^9, and the gang or group of drivers adapted to be vertically reciprocated in relation to the templet, all substantially as and for the purposes described.

41. The combination of a support for the heel of a boot or shoe, the yielding side guides, c, the heel-blank guides c^{11}, the templet C', adapted to be moved vertically, and a nail-holder, C^9, having a horizontal movement upon the templet-plate, with a gang or group of drivers and means for vertically moving them in relation to the heel-support, all substantially as and for the purposes described.

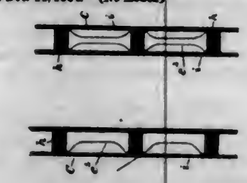
42. The combination of a support for the heel of a boot or shoe, the downwardly-yielding side guides, c, and the top-lift spanker, adapted to be reciprocated in relation to the heel-support, all substantially as and for the purposes described.

43. The combination of a support for the heel of a boot or shoe, the side guides, c, the downwardly-yielding heel-blank guides c^{11}, and the top-lift spanker and means for vertically reciprocating it in relation to the heel-support, all substantially as and for the purposes described.

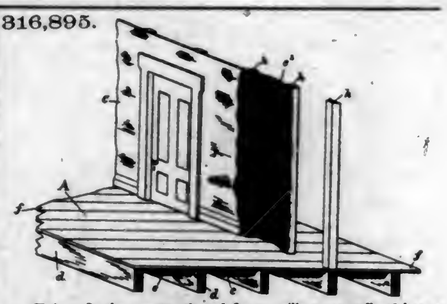
44. In a heel-nailing machine, the combination of a support for the heel of a boot or shoe, the templet C', the gang or drivers and a concave heel-spanker, G, and means for reciprocating the said drivers and spanker successively, whereby a gang of nails is first driven through the heel-blank, and the blank then shaped upon its upper surface by the spanker, as described, all substantially as and for the purposes set forth.

45. In a heel-nailing machine, the combination of a support for the heel of a boot or shoe, the vertically-movable templet adapted to be forced upon the heel-blank to compress it, means for locking it at or near its lowest position, and the side guides, c, between the templet and heel-support when they are in operative position, all substantially as and for the purposes described.

316,895. CONSTRUCTION OF HOUSES. ALVA HUBBARD, Baltimore, Md. Filed Dec. 11, 1884. (No model.)

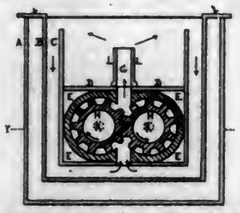


316,895.



Claim.—In the construction of floors, ceilings, or walls of houses, the combination of the joists or studs, a woven-wire flame-barrier against the joists or studs, and arranged in the spaces between them, substantially as described, and the usual boards or plastering concealing the said woven wire, but not in contact therewith, as and for the purpose set forth.

316,896. DEVICE FOR STIRRING MELTED GELATINE FOR MAKING CAPSULES. FREDERICK A. HUBEL and FRANK REINHOLD, Detroit, Mich.; said Reinhold assignor to said Hubel. Filed July 18, 1884. (Model.)

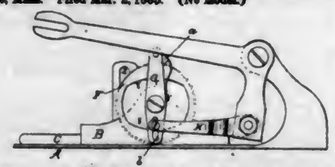


Claim.—1. A device for stirring melted gelatine during the operation of molding gelatine capsules, consisting of a dish for containing the melted gelatine and having a perforation through its bottom, an inclosing dish, and a pump for causing a current of gelatine to circulate through said dishes, substantially as and for the purposes described.

2. The combination of the dish B with the dish C, having a perforated bottom and perforated partition D, carrying the hinged guides L L and pump E, substantially as shown and described.

3. A stirring device for molding gelatine capsules, consisting of a dish for holding melted gelatine, having an opening in the bottom thereof connected with a source of supply higher than said dish or under pressure, and a forcing mechanism whereby a continuous current of gelatine is caused to flow through said dish, substantially as described.

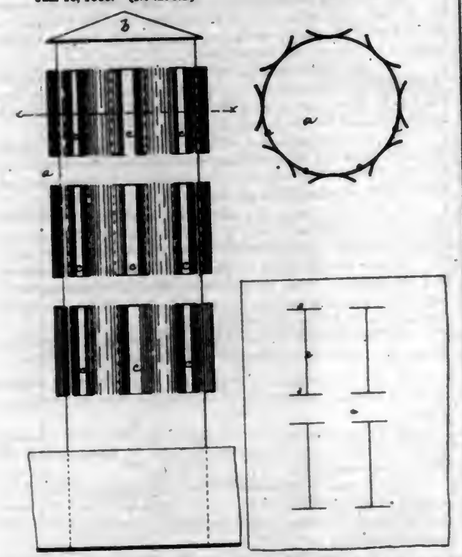
316,897. MECHANICAL MOVEMENT. THOMAS S. HUNTINGTON, New York, N. Y., assignor to the New Home Sewing Machine Company, Orange, Mass. Filed Mar. 2, 1885. (No model.)



Claim.—1. A slide-bar, a crank-pin to engage and rotate it, an intermittingly-rotating arm or disk provided with a crank-pin to effect the step-by-step movements of the said bar, a shaft, a ratchet-wheel, a pawl to engage the ratchet, a pawl-carrier to move the pawl, and the cam-surfaces 8, and equalizing device moved thereby, combined with the arm H, controlled as to its position by the equalizing device, whereby the said arm actuates the pawl-carrier at different distances from its center of oscillation, thus causing its stroke to be varied with relation to and to overcome the lost movement due to the crank-pin when passing or near its dead-centers, thus causing a movement of the bar for equal distances at each stroke and in all positions of the crank-pin, substantially as described.

2. The wheel F, provided with the cam-surface 8 and the arm b^3, having their centers of movement coincident, and the equalizing device moved by the said cam-surface, combined with the reciprocating arm H, supported by the equalizing device, the latter being moved by the cam and causing the said arm H to actuate the arm b^3 at different distances from its center, thus moving the same for a greater or less distance, according to the position of the said cam-surface, substantially as described.

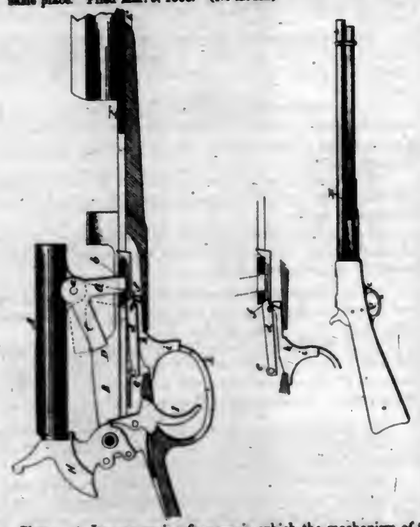
316,898. CHIMNEY CAP OR VENTILATOR. MOSES W. KIDDER, Lincoln, assignor of one-half to John S. Rice, Cambridge, Mass. Filed Jan. 10, 1885. (No model.)



Claim.—1. A chimney cap or ventilator composed of a sheet-metal tube having orifices c, each formed by cutting a longitudinal slit and two transverse slits, said orifices being arranged in two or more series separated by uncut portions of the tube, as set forth.

2. A chimney cap or ventilator composed of a tube having two or more series of orifices, c c, and an intervening strengthening-band between said series, extending continuously around the tube, as set forth.

316,899. MAGAZINE FIRE-ARM. FRANKLIN F. KNOUR, Hartford, Conn., assignor to Colts Patent Fire Arms Manufacturing Company, same place. Filed Mar. 9, 1885. (No model.)

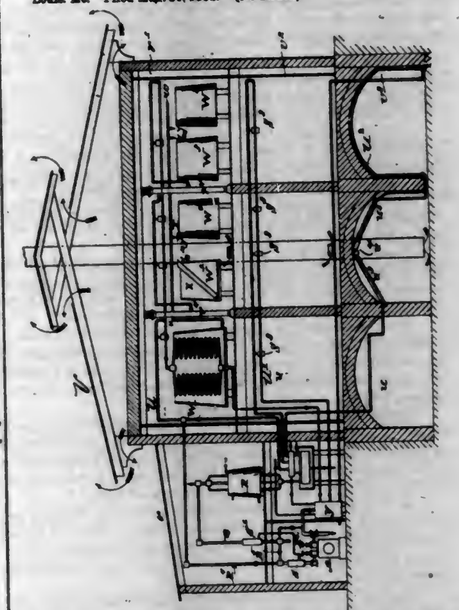


Claim.—1. In a magazine fire-arm in which the mechanism of the arm is operated by a handle arranged to move longitudinally beneath the barrel, the combination therewith of a locking-dog, d, hung in the receiver, a slide adapted to work beneath the dog and constructed with an arm extending outside the receiver, the said dog and slide constructed with corrresponding inclined or cam-like shoulders, substantially as described, and whereby under the movement of said slide in one direction said dog is thrown into a position to lock said handle in its closed position, or moved in the opposite direction will unlock said handle.

2. In a magazine fire-arm in which the mechanism of the arm is operated by a handle arranged to move longitudinally beneath the barrel, the combination therewith of a locking-dog, d, hung in the receiver, a slide adapted to work beneath the dog and constructed with an arm extending down into the trigger-guard, the said slide and dog constructed with corresponding inclined or cam shoulders, substantially as described, and whereby under the movement of said slide in one direction said dog is thrown into a position to lock said handle in its closed position, or moved in the opposite direction will unlock said handle.

3. In a fire-arm, the combination of the longitudinally-reciprocating breech-piece, a locking-brace hinged to said breech-piece and extending rearward, a locking-shoulder on the receiver, against which said brace will abut in the closed position of the breech-piece, a locking-dog in the receiver adapted to engage the operative mechanism of the arm when in its closed position, and an arm extending outside the receiver, said arm substantially in connection with said dog, and whereby said dog may be thrown into its locked or unlocked position, substantially as and for the purpose described.

316,900. REFRIGERATING APPARATUS. THEODORE KRAUSCH, St. Louis, Mo. Filed Aug. 26, 1882. (No model.)



Claim.—1. The combination, in a refrigerating apparatus, of the steam-cylinder B, the compressor C, the plates D D, inclosing the chambers E and F, and a non-conductor-of-heat packing about said cylinder B, substantially as and for the purposes set forth.

2. The combination, in a refrigerating apparatus, of a case formed by plates D D, the compressor C, inclosed in said case and surrounded by a cooling medium, and the steam-cylinder B, supported by said plates D in the same axial line with said compressor C, substantially as and for the purposes set forth.

3. The combination, in a refrigerating apparatus, of the deep case or trough formed by plates D D and d, the compressor C, and the suction and force valves inclosed in said case or trough and surrounded by a cooling medium, substantially as and for the purposes set forth.

4. The combination, in a refrigerating apparatus, of the supporting-frame formed by plates D D, provided with bearings g g, the compressor C, inclosed in a chamber, E, formed by said plates D and the bottom plate, d, and the steam-cylinder B, mounted upon or in said frame, substantially as and for the purposes set forth.

5. The combination, in a refrigerating apparatus, of the compressor C, having the cylinder J, the inlet and outlet n o, connected therewith, and the supply and delivery feed-valves N O, arranged side by side, substantially as and for the purposes set forth.

6. In a refrigerating apparatus, the combination of the cylinder J, the pipes j' j^2, communicating with the ends of said cylinder, and connected, respectively, with the inlet n and the outlet o, and the automatic externally-adjustable suction and force valves L L and M M, substantially as and for the purposes set forth.

7. In a refrigerating apparatus, the combination of the cylinder J, the inlet and outlet n o, each connected by branch pipes j' j^2 with opposite ends of said cylinder, a pair of suction and force valves, L M,

arranged side by side at each end of said cylinder, and the supply and delivery feed-valves N O, arranged side by side in like manner, substantially as and for the purposes set forth.

8. The combination, in a refrigerating apparatus, of the cylinder J, provided with pipes or passages j' j^2, which communicate with each end of said cylinder through ports j, an automatic suction-valve, l, located at each end of said pipe j', and side by side with an automatic force-valve, m, located at each end of said pipe j^2, substantially as and for the purposes set forth.

9. The combination, in a refrigerating apparatus, of the cylinder J, provided with a socket, a cage formed by the removable inverted cup l^3 and seat l', fitting said socket, the valve-stem l^3 and spring l^4, inclosed in said cage, and the valve l, all removable with said cage, substantially as and for the purposes set forth.

10. The combination, in a refrigerating apparatus, of the cylinder J, provided with a socket for the reception of a cage formed by the removable inverted cup m^2 and the seat m', the valve m, stem m^3, and spring m^4, all inclosed in said cage and removable therewith, substantially as and for the purposes set forth.

11. The combination, in a refrigerating apparatus, of cylinder J, an adjustable suction-valve, l, and force-valve m, cages composed of the removable inverted cups l^3 m^2 and valve-seats l' m', inserted into sockets formed side by side in said cylinder, and communicating, respectively, with the induction and eduction pipes, cap-plates j^3, provided with stuffing-boxes l^{10} m^9, and the adjusting-stems l^9 m^5, extending through and above said stuffing-boxes, substantially as and for the purposes set forth.

12. The combination, in a refrigerating apparatus, of the valve l, provided with stem l^3, the seat l', the spring l^4, the threaded tube l^5, inclosing said spring about said stem l^3, and the adjusting-stem l^9, engaging with said tube, substantially as and for the purposes set forth.

13. The combination, in a refrigerating apparatus, of the valve l, the seat l', and a grating, m^{11}, inserted in the passage below said valve-seat, substantially as and for the purposes set forth.

14. The combination, in a refrigerating apparatus, of the valve m, provided with stem m^3, the seat m', the threaded tube m^4, the spring m^5, surrounding said tube, and the adjusting-stem m^6, engaging with said threaded tube, substantially as and for the purposes set forth.

15. In a refrigerating apparatus, the combination of the valve m, provided with stem m^3, the seat m', the spring m^5, the adjusting threaded tube m^4, the spring m^5 surrounding said tube, and the tube m^{12}, inclosing said spring and telescoping with tube m^4, substantially as and for the purposes set forth.

16. The combination, in a refrigerating apparatus, of the compressor-cylinder J, having the longitudinally-extended ports j j and the elongated piston K, whereby the suction and force valves are brought close together, and the space between said ports and valves is reduced to the minimum, substantially as and for the purposes set forth.

17. In a refrigerating apparatus, the compressor C, having a cylinder, J, and a piston therein composed of disks k k', sleeve k^2, divided expansible packing-rings k^3 k^3, breaking joints with each other, and continuous guide-rings k^4 k^4, arranged alternately with said packing-rings, substantially as and for the purposes set forth.

18. In a refrigerating apparatus, the compressor C, having a cylinder, J, an elongated piston, K, composed of the disks k k', the sleeve k^2, the divided expansible packing-rings k^3 k^3, breaking joints with each other, and wedges k^5, actuated by springs k^6, substantially as and for the purpose set forth.

19. The combination, in a refrigerating apparatus, of the compressor C, stuffing-box c, oil-chamber I', mounted thereon, communicating therewith, and permanently closed from without, and the pump I, connected with said chamber for forcing oil into the same, substantially as and for the purposes set forth.

20. The combination, in a refrigerating apparatus, of the compressor C, the stuffing-box c, the oil-chamber I', mounted thereon, communicating therewith, and permanently closed from without, an oil-reservoir, d^6, and a force-pump, I, connected with said reservoir d^6 and chamber I', substantially as and for the purposes set forth.

21. The combination, in a refrigerating apparatus, of the compressor C, the stuffing-box c, the sleeve c^3, having passages c^3 c^4, and the force-pump I, connected with said stuffing-box and communicating with the passages in said sleeve, substantially as and for the purposes set forth.

22. The combination, in a refrigerating apparatus, of the compressor C, the stuffing-box c, the chamber I', mounted thereon, communicating therewith, and permanently closed from without, and pipe I^4, connecting said chamber I' with the suction side of said compressor, substantially as and for the purposes set forth.

23. The combination, in a refrigerating apparatus, of the compressor C, the stuffing-box c, the chamber I', mounted thereon, communicating therewith, and permanently closed from without, gage I^2, applied to chamber I', pipe I^4, connecting said chamber with the suction side of the compressor, cock I^3, and pump I, for forcing oil into said chamber I', substantially as and for the purposes set forth.

24. In a refrigerating apparatus, the combination of the double-acting compressor C, the inlet n, the outlet o, the pipe p, connecting said inlet and outlet, and provided with a valve, p^2, substantially as and for the purposes set forth.

25. In a refrigerating apparatus, the combination of the compressor C, the inlet n, the outlet o, the passage p, connecting said inlet and outlet, and provided with the transparent tube p^3 and the valve p^2, substantially as and for the purposes set forth.

26. In a refrigerating apparatus, the combination of the compressor C, having branch connections n o, for the induction and eduction pipes, and the pressure-gages n^4 o^4, applied to said branch connections, substantially as and for the purposes set forth.

27. The combination, in a refrigeration apparatus, of the cylinder J, the induction and eduction passages n o, the feed-valve O, automatic valve or valves m, and the vent o^3, located between said feed and automatic valves, substantially as and for the purposes set forth.

28. The combination, in a refrigerating apparatus, of the accumulator y, the detachable receiver y', and the pipe-connections provided with cocks, substantially as and for the purposes set forth.

29. The combination, in a refrigerating apparatus, of the compressors, the condenser R, the pipe Q, leading from said compressor to the coils of the condenser, and the air-cock G^{10}, applied to the pipe Q, substantially as and for the purposes set forth.

30. The combination, in a refrigerating apparatus, of the condenser R and the chamber S^9, substantially as and for the purposes set forth.

31. The combination, in a refrigerating apparatus, of the receiver T and an auxiliary chamber, T', substantially as and for the purposes set forth.

32. The combination, in a refrigerating apparatus, of the condenser R, the receiver T, and the auxiliary chamber T', substantially as and for the purposes set forth.

33. The combination, in a refrigerating apparatus, of a coil, u^2, one or more settling-chambers, S^2 S^2, applied thereto, and means for removing the impurities collected in said chambers, substantially as and for the purposes set forth.

34. The combination, in a refrigerating apparatus, of the distributing-pipe w, the tanks W' W^2, &c., and the vessels X X, substantially as and for the purposes set forth.

35. The combination, in a refrigerating apparatus, of a tank or vat, W', and a portable water-vessel, X, substantially as and for the purposes set forth.

36. The combination, in a refrigerating apparatus, of the compressor and the hollow post or posts v^4 v^4, connected therewith, substantially as and for the purposes set forth.

37. In a refrigerating apparatus, the combination of a cooling-coil with hinged supports, whereby the parts u^3 u^3 of said coil are adapted to arched or curved ceilings, &c., substantially as and for the purposes set forth.

38. In a refrigerating apparatus, a cluster-column, v^4, the various parts v^4 v^4 of which are hollow, in combination with the circulatory system of a cooling medium, substantially as and for the purposes set forth.

39. In a refrigerating apparatus, a building provided with hollow supporting posts or columns, combined with a circulating system, whereby a cooling agent is driven through said posts, substantially as and for the purposes set forth.

40. In a refrigerating apparatus, the cross M^4, having the chamber M^6, and the valve-seats M^7, and the ball-valve M^8, substantially as and for the purposes set forth.

41. In a refrigerating apparatus, the combination of the pipes O^4 O^4, the thimble O^5, the glands O^6 O^6, and the ball-valve O^8, substantially as and for the purposes set forth.

42. In a refrigerating apparatus, the combination of the pipe H^{10} and the accumulator Y, the said pipe extending into the accumulator, substantially as and for the purposes set forth.

43. In a refrigerating apparatus, the combination of the receiver T, the tank T^2, containing said receiver T, and the pipe I^{10}, passing through said tank T^2, and communicating with any convenient part of the circulating pipes or chambers, substantially as and for the purposes set forth.

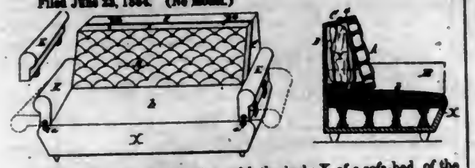
44. The combination, in a refrigerating apparatus, of the compressor A, the condenser R, the pipes Q and R^4, and the valves R^2 R^2, substantially as and for the purposes set forth.

45. The combination, in a refrigerating apparatus, of the compressor A, the eduction-pipe Q, one or more settling-chambers, 8 8', applied to said pipe Q, and means for removing the impurities collected by said chambers, substantially as and for the purposes set forth.

46. In a refrigerating apparatus, the combination of the compressor A, the eduction-pipe Q, one or more settling-chambers, 8 8', in communication therewith, and a drainage pipe or pipes, s s', leading from said chambers, substantially as and for the purposes set forth.

47. The combination, in a refrigerating apparatus, of the compressor, the receiver T, set in a cooling-tank, T^2, and communicating directly with said compressor, and the auxiliary receiver T', connected with said receiver T and with cooling pipes or coils, substantially as and for the purposes set forth.

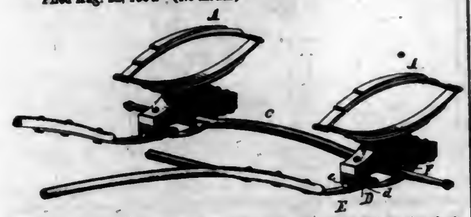
316,901. **BED-SOFA.** BELA KRENTZ, Buda-Pesth, Austria-Hungary. Filed June 23, 1884. (No model.)



Claim.—1. The combination, with the body X of a sofa-bed, of the hinged mattress A, arranged as shown, the bedding-receptacle, constructed substantially as shown, and the mattress A', all arranged substantially as set forth.

2. The combination, with the body X of a sofa-bed, of the removable arms E, the bedding-receptacle constructed and arranged as shown, and the hinged mattress A, arranged, as shown, to form the front of the bedding-receptacle, the back of the sofa, and the bed, substantially as set forth.

316,902. **ROAD-CART.** ERNST E. KREMPEL, Buena Vista, Oreg. Filed Aug. 22, 1884. (No model.)



Claim.—1. In combination with a two-wheeled vehicle, the shaft-irons E E, provided with eyes e e', clips d, and springs F, attached to the blocks B, substantially as shown, and for the purpose set forth.

2. In a two-wheeled vehicle, the thill-irons pivoted to a body-block and provided with rearwardly-extending portions, in combination with a forwardly-projecting spring attached to the end of the thill-iron and body-block, substantially as shown.

3. In a two-wheeled vehicle, the blocks B B, having the body-supporting spring and axle attached thereto, and a forwardly-projecting spring attached to the end of the thill-iron, said thill-iron being pivoted to a clip located at the front end of the blocks, as and for the purpose set forth.

316,903. **TRUSS.** ANDREW J. LYTLE, Hillsborough, Ohio. Filed Aug. 3, 1883. (No model.)



Claim.—1. The supplemental pad E, provided with wings W and ridge R, in combination with a pad directly supporting the anus and its intestine.

2. The combination of the supplemental pad E, provided with wings W and ridge R, and the bulb or pad A, adapted to enter the anus, said pad being provided with an interior spring, B, and connected to an appropriate support for retaining it in position, the spring B allowing a slight vibratory movement to be imparted to the pad, under the impulse of the movements of the body of the wearer, substantially as and for the purposes specified.

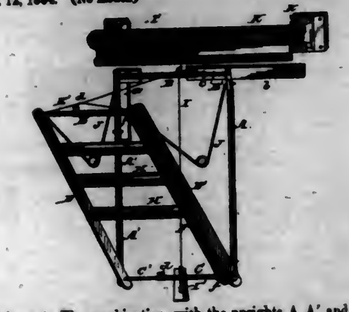
316,904. **BRICK-KILN.** SETH B. MOE, Chattanooga, Tenn., assignor to the American Brick Kiln Company, same place. Filed Aug. 23, 1884. (No model.)



Claim.—1. In a brick-kiln of the class described, a compression-plate having a flange or flanges extending into a recess in the casing, combined with a suitable moving plunger, whereby the plate may swing and slide, substantially as described.

2. A cast-iron plate, C, combined with the re-enforcements, strap B, extending across the face of the plate, the upper ends of the strap being bent to form a flange, substantially as described.

316,905. **MAP-RACK.** FRANK P. MONTGOMERY, San José, Cal. Filed Mar. 12, 1884. (No model.)

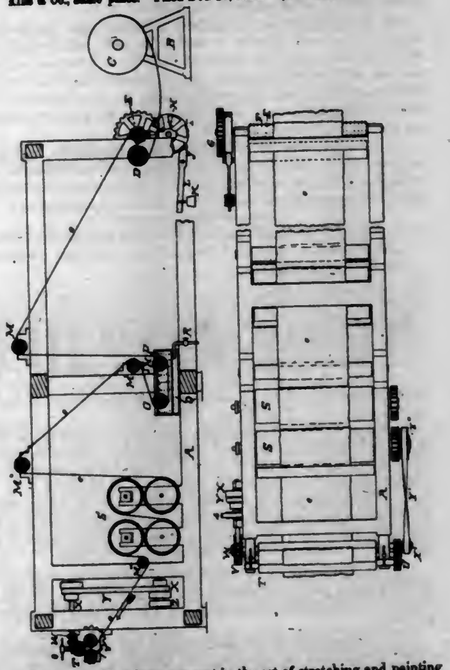


Claim.—1. The combination, with the uprights A A' and D D', of the adjustable cross-pieces or connections B B', C C', and E E', each cross-piece consisting of a tubular rod and a solid rod adapted to slide within the tubular rod, as set forth.

2. The combination, with the uprights A A' D D' and adjustable connections B B', C C', and E E', of the springs J J, operating-cord I, and weight I', by means of which the map may be automatically opened or closed, as set forth.

3. The combination of the uprights A A' and D D', adjustable connections B B', C C', and E E', constructed as described, sliding pieces F, moving adjustably upon the tubular rods C and E, springs J J, operating-cord I, and weight I', all constructed and arranged to operate substantially in the manner and for the purpose shown and described.

316,906. **MANUFACTURE OF MACHINE-BELTING.** ROBERT H. MULLEN and HARRY T. ATKINS, Cincinnati, Ohio, assignors to Pearce, Atkins & Co., same place. Filed Dec. 19, 1884. (No model.)

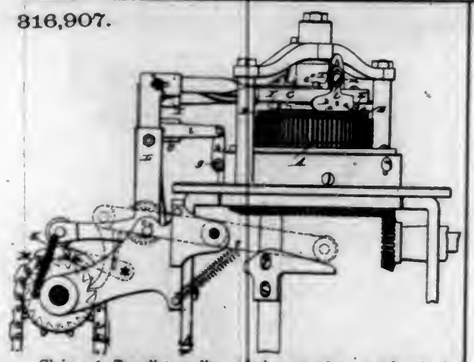


Claim.—1. That improvement in the art of stretching and painting canvas belting which consists in drawing the belt forward under tension and applying a coat of paint and drying the same while the belt is under continuous movement.

2. That improvement in the art of stretching and coating canvas belting which consists in drawing the belt forward under tension, passing the same through a solution of paint, removing the surplus paint and subjecting the coated portion to the action of a heated surface or surfaces while it is continuously moving.

316,907. **KNITTING-MACHINE.** GEORGE E. NYE, Bristol, Pa. Filed Jan. 23, 1884. (No model.)

316,907.



Claim.—1. The dial-needles and the retracting-cam therefor, in combination with the push-out cam to project said needles, the rotary plate b^2, the link connecting said cam and plate, the actuating-lever, the link connecting the lever and plate, the spring to move the lever in one direction, the pattern-chain to move the lever in the opposite direction, and devices, substantially as shown, to actuate the chain, whereby the needles are automatically projected at intervals beyond the normal limit to assist in the formation of a welt, substantially as described.

2. In combination with the revolving dial and its needles, the cams acting to retract said needles, the central adjustable push-out cams, *c c*, to project the needles, the rotary plate connected with and controlling said cams, the actuating-lever L, the link connecting the lever with the plate, the pattern-chain actuating the lever, and the means for actuating the chain.

3. The two pivoted needle-projecting cams *c c*, in combination with the fixed cams c''' c''', the intermediate rotary plate, b''', and the connecting-links a'', substantially as described.

4. The combination, substantially as hereinbefore described and shown, of the needle-cylinder, its needles, the vertically-adjustable cam to depress the needles, the rock-shaft provided with the arm engaging said cam and also with the second arm, the lever O, the link connecting the last-named arm with the lever, the spring to move the lever in one direction, the pattern-chain to move the same in the opposite direction, and the means to actuate said chain.

5. In combination with the frame, the bracket-plate *n*, having the horizontal slotted base, the screw uniting the same with the frame, the guide-plate *k*, shaped and slotted vertically, as described, and the screw uniting the same with the bracket-plate, substantially as described.

316,908. HARMONIC ATTACHMENT FOR KEY-BOARD MUSICAL INSTRUMENTS. EDWARD F. O'NEIL, Storm Lake, Iowa. Filed June 26, 1884. (No model.)



Claim.—1. As an attachment for key-board instruments, a series of frames consisting of cross-bars and end bars or arms, and made of different sizes, whereby they may be fitted one within the other, and fingers supported on the cross-bars, substantially as set forth.

2. The combination, in a musical instrument, with the key-board, of a frame having one end pivotally supported at the inner edge of the key-board, and provided at its other or outer edge with a finger or fingers whereby to engage the keys, substantially as set forth.

3. An attachment for key-board musical instruments, comprising a pivot-bar and a plurality of frames pivotally connected at one end to the said bar and provided at the other end with fingers, substantially as set forth.

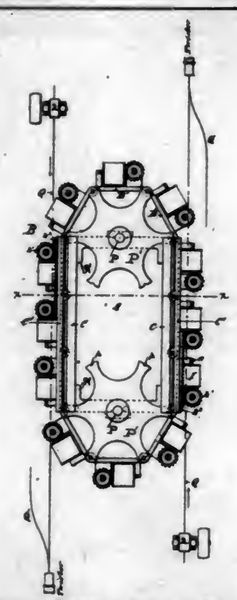
4. An attachment for key-board musical instruments, consisting of a main or supporting bar, a supplemental bar held to and movable along the supporting-bar, and a frame or frames pivoted to the supplemental bar, substantially as set forth.

5. The combination, with the key-board, of the supporting-bar provided at its opposite ends with depending blocks or portions B', the lugs *b*, and the lugs *b'*, the pivot-bar secured to the supporting-bar, and the frames pivoted to the pivot-bar, substantially as set forth.

316,909. WIRE-BARBING MACHINE. AMASA C. PAUL, Minneapolis, Minn. Filed Aug. 16, 1884. (No model.)

Brief.—Two main wires are fed into the machine from opposite directions, and barbs are applied to both simultaneously.

316,909.



Claim.—1. In a wire-barbing machine, an endless sectional carrier, each section provided with means for feeding a barb-wire, means for coiling its free end about a main wire, and means for severing the completed barb, in combination with means for supporting and moving the carrier, and means for operating the barb feeding, coiling, and cutting devices, all substantially as described.

2. In a wire-barbing machine, means for supporting and feeding continuously one or more main wires, an endless sectional carrier, and means for supporting and moving it continuously, each section of the carrier being provided with means for supporting a reel of barb-wire, means for feeding the barb-wire, means for coiling the free end of the barb-wire around the main wire, and means for severing the completed barb, all combined and operating substantially as described.

3. In a wire-barbing machine, the combination of the endless sectional carrier, each section provided with means for feeding, coiling, and cutting the barbs, with means supported on the frame of the machine for operating the feeding, coiling, and cutting devices, substantially as described.

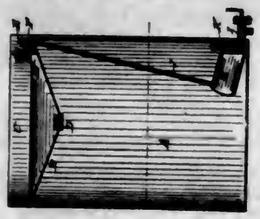
4. The combination, with means for moving two main wires continuously in opposite directions, of the jointed endless carrier, each section provided with barb forming and applying devices, as described, and the shafts and sprocket-wheels for moving the carrier, whereby the two main wires may be simultaneously barbed, substantially as described.

5. The combination, with the jointed carrier B, provided with the barb-applying devices, of the guide-rails C C', the rack-bars h^3 f^3, the track-bar N, and the shafts P P and sprocket-wheels P' P', all substantially as described.

6. In a wire-barbing machine, the section B', having the slotted bearing D and the longitudinally-slotted coiling-spindle E, the slotted gear d^3, the gear f', the shaft F, and gear f^3, all substantially as described.

7. In a wire-barbing machine, the jointed carrier B, each section provided with the slotted bearing D, the longitudinally-slotted coiling-spindle E, the feed-rolls *a' a'*, and the cutters *m n*, all arranged and operating substantially as described, and for the purpose set forth.

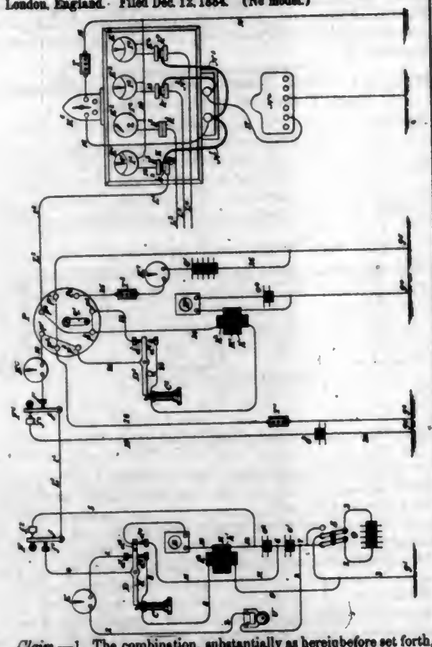
316,910. AUTOMATIC MEASURING DEVICE FOR LIQUIDS. JEAN PRAX, Montreal, Quebec, Canada. Filed Oct. 20, 1884. (No model.) Patented in Canada Aug. 2, 1884, No. 19,940.



Claim.—1. The combination, in a measuring-vessel, of a tank, A, a measure, H, inclosed within the same, a tube, *n*, extending from the measure through the side of the tank, a hollow plug, *a*, within such tube, a stand-pipe, K, between the measure and the wall of the tank and opposite the inlet-port of the faucet, and a discharge-opening in the tube *n*, opposite the outlet-port of the faucet, all substantially as described.

2. The combination of the tank A, the measuring-vessel H, the air-inlet pipe J, the sleeve *n*, the spigot I, and the tube K, all substantially as described.

316,911. TELEPHONE-EXCHANGE SYSTEM. WILLIAM H. PREECE, London, England. Filed Dec. 12, 1884. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, of a telephone central office, a series of subscriber-lines radiating therefrom, a battery applied to each of said subscriber-lines, from which a current is normally transmitted to the corresponding line, an indicator included in the circuit of each of said lines, and means located at the central office for automatically interrupting such current when the transmitting-telephone is in use.

2. The combination, substantially as hereinbefore set forth, of a central station, a series of telephone-lines, a battery applied to each line, a galvanometer or other indicator included in the circuit of each line at the central station, means for connecting any two of said lines with each other, an earth-connection which is completed at the central station when such lines are so connected, and an indicator in said earth-connection.

3. The combination, substantially as hereinbefore set forth, of a telephone central station, a series of telephone-lines radiating therefrom, means for causing an electric current to traverse each of said lines when they are at rest, an indicator in each of said lines which is effected by such current, means for interrupting the current traversing any of such lines and thereby actuating the corresponding indicator, means for connecting any two of said lines with each other, and means for establishing an earth-connection for both of said lines at or near the point where they are so connected.

4. The combination, substantially as hereinbefore set forth, of a telephone central office, a series of lines radiating therefrom, a galvanometer included in the circuit of each of said lines, a battery applied to each of said lines, means for interrupting the connections of said battery, an earth-conductor at the central station, an indicating-galvanometer included in said earth-conductor, means for connecting any one of said lines with any other and simultaneously placing both lines in connection with the earth through said earth-conductor, and the indicating-conductor included therein.

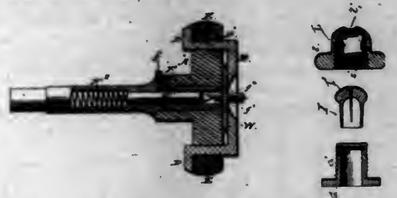
5. The combination, substantially as hereinbefore set forth, with a telephone central office, of a subscriber-line, a battery for normally transmitting a current upon said line, and an indicating device included in said line, which device consists of a galvanometer, an electro-magnet, and an annunciator-lid, said lid being cut away through its upper portion to disclose the galvanometer-needle.

6. The combination, substantially as hereinbefore set forth, of a telephone main line, a battery for transmitting an electric current upon the same, a device serving to indicate the presence of such current, means for automatically interrupting the current when the line is in use, and means for reversing the connections of said battery with reference to the line at will.

7. The combination, substantially as hereinbefore set forth, with a telephone central office, a subscriber's station, and an intermediate office, of a subscriber-line leading from the subscriber's station to the intermediate office, a line leading from the intermediate to the central office, an indicating device included in the circuit of the line leading from the subscriber's station, an indicating device included in the circuit of the line leading from the intermediate station, both of which indicating devices are located at the intermediate office, a telephone transmitter and receiver located at the subscriber's station, like instruments at the intermediate office, means for transmitting a current upon the subscriber-line when the first-named instruments are at rest, means for interrupting said current when the instruments are in use, and a circuit-changing device at the central station, whereby the connections of the subscriber-lines may be completed with the exchange-line either directly or through the telephonic instruments located at the intermediate office while the earth-connections of said lines are interrupted at the intermediate office.

8. The combination, substantially as hereinbefore set forth, of the line L', consisting of the sections l' and l^2, the conductors 24 and 25, the indicating devices E^2 and E', respectively, included therein, the levers D and D', means for normally completing the circuit-connections of said sections through said levers, respectively, the receivers C and C', the battery O, the connections of which are completed with the section l' when the receiver C is not in use, means for interrupting said connections when it is in use, the battery O', included in the conductor 25, means for interrupting the connections of the section l^2 with the conductor 25 and substituting therefor a connection through the receiver C' with the earth, and means, substantially such as described, for connecting said sections with each other, either directly or through the receiver C'

316,912. LATHE-CHUCK. WM. M. PRESTON, Scoharie, N. Y. Filed Nov. 21, 1884. (No model.)



Claim.—1. As an improvement in lathe-chucks, the chuck-head composed of a disk provided with a central opening, and having its periphery screw-threaded, and provided with grooves or slots at suitable distances apart, as shown and described, and for the purpose set forth.

2. In a lathe-chuck, the face-plate thereof, provided with a central opening, and having at its edge arms projecting to the rear and provided with flanges, as shown and described, and for the purpose set forth.

3. In a lathe-chuck, the combination, with the chuck-head threaded and grooved on its periphery, of the face-plate having arms provided with flanges adapted to be connected to the chuck-head, as described, and a ring internally screw-threaded to engage the threads of the head and abut against the flanges of the arms, as shown and described.

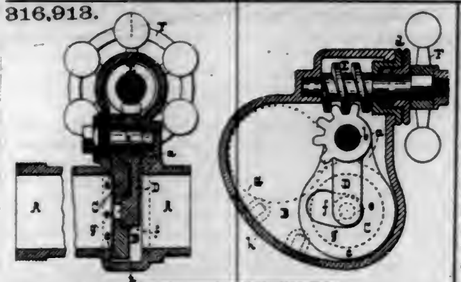
4. In a lathe-chuck, the combination, with the annulus G, having the threaded extension G', to receive the auxiliary chuck I, provided with the rounded split head I', of the cap L, having flange *l*, provided with an opening, *l*, as shown and described, and for the purpose set forth.

5. In a lathe, the combination, with the chuck-head, of a face-plate having arms parallel with the axis of rotation engaging grooves in the periphery of the chuck-head, a ring threaded to engage the face-plate and flanges of the arms, a pinion-attaching plate clamped between the chuck-head and the face-plate, and having an extension projecting through the opening in the latter, a split chuck entering said extension, and a cap threaded thereon and holding the chuck, said cap having an opening which exposes the head of the chuck, substantially as specified.

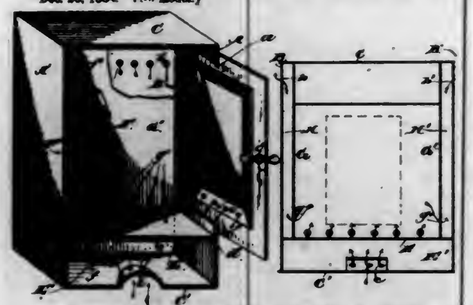
316,913. SHUT-OFF COCK FOR NOZZLES. JOHN E. PRUETT, Baltimore, Md. Filed Jan. 26, 1885. (No model.)

Claim.—In a pipe, a chamber having therein a vibratory disk with a rabbet and a hole, substantially as shown, combined with a vibratory arm having a toothed hub, and a free end provided with a projection which rests in the said rabbet, and a worm in gear with the said toothed hub, substantially as specified.

316,913.



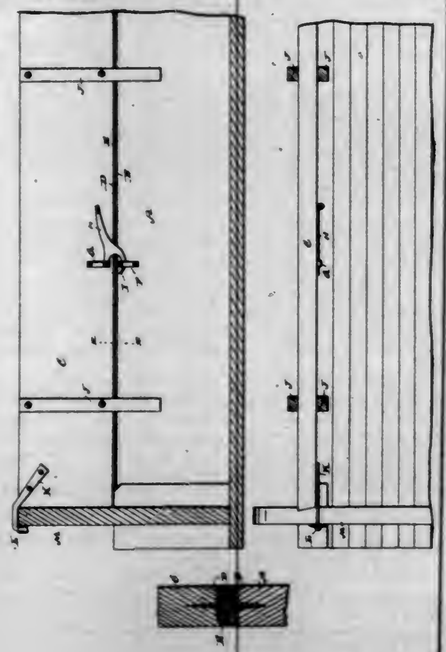
316,914. PORTABLE OVEN. JOHN RINGEN, St. Louis, Mo. Filed Dec. 26, 1884. (No model.)



Claim.—1. A portable oven having bottom flue, E, vertical back flue, F, by which the heat is conveyed and discharged into the oven and side flues, H H', connecting with the inner oven by apertures *g g'*, and with the outer air by apertures *b b'*, substantially as described.

2. The oven described, composed of the front A, having doorway *a*, the back, and the sides B B', perforated, as shown, the bottom E, and vertical plate F, arranged to form flues E' and F', the partitions G and G', perforated, as shown, and forming with the sides flues H and H', all combined, arranged, and serving as set forth.

316,915. WAGON-BOX. JESSE P. RUHL, Topeka, Ill. Filed Feb. 20, 1885. (Model.)

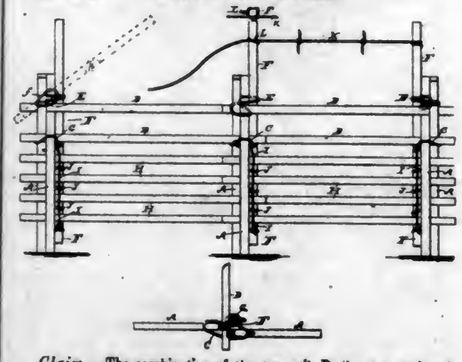


Claim.—1. The combination, with the fixed wagon-box side A, having transversely-convex top edge, or a bar on its top edge, the said bar having a transversely-convex top edge, of the detachable side C, having a transversely-concave groove in its bottom edge and a packing-strip in the groove, substantially as herein shown and described.

2. The combination, with a fixed wagon-box side, of a detachable wagon-box side having a packing-strip on its bottom edge, and of a lever pivoted on the detachable side, for the purpose of pressing the detachable side firmly on the fixed side, substantially as herein shown and described.

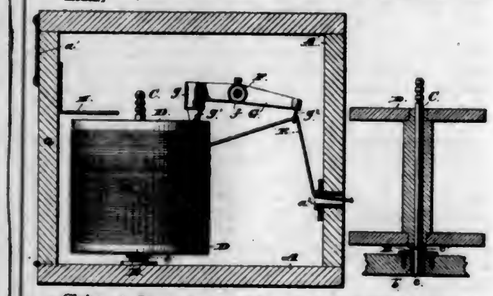
3. The combination, with the fixed wagon-box side A, the detachable side C, and the end-board M, of the staple L on the end-board, the hook K on the detachable side-board C, the staple F on the fixed side-board A, and the lever H, pivoted on the detachable board C, and provided with the curved prong or projection I, substantially as herein shown and described.

316,916. FENCE. ANDREW J. RUSSELL and WILLIAM M. GOOLDEN, London Bridge, Va. Filed Sept. 29, 1884. (No model.)



Claim.—The combination of the top rail, D, the two stakes A, crossed beneath and rising above the said rail, the under rail, B, located in the downward fork of the stakes A, the wire C, passing around both of the said stakes and joined at its ends in a single loop, and passing from stake to stake beneath the rail B, the wire E, passing around both stakes, crossing over the rail D, and joined at its ends, forming a loop around the said stakes, the strainer-post F within the said loop between the said stakes, the two sides of the loop twisted across each other around the post, and the loop G, connecting the post F indirectly with the stakes, substantially as shown and described, whereby the crossed stakes, the rail in their upper fork, and the rail in their lower fork are rigidly bound together, forming a self-sustaining fence and constituting a frame for supporting other rails, as set forth.

316,917. CORD-SPOOL AND TENSION DEVICE FOR GRAIN-BINDERS. ISAAC H. RUSSELL, East Hampton, Mass. Filed Sept. 11, 1883. (No model.)

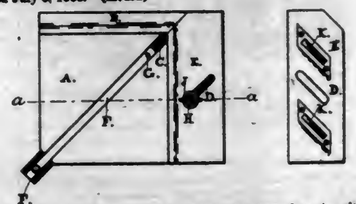


Claim.—1. In combination with the upright cord-spool provided in its upper end with a concentric series of recesses, the lever extending at one end over the spool, and at that end weighted and provided with a conical projection adapted to fall into and fit any one of the recesses that may be below it when the lever end is down, the eye or loop on the other end of the lever through which the cord passes from the spool, and the guide through which the cord passes from the eye or loop on the lever situated below such eye, substantially as and for the purpose described.

2. In combination with the spool provided with a series of round recesses in its end, the weighted lever having its weighted end extending over the spool end, and provided with a conical projection adapted to drop into and fit any one of said recesses, substantially as and for the purpose described.

3. In combination with the spool D, journaled upon the spindle C, the casing A, having the hinged side *a*, and the stop H, secured to said hinged side, and when the same is closed operating to lock said spool in place vertically, substantially as and for the purpose set forth.

316,918. CENTERING-GAGE. DAVID W. STANDIFORD, Oakland, Cal. Filed July 5, 1883. (Model.)



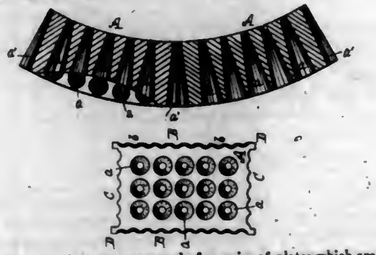
Claim.—In centering gages for lathes, the bed-plate A, with fixed curb B, to form an abutment or bearing for one end or side of an object to be centered, in combination with the adjustable curb E, to form the bearing for an adjacent side, and the slide F, having the point G, for marking the center of the piece of wood or other material for the lathe, the whole being constructed and operated substantially as and for the purposes set forth.

316,919. SHAFT-COUPLING. SINCLAIR STUART, Plainfield, N. J. Filed Feb. 24, 1885. (No model.)



Claim.—A two-part coupling for a fractured shaft, provided at the ends with cylindric bores or portions to be locked to the two parts of the shaft, and having a long internal cavity or chamber, *b*³, between the ends, and the flange B' at one end, substantially as and for the purpose herein described.

316,920. SCREEN. THOMAS L. STURTEVANT, Framingham, Mass., assignor to the Starrevant Mill Company, Portland, Me. Filed Aug. 16, 1884. (No model.)

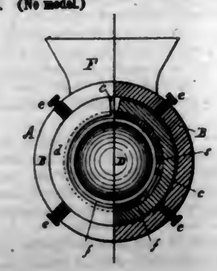


Claim.—1. A screen composed of a series of plates which are beveled and corrugated at their contiguous ends, for the purpose set forth.

2. A screen-plate having its sides and ends beveled and corrugated, said plate being also provided with perforations, substantially as set forth.

3. A screen-plate having a concavity in its outer face, and provided with perforations opening into said concavity, substantially as set forth.

316,921. ATTRITION-MILL. THOMAS L. STURTEVANT, Framingham, Mass., assignor to the Starrevant Mill Company, Portland, Me. Filed Aug. 16, 1884. (No model.)

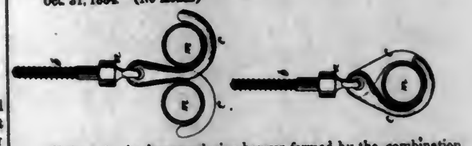


Claim.—1. In an attrition-mill, the combination of the rotary head and bushing with the adjustable interiorly-grooved plate or collar, and a packing-ring, substantially as set forth.

2. In an attrition-mill, the combination of the rotary head and bushing with a plate or collar adapted to encircle said bushing, an elastic ring, *f'*, which acts on the inner face of said collar, and adjusting-screws *e*, which act on the outer face of said collar, substantially as set forth.

3. In an attrition-mill, the collars *d d'*, formed with inward lugs, *g*, in combination with the screening-plates *a*, said lugs preventing the lateral displacement of said plates, substantially as set forth.

316,922. PIPE-HANGER. HARRY TRASK, Brooklyn, N. Y. Filed Oct. 31, 1884. (No model.)



Claim.—1. An improved pipe-hanger formed by the combination, with a suspensory support, of two overlapping pendulous hooks hung from said support, adapted to receive the pipe between them, substantially as herein set forth.

2. A pipe-hanger formed by a supporting-lug, *a*, bolt *b*, and a pendulous hook, *c*, hung from said lug and adapted to support the pipe, substantially as set forth.

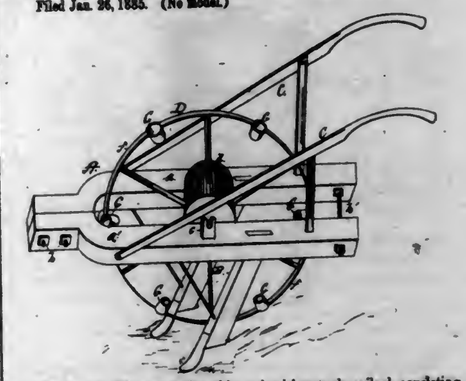
3. The combination, with lug *a* and means to fasten the same in place, of the two pendulous hooks *c c*, hung from said lug *a* and overlapping each other, substantially as and for the purpose set forth.

4. An improved pipe-hanger formed by the combination, with a fastening-bolt having a hooked head, of two pendulous hooks, *c c*, hung therefrom and overlapping each other, substantially as herein shown and described.

5. The combination of the pendulous hooks *c c*, lug *a*, and bolt *b*, and of extensible joint between the lug and bolt, substantially as set forth.

6. The combination, with the pendulous hooks *c c*, of the supporting-lug provided with a screw-bolt, said lug being made in the form of an eye, substantially as and for the purpose set forth.

316,923. COTTON-BUNCHER. SAMUEL TYRER, Nacogdoches, Tex. Filed Jan. 26, 1885. (No model.)



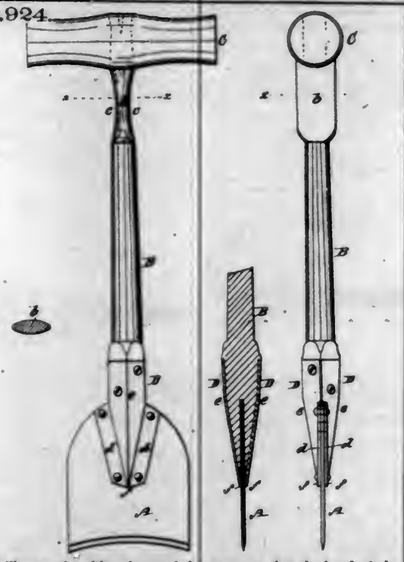
Claim.—1. The cotton-bunching wheel herein described, consisting of a hub provided with radial arms, and a circumferential ring or tire, formed or provided with a multiple of hollow cylinders open at both ends and arranged in the tire between the arms, substantially as described.

2. The frame comprised of adjustable side pieces and provided with plows, in combination with a bunching-wheel journaled on the frame back of the plow-point, and comprised of a hub with arms having secured to them a circumferential tire or rim, formed with hollow cylinders open at both ends and arranged in the tire between the terminals of the arm of the wheel, substantially as described, and for the purpose stated.

316,924. KNIFE FOR HARVESTING TOBACCO. FREDERICK VISCHER, Mount Sterling, Ky. Filed Jan. 21, 1884. (Model.)

Claim.—1. A tobacco-knife of the character described, the same consisting in a flat blade, a handle, and a wedge extending from a point at or near the juncture of the blade and handle, on both sides thereof, to a point, *f*, and said wedge inclining in opposite directions from the central edge, *e*, and toward the cutting-edge of the blade, whereby when said blade is forced into and down on a tobacco-stalk the edge *e* of the

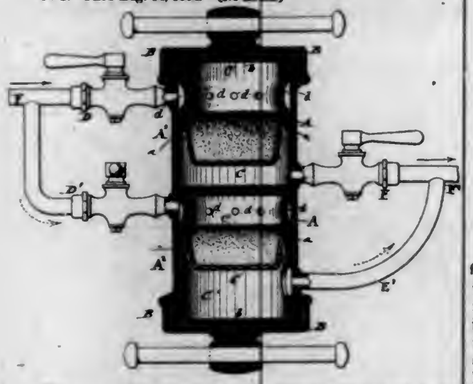
316,924.



wedge will enter the pith and spread the same, so that the hand of the operator will not come in contact with the stalk, substantially as set forth.

2. In a tobacco-knife of the character described, the combination, with the flat blade A, having a concave cutting-edge, of the handle and the wedge formed at the juncture of the blade and handle, the said wedge being on opposite sides of the blade and handle, and formed with the central longitudinal edge, e, and inclines therefrom toward the sides and cutting-edge of the blade, substantially as and for the purpose set forth.

316,925. FILTERING APPARATUS. KARL W. VOGEL, New York, N. Y. Filed Aug. 14, 1884. (No model.)



Claim.—1. The combination of a cylindrical casing, a filter within said casing, an inner cylinder fitted within said casing above said filter, and provided with an annular perforated inward bulge above said filter, an induction-pipe connected to the outer casing, opposite the bulge of the inner cylinder, and an eduction-pipe below said filter, substantially as described.

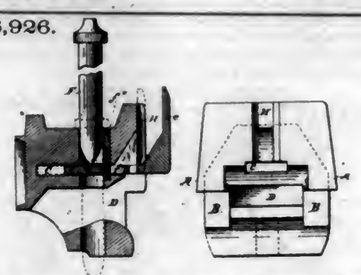
2. The combination, in a filter, of a cylindrical casing, a perforated pan within said casing containing filtering material, an inner cylinder fitted within said casing above said pan, and provided with an annular perforated inward bulge above said filtering material, an induction-pipe connected to the outer casing opposite the bulge of the inner cylinder, and an eduction-pipe below said pan, substantially as described.

316,926. CAR-COUPLING. MARCUS L. WHITNEY, Hawley, Pa. Filed Apr. 25, 1884. (No model.)

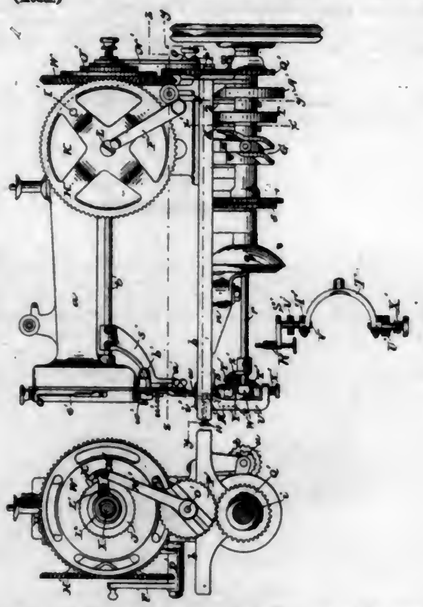
Claim.—1. In a car-coupler, the combination, with upper lip, A, provided with the groove H, and projecting beyond the short lower lip, B, and the slot C, adapted to receive plate e, having the handle e', of the channel E, adapted to receive the pin F, all substantially as described.

2. In a device for coupling cars, the draw-bar head having the long upper lip and short under lip, the mouth D, slot C, and channel E, substantially as described, adapted to be used in combination with the horizontal plane and locking-pin, substantially as herein set forth.

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316,927. SEWING-MACHINE. ERASTUS WOODWARD, Somerville, and THOMAS K. KEITH, Haverhill, Mass., assignors to the Pentucket Variable Stitch Sewing Machine Company, Exeter, N. H. Filed Nov. 15, 1883. (Model.)



Claim.—1. In a sewing-machine, the combination of the stitch-forming mechanism, the presser, the feeder pivoted to a slide or plate, the rock-shaft having an arm containing a guide for said plate, operating mechanism for said rock-shaft, the feeder-bar adapted to slide vertically in the head or arm of the machine and engaged, as described, with the feed-carrying slide, and mechanism, operated by the needle-actuating shaft, whereby the presser-bar and feeder-bar are alternately raised and lowered, as set forth.

2. In a sewing-machine, the combination of the stitch-forming mechanism, the feeder adapted to bear on the upper surface of the work, mechanism whereby upward and downward movements are imparted to the feeder, mechanism for moving the feeder forward and backward, a feed-dog adapted to bear against the under surface of the work, mechanism for raising and lowering said feed-dog, and mechanism for moving said feed-dog in the arc of a circle about the needle, as set forth.

3. The combination, in a sewing-machine, of the stitch-forming mechanism, a feed-dog adapted to bear against the under surface of the work, mechanism for raising and lowering said feed-dog mechanism for moving said feed-dog in the arc of a circle about the needle, and a presser-foot formed to cover the arc through which the feed-dog moves, as set forth.

4. The combination, in a sewing-machine, of the stitch-forming mechanism, a feed-dog adapted to bear against the under surface of the work, mechanism for raising and lowering said feed-dog, mechanism for moving said feed-dog in the arc of a circle about the needle, and an adjustable stop whereby the length of said arc may be adjusted, as set forth.

5. In a sewing-machine, the combination, with the stitch-forming and rectilinear feeding mechanisms, of the arc feeding mechanism, composed of the vertical rock-shaft T', having the arm S' and feed-dog R', the cam W', adapted to intermittently elevate said rock-shaft and dog, the cam Z', whereby the rock-shaft and dog are turned or moved laterally, and a spring or springs whereby the rock-shaft is pressed against and caused to follow said cams, as set forth.

6. The combination of the stitch-forming mechanism, the rock-shaft T', having the arm S' and feed-dog R', means for raising and lowering and oscillating said rock-shaft, arm, and dog, and the adjustable stop 9, adapted to slide in a slot formed in the flange of the bed-plate, and provided with means for positively holding it in any position to which it may be adjusted, as set forth.

7. The combination, with the reciprocating needle and shuttle, of the pivoted shuttle-carrying lever *n*, the globe-cam having a cam-groove receiving the shorter end of said lever and formed in a surface which is the segment of a hollow sphere whose center is the vertical plane of the pivot of lever *n*, and the variable mechanism (as gears *s t u v* and shaft *n*) whereby the globe-cam is driven, substantially as set forth.

8. In a sewing-machine, the combination of the stitch-forming mechanism, the feeder, the rock-shaft having an arm connected, as described, with the carrier of the feeder, the lever E, pivoted to a block journaled on said shaft, means for oscillating said lever by the power of the machine, and the adjustable fulcrum H, whereby the oscillations of the lever may be caused to reciprocate the rock-shaft lengthwise, as set forth.

9. The combination, with the stitch-forming mechanism and the feeding mechanism of a sewing-machine, of the rock-shaft, the lever E, means for oscillating said lever, the vertically-adjustable fulcrum H, and the journaled disk K, having a cam-groove, J, whereby said fulcrum may be adjusted, as set forth.

10. In a sewing-machine, the combination of the stitch-forming mechanism, the feeder, the rock-shaft having an arm connected, as described, with the carrier of the feeder, and provided with an arm, M, the lever N, pivoted to the frame of the machine and engaged, as described, with the arm M, the system of levers Q S Z, arranged as shown, the cams T A' on the driving-shaft, engaged, respectively, with the levers S Z, and the adjustable fulcrums U B', engaged with the levers Q Z, all arranged and operating to oscillate the rock-shaft, as set forth.

11. The combination of the stitch-forming mechanism, the feeder, the rock-shaft having at one end an arm connected, as described, with the carrier of the feeder, and at the other end an arm, M, the lever E, pivoted to a block on the rock-shaft, means for oscillating said lever, the adjustable fulcrum H for said lever, the lever N, pivoted to the frame of the machine and engaged, as described, with the arm M of the rock-shaft, the system of levers Q S Z, means for reciprocating the levers S Z, and the adjustable fulcrums U B', engaged with the levers Q Z, all arranged and operating substantially as described.

12. The combination, with the stitch-forming and the feeding mechanism of a sewing-machine, and rock-shaft *t'* and its operating-levers N Q S Z, of the adjustable fulcrum U, and cam V, whereby said fulcrum may be adjusted, as set forth.

13. The combination, with the stitch-forming mechanism, the feeder and its immediate connections, and rock-shaft *t'* and its operating-levers N Q S Z, of the adjustable fulcrum B' and devices, substantially as described, for adjusting said fulcrum, as set forth.

14. The combination, with the stitch-forming mechanism, the feed mechanism, and rock-shaft *t'* and its operating-levers N Q S Z, of the adjustable fulcrums U B' and their operating devices, as set forth.

15. The combination, with the stitch-forming mechanism, the feed mechanism, and rock-shaft *t'*, and its system of operating-levers, of the adjustable fulcrums H U, the cams J V for adjusting said fulcrums, and connecting devices whereby said cams may be simultaneously rotated.

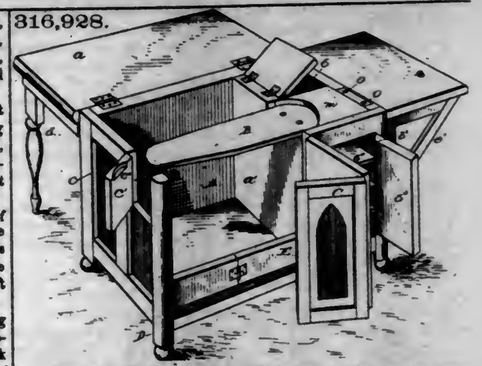
16. The combination of the stitch-forming mechanism, the feeder *k*, the circular feed-dog R' and its operating mechanism, the rock-shaft *t'*, having the arm M, the operating devices N Q S Z, the adjustable fulcrum U, and mechanism, substantially as described, for adjusting said fulcrum automatically, and thereby automatically varying the length of the radiating stitches, formed by the joint action of said feeder and dog, as set forth.

17. The combination, with the stitch-forming mechanism, the feeder, and the rock-shaft and its system of operating-levers, of the adjustable fulcrums H U, the cams J V for adjusting said levers, connecting devices whereby said cams are caused to rotate simultaneously, and mechanism, substantially as described, for rotating said cams automatically, and thereby varying the length of spacing of the herring-bone stitches, as set forth.

18. The combination, with the stitch-forming mechanism, the feeder, and the rock-shaft and its system of operating-levers, of the adjustable fulcrums H U, the cams J V for adjusting said levers, connecting devices whereby said cams are caused to rotate simultaneously, the ratchet J', affixed to the back of the disk containing the cam V, a dog, K', and operating mechanism therefor, whereby said ratchet and disk are rotated step by step, and means for varying the throw of said dog, as set forth.

316,928. IRONING BOARD AND TABLE. ABE A. WYRONG, Baltimore, Md. Filed July 31, 1884. (No model.)

316,928.



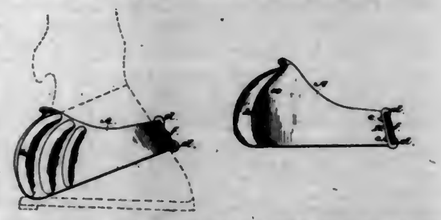
Claim.—1. The combination, with the body of the chest or receptacle having the door C', with the notch *c''* in its upper edge, of the metal plate *m* and ironing-board B, as set forth.

2. In a combined ironing board and table, the partition *a'*, supporting one end of the ironing-board B, and the ironing-board, in combination with the hinged door *c'*, which supports the free end of the ironing-board B, and by its swinging away from said board facilitates the drawing of circular articles of clothing on the board, as set forth.

3. In a combined ironing board and table of the character described, the combination of the partition *a'*, the ironing-board, and the supporting-door *c'* with the hinged arm E beneath said ironing-board, for the purposes set forth.

REISSUES.

10,587. QUARTER-BOOT. THOMAS GOLDEN, New York, N. Y. Filed Mar. 16, 1885. Original No. 310,044, dated Dec. 30, 1884.



Claim.—1. As an improved article of manufacture, an attachment to quarter-boots or protectors, consisting of the clip B, formed with the points c on its inner face, and claws *d d* on its ends, substantially as set forth.

2. The combination, with the front strap of the quarter-boot A, of the clip B, secured to its under side, and formed with the points c, and the securing-claws *d*, engaging the edges of the front strap of the boot, substantially as set forth.

3. In combination with a boot or protector made of india-rubber, and provided with corrugations or ribs on the rear portions or sides, a clip having points c on its inner face, and claws *d d* on its ends, substantially as described.

4. In combination with the front part of a quarter-boot made of india-rubber in one piece, and having ribs or corrugations on the back portion and rear sides, a clip secured to the under side and formed with points *c*, and securing-claws *d*, engaging the edges of the boot, substantially as described.

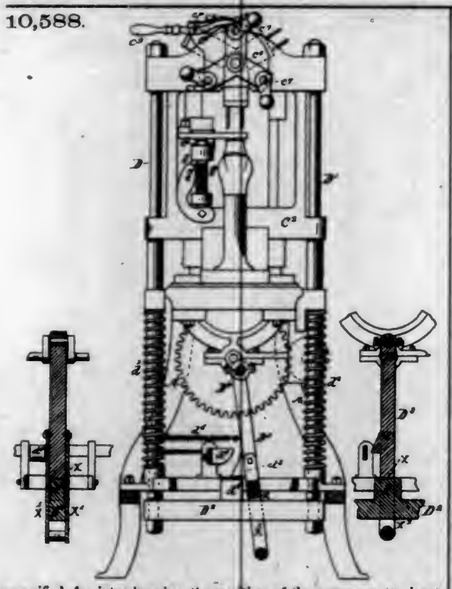
5. In combination with the clip, substantially as described, a boot or protector made of india-rubber, and provided with ribs or corrugations, for the purposes set forth.

6. A horse-boot made of elastic material, having rear and side hollow corrugations or cushions made homogeneous, and provided with a suitable clip, substantially as described.

10,588. HEEL-NAILING MACHINE. HENRY A. HENDERSON, Lynn, Mass., assignor, by mesne assignments, to the National Heeling Machine Company, Portland, Me. Filed Dec. 4, 1883. Original No. 252,215, dated Jan. 10, 1882.

Claim.—1. In an organized heel-nailing machine, the combination of a jack for holding the boot or shoe, adapted to be moved horizontally, a group or gang of awls, and a group or gang of drivers carried by a cross-head adapted to be vertically reciprocated, and means, substantially

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as specified, for interchanging the position of the groups on the head, all substantially as and for the purposes described.

2. In an organized heel-nailing machine, the combination of a jack for holding the work, adapted to have a horizontal movement imparted to it, a templet adapted to be moved horizontally into a position over the heel, and a gang or group of awls adapted to be reciprocated by the same mechanism that reciprocates the drivers, all substantially as and for the purposes described.

3. In an organized heel-nailing machine, the combination of a jack for the boot or shoe, means for imparting to it a horizontal movement, a templet adapted to be moved horizontally into position, a nail-holder adapted to be moved horizontally into position independently of the templet, a gang or group of awls and a gang or group of drivers interchangeably secured to a cross-head, and means for reciprocating said cross-head, all substantially as and for the purposes described.

4. In an organized heel-nailing machine, the combination of a jack for the boot or shoe, the means for imparting to it a horizontal movement, a templet and nail-holder adapted to be brought into position by a horizontal movement, and also adapted to have a vertical movement imparted to them, a gang or group of awls and a gang or group of drivers fastened to the head and adapted to be moved in relation to the templet and nail-holder, as specified, and means for imparting to them and the head vertical reciprocating movements, all substantially as specified.

5. In an organized heel-nailing machine, the combination of a jack for the work, means for moving it horizontally, a templet and nail-holder adapted to have horizontal movements, as specified, a group of awls, a group of drivers, and a lift-holder adapted to be successively brought into position over the heel of the boot or shoe, and to be reciprocated by the same operative mechanism, all substantially as described, and for the purposes specified.

6. In an organized heel-nailing machine, a templet-plate adapted to have a horizontal movement imparted to it, and a nail-holder having a horizontal movement independent of the templet-plate, all substantially as and for the purposes described.

7. In a heel-nailing machine, the head C, provided with the awl-supporting arm c' and driver-supporting arm c^3, the awls and the drivers, and means for revolving the same upon a horizontal axis, whereby the awls and drivers may be successively brought into position, all substantially as described.

8. The combination of the cross-head C′, supporting the revolving awl and driver head C, and means for reciprocating them, consisting of the rods D D′, the crank D^4, the connecting-rod D^5, the cross-bar D^3, and the springs d' d^3, all substantially as and for the purposes described.

9. The combination, in an organized heel-nailing machine, of the head C′, the head C, supporting the drivers and top-lift holder, means for revolving the head to successively bring in position the awls, driver, and holder, and for reciprocating the same, and an automatic stop motion adapted to automatically stop the machine at the end of each revolution, substantially as and for the purposes described.

10. The form or support b^2, consisting of the fixed part b^3 and the toe part b^7, adapted to be revolved in relation to the fixed part, whereby the support may be used both for right and left shoes, all substantially as set forth.

11. In a heel-nailing machine, the combination of the templet with the adjustable stop c^{13}, all substantially as described.

12. The combination of a sliding jack for supporting the heel of a boot or shoe with a templet-plate pivoted, substantially as described, to be swung on an arc of a circle into and out of operative position over the jack.

13. The combination, in an organized heel-nailing machine, of the head C′, the drivers and top-lift-attaching device, and means for successively bringing them into operative position, and for reciprocating the head, and an automatic stop motion adapted to automatically stop the machine at the end of each revolution, substantially as and for the purposes described.

14. The combination of the cross-head C′, carrying the awls, drivers, and top-lift-attaching device, or either of them, with the rods D D′ and springs d' d^3, for supporting the cross-head in its highest position, all substantially as and for the purposes described.

15. In a heel-nailing machine, a reciprocating cross-head having arms provided, respectively, with a gang of awls, a gang of drivers, and a top-lift-attaching device, substantially as described.

16. In a heeling-machine, a reciprocating cross-head having a gang of awls, a gang of drivers, and the arm c^3, substantially as described.

17. In a heel-nailing machine, a reciprocating arm provided with an automatic top-lift holding and centering device, substantially as described, to grasp and hold the top lift by its edge.

18. The combination of the reciprocating cross-head having a block adapted to be brought in contact with the templet-plate to force it down upon the heel-blank, said templet, and a spring for returning it to its original position.

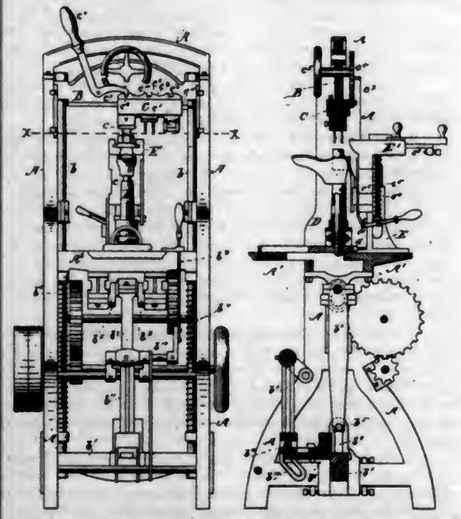
19. The combination of the templet e', the rod e^4, and the lever e^{15}, all substantially as described.

20. In a heel-nailing machine, the combination of the pivoted templet-plate e^3, carrying the templet e', with the stop e^{13}, substantially as described.

21. In a heel-nailing machine, the combination of the pivoted templet-plate e^3, carrying the templet e', with the latch e^6, all substantially as described.

22. In a heel-nailing machine, the combination of a support for the boot or shoe, and a templet movable vertically and horizontally in relation to the said support to hold the heel-blank compressed while it is being nailed, and to expose it to the action of the top-lift-attaching device, with a reciprocating cross-head carrying a gang of awls, a gang of drivers, and a top-lift-attaching device, all substantially as described.

10,589. **HEEL-NAILING MACHINE.** HENRY A. HENDERSON, Lynn, Mass., assignor, by mesne assignments, to the National Heeling Machine Company, Portland, Me. Filed Dec. 4, 1883. Original No. 259,687, dated June 20, 1882.



Claim.—1. In an organized heel-nailing machine, the combination of a jack for holding the boot or shoe, the reciprocating cross-head B, and sliding carriage C, adapted to have a straight horizontal movement upon said cross-head imparted to it, and a gang or group of awls and a gang or group of drivers supported by said carriage, all substantially as described.

2. In an organized heel-nailing machine, the combination of a jack for holding and presenting the work to the nailing mechanism, a reciprocating cross-head, B, and a sliding carriage, C, adapted to have a straight horizontal movement upon said cross-head imparted to it, an awl-holding block, c, driver-holding block c', and top-lift spanker c^3, supported by said carriage, all substantially as and for the purposes described.

3. In an organized heel-nailing machine, the combination of a jack for presenting the work to the heel-nailing mechanism, the reciprocating cross-head B, the sliding carriage C, adapted to have a horizontal movement upon said cross-head imparted to it, and a driver-holding block c', and top-lift spanker c^3, supported by said carriage, all substantially as and for the purposes described.

4. The combination of the reciprocating cross-head, the sliding block or carriage C, and the adjustable stop c^{13}, all substantially as and for the purposes described.

5. The combination of the cross-head B, the carriage C, the hand-wheel c^9, and mechanism, substantially as specified, for connecting it with the carriage C, all as and for the purposes set forth.

6. The combination, in an organized heel-nailing machine, of a jack for presenting and holding the work to the heel-nailing mechanism, the table or support E′, the sliding templet E^2, adapted to be moved horizontally in a straight line upon said support into position over the jack, and a gang or group of awls adapted to be reciprocated by means substantially as specified, all as and for the purposes described.

7. The combination, in an organized heel-nailing machine, of a jack for presenting and holding the work to the nailing mechanism, the table or support E′, the templet E^2, adapted to be moved horizontally in a straight line upon said support or table into position over the jack, and a gang or group of drivers adapted to be reciprocated by means substantially as specified, all as and for the purposes described.

8. The combination, in an organized heel-nailing machine, of a jack for presenting and holding the work to the nailing mechanism, a support or table, E′, a templet, E^2, adapted to be moved horizontally on the said table into position over the jack, a gang or group of awls and a gang or group of drivers interchangeably arranged upon a cross-head, and means for reciprocating said cross-head, all substantially as and for the purposes described.

9. In an organized heel-nailing machine, the combination of a jack for presenting and holding the work to the nailing mechanism, a table or support, E′, a templet, E^2, adapted to be moved horizontally in a straight line upon said table or support into a position over the jack, and a nail-holder adapted to be moved horizontally in a straight line into position over the templet, all substantially as and for the purposes described.

10. In an organized heel-nailing machine, the combination of a jack for presenting and holding the work to the heel-nailing mechanism, a table or support, E′, a templet, E^2, adapted to be moved horizontally in a straight line upon said table or support into a position over the jack, a nail-holder supported by the templet-plate e^3, and adapted to have a horizontal movement therewith and to be moved into position over templet E^2 after the templet-plate has come to rest, all substantially as and for the purposes described.

11. In an organized heel-nailing machine, the combination of a jack for presenting and holding the work to the heel-nailing mechanism, the vertically-movable table or support E′, the templet E^2, supported by said table and adapted to be moved horizontally thereon in a straight line to a position over the jack, and then to be moved vertically with said support or table, all substantially as and for the purposes described.

12. In an organized heel-nailing machine, the combination of a jack for presenting the work to the heel-nailing mechanism, a heel-receiver, and a templet adapted to have horizontal and vertical movements imparted to it, all substantially as and for the purposes specified.

13. The combination of a jack for holding and presenting the work to the heel-nailing mechanism, a heel-receiver, a templet, and a nail-holder adapted to have a horizontal and vertical movement in relation to the heel-receiver, and a group or gang of awls and a group or gang of drivers adapted to be alternately reciprocated in line with the templet, all substantially as and for the purposes described.

14. The combination of the vertically-movable table E′ and templet-plate e^3, adapted to slide thereon in a straight line, all substantially as and for the purposes described.

15. The combination of the vertically-movable table E′, the templet-plate e^3, adapted to slide thereon, and the nail-holder plate e^{11}, adapted to slide upon the templet-plate, and means, substantially as specified, for regulating the extent of the movements of said plates, all substantially as and for the purposes described.

16. The combination of the heel-receiver E^4, its slotted standard e^{12}, the bracket or post E, and set-screw e^{20}, all substantially as and for the purposes described.

17. The combination, in a heel-receiver, of the curved spring-arms e^{21}, fastened to the outer end thereof, as specified, and the curved spring e^{22}, fastened at the back thereof, as specified, all substantially as and for the purposes described.

18. The combination of the reciprocating connecting-rod b^3, the cross-bar b', the movable block b^7 and its pin b^{12}, the slotted arm b^{11}, and means for moving and locking the same, all substantially as and for the purposes described.

19. The combination of the horizontally-moving jack D, the heel-receiver E^4, a templet adapted to move horizontally and vertically upon the heel-blank to clamp it in position and upon the work, and to lock it in that position prior to the reciprocation of the awls or drivers, and said reciprocating awls or drivers, all substantially as and for the purposes described.

20. The combination, in an organized heel-nailing machine, of a jack for holding and presenting the work to the nailing mechanism, a reciprocating cross-head, B, and a sliding carriage adapted to have a horizontal movement upon said cross-head imparted to it, a gang of awls, a gang of drivers, and a top-lift spanker supported by said carriage or any two of them, and an automatic registering-stop, all substantially as and for the purposes described.

21. The combination, in a heel-nailing machine, of the table E′, depressing-lever e', and link or connection e^3, all substantially as described.

22. The combination of the table E′, latch e^7, catch e^6, and unlatching-lever X, all substantially as described.

23. The combination of the table E′, templet-plate e^3, and stop e^{10}, substantially as described.

24. In a heel-nailing machine, the nail-holder plate having the slot e^{13}, as and for the purposes described.

25. In a heel-nailing machine, a sliding nail-holder plate comprising the slotted portion e^{12} and the removable nail-holder e^5, supported or carried at its front end, all substantially as and for the purposes described.

26. The nail-holder plate having the slot e^{12}, in combination with the templet having the stud provided with the handle e^5, which projects through the slot e^{12}, all substantially as and for the purposes described.

27. The combination of the post or bracket E, arranged behind the jack or support for the heel of the boot or shoe, the yielding table E′, supported thereby and having in its upper surface ways or guides for the reception of the sliding plate e^3, which plate carries at its front end a templet, E, spring e^4, and a stop for limiting the upward movement of the table, all substantially as and for the purposes described.

28. In a heel-nailing machine, the combination of the table E, having guides for directing the horizontal movement of the plate e^3, which supports the templet E^2, with said plates bolted to the table to lap upon the edge of the plate e^3, for fastening the same to the table in a manner to permit of its horizontal movement, all substantially as and for the purposes described.

29. In a heel-nailing machine, the combination of the spanker-supporting arm and means for adjusting the position of the spanker vertically in relation thereto, all substantially as and for the purposes described.

30. The combination, in a top-lift holder, of separate spring-arms c^{17} c^{18}, their supporting-blocks c^{19}, and the adjusting-screws c^{20}, all substantially as and for the purposes described.

31. The combination, in a top-lift holder, of the separate spring-arms c^{17} c^{18} with the gage-plate c^{21}, all substantially as and for the purposes described.

32. In a heel-nailing machine, the combination of the heel-spanker with a top-lift holder comprising separate spring-arms c^{17} c^{18}, shaped as described, and adapted to be automatically spread or opened, and automatically closed upon the edge of the top lift, all substantially as and for the purposes described.

33. In a heel-nailing machine, the combination of a support for holding the work with the spring or yielding heel-blank-centering arms e^{23}, all substantially as and for the purposes described.

34. In a heel-nailing machine, the combination of a support for the work, the yielding heel-blank guides, and means, substantially as specified, for adjusting them vertically in relation to the said support, all substantially as and for the purposes described.

35. The combination, in a heel-nailing machine, of a support for holding the boot or shoe in an inverted position with the yielding spring-guides e^{23}, all substantially as and for the purposes described.

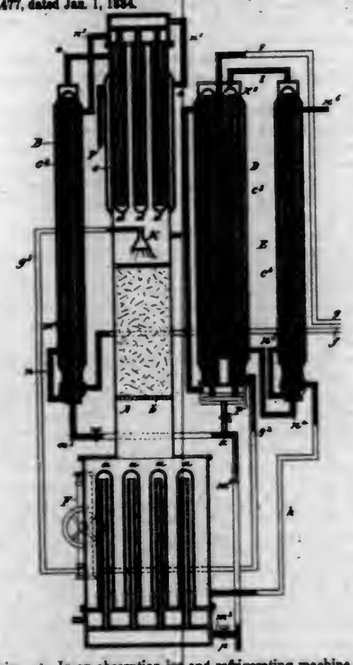
36. The combination, in a heeling-machine, of a support for holding the boot or shoe in an inverted position, the yielding shoe-guides e^{23}, and the yielding heel-blank guides e^{23}, all substantially as and for the purposes described.

37. The combination, in a heel-receiver, of a curved plate or support and the curved yielding spring-arms e^{23}, secured thereto, all substantially as described.

38. The combination of the cross-head B, connecting-rods b, cross-girth b', spring b^4, crank b^3, connecting-arms b^2, and straps connecting the rod b with the girth b', all substantially as and for the purposes described.

39. The combination, in a heel-nailing machine, of the jack D, carrying a support for the boot or shoe, the table E′, supporting the templet E^2, the said templet adapted to be automatically moved vertically to compress the heel-blank upon the sole of the boot or shoe, and an automatic lock adapted to operate to hold the templet upon the heel-blank at the end of the automatic vertical movement thereof, substantially as described.

10,590. ICE AND REFRIGERATING MACHINE. DANIEL L. HOLDEN, Cincinnati, Ohio, assignor, by mesne assignments, to the Little Giant Ice Machine Company, Covington, Ky. Filed Mar. 16, 1885. Original No. 291,477, dated Jan. 1, 1884.



Claim.—1. In an absorption ice and refrigerating machine, a generator having cooling devices within and about its upper end, substantially as described.

2. In the generator of an absorption ice or refrigerating machine, the combination of a grating and pieces of tin or other substance not destroyed by heated ammonia resting on said grating, substantially as described.

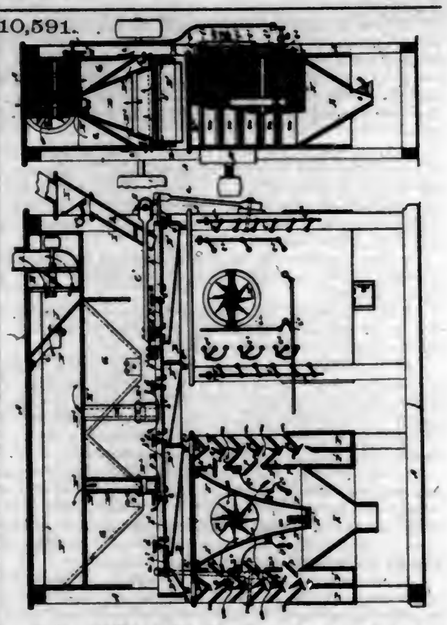
3. In an absorption ice or refrigerating machine, the combination of a generator, a condenser, an absorber, and a cooler securely attached to and supported by said generator, substantially as described.

4. In an absorption ice or refrigerating machine, the combination of a generator, a condenser, an absorber, a cooler, and a pump securely attached to and supported by said generator, substantially as described.

5. In an absorption ice or refrigerating machine, the combination of a generating-chamber and steam-pipes of the internal-circulation type, substantially as described.

6. In an absorption ice or refrigerating machine, the combination of a generator having cooling devices about its upper end, and a condenser, a congealer, an absorber, and a cooler, substantially as described.

10,591. MIDDLINGS-PURIFIER. FAUSTIN PRIDE, Milwaukee, Wis., assignor of one-fourth to Josef K. Gehrig, Dundas, Minn. Filed Mar. 18, 1885. Original No. 272,475, dated Feb. 20, 1883.



Claim.—1. The combination, with a shaker-frame, B, adapted to be agitated, of sections $b' b^2 b^3 b^4 b^5 b^6 b^7$, with their edges armed with sharp blades c and made adjustable vertically, substantially as set forth.

2. The combination and arrangement of the shaker-frame B, adapted to be agitated, the adjustable knife-edge sections $b' b^2 b^3 b^4 b^5 b^6 b^7$, and the suction-spouts E, substantially as set forth.

3. The combination, with a shaker-frame, B, adapted to be agitated, and the adjustable knife-edged sections $b' b^2 b^3 b^4 b^5 b^6 b^7$, of the hoppers $D' D^2 D^3 D^4$, substantially as set forth.

4. The vibrating hopper D', provided near its lower end with a pendent exit-spout, *e*, and a beveled block or strip, as shown, against the lower end of the hopper, as and for the purpose specified.

5. The shaker-frame B, provided with knife-edge sections $b' b^2 b^3 b^4 b^5 b^6 b^7$, in combination with a rough-surfaced covering to the said sections to assist the chop in traveling over their surfaces, substantially as set forth.

6. In a middlings-purifier, the slats *m* and *n* and inclined chutes *r*, forming a series of troughs, arranged as shown, in combination with hoppers P, P', and K, partitions L L', and fan M, the several parts being adapted to operate as set forth.

7. The combination, with the hoppers $D' D^2 D^3 D^4$, of cloth bottoms thereof, and eyelets *v*, and cords and pins *w x*, substantially as set forth.

8. In middlings-purifiers, the combination, with an agitating-frame, of a sectional bottom, the sections thereof being arranged so that from front to rear of the frame the rear edge of one section will be lower than the front edge of the next section, whereby as the frame is agitated the middlings will be passed from front to rear in layers, and the lower layer cut off from the upper and passed down beneath the sections, as set forth.

9. The combination of a side casing, the vertical series of prismatic bars *n*, and pivoted dividers *t*, inclined shelves or chutes *m*, arranged to leave spaces between their lower ends and the bars *n* for the passage of the chop down onto the next lower chute *m*, and having their upper ends above the level of dividers *t*, and means, substantially as set forth, for creating an air-current, whereby the middlings are caused to take a zigzag course, and the air-currents are compelled to descend through the middlings at right angles thereto, for the purpose set forth.

10. The combination of a side casing, a vertical series of prismatic or angular bars, *n*, and pivoted dividers *t*, inclined shelves or chutes *m*, arranged to leave spaces between their lower ends and the bars *n* for the passage of the chop down onto the next lower chute *m*, and means, substantially as set forth, for creating an air-current, whereby the middlings are caused to take a zigzag course and the air-currents are compelled to pass through the middlings at right angles thereto, for the purposes set forth.

11. The combination of a trough having an inclined side with its lower edge extending beyond the end of the opposite side, and a space between the two sides for the passage of chop, inclined chutes or shelves arranged one above the other, a vertical series of prismatic or angular bars, *n*, having their lower ends extended beyond the ends of the opposite inclined chutes to direct the flow of chop onto the chute next below, and pivoted dividers above said angular bars, whereby the middlings are caused to take a zigzag course with the coarse particles on one side and the fine particles on the other, and means, substantially as described, for creating an air-current to pass through the stream from the side having the heavier particles, substantially as described.

12. The combination of a dust-collecting fabric or medium, a fan, a knocker located and operated to strike the collecting medium from the side against which the dust is driven in a line parallel, or substantially so, with the pores of the collecting medium, substantially as and for the purpose set forth.

N. PETERS, Photo-Lithographer, Washington, D. C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

Supreme Court of the United States.

THE ELECTRIC RAILROAD SIGNAL COMPANY *v.* THE HALL RAILWAY SIGNAL COMPANY.

Decided March 30, 1885.

The decree of the circuit court dismissing a bill in equity for an injunction to restrain infringement of letters patent issued July 1, 1873, to F. L. Pope, for an improvement in circuits for electric railroad signals, is affirmed for the following reasons:

1. The patent is for a combination in which all the elements were known and open to public use. Its object was the accomplishment of a particular result—namely, to work electric signals on the block system. But the thing patented was the particular means devised by the inventor to accomplish that result, and to constitute in this case identity of invention, and therefore infringement, the result, the elements or their equivalents, and the combination must be the same, so that each element shall perform the same function.
2. In complainants' patent insulated sections of the rails as circuit-closers constitute an essential element in the combinations, the wheels and axles of the train forming an electrical connection between the opposite insulated rails at appropriate places, and so actuating the signal. The defendants dispense with insulated sections of the track and employ a separate instrument placed near the track, from which a lever connects with the track and is operated by the passing wheels of the train.
3. In complainants' patent a single battery is used to operate an electric circuit of considerable length by means of two wires or other metallic conductors attached to the positive and negative poles of the battery and suitably insulated from each other and from the earth. The defendants' plan does not include such a metallic circuit, but uses a circuit composed in part of the earth. In this case the evidence shows the difference is more than a mere substitution of the earth for one of the conducting-wires. It consists in the use of new elements, a new combination, and a new result.

APPEAL from the Circuit Court of the United States for the District of Connecticut.

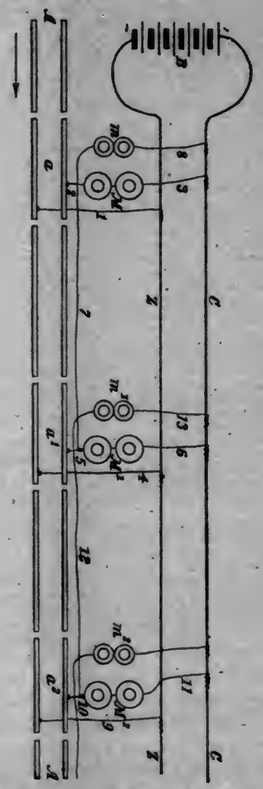
Mr. Chas. E. Perkins and *Mr. Geo. H. Christy* for the appellant.

Mr. S. E. Baldwin for the appeilee.

Mr. Justice MATTHEWS delivered the opinion of the Court.

This is a bill in equity for an injunction to restrain the alleged infringement of Letters Patent No. 140,536, for an improvement in circuits for electric railroad signals, issued July 1, 1873, to Frank L. Pope, of whom the appellants, who were claimants below, are assignees. On final hearing the bill was dismissed by a decree now brought here for review by this appeal.

The drawing which accompanies and illustrates the patent is as follows:



The following is the substantial part of the specification, together with the claims:

My invention consists in a peculiar arrangement of electric circuits, in combination with a battery, and with two or more circuit-closers operated by moving trains or otherwise, whereby a series of two or more visual or audible signals situated at intervals along the line of a railroad may be operated by currents of electricity derived from a single battery, thereby obviating the inconvenience and expense of employing, as heretofore, one or more separate batteries situated at or near each signal for the purpose of actuating the same.

In the accompanying drawing, A A represent a portion of the track of a railroad. At intervals of, say, a mile, more or less, sections of the said track a a^1 a^2 are electrically insulated from the

remainder in a manner well understood, and therefore requiring no detailed description. B is a galvanic battery of any suitable construction, and placed in any convenient location near the line of the railroad. Two wires or other conductors, C and Z, are attached to the positive and negative poles, respectively, of the battery B, and extended to any required distance in a direction parallel or nearly so to the line of the railroad. The conductors C and Z may be placed on poles, and should be suitably insulated from each other and from the earth. The conductors C and Z are virtually prolongations of the positive and negative poles of the battery B. Each of the insulated sections of track *a a*¹ *a*², &c., is placed at some point at or near which it is desired to erect a signal, and any required number of these may be employed to meet the requirements of any particular case. M, M¹, and M² are the electro-magnets which actuate or display the respective signals. The said signals may be of any suitable construction, and should be provided with some suitable means of retaining them in position or action after the circuit through the magnets M, M¹, or M² has been interrupted. *m*, *m*¹, and *m*² are magnets so arranged as to release, reverse, or stop the action of said signals, which have previously been brought into action by the magnets M, M¹, and M².

The operation of the apparatus is as follows: Suppose a train moving along the track A A from left to right in a direction indicated by the arrow. Upon reaching the point *a* the wheels and axles of the train will form an electrical connection between the opposite insulated rails, and a circuit will be formed between the conductor C and the conductor Z, traversing wires 1 and 2, magnet M, and wire 3, and the signal attached to M will consequently be displayed. Upon the arrival of the train at *a*¹ the same operation will be repeated and another connection formed between C and Z, traversing the wires 4 and 5, magnet M¹, and wire 6, while at the same time a portion of the current will traverse the branch wire 7, magnet *m*, and wire 8. Thus the signal attached to M¹ will be actuated, and simultaneously the action of the magnet *m* will release or reverse the action of the first-mentioned signal. Upon reaching the point *a*² the closing of the circuit by the train will in like manner cause the signal attached to M² to be displayed and the signal last displayed by M¹ to be withdrawn. In this manner any required number of such signals may be operated by means of a single battery.

The respective resistances of the several circuits should be so adjusted that they will be as nearly as possible equal to each other, as a much more perfect action of the apparatus will be secured thereby.

On a railroad having a double track two separate series of signals, one series for each track, may be connected with the conductors C and Z of a single battery, if required. If preferable, they may be also operated by means of separate batteries and separate conductors.

In cases where it is required to operate a large number of signals extending along the road for a distance of many miles the two conductors C and Z may be extended the entire distance and a number of batteries attached at convenient intervals—say, for instance, from five to ten miles apart. The several batteries should all be placed with their positive poles in connection with the wire C, and their negative poles in connection with the wire Z, when they will virtually form one large battery, and the principle of operation will remain the same as that hereinbefore described.

I do not desire to confine myself to the use of any particular form of visual or audible signals, nor to the particular devices herein described for closing the electric circuit at points from which a signal is to be operated. Instead of the circuit being closed automatically by the train itself, it may be closed by a signalman by means of a key or switch, or otherwise.

I claim as my invention—

1. The battery B, in combination with the positive and negative conductors C and Z, two or more electro-magnets, M M¹ M², for actuating or causing to be actuated visual or audible signals, and two or more circuit-closers, *a a*¹ *a*², placed at intervals along the line of a railroad, substantially as and for the purpose specified.

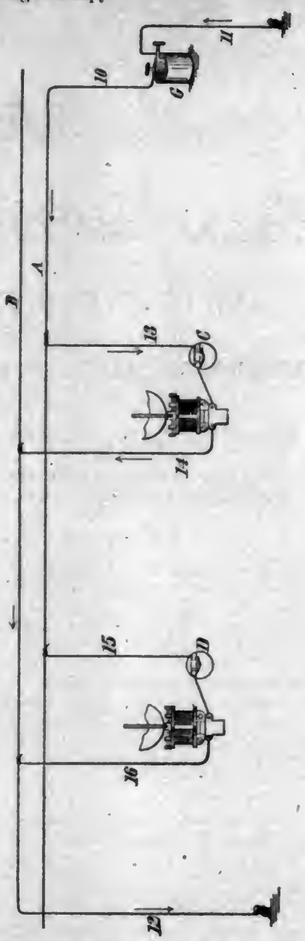
2. The battery B, in combination with the positive and negative conductors C and Z, two or more electro-magnets, *m m*¹ *m*², for releasing or reversing visual or audible signals, and two or more circuit-closers, *a*¹ *a*², placed at intervals along the line of a railroad, substantially as and for the purpose specified.

3. The combination of the battery B, conductors C and Z, circuit-closer *a*, and electro-magnet M, for actuating a visual or audible signal, with the circuit-closer *a*¹, wires 5, 7, and 8, and electro-magnet *m*, for reversing, releasing, or stopping said signal, substantially as specified.

Among the several defenses set up in the answer the two chiefly relied on were, first, that Thomas S. Hall, and not Pope, the patentee, was the first inventor of the improvement claimed, and, second, that the devices used by the defendants were not an infringement of the patent.

The decree below was based on the first of these defenses alone, the circuit court finding that Hall was entitled in law to priority of invention; but we have not found it necessary to discuss the questions of fact and law embraced in this issue, as we have concluded to dispose of the case upon the ground that the defendants did not by the devices used by them infringe the patent of the complainants.

These devices are illustrated by a drawing, of which the following is a copy:



This diagram represents the plan of electric railroad signals placed and put in practical operation by the defendants on the line of the Eastern Railroad, near Boston, prior to the bringing of this suit. In comparing it with the drawing annexed to the patent it is to be remembered that the latter represents a series of double signals in succession on the line of a railroad-track divided into blocks, while Exhibit C represents but one pair of such signals in one such block. To make it correspond with the other, as a representation, it should be imagined as being repeated in several successive blocks, constituting portions of one circuit, closed at fixed points by circuit-closers for that purpose.

Mr. Pope, the patentee, drew this diagram, and, as a witness on behalf of the complainants, explains it, in comparison with the plan described in the patent, with a view to establish their identity. He says:

I have made a diagram which exhibits the apparatus which I examined, or so much of it as is material to this case, which I annex, and is marked "Exhibit C." A battery of, perhaps, one hundred cells is placed in the station-building at Chelsea. One pole of this battery—I think the negative pole—is connected to the earth. A conductor is attached to the other or positive pole of the battery, consisting of an insulated wire extending along parallel with the track upon poles. This wire, which I examined, extended toward Boston, the end remote from Chelsea being disconnected, or, as it is termed, "open." A second conductor, consisting of another similar wire insulated and attached to the same poles, was arranged parallel to the first one. The second wire was open at Chelsea, and connected with the earth at its remote end. The first-mentioned wire I have shown in the diagram, and marked "positive conductor." The second wire is marked "negative conductor." At a short distance from the station a semaphoric signal is placed, consisting of a red disk balanced upon a lever. This was placed in the cupola of a small building at the side of the track. An electro-magnet was arranged with its armature attached to said lever, so that when brought into action the red disk on the other end of the lever would be moved into a position to render it visible through an opening in the cupola. A latch or detent was placed in a position to fasten the lever after the action of the magnet had ceased, and thus continue the exhibition of the signal. A circuit-closer was placed upon the track at a point near the signal, which consisted of a lever so placed as to be depressed by the wheels of a passing train, which movement caused the circuit to be closed by pressing two springs together. When the circuit was thus closed by a passing train, a connection was formed between the positive and negative conductors, and the electric current in passing from one to the other passed through and operated the magnet by which the signal was displayed. At a point, perhaps, a mile distant another signal was arranged in precisely the same manner in connection with a second circuit-closer and the same positive and negative conductors. An additional circuit-closer placed upon the track in the vicinity of this last-named signal was arranged to form a connection from the positive to the negative conductor by the way of a third wire running upon the poles back to the signal first mentioned, where it passed through and operated a second magnet, which lifted the latch or detent and allowed the disk to return to a position concealing it from view. I examined two of these signals, and saw many others along the line of the road. I find in this arrangement thus described the combination claimed in the first claim of said patent, consisting of a battery, in combination with positive and negative conductors, two or more electro-magnets for operating visual signals, and two or more circuit-closers placed at intervals along the line of the railroad; also, the combination claimed in the second claim of the patent, consisting of a battery, in combination with positive and negative conductors, two or more electro-magnets for reversing visual signals, and two or more circuit-closers placed at intervals along the line of the railway. I also find the combination claimed in the third claim of a battery, positive and negative conductors, a circuit-closer, and electro-magnet for actuating a signal, with a second circuit-closer, wires, and a magnet for reversing said signal.

Mr. Moses G. Farmer, an expert witness on behalf of the complainants, makes the same comparison, with the result, according to his opinion, of establishing that the defendants' system is essentially the invention described in the patent. On the other hand, Professor Henry Morton, an expert witness on behalf of the defendants, points out two particulars in which the plan as practiced by the defendants and shown in Exhibit C differs from that of the Pope patent so materially that they cannot be considered substantially the same. The first of these is that in the patent insulated sections of the railroad-track, used when covered by a locomotive or cars as a circuit-closer, are made essential to the combinations claimed, while they are dispensed with in the Hall system, other and independent circuit-closers being employed. The second is thus described by Professor Morton in his testimony:

I also find a difference between the plan described in the patent and that shown in Exhibit C in another regard. In the plan of the patent the conductors C and Z are connected respectively with the positive and negative poles of the battery, or, as the patent itself states, "are virtually prolongations of the positive and negative poles of the battery."

In the plan shown in Exhibit C, however, the conductor C, or positive conductor only, is connected with the battery, the other conductor, Z, or, as it is called, "negative conductor," having no connection with the battery. In consequence of this difference of arrangement in the system of the patent the positive conductor C carries the positive current in one direction away from the battery, and the other or negative conductor, Z, brings the positive current in the opposite direction, or back to the battery, and thereby involves the production of circuits of different resistance for each station. In the system represented in Exhibit C, on the other hand, both the conductors C and Z serve to carry the positive current in the same direction away from the battery, and should, therefore, properly be both called "positive conductors." As a result of this arrangement the current always passes through the same or equal circuits, no matter at which station the connection is made, simply changing from one to the other of these equal parallel wires at the station where the contact is effected. It is for this reason that in this system no equalization of resistance in the sense involved in the description of the patent is required.

It is upon these two points that the question of infringement depends. In considering them it is important to bear in mind that the patent is for a combination merely in which all the elements were known and open to public use. No one of them is claimed to be the invention of the patentee. He does not claim them himself as separate inventions. It is simply a new combination of old and well-known devices for the accomplishment of a new and useful result that is claimed to be the invention secured by the patent; and the well-settled principles of law, heretofore applied to the construction of patents for combinations merely, must apply and govern in the present case. The object of the patented combination was the accomplishment of a particular result—that is, to work electric signals on what was known as the "block system" by means of circuits operated by a single battery instead of many; but this result or idea is not monopolized by the patent. The thing patented is the particular means devised by the inventor by which that result is attained, leaving it open to any other inventor to accomplish the same result by other means. To constitute identity of invention, and therefore infringement, not only must the result attained be the same, but in case the means used for its attainment is a combination of known elements, the elements combined in both cases must be the same, and combined in the same way, so that each element shall perform the same function; provided, however, that the differences alleged are not merely colorable, according to the rule forbidding the use of known equivalents.

The first question we have to consider upon the issue as to infringement is whether insulated sections of the rails as circuit-closers constitute an essential element in the combinations described in the patent; and that question we are constrained to answer in the affirmative. These insulated sections of track are shown and marked on the drawing which accompanies the specification, and in its descriptive part they are referred to as parts of the arrangement. It says:

At intervals of, say, a mile, more or less, sections of the said track *a a*¹ *a*² are electrically insulated from the remainder in a manner well understood, and therefore requiring no detailed description.

And again:

Each of the insulated sections of track *a a*¹ *a*², &c., is placed at some point at or near which it is desired to erect a signal, and any required number of these may be employed to meet the requirements or any particular case.

And, in describing the operation of the apparatus, it further says:

Upon reaching the point *a* the wheels and axles of the train will form an electrical connection between the opposite insulated rails, [&c.] Upon reaching the point *a*² the closing of the circuit by the train will in like manner cause the signal attached to M² to be displayed, and the signal last displayed by M¹ to be withdrawn.

It is true that the patentee also says in the specification:

I do not desire to confine myself to the use of any particular form of visual or audible signals, nor to the particular devices herein described for closing the electric circuit at points from which a signal is to be operated;

but that he does not thereby indicate any intention of dispensing with insulated sections of the track as a necessary part of the mode of forming and closing the circuit appears from what immediately follows:

Instead of the circuit being closed automatically by the train itself, it may be closed by a signalman by means of a key or switch, or otherwise.

This language evidently implies that the insulated sections of the track are constant factors in the plan, the only alternatives proposed having reference, not to a substitute for them, but merely to another mode

of using them in closing the circuit. So in each of the three claims, the circuit-closers a a^1 a^2, or one or more of them, are expressly named as part of the combination claimed as the invention of the patentee. The use of insulated sections of the railroad-track thus repeatedly appears in every part of the specifications as an unchangeable and characteristic feature of the invention, and there is nothing in the state of the art at that date, as disclosed in the evidence, to show that the patentee would have been justified in applying, or that, if he had applied, an application would have been sanctioned by a grant of a patent for a combination as large and undefined as that now claimed by implication and construction, so as to cover every form of a circuit-closer then known or thereafter invented; for that employed by the defendants as part of the Hall system was not only not known and in use at the date of the patent, but was a device invented by Hall himself or one by Snow, for which the latter obtained a patent dated October 21, 1873. It dispenses altogether with the use of insulated sections of the track, and employs instead a separate instrument placed near the track, and worked by means of a lever connected with the track, so that the wheels of locomotives and cars passing on the track depress the outer end, the lever being raised again and held up after the train has passed by means of a spring, which holds it in place. Upon this point the case seems to fall clearly within the rule declared in *Prouty* v. *Ruggles*, (16 Peters, 336;) *Silsby* v. *Foote*, (14 How., 217;) *McCormick* v. *Talcott*, (20 How., 402;) *Vance* v. *Campbell*, (1 Black, 427;) *Eames* v. *Godfrey*, (1 Wall., 78;) *Dunbar* v. *Myers*, (94 U. S., 187;) *Fuller* v. *Guetzler*, (94 U. S., 288;) *Imhauser* v. *Buerk*, (101 U. S., 647;) *Gage* v. *Herring*, (107 U. S., 640;) *Seymour* v. *Osborne*, (11 Wall., 516;) *Gould* v. *Reese*, (15 Wall., 194;) *Gill* v. *Wells*, (22 Wall., 1;) *McMeenay* v. *Mallory*, (111 U. S., 97;) *Fay* v. *Cordesman*, (109 U. S., 408.)

On the second branch of the issue as to infringement we think the case is quite as clearly for the defendants. In the patent the entire circuit operated by the single battery, and which is closed at intermediate points for the purpose of displaying and concealing the signals, is described as formed by means of two wires or other conductors, C and Z, attached to the positive and negative poles of the battery, extended to any required distance in a direction parallel, or nearly so, to the line of the railroad. These wires may be placed on poles, it is said, and should be suitably insulated from each other and from the earth, and they are declared to be virtually prolongations of the positive and negative poles of the battery. Throughout the two conductors are designated as metallic, and insulated from the earth, and they are embraced under that description in each of the claims. On the other hand, the defendants' plan does not include a metallic circuit composed of two conductors, as thus described, but uses a circuit composed in part of the earth itself. The material difference in the principle or mode of operation of the two plans as distinguished in this particular is indicated by Professor Morton in the extract from his testimony already quoted. It will become more apparent on further explanation.

The object proposed by the plan of the patent is to operate with one battery instead of several along the line of a railroad an electric circuit of considerable length, divisible into a number of subsidiary circuits, for the display of signals at many stations by means of circuit-closers operated automatically by passing trains in definite and predetermined succession. It is obvious that the battery must have sufficient power, being placed at one end of the entire circuit, to operate efficiently at the other extremity. The force necessary for that purpose would be much greater than would be needed for the subsidiary circuits, all of which, it will be observed, are different in length; and this difference of force in the battery might be so great, owing to the required length of the whole circuit, as, when expended upon a shorter intermediate circuit, to destroy its capacity for working the signals by overheating. It becomes, therefore, a matter of importance in some way to equalize the resistance of these varying circuits. The patent itself contemplates this necessity and undertakes to make provision for it. It is said in the specification that—

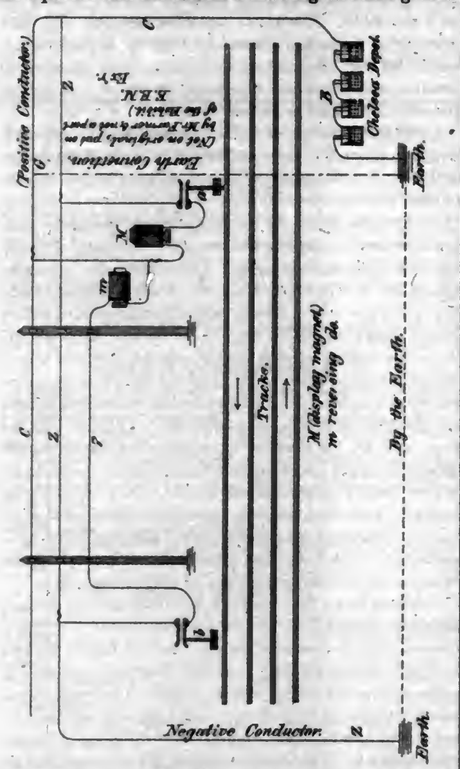
> The respective resistances of the several circuits should be so adjusted that they will be as nearly as possible equal to each other, as a much more perfect action of the apparatus will be secured thereby.

The specification does not point out any particular methods for that purpose; but it is stated in the evidence of experts that such means were well known at the time and in common use—such as by varying the dimensions of the wire on the magnets, or the introduction of resistance-coils into the nearer circuits. These devices would be independent of the apparatus described in the patent, and would have to be adjusted to the peculiar situation of each line of signals in practical use. In the Hall system, as used by the defendants, no such necessity exists. According to that plan there is no necessity of equalizing the resistance of the several sub-circuits, for they are all exactly equal by their construction, as the electric fluid in working the signal at any point, when a sub-circuit has been formed by a circuit-closer, nevertheless traverses the whole extent of the large circuit, and returns by means of the connection formed by the earth to the battery. So that in effect the Hall plan forms its apparatus, counting the connection through the earth, as though it were a continuous wire, as it might be, by means of three lines of conductors, of which two are combined by connecting wires with the magnets which operate the signals at points where the circuit is closed for that purpose, carrying the positive electricity throughout the whole distance to the extreme point of the entire circuit, and then returning it by the third line, which is the connection by means of the earth; and, inasmuch as a wire might be used for this purpose, instead of the earth, it would then show three metallic conductors; and Mr. Farmer, the complainant's expert, is quite right in saying, as he does, that the equalization of the resistances in the several sub-circuits, accomplished in the plan of Hall—

> is due to the arrangement of the wires wholly, and not at all to the fact that the earth is used as a portion of the conductor.

This arrangement is altogether unlike that of the patent. It introduces into the plan of the defendants new elements, a new combination, and a new result. The two wire conductors are not the same, for in the patent one conducts positive electricity, the other returns the current and completes the circuit, while in the other both the metallic conductors carry the current forward while the earth returns it, and in this mode the desideratum is obtained of securing equality of resistance by making all the circuits equal in size.

The device cannot be regarded as a substitute or an equivalent for anything contained in the complainant's patent. It is of itself an independent invention, and as such forms the sole subject of a patent granted to Hall and Snow, July 13, 1875. To explain more satisfactorily the mode of its operation, so as to show that it differs substantially from the arrangement of the complainants, the descriptive parts of the Hall and Snow patent and the attached drawings are here given.



In the drawing, the letters A B designate two wires which extend along the line of a railroad-track, or, in other words, form the line-wires of a telegraph-line. The wire A connects by a wire, 10, with one—say, the positive—pole of a galvanic battery, G, and the other pole of this battery connects by a wire, 11, with the ground. The battery G is supposed to be situated at one end of the line, and at the opposite end of said line the wire B is made to connect by a wire, 12, with the ground. Along the line are distributed a series of keys or circuit-closers, C D, each of which is connected with the line-wires A B, the connection of the circuit-closer C being effected by wires 13 and 14, and that of the circuit-closer D by wires 15 and 16. If the circuit is closed through the circuit-closer C, the current passes from the battery through wire 10, line-wire A, wire 13, circuit-closer C, wire 14, line-wire B, and wire 12 to the ground, and through the ground and wire 11 back to the battery. If the circuit is closed through the circuit-closer D, the current from the battery passes through wires 10, A, 15, circuit-closer D, wires 16, B, and 12 to the ground, and through the ground and wire 11 back to the battery.

From these two examples it will be seen that whenever the circuit is closed along the line the electric current has to traverse the whole circuit, and consequently the resistance is the same in all cases.

It thus clearly appears that the difference in this particular between the invention claimed by the complainants and the alleged infringement is a difference in the arrangement of the parts and in the principle of the combination, with different elements performing different functions; and that the difference is something more than the mere substitution of a connection by means of the earth for one of the conducting-wires. The case is, therefore, clearly distinguishable from that of *The Electric Telegraph Company* v. *Brett*, (10 Com. Bench, 838,) cited and relied on by counsel for the appellants as in point, where the substitution of the earth for a wire as a conductor, being the sole difference, was held, under the English patent laws, not to be sufficient to destroy that identity between the two competing devices which constituted in that case the infringement alleged, although the patent itself called only for metallic conductors. Were that the only difference between the two plans under examination in the present case, there might still be question, in view of our own patent laws, whether the patentee has not made a wholly metallic circuit a necessary part of his combination, to be determined by considerations which we have not thought it necessary to bring into view as bearing upon that point, for, as we have seen, the difference on which we ground our conclusion that the defendants are shown not to have infringed the complainants' patent in this particular is not merely that they have used the earth for the return of the current that completes the circuit, instead of a metallic conductor, but that they have arranged their conductors in reference to the battery, the magnets, the rails, and the earth upon such a system and with such relations and connections that in operating their signals by a single battery the circuits are equalized as to resistance, while in that of the plaintiffs the circuits are of unequal size and resistance, requiring for successful practical use the equalization of the resistances thus created by means of independent and additional devices. One plan proceeds upon the idea of unequal circuits to be afterward equalized; the other adopts and embodies the idea of avoiding the necessity of subsequent rectification by an original adjustment of equal resistances. The difference is inherent in the two combinations and is substantial.

On the ground that in the two points mentioned the defendants' system of signaling is shown not to be an infringement of that described in the patent of the appellants the decree of the circuit court dismissing the bill is affirmed.

U. S. Circuit Court—Southern District of New York

THE CELLULOID MANUFACTURING COMPANY *v.* THE CHROLITHION COLLAR AND CUFF COMPANY.

Decided April 3, 1885.

1. Letters Patent No. 200,939, granted to Rufus A. Sanborn, Charles O. Kanouse, and Albert A. Sanborn, March 5, 1878, is valid.
2. The claim—"A fabric for collars and cuffs, or other similar articles, having outer sheets or layers of celluloid and an interlining of textile or fibrous material, substantially as and for the purposes specified"—is infringed by a fabric cut of a single sheet of chrolithion larger than the finished article, with its edges folded over upon a narrow strip of textile or fibrous material placed around the four edges of the large sheet, the different materials being made to adhere by heat and pressure.
3. Where there is a valid patent for a fabric, any one who uses the fabric without license is an infringer, whether he uses less or more than the patentee in the manufacture of similar articles.

Mr. William D. Shipman, *Mr. Frederic H. Betts*, and *Mr. J. E. Hindon Hyde* for the complainant.

Mr. Edwin M. Felt and *Mr. John P. Adams* for the defendant.

COXE, *J.*:

The complainants are the owners of Letters Patent No. 200,939, granted to Rufus H. Sanborn, Charles O. Kanouse, and Albert A. Sanborn, March 5, 1878, for a new and improved fabric for collars and cuffs. In the specification the inventors declare:

The object of our invention is to make an improvement in collars and cuffs, and like articles of wear, which may be worn a long time without soiling, and be easily renovated for continued wear, by producing them of celluloid, or other forms of pyroxyline or soluble material of like nature, and a textile or fibrous fabric, in the manner following.

The celluloid A is prepared in thin sheets, and between two sheets is placed a sheet of muslin, linen, or other textile fabric, B, to give increased body, elasticity, and strength to the whole; or, in place of the textile material, a substance of the nature of paper may be used, and the same end be answered.

This union of the celluloid and the inner substance may be effected, as above shown, in sheets, and the articles of wear be cut from this united sheet and fitted for use; or the articles of wear may be cut from the separate sheets, and the three be put together afterward; and whenever united the parts together are submitted to suitable pressure for thoroughly incorporating them into one body. In this way collars, cuffs, shirt-fronts, or necktics, &c., may be made durable, and of a material sufficiently elastic, and easily kept clean, for the surface may be washed the same as earthenware.

The claim is as follows:

A fabric for collars and cuffs, or other similar articles, having outer sheets or layers of celluloid and an interlining of textile or fibrous material, substantially as and for the purposes specified.

The defenses are lack of novelty and invention and non-infringement.

Prior to the patent the great utility and importance of a cheap and durable material for collars and cuffs, which should have the appearance of linen and at the same time be capable of continuous wear without washing and ironing, had long been recognized. To supply this want had been the aim and object of a host of inventors. The problem which confronted them was by no means easy of solution; the whole material universe was searched, and a great variety of fabrics and combinations of fabrics were adopted, but still no practical result was attained. Always some important requisite was lacking. At length the discovery of celluloid and other pyroxyline compounds offered, apparently, a solution of the difficulty. Many experiments were made, but the complainants' assignors were the first, so far as this record discloses, to embody in tangible and practical form the idea which had, perhaps, vaguely floated through the minds of others. All before their invention was tentative, impracticable, visionary. They have produced the required fabric, a fabric having durability, elasticity, and lightness, easily cleansed, inexpensive, and of the proper thickness and color, a fabric, in short, which possesses many of the characteristics of linen, and when made into collars and cuffs enables the wearer to dispense with the services of the launderer.

No one had previously combined all these advantages or any considerable part of them. The novelty of the invention is not negatived by any of the patents, American or foreign, introduced by the defendants. They all deal with pyroxyline in a liquid or semi-fluid form—as a paint, as a coating—and not in the solid form used by the complainants. In some of these patents the inventors state, generally, that the compound produced by them may be used upon collars and cuffs and other textile materials. They knew, many of them, what was wanted, but they did not know how to produce it. No one describes with anything like the required accuracy the fabric of the complainants. The burden is upon the defendants to satisfy the court that the prior descriptions contain such a clear, full, and exact statement that a person skilled in the art, with the statement before him, could produce the fabric in question. Not only have the defendants failed in this, but the proof from the experts, as well as from those in the employ of the defendants themselves, is positive and affirmative that the information derived from the prior patents, singly or combined, will not produce a material of the least practical value for collars and cuffs. Liquid pyroxyline cannot, upon this proof, be utilized for such purpose. The law requires something beyond mere suggestion to defeat a patent. Prophecy will not do it. Facts, not theories, are needed. The conclusion is reached, therefore, that the inventive faculty, and not mechanical skill alone, was required to produce the invention described in the complainants' patent, and that the patent is valid.

Upon the question of infringement there is more difficulty. Upon a cursory examination of the defendants' collars and cuffs and the evidence relating to the manner of their manufacture the court might hesitate to declare infringement, but as the inquiry proceeds the more deep-seated becomes the conviction that the complainants' rights are encroached upon. The defendants cut a single sheet of chrolithion, which is a substance essentially the same as celluloid, into the desired shape, but larger than the finished article. A narrow strip of textile or fibrous material is placed around the four edges, which are then folded over, and by heat and pressure made to adhere. The button-holes are strengthened in substantially the same manner. Thus it will be seen that at the seam or outer edge, where increased strength, body, and elasticity are most important, where the principal strain comes, and where the liability to tear and crack is greatest, the invention of the complainants is unquestionably adopted. At these points the defendants use a fabric having outer layers of celluloid and an interlining of textile material.

In considering this question it should be remembered that the invention is not for a collar or cuff, but for a fabric. The defendants do not use the fabric for the interior portion of their cuff, but they do use it at the edges and around the button-holes. The contention seems to be that they do not infringe because they do not use as much of the complainants' fabric as the complainants do. The inquiry is, first, do the defendants, at the edge and around the button-holes of their collars and cuffs, use a fabric, and, second, do they use the fabric claimed in the complainants' patent? If they do, then, *pro tanto*, they are infringers. The testimony upon this subject is quite convincing that there has been a studied effort on the part of the defendants from the first to appropriate all the benefits of the complainants' invention and avoid paying tribute by cleverly devised but insubstantial variations. The defendants might, it is true, have made their collars and cuffs entirely of the patented material; but where there is a valid patent for a fabric, any one who uses the fabric without license is an infringer, and it is no defense to urge that he might have used more, or that he uses less than the patentee in the manufacture of similar articles. If he uses any of the fabric, he uses enough to make him an infringer.

There should be a decree for the complainants.

[NOTE.—Upon the question of costs my impression is that the complainants should recover no costs incident to Letters Patent No. 233,878, and the defendants should be permitted to offset against complainants' costs their costs and disbursements in defending against this patent.]

THE

OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

VOL. 31—No. 5. TUESDAY, MAY 5, 1885. PRICE—$5 per year.

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Indexes to Patents on Electricity.

Appendix No. 2 to the index to patents relating to electricity, covering the period of time from July 1, 1882, to June 30, 1883, has been issued, and is now for sale. These indexes, arranged alphabetically, numerically, and by classes, are completed to June 30, 1883, and comprise the following volumes:

Vol. 1. Index to patents relating to electricity granted by the United States prior to June 30, 1881, with an appendix, July 1, 1881, to June 30, 1882. One volume, 250 pages. In paper covers, $3; bound, $5.

Vol. 2. Appendix No. 2, July 1, 1882, to June 30, 1883. One volume, 50 pages. In paper covers, $1.50.

Vol. 3. Appendix No. 3, July 1, 1883, to June 30, 1884. One volume, 60 pages. In paper covers, $1.50.

Issue of May 5, 1885.

Patents	553—No. 316,929 to No. 317,481,	inclusive.
Designs	13—No. 16,066 to No. 16,078,	inclusive.
Trade-Marks	27—No. 12,199 to No. 12,225,	inclusive.
Labels	6—No. 4,440 to No. 4,445,	inclusive.
Reissues of patents	3—No. 10,592 to No. 10,594,	inclusive.
Total issue	602	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama			Nebraska	2	
Arizona Territory			Nevada		
Arkansas			New Hampshire	2	1
California	8	1	New Jersey	33	
Colorado	8		New Mexico Territ'y		
Connecticut	31	1	New York	114	10
Dakota Territory	1		North Carolina	6	1
Delaware	1		Ohio	47	1
District of Columbia	5		Oregon	1	
Florida			Pennsylvania	62	2
Georgia	2		Rhode Island	3	
Idaho Territory			South Carolina	1	
Illinois	38	2	Tennessee	4	
Indiana	16	1	Texas	6	1
Iowa	14		Utah Territory	1	
Kansas	11		Vermont	3	
Kentucky	3		Virginia	2	1
Louisiana	2		Washington Territ'y		
Maine	4		West Virginia	1	
Maryland	7		Wisconsin	13	1
Massachusetts	41	3	Wyoming Territory		
Michigan	14	2	United States Army		
Minnesota	3		United States Navy		
Mississippi	1				
Missouri	20	3	Total to citizens of the United States	531	31
Montana Territory					

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Australia			France	3	1
Austria-Hungary			Germany	5	
Barbadoes			Italy		
Belgium	1		New Zealand		
Bermuda			Norway		
Brazil			Russia		
Canada	9	1	Scotland		
Chili	1		Spain		
Colombia, U. S. of			Sweden	3	
Cuba			Switzerland	1	
Denmark	1				
Egypt	1		Total to citizens of foreign countries	35	2
England	10				

DESIGNS.

16,066.—CRUET.—*Max Ams*, New York, N. Y. Application filed March 16, 1885. Term of patent 3½ years.

16,067.—TYPE.—*Henry Brehmer*, Stapleton, assignor to *David Wolfe Bruce*, New York, N. Y. Application filed December 13, 1884. Term of patent 14 years.

16,068.—TEN-PIN.—*Ralph B. Cooley*, Brooklyn, N. Y. Application filed April 9, 1885. Term of patent 7 years.

16,069.—BOTTLE OR JAR.—*Ramsay Crooks*, New York, N. Y., assignor to *Barabeau, Père & Fils*, Perigueux, France. Application filed January 20, 1885. Term of patent 7 years.

16,070.—PENDANT.—*Bernhard Dreyfus*, New York, N. Y. Application filed March 11, 1885. Term of patent 7 years.

16,071.—SAMPLE-SHOT CASE.—*Alexander Euston*, St. Louis, Mo. Application filed March 30, 1885. Term of patent 14 years.

16,072.—CARD-RECEIVER.—*William Harris*, Baltimore, Md. Application filed March 28, 1885. Term of patent 7 years.

16,073.—TEA-SET.—*Edwin Hartland*, Plainfield, N. J. Application filed January 16, 1885. Term of patent 7 years.

16,074.—CARPET.—*Norie Komori*, New York, N. Y., assignor to *The Bigelow Carpet Company*, Clinton, Mass. Application filed February 12, 1885. Term of patent 3½ years.

16,075.—ACE OF SPADES FOR CARDS.—*Henry M. Rosenbaum*, Philadelphia, Pa. Application filed April 6, 1885. Term of patent 7 years.

16,076.—GIMP.—*Henry Wynkoop*, Philadelphia, Pa. Application filed March 18, 1885. Term of patent 7 years.

16,077.—STOVE OR RANGE.—*William H. Swanton*, Cambridge, Mass. Application filed March 7, 1885. Term of patent 7 years.

16,078.—LAMP-BODY.—*George O. Thomas*, Waterbury, Conn. Application filed March 2, 1885. Term of patent 7 years.

TRADE-MARKS.

[Certificates of registration of Trade-Marks numbered 8,191 and upward are registered under the act of March 3, 1881.]

12,199.—MIXED TEA.—*John Babillion*, Detroit, Mich. Application filed April 8, 1885.
"The arbitrarily-selected letters 'A B C.'"

12,200.—MIXED TEA.—*John Babillion*, Detroit, Mich. Application filed April 8, 1885.
"The arbitrarily-selected word 'COMBINATION.'"

12,201.—WIRE-NETTING FOR FENCING, CAGES, &c. *Washington Brockner* and *Lemuel E. Evans*, New York, N. Y. Application filed April 4, 1885.
"The representation of a partly-extended roll of netting with supporting bars or posts, two large fowls, a food-dish, and several small chickens."

12,202.—NATURAL MINERAL SPRING WATER.—*Bullard & Foster*, Keene, N. H. Application filed March 7, 1885.
"The word 'HAMPSHIRE' and the representation of an Indian dipping the water from a spring."

12,203.—BOOTS AND SHOES FOR MISSES AND CHILDREN.—*The P. Cox Shoe Manufacturing Company*, Rochester, N. Y. Application filed January 31, 1885.
"The words 'P. COX, ANKLE SUPPORT SHOE,' and an oval or ellipse."

12,204.—CHEWING-GUMS.—*Dankeiser Bros. & Co.*, Chicago, Ill. Application filed February 26, 1885.
"The compound word-symbol 'MA-NA.'"

12,205.—REMEDY FOR PULMONARY DISEASES.—*Martin F. Eagar*, Halifax, Nova Scotia, Canada. Application filed March 11, 1885.
"The arbitrary word 'PHOSPHOLEINE.'"

12,206.—LAUNDRY AND OTHER SOAPS.—*Empire Soap Company*, St. Louis, Mo. Application filed March 27, 1885.
"The representation of a cut diamond arranged within the letter 'O' of the word 'DIAMOND.'"

12,207.—BLEACHED COTTON GOODS.—*Fall River Bleachery*, Fall River, Mass. Application filed February 10, 1885.
"A lozenge-shaped figure with labyrinthic ornamentation at the four corners, and inclosing the words 'GUARANTEED PURE FINISH ABSOLUTELY FREE FROM MINERAL SUBSTANCES.'"

12,208.—LAUNDRY SOAP.—*N. K. Fairbank & Co.*, Chicago, Ill. Application filed March 31, 1885.
"The word 'DUDE.'"

12,209.—CERTAIN NATURAL MINERAL WATER.—*J. P. Forbes* and *F. A. Plaisted*, San Francisco, Cal. Application filed February 10, 1885.
"The word 'CASTALIAN' and a landscape, which landscape shows a mound or hill, a stream of water, a valley with trees, and a mountain in the distance."

12,210.—TOILET, BATH, AND LAUNDRY SOAP.—*Gowans & Stover*, Buffalo, N. Y. Application filed April 10, 1885.
"The letters 'U G.'"

12,211.—CHEWING-TOBACCO.—*P. H. Hanes & Co.*, Winston, N. C. Application filed March 16, 1885.
"A representation of the statue of the 'GREEK SLAVE.'"

12,212.—FINE-CUT CHEWING, GRANULATED, AND OTHER KINDS OF SMOKING TOBACCO, CIGARS, AND CIGARETTES.—*Hull, Boesger & Co.*, Cleveland, Ohio. Application filed April 2, 1885.
"The word 'NIGHT-HAWK' with the design of a bird with outstretched wings resting on a limb, the background being partially formed by a full moon."

12,213.—MEDICINE IN CAPSULES.—*B. Jesserich*, Kansas City, Mo. Application filed March 27, 1885.
"The particular shape of the whole label, which forms a cross made of a single piece of paper and having the appearance of two intersecting labels."

12,214.—TOILET-BRUSHES.—*Charles Leonen*, Paris, France. Application filed April 8, 1885.
"The representation of a unicorn issuant."

12,215.—SMOKING AND CHEWING TOBACCO, CIGARS, AND CIGARETTES.—*Henry W. Meyer*, Brooklyn, N. Y. Application filed March 27, 1885.
"The arbitrarily-selected word 'IVANHOE.'"

12,216.—SMOKING AND CHEWING TOBACCO, CIGARS, AND CIGARETTES.—*Henry W. Meyer*, Brooklyn, N. Y. Application filed March 27, 1885.
"The picture of a dog, tree, suspended birds, gun, and game-bag."

12,217.—CERTAIN NATURAL MINERAL WATER.—*Luther W. McConnell*, Waukesha, Wis. Application filed March 17, 1885.
"The word 'SILURIAN.'"

12,218.—SOAP FOR LAUNDRY AND TOILET USE.—*L. & J. Oakley*, Newberg, N. Y. Application filed March 11, 1885.
"The word 'KING.'"

12,219.—NAILS.—*The Plume & Atwood Manufacturing Company*, Waterbury, Conn. Application filed April 13, 1885.
"The letters 'P. & A.,' with the representation of a nail above, below, and on each side."

12,220.—BONELESS PREPARATION OF SALTED FISH.—*Joseph O. Procter, Jr.*, Gloucester, Mass. Application filed April 9, 1885.
"The word 'PERSIS.'"

12,221.—SMOKED HAMS AND CURED MEATS.—*Rohe & Brother*, New York, N. Y. Application filed April 8, 1885.
"The word 'IMPERIAL.'"

12,222.—KID-GLOVES.—*Roman Bros.*, Philadelphia, Pa. Application filed April 13, 1885.
"The word or title 'ROMA.'"

12,223.—CERTAIN-NAMED PREPARATIONS FOR THE LAUNDRY.—*A. M. Ross & Co.*, Boston, Mass. Application filed April 11, 1885.
"The word 'SOAPERIOR.'"

12,224.—MEDICINAL CONFECTIONS.—*Friedrich A. Uhlich*, St. Louis, Mo. Application filed April 13, 1885.
"The words 'BAVARIAN BREAST MALT SUGAR.'"

12,225.—PREPARATIONS OF GOLD FOR DENTISTS' USE.—*The S. S. White Dental Manufacturing Company*, Philadelphia, Pa. Application filed March 31, 1885.
"The arbitrary word 'VELVET.'"

LABELS.

4,440.—Title: "CHEATHAM'S CHILL TONIC."—*Mathew Venable Cheatham* and *Charles Berryman Haley*, Gainesville, Tex. Application filed April 9, 1885.

4,441.—Title: "BRITISH BAKING POWDER."—*The British Baking Powder Company*, Clifton Forge, Va. Application filed April 6, 1885.

4,442.—Title: "THE PRIZE PENCIL TABLET."—*C. E. Morrell & Co.*, New York, N. Y. Application filed April 11, 1885.

4,443.—Title: "THE PRIZE LINEN TABLET."—*C. E. Morrell & Co.*, New York, N. Y. Application filed April 11, 1885.

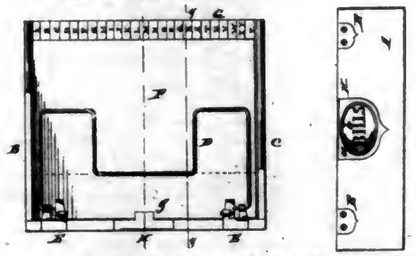
4,444.—Title: "SMITH'S GERMAN PILE CURE."—*Elam G. Smith & Son*, Kentland, Ind. Application filed April 13, 1885.

4,445.—Title: "MALT AND ROCK, 8 YEARS OLD."—*Hegeman & Co.*, New York, N. Y. Application filed April 15, 1885.

PATENTS

GRANTED MAY 5, 1885.

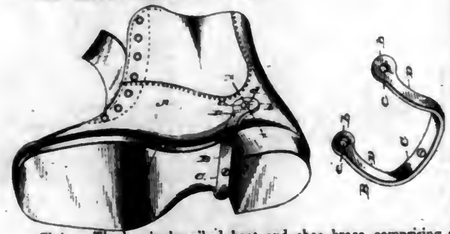
316,929. LABEL-HOLDER. WILLIAM A. AMBERG, Chicago, Ill. Filed Dec. 7, 1883. (No model.)



Claim.—1. The open plate H, with the label *b*, in combination with the back A, having the recess *c*, substantially as specified.

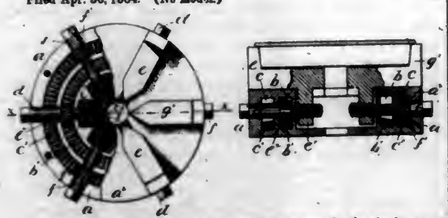
2. The back A, having the recess *c* and groove *d*, in combination with the label *b* and open plate H, forming a border for the label, substantially as described.

316,930. BOOT OR SHOE BRACE. JESSEE C. AWALT, Steward's Mills, Tex. Filed Feb. 17, 1885. (No model.)



Claim.—The herein-described boot and shoe brace, comprising a body portion, C, having the integral rearwardly-curved arms D, having heads *b*, provided with holes or openings, said brace being adapted to be applied to the exterior of the shoe in a manner substantially as described.

316,931. LATHE-CHUCK. EZRA B. BAILEY, Windsor Locks, Conn. Filed Apr. 30, 1884. (No model.)



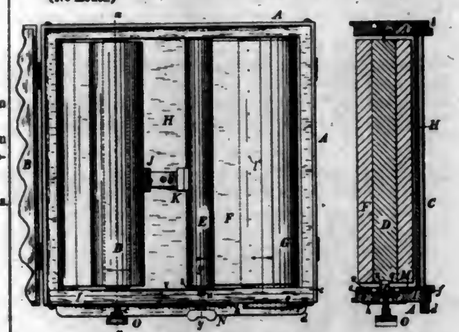
Claim.—1. In a lathe-chuck, in combination with the body parts having sockets for the operating parts, three or more jaws forming a set that are operated by means of an annular gear and the pinion-bearing shaft, and another series of three or more jaws forming a set distinct from the first and operated by means of an annular gear common to the latter set and by a pinion-bearing shaft, all substantially as described.

2. In combination, chuck-body a', body a^3, concentric annular gears b' and c', and the jaws *e* and g', arranged in the separate series *s* and *t* of universal jaws, all substantially as described.

316,932. COMPOSITION FOR PLASTERS. WILLIAM N. BAKER, Geneseo, N. Y. Filed Jan. 24, 1885. (No specimens.)

Claim.—The said composition of matter, consisting of pure water, burdock-leaves, mullein-leaves, chamomile-blossoms, catnip-leaves, horse-radish leaves, smart-weed plant, cats-tail-flag root, rosin, beef-tallow, spikenard-root, comfrey-root, hemlock-oil, and camphor-gum, in the proportions specified.

316,933. ROLLER-HOLDER FOR PHOTOGRAPHIC FILMS. WILLIS A. BANNISTER and LOUIS H. BANNISTER, Rochester, N. Y., assignors to the Eastman Dry Plate and Film Company, same place. Filed Oct. 13, 1884. (No model.)



Claim.—1. The combination, in a roller-holder, of the measuring-roll G, and detachable spindle c', passing through the wall of the holder and carrying the indicator e', substantially as described.

2. The combination, in a roller-holder, of the measuring-roll G, detachable spindle c', indicator e', casing *p*, and transparent plate f', substantially as described.

3. In a roller-holder for exposing photographic films, and in combination with the inclosing-case and rollers, the removable end or side supporting the corresponding ends of the rollers, substantially as described.

4. The combination, in a roller-holder, of the measuring-roll G, removable end I, spindle c', and indicator e', substantially as described.

5. The combination, in a roller-holder, with one of the film-carrying rolls, of a friction pad or brake arranged to act on the reverse or unsensitized side of the film, substantially as described.

6. The combination, in a roller-holder, of the film-carrying rolls D and E, friction-pieces J and K, and springs *b*, substantially as described.

7. The combination, in a roller-holder, with the film-carrying rolls, of a measuring-roll provided with a series of film-perforating devices arranged longitudinally of the roll, and the latter having its circumference equal to the length of the film required for a single exposure, substantially as described.

8. The combination, in a roller-holder, of the film-receiving roller E, provided with mechanism which prevents its reverse motion, and the film-carrying roller D, having connected therewith the spring *x*, arranged to operate as a film-straining device, substantially as described.

9. The combination, in a roller-holder, of the removable film-carrying roller D, sliding spindle *c*, and spring *r*, substantially as described.

10. The combination, with the film-receiving roller E, provided with ratchet h' and spring-pawl *u*, of the film-carrying roller D, provided with spring *x*, the outer end of which revolves against a friction-resistance, substantially as described.

11. In combination with the inclosing-case and the measuring-roller contained therein, the removable end piece carrying the indicator, the latter when the said end piece is applied to the case being brought into

operative connection with said measuring-roller, substantially as described.

12. The combination, with the roller D, of the spring *x*, collar *z*, and ratchet M, the inner end of said spring engaging notches in the collar *z*, and the outer end resting in frictional contact with the teeth of ratchet M, substantially as described.

13. The combination, with the roller D, of the spindle *c*, collar *z*, spring *x*, and a frictional piece, M, attached to the holder, substantially as described.

14. The combination, with the roller D, of the sliding spindle *c*, and the collar *z* and spring *x*, arranged within a suitable recess in the wall of the holder, substantially as described.

15. The combination, with the roller E, of the sliding spindle *s* and ratchet *h'*, provided with a spring-pawl and arranged within a recess in the wall of the holder, substantially as described.

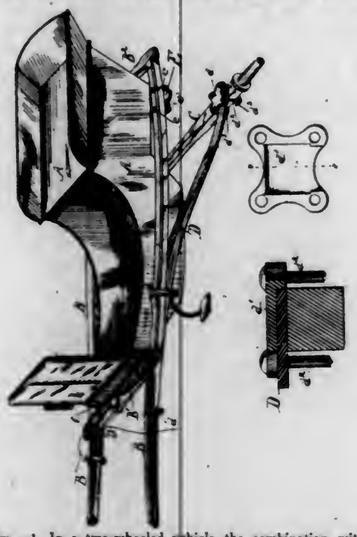
16. In a roller-holder for exposing photographic films, the combination, with the winding and unwinding rollers located in the inclosing-case and provided at one end with the fixed bearings therein, of the removable side or end piece, and the devices mounted thereon for engaging the ends of the said rollers and affording bearings for the latter, substantially as described.

17. In combination with the supporting-frame of a roller-holder, a rotary tension device independently mounted or supported upon said frame, and a spool upon which the film is wound detachably applied to said tension device, substantially as described.

18. In a roller-holder for photographic films, the combination with the frame, of the spindle supported therein and provided with means for engaging the end of the spool, and a yielding tension device applied intermediate the said spindle and the frame, substantially as described, whereby the spool can be removed or applied to the tension device and spindle at will.

19. In a roller-holder such as described, wherein the film-supply is wound upon a spool and drawn therefrom at intervals to expose a limited surface and in combination with said spool, a longitudinally-adjustable spindle provided with means for engaging the end of the removable spool, and a yielding tension device applied to said spindle, substantially as described.

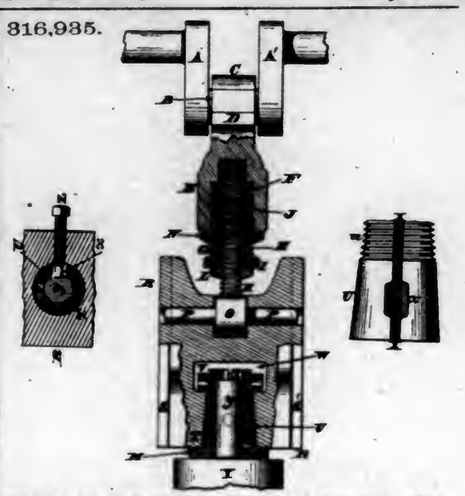
316,934. ROAD-CART. IRA BARBER, La Porte, Ind., assignor to himself and John F. Croft, same place. Filed Jan. 21, 1884. (No model.)



Claim.—1. In a two-wheeled vehicle, the combination, with the shafts, axle, and side springs, of a cross-spring upon which the body is mounted and which resists the tipping of the body relatively to the axle by its torsion, substantially as specified.

2. In a two-wheeled vehicle, the combination, with shafts, axle, side springs, and cross-spring upon which the body is mounted and which resists the tipping of the body by its torsion, of a front connection between shafts and body to limit the tipping of the body, substantially as specified.

316,935. POWER-PRESS. EDWARD BARRATH, Brooklyn, N. Y. Filed Mar. 28, 1884. (No model.)

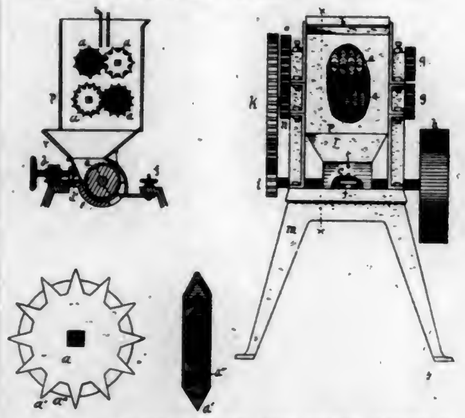


Claim.—1. The combination, in a power-press, of slide R, coupling O P, screw K, tubular nut G H J, jam-nuts L N, and internally-threaded head E F, which latter connects with the wrist B, substantially as herein described.

2. The combination, in a power-press, with the slide R, provided with the transverse mortise W and conical opening T, of the longitudinally-split thimble U *u* X and nut V, for the purpose described.

3. In combination with the slide R, having a conical opening, T, nut V, and set-screw Z, the thimble U *u*, whose longitudinal slit X is enlarged at *x* to clear said screw, in the manner herein described.

316,936. GRINDING-MILL. JOHN BEALL and WILLIAM L. BEALL, Decatur, Ill. Filed Feb. 20, 1884. (No model.)



Claim.—1. The grinding-machine herein described, consisting in the combination of a horizontal grinding-cylinder, a hopper located above said cylinder and extended down and around the same to a horizontal line extending through the center thereof, a sliding cut-off located at the lowest extremity of the hopper, and an adjustable concave surface opposed to the lower surface of the grinding-cylinder, as and for the purpose set forth.

2. The herein-described grinding-mill, comprising the casing *p*, the guide-plates *b*, the sets of rolls *a*, the hopper *r*, cylinder *c*, cut-off *d'*, and concave *e*, substantially as set forth.

3. The grinding cylinder or roll formed of parts *c' c'*, grinding-rings *c*, threaded tapering shaft *c''*, and nut *c'''*, as and for the purpose set forth.

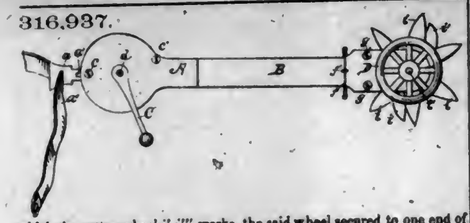
316,937. HAND HEDGE-TRIMMER. BENJAMIN F. BELL, Yates Center, Kans. Filed July 21, 1884. (No model.)

Claim.—1. In a hedge-trimmer, the body A B, the sections connected together by a central shaft having a pinion on each end and a collar, for the purpose set forth.

2. In a hedge-trimmer, the rear end, A, having a cog-wheel, *d'*, within it secured to the crank-shaft *a*, and the adjustable arm *a a'*, carrying a strap, *a''*, all for the purpose set forth.

3. The forward end, B, having guards *i* arranged in a circle within

316,937.



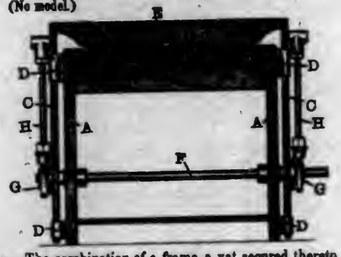
which the cutter-wheel *i' i''* works, the said wheel secured to one end of shaft *i''*, and wheel D at the other, and made to revolve by means of cog-wheels arranged within said body and operated by the crank C, all as and for the purpose set forth.

4. The combination, with a hedge-trimmer, of the arm *a*, adjustably secured to the body by a screw working in slot *a'*, and having a strap, *a''*, all for the purpose set forth.

5. The combination, with the body A B, of the operating mechanism arranged within said body, the guards *i*, knives *i'*, shaft *i''*, and wheel D, all for the purpose set forth.

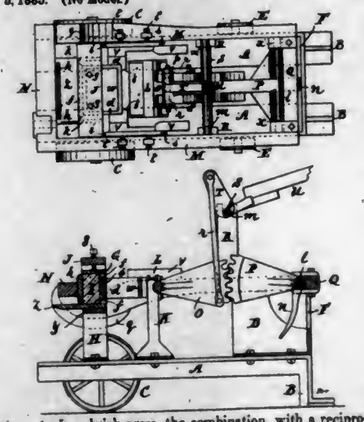
6. The combination, with the body of the trimmer, of the guards *f f'*, arranged near the front end of the same, all as shown, and for the purpose set forth.

316,938. PAPER-PULP SCREEN. FRANK X. BLACK, Hamilton, Ohio, assignor to the Black & Clawson Company, same place. Filed Feb. 16, 1885. (No model.)



Claim.—The combination of a frame, a vat secured thereto, a shaft journaled across the frame, a pair of adjustable eccentrics secured upon said shaft one at each side of the machine, a pair of reciprocating yokes or equivalent vertically-guided parts disposed one at each side of the machine, vertical guides secured to the frame and engaged by the yokes, a straining-vat secured to the top of the yokes and supported solely thereby, and eccentric-rods engaging the eccentrics and wrists in the yoke, substantially as and for the purpose set forth.

316,939. BRICK-PRESS. JOSEPH R. BOWERS, Concord, N. H. Filed Jan. 5, 1885. (No model.)



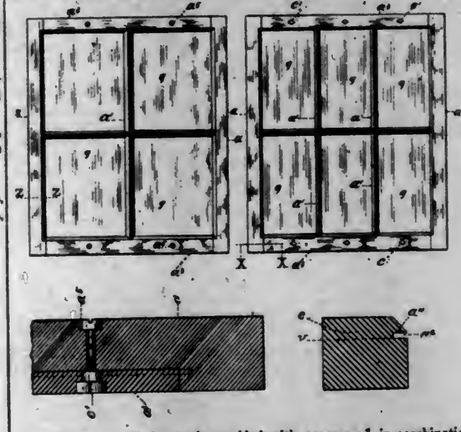
Claim.—1. In a brick-press, the combination, with a reciprocating frame or follower, of a shaft pivoted to said reciprocating frame and traversing therewith, a toothed segment fixed to said shaft, a shaft supported in fixed bearings on the machine, a toothed segment attached to the last-named shaft and intermeshing with the segment on said traversing shaft, upright standards attached to the reciprocating frame, a rock-shaft supported in said standards above said segments, a crank-arm on said rock-shaft, a pitman connecting said crank-arm with one of said segments, and an actuating-lever attached to said rock-shaft, the said parts being arranged substantially as described, whereby the pitman is caused to approach the center of motion of said rock-shaft when said segments are raised by the depression of said lever.

2. In a brick-press, the rocker-shaft S, provided with the lever U and arm T, in combination with the segments O P, pitman *r*, standards K, and a sliding frame-work having the standards R R and carrying a follower, substantially as set forth.

3. In a brick-press, the curved arm *n*, in combination with the segment P, standard F, and the sliding main frame-work, substantially as described.

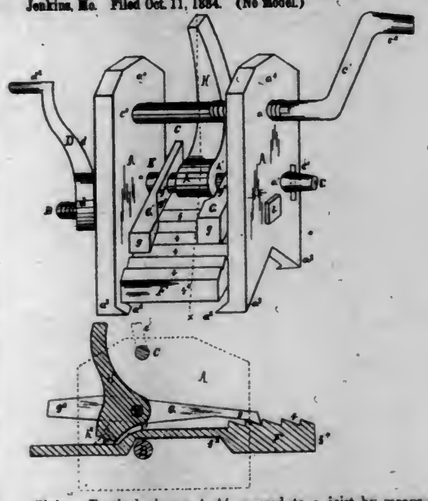
4. In a brick-press, the rail M, provided with the curve *q*, to enable the brick to be removed from the table Z, substantially as described.

316,940. WINDOW-GLASS FASTENER. JOHN BRAUN and FERDINAND BOHN, Buffalo, N. Y. Filed Jan. 17, 1885. (No model.)



Claim.—A window-sash provided with grooves a^2, in combination with a removable strip, a^3, having an offset, a^4, substantially as specified, and bolts for securing it in place, consisting of the nut portion having the diamond-shaped heads *c'*, adapted to fit in corresponding depressions in the removable strip, and the bolts a^5, having countersunk heads, as and for the purposes described.

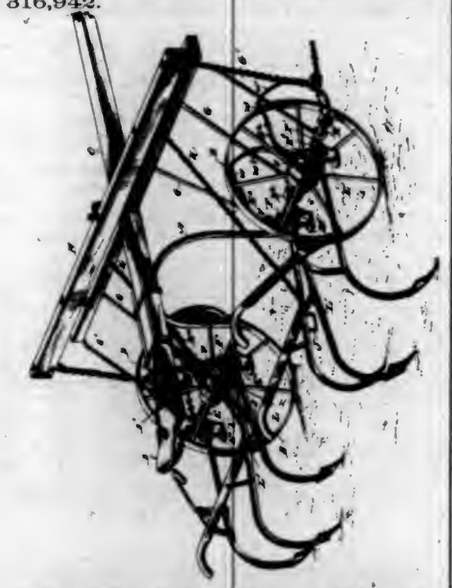
316,941. DEVICE FOR ADJUSTING BOARDS, &c. DAVID S. BROWN, Jenkins, Ma. Filed Oct. 11, 1884. (No model.)



Claim.—Toothed clamps A A', secured to a joist by means of a cranked bolt, C, and bolt B, having a cranked nut, *d*, a sliding tongue, F, having notches *f*, shoulder f^2, and notch f^3, bolt E, dogs G G', and a lever, H, having a projection, *h*, and a handle bent forward, all constructed, combined, and arranged to operate substantially as shown and described.

316,942. CULTIVATOR. DAN BRUNSON, Jewell City, Kans. Filed Mar. 17, 1885. (No model.)

316,942.



Claim.—1. The combination, with the arched axle, the supporting-wheels, and the intermediate hinged plows connected to the axle, of the removable journal-extensions and the two outside hinged plows connected to said extensions, substantially as specified.

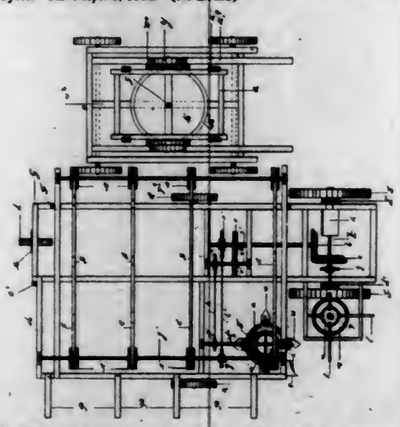
2. The combination, with the main axle provided with double plows, of the end extensions, each provided with a single plow, as set forth.

3. The combination, with the axle having the removable extensions outside of the riding-wheels, of the plow-beams, the spring-actuated clevises articulated on said extensions removably connected to the axle outside of the riding-wheels, as set forth.

4. The combination, with the axle and the plow-beam, of the bracket F, with eye F', the pivot-rod E', collar *v*, the arm E², spring *w'*, and the chain *w*, connecting said arm and spring, substantially as set forth.

5. The combination, in a cultivator, of an arched axle provided with carrying-wheels, and having removable extension-axles E E, adapted to carry the auxiliary plows, as set forth.

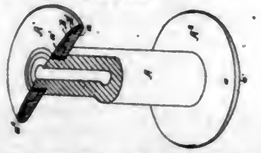
316,943. CORN-HARVESTER. JOHN D. BURLIE, Kansas City, Mo., assignor of three-fourths to Joseph B. F. Cates, Hans Lund, and Marcus S. Tyler. Filed Apr. 8, 1884. (No model.)



Claim.—In a cane-harvester, the laterally-adjustable framing, in combination with the main axle carrying the driving-wheels S, bevel-gear *c*, and reel-driving pulley *y*, the longitudinal shaft Z', carrying gear *v* and the elevator-driving pulley *x'*, the knife-driving shaft Z², carrying pinion *v'* and pulley *x*, the vertical shaft *z*, carrying the cutter-head T, bevel-gear *a'*, and pulley *g'*, substantially as described.

316,944. BOBBIN AND SPOOL. JOHN L. CHENEY, Lowell, Mass. Filed June 2, 1884. (No model.)

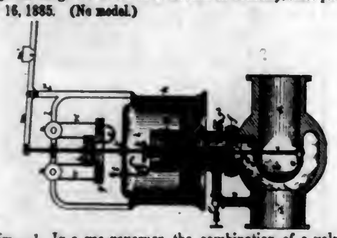
Brief.—The layers of wood of which the heads are made are tongued and grooved either annularly or longitudinally, thereby securing a firmer union of the parts when glued.



Claim.—1. A spool or bobbin having a head formed of two layers of wood united by an adhesive substance, substantially as described, one of said layers being provided with a tongue and the other with a groove, said tongue being adapted to enter and fit said groove, and the grain of one of said layers being arranged at an angle to the grain of the other of said layers, as and for the purpose specified.

2. A spool or bobbin having a head formed of two layers of wood united by an adhesive substance, substantially as described, one of said layers being provided with an annular tongue and the other with an annular groove, said tongue being adapted to enter and fit said groove, and the grain of one of said layers being arranged at an angle to the grain of the other of said layers, as and for the purpose specified.

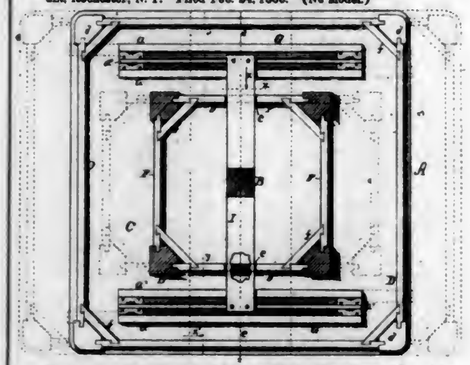
316,945. AUTOMATIC GAS-GOVERNOR. JOHN S. CONNELLY, Pittsburg, Pa., assignor of one-half to Thomas E. Connelly, same place. Filed Jan. 16, 1885. (No model.)



Claim.—1. In a gas-governor, the combination of a valve, valve-stem, and float with compensating fluid-weight vessels having a flexible connection, one of which is fastened to the valve-stem and connected to the other by chains passing over suitable sheaves, substantially as and for the purposes described.

2. In a gas-governor, the combination of a float, a tube projecting up through the float, and a valve-rod extending through said tube, with an oiling-pipe, provided with a trap or sealing-bend, extending through the shell of the float, and terminating over the end of the valve-stem tube, substantially as and for the purposes described.

316,946. EXTENSION-TABLE. DAVID COPELAND and HENRY J. DURGIN, Rochester, N. Y. Filed Feb. 24, 1885. (No model.)



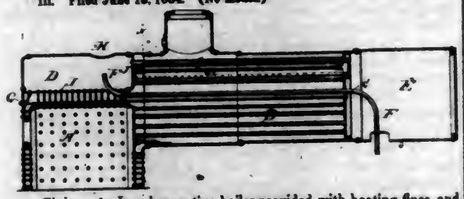
Claim.—1. An extension-table provided with a frame, F, and legs B, for supporting the table, and extension-slides G, secured to the top board, C, of the table outside of said frame, substantially as shown and described.

2. An extension-table having an inner frame, F, and an outer frame, D, the inner frame being provided with legs B, for supporting the table, and extension-slides G, secured to the top board of the table between the rails of said inner and outer frames, substantially as described.

3. An extension-table having an inner frame, F, and an outer frame, D, said inner frame being provided with legs B, for supporting the table,

both frames constructed with the corner-braces *f*, and extension-slides G, secured to the table between the frames, substantially as described.

316,947. LOCOMOTIVE-BOILER. CHARLES R. COVENTRY, Chicago, Ill. Filed June 13, 1884. (No model.)



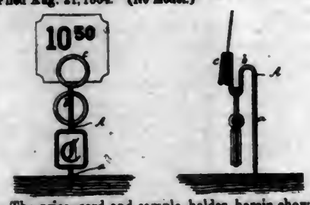
Claim.—1. In a locomotive-boiler provided with heating-flues, and with continuous return or superheating flues, which open directly and from but one direction into a smoke-chamber, D, extended over the fire-box, a supplemental crown-sheet over the fire-box, to the forward end of which crown-sheet the upper rear segment of the flue-sheet is attached or fastened, all arranged in one boiler or shell, substantially as described.

2. In a locomotive-boiler provided with heating-flues, and with continuous return or superheating flues, which open directly and from but one direction into a smoke-chamber, D, extended over the fire-box, a supplemental crown-sheet over the fire-box, to the forward end of which crown-sheet the upper rear segment of the flue-sheet is attached or fastened, with a water-space between the crown-sheet and the supplemental crown-sheet, all arranged in one boiler or shell, substantially as described.

3. In a locomotive-boiler provided with heating-flues, and with continuous return or superheating flues, which open directly and from but one direction into a smoke-chamber, D, extended over the fire-box, a supplemental crown-sheet over the fire-box, to the forward end of which crown-sheet the upper rear segment of the flue-sheet is attached or fastened, connected to the crown-sheet proper by stay-bolts, all arranged in one boiler or shell, substantially as described.

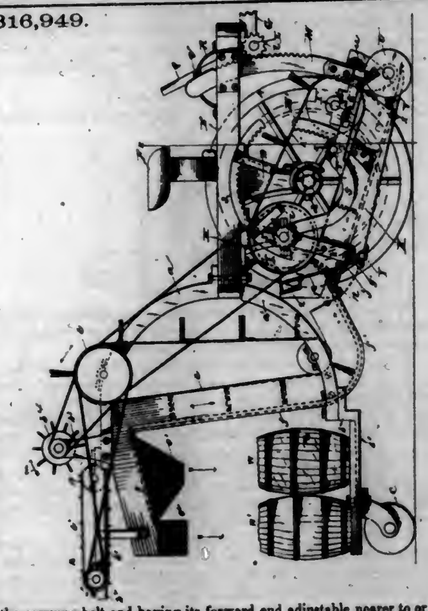
4. In a locomotive-boiler, a segment of flue-sheet located, substantially, over the front end of the fire-box, in which the rear ends of the return-flues terminate, and which forms the forward end of the smoke-chamber D, extended over the fire-box, substantially as described.

316,948. HOLDER FOR CARDS, &c. FRANCIS L. CUTTER, Brooklyn, N. Y. Filed Aug. 21, 1884. (No model.)



Claim.—The price-card and sample holder herein shown and described, the same consisting of a piece of wire bent to form the straight shank *a*, the double or S-shaped hook *b*, and the double-coiled head *c*, the double hook being interposed between the straight shank and the double-coiled head, substantially as set forth.

316,949. POTATO-DIGGER. NELSON K. DE LAPLANE, Plattsburg, N. Y. Filed July 19, 1884. (No model.)



Claim.—1. In a potato-digger, the main frame mounted upon an axle adapted to be rotated by the forward movement of the carrying-wheels, the rear roller of the gathering-belt journaled in hangers depending from the rear end of the main frame, the forward roller of the gathering-belt journaled in the forward ends of arms pivoted to and extending from the journals of the rear rollers, and the gathering-belt, in combination with the plow or scoop pivotally connected at its rear end to the journals of the rear roller of the gathering-belt, and adapted to be adjusted at its forward end nearer to or farther from the frame, and means, substantially as described, for adjusting the forward roller of the gathering-belt nearer to or farther from the plow or scoop, as and for the purpose set forth.

2. In a potato-digger, the main frame mounted upon suitable carrying-wheels, the rear roller of the gathering-belt journaled in hangers depending from the frame at the rear thereof, the side arms pivoted to the journals of the rear roller and forming bearings at their forward ends for the journals of the forward roller of the gathering-belt, the gathering-belt provided with teeth and supported and operated by the rollers, the shaft extending from one to the other of the forward roller-supporting arms journaled in said arms and provided at each end with pinions, in combination with rack-arms extending upwardly from the side guards of a plow or scoop, pivotally connected to the journals of the rear roller of the carrying-belt and having its forward end adjustable nearer to or farther from the frame, substantially as described, and for the purpose set forth.

3. In a potato-digger, a main frame mounted upon carrying-wheels adapted to be clutched with and thereby rotate the axle in their forward movements, said frame pivotally connected at its rear end to a combined grate and plow or scoop located beneath the frame and having its forward end adjustable nearer to or farther from the frame, in combination with the gathering-belt supported and operated by rollers journaled in hangers depending from the frame, and inside arms, pivoted at their rear ends to said hangers, and means located below the main frame, substantially as described, for adjusting the belt nearer to or farther from said grate and plow, as and for the purpose set forth.

4. In a potato-digger, a frame supported upon an axle journaled in carrying-wheels, and provided at its rear end with depending hangers in which is journaled the rear roller of the gathering-belt, in combination with the combined grate and plow or scoop located below and pivotally connected to the journals of the rear roller of the carrying-belt, and provided at its forward end with upwardly-projecting curved rack-arms concentric with the journals of said rear roller of the gathering-belt, pinions engaging said rack-arms and mounted upon a shaft journaled to the forward end of the frame, and guide-wheels adjustably connected to the lower end of the said curved arms, substantially as described, and for the purpose set forth.

5. In a potato-digger, the combination of the gathering-belt mounted upon suitable rollers, the side guards of the plow or scoop, the grate pivoted at its forward end in said guards, with a rock-shaft extending from one to the other of said guards, and provided with means, substantially as described, for adjustably supporting the rear end of the grate and permit it to yield when under too great pressure, as and for the purpose set forth.

6. In a potato-digger, the combination of the gathering-belt mounted upon suitable rollers, the side guards of the plow or scoop, the grate pivoted at its forward end in said guards and resting at its rear end upon spring-pressed rock-arms projecting from a rock-shaft extending from one to the other of and journaled in said guards and controlled by said rock-arms, substantially as and for the purpose set forth.

7. The combination, in a potato-digger, of a yielding grate for receiving the potatoes and a gathering-belt having yielding teeth, substantially as set forth.

8. The combination, with the potato-digger frame and grate, of a supplemental attachment consisting, essentially, of a frame provided with a toothed elevator-belt, a grate for receiving and sorting the potatoes, and a toothed belt and picker for receiving and discharging separately the vines and stalks, substantially as set forth.

9. The combination, with the frame and grate of a potato-digger, of the detachable supplemental frame supported at its rear ends upon caster-wheels, and provided with a platform located directly below the assorting-grate to receive removable receptacles for the sorted potatoes, the assorting-grate, the elevator, and means for driving the elevator-belt from the digger, substantially as and for the purpose set forth.

10. The combination of the inclined grate-floor, the inclined toothed elevating-belt, the assorting-grate, the toothed endless apron above the assorting-grate, and the picker above the apron, substantially as set forth.

316,950. PETROLEUM-BURNER. ELIAS B. DE LA MATYR, Chicago, Ill. Filed Aug. 2, 1884. (No model.)



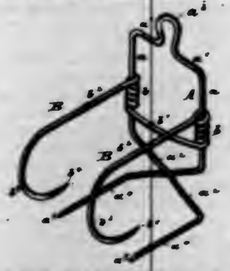
Claim.—1. The reversible burner having duplicate chambers or channels arranged reversely to each other, and provided with the shifting bottom rods or pieces, substantially as described.

2. The combination, with the casing having the front upper opening and the downward-projecting partial partition, of the burner constructed, substantially as described, with reversed chambers, and arranged for one of said chambers to stand behind said partial partition while the other stands in front thereof, said chambers being provided with the shifting bottom rods or pieces, substantially as described.

3. The combination, with the reversible burner having the reversed open-ended chambers, each of which is narrower at one end than at the other, of the shifting rods D D, arranged to change their positions by gravity and to close the bottoms of said chambers alternately.

4. The combination of the reversible burner having the reversed chambers and shifting bottom rods with the casing having the downwardly-projecting partial partition, the air-inlets, the oil-pipe connection, and the front opening for the escape of products of combustion, substantially as described.

316,951. LETTER-FILE. ALEXANDER DOW, Mount Healthy, assignor to the Globe Files Company, Cincinnati, Ohio. Filed Sept. 15, 1884. (No model.)



Claim.—1. A file having the uprights a^4, each upright being connected to a base-rod, a, and sleeves b, each sleeve carrying hooked uprights b^2 and sliding on its respective base-rod a, the sleeves being connected together by the cross-rod or connection b', substantially as and for the purposes specified.

2. A file having the uprights a^4, each upright being connected to its respective base-rod a, and sleeves b, each sleeve carrying a hooked upright, b^2, and sliding on its respective base-rod, the sleeves being connected to a cross-rod or connection, b', and the rear ends of the rods a being connected together by the rear cross-rod a', substantially as and for the purposes specified.

3. In a file, the combination of the cross rod or spring b' and the friction-sleeves b, connected thereto, and rods a, on which said sleeves respectively slide, substantially as and for the purposes specified.

4. A file having the uprights a^4, each upright being connected to its respective base-rod a, and sleeves b, each sleeve carrying an upright, b^2, and sliding on its respective base, the sleeves being provided with a cross-rod or connection for preventing their turning laterally, and the base-rods a being connected to rear rod a', provided with eye a^3, substantially as and for the purposes specified.

5. A file having base-rods a a, crossing each other in front, and terminating forward, respectively, in the uprights a^4 a^4 and rearward in the rod a', and hooked rods b^2 respectively connected to sleeves sliding on rods a, the sleeves being joined by a connection, b', substantially as and for the purposes specified.

6. A file having base-rods a a, crossing each other in front, and terminating forward, respectively, in the uprights a^4 a^4 and rearward in the rod a', and hooked rods b^2, respectively connected to sleeves sliding on rods a, the sleeves being joined by a connection, b', the rod a' being provided with eye a^3, substantially as and for the purposes specified.

7. A file consisting of only two pieces of wire, one wire bent and forming standards a^4, rods a, rod a', and eye or loop a^3, and the other wire bent and forming the rods B, sleeves b, and cross-rod b', combined substantially as and for the purposes specified.

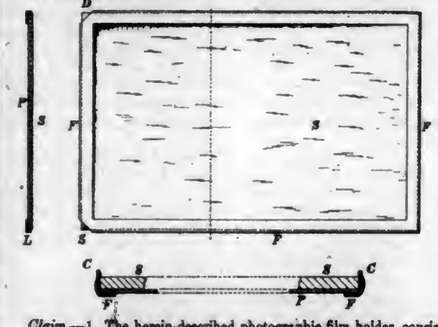
8. A file consisting of back A, provided with sides a, top a', eye a^3, cross-wires a^2, and prongs a^4, and sliding piece B, consisting of sleeves b, connecting-piece b', standards b^2, and hooks b^3, substantially as and for the purposes specified.

9. The combination of the wire-twisted sleeves carrying sliding pieces B B, and having cross-bar or connection b', and base-wires a, having uprights a^4 a^4, substantially as and for the purposes specified.

10. The combination of base-piece C and the file consisting, substantially, of rods a, uprights a^4, rear rod a', sleeves b, uprights b^2 b^2, and cross-rod b', substantially as and for the purposes specified.

11. The combination of base-piece C and the file consisting, substantially, of rods a, uprights a^4, rear ryd a', sleeves b, uprights b^2 b^2, cross-rod b', and the cover D, provided with top walls and flanges and openings, substantially as and for the purposes specified.

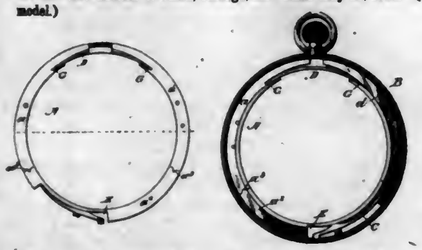
316,952. PHOTOGRAPHIC-FILM HOLDER. GEORGE EASTMAN and WILLIAM H. WALKER, Rochester, N. Y., assignors, by mesne assignments, to the Eastman Dry Plate and Film Company, same place. Filed Aug. 8, 1884. (No model.)



Claim.—1. The herein-described photographic-film holder, consisting of the plate or support S and open frame F, provided with clips C C, adapted to fit over two opposite sides of the support and to hold the film against the face side of the support, substantially as and for the purposes set forth.

2. The herein-described photographic-film holder, consisting of the plate or support S and open frame F, having one or more truncated corners, D, and provided with clips C C, adapted to fit over two opposite sides of the support and to hold the film against the face side of the support, substantially as and for the purposes set forth.

316,953. FITTING FOR WATCH-CASE SPRINGS. WALTER H. FITZGERALD and GEORGE C. SMITH, Chicago, Ill. Filed May 19, 1884. (No model.)



Claim.—1. The combination, with a watch-case, of a sectional base-support for the catch and lift springs, substantially as described.

2. The combination, with a watch-case, of an annular sectional support for the catch and lift springs, substantially as described.

3. The combination, with a watch-case, of a sectional base-support for the catch and lift springs, fitted within an annular groove or seat in the body of the case, substantially as described.

4. The annular sectional base-support for the catch and lift springs of a watch-case, in combination with a lift-spring pivoted in a recess in said support, substantially as described.

5. The annular sectional base-support for the catch and lift springs of a watch-case, in combination with a catch-spring having its ends fitting loosely in recesses in the base-support, substantially as described.

6. The annular sectional support for the purpose described, provided at the opposing ends of two of its sections with recesses, and notches back of said recesses, in combination with the bow-shaped catch-spring fitted to operate in said recesses, substantially as described.

7. The bow-shaped catch-spring provided with a stuffing-box, substantially as and for the purpose set forth.

8. The sectional base A, in combination with the catch-spring having a stuffing-box for the stem to pass and work through, said box extending from the spring into a space in the said base, substantially as described.

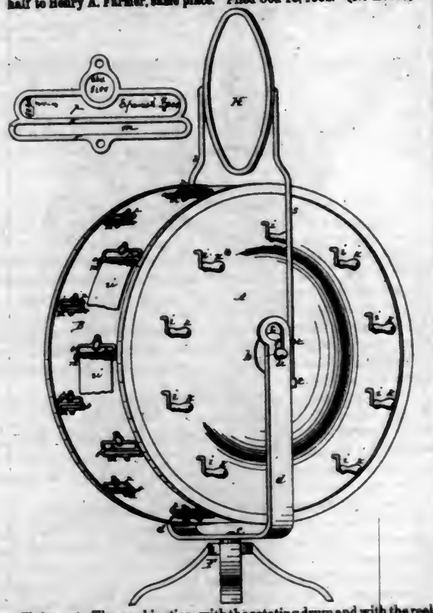
9. The combination, with a watch-case, of a sectional base-support for the catch and lift springs, adapted to be taken apart and subsequently fitted together in position in the case, substantially as described.

316,954. REVOLVING RAKE. JOSEPH H. M. FORDE, Taos, Mo. Filed May 22, 1884. (No model.)



Claim.—In a revolving rake, in combination with a suitable frame, the revolving axle A, provided with four rows of teeth, a a a a, the bearings with loosely-fitted metal straps B B, rigidly attached to said frame D, the hand-lever C, with check or stop guard d, and standard e, substantially as described and specified, and for the purpose set forth.

316,955. LACE-REEL. GEORGE E. FOX, Rockford, Ill., assignor of one-half to Henry A. Farmer, same place. Filed Oct. 16, 1882. (No model.)



Claim.—1. The combination, with the rotating drum and with the reels capable of a rotary movement within the drum, of the edge-bindings and price-card-holding frame, arranged over the openings through which the goods are passed to and from the reels, substantially as and for the purpose set forth.

2. The combination, with the drum adapted to rotate on trunnions a in the arm d, provided with reels, of a rotary movement within the drum and peripheral openings through which to pass the goods to and from the reels of the edge-bindings o, and price-card-holding frame G, attached over the openings, as and for the purpose hereinbefore set forth.

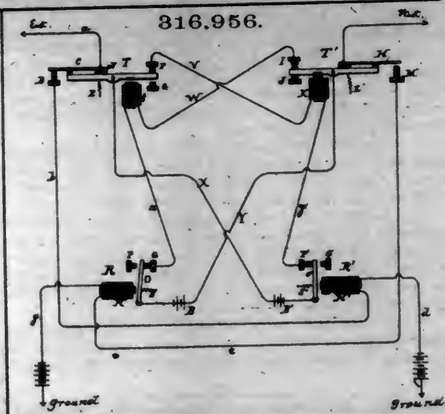
3. In a revolving show-case, the combination, with a frame, F, provided with a cylindrical case, A, having openings, of shafts h, having crank-arms i, and the hooks l on the shaft, substantially as and for the purpose set forth.

316,956. TELEGRAPHIC RELAY. GEORGE W. GARDANIER, New York, N. Y. Filed Mar. 24, 1884. (No model.)

Claim.—1. A telegraph-repeater consisting of a transmitter and relay for each of the main-line circuits with local circuits, the transmitters each being arranged with contacts to directly break the local circuit of the other before the main-line circuit is broken, whereby one transmitter is kept idle while the other is operating, substantially as set forth.

2. In a telegraph-repeater, the relays, the armatures of which are arranged to close their respective local circuits on the back contact, in

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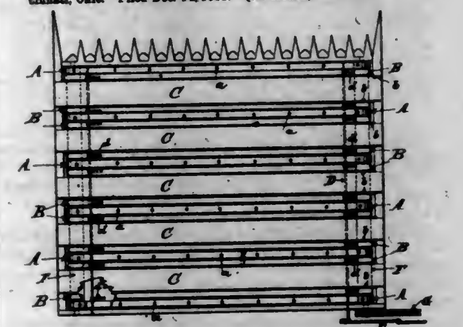


combination with the transmitters having a spring-contact at one end and a fixed contact at the other, and with local and main-line circuits, substantially as set forth.

3. In a telegraph-repeater, the combination of the transmitters T T', having circuit-springs C H, respectively, with local and main-line circuits and relays R R', whose armatures act on the back contact to close their respective local circuits, substantially in the manner described.

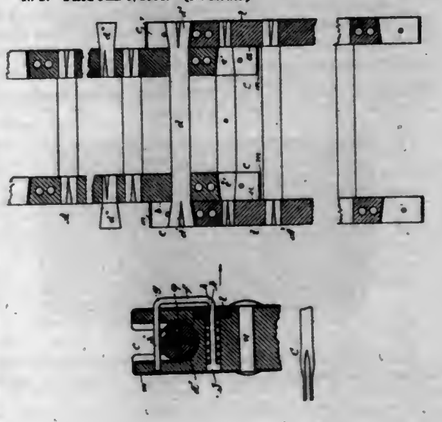
4. In a telegraph-repeater, the transmitter, relays, and local and main-line circuits, the armature of the relays operating their respective transmitters on the back contact, and one end of each transmitter being in and adapted to open and close the local circuit of the other transmitter, substantially as set forth.

316,957. PLATFORM FOR HARVESTERS. JEPTHA GARRARD, Cincinnati, Ohio. Filed Dec. 14, 1883. (No model.)



Claim.—In a grain-platform for a harvester, the combination of the bands A, the bars B, the hooks b, and the pitman E, substantially as described.

316,958. SECTIONAL LADDER. PHILEMON T. GATES, New York, N. Y. Filed Jan. 5, 1885. (No model.)



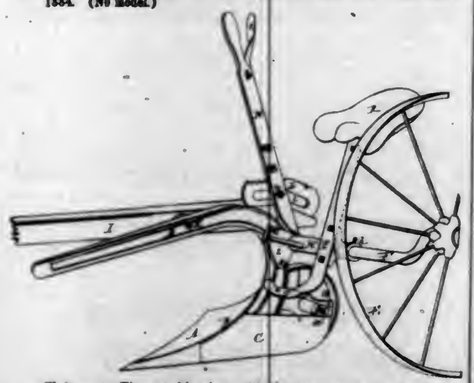
Claim.—1. A detachable joint for sectional ladders, consisting in the combination, with the narrow and wide sections, respectively, A and A', of the dovetail projections *d'* of the round *d* fitting snugly into the dovetail slots *c*, the said projections belonging to the narrow section, and the said slots to the wide section, and of the dovetail or beveled portions *d'* of the round *e* belonging to the wide section fitting into the dovetail slots *c* belonging to the narrow section.

2. A detachable joint for sectional ladders, consisting of the beveled projections *d''* of one section adapted to fit into beveled slots of another section, in combination with beveled projections of the second section adapted to fit into beveled slots of the first-named section.

3. A detachable joint for sectional ladders, consisting of the dovetail projections *d'* of the narrow section fitting into the dovetail slots of the wide section, and of the dovetail portions *c'* of the round *e* fitting into the dovetail slots of the narrow section, in combination with adjustable pins *i*, passing through perforations in the side rails of the ladder and fitting against said projections *d'* and said portions *c'*.

4. In sectional-ladder joints, the combination, with a dovetail projection fitting into a dovetail slot, of a pin located crosswise to the slot and touching the dovetail projection, said pin being adapted to be removable.

316,959. SULKY-PLOW. Saber Gesley, Beloit, Wis. Filed Sept. 3, 1884. (No model.)



Claim.—1. The combination, with the plow-beam, and with the crank axle-tree of the land-wheel, of a sleeve-bracket provided with a plate integral therewith by which said bracket is fixedly attached directly to and extends from the side of the plow-beam to form a support for the axle-tree, substantially as and for the purpose set forth.

2. The combination, with the axle-tree of the land-wheel, and with the tongue pivotally connected with the plow-beam, of a ratchet-bracket fixed to the pole and an operating-lever fixed to axle-tree, and having a free connection with the ratchet-bracket, substantially as and for the purpose set forth.

3. The combination of the tongue pivotally connected with the plow-beam, and the crank axle-tree of the land-wheel pivotally connected to the plow-beam, of a ratchet-bracket attached to the tongue, and an operating-lever fixedly connected to the said axle-tree, and having a free connection with the ratchet-bracket, and provided with a spring-actuated pawl to engage the teeth of the bracket, substantially as and for the purposes specified.

4. The combination, with the sleeve-bracket connecting the crank-axle to the plow-beam, of a seat-support fixed to the sleeve and having a seat fixed to its upper end portion, and a foot-support fixed to its lower end portion, substantially as and for the purpose set forth.

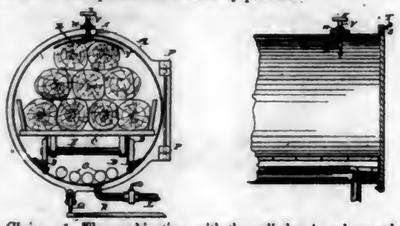
316,960. PLATFORM FOR FIRE-ESCAPES. Richard Hamhill, Chicago, Ill. Filed Sept. 16, 1884. (No model.)



Claim.—A platform for fire-escapes, composed of a series of bars roughened upon their upper faces and T-shaped in cross-section, as set forth.

316,961. APPARATUS FOR CREOSOTING WOOD. Ludvig Hansen and Andrew Smith, Wilmington, N. C. Filed Mar. 21, 1885. (No model.)

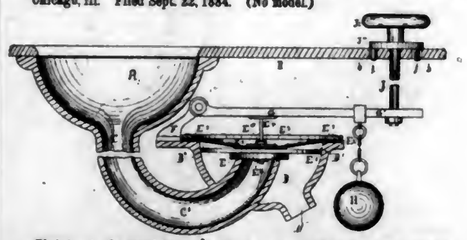
Brief.—The logs, which may or may not have been previously charred upon the surface, are loaded upon the car, which is run into the cylinder. The hinged section of track is turned aside, and the head secured by bolts. The logs are dried by steam, and creosote admitted, which is caused to penetrate the wood by pressure.



Claim.—1. The combination, with the cylinder A and curved way R, of the hinged head O, provided with the supporting-wheel Q, substantially as described.

2. The combination, with the cylinder A, of the bar X, carrying the transverse bars Y, and screws V, for operating the same, substantially as described.

316,962. WASTE-PIPE TRAP AND VALVE. Patrick Harvey, Chicago, Ill. Filed Sept. 22, 1884. (No model.)



Claim.—1. In combination with the bowl, the waste-pipe leading therefrom and having a U-trap and opening within the valve-chamber, the valve-chamber having an eduction-port, the flexible diaphragm forming part of the wall of the valve-chamber, the valve secured on the inner surface of the diaphragm and adapted to seat over the open end of the waste-pipe, and an arm exterior to said chamber under adjustable pressure acting against said diaphragm and removable therefrom at will, substantially as set forth.

2. In combination with the bowl, the waste-pipe opening within the valve-chamber and having between the bowl and the valve a water-trap, a valve-chamber having an eduction-port, the flexible diaphragm forming part of the wall of the chamber, the valve secured on the inner surface of the diaphragm, and thereby retained seated over the open end of the waste-pipe, substantially as set forth.

3. In combination with the bowl, the waste-pipe opening within the valve-chamber and having between the bowl and the valve a water-trap, the valve-chamber having an eduction-port, the flexible diaphragm forming part of the wall of the valve-chamber, the valve secured on the inner surface of the diaphragm, and thereby seated over the mouth of the waste-pipe, an arm exterior to said chamber bearing against said diaphragm and removable at will, substantially as set forth.

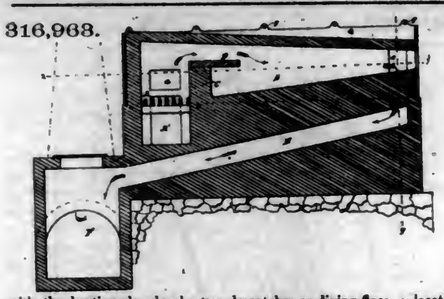
4. In combination with the bowl, the waste-pipe opening within the valve-chamber and having between the bowl and the valve a water-trap, the valve-chamber having an eduction-port, the flexible diaphragm forming part of the wall of the valve-chamber, the valve secured on the inner surface of the diaphragm, and thereby seated over the mouth of the waste-pipe, and an arm exterior to said chamber under adjustable pressure bearing against said diaphragm and removable and detainable therefrom at will, substantially as set forth.

5. In combination, substantially as hereinbefore set forth, the bowl, the valve-chamber, the waste-pipe connecting them, and having between them the water-trap, the valve within the valve-chamber and adapted to close the waste-pipe, the diaphragm forming part of the wall of the valve-chamber and exteriorly exposed to atmospheric pressure and acting inwardly to seat the valve, substantially as set forth.

316,963. METAL-HEATING FURNACE. William Hartt, Portsmouth, Ohio. Filed Sept. 18, 1882. (No model.)

Claim.—1. A heating-furnace having the fire-chamber A and heating-chamber B separated by a bridge-wall, C, having an apron, D, the bottom of the heating-chamber being in combination with the single broad exit-flue E, located below the said chamber B, and communicating

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with the heating-chamber by two downtakes or diving-flues, *e*, located near the charging-door and at the side of the heating-chamber, and formed at or in the side walls of the furnace, substantially as and for the purposes described.

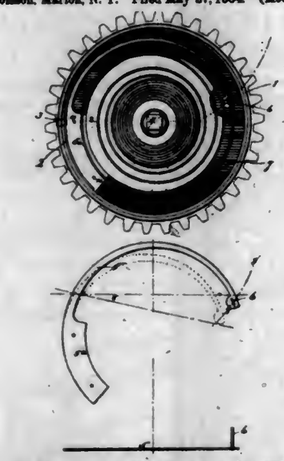
2. A heating-furnace having the fire-chamber A and heating-chamber B separated by a bridge-wall, C, having an apron, D, the bottom of the heating-chamber being inclined upward toward the charging-door, in combination with the single broad exit-flue E, located below the said chamber B, and communicating with the heating-chamber by two downtakes or diving-flues, *e*, located near the charging-door and at the side of the heating-chamber, and formed at or in the side walls of the furnace, substantially as and for the purposes described.

3. A heating-furnace having the fire-chamber A and heating-chamber B separated by a bridge-wall, C, having an apron, D, the bottom of the heating-chamber being preferably inclined upward toward the charging-door, in combination with the single broad exit-flue E, located below the said chambers, and communicating with the heating-chamber by two downtakes or diving-flues, *e*, located near the charging-door and at the side of the heating-chamber, and formed at or in the side walls of the furnace, and tunnel F at rear of said heating-furnace, and communicates with stack, substantially as and for the purposes described.

316,964. ROOFING COMPOUND. Henry C. Hawes and James E. Green, 2d, Belleville, N. Y. Filed Oct. 30, 1884. (No specimens.)

Claim.—The improved roofing compound, consisting in the admixture of red lead and ground iron ore with coal-tar, hydraulic cement, rosin, gypsum, and alum, in about the proportions specified.

316,965. WATCH-BARREL. John Hay, Rochester, assignor to J. E. Thomson, Marion, N. Y. Filed May 27, 1884. (Model.)

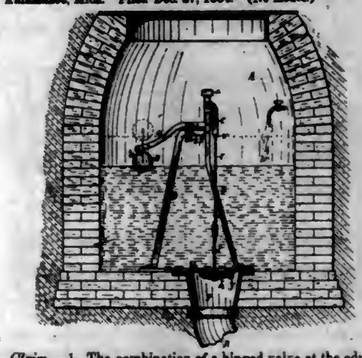


Claim.—1. In a watch or other time-piece, the combination, with a mainspring and a barrel or other means for securing the same, of a separate equalizing-spring the function of which is to prevent the coils of the said mainspring from abrading each upon the other, substantially as and for the purpose specified.

2. The combination, with the barrel and the mainspring, of the equalizing-spring and the spur, for the purpose of maintaining a separation of the coils of the said mainspring, substantially as set forth.

3. In combination, the mainspring, the barrel in the bottom of which is formed an annular groove, the separate equalizing-spring disposed within the said groove, and the spur, as 5, substantially as and for the purpose specified.

316,966. AUTOMATIC FLUSHING APPARATUS. Byron J. Healy, Kalamazoo, Mich. Filed Dec. 27, 1884. (No model.)



Claim.—1. The combination of a hinged valve at the eduction-port, adapted to swing open by the pressure of the water when released, a supporting-frame having the horizontal arm and upward extension, an elbowed operating-lever pivoted to said extension and provided with a float, and a connecting-rod pivoted to the upper end of the elbow-lever and jointedly connected with the valve, substantially as set forth.

2. The combination, with a valve hinged to swing open, of an operating-lever having the forked end and flexibly-connected float, and a rod connecting the operating-lever and valve, substantially as set forth.

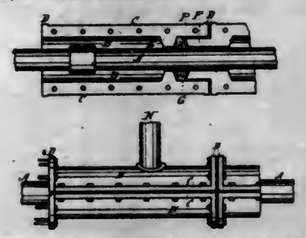
3. The combination of the swinging valve, supporting-frame, pivoted operating-lever, and connecting-rod consisting of the severed headed lapped rods provided with the spring, all substantially as set forth.

4. The combination of the swinging valve, forked elbow operating-lever, float, adjusting set-screw or equivalent, and supporting-frame, and the connecting-rod having the upper threaded end, recessed coupling, and jam-nut, substantially as set forth.

5. The combination of a supporting-frame, an elbow operating-lever pivoted to said frame at the turn of the elbow, a float connecting with said lever, a swinging valve, and a connecting-rod connecting the upper end of the elbow with the valve, and provided with a flexible portion to facilitate the locking of the operating-lever, and to accelerate its movement when tripped, substantially as set forth.

6. The combination, with a registering device having an extended operating-arm, of a flushing apparatus having an operating-lever adapted to swing in contact with said operating-arm when the flush-valve opens, for the purpose stated, substantially as set forth.

316,967. SAFETY-SHIELD FOR GAS-MAINS. Robert Heber, Titusville, Pa. Filed Feb. 10, 1885. (No model.)

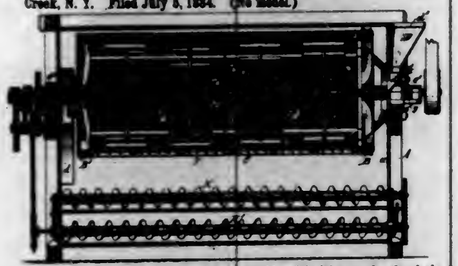


Claim.—1. An inclosing-shield for a gas-main, consisting of a larger pipe inclosing the main, of sufficient strength to withstand the pressure of gas in the main, if necessary, and with the upper part of the shield constructed in sections, any one of which may be removed at pleasure without disturbing the adjoining sections, thereby securing access to the main at any point, the space between the main and the shield being divided into separate consecutive chambers by packing-rings constructed at proper distances between the outside of the main pipe and the shield, so that any gas leaking or escaping from the main cannot flow along the main from one chamber to the next, and with a free escape-pipe from each chamber for conveying any gas escaping from the main to a safe point for mingling with the atmosphere, the chambers being contiguous and the shield continuous, the whole main pipe adequately protected, substantially as shown and described.

2. In a safety-shield, a pipe inclosing a main pipe used for conveying natural gas, as a device for separating the space between the main pipe and shield into chambers, a packing-box consisting of a ring on the inside of one joint of the shield near one end and a follower on the adjacent end of the next joint, the space between the ring and the follower being filled with hemp or other packing, which is compressed by the

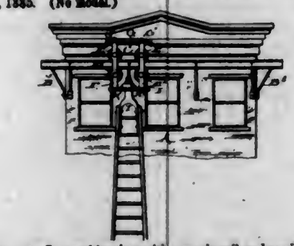
drawing together of the two joints either by flange union with bolts or by screwing one joint of pipe into the other, substantially as described.

316,968. CENTRIFUGAL FLOUR-BOLT. ADOLPH HEINE, Silver Creek, N. Y. Filed July 5, 1884. (No model.)



Claim.—The combination, in a centrifugal bolting-reel, of a bolting-cylinder and several annular sets or series of revolving beaters arranged within the bolting-cylinder, with intermediate quieting-spaces in which the material is permitted to settle before being acted upon by the next succeeding set of beaters, substantially as set forth.

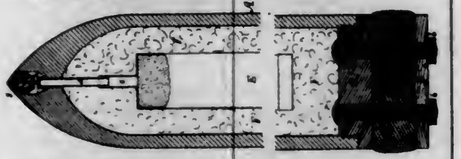
316,969. FIRE-ESCAPE. WILLIAM F. HIER, Reading, Pa. Filed Jan. 31, 1885. (No model.)



Claim.—1. In combination with a track-rail as described, a flexible carriage, C, provided with carrier and retainer wheels adapted to said rail, and provided with a lower link-connection, H, having pivotal connection with the yokes F at H', and a central semi-spherical seat, H^3, cone perforated at H^3, with a semi-spherical joint-piece, J, adapted to said seat, for the purpose substantially as declared.

2. In combination with a flexible fire-escape truck as described, shown, and for the purpose declared, the joint-piece J, seat H^3, coned perforation H^3, stem I', nut K, and key L of a ladder-bow iron I, whereby the ladder attached thereto may be suspended vertically, swung to either side, and be made to lie with its rungs parallel with or at right angles to the face of the building, as set forth.

316,970. SHELL. BARTON B. HILL, Lowell, Mass. Filed Dec. 12, 1884. (No model.)



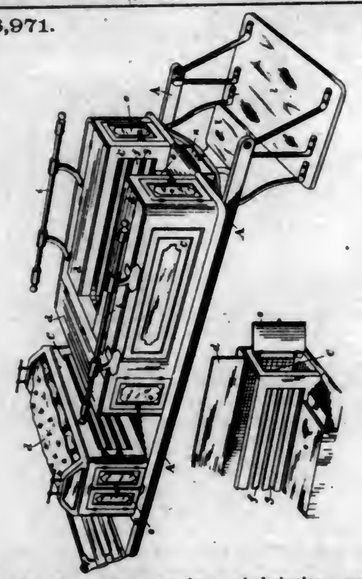
Claim.—1. The combination of the shell-body provided with the chamber in its front end, the plug arranged therein, and the primer-tube extending from such chamber into the charge-chamber of the body, with the cartridge provided at its front end with a tube to enter or slide on the primer-tube, and surrounded by a cushion or yielding stuffing, all being substantially as set forth.

2. The explosive projectile or shell-body provided at its rear end with the sabot or cushion, as described, and at its front end with a chamber, a firing-plug, and a priming-tube, as explained, in combination with a cartridge arranged within the said body, and provided not only with a tube to enter and slide on the priming-tube, but with a cushion or yielding stuffing extending around and in front and in rear of it, the said cartridge, all being substantially as represented.

316,971. SALVAGE-CORPS WAGON. CHARLES T. HOLLOWAY, Baltimore, Md. Filed Aug. 15, 1884. (No model.)

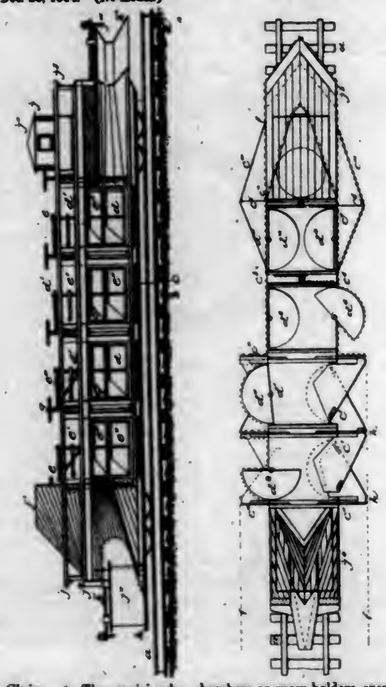
Claim.—1. A fire salvage-corps wagon body having receptacles C, provided with a lid, *d*, on top, and a vertical door, *e*, on the outside, as set forth.

316,971.



2. A fire salvage-corps or patrol wagon body having a receptacle for water-proof covers, provided with a lid on top and a door on the vertical side, both opening into the said receptacle, and openings *g*, to ventilate the receptacle when the lid and door are closed, as set forth.

316,972. RAILWAY SNOW-PLOW. GARRETT W. HOPKINS, Tremansburg, assignor of one-half to George V. Benjamin, Ithaca, N. Y. Filed Dec. 20, 1884. (No model.)



Claim.—1. The semicircular chambers or snow-holders suspended on shafts on the sides of the plow, which, when the plow is run into a snow obstruction, are concealed in the plow structure, by their shafts are turned outward, cutting out portions of the obstruction, loading themselves with the thus detached snow, and are rotated, with their loads, into the plow, as set forth.

2. In combination with the semicircular snow-holders, the doors hinged to central shafts that close the mouth of the holders and by their rotation discharge the snow, as set forth.

3. The inclined shafts and snow holders, the inclination being given them to produce inclined walls of snow in the excavation, and to aid in unloading the holders.

4. The perpendicular slides in the plow structure, which are run out into the partitions of undetached snow between the spaces cut out by the holders, and which break down the partitions and trim the sides of the excavation when the plow is run either way out of the obstructing snow.

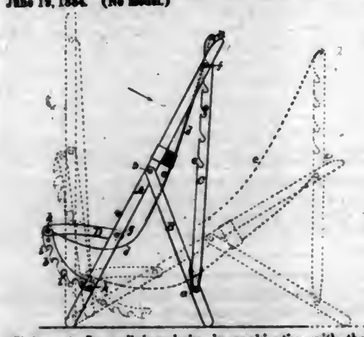
5. The horizontal slides concealed in the plow, which are run out and receive, hold, and transport the snow not loaded in the holders as the plow is pushed forward or is backed out of the obstruction.

6. The point *j'''*, constructed with a horizontal metallic cutting-bar at its base, and with a horizontal cutting-bar at its top, the space between the bars being plain perpendicular wedge-shaped surfaces.

7. In a plow structure provided with semi-circular snow-excavators, horizontal and perpendicular slides, a top deck, and top guard-rail suited to be the place where the employed men stand and operate the several parts of the plow, and suited to the transportation of the snow that falls on the deck in deep excavations or obstructions.

8. The bottom sheathing constructed beneath the working parts and axles of the structure in close proximity to the railway-track, with the track-wheels projecting but slightly through the sheathing, thereby providing a smooth bearing-surface on which the plow rests when derailed, and which aids in the return of the plow to the track.

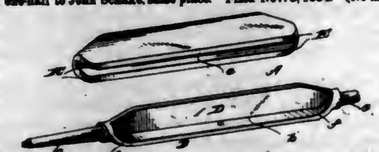
316,973. RECLINING-CHAIR. GEO. A. HORN, Newark, N. Y. Filed June 19, 1884. (No model.)



Claim.—1. In reclining-chairs, in combination with the frame A, provided with rung *f* at the upper end thereof, and pivoted supporting-legs B for the frame, provided with rung *a*, the rear notched supports, C, for the frame, pivoted to the rung *a*, having their notches engaging the rung *f*, and their upper ends extending above the back of the chair, substantially as shown, and for the purpose specified.

2. In a reclining-chair, a frame, A, provided with rung *f*, and legs B, having rung *a*, and pivoted to the frame at a point equidistant from each of said rungs, in combination with the notched supports C, pivoted to the rung *a*, with its notches adapted to engage the rung *f*, and forming, with frame A and legs, substantially an isosceles triangle, and braces C being held in substantially the same relative position in all positions of adjustment of the chair, for the purpose set forth.

316,974. VEHICLE-AXLE. CONRAD HUMER, Rochester, N. Y., assignor of one-half to John Schake, same place. Filed Nov. 3, 1884. (No model.)



Claim.—The herein-described axle, comprising the metallic portion having its base *c* provided with a vertical partition, D, which has its ends curved or inclined downward to connect with the spindles of the axles, the said base *c* having its ends curved upward, as at *f*, and the wooden portion having a central groove, *e*, received by the projection, the ends of the wooden portion being correspondingly curved, to bear or abut against the end walls, *f*, and clips for securing the parts together, as set forth.

316,975. REFRIGERATING APPARATUS FOR THE TRANSPORTATION OF MEAT, &c. HENRY C. JOHNSON, Meadville, Pa. Filed Apr. 6, 1885. (No model.)

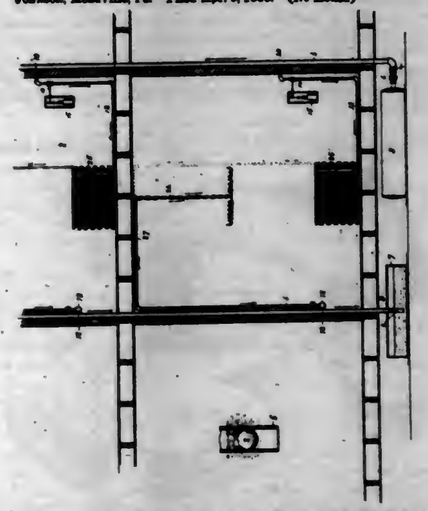
316,975.



Claim.—1. A refrigerating or cooling apparatus consisting of one or more receivers or gas-holders, 4, a water-tank, 20, for receiving the gas for future use, and a cooling-conduit, 7 7ª 7ᵇ, of any suitable form, extending from the receiver or gas-holder 4 to the tank 20, provided at its respective ends with stop-cocks 9 10, and at its outlet with a check-valve, 21, to prevent the influx of water from the tank.

2. The combination of cooling-conduit 7ᵇ, water-tank 20, check-valve 21, and an aperture, 22, in the cooling-conduit above the level of the water in the tank, as and for the purposes set forth.

316,976. APPARATUS FOR COOLING BUILDINGS, &c. HENRY C. JOHNSON, Meadville, Pa. Filed Apr. 6, 1885. (No model.)



Claim.—1. A cooling apparatus for buildings, consisting of one or more receivers containing anhydrous ammonia in liquid form, one or more tanks containing water, by which the gas is taken up and condensed, so as to be subsequently evolved and recondensed by pressure for future use, a pipe or other suitable conduit leading from the receiver to the water-tank, and one or more branch pipes or other cooling-conduits located in the several apartments to be cooled, and connected with the main conduit through separate regulating-valves, substantially as and for the purposes herein set forth.

2. A cooling apparatus for buildings, consisting of one or more

receivers containing anhydrous ammonia in liquid form, one or more tanks containing water, by which the ammonia-gas is taken up and condensed, so as to be subsequently evolved and recondensed by pressure for future use, a pipe or other suitable conduit leading from the receiver to the water-tank, one or more branch pipes or other cooling-conduits connected with the conducting-pipe above named and located in the several apartments to be cooled, separate regulating-valves for controlling the passage of the cooling-gas through the several apartments independently, and thermal regulators acting upon the said regulating-valves to automatically control the heat of the several apartments, as described.

3. In combination with a cooling apparatus for buildings, substantially as herein set forth, the automatic thermal regulator herein described, consisting of a cylinder containing mercury or other liquid expansible by heat, a piston working therein, a rod connecting said piston with the valve of the conduit to be regulated, adjustable in length and provided with a scale, to indicate the temperature to which the automatic thermal regulator is adjusted.

4. A cooling apparatus for buildings, consisting of one or more receivers containing anhydrous ammonia in liquid form, one or more tanks containing water, by which the ammonia-gas is taken up and condensed, to be subsequently evolved and recondensed by pressure for future use, a pipe or other suitable conduit leading from the receiver to the water-tank, a check-valve and relief-opening, to prevent the influx of water from the tank to the conduit, and branch pipes or other cooling-conduits located in the several apartments to be cooled, and connected with the main conduit through separate regulating-valves, all substantially as herein shown and described.

316,977. CAR-WHEEL. WILLIAM JOSLIN, Cleveland, Ohio. Filed Dec. 5, 1884. (No model.)



Claim.—1. A wheel having a tire and a center part or disk, said tire and center part being joined together by an interlocking thread-joint formed in approximately the plane of the wheel, substantially as set forth.

2. As a new and improved article of manufacture, a rim or tire for car-wheels, provided on one of its sides or faces with helically-disposed threads formed in approximately the plane of such tire, substantially as set forth.

3. The combination, with the tire having its inner face inclined or beveled outward, as described, and provided at or near one of its edges with an inwardly-projected flange, the inner edge of which is inclined in line parallel with the incline on the tire, and having on its inner face a helical thread projected toward the tire, whereby a semi-dovetail or curved mortise is provided, as shown, of a central disk or plate fitting snugly within and against the inner beveled face of the tire, and having on its side or radial face a shoulder and a helical thread arranged, conformed, and adapted to interlock with and bind against the inner face of the tire and against the inner edge of the radial flange, substantially as set forth.

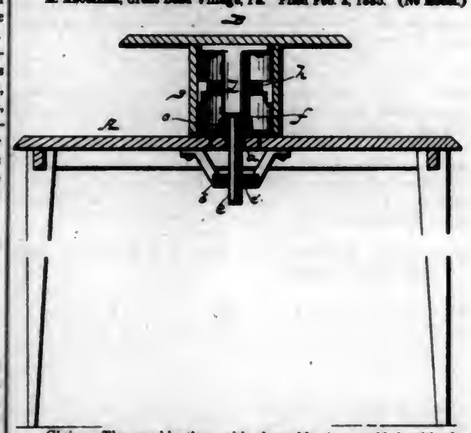
316,978. HOOF PARER AND EVENER. ARCHIBALD KNAPP, Strawtown, Ind. Filed Sept. 30, 1884. (Model.)



Claim.—1. An implement for paring and evening the hoofs of animals, which consists of a blade having an edge on each side, and provided with a suitable handle at one end and a pivoted grab at its opposite end, said grab being formed of a rectangular plate with teeth at both ends, and the pivotal connection being near one end thereof, substantially as and for the purpose set forth.

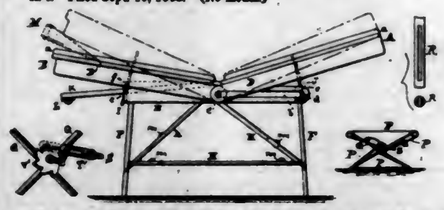
2. In an implement for paring and evening the hoofs of animals, a double-edged blade provided at one end with a suitable handle, and at its opposite end having a shank on a different plane than the blade, in combination with a grab pivoted thereto at a point away from its center, said grab consisting of a rectangular plate formed with teeth at each end, substantially as and for the purpose set forth.

316,979. REVOLVING WAITER FOR DINING-TABLES. WILLIAM M. KNOELLER, Great Bend Village, Pa. Filed Feb. 2, 1885. (No model.)



Claim.—The combination, with the table A, provided with the vertical perforation *a* and upper and lower brackets having perforations, of the revolving waiter B, provided with the rod *d* and flange *g*, said rod secured within the same to the waiter and braced in position by the bracket *h*, and provided with the reduced end *e* and shoulder *f*, as shown and described.

316,980. EMBALMER'S TABLE. HORACE B. KNOWLES, Providence, R. I. Filed Sept. 19, 1883. (No model.)



Claim.—1. In an undertaker's table, the combination of the bed-sections A B, slotted table-frame E, having transverse grooves *c d e f*, the transverse rod C, the adjustable side bed-frames, D D', pivoted to said rod, and the stirrups I J, pivoted in said frames, substantially as described.

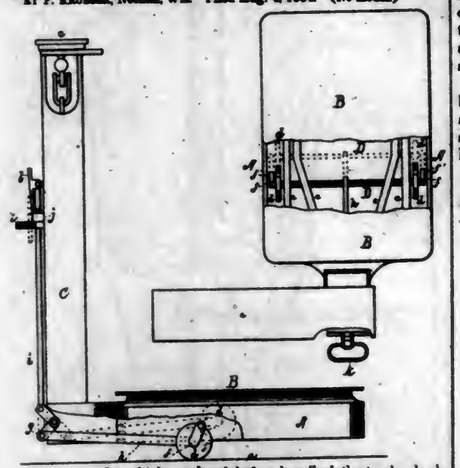
2. In an undertaker's table, the combination, with the adjustable bed-sections A B, of a head-rest consisting of the folding cross-pieces Q, slotted reel R, flexible strip P, crank S, and ratchet V, substantially as described.

3. In an undertaker's table, the combination, with the adjustable bed-sections A B, one of which is provided with perforations *k k*, of an adjustable foot-rest consisting of the foot-board M, folding slats O O, and side rods, N N, having hooked ends for engaging the perforations *k k*, substantially as described.

4. In an undertaker's table, the combination, with the adjustable bed-sections A B, side frames, D D', slotted table-frame E, and transverse rod C, of the pivoted legs F F, cross-pieces G G G', and hinged braces H H, substantially as described.

5. In an undertaker's table, the combination of the adjustable inclined bed-sections A B, one of which is provided with a central longitudinal opening, the adjustable side frames, D D', having supporting-stirrups I J, the slotted table-frame E, the transverse rod C, and the pivoted drop K, whereby the table is capable of adjustment so as to cause the fluids of a body to gravitate to the pelvis and be drained therefrom, substantially as described.

316,981. ROLLER OR WHEEL FOR PLATFORM-SCALES, &c. HENRY F. KRUEGER, Neenah, Wis. Filed Aug. 4, 1884. (No model.)

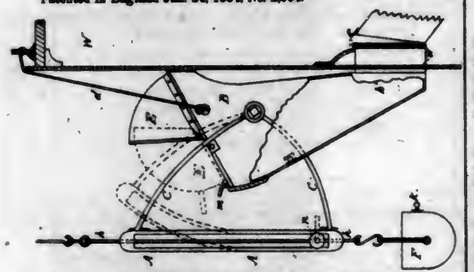


Claim.—1. In a device as hereinbefore described, the truck-wheels *d d*, the bent swinging axle D, connected eccentrically with its axial line to the base of the article to be moved, the point of connection therewith being such that the lower circumference of said wheels may be adjusted in a vertical plane above or below the lowest point in the base of said article by means of the partial revolution of said axle, a suitable rod or handle, by which it is revolved, and a catch or stop for its retention at the lowest limit of said movement, substantially as shown and set forth.

2. In a device as hereinbefore described, the bent swinging axle D, having the truck-wheels *d d*, the connecting-rods *h i*, elbow-lever *g*, guide *j*, and latch *l*, all combined, constructed, and arranged to operate as described.

3. In a device as hereinbefore described, the truck-wheels *d d*, bent swinging axle D, connecting-rods *h i*, elbow-lever *g*, guide *j*, latch *l*, and handle *k*, all constructed, combined, and operating as shown and described.

316,982. APPARATUS FOR SHIPPING AND TRANSFERRING COAL, SALT, &c. ADOLPHUS R. LARGE, Birkenhead, County of Chester, England. Filed June 3, 1884. Renewed Jan. 23, 1885. (No model.) Patented in England Jan. 24, 1884, No. 2,004.

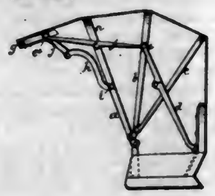


Claim.—1. The arms A A, in combination with the bracket C and chute B, substantially as and for the purpose set forth.

2. The chute B, in combination with the bucket F, substantially as and for the purpose set forth.

3. The bucket F, in combination with the frame A A, chain D D, and chute B, substantially as and for the purpose set forth.

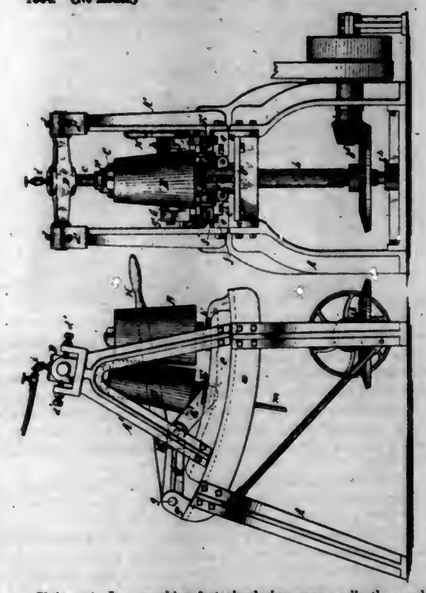
316,988. CARRIAGE-TOP. COOK C. LAWRENCE, Monroe, Wis. Filed Jan. 22, 1885. (No model.)



Claim.—1. In a folding buggy-top, the front extension, *g*, connected to the top-braces *f*, in combination with the front props, A, pivoted at *i* to the front bows, *a*, below the top-braces, and knuckle-jointed to rigid arms *j* of said front extension, whereby the latter is braced and supported against springing, jumping, or jerking in its overhanging position, and the top thereby prevented from injury, as set forth.

2. In a folding buggy-top, the combination of the props *d*, the top-braces *f*, and the top-front extension *g*, with the front props, A, pivoted at *i* to the front bows, *a*, below said top-braces and knuckle-jointed to short rigid arms *j* of said front extension, whereby the latter is supported horizontally by the top-braces and vertically by the front props.

316,984. CALENDERING-MACHINE FOR PAPER-PULP PAILS, &c. HENRY W. LEONARD, Syracuse, and JOHN STEVENS, Port Byron, assignors to the Syracuse Paper Ware Company, Syracuse, N. Y. Filed July 21, 1884. (No model.)



Claim.—1. In a machine for calendering paper pails, the combination, with a tapering roller mounted in stationary bearings and adapted to receive the pail to be calendered, of a hollow tapering roller made movable toward and from the stationary roller, and pipes whereby a heating agent is conducted through the movable roller, substantially as set forth.

2. The combination, with a stationary tapering roller, of a movable tapering roller mounted on a shaft, a journaled cross-head in which one end of the shaft is supported, and a cross-head and curved guides, whereby the opposite end of the shaft is guided, substantially as set forth.

3. The combination, with the stationary roller B and the movable roller C, attached to a journaled cross-head, of toggle-bars and a lever, whereby the movable roller is swung toward and from the stationary roller, substantially as set forth.

4. The combination, with the tapering stationary roller B and the main frame A, in which said roller is journaled, and which is provided with curved supports *a*, of the movable tapering roller C and the supporting-frame A', adjustably secured to the curved supports *a*, substantially as set forth.

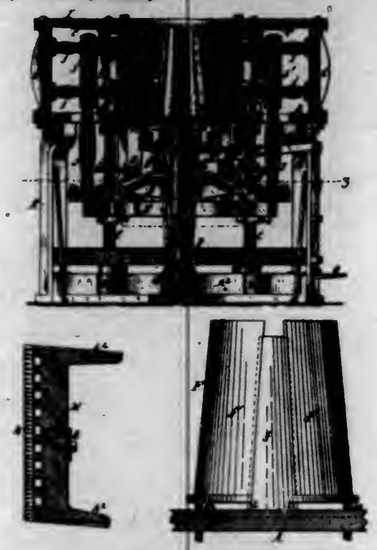
5. The combination, with the stationary roller B and movable roller C, of the toggle-lever G, link G', and hand-lever H, provided with a projection, *h*, bearing upon the lever G, substantially as set forth.

6. The combination, with the main frame A and adjustable frame A', of the stationary roller B, journaled in the frame A, movable roller C, mounted on the shaft *c*, cross-head D, journaled in the frame A', cross-head E, supporting the lower end of the shaft *c*, toggle-bars G G', and hand-lever H, substantially as set forth.

7. The combination, with the movable roller C, shaft *c*, and supporting-frame A', provided with curved guides *f*, of the cross-head E, provided with rollers *f'*, substantially as set forth.

8. The combination, with the stationary roller B, of the hollow movable roller C, steam supply and exit pipes *i j*, communicating with the hollow movable roller C, and a perforated steam-pipe, *k*, arranged to deliver jets upon the rollers near their line of contact, substantially as set forth.

316,985. MACHINE FOR PRESSING THE BODIES OF PAPER PAILS. HENRY W. LEONARD, Syracuse, and JOHN STEVENS, Port Byron, assignors to the Syracuse Paper Ware Company, Syracuse, N. Y. Filed July 21, 1884. (No model.)



Claim.—1. In a machine for pressing paper vessels, the combination, with movable pressing-jaws, of a core or a form composed of a stationary part provided with converging ways or guides and movable parts sliding in said ways or guides, whereby the form can be contracted to facilitate the removal of the pressed vessel, substantially as set forth.

2. The combination, with the stationary plate *f*, provided with converging guides *l*, of the segments *f'*, sliding on said guides, substantially as set forth.

3. The combination, with the stationary plate *f*, provided with converging dovetail grooves *l*, of the segments *f'*, provided with dovetail tenons *l'*, sliding in said grooves, substantially as set forth.

4. The combination, with the stationary plate *f*, and movable segments *f'*, sliding on said plate, of a cross-head, M, provided with pins *m*, bearing against said segments, and a lever, N, whereby said cross-head can be raised, substantially as set forth.

5. The intermediate pressure-jaws, H, provided with horizontal ribs *h'*, having concave grooved faces, and concave perforated face-plates *h*, in combination with the straight-faced jaws G, sliding in radial ways and forming movable straight backings, whereby the perforated jaws are closed, substantially as set forth.

6. The combination, with the pressure-jaws G, moving in radial horizontal guides, of the posts *i*, heads J', toggle-bars *j j'*, connecting-rods J, and actuating-frame E, substantially as set forth.

7. The combination, with the pressure-jaws G, moving in radial horizontal guides, of the posts *i*, heads J', toggle-bars *j j'*, connecting-rods J, actuating-frame E, screws C, provided with gear-wheels D', and shaft *a'*, provided with a gear-wheel, D, substantially as set forth.

8. In a machine for pressing tapering paper vessels, the combination with a central tapering core, F, constructed with movable contractible sections, of pressing-jaws G, and intermediate perforated jaws, H, surrounding the contractible central core, substantially as set forth.

9. The combination, with the supporting-plate A and annular plate I, supported thereon, of a central core, F, composed of a fixed plate, *f*, attached to the plate A and provided with converging guides *l*, and movable sections *f'*, and pressure-jaws G, and intermediate perforated jaws, H, guided between the plates A and I, substantially as set forth.

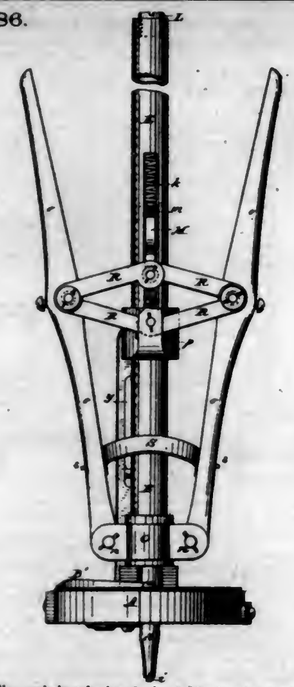
10. The combination, with the supporting-plate A and annular plate I, of the posts *i*, connecting the same, pressure-jaws G, and heads J', and toggle-bars *j j'*, connecting the jaws G with the posts *i*, substantially as set forth.

316,986. TACK-DRIVING MACHINE. ASA S. LIBBY, Everett, Mass. Filed Aug. 7, 1884. (No model.)

Claim.—1. In a tack-driving machine, the combination of the rotating disk having tack-holding cavities in its periphery, with a bell-crank lever and pawl, and a bar operated by the upward movement of the tack-driving mechanism to rotate the disk, substantially as specified.

2. The combination, in a tack-driving machine, of the driving-hammer, the spring for forcing the same downward, the toggle-lever and the

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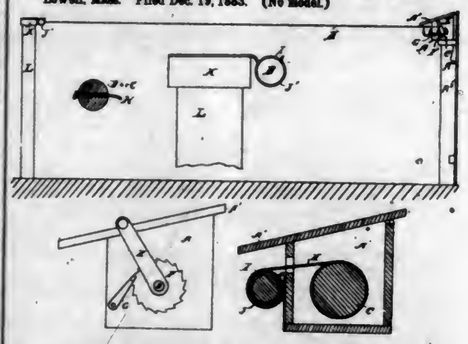


pivoted handles, and the tripping device for freeing the toggle-lever from the tack-driving hammer, as set forth.

3. In a tack-driving machine, a plunger or piston provided with a nail-driving pin on its lower end located within a cylinder or tube, and provided with a spring-catch, M, in combination with the toggle-levers R, stud *r*, pivoted handles o, and spring *k*, as and for the purpose set forth.

4. In a tack-driving machine, a disk provided with tack-holding cavities in its periphery inclosed in a casing opening into the tack-holding tube, in combination with the spring B', and devices, substantially such as described, for moving the tack-holding disk.

316,987. CLOTHES-DRIER. JOHN D. MARTIN and THOMAS READ, Lowell, Mass. Filed Dec. 19, 1883. (No model.)

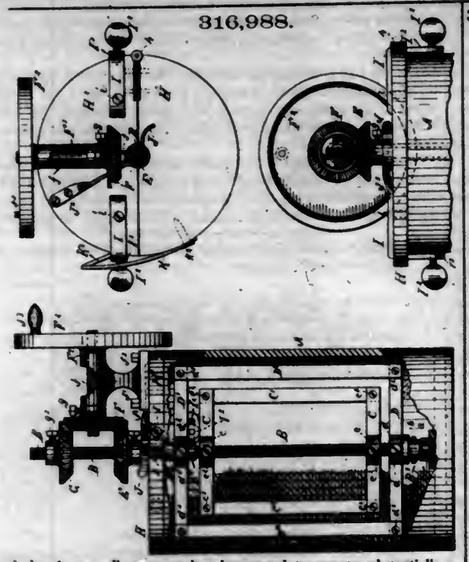


Claim.—The combination of the box provided with holes in the front thereof, and with a slanting and projecting cover, the cylinder provided with a ratchet and with a crank and supported in said box, spring-hooks secured to the front of said box below said cover, the roller having annular grooves adapted to receive said hooks, cords each attached at one end to said cylinder and at the other end to said roller, and a pawl pivoted on said box and engaging with said ratchet, as and for the purpose specified.

316,988. CHURN. JOHN MATSON and JAMES C. MATSON, Brookville, Pa. Filed Nov. 12, 1884. (No model.)

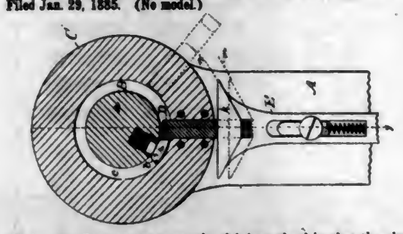
Claim.—The churn-lid composed of the hinged parts H H', provided with gear-wheel F, springs J and K K', and plates I I', having thumb-screws P, in combination with geared shaft B and concentric

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dasher-frames, all constructed and arranged to operate substantially as and for the purpose set forth.

316,989. POWER-PRESS. ALANSON H. MERRIMAN, Meriden, Conn. Filed Jan. 29, 1885. (No model.)



Claim.—1. In a power-press, the driving-wheel having the clutch-bolt D fitted to move radially within its hub, substantially as described, and for the purpose specified.

2. The combination of the press-shaft having the strike pin or dog *b*, the driving-wheel C, loosely mounted upon said shaft, the clutch-bolt D, fitted to move radially within the hub of said wheel, and having at its outer end two opposing shoulders, as the walls of the slot *h*, and the sliding shipper having a straight and an inclined face for acting upon the opposing shoulders of the clutch-bolt, substantially as described, and for the purpose specified.

316,990. RULING-MACHINE. MARTIN L. METZGER and ALBERT COOPER, Harrisburg, Pa., assignors to William O. Hickok, same place. Filed Mar. 17, 1884. (No model.)

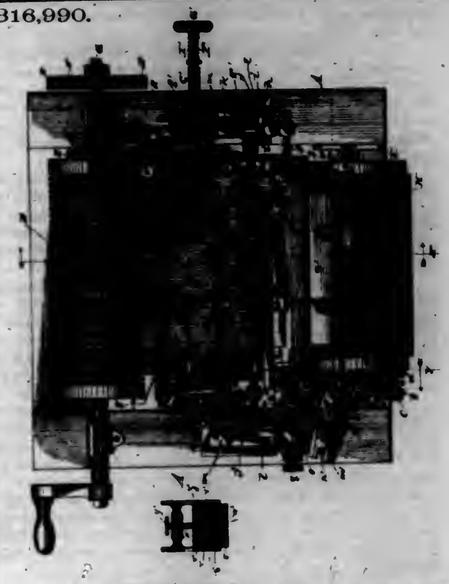
Claim.—1. In a ruling-machine, the combination, with the variable-power transmitter consisting, essentially, of the engaging frictional disks, of the cam-head having a gear-wheel attached thereto and mounted upon the pen-cylinder shaft, an idler meshing with said gear-wheel, and the shaft carrying two gear-wheels meshing, respectively, with one of the disks of the power-transmitter and with said idler.

2. In a ruling-machine, the combination, with the power-transmitter consisting, essentially, of the engaging-disks constructed to be radially adjusted with respect to each other so that any predetermined velocity of speed may be transmitted, of the stop-gate actuated thereby, whereby the time of the elevation of the said gate may be predetermined.

3. In a ruling-machine, the combination, with a frictional variable power-transmitter, and one or more cams actuated thereby, of the stop-gate, its shaft constructed with a normal tendency to elevate the gate, and the trip device mounted thereon to engage with either of said cams to hold the gate to the apron and release it at a predetermined time.

4. In a ruling-machine, the combination, with the two disks capable of being adjusted the one from the other and mounted upon the adjustable shaft, and a third disk constructed to extend between and be engaged by the said two disks, of one or more cams rotated thereby, and the stop-gate, its shaft, the arm and the spring normally tending to elevate the gate, and the trip device on the shaft to engage either of said cams.

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5. In a ruling-machine, the combination, with the frictional power-transmitter consisting, essentially, of the engaging frictional disks, of the pen-lifters and the intermediate devices, substantially as described, for actuating the same.

6. In a ruling-machine, the combination, with the frictional variable-power transmitter consisting, essentially, of the engaging frictional disks, of the cam-heads actuated thereby, the arms constructed to be actuated by the cam-heads at one end, and to carry one or more pen-lifters at the other end, and the pen-lifters.

7. In a ruling-machine, the combination, with the two disks, one capable of being adjusted to and from the other and mounted upon an adjustable shaft, and a third disk constructed to extend between and be engaged by the said two disks, of the cam-shaft carrying cam-heads capable of being set with the blocks in line or in advance of each other, gears gearing said shaft with the third disk, the independently-mounted pen-lifting arms, and the pen-lifters carried thereby, the respective sets of which are capable of being actuated synchronously or successively.

8. In a ruling-machine, the combination of a plurality of pen-lifter-actuating arms mounted upon a single rod, each independent of the other, and carrying one or more pen-lifters.

9. In a ruling-machine, the combination, with the pen-lifter-actuating arm having a box at one end, of the rod held thereby, and the independent blocks and pen-lifters secured to said rod.

10. In a ruling-machine, the combination, with the pen-lifter-actuating arms independently mounted upon a single rod, and carrying each one or more pen-lifters, of the cam-heads to actuate the arms synchronously or successively.

11. In a ruling-machine, the combination, with the frictional power-transmitter consisting, essentially, of the engaging frictional disks constructed to be radially adjusted with respect to each other, so that any predetermined velocity of speed may be transmitted, the cam-head actuated thereby for operating the pen-beam, one or more cams rotated by said power mechanism, the stop-gate actuated by either of said cams, the independently-mounted pen-lifter-actuating arms, the cam-heads for actuating said arms, and the pen-lifters carried thereby.

12. In a ruling-machine, the combination, with the supporting-rod and the fixed collar having a lug, of the pen-lifter arm loosely mounted on the rod and constructed to be supported by the lug.

13. In a ruling-machine, the combination, with the supporting-rod and the collar fixed thereon and provided with a lug, of the collar loosely mounted on the rod, and the pen-lifter arm pivotally connected with the loosely-mounted collar and provided with adjusting-screws, and constructed at one end to be engaged by an actuating-cam, and at the other to connect with one or more pen-lifters.

14. In a ruling-machine, the combination, with the variable-power transmitter constructed of two disks mounted on the same shaft and having their adjacent faces divergently disposed to each other, and a third disk having an annular surface on either side thereof and adapted to fit between and be engaged by the said two disks, of the cam-head having a gear-wheel attached thereto and mounted upon the pen-cylinder shaft, an idler meshing with said gear-wheel, the shaft carrying two

gear-wheels meshing, respectively, with the power-transmitter and with said idler.

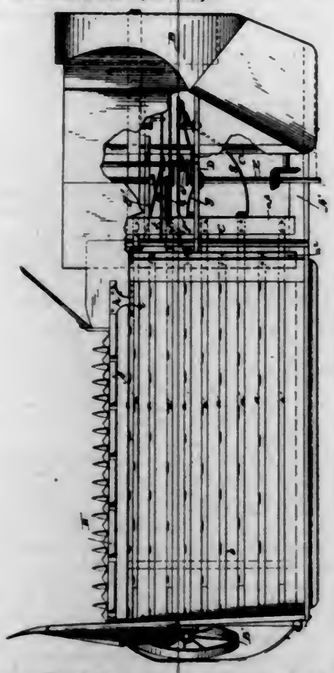
15. In a ruling-machine, the combination, with a variable-power transmitter constructed of two disks mounted on the same shaft and having their adjacent faces divergently disposed to each other, and a third disk having a narrow annular surface on either side thereof and adapted to fit between and be engaged by the said two disks, of the stop-gate adapted to be actuated thereby, whereby the elevation of the said gate may be predetermined.

16. In a ruling-machine, the combination, with the variable-power transmitter constructed of two disks mounted on the same shaft and having their adjacent faces divergently disposed to each other, and a third disk having a narrow annular surface on either side thereof and adapted to fit between and be engaged by the said two disks, of the pen-lifters adapted to be actuated thereby.

17. In a ruling-machine, the combination, with the variable-power transmitter constructed of two disks mounted on the same shaft and having their adjacent faces divergently disposed to each other, and a third disk having a narrow annular surface on either side thereof and adapted to fit between and be engaged by the said two disks, of the cam-heads actuated by the said third disk, the arm constructed to be actuated by the cam-heads and to carry one or more pen-lifters.

18. In a ruling machine, the combination, with the variable-power transmitter constructed of two disks mounted on the same shaft and having their adjacent faces divergently disposed to each other, and a third disk having a narrow annular surface on either side thereof and adapted to fit between and be engaged by the said two disks, of the cam-head actuated by the third disk for operating the pen-beam, one or more cams rotated by said third disk, the stop-gate adapted to be actuated by said cams, the independently-mounted pen-lifter-actuating arms, the cam-heads for actuating said arms, and the pen-lifters carried thereby.

316,991. GRAIN-BINDING HARVESTER. LEWIS MILLER, Akron, Ohio. Filed June 2, 1883. (No model.)



Claim.—1. The platform rake or carrier composed of the toothed parallel bars, in combination with and actuated from the packer-arms operating from beneath the inclined table, substantially as described.

2. The combination, with the packer-shaft of a self-binding harvester, of the platform-rake composed of two or more sets of toothed parallel bars, each of which sets is connected with and actuated from one of the packer-arms operating from beneath the inclined binder-table, substantially as described.

3. The combination of the reciprocating platform-rake with the sickle-bar connected with and actuated by the reciprocating platform rake or carrier, substantially as described.

4. The combination of the packer-arm of the binder with the platform-rake and the sickle-bar connected with and actuated from the packer-arm through the reciprocating platform rake or carrier, substantially as described.

5. In a grain-binding harvester, the combination, with the inclined elevating and binding table arranged on the grain side of the driving-wheel, of the packer-arm operating from beneath said table, the sickle-bar, and connections whereby the latter is operated from said arm, substantially as described.

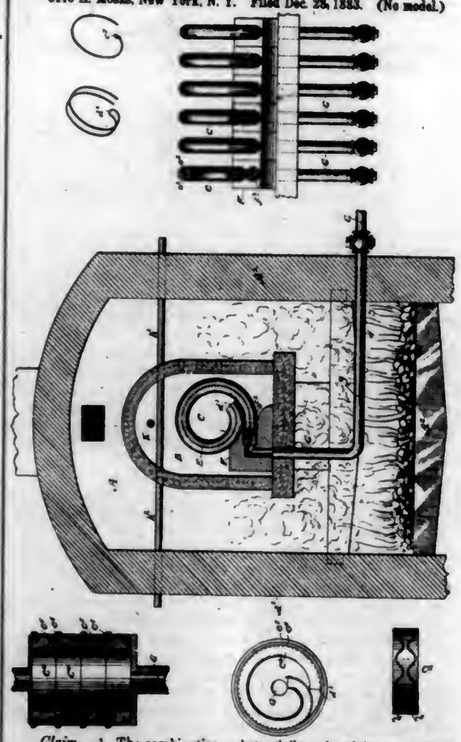
6. The combination of the inclined elevating binder-table interposed between the grain-platform and driving-wheel, the packers operating from beneath said table, and the platform-rake connected with and operated from said packers, in the manner and substantially as specified.

316,992. DRIVE-CHAIN LINK. EDWARD Y. MOORE, Evanston, Ill. Filed Feb. 6, 1885. (Model.)



Claim.—A drive-chain link consisting of side bars, B B, and end bars, C C', the bar C having thereon a hook-shaped tongue, D, and the bar C' having at each end thereof the hook-shaped extensions or sockets E E, the side bars, B B, having at their ends which are connected by the bar C extensions *a a*, on which are the cylindrical studs *a' a'*, projecting toward but not meeting the hook D, substantially as and for the purposes set forth.

316,993. APPARATUS FOR CARBONIZING INCANDESCENTS. OTTO A. MOSES, New York, N. Y. Filed Dec. 28, 1883. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, of an oven, a series of molds constructed with openings through their entire length and placed in said oven, means, substantially such as described, for heating said oven, and one or more gas-supply pipes leading to the interior of said molds, whereby gas may be caused to pass through said openings in said molds.

2. The combination, substantially as hereinbefore set forth, of an oven, a series of filament-molds arranged within said oven and having the openings for receiving the filaments extending through their entire lengths, means for heating said oven, gas-supply tubes leading to said molds, and means, substantially such as described, for heating the gas passing through said pipes.

3. The combination, substantially as hereinbefore set forth, with an oven, a series of molds arranged within the same and having filament-containing grooves or openings extending through their entire lengths, and means, substantially such as described, for supplying a superheated gas to said molds, of one or more escape or exhaust pipes extending into said oven through the walls of the same.

4. The combination, substantially as hereinbefore set forth, with an oven, a series of molds arranged within the same, and means, substantially such as described, for supplying a superheated gas to said molds, of one or more thermometric pipes extending through said oven.

5. A filament-carbonizing mold of refractory material having two parallel tubular openings curved in different planes for receiving the filaments, substantially as described.

6. A filament-carbonizing mold having two parallel tubular openings curved in different planes for receiving the filaments, substantially as described.

7. A filament-carbonizing mold consisting of a curved stem of refractory material having two curved parallel openings extending through its entire length for receiving the filament, substantially as described.

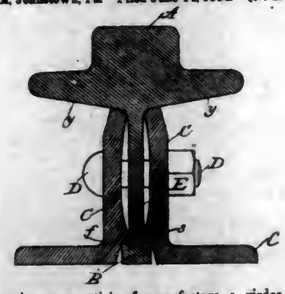
8. A filament-carbonizing mold of refractory material having two curved tubular openings for receiving the filament, which openings have a sinuous form, substantially as described.

9. A cylindrical filament-carbonizing mold having two grooves formed in its outer surface for receiving the respective limbs of the filament.

10. A cylindrical filament-carbonizing mold having grooves formed in its outer surface for receiving the limbs of the filament, in combination with means, substantially such as described, for covering said grooves.

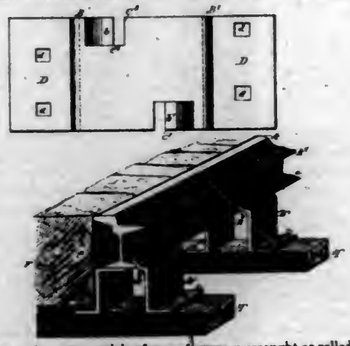
11. A cylindrical filament-carbonizing mold of refractory material having two grooves formed in its outer surface for receiving the respective limbs of the filament.

316,994. RAILROAD GIRDER-RAIL AND RAIL-JOINT. ARTHUR J. MOXHAM, Johnstown, Pa. Filed June 14, 1884. (No model.)



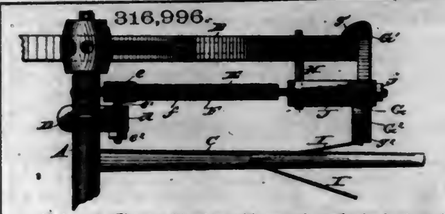
Claim.—As a new article of manufacture, a girder-rail provided with side flanges integral with the body of the head of the rail, and formed therefrom into side tracks, for ordinary wheels of street-vehicles, above a central web terminating in fillets, as *f f*, substantially as and for the purposes set forth.

316,995. ROLLED OR FORGED METAL CHAIR FOR RAILROADS. ARTHUR J. MOXHAM, Johnstown, Pa. Filed Jan. 19, 1885. (No model.)



Claim.—As a new article of manufacture, a wrought or rolled metal box-chair for railroad-rails formed of a single plate, shaped as described, and provided with two lugs diagonally placed for securing the bottom flanges of the rails, substantially as and for the purposes set forth.

316,996. HITCHING DEVICE FOR VEHICLES. DEXTER S. MUNGER, Stoneham, Mass. Filed Dec. 29, 1884. (No model.)



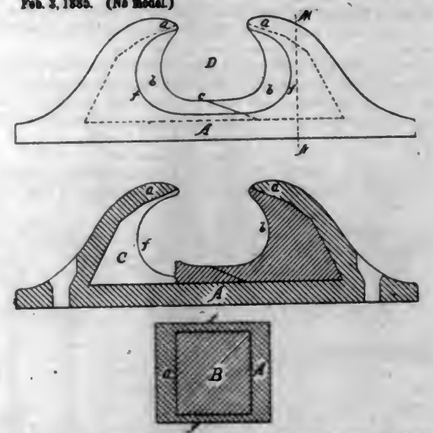
Claim.—1. The combination, with an axle and wheel, of a tube movably secured to said axle, a spring-rod extending through the tube, a bracket on the rod, the gripping device secured to the bracket, a pawl-lever pivoted to said gripping device intermediate of the bracket, and a check-rein, substantially as described.

2. The combination, with an axle and wheel, of the clip secured to the axle, formed with an eye, the tube formed with an arm fitting into said eye and secured by bolts and nuts, a spring and rod extending through said tube and connecting with the axle, the bracket on said rod, the gripping device secured to the bracket, a pawl-lever intermediate of the two latter, and a check-rein, substantially as described.

3. The combination, with the tube and spring-rod and the bracket and gripping device, of a check-rein secured to an arm of the gripping device, and a pawl-lever pivoted between the bracket upon the spring-rod and a lug on the gripping device, substantially as described.

4. The combination, with the axle and wheel, of the clip D, secured to the axle and having the eye, the tube E, formed at one end with an arm fitting in the eye, the spring-rod extending through the tube and connecting with the axle, the bracket J, secured to the rod and formed with openings to receive the same, the gripping device secured to the bracket and having arms G G', the pawl-lever H, and the check-rein, all arranged substantially as described.

316,997. WARPING-CHOCK. HENRY L. MUNCH, Ellsworth, Me. Filed Feb. 3, 1885. (No model.)



Claim.—1. In a warping-chock for vessels, the frame A, formed with the perpendicular flanges *f f* upon the edges of the eye of said frame.

2. In a warping-chock for vessels, the combination of the wooden lining B, formed in two parts, *b b*, and the recessed frame A, formed with the flanges *f f*, all as shown and described, and substantially as and for the purpose specified.

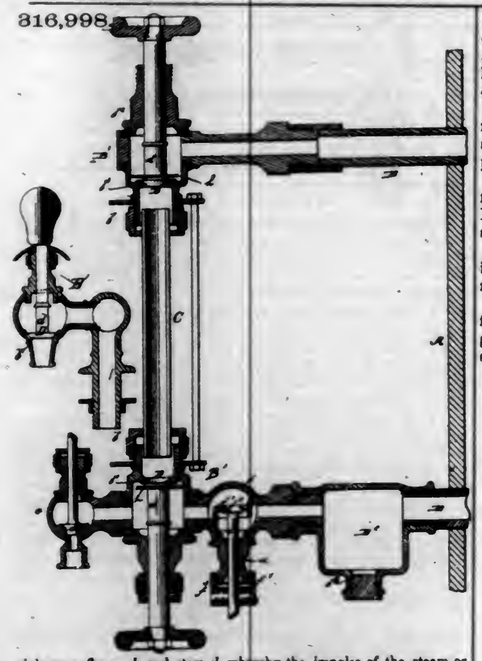
316,998. SAFETY STEAM AND WATER GAGE. JOHN L. NELSON and ANDRA F. LANDERHOLM, Chicago, Ill. Filed Apr. 4, 1884. (No model.)

Claim.—1. In a steam or water gage, a glass or tube connected to the boiler by suitable pipes having cylindrical chambers at the ends of the glass, in combination with two valves having their seating-faces of larger area than the rear faces, and nearly filling the cylindrical chambers in which they move, and a valve-stem upon each valve sliding freely through the stuffing-boxes to the outer air, substantially as and for the purpose herein set forth.

2. In a steam or water gage, the pipes B B', constructed with cylindrical chambers in rear of their valve-seats, valves D D, nearly filling the chambers, and having their stems sliding freely through the packing-boxes, and the glass *a*, in combination with the blow-off *e* and valve *f*, constructed as herein described, whereby the gage is readily cleaned or blown off in whole or part, substantially as set forth.

3. In a steam or water gage, the valve D, provided with the pe-

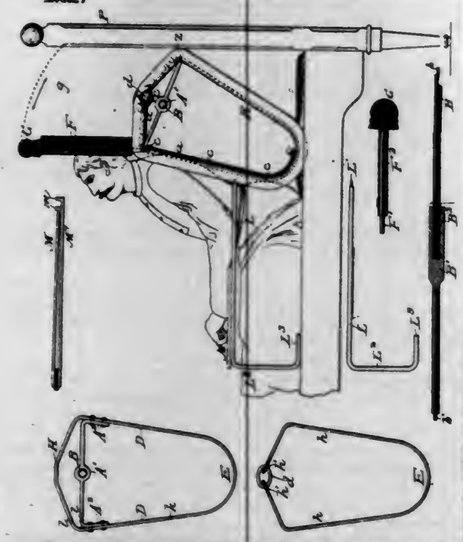
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riphery or flange A and stem d, whereby the impulse of the steam or water is received and the valve closed, substantially as shown and described.

4. In a steam or water gage, the enlargement or chamber B^2, located in the pipe B, between the boiler and gage and projecting below the pipe, in combination with casting f, having seat f', valve f^2, and stem d, substantially as shown and described, and for the purpose set forth.

316,999. VENTILATED PILLOW AND BOLSTER WITH ATTACHMENTS. BENJAMIN F. NICHOLAS, Reeves, Pa. Filed July 18, 1884. (No model.)



Claim.—1. In a ventilated pillow and bolster, the combination of the rigid open-end frames A D E H, having the cross-bars or bridges A A', respectively, with the ticking W, secured on said frames by wires E' h, and closing-links d, and with connector B B^2 B', constructed as a sectional set-screw, and inserted in said bridges removably, substantially as and for the purposes set forth.

2. In a ventilated pillow and bolster, the combination of the open-end frames A D E H, the removable connector in two sections, B B^2 and B', the ticking W, and the gathering-wires E' h, provided with hooked ends h', and links d, for closing them when inserted in hems K of ticking, as and for the purposes set forth.

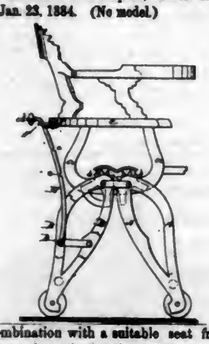
3. In a ventilated pillow and bolster, in combination with the end frames A D E H, the standards F^2 and flap F, the ticking W, and the sectional connector B B^2 B', all coacting, substantially as and for the purposes set forth.

4. In a ventilated pillow and bolster, in combination with the end frames A D E H, provided with the ticking W, and the connector B B^2 B', the removable supports L, and folding rest M M', all coacting, substantially as and for the purposes set forth.

5. In a ventilated pillow and bolster, the combination of the ticking W, supported on end frames A D E H, braced apart by the connector B B^2 B', with pad R, and flap S, substantially as set forth.

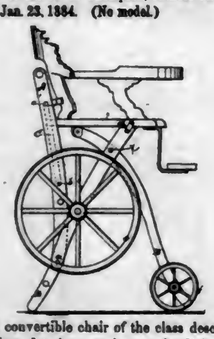
6. In a ventilated pillow and bolster, the combination of the end frames A D E H, the sectional connector B B^2 B', the ticking W, the gathering-wires E' h, provided with links h' d, and pad R, all removably secured together, substantially as and for the purposes set forth.

317,000. CONVERTIBLE CHAIR. BENJAMIN C. ODELL, Brooklyn, N. Y., assignor to Daniel L. Thompson, Charles A. Parley, and Gilman Waite. Filed Jan. 23, 1884. (No model.)



Claim.—In combination with a suitable seat frame and base, the diverging front and rear legs pivoted thereto, the revolving stretcher D, the vertical ratchet-bar fixed to the stretcher, and an eye or staple fixed to the seat-frame, all substantially as described.

317,001. CONVERTIBLE CHAIR. BENJAMIN C. ODELL, Brooklyn, N. Y., assignor to Daniel L. Thompson, Charles A. Parley, and Gilman Waite. Filed Jan. 23, 1884. (No model.)



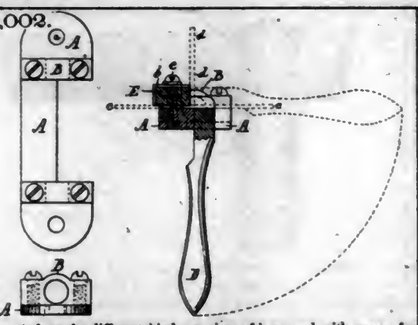
Claim.—1. A convertible chair of the class described, in combination with a lever pivoted to its rear legs, and a link or links pivoted to said lever and to the back of the chair, the pivot at the lower end of said links being inside of a straight line drawn between the upper end of said link and the pivot at the lower end of said lever which unites said lever to the rear legs of the chair, substantially as described.

2. A chair convertible to a high or low chair, a push-handle pivoted at its lower end to the rear legs thereof, one or more links pivoted to the push-handle and to the back of the chair, the lower pivots of said links being out of a straight line drawn between the pivot of the push-handle and the upper pivot of said links, and between such line and the chair, pivoted and crossed front and rear legs of the chair, and wheels fixed to said front and rear legs, all combined and operating substantially as shown and described.

317,002. HAND BENDING-TOOL. GEORGE A. OHL, Newark, N. J. Filed Aug. 30, 1884. (No model.)

Claim.—1. In a hand bending-tool, the combination, with a bed and bending-lever pivoted thereto, of a reversible gage provided with

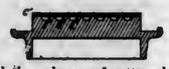
317,002.



bearing-surfaces for different kinds or sizes of bars, and with means for securing it removably upon the bed, substantially as shown and described.

2. The combination, with a bed and bending-lever pivoted thereto, of the reversible gage provided with two flat adjacent faces, and with two similar series of grooves of increasing depth upon the opposite adjacent faces, as and for the purpose set forth.

317,003. OIL-PRESS CLOTH. GEORGE OLIVER, Charlotte, N. C., assignor to the Charlotte Oil Company, same place. Filed Apr. 1, 1885. (No model.)

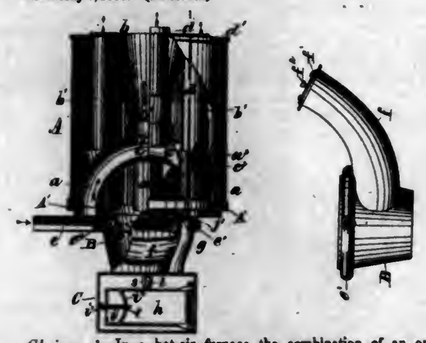


Claim.—A press-cloth made up of cotton cloth in the middle part and of woolen or camel's-hair cloth at the ends.

317,004. MIXED PAINT. WILLIAM F. D. PASCOE, JAMES MOLKE HAINES, and JOHN BUTLAND, South Easton, Pa. Filed Mar. 12, 1885. (No specimens.)

Claim.—A wood-filling composition consisting of steatite, kaolin, Japan drier, alum-water, stearine, and varnish, substantially as set forth.

317,005. HOT-AIR FURNACE. LEWIS PATEE, Springfield, Ohio. Filed May 7, 1883. (No model.)



Claim.—1. In a hot-air furnace, the combination of an open frustum-shaped fire-bowl, a curved feed-pipe, and magazine slightly inclined toward the latter to prevent self-feeding of the fuel, said magazine being provided with a cap and means for adjusting the same, substantially as set forth.

2. In a hot-air furnace, the combination of an open frustum-shaped fire-bowl, a curved feed-pipe and magazine leading therein, slightly inclined toward said fire-bowl and provided with a cap and means for adjusting the same, said fire-bowl being formed with an annular recess in its top end, with an inlet-pipe, and interior apertures opening over the mouth of said magazine, substantially as and for the purpose set forth.

3. In a hot-air furnace, an open frustum-shaped fire-bowl, in combination with an arched pipe spanning the latter, a crown-pipe connecting said arched pipe centrally over said fire-bowl, with interior shoulders, an inverted conic frustum resting on the latter, a series of cold-air pipes surrounding said inverted conic frustum, and a shell inclosing the whole, said inverted conic frustum deflecting the heat from the fire-bowl toward said cold-air pipes, substantially as set forth.

4. In a hot-air furnace, the combination, with magazine f, having the projecting flange at the exterior end of the same, of the hinged cap or door f' and the thumb-screw f^2, the latter engaging said flange, substantially as and for the purpose set forth.

5. In a hot-air furnace with interior air-pipes exposed on their outer surface to the heat of the same and to the products of combustion, a self-filling joint connecting the sections of cast and sheet metal pipe, said joint consisting of the flared end of the cast-metal section, an inner sleeve, of sheet metal, driven therein to make the joint gas-tight, and a sheet-metal pipe extending over said sheet-metal sleeve, the annular cavity around the latter being filled by the ashes escaping from the fire-bowl.

6. In an air-pipe for a hot-air furnace, a cast and a sheet metal section united, re-enforced, and made gas-tight by an internal sleeve covering the joint of said cast and sheet metal sections, said sleeve being of sheet metal and first driven into the cast-pipe section before connecting the sheet-metal section therewith.

7. The combination, with the open fire-bowl, of arch-pipe a, crown-pipe a^2, with inner shoulder, c', and frustum b, the latter being supported at the lower end by said crown-pipe and arched pipe, and resting upon said inner shoulder, as set forth.

317,006. COMBINED OPEN GRATE AND HEATER. WILLIAM W. PATTON, Philadelphia, Pa. Filed Feb. 1, 1884. (No model.)

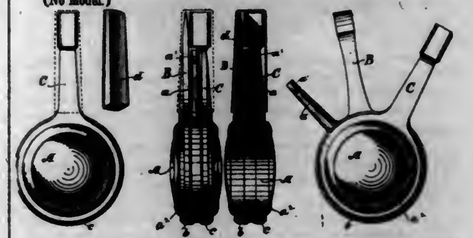


Claim.—1. The combination, with an open grate, of the air-chambers G D, provided with bottom openings for the admission of air, of the horizontal box-chamber I, connecting said chambers G D, the grate-flue F, interposed between the chambers G I D, and the side outlet-opening l, substantially as described, and for the purposes set forth.

2. The combination of the open grate, the vertical side air-flue, G, the side and rear flue or chamber, D, said flues communicating by means of the horizontal flue I, and provided with the openings or registers R, all constructed, arranged, and adapted to operate substantially as described.

3. In combination with an open grate, the chambers G and D, separated on one side by partition k, and connected by the horizontal chamber I, the chamber D being provided with a low partition, m, substantially as described, and for the purposes set forth.

317,007. POCKET OIL-CAN. GEORGE A. PAYSON, Chicago, Ill., assignor to himself and Ward H. Willits, same place. Filed Feb. 27, 1885. (No model.)



Claim.—1. The combination, with an oil-can, of a screw-driver or other tool hinged thereon, substantially as set forth.

2. The combination, with an oil-can having a nozzle, a, of a screw-driver or other tool or tools hinged upon the can so as to fold into position parallel with the nozzle, substantially as specified.

3. The combination, with an oil-can, of a screw-driver or other tool hinged upon the can by a ring encircling the can-body, substantially as specified.

4. The combination, with the oil-can having nozzle a, of the skate-key constructed with a lateral enlargement at its operating end, as shown, and for the purpose specified.

5. The combination of the oil-can, the screw-driver or other tool or tools, the latter being foldable parallel with the can-nozzle, with a hood covering said tools and nozzle, substantially as specified.

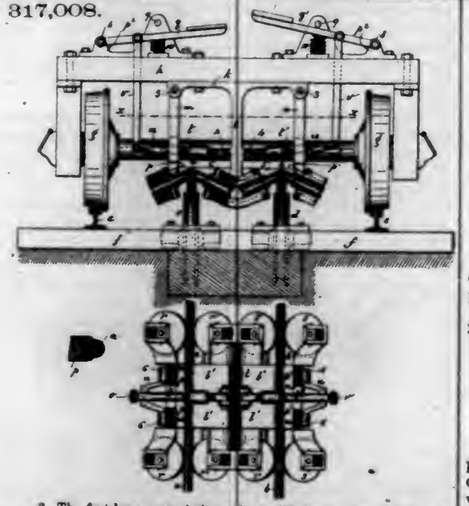
317,008. CABLE RAILWAY. JOHN H. PENDLETON, Brooklyn, N. Y. Filed Apr. 19, 1884. (No model.)

Brief.—A laterally-moving clamp is moved relative to a fixed one through a toggle lever and link, the latter being actuated by a spring-held foot-lever and connecting-rod. Guide-rollers are located at each end of the clamps. The recessed faces of the clamps are filled with gutta-percha.

Claim.—1. The combination, with the clamp l', of the swinging hanger m, the clamp p at its lower end, and the connecting toggle-link and crank-arms, substantially as set forth.

2. The toggle-links t t', pivoted at 4, and provided with adjusting turn-buckles, in combination with the cranks or links u, the clamps p p' and l', the connecting-rods v, the pivoted foot-levers q q', and springs 10, substantially as set forth.

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3. The foot-lever q or q', the spring to lift the same, and the guide-block p^3, in combination with the connecting-rod v, the toggle-link t or t', the hanger m or n, the clamps p and r, and the rollers at the respective ends of the clamps, substantially as set forth.

4. The clamps having recessed faces filled with gutta-percha or similar material, substantially as set forth.

317,009. JOINT FOR NATURAL-GAS CONDUCTORS. JOSEPH N. PEW, Pittsburg, Pa. Filed Feb. 24, 1885. (No model.)



Claim.—A pipe-joint consisting of the threaded pipe-sections a a and threaded coupling b, in combination with the tube c, fitting closely on the coupling b, and the lead packing d, calked tightly between the ends of the tube and the sides of the pipes, substantially as and for the purpose described.

317,010. PHOSPHATE FERTILIZER. WALTER S. PIERCE, New York, N. Y., assignor to Evelina D. Pierce, same place. Filed Sept. 29, 1883. (No specimens.)

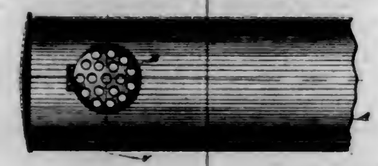
Claim.—1. The process of manufacturing a fertilizer from the insoluble phosphates of alumina, iron, lime, and other bases, consisting of first drying and pulverizing the raw material, mixing with it a certain quantity of sulphate of ammonia, treating the mixture with strong sulphuric acid, and finally drying the product, substantially as herein described and set forth.

2. The process of manufacturing a fertilizer, consisting of first drying and pulverizing the phosphate of alumina, mixing with it a certain quantity of sulphate of ammonia, treating the mixture with strong sulphuric acid, and finally drying the product, substantially in the manner and in the proportions herein described and specified.

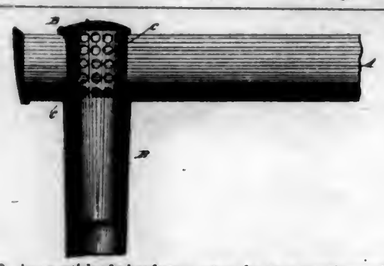
317,011. TRAP FOR EAVES-TROUGHS. WILLIAM B. PORTER, Troy, Pa. Filed Jan. 31, 1885. (No model.)

Claim.—1. The combination, with an eaves-trough and its discharge-pipe, of a perforated trap extending into the latter and projecting above the bottom of the trough, substantially as described.

2. The combination, with an eaves-trough and a discharge-pipe therefor having its upper portion or section slightly tapering in length, of a correspondingly-tapering perforated trap fitting therein and extending above the bottom of the trough, substantially as described.

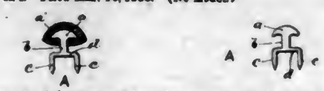


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3. As an article of manufacture, a trap for eaves-troughs, consisting of a slightly-tapering shell or tube having a perforated hinged lid and provided with perforations in its sides, as set forth.

317,012. BUTTON AND FASTENING. GEORGE W. PRENTICE, Providence, R. I. Filed Mar. 16, 1885. (No model.)

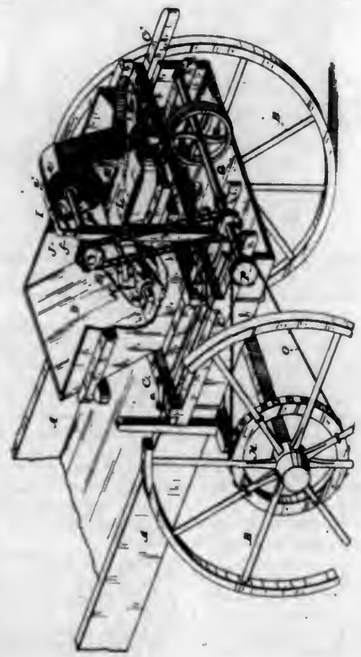


Claim.—1. A button and fastening combined, consisting of a base portion having a neck terminating in an enlarged head projecting from one cut edge thereof, the opposite cut edge of the base being provided with projecting prongs adapted to enter the material while they are in the plane of the said base, and be subsequently bent and clinched, the metal composing said button and fastening being of the strength and condition in which it existed in the sheet from which it was cut, and being without bends, all substantially as and for the purpose set forth.

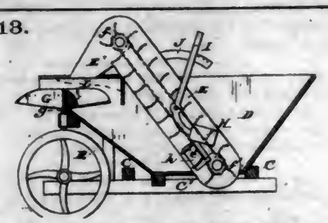
2. A button and fastening consisting of a base portion provided with prongs on one side and a neck and head portion on the opposite, all the parts being integral and in the same plane, cut from sheet metal, ready for use when so cut, and being without bends, the head portion of said button and fastening being provided with an enlarged head formed of moldable material rigidly secured thereon, all substantially as described, and for the purpose specified.

317,013. SEED-SOWER. JACOB PRICE, San Leandro, Cal. Filed May 1, 1884. (No model.)

Claim.—1. In a seed-sower, the hopper D, the rotating distributer G at its rear top, and the elevator E in the hopper, having valves at its lower end to admit the grain, and a discharge-spout, E', at its upper end to discharge the grain upon the rotating distributer, substantially as described.



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2. In a seed-sower, the hopper D and distributer G, in combination with the elevator E in the hopper, said elevator having valves or apertures h in its sides near its lower end, a means for regulating the capacity of said valves, and the spout E' at the upper end of the elevator, adapted to discharge the grain upon the distributer.

3. In a seed-sower, the elevating device E, by which the grain is taken from the hopper and elevated to and discharged upon the distributer, said elevator having the valves or apertures h in its sides near its lower end, and the pivoted lever or bail I, having the gates H on its ends, adapted to regulate the capacity of the apertures, substantially as herein described.

4. In a seed-sower, a hopper and a rotating distributer adapted to receive grain from the hopper, and to discharge its grain during one-half its revolution back again into the hopper, substantially as herein described.

5. In a seed-sower, a hopper, a rotating distributer located at its rear top edge, a mechanism for elevating the grain from the hopper and discharging it upon the center of the distributer, and a suitable passage or chute connected with the hopper, whereby the grain discharged from the distributer during one-half its revolution is reconveyed into the hopper, substantially as described.

6. In a seed-sower, the combination of hopper D, the rotating distributer G at its rear top center, the elevator E, spout E', and the chute or passage L, communicating with the hopper, and adapted to receive the grain discharged from the distributer during the forward half of its revolution and reconvey it to the hopper, substantially as described.

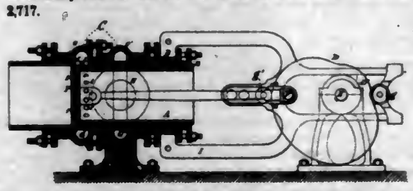
7. A seed-sower consisting of the hopper, the distributer, and the elevator, arranged with relation to each other as described, and mounted on a wheeled frame or wagon, in combination with the mechanism by which the elevator is operated and the distributer rotated, consisting of the chain-pulley M on the wheel of the wagon, the chain O, the shaft Q, carrying chain-pulleys P S and gear R, the spindle g, upon which the distributer is mounted, and having a pinion, r, the chain s, shaft F, having chain-pulleys S', and the chain-pulley f'' at the bottom of the elevator, all arranged and operating substantially as and for the purpose herein described.

317,014. HEEL-PLATE FOR BOOTS OR SHOES. WILLIAM E. QUIGLEY, Dedham, Mass. Filed Mar. 2, 1885. (No model.)



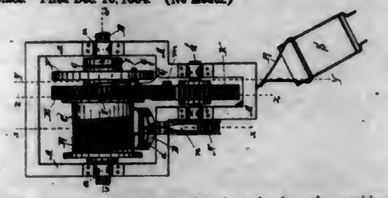
Claim.—As an improved manufacture, a heel-plate perforated or having in it an opening, d, as described, and provided with a series of pairs of spurs or clinches integral with it and projecting from one face of it, and having those of each pair beveled on their inner faces from their points toward their middle, all being substantially as set forth.

317,015. PUMP. ALPHONSE REIS, Antwerp, Belgium. Filed Jan. 15, 1885. (No model.) Patented in Belgium Sept. 5, 1883, No. 62,509; in France Sept. 5, 1883, No. 157,395; in England Dec. 10, 1883, No. 5,688; in Germany Dec. 12, 1883, No. 27,746, and in Austria Apr. 27, 1884, No. 2,717.



Claim.—In a reversible pump, a fixed cylinder, C, provided with the annular cavities G G', leading, respectively, to the suction or discharge pipes H H', a second cylinder, B, adapted to slide in the fixed cylinder and provided with apertures t t', corresponding with the cavities in the fixed cylinder, the ram-piston A, and the cam D, provided with a crank-pin, together with the described intermediate devices whereby both the ram-piston A and the cylindrical piston B are actuated by the movement of said cam D, as and for the purpose described.

317,016. AUTOMATIC-SHOVEL MECHANISM. CHARLES J. RINDERKNECHT, Indianapolis, Ind., assignor of one-half to A. J. Malone, same place. Filed Dec. 10, 1884. (No model.)



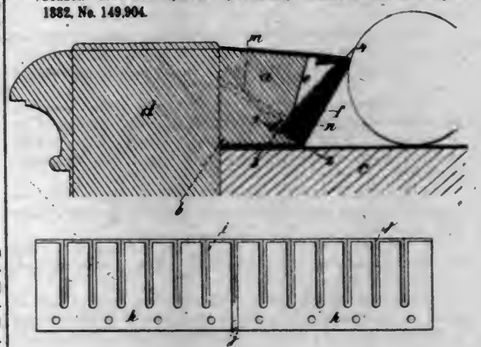
Claim.—1. In an automatic-shovel mechanism, the combination, with the main shaft B, the supporting frame-work A A, the rope R, and the scoop S, of the drum C, loosely mounted on the shaft B, the drum-sleeve c, the clutch-sleeve L, slipped over and keyed to the main shaft B between said shaft B and the drum-sleeve c, the fly-wheel F, mounted loosely on the drum-sleeve c, the collar f, secured to the end of the sleeve c for the purpose of preventing the fly-wheel F from slipping off from said sleeve c, the clutching device G, H, and I, constructed as described, and forming means for transmitting the motion of the main shaft B to the drum C, all arranged as described, and for the purpose specified.

2. In an automatic-shovel mechanism, the combination, with the shafting B, the supporting frame-work A A, the rope R, and the scoop S, of the drum C, being provided with a sleeve, c, the cog-wheel E, secured to or forming part of one of the flanges of the drum C, the fly-wheel F, loosely mounted on but prevented from slipping off from the drum-sleeve c, the clutch-sleeve L, keyed to the shaft B between said shaft B and the drum-sleeve c, as described, the clutching device G H I, constructed as described, and the cog-wheel K, mounted on the shaft k and provided with the projecting pin m, said pin m and the clutching device G H I forming means for breaking the connection between the drum C and the main shaft B, and for reversing the motion of the drum C, all constructed as described, and for the purpose specified.

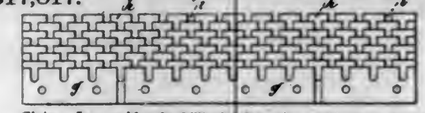
3. In an automatic-shovel mechanism, the main shaft B, the supporting frame-work A A, the rope R, guide-pulley p, and the scoop S, in combination with the drum C, provided with screw-threads on its surface to receive the rope R, the drum-sleeve c, the cog-wheel E, secured firmly to the drum C, the fly-wheel F, mounted loosely on the drum-sleeve c, the clutch-sleeve L, keyed to the shaft B between said shaft B and the drum-sleeve c, the cog-wheel K, mounted on the shaft k, the clutching device G H I, constructed as described, and the striker m on the cog-wheel K, forming means for engaging and disengaging the main shaft B with the drum C, and the brake mechanism N n D d d', all substantially arranged as described, and for the purpose specified.

4. In an automatic clutching device, the combination, with a main shaft, B, and a supporting-frame, A A, of a drum, C, provided with a drum-sleeve, c, a cog-wheel, E, firmly secured to the drum C, a fly-wheel, F, loosely mounted on the drum-sleeve c, a clutch-sleeve, L, keyed to the main shaft B inside of the drum-sleeve c, a pin, I, operating in a slot cut in the cog-wheel E, radiating from its center, a pawl-lever, H, pivoted to the cog-wheel E and provided with a pawl proper, h, an arm, h', connected with the sliding pin I and a finger, h^3, a spring, i, operating on the sliding pin I, a notched plate, G, also pivoted to the wheel E and provided with a projecting pin, g, extending into a slot in the fly-wheel F, and a cog-wheel, K, provided with a pin, m, placed to engage at the proper time with the finger h^3, all arranged as described, and for the purpose specified.

317,017. CUSHION FOR BILLIARD-TABLES. JOSEPH RIVOIRE, Paris, France. Filed Mar. 9, 1885. (No model.) Patented in France July 3, 1882, No. 149,904.

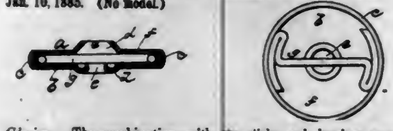


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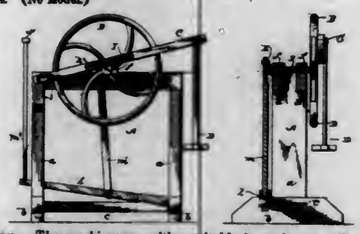
Claim.—In a cushion for billiard-tables, the combination of resilient slitted plates or strips with intervening thickness of fabric, also slitted, as described, for the purpose specified.

317,018. BUTTON. GEORGE L. ROBINSON, Waterbury, Conn. Filed Jan. 10, 1885. (No model.)



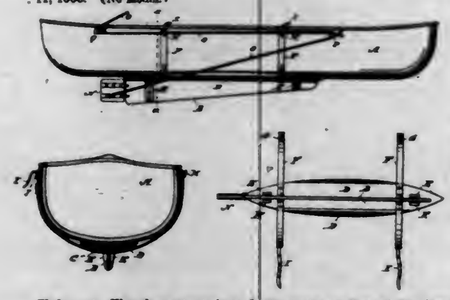
Claim.—The combination, with the disks *a b*, having marginal flanges *c* and raised portion *d*, of the securing-wire *g*, the ends of which are bent first in one direction, reversed, and bent in the opposite direction in the arc of a circle, thus bringing the horizontal bar in the center of the opposite ends of the bent portion, as shown and described, and for the purpose specified.

317,019. CHURN. WILLIAM J. ROGERS, Terrell, Tex. Filed July 2, 1884. (No model.)



Claim.—The combination, with a suitable frame having a fly-wheel mounted in bearings thereof, and a wrist-pin on said fly-wheel, of the lever C, pivoted to the frame at one end, and carrying a pivoted dasher at its other end, said lever having a slot or opening, *k*, to receive the wrist-pin, a crank-arm, a treadle pivoted to the frame at one end, and carrying a handle at its other end, and a rod connecting the treadle and crank-arm, substantially as set forth.

317,020. BOAT. JOHN W. ROGER, New Rochelle, N. Y. Filed Mar. 11, 1885. (No model.)



Claim.—1. The shoe adapted to fit the under surface of the boat and carrying a center-board, combined with straps by which the shoe may be attached to the boat or detached therefrom at will, substantially as set forth.

2. The shoe adapted to fit the under surface of the boat and carrying a center-board, combined with a rudder attached to the heel of the center-board, cords for operating the rudder, and straps by which the shoe may be applied to or removed from the boat at will, substantially as set forth.

3. The shoe D, carrying the center-board B, combined with the straps F, and the hooks H, and buckles J, secured to the boat, substantially as set forth.

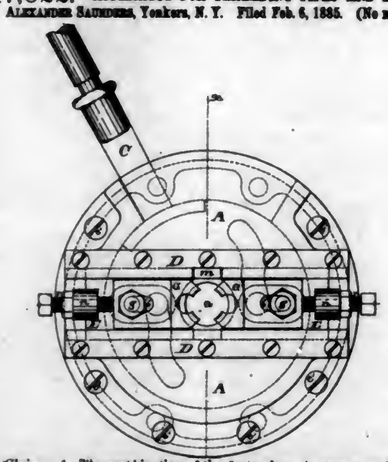
4. The shoe D, carrying the center-board B, in combination with the rudder secured at the heel of the center-board, the cords O, and eyes or blocks P Q, substantially as set forth.

5. An attachment for a boat, consisting of the elongated shoe D, fitting the under surface of the boat, the center-board B, rigidly affixed to the under side of the shoe and projecting at right angles therefrom, and the straps F, by which the shoe is held in place on the boat, substantially as set forth.

317,021. FOOD FOR CALVES. SAMUEL SANBORN, San Francisco, Cal. Filed May 12, 1884. (No specimens.)

Claim.—A food preparation for calves and young animals, consisting of sugar, oatmeal, salt, soda, and phosphates of lime and of sodium, in the proportions substantially as herein described.

317,022. APPARATUS FOR THREADING PIPES AND BOLTS. ALEXANDER SAUNDERS, Yonkers, N. Y. Filed Feb. 6, 1885. (No model.)



Claim.—1. The combination of the front plate, A, constructed with guides D and circular recess *b*, the disk B, constructed for use with a lever-handle, C, and eccentric slots *e*, the back plate, H, and carrier-blocks E, constructed with the pins or studs F, and provided with suitable half-dies, all substantially as and for the purpose herein set forth.

2. The combination of the front plate, A, constructed with guides D and circular recess *b*, the disk B, constructed for use with lever-handle C, and with slots *e*, eccentric as to their main length and concentric at their inner ends with the axis of motion of the disk, the back plate, H, and carrier-blocks E, constructed with the pins or studs F and provided with suitable half-dies, all substantially as and for the purpose herein set forth.

3. The combination of the front plate, A, constructed with guides D and circular recess *b*, the stop *m*, the disk B, constructed for use with a lever-handle, C, and having eccentric slots *e*, and the carrier-blocks E, constructed with the pins or studs F, and provided with suitable half-dies, all substantially as and for the purpose herein set forth.

4. The combination of the front plate, A, constructed with guides D and circular recess *b*, the carrier-blocks E, having slots *b''*, flanges *a''*, and pins or studs F, the bolts or set-screws *g*, the disk B, constructed for use with a lever-handle and having eccentric slots *e*, and the back plate, H, all substantially as and for the purpose herein set forth.

5. The combination of the front plate constructed with the guides D and circular recess *b*, the stop *m*, the carrier-blocks E, having slots *b''*, flanges *a''*, and pins or studs F, the bolts or set-screws *g*, the half-dies G, the disk B, constructed for use with a lever-handle and having eccentric slots *e*, and the back plate, H, all substantially as and for the purpose herein set forth.

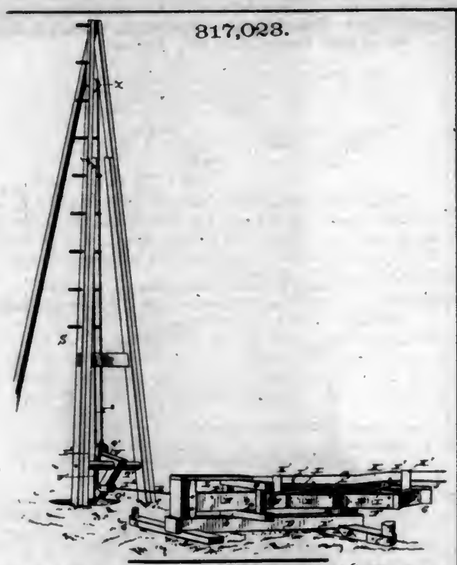
6. The combination of the front plate, A, constructed with the guides D and circular recess *b*, the stop *m*, the carrier-blocks E, having slots *b''*, flanges *a''*, and pins or studs F, the bolts or set-screws *g*, the half-dies G, the disk B, constructed for use with a lever-handle, and having slots *e*, eccentric as to their main length and concentric at their inner ends with the axis of movement of the disk, and the back plate, H, all substantially as and for the purpose herein set forth.

317,023. MECHANICAL POWER. GEORGE E. SAUNDERS, Burden, Kans., assignor of one-half to W. T. Beasley, same place. Filed Dec. 18, 1884. (No model.)

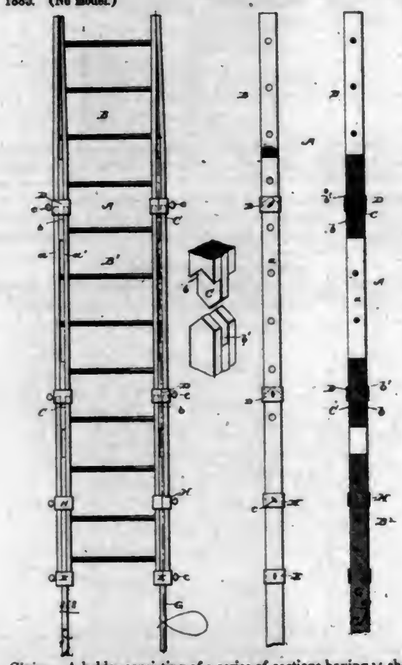
Claim.—1. The combination of the bed, the wheel having projecting spokes and a sweep, and the pivoted gate with the derrick having the rock-shaft and angle-lever, and the connecting-rod for connecting one of the arms of the angular lever to the gate, substantially as described.

2. The combination of the bed, the wheel having projecting spokes, stakes, or pins I' and a sweep, and the pivoted gate with the derrick, the rock-shaft, and the angular lever U, having bail I^4, connecting-rod R, that is secured to the gate and that is adapted to be connected to and disconnected from the bail I^4, and a pulley that is adapted to be hung to said bail when the rod R is disconnected therefrom, for the purpose set forth, substantially as described.

317,023.



317,024. LADDER. HENRY H. SCHUMANN, Troy, Pa. Filed Feb. 13, 1885. (No model.)

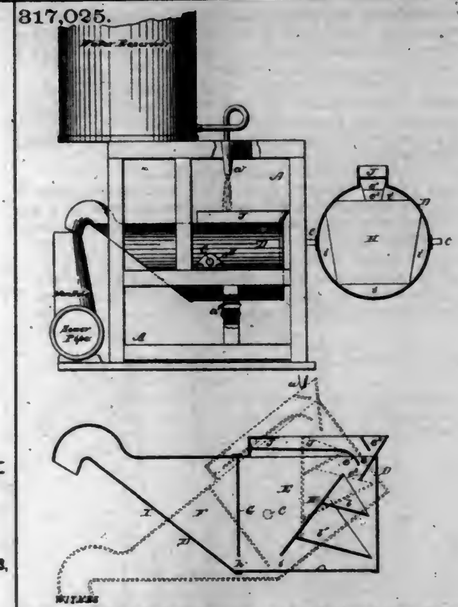


Claim.—A ladder consisting of a series of sections having V-shaped tongues at one end, and V-shaped recesses *b* adjacent thereto, the other ends of said sections having V-shaped recesses and V-shaped ends to fit the recesses *b*, and metal bands having thumb-screws adapted to hold said sections rigidly together, substantially as set forth.

317,025. APPARATUS FOR FLUSHING SEWERS, WATER-PIPES, &c. JAMES SCOTT, Denver, Col. Filed Dec. 31, 1884. (No model.)

Claim.—1. A pivoted tank that is divided into compartments that are so arranged as to cause the water which is fed into the tank to tilt the said tank and discharge it of its contents and then return the tank to its initial position, substantially as described.

2. A pivoted tank having the compartments E and F, water-way J, funnel e^2, and pockets, one or more, and a feeding-nozzle which is located in such a position as to discharge the water into the water-way when the tank is in its initial position, and into the funnel when the tank is in its discharge position, substantially as described.



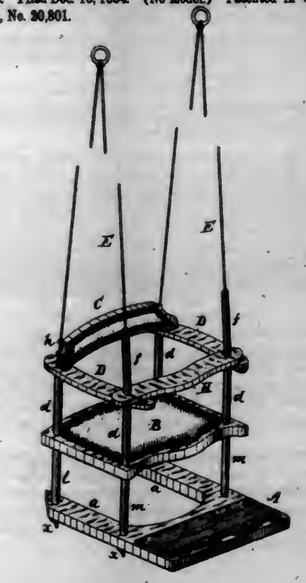
317,026. SPONGE-HOLDER FOR SLATE-PENCILS. WM. H. SHAW, New York, N. Y. Filed Sept. 30, 1884. (No model.)



Claim.—1. The combination of a metal tube adapted to fit a slate-pencil, a sponge inserted in one end thereof, and inwardly-projecting barbs securing the sponge, substantially as set forth.

2. The combination of a metal tube made flaring at one end and adapted to fit a slate-pencil at its other end, a sponge inserted in said flaring end, and inwardly-projecting barbs made integral with the tube and serving to hold the sponge, substantially as set forth.

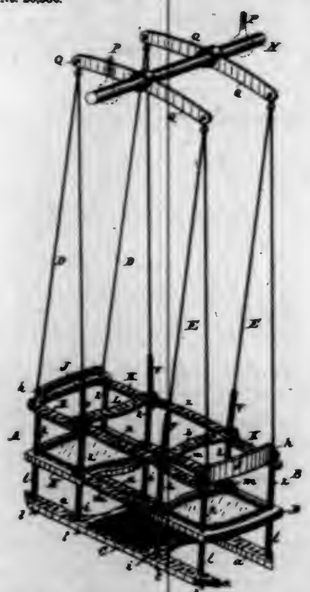
317,027. SWINGING CHAIR. JAMES H. SHIELDS, Boston, Mass., assignor to himself, John Wm. Lavery, and Timothy F. Shea, all of same place. Filed Dec. 10, 1884. (No model.) Patented in Canada Dec. 27, 1884, No. 20,801.



Claim.—1. In a swinging chair substantially such as described, the foot-board A, provided with the extensions *a a*, projecting backwardly under the seat B, and tubes *l*, in combination with the tubes *m*, cords E, and seat B, substantially as described.

2. The improved swinging chair herein described, the same consisting of the foot-board A, provided with the extensions *a a*, projecting backwardly under the seat, the seat B, back C, arms D, guard H, cords E, and tubes *m l d f*, constructed, combined, and arranged to operate substantially as set forth.

317,028. SWINGING CHAIR. JAMES H. SHIELDS, Boston, Mass., assignor to himself, John Wm. Lavery, and Timothy F. Shea, all of same place. Filed Dec. 13, 1884. (No model.) Patented in Canada Jan. 7, 1885, No. 20,836.



Claim.—1. In a swinging chair substantially such as described, the combination of the following instrumentalities, to wit: two chairs arranged to face each other and mounted on a common foot-board, a seat, back, arms, and guard for each chair, tubes on which the seats and arms rest, suspensory cords passing, respectively, through the tubes, arms, seats, and foot-board, and side guards for connecting the chairs, substantially as set forth.

2. In a swinging chair substantially such as described, the foot-board C, bifurcated at either end, in combination with the seats H, tubes *i l*, and cords D E, substantially as described.

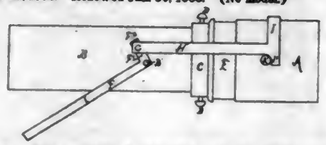
317,029. CASE FOR COFFINS. ISAAC C. SHULER, Amsterdam, N. Y. Filed Sept. 11, 1884. (No model.)



Claim.—1. The combination, with case A, composed of the middle section, *a*, terminal sections *b b*, and one or more intermediate sections, *c*, made each of vitreous material, and constructed substantially as above described in all the portions of the respective sections, and united by the plain ends of these sections entering with cement into the flanged ends of their respective neighboring sections, as above set forth, of the above-described yoking-frame D, all substantially as set forth, for the purposes described.

2. The combination, with preserving-case A, composed of the sections *a*, *b*, and *c*, made each of vitreous material, and with the form of construction of their respective portions and their connection with each other substantially as above described, of the ground-supports C C, constructed and arranged in relation to the said sections of said case substantially as and for the purposes set forth.

317,030. PIPE-COUPLING. THOMAS SIDDALL, Trenton, N. J. Filed Mar. 10, 1884. Renewed Jan. 30, 1885. (No model.)



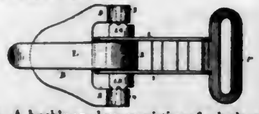
Claim.—The coupling B, provided with the elastic washer E, and the collar C, having adjusting-screws D, in combination with the pipe A, having lugs A', and with the yoke I, having arms H, and short arms I', and the lever F, pivoted to the coupling B, and having the short arms F', substantially as shown and described.

317,031. CAP. SALI SIMONSON, New York, N. Y. Filed Jan. 27, 1885. (No model.)



Claim.—A sliding-band cap, with the retaining-strip or slide secured to the lining *a* of the band B midway between the upper and lower edges, *b* and *c*, of said band, and to the body A of the cap at or near its lower edge, *f*, as and for the purpose described.

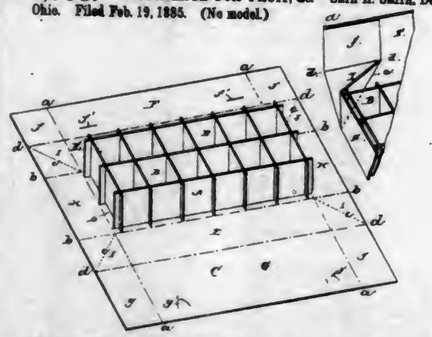
317,032. SPRING-CLASP. EDWARD S. SMITH, Waterbury, Conn. Filed Feb. 18, 1885. (No model.)



Claim.—1. A buckle or clasp consisting of a body-plate having forwardly-extended sockets and a holding-lever pivoted in said sockets, the pivots of which lever are bifurcated to form springs, which said sockets contract, and thus lock or hold the lever, substantially as described.

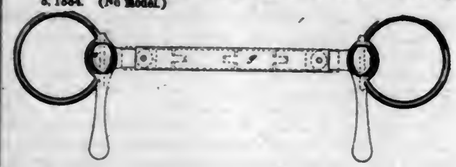
2. In a buckle or clasp, the combination, with a holding-lever having slots 11 12, of an attaching-plate provided with sides that enter said slots, substantially as described.

317,033. CELL PACKAGE FOR FRUIT, &c. SETH H. SMITH, Delta, Ohio. Filed Feb. 19, 1885. (No model.)

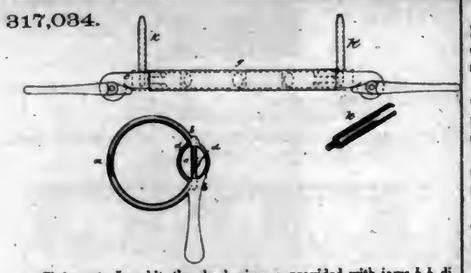


Claim.—A package consisting of the case A and the wrapper which incloses the case, said wrapper being folded over the case on the lines *a a*, *b b*, *c*, and *d d*, so as to form the bottom D, ends H, sides E, corner re-enforce portions, I, flaps F G, and flap end re-enforce portions, *f g*, substantially as described.

317,034. BRIDLE-BIT. JAMES STANLEY, Newark, N. J. Filed Sept. 8, 1884. (No model.)



317,034.



Claim.—1. In a bit, the cheek-piece *a*, provided with jaws *b b*, directly connected by curved bars *d*, which form an eye for the reception of the head *c* and prevent said jaws from spreading.

2. In combination, the heads *c*, connected together, substantially as shown, cheek-pieces provided with bars *d d*, which connect said jaws directly and lie in close relation to said heads, and the pivotal pin *f*, all said parts being arranged and operating substantially as and for the purposes set forth.

3. In a bridle-bit, the combination of the head *c*, cheek-piece *a*, and projection *k*, adjustably arranged upon said head, substantially as and for the purposes set forth.

4. In combination with the heads *c c* and cheek-pieces *a a*, mouth projections *k k*, arranged at an angle to the line of the ordinary mouth-piece and removable from said heads, substantially as and for the purposes set forth and shown.

5. In combination in a bridle-bit, the throat-piece *h*, heads *c*, having a pivotal relation thereto, and provided with mouth projections *k*, cheek-pieces *a*, and the pin *f*, all said parts being arranged and operating substantially as and for the purposes set forth.

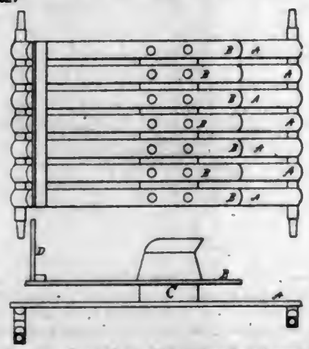
6. In a bit, the heads *c*, perforated to receive the pins *f* and throat-piece *h*, in combination with the cheek-pieces, pins *f*, and throat-piece, substantially as set forth.

7. In a bit, the heads *c*, throat-piece *h*, the ends of which are provided with an eye, and the cheek-pieces *a*, all said parts being arranged and combined substantially as set forth.

8. In a bridle-bit, in combination with the heads *c* and cheek-pieces *a*, the throat-piece *h*, having straight ends *n* with the heads sliding thereon to allow a play to the horse's head, substantially as set forth.

9. In combination with the head *c* and cheek-pieces *a*, connected by a mouth or throat piece or pieces, the cushioned or covered mouth projections *k*, arranged and operating substantially as and for the purposes set forth and shown.

317,035. BUCKBOARD-WAGON. DARIUS STEBBINS, Cheshire, Conn., assignor, by direct and mesne assignments, to Henry H. Rice and Edward T. Cornwall, same place, and Edward A. Cornwall. Filed Sept. 10, 1884. (No model.)



Claim.—In a wagon or other vehicle, a buckboard consisting of an upper and lower series of slats and of a box, all of the said parts bolted together, as shown and described.

317,036. TRANSOM-LIFTER. CHAS. E. STELLER, Milwaukee, Wis. Filed Jan. 21, 1885. (No model.)



Claim.—1. In a transom-lift, the combination, with the retaining-keepers affixed to the doorway, and the connecting-link of the transom, of the flat rectangular lifting-bar C, arranged edgewise to the door-frame, substantially as and for the purpose set forth.

2. In a transom-lift, the combination, with the lifting-bar as secured to the door-frame with one or more retaining-keepers, of a screw interposed between said bar and said door-frame and operating in a nut or socket set into said frame beneath said bar, substantially as set forth.

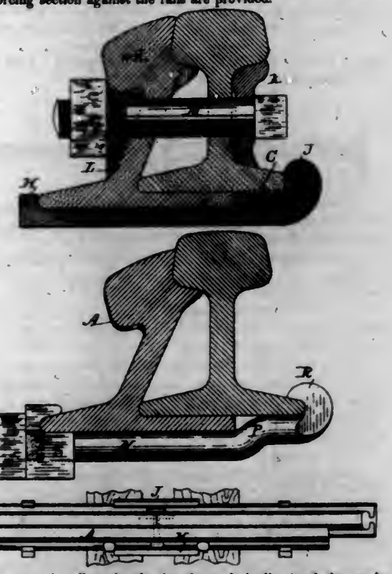
3. The combination, with the guide-bearing N, interposed between the upper end of the lifting-bar and the door-frame, of the bar-retaining lugs *g'*, as set forth.

4. The combination, with the lifting-bar of a transom-lift, of one or more keepers, D, having vertical fastening-plates *a*, horizontal rod-bearings *b*, and brackets *d*, provided with opening *g*, as set forth.

5. In a transom-lift, the combination, with the lifting-rod C, of two or more retaining-keepers, E, open at their base, screw F, and one or more bearings interposed between said lifting-rod and the casing, said screw F and said bearings serving as a rear support to the lifting-rod within said open keepers, as set forth.

317,037. RAILWAY-RAIL JOINT. SHAW STEWART, Stuart, Iowa. Filed Aug. 13, 1884. (No model.)

Brief.—The re-enforcing rail-section has its web inclined and one side of its head concaved to engage the heads of the meeting ends of the rails. A chair for the joint-seat and clamps for holding the ends of the re-enforcing section against the rails are provided.



Claim.—1. A rail-section having its web inclined relative to its flange and base and one side of its T-head made concave and adapted to engage the abutting ends of the two rails, as and for the purposes stated.

2. The combination of the section A, having notches B, the auxiliary chair C, having projections D and F, and the abutting ends of two rails, substantially as shown and described, for the purposes specified.

3. The combination of the rail-section A, having notches B, the auxiliary chair C, having projections D and F, the chair G, having flanges H and J, and the abutting ends of two rails, substantially as and for the purposes shown and described.

4. The combination of the rail-section A, the screw-clamps N P R, and the washers S T, with a rail or the abutting ends of two rails, to operate in the manner set forth to support a rail or the abutting ends of two rails in a railway-track.

5. The improved railway-joint composed of a rail-section, A B, an auxiliary chair, C D F, a chair, G H J, a fish-plate, K, a washer, L, a bolt, M, clamps N P R, washers S T, and the abutting ends of two rails, substantially as shown and described.

317,038. CORKSCREW. HIRAM STRAIT, Troy, N. Y. Filed Dec. 9, 1884. (No model.)

Claim.—1. In a corkscrew, the combination, with a suitable body, of laterally-movable blades independent of each other, and having one side smooth and the other side threaded or serrated, as and for the purpose set forth.

317,038.



2. In a corkscrew, the combination, with a suitable body, of laterally-movable blades having their inner faces hollowed out or concaved and the outer face rounded or convex, as and for the purpose set forth.

3. In a corkscrew, the combination, with a frame or body having connecting rods or bars, of blades or arms sliding laterally on said rods or bars, as set forth.

4. In a corkscrew, the combination, with a frame or body having connecting rods or bars, of blades or arms sliding laterally on the same and springs bearing against the blades, as set forth.

5. In a corkscrew, the combination, with a forked or U-shaped frame or body having a suitable handle, said rods or bars connecting the body, of blades or arms sliding laterally on the bars or arms, a wire rod passing through the blades or arms, and a spring or springs encircling the rod and bearing against the blades, as set forth.

6. In a corkscrew, the combination, with a suitable body, of laterally-sliding blades or arms having their inner faces threaded, as and for the purpose set forth.

7. In a corkscrew, the combination, with a suitable body, of blades or arms sliding laterally on the body and arranged to be held at any suitable point, so as to accommodate various sizes of corks, as set forth.

317,039. CUSPIDOR. HIRAM STRAIT, Troy, N. Y. Filed Feb. 3, 1885. (No model.)



Claim.—1. The herein-described cuspidor, comprising the reservoir, the mouth-piece, and the adjustable tube connecting the same, as and for the purpose set forth.

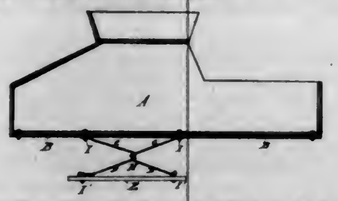
2. The herein-described cuspidor, comprising the reservoir, the mouth-piece, and the telescoping tubes connecting the same, as and for the purpose set forth.

3. In a cuspidor, the combination, with the mouth-piece, of the telescoping tubes connecting with the same and discharging into a suitable reservoir, for the purpose set forth.

4. In a cuspidor, the combination, with the reservoir, of the tube fitted to the upper end of the same, a smaller tube telescoped by and sliding within the lower larger tube, means, substantially as described, for adjusting the length of the inner smaller tube, and a mouth-piece fitted detachably on the upper end of the inner tube, as set forth.

5. In a cuspidor, the combination, with the reservoir having a tube or socket, B, of the tube C, fitting within the latter, the tube G, sliding within the tube C, a set-screw for adjusting the height of the inner tube, G, and a mouth-piece provided with a depending tube or socket, which is fitted within the upper end of the tube G, as and for the purpose set forth.

317,040. SPRING-BRACE FOR VEHICLES. EDWIN J. STROUD, Bergford, Dak. Filed May 1, 1884. (No model.)

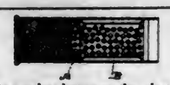


Claim.—The combination, with a pair of hinge-eyes fixed relative to each other longitudinally to the body of a vehicle supported on springs, and another pair of hinge-eyes fixed relative to each other longitudinally upon the gear which supports the springs of the said vehicle, of braces hinged together at a point centrally between the said hinge-eyes, and hinged at their ends to the said eyes, substantially as and for the purpose specified.

317,041. CARTRIDGE. WILLIAM SUBLETT, San Francisco, Cal. Filed Jan. 22, 1885. (No model.)

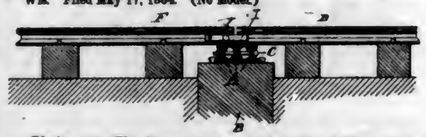
Claim.—In a cartridge for shotguns, a powder-chamber, and a cylinder containing the shot having outwardly-turned flanges at its ends,

317,041.



and a metallic wad intervening between the shot and the powder, substantially as herein described.

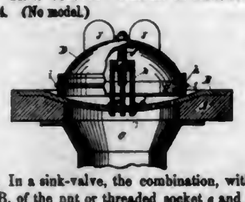
317,042. RAILROAD-SWITCH CHAIR. DANIEL SULLIVAN, Sparta, Wis. Filed May 17, 1884. (No model.)



Claim.—1. The herein-described continuous chair for railway-switches, consisting of the two outer lengths and the intermediate inverted length of railway-iron secured together by any suitable means, substantially as set forth.

2. In combination with the continuous switch-chair formed of the two outer and the intermediate inverted rail-sections, the depressed sleeper supporting said chair, said sleeper being located on a plane below the adjacent track ties or sleeper, all substantially as set forth.

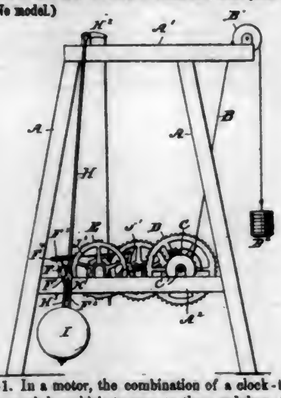
317,043. SINK-VALVE. CHARLES M. TACK, St. Louis, Mo. Filed Dec. 29, 1884. (No model.)



Claim.—1. In a sink-valve, the combination, with the perforated plate or screen B, of the nut or threaded socket *e* and cap D, sustained upon stems *k*, provided with notches *a*, adapted to engage with the screen B, and secured thereto by keys *d*, all of said parts constructed and adapted to operate substantially as and for the purpose set forth.

2. In a sink-valve, the cap D, provided with a groove, *g*, elastic band *h*, and wire ring *i*, all constructed and adapted to operate substantially as and for the purpose set forth.

317,044. MOTOR. HENRY W. TEAL, Montrose, Mo., assignor of one-half to Elisha Blew and William W. Adamson, same place. Filed Feb. 7, 1885. (No model.)



Claim.—1. In a motor, the combination of a clock-train, a drive-shaft having a crank by which to operate the pendulum, the pendulum engaged with said crank, a mutilated gear in the train, a pinion on the drive-shaft arranged to be meshed by the mutilated gear, and the weight for driving the train, substantially as set forth.

2. In a motor, the combination of a clock-train, the drive-shaft having a pinion, and provided on end with a crank, the pendulum having its rod provided near its bob with an elongated slot fitted over the crank on the drive-shaft, a mutilated gear in the train meshed with the pinion on the drive-shaft, and the weight for driving the train, substantially as set forth.

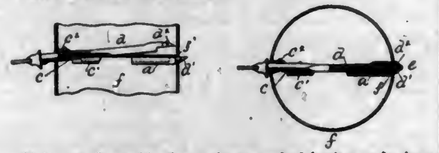
3. In a motor, the combination of a clock-train having a mutilated gear and a ratchet-wheel, and the pendulum of the pawl arranged to engage the ratchet-wheel, the drive-shaft having a crank engaged with said pendulum, and a second crank connected with the pawl, a pinion on the drive-shaft arranged to be engaged by the mutilated gear in the train, and the drive-weight, substantially as set forth.

317,045. PROTECTOR FOR COW-MILKERS. HENRY A. THOMPSON, Farmington, Me. Filed Oct. 18, 1884. (No model.)



Claim.—The frame A, made of a single piece of spring-wire, and provided with the link B, protected hooked-shaped ends C C', and loops D D', in combination with the adjusting-cord E, having cleat F, constructed and arranged substantially as shown and described.

317,046. STOVE-PIPE DAMPER. HENRY B. TODD, Meriden, Conn. Filed Feb. 24, 1885. (No model.)

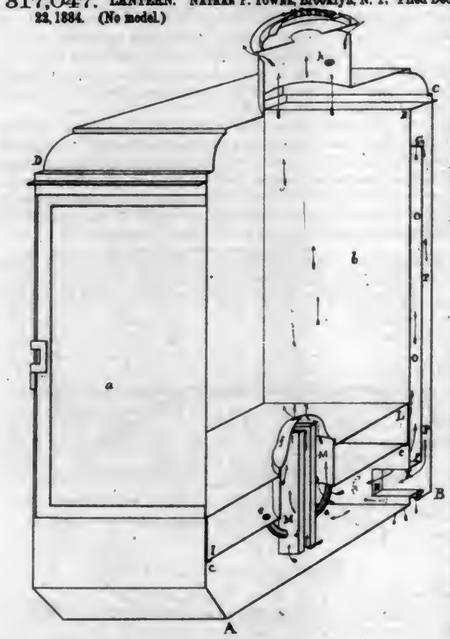


Claim.—1. In combination, a damper-rod, *d*, having on its inner end a pivot-section, d^2, and a damper-blade, *a*, having a pivot-section, d', and a rod-socket, *c*, with parts c' c^2, embracing opposite sides of the rod, whereby the pivot-sections are sprung apart, all substantially as described.

2. In combination, a damper-rod having on its inner end a pivot-section, and a damper-blade having a corresponding pivot-section, a slot extending across the rod-socket, and a rod-socket with parts embracing opposite sides of the rod, whereby the pivot-sections are sprung apart, all substantially as described.

3. In combination, the damper-rod *d*, with pivot-section d^2, the damper-blade *a*, with pivot-section d', and rod-socket *c*, with parts c' c^2, and in the pipe *f*, the bearing *f'* in which the pivot-sections are compressed, all substantially as described.

317,047. LANTERN. NATHAN P. TOWNE, Brooklyn, N. Y. Filed Dec. 22, 1884. (No model.)



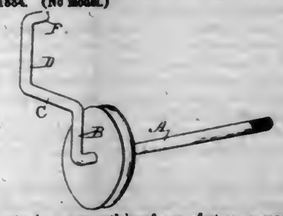
Claim.—1. A lantern having an air-chamber beneath the burner and connected therewith, an air-flue communicating with the external air near the bottom, extending upward in contact with the contained air in the lantern-body, then leading downward and opening into said air-chamber, substantially as described.

2. In combination with a lantern-body having a side plate, (as *b*,) a flue having external orifice near the bottom of the lantern, a diaphragm dividing said flue into upward and downward passages, the upward passage being next the side plate, and an opening leading into the lantern-body below the plane of the burners, substantially as described.

3. In combination with a lantern-body, a contained lamp having central aperture and burner therein, and a flue leading upward in contact with the contained air in the lantern, then downward, and communicating with said central aperture below the burner, substantially as described.

4. In combination with a lantern-body, a contained oil-reservoir having a central aperture and a plurality of flat wick-tubes therein, surmounted by a single cone, and a flue leading first upward in contact with the contained air in the lantern-body, and then downward and communicating with the aperture in the reservoir from below, all substantially as described.

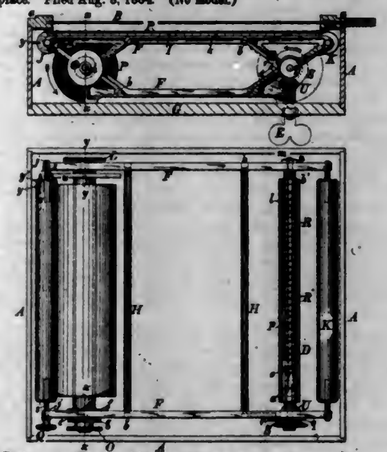
317,048. FARM-GATE. CYRUS WALKER, Indianola, Iowa. Filed Aug. 18, 1884. (No model.)



Claim.—1. As a new article of manufacture, a combined roller-bearer and guard for farm-gates, consisting of a straight bar, A, having a vertical extension, B, a horizontal and right-angled extension, C, at the top of the part B, a vertical extension, D, at the end of the part C, and a horizontal extension, F, at the top of the part D, substantially as shown and described.

2. The roller-bearer and guard consisting of a straight bar, A, having a vertical extension, B, a horizontal right-angled extension, C, at the top of the part B, a vertical extension, D, at the end of the part C, and a horizontal extension, F, at the top of the part D, in combination with a post, a roller, and a sliding gate, to operate in the manner set forth, for the purposes stated.

317,049. ROLLER-HOLDER FOR PHOTOGRAPHIC FILMS. WILLIAM H. WALKER and GEORGE EASTMAN, Rochester, N. Y., assignors, by mesne assignments, to the Eastman Dry Plate and Film Company, same place. Filed Aug. 8, 1884. (No model.)



Claim.—1. The combination, in an apparatus for exposing sensitive flexible photographic films, of two parallel rollers for operating the film, one of which is provided with a brake or friction device, while the other has applied to it a spring, which maintains the film in tension, substantially as described.

2. The combination, with the frame F F, of the spool C, having friction device applied thereto, film-support I, reel D, spring R, and ratchet and pawl *q r*, substantially as described.

3. The combination, in a roller-holder for exposing photographic films, of the spool C, reel D, film-support I, and guide-rollers J and K, with a device acting to maintain the film in a tense condition during exposure, substantially as described.

4. In a roller-holder for exposing photographic films, the reel D, provided with swinging clip *v*, for fastening the end of the film to the reel, substantially as described.

5. The combination, with the reel D, provided with means for attaching the film thereto, of the shaft *m*, spring R, and collar T, substantially as described.

6. The combination, with the reel D, provided with means for attaching the film thereto, and for preventing the reverse motion of the reel, of the shaft *m*, spring R, and collar T, substantially as described.

7. The combination, in a roller-holder for exposing photographic films, of the spool C, film-support I, reel D, and bevel-gears S U, substantially as described.

8. The combination, with the casing A, adapted to be attached to a camera, and provided with the exposing-shutter B, of the removable back G, carrying the frames F F', spool C, film-support I, and reel D, substantially as described.

9. In a roller-holder for exposing photographic films, and in combination with the spool and reel, as described, a measuring-roll in contact with the film, and provided with an alarm device, in combination with a film-support and devices for feeding the film across said support and roller, substantially as described.

10. The combination, in a roller-holder for exposing photographic films, of the measuring-roll J, provided with lug or pin *s*, and the spring *u*, arranged to operate substantially as and for the purposes set forth.

11. The combination, in a roller-holder for exposing flexible photographic films, of the measuring-roll J and removable film-marking point *y*, substantially as described.

12. The combination, with the measuring-roll J, of the film-marking point *y*, arranged to be adjusted lengthwise of the roll, substantially as described.

13. The combination, with a roller-holder for exposing photographic films, of a measuring-roll in contact with the film, and provided with an alarm attachment and a film-marking device, substantially as described.

14. The combination, in a roller-holder for exposing photographic films, of the spool C, pins c and *d d*, collar N, and nut O, substantially as described.

15. The combination, in a roller-holder for exposing photographic films, of the spool C, pins c and *d d*, collar N, nut O, reel D, spring R, shaft *m*, and pawl and ratchet *q r*, substantially as described.

16. In a roller-holder, the removable film-carrying spool C, provided at its end with means for attaching it to a revolving journal provided with a friction device, substantially as described.

17. In a roller-holder, the removable film-carrying spool C, provided on its ends with recesses for the reception of the pins c and *d d*, and slot *d'*, substantially as described.

18. The combination, with the casing A, adapted to be attached to a camera, and provided with the exposing-shutter B, of the removable back G, carrying the frames F F', spool C, guide-rolls J and K, and reel D, substantially as described.

19. As a new article of manufacture, the herein-described roll of flexible sensitive photographic film, having its inner end attached to a spool, provided with means for inserting the spool and roll in a roller-holder, and inclosed in a suitable light-tight case or wrapper, substantially as described.

20. The combination, with spool C, reel D, and guide-rollers J K, arranged substantially as described, of the flexible photographic film wound upon the spool and reel with its sensitized face inward and passing over rollers J K, with its sensitized face outward, substantially as indicated.

21. In combination with the light-excluding case and the roller or reel for winding the film after exposure, arranged within said case, the devices for actuating said reel from the exterior of the case, and a tension-regulator intermediate the actuating devices and reel, whereby in winding the film upon the reel the power is transmitted to the latter through the said tension-regulator, substantially as and for the purpose described.

22. In combination with the spool carrying the film-supply, a yielding brake mechanism applied thereto, a winding-reel and actuating mechanism therefor, an elastic tension device intermediate the reel and its actuating mechanism, substantially as described.

23. In a photographic-film holder, and in combination with the inclosing-case, film-supply spool and winding-reel, a brake applied to the spool, a tension device applied to the reel, and an actuating device having a detent and operating through the tension device to turn the reel, substantially as described.

24. In a photographic-film holder, and in combination with the light-excluding case provided with a shutter, as described, the removable back, and the film carrying and reeling mechanism supported wholly upon said back, whereby the reeling and carrying devices may be withdrawn from the case to facilitate the operations of removing the film after exposure and inserting a new film, substantially as described.

25. In a photographic-film holder, and in combination with the inclosing-case and the reel D, provided with means for detachably securing the end of the film, the spool C, grooved as described, and the film wound upon said spool with its end inserted and fastened within the groove therein, substantially as described.

26. In a photographic-film holder, and in combination with its inclosing-case, a film carrying and straining mechanism independently mounted and inserted within the said case and removably attached thereto, substantially as described.

27. In a photographic-film holder, and in combination with the inclosing-case, a spool carrying the sensitized film, a reel for unwinding the film from the spool and winding it up after exposure, and an adjustable friction-brake applied to said spool, whereby the degree of tension to which the film will be subjected when drawn from the spool is determined, substantially as described.

28. As a new article of manufacture, the herein-described roll of flexible sensitive photographic film consisting, essentially, of a spool provided with means for detachably applying it to a holder, and a strip or roll of flexible sensitive film attached at one end to the spool and wound with its sensitive face inward, substantially as described.

29. In a photographic-film holder, and in combination with a film-supply holder, and a feeding mechanism for transferring the film from the holder and into position for exposure, a tension-regulator applied to the film and acting to supplement the pull of the feeding mechanism, substantially as described.

30. In a photographic holder wherein are embodied an inclosing-case with exposing-aperture, a film-supply holder, and a feeding mechanism such as indicated, and in combination with said supply-holder and feeding mechanism, a supplemental tension-regulator applied to the film and operating, after the requisite feed has been effected, to maintain a constant pull upon the film lying between the supports and in front of the exposing-aperture, substantially as described.

31. In a photographic holder, and in combination with a film-supply holder and a feeding mechanism for withdrawing a portion of the film from the holder and sustaining it in position during exposure, a brake affording a determined resistance to the pull of the feeding mechanism, a detent for preventing the recoil of the feeding mechanism, and a tension device acting upon the film to supplement the action of the feeding device and produce a tension of the film, substantially as described.

32. In a photographic-film holder such as described, and in combination with the film carrying and feeding devices, an elastic tension-regulator adapted to draw upon and strain the film between its supports and to continue such action during the feeding of the film and independently of the feeding devices, substantially as described.

33. The combination, with the spool carrying the film-supply, the reel, and a spindle for actuating the reel, an elastic tension-regulator intermediate the said spindle and reel, whereby the motion to feed the film is transmitted through the said tension device, substantially as described.

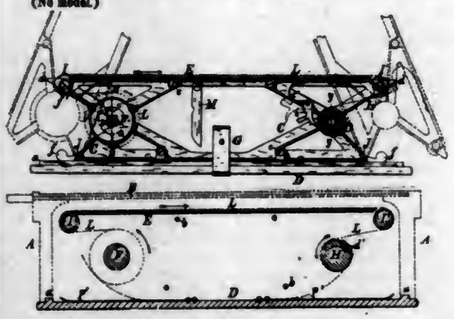
34. In a photographic holder such as described, and in combination with a device for holding the film-supply, a winding-reel to which one end of the film is attached, and an elastic tension device applied to said reel and operating to rotate the latter, substantially as described.

35. In a photographic-film holder, and in combination with its inclosing case and shutter, a frame detachably secured within said case, and provided with bearings to receive the detachable film-supply spool and reel, substantially as described.

36. In a photographic-film holder, and in combination with its light-excluding case provided with a shutter, as described, a removable frame inserted within said case and provided with a film-support, guide-rollers, and adjustable bearings at either end to receive the detachable spool and reel, whereby the entire film holding and actuating mechanism can be detached from its inclosing-case and held in operative position for adjustment, removal, or inspection, substantially as described.

317,050. ROLLER-HOLDER FOR PHOTOGRAPHIC FILMS.

WILLIAM H. WALKER and GEORGE EASTMAN, Rochester, N. Y., assignors to the Eastman Dry-Plate and Film Company, same place. Filed Dec. 12, 1884. (No model.)



Claim.—1. In a roller-holder for exposing photographic films, the combination of the spool F, reel H, film-support E, and guards T, substantially as described.

2. In a roller-holder for exposing photographic films, the combination of the spool F, reel H, film-support E, and guards T, attached to the casing of the holder, substantially as described.

3. In a roller-holder for exposing photographic films, the combination of the spool F, reel H, guide-rolls, I I', film-support E, and guards T, substantially as described.

4. The spool wound with sensitized photographic film and provided with a socket at one end and a socket and cross-groove at the other, whereby it is adapted to be inserted between the adjusting-screw and the stud, and connected so as to be rotated by the latter, substantially as described.

5. The combination, with the casing of a roller-holder for exposing photographic films, provided with a removable back, of a suitable frame supporting the film-carrying rollers detachably affixed thereto, substantially as described.

6. The combination, with the casing of a roller-holder for exposing photographic films, of a removable back having a frame adapted to support the film-carrying rollers hinged thereto, substantially as described.

7. The combination, with the removable back D of a roller-holder, of the frames C C', plate E, spool F, reel H, and catches J J, substantially as described.

8. The combination, with the frames C C', plate E, spool F, and reel H, of the projecting ends *d d* at one or both ends of the frame, substantially as described.

9. The combination, with the casing and film-carrying roll of a roller-holder, of the light-tight key-connection P, substantially as described.

10. The combination, with the casing A, of the reel H, grooved ratchet O, and key-connection P, substantially as described.

11. In a roller-holder, and in combination with the inclosing-case and the film-carrying spool and winding-reel located therein, the guide-roll I, provided with a longitudinal groove, *g'*, substantially as and for the purposes set forth.

12. The combination, in a roller-holder, of the guide-roll I, provided with longitudinal groove *g'*, and film-marking point *s'*, substantially as described.

13. The combination, in a roller-holder, of the guide-roll I, provided with longitudinal groove *g'*, and a locking device, substantially as described.

14. The combination, with the reel H, provided at one end with a grooved collar, O, having a central threaded opening, of the light-tight perforated key-connection P, arranged to slide through the casing of the holder, substantially as described.

15. The combination, in a roller-holder, of the reel and spool provided with a spring tension device and means for preventing the uncoiling of the spring during the operation of inserting the film in the holder, substantially as described.

16. In a holder for photographic films, and in combination with the inclosing-case provided with a shutter, as described, a removable film carrying and feeding mechanism hinged or pivoted to its supporting-frame, whereby the film-actuating mechanism can be removed from the case and turned up, as and for the purpose set forth.

17. In a holder for photographic films, and in combination with the inclosing-case provided with a shutter, as described, a film carrying and feeding mechanism detachably secured to the back, and the latter removably applied to the inclosing-case, substantially as described.

18. In a holder for photographic films, the frame supporting the film carrying and feeding mechanism, secured to the base or back board by transverse movable bolts at each end, whereby the said mechanism may be detached at either end and swung or turned back upon the bolts at the opposite end, substantially as described.

19. In a roller-holder such as described, and in combination with the stud or spindle adapted to engage the film-supply spool and a tension-regulating device applied to said spindle, a key adapted to engage the end of the stud or spindle to wind up the tension device, and a series of detents to engage the said key, and thereby lock the stud or spindle in position, as and for the purpose set forth.

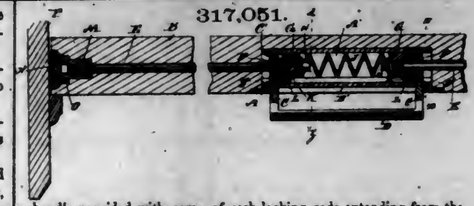
20. In a roller-holder for photographic films, and in combination with the reeling devices arranged within the inclosing-case, and adapted to be operated from the exterior of said case, the light-excluding socket or tube projecting through the case and engaging the end of the reel-operating mechanism to which the key is applied, substantially as described.

21. In a roller-holder, and in combination with the inclosing-case and a removable film carrying and reeling mechanism applied thereto, a light-excluding socket engaging a portion of the reeling mechanism, and provided with an opening for the passage of the operating-key, substantially as described.

317,051. SASH-FASTENER.

JAMES WALSH, North Adams, Mass. Filed June 19, 1884. (No model.)

Claim.—1. The combination, with a vertically-swinging sash lift



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or handle provided with cams, of sash-locking rods extending from the handle to the side edges of the sash, and of heads secured on the rods and adapted to be acted on by the cams, substantially as herein shown and described.

2. The combination, with the swinging handle D C, provided with cams L, of the rods E, extending from the handle to the side edges of the sash, heads G, secured on the inner ends of the rods E and provided with recesses K, and of the spring J between the heads G, substantially as herein shown and described.

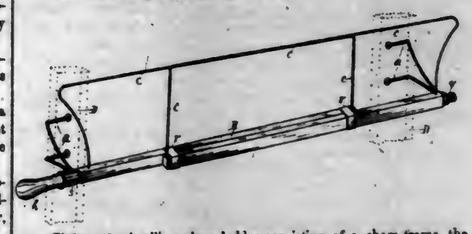
3. The combination, with the swinging handle D C, of the rods E, the heads G, having hubs F and recesses K, the cams L on the side pieces of the handle, and the spring J between the heads G, substantially as herein shown and described.

4. The combination, with a sash, of the box or frame A, having a beveled top and bottom, the handle C D, hung in the box or frame, and sash-locking rods adapted to be acted on by the handle and extending to the side edges of the sash, substantially as herein shown and described.

5. The combination, with the sliding rods E of a sash-fastener, sleeves M thereon, and the elastic heads N in said sleeves, of the thimbles O, having flaring mouths to receive the said heads to allow them to lie flush with the edge of the sash, substantially as set forth.

317,052. PILLOW-SHAM HOLDER.

JAMES H. WARD, Kalamazoo, Mich. Filed Aug. 26, 1884. (No model.)



Claim.—1. A pillow-sham holder consisting of a sham-frame, the supporting-bars, one of them being elastic and secured on the end of the frame-head by suitable means, a handle having an extended ferrule forming a recess at the end of the handle, said ferrule being provided with a lock-notch, said recess and notch being adapted to receive the looped supporting-bar when the frame is carried laterally by the elastic bar at the other end, thus locking the holder, all substantially as set forth.

2. A pillow-sham holder consisting of an extensible sham-frame-supporting bar, forming bearings for each end of the frame-head, one of said bars being flexible and connected with the end of the frame-head, so that the latter will not pull out of its bearings when operating the holder, and a handle connecting the other end of the frame-head and adapted to interlock with the supporting-bar at said end when the frame is carried laterally by the flexible supporting-bar, substantially as set forth.

317,053. ARCHITECTURAL COLUMN.

GEORGE J. WEBER, Boonville, Mo. Filed July 10, 1884. (No model.)

Brief.—An iron column for buildings is provided with openings covered by glass panels secured by frames. It also contains shelves and horizontal braces, the shelves having recesses for long goods. Ventilating-openings are at top and bottom, with a register at the lower end. A door is located in the rear. Conducting pipes and wires pass through the openings in the shelves.

Claim.—1. A hollow architectural column constructed with openings in its front or sides for the display of goods, substantially as herein set forth.

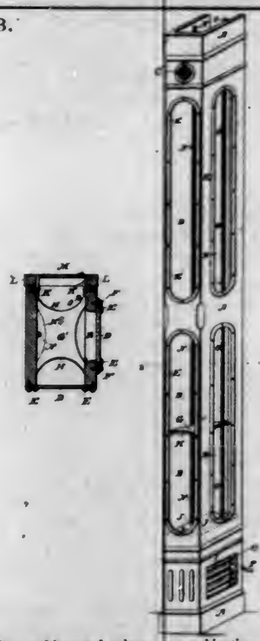
2. The hollow architectural column herein described, provided with panels D, secured by frames E, substantially as set forth.

3. The hollow architectural column having shelves G, as herein described.

4. The hollow architectural column constructed with horizontal braces G', formed and applied substantially as herein set forth, to strengthen the column and serve also for the display of goods.

5. A hollow architectural column provided with internal shelves, G, having recesses or openings H for the display of long goods, substantially as herein set forth.

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6. A hollow architectural column, in combination with conducting pipes or wires passing through openings in horizontal shelves or partitions within the said column, substantially as herein set forth

7. A hollow column constructed, substantially as herein described, with ventilating-openings at the top and bottom.

8. The combination, with a hollow column, of a register, I, for regulating the admission or exhaust of air, as set forth.

9. The combination, with the hollow column A, of the door M, as and for the purposes set forth.

10. The combination of the hollow column A, flanges K, frame L, and door M, as and for the purposes set forth.

11. A hollow column, constructed, substantially as herein set forth, with panels for display and ornamentation.

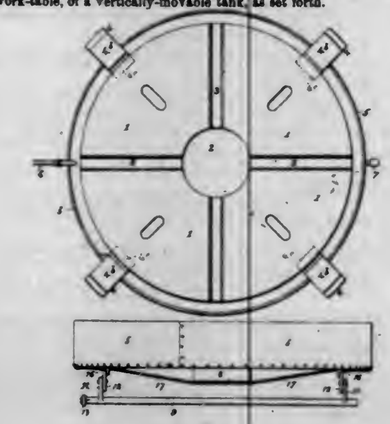
12. The hollow architectural column herein shown and described, constructed with openings B and shelves G, for the purpose set forth.

13. An architectural column with openings in its face and sides, said openings filled or covered with glass for the purpose of admitting light to the interior of buildings.
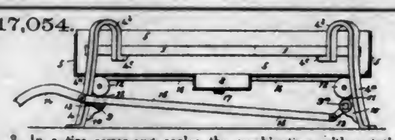
317,054. TIRE-SETTER. GEORGE J. WEBER, Boonville, Mo. Filed Sept. 12, 1884. (No model.)

Claim.—1. The combination of the table 1, the legs 4, having overhanging portions 4^b and horizontal flanges 4^a, and a vertically-movable tank, substantially as and for the purpose set forth.

2. In a tire setter and cooler, the combination, with a stationary work-table, of a vertically-movable tank, as set forth.



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3. In a tire setter and cooler, the combination, with a stationary work-table, of a tank located beneath it, and suitable rock-shafts having lifting-arms and operating-cranks located beneath said tank for raising and lowering it, as and for the purpose set forth.

4. In a tire setter and cooler, the combination of a work-table having a central aperture for the passage of the hub of the wheel and a tank having a supplementary tank or well in its bottom for the reception of said hub, as explained.

5. The combination, with the vertically-movable tank, of the legs having the inwardly and downwardly projecting arms and the table supported thereby, as and for the purpose explained.

6. The combination, with a stationary table and a vertically-movable tank, of rock-shafts located beneath said tank and provided with lifting-arms having anti-friction rollers at their extremities and operating crank-shafts, substantially as and for the purpose set forth.

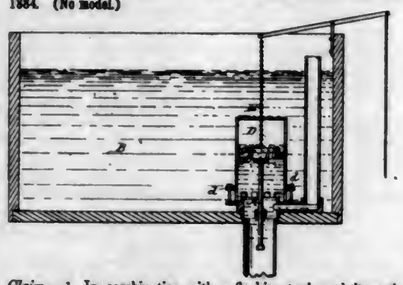
7. In a tire setter and cooler, the combination, with a work-table and a tank, of raising and lowering mechanism consisting of a pair of rock-shafts, each having a lifting-arm and a crank-arm secured thereto in such a manner as to form a bell-crank, said crank-arms projecting from their respective shafts in substantially opposite directions, and a rod for connecting said crank-arms, whereby they are made to move in the same direction, while the lifting-arms move in opposite directions, as and for the purposes set forth.

8. In a tire setter and cooler, the combination, with a table having a central aperture for the passage of the hub, of a main tank having a supplementary tank or well in its bottom for the reception of said hub, a truss secured at its extremities to the bottom of the main tank and bearing against the under side of the supplementary tank, as and for the purpose set forth.

9. In a tire setter and cooler, the combination of a table, a tank, suitable lifting mechanism having anti-friction rollers, substantially as described, and angle-irons upon which said rollers bear, substantially in the manner and for the purpose set forth.

10. The combination, with the work-table and the tank, of the lifting mechanism consisting of a pair of rock-shafts, 9 9^a, having lifting-arms 11 11, projecting horizontally therefrom in opposite directions, crank-arms 13 13, projecting upwardly and downwardly, respectively, and the rod 15, connecting said crank-arms, whereby they are moved simultaneously, as explained.

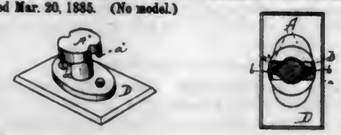
317,055. SUPPLY-VALVE FOR THE FLUSHING-TANKS OF WATER-CLOSETS, &c. HENRY C. WEEDEN, Boston, Mass. Filed Sept. 11, 1884. (No model.)



Claim.—1. In combination with a flushing-tank and its outlet, a valve for opening and closing the outlet, a chamber without air-opening in its top and slightly larger in cross-section than the valve, and surrounding it and communicating with the tank, as shown, and a rod or chain, F, attached to the valve, whereby it may be raised within the chamber to open the outlet, all substantially as herein set forth, and for the purpose herein specified.

2. In combination, the valve C, the chamber D, larger than the valve, as described, and without air-opening in its top, and a lifting device, E, attached to the valve, whereby it may be lifted to cause the flush, all substantially as set forth.

317,056. CLUTCHING DEVICE. CHARLES P. WHITE, Taunton, Mass. Filed Mar. 20, 1885. (No model.)



Claim.—1. A clutch provided with lugs and cam-faces, whereby the members are united and locked, substantially as described.

2. A clutch consisting of the member A, provided with the cam-faces *a a*, and the member B, provided with the lugs *b b*, substantially as described.

3. A draw-handle, C, provided with the member A, having cam-faces, in combination with the draw-plug B, having the lugs *b b*, substantially as and for the purpose described.

4. A clutch consisting of the member A, provided with cam-faces *a a* and grooves a^3 a^3, and the member B, provided with the lugs *b b*, substantially as described.

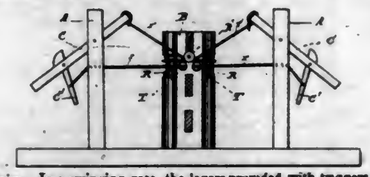
317,057. HAND-MOTOR FOR SEWING-MACHINES. JOHN F. WHITE, Gallatin, Tenn., assignor to C. W. Taylor, same place. Filed Feb. 19, 1885. (No model.)



Claim.—1. As a new article of manufacture, the motor for sewing-machines, consisting of the standard provided with the clamp, the band-pulley, and the speed-gear provided with the hand-crank or handle.

2. The standard and its clamp for attachment to a table, the bevel-gear provided with an operating-handle, and the shaft provided with the bevel-pinion and band-wheel, said parts constructed and combined substantially as described and shown.

317,058. GATE. SAMUEL G. WILKERSON, Ottawa, Kans. Filed Apr. 16, 1884. (No model.)

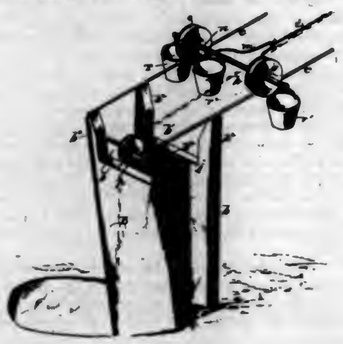


Claim.—In a swinging gate, the levers provided with triggers constructed and arranged to operate as specified, in combination with the cords or chains, the rollers, the sliding bolt or latch, and the posts between which the gate is swung, substantially as described, and for the purpose set forth.

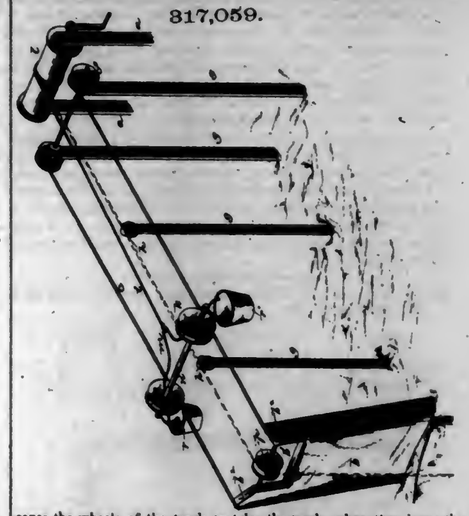
317,059. PORTABLE WATER-BUCKET. ROBERT A. WILLIAMS, Kilmichael, Miss. Filed May 20, 1884. (No model.)

Brief.—The wheels leave the track, and the truck is suspended on pulley *p* until the buckets are loaded, when the truck is drawn up and the pulleys resume the track, as before.

Claim.—1. The combination of the inclined track, the guide-board located at the lower end of the track between said lower end of the track and the mouth of the well, a truck having wheels adapted to fit the track, an elevating-rope attached to the truck, and guiding-pulleys for said rope, said pulleys, rope, and guide-board operating conjointly to



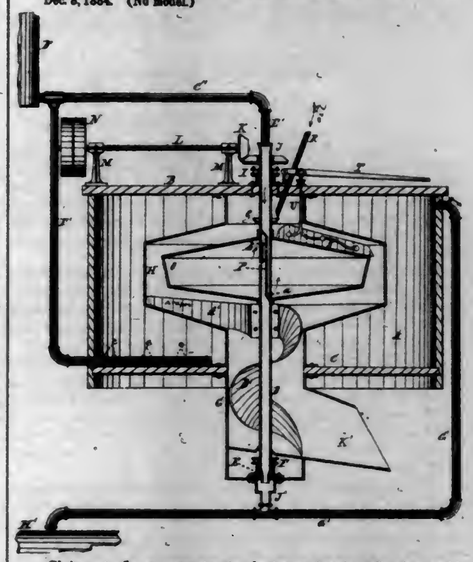
317,059.



cause the wheels of the truck to take the track when they leave the guide-board, substantially as described.

2. The combination of the inclined track, the guiding board or post located at the lower end of said track between said lower end of the track and the mouth of the well, guiding-pulleys *h* and *p*, the truck having the tongue *m*, an elevating-rope attached to the tongue, and buckets suspended from the truck, for the purpose set forth, substantially as described.

317,060. APPARATUS FOR EXTRACTING PARAFFINE FROM OILS. ROBERT A. WILLIAMS and JOHN BRAGG, Cleveland, Ohio. Filed Dec. 8, 1884. (No model.)



Claim.—1. In an apparatus for chilling or freezing oils, the combination of the tank A, the case H, constructed in the form described, the revolving freezer O, having its top and bottom dished and attached to the tubular shaft D, having the induction and eduction ports *a* and *b*, separated by the partition P, and the refrigerant-conductor C', substantially as and for the purpose described.

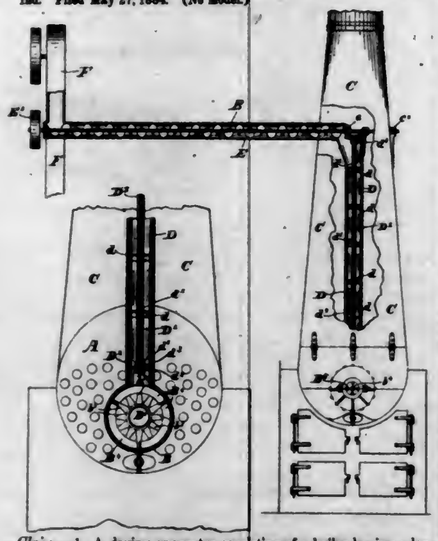
2. The induction refrigerant-pipes C' and F', arranged in relation to and in combination with the tubular shaft, and refrigerant-tank A, and supplying refrigerant-vessel D', substantially as described, and for the purpose set forth.

3. The refrigerant-eduction pipe G', arranged in relation to the refrigerant-tank A, outlet J', of the tubular shaft and receiving-tank H', pipes C' and F', for the purpose specified, and substantially as described.

4. An apparatus for freezing or cooling oils, consisting of tank A, case H, revolving freezer O, secured to the tubular shaft D, having the induction and eduction ports *a* and *b*, separated by the partition P, the exterior scraper, S, and interior scraper, A', the spiral conductor B', the oil-supply pipe R, and saucer Q, induction-pipes C' and F', eduction-pipe G', outlet-pipe J', and reservoir H', all constructed and combined substantially as and for the purpose described.

5. An apparatus for freezing oils, consisting of a refrigerant-tank, A, case H, having therein a horizontally-revolving freezer secured to a tubular shaft provided with induction and eduction ports separated from each other by a partition, P, adjustable scraper S, and revolving scraper A', arranged in relation to the spiral conveyer, oil-induction pipe R, refrigerant-induction pipes C' F', and eduction refrigerant-pipe G', constructed and arranged to co-operate substantially as described, and for the purpose specified.

317,061. OFFAL-DRIER. FREDERICK G. WHELOCH, Indianapolis, Ind. Filed May 27, 1884. (No model.)



Claim.—1. A drying apparatus consisting of a boiler having a longitudinal opening therein, a tube mounted in said opening, said tube being provided with an opening to receive the substance to be dried at one end and an opening at the other end, a tube extending up from said opening into the smoke-stack, through which it is discharged, and a conveyer within said tube for conveying said substance from one end to the other, substantially as set forth.

2. An apparatus for drying offal, &c., consisting of a tube mounted in a longitudinal opening in a boiler and provided with a conveyer for conveying the offal through said tube, the shaft of said conveyer being hollow and provided in each end with steam-pipes, whereby said shaft is kept hot, substantially as described, and for the purposes specified.

3. In an apparatus for drying offal, &c., the combination of a boiler having a longitudinal opening therein, a tube having an opening at one end to receive the offal and at the other end to discharge it mounted therein, an agitator and conveyer mounted in said tube, the shaft of which is made hollow and provided in each end with stuffing-boxes through which steam-pipes pass, and said steam-pipes, all substantially as set forth.

4. The combination of the boiler A, the tube B therein, the smoke-stack C, the vertical pipe D therein, and the agitator and conveyer B' in said tube having hubs B^3, mounted on its shaft at intervals throughout its length, said hubs having radial arms projecting therefrom, and said arms having longitudinal spiral ribs B^4, secured to their outer ends, substantially as described, and for the purposes specified.

5. The combination, with the boiler A, of the tube B, mounted in a longitudinal opening in said boiler, the end of which extends out beyond the end of said boiler and is provided with a ventilator through which the products of evaporation can escape into the flues of the boiler and pass off with the products of combustion, substantially as set forth.

6. The combination, with the boiler A, of the tube B, mounted in a longitudinal opening in said boiler and provided with an internal conveyer, the end of said tube being extended out beyond the end of said boiler and provided with a ventilator consisting of a short pipe and a roof above said pipe, substantially as described, and for the purposes specified.

7. The combination, with the boiler A, of the tube B, mounted therein and provided with a ventilator, B^2, the agitator and conveyer B', consisting of longitudinal spiral ribs mounted on the ends of radial arms extending out from a central shaft, said shaft being hollow and having steam-pipes in each end, substantially as described, and for the purposes specified.

8. The combination, in a drying apparatus, with a tube mounted in a longitudinal opening in a suitable boiler, of a vertical pipe connected at its lower end with one end of said longitudinal tube and extended up a short distance through the lower part of the smoke-stack, and connected at its top end to a suitable conveyer, substantially as described, and for the purposes specified.

9. In a drying apparatus, the combination of the boiler A, the tube B, mounted longitudinally therein, smoke-stack C, constructed over one end of said tube B, vertical pipe D, mounted within the lower end of the smoke-stack and connected at its lower end to the end of the tube B, and the conveyer E, arranged between an elevator and the top end of the vertical pipe D, whereby a means is provided for conveying the substance to be dried from said elevator into the tube B within the boiler, substantially as set forth.

10. The combination, in an apparatus for drying offal, of the tube B, mounted longitudinally in the boiler A, the vertical pipe D within the smoke-stack C, the lower end of said vertical pipe being connected to one end of said tube, and said vertical pipe being provided upon its inside with shelves extending inwardly alternately a short distance from opposite sides of said tube, and a vertical shaft, D', journaled in suitable bearings in said vertical pipe and provided with scrapers *d'*, extending out therefrom just above each shelf, whereby the matter lodged upon said shelves is scraped off as said shaft revolves, substantially as set forth.

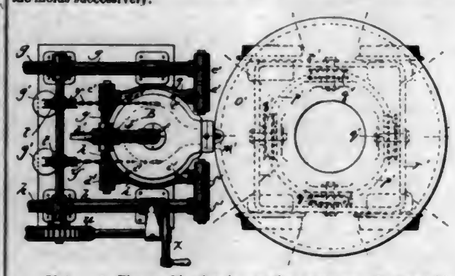
317,062. FACING OR MOLDING MATERIAL FOR MOLDS FOR CASTING METAL. CARL WITTENSTRÖM, Stockholm, Sweden. Filed Apr. 15, 1884. (No specimens.)

Claim.—1. A facing or molding material consisting of hard-burned ground fire-clay and a binding material in quantity sufficient to impart firmness to the molding material after being dried in the mold form, the whole being free from any substance containing any substantial quantity either of silica, lime, magnesia, or like matter of a fluxing nature, or of carbonaceous material, as set forth.

2. A facing or molding material consisting of hard-burned ground fire-clay, kerosene or other hydrocarbon oil, and a binder, the whole being substantially free from fluxing or hardening substances, as specified, for the purposes set forth.

317,063. CASTING APPARATUS. CARL WITTENSTRÖM, Stockholm, Sweden. Filed Apr. 15, 1884. (No model.)

Brief.—In casting metals—say wrought-iron or soft steel—to keep the liquid metal highly fluent and preserve it from oxidation, applies a gas-burner to its cover and sends the flame out of the pouring-lip and over the stream of metal toward the ladle at the lip, and brings the molds successively beneath, or swings the ladle on a crane and moves it over the molds successively.



Claim.—1. The combination, in a casting apparatus, of a turn-table, having a series of molds mounted thereon, with a covered tilting ladle having its pouring-mouth coincident with its tipping-axis, and provided with connections supplying gas and air to the interior above the level of the metal, so that the flame produced within the vessel will issue at its pouring-mouth as the pouring is being done, substantially as specified.

2. A covered casting ladle or vessel closed with the exception of its pouring lip or mouth, both cover and ladle being arranged to be capable of tilting together, and having connections for the supply of gas and air to the interior above the level of the metal, and having its pouring lip or mouth located near the top of the vessel—that is to say, about the level of the metal when the pouring is being done—so that the flame produced within the vessel will also issue at the pouring lip or mouth, substantially as specified.

3. A casting ladle or vessel closed with the exception of its pouring lip or mouth, and having connections supplying gas and air to the interior above the level of the metal, producing a flame within the vessel, which issues at the pouring lip or mouth as its only exit, substantially as specified.

4. A covered casting ladle or vessel, both cover and ladle being arranged to be capable of tilting together, having its pouring lip or mouth located at about the level of the metal as the same is being poured, and provided with connections supplying gas and air to the interior above the level of the metal, so that the flame produced within the vessel will issue at the pouring lip or mouth as the pouring is being done to protect the stream of molten metal, substantially as specified.

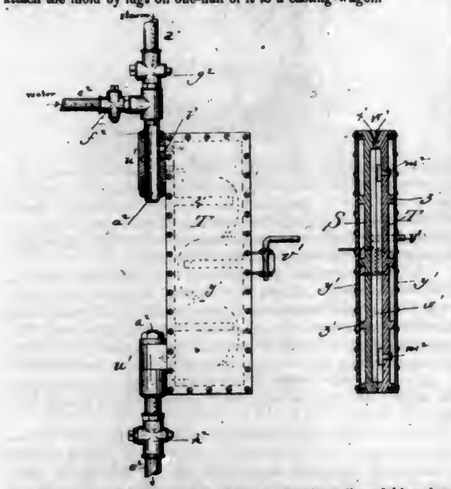
5. The combination of the ladle A and its lid B, hinged thereto, the burner *f*, projecting through said lid, and the air and gas pipes *g h*, communicating with said burner, substantially as specified.

6. A covered tilting ladle or vessel having its pouring lip or mouth coincident with its tipping-axis, and provided with connections for supplying gas and air to the interior above the level of the metal, so that the flame produced within the vessel will issue at its pouring-mouth, substantially as specified.

7. The combination of a supporting-frame with a covered tilting ladle, hinged thereto by pivots *l l*, and having a pouring-lip coincident with said pivots, chain *y*, wheel *x*, worm-wheel *u*, and worm *v*, for tilting said ladle, substantially as specified.

317,064. METAL MOLD FOR CASTINGS. CARL WITTENSTRÖM, Stockholm, Sweden. Filed Apr. 15, 1884. (No model.)

Brief.—Uses hot air or steam to heat the mold preparatory to casting, and water to cool the mold during or after casting. Has certain exposed portions of the mold removable to give place to fresh pieces. May attach the mold by lugs on one-half of it to a casting-wagon.

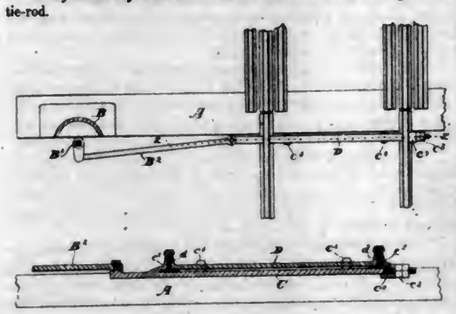


Claim.—1. The two-part mold having double walls and hinged together by hollow hinge-bolts, and passages communicating with said hollow hinge-bolts leading to the space between the double walls of the molds, whereby steam or cold water may be admitted to heat or cool the mold, substantially as specified.

2. The combination of the mold parts S T, provided with double walls, with hinges *u'* uniting said parts, and hollow hinge-bolts a^2 communicating with passages leading into the space between said double walls, and steam and cold-water pipes connected to said hollow hinge-bolts and provided with suitable valves, substantially as specified.

317,065. RAIL-COUPLING. JOHN B. WITTY, Indianapolis, Ind. Filed Mar. 25, 1884. (No model.)

Brief.—An adjustable tie-rod and a brace-rod between lugs on the tie-rod.



Claim.—1. In a rail-coupling, the combination of a tie-rod having a lip or projection adapted to engage with the outside of one rail, and a nut and washer on its opposite end adapted to engage with the outside of the other rail, and a brace-rod interposed between the rails, its ends bearing against the inside surfaces thereof, said brace-rod being held in position by lugs connecting it with the tie-rod, substantially as described, and for the purposes specified.

2. The combination, with the railroad-rails, of a coupling composed of a tie-bar adapted to be adjustably secured to the outsides of the two rails and a brace-rod interposed between said rails, said brace-rod and said tie-bar being connected by lugs, substantially as set forth.

3. The combination, in a rail-coupling, of the tie-rod C, provided on one end with the lip *c'*, adapted to fit against the outside of the rail on its end, the other end being screw-threaded and provided with a washer, c^3, adapted to fit against the outside of the rail on said end, and a nut, c^3, adapted to operate said washer, and the brace-rod D, interposed between said rail, said tie-rod and said brace-rod being connected by the lugs c^4, which project from one rod and engage with the other, substantially as described, and for the purposes specified.

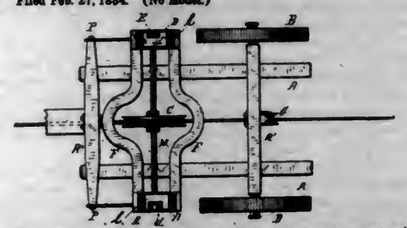
317,066. TWO-WHEELED VEHICLE. RICHARD G. WOOD, Cincinnati, Ohio, assignor, by mesne assignments, to George J. Murray, same place. Filed Apr. 27, 1883. (No model.)



Claim.—1. A draft and supporting frame for two-wheeled vehicles, consisting of two parts—viz., shafts and side bars—one of said parts being turned upwardly or downwardly and the two rigidly connected and braced together, substantially as described.

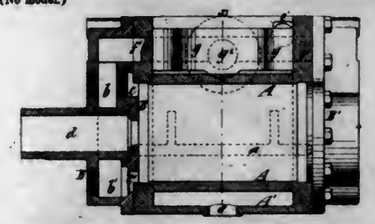
2. The combination of a thill and side bar for vehicles, the end of the thill being curved downwardly and secured to the side bar at a distance from its end, the said end being turned upwardly to meet the thill, or joined thereto by a brace, substantially as described.

317,067. CHECK-ROW PLANTER. WILLIAM C. WOODS, Alpha, Mo. Filed Feb. 27, 1884. (No model.)



Claim.—In combination, the shaft M, provided with central pulley, C, and pocketed disks E E, the seed-conduits L L, having springs J and valves I, arranged to operate by contact with springs J, and lugs *c'* on the disks E, substantially as specified, for the purpose set forth.

317,068. COMPRESSOR-CYLINDER. WILLIAM H. WORTHEN, Brooklyn, N. Y., assignor to Guild & Garrison, same place. Filed Mar. 31, 1884. (No model.)



Claim.—1. The combination of the horizontal cylinder A and the surrounding jacket A', connected only at their ends, the jacket being prolonged upward on each side of and above the cylinder, and constructed with a discharge-passage, *g*, having its ends *g'* presented at the ends of the jacket, and an outlet-opening, g^3, between the ends of the jacket, the said passage being isolated from the cylinder A, so as to allow water to flow between the cylinder and passage, and cylinder-heads having discharge-chests *b'*, communicating with the ends of the passage *g*, substantially as herein described.

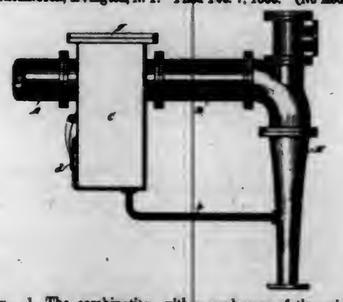
2. The combination of the horizontal cylinder A and the sur-

rounding jacket A', connected only at their ends, the jacket being prolonged upward on each side of and above the cylinder, and constructed with discharge and suction passages *g f*, having their ends *g' f'* presented at the ends of the jacket, and outlet and inlet openings g^2 f^2 between the ends of the jacket, the said passages being isolated from the cylinder A, so as to allow water to flow between the cylinder and passages, and cylinder-heads having discharge and suction chests *b' b*, communicating with the ends of the passages *g f*, substantially as herein described.

3. The combination of the horizontal cylinder A and the surrounding jacket A', connected only at their ends, the jacket being prolonged upward on each side of and above the cylinder, and constructed with a discharge-passage, *g*, having its ends *g'* presented at the ends of the jacket, and an outlet-opening, g^3, between the ends of the jacket, the said passage being isolated from the cylinder A, so as to allow water to flow between the cylinder and passage, an inlet-opening, *e*, in the bottom of the jacket A', an overflow or outlet opening, *e'*, in the walls of the jacket above said passage *g*, and cylinder-heads having discharge-chests *b'*, communicating with the ends of the passage *g*, substantially as herein described.

317,069. SAFETY APPARATUS FOR CONDENSING-ENGINES.

C. C. WORTHINGTON, Irvington, N. Y. Filed Feb. 7, 1885. (No model.)



Claim.—1. The combination, with a condenser, of the valves *b d*, the former arranged to close the pipe or pipes through which the exhaust-steam enters the condenser, and the latter arranged to open outward or to the atmosphere to allow the escape of the water and destroy the vacuum, substantially as described.

2. The combination, with the condenser, and the pipe or pipes through which the exhaust-steam is conducted thereto, of the casing C, forming the chamber D, for the collection of the condensing water, and the valves *b' d*, the former arranged to close the pipe or pipes through which the steam enters the condenser, and the latter arranged to open outward or to the atmosphere to allow the escape of the water and destroy the vacuum, substantially as described.

3. The combination, with the condenser, and the pipe or pipes through which the exhaust-steam is conducted thereto, of the casing or enlargement C, forming the chamber D for the collection of the condensing water, the valves *b d*, the former arranged to close the pipe or pipes through which the steam enters the condenser, and the latter arranged to open outward or to the atmosphere to allow the escape of the water and destroy the vacuum, and a pipe for draining said chamber of the water of condensation, substantially as described.

317,070. THILL-COUPLING.

CHRISTOPHER C. WRIGHT, Elkton, Md., assignor of one-half to Palmer C. Strickland, same place. Filed Jan. 3, 1885. (No model.)



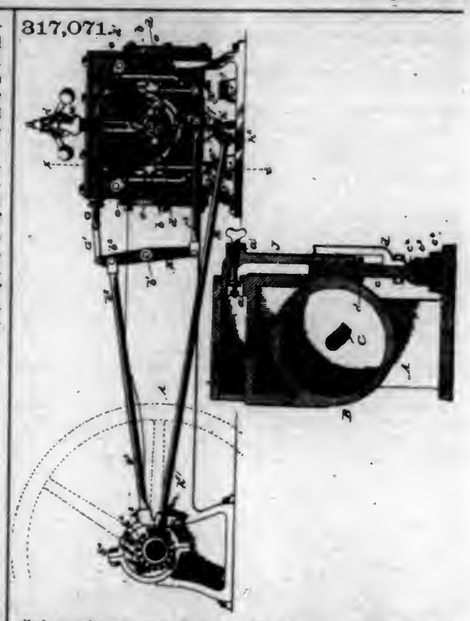
Claim.—In a thill-coupling, the combination, with the axle having a slotted plate secured thereto, of the draw-iron carrying the thill, and provided with a guide-flange to catch around the face of the slotted plate, and a depending projection to work in the slot, and means, substantially as described, for holding the projection at any point of the length of said plate, as set forth.

317,071. VALVE-GEAR FOR ENGINES.

GUSTAV ABRAMS and NILS NELSON, Dassel, Minn. Filed Feb. 14, 1885. (No model.)

Claim.—1. In a steam-engine, the combination of a main steam-

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cylinder, a piston movable therein, a slide-valve adapted to connect the exhaust-ports of the cylinder with the steam-outlet, a cut-off or regulating valve between the steam-chest and cylinder, a supplemental steam-cylinder communicating with the steam-supply, and a piston mounted in said supplemental cylinder, connected with the cut-off valve, and adapted to impart motion thereto, substantially as explained.

2. In a steam-engine, the combination of a main steam-cylinder, a piston movable therein, a main valve adapted to connect the exhaust-ports of the cylinder with the steam-outlet, a cut-off valve between the steam-chest and cylinder, a supplemental cylinder communicating with the steam-supply, and a piston mounted in said supplemental cylinder, connected with the cut-off valve, and adapted to impart motion thereto in one direction, and a lifting device connected with a moving part of the engine, and adapted to move the piston and valve in reverse directions.

3. In a steam-engine constructed substantially as shown and described, the combination of cylinder B, steam-chest E, rocking valves H I, between the steam-chest and cylinder, provided with suitable ports, rocking lever L, provided with dogs *g*, cylinders J, communicating with the steam-chest, provided with pistons connected with the rocking valves, and having hooks and mechanism, substantially such as shown, for rocking the lever L.

4. In a steam-engine, the combination of cylinder B, piston C, steam-chest E, valve F, rocking valves H I, between the cylinder and steam-chest, cylinder J, pistons *c* therein, provided with hook *d'*, and connected with and adapted to rock the valves H I, governor M, provided with slide i^2, having arms i^2 i^3, rocking lever L, provided with studs *f f'*, dogs *g*, and spring g^6, and an intermediate connection between the engine-shaft and the lever L, for rocking the latter alternately in reverse directions.

5. In a steam-engine, the combination of cylinder B, piston C, steam-chest E, slide-valve F, provided with rod G, rocking valves H I, an actuating mechanism for said valves, constructed substantially as described and shown, rocking lever K, connecting the slide-valve rod and the actuating mechanism and driven by an eccentric, b^4, on the main shaft b^2, as and for the purpose set forth.

6. In a steam-engine, the combination of cylinder B, piston C, steam-chest E, slide-valve F, rocking valves H I, cylinders J, communicating with the steam-chest, provided with pistons *c* for operating the valves H I in one direction, and a rocking lever actuated by the main shaft for raising the piston *c* and thereby rocking the valves in the reverse direction.

7. In a steam-engine substantially such as shown and described, the combination of cylinder B, steam-chest E, rocking valves H I, rocking lever L, provided with dogs *g* for tripping the valves H I, and with oscillating studs *f'*, and governor-plate i^7, provided with tripe i^8, passing through the studs *f'*, as and for the purpose set forth.

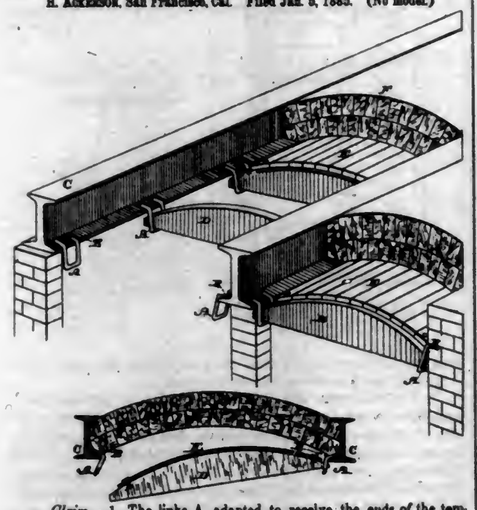
8. In a steam-engine substantially such as shown and described, the combination of cylinder B, steam-chest E, piston C, slide-valve F, rocking valves H I, cylinders J, communicating with the steam-chest, pistons *c* within the cylinders, connected with the rocking valves and provided with

hooks *d'*, rocking lever L, provided with dogs *g*, and mechanism for rocking the lever L alternately in reverse directions.

9. In a steam-engine, the combination of cylinder B, piston C, steam-chest E, slide-valve F, rocking valves H I, cylinders J, pistons *c* within the cylinders, provided with hooks *d'*, and connected with the valves H I, rocking lever L, provided with dogs *g*, spring g^4, and studs g^4, and mechanism for rocking the lever L alternately in reverse directions.

317,072. SUPPORT FOR CENTERS FOR MASONRY ARCHES.

C. H. ACKERSON, San Francisco, Cal. Filed Jan. 5, 1885. (No model.)

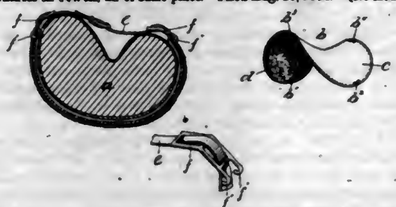


Claim.—1. The links A, adapted to receive the ends of the temporary arch-pieces of masonry centerings, and having their ends bent so as to hook upon and be supported by the flanges of the girders between which the arches are built, substantially as herein described.

2. Parallel girders between which masonry arches are built, and temporary centerings for the support of said arches while in process of construction, in combination with links by which the temporary arches are supported directly from the flanges of the girders, substantially as herein described.

317,073. HARNESS PAD OR LINING.

HOLLAND C. RADCOCK, Hartford, Conn., assignor of one-half to Pliny Jewell, Lyman R. Jewell, and Charles A. Jewell, all of same place. Filed Aug. 25, 1884. (No model.)



Claim.—1. As an improved article of manufacture, a reversible collar-pad having its opposite faces composed of oil-finished rawhide and sheepskin, respectively, formed to shape with alternate and opposite upturned and downturned edges, and bearing means, substantially as described, for attaching it to a collar, all substantially as described.

2. In combination, the reversible pad *b*, composed of the opposite facing-layers of rawhide and sheepskin, formed to shape with alternate and opposite upturned and downturned edges, and bearing the eyelets at opposite points, b' b^3 and b^2 b^4, and a strap, *e*, bearing the runner *f*, with the hooks *f'*, all substantially as described.

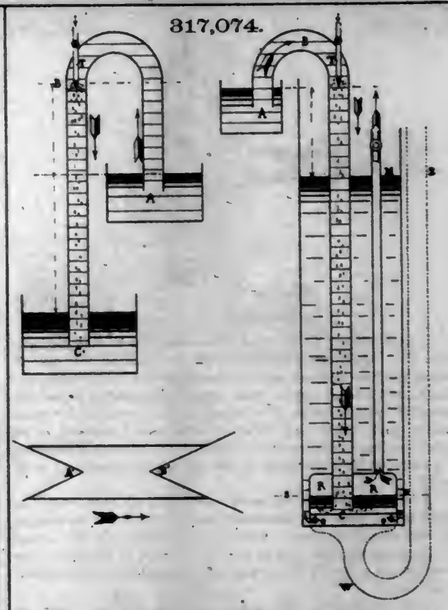
317,074. HYDRAULIC SIPHON-MOTOR.

ARSÈNE BALOCHE and ALFRED KRAEMER, Valparaiso, Chili. Filed Sept. 20, 1884. (No model.) Patented in France Mar. 7, 1884, No. 160,793; in Belgium Mar. 13, 1884, and in England Mar. 15, 1884, No. 4,949.

Claim.—1. The combination, with the siphon, of the suction-pipe opening into the descending leg of the siphon, substantially as described

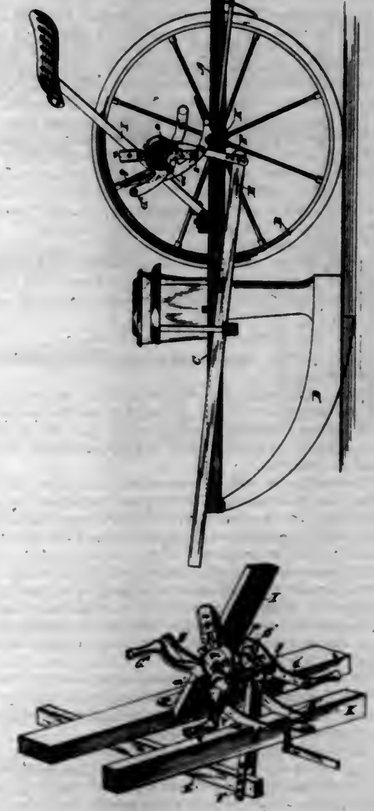
2. The combination, with the siphon and the suction-pipe opening into the descending leg of the siphon, of the bell and accessories for collecting and maintaining the air or gas under pressure, substantially as described.

317,074.



317,075. CORN-PLANTER.

JOSEPH C. BARLOW, Quincy, Ill. Filed Dec. 27, 1884. (No model.)



317,075.



Claim.—1. In a corn-planter, the combination, with the main frame, the hinged runner-frame, the crank-shaft, and the foot-levers for rotating the crank-shaft so as to raise or lower the runner-frame, of a bolt or pawl mounted upon a fixed support and operating to lock the crank-shaft in any position of its adjustment, and an unlocking device mounted upon and moving with the foot-lever and operated by the driver's foot for disengaging the locking-bolt and permitting the raising or lowering of the runner-frame by the foot-levers, substantially as described.

2. In a corn-planter, the combination, with the main frame, the hinged runner-frame, the crank-shaft, and the foot-levers for rotating the crank-shaft so as to raise or lower the runner-frame, of a bolt or pawl for locking the foot-levers and an eccentric operated by the driver's foot for throwing the locking bolt or pawl out of engagement, substantially as described.

3. In a corn-planter, the combination, with the main frame, the hinged runner-frame, the crank-shaft, and the foot-levers for operating the crank-shaft so as to raise or lower the runner-frame, of a bolt or pawl mounted upon a fixed support for locking the foot-levers, and an eccentric for disengaging the bolt, mounted upon and moving with the foot-levers and operated by the driver's foot, substantially as described.

4. In a corn-planter, the combination, with the main frame, the hinged runner-frame, the crank-shaft, and the foot-levers for operating the crank-shaft so as to raise or lower the runner-frame, of a bolt or pawl mounted upon a fixed support for locking the foot-levers, and an eccentric for disengaging the bolt mounted upon the foot-lever, and having an arm extended forward to the foot-rest of the foot-lever, substantially as described.

5. In a corn-planter, the combination, with the main frame, the hinged runner-frame, the crank-shaft, and the foot-levers for operating the crank-shaft so as to raise or lower the runner-frame, of a bolt or pawl for locking the foot-levers and a supplemental lever projecting in proximity to the foot-lever, and operating, when pressed forward by the driver's foot, to throw the bolt or pawl out of engagement, and to itself serve as a means of operating the crank-shaft, substantially as described.

6. The combination, with the crank-shaft and the foot-levers, one of the latter having the toothed sector, of the locking-bolt and the eccentric pivoted to the foot-lever, and having the forward arm and the downwardly-projecting arm, the whole constructed substantially as described.

317,076. LOCK. ALBERT L. BRUNT, Paris, France. Filed Aug. 21, 1884. (No model.)

Claim.—1. The combination, with the bolt and bolt bar or plate provided with notches, as indicated, of a series of tumblers having projections of different lengths which engage said notches, said projections being on the side of the tumblers away from that acted on by the key, substantially as described.

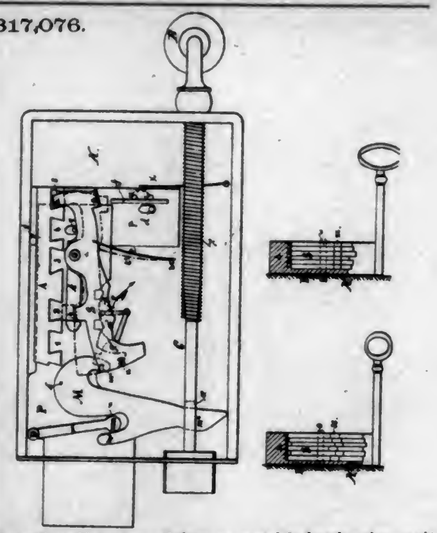
2. The combination, with the notched bolt bar or plate, of a series of differential tumblers so arranged that the faces acted upon by the key correspond each with the others, and provided on the opposite sides with projections of different lengths which engage the notches of the bolt bar or plate, substantially as described.

3. The combination, with the differential tumblers provided with grooves at different relative heights, but adapted to be brought into line by the proper key, of plate M, provided with the projection m^3, and the pivoted shank or arm operated by said plate and having a projection adapted to enter said grooves when the tumblers are properly elevated, substantially as described.

4. The combination, with the tumblers, of the detector or locking-plate adapted to be moved to lock the bolt in position by projections on said tumblers when the latter are raised farther than they would be by the proper key, substantially as described.

5. The combination of the bolt-bar, the detector or locking-plate having a lug, and the tumblers having two sets of projections of different lengths, one set engaging with notches in the bolt-bar until withdrawn by the action of the proper key, the other operating the locking-plate

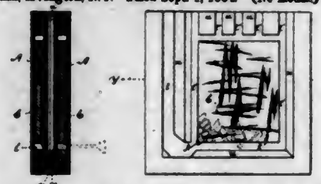
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when said tumblers or any of them are moved farther than they would be by the proper key, substantially as described.

6. The combination of the differential tumblers, the bolt-bar having notches for the engagement of said tumblers, the sliding plate having an inclined projection for engagement with an inclined notch on said bolt-bar, and a lug or projection on said plate adapted to be struck by the tumblers, and thus cause the bolt-bar to be locked by said inclined tooth whenever said tumblers or any of them are raised farther than they would be by the proper key, substantially as described.

317,077. MOSAIC OF GLASS AND LEAD GLAZING. HENRY F. BELCHER, Irvington, N. J. Filed Sept. 1, 1884. (No model.)



Claim.—1. In a mosaic for windows and other purposes, the combination, with the mineral plates A, of a cast-metal frame-work having a superficial metallic finishing-covering, substantially as set forth.

2. As an improved article of manufacture, the mosaic consisting of glass or mineral plates having a cast-metal frame-work provided with a sheet-metal facing, substantially as set forth.

3. A mosaic consisting, essentially, of glass or mineral plates having a metal frame-work to hold said plates together, said frame being of cast metal between the edges of said plates and of sheet metal at the exposed surfaces, said sheet metal overlapping the plates to more securely hold the same in position.

4. In a mosaic, the flat-wire core cast transversely in the frame-work, substantially as shown and described.

5. The process of manufacturing mosaics of glass or other mineral plates, to wit: of arranging saw-plates in a separated relation to one another between clamping-surfaces provided with a back metal receptacle or chamber separate from the glass, of filling said receptacle with molten metal to raise the temperature of the glass and mold and secure a uniform resistance to the frame metal, and filling the channels between said plates with molten metal, substantially as and for the purposes set forth.

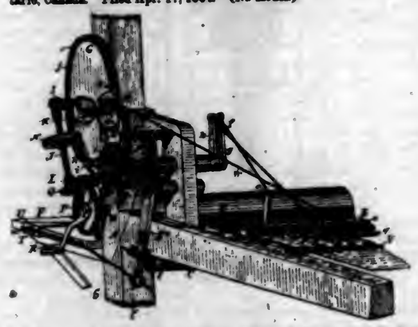
6 The process of forming mosaics of glass or other mineral plates, to wit: arranging the glass between sheets of asbestus or other suitable sheets, arranging duplicate sets of said sheets, with the glass between, apart in a mold to form a chamber between said sets, filling said chamber with molten metal, and subsequently casting a frame-work to unite the said glass plates, as set forth.

7. The process of forming mosaics, to wit: of arranging mineral plates in a separated relation to one another to form channels or passages between, covering said channels with sheet metal, fixing the relations of said parts with an adhesive sheet, arranging the whole in a suitable mold, and casting a metallic frame-work in said passages to unite said mineral plates and sheet-metal covering, substantially as set forth.

8. The process of manufacturing metallic frame-work around mineral plates or portions in a mosaic, to wit: arranging said plates or portions in a separated relation to each other to form passages between, covering said passages with sheet metal, and casting molten metal in said passages to bind the parts together, substantially as set forth.

9. In the process of manufacturing mosaics of glass or other mineral plates, the process of raising the temperature of said plates and holding the asbestus clamping-sheets in close engagement with the sides thereof by casting a molten back metal at the sides of said clamping-sheets opposite said glass portions prior to casting the frame metal, as set forth.

317,078. RULING-MACHINE. EDWARD W. BLACKHALL, Toronto, Ontario, Canada. Filed Apr. 17, 1884. (No model.)



Claim.—1. In a ruling-machine, substantially as described, the combination, with the ruling or pen devices and feed mechanism, of the disk G, constructed to be rotated at different rates of speed by a steadily-revolved prime mover, and connections, substantially as described, whereby both ruling and feed mechanisms are controlled by said disk, as set forth.

2. In a ruling-machine, the combination, with a rock-shaft connected with the feeding mechanism and the rock-shaft connected with the pen-controlling mechanism, of the disk G, revolved at different rates of speed by a steadily-revolved prime mover, and provided with projections constructed to operate both of said rock-shafts, substantially as and for the purposes specified.

3. A rotating wheel, a series of pins attached to and projecting unequally therefrom, in combination with the spring-clasp *i*, vibrating arm *h*, pen-clamp E, and intermediate connections between the arm H and clamp E, the parts being constructed, arranged, and operating as and for the purposes set forth.

4. In combination with the stop V, and as a means for automatically operating the same, the disk G, having pins projecting unequally therefrom, spring-clasp *i*, vibrating arm *l*, and intermediate connections, substantially as described, between the stop and arm, as and for the purpose specified.

5. The shaft K, roller O, held in contact with the surface of the disk G, and adjustable on the said shaft K, so that its speed may be increased or decreased without altering the motion of the disk G, in combination with the pivoted auxiliary pen-clamp *o* and the rod W, connected, substantially as described, to the shaft K at one end and to the pivoted auxiliary pen-clamp *o* at its other end, so that the revolving motion of the shaft K shall impart a vibratory movement to the auxiliary pen-clamp *o*, substantially as and for the purpose specified.

6. In a ruling-machine in which the paper is fed directly from the feed-rollers to the ruling-pens without interposition of a stop or gate, the combination of a stop or gate, V, located in front of the pen-clamp E, with the arms *k l*, attached to the rock-shaft *f''*, and the connecting-rod and cam-carrying disk G; for the purpose of arresting the motion of the paper during the period that the pens are brought in contact with it.

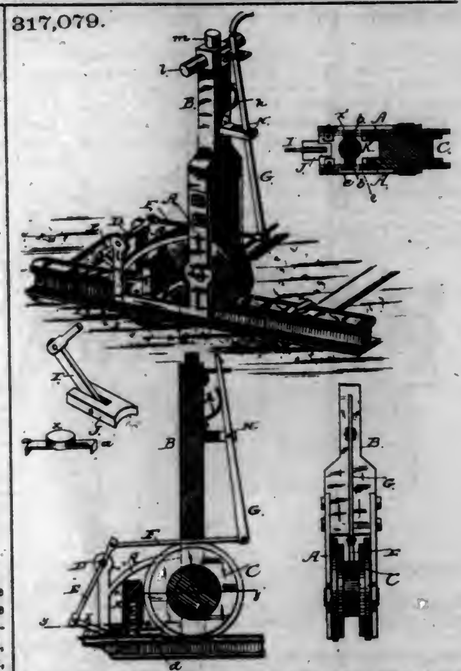
7. In a ruling-machine, the stop V, automatically operated, as described, in combination with the clamp or clamps *q*, the rod *r*, and the pen *d'*, substantially as and for the purpose specified.

317,079. TORPEDO-PLACER. JOS. O. BOGGS, Harrisburg, Pa. Filed Apr. 14, 1884. (No model.)

Brief.—A torpedo-placer embracing a frame suspended from a car, and having a wheel with double flanges journaled in it and supporting a magazine for the torpedoes. The torpedoes are forced from the magazine through a chute upon the rail by a plunger operated by the system of levers claimed. The ends of the torpedo-straps are bent at right angles and run through slots in the bottom plate of the magazine and fastened to the rail by means of the double-flanged wheel.

Claim.—1. In a torpedo-placer, the frame A, carrying the flanged wheel C and magazine K, in combination with the pivoted and slotted plunger J, and suitable mechanism for operating the same, consisting of

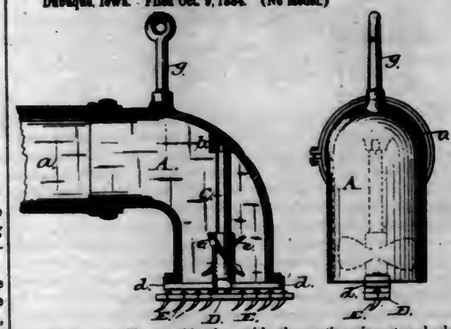
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the lever G, rod F, bar E, and pitman I, substantially as and for the purpose set forth.

2. The frame A and post B, in combination with the flanged wheel C, magazine K, and plunger J, moving in a raceway, *d*, and suitable mechanism for operating the same, consisting of the pitman I, bar E, secured to rocker-shaft D, a rod, F, and lever G, substantially as and for the purpose set forth.

317,080. ATTACHMENT FOR DREDGE-PUMPS. CALEB H. BOOTH, Dubuque, Iowa. Filed Oct. 9, 1884. (No model.)



Claim.—1. The combination, with the suction-pipe of a dredge-pump, of a series of revolving blades and a propeller operated by the flow of the suction, substantially as described.

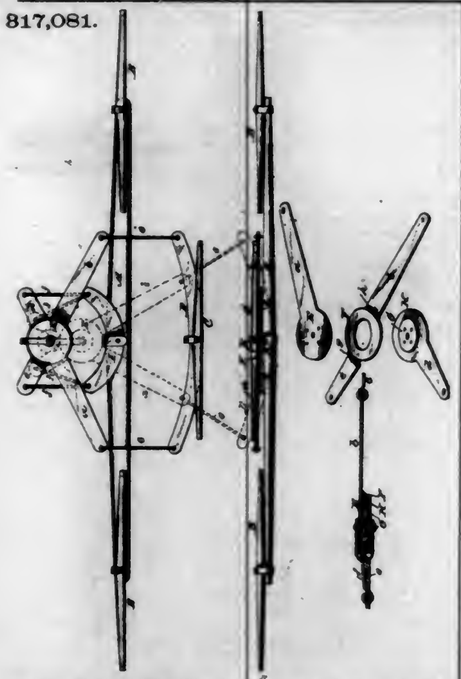
2. The combination, with the suction-pipe of a dredge-pump, of a vertical shaft supported in suitable bearings, a propeller upon said shaft to be operated by the flow of the suction, and a plate carrying suitable blades or cutters, substantially as described, and for the purpose set forth.

3. The casting A, vertical shaft C, a propeller upon said shaft, a bearing-plate, *d*, a plate, D, with blades or cutters secured in the perforations, and a means, as set forth, for raising or lowering the end of the suction-pipe, substantially as herein described.

317,081. DRAFT-EQUALIZER. JOSEPH N. BOWYER, Alexander, Ill. Filed Feb. 14, 1885. (No model.)

Claim.—In a draft-equaliser, the curved bar D, having the single-tree C pivoted thereto, and the curved bar I, pivoted to the double-tree A, in combination with the plate H, having the circular block G and arm *d*, the ring F, adapted to fit over the block, and having the arms *b e*, and the plate E, having arm *a*, secured to the block, as shown, said

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arms being connected to the curved bars by suitable rods, substantially as and for the purpose specified.

317,082. CAR-COUPLING. JAY C. BOYLE, Pittsburg, Pa., assignor of two-thirds to W. S. Hunsiton and Samuel S. Robertson, both of Allegheny City, Pa. Filed Mar. 5, 1885. (No model.)



Claim.—1. In a car-coupling, the combination of a draw-head, the tongue E, ellipsoidal in form, and having curved bearing-faces, and a stop, J, having curved inner face for limiting the downward movement of the tongue to a position in which the latter is inwardly inclined, and so that the bearing of the link may be in the interior angle of divergence of the tongue from the stop and in rear of the body of the tongue, substantially as and for the purpose specified.

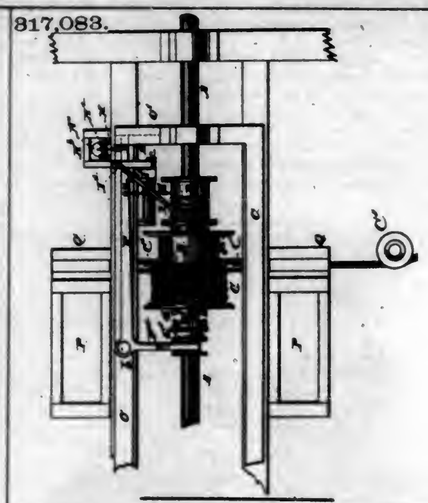
2. In a car-coupling, the combination of a draw-head, a tongue pivoted within the draw-head, and a stop for limiting the downward movement of the tongue to a position in which the latter is inwardly inclined, the lower and inner side of the tongue being inwardly and upwardly inclined on a regular curve or line, the inner side of the stop correspondingly downwardly inclined on a regular curve or line, and the bearing of the link in the interior angle of divergence of the said inclined sides of the tongue and stop in rear of the body of the tongue, substantially as and for the purposes described.

317,083. DEVICE FOR OPERATING POWER GRAIN-SHOVELS. JOHN BRADFORD, Chicago, Ill., assignor to himself and Michael W. Hanley, same place. Filed Jan. 12, 1885. (No model.)

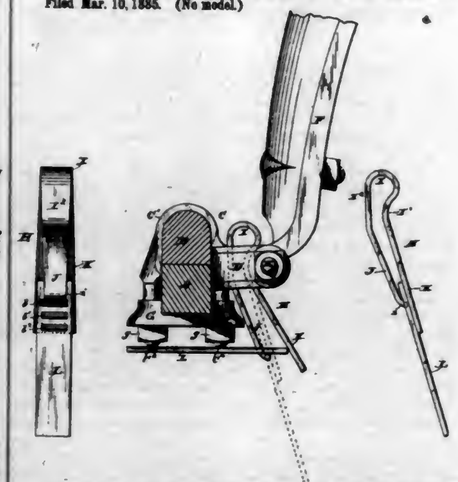
Claim.—1. The combination, with the shaft A, winding-drum B, and clutch G G', lever F F', drum D, chain E, and latch H, of the lever I I' and balance-bar K, automatically operated from the shovel-rope to allow the clutch to be engaged, substantially as and for the purpose specified.

2. The combination, with the shaft A, drum B, rope C, lever F F', clutch G G', and latch H, of the lever I I', balance-bar K, draw-rod M, and weight N", for automatically raising the latch and throwing the arm F out to engage the clutch, substantially as and for the purpose specified.

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317,084. THILL-COUPLING. ANDREW G. BRANDT, Scranton, Pa. Filed Mar. 10, 1885. (No model.)



Claim.—1. The combination of the spring, looped and having the depending legs, as described, with the plate having the perforation near its end, through which one of the legs of said spring portion projects, so that when said plate is moved in one direction the two legs of the spring will be separated, and when moved in the opposite direction it will fold substantially in line with the legs, as set forth.

2. The combination, with the spring having the loop and the two depending legs, one of which is shorter than the other, of the plate having the slot near one of its ends, through which the shorter leg of the spring projects, as set forth.

3. The combination, with the spring having the loop and two depending legs, one of which is shorter than the other and has its end slightly bent, as shown, of the plate adapted to co-operate with said spring portion having a slot near one of its ends, through which the end of said shorter leg is inserted, as set forth.

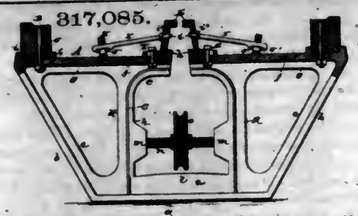
4. The combination, with the spring having the loop and two depending legs, of the plate for co-operating with said spring provided with one or more slots or perforations, substantially as described.

5. The combination, with the spring having the loop I, the straight portion I², bent portion I', and depending legs J and K, of the plate L for co-operating with said spring, having the perforation or slot near one of its ends, substantially as described.

317,085. CABLE RAILWAY. GEORGE B. BRYANT, Philadelphia, Pa. Filed Mar. 19, 1885. (No model.)

Claim.—1. The combination, with brackets constructed substantially as described and the tubing secured to the vertical walls of the brackets, of the rails, rail-supports, bolts securing the rails and rail-

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supports to the brackets, and slot-irons adjustably secured to said brackets, substantially as set forth.

2. The combination, with the bracket constructed substantially as described, and provided at its ends with the lugs forming the seat for the rail-support, and at its central portion on opposite sides of the slot with upwardly projecting lips forming a limit of inward movement for the slot-irons, of slot-irons adjustably secured to the upper surface of the bracket on opposite sides of the slot, substantially as set forth.

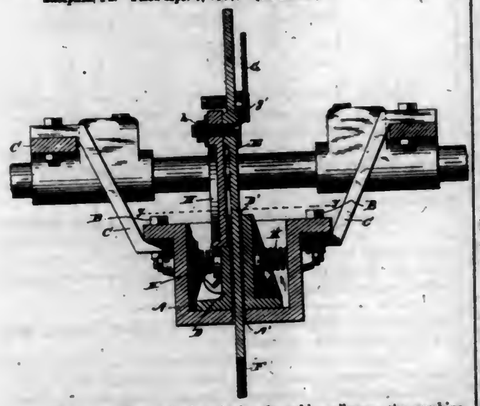
3. The combination, with a bracket provided with upwardly-projecting lugs and slot-irons secured on said brackets on opposite sides of the slot therein, of rods rigidly secured to the brackets, and provided with projections adapted to rest on opposite sides of the lugs, and devices bearing against said projections and the opposite faces of the lugs, and the brackets for moving the rods longitudinally in opposite directions, substantially as set forth.

4. The combination, with a bracket provided with upward-projecting lugs and slot-irons secured on the brackets, of rods secured to the slot-irons, and provided with projections adapted to rest on opposite sides of the lugs, and wedges adapted to be inserted between said lugs and projections, substantially as shown.

5. The combination, with a bracket having upwardly-projecting lugs thereon, the latter being provided with beveled faces, and slot-irons secured to said brackets, of rods secured to the slot-irons, and provided with projections having beveled faces, and wedges inserted between the beveled faces of the lugs and projections, substantially as set forth.

6. The combination, with a bracket having upwardly-projecting lugs, the latter having openings formed therein, and slot-irons secured to said bracket, of rods secured to the slot-irons and passing through the openings in the lugs, and provided with projections, and wedges inserted between the lugs and projections, substantially as shown.

317,086. GRIP FOR CABLE RAILWAYS. GEORGE B. BRYANT, Philadelphia, Pa. Filed Apr. 6, 1885. (No model.)



Claim.—1. In a gripping device for cable railways, the combination, with the gripper-blade, of elastic or yielding cushions interposed between the lateral sides of said gripper-blade and the car, whereby to take up the shock due to the vibration of the car laterally, substantially as described.

2. In a gripping device for cable railways, the combination, with a gripper-blade, of elastic or yielding cushions interposed between the lateral sides of said gripper-blade and the car, and yielding connection between the forward and rear portions of the blade and the car, substantially as described.

3. In the herein-described gripping device for cable railways, the combination, with the gripper-blade, of the inner and outer frames through which the said blade passes, and the springs or cushions interposed between the said two frames at the sides, substantially as described, and for the purpose specified.

4. In the herein-described gripping device for cable railways, the combination, with the gripper-blade, of the inner and outer frames through which said blade passes, and the spring-seated eccentric journaled in the outer frame and bearing on the inner frame, substantially as described.

5. In the herein-described gripping device for cable railways, the combination, with the gripper-blade, of the inner and outer frames through which said blade passes, the springs or cushions interposed between the said inner and outer frames opposite the lateral sides of the gripper-blade, and the spring-seated eccentric journaled to the outer frame and bearing on the inner frame in front of the gripper-blade, substantially as described.

6. In the herein-described gripping device for cable railways, the combination, with the gripper-blade, of the inner and outer frames through which said blade passes, the spring interposed between said two frames, and the spring-seated eccentrics or their equivalents interposed between the inner and outer frames in front of and in rear of the gripper-blades, substantially as described.

317,087. MACHINE-BOX. JOHN G. BURRELL, Lynn, Mass. Filed Jan. 30, 1885. (No model.)



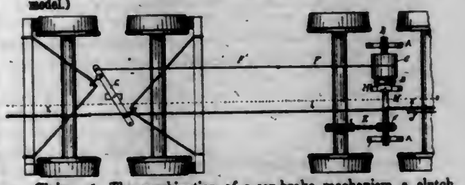
Claim.—1. The box A, with its outer covering, B, substantially as described, and for the purpose set forth.

2. The combination of the box A, the yielding cover B, the cavities D D, and the rings or collars *d d*, substantially as described, and for the purpose set forth.

3. The combination of the box A, the rings or collars *d d*, and the cavities D D, substantially as described and set forth

4. Felt or other suitable semi-elastic substance as a cushion between the box and the unyielding shell, in combination with the box A, substantially as described, and for the purpose set forth.

317,088. CAR-BRAKE. GEORGE P. CAMPBELL, Cincinnati, Ohio, assignor of one-half to John O. Sloan, same place. Filed Dec. 9, 1884. (No model.)



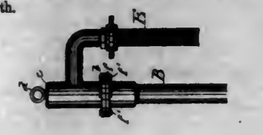
Claim.—1. The combination of a car-brake mechanism, a clutch actuated by the car-axle, a cable connecting the clutch-pulley and brake-lever, and a lever to couple the clutch with a cable or similar means to connect the clutch-lever with the brake-staff and clutch on the locomotive and under the control of the engineer, substantially as specified.

2. The combination, substantially as specified, of the catch C D, upon independent shaft B, the chain E, and pulleys *e e'*, with a car-brake mechanism, and the lever H, and connections F F' A A' J, for the purpose specified.

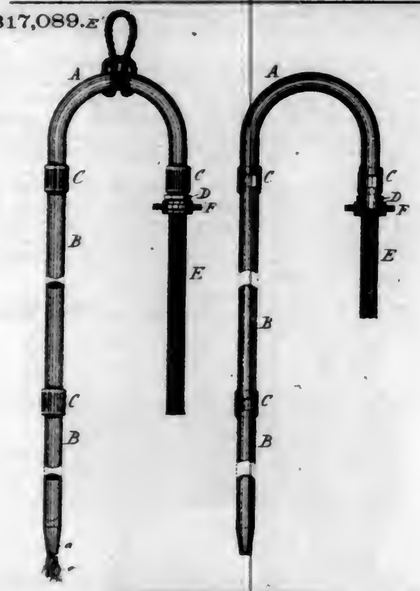
3. The combination of the clutch driven by the locomotive-axle, a lever to actuate the clutch having its handle in the cab to be conveniently operated by the engineer, and connecting devices to couple the said clutch to the brake mechanism, with spring I arranged between a collar upon the cable *f* and a stationary bracket on the locomotive, substantially as specified.

317,089. SOUNDING-ROD. HENRY CASE, Brooklyn, N. Y., assignor to Margaret A. Case, same place. Filed Dec. 15, 1884. (No model.)

Claim.—A sounding-rod, constructed substantially as herein shown and described, consisting of a tube, or two or more tubes coupled together, and with a hose, in combination with a jet or stream of water passing through the hose and tube or tubes under pressure, all arranged and operated as set forth.



317,089. [illegible]

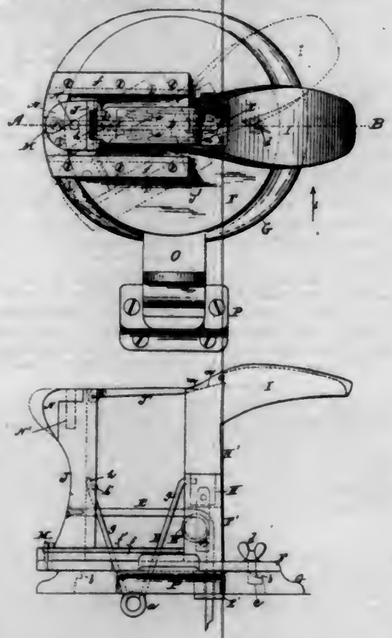


317,090. LASTING-TACK. WILLIAM M. CAVE, CHRISTIAN HOLM, and WILLIAM BLANDOW, Chicago, Ill. Filed Dec. 30, 1884. (No model.)



Claim.—A lasting-tack consisting of shank A and head A', having side faces provided with grooves *a*, and upon its under face with grooves *b b'*, as set forth.

317,091. SHOE-FINISHING JACK. JONATHAN F. CHILD, Marlborough, Mass. Filed Mar. 5, 1885. (No model.)



Claim.—1. The combination, with base F, for supporting the jack, of the base-piece G, provided with flange *b*, lugs G', thumb-screw *d*, and lug *c*, substantially as and for the purpose set forth.

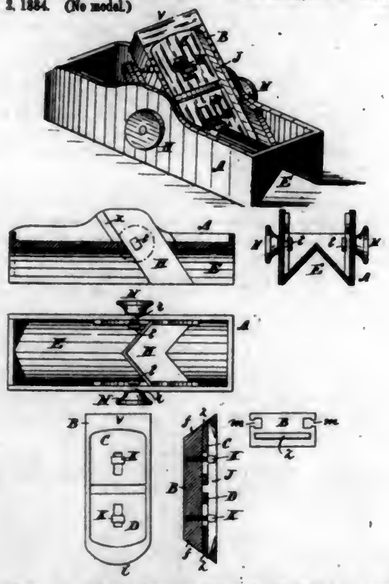
2. The combination, with the base-pieces F and G, provided with an opening for the reception of spring D, of the guide-piece E' and operating-cord E, substantially as and for the purposes set forth.

3. The combination, with the movable part J, of the spring D, provided with duplicate coils *a*, substantially as and for the purpose set forth.

4. The combination, with the stationary part H' and movable part J, of the jack-spring D and operating cord or chain E, connected with treadle K, substantially as and for the purpose set forth.

5. The combination, in a jack for finishing shoes, of the stationary part I, movable part J, spring D, and hinged shank-support J', substantially as and for the purpose set forth.

317,092. PLANE. GEORGE A. CLIFFORD, Peabody, Mass. Filed Sept. 2, 1884. (No model.)



Claim.—1. A bench-plane consisting of a body and an endwise-reversible stock carrying cutters, said stock being rounded at one end and square at the other end, substantially as described.

2. The combination, in a bench-plane, of a body, a stock adjustable therein provided with T-shaped grooves, and set-screws which pass through the sides of said body and take into nuts within said grooves, substantially as described.

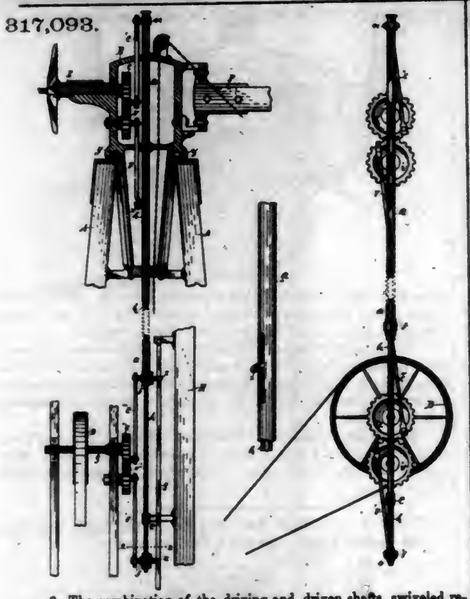
3. The combination, in a bench-plane, of a body, a stock adjustable therein provided with T-shaped grooves, said stock being provided with clamping-bolts for securing the irons adjustably therein, and set-screws which pass through the sides of said body and take into nuts within said grooves, substantially as described.

317,093. WIND-ENGINE. HUTSON B. COLMAN, Kalamazoo, Mich. Filed Dec. 27, 1884. (No model.)

Claim.—1. In a mechanism for transmitting rotary motion from one shaft to another by means of swiveled reciprocating rods, the combination, with a driving-shaft and a driven shaft, the former having a swiveled bearing-support, and the latter having a stationary bearing-support, of cog crank-disks secured to each of said shafts, and like cog crank-disks revolubly supported by each of said bearing-supports in position to mesh with the cog crank-disks of the shafts, swiveled reciprocating rods, and pitmen connecting said rods with the cog crank-disks, substantially as set forth.

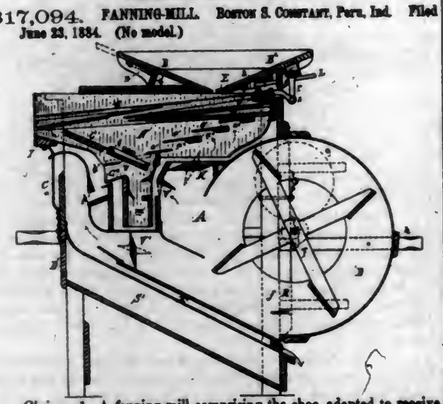
2. In a mechanism for transmitting rotary motion from one crank-shaft to another by means of swiveled reciprocating rods and pivotally-connecting pitmen, the combination of a driving-shaft, a driven shaft, cog crank-disks secured to each of said shafts, cog crank-disks revolubly supported in position to mesh with each of the cog crank-disks of the shafts, a tubular reciprocating rod, pitmen pivotally connecting said rod with the cog crank-disks of the shafts, the pivot of the driven-shaft pitman being swiveled to said rod, a reciprocating rod within the tubular rod, pitmen pivotally connecting the internal rod with the revolubly-supported cog crank-disks, the pivot at the end near the driven shaft being swiveled to said rod, all substantially as set forth.

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3. The combination of the driving and driven shafts, swiveled reciprocating rods, pivotally-connecting pitmen, and a stationary guide-bar, the swiveled pivots having slotted laterally-extending arms adapted to play on said guide-bar, substantially as set forth.

317,094. FANNING-MILL. BOSTON S. CONSTANT, Peru, Ind. Filed June 23, 1884. (No model.)



Claim.—1. A fanning-mill comprising the shoe adapted to receive a series of screens, a series of inclined overlapping chutes formed with air-passages between them, the chute C', the tilting platform, the valves K, V, and V', the grain-box *m*, the main air-flue, the air-passage O^2, the blower, and series of grain-channels, substantially as specified.

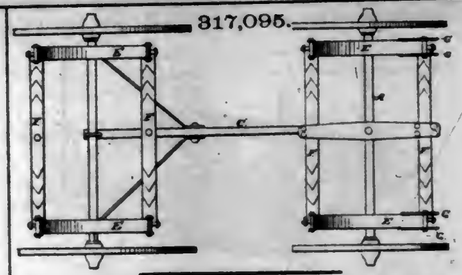
2. In a fanning-mill, the combination of the hopper provided with the inclined movable and stationary parts B and B^2, the cross-bar *d*, the cam *n*, the cut-off E, located below and connected to the part B^2, the levers L *l*, bar a^3, and links *z z*, substantially as and for the purposes specified.

317,095. PLATFORM-SPRING. WILLIAM CRAGO, Carbondale, Pa. Filed Feb. 12, 1885. (No model.)

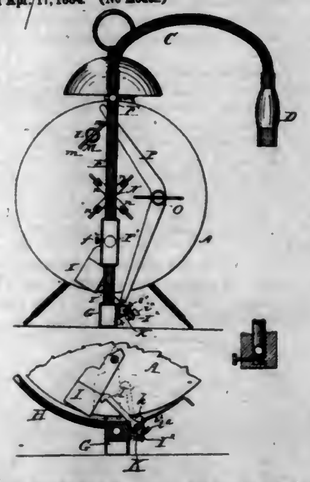
Claim.—1. In combination with the springs of a wagon, clips connected thereto provided with rearwardly-projecting arms and having connections for a pole or shafts, and links pivoted at one end to the rearwardly-projecting arms of the clips and at the other to the axle, substantially as described.

2. In a spring-wagon provided with forward and rear side cushion-springs and transverse springs connecting the same, the combination of clips having rearwardly-projecting arms and connected to the forward ends of the front side springs, connections for the pole or thills, located in the front ends of the clips, and links pivoted at one end to the rearwardly-projecting arms of the clips and at the other to the axle, substantially as described.

317,095.



317,096. ILLUMINATED CLOCK. JOHN M. CRAWFORD, Philadelphia, Pa. Filed Apr. 17, 1884. (No model.)



Claim.—1. The combination, with a clock having attached thereto suitable gas-supply and illuminating appliances comprising the radial arms *n* on the arbor N, the pipe E, cock or valve *f*, and burner-section H, of the weighted lever I, substantially as described.

2. In a clock having gas-burning devices for illuminating the dial, the rigid metallic branch pipe E, attached to the back of the clock, and provided with a cock or valve for raising and lowering the flame at intervals, having a stem, *f*, passing only through one side of the valve box or chest, said stem having an annular groove which receives a set-screw, whereby said stem is held in position, substantially as shown and described.

3. In an illuminated clock having gas-supply and burning attachments, a weighted gas-valve arranged to be opened by the clock-movement and adapted to fall by gravity, so as to reduce or cut off the flow of gas, substantially as set forth.

4. In an illuminated clock having gas-supply and burning appliances, an automatically-closing gas-cock, in combination with an adjustable stop-lever constructed, arranged, and adapted to limit the play of said cock and regulate or control the size of the jet or flame, substantially as set forth.

5. In an alarm-clock provided with gas-supply and burning appliances, the combination, with the alarm mechanism, the gas-supply pipe, and a cock or valve which normally maintains the flame as a jet or glimmer, of a lever actuated by the alarm mechanism, and intermediate devices whereby at a predetermined period the flame may be raised automatically, substantially as described.

6. In combination with clock-arbor O, the lever P, journaled thereon and forming a medium for turning on the gas by the action of the alarm mechanism of the clock, substantially as shown and described.

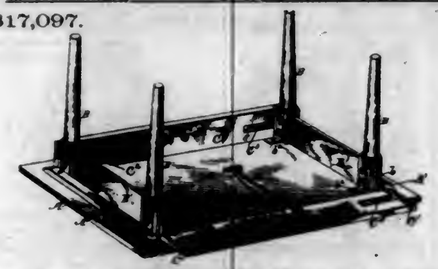
7. The combination, with the alarm-arbor L, of thumb-nut M for moving the lever P, whereby the gas-valve is actuated, substantially as shown and described.

8. In combination with the alarm-arbor L and lever P, the thumb-nut M, having wings *n*, one only of which is provided with a lug, *m'*, substantially as shown and described.

317,097. FOLDING TABLE. JOHN DANNER, Canton, Ohio. Filed Feb. 9, 1885. (No model.)

Claim.—1. In a folding table, the legs B, provided with tenons *b* on the outside thereof, in combination with the top A and hinged side

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rails, C, provided with mortises, C', substantially as and for the purpose described.

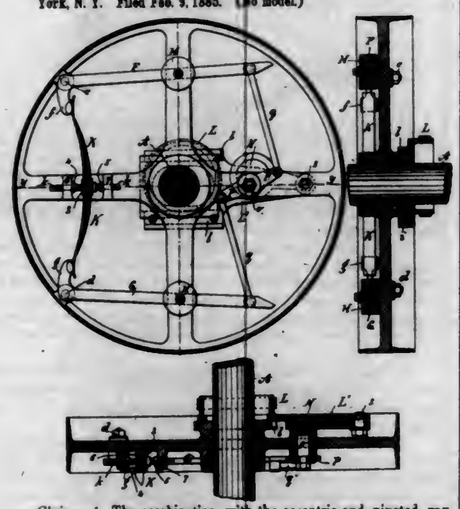
2. The combination of a table-top, A, its cleats A' on the outer side thereof, with the legs B, hinged to the under side of the table-top, and hinges b' and b^2 of different length, substantially as and for the purpose described.

3. In combination with a table-top, the side rails, C, hinged thereto and provided with mortises C' and grooves C^2, the hinged legs, screw-eye d, and hook-rod D, substantially as and for the purpose described.

4. In combination with a table-top, the side rails, C, hinged thereto, and mortised castings secured to and projecting from the inner side thereof, with hinged legs having projections b on their outer sides and means for connecting the side rails, substantially as described.

5. The combination of a table-top, A, legs B, with tenons b and hinges b' and b^2, side rails, C, provided with mortises C', grooves C^2 and C^3, staples d, and hooked rod D, substantially as and for the purpose described.

317,098. GOVERNOR FOR ENGINES. DAVID P. DAVIS, Jersey City, N. J., assignor to the New York Safety Steam Power Company, New York, N. Y. Filed Feb. 9, 1885. (No model.)



Claim.—1. The combination, with the eccentric and pivoted governor-arms, of the bow-spring K, to act at its ends upon the pivoted governor-arms, and means for holding and adjusting the bow-spring, substantially as set forth.

2. The combination, with the governor-arms F G, wheel, and main shaft, of an eccentric surrounding the shaft and having an elongated opening for such shaft, a base to the eccentric with flanges, and slides at the hub of the wheel for such flanges, the links g, arms P, shaft q, secondary eccentric, and connection to the main eccentric, substantially as set forth.

3. The combination, with the main shaft and sliding eccentric, of a secondary eccentric, a shaft for the same, a connection from the secondary eccentric to the base of the main eccentric, governor-arms and connections between the same and the shaft of the secondary eccentric for turning such secondary eccentric, substantially as set forth.

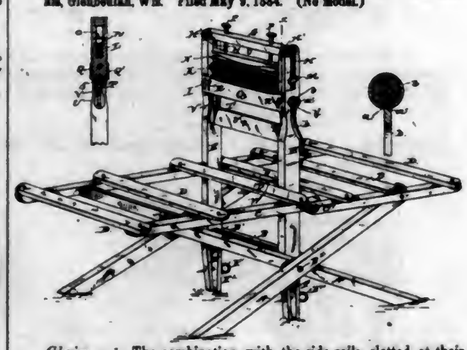
317,099. TRAP FOR SEWERS. JOHN DEMAREST, New York, assignor to the J. L. Mott Iron Works, New York, N. Y. Filed Feb. 9, 1885. (No model.)

Claim.—1. In a trap for sewers, the combination, with the basin C, grating R, and the bell S, of a dam, B, having a valve-seat, F, at its upper inner edge, a weighted sheet-metal float-valve, H, with a recess formed around the equator of the same, a rubber ring, I, in said recess, a flange, n, guides L, and fingers l, substantially as specified.

2. A weighted sheet-metal float having a recess around its equator and a rubber ring in such recess, in combination with the sewer-pipe, the basin having a dam the inner top edge of which forms the valve-seat, a bell over the dam, and supports for the valve within the dam, substantially as specified.

3. In a trap for sewers, the combination, with the basin C, grating R, and the bell S, of a dam, B, having a valve-seat, F, at its upper inner edge, a float-valve, H, the guides L, and fingers l, substantially as specified.

317,100. COMBINED WASH-BENCH AND WRINGER. JOHN DEKER, Glenbeulah, Wis. Filed May 9, 1884. (No model.)



Claim.—1. The combination, with the side rails, slotted at their upper ends, of the rollers, the upper one of which is vertically movable in said slots, blocks bearing against the upper sides of the ends of the shaft of said rollers, plates M, for retaining said blocks in place, spring n, having its ends resting on said blocks, a bolster having a convex under face, and having its ends located in the slots of the side rails, and thumb-screws bearing upon the upper side of said bolster, substantially as set forth.

2. The combination, with the side rails connected by slotted plates Q, of the slotted arms engaging studs extending inwardly from the side rails, and the shelf U, secured to said arms, as set forth.

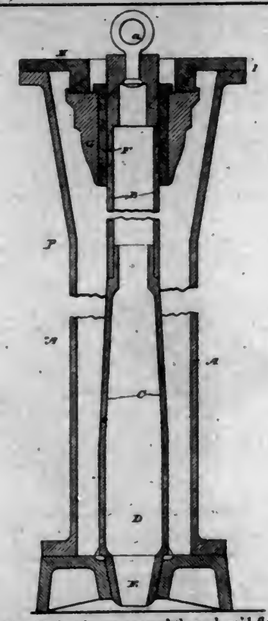
317,101. APPARATUS FOR FORMING MOLDS FOR CASTING METAL PIPE. JACOB K. DUNBECK, Newport, Ky. Filed May 23, 1883. (No model.)

Brief.—Feed the flask with sand enough to finish the mold when rammed to and slightly above the flare of the former. Fill the rest of the flask without ramming up to the neck of the bell-mouth, (or to the top, when by hand shape a seat for the bell-mouth.) Place the bell-mouth pattern, fill and ram sand about it, put on and key the top plate, draw the former upward, sliding through the guide-ring until the flare of the former strikes the guide-ring and lifts it up through the bell-pattern. Finally the lower end of former enters and is guided by the bell-pattern. The larger portion of the former may slide on the smaller portion.

Claim.—1. The combination, substantially as described, with a movable former constructed with a first section or length of uniform diameter, a second section gradually increasing in diameter, and a third section of diameter uniform with the greatest diameter of the preceding, of a bell-pattern having a central bore of such diameter as to permit the passage of the entire former loosely, and a guide fitting into said bore and acting to center and direct the lesser section of the former with respect to the bell-pattern until the larger section enters the bore thereof.

2. The combination, substantially as described, with a flask and compressing-former, having substantially the outline set forth, which

317,101.

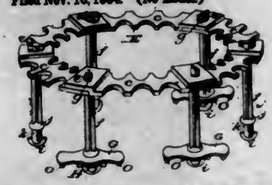


former is capable of being drawn upward through said flask to pack and compress the sand against its walls, of a guide-ring for the narrower section of said former, resting in place at the top of the flask, and adapted to be automatically released and lifted by the continuing motion of the former when the enlarging section thereof comes in contact with it.

3. The combination, substantially as described, with the former and the guide-ring, of a bell-pattern having an axial bore in which the guide-ring is centered and restrained from lateral motion, and through which it can pass when raised by the flaring section of the former.

4. The combination of the flask A, the enlarging former, the guide-ring F, the bell-pattern G, and the clamping-plate H, as and for the purpose set forth.

317,102. CORE-ARBOR. ANDREW J. DOANE, Norwalk, Conn., assignor of two-thirds to Charles N. Arnold and Theodore E. Smith, both of same place. Filed Nov. 10, 1884. (No model.)



Claim.—1. In a mold, the combination, with the cheek and nowel, of an arbor to support the core, and a supporting-plate for said arbor, embedded in the sand of the nowel, and having its face flush with the parting between the cheek and nowel, substantially as shown.

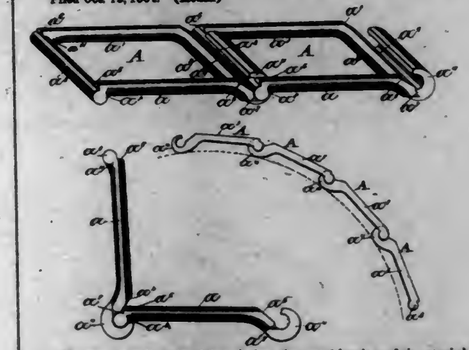
2. The combination, in a mold, of a cheek, a nowel, a core, a supporting-arbor for said core, and fastening devices for said arbor embedded in the sand of the nowel, substantially as and for the purpose set forth.

3. In combination with cheek A, cope B, and nowel C, core D, provided with skeleton frame or support E, consisting of overlapping sections c, arbors f, passing through and connecting said sections, plates or washers G applied to the arbors at the parting-line of the cheek or nowel, and washers H, applied to the arbors below the plates G, all substantially as described and shown.

4. The skeleton for a mold-core, substantially such as described, consisting of overlapping segmental plates c, provided with openings d and inclines g, arbor f, provided with T-heads e and shoulders h at their upper ends, and with T-heads i and shoulders j at their lower ends, plates or washers G, and washers H, having openings m, and inclines n, said parts being constructed and combined substantially as and for the purpose explained.

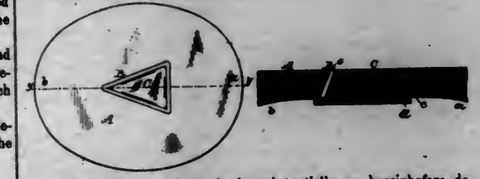
5. In combination with flask-sections A B, core D, provided with an internal separable skeleton support, e, substantially as described, having stems f projecting through and beyond the face of section B, and plates G and washers H applied to said stems, substantially and for the purpose set forth.

317,103. DRIVE-CHAIN. WILLIAM A. DRAVES, Milwaukee, Wis. Filed Oct. 15, 1884. (Model.)



Claim.—In a link for drive-chains, the combination of the straight side bars, a a', both of which have their extreme ends curved down and are provided with the bevels a^3 and a^6, the grooves a^7, and with the stop a^{11} upon one of them, the cylindrical end bar a^5 and the end bar a^2, having the bevel a^9 and hook a^4, adapted to slide over the end of bar a^2 of the next similar link in the chain and meet the stop a^{11}, thus forming a flexible joint of the two links, in which the end bars of each link are carried in a horizontal plane lower than that of the side bars, substantially as shown and described.

317,104. HAT-BLOCK CHUCK. RUDOLF EKENBERGER, Yonkers, N. Y. Filed Jan. 24, 1885. (No model.)

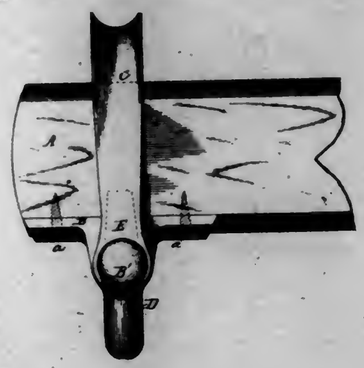


Claim.—The hat-block chuck, substantially as hereinbefore described, embodying a base having inclined sides and a correspondingly-chambered shell which is registered to fit upon said base in but one position, whereby an egg-oval hat-block mounted on said chuck will be properly centered, securely held against lateral displacement, and invariably have its front and rear ends accurately located in their respective positions, as set forth.

317,105. DOUBLE-TREE PROTECTOR. THOMAS PETER, Dubuque, Iowa. Filed Apr. 30, 1884. (Model.)

Claim.—1. A double-tree protector having the lug E, arms a' a', and hole F, for attaching clevis-pin, all placed upon a double-tree and operated substantially as described, and for the purposes shown.

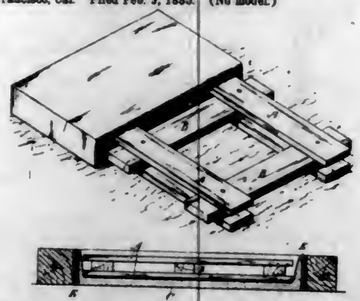
2. In a double-tree protector, the combination of the plate B, having lug E, arms a' a', clevis-pin hole F, and eye-hole D, to which stay-chains are attached, substantially as described, and for the purposes set forth.



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317,106. SIDEWALK AND PAVING BLOCK. HENRY G. FISKE, San Francisco, Cal. Filed Feb. 9, 1885. (No model.)



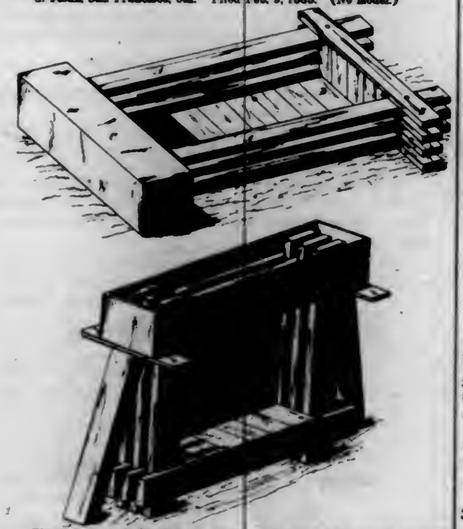
Claim.—1. A paving-block composed of rock, gravel, and asphaltum or coal-tar or other similar compound, in combination with an exterior coating of artificial stone bonded thereto, substantially as herein described.

2. A paving-block composed of rock or gravel and asphaltum and coal-tar or other similar compound, with a wooden frame-work embedded therein, in combination with an exterior coating of artificial stone bonded thereto, substantially as herein described.

3. The method of forming sidewalk or paving blocks, consisting in first laying a stone concrete upon the bottom and sides of a suitable mold, followed by a layer of melted asphaltum, which may be brushed over the interior of the stone-work first laid, and a filling of rock placed therein, the interstices being finally filled with melted asphaltum and coal-tar, substantially as herein described.

4. The device for shaping the interior of the artificial stone-coating, consisting of a beveled plate secured to a bar which has a guide fixed to it which is drawn across the top of the mold, substantially as herein described.

317,107. ARTIFICIAL FACING-BLOCK FOR BUILDINGS. HENRY G. FISKE, San Francisco, Cal. Filed Feb. 9, 1885. (No model.)

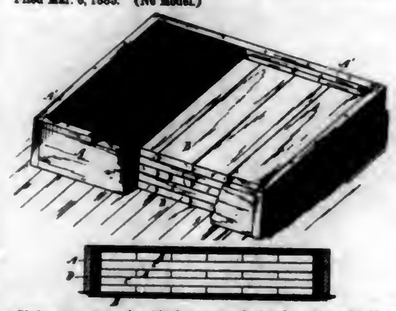


Claim.—1. A facing-block composed of a series of parallel longitudinal and transverse strips fastened together so as to form an interior open space having a bottom, back or sides, and a filling of concrete or artificial stone on one or more sides of the frame-work, substantially as herein described.

2. A method of forming facing-blocks, consisting in nailing together alternate longitudinal and transverse strips so as to form a hollow frame-work, which is then set so that the ends of one set of strips project vertically upward, a closed bottom, D, being formed upon the lower edges of the transverse strips, and a mold or frame-work placed around them to contain a filling of plastic material which is poured into the mold, so that the ends of the frame-work will be embedded therein, substantially as herein described.

3. A facing-block composed of a frame-work of longitudinal and transverse strips of wood united as shown, and having one or more of the ends or sides embedded in artificial stone, substantially as herein described.

317,108. PAVING-BLOCK. HENRY G. FISKE, San Francisco, Cal. Filed Mar. 6, 1885. (No model.)



Claim.—1. A paving-block composed of strips of board laid parallel to each other and close together and other strips laid across these in the same manner alternately until sufficient thickness is attained, in combination with an intermediate filling and binding of asphaltum, coal-tar, or other equivalent substance, substantially as herein described.

2. A paving-block composed of strips of board laid parallel to each other and close together and other strips laid across these in the same manner, with an intermediate binding and filling of asphaltum and coal-tar or other equivalent substance, in combination with surrounding side and end pieces, substantially as herein described.

3. A paving-block composed of alternate transverse strips of wood laid close together with a binding and filling of asphaltum, in combination with the exterior surrounding strips having their upper edges made removable, substantially as herein described.

4. A paving or sidewalk block composed of alternate transverse strips of wood laid close together, the ends and sides being beveled or inclined, a coating of asphaltum or gravel embedded therein, and an exterior coating of cement or concrete, substantially as herein described.

317,109. HAY-ELEVATOR. JAMES M. FOOTE, Clayton, Mich. Filed Dec. 19, 1884. (No model.)



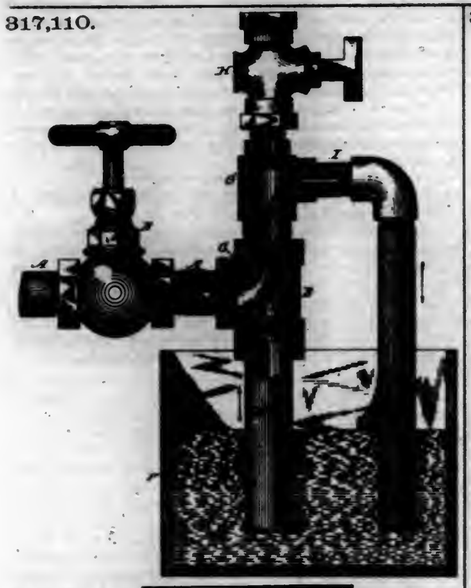
Claim.—1. In a hay or grain elevator, the pulley-block D, provided with the bail *a*, cross-bar *b*, and swivel-hook *a'*, and the pulley-block D', provided with the rigid hook *c*, swivel trip-hook *c'*, and cord *g*, in combination with the rings *f* of the sling F, carrier A, catch-latch *e*, pulley-block G, supporting-track C, and draft-rope E, all substantially as and for the purpose specified.

2. In a hay or grain elevator, the pulley-block D, provided with the bail *a*, cross-bar *b*, and swivel-hook *a'*, in combination with the pulley D', provided with the rigid hook *c* and swivel trip-book *c'*, substantially as and for the purpose specified.

317,110. INJECTOR-CONDENSER. THOMAS FOULDS, Treverton, Pa. Filed Feb. 17, 1885. (No model.)

Claim.—In a jet-condenser, the combination of the tank with the supply-pipe provided with exhaust-nozzle, and the discharge-pipe, the supply and discharge pipes being of equal length, substantially as and for the purpose set forth.

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317,111. FREIGHT-CAR. JOHN M. GARVERICH, Harrisburg, Pa. Filed Mar. 17, 1885. (No model.)

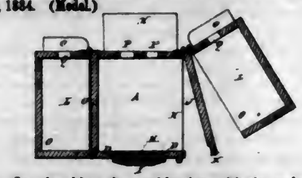


Claim.—1. In a railway-car, a set of longitudinal truss-rods, each similarly extended at the middle and along the outside of bed over seats therefor, and having its ends diagonally extended through the bed and secured through corner-irons on the bed by fastenings anchoring the ends of the rod exterior to ends of the car-bed, substantially as and for the purposes set forth.

2. In a railway-car, the combination of the longitudinal truss-rods A, stakes *a'*, provided with seats B, having the middle of said rods applied thereto, stakes *a''* sufficiently distanced from the stakes *a'* for admitting the limbs of said rods between them and between the planks R R' in direct diagonal lines, and the corner-irons K *s*, firmly attached to the bed, and having the ends of said rods secured through them, substantially as and for the purposes set forth.

3. A railway-car provided with truss-rods A, strung over rests B on the outside, and secured at their ends diagonally through the corners of the car-bed, and provided with the corner-bands *s*, used as washers for the nuts D on said rods, in combination with the re-enforcing corner-braces K, provided with abutting ledges K^2, and co-operating with said bands, substantially as and for the purposes set forth.

317,112. BEE-HIVE. HENRY S. GIDEON, Crescent City, Iowa. Filed May 10, 1884. (Model.)



Claim.—In a bee-hive, the combination, with the main hive A and the hinged side boxes, L, open on their sides only, of the hinged side J of the main hive having one of the said side boxes hinged thereto, substantially as herein shown and described, whereby provision is made for having access to either the main hive or side box without opening the other, as set forth.

317,113. FRICTION-CLUTCH FOR ROCK-DRILLS. GEORGE M. GITTINS, Brooklyn, N. Y. Filed Jan. 5, 1885. (No model.)

Claim.—1. The combination, with the cams and the shaft or rifle-bar to which they are connected, of the clamps that are moved by and revolve with the cams, and the holder for the exterior surface of the clamps, substantially as set forth.

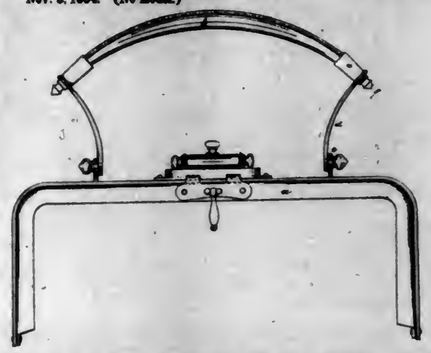
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2. The combination, with the cams and the rifle-bar to which they are connected, of the clamps against which the cams act, and the inclined or wedge-acting holder for the clamps, substantially as set forth.

3. The combination, with the rifle-bar and cams upon the same, of clamps against which the cams act, and a wedge-acting holder that is of larger diameter than the cams, substantially as set forth.

317,114. SATCHEL-HANDLE. AUGUST GOERTZ, Newark, N. J. Filed Nov. 8, 1884. (No model.)



Claim.—In combination with the bag-frame, rigid posts *c*, curved pivotal posts *d*, end caps or ferrules secured on the free ends of said pivotal posts and extending toward one another at approximately right angles to said pivotal posts to receive a handle, and said handle, as set forth.

317,115. MACHINE FOR DRAWING AND SPINNING HEMP, &c. J. GOOD, Brooklyn, N. Y. Filed July 17, 1884. (No model.)

Brief.—The sliver is presented to spindles and fliers arranged in a vertical tier by a catenary series of vertical pin-bars connected at top and bottom by chains, which allow free vertical movement of the bars, and supported and guided in tracks which cause the gill-pins to enter and leave the sliver vertically, thus reducing weight and floor-space of a machine having a given number of spindles. The spindles and fliers are driven in sets, each set by a single belt from the driving-pulley.

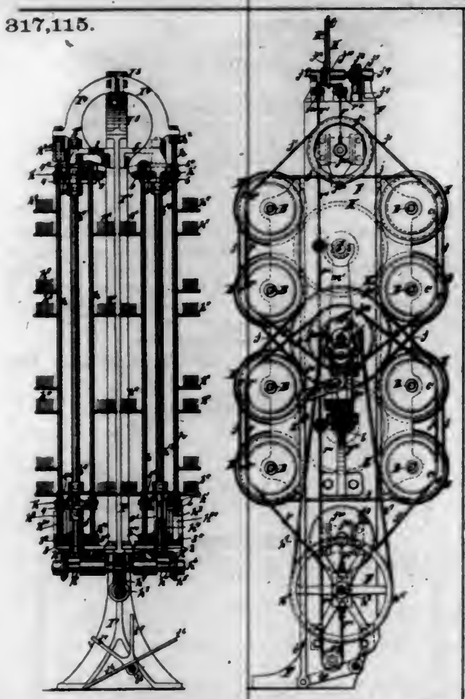
Claim.—1. The combination, with two or more spindles and fliers arranged one above another and means for driving them, of a catenary series of upright bars, each having laterally-projecting arms or brackets arranged one above another, and provided with gill-pins for presenting two or more slivers to the spindles, and means for operating said series of bars, substantially as herein described.

2. The combination, with two vertical tiers of spindles and fliers arranged side by side, a common driving-shaft, and mechanism operated by said shaft for driving the spindles and fliers of both tiers, of two catenary series of upright bars, provided with laterally-projecting brackets armed with gill-pins, and mechanism for operating said two series of bars, substantially as herein described.

3. The combination, with two or more spindles and fliers arranged one above another, and means for driving said spindles and fliers, of a catenary series of upright bars armed with gill-pins, endless chains connecting said bars, and arranged to operate in horizontal planes, and upright shafts, and chain or sprocket wheels, and means of operating the said wheels to give motion to said chains and bars, substantially as herein described.

4. The combination, with two or more spindles and fliers arranged one above another, and means for driving said spindles and fliers, of a series of upright bars armed with gill-pins, endless chains connecting said bars, and in which said bars are movable vertically, means for driving said chains and bars, and a track or way for the lower ends of said bars in their direct or forward movement, having at one end an incline for lifting said bars to raise their pins into the slivers, and at the other end a drop permitting said bars to fall in order to withdraw their pins from the slivers, substantially as herein described.

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5. The combination, with two or more spindles and fliers arranged one above another, and means for driving them, of a series of upright bars armed with gill-pins, endless chains connecting said bars, and in which said bars are movable vertically, means for operating said chains, the direct and return tracks or ways A^{13} A^{14}, the former provided with the upward incline A^{20*} at one end and the drop A^{20} at the other end, substantially as herein described.

6. The combination, with two or more spindles and fliers arranged one above the other and means for driving them, of a series of upright bars armed with gill-pins, endless chains connecting said bars, and in which the bars are movable vertically, means for operating said chains, the track or way A^3, comprising the incline A^{20*} at one end and the drop A^{20} at the other end, and the upper guide, A^2, comprising the inclined cam-like portion A^{2*}, substantially as herein described.

7. The combination, with two or more spindles and fliers arranged one above another and means for driving them, of a series of upright bars armed with gill-pins, and provided at their lower ends with horizontally-extending toes or cam-like portions, endless chains arranged in horizontal planes and connecting said bars, means for operating said chains and bars, and a track or way receiving the toes or cam-like portions on the said bars, and serving to prevent the turning of the bars during their direct movement, substantially as herein described.

8. The combination, with two or more spindles and fliers arranged one above another and means for driving them, of a series of upright bars armed with gill-pins, endless chains connecting said bars, and composed of links A^{17*}, having male and female eyes fitted to each other and open at the sides to enable them to be slipped laterally on said bars, means for operating said chains, and tracks or ways supporting the lower ends of said bars, substantially as herein described.

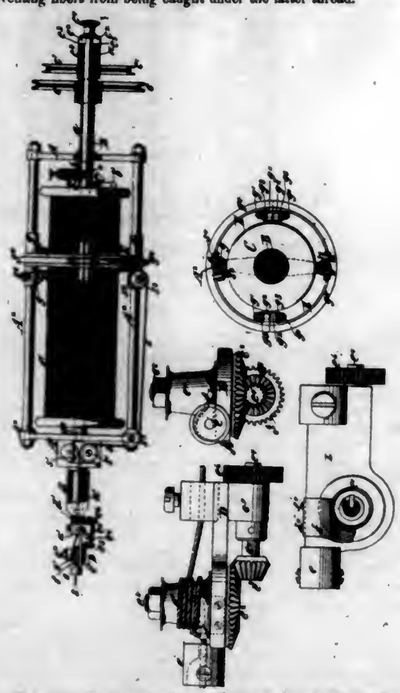
9. The combination, with two or more spindles and fliers arranged one above another and means for driving them, of a series of upright bars armed with gill-pins, endless chains connecting said bars and arranged to work in horizontal planes, upright shafts and chain-wheels for supporting and operating said chains, means of giving motion to said upright shafts, and supporting-rails for the chains between said chain-wheels, substantially as herein described.

10. The combination, with the spindles and fliers arranged in upper and lower groups, forming two vertical tiers, means for driving the spindles, pulleys on the fliers, a driving shaft and pulley for the fliers, and two belts, one passing around the pulley on the driving-shaft and the pulleys of the upper group of fliers, and the other passing around the pulley on said shaft and the pulleys of the lower group of fliers, of two catenary series of upright bars armed with gill-pins, and means for operating the two series of bars to present slivers to the spindles and fliers in the two vertical tiers, substantially as herein described.

11. The combination, with a spindle-stand composed of upright frames and longitudinal rails or stretchers, two vertical tiers of spindles and fliers journaled in said stand, and means for driving the spindles and fliers, of a chain-stand, also composed of end standards and longitudinal rails or stretchers, two series of upright bars armed with gill-pins, and endless chains connecting said bars, both arranged and supported in said chain-stand, means for operating said series of bars, and their chains and braces connecting the spindle-stand and chain-stand, substantially as herein described.

317,116. SPINDLE AND FLIER FOR SPINNING ROPE-YARN. J. GOOD, Brooklyn, N. Y. Filed July 17, 1884. (No model.)

Brief.—The thread-guide is carried on a ring-traveler made to traverse on the side bars of the flier, and interposed springs permit the bearings to yield away from each other, preventing binding on the side bars. The bobbin-coupling fills the space between the bobbin and the end of the flier, thereby also locking the spindle in the flier. A guard-plate applied to the capstan-barrel acts as a separator between the first coil of thread on the barrel and the thread passing onto the barrel, thereby preventing fibers from being caught under the latter thread.



Claim.—1. The combination, with a spindle and flier and means for driving them, of a ring-traveler having bearings fitted to slide along the longitudinal rods or side bars of the flier, and interposed springs for permitting them to yield outward or away from each other, a yarn-guide upon the traveler, and mechanism for reciprocating said traveler along the flier, substantially as herein described.

2. The combination, with a spindle and flier comprising parallel rods or longitudinal stretchers, and means for driving them, of a divided or sectional traveler fitted to slide upon said rods or stretchers, and provided with a yarn-guide, and means for reciprocating said traveler along the rods or stretchers of the flier, substantially as herein described.

3. The combination, with a spindle, a flier comprising parallel rods or stretchers and means for driving them, of a ring-traveler fitted to slide upon said rods or stretchers, provided with a yarn-guide and composed of sections, springs opposing a yielding resistance to the spreading of the sections, and means for reciprocating the traveler along said rods or stretchers, substantially as herein described.

4. The combination, with a spindle, a flier comprising rods A^2, and means for driving the spindle and flier, of the ring-traveler E, composed of sections severally provided with sockets g and ears g^2, bolts g', and springs interposed between the bolts, heads, and lugs or ears, a traverse-guide on the traveler, and means for reciprocating the traveler along said rods A^2, substantially as herein described.

5. The combination, with a flier, a spindle extending through the flier and having bearings in opposite ends of the flier, and means for driving the flier and spindle, of a bobbin-coupling consisting of a sleeve fitting the spindle, and made of a length to fill the flier beyond the space required for a bobbin, and provided with a radial arm for engagement with a bobbin, and a locking-bolt whereby the sleeve is connected with the spindle, the said coupling serving to lock the bobbin to the spindle to prevent lengthwise movement of the bobbin and lengthwise movement of the spindle, substantially as herein described.

6. The combination of the spindle B, the flier having the hollow journal a, receiving the spindle through it, the pulley c, fast on said journal, the pulley c', loose on said journal and locked to the spindle by ears or lugs and notches c^2 c^3, the bobbin-coupling C', the pin or catch b^3, serving to lock said coupling to the spindle, to lock the spindle against longitudinal movement, and to hold the spindle-driving pulley c' on the flier-journal a, a traveler movable lengthwise of the flier and provided with a yarn-guide, and means for reciprocating said traveler, substantially as herein described.

7. The combination, with a spindle and flier, and means for driving them, of a capstan-head, D, a capstan-barrel having its axis transverse to the axis of the spindle, means for rotating said barrel, and the separator or guard plate f, secured in fixed position to the capstan-head D, and constructed and arranged as described, and serving to separate the yarn on the barrel from the portion of yarn passing onto the barrel, substantially as herein described.

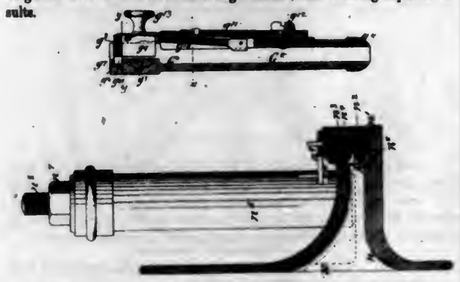
8. The combination, with two or more spindles and fliers arranged parallel with each other, and means for driving them, of travelers each provided with a yarn-guide and movable lengthwise of the several fliers, a traverse-screw parallel with said spindles, connections through which the said travelers are reciprocated along their respective fliers by the operation of the traverse-screw, and means for rotating said screw, substantially as herein described.

9. The combination, with a group of parallel spindles and fliers, and means for driving them, of ring-travelers movable along said fliers, and each provided with a yarn-guide, a guide-rod arranged centrally in the group of spindles and fliers and parallel therewith, a circular rotary head on said guide-rod with which said travelers are engaged, and means for reciprocating said head and through said head the travelers of the several fliers, substantially as herein described.

10. The combination, with a traverse-screw and means for rotating it, of a carriage movable along said screw by its rotation, two circular heads connected with said carriage, and guides parallel with said screw, and along which said heads are reciprocated by the movement of said carriage, two or more spindles and fliers arranged adjacent to and parallel with each of said guides, means for driving said spindles and fliers, and travelers movable lengthwise of the fliers, and each provided with a yarn-guide, the two or more travelers on the fliers which are adjacent to each guide engaging with the head upon that guide, substantially as herein described.

317,117. MACHINE FOR DRAWING AND SPINNING HEMP. J. GOOD, Brooklyn, N. Y. Filed July 18, 1884. (No model.)

Brief.—A rotary nipper fast to the capstan-head is used in combination with a fixed nipper, and both nippers are so constructed as to bite the sliver close to the ends of the nippers, thereby diminishing the length of the sliver where it is being twisted, and securing superior results.



Claim.—1. The combination, with a spindle and flier, and means for driving them, of a nipper through which a sliver may be passed, and which is attached to and adapted to rotate with the spindle and flier, substantially as and for the purpose herein described.

2. The combination, with a non-rotary nipper through which the sliver is to be passed or drawn, of a spindle and flier, means for driving them, and a second nipper attached to and adapted to rotate with the spindle and flier, substantially as and for the purpose herein described.

3. The combination, with a non-rotary nipper through which the sliver is to be passed or drawn, and a stationary support on which the nipper is secured, of a spindle and flier, means for driving them, and a second nipper attached to and adapted to rotate with the spindle and flier, substantially as and for the purpose herein described.

4. The combination, with a non-rotary nipper through which the sliver is to be passed or drawn, of a spindle and flier, means for driving them, and a second nipper attached to and adapted to rotate with the spindle and flier and forming the extremity thereof, substantially as and for the purpose herein described.

5. The combination, with a non-rotary nipper through which the sliver is to be passed or drawn, and which has its jaws at its rearmost extremity from which the sliver issues, of a spindle and flier, and means for rotating them, and a second nipper attached to the spindle and flier to rotate therewith, and having its fixed and movable jaws at its forward end in close proximity to the jaws of the non-rotary nipper, substantially as and for the purpose herein described.

6. The combination, with a non-rotary nipper through which the sliver is to be passed or drawn, of a spindle and flier, and means for driving them, and a second nipper having its jaws at the forward end, and having a pivotal connection with the flier, whereby its forward end is made self-adjusting, substantially as and for the purpose herein described.

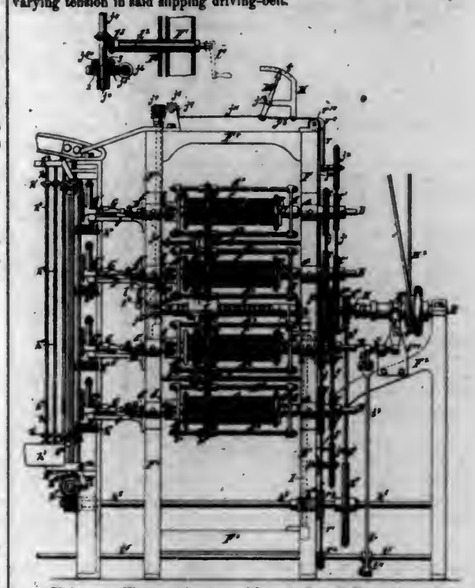
7. The combination, with the nipper-stock G*, having the transverse and longitudinal notches g^6 g^7, of the movable jaw g^4, entering the notch g^6, and the spring g^{11}, pivotally connected with the stock at one end and at the other end bearing on said movable jaw, substantially as herein described.

8. The combination, with the nipper-stock G*, having the transverse and longitudinal notches g^6 g^7, of the movable jaw and its shank g^5 g^9, the arm g^{10}, pivotally connected at its ends with the stock and movable jaw, and the spring g^{11}, secured at one end to the stock and at the other end bearing on the movable jaw, substantially as herein described.

9. The combination, with the trumpet-mouth n, having the jaw-holder n' at its delivery-aperture, of the fixed jaw n^2, secured in said holder, the movable jaw n^3, pivoted in the fixed jaw, the lever n^5, bearing on said movable jaw, a spring acting upon said lever, and a support for said spring, all substantially as herein described.

317,118. SPINDLE AND FLIER FOR SPINNING HEMP, &c. J. GOOD, Brooklyn, N. Y. Filed July 19, 1884. (No model.)

Brief.—The bobbin is locked to the spindle, and a slipping driving-belt passes around pulleys, fast to the spindles, the driving-pulley, and a movable tension-pulley, to which motion is imparted for producing a varying tension in said slipping driving-belt.



Claim.—1. The combination, with a spindle and flier and means for driving the flier, of a pulley through which motion is to be transmitted to the spindle, a driving-pulley, a slipping driving-belt passing around said pulleys, and a tightening-pulley and gearing for producing a varying tension in the slipping driving-belt, substantially as and for the purpose herein described.

2. The combination, with a spindle and flier, means for driving the flier, and a pulley locked to the spindle, of a driving-pulley, a slipping driving-belt passing around said pulleys, and a tightening-pulley and gearing for producing a varying tension in said slipping driving-belt, substantially as and for the purpose herein described.

3. The combination, with a spindle-stand, a number or group of parallel spindles and fliers journaled therein, and means for driving the fliers, of pulleys locked to the spindles, a driving-pulley, a slipping driving-belt passing around the spindle-pulleys and the driving-pulley, and a tighten-

ing-pulley and gearing for producing a varying tension in said slipping driving-belt, substantially as and for the purpose herein described.

4. The combination, with a spindle-stand, upper and lower groups of parallel spindles and fliers journaled therein, means for driving the fliers, and a driving-pulley between the two groups of spindles and fliers, of pulleys locked to the spindles, two slipping driving-belts, each passing around the driving-pulley and the spindle-pulleys in a group, and tightening-pulleys and gearing for producing a varying tension in said slipping driving-belts, substantially as and for the purpose herein described.

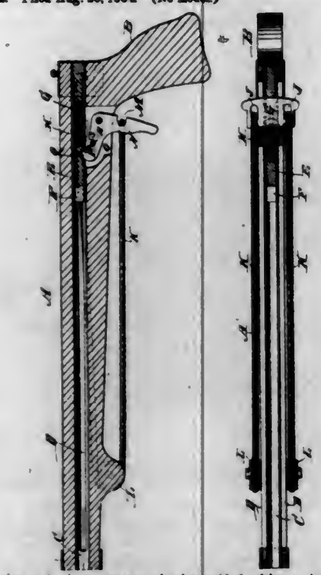
5. The combination, with a spindle and flier, means for driving the flier, a pulley through which motion is transmitted to the spindle, and a driving-pulley, of a belt passing around the said pulleys, a movable tension-pulley, means for moving said tension-pulley, and an indicator for showing the degree of tension on the belt and the fullness of the bobbin, substantially as herein described.

6. The combination, with a number of parallel spindles and fliers, means for driving the fliers, pulleys locked to the spindles, and a driving-pulley, of a belt passing around said pulleys, a tension-pulley applied to the belt, a drum or windlass and means for rotating it, and flexible connections, whereby said tension-pulley is moved by the rotation of the drum to increase the tension of said belt, substantially as herein described.

7. The combination, with a number of parallel spindles and fliers, means for driving the fliers, pulleys locked to the spindles, a driving pulley, and a movable tension-pulley, of a belt passing around said pulleys, a drum or windlass and means for rotating it, flexible connections through which said tension-pulley is moved by the drum or windlass, and a tell-tale or indicator through which said flexible connections act, substantially as herein described.

8. The combination, with a number of spindles and fliers, means for driving the fliers, pulleys locked to the spindles, a driving-pulley and a single traverse-screw, and mechanism operated thereby to produce the traverse necessary in winding bobbins, of a belt passing around the said pulleys, and mechanism operated by the said traverse-screw for producing a varying tension in said belt, substantially as herein described.

317,119. TOY SPRING-GUN. FRANCIS W. GOODYEAR, Springfield, Mass. Filed Aug. 20, 1884. (No model.)



Claim.—1. A toy gun or pistol provided with an elastic cord secured on a slide in the barrel and connected with the trigger to act on the same, said cord being passed over a bearing arranged distantly from and intermediately of the slide and trigger, substantially as herein shown and described.

2. A toy gun or pistol provided with an elastic cord secured to a slide in the barrel, passed over pulleys at the muzzle end of the barrel, and connected with the trigger, on which it acts, substantially as herein shown and described.

3. In a toy gun or pistol, the combination, with the barrel having longitudinal slots in the sides, of a slide in the barrel, and an elastic cord secured to the slide, passed over pulleys on the muzzle end of the gun, and passed over the trigger, substantially as herein shown and described.

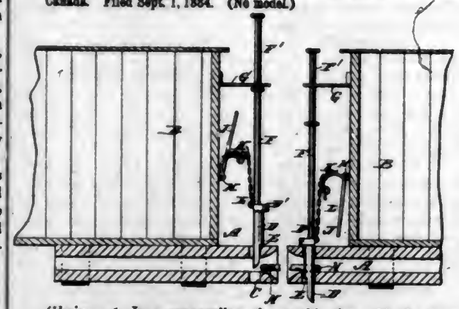
4. In a toy gun or pistol, the combination, with a barrel, of a slide in the barrel, an elastic cord connected with the slide, passed over pulleys on the barrel, and over the trigger, and of a rubber buffer held to the front of the slide, substantially as herein shown and described.

5. In a toy gun or pistol, the combination, with the barrel, of the tube or plunger E in the barrel, the cross-piece G, the trigger N, the pulleys L, and the elastic cord K, secured to the slide and passed over the pulleys and the trigger, substantially as herein shown and described.

6. In a toy gun or pistol, the combination, with the barrel, of the tube or plunger E, having a notch, Q, and the cross-piece G, the trigger N, having a hook, P, and the elastic cords K, passed over the pulleys L and connected to said plunger and trigger, substantially as and for the purpose set forth.

7. In a toy gun or pistol, the combination, with the barrel, of the tube or plunger E, having a notch, Q, the trigger N, having a hook, P, and notch S, the stop-pin R, entering said notch S of trigger, the cross-piece G, the pulleys L, and the elastic cord K, substantially as herein shown and described.

317,120. CAR-COUPLING. HUGH GRAHAM, Dartmouth, Nova Scotia, Canada. Filed Sept. 1, 1884. (No model.)



Claim.—1. In a car-coupling, the combination, with the draw-head A, of the coupling-pin D, having a shoulder or offset, E, of the rod F, projecting upward from the pin and having its upper part squared, and of the guide-arm G, substantially as herein shown and described.

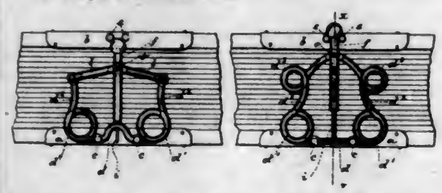
2. In a car-coupling, the combination, with the draw-head A, of the coupling-pin D, the rod F, the arm G, the shaft H, the arm K, and the chain L, substantially as herein shown and described.

317,121. SASH-HOLDER. GEORGE A. GRENVILLE, Kingsville, Ontario, Canada. Filed Jan. 14, 1885. (No model.)



Claim.—An attachment for a window-sash, consisting of a leaf-spring carrying at its two ends flexible wheels or rollers, in combination with a set-screw whose end passes through the center of the leaf-spring, whereby the tension of the spring is regulated and the spring held in its position in the sash, substantially as and for the purposes set forth.

317,122. CLASP FOR BOOKS. ALFRED C. HAPELY, New York, N. Y. Filed Aug. 25, 1884. (No model.)



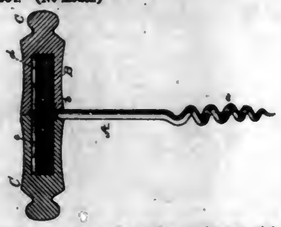
Claim.—1. The combination, with the clip-plates *a b* and stud *e*, of a loop or link, *f*, and the toggle-acting spring *d*, forming the support for the loop or link, and the connection *c* between the spring and the clip-plate *a*, substantially as set forth.

2. The combination, with the clip-plates *a b*, of the hinge-connections *c*, the toggle-acting wire spring *d*, passing through the connections *c*, and coiled, as at *d'*, and the loop or link *f*, connected to and supported by the spring *d*, substantially as set forth.

3. The combination, with the clip-plates *a b*, studs *e*, and hinge-pieces *c c*, of the toggle-acting wire spring passing through said hinge-pieces, the loop or link *f*, connected with the ends of the spring, and the guide-wire *i*, substantially as set forth.

4. The combination, in a book-clasp, of clip-plates, a stud on one of the clip-plates, hinge-pieces on the other clip-plate, and a toggle-acting wire spring connected with the hinge-pieces, and adapted to be grasped and pressed upon at its sides, to extend the toggle-acting wire spring in fastening or unfastening the clasp, substantially as set forth.

317,123. CORKSCREW. EDWARD P. HAFF, Brooklyn, N. Y. Filed Dec. 31, 1884. (No model.)



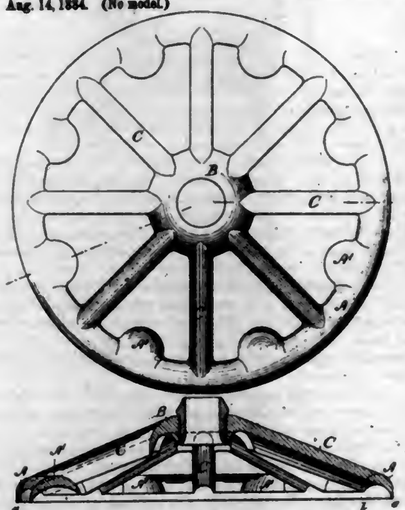
Claim.—1. In a corkscrew or similar implement, the combination, with the shank, of the handle comprising a core, a pin securing the shank to said core, and an external casing, substantially as set forth.

2. In a corkscrew or similar implement, the combination, with the shank, of the handle comprising a core, a pin securing the shank to said core, and a two-part casing inclosing said core, substantially as set forth.

3. In a corkscrew or similar implement, the combination, with the shank, of the handle comprising a core, a pin passing longitudinally through the core and through the head of the shank, and an external casing for said core, substantially as set forth.

4. In a corkscrew or similar implement, the combination, with the shank, of the handle comprising a grooved core, a pin passing through the groove and through the head of the shank, and an external casing, substantially as set forth.

317,124. CHURN-DASHER. JAS. F. HALE, Stephenville, Tex. Filed Aug. 14, 1884. (No model.)



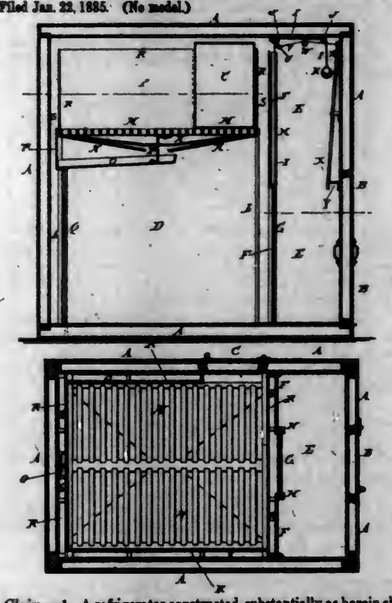
Claim.—As an article of manufacture, the conical or concavo-convex churn-dasher having a circular rim, A, the air cups or cells A', the arms C C, and the raised nave or center portion, B, all of concavo-convex shape in their transverse sections, substantially as shown and described.

317,125. WOOD-FILLER. HENRY HALES, Ridgewood, N. J., assignor to H. W. Hales, same place. Filed July 9, 1884. (No specimens.)

Claim.—1. A wood-filling composition consisting of the following ingredients, namely: of powdered soapstone, of powdered glass, and of a a suitable liquid vehicle, substantially as described.

2. A wood-filling composition consisting of powdered glass, powdered soapstone, linseed-oil, and Japan varnish, substantially as set forth.

317,126. REFRIGERATOR. WASHINGTON I. HALL, Chester, N. Y. Filed Jan. 22, 1885. (No model.)



Claim.—1. A refrigerator constructed, substantially as herein shown and described, with a partition provided with a door and dividing the refrigerator into two unequal compartments, and with an ice-supporting rack placed in the upper part of the larger compartment, and provided with a set of drip-plates, a drip spout and pipe, and a casing extending nearly to the top of the refrigerator, whereby the drip-water will be carried off, and the cooling-chamber will be constantly supplied with cold air, as set forth.

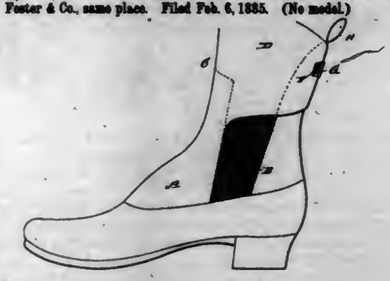
2. The combination, with the refrigerator, of the partition F, the sliding door G, and the cord, pulleys, and weight I J K, substantially as herein shown and described, whereby entrance can be readily had to the cooling-chamber without materially lowering its temperature.

3. The combination, with the walls of the refrigerator and the partition F, of the posts L, the ice-supporting rack M, and the casing R, extending from the edges of the rack M nearly to the top of the refrigerator, substantially as herein shown and described, whereby a circulation is established between the ice-chamber and the cooling chamber, as set forth.

4. In a refrigerator, the combination, with the rack M, of the triangular drip-plates N, having a space between their overlapped adjacent edges, and the drip spout and pipe O Q, substantially as herein shown and described, whereby the drip-water will be caught and conducted from the refrigerator without preventing the circulation of air between the ice-chamber and the cooling-chamber, as set forth.

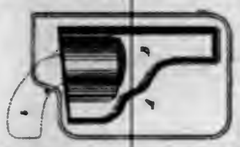
5. In a refrigerator, the combination, with the partition F and the outer door, B, of the door U, the cord and pulley V W, the lever X, and the arm Y, substantially as herein shown and described, whereby the space between the said partition and the top of the refrigerator will be automatically closed when the outer door is opened, and opened when the outer door is closed, as set forth.

317,127. SHOE. WILLIAM D. HALL, Beloit, Wis., assignor to John Foster & Co., same place. Filed Feb. 6, 1885. (No model.)



Claim.—As an improved article of manufacture, a congress gaiter having its front and back extended upward, the flaps D, formed on or secured to said front extension with their lower edges disconnected from the gaiter or its gore, and a fastening, as at F G, for securing the rear edges of the flaps, substantially as set forth.

317,128. HOLSTER FOR PISTOLS. ORINTON M. HANSCOM, Boston, Mass., assignor to William Read & Sons, same place. Filed Feb. 20, 1885. (No model.)



Claim.—1. The pocket-holster as constructed of the concavo-convex front piece or pistol-receptacle B, and of the stiff back A, and having the said receptacle attached at its side and bottom edges to the said back, and the latter extended laterally from such receptacle in manner and for the purpose substantially as set forth.

2. The holster having its back piece formed with its opposite longer edges parallel, or essentially so, and in its upper part with a recess or notch, as described, arranged in it so as to be crossed by the handle or stock of a pistol when such pistol is within the holster, all being substantially as set forth.

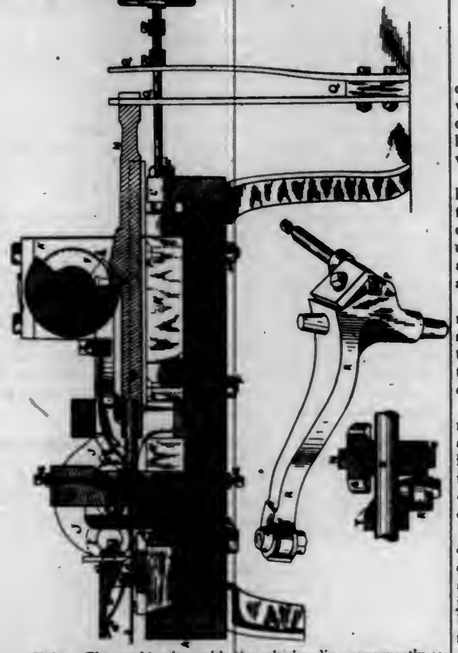
3. The holster having its back piece formed with its two opposite longer edges parallel, or essentially so, and with its lower corners rounded, and with a recess or notch arranged in it so as to be crossed by the stock or handle of a pistol when such pistol is within the holster, all being substantially as represented.

317,129. PROCESS OF PRESERVING WOOD. LUDVIG HARSEM and ANDREW SMITH, Wilmington, N. C. Filed Mar. 24, 1885. (No specimens.)

Claim.—1. The improvement in the art of preserving wood, which consists in first charring the surfaces of the logs or piles and then saturating them with wood-creosote oil.

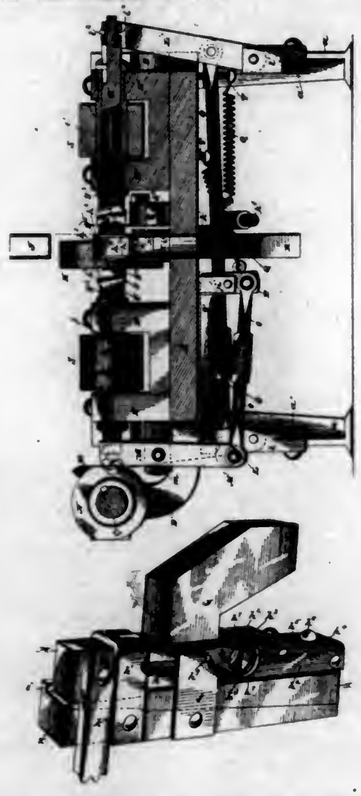
2. The process herein described for preserving timber, which consists in first charring its surface, then expelling its moisture, and finally impregnating it with wood-creosote oil.

317,130. WIRE-NAIL MACHINE. FRED H. HARDMAN, Taunton, Mass. Filed Dec. 1, 1884. (No model.)



Claim.—The combination, with the gripping-dies permanently secured to the bed-piece of the machine, of the adjustable cutting-dies, and mechanism for adjusting the cutting-dies toward and from the gripping-dies, substantially as described.

317,131. HUBBING-MACHINE. WILLIAM R. HARTIGAN, Collinsville, Conn. Filed Oct. 22, 1884. (No model.)



Claim.—1. In a hubbing-machine, the combination, with two rotary cutters located in the same plane and opposite each other, and provided with centering-teats, and levers and connecting mechanism for simultaneously reciprocating said cutters in opposite directions, of a movable dog located at a point between the cutters, and adapted to feed and hold the wheels between the cutters, substantially as set forth.

2. In a hubbing-machine, the combination, with two rotary cutters located in the same plane and opposite each other, provided with centering-teats, and means for simultaneously reciprocating the cutters in opposite directions, of the movable dog and a spring located below and operated by the movable dog, whereby the blank is retained on the dog, advanced between the cutters, and ejected from the dog, substantially as set forth.

3. In a hubbing-machine, the combination, with two reciprocating rotary cutters located in the same plane and opposite each other, of a stationary dog located on a line passing between and at right angles to the cutters, and a movable dog operating in conjunction with the stationary dog, whereby the blank is advanced and clamped between the cutters, substantially as set forth.

4. In a hubbing-machine, the combination, with two reciprocating rotary cutters located in the same plane and opposite each other, of an adjustable stationary dog, and a reciprocating dog located on a line passing between and at right angles to said cutters, a spring operated by the reciprocating dog, and an adjustable dog-support, whereby blanks of different sizes are automatically fed to the cutters, clamped, and discharged, substantially as set forth.

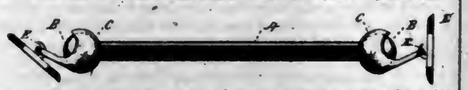
5. In a hubbing-machine, the combination, with two reciprocating cutters located in the same plane and revolving in opposite directions, of a combined reciprocating dog located on a line passing between and at right angles to the cutters and carriage, and a stationary dog operating in conjunction with the movable dog and carriage, whereby the blanks are fed between the cutters and clamped while being operated upon by the cutters, substantially as set forth.

6. In a hubbing-machine, the combination, with two reciprocating rotary cutters, a stationary dog, and a movable dog adapted to serve as a carriage, of a dog-supporting bed, consisting of a stationary lower section having an inclined face and an adjustable upper section having an inclined face, whereby the dogs are elevated or depressed to suit different-sized wheels, substantially as set forth.

7. In a hubbing-machine, the combination, with a pair of rotary cutters located in the same plane and opposite each other, and means for feeding a wheel between said cutters, of a shaft, a pair of rotary cams mounted on said shaft, and levers and pitman connecting the cams and cutter-spindles, whereby the cutters are simultaneously advanced toward the wheel, substantially as set forth.

8. In a hubbing-machine, the combination, with the rotary cutters, vibrating arms located at opposite ends of the machine-frame in loose engagement with the ends of the cutter-spindles, and levers located at one end of the machine and operated by a pair of rotary cam-wheels, of rods connecting the vibrating arms and the levers, said rods being adjustable in length, whereby the cutters are reciprocated and the length of stroke determined, substantially as set forth.

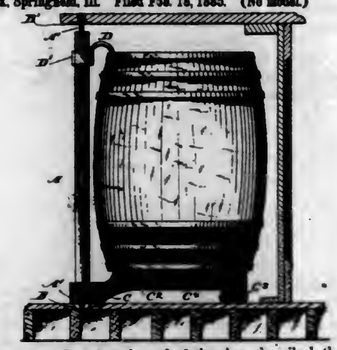
317,132. SPRING FOR DOORS AND GATES. NIMROD HEADINGTON and JESSE S. MALIN, Portland, Ind. Filed Feb. 19, 1885. (No model.)



Claim.—1. In a door or gate spring, the combination of the spring proper, provided with knobs B, with the socket-pieces C, having sockets C^2 and slots C^3, substantially as and for the purposes specified.

2. The combination of the spring A, having knobs B on its ends, with the socket-pieces C, provided with sockets C^2 and slots C^3, in which the knobs and spring work, said socket-pieces also having eyes D, and a plate, E, having hooks E', fitted to receive the eyes D, substantially as set forth.

317,133. BARREL-STAND. HENRY HEILBRONNER and HENRY A. ROSBACK, Springfield, Ill. Filed Feb. 18, 1885. (No model.)



Claim.—1. In a barrel-stand of the class described, the base C, adapted to embrace a standard and provided with integral arms C^2 C^4 and with a roller, C^3, substantially as shown and described.

2. In a barrel-stand, the combination, with the counter and with the standard of the barrel-stand, of a reciprocative spring-seated pivot, substantially as specified.

3. In a barrel-stand of the class described, the combination, with the standard having a lower rigid pivot and an upper longitudinally-reciprocative pivot, of bearing-blocks arranged in a vertical line with each other in a counter and in a floor beneath the same, substantially as specified.

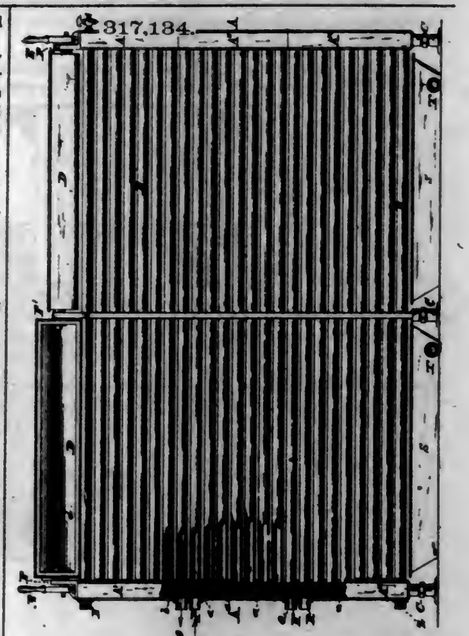
317,134. BEER-COOLER. JOHN ISLBACHER, Buffalo, N. Y. Filed Jan. 7, 1885. (No model.)

Claim.—1. In a beer-cooler, the combination of the pipes B, the column-sections divided by partitions *a* and subdivided by the partitions *a''*, the latter having passage *h*, a stud-bolt passing through partition *a* and secured by nuts, and a plug-valve borne at the upper end of said bolt for controlling passage *h*, all substantially as shown and described.

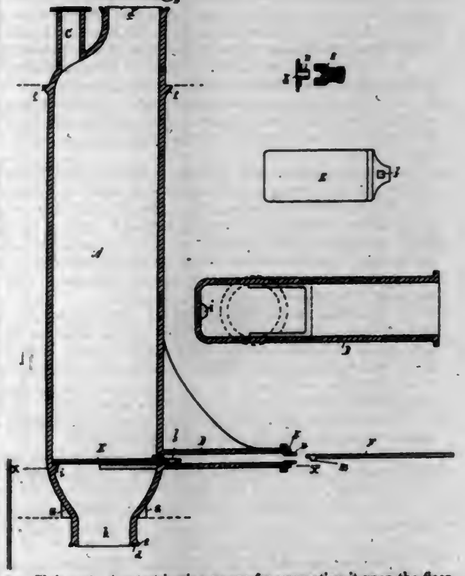
2. In a beer-cooler, the combination of the columns A, divided and subdivided into valve-controlled sections, the pipes B, communicating with said sections and provided at their under sides with a comb or saw-like edge, a pivoted distributing-trough having fastened at one end the disk I, provided with apertures *i* and formed with pivot I', a V-shaped division-plate removably affixed within said trough by means of bolt *k* and socket L, and the lever E, pin *e*, and spring *e''*, whereby the trough may be maintained at any desired inclination, substantially as described.

3. In a beer-cooler, the combination, with the column A and pipes B, of the standards F, having the pivoted lever E, sliding pin *e*, with collar *e'* and spiral spring *e''*, and the trough D, having end disk, I, with recesses *i*, arranged concentrically around the journal I', as specified.

4. A beer-cooler having the columns A, composed of a series of sections secured by means located within the columns, consisting of the double end plates, *a' a'*, and bolt *b*, said column-sections having partitions *a* and screw-openings provided with plugs M, flush with the outer surface of said sections; as and for the use and purpose specified.



317,135. RETORT. DENNIS JARVIS, Detroit, Mich. Filed Feb. 5, 1885. (No model.)

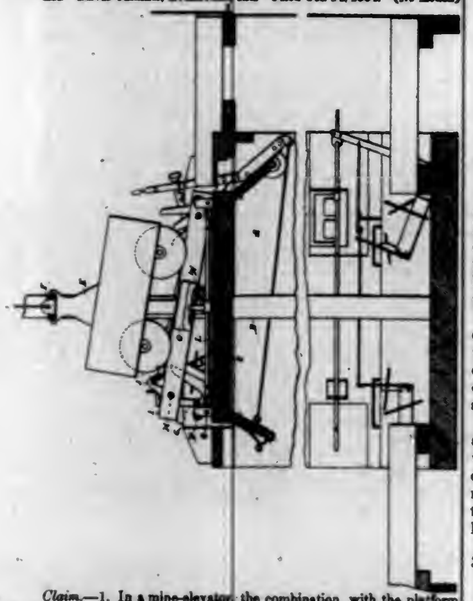


Claim.—1. A retort having means for supporting it upon the floor of a kiln, and for supporting the roof of said kiln, centrally contracted to form a discharge-mouth at its lower end, eccentrically contracted at its upper end, and having a vertical gas-discharge pipe by the side of the contracted upper end, substantially as and for the purposes described.

2. A retort having an opening in its side wall communicating with a rectangular open-ended box, and having an interior lug or ledge, in combination with a slide-gate, a detachable handle for operating said slide-gate, and means, as described, for closing the outer end of such

slide-inclosing box against escaping gas, substantially as and for the purpose specified.

317,186. AUTOMATIC HOISTING CAGE OR ELEVATOR UNLOADER. DAVID JENKINS, Evansville, Ind. Filed Oct. 14, 1884. (No model.)



Claim.—1. In a mine-elevator, the combination, with the platform having the tracks thereon capable of elevation at either end, and the rock-shafts connected with said tracks, of dogs with which said rock-shafts are adapted to engage.

2. In a mine-elevator, the combination, with the platform having tracks thereon capable of elevation at either end, rock-shafts passing through said tracks and having hook-detents, and arms which are engaged by the wheels of the car, of the dogs with which the said hook-detents engage, and the car-keeper adapted to be actuated by the tracks.

3. In a mine-elevator, the combination, with a vertically-traveling platform having tracks thereon capable of elevation at either end, and the rock-shafts which operate the same, of dogs located so as to engage said operating-shafts, to cause the car to be run off the tracks in either direction, and the car-keeper to prevent accidental displacement of the car.

4. In a mine-elevator, the combination, with the vertically-traveling platform, the tracks thereon, the bifurcated standards, the rock-shafts connecting the tracks together, and provided with arms which are engaged by the car-wheels, and hook-detents at their ends, and the car-keeper actuated by the tracks, of the sets of dogs located at the bottom and mouth of the mine-shaft, the devices for adjusting the dogs to and from the hook-detents, and the platform-supports constructed to allow of the ascent of the platform and to prevent its descent.

5. In a mine-elevator, the combination, with the platform, the tracks thereon capable of elevation at either end, the bifurcated standards, and the rock-shafts which connect the tracks together, of the car-keeper shaft having arms at its ends, in which are pivoted triggers capable of yielding in one direction, the said keeper-shaft being connected with one of said tracks, whereby it is actuated to allow the car to run off.

6. In a mine-elevator, the upper set of tripping-dogs, and the pitmen and devices for adjusting and securing the same.

7. In a mine-elevator, the lower sets of tripping-dogs, the rods which connect them together, and the rock-shaft having arms connected to the dogs, the sliding bar, and the locking-plate.

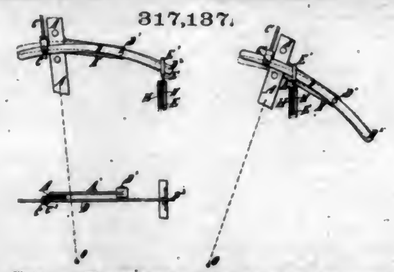
8. In a mine-elevator, the pivoted platform-supports constructed to yield to the upward passage of the platform, and to automatically pass under the same and prevent its accidental descent.

9. In a mine-elevator, the pivoted platform-supports connected together by a rod, and having a lever, by which they are actuated to allow the platform to descend, and the stops and spring.

10. In a mine-elevator, a rock-shaft car-keeper having arms mounted thereon and held by catches and notched collars, and provided with triggers which yield in one direction.

317,187. MECHANISM FOR ACTUATING AND INTERLOCKING POINTS AND SIGNALS. HENRY A. JOHNSON, Flixton, County of Lancaster, England. Filed Mar. 19, 1885. (No model.)

317,187.

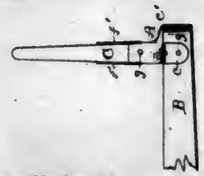


Claim.—1. The combination, with a main lever for operating a set of railway-points or a signal, interlocking devices for interlocking said lever with another lever for working another set of points or signals, a catch attached to said main lever for holding it in either of its safety positions, and an arc-formed lever or rocker fulcrumed to the said main lever, connected with said catch, and having a sliding connection with the said devices for interlocking, substantially as herein described.

2. The combination, with the main lever, the tappet or rod for operating the interlocking devices, and the catch for locking the said lever, of a lever or rocker pivoted to said main lever connected with said catch, having a sliding connection with the said tappet or rod, and being of such arc form that it may be brought concentric with the fulcrum of said main lever, substantially as and for the purpose herein described.

3. The combination, with the main lever A, its catch-rod C, the arc-formed lever or rocker D, fulcrumed on said lever A and connected with said lever D, of the tappet or rod E for operating the interlocking devices, and the sliding connection between said lever D and tappet or rod E, permitting the fulcrum of said lever D to pass from one side to the other of said tappet or rod, substantially as and for the purpose herein described.

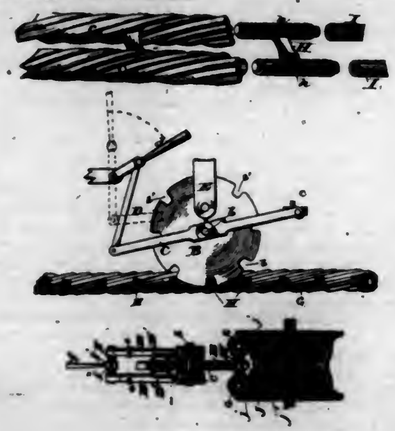
317,188. WAGON-STAKE HOLDER. HORACE JOHNSON, Akron, N. Y., assignor of one-half to Timothy W. Jackson, same place. Filed Aug. 28, 1884. (No model.)



Claim.—The combination of the wagon-stake holder A, having the jaws *c c* and extension *c'* and socket *a*, and provided with the flat rectangular depressions *f*, with the stake C, having the plates *f'* on the sides thereof, adapted to rest in the depressions *f* and hold the stake, substantially as and for the purpose set forth.

317,189. CABLE-RAILWAY MECHANISM. TOM L. JOHNSON, Cleveland, Ohio. Filed Apr. 29, 1884. (No model.)

Brief.—A double cable united by cross-stops having side pieces which enter between the cable-strands. A vertically-adjustable notched disk engages the cross-stops, and is controlled by brake-blocks bearing upon the opposite sides of the disk.



Claim.—1. A railway traction-cable composed of two cables provided with cross-stops having side pieces within the strands of the respective cables, and forming sections of cores thereof, whereby said cables are secured to each other at suitable distance apart, substantially as and for the purposes set forth.

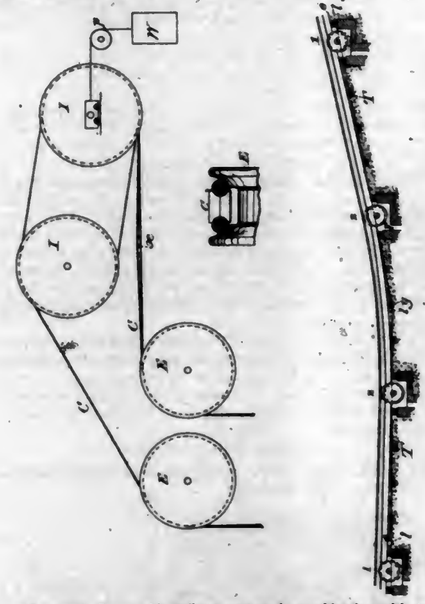
2. In a double traction-cable for cable railways, in combination with cross-stops provided with side pieces within the strands of said cable, intermediate tubes forming with said side pieces flexible and continuous cores for said cable, substantially as and for the purposes set forth.

3. In a cable-railway car, in combination with a rotary traction disk or wheel, a friction-brake consisting of two brake blocks or shoes, operated by a hand lever or levers to make contact with opposite sides of said disk for stopping the same to propel the car, and to recede therefrom in opposite directions for releasing said disk to stop the car, substantially as and for the purposes set forth.

4. In a cable-railway system, in combination with a double traction-cable provided with cross-stops, a laterally-adjustable rotary disk or wheel mounted upon a car and adapted to travel in a slotted cable-way, whereby provision is made for said disk while traveling in said cable-way to accommodate itself to lateral oscillation of the car, substantially as and for the purposes set forth.

317,140. CABLE-RAILWAY SYSTEM. TOM L. JOHNSON, Cleveland, Ohio. Filed Aug. 28, 1884. (No model.)

Brief.—The wear upon a double cable is equalized upon its opposite sides by means of a twist between two of the pulleys. The extreme pulleys at a change of grade support the cable at or a little above the grade-line, and the intermediate pulleys support the cable below said grade-line, whereby the minimum dip under maximum tension is always maintained below the angular point of the curve, preventing contact with the bottom of the cable-way.

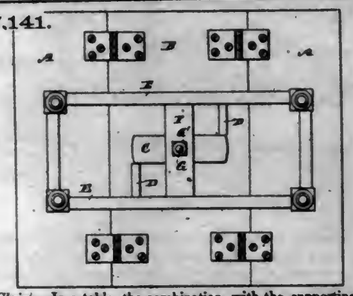


Claim.—1. In a cable-railway system, in combination with two guide-pulleys, a tension pulley or device and an endless double cable provided with driving cross bars or stops, and twisted one convolution between said pulleys, whereby the twist in the cable is localized and said cable caused to wear alternately on the reverse sides, substantially as and for the purposes set forth.

2. In a cable-railway system, in combination with a cable-way and cable therein at changes of grade of track, two extreme or determining pulleys located with reference to said cable-way so that their peripheries support the cable at or a little above the established grade-lines on either side of the angular point formed by the intersection of said grade-lines, and two or more intermediate pulleys located so as to support the cable below said grade-lines, whereby the weight of the cable is so distributed upon said pulleys that its minimum dip under maximum tension is always maintained below said angular point, while the cable's contact with the bottom of the cable-way is at all times prevented, substantially as and for the purposes set forth.

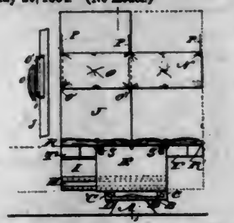
317,141. REVOLVING DROP-LEAF TABLE. WILLIAM H. JOHNSTON and DAVID JOHNSTON, Tamaroa, Ill. Filed Nov. 4, 1884. (No model.)

317,141.



Claim.—In a table, the combination, with the supporting-frame E and its cross-piece F, of the top plate, B, the wings or leaves A, hinged to the same, the cross-piece C on the bottom of the plate B, the stops D, secured to the under side of the table, and the bolt G, substantially as herein shown and described.

317,142. SLEEPING-CAR SEAT. ALEXANDER L. KEAN, Elizabeth, N. J. Filed May 29, 1884. (No model.)



Claim.—1. In a car-seat, the combination, with the box E, of the tracks D on the under side of the same, the frame B, having grooved flanges C, and the base A, on which the frame B is pivoted, substantially as herein shown and described.

2. In a car-seat, the combination, with the seat frame or box, of a board held on the back to slide in the direction of the length of the back, and of a back-rest hinged on the upper edge of the said board, substantially as herein shown and described.

3. In a car-seat, the combination, with the seat frame or box, of a board held on the back of the seat to slide in the direction of its length, a back-rest hinged to the upper edge of the board, and bolts or analogous devices for locking the back-rest vertically on the said board, substantially as herein shown and described.

4. In a car-seat, the combination, with the back-rest, of a laterally-swinging wing held to slide on the same, and of a pocket to which the wing is hinged, substantially as herein shown and described.

5. In a car-seat, the combination, with the back-rest, of a laterally-swinging wing and a pocket held to slide on the back-rest, and of cushions on the back-rest below the wing, substantially as herein shown and described.

317,143. MANUFACTURE AND ORNAMENTATION OF MEDALLIONS, &c. JOHN G. KEARNS, Newark, N. J. Filed July 31, 1884. (Specimens.)



Claim.—1. The process of ornamenting medallions with line designs, which consists in producing the design in intaglio by suitable dies, and then filling up such indented lines with melted wax, as set forth.

2. A medallion or circular tablet molded from plastic material, and having its face or faces ornamented with a design in imitation of engraving, substantially as set forth.

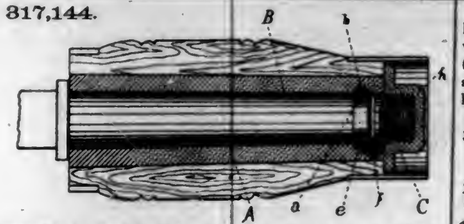
3. A medallion or tablet for an advertising device, made of plastic material, and having a design and letters on its face or faces, formed as herein described, to represent line-engraving.

4. The improved method of producing ornamented medallions from plastic material, which consists in subjecting the material to pressure in dies having the design and letters in relief, and then filling up the indented lines of the design and letters in the material with wax of a different color, as and for the purpose set forth.

317,144. HUB-ATTACHING DEVICE. GEORGE A. KENNY, Lynn, Mass. Filed Dec. 29, 1884. (No model.)

Claim.—1. In combination with the axle A and hub or box B,

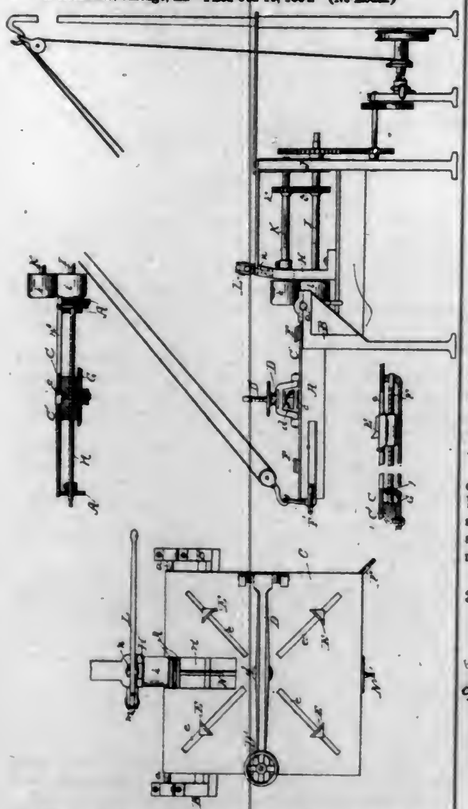
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grooved as described, the ball or balls *e* and screw *f*, said screw being inclined relatively to the axle, and a suitable holding device on the axle to bear upon the rear end of the screw to retain the same in place, substantially as described.

2. In combination with the axle A and hub or box B, grooved as described, the ball or balls *e* and screw *f*, said screw being inclined relatively to the axle, and the nut C on the axle adapted to bear against the rear end of the screw to retain the same in place, substantially as described.

317,145. MACHINE FOR FLANGING STEAM-BOILER HEADS. F. L. KOLLBERG, Chicago, Ill. Filed Oct. 10, 1884. (No model.)



Claim.—1. The combination, with a vertically-oscillating bed-plate having slots therein radiating from the center thereof, of the dogs adjustable radially in said slots, as hereinbefore set forth.

2. In a steam-boiler-head-flanging machine, the combination of the bed-plate, the radially-adjustable dogs moving in slots radiating from the center of said bed-plate, and the clamping-bar, as set forth.

3. In a boiler-head-flanging machine, the combination, with a vertically-oscillating bed-plate, radially-adjustable dogs moving in slots in said bed-plate and radiating from the center thereof, and a clamping-bar running laterally and centrally over said plate, of the flanging-rollers.

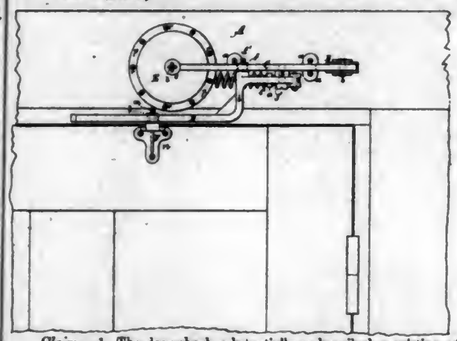
4. In a boiler-head-flanging machine, the combination, with a vertically-oscillating bed-plate, radially-adjustable dogs, and a clamping-bar, of the flanging-rollers, the upper one of which can be oscillated, substantially as and for the purpose set forth.

5. The combination, in a boiler-head-flanging machine, with the horizontally-revolving bed-plate having a circular boss extending downward from the center thereof, of a screw journaled in the end pieces of the rectangular frame supporting the bed-plate and passing longitudinally and centrally through the boss of said bed-plate, which is tapped suitably to receive the same.

317,146. BOX-FASTENER. HENRY KROG, Sr., Washington, Mo. Filed July 15, 1884. (Model.)

Claim.—The combination, with the box having loops at the ends of the upper edges of its sides, of the cover having loops at its longitudinal edges, and the rod-sections acted upon by a spring to effect the automatic projection of their ends into the box-loops, and to permit the ready retraction of the said rod-sections from said latter loops in removing the cover, substantially as set forth.

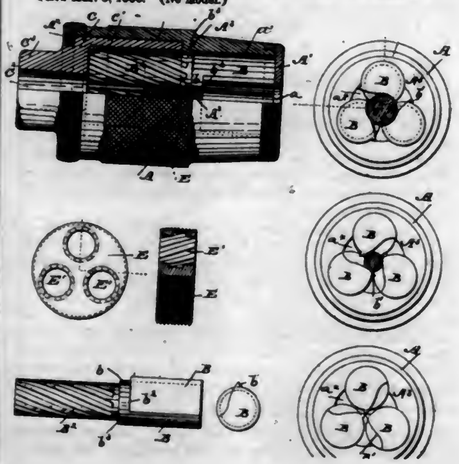
317,147. DOOR-CHECK. JACOB KRUMSCHEID, Boston, Mass. Filed Dec. 1, 1884. (Model.)



Claim.—1. The door-check substantially as described, consisting of the frame or standard B, the slotted arm C, carrying the case E, having the valve *t*, the block G, connected to the said standard, the diaphragm or bellows *q*, attached to the said case and block, the lever D, fulcrumed to the said standard and having the stud *f'* and roller *f*, the longer arm of the said lever slotted to receive the stud *m*, and roller *l*, projecting upward from the bracket F, and its shorter arm connected to the rod *g'*, which with the rod *i*, attached to the shoulder *h*, supports the spiral spring *s'*, all being essentially as represented.

2. The combination, with the door-casing and door thereof, of the door-check, substantially as described, consisting of the frame or standard B, slotted arm C, case E, valve *t*, block G, bellows *q*, slotted lever D, stud *f'*, roller *f*, rods *g* and *i'*, shoulder *h*, spiral spring *s'*, bracket F, stud *m*, and roller *l*, all being arranged and to operate essentially in manner as set forth.

317,148. DRILL-CHUCK. ABRAHAM B. LANDIS, Waynesborough, Pa. Filed Mar. 3, 1885. (No model.)



Claim.—1. In a chuck, the combination of the main shell A with an internal partition, A^2, provided with three cylindrical bearings, with the bell-shaped sleeve C, provided with a hollow shank, C^2, and the cap-piece A^3, uniting them, substantially as and for the purpose described.

2. In a chuck, the internally-screw-threaded sleeve C, provided with a hollow shank, C^2, in combination with the externally-threaded nut or disk E, provided with three holes, E', having spirally-cut or fluted ribs, and spirally-grooved jaws, substantially as and for the purpose described.

3. In a chuck, the internally-screw-threaded sleeve C, and nut or disk E therein, in combination with jaws B, provided with curved gripping-faces B', and shanks B, provided with spirally-cut grooves, substantially as and for the purpose described.

4. In a chuck, the shell A, having the perforated partition A^2 therein, in combination with the jaws B, provided with gripping-faces B', cylindrical portion *b*, shank B^2, provided with spiral-cut grooves, and a cap-piece, A, provided with a central perforation, *a*, substantially as and for the purpose described.

5. In a chuck, the jaw B, provided with gripping-face B', and shank B^2, having spiral grooves, substantially as and for the purpose described.

6. In a chuck, the shell A, and removable caps A' and A^3 as the ends thereof, in combination with the internally-screw-threaded sleeve C, the disk E, and jaws B, substantially as and for the purpose described.

7. In a chuck, the jaws B, having the gripping-face B', with lips *b'* projecting beyond the side of said jaws, and shanks having spiral grooves thereon, substantially as and for the purpose described.

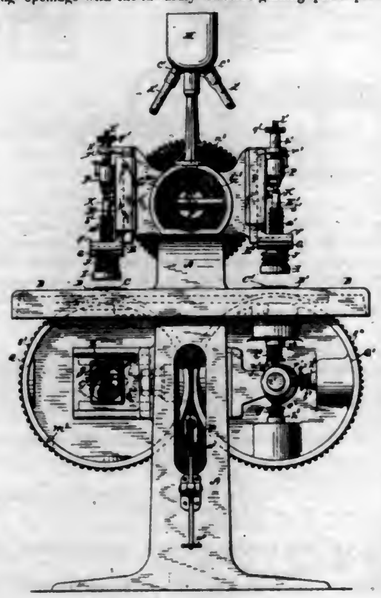
317,149. HEEL-MACHINE. ANTOINE J. LANGELIER, Providence, R. I. Filed July 7, 1884. (No model.)

Claim.—1. The combination of the two stationary heel-shaped cutters of different sizes and the operatively-connected carriers adapted to receive the heel-blanks from the cutters, with means for intermittently revolving the carriers, and means for forcing the heel-blanks continuously through the cavity of the cutters and into the receiving openings or chambers of the carriers, substantially as and for the purpose specified.

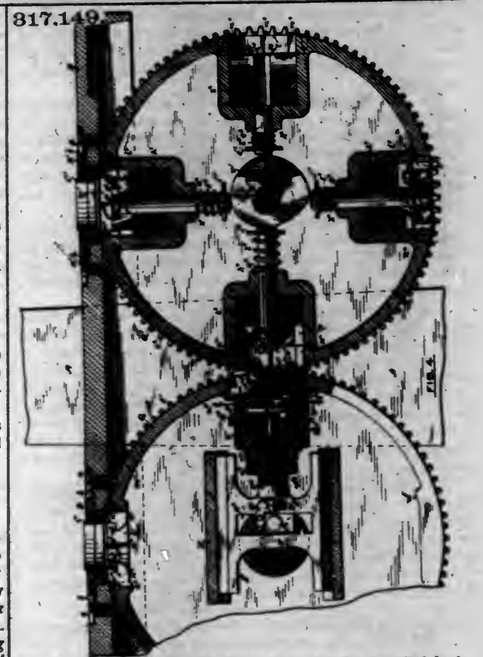
2. The combination of the intermittently-revolving carriers having radial openings or chambers adapted for the reception of heel-blanks of different sizes, with means, substantially as described, for forcing the accumulated smaller heel-blanks in the receiving-opening of one of the carriers into forcible connection with the accumulated larger heel-blanks in the corresponding chamber of the opposite carrier, substantially as described.

3. The combination of the intermittently-revolving carriers adapted for heel-blanks of unequal size, with means, substantially as described, for forcing the accumulated smaller heel-blanks in the receiving-opening of one of the carriers into forcible connection with the accumulated larger heel-blanks in the corresponding chamber of the opposite carrier, and means for discharging the combined blanks from the carrier, substantially as described.

4. The combination of the revolving carrier provided with radial receiving-openings with the inwardly-directed guiding-plates provided



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with an inwardly-projecting lip adapted to support the deposited heel-blanks, substantially as described.

5. In a heel-machine, the combination of a carrier provided with radial receiving-openings, and means, substantially as described, for intermittently revolving the carrier, with the inwardly-directed guiding-plates provided with a projecting lip adapted to support the deposited heel-blanks, and a discharging-plunger provided with grooved openings in its face and edge adapted to receive the inwardly-directed guiding-plates, and thus permitting the proper forward movement of the discharging-plunger, substantially as described.

6. In a heel-machine, the combination of a carrier provided with radial receiving-openings, and means, substantially as described, for intermittently revolving the carrier, with the inwardly-directed guiding-plates provided with a projecting lip adapted to support the deposited heel-blanks, and a discharging-plunger provided with grooved openings on its face and edge adapted to receive the inwardly-directed guiding-plates, and with automatically-operated clearing-pins for preventing the adhesion of the heel-blanks to the face of the plunger, substantially as described.

7. In a heel-machine, the combination of a carrier provided with radial receiving-chambers, and means, substantially as described, for intermittently revolving the same, the inwardly-directed guiding-plates and grooved pressure-block within the chamber of the carrier, with the barred forcer, adapted to enter the grooves of the pressure-block, and means of operating the forcer for the purpose of receiving and discharging the heel-blanks, substantially as described.

8. In a heel-machine, the combination of a carrier provided with radial receiving-openings and inwardly-directed guiding-plates having a projecting lip, a discharging and pressing plunger grooved on its face and edge to receive the guiding-plates, and means, substantially as described, for operating the discharging and pressing plunger, with an opposite carrier provided with radial receiving-chambers, inwardly-directed guiding-plates, grooved pressure-blocks, barred forcers, means for operating the same, and means for imparting a simultaneous and equal movement to the opposite carriers, substantially as and for the purpose specified.

9. In a heel-machine, the combination of the stationary hollow cutter, the reciprocating cutting-plunger adapted to pass within the hollow of the cutter, and the spring-operated holder inclosing the cutting-plunger and adapted to hold the leather firmly around the edge of the cutter, substantially as described.

10. In a heel-machine, the combination of the intermittently-revolving carrier provided with radial receiving openings or chambers, the stationary hollow cutter, the hollow reciprocating cutting-plunger, and the spring-controlled forcer operating within the hollow of the cutting-plunger, and serving to carry the heel-blanks through the stationary hollow cutter and to deposit the same in the radial receiving openings or chambers of the carrier, substantially as described.

11. In a heel-machine, the combination of the stationary hollow cutter, the reciprocating cutting-plunger, and the hollow paste-carrying forcer, adapted to carry the heel-blanks through the hollow cutter and to apply paste or cement to the upper side of the blank, substantially as described.

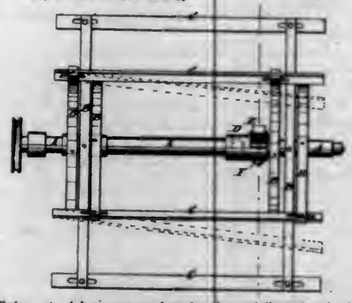
12. In a heel-machine, the combination of the stationary hollow cutter, the reciprocating cutting-plunger, and the tubular forcer adapted to force the heel-blanks through the hollow of the cutter and provided with a valve having a projecting stem, whereby, upon the forcible contact of the valve-stem with the upper surface of the leather, the paste or cement will be caused to flow from the valved orifice of the tubular forcer, substantially as described.

13. In a heel-machine, the combination of the stationary hollow cutter, the reciprocating plunger, the paste-supplying forcer, and a spring adapted to hold the paste-supplying forcer against a shoulder or stop while the face of the cutting-plunger is above the edge of the cutter, substantially as described.

14. In a heel-machine, the combination of the stationary hollow cutter, the sliding head, cutting-plunger, paste-supplying forcer, and the spring adapted to hold the paste-supplying forcer against a shoulder or stop while the face of the cutting-plunger is above the edge of the cutter, with the spring-box, the inclosed spring, the bolt provided with an adjustable stop, and a multiplying connection between the spring-box and the paste-supplying forcer, whereby, upon the downward movement of the face of the cutting-plunger below the edge of the cutter, a variable increased movement will be imparted to the forcer, substantially as described.

15. In a heel-machine, the combination of the clutch operatively connected to the pedal and having a projecting flange provided with a disengaging-spur and a notch, and the fixed pin adapted to enter the notch and to prevent the untimely disengagement of the clutch with the spring-operated bolt having a head beveled on the side adjacent to the flange of the clutch and adapted for engagement with the disengaging-spur of the flange, substantially as and for the purpose specified.

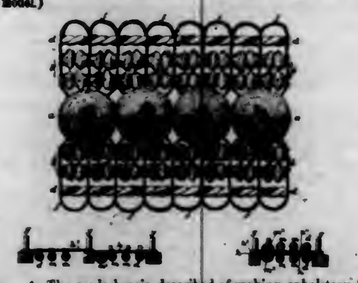
317,150. HARVESTER-REEL. FREDERICK LAQUA, Thielmanton, Minn. Filed July 11, 1884. (No model.)



Claim.—1. A harvester-reel made substantially as herein shown and described, with its shaft in two parts connected by a slotted and corrugated sleeve, and a bolt having the under side of its head corrugated, as set forth.

2. In a harvester-reel, the combination, with the reel-shaft A, made in two parts, of the slotted and corrugated sleeve D, and the bolt E, having the under side of its head corrugated, substantially as herein shown and described, whereby the reel-shaft can be readily adjusted to give a forward or backward gather to the reel-bars, as set forth.

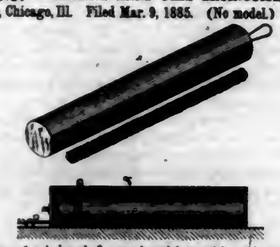
317,151. UPHOLSTERY-TRIMMING AND METHOD OF MAKING THE SAME. HENRY C. LEE, Philadelphia, Pa., assignor to Samuel R. Schrack and George H. Sherwood, both of same place. Filed Jan. 14, 1884. (No model.)



Claim.—1. The mode herein described of making upholstery-trimmings, said mode consisting in applying to rows of pins *g* two sets of warps of backing-threads, A A', tying to each set of warps the strands or cords *m*, doubling one set of warps over the other, uniting to the doubled warps the strands *m'*, for the formation of balls, and then cutting said strands *m m'*, as set forth.

2. Upholstery-trimming having opposite warps or backing-threads, A A', each carrying figuring-tufts, and both sets of warps being united in the center, a row or rows of balls, of which said united warps form the cores, and cords *n*, whereby the said balls are bound to the united warps, as set forth.

317,152. CHEMICAL HAND FIRE-EXTINGUISHER. EUGENE H. LEWIS, Chicago, Ill. Filed Mar. 9, 1885. (No model.)

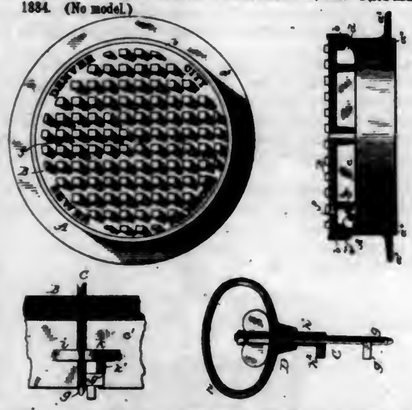


Claim.—1. A hand fire-extinguisher with which a liquid charged with gases is employed, comprising a tube provided with a partition of polygonal shape, and having a closed bottom and a stopper at or near the top, secured by a fusible joint, substantially as described.

2. In hand fire-extinguishers with which a liquid charged with gases is employed, the combination of a tube provided with a partition of polygonal shape and a stopper provided with a loop, substantially as described.

3. In hand fire-extinguishers with which a liquid charged with gases is employed, the combination of tube A, provided with partition D, of polygonal shape, with stopper B and loop C, whereby the tube is closed, suspended, and opened, substantially as described.

317,153. SELF-LOCKING MAN-HOLE COVER FOR SEWERS, STREET-VAULTS, &c. HARVEY C. LOWRIE, Denver, Colo. Filed Mar. 27, 1884. (No model.)



Claim.—1. The combination, substantially as hereinbefore described, of the man-hole curb having an annular abutting surface to serve as a keeper, and the man-hole cover provided with a self-locking bolt, and an engaging-lug diametrically opposite said bolt, whereby on dropping the cover into its seat in the curb, and without special adjustment therein, it will be securely locked therein by the engagement of said lug and bolt with oppositely-located portions of the annular keeper, as set forth.

2. The combination of the man-hole cover, having an engaging-lug and the horizontal pivoted lever weighted at its outer end to operate as a gravity-bolt, and a man-hole curb having an abutting surface to operate as a keeper for said bolt and also for the engaging-lug, substantially as described.

3. The combination, with a man-hole cover provided with a key-hole, of a self-locking pivoted bolt accessible for unlocking by means of a key, substantially as described.

4. The combined man-hole key and lifter embodying the separately-rotative arms or bits, substantially as described.

317,154. ROD JOINT OR COUPLING. HARVEY C. LOWRIE, Denver, Colo. Filed Sept. 10, 1884. (No model.)

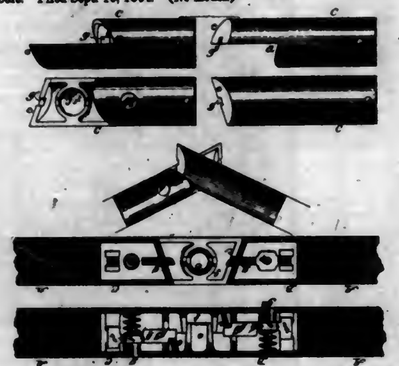
Claim.—1. The combination of the rectangular cross-head slotted at its rear, and the socket having an entrance conforming to the shape of the cross-head, and provided at each side of said entrance with webs for occupying the slots at the rear of said cross-head, substantially as described, whereby when said cross-head is entered into said socket and partially rotated said webs will pass to the rear of the cross-head and interlock therewith.

2. The combination of the rectangular cross-head slotted at its rear, the spring-bolt therein, and the socket provided with webs at the sides of its entrance, and with a hole through its side to serve as a keeper for said bolt, substantially as described.

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317,155. ROD JOINT OR COUPLING. HARVEY C. LOWRIE, Denver, Colo. Filed Sept. 10, 1884. (No model.)



Claim.—1. The combination, in a rod joint or coupling, of two members halved together in longitudinal and in oppositely-spiraled lines, substantially as and for the purposes specified.

2. The combination, in a rod joint or coupling, of two members halved together in longitudinal and spiral lines, and provided with an internal lateral stud and socket, substantially as described.

3. The combination, in a rod joint or coupling, of two members halved together in longitudinal and spiral lines, the internal stud and its socket, and one or two bolts, substantially as described, for locking said members together.

4. The combination, in a rod joint or coupling, of the two members halved together in longitudinal and spiral lines, the internal stud and its socket, and a spring-bolt provided with a push-button, substantially as described.

317,156. SEWER-CLEANING APPARATUS. HARVEY C. LOWRIE, Denver, Colo. Filed Sept. 16, 1884. (No model.)

Brief.—Employs a rod-truck having adjustable wheels at diagonally-opposite corners and intervening rubber cushions. The sectional sewer-clearing rod is coupled to the trucks, so as to be fixed thereto, or to rotate independently thereof. A skeleton guide consists of bow-shaped plates or bars having one end secured to a collar on the rod, and the other clamped to the rod by a ring. A spring-arm having a roller at its outer end is pivoted to a coupling adjacent to the end of the rod. An excavating-tool is secured to the end of the rod.

Claim.—1. The rod-truck provided with wheels at diagonally-opposite corners, substantially as described, whereby said wheels can take bearing with their peripheries at substantially opposite points in a drain-pipe.

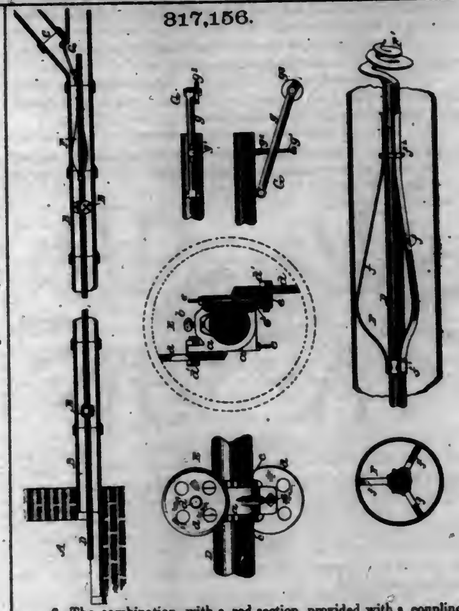
2. The combination of the tubular rod-truck body, the wheels at diagonally-opposite corners thereof, and the rubber cushions, substantially as described.

3. The combination of the tubular rod-truck body and the adjustable wheels at diagonally-opposite corners, substantially as described, whereby the truck can be adjusted to operate in drain-pipes of various sizes.

4. The combination of a rod-truck and a sectional sewer-clearing rod coupled to said truck for longitudinal movement, but free to rotate independently thereof, substantially as described.

5. The combination, with a sewer-cleaning rod and an excavating-tool at the end thereof, of the skeleton guide F, consisting of the bow-shaped plates or bars, the collar to which said plates are fastened, and the clamping collar or ring, substantially as described.

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6. The combination, with a rod-section provided with a coupling of a spring-arm, *g*, pivoted thereto, and provided with a guide-wheel at its outer end, substantially as described.

317,157. FLEXIBLE COUPLING OR JOINT FOR WOODEN RODS. HARVEY C. LOWRIE, Denver, Colo. Filed Sept. 30, 1884. (No model.)

Brief.—Rod-sections with concavo-convex abutting ends internally chambered, and connected by a flexible chain, and a flexible elastic coupling.
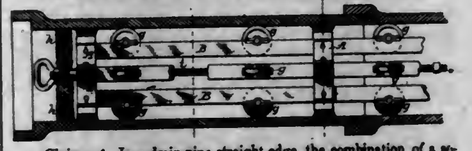


Claim.—1. The combination, substantially as hereinbefore described, of the wooden sections provided with concavo-convex abutting ends, and a central flexible elastic core, securely housed in both of said rod-sections, and flexibly coupling them, as set forth.

2. The combination of the rod-sections, internally chambered centrally, and longitudinally connected by a non-extensible flexible link or chain, and a flexible and elastic coupling, substantially as described.

3. The combination of the rod-sections, internally chambered at their abutting ends, a flexible and elastic core snugly fitted within said sections, and a flexible but non-extensible link or chain within said core, and firmly secured at its ends to said sections, substantially as described.

317,158. STRAIGHT-EDGE FOR LAYING DRAIN-PIPES. HARVEY C. LOWRIE, Denver, Colo. Filed Sept. 30, 1884. (No model.)



Claim.—1. In a drain-pipe straight-edge, the combination of a series of supporting-heads, a series of longitudinal bars peripherally mounted on said heads and secured thereto, and a series of guide-wheels, located at various longitudinal points, substantially as described.

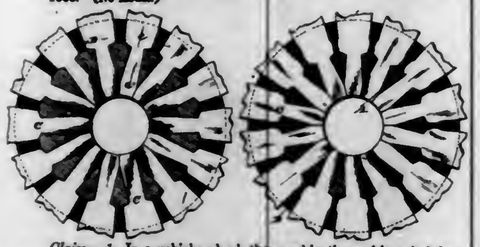
2. In a drain-pipe straight-edge, the combination of a series of supporting-heads, a series of radially-movable yielding longitudinal bars pro-

vided with guide-wheels and mounted peripherally on said heads, substantially as described.

3. The combination, with a drain-pipe straight-edge, of one or more annular swabs or brushes, substantially as described.

4. The combination, with a drain-pipe straight-edge, of a central longitudinally-sliding rod and handle and an annular swab or brush mounted on said rod, substantially as described.

317,159. VEHICLE-HUB. JARED MANN, Philadelphia, Pa., assignor to the Ames Hub Company, (Limited,) Dayton, Ohio. Filed Feb. 19, 1885. (No model.)



Claim.—1. In a vehicle-wheel, the combination, with a hub having double sockets therein and a band or shell surrounding the hub, of spokes having double tenons on their inner ends, the outer or larger tenons of which are compressed before they are inserted in their sockets.

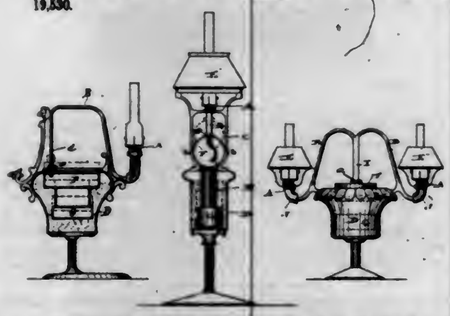
2. In a vehicle-wheel, the combination, with a hub having double sockets therein and a band surrounding the hub, of spokes having double tenons on their inner ends, which latter are larger than their respective sockets and are compressed before they are inserted in their sockets, substantially as set forth.

3. In a vehicle-hub, the combination, with a hub having double sockets therein and a band surrounding the hub, and provided with inwardly-projecting longitudinal ribs forming the side walls of the outer series of sockets, spokes having double-tenoned inner ends, which latter are larger than their respective sockets and are compressed before they are inserted in their sockets.

4. In a vehicle-wheel, the combination, with a hub having sockets therein and a band surrounding the hub and provided with inwardly-projecting longitudinal ribs, the inner faces of which are slightly undercut, of spokes secured in said sockets.

5. In a vehicle-wheel, the combination, with a hub having sockets therein and a band surrounding the hub and provided with inwardly-projecting longitudinal ribs, of spokes having tenons thereon, which latter are larger than their corresponding sockets and are compressed before they are inserted in said sockets.

317,160. LAMP. MARMADUKE MATTHEWS, Toronto, Ontario, Canada. Filed May 23, 1884. (No model.) Patented in Canada June 9, 1884, No. 19,530.



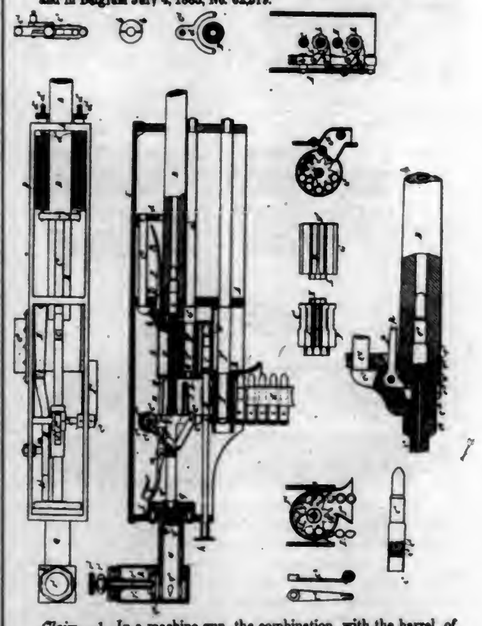
Claim.—1. The burner A, fixed to the long stationary wick-tube B, in combination with the oil-reservoir F, provided with a hole, *a*, through which the wick-tube passes, and a support calculated to carry the weight of the reservoir F when full, but arranged to move the said reservoir over the tube B closer to the burner in proportion to the consumption of the oil contained within the reservoir, substantially as and for the purpose specified.

2. The oil-reservoir F, adjustably fitted onto the wick-tube B, and provided with a float, G, extending into the lamp-body D, which contains water or other fluid, the said float being made of such a size and so connected to the oil-reservoir F that it forces by its buoyancy the said reservoir up toward the burner A in proportion to the consumption of the oil within the reservoir.

3. The lamp-body D, arranged to support the siphon-tubes B, to which the burners A are attached, in combination with the oil-reservoir F, floated within the lamp-body D, substantially as and for the purpose specified.

4. The oil-reservoir F, floated within the lamp-body D, as specified, and provided with holes *a*, for the passage of the tubes B, to which the burners A are attached, in combination with the central tube, I, provided with oil-cup J, arranged substantially as and for the purpose specified.

317,161. MACHINE-GUN. HIRAM S. MAXIM, London, England, assignor to Albert Vickers and Robert R. Symon, both of same place. Filed May 27, 1884. (No model.) Patented in England June 26, 1883, No. 3,178, and July 16, 1883, No. 3,493; in France July 2, 1883, No. 156,344, and in Belgium July 4, 1883, No. 62,519.



Claim.—1. In a machine-gun, the combination, with the barrel, of a longitudinally-movable breech-block arranged to move or slide in line with the barrel and adapted to be driven backward from the barrel by the explosive force of a discharge, springs connected with the breech-block and the stationary portion of the gun for opposing the backward movement of the breech-block, cartridge-feeding, cartridge-exploding, and shell-extracting mechanism carried by the breech-block and operated by the movement of the same, a wheel with compartments for holding cartridges in position to be removed by the feed mechanism and mechanism between the breech-block and cartridge-wheel for intermittently rotating the wheel in unison with the movement of the breech-block, all as set forth.

2. In a machine-gun, the combination, with the barrel, of a cartridge-delivery wheel and a cartridge-feed wheel having corresponding compartments for holding cartridges, two plungers, one forming a reciprocating breech-block arranged to move or slide in line with the barrel and adapted to force in its forward movement a cartridge from the delivery-wheel into the barrel, the other connected with the first or adapted to move simultaneously therewith and in its backward movement to transfer a cartridge from the feed-wheel to the delivery-wheel, and gearing between the plunger forming the breech-block and the cartridge-wheels by which the said wheels are intermittently rotated in unison with the movements of the plungers, all as set forth.

3. The combination, with the barrel of a machine-gun, of a wheel for presenting the cartridges in line with the barrel, a wheel and belt of cartridges passing over the same, a breech-block for forcing the cartridges from the delivery-wheel into the barrel, and a plunger connected or moving simultaneously therewith for transferring the cartridges from the belt or feed-wheel to the delivery-wheel, as and for the purpose set forth.

4. The combination, with the barrel of a machine-gun, of a delivery-wheel or one for presenting the cartridges in line with the barrel, a feed-wheel, a reciprocating breech-block for forcing the cartridges from the delivery-wheel into the barrel, an extractor pivoted to the breech-block and adapted to bind upon a shell on the recoil of the breech-block, and a plunger connected to or moving simultaneously with the breech-block for transferring the cartridges from the feed to the delivery wheel, all substantially as set forth.

5. In a machine-gun, the combination, with the barrel, the two cartridge holding or feed wheels, and reciprocating breech-block or plunger, of the mechanism for causing the intermittent rotation of the feed-wheels by the movement of the breech-block or plunger, and consisting of the curved lever M, pivoted to the frame of the gun in the path of a portion of the breech-block, the sliding bar K, connected with the lever, pawls carried by the sliding bar, and ratchets or pinions on the ends of the feed-wheels, all as set forth.

6. In a machine-gun, the combination, with a longitudinally-movable breech-block and a cock or hammer pivoted thereto, of a spring-controlled adjustable arm, I, pivoted to the frame of the gun and having a beveled end that may be moved into or out of the path of movement of the hammer, whereby the latter may be automatically disengaged or held in check according to the adjustment of the movement of the arm I to or from the line of movement of the hammer, as set forth.

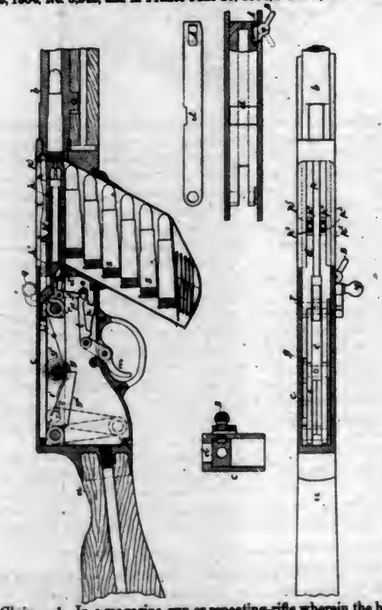
7. In a machine-gun, the combination, with a longitudinally-movable breech-block or plunger, of a fixed jaw, *o*, formed on its forward end, a movable jaw, *o'*, pivoted to the breech-block in position to rest upon the end of a cartridge when the breech-block is in its extreme forward position, a curved arm, P, connected with the jaw *o'*, and a guide fixed to the frame and in the path of movement of the arm P, whereby the arm is caused to release the jaw *o'* from its position against the cartridge, where it is held by the backward movement of the breech-block, all as set forth.

8. In a machine-gun, the combination, with a longitudinally-movable breech-block and breech mechanism connected therewith, of a piston secured to the breech-block and working in said cylinder, a chamber communicating with the rear of the cylinder, and intermediate adjustable valves for controlling or varying the channels of communication between the cylinder and the chamber, as and for the purpose specified.

9. The combination, with the longitudinally-movable breech-block C, and breech mechanism connected therewith, of the piston *q*, extending from the rear end of the same, the cylinder Q, in line with the breech-block, in which said piston works, the chamber R, communicating with the rear portion of the cylinder Q, and the adjustable valve *r*, for controlling or varying the channel of communication between the cylinder Q and the chamber R, as set forth.

10. In a machine-gun, the combination, with the barrel, a longitudinally-movable breech-block, and the breech mechanism connected therewith, of the spiral springs D, connected to the frame, bridge-piece *d*, connected to the opposite ends of said springs, and rods D^2, connecting said bridge-piece with the forward end of the breech-block so that the distention of the springs is caused by the backward movement of the breech-block, as and for the purpose specified.

317,162. MAGAZINE FIRE-ARM. HIRAM S. MAXIM, London, England, assignor to Albert Vickers and Robert R. Symon, both of same place. Filed June 30, 1884. (No model.) Patented in England May 26, 1884, No. 8,242, and in France June 28, 1884, No. 162,735.



Claim.—1. In a magazine-gun or repeating-rifle wherein the breech mechanism is operated by the explosive force of the charges, the combination, with a breech-block arranged to move or slide in line with the barrel and the mechanism carried by said breech-block, of a toggle-lever within the frame or stock connected with the breech-block, and a spring or springs connected with the toggle and the frame of the gun so as to operate in opposition to the recoil of the breech-block, substantially as herein set forth.

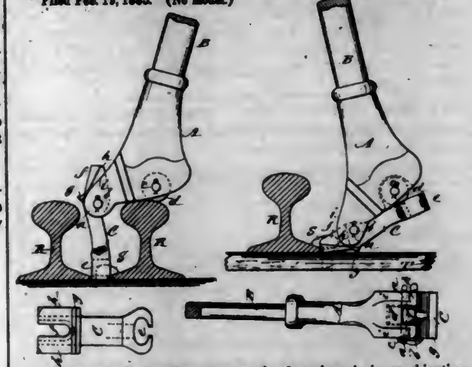
2. In a magazine or repeating rifle, the combination, with the breech-block *d*, arranged to move or slide in line with the barrel and the cartridge-firing and shell-extracting mechanism carried by the breech-block, of the toggle *e f* within the frame or stock, connected to the breech-block and frame, and the spring *g*, connected with the toggle and the frame, so as to be compressed by the recoil of the breech-block, as and for the purpose set forth.

3. In a magazine or repeating rifle, the combination, with the breech-block *d*, arranged to move or slide in line with the barrel, and the cartridge-firing and shell-extracting mechanism carried by the breech-block, of the toggle *e f* within the stock or frame, and connected to the toggle and the frame, the spring *g*, arranged to be compressed by the recoil of the breech-block, and the handle *q*, for moving the breech-block and compressing the spring by hand, as set forth.

4. In a magazine or repeating rifle, the combination, with the breech-block *d*, arranged to move or slide in line with the barrel, the toggle *e f*, and spring *g*, located in the stock or frame and connected with the breech-block, of the firing-pin *h*, passing through the breech-block, and provided with the hooked extension h^2, arranged for engagement with a projection, *e'*, on the link *e* of the toggle, as herein described.

5. In a magazine or repeating rifle, the combination, with the breech-block *d* and the firing-pin *h*, having the slotted head h^1, of the sear *j*, pivoted in the said head, the spring K, acting upon the sear, the sliding bar *l*, and the trigger *m*, arranged for operation in substantially the manner set forth.

317,163. SPIKE-EXTRACTOR. ALBERT W. MCCABLE, Pittsburg, Pa. Filed Feb. 19, 1885. (No model.)



Claim.—1. In a spike-extractor, the foot-piece A, in combination with a claw-bar pivoted to the toe or forward end thereof, and provided at its opposite ends with claws at right angles to each other, substantially as and for the purpose set forth.

2. In a spike-extractor, the foot A, in combination with the claw-bar C, provided with longitudinal and transverse claws *f e* at its opposite ends, and with a fulcrum, *g*, adjacent to the rear end of the claw *f*, said claw-bar being pivoted to the toe or front of the foot A, substantially as set forth.

3. In a spike-extractor, the foot A, slotted at its front to form toes or lugs *a*, in combination with the claw-bar C, provided with claws *f e* at right angles to each other, and with flanges *h* on opposite sides of the claw *f*, the said bar being pivoted to the toes *a* adjacent to the rear end of the claw *f*, whereby the claw-bar will be prevented from swinging beyond an approximately vertical position by the contact of the toes *a* and flanges *h*, substantially as set forth.

4. In a spike-extractor, the foot A, having the anti-friction wheel *d*, journaled in the under side thereof near the heel, and slotted at its front end to form lugs or toes *a*, in combination with the claw-bar C, formed with the claws *f e* at right angles to each other, and pivoted at the base of the claw *f* between the toes or lugs *a*, substantially as and for the purpose set forth.

5. As an improved article of manufacture, a spike-extractor consisting, essentially, in the handle B, foot A, provided with anti-friction roller *d* at its heel, and the claw-bar C, pivoted between its toes *a*, and formed at its opposite ends with claws *f e* at right angles to each other, transverse fulcrum *g* on its under side near the base of claw *f*, and the flanges *h h* on opposite sides of the claw *f*, all constructed and arranged substantially as set forth.

317,164. VEHICLE-BRAKE. JOHN L. MCINTOSH, EDWARD H. BACON, and THERON VAIL, San Antonio, Tex. Filed Mar. 5, 1885. (No model.)



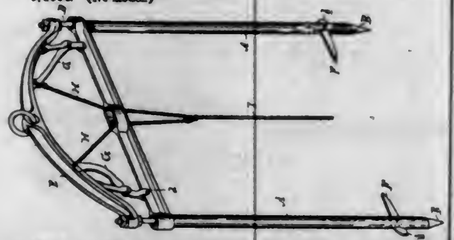
Claim.—1. A vehicle-brake comprising a friction rim or drum fixed to the wheel, a friction-band encircling the drum and connected at one end to an eccentric-pin on a brake-shaft journaled in bearings held to the rear hounds or axle, and connected at the other end to a wrist-pin on a crank-arm fixed to said shaft, and means for turning the shaft, substantially as set forth.

2. A vehicle-brake comprising a friction rim or drum fixed to the wheel, a friction-band encircling the drum, and connected at one end to an eccentric-pin on a shaft journaled in bearings held to the rear hounds or axle, and connected at the other end to a wrist-pin on a crank-arm fixed to said shaft, which is provided with a lever to which the brake-operating rod or rope is connected, substantially as herein set forth.

3. The combination, in a vehicle-brake, of the drums F, fixed to wheels A, the friction-bands H, encircling the drums and connected at one end to eccentric-pins I on the shaft J, journaled in boxes held to a cross-beam, L, and connected at the other end to a wrist-pin, *n*, of a crank-arm, N, on shaft J, and said beam L being connected to the rear hounds, D, or to the axle B, and the lever O, rod P, and a connected operating-lever, substantially as herein set forth.

4. The combination, in a vehicle-brake, of the drums F, fixed to wheels A, the friction-bands H, encircling the drums and connected at one of their ends to the outer ends of a shaft, J, which is made in two sections, *j' j²*, supported in straps and boxes K *j*, and in a collar, J', which latter is recessed and supported by a strap, K', entering said recess and forming an endwise-thrust bearing for the shaft-sections, and said straps K K' being connected to a beam, L, fastened to the rear hounds, D, or directly to the axle, and said bands H being connected at their other ends to wrist-pins *n* of crank-arms N, fixed to shaft J, and a lever, O, or equivalent means for turning said shaft, substantially as herein set forth.

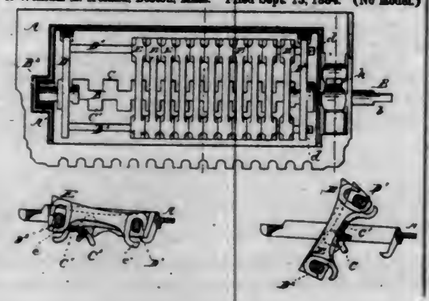
317,165. HORSE HAY-FORK. TRUMAN D. MCKINNEY, Tecumseh, Mich., assignor of one-half to John J. Freeman, same place. Filed Nov. 5, 1884. (No model.)



Claim.—1. The combination, with the cross-head C, centrally apertured, the tines A, secured to said head, the stems D, provided with prongs F, of the head E, carrying said stems, the levers G, trip-cords H, and rope I, all combined, arranged, and operating substantially as and for the purpose set forth.

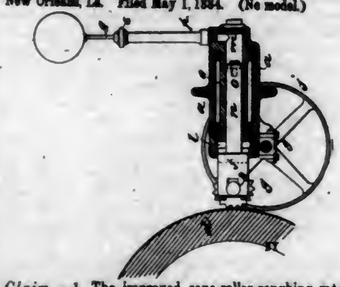
2. The combination, with the cross-bar C, provided with central aperture, and the head E, of the levers G, provided with stops *e*, the links J, pivoted to said head, the trip-cords H, attached to said levers, and the cord I, substantially as and for the purpose specified.

317,166. STOVE-GRATE. HENRY W. MERRITT, Somerville, assignor to William H. Ireland, Boston, Mass. Filed Sept. 13, 1884. (No model.)



Claim.—In a stove-grate, the combination of the bed-plate A and the frame D D' D² D³, said frame D D' D² D³ being supported by the rod B B', which has a limited revolving motion in it, with the rod B B', having cam projections C C', and the shaking grate-bars E E, whereby the single rod B B' serves as a support for the frame D D' D² D³ and as a shaker for the bars E E, also as a means of dumping the grate, all operating together substantially as described, and for the purpose set forth.

317,167. ROLLER-ROUGHING MACHINE. ARCHIBALD MITCHELL, New Orleans, La. Filed May 1, 1884. (No model.)

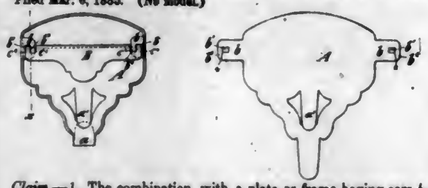


Claim.—1. The improved cane-roller-roughing machine consisting of a milling-tool, *g*, combined with stock *f*, slide *e*, slideway *a b*, and means, substantially as described, for pressing the tool against the surface of said roller, said slideway being arranged and supported parallel with the roller *d*, substantially as herein specified.

2. The improved cane-roller-roughing machine consisting of a milling-tool, *g*, combined with stock *f*, slide *e*, slideway *a b*, and means, substantially as described, for pressing the tool against the surface of the roller, said slideway being adapted to be attached to the housing-frame of the cane-mill for supporting the slide and milling-tool relatively thereto, substantially as herein specified.

3. The improved cane-roller-roughing machine consisting of the milling-tool *g*, mounted in a stock, *f*, having a cylindrical extension, *n*, fitted in the bore *m* of the slide *e*, for hydraulic pressure, and said slide having a stand-pipe, *p*, and weighted plunger *q*, and being arranged in the slideway *a b*, adapted for application to rollers *d* of a cane-mill, substantially as described.

317,168. LEVER-BUCKLE. JAMES F. MOLLOY, West Haven, Conn. Filed Mar. 6, 1885. (No model.)



Claim.—1. The combination, with a plate or frame having ears *b*, extending transversely thereto, folded or bent inward into positions parallel therewith, and provided in their portions which are parallel with the plate or frame with slots *b'*, of a lever also provided with slots *c'* at the ends, one of said parts having slits extending from the slots to the edge or margin thereof, and thereby forming tongues which provide for the interlocking of the parts, the slots *b'* receiving the portions *c²* of the lever which are outside the slots *c'*, and the slots *c'* of the lever receiving the portions *b²* of the plate or frame which are inward of the slots *b'*, substantially as herein described.

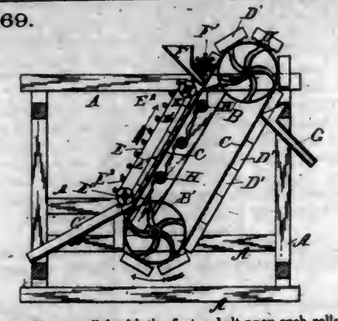
2. The combination, with a plate or frame provided with ears *b*, extending transversely thereto and folded or bent inward into positions parallel therewith, and provided in their portions which are parallel with the plate or frame with slots *b'*, and slits extending from said slots to the edge of the ears, of a lever provided with slots *c'*, which are interlocked with the slots in said ears, the slots *b'* receiving the portions *c²* of the lever which are outside the slots *c'*, and the slots *c'* of the lever receiving the tongues *b²* which are inward of the slots *b'*, substantially as herein described.

3. The combination, with a plate or frame provided with ears *b*, having slots *b'* and slits *, extending from said slots downward to the margin of the ears, of a lever, B, having slots *c'*, which are interlocked with the slots in the ears, and which overlie the slits * and the lower ends of the tongues *b²* formed by the slits *, substantially as herein described.

317,169. COCKLE-SEPARATOR. LYMAN MORGAN and JAMES M. MORGAN, Port Washington, Wis. Filed Apr. 30, 1883. (No model.)

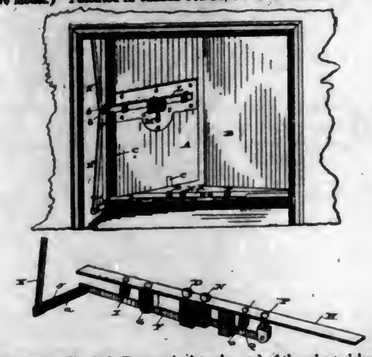
Claim.—1. The combination of a pair of rollers, an endless belt upon such rollers, and a series of indented plates upon such belt, a second pair of rollers parallel with the first, a belt upon such rollers, and a series of brushes upon such belt, means for propelling the two belts in the same direction, a hopper above the brush-carrying belt, and a roller, upon which are brushes, above the hopper.

317,169.



2. An apparatus for separating cockle-seed and other fine refuse from grain, consisting, essentially, of a frame, two pairs of rollers journaled upon such frame and parallel to each other, a belt upon each pair of rollers inclined from the top downwardly toward the front of the frame, a series of indented plates upon the rear belt, a series of brushes upon the front belt, a hopper above the front belt, a revolving clearing-brush above the hopper, a front discharge-spout for the grain, a rear discharge-opening for the refuse, and means for moving the contiguous faces of the two belts in opposite directions.

317,170. BOLT. WILLIAM F. MORGAN, Collingwood, Ontario, Canada, assignor of one-half to Robert Hughes, same place. Filed Oct. 16, 1884. (No model.) Patented in Canada Oct. 24, 1884, No. 20,420.



Claim.—1. The bolt D, attached to the end of the pivoted lever F, and arranged to protrude above the plate H, and the spring I, located as specified, in combination with the door A, having a hole, E, made in its bottom, and means, substantially as described, for operating said lever, substantially as and for the purpose specified.

2. The pivoted lever F, actuated by the spring I, and having the bolt D attached to it, in combination with a pivoted lever, J, connected to the lever F, and actuated by the bar K, substantially as and for the purpose specified.

3. The pivoted lever F, actuated by the spring I, and having attached to it at one end the bolt D, and at its other end the lever J, in combination with the bar K, having a rounded end, *b*, and actuated by the bar L, substantially as and for the purpose specified.

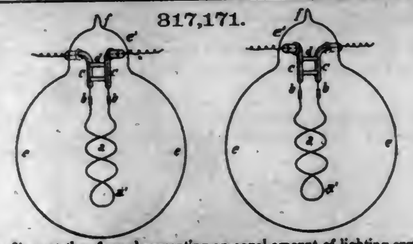
4. The vertically-moving bolt N, attached to the vibrating pivoted lever O, and arranged to extend below the bottom of the door A, in combination with a vertically-moving bolt, P, attached to the other end of the pivoted lever O, and located below a hole made in the bottom of the closed door B, substantially as and for the purpose specified.

317,171. INCANDESCENT ELECTRIC LAMP. CARL H. F. MÜLLER, Hamburg, Germany. Filed June 14, 1884. (No model.) Patented in England Oct. 2, 1882, No. 4,676.

Claim.—1. In an incandescent lamp, a carbon filament in the shape of an open double spiral, the windings of which extend in an inclined horizontal direction and cross each other, so that the filament presents an equal amount of lighting-surface on all sides, substantially as and for the purpose set forth.

2. In an incandescent electric lamp, a carbon filament, *a*, of the shape of an open double spiral, the windings of which extend in an inclined horizontal direction and cross each other, terminating in a bow, *a'*,

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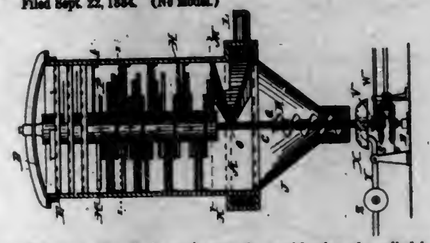


the filament thus formed presenting an equal amount of lighting-surface from all sides, substantially as and for the purpose set forth.

3. The combination, in an incandescent electric lamp, of the bulb *e*, having the protuberance *e'*, with the connecting-wires *b*, incased in the glass tubes *c*, the outer ends of which pass through the walls of the bulb at points diametrically opposite to each other, together with the bars *d* and the carbon filament *a*, substantially as and for the purpose set forth.

4. The combination, in an incandescent electric lamp, of the bulb *e*, connecting-wires *b*, tubes *c*, and bars *d*, with the carbon filament *a*, of the shape of an open double spiral, the windings of which cross one another, terminating in a bow, *a'*, substantially as and for the purpose set forth.

317,172. DRIER. ARNOLD HUBBUHER, Olten, Solothurn, Switzerland. Filed Sept. 22, 1884. (No model.)



Claim.—1. In a drying apparatus, the combination of a cylindrical casing provided at its upper end with disks having segmental openings, and perforated sections adjoining the said openings, and a spirally-arranged series of perforated steps or shelves arranged below the said disks, with the revolving arms or scrapers, substantially as and for the purpose herein set forth.

2. In a drying apparatus, the combination of a cylindrical casing, a spirally-arranged series of perforated steps or shelves, revolving arms or scrapers, an air-entrance at the bottom of said casing, a V-shaped deflector, and an inverted-V-shaped perforated shield or guard for the same, substantially as and for the purpose set forth.

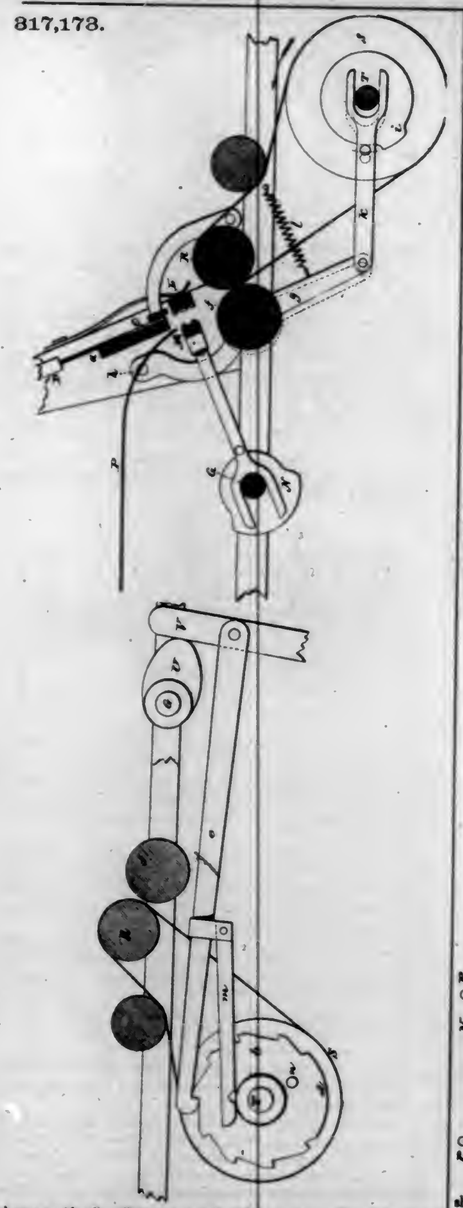
3. The combination of a cylindrical casing having an open hopper-shaped bottom, a spirally-arranged series of steps within the said casing, a revolving shaft having radial arms or scrapers, a sleeve sliding upon the lower end of the said shaft, and having a screw and a bell-shaped diaphragm, mechanism for adjusting the said sleeve, and suitable operating mechanism, substantially as and for the purpose set forth.

317,173. MACHINE FOR STICKING PINS. JOSEPH W. NARAMORE, Ansonia, Conn., assignor to Wallace & Sons, same place. Filed Nov. 3, 1884. (No model.)

Claim.—1. The combination, in a pin-sticking apparatus, of the pair of feed-rolls R *f*, the shaft T, toothed ratchet on said shaft, the teeth of which correspond to the spaces to be made in the paper, a reciprocating pawl adapted to work in said ratchet, and whereby an intermittent rotation is imparted to said ratchet and shaft, an endless band or equivalent connection between said shaft T and the said roll R, whereby the intermittent rotation of said shaft will be imparted to the said roll R, the said roll *f* hung in movable bearings, and a cam with connection between it and the bearings of the said roll *f*, whereby the feed-rolls will be separated at the termination of each sheet stuck, substantially as described.

2. In a pin-sticking apparatus, the combination of the two feed-rolls R *f*, the shaft T, carrying a drum, S, an endless apron around said drum S and feed-roll R, a ratchet on said shaft, the teeth of which are spaced corresponding to the successive rows of pins to be stuck, a pawl adapted to work in the teeth of said ratchet, and a cam adapted to impart reciprocating movement to said pawl, whereby through said pawl and its cam an intermittent rotation will be imparted to said drum S corresponding to the teeth of the ratchet, such rotation being communicated to the said feed-roll R through said endless apron, the second feed-roll, *f*, being hung in movable bearings, and a cam with connection between it and the bearings of said roll *f*, substantially as described, and

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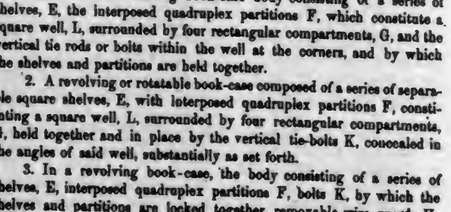


whereby said rolls will be separated at the completion of each sheet and closed at the beginning of the next sheet, substantially as described.

3. The combination, in a pin-sticking apparatus, of the two feed-rolls R *f*, the shaft T, toothed ratchet on said shaft, the teeth of which correspond to the spaces to be made in the paper, a reciprocating pawl, *e*, adapted to work in said ratchet, whereby an intermittent rotation is imparted to said ratchet and shaft, an endless band or equivalent connection between the said shaft T and the said roll R, whereby the intermittent rotation of said shaft will be imparted to the said roll R, the said ratchet provided with a tooth or stud, *n*, nearer its center of motion than the teeth on its periphery, and an auxiliary pawl, *m*, hung to the pawl *e*, and so as to partake of the reciprocating motion of the said pawl *e*, the said pawl *e* adapted to engage the said stud *n* at the completion of each revolution of the ratchet, substantially as and for the purpose described.

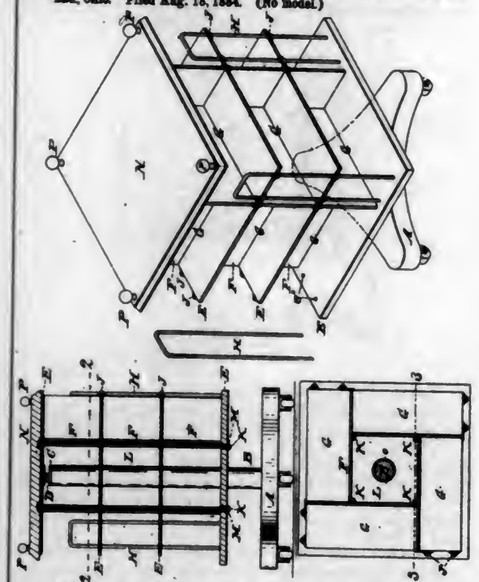
4. The combination, in a pin-sticking apparatus, of the pair of feed-rolls R *f*, the shaft T, toothed ratchet on said shaft, the teeth of which correspond to the spaces to be made in the paper, a reciprocating pawl adapted to work in said ratchet, and whereby an intermittent rotation is imparted to said ratchet and shaft, an endless band or equivalent connection between said shaft T and the said roll R, whereby the intermittent rotation of said shaft will be imparted to the said roll R, the said roll *f* hung in movable bearings, and a cam with connection between it and the bearings of the said roll *f*, whereby the feed-rolls will be separated at the termination of each sheet stack, a cam, *o*, on said shaft T, a clutch on the driving-shaft of the machine, and a lever, *r t*, between said cam *o* and said clutch, substantially as described, and whereby at the termination of each sheet passing through the machine the power will be automatically detached, substantially as described.

317,174. COT. CALEB P. NASH, Brattleborough, Vt., assignor to J. Eugene Jacobs, same place. Filed June 12, 1883. (No model.)



Claim.—In a cot, the combination of side rails provided with notches, as set forth, pairs of crossed legs pivoted to one another and to the side rails, and brace-bars pivoted to one another and to the crossed legs, substantially as specified.

317,175. REVOLVING BOOK-CASE. GEORGE V. NAUERTH, Cincinnati, Ohio. Filed Aug. 18, 1884. (No model.)



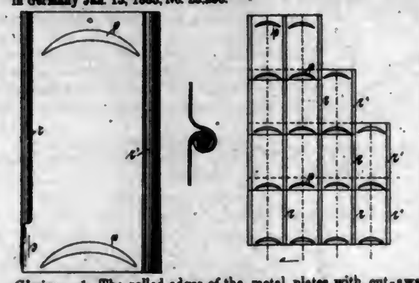
Claim.—1. A revolving book-case body consisting of a series of shelves, E, the interposed quadruplex partitions F, which constitute a square well, L, surrounded by four rectangular compartments, G, and the vertical tie rods or bolts within the well at the corners, and by which the shelves and partitions are held together.

2. A revolving or rotatable book-case composed of a series of separable square shelves, E, with interposed quadruplex partitions F, constituting a square well, L, surrounded by four rectangular compartments, G, held together and in place by the vertical tie-bolts K, concealed in the angles of said well, substantially as set forth.

3. In a revolving book-case, the body consisting of a series of shelves, E, interposed quadruplex partitions F, bolts K, by which the shelves and partitions are locked together, removable wire guards H, and straps J, by which the guards are secured to the shelves, the ends of the latter entering pits *e''* in the lowest shelf of the series.

4. In a revolving book-case, the superimposed slab Q, so hinged to the top shelf as to be available as a reference-book holder, in combination with the serrated props or racks R and springs S, occupying the central well, L, and with the knob or knobs T, substantially as set forth.

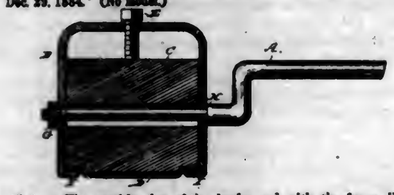
317,176. METALLIC PLATE FOR COVERING ROOFS AND WALLS. GOTTFRIED A. NEBELUNG, Rauschaid, Prussia, Germany, assignor to Geo. W. Korn, New York, N. Y. Filed Feb. 19, 1885. (No model.) Patented in Germany Jan. 13, 1883, No. 23,238.



Claim.—1. The rolled edges of the metal plates with cut-away parts at one end to the extent of overlapping ends, whereby the corners of four plates are easily and safely joined together without impairment of joint, substantially as and for the purpose shown.

2. The ribs *p* at each end of the plates, all raised from same side of plate, in combination with rolled edges of the metal plates provided with cut-away ends thereof, all constructed and arranged substantially as shown.

317,177. BRAKE-BLOCK. HERBERT C. NEWTON, Groton, N. Y. Filed Dec. 29, 1884. (No model.)



Claim.—The combination of the brake-rod with the frame B, the block C, having a suitable slot through it for the end of the rod to pass through, and the set-screw for holding the block in position, the frame B being provided with shoulders I, substantially as described.

317,178. CAR-COUPLING. HERBERT A. NIEHAUS, St. Louis, Mo. Filed Dec. 20, 1884. (No model.)



Claim.—1. In a car-coupling, the draw-head A, formed with a recess, B, elevation or tongue H, extending above the floor, surrounded by the link, and having inclined front and rear portions, slot G, and ribs I I.

2. In a car-coupling, the combination of a draw-head A, formed with a recess or mouth, B, elevation or tongue H, extending above the floor, surrounded by the link, and having inclined froot and rear portions, slot G, extending up through the rear portion of the elevation or tongue, ribs I I, and latch-slot F, and the latch D, having horn D', formed with knob D^2, and a handle, D^2.

317,179. TWO-WHEELED VEHICLE. THOMAS O'BRIEN, Coldwater, Mich., assignor of two-half to William H. Schmedlen, same place. Filed Feb. 28, 1885. (No model.)

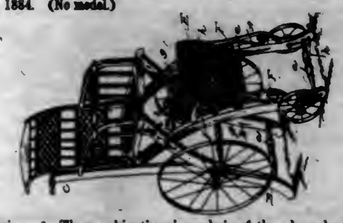


Claim.—1. The combination, in a two-wheeled cart, of the shaft, the shaft-bar, the seat-bars having their forward ends pivoted on top the shafts in advance of the shaft-bar, a bar-spring secured midway its ends on the shaft-bar and extended under the seat-bars, and the crib having opening spring-bars secured at their forward ends to the shaft-bar and their rear ends to the seat-bars, substantially as set forth.

2. The combination, with the seat-bar having depending lugs and an elastic block secured between the lower ends of said lugs, of the spring having its end inserted through between said elastic block and the seat-bar, substantially as set forth.

3. The combination of the seat-bars, the lugs depending from said bars, the elastic block secured between the lower end of said lugs, and the spring having its ends inserted between the elastic block and the seat-bar, and provided on its outer ends with right-angled ears, substantially as set forth.

317,180. NURSERY-CHAIR. BENJAMIN C. ODELL, Kingston, N. Y., assignor to Thompson, Perley & Waite, Baldwinsville, Mass. Filed May 20, 1884. (No model.)

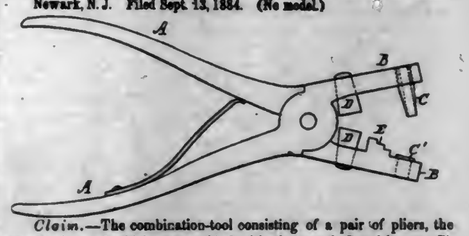


Claim.—1. The combination, in a chair of the class described, of pivoted front legs, a foot-rest, and a carriage-extension pivoted upon the said legs, substantially as described.

2. The combination, in a chair of the class described, of the front legs, the foot-rest, and carriage-extension pivoted upon said legs, and the side piece or guards, F F, substantially as described.

3. The combination, in a chair of the class described, of the legs, the foot-rest, and carriage-extension pivoted upon said legs, and the gravity-bolt *l* set in the cross-bar *l*, substantially as described.

317,181. PUNCHING AND CUTTING PLIERS. HENRY F. OSBORNE, Newark, N. J. Filed Sept. 13, 1884. (No model.)



Claim.—The combination-tool consisting of a pair of pliers, the opposite jaws of which are provided with the punch C and its seat C', situated near the ends of the jaws, and having a pair of opposed and wedge-shaped cutting-edges, D, situated at the base of the jaws and prevented from contact by the seating of the punch, substantially as shown and described.

317,182. CAR-COUPLING. JOSEPH OSFORD, Worthington, Minn. Filed Feb. 26, 1885. (No model.)



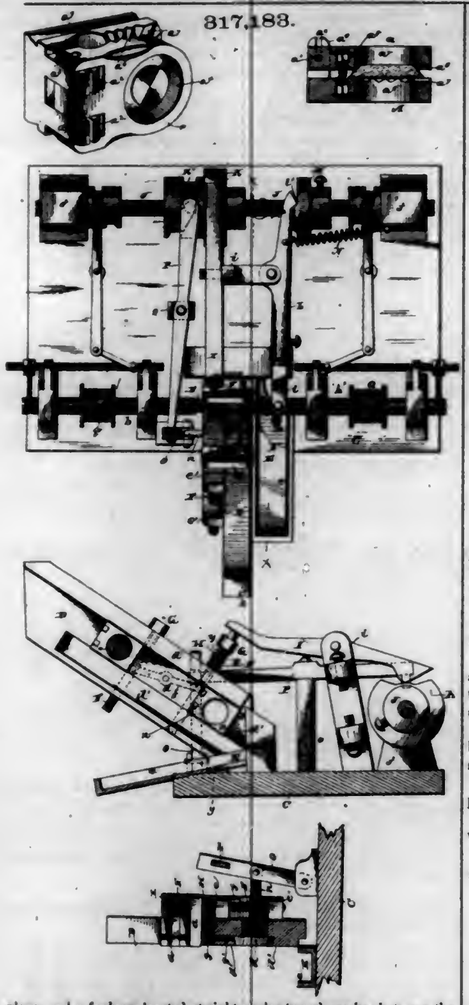
Claim.—1. The combination, with the coupling devices, and a shaft having a crank whereby to operate said devices, and provided at its ends with crank-arms extended alongside the car, of a keeper placed over one of said crank-arms and provided with a hook, said keeper being made of spring metal, whereby the arm may be moved into engagement with its hook, substantially as set forth.

2. The car-coupling herein described, consisting of the draw-head having a curved mortise, *b*, opening B, and guide-groove D, the pivoted dog having its end *e* curved and fitted snugly in the mortise *b*, the spring F, secured at one end to the dog and bearing at its other end in the groove D, the connecting device attached to the dog, and provided with an elongated eye, H, a shaft journaled to the car and having its crank *i* operating in eye H, the arms J, extended from the shaft alongside the car, a keeper, K, made of spring metal, fitted over one of arms J, and having a hook, *k*, and a rod secured to one of the arms J and extended to the top of the car, substantially as set forth.

317,183. BUTTON-LATHE. SAMUEL L. OTIS, Birmingham, assignor to Alfred H. Noble and George B. Noble, New Milford, Conn. Filed Jan. 21, 1885. (No model.)

Claim.—1. The combination, with two cutters located in the same

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plane, and a feedway located at right angles to and passing between the cutters, of a removable chuck constructed to fit within the feedway, substantially as set forth.

2. The combination, with two cutters and an inclined feedway located at right angles to and passing between the cutters, of a removable chuck constructed to fit within the feedway, substantially as set forth.

3. In a button-lathe, the combination, with two cutters located in the same horizontal plane opposite each other, and an inclined way located at right angles to and passing between the cutters, of a chuck removably held on the inclined way, and a movable clamp for holding the chuck steady while the blank is being operated on by the cutters.

4. In a button-lathe, the combination, with the two cutters and an inclined feedway located at right angles to and passing between the cutters, and provided with a set of stops for automatically regulating the descent of the chucks, of removable chucks constructed to be retained in the feedway, and devices for ejecting the chuck from between the cutters.

5. In a button-lathe, the combination, with a gravity or inclined feedway having stops for regulating the feed, and an inclined discharge-way located below the feedway, of a removable chuck constructed to travel in the feedway, a device for holding the chuck in position while being operated on, and cutters for engaging the opposite sides of the blank, substantially as set forth.

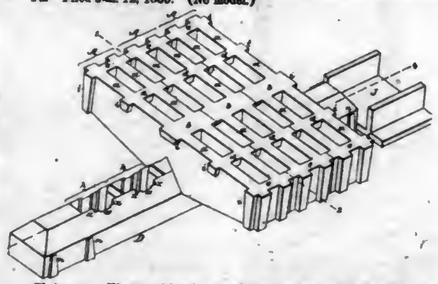
6. In a button-lathe, the combination, with an inclined feedway, cutters located at right angles to and on opposite sides of the feedway, and an inclined discharge-way located below the feedway, of a removable chuck constructed to travel in the feedway, substantially as set forth.

7. The combination, with two cutters and a feedway passing between said cutters, of a removable chuck constructed to fit within said feedway, and provided with an extensible hinge.

8. The combination, with two cutters and a feedway located between said cutters, of a removable chuck constructed to slide within said feedway, and consisting, essentially, of two jaws and a spring for holding the jaws in closed position.

9. The combination, with two cutters and a feedway passing between said cutters, of a removable chuck constructed to slide within said feedway, and consisting, essentially, of two jaws connected by an extensible hinge, and a spring for holding the jaws in closed position, substantially as set forth.

317,184. GRATE FOR FURNACES. LEVIS PASSMORE, Philadelphia, Pa. Filed Jan. 12, 1885. (No model.)



Claim.—1. The combination of the grate-bars, each having a projection, *f*, with the supporting-bar having openings for the reception of said projections, each opening forming contracted bearings and air-spaces, as specified.

2. The combination of the grate-bars, each having a projection, *f*, with the supporting-bar having openings forming corner bearings, *x*, and air-spaces *w*, as set forth.

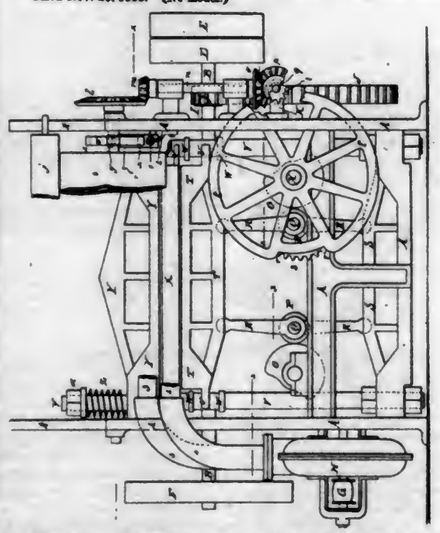
3. The combination of the grate-bars, each having a projection, *f*, and recess *m*, with the supporting-bar having openings *h*, for the reception of the projections *f*, and an inclined top adapted to the recesses *m*, as specified.

4. The combination of the grate-bars, the supporting-bar D, the brick-work structure, and the shoes J, contained within said structure and receiving the ends of the bar D, as set forth.

5. The combination of the grate-bars, the supporting-bar, the chipping-lugs *n*, and the shoes J, as set forth.

6. The combination of the grate-bars, the supporting-bar, the brick-work structure, the shoes J, and the wedges *p*, as specified.

317,185. CLOTH-PRESSING MACHINE. ROBERT PATRICK, Jr., Galt, Ontario, Canada, assignor to himself and Joseph Wilson, same place. Filed Nov. 28, 1883. (No model.)



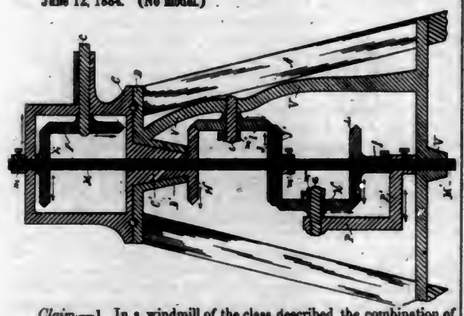
Claim.—1. The combination, with the cam-shaft N and its driving mechanism, the shafts *n q*, and the roller *i*, of the wheel *t*, having gear-segment *s*, and the gear-wheels *r p o m l*, substantially as herein shown and described, whereby the said roller will be revolved intermittently, as set forth.

2. The combination, with the roller *i*, the shaft *q*, the gear-wheel *r*, and intermediate mechanism for operating roller *i* from said shaft, of the wheel *t*, having the gear-segment *s* and recess *v*, and the lock-block *u* on the said shaft, substantially as herein shown and described.

3. The combination, with the eccentric gear-wheel *r*, driving the cloth-moving mechanism, and the wheel *t*, of the eccentric gear-segment *s*, substantially as herein shown and described, whereby the said mechanism will be started and stopped with a comparatively slow motion, as set forth.

4. The combination, with the press-plates T X Y, the roller *i*, and means, substantially as herein shown and described, for operating said press-plates and roller, of the fan-blower H, having the branch perforated pipes 3 4, the pipe 3 being arranged between the roller *i* and the upper press-plate, and the pipe 4 beneath the said roller, substantially as shown and described, whereby streams of air will be discharged against both sides of the cloth, as set forth.

317,186. WINDMILL. GEORGE H. PATTISON, Freeport, Ill. Filed June 12, 1884. (No model.)



Claim.—1. In a windmill of the class described, the combination of a geared turn-table free to rotate about the vertical axis of the mill, a wind-wheel shaft journaled in the turn-table, and a gear-wheel rigidly attached thereto, two independently-rotating vertical shafts adapted to transmit the power of mill to other mechanism, and a train of gearing, substantially as shown and described, connecting the wind-wheel shaft, the two vertical shafts, and the geared turn-table, whereby the rotation of the wind-wheel shaft in its bearing turns said vertical shafts in the same direction.

2. In a windmill of the class described, the combination of a geared turn-table free to rotate about the vertical axis of the mill, a wind-wheel shaft journaled in said turn-table, two independently-rotating vertical shafts lying in the same straight line and adapted to transmit the power of the mill to other machinery, and gearing, substantially as shown and described, connecting said wind-wheel shaft, said two vertical shafts, and the gearing of said turn-table, whereby the rotation of the wind-wheel shaft in its bearing rotates said vertical shafts in the same direction and at the same rate of speed.

3. In a windmill of the class described, the combination of a geared turn-table rotating freely about the vertical axis of the mill, a wind-wheel shaft journaled in said turn-table, two independently-rotating vertical shafts adapted to transmit the power of the mill to other machinery, and gearing, substantially as shown and described, connecting said wind-wheel shaft, said vertical shafts, and the gearing of said turn-table, whereby the rotation of the turn-table about the vertical axis of the mill rotates one of said vertical shafts, but not the other.

4. In a windmill of the class described, the combination of a geared turn-table rotating freely about the vertical axis of the mill, a wind-wheel shaft journaled in said turn-table, two independently-rotating vertical shafts standing in the same straight line and adapted to transmit the power of the mill to other mechanism, and gearing, substantially as shown and described, connecting said wind-wheel shaft, said vertical shafts, and the gearing of said turn-table, whereby the simultaneous rotation of the turn-table about the vertical axis of the mill and of the wind-wheel shaft in its bearing rotates said vertical shafts in the same direction, but at different rates of speed.

5. In a windmill of the class described, the combination of a geared turn-table rotating freely about the vertical axis of the mill, a wind-wheel shaft journaled in said turn-table, two independently-rotating vertical shafts adapted to transmit the power of the mill to other mechanism, and gearing, substantially as shown and described, connecting said wind-wheel shaft, said vertical shafts, and the gearing of said turn-table, whereby the rotation of the wind-wheel shaft in its bearing rotates both of said vertical shafts in the same direction, and whereby the rotation of the turn-table rotates one of said vertical shafts, but not the other.

6. In a windmill of the class described, the combination of a geared turn-table free to rotate about the vertical axis of the mill, a wind-wheel shaft journaled in said turn-table, two independently-rotating vertical shafts standing in the same straight line and adapted to transmit the power of the mill to the work to be performed thereby, and gearing, substantially as shown and described, connecting the wind-wheel shaft, the two vertical shafts, and the gearing of the turn-table, whereby the reaction of the work performed tends to retard the rotation of the wind-wheel shaft in its bearing, but not to rotate the turn-table about the vertical axis of the mill.

7. The combination of the turn-table C and gear H, rigidly fastened thereto, the wind-wheel shaft *c*, journaled in the turn-table, and the gear-wheel F, mounted rigidly on said shaft, the independently-rotating vertical shafts M M', and gears E L, rigidly mounted on said shaft M, the gear K, engaging with the gear L, and means connecting said gear with the shaft M', and adapted to insure uniform rotation of said gear and shaft about the vertical axis of the mill, and gearing connecting said gear K with the gear H, and adapted to transmit the reaction of the gear K to the turn-table, whereby the rotation of the shaft *c* rotates the shafts M M' in the same direction, and the rotation of the turn-table rotates the shaft M, but not the shaft M', substantially as shown and described, and for the purpose set forth.

8. The combination of the turn-table C and gear H, rigidly attached thereto, the wind-wheel shaft *c*, journaled in said turn-table, the vertical power-transmitting shaft M', the loosely-mounted gear-wheel K, free to rotate on its shaft and to rotate about the vertical axis of the mill and connected with the shaft M' by means adapted to insure the uniform rotation of the gear and the shaft about the vertical axis of the mill, and gearing connecting said gear K with the wiod-wheel shaft and with the gear H, whereby the rotation of the wind-wheel shaft in its bearing rotates the gear K about its own axis and about the vertical axis of the mill; while the rotation of the turn-table rotates the gear K on its own axis, but not about the vertical axis of the mill.

9. The combination of the turn-table C and gear H, rigidly fastened thereto, the wind-wheel C, journaled in said turn-table, the vertical shaft M, and the loosely-mounted gear-wheel K, free to rotate on its own axis and about the shaft M, and gearing connecting said gear K with the wind-wheel shaft and with the gear H, whereby the rotation of the wiod-wheel shaft in its bearing rotates said gear-wheel about the shaft M, while the rotation of the turn-table rotates said gear on its shaft, but not about the shaft M.

10. The combination of the geared turn-table C, free to rotate about the vertical axis of the mill, the gear-wheel I, mounted on a shaft journaled in a stationary bearing, gearing engaging said gear-wheel at one point and connecting it with the geared turn-table, and gearing engaging with said gear-wheel I at an opposite point and connecting it with the vertical power-transmitting shaft of the mill and with the wind-wheel shaft, substantially as shown and described, and for the purpose set forth.

11. The combination of the turn-table C and gear H, rigidly attached thereto, the shaft *c* and gear F, the shaft M, the gear E, mounted on the shaft M and engaging with the gear F, the gear L, mounted on the shaft M, and gearing connecting the gear L and the gear H, one element of the train of gearing connecting the gears L and H being a loosely-mounted gear capable of rotation about its own shaft and at the same time capable of rotation about an axis at right angles to its shaft.

12. The combination of the turn-table C and gear H, rigidly attached thereto, the shaft *c* and gear F, the shaft M and gears E and L and the gears I, J, J', and K, together with suitable supports for said gears, all constructed, combined, and operating substantially as shown and described, and for the purpose set forth.

13. In a windmill of the class described, the combination of a rotating geared turn-table, a wind-wheel shaft journaled therein, two independently-journaled vertical shafts, and gearing connecting said turn-table and said vertical shafts, whereby the rotation of the turn-table rotates the upper but not the lower of said vertical shafts.

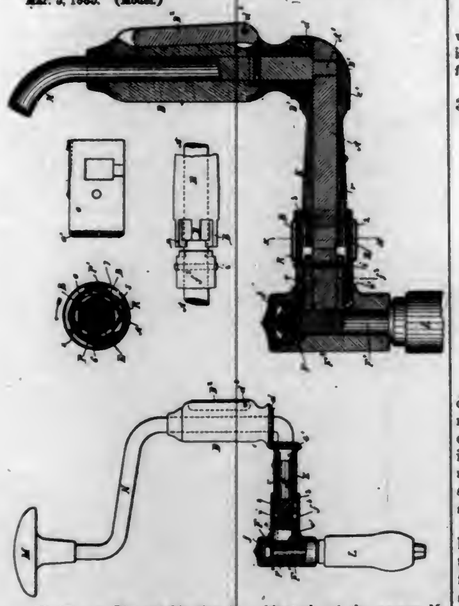
14. In a windmill of the class described, the combination of a rotating geared turn-table, a wind-wheel shaft journaled therein, a loosely-mounted gear-wheel free to rotate about its own axis and about the axis of revolution of its movable support, and gearing connecting said loosely-mounted gear with said turn-table and with said wind-wheel shaft, whereby the rotation of the wind-wheel shaft in its bearings rotates said loosely-mounted gear about its own axis and about the axis of rotation of its support, while the rotation of the turn-table rotates said gear on its own axis, but not about the axis of rotation of its support.

15. In a mill of the class described, the combination of a suitably-journaled wind-wheel shaft, a geared turn-table free to rotate about the vertical axis of the mill, and a chain of gearing connecting the wind-wheel shaft, the turn-table, and the machinery to be operated, one element of said gearing being a loosely-mounted gear-wheel free to rotate about its own axis and about the axis of rotation of its movable support, whereby the rotation of the turn-table has no tendency to cause the rotation of the wind-wheel shaft in its bearing, and the rotation of the wind-wheel shaft in its bearing has no tendency to cause the rotation of the turn-table.

16. In a windmill of the class described, the combination of a geared

turn-table rotating freely about the vertical axis of the mill, a wind-wheel shaft journaled in said turn-table, two independently-rotating vertical shafts adapted to transmit the power of the mill to other mechanism, and a train of gearing connecting said wind-wheel shaft, said vertical shafts, and the gearing of said turn-table, one element of said train of gearing being a loosely-mounted gear-wheel free to rotate about its own axis and about the axis of revolution of its movable support, whereby the rotation of the wind-wheel shaft in its bearing rotates both of said vertical shafts, and the rotation of the turn-table rotates the upper but not the lower of said vertical shafts.

317,187. BIT-STOCK. JOHANNES TH. PEDERSEN, Brooklyn, N. Y. Filed Mar. 5, 1885. (Model.)



Claim.—1. The combination, in a bit-stock, of the presser M, crank-arm N, straight-arm A, the handle D, stock F^3, tubular shaft E between the handle and the stock, shaft F′ of the tool-holder, the gear *d* on the handle D, the wheels *e′* and *o′* on the shaft E, and the gear-wheel F, within and protected by the stock F^3, substantially as set forth.

2. The combination, in a bit-stock, of the crank N and arm A, the cap D′, recessed at its ends for the gears *d* and *e′*, and surrounding the intersection of the crank and shaft, the handle D around the crank N, gear *d* at the end of the handle D, and the tubular shaft E and gear *e′* around the arm A, substantially as set forth.

3. The combination, in a bit-stock, of the head F^3, having a tubular projection, f^3, at one side, the bit-holder I, and shaft F′, the gear F at the end of the shaft F′, and the screw-cap *f* at the end of the head F^3, substantially as set forth.

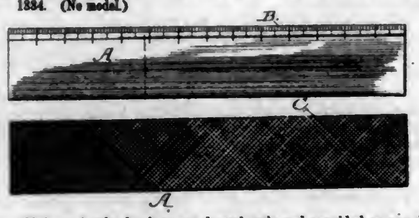
4. The combination, in a bit-stock, of the head F^3, having a tubular projection, f^3, at one side, the arm A, fastened in the projection f^3, the tubular arbor *o* around the projection within the head F^3, the shaft F′, and bevel-gears F and *o′* upon the shaft F′ and arbor *o*, respectively, substantially as set forth.

5. The combination, in a bit-stock, of the tool-holder, the shaft F′ of the same, the arm A, and crank N, the arbor *o*, and the shaft E around the arm A, the handle D around the crank N, and the bevel-gears F *o′* on the shaft F′ and arbor *o*, respectively, and a coupling to connect the shaft E with arbor *o*, and the gear *d e′* to connect the handle D and shaft E, substantially as set forth.

6. The combination, in a bit-stock, of the head F^3, projection f^3 at the side thereof, the arm A, extending from the projection f^3, the tubular shaft E around the arm A, the tubular arbor *o*, bevel-gears F and *o′*, connecting F′ and *o*, the pawls P P′, and ring R around the tubular arbor *o* and shaft E, substantially as set forth.

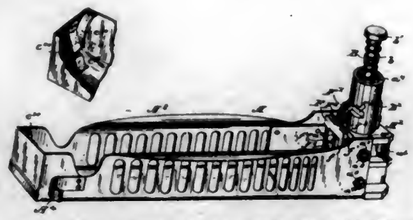
7. The head F^3, having a tubular projection, f^3, at one side, the arm A, extending out therefrom, and cross-pin connecting the same, the tubular arbor *o* around the projection, and its bevel-gear *o′*, held in place by said cross-pin, the gear F and shaft F′ and tool-holder connected with the shaft F, the tubular shaft E around the arm A, the handle D, crank N, bevel-gears *d o′* upon the handle D and shaft E, respectively, and a coupling to connect shaft E and arbor *o*, substantially as set forth.

317,188. RULER. OLE PEDERSON, Columbus, Ohio. Filed May 21, 1884. (No model.)



Claim.—A ruler having a graduated scale and provided on one side with diagonal lines cut into the body of the ruler, whereby the said ruler is roughened to prevent slipping when applied to a polished or hard surface, substantially as and for the purpose set forth.

317,189. NAIL-DRIVER. STUART PERRY, Newport, N. Y. Filed Oct. 23, 1884. (No model.)



Claim.—1. In a machine for driving nails, the combination, with driving devices, of a magazine provided with two or more nail-channels, means for sustaining the said magazine in position for the delivery of nails from the said channels to the driving devices, comprising a shifting support, substantially as described, constructed to hold said magazine with either of its channels in position for delivering nails to the said driving devices, and locking devices for said shifting support, substantially as described.

2. In a machine for driving nails, the combination, with a driving head provided with driving devices and having a side aperture to admit the nails, of a magazine having two or more nail-channels, and means for sustaining the magazine in position for the delivery of nails to the said driving devices, comprising a shifting support, substantially as described, upon the head, constructed to hold said magazine, with either of the channels thereof in alignment with the aperture of the head, substantially as and for the purpose set forth.

3. In a machine for driving nails, the combination, with a driving-head provided with driving devices, substantially as described, and having a side aperture to admit the nails, of a magazine provided with two or more nail-channels, a fixed support attached to said head and constructed to receive and hold the outer end of said magazine immovable with relation to said head, a shifting support attached to said head, constructed for engagement with the inner end of said magazine and adapted to bring either of the channels thereof in line with said side apertures of the said head, and means, substantially as described, for holding said magazine in position with either of channels in line with said aperture, substantially as and for the purpose set forth.

4. In a machine for driving nails, the combination, with a plunger, a head having a passage to receive and guide the plunger, and a side aperture to admit the nails into said passage, of a pivoted hook or jaw for separating the foremost nail from a line of nails, means, substantially as described, for actuating the said jaw, the said head being provided with an opposing stationary part or surface operating in connection with the hook or jaw to engage the separated nail and to move the latter bodily forward and into the said passage, substantially as described.

5. In a machine for driving nails, the combination of a plunger, a head having a passage to receive and guide the plunger, and an aperture to admit the nails into said passage, and a single pivoted hook or jaw for separating the foremost nail from a line of nails, means, substantially as described, for actuating the said jaw, said head being provided with an opposing stationary part or surface operating in connection with the jaw to feed forward the separated nail, and also with a part or surface opposed to the jaw and continuous with the inner wall of the passage, and forming, in connection with the said jaw, a means for holding or supporting the nail in position to be driven, substantially as described.

6. In a machine for driving nails, the combination of a plunger, a head having a passage to receive and guide the plunger, and a side aperture to admit the nails to said passage, and a single laterally-movable spring-actuated hook or jaw provided with an inclined surface adapted for engagement with the plunger and operating to separate the foremost nail from a line of nails, the said head being provided with stationary parts or surfaces opposed to the jaw and forming, in connection with the latter, a means for moving forward into the passage a separated nail and holding said nail in position to be driven, substantially as described.

7. In a machine for driving nails, the combination of a plunger, a head having a passage to receive and guide the plunger, and a side aperture to admit nails to the passage, a laterally-reciprocating hook or jaw, means, substantially as described, for actuating said jaw, a vibrating stop or detent for arresting the forward movement of the nails when the jaw is removed from the line of feed, and means, substantially as described, for actuating said detent, the said head being provided with a stationary part or surface opposed to the jaw, and operating, in connection with the latter, to separate and feed forward the foremost nail from a line of nails fed to the driving device, substantially as described.

8. In a machine for driving nails, the combination, with a plunger, a head having a passage through it adapted to receive and guide said plunger, and a side aperture to admit nails to the passage, a spring-actuated laterally-reciprocating jaw or hook constructed to separate the foremost nail from the line of nails fed to the driving device and to temporarily close the said aperture so as to stop the nails, and means, substantially as described, for actuating said hook, of a detent adapted to arrest the forward movement of the nails when the said jaw is forced aside by the plunger, and suitable operative connections between the jaw and detent, whereby the latter is actuated from the former, substantially as described.

9. In a machine for driving nails, the combination, with a plunger, a head having a passage through it to receive and guide said plunger, and a side aperture to admit nails, a spring-actuated laterally-reciprocating hook or jaw constructed to separate the foremost nail from the line of nails fed to the driver and to temporarily close said aperture, so as to stop the advance of said nails, and provided with an inclined surface adapted to be engaged by said plunger, of a detent actuated by said jaw and adapted to close said side opening when said jaw is forced aside, and a yielding or spring connection between the jaw and the detent, whereby the latter is actuated by the former, substantially as and for the purpose set forth.

10. In a machine for driving nails, the combination, with a plunger, of a head provided with a passage through it to receive and guide said plunger of sufficient length to admit the whole length of said plunger within said head, whereby the outer end of said head acts as a stop to the movement of the hammer, substantially as and for the purpose set forth.

11. In a machine for driving nails, the combination, with the head provided with suitable driving devices, of a spur or spurs mounted in apertures in said head and adapted to project therefrom, said spurs being adapted to engage the piece into which the nails are to be driven, of springs applied to force said spurs outwardly and constructed to yield and permit them to be forced into said head, substantially as and for the purpose set forth.

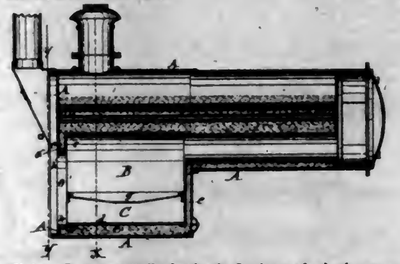
12. In a machine for driving nails, the combination, with a driver-head provided with suitable driving devices, of a magazine provided with a suitable projection or lug, c^4, and a magazine-support or handle attached to said head, of means, substantially as described, for supporting the inner end of said magazine, guide-plates c^{10}, adapted to hold the outer end of said magazine laterally immovable in said handle, and a spring, c^9, adapted to engage said lug c^4, substantially as and for the purpose set forth.

13. In a machine for driving nails, the combination, with a driver-head provided with means, substantially as described, for driving nails, and with a side aperture to receive the nails, a magazine provided with two or more nail-channels, and a magazine-support or handle provided with supports to receive and hold the outer end of said magazine, of a shifting support for the inner end of the magazine attached to said head and constructed to slide thereon, so as to bring either of said nail-channels in line with said side aperture, and a spring-actuated detent, F^2, upon the said shifting support, the said head being provided with notches f^3, adapted for engagement with the said detent, substantially as and for the purpose set forth.

14. In a machine for driving nails, the combination, with a driver-head provided with means, substantially as described, for driving nails, and with a side aperture to admit the nails, a magazine provided with two or more nail-channels, and with notches c^7 at its inner end, of a shifting support for the inner end of said magazine having sliding connection with the head, and provided with projections f^3, adapted to engage the notches c^7, and a handle or support for holding the outer end of the magazine provided with a spring, c^8, adapted to hold the inner end of the said magazine in engagement with the said shifting support, substantially as described.

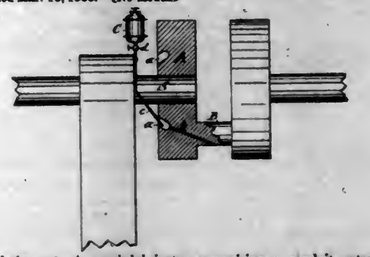
15. The combination, with a plunger and a driver-head having a passage to receive and guide said driver and a side aperture to admit the nails, of a hook or jaw, D, pivoted to said head and actuated by the plunger, a spring applied to throw the jaw toward the opposing face of the passage, a detent, D^2, pivotally supported upon the head concentric with the said jaw D, stops d^3 upon the detent adapted to engage a projection upon the jaw for limiting the relative movement of said jaw and detent, and a spring, d^4, adapted to hold the detent in position for operation, substantially as and for the purpose set forth.

317,190. STEAM-BOILER. GEORGE A. PORTER, Syracuse, N. Y. Filed Jan. 27, 1885. (No model.)



Claim.—In a steam-boiler having its fire-box and ash-pit surrounded by a water-jacket, as shown, the front sheet of the boiler-shell provided with a single opening extending from above the grate to the bottom of the ash-pit and formed with inwardly-projecting flange *a* around said opening, the fire-box and ash-pit shell having the front sheet formed with a corresponding single opening and with outwardly-projecting flange *b* around said opening lapping onto the exterior of the flange *a* and riveted directly thereto, said sheet being also provided with an inwardly-projecting marginal flange, *c*, the bottom portion of which is in the same plane as the outer flange, *b*, and the bottom sheet, *d*, lapped onto the top of said bottom flange, *c*, and riveted directly thereto, all constructed and combined substantially in the manner specified and shown.

317,191. CRANK-LUBRICATOR. GEORGE A. PORTER, Syracuse, N. Y. Filed Mar. 18, 1885. (No model.)

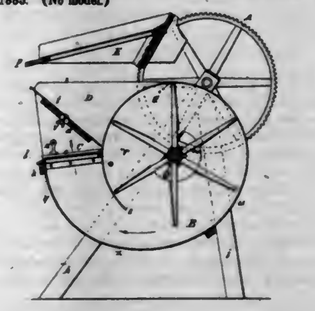


Claim.—1. A crank-lubricator comprising a conduit extending around the axis of the crank and arranged rotary therewith and on a line described by a radius shorter than the distance between the axis of the crank and the farthest side of the wrist-pin, and a duct extending from the aforesaid conduit to the side of the wrist-pin, substantially as and for the purpose set forth.

2. The combination, with a crank, of an annular lubricant-conduit arranged concentric and rotary with the axis of the crank, a duct extending from the aforesaid conduit to the side of the wrist-pin, and a lubricant-cup secured to a stationary support and communicating with the annular conduit, substantially as specified.

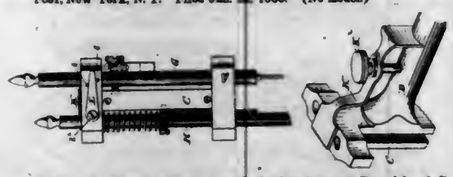
3. The within-described crank-lubricator, consisting of a disk fixed to a rotary axis, a wrist-pin attached to said disk, an annular undercut channel in the rear side of the disk and concentric with the axis thereof, and a duct extending from said channel through the disk and through the wrist-pin and terminating at the side of the latter, substantially as described and shown.

317,192. ORE-SEPARATOR. JOHN C. PORTER, St. Louis, Mo. Filed Jan. 8, 1885. (No model.)



Claim.—The herein-described ore-separator, comprising a fan, a fan-casing having its throat in a substantially upright direction, a cloth sieve having wires stretched across its upper surface, buttons for removably securing said sieve over the throat-outlet, a hopper having one of its sides formed by said casing and the other by a slide, a driving-gear wheel, and a pinion for operating said fan, whereby material fed upon the sieve will be separated by the air-blast generated by the fan and the lighter material blown away and the heavier retained, substantially as described.

317,193. TENSION DEVICE FOR SEWING-MACHINES. JOHN W. POST, New York, N. Y. Filed Jan. 22, 1885. (No model.)

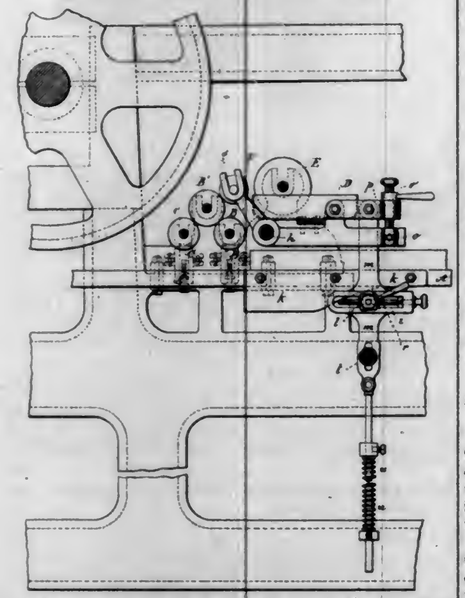


Claim.—1. The combination, with the bracket-arm B and head C, of the tension-spring K, bearing on the top of said head and having a bent portion provided with a concave seat or socket fitting said arm, and the securing and adjusting screw K^2, passing through said spring into said arm, substantially as set forth.

2. The combination, with the head C, of the check-tension spring L, secured to the front face thereof, the screw l^2, for holding and adjusting said spring, and the pins *l l*, arranged on opposite sides of the free end of said spring for steadying the same, substantially as set forth.

3. The combination, with the head C, of the check-tension spring L, the screw l^2, for holding and adjusting said spring, and the pins *l l*, arranged on opposite sides of the free end of said spring and in different vertical planes, whereby said pins are adapted to steady said spring, and to serve as thread-guides, substantially as set forth.

317,194. LITHOGRAPHIC-PRINTING MACHINE. CHARLES POTTER, Jr., Plainfield, N. J. Filed July 1, 1884. (No model.)

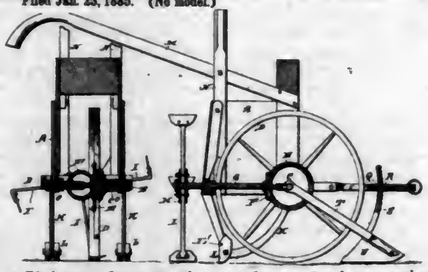


Claim.—1. The combination, with the water-trough, roller, vibrating roller, arms, and rock-shaft, of a lever-arm connected to the rock-shaft, a slotted cross, a roller, means, substantially as specified, for adjusting and holding the roller, and the wedge upon the bed, substantially as specified.

2. The combination, with the slotted cross and lever-arm, of the link and adjusting-screw *r*, the vibrating roller, and the trough and water-roller, substantially as set forth.

3. The combination, with the wedge on the bed, of the roller, the slotted cross, the adjusting-screw *r*, the lever-arm, rock-shaft, adjusting-link, and vibrating roller, substantially as specified.

317,195. COTTON-CHOPPER. WHITMAN PRICE, Mount Olive, N. C. Filed Jan. 23, 1885. (No model.)



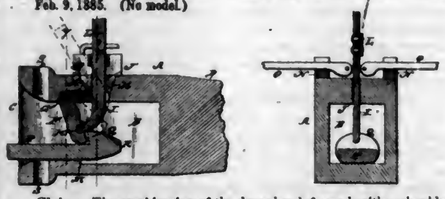
Claim.—1. In a cotton-chopper, a frame mounted upon a wheel, D, and having V-shaped brackets having pivoted shoes or runners, substantially as and for the purposes herein set forth.

2. In a cotton-chopper, a frame mounted upon a wheel, D, and having V-shaped brackets having pivoted shoes or runners at their lower corners, in combination with a pivoted draft-bar connected adjustably with an arm having a pivoted shoe or runner supporting the front end of the machine, substantially as and for the purpose herein set forth.

3. In a cotton-chopper, the combination of a frame, a transverse main shaft or axle having a bevel-gear, a longitudinal shaft having a pinion engaging said bevel-gear and provided at its rear end with a hub having radial arms provided with cutters, two pivoted runners supporting the main frame, and an adjustable draft-frame having a pivoted shoe or runner supporting the front portion of the frame, substantially as and for the purposes herein set forth.

4. In a cotton-chopper, the combination of a frame, supporting-brackets having pivoted runners, a transverse main shaft, a bifurcated draft-beam journaled upon the latter and having a toothed recess at its front end, a yoke journaled upon the main shaft within the draft-beam and having a segmental bar at its front end, connected adjustably with the front end of the draft-beam, and a shoe or runner pivoted at the junction of the yoke with its segmental bar, and a chain for adjusting the draft-bar and yoke with the front runner, substantially as and for the purpose herein set forth.

317,196. CAR-COUPLING. JOSEPH T. RAINEY, Marion, Ill. Filed Feb. 9, 1885. (No model.)



Claim.—The combination of the draw-head formed with a shoulder M, in its bottom, the latch-plate pivoted at its upper end in the top of the draw-head, above the said shoulder, and having the operating-rod secured rigidly to its rear face and extending through a beveled slot in the top of the draw-head, and the coupling-bar having shoulders at its ends, as and for the purpose shown and set forth.

317,197. APPARATUS FOR MANUFACTURING GAS FROM WOOD. GEORGE RAMSDELL, Oswego, N. Y. Filed Mar. 29, 1884. (No model.)

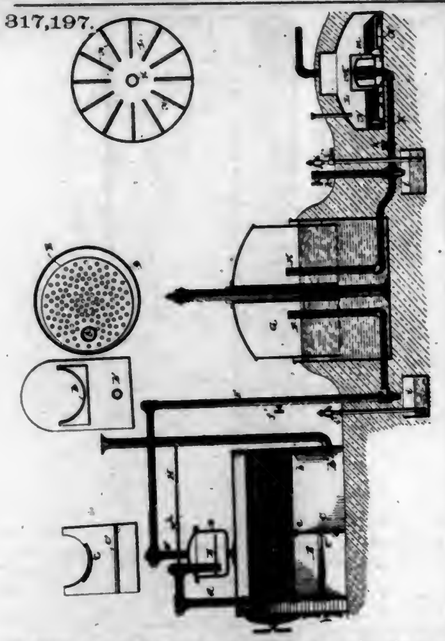
Claim.—1. The combination, with a retort, of a furnace inclosing the retort, the furnace being provided with a bridge-wall having a concave upper edge and flanges formed integral therewith for supporting the central portion of the retort, and with a concave projection formed integral with the rear furnace-wall for supporting the rear end of the retort, substantially as set forth.

2. The combination, with a retort and a furnace inclosing the retort, of a bridge-wall formed of a single casting, and provided with a concave upper portion having flanges for a retort-support, and a lug or lugs for grate-bar supports formed integral therewith, substantially as set forth.

3. The combination, with a retort and a furnace inclosing the retort, of a bridge-wall separating the front from the rear of the furnace excepting over the upper portion of the retort, the bridge-wall having flanges and lugs formed integral therewith, and a rear furnace-wall having a retort-support formed integral therewith, and a perforation near the base for attaching the take-up, substantially as set forth.

4. A retort-furnace, the rear wall being formed of a single casting having a concave-faced retort-rest formed integral therewith, the bridge-wall being formed of a single casting having grate-bar supports cast integral therewith, and a concave upper portion provided with laterally-extending flanges at the lower portion of the concave edge, and a take-up attached near the base of the rear wall, substantially as set forth.

317,197.



5. The combination, with a retort, a heat-conducting furnace-wall inclosing the retort, and a flue located between the retort and the top of the furnace-wall, of a washer secured to the furnace-wall above the fire-flue, a pipe connecting the washer and retort, a pipe leading from the washer to a gas-holder, and a pipe leading from the washer into a tank of liquid, whereby warning of any obstruction in the pipe leading to the holder is given by the commotion of the water in the tank, substantially as set forth.

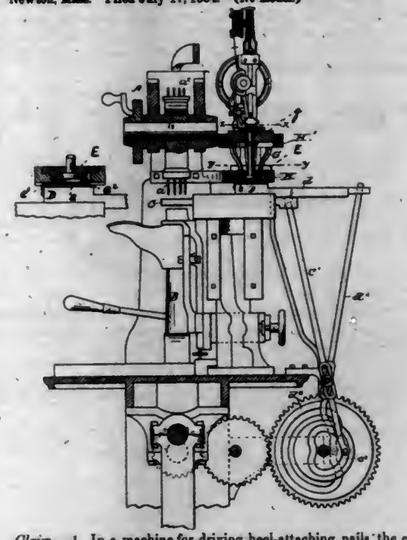
317,198. REPETITION-ACTION FOR UPRIGHT PIANOS. CARL P. RASMUSSEN, Copenhagen, Denmark. Filed Feb. 28, 1885. (No model.) Patented in Germany Dec. 13, 1882, No. 22,874, and in Denmark Jan. 31, 1883, No. 2,192.



Claim.—1. In an upright-piano action, the combination, with the hopper, push-rod, and hammer, of the lever N, pivoted below the push-rod upon a stud upon the hopper, spring O, placed between lever N and the hopper, connecting-rod Q, hinged at its upper end to the hammer-socket and having its lower end screw-threaded and fitting into the slotted end of lever N, and stop R, secured adjustably upon the lower end of the connecting-rod, as and for the purpose shown and set forth.

2. In an upright-piano action, the combination of the hopper C, having lug G, lever N, pivoted upon lug G and having its outer end slotted, spring O, placed between the hopper and the lever N, the hammer B, and the conecting-rod Q, pivoted at its upper end to the hammer and fitting with its lower end having the adjustable stop R in the slotted end of lever N, as and for the purpose shown and set forth.

317,199. HEEL-NAILING MACHINE. FREEBORN F. RAYMOND, 2d, Newton, Mass. Filed July 17, 1884. (No model.)



Claim.—1. In a machine for driving heel-attaching nails, the combination of a revolving nail-distributer and nail-holder adapted to receive heel-attaching nails and to automatically arrange them in the order for driving, with the sliding nail-carrier D, for receiving the nails from the distributer and nail-holder and for transferring them to a position to be simultaneously driven, all substantially as and for the purposes described.

2. The combination, in a heel-nailing machine, of a revolving nail distributer and holder, devices for making nails successively from a single wire and for delivering them in succession to the nail distributing and holding device, and a nail-carrier for delivering them to a position to be simultaneously driven, all substantially as and for the purposes described.

3. The combination, in a heel-nailing machine, of a revolving nail distributer and holder, devices for making nails successively from a single wire and for delivering them in succession to the nail distributing and holding device, a nail-carrier for delivering them to a position to be simultaneously driven, with a reciprocating head carrying a gang or group of awls, a gang or group of drivers, or a heel-spanker, substantially as described.

4. The combination, in a heel-nailing machine, of a revolving nail distributer and holder, devices for making nails successively from a single wire and for delivering them in succession to the nail distributing and holding device, a nail-carrier for delivering them to a position to be simultaneously driven, with a reciprocating head carrying a gang or group of awls, a gang or group of drivers, or a heel-spanker, and a templet, all substantially as described.

5. In a heel-nailing machine, the combination of revolving nail distributing and holding devices, devices for making nails and delivering them in succession to the nail-holder, and mechanism, substantially as described, for automatically starting and stopping said nail-making devices, substantially as set forth.

6. In heel-nailing devices, the combination of the nail-carrier D, the nail receiver, distributer, and holder E, mechanism for making nails and delivering them in succession to the receiver, and mechanism, substantially as specified, whereby upon the discharge of the nails from the holder E into the carrier D and forward movement thereof the nail-making machine is automatically set in operation to fill the nail-holder, and is then automatically stopped, all substantially as and for the purposes described.

7. The combination, in a heel-nailing machine, of nail-driving devices, nail-making devices, a revolving distributer and holder, and mechanism, substantially as described, for automatically starting the nail-making devices and adapted to be automatically set in operation imme-

diately after the nail-holder has discharged its nails, substantially as and for the purposes described.

8. The combination of the nail-driving devices, the revolving nail distributer and holder, and a nail-carrier adapted to be moved in relation to the nail-holder by devices substantially as described.

9. The combination of the nail making and feeding devices, the revolving distributer and holder, and mechanism, substantially as specified, for connecting and operating them with the nail-carrier and the nail-driving devices, substantially as described.

10. The combination of the nail distributer and holder G, cam g^4, and connecting devices, substantially as specified, all substantially as and for the purposes described.

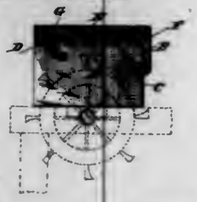
11. The combination of the transferring-block F, the driver-rod e^*, and the revolving distributer and nail-holder G, having holes g', into which the nails are driven by the driver, the end of which is adapted to enter the holes g' at the end of its downward stroke, all substantially as and for the purposes described.

317,200. HORSESHOE. WILLIAM F. RAYMOND, Sandusky, Ohio. Filed Nov. 20, 1884. (No model.)



Claim.—In a horseshoe, the combination, with the detachable spring heel-pieces, of the screw-calks overlapping the front or attached ends of the same, as and for the purpose shown and set forth.

317,201. THRASHING-MACHINE. ANDREW J. REDMAN, La Crosse, Kans. Filed Jan. 13, 1885. (No model.)



Claim.—1. In combination with a thrashing-machine cylinder, the cap A, constructed with a vertical front wall or cross-bar, and an extension, C, projecting inwardly and upwardly inclined to form, in connection with said front wall of the cap, an eddy-chamber and dust-space, F, substantially as set forth.

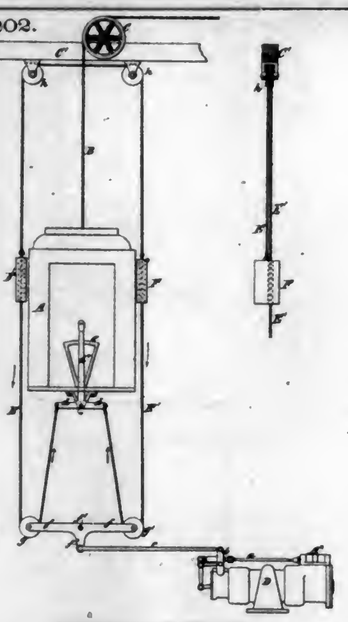
2. The combination, with the cylinder and its cap, of inwardly-inclined strips C and D, the former being secured to the vertical front wall of the cap and inclined upwardly therefrom, and the latter in rear of the cylinder to form dead-air and dust spaces F and G, and having beveled edges adjacent to the cylinder, substantially as set forth.

317,202. MEANS FOR CONTROLLING THE OPERATION OF ELEVATORS. GEORGE H. REYNOLDS, New York, N. Y., assignor of one-half to Crane Brothers Manufactering Company, Chicago, Ill. Filed Jan. 5, 1885. (No model.)

Claim.—1. The combination, with the car or cab and its controlling-valve, of a lever or hand gear on the car or cab, and occupying a stationary position relatively thereto as it travels, sheaves $g\,g'$, and bearings therefor arranged at the bottom of the shaft and adapted to move upward and downward, other sheaves, $h\,h$, at the top of the shaft, flexible connections passing around these sheaves from the top to the bottom of the shaft and connected at their one end with the said lever or hand gear on the car or cab, and connections between the valve and the movable bearings for the sheaves $g\,g'$ at the bottom of the shaft, through which the movement of the lever or hand gear on the car and the rising movement of one or other of the sheaves $g\,g'$ will effect the shifting of the valve, substantially as herein described.

2. The combination, with the car or cab and its controlling-valve, of a beam fulcrumed at the bottom of the elevator-shaft, connected with said valve and provided with sheaves $g\,g'$, sheaves h at the top of the elevator-shaft, a lever or hand gear occupying a stationary position on the car or cab as it travels, and flexible connections attached at their one end to said lever or hand gear, and thence passed downward under the sheaves $g\,g'$, then upward over the sheaves h, and weighted at their other end, substantially as herein described.

317,202.



317,203. LAMP-EXTINGUISHER. HENRY D. RICHARDSON, Ansonia, Conn., assignor to Wallace & Sons, same place. Filed Feb. 9, 1885. (No model.)



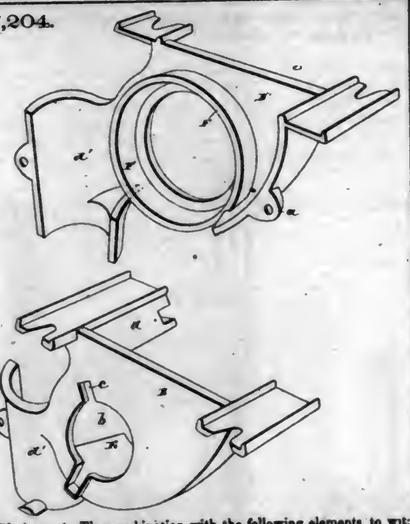
Claim.—1. In a lamp-burner, the combination therewith of the wick-tube, the slide D, arranged for vertical movement on the wick-tube, and carrying a vertical side, E, parallel with and outside of one side of the wick-tube, the flap F, hinged to said slide opposite the fixed side E, and so that its inner surface may ride against the corresponding side of the wick-tube, the said flap constructed with an arm, b, and a lever in connection with said arm b of the flap, substantially as described, whereby after the slide reaches its highest elevation the flap will be turned over the wick-tube or turned away therefrom before the slide begins its descent.

2. In a lamp-burner, the combination therewith of the slide D, arranged for vertical movement on the wick-tube, and carrying the fixed side E, said slide constructed with downward projections e, to form stops on the ascent of the slide, the flap F, hinged to the slide opposite the fixed side E, adapted to work against the corresponding side of the wick-tube, and constructed with an arm, b, projecting outward therefrom, with a lever in connection with said arm, substantially as described, and whereby the said slide may be raised to its full height, and after such full height is attained the flap be turned over to close upon said side E, or turned therefrom before the descent of the slide commences.

317,204. FORCE-FEED SEEDING-MACHINE. J. L. RITER, Brownsville, Ind. Filed Dec. 23, 1884. (No model.)



317,204.



Claim.—1. The combination with the following elements, to wit: a force-feed seed-cup, a force-feed seed-wheel, devices for graduating the flow of seed, and a revolving washer having a rim surrounding the force-feed wheel and operating in conjunction therewith.

2. In a force-feed seeding-machine, the combination, with a force-feed wheel and a gate or gates for regulating the discharge, of a revolving rose-washer having a rim surrounding said wheel, and adapted to render uniform the discharge of the seed propelled toward the discharge-point of the seed-cup by said force-feed wheel.

3. In a seeding-machine, the combination, with a seed-cup, of a force-feed seed-wheel and a rotating washer having an inwardly-projecting rim acting in conjunction with the seed-wheel.

4. The combination, with a seed-cup having an oblique discharge-lip, of a force-feed seed-wheel, and a rotating washer having an inwardly-projecting rim acting in conjunction with the seed-wheel, substantially as set forth.

5. The combination, with a rotating and sliding shaft, and a force-feed wheel secured thereon, of a rotating washer having an inwardly-projecting rim or flange located within the cup and actuated by the feed-wheel.

6. The combination, with a rotating and sliding shaft, of a flanged rose-washer actuated by the feed-wheel, and a feed-wheel secured to the shaft and actuating the flanged washer.

7. The combination, with a seed-cup and the flanged rose-washer, of the sleeve journaled in the side wall of the cup, a shaft passing through the sleeve, and a hollow feed-wheel secured to the shaft and adapted to partly or wholly embrace the sleeve, substantially as set forth.

8. The combination, with a seed-cup and a flanged rose-washer, of the sleeve journaled in the side wall of the cup, the gates connected by a web, which latter holds the sleeve in position in its bearings in the side wall, and a shaft for rotating the flanged washer, feed-wheel, and sleeve, substantially as set forth.

9. The combination, with a seed-cup, a shaft, and a force-feed wheel, and a cut-off gate or gates mounted on said shaft in contact with each other, of a collar resting against the outer end of the feed-wheel and secured to the shaft, and a collar resting against the hub of the cut-off gates and secured to the shaft, substantially as set forth.

10. The combination, with a seed-cup, a shaft, and a force-feed wheel and cut-off gate or gates mounted on said shaft in contact with each other, of the collar secured to the shaft outside of the feed-wheel, and the collar secured to the shaft outside of the hub of the cut-off gate or gates and forming a bearing for said hub, substantially as set forth.

317,205. TRIMMING ATTACHMENT FOR SEWING-MACHINES. A. B. ROBERTS, Thorndike, and C. H. FORBES, Brooks, Me. Filed July 16, 1884. (No model.)

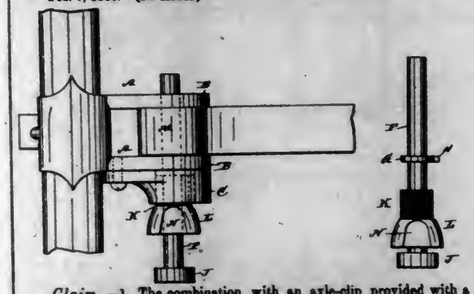


Claim.—The combination, with the needle-bar A, slotted blade C C', and needle a, the blade and needle being arranged on opposite sides of the bar, of the clamping-screw D, and nut D', the head of the screw pressing upon the blade C in the slot C' to hold it to any height, and the nut D' bearing upon the needle a, whereby the blade and needle are released and tightened together, as set forth.

317,206. BATTERY-FLUID. ISAIAH L. ROBBINS, Brooklyn, N. Y. Filed Nov. 6, 1884. (No specimens.)

Claim.—A battery-fluid consisting of permanganate of potash and the salt of an alkali dissolved in water, combined with the negative and positive elements of a battery-cell, substantially as specified.

317,207. THILL-COUPLING. JOS. A. ROBSON, Everest, Kans. Filed Feb. 7, 1885. (No model.)

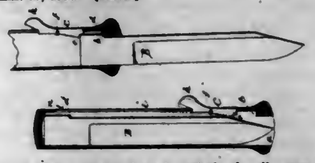


Claim.—1. The combination, with an axle-clip provided with a screw-threaded aperture, of a bolt having a collar, and a tubular nut mounted loosely on the bolt, substantially as herein shown and described.

2. The combination, with an axle-clip provided with a screw-threaded aperture having a longitudinal groove, of a bolt having a collar provided with a tooth, and of a tubular nut loosely mounted on the bolt, substantially as herein shown and described.

3. The combination, with an axle-clip having a screw-threaded aperture, of the bolt F, having a collar, and of the tubular nut K, mounted loosely on the bolt, and having a head, L, provided with a recess N, substantially as herein shown and described.

317,208. POCKET-KNIFE. WILLIAM F. ROCKWELL, Meriden, Conn. Filed Mar. 16, 1885. (Model.)



Claim.—1. The combination of a tubular handle open at one end, a blade adapted to slide longitudinally in said handle, the handle and blade each constructed with a shoulder to arrest the blade when thrown to its out position, the latch C, hung in the back of said handle and at the back of the blade, the nose of said latch adapted to engage the blade in either its out or in positions, with the spring i, arranged in the back of the handle, its rear end supported beneath a lug in the handle, and constructed with lateral projections r, and the lining of the handle with corresponding recesses to receive said projections and form a support for said spring, the said spring extending beneath the latch in rear of its pivot, substantially as described.

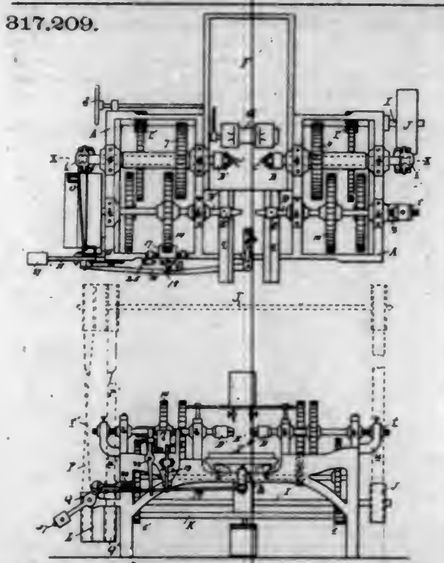
2. The combination of a tubular handle open at one end, a blade adapted to slide longitudinally in said handle, the handle and blade each constructed with a shoulder to arrest the blade when thrown to its out position, the latch C, hung in the back of the handle and at the back of the blade, the nose of said latch adapted to engage the blade in either its out or in positions, with the spring i, arranged in the back of the handle, the said spring extending beneath the latch in rear of its pivot, substantially as described.

317,209. LATHE. LOUIS C. ROEDER, Detroit, Mich. Filed Jan. 16, 1884. (No model.)

Claim.—1. In a machine for the purposes described, a set of head-stocks, as D D', carrying taps, and the work-carrying table F, in combination with the belt-shifting devices, substantially as described, all combined and arranged to serve jointly with the set of head-stocks B B', carrying chamfering-tools, as set forth.

2. In a machine for the purposes described, the head-stocks D D', for operating the taps, the carriage F, the shaft K, and intermediate gearing for revolving said head-stocks in opposite directions, the pin A on the carriage F, and the switch-lever v, secured to the frame and actuated by said pin to automatically operate a belt-shifting device, in combination with the live-pulley L, having idlers on each side, and belts P P', running in opposite directions, and said belt-shifting device, whereby the shaft K can be revolved in opposite directions by changing the belt upon the live-pulley, or stopped entirely by running both belts on the idlers, substantially as described.

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3. In a machine for the purposes described, an automatically-operating device for reversing and stopping the action of the head-stocks carrying the taps, said head-stocks being threaded upon their inner ends and engaging in stationary nuts, said device consisting of the sliding block 17, wedge 18, lever 19, notched bar M, gear-wheel 14, vibrating lever *v*, spring-latch *z*, lug *y*, pin *h* in carriage F, vibrating lever 22, set-screws 25 and 26, weighted lever N, belt-shifter O O', belts P P', idlers Q Q', pulley L, shaft K, and intermediate gearing between shaft K and the head-stocks D D', all arranged, combined, and operating substantially as described.

4. In a machine for the purposes described, a set of head-stocks, D D', provided with taps, said head-stocks receiving their rotary motion by intermediate gear from one common shaft, in combination with the devices for reversing and stopping the motion of said shaft, the same being operated by one of said head-stocks in its longitudinal movement, substantially as and for the purposes described.

5. In a machine for the purposes described, a set of revolving head-stocks, as D D', and a carriage, F, having a pin, *h*, in combination with a lever, one end of which is arranged in the path of said pin, and the opposite end connected with a belt-shifter, substantially as and for the purposes described.

6. In a machine for the purposes described, a set of revolving head-stocks, as D D', carrying taps, and constructed to be revolved in opposite directions from one common shaft by intermediate gearing, substantially as described, in combination with the carriage F, having pin *h*, the switch-lever *v*, pivotally secured to the frame, and the bar M, one end pivotally secured to said switch-lever and the other end connected with a belt-shifter, substantially as and for the purpose specified.

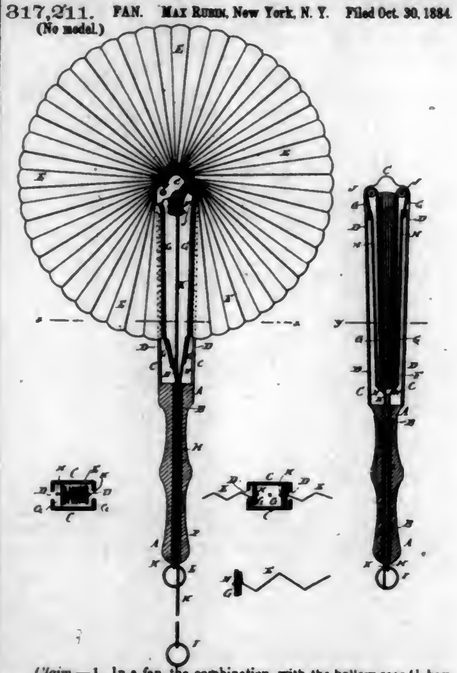
317,210. CHICKEN-BROODER. FRANK ROSEBROOK, Elmira, N. Y. Filed Aug. 1, 1884. (No model.)



Claim.—1. In a brooder, the combination, with the casing A, of the box E, surrounding heating-pipes, and provided in its top with apertures, a pipe for conducting fresh air into the box, and strips of flannel or analogous fabric held above the box, substantially as herein shown and described.

2. In a brooder, the combination, with the casing A, of the box E, surrounding heating-pipes, and provided with apertures in its top, the pipe L, for conducting fresh air into the box E, the bars or rods J, held above the box E, and the flannel strips K, suspended from the said bars or rods, substantially as herein shown and described.

317,211. FAN. MAX RUBIN, New York, N. Y. Filed Oct. 30, 1884. (No model.)



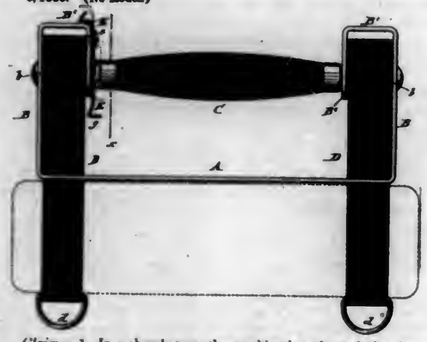
Claim.—1. In a fan, the combination, with the hollow case C, having central longitudinal slots, D, in its sides, and provided with a perforated handle, A, and the folded fan E, having its folds fastened together at one end and its side folds sewed together along their central lines, of the guide-pins J and the cords H K, substantially as herein shown and described, whereby the said fan can be readily opened and closed, as set forth.

2. In a fan, the folded fan E, made, substantially as herein shown and described, with its folds fastened together at one end and its side folds sewed together along their central lines to adapt the said side folds to serve as flanges to support the side edges of the said fan when in use, as set forth.

3. In a fan, the combination, with the side folds of the fan E, of cords H, connected with the outer ends of the said side folds and passing over the guide-pins J and through the perforated handle A, substantially as herein shown and described, whereby the said fan can be readily opened, as set forth.

4. In a fan, the hollow case C, constructed, substantially as herein shown and described, with central longitudinal slots in its sides, and provided with a longitudinally-perforated handle, A, and with guide-pins J, whereby the said case is adapted to receive the fan and its operating-cords, as set forth.

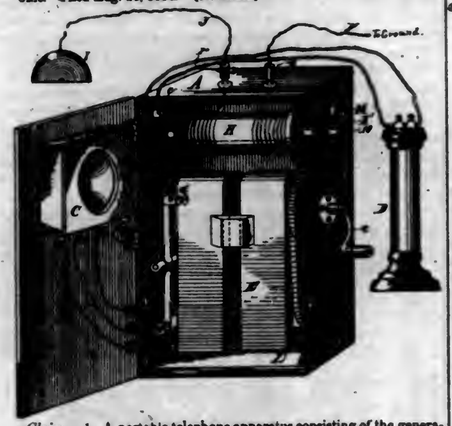
317,212. SHAWL-STRAP. MAX RUBIN, New York, N. Y. Filed Mar. 6, 1885. (No model.)



Claim.—1. In a shawl-strap, the combination of a main bar having standards bent at right angles thereto, and provided with U-shaped guards, an axially-turning handle having a shank with a square portion, and a locking slide-plate guided on the guard of one of said standards and provided with a longitudinal slot enlarged at one end, substantially as set forth.

2. In a shawl-strap, the combination of a main bar having standards bent at right angles thereto, and provided with U-shaped end guards, an axially-turning handle having a shank with a square portion, and a locking slide-plate guided along the guard of one of the standards and provided with a longitudinal slot and bent-up side flanges, said flanges engaging the square portion of the handle, substantially as set forth.

317,213. PORTABLE TELEPHONE. OLIVER H. SAXTON, Washington, Ohio. Filed Aug. 26, 1884. (No model.)



Claim.—1. A portable telephone apparatus consisting of the generator-switch and receiving-instrument suitably inclosed in the box A, with the wires F J projecting from said box and adapted to connect the instrument in box A with the main-line circuit and ground, the wire J being provided with a weight, I, substantially as specified.

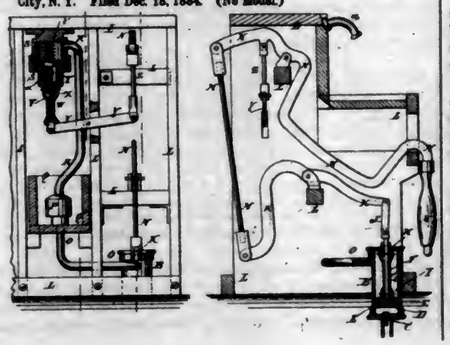
2. A portable telephone-instrument consisting, substantially, of the box A, generator B, switch N, and the folding or extension wires F J, adapted to be inclosed in the box A for transportation, and to be readily connected with the wire of a main-line circuit, the line J being provided with a weight, I, substantially as specified.

3. In combination with the generator and receiving-instruments of a telephone, the reel H, mounted within the box A and carrying the wires F J, connected in circuit with the telephone-instrument, and adapted to be unwound and connected to the main-line circuit, substantially as specified.

4. In a portable telephone-instrument, the combination of a transmitter, a receiver, a generator, a reel, H, wires F J, winding thereon, and a sliding plate, K', furnishing a bearing for one end of the shaft of the reel and adapted to bring the disk K into or out of frictional gearing with the motion-communicating parts of the apparatus, substantially as described.

5. In a portable telephone-instrument, the combination of a transmitter, a receiver, a generator, reel H, wires F J, to wind thereon, belt L, passing over pulleys, one of which is secured to the shaft of the driving-crank, a disk, K, on one head of the reel, and a sliding plate, K', supporting the axle 10 of the reel, and adapted to move disk K into or out of operative connection with the belt, substantially as described.

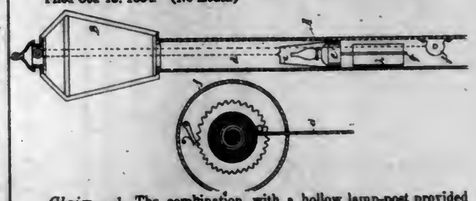
317,214. ALE AND BEER PUMP. EDWARD SCHLIEBACH, Long Island City, N. Y. Filed Dec. 18, 1884. (No model.)



Claim.—1. In an ale and beer pump, the combination, with the pump piston-rod F, of the two curved levers K N and the connecting-rod M, substantially as herein shown and described, whereby the said pump can be operated by moving the lever-handle through a short arc, as set forth.

2. In an ale and beer pump, the combination, with the pump discharge-pipe O R *a* and the pump bent lever N, of the cylinder S, the valve T, the valve-stem V, and the lever Y, and connecting-rod Y Z, substantially as herein shown and described.

317,215. STREET-LAMP. H. GEORGE SCHUETTE, Manitowoc, Wis. Filed Oct. 13, 1884. (No model.)



Claim.—1. The combination, with a hollow lamp-post provided with a door or opening in its lower portion, of an elevator adapted to carry a lamp and suspended from a spring-barrel for being raised and lowered in the post, substantially as and for the purpose set forth.

2. The combination, with a hollow lamp-post, of an elevator or platform within the post and adapted to carry a lamp, a chain or cord supporting the elevator, and a spring-barrel carrying the chain or cord, as set forth.

3. The combination, with a hollow lamp-post, of elevator *c*, arranged for movement up and down within the post, suspension chain or cord *d*, and spring-barrel *f*, substantially as set forth.

4. The combination, with a hollow lamp-post and an elevator constructed to be moved up and down therein, and a stop-and-ratchet mechanism for retaining the elevator at any desired position, substantially as set forth.

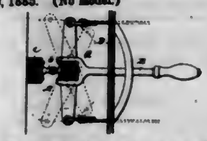
5. The combination, with a hollow lamp-post, of elevator *c*, suspension chain or cord *d*, spring-barrel *f*, and a stop acting automatically to hold the elevator, substantially as described.

317,216. HAIR-CURLING PIN. JEAN SCHWIEBERT, Barmen, Prussia, Germany. Filed June 26, 1884. (No model.) Patented in Germany Jan. 12, 1885, No. 30,626.



Claim.—A hair-curling pin consisting of two shanks pivoted at one end and connected by a spring-clasp at the opposite end, the faces of the shanks being provided with a tongue and groove, so as to fit closely one into the other, substantially as set forth.

317,217. VALVE-OPERATING MECHANISM. LEVI T. SCOFIELD, Cleveland, Ohio, assignor to the Hydraulic Elevator Company, Chicago, Ill. Filed Mar. 30, 1885. (No model.)



Claim.—1. The combination, with an elevator-cage, of a vertical shaft pivoted at intervals along one side to brackets or bearings, and a handle extending from the cage to said shaft and constructed to slide upon and turn with the shaft without contact with the connections between the latter and its supports, substantially as described.

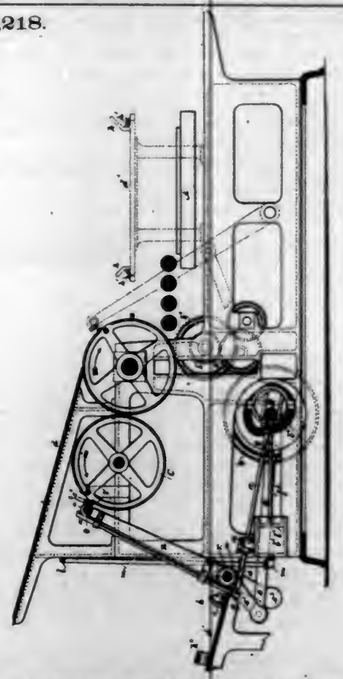
2. The combination of the vertical shaft hung to bearings at one side and connected to the stopping and starting mechanism of an elevator, with the elevator-cage and a handle extending from the cage to the shaft and fitted to slide and turn with the latter without contact with the bearings of the shaft, substantially as described.

3. The combination, with the elevator-cage and vertical shaft connected to the starting and stopping devices and suspended to supports at one side, of a handle extending from the cage and provided with forks gripping the shaft, substantially as and for the purpose set forth.

317,218. DELIVERY APPARATUS FOR PRINTING-MACHINES. W. SCOTT, Plainfield, N. J. Filed Dec. 23, 1883. (No model.)

Claim.—1. The fly-frame and its rock-shaft, in combination with grippers, a rock-shaft at the outer end of the fly-frame carrying such

317,218.



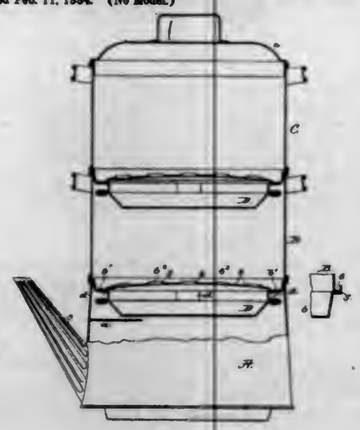
grippers, a stationary cam for opening or closing the grippers, and a positive-motion mechanism, substantially as specified, for swinging the fly-frame and grippers, and mechanism, substantially as specified, for opening the grippers by contact with the stationary cam, and a spring to close such grippers, substantially as set forth.

2. The combination, with the fly-frame and grippers for delivering the sheet, of a pinion at the axis of the fly-frame, a rack and cam to move the same, and a rack upon the fly-frame, receiving motion from the pinion and acting to move the grippers for opening and closing the same, substantially as set forth.

3. The combination, with the fly-frame and grippers, of a crank and connecting rod for giving motion to the fly-frame, the rack 13, pinion 14, and a rack on the fly-frame and pinion 10 on the gripper rock-shaft, and cams for giving motion to the parts, substantially as set forth.

4. The combination, with the delivery-cylinder C, of a fly-frame, R, and grippers at the outer end thereof to receive the advancing end of the sheet and convey the same outwardly and downwardly to the distant end of the delivery-table, and an air-pipe with jets, beneath which the sheet is drawn by the fly and grippers, whereby said air-jets force the back end of the sheet down upon the table, substantially as specified.

317,219. CULINARY STEAMER. GEORGE F. SEAVEY, Boston, Mass. Filed Feb. 11, 1884. (No model.)

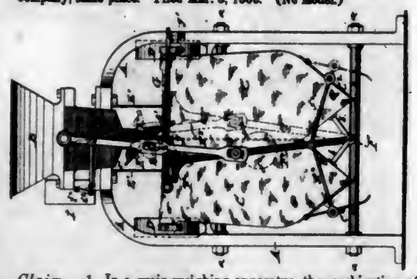


Claim.—1. A culinary vessel consisting, essentially, of a kettle or steam-generator, and one or more superimposed vessels, the bottom of the latter having a convexed upper surface, and being provided with holes b^2, having raised or upward-projecting edges 8, the said holes being distributed over the entire bottom with the exception of a strip or portion next the vertical walls of the vessel, said slit or portion having an annular groove adapted to receive and contain any water of condensation or other fluids, substantially as described, and for the purpose specified.

2. A culinary steamer consisting, essentially, of a kettle and one or more superimposed vessels, the vessel contiguous to the kettle being provided with a bottom having holes or perforations in its middle or central portion, and an imperforate drip-pan of less diameter than the perforated bottom, and removably suspended below said perforated bottom to catch any drippings from the vessel through said perforations, and to permit the ready passage of steam from the kettle around and over the drip-pan, so as to enter the vessel through the perforations, all substantially as set forth.

3. In a culinary steamer, a vessel provided with a perforated bottom and supports or holders secured to the under side of the perforated bottom, combined with an imperforate drip-pan removably retained in the supports or holders, so as to be suspended from the perforated bottom, and adapted to catch any drippings from said bottom, while permitting the free passage of steam around and over the drip-pan and through the perforated bottom, substantially as described.

317,220. AUTOMATIC GRAIN-WEIGHING APPARATUS. CHARLES SEIBELS, New York, N. Y., assignor to the New York Automatic Scale Company, same place. Filed Mar. 3, 1885. (No model.)



Claim.—1. In a grain-weighing apparatus, the combination of a scale-beam, a bucket having a fixed central partition and separate hinged bottoms, an oscillating arm having a T-shaped head, pivot-links connecting said arms with the hinged bottoms, a stop-lever pivoted at one end to the bucket and retained at the other end by a fixed set-screw, and adjustable stop-screws arranged sidewise on the lever, said stop-screws engaging either end of the T-shaped head for locking the arm in inclined position at either side of the central partition, substantially as set forth.

2. The combination, in a grain-weighing machine, of a scale-beam, a bucket having a central partition and separate hinged bottoms, a rock-shaft vertically below the partition, an oscillating arm having a T-shaped head attached to one end of the rock-shaft, a weighted arm attached to the other end of the rock-shaft, pivot-links connecting the oscillating arms with the hinged bottoms, and a lever pivoted to the bucket and having stop-screws that engage or release the T-shaped head of the oscillating arm, substantially as set forth.

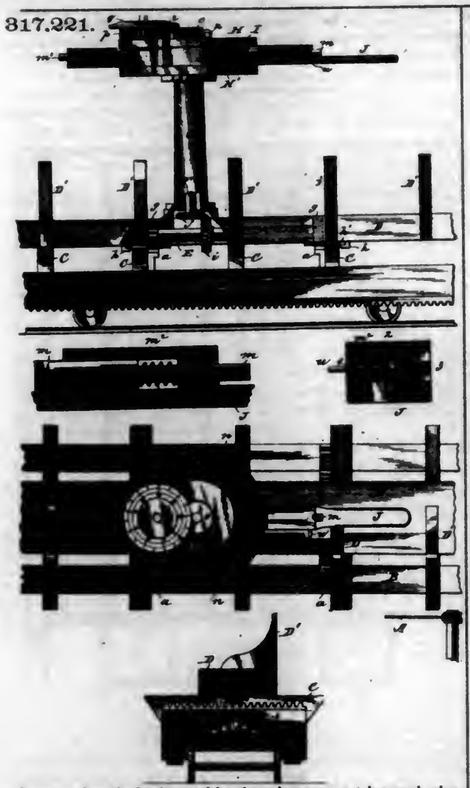
3. The combination, in a grain-weighing apparatus, of a scale-beam, a bucket having a central partition and separate hinged bottoms, an oscillating arm, pivot-links connecting the oscillating arms with the hinged bottoms, means for locking or releasing the oscillating arm, a supply-hopper having a discharge-spout, an oscillating valve below the discharge-spout, an upper oscillating arm pivoted to the hopper, the lower oscillating arm, and the crank-arm of the valve, whereby the valve is tilted simultaneously with the lowering of the bucket and opening of one of the bottoms, substantially as set forth.

4. In a grain-weighing machine, the combination of a scale-beam, a bucket having a central partition and hinged bottoms, a supply-hopper having a discharge-spout, an oscillating valve below the discharge-spout, vertical side walls extending from the hopper into the upper part of the bucket, an upper oscillating arm pivoted to a crank-arm of the valve, a lower oscillating arm pivoted to the upper arm and connected to the hinged bottoms, and a stop-lever having stop-screws for releasing or locking the lower oscillating arm, so as to cause the tilting of the supply-valve by the motions of the oscillating arms, substantially as set forth.

317,221. SAW-MILL SET-WORKS. BENJAMIN E. SERGEANT, Greensborough, N. C. Filed Feb. 17, 1885. (No model.)

Claim.—1. The combination, in a saw-mill set-works, of the head-blocks C, having racks *a*, the log-bar D, and the shaft E, arranged longitudinally with the log-bar and immediately beneath or within the same, and having pinions *g g*, meshing with the racks, a vertical column,

317,221.



G, mounted on the log-bar, and bearing a lever and ratchet mechanism, and containing a shaft connected to the shaft E by bevel-gears, as and for the purpose described.

2. The combination, with the head-blocks, log-bar, knees, carriage, and setting mechanism of a saw-mill, of a normally-stationary rack attached to said head-block at right angles to the path of the carriage, and means, substantially as described, for adjusting said rack-bar in a right line at right angles to the path of the carriage and plane of the saw to or from the latter, whereby the rack, log-bar, and knees may be together adjusted to or from the saw, substantially as described.

3. The combination, with the head-blocks having longitudinal slots *b* and laterally-projecting lugs *e e*, of the racks having bolts *c* passing through said slots, and projection *d*, depending between the lugs, and the set-screws *f*, bearing against projection *d*, substantially as described.

4. The combination, with the log-bar and its setting mechanism, as described, of the vertical shaft F, the hollow column having disks H H', the ratchet-wheel I, located between them, the horizontal lever J, hung upon shaft F, and arranged between said disks, and having axially-adjustable spring-seated pawl *m* with pin *n*, and the triple notched bearings 1 2 3, substantially as shown and described.

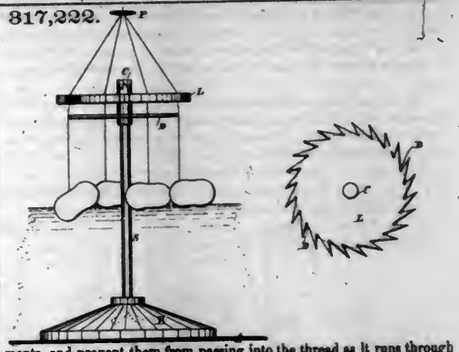
5. The combination, with the log-bar D and its attached setting mechanism, the vertical shaft F, ratchet-wheel I, and lever J, bearing a pawl, of the upper and lower disks, H H', arranged horizontally upon opposite sides of the ratchet-wheel and lever, and perforated, as described, and provided with stop-pins for limiting the throw of the lever, as set forth.

6. The combination, with the log-bar D and its attached setting mechanism, of the vertical shaft F, bearing ratchet-wheel I and lever J, the upper and lower disks, H H', arranged upon opposite sides of the ratchet-wheel and lever, the pinion *o*, fixed rigidly to shaft F, toothed wheel *p*, and graduated disk *q*, and index-hand *r*, substantially as and for the purpose described.

317,222. DEVICE FOR REELING SILK FROM THE COCOON. EDWARD W. SERRELL, Jr., New York, N. Y. Filed Feb. 27, 1884. (No model.)

Brief.—In the water-basin is placed a stand carrying a plain disk or guide for the filaments as they pass upward from the cocoons, and having above the plain guide a notched guide of fibrous material intended to catch the chrysalides of expended cocoons or imperfections in the fila-

317,222.

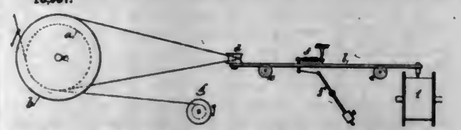


ments, and prevent them from passing into the thread as it runs through the agate or filament-attaching device.

Claim.—1. The combination, with the water-vessel and agate for the filament, of a guide of fibrous material for the silk in its passage from the cocoon to the agate for catching imperfections, substantially in the manner and for the purpose hereinbefore set forth.

2. The combination, with the water-vessel and agate for the filament, of a notched guide of fibrous material and a plain guide for insuring the proper positions of the filaments, substantially in the manner and for the purpose hereinbefore set forth.

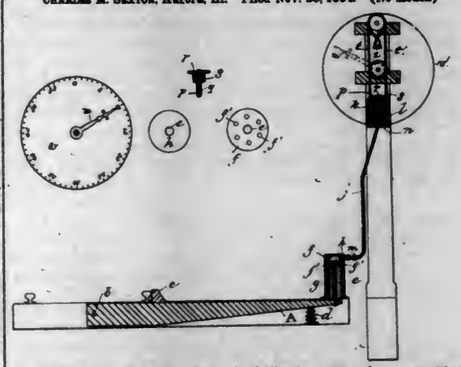
317,223. METHOD OF AND DEVICE FOR TESTING THE SIZE OF SILK THREADS. EDWARD W. SERRELL, Jr., New York, N. Y. Filed June 6, 1234. (No model.) Patented in France Feb. 7, 1881, No. 141,063; in Italy Feb. 28, 1881, No. 12,864, and in Germany Sept. 6, 1881, No. 18,937.



Claim.—1. The method herein specified of obtaining an indication or movement corresponding to the variations in the sectional area of a thread, consisting in moving the thread along progressively, stretching the same, and sustaining a yielding device by the thread, so that the motion of the yielding device indicates the size or strength of the thread or filament, substantially as specified.

2. The combination, with two drums revolving together at different circumferential speeds, of a pulley or guide, and a yielding support for each pulley or guide for operating on an extensible thread, substantially as specified.

317,224. PNEUMATIC TIME-SIGNAL FOR RAILWAY-TRAINS. CHARLES M. SEXTON, Aurora, Ill. Filed Nov. 28, 1884. (No model.)



Claim.—1. A railway-signal for indicating to a train approaching the signal the length of time since the last preceding train left the signal, comprising, in combination, a lever operated by a passing train, a rising and falling liquid-sealed air-chamber actuated by connections from said lever, and cords or chains connecting such air-chamber to counterbalancing-weights, and passing around rollers or shafts to which is attached the indicating or signaling hand, substantially as set forth.

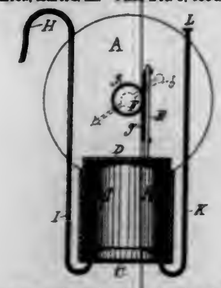
2. In a railway-signal for indicating the length of time since the last preceding train left the signal, the combination of a lever operated

by a passing train, an air-pump actuated by such lever, an air-tube leading from such pump to a liquid-sealed air-chamber arranged to rise and fall, and weighted cords or chains connected to such chamber and serving to actuate the hand of the signaling-dial, substantially as set forth.

3. In combination with the lever, an air-pump provided with an adjustable valve, the tube, stationary vessel, rising and falling chamber, and an adjustable valve thereon for controlling at will the exit of air from such chamber, and for the purpose set forth.

317,225. TRAIN-TIME SIGNAL FOR RAILWAY-STATIONS.

CHARLES M. SEXTON, Aurora, Ill. Filed Dec. 3, 1884. (No model.)



Claim.—1. A pneumatic train-time signal or indicator having, in combination, an air-tube through which air may be blown, a rising and falling air-chamber raised and supplied with air by means of such tube, and a pointer on a dial adapted to be set by the rising of such chamber to any desired figure on a dial to indicate the number of minutes before the next train leaves for a given destination, the pointer then automatically moving and continuing to indicate the minutes until the train leaves.

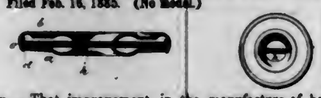
2. In combination with an air-receiving tube, H I, the vessel C, air-chamber D, the revolving pointer-shaft actuated by the movement of said chamber, and an air-exit pipe provided with a regulating-valve adapted for controlling the exit of the air and the movement of the pointer.

3. In combination, the tube H I, valve *j*, chambers C D, rod or post E, dial-shaft and pointer, tube K, and its regulating-valve, substantially as shown and described.

4. In a railway-signal, the combination of a vessel, C, air-chamber D, pointer-shaft actuated by the movement of said chamber, and an air-exit pipe, K, provided with a regulating-valve, and means, as described, for setting the shaft and its pointer.

317,226. MANUFACTURE OF BUTTONS.

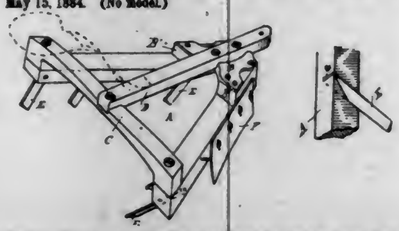
ALFRED J. SHIPLEY, Waterbury, Conn., assignor to the Scovill Manufacturing Company, same place. Filed Feb. 16, 1885. (No model.)



Claim.—That improvement in the manufacture of bar buttons which consists in striking up a front and back disk, each having a central perforation and a peripheral flange, introducing into one disk centrally across the perforations a straight bar of proper length to fit the inner walls of the flange, bending said flange down sufficiently to hold said bar in place, and subsequently inclosing the edge of said disks within the flange of the other disk, substantially as set forth.

317,227. PULVERIZER.

ALONZO SKINNER, Warren, Mich. Filed May 15, 1884. (No model.)



Claim.—In a pulverizer, and in combination with the frame A thereof, provided with kerfs formed diagonally through the same at the junction of two of its sides, the teeth F, wedge-shaped in cross-section and set in said kerfs, substantially as described.

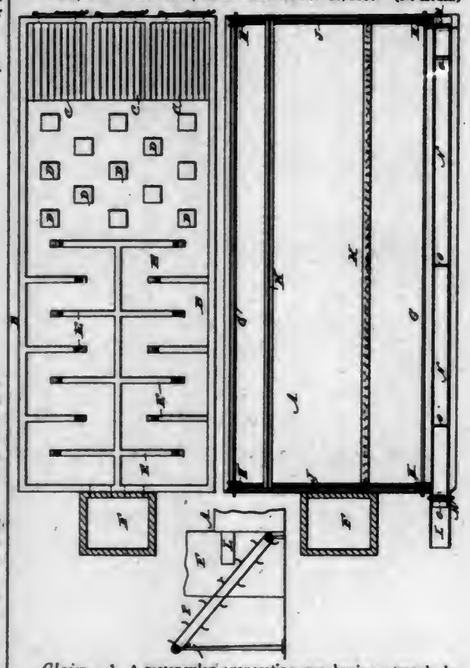
317,228. REMEDY FOR HOG-CHOLERA.

CALEB P. SMITH, Clyde, Mo. Filed Aug. 19, 1884. (No specimens.)

Claim.—The herein-described compound, to be used for the treatment and prevention of cholera in hogs and chickens, of pulverized alum, Venetian red, and pulverized bloodroot, in the proportions substantially as specified.

317,229. SALT-EVAPORATING PAN.

GEORGE H. SMITH, Haverstraw, N.Y. Filed Oct. 7, 1882. Renewed Feb. 19, 1885. (No model.)



Claim.—1. A rectangular evaporating-pan having a trough depressed below the general level of the pan-bottom, and carriers provided with hoes operating in the body of the pan to scrape the salt into the trough, substantially as described.

2. In combination with a rectangular pan having a depressed trough in its bottom, a series of hoes in the body of the pan operating to scrape the salt into the trough, and a conveyer in the trough to remove the salt therefrom, substantially as described.

3. The combination, with a rectangular evaporating-pan having a depressed trough in its bottom, of endless-chain carriers provided with hoes operating in the shallow part of the pan to scrape the salt into the trough, and an endless conveyer moving at right angles to the path of movement of said hoes to remove the salt from the trough, all substantially as described.

4. The combination, with an evaporating-pan, of the furnace B, provided with a series of fire-places, C, piers D, and transverse partitions E, substantially as herein shown and described, and for the purpose set forth.

317,230. CAMERA-STAND.

JAMES H. SMITH, Chicago, Ill. Filed Nov. 10, 1884. (No model.)



Claim.—1. A tilting and locking device, consisting in hinged or folding leaves, to the free side of one of which leaves is fixed a notched rod or plate, and to the corresponding side of the other leaf is pivoted an arm, to which is hung a pawl adapted to engage the notches of said fixed plate, as herein described.

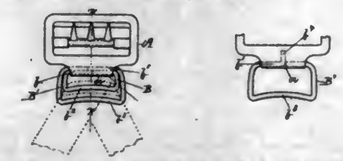
2. In a camera-stand, the top C, notched pendant G, hinged leaf D, pivoted arm E, pivoted pawl F, handle F', slot *e*, and tooth *f*, as set forth.

3. In combination with the main frame A A' and the elevating device H I K L, the vertically-movable frame B, having a beveled face, B', the block O, trigger P, and spool Q, as herein set forth.

4. A camera-stand consisting of the frames A A', legs *a a a*, furnished with casters formed of the plate R, having screw-holes *r' r' r'*, shoulder M, guides *r r*, stem S, journal-crotch S', wheel N, groove T, and pin *t*, the elevating apparatus B B' H I K L, the lock O P Q, top C, leaf D, pendant G, arm E, pawl F, having the handle F', slot *e*, and tooth *f*, as herein described.

317,231. LOOP FOR SUSPENDER-ENDS.

JOSEPH W. SMITH, Newton, Mass. Filed Mar. 14, 1885. (No model.)

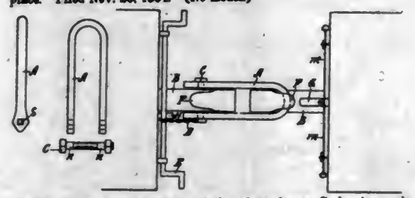


Claim.—1. The wire loop or loops B B', in combination with a loop-holder of sheet metal, and each loop having its cross-bar b^3 inwardly curved, all substantially as set forth.

2. The metallic loop-holder, in combination with a wire loop or loops having the projection b^4 held by the loop-holder, as set forth.

317,232. CAR-COUPLING.

THOMAS SMITH, London, Ontario, Canada, assignor of two-thirds to William D. Edy and James N. Edy, both of same place. Filed Nov. 28, 1884. (No model.)



Claim.—1. The combination of the pivoted arm G, having rods *m m* for adjusting it, with the draw-bar, having a hook forming a link-cavity beneath the arm, as set forth.

2. The combination of the draw-bar B, lever E, chain D, clevis A, having angular sockets *s s*, and bolt C, having angular portions *n n*, to fit the sockets, the lever being connected to the clevis-bolt by the chain, as set forth.

317,233. WOODEN TONGUE FOR JOINING FLOORING, &c.

IRWIN H. SPELMAN, Cortland, Ohio. Filed Mar. 17, 1885. (No model.)



Claim.—1. A wooden tongue for joining flooring, ceiling, or other pieces of wood, with the grain of wood of the tongue running crosswise, substantially as set forth.

2. A wooden tongue for joining pieces of wood, and consisting, essentially, of a wooden strip approximately rectangular in cross-section, with the grain of the wood running crosswise of the tongue, substantially as set forth.

3. A tongue for joining boards or other pieces of wood, and consisting, essentially, of two strips of wood applied flatwise to each other, a thread, twine, or equivalent laid lengthwise between the wooden strips, and the whole glued or cemented together, and so arranged that the grain of wood is crosswise of the tongue, substantially as set forth.

317,234. ADHESIVE PAPER-LIFTER.

ALFRED SPITELL, West Troy, N.Y. Filed Apr. 28, 1884. (No model.)



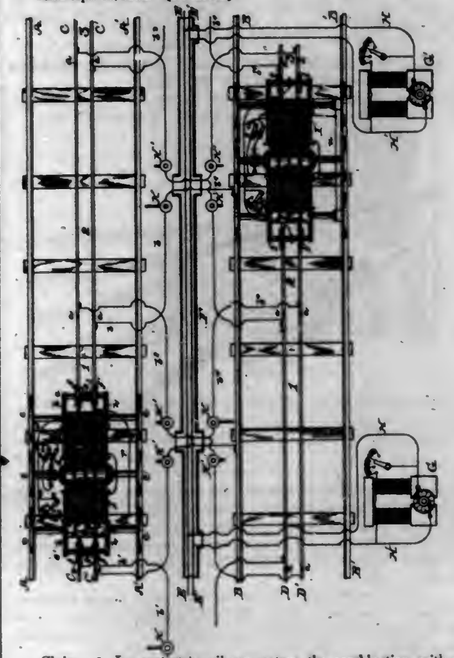
Claim.—1. The paper-holder combined with the adhesive pad and the pad-carrier affixed to and borne by said holder normally out of contact with its contained paper, substantially as shown and described.

2. The paper holder or box A, having one end, *b*, open and the other end closed, and having the attached spring pad-carrier and pad connected thereto, and provided with an adhesive wafer, substantially as shown and described.

3. The combination, with a paper-holder for containing sheets of paper in bulk, of a pad having an attached adhesive wafer adapted to maintain its adhesive properties for a reasonable period of time, and a pad-carrier for supporting and operating the connected pad, said pad-carrier secured in a bearing in the paper-holder normally above and out of contact with the bulk of paper contained therein, and having transverse and longitudinal movement in the paper-holder, whereby a sheet or layer of paper may be lifted from the sheets in bulk and partly removed from said holder, substantially as set forth.

317,235. ELECTRIC RAILWAY.

FRANK J. SPRAGUE, North Adams, Mass., assignor to the Sprague Electric Railway and Motor Company. Filed Apr. 14, 1882. (No model.)



Claim.—1. In an electric-railway system, the combination, with a working-conductor from which the motor derives current, of a main conductor normally connected at intervals with said working-conductor, substantially as set forth.

2. In an electric-railway system, the combination, with a working-conductor divided into sections, of a main conductor normally connected with each of said sections, substantially as set forth.

3. In an electric-railway system, the combination of continuous main conductors and working-conductors normally connected with said main conductors, from which working-conductors the current is taken by the motors, substantially as set forth.

4. In an electric-railway system, the combination of continuous main conductors and a working conductor or conductors divided electrically into sections, each section being normally connected with the main conductors, substantially as set forth.

5. In an electric-railway system, the combination of continuous main conductors and two working-conductors each divided electrically into sections, each of said sections being normally connected with the main conductors, substantially as set forth.

6. In an electric-railway system, the combination of continuous main conductors, working-conductors one or both of which are divided into sections, normal connections from the main conductors to the working-circuit sections, and a motor or motors, each motor having one terminal connected with one of the working-conductors, whereby circuit is completed from the main conductors through the working-conductors and the motor or motors, substantially as set forth.

7. In an electric-railway system, the combination of the main conductors, the separate working-circuits normally connected therewith, and one or more electrically-operated signaling devices in each of said working-circuits, substantially as set forth.

8. In an electric-railway system, the combination of continuous main conductors, working-conductors divided into sections, branch conductors normally connecting the main conductors with the working-conductor

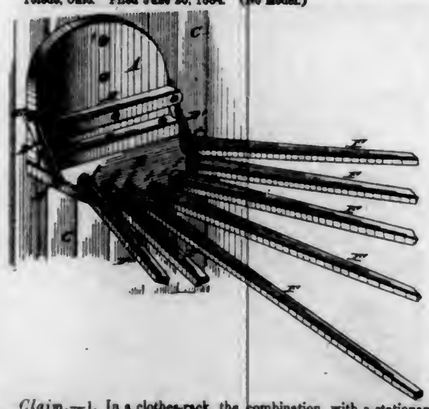
sections, and electrical signaling devices operated or controlled by the current in said branch conductors, substantially as set forth.

9. In an electric-railway system, the combination of the main or traffic rails, one or more intermediate rails divided into sections, continuous main conductors normally connected with each of said sections, and a motor mounted upon a car traveling upon said traffic-rails and provided with suitable current-collecting devices bearing upon said intermediate rail or rails, substantially as set forth.

10. In an electric-railway system, the combination, with a conductor from which the motors derive current, of tension-maintaining devices therefor situated out of the line of continuity of the conductor, substantially as set forth.

11. In an electric-railway system of the character described, the combination of a continuous main conductor placed under ground, a working-conductor placed above ground, and one or more branch conductors extending from said main conductor and normally connected with said working-conductor, substantially as set forth.

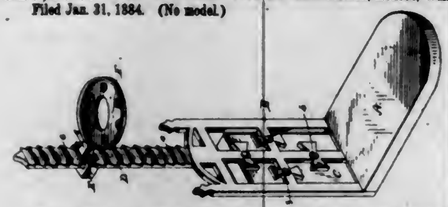
317,236. CLOTHES-RACK. GEORGE A. SPROUL and ROLLA MERKER, Toledo, Ohio. Filed June 20, 1884. (No model.)



Claim.—1. In a clothes-rack, the combination, with a stationary section adapted to be secured to a wall or other support, of a movable section provided with arms, and having a link-connection with the stationary section, so that said movable section may engage the edge of the stationary section in use and depend from the latter when not in use, substantially as set forth.
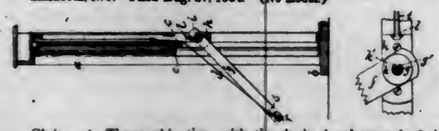
2. The combination, with the bracket-sections having a link-connection, of a transverse cleat on the movable section to support the latter at a right angle to the stationary section when in use, substantially as set forth.

317,237. LAMP-BRACKET. GEORGE J. STAUFFACHER, Monroe, Wis. Filed Jan. 31, 1884. (No model.)



Claim.—The combination, with the block C, having pins provided with projecting lipped heads *b*, of a bracket proper provided with a shelf, A, and having perforations *a*, adapted to engage said pins, and a vertical extension of said bracket proper having rack-teeth, and blocks adapted to engage said rack-teeth, as specified, having an inclined slot, through which said extension passes, and carrying a supporting-disk, substantially as set forth.

317,238. WINDOW SHADE AND AWNING. DAVID R. STEDMAN, Elizabeth, N. J. Filed Aug. 27, 1884. (No model.)



Claim.—1. The combination, with the shade *d* and arms *f*, of the stems *g*, to which the arms are pivoted, the washers *k* upon said stems at the sides of the arms and locked against rotation, and the clamping-nuts *i*, substantially as set forth.

2. The combination, with the shade *d* and arms *f*, of the plates *h*, having grooved screw-threaded stems *g*, to which the arms are pivoted, the washers *k*, having lugs *k'*, fitting in the grooves in said stems, and the clamping-nuts *i*, turning upon said stems, substantially as set forth.

3. The combination, with the shade *d* and arms *f*, of projections, as *t*, secured to the casing *a* at the inner side of the shade, substantially as and for the purpose set forth.

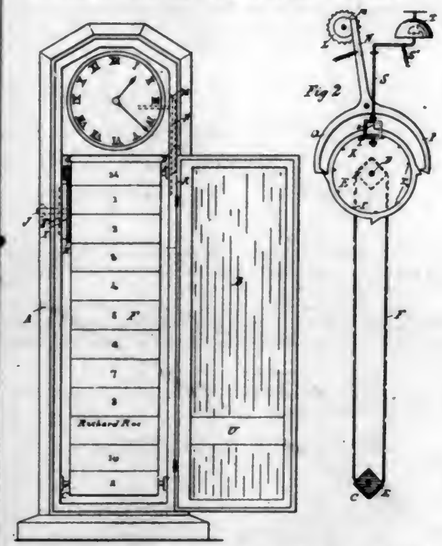
317,239. COLLAR-BUTTON AND NECKTIE-HOLDER. EDWARD J STELLWAGEN, Washington, D. C. Filed Mar. 13, 1885. (No model.)



Claim.—1. A collar-button having attached to its outer disk a plate or arm for holding the necktie, the disk and arm being connected substantially as shown, to form an acute angle at their junction, whereby said disk may be passed edgewise through an ordinary button-hole.

2. The combination of the inner and outer disks, the flat shank, and an arm or plate for holding the necktie secured to the outer disk, substantially as shown, whereby the disk and arm form an acute angle at their point of junction.

317,240. AUTOMATIC ADVERTISING DEVICE. DAVID J. STEPHENSON, Port Huron, Mich. Filed Jan. 25, 1884. (No model.)



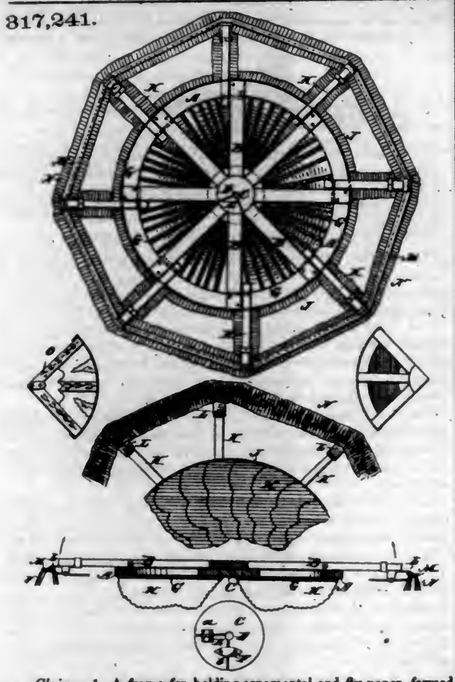
Claim.—1. The shaft D, rotated by a spring movement, and the endless chain F, supported and impelled thereby, in combination with a clock and a clock-case, the scape-wheel K, secured directly to said shaft, the cam M, and the three-armed lever N O P, the arm N operated by said cam, and the arms O P operating on said scape-wheel to automatically regulate the movement of said shaft, substantially as and for the purpose set forth.

2. The advertising device herein shown and described, consisting of the shaft D, endless chain F, supported and impelled thereby, scape-wheel K, secured to said shaft and provided with pins *r* upon its front face, wheel L, carrying cam M, lever N, carrying pallets O and P for controlling the intermittent motion of said scape-wheel, and the crank-lever S, having bent portion *s*, in combination with a clock and a clock-case, as and for the purposes set forth.

317,241. HOLDER FOR ORNAMENTAL AND FLY PAPER. VURLIN G. TANSEY, Ashland, Nebr. Filed Oct. 3, 1884. (No model.)

Brief.—A circular frame has a series of radial spokes secured to a central plate and united at their ends by a ring, and arms provided with spring-clamps on their free ends are hinged to said spokes. A band is held by said clamps, in which paper fringes are secured, and radial tapes having fancy paper sewed thereon are secured to the center plate and rim of the frame. The center plate has a central aperture, and one of the quadrants of the center piece and a corresponding part of the ring are cut out and held in connection with two of the spokes by a hinge and clip.

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Claim.—1. A frame for holding ornamental and fly paper, formed of a series of spokes secured to a central plate and having their ends united by a ring, substantially as herein shown and described.

2. The combination, with a circular frame having spokes, of an arm hinged to each spoke and adapted to be swung out and projected beyond the circular frame, substantially as herein shown and described.

3. The combination, with a circular frame having spokes, of an arm hinged to each spoke, and of a spring clamp or catch on the outer end of each arm, substantially as herein shown and described.

4. The combination, with a circular frame having hinged arms provided with spring clamps or catches on the outer or free ends, of a cord or band held by the said catches, on which cord or band paper fringes, &c., are secured, substantially as herein shown and described.

5. The combination, with a circular frame, of tapes or bands arranged radially and having their ends secured on the center and rim of the frame, said frame also having marginal bands connected to supplementary arms of the spokes, substantially as herein shown and described.

6. The combination, with a circular frame, of bands or tapes secured radially on the same, and of fancy paper sewed to the said bands, said frame also having marginal bands connected to supplementary arms of the spokes, and having fancy paper suspended therefrom, substantially as herein shown and described.

7. The combination, with the center plate, C, having a central aperture, D, and one of its quadrants E hinged by a hinge, *a*, of the clip F, and of spokes secured to the plate C and the section E, and of a ring secured to the outer ends of the spokes, substantially as herein shown and described.

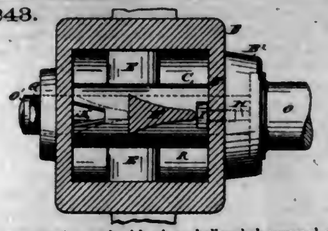
317,242. SHELF-BRACKET. BENJAMIN F. TATEM, Memphis, Tenn. Filed May 9, 1884. (No model.)



Claim.—The combination, with the back piece, of the wire brackets hinged with their vertical sides in staples upon the back piece, and provided at the upper ends of their vertical hinged sides with rearwardly-projecting eyes or loops of a greater diameter than the thickness of the back piece, as and for the purpose shown and set forth.

317,243. SELF-OILING CAR-WHEEL. ELLEN T. THAYER, Charleston W. Va. Filed Feb. 17, 1885. (No model.)

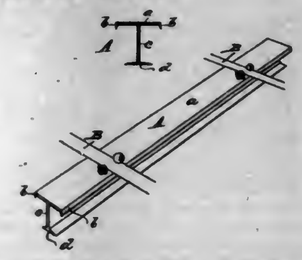
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Claim.—1. A car-wheel having a hollow hub recessed and an inner apertured bearing-sleeve connected therewith by a series of longitudinal wedge-shaped blades, substantially as described.

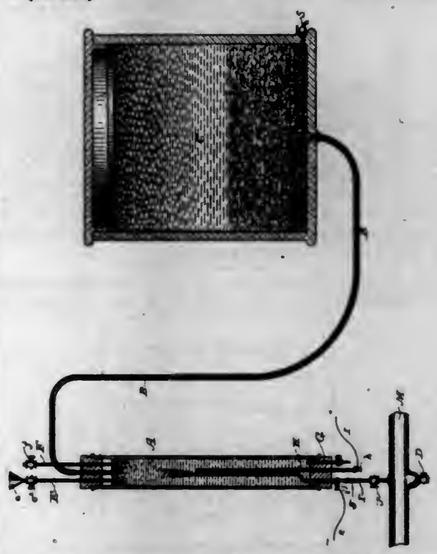
2. The combination, with the car-wheel A, of the apertured and recessed hub B, the apertured and grooved sleeve C, and the blades E E, F, and D, substantially as shown and described.

317,244. RAILROAD CROSS-TIE. HANS THIELSEN, Portland, Oreg. Filed Sept. 23, 1884. (No model.)



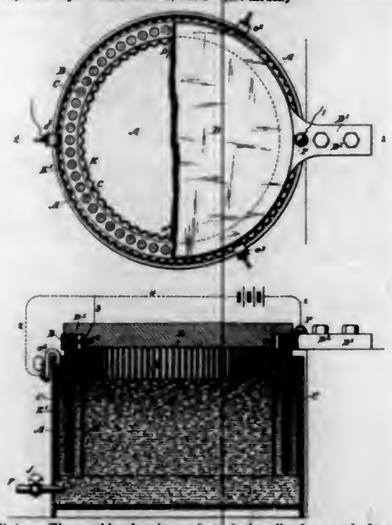
Claim.—A T-shaped metallic railroad-tie consisting of a horizontal plate, *a*, having a longitudinal rib or flange, *b b*, on the lower side of each edge, and a vertical portion or web, *c*, provided with a foot, *d*, substantially as shown and described.

317,245. APPARATUS FOR THE SEPARATION OF GOLD FROM ITS ORES BY ELECTRO CHLORINATION AND DEPOSITION. EDWARD P. THOMPSON, Elizabeth, N. J., assignor of three-fourths to Edward P. Roberts and G. H. Pierce, both of Cheyenne, Wyo. Filed Dec. 3, 1883. (No model.)



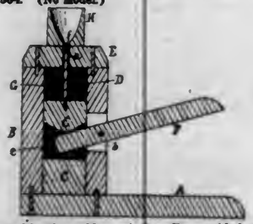
Claim.—The combination, with an electrolytic cell for separating chlorine from its compounds and its anode, of a battery, a cathode consisting of a pipe through which steam is admitted to the cell for the purpose of increasing the rapidity of the separation, and conductors respectively connecting the said anode and cathode with the poles of said battery.

317,246. APPARATUS FOR THE ELECTRO-DEPOSITION OF GOLD FROM ITS CHLORIDES. EDWARD P. THOMPSON, Elizabeth, N. J., assignor of three-fourths to Edward P. Roberts and G. H. Pierce, both of Cheyenne, Wyo. Filed Jan. 29, 1884. (No model.)



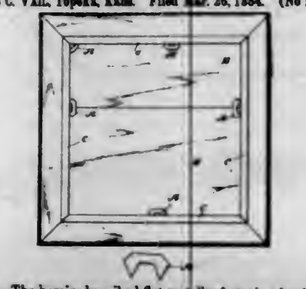
Claim.—The combination, in an electrolytic cell, of an anode formed of a series of carbon rods set in a metal ring, and a cathode formed by two thin corrugated copper plates connected electrically, which are set, respectively, within and without the circle of carbons, substantially as described.

317,247. CIGAR-PERFORATOR. FRIEDRICH TUECKE, Leechburg, Pa. Filed Dec. 26, 1884. (No model.)



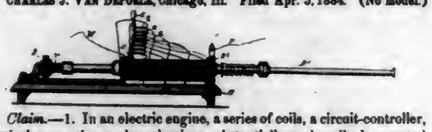
Claim.—The combination of base A, box B, provided with a slit on one side, block C, which slides up and down in said box, and is provided with a slot or recess, a puncturing-pin, D, fixed to said block, box-cover E, provided with an aperture through which said pin passes, lever F, which passes through the slit in the box and is pivoted therein, and the inner end of which enters the slot or recess in the block, spring G, between the block and cover, and a cup, H, secured to the cover and provided with an aperture in its bottom, through which the pin passes when the block is raised, substantially as set forth.

317,248. FASTENING FOR THE BACKS OF PICTURE-FRAMES. THOMAS C. VAIL, Topeka, Kans. Filed Mar. 26, 1884. (No model.)



Claim.—The herein-described flat metallic fastening having the two prongs or limbs, as shown, each limb being formed with inside and outside converging bevels or tapers, said prongs being short and the two bevels or tapers on each being of about equal inclination, as set forth.

317,249. ELECTRO-MAGNETIC RECIPROCATING ENGINE. CHARLES J. VAN DEPOELE, Chicago, Ill. Filed Apr. 5, 1884. (No model.)



Claim.—1. In an electric engine, a series of coils, a circuit-controller, electrical connection, and mechanism, substantially as described, operated by some moving part of the engine, whereby the power of said coils is gradually increased near the commencement of each stroke of the engine, as set forth.

2. In an electric engine, a solenoid, a core for the same, and a circuit-controller, electrical connections, and mechanism, substantially as described, operated by some moving part of the engine, whereby the power of the solenoid is gradually increased or diminished near the commencement and termination of each stroke of the engine, as set forth.

3. In an electric engine, the combination of a reciprocating core, a solenoid wound in sections, a circuit-controller, electrical connections, and mechanism, substantially as described, operated by some moving part of the engine, whereby the strength of said solenoid is gradually increased at the commencement of each stroke, as set forth.

4. In an electric engine, two or more cores moving simultaneously in combination with a like number of solenoids, each composed of two or more helices, and means, substantially as described, for gradually including said solenoids in a circuit near the commencement of each stroke, as set forth.

5. In an electric reciprocating engine, a cluster of cores, each provided with a solenoid wound in sections, in combination with a circuit-breaker constructed to successively admit all of said sections into circuit near the commencement of the forward stroke of the engine, as set forth.

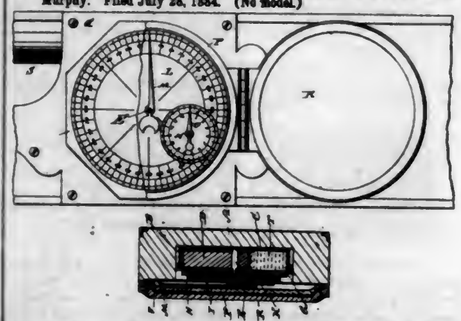
6. In an electro-magnetic engine having sectional solenoids, and as a means for successively bringing the sections of a solenoid into circuit, a contact-bar, as E, forming one terminal of all the sections of a single solenoid, in combination with a series of independent contacts, as *c*, each forming the other terminal of its respective section, substantially as described.

7. In a reciprocating electric engine, and in combination with the reciprocating core and circuit-breaker thereof, a tappet, *d'*, moving with the core and actuating the contact-breaker to close the circuit and energize the solenoid, and a loosely-mounted tappet, *d*, normally held in position by a spring, but constructed and arranged to move forward to operate the circuit-breaker on the cessation of the motion of the cores, substantially as described.

8. In an electric reciprocating engine, a contact maker or commutator actuated by a collar mounted upon a reciprocating part of the engine, and adjustably fixed thereto to determine the stroke of the parts in one direction, in combination with a loosely-mounted collar normally retained in place by a spring, and arranged to fly forward and actuate the commutator of the engine as soon as the forward thrust of the reciprocating parts is arrested or impeded, thereby causing a backward stroke to be made, substantially as described.

9. In a reciprocating electric engine, and in combination with the core and circuit-breaker thereof, a rod moving with said core, and a tappet, *d'*, fixed on said rod to operate the contact-breaker in one direction, and a tappet, *d*, loosely mounted on the rod and held normally in place by a spring, whereby on the stoppage of the rod the tappet will fly forward to operate the circuit-breaker and then return to its normal position, substantially as described.

317,250. LEVEL. JAMES WALSH, THOMAS F. MURPHY, and EVERETT A. CLARK, North Adams, Mass.; said Clark assignor to said Walsh and Murphy. Filed July 28, 1884. (No model.)



Claim.—1. In a level, the combination, with the bar having a cavity containing a float and a liquid for acting on the float, of a pivot on which the float is mounted and a hand mounted on the said pivot, substantially as herein shown and described.

2. In a level, the combination, with a bar having a cavity containing a liquid and a float, of a pivot on which the float is mounted, a hand on the outer end of the said pivot, and a dial below the hand, substantially as herein shown and described.

3. In a level, the combination, with a bar, of a circular cap containing a semicircular or like float fitting closely in the same, and having notches in the straight edge, mercury contained in the cap, a pivot on which the float is mounted, and a hand or pointer on the said pivot, substantially as herein shown and described.

4. In a level, the combination, with a dial, of a hand adapted to revolve over the dial and mounted on a suitable pivot, devices for revolving the said pivot by the action of gravitation, a cog-wheel mounted on the said pivot, and engaging with a pinion on a pivot carrying a smaller hand revolving over a smaller dial, substantially as herein shown and described.

5. In a level, the combination, with the bar A, of the cap C, containing the float D, the pivot E, on which the float D is mounted, the hand M on the end of the pivot, the cog-wheel I on the pivot E, the pivot K, the pinion J on the same, which pinion engages with the cog-wheel I, and the hand O on the said pivot, substantially as herein shown and described.

6. In a level, the combination, with the bar A, of the cap C, containing the float D and the mercury T, the pivot E, the hand M, mounted on the same, the dial L, on which a smaller dial, N, is produced, the cog-wheel I on the pivot E, the pinion J on the pivot K, and the hand O on the said pivot K, substantially as herein shown and described.

7. In a level, the combination, with a pivot acted upon by a weight, pendulum, or float, of two cog-wheels of like size, of which one is mounted rigidly and the other loosely on the said pivot, a pinion with which the two cog-wheels engage, a hand on the pivot of the pinion, and a spiral spring connected with the loose cog-wheel and with the pivot, substantially as herein shown and described.

8. In a level, the combination, with the pivot acted upon by a float, pendulum, &c., of two cog-wheels of like size on the pivot, of which one is mounted loosely and the other rigidly, the loose wheel being connected by a suitable spring device with the pivot, a pinion with which the two cog-wheels engage, and a hand on the pivot of the pinion, substantially as herein shown and described.

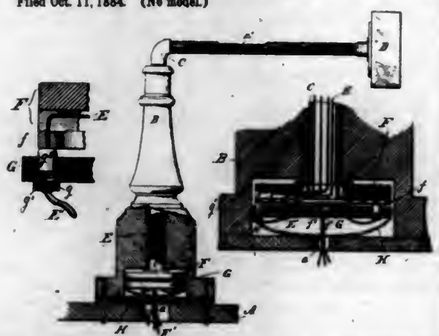
317,251. CUSPIDOR. JOSEPH J. WALTON, Newark, N. J. Filed Nov. 10, 1884. (No model.)



Claim.—1. The combination of the outer case, A, having an open-bottom globular body, a contracted neck, and a flaring mouth, with an internal cup, also having a flaring mouth, and a centrally-perforated dished cover, all substantially as described.

2. As a new article of manufacture, a cuspidor consisting of an external body or case having an open upturned bottom, a flaring mouth, and a neck forming a supporting-shoulder, in combination with an internal vessel having a flaring upper end and a dished and centrally-perforated removable cover, substantially as described.

317,252. REVOLVING TELEPHONE-STAND. E. FORREST WEAVER, Philadelphia, Pa., assignor of one-half to George H. Perkins, same place. Filed Oct. 11, 1884. (No model.)



Claim.—1. In combination with the wires of a given electric circuit, which are divided at a given point, a series of concentric insulated conducting-rings, with which portions of the divided wires are connected, and a series of spring-controlled knobs or buttons, which make contact, respectively, with and are adapted to be rotated against the rings, and with which the other portions of the divided wires are connected, substantially as set forth.

2. In combination with the wires of a telephone-transmitter, signal-light, or other electric device, which are divided at a given point, a pair of disks or supporting-plates of insulating material, respectively provided with a series of concentric conducting-rings and a series of spring-controlled knobs or buttons, with which rings and knobs, respectively, the divided wires are connected, substantially in the manner and for the purpose specified.

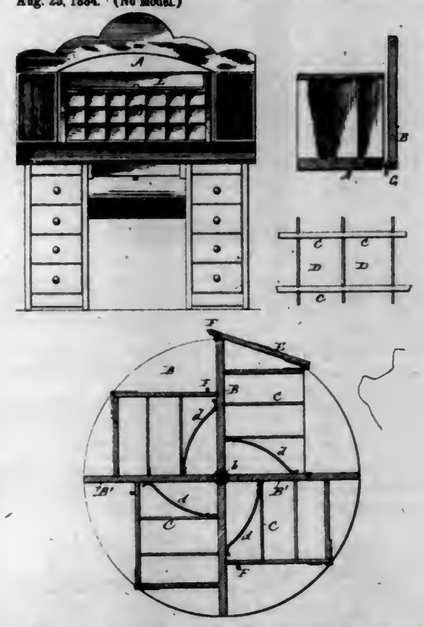
3. In combination with a telephone-transmitter or other electrical device so supported as to be capable of a revolution about a fixed point, a revoluble tube or holder for supporting said transmitter and for containing a series of wires, a series of concentric conducting-rings, a disk or plate carried by the tube and adapted to revolve with said tube for supporting said rings, a series of spring-controlled knobs or buttons corresponding in number to the rings aforesaid and respectively making contact with the said rings, and a disk or plate for supporting said spring-controlled buttons, substantially as set forth.

4. In combination with a telephone-transmitter or other electrical device so supported as to be capable of a revolution about a fixed point, a revoluble tube or holder for supporting said transmitter and for containing a series of wires, a series of concentric conducting-rings mounted upon a disk or plate carried by the tube and adapted to revolve with said tube, a series of spring-controlled knobs or buttons corresponding in number to the rings aforesaid, respectively making contact with the said rings, and mounted upon a disk or plate for supporting said spring-controlled buttons, and a spring-support for retaining the button-carrying plate in position against the ring-carrying plate, substantially as described.

5. In combination with a revoluble disk or plate provided with a series of suitably-insulated conducting-rings, a fixed disk or plate provided with a series of cells containing spring-controlled knobs or buttons, and respectively disposed at such radial distance from the center of said fixed disk as to cause the knobs or buttons to make contact, respectively, with different conducting-rings, substantially as set forth.

6. In combination with a series of concentric suitably-insulated conducting-rings, a series of spring-controlled knobs or buttons respectively disposed to make contact with and to be rotated against different rings, divided wires of the same circuits respectively as to their divided extremities electrically connected with the rings and the knobs or buttons aforesaid, and disks, plates, or kindred devices for retaining the rings and knobs or buttons in contact, substantially as set forth.

317,253. DESK. WILLIAM H. WETMORE, Raleigh, N. C., assignor of two-thirds to Thomas A. Jones and Augustus W. Knox, same place. Filed Aug. 25, 1884. (No model.)



Claim.—1. A desk or similar article of furniture provided with a revolving cylindrical portion mounted on a horizontal axis, and subdi-

vided into pigeon-holes or compartments for the reception of papers and other articles, substantially as described.

2. A desk having a cylinder divided into pigeon-holes or compartments for reception of papers, &c., journaled in bearings in the frame thereof, with its axis of rotation horizontal, and arranged at the back of the desk partly above and partly below the writing-table, substantially as described.

3. The combination, with the desk, of the horizontal revolving cylinder divided into sections by diametrical partitions, each section being subdivided into a number of compartments or pigeon-holes, substantially as described.

4. In a desk, and in combination with the desk-frame, a cylinder turning on a horizontal axis, and having its interior divided into groups of compartments adapted to be successively brought into reach by rotation of the cylinder, each group being provided with a door, substantially as described.

5. In a desk, the combination, with the cylinder divided into pigeon-holes or compartments and arranged to revolve on a horizontal axis, of the springs in the pigeon-holes or compartments for clamping the papers therein, substantially as described.

6. The desk provided with a horizontal cylinder divided into pigeon-holes or compartments, and also provided with means, such as described, for preventing the papers in said pigeon-holes or compartments being disarranged by the rotation of the cylinder, substantially as set forth.

7. The combination, with the desk-frame, of the cylinder divided into pigeon-holes or compartments, and provided with latched doors for closing the ends of said pigeon-holes or compartments, and also with springs within the same, and a catch or bolt for preventing rotation of the cylinder except when desired, substantially as described.

317,254. STOOL FOR TABLES, COUNTERS, &c. JANE WHIPPLE, Westfield, N. Y. Filed Jan. 24, 1885. (No model.)



Claim.—1. In a swinging stool, a table or counter, a standard depending therefrom, a cam secured to said standard, and a rotatable collar having an arm pivoted thereto, in combination with a stool, substantially as specified.

2. The combination of the standard B', plate B, cam-section C, having set-screw C', and collar H, having set-screw H', with the rotatabl collar D, arm E, and stool F, substantially as specified.

3. The combination, with the standard B' and plate B, of the cam C, recessed as at C^4, and provided with inclined walls, as C^5, collar H, screw H', arm E, and stool F, substantially as shown and described.

317,255. FEED MECHANISM FOR SEWING-MACHINES. RUEL W. WHITNEY, Cleveland, Ohio, assignor to the White Sewing Machine Company, same place. Filed Oct. 20, 1884. (No model.)



Claim.—1. In sewing-machine feed mechanism, the combination, with a push-bar operated by an eccentric on the hook-shaft and provided with a knife-edge, of a depending curved lever with notches to receive the knife-edge of the push-bar, substantially as set forth.

2. In sewing-machine feed mechanism, the combination, with a push-bar actuated by an eccentric on the hook-shaft and provided with a knife-edge, of a pivoted depending lever for operating the feed-bar, provided with notches for engaging the knife-edge, said notches being in a radius equal to the length of the push, substantially as set forth.

3. In a sewing-machine feed mechanism, the combination, with a feed-bar and a spring for moving the feed-bar in one direction, of the curved lever pivoted to the bed of the machine and provided with notches, an eccentric, and a push-bar operated by said eccentric and engaging the curved lever, substantially as and for the purpose set forth.

4. In sewing-machine feed mechanism, a push-bar, devices for actuating the push-rod and depending pivoted lever, said rod and lever provided, respectively, with knife-edge and notches, and arranged to engage the feed-bar and move it in the direction that feeds the work, of a spring inclosed in the feed-bar and arranged to actuate the feed-bar on the return-stroke and press the free end thereof down toward the eccentric, substantially as set forth.

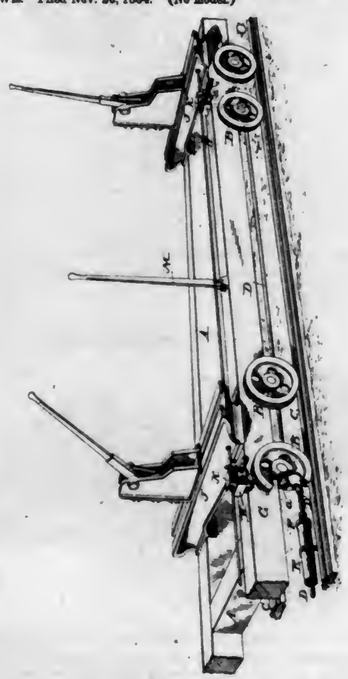
5. In a sewing-machine feed mechanism, the combination, with a feed-bar having a chambered end and a shoulder, g', a spring located within said chambered end, and a bearing for one end of said spring, of a curved lever pivoted to the bed of the machine and provided with notches, an eccentric, and a push-bar operated by said eccentric and engaging the curved lever, substantially as set forth.

6. In sewing-machine feed mechanism, the combination, with a push-bar provided with a knife-edge, and a pivoted lever with notches, and a spring arranged to hold the lever and push-bar in contact, of a shifting-lever fulcrumed on the hook-shaft, the outer end provided with a handle and pointer, and the inner end arranged to engage and shift the push-bar, substantially as set forth.

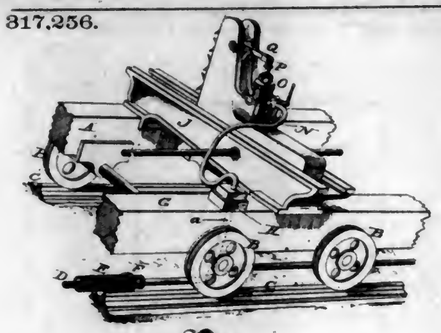
7. In sewing-machine feed mechanism, the combination, with a hook-shaft, feeding mechanism, and a shifting lever journaled on said hook-shaft, and connected with the feeding mechanism, and provided with a pointer, of a plate depending from the bed of the machine and provided with a scale, substantially as set forth.

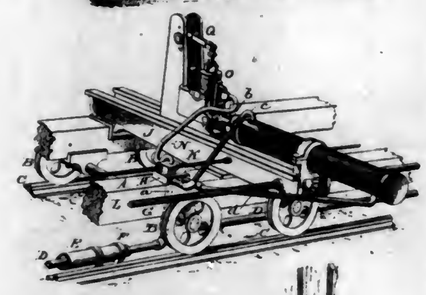
8. In sewing-machine feed mechanism, the combination, with a feed-bar provided with an adjustable abutment and a spring for moving the feed-bar in one direction, of a lever pivoted to the bed of the machine and bearing against the adjustable abutment of the feed-bar, and a push-bar engaging said lever and moving the feed-bar in the opposite direction.

317,256. SAW-MILL SET-WORKS. THEODORE S. WILKIN, Milwaukee, Wis. Filed Nov. 26, 1884. (No model.)



317,256.





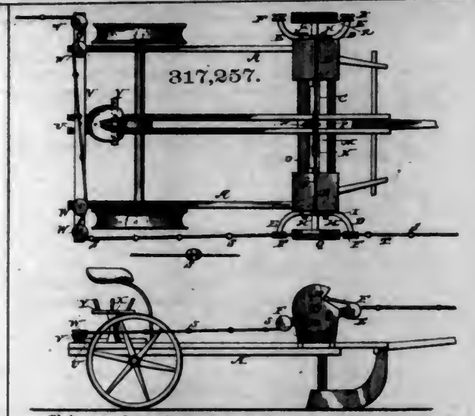


Claim.—1. In combination with a traveling saw-mill carriage, a telescopic pipe one end section of which is connected with a source of fluid-pressure and the other made fast to the carriage, substantially as and for the purpose set forth.

2. In combination with a saw-mill carriage, A, and with a steam-generator, a telescopic pipe, E D, the section E being connected with said generator, and the section D being attached to the carriage and arranged to slide within section E, substantially as shown and described, whereby the pipe is adapted to convey the steam to the carriage without impeding the travel thereof.

3. In combination with a saw-mill carriage and with the set-works or dogging mechanism thereof, a fluid-pressure reservoir, and a telescopic pipe connecting said reservoir and the saw-mill carriage, and serving to convey the fluid to said mechanism, substantially as explained.

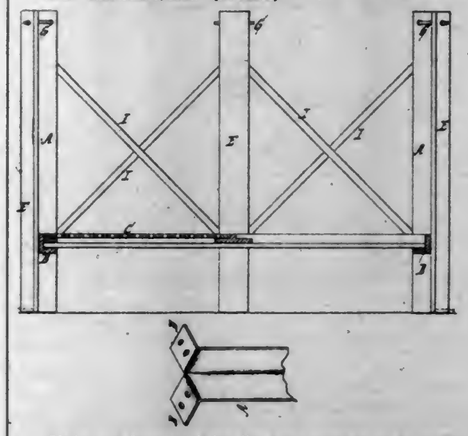
317,257. CHECK-ROWER. ORA S. WILLETT and JOHN W. FITZGERALD, Bronson, Kans. Filed Sept. 2, 1884. (No model.)



Claim.—1. In a check-rower, the combination of the frame, the transverse crank-shaft, mechanism for conveying motion from the latter to the seed-slide, tappet-wheels upon the ends of the said shaft, whereby it is adapted to receive an intermitting rotary motion, and a bar pivoted to the rear end of the frame and provided at its ends with horizontal guide-pulleys, substantially as and for the purpose set forth.

2. The anchor-post constructed of a strip or bar of elastic metal pointed at its lower end, and having its upper end bent into a loop, to the end of which is attached a rod passing through a perforation in the body of the post and terminating in a loop or hook, substantially as and for the purpose set forth.

317,258. CLOTHES-LINE FRAME. CHESTER L. WILLIAMS, New York, N. Y. Filed June 5, 1884. (No model.)



Claim.—A fire-proof clothes-line frame consisting of the upright angle-iron corner-posts A, having their lower ends split and bent outward to form the foot-flanges D, for securing the frame to a roof, the angle-iron girders B, secured to the corner-posts, the intermediate angle-iron posts, E, and intermediate angle-iron guiders, F, connecting the corner-posts, the inclined braces I, and the cleats G, all substantially as shown and described.

317,259. ARTIFICIAL TOOTH. MARION W. WILLIAMS, Hopkinsville, Ky. Filed Feb. 24, 1885. (No model.)



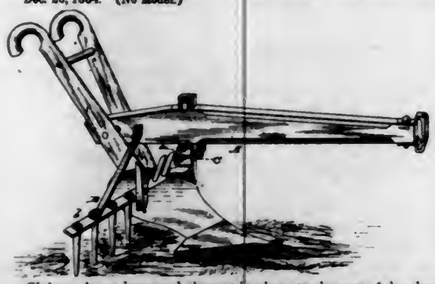
Claim.—1. The crown having the cup molded or secured therein, in combination with the cup having the depending shank adapted to be inserted in the natural root, the cups being formed smaller at their connecting edges than they are at their ends, and the slitted pin and wedges for securing the cups together, substantially as described.

2. The combination of the cups, the wedges, and the slitted pin for securing the cups together, said cups being smaller at their meeting

edges than at their ends, and elliptical or formed in some shape other than round to prevent turning, substantially as described.

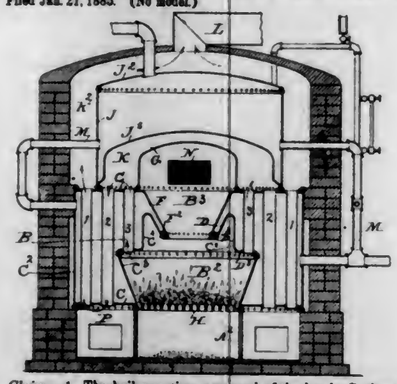
3. The combination of the cups with the slitted pin and the wedges, the cups being formed smaller at their connecting-edges than they are at their ends, and provided with rims projecting outwardly beyond their outer edges, substantially as described.

317,260. PLOW. SAMUEL B. WILLIAMS, Sailors Rest, Tenn. Filed Dec. 26, 1884. (No model.)



Claim.—As an improved element in plow attachments of the character described, the bar *b*, having the short vertical branch *a*, and the intermediate twisted portion provided with the upward bend *d*, to rise over the upper edge of the mold-board, as shown, the whole adapted to serve with and be adjusted upon the standard of a plow, as set forth.

317,261. BOILER-FURNACE. FRANK E. WILSON, Des Moines, Iowa. Filed Jan. 21, 1885. (No model.)



Claim.—1. The boiler-section composed of the heads C, the cylinder or wall C^2, the walls C^3, C^4, and F, the magazine-cover G, and the series of tubes numbers 1, 2, and 3, substantially as and for the purposes stated.

2. A boiler-section having a chamber in its under side, in combination with a boiler-section having a combustion-chamber in its lower portion and center, open-ended tubes extending vertically through it, and a fuel-magazine extending down into the combustion-chamber and upward above the top surface of the boiler-section, to operate in the manner set forth, for the purposes stated.

3. The boiler-section composed of the heads C, the walls C^2, C^3, C^4, and F, the series of open-ended tubes 1, 2, and 3, the cover G, and a boiler-section of smaller diameter, having a chamber in its under side adapted to inclose the cover G and to admit products of combustion through the series of tubes number 3, and escape through the series of tubes number 2, arranged and combined as and for the purposes stated.

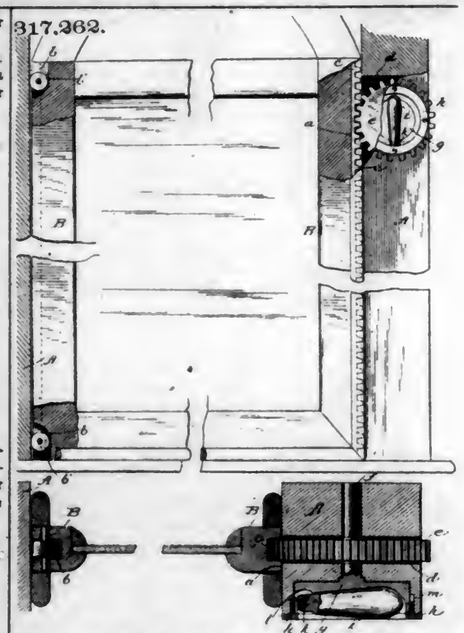
4. A boiler-section composed of heads C, walls C^2, C^3, C^4, and F, series of open-ended tubes 1 2 3, a cover, G, a boiler-section of smaller diameter, having a chamber in its under side, a grate, an ash-pit wall under the grate, and an inclosing-wall having an arched roof and a smoke-flue in the center of the roof, arranged and combined to operate in the manner set forth, for the purposes stated.

317,262. SASH-BALANCE. WM. F. WINSHIP, Albany, N. Y. Filed Feb. 12, 1885. (No model.)

Claim.—1. A raising and lowering device for windows, consisting of a rack secured to the sash, a gear carried on a shaft, and working in the window-frame, and adapted to mesh with the said rack, and a pivoted handle secured to the shaft of the gear and adapted to be folded into a recess in the window-frame, substantially as described.

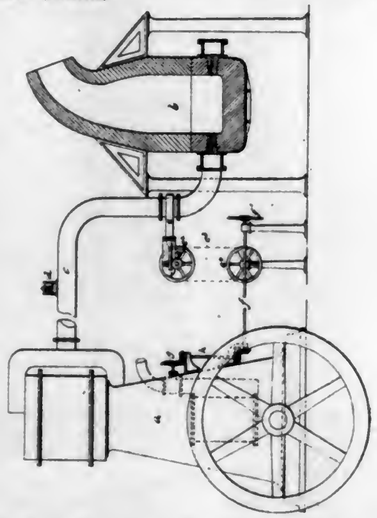
2. A raising and lowering device for windows, consisting of a rack secured to the sash, a gear carried on a shaft working in the window-

317,262.



frame and adapted to mesh with the said rack, the shell secured to the shaft, and the flanged ring fitting around the said shell and having openings, as described, combined with a handle pivoted within the said shell, and having a locking-pin adapted to register with the openings in the ring, substantially as described.

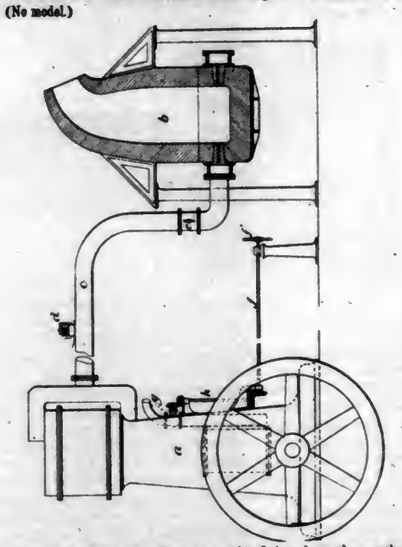
317,263. APPLIANCE FOR REGULATING THE BLAST-PRESSURE OF CONVERTERS. JAMES P. WITHEROW, Pittsburg, Pa. Filed Mar. 12, 1885. (No model.)



Claim.—1. The combination of a converter having its tuyeres arranged below the metal-line with a blast-engine and its cut-off valve, blast-connections between said engine and converter, and power-connections for operating said cut-off valve from the vicinity of the converter, substantially as and for the purposes described.

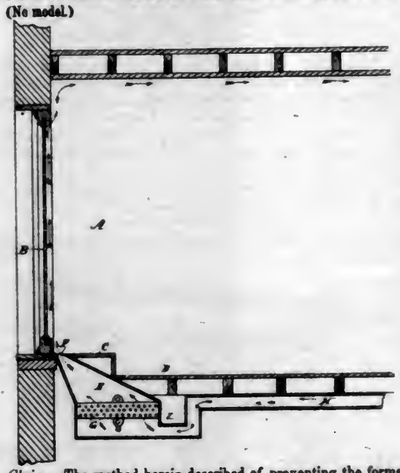
2. The combination of a blast-engine and its cut-off with a converter, blast-connections between the engine and converter, a blast-closing valve arranged in such connections, and power-connections for operating the cut-off from the converter, substantially as and for the purposes described.

317,264. METHOD OF REGULATING THE BLAST-PRESSURE OF CONVERTERS. JAS. P. WITHEROW, Pittsburg, Pa. Filed Mar. 19, 1885. (No model.)



Claim.—In the pneumatic process of refining iron, the method of preventing the molten metal from entering the tuyeres when the charge is not under blow, which consists in supplying air under the usual pressure for the treatment of the charge, and when desired to hold the metal in the converter without subjecting it to the action of the blast, reducing the blast-pressure to the degree necessary to counterbalance the ferrostatic column at the tuyeres, by varying the speed of the blowing-engine accordingly, substantially as described.

317,265. METHOD OF PREVENTING THE FORMATION OF ICE ON SHOW-WINDOWS. EDWIN A. WOOD, Utica, N. Y. Filed Dec. 20, 1883. (No model.)



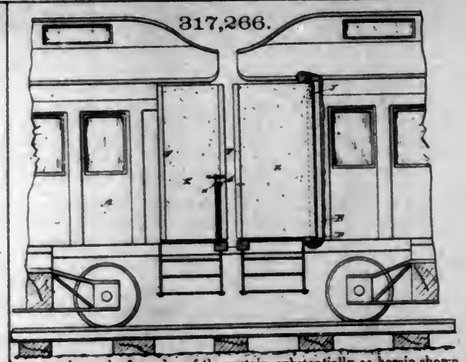
Claim.—The method herein described of preventing the formation of ice on show-windows, the same consisting in causing a continuous current of dry heated air to pass in close proximity to the inner side of the plate or other glass from the bottom upward, so as to form a wall or barrier protecting the entire surface of the glass, and preventing the moist air of the room from coming in contact with the glass, as set forth.

317,266. DUST-GUARD FOR CAR-PLATFORMS. LUTHER R. WOOD, Omaha, Nebr., assignor to himself and Samuel M. Beery, same place. Filed Feb. 14, 1885. (Model.)

Claim.—1. The combination, with a car, of a curtain secured on a roller at the corner of the car and of a spring for winding the curtain on the roller, substantially as herein shown and described.

2. The combination, with a car, of a curtain secured on a roller at the corner of the car, a spring for winding the curtain on the roller, and a

317,266.

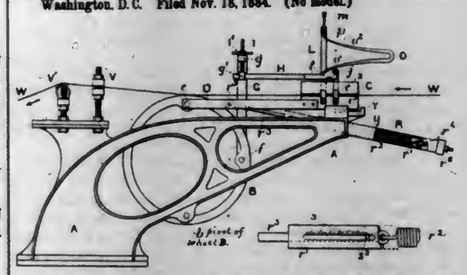


bar or strip on the free edge of the curtain, substantially as herein shown and described.

3. The combination, with a car, of a curtain secured on a roller at the corner of the car, a bar or strip on the edge of the curtain, and a hook on the said strip, substantially as herein shown and described.

4. The combination, with a car having casings B and slots C at the corners, of the rollers D, the curtains E, and the bars or strips F, substantially as herein shown and described.

317,267. WIRE-TENSION APPARATUS. WILLIAM E. WOODBRIDGE, Washington, D. C. Filed Nov. 18, 1884. (No model.)



Claim.—1. An apparatus for adjusting and equalizing the tension of wire, cords, or bands, comprising, in combination, an oscillating wheel, around which the wire is passed, a dynamometer for determining the amount and force of strain, a pressure-distributing device for checking the wire and distributing the pressure thereon, and a spring-lever for controlling the action of the said pressure device, and mechanism for operatively connecting said devices, substantially as described.

2. In a tension apparatus, the pivoted oscillating wheel around which the wire is passed on its way to the object to be wound, as and for the purpose described.

3. A tension apparatus provided with a pressure-distributing device consisting of one or more freely and uniformly yielding and sliding surfaces, between which the wire is passed, substantially as described.

4. The pressure-distributing device consisting of the plates provided with blocks, between which the wire is passed, in combination with a practically liquid medium, such as soft rubber, confined in a close cavity behind the said blocks to uniformly distribute the pressure, substantially as described.

5. In a tension apparatus, in combination with the oscillating wheel or ring, the spring-dynamometer, substantially as and for the purpose described.

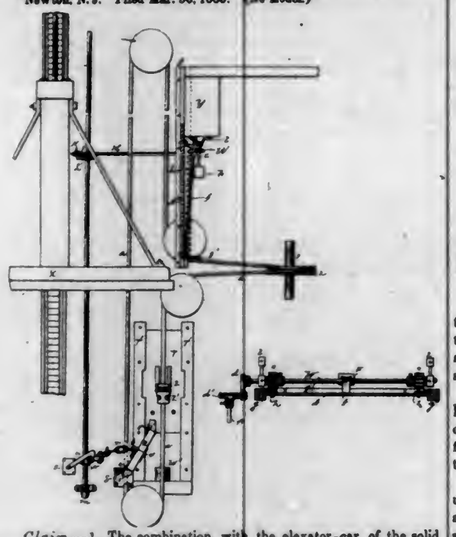
6. In a tension apparatus, the dynamometer R, in combination with the sliding pressure-distributing device C and mechanism for operatively connecting said devices, substantially as and for the purpose described.

7. In a tension apparatus, in combination with the oscillating wheel, the bar G and adjustable lever H, the adjustable spring-bar O, and a wire friction pressure device, substantially as described.

8. In a high-tension wire-winding apparatus, in combination with the object upon which the wire is formed in coils, the roller interposed between the object to be so wound and the tension mechanism, over which roller the wire is passed and bent under tension in the direction of its final curvature, whereby the metal of the exterior of the coils formed upon the object is extended, and equal tension on all parts of the cross-section of the wire, when wound and continued under strain, is approximately obtained, substantially as herein set forth.

9. In a tension apparatus, in combination with the oscillating ring or wheel around which the wire is passed, the pressure-distributing and friction device and connecting-arm, substantially as and for the purpose described.

317,268. SAFETY DEVICE FOR ELEVATORS. MARCUS L. WRIGHT, Newton, N. J. Filed Mar. 30, 1885. (No model.)

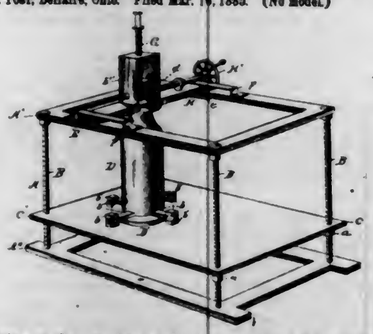


Claim.—1. The combination, with the elevator-car, of the solid lifting-screen provided with a counter-weight and geared racks, the lateral guides, the transverse rock-shaft having pinion-wheels and a crank, the pull-rod and its collar, the lever having an eye engaging with said collar and rod, the main shaft and the lower lever thereon, the chain and trip, the suspended weight adapted in falling to pull directly on the guide-rope, and the said guide-rope, as set forth.

2. The combination, with the elevator-car, of the solid screen A, provided with a counter-weight, F, and the geared rack *h h*, the guides *g g*, the rock-shaft W, suspended by hangers *l l*, and provided with pinion-wheels *c c* and crank *d*, the pull-rod H, having a T-head with pin *d'* and collar K, the lever L and eye 1, the main shaft M, the lever N, the eye and links *o r*, the trip R, having eye *p* and hinged at *t*, *t'*, and *t''*, the plate S and ledge *s*, the weight T, having bracket Z and ledge *s'*, the guides T', and the guide-rope *a*, having bracket Z', as set forth.

3. The combination, with the lever N and main shaft M, operated substantially as described, of the pivoted hook 4, as and for the purpose set forth.

317,269. FINISHING THE MOUTHS OF GLASS BOTTLES, &c. GEO W. YOST, Bellaire, Ohio. Filed Mar. 16, 1885. (No model.)



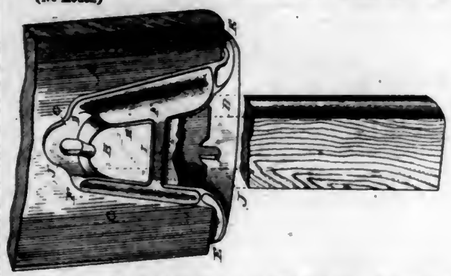
Claim.—1. In a machine of the character described, the combination of a vertically-adjustable plate carrying the mold and a horizontally-adjustable frame carrying the finishing-tool, substantially as described.

2. In a machine of the character described, the combination, with the mold, of a gas pipe or pipes supplying heat at two opposite points upon the top of the mold, substantially as described.

3. In a machine of the character described, the frame A, composed of the bottom A^3 and top A', the intermediate connecting screw-rods, B, and the vertically-adjustable plate C, provided with a removably-secured mold, D, substantially as described.

4. In a machine of the character described, the combination, with the frame and its guide-plates F F, of the transverse bar E and its guide-blocks *e e*, the frame E', the screw-threaded tube G and its finishing-tool, and the horizontal screw-shaft H, substantially as described.

317,270. REMOVABLE LEG FASTENING AND CLAMPING ATTACHMENT. GEO. W. ZEIGLER, Washington, D. C. Filed Feb. 4, 1885. (No model.)

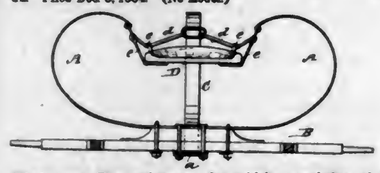


Claim.—1. The leg fastening or supporting attachment comprising the frame having the base provided with the inwardly and upwardly turned hooks or seats at its ends, the sides connected at the top by a cross-piece, and the converging flanges connected by a cross-bar, substantially as set forth.

2. The leg fastening or supporting attachment comprising the frame having the integral base with inwardly and upwardly turned end hooks or seats projecting laterally beyond the lower edges of the sides of the frame, the integral sides connected by the integral cross-piece, and the integral side flanges connected substantially as described.

3. The combination of the base provided with the inwardly and upwardly turned end hooks and the U-shaped notch opening upwardly at its middle with the top cross-piece provided with the inverted-U-shaped notch, the converging sides connecting the base and the top cross-piece, and the converging side flanges and the cross-bar connecting said flanges, as set forth.

317,271. TWO-WHEELED VEHICLE. CHARLES D. ADAMS, Geneva, Ga. Filed Dec. 8, 1884. (No model.)

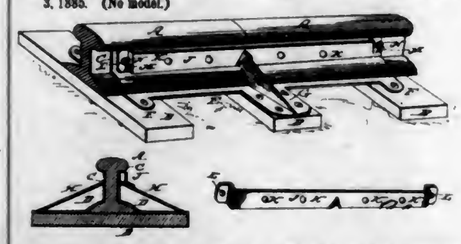


Claim.—1. The spring-gear for vehicles, consisting of the side springs, A, curved in C form above the axle, and the back spring, C, attached crosswise of the axle, the seat being suspended between the upper ends of the springs, substantially as described.

2. In a two-wheeled vehicle, the combination of the springs A A and C, attached at the middle of the axle, the seat D, straps *d*, and tugs *e*, substantially as described.

3. The adjustable back spring, C, combined with side springs, A, axle B, and seat D, substantially as described.

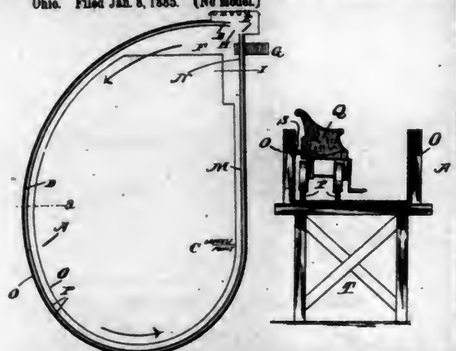
317,272. RAIL-JOINT. ALONZO W. AGIN, Latrobe, Ohio. Filed Feb. 3, 1885. (No model.)



Claim.—1. In a railway-rail joint, a fish-plate or chair consisting of a curved portion fitted to the rail-flange, a straight vertical portion fitted to the web, a lateral bottom flange having a central laterally-extending foot-piece and end lugs, and an inverted-V-shaped brace connecting said foot-piece with the body of the plate, substantially as and for the purpose herein set forth.

2. The combination, with the joint-plate having a laterally-extending foot-plate and an inverted-V-shaped brace connecting the latter with the body of the plate, and provided at the ends with laterally-extending slotted pins, of the nut-fastening plate having a series of perforations and a central inverted-V-shaped hood, and the split keys serving to attach the said plate to the joint-plate substantially as and for the purpose herein set forth.

317,273. GRAVITY-RAILWAY. CHARLES H. ALCOCK, Hamilton, Ohio. Filed Jan. 8, 1885. (No model.)



Claim.—1. In a gravity-railway, a track inclined downward from its initial point to its point of lowest grade and constructed in a curve between those points, and inclined upward from the point of lowest grade to a terminal point in proximity to the initial point, the portion between the point of lowest grade and the terminal point being straight.

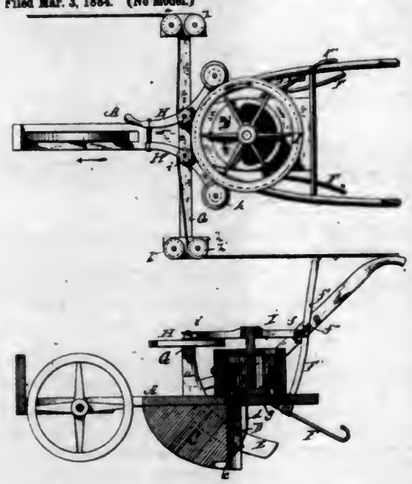
2. In a gravity-railway, a track inclined downward from its initial point to its point of lowest grade, inclined upward and constructed in a straight line from its point of lowest grade to a terminal point in proximity to the initial point, and a transfer-track by which the cars can be transferred from the terminal point of the track to the initial point.

317,274. FLOATING SUNKEN VESSELS. ARSENE AMIRO, Lower East, (Pubnico,) Nova Scotia, Canada, assignor to himself and Henry T. D'Entremont, same place. Filed Nov. 21, 1884. (No model.)



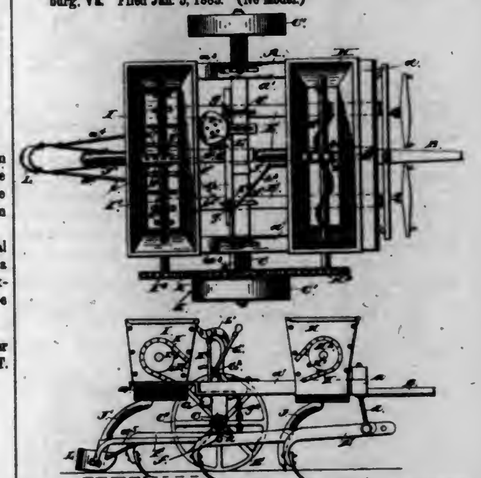
Claim.—As an improvement in means for raising and floating sunken vessels, the combination of the herein-described collapsible bag, formed entirely of rubber or other suitable material, the cylindrical tubular mouth-piece having the central circumferential shoulder and provided with the valve at its inner end, the mouth of the bag being placed around the end of the tube with its edge set against the shoulder and secured, as described, and the air-tube extending from the bag, and having its end fitted over the outer end of the mouth-piece and set against the shoulder, all arranged and operated substantially as and for the purpose set forth.

317,275. CORN-PLANTER. WILLIAM M. AMMERMAN, Oakland, Ill. Filed Mar. 3, 1884. (No model.)



Claim.—The combination, in a seed-planter, of a supporting-frame, a discharge-duct, a seed-hopper located above the same, a valve-bar centrally pivoted in said discharge-duct and having its upper end extending partially through the hopper-bottom, a guide-groove formed in said hopper-bottom and extending adjacent to said upper end of the valve-bar, a perforated disk located in said hopper and provided with a depending lug adapted to travel in said groove and contact with the guide-bar, as described, and a shaft rigidly carrying the said disks, extending through and above the top of the hopper, and carrying a peripherally-grooved wheel adapted to receive the check-row cord, substantially as set forth.

317,276. COMBINED AGRICULTURAL IMPLEMENT. D. LA MONT ASPINWALL, Portsmouth, assignor of one-half to J. H. Van Auken, Petersburg, Va. Filed Jan. 5, 1885. (No model.)



Claim.—1. In a combined cultivator, the combination of the adjustable frame, the fertilizer-box at the forward end of the frame, and the cotton-planter at the rear portion thereof, the series of long and short plow-beams, with blades of different depths, the follower-hood, the driving mechanism, and the operating-levers, substantially as described.

2. In a combined cultivator, the combination of the adjustable frame, the fertilizer-box and cotton-planter, respectively situated at the front and rear of said frame, the stirring and agitating brushes and arms in the boxes, the feeding mechanisms of each operated by short levers, the clutch and drive-chain operating the motion of said boxes, the spline-lever, the lever attached thereto, and the levers connected to the feed-slides, operating simultaneously to release or throw the clutch and to open or stop the feed of each box and the feeding-pipes, substantially as and for the purposes specified.

3. In a combined cultivator, the combination of the adjustable frame, the series of long and short plow-beams with plows cutting different depths, the feeding-tubes following behind the fore and aft central plow-beams, the single box with double compartments and a hollow partition therein, the short shafting and gearing of said box, the feeding-wheels, the clutch and driving mechanism, the lever operating the same and the feed with one simultaneous operation, the raising and lowering beams, and the lever adjacent to the driver's seat operating the beams, substantially as described.

4. In a combined cultivator, the combination of the adjustable frame, means for converting the machine into a single cultivator, a gang-plow or straddle-plow by means of the removal of the boxes, and interchanging and substitution of parts, the handles, which may be pivoted, the brace-rods, the ratcheted strip engaging the plow-handle in raising or lowering it, and the weeder or scraper which may be applied to any one of the forms, substantially as and for the purposes specified.

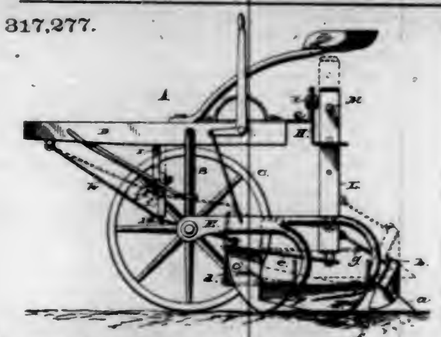
5. The combination, in a combined cultivator, of the adjustable frame A, the plow-beams E and F, arranged as described, the hood L, the fertilizer-box H, and cotton-seed planter I, feed-pipes J and J', wheels C' C', axle-beam C, and the clutch mechanism and operating-levers, substantially as described.

317,277. CULTIVATOR. JOHN T. ATTERBURY, Byhamville, Mo. Filed Feb. 17, 1885. (No model.)

Claim.—1. The fender having the runner *a*, wings *b*, projecting from the sides thereof, and the arch-shaped portion hinged to the runner and having the rearwardly-extending guards, substantially as described.

2. The combination, with the cultivator having the loop H and the extensible depending arm, of the fender connected to the cultivator by a

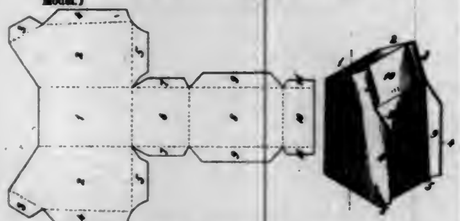
317,277.



drag-chain, which is secured to the extensible arm, and the post L, secured to the fender and passing through loop H, substantially as described.

3. The combination of the cultivator having the depending extensible arm and the loop H, the fender secured to the cultivator by a drag-chain that is secured to the extensible arm, the fender having the runner *a*, wings *b*, curved portion *c*, hinged to the runner, and having the arm *e* and rearwardly-extending guards *f*, and the post L, secured to the fender and passing through the loop H, substantially as described.

317,278. ELEVATOR-BUCKET. WILLIAM M. BABBOTT, JOHN H. ROBERTS, and CHREST BANKER, Pittsburg, Pa.; said Banker assignor to said Babbott and John S. McMasters, same place. Filed Oct. 1, 1884. (No model.)



Claim.—1. A blank for elevator-buckets, consisting of a single piece of sheet metal cut or stamped in the shape hereinbefore described, to wit: having a front section, two side sections adjoining said front section, each having stock on its outer side for a side flange and having a lap-section at top and bottom, a bottom section adjoining the front section and having a lap-section on each of its sides, a back section adjoining the bottom section and having a flange-section on each of its sides, and a back incline section adjoining the back section and having a lap-section on each of its sides, substantially as set forth.

2. An elevator-bucket formed of a single piece of sheet metal cut and bent as described, said bucket being double seamed at the junction of its bottom and sides and at the junction of its sides with the upper portion of its back, substantially as set forth.

3. An elevator-bucket formed of a single piece of sheet metal cut and bent as described, said bucket having double flanges on each side of its back formed by upturned portions of the metal of its back located within and abutting against extensions formed on its sides, substantially as set forth.

4. A sheet-metal elevator-bucket constructed as described, and rendered water-tight by being galvanized while connected by its side flanges to a link of an elevator-chain, substantially as set forth.

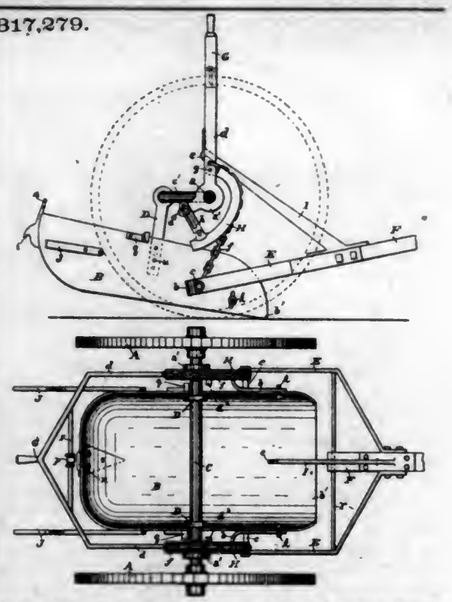
317,279. WHEELED SCRAPER. JOSEPH BAILEY and TIMOTHY REBOLS, Troy, Ohio. Filed Mar. 17, 1884. (No model.)

Brief.—A scraper-bowl swung by hangers from a cranked axle, on the ends of which are pivoted levers with eccentric arcs, is secured to such levers by chains passing over the eccentric arcs and secured to the hounds, or bail-pivots of the bowl. The levers have bent end extensions past their hubs or bearings on the axle, carrying inward projections to limit their play by striking the cranked part of axle. The bail or hounds are made of thin metal, doubled or bent back on themselves where they fasten to the bowl.

Claim.—1. The combination, as set forth, of a crank-axle, a scraper supported by hangers attached to the crank part of the axle, a lever-bar on each side of the scraper attached to the axle-arm, and means connecting each side lever-bar with the scraper.

2. The combination, as set forth, of a crank-axle, a scraper, a lever-bar on each side of the scraper having a hub attached to the axle-arm, and an end, *d'*, beyond said hub at an angle to the bar, and provided on

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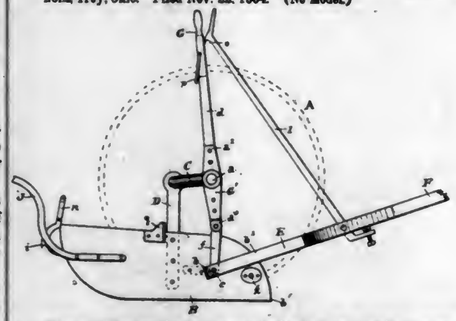


the inner side with a projecting lug adapted to come in contact with the crank part of the axle.

3. The combination, as set forth, of a crank-axle, a scraper supported by hangers attached to the crank part of axle, a lever-bar on each side of the scraper having a hub attached to the axle-arm, an eccentric-shaped iron attached to each side bar, and a chain resting on each eccentric and having one end attached to the side bar and the other end to the scraper.

4. The combination, as set forth, of a scraper mounted on wheels, hounds having thin ends curved or doubled back and said ends pivoted to the scraper, and means attached to the same pivot for raising and lowering the scraper.

317,280. WHEELED SCRAPER. JOSEPH BAILEY and TIMOTHY REBOLS, Troy, Ohio. Filed Nov. 22, 1884. (No model.)



Claim.—The combination, as set forth, of a crank-axle, a scraper supported by hangers attached to the crank part of the axle, a hub-lever on each side of the scraper attached to the axle-arm, and each hub-lever connected with the scraper by a bar-link.

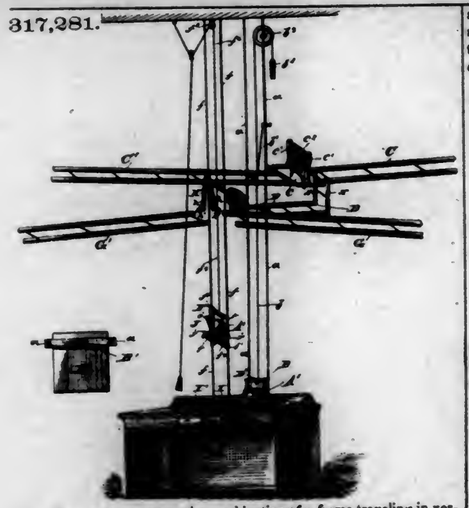
317,281. CASH-CARRIER. CHARLES BALTZELL, Altoona, Pa. Filed Mar. 28, 1885. (No model.)

Claim.—1. In a cash-conveyer, the combination of a cash-carrier traveling up and down on ways, a section of railway arranged to receive cash-balls from two or more railways, and a device to automatically deliver said cash-balls one by one from the said section to the cash-carrier, substantially as specified.

2. In a cash-conveyer, the combination of the vertical rods *a a* with the traveling cash-carrier B, provided with the fixed clip B² and pivoted clip B', substantially as specified.

3. In a cash-conveyer, the combination of the ways *a a* and traveling cash-conveyer B with the ball-detainer E and railway-section D, arranged to receive cash-balls from two or more railways, substantially as specified.

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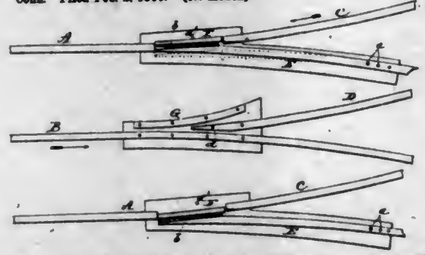


4. In a cash-conveyer, the combination of a frame traveling in vertical ways, and having pivoted upon it a cash-ball carrier adapted to receive and hold a cash-ball on either side of its center, with a tripping device hung to the ways and arranged to automatically trip the ball from the carrier onto a railway on either side at will, substantially as specified.

5. In a cash-conveyer, the combination of the ways *f f*, traveling frame F, and pivoted frame J, provided with the arms *y y'* and rods K K', with the hooks I I' and springs *i i*, substantially as specified.

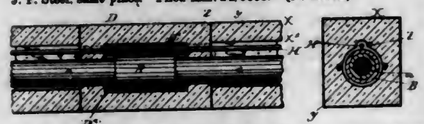
6. In a cash-conveyer, the combination of the ways *f*, traveling frame F, and pivoted frame J, provided with the pins L L', with the tripping-yoke H and railways G G', substantially as specified.

317,282. STREET-RAILWAY SWITCH. OLIVER BANGS, New Haven, Conn. Filed Feb. 2, 1885. (No model.)



Claim.—The herein-described switch for railroads, consisting in the transversely-elastic rail E, forming a continuation of the main rail A, constructed with a block, F, at its free end, to abut against the end of the said main rail A, and set into a space between the end of the main rail and the approaching rail C, the said block F constructed with a groove, *b*, in its upper surface, combined with corresponding opposite rails, B and D, and the guard-rail G at the intersection of the said rails B and D, substantially as and for the purpose described.

317,283. CONDUIT FOR THE CONVEYANCE OF GAS UNDER PRESSURE. HARVEY BARTLEY, Pittsburg, Pa., assignor of one-third to J. F. Steel, same place. Filed Mar. 24, 1885. (No model.)



Claim.—1. In a system of conduits for the conveyance and transportation of gas under pressure, a joint-case consisting of two boxes placed one within the other, the recess or space between them being filled with pitch or cement or other suitable substance of a similar nature, having apertures for passage of the main line of pipes, and a receptacle in the inner case with connections for an escape-line, which has connection leading to the open air, substantially as described.

2. In a system of conduits for the conveyance and transportation of gas under pressure, a pipe-case consisting of an inner and outer case, with a space between the same filled with pitch or cement or other suitable substance, and an interior chamber with connections between the sections of the pipe-case and connections with the open air, substantially as described.

317,284. CAR-COUPLING. HENRY T. BEAN, Palestine, assignor of one-half to William C. Jones, Robinson, Ill. Filed Jan. 20, 1885. (No model.)



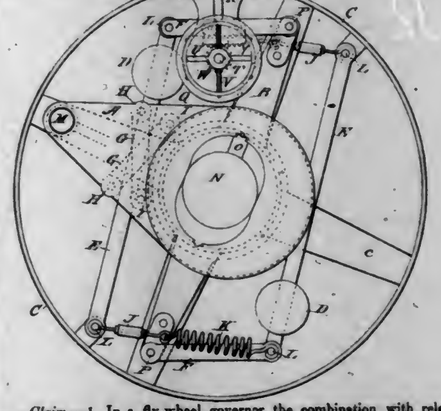
Claim.—1. In combination with a draw-head and a cylindrical coupling-pin provided with a tenon in the upper end thereof, the T-shaped head pivoted thereto, and having its forward arm pivoted in a recess of the draw-head, and the central portion provided with a mortise having shoulders in the upper forward portion and in the lower rearward portion to bear against the edge of said tenon, substantially as and for the purpose described.

2. A draw-head provided with an opening in the top thereof, in combination with a coupling-pin resting therein, and a yielding springy connection having its rear end pivoted to the pin and its front end pivoted to the draw-head, substantially as and for the purpose described.

3. A draw-head provided with an opening in the top thereof, and a coupling-pin resting therein, in combination with an arm having its rear end pivoted to the pin and its front end pivoted in a recess of the draw-head between the extremities of two lengths of pipe embedded into the body of said draw-head, and a bolt passing therethrough, substantially as and for the purpose described.

4. The combination of a draw-head, an arm, B', pivoted to the forward portion thereof, and having its journal-pin received within a pipe embedded in said draw-head, a transverse rod, E, having a finger, *e*, pivoted under the arm B', and a coupling-pin pivoted to said arm, and prevented from swinging backward relatively to its pivot-arm by shoulders on said arm, substantially as described.

317,285. GOVERNOR FOR STEAM-ENGINES. ROBERT M. BECK, Chambersburg, Pa. Filed Mar. 7, 1885. (No model.)



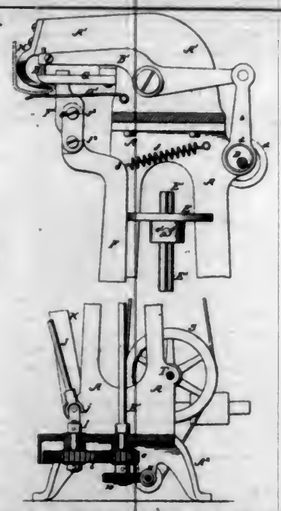
Claim.—1. In a fly-wheel governor, the combination, with relatively movable parts, of a tight casing for containing a fluid and inclosing a paddle-wheel or vane that is mounted on a shaft geared to some movable part of the governor, substantially as described.

2. In a fly-wheel governor, the combination, with the governor-wheel C, the vibratory sleeve B, mounted on the hub of said wheel, the eccentric A, weighted levers E E, links F F, springs K K, and connections, of the tight casing Q, attached to the governor-wheel and containing a fluid, the paddle-wheel U, mounted within said casing on a shaft, T, the projecting end of which carries a pinion, W, and the rack Y on one of the movable links F, for meshing with said pinion, substantially as described.

317,286. MACHINE FOR TRIMMING HAT-BRIM CURLS. JOHN BIGELOW, Philadelphia, Pa. Filed Mar. 6, 1885. (No model.)

Claim.—1. For trimming the brims of hat-curls after they have been shaped and set and while they remain so, an organized machine, substantially as described, in which the position of the outer edge of

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the hat in relation to the trimming device automatically determines the distance of the line of trimming from the edge of the hat.

2. For the trimming of hat-brim curls after they have been set and while they remain so, an organized machine, substantially as described, in which a tipping motion is imparted to the hat in the direction of its length during the trimming operation, and in which the position of the outer edge of the hat in relation to the trimming devices automatically determines the distance of the line of trimming from the edge of the hat.

3. An organized machine for trimming the curls of hat-brims to any desired outline after they have been shaped and set and while they remain so, substantially as specified.

4. An organized machine for trimming the curls of hat-brims which have been shaped and set to a regular outline, the said machine having a trimmer and gage and a hat-support controlling the relation of the gage and trimmer to regulate the line of cut, substantially as described.

5. An organized machine for trimming the curls of hat-brims which have been shaped and set to a regular outline, the said machine having a trimmer and gage and a rotary hat-support controlling in its movement the relation of the gage and trimmer to regulate the line of cut, substantially as described.

6. An organized machine for trimming the curls of hat-brims which have been shaped and set to a regular outline, said machine having a trimmer and gage, a cam to vary the depth of cut, and a hat-support with which the cam is adapted to move in concert, substantially as set forth.

7. In a machine for trimming hat-brims after they have been set and shaped, the combination of a trimmer and a movable gage with a pattern-cam acting on said movable gage to vary the depth of cut, as described.

8. In a machine for trimming hat-brims after they have been set and shaped, the combination of a trimmer, a movable gage, and a pattern-cam to act on said gage to vary the depth of cut with a hat-support with which the cam is adapted to move in concert, substantially as described.

9. In a machine for trimming the brims of hats which have been shaped and set, the combination of a trimmer and hat-support with a movable gage for the outer edge of the hat, controlled in relation to the cutter by the position of the hat in passing the cutter, substantially as specified.

10. In an organized machine for trimming the brims of hats which have been shaped and set, the combination of a trimmer and gage with a hat-support free to tip or tilt the hat in the direction of its length, substantially as and for the purpose set forth.

11. In a machine for trimming the brims of hats which have been shaped and set, the combination of a fixed frame and a trimmer and gage thereon with a swinging frame carrying a hat-support, substantially as set forth.

12. In a machine for trimming the brims of hats which have been shaped and set, the combination of a fixed frame, a trimmer and gage, and a cam acting on said gage to regulate the depth of cut, with a movable frame carrying the hat-support and having its line of movement in the same plane with that of the gage, substantially as specified.

13. In a machine for trimming the brims of hats which have been shaped and set, the combination of a fixed frame, a trimmer and gage, and a movable support for said trimmer with a cam controlling the position of the latter, and a hat-support controlling said cam, substantially as described.

14. In a machine for trimming the brims of hats which have been shaped and set, the combination of a fixed frame, a trimmer and gage, with a movable frame, and a hat-support vertically adjustable therein, substantially as set forth.

15. In a machine for trimming the brims of hats which have been shaped and set, the combination of a movable hat-support, trimmer, and gage with a cam controlling the depth of cut, and adjustable with reference to the device acted on to alter the cut, substantially as specified.

16. In a machine for trimming the brims of hats which have been shaped and set, the combination of a movable hat-support and cam controlled thereby with a trimmer and gage, and a pivoted arm carrying said gage or trimmer, the cam being adjustable toward and from the pivot of the said arm, as specified.

17. In a machine for trimming the brims of hats after they have been set, the combination of a hat-support, trimmer, and cam controlling the depth of cut with a gage-arm and a gage adjustable thereon, substantially as described.

18. In a machine for trimming the brims of hats, the combination of a hat-support, trimmer, and movable gage, with a guide-plate for the movable gage, substantially as set forth.

19. In a machine for trimming the brims of hats, the combination of a frame, a trimmer, and supporting-foot for the latter with a gage and a controlling-cam, and a guide-plate which also serves to keep the curl of the brim on the support, substantially as specified.

20. In a machine for trimming the brims of hats, the combination of a trimmer, a hat-support, and gage with an arm carrying said gage or trimmer, a pattern-cam controlling the arm, and a retractor to keep the arm up to the cam, substantially as set forth.

21. In a machine for trimming the brims of hats, the combination of a gage with a reciprocating gouge-shaped cutter, and a support for the cutter to act against, substantially as described.

22. The gouge-shaped cutter made of a tube, substantially as set forth.

23. The combination of the frame, a gage, and cutter with a supporting-finger secured to the frame, and having its toe projecting sidewise, substantially as and for the purpose described.

24. In a machine for trimming the brims of hats, the combination of the frame, a trimmer, and gage with a shaft, D, for transmitting motion to the cutter, and having at one end an operating-wheel and at the other a grinding-wheel, substantially as and for the purpose described.

25. In a machine for trimming the brims of hats which have been shaped and set, the combination of a trimmer and gage, and a cam controlling the depth of cut with a shaft carrying said cam, a hat-support in a movable frame, a shaft, I, geared to the cam-shaft, and a universal joint connecting the hat-support with the shaft I, as set forth.

26. In a machine for trimming the brims of hats which have been shaped and set, the combination of a trimmer and gage, and a cam controlling the depth of cut with a shaft carrying said cam, and a hat-support in a movable frame and geared to the cam-shaft in the relation of two to one, as set forth.

27. The combination of the fixed frame, trimmer, and gage, and cam controlling the depth of cut, and cam-shaft with a supporting-frame pivoted to the fixed frame, gearing and shafting to transmit the motion of the hat-support to the cam-shaft, and a universal joint at the pivoting-point of the movable frame, substantially as set forth.

28. The combination of the fixed frame with the bifurcated hat-carrying frame K, shaft I, shaft J', connecting-rod J, and universal joints, substantially as described.

29. The combination of a trimmer and gage and a fixed frame carrying the same with a hat-supporting frame pivoted to the fixed frame and carrying a counter-weight, substantially as specified.

30. The combination of a fixed frame carrying a trimmer and gage with a frame having a rotary sleeve or hollow shaft, a hat-block, and a stem adjustable in said sleeve, as and for the purpose set forth.

31. The combination of the fixed frame, trimmer, and gage with a movable frame, a vertically-adjustable stem therein, and a hat-block pivoted to the said stem so as to be free to have a tilting motion thereon, substantially as specified.

32. The combination of a trimmer and gage, and a cam for regulating the depth of cut with a hat-support geared to the said cam, and a driving-shaft imparting motion to the cutter and to the hat and cam, substantially as described.

33. The hat-brim support for trimming consisting of a pair of blocks for the side curls and a spring-yoke, substantially as set forth.

34. In a machine for trimming the brims of hats, the combination of a hat-block, gage, and finger with a cutter-arm, and a cutter free to be turned in said arm to vary the line of cut, as set forth.

35. In a machine for trimming the brims of hats, the combination of a hat-support and gage with a swiveled frame carrying a rotary trimmer, and a foot to cut against, substantially as set forth.

36. In a machine for trimming the brims of hats, constructed substantially as described, a rotary cutter, substantially as set forth.

37. In a machine for trimming the brims of hats, constructed substantially as described, a rotary trimmer arranged to separate the material by pressure, substantially as set forth.

38. An organized machine for trimming to a desired outline the brim of a hat after it has been shaped and set, wherein the outer edge of the curl of said brim and the revolution of said hat on its center determine the line of trimming, substantially as described.

39. An organized machine for trimming the brim of a hat after it has been shaped and set, wherein the revolution of the hat around its center makes a corresponding adjustment of the relation of a gage and trimming device, substantially as described.

40. An organized machine for trimming the brim of a hat after it has been shaped and set, wherein said brim during the process of trimming may be revolved past a fixed cutting-point, substantially as described.

317,287. MACHINE FOR MAKING DRILLS. WILLIAM Y. A. BOARDMAN, Hyde Park, Mass. Filed Nov. 18, 1884. (No model.)



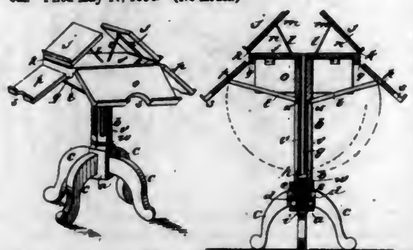
Claim.—1. In a machine for rolling drill-points, the combination of similar upper and lower rolls oppositely inclined to form the grooves in the drill-blank, and similar side rolls having their edges concaved to keep the blank in shape and prevent it spreading, with means, substantially as specified, for operating the same.

2. In a machine for rolling drill-points, the combination of similar upper and lower groove-forming rolls, inclined equally and oppositely to the central transverse line of the base-plate of the machine, with similar side rolls having their edges concaved on the arcs of similar ellipses and inclined equally in opposite directions, so as to fit between the grooves formed by the upper and lower rolls, thereby preventing the blank from spreading laterally and helping to give it the requisite shape, substantially as specified.

3. In a machine for rolling drill-points, the combination of the base-plate A, frame B, rolls c' and e', and mechanism for rotating said rolls oppositely at an equal rate of speed with the rolls G G rotating oppositely to each other and actuated by any proper mechanism, substantially as specified.

4. In a machine for rolling drill-points, the combination of the base-plate A, frame B, rolls c' and e', and mechanism for rotating said rolls oppositely at an equal rate of speed with the rolls G G, shafts g g, bevel-gears H h, and bevel-gears H and h', substantially as specified.

317,288. FOLDING READING-DESK. DAVID D. BOWMAN, Eureka, Cal. Filed May 17, 1884. (No model.)



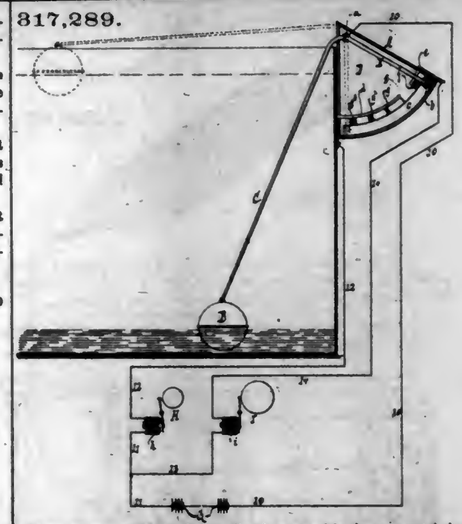
Claim.—1. In a reading-desk, the top, in combination with the rotatable column having vertical slots or recesses, the leaves hinged to the lower outer edges of said top and having recessed outer edges to receive said column, and the propping-levers pivoted to said column and folding in said recesses or slots in the column, substantially as and for the purpose set forth.

2. In a reading-desk, the top, in combination with the rotatable column having vertical slots or recesses, the leaves hinged to the lower outer edges of said top and fitting flush against the under side of said top in their folded position, and the propping-levers pivotally connected to said column and fitting in said recesses in their folded position, substantially as and for the purpose set forth.

317,289. ELECTRIC LIQUID GAGE AND ALARM. JEFFERY C. BOYLE, Brooklyn, N. Y. Filed Dec. 29, 1884. (No model.)

Claim.—1. The combination of the case A, having a segmental slot, c, the pivoted swinging arm C, carrying a float, B, and provided with a contact-arm, E, having a roller, b, to travel in the segmental slot, two insulated contact-points, one for low and the other for high water, two electric bells, a battery, and electrical connections, substantially as described.

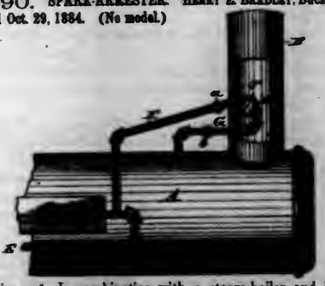
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2. The combination of the hard rubber or other non-conducting case, A, having a slot, c, a moving contact-arm, E, having a roller, b, to travel in the slot, a float, B, connected with and controlling the position of the contact-arm and its roller, two contact-points insulated from each other by the case, one for low and the other for high water, two electric bells, a battery, and electrical connections, substantially as described.

3. The combination of a case, A, having a slot, c, the series of contact-points supported directly above the slot, a moving contact-arm, E, having a roller, b, to travel in the slot and come in contact with the aforesaid contact-points, two electric bells, a battery, and electrical connections for indicating high and low water and intermediate levels of the water, substantially as described.

317,290. SPARK-ARRESTER. HENRY E. BRADLEY, Buchanan, Mich. Filed Oct. 29, 1884. (No model.)



Claim.—1. In combination with a steam-boiler and its smoke-stack, a water-supply pipe provided with a regulating-cock and an injecting spray-nozzle, and a steam-pipe, also provided with a regulating-cock and an injecting-nozzle, both nozzles being rigidly connected by a brace inside of the smoke-stack, substantially as specified.

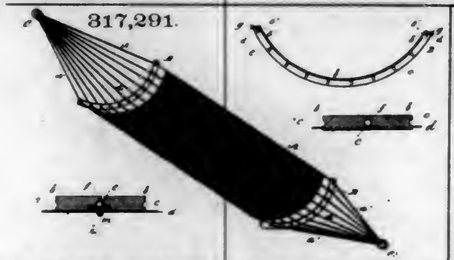
2. The combination, with a steam boiler, its smoke-stack, the pump, and its pipe communicating with a water-tank, of the water-supply pipe leading from the pump-supply pipe to a nozzle in the smoke-stack, and a pipe leading from the steam-pipe to a nozzle in said stack, and both pipes being provided with cocks, and supported substantially as described.

317,291. HAMMOCK-SPREADER. WILLIAM E. BROCK, Dunellen, N. J., assignor to Hamilton T. Disbrow, Brooklyn, and Herman G. Disbrow, New York, N. Y. Filed July 22, 1884. (No model.)

Claim.—1. A hammock-spreader composed of a series of lengths, b, having slanting or radial ends and slots or perforations c formed therein, said lengths being connected and supported by a wire or band, d, as shown and described, for the purpose set forth.

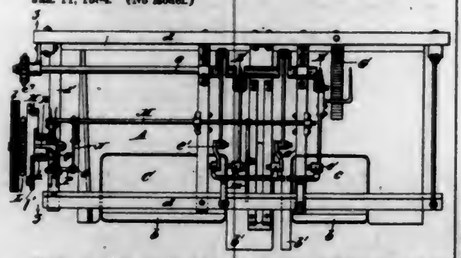
2. A hammock-spreader composed of a series of lengths, b and b', having perforations c and c' and slanting or radial ends connected and supported by a band, d, and said lengths b' b' provided with slots g g, as and for the purpose set forth.

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3. A hammock-spreader composed of a series of lengths, *b*, having perforations *c* and slanting or radial ends, and provided with the pins *h*, let into the ends of adjoining lengths, as shown and described.

317,292. GRAIN-BINDER. ROBT. BROWN, Springfield, Ohio. Filed Jan. 11, 1884. (No model.)



Claim.—1. The combination of the stationary binding-table, having one or more movable flat sections or leaves forming part of the flat table-surface, with the revolving compressor and ejector shaft B, having the movable sections or leaves secured thereto so as to revolve with said shaft, substantially as herein set forth.

2. In combination with the shaft B and one or more movable sections or leaves of the binder-table revolving therewith, the arms I I' and flange *h*, arranged to give an inward movement to the shaft B and movable sections of the table to compress the bundle for tying, substantially as described.

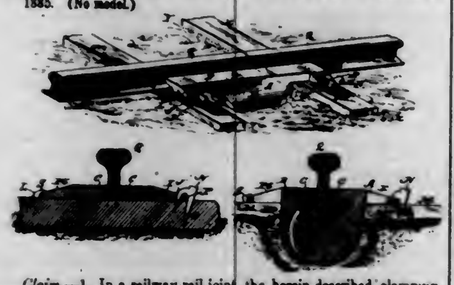
3. In a grain-binder, the combination of the tripping-finger *m*, shaft M, cranks and links N O P Q R, spring tripping-bolt S, continuously-operating drive-wheel *l*, and sprocket-wheel provided with recesses *s'*, substantially as specified.

4. In a grain-binder, the combination of the revolving shaft B, and the movable sections or leaves C *c*, and the ejector-finger D, secured upon said shaft and revolving therewith, with the stationary binder-table having openings in which the movable sections or leaves operate, substantially as herein set forth.

5. In a grain-binder, the binder-table composed of the stationary portions *a*, and movable sections C *c*, and the stationary portions *b'*, arranged between the sections C *c*, substantially as specified.

6. The combination of the compressor and ejector shaft B, having the arm I' and stop-motion pinion H', provided with lugs *f*, and the pivoted arm I, mounted upon the binder-frame, with the combined cam and gear wheel having segmental teeth *l'*, substantially as set forth.

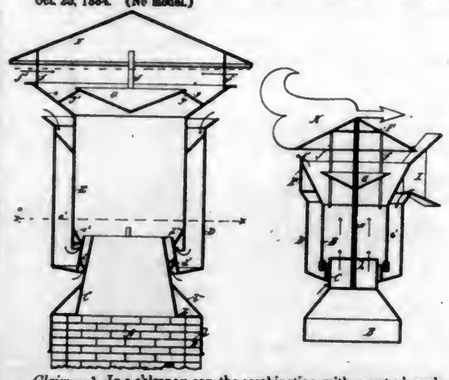
317,293. RAILWAY-RAIL JOINT. MILTON F. BUCH, Lancaster, Pa., assignor of one-half to David P. Bitner, same place. Filed Jan. 30, 1885. (No model.)



Claim.—1. In a railway-rail joint, the herein-described clamping-plates or fish-plates, having downwardly-extending flanges provided with inwardly-extending lugs, whereby they are hinged together, said clamping-plates being provided at their ends with outwardly-extending lugs, the lugs of one of said plates being perforated, substantially as and for the purpose set forth.

2. In a railway-rail joint, the combination, with a clamping device constructed substantially as described, and consisting, mainly, of a pair of plates hinged together, of perforated lugs extending outward from the ends of one of said plates, and hooked spikes for securing the latter to the sleepers, and affording hinges upon which the said plate may partially turn, substantially in the manner and for the purpose herein set forth.

317,294. CHIMNEY-CAP. CHARLES W. CARLL, Camden, N. J. Filed Oct. 25, 1884. (No model.)

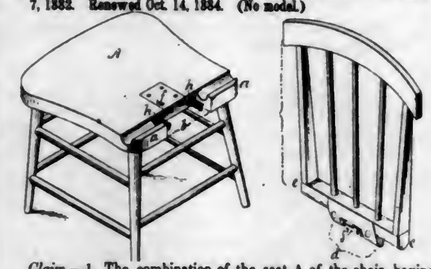


Claim.—1. In a chimney-cap, the combination, with a central smoke-stack, of two surrounding pipes, D E, forming two annular air-inlets, both external to said pipe C, the air-inlet to pipe D being at the upper end thereof, said pipe D having at its base an upturned flange which embraces the lower edge of the pipe C, as shown, such flange being separated from the pipe C by an annular air-inlet arranged to admit air below the pipes D E, all substantially as and for the purpose described.

2. In a chimney-cap, the combination of a base, B, central smoke-pipe, C, external surrounding pipes, D and E, with inlets d^2 e^2 at the lower ends of the pipes D and E, cap F, and inverted cone G, said parts being constructed and combined for operation substantially as shown and described.

3. In a chimney-cap, the combination, with pipes C and D, rigidly secured to each other, of pipe E and top F, said pipe E having a petticoat-flange, E', with funnel-mouth I, and extending down within the pipe D to surround the pipe C, and said top having a vane, K, the parts being connected, as described, through the medium of a spindle, H, and forming a chimney-cap with a revolving top, having an air-inlet to windward, substantially as shown and described.

317,295. CHAIR. ALBERT S. CARTER, Philadelphia, Pa. Filed Dec. 7, 1882. Renewed Oct. 14, 1884. (No model.)



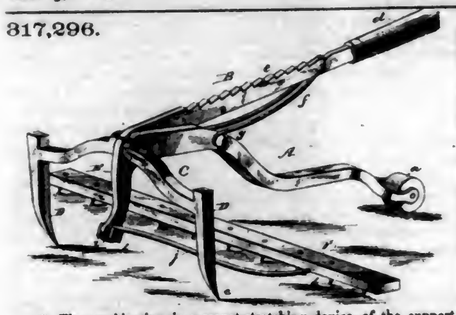
Claim.—1. The combination of the seat A of the chair, having a recess, *b*, and sockets *m*, communicating therewith, the back B, hinged to the seat and having a projection, *d*, fitted to the recess *b*, and the expansion-springs *h*, contained within the sockets *m*, and exerting an outward thrust upon the projection *d* of the back, as set forth.

2. The combination of the seat A of the chair, having a recess, *b*, and rounded bearing-grooves *a a*, with the back B, having a projection, *d*, adapted to the recess and hinged to the seat, and rounded portions *e*, adapted to the grooves *a a*, and with springs *h*, fitted to sockets in the seat and projection, as set forth.

317,296. CARPET-STRETCHER. WILLIAM H. CARTER, Springville, Utah. Filed Sept. 18, 1884. (No model.)

Claim.—1. The combination, in a carpet stretching device, of the supporting-frame consisting of a rearwardly-extending bar, A, split or bifurcated at its front portion, an angle-lever, B, pivoted in such bifurcated portion, a bar, F, provided with teeth and positively connected to said angle-lever, and vertical bars D, supported by side extensions of the supporting-frame, substantially as described.

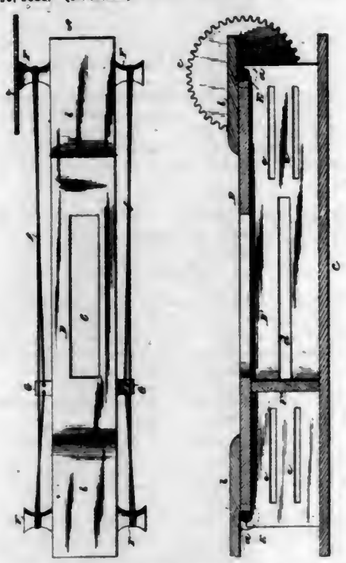
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2. The combination, in a carpet-stretching device, of the supporting-frame consisting of a rearwardly-extending bar, A, split or bifurcated at its front portion, an angle-lever, B, pivoted in such bifurcated portion, and provided with a rack, a loop, *f*, pivoted to said frame and adapted to engage said rack, and a bar, F, provided with teeth and connected positively to said angle-lever, substantially as described.

3. The combination, in a carpet-stretching device, of a supporting-frame consisting of a rearwardly-extending bar, A, split or bifurcated at both its front and rear portions, a roller, *a*, journaled in its rear bifurcated portion, and an angle-lever, B, pivoted in its front bifurcated portion, and a bar, F, provided with forwardly-curved teeth and positively connected to said angle-lever, substantially as described.

317,297. HAY-PRESS. ISAACK N. CAUTHORN, Rich Hill, Mo. Filed Mar. 19, 1885. (No model.)



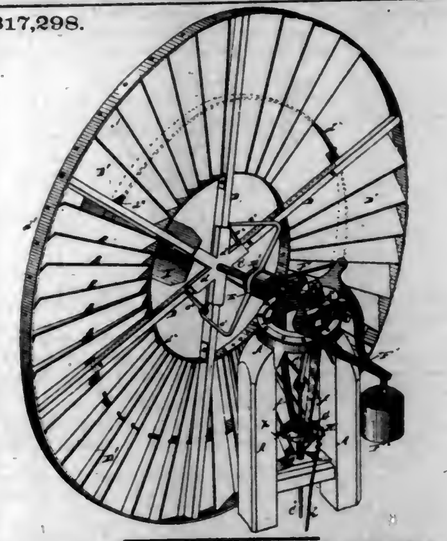
Claim.—The combination, with a press open at both ends, having slots in its sides and an elongated feed-opening, of a follower having arms to fit said slots, shafts mounted in the ends of the press, and belts or cords connecting said shafts and secured to said follower, substantially as set forth.

317,298. WINDMILL. JOHN CHALLBERG, Marcy, Iowa. Filed May 24, 1883. (No model.)

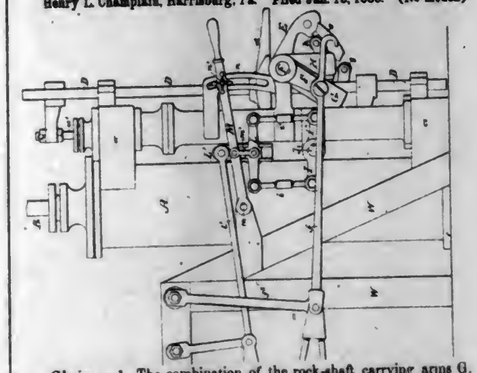
Claim.—1. In a windmill, the combination of the pivoted blades, the movable ring d^4, cranked arm E^2, connected at one end to the iron ring d^4 and at the other with a yoke capable of movement on the main shaft, and means, substantially as described, for moving said yoke, substantially as shown and set forth

2. A windmill consisting, essentially, of the tower A, turn-table A' B, shaft C, connected to the pitman C', and wheel having radial arms D, rings d'' d', and pivoted sheet-metal blades D', connected by a ring, d^4, in combination with the rods E^2, cranked at both ends, collar E', having arms e' e', sliding grooved sleeve E, U-link F, weighted yoke-lever F', links *f f*, sliding collar G, yoke-lever H, and regulating rod or cord *h*, all constructed and arranged to operate substantially as and for the purpose set forth.

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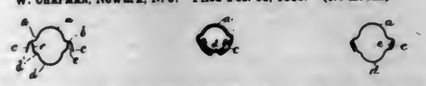
317,299. CUT-OFF-VALVE GEAR. WILLIAM C. CHAMPLAIN, Chester, Pa., assignor of two-thirds to Richard W. Champlain, same place, and Henry L. Champlain, Harrisburg, Pa. Filed Jan. 15, 1885. (No model.)



Claim.—1. The combination of the rock-shaft carrying arms G, and the valve-lifting wiper having a pawl, *e*, with an arm, H, adapted to act on said pawl, rock-shaft J, controlling the arm H, eccentric *l*, and adjustable arm and levers, through which motion is transmitted from said eccentric to the rock-shaft J.

2. The combination of the rock-shaft carrying arms G and the valve-lifting wiper having pawl *e* with an arm, H, adapted to act on said pawl, rock-shaft J, controlling the arm H, eccentric *l*, rocking lever L', and arm L, adjustable thereon and connected to a crank on said shaft J, substantially as set forth.

317,300. SHEET-METAL SATCHEL OR BAG HANDLE. ROBERT W. CHAPMAN, Newark, N. J. Filed Feb. 18, 1885. (No model.)



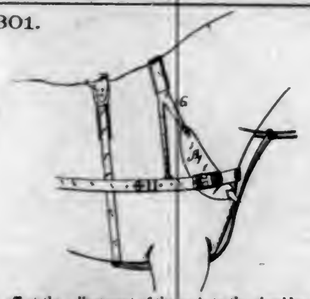
Claim.—1. The sheet-metal handle consisting of the upper section formed with bead *a*, seats *b*, and depending flanges *c*, and the lower section formed with bead *d* and upwardly-projecting flanges *e*, and the sections being united by bending the upper flanges over the lower, substantially as herein shown and described.

2. The combination, with a sheet-metal handle formed in two sections united by inner and outer flanges, as described, of the leather coverings fitted to the sections separately, and their free edges held in place by the overlapping sections, substantially as set forth.

317,301. HARNESS. ROBERT J. CLARK, Chestnut Level, Pa. Filed May 22, 1884. (No model.)

Claim.—1. In a harness, the combination, with the breast-strap and shoulder-pads, of the adjusting and holding device, substantially as de-

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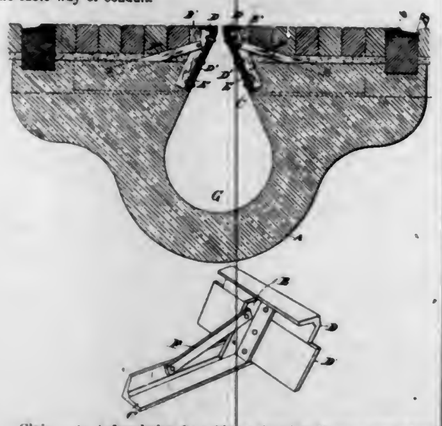


scribed, to effect the adjustment of the pads to the shoulders of horses of different sizes, as set forth.

2. The combination, with the breast-strap and pads, of the adjusting device comprising the case or socket having the slot in one end, the pressure-plate, and the eccentric lever, substantially as and for the purpose set forth.

317,302. SUBWAY OR CONDUIT FOR CABLE OR ELECTRIC RAILWAYS. THOMAS C. CLARKE, Sea Bright, N. J. Filed Aug. 20, 1884. (No model.)

Brief.—The rail-stringers and the slot-irons and their supports are embedded in the mass of concrete or artificial stone in which is formed the cable way or conduit.



Claim.—1. A foundation for cable or electric railways, constructed of artificial stone and having the subway or conduit formed therein, as described, in combination with the track-timbers, which are embedded therein and held at the proper distance asunder thereby, as set forth.

2. The combination, with a foundation constructed of concrete or other artificial stone extending clear across the road-bed and having a subway or conduit formed therein, as described, of the track-timbers supported by and embedded directly in said concrete, whereby they are maintained at the proper distance asunder, as explained.

3. In a cable or electric railway, a foundation constructed of artificial stone and having a conduit formed therein, as described, in combination with the slot-rails rigidly secured to said foundation and having their backs embedded therein, substantially as shown and described.

4. In combination with a foundation constructed of concrete or other artificial stone, and having the conduit formed therein, as described, the track-timbers and slot-rails supported thereby and embedded therein, substantially as shown and described.

5. In a cable or electric railway, a subway or conduit constructed of concrete or other artificial stone, in combination with the slot-rails supported and embedded in said concrete and constituting an integral part of the walls of said conduit, as set forth.

6. In a cable or electric railway, a foundation constructed of concrete or other artificial stone and having the subway or conduit formed therein, as described, in combination with the track-timbers and slot-rails embedded therein, the whole constituting a permanent integral structure, substantially as described.

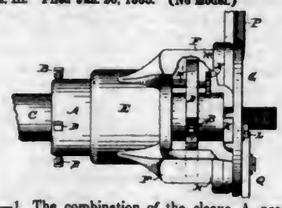
7. In a cable or electric railway, a foundation constructed of concrete or other artificial stone, having a conduit or subway formed therein, in combination with the L-shaped anchor-beams embedded in said concrete, and the slot-rails secured to said anchor-beams and having their backs also embedded in the concrete, as and for the purposes set forth.

8. In a cable or electric railway, a subway or conduit having its lower portion formed entirely of artificial stone and its upper portion or opening lined with metallic plates or slot-rails embedded in the concrete and forming an integral part of the wall of said conduit, as set forth.

9. In a cable or electric railway, the combination of the conduit formed of artificial stone, the metallic slot-rails set into the stone, the L-beams arranged substantially as described, and riveted to the slot-rails, and provided with the boldback-rods for strengthening the support of said rails, as shown and described.

10. In a cable or electric railway, a foundation formed of concrete or other artificial stone with a subway or conduit formed of the same material, in combination with the track-timbers set into said concrete, and the slot-rails, L-beams, and tie-pieces arranged on both sides of the subway and in the concrete, the whole forming a single and solid structure, as set forth and shown.

317,303. SCREW-THREADING MACHINE. CHARLES E. COE, Leesburg, Kans., assignor, by direct and mesne assignments, of two-thirds to Leonard G. Fath, Amos Sawyer, and Edward L. Waggoner, all of Hillsborough, Ill. Filed Jan. 20, 1885. (No model.)



Claim.—1. The combination of the sleeve A, provided with the flange D, the radial adjusting-screws B, the ring E, provided with arms F, the radially slotted and grooved plate G, secured to the arms F, a turning-tool securable to the plate, the crank P, the feed-screw M, provided with a star-wheel, N, and the spur O, substantially as shown and described.

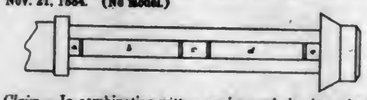
2. The combination of the sleeve A, provided with the flange D, the radial adjusting-screws B, the ring E, provided with arms F, the radially slotted and grooved plate G, secured to the arms F, the crank P, a threading-tool fitted to plate G, and the leader Q, shaped to engage a screw-thread and slotted for adjustment, substantially as shown and described.

317,304. CARPET-FASTENER. GEORGE M. CONDIT, Jr., Waterbury, Conn. Filed Dec. 8, 1884. (No model.)



Claim.—As an article of manufacture, the herein-described carpet-fastener, consisting of the pointed shank *a*, the collar *b*, surrounding the shank and forming a head by which the fastener may be driven, and the hook-shaped point *d*, extending upward and obliquely from the collar, all formed in one piece of metal, substantially as described.

317,305. CARRIAGE-AXLE. PETER COOL, Manhattan, Kans. Filed Nov. 21, 1884. (No model.)



Claim.—In combination with a carriage-axle having a longitudinal dovetail groove, the thrust or bearing blocks, the sliding plate having a concave surface, and the roller fitted on said plate and mounted on the bearing-blocks, substantially as described.

317,306. FRICTION-CLUTCH. JOHN H. COOPER, Philadelphia, Pa. Filed Mar. 30, 1885. (No model.)

Claim.—1. The combination, in a friction-clutch, of a shaft, clutching mechanism carried thereby, and a shell or hub upon which said clutching mechanism acts, said shell having a bearing on both sides of the clutching mechanism, as set forth.

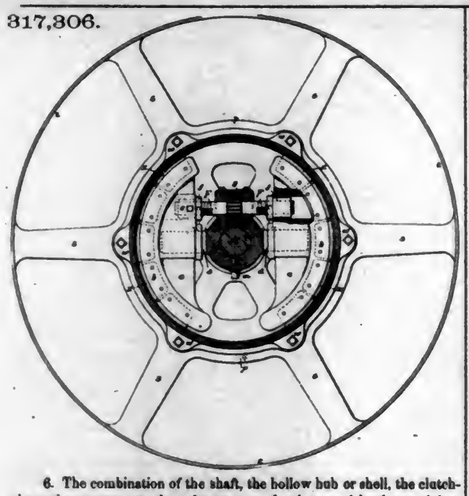
2. The combination of a shaft, clutching mechanism carried thereby, a shell or hub upon which said mechanism acts, and an outer pulley structure detachably secured to said shell, as set forth.

3. The combination of the shaft, the driver thereon, clutching mechanism carried by said driver, and a hub or shell having bearings upon the opposite ends of the driver, as specified.

4. The combination of the shaft, the driver thereon, clutching mechanism carried by said driver, and a hub or shell made in halves, as set forth.

5. The combination of the shaft, the driver thereon, clutching mechanism carried thereby, a shell or hub upon which the clutch acts, and an operating rack or stem projecting into the shaft or driver-hub, as set forth.

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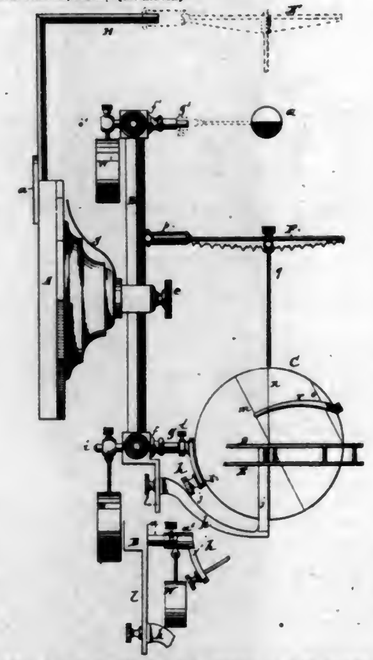


6. The combination of the shaft, the hollow hub or shell, the clutch-shoes, the screw-stem adapted to nuts on the shoes, and having a pinion, an operating-rack and a driver secured to the shaft and carrying the clutch-shoes, screw-stem, and rack, as specified.

7. The combination of the driver, the screw-stem, the clutch-shoes, and the nuts adapted to the screw-stem and detachably secured to the shoes, whereby they can be turned so as to adjust the shoes, as set forth.

8. The combination of the shaft, the hollow hub or shell, the driver having projection pins, the clutch-shoes hung to and movable on said pins, and means for expanding the shoes, as set forth.

317,307. TELLURIAN-GLOBE. THOMAS H. COSTELLO, Chicago, Ill. Filed Mar. 14, 1884. (No model.)

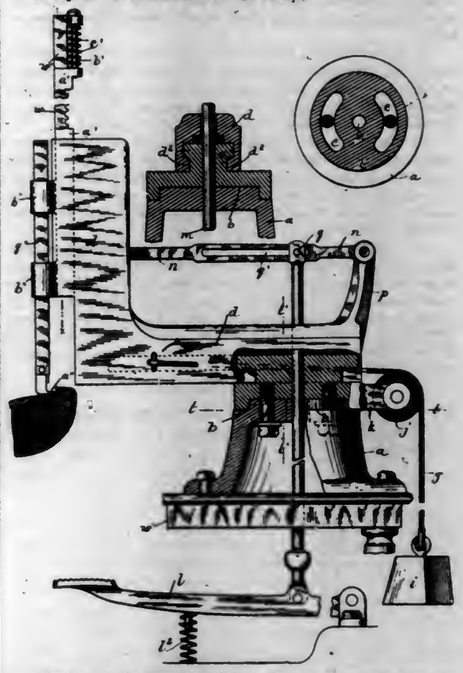


Claim.—1. The combination of a support, A, a bar pivoted upon such support, and provided at one end with a globe-support, and a globe mounted on an inclination-plate, and a weight to hold the inclination-plate in a perpendicular position while the bar B rotates on its axis, substantially as and for the purposes specified.

2. In a tellurian, the combination of a rotating bar, B, having at each end a bearing for a short shaft, short shafts supported in such bearings, and weights to prevent the rotation of such shafts in their bearings, substantially as and for the purposes specified.

3. In a tellurian, the combination of a support, A, a rotating bar, B, a globe-support at one end of such bar, a pivotal moon-support at its other end, and a sun-support, H, substantially as and for the purposes specified.

317,308. LASTING-MACHINE. PETER A. COUPAL, Boston, Mass., assignor, by direct and mesne assignments, to Augustus Seaver, trustee, same place. Filed Feb. 24, 1885. (No model.)



Claim.—1. In a machine for securing uppers to inner soles, the combination of a driver and mechanism to operate it, mechanism, substantially as described, for supplying sole-fasteners to the driver, a frame supporting said driver and fastener-supplying mechanism, means, substantially as described, whereby said frame is enabled to reciprocate and oscillate horizontally, and a jack swiveled to rotate horizontally, as set forth.

2. In a machine for securing uppers to externally-channeled inner soles, the combination of a driver and mechanism to operate it, a frame supporting said driver, mechanism, substantially as described, for supplying fasteners to the driver, and a clinching-plate supported by said frame, as set forth.

3. In a machine for securing uppers to externally-channeled inner soles, the combination of a driver and mechanism for operating it, mechanism, substantially as described, for supplying fasteners to the driver, a movable frame supporting said driver and fastener-supplying mechanism, means, substantially as described, whereby said frame is permitted to reciprocate and oscillate horizontally, a swiveled jack, on which the sole and upper are supported, and a clinching-plate attached to the frame and adapted to be inserted in the channel of the sole, as set forth.

4. In a machine for securing uppers to externally-channeled inner soles, the combination of a driver and mechanism for operating it, means for supplying fasteners to said driver, a movable frame supporting said driver, a clinching plate or anvil supported and moved by said frame and adapted to be engaged with the flap of the inner sole, a swiveled jack supporting the inner sole and upper, and means, as specified, for exerting pressure on said frame, and thereby holding the clinching-plate in engagement with the inner sole, as set forth.

5. The fastener or staple forming devices composed of the rotary block or female former, the male former, the cutter, and mechanism, substantially as described, whereby said former and cutter are operated, combined with the driver and its operating mechanism.

6. The combination of the supporting-frame, the carrier adapted to reciprocate vertically therein and provided at its lower end with the rotary disk or female former, the lever pivoted to said carrier, and provided with the cutter and male former, the driver-bar having a yielding spring-connection with the carrier, mechanism, substantially as described, for reciprocating the carrier and driver-bar, and devices, substantially as described, whereby when the carrier is depressed the cut-

ter and formers are operated to make a staple, and the female former is turned to present the staple to the descending driver, as set forth.

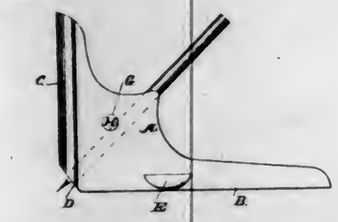
7. The combination of the supporting-frame, the driver-bar adapted to reciprocate vertically therein, mechanism, substantially as described, whereby the driver-bar is positively operated, the carrier having the staple cutting, forming, and presenting devices, the means for operating said devices, and a spring interposed between the driver and carrier, whereby the carrier is enabled to stop and present the staple to the driver while the latter is completing its downward movement, as set forth.

8. The combination, substantially as set forth, of the pedestal or support, the guide-block fitted to partly rotate thereon, the frame adapted to slide on and rotate with the guide-block, the driver and the clinching-plate supported by the frame, operating mechanism, substantially as described, for the driver, and the swiveled jack or last-support.

9. The combination, substantially as set forth, of the pedestal or support, the guide-block fitted to partly rotate thereon, the frame adapted to slide on and rotate with the guide-block, the driver, and the clinching-plate supported by the frame, the swiveled jack, and the weight or its specified equivalent, whereby the frame is normally moved away from the jack, as set forth.

10. The combination of the pedestal or support, the swiveled guide-block, the frame adapted to slide on and rotate with the guide-block, the staple forming and driving mechanism supported by said frame, the treadle located below the pedestal, the connecting-rod passing from the treadle through the axial center of the swiveled guide-block, the spring whereby the treadle and rod are normally raised, and the intermediate devices whereby the movements of the treadle and rod are communicated to the driver, as set forth.

317,309. **INSTRUMENT FOR TRACING THE OUTLINE OF THE HUMAN FOOT.** ARTHUR W. COX, Newark, N. J. Filed Feb. 26, 1885. (No model.)



Claim.—1. A pencil-holder for outline-tracing having a base-surface and a guide-edge at an angle to such base-surface, substantially as set forth.

2. The pencil-holder for outline-tracing having a base or rest surface, a guide-edge formed at right angle to such base-surface, and a pencil-support, by which the pencil may be held with its point resting at the intersection of the lines of the base and the guide-edge, substantially as set forth.

3. As an improved article of manufacture, a pencil-holder having a base-surface, a guide-edge at an angle to such surface, a pencil-opening intermediate said surface and edge, and a transverse opening intersecting the pencil-opening and fitted to receive a wedge, substantially as set forth.

4. The combination, with a pencil-holder for outline-tracing having a base and a guide-edge, of supports extended laterally from and resting in the plane of the base, substantially as set forth.

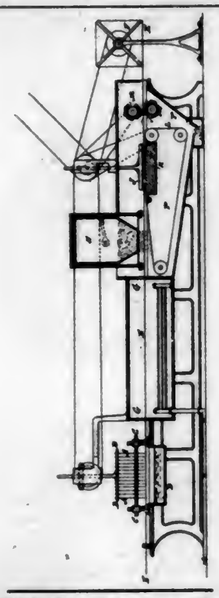
5. A pencil-holder for outline-tracing having a base-surface and guide-edge, and provided with supports extended laterally from and resting in the plane of the base, and having their outer ends chamfered or rounded on their under sides, substantially as set forth.

317,310. **ORNAMENTATION OF CLOTH.** CHARLES J. COX, Nottingham, England. Filed June 10, 1884. (No model.) Patented in England Aug. 24, 1883, No. 4,113; in France Feb. 23, 1884, No. 160,521, and in Germany Mar. 14, 1884, No. 29,434.

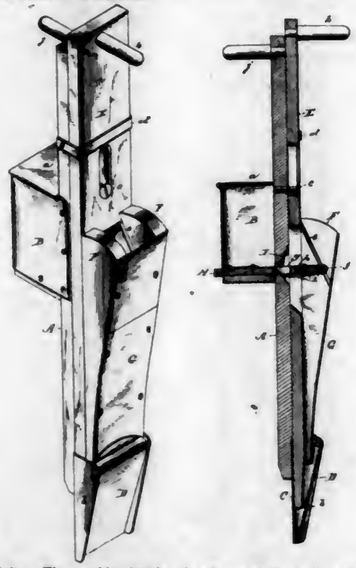
Claim.—1. The within-described method of ornamenting fabrics having perforations or openings therein, consisting in applying a viscid substance to the inner edges or surfaces of said openings and then applying a powdered substance to such viscid substance within the openings or perforations without increasing the thickness of the fabric, substantially as described.

2. The within process of applying a viscid substance to a perforated or apertured fabric to prepare it to receive further ornamentation consisting in applying said viscid substance to the inner edges or surfaces of the openings in the fabric without applying it to the outside surface of the fabric, substantially as described.

317,310.



317,311. **CORN-PLANTER.** THOMAS CRAVEN, Delaware, Ohio. Filed June 14, 1884. (No model.)

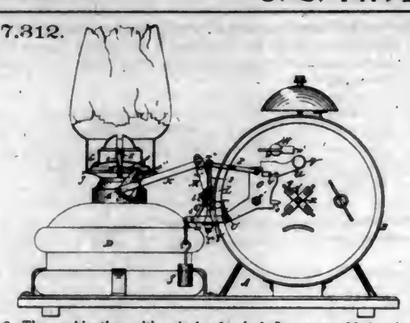


Claim.—The combination, in a hand corn-planter, of a section provided with a seed receptacle or hopper, and carrying at its lower end a second section, movable with respect to said first-named section and guided thereon by means of a bail or loop, *d*, and limited in its movements by means of a pin of the first section, a chamber located on the second section and communicating with the chute, a plunger adapted to open the chute when the second section is moved downward, and a suitable seed-slide, said seed-slide having projecting pins, which engage with upwardly-inclined grooves formed in the upper ends of the sides of the seed-spout, substantially as set forth.

317,312. **COMBINED ALARM-CLOCK AND LAMP-REGULATING MECHANISM.** JOHN M. CRAWFORD, Philadelphia, Pa. Filed Jan. 27, 1885. (No model.)

Claim.—1. The combination, with a shaft, F, on a lamp-burner, and a shaft, L, connected with the works of a clock so as to be moved therefrom, of a spring connecting-rod, K, substantially as shown and described.

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2. The combination, with a clock, of a shaft, L, supported in bearings thereon, and a lever, O, pivotally fastened on the back of the clock, said lever having a shoulder, *o*, in the path of rotation of the wings *q*, of radial arms *q'* on the minute-hand arbor of the clock, and an arm, O', carrying a weight, S, substantially as shown and described.

3. The combination, with rock-shaft L, supported on the clock and having depending arm Y with a rubber collar, *y'*, of lever O, pivotally fastened on the back of the clock and having an arm, O', carrying a weight, S, said arm being arranged, substantially as shown, to strike said collar when the weight descends, substantially as shown and described.

4. The combination, with lever O, pivoted on the back of a clock and having arm O', carrying a weight, of a rock-shaft, L, moved by said lever and having depending arm Y, with adjusting-screw y^2 for regulating the extent of descent of said weight, substantially as shown and described.

5. The combination, with rock-shaft L, supported in bearings on the clock and having a curved projecting arm, l^2, of counter-shaft T, having handle *t* and projecting wing or arm *t'*, arranged to impinge against the said arm l^2, substantially as shown and described.

6. The combination, with lever O, pivotally secured to the back of a clock and having a shoulder, o^2, of arm U, fulcrumed on the setting-arbor of the alarm mechanism, said arm having a laterally-projecting finger, *u*, which rests upon said shoulder, and a cross-head or key, *w*, on the winding-arbor of the alarm, with wing *w'*, which bears against said arm when the alarm operates, substantially as shown and described.

7. The combination, with lamp D, of flame-regulating tube E, shaft F, having arms *f f*, connecting-rod K, shaft L, having arms M and N, pitman P, lever O, having shoulder *o*, and arm O', carrying weight S, and minute-hand arbor with radial arms *q*, having wings *q'*, said several parts being constructed and combined for operation substantially as shown and described.

8. The combination of a lamp having a vertically-adjustable tube exterior to the wick-tube for raising and lowering the flame, with a clock, and mechanism, substantially as described, for moving said tube from and by said clock, whereby, through the movement of said flame-regulating tube, the lamp-flame is raised at intervals and intermittently lowered without moving the wick, as specified.

317,313. **CIDER MILL AND PRESS.** BENJAMIN F. CRILEY, Isabella, Pa. Filed Mar. 23, 1885. (No model.)

Claim.—1. As an improved construction for cider-mills, &c., a grinding-roll composed, essentially, of the following elements: disk-heads secured upon a shaft and provided with ledges on their inside face for the reception of wooden staves, having notches cut through the periphery between said ledges to receive the grinding-knives, with ears upon the outer face of the disks having oblong slots in which the knife-bolts are movably adjustable, through-bolts, and wrought-iron rings retaining the knives and staves in place, substantially as and for the purpose set forth.

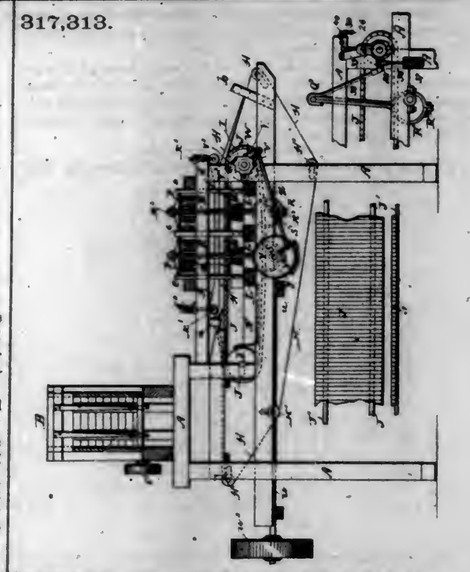
2. A concave of the form shown and as described pivotally secured to the hopper, adjustable to the grinder by set-screws, and movably retained in working-gear by springs G, in combination with the grinding-roll C and hopper B, with slide B', as set forth.

3. In a combined mill and press, a press-platen in duplicate adapted to be simultaneously operated with an intermittent movement, having pressure-plates and intermediate thereto springs of rubber or their equivalent, whereby each platen is made independent of the other in its action upon the pomace, and risk of breakage is removed, substantially as and for the purpose described.

4. In a combined mill and press, the shafts S S', gears S^2 S^3, eccentrics T T, and rods R and Q^2, in combination with frame A, bed L M, guides *e e*, platens O, springs P, plates Q, bevels S^4 and U^2, shaft U, and driving-pulley U^3, whereby power being applied the press-platens are made simultaneously to reciprocate vertically upon the guides *e e*, as and for the purpose set forth.

5. A flexible pomace-rack composed, essentially, of narrow hard-wood slats secured to endless bands of copper, and adapted by revolving rolls I to traverse the press-bed from the front toward the rear, with an intermittent movement transferred thereto by shaft S and disk Y, by rod Z to the arm V, pawl V^2, ratchet W, and pomace-rack roll I, in combination with aprons H and K, grinding-roll C, the press, and machinery for operating the same, as and for the purpose described.

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6. The folding guides *a'* and unfolding guide *b*, constructed as shown, in combination with the apron H, whereby the same in its movement is made to fold over the pomace delivered upon the same, and after pressure is caused to unfold and discharge said pomace at the rear of the machine, substantially as described, and for the purpose set forth.

7. The connecting pressure-rods R, constructed, as shown, with an eye, R^2, hoop R', and ears R^3, all formed from one piece, and adapted to be sprung over the eccentrics T, and secured movably thereon by bolts through the ears R^3, in combination with rods Q^2 of platen-pressure plates Q, substantially as set forth.

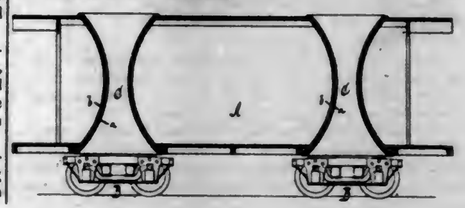
8. In combination with the press-bed, endless pomace-rack, and apron upon the same, the copper springs *d*, secured at one end only centrally upon and to said bed, whereby when the pressure is relieved upon the same the springs rising will lift the rack and apron above the bed and permit their free movement over the same, substantially as described.

9. In a continuous alternate and automatically operating combined grinder and press, the sub or covering apron K, with its compressive roller K^2, and its tensionally-hung roller K^3, in combination with the apron H, pomace-rack J, press, and its actuating mechanism, substantially as and for the purpose set forth.

10. In combination with a press as described, its actuating mechanism, pomace-rack, and aprons H and K, a suitable grinder placed above the apron for the reception of the pomace, with the axis of the grinding-roll parallel with the main frame of the machine, whereby the pomace is delivered in a continuous narrow stream upon said apron, for the purpose set forth.

11. In combination with the pomace-rack of a cider-press for the purpose of securing an intermittent movement of the same upon the end of one of the supporting-rolls shaft, the fixed ratchet 19, combined ratchet-box 20, its pawl 26, and spring 27, with regulating-lever 33, its segmental tail-groove 34, operating-lever 28, ear 31, by which it is connected with the regulating-lever, the counterweight-rod 36, weight 37, and rod 38, connected with the platen-rod Q^3, all arranged as shown, and for the purpose set forth.

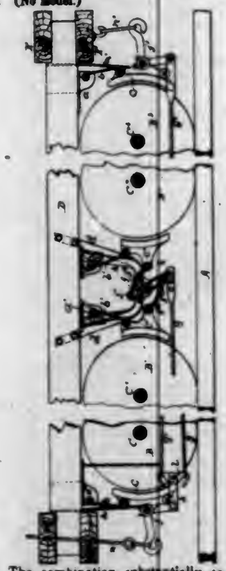
317,314. **RAILWAY-CAR.** CHAS. F. CROCKETT, Mount Vernon, N. Y. Filed Apr. 2, 1885. (No model.)



Claim.—1. The combination, with a railroad-car, of one or more noise-conducting tubes extending through the bottom and the roof of the car, substantially as shown and described.

2. The combination, with the body of a railroad-car and with the trucks supporting the same, of noise-conducting tubes which extend through the bottom and through the roof of the car, and the lower ends of which extend over two or more of the wheels of each truck, substantially as shown and described.

317,315. CAR-BRAKE. ANDREW J. [illegible]WELL, Baltimore, Md. Filed Feb. 28, 1884. (No model.)



Claim.—1. The combination, substantially as described, of the shoes c' c', links f^3 f^4, lever f, and movable pivot on which said lever is mounted, as set forth.

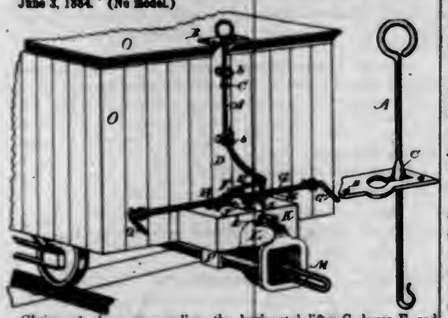
2. A pair of brake-shoes mounted between the central wheels of a car without a cross brake-beam, in combination with a lever attached to the shoes by links, and pivoted in slots in a block suspended from the sill of the car, as set forth.

3. The combination of the lever f, having a sliding pivot, the shoes c' c', the links f^3 f^4, and hangers b', for the purpose set forth.

4. The combination of end shoes, c c, hangers b b, elbow-levers j j', equalizer k, rods g g', lever f, having sliding pivot, hangers b' b', and shoes c' c', as set forth.

5. The combination of hangers d, having slots d^2, block e, having pins to enter said slots, lever f, pivoted in said block e, links f^3 f^4, and shoes c' c', as set forth.

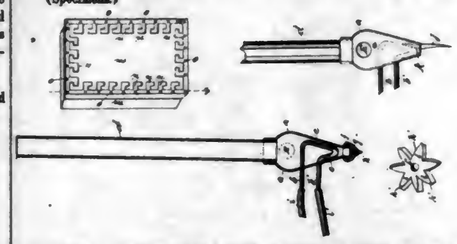
317,316. CAR-COUPLING. ALBERT A. DAILEY, Wilson, N. Y. Filed June 3, 1884. (No model.)



Claim.—1. In a car-coupling, the horizontal lifter G, lever E, rod I, and coupling-pin K, provided with the lug k, and the automatic tumbler Q, in combination with the rock-shaft H, cam J, and the extension F, all arranged and operating substantially as shown and described.

2. In a car-coupling, the vertical lifter A, chain D, rod I, coupling-pin K, provided with the lug k, and the automatic tumbler Q, in combination with the lever E, extension F, rock-shaft H, and cam J, all arranged and operating substantially as shown and described.

317,317. METHOD OF AND MEANS FOR ORNAMENTING THE SURFACES OF WOOD, &c. DOMINIQUE L. DARAN, New York, N. Y., assignor of one-half to Louis Keller, same place. Filed May 10, 1883. (Specimens.)



Claim.—1. The described process of producing raised surfaces or reliefs, consisting in tracing, drawing, or writing the desired relief with wax or other suitable quickly-solidifying substance in liquid state on the surface to be ornamented, and then subjecting the same to the action of an acid bath, substantially as set forth.

2. The described process of producing raised surfaces or reliefs, consisting in first depressing the desired relief in or cutting it out from the surface of a matrix in which the outlines of the relief are raised and all on the same plane, then filling the space within the outline with melted wax or analogous material, and then applying it while melted to the surface to be ornamented, and then submitting the surface to be ornamented to the action of an acid bath, as and for the purposes set forth.

3. The described process of applying a protecting-coating of wax or like substance to any desired surface, consisting in melting the wax in a movable receptacle in which it is maintained in a melted condition by a continuous application of heat thereto and applying it to the surface desired to be protected by bringing the receptacle in contact with such surface, as set forth, and for the purposes described.

4. The combination of the head a, provided with a small aperture at the lower end, through which the melted wax or like substance can pass, and means for heating the head and an opening therein for the admission of the wax, substantially as and for the purposes set forth.

5. The combination of the head a, provided with an opening at its lower end, and also provided with means whereby it may be continuously heated, an aperture therein for the admission of the wax, and a matrix attached to the lower end thereof, on the face of which is formed the outline of a figure, all the outlines being elevated and in the same plane, and the space within the outlines being made concave, such concave part communicating with the interior of the head a, substantially as and for the purposes set forth.

6. The combination of the block-matrix m, cylindrical or flat, provided with the raised figure n, the depressed portion n', the holes o, and means for continuously heating the matrix, and an aperture therein for supplying the wax or like substance, substantially as and for the purposes set forth.

7. The combination of the hollow handle d, the head a, the heating-tubes b, b', and c, the connecting-pipe I, the tip g, and the aperture h, all substantially as and for the purposes set forth.

8. The combination of the head a, the heating-tubes b, b', and c, the pipe i, the opening k, and the pen j, substantially as and for the purposes set forth.

9. The described matrix or tip provided with the raised outline k', the depressed or concave part l within the outline, and the hole l', for the passage of the melted wax, substantially as and for the purposes set forth.

10. The described process of ornamenting porous or fibrous articles by producing a relief thereon, consisting in applying to such parts thereof only as are to be left in relief a protecting-coat of any substance in a hot and liquid state, which will neutralize the effect of the acid, and then subjecting the article to the action of an acid bath until the parts not protected have been sufficiently eaten away by the acid, substantially as set forth.

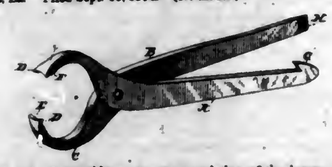
11. The described process of ornamenting articles by producing thereon a colored relief, consisting in first coloring the surface of the article to be ornamented with any desired color which will not interfere with the action of the acid, then applying to such parts of the colored surface only as are desired to form the relief a protecting-coat of material which will neutralize the effect of the acid, then submitting the article thus colored and protected to the action of the acid until the parts not protected by the coating of neutralizing material have been sufficiently eaten away by the acid, and then removing the acid and the protecting material, substantially as set forth.

12. The described process of ornamenting articles by producing a relief thereon, the surface of which relief shall be of a different color from the recessed spaces surrounding the same, consisting in first coloring the surface of the article to be ornamented with any desired coloring matter or substance which will not interfere with the action of the acid, then applying to such parts only of the colored surface as are desired to form the relief a protecting-coating of material which will neutralize the effect of the acid, then submitting the article thus colored and protected to the action of the acid until the parts not protected have been sufficiently eaten away by the acid, then before removing the protecting material coloring the recesses eaten out by the acids with a different color or shade of color from that with which the surface of the article was first colored, and then removing the protecting material, substantially as set forth.

13. The described process of ornamenting articles by producing thereon a colored relief, consisting in applying coloring-matter to the entire surface of the article, then applying protecting material to such parts of the surface as are to form the relief, and then subjecting the article thus colored and protected to the action of an acid bath, substantially as and for the purposes set forth.

14. The described process of ornamenting articles by producing thereon a colored relief, the recesses surrounding the relief being colored differently from the relief, consisting in coloring the entire surface of the article with the color desired to be on the surface of the relief, then applying protecting material to such parts of the surface of the article thus colored as are to form the relief, then submitting the article thus colored and protected to the action of an acid bath, then coloring the parts eaten away by the acid with a different color or shade of color from that first applied to the article, substantially as and for the purposes set forth.

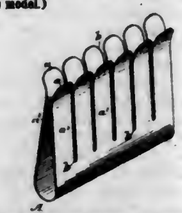
317,318. CARTRIDGE IMPLEMENT. WILLIAM A. DAVIS, New Orleans, La. Filed Sept. 15, 1884. (No model.)



Claim.—1. A cartridge-extractor consisting of the levers A and B, pivoted together, as shown, said levers having at one end jaws C C, formed with a curved and notched grasp, E F, and at their other ends one lever having the hook G and the other having the screw-driver H, all substantially as herein set forth, and for the purpose described.

2. A cartridge-extractor consisting of the levers A and B, pivoted together, as shown, said levers having at one end the jaws C C, formed with the inwardly-projecting angles D D, and the curved and notched grasp E F, and at their other ends one lever having the hook G and the other having the screw-driver H, all substantially as herein set forth, and for the purpose described.

317,319. POCKET PEN AND PENCIL HOLDER. FRANK G. DAVISON, Brooklyn, N. Y., assignor to Lewis E. Waterman, same place. Filed Oct. 18, 1884. (No model.)



Claim.—A device for holding pencils and pens, consisting of a resilient plate of approximately U-shaped cross-section having its sides converging slightly and divided into partly separated portions forming clips, substantially as described.

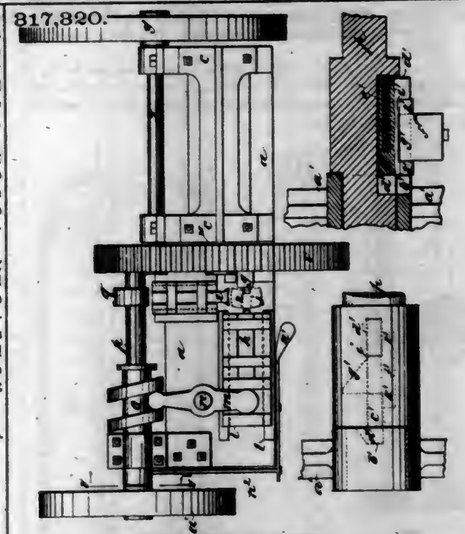
317,320. MACHINE FOR MAKING AXES. EDWARD YERKES, East Douglass, Mass., and CLAYTON DENN, Philadelphia, Pa. Filed Sept. 13, 1884. (No model.)

Claim.—1. The stationary holding-jaw, the reciprocating jaw, and the ram, said jaws having holding points or studs, in combination with the rotating cam-shaft, the notched sliding key, and the key shifting and tripping slide, said slide having stop projections, substantially as and for the purpose set forth.

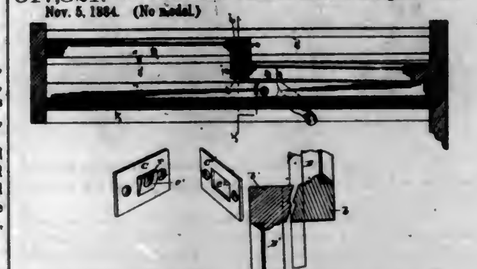
2. The rotating cam-shaft, the notched sliding key, the key tripping and shifting slide, said slide having stop projections, and the centrally-pivoted lever engaging a cam-groove of the cam-shaft, in combination with the stationary and reciprocating jaws or holding devices and the ram, substantially as and for the purpose set forth.

3. In a machine for making axes and other tools, the combination of the notched sliding key c' and the key shifting and tripping slide f', said slide having the stop projections k', adapted to arrest the shaft by lodgment of the key against said stops when said key is shifted by the bevel-pointed projection g' of said slide f', substantially as described.

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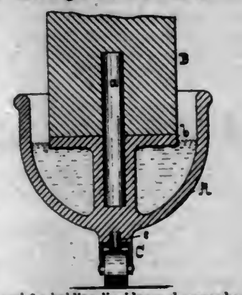
317,321. SASH-FASTENER. PATRICK J. DONOHUE, Chicago, Ill. Filed Nov. 5, 1884. (No model.)



Claim.—1. The combination, with a window-frame having a groove for the lower sash wider than the thickness of the sash, of meeting-rails provided with interlocking recesses and projections, whereby vertical movement of the said sashes is prevented, and a cam or cams applied to force and hold the meeting-rails in position for the engagement of the said recesses and projections, substantially as described.

2. The combination, with a window-frame having a groove for the lower sash, constructed to afford inward and outward play in the sash, of plates applied to the meeting-rails, one of said plates being provided with a recess, and the other with a projection which engages the recess, to prevent vertical movement of the sashes, and a cam or cams applied to force and hold the meeting-rails in position for the engagement of said recesses and projections, substantially as described.

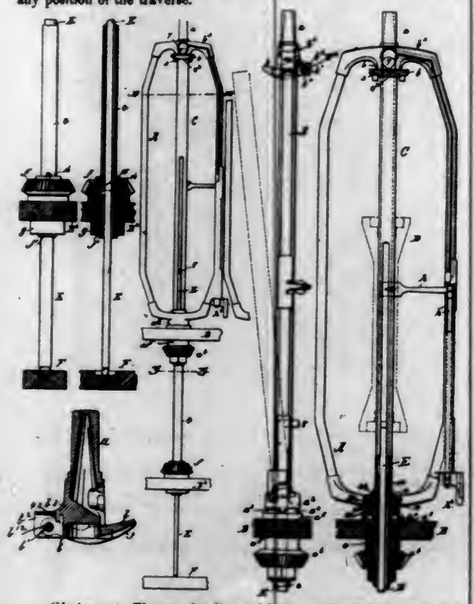
317,322. COMBINED BEDBUG-TRAP AND CASTER. HENRY S. DOBB, Baltimore, Md. Filed Aug. 18, 1884. (No model.)



Claim.—A bowl for holding liquid or a dry powder, adapted for attachment to the lower end of a bed-post, combined with a caster which is secured to the under side of the said bowl and fitted to turn in any direction independently thereof, substantially as specified.

317,328. SPINNING-MACHINE. ARTEMAS B. EDWARDS, Milford, Mass., assignor to George Draper & Sons, same place. Filed Feb. 1, 1884. (No model.)

Brief.—The bobbin-carrying quill is connected to the flier by a pivoted quill-holding latch. The slotted quill is combined with a flat spindle and properly connected, whereby the bobbin may be doffed at any position of the traverse.



Claim.—1. The speeder-flier and its pivoted quill-holding latch *b*, combined with the bobbin-receiving quill, substantially as and for the purpose described.

2. The bobbin-receiving quill and the speeder-flier having its upper yoke provided with a downwardly-extended sleeve-like hub slotted at one side for the passage of the upper end or head of the quill, combined with the pivoted latch having a central opening to receive and hold the upper end of the quill, substantially as described.

3. The speeder-flier and quill supported thereby at its lower end, combined with a latch and a spring to act upon and hold the same, as described, whereby the latch may rise to permit the passage of the quill under it into central position with relation to the flier, and thereafter act to engage the upper end of the quill and retain it in the flier, substantially as described.

4. The flier, the slotted quill, its bushing, means to connect the upper end of the quill with the flier, and the spindle E, combined with the sleeve *e*, buttons 12 and 15, and with the gear *f*, and means to connect it with the said sleeve, substantially as described.

5. The flier and the latch *b*, pivoted thereto, and provided with the groove 3, combined with the quill, to operate substantially as described.

6. The flier having the slotted downwardly-extended hub 6 and the latch *b*, pivoted thereto, and provided with the groove 3 and tongue 5, combined with the quill, substantially as described.

7. The flier and the slotted quill and means to engage both ends of and retain the same in the flier, combined with a flat spindle, and means to drive or rotate it, the said spindle driving the quill and bobbin thereon in unison with it, substantially as described, whereby the bobbin may be doffed at any position of the bobbin or of the traverse, substantially as described.

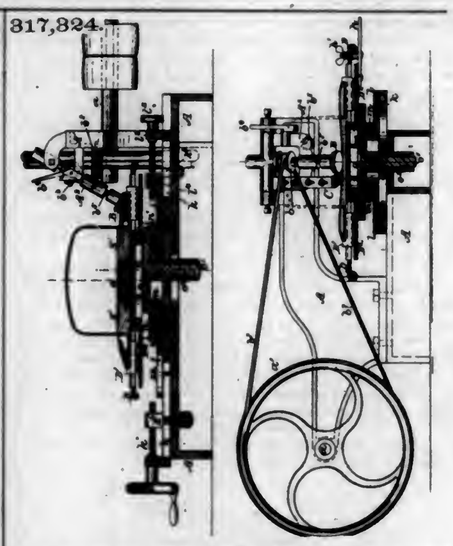
317,324. MACHINE FOR PLANING THE FOLDED OR CURLED EDGES OF HAT-BRIMS. RUDOLF ECKMEYER, Yonkers, N. Y. Filed Jan. 15, 1885. (No model.)

Claim.—1. The combination, substantially as hereinbefore described, of the rotary brim-planing tool, adapted to plane the folded edge of a hat-brim, and a hat-bed.

2. In a hat-brim-planing machine, the combination, substantially as hereinbefore described, of a planing-tool, adapted to cut the edge of a folded brim, and a rotative hat-bed mounted upon and controlled by an oval chuck, substantially as hereinbefore described.

3. In a hat-brim-planing machine, the combination, substantially as hereinbefore described, of a planing-tool adapted to cut the edge of a folded brim, a hat-bed, and an oval chuck organized to develop egg-shaped or hat ovals, as set forth.

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4. In a hat-brim-planing machine, the combination, with a planing-tool, of a rotative hat-bed mounted upon and controlled by an adjustable oval chuck, whereby the oval cutting-line of the planing-tool can be developed in various elliptical forms.

5. In a hat-brim-planing machine, the combination, substantially as hereinbefore described, of a planing-tool, a hat-bed, and a brim-clamp mounted on said bed, for clamping the brim peripherally.

6. In a machine for planing or trimming the folded edge of a hat, the cutting-tool, a centering hat-block to locate the hat upon the bed, and the brim-edge-clamping devices, substantially as described.

7. In a hat-brim-planing machine, the combination, substantially as described, of a planing-tool, a hat-bed, and an adjustable brim-clamp, whereby brims of various sizes may be clamped peripherally for planing.

8. The combination, with the hat-bed, of the brim-clamping ring adjustable to various sizes of ovals, and also adjustable as to oval outlines of varied eccentricity, substantially as described.

9. The combination, substantially as hereinbefore described, of the rotary brim-planing tool, the rotative hat-bed, and a brim-clamping ring.

10. The combination, substantially as hereinbefore described, of the rotary brim-planing tool, the rotative hat-bed, and an adjustable brim-clamping ring for engaging with brims of various sizes.

11. The combination, substantially as hereinbefore described, of the rotary brim-planing tool, the hat-bed, and the oval brim-clamping ring, adjustable both as to size and also as to form of oval outline.

12. The combination, substantially as hereinbefore described, of the hat-bed and the brim-clamping ring embodying end sections having head-bars which are thicker at the sides of the ring than at the ends thereof, for enabling the folded edge of a brim rounded at its sides to be presented substantially in a horizontal plane to the planing-tool.

13. The combination of the rotative hat-bed and the rotary planing-tool mounted upon a swinging frame, substantially as described.

14. The combination of the rotative hat-bed and the rotary planing-tool mounted upon a vertically-adjustable swinging frame, substantially as described.

15. The combination, with a rotary brim-planing tool, of a brim-edge supporter, which confines the edge of the brim against vibration during the operation of the planing-tool, substantially as described.

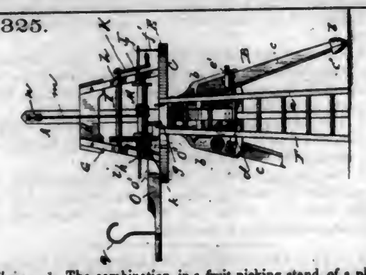
16. The combination, with the rotary planing-tool mounted upon a movable frame, of the brim-edge supporter vertically adjustable on said frame whereby the planing-tool and edge-supporter may be accurately located with reference to a common plane, substantially as described.

17. The combination, with the hat-brim-planing tool, of the brim-edge supporter composed of coincident plates adjustable with reference to each other, for affording a variable intervening edge-receiving space adapted to the thickness of a hat-brim at its edge, substantially as described.

18. The combination of the hat-bed, the swinging frame on which the planing-tool is mounted, and the lever by which said frame is swung outwardly and held for permitting the hat-bed to be properly located with a hat thereon beneath said planing-tool preparatory to the planing operation, substantially as described.

317,325. ADJUSTABLE FRUIT-PICKING STAND. THOMAS ELLIOTT, Hazard, Mo. Filed Feb. 12, 1885. (No model.)

317,325.

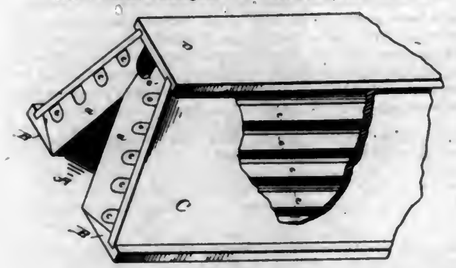


Claim.—1. The combination, in a fruit-picking stand, of a platform sliding thereon, devices located on said platform for effecting the ascent and descent of the same, and a ladder-section, G, depending from said platform, substantially as set forth.

2. The combination, in a fruit-picking stand, of a standard, a platform sliding thereon, as described, a cylindrical bearing portion, *a*, legs pivoted thereto so as to swing as described, and means for adjusting said legs, substantially as set forth.

3. The combination, in a fruit-picking stand, of a suitable standard and platform sliding thereon, a windlass mounted on said platform and provided with an operating-handle, a cord or cable connected to said windlass passing over a guide-roller of the standard and connected to the platform, a device for locking said windlass, and the arm O, secured to said platform to serve as an additional support therefor after said platform is adjusted by said windlass, substantially as set forth.

317,326. SUPPORT FOR UNDERGROUND ELECTRIC LINES. SOLOMON J. FAGUE, Washington, D. C. Filed Dec. 2, 1884. (No model.)



Claim.—1. In an underground electric conduit, the double-inclined support A, having upwardly-converging sides provided with a series of external longitudinal grooves, *c c*, for the reception of electric conductors, the apex of said support being provided with an enlarged longitudinal groove, *c'*, for receiving a cable, substantially as described.

2. The combination of the double-inclined support A, having upwardly-converging sides and provided with longitudinal grooves for the reception of electric conductors, the removable inclined side covers, C C, and the top cover, D, having its lower face grooved for engaging the upper edges of said side covers, substantially as described.

3. The combination, with the double-inclined support A, having longitudinal grooves for the reception of electric conductors, of the grooved stringers B B, the side covers, C C, and the top cover, D, having grooves on its under side for engaging the side covers, substantially as shown and described.

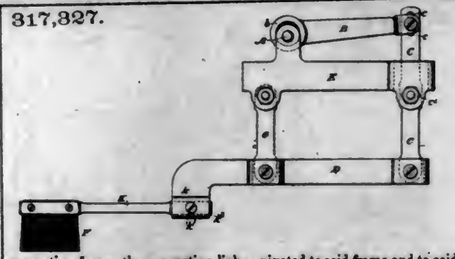
4. The combination, with the sectional double-inclined supports A A, having grooves *c c* on each side, of the curved double-inclined support A', formed on the segment of a circle, and provided with grooves *c c*, corresponding with those on the straight sections, substantially as shown and described.

317,327. MEDICAL RUBBING APPARATUS. MOSES G. FARMER, New York, N. Y. Filed Oct. 14, 1884. (No model.)

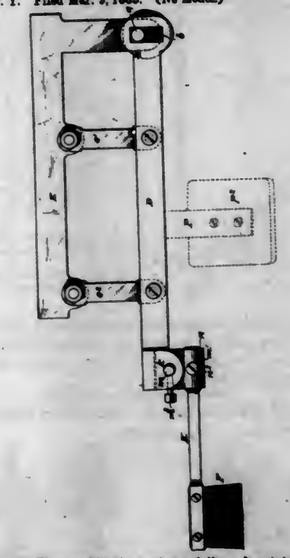
Claim.—1. The combination, substantially as hereinbefore set forth, with a revolving shaft and a pitman receiving therefrom a reciprocating movement, substantially as described, of a pivoted lever actuated by said pitman, a horizontal moving arm actuated by said lever, means for supporting said arm, and a rubber or brush carried in said arm, substantially as described.

2. The combination, substantially as hereinbefore set forth, with a supporting-frame, a revolving shaft, and a pitman receiving therefrom a reciprocating movement, of the arm D, the lever pivoted near its respective ends to said pitman and said arm and at a central point to a supporting-frame, the supporting-link *e*, pivoted to said frame and to said arm at its respective ends, the brush or rubber F, and means, substantially such as described, for securing said brush to said arm.

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317,328. MOVEMENT-CURE APPARATUS. MOSES G. FARMER, New York, N. Y. Filed Mar. 9, 1885. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, with a rubber for medical treatment, of a reciprocating arm supporting and carrying said rubber, parallel pivoted links for sustaining said arm in its horizontal position, a revolving shaft, and a crank coupled with said reciprocating arm whereby a to-and-fro movement is communicated to said arm and rubber.

2. The combination, substantially as hereinbefore set forth, of two separate reciprocating rubbers each arranged on an independent axis parallel to the direction of motion, a holding-arm for the same, and means for permitting each rubber to be turned about its own axis and thus brought into contact with the surface to be rubbed.

3. The combination, substantially as hereinbefore set forth, of a reciprocating arm, a transverse rod or bar carried thereby, a movable block upon said rod or bar, means for adjusting the same, and a brush or rubber adjustably supported by said block.

4. The combination, substantially as hereinbefore set forth, of a reciprocating arm, two independent brushes or rubbers, adjustable holders for said brushes or rubbers supported from said arm, and means, substantially such as described, for permitting said brushes or rubbers to be turned axially in said holders.

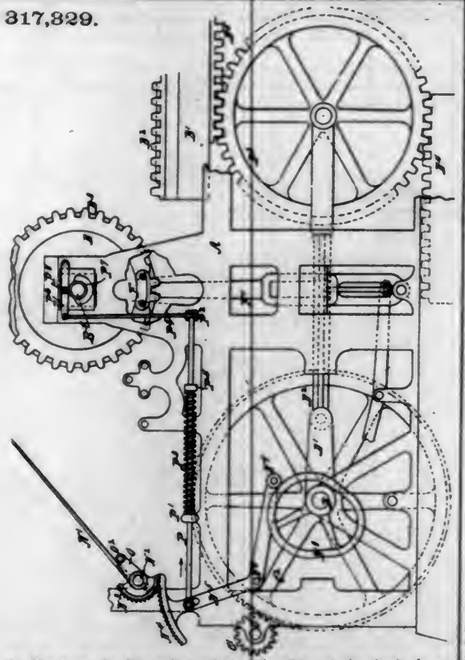
317,329. SHEET-FLIER FOR PRINTING-PRESSES. GEORGE P. FENNER, New London, Conn. Filed May 8, 1884. (No model.)

Claim.—1. The combination of the sheet-flier shaft having a crank at each end, the two coincident rock-shafts arranged respectively at opposite sides of the machine, and each having a crank at its inner end, and means, such substantially as described, for removably connecting the cranks of the flier-shaft to the cranks of the rock-shafts.

2. The combination of the flier having its shaft provided with cranks, and the coincident rock-shafts having cranks which are united to the cranks of the flier-shaft, and constructed with radial hub-notches to receive the ends of the flier-shaft.

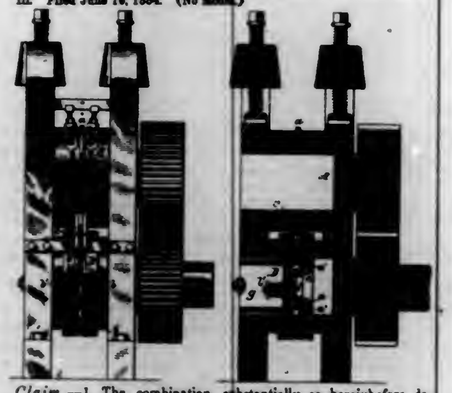
3. The combination, with the impression-cylinder, the delivery-cylinder, and the sheet-flier, of the flier-lever, the slide-rod connected to

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the flier-lever, the flier-spring acting on the slide-rod, the check-pin entering one of the guides of the slide-rod, the check-pin-operating lever, and the cam on the impression-cylinder shaft engaging the operating-lever, substantially as described.

317,330. ROLL FOR MAKING SPIKES. HERVEY W. FOWLER, Chicago, Ill. Filed June 16, 1884. (No model.)



Claim.—1. The combination, substantially as hereinbefore described, of the die-roll having a series of matrix-dies, the tongue-roll, and the stationary tongue-box extending between said rolls and serving as a top wall for portions of the matrix-dies.

2. The combination, substantially as hereinbefore described, of the die-roll having a series of matrix-dies, the tongue-roll, and the stationary tongue-box extending between said rolls and serving as a top wall for portions of the matrix-dies, and also as a vertical extension of their side walls.

3. The combination, substantially as hereinbefore described, of the tongue-roll, the matrix-die roll, its one or more plungers to each die, and a stationary cam provided with a movable surface for abutment with said plungers during their ejecting movements.

4. The combination, substantially as hereinbefore described, of the matrix-die roll and plungers, the stationary cam, and the disk mounted on an axis located at one side of the axis of said cam and serving as a movable abutment for the plungers during their ejecting movements.

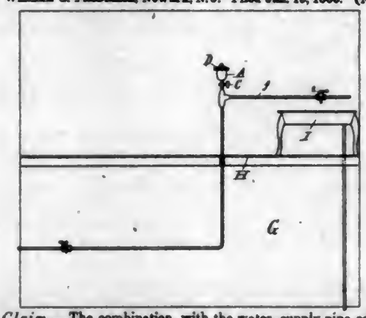
5. The combination of the matrix-die roll, one or more reciprocating plungers in each die, and a radially-slotted annular guide or ring for the reception of the inner ends of said plungers, substantially as described.

6. The combination of the matrix-die roll, one or more reciprocating plungers in each die, and an abutment-collar fixed to and revolving with the roll for supporting said plungers while the dies are being filled with metal, substantially as described.

7. The combination of the matrix-die roll, one or more reciprocating plungers in each die, a radially-slotted guide-ring, and an abutment-collar, substantially as hereinbefore described.

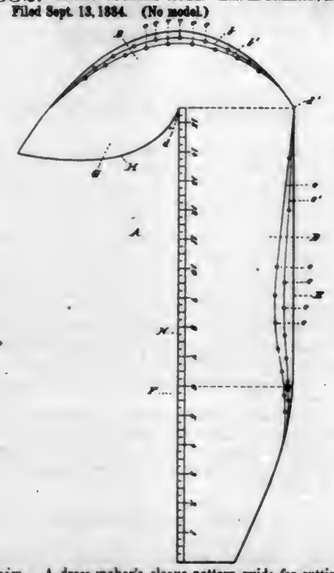
8. The combination of the matrix-die roll, reciprocating plunger, the guide-ring, the abutting collar, and the stationary cam having a movable surface for contact with the plungers during their ejecting movements, substantially as described.

317,331. ANTI-FREEZING ATTACHMENT FOR WATER-PIPES. WILLIAM G. FREDERICK, Newark, N. J. Filed Jan. 15, 1885. (No model.)



Claim.—The combination, with the water-supply pipe containing water under pressure, of the feeder A, provided with two apertures and means for tightly closing the same, one aperture being connected with the pipe, as set forth, and the other adapted for introducing an anti-freezing solution into the feeder, the whole being arranged and operated for introducing an anti-freezing solution into the fluid under pressure within the water-pipe, as and for the purpose set forth.

317,332. DRESS-CUTTING RULE. ANN M. FREEMAN, Kansas City, Mo. Filed Sept. 13, 1884. (No model.)

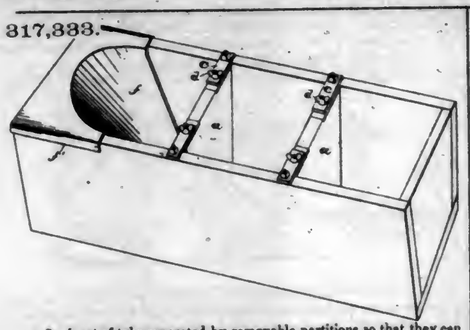


Claim.—A dress-maker's sleeve-pattern guide for cutting sleeve-sections, consisting of the long strip D, having the straight graduated front measuring-edge and the curved rear guide-edge, E, and at the top of said strip the arched piece G, having the arched upper guide-edge, B, and the convex under guide-edge, H, respectively designed for cutting the tops of the outer and inner sleeve-sections, substantially as specified.

317,333. COMBINED WASH AND BATH TUB. JULIA B. FRENCH, Boston, Mass. Filed May 22, 1884. (No model.)

Claim.—1. In combination with the tub or vessel, the removable head-rest having a curved and sloping shape, substantially as described.

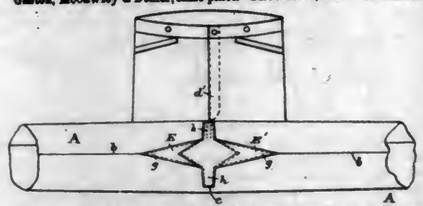
317,333.



2. A set of tubs separated by removable partitions so that they can be converted into a single tub or vessel, and provided with a removable head-rest, substantially as described.

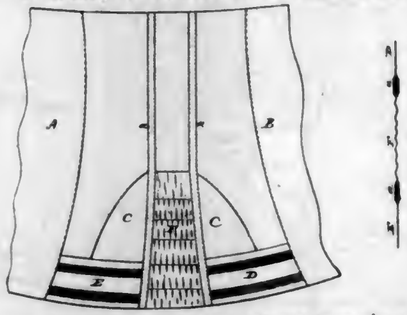
3. The combination of the vessel or tub, the removable partitions provided with packing around their edges to render the same water-tight, and the fastening devices comprising each a plate pivoted at one end to the side of the tub, and carrying in the other a set-screw for forcing the partition tightly against the sides of the tub, substantially as described.

317,334. OVERALLS. GEORGE GASTON, Baltimore, Md., assignor to Gaston, McCawley & Dozier, same place. Filed Oct. 1, 1884. (No model.)



Claim.—Overalls provided with the herein-described crotch-gore, consisting of the two tapered pieces E E', the broad ends of which overlap each other and are stitched together, forming a double thickness at the center, and have side tangs, A, to re-enforce the seat-seams, and the tapered ends of which extend down the leg-seams, as shown and described.

317,335. CORSET. THOMAS S. GILBERT, New Haven, Conn., assignor to I. Rosenberg & Co., same place. Filed Feb. 2, 1885. (No model.)



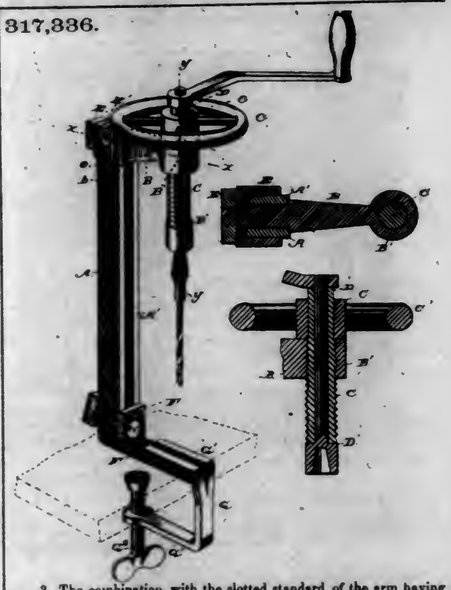
Claim.—A corset the hip-section of which is cut away to form openings C C at the bottom, vertical stay-pockets *a*, extending from the upper edge of the corset down between said openings, the elastic gore F between and connecting said stay-pockets, and the inelastic connections E D between said stays across the openings, substantially as described.

317,336. DRILL. JOSEPH M. GLENN, South English, Iowa, assignor of two-thirds to David N. Coffman and Jonathan F. White, same place. Filed Feb. 7, 1885. (No model.)

Claim.—1. The combination, with the support and the arm extended therefrom, and provided with a vertical threaded opening, of a threaded feed-barrel turned in said opening and a drill-shaft journaled in said feed-barrel, substantially as set forth.

2. The combination of the standard, the arm supported by and adjustable vertically on the standard, the feed-barrel, and the drill-shaft, substantially as set forth.

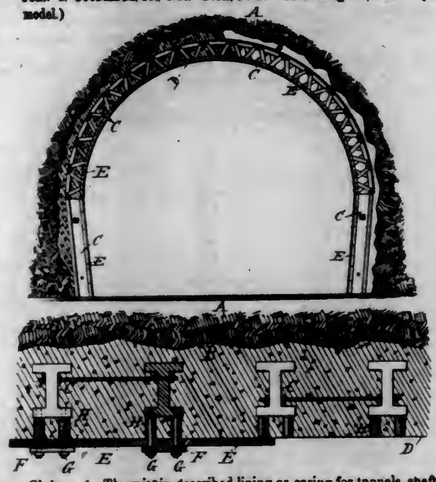
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3. The combination, with the slotted standard, of the arm having a screw-shank projected through the slot in the standard, a washer-plate placed on said shank and extended on opposite sides of the slot, and a nut turned on the screw against the washer-plate, substantially as set forth.

4. The combination of the standard, the base-plate detachably secured to the standard whereby plates of different lengths may be employed, and a clamp, substantially as set forth.

317,337. METHOD OF REPAIRING WITH BETON OR CONCRETE. JOHN C. GOODRIDGE, Jr., New York, N. Y. Filed Aug. 27, 1884. (No model.)



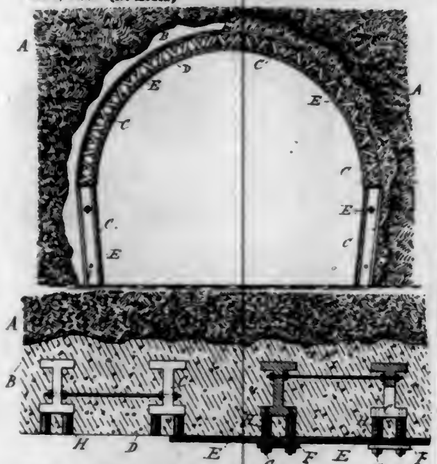
Claim.—1. The within-described lining or casing for tunnels, shafts, piers, and abutments, which consists of the frame of the required shape placed a suitable distance from the structure to be strengthened, and the concrete or beton so applied as to embed the said frame therein, substantially as set forth.

2. The herein-described lining or casing for tunnels, shafts, piers, abutments, &c., which consists of a frame of the required shape placed a suitable distance from the structure to be incased, beton or concrete so applied as to embed said frame therein, and sand, broken stone, or other cheap material filled in between the beton or concrete and the surface incased thereby, substantially as set forth.

3. In a lining or casing substantially as herein described, the combination, with the frame forming an integral part thereof, of screw-bolts projecting from said frame and provided with thimbles, bearing-plates, and screw-nuts, the whole so arranged as to removably secure molding-

boards to said frame and at the required distance therefrom, as and for the purpose set forth.

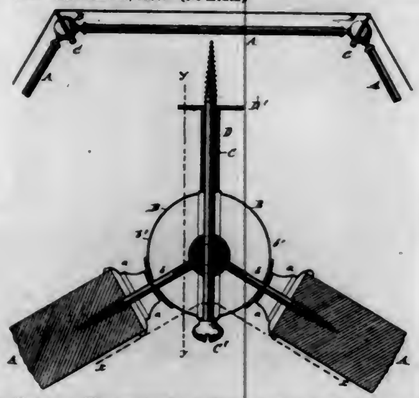
317,338. PROCESS OF CONSTRUCTION AND REPAIR WITH BETON OR CONCRETE. JOHN C. GOODRIDGE, Jr., New York, N. Y. Filed Feb. 4, 1885. (No model.)



Claim.—1. The process of repairing, lining, or incasing tunnels, shafts, piers, abutments, or other structures, which consists in, first, constructing a frame of the required shape, a suitable distance from the structure to be strengthened; next, securing the molding-boards to said frame and then filling in the beton or concrete behind said molding-boards, embedding their supporting-frame, substantially in the manner set forth.

2. The within-described process of lining or incasing tunnels, shafts, and like structures with beton or concrete, consisting of erecting a suitable frame-work, attaching a double layer of lagging thereto, filling between said lagging and around said frame-work with beton or concrete, and filling the space between the lagging and the natural rock or the body to be re-enforced with sand, broken stones, or other cheap material.

317,339. CURTAIN-POLE JOINT. ROBERT S. GOULD, East Orange, N. J. Filed Jan. 26, 1885. (No model.)

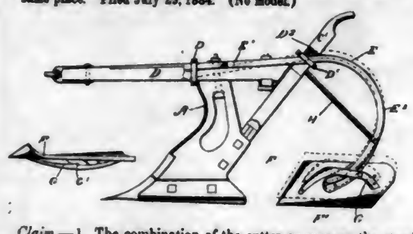


Claim.—1. The combination, with a curtain-pole joint, of a bracket-rod passing through the joint and a tubular sleeve interposed between the joint and the wood-work of the window-casing, substantially as set forth.

2. The combination, with a curtain-pole joint formed of a spherical shell, of eye-rods attached to the curtain-poles and pivoted to each other at the interior of the shell and a bracket-rod passing through the center of the shell, substantially as set forth.

3. The combination of a curtain-pole joint consisting of a spherical shell, eye-rods attached to the poles and pivoted at the inside below the center of the shell, a bracket-rod passing through the center of the shell and provided with a nicked head and a threaded shank, and a tubular sleeve interposed between the shell and the wood-work, substantially as set forth.

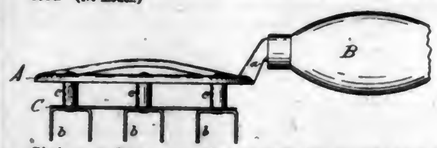
317,340. PLOW ATTACHMENT. JOHN R. GREGORY, Wallaceton, Va., assignor of one-half to George T. Wallace and John G. Wallace, both of same place. Filed July 29, 1884. (No model.)



Claim.—1. The combination of the cutter or scraper, the standard pivoted to the rear side thereof, and the bail or keeper G, secured at its opposite ends to the scraper and extended over the standards, substantially as set forth.

2. The combination, with the cutter or scraper, of the standard pivoted to the rear side thereof, and the bail or keeper secured at its opposite ends to the scraper, extended over the standard, and provided on its inner side with a shoulder, J', substantially as and for the purposes specified.

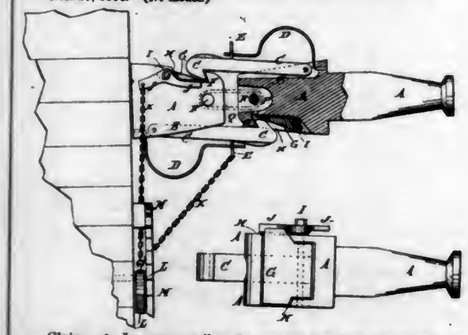
317,341. CURRY-COMB. JOHN W. GRIDLEY, Southington, Conn., assignor to the Southington Cutlery Company, same place. Filed May 22, 1884. (No model.)



Claim.—1. In a curry-comb, the combination of a series of comb-teeth, a comb-supporting plate to which said comb-teeth are fixedly secured, an elevated top plate or back adapted to be grasped by the hand, and intervening studs or posts by which the comb-supporting plate and elevated top plate are secured rigidly together, all substantially as herein described, and for the object specified.

2. The combination of a series of comb-teeth, a comb-supporting plate to which said comb-teeth are fixedly secured, an elevated top-plate having secured thereto a suitable handle, and a series of intervening studs or rivets by which the comb-plate and elevated top-plate are secured rigidly together, substantially as and for the objects specified.

317,342. CAR-COUPLING. JAMES L. GRIFFIN, Canute, Tex. Filed Feb. 25, 1885. (No model.)



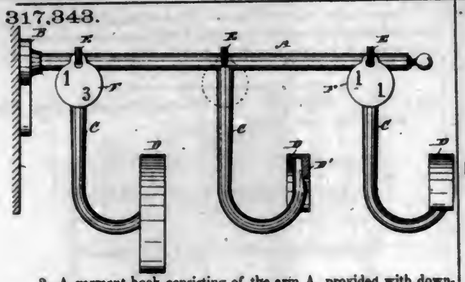
Claim.—1. In a car-coupling, the combination, with the draw-heads A, having stationary hooks F and recesses H B, of the pivoted and spring-pressed hooks C, the trip-plates G, pivoted in said recesses H, and the levers J, having their forward ends resting against the inner sides of the trip-plates, substantially as herein shown and described.

2. In a car-coupling, the combination, with the draw-heads A, having stationary hooks F and recesses H B, the pivoted hooks C, and the springs D, of the trip plates and levers G J, the chains K, and the levers L, substantially as herein shown and described, whereby the cars can be readily uncoupled, and can be prevented from coupling, as set forth.

317,343. GARMENT-HOOK. GEORGE R. GRIMES, Terre Haute, Ind. Filed June 11, 1884. (No model.)

Claim.—1. A garment-hook made substantially as herein shown and described, and consisting of an arm from which a series of hooks project downward, to the prong of each of which hooks a curved transverse bar is secured, as set forth.

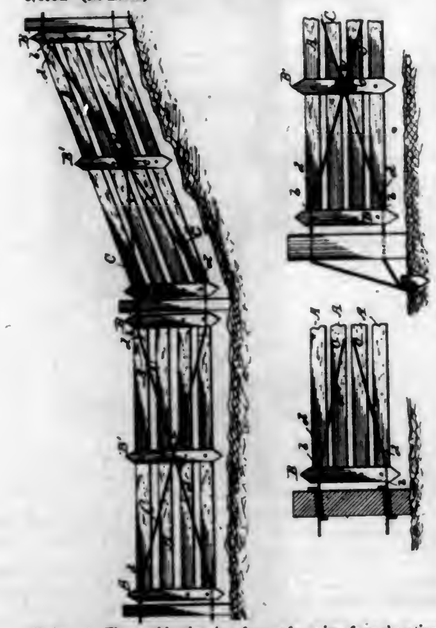
317,343.



2. A garment-hook consisting of the arm A, provided with downwardly-projecting hooks C, on the prong of each of which a curved transverse bar, D, is secured, some of the bars D being longer than the others, substantially as herein shown and described.

3. In a garment-hanger, the combination, with the arm A, of the hooks C, projecting downward from the same, the curved cross-bars D on the ends of the prongs of the hooks C, and of the hooks E, projecting from the arm A at the upper ends of the hooks C, substantially as herein shown and described.

317,344. FENCE. GEORGE T. HAMMOND, Commack, N. Y. Filed Mar. 3, 1884. (No model.)



Claim.—1. The combination, in a fence, of a series of panel-sections, each consisting of longitudinal rails and vertical battens connected together, the said battens being provided with a series of openings, as described, and wires extending through the openings in the battens and suitably crossed and secured at the center of both of said panel-sections, substantially as set forth.

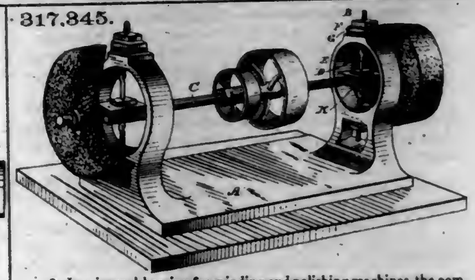
2. The combination, in a fence, of a series of panel-sections adapted to fold upon each other, each consisting of longitudinal rails and vertical battens connected together, the said battens being provided with a series of openings, as described, and wires extending through the openings in said battens crossing and secured at the center of each panel, and connected to the rails by staples, substantially as set forth.

317,345. JOURNAL-BEARING. ROBERT W. HARDIE, Albany, N. Y. Filed Mar. 17, 1885. (No model.)

Claim.—1. In a journal-bearing for grinding and polishing machines, the combination, with the sustaining-yokes, of journal or bearing boxes suspended freely within said yokes, and capable of a limited movement therein, substantially as described.

2. In a journal-bearing for grinding and polishing machines, the combination, with the sustaining-yokes, of a journal or bearing box and flexible or loose-jointed connections between the said box and yoke, supported upon resilient cushions, substantially as described.

317,345.



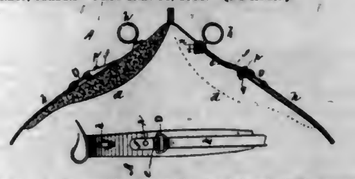
3. In a journal-bearing for grinding and polishing machines, the combination, with the sustaining-yokes, of a journal or bearing box, and flexible or loose-jointed connections between said box and yoke, supported on rubber cushions, substantially as described.

4. In a journal-bearing for grinding and polishing machines, the combination, with the sustaining-yokes, of a journal or bearing box and eye-bolts connected therewith and supported upon the yoke by resilient cushions, substantially as described.

5. In a journal-bearing for grinding and polishing machines, the combination, with the sustaining-yokes, of a journal or bearing box and eye-bolts connected thereto and supported upon the yoke by rubber cushions, substantially as described.

6. In a journal-bearing for grinding and polishing machines, the combination, with the sustaining-yokes, of the shaft C, the journal-boxes K, eye-bolts D E, rubber cushions G, metallic cushion F, and tightening-bolt H, substantially as described.

317,346. BACK-BAND FOR HARNESS. WILLIAM HARDY, Dundas, Ontario, Canada. Filed Mar. 11, 1885. (No model.)

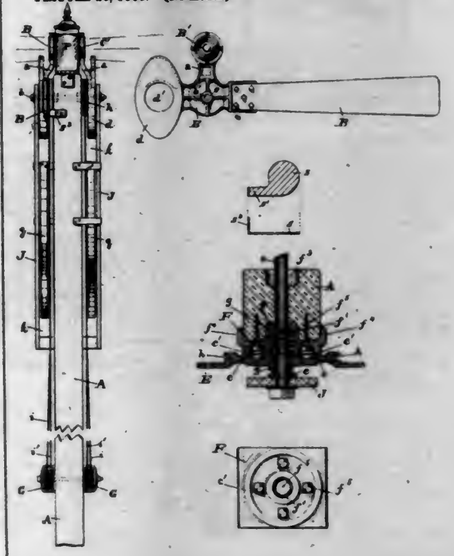


Claim.—1. In combination with a back-band, A, the metal holder-plate *e*, formed as shown, and made to pass through an opening in the back-band, and secured at one end by the terret-screw *h* and the forward end by the screw *p*, substantially as specified.

2. In a back-band, A, and in combination with the holder-plate hook *e*, the cover-plate *f*, substantially as and for the purpose specified.

3. The combination of the back-band A, holder-plate hook *e*, plate *f*, screws *h p*, and nuts *i* and *q*, substantially as and for the purpose specified.

317,347. SEMAPHORE. SAMUEL H. HARRINGTON, Columbus, Ohio. Filed Jan. 26, 1885. (No model.)



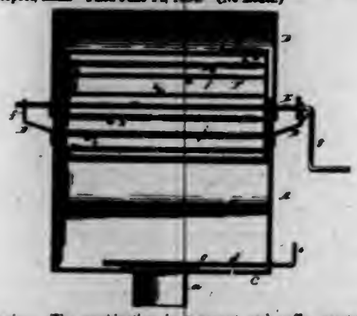
Claim.—1. The combination of a post having in one side a bore, *f*, a center plate, F, having on one side a boss provided with a hole, said boss occupying the bore in the post, a center shaft, *b*, passed through the hole in the boss and through the post, and a signal-arm mounted on the center shaft, as set forth.

2. The combination of a signal-arm pivoted to partially revolve in a vertical plane, a counter-weight on the end of the arm, and a spring fixed in position for the arm to bear directly on it when said arm is turned down to a vertical position, as set forth.

3. The combination of a post, a lantern directly on top of the post, a curved arm pivoted to the post and provided with a glass lens, as set forth.

4. The combination of a signal-arm provided with a counter-weight and pivoted to partially revolve in a vertical plane, a shield or pocket into which the signal-arm may enter, and a spring in the pocket to start or move the arm therefrom, as set forth.

317,348. PEANUT AND COFFEE ROASTER. GEORGE W. HARRIS, Prospect, Kans. Filed June 14, 1884. (No model.)



Claim.—The combination, in a peanut and coffee roaster, of a casing having a heat-supply opening and longitudinally-corrugated cylinder located in said chamber, mounted on a horizontal shaft and provided with a diagonal series of openings, and an operating-crank for said shaft, said cylinder being provided with an opening for the material, a slide adapted to cover said opening, and a curved dividing-partition interposed between said cylinder and the heat-supply opening, substantially as set forth.

317,349. THILL-COUPLING. RICHARD HART, Byron, Ill. Filed Feb. 24, 1885. (No model.)



Claim.—1. In a thill-coupling, the combination, with the outwardly-extending ears having holes or openings and a thill-iron having an opening adapted to register therewith, of a bolt, an elastic washer between the head of said bolt and one of the ears, a lever-nut to engage the bolt, and a nib on said lever-nut to fit in a recess in one of said ears, substantially as set forth.

2. In a thill-coupling, the combination, with the outwardly-extending ears having holes or openings and a thill-iron having a passage or opening adapted to register therewith, of a bolt having lugs at its end provided with inclined inner faces or edges, and a lever-nut having nibs provided with inclined faces, substantially as set forth.

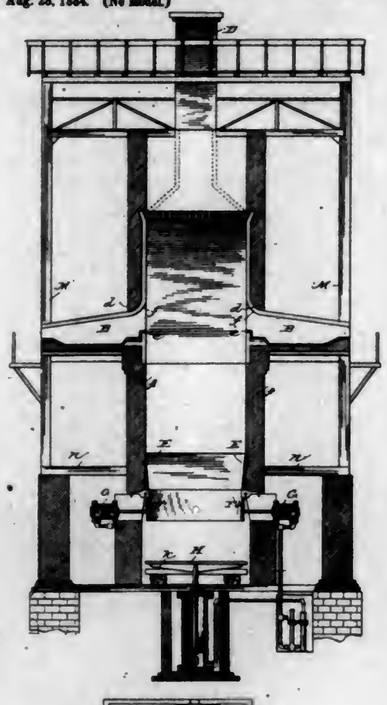
3. In a thill-coupling, the combination, with the outwardly-extending ears having holes or openings and a thill-iron having an opening or passage adapted to register therewith, of a bolt having a reduced end provided with lugs having inclined inner edges, and a lever-nut having nibs provided with inclined edges, and a nib to engage a recess on one of the ears, substantially as set forth.

317,350. CLOTHES-LINE FASTENER. GOTTLIEB C. H. HASSKARL, Philadelphia, Pa. Filed May 15, 1884. (No model.)



Claim.—As a new and improved article of manufacture, the within-described clothes-line fastener having a tapered tongue terminated by an enlargement, E, and the two inverted hooks B B, applied to a bracket, substantially as specified.

317,351. BRICK-KILN. THOS. S. HAWKINS, Chattanooga, Tenn. Filed Aug. 28, 1884. (No model.)





Claim.—1. The combination, in a brick-kiln, of a main shaft, suitable compression-plates, and a contraction in the said main shaft above the compression-plates, substantially as described.

2. The combination, in a brick-kiln, of a main shaft, suitable compression-plates, and the inclined re-enforcement E, above the compression-plates, substantially as described, and for the purpose set forth.

3. In combination with the flue or chamber, the furnaces provided with the bridge *e*, substantially as described, and for the purpose set forth.

4. In combination with the brick-work of the main shaft, the posts M M, beams *m m*, and diagonal braces *n n*, bearing against the corners of the brick-work, as and for the purpose set forth.

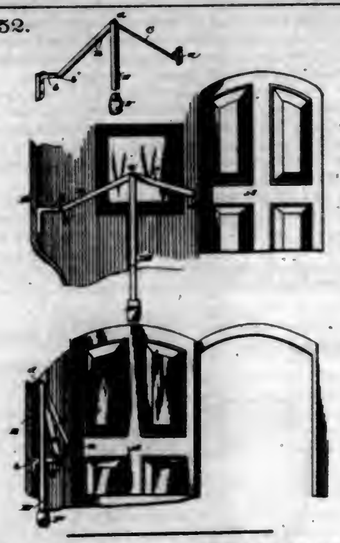
5. The main shaft of the kiln composing the brick walls A, having inwardly-curved surface combined with the angle-irons *a* and straps *b*, as and for the purpose set forth.

6. The combination, with the main shaft of a brick-kiln, of the furnaces B', arranged one at each corner of the said shaft, as described, and for the purpose set forth.

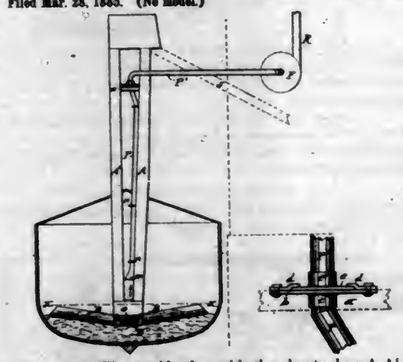
317,352. HOLDER FOR SLIDING DOORS. WILLIAM E. HAYCOX, Cleveland, Ohio. Filed Mar. 14, 1885. (No model.)

Claim.—A holder for sliding doors, consisting, essentially, of arms pivoted to each other and respectively hinged to the door and to a stationary object, and a weight suspended from the central joint, with the parts so arranged that the weight may operate on the one side or the other of the stationary joint or fulcrum, according as the door is opened or closed, and will hold the door in either position, substantially as set forth.

317,352.



317,353. GRAIN-ELEVATOR. CORNELIUS HAYES, Oswego, N. Y. Filed Mar. 28, 1885. (No model.)



Claim.—1. The combination, with the elevator-legs A A', of a ventiduct extended from the foot of said elevator to the upper part thereof and a hose or pipe-extension detachably connected with the upper end of the ventiduct, as and for the purpose specified.

2. In combination with the elevator-legs A A', the pipe P, secured between said legs, and having its receiving end near the foot of the same, and its discharge end extending toward the top of the elevator, a hose or pipe extension detachably connected with the pipe P at the upper part of the elevator, and an exhaust-fan connected with said pipe-extension, substantially as and for the purpose set forth.

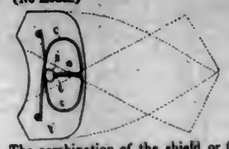
3. In combination with the elevator-legs A A', the pipe P, arranged between said legs and having its receiving-mouth near the foot of the same, the plate *a*, secured between the elevator-legs near the upper end thereof, a pipe-coupling on said plate, having the upper end of the pipe P connected with it, a hose or pipe extension connected with said coupling, and an exhaust-fan connected with the pipe-extension, substantially as described and shown.

4. In combination with the elevator-legs A A', the pipe P, arranged between said legs and having its receiving-mouth near the foot of the same, the plate *a*, secured between the elevator-legs near the upper end thereof, the plate *b*, attached to plate *a*, and having an opening with a collar, *c*, connected to the upper end of pipe P, guides *d d* on the plate *b*, the plate *e*, sliding between said guides and provided with an opening, and a collar, *e'*, around said opening, and the pipe-extension P', connected with the collar *e'*, substantially as described and shown.

5. The combination, with the elevator-legs A A', of the troughs B B, extended from the foot of the elevator, substantially as and for the purpose set forth.

6. The combination, with the elevator-legs A A', of the ventiduct P, having its receiving-mouth at or near the foot of the elevator, and its discharge end extending toward the top of the elevator, and the troughs B B, extending from the foot of the elevator, substantially as described and shown, for the purpose set forth.

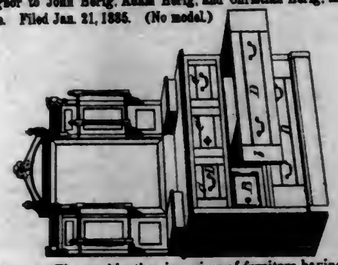
317,354. NECKTIE-HOLDER. EDGAR K. HAYNES, Boston, Mass. Filed June 23, 1884. (No model.)



Claim.—1. The combination of the shield or frame of a necktie with a fastener, consisting of spring-arms connected at their ends with the said shield, a neck connected with or being a continuation of the said arms, and having a longitudinal movement in a guide in the shield, and a button-engaging loop at the end of the said neck, substantially as described.

2. The herein-described necktie-fastener, composed of a continuous piece of wire formed into two bow-shaped spring-arms, with extended free ends adapted to be connected with the necktie-shield, the said arms being crossed and meeting in adjacent parallel portions constituting a slender flexible neck and again bent or twisted and formed into a button-engaging eye or loop, substantially as described.

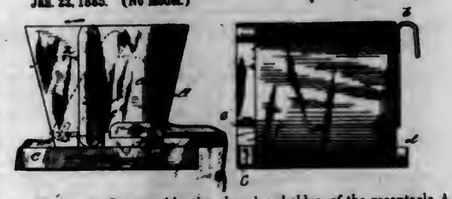
317,355. HOUSEHOLD FURNITURE. ADAM HERIG, Cleveland, Ohio, assignor to John Herig, Adam Herig, and Christian Herig, all of same place. Filed Jan. 21, 1885. (No model.)



Claim.—1. The combination, in a piece of furniture having drawers, of a safe located in one of the divisions thereof, one of the drawer-fronts having a prolongation to overlap the safe, whereby its exact location is hidden from sight, substantially as described.

2. In a piece of furniture having divisions of drawers, the combination therewith of a metallic lining located in one of said divisions, said lining having one end open and provided with hinge-lugs, to which is attached a door provided with lock and key, which are hidden by the overlapping drawer-front, substantially as described, and for the purpose specified.

317,356. BAG-HOLDER. ALFRED R. HILL, Wauseon, Ohio. Filed Jan. 22, 1885. (No model.)



Claim.—1. The combination, in a bag-holder, of the receptacle A, provided at its base with the projecting bars *c d*, and block *e*, secured on the side of said receptacle and forming, in conjunction with the bar C, a horizontal bearing-bar, *f*, located in said horizontal bearing, and a pivoted lever for forcing said bar *f* outwardly and inwardly in said horizontal bearing, substantially as set forth.

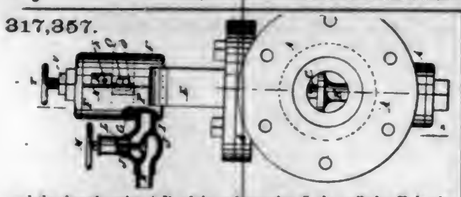
2. In a bag-holder, the receptacle A, having rigidly attached at its lower edges projecting cross-bars *c d*, a block attached above one of said cross-bars, and provided with an inclined lower edge, the sliding bar *f*, with inclined upper edge, pivoted lever B, adapted to abut against said sliding bar, and means for holding said lever against the sliding bar, the parts being combined and organized substantially as shown, and for the purpose set forth.

317,357. REGULATING-VALVE. EBENEZER HILL, South Norwalk, Conn. Filed Jan. 6, 1885. (No model.)

Claim.—1. A regulating-valve constructed substantially as herein shown and described, and consisting of the safety-valve J, to be connected with the air or steam space, the cylinder F, having outlet-slot N, and connected with the safety-valve, and the piston and piston-rod G H, to be connected with the rod of the valve or damper to be regulated, as set forth.

2. In a pressure-regulator, the combination, with the air-pipe K

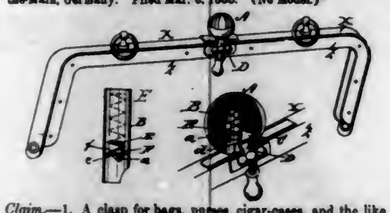
317,357.



and the throttle-valve A B, of the safety-valve J, the cylinder F, having outlet-slot N, and the piston G, substantially as herein shown and described, whereby the escape from said safety-valve will be made to operate the said throttle-valve, as set forth.

3. In a pressure-regulating valve, the combination, with the cylinder F, having outlet-slot N, and provided with a concaved lug, P, of the elastic metallic plate O and the bolt Q, substantially as herein shown and described, whereby the width of the said slot can be readily regulated, as set forth.

317,358. CLASP FOR PURSES, &c. ERNST P. HINKEL, Offenbach-on-the-Main, Germany. Filed Mar. 6, 1885. (No model.)



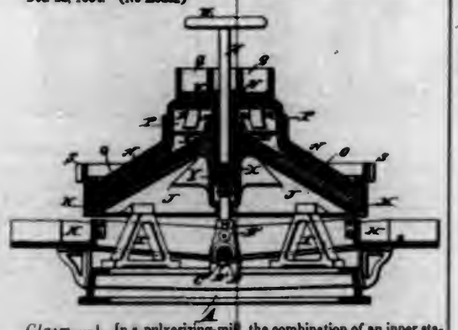
Claim.—1. A clasp for bags, purses, cigar-cases, and the like, consisting of the ball A and tube B, provided with the inclined plane *f*, in combination with the pin *a*, all serving to lift the ball A upon its being turned, and thus liberate the hook D, the spring E serving to bring the whole back again to their original position, all substantially as described and shown.

2. The ball A and tube B, the lower half of the latter being removed, both being provided at their top ends with an inclined plane, in combination with the spring E and pin *a*, all substantially for the purpose and in the manner as described, and shown in the drawings.

3. In a clasp for purses, &c., the combination, with a tube on one frame and a hook or catch on the other, of a ball mounted on the tube to slide on the same, and a spring in the tube acting on the ball, substantially as herein shown and described.

4. In a clasp for purses, &c., the combination, with pin or tube on one frame and a catch or hook on the other, of a ball mounted to slide and turn on the tube or pin, and a spring for pressing the ball downward, substantially as herein shown and described.

317,359. QUARTZ-MILL. CHARLES J. HODGE, Houghton, Mich. Filed Dec. 22, 1884. (No model.)



Claim.—1. In a pulverizing-mill, the combination of an inner stationary and an outer revolving cone and means for abruptly raising and lowering the outer cone, substantially as and for the purpose set forth.

2. In a pulverizing-mill, the combination of a stationary cone, a revolving cone, a non-revolving stem or spindle and a step for the latter, and a transverse shaft provided with a cam-wheel, whereby the said stem, with the grinding-cone connected thereto or supported thereby, is intermittingly raised and lowered, substantially as and for the purpose herein set forth.

3. In a pulverizing-mill, the combination of a bed or base, a stationary grinding-cone mounted thereon and having a central vertical hub, a revolving cone having a hub journaled in the hub of the stationary cone, a stem arranged in the hub of the revolving cone and having a screw-threaded portion at its lower end, a collar fitted upon the said screw-threaded portion and having a pin extending laterally into a vertical slot in the hub of the stationary cone, and a step for the said stem, substantially as and for the purpose herein set forth.

4. In a pulverizing-mill, the combination of a base, a grinding-cone mounted stationary upon the same, a revolving cone, a stem, a step, devices whereby said revolving cone may be vertically adjusted, and a revolving shaft mounted transversely in the base, and having a cam-wheel forming a bearing for the lower end of the said step, substantially as and for the purpose herein set forth.

5. In a pulverizing-mill, the combination, with a stationary cone, of a revolving grinding-cone, a central adjusting-stem, a bifurcated step, a friction-roller journaled in the fork of said step, and a transversely-mounted revolving shaft having a collar furnished with a protuberance on its circumference supporting said bifurcated step, whereby the latter is abruptly lifted intermittingly, substantially as and for the purpose set forth.

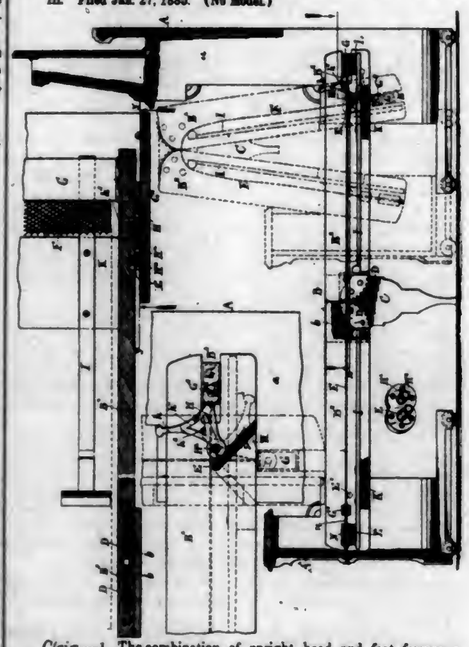
317,360. OVERSHOE. JAMES S. HOPKINS, South Framingham, Mass. Filed Aug. 27, 1884. (No model.)



Claim.—1. An overshoe having an external coating of rubber, and within it a lining cut in a single piece, said shoe being provided with an elongated water-proof tongue secured at one end within the shoe, substantially as set forth.

2. An overshoe having an external coating of rubber and an internal lining of fibrous material, and provided with a tongue formed of material similar to the lining, with a film of rubber on its upper surface, substantially as set forth.

317,361. FOLDING BED. JOHN C. HORN and CARL F. HOPF, Chicago, Ill. Filed Jan. 27, 1885. (No model.)



Claim.—1. The combination of upright head and foot frames, a centrally and upwardly folding body-frame pivoted at its ends to the uprights, and provided with an end rail supported movably in a direction longitudinal of the body-frame, a flexible fabric attached at one end to said movable end rail and at the other to the opposite end of the body-frame, and a link connected with each end of the said movable end rail, and pivoted to the upright at a point eccentric to the adjacent axis of the body-frame, whereby the fabric is strained when the bed is extended and relaxed when the bed is folded, substantially as described.

2. The combination, with the head and foot frames, a centrally and upwardly folding body-frame pivoted at its ends to said uprights, and provided with a movable end rail at one end beyond the adjacent axis of the said body frame, and a flexible fabric attached at one end to said movable rail and at the other to the opposite end of the body-frame, of links constructed in the form of hooks to engage with the ends of the movable rail, and pivoted to the sides of the upright at points eccentric to the adjacent axis of the body-frame, whereby the said links may be detachably engaged, substantially as described.

3. The combination, with the uprights, the jointed side rails pivoted to the uprights, and the movable end rail for attachment of the fabric, of the hook-formed links H, located and pivoted as described, and provided with upwardly-extended arms *h*, whereby said hooks may be conveniently reached for the purpose of engaging and disengaging them, substantially as described.

4. The combination, with the upright, the jointed body-frame provided with a movable end rail and flexible fabric, and hook-formed links eccentrically pivoted to the upright and adapted to engage the movable end rail, of removable stops arranged to retain the hooks in engagement with the end rail, while allowing a swinging movement of the hooks, substantially as described.

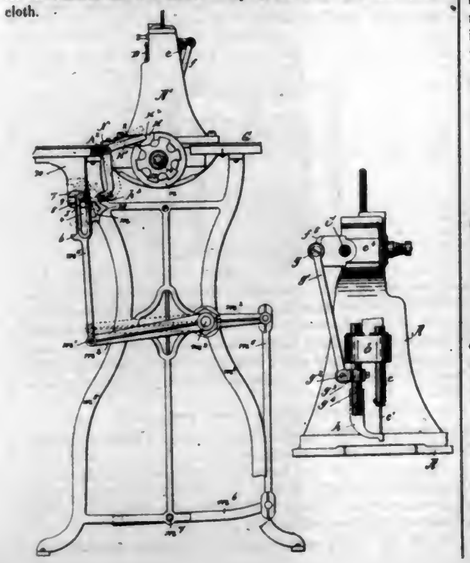
5. The combination, with the centrally-jointed side rails of a folding bed, and a link or pivoted connecting-piece which holds the sections of each side rail together, of opposing toothed segments let into kerfs in the meeting ends of the side-rail sections, substantially as described.

6. The combination, with the centrally and upwardly folding body-frame, of one or more springs, I, arranged longitudinally of the bed and having their free ends arranged to terminate at or near the middle of the said frame, substantially as and for the purpose set forth.

7. The combination, with the centrally-jointed and upwardly-folding body-frame, of four springs, I, approximately secured below the level of the extended bed fabric, and arranged near the side rails, with their free ends terminating short of the central joint of the body-frame, substantially as described.

317,362. SEWING-MACHINE FOR FLOSSING. JAMES A. HOUSE and CHARLES H. DIMOND, Bridgeport, Conn. Filed Aug. 25, 1884. (No model.)

Brief.—The machine is for use in flossing corsets and other goods, or for making long and short stitches backward and forward, as at the end of corset-pockets, or at other places or on other apparel. The main shaft has fast upon it a stop-wheel or disk cut away at its periphery to form a shoulder, against which may be brought, when desired, one end of the elbow stopping-lever. The needle-operating rock-shaft serves as a fulcrum for a partial sleeve by which to lift the presser-foot. When the main shaft is arrested by moving the treadle either way, and thus allowing the elbow stopping-lever to act, it leaves the presser-foot lifted and the needle also elevated, so that the material operated upon may be moved by the operator in any desired direction for the distance that it is desired to lay the silk or other thread upon the cloth.



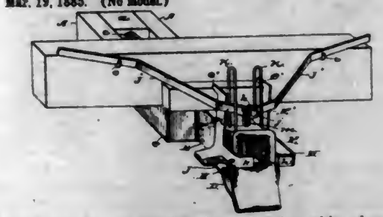
Claim.—1. The main shaft B, its attached cam f^2, and shouldered stop-wheel, and the link *f*, sleeve, and link, and presser-foot bar and presser-foot, combined with a stop-lever to arrest the stop-wheel and the shaft B with the presser-foot lifted, substantially as described.

2. The main shaft B, the band-wheel loose thereon, the stop-wheel *n*, fast on the said shaft, and the presser foot and bar, and mechanism, substantially as described, between the said bar and the main shaft to operate the presser-foot, and the spring-plate to force the band-wheel and stop-wheel together to drive the said shaft, combined with the stop-lever, as set forth, to arrest the stop-wheel when loosened.

3. In a sewing-machine, the shaft B, its attached stop-wheel, the band-wheel loose thereon, and spring to force the said band and stop wheels together, and a stop-lever, combined with a slide-bar provided with a cam and adapted to operate the said lever in one direction, and a spring operating it in the opposite direction, substantially as described.

4. In a sewing-machine, the shaft B, its attached stop-wheel, the band-wheel loose thereon, and spring to force the said band and stop wheels together, and a stop-lever, combined with a slide-bar provided with a cam, the said cam having a point, 20, and inclined surface at either side thereof, whereby the movement of the cam in each direction lets the roller of the stop-lever pass from the point of the cam, thus enabling the end of the stop-lever next the stop-wheel to descend and engage the stop-wheel and arrest the movement of the machine, substantially as described.

317,363. CAR-COUPLING. JOHN W. HUGHES, Oskaloosa, Iowa. Filed Mar. 19, 1885. (No model.)

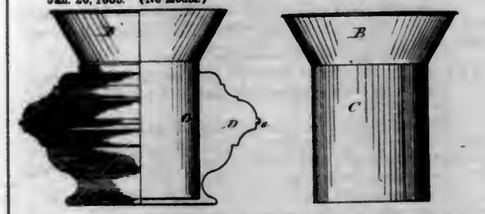


Claim.—1. In a car-coupling, the combination, with a draw-head, of pivoted levers carrying a pivoted coupling-pin, guides K upon the upper side of the draw-head, a longitudinally-sliding plate, carrying a hinged link-guide, arms extending upwardly from said plate, and having rearwardly-extending short arms for supporting the link in a raised position, as set forth.

2. In a car-coupling, the combination, with a draw-head, of a spring-actuated plate located on the under side thereof, a hinged link-guide at the forward end of said plate, pivoted levers carrying a pivoted pin, arms for supporting the same, arms H, having inturned ends, and links J, connecting the spring-actuated plate, and the link-guide, as set forth.

3. In a car-coupling, the combination, with a longitudinally-sliding draw-head, and a spring arranged upon the rear end of the same, of pivoted levers carrying a pivoted coupling-pin, a longitudinally-sliding spring-actuated plate having upwardly-extending arms provided with rearwardly-extending extensions, and arms having their outer ends turned inwardly, and a hinged link-guide pivotally connected with said outwardly-extending short arms, as set forth.

317,364. CUSPIDOR. DAVID M. IRELAND, Waterbury, Conn. Filed Jan. 26, 1885. (No model.)

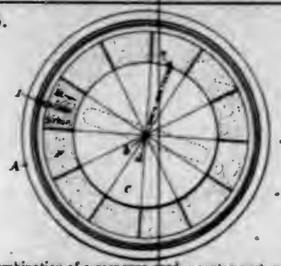


Claim.—The herein-described cuspidor, made from sheet metal, consisting of the body A, open at its upper or neck end, having its bottom closed, and the inner vessel, C, of a shape and diameter corresponding to the opening through the neck, and terminating in a flaring mouth, B, the said inner vessel removable from the body, substantially as described.

317,365. ADVERTISING DEVICE. MAURICE JACOBS, Baltimore, Md. Filed Feb. 19, 1884. (No model.)

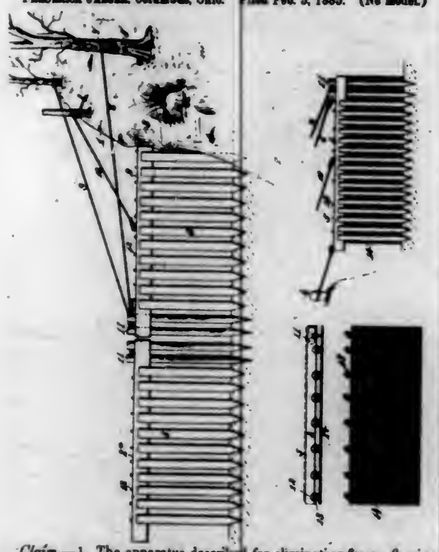
Claim.—1. The combination of a response-card, a center post, an interrogation-card provided with a magnet-blade and having a center hole whereby it may rotate freely, and a pivoted metallic indicator-bar, as set forth.

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2. The combination of a response-card, a center post, a rotatable interrogation-card provided with a magnet-blade, and a pivoted metallic indicator-bar having its end turned up and projected over the top of the response-card, as set forth.

317,366. APPARATUS FOR ELIMINATING FOREIGN SUBSTANCES FROM WATER FOR OBTAINING CLEAR AND PURE ICE. FREDERICK JABSER, Columbus, Ohio. Filed Feb. 5, 1885. (No model.)



Claim.—1. The apparatus described for eliminating from a flowing stream the foreign impurities contained therein, said apparatus consisting of a beam provided with stakes or bars closely placed, and extending substantially from the surface to the bed of the stream, substantially as described.

2. In combination with the gate described, the adjustable stake or stakes arranged in the outer end of said gate, and adjustable vertically, substantially as described.

3. In combination with the gate described, the wire-netting detachably connected with said gate, the latter being provided with stakes and fastening-tackle, substantially as described.

317,367. PROCESS OF GRINDING COLORS. JOHN C. JESSUP, New York, assignor to Elon Huntington, Rochester, N. Y. Filed Oct. 21, 1882. (No specimens.)

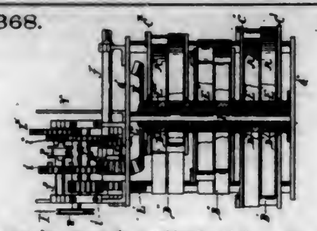
Claim.—1. In the preparation of oil-colors, the process of first grinding the color in water, mixing oil with the pulp, and then evaporating the water by means of heat, so as to leave the oil and color mixed and free from water, and afterward grinding the same to a finish.

2. The process of combining oil and color by mixing oil with pulp of color and water and driving off the water in the form of steam by means of heat.

317,368. SPRING-MOTOR. GEORGE JIENCKE, Philadelphia, Pa. Filed Nov. 20, 1884. (No model.)

Claim.—1. In a spring-motor, the combination of a rigid frame consisting in the vertical rods F F' F'' F''' F'' and the plates G' G'', a series of hollow shafts, E' E'' E''' E'', on the rod F, of which E' is stationary, a series of bushings, D' D'' D''' D'' D' D'', a series of cages, B' B'' B''', consisting in the cross-pieces C' C'' C''' C'' C' C'', and the stays 1 2 3 4, a series of springs, A' A'' A''' A'' A' A'', arranged in couples in said cages B' B'' B''', and coiled alternately in different directions, and attached with their outside coils on stays opposite each other, substantially as and for the purpose described.

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2. In a spring-motor, the combination of the springs A' A'', &c., the hollow shafts E' E'', &c., on the shaft F, the bushings D' D'', &c., the cages B' B'', &c., the stays F' F'', &c., the plates G' G'', the shields K' K'', the bevel-wheel H' on the hollow shaft E'', the bevel-pinion H'' on the shaft J', the cog-wheel L', the ratchet-wheel M, the pawl N, the spring O, the pinion *l'* on the shaft J'', the wheels L'' L''', the pinions *l''* *l'''*, the coupling P on the shaft J''', operated by a suitable hand-lever, R, the cog-wheel L'', the pinion *l''* on the shaft J'', and the pulley U, with the belt T, substantially as and for the purpose described.

3. In a spring-motor, the combination, with a driving mechanism actuated by springs, arranged as described, of a shaft, J'', with a brake-disk, Z', the two standards V' V'', the brake-shaft W, the lever X'', the spiral spring *y'*, the lever X, the spring Y, the brake-block, Z, the lever X', the rod W', and the treadle W'', substantially as and for the purpose described.

4. In a spring-motor, the combination, with the driving mechanism actuated by springs, as described, of the shafts J'' J''', the wheels L'' L''' *l'* *l'''*, the coupling P, and the hand-lever R, substantially as and for the purpose described.

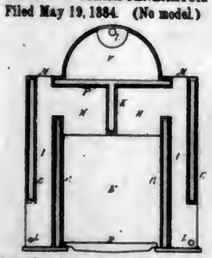
5. In a spring-motor, the combination, with the driving mechanism actuated by springs, arranged in the manner described, of a shaft, J', supported by the pillow-blocks K''' K'', the wheel L'', mounted upon said shaft J', the wheel L'', mounted on shaft J', the bevel-pinion H', the ratchet-wheel M, the pawl N, the spring O on the face of the wheel L', and the bevel-wheel H', substantially as and for the purpose described.

317,369. PROCESS OF TREATING PLASTER CASTS. ALBERT B. JOY, 26 Savile Row, and JOHN J. LEWEN, 13 Beaumont Road, County of Middlesex, England; said Lewen assignor to said Joy. Filed Jan. 3, 1885. (No specimens.) Patented in England Oct. 31, 1884. No. 14,430.

Claim.—1. The improved process of treating plaster casts, which consists in first submitting them to the action of an oil bath, then drying and subsequently coating them with flake or other suitable white, substantially as described, and for the purpose set forth.

2. The improved process of treating plaster casts, which consists in first submitting them to the action of an oil bath, then drying, then coating with a flake or other suitable white, and subsequently brushing them over lightly with finely-flaked mica, substantially as described, and for the purposes set forth.

317,370. SECTIONAL STEAM-GENERATOR. THADDEUS C. JOY, Titusville, Pa. Filed May 19, 1884. (No model.)



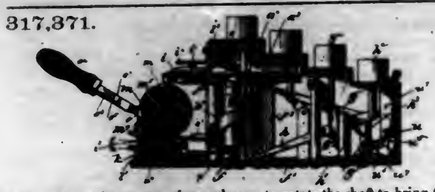
Claim.—In a sectional steam-generator, the sections standing vertically and constructed flat upon the one side and having on the opposite side raised hollow projections or ribs so constructed and placed that when the generator is set up the ribs of the one section meet with the flat surface of the adjoining section, the spaces between the ribs forming the vertical direct and return flues, the entrance to the vertical flues directly overhanging the fire-chamber, substantially as shown and described.

317,371. TYPE-WRITING MACHINE. JOHN A. KALEY, Carey, Ohio. Filed Sept. 20, 1883. (No model.)

Claim.—1. A type-disk for type-writers, consisting of the disk of plate metal slitted radially, as shown, to form spring type-bearing arms, and adapted for ready attachment to and detachment from its rotating mechanism, substantially as shown and described.

2. The type-disk, its supporting-shaft, and a cam on said shaft, combined with key-levers engaging such cam to rotate the shaft to bring the desired type into position, substantially as described.

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3. The type-disk, its supporting-shaft, a cam on said shaft, and key-levers engaging such shaft to rotate the shaft to bring the desired type into position, combined with the lever *d'*, and its attached arms in said shaft operated by said key-levers, a pin actuated by one of said arms, and a type-hammer overhanging the type-disk and operated to strike and depress a type by the raising of said pin by the said arm, substantially as shown and described.

4. The combination, substantially as shown and described, of a type-disk composed of a series of type-bearing arms radiating from a common center, an operating-hammer for said arms, a cam-shaft on which the disk is supported, key-levers for rotating such shaft, a lever, *d'*, and its attached arms in said shaft operated by said key-levers, a pin in said shaft actuated by one of said arms to cause the hammer to strike the type-arm, and another pin in said shaft actuated by the other of said arms to cause the step-by-step progression of the bed-roller as the writing proceeds.

5. In a type-writer having the type-disk and the cam-shaft with the lever *d'* and its attached arms, the combination of the movable bed-roller carriage provided with a rack-bar, and the lever *p*, movably supported to follow the adjustments of the bed-roller carriage and provided with the pivoted tooth p^4, and the spring p^5 and dog p^6, to hold the same in its two positions, all substantially as shown and described.

6. In a type-writer, the bed-roller having the ratchet at its end, combined with the break-down handle and the reversible feed-pawl pivoted thereon, substantially as and for the purpose described.

7. The combination, with the bed-roller feed-pawl, of its bolt or pin for locking it in position, substantially as described.

8. The combination, with the bed-roller, of its carriage, and a stop which can be adjusted to permit the entire withdrawal of the carriage and roller from its ways, substantially as described.

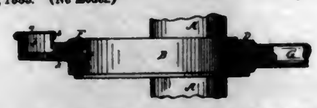
9. The keys or knobs and their levers, combined with a connecting knuckle-joint, substantially as described.

10. The combination, with the type-disk, its cam-shaft and inking mechanism, of levers engaging such shaft to rotate such disk to ink its type independently of the key-levers and type-striking mechanism, substantially as described.

11. In a type-writer, the combination, with the radiating type-arms, the cam-shaft to bring them into position under the action of the key-levers, of said key-levers, having their knobs or keys arranged in parallel right lines, and their levers radiating from the types as a center, substantially as described.

12. In a type-writing machine having the rotating type-disk, substantially as described, the combination, with the bed-roller, its carriage, and ways for such carriage, of the rock-shaft *u*, connected with the ways of the carriage through the arms *t t*, and means, substantially as shown, to operate said rock-shaft to place the bed-roller under the different sets of type on the type-disk, and a key or crank to engage the rock-shaft to lock said shaft, as set forth.

317,372. LUBRICATOR FOR ECCENTRICS. EDWARD KAY, Philadelphia, Pa., assignor of one-half to Samuel Beswick, same place. Filed Apr. 6, 1885. (No model.)



Claim.—1. The combination of an eccentric-strap with a box or receptacle carried by the strap communicating with the inner face thereof, and having a hinged or removable lid or cover, as set forth.

2. The combination of the eccentric-strap having in the inner face an oblique groove or channel, *f*, with a box or receptacle communicating with said oblique groove, as specified.

317,373. WASTE-PIPE FOR WASH-BASINS, BATH-TUBS, &c. OLIVER H. KEEP, New York, N. Y. Filed Nov. 13, 1884. (No model.)

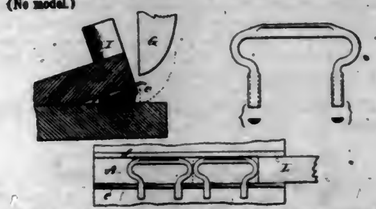
Claim.—1. In combination with the waste-pipe of a basin or tub, rabbeted within or having an enlargement of its bore at its upper end, the strainer-cup fitting within the bore of the pipe, provided at its upper end with a collar or enlargement fitting the rabbet in the waste-pipe, and having the upper end of its bore adapted to receive a stop-plug, substantially as and for the purpose described.

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2. In combination with the waste-pipe of a basin or tub, rabbeted at its upper end, substantially as shown, the strainer-cup provided at its upper end with an annular enlargement to fit the rabbet in the waste-pipe, and having a rib or collar within its upper end, and the stop-plug fitting into and supported by the cup, substantially as and for the purpose described.

317,374. APPARATUS FOR BENDING THE HINGE ENDS OF BUCKLES. GEORGE R. KELSEY, West Haven, Conn. Filed Feb. 24, 1885. (No model.)

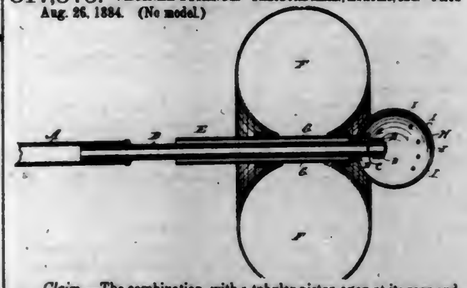


Claim.—1. The combination of the die E, presenting a rounded edge at its front and undercut at the front edge adapted to receive a buckle-frame and leave the ends of the frame projecting over the said rounded edge, with a follower adapted to work in a path at an obtuse angle to the surface of said die, substantially as described.

2. The combination of the die E, presenting a rounded edge, *e*, at its front, and undercut, and constructed with a flange, *f*, at its rear edge, a support, H, over said die, and between which and the die the buckle-frames may be introduced, leaving the ends projecting over the said rounded edge, with a follower adapted to work in a path at an obtuse angle to the surface of said die, substantially as described.

3. The combination of the die F, having its front edge, *e*, rounded and undercut, a flange, *f*, at its rear edge, a support, H, over said die, and between which and the die the buckle-frames may pass, a chute, I, adapted to receive several blank-frames and present them upon the surface of said die, a follower adapted to work in a path at an obtuse angle to the surface of said die, and a slide adapted to work between said support and the die, and by its movement to transfer a blank-frame from the column in the chute to a position in the path of said follower, substantially as described.

317,375. VAGINAL SYRINGE. THEODORE KERN, Kokomo, Ind. Filed Aug. 26, 1884. (No model.)

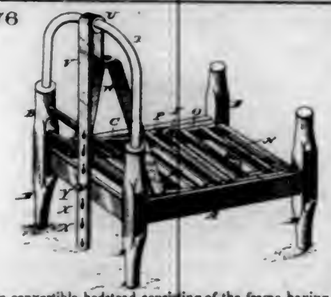


Claim.—The combination, with a tubular piston open at its rear end, closed at its forward end, open at the sides near the forward end, and provided with packing before and behind the said side openings, of a cylinder fitted to receive the said piston, and provided with a perforated spherical end, apertures in its sides, and an annular bag secured around the cylinder, the interior of the bag and of the cylinder being connected by the said apertures in the sides of the cylinder, as shown and described.

317,376. BEDSTEAD. JOHN M. KIRBY and CHARLES M. LITTLEJOHN, Pacolet, S. C. Filed Oct. 14, 1884. (No model.)

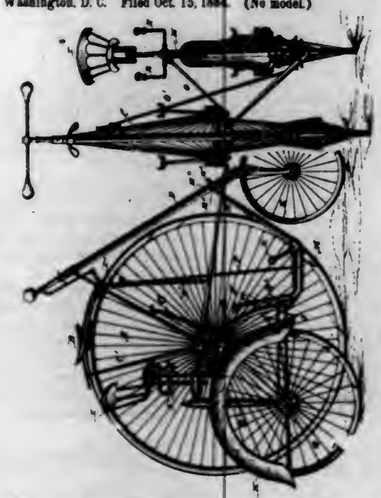
Claim.—1. In a convertible bedstead, the combination of the frame having the upright frame provided with a pulley at its top at the head end and having the lug or button at the head-board, the hinged head-rest, and the strap having its bifurcated ends secured to the side pieces of the head-rest and having the other end provided with a series of holes fitting over the lug or button upon the head-board, as and for the purpose shown and set forth.

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2. The convertible bedstead consisting of the frame having the upright frame provided with a pulley at its top at the head end and having the lag or button at the head-board, the hinged foot-frame having the hinged foot-board, and the spring-catch engaging the foot-board of the bed-frame, the hinged head-frame, and the strap having its bifurcated ends secured to the ends of the head-frame, and having its other end provided with a series of perforations fitting upon the lag or button at the head-board of the bed, as and for the purpose shown and set forth.

317,377. SOCIAL ATTACHMENT FOR BICYCLES. JOHN A. KIRK, Washington, D. C. Filed Oct. 15, 1884. (No model.)



Claim.—1. The combination, with a bicycle, of a monocycle, and of devices for maintaining the latter in operative position at the side of the former, substantially as specified.

2. The combination, with a bicycle and a monocycle, of suitable braces extending from the frame-work of the one to that of the other, and arranged to maintain the two machines side by side, substantially as specified.

3. The combination, with a bicycle, of a monocycle, a portion of the frame-work of which is pivotally connected to the frame-work of the bicycle, and of braces pivotally connected at their ends with the frame-works of both machines, substantially as specified.

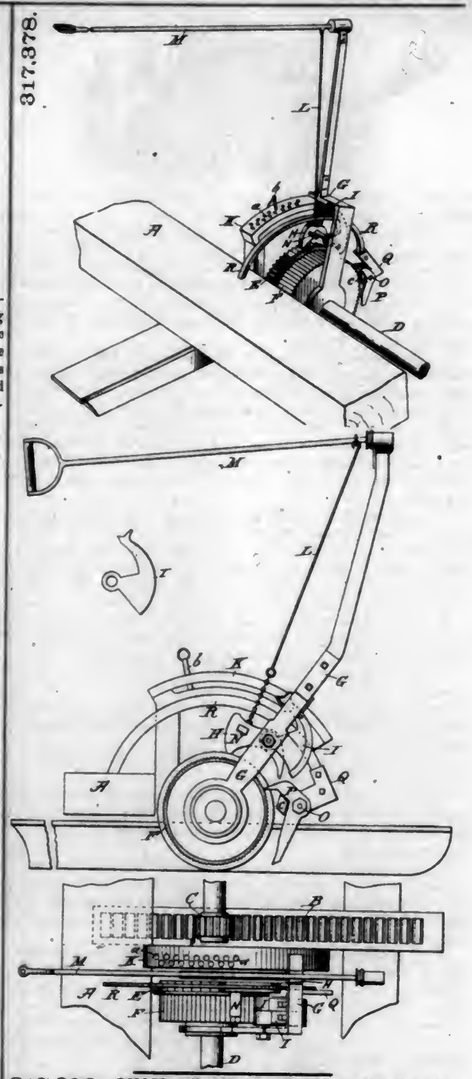
4. The combination, with a bicycle, of a monocycle having independent driving mechanism, and connecting devices for maintaining the monocycle at the side of the bicycle, substantially as specified.

5. The combination, with a bicycle, of a monocycle, the backbone of which is extended and bent laterally, and pivotally connected with the backbone of the bicycle, substantially as specified.

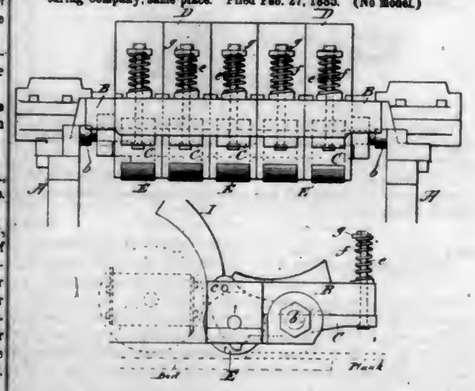
317,378. SAW-MILL SET-WORKS. DENNIS LANE, Montpelier, Vt., assignor to the Lane Manufacturing Company, same place. Filed Feb. 27, 1885. (No model.)

Claim.—In a saw-mill set-works, the combination of the shaft D, ratchet-wheels E F mounted thereon, lever G, carrying pawls I I of unequal length for engaging the ratchet-wheel F, and a pawl, H, for engaging the ratchet-wheel E, said pawl being provided with a lug, N, for raising the pawls I I, the pawls P P, pivoted to a support at the rear of the ratchet-wheel F and adapted to engage therewith, and the angle-lever Q, hung on the same pivot with and provided with a lug, c, for raising said pawls, and carrying a curved arm, R, that extends above the pawl H, in position to be raised thereby, substantially as described.

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317,379. ROLLER AND BONNET ATTACHMENT FOR PLANING-MACHINES. DENNIS LANE, Montpelier, Vt., assignor to the Lane Manufacturing Company, same place. Filed Feb. 27, 1885. (No model.)



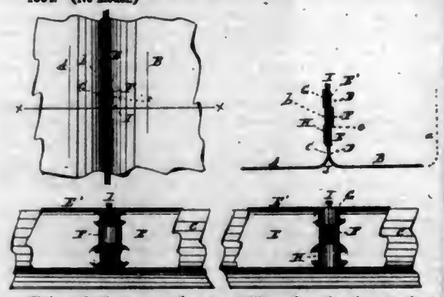
Claim.—In a planing-machine, the combination of the frame A, transverse bar B, shaft *b*, pressure-arms C C, mounted on said shaft, the vertical bolts *e e*, provided with nuts *g*, and springs *f*, whereby the bar B and arms C are connected, the pressure-roller E, formed in sections, each of which is journaled in one of said arms, and the bonnet D, also formed in sections, each of which is mounted in one of said arms, substantially as shown and described.

317,380. CLOCK-MOVEMENT. FREDERICK A. LANE, New Haven, Conn., assignor to the New Haven Clock Company, same place. Filed Feb. 2, 1885. (No model.)



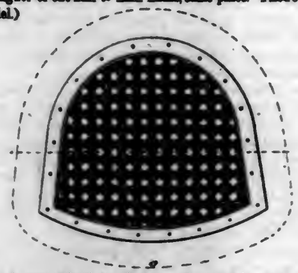
Claim.—In a clock-movement, the frame consisting of the front plate, A, rear plate, B, and intermediate plate, C, the main wheel and its arbor arranged between the rear and intermediate plates at one side of the center, the center arbor, I, arranged upon the opposite side of the center and extending through the three plates, the main arbor and center arbor each provided at the rear with a device for independently turning the same, a post, *d*, fixed upon the outside of the front plate in a concentric position and carrying the pointer-wheel, and a wheel, *a*, fixed to the outer end of the center arbor, I, and arranged to work into the pointer-wheels, that portion of the main train between the center wheel and balance arranged between the front and intermediate plates, substantially as described.

317,381. IRON ROOFING. WILLIAM C. LANGENAU, Cleveland, Ohio, assignor to the Garry Iron Roofing Company, same place. Filed Nov. 3, 1884. (No model.)



Claim.—In the construction of metallic roofing, the plates or sheets thereof formed with side flanges, and provided with a cap lapping over the junction of said flanges, with one or more loops struck or forced out from the sides of the rib from the metal of the cap and flanges, and fastened together by means of a pin or its equivalent inserted in the opening of said loops, substantially as and for the purpose set forth.

317,382. CHAIR-SEAT AND CHAIR. FREDERIC LATOUP, Syracuse, N. Y., assignor of one-half to Emil Laass, same place. Filed Jan. 24, 1884. (No model.)

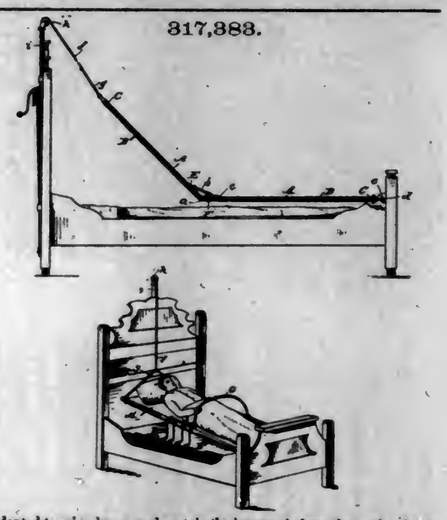


Claim.—A seat or back for chairs or other articles of furniture, composed of caoutchouc, rubber, or gutta-percha, made with a series of intersecting re-enforcing ribs, and with a plain rim for securing the seat or back to the frame, substantially as and for the purpose specified.

317,383. INVALID-HAMMOCK. ANDREW LESLIE, St. Louis, Mo., assignor to Mary A. Leslie, same place. Filed Oct. 25, 1884. (No model.)

Claim.—1. The hammock proper, consisting of a body of canvas or other suitable material held in a frame composed of side rails and end rails or bars, in combination with means for hinging its lower end to the foot of the bedstead, and a hoisting device applied to its opposite end and

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adapted to raise, lower, and sustain the hammock from that end, substantially as and for the purposes set forth.

2. The hammock-body and its supporting-frame, consisting of cross bars or rails and hinged side rails, in combination with means, substantially as described, located on the rail-sections and upon opposite sides of the hinges, uniting said sections for fixing the angle of the hinge, substantially as and for the purposes set forth.

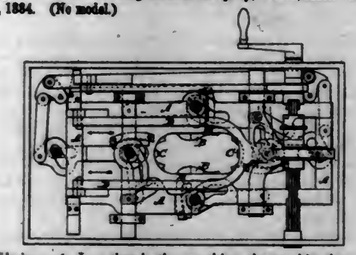
3. The combination, with a bedstead, of the hammock-body and hammock-frame, the eyes and pins or hooks attached to the hammock-frame and bedstead foot-board, respectively, for securing the foot of the hammock to the bedstead, and the hoisting device for elevating and sustaining the other end of the hammock.

4. The hammock-frame provided with hinged side rails and means for fixing the angle of the hinge, in combination with devices for hinging its lower end to the foot of the bed, and a hoisting device applied to its opposite end and adapted to raise, lower, and sustain the hammock from that end, substantially as and for the purposes hereinbefore set forth.

5. The hammock-frame and hammock-body with opening therein, in combination with the transverse covering-flap, its retaining-cords, and the hooks on the hammock-frame for receiving said cords.

6. The combination, with the hammock-frame provided with hinged side rails and means for fixing the angle of the hinge, of the arched detachable cross-brace, substantially as and for the purposes set forth.

317,384. SHOE-LASTING MACHINE. ASA S. LIBBY, Everett, assignor to the Beal Lasting Machine Company, Boston, Mass. Filed Aug. 7, 1884. (No model.)



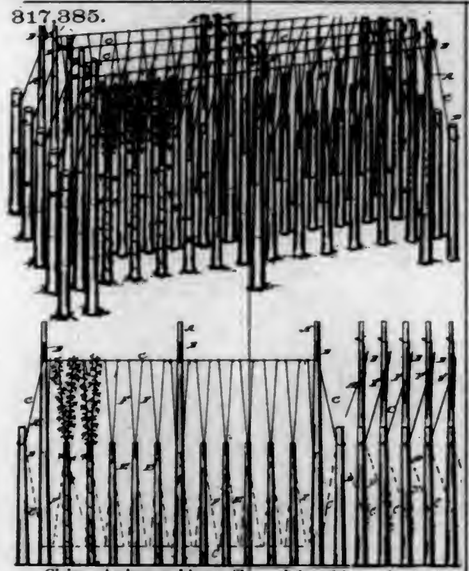
Claim.—1. In a shoe-lasting machine, the combination, with the crimping-jaws, the eccentrics, jaw-actuating mechanism, and the continuously-rotating shaft, of the clutch and cam-wheel, whereby the clutch is automatically shifted to operate the mechanism to thrust the jaws forward and backward in alternate series, substantially as specified.

2. The combination, with the clamping-jaws, the eccentrics, and driving-shaft, of the shipping-clutch and its yoke suspended from a hanger, the friction-wheel mounted at the lower end of the yoke, and the cam-wheel mounted on an independent shaft, and the intergearing cog-wheels, whereby the parts are operated automatically, as set forth.

3. In a shoe-lasting machine, the bell-crank lever D', pivoted to the machine, and pitman or arm E, connected to the sliding block B', as described, in combination with the standard C', as set forth.

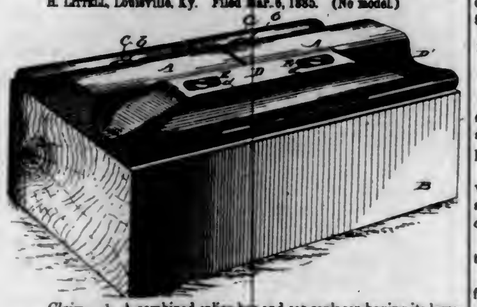
317,385. HOP-TRELLIS. JOHN LIPE, Seward, N. Y. Filed July 19, 1884. (No model.)

317,385.



Claim.—An improved hop-trellis consisting of long poles A, short poles E, and end poles, D, more than half the length of the long poles, wires C, attached to the end poles and detachably secured near the tops of the long poles, and diverging twines or wires F, secured to the short poles and to the wires C of the adjacent rows, as and for the purpose shown and set forth.

317,386. COMBINED SPLICE-BAR AND CAR-REPLACER. HARDIN H. LITTELL, Louisville, Ky. Filed Mar. 6, 1885. (No model.)



Claim.—1. A combined splice-bar and car-replacer having its lower bearing side curved to conform to the curvature of the flange of a street-railway rail having somewhat of an ogee flange, and having a head extending parallel and in the same plane with the top of the rail and resting upon the flange thereof, as set forth.

2. A combined joint plate or bar and car-replacer having its lower bearing side curved to conform to the curvature of the flange of a street-railway rail having somewhat of an ogee flange, and having a head extending parallel and in the same plane with the top of the rail and bearing upon the lower flange thereof, and its ends beveled and rounded, for the purpose specified.

3. A combined joint plate or bar and car-replacer having its inner bearing side curved to fit the contour of the side of the rail and resting upon its upper surface, its lower side resting on the lower flange and bearing against the upper projecting flange portion of the rail, by means of which, when the car-wheel strikes the bearing of the splice-piece, its weight is transferred and supported against the lower bearing formed on the flange of the rail, whereby the joint plate or bar is prevented from yielding to the weight of the car and the wheel, substantially as set forth.

317,387. PROCESS OF TREATING ALKALINE SILICATES, &c. CHARLES S. LOCKWOOD, Albany, N. Y., and JOHN W. HYATT, Newark, N. J., assignors to the Bonsilate Company, (Limited,) Albany, N. Y. Filed Aug. 13, 1884. (No specimens.)

Claim.—1. The within-described process of forming articles of an alkaline silicate with or without an inert material, which consists in, first, forming a solution of the silicate and, if preferred, adding the inert material; second, desiccating the solution, and, third, subjecting the desiccated compound to pressure in heated molds, substantially as described.

2. The within-described process of forming articles of an alkaline silicate with or without an inert material, which consists in, first, forming a solution of silicate and introducing, if preferred, an inert material; second, removing the aqueous elements in part; third, comminuting the compound; fourth, subjecting the desiccated powder to pressure in heated molds, and, fifth, subjecting the article to the action of a bath, substantially as set forth.

3. The within-described process of forming articles of an alkaline silicate with or without an inert material, which consists in, first, forming a solution of the silicate and introducing, if preferred, an inert material; second, removing the aqueous elements in part; third, comminuting the compound, and, fourth, subjecting the desiccated powder to pressure in heated molds, substantially as set forth.

317,388. PROCESS OF TREATING SILICATE OF SODA IN COMBINATION WITH ZINC OXIDE, &c. CHARLES S. LOCKWOOD, Albany, N. Y., and JOHN W. HYATT, Newark, N. J., assignors to the Bonsilate Company, (Limited,) Albany, N. Y. Filed Aug. 13, 1884. (No specimens.)

Claim.—1. The within-described process of forming articles of silicate of soda and oxide of zinc, which consists in, first, forming an aqueous solution of the silicate of soda with an admixture of zinc oxide in the proportion of about four parts of silicate (26° Banmé) to one part of zinc oxide; second, desiccating and comminuting the compound, and, third, subjecting the desiccated powder to pressure in heated molds, and, fourth, treating the article in an ammoniacal bath, substantially as set forth.

2. The use of an ammoniacal bath for the purpose of correcting the tendency of an alkaline silicate to attract moisture and to effloresce, substantially as set forth.

3. The within-described process of forming articles of silicate of soda and oxide of zinc, which consists in, first, forming an aqueous solution of the silicate of soda with an admixture of zinc oxide in the proportion of about four parts of silicate (26° Baume) to one part of zinc oxide, and, second, desiccating the compound, comminuting it, and subjecting it to treatment in an ammoniacal bath, substantially as set forth.

4. A composition consisting, essentially, of silicate of soda and zinc oxide combined, comminuted and partly dehydrated, substantially as set forth.

5. An article consisting of an alkaline silicate and white zinc oxide, combined in the proportions and united by heat and pressure substantially as set forth.

317,389. PROCESS OF TREATING ALKALINE SILICATES. CHARLES S. LOCKWOOD, Albany, N. Y., assignor to the Bonsilate Company, (Limited,) same place. Filed Aug. 13, 1884. (No specimens.)

Claim.—1. The process herein described of treating an alkaline silicate, which consists in, first, forming a solution of the silicate; second, adding thereto a resinous material, and, third, comminuting the compound and subjecting it to heat and pressure, substantially as described.

2. The within-described process of treating an alkaline silicate, which consists in forming a solution, adding thereto a resinous material and camphor, and then desiccating, comminuting, and molding the compound, substantially as described.

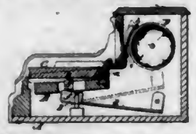
3. The use of a resinous material for the purpose of facilitating the treatment of an alkaline silicate, substantially as described.

4. The use of a resinous material and camphor for the purpose of facilitating the treatment of an alkaline silicate, substantially as described.

317,390. PROCESS OF TREATING GELATINE WHEN COMBINED WITH TANNIC ACID, &c. CHARLES S. LOCKWOOD, Albany, N. Y., and JOHN W. HYATT and JOHN H. STEVENS, Newark, N. J., assignors to the Bonsilate Company, (Limited,) Albany, N. Y. Filed Aug. 13, 1884. (No specimens.)

Claim.—The process of treating gelatine and tannic acid or other equivalent astringent agent herein described, which consists in, first, combining the two in the proportions hereinbefore specified; second, drying and comminuting the compound, and, third, subjecting the desiccated powder to the action of heated molds, substantially as described.

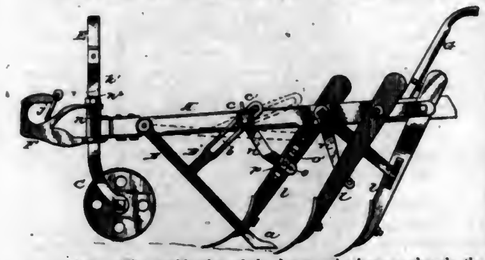
317,391. ORCHESTRA-CHIME. JOHN R. LOMAS, New Haven, Conn., assignor of one-half to B. Shoninger, same place. Filed Aug. 16, 1884. (No model.)



Claim.—1. The combination, in an instrument, of a series of bells, D, corresponding series of keys, C, the hammer-levers *d*, hung upon a fulcrum beneath the keys, the longer arm extending beneath the bells and having the hammer rigidly fixed at its end, the shorter arm extending beneath a stud on the keys, substantially as described, and whereby the keys act directly upon the hammer-lever.

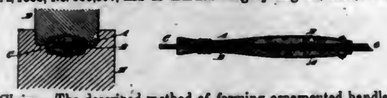
2. The combination, in an instrument, of a series of bells, D, corresponding series of keys, C, hammer-levers *d*, hung upon a fulcrum beneath the keys carrying the hammer *e* at the longer end, the shorter arm extending beneath the stud on the keys, and the dampers *h*, attached directly to the respective keys, substantially as described.

317,392. ATTACHMENT FOR CULTIVATORS. RUSH R. LOMAX, Plum Hollow, Iowa. Filed July 30, 1884. (No model.)



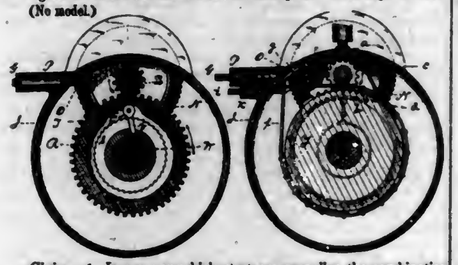
Claim.—The combination of the beam and plows or shovels, the runner-bar pivoted at one end upon the side of the beam, the bolt and thumb-nut, and the adjusting-arm pivoted at one end to the runner-bar, and having the other slotted end sliding upon the bolt, as and for the purpose shown and set forth.

317,393. METHOD OF FORMING HANDLES FOR CUTLERY. WILHELM LORENZ, Carlsruhe, Baden, Germany. Filed Dec. 21, 1883. (No model.) Patented in Germany Apr. 3, 1883, No. 26,564; in England June 8, 1883, No. 2,353; in Belgium June 16, 1883, No. 61,727; in France Aug. 14, 1883, No. 155,097, and in Austria-Hungary Aug. 22, 1883, No. 4,534.



Claim.—The described method of forming ornamented handles for cutlery, consisting in filling properly-drawn tapering tubes with melted lead or other material fusible at a low temperature, then subjecting the tubes to pressure between proper dies to partially give the desired impression, then driving a wedge into the filling while in the dies, and then subjecting to heat to remove the filling, as set forth.

317,394. CAR-STARTER. JAMES LOWBRIDGE, Allegheny, Pa., assignor of one-half to Peter Walter, Jr., same place. Filed Sept. 15, 1884. (No model.)



Claim.—1. In a car or vehicle starter or propeller, the combination of a ratchet-wheel secured to the axle, a power-wheel journaled loosely on the axle around the ratchet-wheel, a pawl pivoted within the power-wheel, so as to engage with the ratchet, and an arm connected with the pawl, said arm being operated either directly or indirectly by the axle to engage or disengage the pawl, substantially as and for the purpose specified.

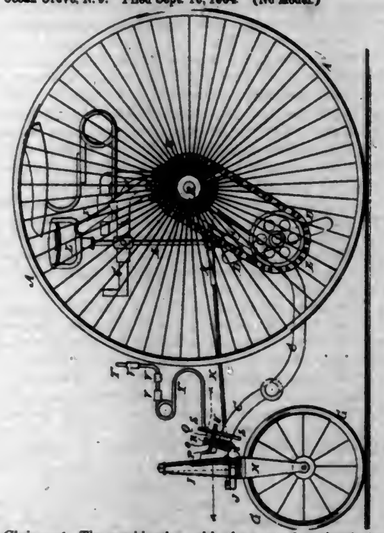
2. A car or vehicle starter or propeller consisting of a shaft suitably journaled or supported and connected with the axle by a gear-wheel keyed to the shaft, and a gear-wheel fitting loosely on the axle and having a pawl pivoted so as to engage with a ratchet-wheel keyed to the axle, said pawl being connected either directly or indirectly with the axle, so as to be operated automatically by the axle in engaging and disengaging with the ratchet-wheel, and mechanism for imparting power to the shaft, substantially as and for the purpose specified.

3. In a car or vehicle starter or propeller, the combination of a ratchet-wheel keyed to the axle, a power-wheel fitting loosely around the axle, a pawl connected with the power-wheel, and a sleeve fitting around the axle and connected with the pawl, substantially as and for the purpose specified.

4. In a combined car starter or propeller and brake, the combination of a power-wheel, a disk keyed to the axle, a friction-band encircling the disk, and a rack secured to one end of the band and engaging with the power-wheel, substantially as and for the purpose specified.

5. In a combined car starter or propeller and brake, the combination of a brake-band connected with the brake-rod and an auxiliary brake-band encircling a disk keyed to the axle, said auxiliary brake being operated by a separate lever, substantially as and for the purpose specified.

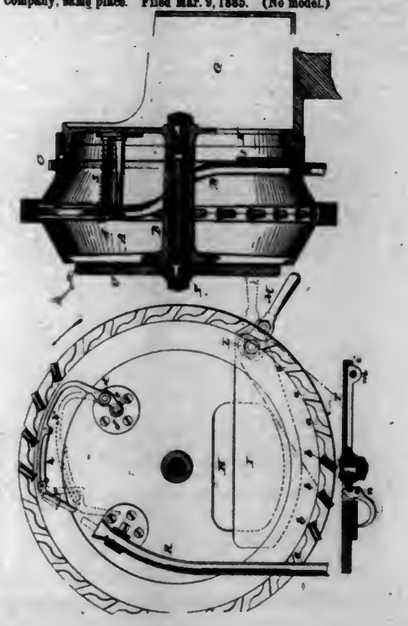
317,395. SEAT ATTACHMENT FOR VEHICLES. FRANK A. MACKIE, Ocean Grove, N. J. Filed Sept. 16, 1884. (No model.)



Claim.—1. The combination, with the part of a tricycle-frame directly over the steering-wheel, of a baby-seat, substantially as herein shown and described, whereby the baby will be carried in view of the rider and without affecting the balance of the machine, as set forth.

2. The combination, with the frame of a tricycle directly over the steering-wheel G, and the side rods, S, of a baby-seat, T, of the clamp N, having perforated boss O and set-screw R, and the cross-bar Q, having a central arm, P, and provided with set-screws U at its perforated ends, substantially as herein shown and described, whereby the said baby-seat will be adjustably and separably secured to the said frame, as set forth.

317,396. DEVICE FOR FEEDING CARTRIDGE-SHELLS. WILLIAM MASON, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. Filed Mar. 9, 1885. (No model.)



Claim.—1. In a feeding device for cartridge-shells and like articles, the combination of a hopper of circular shape and supported upon an axis, a portion of said hopper constructed with a series of cavities in a plane at right angles to the axis of the hopper, said cavities each adapted to receive one of the shells which the hopper may contain, said cavity portion arranged to revolve and cause the cavities to successively pass beneath the cartridges in the hopper, a guard over which said cavities will pass as they approach the highest point in their revolution, and a delivery-tube into which the shells will successively fall as they pass from said guard, substantially as described.

2. The combination of a hopper of circular form hung upon an axis and adapted to be revolved thereon, the said hopper constructed with a series of cavities each adapted to receive a cartridge-shell, said cavities being in a plane at right angles to the axis on which the hopper revolves, the inner surface of said hopper inclined toward the said series of cavities, a guard over which the said cavities will pass in the revolution of the hopper, and a delivery-tube into which the shells will respectively fall as they pass from said guard, substantially as described.

3. The combination of a hopper of circular form adapted to contain a mass of cartridge-shells, a delivery-tube leading from said hopper, said hopper adapted to present shells successively to said delivery-tube, a reservoir opening into said hopper, with a gate between said reservoir and hopper hung to swing downward in opening and upward in closing, substantially as described.

4. The combination of the hopper A, of circular form, hung upon an axis so as to be revolved thereon, and constructed with a series of cavities, *a*, in a plane at right angles to said axis, the inner surface of the hopper inclining toward said cavities, a guard, N, over which said cavities pass, and a delivery-tube, R, substantially as described.

5. The combination of the hopper A, of circular form, hung upon an axis and adapted to be revolved thereon, said hopper constructed with a series of cavities, *a*, in a plane at right angles to the axis of the hopper, the inner surface of the hopper inclined toward said cavities, a guard, N, over which said cavities will pass, and a delivery-tube opening beyond said guard, a reservoir opening into said hopper with a gate, I, between said hopper and reservoir, hung to swing in a plane at right angles to the axis of the hopper, and adapted to swing downward in opening and upward in closing, substantially as described.

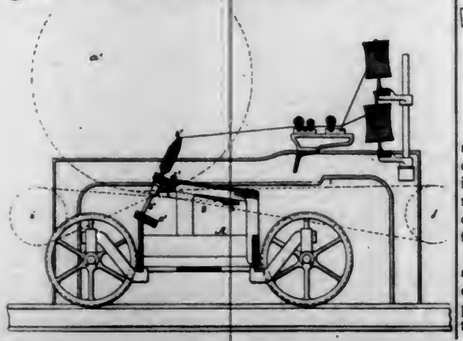
6. The combination of the hopper A, hung upon an axis and adapted to be revolved thereon, constructed with a series of cavities, *a*, in a plane at right angles to said axis, a guard, N, hung upon a pivot, *d*, a spring arranged to support said guard, and a delivery-tube near the free end of said guard, substantially as described.

7. The combination of the hopper A, hung upon an axis and adapted to be revolved thereon, constructed with a series of cavities, *a*, in a plane at right angles to said axis, a guard, N, hung upon a pivot, *d*, a spring arranged to support said guard, a chute, P, hinged to the free end of said guard, and a delivery-tube the mouth of which opens from said chute, substantially as described.

8. The combination of a hopper circular in shape and arranged upon a fixed axis, and so as to revolve thereon, the front of the hopper open, a bracket attached to said fixed axis, and a door hung to said bracket independent of the hopper, but so as to close the front thereof, substantially as described.

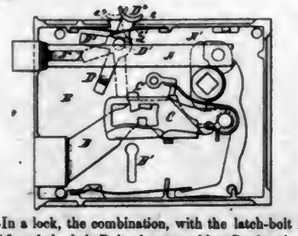
317,397. SPINNING-MULE. (Métier à filer.) CHARLES C. A. MASSON, Loncles, France. Filed Apr. 16, 1883. (No model.) Patented in France June 30, 1882, No. 150,059; in Germany July 23, 1882, No. 21,165; in Belgium Oct. 30, 1882, No. 59,412; in England Nov. 3, 1882, No. 5,245; in Italy Nov. 15, 1882, No. 14,802, and in Spain Apr. 28, 1883, No. 3,875.

Brief.—All the spindles are driven at the same speed by means of a single endless belt, which is held against the pulleys on the spindles by friction-pulleys between each pair, and then passes over horizontal guide-pulleys on the carriage, over pulleys fixed on standards a greater distance apart than the run of the carriage, and over a pulley on the driving-shaft.



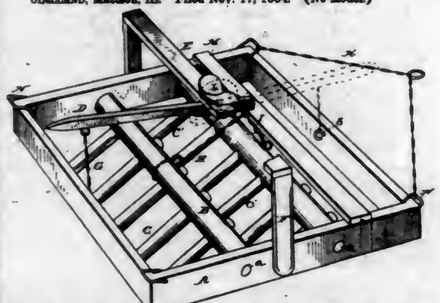
Claim.—The combination of the head-stock and traveling carriage of a spinning-mule and spindles, with friction and guide pulleys on the carriage for the endless belt or cord, and pulleys *i*, *j*, and *a'* on the fixed head-stock, the said pulleys *i* and *j* being at distance apart greater than the extent of travel of the carriage.

317,398. LOCK. PHILIP MATHER, Idlewood, Pa. Filed Jan. 7, 1885. (No model.)



Claim.—In a lock, the combination, with the latch-bolt A, having a projection, A^2, and the bolt B, having a tumbler, C, of a pivoted lever, D, having a thumb-piece, D^2, and arm D^3, said lever adapted to engage with the tumbler of the bolt and the arm adapted to engage with the projection of the latch-bolt by the movement of the thumb-piece, substantially as and for the purpose set forth.

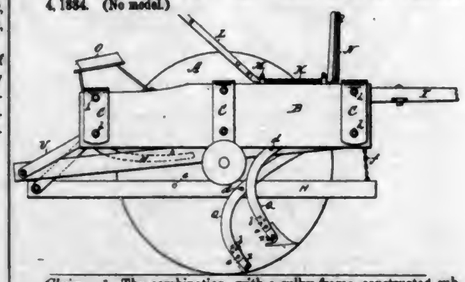
317,399. CUTTING AND PULVERIZING HARROW. THOMAS MCCLELLAND, Mattson, Ill. Filed Nov. 17, 1884. (No model.)



Claim.—1. In a harrow, the main frame and oscillating cutter-bars, in combination with a reversing-lever and suitable supports for the same, and the chains H and I, substantially as described.

2. In a reversible harrow, the main frame provided with hooks *b*, the oscillating cutter-bars provided with suitable teeth or cutters, and also provided near the center of the same with staples, the seat-support F, the reversing-lever D, provided with bolts, each of which has an eye formed therein, in combination with the chains H, I, and G, substantially as described, and for the purpose set forth.

317,400. CULTIVATOR. MARK T. MCGEE, Chipley, Ga. Filed Aug. 4, 1884. (No model.)



Claim.—1. The combination, with a sulky-frame constructed substantially as described, of a tongue pivoted at its rear end thereto, a compound lever pivoted by means of a rock-shaft along the tongue, having a hand-lever at one end and a crank at the other end, and two brace-rods loosely secured at one end and serving at the other end as a fulcrum to the compound lever, the crank being the pivotal connection at the fulcrum, substantially as shown and described.

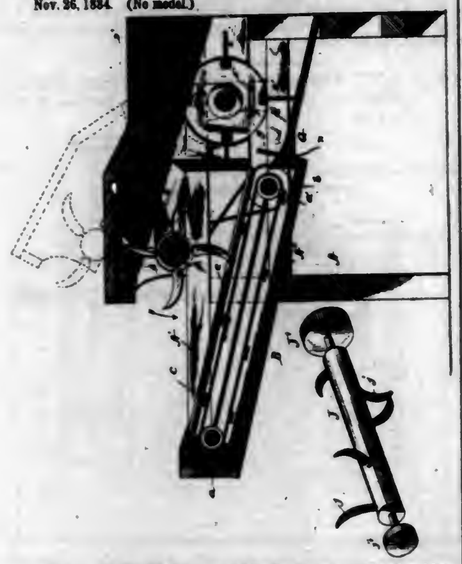
2. The combination, with a frame mounted on wheels, of a plow, a hook or standard having two arms supporting the plow at their lower end, and spread apart and hung at their upper ends to the frame, a beam pivoted at some distance from its forward end between the two arms of the hook or standard, and a chain attached at one end to the forward

end of the said beam and at the other end to the frame, as shown and described.

3. The combination, with a frame mounted on wheels, a plow, a two-armed hook or standard hanging the plow to the frame, a beam pivoted at some distance from its forward end between the hook-arms, and a chain hanging the forward end of the beam to the frame, of a pair of arms hanging the rear end of the beam to the frame, as shown and described.

4. The combination, with a frame mounted on wheels, a plow, a hook hanging the plow to the frame, and a beam pivoted near its forward end to the hook or standard, of a pair of arms hanging the rear end of the beam to the frame, one of the said arms extended beyond the point of its attachment to the frame to serve as a treadle for lifting the beam, and a pin in the beam for retaining the beam upon the treadle when lifted, as and for the purpose specified.

317,401. BAND-CUTTER AND FEEDER FOR THRASHING-MACHINES. JOHN MCHENRY and JAMES O'DONNELL, Catawissa, Mo. Filed Nov. 26, 1884. (No model.)

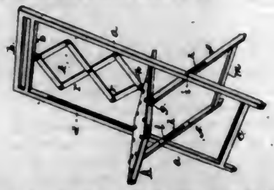


Claim.—1. In a band cutting and feeding attachment for thrashing-machines, the combination, with the main frame, of the traveling feed-apron, a hinge cover or frame, and a transverse shaft having curved knives mounted in said cover near its front end, said knives operating over said feed-apron, the parts being combined substantially as shown, and for the purpose set forth.

2. The combination of an endless apron, the transverse bar with parallel projecting teeth, the distributing-drum with teeth *e'*, and the hinged frame, carrying at its front portion a shaft with cutting-knives which operate upon the endless apron substantially as shown, and for the purpose set forth.

3. The combination of the main frame, the recessed bearing-blocks I, a frame and cover, H, the arched arms or bars H,' rigidly adapted thereto and pivoted in the recessed bearing-blocks K, and shaft J, substantially as set forth.

317,402. FOLDING CHAIR. JAMES C. MERRITT and LAWRENCE A. C. MÜLLER, Highland Falls, N. Y.; said Müller assignor to Joseph Denton, same place. Filed Dec. 3, 1883. (No model.)



Claim.—1. In a reversible folding chair, a main frame consisting of side strips which constitute the front legs of the chair, a seat within said frame, and upwardly-sliding connecting parts located on said seat which engage said front legs, in combination with back legs pivoted at their upper ends to said seat and which cross the front legs within the same, and downwardly-sliding connecting parts located on the front legs, which engage said back legs, substantially as set forth.

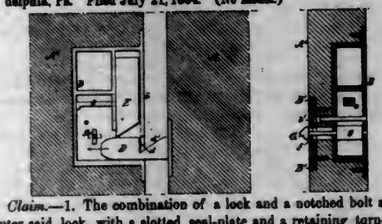
2. In a reversible folding chair, a main frame consisting of side strips which constitute the front legs of the chair, and of top and bottom cross-pieces connecting said side strips, a seat within said frame, and upwardly-sliding connecting parts located on said seat which engage said front legs, in combination with back legs pivoted at their upper ends to the seat and which cross the front legs within the same, and downwardly-sliding connecting parts located on the front legs, which engage said back legs, substantially as set forth.

3. In a reversible folding chair, a main frame consisting of side strips, *a a*, which constitute the front legs of the chair, and of top and bottom cross-pieces, *b c*, connecting said side strips, said side stripe or front legs being provided with grooves *d d* and pins *i i*, and a seat, A, provided with pins *e e*, which rest in said grooves *d d*, and slide therein when the chair is being folded, in combination with back legs, *f f*, pivoted at their upper ends to said seat and provided with grooves *h h*, in which said pins *i i* on the front legs rest and slide when the chair is being folded, substantially as set forth.

4. In a folding chair, and in combination with the co-operative parts thereof, upwardly-extending front legs, a cross-piece connecting said legs at or near the top, a seat within said front legs, sliding connections between said seat and legs, and a lazy-tongs back connected to said cross-piece and to the seat, substantially as set forth.

5. In a folding chair, a seat, front legs, sliding connections between said seat and legs, and a cross-piece connecting the front legs at or near the bottom provided with a groove or recess on its upper side, in combination with back legs pivoted to the seat, and sliding connections between the back and front legs, said back legs being beveled on their lower ends, whereby they may engage in the said groove or recess when the chair is folded, and thus lock the chair, substantially as set forth.

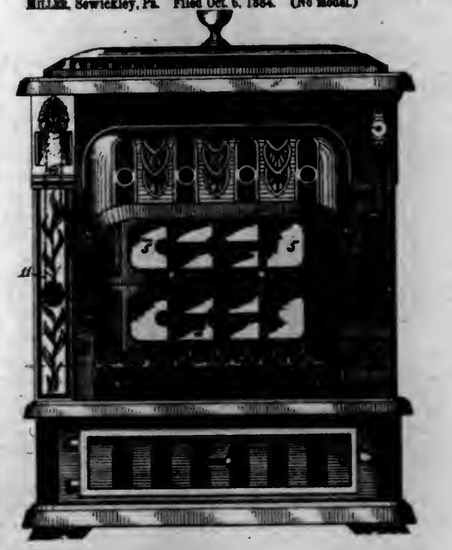
317,403. SEAL-LOCK FOR CAR-DOORS. FRANK H. MEYERS, Philadelphia, Pa. Filed July 21, 1884. (No model.)



Claim.—1. The combination of a lock and a notched bolt adapted to enter said lock, with a slotted seal-plate and a retaining turn-buckle adapted to pass through the slot in the seal-plate, and turned to retain the latter by the said bolt when entering the lock, substantially as set forth.

2. The combination of a car-door having a lock on the inside, and a recessed escutcheon, B', and seal-plate F on the outside, substantially as and for the purpose specified.

317,404. BLOWER FOR STOVES AND FIRE-PLACES. LEBBEUS A. MILLER, Sewickley, Pa. Filed Oct. 6, 1884. (No model.)



Claim.—1. The combination, in a blower for stoves or fire-places, of two sections coupled by flexible connections at their sides, said sections being adapted to fit one above another in a vertical plane, and by their simultaneous movement in opposite directions to cover or to expose the entire or any desired portion of the area of front opening of a stove or fire-place, substantially as set forth.

2. The combination, with an open-front stove or fire-place, of a pair of suspending-pulleys journaled to the front plate on opposite sides thereof, a pair of blower-sections fitting one above the other over an opening in said front plate, and chains passing over said pulleys and connected at their opposite ends to the upper and the lower blower-sections, respectively, substantially as set forth.

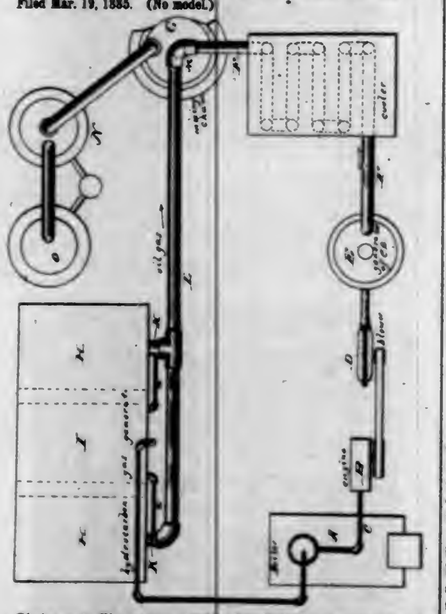
3. The combination of a stove or fire-place front plate having a central opening and a lateral recess on each side thereof, a pair of suspending-pulleys journaled in said recesses, a pair of blower-sections fitting vertically one above the other over the opening of the front plate, and having lateral lugs or arms projecting into the recesses thereof, chains passing over the suspending-pulleys and connected at their ends to the lugs of the blower-sections, and cover-plates fitting over the lateral recesses and secured to the front plate, substantially as set forth.

317,405. GATE. SILAS E. MILLER, Aingar, Ohio. Filed May 17, 1884. (No model.)



Claim.—The combination of the latch-post having the notched arm at its upper end, the mortise in its side, and the inclined step at its lower end, the gate pivoted at one end, the latch-bar pivoted at its lower end in the lower part of the gate and having the eye J at its lower end, and the catch Q, and the brace-wires passing from the top of the hinge-post through the eye J, as and for the purpose shown and set forth.

317,406. PROCESS OF MANUFACTURING GAS FOR ILLUMINATING AND HEATING PURPOSES. JOHN W. MITCHELL, Bayonne, N. J. Filed Mar. 19, 1885. (No model.)



Claim.—1. The process herein described of generating gas for illuminating purposes, which consists in forcing a current of air through ignited fuel to generate carbonic-oxide gas, separately generating a gas rich in carbon by injecting hydrocarbon and superheated steam into a heated retort, and decomposing the same under a regulated heat, so as to prevent the deposition of the carbon, and then bringing the two gases together for amalgamation at a temperature not exceeding 1,600°

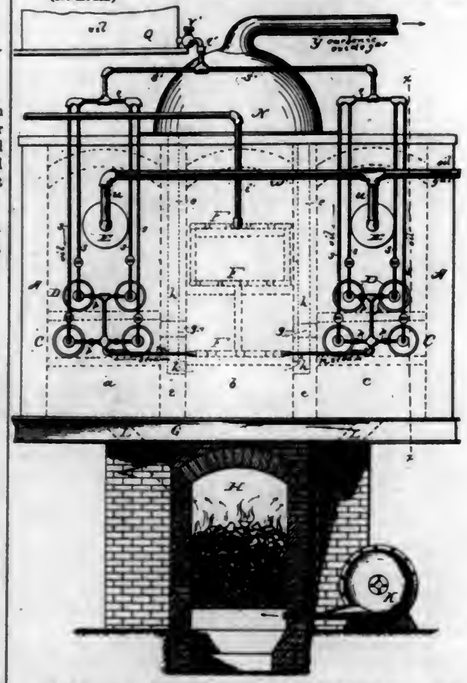
2. The process herein described of generating and preparing gas for illuminating and other purposes, which consists in passing a current of air through ignited fuel to generate carbonic-oxide gas, reducing the temperature of the resultant gas, afterward uniting therewith a hydrocarbon gas, and amalgamating the two at a temperature of about 1,200°, substantially as described.

3. The process herein described of generating a gas rich in carbon, which consists in injecting hydrocarbon and superheated steam into a retort, decomposing about one gallon per hour of the same to each eight square feet of surface under a regulated heat of about 1,600°, whereby the hydrocarbon is entirely decomposed and converted into gas without the deposition of carbon, substantially as described.

4. The process herein described of manufacturing gas for illuminating and other purposes, consisting, essentially, in generating carbonic-oxide gas, then using said gas as a heating agent for generating hydrocarbon gas, thereby reducing its temperature, then further cooling said gas to about the temperature of the hydrocarbon gas, then mixing and amalgamating or fixing the two, substantially as specified.

5. The process herein described of producing a fixed illuminating-gas, the same consisting in generating hydrocarbon gas and separately generating carbonic-oxide gas, cooling the latter to about the temperature of the former as it passes off from the retorts, then mixing and amalgamating them to form a homogeneous gas by their own heat, substantially as described.

317,407. APPARATUS FOR GENERATING ILLUMINATING AND HEATING GAS. JOHN W. MITCHELL, Bayonne, N. J. Filed Mar. 23, 1885. (No model.)



Claim.—1. A furnace for generating carbonic-oxide gas, a retort or bench of retorts, means for supplying hydrocarbon and steam to said retorts for generating hydrocarbon gas, and coils for superheating steam, combined and arranged for operation substantially as specified, whereby carbonic-oxide gas is generated, and by its surplus heat the contents of the retorts are decomposed and the steam is superheated.

2. The combination of a cupola-furnace for generating carbonic-oxide gas, a retort-furnace, a flue or flues leading from the former to the latter, a retort or bench of retorts, means for supplying hydrocarbon and steam to said retorts, and a conduit leading from the cupola-furnace through a water-tank to join a separate conduit leading from the retorts at the amalgamator, substantially as described.

3. The combination, with the cupola-furnace and the retort-furnace and retorts, of the steam-coils extending through a chamber, *b*, located between the retort-chambers, which communicate with said intermediate chamber, and the injectors connecting with said coils and with the oil-supply pipes, whereby the steam may be heated by the surplus heat of the carbonic-oxide gas and the gas further cooled previous to passing to the amalgamator, substantially as and for the purpose specified.

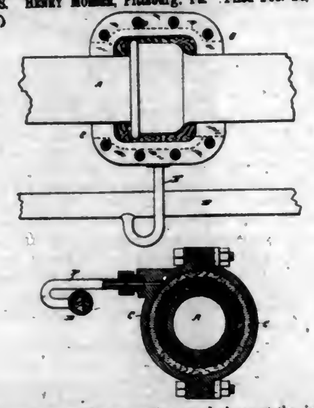
4. The combination, with the retort-furnace having two retort-chambers and an intermediate heating-chamber, of the dividing-partitions, the flues by which the chambers are connected, and the vertical flues leading to the dome, from whence the carbonic-oxide gas is conveyed to the amalgamator, substantially as specified.

5. The combination of the cupola-furnace, the chambered retort-furnace, the retorts and the steam-heating coils, the injectors, the oil-supply pipes, the regulating-valve, and the oil-tank, substantially as and for the purpose set forth.

6. The combination, with the cupola-furnace and the retorts, of the retort-connecting pipes at the rear, the injectors, oil and steam supply pipes, and separate pipes for the gases connecting with the amalgamator or fixing-chamber, substantially as and for the purpose specified.

7. The combination, with the amalgamator or fixing-chamber, of the inlet-pipe at one end and discharge-pipe at the other, and wire-gauze or foraminous diaphragms, substantially as described.

317,408. MEANS FOR PREVENTING LEAKAGE OF GAS FROM MAINS. HENRY MORRIS, Pittsburg, Pa. Filed Feb. 24, 1885. (No model.)



Claim.—A means for preventing gas-leakage at the joints of gas-mains, consisting of a jaket surrounding the joint with its couplings, cups, and sockets, or other connections, the jacket being so formed as to provide a water-tight chamber around the said joint, and a pipe connected to the said jacket, and means for supplying the chamber with fluid under pressure, substantially as and for the purpose specified.

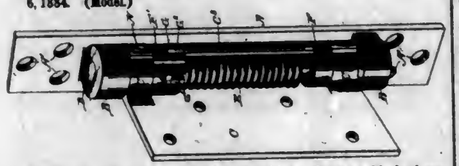
317,409. CARTRIDGE FOR ELECTRIC FIRE-ARMS. EDGAR A. MONFORT, New York, N. Y., assignor, by mesne assignments, to the Universal Electric Arms and Ammunition Company, same place. Filed Nov. 18, 1882. Renewed Mar. 28, 1885. (No model.) Patented in England Jan. 9, 1883, No. 125; in France July 9, 1883, No. 156,468, and in Belgium July 9, 1883, No. 161,968.



Claim.—1. The gun-cartridge herein described, having electrical conductors extended through the cartridge-head, each conductor consisting of a series of fine wires twisted together, with their outer ends terminating directly at the outer face of the cartridge-head and spread, the inner ends of the conductors being connected by a platinum or similar wire, substantially as described.

2. An electric cartridge provided with two conductors passing through a block at the butt-end of the cartridge, and connected at their tips within the charge of powder by a platinum wire, said platinum wire being provided with a wrapping of gun-cotton, substantially as described.

317,410. SPRING-HINGE. SIDNEY S. NILES, Chicago, Ill. Filed May 6, 1884. (Model.)



Claim.—1. In a right-and-left spring-hinge, the movable leaf provided with a knuckle and an adjustable screw passing through the same, in combination with a stop-ring provided with a stud on its upper surface, which enters the knuckle and is held by the spring against the adjustable screw when the hinge is in a state of equilibrium, and shoulders engaging with lugs on the base-plate, substantially as described.

2. The base-plate, the stop-lugs, and pintle-eyes formed on said plate, in combination with the movable member provided with knuckles and pivoted to the pintle-eyes, the stop-rings arranged between and next said knuckles, and the spring located between the opposing stop-rings, substantially as described.

3. The bed-plate provided upon one side with a pair of pintle-eyes, and a pair of lugs located between the said eyes, in combination with stop-rings connected with the springs and mounted upon the pintle, said stop-rings being provided with shoulders for alternately engaging the lugs on the bed-plate, in the manner set forth.

4. The combination, in a right-and-left spring-hinge, of a single pintle, with the movable leaf provided with knuckles, through which the pintle passes, and a pair of stop-rings, constructed substantially as described, and connected with the ends of the spring, said knuckles being provided with end recesses, and the stop-rings being provided with end studs extending in the recesses in the knuckles, substantially as described.

5. In a spring-hinge of the character described, the swinging leaf provided with a curved-edge portion adapted to partially inclose the spring, and formed with an external longitudinal swell adapted to close the space back of the hinge when the door to which the hinge is applied is closed, substantially as described.

6. In a spring-hinge of the character described, the stop-rings, and the leaf provided with knuckles and with a curved-edge portion between said knuckles, all provided with an external swell at a point which will close up the space back of the hinge at a time when the door to which the hinge is attached is closed, substantially as described.

7. In a right-and-left spring-hinge, the knuckles formed with the swinging leaf and respectively provided with recesses M and M', in combination with the fixed studs H, and the stop-rings, each provided with a stud, L, entering a recess in one of the knuckles, and with a peripheral tooth, I, arranged in line with one of the said fixed studs, substantially as described.

8. In a spring-hinge, the bed-plate and a pair of pintle-eyes formed therewith, in combination with the spring, the stop-rings, and the movable leaf confined between the pintle-eyes, substantially as described.

9. In a right-and-left spring-hinge, the leaf provided at each end with a knuckle and with transversely-arranged openings at points between the knuckles, in combination with the stop-rings received in the openings in the leaf, the spring connected with the stop-rings, and the pintle-eyes located beyond the knuckles and set at right angles to a bed-plate, substantially as described.

10. The leaf provided with internally-recessed end knuckles and formed with a curved portion, C', and spaces between the ends of the latter and the knuckles, in combination with the stop-rings F and F', each provided with a peripheral shoulder and an end stud, the spring connecting said stop-rings with one another, the pintle-eyes located at points opposite the ends of the leaf, and a pair of fixed stops located in position to be engaged by the stop-rings, substantially in the manner set forth.

11. In a spring-hinge, the long narrow bed-plate A, adapted to fit in a mortise in a door-jamb and provided with a pair of pintle-eyes, B, and a pair of lugs, H, located between said eyes, in combination with the swinging leaf and the stop-rings, all pivotally mounted between the pintle-eyes, substantially as described.

12. In a right-and-left spring-hinge, the oblong bed-plate A, formed with pintle-eyes B, standing at right angles to its face, in combination with a single pintle journaled at its ends in the said eyes, the swinging leaf C, provided with a pair of knuckles, the stop-rings F and F', and the tension-adjusting ring connected with one of the stop-rings, all mounted upon the single pintle and confined between the pintle-eyes, substantially as described.

317,411. COMBINED BELT-SHIFTER AND BRAKE. WILLIAM A. OTTO and BENJAMIN A. METCALF, Cedar Rapids, Iowa. Filed Mar. 9, 1885. (No model.)

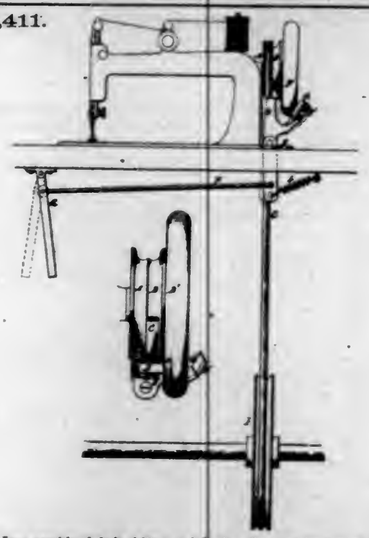
Claim.—1. In a combined belt-shifter and brake, the shifter-arm D, having pins *c c*, to straddle the belt, and a brake-arm, D', adapted to bear against the wheel B' simultaneously as the belt is shifted to the loose pulley A, substantially as shown and described.

2. In a combined belt-shifter and brake, the shifter-arm D, having pins *c c*, to straddle the belt C, and with its head so adjusted with respect to the fast pulley B that it may be pressed against the wheel B' with the same movement required in shifting the belt, for the purpose of retarding the motion, substantially as set forth.

3. In a combined belt-shifter and brake, the shifter-arm D, having brake-arm D', in combination with fast pulley B, having rim or flange B', loose pulley A, and belt C, all substantially as and for the purpose set forth.

4. In a combined belt-shifter and brake, the combination of shifter D, having brake-head D', the brake-wheel B', round or analogous belt C, and fast and loose pulleys B A, having a groove in their peripheries sufficient to retain the belt, but shallow enough on the inner sides to allow the belt to be freely shifted from one to the other, substantially as set forth.

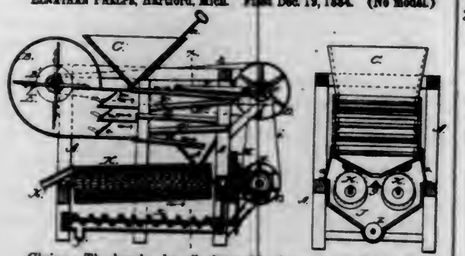
317,411.



5. In a combined belt-shifter and brake, the combination of loose pulley A, fast pulley B, having brake-wheel B', belt C, shifter D *e c*, brake-head D' *a*, pivot-block E, connecting-rod F, and lever G, all constructed, arranged, and operating substantially as set forth.

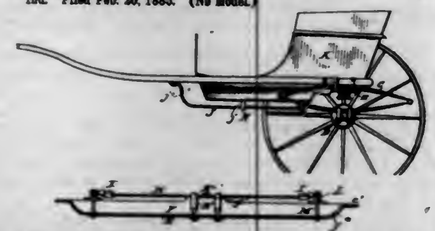
6. In a combined belt-shifter and brake, the combination of loose pulley A, fast pulley B, having brake-wheel B', belt C, shifter-arm D, brake-arm D', pivot-block E, and spring *b*, adapted to automatically throw the belt onto the loose pulley and stop the motion of the machine, substantially as set forth.

317,412. COMBINED FANNING-MILL AND COCKLE-SEPARATOR. ELNATHAN PHELPS, Hartford, Mich. Filed Dec. 19, 1884. (No model.)



Claim.—The herein-described combined fanning-mill and cockle-separator, comprising the frame A, provided with the fan-chamber B, fan E, hopper C, screens F, G, and H, conductors F' G', valves *m*, *n*, and *o*, hopper *f*, rollers K, distributing-board *g*, conveyer L, and the gear-wheels and driving-pulleys, substantially as and for the purpose specified.

317,413. TWO-WHEELED VEHICLE. WILLIAM C. PITNER, La Porte, Ind. Filed Feb. 20, 1885. (No model.)



Claim.—1. In a two-wheeled vehicle, the combination of the body, the body-support, a pivot which positively, though loosely, connects the body with the body-support, and a torsion-spring which tends to resist the rocking of the body around its line of balance, substantially as set forth.

2. In a two-wheeled vehicle, the combination of the body, the body-support, a pivot which positively, though loosely, connects the body with the body-support, and a torsion-spring mounted upon the top of the body-support, and connected at its ends with the body and adapted to resist the rocking of the body around its support, substantially as set forth.

3. In a two-wheeled vehicle, the combination of the body, the body-support, a pivot which positively, though loosely, connects the body with the body-support, and is situated upon the line of balance of the vehicle-body, and a torsion-spring adapted to resist the rocking of the body relative to its support, and secured at its center to the body-support and at its ends to the body upon its line of balance, substantially as set forth.

4. In a two-wheeled vehicle, the combination of the body, the body-support, lugs L, supported upon the body-support, and plates carried by the body and provided with studs working in said lugs to form a pivotal support for the body, and a torsion-spring between the body and its support, substantially as set forth.

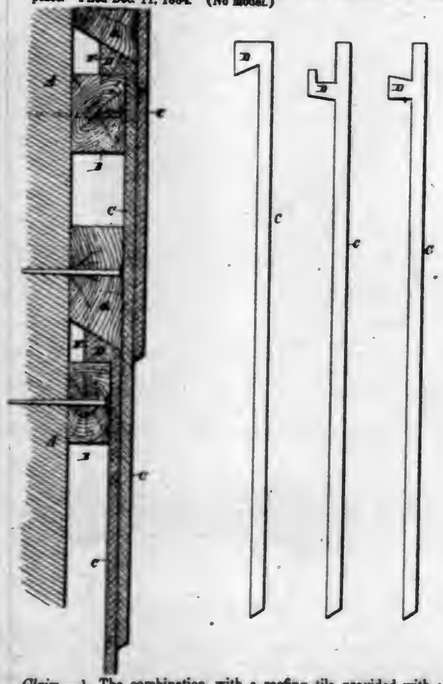
5. In a two-wheeled vehicle, the combination of the body, the body-support, lugs L, supported upon the body-support, plates carried by the body and provided with studs working in said lugs to form a pivotal support for the body, and a torsion-spring connected at its center to the body-support and at its ends to the plates carried by the body, substantially as set forth.

6. In a two-wheeled vehicle, the combination of the body, the body-support, lugs L, supported upon the body-support, plates I, carried by the body and provided with studs I^3, working in said lugs to form a pivotal support for the body, and also provided upon their lower faces with sockets I', and a torsion-spring secured at its center to the body-support and having its ends seated in the sockets I', substantially as set forth.

7. In a two-wheeled vehicle, the combination of the axle, the side springs, the shafts, the body mounted between the shafts and below them, the flat or leaf spring J, attached at its front end to cross-bar G and at its rear end to the under side of the body, at a point considerably in rear of its front edge, by means of a shackle joint or connection, J', said spring consisting of the substantially vertical part *j'* in front of the body, and above the lower edge thereof, and the substantially horizontal part *j* lying under the body, whereby the body may tip without bending the spring, and the front edge of the body, when depressed, rest upon the spring, as set forth.

8. In a two-wheeled vehicle, the combination, with the body and the springs which support it upon the axle, of the flat or leaf spring J, rigidly secured to the cross-bar at its forward end and at its rear end to the body by means of a shackle, and a tension or safety strap carried by the body and encircling the spring J, substantially as set forth.

317,414. DEVICE FOR FASTENING ROOF-TILES. FAWCETT PLUMB, Streator, Ill., assignor of one-half to John H. Shay and Jay Baker, same place. Filed Dec. 11, 1884. (No model.)

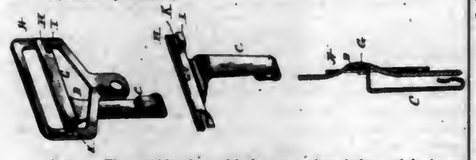


Claim.—1. The combination, with a roofing-tile provided with a depending lug and a rail secured across the rafters for supporting the tiles, of a strip extending across the rafters in contact with the upper side of the lug, whereby the tile is snugly locked to the roof, substantially as set forth.

2. The combination, with a roofing-tile provided with a depending oblique-faced lug and a rail secured across the rafters in contact with the lower side of the lug, of a strip secured to the rafter in contact with the upper side of the lug, whereby the tile is securely locked to the roof, substantially as set forth.

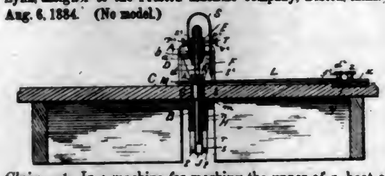
3. The combination, with a roofing-tile provided with a depending lug formed integral therewith, said lug being thicker at the lower end than at the upper end, of a rail secured across the rafters in contact with the lower side of the lug, and a strip secured to the rafter in contact with the upper side of the lug, whereby the tile is secured to the roof, substantially as set forth.

317,415. BUCKLE. JAMES R. POLLOCK, Mansfield, Ohio. Filed Jan. 13, 1885. (No model.)



Claim.—The combination, with the upper slotted plate, of the lower plate having an extended cross-bar at the top, provided with straight and bent lugs at the end, adapted to engage the side bars of the upper plate between them and bind upon the web or strap, substantially as specified.

317,416. MACHINE FOR MARKING THE QUARTERS OF BOOTS OR SHOES FOR BUTTONS AND BUTTON-HOLES. ALBERT F. PRESTON, Lynn, assignor to the Preston Machine Company, Boston, Mass. Filed Aug. 6, 1884. (No model.)



Claim.—1. In a machine for marking the upper of a boot or shoe where the buttons are to be secured thereto and the button-holes are to be made therein, the combination, with a marker for marking said upper, of a raised plate opposite to the marker, whereby it is adapted to lie between two parts of said upper and on the opposite side of the upper to that whereon the marker makes its impression, substantially as described.

2. In a machine for marking the upper of a boot or shoe where the buttons are to be secured thereto and the button-holes are to be made therein, the combination, with marking devices for marking said places having two marking-faces lying in different planes, of a raised plate located between said two marking-faces, whereby it is adapted to lie between two parts of said upper and serve as a base or rest for one or both of said marking-faces, substantially as described.

3. The combination, with the bed-plate or table C, having a block, G, arranged to move therein, and provided with a pin, *w*, a plate, F, provided with a pin, *l*, of a plate, L, and rod or bar D, substantially as and for the purpose specified.

4. In a machine for marking the upper of a boot or shoe, respectively, where the buttons are to be secured thereto and the button-holes made therein, a spring-gage, S, having set-screw T, substantially as and for the purpose specified.

5. The combination, with the plate L, secured to the bed-plate C by a set-screw, *z*, of a screw. d^2, substantially as and for the purpose specified.

6. The combination, with the plate F, provided with a pin, *l*, of a gage, R, having shoulder k^2 and projection n^2, substantially as and for the purpose specified.

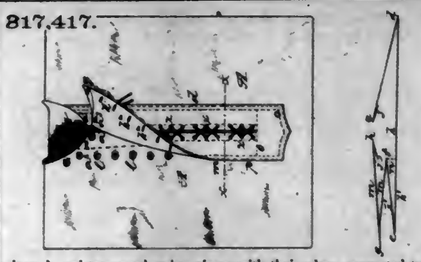
7. The combination, with the plate F, provided with a pin, *l*, of a gage, W, having a shoulder, k^3, and prongs y^3, substantially as and for the purpose specified.

317,417. SHIRT-BOSOM. LEVI PEIRCE and ISAAC WALLACH, New York, N. Y., assignors to H. Wallach & Sons, same place. Filed June 2, 1884. (No model.)

Claim.—1. The described improvement in shirts, consisting of the combination, with the body of the shirt, of a bosom formed of one piece of folded material and constituting the following parts: a continuous chest-protecting piece, a fly, and two parts overlapping the chest-protecting part, and having substantially parallel edges for the reception of a lacing or similar material, substantially as and for the purposes set forth.

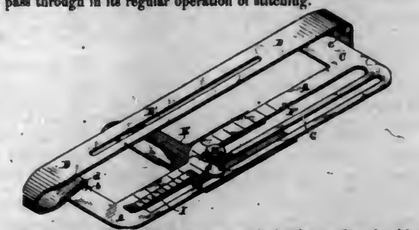
2. The combination, in a shirt, of the body-piece A, and a bosom attached to the body-piece having an interior continuous chest-protecting piece, *k*, and two overlapping pieces with their edges presented toward each other, through which a lacing or equivalent material may be laced, substantially as and for the purposes set forth.

317,417.



317,418. TUCK-MARKER. EVAN C. REESE, Altoona, assignor to the American Buttonhole, Overseaming and Sewing Machine Company, Philadelphia, Pa. Filed Sept. 30, 1884. (No model.)

Brief.—The loosely-hinged spring-arm rests with its creasing-notch in its bent end upon a ridge, and acts to crease the material through the strokes of the needle-bar upon said arm, the slot permitting the needle to pass through in its regular operation of stitching.



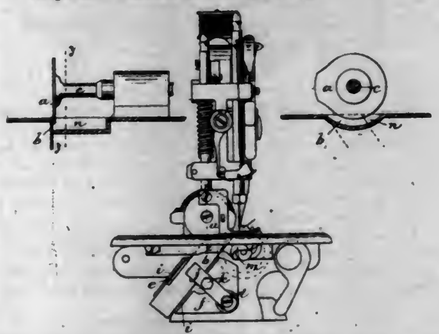
Claim.—1. The combination of a bed-plate, a loosely-hinged creaser-arm, and creasing devices on the bed-plate and arm, which normally rest in contact with each other by the gravity of the arm.

2. The combination of the bed-plate, the loosely-hinged longitudinally-slotted spring-metal creaser-bar, its elliptically-bent end, and the creasing devices.

3. The combination of the bed-plate having the longitudinal slot G, the cloth-gage applied beneath the bed-plate, a smoothing-finger formed with or attached to the cloth-gage and projecting through said slot, and clamp devices for binding the cloth-gage and bed-plate together.

4. The combination of the bed-plate provided with the parallel longitudinal slots F G, the slotted cloth-gage applied beneath the bed-plate, and the adjustable smoothing-finger which projects through the slot G in the bed-plate.

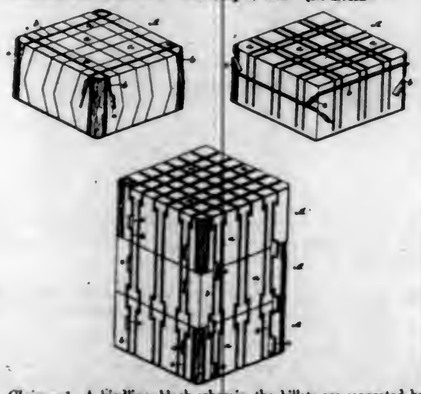
317,419. TRIMMING MECHANISM FOR SEWING-MACHINES. THOMAS C. ROBINSON, Boston, assignor of one-half to E. B. Welch, Cambridge, Mass. Filed Feb. 15, 1884. (No model.)



Claim.—1. In a sewing-machine, in combination with the stitch-forming mechanism and a movable blade operated by the power of the machine, a straight blade which is fixed when in operative position, edge-guides for the same, placed obliquely to the bed of the machine and attached to the frame thereof, and a separate clamp which bears on the face of the blade to hold it in adjusted position, substantially as described.

2. In a sewing-machine, the combination, with the fixed and moving blades, of the bed having a depression beside the fixed blade and under the moving blade, as set forth.

317,420. CUTTING AND PACKING KINDLING-WOOD. JOSEPH L. SEYMOUR, New York, N. Y. Filed July 1, 1884. (No model.)



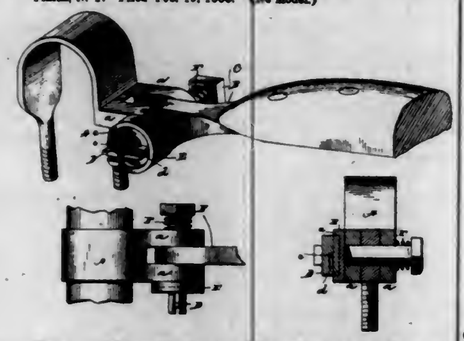
Claim.—1. A kindling-block wherein the billets are separated by saw-kerfs which impart a crooked or bent form to the billets, as shown, whereby the interior or central billets are made to interlock so that they cannot work out, substantially as set forth.

2. A kindling-block having two sets of parallel cuts or kerfs in each end, which sets cross each other, as set forth, and each set of cuts or kerfs are made oblique to the grain or ends of the block, whereby the billets are given a crooked shape, as shown, for the purposes set forth.

3. A kindling-block wherein the billets are formed by oblique cuts or kerfs, substantially as described, and the whole secured together by binding strips or laths inserted in kerfs in the marginal rows of billets, substantially as and for the purposes set forth.

4. The herein-described method of binding together the billets of a kindling block or bundle, which consists in sawing or cutting kerfs in the ends of the same, and inserting in the said kerfs strips or laths, substantially as set forth.

317,421. THILL-COUPLING. GEORGE WASHINGTON SIBOMS, Cooper's Plains, N. Y. Filed Feb. 19, 1885. (No model.)



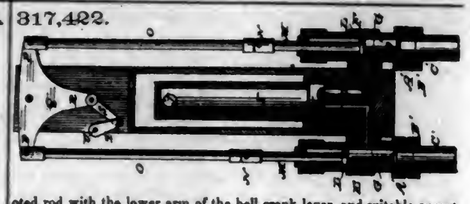
Claim.—1. The combination, in a thill-coupling, with a thill-iron and clip, of a headed pin bifurcated at one end and provided with a slotted key and retaining-pin, which passes through the end of the bolt and the slot in the key, a spring encircling the bolt adjacent to its head, and a flanged washer, whereby the said key may be moved on its pivot and then shifted transversely to enter said washer, substantially as shown, and for the purpose set forth.

2. In combination with the headed pin having a bifurcated end portion, a diagonally-slotted key pivoted between said end portion, a washer with raised edges adapted to receive said key, and a spring encircling said pin and bearing upon the head of the same, the parts being organized substantially as set forth.

317,422. DOUBLE-ACTING FORCE-PUMP. GEO. E. SPRINGER, South Whitley, Ind., assignor to John M. Briant and Eli L. Eberhard, same place. Filed June 3, 1884. (No model.)

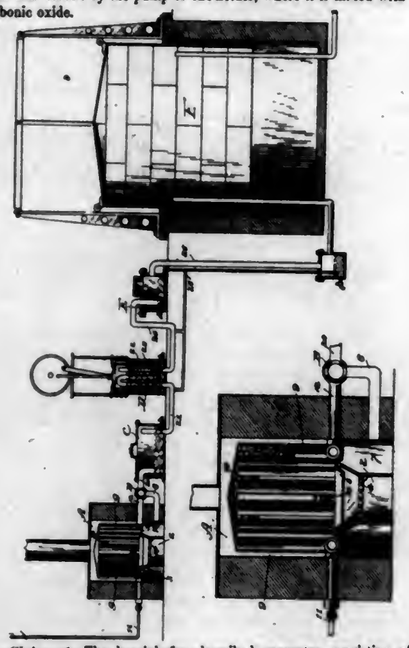
Claim.—In a double-acting force-pump, the combination of the base having angular passages, and upwardly-extending receiving-chamber, cylinders connected to the lower ends of the said passages, a suitable frame or casing inclosing the receiving-chamber, a bell-crank lever mounted in the upper end of the said frame, and having its upper arms connected by pivoted rods with the stems of the cylinder-pistons, a crank-shaft mounted in the upper end of the casing, and connected by a pivoted rod with the lower arm of the bell-crank lever, and suitable operating mechanism, substantially as set forth.

317,422.



317,423. APPARATUS FOR MANUFACTURING GAS. ROBERT B. STAPP, Denver, Colo., assignor, by mesne assignments, to the United States Carbonous Oxide Gas Company, same place. Filed Feb. 25, 1885. (No model.)

Brief.—Fuel is burned in the fire-pot for heating the oil-gas-generating-retorts, and part of the carbonic oxide from the fuel is drawn off by a pump and forced into the gas-holder. When the retorts are sufficiently heated, carbonic oxide is shut off from the holder and oil admitted to the retorts. The resulting hydrocarbon gas is drawn from the retorts and forced by the pump to the holder, where it is mixed with the carbonic oxide.



Claim.—1. The hereinbefore-described apparatus, consisting of a closed chamber provided with a suitable flue and fire-pot, a partition at or near the top of the fire-pot dividing the said chamber into an upper and lower part, and provided with an opening from the upper to the lower chamber, openings into the ash-pit to admit air to the grate below the fire-pot, retorts in the upper chamber, an oil-supply pipe connected with said retorts, and suitable pipes leading from the upper and lower chambers to a pipe connecting with suitable apparatus for purifying, moving, and receiving the gases, substantially as described.

2. In the described apparatus provided with a furnace and retorts, substantially as described, the combination of two chambers, one adapted to the generation of carbonic-oxide gas from the fuel, and the other to the generation of gas from hydrocarbon oil by means of the heat from the fuel, pipes leading from the two generating-chambers to a three-way cock, a pipe leading from the three-way cock to a pump consisting of an outer fixed and an inner movable part, and a pipe leading from the pump to a suitable receiver, all substantially as described.

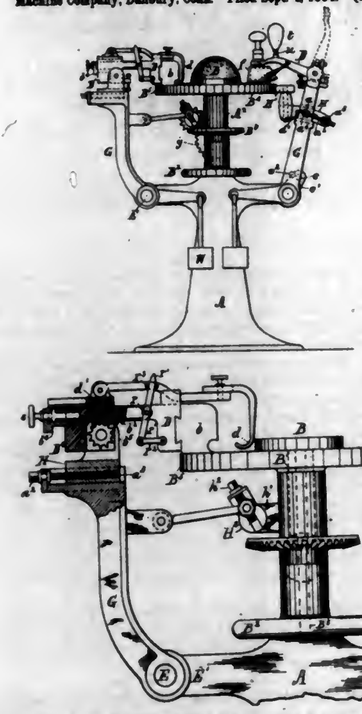
3. In the described apparatus provided with a furnace and retorts, substantially as described, the combination of two chambers, one adapted to the generation of carbonic-oxide gas from the fuel, the other to the generation of gas from hydrocarbon oil by means of the heat from the fuel, pipes leading from the two generating-chambers to a three-way cock, a pipe leading from the three-way cock to a pump consisting of an outer fixed and inner movable part, a pipe leading from the pump to a receiver, and suitable washing apparatus, all substantially as described.

317,424. SHARPENING-TOOL. NELLIE S. STOWELL, New York, N. Y. Filed Jan. 24, 1885. (No model.)



Claim.—An implement for sharpening scissors and shears, consisting of a single rod or bar with a roughened sharpening-surface, the end of said rod or bar being bent, substantially as shown and described, to form a guide for the flat side of the blade at a suitable angle to the sharpening-surface.

317,425. MACHINE FOR CURLING, FINISHING, OR TRIMMING HATS. EDMUND TWEEDY, Danbury, Conn., and GEORGE YULE, Newark, N. J., assignors, by direct and mesne assignments, to the Hat Curling Machine Company, Danbury, Conn. Filed Sept. 4, 1884. (No model.)



Claim.—1. The combination, with a rotating hat-clamp, of a rocking arm pivoted upon a fulcrum and having the operative tool or tools attached to its free or movable end, and means, independent of any contact with the hat, for oscillating or vibrating the arm on its pivot or fulcrum to and from the hat-clamp twice for each rotation of the hat.

2. The combination, with a rotating hat-clamp, of a plate to support the brim of the hat, and a rocking arm pivoted upon a fulcrum and having the operative tool or tools attached to its free or movable end, and means, independent of any contact with the hat, for oscillating the arm on its pivot or fulcrum to and from the hat-clamp twice for each rotation of the hat.

3. The combination, with a rotating hat-clamp, of a rocking arm pivoted upon a fulcrum and having the operative tool or tools pivoted to its free end, so as to rest freely upon the brim-plate, and means for oscillating the arm on its pivot or fulcrum to and from the hat-clamp twice for each rotation of the hat.

4. The combination, with a rotating hat-clamp, of a rocking arm pivoted to a fulcrum and having its free end adapted to vibrate to and from the hat-clamp, as described, a tool-carrier attached to the arm, a vibrator, and means, as shoe H, for adjusting the arm nearer to and farther from the hat-clamp, substantially as shown and described.

5. The combination, with a rotating hat-clamp, of a rocking arm pivoted to a fulcrum and having its free end vibrated to and from the hat-clamp, as described, a carrier-guide hung on a pivot at the free end of said arm, a carrier movably fitted to said guide, and means for moving the carrier in the guide to and from the hat-clamp.

6. The combination, with a rotating hat-clamp, of a rocking arm pivoted to a fulcrum and having its free end vibrated to and from the hat-clamp, as described, a carrier-guide hung upon a pivot at the free end of said arm, a carrier movably fitted to said guide, and means for moving the carrier in the guide to and from the hat-clamp, and a stop to limit such movement.

7. The combination, with a rotating hat-clamp, of a rocking arm pivoted to a fulcrum and having its free end vibrated to and from the hat-clamp, as described, a carrier-guide hung upon a pivot at the free end of said arm, a pinion applied to the said pivot, a tool-carrier movably held in the said guide and provided with a rack in contact with said pinion, a stop to determine the movement of the carrier, and means for rotating the pinion to set the tool in its operative position and to withdraw it from the hat-brim to remove the hat.

8. The combination, with a rotating hat-clamp and table for supporting the hat-brim, of a rocking arm pivoted upon a fulcrum and having its free end vibrated to and from the hat-clamp, as described, a tool-carrier pivoted upon the free end of the arm with the tool resting upon the brim-table, and an adjustable supporter for supporting the carrier and sustaining the tool at the level of the table.

9. The combination, with a rotating hat-clamp and brim-table, of a rocking arm pivoted at one end and having its free end vibrated to and from the hat-clamp, as described, a tool-carrier pivoted at the free end of the arm so that the tool may rest freely upon the hat-brim, and a removable weight affixed directly to the tool or carrier and operating to press the brim toward the table.

10. The combination, with the vibrating arm pivoted upon a fulcrum and having its free end vibrated to and from the hat-clamp, as described, of a shoe carrying a roller adapted to bear upon a cam, a screw for setting the shoe and roller in the required position, and a clamping-bolt for holding the shoe and arm rigidly together.

11. The combination, with a rotating hat-clamp, a brim-table, and a carrier vibrated to and from the clamp, as described, of a tool resting freely upon the hat-brim, and a hinged or universal joint between the tool and carrier.

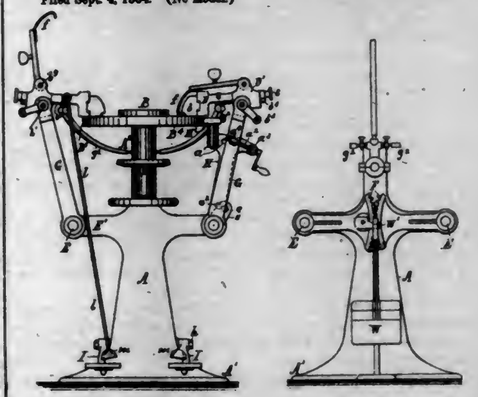
12. The combination, with a rotating hat-clamp, of a curling-tool carrier mounted in a vibrating carrier-guide, a breaker or inside tool pivotally connected with such guide, and a single handle for moving the carrier outward and the breaker inward to disengage both the tools from the curl when completed, substantially as herein described.

13. The combination, with a rotating hat-clamp, of a curling-tool carrier mounted in a vibrating carrier-guide, a breaker or inside tool pivotally connected with such guide, and means for moving the carrier outward and the breaker inward simultaneously by mechanism connected with both.

14. The combination, with a rotating hat-clamp, of a rocking arm pivoted upon a fulcrum and having the operative tool or tools pivoted to its movable end, means for vibrating the arm with the tools adjacent to the hat-clamp, means for pressing the arm constantly toward the clamp, and a catch operating to sustain the arm with the tool in an inoperative position.

15. In a hat-ironing machine, the combination, with a tool-carrier having the iron pivoted thereto, of an iron formed with an external opening in its rear side to admit a gas-flame, and a gas-burner fixed to the carrier entirely outside of the iron and adapted to project a jet of flame into the interior of the iron, substantially as and for the purpose set forth.

317,426. HAT-MACHINE TOOL-COUPLER. EDMUND TWEEDY, Danbury, Conn., and GEORGE YULE, Newark, N. J., assignors, by direct and mesne assignments, to the Hat Curling Machine Company, Danbury, Conn. Filed Sept. 4, 1884. (No model.)



317,426.



Claim.—1. The combination, with a rotating hat-clamp, of two vibrating tool-carriers, a coupler, substantially as described, adapted to vibrate with the said carriers, and a vibrator having a connection with one of said carriers and operating to vibrate them both to and from the hat-clamp.

2. The combination, with a rotating hat-clamp, of two vibrating tool-carriers mounted upon opposite sides of such clamp, means for vibrating one of the carriers to and from the hat-clamp automatically, and a vibrating coupler, operating as described, for uniting such carrier to the opposite one and imparting a coincident and similar vibrating movement thereto.

3. The combination, with a rotating hat-clamp, of two tool-carriers mounted upon vibrating rocking arms, coupled together by means substantially as described, and mechanism for vibrating one of the arms and tool-carriers to and from the hat-clamp.

4. The combination, with a rotating hat-clamp, of two vibrating tool-carriers mounted upon vibrating rocking arms, the arms being rigidly attached to rocking shafts E, and the shafts E being connected by a coupler, substantially as described, and means applied to one of the arms for vibrating the carriers automatically to and from the hat-clamp.

5. The combination, with a rotating hat-clamp, of two vibrating tool-carriers coupled together, substantially as described, means applied to one of the carriers to press the tools toward the hat-clamp, and means for vibrating one of the carriers to and from the hat-clamp.

6. The combination, with a rotating hat-clamp, of two tool-carriers mounted upon vibrating rocking arms, a coupler consisting of toothed segments connected with the arms, means for vibrating one of the arms and segments, and a weight or spring attached to the other segment to press the tools toward the clamp.

7. The combination, with a rotating hat-clamp and two vibrating tool-holders coupled together by a vibrating coupler, as described, of tool-carriers movably attached to the holders, means for moving the carriers upon the holders to and from the hat-clamp for removing and replacing the hat, and adjustable stops for setting the carriers upon the holders in the desired relation to one another when applied to the hat.

8. The combination, with a rotating hat-clamp, of two vibrating tool-carriers mounted upon opposite sides of such clamp, and coupled together by a vibrating coupler, as described, means for pressing the carriers toward the hat-clamp, as by a spring or weight, and a catch operating upon one of the carriers when withdrawn from the hat-clamp to lock both the carriers in an inoperative position.

9. The combination, with a hat-clamp and cam rotated upon the same axis, of vibrating rocking arms pivoted upon opposite sides of such clamp and cam, and coupled together by a vibrating coupler, as described, a shoe upon one arm to bear upon the cam, means—as a weight or spring—for pressing the arm with the shoe toward the cam, and a catch operating automatically upon one of the arms when withdrawn from the hat-clamp or cam to lock both the carriers in an inoperative position.

10. The combination, with the rotating hat-clamp and brim-table, of the vibrating rocking arm pivoted by one end, a tool-carrier movable to and from the hat-clamp in a guide pivoted upon the free end of the arm, and a treadle connected with the carrier for producing a temporary pressure.

11. The combination, with the tool-carrier, pivoted so as to rise and fall when in operation, and to be moved from the hat-clamp for removing the hat, of the treadle and the connection united thereto by a ball-and-socket joint.

12. The combination, with the pedestal A, of the bearing A^3 at the top, the hat-clamp and its spindle supported thereby, the bearings E' E' at the opposite sides, the rocking arms and tool-carriers supported thereby, and means for rotating the hat-clamp and vibrating the arms.

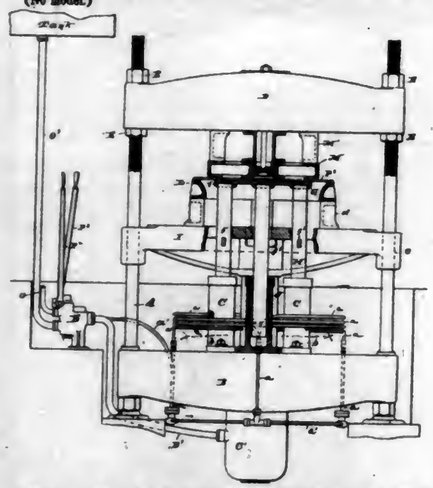
13. The combination and arrangement of the pedestal A, bearing A^3 at its top, supporting the hat-clamp, spindle, and cam, the bearings E' E' supporting the rocking arms and tool-carriers, the bevel-gears B^6 and B^7, the driving-shaft and clutch supported behind the pedestal, and the shifter C^7, extended to the front of the machine.

14. The combination and arrangement of the pedestal having the hat-clamp supported at the top, the two rocking arms pivoted at opposite sides of the clamp and in front of the pedestal, the rock-shafts extending to the rear of the pedestal, and coupled by the toothed segments, and the variable weight attached to one of the segments.

15. The combination, with a rotating hat-clamp and cam rotating therewith, of a rocking arm provided with a tool-carrier, and a vibrator-arm pivoted upon the same fulcrum as the rocking arm, and means for adjusting one arm to the other.

16. The means for holding and adjusting the cam-roller or shoe upon the rocking arm, consisting in the vibrator-arm pivoted upon the axis of the rocking arm, the setting-screw connected with both arms, and the clamping-bolt for binding the two arms together when adjusted.

317,427. PRESS FOR FLANGING SHEET METAL. RALPH HART TWEDDELL, Westminster, County of Middlesex, and JAMES PLATT and JOHN FIELDING, Gloucester, County of Gloucester, England. Filed Apr. 25, 1884. (No model.)



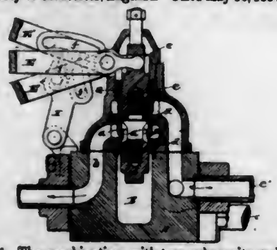
Claim.—1. In a flanging-press, the combination, with a cylinder and plunger, a valve-casing provided with three communicating ports, a pressure-supply pipe connected to one of said ports, a pipe from a waste-tank, connected to another of said ports, and a pipe from the press-cylinder, connected to remaining port, of a valve located within said valve-casing, for opening and closing communication between the pressure-supply and press-cylinder, and for opening and closing communication between the press-cylinder and waste-tank, and an automatically-operating valve for closing communication between the press-cylinder and waste-tank, substantially as set forth.

2. In a flanging-press, the combination, with a die, a movable matrix, and a holding-up plate, of laterally-adjustable cylinders and plungers moving in said cylinders and supporting the holding-up plate, substantially as set forth.

3. In a flanging-press, the combination, with a die, a movable matrix, and a holding-up plate, of a suitable pressure-supply, laterally-adjustable cylinders, the plungers of which support the holding-up plate, and flexible pipes connected to the adjustable cylinders, substantially as set forth.

4. The combination, with the die, follower, and matrix, of the small laterally-adjustable cylinders, the plungers of which are each provided with an opening, and cotters removably secured in said openings for engaging the follower, substantially as set forth.

317,428. HYDRAULIC VALVE. RALPH HART TWEDDELL, Westminster, County of Middlesex, and JAMES PLATT and JOHN FIELDING, Gloucester, County of Gloucester, England. Filed May 16, 1884. (No model.)

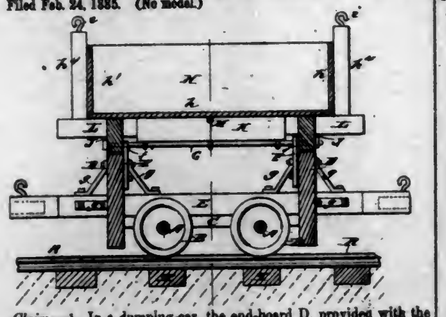


Claim.—1. The combination, with two valves situated side by side, each valve being provided with an independent lever, of a locking-plate or other device situated between the levers, substantially as set forth.

2. The combination, with two valves situated side by side, and independent levers for operating the valves, each lever being provided with a laterally-projecting lug, of a vibrating locking-plate located between the levers, and provided on opposite faces with an inclined and curved groove, in which the lugs on the levers rest and move, substantially as and for the purpose set forth.

3. The combination, with a series of valves arranged side by side and provided with a common supply or pressure port, independent discharge-ports, one or more exhaust-chambers, an independent piston for each valve, and a hand-lever for each piston, two of which are provided on their adjacent faces with a lug, of a vibrating locking-plate located between the levers having the lugs, and provided on its opposite faces with inclined and curved grooves, in which the lugs rest and move, substantially as set forth.

317,429. DUMPING-CAR. DAVID H. VALENTINE, Brooklyn, N. Y. Filed Feb. 24, 1885. (No model.)

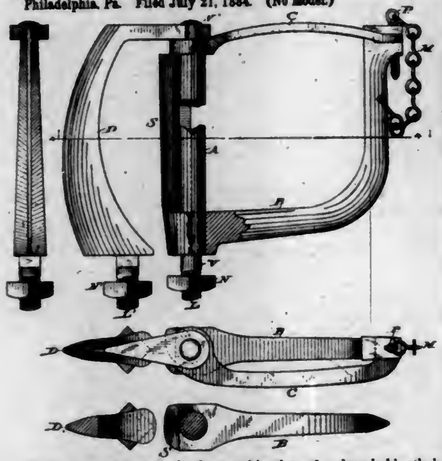


Claim.—1. In a dumping-car, the end-board D, provided with the notched or open bearing-plates F, in combination with the body H, having rod G, the upper edges of the boards D being beveled or inclined, as shown at *d*, whereby the car may be dumped in the ordinary way or lifted from the truck and dumped at a distance, substantially as described.

2. The box or body H, provided with suitable posts and hooks and with the central rod, G, at the bottom, in combination with the end-board D, provided with open bearing-plates for the rod G, substantially as and for the purposes set forth

3. The cross-pieces D, placed in front and rear of the wheels B, and framed into the truck and projecting below the other portion of the frame-work of the truck and adapted to rest upon the rails of the track in case of derailment of the car, substantially as described.

317,430. ROWLOCK FOR RACING-BOATS, &c. ELLIS F. WARD, Philadelphia, Pa. Filed July 21, 1884. (No model.)



Claim.—1. In a rowlock, the combination of a detachable thole-pin sustaining a yoke and lock-bar in swinging relation thereto, and being in turn sustained at its top by a detachable back brace, substantially as shown and described.

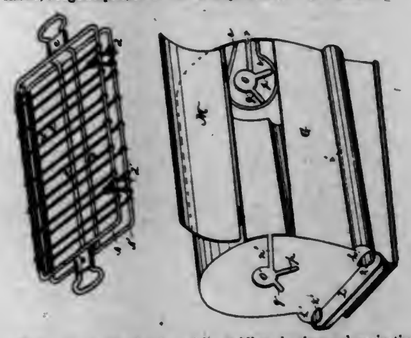
2. In a rowlock, the combination of the thole-pin and detachable lock-bar and yoke, the latter having an extended bearing over the whole length of the thole-pin, on the rear side of said thole-pin only, substantially as described.

3. In a rowlock, the combination, with a thole-pin attached directly to the gunwale or outrigger of a boat, of a yoke embracing directly the thole-pin, a lock-bar resting on the yoke and embracing the thole-pin near its top, in order that it may swing with the yoke, and a back brace attached to the upper end of the thole-pin and to the gunwale or outrigger and firmly holding the first-named parts together, all as substantially described.

4. In a rowlock, the combination, with the thole-pin attached directly to the gunwale or outrigger of a boat, and against which the oar has direct bearing, of a yoke for sustaining the oar embracing said thole-pin and resting directly on the gunwale or outrigger as it swings, substantially as described.

5. In a rowlock, the combination, with a thole-pin, of a yoke and lock-bar having pivotal connection with said thole-pin, a back brace firmly holding the aforesaid parts together in detachable relation, substantially as described.

317,431. APPARATUS FOR BROILING, TOASTING, &c. THEODORE ALLEN, Poughkeepsie, N. Y. Filed May 29, 1884. (No model.)

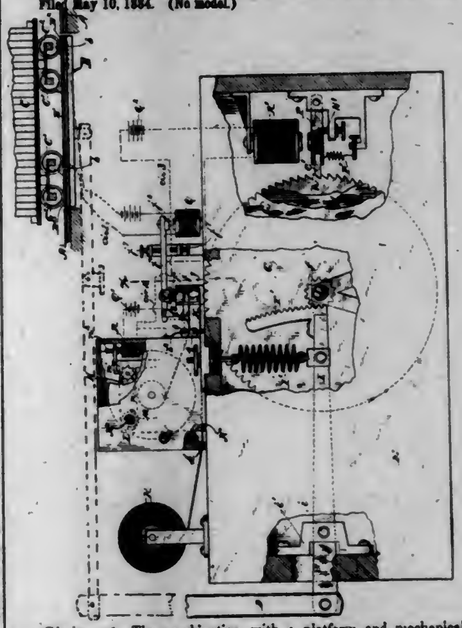


Claim.—1. In combination with a gridiron having end projections, as described, a casing provided with inclined slots forming bearings adapted to receive said projections, substantially as and for the purpose specified.

2. In combination with a gridiron having end projections, as described, a casing provided with slots forming end bearings therefor, and also provided with drip-channels and a receptacle, substantially as described, and for the purpose described.

3. In a casing having slotted ends adapted to receive the projecting ends of a gridiron, the interior ridges or wire bearings, *r*, substantially as and for the purpose set forth.

317,432. ELECTRIC WEIGHING AND RECORDING DEVICE. EDWARD H. AMET, Chicago, Ill., assignor to Herbert A. Streeter, same place. Filed May 10, 1884. (No model.)



Claim.—1. The combination, with a platform and mechanical weighing devices connected therewith, of a numbering-disk electrically operated as successive bodies move across said platform, substantially as specified.

2. The combination, with a platform, mechanical weighing devices

connected therewith, and with a weight-printing disk, of a printing-head electrically operated by means of the platform and by an object moving across the same, of a record-strip adapted to receive impressions from the weight-disk, substantially as specified.

3. The combination, with a platform and mechanical weighing devices connected therewith, and with a weight-indicating disk, of a number-indicating disk, a printing-head, and a record-strip-winding apparatus, each of which is electrically operated by an object moving over said platform, substantially as specified.

4. The combination of an electrical generator with a railroad-track of a platform having rails in section of such relative lengths and disposition that a conductor of an electrical current is formed by said sections and the wheels and trucks of electrical devices adapted to operate weighing devices, substantially as specified.

5. The combination of an electrical generator, a platform having sectional rails, a series of levers connected to mechanical weighing devices with an electrical device arranged in a circuit of which the rails of said platform form a part, and with printing devices connected with and operated by said electrical devices, substantially as specified.

6. The combination of an electrical generator, a platform comprising rails of the character described, and weight and numbering disks, means for rotating the same in accordance with the weight on said platform, and a printing-head electrically operated by a magnet in a circuit of which the rails on said platform form a part, substantially as described.

7. The combination of an electrical generator, a platform comprising rails of the character described, a magnet in circuit therewith, as specified, the armature of which is mounted on a lever forming a portion of a separate circuit connected with a separate magnet, the armature of which is mounted on a detent or escapement, a spring-motor, and a printing-head operated by the first magnet, and supplied with a record-tape after each impression made by the printing-head, substantially as specified.

8. The combination of an electrical generator with a platform comprising rails of the character described, a magnet in a circuit formed partly by the rails on said platform, oppositely-connected batteries connected to one of the adjusting-screws of said magnet, one of which oppositely-connected batteries is in circuit with a tape-feed-controlling mechanism, and the other of which oppositely-connected batteries is in circuit with mechanism for operating a numbering-wheel, substantially as specified.

9. In combination, the electrical generator, the record-tape, a reel for winding said record-tape, a spring-motor for operating said reel, a detent and escapement in connection with said motor and with a magnet for attracting said detent, rolls rotated by the record-strip, and provided with insulated points, a short circuit from said points into the circuit of the detent-operating magnet, and means, substantially as shown and described, for making and breaking the circuit in which said magnet is located, whereby the amount of tape wound by the spring-motor is regulated independently of the duration of the contact of the detent with the magnet, substantially as specified.

10. In a weight printing and recording mechanism, the combination of a disk having weight-indicating characters on its periphery, a printing-head arranged opposite thereto, a magnet for depressing said printing-head to take an impression or impressions, a recording-tape, and means for guiding the same between the printing-head and the disk, a spring-motor for feeding the tape, and a magnet for releasing the motor intermittingly, as specified.

11. In a weighing and printing indicating apparatus, the combination, with the weight and number indicating devices, of a ratchet, a pivoted pawl operating therewith, and a magnet adapted to operate the pawl against the tendency of a pawl-operating spring, substantially as specified.

12. In a weight and number printing apparatus, the combination of weight and number disks and a printing-head of a ratchet, a spring-supported printing-head, a spring-operated pawl, and a spring-motor-operated reel, with magnets arranged and connected substantially as specified to operate the pawl, the printing-head, and the motor-detent, substantially as specified.

13. The combination, with the platform comprising rails B, constructed as described, the circuit 1, the magnet Q, armature j^3, lever j^4, the printing-head J, and weight-disk G, provided with printing-surfaces, substantially as specified.

14. In combination with the track A, the platform B, the rails of which are formed of the sections B' B^2, and the magnet Q, connected to the platform by the circuit 1 of an armature connected with printing mechanism, substantially as shown and described.

15. The combination of the platform B, magnet Q, and circuit 1 with the weight-disk G, shaft F, pinion f, rack F', lever I, spring I', connecting-rod D, suitably connected with the platform, as described, and a printing-head, J, substantially as and for the purpose set forth.

16. The combination of the lever I, sector or rack F', pinion f, weight-disk G, disk H, ratchet h, pawl c', armature-lever P, spring P', magnets R' Q, and circuit 1, substantially as shown and specified.

17. The case L, provided with reel M, the spring-motor having the ratchet n, the detent n', magnet R, circuit 2, rolls t t, having insulated points t', and connection l^2, lever j^4, and magnet Q, substantially as shown and specified.

18. In a weighing, printing, and recording mechanism, the combination of a scale-beam and levers with spring I', the sector F', pinion f, weight-disk G, numbering-disk H, having weight and number indicating characters on their peripheries, ratchet f, printing-head J, arranged opposite thereto, and a magnet for depressing said printing-head, a recording-tape and means for guiding the same between the printing-head and the disks, a spring-motor for feeding the tape, and a magnet for releasing the motor intermittently, as specified.

19. The combination of an electrical generator, a scale-beam, a series of levers, and mechanical weighing devices, with electrical devices in circuit, and printing devices, and tape winding and guiding devices connected with and operated by said electrical devices, and weight and number disks and means for rotating the same, substantially as and for the purpose specified.

317,433. **DUST-PAN.** ELIZA C. ATWOOD, Geneva, N. Y. Filed Dec. 22, 1884. (No model.)

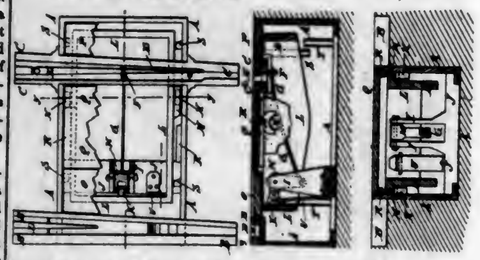


Claim.—1. A dust-pan having a "struck-up" bottom forming burrs upon its under side, and a covering for said struck-up portion, substantially as and for the purpose set forth.

2. A dust-pan having a struck-up bottom forming burrs upon its under side of different lengths, the shorter burrs being arranged near the front edge of the pan, and the longer burrs farther back, and a covering for said struck-up portion, substantially as and for the purpose set forth.

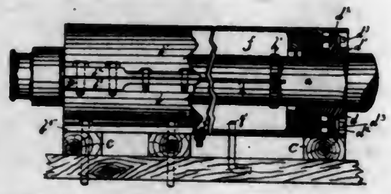
3. A dust-pan having a struck-up bottom forming burrs upon its under side of different lengths, the shorter burrs being arranged near the front edge of the pan and the longer ones farther back, and an inclined cover for said struck-up portion having a downwardly-projecting rear edge, and being secured to the pan, substantially as shown, and for the purpose set forth.

317,434. **RAILROAD-SWITCH.** ABRAHAM AYRES, New York, N. Y. Filed Feb. 19, 1885. (No model.)



Claim.—In a railroad-switch, the combination, with the stationary frame A and the rocking frame L, of a spring, U, substantially as herein shown and described, whereby the rebounding of the said rocking frame after being rocked is prevented, as set forth.

317,435. **MEANS FOR PROTECTING SHAFTS FROM HEAT.** ALEXANDER T. BALLANTINE, Geneva, Ohio, assignor to Ella B. Ballantine, same place. Filed Mar. 11, 1884. (No model.)



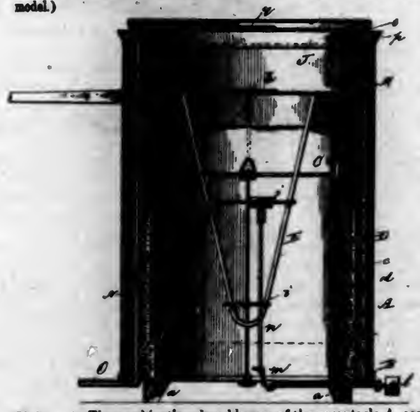
Claim.—1. As a means of protecting revolving shafting from heat, a surrounding chamber provided with inlet and outlet orifices and tight joints and bearings, through which chamber a limited quantity of water or other cooling agent is constantly passed, and an agitator or agitators attached to and revolving with the shaft and within the chamber, to throw the passing water or other cooling agent in contact with the walls of the chamber, to abstract and carry off their heat, substantially as shown and described.

2. The combination, with the shaft a and its attached agitators or paddles h h, of the sectioned chamber b b, with tight joints, and the sectioned tapering collar d d', adjustable in the socket e, to form a tight bearing for the shaft, as and for the purpose stated.

3. The combination, with the shaft a and its attached agitators or paddles h h, of the sectioned chamber b b', with tight joints, and the sectioned tapering collar d d', provided with the inlaid stripes d^4 d^5, of pine or other expansible material, as and for the purpose stated.

4. The tapering sectioned collar d d', provided with the adjusting-lugs d^2 d^3, for the reception of the adjusting-bolts d^2 d^3, and having its tapering surface provided with the longitudinal inlaid strips of pine or other expansible material, as and for the purpose stated.

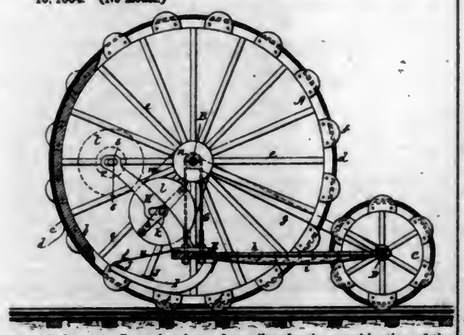
317,436. **BLOWER.** SAMUEL BARROW, Kempton, Ind., assignor to the Sheet Iron Bellows Company, same place. Filed Aug. 9, 1884. (No model.)



Claim.—1. The combination, in a blower, of the receptacle A, containing a sealing-fluid, and cylinder D, having its lower portion immersed in said sealing-fluid, and having a head provided with an opening covered by a valve, and cylinder c, incasing the cylinder D, having a head provided with an opening covered by a valve, and a discharge-passage located external to said cylinder c, and means for reciprocating said cylinder D, substantially as set forth.

2. The combination, in a blower, of a receptacle provided with two independent annular chambers containing a sealing-liquid, a cylinder, D, partly immersed in the liquid in the inner chamber, and an incasing-cylinder, M, immersed in the liquid of the outer chamber, a valve, h, covering an opening in the head of the cylinder D, a cylinder, c, having a cap, J, bearing on a packing, p, and having a valve, q, covering an opening in said cap, a pipe, N, located in the second chamber, and devices for reciprocating the cylinder D, substantially as set forth.

317,437. **HAND-CAR.** DAVID H. BEACH, Litchfield, Conn. Filed Sept. 10, 1884. (No model.)

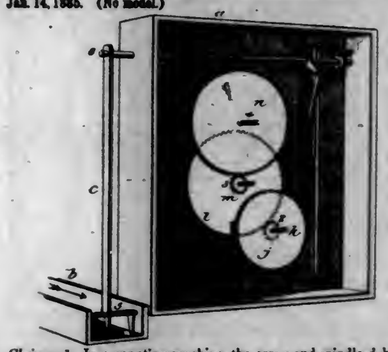


Claim.—1. In a hand-car for railroads, the combination of the drive-wheels A A and their fast axle B, the loose rear wheels, C C, and their axle D, the connections g g, the suspension-straps G, the attached suspension-seat E, and the hand driving mechanism connected with said seat, and one or more belts or bands for communicating motion to the axle of the driving-wheels, essentially as shown and described.

2. The adjustable hinged foot-rest I J u, in combination with the suspension-seat E, the suspension-straps G, the axle B, and the drive-wheels A A of the hand-car, substantially as specified.

3. The poles or reaches k k and their connecting-covering i, in combination with the axle D of the wheels C C and the suspension-seat E of the hand-car, essentially as described.

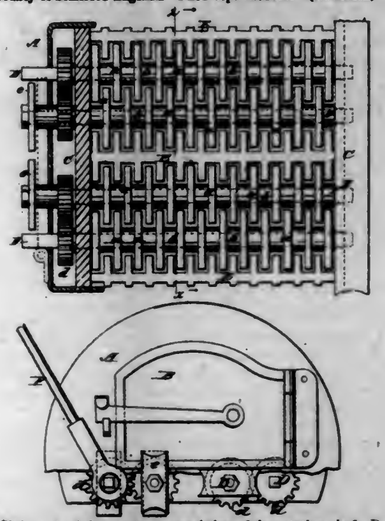
317,438. **COUNTING ATTACHMENT FOR MACHINES.** ARTHUR M. BURNHAM, Gardiner, assignor to Joseph R. Bodwell, Hallowell, Me. Filed Jan. 14, 1885. (No model.)



Claim.—1. In a counting-machine, the arm c and spindle d, having the arm f thereon, in combination with the rod e and wheel j, connected and operated by the link g, spring h, and pawl i, as described.

2. In a counting-machine, the arm c, spindle d, with arm f thereon, rod e, and wheel j, all connected and operating as set forth, in combination with suitable indicators, for the purposes specified.

317,439. **GRATE-BAR FOR FURNACES.** JAMES BURRELL, Bristol, County of Somerset, England. Filed Sept. 29, 1884. (No model.)



Claim.—1. A furnace-grate consisting of the rotating shafts D, provided with cross-bars a, and the intermediate fixed bars, E, combined substantially as described.

2. In a grate, the combination of the plates e with the rotating shafts D and fire-door B, substantially as and for the purpose specified.

317,440. **PROCESS OF PRESERVING WOOD.** JOSEPH P. CARD, St. Louis, Mo. Filed Apr. 30, 1883. (Specimens.)

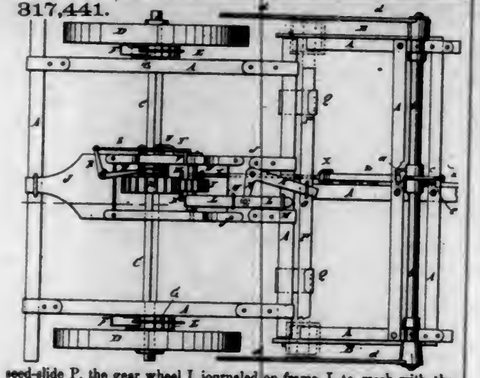
Claim.—1. The herein-described mode of introducing dead-oil into wood for its preservation, which consists of introducing dead-oil into the wood, and then, by the introduction of a second fluid into the wood, causing the dead-oil to be distributed farther into the wood.

2. The herein-described mode of introducing liquid dead-oil into wood for its preservation, which consists in introducing liquid dead-oil into the wood, and then, by the introduction of a soluble antiseptic solution suitable for wood-preserving in conjunction with dead-oil, causing the dead-oil to be distributed farther into the wood, substantially as described.

317,441. **CHECK-ROW CORN-PLANTER.** DARIUS M. CULVER, Tipton, Iowa, assignor of one-half to Reuben Owen, same place. Filed Nov. 15, 1884. (No model.)

Claim.—1. In a check-row corn-planter, the frame A, axle C, drive-wheels D, the gear-wheel H and a lever for sliding it, the frame J, the

317,441.



seed-slide P, the gear wheel I, journaled on frame J, to mesh with the gear H, and the pins K W on the opposite side of said gear I, the forked bar L, having the ends of its fork bent inward to engage pin K, lever N, connecting slide L with the seed-slide, the spring-operated rock-shaft *b*, journaled in front of the seed-slide and having the marker-arms *d*, the sliding rod X, connected to the rock-shaft at its forward end, and bent at its rear end to engage pins W, substantially as set forth.

2. In a check-row corn-planter, the combination of the frames A J, wheels D, axle C, gear-wheels H I, a lever for throwing said gears into and out of engagement, pins W on the face of the gear I, the rod X, bent at its rear end to extend into the path of the pins W, the rock-shaft *b*, having the marker-arms *d*, the spring *e*, secured to the frame and to the rock-shaft for raising the arms *d*, the arm *a*, projecting from the rock-shaft, and connected to the rod X, substantially as set forth.

317,442. DEVICE FOR JOINTING, GAGING, AND SETTING SAWS. VIRGIL T. CUMMINGS, Groveton, Tex. Filed Apr. 15, 1884. (Model.)



Claim.—1. In a saw-jointer and gage, the herein-described body plate or block, having laterally-extending arms, a groove extending entirely through the said arms, overhanging flanges extending from the said arms, a slot in the bottom of the groove forming an open space between the flanges, and a flat spring secured in the groove, facing the flanges, substantially as and for the purpose set forth.

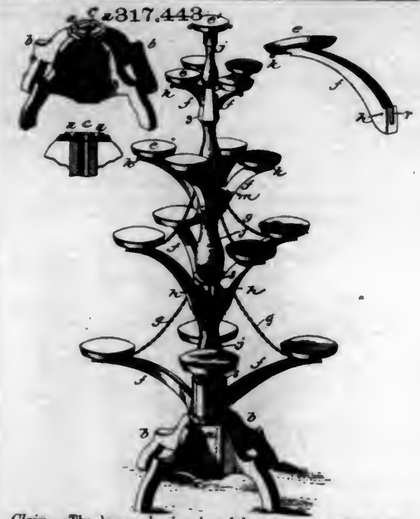
2. The combination, with the body-plate having the arms or extensions *a a*, flanges B B, groove D, slot F, and spring G, as herein described, of the drag or gage bar, the sides of which are provided with shallow grooves of unequal depth, substantially as and for the purpose set forth.

3. The combination of the body-plate provided on one side with outward-extending studs, and a longitudinal groove formed between said studs, of the wedge-shaped slotted plates, provided, respectively, with a stud and an adjusting-screw, and a set-screw by means of which said plates are secured adjustably in the groove of the body-plate, substantially as and for the purpose herein set forth.

4. The body-plate provided with setting-notches in one of its edges, and provided on one side with outward-extending lugs and a longitudinal groove, in combination with the wedge-shaped slotted plates, seated adjustably in the said groove, and provided, respectively, with a gage-lug and an adjusting-screw, substantially as herein set forth.

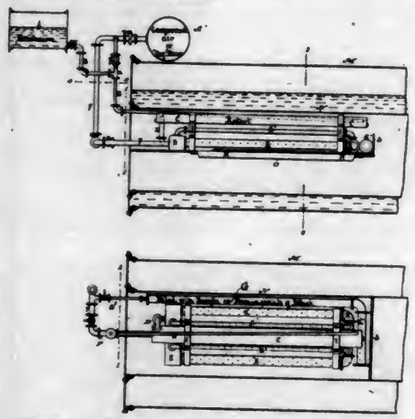
5. The herein-described improved combined implement for jointing, gaging, and setting crosscut-saws, the same comprising a body-plate having laterally-extending flanged arms, a groove extending through said arms, and adapted to receive a drag or gage bar or a file, a holding-spring secured in the groove, lugs extending from one side of the body-plate, wedge-shaped plates secured adjustably in a longitudinal groove between said lugs, and provided, respectively, with a gage-lug and an adjusting screw, said body-plate being provided with set-notches in one of its edges, and with an open space separating the flanges of its laterally-extending arms, substantially as and for the purpose herein shown and specified.

317,443.



Claim.—The base *a*, having legs *b b*, aperture *c*, and anti-friction balls *d d*, in combination with the standard *j*, having octagonal portions *s s* at suitable distances throughout its length, four brackets, *f f*, having shelves *e e*, said brackets being secured to said octagonal portions at intervals of ninety degrees, chains *m m*, attached to the outer ends of each bracket and to the standard, and hooks *k k*, attached to the outer ends of each bracket, substantially as set forth.

317,444. APPARATUS FOR BURNING VOLATILIZABLE HYDROCARBONS. HECTOR DE BAY and CHARLES DE ROSSETTI, Cairo, Egypt. Filed Oct. 22, 1884. (No model.)



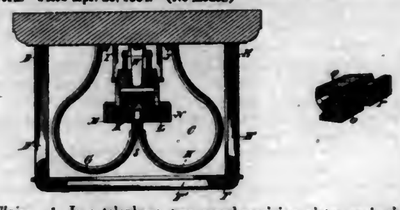
Claim.—1. The combination of the elongated retort C, the perforated pipes K K', the collecting-chamber E, connected with said perforated pipes, the pipe D, connecting C and E, the pipe B, arranged to supply liquid hydrocarbon to the retort, the pipe F, arranged to supply forced or compressed air to the perforated burner-pipes, and the branch air-pipe which connects the pipes B and F, whereby a portion of the air-blast is utilized for injecting the hydrocarbon, substantially as set forth.

2. The combination, with the air and hydrocarbon reservoirs, of the elongated retort C, the supply-pipe B, extending the length of said retort and connected with it at its inner end, the pipe D, which connects the outer end of the retort with the chamber E, the said chamber, the perforated pipes K and K', arranged under the retort and connected with said chamber E, and the air-pipe F, which connects the chamber E with the air-reservoir, whereby the blast of air is supplied directly to the perforated burner or jet tube, substantially as set forth.

3. The combination, with an apparatus for burning hydrocarbons, constructed substantially as described, of the tube or chamber G, containing permanganate of potash or its substantial equivalent, the perforated cross-pipe G', and means for forcing a blast of air through said pipes, substantially as and for the purposes set forth.

317,448. FLOWER-STAND. PETER J. CUNNINGHAM, Amber, Iowa. Filed June 9, 1884. (No model.)

317,445. TELEPHONE-TRANSMITTER. GEORGE W. DRAWBAUGH, Eberley's Mill, Pa., assignor to the People's Telephone Company, of New York. Filed Apr. 25, 1884. (No model.)



Claim.—1. In a telephone, two sound-receiving plates projecting from and each rigidly secured at one edge to a support and bent or formed so that their opposite free edges are approximated, a fixed electrode supported upon each of said plates at or near the approximated edges, the said electrodes not being in contact, and an electrode resting by gravity upon and bridging the fixed electrodes, substantially as described.

2. In a telephone, two sound-receiving plates projecting from and each rigidly secured at one edge to a support, a fixed electrode attached to each of said plates, the said electrodes not being in contact, and a movable electrode resting by gravity upon and bridging said fixed electrodes, substantially as described.

3. In a telephone, two sound-receiving plates projecting from and each rigidly secured at one edge to a support and having their opposite free edges bent inward to approximate them and then bent outward at right angles to form flanges, the said flanges lying in the same vertical plane, in combination with fixed electrodes attached to each of said flanges and not in electrical contact with each other, and a loose electrode resting by gravity upon and bridging the fixed electrodes, substantially as described.

4. In a telephone, two sound-receiving plates projecting from and each rigidly secured at one edge to a support and not in contact with each other, a fixed electrode attached to each of said plates, and a loose electrode resting by gravity upon and bridging the fixed electrodes, the said plates being curved, bent, or formed to surround the said electrodes, substantially as described.

5. In a telephone, and in combination with resistance-varying electrodes, two sound-receiving plates projecting from and each rigidly secured at one edge to a support and bent or formed so that their opposite free edges are approximated and a cushion of yielding elastic material interposed between said approximated edges, substantially as described.

6. In a telephone, two sound-receiving plates projecting from and each rigidly secured at one edge to a support and bent or formed so that their opposite free edges are approximated, resistance-varying electrodes arranged, substantially as set forth, upon said plates, two platforms attached to the aforesaid support projecting, respectively, above and below said plates, and a layer of yielding elastic material interposed between said platforms and the adjacent edges of said plates, substantially as described.

7. In a telephone, two diaphragms of elastic material projecting from a support and each rigidly secured at one end thereto, a fixed electrode supported by each diaphragm at or near its free end, a third electrode loosely connected to the diaphragm-support between the diaphragms and resting by gravity upon and bridging the fixed electrodes, substantially as described.

8. In a telephone, a support, two sound-receiving plates projecting therefrom and secured thereto at one edge, the said plates not being in contact, two platforms projecting from said support, respectively, above and below said plates and at right angles thereto, layers or pieces of yielding material interposed between the proximate free edges of the plates and between the plates and the platforms, and resistance-varying electrodes, as described, the said plates being so bent or curved as with the other parts set forth to form a case or covering wholly inclosing the electrodes, substantially as set forth.

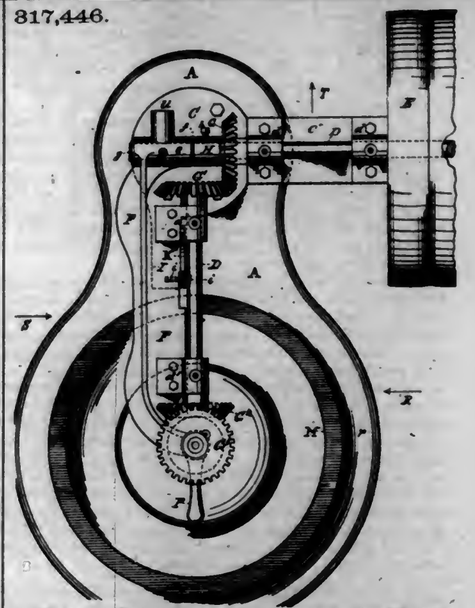
9. In a telephone, the combination of the support A, sound-receiving plates G and H, attached thereto, electrodes O P, secured to said plates, pivoted electrode Q, yoke-piece V, pivoted or hinged to the support A, and circuit-connections, substantially as described.

10. In a telephone, the combination of the support A, sound-receiving plates G and H, attached thereto, electrodes O P, secured to said plates, pivoted electrode Q, yoke-piece V, pivoted or hinged to the support A, and platforms B and C, substantially as described.

11. In a telephone, the combination of the support A, sound-receiving-plates G and H, attached thereto, electrodes O and P, secured to said plates, pivoted electrode Q, yoke-piece V, platforms B and C, and side pieces, D, E, and F, substantially as described.

317,446. ICE-CREAM FREEZER. JOHN H. DUNBAR, Philadelphia, Pa., assignor to Clement & Dunbar, same place. Filed Mar. 20, 1885. (No model.)

317,446.



Claim.—1. The weighted locking and supporting lever K, having the notches *k k'* upon its edge, substantially as shown and described, for the purpose set forth.

2. In an ice-cream freezer, the arbors D D', having upon their contiguous ends the bevel gear-wheels G G' at right angles to each other, with their centers in the same horizontal plane, for imparting rotary motion through the train of gear-wheels G^2 G^3 G^4 to the can and beater, substantially as described.

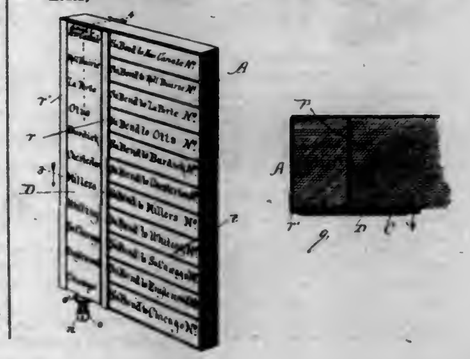
3. The frame F, carrying the counter-shaft D', and bevel-wheel G', and bearing *e*, in combination with the pin *f* and stud H of the cap-plate C, whereby the said frame may be raised or lowered upon its pivotal point during the revolutions of the shafts carrying the motive power, substantially as described.

4. The base-plate A, having the conical projection *m*, provided with the fan-shaped passage *n* and central orifice, *p*, substantially as and for the purpose shown and described.

5. The base-plate A, constructed as shown and described, in combination with the boss or stud *p'* of the bottom of the tub of an ice-cream freezer, for the purpose set forth.

6. The cap-plate C, provided with the extension *c*, carrying the shaft D, arm I, having the stud *l* and tongue *l'*, and the pivoted weighted lever K, the stud H, with the pin *f*, in combination with the frame F, carrying the counter-shaft D', whereby said parts may be firmly locked for operating the can and beaters of an ice-cream freezer, or held in an elevated position to permit examination of the cream or the removal of a tub, by the notches *k k'* of the lever engaging with the lip *q* of the rib of the frame F, substantially as shown and described.

317,447. CONDUCTOR'S TICKET-CASE. SAMUEL ENGEL, Chicago, Ill., assignor to Myrtilla E. Engel and Hortatore N. Engel, both of same place, and Floriam Seixas, South Bend, Ind. Filed Sept. 13, 1884. (No model.)

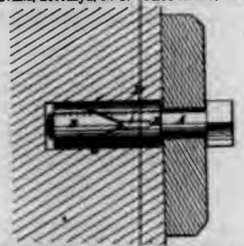


Claim.—1. A conductor's ticket-case comprising a box provided toward one side with a compartment to receive the stubs attached to tickets placed in the box, a retaining-strip to fit within the compartment and engage with the stubs to secure them from displacement, and a cover for the compartment, provided with means for locking it in its position, as and for the purpose set forth.

2. A device for use in producing correct accounting by passenger-train conductors for cash-fares and tickets received by them, comprising boxes A, divided transversely into compartments *s*, containing numbered checks B, provided with distinguishing-marks to denote starting-points and destinations, and attached to stubs *q*, lying within the said boxes beyond the said compartments *s*, a plate, C, to rest upon the said stubs, and provided with projections *p* to penetrate the said stubs, a plate, D, to cover the plate C, and means for locking the plate D to prevent its removal, substantially as described.

3. A device for use in producing correct accounting by passenger-train conductors for cash-fares and tickets received by them, comprising boxes A, divided transversely into compartments *s*, containing numbered checks B, provided with distinguishing-marks to denote starting-points and destinations, strips *r* at one end of the said compartments, and secured toward their extremities to the opposite ends of the boxes A, and provided each with a longitudinal groove to lie opposite a similar groove formed on the inner face of the side of each box, stubs *q*, attached to the checks B, and lying within the spaces formed by a strip, *r*, and side of each box, plates C, to rest upon the said stubs, and provided each on its under surface with projections *p* to penetrate the said stubs, a plate, D, for each box, to be inserted within the grooves provided in the strip *r* and the side of the said box, the said plate having upon it distinguishing-marks to correspond with the said distinguishing-marks upon the checks B, and provided with a perforated tongue to project through a slit formed in the end of the box A, and a padlock, *n*, hanging from the said tongue, substantially as and for the purpose set forth.

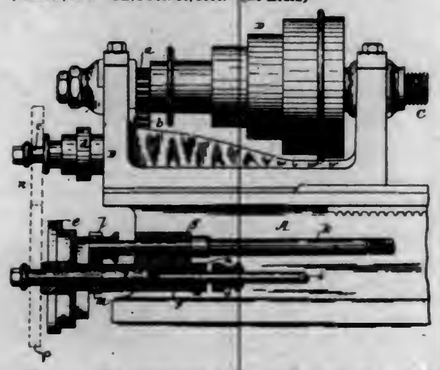
317,448. EXPANSION-FASTENING FOR SCREWS AND BOLTS. FREDERIC H. EVANS, Brooklyn, N. Y. Filed Mar. 5, 1885. (No model.)



Claim.—1. In an expansion-fastening for bolts and screws, the expansion-jaws C, made in one piece, with a solid annular base or connection, substantially as herein shown and described, whereby the said jaws will not be liable to get out of place or separated, as set forth.

2. The combination, with the bolt A and wedge-nut B, of the jaws C, made in one piece, with a solid annular base or connection, substantially as herein shown and described.

317,449. FEED MECHANISM FOR LATHES. JOSEPH FLATHER, Nashua, N. H. Filed Feb. 16, 1885. (No model.)



Claim.—1. The combination of the divided feed rod *f i* with means to interlock or liberate the same, and the screw-cutting feed-rod *k*, with gears adapted to be enmeshed and separated, and to impart the rotation of section *f* to said rod *k*, substantially as specified.

2. The combination of divided feed-rod *f i*, clutch-collars *h j*, respectively mounted thereon and adapted to be interlocked or separated, screw-cutting feed-rod *k*, and gears *l m*, respectively mounted thereon and adapted to be enmeshed or disconnected, substantially as specified.

3. The divided feed-rod formed with section *i*, telescoped or inserted in a longitudinal cavity in section *f*, said sections being respectively provided with clutch devices adapted to interlock the same and secure their coincident rotation, substantially as specified.

4. The combination of a feed-rod formed in two sections with devices to interlock or separate the same, and a screw-cutting feed-rod, with gears arranged thereon and upon the constantly-operative section of said divided feed-rod, and arranged to be enmeshed or separated at will, substantially as specified.

5. The combination of a feed-rod, constructed and arranged to be driven at will, either by a belt or by gears, and a screw-cutting feed-rod, combined and arranged to be actuated by said feed-rod, substantially as specified.

6. The combination, with the two feed-rods, of gear respectively mounted thereon and arranged to be enmeshed or disconnected, whereby one rod may at will be driven by the other or disconnected and remain idle while the other is operative, substantially as specified.

7. The combination of the two feed-rods with means whereby one may at will be driven through or by the other, the rod thus driving the other being formed in two sections or lengths and provided with coupling devices, whereby its sections may at will be secured together or disconnected, substantially as specified.

317,450. PUSH-BUTTON. THOMAS C. FRENYEAR, Boston, assignor of one-half to Lloyd E. Rasse, Attleborough, Mass. Filed Aug. 29, 1884. (No model.)



Claim.—1. The combination, with a flat metal plate adapted to be secured to the wall or desk, of an exterior distinctive plate and a push-button case passing through holes in the plates and securing them together, substantially as described.

2. The combination, with a perforated metal plate adapted to be secured to the wall or desk, of perforated exterior plate and a push-button case having an exterior projecting flange, the construction being such that the flange of the case secures the exterior plate to the interior plate, substantially as described.

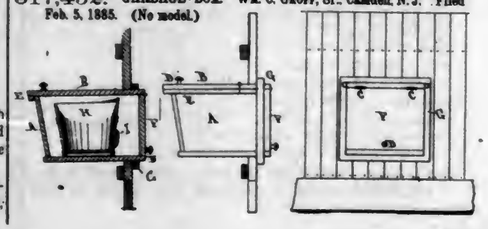
3. The combination, with an interior flat plate adapted to be secured to the wall, of an exterior transparent plate secured thereto, one of which is coated or colored, substantially as described, and one or more push-buttons passing through both plates, substantially as described.

317,451. BUTTON-HOOK HOLDER FOR SHOES. MARIE F. FREY, Indianapolis, Ind. Filed Feb. 14, 1885. (No model.)



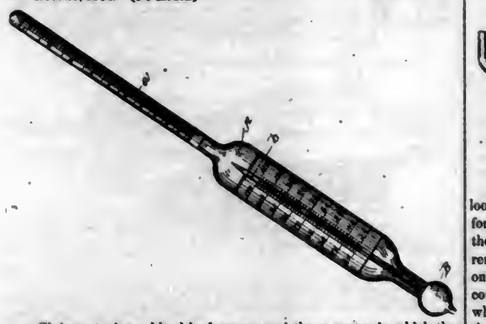
Claim.—A shoe provided with a band on the outer surface of the leg portion, and having an incision below the band, substantially as herein shown and described.

317,452. GARBAGE-BOX. WM. C. GROFF, Sr., Camden, N. J. Filed Feb. 5, 1885. (No model.)



Claim.—A garbage-box consisting of a box, A, having a lid, B, provided with a depending edge, E, side door, F, encircling strip G, receptacle H, and chain I, attached to the receptacle and to the interior of the box, the whole combined and arranged to be placed in a fence, substantially as shown and described.

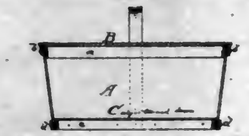
317,453. HYDROMETER. HENRY GUTH, New York, N. Y. Filed Nov. 20, 1884. (No model.)



Claim.—1. A combined hydrometer and thermometer in which the bulb containing the mercury of the thermometer serves also as the ballast for the combined instrument.

2. A combined hydrometer and thermometer in which the lower portion of the outer casing is formed into a bulb containing mercury, and having an upwardly-projecting thermometer-tube inclosed by the said casing and bearing the scale of the thermometer.

317,454. BASKET. WILLIAM M. HAMILTON, Euclid, Ohio, assignor of one-half to Edward D. Pelton, same place. Filed Sept. 26, 1884. (No model.)



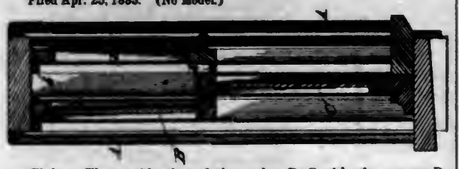
Claim.—In splint baskets, the combination of body A, having inside band, *a*, flush with top edge of splints, the outside band, *b*, extending above said splints and band, and the cover B, fitted in said band *b*, and the lower edge of sides having inner and outer hoops or bands, *c d*, and the bottom C, having its edges bent and secured between said hoops, substantially as described.

317,455. BASKET. WILLIAM M. HAMILTON, Euclid, Ohio, assignor of one-half to Edward D. Pelton, same place. Filed Feb. 6, 1885. (No model.)



Claim.—The combination, with basket A, provided with hoops or bands *a b*, of the cross-strips B B, arranged to tuck under the said hoops or bands, as shown and described.

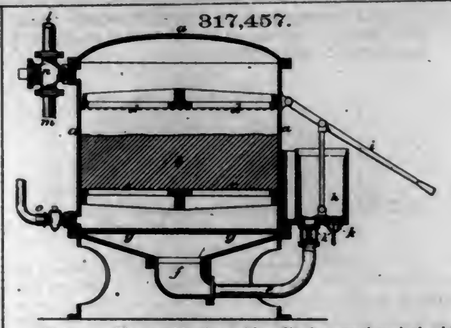
317,456. WINDOW-SCREEN. ALEXANDER H. HILL, Oskaloosa, Iowa. Filed Apr. 25, 1883. (No model.)



Claim.—The combination of the sashes B C with the screen D, having at the top and bottom moldings *b*, upon the outside thereof, to be operated in connection with the rails of the lower sash to form a cut-off, as set forth.

317,457. APPARATUS FOR CLEANING THE FILTERING MEDIA OF FILTERS. JOHN E. HODGKIN, London, and EDWARD PERRETT, Westminster, England. Filed Sept. 25, 1883. (No model.) Patented in England Apr. 24, 1883, No. 2,060.

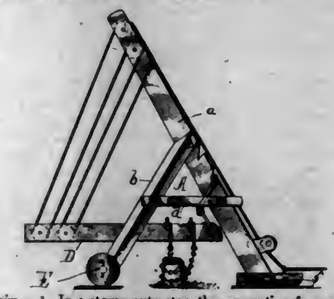
317,457.



Claim.—1. The combination, with a filtering-vessel packed with loose sand, charcoal, or other like filtering materials supported on a perforated plate or wire-gauze, of an air-forcing apparatus and pipe leading therefrom to beneath the said filtering materials, a pipe supplying a current of washing-water through the said filtering materials, and a washout-pipe situated above such materials to insure their being always covered with water in the filter during the operation of cleaning, the whole being combined and arranged to operate together substantially in the manner and for the purpose hereinbefore specified.

2. The combination, with a filtering-vessel packed with loose sand, charcoal, or other like filtering material, of a perforated or wire-gauze diaphragm supporting the same off of the bottom of said vessel, a forcing apparatus connected to said vessel beneath the filtering material by a pipe for forcing an elastic fluid in the form of bubbles through said filtering material, a pipe supplying a reversed current of washing-water through the said material, and a washout-pipe situated above said material to insure its being always covered with water in the filter during the operation of cleaning, substantially as shown and described.

317,458. STUMP-EXTRACTOR. KINSEY S. HUNT, North Branch Mich. Filed Nov. 1, 1884. (No model.)



Claim.—1. In a stump-extractor, the supporting-frame having the operating-lever adjustably attached thereto and provided with means, substantially as described, for operating the same.

2. In a stump-extractor, the supporting-frame having secured thereto the operating-lever, the inner end of said lever being vertically adjustable, substantially as described, and means for operating the said lever.

3. In a stump-extractor, the supporting-frame having a vertically-adjustable ring secured thereto, the inner end of the said operating-lever being connected to the said ring, and means for operating the said lever.

4. In a stump-extractor, the main beam A, suitably supported and provided with notches, a ring adapted to rest within one of the said notches, the operating-lever secured to said ring, and means for operating the lever.

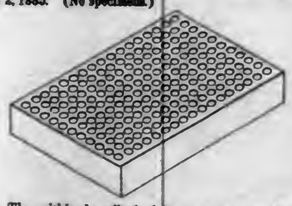
5. In a stump-extractor, the supporting-frame, the lever pivotally connected thereto and having depending ropes and chains connected thereto, and longitudinally adjustable thereon means for operating the lever.

6. In a stump-extractor, the frame consisting of the main beam A, having the supporting-braces mounted upon the cross-bar having wheels, and the lever pivotally connected thereto and provided with means for operating the said lever.

7. In a stump-extractor, the supporting-frame having a vertically-adjustable ring, or its equivalent, having connected thereto the operating-lever, having the depending ropes or chains for attachment to the stump longitudinally adjustable thereon, and means for operating the said lever.

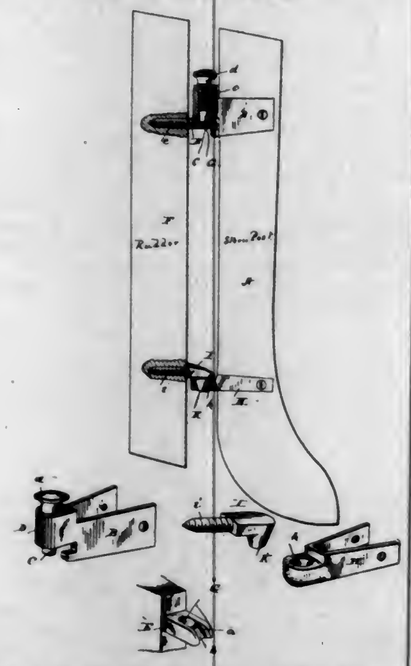
8. In a stump-extractor, the main frame having a pulley or pulleys secured at its upper end, and the operating-lever adjustably attached to said frame and provided with pulleys, and a rope passing over the pulleys upon the upper portion of the frame and end of the operating-lever, substantially as described.

317,459. PERFORATED TILE FOR FURNACE-LININGS. WILLIAM HUSTON, Wilmington, Del., assignor to Jabez C. Gilbert, Brooklyn, N. Y. Filed Feb. 2, 1885. (No specimens.)



Claim.—The within-described slab for locomotive fire-boxes and other furnaces, the said slab consisting of glass-makers' clay, and being perforated, as and for the purpose set forth.

317,460. RUDDER-CONNECTION FOR BOATS. EDGAR D. JOYNER, Glass Falls, N. Y. Filed Nov. 20, 1884. (No model.)



Claim.—1. In a rudder attachment for boats, the combination, with the spring-bolt connection B, of the female socket E, having inclined portion *b* and bolt-hole G, as and for the purpose set forth.

2. In a rudder attachment for boats, the combination, with the connection B, having bolt C, of the socket E, having channel *a*, incline *b*, and bolt-hole G, as and for the purpose set forth.

3. In a rudder attachment for boats, the combination, with the connection B, having bolt C, spiral spring *c*, and handle *d*, of the socket E, having incline *b* and hole G, as and for the purpose set forth.

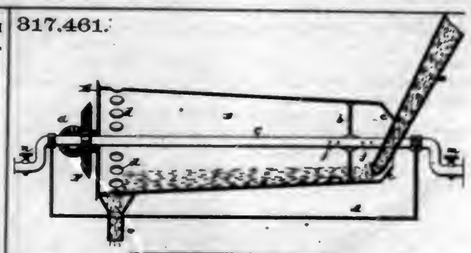
4. In a rudder attachment for boats, the combination, with the socket H, having conical recess *h*, of the stud I, having the depending conical lug K, as and for the purpose set forth.

5. In a rudder attachment for boats, the combination, with the spring-bolt connection B and female socket E, of the socket H and stud I, substantially as shown and described.

317,461. APPARATUS FOR STEAMING GRAIN. WM. H. JUSTUS, Massillon, Ohio. Filed Nov. 15, 1884. (No model.)

Claim.—The combination, with a box or casing and a perforated steam-pipe secured thereto, of a tapering conduit open at one end and closed at the other, and provided with a series of perforations near the closed end, gearing connected with the conduit for rotating the same, and a spout, the lower end of which passes into the conduit through the open end thereof, substantially as set forth.

317,461.



317,462. EGG-TESTER. WALLACE KIRKPATRICK, Alba, Ill. Filed Mar. 17, 1885. (No model.)



Claim.—In an egg-tester, the combination of a wire loop or support with the tester, consisting of a lower portion, having a perforated shoulder upon its top, and the upper portion or shield, which extends along the side of the chimney, substantially as shown and described.

317,463. LEATHER-CUTTING MACHINE. DAVID KNOX, Lynn, Mass. Filed Feb. 24, 1885. (No model.)



Claim.—1. In a leather-cutting machine in which are combined a cutting-block, the alternately-operating curved knives, the pivoted frames carrying said knives, arranged to permit the knives to strike the bed at different points, the mechanism for oscillating said frames simultaneously in opposite directions, and two stops or gages arranged the one in advance of the other, to permit the knives to act at different points on the bed, the curved guards *a' a'*, secured to said stops, whereby the soles and pieces of leather are prevented from passing over the stops, as set forth.

2. In a leather-cutting machine, the combination, with the cutting mechanism, of the stops having the curved guards, as set forth.

3. The combination, with the cutting-block and the alternately-operating knives, of the two stops or gages having the guards *a' a'*, the studs *t t*, the cross-bar *v*, supporting said studs, the yoke connecting the studs and detachably connected to one of the studs, to permit its independent adjustment, and the screw swiveled in said yoke and working in a threaded socket in the cross-bar, as set forth.

4. The adjustable stops having the plates or guards *a' a'*, combined with the alternately-operating knives and the cutting-block, as set forth.

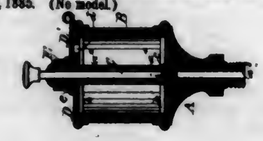
5. The combination, with the knives, cutting-block, and stops, of the two arms or knockers and the mechanism for operating them, as set forth.

6. The combination, with the knives, cutting-block, and stops, of the two arms or knockers, the mechanism for operating them, and the devices whereby said arms may be adjusted to vary the distance between them and to time their operation, as set forth.

7. In a leather-cutting machine, the combination, with the cutting mechanism, of a rock-shaft having two knocking-arms adjustable thereon, as set forth.

8. In a leather-cutting machine, a rock-shaft having two knocking-arms adjustable thereon, as set forth, and provided with the adjustable end sections.

317,464. OIL-CUP. EDMUND LUNKENHEIMER, Cincinnati, Ohio. Filed Feb. 23, 1885. (No model.)



Claim.—The combination, with an oil-cup having a cover, D, provided with an orifice, *d'*, of the tubular stem a^2, projecting through the cover and provided with a flattened side, e^3, the arm D', journaled at one end on the stem, the washer *e*, bearing on the upper side of the arm, and the flattened portion *e'*, fitting the flattened side of the stem, and the screw-nut E, bearing on the washer, whereby the swinging movements of the arm to cover and uncover the orifice *d'* are prevented from being transmitted to the nut, substantially as described.

317,465. COCK FOR SIPHONS. FREDERICK W. LYMAN, Richmond, Ind. Filed Oct. 20, 1884. (No model.)



Claim.—1. As a new article of manufacture, a cock-plug provided with a main way and a by-way at approximately right angles to the main way, and a valve to close the by-way in one direction, substantially as described.

2. The combination, with a cock-barrel, of the plug provided with a main way and a by-way, and a valve to close the by-way in one direction, substantially as described.

3. The combination, with a cock-barrel having a main channel and a by-channel, of the cock-plug provided with a main way communicating with the main channel of the barrel, and a by-way communicating with the by-channel thereof, and a valve to close the by-way of the plug in one direction, substantially as described.

4. The combination, with the cock-barrel having a main and by channel, of the tubular cock-plug provided at a point opposite the main channel of the barrel with large openings forming the main way of said plug, and a small opening at right angles to said main way, the lower end of said cock-plug being closed by a screw-plug having a valved passage registering with a small opening in the cock-plug, which latter opening registers with the by-channel of the cock-barrel, substantially as described.

5. The combination, with a siphon-tube having an elastic bulb, of the cock the plug of which is provided with a main way and a valved by-way at right angles to the main way, substantially as described.

317,466. COMBINED FAUCET AND VENT. HENRY B. LITTLE, Webb's Mills, N. Y., assignor of one-half to Warren W. Quackenbush. Filed Aug. 8, 1884. (No model.)



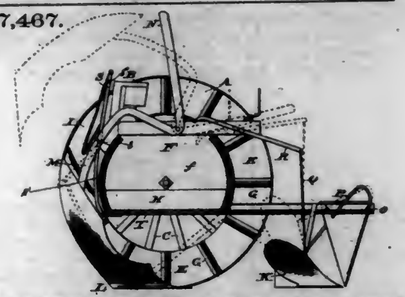
Claim.—1. In a combined faucet and vent, a shell provided with liquid entrance and exit ports and air-ports, the longitudinal axes of which are at right angles to each other, in combination with a plug having a transverse liquid-exit port, *c*, and air-ports d^3 d^3, having their longitudinal axes at right angles to each other and situated in the same transverse plane of the plug, substantially as described.

2. In a combined faucet and vent, a shell having liquid entrance and exit ports and air-ports c^3 c^3, the longitudinal axes of which are at right angles to each other, plug c^3 having liquid-exit port, and air-ports d^2 d^3, situated in the same transverse plane thereof and at right angles to each other, in combination with the spigot B, flexible tube D, and petcock E, as and for the purpose set forth.

317,467. SELF-LOADING CART. BENJAMIN J. MORRIS, Millersburg, Ohio, assignor of one-half to Wellington Stilwell, same place. Filed Mar. 20, 1884. (No model.)

Brief.—The ends of a cart-body project into the planes of annular series of compartments formed on the wheels by broad inward-projecting rims, flat felly-disks, and partitions, and playing over such cart-body ends and closed during their lift by curved boards. On a platform on the body are pivoted levers connected to the pivoted beams of advance plows in the paths of the wheels, throwing inward to a double plow directing into the compartments. The curved beams of this plow are continued as pivoted levers for adjusting the plow, and to and between them is secured a seat capable of use in different positions as the plow is raised or lowered, and these levers contact with and control those first mentioned, to adjust all the plows simultaneously.

317,467.



Claim.—1. In a self-loading cart, a pair of wheels, A, consisting each of a tire, B, spokes C, blocks D, rim or felly E, and the boards G, all combined substantially as and for the purpose set forth.

2. In a self-loading cart, the combination of the wheels A, provided each with an annular series of compartments, the body F, arranged within the circles of compartments, and a pair or semicircular covering-boards, I, substantially as described.

3. In a self-loading cart, the combination of the wheels A, provided with an annular series of compartments, the plows K, arranged in advance of the wheels in the path of the same, and the double shovel-plow L, arranged between the wheels at the rear, substantially as and for the purpose set forth.

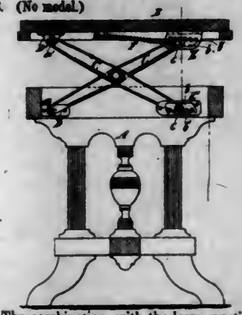
4. In a self-loading cart, the combination of the draft-tongue, the plows K, arranged in advance of the wheels, the rod O, the beams P, the rods Q, and the levers R, pivoted to the sides of a platform upon the body, substantially as described.

5. In a self-loading cart, the combination of the shovel-plow L and the beams M, connected with or continuing as levers N, pivoted to the sides of a platform upon the body, substantially as described.

6. In a self-loading cart, the combination of the body F with a platform upon its top, a shovel-plow, beams M, connecting said plow and platform, and a seat secured to and between said beams, substantially as described.

7. In a self-loading cart, the combination, with the front plows, K, and their rods Q and the levers R, pivoted to the sides of the platform on the body, of the rear shovel-plow, L, and its beams and levers M and N, respectively pivoted to the sides of said platform, whereby in depressing the levers N the front and rear plows are raised simultaneously, substantially in the manner and for the purpose set forth.

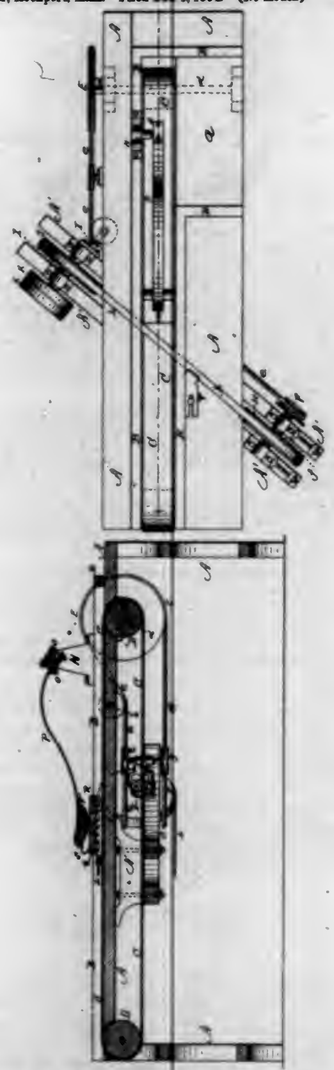
317,468. CHAIR. GEORGE W. MORSTATT, New York, N. Y. Filed Aug. 10, 1883. (No model.)



Claim.—1. The combination, with the lower portion, A, and movable upper portion, B, of a chair, stool, or table, said portions being provided at one side of the chair, stool, or table with guides *b* and teeth *b'*, of crossed levers C C', provided at one end with projections *c*, which are adapted to slide in said guides *b*, and to engage with said teeth *b'*, and at the other end pivoted at fixed points *a a'* to said portions A B, at the other side of the chair, stool, or table, substantially as and for the purpose herein described.

2. The combination, with the lower portion, A, and movable upper portion, B, of a chair, stool, or table, said portions being provided at one side of the chair, stool, or table with guides *b* and teeth *b'*, of crossed levers C C', provided at one end with projections *c*, adapted to slide in said guides *b* and to engage with said teeth *b'*, and at the other end pivoted at fixed points *a a'* to said portions A B at the other side of the chair, stool, or table, and the springs F, serving to counterbalance the weight of the movable upper portion, B, substantially as and for the purpose herein described.

317,469. MACHINE FOR CUTTING BLOCKS OF FISH INTO LAYERS. WALTER S. MOSES and OSCAR ANDREWS, Gloucester, Mass., assignors of one-half to said Moses and Joseph H. Andrews, same place, and George Tucker, Rockport, Mass. Filed Dec. 1, 1884. (No model.)



Claim.—1. In a machine for cutting fish, the combination, with an endless belt for carrying the fish to the cutter, of an endless knife or cutting-ribbon arranged to pass diagonally over the said belt and cut the approaching fish into layers or slices, substantially as and for the purpose set forth.

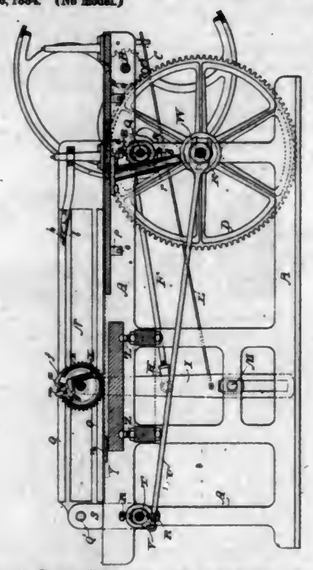
2. In a machine for cutting fish, the combination of the frame A, provided with the pulleys D D' E *b c g*, belt *e*, and carrying-belt C, and the frame A', provided with the shafts *f* I, pulleys F H J, and cutting-ribbon L, arranged substantially as and for the purpose described.

3. In a machine for cutting fish, the combination of the frame A, provided with the partitions B, the horizontal endless belt C, and the diagonal cutting-ribbon L, substantially as and for the purpose set forth.

4. In a machine for cutting fish, the combination, with the frame, endless carrying-belt C, and cutting-ribbon L, of the standard N, spring P, and presser-block R, substantially as and for the purpose described.

5. In a machine for cutting fish, the combination, with the frame, endless carrying-belt C, and cutting-ribbon L, of the standard N, friction-tight frame O, spring P, block P', pivoted presser-block R, and spring S, all arranged and constructed substantially as and for the purpose set forth.

317,470. PRINTING-MACHINE. ENOCH PROUTY, Beloit, Wis. Filed May 16, 1884. (No model.)



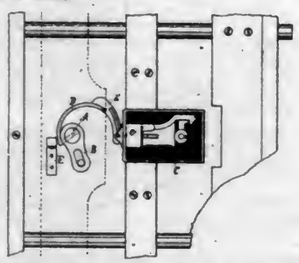
Claim.—1. In a printing-press, the combination, with the fixed type-bed, of the cylinder, the pivoted slotted arms I, the vertically-movable guideways, their vertically-moving supports, and the cam mechanism for operating them, substantially as set forth.

2. In a printing-press, the combination, with the fixed type-bed, of the cylinder, the pivoted slotted arms I, the vertically-movable guideways, their vertically-moving supports, the rock-shaft T, the cams R', the crank-arm V, the rod U, the shaft E, and the cam W, all constructed, arranged, and operating substantially as and for the purpose set forth.

3. In a printing-press, the combination, with the cylinder, of the rigid grippers *b*, secured to the gripper rock-shaft *a*, the spring-grippers *c*, secured to the elongated heel portions of part of the grippers *b*, shorter grippers *b*, bearing upon the edge of the opening in the cylinder and clamping the paper, and the elongated grippers *b*, bearing over the spring-grippers and gripping the paper against them, and the projecting angle-bar *d*, provided with coil-spring *g*, all constructed, arranged, and operated substantially as set forth.

4. In a printing-press, the combination, with the cylinder, of the grippers *b* and *c*, the gripper rock-shaft *a*, the projecting angle-bar *d*, provided with coiled spring *g*, the arm *f*, the stump *n*, the cam *h*, and the incline *i*, substantially as set forth.

317,471. COUPLING DEVICE FOR SAFE-SPINDLES. HENRY POND, Cincinnati, Ohio, assignor to Joseph L. Hall, same place. Filed Feb. 2, 1885. (No model.)



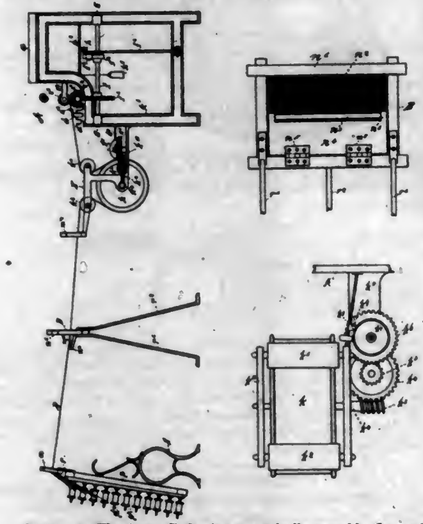
Claim.—1. The combination, substantially as specified, of the spindle A, slotted at the inner end, the arm B, having its hub correspondingly slotted with the coupling-piece D, having one end constructed to slide within said slots and couple the spindle with or uncouple it from its hub, and the opposite end of the coupling-piece D, connected with the bolt *c* of the lock C.

2. The combination, substantially as specified, of the curved coupling-piece D, having the bent end *d* and slotted end *d'*, with the slotted spindle A, arm B, having its hub correspondingly slotted, and the bolt *c* of lock C, having a pin to engage the slot in the end of the coupling-piece, for the purpose of coupling or uncoupling the hub and spindle.

3. The combination of the safe-door and its bolt mechanism, of the spindle A, and arm B, for operating said bolts, the hub of said arm and the end of the spindle being correspondingly slotted, as shown, with a coupling-piece, D, having one end connected to the bolt of the safe-lock and the opposite end bent to enter the slots in said hub and spindle, and a stud, E, substantially as specified.

317,472. WARPING-MACHINE. JOHN RYLE, Paterson, N. J. Filed Jan. 29, 1884. (No model.)

Brief.—The movable frame mounted on standards is provided with a reed, and has hinged at its lower edge a flap, which is provided at its upper edge with a glass rod carried in brackets in said flap.

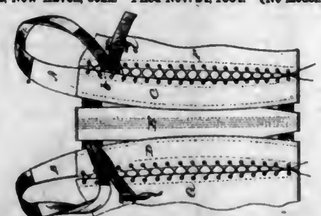


Claim.—1. The frame B, having a vertically-movable flap and a bar attached thereto, over which the warp-threads pass, in combination with the devices for supplying and winding the yarn, substantially as set forth.

2. The hinged flap n^4, in combination with a frame to which is attached a glass bar attached to said flap, over which the warp-threads pass, and the devices for supplying and winding the yarn, substantially as set forth.

3. The hinged flap n^4, carrying the glass rod n^3, in combination with the frame B, to which it is attached, and the yarn-supplying and yarn-winding devices, substantially as set forth.

317,473. COMBINED CORSET AND SHOULDER-BRACE. ISAAC STROUSE, New Haven, Conn. Filed Nov. 24, 1884. (No model.)

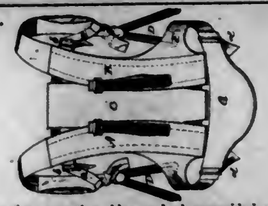


Claim.—In a back-supporting corset, and in which a substantially solid or close back is employed, said back being in adjustable connection with the side portions of the corset, shoulder-straps extending from the upper end of said close back over the shoulders, the back portion provided with loops *b*, through which, after passing under the arm, the straps will run, and an engaging device upon the adjacent side portion of the corset and forward of said loops, with which said strap is engaged, substantially as described.

317,474. SHOULDER-BRACE. ISAAC STROUSE, New Haven, Conn. Filed Nov. 24, 1884. (No model.)

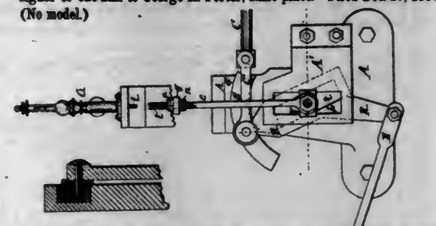
Claim.—1. The herein-described shoulder-brace, consisting of the back composed of the two side portions, A B, each provided with a segment-shaped stay, the convex edges of the stays toward each other, the two convex edges united by a vertical central portion, C, the two portions A B extended from their upper end to form shoulder-straps, the straps extending over to the front and returned under the arm, adjustably secured to the respective sides, and also provided with suspender-ends D, with separate adjustable straps E on the back, provided with button-holes at their free end, the said side portions also provided with straps F near their lower end, extending to the front around the body, and adjustably connected, substantially as described.

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2. The herein-described shoulder-brace, consisting of the back composed of the two side portions, A B, each provided with a segment-shaped stay, the convex edge of the stays toward each other, the two convex edges united by a vertical central portion, C, the two portions A B extended from their upper end to form shoulder-straps, the straps extending over to the front and returned under the arm, adjustably secured to the respective sides, and also provided with suspender-ends D, with separate adjustable straps E on the back, provided with button-holes at their free end, the said side portions also provided with straps F near their lower end, extending to the front around the body, with an abdominal support, G, in front, the said straps F adjustably connected to the respective ends of the said support G, substantially as described.

317,475. VALVE-GEAR. JOHN B. SUTHERLAND, Syracuse, N. Y., assignor of one-half to George A. Porter, same place. Filed Dec. 27, 1884. (No model.)

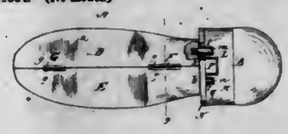


Claim.—1. In combination with the governor, valve-stem, and eccentric-rod, the bracket A A', secured stationary in its position and provided with the guide-groove *a* and slots *b b*, the slide S, moving in the groove *a* and having connected with it the valve-stem, the rock-arm R, connected at one end with the valve-stem, and at the opposite end with the eccentric-rod and provided with the slot *t*, the fulcrum *e*, sliding in the slots *t* and *b b*, and the governor-spindle connected with said fulcrum, substantially as set forth and shown.

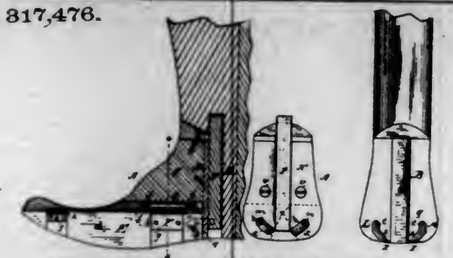
2. In combination with the governor, valve-stem, and eccentric-rod, the bracket A A', secured stationary in its position and provided with the segmental guide-groove *a* and vertical slots *b b*, the segmental slide S, moving in the groove *a*, the link C', connecting the valve-stem with said slide, the rock-arm R, connected at one end with the slide at the attachment of the link and having connected to its opposite end the eccentric-rod and provided with the slot *t*, the fulcrum *e*, sliding in the slots *t b b*, and the governor-spindle connected with said fulcrum, substantially as described and shown.

3. In combination with the governor, valve-stem, and eccentric-rod, the bracket A A', secured stationary in its position and provided with the segmental groove *a* and vertical slots *b b* and *f*, the segmental slide S, moving in groove *a*, the link C', connecting the valve-stem with the slide, the rock-arm R, connected at one end with the slide at the attachment of the link and having connected to its opposite end the eccentric-rod and provided with the slot *t*, the fulcrum *e*, sliding in the slots *t b b*, the rods *c c*, connected at one end with the fulcrum *e* and guided in the groove *f* and screw-threaded at the opposite end, the cross-bar *g*, connecting the rods *c c*, nuts *n n*, for adjustably sustaining the cross-bar on said rods, the governor-spindle having its end screw-threaded and passing through the cross-bar *g*, and nuts *n' n'* for adjustably connecting the governor-spindle with the said cross-bar, all constructed and combined to operate substantially in the manner specified and shown.

317,476. BOOT-TREE. ABEL D. TYLER, Jr., Brockton, Mass. Filed Mar. 24, 1884. (No model.)



317,476.



Claim.—1. A foot-piece for a boot or shoe tree, composed of parts C, D, and E, and hinged together, substantially as and for the purpose specified.

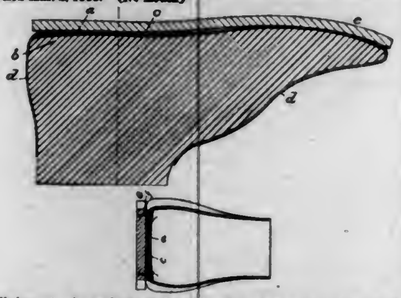
2. A foot-piece for a boot or shoe tree, composed of parts C, D, and E, constructed and arranged in combination with mechanism, substantially as described, operated upon by the body portion of the boot or shoe tree to expand and contract laterally, substantially as and for the purpose specified.

3. A foot-piece for a boot or shoe tree, composed of parts C, D, and E, two—D E—of which parts have pins *m n*, in combination with the body portion A of the boot or shoe tree, provided with slots L M, substantially as and for the purpose specified.

4. A foot-piece for a boot or shoe tree, composed of parts C, D, and E, secured together by hinges, one of which is composed of part K, and leaves *g g*, all substantially as and for the purpose specified.

5. A foot-piece for a boot or shoe, composed of parts C, D, and E, pivoted together for the parts D and E to move in a downward circular direction for lateral contraction of the foot-piece, for the purpose specified

317,477. BOOT OR SHOE. ALBERT VAN WAGENEN, Boston, Mass. Filed Mar. 2, 1885. (No model.)



Claim.—1. As an improved article of manufacture, a boot or shoe composed of an upper, a shortened inner sole, an outer sole, and a lining-sole, the shortened inner sole terminating at the forward part of the shank, the said parts being united by stitches or fastenings, substantially as described.

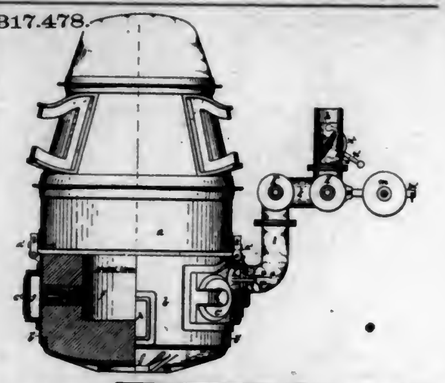
2. In a boot or shoe having a shortened inner sole in which the fastenings for uniting outer sole and upper at the heel and for fastening the heel itself pass only through the shortened inner sole, the soft or textile lining-sole, the latter being slit at its edge, as shown and described, whereby a portion of the said lining-sole near its outer edge may be turned back while uniting the outer sole upon the inner sole at the heel-seat and attaching the heel, after which the soft inner sole may be again returned, covering the stitches or fastenings, and leaving the lining-sole free from fastenings at that part, substantially as described.

317,478. BLAST APPLIANCE FOR CONVERTERS. JNO. F. WILCOX, Pittsburg, Pa., assignor to Henry W. Oliver, Jr., and James P. Witherow, both of same place. Filed Mar. 16, 1885. (No model.)

Claim.—A converter having a removable lower section provided with tuyeres arranged below the metal-line, in combination with a blast trunk or chamber supported on said lower section and communicating with the tuyeres, a blast-pipe, a regulating-valve arranged in said blast-pipe for admitting a minimum pressure of blast to the tuyeres when the valve is in its closed position to counterbalance the weight of the liquid column of metal at the tuyeres, and a detachable connection between the blast-pipe and the blast-trunk, substantially as and for the purposes described.



317,478.

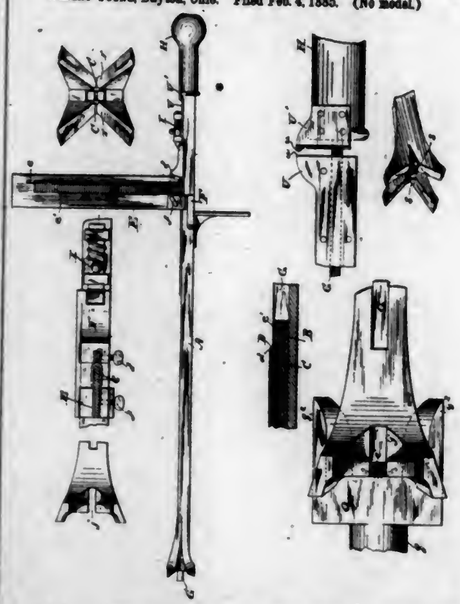


317,479. INSULATOR FOR ELECTRIC WIRES. WM. H. WRIGHT, Rochester, N. Y. Filed Feb. 2, 1885. (No model.)



Claim.—As an improved article of manufacture, a telegraph-wire insulator having in its interior a screw-threaded portion, substantially as described, and a corrugated portion, C, as stated, the corrugations running vertically—that is to say, in line with the center line of the threaded portion, substantially as specified—said insulator being adapted for application upon a screw-threaded peg, B, having the enlarged portion D', as and for the object stated.

317,480. IMPLEMENT FOR DRIVING AND CLINCHING STAPLES. WESLEY YOUNG, Dayton, Ohio. Filed Feb. 4, 1885. (No model.)



Claim.—1. The combination of the detachable slotted feed-bar with the base-piece mounted on the stock of the implement, and means, substantially such as described, for securing the feed-bar to the base-piece.

2. The combination, with the stock and with the base-piece pivoted thereto and carrying the feed-bar, of the automatic spring-bolt mounted on the stock, substantially as described, for the purpose specified.

3. The combination, with the plunger, of the stock having the longitudinal slot for the passage of the plunger, the grooves for guiding the staples, and the throat or feed-opening beveled or rounded at the front, substantially as described, for the purpose specified.

4. The stock having its onter end or head provided with the slot for receiving and holding the wire or wires to which the staple is to be secured, substantially as described.

5. The combination, with the stock, its plunger, and plunger-handle, of the cutting-plate secured to the stock, and the co-operating cutting-plate secured to the plunger-handle, substantially as described.

6. The combination, with the staple-driver and its plunger, of an anvil provided with the two parallel curves or inclines, one for each leg of the staple, for bending the legs of a staple driven by the plunger around a wire or wires held between the end of the staple-driver stock and the said anvil, substantially as described.

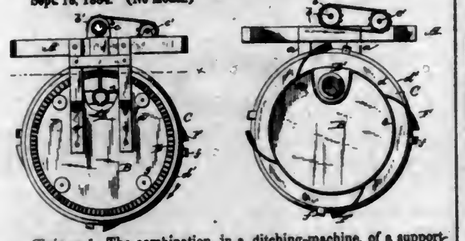
7. The combination, with the staple-driver stock, formed as described, and the plunger and staple-feeding devices of said staple-driver, of the anvil having the grooves in its face and the projecting lugs, substantially as described.

8. The combination of the staple-bending anvil having the shank and spring with the block having the opening for receiving the shank of the anvil, substantially as described.

9. The combination, with the staple-driver, constructed as described, of the cutting-anvil having the projecting lugs and the cutting-edge for co-operating with the end of the staple-driver plunger, to sever the wire, substantially as described.

10. The combination, with the staple-bending anvil having the curved or inclined grooves in its face, of the staple-driver having the end of its stock formed flat at the points *s s*, for the purpose of pressing the ends of the attached staple into the same plane, substantially as described.

317,481. DITCHING-MACHINE. JOHN W. ZEH, Tiffin, Ohio. Filed Sept. 18, 1884. (No model.)



Claim.—1. The combination, in a ditching-machine, of a supporting-frame, carrying-wheels therefor, located at each side, stationary drum supported below said frame, a peripheral band embracing said drum, and provided with scoops or shovels, said peripheral band provided at its side with an annular series of teeth and a shaft depending from said supporting-frame, and provided with a wheel meshing with said teeth, and operating mechanism, substantially as described, located on said supporting-frame for driving said vertical shaft, as and for the purpose specified.

2. The combination, in an excavating apparatus, of the supporting-frame having carrying-wheels located at each side, a stationary drum supported beneath said frame and provided with a recessed portion at its upper side, an annular band embracing said drum and provided with a series of scoops or buckets, an annular series of teeth located on the side of said annular band, a vertical shaft having a gear-wheel meshing with said teeth, a device, substantially as described, located on the supporting-frame for driving said vertical shaft, a transverse conveyer located in the recess in the upper portion of the stationary drum for conveying away dirt accumulating therein, as and for the purpose specified.

3. In combination with a stationary drum, B, recessed transversely at its upper side, a rotary excavator encircling said drum and provided with shovels, the inner portions of which bear upon the drum, and a carrier for removing the earth from the recess in the drum, substantially as shown, and for the purpose set forth.

4. In combination with a stationary drum, B, recessed transversely at its upper side, a frame, A, carrying operating mechanism attached rigidly thereto, and excavating means attached to the drum so as to rotate about the same and deposit the earth removed thereby in the recess in the drum, from which it is conveyed by a screw-carrier, the parts being adapted to be operated substantially as shown, and for the purpose set forth.

REISSUES.

10,592. TABULAR CALCULATOR. FREDERICK W. CHILD, Greenwich, Conn. Filed Apr. 11, 1885. Original No. 313,655, dated Mar. 10, 1885.

Claim.—1. The herein-described calculating or displaying apparatus, composed of the series of revolving disks *a b c*, &c., arranged to overlap each other, as described, and provided with the concentric rows of numbers *k m*, bearing the described relation to each other, and the

10,592.

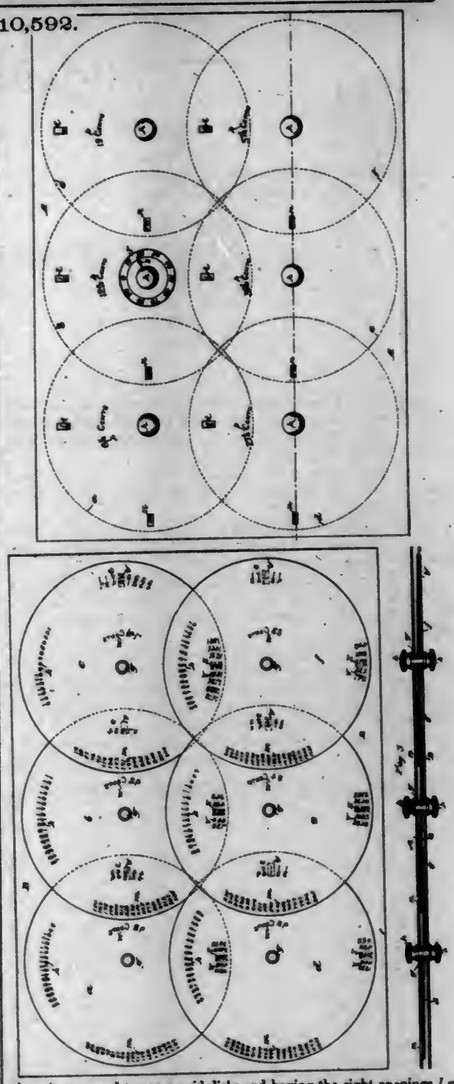
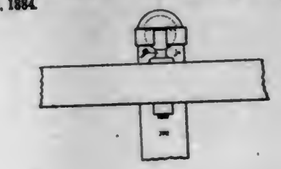


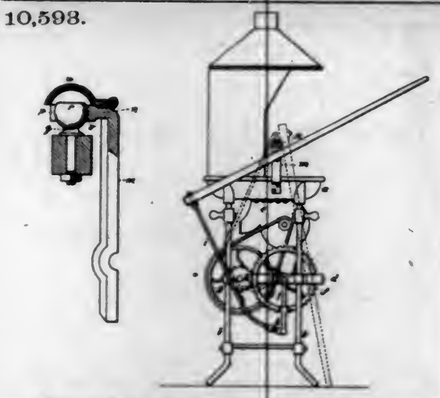
plate A, arranged to cover said disks and having the sight-openings *l n*, one for each row of numbers upon the disks, and provided with numbers *p*, bearing the described relation to the numbers in the rows *k m*.

2. The herein-described calculating or displaying apparatus, composed of the series of revolving disks *a b c*, &c., arranged to overlap each other, as described, and provided upon their opposite sides with the concentric rows of numbers *k m* and *t v*, bearing the described relation to each other, and the plates A B, arranged upon opposite sides of said disks and having the sight-openings *l n* and *y z*, one for each row of numbers upon the disks, and provided with the numbers *p w*, bearing the described relation to the numbers in the rows *k m* and *t v*.

10,593. DETACHABLE LEVER FOR FORGES. JAMES F. WISCHELL, Springfield, Ohio. Filed Mar. 31, 1885. Original No. 296,266, dated Apr. 1, 1884.



10,593.



Claim.—1. The combination, with a portable forge, of a lever and detachable connections forming the fulcrum thereof, whereby the lever is made capable of universal motion, and is immediately detachable from its bearing, substantially as specified.

2. A forge having a lever connected thereto by a ball-and-socket fulcrum in which the ball portion is detachable from the socket, substantially as specified.

3. The combination, with a forge, of a lever having an open socket-seat, and a ball-and-stem portion attached to the lever and removable from the socket-seat, substantially as specified.

4. In a forge, a lever connected at its weight end to the mechanism to be driven, and provided with a ball-and-socket fulcrum in which the ball-and-stem portion is removable from the socket-seat, substantially as specified.

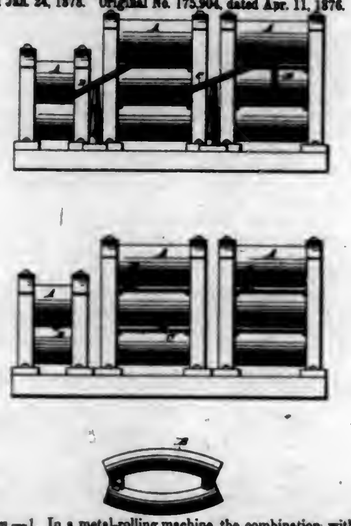
5. In a forge, a lever provided with a separable fulcrum, whereby the lever may be given an elliptical motion, substantially as specified.

6. In a forge, the combination of the bracket *m*, having the horizontal arm *n* with the open socket-seat *o p*, with a lever having a ball-and-stem portion adapted to fit the socket-seat.

7. In a forge, the combination of the bracket *m*, having the arm *n* and open socket-seat *o p*, with the hinged cap adapted to cover the ball portion of the ball-and-socket fulcrum in the socket-seat, substantially as specified.

8. An operating-lever connected with driving mechanism for forges, furnaces, &c., and provided with a ball-and-socket fulcrum.

10,594. METAL-ROLLING MACHINE. JOHN BEAVR, Cleveland, Ohio. Filed Jan. 24, 1878. Original No. 175,904, dated Apr. 11, 1876.



Claim.—1. In a metal-rolling machine, the combination, with rolls, of a curved guide which receives from one roll-pass and feeds into another roll-pass, said guide formed open and permitting the surplus metal to escape out of it, substantially as set forth.

2. In metal-rolling machinery, the combination, with rolls, of a curved guide which receives from one roll-pass and feeds into another roll-pass, said guide provided with an opening permitting the surplus metal to escape out of said guide, substantially as set forth.

PHOTO LITH. NORRIS PETERS WASHINGTON D.C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

Supreme Court of the United States.

SARGENT *v.* THE HALL SAFE AND LOCK COMPANY *et al.*

Decided March 30, 1885.

APPEAL from the Circuit Court of the United States for the Southern District of Ohio.

1. In Letters Patent No. 186,369, granted to James Sargent, January 16, 1877, for improvements in time-locks, the combination-lock forming a member of the combinations claimed by the two claims of the patent is one which has a bolt or bearing that turns on an axis or revolves, as distinguished from a sliding bolt, and those claims are not infringed by a structure in which the combination-lock has not a turning or revolving bolt.
2. Claim 2 of the patent requires that the tumblers of the combination-lock and its spindle shall be free to rotate while the bolt-work is held in its locked position by the bolt or bearing of the combination-lock.
3. In patents for combinations of mechanism, limitations and provisos imposed by the inventor, especially such as were introduced into an application after it had been persistently rejected, must be strictly construed against the inventor and in favor of the public, and looked upon as in the nature of disclaimers.

Mr. Edmund Wetmore and *Mr. George Ticknor Curtis*, for the Appellant.

Mr. E. N. Dickerson and *Mr. W. C. Cochran*, for the Appellees.

Mr. Justice BLATCHFORD delivered the opinion of the Court.

This is a suit in equity, brought in March, 1877, in the Circuit Court of the United States for the Southern District of Ohio, by James Sargent, the appellant, against the Hall Safe and Lock Company and others, the appellees, for the infringement of Letters Patent No. 186,369, granted to Sargent, January 16, 1877, for improvements in time-locks. It was afterward consolidated, as of November, 1879, with another suit in equity, brought in July, 1876, in the same court, by the same plaintiff against the same defendants, for the infringement of Reissued Letters Patent No. 6,787, granted to Sargent, December 7, 1875, for improvements in time-locks, on the surrender of original Letters Patent No. 121,782, granted to Stephen W. Hollen, December 12, 1871. The circuit court heard the case on pleadings and proofs and dismissed the bill. The plaintiff has appealed; but no claim is made in this Court to recover on the Hollen reissue.

The specification and claims of No. 186,369 are as follows:

Be it known that I, James Sargent, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful improvements in locks for safe and vault doors, of which the following is a specification.

This invention relates to certain improvements in locks for safe and vault doors, its object being to construct a time-movement in such a manner as to have it guard and act in conjunction with a combination-lock, so as to render said combination-lock, when locked, inoperative and incapable of being unlocked until the arrival of the appointed hour, at which time the time mechanism will liberate or cease its guarding action on the combination-lock, and admit of said lock being operated and unlocked by the person having knowledge of the combination upon which said lock is set, so as to enable the bolt-work of the safe or vault door to be retracted and the door opened.

My invention consists in combining a time mechanism with a combination-lock, and adapting the same to operate in connection with the bolt-work of a safe or vault door, the time mechanism being constructed to act in conjunction with and guard, dog, or render inoperative the aforesaid combination-lock when locked, the said combination-lock having a bolt or bearing specially constructed and arranged, so that when in one position it will rest upon or receive the pressure of the bolt-work of the door when the latter is thrown out and the lock locked, and thus prevent the retraction of the bolt-work.

This arrangement retains the bolt-work in a locked condition during the hours appointed for it to remain locked, and prevents the lock from being unlocked by any one having legitimate or surreptitious knowledge of the combination upon which the lock is set, until the arrival of the appointed hour, when the time mechanism will cease its dogging or guarding action upon said combination-lock, and admit of said lock being operated by those in possession of the combination, so as to enable them to place the bolt or bearing of the lock in such position as to enable the retraction of the bolt-work, whereby the safe or vault door can be opened.

The invention further consists in a certain combination, substantially as hereinafter set forth—that is to say, a union consisting of a combination-lock, a time-movement, and a yoke lever or connection adapted to be placed upon a safe or vault door to operate in conjunction with the bolt-work thereon, said yoke lever or connection being constructed and located in such respect to the combination-lock as to render the unlocking of the same absolutely impossible when locked, and so remain locked until the arrival of the appointed or predeterminate time, at which time the said yoke lever or connection, through the action of the time-movement, is caused to cease its guarding or dogging action upon the combination-lock, at which time, or any time after during the time the time mechanism has ceased its dogging or guarding action, the said lock can be unlocked by the person in possession of the proper combination upon which the lock is set, the peculiarity and novelty of this union being that when the said combination-lock, with its time mechanism, is arranged upon a safe or vault door to operate in conjunction with the bolt-work thereon, and all locked, the tumblers or combination-wheels of the said lock and the spindle of the same, together with its usual indicator, are all left free to be moved or rotated without exerting any unlocking action or strain whatever upon the mechanism composing the combination-lock or the delicate mechanism composing the time-movement.

In the drawings, Figure 1 represents a portion of a safe or vault door, illustrating thereon a bolt-work and a combined time mechanism and combination-lock with covers removed, the bolt-work being thrown out into the jamb of the door, and the combination-lock locked and guarded by the time-movement. Fig. 2 is a detail view, illustrating a yoke lever or connection adapted to connect with the dog, angle-bar, or fence of the combination-lock. Fig. 3 represents a portion of a safe or vault door having thereon a bolt-work and a combined time mechanism and combination-lock, the combination-lock being unlocked and the bolt-work retracted.

Referring to the drawings, the letter A designates the case of a combination-lock; the lock-works of which may be of any of the well-known forms now in use, provided the same is supplied with a lock-bolt or a bearing constructed and arranged so as to connect with or receive the pressure of the bolt-work located on a safe or vault door, when said lock-bolt or bearing and the bolt-work are placed in a position for locking the door.

The combination-lock illustrated in the drawings is one known as "Sargent's Automatic Bank-Lock," upon which Letters Patent were granted August 28, 1866, reissued January 2, 1872.

Said combination-lock is shown as applied upon a safe or vault door, B, upon which is arranged a bolt-work consisting of the usual bolt-supporting bars, C, bolts D, carrying-bar E, having a tongue-piece, F, said carrying-bar serving as a medium for projecting or retracting the bolts into and out of the sockets *a*, constructed in the jamb of the safe or vault, for the purpose of locking or unlocking the door, as shown in Figs. 1 and 3.

The bolt-work has the requisite projecting or retracting motion imparted to it from the outside of the door, when opened or closed,

through the medium of the usual knob, *b*, and the spindle *c*, which spindle passes through the door, and connects with the carrying-bar by any suitable fastening, such as a slot, *d*, pin *e*, and suitable fastening-nut.

The lock-bolt or bearing of the combination-lock may be of a circular, segmental, or other desired form, provided said lock-bolt is arranged and adjusted so as to turn upon a suitable axis or bearing, and is so constructed that in one position it will prevent the retraction of the bolt-work to retain the safe or vault door locked, while in another position it will admit of the bolt-work being retracted, for the purpose of allowing the safe or vault door to be opened.

In the present example, the lock-bolt is shown as provided with an offset or recess, *f*, which offset or recess is brought in or out of coincidence with the tongue-piece on the carrying-bar, to admit of the bolt-work being projected or retracted through the medium of a sliding bar, H, which carries a dog, fence, or angle-bar, J, having a hook, *g*, which engages with the bit A of the cam K, secured upon the dial-spindle *i*, which spindle passes through the safe or vault door in the usual manner, and serves to operate the series of tumblers or combination-wheels L.

Fig. 1.

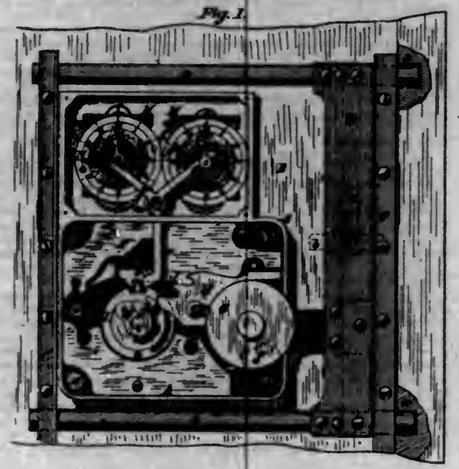
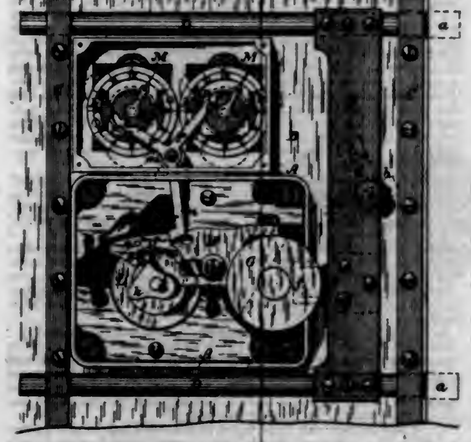


Fig. 2.



Fig. 3.



The sliding bar H is connected with the lock-bolt or bearing in any suitable manner, its object being to impart motion to said lock-bolt or bearing to secure the objects above specified.

The said lock-bolt or bearing, it will be perceived, is located in its casing so as to rest closely in the rear of the tongue piece or connection secured upon the carrying-bar, and is isolated, so to speak, from the tumblers or combination-wheels and the other main working parts of the lock, and therefore any strain which is brought to bear upon it by the heavy bolt-work will be expended upon the bolt or bearing and its axis or bearing, and not upon the tumblers or combination-wheels.

It will be seen that to unlock the combination-lock the hook of the dog, angle-bar, or fence J will drop into the notches or slots of the tumblers or combination-wheels, when the notches are brought into juxtaposition by the operator who has possession of the combination upon which the lock is set, at which time the bit A of the cam K will also engage with the hook *g* of the said dog, angle-bar, or fence, when, by moving the dial-spindle, the lock-bolt or bearing can be moved or rotated, so as to admit of the tongue piece or connection, with the carrying-bar and bolt-work, being moved back or retracted, as in Fig. 3 of the drawings, and the safe or vault door opened; but when said combination-lock is locked the hook of the dog, angle-bar, or fence J is elevated, due to the combination-wheels being disarranged, as in Fig. 1 of the drawings, and then no action can be had upon the connecting-bar, dog, angle-bar, or fence, or upon the lock-bolt or bearing by turning of the dial-spindle, and hence the tongue piece or connection on the carrying-bar of the bolt-work rests upon or connects with the lock-bolt or bearing, and the bolt-work is securely retained in a locked condition.

With such combination-lock, or one of substantially the same construction and operation, constructed to be applied for use upon a safe or vault door, to operate in connection with the ponderous or great bolt-work thereon, is combined a time mechanism, the works of which may be of any of the improved or desired kinds, since its action is to measure time correctly, the object being that, during the interval that the combination-lock is locked and the time-movement wound up, the same, through a suitable connection made between it and said combination-lock, will guard the said lock, and prevent its being unlocked, even by a cashier or other person in possession of the combination upon which the said combination-lock is set.

In the present example a duplex or double time-movement is illustrated, such being preferable to a single time-movement as a safeguard against stopping.

Each of the time-movements, which are designated by the letters M M, which may consist of a chronometer or clock movement, is supplied with a pointer or hand attached to a spindle, *l*, in such a manner as to be capable of being moved backward to set at any elected number on the dials N, said dials being spaced off, or marked with a scale of hours and divisions, from one upward, to any desired number, according to the mechanism of the chronometer or clock. With each of the dials are combined adjusting links or arms O, or some equivalent mechanical device, each of which carries a stud, or a pin or projection, which acts upon a yoke or lever, which connects with and guards the combination-lock the number of hours or time for which it is designed said lock is to remain locked, and thus controls the action of its lock-bolt or bearing while the same is in a locked condition.

The yoke lever or connection is designated by the letter P, and it is pivoted or loosely fixed on its support or axis, as at *m*, or otherwise arranged so as to operate in conjunction with the moving or revolving disks or arms O, the object being that the yoke lever or connection and the disks can be adjusted with respect to each other, so as to connect with the dog or fence or other working part of the lock, and thus control the movement of the lock-bolt or bearing, and hence the locking and unlocking of the combination-lock.

One end of the extension of the yoke lever or connection, in the present example, has a suitable hook, *n*, that engages with a pin, *o*, on the dog, angle-bar, or fence J by striking under it, in which case it holds said dog, angle-bar, or fence elevated out of contact with the tumblers or combination-wheels and the cam of the dial-spindle. The arms of said yoke lever or connection connect with or rest upon the axis or spindle of the adjusting disks or arms, and the arrangement of the studs, pins, or projections on said disks or arms is such that when the indicators have reached the proper number on the dials said studs, pins, or projections will have acted upon the yoke lever or connection, and moved it sufficient to withdraw the cam-hook from beneath the pin *o*, and thus allow the dog, angle-bar, or fence to fall, ready to engage with the tumblers or combination-wheels and the lock-bolt or bearing, at which time the combination-lock can be operated by the person in possession of the "combination," as the time-movement has ceased its guarding or dogging action.

Notches *p p* should be formed in the yoke lever or connection, to allow the studs, pins, or projections to fall therein when the disks or arms and the indicators have reached the designated number, thus serving as stops for the adjusting disks or arms, and prevent the same from moving on beyond the prearranged hour to reset the yoke lever or connection upon the studs or projections, for if some such provision were not made the combination-lock could not be opened until the disks or arms, with the indicators, came around again to said previously-appointed hour; at least, there might be danger of such occurring.

The double time-pieces are employed, as hereinbefore stated, so as to insure the releasing of the combination-lock in case one of the time-works should stop or fail to come to proper position. A spring, *r*, or an equivalent, such as a weight, should be connected with the lower end of the yoke lever or connection, to produce the necessary reaction to bring the hook of the yoke lever or connection under the pin on the dog, angle-bar, or fence.

Thus it will be seen from the foregoing that the bolt-work of the safe or vault door connects with or rests upon the bolt or bearing of the combination-lock, and that the yoke lever or connection of the time-movement connects with the dog, angle-bar, or fence of the said combination-lock, rendering the said combination-lock inoperative when locked—that is to say, said yoke lever or connection has the effect of dogging or guarding the combination-lock during the time it is locked, and prevent its being unlocked until the arrival of the hour previously designated by the time-movement; and should pressure be exerted upon the great or ponderous bolt-work of the door when locked, it will be received and arrested and retained by the lock-bolt of the combination-lock, and will not be transmitted to the tumblers or combination-wheels of the combination-lock, or to the time-movement, or to the yoke lever or connection.

In lieu of the lever connecting with the dog or fence, it may be made to connect or operate on the lock-bolt itself, and thus secure the result hereinbefore recited.

The time mechanism may be in the same case containing the works of the combination-lock; or it may be in an apartment connected with the case of the combination-lock, or in a case separate and distinct from the case containing the combination-lock.

The advantage of this invention over common time-locks is that when the time mechanism releases the lock mechanism—that is, ceases its dogging or guarding action—it does not admit of the unlocking of the bolt-work of the door, but simply leaves the combination-lock in the condition that it can be unlocked by the person in possession of the proper combination upon which said lock is set, thus securing the advantages of a combination-lock for use during the day, with a time mechanism for guarding and protecting said lock during the night.

This improvement is of the utmost importance, for, during the hours when the time mechanism is set, no one—not even the officers of a bank or other institution—can open the combination-lock; and when said time mechanism is not set or adjusted, no one, except the holder of the combination upon which the lock is set, can open it. No one who has the combination, whether obtained surreptitiously or otherwise, can open the lock when the time-movement is set, for the simple reason that no connection can be made between the tumbler or combination-wheels, the dog, angle-bar, or fence, the spindle, and the lock-bolt or bearing.

Further: Another feature of the utmost importance present in the combination of parts brought together is that the connection between the time-movement and the combination-lock is such that, when the time-movement is set, the parts adjusted, and the safe-doors closed, the combination-lock will be rendered inoperative until a predeterminate hour, during which interval of time the unlocking action of the combination-lock will be suspended by the time-movement, while the tumblers or combination-wheels of the aforesaid combination-lock are left free to rotate, if power is exerted upon the dial-spindle for the purpose of twisting said spindle out of place, or impairing the lock mechanism, and, by such, the working parts of the combination-lock cannot be injured or rendered useless for future action.

I have made a special claim, in a separate application for Letters Patent, for the combination of a time-movement and a lock with a lever adapted to be connected with the dog of said lock, to hold it from falling into the slots or notches of the combination-wheels except when released by the time-movement. So, therefore, in this application such special construction and arrangement of parts is not specially claimed.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination, substantially as hereinbefore set forth, of a time mechanism and a combination-lock with the bolt-work of a safe or vault door, the time mechanism being constructed to act in conjunction with and render inoperative the combination-lock when closed, said lock having its bolt or bearing constructed to receive the pressure of the series of bolts constituting the bolt-work of the door when locked, and prevent the unlocking of said bolt-work until the arrival of a certain predeterminate hour.

2. The combination, substantially as hereinbefore set forth, of a combination-lock, and the series of bolts constituting the bolt-work of a safe or vault door, with a time-movement and a yoke or lever connection, said lever being constructed and located to render the bolt or bearing of the combination-lock inoperative when locked, the tumblers of the combination-lock and its spindle being free to rotate, while the bolt-work is held in its locked position by the bolt or bearing of the combination-lock.

An analysis of this specification, to ascertain, in view of the state of the art and of the history of the application for the patent as it passed through the Patent Office, what is the proper construction of the claims allowed, will conduce to a solution of the questions involved. The object of the invention is stated to be to have a time movement guard and operate in conjunction with a combination-lock, to prevent the action of the combination-lock until a time previously appointed by the setting of the time-movement shall have arrived in the ordinary running of the time-movement, at which time, and not before, the combination-lock will come into action when operated in the usual way, as if there were no time-movement. In other words, by the setting of the time-movement the connection between the combination-lock and its lock-bolt or bearing is interrupted, so as to destroy the capacity of the combination-lock to unlock the bolt-work until the time fixed by the setting of the time-movement shall by the ordinary running of the time-movement have arrived, when the connection between the combination-lock and its lock-bolt or bearing is automatically restored through the action of the time mechanism. The combination-lock is to remain with its organization unchanged; but the time mechanism is to alternately interrupt and restore its connection with its lock-bolt or bearing and the action of the bolt-work.

There are two parts to the invention, represented by the two claims. Both of them are claims to combinations of mechanism. The first claim is a claim to a combination, substantially as set forth in the descriptive part of the specification, of three elements: (1) a time mechanism; (2) a combination-lock; (3) the bolt-work of a safe or vault door; but, as the claim says that the time mechanism is to be constructed to act in conjunction with and render inoperative the combination-lock when locked, it follows that the expression "time mechanism" includes the means of connection between the time-movement and the parts on which the combination-lock operates. Otherwise there could be no operative coaction of the three elements named in the claim. The expressions "time mechanism" and "time-movement" are carefully used in the specification and claims as having different meanings, the former including the latter and its means of acting in conjunction with the combination-lock. There is a limitation in the first claim, to the effect that the combination-lock is to have its bolt or bearing constructed to receive the pressure of the bolt-work when the lock is locked and prevent the unlocking of the bolt-work till the predetermined time shall have arrived.

The second claim is a claim to a combination, substantially as set forth in the descriptive part of the specification, of four elements: (1) a combination-lock; (2) the bolt-work of a safe or vault door; (3) a time-movement; (4) a yoke or lever connection constructed and located to render the bolt or bearing of the combination-lock inoperative when the lock is locked. In the second claim the time mechanism of the first claim is broken up into a time-movement and a yoke or lever connection. There is a limitation in the second claim, to the effect that the tumblers of the combination-lock and its spindle are free to rotate during the time the bolt-work is held in its locked position by the bolt or bearing of the combination-lock. This freedom of rotation is referred to in the specification as being peculiar and novel, and consisting in the fact that while the combination-lock and the bolt-work are locked the tumblers or combination-wheels of the combination-lock and its spindle are free to rotate without exerting any unlocking action or strain on the mechanism composing the combination-lock or the delicate mechanism composing the time-movement.

It is also to be noted that the specification states that the lock-bolt or bearing of the combination-lock may be of a circular, segmental, or other desired form, "provided said lock-bolt is arranged and adjusted so as to turn upon a suitable axis or bearing," and is so constructed as in one position to prevent the retraction of the bolt-work and in another position to permit it. The kind of combination-lock referred to is indicated by the one illustrated in the drawings, and which the specification states to be the one of Sargent's patent No. 57,574, granted August 28, 1866, and reissued as No. 4,696, January 2, 1872. No. 4,696 states that such combination-lock has no sliding lock-bolt, but has combined with its working parts a bolt turning on a pivot or bearing, and so isolated or removed

from contact with the combination-wheels as to receive any pressure applied through the bolt-work of the door and cut off the communication between such bolt-work and the wheels or fence-lever of the combination-lock, and that such bolt turning on a pivot or bearing, instead of the sliding bolt theretofore in use, is an important feature. The first claim of No. 4,696 is in these words:

1. I claim, in a combination-lock for safe or vault doors, a bolt, I, which turns on a pivot or bearing, when said bolt I is used in a lock having no ordinary sliding lock-bolt, and in connection with the separate bolt-work of the door, and so arranged as to receive the pressure of the said bolt-work without transmitting it to the wheels or other equivalent works of the lock.

The history of the application of Sargent for No. 186,369, so far as it is important to the present case, is this: On June 11, 1873, having his Reissued Patent No. 4,696 for his combination-lock in the form shown in the drawings of No. 186,369, he made application for a patent for combining a time-movement with the lock-works of a combination lock. The drawing showed the combination-lock of No. 4,696, and the specification set forth the invention to be so combining a time-movement with the lock-works as to prevent the lock from being unlocked by the release of the time-movement, and to require it to be unlocked by being set on the combination after such release. There was a time-movement consisting of two clocks and a lever to hold up the dog or angle-bar of the lock until released by the arrival of the predetermined hour. No bolt-work was shown or described. There was no idea of patenting any combination of which the bolt-work formed a part. The specification had two claims:

1. In a combination-lock, I claim the combination, with the lock-works and with a time-movement that controls the same, of a connection, H, or equivalent, so arranged that when the time-movement releases the lock-works the latter still remain locked, substantially as specified.

2. I claim, in combination with a time-movement and a lock, the lever H, or equivalent, connected directly with the dog C, to hold it elevated from the wheels, substantially as specified.

The specification stated that Sargent did not "claim broadly the combination of a time-movement with a lock"—that is, a time-movement or clock employed to prevent the unlocking of a lock till the arrival of a predetermined time in the running of the clock.

The first claim of the application was rejected June 12, 1873, by a reference to patent No. 121,782, granted to S. W. Hollen, December 12, 1871. Nothing was said as to the second claim. Sargent then disclaimed Hollen's arrangement as being the combination of

a clock-movement with an ordinary key-lock by means of a lever, so that when the clock-work releases the latch the latch remains locked,

and altered his claim so as to read thus:

1. In a combination-lock, the series of wheels of which are set in succession and operated by a spindle, I claim the combination, with the lock-works and with a double time-movement that controls the same, of a connection, H, whereby when the time-movement releases the lock-works the latter still remain locked, substantially as and for the purpose specified.

2. I claim, in combination with a time-movement and a lock, the lever H, or equivalent, arranged so as to be connected with the dog, substantially as described.

The first claim was again rejected June 23, 1873, by a reference to Newton's Journal of 1832, (Rutherford's patent of 1831,) as describing the application of a double time-movement "to any bolt of a lock, bar, or other fastening," and to the American patent of Holbrook, of 1858, as showing a double time-movement. The letter of rejection, referring to the Hollen patent, says that Hollen

applies the movement to a tumbler-lock, which has to be operated by a key after the time-movement releases it. To double the time-movement in one lock is considered to be one and the same thing with doubling it in any other. To grant Hollen a patent for applying this time-movement to a tumbler-lock, and then to issue other patents for using it with other locks, is simply to nullify Hollen's patent. Sargent is entitled to a limited claim for his way or adaptation, but nothing more.

This last observation meant that the second claim would be allowed, but not the first. The point of this ruling was that it was not a patentable invention or combination to unite a time-movement with a combination-lock instead of with a tumbler-lock, each of which required to be unlocked after its release, or to double a clock in connection with one lock after it had been doubled in connection with another, but that the special arrangement of a lever-connection between the time-movement and the dog might be patented.

Two new claims were then substituted by Sargent, as follows:

1. I claim, in combination with a combination-lock having a spindle and combination-wheels, and with two or more separate time-movements, a single lever, or equivalent connection, H, connecting the lock and the time-movements, the whole so arranged that said lock is released either by a simultaneous action of the time-movements or by one of them, if the other fails, and the lock still remains locked when so released, as specified.

2. I claim, in combination with a time-movement and a lock, the lever H, or equivalent, connected with the dog C, to hold it from falling into the slots or notches of the combination-wheels except when released from the clock-work, as specified.

The first claim was again rejected July 5, 1873, on the ground that the change in it did not take the case out of the references; and on the 28th of July, 1873, Sargent appealed to the Board of three Examiners in-Chief. The decision of the Board sustaining the decision of the Examiner was rendered October 7, 1873. It refers to the English patent of Rutherford of 1831, and says:

The patent of Rutherford describes an ordinary key-lock, to which the time-movement is so connected that it may be set for a given hour, before which it cannot be unlocked, but may be at any time thereafter. Rutherford also foresaw that one time-movement might stop, and suggested two. Rutherford, as the references show, is not the only one who has thought of thus connecting a time-movement to a lock. It happens, however, that the locks shown in the references are all key-locks, while applicant's is a combination-lock, and it is upon this that the claim is founded. While it is undoubtedly true that the combination-lock is the better, there does not appear to be, in any true sense, any new combination in what applicant claims. It may be said that he has substituted in the Rutherford combination (for example) one well-known element for another, and that the result—namely, the security against unlocking before a given hour—is exactly the same in both cases; and it must be remembered that this is the whole end and scope of the combination claimed, not to prevent breakage, or picking, or bursting with gunpowder, but simply unlocking before the hour appointed. It is true that the lock connected to the time-movement in the manner shown is rendered secure against unlocking by unauthorized persons who pick up the combination when the dog rests on the periphery of the cams; but it appears clear that this results from the peculiar mode of application and is covered by the second claim. Whatever the advantage, then, arising from the substitution for the key-lock, so far as has been pointed out to us, it results from the superiority of the former over the latter and not from the combination; nor, so far as we see, has any invention been exercised. The time-movement was originally invented to prevent locks from being prematurely unlocked, and when once the combination had been invented it is obvious that it was as applicable to one form of locks as to another; and to grant a patent for the union of the time-movement with every old form of lock, or with every new form which might appear, would manifestly place unjust restrictions on the original invention and defeat the very purpose of the law. We understand only the first claim to be rejected.

These observations are true, as the record in this case shows, and it also shows many patents in which, prior to 1873, one clock or two clocks were employed to relieve, at a predetermined time, the bolts of a door from a dog obstructing their retraction, so that the door could be opened when that time had arrived, but not before.

Nothing more was done with this application till March 18, 1875, when Sargent presented a new specification and claims, making prominent the feature of the free rotation of the tumblers of the combination-lock, through the medium of the lock-spindle, during the suspension, by the time-movement, of the unlocking action of the combination-lock, and changing the claims to read thus:

1. The combination of a time-movement with a combination-lock and a lever constructed and located to render inoperative such combination-lock until a predeterminate hour, the tumblers of the combination-lock being free to rotate, through the medium of the lock-spindle, while the unlocking action of the combination-lock is suspended by the time-movement.

2. I claim, in combination with a time-movement and a lock, the lever H, or equivalent, connected with the dog C, to hold it from falling into the slots or notches of the combination-wheels except when released by the clock-work, substantially as described.

On the 24th of March, 1875, the first claim was again rejected by references to the Hollen patent of December, 1871, and the Rutherford patent of 1831. The letter of rejection said:

Hollen shows the combination of a time-movement and a lock with a lever constructed and located to render inoperative such lock until a predeterminate hour, the tumblers of the lock being free to rotate, through the medium of a key, while the unlocking action of the lock is suspended by the lever. Rutherford shows (figures 1, 2, 3, 4, and 5, sheet 2) the combination of a time-movement and a lock with a lever arranged to engage with the bolt of a lock and render inoperative such lock until a predeterminate hour. To merely substitute the ordinary combination-lock, such as shown, for example, in the patent permutation-lock of James Sargent, August 28, 1866, for the lock shown in either of the above references, is not regarded as a patentable difference. . . . . The second claim is not objected to. The first claim is again refused.

This application was not further prosecuted. On the 12th of July, 1875, Sargent addressed a letter to the Patent Office, entitled in the case, in which he said:

So many amendments and actions having been made in the above-entitled case, I desire to withdraw and abandon it, for the purpose of filing a new application. I, James Sargent, have this day filed said application for the invention, and request that the model of the case above named be applied as a model in the application filed to-day. I intend and request that this application be a substitute application for the one so withdrawn.

Up to this time no bolt-work had been shown or described. The object of the new application was to introduce bolt-work as an element in the device. The drawings were the same as those in No. 186,369, showing bolt-work, with the time-movements and the combination-lock. Bolt-work was added to the former model. The specification contained three claims, as follows:

1. The combination, substantially as hereinbefore set forth, of a time mechanism and a combination-lock with the bolt-work of a safe or vault door, the time mechanism being constructed to act in conjunction with and render inoperative the combination-lock when locked, said lock having its bolt or bearing arranged to rest upon and receive the pressure of the bolt-work of the door when locked and prevent the unlocking of said bolt-work until the arrival of a certain predeterminate time.

2. The combination, substantially as hereinbefore set forth, of a combination-lock and the bolt-work of a safe or vault door with a time-movement and a lever-connection, said lever being constructed and located to render the bolt or bearing of the combination-lock inoperative when locked, the tumblers of the combination-lock and its spindle being free to rotate while the bolt-work of the door rests upon the bolt or bearing of the combination-lock.

3. In combination with a time-movement and a lock, a lever, or its equivalent, adapted to be connected with the dog of said lock, to hold it from falling into the slots or notches of the combination-wheels except when released by the time-movement, substantially as described.

On the 31st of July, 1875, claims 1 and 2 were rejected by references to the patent of Hollen of December, 1871, and that of Rutherford of 1831, and a time-lock arranged in connection with the bolt-work of a door, in the time-lock of Little, patented in January, 1874, was referred to. Those claims were again rejected September 6, 1875, in a letter, which said:

The employment of locks of various kinds for securing the bolt-work of a door is too common and well-known to require further references. Either Hollen's or Rutherford's lock can be applied to the bolt-work of a door without the least change being made to adapt it thereto. The mere substitution of one well known kind of locks for another kind equally well known has been decided again and again as not a patentable difference.

On December 3, 1875, an interference was declared between claims 1 and 2 and four other applications, and between claim 3 and four other applications. On February 12, 1876, the interference as to claims 1 and 2 was dissolved and they were again rejected. A further amendment of the specification was made February 15, 1876, and claims 1 and 2 were altered so as to read as follows:

1. The combination, substantially as hereinbefore set forth, of a time mechanism and a combination-lock with the bolt-work of a safe or vault door, the time mechanism being constructed to act in conjunction with and render inoperative the combination-lock when locked, said lock having its bolt or bearing constructed to receive the pressure of the series of bolts constituting the bolt-work of the door when locked and preventing the unlocking of said bolt-work until the arrival of a certain predeterminate time.

2. The combination, substantially as hereinbefore set forth, of a combination-lock and the series of bolts constituting the bolt-work of a safe or vault door with a time-movement and a lever-connection, said lever being constructed and located to render the bolt or bearing of the combination-lock inoperative when locked, the tumblers of the combination-lock and its spindle being free to rotate while the bolt-work is held in its locked position by the bolt or bearing of the combination-lock.

The claims were not allowed; but a new interference as to them was declared March 8, 1876, with the same four applications, the subject-matter being "the combination of a time mechanism and a combination-lock with the bolt-work of a door."

On the 11th of January, 1877, the application was amended by withdrawing claims 1 and 2. Two days before this, and on January 9, 1877, Sargent had filed the application on which No. 186,369 was granted. The special construction and arrangement of parts, a claim for which, as the specification of that patent states, was made in a separate application, were covered by the claim of patent No. 198,157, granted to Sargent, December 11, 1877, in pursuance of the application of July 12, 1875, that claim being as follows:

In combination with a time movement and a lock, a yoke-lever, or equivalent, adapted to be connected with the dog, fence, or angle-bar of said lock, to hold it from falling into the slots or notches of the combination-wheels except when released by the time-movement, substantially as described.

The present suit does not involve any infringement of No. 198,137.

As before remarked, the specification of No. 186,369, the patent here sued on, contains the following statement:

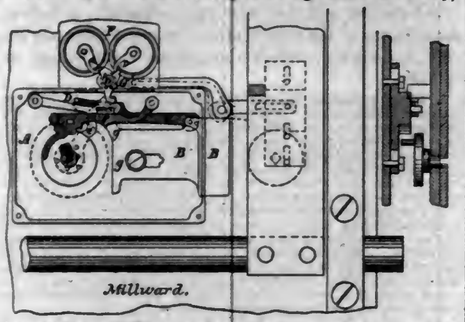
The lock-bolt or bearing of the combination-lock may be of a circular, segmental, or other desired form, provided said lock-bolt is arranged and adjusted so as to turn upon a suitable axis or bearing, and is so constructed that in one position it will prevent the retraction of the bolt-work to retain the safe or vault door locked, while in another position it will admit of the bolt-work being retracted for the purpose of allowing the safe or vault door to be opened.

This clause had not appeared in any of the specifications from and including that filed June 11, 1873, until it was inserted in the one filed January 9, 1877, on which the patent No. 186,369 was granted. It is a limitation without which it must be assumed, in view of the numerous prior rejections, the claims allowed would not have been granted. The same clause was inserted May 7, 1877, in the specification of the application of July 12, 1875, as it remained after claims 1 and 2 therein were withdrawn January 11, 1877, and that clause appears in the specification of No. 198,157, as issued December 11, 1877.

The defendants' lock, which, it is alleged, infringes the two claims of No. 186,369, is of the construction shown by the following drawing made by the plaintiff's witness, Millward:

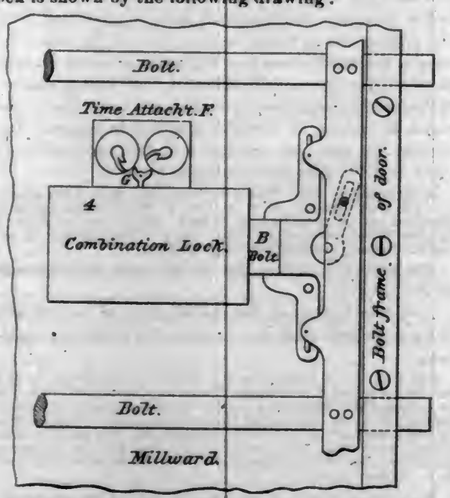
In that drawing, A is the case of the lock; B, the bolt; C, the dog, pivoted in the bolt at *c*, and engaging, when held up by the time mechanism, behind a fixed stump, D; E, the arbor of the lock, the hook *e* of

which engages with hook *f* of the dog, and throws the bolt B back when the dog is released by the time mechanism. The same hook, *e*, by running on the surface *g*,



throws the bolt B out to lock the door. F is the time attachment, which has a lever, G, the arm of which, extending through the case of the lock, has the hook H at its lower end, which holds up the pivoted arm I and through it the dog C.

Another form of the bolt-work of the defendants' lock is shown by the following drawing:



It is contended for the defendants that each of the combinations covered by the two claims of No. 186,369 must be limited to the particular devices described in the specification and shown in the drawings, and to their mode of operation, both claims being limited by the words "substantially as hereinbefore set forth," and that under this construction the defendants do not infringe.

The second claim imposes on the combination claimed in it the limitation that the tumblers of the combination-lock and its spindle shall be free to rotate while the bolt-work is held in its locked position by the bolt or bearing of the combination-lock. This is enforced by the language of the specification, which, in stating in what the invention consists, states that "the peculiarity and novelty" of the union or combination, consisting of a combination-lock, a time-movement, and a yoke or lever connection, is that—

> when the said combination-lock, with its time mechanism, is arranged upon a safe or vault door to operate in conjunction with the bolt-work thereon, and all locked, the tumblers or combination-wheels of said lock and the spindle of the same, together with its usual indicator, are all left free to be moved or rotated without exerting any unlocking action or strain whatever upon the mechanism composing the combination-lock or the delicate mechanism composing the time-movement.

Again, the specification says:

> Another feature of the utmost importance present in the combination of parts brought together is that the connection between the time-movement and the combination-lock is such that, when the time-movement is set, the parts adjusted, and the safe-doors closed, the combination-lock will be rendered inoperative until a predeterminate hour, during which interval of time the unlocking action of the combination-lock will be suspended by the time-movement, while the tumblers or combination-wheels of the aforesaid combination-lock are left free to rotate, if power is exerted upon the dial-spindle for the purpose of twisting said spindle out of place, or impairing the lock mechanism, and, by such, the working parts of the combination-lock cannot be injured or rendered useless for future action.

This feature, thus declared to be peculiar and novel, of the free rotation of the tumblers is not shown to exist in the defendant's lock. The plaintiff's expert, Mr. E. S. Renwick, testifies that this peculiarity is not found in the defendants' lock, and that for that reason that lock does not embody the combination of claim 2 of No. 186,369.

As to claim 1, it is limited by the language of the specification to a combination-lock having a bolt or bearing which turns on an axis or revolves. The defendants' lock has a sliding bolt. It was not new at the time of Sargent's invention to apply a time-movement to dog the sliding bolt of a lock, and it is plain that he limited himself to a rotating bolt. The specification makes it as necessary that the combination-lock should have a turning or revolving bolt or bearing as that such bolt or bearing should have the quality of receiving the pressure of the bolt-work when locked. This turning or revolving feature of the bolt or bearing is made by the specification as necessary to the combination-lock of claim 2 as to that of claim 1.

In patents for combinations of mechanism, limitations and provisos imposed by the inventor, especially such as were introduced into an application after it had been persistently rejected, must be strictly construed against the inventor and in favor of the public, and looked upon as in the nature of disclaimers. As was said in *Fay* v. *Cordesman*, (109 U. S., 408, 420:)

> The claims of the patents sued on in this case are claims for combinations. In such a claim, if the patentee specifies any element as entering into the combination, either directly by the language of the claim or by such a reference to the descriptive part of the specification as carries such element into the claim, he makes such element material to the combination, and the court cannot declare it to be immaterial. It is his province to make his own claim and his privilege to restrict it. If it be a claim to a combination and be restricted to specified elements, all must be regarded as material, leaving open only the question whether an omitted device is supplied by an equivalent device or instrumentality. (*Water Meter Company* v. *Desper*, 101 U. S., 332; *Gage* v. *Herring*, 107 U. S., 640.)

These considerations lead to the conclusion that the decree of the Circuit Court was correct and must be affirmed.

THE OFFICIAL GAZETTE OF THE United States Patent Office.

[*BY AUTHORITY OF CONGRESS.*]

VOL. 31—No. 6. TUESDAY, MAY 12, 1885. PRICE—$5 per year.

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The Official Gazette.

The OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883 in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Order No. 235.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, March 10, 1885.

The following sub-classes of Class 56, "Harvesters," are hereby transferred from Division VII to Division XII:

Hay-forks—
Corkscrew,
Grapples,
Harpoon,
Tilting.

(Signed.) R. G. DYRENFORTH, *Acting Commissioner.*

Order No. 245.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, March 23, 1885.

The title of Class 153, "Metal Bending and Straightening," Division XIII, is hereby changed to "Metal-Bending," and the following sub-classes are established thereunder:

Bending.
Curving plates.
Coiling.
Corrugating.
Dishing plates.
Flanging.
Flanging. Straight
Straightening.
Straightening plates and sheets.
Twisting.

(Signed.) R. G. DYRENFORTH, *Acting Commissioner.*

31 O G—6—i

Issue of May 12, 1885.

Patents	477	No. 317,482 to No. 317,958, inclusive.
Designs	11	No. 16,079 to No. 16,089, inclusive.
Trade-Marks	14	No. 12,226 to No. 12,239, inclusive.
Labels	7	No. 4,446 to No. 4,452, inclusive.
Reissues	3	No. 10,595 to No. 10,597, inclusive.
Total issue	512	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	5	....	Nebraska	2	1
Arizona Territory	....	....	Nevada	2	....
Arkansas	2	....	New Hampshire	7	....
California	9	....	New Jersey	22	2
Colorado	....	....	New Mexico Territ'y	....	....
Connecticut	17	1	New York	93	3
Dakota Territory	....	....	North Carolina	3	....
Delaware	....	....	Ohio	39	2
District of Columbia	5	....	Oregon	2	....
Florida	1	....	Pennsylvania	49	4
Georgia	2	....	Rhode Island	6	....
Idaho Territory	....	1	South Carolina	3	....
Illinois	37	1	Tennessee	2	1
Indiana	14	....	Texas	8	....
Indian Territory	....	....	Utah Territory	....	....
Iowa	7	....	Vermont	....	....
Kansas	9	1	Virginia	2	....
Kentucky	2	....	Washington Territ'y	....	....
Louisiana	....	....	West Virginia	3	....
Maine	3	....	Wisconsin	12	....
Maryland	6	1	Wyoming Territory	....	....
Massachusetts	49	1	United States Army	....	....
Michigan	17	....	United States Navy	....	....
Minnesota	6	....			
Mississippi	1	....	Total to citizens of the United States	458	20
Missouri	10	1			
Montana Territory	1	....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Argentine Republic	....	....	Germany	7	....
Austria-Hungary	1	....	Italy	....	....
Barbadoes	....	....	Mexico	....	....
Belgium	....	....	Newfoundland	1	....
Bermuda	....	....	Russia	....	....
British Columbia	....	....	Scotland	1	....
Canada	4	....	Spain	....	....
Chili	1	....	Sweden	....	....
Colombia, U. S. of	....	....	Switzerland	1	....
Cuba	1	....	West Indies	1	....
Denmark	....	....			
Ecuador	....	....	Total to citizens of foreign countries	30	1
England	9	1			
France	3	....			

DESIGNS.

16,079.—PITCHER.—*Edwin Bennett*, Baltimore, Md. Application filed March 28, 1885. Term of patent 7 years.

16,080.—WRITING-PAPER.—*Zenas Crane, Jr.*, Dalton, Mass. Application filed April 6, 1885. Term of patent 7 years.

16,081.—WATCH-CHAIN.—*William H. Graham*, Cuero, Tex. Application filed February 16, 1885. Term of patent 14 years.

16,082.—CLOCK-CASE.—*Luther E. Jerome*, New Haven, Conn., assignor to *The New Haven Clock Company*, same place. Application filed April 13, 1885. Term of patent 7 years.

16,083.—CHILD'S SLED.—*Friedrich C. Lorenz*, Milwaukee, Wis. Application filed April 13, 1885. Term of patent 7 years.

16,084.—RAG CARPET.—*Henry Thiele*, Milwaukee, Wis. Application filed February 2, 1885. Term of patent 14 years.

16,085.—BONBONNIÈRE.—*Benjamin P. Adams*, Brooklyn, N. Y. Application filed January 26, 1885. Term of patent 3½ years.

16,086.—VEHICLE-BODY.—*Barnet A. Aughinbaugh* and *George Morrow*, Urbana, Ohio, assignors to *Aughinbaugh & Baker Bros.*, same place. Application filed April 6, 1885. Term of patent 7 years.

16,087.—TOBACCO-KNIFE.—*Chastine R. Cousins*, Swansonville, Va. Application filed March 31, 1885. Term of patent 14 years.

16,088.—PARASOL.—*William A. Drown*, Philadelphia, Pa. Application filed April 11, 1885. Term of patent 3½ years.

16,089.—TYPE-BORDER.—*George F. Giesecke*, Leipsic, Saxony, Germany. Application filed October 29, 1884. Term of patent 7 years.

TRADE-MARKS.

[Certificates of registration of Trade-Marks numbered 8,191 and upward are registered under the act of March 3, 1881.]

12,226.—ROASTED COFFEE, GROUND OR UNGROUND.—*J. C. Barkley & Co.*, Baltimore, Md. Application filed April 2, 1885.

"The representation of a human face and a circle of radial tapered tangs surrounding the face."

12,227.—METALLIC PENS.—*The Esterbrook Steel Pen Manufacturing Company*, Camden, N. J. Application filed April 21, 1885.

"The word-symbol 'JUDGES.'"

12,228.—METALLIC PENS.—*The Esterbrook Steel Pen Manufacturing Company*, Camden, N. J. Application filed April 21, 1885.

"The word-symbol 'PROFESSIONAL.'"

12,229.—SMOKING AND CHEWING TOBACCO.—*Frishmuth Bro. & Co.*, Philadelphia, Pa. Application filed April 14, 1885.

"The arbitrary word-symbol 'FRISHMUTH'S AMERICAN SHAG' and the ornamental white outlined wheel containing a monogram composed of 'F B & Co.'"

12,230.—CERTAIN NAMED PROPRIETARY MEDICINES.—*L. Gerstle*, Union Depot, Tenn. Application filed April 6, 1885.

"The words 'ST. JOSEPH' or 'ST. JOSEPH'S.'"

12,231.—STEEL PENS AND LEAD-PENCILS.—*Janeen, McClurg & Co.*, Chicago, Ill. Application filed April 17, 1885.

"The word-symbol 'ACORN' or the representation of the same, or both."

12,232.—VOLATILE DISINFECTING AND DEODORIZING SOLUTION.—*Alfred H. Kidney*, Philadelphia, Pa. Application filed April 10, 1885.

"A symbol of a leaf with the letters 'AROMATIC THYMOLA' thereon."

12,233.—REMEDY FOR COUGHS, COLDS, &c.—*Henry W. Little*, Lewiston, Idaho Ter. Application filed June 5, 1884.

"A diagram consisting of a right-angled triangle having squares erected on its sides, and having the word 'EUREKA' contained within it."

12,234.—SOAPS OF ALL KINDS.—*L. & J. Oakley*, Newburg, N. Y. Application filed March 11, 1885.

"The word 'TWIN.'"

12,235.—WHEAT-FLOUR.—*Page, Norton & Co.*, Topeka, Kans. Application filed February 26, 1885.

"The representation of a buffalo."

12,236.—HORSE-MEDICINE CONSISTING OF POWDERED DRUGS.—*George B. Parsons*, Hooper, Nebr. Application filed March 2, 1885.

"The name 'DR. PARSONS,' associated with the picture of two horses and the words 'BEFORE' and 'AFTER.'"

12,237.—COTTONADES.—*John Scanlin & Son*, Philadelphia, Pa Application filed January 24, 1885.

"The words 'EAST LAKE.'"

12,238.—INKS.—*Henry Charles Stephens*, London, England. Application filed April 20, 1885.

"A border composed of plain lines, key ornamentation, and pyramidical figures in each corner, various ribbons twined round the border, and an oval-shaped figure occupying the central field within the border."

12,239.—SHADE FABRICS, SUCH AS HOLLANDS AND PREPARED MUSLINS.—*H. B. Wiggin's Sons*, New York, N. Y. Application filed April 18, 1885.

"The word 'HOLLENA.'"

LABELS.

4,446.—Title: "BIG CAN," (FOR BAKING POWDER.)—*William Condell*, St. Louis, Mo. Application filed April 9, 1885.

4,447.—Title: "IVES' CATARRH CREAM."—*Frederick Ives*, Ogdensburg, N. Y. Application filed April 17, 1885.

4,448.—Title: "PERT'S LITHOCOLLA."—*Wilbur J. Peet*, Bridgeport, Conn. Application filed April 17, 1885.

4,449.—Title: "ELIXIR AGARIC, SACHS, PRUDEN & CO., SOLE PROPRIETORS."—*Sachs, Pruden & Co.*, Dayton, Ohio. Application filed April 16, 1885.

4,450.—Title: "CAUTION" (FOR ALL-WOOL CLOTHING.)—*A. Shuman & Co.*, Boston, Mass. Application filed April 16, 1885.

4,451.—Title: "CREOSOTE PAINT."—*The Sherwin Williams Company*, Cleveland, Ohio. Application filed April 16, 1885.

4,452.—Title: "GEORGE VANDERSLICE'S FAMOUS UNIVERSAL SALVE."—*William B. Zieber*, Philadelphia, Pa. Application filed April 18, 1885.

PATENTS

GRANTED MAY 12, 1885

317,482. CAPSULE-FILLER. W. HARRISON ALBACH and ADDISON J. WHITE, Mansfield, Ohio. Filed Jan. 26, 1884. Renewed Nov. 13, 1884. (No model.)



Claim.—1. In a capsule-filling machine, the combination, with a funnel, of a laterally-movable arm provided with a capsule-holding device, which latter is adapted to hold the capsules in contact with the lower end of the funnel, substantially as set forth.

2. In a capsule-filling machine, the combination, with a funnel, of a movable arm provided with a recessed end, and a removable block for holding the capsule.

3. The combination, with the base provided at one end with an upwardly-extending arm, of a funnel removably secured to the latter, an arm pivoted to the base, and a block secured to the said latter arm and adapted to carry the capsule beneath the funnel, substantially as set forth.

4. The combination, with the base provided with an upwardly-extending arm, of a funnel secured to the end of the latter, a swinging arm pivoted to the base, and a block detachably secured to the free end of said latter arm and provided with a recess, one side of which is made slanting, substantially as set forth.

5. The combination, with the base and an upwardly-extending arm formed thereon, the end of said arm being provided with a supporting-ring, of a funnel removably secured in said ring, an arm pivotally secured to the base and provided on its end with a support, and a block adapted to fit in said support and provided with a recess, one side of which is made slanting, substantially as set forth.

6. The combination, with the base A, provided with the arm B and hole *b*, of a funnel, D, an arm, F, provided with the support G, block H, provided with the hole I, and the plunger L, all of the above parts combined and adapted to operate substantially as and for the purpose described.

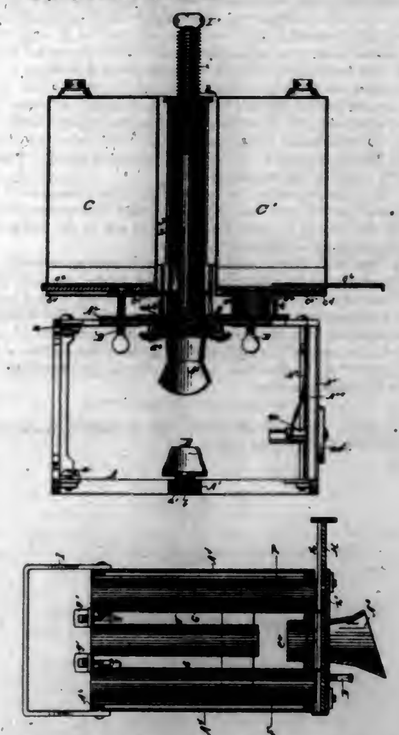
7. In a capsule-filling machine, the combination, with a base provided with a funnel-supporting arm, and a funnel secured to said arm, of a recessed block for holding the open end of one section of a capsule in contact with the lower end of the funnel.

317,483. MANURE-DRILL. JAS. D. ARMSTRONG, Rocky Mount, N. C. Filed Dec. 22, 1884. (No model.)



Claim.—In a fertilizer-distributer, the plates D D', screw H, central plate, D^6, and adjustable curved fertilizer-guides K K', in combination with the draft-frame, box E, and axle-tree C, having arms F, and arranged to operate substantially as and for the purpose set forth.

317,484. CARTRIDGE-SHELL LOADER. JOHN T. BAIRD, Olney, Ill. Filed Aug. 13, 1884. (No model.)

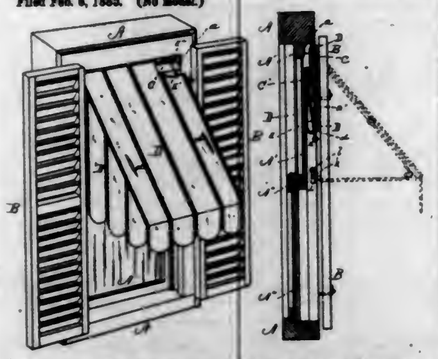


Claim.—1. The combination of the independently-adjustable receptacles, as C C', each provided with a slide attached to and adapted to be moved under it, each of the slides having a short open tube, with a shifting slide having two short open tubes telescoping with the tubes on the slides under the receptacles, whereby the load from each receptacle may be regulated independently of the other, as set forth.

2. The combination of the independently-adjustable ammunition-receptacles and loading and shifting slides therefor, and wad-tubes, with independent adjusting devices on each, and a wad-slide whereby both the size of the load from each receptacle and the passage of a wad of any thickness from each tube is regulated and insured, as set forth.

3. In a shell-loader, the combination, with the independently-adjustable ammunition-receptacles and slides with telescoping tubes for loading the ammunition in adjustable charges, of a pair of wad-tubes each provided with a regulating-plate, G, on the facing sides thereof, said plates having the screws *g* and adjusting-nuts *g'* at the top thereof, and a wad-slide having two openings for the reception of wads, and raised edges *h*, substantially as and for the purpose set forth.

317,485. WINDOW-AWNING. THOMAS L. BARLOW, Boston, Mass. Filed Feb. 6, 1885. (No model.)



Claim.—1. The combination, with the upper and lower cross-pieces, C C', of the awning-frame, of the jointed rods E and E', said rod E being rigidly secured to said cross-pieces, and said rod E' being pivotally secured to the same, substantially as and for the purpose set forth.

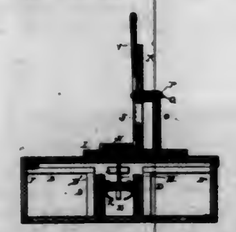
2. The combination, with the upper and lower cross-pieces, C C', of the jointed rod E, rigidly secured thereto, and the jointed rod E', pivotally secured thereto, said rods being bent horizontally and outwardly at their upper ends, E'', substantially as and for the purpose described.

3. The combination of the cross-pieces C C', the jointed rods E E', and the awning-covering D, provided with the slits or openings *d*, substantially as and for the purpose set forth.

4. In a window-awning, the combination of the cross-pieces C C' and jointed rods E E', said rods being jointed below their centers, whereby when the awning is folded the cross-pieces will be one below the other, substantially as described.

5. The herein-described window-awning, consisting, essentially, of the following parts, viz: the cross-pieces C C', jointed rods E E', provided with the horizontal ends E'', adapted to be inserted in holes in the plates *a*, secured to the upper portions of the inner sides of the window-frame, horizontal rods H, loosely secured to the cross-pieces C', and adapted to be inserted in suitable openings in the central portions of the inner sides of the window-frame, and the covering D, substantially as and for the purpose set forth.

317,486. WASHING-MACHINE. OBED W. BARNARD, Seneca, Kans. Filed May 27, 1884. (No model.)



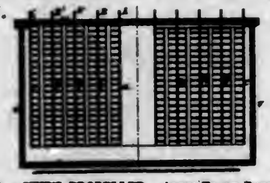
Claim.—1. The combination, with the suds-box A, having the horizontal cleats B B' B² near the upper edges on the inner faces of its sides, the spaces C C, and the vertical cleats D D, of the auxiliary suds-box having its side boards projected at the ends of said suds-box, substantially as specified.

2. The combination of the suds-box A, having the hinged lid G, the horizontal cleats B B' B² near the upper edges on the inner faces of its sides, the spaces C C, and the vertical cleats D D, the base-plate I, secured to the hinged lid, and having the post O, the oscillating gear-wheel R, having handle V, the agitator-shaft H, having pinion N engaging with gear-wheel R, and the plate K, having stirrers M, and the auxiliary suds-box having its side boards projecting at the ends, substantially as described.

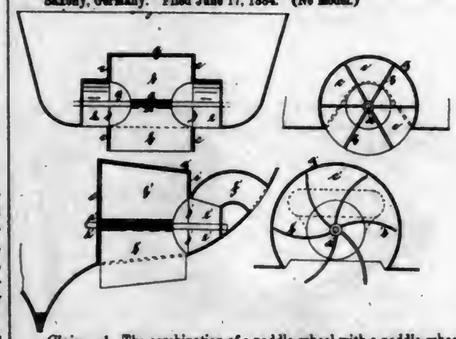
317,487. ELECTRICAL ACCUMULATOR. JULES J. BARBIER, FERDINAND TOURVIELLE, and JULES E. LESAY, Paris, France. Filed July 5, 1884. (No model.) Patented in France Jan. 27, 1883, No. 153,993.

Claim.—In an electric battery, the externally-grooved tube *a*, combined with the doubly-grooved tube *b* and internally-grooved tube *c*, the said tubes being coated with a mastic of sugar, litharge, and platinized carbon, as described, each tube being secured to one end of the vase *v*, substantially as herein shown and described.

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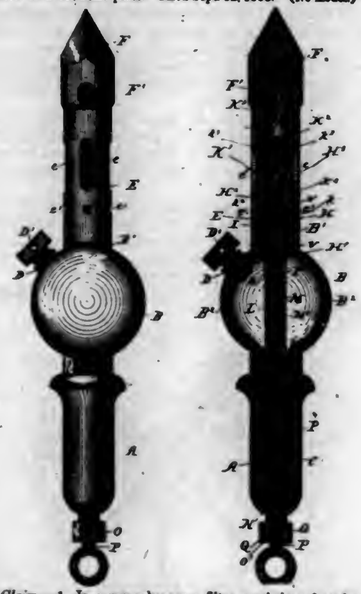
317,488. SHIP'S PROPELLER. ALBIN FRANZ BARTH, Grossenhain, Saxony, Germany. Filed June 17, 1884. (No model.)



Claim.—1. The combination of a paddle-wheel with a paddle-wheel chamber having a lateral opening for admitting water near the axis of the wheel, and allowing the lower part of the wheel to project so as to admit water freely at the front and at the back of the lower paddles, for the purpose of combining with the ordinary paddle-wheel action the reaction resulting from the admission of water at the center and its discharge at the rear of the wheel, substantially as described.

2. The combination of a paddle-wheel with a paddle-wheel chamber, and a lateral suction-chamber communicating with the paddle-wheel chamber through an axial opening, the paddle-wheel projecting below the wheel-chamber, so as to allow free access of water to the front and to the back of the lower paddles, substantially as and for the purpose described.

317,489. VAPOR-BURNER FOR SOLDERING AND BRANDING IRONS. LEOPOLD BAUMEISTER, Bridgeport, Conn., assignor to L. Baumeister & Co., same place. Filed Sept. 12, 1883. (No model.)



Claim.—1. In a vapor-burner, a filter consisting of a tube closed at each end by a roll of wire-gauze or equivalent material, and filled with particles of a solder made of silver, copper, and tin in about equal quantities, as described, and for the purpose set forth.

2. The vaporizer having plugs H' H², and a filter, I, containing particles of a solder made of silver, copper, and tin in about equal quantities, in combination with the tube K'; the platinum coil, and the tip K².

3. A vapor-burner for soldering-irons, consisting of a tube, K', having apertures through which air is admitted to mix with the vapor, and at its opposite end a platinum coil covered by a tip, the latter having apertures to admit air to support combustion, and an opening at the top through which the flame escapes.

4. The globular reservoir and a filter of a solder made of silver, copper, and tin in about equal quantities, in combination with tube K', the platinum coil, and the tip K², all combined as and for the purpose set forth.

5. In a vapor-burner, plug H², having a minute orifice for the escape of vapor, the outer tube having apertures *e* and *e'*, and the inner tube having apertures I^2, whereby air is admitted to mix with the vapor, in combination with the platinum coil and the tip having perforations I^2 to admit air at the point where combustion takes place.

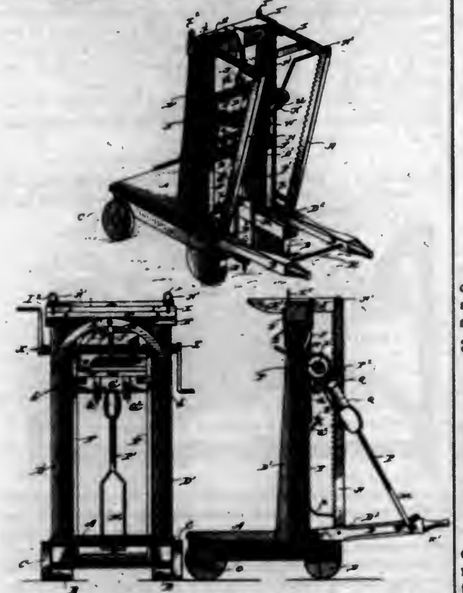
6. Plug H², having a minute orifice, and plug H', having funnel-shaped opening, in combination with filter I, constructed as described, the inner and outer tubes perforated, as shown, the platinum coil, and the tip covering the same.

7. Plug H', the wick-tube screw-threaded thereto, and the inner and outer wicks, in combination with plug H², a filter, tube E, a platinum coil, and a tip covering the same, as described, and for the purpose set forth.

317,490. COMPOSITION FOR LUBRICATING METALLIC SURFACES. HARLEY W. BELKNAP, Bradford, N. H., assignor, by mesne assignments, to himself and Henry C. Bartlett, same place, and Joseph A. Hartshorn, Boston, Mass. Filed Mar. 19, 1885. (No specimens.)

Claim.—The herein-described composition of matters to be used for lubricating purposes, it consisting of the petroleum or mineral oil termed in commerce "500 A Oil," graphite, or plumbago, paraffine-wax, tallow, and sulphur, combined or mixed in or about in the proportions as set forth.

317,491. POST-HOLE AUGER. JOHN BEBBE and ABRAHAM SHIVELY, Rocky Ridge, Ohio. Filed Nov. 12, 1884. (No model.)



Claim.—1. The combination, with the platform having the vertical ways connected by a girder having a spring-catch, of the hinged rack-bars having the hinged connected dogs, and the sliding frame with the transverse crank-shaft with pinions and miter-gear, and the swinging frame having the auger-bit with a miter-gear at its upper end, substantially as specified.

2. The combination, with the transverse shaft L, having bearings in the sliding frame G, and provided with the cross-pin U, of the spring-arm V, secured to the cross-bar W of frame R, substantially as specified.

3. The combination, with the truck-frame having vertical ways and a cross-rod, R', of the hinged rock-bars, hinged connected dogs, the sliding frame, the hinged frame, the auger-bit, and gearing, substantially as described, for operating the auger-bit, as set forth.

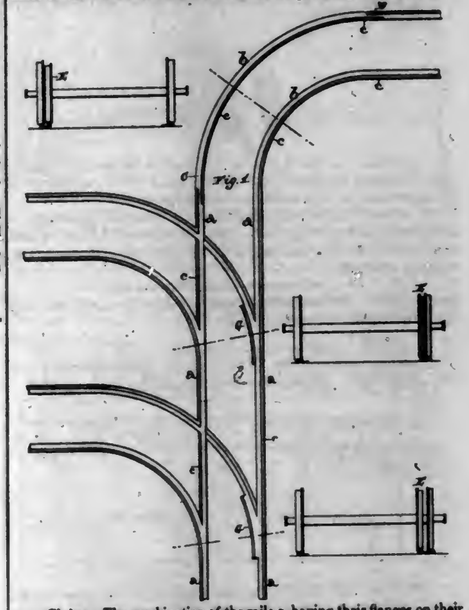
4. The combination, with the truck and its vertical ways, of the hinged rack-bars H, springs for forcing the said bars outward, pivoted dogs or catch-arms I, staples P, holding the dogs in place, the transverse shaft having pinions to engage the rack-bars, the auger-shaft, and gears on the latter and on the transverse shaft, as and for the purpose set forth.

5. The combination, with the truck having the vertical ways and a cross-rod, R', of the sliding frame moving on the ways, and a swinging frame carrying the auger and attached to the sliding frame, as and for the purpose set forth.

6. The combination, with the truck having the vertical ways, of the sliding frame carrying the swinging frame with the auger, and spring-catches for the swinging frame, as set forth.

317,492. REDUCTION OF FRICTION BETWEEN THE RAILS AND WHEELS ON CARS ON STREET-RAILROADS. DENNIS A. BOLAND, Allegheny, Pa. Filed Mar. 20, 1884. (No model.)

Brief.—One of the rails has its flange reversed at the curve, and a wheel of less diameter than the main wheels is loosely mounted on the axles of the truck and takes the reversed flange as it passes the curve



Claim.—The combination of the rails *a*, having their flanges on their outer edges, with the rails *b*, one of which has its flange upon its inner edge, and the car-axles provided with extra loose wheels E, substantially as shown.

317,493. DRILL AND SUCKER ROD JOINT. ALEXANDER M. BOLLINGER, Kelly's Station, Pa. Filed Mar. 21, 1885. (No model.)



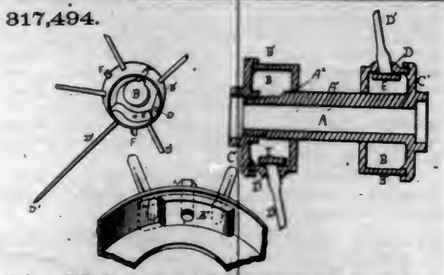
Claim.—In a sectional drill-rod, the combination consisting of the enlarged ends united by means of a tapering male and female screw, a recess cut in the outside of each enlargement, a notched bolt therein extending across the joint, and locking the same, a spring riveted to said bolt and operating to force the same outwardly, and a staple or bar across each recess to hold the bolt in place by engaging with its notches, and prevent any movement of the bolt other than that necessary for its release by a compression of the spring.

317,494. WHEEL-HUB. GEORGE S. BRIGGS, Rockford, Ill. Filed Sept. 27, 1884. (Model.)

Claim.—1. The combination, with the hub-section B, having the annular flange B', the latter furnished with the mortises D, of the movable spokes D', the spoke-regulators E, and the set-screws F, substantially as described.

2. The combination, with the hub-sections B B, having the annular flanges B' B', the latter furnished with the mortises D D, of the spoke-

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regulators E E, the set-screws F F, the combined axle-box and disk A C', and the combined nut and disk C, substantially as described.

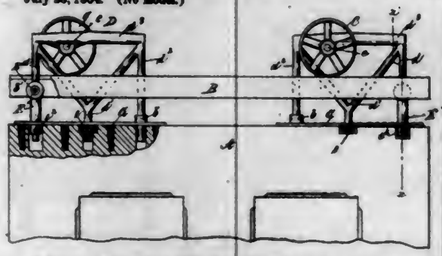
317,495. FENCE. JAMES BRYANT, Indianapolis, Ind. Filed Oct. 24, 1883. (No model.)



Claim.—1. A rail, A, having the bead B, flat portions C, apertures D to admit the pickets, and the bent end N for the attachment of an adjacent rail, to form a corner, substantially as described.

2. The rail A, having the bead B, flat portions C, and apertures D to admit the pickets, in combination with the pickets F, having the bent portions G, for securing said pickets in the concavity of the bead, substantially as described.

317,496. DOOR-HANGER. CHARLES W. BULLARD, Chicago, Ill. Filed July 23, 1884. (No model.)



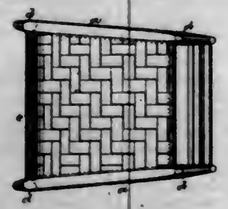
Claim.—1. The combination, with the door and the beams beveled on their inner faces, of brackets secured to the door and having wheels to rest upon the beams, and rollers mounted on said brackets with their axes at right angles to the beams, and arranged to bear against the beveled faces thereof, substantially as and for the purposes specified.

2. The combination, with the door and the beams beveled on their inner faces, of brackets secured to the door and having wheels to rest upon the beams, and rollers adjustably mounted on said brackets with their axes at right angles to the beams, to bear against the beveled faces thereof, substantially as and for the purposes specified.

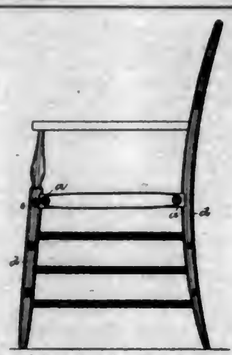
3. In a door-hanger, the rollers E, mounted on sleeve E', adjustably secured on bracket D, substantially as and for the purposes specified.

4. The combination, with the door and the beams beveled on their inner faces, of the brackets adjustably secured to the door, and having wheels to rest upon the beams, and rollers adjustably mounted on said brackets with their axes at right angles to the beams, to bear against the beveled faces thereof, substantially as and for the purposes specified.

317,497. CHAIR. GEORGE LYMAN BURDETT, Keene, N. H. Filed Feb. 4, 1884. (No model.)



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Claim.—In a chair such as described, the chair-frame, in combination with the seat, consisting of the frame *b* and the wood binding *a*, wound about the frame, and the rung *c*, secured in front of the seat, whereby the front of the wood binding is kept from wear, as set forth.

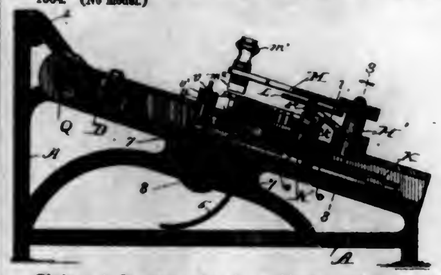
317,498. MEANS FOR FORMING HINGE-PIN HOLES. NORMAN BURDICK and JAMES A. SANDFORD, Albany, N. Y. Filed Jan. 23, 1885. (No model.)



Claim.—1. The sheet-metal pin-hole shell B, having attached thereto hood C, whereby said shell will be accurately adjusted within a recess made in a hinge-knuckle pattern, with a correspondence of form with that of the said hood, and be supported within the mold when the pattern is withdrawn from the same, substantially as and for the purposes set forth.

2. The combination, with recess D, made in a hinge-knuckle pattern, of sheet-metal pin-hole shell B, provided with hood C, substantially as and for the purposes set forth.

317,499. TYPE-WRITING MACHINE. SAMUEL S. BURT, Chicago, Ill., assignor of one-half to Alvinus B. Wood, Ann Arbor, Mich. Filed Mar. 5, 1884. (No model.)



Claim.—1. In a type-writer, the combination, with a type-disk having upper and lower case letters alternately represented in types placed in a continuous series thereon, of an indicator having the upper and lower case letters alternately arranged, but in different series, and a printing-lever adapted to said indicator, substantially as described, and for the purpose set forth.

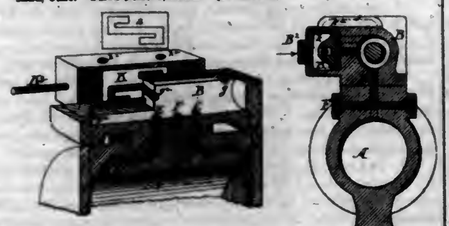
2. In a type-writer, the combination, with a pivoted printing key or lever, of a disk lying under the lever, a rod carrying an arm and adapted to be rocked by the lever, a plunger, and means, substantially as described, for connecting the rod and plunger, all constructed and operating substantially as described, and for the purpose set forth.

3. In a type-writer, the combination, with a printing-lever, of a rotating stud carrying a segmental rack, a gear-wheel operated by said rack and having fixed pins and a type-disk adapted to slide up and down on said pins and to be rotated thereby, substantially as described, and for the purpose set forth.

4. In a type-writer, the combination, with a printing-lever and rocking bar provided with a crank and a fixed arm, and means, substantially as described, between the crank and lever, of an escapement-lever constructed and arranged substantially as described, so that pressure on the printing-lever will operate the escapement, for the purpose set forth.

5. In a type-writer, the combination, with a feed-roller, of a paper-holder having a downhanging skirt and a rocking bar, said holder being pivoted to said bar in such manner that it holds the paper upon said roller by its own weight, substantially as described.

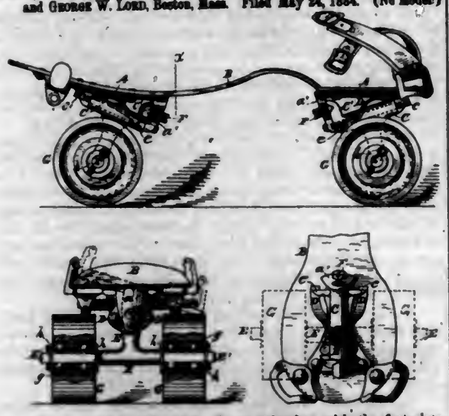
317,500. STEAM-ACTUATED VALVE. CHARLES H. BURTON, Cleveland, Ohio. Filed June 4, 1884. (No model.)



Claim.—1. The valve K, inclosed in a steam-chamber and having grooves or channels in its face arranged to register with ports *g g'* alternately, substantially in the manner and for the purpose specified.

2. The combination, with the main valve D, provided with the grooved pistons D' D² and intermediate pistons or disks, D³ D⁴, of the auxiliary valve K, provided with S-shaped groove communicating with the ports *g g'* and port *g³*, and the cylinder A, with its ports E E and exhaust F.

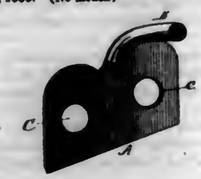
317,501. ROLLER-SKATE. GEORGE D. BURTON, New Ipswich, N. H., and GEORGE W. LORD, Boston, Mass. Filed May 24, 1884. (No model.)



Claim.—1. In a roller-skate, the combination, with the foot-plate, of truck-stands rigidly secured thereto, rocker-bars pivoted to said truck-stands and having axles for the rollers, and also lugs provided with countersinks, springs normally holding said axles parallel with the bottom of the foot-plate, and pointed adjusting-screws tapped in said truck-stands with their points entering said countersinks, whereby the rocking movements of the foot-plate on the trucks may be varied or entirely arrested, as may be desired, substantially as set forth.

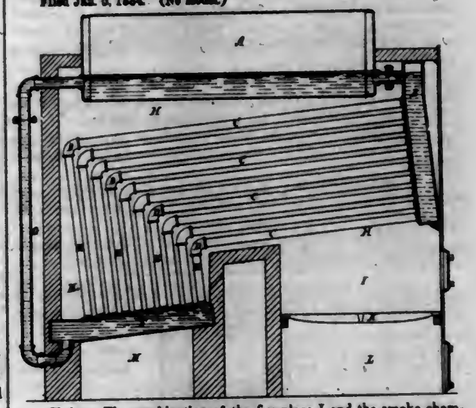
2. In a roller-skate, the combination, with the foot-plate, of truck-stands rigidly secured thereto, rocker-bars pivoted to said truck-stands and having smooth cylindrical axles for the rollers, springs normally holding said axles parallel with the bottom of the foot-plate, rollers provided with bushings each formed in one piece and having interior grooves or recesses, and balls adapted to fit in said grooves or recesses and to rest on the convex surfaces of said axles, substantially as set forth.

317,502. PLASTERER'S HOE. PATRICK C. CANFIELD, Ashtabula, Ohio. Filed May 31, 1885. (No model.)



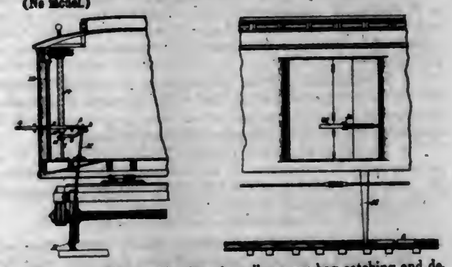
Claim.—The hoe-blade A, having its central portion re-enforced by a rib, *b*, a continuation of the tang, and provided with perforations or apertures C C, one arranged upon each side of a vertical plane passing through said rib or thickened portion of the blade, substantially as shown, and for the purpose set forth.

317,503. STEAM-BOILER. WILLIAM WALLACE CARMAN, Exeter, N. H. Filed Jan. 5, 1884. (No model.)



Claim.—The combination of the fire-place I and the smoke-chamber H with the steam-drum arranged in the upper part of and extending upward out of and above such chamber, the two boxes B and F, extending across the said chamber in its upper and lower parts, the pipes *a* and G, connecting such drum and boxes, and the stacks of pipes C and E, connected by elbows D, and opening into and extended from one to the other of the said boxes and within the chamber H, all being substantially as set forth.

317,504. MAIL-BAG CATCHER. PETER B. CASSIDY, Pittsburg, Pa., assignor of one-half to James Crawley, same place. Filed Mar. 27, 1885. (No model.)



Claim.—1. The combination of a railway-car bag catching and delivering device, consisting of a catching-hook, spring-actuated ratchet-disk, and pawl, with a pawl-tripping lever pivoted to the floor of the car, having its lower end extended so as to travel alongside of the track-rail, substantially as and for the purposes described.

2. The combination of a railway-car bag catching and delivering device, consisting of a catching-hook, spring-actuated ratchet-disk, and pawl, with a pawl-tripping lever pivoted to the floor of the car, with its lower end extended to the side of the rail, and a wedge or cam shaped tripping device for turning the lever on its pivot so as to disengage the pawl, and a spring for restoring the lever to its normal position, substantially as and for the purposes described.

3. The combination of a railway-car bag catching and delivering device, consisting of a catching-hook, spring-actuated ratchet-disk, and pawl, with a drum connected with the said disk, a cord or rope leading from said drum over a suitable sheave to the car-door, and a car-door provided with a closing-spring, substantially as and for the purposes described.

4. The combination of an oscillating bag-catching hook arranged in a car with a car-door provided with a slot for the passage of said hook, substantially as and for the purposes described.

5. The combination of an oscillating bag-catching hook having lateral extensions with a car-door provided with a slot for the passage of the hook, and a narrow opening for the passage of the lateral extension of the hook, of sufficient width to permit the extension to pass through it in an angling direction only, substantially as and for the purposes described.

6. In a bag-catching device, the combination of a standard for sup-

porting the mechanism, a spring-actuated disk carrying the bag-hook and provided with a ratchet-rack and pawl, a hollow shaft encircling the standard and connected with said disk, a drum mounted loosely on the standard and provided with a ratchet-rack and pawl, a cord leading from said drum around a suitable sheave, and a spring-actuated car-door with which said cord is connected, substantially as and for the purposes described.

7. The combination of the hollow shaft 14, drum 17, mounted loosely thereon and provided with a ratchet-rack, 19, a rigid arm, 31, connected with the shaft, pawl 33, provided with a weighted arm, 42, pivoted to the arm 31 and arranged to engage with the rack 19, substantially as and for the purposes described.

8. The combination of the ratchet 19, arm 31, provided with stop 34, pawl 33, provided with weighted arm 42, and spring 36, provided with stop 37, substantially as and for the purposes described.

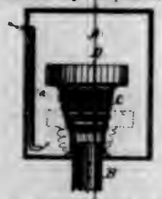
9. The combination of the ratchet 19, arm 31, provided with stop 34, pawl 33, and curved guide 40, substantially as and for the purposes described.

10. The combination of the rack 19, arm 31, provided with stop 34, pawl 33, spring 36, provided with stop 37, and curved guide 40, substantially as and for the purposes described.

11. The combination of the standard, hook-disk 2, shaft 14, arm 44, and stop 43, substantially as and for the purposes described.

317,505. FLUSH-TANK FOR WATER-CLOSETS, SEWERS, &c.

WINFIELD S. CHAPLIN, Schenectady, N. Y. Filed Oct. 23, 1884. (No model.)



Claim.—1. In combination with a flush-tank, an outflow or flush pipe, a receptacle with a passage through it, and a flexible water-tight connection between the outflow-pipe and said receptacle, all relatively arranged to operate substantially as described.

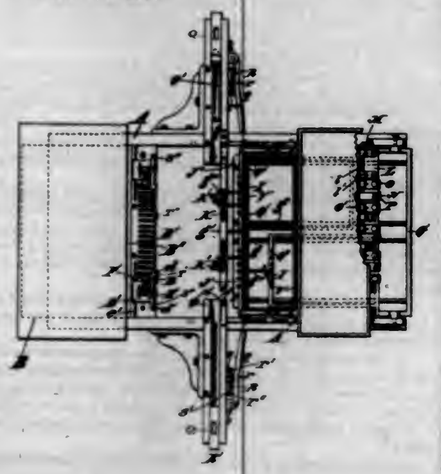
2. In combination with a flush-tank, an inclosing pipe or casing, as E, therein, an outflow-pipe, B, and a receptacle, D, having a passage therethrough, inclosed in said pipe E, and connected to the mouth of said outlet-pipe by a flexible water-tight connection, substantially as described.

3. In combination with the escape-pipe B, the flexible diaphragm secured by one edge to the end thereof, the receptacle D, secured to the other edge of said diaphragm, and an inclosing pipe or casing, E, all constructed and relatively arranged substantially as described.

4. The combination, with a flush-tank of an inclosing-casing, as E, an escape-pipe, B, a receptacle, D, and a flexible diaphragm connecting the same to the escape-pipe, and a weight, F, connected to receptacle D by a lever, substantially as shown and set forth.

317,506. BOOK-SEWING MACHINE.

EDWARD CHESHIRE, Cincinnati, Ohio, assignor of one-half to Elizabeth Cheshire, same place. Filed May 28, 1884. (No model.)



Claim.—1. In a book-sewing machine, the combination, with the feed-table B″, of the signature-slitting knife-bars D *d d′*, mounted thereon, and adapted to be operated at the termination of the stroke of said feed-table to slit the signature, and automatically retracted to their normal position, substantially as herein set forth.

2. In a book-sewing machine, the combination, with the feed-table B″ and knife-bar D, of an adjustable plate, D′, upon which the said knife-bar is pivotally mounted and adapted to operate in connection with varying-sized signatures, substantially as herein set forth.

3. In a book-sewing machine, the combination, with the feed-table B″, knife-bars D, and adjustable plates D′, of the signature-guides F, adjustably secured upon said plates D′ to adapt the machine to accommodate varying-sized signatures, substantially as herein set forth.

4. In a book-sewing machine, the combination, with the feed-table B″, having tenoned edges *b*, fitting in grooves in the main frame and provided with notches *b′*, of vertical rods O, thrust upwardly into locking engagement with said feed-table by a cam, *c*, on the driving-shaft *c′*, and disengaged, substantially in the manner and for the purpose specified.

5. In a book-sewing machine, the combination, with the feed-table B″, of a transverse rod, T, suspended beneath the forward signature-fold edge of the table and adapted to support the shuttle-thread during the passage of the shuttle across the machine to insure its proper connection with the needle-twines and obviate any entanglement thereof, substantially as herein set forth.

6. In a book-sewing machine, the combination, with the feed-table B″, of the presser-heads or bumpers T′ T″, attached beneath the edge of the toothed plate of the table, the end or outer bumpers, T′, being provided with overhanging springs *t* to guide the shuttle-thread into the slits in the ends of the signatures, substantially as herein set forth.

7. In a book-sewing machine, the combination, with the shuttle-raceways Q, of the compression or lock pins *s s′*, mounted upon the pivotal bar R, the pressure-lever *q*, and plate H, carried by the reciprocating needle-frame adapted to catch and hold the shuttle at either end of its stroke, substantially as herein set forth.

8. In a book-sewing machine, the combination, with the feed-table B″ and carriage B, of the shuttle raceways or troughs Q, provided at their inner ends with an oblique offset or shoulder, 8, and a pin, 8′, the offset being adapted to form a receptacle for the shuttle-thread, to prevent its jamming between the feed-table and raceway when stretched between the shuttle and the sewed signatures, and the pin to serve as a positive stop for the feed-carriage, substantially as herein set forth.

9. In a book-sewing machine, the combination, with the feed-table, of a transverse bar, K, rigidly mounted upon the main frame and provided with adjustable springs K′ *i i′*, which closely set the fold of the signature upon the toothed edge of said feed-table and press it down firmly during the slitting and sewing operation, substantially as herein set forth.

10. In a book-sewing machine, the combination, with the main needle-frame G, of hinged bars J, provided with open thread-passages *j*, and attached to the fore end of said needle-frame, being locked in position and adapted to be opened for the adjustment of the needles while threaded, substantially as herein set forth.

11. In a book-sewing machine, the combination, with the kettle-stitch frames G′ G′, of upright arms or hooks I, adapted to receive a turn or turns of the kettle-stitch twines, and form a take-up for the twine which is not to be looped with the shuttle-thread, substantially as herein set forth.

12. In a book-sewing machine, the combination, with the reciprocating needle-frames G G′, of tension spring-bars N, take-up hooks *n′*, plates O, and eccentrics O′, mounted upon a shaft provided with pendent arms M, and operated for the forward movement of the needle-frames by coil-springs M′, and for the backward movement thereof by a stop, P′, substantially as herein set forth.

317,507. BOOK-SEWING MACHINE.

ELIZABETH CHESHIRE and EDWARD CHESHIRE, Cincinnati, Ohio. Filed May 24, 1883. (No model.)

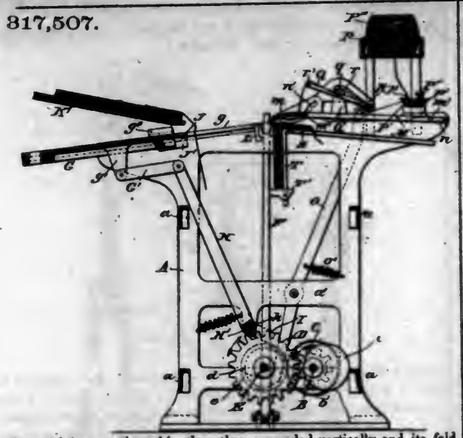
Claim.—1. In a book-sewing machine, the signature-feeding carriage G, in combination with a needle carriage or frame, M M′, both carriages being mounted upon a suitable frame, substantially as described, so that they advance toward each other and at the point of meeting perform the sewing operation by means of an ordinary shuttle and suitable driving mechanism, substantially as herein set forth.

2. A book-sewing machine composed, substantially, of a horizontal reciprocating signature-feeding carriage, G J *j* J′, horizontally-reciprocating needle-frames M M′, and a shuttle, L′, with its customary driving mechanism, the said carriage G and needle-frames M M′ being mounted upon a frame, and adapted to operate in the manner and for the purpose specified.

3. In a book-sewing machine, the combination, with the needle-frame M *m*, of the kettle-stitch needle-frames M′ M′ N, moving on ways or bars within said frame M, and adapted to operate substantially as herein set forth.

4. In a book-sewing machine, the combination, with the horizontally-moving signature-carriage G, of a toothed or comb-shaped plate, J *j*, adapted to support the signature in an open condition with one leaf

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thereof lying on the table, the other suspended vertically and its fold against the toothed edge of said plate, and to provide unobstructed passages for the sewing-needles on the meeting of the feeding and needle frames, substantially as herein set forth.

5. In a book-sewing machine, the feeding-carriage G, having the toothed plate J *j*, in combination with the presser-heads or bumpers J′ J′, which sustain the hanging leaf or leaves of the signature during the sewing operation, and simultaneously compress the previously-sewed signatures, substantially as herein set forth.

6. In a book-sewing machine, the combination, with the signature-feeding carriage G, of the laterally-adjustable raceways L L, having a gap or intervening space between said raceways which is capable of being lengthened or shortened to accommodate different-sized signatures, substantially as herein set forth.

7. In a book-sewing machine, the combination, with the needle-carrying frames M M′, of the open rectangular frame Q, pivotally mounted on the main frame of the machine and adapted to suitably take up the slack in the twines, and a series of tension-plates, *p p′* P″, one for each twine, substantially as and for the purpose specified.

8. In a book-sewing machine, the combination, with the needle-frames M M′ *m* N, of pins or studs *m′ m″*, moving in slots or ways *n n′* on the main frame, the pins *m′* moving in the straight slots *n*, and the pins *m″* moving in irregular or curved slots *n′*, to impart the proper downward motion or dip to the needles as they pass through the fold of the signature, substantially as and for the purpose specified.

317,508. NEEDLE.

ELIZABETH CHESHIRE and EDWARD CHESHIRE, Cincinnati, Ohio. Filed May 19, 1884. (No model.)



Claim.—A needle composed of a grooved bar bent in two lines, one of such lines, which is straight and comprises the eye-pointed end of the needle, being bent at an obtuse angle to the other line, which is slightly arched outward and comprises the body of the needle, substantially as and for the purpose specified.

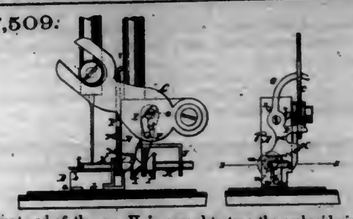
317,509. EMBROIDERING ATTACHMENT FOR SEWING-MACHINES.

FRANKLIN H. CHILTON, New York, N. Y., assignor to the Empress Embroiderer Company, same place. Filed June 16, 1884. (Model.)

Brief.—The thread-carrying arm of the attachment is arranged horizontally over and in line with the foot, and is provided with means for giving it a horizontal movement, such as a bifurcated lever acting between stops secured to said arm, and with means for imparting a rotary movement to said arm at the end of its forward stroke, such as a pinion and a segmental rack, the latter being actuated by the levers operated by the needle-bar.

Claim.—1. The frame A, having a presser-foot, D, and provided with means whereby it may be attached to the presser-bar of a sewing-machine, in combination with the thread-carrying arm H, arranged over and in line with the length of the foot D, a lever for giving the arm H a direct sliding movement, and a rack and pinion for imparting a rotary movement to said arm at the end of its forward stroke, whereby the

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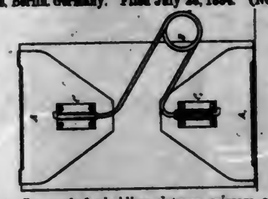
bent front end of the arm H is caused to turn the embroidering-thread toward and in front of the sewing-needle only at the completion of the forward stroke of said arm, substantially as set forth.

2. In an embroidering attachment for sewing-machines, the supporting-bracket A, having a foot, D, combined with the thread-carrying arm H, having its front end extending at substantially right angles to the main portion thereof, and provided with a lip, *t*, along its lower edge, and a pin, *u*, in line with the body of said arm, means for giving said arm a sliding movement, and means, substantially as described, for imparting to it a rotary movement at the end of its forward stroke, whereby its front end is turned to a position in front of the sewing-needle, the lip *t* being at this time above the embroidering-thread, substantially as set forth.

3. The frame A, provided with a presser-foot, D, and means for permitting its attachment to the presser-bar of a sewing-machine, in combination with the thread-carrying arm H, arranged horizontally over and in line with the length of the foot D, means for giving said arm a sliding movement, pinion *m*, lever M, having a rack, N, and arms O P, and the lever C, substantially as set forth.

317,510. ADJUSTABLE FRAME FOR PICTURES, &c.

REINARD CROWAMUS, Berlin, Germany. Filed July 26, 1884. (No model.)

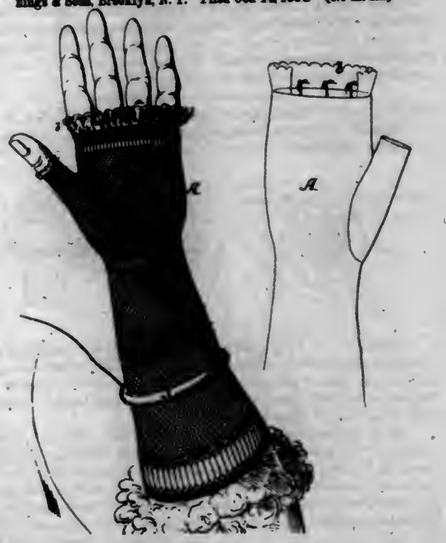


Claim.—1. In stands for holding pictures, mirrors, and other plates, sheets, or frames, the combination of a pair of clamps adapted to hold the plate or frame on opposite sides, with a spring pivoted to the said clamps and adapted to draw the same together, substantially as described.

2. The combination of clamps A and A′ with spring B, hinge-piece C, hinge-piece C′, and means for securing the spring B in its standing position, substantially as described.

317,511. MITT.

ADNA B. CLARKE, Chicago, Ill., assignor to A. G. Jennings & Sons, Brooklyn, N. Y. Filed Oct. 14, 1884. (No model.)



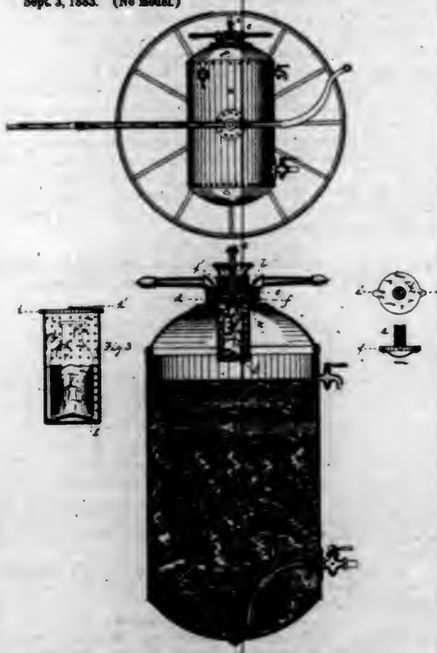
Claim.—A mitt having one or more transverse elastic bands or cords, *a*, across its lower end, and a border, *b*, for concealing the same, substantially as and for the purpose specified.

317,512. STOVE-BOARD. WM. P. COLE, Montreal, Quebec, Canada. Filed Nov. 13, 1883. (No model.)



Claim.—The described stove-board, consisting of the upper external layer of asbestus, the board or frame, the intermediate layer of woven fabric, the metallic edge-binders, and the corner-caps, substantially as shown and described, and for the purpose set forth.

317,513. CHEMICAL FIRE-EXTINGUISHER. THOMAS E. CONNELLY, Pittsburg, Pa., assignor of one-half to John S. Connelly, same place. Filed Sept. 3, 1883. (No model.)



Claim.—In a chemical engine or fire-extinguisher, the combination of a basket or perforated cage having a cushioning-spring arranged in its bottom, a crushing-plunger having a cushioning-spring at its lower end, and an interposed frangible chemical receptacle, substantially as and for the purposes specified.

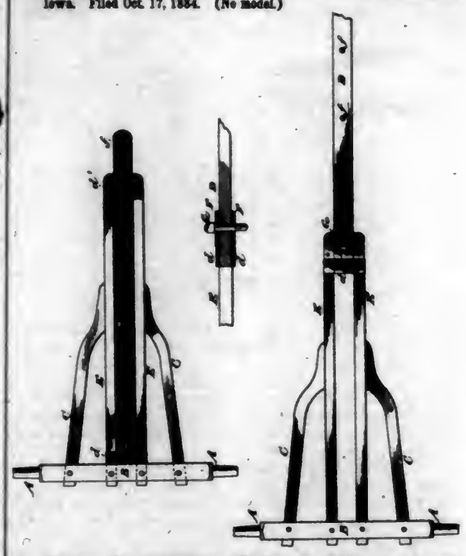
317,514. ROLLER-SKATE. CONRAD M. CONRADSON, Madison, Ill., assignor of one-third to Frederick A. Johnson, same place. Filed Jan. 5, 1885. (No model.)



Claim.—1. In a roller-skate, the combination, with the rollers and their axle, of the bearing containing anti-friction rollers or balls arranged between the walls of the bearing and the axle, and disks or washers arranged between the rollers and the ends of the said bearing, substantially as and for the purposes specified.

2. In a roller-skate, the combination, with the rollers D and their axles C, of the bearing A, containing anti-friction rollers or balls surrounding the said axle, and disks or washers arranged between the rollers and the ends of the bearing A to close the ends of the said bearing and form an abutment for the rollers, substantially as and for the purposes specified.

317,515. RUNNING-GEAR FOR WAGONS. JOHN COPPLE, Sibley, Iowa. Filed Oct. 17, 1884. (No model.)

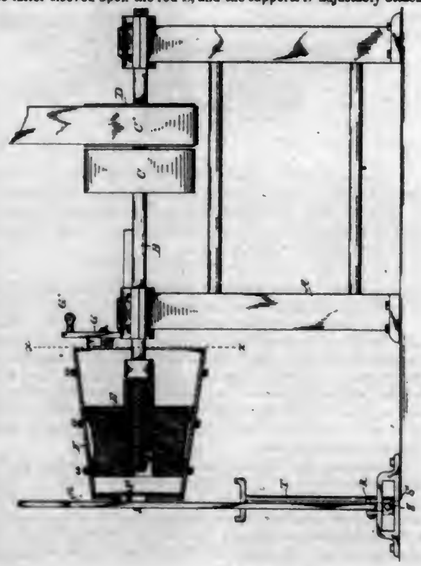


Claim.—The combination, with the axle, bolster, bounds, and reach, of the interior parallel extension-bars, E E, the middle perforated cross-plates, F F, on the ends of said parallel bars, and the plates *d d* on the rear end of reach, all constructed and arranged as shown and described.

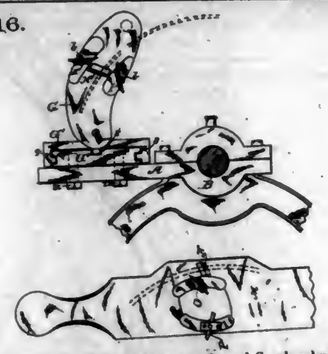
317,516. MACHINE FOR MAKING TUBS. MATHEW CORCORAN and CHARLES M. GATES, Rock Falls, Ill. Filed Mar. 6, 1885. (No model.)

Claim.—1. The combination of the shaft B, provided with the chuck E, the lever G, provided with the handle G^2, and with the knives H I K, and the plate G', such plate being adjustably seated on the frame A, and the lever G adjustably pivoted at its lower end to the plate G', perpendicular to the line of such first adjustment, whereby the attached end of such lever may be shifted in two directions, so as to adapt said knives to tubs of variant diameters and lengths, substantially as shown, and for the purpose described.

2. The combination of the shaft B, provided with the chuck E, the lever M, provided with the knives N O P, the rod S, supports S', and the part R, the lever M being pivoted at its lower end to the part R, the latter sleeved upon the rod S, and the supports S' adjustably attached

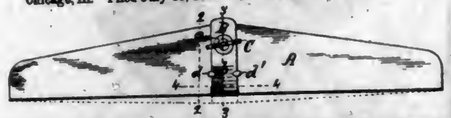


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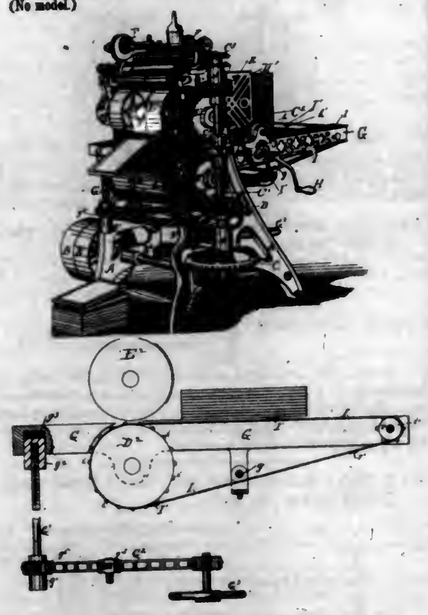
to the floor in slots placed perpendicular to the rod S, whereby the pivoted end of the lever M is rendered susceptible of adjustment in cross directions, so as to adapt its knives to tubs of varying diameters and lengths, substantially as shown, and for the purpose specified.

317,517. COMBINED STRAIGHT-EDGE AND GAGE. MILO COVEL, Chicago, Ill. Filed July 15, 1884. (No model.)



Claim.—The combination, with a straight-edge, of the adjustable gage-plate B, provided with the elongated slot D, the thumb-screw C, and the gage-points *d d'*, constructed and arranged to operate as and for the purpose set forth.

317,518. WOOD-PRINTING MACHINE. JOHN R. CROSS, Chicago, Ill.; Mary L. Cross, administratrix of John R. Cross, deceased, assignor, by mesne assignments, to Mary L. Cross, same place. Filed June 12, 1882. (No model.)



Claim.—1. In a wood-printing machine, the bed carrying the lower cylinder, pivoted upon transverse pivots and provided with adjustable supports at its cylinder end, substantially as set forth.

2. In a wood-printing machine, the pivoted bed provided with supports at the cylinder end, having interposed rubber cushions, substantially as set forth.

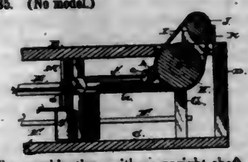
3. In a wood-printing machine, the combination, with the pivoted bed, of the screw-columns supporting the end of the same, the sprocket-chain by which the columns are uniformly adjusted, the wheels around which said chain passes, and the hand-wheel for actuating the chain, substantially as specified.

4. In a wood-printing machine, the type-cylinder, the impression-cylinder operating the endless feed, and said feed, in combination with the shaft for operating said cylinders, when said shaft is made in two parts, substantially as and for the purpose specified.

5. In a wood-printing machine, the combination, with the endless feed, of a blanket for preventing injury to the under surface of the wood blanks secured to and traveling with said feed, substantially as specified.

6. In a wood-printing machine, the combination, with the type and impression cylinders, of an endless feed passing around the impression-cylinder, and consisting of the sprocket-chains and the cross-bars, the latter being constructed and serving to connect such chains, and to feed the boards to the cylinders at the proper intervals, substantially as specified.

317,519. HORSE-POWER. WM. T. CROSS, Whiteville, Tenn. Filed Mar. 21, 1885. (No model.)



Claim.—The combination, with an upright shaft having a band-wheel thereon, a shaft having a band-wheel and pulley thereon, a shaft located above the frame and carrying a band-wheel, a strap connecting the band-wheel E and pulley L, a pulley on said strap, an idler mounted in posts or uprights, and a cord carrying a weight at its end, said cord being connected with the bracket of the pulley *b*, substantially as set forth.

317,520. THILL-COUPLING. CLARENCE L. DALTON, Cincinnati, Ohio, assignor of one-half to Richard Phares, same place. Filed Feb. 11, 1885. (No model.)



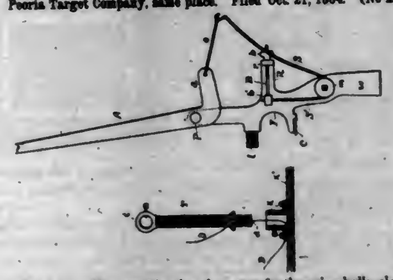
Claim.—1. The combination, in a thill-coupling, of a removable headless coupling-pin and a double bearing-spring, one end of which presses forward against the eye of the thill-iron, and the other ends of which press back directly against the coupling-pin and at the same time engage with it to form a lock for the same.

2. The combination, in a thill-coupling, of a removable headless coupling-pin and a double bearing reversed coiled spring, the inner upturned end of which presses forward against the eye of the hill-iron, and the other upturned ends of which press back directly against the coupling-pin to lock the same, and which have their extremities formed into grasping-loops, substantially as described.

3. The combination, in a thill-coupling, of a removable headless coupling-pin and a double bearing-spring supported by a tie or brace rod, substantially as described.

4. The combination and arrangement of the thill-iron F, clip B, with its perforated ears E, headless coupling-pin G, spring H, and support *d*, the parts constructed and relatively arranged in the manner and for the purpose specified.

317,521. BALL-TRAP. FRED C. DAHM, Peoria, Ill., assignor to the Peoria Target Company, same place. Filed Oct. 21, 1884. (No model.)



Claim.—1. The combination, in a trap for throwing balls, clay pigeons, and other objects, of the throwing-arm A, having bent end *a* and pivot P, a frame-piece, F, to which said arm is pivoted, provided with

a projection, R, having ear *r*, a bolt, B, passing through said ear, a spring secured at one end to the head of said bolt, and at its other end connected with the end *a* of said throwing-arm, and a set-nut, *b*, for said bolt, whereby the tension of said spring can be regulated, substantially as set forth.

2. The frame-piece F, having a projection, R, and an ear, *r*, at the end thereof, in combination with the arm A, pivoted to said frame-piece, the bolt B, passing through said ear, the set-nut *b*, for longitudinally moving said bolt, the V-spring *s*, pivoted at its vertex to said frame-piece, and having its end *s'* secured to said bolt, and the link *c*, joining the working end of said spring to the said arm A, substantially as and for the purpose herein specified.

3. In a ball or target trap, the frame-piece F and cylindrical lug *l*, projecting therefrom and having an angular groove thereabout, in combination with the standard T, having socket *t* and passage *d*, the standard-socket *k*, adapted to receive the lower end of said standard, and suitable screws passing through the sides of said sockets, substantially as and for the purpose described.

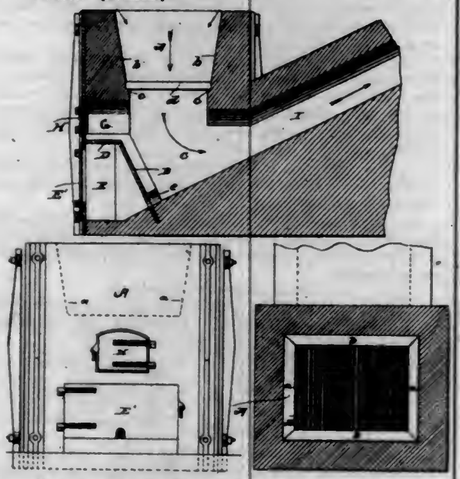
4. In a ball or target trap, the frame-piece F, having lug M, the cap *m*, and bolt *m'*, in combination with the V-spring *s*, coiled at its vertex, an anchor for the end *s'* of said spring, and a link joining the working end thereof to the throwing-arm A, pivoted to said frame-piece F, as and for the purpose specified.

5. In a ball and target trap, the combination, with the frame-piece F, a throwing-arm pivoted thereto, and a spring for impelling said arm, of the projection N, L-shaped catch *c*, pivoted thereto, a coiled spring, N', secured at its ends to the lower end of said projection, and to the tail *c'* of said catch, and a cord, D, fastened to said tail, as and for the purpose set forth.

6. The terminally-weighted frame-piece F, having projections N and R and lugs *l* and M, in combination with the bent throwing-arm A, pivoted to said frame-piece, the V-spring *s*, held at its vertex to said lug M by the cap and bolt *m m'*, a link, *c*, joining the working end of said spring to the bent end of said throwing-arm, a bolt, B, passing through the ear *r* of said projection R and connected to the end *s'* of said spring, a set-nut, *b*, for adjusting said bolt, the snap-catch *c*, pivoted to said projection N, cord D, for depressing said catch, the standard T, and standard-socket *k*, as set forth.

7. In a throwing mechanism of the kind herein set forth, a frame-piece and a spring adapted to have the line of its pull at approximately right angles to said frame, in combination with the L-shaped throwing-arm A, pivoted at or near its vertex to said frame-piece, and having the point of attachment of said actuating-spring at the end of the shorter arm of said throwing-arm, substantially as and for the purpose specified.

317,522. SMOKE-PREVENTING FURNACE. DAVID DAVIS, Newburg, Ohio, assignor of one-half to John M. Davidson, same place. Filed Jan. 24, 1885. (No model.)



Claim.—1. The combination, with the fire-pot, of the chamber C, the flue I, and the partition B, having an opening and forming a chamber, E, substantially as set forth.

2. The combination, with the fire-pot, of the chamber C, flue I, passage G, closed by a door, and the chamber E, having an opening, *s*, in the inclined wall thereof, substantially as set forth.

317,523. WEEDING-TOOL. CONSTANT DROUHE, Port Richmond, N. Y. Filed Sept. 22, 1884. (No model.)

317,523.



Claim.—In a double-bladed weeding-tool or scuffle-hoe, the combination, with the bifurcated shank, of flat plates rigidly secured in one plane to the end of the same, said plates constituting the cutting-blades of the tool and having cutting-edges formed on their three outer edges, their adjacent inner edges being plain, square, and smooth, substantially as and for the purposes hereinbefore described.

317,524. HOLLOW AUGER. GEORGE W. ENGLAND, Merrimac, Mass. Filed Mar. 17, 1884. (No model.)



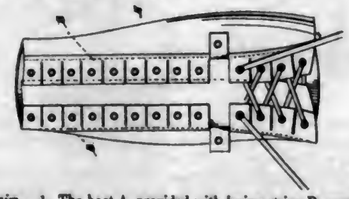
Claim.—A hollow auger consisting of a stock provided with an internal screw-thread and a beveled seat, and the bit having cutters and a shank threaded to engage with the screw-thread of said stock, and having a beveled shoulder to fit said seat, as and for the purpose specified.

317,525. HORSE-BOOT. JOSEPH FENNELL, Cynthiana, Ky. Filed Mar. 16, 1885. (No model.)



Claim.—The combination, with a lower boot-section and an upper boot-section, of a loop made of metal or equivalent material secured to one of the boot-sections, and a flexible strap passing through the loop and having its ends laid together and secured to the other boot-section, forming a hinge-joint, substantially as set forth.

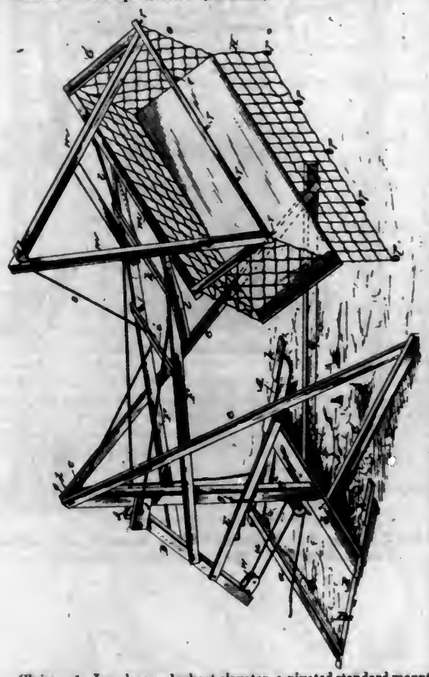
317,526. ELASTIC HORSE-BOOT. JOHN H. FENTON, Chicago, Ill. Filed Oct. 28, 1884. (No model.)



Claim.—1. The boot A, provided with lacing-stripe B, consisting of independent flaps or tags *a*, having holes *b*, substantially as and for the purpose specified.

2. The boot A, having lacing-strips B, consisting of independent flaps or tags *a* with holes *b*, in combination with the lacing-cord C, substantially as and for the purpose specified.

317,527. HAY AND WHEAT ELEVATOR. PETER F. FLEMING, Huntsville, Mo. Filed Apr. 3, 1885. (No model.)

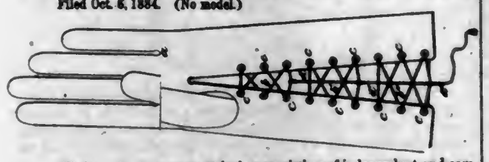


Claim.—1. In a hay and wheat elevator, a pivoted standard mounted upon a supporting-frame, and a pivoted lever, in combination with a ratchet-bar pivoted to the lever and engaging with a keeper on the standard, and a pivoted basket connected to arms which are in turn pivoted to the lever, substantially as and for the purpose set forth.

2. In a hay and wheat elevator, a supporting-frame provided with runners, a standard pivoted to the frame, and pivoted supports having angular braces connected to the standard, in combination with a dumping-basket, a pivoted lever, and ratchet-bar, substantially as and for the purpose set forth.

3. In a hay and wheat elevator, a dumping-basket consisting of a frame and netting having at its front an apron held by rings and pins, in combination with arms pivoted to a lever and to the basket, and fulcrum-rods connected to the arms and pivoted to the standard of the supporting-frame, substantially as and for the purpose specified.

317,528. LACING FOR GLOVES. EDWARD FORBES, Chicago, Ill. Filed Oct. 6, 1884. (No model.)



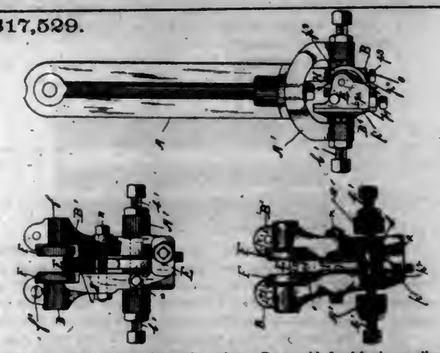
Claim.—1. A permanent lacing consisting of independent and complete sections, the lacing alternating in each from eyelet to eyelet, in combination with operating-cords manipulating all the sections, substantially as set forth.

2. A permanent lacing consisting of independent and complete sections, the lacing alternating in each from eyelet to eyelet, in combination with operating-cords and a slide, *f*, substantially as set forth.

317,529. NAIL-PLATE FEEDER. JOHN C. GOULD, Chicago, Ill. Filed Jan. 27, 1885. (No model.)

Claim.—1. The combination, in a nail-plate feeder, of gripper B', having hollow pin *e*, with the opposing gripper, B, and the spring *g*, held in said pin and acting to spread the grippers, substantially as specified.

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2. In a nail-plate feeder, the gripper B, provided with the angling surface *p*, but having no lateral movement, the intermediate piece actuated by the push-rod and carrying the roller *r*, working upon said surface *p*, and the laterally-moving gripper B', all combined and operating substantially as specified.

3. In combination in a nail-plate feeder, the gripper B, having the inclined surface *p* and guards p^2, with the intermediate piece E, provided with roller *r*, bearing upon said inclined surface, substantially as specified.

4. In a nail-plate feeder, the combination, with the grippers, of the gripping-surfaces composed of rotatable vertical disks, substantially as specified.

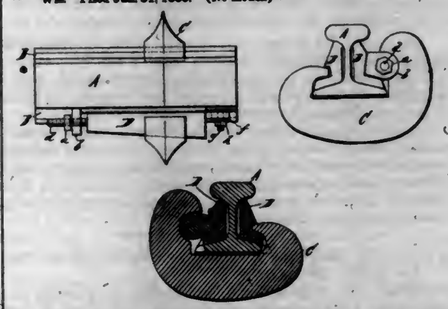
5. In a nail-plate feeder, the combination, with the grippers, of the supporting bracket and yoke when the latter are made separate from each other and adjustably secured together, substantially as specified.

317,530. APPLYING BOILER-COVERINGS. WILLIAM S. GRUBB, Baraboo, Wis. Filed Dec. 6, 1884. (No model.)



Claim.—The herein-described method of applying boiler-coverings, consisting in drying the material composing the covering in separate slabs of suitable thickness, applying moist kaolin to the surface of the slabs sustaining them beneath the vessel, substantially as explained, then wrapping the covering and applying a finishing-coat, substantially as set forth.

317,531. FISH-PLATE FASTENING. WILLIAM S. GRUBB, Baraboo, Wis. Filed Jan. 31, 1885. (No model.)



Claim.—1. In a fish-plate fastening, the chair extending under the rails and up on both sides and the wedge bearing against one plate and against the chair, said wedge having a threaded neck and nut, and a bearing for the nut, these parts being arranged and combined substantially as and for the purposes set forth.

2. The combination, with the longitudinally-moving wedge, the chair, and the fish-plate, of the adjustable locking-block, substantially as and for the purposes set forth.

3. The combination, with the two fish-plates, of the chair passing under the rails, one part entering a recess in the plate on one side and the other part having a seat for the wedge, the wedge bearing against the second plate, the nut, and the bearing therefor, arranged substantially as shown and described.

317,532. BOILER-FEEDER. GEO. E. HALL, New York, N. Y. Filed June 21, 1884. (No model.)

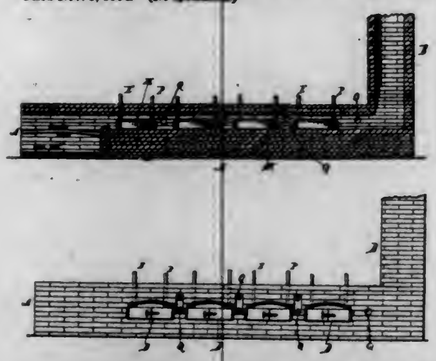


Claim.—1. The combination, with a steam-boiler, of a feed-water pipe or pipes arranged in the lower part of said boiler and beneath the water-level, said pipes bent to form parallel arms, the under side of one of which is perforated and adapted to deliver water in downwardly-projecting jets and in varying quantities over the lower surface of the boiler.

2. The combination, with a steam-boiler, of a feed-water pipe or pipes arranged in the lower part of said boiler and below the lowest water-level, said pipes bent to form parallel arms, the under side of one of which is perforated or provided with small jet-pipes, the sum of the area of the said perforations or openings in jet-pipes being slightly greater than the area of the pipe or passage through which the water is conveyed to the boiler.

3. The combination, with a steam-boiler, of a feed-water pipe arranged within the lower part of said boiler, said pipe formed of two arms arranged parallel to each other, one of which is perforated upon its lower side in such a manner that the number of perforations shall be greatest over that portion of the boiler that is located over the fire-box, substantially as described.

317,533. PROCESS OF CASTING METALS. MARTIN P. HAYES, Chicago, Ill., assignor of one-half to Frederic Mortimer Atkinson, same place. Filed Nov. 3, 1884. (No specimens.)



Claim.—1. The process herein described of casting metal, which consists in first subjecting in a furnace air-tight molds made entirely of refractory material to a heat approximating that of the molten metal to be cast, then exhausting the air and introducing the molten metal, and finally slowly reducing the temperature of the furnace, as set forth.

2. The process of casting described, which consists of subjecting molds of refractory material joined with a luting to heat in a furnace, raising the temperature of said molds to a point corresponding to that of the molten metal, exhausting the air from the air-tight molds and introducing the molten metal therein, and slowly reducing the heat of the furnace, as set forth.

317,534. FIRE-ESCAPE. CHRISTOPHER HOELL, St. Louis, Mo. Filed Apr. 13, 1885. (No model.)

Claim.—1. A scaling-ladder for fire-escape use, consisting of a single beam, A, having hooked arm B, provided with a metallic band, secured thereto so as to be flush with the surface of the beam, as set forth.

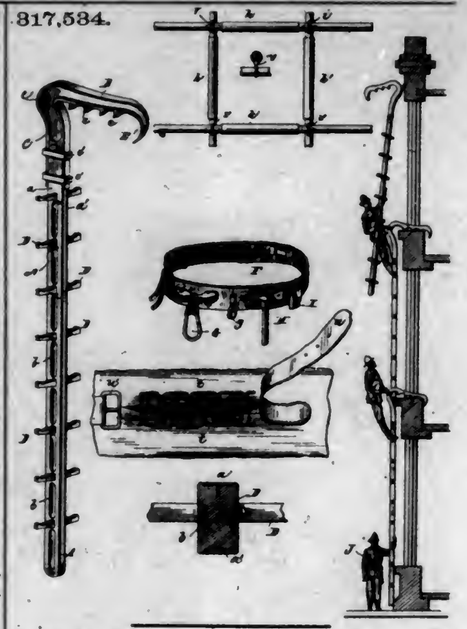
2. A single-beam fire-escape ladder bound with a continuous metallic band flush with the surface of the beam, as set forth.

3. The combination, with a single-beam ladder, having arm B, hook E, and offset *c*, of the belt F, provided with snap-hook G, as and for the purpose set forth.

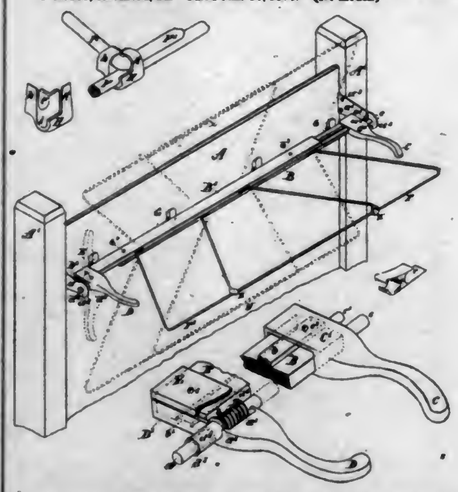
4. The combination, with the safety-tube, of the cross-rods *k k' k'*, connected at their intersecting points by the swivel-joints *v*, as and for the purpose set forth.

5. The combination, with a safety-tube provided with outlets, of the lace-line *t* and the strap and buckle *u u'*, as and for the purpose set forth.

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317,535. PILLOW-SHAM HOLDER. SOLOMON T. HOLLY and ARTHUR I. HOLLY, Rockford, Ill. Filed Jan. 16, 1885. (No model.)



Claim.—1. The combination, with the supporting-bracket *a*, having the bearing a^3, of the combined socket and handle D' D, the latter provided with the chamber *d*, the spring-bolt d^3, having the annular projection d^3, shoulder d^3, and journal d^3, the spiral spring *d'*, and the cap E, substantially as set forth.

2. The combination, with the half-shaft B', provided with the groove *b'*, of the wire frame-work F', the half-shaft B, provided with the tongue *b*, and the wire frame-work F, substantially as described.

3. The combination, with the clip H, having the slots *i i'* and points *h h'*, of the frame-work wires F F', provided with the angles *f f'*, and parallel embedded portions *g' g³*, substantially as described.

4. In a pillow-sham holder, the combination, with the supporting-brackets *a a'*, of the shaft B B', provided at one end with the journal *c* and detent-pin *c'*, and at the opposite end with the spring-actuated bolt d^3, acting to force the detent-pin *c'* into the detent-holes a^3, substantially as set forth.

5. In a pillow-sham holder, the combination, with the wooden shaft B B', of the sham-holding frame F, the horizontal part *g'*, the angles *f f'*, and part g^3, substantially as set forth.

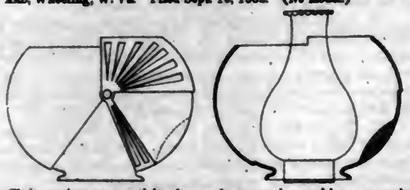
6. The combination, with the half-shaft B, having the tongue *b*, of the frame-work F, the half-shaft B', having the groove *b'*, the frame-work F', the supporting-bracket *a'*, provided with the bearing a^4, and detent-holes a^3, the combined handle and socket C C', the latter having the journal *c* and detent *c'*, the combined socket and handle D' D, the latter provided with the chamber *d*, the spring-bolt d^3, having the annular projection d^3, shoulder d^3, and journal d^3, the spiral spring *d'*, the cap E, the supporting-bracket *a*, provided with the bearing a^3, and the clip H, having the slots *i i'* and points *h h'*, substantially as set forth.

317,536. RAILROAD-RAIL. WILLIAM HOOVER, Salt River, Mich. Filed Aug. 25, 1884. (No model.)



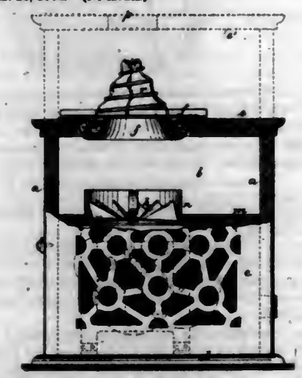
Claim.—As an improvement in two-part railroad-rails of the class described, the combination of the separable head-section provided with the longitudinal projection formed with a straight perpendicular inner face and an inclined outer face spreading toward its base, and having its edge a^6 beveled across, as described, and with the parallel groove having its bottom surface inclined inwardly across its width, and the base-section having a corresponding projection and groove and formed with the longitudinal enlargement b^3, and the transverse securing-bolts having their heads seated upon said enlargement, substantially as and for the purpose set forth.

317,537. CHIMNEY AND GLOBE FOR LAMPS. STANTON M. HOWARD, Wheeling, W. Va. Filed Sept. 16, 1882. (No model.)



Claim.—As a new article of manufacture, a lamp chimney or globe having one or more lenses protruding from its surface at one or more points in its circumference, said lens or lenses being additional to but homogeneous with the thickness of the lamp or globe, substantially as described.

317,538. VOLATILIZER. FREDERICK H. HUBBARD, Brooklyn, N. Y. Filed Mar. 10, 1884. (No model.)

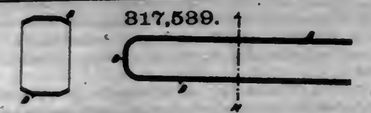


Claim.—The combination, with the inclosing-case, of a fan, mechanism for driving the same, an annular pan with a central opening, a spiral wire, and fibrous material supported by the same, substantially as set forth.

317,539. KNIFE-HANDLE. CHARLES IBBOTSON, Sheffield, County of York, England. Filed Jan. 6, 1885. (No model.) Patented in England Nov. 10, 1884, No. 14,804.

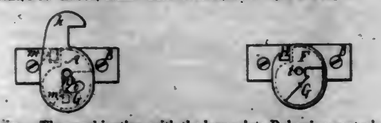
Claim.—1. In combination with an exterior frame or rim and a core or foundation, an interposed cast-metal layer which forms part of the foundation and adheres to said frame, substantially as set forth.

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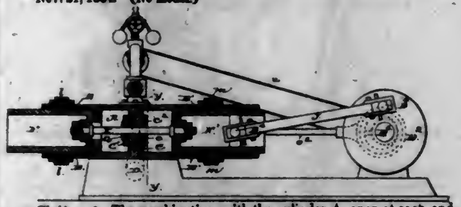
2. The frame B, in combination with the white metal cast therein and the shells C, which protect the sides of said white metal and are held by the overlapping edges of said frame, substantially as set forth.

317,540. FASTENING FOR MEETING-RAILS OF SASHES. HOBART B. IVES, New Haven, Conn. Filed Jan. 28, 1885. (No model.)



Claim.—The combination, with the base-plate B, having central perforation, *i*, notch H, and guiding-edge G, of the latch A and crank E, all constructed and arranged in the manner and for the purpose substantially as described.

317,541. STEAM-ENGINE. CHARLES ARTHUR JACOBS, Toledo, Ohio, assignor to Benjamin F. Miller and William W. Bowen, same place. Filed Nov. 21, 1884. (No model.)

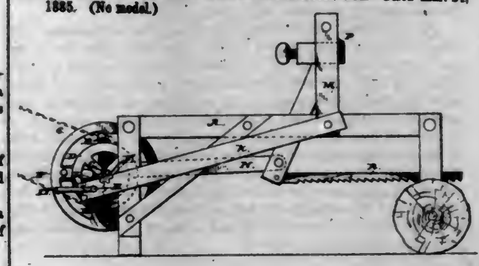


Claim.—1. The combination, with the cylinder A, open at each end, and provided with a partition, C, cast integral therewith at the center, of the hollow pistons F F', working in the cylinder on each side of the partition, and extended beyond the open ends of the cylinder, a connecting-rod, E, working in a passage provided through the partition and connecting the two pistons together, a steam or water chest, S, ports C' C^2, communicating with the latter, and opening into the cylinder on opposite sides of the partition, the slide-valve P, and the exhaust-port located between the ports C' C^2, for the purpose set forth.

2. The cylinder A, open at each end, and provided with a central partition, C, in combination with the pistons F F', working in the cylinder on each side of the partition, a rod, E, connecting the pistons and working in a passage provided through the partition, the steam or water chest, slide-valve, the steam-ports C' C^2, affording communication between the steam-chest and the cylinder on opposite sides of the partition, and the exhaust-port *e*, located between the steam-ports, whereby the steam is caused to act against one piston in one section of the cylinder and to be exhausted by the other piston from the other section thereof, for the purpose set forth.

3. The cylinder A, open at each end, and provided with a partition, C, cast integral therewith, in combination with the hollow pistons F F', working in the cylinder on each side of the partition, and extended beyond the open ends of the cylinder, the inner ends of the pistons being closed, the rod E, connecting the pistons, and working in a passage provided through the partition, a stuffing-box, G, fitting in the latter around the connecting-rod, stuffing-boxes *l m*, screwing over the threaded ends B B' of the cylinder, and reduced in diameter at the outer ends to fit the pistons and act as guides therefor, the steam or water chest S, the slide-valve P, the ports C' C^2, opening into the cylinder on opposite sides of the partition, an exhaust-pipe, *e*, located between the ports C' C^2, and an outlet, D, for the exhaust-port, for the purpose set forth.

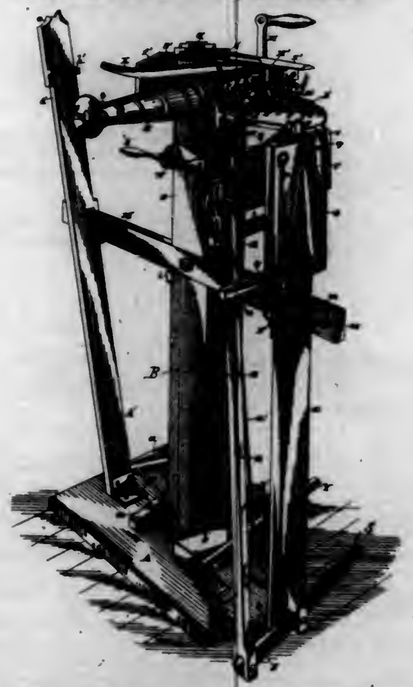
317,542. MOTOR. JOE E. JOHNSON, Prescott, Ark. Filed Mar. 21, 1885. (No model.)



Claim.—1. The combination of the hollow sleeve, the wheel fixed thereto, the shaft in the hollow sleeve, the sun-wheel fixed to said shaft, and the planet-wheel meshing with the sun-wheel, substantially as described.

2. The combination of the frame, the hollow sleeve journaled thereto, the wheel fixed to said sleeve, the shaft in the hollow sleeve, the sun-wheel, and the crank-wheel fixed to the shaft, and the pitman having the planet-wheel that gears with the sun-wheel, substantially as described.

317,543. MACHINE FOR MAKING SPIRAL SPRINGS. EDGAR A. JOHNS, Three Rivers, Mich. Filed July 21, 1884. (Model.)



Claim.—1. The combination, with a winder having a hole formed in the outer end thereof and a winder-shaft, the latter provided with a serrated disk, of a crank secured to said shaft and provided with ribs adapted to enter one or more of the serrations in the disk and a stop located in the path of the handle, substantially as set forth.

2. In a machine for coiling wire springs, the combination, with a standard or support, of a winder secured thereto and a lever secured to a wooden block provided with a shoulder, said lever being provided with a box or holding device for the reception and bending of the end of the wire, substantially as set forth.

3. In a machine for making coiled springs, the combination, with a base, a standard rigidly secured to said base and a winder journaled in said standard, of a post or standard hinged to the base and provided at its upper end with a wire-cutting device and mechanism for adjusting the upper end of said hinged standard toward and away from the rigid standard.

4. In a machine for making coiled springs, the combination, with a base, a standard secured thereto, and a winder journaled in said standard, of a second standard secured to the base, a cutter, and a spring-pressed wire-holder secured to said second standard, and a lever and pitman for operating the cutter, substantially as set forth.

5. In a machine for making coiled springs, the combination, with a base, a standard rigidly secured thereto, and a winder journaled in the upper end of said standard, of a standard hinged to the base and provided at its upper end with a wire-cutter and a wire-holder and mechanism for adjusting the upper end of the hinged standard toward and away from the rigid standard, substantially as set forth.

6. In a machine for making coiled springs, the combination, with a base, a rigid standard, and a winder journaled therein, of a standard hinged to the base, devices for adjusting the upper end of said standard toward and away from the rigid standard, a wire-cutter secured to the upper end of the movable standard, a lever pivotally secured to the lower end of the movable standard, and a pitman connecting the lever and cutter, substantially as set forth.

7. The combination, with a post or standard, of a winder secured thereto, a movable standard provided with cutters, stationary and spring-actuated grasping and holding jaws secured to the movable standard, and means for simultaneously operating the cutters and said grasping and holding jaws, substantially as set forth.

8. The combination, with a post or standard, of a winder secured thereto, a movable standard provided with cutters operated by a pitman and lever, a stationary and a spring-actuated jaw secured to the movable standard, and a trigger resting against the spring-actuated jaw and operated by said pitman, substantially as set forth.

9. The combination, with a standard or support, of a winder secured thereto, and a lever pivotally secured at its lower end to a base or other convenient support and provided at its upper end with a handle, said lever being adapted to compress the spring between itself and a wooden block secured to the standard, substantially as set forth.

10. The combination, with a standard or support, of a winder secured thereto, a tension-lever pivoted at one end to the standard and connected with a spring-actuated lever, said bar being adapted to bear on the wire as it is being coiled, substantially as set forth.

11. In a machine for coiling wire springs, a standard supporting a winder and having an adjustable table secured thereto, a horizontal bar, D', projecting from the back of the table and provided near its end with a transverse groove and on its side with a pivoted stop, said bar being adapted to hold the wire while it is being bent, substantially as set forth.

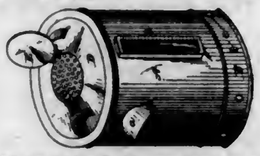
12. In a machine for making springs, an adjustable table secured to a standard or other support, a metal bar projecting from the back of the table and provided with a transverse groove and on its side with a pivoted stop, the back of the table being also provided with a larger stop in line with said bar, substantially as and for the purpose described.

13. In a machine for making wire springs, the combination, with a standard supporting a winder, of an adjustable table secured to the standard, a flat metallic plate secured to the back of the table and provided with a series of different-sized recesses for bending the end of the wire, and a lever connected to the standard and adapted to form a loop on the bent end of said wire, substantially as set forth.

14. In a machine for making bed-springs, the combination of the following instrumentalities, to wit: a winder for coiling or winding the spring, a cutter for severing the coiled spring from the main body of the wire, and a lever pivoted on a pin projecting out beyond the lever and provided with a projection and stop formed integral therewith for bending the upper end of the spring, substantially as set forth.

15. In a machine for making coiled springs, the combination, with a standard and a winder journaled therein, of the plate Q', secured on the top of said standard and provided with a slot, a series of holes, and a rounded bearing-surface, substantially as set forth.

317,544. CREAMING-CAN. HENRY KELSEY, Concordia, Kans. Filed Aug. 12, 1884. (No model.)



Claim.—The herein-described improved creaming-can, having the removable bottom flange having a series of holes or openings, a tube, C, fitting over an opening in the bottom of the can, braces *d*, for supporting said tube, and a removable cover provided with an opening covered with netting, and a cap, E, hinged to said cover.

317,545. ELECTRIC FIRE-ARM. FRANK E. KIESSAN, Plainfield, N. J. Filed Nov. 1, 1883. (No model.)

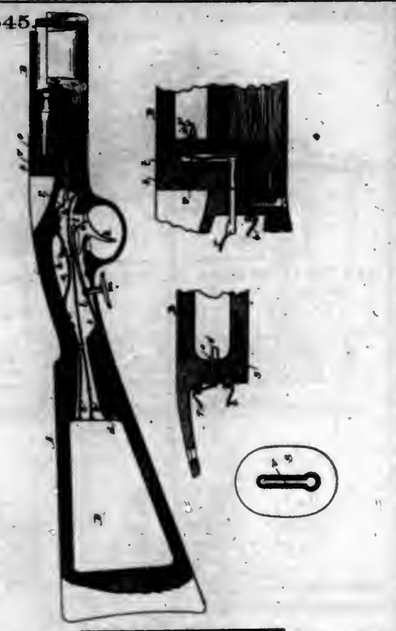
Claim.—1. The combination, with a cartridge, of an insulated central metallic conductor and a fine wire of platina or similar metal in the powder-space connected at one end to the central metallic conductor and at the other end to the metallic portion of the exterior of the cartridge-case, substantially as specified.

2. The combination, in a gun, of an electric battery, a circuit-closer, a trigger to operate the same, and a trigger lock and pusher, substantially as set forth, whereby the trigger-lock is disengaged by the pressure of the hand in grasping the gun.

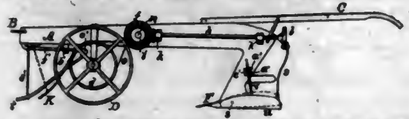
3. A fire-arm having a chamber adapted to receive a cartridge, a battery or other source of electric energy in the stock or below the barrel, and an insulated conductor at the center of the breech, in combination with a circuit-closer operated by the trigger, and a cartridge having a central insulated conductor in the base, and an incandescing conductor within the powder-chamber, substantially as set forth.

4. The combination, in a breech-loading fire-arm, of a battery, a central insulated conductor in the breech, a conductor connected with the metallic portion of the gun, a trigger, an insulated circuit-closing device actuated by the trigger, substantially as set forth.

317,545.



317,546. POTATO-DIGGER. GEO. W. KEYTE and H. ELMORE KEYTE, West Henrietta, N. Y. Filed Apr. 18, 1884. (No model.)



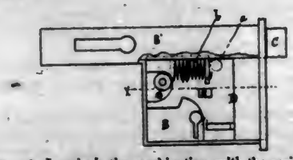
Clan.—1. In combination with a draft-beam and potato-digging blade, a vertically-adjustable landside, an auxiliary landside pivoted thereto, and adjusting devices for said auxiliary landside, substantially as set forth.

2. In combination with the beam A of a potato-digger, the vine-lifter K, consisting of bar *f'* and rod *d'*, and pivoted to said beam so that it will freely turn upward and backward on encountering excessive obstruction, substantially as set forth.

3. A potato-digger having a beam, A, bent downward at its rear end with a blade, F, attached to and extending out at one side thereof, a landside, *u*, attached to the foot of the beam on the side opposite the blade, said landside being composed of an adjustable blade, *u*, held to the foot of the beam by a pivot-bolt, *s*, so as to swing in a vertical plane, with an adjusting-screw, *v*, to regulate its position on the foot of the beam, and an auxiliary or secondary landside, *z*, placed edge downward and held to the main adjustable landside *u* by a pivot-bolt, *u'*, with means, substantially as shown and described, to vertically adjust the part *z* upon the main part *u*, for the purpose specified.

4. The combination of the beam with the vine-lifter, which is hinged thereto, said vine-lifter being triangular in shape and adapted to rise in the plane of the line of draft, so as to pass over obstructions and thus avoid becoming clogged, substantially as described.

317,547. LOCK. THOMAS KIRWAN, Boston, Mass. Filed May 21, 1884. (No model.)



Claim.—1. In a lock, the combination, with the casing provided on its inner side with a spring-catch and the rib J', of the bolt formed with rib J and a hasp engaging the spring-catch, a spring working in the space formed by the ribs, and the pins K K', passing through the casing and spring-catch, whereby the latter may be released, substantially in the manner set forth and described.

2. In a lock, the combination, with a casing provided on its inner side with a spring-catch and rib J', and having perforation *a*, of a bolt formed with a hasp and rib J, and provided with perforation *b*, the spring H, and a pin passing through one side of a door and into said perforations in the casing and bolt, whereby the latter is prevented from being thrown back from the opposite side of the door, substantially as described.

3. In a door-lock, the combination, with the spring-actuated bolt formed with a hasp and the rib J, and the casing provided on its inner side with a spring-catch and the rib J', of the pins K K', passing through the casing and spring-catch from opposite sides, and formed at their contiguous ends to be united, the same adapted to operate the spring-catch for releasing the bolt, substantially as described.

4. The combination, with a lock having its casing and bolt provided with corresponding perforations, and otherwise constructed as herein described, of the pin *c*, bearing a spring and having the feather *e*, and the escutcheon formed with an opening and slot for their reception, substantially as described.

5. The combination of the locking-pin *c*, inclosed by the escutcheon *d*, with the key *g*, substantially as described.

317,548. PINCH-BAR. CHARLES KLAUS, Chicago, Ill. Filed May 27, 1885. (No model.)



Claim.—1. A pinch-bar provided with an adjustable fulcrum, as and for the purpose shown.

2. A pinch-bar provided with an adjustable fulcrum having a part of its sides at a greater distance from the center thereof than the remainder of the sides, as and for the purpose shown.

3. A pinch-bar provided with an adjustable fulcrum the sides or edges of which are made with notches or teeth, as and for the purpose shown.

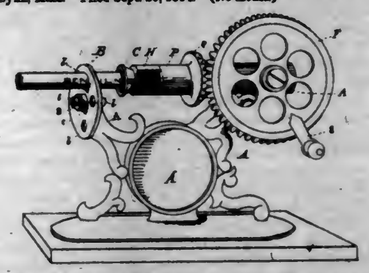
317,549. BELT-FASTENER. PHILIPPE KOCH, Neuss, Germany. Filed Oct. 29, 1884. (No model.) Patented in Belgium Sept. 6, 1884, No. 66,242.



Claim.—1. The combination of a belt with a double-T-shaped connecting-piece having flanges of different breadths, the ends of the belt being introduced between the flanges on each side of the web and secured to the broader flanges by means of spurs or pins, substantially in the manner and for the purpose set forth.

2. A belt-fastener consisting of the double-T-shaped connecting-piece A, having flanges *f* and *f''* of different breadths, the flanges *f* being provided with spurs or pins *s s*, and adapted to be applied to the ends of a belt, substantially in the manner and for the purpose set forth.

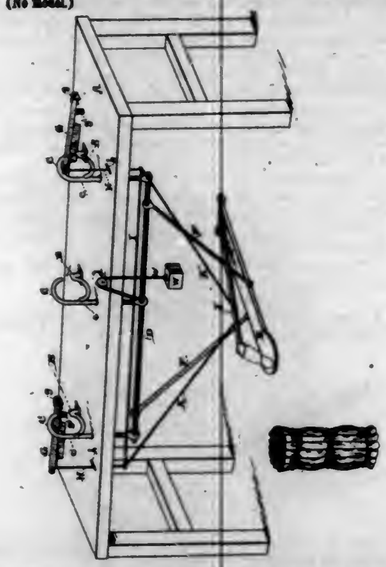
317,550. PENCIL-SHARPENING MACHINE. WARREN H. LAMSON, Lynn, Mass. Filed Sept. 29, 1884. (No model.)



Claim.—1. In a pencil-sharpening machine, the combination of the holding-plate B, provided with openings *b* for the pencil, and cavities *n*, with the frame A, having pin *h*, said plate being secured to the frame by screw *a*, and spring-washer *i*, all the parts being arranged and operating substantially as described.

2. In a pencil-sharpener, the combination of the chuck H, adapted to hold the sharpener, and the mandrel D, secured together by a flexible sleeve, P, to admit of lateral movement, and means to revolve the same, substantially as described.

317,551. MACHINE FOR MAKING TULE BUNCHES FOR LIFE PRESERVERS. CONSTANT LEDOC, Stockton, Cal. Filed Dec. 16, 1884. (No model.)



Claim.—1. In a machine for making tule bunches for life-preservers, the combination of die or bed strips, in which the stems are laid, reciprocating presser-strips adapted to bind the stems between themselves and the die-strips, and vibrating or swinging knives secured to the table and adapted to cut the stems so held into equal lengths, substantially as herein described.

2. In a machine for making tule bunches for life-preservers, the combination of the die or bed strips B, the vertically adjustable or reciprocating presser-strips C at one side of the die-strips, and the vibrating or swinging knives G on the other side and secured to the table, substantially as herein described.

3. In a machine for making tule bunches for life-preservers, the table A and the die or bed strips B, fixed thereon, in combination with the presser-strips C, having stems *c* passing down through the table, and the means for reciprocating said presser-strips, consisting of the treadle E, tie-rod D, connecting the stems *c*, rods F, connecting the treadle with the tie-rod, and weighted cord *w*, all arranged and operating substantially as herein described.

4. In a machine for making tule bunches for life-preservers, the table A and the die or bed strips B, fixed thereon, in combination with the presser-strips C, the pivoted knives G, and a mechanism by which presser-strips and the knives are simultaneously reciprocated and vibrated, respectively, the former to bind down upon the tule-stems and the latter to cut through them, substantially as herein described.

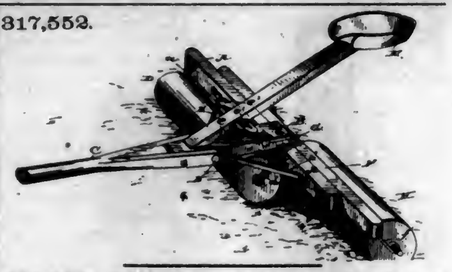
5. In a machine for making tule bunches for life-preservers, the table A and the die or bed strips B, fixed thereon, in combination with the reciprocating or vertically-adjustable presser-strips C, the pivoted knives G, and the means for operating said knives, consisting of the treadle J, connecting-rods H K, and springs *g'*, substantially as herein described.

6. In a machine for making tule bunches for life-preservers, the table A and curved or concaved die or bed strips B, fixed thereon, in combination with the curved or concaved presser-strips C, having stems *c*, the pivoted knives G, and the means by which the presser-strips and the knives are simultaneously reciprocated and vibrated, respectively, for the purpose described, consisting of the independent treadles E J, pivoted in the same line, and one lying above the other, the rods F D, connecting treadle E with the presser-strips, the rods H K, connecting treadle J with the knives, the weighted cord *w*, to raise the presser-strips, and the springs *g'*, to raise the knives, substantially as herein described.

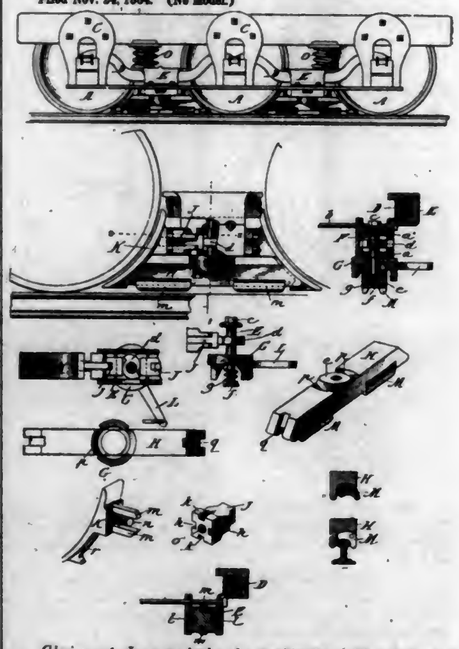
317,552. LAND-ROLLER. JOHN J. LEHMAN, Portland, Mich. Filed Jan. 24, 1885. (No model.)

Claim.—The combination of the beams A F, arranged parallel to each other and pivoted together by bolt G, the hound B, bolted to beam A, braces *b'* for the hound, pole C, pivoted to the hound, brackets *a a'*, bolted to beam A, roller D, journaled in said brackets, and brackets *f f'*, bolted to beam F, and roller H, journaled in said brackets, substantially as described.

317,552.



317,553. CAR-BRAKE. KARL H. H. LEDEWEBER, South Chicago, Ill. Filed Nov. 24, 1884. (No model.)



Claim.—1. In a car-brake, the combination, with a brake-shoe provided with a screw-threaded projection or pin, of a brake-block provided with a screw-threaded socket for the reception of such pin, and a cam-shaft and lever for operating such blocks and shoes, as set forth.

2. In a car-brake, the combination, with a brake-shoe provided with suitable projections, of a brake-block formed with grooves for the reception of such projections, and a cam-shaft and lever for operating the blocks and shoes, as set forth.

3. In a car-brake, the combination, with a brake-shoe provided with a screw-threaded adjusting-pin and suitable strengthening-pins, of a brake-block provided with a screw-threaded socket, and suitable grooves for the reception of such parts, and a cam-shaft and lever for operating the blocks and shoes, as set forth.

4. In a car-brake, the combination, with suitable shoes, blocks, and a vertical shaft, of a screw-cam secured to said shaft, a block suspended on the shaft and adapted to be depressed by the screw-cam, and suitable pieces pivoted to said block and adapted to clasp the rail, as set forth.

5. The combination, with shaft F, provided with cam *d*, of blocks J, provided with screw-threaded socket *o*, shoes K, provided with screw-threaded pin *n*, and lever L, for operating the parts.

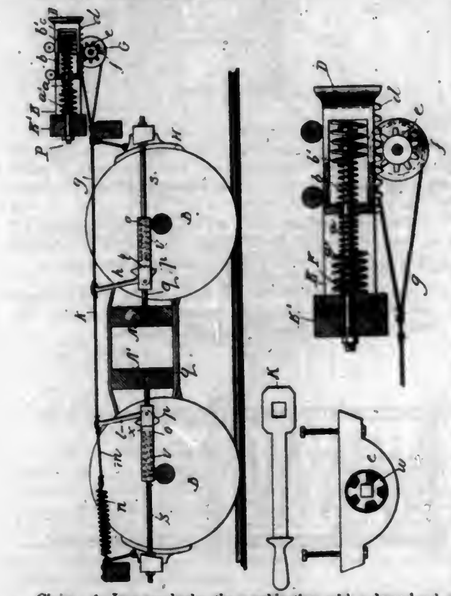
6. The combination, with shaft F, provided with cam *d* and lever L, for operating said shaft, of block J, provided with grooves *h h*, and shoe K, provided with pins *m m*, as set forth.

7. The combination, with shaft F, provided with cam *d* and lever L, for operating said shaft, of blocks J, provided with socket *o* and grooves *h*, and shoe K, provided with pins *m n*, as set forth.

8. The combination, with shaft F, provided with screw-cam G and lever L, for operating it, of block H, provided with socket *o* and groove *p*, and pieces M, pivoted to said block, as set forth.

9. The combination, with shoes K and lever L, for operating them, of block H, moving on guides formed on said shoes, suitable mechanism for operating such block, and pivoted pieces M, as set forth.

317,554. CAR-BRAKE. KARL H. H. LEDEWEBER, South Chicago, Ill. Filed Dec. 30, 1884. (No model.)



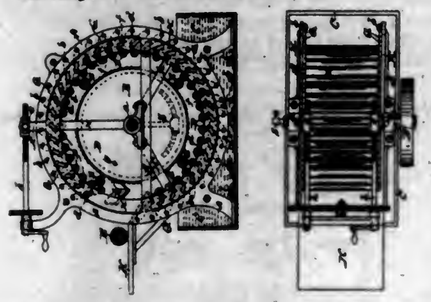
Claim.—1. In a car-brake, the combination, with a draw-head, a bolt passed through the rear end thereof, light and heavy springs situated upon said bolt to the rear of the draw-head, and similar springs situated upon the bolt within the draw-head, of suitable brake-shoes and intermediate mechanism for operating the shoes from the draw-head, as set forth.

2. The combination, with draw-head D, provided with rack *d*, and shaft G, carrying pinion *e* and pulleys *f*, of cords *g k*, vertical levers *h l*, provided on their ends each with a cam-head, suitable brake-shoes, and intermediate mechanism for operating the shoes from levers *h l*, as set forth.

3. The combination, with draw-head D, provided with rack *d*, and shaft G, carrying pinion *e* and pulleys *f*, of cords *g k*, vertical levers *h l*, intermediate mechanism for operating brake-shoes from the levers, and cord *m* and spring *n*, as set forth.

4. In a car-brake, the combination of the following elements: a shaft, brake-shoes, intermediate mechanism for operating the shoes from the shaft, a wrench for revolving the shaft, a star-disk secured thereto, and a pin for holding the parts in any given position, as set forth.

317,555. HAT FELTING AND SIZING MACHINE. THOS. LONGSHAW, East Orange, N. J. Filed Dec. 6, 1883. (No model.)



Claim.—1. In a hat felting and sizing machine with a revolving drum and a series of pressure-rolls, the levers G, pivoted to the main frame A at a point, *b*, tangent with the periphery of the drum and attached to the roller D, and connected by slots or pins to the moving frame H, for adjusting the rollers D to or from the drum B, substantially as and for the purpose specified.

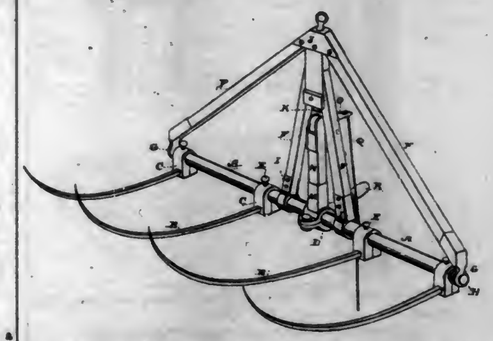
2. In a hat felting and sizing machine with a revolving drum, the movable frame or disk H, rotated on the axis of the drum, and provided with slots or pins connecting with the levers G, and operated by the screws A and swivel-nuts *e*, substantially as described.

3. In a hat felting or sizing machine with a revolving drum, the lever G, pivoted to the frame A at *b*, and attached to pressure-rolls D, being connected to the movable frame or disk H by slots and pins, the said frame H rotating on the axis of the drum B, and operated by screws A and swivel-nuts *e*, substantially as and for the purpose specified.

4. In a hat felting and sizing machine, the revolving drum B, with corrugated or plain surface placed inside of the series of adjustable rolls D D, substantially as and for the purpose specified.

5. In a hat felting and sizing machine, the rollers D D, placed along the inner circumference of the rotating frame H, in combination with the levers G, frame A, and rotating frame H, substantially as and for the purpose set forth.

317,556. HORSE HAY-FORK. CHRISTOPHER MAGUIRE, San Francisco, Cal. Filed Mar. 1, 1884. (No model.)



Claim.—1. In a horse hay-fork, a hollow tubular head having its ends supported by journal-pins and its center by straps, respectively, from frame-arms F, which converge from points near each tine to a common center above, substantially as herein described.

2. In a horse hay-fork, and in combination with the fork-head, a frame composed of arms having their upper uniting ends secured in a socket with a suspending eye, the outer arms having sockets at their lower ends with lugs, through which journal-pins enter the ends of the head, and the central arms having bands which surround the head near the inner pair of tines, and within which said head turns or swivels, substantially as herein described.

3. In a horse hay-fork, a hollow tubular head swiveled from a suspending-frame, as shown, in combination with the clamps surrounding the head, the ends of said clamps projecting below the head and perforated to receive the rear ends of the tines, and the clamp-nuts to screw upon the rear of the tines, substantially as herein described.

4. In a horse hay-fork, a tubular head swiveled from a suspended frame, clamps surrounding the head with their ends projecting below the head, shouldered tines passing through holes in these projecting ends with clamping-nuts, in combination with set or holding screws E, substantially as herein described.

5. In a horse hay-fork, the combination of a tubular head with tines clamped to it, as shown, a frame composed of diverging timbers having journal-pins, and straps upon which the head is supported and turns, and a lug or catch, K, secured to the central arms, an arm, N, clamped to the center of the head and projecting upward between the central frame-arms, a latch, O, and spring P, secured to the upper end of said arm N, and the latch-cord Q, substantially as herein described.

317,557. WELL-PUMP TUBING. JOSEPH MARSDEN, Far Rockaway, N. Y. Filed Aug. 21, 1884. (No model.)

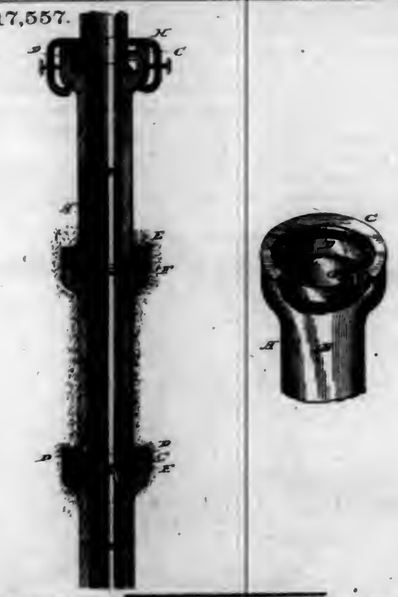
Claim.—1. As an improvement in well-pump tubing, a tube-section having at one end an interiorly-grooved collar, and at the other end an exterior annular groove corresponding with the groove in the said collar, substantially as and for the purpose set forth.

2. As an improvement in well-pump tubing, a tube-section having at one end a beveled projection surrounded by an enlargement or collar, and having its other end interiorly beveled to correspond with the said beveled projection, substantially as and for the purpose set forth.

3. As an improvement in well-pump tubing, a tube-section interiorly beveled and exteriorly grooved at one end, and having its other end provided with a beveled projection surrounded by an interiorly-grooved collar or enlargement, substantially as and for the purpose set forth.

4. The combination, with a tube-section constructed substantially as described, of a metallic cap fitted over the collar or enlargement at its upper end and connecting the same with a nipple-joint which forms the pump-connection, substantially as and for the purpose set forth.

317,557.



317,558. IRON POST. JOHN MCKENZIE DEKORTE, and JAMES FYFE, Portage, Wis. Filed Aug. 7, 1883. (Model.)



Claim.—1. As a new article of manufacture, an iron post composed of the tubular upright A and the metallic anchoring-plates B and C, inserted through vertical slots punched through the base of said upright A, one above the other, substantially as and for the purposes set forth.

2. As a new article of manufacture, an iron post composed of the tubular upright A and the metallic anchoring-plates B B' and C C', inserted through vertical slots in said upright and placed in pairs at right angles to each other, substantially as and for the purposes set forth.

3. As a new article of manufacture, an iron post composed of the tubular upright A and the anchoring-plates B and C, inserted through vertical slots cut one above the other in the base of said upright and twisted as they protrude from said upright, so as to have a greater horizontal surface, substantially as and for the purposes set forth.

317,559. CHURN. JAMES A. MCRAE, Austin, Tex. Filed July 12, 1884. (No model.)



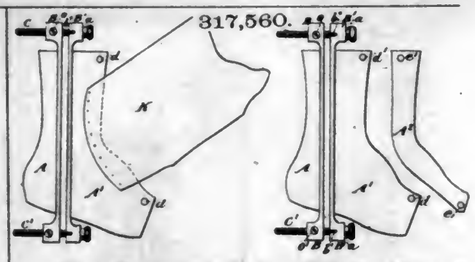
Claim.—1. The combination, with the body portion, of a stationary dasher, a shaft mounted in brackets of said dasher, and a series of radial wings secured to the lower end of said shaft, substantially as set forth.

2. The combination, with the body portion having diametrically-opposite lugs, forming guides *b*, of a stationary dasher having outwardly-turned flanges to engage the same, said flanges being bent at their upper ends to engage the edges of the churn, and a revolving dasher, the stem of which is loosely journaled on said stationary dasher, substantially as set forth.

3. The combination, with the churn-body, of a stationary dasher secured therein, and a revolving dasher, the stem of which is mounted in brackets of said stationary dasher, and provided with a cranked handle, said revolving dasher having a series of radially-extending blades or wings, substantially as set forth.

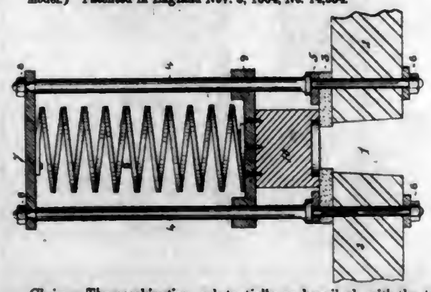
317,560. TREE FOR SHOE-UPPERS. JOHN MEYER, Pittsburg, Pa. Filed Jan. 30, 1885. (No model.)

317,560.



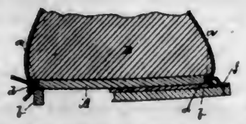
Claim.—The two-part tree A A', combined with a follower, A^2, having holes *a a'*, clamps B B' C C', collars *a a'*, pins *b b'*, pivoted nuts *c c'*, and pins *d d'*, whereby the said tree may be used as described.

317,561. AUTOMATIC TAP FOR BUNG-HOLES. JOHN E. MINNITT and JOHN H. VENNERS, Nottingham, England. Filed Feb. 7, 1885. (No model.) Patented in England Nov. 5, 1884, No. 14,634.



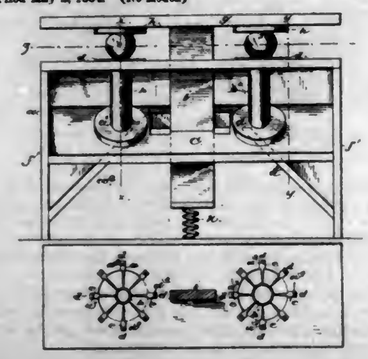
Claim.—The combination, substantially as described, with the tap-hole of a barrel, a cylindrical valve, 10, having an annular recess in its outer face, a disk, 9, to which said valve is secured, the valve-seat 3, arranged to project over the edges of the tap-hole, the clamping-ring 5, spring 11, and head 7, of the rods 4, having their ends screw-threaded to receive nuts 5 and 8, respectively, and provided with shoulders, said parts being arranged for co-operation, for the purposes specified.

317,562. BOOT OR SHOE. LEE E. MOORE, Boston, Mass. Filed Aug. 2, 1884. (No model.)

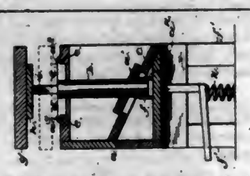


Claim.—A boot or shoe having an inner sole provided with a downwardly-projecting flap or flange formed by channeling or slitting the sole inward from or near its edge, in combination with an outer sole, an upper terminating within the outer edge of the outer sole, and a welt, said projecting flap or flange, upper, and welt being secured together by a line of stitches, and said welt and outer sole being secured together by a second line of stitches outside of the first line, substantially as set forth.

317,563. FRUIT-CUTTER. HUGH MCE. MORRISON, Glendale, Miss. Filed May 2, 1884. (No model.)

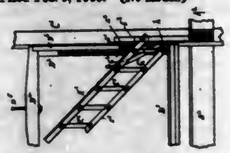


317,563.



Claim.—In a fruit-cutter, the combination, with the table having top openings, of the central coring-tubes, *b*, supported at their lower ends on legs *f*, projecting upward from the bottom of said table, radially-arranged slicing-knives *d*, notched at their outer ends to form seats to rest upon the table, to which they are secured by screws, the longitudinal apron *c*, and apron c^2, and a driver for forcing the fruit down upon the knives and tubes, as and for the purpose set forth.

317,564. ELEVATOR-HATCHWAY GUARD. WALTER S. MORTON, St. Paul, Minn. Filed Feb. 9, 1885. (No model.)



Claim.—1. An elevator-platform and a doubly-inclined trip-plate attached thereto, in combination with a gate-bar pivoted at one end to a suitable frame-work, a lever pivoted at one end to said gate-bar, a friction-pulley on the free end of said lever which travels on a fixed vertical guide or way, an angular lever pivoted at its angle to a fixed frame, one arm of which lever engages with said trip-plate, and a cord which connects the other arm of said lever with the lever which is pivoted to the gate-bar, substantially as set forth.

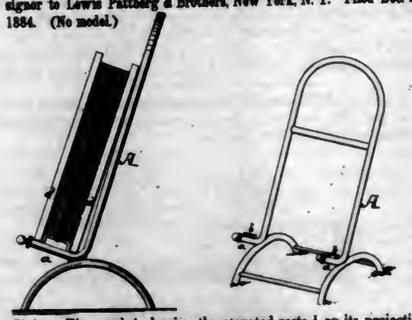
2. An elevator-platform and a doubly-inclined trip-plate, D^4, attached thereto, in combination with an upright post, E^2, a gate-bar, E', pivoted thereto, a lever, G', pivoted at its upper end to said gate-bar and provided at its lower end with a friction-pulley, A, which is adapted to travel vertically on said post E^2, an angular lever having arms F' F^2, pivoted at its angle to a fixed part, one arm of which engages with said trip-plate, friction-pulley d^2, and a cord passing over said pulley which connects the other arm of said angular lever with said lever G', substantially as set forth.

317,565. RICE-PLANTER. TIBERIUS CRASHUS NELSON and JESSE NELSON, Hanrahan, N. C. Filed July 22, 1884. (No model.)



Claim.—The frame provided with a furrow-opener at its front end, a seed-dropping mechanism, and the coverer and ridger Y, which is secured to a tongue that is pivoted to the rear end of the frame, said coverer and ridger being shaped like a horseshoe, and having the rounded front portion, X', and the depending curved flanges Z on its lower side, substantially as described.

317,566. BOOK-EASEL. HILARIUS PATTBERG, Jersey City, N. J., assignor to Lewis Pattberg & Brothers, New York, N. Y. Filed Dec. 22 1884. (No model.)

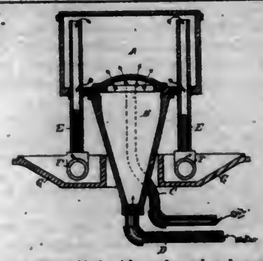


Claim.—The easel A, having the elevated rests *b* on its projecting arms *a*, substantially as herein shown and described.

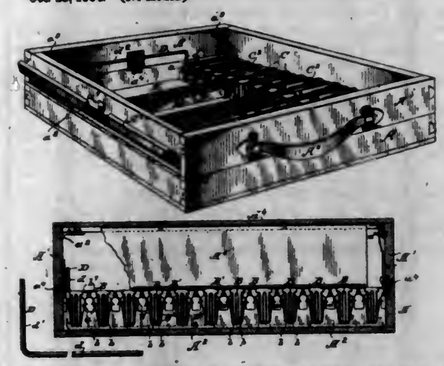
317,567. VAPOR-BURNER. ORRIN B. PEER, Chicago, Ill. Filed Dec. 30, 1884. (No model.)

Claim.—The combination, in a vapor-burner, of an oil receiving and vaporizing vessel provided with perforated and open eduction-pipes rising to near the top of the same, a water receiving and vaporizing vessel provided with a perforated head, opening into the oil-retort, water and oil supply pipes, and burners, whereby the vapors arising from the decomposed oil and water are thoroughly commingled and the burners supplied with vapor taken principally from the top of the oil-retort, substantially as described.

317,567.



317,568. NAIL-ARRANGER. STUART PERRY, Newport, N. Y. Filed Oct. 23, 1884. (No model.)



Claim.—1. In a device for charging magazines with nails, the combination of a receptacle provided with fixed nail-receiving channels, a series of movable nail-magazines, and means, substantially as described, for holding the said magazines in position to receive the nails from the said fixed channels, substantially as and for the purpose set forth.

2. The combination of a series of channeled nail-magazines provided with laterally-movable caps, substantially as described, and a receptacle constructed to support the magazines in its bottom, substantially as and for the purpose set forth.

3. The combination, with one or more nail-magazines, each having two nail-channels provided with two laterally and outwardly movable caps, substantially as described, of a receptacle constructed to hold a number of said magazines side by side, substantially as and for the purpose set forth.

4. The combination, with a series of channeled nail-magazines and a receptacle constructed to support said magazines in its bottom, of laterally-movable caps attached to the said magazines by spring-connections, tending to hold the caps over the channels of the magazines, and means, substantially as described, upon the receptacle and the magazines, adapted to move the caps laterally when the said magazines are inserted therein, whereby the channels will remain open to receive the nails when the magazines are in the receptacle and will be closed when the magazines are removed therefrom, substantially as described.

5. The combination, with a series of channeled nail-magazines and a receptacle constructed to receive and support said magazines, of laterally-movable caps attached to said magazines by spring-connections, tending to hold the caps over the channels of the magazines, and projections upon the receptacle, provided with inclined faces adapted to engage the caps or a part attached thereto, so as to uncover the nail-channels of the magazines when the latter are inserted in the receptacle, substantially as and for the purpose set forth.

6. The combination, with a series of channeled nail-magazines and a receptacle adapted to receive and hold said magazines, of laterally-movable caps attached to the magazines by spring-connections, tending to hold the caps over the nail-channels of the magazines, and supports upon the receptacle for the magazines, each consisting of a plate provided with a series of upright fingers having inclined faces adapted to engage the caps or parts attached thereto, so as to uncover said nail-channels when the magazines are inserted in the receptacle, substantially as and for the purpose set forth.

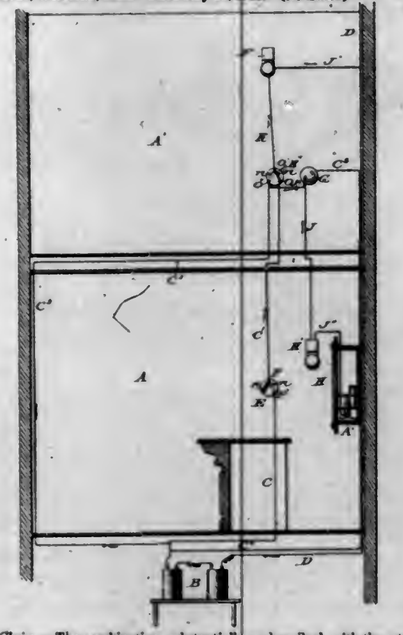
7. The combination, with a receptacle provided with stationary nail-holding channels and a series of channeled nail-magazines, of laterally-movable caps attached to said magazines by springs, and provided with curved prongs b^2, and fingers upon the receptacle, provided with inclined faces adapted to engage said prongs b^2, substantially as and for the purpose set forth.

8. The combination, with a series of nail-magazines, of a filling case or receptacle, substantially as described, for charging said magazines, having a door, A^3, for the exit of surplus nails, substantially as described.

9. The combination, with a series of nail-magazines, of a receptacle constructed to receive and hold said magazines in its bottom, and a rod, D, extending beneath the magazines and adapted to lift the latter from their positions in the receptacle, substantially as described.

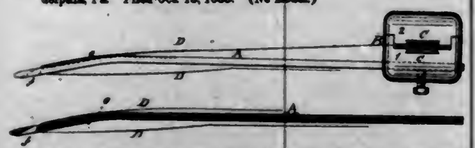
10. The combination, with a series of nail-magazines, of a receptacle adapted to receive and hold a series of said magazines in its bottom, and a removable cover, A^4, adapted for attachment to the said receptacle, and provided with an inwardly-projecting plate or part, A^3, adapted to rest upon the upper faces of the magazines within the receptacle, substantially as and for the purpose set forth.

317,569. ANNUNCIATOR AND FIRE TELEGRAPH. CHARLES K. PEVEY, Worcester, Mass. Filed July 23, 1883. (No model.)



Claim.—The combination, substantially as described, with the wires of a hotel-annunciator system, of an annunciator and circuit-closer in the office, and in each room a bell, push-button, and a switch in the bell-circuit, whereby the attendant in the office can operate an alarm in any room, and the occupant of the room can cause the bell to cease ringing and drop an annunciator-tag in the office.

317,570. BRUSH-MAKING MACHINE. JOSEPH M. PICKERING, Philadelphia, Pa. Filed Oct. 13, 1883. (No model.)

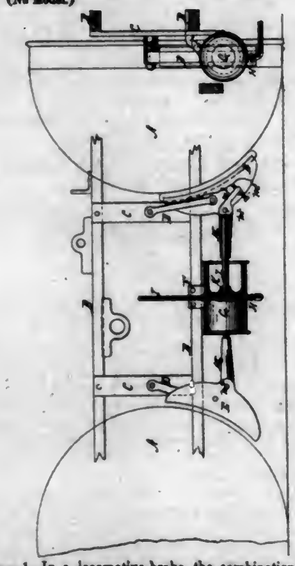


Claim.—1. The brush-maker's needle having a handle in two parts hinged together, and provided with grasping or clamping plates, substantially as described, whereby wire is securely held during the operation of wiring tufts of bristles into brush-locks, as set forth.

2. The brush-maker's needle having an eye near its point, and its outer end bent or curved in the plane occupied by the eye, and a longitudinal groove on its upper side opposite said bend, substantially as described, whereby a loop-receiving space is afforded below the bent portion of the needle when the wire extends rearwardly from the eye, as set forth.

3. In a brush-maker's needle, an eye near the point thereof, having a rounded inner end and an inclined outer end, substantially as described, whereby tensile strain can be applied to a wire passing along said needle and forwardly through said eye without materially bending said wire, as set forth.

317,571. LOCOMOTIVE-BRAKE. GEORGE H. POOR, St. Louis, Mo., assignor to the American Brake Company, same place. Filed July 28, 1884. (No model.)



Claim.—1. In a locomotive-brake, the combination, with a horizontal cylinder, direct-acting push-bars, and brake-heads actuated thereby, all arranged between the drive-wheels, of the independent channel-plates or angle-irons secured to the locomotive-frame and the hangers for suspending the brake-heads therefrom, substantially as and for the purposes specified.

2. In a locomotive-brake, the combination, with the piston-rod which actuates the brake-head, of a push-bar having a socket for the reception of the piston-rod, substantially as and for the purposes specified.

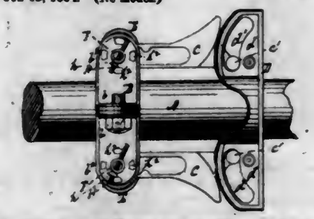
3. In a locomotive-brake, the combination, with the piston-rod which actuates the brake-head, of a push-bar having a socket for the reception of the end of the push-rod, and a liner or liners interposed between the end of the piston-rod and the bottom of the socket of the push-bar, substantially as and for the purposes specified.

4. In a locomotive-brake, the combination, with a suspended brake-head, of a horizontal cylinder having a piston with a cup or socket for the reception of the end of the piston-rod, a piston-rod having a round or ball end to form a ball-socket joint with the piston of the cylinder, and an adjustable push-bar, substantially as and for the purposes specified.

5. In a locomotive-brake, the combination, with a brake-head and a horizontal cylinder for operating the same, of an interposed rod having a curve or bend to compensate for lack of alignment between the cylinder and brake-head, substantially as and for the purposes specified.

6. A push-bar for locomotive-brakes having at one end a socket for the piston-rod and at the opposite end a toe or oblique projection for a brake-head adjusting-screw, substantially as and for the purposes specified.

317,572. GOVERNOR FOR AUTOMATIC BRAKES. GEORGE H. POOR, St. Louis, Mo., assignor to the American Brake Company, same place. Filed Oct. 13, 1884. (No model.)



Claim.—1. In a centrifugal governor, the combination, with the centrifugal arm, of an adjustable tension-spring, substantially as and for the purposes specified.

2. In a centrifugal governor, the combination, with the centrifugal arm, of a concentrically-coiled tension-spring, and a rotatable bolt or shaft, to which one end of the tension-spring is attached, substantially as and for the purposes specified.

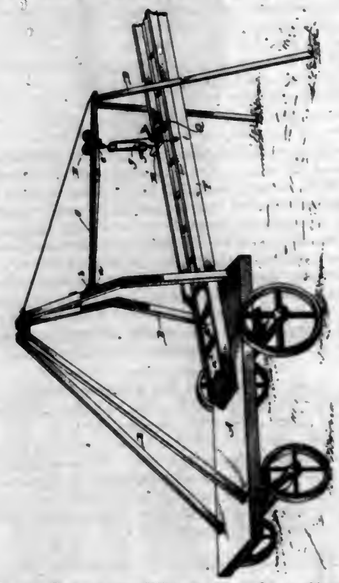
3. In a centrifugal governor, the combination of a centrifugal arm, a coiled tension-spring secured at one end to the centrifugal arm, a rotatable bolt or shaft, to which the opposite end of the tension-spring is secured, and a pawl-and-ratchet mechanism for securing the rotatable bolt, substantially as and for the purposes specified.

4. In a centrifugal governor, the combination of the bifurcated centrifugal arm, the concentrically-coiled tension-spring arranged in the bifurcation of the centrifugal arm, the cross-pin for securing the spring to the arm, and the pivot-bolt having a lug or projection for securing the opposite end of the tension-spring, substantially as and for the purposes specified.

5. In a centrifugal governor, the combination, with a centrifugal arm, a coiled tension-spring, and a pivot-bolt to which the tension-spring is secured, of the shouldered pin for securing the pivot-bolt and the series of lugs arranged around the bearing of the pivot-bolt, substantially as and for the purposes specified.

6. The hollow cast malleableized pivot-bolt for the centrifugal arm of the governor, substantially as and for the purposes specified.

317,573. ELEVATOR-LIFTER FOR THRASHING-MACHINES. WM. J. PULLIAM, Chico, Cal., assignor of two-thirds to J. S. Dove and W. V. Allen, same place. Filed July 19, 1884. (No model.)



Claim.—1. In a conveyer-lifting apparatus, the combination, with uprights or standards, of a hinged track, a hanger mounted on said track, an elevator-frame, and means connecting said hanger and elevator-frame, whereby the same may be raised and lowered, as set forth.

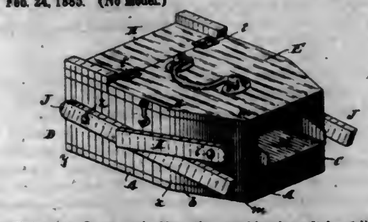
2. The combination, with uprights or standards, a hinged track-beam, and means for supporting the free end of the same, of a hanger mounted on said track, an elevator-frame, pulleys, and ropes passing through said pulleys and connecting the hanger and elevator-frame, substantially as set forth.

3. The combination, with uprights or standards, of a hinged track, a guy rope or chain connecting the outer end of said track with the standards, a hanger mounted on said track, an elevator-frame, a bail secured to the elevator-frame, and means for connecting said bail and hanger, substantially as set forth.

4. The combination, with uprights or standards having a hinged or pivoted track, and means for supporting the free end of the same, of a hanger mounted on said track, an elevator-frame, a bail pivoted to the elevator-frame, pulleys, and a rope connecting said hanger and bail, as set forth.

5. The combination, with uprights or standards, of a hinged or pivoted track, and means for supporting the free end of the same, a hanger mounted on said track, an elevator-frame, a bail pivoted to the elevator-frame, a pulley secured to said bail and hanger, a rope connecting said pulleys, a shaft mounted in the sides of the elevator-frame, a drum and ratchet-wheel on said shaft, and a pawl to engage the same, as set forth.

317,574. COAL-SIFTER. PATRICK O'CONNOR, Lawrence, Mass. Filed Feb. 24, 1885. (No model.)

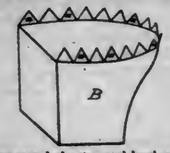


Claim.—1. In a coal-sifter, the combination of the following instrumentalities, to wit: a body, a screen, a main cover, an auxiliary cover, two long and two short supporting-legs, the body being provided with discharge-openings for the ashes and sifted coal, and having sides which are straight along the main portion of the body and converge near its lower end, the long legs being pivoted to the straight portions of the sides, and the short legs to the converging portions, and adapted to engage said converging portions and prevent the sifter from pitching forward and falling to the ground, substantially as described.

2. In a coal-sifter, a body having the sides D, said sides being straight from x to y, and converging from x to m, in combination with the legs J, pivoted to the straight portions, and legs K, pivoted to the converging portions thereof, substantially as described.

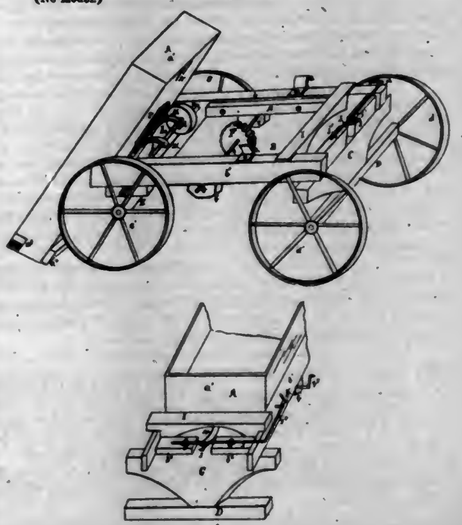
3. The improved coal-sifter herein described, the same consisting of the bottom A, provided with the opening P, the end C, provided with the mouth M, the sides D, provided with the converging portions x m, the end B, screen N, partition Q, covers E H, and legs J K, constructed, combined, and arranged to operate substantially as and for the purpose set forth.

317,575. HEEL FOR BOOTS OR SHOES. MICHAEL RACHLER and IGNAZ ROTHZIEGEL, Vienna, Austria-Hungary. Filed Feb. 25, 1884. (No model.) Patented in Germany May 14, 1882, No. 20,707; in France May 20, 1882, No. 149,005; in England May 26, 1882, No. 2,500, and in Belgium May 31, 1882, No. 57,927.



Claim.—The improved sheet-metal heel-case described, consisting of a cup closed at its bottom and struck from a single piece of sheet metal, and having its top edge cut into a series of triangular teeth meeting at their bases and adapted to be driven into and secured to the heel of a boot or shoe, all as set forth.

317,576. DUMPING-WAGON. HENRY L. RAFF, Memphis, Tenn., assignor of one-half to John Spang, same place. Filed Mar. 5, 1885. (No model.)



Claim.—1. An inclined frame composed of pieces *b b'*, cross-piece I, pieces b^2 b^2, cleats H H', rollers *l l*, cog-wheel F, having a shaft, *f*, bearings *f' f'*, and a crank, f^2, a rod, J, secured by staples *j''*, and having a hook, *j*, and handle j^3, all constructed and arranged substantially as shown and described.

2. In combination with the wheels, axles, and front rocker of a wagon, a box, A, having a removable end-gate, *a*, clevis N, rack P, and hooks M M, inclined frame B, provided with rollers *l l*, cog-wheel F, which has a shaft, *f*, and crank f^2, rod J, having a hook, *j*, and handle j^3, and guides G G, all substantially as shown and described.

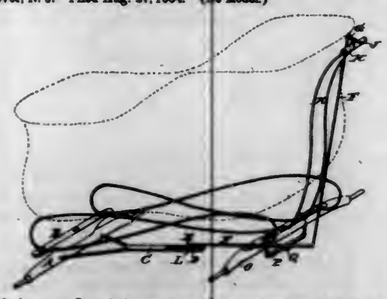
3. The combination of wheels, axles, and a high front rocker of a wagon with a box, A, having a removable end-gate, *a*, provided with a lever, O, and rods *o' o'*, clevis N, rack P, and hooks M M, and a frame, B, having rollers *l l*, cog-wheels F, provided with a crank, f^2, rod J, provided with hook *j* and handle j^3, hook K, cleats H H', cross-piece I, and guides G G, all constructed and arranged to operate substantially as and for the purpose set forth.

317,577. WAGON-JACK. JACOB T. REED, Reno, Nev. Filed Sept. 19, 1884. (No model.)



Claim.—In a lifting-jack, the combination of notched bars E B, end-bent lever C, carrying a movable fulcrum, and the lifter E, pivoted to the end of said lever, all adapted to co-operate as and for the purpose specified.

317,578. BABY-CARRIAGE. HARRY M. RIEBLE and JOHN W. SAMMIS, Dover, N. J. Filed Aug. 27, 1884. (No model.)



Claim.—1. In a baby-carriage, the combination, with a pivoted front axle, of an arm projecting toward the rear from the same, and of a rod connected with the said arm and extending up to the handle of the carriage, and of devices for locking the said rod in place in case the carriage is to run straight on, substantially as herein shown and described.

2. In a baby-carriage, the combination, with a pivoted front axle, of an arm projecting from the same, a rod extending from the arm to the handle of the carriage, and of a hanger on the rear axle, which hanger is provided with a notch for receiving the above-mentioned rod, thus locking the same in place, substantially as herein shown and described.

3. In a baby-carriage, the combination, with the pivoted front axle, A, of the arm C, and the angular rod F, connected with the free end of the arm, extending up to the handle of the carriage, and pivoted to a short lever pivoted on the handle to turn and to swing vertically, substantially as herein shown and described.

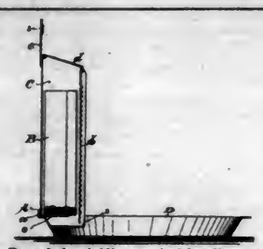
4. In a baby-carriage, the combination, with the pivoted front axle, A, of the arm C, projecting from the same, the angular rod F, having one end held on the arm C, to slide on the same, and its other end pivoted to a lever on the handle, and of the hanger P, provided with a notch, Q, substantially as herein shown and described.

317,579. DEVICE FOR HOLDING AND MIXING STOVE-POLISH. REINHARD RITTERSHAUSEN, Boston, Mass. Filed May 26, 1884. (No model.)

Claim.—1. The pan D, combined with the rigidly-attached handle or case C, to contain a package of stove-polish, said handle or case being at an angle with relation to the pan, substantially as described.

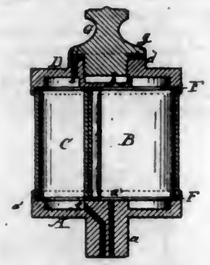
2. The pan D and its rigidly-attached case or handle C, having the cover *d*, and provided at one side with a grater, *b*, to operate substantially as described.

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3. The pan D, and the rigidly-attached handle or case C, provided with the grater *b* and with a support, *c*, for the end of the package of polish, substantially as described.

317,580. OIL-CUP. THOMAS D. RUGGLES, Kent, Ohio. Filed Mar. 30, 1885. (No model.)

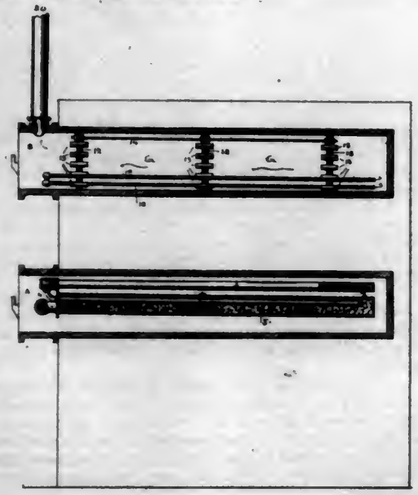


Claim.—1. The combination, in an oil-cup, of transparent or glass chambers, the chamber C, having a longitudinal side depression, and the chamber B, having a longitudinal side projection resting in the said depression, as shown and described, and for the purpose specified.

2. In an oil-cup composed of two or more transparent or glass chambers, B C, one of which chambers projects into the side of the other, the combination therewith of a base, A, provided with neck *a* and flange *a'*, and having opening a^3, communicating with chamber B, and opening *c*, communicating with chamber C, and the cap D, having open neck *d*, provided with stopper G and vent *e*, the neck *d* communicating with chamber B, said cap and base provided with packing F, and all secured together with bolts E E, substantially as described.

317,581. APPARATUS FOR MANUFACTURING ILLUMINATING-GAS. SILAS C. SALISBURY, New York, assignor to Levi P. Rose, Yonkers, N. Y. Filed June 6, 1884. (No model.)

Brief.—Steam is superheated, reheated, and dried, and then decomposed in contact with heated metal scrap. The resulting hot liberated gas is combined with hot vapors of hydrocarbons, and by means of a mixing-injector the hydrocarbon vapors are forced into the rear end of the fixing-retort, in which they are fixed and perfected by passage forward through perforated partition provided with tubes.



Claim.—1. A superheating steam-pipe taking steam from the boiler, and placed within an outer superheating steam-pipe, and arranged in such a manner that the steam from the boiler shall first pass through the inner superheating-pipe and be discharged at the rear end of the outer pipe, through which it returns to the front, passing over the red-hot surface of the inner pipe and outer pipes, and an iron retort charged with small iron pipes or iron scraps for decomposing superheated steam, connected with said superheating-pipes, and all inclosed within and combined with a clay jacket, whereby the iron pipes and retorts are protected from contact with the flames of the furnace-fire, substantially as and for the purpose set forth.

2. The pipe 2, arranged to take steam from the injector, the inclosing-pipe 3, stopped at its rear end, within which pipe 2 is placed, as shown, and the pipe 4, connected at one end with said pipe 3, and at the other end discharging into the retort 5, which is packed with scraps of iron, and the whole inclosed with a clay gas-retort, as and for the purpose set forth.

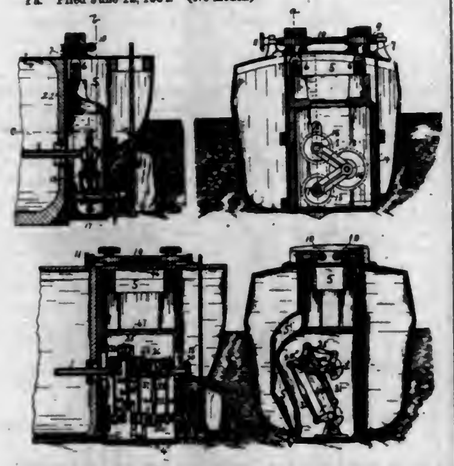
3. The cast-iron partition-plates 12, provided with the hollow hubs or tubes 13, substantially as described, placed within and combined with the clay retort, to divide the same into separate mixing and fixing chambers without overloading said retort, as set forth.

4. A gas-retort provided with cast-iron partition-plates 12, each of said plates having the hollow hubs or tubes 13, said plates being attached together and supported by stay-rods 14, and the mixing-pipe 10, whereby hydrocarbon vapors and the gases of decomposed steam are conveyed to and discharged at the rear end of said retort, as and for the purpose set forth.

5. A steam superheating and decomposing retort inclosed within a jacket of refractory clay, combined with a fixing and perfecting gas-retort having the several cast-iron plates 12, provided with the iron pipes 13, placed inside each gas-retort, constituting mixing and fixing chambers G, combined with a heating hydrocarbon-vapor pipe, 10, running from front to rear end of retort, for the purpose of reheating and mixing and fixing the hydrocarbon vapor, whereby the vapors at all stages of the process are protected from chilling and may be subjected to continually-increasing heat, thus perfecting a permanent fixed gas, as herein set forth and described.

6. A mixing and fixing retort and a mixing and forcing injector to force hydrocarbon into said retort by means of the hot gases from decomposed steam, combined with an extra hydrogen-pipe adapted to discharge hydrogen into said retort independently of said injector, whereby the injector may be adjusted for maximum efficiency and the richness or standard of the resultant gases may be regulated and controlled by the volume of hydrogen introduced through said extra pipe.

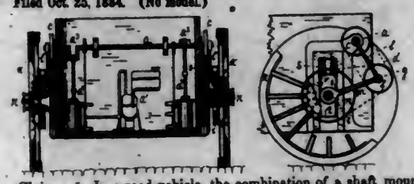
317,582. SCREW-PROPELLER. HERMANN SCHULZE-BERGE, Rochester, Pa. Filed June 12, 1884. (No model.)



Claim.—1. In a ship provided with a screw-propeller, the combination of the main driving and propeller shafts with an intermediate shaft or journal mounted in bearings which swing around the main driving and propeller shaft, substantially as described.

2. A vessel provided with a main driving-shaft mounted in stationary bearings, in combination with a propeller-shaft capable of vertical adjustment, and an intermediate crank-shaft revoluble in swinging bearings which radiate from and are pivotally connected to the other shafts, and having its cranks connected by pitmen to corresponding cranks on the driving and propeller shaft, substantially as and for the purposes described.

317,583. ROAD-ENGINE. HERMANN SCHULZE-BERGE, Rochester, Pa. Filed Oct. 25, 1884. (No model.)



Claim.—1. In a road-vehicle, the combination of a shaft mounted on stationary bearings on the vehicle, one or more of the wheels of the vehicle connected with the body of the vehicle so as to be capable of a vertical movement toward or away from the body of the vehicle as the wheel passes over uneven ground, jointed arms connected with the shaft and with the axle of the said vehicle wheel or wheels, and a gearing mounted on the middle joint of said arms, and capable of receiving and transmitting power from the shaft to the wheel or wheels, substantially as and for the purpose specified.

2. The combination, in a vehicle having an intermediate axle mounted on swinging bearings for transmitting motion, substantially as described, between a vehicle-wheel and a shaft mounted on stationary bearings within the vehicle, of a drive-wheel whose axis is vertically movable against suitable springs connected with the vehicle-body and adapted to compensate for unevenness of the ground over which it moves, and a vertically-adjustable block for raising and depressing said springs and said axle toward and away from the vehicle-body, as and for the purposes specified.

317,584. DEVICE FOR CONVERTING MOTION. HERMANN SCHULZE-BERGE, Rochester, Pa. Filed Mar. 28, 1885. (No model.)



Claim.—1. The combination of two crank-shafts with a connecting-pitman and a guide-crank connected to said pitman, substantially as and for the purposes described.

2. The combination of a driving-shaft and a driven shaft, connected together so that a revolving motion is communicated from the former to the latter, with a second power-connection between the said shafts, whereby an oscillating motion is given to the driven shaft in an arc of which the driving-shaft is the center, substantially as and for the purposes described.

3. The combination of a driving-shaft with two other shafts arranged in series, and connected together so that a revolving motion is communicated from the driving-shaft to the other two, and a second power-connection between the driving-shaft and the second driven shaft, whereby an oscillating motion is communicated to the first driven shaft and a reciprocating motion to the second, substantially as and for the purposes described.

4. The combination of the driving-shaft *a*, driven shafts *b l*, pitmen *c' c²*, slide *f'*, cam *m'*, driven from shaft *a*, and spring-rod *n*, substantially as and for the purposes described.

5. The combination of a driving crank-shaft mounted in stationary bearings with a driven crank-shaft mounted in swinging bearings journaled on the driving-shaft, and pitman-connection between the said shafts, by which a revolving motion is communicated from the former to the latter, substantially as and for the purposes described.

317,585. MACHINE FOR CROSS-TURNING SHEET METAL. VAN SCHAICK SHARP, Woodsport, N. Y., assignor of one-half to Wallace W. Holcomb, same place. Filed Nov. 11, 1884. (No model.)

Claim.—1. In a machine for cross-turning metal, the combination of plates B B', nuts P P, rod O, and stop *b*, whereby plates of varying length may be held, substantially as described.

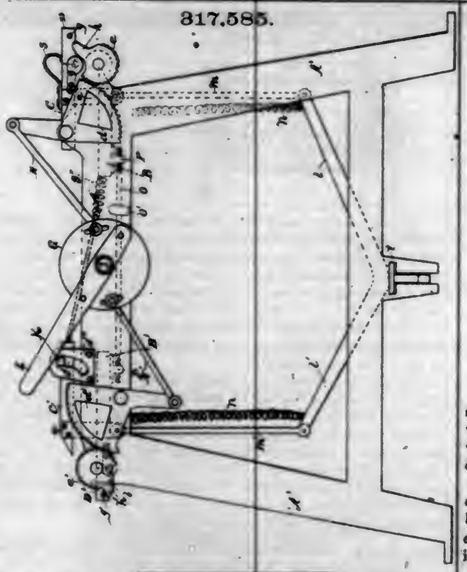
2. In a machine for cross-turning metal, the two vertically-adjustable plates C C', one having an undercut bevel and the other provided with a hinged leaf, D, in combination with a bed having an undercut bevel at one end and at the other end a hinged leaf, D', with a spring-stop, *b*, whereby the plates which are to be operated upon may be stopped, clamped, and turned, as described.

3. In a machine for cross-turning plates, the combination of the axle J, disks G G, lever L, links H H', toothed segment-wheels *d d' e e'*, the trips *h h*, the pins *g g'*, and the spring S, whereby the hinged leaves may be operated, as described.

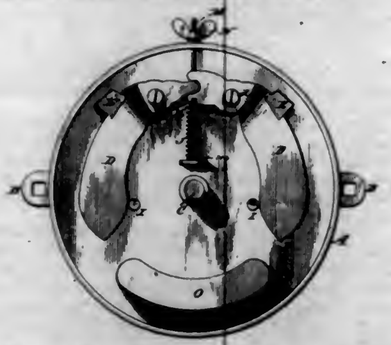
4. The combination, in a machine for cross-turning plates of metal, with a hinged leaf, D', of a stop, *b*, held yieldingly by a spring, whereby it may operate, as described.

5. The combination, with the lugs *a a*, of the links *m m'*, arms *l l'*, springs *n n*, and treadle *l*, whereby plates C C' may be operated, as set forth.

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317,586. GOVERNOR FOR ANIMAL-POWERS. SYLVANUS D. SHEPPERD, Pittstown, N. J. Filed Mar. 30, 1885. (No model.)



Claim.—1. The combination, with a flanged wheel, of a supporting-disk, a governor-lever pivoted thereto and having its outer arm arranged to engage the flanged wheel, and a spring engaging said lever, substantially as set forth.

2. The combination of the supporting-disk, the governor-lever pivoted thereto, a spring engaged with said lever, and an adjusting-bar, by which the tension of said spring may be regulated, substantially as set forth.

3. The combination of the supporting-disk, two governor-levers pivoted thereto and having their friction-arms extended circumferentially in opposite directions, and a spring engaged with the adjacent ends of said levers, substantially as set forth.

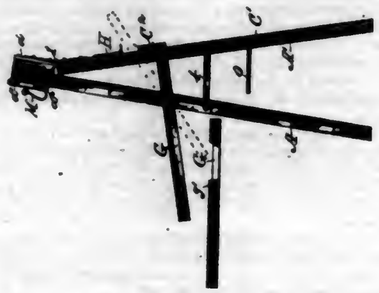
4. A governor-lever, substantially as herein described, curved inwardly in advance of its shoe or binding-surface, substantially as and for the purposes specified.

5. The combination of the disk provided with a guide-rod for the spring, a governor-lever, an adjusting-bar provided at its inner end with an eye encircling and movable on the guide-rod, and having its outer end threaded, a nut turned on said threaded end, and a spring placed on the guide-rod, and bearing between the inner end of the governor-lever and the eye of the adjusting-bar, substantially as set forth.

317,587. VULCANIZATION OF RUBBER COVERINGS FOR ELECTRICAL CONDUCTORS. JOHN J. C. SMITH and MICHAEL SMITH, Passaic, N. J. Filed Aug. 1, 1884. (Specimens.)

Claim.—The mode or process herein described of vulcanizing the insulating-covering of electrical conductors, the same consisting in enveloping the covered wire in a tight and impervious cover of tin-foil or other pliable metal, and subjecting it to the combined and simultaneous action of heat and pressure.

317,588. COMBINED REVERSIBLE BLACKBOARD AND DESK. MADISON W. SMITH and BENJAMIN F. JOHNSON, Waverly, N. Y. Filed Jan. 20, 1885. (No model.)



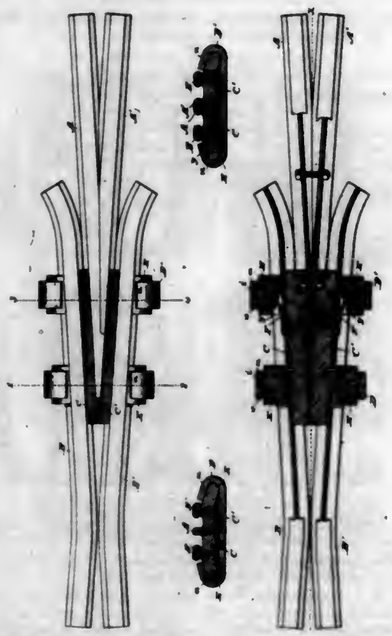
Claim.—1. In a portable copying and drawing board and desk, a suitable frame, in combination with a reversible board pivoted to swing within said frame, and the cross-brace C^2, supporting the said board when used either as a copying-board or desk or table, substantially as described.

2. The frame adapted to receive an attachment as a holder for copying matter when the board is placed in an upright position, in combination with the board provided with a metal strip or bracket, such as *e*, to receive an attachment for holding copying matter when the board is placed at an angle, substantially as described.

3. In combination with the pivoted board and the legs A, which carry the board, a rack at the upper ends of said legs having a back-strip, *d*, forming a brace to connect and hold the said legs in relative position, substantially as described.

4. A portable drawing-board and writing-desk comprising, in combination, the legs A and the legs A', the latter hinged to the former, the extension and cross braces, the upper rack, the pivoted board swinging within the frame, and catches to hold the said board at an angle or in an upright position, substantially as described.

317,589. RAILWAY-FROG. FRED. W. SNOW, Hillburn, N. Y. Filed Dec. 9, 1884. (No model.)



Claim.—1. The combination, with a frog having external diverging wing-rails, of yokes having bent-up ends and filling-blocks adapted to the external sides of the wing-rails, the said bent ends of the yokes being provided with a recess and the filling-blocks with vertically-rounded

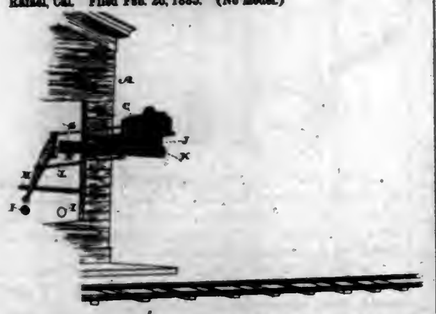
projections corresponding to said recesses, whereby the blocks may move vertically but not horizontally in the yokes, as set forth.

2. The combination, with a frog having external diverging wing-rails, of yokes having bent ends and filling-blocks adapted to the external sides of the wing-rails, the ends of the yokes being recessed vertically, and the filling-blocks having rounded projections corresponding to said recesses, and locking devices, substantially as described, for holding the blocks in position after adjustment, as set forth.

3. The combination, in a frog, of yokes, blocks fitting between the ends of the yokes and the wing-rails, and provided with inclined shouldered faces, and spring-plates secured to the rails in position to engage with said faces, for the purpose set forth.

4. The combination, with a frog, of diverging wing-rails, yokes having bent ends and recesses, filling-pieces with projections adapted to said recesses, and spring locking-plates arranged to permit the adjustment of the blocks and to hold the same in position after adjustment, substantially as specified.

317,590. RAILWAY-STATION SIGNAL. ARTHUR A. SPRAGUE, San Rafael, Cal. Filed Feb. 20, 1885. (No model.)



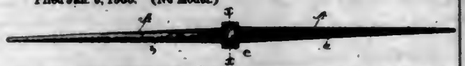
Claim.—1. In a station-signal, a colored board or target supported horizontally at right angles from the railway-track, in combination with wings hinged at one end upon either side of the colored target, and having a mechanism connecting with a lever inside of the station-house, whereby the wings may be opened to expose the signal or closed to conceal it, substantially as herein described.

2. In a station-signal, a horizontally-supported colored board or target, the supplemental wings hinged upon opposite sides of said target, a rod connecting with a lever so that it may be moved out parallel with and beneath the target, and the rods M, connecting it with the hinged wings, whereby they may be opened and closed, substantially as herein described.

3. In a station-signal, a horizontally-supported lamp-case having the colored lenses constructed to move so as to cover or expose the lamp, a similarly-colored signal board or target corresponding with and placed below the lamp-case, in combination with a lever swinging upon its fulcrum-pin within the station-house, having its upper end connected with the lenses within the lamp, and its lower end connected with the hinged wings, whereby the signal-target may be exposed simultaneously with the colored light, and concealed at the same time when the colored light is concealed, substantially as herein described.

4. In a station-signal, a lamp-case containing movable colored lenses, and a similarly-colored signal board or target with hinged wings upon opposite sides, a means for opening and closing said wings to expose or conceal the target simultaneously with the exposure or concealment of the colored lenses, a lever within the station-house by which the two are simultaneously operated, and correspondingly-colored disk or marks at the opposite ends of its travel, whereby the position of the signal may be indicated, substantially as herein described.

317,591. BUTCHER'S STEEL. THOMAS W. STONE, Columbus, Ohio. Filed Jan. 6, 1885. (No model.)

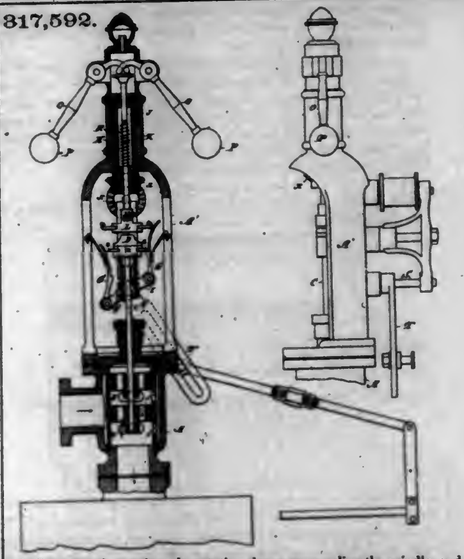


Claim.—A butcher's steel consisting of a bar of metal tapering from its center toward both ends, and having a rough or file surface on its half *a* and a smooth surface on its half *b*, and a central nut, *c*, substantially as and for the purpose specified.

317,592. STEAM-ENGINE GOVERNOR. ALBRECHT THIERFELDER, Albany, N. Y. Filed Aug. 27, 1884. (No model.)

Claim.—The combination, substantially as herein described, of the steam-supply valve, the valve-stem having the head provided with abutments, the valve-closing spring, the valve-actuating lever having spring-dogs to engage the abutments of the stem-head, the spindle having the head provided with displacing-fingers to engage the spring-dogs, the

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spindle-supporting spring, the rotating sleeve surrounding the spindle, and the weighted levers arranged in the sleeve to engage the spindle.

317,593. APPARATUS FOR STRAIGHTENING CRANK-SHAFT JOURNALS. JOHN H. THOMAS, Springfield, Ohio. Filed May 31, 1884. (No model.)

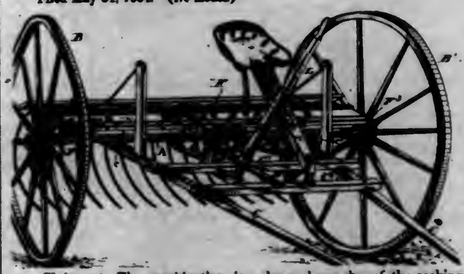


Claim.—1. In an apparatus for straightening or bringing into line the journal or shaft portions of a crank-shaft, a base or bed plate provided with suitable receptacles arranged in line for the journal portions of said shaft, in combination with clamps for clamping and straightening into line said journal portions in said receptacles, substantially as described.

2. In an apparatus for straightening into line the journal portions of a crank-shaft, a base-plate provided with two or more uprights having seats or grooves for the journal portions of the shaft and arranged to accommodate the crank portions of the shaft between them, substantially as described.

3. The combination, in an apparatus for straightening the journal or shaft portions of a crank-shaft, of a base or bed plate having suitable receptacles for said portions, grooved blocks for clamping said portions in said receptacles, and means for causing said blocks to clamp and straighten said shaft portions in said receptacles, substantially as described.

317,594. HORSE HAY-RAKE. JOHN H. THOMAS, Springfield, Ohio. Filed May 31, 1884. (No model.)



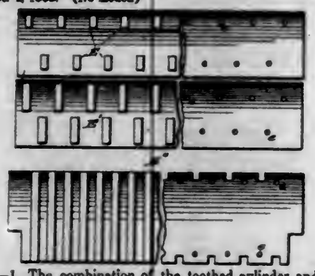
Claim.—1. The combination, in a horse hay-rake, of the rocking rake-head, the internally-ratcheted rim fast on the axle, the pawl located within said rim and pivotally connected with the rake-head, and the spring for retracting the pawl and holding it out of engagement with the ratcheted rim, said spring being also located within the ratcheted rim, substantially as shown and described.

2. The combination of the yoke or U-shaped bracket secured to the draft-frame, the rake-head-supporting brackets fast on the rake-head and surrounding the axle between the arms of the U-shaped thill bracket

or yoke, and the interposed ratchet disk or wheel fast on the rotating axle, substantially as described, for preventing relative lateral play or movement of the thills and axle.

3. The yoke or U-shaped bracket fast on the draft-frame or thills, in combination with the supporting-brackets fast on the rocking rake-head, the internally-ratcheted wheel fast on the axle between said rake-head brackets, the pawl pivoted to the rake-head and adapted to engage said ratchet-wheel, and the lever connected to said pawl and adapted to be operated to release the pawl by coming in contact with the yoke or U-shaped thill-bracket, substantially as described.

317,595. CLOVER-HULLER. JAMES M. THOMPSON, Garrison, Iowa. Filed Dec. 4, 1883. (No model.)



Claim.—1. The combination of the toothed cylinder and toothed hulling-concave, the teeth of said concave being roughened, and those on the receiving portion of the concave being set or spaced farther apart both longitudinally and laterally than the next or successive rows or series, so that there will be an increase in the rubbing action as the reduction of the material progresses, substantially as set forth.

2. The combination of the toothed cylinder and the toothed hulling-concave, the teeth of said concave being roughened and progressively increasing in width in the direction of travel of the material, and decreasing in distance apart laterally, in order to increase the rubbing action as the reduction of the material progresses, substantially as set forth.

3. The combination of the toothed cylinder and the toothed hulling-concave, said concave being composed of one or more segments having short roughened teeth in successive rows, the teeth of one row being laterally set so as to range alternately with those of the adjacent row, and a succeeding segment provided with roughened teeth, made wider in the direction or line of travel and more closely set together in a lateral direction than those of preceding segment, so as gradually to decrease the space between the teeth, and thus increase the rubbing action as the reduction of the material progresses, substantially as described.

4. The combination, with the toothed cylinder, of the receiving segment having the rows of teeth E, set alternately in a lateral direction and wide apart in the direction of travel, the succeeding segment having rows of alternating teeth E', wider in the direction of travel than those of the first segment, and also set closer together in the same direction, and the rear segment, provided with ribs or teeth E'', wider in the direction of travel than those of the preceding segment, for the purposes specified.

317,596. FINGER-RING, &c. BENJ. D. TRAITEL and HENRY RUYTER, New York, N. Y.; said Ruyter assignor to said Traitel. Filed Dec. 1, 1884. (No model.)



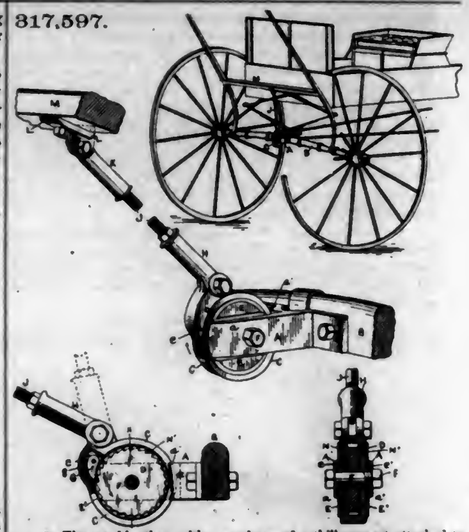
Claim.—1. In a finger-ring or other article of jewelry, the combination, with the perforated box or bearing and perforated stone or ground, of a removable letter or other ornament provided with threaded holes and screws engaging therewith, substantially in the manner and for the purpose set forth.

2. In a finger-ring or other article of jewelry, the combination, with the perforated box and perforated stone or ground, of the initial letter or other ornament provided with threaded holes, screws engaging therewith, and stops to limit the movement of the screws, substantially as and for the purpose set forth.

317,597. THILL-SUPPORT. NICHOLAS A. VEDDER, Providence, R. I. Filed Mar. 31, 1885. (No model.)

Claim.—1. The combination of the bracket A, annulus C, ratchet and pawl D G, and plates E E', the ratchet and plates being clamped to each other, as described, and the pivoted rod J, the whole being adapted to be applied to a carriage as a thill-support, substantially as set forth.

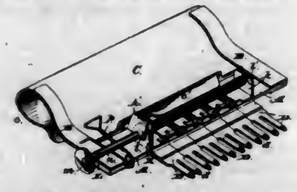
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2. The combination, with a carriage, of a thill-support attached to the axle and whiffletree bars, and consisting of an annulus, C, adapted to turn freely in one direction, a ratchet and pawl, D G, the friction-plates E E', clamped to the ratchet, the attaching-bracket A, and the pivoted rod J, substantially as set forth.

3. The combination of the bracket A, annulus C, ratchet and pawl D G, plates E E', clamp bolt and nut F f, the disks N N', and the adjustable rod J, substantially as set forth.

317,598. NARROWING-COMB FOR KNITTING-MACHINES. ALFRED J. WADHAM, New Hartford, assignor to Mohawk Valley Scotch Cap Factory, Utica, N. Y. Filed Apr. 22, 1884. (No model.)



Claim.—1. The combination, with a bar, a series of sliding plates mounted on said bar, each plate being provided with one or more points, and links connecting the sliding plates, of a rod secured to one of the end plates, the other end plate being provided with a thumb-piece, means for locking the sliding plates in open position, and a spring connecting both end plates and operating substantially as set forth.

2. The combination, with a bar, a series of sliding plates mounted on said bar, and links connecting the several plates, of a thumb-piece formed on one of the end plates, a rod secured to the other end plate and passing through said thumb-piece and provided with a notch, a spiral spring encircling said bar and secured to the end plates, and a dog for engaging the thumb-piece and rod, substantially as and for the purpose set forth.

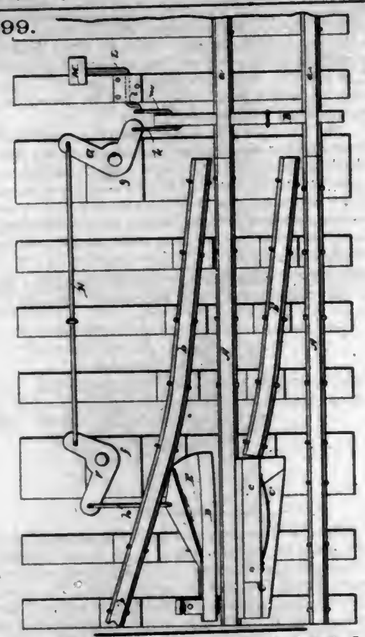
3. The combination, with a bar, a series of sliding plates each having one or more points, one of the outside or end plates of said series being provided with a thumb-piece and the other outside or end plate being provided with a rod, a spring connecting said outside or end plates, and a dog for holding the plates in open adjustment, of the sheet-metal support bent to form a guard for the narrowing mechanism, substantially as set forth.

317,599. RAILROAD-SWITCH. MARION WALLICK, East Germantown, Ind., assignor of thirteen-sixteenths to Henry A. Heist, Benjamin Eshelman, and Jacob B. Rohrer, same place. Filed July 11, 1884. (No model.)

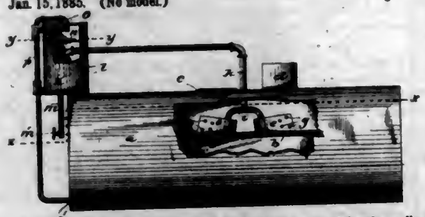
Brief.—An improvement on Patent No. 295,844, dated March 25, 1884.

Claim.—In a switch, the combination, with a stationary frog-section provided with a spring-pressed cap, and a movable frog-section adapted to swing over the main rail and rest on the said stationary frog-section and main rail, of a sliding main-track section connected with the movable frog-section, whereby either section operates the other, substantially as set forth.

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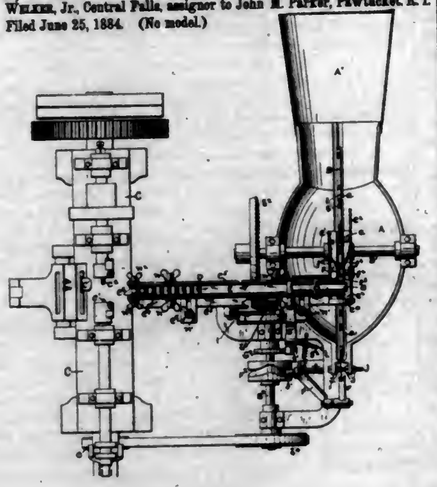
317,600. BOILER-CLEANER. JOHN WATERS, Augusta, Ga. Filed Jan. 15, 1885. (No model.)



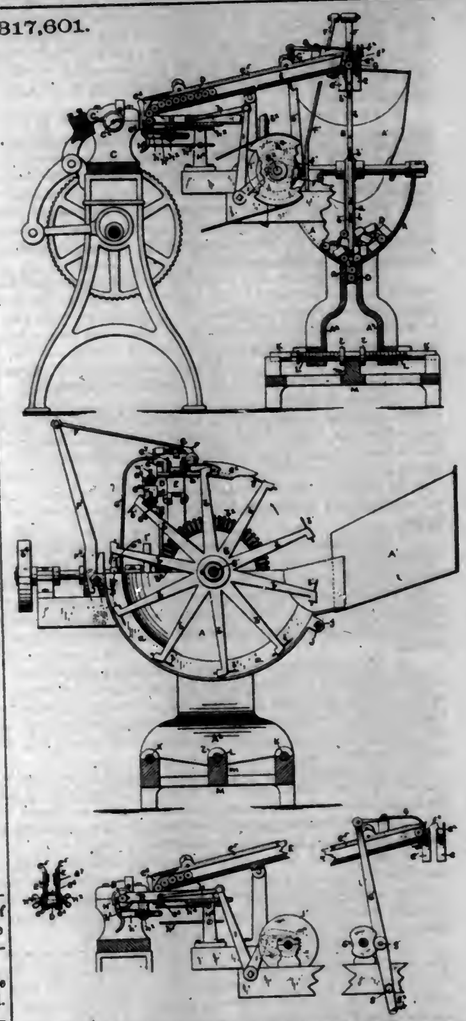
Claim.—1. The combination of the boiler, the semicircular collecting-pan having an open side, and suitable perforations in one or more of the closed sides located in the boiler, the receiver, a pipe connecting the collecting-pan with the receiver, and a return-pipe leading from the receiver to the boiler, substantially as described.

2. A semicircular collecting-pan having an open side, and suitable perforations in one or more of the closed sides, substantially as described.

317,601. MACHINE FOR FEEDING BLANKS TO LATHES. JOSEPH WELKER, Jr., Central Falls, assignor to John M. Parker, Pawtucket, R. I. Filed June 25, 1884. (No model.)



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Claim.—1. The combination, with a hopper for holding a mass of blanks, having converging sides and formed with a central groove in its bottom, of a roulette supported above said bottom to revolve in said hopper and groove and provided with lateral spurs to enter and engage with said blanks to remove the same from the hopper, substantially as described.

2. The combination of a hopper for holding a mass of blanks, formed with a grooved bottom for positioning said blanks, and a roulette supported above said bottom to revolve in said hopper and groove and provided with lateral spurs to engage with said blanks to remove the same from the hopper, the bottom of said hopper and the roulette being relatively adjustable, substantially as described, to enable blanks of different sizes to be engaged by the spurs on the roulette for the removal of the blanks from the hopper, substantially as described.

3. The combination, substantially as hereinbefore set forth, of a hopper having a groove with an inclined bottom and adjustable sides and a roulette arranged to revolve in said hopper and groove, and provided with suitable means, as described, for removing the blanks therefrom.

4. The combination of a hopper for holding a mass of blanks, a roulette supported to revolve in said hopper and provided with spurs to engage with said blanks to lift them from the hopper, a conveyer arranged adjacent to the discharging-point of said roulette, and a stripper for removing said blanks from the spurs of the roulette for their passage to said conveyer, substantially as described.

5. The combination of a hopper for holding a mass of blanks, a roulette supported to revolve in said hopper and provided with spurs to engage with said blanks to lift them from the hopper, a stripper adjacent

to the discharging-point of the roulette to remove the blanks from its spurs, ways located to receive the blanks as removed from the roulette, a conveyer to receive the blank from off said ways, and a movable propeller for removing the blanks from the ways into the conveyer, substantially as described.

6. The combination of a hopper for folding a mass of blanks, a roulette supported to revolve in said hopper and provided with spurs to engage with said blanks to lift them from the hopper, a stripper adjacent to the discharging-point of the roulette to remove the blanks from its spurs, ways to support said blanks in their passage from the roulette, said ways being open at or near their rear ends to allow the discharge of a rejected blank, and a conveyer connecting with said ways at a point between their open ends and the point where the ways receive the blanks from the roulette, substantially as described.

7. The combination of a hopper for holding a mass of blanks, a roulette supported to revolve in said hopper and provided with spurs to engage with said blanks to lift them from the hopper, a stripper adjacent to the discharging-point of the roulette to remove the blanks from its spurs, ways for receiving said blanks as removed from the roulette, and yielding bearings secured to said ways to produce a friction upon the blanks as they move along the ways, substantially as described.

8. The combination of a hopper for holding a mass of blanks, a roulette supported to revolve in said hopper and provided with spurs to engage with said blanks to lift them from the hopper, a stripper adjacent to the discharging-poiot of the roulette to remove the blanks from its spurs, a conveyer to receive said blanks subsequent to their removal from the roulette, and a slide at the lower end of the conveyer to permit one blank at a time to pass from the conveyer, substantially as described.

9. The combination of a hopper for holding a mass of blanks, a roulette supported to revolve in the hopper and provided with spurs to engage with the blanks to lift them from the hopper, a stripper adjacent to the discharging-point of the roulette to remove the blanks from its spurs, and a conveyer vertically adjustable with relation to the roulette to receive the blanks removed from said roulette, substantially as described.

10. The combination, with a hopper for holding a mass of blanks, of a roulette supported to revolve in said hopper and provided with spurs to enter and lift the blanks therefrom, and a conveyer to receive said blanks subsequent to their removal from the roulette, said conveyer having an adjustable side to accommodate blanks of different lengths, substantially as described.

11. In a machine for feeding blanks to a gage-lathe, the combination, with the lathe and a hopper and roulette for removing blanks from the hopper, of a conveyer, E, located between the lathe and hopper, and a bar or bars, e^2, vertically adjustable on the conveyer to retain blanks of different diameters, substantially as described

12. In a machine for feeding blanks to a gage-lathe, the combination, with the lathe and a hopper and roulette for removing blanks from the hopper, of a conveyer, E, located between the lathe and hopper, and adjustable ledges e^3, located beneath the conveyer at the end next to the lathe, substantially as described.

13. In a machine for feeding blanks to a gage-lathe, the combination, with the lathe and a hopper and roulette for removing blanks from the hopper, of the conveyer E, located between the hopper and lathe, a sliding finger, H, beneath the conveyer at the end next to the lathe, and spring-latches e^4 at the same end of the conveyer, substantially as described.

14. In a machine for feeding blanks to a gage-lathe, the combination, with a lathe and a hopper and roulette for removing blanks from the hopper, of the conveyer E, located between the hopper and lathe, adjustable ledges e^3, located beneath the conveyer at the end next to the lathe, pivoted finger H', extending above the ledge e^3, and sliding finger H, moving across said ledge, substantially as described.

15. In a machine for feeding blanks to a gage-lathe, the combination, with a lathe and conveyer for supplying blanks thereto, of the sliding finger H, located at the lower end of the conveyer, the finger H', located in front of finger H and hinged to an arm, A', adjustably connected with finger H, and spring h^3, connecting finger H' with arm A', substantially as described.

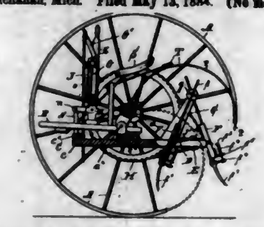
16. In a machine for feeding blanks to a gage-lathe, the combination, with a lathe and conveyer for supplying blanks thereto, of the sliding finger H, located at the lower end of said conveyer, the finger H', in front of finger H and hinged to an arm, A', connected with said last finger H, and stop-rods h^4 h^5, one located above and the other below the hinged point of finger H', substantially as described.

17. In a machine for feeding blanks to a gage-lathe, the combination, with a lathe and conveyer leading thereto, of a hopper formed in two parts adjustable to and from each other and having a central groove in its lower portion whose groove is V-shaped, and a roulette having arms radiating from a hub provided with spurs at their outer ends and supported to revolve in the hoppers, substantially as described.

18. In a machine for feeding blanks to a gage-lathe, the combination, with the lathe and hopper, of a conveyer from which one blank at a time is fed to the lathe as received from the hopper, a roller revolving in the hopper and having spurs which lift blanks therefrom, ways e e' for receiving blanks as delivered from the roulette, a reciprocating stripper, F, for removing blanks from the spurs of the roulette to the ways e e', and a reciprocating pawl, G, for removing the blanks from said ways to the conveyer, substantially as described.

19. In a machine for feeding blanks to a gage-lathe, the combination of a lathe, a conveyer from which one blank at a time is fed to the lathe, a hopper for holding a mass of blanks, a roulette revolving in the hopper and having spurs for lifting blanks therefrom, a reciprocating stripper for removing the blanks from the spurs of the roulette, ways for receiving the blanks from the roulette, and a reciprocating pawl for removing the blanks from said ways to the conveyer, substantially as described.

317,602. COMBINED HAY TEDDER AND RAKE. ELMER L. WILLIAMS, Buchanan, Mich. Filed May 13, 1884. (No model.)



Claim.—1. In a combined hay tedder and rake, the combination of the axle a, the driving-wheels A A, the hounds or thills B, the rake T, the tedder-frame C, hinged to the axle a, the tedder-shaft D, the sprocket-wheels E E, mounted on said shaft D, the sprocket-wheels H H, secured to the wheels A A, the fulcrum-support K, secured to the hounds or thills B, the lifting-lever L, having its fulcrum in said support K, the lifting-rod N, connecting the lever L and the tedder-frame C, and the pawl-and-ratchet device O' O K o, forming means to hold the lever L in any desired position, all substantially constructed as described, and for the purpose specified.

2. The combination, in a hay tedder and rake, of the axle a, the wheels A A, the rake T, the thills and frame B, the tedder-frame C, the tedder-shaft D, forming cranks between its several bearings, the tedder-arms F F, journaled on said cranks, the forks f' f', pivoted to the arms F F, the springs f^3, so arranged as to hold the forks f' in a vertical position and render the same flexible, the brackets G G, the guide-rods f, the guide-plates g, the driving mechanism H A E, the clutching and lever mechanism s I I' J, and the lifting device L K N, provided with the pawl and ratchet O' O k o, all arranged and constructed as described, and for the purpose specified.

3. In a hay-tedder, the combination of the tedder-frame C, the tedder-shaft D, forming cranks between its several bearings, the tedder-arms F, journaled to said cranks, the brackets G G, the guide-rod f, secured to the tedder-arm F, the pivoted guide-plate g, between the brackets G G, through the center of which the tedder-rod f is guided up and down, all arranged as described and specified.

4. In a hay-tedder, the combination of the tedder-frame C, the cranked tedder-shaft D, the tedder-arms F F, journaled to the cranks of said shaft D, the tedder-forks f' f', pivoted to the arms F F, the springs f^3 f^3, and the bolts f^3, so arranged as to hold the forks f' f' in a vertical position and render the same flexible, all constructed as described, and for the purpose specified.

5. In a hay-tedder, the combination of the tedder-frame C, the cranked tedder-shaft D, the arms F F, the forks f' f' pivoted to said arms F F, the springs f^3 f^3, the brackets G G, the guide-plate g, pivoted between said brackets, and the guide-rods f f, operating through the plate g, substantially as described and specified.

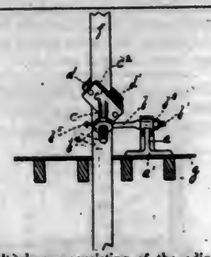
6. In a hay-tedder, the combination of the running-gear a A A B, the tedder-frame C, the cranked tedder-shaft D, the tedder-arms F F, the forks f' f', pivoted thereto, the springs f^3 f^3, arranged to hold said forks f' f' in an upright position, the brackets G G, plate g, and rod f, forming a device for guiding the motion of the arms F F, the driving mechanism E A H, the clutching device J I' I e, and the lifting and lowering mechanism L K N O' O k o, all constructed and arranged as described, and for the purpose specified.

317,603. DRIVING-BELT CLEANER. G. REED WILSON, Buffalo, and GEORGE E. WATSON, Lockport, N. Y. Filed Apr. 1, 1885. (No model.)

Claim.—1. A driving-belt cleaner consisting of a pair of brushes, or their equivalents, mounted in a frame, the driving-belt passing between and in contact with the brushes, as and for the purpose stated.

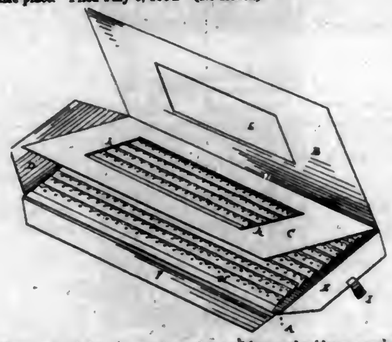
2. A driving-belt cleaner consisting of a pair of brushes, or their equivalents, mounted in a frame having universal movement, the driving-belt passing between and in contact with the brushes, as and for the purpose stated.

317,603.



3. The driving-belt cleaner consisting of the adjustable plate d, with its brush d', the adjustable shank c, carrying the plate c', with its brush c^2, the arm b, having the sleeve b^4 and set-screw b^5 at one end, and the screw-threaded shank b' and nut b^3 at the other end, and the standard a, with aperture a^2, all combined and operating substantially as shown, and for the purpose stated.

317,604. BOX FOR PACKING AND DISPLAYING EMBROIDERY. HENRY J. WOODLEY, New York, N. Y., assignor to M. Guggenheim's Sons, same place. Filed July 9, 1884. (No model.)



Claim.—1. A box or envelope for packing embroidery, consisting of a bottom piece having hinged thereto on three sides, by flexible material, card-board flaps, and on the fourth side, also hinged by flexible material, two covers, the inner one slotted to card one end of the goods, and the outer one provided with an opening to display the goods beneath, substantially as shown and described.

2. In a box or envelope for packing embroidery, the combination of the bottom A, outer cover, B, having the opening b, inner cover, C, slotted at A A, and flaps D, E, and F, substantially as shown and described.

317,605. CORSET-STAY. ARTHUR J. WORRALL, Bridgeport, Conn. Filed Mar. 6, 1884. (No model.)



Claim.—As a new article of manufacture, a wire busk or stay the sides of which are connected by cross-clasps, and in which the distance between the sides is greater at its lower extremity than at its upper for distribution of strain upon the person of the wearer.

317,606. HEDGE FENCE. WESLEY YOUNG, Dayton, Ohio. Filed May 23, 1884. (No model.)

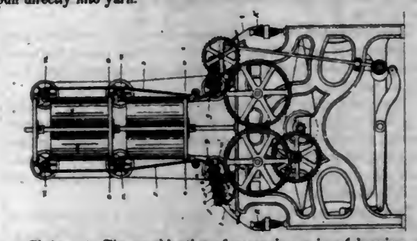


Claim.—1. A hedge fence consisting, essentially, of flexible plants bent down in the plane of the fence, crimped line-wires to which the said bent plants are secured, and means—such as staples—for firmly securing the plants to the crimped wires, and preventing the rising of the plants as well as a change of their relative positions, substantially as described.

2. A hedge fence constructed of sections which are each composed of a series of plants bent down and secured to suitable line-wires, the line-wires of each succeeding section being anchored at one end to the inflexible portions of some of the plants of the next preceding section, and terminating at the other end within the section whose plants it secures, whereby each section is enabled to conform to the contraction and expansion of its own line-wires without being affected by the contraction and expansion of the line-wires of the other sections, substantially as described.

317,607. MACHINERY FOR SPINNING COTTON YARN. THEODORE T. ABBOT, Lunenburg, assignor to the Abbot Spinner Company, Boston, Mass. Filed Apr. 2, 1885. (No model.)

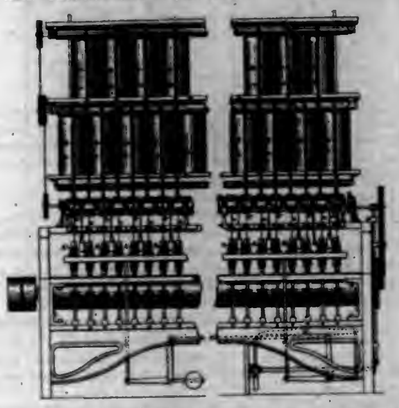
Brief.—This machinery is designed to carry into effect the method described in Letters Patent of even date herewith, whereby sliver may be spun directly into yarn, all intermediate spinning-frames being dispensed with. Successive pairs of drawing-rollers are arranged to reduce sliver, without twisting, to the attenuated form in which it must be to be spun directly into yarn.



Claim.—1. The combination of successive pairs of drawing-rollers arranged and operating to receive sliver, and to reduce the same, without twisting, to the attenuated form requisite to allow it to be spun directly into yarn, as contradistinguished from roving, trumpets to compact or condense said sliver during this process of reduction, and ring-spindles, and travelers or their equivalent, to which said sliver is directly conducted, and by which it is directly converted into yarn, substantially as hereinbefore set forth.

2. The combination of successive pairs of drawing-rollers arranged and operating to receive sliver, and to reduce the same, without twisting, to the attenuated form requisite to allow it to be spun directly into yarn, as contradistinguished from roving, trumpets to condense said sliver during this process of reduction, ring-spindles or their equivalent, whereby said attenuated sliver is spun directly into yarn, and a can-stand and cans arranged above the drawing-rollers, substantially as and for the purposes hereinbefore set forth.

317,608. ART OF MANUFACTURING COTTON YARN. THEODORE T. ABBOT, Lunenburg, assignor to the Abbot Spinner Company, Boston, Mass. Filed Nov. 8, 1884. (No model.)



Claim.—1. The described process of making cotton yarn, consisting in bringing the cotton fiber to the condition of sliver and drawing and doubling the sliver for the purpose of evening it, then further drawing and compacting or condensing without twisting the sliver thus prepared until it is reduced to the attenuated form requisite to allow it to be spun directly into yarn, and finally spinning said attenuated sliver directly into finished yarn, as contradistinguished from roving, the whole process being substantially such as hereinbefore set forth.

2. The method of making yarn directly from sliver, consisting in taking sliver in the condition of that usually furnished to slubbers and drawing, compacting, and spinning the same, substantially as described, no twist being imparted to such sliver until it is ultimately spun into yarn.

317,609. STEAM CUT-OFF VALVE. GEORGE W. ANDERSON, Westport, Ind. Filed June 5, 1884. (No model.)



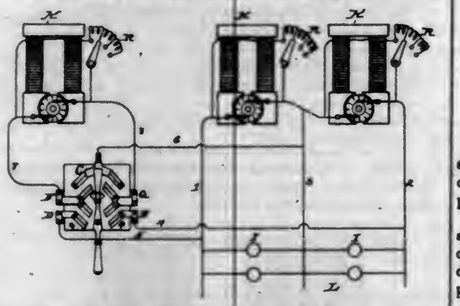
Claim.—1. The combination, with a sliding valve provided with projections depending into the valve-chamber, of blocks adapted to engage the projections and alternately form a steam-joint with the projections, and an exhaust-space between the block and projections, substantially as set forth.

2. The combination, with a cylinder provided with one exhaust-port and two steam ports and a sliding valve, of blocks operated by the valve and adapted to alternately form a steam-joint and an exhaust-space, substantially as set forth.

3. The combination, with a sliding valve provided with depending projections in the valve-chamber, of blocks rigidly secured together and operated by the valve, said blocks being adapted to form a steam-joint with the said projections and allow a continual exhaust over themselves and the projections, and spring-rolls for holding the blocks on the valve-seat, substantially as set forth.

4. The combination, with a sliding valve provided with blocks which alternately form a steam-joint with the valve and an exhaust-space between themselves and the valve, of projections secured to the blocks and corresponding projections secured to the valve, the whole forming bearings for sustaining the pressure on the blocks, substantially as set forth.

317,610. ELECTRIC LIGHTING SYSTEM AND SWITCH. WILLIAM S. ANDREWS, New York, N. Y., assignor to the Edison Electric Light Company, same place. Filed Aug. 18, 1884. (No model.)



Claim.—1. The combination, with a three-wire or compensating system of electrical distribution, of a dynamo-electric machine, and a switch and connections between said machine and switch and between the switch and the three conductors of the system for connecting such machine with either side of the system, substantially as set forth.

2. The combination, with the three-wire or compensating system of electrical distribution, of a dynamo-electric machine having its field-magnet in a circuit derived from its armature, and a switch and connections between said machine and switch and between the switch and the three conductors of the system for connecting such machine with one side of the system or the other without changing the polarity of its field-magnet, substantially as set forth.

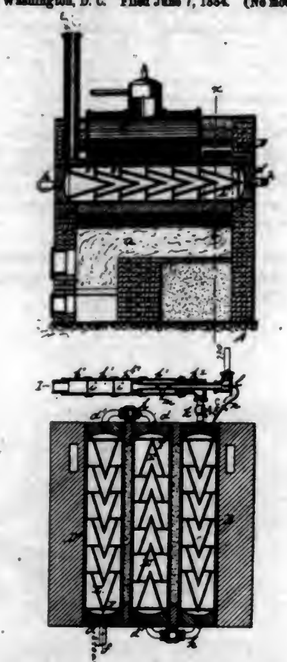
3. In an electrical switch, the combination, with a centrally-pivoted lever carrying two contact-blades located on opposite sides of the pivot and insulated from each other, of two sets of contact-plates on each side of the lever, which plates are bridged by the contact-blades, substantially as set forth.

4. In an electrical switch, the combination, with a pivoted switch-lever carrying insulated contact-blades on opposite sides of its pivot, of two double or V-shape contact-plates located on opposite sides of the lever-pivot and single contact-plates above and below such double or V-shape contact-plates, which single and double plates are bridged by the contact-blades, substantially as set forth.

5. In an electrical switch, the combination, with a pivoted switch-lever carrying insulated contact-blades on opposite sides of its pivot, of a contact-plate with which one of said blades is constantly in contact, two contact-plates on opposite sides of the same blade, with one or the other of which the blade makes contact when the lever is thrown in either direction, and two sets of contact-plates on opposite sides of the other contact-blade, said plates being bridged by this latter blade, substantially as set forth.

6. In an electrical switch, the combination, with a pivoted switch-lever having insulated blades B B', of the contact-plates C D E F G, constructed and arranged substantially as set forth.

317,611. APPARATUS FOR THE MANUFACTURE OF VAPOROUS AND GASEOUS FUEL AND ILLUMINATING-GAS. RICHARD B. AVERY, Washington, D. C. Filed June 7, 1884. (No model.)



Claim.—1. In apparatus for the manufacture of gas, superheating steam, and like purposes, the combination, with a retort, of a series of cones arranged with their apices in the same direction, and interposed perforated diaphragms, substantially as and for the purposes specified.

2. In apparatus for the manufacture of gas, superheating steam, and like purposes, the combination, with a retort, of a series of hollow cones having perforated flanges and arranged so that the apex of each cone enters the base of the preceding cone, substantially as and for the purposes specified.

3. The combination of two or more retorts, each provided with a series of conical deflectors and interposed perforated diaphragms, said retorts reversely arranged and coupled by a connecting-pipe, substantially as and for the purposes specified.

4. In apparatus for the manufacture of gas, the combination, with a retort, of a carbureting-chamber provided with perforated diaphragms, a pipe for delivering the body of gas from the retort directly into the carbureting-chamber, and an oil-induction pipe having perforated diaphragms, which deliver the oil to the carbureting-chamber in a finely-divided condition, substantially as and for the purposes specified.

5. In apparatus for the manufacture of gas, the combination, with a retort, of a carbureting-chamber having perforated diaphragms and connected with the retort so as to receive the body of gas directly therefrom, and the oil-injecting nozzle, also provided with perforated diaphragms and connected with the retort by a jet-pipe, substantially as and for the purposes specified.

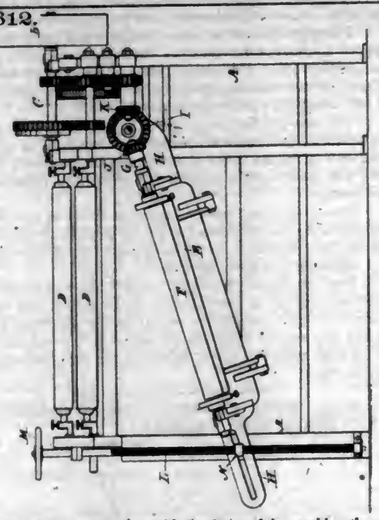
6. The deflector for superheaters, retorts, &c., consisting of the hollow cone having a perforated base-flange, substantially as and for the purposes specified.

7. The deflector for gas-retorts, superheaters, &c., consisting of the hollow cone having a perforated base-flange and an internal spider or supporting-lugs, substantially as and for the purposes specified.

8. In apparatus for the manufacture of gas, the carbureting-chamber having in its interior a series of perforated diaphragms, an oil-induction pipe having one or more perforated diaphragms, said oil-pipe extending longitudinally into the carbureting-chamber, and a retort connected with the carbureting-chamber at or near the point of insertion of the oil-pipe, substantially as and for the purposes specified.

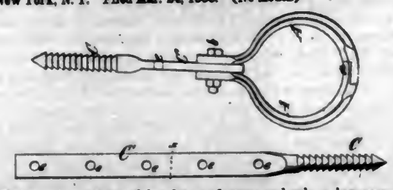
317,612. PAPER-CUTTING MACHINE. CHARLES S. BARTON, Worcester, Mass., assignor to the Rice, Barton & Fales Machine and Iron Company, same place. Filed Apr. 24, 1884. (No model.)

317,612.



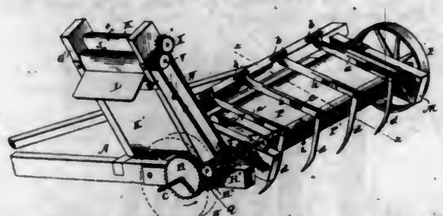
Claim.—The combination, with the frame of the machine, threaded rod L, and nut N, of the adjustable frame H, pivoted at one end, for supporting the cutter-knives, and the gears J and K, with the gear I, interposed between them, for the purpose stated, and means for operating the same, substantially as shown and described.

317,613. LAG-SCREW FOR PIPE-HANGERS. GEORGE W. BLAKE, New York, N. Y. Filed Mar. 24, 1885. (No model.)



Claim.—As a new article of manufacture and sale, a lag-screw for a pipe-hanger, having a long head or extension, C', beyond its thread, and provided at intervals in its length with holes *e*, substantially as and for the purpose herein described.

317,614. HAY RAKE AND LOADER. WILLIAM BLACKSTONE and DANIEL BLACKSTONE, Shelbyville, Ill. Filed Apr. 24, 1884. (No model.)



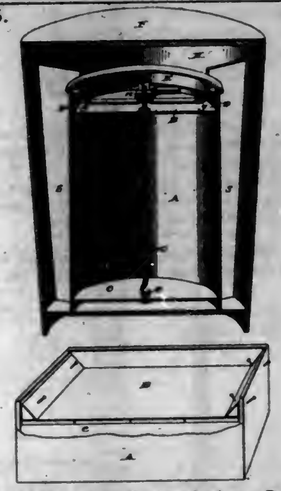
Claim.—1. The combination, with the main frame, provided with the endless apron F and wheels B B', of the endless aprons P P', having roller-bearings in the auxiliary frame M, the shaft Q', provided with the broad pinion R' and the miter-pinion T', the shaft Q, provided with the narrow pinion R^2, the cog-wheel R on the drive-wheel B', the combined miter-pinion and sprocket-wheel T, the combined cog-pinion and pulley V, the cog-pinion X, chain W, and the endless aprons K K' and P P', and the hinged rake-teeth connected to the auxiliary frame, substantially as specified.

2. The combination, with the bifurcated and laterally-perforated rake-arm, of the rake-tooth having the perforated angle-arm at its upper end pivoted in the bifurcation and secured in place near its forward end by a wooden break-pin, substantially as specified.

317,615. FRESH-MEAT-SHIPPING CAN, BOX, OR PACKAGE. ROBERT BOGARDUS, New York, N. Y. Filed Jan. 12, 1885. (No model.)

Claim.—1. The can, box, or vessel A, combined with piston-head cover B, all being constructed and arranged substantially as illustrated and described, and to operate as and for the purpose specified.

317,615.

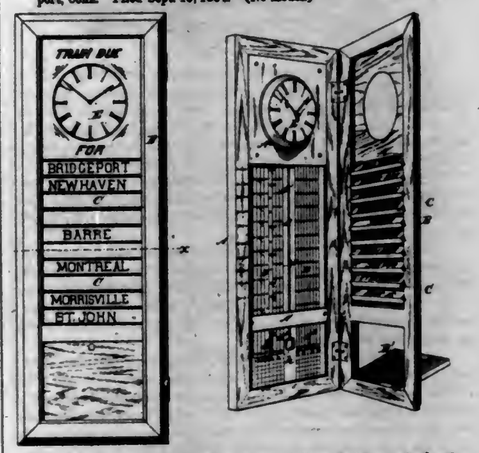


2. In a fresh-meat package, the piston-head cover B, (when beveled so as to form the annular groove *g*,) combined with a flexible packing, D, packing-rim E, and can or vessel A, all being constructed and arranged substantially as and for the purpose specified.

3. The vessel A and follower B, combined with rod C, substantially as and for the purpose described.

4. The vessel A, follower B, and rod C, combined with jacket or case H, all constructed and arranged substantially as and for the purpose described.

317,616. STATION TRAIN-INDICATOR. EDWD. S. BOYNTON, Bridgeport, Conn. Filed Sept. 15, 1884. (No model.)



Claim.—1. The combination, substantially as before set forth, of a number of pivoted signs and a tumbler provided with commutable pins, whereby any desired selection of said signs may be turned for exposure of their marked faces.

2. The combination, substantially as before set forth, of a number of pivoted signs and two or more tumblers, each provided with a different combination of pins, whereby different selections of signs may be successively turned for exposure of their marked faces.

3. The combination, substantially as before set forth, of a number of pivoted signs, a cross-sliding tumbler behind them provided with as many holes as there are signs, and a number of commutable pins, whereby any desired selection of said signs may be turned for exposure of their marked faces.

317,617. ROD FOR CONNECTING RAILWAY-SWITCH STANDS TO THE SWITCH. JAS. BRAHN, Jersey City, N. J. Filed Apr. 7, 1885. (No model.)



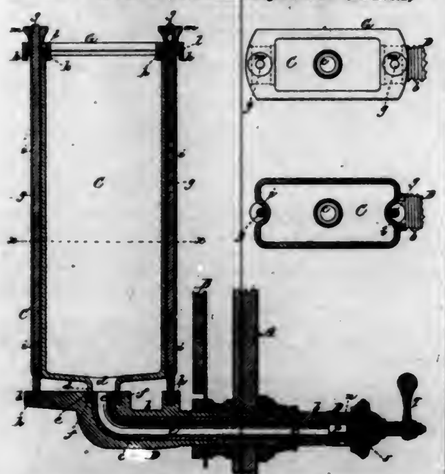
317,617.



Claim.—1. In combination with a railway-switch and a switch-stand, a connecting-rod having an elongated eye, C, arranged to operate as and for the purpose described.

2. In combination with a railway-switch and a switch-stand, a connecting-rod having an elongated eye, C, and jaw D, all constructed and arranged to operate as and for the purpose described.

317,618. SIRUP-FOUNTAIN. JOHN BROWN, Medford, Mass., assignor to James W. Tufts, same place. Filed Aug. 18, 1884. (No model.)



Claim.—1. In a soda-water apparatus, the combination, with a glass sirup-can, of a metal gate or outlet-pipe provided with a continuous glass tube or lining extending without break or interruption from the can to the outlet, and having its inner end in direct contact with the nozzle or outlet-aperture of the can, while its outer end is made flaring to receive a plug, substantially as and for the purpose described.

2. In a soda-water apparatus, a glass sirup can or receptacle provided on its sides with vertical grooves or corrugations extending from top to bottom, for the reception of supporting-rods, substantially as and for the purpose described.

3. In a soda-water apparatus, the combination, with a glass sirup-can, provided on its sides with vertical grooves or corrugations extending from top to bottom, of supporting-rods passing through said grooves, a cap resting on the top of a can and fitting over the ends of the rods, and thumb-nuts applied to said rods over the cap, substantially as and for the purpose set forth.

4. In a soda-water apparatus, the combination of the glass sirup-can C, provided on its sides and throughout the length of the can with vertical grooves or corrugations *i*, the gate or outlet-pipe D, having a continuous glass tube or lining, *e*, in direct contact at its inner end with the nozzle or outlet-aperture *d* of the can, the washer *f*, surrounding the end of the tube *e*, the rods *g*, attached at their lower ends to the gate D and extending up therefrom through the grooves *i* of the can, the cap G, and the thumb-nuts *m*, all constructed to operate substantially in the manner and for the purpose set forth.

317,619. GRIP FOR CABLE RAILWAYS. WILLIAM A. BURKE, San Francisco, Cal., assignor of one-half to P. Patak, same place. Filed Mar. 9, 1885. (No model.)



Claim.—1. In a grip for ropeways, the vertical shank A, forming a guide for the movable stem H, having the foot B, extending at right angles to one side from it, and the surrounding yoke into which the edges of the foot are tongued or fitted, substantially as herein described.

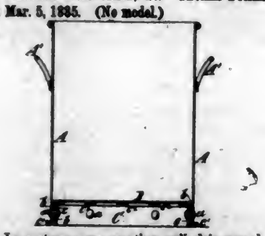
2. In a gripping device for ropeways, the vertical shank having the horizontal L-shaped foot or extension, the fixed and movable jaws attached beneath the foot, a vertically-moving stem guided within the shank, and a link connecting the foot of said stem to the movable gripping-jaw, substantially as herein described.

3. In a rope-gripping device, the vertical shank having a horizontal foot slotted at the rear, as shown, in combination with the vertically-moving stem having the incline H at the lower rear side, and a link connecting said stem with the movable jaw of the grip, substantially as herein described.

4. In a rope-gripping device, a vertical shank having the horizontal foot slotted at the rear, as shown, and having the inclined guide K, over which the link connecting the operating-stem with the movable jaw moves, substantially as herein described.

5. In a rope-gripping device, the vertical shank with the horizontal foot slotted at the rear, as shown, and the stem connected with the movable gripping-jaw and guided by the vertical shank, within which it passes, in combination with the wedge-shaped inclines L L at the rear of the shank, and the transverse bar M, secured to the stem, substantially as herein described.

317,620. BOTTOM FOR CANS, &c. THOMAS BURKHARD, Brooklyn, N. Y. Filed Mar. 5, 1885. (No model.)



Claim.—1. In a stove, can, or other cylindric vessel, the combination of the following parts: a sheet-metal bottom, B, having a downwardly-turned rim, *b*, a cast-metal skeleton base-frame, C, which extends beneath the horizontal portion of the bottom B, and which has a circular exterior on which the rim *b* is slipped, and an outwardly-projecting base-rim, *c'*, at the lower end of the circular exterior, and the cylindric casing A, fitting outside the rim *b* of the bottom and abutting against the base-rim *c'*, all substantially as herein described, whereby the skeleton base-frame C serves both to support the horizontal portion of the bottom B and to preserve the cylindric form of the rim *b* and casing A.

2. In a stove, the combination, with a sheet-metal bottom, B, having a downwardly-turned flange, *b*, of a cast-metal body or frame, C, over which the flange *b* is slipped, and which is provided with a base-rim, *c'*, and a casing, A, fitting outside the flange *b* and abutting against the rim *c'*, the stove being provided with holes or openings *e*, which serve to ventilate the space below the raised bottom, substantially as herein described.

317,621. ORE-CONCENTRATOR. NORMAN BUTLER, Ennis, Mont. Filed July 21, 1884. (No model.)



Claim.—1. In an ore-concentrator, the frame A, the upper inclined table provided with longitudinal channels b^2 and b^3, suspended from said frame by links *b*, and the lower oppositely-inclined table suspended by links *c* from the upper table, and adapted to receive its charge on its head from the foot of the upper table, in combination with the crank-shaft D and rod E, connecting the crank-shaft with the upper table, substantially as herein described.

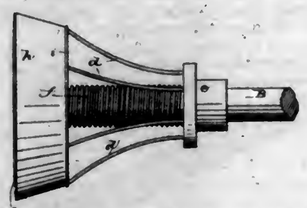
2. In an ore-concentrator, the suspended and vibrating inclined table B, having the basin b' at its head, the central run or channel, b^2, communicating with said basin, and the independent side runs or channels, b^3, having outwardly-sloping bottoms, substantially as herein described.

3. In an ore-concentrator, the suspended and vibrating inclined table B, having the basin b', the central run or channel, b^2, and independent side runs or channels, b^3, in combination with the oppositely-inclined vibrating table C, suspended under the upper table, and adapted to receive on its head the charge from the foot of said upper table, and having the independent parallel runs or channels c^2 c^3 under the runs of the upper table, substantially as herein described.

4. In an ore-concentrator, the suspended and vibrating inclined table B, having the central run or channel, b^2, and the side runs, b^3, in combination with the stationary stirrer G, operating in the central run, substantially as herein described.

5. In an ore-concentrator, the frame A and vibrating tables B and C, as described, in combination with the rotating feed-cylinder H, mounted in said frame over the head of the table B, and a stationary stirrer, substantially as herein described.

317,622. ABRADING-DISK. JOHN G. BUZZELL, Lynn, Mass. Filed Oct. 31, 1884. (No model.)



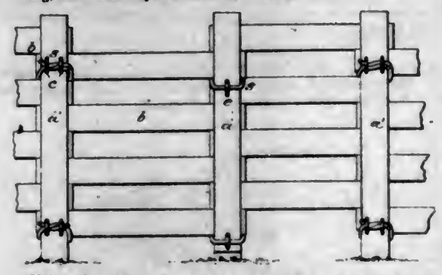
Claim.—1. In combination with an abrading-disk, a series of arms arranged around the periphery thereof and formed hook-like at their outer ends, to engage the abrading-cover at its edge and secure it in place, and means whereby said arms may be linearly adjusted and retracted, to press said abrading-cover against its cushioning-support, substantially as specified.

2. In combination with disk A, the arms *d*, sliding sleeve *e*, and spring *f*, all substantially as specified.

3. An abrading-disk formed with a cushioned peripheral face oblique to its axis, and with a circumferential guard, *i*, adapted to sustain the abrading-band *h* and secure it in position upon the disk, substantially as specified.

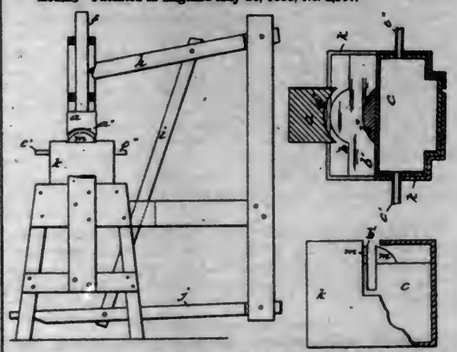
4. In an abrading-disk, the combination of a cushioned plane with means for securing the abrading-cover thereon and a cushioned peripheral face oblique to the axis of the disk and provided with a circumferential guard, whereby the abrading-band is secured in position thereon, substantially as specified.

317,623. FENCE. SAMUEL CALHOUN and JAMES G. CALHOUN, Edinburg, Ohio. Filed Apr. 24, 1884. (No model.)



Claim.—In a fence, the post *a* and bar *a'*, in combination with links *s s*, each formed of a single piece of wire, with its ends overlapping each other in a half-knot and turned up, staples *c c*, driven in the post over the lapped part of the link, in contact with the turned-up ends of the wire, and staple *c*, driven in bar *a'*, over the opposite end of the link, substantially as described.

317,624. APPARATUS FOR THE MANUFACTURE OF ARMPIT DRESS-SHIELDS. ISAAC A. CANFIELD, Middletown, Conn., assignor to the Canfield Rubber Company, same place. Filed July 18, 1882. (No model.) Patented in England May 26, 1881, No. 2,307.



Claim.—1. In a machine for manufacturing armpit dress-shields, the combination, with a guard-box having an opening in its upper face and a heater-box located within said guard-box, of a female die located within the guard-box and on the heater-box, and a vertically-movable die, substantially as set forth.

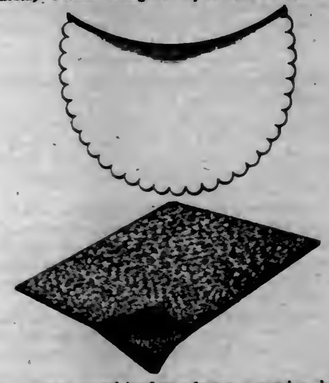
2. In a machine for manufacturing armpit dress-shields, the combination, with a guard-box and a heater-box, of a female die located within the guard-box, (and provided with upwardly-projecting side cheeks,) and a movable die, substantially as set forth.

317,625. PROCESS OF MANUFACTURING DRESS-SHIELDS. ISAAC A. CANFIELD, Middletown, Conn., assignor to the Canfield Rubber Company, same place. Filed Feb. 7, 1885. (No model.) Patented in England May 26, 1881, No. 2,307.



Claim.—The process of making dress-shields, consisting, essentially, in first facing one or both sides of a thin layer of rubber with a suitable textile fabric; second, shaping the stock thus formed between dies, one or both of which are heated, and, finally, submitting the shaped article to vulcanization.

317,626. DRESS-SHIELD. ISAAC A. CANFIELD, Middletown, Conn., assignor to the Canfield Rubber Company, same place. Filed Feb. 7, 1885. (No model.) Patented in England May 26, 1881, No. 2,307.



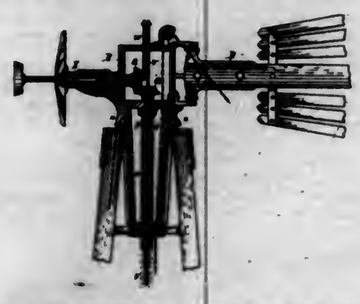
Claim.—As a new article of manufacture, a seamless dress-shield, consisting, essentially, of a central layer of thin rubber and seamless sheets or layers of soft fabric on both sides of the rubber, the outer layers or sheets of soft fabric being united to the inner layer of rubber throughout the entire surface of the latter, and the whole shaped to conform to the curve of the dress beneath the armpit.

317,627. STEM-WINDING WATCH. ALBERT CHOPARD, Montier-Grandval, Switzerland, assignor to the Société Industrielle Montier-Grandval, same place. Filed Aug. 7, 1884. (No model.)



Claim.—In a stem-winding watch, the combination, with the rocker A and the plate L, having a boss, *f*, of the wheel E and pivot *i* upon said rocker, the steel ring *e*, around the boss *f* and secured to the plate L, and the wheel D, revolving upon such steel ring, substantially as specified.

317,628. WIND-ENGINE. HUBERT B. COLMAN, Kalamazoo, Mich. Filed Dec. 27, 1884. (No model.)



Claim.—1. The combination of a rotary driving-shaft, a swiveled bearing-support for said shaft provided with a vertical extension, a machine-chamber connecting with said vertical extension, a driven shaft having bearings in said machine-chamber, and a transmitting power-shaft connecting in an operative manner the driving and the driven shafts, substantially as set forth.

2. The swiveled engine-head and wind-wheel shaft, the tubular extension and connected machine-chamber, the driven shafts, a transmitting-shaft connecting in an operative manner by bevel-gears with the wind-wheel shaft and the driven shafts, and a beam forming guide-bearings to the lower end of the tubular extension, in combination.

3. A machine-frame or chamber connecting with the swiveled bearing-support of a driving-shaft and containing a driven shaft and provided with guide-wheels at the lower sides, in combination with said driving-shaft and swiveled bearing-support and a transmitting-shaft connecting in an operative manner the driving and driven shafts, substantially as set forth.

317,629. REFRIGERATING APPARATUS. ALEXANDER CONACHER, San Antonio, Tex. Filed Aug. 4, 1884. (No model.)

Claim.—1. In a refrigerating apparatus, a horizontal cylinder and two vertical cylinders directly communicating therewith and provided with pistons and with suction and compression valves arranged within the area of the cylinders, in combination with the compression and suction pipes, substantially as specified.

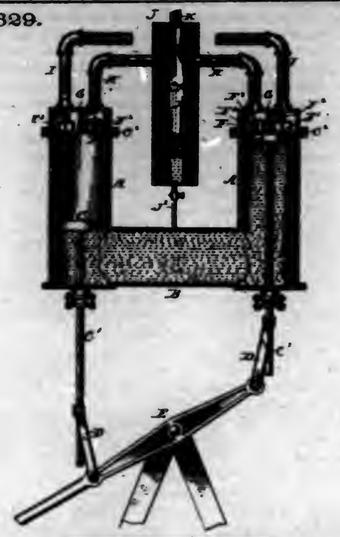
2. In a refrigerating apparatus, the combination of a trap-cylinder communicating with a horizontal cylinder which unites two vertical piston-cylinders, said piston-cylinders having suction and compression valves arranged at their upper ends in a cap having separate communications with suction-pipes, with compression-pipes communicating with said trap-cylinder, substantially as specified.

3. The combination of the vertical cylinders A, the horizontal cylinder B, the pistons C, the caps C', provided with the valves F F', and the separate compression and suction pipes H I, substantially as shown and described.

4. The combination of the cylinder A, the cap C', the valves F F', the casing G, having a separate compartment for each of said valves, and the pipes H I, substantially as shown and described.

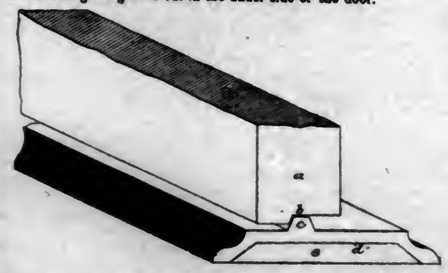
5. The combination of the walking-beam E, links D, piston-rod C', cylinders A, A, B, and J, the valves F F', and the pipes H, I, J', and K, substantially as shown and described.

317,629.



317,630. DOOR SADDLE OR SILL. JAMES A. CRAMER, Morristown, N.J. Filed Aug. 6, 1884. (No model.)

Brief.—A threshold of vulcanized rubber having a raised portion extending longitudinally along its upper face, said raised portion fitting into a rectangular groove cut in the under side of the door.

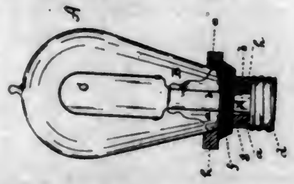


Claim.—1. A door saddle, threshold, or sill, of flexible vulcanized rubber *d*, having a rib, tongue, strip, or projection, *c*, of flexible vulcanized rubber or other material, so arranged as to fit into a rabbet or rectangular groove, *b*, cut longitudinally in the under side of the door, when the door is closed, substantially as set forth.

2. A flexible rubber door saddle, threshold, or sill having a rib, tongue, strip, or projection extending along the upper or face side, of sufficient height and so arranged as to exclude air, water, and the like when the door is closed, substantially as set forth.

3. A door saddle, threshold, or sill composed of wood, *e*, covered with flexible vulcanized rubber *d*, which has on the upper or face side thereof a rib, tongue, strip, or projection, *c*, of rubber or other material, so arranged as to come directly under the door when closed, substantially as set forth.

317,631. INCANDESCENT ELECTRIC LAMP. THOMAS A. EDISON, Menlo Park, N.J., assignor to the Edison Electric Light Company, New York, N.Y. Filed Nov. 29, 1881. (No model.)

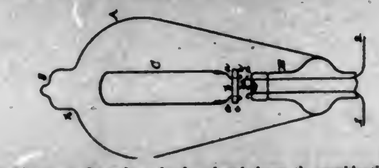


Claim.—1. In an incandescing electric lamp, the combination, with the glass inclosing-globe and the neck thereof, of contact-plates joined together and held upon the neck of the lamp by plastic material, substantially as set forth.

2. In an incandescing electric lamp, the combination, with the glass inclosing-globe and the neck thereof, of contact-plates located in different horizontal planes, said plates being joined together and held upon the neck of the lamp by plastic material, substantially as set forth.

3. In an incandescing electric lamp, the combination, with the glass inclosing-globe and the neck thereof, of contact-plates, one of which is a screw-ring located in different horizontal planes, said plates being joined together and supported upon the neck of the lamp by plastic material, substantially as set forth.

317,632. INCANDESCENT ELECTRIC LAMP. THOMAS A. EDISON, Menlo Park, N. J., assignor to the Edison Electric Light Company, New York, N.Y. Filed Nov. 9, 1882. (No model.)

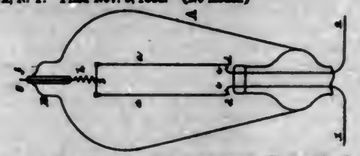


Claim.—1. In an incandescing electric lamp, the combination, with the incandescing conductor, of an insulating piece attached to said conductor and metallic terminals supported by said insulating piece connected with said filament, and removably connected with the leading-in wires of the lamp, substantially as set forth.

2. The combination, with the incandescing conductor of an electric lamp and metallic terminals secured to said conductor and the leading-in wires of said lamp, of removable connections between said conductor-terminals and said wires within the lamp-globe, and a spring or springs whose tension acts to maintain electrical contact at such connections, substantially as set forth.

3. In an incandescing electric lamp, the combination, with the leading-in wires having their ends formed into hooks, of the incandescing conductor having corresponding hooks attached to its ends, and a spring or springs for maintaining electrical contact between the two pairs of hooks within the lamp-globe, substantially as set forth.

317,633. INCANDESCENT ELECTRIC LAMP. THOMAS A. EDISON, Menlo Park, N. J., assignor to the Edison Electric Light Company, New York, N. Y. Filed Nov. 9, 1882. (No model.)

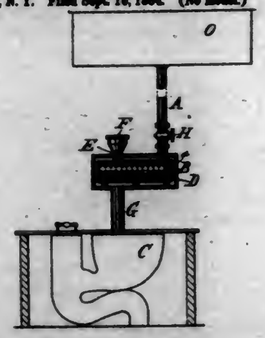


Claim.—1. In an incandescing electric lamp, the combination, with the carbon filament, of removable connections with the leading-in wires and a tension-spring drawing upon such filament, to compensate for the expansion and contraction of the filament, substantially as set forth.

2. In an incandescing electric lamp, the combination, with the straight carbon filaments connected by a wire, of the tension-spring attached to said wire and sealed in the glass of the inclosing-globe, substantially as set forth.

3. In an incandescing electric lamp, the combination, with the straight carbon filaments connected by a wire, of the tension-spring attached to said wire and sealed in the glass of the inclosing-globe, and removable connections between said filaments and the leading-in wires, substantially as set forth.

317,634. DISINFECTING WATER-CLOSETS. WILLIAM M. ERNST, New York, N. Y. Filed Sept. 16, 1884. (No model.)

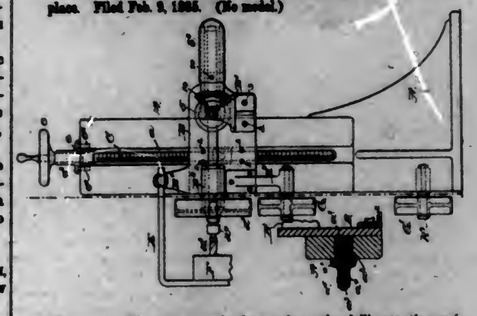


Claim.—1. The combination, with a water-closet and a reservoir or water-tank, of a disinfecting-chamber provided with a perforated receptacle for holding a disinfecting material intermediate the water-closet and reservoir or tank, a connecting-pipe intermediate the reservoir or tank and the disinfecting-chamber, provided with means for regulating the flow of water through said pipe, and a second pipe leading from the bottom of said disinfecting-chamber and connected with the water-closet, whereby the disinfecting material is subjected to the action of the water only while the water is flowing from the water-tank to the disinfecting-chamber, substantially as described.

2. The combination, with the reservoir or water-tank and the disinfecting-chamber provided with a perforated receptacle for the reception of a disinfecting material, of a connecting-pipe and a cock or valve intermediate such reservoir or tank and the disinfecting-chamber, whereby the flow of the water to the disinfecting-vessel may be regulated, substantially as described.

3. The combination, with the reservoir or water-tank and the disinfecting-chamber provided with a perforated receptacle for the reception of a disinfecting material, a supply-pipe, and a cap therefor, of a connecting-pipe intermediate the reservoir or water-tank and the disinfecting-chamber and a valve or cock located in said last-mentioned pipe, substantially as described.

317,635. DRILLING-MACHINE. C. HERBERT FRENCH and ALBERT T. GUFFORD, Hopedale, Mass., assignors to the Dutcher Temple Company, same place. Filed Feb. 9, 1885. (No model.)



Claim.—1. The frame-work, the carriage, the drill-actuating spindle, its pulley *d'*, and the pulley G, made vertically movable with the said carriage, combined with a third pulley, G', over which and the pulleys *d'* G the driving-belt is extended, whereby the drill-actuating spindle may be kept in rotation in all positions of the carriage in the frame-work, substantially as described.

2. The frame-work, its screw C, the carriage, the drill-actuating spindle, its driving-pulley, the pulley G, made movable with the said carriage, and the adjustable abutment, combined with the pulley G', mounted on a stud of the frame-work, substantially as described.

3. The frame-work, the carriage, the screw to adjust it vertically, and the drill-actuating spindle, and means, substantially as described, to feed the same longitudinally in its bearings, combined with the adjustable abutment, substantially as set forth.

4. The carriage, its bearings B^2 B^5 B^4, the drill-actuating spindle, its collars, and the grooved screw-threaded sleeve *b*, combined with the bevel-gear screw-threaded at its interior and with the spline 12, to operate substantially as described.

5. The carriage, its bearings B^2 B^5 B^4, the drill-actuating spindle provided with groove 16, the collars 6 7, the pulley *d'*, and spline 17, combined with the longitudinally screw-threaded sleeve *b*, spline 12, bevel-gear 14, threaded at its interior, and with means, substantially as described, to rotate the said gear 14, as set forth.

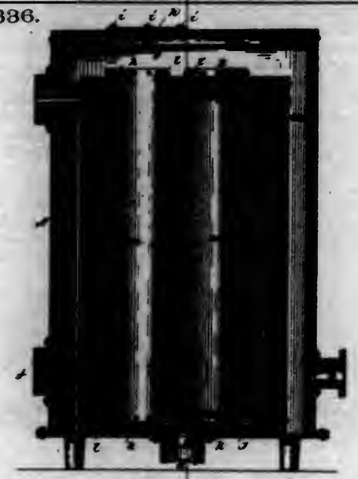
6. The abutment, the carriage, the ear B^4, and adjustable bolt provided with cross-holes, combined with the loose sleeve provided with cross-holes, to operate substantially as described.

317,636. FEED-WATER HEATER. MICHAEL FUNK, La Crosse, Wis. Filed Jan. 14, 1885. (No model.)

Claim.—1. The feed-water heater herein described, consisting of the outer casing, A, having the opening *c* in its vertical wall near the bottom thereof and arranged directly opposite the opening in the inner casing, and the inner casing, B, constructed as shown, said outer casing provided with the flange *d*, encircling the opening *c*, having the exterior screw-threads to engage interior threads in the cap *e*, whereby access may be had to the inner cylinder at its lower end, as and for the purposes set forth.

2. In an upright feed-water heater, the combination, with the outer casing, constructed as shown, of the inner cylinder having at its lower end the opening directly opposite the opening *c* in the outer casing, and provided at its top and bottom with the plates of similar construction, having the outer flange to engage the inner wall of the inner cylinder, which

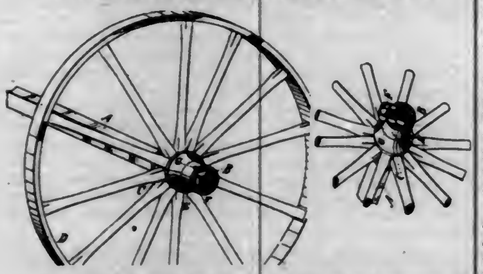
317,636.



is secured thereto, and each having the openings to receive the upper and lower ends of the flues *m*, said openings surrounded by the marginal flange *l*, whereby said flues are secured to the plates by bolts passing through the flange and flue, the whole arranged as shown and described.

3. In a feed-water heater of the class herein shown, the combination, with the outer cylinder or casing, constructed as described, of the inner cylinder, B, provided with the flues *m* and the opening, and the upper and lower plates having the flanged openings to receive the flues and marginal flange, whereby said plates are secured to the inner cylinder by bolts, as shown, the lower plate arranged within the lower portion of said inner cylinder to form a passage between the same and the bottom plate of the outer casing, the lower marginal edge of the inner cylinder serving as a support for the latter, and an inclosing wall for the space between the bottom of the inner cylinder and outer casing, the whole arranged as shown and described.

317,637. DEVICE FOR ADJUSTING AND REMOVING NUTS. PRESTON G. GUILFORD, Jr., Napa, Cal. Filed Sept. 1, 1884. (No model.)



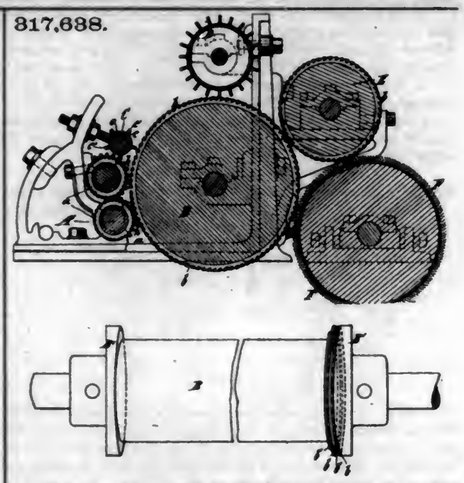
Claim.—1. A device for adjusting or setting up and removing nuts on the axle of a vehicle, consisting of a U-shaped swinging loop or link, F, pivoted to the nut D, which is provided with sockets *f*, and adapted to engage temporarily with the hub of the vehicle, whereby a connection is formed between said nut and hub, substantially as and for the purpose herein described.

2. The axle A and wheel D of a vehicle, having a hub, C, with a band, E, provided with notches G, in combination with the nut B on the end of the axle, said nut having sockets *f*, and swinging loop or link F, pivoted to the nut at one side of its transverse central line, and adapted to be moved into engagement with the notches of the hub-band, substantially as and for the purpose herein described.

317,638. WOOL-BURRING MACHINERY. CALVIN L. GODDARD, New York, N. Y. Filed Nov. 10, 1882. (No model.)

Brief.—Independent toothed rings and interposed packing-rings, composing the surface of the burr-cylinder, are held in an oblique position by end flanges, whose inner sides are oblique to the axis. A cotter-cylinder having its teeth inclined backward and having a slow surface-speed removes the small knots from the surface of the burr-cylinder. A roll provided with flexible flanges wipes the wool from one of the feed-rolls and presses it onto the burr-cylinder.

317,638.



Claim.—1. A burr-cylinder having flanges, the inner sides of which are oblique to the axis of the cylinder, and having its surface composed of separate and independent toothed rings, and interposed packing-rings secured between the oblique sides of the said flanges and by them held in oblique positions on the cylinder, substantially as and for the purpose herein described.

2. The combination, with a burr-cylinder composed of rings having hooked teeth, of a cotter-cylinder having hooked teeth and arranged adjacent to the burr-cylinder, and means for rotating said cylinders in directions reverse to each other, the teeth of the burr-cylinder projecting forward and the teeth of the cotter-cylinder projecting rearward relatively to their directions of rotation, and the cotter-cylinder having a surface-velocity much less than that of the burr-cylinder, substantially as and for the purpose described.

3. The combination of the burr-cylinder B and the cotter-cylinder E, both provided with hooked teeth, mechanism for rotating said cylinders in reverse directions so that the teeth of the burr-cylinder shall project forward and the teeth of the cotter-cylinder backward relatively to their directions of rotation, and so that the cotter-cylinder shall have a surface-velocity much less than that of the burr-cylinder, and a single stripper, tumbler, or brush for removing wool from both said cylinders, and mechanism for operating said stripper, tumbler, or brush, substantially as and for the purpose described.

4. The combination, with a burr-cylinder and hook-toothed feed and holding rolls arranged in close proximity thereto, of a wipe-and-pressure roll having wings or portions of a material softer than the teeth of the burr-cylinder, so that said teeth will not be injured by contact with said wings or portions, and serving to strip or wipe the wool from one of the feed-rolls and to press the wool onto the teeth of the burr-cylinder, and mechanism for operating said cylinder and rolls, substantially as herein described.

5. The combination, with the burr-cylinder B and feed-rolls A A', of the wipe-and-pressure roll C, consisting of a slotted or grooved bar or shaft, and wings *c'*, of sole-leather or analogous material softer than the teeth of the burr-cylinder, so that the teeth of the cylinder will not be injured by contact with said wings, and mechanism for rotating said cylinder and roll, substantially as herein described.

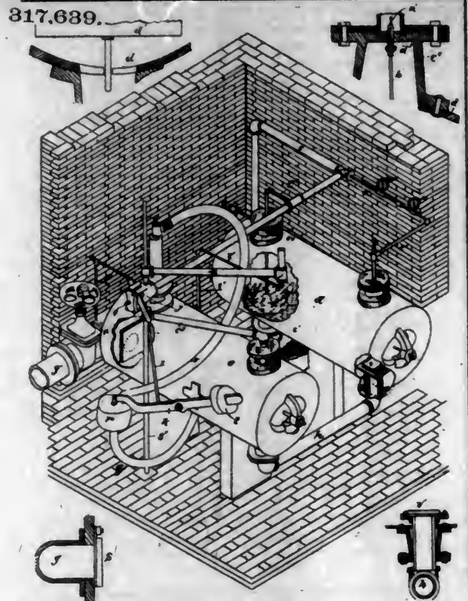
6. The combination of the hooked toothed feed-rolls, the burr-cylinder, the wipe-and-pressure roll, the guard, the cotter-cylinder, the tumbler or brush for stripping said burr and cotter cylinders, and mechanism for rotating said rolls, cylinders, guard, and tumbler or brush, all arranged and adapted to operate substantially as and for the purpose herein described.

317,639. WATER-ELEVATING APPARATUS. ALBON M. GRANGER, Medford, Mass., assignor of one-third to James Clayton, Brooklyn, N. Y. Filed Feb. 4, 1885. (No model.)

Claim.—1. In a water-elevating apparatus, the combination of a receiving-chamber into which water flows naturally, means for supplying compressed air to said chamber, a valve controlling the admission of the compressed air, a vertically-movable reservoir connected with the valve by means substantially as described, and alternately filled with water and air, and a delivery-pipe leading from said chamber, as set forth.

2. In a water-elevating apparatus, the combination of a receiving chamber into which water flows naturally, means for supplying compressed air to said chamber, a valve controlling the admission of the compressed air, a lever having a reservoir which is filled alternately with

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water and air and is connected with the valve so as to operate the latter, and a pipe for the passage of water from the chamber, as set forth.

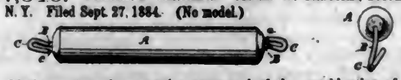
3. In a water-elevating apparatus, the combination of a receiving-chamber into which water flows naturally, means for supplying compressed air to said chamber, a lever having a reservoir which is alternately filled with water and air and is connected with the valve so as to operate the latter, a secondary chamber connected with the water-receiving chamber and with the compressed-air supply, and a float-valve, whereby the compressed air is excluded from the secondary chamber when the water therein falls below a given level, as set forth.

4. In a water-elevating apparatus, the combination of a receiving-chamber into which water falls naturally, a compressed-air-supply pipe and an air exhaust or outlet pipe for said chamber controlled by a valve common to both pipes, a movable reservoir into which water and air are alternately admitted, as described, and a connection between said lever and valve, whereby the latter is turned to admit compressed air into the chamber when the lever is depressed and to shut off the compressed air and open the exhaust-pipe when the lever is raised, as set forth.

5. A water-supply system consisting of a chamber into which water flows naturally, means for supplying compressed air to said chamber, a lever having a reservoir into which water and air are alternately admitted, as described, a valve operated by said lever to alternately admit and exclude the compressed air, and a series of elevated supply-pipes through which water is forced from said chamber by the air-pressure, as set forth.

6. The combination of the chamber *e*, having a compressed-air-supply pipe and an exhaust or air-escape pipe, a three-way valve common to both pipes, a pivoted lever outside of said chamber, a reservoir secured to the lever and connected by flexible pipes to the upper and lower portions of the chamber, and a connection, substantially as described, between said lever and the valve, whereby the latter is operated by the movements of the lever, as set forth.

317,640. PACKAGE-CARRIER. OLIVER W. GRIFFITHS, Brooklyn, N. Y. Filed Sept. 27, 1884. (No model.)



Claim.—A package-carrier composed of the combination of the handle or hand-hold A with the bent wire or wires B, having hooks C, that are bent or turned to one side at their outer ends, as and for the purpose described.

317,641. COLLAPSIBLE CAN. FRANK R. GROUT, Chicago, Ill. Filed Sept. 27, 1884. (No model.)

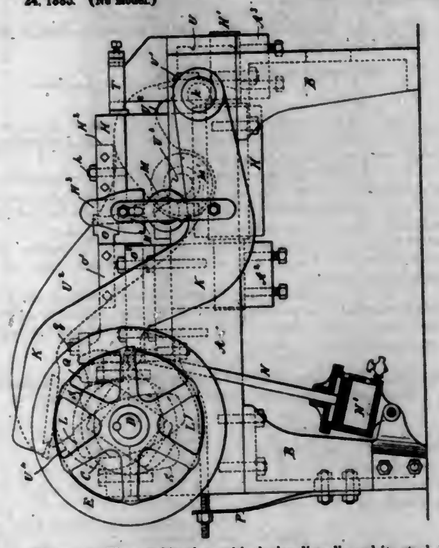
Claim.—1. A seamless collapsible can having a bottom or closed end and provided with the clasp *a'*, substantially as and for the purposes set forth.

2. The combination, with a collapsible can formed from a single piece of soft metal, of the clasp *a'*, substantially as described.

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317,642. BOLT-MACHINE. CHARLES HALL, New York, N. Y., and JOHN YOUNG, Newark, N. J., assignors to said Charles Hall. Filed Feb. 24, 1885. (No model.)



Claim.—1. The combination, with the heading-die and its stock in a bolt-machine, of a bearing-block attached to such reciprocating stock, the shaft D, that is made broad between the supporting pillow-blocks C, and the two movable cams S, secured within recesses at opposite sides of such shaft D, substantially as set forth.

2. The combination, in a bolt-machine, of the swinging head-block H, having a lateral arm, H^3, the lever K, pivoted to the frame A, the thrust-piece M, between the lever K and the arm H^3, and the two cams L upon the shaft D, acting upon the lever K, substantially as set forth.

3. In a bolt-heading machine, the combination, with the swinging head-block H, lever K, and the two cams L, of the dash-pot, a piston within that dash-pot, and a rod connecting the piston to the lever K, and a hinge uniting the dash-pot to the frame, substantially as set forth.

4. The combination, with the movable head-block in a bolt-machine, of the lever to move the same, the main shaft and its cam, and a dash-pot, and a connection from the piston to the lever, substantially as set forth.

317,643. SEAMLESS SHOE. HENRY HALLER, Brooklyn, assignor to George P. Roll, New York, N. Y. Filed Mar. 3, 1885. (No model.)



Claim.—1. A blank for a shoe, comprising the bottom and upper in one piece, and provided with V-shaped recesses at toe and heel parts, and with lateral recesses at the toe part, opening into the V-shaped recess thereof, substantially as described.

2. The body of a boot or shoe constituting the upper and the bottom in one piece, the heel and toe ends being united by seams *e* and *d*, which extend beneath the heel and toe, respectively, the said extended toe-seam being connected with lateral seams *d' d'*, substantially as described.

3. A boot or shoe comprising a single piece of leather, or other suitable material, which serves as an upper and also as an inner or middle sole, the toe and heel being closed by seams extending into the sole portion, the toe-seam being connected with lateral seams *d' d'*, in combination with an outer sole, which covers the said seams in the sole portion, substantially as described.

4. A boot or shoe comprising a single piece of leather, or other suitable material, which serves as an upper and also as an inner or middle sole, the toe and heel being closed by seams extending into the sole portion, the toe-seam being connected with lateral seams *d' d'*, in combination with an outer sole, which covers the said seams in the sole portion, and a toe-cap, which covers a portion of the toe-seam in the upper, substantially as described.

317,644. ARTIFICIAL LEG. HERMAN HAUSSMANN, Chicago, Ill. Filed Mar. 30, 1885. (No model.)

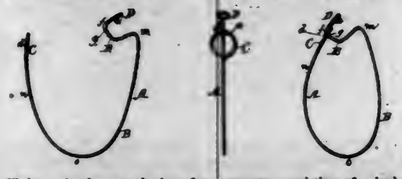


Claim.—1. In an artificial leg, the hinged or pivoted straps provided with opposing annular bearings, in combination with a ring fitting in said bearings, substantially as described.

2. In an artificial leg, the straps of the upper and lower leg-sections, one of which is provided with a central circular perforation, and the other with a similar but squared perforation, a bushing fitting said perforations and connecting said strap, and means for locking said bushing, in combination with a ring intermediate the bearings of and maintaining the bearing-faces of said straps from actual contact with each other, substantially as described.

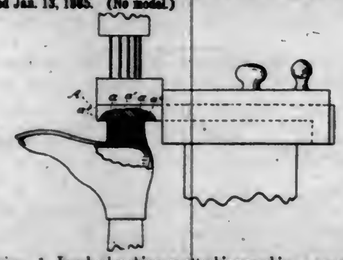
3. The straps, the opposing flanges or stops, the squared and circular perforations, and the annular grooved bearings thereof, in combination with the ring fitting in said bearings, and the bushing and lock-nut, substantially as described.

317,645. SPRING LOCKING-CLASP FOR GARMENTS. CHARLES J. S. HAYDEN, Worcester, Mass. Filed Jan. 31, 1885. (No model.)



Claim.—An improved clasp for garments, consisting of a body or spring bow part, B, having a curved loop-extension part, C, small loop D, U-bend E, and curved point *m* between loop D and body part B, said parts being constructed and arranged to operate in relation to each other substantially as described, whereby, when the loops C and D are brought or sprung in a direct line toward each other, loop D will enter from the inside of loop C, and when released will spring out over the outer edge of loop C, while loop C will spring up against the shank *f* of loop D, as and for the purpose set forth.

317,646. HEEL-NAILING MACHINE. HENRY A. HENDERSON, Lynn, Mass., assignor to the National Heeling Machine Company, Portland, Me. Filed Jan. 13, 1885. (No model.)



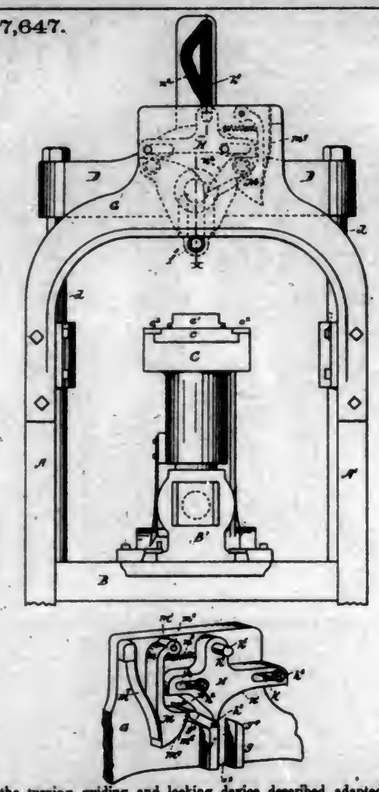
Claim.—1. In a heel making or attaching machine, a pressure-plate or templet, A, having the surface *a' a²*, as and for the purposes described.

2. In a heel making or attaching machine, the pressure or templet plate A, having the holes *a* and the pressing-surfaces *a' a²*, arranged in relation to each other substantially as and for the purposes described.

317,647. HEEL-NAILING MACHINE. HENRY A. HENDERSON, Lynn, and FREEBORN F. RAYMOND, 2d, Newton, Mass.; said Henderson assignor to the National Heeling Machine Company, Portland, Me. Filed Mar. 18, 1885. (No model.)

Claim.—1. The combination of the reciprocating cross-head D, the revolving head E, its shaft *e*, the plate F, having cam-pins, as specified,

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and the turning, guiding, and locking device described, adapted upon each reciprocation of the cross-head to partially turn the revolving head and then to hold it locked, all substantially as and for the purposes set forth.

2. The combination of the reciprocating cross-head D, the revolving head E, its shaft *e*, the cam-plate F, having cam-pins and guides, and guiding-surfaces against which the cam-pins are successively brought in contact, with the reciprocating block H, having the guiding-surface *n'*, all substantially as and for the purposes described.

3. As a device for automatically turning the shaft during the downward movement of the cross-head, the guiding-surface g^3, guiding-passage g^3, the reciprocating switch-block H, having the guiding-surface *n'*, and the automatic holding latch or pawl M, all substantially as and for the purposes described.

4. The combination of the guiding-surface g^3, the guiding-passage g^3, and the reciprocating block H, having the point h^3, and the guiding-surface *n'*, all substantially as and for the purposes described.

5. The combination of the guiding-surface g^3, the passage or guide g^3, and the movable latch or pawl M, all substantially as and for the purposes described.

6. The movable locking latch or pawl M, having the surface m^3, the shoulder m^8, and the recess m^{10}, whereby it is adapted to co-operate with the guiding-surface g^3, all substantially as and for the purposes described.

7. The combination of the guiding-surface g^3 and the pawl or latch M, hung, as described, with the springs m^7 m^6, or either of them, all substantially as and for the purposes described.

8. The combination of the cross-head D, the revolving head E, the shaft *e*, the disk F, carrying the cam-pins, and the guiding and locking passage g^3, all substantially as and for the purposes described.

9. The combination of the reciprocating cross-head D, the revolving head E, its shaft *e*, the plate F, the cam-pins carried thereby, and the guide or groove with which each cam-pin is successively moved, and a locking or latching device for locking or latching said cam-pin in said groove, all substantially as and for the purposes described.

10. The combination of the plate G, the block H, having the point h^3, and the guiding-surface *n'*, the slots *h h'*, and the studs h^2, all substantially as and for the purposes described.

11. The combination of the switch-block H with the cam for positively moving the same, all substantially as described.

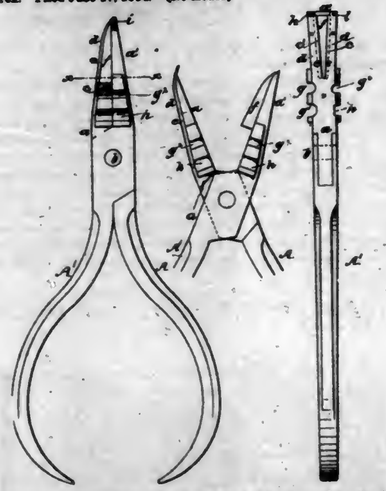
12. The combination of the switch-block and the cam for positively

moving the same, having a groove or guide for holding it locked when in operative position, all substantially as described.

13. The combination of the switch-block having the surface n^3, against which the cam-pins are successively brought in contact, with the said cam-pins, all substantially as described.

14. The combination of the switch-block having the surfaces n^3, against which the cam-pins are brought in contact successively to move the same, and the cam h^4, having a groove or guide for holding it in operative position, all substantially as described.

317,648. WATCH-MAKER'S PLIERS. HENRY A. R. HORTON, Cleburne, Tex. Filed June 17, 1884. (No model.)



Claim.—1. In pliers for use on the hands of watches, the jaw *a*, constructed or provided with an outer plate portion, *d*, and having longitudinal slots *c c'* in them, the outer one, *c'*, of which is made tapering, as described, and has beveled overlapping inner margins, *e e*, in combination with the jaw *a'*, constructed to fit the slot *c* in the jaw *a*, substantially as specified.

2. The longitudinally taperingly slotted plate portion *d* of the jaw *a*, having its outer end constructed to curve inward, and having an open-ended slot, *k*, in the outer end of one of its prongs, essentially as and for the purpose herein set forth.

3. The jaws *a a'* of a pair of watch-hand pliers provided with holes *i i* near their outer ends, substantially as and for the purpose specified.

4. A watch-hand pliers having projections on the sides or edges of its jaws, with cross-grooves of different sizes and shapes between said projections, for holding minute and hour hands of different descriptions while the same are being filed or fitted, essentially as described.

5. A combination watch-hand pliers constructed with a longitudinally-slotted and inner ribbed or feathered lower jaw having a claw-like termination for one of its prongs, a solid upper jaw fitted to enter within the lower jaw, and both jaws constructed with holes and cross grooves or notches for holding the hands when detached from the watch, substantially as specified.

317,649. CABLE-RAILWAY CONSTRUCTION. TOM L. JOHNSON, Cleveland, Ohio. Filed Jan. 19, 1885. (No model.)

Claim.—1. In a cable railway, a slot-rail provided with a guide-channel, as m^2, for a traction-cable, and an offset to form a pulley-chamber, substantially as and for the purposes set forth.

2. In a cable railway, a railway curved track consisting of an ordinary rail for the exterior rail of the curve, and of an interior rail, cover, and sides, forming one set of pulley-chambers, substantially as and for the purposes set forth.

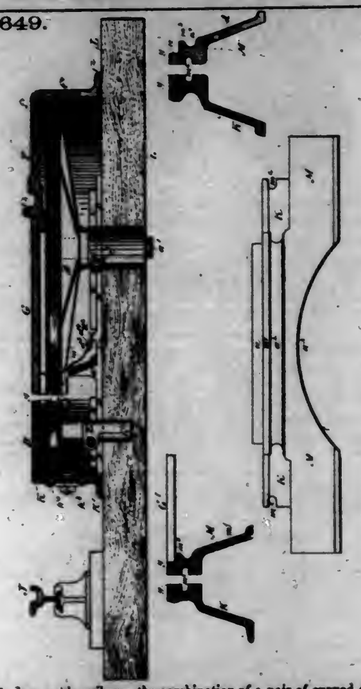
3. In a cable railway, the combination of two pulleys for a curved cable, set upon centers secured in horizontally-adjustable frames, substantially as and for the purposes set forth.

4. In a cable railway, a cable-pulley having its axis clamped within a slotted sleeve or lug by a tightening-screw and secured to a bed-plate, substantially as and for the purposes set forth.

5. In a cable railway, a bed-plate, as D, supported on the cross-ties of the track and slotted to permit of the adjustment of the centers of a set of curve-pulleys, substantially as and for the purpose set forth.

6. In a cable railway, a bed-plate, as D, for supporting the curve-pulleys of the track, provided with lugs *d' d²*, a brace, d^3, and bolts d^3, for clamping or jointing the inner slot-rails securely in the curved track, substantially as and for the purposes set forth.

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7. In a cable railway, the combination of a pair of curved slot-rails, the inner of said rails having its web cut or curved out at intervals, as at a^2, whereby access may be obtained through suitable chambers under said inner rail to the space between said rails, for the purposes of cleaning out said space, substantially as set forth.

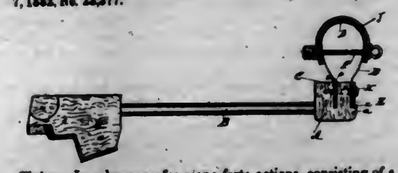
317,650. BOUQUET-HOLDER. M. HENRY JONES, Raleigh, N. C. Filed Dec. 16, 1884. (No model.)



Claim.—1. A combined brooch or breastpin and bouquet-holder provided with means for fastening the same to a garment, and having on the face thereof a metal loop open on one side, and a fastening device or pin extending across the opening in said loop, and confined by the body of the brooch or breastpin on both sides of said opening, substantially as described, said body extending beyond the loop on both sides of the same, as set forth.

2. The combined brooch or breastpin and bouquet-holder, comprising the body provided with the metal loop open at the back, as well as with means for attaching the said body to a garment, in combination with the movable pin fitting in sockets and extending across the opening in the loop, to confine the stem of the bouquet, substantially as described.

317,651. PIANO-HAMMER. MAX JUNGER, Lindenau, near Leipsic, Germany. Filed Nov. 8, 1883. (No model.) Patented in Germany Dec. 7, 1882, No. 23,377.



Claim.—In a hammer for piano-forte actions, consisting of a block, A, and elliptical spring D, the regulating-screw F, substantially as and for the purpose described.

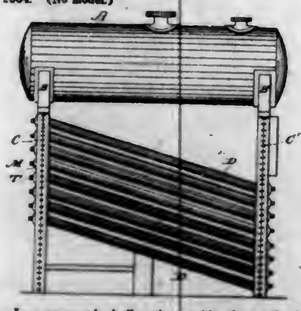
317,652. ANTI-FRICTION BEARING. JOHN M. KELEHER, Newark, Ohio. Filed Mar. 9, 1885. (No model.)



Claim.—1. In combination with a roller for roller-skates, an anti-friction bearing embodying the series of metal rollers, each rounded up at the extreme ends thereof, turned away in the center thereof, forming a bearing at each end surrounding the axle of the skate, the said axle bearing thereon, the metal rollers inclosed within a metal sleeve or thimble, and the sheet-metal cap circular in form, the rim thereof flanged outward from the skate-roller in a semicircular form, attached closely to the sides of the skate-roller, covering the open ends of the metal sleeve or thimble and preventing the lateral displacement of the metal rollers, substantially as set forth.

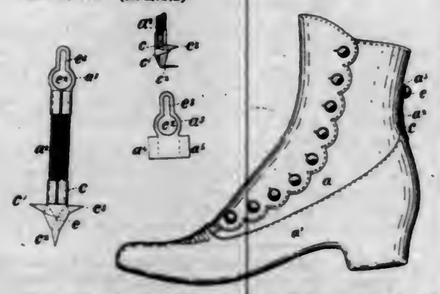
2. In combination with a roller for roller-skates, a metal cap with the rim flanged outward from the skate-roller in a semicircular form, and attached closely to each side of the skate-roller by means of screws passing through the cap and into the skate-roller, substantially as set forth.

317,653. STEAM-BOILER. WILLIAM KENT, Jersey City, N. J. Filed May 7, 1884. (No model.)



Claim.—In a water-tube boiler, the combination of the drum A, connecting-boxes B B', inclined tubes D D, and tube-heads C C', the front head, C, being made with an opening in its lower portion, whereby access is had to the furnace, and the rear head, C', having an opening in its upper portion, whereby the gases may escape to the chimney, substantially as set forth.

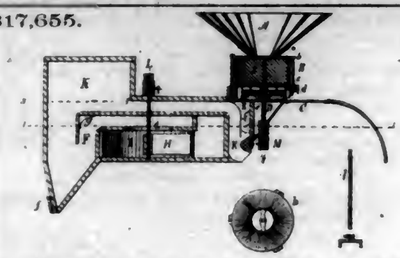
317,654. FASTENER FOR RUBBER SHOES. JOHN A. KESSEL, Buffalo, N. Y., assignor to himself and JOHANNA RICHERT, same place. Filed Mar. 14, 1885. (No model.)



Claim.—A rubber-shoe holder consisting of the elastic portion a^3, provided at one end with a clasping portion, c, having the sharp points c' c^2 c^3, adapted to fasten to the heel of a rubber shoe, as specified, and at the opposite end a loop adapted to catch over a button on a shoe or boot, for the purposes described.

317,655. GRAIN-CLEANING MACHINE. HENRY LAMPMAN, Afton N. Y. Filed Feb. 4, 1884. (No model.)

Claim.—1. The combination of the hopper A, case B, situated immediately below said hopper and having the corrugated cap b, provided with openings, as described, the shaft D, cylinder J, secured to said shaft, the corrugated plate C, and the brush-pulley P, secured to said shaft D, and carrying brushes on its under side and provided with openings for

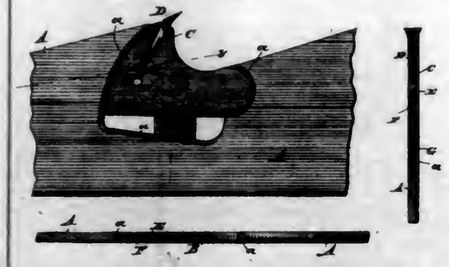


the passage of grain from the case B and cylinder J to said plate C, substantially as described.

2. The combination with the hopper A, case B, having corrugated cap b, and shaft D, of the cylinder J, secured to said shaft and revolving in said case and provided with vertical ribs w', and on its lower face with circular ribs y', substantially as and for the purposes described.

3. The herein-described grain-cleaning machine, consisting of the hopper A, case B, having corrugated cap b, secured to the top of said case, cylinder J, revolving within said case, shaft D, brush-pulley P, also secured to said shaft, corrugated plate C, arranged under said pulley P, fan H I, air-chamber K, arranged over said fan, and the air-trunk E F, situated between said fan and air-chamber, the parts being constructed, arranged, and operating substantially as herein shown, and for the purposes described.

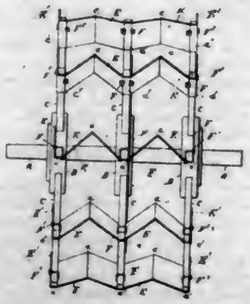
317,656. INSERTIBLE SAW-TOOTH. ERNST T. LIPPERT, Pittsburg, Pa. Filed Feb. 2, 1885. (No model.)



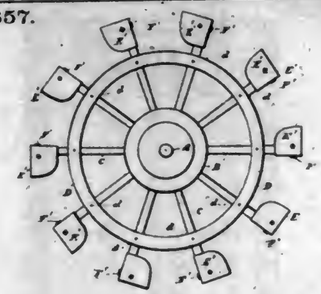
Claim.—The combination, with a saw-body having recess therein provided with convex edges, of the heel having grooved edges and formed with a recess to receive the removable tooth and with an extended slot terminating in a round opening, and a wedge formed convex on one side to enter the adjacent grooved edge of the heel, and grooved at its opposite side to engage the convex edge of the saw-recess, all substantially as shown and described.

317,657. PADDLE-WHEEL FOR VESSELS. THOMAS C. LOVE, Evansville, Ind. Filed Sept. 1, 1884. (No model.)

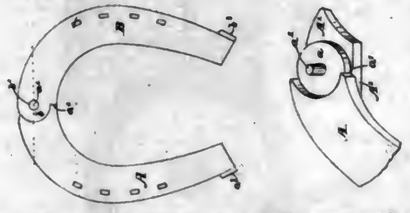
Claim.—In a water-wheel for the propulsion of steam-vessels, the shaft A, provided with hubs B, and radial arms C, having supporting-rings D, in combination with buckets E, each bucket having two V-shaped portions, e, and three flat parts, e', the ends of said buckets E having parts E' at a right angle to the said parts e' and on a plane with the sides of the wheel, the parts E and E' of the bucket being secured to the outer arms C by L-shaped stirrups F', and the part E to the central radial arms C by a U-shaped stirrup, F, the whole of said bucket E being composed of a single piece of metal extending clear across the face of the wheel, as shown and described, and for the purposes set forth.



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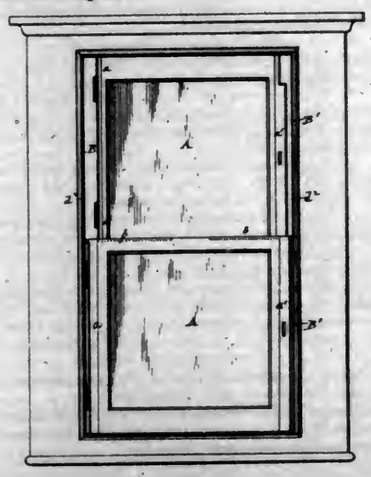
317,658. HORSESHOE. EMORY F. LOWRY, Jamestown, Ind. Filed Apr. 26, 1884. (Model.)



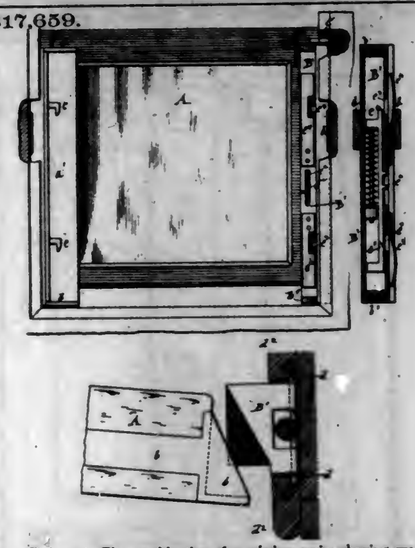
Claim.—A jointed horseshoe, composed of the parts A and B, connected directly to each other at the toe by a pivot-connection, said part A having the toe-calk A' formed thereon, said toe-calk being formed to extend out under the part B, a semicircular flange, a, being also formed on the front end of the part A, and a recess being formed therein by the extension of the form of said flange, a pivot, a^2, being formed in the center thereof, said center being located somewhat nearest the front edge of the shoe, and a shoulder, a', being thereby formed at the rear side of the flange a, and said part B also having a semicircular flange, b, and recess corresponding to the flange and recess of the part A, a pivot-hole, b', being formed in the center thereof adapted to receive the pivot a^2, whereby the two parts A and B are hinged together, and said parts A and B being provided with heel-calks a^3 b^3, respectively, the inside faces of which slant outwardly, whereby, when said calks are borne into the ground, the heels of the parts of the shoe are slightly spread and a like operation produced upon the hoof of the animal, all substantially as described, and for the purpose specified.

317,659. WINDOW-SASH. EMIL R. MAYER, New York, N. Y. Filed Dec. 12, 1884. (No model.)

Brief.—A window-sash, being provided with side and top and bottom metallic straps of angular cross-section. These straps cover the joints between the sash and the detachable side strips. Levers C are pivoted in a recess in the jamb to keep the strip down when the sash is unlocked and swung back.



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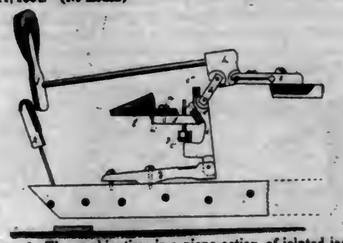


Claim.—1. The combination of a window-casing having grooved stop and parting beads, guide-rails having lugs extending into the grooves of the beads, a window-sash having side straps and re-enforcing top and bottom straps, said sash being hinged to one guide-rail and adapted to be locked to the other, substantially as set forth.

2. The combination of a window-casing having grooved stop and parting beads, guide-rails having lugs extending into the grooves of the beads, a window-sash having side straps and re-enforcing top and bottom straps, the latter projecting over the side straps and into recesses of the top and bottom recesses of the guide-rails, hinges to connect the sash with one guide-rail, and a locking device to attach the sash to the other guide-rail, substantially as set forth.

3. The combination of a window-casing having grooved beads, guide-rails having lugs extending into the grooves of said beads, sashes hinged to guide-rails at one end and adapted to be locked to guide-rails at the opposite end, and stops fulcrumed into recesses of the window-casing above the guide-rails, so as to retain them in position when opening the sashes, substantially as set forth.

317,660. PIANO-ACTION. PHILIPP MERKEL, New York, N. Y. Filed July 11, 1884. (No model.)



Claim.—1. The combination, in a piano-action, of jointed jack having a beveled edge with a stop having a beveled edge, substantially as herein shown and described.

2. The combination, in a piano-action, of arm c, having projection c', beveled edge c'', and extension c''', with the stop f, having cushioned beveled edge f', and with arm d, substantially as specified.

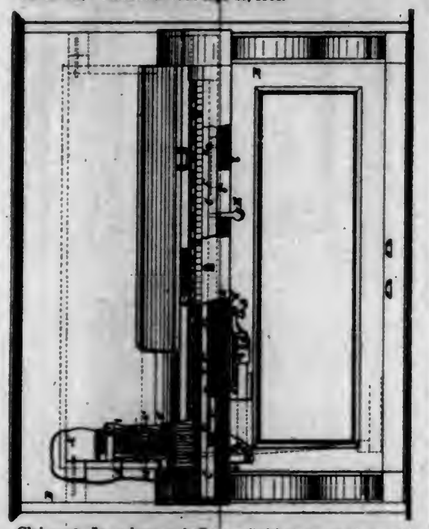
3. The combination, in a piano-action, of jointed jack c d with beveled stop f, which is adjustable toward or away from the jack, substantially as specified.

4. The combination, in a piano-action, of jointed jack c d with hammer-butt h and hook o, substantially as specified.

5. The combination of the following elements: key a, bottom piece, b, jointed jack c d, spring e, stop f, screw g, hammer-butt h, hammer-flange i, hammer j, back-check k, and hammer-rail l, substantially as specified.

6. The combination, in a piano-action, of a hammer-butt, h, with a jack composed of the jointed arms c d, the lower arm, c, having the upwardly-projecting extension c''', which is adapted to bear against the body of the upper arm, d, at the release of the key, substantially as specified.

317,661. TRANSPOSER FOR KEY-BOARD MUSICAL INSTRUMENTS. LUIS MEIGGOTTY, Concepcion, Chili. Filed July 12, 1884. (No model.) Patented in Chili Sept. 29, 1883.



Claim.—1. In a piano or similar musical instrument, the combination of a relatively stationary action, a movable key-board, and a soft-pedal mechanism, substantially as described and shown, with additional mechanism, as d^3 D, arranged and connected to the soft-pedal mechanism in such manner that the latter may be operated thereby, while the soft pedal is left undisturbed, such operation effecting the raising of those parts of the action that are usually in contact with the keys out of contact with the latter, all substantially as and for the purposes herein specified.

2. In a piano or similar musical instrument having a relatively stationary action and a movable key-board, a pin, *d*, capable of locking and liberating said key-board, and a lever, d^2, adapted to lift, through suitable connections, those portions of the action which usually rest upon the keys, in combination with a knob, D d', all constructed and arranged for joint operation, so that the operation of the knob D d' causes both the pin *d* and the lever d^2 to perform their respective functions, substantially as herein set forth.

3. In a piano having a stationary action and a movable key-board, and a left or soft pedal mechanism, the combination, with these parts, of the knob D d d', lever d^3, spring d^3, notched lever F f', and knob E, all arranged to operate substantially as and for the purposes specified.

317,662. BUTTON FOR GLOVES, &c. LOUIS MEYERS, New York, N. Y. Filed Mar. 9, 1885. (No model.)



Claim.—1. The combination of the stud A, having head *a*, with the cap C, having eccentric lip *f*, substantially as herein shown and described.

2. The combination of the stud A, having head *a*, with the cap C having lip *f* and loop *d*, as specified.

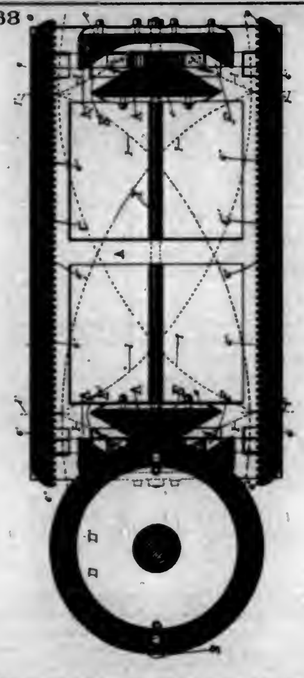
317,663. MECHANICAL MOVEMENT. ROBERT MIEHLE, Chicago, Ill. Filed Mar. 16, 1885. (No model.)

Claim.—1. In a mechanical movement, the combination of a rack-frame and racks with a pinion provided with a wrist-pin, which engages automatically into end slots, to properly guide the pinion with the said racks, substantially as described.

2. In a mechanical movement, the combination of a rack-frame and racks, and a pinion provided with two wrist-pins, which engage automatically into end slots at each end with the rack-frame, to properly guide the pinion to engage with the said racks, substantially as described.

3. In a mechanical movement, the combination, with a rack-frame, racks, and pinion, of the racks having a lateral shifting movement imparted to the same in the direction of the axis of the pinion, to alternately engage the said racks with the said pinion, substantially as described.

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4. In a mechanical movement, the combination of a rack-frame and racks, a pinion provided with a wrist-pin, and end shoes with the racks having a lateral shifting movement of the pinion, substantially as described, and for the purpose set forth.

5. In a mechanical movement, the combination of a rack-frame and racks, a pinion provided with a wrist-pin, and end shoes with the racks having a lateral shifting movement imparted by the wrist-pin, substantially as described, and for the purpose set forth.

6. In a mechanical movement, the combination of a rack-frame and racks which shift laterally, a pinion, D, end slots, E', rock-arms F, and wrist-pin E, substantially as and for the purpose set forth.

7. In a mechanical movement, the combination of a rack-frame and racks which shift laterally, a pinion, D, end slots, E', and wrist-pin E, rock-shaft Y, rock-arms F, and cams *f*, substantially as and for the purpose set forth.

8. In a mechanical movement, the combination of a rack-frame and racks which shift laterally, a pinion, D, end slots, E', wrist-pin E, rock-shaft Y, rock-arms F, cams *f*, pins d' d'', and face-plate D', all combined substantially as described.

9. In a mechanical movement, the combination of a pinion and wrist-pin, the wrist-pin having a right-angled offset with teeth formed thereon, substantially as described.

10. In a mechanical movement, the combination of a pinion and wrist-pin, the wrist-pin having right-angled offsets with teeth formed upon one of the said offsets and the other for clamping to said pinion, substantially as described.

11. In a mechanical movement, substantially as described, the combination, with a pinion and wrist-pin, of the shoes A' A'', being adjustable, substantially as and for the purpose set forth.

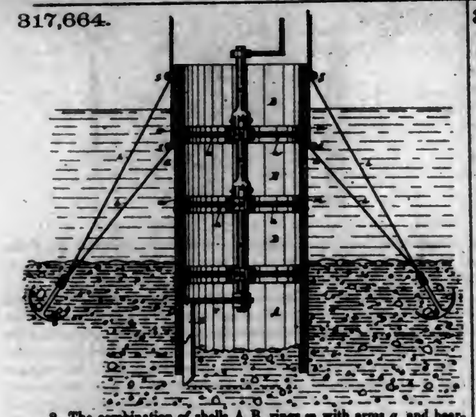
12. In a mechanical movement, substantially as described, the combination of a pinion and wrist-pin, made in two parts, with the shoes A' A'', being adjustable, the faces of which are recessed or cut away, substantially as and for the purpose set forth.

13. In a mechanical movement, substantially as described, the combination, with a pinion and wrist-pin, the wrist-pin made in two parts, of the shoes A' A'', being recessed, the shoes A' having adjustable liners with set-screws and bolts, substantially as and for the purpose set forth.

317,664. SUBMARINE EXCAVATOR. ROMAN MOSHARD, Brooklyn, N. Y. Filed Feb. 16, 1885. (No model.)

Claim.—1. The combination of shells A B with sectional shaft *c*, and cutter D, consisting of shank *e* and blade *f* bent at or about right angles to the shank, substantially as specified.

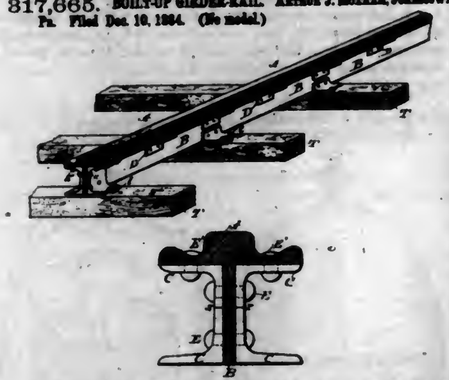
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2. The combination of shells A B, rings *m* with arms *a*, and bearings *b*, shaft *c*, and knife D, substantially as specified.

3. The combination of shells A B, rings *m* with arms *a*, and bearings *b*, shaft *c*, and knife D, having an inwardly-turned cutting-edge, substantially as and for the purpose specified.

317,665. BUILT-UP GIRDER-RAIL. ARTHUR J. HOTHAM, Johnstown, Pa. Filed Dec. 10, 1884. (No model.)



Claim.—1. A built-up girder-rail consisting of a tram-head or rail devoid of web, a flat bar serving as a web or stringer therefor, and angle-head and foot-pieces disposed at suitable intervals, the whole rivated together and forming a built-up girder structure, substantially as and for the purposes set forth.

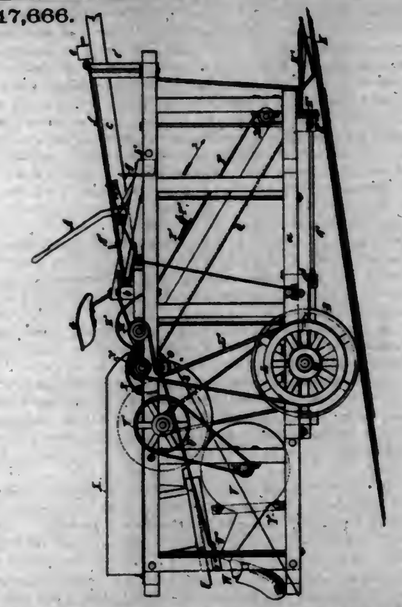
2. A built-up girder-rail consisting of a tram-head or rail devoid of web, a flat bar serving as a web or stringer therefor, angle head and foot pieces disposed at suitable intervals, and intermediate angle-pieces under the head of the rail, the whole riveted together and forming a built-up girder structure, substantially as and for the purposes set forth.

317,666. PEA-HARVESTING MACHINE. JOHN H. NEBOLSIN, Sumter, assignee of one-half to Augustine T. Smythe, Charleston, S. C. Filed May 12, 1884. (No model.)

Claim.—1. The combination of the supporting-wheels and an axle or shaft rotated thereby, a laterally-reciprocating knife-bar carrying knives for cutting the vines, actuated by gearing from said axle or shaft, an upwardly-inclined platform in rear of said cutting mechanism, an endless belt or belts passing over rollers or shafts supported immediately over said platform, one of said rollers being rotated by intermediate mechanism communicating with the driving-shaft, a rake or rakes transversely supported upon said belt or belts and projecting downward from said belt or belts to engage the vines and draw them upward over and upon the inclined platform, and delivery-rolls, also actuated from the driving-shaft and arranged at the upper end of the platform, to receive between them the vines after the latter have been elevated by the rakes and to deliver said vines in rear of the machine, substantially as described.

2. The combination of the supporting-wheels and an axle or shaft rotated thereby, a laterally-reciprocating knife-bar carrying knives for cutting the vines, an upwardly-inclined platform in rear of said cutting mechanism, an endless belt or belts passing over rollers or shafts supported immediately over said platform, a rake or rakes transversely supported upon said belt or belts and projecting downward from said belt or belts to engage the vines and draw them upward over and upon the

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inclined platform, delivery-rollers arranged at the upper end of said platform to receive between them the vines elevated by the rakes, a rotary thrasher disposed in rear of said rollers receiving the vines therefrom, a suspended vibrating sieve arranged below and in rear of the thrasher-outlet, and a rotary blower arranged below said sieve and delivering its blast beneath the same, the said parts being supported in the frame of the machine and actuated by suitable interposed gearing transmitting motion from the axle, substantially as described.

3. The combination of the driving-wheels and an axle or shaft rotated thereby, a rotary thrasher actuated by intermediate mechanism for said shaft, rollers receiving the gathered vines between them and delivering said vines into said thrasher, also actuated by intermediate mechanism from said driving-shaft, a suspended vibrating sieve arranged in rear and below the thrasher-outlet, the said sieve being vibrated by mechanism communicating with one of said delivery-rollers and receiving motion therefrom, and a rotary blower arranged below said sieve and delivering its blast at and below the rear end thereof, and receiving motion by intermediate gearing from the thrasher-shaft, substantially as described.

4. The combination of the frame or body supported upon wheels on a single axle, so that the forward portion of the machine shall overbalance the rear portion, a tongue, *c*, hinged or otherwise loosely secured at its rear end upon and extending forwardly over said frame or body, a catch, *g*, upon said frame adapted to enter a slot in the tongue *c*, a sliding bar, *g'*, secured on the upper side of the tongue *c* and adapted to engage with the catch *g*, and a spring, *g''*, acting upon said bar *g'*, substantially as described.

5. The combination of the frame or body supported upon wheels on a single axle, so that the forward portion of the machine shall overbalance the rear portion, a tongue, *c*, hinged or otherwise loosely secured at its rear end upon and extending forwardly over said frame or body, a detachable connecting device between said tongue and the forward portion of said body, whereby the said portion may be supported from the tongue and prevented from resting upon the ground, and a driver's seat supported upon and over said tongue, substantially as described.

6. The combination of the frame or body supported by wheels on a single axle, so that the forward portion of the machine shall overbalance the rear portion, a tongue, *c*, hinged or otherwise loosely secured at its rear end upon and extending forwardly over said frame or body, a catch, *g*, upon said frame adapted to enter a slot in the tongue *c*, and a sliding bar, *g'*, secured on the upper side of the tongue *c* and adapted to engage with the catch *g*, substantially as described.

7. The combination of the frame or body supported upon wheels on a single axle, so that the forward portion of the machine shall overbalance the rear portion, a tongue, *c*, hinged or otherwise loosely secured at its rear end upon and extending forwardly over said frame or body, and a lever, A, pivoted upon said tongue and engaging with the frame or body, substantially as described.

8. The driving-wheels loose upon their axle, a clutch mechanism arranged upon said axle and interposed between the same and the driv-

ing-wheels, a means of keeping said clutches normally in engagement with the driving-wheels, mechanism adapted to move said clutch device out of engagement with the said wheels, and a cord or other flexible connection attached at one end to said disengaging mechanism and adapted to move the same, in combination with the frame or body of the machine supported on said axle so that the forward portion of said body shall overbalance the rear body, and a tongue hinged or pivoted at its rear end to and extending forwardly over said body, the said cord being attached to said tongue at its free end and made of such a length that it shall draw and hold the clutch mechanism out of engagement with the driving-wheels, as and when the forward portion of the body is elevated from the ground, and by reason of the elevation of said forward body, substantially as described.

9. The combination of the frame or body of the machine, the driving-wheels B, axle B', clutches C B'', spring *l*, bar *j'''*, bar *j*, bar *j'*, bar *k'*, cord E, and tongue *c*, the said cord being connected at one end to the bar *j'''* and at the other end to the tongue *c*, substantially as described.

10. The combination of the driving-wheels B, axle B', rotated thereby, pulley L, belt L'', belt-roller M, and feeding-rollers N and O, substantially as described.

11. The combination of the knife-bar I, carrying the knives I', I'', and J, the forwardly-projecting bars K, bars K'', curved bars K', connecting-rod H', disk H, shaft G', driving-wheels B', and intermediate mechanism for transmitting motion from said wheels to the shaft G', the said parts being supported by the frame of the machine, substantially as described.

12. The combination of the driving-wheels B, axle B', clutches C B'', spring *l*, bar *j'''*, fixed bar *j*, pivoted bar *j'*, and bar *k'*, rigidly supported on the frame of the machine, substantially as described.

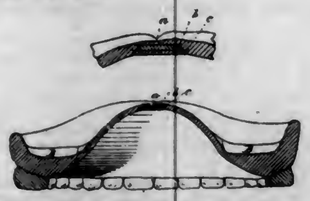
13. The combination of the driving-wheels B, the axle B', rotated thereby, pulley L, belt L'', the feed-roller N, elongated bearings for said roller wherein it has vertical play, rollers O and P, belt-tightener *r*, and presser-spring *r'*, the said tightener and spring pressing said roller N down in its bearings and resisting its upward movement, substantially as described.

14. The combination of the driving-wheels B, axle B', rotated thereby, pulley L, belt L'', feed-rollers N O, thrasher *s* S' S, pulley L', and belt T, communicating motion to the thrasher-shaft, substantially as described.

15. The combination of the driving-wheels B, axle B', rotated thereby, pulley L, belt L'', roller O, rod U', bell-crank U'', sieve U, pulley L', belt T, thrasher-shaft S, pulley V' thereon, blower V, and belt-connection between pulley V' and blower-shaft, substantially as described.

16. The combination, with the frame of the machine and the thrasher *s* S S', and vibrating sieve U, of the hinged lid or cover X, supporting the fixed partitions X' and *w*, and the swinging partition X'', substantially as described.

317,667. **DENTAL PLATE.** AARON H. PARKER, Boston, Mass. Filed Apr. 9, 1884. (No model.)



Claim.—1. The combination, substantially as set forth, of the plate, the main vacuum-chamber, the supplemental chambers, the connecting-passages between the main chamber and the supplemental chambers, and the valve which permits the passage of air from the several chambers.

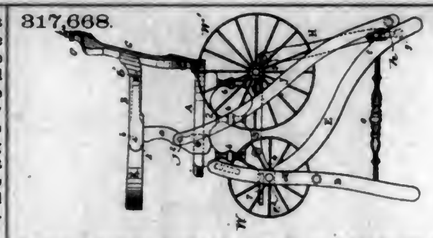
2. The combination, substantially as set forth, of the plate, the vacuum-chamber, the air-passage *a*, and the valve that normally closes the air-passage and that is sunk into the plate so as to present a plane surface to the interior of the mouth.

3. In an atmospheric dental plate, the combination of the main vacuum-chamber A, the supplemental chambers B B, passages for connecting the chambers, the air-exhaust *a*, valve *b*, plate *c*, and retaining device *d*, said valve, plate, and retaining device being sunk below the surface of the plate, substantially as set forth.

317,668. **CHILD'S CHAIR.** FRANK F. PARKER, Gardner, Mass., assignor to Philander Derby, same place. Filed Sept. 15, 1884. (No model.)

Claim.—1. In a combined high chair and child's carriage, a seat and an attached seat-frame provided with wheels and a bottom frame composed of connected pieces D F, pivoted to the seat-frame in the line of the axis of the front wheels, combined with the toggle-jointed arms, substantially as described, pivoted to the back of the seat-frame and to the bottom frame, and with the stop to limit the movement of the toggle, as and for the purpose set forth.

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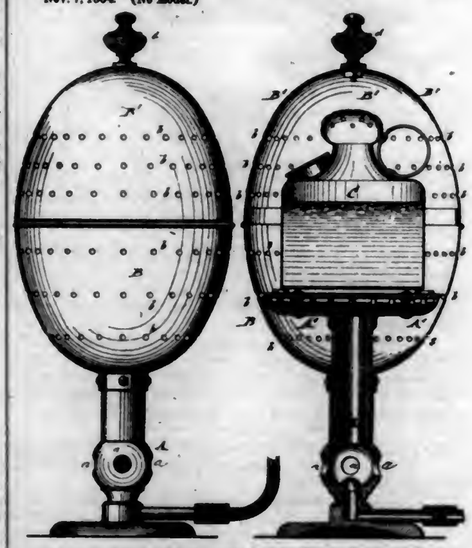


2. The combination, in a combined high chair and child's carriage, with a seat and an attached seat-frame provided with front and back wheels, of the bottom frame pivoted to the said frame in the line of the axis of the front wheels and provided with a cross-piece, *f*, at a point beyond its pivotal connection, and a toggle connected with the rear end of the seat-frame and with the bottom frame and provided with stops to limit the movement of the toggle in one direction, substantially as set forth.

3. The combination, with the seat provided with the pivoted handle J, and an attached seat-frame provided with front and back wheels, of the bottom frame pivoted to the seat-frame and the toggle connected with the rear of the seat and bottom frames, whereby the bottom frame serves as a support for the handle, substantially as specified.

4. The combination, with the seat provided with the arm-supports and arms, the said arms being provided with slots and screw-eyes, as specified, of the table K, having the lugs and the extensions provided with pins and coiled springs, substantially as and for the purpose set forth.

317,669. **VAPOR BATH.** PETER D. PIKE, New York, N. Y. Filed Nov. 7, 1884. (No model.)



Claim.—1. A vapor bath consisting of a Bunsen burner and a perforated shell formed of a fixed lower section attached to the burner, and of a detachable upper section, substantially as set forth.

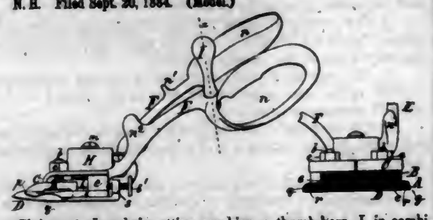
2. A vapor bath consisting of a Bunsen burner, a perforated shell attached to said burner and composed of a fixed section and an upper detachable section, and of a steam-generating vessel supported on the head of the Bunsen burner, substantially as set forth.

317,670. **WRENCH.** GEORGE F. POTTLE, Boston, assignor of two-thirds to Warren S. Hill, Hyde Park, and Royal O. Storrs, Dedham, Mass. Filed Nov. 28, 1883. (No model.)



Claim.—The movable jaw M, provided with the projection L, in combination with the pivot V, the housing E, and adjusting-screw D, all arranged and constructed substantially as described, and for the purpose set forth.

317,671. **HAIR-CLIPPING MACHINE.** JOSEPH K. PRIEST, Nashua, N. H. Filed Sept. 20, 1884. (Model.)



Claim.—1. In a hair-cutting machine, a thumb-horn, I, in combination with the handle E, having a loop, *n*, and rigidly fastened to the comb-plate A, substantially as and for the purpose described.

2. The turning thumb-horn I on a rigidly-fastened handle, E, substantially as and for the purpose described.

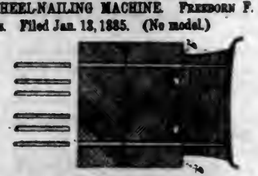
3. The combination of the thumb-rest n^2 with handle E, rigidly fastened, and having a thumb-horn, I, and loop *n*, substantially as and for the purpose described.

4. The removable gage-plate D, provided with guide-lugs on its side edges, shouldered teeth with guards extending beyond the front ends of the teeth of the comb-plate, and a clamping-screw, *s'*, in combination with the comb and cutter plates A B, substantially as and for the purpose described.

5. The combination of the movable pivoted handle F, having a loop, *n*, and a stop or rest, *n'*, with the rigidly-fastened handle E, having a thumb-rest, n^2, horn I, and loop *n*, substantially as and for the purpose described.

6. The combination of the confining slotted cap with the coiled spring, two handles, and clamp, cutter, and comb-plates of the hair-cutting machine, substantially as described.

317,672. **HEEL-NAILING MACHINE.** FREEBORN F. RAYMOND, 3d, Newton, Mass. Filed Jan. 13, 1885. (No model.)



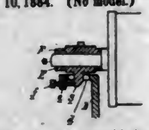
Claim.—1. The templet-plate having a recess in its under surface for the reception of the turned-up flap of the top lift, all substantially as and for the purposes described.

2. The templet-plate having the surfaces *b' b²*, arranged in relation to each other, substantially as and for the purposes specified.

317,673. **PROCESS OF PRESERVING FOOD.** ALEXANDER G. T. RIPPERGER, Dresden, Saxony, Germany. Filed Mar. 2, 1885. (No specimens.)

Claim.—The method specified for protecting provisions of all kinds during storage against the noxious or injurious influence of moisture and against the intrusion of vegetable or animal organism by storing such eatables or provisions without the hermetical exclusion of air, in sacks, boxes, or other receptacles lined with a layer of a filtering medium—such as cotton-wool—impregnated with a bitter extract and salt, and the material of such receptacles being also impregnated with such bitter substances and salt, substantially as specified.

317,674. **THRASHING-MACHINE.** GEORGE A. ROBERTS and CHRISTIAN SCHAFER, Three Rivers, Mich., assignors to Cyrus Roberts, same place. Filed Oct. 10, 1884. (No model.)

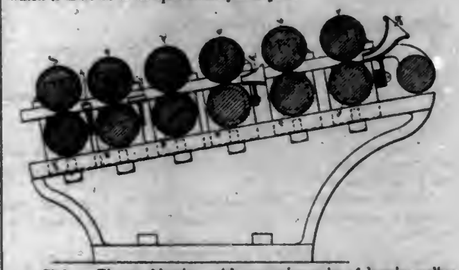


Claim.—1. The bearings E, provided with the downwardly-projecting lug *g*, in combination with the plate D, having the overhanging recessed portion D', apertured, as at *d*, to receive the lug *g*, and set-screw *f*, extending beyond the edges of said aperture and bearing upon the said lug *g*, as and for the purposes specified.

2. The bearings E, provided with the lug *g*, in combination with the plate D, having the overhanging recessed portion D', provided with ribs *c* and aperture *d*, flange *e*, projecting downwardly from the outer end of the portion D', and set-screw *f*, passing through said flange, the parts being constructed and arranged as and for the purposes specified.

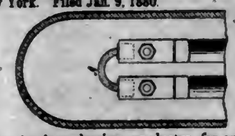
317,675. **MACHINERY FOR THE MANUFACTURE OF COTTON YARN.** ISAAC H. RUSSELL, East Hampton, assignor to the Abbot Spinner Company, Boston, Mass. Filed Jan. 9, 1885. (No model.)

Brief.—A trumpet or condenser is interposed, where the sliver receives its final draft, between two pairs of drawing-rolls of a set of rolls arranged to reduce sliver, without twisting, to the attenuated form in which it must be to be spun directly into yarn.



Claim.—The combination, with successive pairs of drawing-rollers arranged and operating to receive sliver and reduce it, without twisting, to the attenuated form in which it must be in order to be spun directly into yarn, condensers or trumpets for condensing or compacting the sliver during this process of reduction, and ring-spindles or other known spinning instrumentalities for spinning said attenuated sliver directly into yarn, of a condenser or trumpet interposed between the two pairs of drawing-rollers between which the sliver receives its final draft, and acting upon the sliver, while undergoing the final draft, to compact and condense it before it enters the bite of the final pair of said drawing-rollers, substantially as hereinbefore set forth.

317,676. **ELECTRIC LIGHT.** WILLIAM E. SAWYER, New York, and ALBON MAN, Brooklyn, N. Y., assignors to Electro-Dynamic Light Company of New York. Filed Jan. 9, 1880.



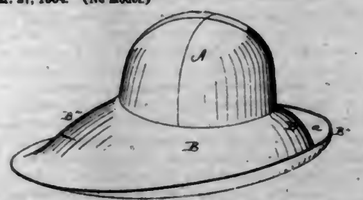
Claim.—1. An incandescing conductor for an electric lamp, of carbonized fibrous or textile material and of an arch or horseshoe shape, substantially as hereinbefore set forth.

2. The combination, substantially as hereinbefore set forth, of an electric circuit and an incandescing conductor of carbonized fibrous material, included in and forming part of said circuit, and a transparent hermetically-sealed chamber in which the conductor is inclosed.

3. The incandescing conductor for an electric lamp, formed of carbonized paper, substantially as described.

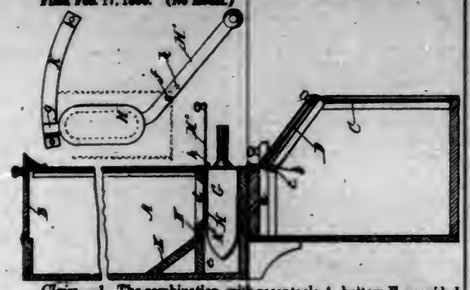
4. An incandescing electric lamp consisting of the following elements in combination: first, an illuminating-chamber made wholly of glass hermetically sealed, and out of which all carbon-consuming gas has been exhausted or driven; second, an electric-circuit conductor passing through the glass wall of said chamber and hermetically sealed therein, as described; third, an illuminating conductor in said circuit, and forming part thereof within said chamber, consisting of carbon made from a fibrous or textile material, having the form of an arch or loop, substantially as described, for the purpose specified.

317,677. **STORM-HAT.** HOWARD M. SAWYER, Medford, Mass. Filed Mar. 27, 1884. (No model.)



Claim.—The herein-described improved storm-hat provided with the rim B, having its front portion bent downward at B' and upward at B'', having its rear portion, B''', bent continuously downward, and provided with a graduated channel or gutter, *a*, extending from the front edge of the rim toward, but not around, the rear edge of the same, substantially as and for the purpose set forth.

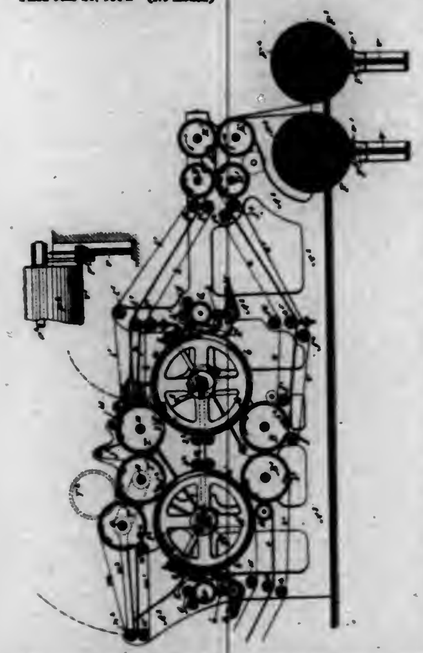
317,678. COFFEE AND TEA BOX. PETER SCHUSSER, Chicago, Ill. Filed Feb. 17, 1886. (No model.)



Claim.—1. The combination, with receptacle A, bottom F, provided with opening *d*, and measure G, of valve H, provided with projections *g*, and guide K, as set forth.

2. The combination, with receptacle A, bottom F, provided with opening *d*, and measure G, of valve H, handle H', and pin or stud *h*, as set forth.

317,679. PRINTING-MACHINE. WALTER SCOTT, Plainfield, N. J. Filed Jan. 29, 1884. (No model.)



Claim.—1. The combination, with two form-cylinders having printing-surfaces and ink-distributing surfaces, of four impression-cylinders and their respective grippers, substantially as set forth.

2. The combination, with two form-cylinders having printing and ink-distributing surfaces, of four impression-cylinders and their respective grippers, belts for conveying the sheets of paper, the rollers for the respective belts, the cutting-cylinders, and feeding mechanism, substantially as specified, for conveying to the respective impression-cylinders sheets cut from two rolls of paper, substantially as set forth.

3. In combination with a form-cylinder having printing and ink-distributing surfaces, two pairs of cutting-cylinders of different diameters, and a knife that can be applied to either cylinder, whereby the web can be cut off in sheets of different lengths, substantially as set forth.

4. The combination, with the cylinders E E' D D' and the cutter or knife, of the shaft *n*, bevel-gears 30 31, 32 33, for connecting the shaft of the cylinder D or of the cylinder E' to the shaft *n*, and the wheels 25 26 27, 28 29, for connecting all the cylinders together, substantially as set forth.

5. The combination, with the two form-cylinders having printing and ink-distributing surfaces, of the impression-cylinders T T' above the form-cylinders, the impression-cylinders B B' below the form-cylinders, the ink-troughs and rollers, ink-distributing cylinders G, and rollers, the doctors *h h' h h'*, the rock-shafts and arms thereon for supporting and moving the doctor-rollers simultaneously, the said parts occupying positions in two separate sets at opposite sides of the central portions of the form-cylinders G, the inking-rollers *s s*, and the inking-rollers s^2 s^2 between the form-cylinders to ink the respective printing-surfaces between each impression, substantially as set forth.

6. The combination of the cylinder A, impression-cylinders B T, tapes or belts *c d' l l*, and their respective rollers, and the arms *p*, substantially as and for the purposes set forth.

7. The combination, with the cylinder A' and the impression-cylinder T', of the delivery-cylinder T^2, belts *m m'*, rollers *n' n² n²*, and arms n^2, substantially as set forth.

8. The combination, with the box and shaft for holding the paper-roll, of the brake *v'*, springs *v*, and guide-frame F^3, substantially as set forth.

9. The combination, with the form-cylinder, of two impression-cylinders, mechanism, substantially as specified, for cutting the web of paper from two rolls into sheets, and for conveying the same to the impression-cylinders, and an adjusting device for moving the roller s^2 or l^2, or both, and allowing the length of the belts to be varied, for the purposes and substantially as set forth.

317,680. CAR-AXLE BOX. CHARLES H. SEATTOCK, Boston, Mass. Filed Apr. 6, 1885. (No model.)



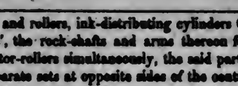
Claim.—1. The combination of the sleeve-bearings *d*, slotted at d^2, with the hood B, and the seating-knobs b^2, substantially as described.

2. The combination of the sleeve-bearings *d*, slotted at d^2, with the wick-tubes *a' a²*, and oil-reservoir A, substantially as and for the purposes described.

3. The base-plate containing the oil-reservoir A, provided with the wick-tubes *a' a² a²*, and filling-tube *a*, substantially as and for the purposes described.

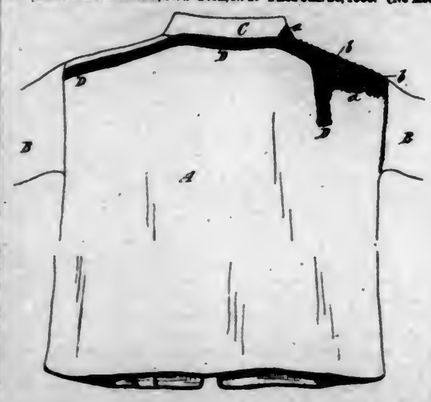
4. In combination with the upright back plate, F, of the base-plate, the dust-washer ways *f*, dust-washer *g*, and wedge g^2, substantially as and for the purposes described.

317,681. POLE-IRON. NELSON E. STRINGFIELD, Detroit, Mich. Filed Mar. 16, 1885. (No model.)



Claim.—The tongue A, recessed as described, the tip-iron B, the brace C, secured to the under side of said tongue and provided with the hole *a'* and flanges *b*, and the pin D, passed through said hole, tongue, and tip-iron, and having its lower end rigidly secured to said brace, in combination with the dog E, pivotally secured in said tip-iron within the recess in the tongue and provided with the shoulder *c*, and its free end adapted to rest on the brace C between its flanges *b*, substantially as described.

317,682. KNITTED OR CARDIGAN JACKET. SIMON STEINAU and ABBOTT L. SEELENMAN, New York, N. Y. Filed Jan. 26, 1885. (No model.)



Claim.—1. A knitted or Cardigan jacket having the chained or enchained shoulder-seams *b*, and a knitted webbing, D, applied to and re-enforcing the said seams, substantially as herein described.

2. A knitted or Cardigan jacket having the chained or enchained shoulder-seams *b*, and a knitted webbing, D, applied to and re-enforcing said seams, and made continuous between said seams and around the neck, substantially as herein described.

317,683. CAR-BODY TRUSS. JOHN STEPHENSON, New York, N. Y. Filed July 16, 1884. (No model.)



Claim.—1. A tram-car having beneath each of its side sills an independent truss complete in itself, but attached to the sills and holding the car-body from drooping at its ends, substantially as described.

2. A tram-car having beneath each of its side sills a plate with its ends forming abutments for the strut-braces of the supporting-truss, as and for the purposes set forth.

3. A tram-car having beneath its sill-plates through which pass the bolts holding the strut-sockets in fixed distance, as and for the purposes set forth.

4. A tram-car with sill-plate through which are bolts holding the pedestals in fixed position, as and for the purposes set forth.

5. A tram-car with a sill-plate through which the fastening-bolts pass and hold the pedestals and sockets in adjustment, as and for the purposes set forth.

6. A tram-car having sill-plates holding in place the strut-sockets with their strut-braces, as and for the purposes set forth.

7. A tram-car with sill-plates through which pass fastening-bolts holding strut-sockets in which are strut-braces with their lower ends secured in pedestals, as and for the purposes set forth.

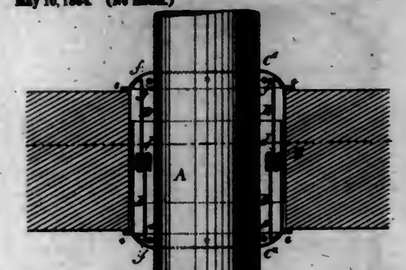
8. A tram-car with sill-plate holding strut-sockets in which are the upper ends of strut-braces with their lower ends lodged in pedestals coupled by a stay-bar, the ends of which are lodged in chambers on the union-bars of the pedestal, as and for the purposes set forth.

9. A tram-car with a sill-plate holding strut-boxes and struts with their lower ends fast in the pedestals, and wedge-bars crossing the jaws of the pedestals, with the ends of the wedge-bars abutting against stops or shoulders on the union-bars of pedestals, as and for the purposes set forth.

10. A tram-car with its body supported by an independent truss, the upper cord of which truss is a plate extending the length of the truss and holding at each end a strut-socket, the lower chord between the strut-sockets, consisting of a strut-stay to each socket, with the stay-feet in union-bar chambers of pedestals coupled by stay-bars with their ends in similar chambers, as and for the purposes set forth.

11. A tram-car with its body supported by an independent truss, the upper chord of which is a plate extending the length of the truss and holding at each end a truss-socket, the lower chord between the strut-sockets, consisting of a strut-stay from each socket, with the stay-foot in a chamber of the union-bar of pedestal, and similar chambers holding the ends of the stay-bar, also a wedge-bar crossing the open jaws of pedestal, the ends of the wedge-bar abutting against stops on the union-bar of pedestal, as and for the purposes set forth.

317,684. FLOOR-TUBE. ABEL G. STILSON, Cohoskill, N. Y. Filed May 10, 1884. (No model.)



Claim.—A wall and floor tube for stove-pipes, consisting of two telescoping sections, C' and C², provided with exterior flanges, *e*, inwardly-projecting guard-rings *f*, having perforations *f'*, and connecting-straps D D and loops *d d*, substantially as described.

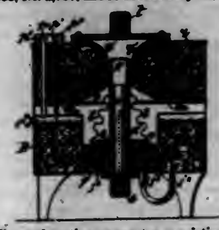
317,685. THILL-COUPLING. GEORGE W. STOWE, New Haven, Conn. Filed Sept. 4, 1884. (No model.)



Claim.—1. An anti-rattling spring for a thill-coupling folded to form the thicknesses 1 2 3, for the purposes set forth.

2. An anti-rattling spring for a thill-coupling provided with the stiffening-folds, in combination with a screw which takes into the thicknesses formed thereby, substantially as and for the purposes set forth.

317,686. GAS-CARBURETOR. HENRY STREET, Totnes, County of Devon, England. Filed June 13, 1884. (No model.) Patented in England June 4, 1883, No. 2,767, and in France July 23, 1883, No. 164,603.



Claim.—1. The carbureting apparatus consisting of a cylindrical or other shaped vessel containing a closed annular reservoir, *j*, for oil or carbureting-liquid, well *j'*, connecting-pipe j^3, valve arrangement j^3 j^4 j^5, tubes *k k'*, cone *l*, galley *m*, flexibly-connected float *n*, filling-pipe *p*, cover *q*, and perforated piece *q'*, all arranged substantially as herein shown and described.

2. In a gas-carbureting apparatus, the combination of the closed annular reservoir *j*, well *j'*, valve-connection j^3 j^3 j^4 j^5, filling-pipe *p*, air-pipe *p'*, gage-rod p^3, float p^3, and cap p^4, all substantially as herein shown and described.

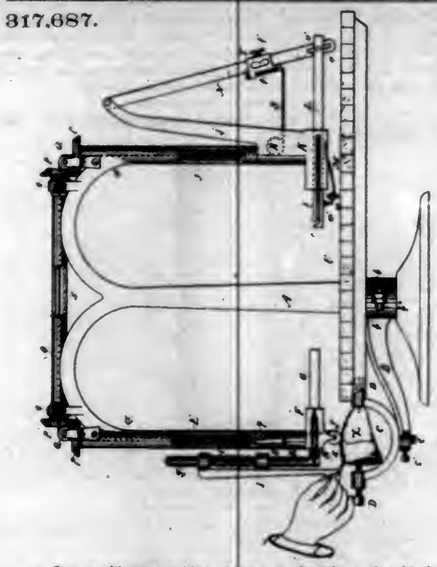
3. In a gas-carbureting apparatus, the combination of the reservoir *j*, the well *j'*, the stationary pipes *k k'*, flexibly-connected float *n*, and valve-float j^5, substantially as and for the purpose set forth.

317,687. PATTERN-MAKING MACHINE. CARLOS TOURNEUR, San Francisco, Cal. Filed Jan. 16, 1885. (No model.)

Claim.—1. In a machine for making patterns, a string, cord, or other flexible line, one end of which is adapted and made to follow the outline of a body or object, while the other, by means of proper intermediate mechanism, operates a pencil to form a corresponding outline, substantially as herein described.

2. In a machine for making patterns, a string, cord, or other flexible line, one portion or end of which is adapted to lie upon and in perfect parallelism with the curvilinear surface of a body or object, and to pursue its outline, while the other end, by means of proper operative mechanism, operates a pencil to form a corresponding and commensurate outline on a plane surface, substantially as herein described.

317,687.



3. In a machine for making patterns, a pivoted rotating block or guide, and a string, cord, or other flexible line adapted to be guided and properly centered over an object or body, in combination with a pencil operated by one end of the string to move in conformity with its other end in pursuing the outline of the object or body and its intermediate operative mechanism, substantially as herein described.

4. In a machine for making patterns, a pivoted rotating block or guide and a string, cord, or other flexible line adapted to be guided and properly centered over an object or body having a curvilinear surface, in combination with a pencil operated by one end of the string and by the pivoted block to move over a plane surface in conformity with its other end in pursuing the outline of the object or body, and to form a pattern having equal superficies with the said body or object and the intermediate operative mechanism, substantially as described.

5. In a machine for making patterns, the pivoted rotating block F above the object or body of which the pattern is to be made, the pivoted rotating block K, and the longitudinally-moving bar L in the block K, carrying a pencil moving over a plane surface, in combination with a string, cord, or other flexible line centered on the body or object by block F, and having one end adapted to follow its outline and lie upon and in complete parallelism with its surface, and having a connection between its other end and the pencil-carrying bar, whereby the distances of the first end of the string from its guided center on the object or body are indicated on the plane surface, and a connection between the oscillating blocks, whereby the movement of the string in pursuing an outline is transferred to the pencil, substantially as described.

6. In a machine for making patterns, the pivoted rotating block F above the object or body of which the pattern is to be made, the pivoted rotating block K, having an arm, *j*, the longitudinally-moving bar L in the block K, carrying a pencil moving over a plane surface, and the hanger N, pivoted to the top of arm *j*, and connected with the end of the pencil-bar L, as described, in combination with the flexible string S, centered on the body or object by block F, and its other end connected with the hanger N, and a mechanism for transmitting the oscillation of block F to block K, substantially as and for the purpose herein described.

7. In a machine for making patterns, the pivoted oscillating block F above the object or body of which the pattern is to be made, the longitudinally-moving bar G in said block, and the vertically-moving pivoted handle I on the bar, the pivoted rotating block K, and the longitudinally-moving bar L in said block, carrying a pencil moving over a plane surface, in combination with the flexible string S, centered on the body or object by block F, and having one end attached to the handle I, and a connection between its other end and the pencil-carrying bar, and a mechanism by which the oscillation of block F is transmitted to block K, substantially as and for the purpose herein described.

8. In a machine for making patterns, the pivoted rotating block F above the object or body of which the pattern is to be made, the longitudinally-moving spring-bar G in said block, and the vertically-moving pivoted spring-handle I on the bar, the pivoted rotating block K, having an arm, *j*, the longitudinally-moving spring-bar L in block K, carrying a pencil moving over a plane surface, and the hanger N, pivoted to the top of arm *j*, and connected with the end of the pencil-bar L, as described, in combination with the flexible string S, centered on the body or object by block F, and having one end connected with handle I and the other end with the hanger N, and a mechanism by which the oscillation of block F is transmitted to block K, substantially as and for the purpose herein described.

9. In a machine for making patterns, the pivoted rotating block K and longitudinally-moving spring-bar L, carrying a pencil, said block and bar being operated by means of a flexible spring pursuing the outline and measurements of a body or object, as described, in combination with a mechanism or means by which the movement of the pencil-carrying bar derived from the string is altered proportionally to make a pattern of proportionally-different dimensions from those of the body or object, substantially as herein described.

10. In a machine for making patterns, the pivoted rotating block K and longitudinally-moving spring-bar L, carrying a pencil, said block and bar being operated by means of a flexible string pursuing the outline a d measurements of a body or object, as described, in combination with the means by which the pattern formed by the pencil is changed in dimensions proportionally, consisting of the hanger N, pivoted to the block K, and connected with the pencil-bar L and the traveler T on said hanger, to which the string is attached, substantially as herein described.

11. In a machine for making patterns, the pivoted rotating block K and longitudinally-moving spring-bar L, carrying a pencil, said block and bar being operated by means of a flexible string pursuing the outline and measurements of a body or object, as described, in combination with the means by which the pattern formed by the pencil is changed in dimensions proportionally, and the slack of the string taken up, consisting of the hanger N, pivoted to the block K, and connected with the pencil-bar L, the traveler T on said hanger, and the screw *t* on the traveler to which the string is attached, substantially as and for the purpose herein described.

12. In a machine for making patterns, the pivoted rotating block F, longitudinally-moving spring-bar G, and the vertically-adjustable pivoted spring-handle I, arranged as described, the rotating block K, having arm *j*, the longitudinally-moving spring-bar L, having spring-arm M, with pencil *m*, the hanger N, pivoted to arm *j*, and connected with bar L, and the vertically-moving traveler T on the hanger, in combination with the flexible string S, one end of which is secured to handle I, and is guided by the block F, and the other is attached to the traveler T, and a mechanism by which the movement of block F is transmitted to block K, substantially as and for the purpose herein described.

13. In a machine for making patterns, the pedestal A, having arms *a*, the pivoted block F at the extremity of one arm, the longitudinally-moving angled bar G in said block, and the vertically-moving pivoted handle I on the bar, the pivoted block K in the extremity of the other arm, and the longitudinally-moving bar L in said block, and the pencil *m*, carried by the bar, in combination with the flexible string S, attached by one end to handle I, and guided by block F, and operating by its other end the pencil-bar L, whereby the measurements of the string are transferred to the pencil, and a mechanism by which the oscillatory movement of the block F is transmitted to the block K, whereby the outline pursued by one end of the string is transferred to the pencil, substantially as herein described.

14. In a machine for making patterns, the pedestal A, having hollow arms *a*, the hollow shafts E J within said arms, having top gears, *p*, and the horizontal hollow shaft O, having end gears, P, meshing with gears *p*, in combination with the blocks F K on the extremities of the shafts E J, the longitudinally-moving angled spring-bar G in block F, having the vertically-adjustable pivoted spring-handle I, the longitudinally-moving bar L in block K, having pencil *m*, and the flexible string S, attached by one end to handle I, and thence guided by block F, and passing through shafts E, O, and J, and adapted to operate by its other end the bar L, substantially as herein described.

15. In a machine for making patterns, the pedestal A, having hollow arms *a*, the hollow shaft E in one arm, block F on the extremity of the shaft, longitudinally-moving angled spring-bar G in the block, and the vertically-adjustable pivoted spring-handle I on the bar, arranged as described, the hollow shaft J in the other arm, having block K on its extremity, with arm *j*, the longitudinally-moving spring-bar L, carrying pencil *m*, and the hanger N, pivoted to the arm *j*, and connected with the bar L, in combination with the means by which the movement of block F is transmitted to block K, consisting of the horizontal hollow shaft O, and the gears P *p*, on the shafts O E J, and the flexible string S, secured at one end to the handle I, and guided by block F, and at the other end to hanger N, said string passing through the hollow shafts, substantially as herein described.

16. In a machine for making patterns, the pedestal A, having hollow arms *a*, the hollow shaft E in one arm, block F on the extremity of the shaft, longitudinally-moving angled spring-bar G in the block, and the vertically-adjustable pivoted spring-handle I on the bar, as described, the hollow shaft J in the other arm, having block K, with arm *j*, the longitudinally-moving spring-bar L, carrying pencil *m*, and the hanger N, pivoted to the arm *j* and connected with the bar L, in combination with the hollow shaft O, having gears P, and the gears *p* on the tops of the shafts E J, whereby the movement of block F is transmitted to block K, the guide-pulley *f* in block F, the pulleys Q on the arms *a*, and pulley K in the shaft J, and the flexible string S, connected with handle I and hanger N and passing through the shafts over the pulleys, substantially as herein described.

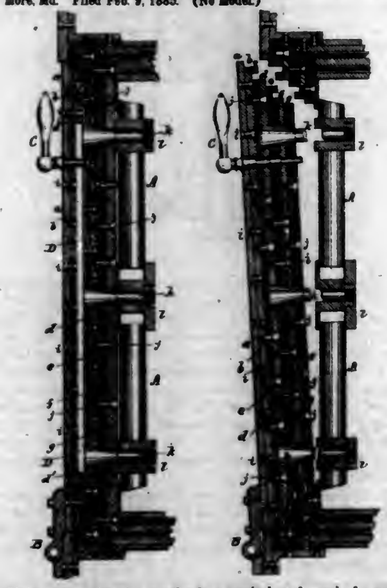
17. In a machine for making patterns, the adjustable object-holder C, in combination with the pivoted block F over the object, the flexible string S, guided and centered by the block, and adapted to follow the outline of the body and the contour of its surface, as described, and a pencil-carrying mechanism operated by the pivoted block F and string S, whereby the outline and dimensions of the body are made on a plane surface, substantially as herein described.

18. In a machine for making patterns, the swinging arm B and vertically-adjustable pivoted holder C therein, adapted to receive and adjust the body the pattern of which is to be taken, in combination with the pivoted block F over the body, the flexible string S, guided and centered by the block, and adapted to follow the outline of the body and the contour of its surface, as described, and a pencil-carrying mechanism operated by the pivoted block F and string S, whereby the outline and dimensions of the body are made on a plane surface, substantially as herein described.

19. In a machine for making patterns, the pedestal A, carrying the adjustable object-holder C, the pivoted and adjustable string-guiding mechanism over the object, and the pivoted and adjustable pencil mechanism at the other side of the machine, and the flexible string S, all operating as described, in combination with the three-part table U, consisting of an end portion over which the pencil moves, and two sector portions, *u*, pivoted to the stem of the pedestal, substantially as and for the purpose herein described.

20. A machine for making patterns, consisting of the combination of the pedestal A, having hollow arms *a*, the adjustable object-holder C, the hollow shafts E J in the arms *a*, the blocks F K on the shafts, the longitudinally-moving spring-bars G L in the blocks, the vertically-adjustable pivoted spring-handle I on bar G, and the spring-arm M on bar L, carrying pencil *m*, the pivoted hanger N, joining-bar L, the hollow shaft O, gearing with shafts E J, the table U, over which the pencil moves, and the flexible string S, connected with the handle I and hanger N and passing through the block F, and shafts E O J over suitable pulleys, all arranged and adapted to operate substantially as and for the purpose herein described.

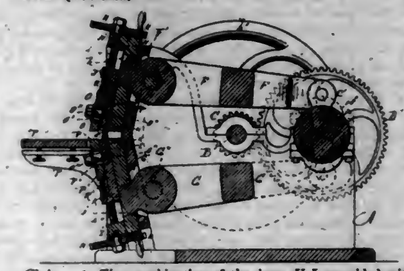
317,688. BURGLAR-PROOF-SAFE DOOR. HIRAM B. TRIPP, Baltimore, Md. Filed Feb. 9, 1885. (No model.)



Claim.—1. A burglar-proof safe or vault door formed of a series of separate metal plates having one or more spaces or openings between the inner and outer plates thereof, substantially as described, whereby, should an explosive be discharged against said door, the front plates or portion composing the same would freely vibrate without affecting the inner plates or portion of the structure to which the locks and bolt-work are attached, and thus injury to said locks and bolt-work is prevented.

2. The combination, in a burglar-proof safe or vault door, of a series of separate metal plates having spaces interposed between the same, substantially as described, and an elastic filling or sheet occupying said spaces, and the whole united together in a solid structure, for the purposes specified.

317,689. MACHINE FOR ROUNDING THE BACKS OF BOOKS. J. AUGUSTINE WADE, Cambridge, and HENRIE D. STONE, Boston, assignors to the Cambridgeport Diary Company, Cambridge, Mass. Filed July 23, 1884. (No model.)



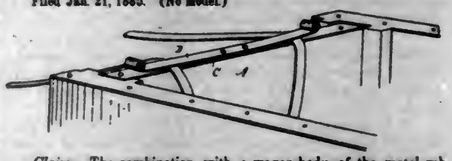
Claim.—1. The combination of the jaws H I, provided with the openings *h i*, and the levers F F' G G', fulcrumed at F" G" to the frame A of the machine, substantially as and for the purpose set forth.

2. The combination of the jaws H I, levers F F' G G', the shafts *e' g'*, disks *e f g*, shafts D E, frame, and driving mechanism, substantially as arranged and constructed, and for the purpose described.

3. The combination, with the jaws J K, of the auxiliary spring-jaws O P, adapted and placed, as shown, to reach the hook before the jaws J K, substantially as and for the purpose set forth.

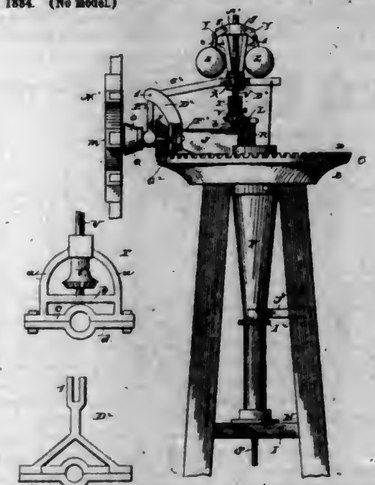
4. The combination of the jaws J K, provided with the spring-pins S, the jaws O P, provided with the slots O' P' and bolts O", and the springs R, substantially as and for the purpose described.

317,690. REIN-HOLDER. MERRITT WALTER, New Lothrop, Mich. Filed Jan. 21, 1885. (No model.)



Claim.—The combination, with a wagon-body, of the metal rubbing-plate C, secured thereto, and the spring-plate B, secured at its center directly to the wagon and to said rubbing-plate, and bent, as shown, to leave a space between itself and the rubbing-plate, said space gradually increasing from the center of said spring-plate toward its ends, substantially as and for the purpose specified.

317,691. WINDMILL. JOHN WARWICK, Beloit, Wis. Filed Sept. 10, 1884. (No model.)



Claim.—1. In a windmill, the combination, with the tower having a cap or collar secured to the upper end of the same, said cap or collar being provided with a circumferential series of teeth around the same, of the wind-wheel, wheel-shaft, a friction-clutch sliding loosely on said

shaft, and carrying a pinion adapted to engage with the teeth on the cap or collar, a friction-face carried by the hub of the wind-wheel, and a governor operating by the movement of the wheel, so that when the speed of the latter increases the clutch will be forced into engagement with the friction-face, for the purpose set forth.

2. In a windmill, the combination, with the tower having a cap or collar secured to the same, of the wind-wheel, wheel-shaft, a friction or gear wheel mounted loosely on the said shaft and sliding thereon, and a governor operating by the movement of the wheel, so that when the speed of the latter increases above a certain point the friction or gear wheel will be forced inward, so as to engage with the rim of the collar or cap, as set forth.

3. In a windmill, the combination, with the tower having a cap or collar secured to the upper end of the same, said cap or collar having a circumferential series of teeth around its rim, and a track within said teeth, of the wind-wheel having a friction-face carried by its hub or spider, the wheel-shaft, a friction-clutch sliding loosely on said shaft and carrying a pinion or friction wheel, wheels carried by the shaft and running in the track on the cap or collar, and a governor operating by the movement of the wheel, so that when the speed of the latter increases the clutch will be forced into engagement with the friction-face and the gear-wheel into engagement with the teeth on the cap or collar, as set forth.

4. In a windmill, the tower provided with a cap or collar, in combination with the wind-wheel, the wheel-shaft, a clutch sliding on said shaft, and a governor operating by the movement of the wheel, so that as the speed of the latter increases or decreases the clutch will be forced into or out of engagement with the wheel and cap, respectively, for the purpose set forth.

5. In a windmill, the tower provided with a cap or collar, in combination with the wind-wheel, wheel-shaft, a clutch sliding on the latter, and devices, substantially as described, for manually causing the sliding of the clutch on the shaft, so as to force it out of engagement with the wheel, as set forth.

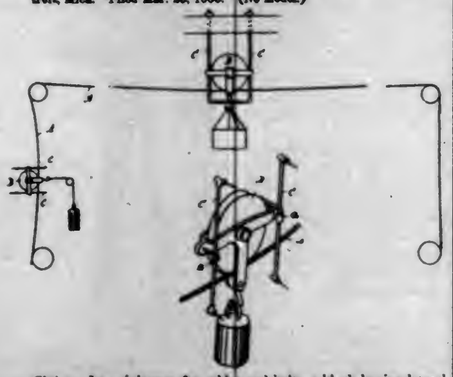
6. In a windmill, the combination, with the wind-wheel and its shaft, of a governor operated by the increased velocity of the wheel, and connecting devices for turning the wheel out of the wind as said governor is operated, for the purpose set forth.

7. In a windmill, the combination, with the wheel and its shaft, of a clutch sliding on the latter, a governor operated by the increased velocity of the wheel, and devices connecting the governor with the clutch to effect the turning of the wheel out of the wind as the clutch comes in contact with the wheel, as set forth.

8. In a windmill the combination, with the wind-wheel and its shaft, the latter carrying a gear-wheel on the end thereof, of a suitably-mounted shaft arranged to be driven by said gear-wheel, a governor mounted to revolve around said shaft, and devices mounted on the wheel-shaft and connecting with the governor, so that when the speed of the wheel increases said devices will be set into operation by the governor to turn the wheel out of the wind, as set forth.

9. In a windmill, the combination, with the tower having a cap or collar secured to the same, of the wind-wheel having a friction-face formed on its hub or spider, the wheel-shaft, a friction-clutch sliding loosely on said shaft, a gear-wheel on the end of the shaft, a suitably-mounted shaft arranged to be driven by said gear-wheel, a sleeve sliding on said shaft, a governor mounted on said sleeve, and a lever attached to the sleeve and connecting with the friction-clutch, as set forth.

317,692. CABLE OR BELT TIGHTENER. J. HILL WHITING, Detroit, Mich. Filed Mar. 25, 1885. (No model.)



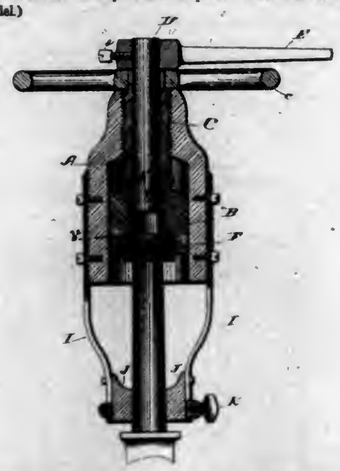
Claim.—In a tightener for cables and belts, a block having laterally-projecting hooks, eyes, or guides secured to its frame, in combination with two parallel bars secured to a fixed support at right angles to the cable, all arranged and operating substantially as described.

317,693. BODY-PROTECTOR. WILLIAM L. WILDE, Brooklyn, N. Y. Filed Dec. 26, 1882. (No model.)



Claim.—As a new article of manufacture, an article of gentlemen's clothing made in the form of a waistcoat-front, consisting of the body A, so cut as to conform to the person and fit snugly about the neck or shirt-collar, and having the shoulder-laps *n n*, lined with plush or its equivalent, and the hook B or its equivalent, the whole to be worn between the ordinary coat and vest and to be readily adjusted while the coat is on the wearer, and removed without the removal of the coat, substantially as shown and described.

317,694. DEVICE FOR CUTTING AND SCREW-THREADING WAGON-AXLES. GURDON H. WILLIAMS, Greensburg, Ohio, assignor of one-half to Albert A. Raymond, same place. Filed Mar. 26, 1884. (No model.)



Claim.—1. In a device for cutting and threading wagon-axles, the combination, with the body or part A and a cutter-head arranged in said body, of flexible arms secured to said body, and provided with clamping devices adapted to grasp the axle and hold the body, with its inclosed parts rigidly against endwise movement, substantially as set forth.

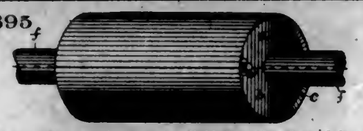
2. In a device for cutting and screw-threading wagon-axles, the combination, with a rotating cutter-head provided with a recess at the inner end, and provided with suitable mechanism for revolving the same and feeding it endwise, of cutter-tools adapted, respectively, to cut the shoulder on the axle, to dress the end of the axle, and to cut the thread farther on the axle, and made interchangeably to fit the said recess in the cutter-head, substantially as set forth.

3. In a device for cutting and threading wagon-axles, the combination, with the body or part A and a cutter-head arranged in said body, of flexible arms secured to said body, blocks secured to the free ends of the arms, and a yoke and set-screw for locking the blocks to the axle, substantially as set forth.

4. In a device for cutting and threading wagon-axles, the combination, with the body or part A and devices for securing said body to the axle, of the cutter-head located within the body, a spindle secured to the cutter-head and provided on its outer end with a crank, and the feed-screw surrounding the spindle and resting at its inner end against the cutter-head, and provided at its outer end with a hand-wheel, substantially as set forth.

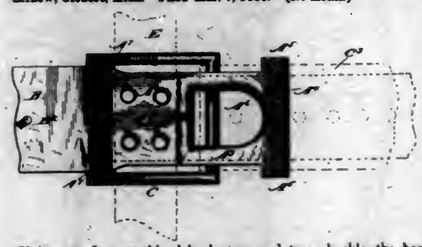
317,695. DIVIDED CASTING. JAMES YOCOM, Jr., Philadelphia, Pa. Filed Mar. 25, 1885. (No model.)

317,695



Claim.—The combination of a divided casting formed in two or more sections, a series of interlocking hinge-pieces, and one or more tapering screws or tapering pins, in the manner and for the purpose substantially as set forth.

317,696. COMBINED BACK-STRAP AND TRACE BUCKLE. GEORGE ZITLOW, Glencoe, Minn. Filed Mar. 7, 1885. (No model.)

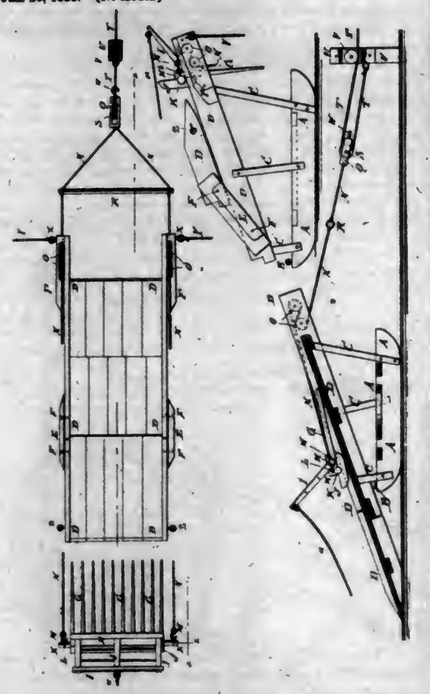


Claim.—1. In a combined back-strap and trace buckle, the base-plate A, provided with the recess A', having the pin A^3, the table A^2, having the opening A^4, and the head A^1, having the projections A^5, in combination with a hinged cap, B, provided with the pin B^2 and rib B^3, and a curved link or bail, C, having cross-bars C', substantially as shown and described.

2. In a buckle of the class described, the combination of the base-plate provided with a table having a lagged head, and a recess arranged in rear and below the plane of said table, a hinged cap provided with a rib, and a link adapted to abut against the lugs of the table and the rib of the link, substantially as shown and described.

3. In a buckle of the class described, a base A, provided with side lugs, A^5, and a recess provided with an upwardly-projecting pin, A^3, in combination with a hinged cap, B, having a rib, B^3, at its free end, and a downwardly-projecting pin, B^2, whereby independent adjustment of the straps passing through the buckle is secured, substantially as specified.

317,697. HAY-STACKER. THOMAS S. ADKINS, Fredonia, Kans. Filed Jan. 29, 1885. (No model.)



Claim.—1. A hay-stacker constructed substantially as herein shown and described, comprising the base-frame A, the standards C, the inclined platform D, made in two parts hinged together, the pulleys O, the rake G H, constructed with back frame, I, shoes J, and arms K, and the hoisting-ropes N, provided with a stretcher, R, whereby a loaded rake can be readily elevated and its load dumped upon a stack, as set forth.

2. In a hay-stacker, the combination, with the incline, the rake, and the hoisting-ropes N, of the pulley and block S Q, the draw-rope T, and the stake and pulley U V, substantially as herein shown and described.

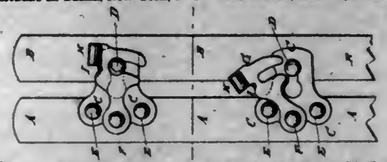
317,698. INSERTIBLE SAW-TOOTH. ADRIAN ADSIT, Traverse City, Mich. Filed Mar. 6, 1885. (Model.)



Claim.—1. The insertible mouth-piece B of the saw, having rounded and tapering side swells, *c c*, on opposite sides of its exposed edge portion *b*, said swells extending from near the cutting part of the tooth to or beyond the innermost or back portion of the mouth-piece, in combination with the blade A and tooth C, essentially as described.

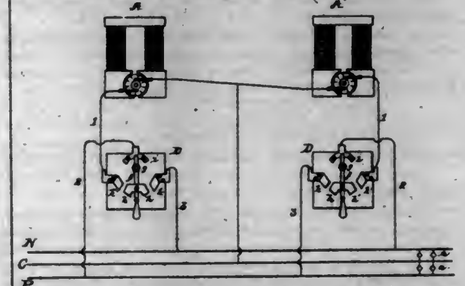
2. The combination, with the blade or plate A, of the insertible mouth-piece B, having rounded and tapering side swells, *c c*, on opposite sides of its exposed edge portion *b*, said swells extending from near the cutting part of the tooth to or beyond the innermost or back portion of the mouth-piece, and the insertible bit C, substantially as specified.

317,699. CORSET-STEEL FASTENING. DAVID ALCORN, Jr., and ROBERT A. BLAKE, New York, N. Y. Filed Oct. 23, 1884. (No model.)



Claim.—In a clasp for corset-steels, the combination, with the eye-plates C, of the hook-plates G, pivoted to the said eye-plates, and provided with the lips I, for engaging the upper edges of the eye-plates, to limit their downward movement, substantially as herein shown and described.

317,700. SYSTEM OF ELECTRICAL DISTRIBUTION. WILLIAM S. ANDREWS, New York, N. Y., assignor to the Edison Electric Light Company, same place. Filed Oct. 31, 1884. (No model.)

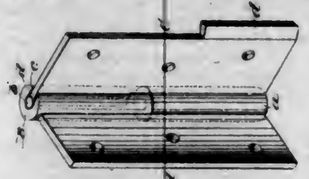


Claim.—1. The combination, with positive and negative main conductors of a compensating system of electrical distribution, of a switch for connecting both said conductors to the same terminal of one of the divisions of the source of supply, substantially as set forth.

2. The combination, with positive and negative main conductors of a compensating system of electrical distribution, of a switch for connecting said conductors together, substantially as set forth.

3. The combination, with positive and negative main conductors of a compensating system of electrical distribution, of switches whereby either division may be disconnected from its main conductor and both said main conductors connected with the same terminal of the other division, substantially as set forth.

317,701. REVERSIBLE HINGE. JOSEPH F. ASTON, Watsonville, Cal., assignor to himself and Franklin K. Aston, same place. Filed Mar. 20, 1885. (No model.)



Claim.—As a new and improved article of manufacture, the hinge herein shown and described, consisting of the leaf A, formed with the butt *a*, having pin or pintle *b*, the slotted barrel B, and reversible leaf C, the barrel being formed with short dovetailed slot *c*, forming step *e*, the leaf C being formed with the opposite flanges *d* to fit in the slot *c*, substantially as described.

317,702. MACHINE FOR UNITING KNIT FABRICS. RUFUS B. BAKER and GEORGE H. STRAW, Claremont, N. H. Filed Feb. 29, 1884. (Model.)

Brief.—The surplus material of cut knit fabrics outside of the seam is trimmed off during the operation of uniting the fabrics just before the fabrics are presented to the stitch-forming mechanism. A waste-pan and also a waste-guard are provided.



Claim.—1. The combination, with the pin-plate of a looping-machine, of a stationary knife or blade and a vibrating knife or blade moving coincidently with the needle and having a shear contact with the stationary blade, substantially as set forth.

2. The combination, with the pin-plate, the stationary knife or blade, and the movable knife or blade, of the waste-guard and the waste-pan, substantially as set forth.

3. The combination, with the pin-plate, the stationary knife or blade, and the movable knife or blade, of a waste-guard and a waste-pan, said waste-guard and waste-pan having adjacent inclined edges converging rearwardly toward each other, substantially as set forth.

4. The combination, with the pin-plate, of the needle-guard A, the arm A', attached thereto and having the knife-holding block *k'*, carrying the stationary knife *k*, the vibrating arm C, having the knife-holder B, carrying the movable knife *d*, the waste-guard D, and the waste-pan F, substantially as set forth.

5. The combination, with the pin-plate, the needle-guard, the arm attached thereto, the waste-guard, the hinged waste-pan, its returning-spring, and the stationary knife, of the vibrating arm C, the knife-holder B, having the toe *b'*, and the movable knife *d*, carried by said holder, substantially as set forth.

6. The combination, with the pin-plate and the stationary knife, of the needle-bar sleeve H and its operating mechanism, the arm C, secured to said sleeve, the knife-holder B, carried by said arm, and the movable knife *d*, attached to said knife-holder, substantially as set forth.

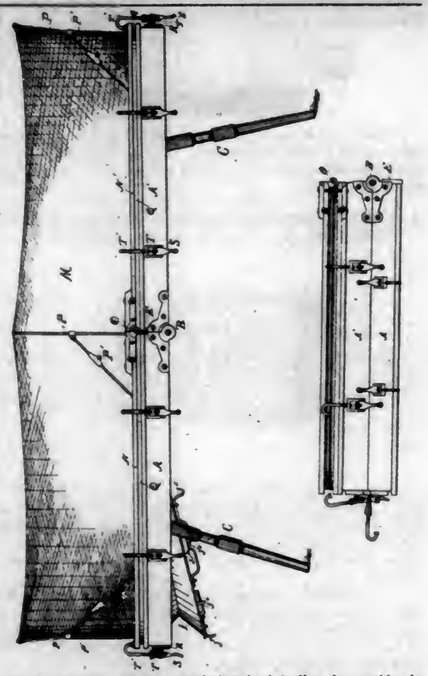
317,703. APPARATUS FOR EMBALMING. WILLIAM T. BAKER, ARTHUR S. LOVETT, and CHARLES D. VAN ETTEN, Erie, Pa., assignors to the Erie Embalming Company, same place. Filed June 30, 1884. (No model.)

Brief.—Improvement on Patent No. 300,989, to A. S. Lovett, dated June 24, 1884.

Claim.—1. In a treating-case for embalming dead bodies, a supporting-frame provided with a wicker bed adapted to receive and support a dead body, and a gas-tight bottom under said wicker bed, substantially as shown, hinged together near the center thereof, said hinged joint being provided with packing adapted to prevent the escape of air or gas therefrom, in combination with a flexible gas-tight cover having a frame around the lower edge thereof, hinged together near the center thereof, substantially as shown, and packing between said cover-frame and supporting-frame, and means for clamping said frames together, and thereby forming a gas-tight joint between them, substantially as and for the purpose set forth.

2. In a treating-case for embalming dead bodies, the combination of the hinged supporting-frame A A', provided with the wicker bed F F' G, the gas-tight bottom D D', and the packing E in the joint between the parts A A' and D D', with the flexible packing Q, the hinged cover-frame N N', the adjustable clamps S T T', and the flexible cover M, substantially as and for the purpose set forth.

317,703.

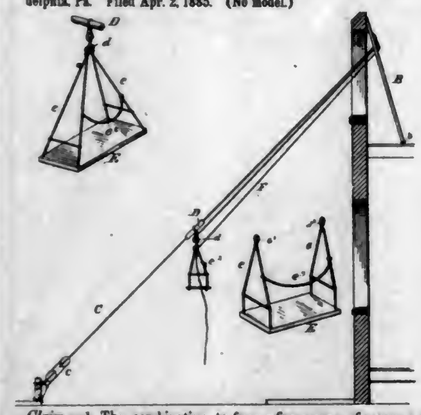


3. In a treating-case for embalming dead bodies, the combination of the flexible gas-tight cover M, provided with the hinged frame N N', substantially as shown, the flexible packing Q, and the hinged supporting-frame A A', provided with a wicker bed, F F', adjustable wicker head-rest G, a gas-tight bottom, D D', packing E, and folding legs C C, substantially as shown, with double-acting bellows I, substantially as and for the purpose set forth.

4. The combination, in a treating-case for embalming dead bodies, of a hinged frame attached to the flexible cover of said case, with the cover-supports P P P and their braces P' P' P', hinged to the said frame, substantially as and for the purpose set forth.

5. The combination, in a treating-case for embalming dead bodies, of the following elements: a flexible gas-tight cover adapted to be clamped to or removed from the bottom of the case, a gas-tight bottom provided with a wicker bed adapted to support the body while being treated, and a double-acting bellows attached to the under side of the bottom of the case, adapted to be adjusted to pump air or gas into or remove the same from the case, substantially as and for the purpose set forth.

317,704. FIRE-ESCAPE. EDMOND BEALE and ANDREW BANGS, Philadelphia, Pa. Filed Apr. 2, 1885. (No model.)



Claim.—1. The combination, to form a fire-escape, of a guy or stay secured within a room, passed through the window thereof, and adapted to be secured to the street, a slide or pulley equipped with a sling or chair and adapted to travel upon the guy or stay, and a rope connected with the slide or chair for controlling the movement of said chair, substantially as set forth.

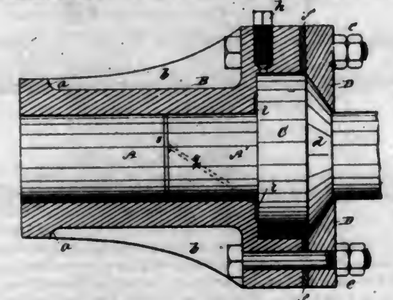
2. The combination, to form a fire-escape, of a trestle or brace adapted to be erected within a room and to rest against the inside of the wall or window-frame thereof, a guy or stay connected with said trestle, passed through the window, and adapted to be secured to the street, a slide or pulley equipped with a sling or chair and adapted to travel upon the guy or stay, and a rope connected with the slide or chair for controlling the movement of said chair, substantially as set forth.

317,705. BOTTLE-STOPPER. WILLIAM BEARDSLEY, Beacon, Iowa. Filed Feb. 27, 1885. (Model.)



Claim.—The combination, with the apertured cap fitted upon the bottle-neck, of the apertured packing interposed directly between the cap and the upper edge of the bottle-neck, and provided upon the inner surface, around its aperture, with a pendent annulus or flange, and the ball-valve, substantially as and for the purpose set forth.

317,706. CAR-AXLE. GEO. W. BISBURY, Portland, Oreg., assignor to Jonathan Bourne, Jr., same place. Filed Sept. 16, 1884. (No model.)

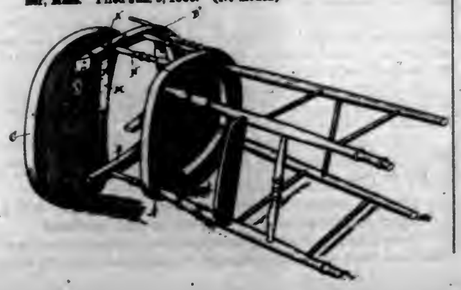


Claim.—1. The combination, with the divided axle A A', having the beveled collar C shrunk thereon, of the hub B, with its enlarged outer end fitting over the inner cylindric portion of said collar, and the annular plate D, fitted upon the beveled surface of said collar, and bolts *e*, connecting said hub and plate together, substantially as and for the purpose set forth.

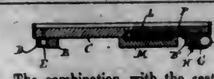
2. The combination, with the axle A A', having a collar, C, of the divided plate D, with the opposite edges or surfaces of its two parts formed with separating and packing-securing studs *g*, substantially as and for the purpose set forth.

3. In a divided car-axle, the hub B, formed with the oil-groove *g*, recess *r*, and radial oil-holes provided with screw-plugs *h*, as shown and described.

317,707. TRAY FOR CHILDREN'S CHAIRS. RODERIC L. BENT, Gardner, Mass. Filed Jan. 9, 1885. (No model.)



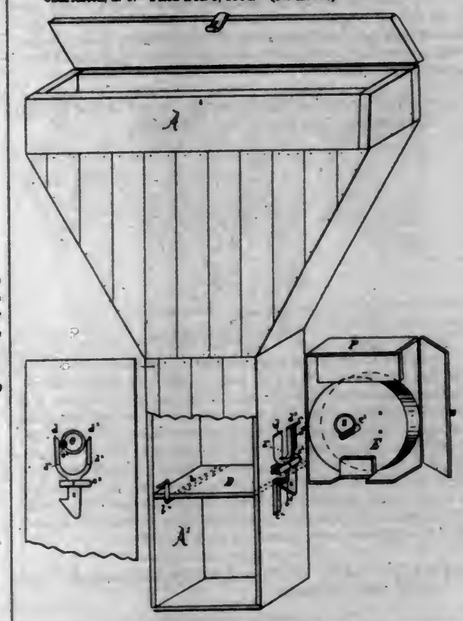
317,707.



Claim.—1. The combination, with the seat A and arms B B', of the tray C, hinged to one of the arms, the stop S, and the bolt F G, adapted to engage with the other of said arms, substantially as set forth.

2. The seat A, arms B B', and tray C, in combination with the eye H, spring L, and bolt F G, formed with the coil or handle K, substantially as set forth.

317,708. AUTOMATIC TIME STOCK-FEEDER. TITUS L. BISSELL, Charleston, S. C. Filed Dec. 3, 1884. (No model.)

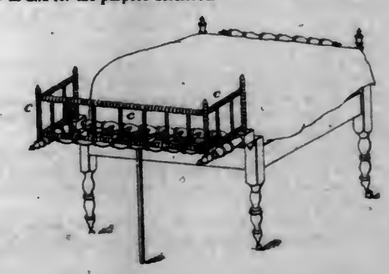


Claim.—1. In an automatic time stock-feeder, the combination, with the chute A', having the slot c^2, the trap-door D, hinged on the horizontal bar *b*, having the crank-handle b^2 and the trigger-rod *b'*, with trigger *c*, pivoted to the face of the slotted side of said chute A' in the U-shaped bearing c^2, and having arms *d* and *d'* and eccentric *e*, secured on the winding arbor or shaft *c'* of the alarm-clock E, and working between said arms and operating said trigger, substantially as shown and described.

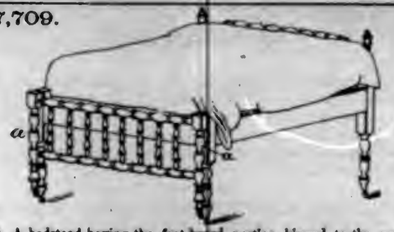
2. In an automatic time stock-feeder, the combination of the alarm-clock E, bearing on its winding arbor or shaft *c'* eccentric *e*, eccentric *e* secured on said winding arbor or shaft *c'*, and the trigger *c*, pivoted to the slotted side of chute A', its arms *d* and *d'* embracing said eccentric, its lower end holding up the trigger-rod *b'* of the trap-door B, all arranged to drop said trap-door, substantially as shown and described.

317,709. BEDSTEAD. EDWARD W. BLAKE, Waterbury, Conn. Filed July 16, 1884. (No model.)

Claim.—1. A bedstead having the foot-board hinged to the posts, and so that it may be turned down away from the bedstead, substantially as and for the purpose described.

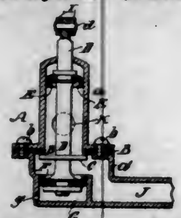


317,709.



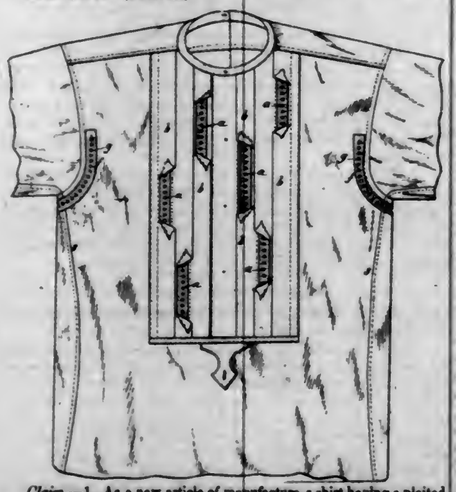
2. A bedstead having the foot-board portion hinged to the posts at the foot and adapted to be turned away from the bed or turned up to the bed, said foot-board constructed with a surrounding frame, substantially as described, and whereby said hinged portion when turned into a horizontal plane may form a crib-like extension to the bedstead.

317,710. FLOAT-VALVE FOR WATER-CLOSETS. AUGUST F. BLESCH, Columbus, Ohio. Filed Aug. 26, 1884. (No model.)



Claim.—In a float-valve, the combination, with the valve-stem D, provided with the valve C and the piston F, the float H, and means for connecting the float to the valve-stem, of the casing A, provided with the inlet and outlet openings J K, and the chamber G, arranged directly below the valve-seat and provided with an exterior opening in its lower part, to prevent the accumulation of water therein, the said chamber being outside of the inlet J, and the communication between the two being practically closed by the piston when the latter is in position, substantially as herein shown and described, whereby provision is made for perfectly balancing the valve and utilizing the pressure of the water for assisting the float to press the valve-stem downward, as set forth.

317,711. SHIRT. AUGUSTUS H. BRIDEMANN, Baltimore, Md. Filed Nov. 20, 1884. (No model.)

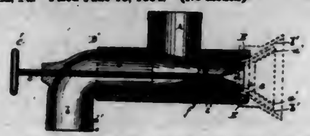


Claim.—1. As a new article of manufacture, a shirt having a plaited set-in bosom provided with ventilating-openings covered by said plaits, substantially as herein set forth.

2. As a new article of manufacture, a shirt having a plaited set-in bosom provided with ventilating-openings covered by said plaits and ventilating-openings around the under part of the armhole-seams, substantially as herein set forth.

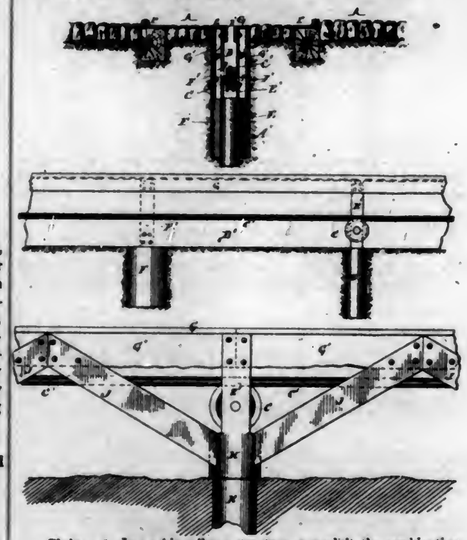
3. As a new article of manufacture, a shirt-bosom having plaits and ventilating-openings covered by said plaits, substantially as herein set forth.

317,712. HYDROCARBON-INJECTOR. WILLIAM M. BRIDGES, Philadelphia, Pa. Filed June 18, 1884. (No model.)



Claim.—The hydrocarbon-injector herein shown and described, the same comprising the hydrocarbon-pipe A, the steam-pipe *b*, and the adjustable steam-plug *d*, with conical or tapering head, the greatest diameter of said head being in excess of the internal diameter of the steam-pipe and less than the internal diameter of the hydrocarbon-pipe, and said plug being adjustable to control the discharge of steam without affecting the outlet for the hydrocarbon, substantially as set forth.

317,713. CABLE RAILWAY. WILLIAM M. BRIDGES, Philadelphia, Pa. Filed Feb. 27, 1885. (No model.)



Claim.—1. In a cable-railway structure or conduit, the combination, with the incased cable-trough, of hollow tubular piles constructed and adapted to support the trough casing or tube, substantially as described.

2. In cable-railway structures or conduits, the combination, with the incased cable-trough, of supporting-piles constructed and adapted to be sunk or embedded in the bottom of the cable-trench, substantially as described.

3. In combination with the incased trough or cable-conduit of a cable railway, the pulley-supporting piles having vertical standards in which the pulleys are journaled, substantially as described.

4. In a cable-railway structure or conduit, the combination, with the double-walled trough-casing, of supporting-piles having uprights or standards for the attachment of the casing-plates, substantially as described.

5. A cable trough or conduit having double walls on either side, with intervening air-spaces, substantially as and for the purpose described.

6. In a cable-railway trough or conduit, the combination, with the inner and outer plates, constituting double walls on either side of the cable-channel, of angle-iron plates or flanges secured to the inner walls and projecting laterally therefrom, so as to cover the intervening air-spaces and the edges of the outer walls, as and for the purpose described.

7. An incased cable trough or casing having double walls on either side separate from and independent of each other to prevent injurious effects from unequal expansion and contraction or other movement of the structural parts, as set forth.

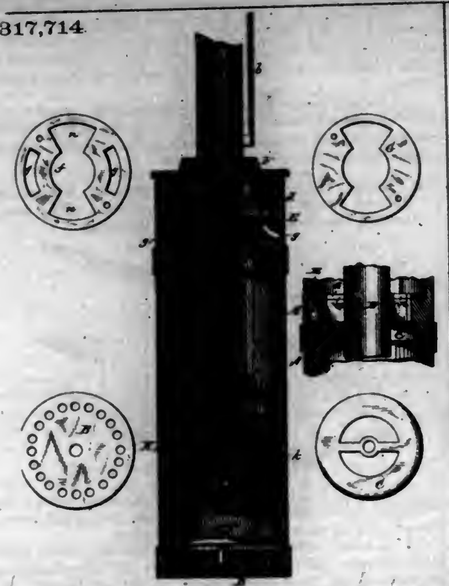
8. The combination, with the rails of a cable railway and the trough or conduit supporting piles, of arms or beams secured to the latter and sustaining the rails on either side, as set forth.

9. In a cable railway, the combination, with the trough or cable-casing and the railway-rails, of supporting-piles sustaining both the casing and the rails, as set forth.

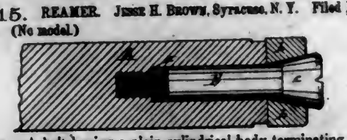
317,714. DOUBLE-ACTING SUBMERGED FORCE-PUMP. MOTT B. BROOKS, North Hammond, N. Y. Filed Oct. 20, 1884. (No model.)

Claim.—In a double-acting submerged pump, a pump-cylinder provided at its lower end with a perforated valve-seat and valve, and at its upper end with a removable head having an annular chamber formed therein, with inlets leading from the exterior and interior of the cylinder to said chamber, and a valve located within said chamber and controlling the inlet-ports, in combination with a hollow piston-rod and plunger-head, as and for the purposes set forth.

317,714.



317,715. REAMER. JESSE H. BROWN, Syracuse, N. Y. Filed Mar. 6, 1884. (No model.)



Claim.—A bolt having a plain cylindrical body terminating with a screw-threaded inner end portion, and with a flaring conical head at the outer end, in combination with the stock having a smooth cylindrical central channel terminating with a screw-threaded socket at the inner end, a flaring enlargement at the outer end, slots extending diametrically across and through the extremity of the stock, and cutters seated in said slots, all constructed and combined substantially in the manner specified and shown.

317,716. PRUNING IMPLEMENT. JOHN G. BURACH, Princeton, Ill. Filed Jan. 15, 1885. (No model.)



Claim.—The combination, with pruning-shears or a like implement, of a spring consisting of an annular rubber ring or band having a transverse or diametrical brace, said spring being arranged between the handles of pruning-shears or a like implement, substantially in the manner and for the purpose herein set forth.

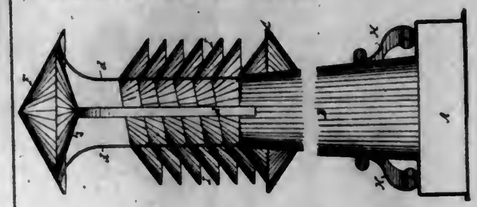
317,717. WATER-CLOSET. WILLIAM BUNTING, Jr., Boston, Mass., assignor to the Meyer Saffen Company, (Limited,) New York, N. Y. Filed Feb. 24, 1885. (No model.)

Claim.—In combination with the lowermost part of open base of an earthenware closet-bowl and the upper end of a flexible metallic exit-pipe, (communicating with the exit-orifice of said open base,) a metallic plate adapted to be secured to said base and press upwardly on the turned-over upper end of said exit-pipe, and a packing-ring interposed between said turned-over portion of the exit-pipe and the lower surface of the earthenware base, substantially as set forth.

317,717.



317,718. CHIMNEY TOP AND VENTILATOR. GUSTAV BURKHARDT, Homer, Ill. Filed July 24, 1884. (No model.)



Claim.—1. The combination of the smoke-pipe, the double conical crown secured to the upper end thereof, and the helical channel supported by the upper conical side of the crown, said upper conical side of the crown also serving to create an upward draft in the helical channel substantially as described.

2. The combination of the pipe B, the helical draft-channel I at the upper end thereof, the inverted cone J above the channel, and the cover F over the cone, substantially as described.

3. The combination of the pipe B, the double conical crown C, secured to the upper end thereof, the helical channel I, supported by the upper conical side of the crown, and the inverted cone J, supported above the helical channel, substantially as described.

4. The combination of the pipe B, the double conical crown C, secured to the upper end thereof, the helical channel I, supported by the upper conical side of the crown, the rods *d*, acting as ties to the helical channel, the cover F, supported above the helical channel by the tie-rods, and the inverted cone J under the cover, substantially as described.

317,719. TRACTION-WHEEL. JOHN BURKHOLDER, Ashland, Ohio. Filed Feb. 20, 1885. (No model.)



Claim.—A traction-engine wheel, A, having a smooth rim, A', provided with teeth B B, arranged in two series, the teeth forming one series being arranged alternately with the teeth of which the other is composed, the inner ends of the teeth of both series lying in the same vertical plane, substantially as set forth.

317,720. TRAIN-SIGNAL. CARLOS CAINE, Minneapolis, Minn., assignor of one-half to Thomas E. Clark, same place. Filed Sept. 20, 1884. (No model.)

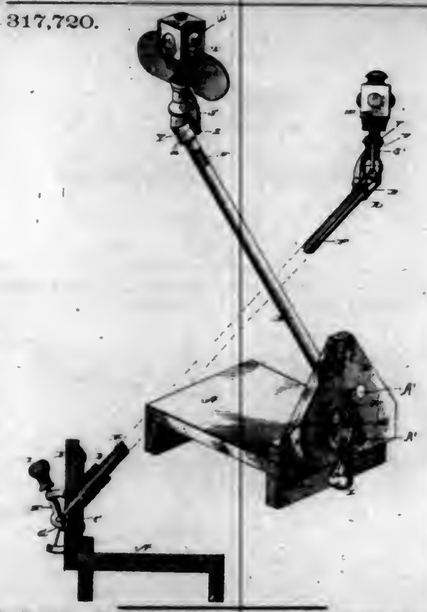
Claim.—1. The combination, in a railroad-signal, of the supporting extension or wall, the inclined tubular arm suitably secured thereto, the inclined shaft extending through the same, the signal-shaft and universal-joint connection, and the weighted lever and cam, whereby the signal may be operated, substantially as specified.

2. The combination, with the inclined shaft and the signal-shaft connected by a universal joint, of the bracket and tubular arm, the bracket having a bearing provided with a suitable stop, and the signal-shaft having an intergearing stop, substantially as and for the purpose specified.

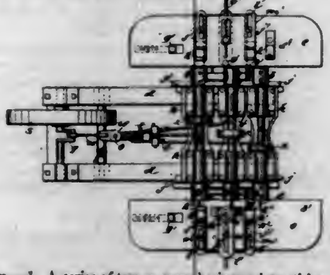
3. The combination, with the inclined shaft, of the weighted lever and the cams and cam-bracket, the latter having recesses or seats at its upper and lower ends, wherein the lever falls by its weight, substantially as specified.

4. The combination, with the inclined tubular arm, the bracket attached to it, the bearings for the inclined shaft, the signal-shaft, and universal-joint connection, of the protective casing secured over the same, substantially as and for the purpose specified.

317,720.



317,721. MORTISING AND BORING MACHINE. EDMOND N. CARP, Puckett, Ga. Filed Nov. 7, 1884. (Model.)



Claim.—1. A series of two or more boring and mortising mandrels arranged on reciprocating carriages, the outer mandrels having their carriages supported upon ways pivoted to the supporting-frame, the outer ends of said ways being adjustable to set the outer mandrels at an angle to the intermediate mandrel or mandrels, in combination with the work-holding devices and means for reciprocating the carriages of said outer mandrels, substantially as and for the purpose set forth.

2. The combination of the vertically-adjustable and side tilting table with a series of two or more boring or mortising mandrels arranged on reciprocating carriages, the carriages of the outer mandrels being supported upon pivoted ways, the outer ends of said ways being adjustable to set the outer mandrels at an angle to the intermediate mandrel or mandrels, substantially as described.

3. The combination of the rock-lever *o* and extensible connecting-rods *l* with the mandrels *a*, mounted on reciprocating carriages, said rock-lever being connected with the crank of a driving-pulley, substantially as described.

4. The adjustable work-holding cleats *j'*, having vertical slots *l*, which receive set-screws *m*, said cleats also having adjustable jaws k^2, sliding in seats *k'*, clamps *n'*, supported in a longitudinally-adjustable bracket, *p'*, disposed intermediately of the jaws k^2, gage *q'*, adjustable in a plane at right angles to the plane of movement of the cleats *j'*, and the adjustable work-holding table *c*, having the boring and mortising mandrels *a*, substantially as described.

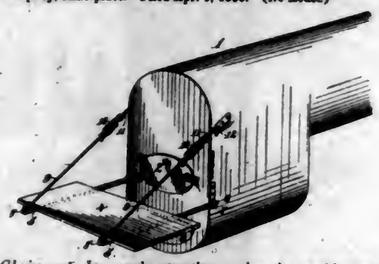
5. The adjusting-screw *o'* in the work-table *c*, in combination with the cleats *j'*, disposed one at each side of said screw, clamp *n'*, supported in a bracket, *p'*, overhanging said screw, and the mandrels *a*, arranged to operate upon the work at right angles to the clamping action of the aforesaid clamp and screw, substantially as described.

6. The combination of the hook-stop *s* with the table *c*, cleats *j'*, arranged in parallel planes with the said stop, adjusting-screw *o'*, clamp *n'*, supported in a bracket, *p'*, disposed adjustably and intermediately of the cleats *j'*, and the mandrels *a*, substantially as described.

7. The angle-gage *t'*, held in an angular bracket, *u'*, in combination with the work-holding cleats *j'*, supported adjustably upon table *c*, and the mandrels *a*, said angle-gage being disposed intermediately of and in a plane above the said cleats, substantially as and for the purpose set forth.

8. The combination of the adjustable stop t^2, fitted in a slot, *y*, in the table-supporting bracket, and adapted to gage the depth of the mortises and holes, with the mandrels *a* and the table *c*, having the cleats *j'*, substantially as and for the purpose set forth.

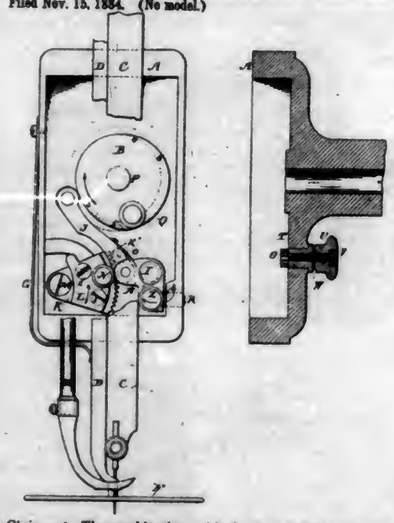
317,722. PLATFORM FOR TRACTION-ENGINES. HOWARD CAMPBELL and HORATIO N. LAND, Richmond, Ind., assignors to Gaar, Scott & Company, same place. Filed Apr. 9, 1885. (No model.)



Claim.—1. In a road or traction engine, the combination of the boiler, the platform, and its supporting-bars with the diagonal suspension-rods carrying springs, substantially as described.

2. In a road or traction engine, the combination, with the boiler having the upper and lower eyes, of the horizontal rails or bars fitted into the lower lugs, the platform supported directly upon said rails, and the diagonal suspension-rods carrying springs, and hooks engaging with the upper eyes on the boiler, substantially as described.

317,723. MECHANICAL MOVEMENT. WILLIAM S. CARLISLE, Watertown, N. Y., assignor to the Davis Sewing Machine Company, same place. Filed Nov. 15, 1884. (No model.)



Claim.—1. The combination, with the cam and the primary lever having one end or a device carried thereby in contact with said cam, of the fulcrum to said lever and the pivoted arm carrying the said fulcrum, the latter being adjustable lengthwise of said lever in the arc of a circle whose center is the pivot of said arm, substantially as described.

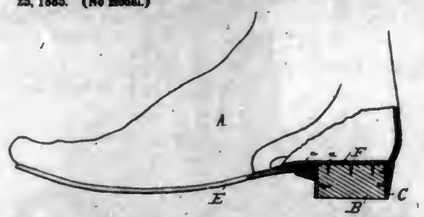
2. The combination, with the cam, the primary lever, and the fulcrum to said lever, of the pivoted arm carrying the fulcrum, and provided with gear-teeth, and the pinion meshing with said teeth for adjusting the position of said fulcrum, substantially as described.

3. The combination, with the cam, the primary lever, and the pivoted arm, of the fulcrum to said lever carried by said arm and adjustable thereon, substantially as described.

4. The combination, with the primary lever, the fulcrum adjustable lengthwise of the same, and the cam for actuating said lever, of the secondary lever turning on a fixed stud or pivot, and connected with the primary which it supports and from which it receives motion, substantially as described.

5. The combination of the cam, the primary lever, the fulcrum to said lever, the pivoted adjustable arm carrying said fulcrum, the secondary lever, and the spring for holding the end of the primary lever against the cam, substantially as described.

317,724. BOOT OR SHOE. GOSWIN CASTLE, Ava, N. Y. Filed Feb. 25, 1885. (No model.)



Claim.—1. A boot or shoe constructed substantially as described, and consisting of an upper, A, an outer sole, E, extending from toe to heel, an inner sole, F, a heel, B, to which the inner sole is directly attached, and a metal band, C, which completely encircles the heel, and is provided with a flange, D, substantially as and for the purpose described.

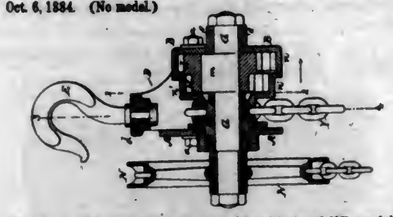
2. In the manufacture of boots and shoes, a heel, of wood, rubber, or other hard substance, to which the uppers and the inner sole are tacked, and which is encircled by an iron or metallic band, substantially as and for the purpose described.

317,725. CAR-COUPLING. A. JUDSON CHAPIN, Arkansas City, Kans. Filed Mar. 23, 1885. (No model.)



Claim.—The triple draw-head having three link cavities and three pins, two of said pins being adapted to be raised automatically, and the third being fitted tightly, and a link which is secured by such tight-fitting pin and held in horizontal position, all combined as shown and described.

317,726. DIFFERENTIAL PULLEY-BLOCK. JAMES CHRISTIE, Philadelphia, Pa., assignor of one-half to Percival Roberts, same place. Filed Oct. 6, 1884. (No model.)



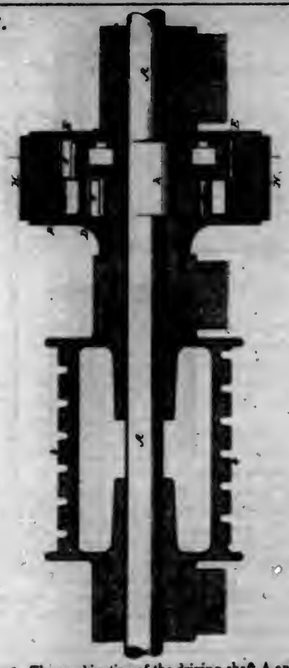
Claim.—1. The combination, in a pulley-block, of differential gearing, substantially as described, with the frame consisting of the plates A and B and top piece, D, constructed and secured to each other substantially as set forth.

2. The combination of the frame consisting of the plates A and B and top piece, D, with the differential gearing, the chain-pulley M of which has a hub-bearing in the plate A, and with the shaft G extending through and having a bearing on the said chain-wheel, substantially as specified.

3. The combination, in a pulley-block, of the within-described differential gear, in which the wheels H and I are combined with and contained within the internally-toothed wheels *n n'*, the edge of one wheel overlapping that of the other, as set forth.

317,727. HOISTING AND HAULING GEAR. JAMES CHRISTIE, Philadelphia, Pa., assignor of one-half to Percival Roberts, same place. Filed Nov. 24, 1884. (No model.)

317,727.

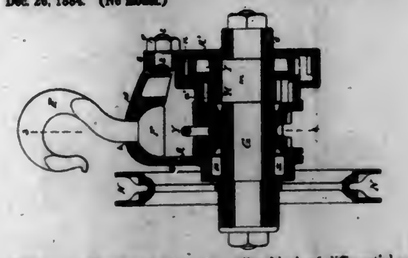


Claim.—1. The combination of the driving-shaft A and its eccentric *h*, the tubular shaft B and wheel D thereon, the wheel E, loose on the shaft A, the wheels *m* and *n*, adapted to the eccentric portion of the shaft, and a device for arresting the wheel E, all substantially as set forth.

2. The combination of the shaft A and tubular shaft B, and the wheels D and E, forming part of the differential gearing, the said wheel E having a flange overlapping the wheel D, substantially as specified.

3. The combination of the shafts A and B, the wheels D and E, forming part of the differential gear, and braking mechanism applied to the flange *p* of the said wheel E, substantially as specified.

317,728. DIFFERENTIAL PULLEY-BLOCK. JAMES CHRISTIE, Philadelphia, Pa., assignor of one-half to Percival Roberts, same place. Filed Dec. 26, 1884. (No model.)



Claim.—1. The combination of a pulley-block of differential gearing, substantially as described, with frames consisting of a casting, A', and the casting A, the latter including the top *w* and side plate, *y*, substantially as set forth.

2. The combination of the casting A, including the side plate, *y*, the top plate, *w*, and threaded projection *v*, with the casting A', substantially as specified.

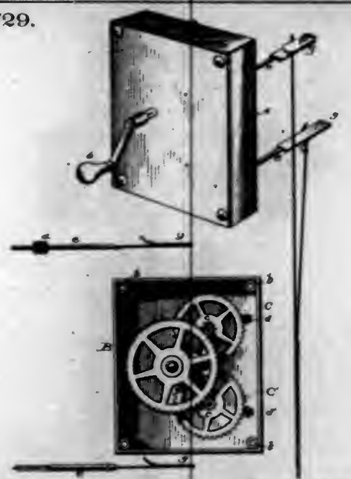
3. The combination of the frame of a pulley-block, its concave socket, and the elongated opening *h*, with the hook and its concave nut adapted to the socket, substantially as described.

4. The combination of the chain-pulley M of the differential gearing with castings A A', and the flanges *g g*, which are parts of the casting A, and form a hood for the said chain-wheel, substantially as set forth.

317,729. WAX-END TWISTER. OSCAR P. CLARK and LUCIOUS C. CROUCH, Bentonville, Ark. Filed Oct. 20, 1884. (No model.)

Claim.—In a machine for twisting wax-ends, threads, and the like, the combination, with the main wheel B and auxiliary wheels C C', of

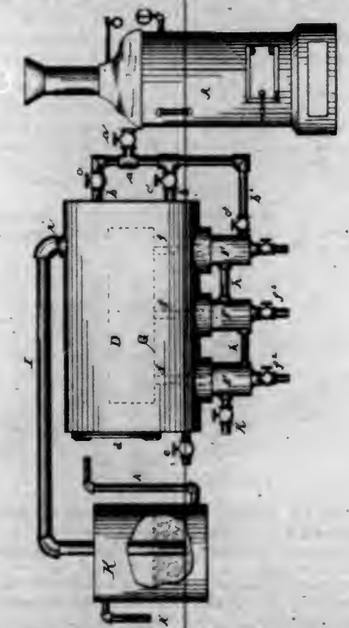
317,729.



the pinions *c c'*, borne, respectively, by the two latter and meshing with the former, and the spindles *e e'*, carrying at their outer ends the spring-clips and at their inner ends the pinions *d d'*, also meshing with the auxiliary wheels, said parts being arranged in and borne by a suitable casing and adapted to be operated by a key, substantially as described.

317,730. METHOD OF PRESERVING WOOD. EDWARD Z. COLLINGS, Camden, N. J., and CHARLES F. PEIL, Philadelphia, Pa. Filed Dec. 11, 1883. (No model.)

Brief.—Apparatus patented in No. 310,880, dated January 20, 1885.

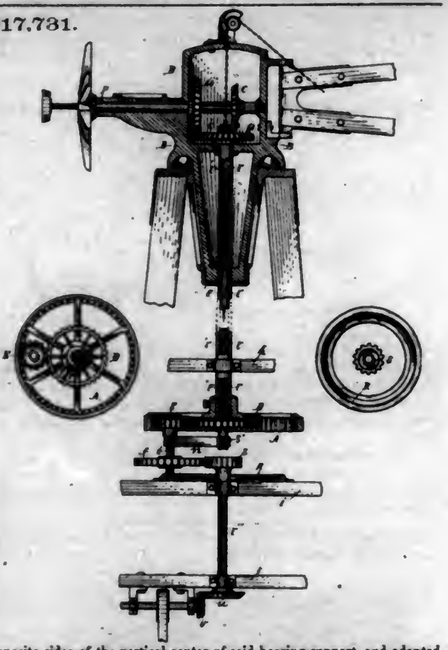


Claim.—The method herein described of treating wood to preserve it from decay, which consists in, first, steaming the wood in a closed chamber; second, drying said wood and chamber by radiated heat, and, third, impregnating said wood with a preservative material admitted bodily in said chamber without admitting air to the latter, and afterward vaporized by radiated heat, substantially as set forth.

317,731. WINDMILL. HUDSON B. COLMAN and GEORGE TURNER, Kalamazoo, Mich. Filed Feb. 28, 1885. (No model.)

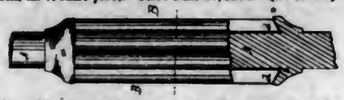
Claim.—The combination of a wind-wheel shaft, a swiveled bearing-support therefor, concentric power-shafts suspended from the bearing-support and forming operative engagement with the wheel-shaft on

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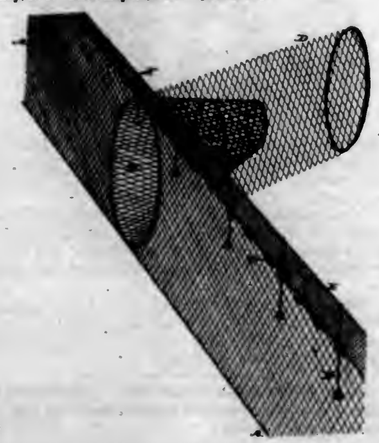
opposite sides of the vertical center of said bearing-support, and adapted to independently rotate in opposing directions, a gear connecting with and suspended by each power-shaft, a geared shaft having a stationary bearing-support, and a movable shaft provided with gears forming engagement with said geared shaft and with the gears of the power-shafts, said movable shaft having bearings allowing it to traverse a circle around the vertical center of the power-shafts, all substantially as set forth.

317,732. FURNITURE. FRED H. CONANT, Gardner, Mass., assignor to Henry Heywood, George Heywood, Alvin M. Greenwood, and Amos Merrill, all of same place. Filed June 30, 1884. (No model.)



Claim.—The wooden post A, having the undercut collars *a* and *b* integral therewith, combined with the rattan sections B, having their ends beveled and secured to the post by springing their beveled ends into the undercut collars and fixing them by glue, substantially as described.

317,733. NET FOR CATCHING PORPOISES. JOHN A. COOKE, Cape May, N. J. Filed May 29, 1884. (No model.)

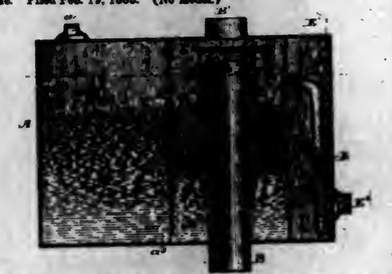


Claim.—1. A net having a body provided with floats and a guard connected with and elevated above said body, substantially as and for the purpose set forth.

2. A net having a body provided with floats, a guard connected with and rising above the body, and supporting-standards connected with said guard, substantially as and for the purpose set forth.

3. A net having a body provided with floats, an elevated guard connected with said body, and a trap and receiver, also connected with said body, substantially as and for the purpose set forth.

317,734. GAS-REGULATOR. WILLIAM H. COTHREN, Farmington, Me. Filed Feb. 19, 1885. (No model.)



Claim.—1. A fluid gas-regulator consisting of a case subdivided into three compartments A' A^2 A^3, the supply-pipe, its floating valve, and the siphon-drip, substantially as described.

2. The combination, in a fluid gas-regulator, of a case, A, provided with a diaphragm terminating at a passage, a^3, the compartment A^3, having the supply and the delivery pipes and a floating valve therein, and a drip-chamber provided with a siphon and an outlet, substantially as described.

3. The combination, in an automatic gas-regulator, of the chambers A' A^2 and a siphon-drip chamber with the supply and delivery pipes, a float, and a valve guided by rods, substantially as described.

4. In a fluid gas-regulator, a case subdivided as described, a supply-pipe, B, an automatic float-valve, a delivery-pipe, B', and a compartment provided with a siphon and outlets, substantially as described.

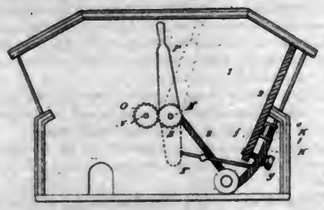
5. In a gas-regulator having a float-valve applied to the delivery-pipe, and two communicating fluid-chambers, an auxiliary chamber provided with a drip or draw-off inverted siphon, the longest limb of which has a horizontal portion, substantially as described.

6. In a gas-regulator, the combination, with the partitioned case A, of a supply-pipe, a float, the horizontal guides therefor, the valve and valve-disk, a siphon in chamber A^2, and a delivery-pipe, substantially as described.

7. A fluid gas-regulator consisting of a case, A, subdivided by partitions a' a^3, forming three chambers, A' A^2 A^3, a float having a flat guided valve, a supply and delivery pipe, a drip-chamber provided with an inverted siphon, and openings E' E^2, all constructed and adapted to operate substantially in the manner and for the purposes described.

8. In a fluid gas-regulator, a floating valve and a supply and delivery pipe located between chambers A' A^2, in combination with a siphon and the outlets of the chamber A^3, substantially as described.

317,735. GRINDING-MILL. PERLEY T. COOK and CHARLES W. WOOLBERT, Philadelphia, Pa., assignors of one-third to Edward S. Woolbert, Elmer, N. J. Filed Nov. 26, 1884. (No model.)

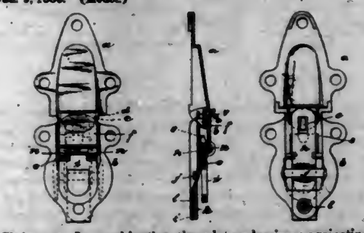


Claim.—1. The combination, with the hoppers 1, arranged parallel to each other, of the shafts N N, arranged between said hoppers and provided with intermeshed pinions o and arms S, the rods T, connected with arms S, and the shut-off gates M, adapted to shut off the feed of the hoppers.

2. The combination of the hoppers having front and back boards, 3 and 2, the feed-regulating gates H, having rods J, the springs I, the set-screws *g*, the springs *f*, and the feed-rolls.

3. The combination of the hoppers, the feed-rolls, the feed-regulating gates, a spring whereby said gate is given a downward tension, set-screws turned loosely through the feed-gate and threaded into the hopper, and a spring bearing between the feed-gate and the hopper, substantially as set forth.

317,736. TRUNK-CATCH. JOHN J. COWELL, Newark, N. J. Filed Jan. 9, 1885. (Model.)



Claim.—1. In combination, the plate *a*, having a projecting dowel, *c*, with a backwardly-extending lug or toat at the rear thereof, and a plate, *b*, having a spring-hasp lying within said plate, a rigid bearing, *j*, to throw said spring-hasp against said lug, and a lever fulcrumed on said plate to engage said spring-hasp and throw it from the lug, substantially as shown and described.

2. In combination, in a trunk-catch, the plate *a*, provided with dowel *c* and holding-lug *e*, and a plate, *b*, having the upper portion, *g*, and bearings *j j'*, a spring-hasp arranged on said bearings, and a lever held in its bearings by said hasp, and in turn holding said hasp back from the portion *g* to allow the insertion of the dowel and holding-lug between, substantially as shown and described.

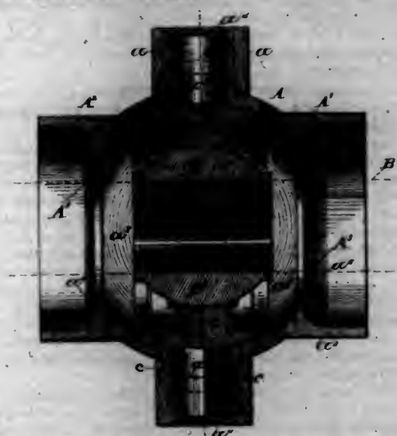
3. In combination, the plate *b*, having bearings, as at *i'* and *j*, for the spring-hasp, said spring-hasp being perforated to catch a lug on the upper plate and bearing against the lever *i*, and said lever *i* fulcrumed between bearings *n n*, and adapted to throw said spring from said catch, and the plate *a*, having the catching-lug to receive the spring, said parts being arranged and operating substantially as and for the purposes set forth.

4. In a trunk-catch, the combination of the plate *b*, having bearings *n n*, with a lever arranged between said bearings, and stops *o*, adapted to hold the lever away from the face of the plate, said lever *i* having bearings *r r*, projecting laterally to engage said stops, substantially as and for the purposes set forth.

5. In a trunk-catch, a plate perforated to be secured to the trunk, one of the perforations being provided with a rim, *l*, to receive a spring, *k*, in combination with said spring and a lever to throw the same, substantially as and for the purposes set forth.

6. In a trunk-catch, the cover-plate provided with an arm, *u*, adapted to extend behind the trunk-valance, and a lug, *t*, extending forward from said lug to enter a perforation in said valance to operate in holding said plate to said valance, substantially as set forth.

317,737. UNIVERSAL JOINT. EDWARD P. COWLES, Wequiock, Wis. Filed Dec. 16, 1884. (No model.)



Claim.—1. A hollow hub connected with a rotating shaft by means of a universal joint adapting both to transmit the power in a plane of rotation passing at any angle through the axis of the shaft while both the shaft and the hub are rotating together, substantially as set forth.

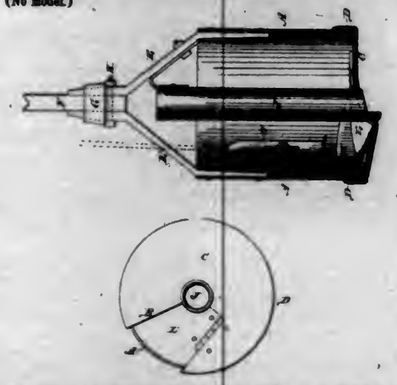
2. In a hollow hub connected with a rotating shaft by a universal joint, an oil-chamber formed by the raised extensions a^6 of the hub, as set forth.

317,738. COMBINATION-TOOL. ADON D. CROSBY, Cuba, N. Y. Filed Dec. 31, 1884. (No model.)



Claim.—The combination-tool comprising the two limbs, one having a screw-driver at one end, a tack-claw and a wrench-jaw at the other end, a serrated or toothed surface upon one edge at said latter end, and a serrated or toothed surface upon its opposite edge intermediately between its ends, the other limb having a serrated or toothed surface upon one edge at one end, a hammer-head, and a wrench-jaw disposed oppositely to each other, and a toothed or serrated surface arranged to engage the intermediate corresponding surface of the aforesaid limb, substantially as shown and described.

317,739. EARTH-AUGER. JAMES M. CROSS, Marietta, Ohio, assignor of one-fourth to Wilson E. Conner, same place. Filed Nov. 28, 1884. (No model.)

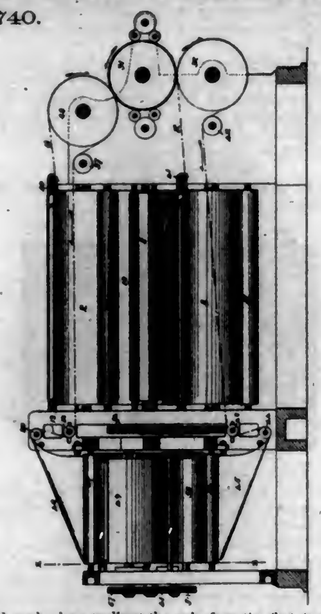


Claim.—1. The combination of the cylinder A, the braces E, and rod F with the tube J, which has its lower end formed into a cutting-tool, and which has its upper end centered in position by means of an arm which is fastened to one of the braces, substantially as shown.

2. The combination of the earth-auger, a valve pivoted in its bottom, and a sliding and adjustably locking rod, which is placed inside of the auger and used to close the valve or limit the amount of its upward movement, substantially as shown.

3. The combination of an earth-auger having an opening in its bottom of the shape shown with the valve L, which laps a portion of the central shaft, which is hinged to one edge of this opening, so that its hinge stands at an angle to a radial line extending from its center, substantially as described.

317,740. WEB-PERFECTING PRINTING-MACHINE. LUTHER C. CROWELL, Brooklyn, N. Y. Filed Jan. 13, 1882. (No model.)



Claim.—1. The combination, with two printing mechanisms set at an angle to each other, of means for leading a web of paper to the first mechanism from the side adjacent to the second mechanism, a web-turner arranged to turn and guide the web from one to the other, and means for leading the printed web from the second mechanism upon the side adjacent to the first mechanism, all substantially as described.

2. The combination, with two printing mechanisms, each consisting of one form-cylinder and a plurality of impression-cylinders set at an angle to each other, of means for leading a plurality of webs of paper to the first mechanism from the side adjacent to the second mechanism, a plurality of web-turners arranged to turn and guide the webs from the first to the second mechanism, and means for leading the printed webs from the second mechanism upon the side adjacent to the first mechanism, all substantially as described.

3. The combination, with the two pairs of form and impression cylinders, as 1 2 and 31 23, set at an angle to each other, of means for leading a web to the first pair from the side adjacent to the second pair, a web-turner arranged to turn and guide the web and means for leading the printed web from the second pair upon the side adjacent to the first pair and across the path of the entering web, all substantially as described.

4. The combination, with two printing mechanisms, each consisting of one form-cylinder and a plurality of impression-cylinders, said mechanisms being set at an angle to each other, of means for leading a plurality of webs to the first of said mechanisms, web-turners arranged between said mechanisms to direct the webs from the first to the second mechanism, and means for leading the webs from said second mechanism upon the side adjacent to the first mechanism, all substantially as described.

5. The web-turner, as 20, provided with the universal joint, as 22, at one end, and the vertical and horizontal adjusting device, as 21, at the other end, substantially as described.

6. The combination, with the web-turner consisting of parallel bars 85 86, of means for varying the angle of said bars with relation to the web and for varying their distance from each other, substantially as and for the purposes set forth.

7. The combination, with web-associating mechanism, as the turners 85 86, of longitudinal web-folding mechanism, as the folder 40 or 45, web-severing mechanism, and sheet-associating mechanism, all substantially as described.

8. The combination, with a printing-machine arranged to perfect two webs and deliver them both upon the same side of the machine, of a cutting and folding mechanism arranged to deliver the product of both webs, all substantially as described.

9. The combination, with the two longitudinal folders, as 40 45, arranged one in advance of the other and adapted to operate upon different webs, of a transverse folding and severing mechanism, all substantially as described.

10. The combination, with the two longitudinal folders, as 40 45, arranged to operate upon different webs, of a transverse cutting mechanism, all substantially as described.

11. The combination, with the cylinder 49, provided with two sets of sheet-holding pins and means for rendering one of said sets inoperative, and one member of a severing mechanism, of the cylinder 48, provided with a set of sheet-holding pins, and the other member of the severing mechanism, and means for rendering said pins inoperative, all substantially as described.

12. The combination of the cylinders 48 49 with the three sets of automatically-operated sheet-holding pins 62, 69, and 70, any one of which sets may be made inoperative, substantially as described.

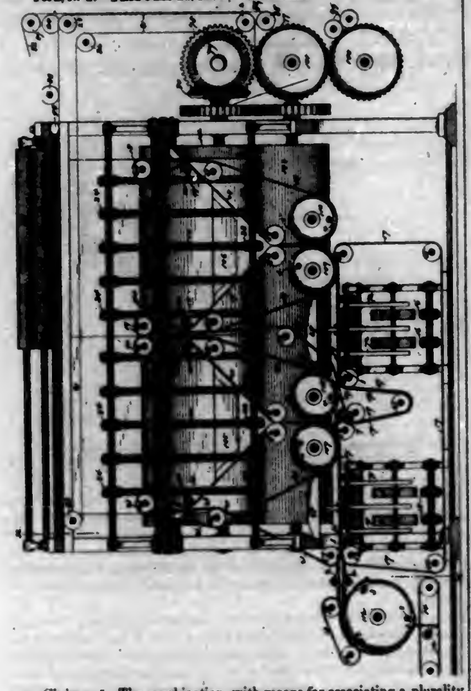
13. The combination of the set of pins 62 and the devices by which they are supported with the arm 68 and cams 66 and 83, all substantially as described.

14. The combination, with a longitudinal folder, as 40, of a cutting and gathering mechanism consisting of the cylinders, as 48 49, each provided with sheet-holding pins, substantially as described.

15. The combination, with printing mechanism adapted to print a plurality of webs, of a plurality of longitudinal folding apparatuses arranged and operating to fold and deliver said webs at the same side of the machine, all substantially as described.

16. The combination, with printing mechanism adapted to print a plurality of webs, and a plurality of longitudinally-folding mechanisms arranged and operating to fold and deliver said webs at the same side of the machine, of cylinders or rollers operating to lead said folded webs in side-by-side streams, all substantially as described.

317,741. DELIVERY MECHANISM FOR WEB-PRINTING MACHINES. LUTHER C. CROWELL, Brooklyn, assignor to R. Hoe & Co., New York, N. Y. Filed June 22, 1883. (No model.)



Claim.—1. The combination, with means for associating a plurality of webs, of means for severing said associated webs into sheets, and means for associating said sheets, all substantially as described.

2. The combination, with means for associating a plurality of webs, of means for severing said associated webs into sheets, means for associating said sheets, and means for folding said associated sheets, all substantially as described.

3. The combination, with means for associating a plurality of webs, of means for severing said associated webs into sheets, means for associating said sheets, and means for longitudinally folding said associated sheets, all substantially as described.

4. The combination, with slitting mechanism arranged to split a wide web into a plurality of sections or narrow webs, of means for associating said narrow webs, means for severing said associated webs into sheets, and means for associating said sheets, all substantially as described.

5. The combination, with slitting mechanism arranged to split a wide web into a plurality of sections or narrow webs, of means for associating said narrow webs, means for severing said associated webs into sheets, means for associating said sheets, and means for longitudinally folding said associated sheets, all substantially as described.

6. The combination, with a sheet-associating mechanism, as 104, arranged at right angles to the printing-cylinders, of interposed turning mechanism, as the bars 97 96, all substantially as described.

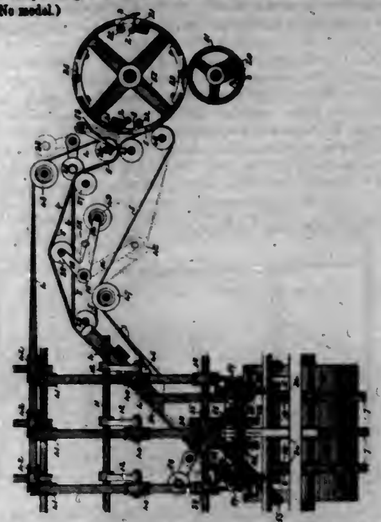
7. The combination, with the printing mechanism and the turning bar or bars, as 98 97, of forwarding-tapes, as 81 82, for conveying the leading end of the web or sections to said bars, substantially as described.

8. The combination, with a plurality of folding mechanisms, as the cylinders 107 108 and 109 110, of a plurality of final-folding mechanisms, as the rolls 66 67 and blades 68 69, a piling mechanism, as the cylinder 112, and means by which the sheets from said first-folding mechanisms can be sent either to said piling mechanism or to said final-folding mechanisms to be further folded, all substantially as described.

9. The combination, with a plurality of folding mechanisms, as the cylinders 107 108 and 109 110, of a piling mechanism, as the cylinder 112 and the tapes 17 19 21, said tapes being so arranged that the sheets delivered from said folding mechanisms will be associated and delivered to the piling mechanism in pairs or lots, all substantially as described.

10. The combination, with a plurality of folding mechanisms, as 107 108 and 109 110, of a moving carrier arranged to receive the sheets delivered from said folding mechanisms, associate the same into lots, and deliver said lots to a fly or piling mechanism, all substantially as described.

317,742. SHEET-DELIVERY APPARATUS. LUTHER C. CROWELL, Brooklyn, assignor to R. Hoe & Co., New York, N. Y. Filed Sept. 27, 1883. (No model.)



Claim.—1. The combination, with a sheet forwarding and associating mechanism arranged or adjusted to associate a plurality of sheets with the edge of one projecting beyond the other, of a sheet-folding mechanism arranged to co-operate therewith to fold the associated sheets, all substantially as described.

2. The combination, with a sheet-folding mechanism arranged to fold a plurality of sheets lying side by side, of a sheet forwarding and associating mechanism arranged or adjusted to associate the sheets so folded with the edge of one projecting beyond the other, and a sheet-folding mechanism arranged to co-operate therewith to fold the associated sheets, all substantially as described.

3. The combination, with a sheet forwarding or conducting mechanism and a sheet-associating mechanism consisting of sheet-turners and tapes, said mechanisms being arranged or adjusted to associate the sheets with the edge of one projecting beyond the other, of a sheet-folding mechanism arranged to co-operate therewith to fold the associated sheets, all substantially as described.

4. The combination, with a sheet forwarding or conducting mechanism consisting of devices for supporting and advancing a plurality of sheets side by side and arranged or adjusted so that one sheet may be advanced beyond the other, of a sheet-associating mechanism consisting of sheet-turners and tapes by which the sheets are associated and a sheet-folding mechanism arranged to co-operate therewith to fold the associated sheets, all substantially as described.

5. The combination, with a sheet forwarding or conducting mechanism, as that formed by the tapes 4 5, of sufficient width to receive a plurality of sheets side by side, of an adjusting mechanism by which the portions of the conducting mechanism occupied by different sheets may be made of the same or of different lengths, all substantially as described.

6. The combination, with a mechanism for folding a sheet transversely and a mechanism for slitting the same, of a sheet-forwarding mechanism and a sheet-associating mechanism consisting of sheet-turners and tapes, said forwarding and associating mechanisms being arranged or adjusted to associate the two parts or sheets thus formed with the edge of one projecting beyond the other, and a sheet-folding mechanism arranged to co-operate therewith to fold the associated sheets, all substantially as described.

7. The combination, with the series of tapes 4 5, of the pulleys 28 49 40, arranged to act upon a portion of said tapes, for the purpose set forth, substantially as described.

8. The combination, with a longitudinal folding and slitting mechanism, of a transverse folding mechanism and a second longitudinal folding mechanism, said mechanisms being arranged to operate upon the sheets in the order named, all substantially as described.

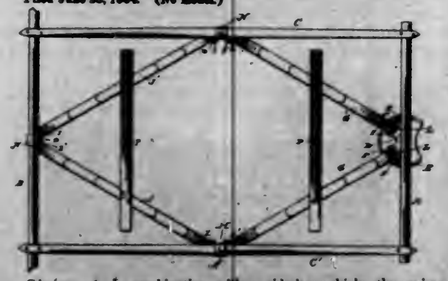
9. The combination, with an associating mechanism, of a longitudinal folding and slitting mechanism, a transverse folding mechanism, and a second longitudinal folding mechanism, said mechanisms being arranged to operate upon the sheets in the order named, all substantially as described.

10. The combination, with a transverse, a longitudinal, a second transverse, and a second longitudinal folding mechanism, arranged to operate upon the sheets in the order named, of a slitting mechanism, a path-

way, as that formed by the tapes 4 5, for conducting the sheets from the first to the second folding mechanism, and means by which the sheets passing along in one side of said pathway may be caused to gain upon those passing along in the other side of said pathway, all substantially as described.

11. The combination, with a web-severing and sheet-associating mechanism, of a transverse, a longitudinal, a second transverse, and a second longitudinal folding mechanism, arranged to operate upon the sheets in the order named, a slitting mechanism, a pathway, as that formed by the tapes 4 5, for conducting the sheets from the first to the second folding mechanism, and means by which the sheets passing along in one side of said pathway may be caused to gain upon those passing along in the other side of said pathway, all substantially as described.

317,743. VEHICLE-SPRING. JOSEPH DAIN, Jr., Kansas City, Mo. Filed June 26, 1884. (No model.)



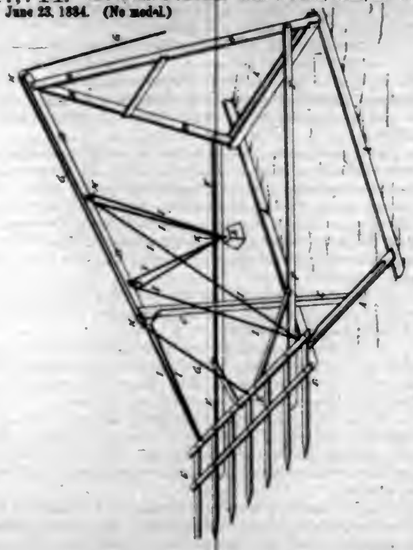
Claim.—1. In combination with a side-bar vehicle, the springs connected thereto and arranged approximately in diamond shape within the side bars, and supporting the body between the latter, as and for the purpose set forth.

2. In a side-bar vehicle, the combination, with the head-block, rear axle, and side bars, of springs arranged approximately in diamond shape within the said side bars, and suitable bearing-irons for connecting the springs to the head-block, rear axle, and side bars, as and for the purpose set forth.

3. The combination, with the head-block, rear axle, and side bars, of the front springs connected to the head-block by a bearing-plate having rearwardly-diverging lugs arranged in pairs, and connected to the side bars by bearing-irons clipped to the side bars and provided with diverging lugs arranged in pairs, and the rear springs connected to the middle of the rear axle by a bearing-iron having diverging lugs arranged in pairs, and connected to the side bars by the same bearing-irons that connect the front springs thereto, as set forth.

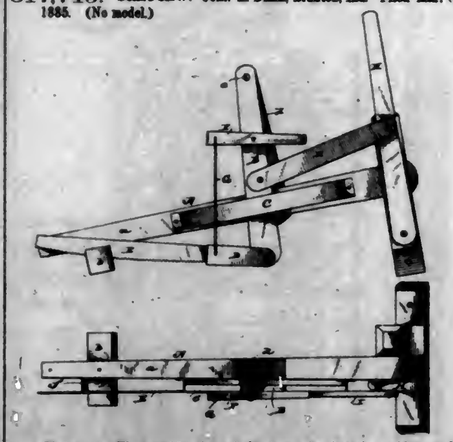
4. The combination, with the head-block, rear axle, and side bars, of the semi-elliptic springs having upwardly-curved ends and bearing-irons, substantially as described, for connecting said springs to the head-block, rear axle, and side bars, in diamond shape, as set forth.

317,744. HAY-RICKING DEVICE. REES O. DAVIS, Milan, Mo. Filed June 23, 1884. (No model.)



Claim.—In a hay-ricking device, the combination of the rack E, inclined top bar, D, pulleys J M, the counter-weight L, pulleys K, and the ropes I, each secured at both ends to the rack, passing thence over pulleys J, under weight-pulleys K, and over pulleys M, substantially as set forth.

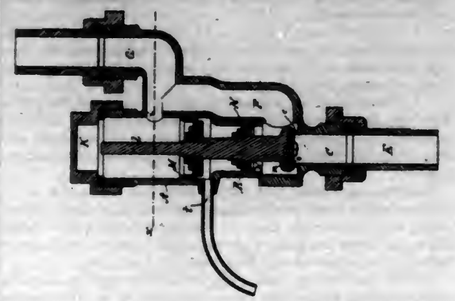
317,745. DRAG-SAW. JOHN H. DEAM, Bluffton, Ind. Filed Mar. 17, 1885. (No model.)



Claim.—1. The combination of the frame having the guideway C, the hand-lever H, and oscillating bar B, fulcrumed to the frame, the saw E, pivoted to the lower end of the oscillating bar, the connecting-rod I, connecting the bar B with the lever H, and the lever F, fulcrumed to the bar B and connected to the saw by the rod G, substantially as described.

2. The combination of the frame having the guideway C and the knee *b*, notched on its upper side, the hand-lever H and oscillating bar B, fulcrumed to the frame, and connected by the rod I, the saw pivoted to the lower end of the oscillating bar, and the lever F, fulcrumed to the bar B, and the rod G, connecting said lever with the saw, substantially as described.

317,746. PRESSURE-REGULATOR. JOHN DEHARBE, New York, N. Y., assignor to the J. L. Mott Iron Works, same place. Filed Mar. 13, 1885. (No model.)



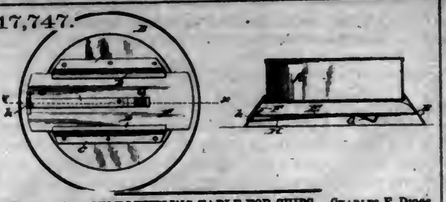
Claim.—1. The combination, with the supply-pipe and valve-seat, of a case having two different sizes of cylinders, cup-leathers of different sizes in such cylinders, a stem connecting the cup-leathers, a valve upon the stem, and a water-way connecting the water-supply and distribution pipes and opening into the cylinder above the largest cup-leather, substantially as set forth.

2. The case having the cylinders A and B, of different sizes, the valve-seat, the supply and distribution pipes, and the water-way between the parts of the case, in combination with the two cup-leathers, the valve-stem, valve, and the escape-pipe from the case between the two cup-leathers, substantially as set forth.

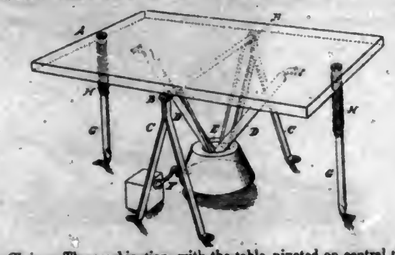
317,747. MATCH-SAFE FOR LANTERNS. JOHN W. DICK, Limerick, Me. Filed Feb. 24, 1885. (No model.)

Claim.—The combination of the oil-receptacle A, provided with the parallel re-enforcing flanges or ways C C, flaring base or flange B, having aperture F, and drawer E, having slot *e*, and provided with the finger-piece G, and spring H, substantially as and for the purpose shown and set forth.

317,747.



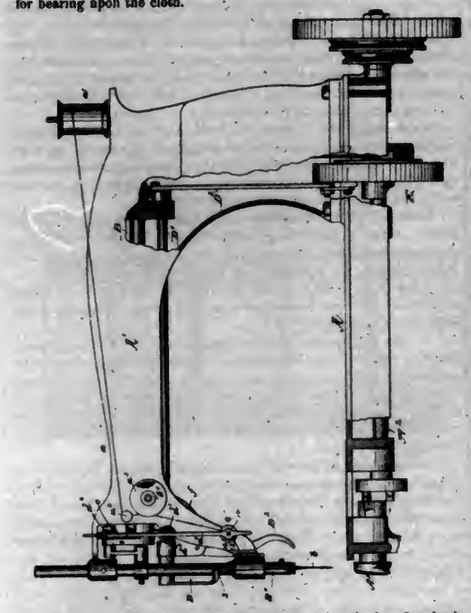
317,748. SELF-LEVELING TABLE FOR SHIPS. CHARLES E. DIGGS, Baltimore, Md., and WILLIAM L. MESSICK, Carter's Creek, Va. Filed Jan. 9, 1884. Renewed Dec. 18, 1884. (No model.)



Claim.—The combination, with the table pivoted on central transverse bearings, of the arms D, rigidly attached to the table, and having a weight, E, secured to their lower ends, the vertical springs H, and their supports G under the table, substantially as shown, whereby the tendency of the weight to swing is counteracted and the table steadied, substantially as specified.

317,749. SEWING-MACHINE. GEORGE H. DIMOND, Bridgeport, Conn., assignor to the Wheeler & Wilson Manufacturing Company, same place. Filed Dec. 14, 1883. (No model.)

Brief.—A thread-clamping device operates between the tension and the take-up. A sliding or yielding fulcrum is provided for the lever that serves as a gripping device for the needle-thread. Upon lifting the presser-foot by its regular lever the clamp is released, and upon starting the machine the said clamp or gripping device is automatically brought into its normal condition for acting, as well as the presser-foot for bearing upon the cloth.



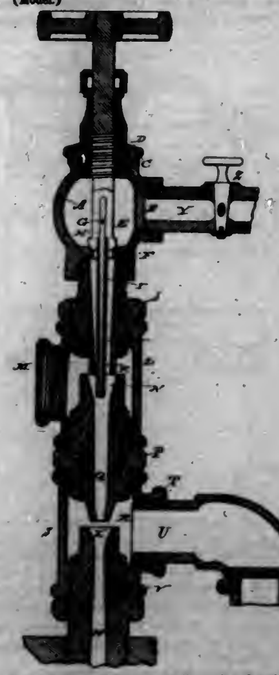
Claim.—1. In a sewing-machine, the tension device a^3 and take-up D, combined with a thread-gripping device, *c*, arranged between the tension device and take-up, the lever *d*, carrying said gripping device and having a sliding fulcrum, the needle-bar-actuating rock-shaft and connections between said levers, fulcrum and rock-shaft to operate said thread-gripping device, substantially as and for the purpose specified.

2. The needle-bar-actuating rock-shaft, the thread-clamp, and the lever *d*, having its fulcrum on a sliding spring-held spindle, d^3, combined with a roll or projection deriving its movement from the said rock-shaft, longitudinal movement of the said spindle obviating crushing the thread when acted upon by the clamping-disk, substantially as described.

3. The needle-bar-actuating rock-shaft, thread-clamping disk or plate, and the lever *d*, having its fulcrum on a sliding spring-held spindle, combined with a roll or projection deriving its movement from the said rock-shaft, and with an arm to act upon the spring-held spindle to move it in the direction to remove the pressure of the clamping or gripping mechanism from the needle-thread, substantially as described.

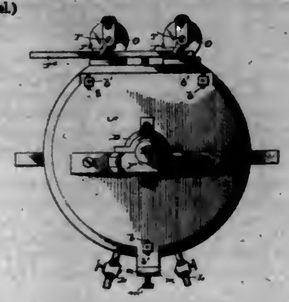
4. The spring-held spindle, the lever *d*, mounted thereon, the thread clamping and gripping device, the arm *f*, having the notch or recess, and the needle-bar-actuating rock-shaft, combined with the projection 7, made movable therewith to actuate the said arm and permit the spring on the said spindle to assume control of the said lever, substantially as described.

317,750. INJECTOR. FRANK C. DOUDS, New Castle, Pa. Filed Oct. 27, 1884. (Model.)



Claim.—In an injector for steam-boilers, the chamber consisting of the three interiorly screw-threaded T-coupling sections A, L, and S, hollow inside and of substantially the same shape and construction, in combination with the intermediate screw-threaded couplings, J and P, constructed to form the injector-tubes, as shown, said T-sections being adapted to receive the said interior couplings provided with connecting-collars, substantially as and for the purpose set forth.

317,751. ROTARY ENGINE. JAMES W. DUNFEE, Roundhead, Ohio, assignor of one-half to James E. Hertz, same place. Filed Mar. 2, 1885. (No model.)

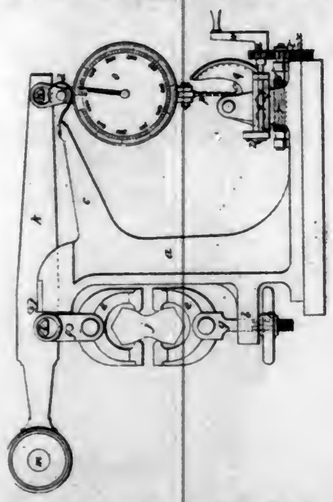


Claim.—1. The combination of the cylinder, the cylinder-heads having the slots *b*, the bolts *b'*, passing through the slots *b* and securing the heads to the cylinder, the hub in the cylinder journaled in the cylinder-heads, and the screws *m'*, for adjusting the heads on the cylinder, substantially as described.

2. The combination of the cylindrical valve-seats O, having the brackets *o'*, the openings *o* in the ends of the valve-seats, and the openings K, communicating with the cylinder, with the cylindrical valves R, located in the valve-seats, said valves having one end open, the openings *r* and recesses *r'* and stems *r²*, and the screws T in the brackets *o'*, bearing against the valve-stems, substantially as described.

3. The combination of the cylindrical valve-seats O, having the brackets *o'*, the openings *o* in the ends of the valve-seats, and the openings K, communicating with the cylinder, with the cylindrical valves R, located in the valve-seats, said valves having one end open, the openings *r* and recesses *r'*, stems *r²* and arms *r³*, the screws T in the brackets bearing against the ends of the valve-stems, and the rod *r⁴*, connecting the arms, substantially as described.

317,752. MACHINE FOR TESTING CEMENT. HENRY FAIJA, Westminster, County of Middlesex, England. Filed Feb. 18, 1885. (No model.)



Claim.—1. In a machine for testing the strength of cement and other substances, the combination, with a steelyard or lever and means connecting it with the cement or material to be tested whereby the strain is exerted through said lever upon the material, of a spring-balance and means for operating said steelyard or lever through said spring-balance, so that the latter shall indicate the breaking strain of the material tested, substantially as described.

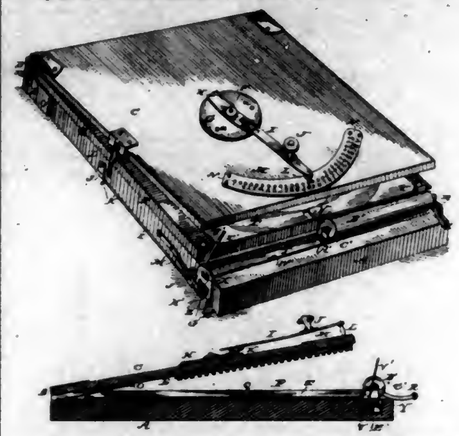
2. In a machine for testing the strength of cement and other substances, the combination of a steelyard or lever, through which the strain is to be exerted upon material to be tested, a spring-balance, and means for operating said steelyard through said spring-balance and for readily throwing the operating-handle out of gear with the machine, so as to enable the spring-balance indicator to be rapidly returned to zero, substantially as described.

3. In a machine for testing the strength of cement and other substances, the combination of a steelyard or lever, *k*, spring-balance *o*, linked or connected to said steelyard or lever, chain or connection *p*, part wheel or toothed segment *q*, worm *s*, toothed or gear wheel *t*, pinion *u*, shaft *y*, movable endwise, stop or spring *z*, and operating-handle or its equivalent, substantially as described.

4. In a machine for testing the strength of cement and other substances, the combination of a steelyard or lever through which the strain is to be exerted upon material to be tested, a spring-balance, means for operating said steelyard or lever through said spring-balance, and a recoil-spring (or springs) for receiving the shock due to the sudden release of the steelyard or lever and recoil of the spring-balance on breakage of a piece of material tested, substantially as described.

5. The machine for testing the strength of cement and other substances, comprising upright or standard *a*, with projections *b* and *c*, clips *e e*, their adjusting-screw *g*, and nut-wheel *h*, links *f*, steelyard or lever *k*, with counter-weight *m*, spring-balance *o*, recoil-spring *d*, chain or connection *p*, part wheel or segment *q*, worm *s*, toothed or gear wheel *t*, driving-pinion *u*, shaft *y*, movable endwise, and stop or spring *z*, all substantially as described.

317,753. TYPE-WRITING MACHINE. LUTHER C. FARNER, Minneapolis, Minn. Filed June 12, 1884. (No model.)



Claim.—1. In a type-writer constructed substantially as described, the combination, with the base-board and the hinged cover, of the hinged inking-box having slots at its inner end to admit springs attached to the base-board and bearing against the under side of the cover, which is thereby held in a slightly-raised position, substantially as set forth.

2. In a type-writer, the combination, with a base-board, of a hinged top plate or cover carrying a revolving type wheel or disk, the shaft of which is provided at its upper end with a disk provided with indentations which register with the several series of letters or characters formed upon or attached to the periphery of the said type-disk, and a spring or plate mounted loosely upon the said shaft and having a hinged operating-lever and a downwardly-projecting lug or stud adapted to engage any one of the indentations in the said top disk, substantially as set forth.

3. In a type-writer, the combination, with a base-board having a hinged top plate or cover carrying a revolving type wheel or disk and having suitable inking mechanism for the latter, substantially as described, of a lever hinged to a spring which is connected adjustably with a disk mounted upon the upper end of the shaft of the type-wheel, and a segmental letter-plate secured upon the upper side of the hinged top plate and having a series of indentations registering, as herein described, with the letters and characters of the type-wheel and adapted to engage a pointed lug or stud extending downwardly from the outer end of the operating-lever, substantially as set forth.

4. In a type-writer constructed substantially as described, the combination, with the base-board having a hinged cover carrying the printing and inking mechanism, of a feed-roller mounted in a carriage sliding upon a guide-bar which is secured in a transverse groove at the front end of the said base-board, substantially as set forth.

5. In a type-writer constructed substantially as described, the combination, with the transverse guide-bar arranged in a groove at the front end of the base-board of the machine, of a carriage sliding upon the said bar and carrying the feed-roller and having on its under side a ratchet-bar, a flat spring arranged in the bottom of the said groove and having an upturned inner end forming a dog or pawl, a rock-shaft, and a spring, substantially as set forth.

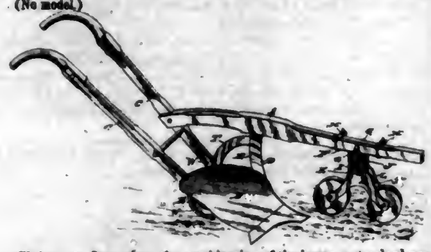
6. The combination, with the carriage sliding transversely upon a guide-bar arranged in a suitable groove, of the feed-roller mounted in the said carriage and having at one end a disk provided with a series of equidistant indentations, and a crank or lever journaled loosely upon the shaft or axle of the said feed-roller and having a laterally-projecting pin or stud adapted to engage the indentations in the disk at the end of the said roller, substantially as set forth.

7. The combination, with the carriage carrying the feed-roller and sliding upon a transverse bar arranged in a groove at the front end of the machine, of the feed-spring having an upturned inner end forming a dog or pawl that engages a ratchet-bar upon the under side of the carriage, and a flat plate or lever hinged or pivoted to one side of the groove and having an upwardly-extending arm or handle at its free end, and provided with an inwardly-extending lug or stud resting on the upper side of the operating-spring, which may be thereby depressed, so as to release it from the ratchet-bar of the carriage, substantially as and for the purpose set forth.

8. In a type-writer of the class herein described, the combination, with the base-board having a feed-carriage traveling upon a transverse bar or guide at its front end and operated by the action of a flat spring, arranged and operating substantially as described, of a rock-shaft journaled to one side of the base-board and having an arm or crank at one end engaging the said operating-spring and provided at its other or inner end with an arm or crank operated by an arm extending downwardly from one side of a cover, which is hinged to the said base-board and which carries the type wheel or disk and inking mechanism for the same, substantially as set forth.

9. In a type-writer, the combination, with a base-board provided at its upper or front end with a laterally-movable carriage having mechanism, substantially as described, for feeding the paper in an inward direction, of a hinged top plate or cover carrying the printing and inking mechanism and normally held in a slightly-raised position by springs, whereby, when the said top plate is depressed in the act of forming an impression, it shall serve to retain the paper securely in position, while at the moment the pressure is released the paper shall be simultaneously and instantly released, so as to enable it to move or travel with the carriage to the required position where it is to receive the next impression, substantially as set forth.

317,754. PLOW. ASA M. FITCH, Seymour, Ind. Filed Feb. 16, 1885. (No model.)



Claim.—1. In a plow, the combination of the beam, a standard projecting downward from the forward portion of the beam, and a V-shaped frame pivoted at its apex to swing in a vertical plane upon the standard and having wheels journaled at its diverging ends, as and for the purpose shown and set forth.

2. In a plow, the combination of the beam, a plate provided with upwardly-projecting lips and having a downwardly-projecting standard having a series of perforations, the said plate being clipped to the under side of the beam, a V-shaped frame having wheels at its diverging ends and having registering-perforations in the apices of its sides, and a bolt fitting in the perforations in the frame and in the perforations in the standard, as and for the purpose shown and set forth.

3. The combination, in a plow, of the beam, a downwardly-projecting standard secured to the forward end of the beam, a V-shaped frame pivoted to rock in a longitudinal plane upon the standard, and wheels journaled in the forward and rear ends of the frame, as and for the purpose shown and set forth.

4. A plow provided with a downwardly-projecting standard at the forward portion of the beam, a frame pivoted to said standard, a wheel journaled at each end of said frame in front of the body of the plow, and a wheel adjustably secured to the rear portion of the body of the plow, substantially as and for the purpose set forth.

317,755. EGG-BEATER. THEODORE FLETCHER, Moosomin, Assiniboia, Manitoba, Canada. Filed Sept. 2, 1884. (No model.)

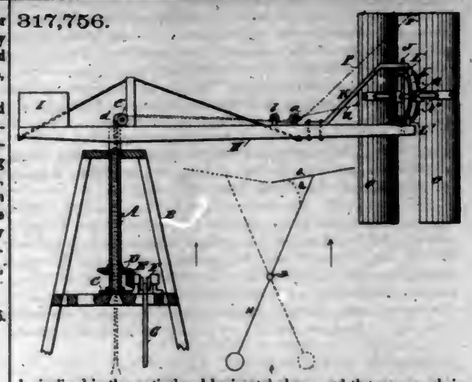


Claim.—The combination, with a cylindrical can having a detachable cover, of a beater-frame consisting of a series of rings, E, having sieves F, and a number of rods, D, secured to the inner sides of the rings and bearing with their ends against the top and bottom of the can, as and for the purpose shown and set forth.

317,756. WIND-WHEEL. JARVIS M. FLINT, Thayer, Kans. Filed June 2, 1884. (Model.)

Claim.—1. In a wind-wheel, the combination, with a beam mounted on a vertical shaft, of the vertical shaft J on the free end of the beam, the rings L L, the journal-boxes M and L', the transverse shaft N, and the wings O on the ends of the shaft N, substantially as herein shown and described.

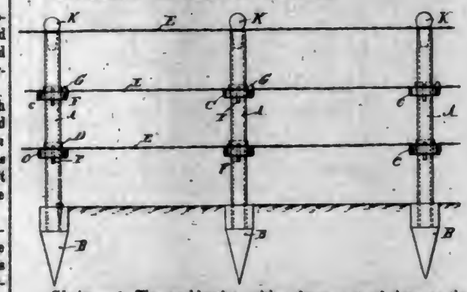
2. In a wind-wheel, the combination, with the tubular shaft A, of the beam H, the wings O, held on the end of the beam and adapted to



be inclined in the vertical and horizontal planes, and the ropes or chains P Q, secured to the wings and passed through the tubular shaft, substantially as herein shown and described.

3. In a wind-wheel, the combination, with a vertical shaft adapted to revolve on its longitudinal axis, of a beam mounted rigidly on the upper end of the said shaft and adapted to oscillate in the horizontal plane, a balancing-weight on one end of the beam, and wings or blades on the opposite end of the beam, substantially as herein shown and described.

317,757. FENCE-POST. MILTON FOREMAN and SAMUEL E. FOREMAN, Randolph, Kans. Filed Aug. 20, 1884. (Model.)

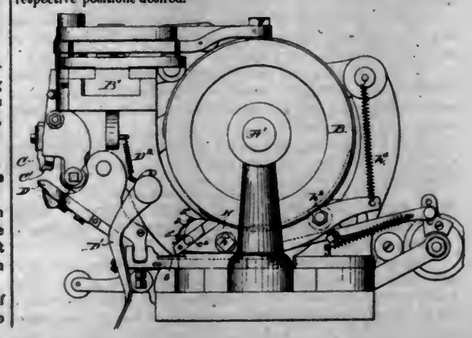


Claim.—1. The combination, with a fence-post, of rings on the same, each of the said rings being provided with two lugs at right angles to each other for holding the fence and brace-wires, respectively, substantially as herein shown and described.

2. The combination, with a fence-post, of the ring C on the same, provided with the lugs D G, at right angles to each other, and a brace-wire, H, passed over the ring between the lug G and the post, and having its ends secured to stakes, substantially as herein shown and described.

317,758. SOLE-SEWING MACHINE. ZACHARY T. FISHER, Boston, Mass., assignor to the Goodyear & McKay Sewing Machine Company, Hartford, Conn. Filed Oct. 27, 1884. (No model.)

Brief.—Case A. The lock-slide for variably holding in position the work-support is provided with teeth for engagement by pawls carried by a lever. The pawls are so arranged that one falls behind the other in a manner to secure a fine adjustment in the way of readily and positively locking the sliding part and its attached work-support in the respective positions desired.

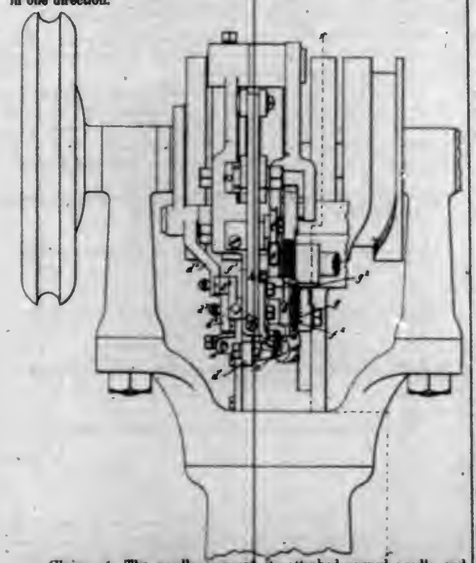


Claim.—1. The pivoted table or work-support D and the toothed slide *a*, with which one end of the table is connected loosely, as described, combined with the lever and a pawl carried by it to engage the teeth of the said slide, all to operate substantially as described.

2. The table or work-support and its connected slide provided with teeth, as described, combined with the two pawls having their points one back of the other, to operate substantially as described.

317,759. **SOLE-SEWING MACHINE.** ZACHARY T. FRENCH, Boston, Mass., assignor to the Goodyear & McKay Sewing Machine Company, Hartford, Conn. Filed Oct. 27, 1884. (No model.)

Brief.—Case B. The needle-guide is positively moved in both directions, being moved in one direction in a measure by an independently-movable lever actuated by a spring secured to the short arm of a lever-like link. The welt-guide is positively moved in both directions. A spring normally acts to keep the welt-guide slide forward; but in case it fails to act effectively a link acts against a screw-stud and brings the slide and welt-guide forward preparatory to the entrance of the needle in the work. Means are provided for varying the throw of the needle in one direction.



Claim.—1. The needle-segment, its attached curved needle, and the needle-guide provided with a pin, 6, and a toe or projection, 5, combined with the block *b* and with the independently-movable guide-moving lever, to operate the needle-guide, substantially as described.

2. The link g^3, the needle-segment with which it is connected, the stud to support the said segment, and the needle-guide mounted loosely on the said stud and provided with a pin, 6, combined with the guide-moving lever *g* and spring connected with the guide-moving lever, to operate substantially as described.

3. The needle-segment, the needle, the needle-guide, and link g^3, combined with the lever e^2, provided with a curved slot to receive the bolt g^4, by which the said link is adjustably connected with the said lever, the adjustment of the bolt in the slot altering the extent of movement or throw of the needle in but one direction to vary the loop drawn by the needle, substantially in the manner and for the purposes described.

4. In a sole-sewing machine, the welt-guide and the welt-guide slide, combined with means, substantially as described, to operate the said slide positively in both directions.

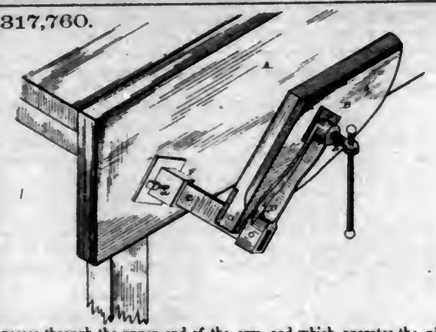
5. The welt-guide slide provided with the screw-nut d^6, the lever d^5, slotted link d^7, and the adjustable block to vary the extent of the positive throw of the said welt-guide slide and its attached welt-guide, substantially as described.

6. In a sole-sewing machine, the sticker-bar provided with teeth and offset, as described, combined with the gear h' and the rock-shaft d^9, and means to move it, substantially as described.

317,760. **WOOD-WORKER'S BENCH-VISE.** GEORGE W. GREENHAGEN and CHARLES A. GREENHAGEN, Pittsburg, Pa. Filed Sept. 11, 1884. (No model.)

Claim.—1. The combination of the bench, which forms one of the jaws of the vise, with the endwise-moving supporting-rod C, which passes through the side of the bench, the jaw B, which is pivoted on the rod, the arm which is rigidly secured to the rod, and a screw which

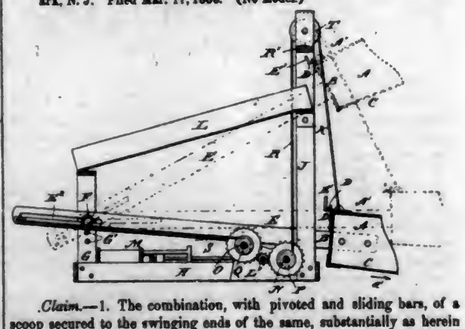
317,760.



passes through the upper end of the arm, and which operates the pivoted jaw, substantially as shown.

2. The combination of the bench, which forms one jaw, the endwise-moving supporting-rod which passes through the guide and the side of the bench, the jaw B, pivoted upon the rod, the arm D, secured to the outer end of the rod, the screw E, for operating the jaw, and the guide secured to the side of the bench and provided with a set-screw, substantially as described.

317,761. **EARTH AND COAL LOADER.** DANIEL J. GILCHRIST, Newark, N. J. Filed Mar. 17, 1885. (No model.)



Claim.—1. The combination, with pivoted and sliding bars, of a scoop secured to the swinging ends of the same, substantially as herein shown and described.

2. The combination, with pivoted and sliding bars, of a scoop secured to the same, ropes and pulleys for raising the scoop, and of ropes and pulleys for moving the scoop in the direction of the length of the bars, substantially as herein shown and described.

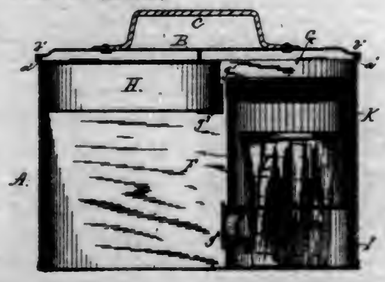
3. The combination, with the uprights J, of the chute L, the bars E, which can slide and swing, and the scoop L, secured to the said bars E, substantially as herein shown and described.

4. The combination, with the uprights J, of the chute L, the pulleys T on the same, the slotted bars E, the scoop A on the same, and the ropes or chains R, passed over the pulleys T and secured to the scoop, substantially as herein shown and described.

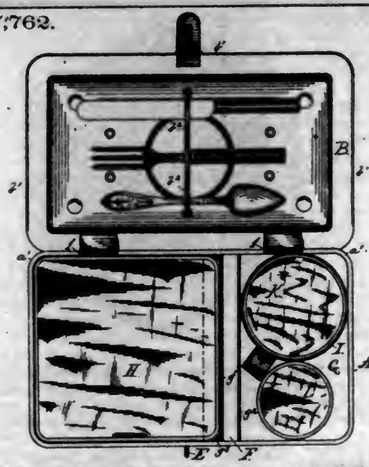
5. The combination, with the uprights J, of the chute L, the slotted bars E, the scoop A, the shafts N and O, carrying drums, the driving-shaft L, the ropes or chains R and S, and the pulleys T, substantially as herein shown and described.

6. The combination, with the uprights J, of the swinging and sliding bars E, the scoop A, the hinged gate B on the same, and spring-catches for keeping the gate closed, substantially as herein shown and described.

317,762. **DINNER-PAIL.** WILLIAM A. GILL, Columbus, Ohio. Filed Oct. 14, 1884. (No model.)

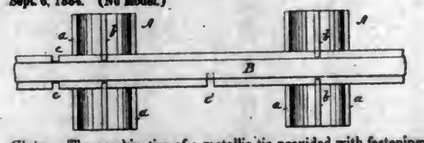


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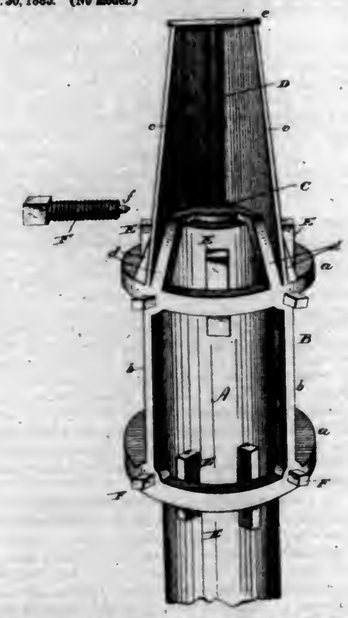
Claim.—A dinner-pail of the form shown, provided with the strips of metal g' g^3, the strip g' having a flange, g^3, whereby the body is divided into two compartments, F and G, and the flange g^3, adapted to support a square-shaped dish, H, above one of the compartments, substantially as described.

317,763. **RAILWAY-TIE.** MIGUEL A. GLYNN, Havana, Cuba. Filed Sept. 6, 1884. (No model.)



Claim.—The combination of a metallic tie provided with fastenings that receive and lap over the rail-flanges and a rail having flanges notched, substantially as described.

317,764. **PILE-COUPLING.** RICHARD GRAY, Bloomington, Ill. Filed Mar. 30, 1885. (No model.)



Claim.—1. In a pile-coupling, the combination, with the wooden pile, of a metallic column mounted thereon, and wedges and set-screws for securing the same, substantially as described.

2. In a pile-coupling, the combination, with a wooden pile, of a metallic column mounted thereon of skeleton form, and wedges and set-screws for securing the same, substantially as described.

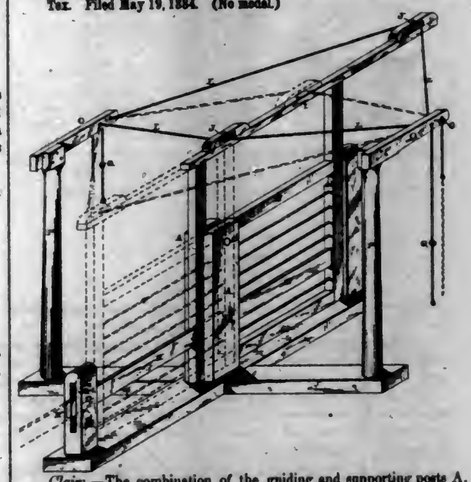
3. In a pile-coupling, the combination, with a wooden pile, of a metallic frame mounted thereon, having a central upright projection, and main and auxiliary braces extending from said frame and surrounding said upright, and wedges and set-screws, all substantially as and for the purposes described.

4. In a pile-coupling, the combination, with a wooden pile, of a metallic column mounted thereon, constructed of the bands *a a*, ribs *b b*, main and auxiliary braces *c d*, the rod D, and platform *e*, and wedges and set-screws for securing the same to the pile, all substantially as described.

5. The combination, with the shell or skeleton frame B and the wooden pile, of the wedges E and set-screws securing the frame to the pile, having an extended and sharpened point, substantially as described.

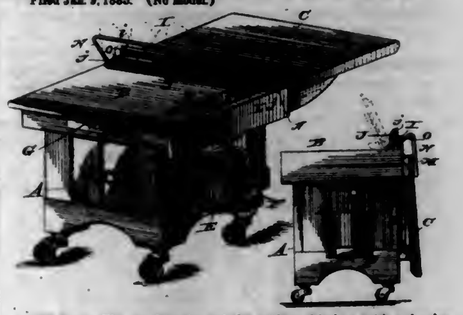
6. The combination of the bands *a a*, connected by ribs or arms, the central plate, and vertically-extending rod, the main braces, and the auxiliary braces, all being united integrally, substantially as shown and described.

317,765. **SLIDING GATE.** WILLIAM W. GRAVES, Whitesborough, Tex. Filed May 19, 1884. (No model.)



Claim.—The combination of the guiding and supporting posts A, and roller D', placed between them, the guiding-post D, also provided with rollers, and the posts P, having suitable guides for the ends of the ropes or wires to pass through, with the gate B, having the extension H, the top rail, I, and pulleys J, and the ropes L, having the stops Q, substantially as shown.

317,766. **KITCHEN-CABINET.** SIMEON S. GROVES, Griggsville, Ill. Filed Jan. 9, 1885. (No model.)

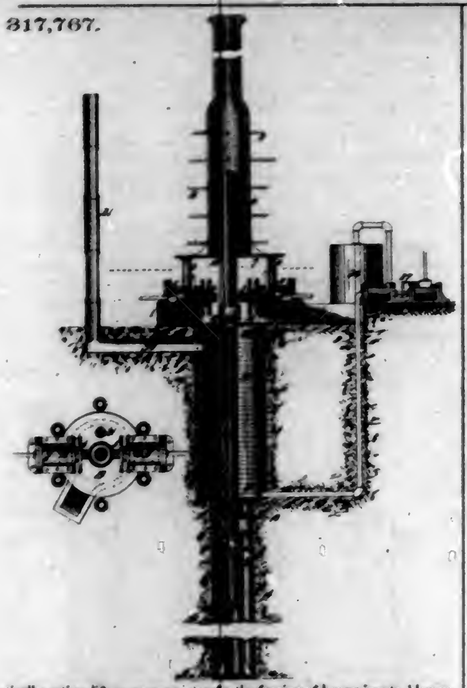


Claim.—The combination of the table or kitchen-cabinet having the flat top B, fixed back I, sink D, and gutter L, hinged trough J, adapted to be folded up against the fixed back, and having an aperture, K, at one end, registering with the gutter L, and hinged dish rack or support M N, having the elbows O, adapted to hold the rack in an upright position when in use, substantially as and for the purpose herein shown and set forth.

317,767. **FORGING-PLANT.** WILLIAM HAINSWORTH, Pittsburg, Pa. Filed Dec. 6, 1884. (No model.)

Claim.—1. The combination of horizontally-acting dies and a ver-

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tically-acting lift as an apparatus for the forging of heavy ingots, blooms, &c., while in a vertical position, substantially as set forth.

2. In a forging-plant, the combination of a horizontally-acting forging-press, a heating-furnace located over said press, and means for lowering the ingot from the furnace to the press, substantially as set forth.

3. In a forging-plant, the combination of a horizontally-acting forging-press, a heating-furnace located in a vertical plane passing between the jaws of said press, and means for moving the ingot from the furnace to the press, substantially as set forth.

4. In a forging-plant, the combination of a horizontally-acting forging-press, an elevated heating-furnace, and a receiving-pit, said furnace and pit being located in a vertical plane passing between the jaws of the press, and means for moving the ingot from the furnace through between the jaws of the press and into the pit, substantially as set forth.

5. In a forging-plant, the combination of a horizontally-acting forging-press, an elevated heating-furnace, and a receiving-pit, said furnace and pit being located in a vertical plane passing between the jaws of the press, mechanism for raising and lowering the ingot, and mechanism for moving and holding the mandrel independent of the mechanism for moving the ingot, substantially as set forth.

6. The combination of a heating-furnace, a testing-pit located below the furnace and provided with a suitable cover having a peep-hole, and mechanism for moving an ingot or forging back and forth from the furnace to the pit, substantially as set forth.

7. The combination of a heating-furnace, a pit containing tempering-fluid located below said furnace, and means for lowering an ingot from the furnace to the pit, substantially as set forth.

317,768. HARROW. FRANK M. HAKIN, Martelle, Iowa. Filed July 24, 1884. (No model.)

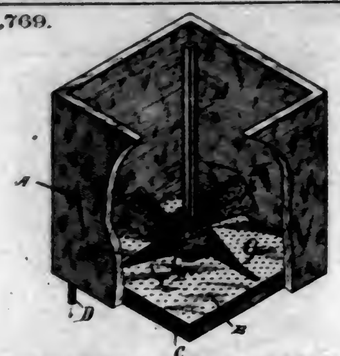


Claim.—The combination, in a harrow constructed and operating substantially as described, of the casting constituting the harrow-socket, and consisting of the section *d*, provided with the notch *f* and independent plate *e*, and an independent harrow-tooth having its end fitting in said socket, substantially as set forth.

317,769. MASHING APPARATUS. JOHN K. HAMMERLE, Hamilton, Ohio. Filed Jan. 17, 1885. (No model.)

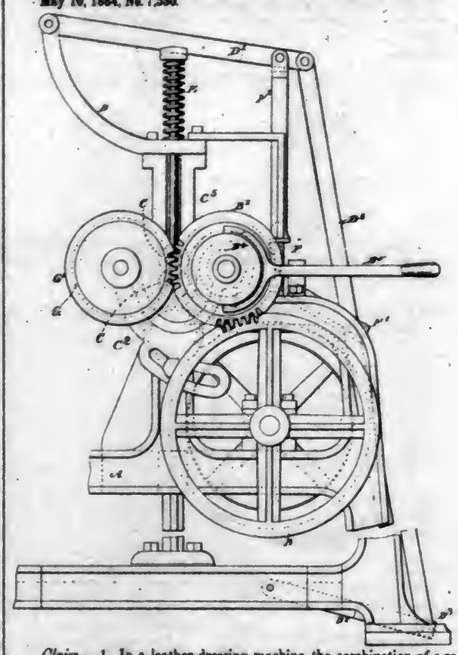
Claim.—In a mashing apparatus, the combination of rectangular tub A, shaft E, and the rotator F, formed with a hub having blades G, whose faces slope, and whose lower edges sweep near the tub-floor, and

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blades H, whose faces slope in a direction opposite to that of the blades G, and whose lower edges are set above the level of the lower edges of blades G, the extremities of the sloping blades sweeping near the flat walls of the tub, substantially as and for the purpose set forth.

317,770. LEATHER-FINISHING MACHINE. GEORGE A. HARDY, Old Leston, England. Filed Feb. 5, 1885. (No model.) Patented in England May 10, 1884, No. 7,530.



Claim.—1. In a leather-dressing machine, the combination of a revolving shaft provided with knives, two rollers in rear of the knife-shaft for drawing the leather over the knives, and a facing-roller for dressing the leather as it leaves the drawing-rollers, substantially as described.

2. In a leather-dressing machine, the combination of a revolving shaft provided with knives, two rollers in rear of the knife-shaft for drawing the leather over the knives, levers connected with the upper drawing-roller for moving it toward the lower roller for clamping the leather, and a facing roller for finishing the leather as it leaves the drawing-rollers, substantially as described.

3. In a leather-dressing machine, the combination of a revolving shaft provided with knives, two rollers in rear of the knife-shaft for drawing the leather over the knives, vertically-movable bearings for the upper drawing-roller, pivoted levers connected with said bearings, treadle mechanism connected by rods with the pivoted levers for depressing the upper drawing-roller to clamp the leather, and a facing-roller for dressing the leather as it leaves the drawing-rollers, substantially as described.

4. In a machine for dressing leather, the combination of a revolving shaft provided with knives, two rollers in rear of the knife-shaft for drawing the leather over the knives, and a vertically-movable guard-board arranged in front of the knife-shaft, substantially as described.

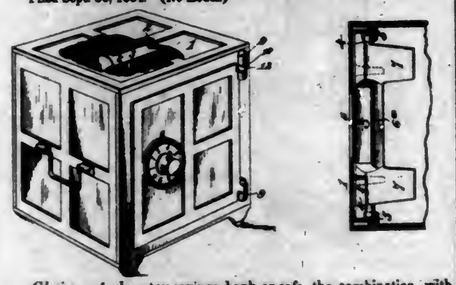
5. The combination of the revolving shaft provided with knives, the two rollers in rear of the knife-shaft for drawing the leather over the knives, the vertically-movable bearings carrying the upper drawing-roller, pivoted levers D' for depressing the bearings, and springs acting on said levers to elevate the same, substantially as described.

6. The combination of the revolving shaft provided with knives, the two rollers in rear of the knife-shaft for drawing the leather over the knives, the vertically-movable bearings carrying the upper drawing-roller, the pivoted levers D', acting on the bearings to depress the upper roller, the springs for elevating the levers, and the board or treadle D^2, connected with the pivoted levers, substantially as described.

7. The combination of the revolving shaft provided with knives, the two rollers in rear of the knife-shaft for drawing the leather over the knives, the vertically-movable bearings carrying the upper drawing-roller, the pivoted levers D' for depressing the bearings, the springs for elevating the levers, and the guard-board arranged in front of the knife-shaft and connected with the pivoted levers, substantially as described.

8. The combination of the knife-shaft, the drawing-rollers in rear thereof, the guard-board in front of the knife-shaft, the movable bearings carrying the upper drawing-roller, and levers acting on the bearings and the guard-board to simultaneously depress the said board and the upper drawing-roller, substantially as described.

317,771. TOY SAVINGS-BANK. HENRY C. HART, Detroit, Mich. Filed Sept. 30, 1884. (No model.)



Claim.—1. In a toy savings bank or safe, the combination, with the plate or side having an inlet-aperture, of a pivoted guard or tumbler wholly beneath the aperture for closing the same when the bank or safe is in an abnormal position, substantially as described.

2. In a toy savings bank or safe, the combination, with the plate or side having an inlet-aperture, of the slotted and pivoted guard or tumbler beneath such aperture for closing the same, substantially as described.

3. In a toy savings bank or safe, the guard or tumbler consisting of the guard formed with a slot extending entirely through it and having counterbalance weights and pivots, substantially as described.

4. In a toy savings bank or safe, the combination of the plate or side having an inlet-orifice, a counter-balance, guard or tumbler having a slot extending entirely through its center, and stops for limiting its movement, substantially as described.

5. In a toy savings bank or safe, a slotted guard or tumbler having its upper sides as segments of a circle and its lower sides concaved, substantially as described.

6. In a toy savings bank or safe, a guard or tumbler having its upper sides formed as the segments of a circle and slotted through its center, and pivots or bearings at about the center of the circle, substantially as described.

7. In a toy savings bank or safe, the combination of a door having pintles of unequal length and projecting therefrom in opposite directions, a door-frame having cups or bearings facing each other, and a washer around the longer pintle for retaining the door in position, substantially as described.

317,772. DIAL FOR LOCKS. FRED A. HATCH, New Bedford, Mass., assignor of one-half to A. M. Brownell and J. H. Hurkland, same place. Filed Feb. 4, 1885. (No model.)

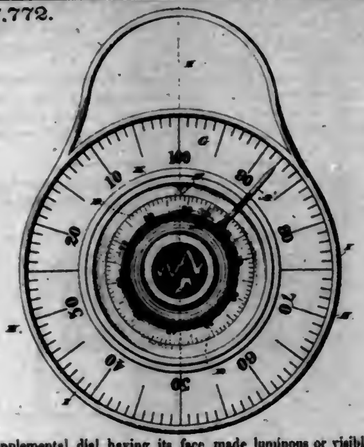
Claim.—1. A supplemental dial for locks made luminous or visible in the dark, and adapted to be placed outside of and around the ordinary index-plate, substantially as and for the purpose described.

2. In combination with the graduated rotary dial of a lock having an index-pointer attached thereto, a supplemental fixed dial made luminous or visible in the dark, substantially as and for the purpose described.

3. In combination with the index-plate and the rotary dial having an index pointer or band attached thereto and extending over the index-plate, a supplemental dial, luminous or visible in the dark, adapted to be fixed around and outside of the index-plate, substantially as and for the purpose described.

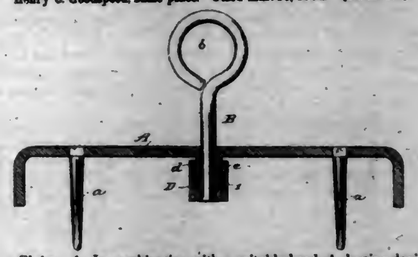
4. In combination with the index-plate, the rotary dial carrying an index band or pointer extending over and beyond the index-plate, and

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the supplemental dial having its face made luminous or visible in the dark, and graduations corresponding with those on the rotary dial, but numbered in the opposite direction, substantially as and for the purpose described.

317,773. HEAD FOR FABRIC TAKE-UP DEVICES FOR KNITTING-MACHINES. HORACE L. HAYDEN, Boston, Mass., assignor of one-half to Henry C. Goodspeed, same place. Filed Mar. 16, 1884. (No model.)



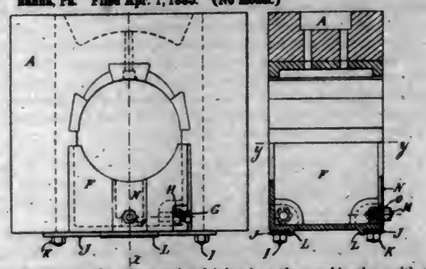
Claim.—1. In combination with a suitable head, A, having devices for holding the fabric, a swiveling rod passing through the head and provided with means for connecting it to a cord, and with a cup at its lower end, all substantially as described.

2. In combination with the head A, the nipple, the rod B, and the cup, all substantially as described.

3. In combination with the head A, the nipple having an annularly-beveled end, and the cup with corresponding annular bottom, all substantially as described.

4. In combination, the head A, the nipple, the rod B, and the cup having groove or annular chamber on its inner face, all substantially as described.

317,774. LOCOMOTIVE DRIVING-BOX. WILLIAM J. REALY, Susquehanna, Pa. Filed Apr. 1, 1885. (No model.)



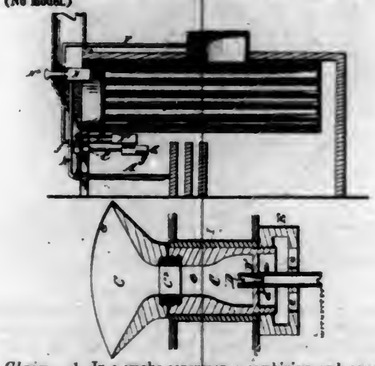
Claim.—1. In a locomotive driving-box, the combination, with the box A and the cellar F, of the set-screws G and jam-nuts H, substantially as herein shown and described, whereby the said cellar will be held securely in place and the sides of the said driving-box will be supported against inward pressure, as set forth.

2. In a locomotive driving-box, the combination, with the box A, having studs I and nuts K, and the cellar F, of the straps J, substantially as herein shown and described, whereby the said cellar will be supported squarely in place, as set forth.

3. In a locomotive driving-box, the cellar F, made substantially as herein shown and described, with rim L upon its bottom, to adapt the said cellar to be held from lateral motion by straps attached to the bottom of the said box, as set forth.

4. In a locomotive driving-box, the cellar F, provided with an opening in one wall, closed up by an independent plate, N, held in its place by means of screw-stud M and nut O, allowing for the packing of the cellar without removing said cellar from its place on the locomotive, as set forth.

317,775. SMOKE-CONSUMER. EDWARD E. HEDLEY, New York, N. Y., assignor of one-half to N. C. Hedley, same place. Filed Oct. 18, 1884. (No model.)



Claim.—1. In a smoke-consumer, a combining and accelerating tube, C, provided with an interior steam-jet formed with a shoulder, *d*, and an inverted conical mouth or nozzle with its contracted end next to said shoulder, whereby the steam is conducted to the contracted end of the nozzle in the volume that it enters the jet, and gradually expands until it leaves the nozzle, substantially as described.

2. In a smoke-consuming device, the combination of a steam-jet provided with a shoulder, *d*, and an inverted conical nozzle with its contracted end next to said shoulder, to bring the steam in volume to the contracted end of said nozzle, from whence it will gradually expand till it leaves the nozzle, an embracing air-tube made wide for some distance in front of the steam-jet, a combining and accelerating section, *c*, and a discharge slot or orifice, by which steam and air forced through the tube is discharged over the fuel, substantially as described.

3. In a smoke-consuming device, the combination of a steam-jet formed with a shoulder, *d*, and an inverted conical nozzle with its contracted end next to said shoulder, to bring the steam in volume to the contracted end of said nozzle, from whence it will gradually expand till it leaves the nozzle, an embracing air-tube made wide for some distance in front of the steam-jet, an air-retort located within the uptake of the furnace to be heated by the escaping products of combustion, and a pipe connecting said retort with the embracing air-tube around the steam-jet, substantially as described.

4. In a smoke-consumer, the combination of a steam-jet formed with a shoulder, *d*, and an inverted conical nozzle with its contracted end next the said shoulder, to bring the steam in volume to the contracted end of said nozzle, from whence it will gradually expand till it leaves the nozzle, an air-tube embracing said steam-jet, and a steam-superheating chamber connected with said steam-jet, and through which the steam passes before emerging from the jet, substantially as described.

5. In a smoke-consumer, the combination of a steam-jet formed with a shoulder, *d*, and inverted nozzle *d'*, with its contracted end next to said shoulder, an air-tube, C, surrounding said jet and enlarged to a point beyond the end of the jet and then contracted, an expansion-chamber, C', having an elongated slot, *c'*, and a nipple, C², for connecting said expansion-chamber to the tube C, substantially as described.

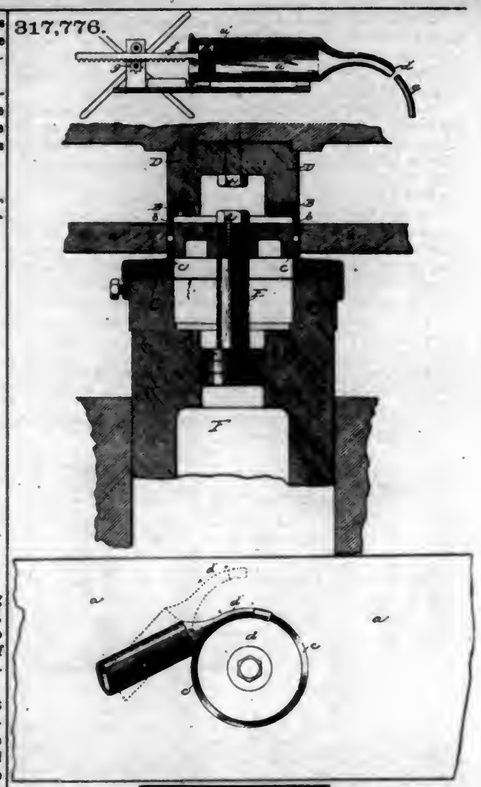
317,776. APPARATUS FOR MAKING CURVED CARBONS. CHARLES F. HEINRICHS, New York, N. Y. Filed Dec. 9, 1884. (No model.) Patented in France May 13, 1879, No. 130,646; in England Nov. 11, 1879, No. 4,589, and in Germany May 21, 1880, No. 13,902.

Claim.—1. The hereinbefore-described apparatus for manufacturing carbons, consisting of a forming-press for the carbon, having a piston contained therein and a curved discharge-passage, and a die-press adapted to receive the curved carbon from the forming-press, composed of the die-plate *a*, the dies *b c*, and the plunger *d*, all substantially as described.

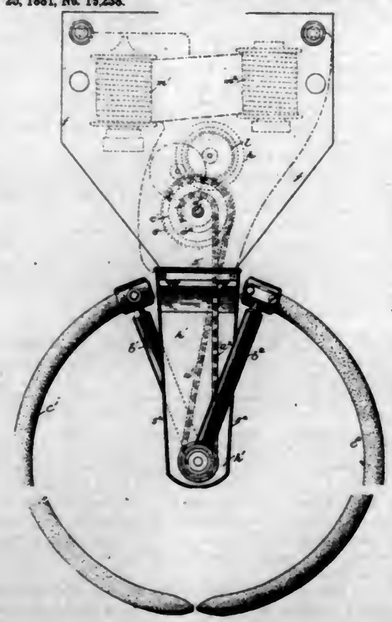
2. In the manufacture of carbon pencils for electric lamps, the combination, with the forming-press for the carbon and the piston contained therein, of the curved discharge-passage, substantially as described.

3. In the manufacture of carbon pencils for electric lamps, the described die-press consisting of the die-plate *a*, the dies *b c*, and the plunger *d*, all substantially as described.

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317,777. ELECTRIC LAMP. CHARLES F. HEINRICHS, New York, N. Y. Filed Dec. 13, 1884. (No model.) Patented in England Nov. 13, 1878, No. 4,595, Nov. 11, 1879, No. 4,589, and Nov. 9, 1880, No. 4,608; in France May 13, 1879, No. 130,646, and May 11, 1881, No. 142,799, and in Germany July 1, 1879, No. 10,054, May 21, 1880, No. 14,648, and May 25, 1881, No. 19,238.



Claim.—1. In an electric lamp, a pair of curved carbon pencils mounted upon movable arms insulated from each other and combined with moving and regulating mechanism whereby said pencils, when the lamp is in operation, are caused to approach each other and to maintain the arc constantly at substantially the same point.

2. In an electric-arc lamp, a pair of curved carbon pencils mounted upon movable arms insulated from each other and depending in a vertical plane, electro-magnets in the lamp-circuit with pawl and ratchet mechanism and gearing connecting the same to a shaft, connection between said shaft and the shaft on which the pencil-arms are pivoted, whereby the pencils are allowed to drop and approach each other by gravity, and their position determined, all substantially as shown.

3. In an electric-arc lamp, a pair of carved carbon pencils mounted upon a pair of arms moving in opposite directions, an electro-magnet in the lamp-circuit, with mechanism, substantially as described, connecting the same with differential devices, and suitable mechanism between said differential devices and the shafts on which the carbon-holders are mounted, whereby the pencils are allowed to approach each other and their position determined, substantially as described.

317,778. ELECTRIC LAMP. CHARLES F. HEINRICHS, New York, N. Y. Filed Dec. 13, 1884. (No model.) Patented in England Nov. 13, 1878, No. 4,595, and Nov. 9, 1880, No. 4,608; in France May 13, 1879, No. 130,646, and May 11, 1881, No. 142,799, and in Germany July 1, 1879, No. 10,054, and May 25, 1881, No. 19,238.



Claim.—1. In an electric lamp, the combination of two pairs of carved carbon pencils forming two nearly complete circles, which are placed at approximately right angles to each other, the carbons of each pair being moved and are pressed against each other in the curvature of their respective circles, the arc being formed at the crossing-point of the two pairs of carbons, whereby no shadows of the carbons or their supports are cast in the space to be illumined.

2. In an electric lamp, a double pair of curved carbons, one pair constituting the positive and the other the negative electrode, the carbons of each pair being connected so as to move as they burn equally, whereby the points of junction of each pair are maintained opposite each other.

3. In an electric-arc lamp, a pair of curved carbon pencils mounted on movable arms in vertical plane and adapted to keep their ends in contact by gravity, a second pair of curved carbon pencils similarly mounted, but in a plane substantially at right angles to the plane of the first pair and with the point of contact of their ends in line with the point of contact of the other pair, and means for separating the pairs and determining the distance between them, one pair forming the positive and the other pair the negative electrode, all substantially as described.

4. In an electric lamp in which the arc is maintained between two pairs of carbons, the combination, with the four curved carbon pencils, of the electro-magnet *m*, adjustable to the armature therefor, so as to produce the proper distance of the arc, and suitable connections between said armature and the frame carrying one pair of carbons and the arms thereof, with means for retarding the up-and-down movement of said frame, all arranged and operating substantially as described.

5. In an electric lamp, and in combination with the connected ends of a pair of carbon-holders, the dust-protector described, consisting of a pair of plates held in place upon each side of the connected ends of the carbon-holders, openings in said plates for the passage of the ends of the carbon-holders, and the enlarged cone-shaped hubs of said holders adapted to cover the openings in the plates, substantially as described.

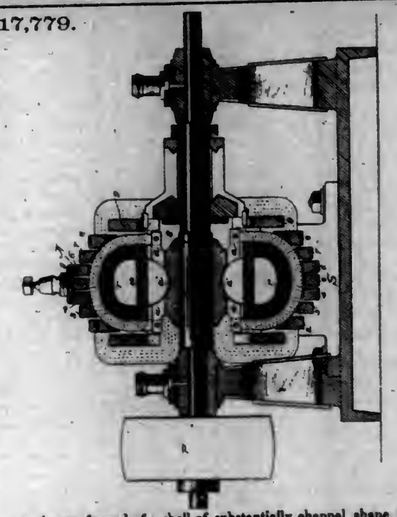
317,779. DYNAMO-ELECTRIC MACHINE. CHARLES F. HEINRICHS, New York, N. Y. Filed Dec. 15, 1884. (No model.) Patented in England Nov. 11, 1879, No. 4,589; in France May 7, 1880, No. 130,646, and in Germany May 21, 1880, No. 13,902.

Claim.—1. In the hereinbefore-described apparatus, a ring-armature channeled or recessed on the side or sides away from the inducing-magnet and wound with insulated wire, substantially as described.

2. In the hereinbefore-described apparatus, a channeled ring-armature having the channeled or recessed side away from the inducing-magnet and wound with insulated wire, substantially as described.

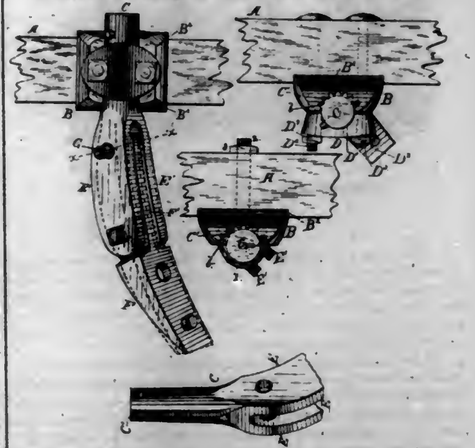
3. In the hereinbefore-described apparatus, a core formed of an annular shell or section, and of wires wound circumferentially thereon, the ends being secured at equal spaces from each other and the sections piled one upon another, substantially as set forth.

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4. A core formed of a shell of substantially channel shape, having flanges 1 2 2 and the sections of wire wound thereon, substantially as described.

317,780. CULTIVATOR-TOOTH. FRANCIS M. HELMS and CHRISTOPHER C. TRINKLE, Vevay, Ind. Filed Oct. 11, 1884. (No model.)



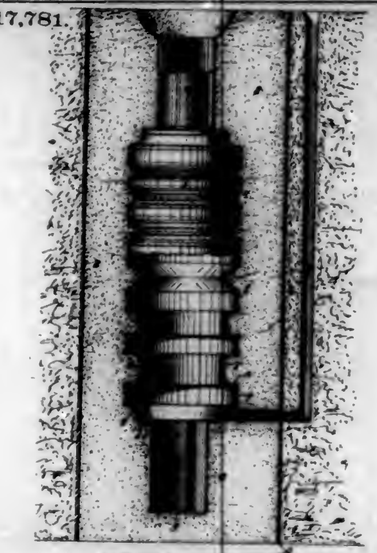
Claim.—The combination of the beam, the plate B, provided with flanges B², overlapping the upper and lower edges of the beam, and having a concavity in its outer face formed with a series of vertical serrations, the standard fitted to such concavity and having a rib, C', formed to engage the vertical serrations, the plate D, provided on its inner side with a concavity fitted to the outer side of the standard, and fastenings whereby the plate D is clamped against the standard, and the rib of the latter is held in engagement with the serrations of the plate B, substantially as set forth.

317,781. CASTING ROLLS. JAMES HEMPHILL, Pittsburg, Pa. Filed Aug. 6, 1884. (No model.)

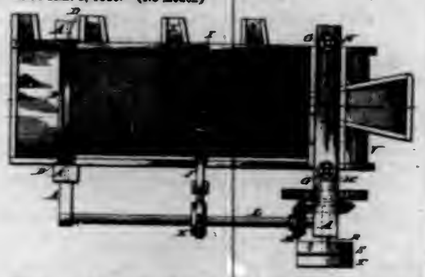
Claim.—1. A mold for the production of articles having irregular surfaces, consisting of a sheet-metal shell corresponding in size and shape to the article to be cast, and constructed to yield longitudinally under the pressure of the contracting metal, and a backing of dry sand or other suitable yielding material, substantially as set forth.

2. A mold for the production of grooved rolls, consisting of a sheet-metal shell having its interior of a size and shape corresponding to the exterior of the roll to be cast, and constructed to yield longitudinally under the pressure of the contracting metal, and a backing of dry sand or other suitable yielding material surrounding such shell, substantially as set forth.

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317,782. GRAIN-SEPARATOR. JOHN F. HENDERSON, Manton, Mich. Filed Mar. 3, 1885. (No model.)

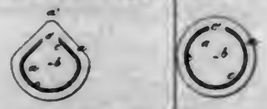


Claim.—1. In a grain-separator, the combination of a cylindrical screen, annular bands at the ends of the same, annular bearings for the said bands provided with laterally-extending gudgeons, fixed bearings for the gudgeons of the rear or tail end bearing, and vertically-adjustable bearings for the gudgeons of the front bearing, substantially as and for the purpose herein shown and specified.

2. In a grain-separator, the combination of a cylindrical screen, an annular pivoted or rocking bearing for the tail end of the same, an annular bearing for the front end having laterally-extending gudgeons, vertical rods F, having eyes or bearings for the said gudgeons, and provided with lugs at their upper ends having screw-threaded perforations, and swiveled hand-screws passing through the said lugs, substantially as and for the purpose herein set forth.

3. A grain-separator comprising the frame, a fan-blower, a graded cylindrical rotary screen, an annular ratchet-wheel secured upon said screen, a pawl engaging said ratchet-wheel, an eccentric wheel or disk arranged to operate the said pawl, and suitable operating mechanism, whereby the grain will be cleaned and graded as it passes through the said screen, substantially as and for the purpose set forth.

317,783. CLINICAL THERMOMETER. JAMES J. HICKS, Hatton Garden, County of Middlesex, England. Filed Jan. 5, 1885. (No model.)



Claim.—1. A glass body having a bore, an enamel strip extending around the back and sides of the body, concealing the bore, except along a narrow space forming the correct line of sight through which the bore is to be viewed.

2. A clinical thermometer comprising a glass body having a bore, an enamel strip extending around the back and sides of the body, concealing the bore, except along a narrow space at front about the width of the bore, as magnified, a lens-front to the body, and divisions and figures at the sides of the narrow space over the enamel strip.

3. A clinical thermometer comprising a body, *a*, of clear glass surrounded by enamel *c*, extending all around the back and sides of the tubing, except along a narrow space, *c'*, of clear glass forming the correct line of sight through which the bore *b* is to be viewed, and having the divisions and figures marked at the sides of such narrow space *c'* over the enamel *c*, substantially as herein shown and described, and for the purpose stated.

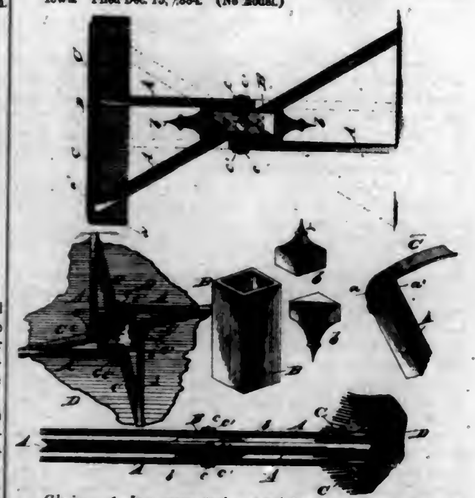
317,784. SAW JOINTING AND SETTING DEVICE. JOHN L. HIGHBARGER, Sharpsburg, Md. Filed Jan. 13, 1885. (No model.)



Claim.—1. The saw jointer and set consisting of the file-holding sections adjustably connected together and provided with file-grooves made wider than the file to facilitate adjustment of the latter, the beveled offsets *m m* of the adjacent faces E, and the file having a setting-notch in its end formed with an oblique regulating wall and a short beveled wall, substantially as specified.

2. A saw-setting file having in one end a notch formed by a short vertical wall, *v*, and an opposite shorter vertical wall, *z*, terminating in a tooth, *t*, and the wall *v* terminating in an oblique wall, *w*, adapted to serve in connection with the holder, substantially as set forth.

317,785. FOLDING CAMP-STOOL. ALEXANDER H. HILL, Oskaloosa, Iowa. Filed Dec. 15, 1884. (No model.)



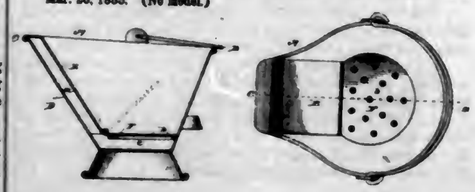
Claim.—1. In a camp-stool, a metal box open at both ends and provided with holes by means of which the legs of the stool are pivoted thereto, substantially as set forth.

2. In a camp-stool, a metal box square in cross-section and provided with holes by means of which the legs are individually pivoted thereto, substantially in the manner and for the purpose described.

3. The combination, in a camp-stool, of the hollow box B, legs A, each of said legs being secured to the box by separate pivots, and seat-straps C, all substantially as and for the purpose set forth.

4. In a camp-stool, the rectangular box B, legs A, headed pivots *c*, straps C, seat D, and blocks *b*, all constructed and combined substantially as and for the purpose set forth.

317,786. COAL-SCUTTLE. GEORGE W. HOBSETT, Drifton, Pa. Filed Mar. 20, 1885. (No model.)



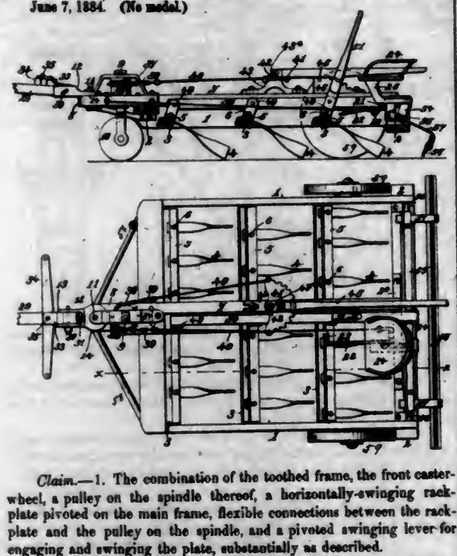
Claim.—1. The combination, with a coal-scuttle, of a vertically-arranged plate forming a vertical chamber, and a hinged supplemental bottom.

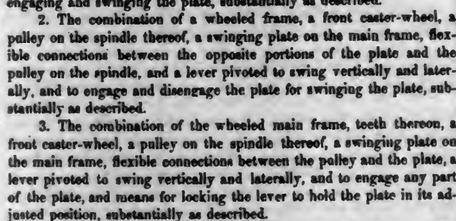
2. The combination, with a coal-scuttle, of a strip, E, forming a chamber at the front end of the scuttle, and a supplemental bottom hinged to the lower end thereof and having a series of openings.

3. The combination, with a coal-scuttle, of a plate, E, bent at its upper end and secured to the upper front end of the scuttle, and secured to the inner sides so as to form a chamber open at its lower end, and a supplemental bottom hinged to the lower end of said plate and supported on a horizontal line therewith, said bottom having a series of openings.

4. The combination, with a coal-scuttle, of a plate, E, secured to the inner side and forming a chamber, and a hinged bottom having a series of holes or openings and downwardly-extending flanges, as set forth.

317,787. HARROW. CHARLES T. HOLMAN, Lincoville, Pa. Filed June 7, 1884. (No model.)





Claim.—1. The combination of the toothed frame, the front caster-wheel, a pulley on the spindle thereof, a horizontally-swinging rack-plate pivoted on the main frame, flexible connections between the rack-plate and the pulley on the spindle, and a pivoted swinging lever for engaging and swinging the plate, substantially as described.

2. The combination of a wheeled frame, a front caster-wheel, a pulley on the spindle thereof, a swinging plate on the main frame, flexible connections between the opposite portions of the plate and the pulley on the spindle, and a lever pivoted to swing vertically and laterally, and to engage and disengage the plate for swinging the plate, substantially as described.

3. The combination of the wheeled main frame, teeth thereon, a front caster-wheel, a pulley on the spindle thereof, a swinging plate on the main frame, flexible connections between the pulley and the plate, a lever pivoted to swing vertically and laterally, and to engage any part of the plate, and means for locking the lever to hold the plate in its adjusted position, substantially as described.

4. The combination of the wheeled and toothed frame, a front caster-wheel, a pulley on the spindle thereof, a swinging plate on the main frame flexibly connected with the pulley, a lever pivoted to swing vertically and laterally, and to engage any part of the plate for swinging the plate, and a locking-plate on the main frame for engaging a stud on the lever to hold the lever and plate in a rigid position, substantially as described.

5. The combination of a main frame, a front caster-wheel, a rack-plate pivoted on the main frame, flexible connections between the rack-plate and the spindle of the caster-wheel, and a lever having two pivotal connections and a tooth to engage the rack-plate, substantially as described.

6. The combination of a main frame, a front caster-wheel, a swinging rack-plate on the main frame, flexible connections between the rack-plate and the spindle of the caster-wheel, a plate pivoted at one end to swing at the side of the rack-plate, and a lever pivoted to the other end of said pivoted swinging plate and adapted to engage and disengage any part of the rack-plate and swing the latter, substantially as described.

7. The combination of a main frame, a front caster-wheel, a pulley on the spindle thereof, a rack-plate pivoted to swing on the main frame, flexible connections between the pulley and the rack-plate, and a plate pivoted on the axis of the rack and pivotally connected with a lever adapted to swing to engage and disengage the rack-plate, substantially as described.

8. The combination of the main frame, the center rail having an extension in front of the main frame, a caster-wheel the spindle of which bears in the said front extension, a swinging rack-plate flexibly connected with the spindle of the caster-wheel, and a pivoted lever adapted to engage any part of the rack-plate, and then swing the latter, substantially as described.

9. The combination of the main frame, the center rail, a locking-plate, and a swinging rack-plate on the center rail, a front caster-wheel, flexible connections between the caster-wheel and the rack-plate, and a lever having duplicate pivotal bearings, substantially as described.

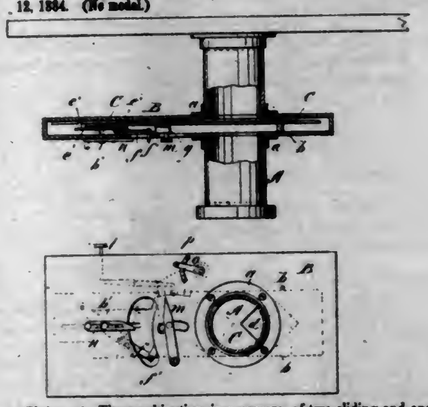
10. The combination of the main frame, the swiveled draft-coupling having a notched rear end and a bifurcated front end to receive the pole or the whiffletree block, the pawl to engage the notch, and the lever, flexibly connected with the pawl for locking and unlocking the swiveled draft-coupling, substantially as described.

11. The combination of the toothed frame, the swiveled draft-coupling having a notched rear end and a bifurcated front end, the block pivoted in the bifurcation to connect with a whiffletree or double-tree, a pawl for engaging and disengaging the notch of the draft-coupling, and means for operating the pawl, substantially as described.

12. The combination of the toothed rock-bars, the rear oscillating shaft, the transverse scraper connected with the shaft, and mechanism for simultaneously rocking the bars and the shaft to adjust the teeth and the scraper, substantially as described.

13. The combination of the toothed rock-bars, the rear oscillating shaft, the arms connected with the shaft, the transverse scraper carried by the arms, the beam connected with the rock-bars and the oscillating shaft, and the lever for moving the beam to adjust the teeth and the transverse scraper, substantially as described.

317,788. COMBINED SHUTTER AND DIAPHRAGM FOR PHOTOGRAPHIC CAMERAS. DE WITT C. HOOVER, Buffalo, N. Y. Filed June 12, 1884. (No model.)



Claim.—1. The combination, in a camera, of two sliding and apertured shutters or diaphragms fitted for movement in opposite directions, a spring having connections for moving the shutters to cause coincidence of their openings, and devices for adjusting or limiting the length of movement of the shutters, whereby the shutters are moved to the desired size of opening and the opening closed by a return movement, substantially as described.

2. In a camera, the combination, with the sliding shutters, of toggle-bars and a spring fitted to cause the movement of the shutters in opposite directions and then reverse the movement, substantially as described.

3. In a camera, the combination of apertured shutters C C, lever *e*, toggles *f*, and an operating-spring, substantially as shown and described.

4. In a camera, the combination of apertured shutters C, lever *e*, toggles *f*, and adjustable quadrant *g*, substantially as described.

5. In a camera, the toggles *f*, quadrant *g*, lever *e*, and arm *m*, carrying the quadrant, combined with sliding shutters having apertures, substantially as described.

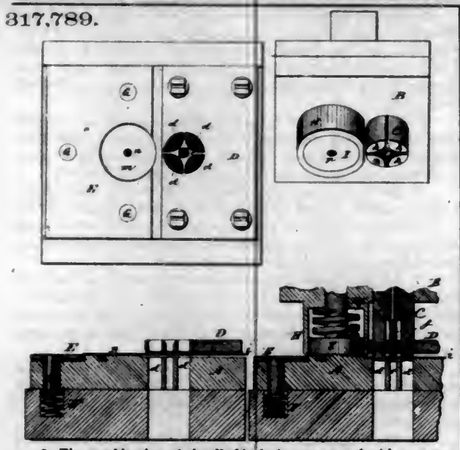
6. The combination, in a camera with sliding shutters, of toggle-bars, and a rotating quadrant for moving the shutters, and means for adjusting the quadrant, substantially as and for the purpose specified.

7. In a camera, the slide *n*, combined with the operating-toggles of sliding shutters for holding the shutters open, substantially as described.

317,789. DIE FOR FINISHING BLANKS FROM SHEET METAL. EVERETT HORTON, New Haven, Conn. Filed Jan. 26, 1885. (No model.)

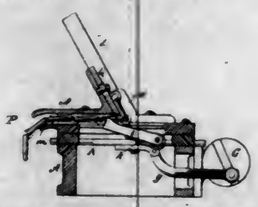
Claim.—1. The combination of the punch *m*, the surrounding yielding platform E, the tubular die H, corresponding to said punch *m*, and the yielding follower I within said die, substantially as described.

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2. The combination of the die-block A, constructed with apertures corresponding to the openings to be cut in the blank, and with a stationary punch, *m*, adjacent to said apertures, the said punch corresponding to the external shape of the blank to be cut, the yielding platform F, surrounding said punch, the punch G, corresponding to the apertures in the said die-block, the tubular die H corresponding to the said punch *m*, and the yielding follower I within said tubular die, substantially as described.

317,790. MACHINE FOR PUTTING TOGETHER CHAIN-LINKS. E. L. HOWE, Chicago, Ill., assignor to the Ewart Manufacturing Company, same place. Filed Oct. 6, 1884. (No model.)



Claim.—1. In combination with a chute or guide adapted to receive and contain the links placed therein, and a pusher device for periodically feeding sidewise therefrom the lowermost link, a guideway or receptacle for holding in proper relative position the link with which the link pushed from the supply-column or feed-chute is to be engaged, substantially as set forth.

2. In combination with the guideway for containing two or more assembled links, an inclined chute or feeder, and means for pushing or feeding from the latter the links placed therein, a positively-moved link-feeder, *i*, arranged and operating to periodically move the assembled links to the proper extent to bring the last one of the series into proper relationship with the link to be next engaged with it, substantially as set forth.

3. In combination with a suitable guideway for the assembled links, and means for pushing them forward within said guideway, an obliquely-arranged plate or device, Q, arranged and operating to force over and downwardly into said guideway the link last assembled and left projecting upwardly from the coupler-hook of the link with which it was forced into engagement, substantially as hereinbefore set forth.

4. In combination with the obliquely-arranged feed-chute L and the pusher I, an adjustable retaining and guide plate or device, M, arranged and operating in the manner and for the purposes explained.

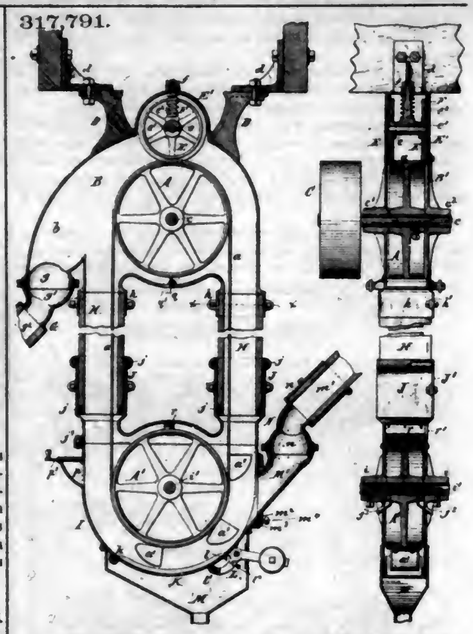
317,791. BUCKET-ELEVATOR. FREDERICK W. HOWELL, Buffalo, N. Y. Filed Jan. 17, 1885. (No model.)

Claim.—1. In a bucket-elevator, the combination, with the head-pulley, of an inclosing-casing carrying bearings in which the shaft of the head-pulley is journaled, said casing being provided with arms whereby the casing is supported, substantially as set forth.

2. The combination, with an elevator-pulley, of an inclosing-casing having an opening in its side through which the pulley is inserted, a cover by which said opening is closed, and pulley bearings or supports formed on the casing and cover, substantially as set forth.

3. The combination, with the head-pulley A, of the casing B and cover B', provided with bearings c' c^2, and the supporting-arms D, formed on the casing B, substantially as set forth.

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4. The combination, with the head-pulley and its inclosing-casing, of pressure-pulleys E, adapted to run upon the belt, substantially as set forth.

5. The combination, with the head-pulley and its inclosing-casing, of pulleys E, adapted to run upon the belt, a bearing, c' c^2, and a pressure-spring, *f*, substantially as set forth.

6. The combination, with the head-pulley and its inclosing-casing, of pulleys E, provided with flanges which overlap the outer sides of the belt and guide the latter on the head-pulley, substantially as set forth.

7. The combination, with the head-casing of a bucket-elevator, of the adjustable nozzle G, connected with the discharge-spout of said casing by a spherical joint, substantially as set forth.

8. In an elevator, the combination, with the fixed head portion, of a movable boot supported by the elevator-belt, whereby the belt is tightened by the weight of the boot, substantially as set forth.

9. The combination, with the fixed elevator head and legs, of a movable boot, I, provided with sockets J, which slide on the legs, head and foot pulleys A A', and endless belt *a*, substantially as set forth.

10. The combination, with an elevator-casing, of a relief-valve which is opened automatically by an overpressure of the material, and whereby the excess of material is automatically discharged therefrom, thereby preventing the choking of the elevator, substantially as set forth.

11. The combination, with an elevator-casing, of a relief-valve, K, pivoted to the casing, and a weighted lever, L, which automatically controls the opening and closing of the valve, substantially as set forth.

12. The combination, with a bucket-elevator and its inclosing-casing, of a ventilating-opening formed in said case and through which air is drawn into said case by the moving buckets, substantially as set forth.

13. The combination, with a bucket-elevator and its inclosing-casing, of the ventilating-opening, *p* formed in the descending leg of the case and provided with a slide, *p'*, substantially as set forth.

14. The combination, with the elevator-casing, pulleys, and the endless belt passing around said pulleys, of scrapers bearing against said pulleys and openings formed in the casing for the discharge of the material detached by the scrapers, substantially as set forth.

15. The combination, with the elevator-casing, of the receiving-spout M' and the receiving-nozzle N, connected with said spout by a spherical joint, *m*, substantially as set forth.

16. The combination, with the elevator-casing, of the swiveled receiving-spout M', attached to the casing, and the nozzle N, connected with said spout by a universal joint, substantially as set forth.

17. The combination, with the leg H, of the receiving-spout O and the receiving-nozzle O', connected with said spout by a spherical joint, O^2, substantially as set forth.

18. The combination, with the end casing of an elevator and the legs thereof, of sockets formed on the end casing for the reception of the legs and provided with removable side plates, whereby the casing can be applied sidewise to the fixed legs, substantially as set forth.

317,792. POTATO DIGGER AND GATHERER. JOEL S. HOYT, Syracuse, N. Y. Filed June 25, 1884. (No model.)



Claim.—1. In combination with the scoop S, the tines T T, rotary rake R over said tines, and the series of rotary rakes R' R', arranged successively in higher planes, and with the first of said rakes R' in proximity to the tines T T, substantially as described and shown.

2. In combination with the rotary rakes R' R', arranged successively in higher planes, the uppermost rake, R^2, having its teeth set farther apart, and the receptacle C, arranged below said rake, substantially as described and shown, for the purpose set forth.

317,793. LAYING ARTIFICIAL STONE OR CONCRETE ARCHES. PETER H. JACKSON, San Francisco, Cal. Filed Nov. 28, 1884. (No model.)



Claim.—1. A sidewalk or floor consisting of artificial stone or concrete longitudinal sectional arches, the side sections of the arches formed in a plastic state on the sides and over the top of the supporting-beams and supporting an intermediate separated section, substantially as herein described.

2. A sidewalk or floor consisting of artificial stone or concrete longitudinal sectional arches, the side sections of the arches formed in a plastic state on the sides of the supporting-beams and supporting an intermediate separated section which produces compression, substantially as herein described.

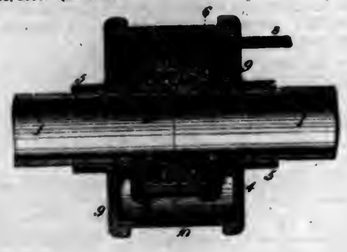
3. A sidewalk or floor consisting of artificial stone or concrete longitudinal sectional arches, the side sections of the arches formed in a plastic state on the sides and over the top of the supporting-beams and with sloping sides which support a separated intermediate section, also with sloping sides conforming to the sides of the side sections, substantially as herein described.

4. A sidewalk or floor consisting of artificial stone or concrete longitudinal sectional arches, the side sections formed in a plastic state on the supporting-beams and with sloping sides faced with sheet metal, thick paper, or other separating material which will permit the intermediate section formed on it to wedge and produce compression of the parts, substantially as herein described.

5. A sidewalk or floor consisting of artificial stone or concrete longitudinal sectional arches, the side sections of the arches formed in a plastic state on the sides of the supporting-beams and supporting a separate intermediate section, the intermediate section divided into transverse sections with sloping supporting edges, so that the pieces may be lifted out without disturbing the side sections, substantially as herein described.

6. In a sidewalk or floor consisting of artificial stone or concrete longitudinal sectional arches, the side section of the arch formed in a plastic state on the supporting-beams, and supporting a separated intermediate section with channels between the sections on either surface filled with plastic or other cement, substantially as herein described.

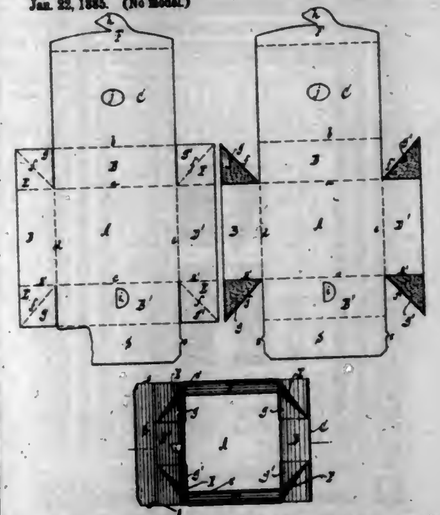
317,794. PIPE-JOINT. WILLIAM T. JACKSON, Pittsburg, Pa. Filed Feb. 11, 1885. (No model.)



Claim.—1. In a pipe-joint protector, the combination of disks 4, adapted to fit upon the pipe-sections outside of the joint proper, and provided with inwardly-projecting annular flanges, and a section of pipe having a greater diameter than the joint proper, and constructed to fit the annular flanges on the disks, and a vent-pipe, substantially as set forth.

2. In a pipe-joint protector, the combination of an inner tight box or shell surrounding the joint, and adapted to contain an odorizing substance, and an outer box or shell surrounding the inner shell and joint, and provided with a vent-pipe, substantially as set forth.

317,795. FOLDING BOX. GUSTAV L. JAEGER, New York, N. Y. Filed Jan. 22, 1885. (No model.)



Claim.—1. A collapsible box having diagonal folding creases in its pasting-flaps, substantially as described.

2. A collapsible box having diagonal folding creases in its pasting-flaps, and having stiffening-flaps formed as extensions of its ends and adapted to be folded in for holding the expanded box in shape, substantially as described.

3. A collapsible box composed of a bottom and a top, folding sides, and pasting-flaps formed as extensions of two of the sides, and having diagonal folding creases formed therein, substantially as described.

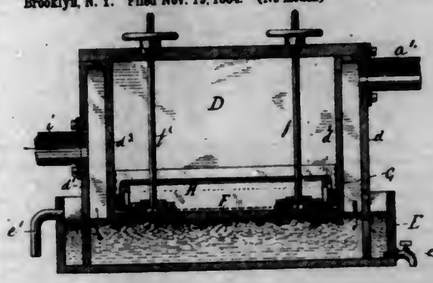
4. A collapsible box composed of a bottom and a top, folding sides, pasting-flaps formed as extensions of two of the sides, and having diagonal folding creases formed therein, and stiffening-flaps adapted to be folded into the box and maintain it in position when expanded, substantially as described.

5. In a collapsible box, the combination of a top and bottom, A C, sides B B' D D', and pasting-flaps E, the latter having diagonal folding creases *f*, substantially as described.

6. In a collapsible box, the combination of a top and bottom, A C, sides B B' D D', pasting-flaps E, having diagonal folding creases *f*, and stiffening-flaps S F, substantially as described.

7. The combination of a collapsible box having diagonal folding creases in its pasting-flaps, and a collapsible partition adapted to be placed therein, dividing it into compartments and maintaining it in expanded shape, substantially as described.

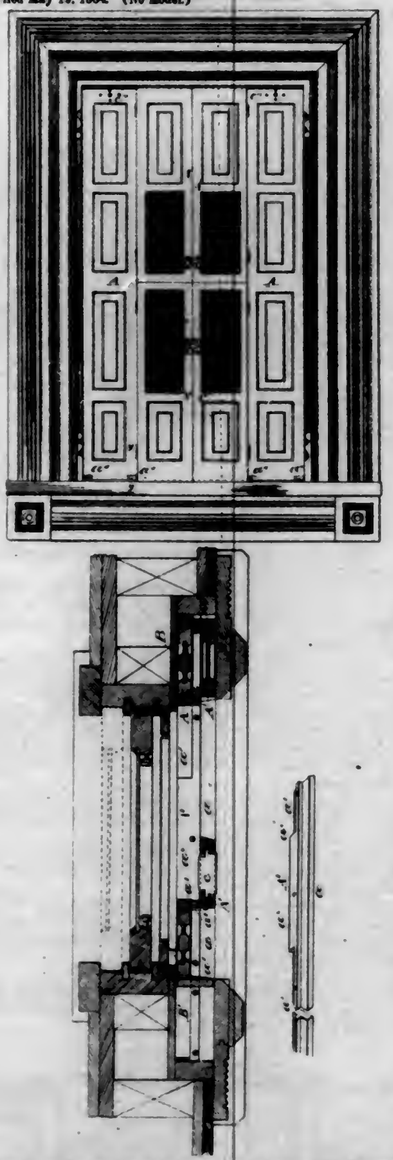
317,796. CHLORINE-GAS WASHER. JOHN A. JOST, New York, assignor to himself, Lewis F. Phillips, Watertown, and Callie F. Gibbs, Brooklyn, N. Y. Filed Nov. 19, 1884. (No model.)



Claim.—1. In a chlorine-gas washer, the combination of an inlet and outlet chamber and a smooth-surfaced movable bottom, all of the same width, with means for adjusting the bottom, as and for the purpose specified.

2. In a chlorine-gas washer, the combination of an inlet and outlet chamber, a smooth-surfaced movable bottom, all of the same width, a water-seal surrounding said bottom, and means for adjusting the same with a water-tank, as and for the purpose specified.

317,797. INSIDE BLIND. FRIEDRICH KELLER, Milwaukee, Wis. Filed May 19, 1884. (No model.)



Claim.—1. In a window-blind structure, the combination, with the shutter-sections hinged to fold upon each other in parallel planes, of the window-frame provided with a box in a plane parallel to the face of the window, and similar parallel rails supporting and guiding the top and bottom of the innermost of said sections, whereby, when the outer section is folded upon the inner, both may be slid into the box, as set forth.

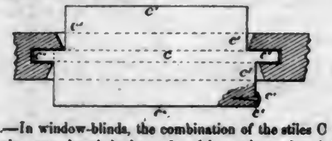
2. In a window-blind structure, the combination, with the shutter-sections hinged to fold upon each other in parallel planes, of the window-frame provided with a box in a plane parallel to the face of the window, and similar parallel rails supporting and guiding the top and bottom of the innermost of said sections, and vertical filling-pieces attached to the edges of the panel to close the opening of the box when the panels are slid entirely out or in, as set forth.

3. In folding window-blinds, in combination with the panels A A, having rollers a^4 a^4, and the window-casing having rails A^3 A^4, the boxes B B′, as set forth.

4. In folding window-blinds, in combination with the window-casing having boxes B B′ and rails A^3 A^4, the blind-panels A A, having rollers a^4 a^4, strips a^3 and a^3, and hinges a^2 for central panels, A′ A′ A^3 A^3, as set forth.

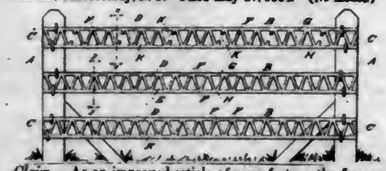
5. The combination, with the window-frame, the box, and the rails A^3 A^4, of the panels so hinged together as to stand or slide each in the same plane, both when folded and when unfolded, as set forth.

317,798. INSIDE BLIND, &c. FRIEDRICH KELLER, Milwaukee, Wis. Filed Sept. 26, 1884. (No model.)



Claim.—In window-blinds, the combination of the stiles C C, having overlapping outer beveled edges, c^3, and inner shorter beveled edges, c^3, with the flat slats c c, having short laps c' and longer laps c^3, and tenons c^4, and the closing-bar c^5, secured by removable nails or screws c^6 to and against the perfectly flat and smooth end edges of the laps c^3 at one side of the slats, substantially as set forth.

317,799. BARBED FENCE-RAIL. IRVING A. KILNER and MELVIN D. KILNER, Schenectady, N. Y. Filed May 27, 1884. (No model.)



Claim.—As an improved article of manufacture, the fence-rail strip composed of sheet-iron, having the longitudinal marginal bars connected by short transverse bars, which are arranged obliquely in opposite directions, so as to form alternate erect and inverted triangular openings, several of the said transversely-oblique bars being severed and the sections bent outwardly to form barbs, substantially as specified.

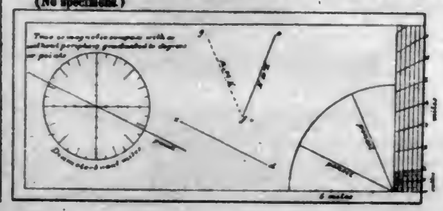
317,800. POLISHING-WHEEL. WILLIAM A. KNIPE, Haverhill, Mass. Filed Sept. 1, 1884. (No model.)



Claim.—1. As an improved article of manufacture, the rotary polishing-wheel, composed of the plates *a a*, having central apertures to receive a stud or arbor and detachably secured together, and the radiating bunches of yarn or thread clamped between the proximate faces of the plates, substantially as described.

2. In a rotary polishing-wheel, the combination of the plates *a a*, having concave inner surfaces, and central arbor-receiving orifices, the radiating bunches of yarn or thread clamped between the impinging faces of said plates, and bolts *l l*, connecting said plates between said faces and the central orifices, as set forth.

317,801. METHOD OF MEASURING DISTANCES AND LENGTHS ON CHARTS AND DRAWINGS DISTORTED BY DISPROPORTIONATE CONTRACTION, AND OF PROVIDING FOR THEIR CORRECT REPUBLICATION. ERNEST R. KNORR, Washington, D. C. Filed Jan. 28, 1885. (No specimens.)



Claim.—1. The method of ascertaining from a chart or drawing the relative shrinkages of the paper on which the chart or drawing is printed from a plate or stone, which consists in printing or otherwise placing upon the said chart or drawing symbols, measurements, or other directions for that purpose, substantially as described.

2. The method of ascertaining the length of the border-lines of a chart or drawing as engraved or drawn on a plate or stone, and of providing thereby for the correct republication of the chart or drawing, or for the correct measurement of lengths and distances on the chart or drawing after the disproportionate expansion or contraction of the paper on which it is printed, which consists in printing and publishing the linear dimensions between the opposite corresponding border or neat lines of a chart or drawing as measured on the plate or stone, for the stated purposes, substantially as described.

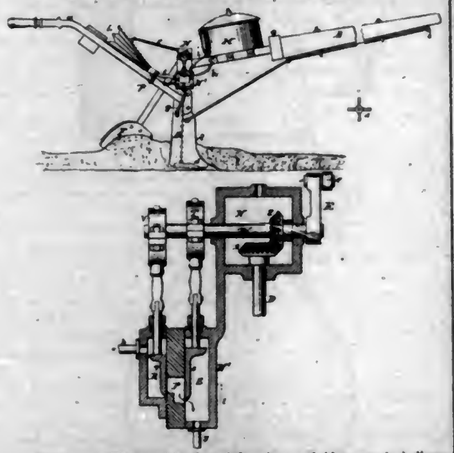
3. The method of ascertaining the length of the border-lines of a chart or drawing as engraved or drawn on the plate or stone, and of providing thereby for the correct republication of the chart or drawing, or for the correct measurement of lengths and distances on the chart or drawing after the disproportionate expansion or contraction of the paper on which it is printed, which consists, first, in engraving or drawing on the plate or stone the linear dimensions of a chart or drawing between any of the corresponding border or neat lines or the lengths of any lines at an angle to each other in any units of measure and fractions thereof, if there are such, as measured on the plate or stone, and then printing and transferring the same to the paper, chart, or drawing in the act of printing the chart or drawing, as specified.

4. The method of ascertaining the correct proportion of length and breadth within the border-lines of a chart or drawing printed from a plate or stone corresponding to that on the plate or stone, for the purpose of a correct republication of the chart or drawing, or of providing for correct measurements on it after the disproportionate expansion or contraction of the paper on which it is printed, which consists in engraving on the plates or stones of charts or drawings two or more scales of the same unit of linear measure at a right or other angle to each other, substantially as and for the purposes set forth.

5. The method of securing correct measurements on charts or drawings printed from plates or stones after the disproportionate expansion or contraction of the paper on which they are printed, which consists in engraving on the plates or stones a circle or any part of such, for the purpose that the radii or diameters of this circle may be used either directly as proportional scales for the distorted chart or drawing, or as indicators of the respective line of a proportional scale engraved elsewhere on the plate or stone, substantially as specified.

6. The method of securing correct measurements on charts printed from a plate or stone after the disproportionate expansion or contraction of the paper on which they are printed, which consists in constituting the lines of bearing of the compass of the chart scales for the chart in their respective directions or indicators of the respective lines of a proportional scale engraved elsewhere on a plate or stone, substantially as specified.

317,802. APPARATUS FOR DESTROYING PHYLLOXERA. LUDOVIC LABORDE, Fleurance, Gers, France. Filed Feb. 20, 1884. (No model.) Patented in France July 31, 1883, No. 156,822; in Italy Dec. 29, 1883, No. 16,289, and in Spain Apr. 21, 1884, No. 5,402.



Claim.—1. The combination of the plow, a fluid-reservoir, bellows, and distribution-box with a vertical shaft, D, carrying at its lower end a horizontal wheel for imparting motion to the operative parts of the machine, substantially as set forth.

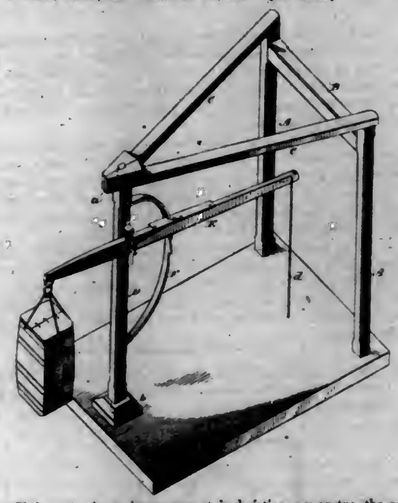
2. The combination of the plow and fluid-reservoir with a distribution-box, N′, consisting of three chambers and slides alternately opening and closing the communications between the central and outer chambers, as and for the purpose set forth.

3. The combination of the plow and fluid-reservoir with a distribution-box, consisting of three chambers and controlling-slides, and a screw for regulating the capacity of the central chamber, as described.

4. The combination of the plow, fluid-reservoir, distribution-box, and controlling-slides with a vertical rod, D, carrying at its lower end a wheel to come into contact with the ground, a shaft, *n*, geared to the rod D and carrying eccentrics operating the said slides, substantially as specified.

5. The combination of the plow, fluid-reservoir, distribution-box, and slides with a pair of bellows communicating with the distribution-box and mounted on the plow-handles, vertical rod D, carrying at its lower end a wheel to come into contact with the ground, and a shaft, *n*, geared to the rod D, and carrying a crank to operate the bellows, substantially as set forth.

317,803. APPARATUS FOR HOISTING BALES ON WAGONS. GEO. W. LAMB, Bowie, Tex. Filed Dec. 23, 1884. (No model.)



Claim.—1. As an improvement in hoisting apparatus, the combination, with the frame, of the vertical beam D, journaled in the frame, and the hoisting-lever pivoted to the said beam and carrying a grappling device at one end arranged and operating whereby said lever is given both a horizontal and a vertical movement, as and for the purpose set forth.

2. The combination, with a suitable frame, of the vertical beam D, journaled in the frame, the hoisting-lever E, pivoted to the beam, and carrying a grappling device at its outer end, and means, substantially as described, for holding the lever at any point of its vertical movement, the said lever having also a horizontal line of movement, as and for the purpose set forth.

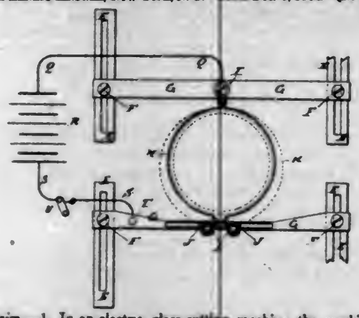
3. As an improvement in hoisting apparatus, the combination, with the frame comprising the base, the standards or uprights A, and the converging beams C, connected together at their outer ends, and fitted at their inner ends to the standards or uprights A, of the vertical beam D, journaled at its upper end in the beams C, and at its lower end in the base, and the pivoted lever E, attached to the beam D and carrying a grappling device at its outer end, arranged and operating whereby said lever will have a complete horizontal line of movement from one side of the frame to the other, as set forth.

317,804. RAILROAD-RAIL. WILLIAM LAMBERTON, Philadelphia, Pa. Filed Mar. 17, 1885. (No model.)



Claim.—A railroad-rail formed with perforated lugs or ears, substantially as described.

317,805. ELECTRIC GLASS-CUTTING MACHINE. PHILIPP LANGE and ERNEST LEUDNER, New York, N. Y. Filed Dec. 6, 1884. (No model.)

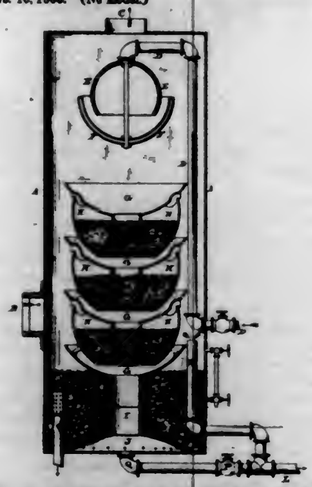


Claim.—1. In an electric glass-cutting machine, the combination, with a suitable support and insulated bars supported thereon, of a platinum wire, an electric generator having one pole connected to said platinum wire and its other to one of the insulated bars, and means for tightening the said platinum around the object to be cut, substantially as herein shown and described.

2. In an electric glass-cutting machine, the combination, with the insulated cross-bars G and the circuit-wires Q S of an electric generator provided with a switch, U, of the wire H, the elbow-levers L, the connecting-bars M N, the treadle O, and the spring P, substantially as herein shown and described, whereby a wire can be heated by electricity while in contact with the glass to be cut, as set forth.

3. In an electric glass-cutting machine, the combination, with an adjustable table and the insulated bars G, adjustably supported above the same, of the platinum wire H, the electric generator R, circuit-wires Q S, the elbow-levers L, connected to the ends of the said platinum wire, and means for operating said levers, substantially as herein shown and described.

317,806. FEED-WATER HEATER AND FILTER. THOMAS A. LATHROP, Canton, Ohio, assignor of one-half to H. T. Warner, same place. Filed Feb. 10, 1885. (No model.)



Claim.—1. The combination of the casing, the funnels, and the bowls filled with filtering material, substantially as set forth.

2. The combination of the casing, the funnels, the bowls filled with filtering material, the pipe I, the funnel J, the filtering material placed in the bottom of the casing, and the overflow and escape pipes, substantially as described.

317,807. SHEET-METAL VESSEL. ISAAC S. LAUBACH, Boston, Mass. Filed Oct. 7, 1884. (Model.)

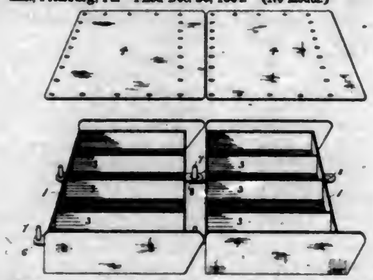
Claim.—1. The combination, with the body, of the bottom *b*, formed integral with the flange *c*, and attached to the body by the folded joint *d*, thus making the vessel with a base complete of two pieces, substantially as set forth.

317,807.



2. The bottom *b*, made integral with the flange *c*, and having the crease *e* formed in it, substantially as and for the purposes set forth.

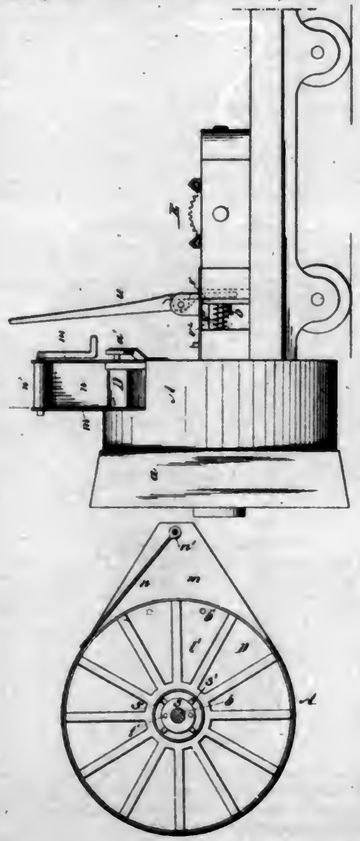
317,808. ANNEALING-FURNACE FOR GLASS. CHARLES H. LAUMAN, Pittsburg, Pa. Filed Dec. 20, 1884. (No model.)



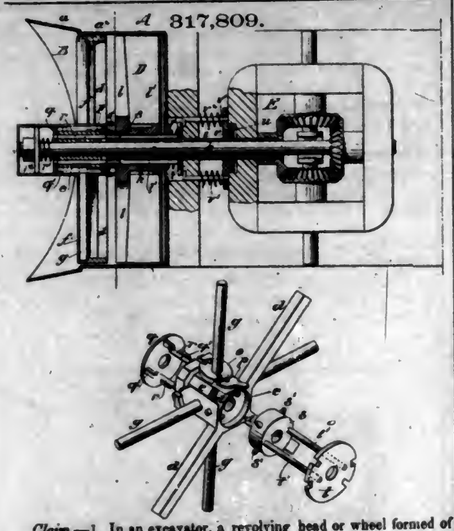
Claim.—1. A traveling bed for annealing-leers, constructed with a metallic frame or box containing non-conducting material, as herein shown and described.

2. A traveling bed for annealing-leers, constructed with a hollow metallic frame or box, a body of non-conducting material contained therein, and a coat or cover of fusible matter or flux adapted by the application of heat to produce an air-tight envelope, as explained.

317,809. ROTARY EXCAVATOR FOR REMOVING SNOW, &c. EDWARD LESLIE, Orangeville, Ontario, Canada. Filed Oct. 8, 1884. (No model.)



317,809.



Claim.—1. In an excavator, a revolving head or wheel formed of segments or sections separated by openings and provided with independent cutting-blades covering the openings, substantially as shown and described.

2. In an excavator, a revolving head formed of segments or sections separated by openings and provided with cutting-blades covering the openings and adjustable to cause the cutters to act in either direction desired, substantially as described.

3. In an excavator, the combination of the adjustable cutting-blades with the head or wheel, substantially as shown and described.

4. The hub *e*, arms *g*, cutters *f*, notched plates *o*, and sliding disk *q*, provided with the lugs *q'*, combined for operation for the purpose specified.

5. The combination of the cutter-arms *g*, notched plates *o*, disk *q*, provided with lugs *q'*, dogs *p*, tumblers *s*, having the lugs *s'*, the disk *t*, and arms *t'*, substantially as described, for operation as set forth.

6. The combination of the piece *v* and lever *u* with the disk *t*, tumbler *s*, and disk *q*, substantially as and for the purpose specified.

7. In combination with case A, the vertical spout rising above the case and carrying between its sides a swinging cap or gate, substantially as shown and described.

8. In an excavating-machine, the combination of the following instrumentalities, namely: a revolving head provided with adjustable cutting-blades and a mechanism for changing and adjusting the position of the blades, substantially as shown and described.

9. The combination of the arms *v'*, having bent ends, the notched disk *t*, piece *v*, and lever, substantially as described, for retaining the parts in operative position and automatically releasing them after the cutters are shifted.

10. The combination, with the recessed hub *e*, of the tumbler *s*, entered in the recess so as to exclude snow or other material, substantially as described.

317,810. SEED-PLANTER. CHARLES S. LOCKE, Joliet, Ill. Filed June 19, 1884. (No model.)

Claim.—1. In the seed-planter described, in combination with the throat H, the oscillating lever *i*, having the foot-valve *i*³ pivoted therein, the rotating disk *z'*, having the flange 10, having the eccentric lugs *z* on its under side and the ratchet-teeth *o* on its upper side, and the pawls 1 and 2 and their operating mechanism, as and for the purpose set forth.

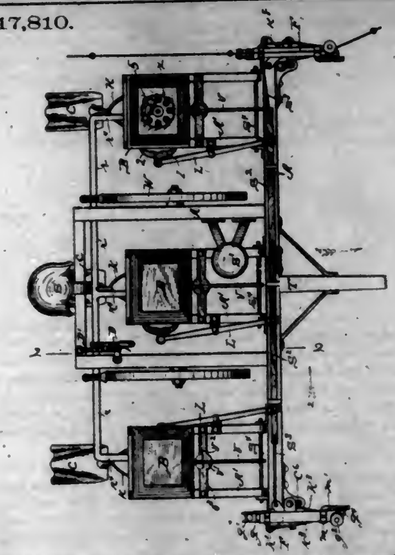
2. In the seed-planter described, in combination with the frame A' and throat H, the beam K, pivoted to the side of said throat, vertical toothed rack V', pivoted to the front end of said beam K, and covering-shoe *c*, attached to the rear end of said beam, all adapted to operate as and for the purpose set forth.

3. In combination with the frames A and A', the rolling shaft *r*, having the arms *r'*, lever D, and springs *s*, as and for the purpose set forth.

4. In the seed-planter described, the combination of the stationary disk *x*, having the radial pocket-slots shown, slides *a'* within said radial pocket-slots, each having a pin, a^3, and plate *a*, having the eccentric slots a^3, for the reception of the pins a^3, for the purpose of moving said slides in or out simultaneously, as and for the purpose set forth.

5. In the seed-planter described, the head F, having the horizontally-partitioned recess shown, and switch 8 on each side, as shown, and arranged to receive the wrist-pins on bell-crank arms m' m^4 in said recess and guide them around said partition and switch to properly guide the forks *m* and m^2, as and for the purpose set forth.

317,810.



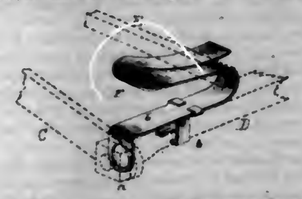
6. The combination of the frame A, post P', double bell-crank k', arms P^6 P' P^2, links k^2, bell-cranks m' m^4, having the forks *m* and m^2, respectively, head F, having each side recessed, and said recesses divided horizontally by partitions 7, to form a channel either side of said partition, and having the latch-switches 8, forming a portion of said partition, sheaves *g g' g²*, and hook g^4, all adapted to operate as and for the purpose set forth.

7. In the seed-planter described, the combination of the frame A', beam K, toothed rack V', spring V^2, cross-bar o^2, throat H, covering-shoe *c*, segment *c'*, and means for tilting said shoe on said beam, as and for the purpose set forth.

8. The combination of the frames A and A', hinged together, as shown, arm L and its operating mechanism, pawls 1 and 2, perforated rotating disk *z'*, having the ratchet-teeth *o* and eccentric lugs *z*, stationary pocketed disk *x*, having the radial slots forming seed-pockets, and slides *a'*, and pins a^3, plate *a*, having the eccentric slots a^3, bolt c^3, rotating plate 5, shoe V, hopper B, and throat H, all adapted to operate as and for the purpose set forth.

9. In the seed-planter described, the head F, having the horizontally-partitioned recess and suitable guide-sheaves, as shown, in combination with the bell-crank arms *m'* and m^4, forked arms *m* m^2, arms P' and P^6, standard P, links k^2, double bell-crank k', having the adjustable coupling-plate 8', connecting-rods S^2, and shake-bar S^2, as and for the purpose set forth.

317,811. BUGGY-TOP SUPPORT. LEONARD S. LONGCOR and WILLIAM M. DAWSON, Belvidere, Ill. Filed Aug. 28, 1884. (No model.)

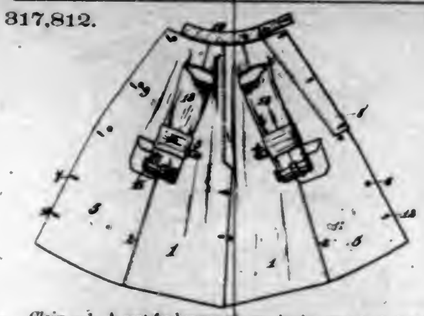


Claim.—1. The combination, with the square extension D of a buggy-seat rail, of a spring having an extension, *b'*, lying longitudinally upon said extension, as described, and terminating in an angular perforated portion fitted on the screw portion of said extension, the clip *b*, and the nut-fastening *a*, all constructed and adapted to operate substantially as and for the purposes described.

2. As a new and improved article of manufacture, the within-described safety attachment for buggy-tops, consisting of a spring having a base-extension, *b'*, terminating at one end in an angular perforated portion adapted to be secured to an offset of a seat-rail, substantially as specified.

317,812. WATER-PROOF GARMENT. MOSES S. LORSCH, New York, N. Y. Filed Aug. 30, 1884. (No model.)

317,812.

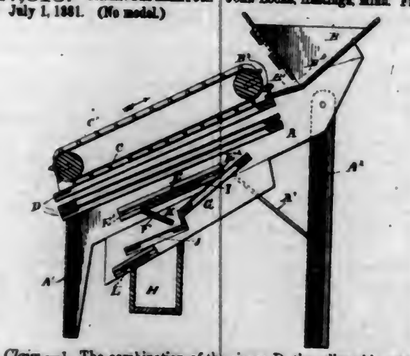


Claim.—1. A coat for horsemen's use, having two back breadths united by a central seam, the said breadths being of normal size above and the skirts of each increasing in width from the top toward the bottom, and two front breadths—one upon each side—stitched to the back breadths, such back breadths being provided one with a button-loop and the other with a button-strap, whereby the article may be transformed from a walking-coat into a coat to cover horse and rider, substantially as described.

2. A coat for horsemen's use, having its upper portion of normal dimensions, and its skirt widening rapidly toward the bottom and provided upon its rear waist portion with a button-loop and button-strap, said skirt being also provided with an inner button upon each side at a suitable distance from the front and having an opposite button-hole in its edge, substantially as described.

3. A water-proof coat for horsemen's use, consisting of the back and front breadths, 1 and 5, having button-loop 3 and button-strap upon the former, and buttons 11 and button-holes 12 upon the latter, and storm-flaps adapted to cover and covering when brought into use the front of the coat and the sleeves, substantially as described.

317,813. GRAIN-SEPARATOR. JOHN LUCAS, Hastings, Minn. Filed July 1, 1881. (No model.)



Claim.—1. The combination of the sieves D, the adjustable cut-off E, the sieve I, the discharge-spout H, and the deflector F, arranged at the lower end of sieve I, and inclined in an opposite direction from said sieve I, substantially as set forth.

2. The combination of the sieve I, the deflector F, arranged at the lower end of and inclined in an opposite direction to sieve I, the sieve J, the spout H, and cut-off L, arranged between the spout and sieve J, and movable longitudinally below the latter, substantially as described, whereby the grain screened by sieve J may be divided into two portions, one of which is delivered into and the other carried beyond the spout, as and for the purposes specified.

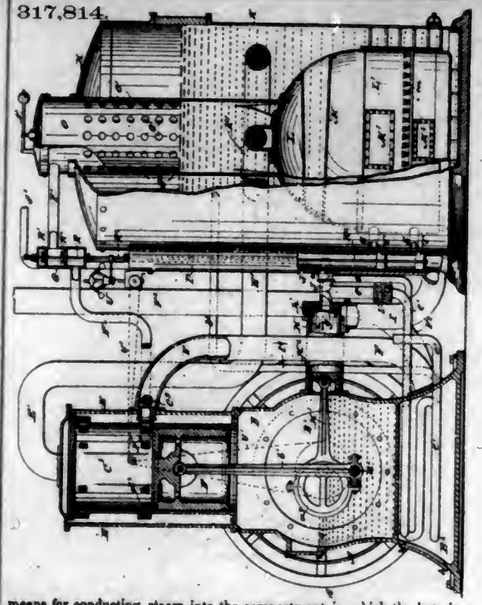
3. The combination of the sieves D, the adjustable cut-off E, the sieve I, the deflector F, the sieve J, the spout H, and the adjustable cut-off L, substantially as set forth.

4. The combination of the main frame provided with sieves D, and having adjustable supports, whereby the said sieves D may be set at different angles, and the supplemental sieve-carrying frame suspended on the main frame and adjustable independently of the said frame, whereby the grain may be caused to flow rapidly on the sieves of one frame and slowly on those of the other, and vice versa, substantially as set forth.

317,814. COMBINED STEAM AND HOT-AIR ENGINE. DAVID LYLE, Manchester, Jamaica, West Indies. Filed June 14, 1884. (No model.)

Claim.—1. In an engine, the combination, with a casing divided into two compartments, of a hot-air cylinder in one compartment and a steam-cylinder in the other compartment, and of means for conducting hot air into the compartment in which the steam-cylinder is located, and

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means for conducting steam into the compartment in which the hot-air cylinder is located, substantially as herein shown and described.

2. In an engine, the combination, with a casing divided into two compartments, of a hot-air cylinder in one compartment, a steam-cylinder in the other, and a valve-cylinder between the hot-air and steam cylinders, substantially as herein shown and described.

3. In an engine, the combination, with the casing E, of the cylinder C^3, having the opposite partitions c' c^2, and of the cylinders C and C', arranged at opposite sides of the cylinder C^3, substantially as herein shown and described.

4. In an engine, the combination, with a casing, E, divided into the compartments c^3 c^4, of the steam-cylinder C in the compartment c^3, the hot-air cylinder in the compartment c^4, the valve-cylinder C^2 between the steam and hot-air cylinders, pistons D D' in said steam and hot-air cylinders, a sliding valve in the cylinder C^2, and the shaft A, provided with cranks and an eccentric for operating the said pistons and slide-valve, substantially as herein shown and described.

5. In an engine, the combination, with the hot-air and steam cylinders arranged in separate compartments of the casing, of a chamber formed in the hollow base of the machine, pipes for heating the feed-water and hot air arranged in the said hollow base, and pipes for conducting the exhaust-steam and hot air into the pipes of the hollow base, substantially as herein shown and described.

6. In an engine, the combination, with the hot-air and steam cylinders arranged on a hollow base, of pipes for conducting the exhaust-steam and hot air from the above-mentioned cylinders into the said hollow base, two sets of coiled pipes arranged in the base, through one set of which pipes the feed-water is conducted, and through the other set of which pipes the air circulates before passing into the air-heating furnace, substantially as herein shown and described.

7. In an engine, the combination, with the crank-shaft A, of the steam-cylinder C and the hot-air cylinder C', pistons contained in the said cylinders, connecting-rods connecting these pistons with the crank-shaft, the air-pump H and the water-pump G, operated from the crank-shaft, pipes leading from the water-tank to the water-pump and from the pump to the boiler, and pipes leading from the air-pump to the furnace of the boiler, substantially as herein shown and described.

8. In an engine, the combination, with the hot-air cylinder and the shaft operated from the piston in the said cylinder, of a pump-cylinder, H, containing a piston, H^2, operated from the above shaft, the pipe J, provided with the cock, J', and the pipe c', connected with the pipe J, substantially as herein shown and described.

9. In an engine, the combination, with the hot-air cylinder and the shaft operated from the piston in the said cylinder, of the pump-cylinder H, the piston H^2 in the same, the chamber h', surrounding one end of the pump-cylinder, the pipe I, connected with the said chamber, the pipe J in the closed end of the cylinder, the valve g, for closing the said pipe, the cock J' in the pipe J, and the pipe c', provided with the cock I', substantially as herein shown and described.

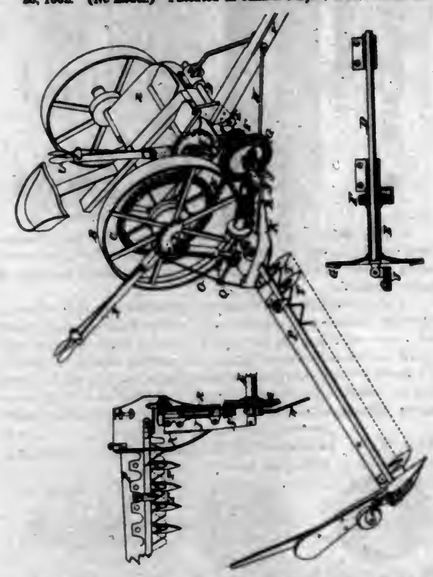
10. In an engine, the combination, with the hot-air cylinder and the steam-cylinder, pistons in the said cylinders, and connecting-rods

connecting the said pistons with the crank-shaft, of a boiler, pipes connecting the steam-cylinder with the boiler, a valve held in the said pipe and connected with the governor, a pipe connecting an air-pump with the furnace of the boiler, and valves arranged in the said pipe and connected with the governor, substantially as herein shown and described.

11. In an engine, the combination, with the steam-cylinder and the hot-air cylinder, pistons in the said cylinders, and connecting-rods connecting the said pistons with the crank-shaft, of the boiler K, the pipe I^2, the casing Q, the valves R' in the casing Q, the valves T in the tube I^2, the pipe S, connecting the tube I^2 with the fire-place above and below the grate, and the governor U, connected with the rod on which the valves R' are mounted, and with the rod on which the valves T are mounted, substantially as herein shown and described.

12. In an engine, the combination, with a combined boiler and air heater, of a hot-air cylinder and a steam-cylinder, pistons in the cylinders, crank-shafts connected by connecting-rods with the pistons in the cylinders, and a regulating device for regulating the supply of hot air and steam at the same time, substantially as herein shown and described.

317,815. HARVESTER. JOHN P. MANNY, Rockford, Ill. Filed Apr. 26, 1882. (No model.) Patented in Canada July 2, 1883, No. 17,144.



Claim.—1. The combination, in a mowing-machine, of the main axle projecting beyond the driving-wheel in the direction of the cutters, a rocking sleeve mounted on such extension of the axle and provided with a pendent tubular arm, and a connecting-rod loosely pivoted to the heel of the cutting apparatus and having free vertical play in such tubular arm, substantially as and for the purpose described.

2. The combination, in a mowing-machine, of a drag-bar or its equivalent, pivoted at its forward end to a support connected to the main frame, and a rod pivoted upon the heel of the cutting apparatus and supported by an oscillating tubular arm mounted on the main axle, whereby the cutting apparatus is made free to vibrate about the pivot at the forward end of the drag-bar, substantially as described.

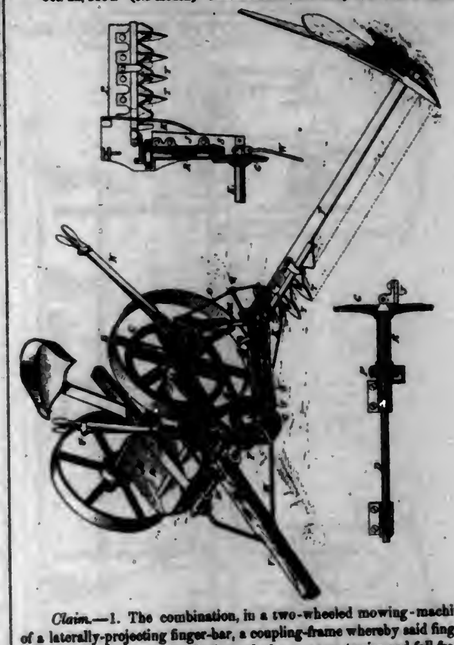
3. The combination, in a mowing-machine, of a sleeve mounted on the main axle and provided with a pendent tubular arm, the lower end of which acts as a stop to limit the upward range of movement of the heel of the finger-beam.

4. The combination, in a mowing-machine, of a stop connected with the projecting end of the main axle for limiting the vertical movement of the heel of the finger-beam, and a raising chain or cord attached to the finger-beam at a point beyond such stop, substantially as and for the purpose described.

5. The combination, in a mowing-machine, of a stop connected with the main frame or axle to limit the vertical movement of the heel of the finger-beam, a raising-lever mounted on said axle, and a raising chain or cord attached to a standard on the finger-beam at some point above the plane of such beam, said lever being thereby made capable not only of raising the heel of the finger-beam to pass obstructions, but also of lifting the outer end of the beam when the heel has struck the stop.

6. The combination, in a mowing-machine, of a lifting chain or cord attached at its lower end to the cutting apparatus, and a rigid link or brace loosely hinged on the heel of the cutting apparatus and attached at its upper end to such lifting-chain, whereby the lifting-lever is caused to act more directly on the finger-beam without impairing the flexibility of the connection between the cutting apparatus and the main frame.

317,816. MOWING-MACHINE. JOHN P. MANNY, Rockford, Ill. Filed Oct. 22, 1884. (No model.) Patented in Canada July 2, 1883, No. 17,144.



Claim.—1. The combination, in a two-wheeled mowing-machine, of a laterally-projecting finger-bar, a coupling-frame whereby said finger-bar is flexibly connected with the main frame, so as to rise and fall freely with the undulations of the ground, a crank-shaft, a chain-wheel and gear-wheel driving the crank-shaft, and both supported on the main frame forward of the main wheels, and a flexible driving-connection between such chain-wheel and the main axle.

2. The combination, in a two-wheeled mowing-machine, of a laterally-projecting finger-bar, a drag-bar whereby said finger-bar is flexibly connected with the main frame, so as to rise and fall freely with the undulations of the ground, a crank-shaft mounted on such drag-bar, a chain-wheel and gear-wheel for driving said crank-shaft, and both supported on the main frame forward of the main wheels, and a flexible driving-connection between such chain-wheel and the main axle.

3. The combination, in a two-wheeled mowing-machine, of a laterally-projecting finger-bar, a drag-bar flexibly connecting said finger-bar with the main frame, so that it may rise and fall freely with the undulations of the ground, said drag-bar being arranged at the grass side of the machine, and pivoted at its forward end to an axle or shaft projecting laterally from the main frame in front of the main wheels, a crank-shaft mounted on such drag-bar, a chain-wheel and gear-wheel for driving said crank-shaft, and both mounted on such axle or shaft, and a flexible driving-connection between such chain-wheel and the main axle.

4. In combination with the main axle of a two-wheeled mowing-machine, a chain-wheel mounted thereon, a secondary axle arranged parallel with the main axle, and a sleeve supported on said secondary axle, and provided with a chain-wheel and a bevel gear-wheel, and a crank-shaft for driving the cutters, substantially as shown and described.

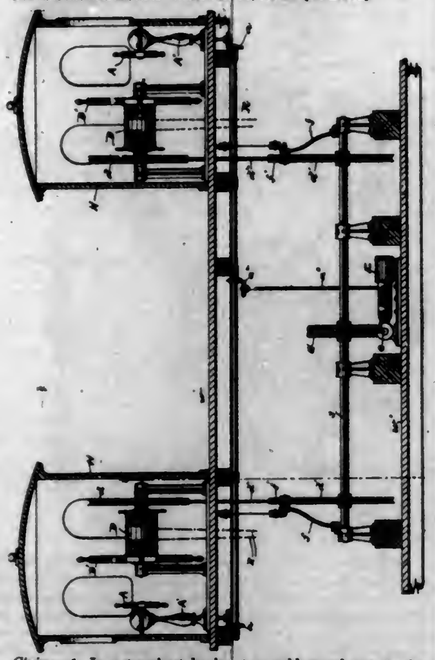
5. The combination, in a mowing-machine, of a secondary axle mounted on the main frame and projecting laterally, so as to cross the path of the main driving-wheel, a drag-bar or shoe pivoted to the end of such axle, and a brace extending from the end of such axle to the draft frame or pole of the machine.

6. The combination, in a mowing-machine, of a secondary axle or shaft, the gearing for driving the cutters, supported on said axle, a shoe and drag-bar arranged outside the main driving-wheel, at the grass side of the machine, and pivoted at the front end to said secondary axle or shaft, and at the rear flexibly connected to the main axle by means of a joint formed at the heel of the cutting apparatus, and the finger-bar rigidly connected to the shoe and drag-bar, substantially as set forth.

7. The combination, in a mowing-machine, of a secondary axle or shaft, the gearing for driving the cutters, a shoe and drag-bar arranged

outside the main driving-wheel, at the grass side of the machine, and pivoted at the front end to said secondary axle or shaft, and at the rear flexibly connected to the main axle by means of a joint formed at the heel of the cutting apparatus, the finger-bar rigidly connected to said shoe and drag-bar, and the crank-shaft arranged on such shoe and drag-bar in line with the pivots of the same, so that the finger-bar may be raised, lowered, or folded without throwing the gearing out of mesh, substantially as shown and described.

317,817. STEERING MECHANISM FOR FERRY-BOATS. JOSEPH P. MANTON, Providence, R. I. Filed Jan. 14, 1884. (No model.)



Claim.—1. In a steamboat having two rudders and two steering-drums, the engine E, or other suitable driving motor connecting said drums, by means of the gear G, shaft *s*, &c., substantially as described, in combination with the binding or friction wheels *f'*, each mounted upon a swinging lever, *f*, and suitable means for operating the same, whereby said drums are adapted to be connected to or disconnected from the driving mechanism, substantially as herein shown and set forth.

2. In a double-ended vessel or ferry-boat having a steering wheel and drum at each end thereof, the combination therewith of the driving means herein described, consisting of engines E, gearing G, shaft *s*, carrying said gear, and two wheels, *d'*, adapted to drive the steering-drums, substantially as shown and set forth.

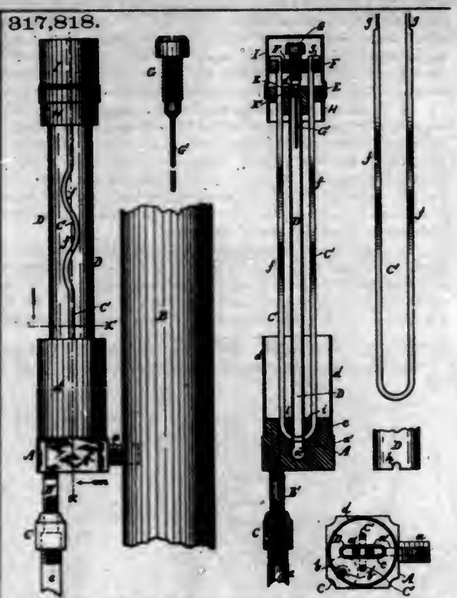
3. In a double-ended vessel or ferry-boat having a steering wheel and drum at each end thereof, and means, substantially as shown and described, for operating the same, consisting of the motor E, gearing G, shaft *s*, wheels *d'* *d*, &c., the combination therewith of the trick-wheels A, suitably mounted and connected by means of gearing *a* a^3 to the vertical shaft a^3, which operates a suitable reversing-valve, as and for the purpose set forth.

4. In a vessel having two pilot-houses, each provided with the steering-wheel D', drum D, wheel *d*, and trick-wheel A, the combination therewith of engines E, connected by gearing *t*, the longitudinal shaft *s*, the latter adapted by means of wheels *d'* and belts d^2 to transmit power from the engine to the steering-drums, a device for frictionally engaging with said belts, a reversing-gear connected by suitable means whereby the steersman in turning the trick-wheel A controls the movement of the engines and drums, all constructed to operate as and for the purpose herein shown and set forth.

317,818. AIR-VALVE FOR STEAM-RADIATORS. JAMES P. MARSH, Chicago, Ill. Filed Dec. 10, 1884. (No model.)

Claim.—1. The combination, in an air-valve or steam-trap, of the U-shaped wire C', all made in one piece, and having waving or bent portions *f f*, a plate attached to the ends of the said wire and carrying a valve opening and closing device, and the base-plate, also connected to the said wire, substantially as and for the purposes specified.

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2. The combination, in an air-valve or steam-trap, of the evaporator-cup *d* and the cylinder H, the latter being arranged directly above and having a smaller diameter than the said cup, substantially as and for the purposes specified.

3. The combination, in a steam-trap or air-valve, of a rotary and adjustable valve opener and closer, the reamer G', depending from the said opener and closer, the valve plate, E, having therein the valve-opening E', and the head-piece or top plate, F, carrying the said valve opener and closer, the said valve-plate and head-piece being attached, respectively, to metallic parts having unequal contraction and expansion under the influence of heat, substantially as and for the purposes specified.

317,819. HARNESS-ROSETTE. JAMES R. MCADAM, Providence, R. I. Filed Feb. 11, 1885. (No model.)



Claim.—1. The combination, in an ornamental rosette of the described class, of the flat-bottomed cup A, having fixed loop B, disk C, having facets D diverging from a common center, and provided with the downturned rim or flange *c*, and the circular glass disk E, covering the concave disk C, substantially as and for the purpose set forth.

2. The combination, in an ornamental rosette of the described class, of the flat-bottomed cup A, having fixed loop B, disk C, having facets D diverging from a common center, and provided with a downturned rim or flange, *c*, having slots or notches *c'*, and the circular glass disk E, covering the concave disk C, substantially as and for the purpose set forth.

3. The combination, in an ornamental rosette of the described class, of the flat-bottomed cup A, having fixed loop B, concave disk C, having facets D diverging from a common center, and provided with a downturned rim or flange, *c*, and the circular glass disk E, having a monogram or design suitably painted upon its rear side, so that the light reflected by disk C will pass through the unpainted or transparent part of the glass disk only, but not through the painted or opaque portion of the same, substantially as and for the purpose set forth.

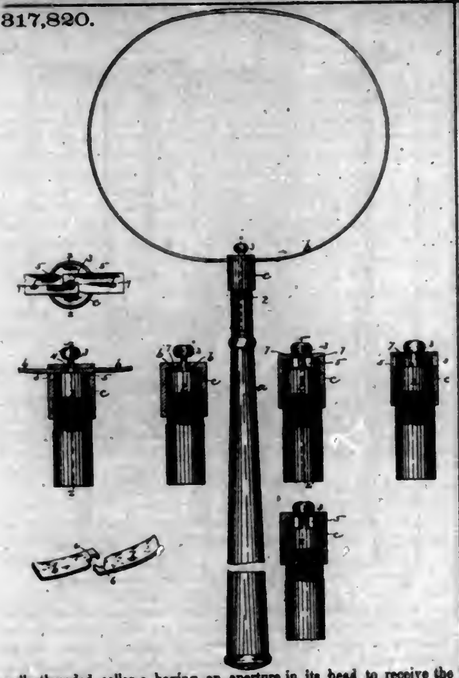
4. The combination, in an ornamental rosette of the described class, of a shallow cup having a fixed loop, a faceted reflecting-disk placed in the same, and a circular glass disk secured in front of said reflecting-disk, the front side of the reflecting-disk or the rear side of the glass disk, or both, being provided with a coating of colored transparent varnish forming, in the case of the glass disk, a base upon which a suitable monogram or design may be painted, substantially as and for the purpose herein set forth.

317,820. LANDING-NET. GEORGE W. MCCLINTOCK, Boston, Mass. Filed Sept. 23, 1884. (No model.)

Claim.—1. The handle having the threaded tip provided with the headed stud 3, combined with the flexible notched strip *b*, and the internally-threaded collar *c*, having an aperture in its head to receive the shank of the stud 3, and slots in its sides to receive the ends of the strip *b*, as set forth.

2. The combination of the threaded tip having the tapered and beaded stud 3, the flexible strip having notches 6 6 at its ends, and the internally-threaded collar *c*, having an orifice formed to receive the shank of the stud, but smaller than the head thereof, and slots 5 5 in its sides, formed to receive the ends of the strip *b*, as set forth.

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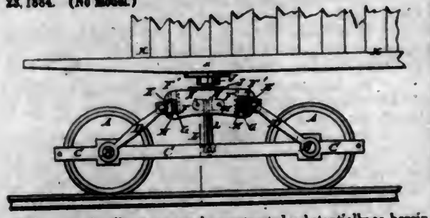


317,821. BAKING-POWDER. ANDREW MCDONALD, Glasgow, County of Lanark, Scotland. Filed Dec. 29, 1883. (No specimens.) Patented in England Oct. 3, 1883, No. 4,701.

Claim.—1. A baking compound consisting of bisulphate of potash or of soda and carbonate, bicarbonate, or sesquicarbonate of potash or of soda, in proportions specified.

2. A baking compound consisting of bisulphate of potash or of soda, carbonate, bicarbonate, or sesquicarbonate of potash or of soda, and flour.

317,822. CAR-TRUCK. JOHN MCEWEN, New York, N. Y. Filed Sept. 23, 1884. (No model.)

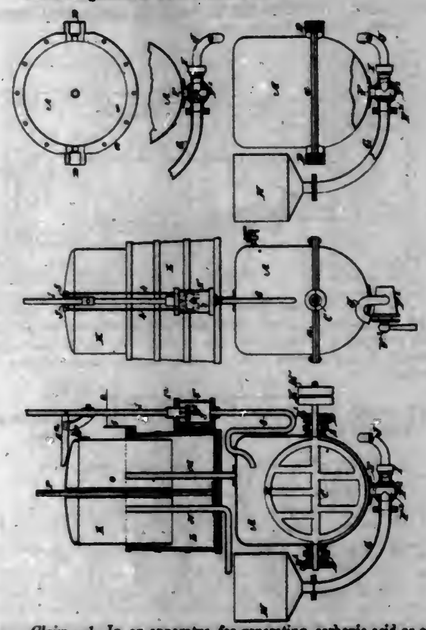


Claim.—1. A railway-car truck constructed substantially as herein shown and described, and consisting of the wheels and axles, side bars, and inclined standards carried by the said axles, a top frame connected with the said inclined standards by cross-bars, springs, and bolts, and with the side bars by hinged inclined brace-bars having cross-heads, springs, and bolts, as set forth.

2. In a railway-car truck, the combination, with the wheels A, axle B, and the frame F, having slotted projecting lugs F', of the side bars, C, and inclined standards D, the cross-bars E, and the bolts and spring G H, substantially as herein shown and described, whereby an elastic support is provided, and the said top frame is held from forward and rearward movement, as set forth

3. In railway-car truck, the combination, with the wheels and axles A B, the top frame, F, the side bars, C, the inclined pivoted standards D, and their guide-lugs, bolts, and springs F' G H, of the inclined hinged braces I, having cross-heads M, and the bolts and springs N O, substantially as herein shown and described, whereby the said top frame is held from lateral movement, while being allowed to move up and down freely, as set forth.

317,823. APPARATUS FOR GENERATING CARBON DIOXIDE. J. MCEWEN, Manchester, England. Filed Dec. 20, 1884. (No model.) Patented in England Mar. 22, 1883, No. 1,504.



Claim.—1. In an apparatus for generating carbonic-acid or other gas, the combination, with a generator, of a charging-vessel, an inlet-pipe, a siphon-pipe, and a central bottom outlet having a valve-chamber with which both the inlet and siphon communicate, and a three-way cock placed in said valve-chamber, substantially as described.

2. In an apparatus for generating carbonic-acid gas, the combination, with a generator, of a gas-reservoir containing a regulator which rises and falls as the gas accumulates or is removed, an acid-supply pipe entering the generator, and a valve closing said pipe and connected with a lever which is fulcrumed with its free end above the regulator, substantially as described.

3. In an apparatus for generating carbonic-acid or other gas, the combination, with a generator, of a reservoir having a rising and falling regulator, an acid-supply pipe entering the generator, a valve closing said pipe and connected by rods with the lever, having its free end over the regulator, a spring mounted upon a suitable support near said regulator and connected with a call-bell, and a finger upon the latter, which is brought into contact with the spring as the regulator falls, substantially as described.

4. In an apparatus for generating carbonic-acid or other gas, the combination, with a rising and falling regulator, of a valve closing an acid-supply pipe, rods operated by a lever to actuate said valve, and a vertically-adjustable support upon which said lever is fulcrumed, substantially as described.
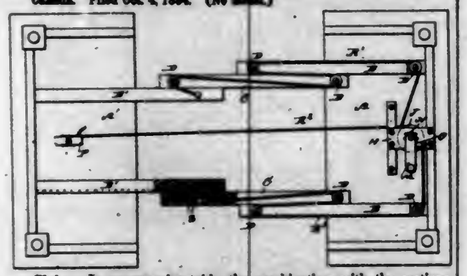
317,824. CARPET-FASTENER. WILLIAM H. MCFADDEN and JOSIAH P. LUCAS, Cadiz, Ohio. Filed Feb. 28, 1885. (No model.)



Claim.—1. The combination, in a carpet-fastener, of the inner section or strip, the outer strip hinged at one edge to the inner section, and having its other edge extended beyond said inner section a distance approximately equal to the thickness of a carpet, pins or studs between the sections, whereby to secure the carpet, and screws turned through both the fastening-strips and into the floor, substantially as set forth.

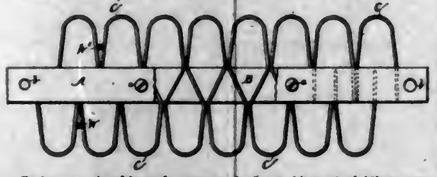
2. The combination, in a carpet-fastener, of the lower section having a horizontal face, *a'*, and a perpendicular face, *a*, studs or pins on said lower section, and the upper section hinged at one edge to the lower section at the outer edge of the face *a'*, and having its other edge extended at B' beyond the perpendicular edge *a*, and a fastening screw or screws, all arranged and operating substantially as and for the purposes set forth.

317,825. EXTENSION-TABLE. GEORGE McLAGAN, Stratford, Ontario, Canada. Filed Oct. 4, 1884. (No model.)



Claim.—In an extension-table, the combination, with the sections A A', provided with the bars B B', the sliding bars C, and the pulleys D, of the drum J, provided with the sections L' L² L³, the pawl and ratchet O N, and the cords R' R² R³, substantially as herein shown and described.

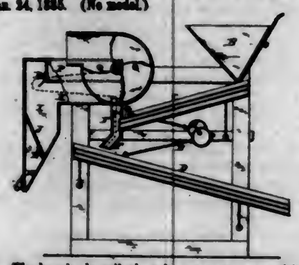
317,826. WHIP-RACK. HENRY McPHERSON, Troy, N. Y., assignor to William P. Kellogg, same place. Filed Feb. 7, 1885. (No model.)



Claim.—1. A whip-rack composed of two slats of yielding material tightly clamped upon a series of interposed and projecting wire loops and adapted to be attached to a fixed support, substantially as described, and for the purposes set forth.

2. A whip-rack composed of a bar or slats provided with a double series of oppositely-projecting loops forming angular openings between the contiguous loops, and the loops on either side of the bar or slats being opposite the openings on the opposite side of the bar or slats, substantially as described, and for the purposes set forth.

317,827. GRAIN-SEPARATOR. WILLIAM H. MERCER, Mercer, S. C. Filed Jan. 24, 1885. (No model.)

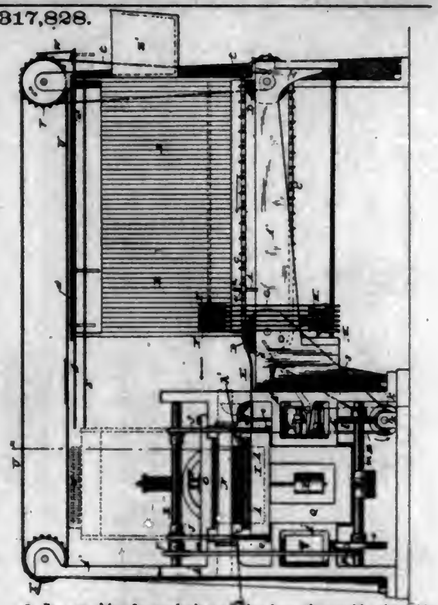


Claim.—The herein-described grain-separator, comprising the upper shoe, C, having a side discharge, G, the lower shoe, D, the tube F, into which the upper shoe discharges, the air-passages H P, box I, with its compartments and valves, the valve E, and the fan, substantially as shown.

317,828. MACHINE FOR PRODUCING PRINTING-BARS. OTTMAR MERGENTHALER, Baltimore, Md., assignor to the National Typographic Company, Washington, D. C. Filed Oct. 31, 1884. (No model.)

Claim.—1. In a machine for producing printing-bars, the combination of a series of independent matrices each representing a single character or two or more characters to appear together, holders or magazines for said matrices, a series of finger-keys representing the respective characters, intermediate mechanism, substantially as described, to assemble the matrices in line, and a casting mechanism, substantially as described, to co-operate with the assembled matrices.

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2. In a machine for producing printing-bars, the combination of independent disconnected matrices each having a single character or two characters to appear together, magazines or holders to contain the assorted matrices, the finger-keys representing the various characters or letters borne by the matrices, mechanism, substantially as described, connecting the keys with the matrix-holders, an assembling mechanism, substantially as described, a casting mechanism, substantially as described, to co-operate with the line of assembled matrices, and mechanism, substantially as described, for distributing the matrices.

3. The combination of the series of free disconnected matrices, the magazines or holders therefor, the series of finger-keys representing the respective characters, mechanism, substantially as described, between the keys and matrix-holders to effect the discharge of the matrices, mechanism, substantially as described, to assemble the designated matrices in line, the movable anvil to receive and sustain the aligned matrices, the clamps to confine the matrices in the anvil, the mold opposite the anvil, and the melting-pot and forcing mechanism to deliver the metal to the mold, said parts being adapted for conjoint operation, substantially as set forth.

4. In combination with the feed-tubes, their escapements and the finger-keys connected therewith to effect the delivery of the matrices, the carrier traveling past the tubes to receive the matrices and assemble them side by side in the order of their delivery.

5. The matrices provided with sustaining-shoulders, in combination with the endless carrying or assembling chains.

6. In combination with the series of free independent matrices, the carrying-chains provided with shoulders or teeth to engage opposite sides of the matrices.

7. The feed-tubes and their escapements connected with finger-keys, in combination with the matrices, the carrying-chains, and the receiving-rails whereon the matrices are assembled.

8. The combination, substantially as hereinbefore described and shown, of the feed-tubes or magazines, their escapements, and the finger-keys, with the disconnected matrices, the matrix conveying or assembling mechanism, the rails whereon the matrices are delivered, the anvil to receive the matrices from the rails, the transferring device M, the mold, the melting-pot and its delivery-pump, and the mechanism to force the anvil toward the mold.

9. In combination with the anvil to sustain the matrices, the casting devices to co-operate with the matrices in the anvil, the distributing mechanism, and mechanism, substantially as described, to move the anvil and matrices from the casting to the distributing mechanism.

10. In a machine for producing printing-bars, and in combination with a series of free disconnected matrices, a casting mechanism, the distributing mechanism, and an anvil or matrix support which advances alternately to the casting and to the distributing mechanism.

11. In combination with the pivoted anvil or matrix carrier, the vertically-swinging sustaining-arms.

12. In combination with the melting-pot and its delivery-pump, the movable mold, the anvil, the matrices therein, the frame to sustain the anvil, and the eccentric to raise the frame.

13. In combination with the feed-tube, the series of independent matrices, an escapement or detent, substantially such as shown, and the finger-key connected therewith.

14. In combination with the independent matrices, those of the same character of equal width but those of different characters of different widths, the distributing rails or plates arranged to present a passage of increasing width toward the delivery end, and mechanism, substantially as described, to advance the matrices through said passage, whereby an automatic distribution or assortment of the matrices is secured.

15. In combination with the series of independent matrices, each provided with two pairs of shoulders graduated in width, as described and shown, two distributing-supports with expanding passages to operate in connection with the respective shoulders, whereby the matrices are first divided into groups each containing several characters, and these groups finally divided to assort the characters.

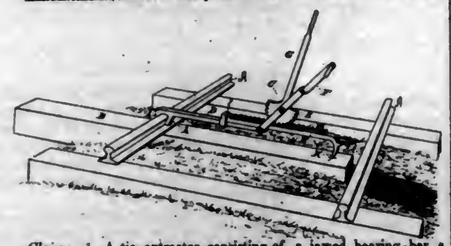
16. The series of independent matrices provided with sustaining-shoulders, as described, those which represent like characters being of equal width and those of different characters of different widths.

17. The matrices each having two pairs of sustaining-shoulders, as described.

18. In a composing mechanism, the combination of a series of tubes or holders each containing matrices of a given letter, escapement mechanism to discharge the type one at a time, and a carrier traveling in one direction beneath the entire series of tubes, whereby the discharged characters are assembled in the order of delivery and without reference to the relative order or position of the tubes.

19. In combination with the distributing rails or plates, the endless belt provided with an arm, T, the notched pulley to carry said belt, the driving-pulley loosely connected therewith, and the spring-arm acting on the notched pulley, whereby the arm is caused to advance the matrices with a jarring action.

317,829. RAILROAD-TIE EXTRACTOR AND REPLACER. JOHN MERGENTHALER, Hancock County, Ohio. Filed Jan. 23, 1885. (No model.)



Claim.—1. A tie-extractor consisting of a jawed bearing-bar, a beaked rack-bar sliding thereon, a lever-link pivoted to the rack-bar, and a segment-gear lever pivoted to the lever-link and engaging the rack-bar, substantially as specified.

2. The combination, with the jawed bearing-bar, the lever-link pivoted thereto, and the segment-gear lever pivoted to said lever-link, of the rack-bar connected to and sliding on the bearing-bar, and having at its end the downwardly-turned beak and the pushing-prong, substantially as specified.

317,830. ADJUSTABLE MODEL OR DUMMY FOR DRESS-MAKER'S USE. EMILIE MERKLE and APOLLONIE MERKLE, Paris, France. Filed May 31, 1884. (No model.) Patented in France Dec. 5, 1882, No. 152,453, and in England Nov. 12, 1883, No. 5,346.

Claim.—1. The combination, with the bust-sections, of the adjusting mechanism common to and connected with both the front and the back sections, so as to adjust them simultaneously, and comprising devices, such as the screw-rod, nut or nuts, and connections, substantially as described, the said devices being constructed and arranged as explained, whereby the front sections are movable faster than the back ones to retain the form notwithstanding the adjustment, as set forth.

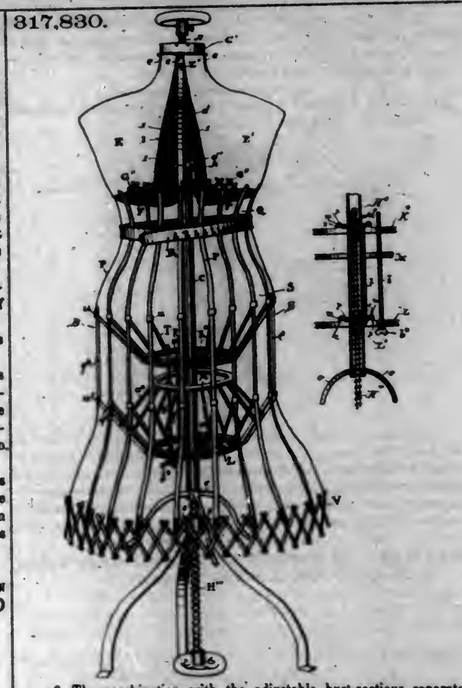
2. The combination, with the adjustable bust-sections, of the extensible and collapsible system of crossed and jointed rods connecting the same at the bottom, substantially as described.

3. The combination, with the adjustable bust-sections, and adjusting mechanism for spreading apart and drawing together the said sections, of the elastic lacing across the spaces between the sections, substantially as described.

4. The combination, with the adjustable bust-sections, of the series of longitudinal wires or strips fastened to the said bust-sections at the lower edge thereof, said wires being separate pieces from the bust-sections and several of them depending from each of said sections, substantially as described.

5. The combination, with the adjustable bust-sections, of the extensible and collapsible system of crossed and jointed rods, and the longitudinal strips or wires fastened to the said rods or to them and the bust-sections, substantially as described.

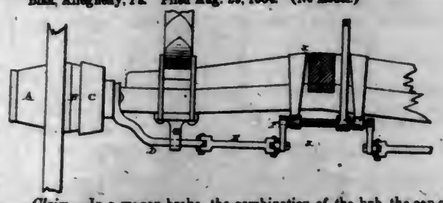
317,830.



6. The combination, with the adjustable bust-sections, separated from each other by vertical division-lines, and the longitudinal skirt-wires depending therefrom, several of them being attached at the lower edge of each bust-section, of the adjustable girdle confining the wires at the waist of the figure, the main portions of said figure being below the girdle and forming a skirt, substantially as described.
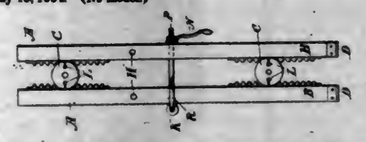
7. The combination, with the adjustable bust-sections, separated from each other by vertical division-lines, and the longitudinal skirt-wires depending therefrom, several of them being attached at the lower edge of each bust-section, of the girdle confining the wires at the waist, and the stretchers connected with said wires below the girdle for adjusting the skirt of the figure, substantially as described.

317,831. WAGON-BRAKE. JACOB MEYER, Pittsburg, and HENRY BIER, Allegheny, Pa. Filed Aug. 29, 1884. (No model.)



Claim.—In a wagon-brake, the combination of the hub, the cap or shoe C, movable on the axle, rods D E, crank F, and an operating mechanism for moving the crank, substantially as set forth.

317,832. WIRE-TWISTER. HENRY MILLER, Ann Arbor, Mich. Filed May 15, 1884. (No model.)



Claim.—1. In a wire-twister, the combination, with the rack-bars A B, of the slotted perforated pinion or pinions C, with their slotted and perforated plates L, for retaining them in place on the racks, as shown and described.

2. In a wire-twister, the combination of the slotted and perforated plates and pinions C, and the racks and bars A B, with the handles H and steps D, for working the apparatus, as shown and described.

3. In a wire-twister, the combination of the slotted and perforated pinions and plates C, the racks and bars A B, and the handles H and steps D, for working the apparatus, with the clamping device R, as shown and described, all for the purpose set forth.

317,833. SHIRT. CHARLES K. MILLER and GEORGE H. CLEVELAND, Camden, Me. Filed June 19, 1884. (No model.)



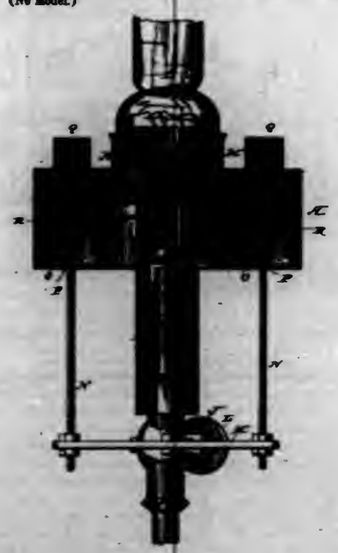
Claim.—An open-front shirt having a flap, *b*, and a piece, A, stitched to the front on one side and around the lower end to a point, as 6, and having also the buttons and button-holes to hold the flap and piece A to the shirt-front, in combination with a row of cross-bands arranged in line with the buttons and button-holes and covering the same, said row of bands being adapted to receive a scarf or tie, all as set forth.

317,834. TOE PROTECTOR OR SEPARATOR. MARTIN W. MINER, New York, N. Y. Filed Dec. 26, 1884. (No model.)



Claim.—The herein-described article formed, substantially as set forth, with but two toe pockets or receptacles, *a*, for the second and fourth toes, having sufficient space between them for the third toe, and a connecting web or webs, *b*, whereby a single partition of separating material is provided between all the toes.

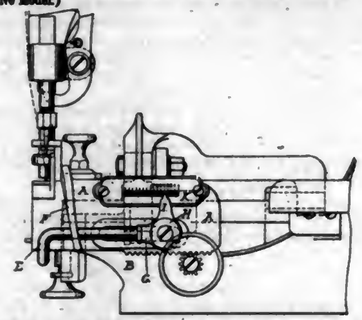
317,835. AUTOMATIC FEEDER AND REGULATOR FOR LAMPS. BARNARD W. MITCHELL, Hubbard, Ohio, assignor of two-thirds to Wilkins Trick, same place, and Alfred YOUNG, Youngstown, Ohio. Filed Sept. 2, 1884. (No model.)



Claim.—1. In an automatic lamp feeder and regulator, the combination of a burner, an annular float-chamber surrounding the same, a feed and a supply pipe, a stop-cock arranged in the said supply-pipe, and having an operating-lever provided with an adjustable counterpoise at its rear end, a cross bar or shaft at the front end of said operating-lever, provided at its ends with vertically-adjustable rods extending upwardly through tubes fitted in opposite sides of the float-chamber, and inverted cups at the upper ends of the said rods, extending into the float-chamber, and provided at their lower ends with annular floats, substantially as and for the purpose set forth.

2. The combination of the annular float-chamber having the chimney-holders, the burner arranged in the central opening of the said chamber and connected therewith by the feed-tube and by perforated diaphragms, a supply-pipe entering the bottom of the said float-chamber, and mechanism, substantially as described, for regulating the admission of oil into the latter, substantially as and for the purpose set forth.

317,836. STRAW-HAT-SEWING MACHINE. EDWIN V. MITCHELL and MELVIN G. PLIMPTON, Medfield, Mass., assignors to the Willcox & Gibbs Sewing Machine Company, New York, N. Y. Filed Dec. 19, 1884. (No model.)

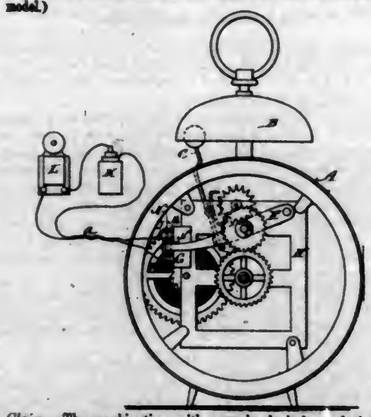


Claim.—1. The combination, with the flanged plait-guide supported on the face of the machine-frame and connected therewith by a tongue and groove, the guide-pin passing through a hole in the flange of said plait-guide, and the screw for retaining the plait-guide and guide-pin in place, of the graduated plate on the upper part of the plait-guide to the right of said flange and above said screw, and the stationary pointer opposite the graduations, substantially as described.

2. In combination with the sliding plait-guide provided with a graduated plate, the stationary guide-pin having a pointer permanently attached thereto, substantially as described.

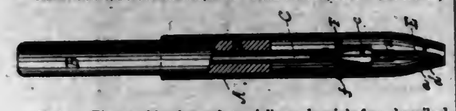
3. The pointer attached to the perforated plate at the inner end of the guide-pin, in combination with said guide-pin, the plait-guide provided with a graduated plate, and the holding-screw, substantially as described.

317,837. MECHANICAL AND ELECTRICAL ALARM-CLOCK. ISAAC S. MOSER and FRANCIS MAGEE, New York, N. Y. Filed Feb. 18, 1885. (No model.)



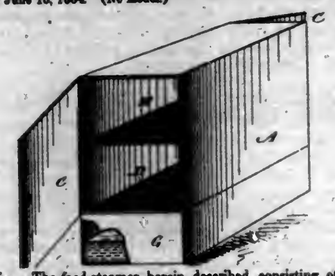
Claim.—The combination, with a mechanical alarm-clock having a spring, F, for releasing the alarm mechanism, of the insulating-piece G, the metal tongues J on the same, the wires *a*, connected with the tongues J, the insulating-piece M on the spring F, and the circuit-closing piece N on the piece M, substantially as herein shown and described.

317,838. PENCIL. OSCAR MUSSMAN, Jr., New York, assignor to Eberhard Faber, Port Richmond, N. Y. Filed Nov. 13, 1884. (No model.)



Claim.—The combination, substantially as hereinbefore described, with the case or handle A and the lead-receiver B, of the split lead-clamp C, secured to the lead-receiver and provided with the cone *d*, the conical sleeve *c*, sliding on the split lead-clamp C and arranged to operate upon the cone *d*, and the disk or stop F, secured to the case A.

317,839. FOOD-STEAMER. OLIVE NELSON, Houghton Lake, Mich. Filed June 10, 1884. (No model.)



Claim.—The food-steamer herein described, consisting of the box A, vertical partition B, perforated transverse portion E, perforated bottom D, doors C C, flange F on the under side of the box, and the removable water-vessel G, into which the flange F fits, substantially as set forth.

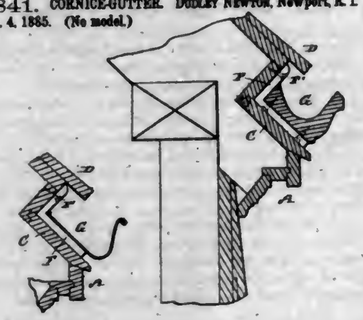
317,840. RICE-HULLER. OSCAR M. NEWMAN, Milton, Fla. Filed Feb. 19, 1885. (No model.)



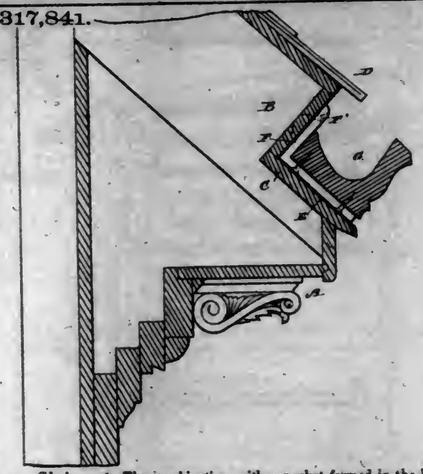
Claim.—1. In a rice-hulling machine, an outer cylinder provided upon its interior with vertical rows of horizontal plates having discharge-openings, in combination with a revolving barrel disposed within said cylinder, and provided with vertical rows of beaters, aprons arranged under them, and a fan-blade at the bottom of each row of beaters, substantially as and for the purpose set forth.

2. A rice-hulling machine comprising an outer cylinder provided with vertical rows of horizontal plates having discharge-openings, a spout provided with a discharge for the grain, and a guard-plate arranged over it, and a revolving cylinder provided with beaters, aprons, and fan-blades, constructed and arranged substantially as and for the purpose specified.

317,841. CORNICE-GUTTER. DUDLEY NEWTON, Newport, R. I. Filed Apr. 4, 1885. (No model.)



317,841.

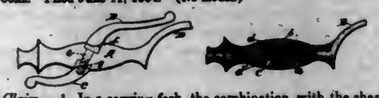


Claim.—1. The combination, with a pocket formed in the lower edges of a roof, of cleats on the pocket, and of a gutter on the cleats, substantially as herein shown and described.

2. The combination, with a pocket formed on the lower edges of a roof, of angle-cleats secured on the pocket, and of a gutter secured on said cleats, whereby a space is left between the back and bottom of the gutter and the pocket, substantially as herein shown and described.

3. The combination, with a pocket formed in the lower edge of a roof, of a lining on said pocket, cleats secured on the lining, and a gutter secured on the said cleats, substantially as herein shown and described.

317,842. CARVING-FORK GUARD. ALBERT H. NORTH, Bridgeport, Conn. Filed June 11, 1884. (No model.)



Claim.—1. In a carving-fork, the combination, with the shank having a hole situated through the same, of a guard having a threaded end and a rest having a threaded hole to receive the threaded end of the guard, by means of which the guard and rest are held firm and rigid to the shank, substantially as set forth.

2. The shank A, having hole *a*, situated diagonally therein, and recesses *b c*, in combination with the guard B, having threaded end *e*, and rest C, having threaded hole to receive the guard, all substantially as described, and for the purpose set forth.

317,843. COMPOUND FOR MOLDERS' FACINGS. SIMON OBERMAYER, Cincinnati, Ohio. Filed July 26, 1884. (No specimens.)

Claim.—1. A molder's facing compound consisting of asbestus, plumbago, and carbon, substantially as hereinbefore set forth.

2. A molder's facing compound consisting of asbestus, plumbago, and carbon, in about the following proportions, to wit: asbestus, one part; plumbago, one part; and carbon, five parts, as hereinbefore set forth.

317,844. INKING MECHANISM FOR PRINTING-MACHINES. JOHN W. OSBORNE, Washington, D. C., assignor to William H. Forbes, Boston Mass. Filed Nov. 2, 1883. (No model.)

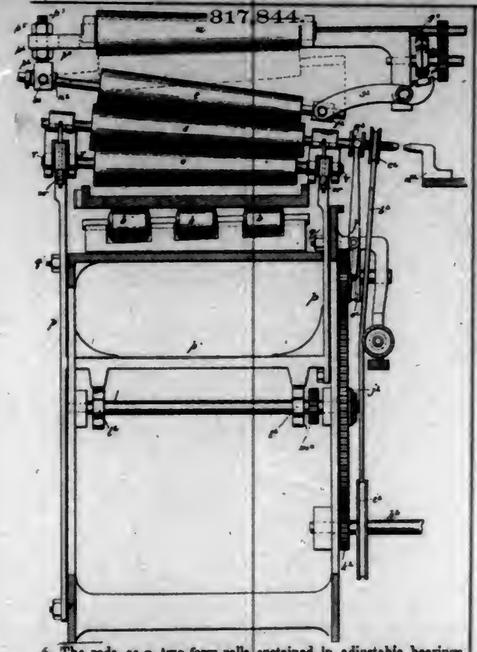
Claim.—1. The combination, with two inking or form rolls, of a rider resting on both rolls, and links, as y z, connecting the bearings of the rider with the bearings of one only of the form-rolls, substantially as described.

2. Two form or inking rolls, a rider resting on both rolls, links connecting the bearings of the rider with the bearings of one only of the form-rolls, and mechanism, substantially as described, for adjusting the length of said links, all in combination, substantially as set forth.

3. Two form-rolls, a rider therefor, links adjustable in length connecting the bearings of the rider with the bearings of one only of the form-rolls, and adjustable mechanism, substantially as described for supporting the end of the links not connected with the form-rolls, all combined substantially as set forth.

4. Two form-rolls, a rider therefor, links adjustable in length connecting the bearings of the rider to the bearings of the form-rolls, adjustable mechanism, substantially as described, for sustaining the free ends of the links, and driving mechanism, substantially as described, for the rider, all combined substantially as stated.

317,844.



6. The rods, as *p*, two form-rolls sustained in adjustable bearings therein, a rider for said form-rolls, links adjustable in length connecting the bearings of the rider to the bearings of one of the rolls, and adjusting mechanism, substantially as described, for sustaining the free ends of the links, all in combination substantially as set forth.

6. The combination, with cams l^6, of the strut p', vertical rods p p, and form-roll *o*, having adjustable bearings on each rod *p*, substantially as set forth.

7. The combination, with the rider *s*, of driving-pulley c^3, splined to the shaft thereof, and bracket or pin d^2 in line with said shaft, whereby the pulley may be slipped from the shaft of the rider to the supporting-pin and the rider readily removed, as set forth.

8. The combination, with a series of conical inking-rolls, of a conical duck-roll, and mechanism, substantially as described, to move the duck from the inking-rolls to the fountain, and vice versa, as set forth.

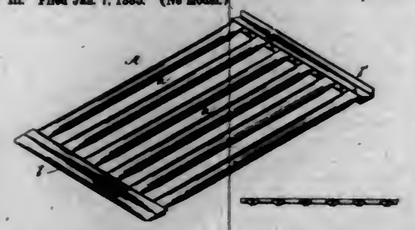
9. The combination, with inking-roll having inclined upper surface, of a fountain having its lower portion level, a duck-roll, and mechanism, substantially as described, to swing the duck-roll from the fountain to the inking-roll, giving to one end of the duck a greater range of movement than the other, as set forth.

10. The conical form-rolls, the conical rider, the fountain, a conical duck-roll supported in swiveled bearings at one end, and mechanism, substantially as described, for swinging the other end of the duck-roll, all combined substantially as stated.

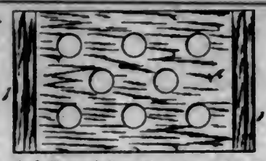
11. The fountain with its conical roll, the conical duck-roll having a swiveled support at one end of the fountain, and a cam and lever mechanism, substantially as described, at the other end of the fountain, combined as described, whereby the duck-roll may have a greater range of movement at one end than at the other, substantially as set forth.

12. The fountain having swiveled support o^3 p^3 at one end, adjustable relatively to the fountain, the duck-roll having bearing therein, a lever at the other end of the fountain supporting the other end of the duck, and an adjustable cam and driving mechanism for operating said lever, all combined for operation substantially as stated.

317,845. RACK FOR REFRIGERATORS. ISAAC OSGOOD, Chicago, Ill. Filed Jan. 7, 1885. (No model.)



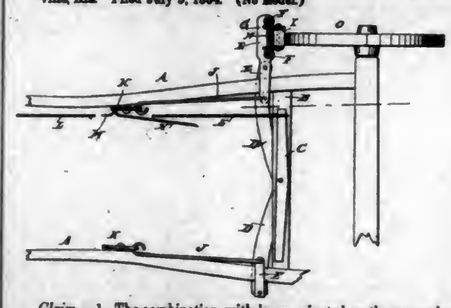
317,845.



Claim.—1. A shelf or rack for refrigerators and similar articles, consisting of a main body made of sheet metal strengthened or stiffened by longitudinal folds of the metal upon itself, and having its ends confined by strips of sheet metal doubled in their longitudinal centers, and having their edges folded back upon itself, substantially as and for the purpose set forth.

2. A shelf or rack for refrigerators, &c., composed of a series of bars of sheet metal folded to form a hollow triangle in cross-section, and having their ends secured to a bar of sheet metal doubled down its longitudinal center, and having its edges bent or folded back upon itself, substantially as herein shown and described.

317,846. AUTOMATIC VEHICLE-BRAKE. RICHARD R. PAGE, Linoville, Ala. Filed July 5, 1884. (No model.)

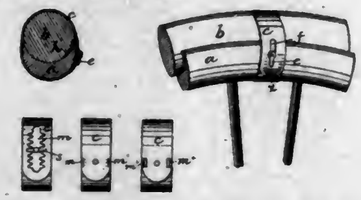


Claim.—1. The combination, with levers pivoted on the cross-piece of the thills, of hinged and sliding brake-shoes on the outer ends of said levers, clips pivoted to the thills, a rod connecting the brake-levers with the clips, and straps connecting the traces and pullback-straps with the clips, substantially as herein shown and described.

2. The combination, with levers pivoted on the cross-piece of the thills or pole, and intermediate mechanism for connecting the said levers with the pullback-straps of the harness, of brake-shoes hinged to vertically-sliding supports on the outer ends of the said levers, substantially as herein shown and described.

3. The combination, with the pivoted brake-levers E, provided with the standards F, of the brake-shoes I, provided with the apertured lugs G, and the bolt H, passing through the lugs of the brake-shoes and provided with eyes at its ends to receive the standards F, substantially as herein shown and described.

317,847. TIRE-FASTENER. EMIL C. PFEIFFER, Portsmouth, N. H. Filed Aug. 25, 1884. (No model.)



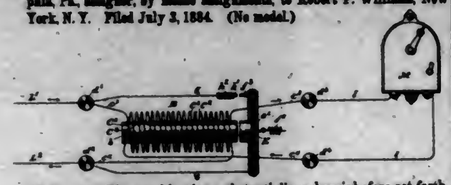
Claim.—1. A fastener for wheel-tires, composed of a band of suitable material adapted to encircle the wheel rim and tire, the same being bent at one end to engage the wheel-rim, as set forth.

2. A fastener for wheel-tires, composed of a band bent at one end to form a hook for engagement with the wheel-rim, and provided with fastening devices to secure its outer end, as set forth.

3. A fastener for wheel-tires, composed of a band adapted to encircle or clasp the tire and wheel-rim, and provided with a pivoted stud or button near one end and a slot near the other end to receive said stud or button, as set forth.

4. A fastener for wheel-tires, composed of a band adapted to encircle or clasp the tire and wheel-rim, and provided with a pivoted stud or button and fixed projections near one end, and an elongated slot adapted to receive said button, and having a number of recesses in its edges adapted to receive said fixed projections, as set forth.

317,848. LIGHTNING-PROTECTOR. HORACE A. PHOENIX, Philadelphia, Pa., assignor, by mesne assignments, to Robert F. Williams, New York, N. Y. Filed July 3, 1884. (No model.)



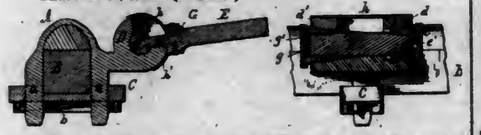
Claim.—1. The combination, substantially as hereinbefore set forth, with an electrical instrument and a conductor including the same, of an electro-magnet having two magnetizing-coils respectively connected with the terminals of said conductor, an armature-lever applied to said electro-magnet and connected with the remaining terminal of one of said coils, and a contact-stop applied to said armature-lever and connected with the remaining terminal of the other of said coils.

2. The combination, substantially as hereinbefore set forth, with an electrical instrument and a conductor in which said instrument is included, of an electro-magnet having two magnetizing-coils connected in series with said electrical instrument and respectively located upon opposite sides of the same, and a shunt-circuit across the outer terminals of said coils, which circuit is established by the action of said electro-magnet.

3. The combination, substantially as hereinbefore set forth, with an electro-magnet having two magnetizing-coils, of an armature and armature-lever applied to said electro-magnet, an adjustable retractile spring applied to said armature-lever, an insulated back contact-stop against which said armature is normally held by the action of said retractile spring, front contact-stop, two binding-posts which are respectively connected with the outer terminal of one of said magnetizing-coils and the inner terminal of the other of said coils, and also with said contact-stop and said armature-lever, respectively, and two binding-posts which are respectively connected with the inner terminal of the first-named magnetizing-coil and with the outer terminal of the second magnetizing-coil.

4. The combination, substantially as hereinbefore set forth, of an electro-magnet having two independent magnetizing-coils, an armature-lever applied to the same, a front contact-stop applied to said armature-lever, a metallic band serving to secure said electro-magnet to its base and carrying said contact-stop, and means, substantially such as described, for placing said armature-lever in contact with said front contact-stop.

317,849. THILL-COUPLING. HENRY B. PRATT, Concordville, Pa. Filed June 14, 1884. (No model.)



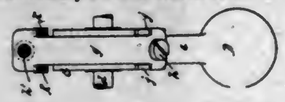
Claim.—1. The combination, in a thill-coupling, of a clip provided with a loop having a central longitudinal opening, a shaft provided integrally with a pin and shank, as described, the said pin being adapted to be introduced in said central opening in the manner specified, a cap attached by screw-threads to the end of the loop and receiving loosely one end of the pin, and a cap resting in the other end of the loop, and engaging the other end of the pin by screw-threads, substantially as set forth.

2. The combination, in a thill-coupling constructed and operating substantially as described, of a clip provided integrally with the depending arms *a*, a tie-plate through which said arms project, key-bars *b b*, adapted to be inserted longitudinally in notched portions of the projecting ends of the arms *a*, and thereby become wedged between the projecting portions of said arms and the tie-plate, substantially as and for the purpose set forth.

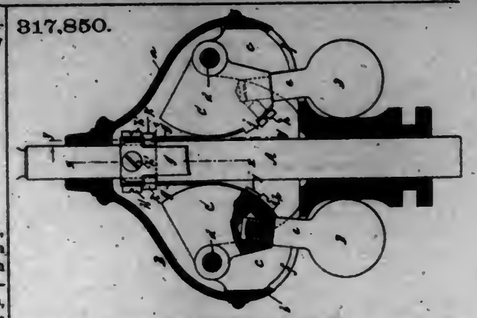
317,850. GOVERNOR. CARL PRÜSMANN, Backau, Germany, assignor to Schäffer & Budenberg, same place. Filed Mar. 19, 1885. (No model.)

Claim.—1. The combination of the stationary spindle A, the rotary head mounted on the spindle, the bell-crank pendulums carried by the head, and straps connecting the bell-crank pendulums with the spindle, substantially as shown and described.

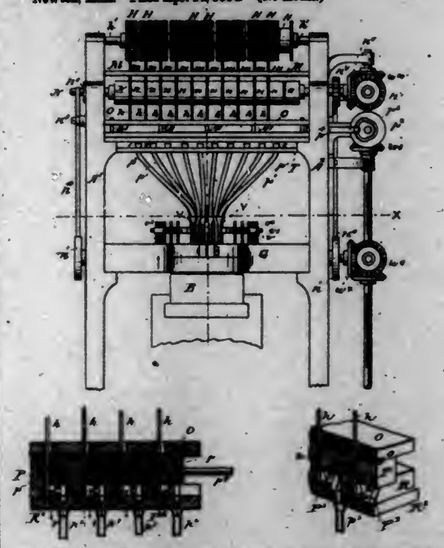
2. The combination of the stationary spindle, the rotary head capable of longitudinal motion on the spindle, bell-crank levers C, pivoted to the head, elastic straps secured to the arms C of the bell-crank levers and to the spindle, and the governor-balls attached to the arms *c* of the bell-crank levers, substantially as shown and described.



317,850.



317,851. HEEL-NAILING MACHINE. FREEBORN P. RAYMOND, 2d, Newton, Mass. Filed Apr. 14, 1884. (No model.)



Claim.—1. The combination of the reciprocating gang or group of drivers, a templet and a nail receiver or holder, and a nail-carrier, substantially as described, for transferring a group of nails from the receiver or holder to a position to be driven by the drivers, all substantially as and for the purposes described.

2. In a heel-nailing machine, a nail receiver or holder and a nail-carrier, substantially as described, and adapted to be loaded with a gang or group of nails from the receiver or holder, and to transfer them to a position to be driven, and suitable driving mechanism, all substantially as and for the purposes set forth.

3. In a heel-nailing machine, the stationary nail holder or receiver having the sliding or movable perforated plate the holes of which are brought into and out of register with the holes of said receiver, in combination with a sliding nail-carrier, the templet, and the nail-driving devices, all substantially as and for the purposes described.

4. The combination of the nail receiver or holder F, the nail-carrier B, and means, substantially as specified, for automatically moving it from a position under the receiver or holder to a position over the templet, all substantially as and for the purposes described.

5. The combination of the nail holder or receiver with the adjustable nail guides or tunnels V, all substantially as and for the purposes described.

6. In a heel-nailing machine, the adjustable nail guides or tunnels V, all substantially as and for the purposes described.

7. In a heel-nailing machine, the combination of the nail-receiver F, the posts or supports v^2, the swinging adjustable arms v v', and the tunnels or nail-guides V, all substantially as and for the purposes described.

8. In a heel-nailing machine, the combination of feeding devices adapted for simultaneously feeding a series of wires to the nail-severing devices, the nail-severing devices for cutting nails from said wires, and a series of conductors for conveying and guiding the nails from the severing devices to a heel-nail holder or receiver, and said nail holder or receiver, all substantially as and for the purposes described.

9. The combination, in a heel-nailing machine, of devices, substantially as specified, for severing a gang of nails from continuous wires, forming points thereon, and for conducting and guiding the formed nails from the severing devices to a heel-nail receiver or holder, and said heel-nail receiver or holder, all substantially as and for the purposes described.

10. The combination, in a heel-nailing machine, of a mechanism, substantially as specified, for feeding a number of wires simultaneously to a nail-severing mechanism, and means for simultaneously adjusting the extent of the feed, all substantially as and for the purposes described.

11. The combination of a series of reels for holding coils of wire, and feeding mechanism, substantially as specified, for simultaneously feeding a series of wires to severing devices for simultaneously or substantially simultaneously cutting nails from the ends of said wires, all substantially as and for the purposes described.

12. The combination of the reels H, the perforated plate M, and a multiple feeding device, substantially as specified, for simultaneously feeding a number of wires, all substantially as and for the purposes described.

13. The combination of the block P, having holes for receiving and holding the ends of a series of wires and the blanks cut therefrom, with a series of pointing-cutters, whereby upon the movement of the block past the cutters a series of nails are simultaneously or successively pointed, and the conductors, and heel-nail receiver or holder, all substantially as and for the purposes described.

14. The combination of the blank-holding block P and means for reciprocating the same, the cutters v, the nail-holding block having a downwardly-projecting V-shaped rib or extension, the conductors, and heel-nail receiver or holder, all substantially as and for the purposes described.

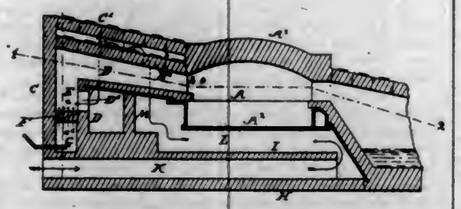
15. The combination of the block P, cam p^3, and connecting-bar p^4, the main shaft of the heel-nailing machine, and intermediate connecting mechanism, all substantially as and for the purposes described.

16. The combination of the feed-roll N' and means for revolving it, the movable feed-roll N, the cams s', levers s^4, the main shaft of the heel-nailing machine, and intermediate connecting mechanism, all substantially as and for the purposes described.

17. The combination, in a heel-nailing machine, of devices for automatically feeding a series of nail-forming wires to nail severing and forming devices, said nail severing and forming devices, and a distributing device for receiving the nails from the severing mechanism and conducting and guiding them to a nail receiver or holder, said nail receiver or holder, a nail-carrier for transferring the nails from the receiver or holder to a position to be driven, and the nail-driving mechanism, all substantially as and for the purposes described.

18. In a heel-nailing machine, the combination of nail-feeding mechanism or devices adapted to feed nails automatically and to arrange them in a gang or group for simultaneous driving, substantially as specified, an automatic nail-carrier adapted to automatically receive said gang or group of nails and to automatically transfer them to a position to be driven, and nail-driving devices for simultaneously driving said nails, substantially as described.

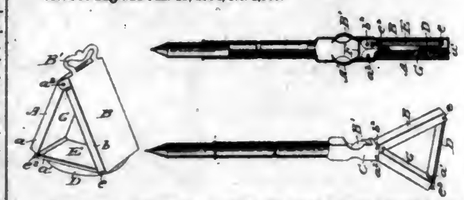
317,852. **FURNACE.** JOSEF REILEAUX, Pittsburg, Pa., assignor of one-half to Charles August Heyer, same place. Filed Sept. 25, 1884. (No model.)



Claim.—1. In a puddling or heating furnace, the combination, with a melting-chamber and a combustion-chamber, of a horizontal air-flue passing beneath the melting-chamber and the combustion-chamber, vertical flues on each side of the latter, a vertical wall dividing said flues and having an opening on top of the combustion-chamber, whereby the air is caused to pass beneath the melting and combustion chambers, up on each side of the latter, over the top of the same, down on each side, finally emerging below the end of said combustion-chamber, substantially as described.

2. In a puddling or heating furnace, the combination, with melting-chamber A, combustion-chamber B, mixing-chamber E, and gas-burner G, of air-flue K, false bottom I, flue L, passing between said false bottom and the chamber A, wall M, intersecting the flue L, passages *b b* and *b' b'* at the side of the combustion-chamber, space *c* at the top thereof, connecting the passages *b b* with passages *b' b'*, and air-outlet D', all arranged and combined substantially as described.

317,853. **SELF-INKING POCKET-STAMP.** EDWIN M. RICHFORD, 44 Snow Hill, London, England. Filed Apr. 3, 1884. (No model.) Patented in England Jan. 12, 1884, No. 1,363.



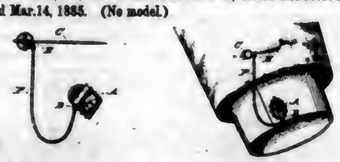
Claim.—1. A frame for a self-inking pocket-stamp, consisting of three main parts combined as herein specified—namely, two box-casings pivoted and connected together at one end and a die-supporting plate pivoted to the free end of one of said casings, so as either to fold parallel with them when closed or subtend the angle formed by them when opened, substantially as and for the purpose herein specified.

2. The combination of the two box casings or arms pivoted and connected together by one end, a die-supporting plate pivoted to the free end of one of the said casings, a notch in the back of said plate, and a flange on the end of the other of the said casings for engagement with said notch, substantially as shown and described.

3. The combination of the two box casings or arms pivoted and connected together by one end, a plate pivoted to the free end of one of them so as to fold back therein, a die fixed on the front or outer face of said plate, and an inking-pad contained within the other of them, substantially as shown and described, for the purpose specified.

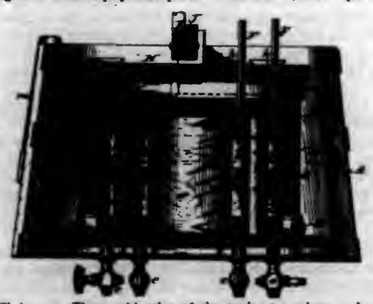
4. The combination of the two box casings or arms pivoted and connected together by one end, a spring to press them together, a plate pivoted to the free end of one of the casings so as to fold back within said casing, a die fixed on the outer or front face of said plate, and a pad fixed within the other casing, substantially as shown and described.

317,854. **COMBINATION CUFF-BUTTON AND SLEEVE-PIN.** WILLIAM H. RILEY, Jr., and G. HERBERT FRENCH, North Attleborough, Mass. Filed Mar. 14, 1885. (No model.)



Claim.—The combination, with a cuff-button and a cuff-pin, of a short chain connecting said button to said pin, and forming a fastening whereby the cuff is connected to the sleeve and held in relative position thereto, substantially as specified.

317,855. **CIDER-PURIFIER.** EDWIN RIPLEY, Sherman, N. Y., assignor to Addie Ripley, same place. Filed Mar. 31, 1885. (No model.)



Claim.—1. The combination of the tank or receiver, a sieve-like partition, and paper-pulp on said partition, substantially as set forth.

2. The combination of the tank or receiver, a sieve-like partition, paper-pulp on said partition, and a screen in advance of such partition, whereby the rush of fluid thereagainst is obviated, substantially as set forth.

3. The combination of a tank or receiver, a cylindrical sieve-like partition, and a cylindrical screen encircling said partition, substantially as set forth.

4. The combination of the tank or receiver, the cylindrical sieve-like partition, a cylindrical screen encircling said partition and provided at its opposite ends with packing, and the cover held on the upper end of the screen, substantially as set forth.

5. The combination of a tank or receiver, sieve-like partitions made in double cylindrical form with an internal annular chamber, a discharge-pipe connecting with said chamber, and a cylindrical screen encircling the partition, substantially as set forth.

6. The combination of the tank or receiver, the double cylindrical sieve-like partition having an annular internal chamber, a discharge-tube communicating with said chamber, a gas-outlet leading therefrom, and a cylindrical screen encircling said partition, substantially as set forth.

7. The combination of a tank or receiver, a plurality of partitions arranged therein and having internal chambers and individual discharges therefrom, and a screen inclosing said partitions, substantially as set forth.

8. The combination of a tank or receiver, a plurality of double cylindrical partitions arranged therein and provided with individual discharge-pipes, and a cylindrical screen encircling said partitions, substantially as set forth.

9. In a purifier substantially as herein described, a cylindrical screen bound at its ends by rubber strips secured loosely, whereby they may spread laterally under pressure, substantially as set forth.

317,856. **TEMPORARY BINDER.** ALFRED H. ROACH, Brooklyn, N. Y., and FRANZ KROENDL, Hoboken, N. J. Filed Apr. 9, 1884. (No model.)

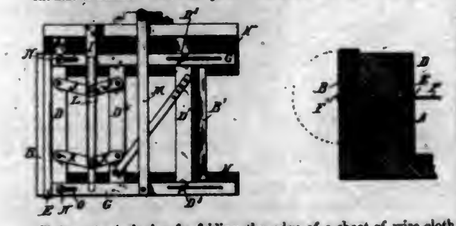


Claim.—1. The combination, in a temporary binder, of a cover, *a*, having pins *c* and a binding-stud, a hinged cover perforated for the passage of said pins and stud, and a spring-plate, constructed, as described, to clamp the covers together by means of the stud and its head, substantially as described.

2. The combination of cover *a*, having pins *c c*, and stud *d*, having turn-button, the hinged cover *f f'*, perforated as described, and the spring-plate *h*, slotted, as described, for the passage of the head of the turn-button, substantially as set forth.

3. The combination, with the cover *a*, having strengthening-plate *b* secured thereto, the pins *c c*, projecting from said plate, and stud *d*, bearing the turn-button *e*, having squared part *e'* just below the head, and the hinged cover *f f'*, perforated as set forth, of the spring-plate *h*, notched and slotted as described, the sides of the slot adapted to engage with the squared part of the button, as set forth.

317,857. **DEVICE FOR FOLDING THE EDGES OF WIRE-CLOTH, SHEET METAL, &c.** MORRIS F. ROSENTH, Philadelphia, Pa., assignor of one-half to Shimer & Co., same place. Filed June 21, 1884. (No model.)



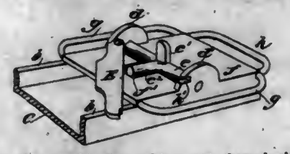
Claim.—1. A device for folding the edge of a sheet of wire-cloth or like article, consisting of a supporting-bed in two parts and of a continuous surface, one part being stationary and the other part being hinged to the stationary part on a line parallel to the line on which the sheet is to be folded, in combination with a former the front edge of which substantially coincides with the front edge of the stationary part of the bed, all so constructed and arranged that the sheet to be folded may during the operation of folding be held between the stationary part of the bed and the former and the edge of the sheet folded by swinging the hinged part of the bed over upon the stationary part, said former being in combination with means for automatically withdrawing it from the fold of the sheet, substantially as specified.

2. A device for folding the edge of a sheet of wire-cloth or like article, consisting of a supporting-bed in two parts and of a continuous surface, one part being stationary and the other part being hinged to the stationary part on a line parallel to the line on which the sheet is to be folded, in combination with a former the front edge of which substantially coincides with the front edge of the stationary part of the bed, all so constructed and arranged that the sheet to be folded may during the operation of folding be held between the stationary part of the bed and the former and the edge of the sheet folded by swinging the hinged part of the bed over upon the stationary part, said former being in combination with means for automatically withdrawing it from the fold of the sheet and with means for moving said former out of contact with the sheet, substantially as specified.

3. A device for folding the edges of a sheet of wire-cloth or like article, consisting of a bed in two parts, one part, A, being stationary and the other part, B, being hinged thereto, in combination with a former, E, and means for automatically withdrawing said former from the fold of the sheet by the movement of said former away from and out of contact with the sheet, substantially as shown and described.

4. A device for folding the edges of a sheet of wire-cloth or like article, consisting of a hinged bed, A B, former E, slats D D^4, toggle-joint J K, sliding bar L, and rod I, as specified.

317,858. **COMBINED HAME-TUG AND TRACE BUCKLE.** HENRY B. ROBERTSON, Havensville, Kans. Filed Sept. 30, 1884. (No model.)

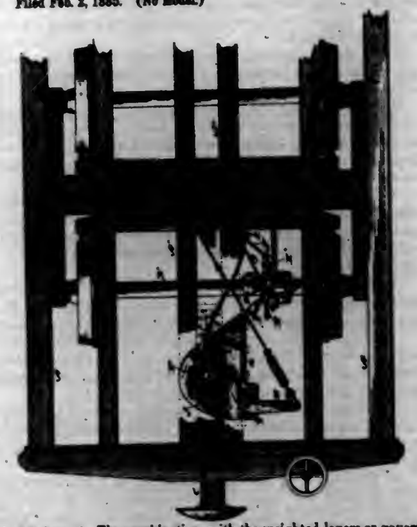


Claim.—1. The combination, with a plate formed with a buckle-frame and having a roller journaled therein, said roller being provided with a tongue and thumb-piece, of a latch on said plate, adapted to engage the thumb-piece and hold the tongue in position, substantially as set forth.

2. The roller *c*, formed with the finger-piece *c'* and tongue c^3, in combination with the bearings *d d'*, slot c^2, and pivoted plate E, substantially as and for the purposes set forth.

3. The bearing *d'*, slotted as shown at *h'*, in combination with the tongued roller *c* and holding-plate E, arranged substantially as and for the purposes described.

317,859. **AUTOMATIC CAR-BRAKE.** STILLMAN W. ROBINSON, Columbus, assignor to the Roto Automatic Brake Company, Mansfield, Ohio. Filed Feb. 2, 1885. (No model.)



Claim.—1. The combination, with the weighted levers or governor-arms controlling the brake-actuating mechanism, of the curved levers partially surrounding the axle and made substantially in crescent form, whereby they are adapted to be engaged by and to release the governor-arms without the aid of relieving points or notches in the levers, substantially as described.

2. The combination, with the pendent curved levers embracing the axle between them, of the weighted axle-levers made each in a single piece and arranged to operate on said curved levers, substantially as described.

3. The combination, with the curved levers partially surrounding the axle, and the weighted governor-arms thereon, of the pivoted gravity stop or latch and the rods or links directly connecting said levers and latch, substantially as described.

4. The weighted axle-levers or governor-arms made each in a single piece in elbow or bell-crank form, and provided with the concave end for engaging the curved pendent levers, substantially as described.

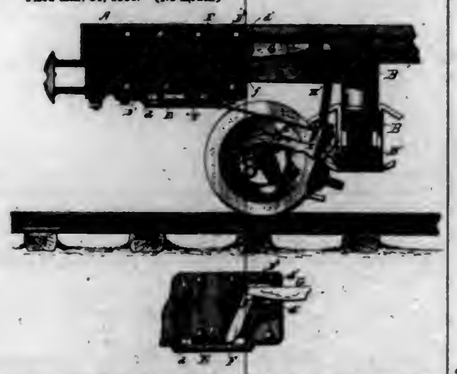
5. The combination, in an automatic brake mechanism, of the weighted axle-levers or governor-arms, the pendent curved levers embracing the axle, the pendent pivoted latch-lever connected to said

curved levers, and the cam-lever for setting or releasing the pivoted dog on the sliding draw-bar, substantially as described.

6. The combination, with the sliding draw-bar, of the pendent bracket or hanger *a*, the pivoted dog D, the brake-lever E, cam-lever F, and spring *l* for holding the cam-lever normally in position to be engaged by the gravity stop or latch, substantially as described.

7. The cam-lever F, provided with the curved heel-extension *f*, in combination with the spring *l*, arranged and operating substantially as described.

317,860. **AUTOMATIC CAR-BRAKE.** STILLMAN W. ROBINSON, Columbus, assignor to the Rote Automatic Brake Company, Mansfield, Ohio. Filed Mar. 30, 1885. (No model.)



Claim.—1. In an automatic car-brake mechanism, a governor consisting of a series of weights adapted to be thrown out by centrifugal action and secured to curved slides or arms moving in curved paths, substantially as described.

2. In an automatic car-brake mechanism, the curved centrifugal slides on the axle, in combination with the curved lever for setting or relieving the brake-lever fulcrum, substantially as described.

3. In an automatic car-brake mechanism, a brake-lever connected at one end to the brake rod or chain and having its other end pivoted to and moving with the sliding draw-bar, in combination with a movable fulcrum and means, substantially as described, for moving said fulcrum into and out of the path of said brake-lever.

4. The combination, in an automatic car-brake mechanism, of a sliding draw-bar or brake-lever pivoted to said draw-bar, a movable brake-lever fulcrum, and connections thence with the centrifugal governor on the axle, substantially as described, for controlling or setting and relieving said fulcrum.

5. The brake-lever pivoted to the draw-bar, in combination with a movable fulcrum for said lever and a governor or centrifugal weights on the axle for setting and relieving said fulcrum, substantially as described.

6. The combination of the sliding draw-bar, the brake-lever pivoted thereto, the movable fulcrum for said lever, the weighted governor-arms on the axle, and the curved lever interposed between said governor-arms and the movable fulcrum-block, substantially as described.

7. The combination, with the brake-lever, of the pivoted block or cross-head interposed between said lever and the brake rod or chain, and the spring connecting said block and lever, arranged and operating substantially as described.

8. The brake-lever adapted to be operated upon at one end by the sliding draw-bar and having its opposite end forked, as described, in combination with the pivoted and yielding block or cross-head L, through which connection is made with the brake rod or chain, substantially as described.

9. The brake-lever secured at one end to and operated by the draw-bar and provided with the bearing-shoulder *d'*, substantially as and for the purpose described.

10. The brake-lever secured at one end to the draw-bar, in combination with the movable fulcrum-block for said lever and the wedge-shaped piece for controlling the position of the fulcrum-block to hold it either in or out of engagement with the brake-lever in backing, as described.

317,861. **HOSIERY.** ELMER E. STATCHARD, Philadelphia, Pa. Filed Jan. 2, 1885. (Model.)

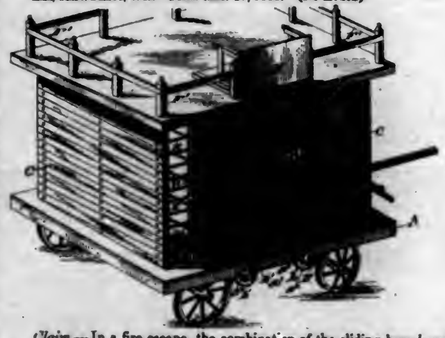
Claim.—1. An improved stocking having the sole ribbed crosswise and the top of the foot lengthwise, substantially as set forth and described.

2. An improved stocking, consisting of a sole, side, and toe piece ribbed transversely, and combined with a top piece and heel ribbed lengthwise, substantially as shown.

317,861.



317,862. **FIRE-ESCAPE.** CONRAD SCHRADER and FRIEDRICH W. KETTLER, Milwaukee, Wis. Filed Mar. 17, 1885. (No model.)



Claim.—In a fire-escape, the combination of the sliding bars *b* and blocks *c* with the lazy-tongs, lower platform, shafts D', cog-wheels *b'*, and connections *d*, as set forth.

317,863. **STOVE ATTACHMENT FOR GRATES AND FIRE-PLACES.** JAMES M. SEYMOUR, Cleveland, Ohio. Filed Mar. 26, 1884. (No model.)



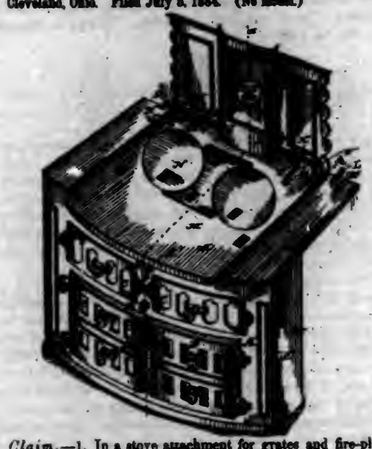
Claim.—1. The herein-described removable and adjustable stove attachment for grates and fire-places, consisting of the separable front A, sides G, top K, and hinged back L, said several separable parts being provided with adjustable slides and means for fixing said slides upon their respective parts in their adjusted position, to adapt the parts when put together to fit upon a grate or fire-place, and adapt the same to be used for cooking or heating purposes, substantially in the manner and for the purpose shown and set forth.

2. The combination of the front A, having doors B, and nutted screws E and H, adjustable top slide, C, adjustable sides G, and vertically-adjustable side slides, I, substantially as and for the purpose shown and set forth.

3. The combination of the front A, adjustable top slide, C, adjustable sides G, vertically-adjustable side slides, I, slotted brackets P, top plate, K, and adjustable top slides, O, substantially as and for the purpose shown and set forth.

4. The combination of the removable and adjustable top K, adjustable top slides, O, hinged back L, means for fastening the hinged back upon the top plate at its proper angle or position, and adjustable slides M, adapted to be fastened upon the hinged back in their adjusted position, substantially as and for the purpose shown and set forth.

317,864. **STOVE ATTACHMENT FOR GRATES.** JAMES M. SEYMOUR, Cleveland, Ohio. Filed July 5, 1884. (No model.)



Claim.—1. In a stove attachment for grates and fire-places, the combination, with a front plate having adjustable side plates and provided at its upper edge with rearwardly-extending flanges, of the supporting-plates provided at their rear ends with prongs adapted to enter suitable recesses in the fire-brick or lining of the grate, and having their front ends resting upon the flanges at the upper end of the front plate, substantially as set forth.

2. In a stove attachment for grates or fire-places, the combination, with a suitable front plate and supporting-plates, of a top plate and a flue-plate secured pivotally to the latter, substantially as set forth.

3. The combination, with the curved front plate having adjustable side plates and provided at its upper edge with rearwardly-extending flanges, of the supporting-plates having pins or prongs at their rear edges adapted to enter suitable recesses provided for their reception in the fire-bricks or lining of the plate, and the top plate having a pivoted and adjustable flue or throat plate, substantially as set forth.

4. In an adjustable stove attachment for grates or fire-places, the combination, with the top plate or cover having a cut-away portion at its rear edge and provided with upwardly-extending screw-threaded pins or bolts and perforated lugs, of the adjustable flue-plate having suitable pivoting-lugs, forwardly extending forked arms, and provided with a curved portion fitting in the recess at the rear edge of the top plate, and equipped with a suitably-constructed valve and a damper, substantially as set forth.

317,865. **APPARATUS FOR TRAINING HORSES TO HARNESS.** CHARLES F. SHEDD, Fairfield, Nebr. Filed July 3, 1884. (No model.)

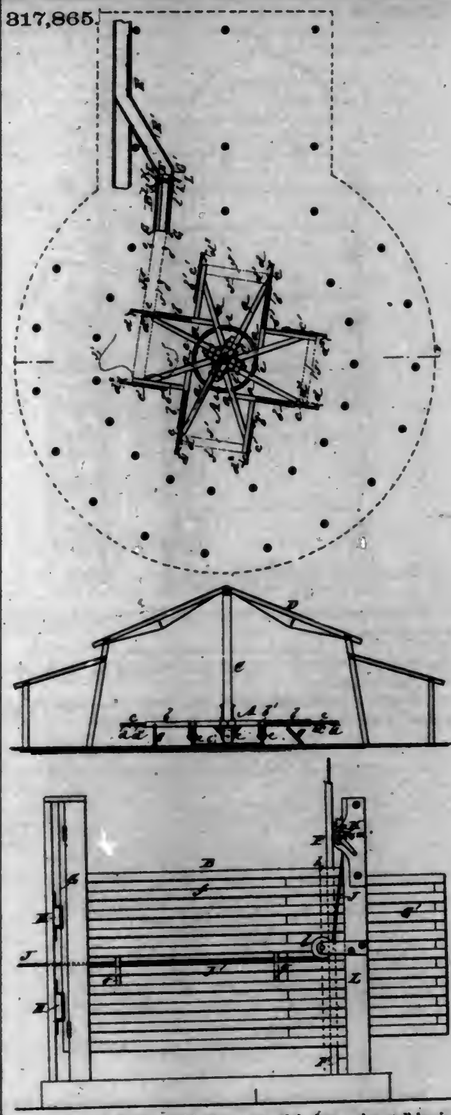
Claim.—1. The combination, with the harnessing-stall B and sweep A, of the leading-ropes J, attached to the stall and sweep, substantially as and for the purposes set forth.

2. The ropes J, connecting the harnessing-stall and sweep, combined with the sliding pieces *o o*, to which the horse may be strapped, substantially as and for the purposes set forth.

3. The sweep A, provided with the rope J' J', in combination with the leading-ropes J J and sliding pieces *o o*, the ropes J J being adapted to be stretched from the sweep to the stall B, substantially as and for the purposes set forth.

4. The sweep A, provided with the horizontal fixed sweep-arms *b b'*, one in front of the other, and the sliding bars *c*, mounted to slide on said arms, the arm *b'* being adapted to carry a neck-yoke and the arm *b* whiffletrees at their outer ends, as described, whereby the animal may be securely held in place when its harness is secured to the whiffletrees and neck-yoke, substantially as set forth.

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5. The combination, with the sweep, of the harnessing-stall having end doors, and provided with a windlass, and ropes J, adapted to be connected to the sweep and drawn taut by the windlass, to guide the animal when the gate is opened, substantially as set forth.

6. The combination, with the sweep, of the harnessing-stall having end doors, windlass, pulleys *l*, and ropes J, passing from said windlass over the pulleys, and adapted to be attached to the sweep, substantially as set forth.

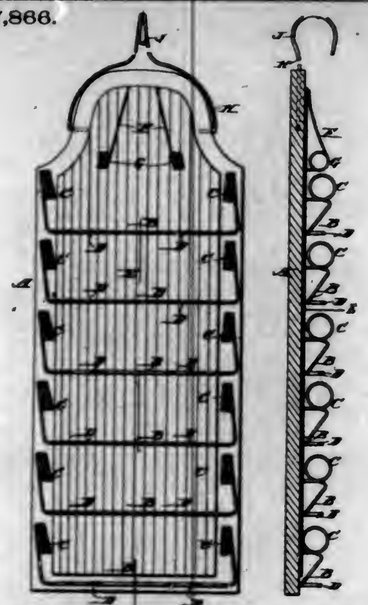
7. The combination, with a sweep and a harnessing-stall adapted to be connected therewith by ropes, as described, of the braces *g g*, hinged below the sweep, as shown, to engage it with their upper ends and lock it while the animal is being brought from the harnessing-stall.

317,866. **RACK FOR EXHIBITING SMALL WARES.** JOHN W. SCHEIBLER, Indianapolis, Ind. Filed May 17, 1884. (No model.)

Claim.—1. The combination, with the board A, of the wires B, provided with spiral springs C and loops D, and of the wires F, projecting upward and provided with spiral springs G, substantially as herein shown and described.

2. As an improved article of manufacture, a notion-exhibitor consisting, essentially, in the board A, the piece of fabric C, secured on the face thereof, the wires B, provided with spiral springs C and the loops

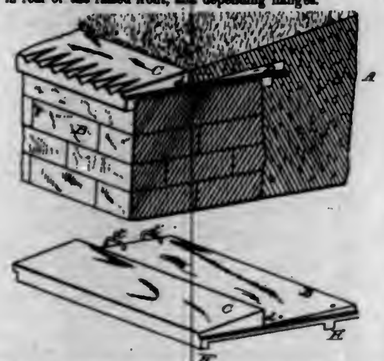
317,866.



D, and the upward-projecting wires F, provided with spiral springs G, substantially as set forth.

317,867. COPING. JOSEPH F. SMITH, Pittsburg, Pa. Filed July 1, 1884. (No model.)

Brief.—A metallic coping with a raised front, a rear beveled ledge, a gutter in rear of the raised front, and depending flanges.



Claim.—1. A metallic coping provided with a raised front, a rearwardly-projecting ledge or flange inclining toward the front of the coping, and forming a gutter for the reception of drainage, substantially as described.

2. The combination of front C, beveled ledge D, gutter *d*, and depending flanges E E, all constructed and arranged substantially as described.

317,868. MANUFACTURE OF RIDGE-CAPS FOR CORRUGATED ROOFING. JOHN SMITH, Kansas City, Mo. Filed Nov. 3, 1884. (Model.)



Claim.—1. A corrugated sheet of metal for roofing purposes, having a comparatively abrupt bend or bends directly across its corrugations, whereby the converging edges thereof may form any desired angle with each other, substantially as specified.

2. A sheet of metal for roofing purposes, having corrugated sides diverging from an apexial bead formed integral therewith, substantially as hereinbefore set forth.

3. The herein-described method of abruptly bending metal sheets laterally to the corrugations thereof, which consists in forming an apexial bead where the bend is situated, and of crimping or forming raised portions upon the said bead during the progress of the bending operation, substantially as and for the purposes set forth.

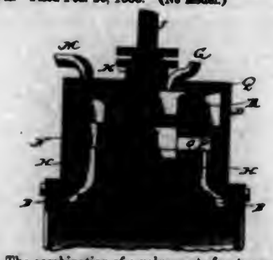
317,869. PACKING FOR STUFFING-BOXES OF PISTON-RODS, &c. JAMES B. SMITH, Euston Road, and ROBERT MARSHALL, Earlham Grove, County of Middlesex, England; said Smith assignor of his right to said Marshall, and said Marshall assignor of one-half to George Herbert Adair Thunder, Cathcart Road, South Kensington, County of Middlesex, England. Filed Feb. 12, 1885. (No model.) Patented in England Jan. 14, 1884, No. 1,420.



Claim.—1. The combination of the two separate annularly-grooved packing-rings A A, each divided longitudinally into two halves, the wedge-shaped tongue-pieces B B, interposed, respectively, between the adjacent longitudinal edges of the halves of the rings, and springs C, under tension, encircling the rings and tongue-pieces, for holding the parts in position by their action on the ring-sections, causing the latter to press the tongue-pieces directly against the piston or other rod, substantially as described.

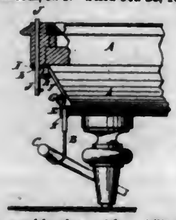
2. The combination of the two separate annularly-grooved packing-rings A A, each divided longitudinally into two halves and having their meeting ends provided with beveled surfaces, with the wedge-shaped tongue-pieces B B, interposed, respectively, between the adjacent longitudinal edges of the halves of the rings, and springs C, under tension, arranged, respectively, in the grooves of the rings and between the meeting ends of the rings, for forcing the rings apart and also clamping them upon the tongue-pieces, and thereby causing the halves of the ring to force the tongue-pieces upon the piston or other rod, substantially as described.

317,870. VALVE FOR STEAM-ENGINES. WILLIAM H. SMITH, La Crosse, Wis. Filed Feb. 26, 1885. (No model.)



Claim.—The combination of a valve-seat of a steam-cylinder having diametrically-opposite steam-ports, a cylindrical valve-chest having an annular bearing or seat upon the under side of its top, and a cylindrical rotating valve having diametrically-opposite segmental slots passing through it, and segmental recesses opening into a central exhaust-recess in the valve, and having an annular flange at its top fitting in the annular bearing in the valve-chest, as and for the purpose shown and set forth.

317,871. BRIDGE-INDICATOR FOR BILLIARD-TABLES. CHARLES F. SPAULDING, Elizabeth, N. J. Filed Oct. 28, 1884. (No model.)



Claim.—1. The combination, with a billiard-table, of the sliding-bars J, the sliding hooks B, and a connecting mechanism, substantially as herein shown and described, whereby the weight of a bridge-handle is made to raise the upper ends of the said sliding bars above the tops of the table-rails, as set forth.

2. The combination, with the table A, the sliding hooks B, and the sliding bars J, of the cords or chains F and the guide-pulleys G H, substantially as herein shown and described, whereby the said hooks and bars are made to move at the same time and in opposite directions, as set forth.

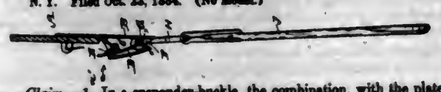
317,872. SHIRT. WILLIAM M. SPENCER, Carson, Nev. Filed Oct. 4, 1884. (No model.)



Claim.—1. The improved shirt herein described, provided with a vertical opening located at one side of the bosom and a second opening or slit intersecting said first opening near the top of the shirt and severing the neckband, and buttons and button-holes located substantially as described.

2. The improved shirt herein described, provided at one side of the bosom with a vertical seam or welt having secured thereto buttons, and at the other side of said bosom with a vertical slit or opening intersected at its top by a second slit or opening arranged at right angles therewith and severing the neckband, and suitable buttons and button-holes located adjacent to said slit or openings, substantially as set forth.

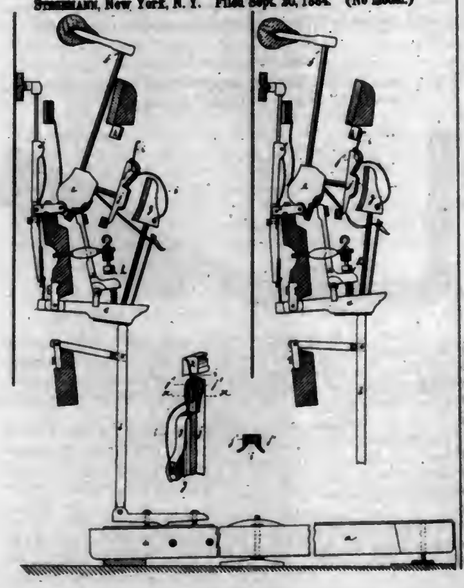
317,873. SUSPENDER-BUCKLE. FREDERICK B. SPOONER, Brooklyn, N. Y. Filed Oct. 23, 1884. (No model.)



Claim.—1. In a suspender-buckle, the combination, with the plate A, having a tongue, B, provided on its back with flanges C, in which a latch-plate, D, is pivoted, of the lugs F, projecting from the back of the tongue B, against which lugs the free end of the latch rests, and of the spring E, for resting on the said latch, substantially as described.

2. In a suspender-buckle, the combination, with a plate provided with devices, substantially as described, for holding a suspender band or strap, and having lugs formed with shoulders on the back surface to receive the hook or ring of a cast-off, of a latch pivoted to the plate and resting against the said lugs, substantially as herein shown and described.

317,874. REPETITION ACTION FOR UPRIGHT PIANOS. ADOLPH STREICHMANN, New York, N. Y. Filed Sept. 20, 1884. (No model.)

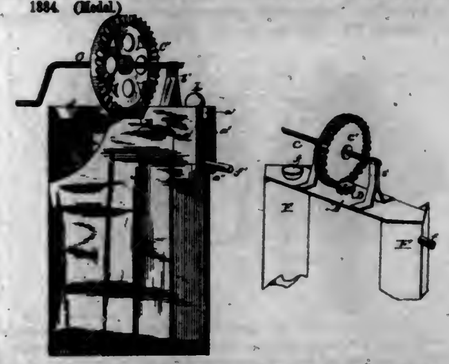


Claim.—1. The combination of butt *e*, hammer *f*, and jack *d*, operating substantially as specified, with spring *i*, bearing against the front of a catch on butt *e*, and adapted to hold the butt up on a partial release of the key, substantially as specified.

2. The combination, in an upright-piano-forte action, of check *g* with spring *i*, and with catch *j* and stop *k*, substantially as specified.

3. The combination, in an upright-piano-forte action, of jack *d*, hammer *f*, and butt *e* with catch *j*, having grooved arm *j'*, and with check *g*, spring *i*, and stop *k*, substantially as and for the purpose specified.

317,875. CHURN. JOHN J. STEVENS, Soldier, Iowa. Filed Nov. 12, 1884. (Model.)

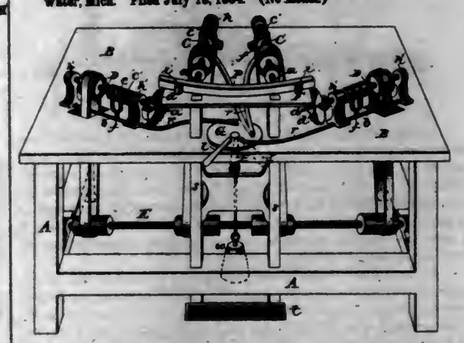


Claim.—1. In a churn, the rectangular body A, in combination with a frame having at each end triangular water-receptacles, said receptacles being connected to each other near their base by a pipe, G, substantially as shown, and for the purpose set forth.

2. In a churn, the rectangular body A, provided near its top with flanges *b b*, in combination with the removable frame having plates B B' and vertical triangular receptacles F, the corners of which project beyond the upper plate so as to provide with the flanges *b* supports for the covers H H, substantially as shown, and for the purpose set forth.

3. In combination with the rectangular churn-body A, the upper and lower plates, B B', having attached at their ends the receptacles F F, and the dasher-rod E, provided at its upper end with a pinion which engages with a gear-wheel mounted on a horizontal shaft, said shaft being supported by upright brackets *b'*, attached to the upper plate, B, the parts being organized substantially as shown, and for the purpose set forth.

317,876. WHEEL-FELLY MACHINE. WILLIAM H. STEVENS, Coldwater, Mich. Filed July 18, 1884. (No model.)



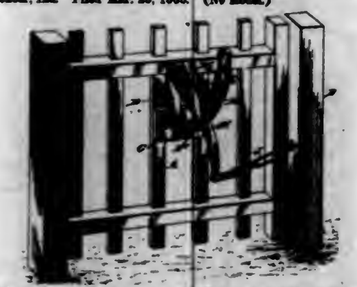
Claim.—1. The combination, with two shafts journaled in the same horizontal plane and tangent at their adjacent ends to the arc of a horizontal circle in said plane at the ends of said arc, of another shaft journaled in the same plane on a radius of the said arc, all of the said shafts being provided with boring-bits and means for reciprocating them longitudinally, as and for the purpose specified.

2. The combination, with two shafts journaled in the same horizontal plane, tangent at their adjacent ends to the arc of a circle in said plane at the ends of the said arc, and provided with circular saws on the said adjacent ends, of a table located centrally between the said adjacent ends and provided with vertical sliding guides, and guides for fixing a felly on the said table in a tangent position to the said shafts, as shown and described, whereby the felly so fixed may be carried down upon the saws to saw off both ends of the felly at once radially to its arc.

3. The combination, with two shafts, D, provided with saws on their adjacent ends and boring-bits in the same ends, of a table, F, provided with vertical guideways *s*, means for vertically reciprocating and setting the table, and means for rotating the boring-bits and reciprocating them longitudinally, substantially as shown and described.

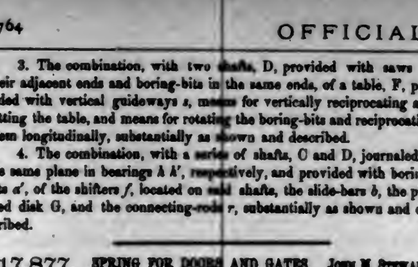
4. The combination, with a series of shafts, C and D, journaled in the same plane in bearings *h h'*, respectively, and provided with boring-bits *a'*, of the shifters *f*, located on said shafts, the slide-bars *b*, the pivoted disk G, and the connecting-rods *r*, substantially as shown and described.

317,877. SPRING FOR DOORS AND GATES. JOHN M. STEWART, Spencer, Ind. Filed Mar. 25, 1885. (No model.)



Claim.—In a device for automatically closing doors and gates, the combination of a plate secured to the face of each door or gate, having a vertical and a curved arm, with a lever pivoted to the upper end of said vertical arm, a chain connecting the free end of the said lever with the door or gate post, a curved bail secured by means of a bracket to the curved arm, and a spring coiled upon the said bail between the lever and an adjustable sleeve, said lever extending downwardly through said bail, all arranged and operating substantially as herein described, for the purpose set forth.

317,878. PORTABLE OVEN. ARTHUR P. STEWARD, Washington, D. C., assignor of two-thirds to T. L. Fracker and Willard Fracker, both of same place. Filed Mar. 25, 1885. (No model.)



Claim.—1. An article of manufacture consisting of a portable oven having double walls constituting a flue-space, said oven having an opening into the flue-space at one end, a flue at the opposite end communicating with the flue-space and extending down below the bottom of the oven, said flue having its front and rear walls extending at an angle in opposite directions, whereby said flue may connect with an opening in a stove, and exclude connection with an aperture, substantially as and for the purposes set forth and described.

2. An article of manufacture consisting of a portable oven having double walls constituting a flue-space, the said oven having an opening into the flue-space at one end, and provided at the other end with a flue communicating with the flue-space and extending down below the bottom of the oven, said flue having a plate attached thereto and a flange extending below the end of the flue, substantially as described.

3. An article of manufacture consisting of a portable oven having double walls constituting a flue-space, said oven being provided with an opening into the flue-space at one end, and having at the opposite end a flue communicating with the flue-space and extending down below the oven, said flue provided with a plate and having its inner wall extending below the flue and bent at an angle thereto, substantially as described.

4. An article of manufacture consisting of a portable oven having double walls which constitute a flue-space, said oven having an opening into the flue-space at one end, and having a flue at the opposite end communicating with the flue-space and extending down below the oven, said flue having a plate attached to its outer wall, and having its inner wall extending below the end of the flue and bent in an opposite direction to the plate, substantially as described.

5. An article of manufacture consisting of a portable oven having double walls constituting a flue-space around a heating-chamber, said oven having an opening into the flue-space at one end, and a flue at the opposite end communicating with the flue-space, a damper between the two openings into the flue-space, the said flue extending down below the oven and having a plate attached thereto, and a flange extending below the end of the flue, as and for the purpose set forth and described.

6. The combination of the portable stove having the combustion-chamber C, apertured at *i*, and extension-flue D, with the double-walled oven E, having the opening *h* and the flue *j*, said flue being provided with plates, substantially as described, for cutting off communication between the flue D and the combustion-chamber and the outer air, substantially as described.

7. The combination of the portable stove having the combustion-chamber C, apertured at *i*, and extension-flue D, with the double-walled oven E, having the opening *h* and the flue *j*, said flue being constructed, substantially as described, to cut off direct communication between the chamber C and the flue D, substantially as described.

317,879. WIRING INTERIORS FOR ELECTRIC LIGHTS. LUTHER STIERHORN and JONATHAN H. VAIL, New York, N. Y., assignors of one-half to Charles F. Hanington and Richard N. Dyer, both of same place. Filed July 14, 1884. (No model.)



Claim.—1. The combination, with supporting insulation, of electrical conducting-wires secured thereto at intervals by staples, hooks, or loops, of insulating material, substantially as set forth.

2. As a new article of manufacture, staples or hooks, of stiff insulating material, for securing electrical conducting-wires to a wood or other insulating backing or support, such staples or hooks being constructed to embrace the wires and secure them to the insulating backing or support by having their points forced into holes in such insulating backing or support, substantially as set forth.

3. The combination, with supporting insulation, of electrical conducting-wires secured thereto at intervals by staples, hooks, or loops and fastening wedges, of insulating material, substantially as set forth.

4. A side-wall molding of insulating material for supporting electrical conductors, having exposed face-grooves for the wires, said grooves being inclined on their lower sides to permit moisture to run from them, substantially as set forth.

5. A side-wall molding of insulating material for supporting electrical conductors, having exposed face-grooves for the wires, said grooves being inclined on their lower sides to permit moisture to run from them, and having overhanging edges on their upper sides, substantially as set forth.

6. A molding of insulating material having exposed parallel face or side grooves, in combination with electrical conducting-wires, secured in such grooves by fastenings of insulating material, substantially as set forth.

317,880. PIPE-LINE FOR CARRYING GAS. KENNEDY H. STIVASON, Kittanning, Pa. Filed Feb. 24, 1885. (No model.)

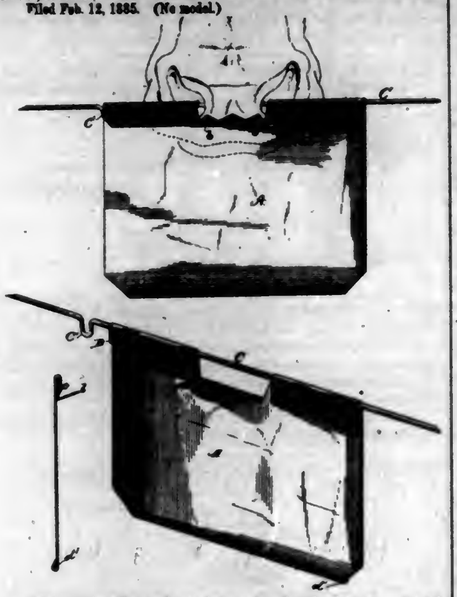


Claim.—1. In combination with a pipe-line for carrying gas under pressure, a supplemental pipe-line independent therefrom and above and close to the same, said supplemental line having perforations to permit the entrance of escaping gas, and suitable vent-pipes leading to the surface of the ground.

2. In combination with a pipe-line for carrying gas under pressure, a supplemental pipe-line having perforations therein, said supplemental line being formed in short sections extending above and close to the main line, and each section being provided with a separate vent-pipe leading to the surface of the ground.

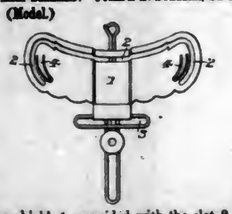
3. In combination with a pipe-line for carrying gas under pressure, the supplemental pipe-line having perforations therein to permit the entrance of gas escaping from the main line, and cowls extending over both lines at the joints, substantially as and for the purposes set forth.

317,881. CALF-WEANER. HOOPER B. STRAUT, Culbertson, Nebr. Filed Feb. 12, 1885. (No model.)



Claim.—A calf-weaner consisting of a plate having integral teeth, as described, and loop portions at its upper edge, one of said loop portions being so bent as to form a pocket, D, and the pointed securing-rod having a bend, C', substantially as shown, and for the purpose set forth.

317,882. SCARF-SHIELD. JOSEPH B. SULTZER, St. Louis, Mo. Filed Sept. 12, 1884. (Model.)



Claim.—1. The shield 1, provided with the slot 2, extending continuously in a curved line entirely along the top of the shield and downward along the end portions thereof, said shield having at its lower edge an attached ring, 3, for receiving the ends of the material composing the scarf, substantially as described.

2. The shield 1, having the slot 2 extending continuously in a curved line entirely along the top of the shield and downward along the end portions thereof, said portions having the attached ring 3, the spring-tongues 4 for securing a neckband, the sliding button-loop bar, and means for holding the bar in position, substantially as described.

3. A holder or shield for a scarf or tie, consisting of a base having a slot near its top and end edges, a ring secured to such base, and tongues or means for adjustably securing thereto a neckband, substantially as described.

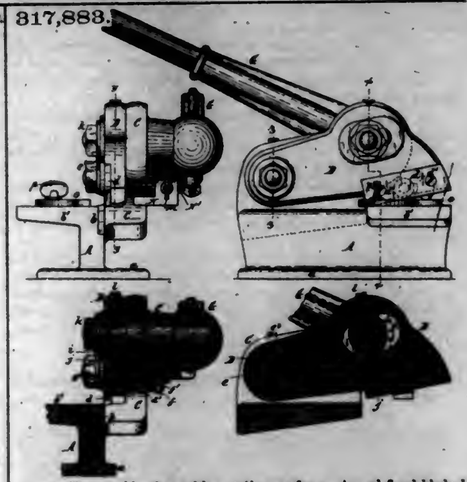
317,888. METAL-SHEARS. CLARK A. SVENSON, Buffalo, N. Y., assignor of one-half to William W. Oliver, same place. Filed Apr. 1, 1884. (No model.)

Claim.—1. The combination, with the stationary frame A, provided with a stationary blade, *b*, of an arm, D, provided with a removable blade, *d*, and pivot *e*, made vertically adjustable on the stationary frame to regulate the angle of the movable blade with reference to the stationary blade, substantially as set forth.

2. The combination, with the stationary frame A, provided with the fixed blade *b*, of an arm, D, having a movable blade, *d*, and pivot *e*, formed eccentrically on a bolt, E, which is capable of being turned in the stationary frame for raising and lowering the pivot *e*, substantially as set forth.

3. The combination, with the stationary frame A and fixed blade *b*, of the arm D, provided with a blade, *d*, bolt E, provided with an eccentrical pivot, *e*, and projection *f*, and stops *f'* *f²*, secured to the stationary frame, substantially as set forth.

317,883.



4. The combination, with a stationary frame, A, and fixed blade *b*, of the pivoted arm D, provided with a blade, *d*, elongated opening I, formed in the arm D, actuating-pin *h*, and roller *i*, mounted on the pin *h* in the opening I, and hand-lever G, substantially as set forth.

5. The combination, with the stationary frame A and fixed blade *b*, of the pivoted arm D, provided with a blade, *d*, opening I, formed in the arm D, actuating-pin *h*, roller *i*, bearing-piece *j*, and set-screw *l*, and hand-lever G, substantially as set forth.

6. The combination, with a stationary frame, A, and fixed blade *b*, of a pivoted arm, D, provided with a blade, *d*, horizontal rod N', secured to the arm D, and gage N, adjustably secured to the rod N', substantially as set forth.

7. The combination, with the stationary frame A, provided with a fixed blade, *b*, and table *b'*, of a gage, *o*, adjustably secured on the table *b'* in front of the fixed blade *b*, and a pivoted arm, D, provided with a blade, *d*, substantially as set forth.

317,884. EXTENSIBLE STEP-LADDER. HENRY TEMPLE, Grand Rapids, Mich. Filed Apr. 6, 1885. (No model.)



Claim.—1. The combination, with the section A, provided with projecting pins on its sides, of the section A', formed with notches or recesses to engage with said pins, and provided with pivoted flanged slides, the flanges whereof fit around the edges of the side bars of section A, substantially as described.

2. The combination, with section A, provided with hooks projecting therefrom, of section A', having a hinged connection with section A by means of flanged slides, whereby section A' may be moved on

section A and be supported in an extended position by the hooks on section A, substantially as described.

3. The combination, with sections A and A', hinged together, of a flexible connection between the two sections permitting the sections to be adjusted at various angles to each other and preventing them from slipping apart, substantially as described.

4. The combination of section A, provided with catches, section A', hinged thereto and provided with catches, and a flexible rope or chain connected with one section and provided with hooks to engage with the catches on both sections, substantially as described.

5. The combination of sections A and A', hinged together to permit one section to be extended upon the other, the extensible section being provided with a soft frictional cushion at its ends, substantially as described.

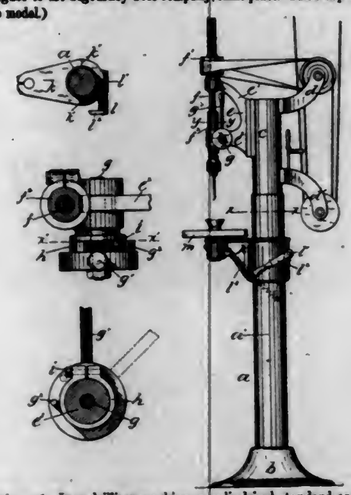
6. The within-described step-and-extension ladder, composed of the section A, provided with catches and pins on its sides and hooks projecting from it, the section A', hinged to section A by pivoted flanged slides, its side bars being adapted to engage with the pins on section A, and the flexible cord or chain provided with hooks to engage with catches on both sections, substantially as described.

317,885. PENDULUM-LEVEL. WILLIAM C. THAYER, Bainbridge, N.Y. Filed Feb. 17, 1885. (No model.)



Claim.—In a level, the rectangular frame A, having the usual mortise, glass *b*, and confining-ring C, in combination with the bar E, having shouldered posts D, the dial-plate B, formed with annular projecting rim *a*, and connected to the posts by screws *d*, the upright shaft *f*, carrying the pointer *g*, and horizontal weight F, substantially as and for the purpose set forth.

317,886. DRILLING-MACHINE. THOS. H. THOMPSON, Hartford, Conn., assignor to the Sigourney Tool Company, same place. Filed Sept. 1, 1884. (No model.)



Claim.—1. In a drilling-machine, a cylindrical standard or column having on its surface an index-line, in combination with a sliding bracket, also bearing a line, whereby the coincidence of the axis of the work-holding device on the bracket and the axis of the drill-spindle may be determined at any point along the path of the sliding bracket, all substantially as described.

2. In combination, a cylindrical column or standard of a drilling-machine, and a sliding bracket, *k*, bearing a safety-clamp, *l*, consisting of the threaded bolt working in the lugs on the bracket and having a handle, l^2, and the spring l^3, fast to the bracket and to the lever-handle, all substantially as described.

3. In a drilling-machine, in combination, a drill-spindle, *f*, bearing a rack, a feed-shaft, *g*, having a feed-lever, *g'*, with projecting pin or lug g^2, and a collar, *h*, with a clamp device, and a part forming a stop in the path of the pin on the lever, all substantially as described.

4. In a drilling-machine, in combination, spindle-bracket *e*, with arm e^2, drill-spindle *f*, with sleeve f^2, having a rack feed-shaft, *g*, with cog-wheel in mesh with the rack, and bearing-lever *g'*, with pin g^2, and collar *h*, clamped by bolt *i*, all substantially as described.

5. In a drill-machine, in combination, a drill-spindle, *f*, bearing a rack, a feed-shaft, *g*, having a feed-lever, *g'*, an adjustable collar, *h*, with a clamp device, and also a projecting part forming a stop in the path of the lever, all substantially as described.

317,887. FLEXIBLE TIP FOR CONDUCTING-CORDS. GEORGE K. THOMPSON, Malden, assignor to the American Bell Telephone Company, Boston, Mass. Filed Jan. 29, 1885. (No model.)

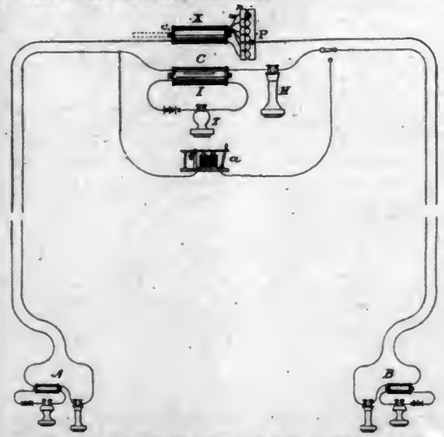


Claim.—1. A conducting-cord having a flexible, yielding, and resilient tip constructed of wire formed into a tube or cylinder by successive helically-disposed convolutions.

2. A conducting-cord having a flexible, yielding, and resilient tip constructed of wire formed into a tube or cylinder by successive helically-disposed convolutions of substantially uniform diameter, terminating in a needle or point.

3. A flexible conducting-cord having a tip constructed of spring brass wire formed for a portion of its length into a spiral.

317,888. TELEPHONE-CIRCUIT. HENRY S. THORNBERRY, Boston, Mass. Filed Nov. 3, 1884. (No model.)



Claim.—1. The combination, at a station arranged for telephonic communication, of a telephone or indicating instrument located in one side of a metallic circuit or loop, and an adjustable resistance substantially equal thereto located in the other side of said circuit or loop

2. The combination, at a station arranged for telephonic communication, of a telephone located in one side of a metallic circuit or loop, and an adjustable resistance-coil having a core adjustable with respect to the extent of its insertion therein located in the other side of said circuit or loop.

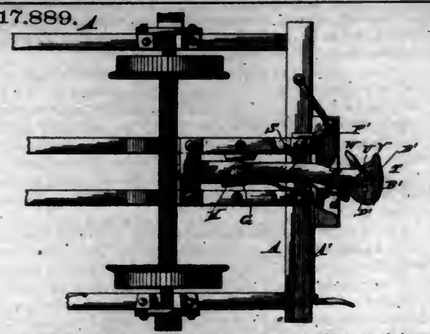
3. The combination, at a station arranged for telephonic communication, of a telephone or indicating instrument located in the first side of a metallic circuit or loop, and means, such as a resistance, located in the second side of said circuit or loop, for producing an electrical effect substantially equal to the effect due to the presence of the said telephone or indicating instrument in the first side.

317,889. CAR-COUPLING. IVOR R. TITUS and HENRY C. BOSSINGER, Huntington, W. Va. Filed Oct. 2, 1884. (No model.)

Claim.—1. The combination, with the bifurcated draw-bar, of the draw-head pivoted at the forward end thereof, the parts of the draw-bar at each side of the draw-head extending beyond the pivotal pin, and being provided with apertures coinciding with the coupling-pin aperture of the draw-head, whereby the said head may be locked and the link engaged by the coupling-pin simultaneously, substantially as specified.

2. The combination, with the connecting-stirrup, of the bolt passing through rear of said stirrup and the cross-beam of the draw-bar frame, the draw-bar constructed in two parts connected together and to said stirrup by a single connecting-pin, against which the head of the bolt bears, and the spiral spring for controlling the longitudinal movements of the draw-head, all arranged to operate substantially as specified.

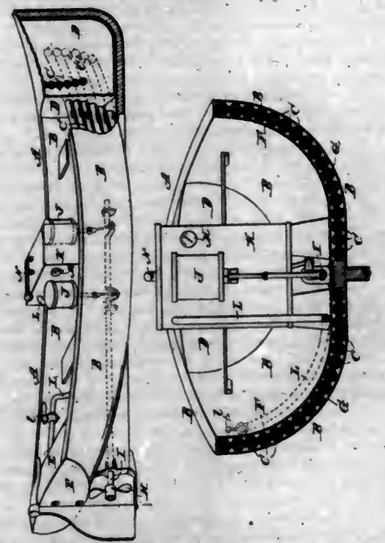
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3. The combination, with the draw-bar, of the stirrup consisting of a cross-beam having a stop to hold the draw-bar, and pivoted to links swung from the car-timbers, whereby the draw-bar is held normally, substantially as specified.

4. The combination, with the draw-bar and its swinging head, of the curved abutment located at one side of said head, the two being so arranged relatively that the head may pass the abutment in coupling and be held by said abutment when coupled, substantially as specified.

317,890. PROPULSION OF SHIPS, &c. DANIEL S. TROY, Montgomery, Ala. Filed Mar. 5, 1884. (No model.)



Claim.—1. The combination, with the hull of a ship or boat, A, of the air-reservoirs C, arranged between the walls of the sides and bottom, the air-reservoirs D E, arranged at the bow and stern, respectively, and communicating with the air-reservoirs C, and means for connecting the said air-reservoirs with the propelling mechanism, substantially as herein shown and described.

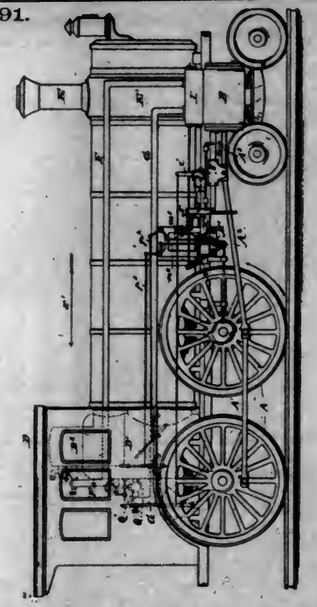
2. The hull of a ship or boat provided with the tubular air-reservoirs C, arranged between the walls of the sides and bottom, the bow and stern reservoirs, D E, and the central reservoir, K, connected with the stern reservoir, in combination with the propeller-shaft I and the engines J, connected with the central reservoir, substantially as herein shown and described.

317,891. COMPRESSED AIR AND GAS LOCOMOTIVE-ENGINE. Daniel S. TROY, Montgomery, Ala. Filed July 19, 1884. (No model.)

Claim.—1. The combination, with a locomotive-frame, of the air-vessel C, mounted longitudinally thereon in place of the usual boiler, and divided into two compartments, C' and C^2, for compressed air and gas, a stack, E, at the front end of vessel C, channels E', formed on opposite sides of the vessel C, and leading to the stack and the exhaust-channels E^2, leading from the piston-cylinders to the passages E', substantially as set forth.

2. In a locomotive-engine, the combination, with a receptacle for gas and a receptacle for air, of cylinders, slide-valves for opening and

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closing at suitable intervals the pipes through which the gas and air pass, a mixing-chamber, into which the gas and air pass, and a hollow slide-valve in the said mixing-chamber, substantially as herein shown and described.

3. In a locomotive-engine, the combination, with a receptacle for air and a receptacle for gas, of a cylinder in which the gas and air can be exploded, slide-valves for alternately opening and closing the pipes for conducting the air and gas to the cylinder, a chamber in which the gas and air are mixed, check-valves for preventing the mixture of air and gas from passing out of the explosion-chamber back into the pipes connected with the tanks or vessels, and a hollow slide-valve in the explosion-chamber, substantially as herein shown and described.

4. In a locomotive-engine, the combination, with a receptacle for air and a receptacle for gas, of a cylinder in which the mixtures of air and gas can be exploded, separate pipes for conducting gas and air to the cylinder, the rod H, provided with a shoulder, H^2, and a thinner part, H', the valve A, mounted rigidly on the rod H, and the valve A', mounted loosely on the part H' and provided with clutching devices, whereby the valve A will remain open a longer time than the valve A', substantially as herein shown and described.

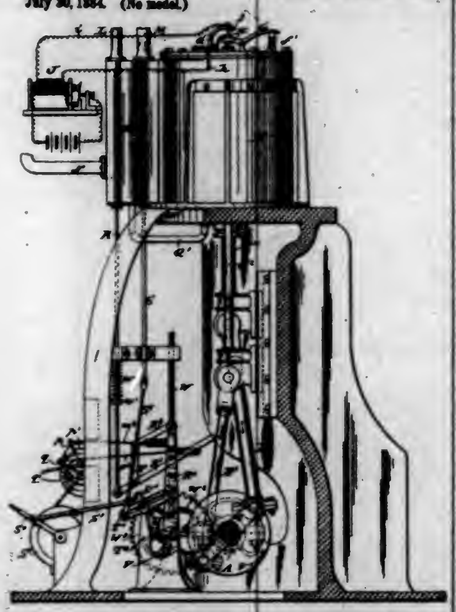
5. In a locomotive-engine, the combination, with a vessel or tank for containing gas and a vessel or tank for containing air, of a cylinder, the pipes G F, connecting the above-mentioned vessels or tanks with the cylinder, the rod H, the valve A, mounted rigidly on the same and adapted to close the pipe G, the valve A', mounted loosely on the rod H' and adapted to close the pipe F, substantially as herein shown and described.

6. In a locomotive-engine, the combination, with a tank or vessel for air and a tank or vessel for gas, of a cylinder in which the mixture of gas and air can be exploded, slide-valves for admitting gas and air into a mixing-chamber, and a slide-valve which is operated by a cam on the driving-shaft, and a slide-valve for admitting the mixture of gas and air into the cylinder, which slide-valve is operated from the cross-head, substantially as herein shown and described.

7. In a locomotive-engine, the combination, with a tank or vessel for air and a tank or vessel for gas, of a cylinder in which the mixture of gas and air can be exploded, a slide-valve for admitting the gas and air into a mixing-chamber, and a slide-valve for admitting the mixture of gas and air into the cylinder, devices for operating the latter slide-valve from the cross-head, and of a pivoted T-lever for reversing the slide-valve for admitting the mixture of gas and air into the cylinder, substantially as herein shown and described.

8. In a locomotive-engine, the combination, with a tank or vessel for air and a tank or vessel for gas, of a cylinder in which the mixture of gas and air can be exploded, a slide-valve for admitting the gas and air into the cylinder, an electric spark-producing device, an electric circuit connecting the said spark-producing device with the operating-rod of the slide-valve, and of devices for adjusting the slide-valve rod in such a manner that the spark is produced a greater or less time after the mixture of explosive gas has been admitted into the cylinder, substantially as herein shown and described.

317,892. GAS-ENGINE. DANIEL S. TROY, Montgomery, Ala. Filed July 30, 1884. (No model.)



Claim.—1. A gas-engine constructed with two independent cylinders, each containing an independent piston, both pistons being adapted to act upon the same shaft, and with pipes, channels, or other conductors for conducting compressed gas into one cylinder, and then conducting the gas after it has expanded into the second cylinder to be exploded, the first-mentioned cylinder being open at one end and the second-mentioned cylinder being closed at both ends, substantially as herein shown and described.

2. In a gas-engine, the combination, with a cylinder open at one end and a cylinder closed at both ends, of pistons in the said cylinders, channels, tubes, or other conductors for conducting gas into the open cylinder, and from the same into the closed cylinder, and of a pipe for conducting air into one end of the closed cylinder, substantially as herein shown and described.

3. A gas-engine constructed with a cylinder which is open at one end and a cylinder closed at both ends, pistons in the cylinders, pipes, channels, or other conductors for conducting compressed gas into the open cylinder and from the same into the closed cylinder, and a pipe connected with the bottom of the closed cylinder and placed in communication with channels, pipes, or other conductors for conducting the air from the closed cylinder into a chamber with the gas that has been conducted out of the open cylinder, substantially as herein shown and described.

4. In a gas-engine, the combination, with a cylinder open at one end, a cylinder closed at both ends, and a gas-chamber, of a piston in each cylinder, and of tubes, channels, or other conductors for conducting compressed air into the open cylinder, from the said open cylinder into the gas-chamber, and from the gas-chamber into the closed cylinder, substantially as herein shown and described.

5. In a gas-engine, the combination, with a cylinder open at one end, a cylinder closed at both ends, and a gas-chamber, of a piston in each cylinder, channels, tubes, or other conductors for conducting compressed gas into the open cylinder, and from the same into the gas-chamber, and from the gas-chamber into the closed cylinder, and tubes, channels, or other conductors for conducting air from the closed cylinder into the gas-chamber, substantially as herein shown and described.

6. In a gas-engine, the combination, with a cylinder open at one end, a cylinder closed at both ends, and a gas-chamber, of a piston in each cylinder, a shaft having directly-opposite cranks, with which the piston-rods of the two cylinders are connected, channels, tubes, or other conductors for conducting compressed gas into the open cylinder, channels for conducting the gas from the open cylinder into the gas-chamber, and channels for conducting the gas from the gas-chamber into the closed cylinder, substantially as herein shown and described.

7. In a gas-engine, the combination, with a cylinder open at one end and a cylinder closed at both ends, of pistons in the cylinders, which pistons are connected with the opposite cranks of a crank-shaft, so that the said pistons will be moved in opposite directions, pipes, channels, or other conductors for conducting compressed gas into the open cylinder, and channels, pipes, or other conductors for conducting the gas after it has expanded in the open cylinder into the closed cylinder, substantially as herein shown and described.

8. In a gas-engine, the combination, with a cylinder open at one end and a cylinder closed at both ends, of pistons in the said cylinders, the said pistons moving in opposite directions, pipes or other conductors for conducting compressed gas into the open cylinder, and after it has expanded from the same into the closed cylinder, and an automatically-operating device for admitting the gas and air mixed within the gas-chamber into the said closed cylinder when the piston in the said closed cylinder is near one end of the said cylinder, substantially as herein shown and described.

9. In a gas-engine, the combination, with a cylinder open at one end and a cylinder closed at both ends, of pistons in the said cylinders, the said pistons moving in opposite directions, pipes or other conductors for conducting compressed gas into the open cylinder, and after it has expanded in the same into the closed cylinder, an automatically-operating device for admitting gas and air mixed in the gas-chamber into the said closed cylinder when the piston in the closed cylinder is near one end of the said cylinder, and an automatic device for producing a spark by closing an electric circuit, or in any other suitable manner, directly after the mixture of gas and air has been admitted into the closed cylinder, substantially as herein shown and described.

10. In a gas-engine, the combination, with two cylinders connected by suitable channels, of a piston in each cylinder, and two sets of valves for admitting gas and air into a gas-chamber connected with one of the cylinders, substantially as herein shown and described.

11. In a gas-engine, the combination, with two cylinders, of pistons in the same, and of slide-valves for admitting gas into one cylinder and air into the other, and admitting the mixture of gas and air into the latter cylinder, substantially as herein shown and described.

12. A gas-engine constructed with two concentric cylinders, above the outer one of which a gas-chamber is formed, substantially as herein shown and described.

13. A gas-engine constructed with two concentric cylinders, on the outer one of which a gas-chamber and a valve chest or box are formed, substantially as herein shown and described.

14. A gas-engine constructed with two concentric cylinders, a gas-chamber, a valve-box, and with a pipe connecting one end of the inner cylinder with the valve-box, substantially as herein shown and described.

15. In a gas-engine, the combination, with the concentric cylinders E' E^2, above the latter of which a gas-chamber, F, is formed, of the valve F^2, the valve-stem f', the pivoted lever G, the sliding rod H in one end of the inner cylinder, E', and the pistons D' and D^2 in the cylinders E' and E^2, substantially as herein shown and described.

16. In a gas-engine, the combination, with the concentric cylinders E' E^2, of which the latter forms a gas-chamber, F, of the valve F^2, the valve-stem f', the lever G, the sliding rod H in the end of the cylinder E', the contact g, secured on one end of the lever G and connected with an electric lighter, I, the arm G', the contact j on the same, an induction apparatus connected with the said contacts, and of the pistons D' D^2 in the said cylinders, substantially as herein shown and described.

17. In a gas-engine, the combination, with the cylinders E' E^2, of which the latter forms the gas-chamber F, of the pistons D' D^2, the valve-box K, the valves a b, mounted on the valve-rod R, and the valves r s, mounted on a valve-rod, S, the pipe Q, connecting a channel in the valve-box with the cylinder E', and devices for operating the valve-rods from the shaft, substantially as herein shown and described.

18. The herein-described method of cooling the explosive-cylinder of a gas-engine, consisting in conducting compressed gas into a cylinder surrounding the said explosive-cylinder, whereby the walls of the latter will be cooled by the expansion of the compressed gas, as set forth.

317,893. VELOCIPEDE. DANIEL S. TROY, Montgomery, Ala. Filed Aug. 19, 1884. (No model.)

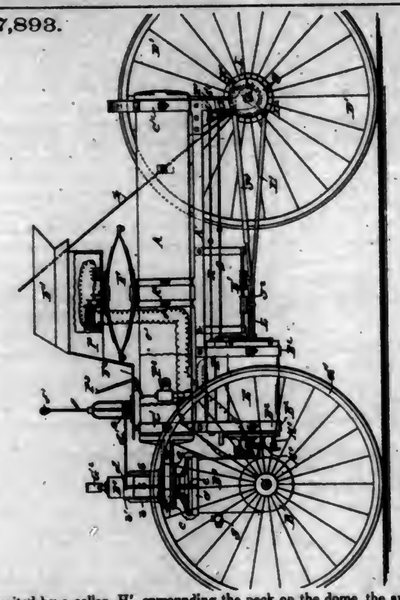
Claim.—1. In a velocipede, the combination, with a vehicle-frame, of two gas-tanks held longitudinally in the said frame, a rear driving-wheel located between the tanks, a transverse front gas-tank adapted to revolve in the horizontal plane, and wheels mounted on the ends of the transverse tank, substantially as herein shown and described.

2. In a velocipede, the combination, with a vehicle-frame, of two longitudinal gas-tanks, A, and the transverse gas-tank B, having a dome, B^2, on which a neck, B^4, is formed, and of the united necks H, secured on the front ends of the tanks A and surrounding the neck B^4, substantially as herein shown and described.

3. In a velocipede, the combination, with a vehicle-frame, of two longitudinal tanks, A, the transverse tank B, provided with a dome, B^2, and a neck, B^4, the necks H, secured to the front ends of the tanks A, and united by a collar, H', surrounding the neck on the dome, the arms b c, projecting upward and downward from the collars h h', and the rings b' and c' on the ends of the arms b and c, substantially as herein shown and described.

4. In a velocipede, the combination, with a vehicle-frame, of two longitudinal tanks, A, the transverse tank B, provided with a dome, B^2, and a neck, B^4, the necks H, secured to the front ends of the tank A,

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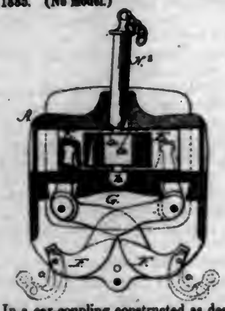
and united by a collar, H', surrounding the neck on the dome, the arms b c, projecting upward and downward from the collars h h', the rings b' and c' on the ends of the arms b and c, the arms d, projecting from the top ring, b', the connecting-rods d', the transverse rod e, the shaft f, and the transverse handle-bar f', substantially as herein shown and described.

5. A velocipede constructed with a skeleton frame provided with two rings or frames at the front and rear, and rings at the middle for holding the two tubular gas-tanks longitudinally, substantially as herein shown and described.

6. A velocipede constructed with a frame provided with two rings at the front and rear for holding the tubular gas-tanks, and of downwardly-projecting arms at the rear in which the rear axle is journaled, substantially as herein shown and described.

7. A velocipede constructed with a frame having two rings at the front and rear for holding tubular gas-tanks, and with hangers projecting downward for holding a cylinder and valve-chest, substantially as herein shown and described.

317,894. CAR-COUPLING. ALVIN W. VAN DORSTON, Portland, Oreg. Filed Mar. 12, 1885. (No model.)



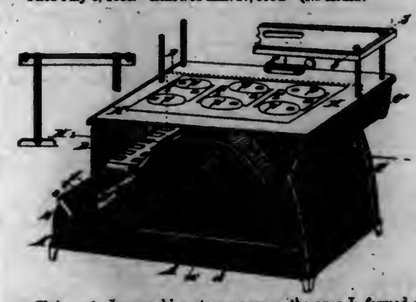
Claim.—1. In a car-coupling constructed as described, the draw-head A, having the transverse recesses D and G, central vertical openings, H and b, and provided with the locking-jaws E, having extensions or flanges a, and the operating-levers F, substantially as and for the purpose specified.

2. In a car-coupling constructed as described, the draw-head A, having the transverse recesses D and G and central vertical openings, H and b, the said recess G communicating with the recess D through the vertical openings g g, substantially as and for the purpose specified.

3. In a car-coupling constructed as described, the draw-head A, in combination with the locking-jaws E and operating-levers F, having the pivoted shanks c, substantially as and for the purpose specified.

4. In a car-coupling constructed as described, the combination of the levers F and locking-jaws E with pin H^3, for automatically coupling with the connecting-bar or common link, substantially as specified.

317,895. COOKING-STOVE. EZRA W. VAN DUSEN, Jr., Newport, Ky. Filed July 8, 1881. Renewed Mar. 27, 1884. (No model.)



Claim.—1. In a cooking stove or range, the oven L, formed of two metal casings arranged to create a continuous air-space between them, the said casings being provided with air-holes n n' for the circulation of the heated air from the inside of the oven around the said air-space, and into the flue under the oven, substantially as described.

2. The combination, with the oven L, arranged directly within the stove or range, and provided with the curved top and sides, of a deflecting-plate, R, located above the rear portion of the oven and below the rear pot-holes in the top plate, H, for directing the products of combustion against the said rear pot-holes, substantially as and for the purpose described.

3. The combination, with the curved oven located within the stove or range, the flue M above the curved oven, the diving-flue M' at the rear of the oven, and the horizontal flue N, of the deflecting-plate R, pivoted above the rear portion of the curved oven, and below the rear pot-holes in the top plate, H, substantially as described, whereby the products of combustion can be directed upon the rear pot-holes or into the diving-flue M', as set forth.

4. The cast-metal skeleton plate A, provided with the central open space, and flange a'', formed by an offset, in combination with a wrought-iron central plate, A^3, substantially as described.

5. The back plate of the stove formed of curved plates C C', in combination with the curved oven and the top plate, H, substantially as and for the purpose described.

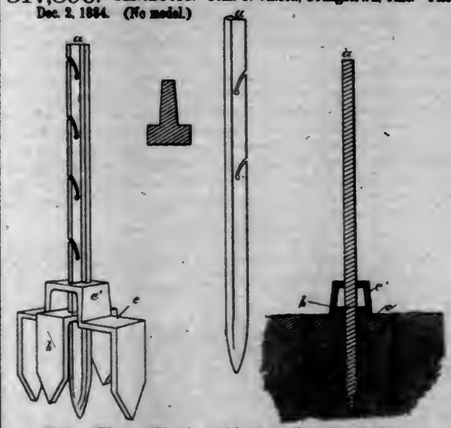
6. In a cooking-stove, the combination and arrangement of the flues M, M', N, N', O, and O', leading from the grate-basket around the oven to the uptake, in the manner substantially as herein set forth.

7. The rear end plate composed of the two curved converging plates C C' to form the outer boundary of the rear diving-flue, M', and a space for the deflecting-plate R, substantially as herein set forth.

8. The ash-chute B'', attached in an inclined position to the oven and to the front plate of the stove, and forming the upper boundary of a lower front flue, N', which communicates with a vertical flue, O', at the side of the stove, substantially as described.

9. The detachable ash-box S, provided with a projection, p, and rear slot, S', in combination with the front plate, B, provided with the flanged plate t', substantially as described.

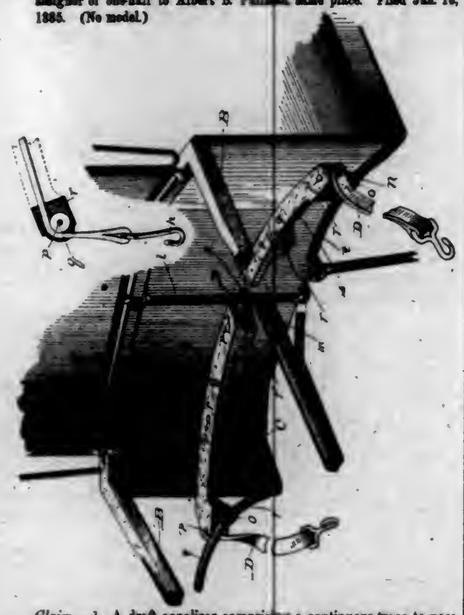
317,896. FENCE-POST. JOHN J. VEITCH, Youngstown, Ohio. Filed Dec. 2, 1884. (No model.)



Claim.—The combination, with the T-shaped pointed fence-post, of the anchor consisting of the shouldered section b, pointed at the lower ends, and provided with a T-shaped aperture for the post, and the sec-

tion *c*, pointed at its ends and having an arc, *c'*, widening from the top down so as to lock the section *b* and form two rigid supports for the post, the arched portion being provided with a T-shaped aperture through which the post passes, substantially as specified.

317,897. DRAFT-EQUALIZER. JOHN W. WADWRIGHT, Chicago, Ill., assignor of one-half to Albert B. Pullman, same place. Filed Jan. 16, 1885. (No model.)



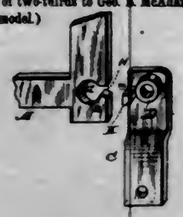
Claim.—1. A draft-equalizer comprising a continuous trace to pass around suitable bearings rigidly secured toward opposite sides of the forward part of a vehicle, and forming a rigid whiffletree, and to be attached at its ends to the harness on opposite sides of the animal hitched thereto, as and for the purpose set forth.

2. In combination with a one-horse vehicle, a curved bar, C, rigidly secured to the front of the vehicle, to receive and serve as a guide for a continuous trace, substantially as described.

3. A draft-equalizing device for one-horse vehicles having their forward ends horizontally concave in form, comprising a plate, *s*, curved to conform to the concave shape of the front portion of the said vehicle, and provided with housings *r*, and rigidly secured to lie within the said concave portion, bearing-surfaces within the said housings, and a continuous trace, D, passing over the rear sides of the said bearings and projecting at each end beyond the extremities of the said plate, substantially as and for the purpose set forth.

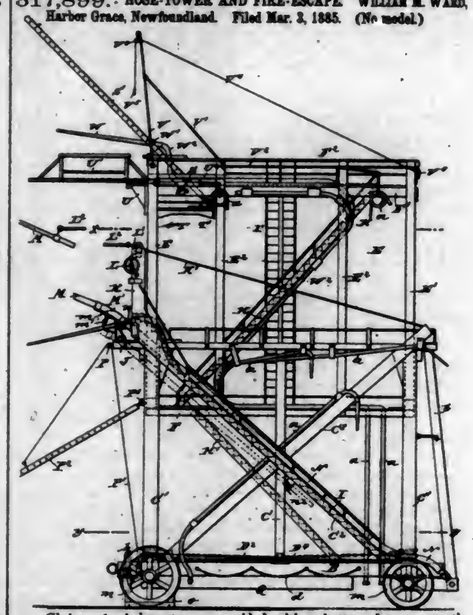
4. The combination, with a one-horse cab provided with a horizontally-concaved front, A, and having braces *t* to support the thills, of a draft-equalizing device comprising a plate, *s*, curved, as shown, to lie within the said front A lengthwise with the concave surface thereof, and secured toward its opposite extremities to the said braces *t*, housings *r* and *r'* upon the lower surface of the said plate, pulleys or rollers *q*, within the said housings and rotating upon vertical shafts *p*, backward-projecting arms *m* upon the housing *r'* embracing the central vertical rod, *l*, a bolt, *k*, passing through the said arms transversely behind the said rod *l*, and a strip, *i*, passing over the rear sides of the said pulleys or rollers *q*, and projecting at each end beyond the extremities of the said plate, and provided toward each of its extremities with a connecting device, *h*, the whole being constructed and arranged to operate substantially as and for the purpose set forth.

317,898. CLOCK-MOVEMENT FRAME. WILLIE C. WALTER, Richmond, Va., assignor of two-thirds to Geo. B. McAdams, same place. Filed Jan. 5, 1885. (No model.)



Claim.—The combination, with the notched main section of a clock-frame and the mainspring-post, of the removable leg-section having the bearing and its perforated offset filling the notch, the perforations for the post, and the keys passing through the offset and the end of the post, substantially as specified.

317,899. HOSE-TOWER AND FIRE-ESCAPE. WILLIAM M. WARD, Harbor Grace, Newfoundland. Filed Mar. 3, 1885. (No model.)



Claim.—1. A hose-tower provided with a bottom frame, a vertically-sliding frame in the bottom frame, and screw-spindles for adjusting the vertically-sliding frame, substantially as herein shown and described.

2. A hose-tower provided with an upright bottom frame having inclined staircases on the sides, and a vertically-sliding frame within the bottom frame, and screw-spindles for moving the vertically-sliding frame, substantially as herein shown and described.

3. In a hose-tower, the combination, with a bottom frame, of a vertically-sliding frame in the same, devices for moving the vertically-sliding frame, and a staircase hinged to the bottom of the vertically-sliding frame, substantially as herein shown and described.

4. In a hose-tower, the combination, with a bottom frame, of a vertically-sliding frame in the same, a staircase hinged to the bottom of the vertically-sliding frame, and an inclined staircase leading from the bottom of the vertically-sliding frame to the top of the same, substantially as herein shown and described.

5. In a hose-tower, the combination, with a bottom frame, of hinged and swiveled nozzles on the top of the same, and of conducting-tubes or hose secured on the sides of the bottom frame and connected with the nozzles, substantially as herein shown and described.

6. In a hose-tower, the combination, with a bottom frame, of inclined staircases, a water-tower, K, arranged at the upper end of one staircase, a vertically and laterally swinging hose-nozzle at the said water-tower, and a water-conducting tube or hose connected with the said nozzle and arranged along one inclined staircase, substantially as herein shown and described.

7. In a hose-tower, the combination, with an upright frame, of the tower K on the said frame, the vertically and laterally swinging nozzle M, and the rod L^2, connected with a rope secured on a windlass in the tower K, substantially as herein shown and described.

8. In a hose-tower, the combination, with an upright frame, of an inclined staircase on the side of the same, the laterally and vertically swinging nozzle M at the upper end of the staircase, a hook, n^2, for holding the free end of the nozzle to the staircase when the said nozzle is not in use, and a water-conducting tube or hose connected with the nozzle and extending down along the staircase, substantially as herein shown and described.

9. In a hose-tower, the combination, with an upright frame, of the pocket Q, formed on the under side of the bottom of the platform of the same, and adapted to receive the ladder P^2, substantially as herein shown and described.

10. In a hose-tower, the combination, with an upright frame having a balcony or bracket, J, of the ladder P^2, the hooks P^3 on the upright frame, the eyes P on the end of the balcony or bracket J, and the ropes P', secured to the ladder, passed through the eyes P, and secured to the bottom of the frame, substantially as herein shown and described.

11. In a hose-tower, the combination, with an upright frame, of a balcony or bracket, J, formed on the top of the same at one end, and of a staircase leading from the bottom of the said frame to the balcony or bracket, substantially as herein shown and described.

12. In a hose-tower, the combination, with an upright frame, of a pivoted or swiveled nozzle on the same, a tube leading from the bottom of the frame to the said nozzle, and a derrick-pole and rope for lifting the said nozzle, substantially as herein shown and described.

13. In a hose-tower, the combination, with an upright frame, of a vertically-sliding frame in the same, upright screw-spindles for moving the sliding frame vertically, hubs formed on the lower ends of the spindles, and chains passing around the said hubs, substantially as herein shown and described.

14. In a hose-tower, the combination, with an upright frame, of a vertically-sliding frame in the same, vertical screw-spindles for moving the vertically-movable frame, hubs on the screw-spindles, the endless chain D^2, passed around the hubs on the spindles, and of the guides D^3 and D^4, over which the chain passes, substantially as herein shown and described.

15. In a hose-tower, the combination, with an upright frame, of a vertically-sliding frame in the same, and a horizontally-sliding bridge on the top of the vertically-sliding frame, substantially as herein shown and described.

16. In a hose-tower, the combination, with an upright frame, of a vertically-sliding frame in the same, a bracket or balcony formed on one end of the top of the vertically-movable frame, and a horizontally-sliding bridge on the top of the vertically-movable frame, substantially as herein shown and described.

17. In a hose-tower, the combination, with an upright frame, of a vertically-sliding frame in the same, the ladder S', and a rope secured to the lower end of the ladder and to a windless-drum, substantially as herein shown and described.

18. In a hose-tower, the combination, with an upright frame, of a vertically-sliding frame in the same, the ladder S', a rope secured to the lower end of the ladder and to a windlass-drum, the sliding trap-door S^2, the platform T, and a sliding door on the same provided with cleats T', substantially as herein shown and described.

19. In a hose-tower, the combination, with an upright frame, of a vertically-sliding frame in the same, the ladder S', the windlass-drum S, a rope secured to the said ladder and windlass-drum, and derrick poles and ropes for holding the ladder S' in place, substantially as herein shown and described.

20. In a hose-tower, the combination, with an upright frame, of a vertically-sliding frame in the same, the derrick-poles V, pivoted on the top of the vertically-sliding frame, the braces V^1, pivoted to the frame E and sliding on the horizontal bars V^2 on the top of the vertically-sliding frame, and of ropes passed over the pulleys on the derrick-poles, substantially as herein shown and described.

21. In a hose-tower, the combination, with an upright frame provided with side wheels, of the rollers *h*, pivoted in angular frames pivoted to the side pieces of the bottom frame at one end of the same, substantially as herein shown and described.

22. In a hose-tower, the combination, with an upright frame provided with side wheels, of the rollers *h*, pivoted in angular frames pivoted to the side pieces of the bottom frame at one end, and of the latches *l*, for locking the angular frames in place when swung down so that the wheels *h* rest on the ground, substantially as herein shown and described.

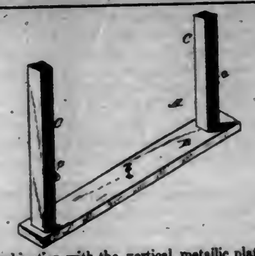
317,900. DOOR FOR GRAIN-CARS. SOLOMON R. WASHER, Atchison, Kans. Filed Jan. 22, 1885. (No model.)

Claim.—1. In a grain-car door, the frame having vertical uprights, with projecting headed pins attached to the inner sides thereof, in combination with the door D, provided with vertical metallic plates with key-hole slots formed therein, and a pivoted latch adapted to abut against one of the vertical uprights of the door-frame, substantially as shown, and for the purpose set forth.

2. In a door for grain-cars, the frame A, consisting of sill-piece, vertical uprights having headed bolts attached to the inner side of said

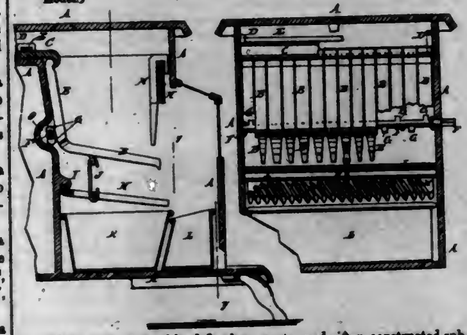


317,900.



uprights, in combination with the vertical metallic plates *d*, with key-hole slots and recesses, transverse batten E, pivoted latch F, ratchet-bar G, adjacent thereto, and bolt *f*, the parts being organized substantially as shown, and for the purpose set forth.

317,901. COMBINED FIRE-BOX, GRATE, AND SIFTER FOR STOVES. ISAAC J. WELLS, Nanuet, N. Y. Filed Feb. 7, 1884. (No model.)



Claim.—1. A combined fire-box, grate, and sifter, constructed substantially as herein shown and described, and consisting of the grate-bars B, having their rear parts extended upward and in contact to form the rear wall of the fire-box, the shaker-rod F, having lugs G, the front bars, M, having hooks at their upper ends, and the sifter H, suspended from the grate, as set forth.

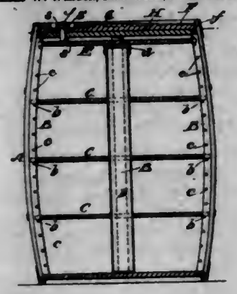
2. The combination, with the rear wall of the fire-chamber and the bottom plate of the top flue, of the grate-bars B, having their rear parts extended upward and provided with rounded and grooved upper ends, and the hooked plate C, substantially as herein shown and described, whereby the said grate-bars will be securely supported in place, as set forth.

3. The combination, with the grate-bars B and the rear wall of the fire-chamber having recess O, of the bar F, having alternating lugs upon its opposite sides, substantially as herein shown and described, whereby the said grate-bars can be readily agitated to shake out the ashes, as set forth.

4. A fire-box having its front bars, M, made separate and each provided with a hook at its upper end for suspending it, whereby any one of the said bars can be raised independently of the others for the removal of cinders, substantially as herein shown and described.

5. The combination, with the rear wall of the fire-chamber having hook-flange I and the grate-bars B, of the sifter H, having inclined slots, and the suspended hooked rod J, substantially as herein shown and described, whereby the said sifter is suspended from the grate-bars and will be jarred by the movements of the said bars, as set forth.

317,902. REFRIGERATOR-BARREL AND OTHER LIKE RECEPTACLES. JAMES W. WESTON, New York, N. Y. Filed Oct. 16, 1884. (No model.)



Claim.—1. The combination, with a barrel or other like receptacle having a removable and close-fitting head, of a compartment structure composed of uprights B and adjustable cross partitions or diaphragms C, constructed for arrangement within the barrel or receptacle substantially as and for the purposes specified.

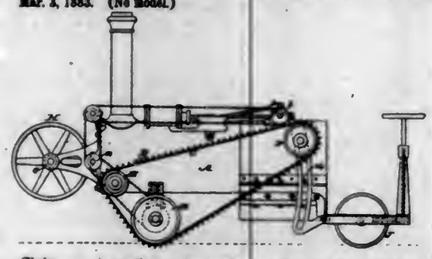
2. The combination, with the body A of the barrel, of the uprights B, secured to the sides of the barrel on its inside, and constructed to conform to the bilge of the barrel, and the partitions or diaphragms C, fitted so as to be capable of adjustment up and down said uprights, essentially as described.

3. In an adjustable compartment structure for barrels and other like receptacles, the combination of the uprights B, the adjustable partitions C, and the ice-tube D, substantially as shown and described.

4. In a barrel or other like receptacle provided with an interior adjustable compartment structure, the combination, with the head-sections F, the follower H, and closing-strip G, of the removable turn-button-like key J, made with a lateral locking pin or projection, *a*, and adapted to lock the head of the barrel when closed, essentially as described.

5. The combination, with the barrel-body A and with the head-sections F F, of the closing-strip G and follower H, constructed with key-holes through them, and the turn-button-like key J, substantially as and for the purposes herein set forth.

317,903. TRACTION-ENGINE. JOHN C. WHITE, Swatara, Pa. Filed Mar. 3, 1883. (No model.)



Claim.—1. A traction-engine having creeping-cloths or travelers C, guide-rollers E and F, segment G, and guiding-wheel J, the said roller F being adjustable in the slot of the segment G, whereby the said roller may be lowered and the travelers C brought in contact with the ground for a greater distance than when the roller is raised, substantially as and for the purpose set forth.

2. A traction-engine having travelers, adjustable guide-rollers, a guiding-wheel revolving in a pivot, a revolving drum placed at the rear end of the engine, and means connecting said drum to the driving-shaft of the engine, substantially as and for the purpose set forth.

3. A traction-engine having creeping-cloths or travelers C, pulleys E F, driving-rollers B, and guides G, substantially as and for the purpose set forth.

317,904. HOIST. JOSEPH J. WHITE, New Lisbon, N. J., assignor to the Union Hoist Company, (Limited,) Philadelphia, Pa. Filed Aug. 26, 1884. (No model.)



Claim.—1. A fixed gear, G, firmly secured to a stationary shaft, B, between the lifting-gear E and the gyrating gear H, substantially as and for the purpose set forth.

2. In a hoisting-machine, a fixed gear, G, keyed to a stationary shaft passing through its center, in combination with a double gear, H, driven by an eccentric, as and for the purpose set forth.

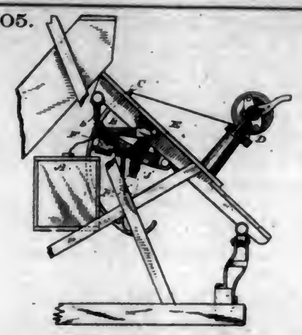
3. The combination of a stationary gear, G, a double gear, H, having its teeth in the same plane, a lifting-gear, K, and an eccentric, I, substantially as and for the purpose set forth.

4. In a hoisting-machine, a stationary gear, G, in combination with a gyrating gear, H, and a lifting-gear, E, arranged to revolve in opposite directions, substantially as and for the purpose set forth.

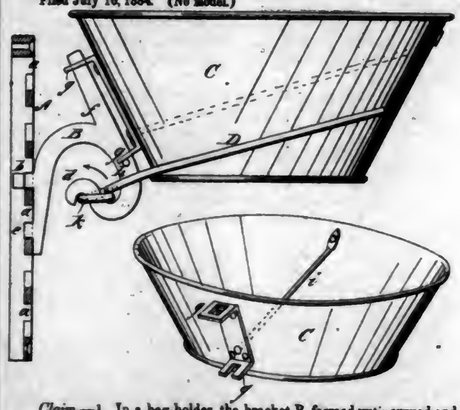
317,905. CORD-ALARM FOR GRAIN-BINDERS. WILLIAM M. WHITING, Elizabeth, N. J. Filed Oct. 28, 1884. (No model.)

Claim.—In a grain-binder, the combination of a cord-holder, a tension device, and the binding-cord held in tension thereby with an alarm engaging the cord between the tension device and cord-holder and by it restrained from action.

317,905.



317,906. BAG-HOLDER. MARTIN WILLIAMS, St. Johnsville, N. Y. Filed July 10, 1884. (No model.)



Claim.—1. In a bag-holder, the bracket B, formed with curved end *d* and straight projection *f*, combined with a looped stretcher, D, a holding-plate, and the hopper, substantially as described.

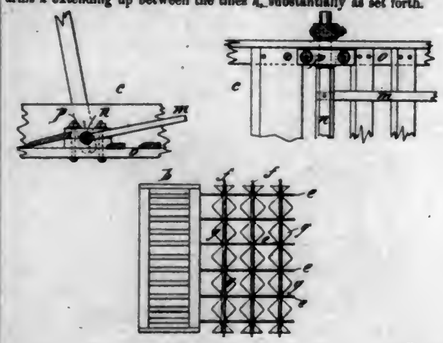
2. In a bag-holder, the hopper C, formed with slotted lugs *g*, combined with bracket B, having projection *f*, and means for holding said bracket, substantially as described.

3. In a bag-holder, the hopper C and the stretcher D, having an eye or loop, *k*, combined with bracket B, having a curved end, *d*, for receiving the eye of the stretcher, and means for holding said bracket, substantially as described.

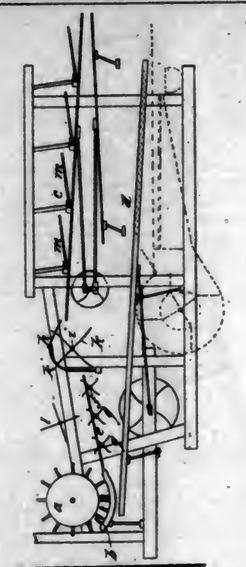
4. In a bag-holder, the removable hopper C and spring-stretcher D, bearing against the outer side of said hopper, in combination with an adjustable bracket and a fixed support, substantially as described.

317,907. THRASHING-MACHINE. MARTIN WILLIAMS, St. Johnsville, N. Y. Filed July 10, 1884. (No model.)

Claim.—The combination, with the thrashing-cylinder and the concave, of the series of upwardly-inclining flexible tines *e*, extending from the rear edge of the concave, a series of rotary shafts journaled below said tines, and provided with beating-arms extending up through the spaces between the said tines, the tines *h*, at the rear end of tines *e*, extending upward and rearward, and the rotary shaft *i*, having beating-arms *k* extending up between the tines *h*, substantially as set forth.



317,907.



317,908. ELECTRIC CONDUCTOR FOR WIRE FENCING. CHARLES WILLIAMSON, Washington, Kans. Filed Oct. 6, 1884. (No model.)

Claim.—1. The combination, with a fence-wire, of a conductor, and a collecting-point having a slot to receive the conductor and catches for holding the fence-wire, substantially as and for the purposes specified.

2. An electrical collecting-point having laterally-projecting points, a conductor-slot for receiving a conductor, and a wire-groove for receiving a fence-wire, substantially as and for the purposes specified.

3. The combination, with a fencing-wire, of a bifurcated conductor, lateral collecting-points for connecting the wire with the conductor, and a ground-point having a driving-head and a socket for the reception of the conductor, substantially as and for the purposes specified.

4. An electric conducting ground-point having a driving-head and a socket, substantially as and for the purposes specified.

317,909. COMBINED HARROW AND PULVERIZER. BENJAMIN WHIT, Philadelphia, Pa., assignor of one-half to Jacob Fisher, Jr., same place. Filed Dec. 22, 1884. (No model.)

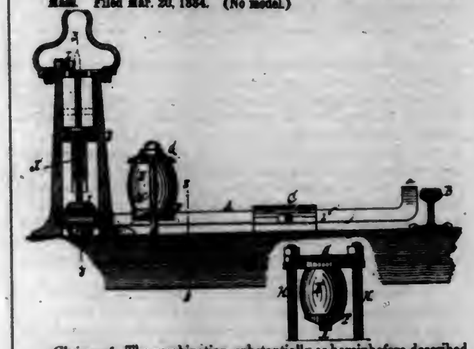
Claim.—1. The combination of the two inclined sets of cutters D I, the two sets of teeth H, and the two toothed rollers G with the front roller, C, substantially as shown.

317,909.



2. The combination of the elevated front roller, the two sets of cutters, the two toothed rollers G, the two sets of teeth, and the rake, substantially as set forth.

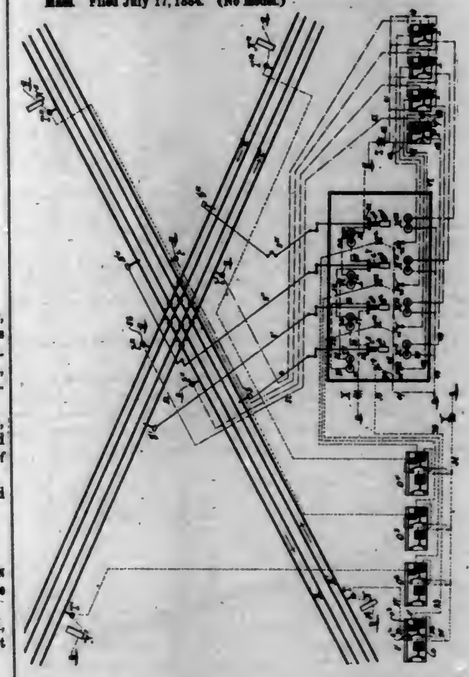
317,910. TRACK-INSTRUMENT. HENRY D. WINTON, Wellesley Hills, Mass. Filed Mar. 20, 1884. (No model.)



Claim.—1. The combination, substantially as hereinbefore described, with the rod K and the circuit-closing spring L, of the rock-shaft A, arranged to rotate on its axis transversely to a railroad-track, the tappet *a*, mounted on one end of this shaft next to the track, and the lever I, mounted on the opposite end of said shaft in position to act upon the rod K.

2. The combination, substantially as hereinbefore described, with the rod K and the circuit-closing spring L, of the rock-shaft A, arranged to rotate on its axis transversely to the track, the tappet *a*, mounted on one end of this shaft next to the track, the lever I, mounted on the opposite end of said shaft in position to act upon the rod K, the cup F, secured to the rock-shaft, and the elastic cushion E, secured in this cup by the traverse G and uprights H.

317,911. ELECTRIC SIGNAL. HENRY D. WINTON, Wellesley Hills, Mass. Filed July 17, 1884. (No model.)



Claim.—1. In an electrically-operated railway-signal, the combination of the hand-lever C', the sliding catch-rod E, having an insulating-strip, *d*, and contact-piece, *d*', the circuit-closing spring *e*, and an armature and magnet, electrical connectors, and a sliding bar, K, for locking the hand-lever with a semaphoric or other signal connected with the lever C', and a frame having a catch device for the rod E, substantially as described.

2. The combination, with two levers, C' C², and with the connections of these levers with semaphores or switches, of catch-rods, one for each lever, the contact-pieces attached to these catch-rods, the circuit-closing springs for each contact-piece, the sliding bars, one for each lever, the locking-magnets, and the connections of the locking-magnets and circuit-closers with a battery, substantially as and for the purpose described.

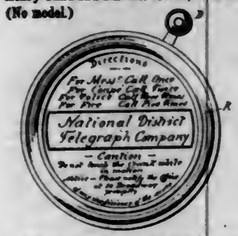
3. The combination, substantially as hereinbefore described, with the lever C' and with the connections of this lever with a semaphore or switch, of the sliding bar K, the connections, substantially such as herein described, between this bar and the lever, the front locking-magnet L', and the back locking-magnet M'.

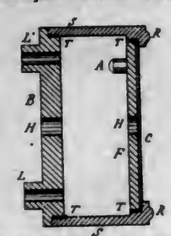
4. The combination, with two levers, C' C², and with the connections of these levers with semaphores or switches, of catch-rods, one for each lever, the contact-pieces attached to these catch-rods, the circuit-closing springs for each contact-piece, the sliding bars, one for each lever, the circuit-closing springs acted upon by these sliding bars, the front locking-magnets, the back locking-magnets, and the connections of these magnets and of the circuit-closing springs with a battery or batteries, substantially as and for the purpose shown and described.

5. The combination, substantially as hereinbefore described, with two railroad-tracks, R' R², which cross each other, of two levers, C' C², connected to semaphores or derailing switches, means, substantially such as herein described, for interlocking the levers, track-instruments *t t'*, double-circuit instruments P' P², and the connections of these parts with a battery or batteries.

6. The combination, substantially as hereinbefore described, with two railroad-tracks, R' R², which cross each other, of two interlocking levers, C' C², connected to two semaphores or derailing-switches, means, substantially such as herein described, for interlocking the levers, track-instruments *t t'*, double-circuit instruments P' P², electric signals N N', track-instruments T T', interlocking block-signal instruments O' O², and the connection of these parts with a battery or batteries.

317,912. **CALL-BOX.** FRANK B. WOOD, New York, N. Y., assignor to Henry Thau and Emanuel Bloss, both of same place. Filed Nov. 23, 1883. (No model.)



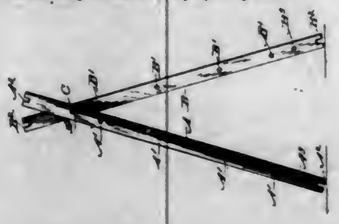


Claim.—1. A molded or pressed call-box constructed of non-conducting material and composed of a shell, S, provided with a detachable back, B, having lugs L formed therewith, and a removable front plate, substantially as described.

2. A call-box the parts whereof are made of non-conducting material, and consist of a back, B, perforated at H, and bearing lugs L, shell S, having a rim, R, front plate, F, perforated at H, and card C, the whole arranged substantially as shown and described.

317,913. **SECTIONAL LADDER.** ORVILLE K. WOOD, West Chazy, N. Y. Filed Mar. 14, 1885. (No model.)

Claim.—The combination of the side rails A, notched as at A², perforated as at A³, and connected by rungs A', the side rails B, notched as at B², perforated as at B³, and connected by rungs B', the said perforations B³ A³ being of uniform size and in line with each other, and the pins C, substantially as and for the purpose specified.



317,913.



317,914. **WATCH-CASE PENDANT.** ABRAHAM M. YEAKEL, Perkasie, Pa. Filed Feb. 12, 1885. (No model.)

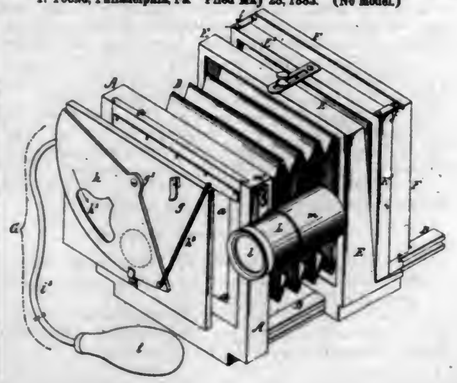


Claim.—1. The combination of a pendant having an upward-extending neck, and provided with a vertical perforation, the upper part of which is enlarged, so as to form a shoulder, a spiral spring seated on said shoulder, a ring swiveled on the neck of the pendant and retained by a collar fixed at the upper end of the same, and a crown fitted over and attached to the swiveled ring, and having a stem extending through the perforation of the pendant, all arranged and operating substantially as and for the purpose herein set forth.

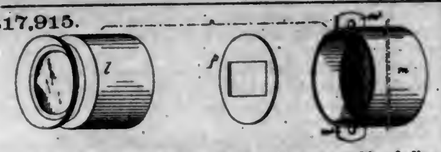
2. The combination of the pendant having an upward-extending neck, the swiveled ring having laterally-extending lugs, the fixed retaining-collar, the crown having interior grooves adapted to receive the lugs of the swiveled ring, and provided with a downward-extending stem, means for attaching the said crown to the swiveled ring, and a spring arranged to force the said crown in an upward direction, substantially as and for the purpose herein set forth.

3. In a watch-case crown, the combination of the pendant having a vertical perforation, the swiveled ring, the retaining-collar, the crown attached to the swiveled ring, and having a stem extending through the perforation of the pendant, a spiral spring arranged to force the crown in an upward direction, the case-center of the watch-case secured to the lower end of the pendant, and the case-spring bearing against and adapted to be operated by the lower or inner end of the stem extending downwardly from the crown, substantially as and for the purpose herein set forth.

317,915. **ATTACHMENT FOR PHOTOGRAPHIC CAMERAS.** LEWIS T. YOUNG, Philadelphia, Pa. Filed May 28, 1883. (No model.)



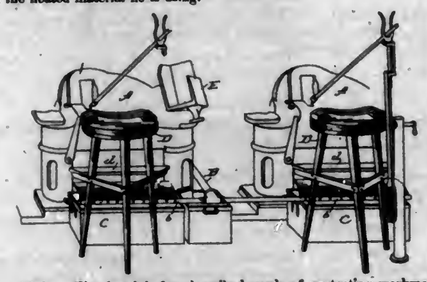
317,915.



Claim.—The combination of a photographic camera with a finding-glass, L, carried by the frame of the camera, but independent of the focusing adjustment of the latter, said finding-glass consisting of a lens, casing, diaphragm, and ground glass, all substantially as set forth.

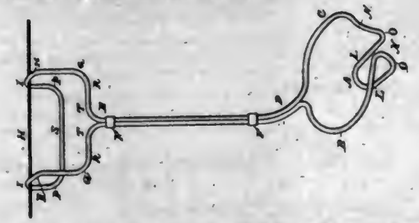
317,916. **COLD-AIR BLAST FOR THE PROTECTION OF NAIL-MAKERS.** JACOB ALTMEYER, Benwood, W. Va. Filed Mar. 11, 1885. (No model.)

Brief.—Interposing a current of cool air between the workman and the heated material he is using.



Claim.—The hereinbefore-described mode of protecting workmen upon machines of the class described by passing a sheet of cool air between the workmen and the machine and heated objects, substantially as described.

317,917. **MOVABLE LAMP-HOLDER.** JOHN B. BARTLETT, Minneapolis, Minn. Filed Mar. 23, 1883. (No model.)

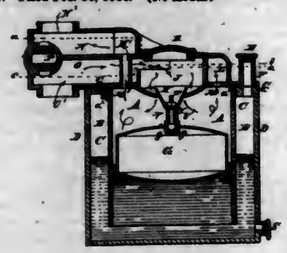


Claim.—1. A bracket for lamps and other articles requiring suspension, consisting of a stem having an attaching device at its upper end, combined with a holder composed of the semicircular arms B and C and the loop A, formed continuously with B and C, and bent underneath to form the bottom of the holder, all substantially as described.

2. A bracket for lamps and other articles requiring suspension, consisting of a stem having an attaching device at its upper end and a holder composed of the semicircular arms B C and the loop A, formed continuously with B and C, and bent downward and inward, and having an opening to admit the standard of a lamp, all substantially as described.

3. A bracket having a stem, D E, and holder at its lower end, and provided with an attaching device formed by the parts R R, bent laterally and then bent upward, over, and down, substantially as shown at G, H, and I, and as described.

317,918. **GAS-PRESSURE REGULATOR.** REINHOLD BOEKLEN, Brooklyn, N. Y. Filed Feb. 10, 1885. (No model.)



Claim.—1. In a gas-regulator, the combination of a double-wall vessel having an air-vent with a chambered cap provided with inlet and outlet passages and a try-cock, substantially as described.

2. In a gas-regulator, as described, a cock located between chambers N O and in line with the inlet and outlet passages N' and O', substantially as described.

3. The combination, in a gas-regulator, of a try-cock located between the inlet and outlet passages, substantially as described.

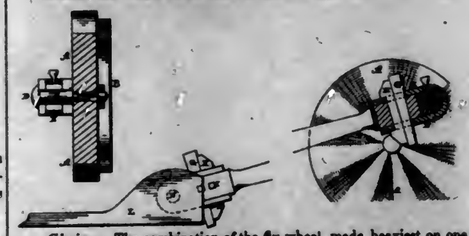
4. In a gas-regulator, a float suspended by a ball-and-socket joint, in combination with a valve, a valve-seat, the liquid-chamber, and the gas inlet and outlet chambers, substantially as described.

5. In a gas-regulator, the combination of a float, a regulating-valve and an intermediate elastic ball-and-socket connection, substantially in the manner and for the purposes described.

6. In a gas-regulator, the combination of a double-wall fluid-chamber, a float in the same, a cone self-centering valve connected by an elastic ball-and-socket joint to said float, and a cap provided with inlet and outlet passages, substantially as described.

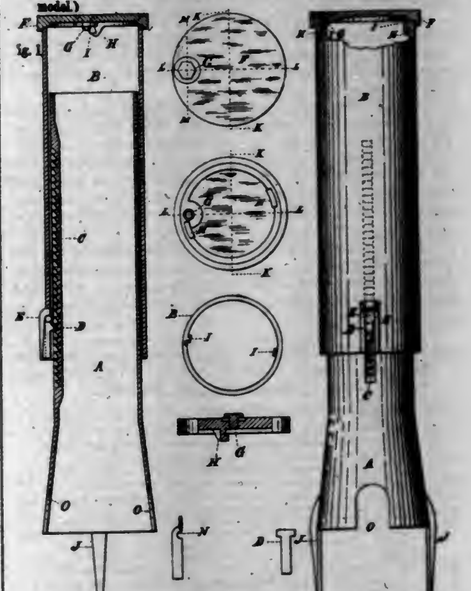
7. In a gas-regulator, the combination of a cap, which is provided with passages and chambers N, O, L, and J, a valve-seat, apertures M M', a suspended float, and a liquid-chamber therefor, substantially as described.

317,919. **PITMAN-ROD.** AMBROSE A. BROOKS and ANDREW J. BROOKS, Macomb, Tex. Filed Mar. 24, 1885. (No model.)



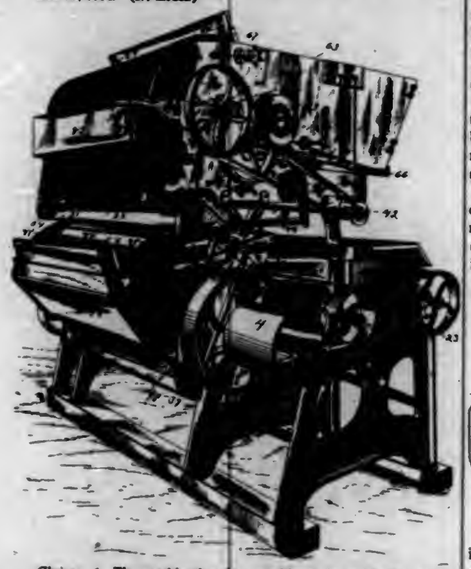
Claim.—The combination of the fly-wheel, made heaviest on one side, the wrist-pin, the boxing, the slotted strap, the connecting-rod slotted at each end, the keys, and the set-screws for holding the keys in position, substantially as set forth.

317,920. **EXTENSIBLE SERVICE-BOX FOR THE STOP-COCKS OF GAS, &c.** SETH A. BROWN, Buffalo, N. Y. Filed Sept. 1, 1884. (No model.)



Claim.—A service-pipe box formed of the tube A, provided with openings O O, and a longitudinal ratchet, C, formed in its periphery and sunk below or even with the adjacent surface of said tube, and the tube B, sliding over the tube A, provided with a suitable cap, and a pawl, D, which engages with the ratchet on tube A.

317,921. COTTON-GIN. ISRAEL P. BROWN, New London, Conn. Filed Dec. 13, 1884. (No model.)



Claim.—1. The combination, in a combined gin and feeder, of the gin-hopper, the breast 51, hinged in said hopper and provided with arm 50, pitman 49, the feeder mechanism, intermediate pulleys and belt 41, and lever 47, carrying the belt tightener pulley 43, whereby the belt driving the feeder mechanism will be tightened or slackened to control the feed when said breast is moved by the varying size of the cotton roll, as set forth.

2. In a cotton-gin, the feed-hopper 38, the hinged breast 51, provided with springs 86 86', and pitman 49, in combination with a gin-feeder, the driving-belt 41, its pulleys, and the lever 47, provided with the pulley 43, and connected to said pitman 49, substantially as and for the purpose set forth.

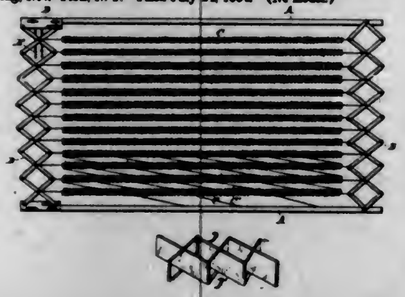
3. The combination, in a cotton-gin, of a hopper having boxes 76 on its under side, and the rod 77, with the shaft 70, having hand-lever 75, cranks 71 72, and pitmen 73 74, whereby the hopper may be moved outward from the top by said hand-lever to instantly stop the action of the gin, as set forth.

4. The combination, in a cotton-gin, of the hopper and hinged breast 51, provided at its upper free end with springs 86 86', whereby the breast will be drawn inward as the cotton roll diminishes in size, as set forth.

5. The combination, with the hinged hopper 38, provided with the idler 36', of the feed-belt 36, passing over said idler, so as to be taut when said hopper is in its normal position and slackened as the hopper is moved out, and the feed mechanism, substantially as and for the purpose set forth.

6. The combination, in a combined gin and feeder, of the feed-cylinder provided with the gear-wheel 60, secured to one end thereof, the pinion 53, provided with and journaled in the shorter end of the hand-lever 46, and the feed-operating mechanism, substantially as shown, and for the purpose described.

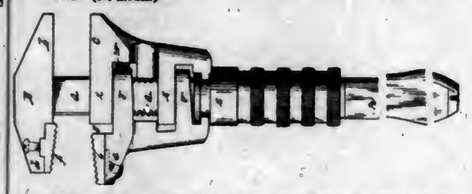
317,922. BED-BOTTOM. WORTHINGTON BULKLEY, Cleveland, Ohio, and ROSS C. BROWNING, Orange, N. J., assignors to Fredrick T. Browning, New York, N. Y. Filed July 24, 1884. (No model.)

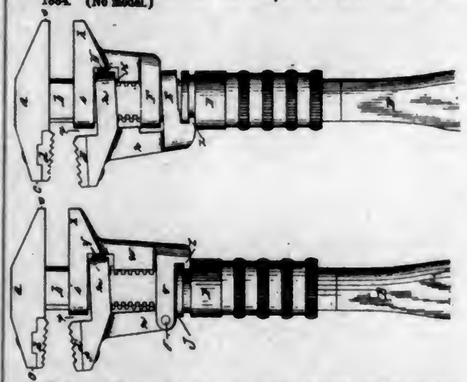


Claim.—1. In combination with a screw-threaded wrench-bar having fixed head projecting at opposite sides thereof, a movable head at one side of the bar, having close-fitting yokes surrounding the bar, a movable head opposite the same, having yokes loosely surrounding the bar, and a nut on the bar engaging both movable jaws, substantially as described.

2. A wrench-bar having fixed head projecting at opposite sides thereof, and in combination therewith a movable jaw having yokes closely embracing the bar, and a movable jaw having yokes loosely embracing the bar alternating with said first-mentioned yokes, and a spring interposed between the movable jaws to press them apart laterally, all substantially as described.

317,924. WRENCH. AMOS CALL, Springfield, Mass., assignor to the Bemis & Call Hardware and Tool Company, same place. Filed Oct. 13, 1884. (No model.)





Claim.—1. In combination with a screw-threaded wrench-bar having fixed head projecting at opposite sides thereof, a sliding jaw having yokes closely surrounding said bar, an opposite sliding jaw having an integral yoke loosely encircling said bar and interposed between the first-mentioned yokes, and a nut on the bar swiveled to one only of the sliding jaws, substantially as described.

2. The combination, with a screw-threaded wrench-bar, of a fixed head projecting at opposite sides thereof, a movable jaw having yokes closely surrounding said bar, a movable jaw opposite the same, having a yoke loosely surrounding said bar and interposed between those yokes first mentioned, said jaw being also pivoted to its companion sliding jaw, and a nut swiveled to one only of the sliding jaws, substantially as described.

317,925. TWO-WHEELED VEHICLE. JAMES P. CALMAN, Clinton, Iowa. Filed Aug. 8, 1884. (No model.)

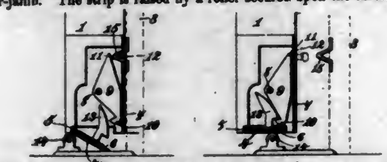
Claim.—1. The combination, with the axle A, and the helical springs *a a*, attached to the axle and constructed to yield laterally and vertically, of the shafts B, the arms H, connecting the shafts with the axle, and the arms K, attached to the shafts and extended through the helical springs, substantially as and for the purposes described.

2. In a two-wheeled vehicle, the combination, with the axle A, arms H, and connecting-irons I, of the shafts B, and two-part connecting-irons G G', constructed to allow oscillatory motion of the shafts, substantially as set forth.

3. In a two-wheeled vehicle, the shafts B, connected by one or more cross-bars, F, pivoted or otherwise loosely jointed to the shafts, in combination with the two-part connecting-irons G G', axle A, arms H and K, and helical springs *a a*, substantially as and for the purposes set forth.

317,926. WEATHER-STRIP. SIMON CRAFFIN, Sedalia, Mo., assignor of one-half to James C. Parmerlee, same place. Filed June 16, 1884. (No model.)

Brief.—A weather-strip consisting of a strip secured in a recess in the bottom of the door, a hook fastened to its upper side coming into engagement with a pivoted lever operated by a speed on the lever or door-jamb. The strip is raised by a roller secured upon the threshold.



Claim.—1. The combination, with a door, of a strip hinged to its lower edge, a latch pivoted in a recess in the door above said strip, a device upon the latter engaging with the latch, means, substantially as described, for releasing the latch when the door is closed, and for raising the same when the door is opened, as set forth.

2. The combination, with a door, of a strip hinged to its lower edge and having a catch, a latch pivoted within said door above the catch, a roll mounted upon the door-sill or floor for raising said catch into engagement with the latch, and a projection tripping the latter when the door is opened, substantially as described.

3. The combination, with a door having a plate hinged to its lower edge and provided with a catch, of a latch pivoted above said catch, a roll mounted upon the sill for raising the latter into engagement with the latch, and a projection or stud mounted upon the latter and engaging with the door-stop when the door is closed to trip the latch, substantially as described.

4. The combination, with the door 1, of the strip 4, having a catch, 13, a latch, 9, pivoted in a recess in the door above said catch, a roll, 14, mounted upon the floor or sill, and a projection, 15, upon the door-stop 3, to trip said latch when the door is closed, substantially as described.

317,927. COTTON-SEED HULLER. CLARENCE A. CHANDLER, East Bridgewater, Mass., assignor of one-half to Frederic C. Mann, same place. Filed June 13, 1884. (No model.)

Claim.—1. The radially-slotted cylinder having the radial knives *d*, grooved in their faces, the radial supports *e* for said knives, and adjustable devices independent of supports *e* bearing on the shoulders of the grooves in the knives, all combined substantially as stated.

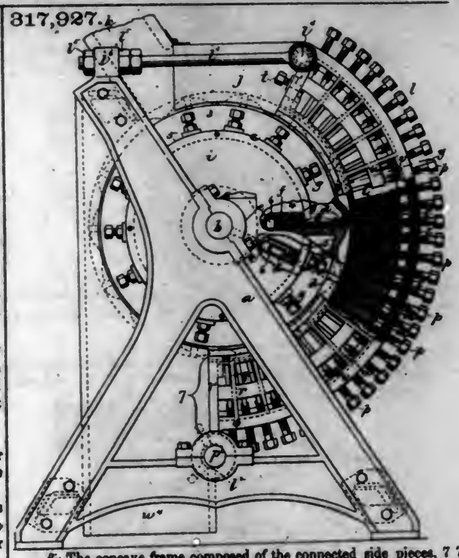
2. The radially-slotted cylinder having the radial knives, the adjustable supports *e* for said knives, the key-plates bearing against shoulders on the knives, and the screws adapted to press the key-plates inwardly against the knife-shoulders, as set forth.

3. In a hulling-machine, a cylinder-knife, *d*, provided with two cutting-edges, and recessed on one side to form square-edged shoulders *d' d'*, as set forth.

4. In a hulling-machine, the combination, with the cylinder, of the concave pivoted at its lower end to the supporting-frame, and pivoted bolts *l''*, passing through lugs on the frame, and provided with adjustable check-nuts, as set forth.

5. The combination of the concave frame composed of the connected side pieces having flanges *n o*, the alternating blades *l'*, and blocks *m*, having their ends placed between said flanges *n o*, and holding devices whereby said blades and blocks are secured to the frame, as set forth.

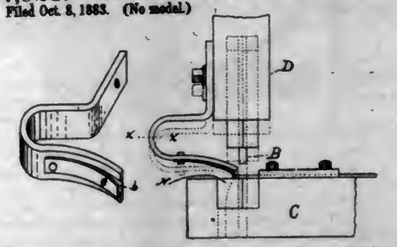
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6. The concave frame composed of the connected side pieces, 7 7, having flanges *n o*, clamping-screws *p*, and segmental bars *u*, combined with the alternating blades *l'*, and blocks *m*, secured in said frame by the screws *p* and segmental bars *u*, as set forth.

7. The combination of the concave frame composed of the connected side pieces having flanges *n o*, screws *p*, and cross-bars *q*, the cross-bars in one side piece being arranged to alternate with those in the other, the blades *l'*, secured in place by the screws *p*, and the blocks *m*, alternating with the blades, and each bearing at one end against a cross-bar, *q*, as set forth.

317,928. NAIL-MAKING MACHINE. CHARLES W. COBB, Lynn, Mass. Filed Oct. 8, 1883. (No model.)



Claim.—1. In combination with a punch and die of a nail-machine, the herein-described presser-foot, composed of a single piece of spring metal secured at one end, as shown, the other end being adapted to bear upon the nail-strip intermittingly, as set forth.

2. In a nail-machine of substantially the construction described, the combination of a presser-foot adapted to bear intermittingly upon the nail-strip, as set forth, and independent means for automatically detaching the severed end of the strip from the presser-foot, substantially as and for the purposes described.

3. In combination with the presser-foot above described, the supplemental spring *e*, substantially as set forth.

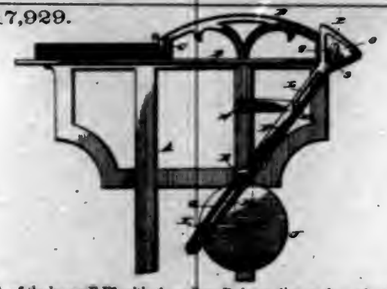
317,929. FEEDING ATTACHMENT FOR CYLINDER PRINTING-PRESSES. SANFORD C. COX, Lafayette, Ind., assignor to himself and Joseph S. Hanna, same place. Filed July 25, 1884. (No model.)

Claim.—1. In a feeding attachment for printing-presses, the combination of a frame having segmental tracks, a tabular carrier traveling upon the said tracks and provided with suction-cups, as set forth, a pair of levers provided with triangular slots at their upper ends, through which extend boxes journaled upon the ends of the carrier, and operating mechanism, substantially as set forth.

2. The combination of the frame A, ways D D, carrier Q, rollers P, and roller-wheels R with the vibrating levers F F², pivoted on the bosses E and provided with the slots L and O, substantially as specified.

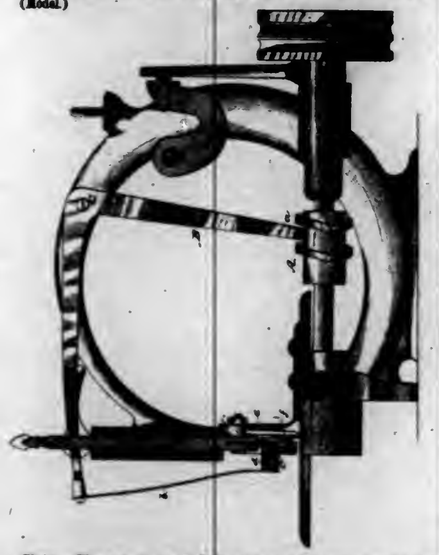
3. The combination of the frame A, levers F F², having the slots H, L, and O, double-crank shaft N, rotating disk J, having the wrist-pin I, and tracks D D with the carrier Q, provided with the suction-cups S, and moved back and forth over the ways D D by means of the engage-

317,929.



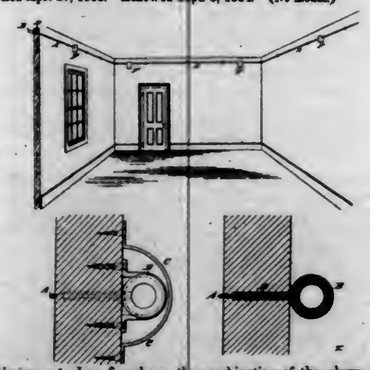
ment of the levers F F² with the rollers P, journaled on the ends of the carrier, and the roller-wheels R, secured to said rollers, substantially as set forth.

317,930. MECHANISM FOR SEWING AND TRIMMING FABRICS. ELMER S. CRAM and EDGAR C. COWELL, Laconia, N. H. Filed Jan. 29, 1885. (Model.)



Claim.—The cam A, arm B, link and spring *b*, cutters *e* and *f*, and stand *g*, in combination with the sewing-machine mechanism, as and for the purposes shown and described.

317,931. FIRE-ALARM. GUSTAVE J. CREHELAIR, New York, N. Y. Filed Apr. 27, 1883. Renewed Sept. 5, 1884. (No model.)

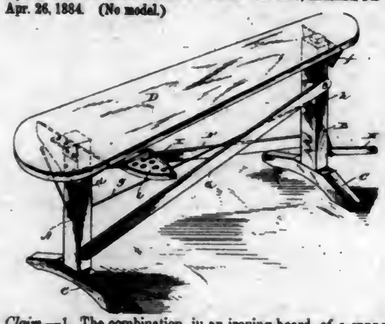


Claim.—1. In a fire-alarm, the combination of the alarm-gun B and its protecting-cover C, located on the outside of a building, with the conducting-fuse connected thereto and passing through the wall into the building, whereby, in case of a fire within, an alarm may be sounded without the building, all substantially as described.

2. The cannon B, located on the outside of a building and adapted to be fired by a fuse, A, in combination with a fire-extinguishing compound, also connected with said fuse and located inside of the building.

3. In a fire-alarm, the combination of the alarm-gun B and its protecting-cover C, located on the outside of a building, the tube D, rigidly connected thereto and passing into the wall, serving as a protection for the fuse A, together with said fuse, which passes through the tube and within the building, whereby an external alarm may be given of a fire within the building, all substantially as described.

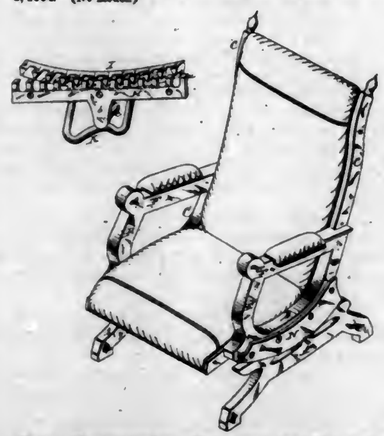
317,932. IRONING-BOARD. JOSEPH DELANEY, Ashland, Pa. Filed Apr. 26, 1884. (No model.)



Claim.—1. The combination, in an ironing-board, of a supporting-frame consisting in part of the standards A B, the standard A having secured at the upper rear face the plate *a*, extending from each side thereof and provided with a hinge, *b*, an ironing-board, D, connected to said standards A B, and a foot-lever pivoted to the supporting-frame and connected to the rear of the ironing-board, substantially as described.

2. The combination, in an ironing-board, of a supporting-frame consisting in part of the standards A B, the standard A having secured at the upper rear face the plate *a*, extending from each side thereof and provided with a hinge, *b*, a tongue, *d*, formed on the standard B, an ironing-board, D, connected to said standard A and having a depressed securing-plate, *e*, to engage said tongue, and a foot-lever pivoted to the supporting-frame and connected to the rear of the ironing-board, substantially as set forth.

317,933. CHAIR. JOHN W. H. DOUBLER, Rockford, Ill. Filed Sept. 8, 1884. (No model.)

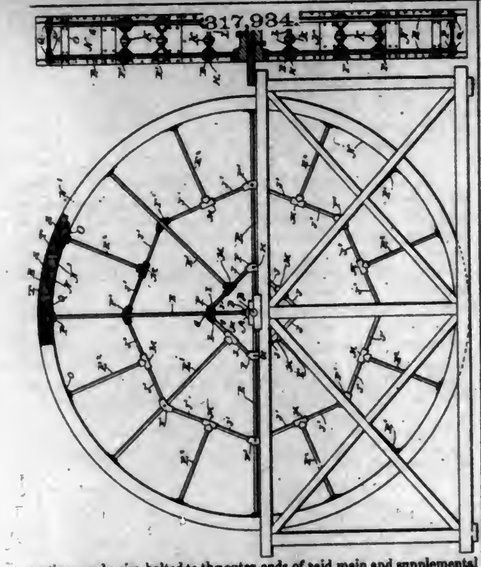


Claim.—The combination, with a pedestal, and with a chair mounted thereon, of a toothed rack fixed to the pedestal and a toothed segment fixed to the chair and provided with depending loops to engage inwardly-projecting pins of the pedestal, substantially as set forth.

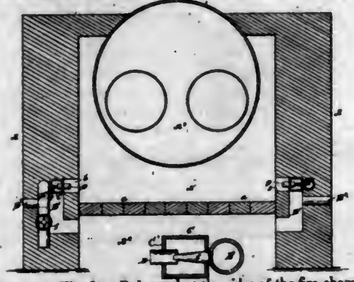
317,934. WATER-WHEEL. WILLIAM W. DUNN, Fort Worth, Tex. Filed July 3, 1884. (No model.)

Claim.—A sectional iron wheel formed of the following detachable parts, viz: a cast hub, main spokes formed of gas-pipe and screwed into said hub, cast elbow-connections secured to said spokes, arms screwed into said connections to connect the main spokes together, T-connections secured to said arms, supplemental spokes screwed into said T-connections, elbow-connections and arms screwed into the same for connecting said main and supplemental spokes, T-connections secured to said latter arms, and a second series of supplemental spokes screwed into said latter T-connections, and a rim bolted to the outer ends of said main and supplemental spokes, substantially as shown and described.

317,934.



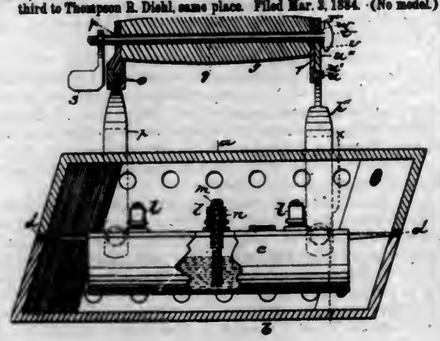
317,935. SMOKE-PREVENTING FURNACE. GEORGE FARR and ALBERT B. SEWARD, Cincinnati, Ohio; said Seward assignor to Edward W. Farr, Peoria, Ill. Filed Nov. 13, 1882. (No model.)



Claim.—1. The flues B, located at the sides of the fire-chamber and having inlet-flues B' B² and openings *b*, communicating with the fire-chamber, in combination with the tubes D, extending into the openings *b*, and the supporting-plates C', and the steam-pipes E, having jets *e* extending into the ends of tubes D, substantially as and for the purposes specified.

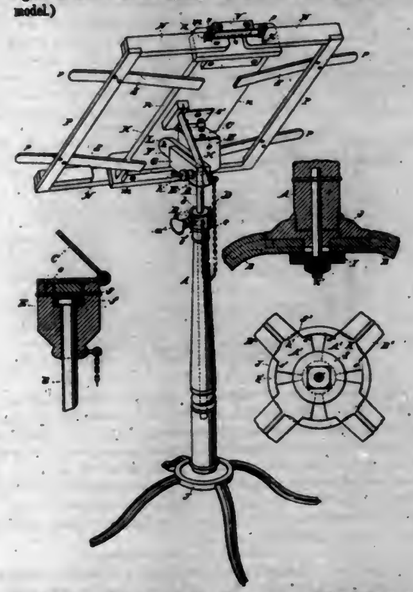
2. The flues B, located at the sides of the fire-chamber and having inlet-flues B' B² and openings *b*, communicating with the fire-chamber, in combination with the boxes C, located in the flues B, and provided with the tubes D, extending into the openings *b*, and the steam-pipes E, having jets *e* extending into the ends of the tubes D, substantially as and for the purposes specified.

317,936. SAD-IRON. JOHN B. FINK, Clausville, Pa., assignor of one-third to Thompson R. Diehl, same place. Filed Mar. 3, 1884. (No model.)



Claim.—In a tailor's goose, the combination, with the goose-body constructed as described, of the bifurcated handle-irons, the swiveled handle-piece, and the locking-rod for connecting the handle-irons, substantially as specified.

317,937. BOOK-HOLDER. ARTHUR A. FULLER, Providence, R. I., assignor to Homer Merian, Springfield, Mass. Filed July 19, 1884. (No model.)



Claim.—1. The book-holder K, consisting of the base or center board, L, the lateral arms N, pivoted to the center board, and the longitudinal bars P, thereto attached, the slat-springs S, secured to said longitudinal bars and engaging the edge portions of the center board, and the rectangular end stops, V, substantially as specified.

2. The combination, with the end flanges of the holder K and the pivoted sides of said holder having slat-springs, of the frictional devices in connection with the pivots of said sides, and the regulating thumb-nuts *v*, substantially as specified.

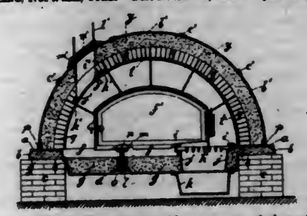
3. The combination, with the center board, L, of the pivoted sides of the holder K, having slat-springs adapted to engage the rectangular edge portions of said center board, substantially as specified.

4. The slat-springs S, secured to the sides of the book-holder K, and projecting at their outer portions, *p*, substantially as specified.

5. The combination, with the stem A, of the slide B and the pivoted block-bearing E, perforated to receive the upper end of said slide, and having the bearing formed by the lower leaf of the hinge-connection C, substantially as specified.

6. The combination, with the slide B and the holder K, of the block-bearing E, rotating on said slide, the hinge C, the ring D, having a thumb-screw, and the chain *c*, substantially as specified.

317,938. PORTABLE OVEN. ANDREW J. GILBERT and GEORGE WENDLING, Norwalk, Conn. Filed Jan. 30, 1884. (No model.)



Claim.—1. The improved portable oven, consisting of the bottom plate, *a*, having brick hearth *f*, fire-grate *h'*, and sand-filling *g*, in combination with arch-beams *t u*, brick cover *q*, *v*, and *w*, sand-jacket *y*, and the metallic sand-retaining jacket *a'*, *b'*, and *d'*, constructed and arranged substantially as described.

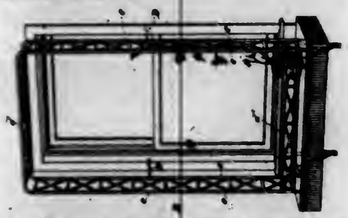
2. The bottom plate, *a*, constructed with flange *b*, depressed section *d*, grate-supports *i*, and partitions *j*, and having ledges *e* and brick-support *l*, in combination with a superstructure consisting of arch-beams,

brick cover, sand-jacket, and a metallic sand-retaining jacket, substantially as described.

3. In a brick top for portable ovens, the combination of the arch-beams *t u*, arch-backs *q*, and vertical front end wall, *v*, said front wall having a doorway and being supported on the frame *x*, and said wall *v* being supported at the junction with the arch by the bevel flange of beam *u*, substantially as described.

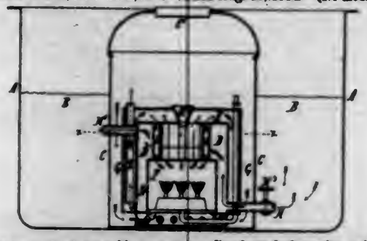
4. The combination, with the oven-top consisting of the arch-beams, fire-brick, sand-jacket, and metallic retaining-jacket, of the pipe *s'*, resting on the arch-beam *u* and extending through the fire-brick and sand-jacket to the metallic retaining-jacket, and also of the pipe *t'*, having the slide-damper *n'* in its base *m'*, and being attached to the exterior of the metallic jacket coincident with the pipe *s'*, substantially as described.

317,939. TRELLIS. CAROLINE D. HALPENNY, Bloomsburg, Pa. Filed Apr. 28, 1884. (No model.)



Claim.—The improved window vine-trellis described, formed of wood and consisting, essentially, of the vertical side sections and the top and bottom horizontal sections, the top section having its opposite ends bent downwardly, and the respective sections connected together by pin-and-socket joints, the shelf beneath the window-sill for supporting the frame having socket-bearings to receive the lower ends of the said vertical sections, and the hook-eyes D, pivoted at one end to the sides of the trellis-frame and having their opposite ends adapted to be driven into a window-casing, substantially as specified.

317,940. APPARATUS FOR HEATING WATER IN BATH-TUBS. GEORGE HAYES, New York, N. Y. Filed Aug. 16, 1884. (No model.)



Claim.—1. A portable apparatus, C, adapted for submersion in wash and bath tubs, as a means of heating water therein, containing within itself a water-heating chamber, D, a hot-air flue or chamber, E, a combustion-chamber, F, and a cold-air-supply chamber, G, arranged substantially as shown and described.

2. In a portable heating apparatus adapted for submersion in wash-tubs bath-tubs, and similar vessels, the combination of combustion-chamber F and cold-air-supply chamber G, connected by apertures *e*, and the chamber F, provided with outlets *d*, substantially as shown and described.

3. In the water-heating apparatus C, the combination of chambers F and G, connected by apertures *e*, tubing *d*, hot-air flue or chamber E, and outlets *g*, arranged therein, substantially as shown and described.

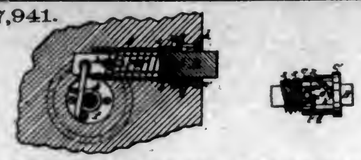
4. In the water-heating apparatus C, the combination of inlet-tubing H, water-heating chamber D, and outlet-tubing H', the water-chamber D, surrounded, incased, or jacketed by a hot-air chamber or flue, E, and itself jacketing and partially or wholly surrounding or incasing a chamber provided with a heating medium, substantially as shown and described.

5. In the water-heating apparatus C, the combination of chambers D and F, connected by apertures *e*, hot-air flue E, cold-air flue or chamber G, tubing *d*, and tubing *g*, with water-inlet H and outlet H', substantially as shown and described.

317,941. MORTISE-LOCK. FRANK A. HOLLENBECK, Syracuse, N. Y., assignor of one-half to Theodore F. Clark, same place. Filed Feb. 2, 1885. (Model.)

Claim.—1. The combination, with the case A, formed with the cylindrical neck *n*, slot *r*, and collars *c c'* at the ends thereof, of the locking-ring *g* on said neck, and provided with the slot *o*, the bolt having stud-pin *h* projecting therefrom and through the slots *r o*, and a key for turning the ring *g*, substantially as set forth.

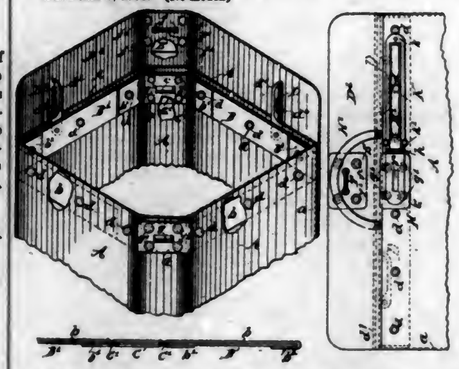
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2. The combination, with the case A, formed with the cylindrical neck *n*, slot *r*, and collar *c*, having notches *v v'*, and the key-seat *u* in one of said notches, and the collar *c'* on the outer end of said neck *n*, of the locking-ring provided with the extension *m*, notch *w*, and slot *o*, the spring *i*, interposed between the ring and collar *c*, the bolt having stud-pin *h* projecting therefrom and through the slots *r o*, and a key for turning the ring *g*, substantially as specified.

3. In combination with the case A, inserted in a mortise in the edge of the door, and the spring-bolt B B' in said case, the annular plate *f*, secured in a mortise in the side of the door, the spindle S, extending through said plate, the lever *d*, pivoted on the plate *f* and interlocked with the bolt-shank B', and the cam *b* on the spindle for operating the lever, all combined substantially in the manner specified and shown.

317,942. MAIL-BAG. WILLIAM A. HORRALL, Washington, Ind., assignor of one-half to Albion Horrall and Nelson Horrall, same place. Filed Jan. 3, 1885. (No model.)



Claim.—The combination of hinge-plates B B', clasps D D', hinge-plates C, links C', plates G G', loose link F, label-case provided with slotted hinge, and the mail-bag, substantially as specified, for the purpose set forth.

317,943. ILLUMINATING-TILE CONSTRUCTION. THADDEUS HYATT, Brooklyn, N. Y. Filed Apr. 6, 1885. (No model.)

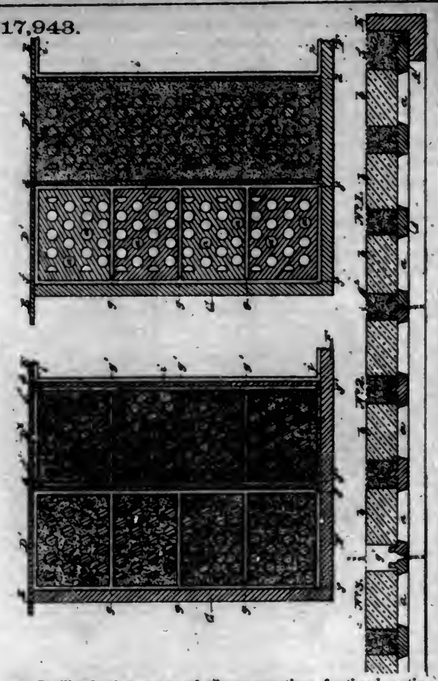
Claim.—1. In illuminating-tile constructions, the combination, with a panel-frame or casement having an inclosing rising rim or border, of a tile-grating made without a rising rim or border set into said panel-frame and therein overlaid or filled with plastic cement flush with the level of the glasses and the panel-frame, substantially as and for the purpose herein set forth and illustrated.

2. In illuminating-tile constructions, the combination, with a panel-frame having an inclosing marginal rim or border, of a tile-grating let into said panel without a rising rim or border, set with glasses, and finally overlaid or filled with plastic cement around and between the glasses and flush with the panel-frame, whereby the glasses are fixed in the grating and the grating fixed in the panel and a uniform cemented surface produced in the panel at one and the same action, substantially as herein set forth and illustrated.

3. In illuminating-tile constructions, the combination, with an inclosing-panel casement or frame having a rising rim or border, of fractional-tile gratings adapted to be set with glasses made without rising rims, set into said panels and junctioned directly together and overlaid or filled with plastic cement flush with the level of the glasses and panel-frame, whereby the fractions are fixed to each other and to the frame in a homogeneous manner at one action, substantially as and for the purpose herein set forth and illustrated.

4. In illuminating-tile constructions, the combination, with a panel-frame having an inclosing rim or border, of tile-gratings made in fractional sections junctioned together in said panel-frame, set with glasses, and finally overlaid or filled with plastic cement around said glasses and flush with the panel-frame, or nearly so, whereby the glasses are fixed in the gratings, the fractions of the tile are secured to each other and to the panel-frame by the same mass of cement at one action, and a uniform cement surface produced in the panel, substantially as set forth.

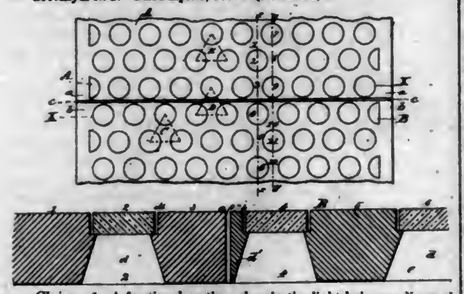
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5. In illuminating concreted tile constructions, fractional gratings placed naked in the panel-spaces, adapted to be set with glasses and finally overlaid with plastic cement flush with the panel-frame, whereby the fractions are secured together and all the joints of the panel are covered and a homogeneous or uniform concrete surface is obtained at one cementing action, substantially as set forth.

6. In illuminating concreted constructions, fractional gratings placed naked in the panel-spaces, set with glasses, and finally overlaid with plastic cement flush with the glasses and panel-frame, substantially as and for the purposes set forth.

317,944. ILLUMINATING COMBINATION-TILE. THADDEUS HYATT, Brooklyn, N. Y. Filed Apr. 6, 1885. (No model.)



Claim.—1. A fractional grating wherein the light-holes are disposed on the honey-comb plan in groups of triangles, in combination with junction sides formed on a waved or serpentine outline in harmony with the geometrical disposition of the holes, substantially as and for the purposes herein set forth and illustrated.

2. In illuminating-tile constructions, fractional gratings having their light-holes arranged in lines parallel with the dividing-lines of the fractions, and having their junction edges formed in a waved or sinuous outline, substantially as herein shown and described.

3. In combination-tiles made of fractional gratings wherein the light-holes are grouped in obtuse-angled triangles, and so disposed as to run crosswise to the tile on the fractions being united, forming the junction sides of the fractions with a sinuous or waved outline, substantially corresponding to the contour of the individual light-holes along the junction edges of the gratings, substantially as herein shown and described.

4. Illuminating constructions or surfaces made of combination-tiles formed of fractional gratings wherein the light-holes are grouped in triangles, and in which they are also so disposed as to run crosswise to the tile on the fractions being united, when the junction sides of such fractions are made to conform to the honey-comb arrangement of the light-holes therein in a waved or serpentine outline, substantially as and for the purposes herein set forth and illustrated.

317,945. CONCRETE LIGHT FOR BUILDINGS, AREAS, &c. THADDEUS HYATT, Brooklyn, N. Y. Filed Apr. 7, 1885. (No model.)



Claim.—1. In illuminating tiling or gratings, the combination, with a metal grating or perforated plate, and concrete overlying the same, of glasses embedded in the concrete and over the openings of the plate, formed with a foot or base having cams thereon to interlock through the openings with the plate, substantially as herein set forth.

2. In illuminating tiling or gratings, the combination, with the underlying grating and overlying concrete, of glasses formed with cams at the base to interlock through the openings with the plate, and with milled or roughened sides to bond with the concrete, substantially as herein set forth.

3. In illuminating tiling or gratings, the combination, with a metal grating or perforated plate, and concrete overlying the same, of flat top glasses embedded in the concrete, and over the openings of the plate, formed with a foot or base having cams thereon to interlock through the openings with the plate, substantially as herein set forth.

4. In illuminating tiling or gratings, the combination, with the underlying grating and overlying concrete, of flat top glasses formed with cams at the base to interlock through the openings with the plate, and with milled or roughened sides to bond with the concrete, substantially as herein set forth.

5. A perforated plate or grating made with bayonet-slotted light-holes, in combination with glasses formed with a foot or base to pass through the same and interlock with the under side of the grating when the grating is combined with a plastic face or overlayer of cement or concrete that on hardening permanently fixes the glasses in place, the sides of the heads of the glasses above the face of the grating at the same time forming intergiass spaces or retaining-cells for keying the plastic overlayer to the face of the grating.

6. A perforated plate or grating made with bayonet-slotted light-holes, in combination with glasses formed with a foot or base to pass through the same and interlock with the under side of the grating when the grating is combined with a plastic face or overlayer of cement or concrete that on hardening permanently fixes the glasses in place, the sides of the heads of the glasses above the face of the grating at the same time forming intergiass spaces or retaining-cells for keying the plastic overlayer to the face of the grating, in combination with milled or roughened sides upon the glasses, substantially as described.

7. Fractional gratings without dead-work borders on their junction sides, made with bayonet-slotted light-holes, as a new article of manufacture or building material for the construction of combination-tiles and illuminating-surfaces.

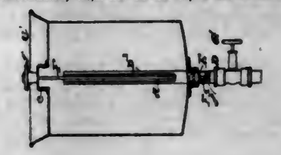
8. Combination-tiles composed of fractional gratings without dead-work borders on their junction sides, made with bayonet-slotted light-holes, in combination with glasses formed with an entering base for passing through the slots and interlocking with the under face of the grating, and in combination also with a facing or overlayer of cement or concrete.

9. A combination-tile the fractions of which at the junction-lines are interlocked one with the other mechanically by the action of the glasses, in combination with a facing or overlayer of cement or concrete, substantially as herein set forth and illustrated.

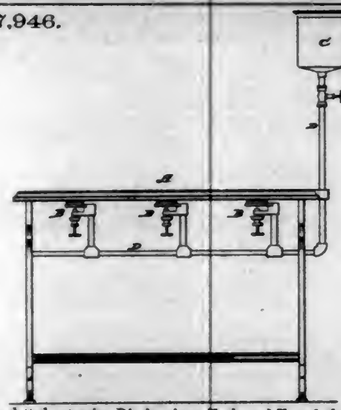
317,946. VAPOR-STOVE. THOMAS JOHNSON, St. Louis, Mo., assignor of one-half to William Brandon, same place. Filed May 12, 1884. (No model.)

Claim.—1. The combination, substantially as described, of the fountain C, the pipe D, the slotted extension D', and the piston E.

2. The combination, with the burner B, of the fountain C, the pipe

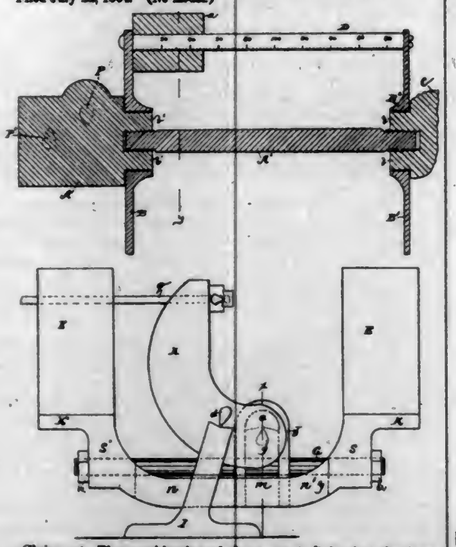


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D, the slotted extension D', the piston E, the rod F, and the screw-cap *c*, substantially as described.

317,947. WEIGHING-SCALE. MICHAEL KENNEDY, Troy, N. Y. Filed July 22, 1884. (No model.)



Claim.—1. The combination of the parts A C, having the bearings *b' b*, the revolving disks B B', the scale-bars D, and the slide-weights *a*, all arranged as shown and described.

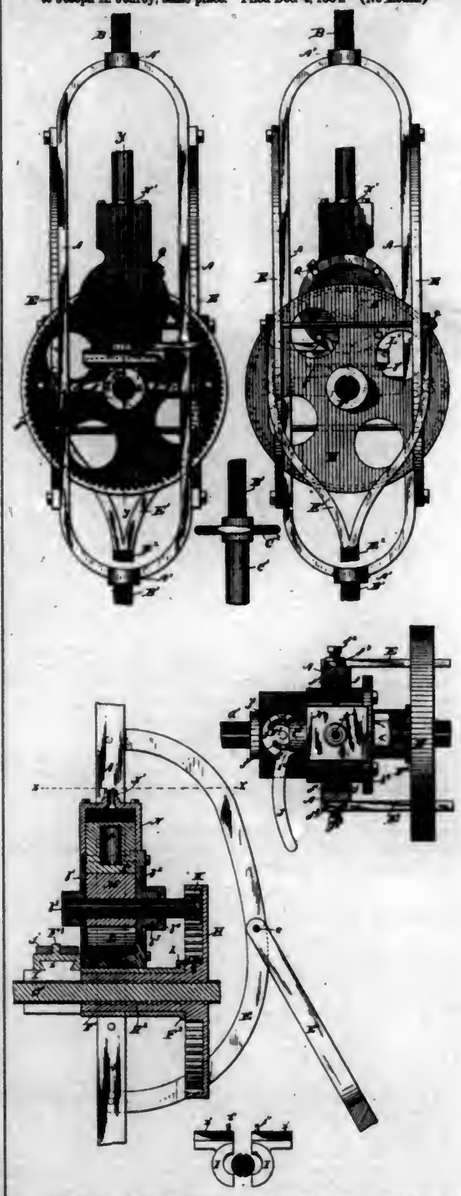
2. The truss-yoke Y, having the end platforms, K K', and inclines S S', the lever H, having pivot *g*, the block *e*, the bed-plates I, having pivots *d*, the end nutted and threaded bolt G, working in said parts S S', and the link J, in combination with the scale-platform beams E, as and for the purpose specified.

317,948. PROCESS OF MAKING LAST-PATTERNS OF GRADUATED SIZES. WILLIAM KINGSTON, Little Falls, assignor to E. S. Kingston, Utica, N. Y. Filed June 12, 1884. (No model.)

Claim.—1. The process of forming last-patterns in gradnated sizes, which consists in making in any known way a pair of last-patterns of the largest size required, in using these patterns to form molds, in casting in these molds a metallic composition which will shrink half a size in cooling, thereby producing patterns one-half size smaller than the original patterns, and using these smaller patterns to obtain in the same way, through molds, patterns a half-size smaller, and so on until the desired number of sizes of patterns have been obtained, substantially as set forth.

2. The process of making lasts in graduated sizes, which consists in forming a metallic pattern of the largest size required, and from this pattern producing successive patterns of material which will shrink half a size in casting through the medium of molds, each pattern, as formed, serving to prepare the mold for the next smaller pattern required.

317,949. ROCK-DRILL. BENJAMIN A. LEIGH, Columbus, Ohio, assignor to Joseph A. Jeffrey, same place. Filed Dec. 4, 1884. (No model.)



Claim.—1. The combination, with the drill, the screw-shaft, and the tubular bearing through which the said shaft passes, of the expanded bed-plate or support secured to said bearing and pivotally connected to the frame, a rotary engine mounted upon the said bed-plate or support, the gear-wheel mounted upon the axis of the screw, and the power-shaft connected directly with the piston, and also directly with said gear-wheel, substantially as set forth.

2. The combination, with the drill, the screw-shaft, and the tubular bearing through which said screw passes, of the main frame, the expanded bed-plate or support connected with said tubular bearing and pivotally joined to the frame, the engine mounted upon said bed-plate or support centrally relatively to the screw, the gear-wheel mounted on the axis of the screw, the mechanism which connects the engine with the gear-wheel, and means for detachably connecting the screw with the main frame, substantially as set forth.

3. The combination, with the drill, the screw-shaft which carries the drill, the tubular bearing or holder through which said screw passes, and the main frame, of the expanded bed-plate or support secured to said tubular bearing or holder, the engine mounted upon said bed-plate or support, the gear-wheel mounted upon the axis of the screw, and the pointed screws on the frame providing adjustable pivotal supports for the said bed-plate and tubular shaft-holder, substantially as set forth.

4. The combination, with the rotating drill and the screw-shaft which carries the drill, of the support for said shaft, and a detachable nut secured to said support by a tongue-and-groove joint, substantially as described.

5. The combination, with the rotating drill, the screw-shaft which carries the drill, the support for said screw-shaft, and the lever having an elongated handle, of a nut supported on the frame independently of the lever, and arranged to slide rectilineally toward and from the shaft, substantially as set forth.

6. The combination, with the rotating drill, the screw-shaft which carries the drill, a support for said screw-shaft, the cam-plate supported upon the frame, and an elongated lever connected therewith, of the nut formed in two rectilinearly-moving sections supported from the frame independently of the cam-plate and lever, and loosely connected with the latter, substantially as set forth.

7. The combination, with the rotary drill, the screw-shaft which carries the drill, and the cam-plate, of the removable nut-sections supported independently of the said cam-plate, and a tubular support which holds the screw independently of said nut-sections, substantially as described.

8. The combination, with the drill, the screw-shaft, and the tubular bearing for the screw, having a flange, F², at one end, of the gear-wheel having its hub mounted within the said tubular bearing, and the clip or clips which engage with the said flange, substantially as set forth.

9. The combination, with the main frame having the adjustable braces for securing it to the top and bottom of the mine, of the offset frame E and the rear bracing-frame having the upper Y-shaped part pivoted to the main frame, and having an extensible brace at the bottom, substantially as set forth.

317,950. JAR FOR SOLID EXTRACTS. JOHAN K. LILLY, Indianapolis, Ind., assignor to Eli Lilly & Company, same place. Filed Feb. 7, 1885. (No model.)

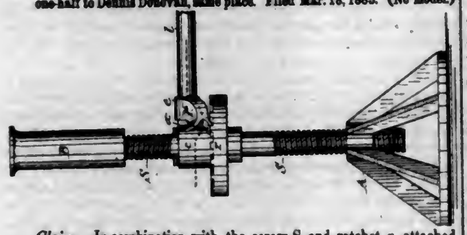


Claim.—1. The combination, with a jar for solid extracts, &c., of a scraper secured at one side of the top thereof, said scraper being formed to fit the curved inner surface of the jar, with a straight inner edge, and an inclined under side extending from said inner edge back to the side of the jar, substantially as described, and for the purposes specified.

2. The combination of the circular jar A and the scraper A' at the inner edge of the top of said jar, its front edge being formed straight, and its under side being inclined back from said front edge to the side of the jar, substantially as described, and for the purposes set forth.

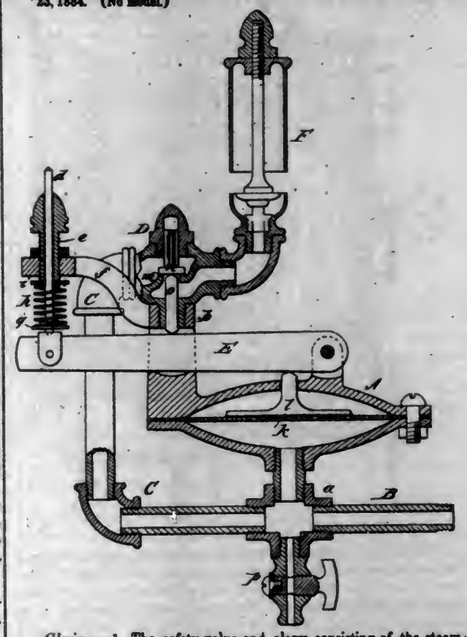
3. A scraper for jars for solid extracts, &c., formed to fit against the concave interior surface of said jar, the front edge of said scraper being formed straight, and the under side being formed inclined from said front edge back to the side of the jar, whereby said scraper is adapted to conduct the material left upon its edge down into the jar, substantially as described, and for the purposes specified.

317,951. LIFTING-JACK. LEWIS O'HARA, Oswego, N. Y., assignor of one-half to Dennis Donovan, same place. Filed Mar. 18, 1885. (No model.)



Claim.—In combination with the screw S and ratchet *r*, attached thereto, the collar *c*, loosely connected with the screw and provided with the screw-threaded socket *a*, the lever *l*, having a screw-threaded end detachably connected with the socket *a*, and formed with the smooth neck *n* and shoulder *o*, back of the screw-threaded portion, and the pawl *p*, provided with the eye *e*, embracing the neck *n* and abutting against the shoulder *o* and exterior of the socket *a*, substantially as described and shown.

317,952. SAFETY-VALVE AND ALARM FOR STEAM-BOILERS. WILLIAM B. RAILING and CHARLES N. MAY, Mechanicsburg, Pa. Filed Dec. 23, 1884. (No model.)



Claim.—1. The safety-valve and alarm consisting of the steam-chamber A, having an opening in its upper surface, the diaphragm *k* in said chamber, the plunger *l*, projecting loosely through the aperture of the chamber, and having its base resting on the said diaphragm, the lever E, the pin *o*, valve-chamber D, and valve *n*, substantially as herein shown and described.

2. In a safety-valve and alarm, the combination, with the apertured post *b*, steam-chamber A, provided with the diaphragm *k*, and the loose plunger *l*, of the lever E, pivoted to the said chamber, and projecting through the aperture of the post, the stem *d*, and the adjustable spring *h*, substantially as herein shown and described.

3. In a safety-valve and alarm, the combination of stem *d*, nut *e*, spring *h*, and lever E with the steam-chamber A, having a slotted post, *b*, substantially as described.

4. In a safety-valve and alarm, the disk-valve *n* and pin *o*, the valve-case D, steam-pipe C, and the lever E, combined substantially as described, whereby the valve is closed by steam-pressure and is independent of the weight of the lever, as set forth.

317,953. APPARATUS FOR MANUFACTURING GAS. AARON F. RANDALL, Washington, D. C., assignor of one-eighth to Carlos B. Randall, same place. Filed Mar. 13, 1885. (No model.)

Claim.—1. The boiler B, having the vaporizing-chamber D formed therein, and mainly in the water-space, and having passages opening from the steam-space of the boiler directly into the said vaporizing-chamber, substantially as described.

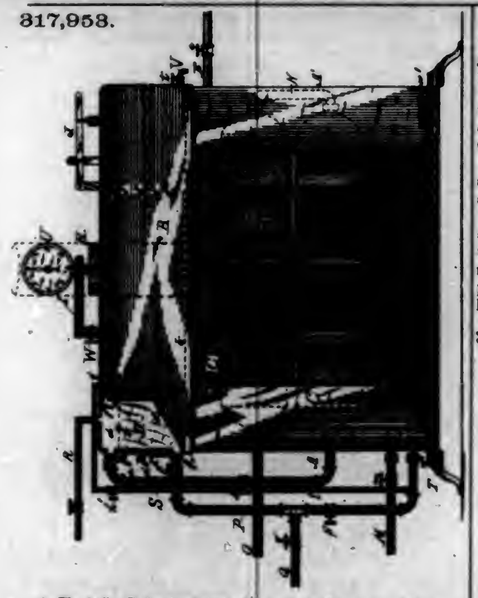
2. The boiler B, having within the water-space a vaporizing-chamber, D, and having the bottom of said vaporizing-chamber elevated above the bottom of the boiler to permit of the entrance of a stratum of water beneath the bottom of the said vaporizing-chamber, substantially as described.

3. The boiler B, having a vaporizing-chamber, D, provided with means for the introduction of oil, said chamber formed within the same by a partition, *d'*, provided with passages opening from the steam-space of the boiler into the said chamber, substantially as described.

4. The boiler B, having within the same a vaporizing-chamber formed by a partition, *d'*, the said partition being bent, as shown, to form an inclined bottom to the said chamber, elevated above the bottom of the boiler, and being provided with passages whereby steam from the body of the boiler may pass into the vaporizing-chamber, substantially as described.

5. The boiler B, having a vaporizing-chamber, D, formed within the same by a partition, *d'*, and having passages whereby steam is permitted to enter from the steam-space of the boiler into the vaporizing-chamber, and a deflector whereby steam is deflected downward in the said chamber, substantially as described.

317,953.



6. The boiler B, having within the same the flange *f*, and the partition *d'*, the said partition being bent, as shown, and having the lower portion thereof elevated above the bottom of the boiler to leave a water-space, and having passages *f'* through the same, substantially as described.

7. The combination, with the boiler B, having within the same a vaporizing-chamber, D, mainly in the water-space, and provided with passages opening directly from the steam-space of the boiler into the vaporizing-chamber, of the furnace, a retort, and a pipe leading from the vaporizing-chamber to the retort, substantially as described.

8. The combination, with the boiler B, having within the same the flange *f*, and the partition *d'*, the said partition being formed with passages *f'*, and having an inclined lower portion elevated above the bottom of the boiler, of the pipe S, a retort, and the furnace, substantially as described.

9. The combination, with the boiler B, the flange *f*, and the partition *d'*, bent, as shown, and provided with passage-ways *f'*, the lower inclined portion of said partition being elevated above the bottom of the boiler to leave a water-space beneath it, of the pipe S, a retort, and the furnace, substantially as described.

10. The combination, with the boiler B, the bent partition *d'*, formed with the passage-ways *f'*, and having its lower inclined portion elevated above the bottom of the boiler to form a water-space, and the flange *f*, of the pipe S, a retort, a burner, a pipe, M, for supplying gas, connected with the said burner, a pipe, P, connecting the burner with the vaporizing-chamber, and valves for controlling the flow of gas and oil through the said pipes, substantially as described.

11. The combination, with the boiler, the partition *d'*, formed with passages *f'*, and bent, as shown, the lower inclined portion of said partition being elevated above the bottom of the boiler to form a water-space, the flange *f*, and means for supplying oil to the vaporizing-chamber formed by the partition, of the pipe S, a retort, the furnace-walls, a burner, a pipe, P, and a steam-pipe, *l*, substantially as described.

12. The combination of the furnace-walls, the superimposed boiler having a flue passing upward through the same, and having within its shell a vaporizing-chamber, the bottom of which is separated from the bottom of the boiler by a water-containing space, and having steam-passages leading into the said vaporizing-chamber from the body of the boiler, with the pipe S, communicating with the upper portion of said vaporizing-chamber, a retort within the furnace, a pipe, P, leading from the lower portion of the vaporizing-chamber, a burner within the furnace, and a feed-water pipe, E, passing through the wall of the furnace and into the latter, substantially as described.

13. The combination, with the boiler B, having within the same the vaporizing-chamber D, of the pipe S, the furnace, and a retort composed of pipe flattened in cross-section and having adjacent parallel lengths, as shown, substantially as described.

14. The retort composed of a pipe flattened in cross-section, and bent upon itself, as shown, and having the braces C'' introduced between the bends at points along such bends to sustain the sides of said pipe, substantially as described.

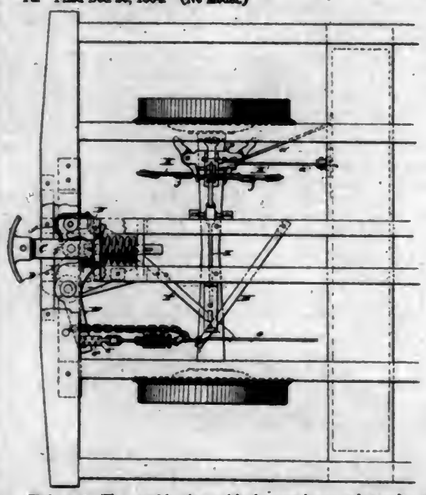
15. The combination, with the furnace-walls and a frame, D', having retort-supporting flanges, of the retort composed of pipe having adjacent parallel lengths, and having braces interposed between adjacent portions of said pipe, substantially as described.

16. The combination, with the furnace-walls and a frame having retort-supporting flanges, of the retort composed of a pipe flattened in cross-section and having adjacent parallel lengths, and having the braces C'' introduced between the lengths, substantially as described.

17. The retort composed of pipe flattened in cross-section, having adjacent parallel lengths, and having reduced externally-threaded ends, substantially as described.

18. The retort composed of a single piece of pipe flattened in cross-section bent upon itself, having braces interposed between adjacent portions of the pipe, as shown, and inclosed within an iron frame-work, rectangular or circular in form, of equal depth with the width of the pipe, and supported upon a flange projecting inwardly from the inner lower edge of said frame-work, substantially as shown and described.

317,954. AUTOMATIC CAR-BRAKE. CHARLES V. ROTE, Lancaster, Pa. Filed Dec. 26, 1884. (No model.)



Claim.—1. The combination, with the cam-lever and gravity stop or pin for setting and releasing the brake-actuating mechanism, of the single lever interposed between said stop and the two semi-annularly-armed levers operating to raise said stop or pin, substantially as described.

2. The combination, with the cam-lever for setting and releasing the brake-actuating mechanism, of the gravity stop or pin provided with the tapering or beveled end for facilitating its withdrawal and the release of the cam-lever, substantially as described.

3. The gravity stop or pin for setting and releasing the cam-lever provided with the slot for and in combination with the arm of the lifting-lever engaging said pin, substantially as described.

4. The combination, in an automatic brake setting and releasing mechanism, of the lever for setting or relieving the brake-actuating mechanism, the gravity stop or pin for locking and releasing said lever, and the spring-cushion for relieving the fall of said stop or pin, substantially as described.

5. The weighted levers on the axle, in combination with the levers having semi-annular arms surrounding the axle and provided with the curved or drooping arms through which connection is made with the gravity-stop lever, substantially as described.

6. The combination, with the cam-lever, of the spring arranged to be operated upon by the dog on the draw-bar for moving the cam-lever into position to be caught and held by the gravity-stop, substantially as described.

7. The pivoted dog on the draw-bar for actuating the brake mechanism, in combination with and interposed between the cam and spring on the cam-lever for setting and releasing said dog, substantially as described.

8. The laterally-vibrating cam-lever for setting and releasing the brake-actuating mechanism and the weighted levers on the axle for automatically raising and releasing the gravity-stop engaging said cam-lever, both located on the same side of the draw-bar, in combination with the levers for connecting said weighted levers with the gravity-stop located on the opposite side of said draw-bar, substantially as described.

9. The cam for setting and releasing the brake-actuating mechanism provided with the obliquely-arranged lever-arm, in combination with the obliquely-arranged steadying-bar H, substantially as described.

10. The combination, with the brake-lever and the brake rod or chain, of the adjustable clevis interposed between said lever and rod or chain, substantially as and for the purpose described.

317,955. SHAFT-COUPLER. WILLIAM SCHOFIELD, Philadelphia, Pa. Filed Aug. 14, 1884. Renewed Apr. 9, 1885. (No model.)



Claim.—1. A shaft-coupler composed of double-cone sleeve B, having slots *b* and kerf *b'*, clamping-sleeves D D, having ends *d*, with apertures d^3, and clamping-bolts E, passing through said apertures d^3 and slots *b*, substantially as shown and described.

2. In a shaft-coupler having a solid or single double-cone sleeve and sectional or two binding clamping-sleeves with outer perforated ends, of clamping-bolts for uniting the double-cone and clamping sleeves, and for binding or coupling the cone-sleeve to the shafts, substantially as shown and described.

3. The coupling A, composed of double-cone sleeve B, having longitudinal slots *b* in its periphery, and one of said slots terminating in a kerf, *b'*, of the sleeves D, having open or meeting edges *d* and closed ends *d'*, provided with shaft-openings d^3 and apertures d^3, and of bolts E, passing through said apertures d^3 and slots *b*, substantially as shown and described.

4. The coupling A, as herein shown and described, having sleeves D, the meeting edges *d* of which are provided with registering nicks or recesses d^4, as and for the purpose set forth.

5. In a shaft-coupling, as herein shown and described, the double-cone sleeve B, having central cylindrical part, F, substantially as and for the purpose set forth.

317,956. WHEEL FOR VELOCIPEDES. ALBERT M. WHITE, Waterbury, assignor to the Pope Manufacturing Company, Hartford, Conn. Filed Feb. 2, 1885. (No model.)



Claim.—In a hollow metallic felly, a re-enforce, C, curved longitudinally to correspond with the curvature of the felly, and curved transversely and placed and combined in a felly so that its convex surface is contiguous to the inner convex surface of the tire side of the felly and its edges raised against the inner surface of the lateral side of the felly, essentially as set forth.

317,957. CAN. THOMAS YAPP, Cleveland, Ohio. Filed May 1, 1884. (No model.)

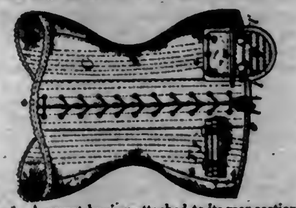


Claim.—1. In a can-sealing device, a cap consisting of two separate parts, A and B, one of said parts—viz., A—being perforated, and the other of said parts—viz., B—being unperforated, the unperforated part covering the perforated part, said two parts connected together by a screw device impressed upon their respective surfaces, said parts having lateral matching flanges *a* and *b*, that lap together, said flanges being thus adapted to clamp between them portions of the can-cover that lie about the mouth of the can, substantially as set forth.

2. In a can-sealing device, the combination, with a can-cover, of a cap consisting of two parts, A and B, said parts fastened together by a screw device impressed upon their respective surfaces, said two parts having lateral matching flanges *a* and *b*, one of said flanges—viz., *a*—lapping upon the inner surface of the can-cover continuously about the mouth of the can, and the other of said flanges—viz., *b*—lapping upon the outer surface of the can-cover continuously about the mouth of the can, all for the purpose of clamping between said flanges said portions of the can-cover, and for the purpose of making a tight joint, substantially as set forth.

3. In a can-sealing device, the combination, with portions of the can-cover contiguous to the mouth of the can, of the two parts A and B, said parts having the base-flanges *a* and *b*, said flanges clamping between them the portions of the can-cover, C, aforesaid, said part A being perforated and having the flange *d* projecting outwardly through the mouth of the can, said flange impressed with a male screw on its exterior surface, part B being unperforated and impressed on the interior surface of its flange *c* with a female screw, said parts screwed to each other by means of said screw device, and for the purposes substantially set forth and described.

317,958. COMBINED CORSET AND GARMENT-SUPPORTER. A. L. ZORKOWSKI, New York, N. Y., assignor to Isaac Newman, New Haven, Conn. Filed Aug. 21, 1884. (No model.)



Claim.—1. A corset having attached to its rear section one or more detachable depending tabs, T, having free unattached sides and lower edge, said tabs provided with horizontal stiffeners S, and means, substantially as set forth, for fastening said tabs, rolled up as a garment-supporter, as and for the purpose intended, substantially as described.

2. A corset provided at its rear section with one or more detachable depending tabs, T, provided with parallel rows of interior stiffeners, S, and having free unattached sides and lower edge, and provided with means, substantially as set forth, for holding and retaining said tabs flat against the underlying portion of said section, as and for the purpose intended, substantially as described.

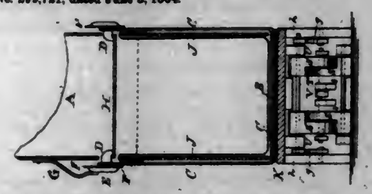
3. The combination of a corset with one or more rearwardly-attached depending tabs, T, provided with parallel rows of interior stiffeners, S, and having eyelet-holes *f'*, buttons F, and loops *f*, for holding said tabs rolled up as a garment-support, and further provided with loops and buttons *l l'*, for retaining said tabs on the plane of the rear section of the corset, substantially as described.

4. A combined corset and garment-support consisting of the following elements: a rear portion, C, one or more depending tabs, T, provided with interior horizontal stiffeners, S, eyelet-holes *e*, or the like, buttons F, loops *f*, and eyelet-holes *f'*, substantially as described.

5. The within-described garment-supporting tabs T, provided with interior horizontal stiffeners, S, and fastening devices F *f f'*, and fastening devices e and *l l'*, in combination with the rear section, C, of a corset, arranged as set forth, as and for the purpose intended, substantially as described.

REISSUES.

10,595. PRESS FOR SACKING BRAN, SAWDUST, &c. ARTHUR L. BATTSON, Morrisburg, Ontario, Canada. Filed Dec. 8, 1884. Original No. 292,721, dated June 3, 1884.



Claim.—1. In a sacking-press, the combination, with the casing A and the inner case, J, of the sack-cover plate and automatic spring-catches permanently attached to the inner case, whereby the sack-cover plate when forced down by the follower will be caught and held as the package is lowered from pressure, substantially as set forth.

2. In a sacking-press, the combination, with the casing A, the inner casing, J, and the sack-cover plate, of the spring-catches D G, substantially as set forth.

3. In a sacking-press, the combination, with the inner casing, the sack, and the sack-cover plate, of locking devices attached to and carried by the inner casing, whereby the sack-cover plate, when forced down by the follower, will be caught and held as the package is lowered from pressure, substantially as set forth.

4. In a sacking-press, the combination, with the casing A and the inner case, J, and the sack-cover plate, of locking devices attached to and carried by the inner case and springs attached to the casing A, substantially as set forth.

5. In a sacking-press, the combination of an inner case, J, to receive the sack, and an outer skeleton case having hinged sides, and adapted to support the inner case against outward pressure during packing, and to be detached from the inner case after the packing has been effected, substantially as set forth.

6. In a sacking-press, the combination, with the bottom plate, the bent bar C, and the outer and skeleton case having hinged sides, of the inner case adapted to receive the sack, substantially as set forth.

7. In a sacking-press, the combination, with the bottom plate, B, and the inner case, J, having hinged sides, of the catches D G, pivoted at their lower ends, substantially as set forth.

8. In a sacking-press, the combination, with the inner case, of the outer skeleton case having the hinged sides, the press-case A, the plate R, and means, substantially as described, for raising and lowering the plate R, as set forth.

9. In a sacking-press, the combination, with a press-case, A, of the inner case, an outer skeleton case having hinged sides, and permanently fixed in position, and adapted to support the inner case against pressure when the material is being forced into the sack, substantially as set forth.

10. In a sacking-press, the combination, with the bottom plate, B, and the bent bar C, of the inner case, J, having hinged sides, and the outer skeleton case, M N O, having hinged sides, substantially as herein shown and described, whereby the sack will be securely held while being filled, as set forth.

11. In a sacking-press, the combination, with a side plate, of the inner case, J, having recesses or slots J', and an arm of the bent bar C, of the free hinge-straps K, having offsets K', and the button L, substantially as herein shown and described, whereby the said case will be securely fastened shut and held in place, as set forth.

12. In a sacking-press, the combination, with the skeleton case M N O, having hinged sides, of the series of cams P and their connecting-rod Q, substantially as herein shown and described, whereby the case can be readily locked and released, as set forth.

13. In a sacking-press, the combination, with the base-plate R, of the toggle-bars S, the connecting-bars U Z, the bent bar V, having roller W and slot X, and the lever *n*, substantially as herein shown and described, whereby the said toggle-bars can be readily opened to raise the said plate, as set forth.

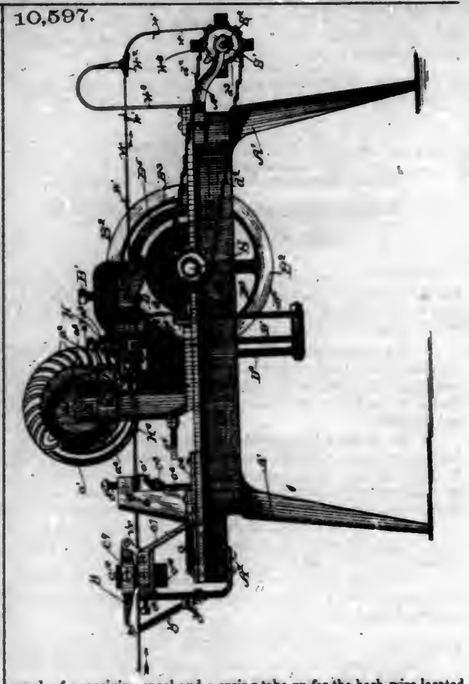
14. In a sacking-press, the combination, with the toggle-bars S, of the connecting-bars U *b*, the connecting-bar *c*, having slot *e*, and the lever *f*, substantially as herein shown and described, whereby the said toggle-bars can be readily closed to lower the base-plate of the press, as set forth.

10,596. CORSET-STEEL FASTENING. LUCIAN HILL, North Brookfield, Mass., assignor, by direct and mesne assignments, to Theodore C. Bates, same place. Filed Mar. 28, 1885. Original No. 225,375, dated Mar. 9, 1880.



Claim.—In a corset-steel fastening, the eye-plate provided with an eye, 2, and a slot, 3, leading therefrom, and with a connected hook integral therewith, and having a nose to spring laterally across the slot 3 when the stud is moved therein in one direction in the slot, the spring falling behind the stud to thereby impede its return along the said slot, substantially as described.

10,597. MACHINE FOR MAKING BARBED-WIRE FENCE. LESLIE E. SUNDERLAND, Joliet, Ill., assignor to the Joliet Enterprise Company, same place. Filed May 9, 1884. Original No. 293,538, dated Feb. 12, 1884.



Claim.—1. In a barb-fence machine, the combination, with a pair of dies for forming crimps in the fence-wire, of a coiling-head for wrapping the barb about the fence-wire at such crimps, substantially as specified.

2. In a barb-fence machine, the combination, with a pair of reciprocating dies for forming crimps in the fence-wire and feeding said fence-wire forward, of a coiling-head for wrapping the barbs about the fence-wire at such crimps, substantially as specified.

3. The combination of a pair of dies for forming crimps in a fence-wire, a coiling-head for wrapping the barbs about the fence-wire at such crimps, and a guide for the fence-wire to prevent the same from rotating, substantially as specified.

4. The combination, with a pair of reciprocating crimping-dies to form crimps in the fence-wire and feed the same forward, of a guide to prevent the fence-wire revolving, a barb-wire-feeding device, and a coiling-head to wrap the barb about the fence-wire at the crimps therein, substantially as specified.

5. The combination, of a pair of crimping-dies to form crimps in the fence-wire and a reciprocating coiling-head for wrapping the barbs about the fence-wire at such crimps, substantially as specified.

6. In a barb-fence machine, the combination, with the reciprocating crimping-dies to form crimps in the fence-wire and feed the same forward, of a receiving-spool and a spring take-up for the barb-wire located between said spool and said crimping-dies, substantially as specified.

7. In a wire-barbing machine, the combination of the shaft S, crank P', pitman P, reciprocating head K, having the adjustable stop Z^4, and set-screws Z^2 Z^3, reciprocating head *c*, having the bell-crank jaw *c'*, crimping-dies *o o'*, set-screws c^3 c^3, and supporting-roller o^3, straightening-plates c^{12} c^{12}, stem H^6, and coiling-shaft H^3, having the coiling-hook *v*, and adapted to reciprocate and rotate, as and for the purpose set forth.

8. In a wire-barbing machine, the combination of the shaft S, sprocket-wheel *h*, sprocket-chain h^2, sprocket-wheel *h'*, shaft a^4, cam-wheel *a*, having the cam-channels *a' a² a³*, lever a^7, having the roller-wrist *n'*, saddle a^8, annular ring H^5, having the two ears or pins H^4, coiling-shaft H^3, having the coiling-hook *v*, and adapted to reciprocate and rotate its coiling end simultaneously, pinion *m*, and stem H^2, as and for the purpose set forth.

9. In a wire-barbing machine, the combination of shaft S, waved cam-wheel D^7, wrist-rollers D^4 D^4, arms D^3 and D'', banger D^2, link D^5, lever *D'*, set-screw dies n^4 n^5, set-screw n^3, dog *r'*, spring r^2, standard *r*, and guide-tube *t'*, as and for the purpose set forth.

10. In the wire-barbing machine described, the combination of the shaft S, waved cam H^7, lever *H'*, having the head *R*, standard H^8, cutting-off dies Z and Z', set-screws *v'* and Z^3, and bed-plate A^4, as and for the purpose set forth.

11. In a wire-barbing machine, the combination of the shaft S, cam-wheel B^7, arm B^8, having the roller-wrists to run in the cam-channel of said cam, head B, pivoted to standard H^2, bed-plate B^2, die R^2, and set-screw B', as and for the purpose set forth.

12. In a wire-barbing machine, the combination of the cam-wheel *a*, lever a^7, saddle-link a^8, annular ring H^5, and pinion *m*, adapted to rotate and reciprocate the coiling end of the coiling-shaft H^3 simultaneously, as and for the purpose set forth.

13. In a wire-barbing machine, the combination of the reciprocating head *c*, dies *o* and *o'*, and supporting-roller o^3, as and for the purpose set forth.

14. In the wire-barbing machine described, the combination of the straightening-plates c^{12} c^{12}, strand-wire feed consisting of the reciprocating head *c* and bell-crank jaw *c'*, and dies *o* and *o'*, operated by the mechanism described, coiling-shaft H^3, having the coiling-hook *v*, and adapted to reciprocate and rotate its coiling end simultaneously by the mechanism described, cutting-off dies Z Z' and their operating mechanism, barb-wire feed described, and illustrated particularly in Fig. 5, press B, having the die-press R^2 and operated as described, guide-shoe W', and spring-standard W^2, all adapted to operate as and for the purpose set forth.

R. PETERS, Photo-Lithographer, Washington, D. C.

DECISIONS
OF THE
COMMISSIONER OF PATENTS
AND OF
UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

Supreme Court of the United States.

DOBSON *et al.*, *v.* THE HARTFORD CARPET COMPANY. SAME *v.* THE BIGELOW CARPET COMPANY. SAME *v.* THE BIGELOW CARPET COMPANY.

Decided April 20, 1885.

1. In a suit in equity for the infringement of a patent for a design for carpets, where no profits were found to have been made by the defendant, the circuit court allowed to the plaintiff as damages in respect to the yards of infringing carpets made and sold by the defendant the sum per yard which was the profit of the plaintiff in making and selling carpets with the patented design, there being no evidence as to the value imparted to the carpet by the design: *Held* that such award of damages was improper, and that only nominal damages should have been allowed.
2. Where a bill founded on a design patent with a claim for a pattern and separate claims for each of its parts is taken as confessed, it alleging infringement of the "invention," the patent will be held valid for the purposes of the suit.
3. The joinder of such claims in one patent does not *per se* invalidate the patent or any claim at the objection of a defendant.
4. A claim of "the design for a carpet, substantially as shown," refers to the description and the drawing and is valid.
5. An objection that a patent for a design is for an aggregation of old ornaments and embodies no "invention" is concluded where the bill alleges infringement of the "invention" and is taken as confessed.
6. Where the master reported no profits and nominal damages in a suit in equity for the infringement of a patent for a design, and on exception by the plaintiff the circuit court allowed a sum for damages, and this court reversed its decree, the plaintiff was allowed costs in the circuit court to and including the interlocutory decree, and the defendant was allowed his costs after such decree.

APPEALS from the Circuit Court of the United States for the Eastern District of Pennsylvania.

Mr. H. T. Fenton for the appellants.

Mr. Arthur v. Briesen for the appellees.

Mr. Justice BLATCHFORD delivered the opinion of the Court.

These are three suits in equity brought in the Circuit Court of the United States for the Eastern District of Pennsylvania against John Dobson and James Dobson, trading as John & James Dobson, and as "The Falls of Schuylkill Carpet Mills." No. 1 is brought by the Hartford Carpet Company for the infringement of Design Letters Patent No. 11,074, granted March 18, 1879, to the plaintiff, as assignee of Winthrop L. Jacobs, for three and one-half years, for a design for carpets. No. 2 is brought by the Bigelow Carpet Company for the infringement of Design Letters Patent No. 10,778, granted August 13, 1878, to the plaintiff, as assignee of Hugh Christie, for three and one-half years, for a design for carpets. No. 3 is brought by the Bigelow Carpet Company for the infringement of Design Letters Patent No. 10,870, granted October 15, 1878, to the plaintiff, as assignee of Charles Magee, for three and one-half years, for a design for carpets.

No. 1 was commenced on the 26th of April, 1879, and Nos. 2 and 3 on the 7th of May, 1879. In No. 1 and No. 3 the defendants appeared by a solicitor, but did not plead, answer, or demur to the bill, and it was taken as confessed in each suit on the 11th of July, 1879, and on the 2d of September, 1879, an interlocutory decree was entered in each suit awarding a perpetual injunction and an account of profits and damages.

In No. 2 an answer was filed on the 3d of September, 1879, denying infringement and setting up want of novelty. A replication was filed, and on the 5th of November, 1879, a preliminary injunction was granted. Testimony was taken, and on April 23, 1880, on final hearing, a decree was made for a perpetual injunction and an account of profits and damages. Some testimony on the accounting in Nos. 1 and 3 was taken in November, 1879, but most of the evidence before the master was taken in the three suits at the same time in June, 1880.

In No. 1 the master filed a report on January 18, 1881, setting forth that the plaintiff, before the master, waived all claim for profits and limited its claim to the damages it had suffered by the infringement; that the defendants had sold twenty pieces, of fifty yards each, of carpet containing the patented design; that the plaintiff claimed $13,400 damages, being 67 cents a yard, on four hundred pieces of carpet of fifty yards each, as being the decrease of the plaintiff's sales caused by the infringement, estimating the cost to the plaintiff of making and selling the carpet at $1.08 per yard, and his selling price at $1.75 per yard, and that the master had rejected that claim as founded on inadmissible evidence, and a further claim of $3,000 damages for expenses caused to the plaintiff by the infringement in getting up other designs and changing its looms to other carpets. The report was for six cents damages. The plaintiff excepted to the report because it did not find profits to have been made by the defendants, and did not report more than nominal damages. The court sustained the exceptions and decreed to the plaintiff $737, being for twenty pieces of infringing carpet made and sold by the defendants, at fifty-five yards per piece, or eleven hundred yards at 67 cents per yard, as the plaintiff's profit per yard on carpet of the patented design. The final decree was for $737 and costs and a perpetual injunction. The defendants have appealed.

In No. 2 the master filed a report on January 18, 1881, setting forth that the plaintiff before the master waived all claim for profits and limited its claim to the damages it had suffered by the infringement; that no testi-

mony had been taken showing the amount of the defendant's sale of the infringing carpet; that the plaintiff claimed $11,250 damages, being 75 cents a yard, on three hundred pieces of carpet of fifty yards each, as being the decrease of the plaintiff's sales caused by the infringement, estimating the cost to the plaintiff of making and selling the carpet at $1.10 per yard and his selling price at $1.85 per yard, and that the master had rejected that claim as not sustained by the evidence, and also a further claim for expense caused to the plaintiff by the infringement in getting up another design and in resetting its looms to manufacture the same. The report was for six cents damages. The plaintiff excepted to the report for not finding more than nominal damages. The court sustained the exceptions and decreed to the plaintiff $750, being for twenty pieces of infringing carpet, made by the defendants, at fifty yards per piece, or one thousand yards at 75 cents per yard, as the plaintiff's profit per yard on carpet of the patented design. The final decree was for $750 and costs and a perpetual injunction. The defendants have appealed.

In No. 3 the master filed a report on January 18, 1881, setting forth that the plaintiff before the master waived all claim for profits and limited its claim to the damages it had incurred by the infringement; that the defendants had sold thirty-one pieces, amounting to sixteen hundred and eighty-four and one-fourth yards, of carpet containing the patented design; that the plaintiff claimed $3,750 damages, being 75 cents a yard on five thousand yards of carpet, as being the decrease of the plaintiff's sales, caused by the infringement, estimating the plaintiff's profit on making and selling the carpet at 75 cents per yard, and that the master had rejected that claim as not sustained by the evidence, and also a further claim for the cost of getting up another design to replace the one infringed. The report was for six cents damages. The plaintiff excepted to the report, because it did not find profits to have been made by the defendants and did not report more than nominal damages. The court sustained the exceptions and decreed to the plaintiff $1,312.50, being for thirty-five pieces of infringing carpet, made and sold by the defendants, at fifty yards per piece, or seventeen hundred and fifty yards at 75 cents per yard, as the plaintiff's profit per yard on carpet of the patented design. The final decree was for $1,312.50 and costs and a perpetual injunction. The defendants have appealed.

The circuit court proceeded on the ground, as stated in its decision, (10 *Fed. Rep.*, 385,) that it was to be presumed that the defendants' carpets displaced in the market an equal quantity of the plaintiff's carpets, and that the profits which the plaintiffs would have made on that quantity of carpets was the measure of their damages. It rejected the claims for losses for any greater decline in the plaintiff's sales and on looms as "too remotely connected with the defendants' acts as their supposed cause" and "too speculative in their character" to be allowed.

Leaving out of view all question as to the presumption that the plaintiffs would have made and sold, in addition to the carpets of the patented designs which they did make and sell, the infringing carpets which the defendants made and sold, which are alleged to have been of poorer quality and cheaper in price, it is plain that the price per yard allowed as damages was the entire profit to the plaintiffs per yard in the manufacture and sale of carpets of the patented designs, and not merely the value which the designs contributed to the carpets. There was no evidence as to that value.

It is provided by section 4921 of the Revised Statutes that in a suit in equity for the infringement of a patent the plaintiff may, on a decree in his favor, recover the damages he has sustained in addition to the profits to be accounted for by the defendant, such damages to be assessed by the court, or under its direction, and with the same power to increase the damages in the discretion of the court as in the case of verdicts; and the damages intended are "the actual damages sustained," in the language of section 4919. (*Root* v. *Railway Co.*, 105 U. S., 189, 212.) By section 4933 all these provisions apply to patents for designs.

This Court has, in a series of decisions, laid down rules as to what are to be regarded as "profits to be accounted for by the defendant," and what as "actual damages" in suits for the infringement of patents, and no rule has been sanctioned which will allow, in the case of a patent for a design for ornamental figures created in the weaving of a carpet, or imprinted on it, the entire profit from the manufacture and sale of the carpet, as profits or damages including all the profits from carding, spinning, dyeing, and weaving, thus regarding the entire profits as due to the figure or pattern, unless it is shown by reliable evidence that the entire profit is due to the figure or pattern. It is matter of common knowledge that there is an infinite variety of patterns in carpets, and that between two carpets of equal cost to make and equal merit as to durability of fabric and fastness of color, each with a pattern pleasing to the taste, one having a design free to be used and the other a design protected by a patent, the latter may or may not command in the market a price larger than the former. If it does, then the increased price may fairly be attributed to the design, and there is a solid basis of evidence for profits or damages; but short of this, under the rules established by this Court, there is no such basis. The same principle is applicable as in patents for inventions. The burden is upon the plaintiff, and if he fails to give the necessary evidence, but resorts instead to inference and conjecture and speculation, he must fail for want of proof. There is another suggestion of great force. The carpet with the infringing design may be made on an infringing loom, and various infringing processes or mechanisms for carding, spinning, or dyeing may be used in making it, and if the entire profit in making and selling it is necessarily to be attributed to the pattern, so it may as well, on principle, be attributed to each of the other infringements, and a defendant might be called on to respond many times over for the same amount. There is but one safe rule—to require the actual damages or profits to be established by trustworthy legal proof.

It is not necessary to cite at length from the cases decided by this Court on the subject. It is sufficient to refer to them as follows: *Livingston* v. *Woodworth*, (15 How., 546;) *Seymour* v. *McCormick*, (16 Id., 480;) *Mayor* v. *Ransom*, (23 Id., 487;) *Mowry* v. *Whitney*, (14 Wall., 620;) *Philp* v. *Nock*, (17 Id., 460;) *Littlefield* v. *Perry*, (21 Id., 205;) *Birdsall* v. *Coolidge*, (93 U. S., 64;) *Cawood Patent*, (94 Id., 695;) *Blake* v. *Robertson*, (Id., 728;) *Garretson* v. *Clark*, (111 Id., 120;) *Black* v. *Thorne*, (Id., 122.) The true rule, which applies also to a patent for a design, was formulated thus, by this Court, in *Garretson* v. *Clark:*

> The patentee must in every case give evidence tending to separate or apportion the defendant's profits and the patentee's damages between the patented feature and the unpatented features, and such evidence must be reliable and tangible, and not conjectural or speculative; or he must show, by equally reliable and satisfactory evidence, that the profits and damages are to be calculated on the whole machine, for the reason that the entire value of the whole machine as a marketable article is properly and legally attributable to the patented feature.

The case of *Manufacturing Co.* v. *Cowing* (105 U. S., 253) was a case falling within the last clause of the rule thus stated, and was an exceptional case, as was stated by the Chief Justice in the opinion. The general rule was recognized in that case, and the exception was made in regard to the oil-well gas-pump there involved, because there was only a limited and a local demand for it, which could not be and was not supplied by any other pump. The rule in question is even more applicable to a patent for a design than to one for mechanism. A design or pattern in ornamentation or shape appeals only to the taste through the eye, and is often a matter of evanescent caprice. The article which embodies it is not necessarily or generally any more serviceable or durable than an article for the same use having a different design or pattern. Approval of the particular design or pattern may very well be one motive for purchasing the article containing it, but the article must have intrinsic merits of quality and structure to obtain a purchaser, aside from the pattern or design, and to attribute in law the entire profit to the pattern, to the exclusion of the other merits, unless it is shown by evidence as a fact that the profit ought to be so attributed, not only violates the statutory rules of "actual damages" and of "profits to be accounted for," but confounds all distinctions between cause and effect. The decrees must therefore, all of them, be reversed as to the damages awarded.

As to No. 1, though the bill was taken as confessed, the defendants take the point that the patent is void on its face because it has nineteen claims. It has a claim for an entire pattern, and then a separate claim for each of eighteen component parts making up the whole. The bill alleges infringement by the making and selling of the "invention" and of carpets containing the "invention." Even if the defendants can raise this point after a decree *pro confesso*, (see *Thomson* v. *Wooster*, 31 O. G. 914,) the patent must be held valid at least for the purposes of this case.

In No. 2 the question of proof of making and selling by the defendants before suit brought is raised; but we think on the pleadings and all the proofs, including the defendants' letter of April 13, 1880, the case is made out. The point is also taken that this patent is void because it has a claim for the entire pattern and three claims for each of three constituent parts of it. No such point is taken in the answer, which speaks of the patent as one for a single design. If the Patent Office, in view of the question of fees, and for other reasons, grants a patent for an entire design with a claim for that and a claim for each one of various constituent members of it as a separate design, we see no objection to it, leaving the novelty of the whole and of each part and the validity of the patent open to contestation. The mere joinder of such claims in one grant does not *per se* invalidate the patent or any particular claim at the objection of a defendant.

In No. 3 objection is taken to the patent because it claims "the design for a carpet, substantially as shown." As the bill is the same in form as that in No. 1, and was taken *pro confesso*, the patent is valid, at least for the purposes of this case. Aside from this we see no good objection to the form of the claim. It refers to the description as well as the drawing in using the word "shown." The objection is also made as to No. 3 that the patent is for an aggregation of old ornaments and embodies no invention. This objection is concluded for this case by the language of the bill and the decree *pro confesso*.

The final decrees in all of the suits are reversed, and the cases are remanded to the circuit court, with directions to disallow the award of damages in each suit, and to award six cents damages in each, and to allow to the defendants a recovery in each case for their costs after interlocutory decree, and to the plaintiff in each case a recovery for its costs to and including interlocutory decree.

U. S. Circuit Court—Northern District of Illinois.

McFARLAND v. THE DEERE & MANSUR MANUFACTURING COMPANY AND CHARLES H. DEERE.

Decided January 5, 1885.

Complainant filed a bill in equity for an accounting of profits, &c., for alleged infringement of patents for improvements in corn-planters, issued to George I. Bergen, one in 1863 (reissued in 1865) and the other in 1865, in three particulars, namely: (1) the slotted joint, coupling together the front and rear frames of a corn-planter so as to allow the desirable free vertical motion as the wheels of the machine rise or fall; (2) the windlass, serving to raise or lower the forward frame for several purposes: and (3) the scrapers (covered by the second patent) for cleaning the wheels, brought in contact with the wheels by pressure on a treadle, and dropping away automatically when the pressure is removed. The bill is dismissed for want of equity, for the following reasons:

1. Passing by the fact that the state of the art shows to be requisite a less freedom of play between the frames than that provided by Bergen's slotted joint, and suggests inquiry whether this feature is not void for want of utility, it appears that Bergen was anticipated again and again by patentees who employed joints of various kinds for the same purpose, one of which is almost identical with his slotted joint, and another of which is coupled with a claim for "any other convenient contrivance" for effecting the purpose. Wherefore, if sustained as for the slotted joint, (which itself is not Bergen's invention,) the patent must be limited to the specific device, and as defendants do not use such a slotted joint as he describes there is no infringement.
2. It appears that two-frame planters are as old at least as that covered by a patent issued to one Brown in 1855; that that machine and all subsequent two-frame machines prior to Bergen's employed some device for raising the forward frame, either a lever or a windlass, and that these devices were before the public when Bergen introduced his windlass. Wherefore he may not invoke the doctrine of equivalents, but is entitled only to the mode of lifting the forward frame which he specially exhibited, and as he uses a windlass and the defendants a lever there is no infringement.
3. Passing by the fact that a patent was issued to one Vandiver in 1863, showing automatic scrapers having a reverse action, (that is, remaining in contact with the wheel until removed by a lever), the change in which by Bergen could scarcely require invention, it conclusively appears that scrapers of this identical kind were used in 1861 on planters which were extensively sold in 1862. Wherefore, though courts are wary in allowing parol evidence to defeat a patent, the proof in this case is so complete and clear that it leaves no room for doubt that this device was known and in public use at least three years prior to the date of Bergen's patent.

Mr. J. G. Manahan and *Mr. C. H. Roberts* for the complainant.

Messrs. West & Bond for the defendants.

Mr. John R. Bennett for the defendant George W. Brown.

BLODGETT, *J.*:

This is a bill in equity for an accounting as to profits and damages by reason of the alleged infringement of Reissued Patent No. 1,935, granted to George I. Bergen, for an improvement in corn-planters, the original patent (No. 40,789) being dated December 1, 1863, and the reissued patent bearing date April 18, 1865; and, also, Patent No. 46,629, granted to George I. Bergen, March 7, 1865 for an improvement in corn-planters, of both of which patents complainant claims to be owner by proper assignments, and no question is raised as to his title. Both of these patents have reference to that class of corn-planters known as "check-row planters," where the frame that carries the seed-dropping device is mounted on runners or blades, which when planting cut a furrow or crease in the ground, into which the seed is dropped, and the main frame carrying the driver is mounted on wheels attached to the rear of the frame carrying the seed-dropping mechanism.

The principal features covered by Reissued Patent No. 1,935, which are in controversy in this case, are: 1. The slotted joint by which the two frames are coupled together, so as to allow each frame a certain amount of free vertical motion, so that if the wheels pass over obstructions or fall into a depression they will not correspondingly raise or depress the forward frame. 2. A windlass journaled upon the rear frame projecting over the forward frame, so that by means of a chain or other flexible connection between the forward end of the windlass and the forward frame the latter can be raised or lowered to regulate the depth which the runner shall go into the ground when planting, and also to raise the forward frame wholly off the ground for the purpose of turning the planter at the ends of the rows, or for transporting it from field to field.

The only feature of Patent No. 46,629, which defendants are charged with infringing, is that which shows scrapers so arranged that they can be brought in contact with the wheels for cleaning them of the muck or dirt which adheres to them by a treadle or lever, and when they have done their work will at once drop automatically away from contact with the wheel on withdrawal of the pressure from the treadle. These elements of Patent No. 1,935 are embodied in the first, second, third, and eighth claims, which are as follows:

1. The combination, in a seed-planter, of a front frame carrying the seeding mechanism and a dropman's seat, and a rear frame carrying a coupling-windlass and a driver's seat, with the slotted coupling, substantially as described, for the purpose set forth.

2. Balancing the front and rear frame of a seed-planter by a windlass, substantially in the manner and for the purpose set forth.

3. The windlass C, to balance the front and rear frames or control the depth of planting in a seeding-machine, or to regulate the weight of the tongue upon the team, as set forth.

8. The slotted joint connecting the front and rear frames when the draft of the rear frame is effected by this coupling alone, and so as to allow a vertical movement of the front or rear frame, as and for the purposes set forth.

And the sixth claim of Patent No. 46,629 covers the scraper-hanging device, which claim is as follows:

6. The scrapers H, constructed as described, and mounted on the roller in such a manner as to automatically remove themselves from contact with the wheels, as and for the purpose set forth.

The bill charges infrigement also of the first and second claims of the last-named patent; but it was not insisted upon at the hearing, and I understand this part of the case to be abandoned. The defendants deny infringement, and also deny the novelty of the features in controversy in each of these patents.

It seems to be conceded that this class of planters, in order to operate successfully, must have their rear and forward frames connected together by free joints, so as to give room for such liberty of movement that the vertical action of the forward frame will not be wholly controlled by that of the rear frame; and hence, as the proof shows, all the devices for double-frame machines which had preceded that of Bergen had provision for more or less flexibility between the frames; and Bergen states that the leading object of his improvement now in question is to secure "an extremely flexible connection between the frames, so that the machine will work equally well on rough and smooth ground;" and he provides by means of his slotted joints for a possible vertical movement of several inches between those frames. He intends, he says, to give his machine sufficient vertical motion to permit "either tube or wheel to enter a dead-furrow or pass over clods without materially changing the position of the other tube or wheel."

A mere inspection of the defendants' machine, as illustrated by the models in proof, shows that they do not use such a slotted joint as is specifically described in the Bergen Patent No. 1,935, as they have not provided for any such extreme flexibility between the frames as is called for in this reissued patent. Their joint is not properly described as a slotted joint, but is a free joint obtained by means of staples and eyebolts.

When we look back into the prior art, we find in the Chester Barton patent for a corn-planter, of February 16, 1858, a frame carrying the seeding device suspended beneath another frame mounted on wheels, the suspension being obtained by stirrups or slotted joints, which permit free vertical motion between the two frames. In the patent of Herman Kaller, dated July 17, 1860, for an improvement in corn-planters, he describes a two-frame machine, the forward one of which is mounted on runners and carries the seed-dropping device, and shows a connection of this forward frame with the rear frame by "eyes or links." Here is certainly a suggestion of a coupling which might allow as much vertical motion as that described in the Bergen patent, and in the patent issued to J. C. Moore, dated July 8, 1862, we find he describes the two frames of his corn-planter as connected "by a swivel-hinge in the center, and guiding-buffers on both sides in such a manner that each frame can accommodate itself to the inequalities of the ground independent of the other," and what he calls his "guiding-buffers" are almost identical in structure with the slotted joint described by Bergen—that is, remove the swivel-hinge which connects the middle of the two frames, and you have the Bergen coupling. In the patent to Armstrong of July 22, 1862, he shows two frames, and while he does not describe any joint, he says "the forward frame rises and falls freely;" and in the Vandiver patent of October 6, 1863, he says: "The two frames are pivoted together by bolts, so that they are free to rise and fall, or move independent of each other in a vertical direction," while the patent of George W. Brown, dated May 8, 1855, shows two frames coupled together by eyebolt and staple joints, and all through the description of

the machines of these inventors who preceded Bergen in this class of organizations it seems to be conceded that in order to their successful working there must be more or less free movement between the frames, some describing specifically by their devices more play than others, but all showing some play. The eyes and links of Kaller would certainly allow of motion limited only by the number and length of the links, while Moore says that his middle joint may consist of an eyebolt and staple, the extent of motion which it would allow being of course only limited by the size of the eyebolt and staple; but he says "or of any other convenient contrivance whereby both frames are left free to accomodate themselves independent of each other to the inequalities of the ground," so that with the buffers and guides shown by Moore's device operating with his central joint, which he expressly says must be such as to allow free motion to each frame independent of each other, there seems to me no ground for Bergen to occupy, except the specific slotted joint which he describes. Joints were old at the time Bergen entered the field. The construction of two-frame machines connected together with free joints by links had been shown, and the public had been told oft and again by patentees who had preceded Bergen in the field that there must be such a joint as would allow the forward frame to rise and fall freely. There was therefore no invention in making a joint which would allow more or less play, and it is not pretended that Bergen was the inventor of a slotted joint, he at most only used a slotted joint which others had devised and used before him, and directed the use of it in this particular place, and may be said to have provided specifically for a very long slot, so as to give a large amount of play between the frames. The Bergen slotted joint is, in fact, but an eyebolt and broad staple, the length of slot being entirely a matter of mechanical construction. Enough also appears in the proof to justify the conclusion that there was no utility in the "extremely flexible" joints shown in this Bergen patent, for in his Patent No. 46,629 he connects the two frames together by a central curved jointed bar, which does not allow as much movement between the frames as was provided for in the Moore patent of July 8, 1862, while both the machine of defendants and that of Brown, whose case was heard with this case, shows a great deal less play between the frames than was allowed by the slotted joints of Bergen's patent, and which he seems to have deemed necessary. The present machine made by Brown shows only a tipping motion between the frames. From all which I conclude that it was found by experience that there was no need for so much play between the frames as Bergen seems to have supposed necessary at the time he devised his machine, and this proof certainly suggests whether this feature of the patent is not void for want of utility; but I do not intend to rest my disposition of the case upon this point.

I am therefore of opinion that if the claim of this patent for the slotted joint can be sustained at all, it must be for the specific device, and that the defendants do not use such a slotted joint as is described by Bergen.

As to the second element of this patent, which defendants are charged with infringing, there is certainly no windlass in the defendants' machine; but the defendants raise the forward frames from the ground for the purpose of turning in the field, or for traveling their machine upon its wheels alone when not planting, by means of a lever, which, while it may produce the same result as Bergen's windlass, operates in an entirely different manner. Like the quality of flexibility between the frames, it seems that it was early found to be essential to the operation of this class of machines that some device should be adopted to raise the runners of the forward frame out of the ground in turning at the ends of the rows, or the machine would be so awkward and unmanageable as to be useless; and so we see that all who preceded Bergen showed some device for lifting the forward frame from the ground, the most common of which was to so arrange the driver's seat with a leverage behind the wheels that the weight of the driver might lift the forward frame from contact with the ground. It will be noticed that Bergen does not wholly dispense with that feature in his organization, as he provides that the weight of the driver may be used to balance the machine; and the question is, was Bergen the first to show a device which produced such a result, or do the defendants use his windlass?

The Chester Barton patent of February, 1858, showed an arrangement for raising the secondary frame carrying the seeding device off the ground by means of a windlass, so that the whole weight was carried on the wheels.

Kaller, in his patent of July, 1860, raised the forward frame by a lever fulcrumed on an independent caster-wheel, and operated by the driver. Armstrong's patent of July, 1862, shows levers fulcrumed on the rear frame, so as to lift the forward frame clear of the ground. With these devices before the public, when Bergen introduced his windlass, he certainly was only entitled to the mode of lifting the forward frame which he specially exhibited. He is in no position to invoke the doctrine of equivalents as to his windlass. It appears from the proof in the case that two-framed machines coupled together, the forward frame being carried upon runners, are certainly as old as the patent to George W. Brown of May 8, 1855; and in that machine, and in all the subsequent two-frame machines, some device for raising the forward frame, either by levers or windlasses, is always shown. I think the proof justifies me in saying that Barton and Bergen show the adoption of the windlass as the means of applying the power by which to raise the forward frame for all the necessary working purposes of the machine, while Brown, in his patent of 1855, and other inventors of improvements who succeed him, all show the use of levers for the same purpose; and my conclusion is that the levers shown in the defendants' machine, whereby they raise the forward frame clear from the ground and hold it suspended there, are not improvements upon the old levers shown in the machines of Brown and other older inventors, whereby the weight of the driver, through the aid of leverage, accomplished the same result; and that it may be properly said that the defendants have only carried forward to a more perfect working condition the levers of Brown, Kaller, and Armstrong, and have not entered the field occupied by those inventors who adopted the windlass, and therefore defendants cannot be said to infringe upon the windlass shown in the Bergen patent. As I have already said, they do not use a windlass, but use in an

improved form levers which were older as a device for the same purpose than any of the windlass-machines.

I now come to consider for a moment the charge of infringement of the sixth claim of Patent No. 46,629, for the automatic scrapers. Like the other two features of these check-row corn-planters, it seems to have been understood from the first efforts at the construction of these machines that a scraper to remove the earth which should cling or adhere to the wheel was a necessary part of the organization. Running, as these machines were intended to do, upon the soft or newly-ploughed land of the corn-field, it might naturally have been expected that these wheels would clog to such an extent as to require some application of a scraper to remove the earth and prevent the machine from becoming unmanageable by being loaded up with dirt; and hence we find that in all, or nearly all, the large number of patents shown in the proof in this case scrapers in some form are used. I do not find that any patentee showed a scraper which would automatically fall away from the wheel upon the removal of pressure on the treadle or lever by which the scraper-bar was moved; but I do find in the Vandiver patent of October 6, 1863, scrapers are shown which seem to be intended to operate automatically—that is, to remain constantly in contact with the wheel, except when turned back by means of the lever; and it can scarcely require invention to reverse this action, and so hang the scrapers upon the bar or rod carrying them that they will automatically cease to act when the pressure is withdrawn from the lever. It required, in fact, but a change of side upon the bar upon which they are hung, so that the weight of the scraper may either keep them in contact with the wheel or allow them to swing clear of it. But, without discussing the question as to how far the scraper described in the sixth claim of this Bergen patent may be said to have been anticipated in the earlier patents, it is enough to say that the proof in this case shows abundantly and conclusively that George W. Brown used scrapers upon machines which he manufactured in the year 1861, and over eleven hundred of which were put into the market and sold in the spring of 1862, where these scrapers used were precisely the kind shown in the Bergen Patent No. [illegible]. It seems that courts are usually very [illegible]

2. In this case the first claim in the original patent was for a circuit-breaker only, while the fifth claim of the reissue, which is sought to be founded on it, is for the machinery operating the circuit-breaker. As the claim in the original was not for a combination, the combination of the claim in the reissue cannot be said to be the same combination further restricted by additional elements. On reconsideration, it is *held* that the subject-matter of the reissue claim is not included in what was claimed in the original patent.

Mr. Edwin H. Brown for the orator.
Mr. Samuel B. Clarke for the defendant.

WHEELER, *J.*:

The only question presented in this case now was decided in *Electric Gas Lighting Company* v. *Tillotson* on the same patent. It is whether the fifth claim of the reissue is supported by the original, and has been reargued and reconsidered. The patent is for an electric gas-lighting apparatus. The foundation for this fifth claim is sought for in the original first claim. That was for a circuit-breaker located at the burner and operated automatically, substantially as described. This is for the combination of a wire through which a current of electricity is passed, actuating mechanism for letting on the gas, an electro-magnet connected with the wire, an armature operated by the magnet, mechanism, actuated by the armature, breaking the circuit at the burner and producing sparks for lighting the gas, the whole operating automatically. The specification is the same in both the original and reissue. The inventor might have claimed upon it everything which he has claimed; but that is not sufficient. *Manufacturing Company* v. *Ladd*, 102 U. S., 408. The reissue is between eight and nine years later than the original, and could not lawfully cover what was not either claimed in some manner in the original or included within what was so claimed. (*Mahn* v. *Harwood*, 112 U. S., 360.) This claim of the reissue is for machinery breaking an electric circuit at the burner and producing sparks there to light the gas. It may or may not include machinery for turning on the gas. The claim in the original was not for any machinery, but the circuit-breaker. It was for the circuit-breaker operated; but that did not include the machinery to operate it. If it included the operation, that is a differ- [illegible]

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[BY AUTHORITY OF CONGRESS.]

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Indexes to Patents on Electricity.

[illegible]

Issue of May 19, 1885.

Patents	461—No. 317,959 to No. 318,439, inclusive.
Designs	11—No. 16,090 to No. 16,100, inclusive.
Trade-Marks	21—No. 12,240 to No. 12,260, inclusive.
Labels	5—No. 4,453 to No. 4,457, inclusive.
Reissues of patents	1—No. 10,598.
Total issue	519

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	6	....	Nebraska	1	....
Arizona Territory	....	....	Nevada	....	....
Arkansas	3	....	New Hampshire	1	....
California	8	1	New Jersey	14	....
Colorado	4	....	New Mexico Territ'y	....	....
Connecticut	21	2	New York	75	5
Dakota Territory	....	....	North Carolina	2	....
Delaware	1	....	Ohio	45	4
District of Columbia	5	....	Oregon	....	....
Florida	....	....	Pennsylvania	72	5
Georgia	3	2	Rhode Island	5	....
Idaho Territory	....	....	South Carolina	3	....
Illinois	42	3	Tennessee	1	....
Indiana	15	....	Texas	2	....
Iowa	6	....	Utah Territory	1	....
Kansas	4	....	Vermont	2	....
Kentucky	2	....	Virginia	2	....
Louisiana	....	....	Washington Territ'y	....	....
Maine	7	1	West Virginia	1	....
Maryland	6	....	Wisconsin	3	1

improved form levers which were older as a device for the same purpose than any of the windlass-machines.

I now come to consider for a moment the charge of infringement of the sixth claim of Patent No. 46,629, for the automatic scrapers. Like the other two features of these check-row corn-planters, it seems to have been understood from the first efforts at the construction of these machines that a scraper to remove the earth which should cling or adhere to the wheel was a necessary part of the organization. Running, as these machines were intended to do, upon the soft or newly-ploughed land of the corn-field, it might naturally have been expected that these wheels would clog to such an extent as to require some application of a scraper to remove the earth and prevent the machine from becoming unmanageable by being loaded up with dirt; and hence we find that in all, or nearly all, the large number of patents shown in the proof in this case scrapers in some form are used. I do not find that any patentee showed a scraper which would automatically fall away from the wheel upon the removal of pressure on the treadle or lever by which the scraper-bar was moved; but I do find in the Vandiver patent of October 6, 1863, scrapers are shown which seem to be intended to operate automatically—that is, to remain constantly in contact with the wheel, except when turned back by means of the lever; and it can scarcely require invention to reverse this action, and so hang the scrapers upon the bar or rod carrying them that they will automatically cease to act when the pressure is withdrawn from the lever. It required, in fact, but a change of side upon the bar upon which they are hung, so that the weight of the scraper may either keep them in contact with the wheel or allow them to swing clear of it. But, without discussing the question as to how far the scraper described in the sixth claim of this Bergen patent may be said to have been anticipated in the earlier patents, it is enough to say that the proof in this case shows abundantly and conclusively that George W. Brown used scrapers upon machines which he manufactured in the year 1861, and over eleven hundred of which were put into the market and sold in the spring of 1862, where these scrapers used are precisely the kind shown in the Bergen Patent No. 46,629. It is true that courts are usually wary in allowing parol evidence to defeat a patent; but the proof in this case is so complete and satisfactory as to the number of machines made, and the time when they were made, and one of the original machines is also produced in evidence, with the testimony of the persons who bought it in 1862 and used it that year, showing an automatically-acting scraper precisely as described in the Bergen patent, that it leaves no room for doubt that this device was well known and in public use for at least three years before the date of the Bergen patent.

The bill is therefore dismissed for want of equity.

U. S. Circuit Court—Southern District of New York.

ELECTRIC GAS LIGHTING COMPANY *v.* SMITH & RHODES ELECTRIC COMPANY.

Decided March 16, 1885.

1. When a reissue is made between eight and nine years after the original, the specifications in the two patents being identical, it is not enough to support a new claim in the reissue that the inventor might have made the claim in the original patent; its subject-matter must have been either claimed in some manner in the original or included within what was there claimed.

2. In this case the first claim in the original patent was for a circuit-breaker only, while the fifth claim of the reissue, which is sought to be founded on it, is for the machinery operating the circuit-breaker. As the claim in the original was not for a combination, the combination of the claim in the reissue cannot be said to be the same combination further restricted by additional elements. On reconsideration, it is *held* that the subject-matter of the reissue claim is not included in what was claimed in the original patent.

Mr. Edwin H. Brown for the orator.
Mr. Samuel B. Clarke for the defendant.

WHEELER, *J.*:

The only question presented in this case now was decided in *Electric Gas Lighting Company* v. *Tillotson* on the same patent. It is whether the fifth claim of the reissue is supported by the original, and has been reargued and reconsidered. The patent is for an electric gas-lighting apparatus. The foundation for this fifth claim is sought for in the original first claim. That was for a circuit-breaker located at the burner and operated automatically, substantially as described. This is for the combination of a wire through which a current of electricity is passed, actuating mechanism for letting on the gas, an electro-magnet connected with the wire, an armature operated by the magnet, mechanism, actuated by the armature, breaking the circuit at the burner and producing sparks for lighting the gas, the whole operating automatically. The specification is the same in both the original and reissue. The inventor might have claimed upon it everything which he has claimed; but that is not sufficient. *Manufacturing Company* v. *Ladd*, 102 U. S., 408. The reissue is between eight and nine years later than the original, and could not lawfully cover what was not either claimed in some manner in the original or included within what was so claimed. (*Mahn* v. *Harwood*, 112 U. S., 360.) This claim of the reissue is for machinery breaking an electric circuit at the burner and producing sparks there to light the gas. It may or may not include machinery for turning on the gas. The claim in the original was not for any machinery, but the circuit-breaker. It was for the circuit-breaker operated; but that did not include the machinery to operate it. If it included the operation, that is a different thing from the means by which the operation is performed. *James* v. *Campbell*, 104 U. S., 356; *Powder Company* v. *Powder Works*, 98 U. S., 136. So, whether this claim in the reissue includes the machinery for turning on the gas or not, it is for a part of the invention not claimed in the original, (*Turner & Seymour Company* v. *Dover Stamping Company*, 111 U. S., 319;) and as the claim in the original was not for any combination of parts, the combination of this claim of the reissue cannot be said to be the same combination further restricted by additional elements, and is not included in what was claimed in the original. The patent for the circuit-breaker as located and operating, and machinery for turning on the gas, without the machinery for operating the circuit-breaker, appears to have been satisfactory at the time when the patent was taken out, and for so long a time afterward, that it could not be made to cover the machinery for operating the circuit-breaker. The conclusion reached is the same as before.

Let there be a decree dismissing the bill of complaint.

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Indexes to Patents on Electricity.

Appendix No. 2 to the index to patents relating to electricity, covering the period of time from July 1, 1882, to June 30, 1883, has been issued, and is now for sale. These indexes, arranged alphabetically, numerically, and by classes, are completed to June 30, 1883, and comprise the following volumes:

Vol. 1. Index to patents relating to electricity granted by the United States prior to June 30, 1881, with an appendix, July 1, 1881, to June 30, 1882. One volume, 250 pages. In paper covers, $3; bound, $5.

Vol. 2. Appendix No. 2, July 1, 1882, to June 30, 1883. One volume, 50 pages. In paper covers, $1.50.

Vol. 3. Appendix No. 3, July 1, 1883, to June 30, 1884. One volume, 60 pages. In paper covers, $1.50.

Indexes to Foreign Patents.

The following indexes to foreign patents have been translated, compiled, and published under the authority of the Commissioner of Patents, and may be obtained as a Patent Office publication at the prices given below.

INDEX TO FRENCH PATENTS, 1791 to 1876, inclusive, (subject-matter,) one volume, 935 pp., bound in cloth $10 00

INDEX TO ITALIAN PATENTS, 1848 to May 1, 1882, (subject-matter,) one volume, 120 pp.—

Bound half-turkey	2 50
Bound in cloth	1 25
Paper covers	1 00

Issue of May 19, 1885.

Patents	461	No. 317,959 to No. 318,439, inclusive.
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Kentucky	7	.....	Virginia	2	.....
Louisiana	.....	.....	Washington Territ'y	.....	.....
Maine	7	1	West Virginia	1	.....
Maryland	6	.....	Wisconsin	5	1
Massachusetts	48	1	Wyoming Territory	.....	.....
Michigan	23	.....	United States Army	.....	.....
Minnesota	4	.....	United States Navy	.....	.....
Mississippi	1	.....			
Missouri	16	1	Total to citizens of the United States	467	26
Montana Territory	.....	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

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Australia	.....	.....	France	1	.....
Austria-Hungary	.....	.....	Germany	8	.....
Barbadoes	.....	.....	Italy	.....	.....
Belgium	1	.....	New Zealand	.....	.....
Bermuda	.....	.....	Norway	.....	.....
Brazil	.....	.....	Russia	.....	.....
Canada	4	.....	Scotland	1	.....
Chili	.....	.....	Spain	.....	.....
Colombia, U. S. of	.....	.....	Sweden	.....	.....
Cuba	.....	.....	Switzerland	1	.....
Denmark	.....	.....			
Egypt	.....	.....	Total to citizens of foreign countries	25	
England	9	.....			

DESIGNS.

16,090.—LAMP-CHIMNEY HEATER.—*Alexander Fraser*, New Glasgow, Nova Scotia, Canada. Application filed April 9, 1885. Term of patent 14 years.

16,091 and 16,092.—GIMP.—*John C. Graham*, Philadelphia, Pa. Applications filed March 17, 1885. Term of patents 14 years.

16,093.—SIGN.—*L. Solon Grout*, Chicago, Ill. Application filed December 2, 1884. Term of patent 7 years.

16,094.—RUG.—*Richard Paul Hemming*, Philadelphia, Pa., assignor to *George W. Ennis & Co.*, same place. Application filed April 16, 1885. Term of patent 3½ years.

16,095.—PIPE-STEM.—*Frederick R. Kaldenberg*, New York, N. Y. Application filed August 14, 1884. Term of patent 14 years.

16,096.—ENAMELED CLOTH.—*Uriah McClinchie*, New York, N. Y., assignor to *The Elizabeth Oil Cloth Company*, Elizabeth, N. J. Application filed December 26, 1884. Term of patent 14 years.

16,097.—FRINGE-HEADING.—*Edward Memleb*, New York, N. Y. Application filed March 3, 1885. Term of patent 7 years.

16,098.—CARPET.—*Thomas J. Stearns*, Boston, Mass., assignor to *The Roxbury Carpet Company*, same place. Application filed April 20, 1885. Term of patent 3½ years.

16,099.—BADGE.—*William Thegen*, Philadelphia, Pa. Application filed April 18, 1885. Term of patent 3½ years.

16,100.—ORNAMENTATION OF BRUSH-HANDLES.—*Charles H. Thurber*, Brooklyn, assignor to *The Celluloid Brush Company*, New York, N. Y. Application filed December 1, 1884. Term of patent 3½ years.

TRADE-MARKS.

[Certificates of registration of Trade-Marks numbered 8,191 and upward are registered under the act of March 3, 1881.]

12,240.—WALL AND CEILING PAPER-HANGINGS.—*Fr. Beck & Co.*, New York, N. Y. Application filed March 19, 1885.
"A griffin sejant, with one paw raised supporting a shield, on which is engraved the monogram of the letters 'F R B & Co.'"

12,241.—SILK BRAID.—*Charles E. Bentley*, New York, N. Y. Application filed April 23, 1885.
"The arbitrary word 'RIBBOSENE.'"

12,242.—MEDICINE FOR DISEASES OF THE THROAT AND LUNGS.—*Helen Button*, Norwich, Conn. Application filed April 8, 1885.
"The word 'DONNA.'"

12,243.—SHOE AND LEATHER DRESSING AND BLACKING.—*Button & Ottley*, New York, N. Y. Application filed April 23, 1885.
"A shoe, a bird, and the words 'BUTTON'S RAVEN GLOSS.'"

12,244.—DRESS-SHIELDS.—*The Canfield Rubber Company*, Bridgeport, Conn. Application filed April 4, 1885.
"A crescent-shaped figure having a shaded or mottled surface and the word 'CANFIELD' printed or otherwise worked on said figure."

12,245.—COUGH-MEDICINE.—*E. M. Evans*, Palmyra, Ohio. Application filed April 20, 1885.
"The representation of a Druid and the words 'THE DRUID'S BALM.'"

12,246.—PAINTS.—*John Lucas*, Philadelphia, Pa. Application filed April 22, 1885.
"The arbitrary word-symbol 'PUBLIC BUILDING.'"

12,247.—PAINTS.—*John Lucas*, Philadelphia, Pa. Application filed April 22, 1885.
"The arbitrary word-symbol 'LUCAS.'"

12,248.—TONIC AND BLOOD-PURIFIER.—*The O. I. C. Co.*, Perry, Ga. Application filed February 26, 1885.
"The letters 'O. I. C.'"

12,249.—INCUBATORS AND BROODERS.—*Maurice H. Strong*, Cincinnati, Ohio. Application filed April 24, 1885.
"The word 'CHAMPION.'"

12,250.—DENTIFRICE.—*Van Antwerp & Co.*, Worcester, Mass. Application filed March 9, 1885.
"The arbitrarily-selected word 'CROWN.'"

12,251.—LARD.—*The W. J. Wilcox Company*, New York, N. Y. Application filed April 1, 1885.
"The term 'LA PRECIOSA.'"

12,252.—REFINED PETROLEUM.—*The Chester Oil Company*, Philadelphia, Pa. Application filed April 28, 1885.
"A representation of a pagoda."

12,253.—BAKING-POWDER.—*William Candell*, St. Louis, Mo. Application filed April 3, 1885.
"A circular disk upon the front or face of a can and within which the word-symbol 'BIG CAN' is arranged."

12,254.—SEWING-MACHINES AND ATTACHMENTS.—*The Domestic Sewing Machine Company*, New York, N. Y. Application filed April 25, 1885.
"The word 'DOMESTIC.'"

12,255.—FAMILY SOAPS.—*N. K. Fairbank & Co.*, Chicago, Ill. Application filed April 28, 1885.
"A representation of two negro babies sitting naked in a tub of water."

12,256.—LUBRICATING-OIL AND AXLE-GREASE.—*Meriam & Morgan Paraffine Company*, Cleveland, Ohio. Application filed February 12, 1885.
"The word 'PARAGON.'"

12,257.—NERVE-TONIC.—*John Stith Pemberton*, Atlanta, Ga. Application filed April 18, 1885.
"A representation of the coca-plant, having printed across it the words 'FRENCH WINE COCA THE IDEAL NERVE TONIC HEALTH RESTORER AND STIMULANT,' accompanied by the fac-simile signature of J. S. Pemberton."

12,258.—WOOLENS FOR OVERCOATINGS.—*Edward T. Steel & Co.*, Philadelphia, Pa. Application filed April 24, 1885.
"The word 'DAISY' or the representation of a daisy."

12,259.—PIANOS.—*Whitney & Currier*, Toledo, Ohio. Application filed April 25, 1885.
"The letters and word 'PALACE.'"

12,260.—CRACKERS.—*Walter G. Wilson*, Philadelphia, Pa. Application filed April 22, 1885.
"A representation of a glass dish containing crackers and the arbitrary word-symbol 'WILSON'S CRYSTAL WAFERS.'"

LABELS.

4,453.—Title: "N. K. FAIRBANK & CO'S FINE FAMILY SOAPS."—*N. K. Fairbank & Co.*, Chicago, Ill. Application filed April 27, 1885.

4,454.—Title: "ABIETENE OINTMENT."—*Derrick F. Fryer*, Oroville, Cal. Application filed April 25, 1885.

4,455.—Title: "KNIGHT'S STEEL AND PENNYROYAL PILLS."—*Alfred Percy Knight*, Chicago, Ill. Application filed April 23, 1885,

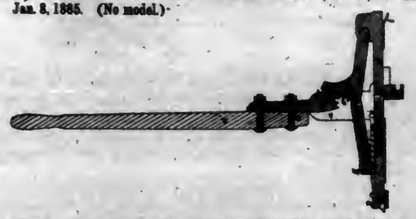
4,456.—Title: "GERMAN PILE REMEDY."—*George H. Jones*, Oxford, Me. Application filed April 27, 1885.

4,457.—Title: "MILWAUKEE" (FOR CIGARS.)—*August Siefen*, Milwaukee, Wis. Application filed April 27, 1885.

PATENTS

GRANTED MAY 19, 1885.

317,959. FLOORING-CLAMP. PASCHAL J. ABBOTT, Dexter, Me. Filed Jan. 8, 1885. (No model.)

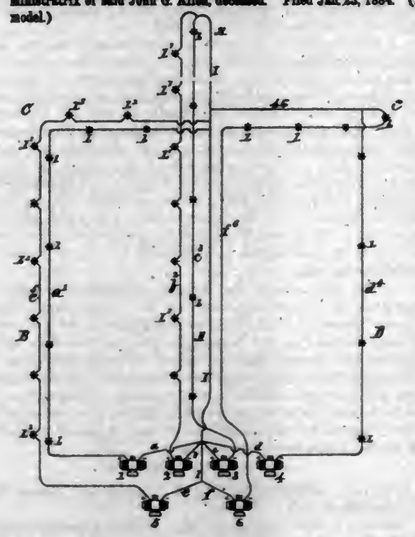


Claim.—1. In the floor-clamp as described, the combination of the base A, provided with the posts or standards *a a*, the rack C, having the grooved bearer D, and adapted to slide within such base lengthwise thereof, the toggle E, hinged to such base and having the toothed arc *e*, the handle *d'*, provided with the toothed sector D', pivoted to the standards *a a*, the retaining-pawl H, hinged to the base A, and the impelling-pawl G, jointed to the toggle and extending, as represented, within the impelling-pawl, all being substantially as set forth.

2. The combination of the base A, provided with the projection *i*, and with the posts or standards *a a*, the rack C, having the grooved bearer D, and adapted to slide within such base lengthwise thereof, the toggle E, hinged at one end to the base and having at the other the toothed arc *e*, the handle *d'*, provided with the toothed sector D', pivoted to the standards *a a*, the retaining-pawl H, hinged to the base A, and the impelling-pawl G, jointed to the toggle E, and extending, as represented, within the impelling-pawl.

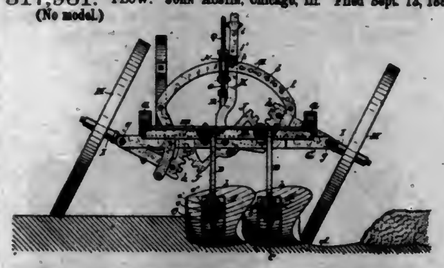
3. The combination of the floor-clamp, substantially as described, having its base provided with notches arranged on each of its opposite edges, as set forth, with the auxiliary bearer B, extending across and under the said base, and having ears to enter the said notches, all being substantially as represented.

317,960. SYSTEM OF DISTRIBUTION FOR ELECTRIC-LIGHTING CIRCUITS. JOHN G. ALLEN, Worcester, Mass.; Sylvia A. Wood Gould administratrix of said John G. Allen, deceased. Filed Jan. 23, 1884. (No model.)



Claim.—In an electric-lighting system, the combination of a series of independent dynamo or magneto electric generators, each generator being located in an independent circuit having a series of electric lamps thereon, and said independent circuits having a common return-circuit from outlying points to a common point of junction at the central station, as herein set forth.

317,961. PLOW. JOHN ALBITH, Chicago, Ill. Filed Sept. 13, 1884. (No model.)



Claim.—1. The spoon-shaped plow A, having a point, *a*, and a cutting-edge, *a'*, the latter retreating laterally from the said point, the said plow also having a curved upturned shear and landside, *c*, the latter extending from the said point rearward and having its curvature in continuity with the curvature of the part serving as the mold-board, the whole being formed substantially as shown and described, for the purposes set forth.

2. The combination of the beam B, the spoon-shaped plow A, having a point, *a*, and a cutting-edge, *a'*, the latter retreating laterally from the said point, the said plow also having a curved upturned shear and landside, *c*, the latter extending from the said point rearward and having its curvature in continuity with the curvature of the part serving as the mold-board, and the inclined guide-wheel or follower E, attached to the said beam and located on the landside of the plow, substantially as and for the purposes specified.

3. The combination of the spoon-shaped plow A, the beam B, the inclined guide-wheel or follower E, the plate C, having therein one or more slots *e e*, and fitted to the back of the said plow and attached to the said beam, and fastenings for securing the said plow adjustably perpendicularly, substantially as and for the purposes specified.

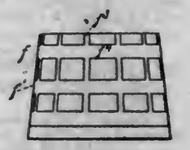
4. The combination, in a wheeled plow, of one or more spoon-shaped plows, A A, the draft-wheels H H, the vertically-tilting axles I I, and means for tilting the said axles parallelly with each other, substantially as and for the purposes specified.

317,962. STUFFING-BOX. ALEXANDER T. BALLANTINE, Geneva, Ohio, assignor to Ella B. Ballantine, same place. Filed Mar. 14, 1884. (No model.)

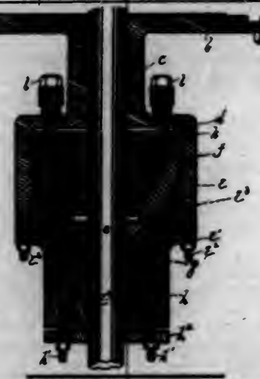
Claim.—1. In a stuffing-box, a flexible tapering packing-ring of hard metal, having an opening in its side wall and a series of slots cut in its tapering surface, all filled in with soft metal, as and for the purpose stated.

2. In a stuffing-box, the flexible tapering packing-ring *f f'*, of hard metal, having the slots f^3 and f^4 and opening f^2, filled in with soft metal, as and for the purpose stated.

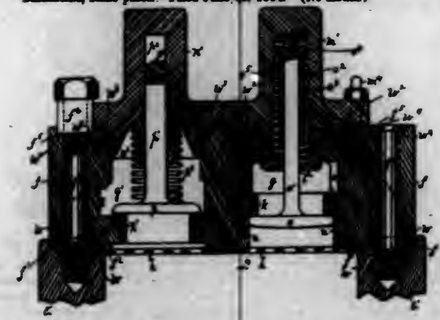




317,962.



317,963. VALVE FOR COMPRESSORS FOR ICE-MAKING APPARATUS. ALEXANDER T. BALLANTINE, Geneva, Ohio, assignor to Ella B. Ballantine, same place. Filed June 23, 1884. (No model.)



Claim.—1. In a gas-compressor for ice-making apparatus, the combination, with the gas-cylinder *a'* and piston *e*, perforated diaphragm *h*, passages *g* and *u*, and inlet-ports *r r'*, and passage *g'* and outlet-ports *s s'*, of the spring-pressed valves *o* and *p*, substantially as shown and described.

2. In a gas-compressor for ice-making apparatus, in combination with the inlet-ports *r r'* and the passage *g*, provided with the collar *k* and side passages, *u*, the valve *o*, its follower *o'*, and the collar o^3 and spring surrounding such follower, both located within the chamber o^2, substantially as shown and described.

3. In a gas-compressor for ice-making apparatus, in combination with the outlet-ports *s s'* and the passage *g'*, provided with the collar *k'*, the valve *p*, its follower *p'*, and the coiled spring p^3, located between the valve *o* and the cap *n*, substantially as shown and described.

4. In a gas-compressor for ice-making apparatus, in combination with the outlet-ports *o s'* and the passage *g'*, provided with the collar *k'*, the valve *p*, its follower *p'*, the coiled spring p^3, located between the valve *o* and cap *n*, and the loose spring p^4 in the chamber p^3, substantially as shown and described.

5. In a gas-compressor for ice-making apparatus, the combination, with the cap *f*, containing the passages *g*, *g'*, *r*, and *s*, the caps *m* and *n*, having the hollow extensions *m'* and *n'* and the hollow cap *l*, of the spring-pressed valves *o o'* and *p p'*, substantially as shown and described.

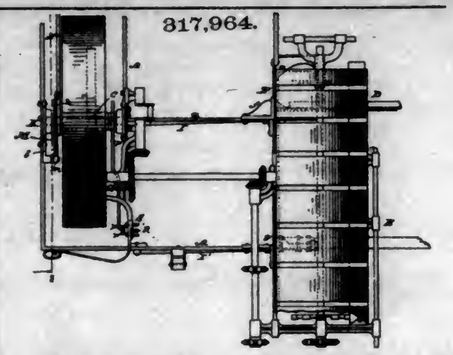
6. In a gas-compressor for ice-making apparatus, as a means of preventing the escape of gas, the caps *f*, *m*, *n*, and *l*, containing the valves and ports, and shouldered, as shown, and having a suitable packing placed at the shouldered points w, w^2, w^3, and w^4, substantially as shown and described.

7. In a gas-compressor for ice-making apparatus, the cap *f*, provided with the passages *r* and *s*, and cylinder *e*, provided with the passages *r'* and *s'*, shouldered at their joining edges, as shown, combined with the collars *t t*, and provided with a suitable packing at the points *w'*, as and for the purpose stated.

317,964. HARVESTER. FREDERICK G. BECKER, Brockport, N. Y., assignor to Dayton S. Morgan & Co., same place. Filed June 23, 1884. (No model.)

Claim.—1. The rectangular main frame composed of the main bar bent into shape and having its ends united, the intermediate bar connected at its ends to the main bar at its front and rear, and the brace-bar connected at its ends with the intermediate bar and the inner side of the main bar, substantially as and for the purpose hereinbefore described.

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2. The combination, with the main frame composed of the bent main bar, the intermediate bar, and the brace-bar, of the finger-beam, the bracket secured to the finger-beam, and to the brace-bar and inner side of the main bar of the main frame, the back beam of the grain-platform, and the bracket connecting it with the main frame, substantially as and for the purpose hereinbefore set forth.

3. The combination, substantially as hereinbefore set forth, of the main frame, the finger-beam having bracket connection with the main frame, the grain-platform frame having bracket connection with the main frame, and the brace-rods connecting the finger-beam and grain-platform frame with the main frame, for the purpose described.

4. The combination of the main frame, the finger-beam, the bracket connecting the finger-beam with the main frame, the back beam of the grain-platform, the bracket connecting it with the main frame, the brace-rod secured to the finger-beam bracket and main frame, and the brace-rod secured to the back-beam bracket and main frame, substantially as and for the purpose hereinbefore set forth.

5. The combination, with the main frame composed of the bent main bar, the intermediate bar, and the brace-bar, of the finger-beam, the bracket connecting the finger-beam with the main frame, the brace-rod connecting the finger-beam with the brace-bar of the main frame, the back beam of the grain-platform, the bracket connecting the back beam with the main frame, and the brace-rod connecting the back beam with the rear of the main frame at the junction of the rear end of the intermediate bar with the main bar of the frame, substantially as and for the purpose hereinbefore set forth.

6. The combination of the driving-wheel, its axle, the main frame having vertically-adjustable connection with the axle, the finger-beam and platform-frame having rigid connection with the main frame, the grain-wheel, its rocking journal-bracket, the controlling-lever pivoted to the main frame, projecting at its front end beneath the axle and flexibly connected at its rear end with the journal-bracket, and adjusting mechanism for raising and lowering the main frame on the axle, substantially as and for the purpose hereinbefore set forth.

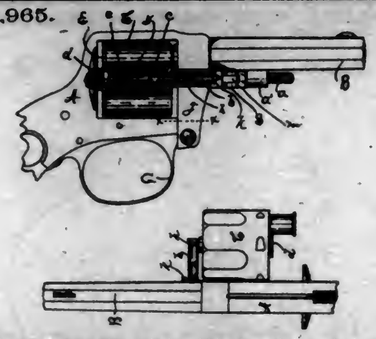
7. The combination of the driving-wheel, its axle, the main frame having vertically-adjustable connection with the axle, the mechanism for raising and lowering the main frame, the finger-beam and grain-platform frame rigidly connected with the main frame, the controlling-lever pivoted to the main frame and projecting at its front end beneath the axle, the chain secured to the rear end of the controlling-lever, the guide-pulley having supporting connection with the main frame and beneath which the chain passes, the guide-pulley having connection with the outer end of the grain-platform frame and beneath which the chain passes, the rocking journal-bracket having pivotal connection with the finger-beam, and provided with the segment-sheave over which the chain passes, and to which it is secured, and the grain-wheel mounted upon the arm of the journal-bracket, substantially as and for the purpose hereinbefore set forth.

8. The combination of the vertically-adjustable main frame, the finger-beam rigidly connected therewith, the rocking journal-bracket pivotally connected with the finger-beam and carrying the grain-wheel, the chain connected to said bracket, the grain-platform frame rigidly connected with the main frame and beneath which the chain passes, the guide-pulleys for the chain, supported by connection with the platform-frame and main frame, and the vertically-rocking controlling-lever pivoted to the main frame, having the chain attached to it, and controlled in its movements by the adjustment of the main frame, substantially as and for the purpose hereinbefore set forth.

317,965. REVOLVING FIRE-ARM. JAMES BOLAND, Norwich, Conn. Filed Feb. 27, 1885. (No model.)

Claim.—1. In a revolving fire-arm, a cylinder, a laterally-swinging axial pin hinged forward of the frame and adapted to be slid longitudinally to release its rear end from its step in the frame, an ejecting device

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rotatably mounted on said axial pin within the cylinder and adapted to withdraw the cartridges as the cylinder is moved forward, and a spring or other similar suitable means for automatically forcing the axial pin rearward into its step when the cylinder is in its normal position in the frame, all being combined substantially as and for the purposes herein specified.

2. A revolver-frame, a barrel secured fixedly to said frame, a cylinder whose axial pin is hinged forward of the frame and adapted to be moved longitudinally, the cam-lug *k*, formed as a rigid part of the axial pin, and the slide F, formed and located to engage and move said cam-lug as said slide is depressed, all being combined and used substantially as described, and for the object set forth.

3. An axial pin supported forward of the frame, capable of longitudinal movement in its support and provided with cam-lug *k*, and an engaging cam-slide located on the frame of the arm and by its movement acting on said axial pin to force it forward, all being combined substantially as and for the object specified.

4. In a suitable supporting-frame, a cylinder, a cartridge-ejector, a spring located within the cylinder and adapted both to force the cylinder forward away from the ejector and to force the axial pin rearward into its seat, and an axial pin hinged forward of the frame and capable of suitable longitudinal movement, all being combined substantially as and for the purpose specified.

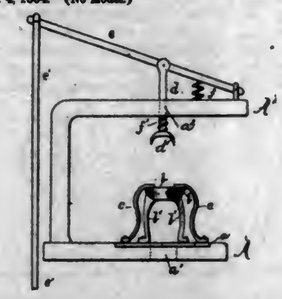
5. In combination, a suitable supporting-frame, an axial pin hinged forward of said frame and provided near its central portion with the joint *h*, a cylinder, and an ejecting device located within said cylinder and rotatably located on said axial pin, all substantially as described, and for the purpose set forth.

6. In combination with the frame A and cylinder C, an axial pin for said cylinder, hinged forward of the frame, which slides longitudinally in its bearings to release its free end, and a spring so located on said pin that it acts with a constant tendency to throw said pin rearward, as and for the object specified.

7. In combination with frame A, barrel B, and cylinder C, a jointed sectional axial pin whose forward section is secured to barrel B, but is longitudinally movable in its support, and a spring-pressed plug concealed within said forward section, which, bearing against the flattened hinge portion of section *b*, acts to retain said section *b* at a right angle to the forward section while in the act of reloading, as and for the object specified.

8. In a revolving fire-arm, a cylinder, a jointed sectional axial pin hinged at its forward end, a frame recessed to receive said axial pin when in its closed position, a slide secured in said frame and capable of being moved vertically to expose or protect said axial pin, and a trigger-guard so located that it limits the movement of said slide, all being combined substantially as described.

317,966. PEACH-PITTER. OLIVER H. P. BROWN, Clarksville, Ark. Filed Oct. 4, 1884. (No model.)

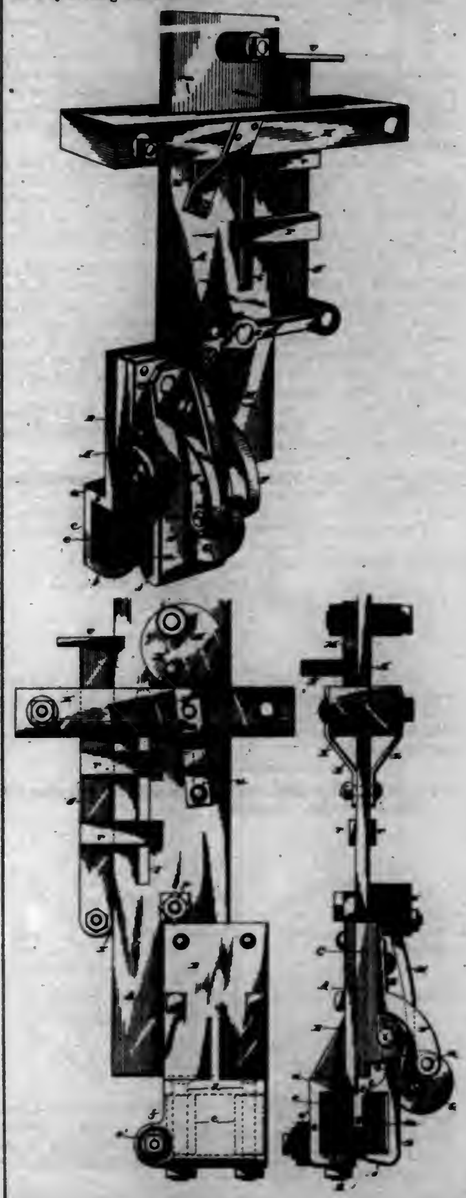


Claim.—1. In a peach-pitter, as above described, the combination of base A, having on its upper face plate *a*, both having pit-hole *a'*, curved stripping-knives *b b*, mounted on elastic handles *b' b'*, and splitting-knives *c c*, substantially as shown and described, and for the purposes set forth.

2. In a peach-pitter, the combination of base A, having on its upper face plate *a*, both having pit-hole *a'*, splitting-knives *c*, stripping-knives *b*, lever *e*, working on arm A', rod *d*, bearing fingers *d'*, and spiral springs *f* and *f'*, substantially as shown and described, and for the purposes set forth.

317,967. GRIPPER FOR CABLE RAILWAYS. GEORGE B. BRYANT, Philadelphia, Pa., assignor of one-half to Edward D. Dougherty, same place. Filed Aug. 16, 1884. (No model.)

Brief.—A fixed jaw and a swinging jaw with vertical rollers, the latter jaw being actuated to grip the cable through a cam-wheel having lever-connections leading to the attendant. The gripper is supported at the proper elevation by a cam-wheel, and may be dropped to take up the cable by rotating said cam.



Claim.—1. The combination, with a plate provided at its lower end with a stationary jaw having rollers journaled therein, of a swinging jaw provided with rollers, a cam, and devices for forcing the cam against the swinging jaw.

2. The combination, with a plate formed at its lower end with a jaw provided with rollers, of a swinging jaw attached to the plate, and also provided with rollers, a cam mounted on the lower ends of arms secured to the plate, and suitable means for forcing the cam against or away from the said swinging jaw, substantially as set forth.

3. The combination, with a plate formed at its lower end with a stationary jaw provided with rollers, of a swinging jaw secured to the plate, a cam mounted in depending curved arms secured to the plate, and a lever indirectly connected with the cam and adapted to force it against or away from the swinging jaw, substantially as set forth.

4. The combination, with a plate provided at its lower end with a jaw, of a swinging jaw secured to the plate, a cam mounted in arms secured to the plate, a pitman secured to the cam, the said pitman connected to a lever, the opposite end of said lever being connected with a vertical rod extending up through the car-floor, substantially as set forth.

5. The combination, with a plate formed at its lower end with a stationary jaw provided with rollers, of a swinging jaw secured to the plate, a cam, and a rod indirectly connected with said cam, the said rod being provided on each side with arms bearing on said plate, the inner ends of the arms being connected by bolts working in an elongated slot in the plate, substantially as set forth.

6. The combination, with a plate formed at its lower end with a stationary jaw provided with rollers, of a swinging jaw secured to the plate, and also provided with rollers, a bolt secured in the stationary jaw and provided with a roller at right angles to said former rollers, a cam, and means for forcing the latter against or away from the swinging jaw, substantially as set forth.

7. The combination, with a plate extending up through the car-floor, and provided at its lower end with a stationary jaw, of a cam-wheel secured to the plate and bearing on the car-floor, said cam being adapted to raise and lower the plate, a swinging jaw attached to the plate, and means for forcing it against the stationary jaw, substantially as set forth.

8. The combination, with the plates A, B, and C, of the jaw D, cam G, pitman H, and levers I and J, all of the above parts combined and adapted to operate substantially as set forth.

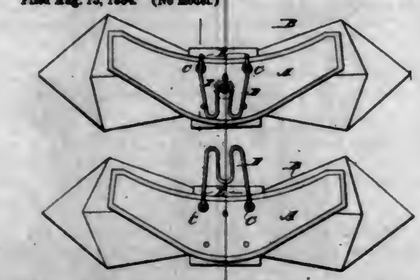
9. The combination, with the plates A, B, and C, of the jaw D, cam G, pitman H, levers I J, and cam M, the above parts combined and adapted to operate substantially as set forth.

317,968. SEED-PLANTER AND CULTIVATOR. JAMES H. BUNN, Henning, Tenn. Filed July 18, 1884. (No model.)



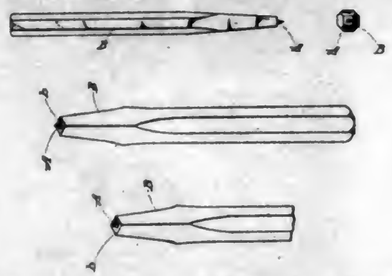
Claim.—The combination, with the hopper having the feed-slide connected to the spring E, secured within the hopper and projecting down through an opening in the plow-beam, of the knocker-wheel provided with the removable cams J and the adjusting-screw W, substantially as specified.

317,969. NECK-WEAR FASTENER. ALBERT BURRAMS, Rondout, N. Y. Filed Aug. 15, 1884. (No model.)



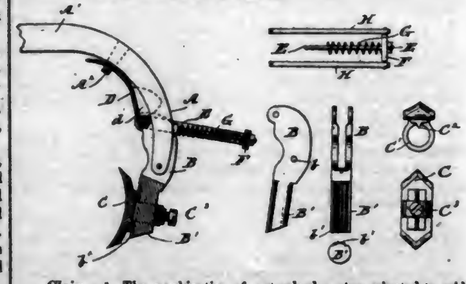
Claim.—As an improvement in necktie-fasteners, the shield A, having the eyelets C C provided near the top edge, in combination with the wire frame D, having its arms or prongs bent or turned over the top edge of the shield and passed through the eyelets to form eyes E, thereby hinging the frame, for the purpose set forth.

317,970. NAIL-SET. GEORGE W. CANNON, Poughkeepsie, N. Y. Filed Mar. 14, 1885. (Model.)



Claim.—A nail-set having on its flat face a sharp projection near the middle of the face, of less diameter than the face, either conical or pyramidal in shape, substantially as shown and described.

317,971. CULTIVATOR-TOOTH. GEORGE CARROTHERS, Piedmont, Ohio. Filed Mar. 10, 1885. (No model.)



Claim.—1. The combination of a standard, a shoe pivoted to said standard, and a guard secured at its lower end to the shoe and bearing at its upper end against the standard above the shoe, substantially as set forth.

2. The combination of a standard, a shoe pivoted to said standard, a keeper on said standard above said shoe, and a guard pivotally secured at its lower end to the shoe and having its upper end held movable within the keeper, substantially as set forth.

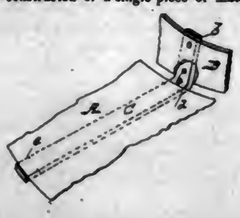
3. The combination of a standard, a shoe pivoted to said standard, and a guard secured at its lower end to the shoe and bearing at its upper end against the standard, said guard being provided with jaws projected rearwardly on opposite sides of the standard, substantially as set forth.

4. The combination of the standard, a rod or bar fixed to and projected rearwardly from said standard, a follower-block placed on said rod or bar, a shoe pivoted to the standard, links secured at one end to the pivoted shoe and having their other ends carried in rear of the standard and connected with the follower-block, and a spring placed on the rod or bar and bearing between the standard and the follower-block, substantially as set forth.

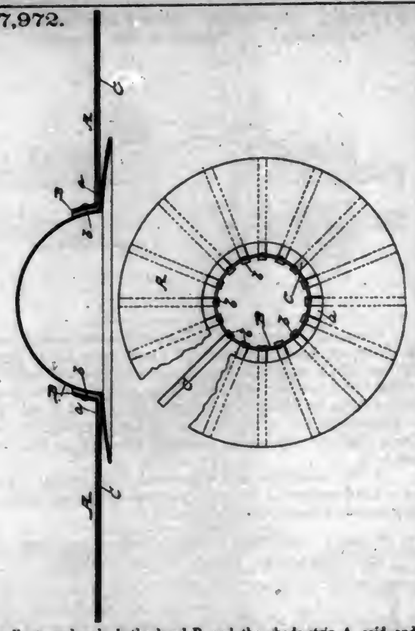
5. The combination, in a cultivator, of the standard provided on its front side with a loop or keeper and with a rod or bar projected rearwardly, as described, the shoe pivoted to the standard, the guard connected with the upper end of the shoe, the follower-block placed on the rod or bar, a spring on said rod or bar between the follower-block and the standard, and links connecting the upper end of the shoe and the follower-block, substantially as set forth.

317,972. SUNSHADE ATTACHMENT FOR HATS. JAMES C. CARY, New York, N. Y. Filed Mar. 30, 1885. (No model.)

Claim.—As an improved article of manufacture, the herein-described detachable sunshade for hats, consisting of the radial ribs C, each of which is constructed of a single piece of material having the

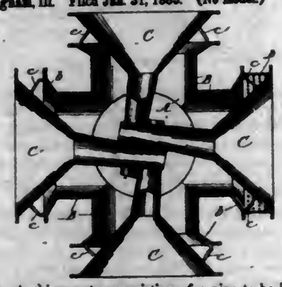


317,972.



upwardly-turned ends *b*, the band B, and the shade-strip A, said ends *b* being perforated to receive a rivet, whereby they are secured to the band, the strip stitched to the outer and inner ends of the ribs C, as shown and described.

317,973. CHIMNEY AND VENTILATOR TOP. CONRAD H. CASSELMANN, Effingham, Ill. Filed Jan. 31, 1885. (No model.)

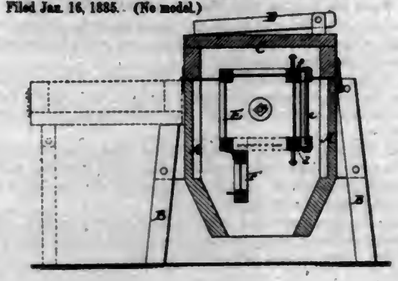


Claim.—1. A chimney-top consisting of a pipe to be inserted into the chimney, a series of branches communicating therewith, and a funnel-shaped pipe supported in each branch, as set forth.

2. A chimney-top consisting of a pipe to be inserted into the chimney, a series of branches communicating therewith, and a funnel-shaped pipe supported in each branch, the contracted ends of the funnel-shaped pipes bent, as described and shown.

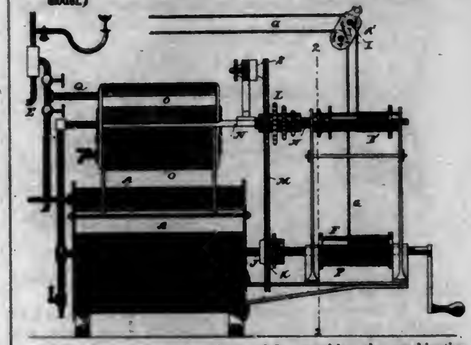
3. A chimney-top consisting of a pipe to be inserted into the chimney, a series of branches communicating therewith, and a funnel-shaped pipe supported in each branch, the branches and funnel-shaped pipes being separated by wire screens, as set forth.

317,974. ASH-SIFTER. FRANCOIS CHATELANAT, Jersey City, N. J. Filed Jan. 16, 1885. (No model.)



Claim.—The combination of the prismatic sifter E, provided with the hinged lid F and the crank-handle *b* for revolving it, with the shaft *c*, hung along one of the sides of said sifter, and provided with the catch *d* and handle *f*, the said catch and handle being rigidly attached to opposite ends of said shaft and adapted to open and close the lid, substantially as described.

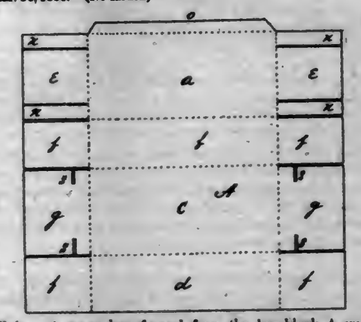
317,975. ADJUSTABLE APPARATUS FOR GAS MACHINES AND MIXERS. JAMES P. CLIFFORD, New Haven, Conn. Filed Apr. 1, 1884. (No model.)



Claim.—1. In an air-and-gas-mixing machine, the combination, with an air-pump and an auxiliary air-pump, each having outwardly-projecting shafts, provided with means for rotating the same in one direction, and automatically rotating the same in a reverse direction, of a series of sprocket-wheels of unequal diameter mounted upon the shaft of one of said pumps, a belt adapted to connect said sprocket-wheels and the shaft of the other pump, and an idler and slotted arc for the purpose of adjusting the belt to the several sprocket-wheels and regulating its tension, substantially as and for the purpose set forth.

2. The combination, in an air-and-gas-mixing machine, of an air-pump, A, having a shaft, J, extending outwardly therefrom, drum F, mounted upon said shaft, supplemental air pump or mixer O, having an outwardly-extending shaft provided with a drum, ropes, or chains connected at one end with said drums, and supported upon suitable pulleys, and having at their opposite ends weights to secure the uncoiling of said ropes from the drums, a series of conically-arranged sprocket-wheels mounted upon the shaft of one pump, a belt connecting said sprocket-wheels with the shaft of the other pump, and means, substantially as described, for shifting said belt from one sprocket-wheel to another and securing it in position, substantially as and for the purpose set forth.

317,976. PAPER BOX. ARTHUR S. COFFIN, New Bedford, Mass. Filed Mar. 30, 1885. (No model.)



Claim.—A paper box formed from the box-blank A creased for folding, as specified, and having the end flaps e, provided with tucks x, and end flaps g, provided with transverse openings s, substantially as shown and described.

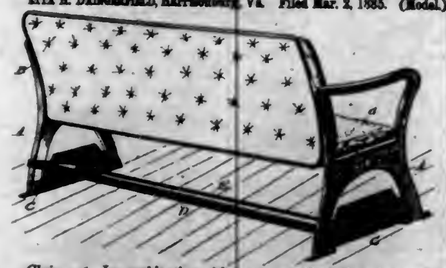
317,977. END-GATE FOR WAGONS. AMOS B. COOPER, Scandia, Kans. Filed Feb. 9, 1885. (No model.)



Claim.—1. The combination, with a wagon-body having guide-strips upon its inner sides, of a gate having pivoted buttons to fit the same, substantially as set forth.

2. The combination, with a wagon-body having guide-strips on its inner sides, of a gate having pivoted buttons to fit between the same, wings on the ends of said gate, and hooks on the ends of said wings, substantially as set forth.

317,978. ADJUSTABLE AND REVERSIBLE FOOT-REST. HENRIETTA H. DABNEYFIELD, Harrisonburg, Va. Filed Mar. 2, 1885. (Model.)



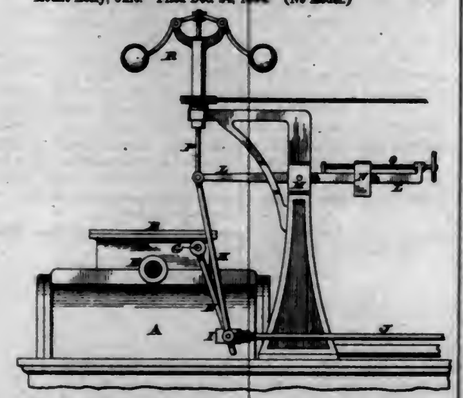
Claim.—1. In combination with a seat, an adjustable and reversible foot-rest, for the purpose specified.

2. In combination with a seat, a reversible foot-rest adapted to be moved in a radial line with relation to its pivot, in combination with steps or rests, substantially as set forth.

3. In combination with a seat provided with steps at its base, a pivoted foot-rest adjustable as to its height, substantially as set forth.

4. In combination with a seat, the standards A, seat B, side pieces, C, having steps, foot-rest D, bar or pivot E, tilting bars F, having elongated slots *f*, substantially as and for the purpose set forth.

317,979. AUTOMATIC CUT-OFF-VALVE GEAR. GEORGE DANBY, Mount Holly, Ohio. Filed Dec. 24, 1884. (No model.)



Claim.—The combination, in a steam-engine, of a rock-shaft, G, actuating the main valve, an eccentric-rod, J, connected by a coupling-block, I, to the arm H, and a governor-rod, P, communicating with said eccentric-rod and also with the fulcrumed lever L, which latter carries a shiftable counter-balance, N, that is capable of being retained at any specific adjustment, for the purpose herein described.

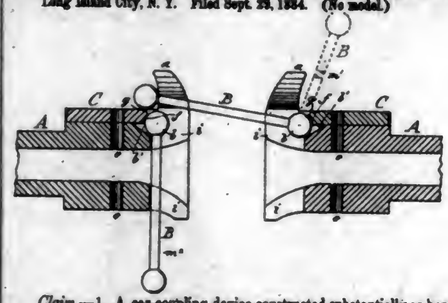
317,980. COMBINED MATCH-BOX AND CIGAR-CUTTER. MAYNARD L. DIXON, New York, N. Y., assignor to Leroy W. Fairchild, same place. Filed Nov. 19, 1884. (No model.)



Claim.—1. In combination with a match-box, A, a cigar-cutter composed of the perforated holding-plate D and the cutting-plate C, both being arranged to slide to and fro through a slot or opening at one side or end of the box, substantially as described.

2. In combination with the sliding plate D, provided with a hole for the reception of the cigar, the locking-lever *d*, pivoted to said plate and arranged to engage with the stationary pin *e*, and the sliding cutter C, provided with the shoulders *e* and *f* for operating said lever, all arranged to operate substantially as shown and described.

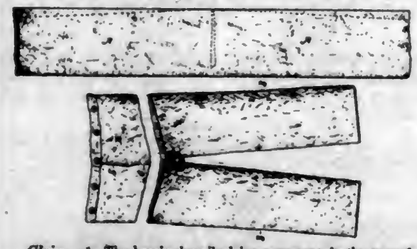
317,981. CAR-COUPLING. PATRICK F. DUROSS and GEORGE SUTTON, Long Island City, N. Y. Filed Sept. 29, 1884. (No model.)



Claim.—1. A car-coupling device constructed substantially as herein shown and described, consisting of a coupling-bar having spheroidal or ball ends, in combination with a draw-head constructed with a spheroidal socket in its top adapted to receive one end of the coupling-bar, with a device for holding an end of the bar in said socket, and with upward-projecting fork or horns designed for holding the free end of an opposite coupling-bar in coupling position on the top of the draw-head, as set forth.

2. The combination, with a draw-head, as A, provided with horns, as *a a*, and face-groove, as *i*, of a spheroidal-ended coupling-bar, as B, substantially as herein shown and described.

317,982. DRAWERS, OVERALLS, AND PANTALOONS. JOSEPH EISNER, Baltimore, Md. Filed Dec. 18, 1884. (No model.)



Claim.—1. The herein-described improvement in the manufacture of drawers, overalls, or pantaloons, which consists in taking a single piece of folded cloth of sufficient length to form the two legs, end to end, cutting it transversely from one side toward the fold, leaving a connection between the leg-patterns thus produced, and securing the body portion over and to the portions separated in cutting the leg-patterns, substantially as set forth.

2. The herein-described improvement in the manufacture of drawers, overalls, or pantaloons, which consists in taking a single piece of cloth of sufficient length to form the two legs, end to end, folding it lengthwise, cutting it transversely from the meeting edges toward the fold, leaving a connection between the leg-patterns thus produced, sewing together the side edges of each leg-pattern, and finally securing the body portion over and to the portions separated in cutting the leg-patterns, substantially as set forth.

3. The herein-described improvement in the manufacture of drawers, overalls, or pantaloons, which consists in forming the leg-patterns from a single piece of cloth and the body from a single piece of cloth, the leg-patterns being cut out of the cloth, leaving a connection between them, and the body being stitched to the severed edges of the leg-patterns, substantially as set forth.

317,983. MEANS FOR PURIFYING WATER FOR BOILERS. C. ELLIOT, San Francisco, Cal. Filed Apr. 19, 1883. (No model.)

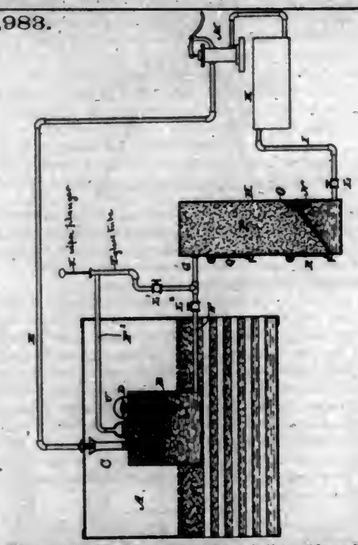
Claim.—1. The combination of a closed settler for purifying water for boilers having a lower blow-off and an upper blow-off, substantially as and for the purpose described.

2. The combination of a closed settler within a boiler having a lower blow-off and an upper blow-off, a feed-pipe, and a filter connected with the upper and lower blow-offs, substantially as and for the purpose described.

3. The combination of a settler within a boiler, a blow-off connecting the settler with the condenser of the boiler, a filter interposed between the settler and condenser, through which the blow-off passes, and a feed-pipe, substantially as hereinbefore set forth.

4. The combination of a settler within a boiler, a blow-off, a filter connected therewith, means for producing a vacuum in the filter, and a feed-pipe, substantially as hereinbefore set forth.

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5. The combination of a settler within a boiler, a blow-off, a filter connected therewith, means for producing a vacuum within the filter, and means for returning the clear water collected in the filter to the boiler, substantially as hereinbefore set forth.

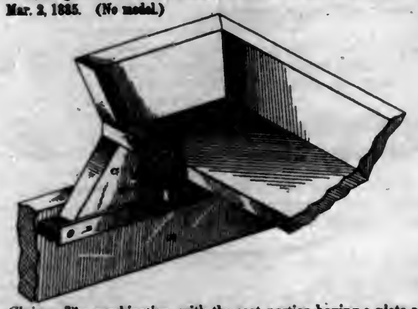
6. The combination, with the blow-off of a settler, of a glass tube and wiper-plunger, substantially as and for the purpose hereinbefore set forth.

317,984. BELT-FASTENER. JOSEPH ESSIG, Larwill, Ind. Filed Jan. 5, 1885. (No model.)



Claim.—A belt-fastener formed of the T-slotted holders B B' and the H-shaped latch, said parts being relatively constructed and adapted to be used substantially as described.

317,985. SEAT-FASTENER. CHARLES C. FORNCROOK, Hermitage, N. Y., assignor of one-half to Joseph W. Forncrook, same place. Filed Mar. 2, 1885. (No model.)

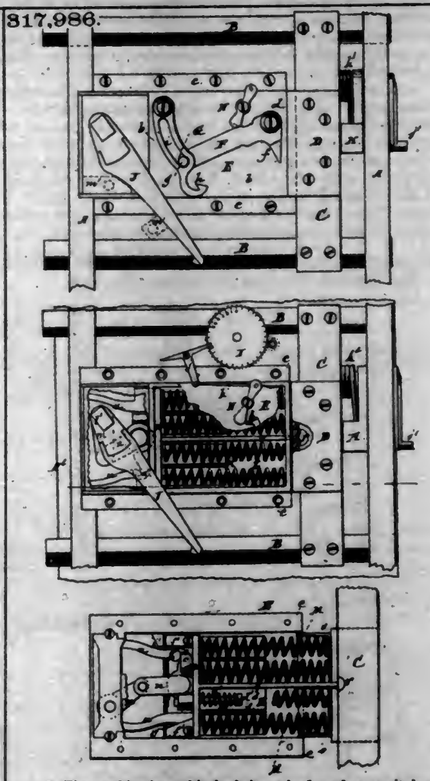


Claim.—The combination, with the seat portion having a plate secured thereto, said plate having lugs at its lower ends provided with holes or openings, of a cranked bail pivoted in said openings and carrying a pivoted hook, said hook being adapted to engage a strip on the body portion, and a spring for holding said hook in engagement with said strip, as set forth.

317,986. DEVICE FOR OPERATING SAFE BOLT-WORKS. ELBERT W. FOWLER, Chicago, Ill. Filed Mar. 5, 1885. (Model.)

Claim.—1. In combination with springs for automatically retracting the bolts of a safe or vault door, a cushion adapted to receive the shock produced by the sudden stopping of the retracting-power, so that the casting and retracting mechanism may not be disarranged or injured thereby, substantially as specified.

317,986.



2. The combination, with the bolt-work of a safe or vault door, and springs for automatically retracting the bolts, and a time mechanism for releasing the retracting-power at a predetermined time, of a compound lever located between said springs and the time mechanism for the purpose of reducing the power required to be exerted by the time mechanism to release the springs, and a cushion to relieve the casting and retracting mechanism from the shock produced by the sudden stopping of said springs, substantially as specified.

3. In combination with the bolt-work of a safe or vault door, a time mechanism capable of being set to release the retracting-springs at a predetermined time, a cushion to prevent injury to the casting and retracting mechanism by the action of the power when released, and springs to automatically retract the bolts, substantially as specified.

4. In combination with a frame and springs for automatically retracting the bolt-work of a safe or vault door, a dogging-piece, *f*', which will ordinarily be inoperative, but which in case the retracting-springs be prematurely released by violence applied to the door will then be brought in contact with said frame, whereby said springs will be inoperative to retract the bolts, substantially as specified.

5. In combination with the bolt-work of a safe or vault door, a hook for holding an automatic retracting-spring in check, a cushion to protect the casting and retracting mechanism from injury by the action of the retracting-springs when released, a time mechanism capable of being set to release such hook at a predetermined time, and a dogging-piece which will ordinarily be inoperative, but which in case the retracting-springs be released prematurely by violence applied to the door will then be brought into such position that the said springs will be inoperative to retract the bolts, substantially as specified.

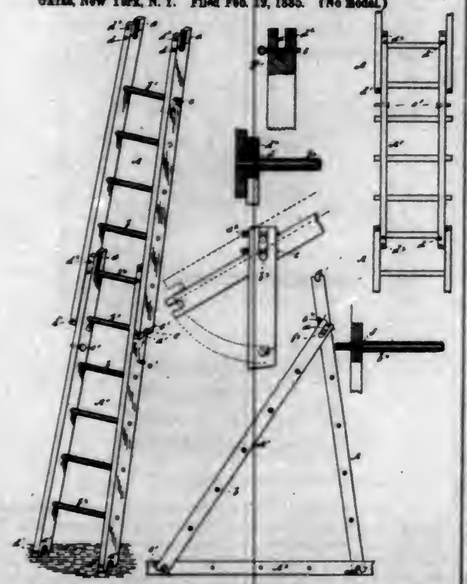
6. In combination with the bolt-work of a safe or vault door, and springs for automatically retracting the bolts, and a time mechanism for releasing the retracting-springs at a predetermined time, a compound lever located between the said springs and the time mechanism for the purpose of reducing the power required to be exerted by the time mechanism to release the said springs, and a dogging-piece which will ordinarily be inoperative, but which in case the retracting-springs be prematurely released by violence applied to the door will then be brought into such position that the retracting-springs will be inoperative to retract the bolts, substantially as specified.

7. In combination with the bolt-work of a safe or vault door, springs for automatically casting the bolts, the stop N, for holding the bolts retracted after the casting-power has been set preparatory to closing the

door, which stop will release said casting-springs automatically when the door is closed, springs for automatically retracting the bolts, and a cushion to prevent injury by the action of the retracting-springs, substantially as specified.

8. In combination with the bolt-work of a safe or vault door, springs for automatically casting the bolts, the stop N, for holding the bolts retracted after the casting-springs have been set preparatory to closing the door, which stop will release said casting-springs automatically when the door is closed, springs for automatically retracting the bolts, and a dogging-piece which will ordinarily be inoperative, but which in case the retracting-springs be prematurely released by violence applied to the door will then be brought into such position that the retracting-springs will be inoperative to retract the bolts, substantially as specified.

317,987. COMBINED EXTENSION AND STEP-LADDER. P. TENNEY GATES, New York, N. Y. Filed Feb. 19, 1885. (No model.)
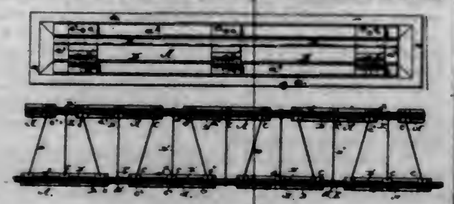


Claim.—1. In a combined extension and step ladder, in combination with slots in the ends of the side rails of the sections of the ladder, one or more holes in the projections of the said slots, and pins, substantially as and for the purpose specified.

2. In a combined extension and step ladder, in combination with cylindrical bearings on the outside and inside of the side rails of the ladder, and with unbeveled or straight slots in the ends of the said side rails fitting upon said bearings, one or more pins passing through the projections forming each slot, substantially as and for the purpose specified.

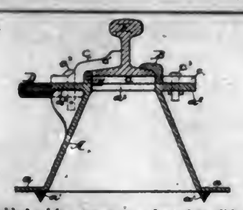
3. In sectional-ladder joints, the combination, with a projection fitting into a slot, of a pin located crosswise to the slot and touching the projection, said pin being adapted to be removable, substantially as and for the purpose specified.

317,988. CONSTRUCTION OF RAILWAY-TRACKS. THOMAS H. GIBBON, Albany, N. Y. Filed Feb. 19, 1885. (No model.)

Claim.—1. The triple chair A herein described, consisting of an oblong metallic box open at the top and bottom, and provided with a hook-like longitudinal flange, B, adapted to overlap one edge of the bottom flange of the rail, and a vertical longitudinal flange, B', parallel to the flange B, both of said flanges having three mortises, *b*, spaced equidistantly therein, the said metallic box being also provided on one of its horizontal upper flanges with recesses for receiving the eyes of the tie-rods D in front of the mortises *b*, in combination with the rail-



317,988.



fastener C, provided with a tongue, *c*, adapted to slide in the mortises *b*, to form a support for the rail E, as herein described, and with a bearing-piece, *c'*, which abuts against the web of the rail, said rail-fasteners being also arranged so as to secure the ends of the tie-rods D to the triple chair A, as herein specified.

2. In a railway-track, the combination, with a series of triple chairs, A, provided with three rail-fasteners, C, spaced equidistantly therein, the said chairs being so arranged that the distance between the rail-fasteners in the ends of any two successive chairs shall be the same as that at which the rail-fasteners in the chairs are spaced, and the said triple chairs being also arranged so that the chairs under one rail shall be fixed opposite a space between the ends of two successive chairs under the other rail, as herein described, of the diagonal tie-rods D, secured near the ends of each chair A and connected with the nearest ends of two chairs under the opposite rail, and a transverse tie-rod, D', secured at the middle of each triple chair and connected to the opposite rail, substantially as specified.

317,989. PINCUSHION AND BUTTON-HOOK HOLDER. WILLIAM GOODFELLOW, South Norwalk, Conn. Filed Feb. 14, 1885. (No model.)

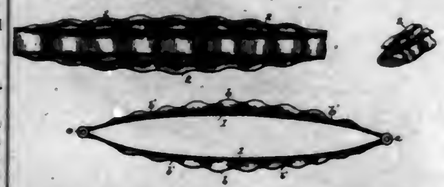


Claim.—1. The combination, with the ornamental tablet C, of the frame D, having tang E and shoulder *e*, and the projecting rack F, substantially as described.

2. The metallic frame D, having a pin-cushion therein, and having the screw-threaded tang E, with shoulder *e*, and the projecting rack F, provided with notches *f*, the whole forming a bracket, pincushion, and button-hook holder, substantially as described.

3. As a new article of manufacture, a pincushion composed of cork having a textile covering, a metallic frame to said cushion, having a button-hook rack partially surrounding said frame, and a screw-threaded tang projecting from the side of the frame opposite the rack, all substantially as shown and described.

317,990. METALLIC SPRING FOR VEHICLES. JOHN GRAVES, Brooklyn, assignor to J. R. Dreyfus, New York, N. Y. Filed Mar. 27, 1885. (No model.)



Claim.—1. A metallic spring the body of which tapers from its longitudinal median line and from its middle toward both ends, provided with a series of parallel lateral corrugations, having its two sides turned up, said sides after being turned up being bent over outwardly, substantially as described.

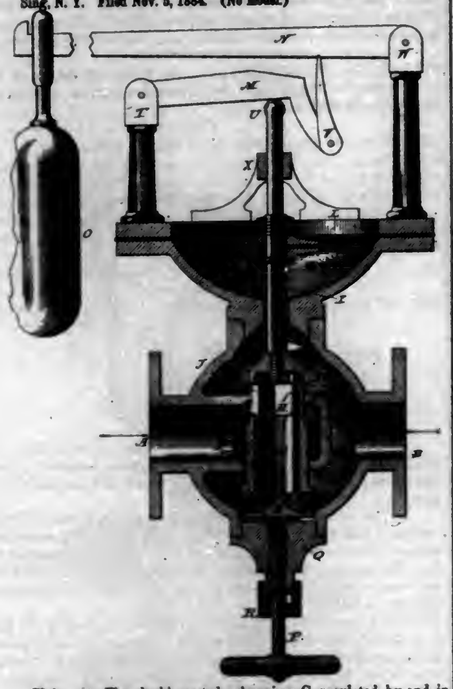
2. The within-described elliptical spring-leaf, composed integrally of one piece of metal which tapers toward the ends and side edges, supplied with a series of parallel corrugations formed into a longitudinal trough, the turned-up sides of which have outwardly-extending flanges, as and for the purpose intended, substantially as described.

3. An elliptical spring-leaf provided with a series of parallel corrugations gradually diminishing in length from the central one toward each end, each of said corrugations gradually decreasing in thickness from its middle toward its terminal point, as and for the purpose intended, substantially as described.

4. A compound elliptical spring consisting of a metal leaf which decreases in thickness from the median line toward the side edges and toward each end, and decreasing in width from the central point toward each end, supplied with a series of vertical parallel corrugations, the sides of which leaf are turned up to form a trough, the edges of said sides being bent over outwardly, in combination with an opposite leaf of the same character and form, the two being connected at their juxtaposited ends, as and for the purpose intended, substantially as described.

5. A compound laminated elliptical spring-leaf consisting of two or more onlying layers of metal strips tapering in width and thickness from end to end, and each lamina impressed with a series of vertical corrugations and having the sides of said lamina turned up to form a longitudinal trough, said upturned sides having at their tops outwardly bent-over flanges, as and for the purpose intended, substantially as described.

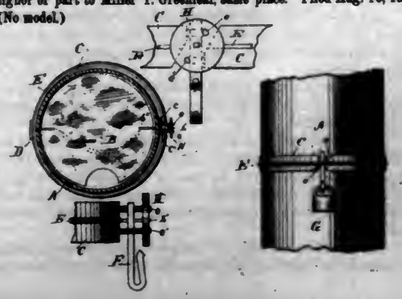
317,991. FLUID-PRESSURE REGULATOR. IRA J. GRIFFIN, Sing Sing, N. Y. Filed Nov. 5, 1884. (No model.)



Claim.—1. The double-seated valve-piece C, regulated by and in combination with the flexible diaphragm L, whose motions are controlled by the variations of the outflowing pressure against that of the atmosphere and loaded levers, as described, said valve-piece having the cylindrical parts above each valve-seat filling the annular openings in the casing in which they work respectively, and having ports H, through which the water flows to the interior of the valve and from thence to the outlet, substantially as described, and for the purposes set forth.

2. In fluid-pressure regulators, the system of compound levers consisting of the short bent lever M, the connecting-piece V, and the long lever N, in combination with the weight, diaphragm, and valve, as described.

317,992. STOVE-PIPE DAMPER. JOSEPH GRIMM, Quincy, Ill., assignor of part to Miller T. Greenleaf, same place. Filed Aug. 16, 1884. (No model.)



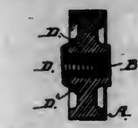
Claim.—1. The combination, with a stove-pipe, of a pivoted damper therein, one of the pivots projecting outside the pipe, a collar surrounding the pipe, and a lever on the damper-pivot engaged by projections from the ends of the collar to turn the damper, substantially as described.

2. The pipe, the pivoted damper in the pipe, a collar surrounding the pipe, a wire surrounding the collar and secured thereto by return-bends, a lever on the damper-pivot, and projections from the wire engaging opposite sides of said lever, all in combination, substantially as described.

3. The combination, with the stove-pipe and damper pivoted on a transverse axis therein, of a lever secured to the damper-pivot, and expansion-bars outside the pipe and surrounding the same, and engaging said lever at opposite sides of the pivot.

4. The combination, with the pipe, of a pivoted damper therein, a lever secured to one pivot of the damper, expansion-rods engaging said lever at opposite sides of the pivot, and a perforated retaining-disk outside the lever, substantially as described.

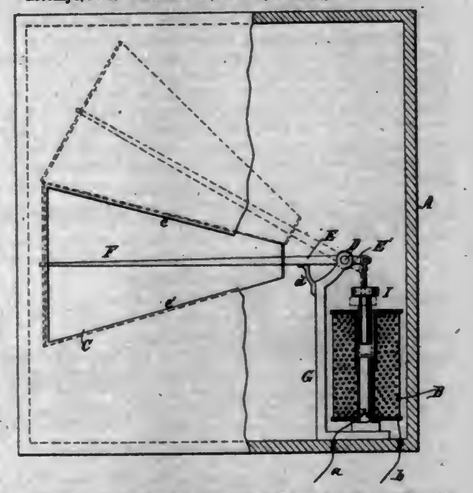
317,993. BEARING AND BUSH. SAMUEL M. GUSS, Reading, Pa., assignor of one-half to Jacob S. Ammon, same place. Filed Apr. 13, 1885. (No model.)



Claim.—1. As a new article of manufacture, a bearing and bush for axles, shaft-journals, &c., consisting of a coil of steel or equivalent wire, preferably of a round cross-section, adapted by winding upon a mandrel of suitable form to the surface to which it is to be applied, cut to length, subsequently faced, tempered, and inserted within the receptacle prepared therefor, substantially as shown, and for the purpose described.

2. As a new article of manufacture, a bush for loose pulleys, ship-block sheaves, rollers for skates, and analogous purposes, consisting, essentially, of a metallic wire coil, preferably steel, of a round cross-section, adapted by winding upon a suitable mandrel, cutting to length, subsequent facing and tempering, for insertion within the hubs of the same, and their retention therein by screw C and cap D, as and for the purpose set forth.

317,994. RAILWAY-SIGNALING APPARATUS. WILLIAM HADDEN, Brooklyn, N. Y. Filed June 12, 1884. (No model.)



Claim.—1. In signaling apparatus, the combination, with a signal-box having a trapezoidal opening, of a swinging banner of trapezoidal form, the upper and lower edges of the said trapezoidal opening and banner being radial to the center of motion of the banner, as specified.

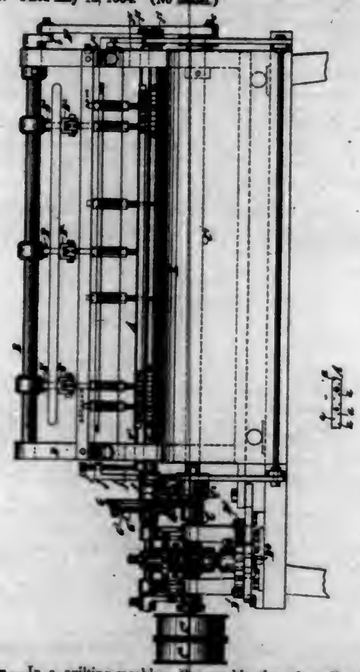
2. The combination, in signaling apparatus, of a trapezoidal banner, an axial magnet for operating the same, and a box adapted to contain the banner and axial magnet and provided with a trapezoidal opening for displaying the banner, as herein specified.

3. The combination, with a signal-box provided with a signaling-aperture and lamp for emitting light through the same, of a translucent swinging banner inclosed in the signaling-box and provided with an

opaque portion capable of intercepting the light passing from the lamp toward the signaling-aperture, as specified.

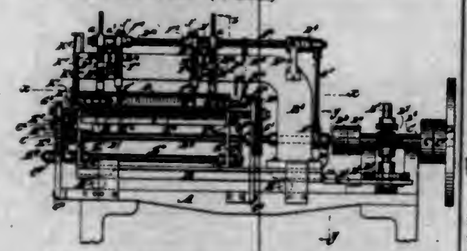
4. The combination, in signaling apparatus, of a trapezoidal banner, F, provided with the opaque portion *f*, axial magnet B, box A, provided with opening C, and lens K, and lamp J, as specified.

317,995. QUILTING-MACHINE. JOHN B. HAGENBÜCHLE, New York, N. Y. Filed May 12, 1884. (No model.)



Claim.—In a quilting-machine, the combination of needles, feed-rollers for the work, a cam, D^4, for producing a lateral movement between the needles and work, a friction-wheel, G, a lever or arm, G', mounted on a shaft, *g'*, which is separate and independent of the shaft upon which the friction-wheel is mounted, a dog, G^2, an eccentric, G^3, for imparting motion to the lever or arm G', and mounted on the driving-shaft, an arm, g^3, operating in conjunction with the eccentric G, and mounted on the driving-shaft, a cam, H, for varying the throw of the lever or arm G', an arm, g^4, operating in conjunction with the cam H, and an upright shaft, D^3, upon which are mounted the cams H and D^4, substantially as specified.

317,996. QUILTING-MACHINE. JOHN B. HAGENBÜCHLE, New York, N. Y. Filed June 24, 1884. (No model.)



Claim.—1. In a quilting-machine, the combination of a needle-bar, mechanism for reciprocating said needle-bar vertically, a feed-bar having a number of rows of teeth arranged thereon, mechanism for imparting motion to said feed-bar through an arc-shaped path, and a number of freely-rotating presser-rollers arranged one above each of said rows of teeth, substantially as specified.

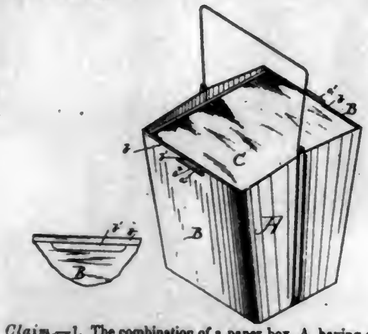
2. In a quilting-machine, the combination, with a reciprocating needle-bar, of guides upon a reciprocating carriage for directing the vertical reciprocation of said needle-bar, a feed-bar having a number of rows of teeth arranged thereon, a number of freely-rotating presser-rollers arranged one above each of said rows of teeth, and mechanism for imparting motion to said feed-bar through an arc-shaped path, substantially as specified.

3. In a quilting-machine, the combination, with a reciprocating needle-bar having needles arranged upon it in two rows diverging from one end to the other, of a feed-bar having a forward and backward movement through an arc-shaped path, substantially as specified.

4. In a quilting-machine, the combination, with a reciprocating needle-bar adapted to have needles secured upon it in one or two rows, of shuttle-races E, a movable plate, E^5, provided with holes *g g' h h'*, and pins *i i'*, adapted to be arranged either in the holes *g g'* or *h h'*, substantially as specified.

5. In a quilting-machine, the combination, with the carriage B, having a reciprocating motion, of the shaft C, having a rotary motion only and bearing the ring or socket D^{11}, and provided with notches *c*, the movable shaft D^4, provided with the notches *d*, the plate D^5, the hoop or band D^6, and the screw *e*, the whole being arranged and combined substantially as described, whereby the carriage B will carry with it the shaft D^4 in its reciprocating movements, but the shaft C will still remain in engagement with the shaft D^4 to rotate the same, substantially as specified.

317,997. PAPER BOX OR PAIL. IRA W. HOLLETT, Chicago, Ill., assignor to the Chicago Liquid Sack Company, same place. Filed Oct. 9, 1884. (No model.)

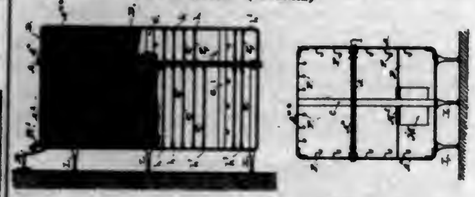


Claim.—1. The combination of a paper box, A, having slots *b'* in its side, with hinged paper cover C, having tongue or projections *c*, provided with a guard, c^3, to secure the same in said slot, substantially as specified.

2. The combination of paper box A, having sides B, furnished with notches at their tops, and metal binding-strips *b*, extending across said notches to form slots or openings in said sides, with hinged paper cover C, having tongues *c c'*, said tongues *c* being provided with a metal binding-clamp, c^3, longer than said slot to secure said tongue in the same, substantially as specified.

3. The combination, with box A, having sides B, provided with slots *b'*, of hinged paper cover C, provided with tongues *c* and *c'*, said tongue *c* having metal binding-strip c^3 longer than said slot, and metal bindings c^3 on the side edges of said cover, substantially as specified.

317,998. MEAT AND PROVISION SAFE. MARY J. HOLT, San Francisco, Cal. Filed Jan. 23, 1885. (No model.)



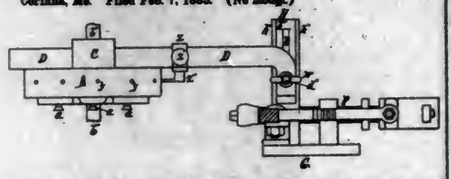
Claim.—1. The herein-described safe, consisting of the hinged frames, the screen-surface or wire-cloth covering, the bars C C, carrying supporting-hooks F, guard-wires *g g*, and the projecting legs, substantially as described.

2. The combination, with the compartment having screen or wire-cloth surfaces, of the fenders or guard-wires *g*, substantially as and for the purpose set forth.

3. The combination of the two separate compartments or sections adapted to open and close upon each other, each composed of a metal frame, as A A' and $A^* A^{**}$, the skeleton bars and the covering of netting or wire-cloth, and the hooks F, as means for suspending such matter as articles of food and receptacles containing them within the compartment.

4. In combination with the two-part safe or inclosure, constructed substantially as described, the receptacle M, for ice, and the means for suspending it, consisting of the metal scroll N', secured on the box, and the rod or wire P, suspended in the frame of the safe over which the scroll rests and supports the box, as set forth.

317,999. TENONING AND BORING MACHINE. LEWIS HUTCHINS, Corinna, Me. Filed Feb. 7, 1885. (No model.)

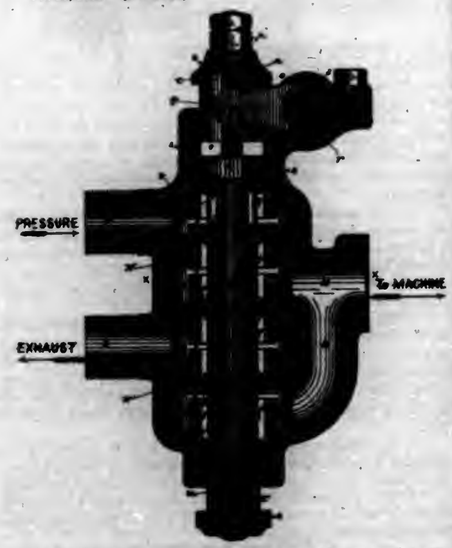


Claim.—1. The within-described attachment to a centering and clutching device, consisting of the combination of the cylindrical standard B, having the bore *b*, and the collar C, fitting over and revolving upon the standard B, and provided with the slot *d*, so shaped as to receive and allow within it the horizontal adjustment of the arm D.

2. In a machine for tenoning spokes or boring hubs or fellies, the rigid arm D, so formed and shaped as to be adjustable horizontally in the collar C of the centering and clutching device A A' and vertically in the standard H of the frame G.

3. In a machine for tenoning spokes or boring hubs or fellies, the combination of the centering and clutching device A A', cylindrical standard B, having the bore *b*, revolving collar C, having the swell *c* and slot *d*, bolt *b''*, rigid arm D, bit-stock frame G, having the upright standard H, formed with the longitudinal slot *h* and flanges *h''*, and means of securing the ends of the arm D in the collar C and standard H when adjusted, all as shown and described, and substantially as and for the purpose specified.

318,000. VALVE. EBENEZER A. W. JEFFERIS, Alliance, Ohio. Filed Oct. 29, 1883. (No model.)



Claim.—1. In a valve, the combination, with an annular core-chamber communicating by a continuous narrow annular port or opening with the interior of the valve-chamber, and also communicating with the inlet or pressure stem, of a valve-spindle and cup-packing, the latter exceeding in width the width of said annular port, and adapted to be subjected to an inward pressure as it passes over said annular port, substantially as set forth.

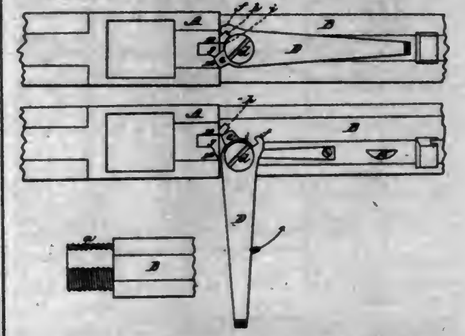
2. In a valve, the combination, with an annular core-chamber communicating by a continuous narrow annular port or opening with the interior of the valve-chamber, and also with the exhaust stem or passage, of a cup-leather exceeding in width said annular port, and adapted to be subjected to an inward pressure as it passes over said annular port, substantially as set forth.

3. In a valve, the combination, with the pressure or inlet stem P, outlet-stem M, annular core-chambers $C' C^2$, and the continuous narrow annular ports or openings F G, of the valve-spindle S, bushings K L, and double cup-leathers $L' L^2$, the latter being of greater width than that of said narrow annular ports, substantially as set forth.

4. In a valve, the combination, with the exhaust-passages D E, annular core-chambers $C^3 C^4$, and continuous narrow annular ports H J, of the bushings N P' and cup-leathers $L^4 L^5$, the latter exceeding in width that of said annular ports, substantially as set forth.

5. In a valve, the combination, with the exhaust-passages D E, annular chambers $C^3 C^4$, and ports H J *h*, of the valve-spindle S, bushings N P', and cup-leathers $L^4 L^5$, substantially as and for the purpose set forth.

318,001. BREECH-LOADING FIRE-ARM. DAVID KIRKWOOD, Boston, Mass. Filed June 30, 1884. (No model.)



Claim.—1. The combination, with the barrel B and breech-piece A, having connecting screw-threads, and adapted to be connected and disconnected by rotation of the barrel on its longitudinal axis, of a lever, D, pivoted to the under side of said barrel, and adapted to engage with the breech-piece and lie flat along the under side of the barrel when its movement is completed, substantially as and for the purpose set forth.

2. The combination, with the barrel B and the breech-piece A, having a recess, *g*, said barrel and breech-piece having connecting screw-threads, of the lever D, having a projection, *e*, at its inner end fitting within the recess *g* in the breech-piece, whereby the barrel is locked when the inward throw of the lever D is completed, substantially as described.

3. The combination, with the barrel B and the breech-piece A, having a recess, *g*, and a projection, *h*, said barrel and breech-piece having connecting screw-threads, of the lever D, provided with a projection, *e*, fitting within the recess *g*, and having a portion, *i*, which takes a bearing against the projection *h* on the inward movement of the lever D, substantially as set forth.

4. The combination, with the barrel B and the breech-piece A, having a recess, *g*, and a projection, *h*, said barrel and breech-piece having connecting screw-threads, of the lever D, provided with a projection, *e*, fitting within the recess *g*, and having a portion, *i*, and a projection, *f*, which takes a bearing against the projection *h* on the inward movement of the lever D, substantially as described.

5. The combination, with the barrel B and the breech-piece A, having a recess, *g*, said barrel and breech-piece having connecting screw-threads, of the lever D, pivoted to the barrel at *d*, and provided with a projection, *e*, at its inner end, fitting within said recess, and having a loose motion therein between its sides 10 and 12, whereby it is caused to clear itself from the side 12 before commencing to rotate the barrel, substantially as and for the purpose described.

318,002. WIRE-BARBING MACHINE. OLE O. KITTELSON, Rock Falls, Ill. Filed Oct. 17, 1884. (No model.)

Claim.—1. The combination of the wheel A, pinions C, pinion E, and a gear for operating the last-named pinion, substantially as shown, and for the purpose described.

2. In a wire-barbing machine, the combination of the wheel A, coiling-pinions C, double-gear-faced pinions E, and mutilated gear B, substantially as shown, and for the purpose described.

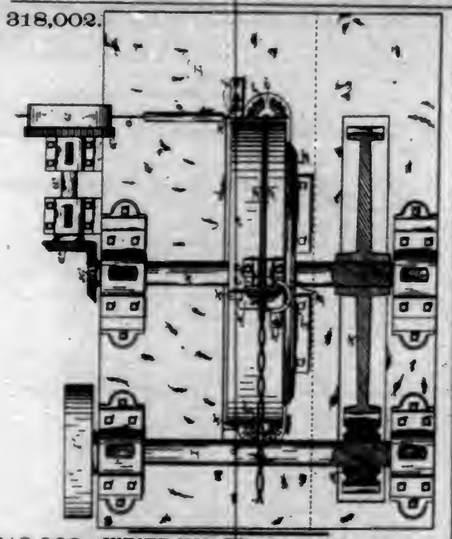
3. In a wire-barbing machine, the combination of the wheel A, coiling-pinions C, pinion E, gear B, clamp T, and cam edge B^2, substantially as shown, and for the purpose specified.

4. The combination of the wheel A, provided with bridges T', pinions C, provided with spur or leg *a*, pinion E, having face *d*, and gear B, having a portion of its working face fitted with cogs, and the residue of a smooth impacting surface, substantially as shown, and for the purpose mentioned.

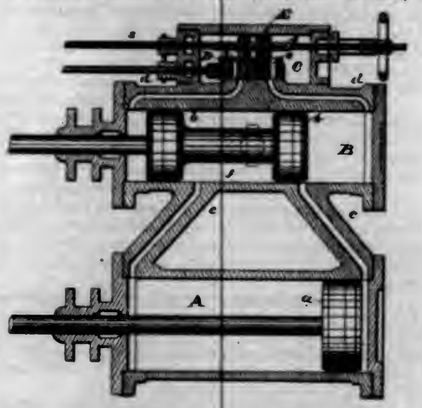
5. The combination of the wheel A, provided with bridges T' clamp T, cam-edge B^2, and spring T^2, substantially as shown, and for the purpose described.

6. The combination of the wheel A, carrying pinions C and E, and the fixed mutilated gear B, substantially as shown, and for the purpose specified.

318,002.



318,003. COMPOUND STEAM-ENGINE. JOHN P. KRIEGER and JOHN H. EICKEMEYER, Cincinnati, Ohio. Filed Feb. 20, 1885. (No model.)



Claim.—1. In a compound engine, the combination of high and low pressure cylinders, the former carrying a double piston operating as a controlling induction and eduction valve for the latter, an exhaust-port opening from the high-pressure cylinder between the pistons thereof, and an induction-valve arranged to govern the admission of steam to the high-pressure cylinder, whereby the steam is solely exhausted from the engine, first from the high-pressure into the low-pressure cylinder, and then back and outward through the said exhaust-port between the pistons of the high-pressure cylinder, as set forth.

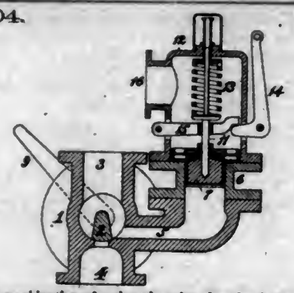
2. In a compound engine of the class described, the combination of the high-pressure and low-pressure cylinders and their pistons and connecting-ports, having its sole exhaust from the high-pressure cylinder into the low pressure cylinder, and from thence outward between the high-pressure pistons, with an induction-valve governing the high-pressure cylinder, arranged to retain the residual or unexhausted steam in the high-pressure cylinder as a cushion for its piston, substantially as set forth.

3. In a compound engine of the class described, having its sole exhaust from the high into the low pressure cylinder, and from thence outward through the high-pressure piston, an adjustable cut-off valve, arranged as described, in combination with the induction-valve, high and low pressure cylinders, connecting-ports, and single exhaust-port *f*, substantially as and for the purpose set forth.

318,004. COMBINED THROTTLE AND SAFETY VALVE. HENRY A. LADUSLER, Pittsburg, Pa. Filed Mar. 19, 1885. (No model.)

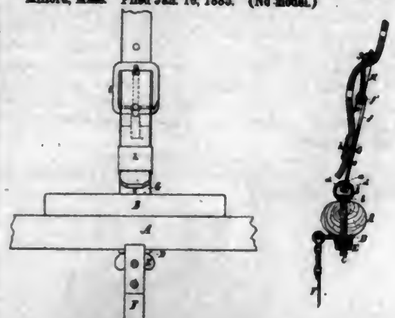
Claim.—1. The combination of a throttle-valve, a safety or relief valve, and a passage connecting the chests of the throttle and safety valves and controlled by the throttle-valve, substantially as set forth.

318,004.



2. The combination of a throttle-valve chest having supply and delivery openings, a safety or relief valve seated in a chest communicating with the throttle-valve chest, and a throttle-valve adapted by changes of its position to control communication either between the supply-opening and the safety-valve chest, or between the supply and the delivery openings, substantially as set forth.

318,005. HARNESS AND SHAFT CONNECTION. THOMAS J. LYNCH, Milford, Mass. Filed Jan. 16, 1885. (No model.)



Claim.—1. The combination, with the side strap and its buckle of the saddle of a harness and with the carriage-shaft, of the duplex-pronged hook extending upward from the latter and hooked upon the buckle-ring, as set forth.

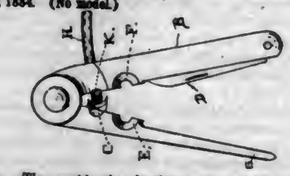
2. The combination, with the side strap and its buckle of the saddle of a harness and with the carriage-shaft, of a duplex-pronged hook and a tube or carrier, the latter being fixed to the shaft, and such hook being movable in the said tube or carrier lengthwise thereof and extended upward therefrom and hooked upon the ring of such buckle, all being substantially as set forth.

3. The combination, with the side strap and its buckle of the saddle of a harness, of the duplex-pronged hook hooked upon the buckle, and of the tubular carrier fixed to the shaft by a clamp bolt and nut, and slotted to receive both hook and clamp-bolt, such being so as to enable either the hook or the carrier or both to be adjusted relatively to the shaft lengthwise thereof, as described, all being to operate substantially as set forth.

4. The duplex-pronged hook provided with the strap-receiving loop extending from the shank of such hook, as set forth, in combination with the carriage-shaft, and projecting upward relatively thereto, as represented.

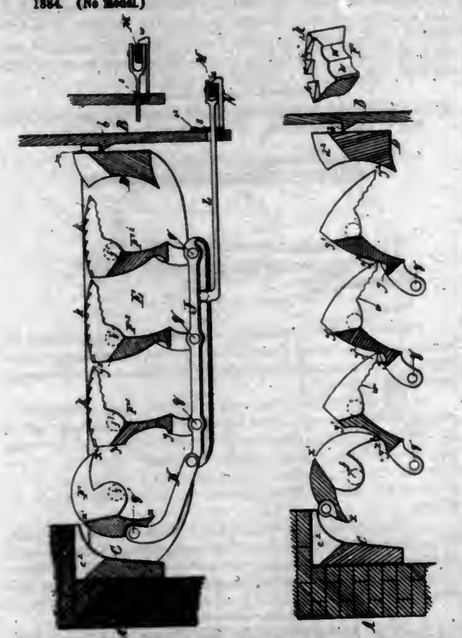
5. The combination, with the shaft, of the buckle, its supporting-hook, and the slotted tube or carrier of the hook, all being arranged and to operate substantially as set forth.

318,006. FUSE-CUTTER. JOHN M. MARTIN, San Francisco, Cal. Filed Oct. 9, 1884. (No model.)



Claim.—The combination implement described, comprising the levers A B, pivoted together at one end, the lever A having the punch G at its free end, the cutting-blade C, located adjacent to its pivoted end, and the part E, located just below the cutting-blade, and the lever B, having the cutting portion K to receive the knife C, and the part F, located below the same and adapted to register with part E, and the blade D, located in the lower end of the lever B, as set forth.

318,007. GRATE. WILLIAM MCCLAVE, Scranton, Pa. Filed July 25, 1884. (No model.)



Claim.—1. The combination, with shaking and stop devices consisting of lever M, rod L, working-bar J, and plate N, having stop *n*, of grated sections hung on journals and pivoted to the working-bar J, and having their back surfaces constructed as at *y y'*, and their front portions, y^2, standing and working nearly against the surfaces *y* and *y'* during the normal position of the sections, and also while being shaken to a limited extent, the construction, arrangement, and combination of the parts being such that a grated fire-bed is formed when the sections are in their normal positions, and the sections of this bed can be shaken to a limited extent without liability of forming too large escape-passages for the coal resting upon the bed, substantially as described.

2. The combination, with the working-bar J, of grate-sections F and F', hung on journals and formed on the back surfaces as at *y y'*, and having their front portions, y^2, standing and working nearly in contact with the surfaces *y y'* during the normal state of the sections and while being shaken to a limited extent, and also forming closed pockets when the sections have been moved completely back for effecting a cut-out of clinker and other substances, substantially as described.

3. The combination of the stop-plate N, applied to the furnace-wall, the lever M, rod L, bar J, having rod L pivoted to it, oscillating grate-sections F' F^2, pivoted to bar J, and having the construction as at *y y'*, and their front portion, y^2, in the relation to the portion *y y'* substantially as and for the purpose described.

4. The combination of stop-plate N, lever M, rod L, working-bar J, oscillating grate-sections F' F^2, and wall of furnace with opening *s*, larger than the rod L, whereby the desired and proper shaking of the grate-sections can be effected, and also, when required, the stop *n* of the plate N can be passed, and a cut-out of clinker and ashes and other refuse substances effected, substantially as described.

5. The combination, with the oscillating grate-sections, journal-bars, and half-boxes, of the key-blocks G, for holding down the sections and protecting the journals from the burning substances upon the fire-bed, substantially as described.

6. The combination, with the shaking-bar, grate-sections F' F^2, connecting-rod, adjustable shaking-lever, and stop-plate, of the grate-section F and link K, substantially as and for the purpose described.

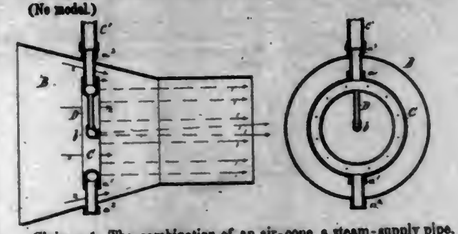
7. The grate-sections herein described and shown, formed with pocket portions from *y* to *y'*, and with ribs having teeth with an under double-beveled surface, substantially as described.

8. The grate-sections herein described and shown, formed with ribs fluted on their under surface, substantially as described.

9. The combination of the journal-bars formed with embedded hooking projecting ends with the embedded hooking bearers and the masonry wall of the furnace, substantially as described.

10. The vibrating end grate-section of crescent shape, in combination with a fellow angular-shaped grate-section and the overhanging or undercut portion of the fire-bed, substantially as described.

318,008. COMBINED STEAM AND AIR BLOWER FOR BOILER-FURNACES. WILLIAM MCCLAVE, Scranton, Pa. Filed Mar. 14, 1885. (No model.)



Claim.—1. The combination of an air-cone, a steam-supply pipe, and a single annulus with separated jet-perforations forming an aggregated cross-sectional discharging-area much less than the cross-sectional area of the steam-supply pipe, whereby the separated jets of steam can have their entire circumferences exposed to the air, and thereby an increased drawing-power secured, and also a practically unobstructed air-space is maintained within and outside the circle of the annulus by the velocity or pressure of the steam, carrying the jets forward with a sufficient force through the neck of the cone to prevent the blocking of the airways with a body of steam behind said neck both outside and inside the circle of the annulus, substantially as described.

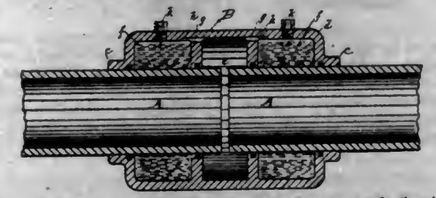
2. The small auxiliary steam-jet pipe or pipes D, in combination with the single steam-jet annulus C, with separated jet-perforations, and having steam-supply entrance in its periphery, and an air-cone, whereby while the separated jets of steam have their entire circumferences exposed to the air, and thereby an increased drawing-power secured, and also a practically unobstructed air-space formed and maintained outside the circle of the annulus, the action of the jets of the annulus is assisted by the auxiliary jet pipe or pipes within the circle of the annulus, substantially as described.

3. The combination of the high-pressure steam-supply pipe, the steam-jet annulus C, having an aggregated cross-sectional steam-discharging area less than the cross-sectional area of the supply-pipe, the small steam-jet pipe D, having appropriate jet-nozzle, rosette, or annulus on it at the center of the cone, and an air-cone or air-duct, substantially as described.

4. The combination of the high-pressure steam-supply pipe, the steam-jet annulus having an aggregated cross-sectional steam-discharging area less than the cross-sectional area of the steam-supply pipe, the small auxiliary steam-jet pipe D, having a steam-jetting device on its inner end, and an air cone or duct, substantially as and for the purpose described.

5. The combination, with the cone B, of a single jet-ring, C, arranged centrally within the cone and having an arm for supply-steam at its periphery, an unobstructed air-space practically between itself and the cone, and an auxiliary jet-pipe, D, extending to near its center from its inner periphery, said pipe D terminating in suitable form, as shown and described, for discharging steam in jet form within the circle of the ring, all substantially as and for the purpose described.

318,009. PIPE-COUPLING. JUNIUS A. MCCORMICK, Pittsburg, Pa. Filed Mar. 21, 1885. (No model.)



Claim.—1. A pipe-coupling comprising a sleeve to fit the pipe ends, a pressure-chamber communicating with the interior of the pipe, and one or more annular packing-chambers in communication at their top with said pressure-chamber and adapted to receive a suitable packing material, substantially as described.

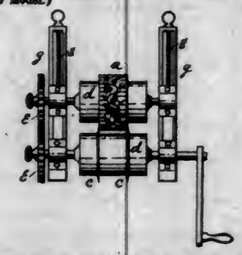
2. A pipe-coupling composed of a sleeve to fit the pipe ends, an annular pressure-chamber communicating with the interior of the pipe, and one or more annular packing-chambers communicating with said pressure-chamber at their upper part only, and provided with means for filling with suitable packing material after the insertion of the pipes to be coupled, substantially as described.

3. In a pipe-coupling, the combination, with the pipes A A, of the sleeve B, having necks *c*, one or more annular sealing-chambers, *f*, and a pressure-chamber, *e*, both of said chambers having a communicating port, *h*, at their upper portion, substantially as described.

4. In a pipe-coupling, the combination, with the pipe ends, of the sleeve B, having necks *c*, a pressure-chamber, *e*, communicating with

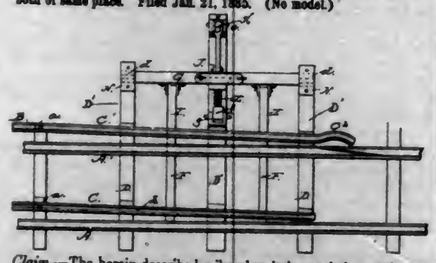
the interior of the pipes, and one or more annular sealing-chambers, *f*, having port *h*, and substantially filled with a liquid or semi-liquid material, substantially as described.

318,010. MACHINE FOR MOLDING PLASTIC MATERIALS. HUGH MCHUGH and THOMAS L. MANNERTON, New Bedford, Mass. Filed Dec. 15, 1884. (No model.)



Claim.—In a machine for molding plastic material, the combination of the rolls *d d*, composed of sections, one of said rolls being furnished with an engraved hub and the other with the knives *c c*, when arranged and operating as and for the purpose shown and described.

318,011. AUTOMATIC SWITCH. WILLIAM H. MCKINLEY, Shannondale, Pa., assignor of two-thirds to Chas. H. Songer and John A. Kurtz, both of same place. Filed Jan. 21, 1885. (No model.)



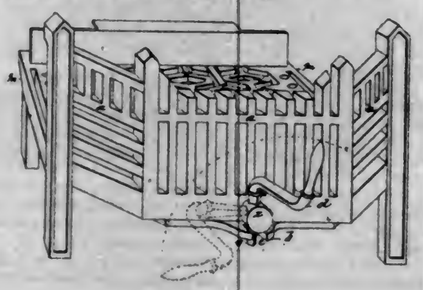
Claim.—The herein-described railroad-switch, consisting of the side rails, C C', one of which is provided with the cam-shaped end C², said rails being pivoted at one end to the blocks *a*, and connected together at a suitable distance apart by means of the rods F, pivoted within the recessed projections E, substantially as and for the purpose specified.

318,012. WIRE-STRETCHER. JAMES M. MERRITT, Marengo, Iowa. Filed Aug. 12, 1884. (No model.)



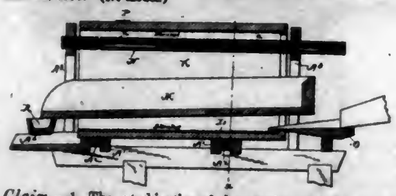
Claim.—The herein-described wire-stretcher, comprising a main bar, A, having a channel running its entire length, a bracket, B, secured to its under side, and means for its attachment to the fence-post, a lever pivoted to said bracket, a pawl pivoted to said lever, a toothed stretcher-bar sliding in the gutter or channel, a pawl to engage the same and pivoted on one side of said gutter, and means, substantially as described, carried by the stretcher-bar, for clamping the wire.

318,013. SHAKING AND DUMPING GRATE. PETER MILLER, Cleveland, Ohio. Filed Dec. 8, 1884. (No model.)



Claim.—In a shaking and dumping grate, the combination, with the frame *m*, the grate-bars *x*, having crank-connections whereby they have a rocking movement common to all, of the perforated head *z* on one of the grate-bars, the perforated plate *b*, located under said head, and the shaking-bar *d*, having the shank *e*, of sufficient length to pass through the head *z* and the plate *b*, substantially as set forth.

318,014. ORE-WASHER. WILLIAM J. MUNCEY, Gunnison, Colo. Filed Mar. 13, 1885. (No model.)

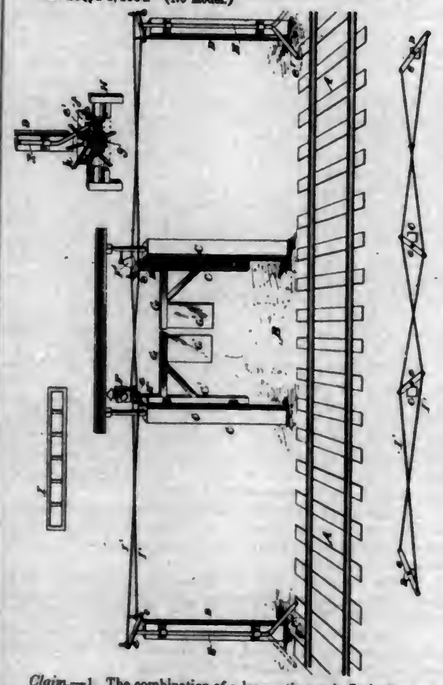


Claim.—1. The combination of the rotating cylinder having the blanket lining, the trough located in the cylinder and extending therethrough, and the perforated water-pipe in the cylinder, above the trough, substantially as described.

2. The combination of the supporting-frame, the rotating cylinder secured therein, the water-wheel located beneath the discharge end of the cylinder, the trough extending through the cylinder, the perforated pipe above the trough in the cylinder, and gearing connecting the water-wheel with the cylinder, whereby the rotation of the wheel is imparted to the cylinder, for the purpose set forth, substantially as described.

3. The combination of the rotating cylinder having the blanket lining, the trough located in the cylinder and extending therethrough, the perforated water-pipe in the cylinder, above the trough, and the receiving-tank communicating with the discharge end of the trough, substantially as described.

318,015. SIGNALING APPARATUS. WILLIAM NELSON, Bath, Mich. Filed Sept. 3, 1884. (No model.)



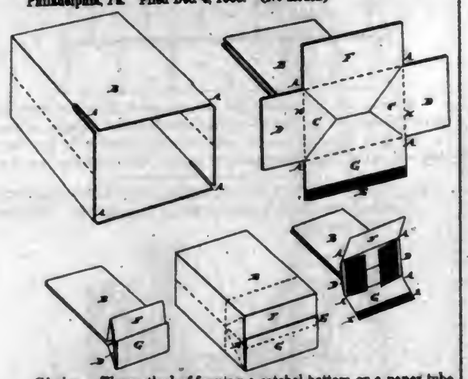
Claim.—1. The combination of a locomotive-rack, I, shaft-carrying arms *h*, and pinion *g*, and spur-sector *f*, carrying the vibratory signal-rod E, for the purpose specified.

2. The flag-gate perpendicular bar C', hinged to post C, and carrying signal F, as well as cross-bar *e*, in combination with two crossing wires, I' I', operated as and for the purpose described.

3. The pivoted rods E E, carried by posts D D, having cross-bars *a a* at the top and provided with bent ends *a' a'* at the bottom, in combination with wires I I, crossing each other between the bars *a* and operated as described, whereby the same train may both open and close the gate, as described.

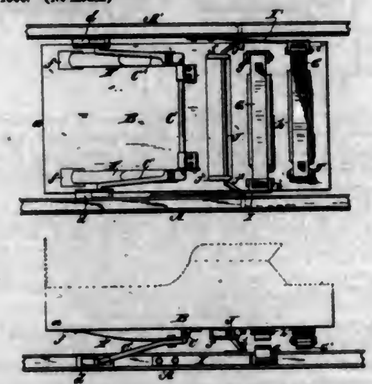
4. The combination, with a lateral projection on a car or locomotive, of the vertical vibratory rods carrying double cranks and side arm, fixed posts, crossing wires, and double-cranked rods carrying at the crossing-gates a bell, light, and flag-gates, substantially as described.

318,016. METHOD OF MAKING PAPER BAGS. JOHN P. ONDERDONK, Philadelphia, Pa. Filed Dec. 4, 1883. (No model.)



Claim.—The method of forming a satchel-bottom on a paper tube having inward bellows-folds, which consists in cutting apart the corners A A A A, then spreading open one end of the tube so as to form the inward-projecting pieces C C, flaps D D, and pieces F and G, which flaps D D and pieces F and G are fastened together by paste or other suitable material, substantially as shown and described.

318,017. SIDE-BAR BUGGY. DENIS J. OWEN, Lynn, Pa. Filed Apr. 4, 1885. (No model.)



Claim.—1. The combination, with the side bars, A A', having recesses *d*, of the springs F, secured to the arms C', the rock-shaft C, journaled upon the bottom of the body, and the friction-plates *f*, as set forth.

2. The combination, with the body and side bars, of the double springs G G', the spring-arms I I', clips *i i'*, brackets *g g'*, and blocks *h*, as and for the purpose set forth.

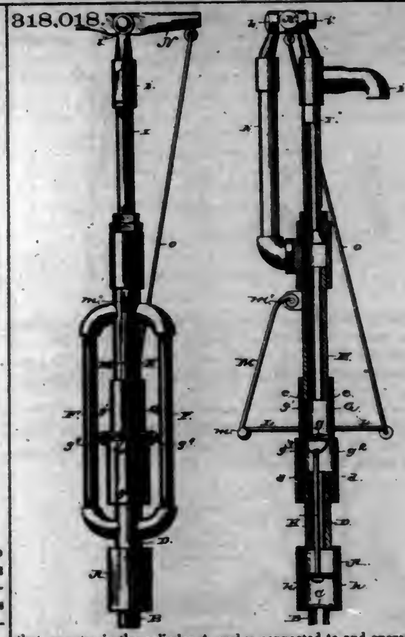
3. In a side-bar buggy or other vehicle, the combination, with the springs G G' and spring-arms I I', arranged, as shown, relatively to the body and side bars, of the crank-rod J *j*², journaled in the side bars and having free movement in the guides *j'* upon the body, as set forth.

318,018. PUMP. ALONZO PALMER, Three Rivers, Mich. Filed Feb. 6, 1885. (No model.)

Claim.—1. The movable cylinder composed of sections of unequal diameters, in combination with pipes having packings for fitting in the sections of the cylinder, a stationary cylinder secured to the lower end of one of the pipes, and a valved plunger which operates in the stationary cylinder, and which is connected to the movable cylinder, and is operated thereby, substantially as described.

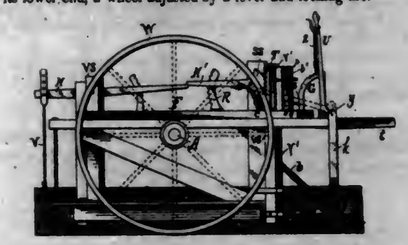
2. The combination of the cylinder A, having valve C, pipe D, cylinder G, having an upper and a lower section, the lower one of which is of greater diameter than the upper section, packing on the pipe D, for working in the lower section, valve *g* in the said cylinder, a plunger, *h*, that operates in the cylinder A, and is connected to and operated by the cylinder G, pipe E, having a packing at its lower end for working in the upper section of the cylinder G, and a crank-handle or lever for operating the cylinder G, substantially as described.

318,018.



318,019. ROAD-GRADER. SAMUEL PENNOCK, Kennett Square, Pa., assignor to the S. Pennock & Sons Company, same place. Filed Feb. 7, 1884. (No model.)

Brief.—Pivoted adjusting-bar of scraper-beam is thrown to engage a rack thereon with a cogged arc on a hand-lever by means of a roller having a controlling eccentric and handle. At the front of the main triangular frame is mounted, in a vertical standard having pivoted braces to its lower end, a wheel adjusted by a lever and locking-arc.



Claim.—1. In a road-grader, the combination of the scraper, a vertically-movable bar, as V', connected thereto and provided with a toothed rack, as T, a pivoted hand-lever, as H', provided with a segment, as S S, having teeth or cogs adapted to engage with the teeth or cogs of said rack, together with means, substantially as shown, for throwing the rack and segment out of gear and retaining the same in position, substantially as and for the purpose set forth.

2. The scraper, the vertically-movable bar V', connected thereto, the pivoted hand-lever, the segment S S, the toothed rack T, the bar *q*, and the eccentric *e*, with means for rotating the same and holding it in position, together with the friction-wheel *p*, all combined, constructed, and adapted to operate substantially as and for the purpose described.

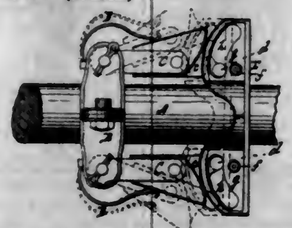
3. In a road-scraper, the combination, with the main triangular frame, of a lever pivoted at the forward end thereof, and a segmental rack also secured thereto, of a vertical frame depending from the shorter arm of said lever, and in the lower extremity of which is borne a wheel, pivoted steadying-braces extending from the lower end of said vertical frame to the sides of the main frame, and the spring-catch secured to the longer arm of the lever for engaging the rack, whereby the wheel is maintained in position when elevated, substantially as described and shown.

318,020. WHIP-HOLDER. RUDOLPH PETERS and WALTER J. SWARTZENBURG, Hamilton, Ontario, Canada. Filed Apr. 16, 1883. (No model.) Patented in Canada Jan. 17, 1883, No. 16,137.



Claim.—A whip-hanger consisting of the thin metal shear-blades A A, bent outward at the top, and pivoted together by a screw, *b*, at their center, to a block, ring, or equivalent device to hold it, and provided with projection *a*, operating-spring D, and pins F F, substantially as and for the purpose specified.

318,021. GOVERNOR FOR AUTOMATIC BRAKES. GEORGE H. POOR, St. Louis, Mo., assignor to the American Brake Company, same place. Filed Oct. 13, 1884. (No model.)

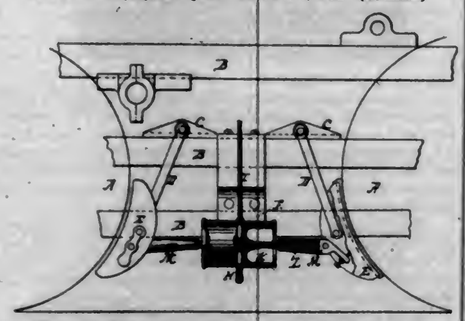


Claim.—1. In a governor for an automatic brake, the combination of a collar fixed to the axle, a collar movable along the axle and having radial flanges, and weighted arms pivoted at one end on the fixed collar and to the movable collar by a pin or pins movable in guideways in the radial flanges, substantially as and for the purposes specified.

2. In a governor, the combination, with a collar fixed to the axle, and centrifugal arms pivoted on the fixed collar and provided at the opposite ends with projecting pins, of a sliding disk composed of two or more sections, each section having radial slotted flanges for the reception of the pins on the centrifugal arms, substantially as and for the purposes specified.

3. The combination, with the pivoted governor-arms having the slots for the reception of the free ends of the springs, of the leaf or bow springs bearing upon such arms, substantially as described.

318,022. MEANS FOR RELIEVING CYLINDERS OF WATER OF CONDENSATION. GEORGE H. POOR, St. Louis, Mo., assignor to the American Brake Company, same place. Filed Dec. 9, 1884. (No model.)



Claim.—1. The combination, with a cylinder having an automatic steam-seated drip-valve, of two opposite and impacting pistons, one of which has a projection on its face to form a steamway leading to the drip-valve, substantially as and for the purposes specified.

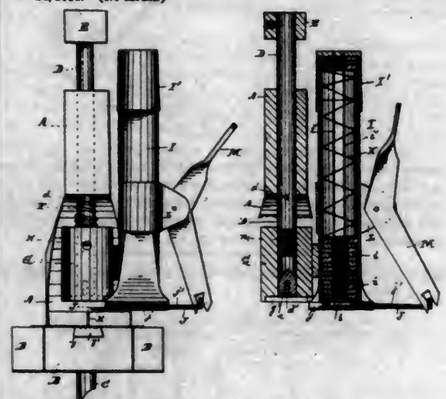
2. The combination, in an automatic drip-valve, of the shell A, having the V-slots at its lower end, the valve having the radial wings on its stem, and the spiral spring arranged within the shell and encircling the valve-stem, substantially as and for the purposes specified.

318,023. FIRE AND WATER PROOF ROOF. MOSES W. POWELL, Chicago, Ill. Filed Jan. 27, 1885. (Model.)



Claim.—The herein-described roof, composed of one or more layers of dry felt, two or more of saturated felt cemented together, a layer or coating of actinolite cement, and a covering of tile or its equivalent laid with spaces filled with marmolite cement, substantially as specified.

318,024. MACHINE FOR ATTACHING BUTTONS TO GARMENTS. RICHARD J. POWELL and WILLIAM F. NOLAN, Evansville, Ind. Filed Mar. 24, 1885. (No model.)



Claim.—1. The combination of supporting-arm A and base B, having slot *b*, slide *b'*, and metal plate *c*, having narrow slot *c'*, with rod C, cross-piece E, and plunger D, having pin *d*, spiral spring F, piece G, having longitudinal opening *g*, circular recess *g'*, and transverse piece *d'*, as described, and for the purposes set forth.

2. In a button-fastening machine, the piece G, having circular recess *g'*, in combination with cylinder I, having cap I', provided with rods *i'*, and spiral spring K, as described, and for the purposes set forth.

3. In a button-fastening machine, the combination of cylinder I and bracket L with lever M, and slide J, having spring *j''*, provided with flange *j'''*, as described, and for the purposes set forth.

318,025. ARTIFICIAL COASTING OR SLEDDING COURSE. JOSHUA PUSEY, Philadelphia, Pa. Filed Jan. 21, 1884. (No model.)

Brief.—Two continuous ways having inclined endless belts forming a continuation of the way near their ends, upon which the vehicles run and are carried on up. The vehicles are provided with devices for preventing their running backward, and with spring-brakes, steering-bar, and trip-registering devices.

Claim.—1. An artificial coasting course or rink consisting of a series of longitudinal ways, each of the series being made up of two continuous inclined ways ascending in opposite directions from their junction and connected at the adjacent summits by common platforms, in combination with the mechanism for carrying the sleds or carriages over the summits, the summits being of substantially the same height, substantially as specified.

2. In combination with an artificial coasting-course consisting of a series of trackways, each of the series being composed of two continuous ways ascending in opposite directions from their junction, means, substantially as described, for conveying the coasters or sleds on up beyond the point to which they are carried by the momentum acquired in descending the opposite incline to the summits of the trackways, substantially as set forth.

3. In combination with a coasting-course consisting of a series of trackways, each of the series consisting of two continuous ways ascending in opposite directions from their junction, endless moving belts or carriers located at alternate ends of the several series, whereby the sleds are adapted to run upon said belts by the momentum acquired in descending the one incline, and by which belts the sleds are conveyed on up to the

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top of the opposite incline of the series, substantially as and for the purpose stated.

4. In combination with an artificial coasting course or hill, an inclined moving belt or carrier arranged with relation to said hill, so that the sleds are adapted to run upon said belt after having descended the hill and be retained thereon by friction and carried up thereby, substantially as and for the purpose described.

5. In an artificial coasting-course composed of a series of continuous double hills, inclined endless belts or carriers at and near the alternate ends of each of the several series, the upper sides of said belts being practically a continuation of the hill, together with suitable motive power for imparting motion to said belts, substantially as and for the purpose recited.

6. The combination, with the coasting-course, of the endless belts, the sprocket-wheels, the cross-bars secured to said belts, and the guideways in which said bars slide, all constructed and operating in the manner and for the purpose substantially as described.

7. The combination of the coasting-hills, the elevators, and the inclines I, substantially as and for the purpose described.

8. The combination, with the coasting-hills provided with the endless belts or carriers, of the lateral footways L, separated from or elevated above the main tracks and communicating with the summits of the hills, substantially as and for the purpose set forth.

9. In combination with a coasting-course provided with the endless belts or carriers, as described, a sled or coasting-vehicle provided with automatic devices, substantially as shown, for preventing the sled from running backward under the circumstances mentioned, as and for the purpose set forth.

10. The combination, with the sled or coasting-vehicle, of the tapering box *r*, ball *u*, and wheel *w'*, substantially as andfor the purpose recited.

11. In combination with the sled provided with the turn-wheel and steering-bar, the openings O in front of said bar, substantially as and for the purpose specified.

12. In combination with the sled, the lateral spring-controlled brakes, constructed and operating substantially as and for the purpose specified.

13. In combination with the artificial coasting-course, the wheeled coasting-vehicle having rubber-tired wheels, and means, substantially as described, for preventing said wheels from running backward, substantially as and for the purposes set forth.

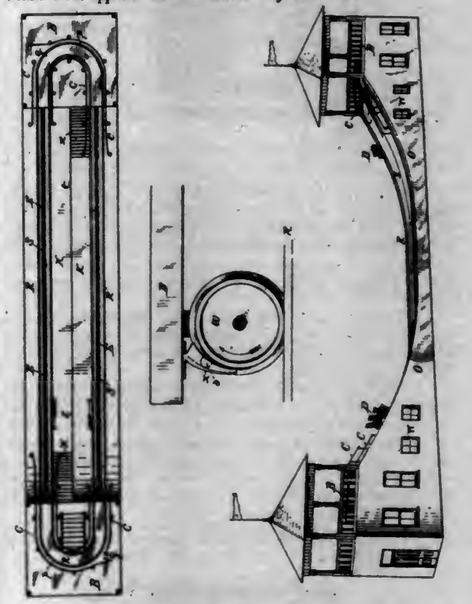
14. The combination, with a sled or coasting vehicle, of a gravity-operated trip-registering device attached thereto, constructed and adapted to operate substantially as described.

15. The combination, with the sled, of the ratchet or dial wheel, the swinging pendant having a pawl, as *p p'*, adapted to engage with the teeth of said wheel and to actuate the same at intervals, as stated, all constructed and operating substantially as and for the purpose set forth.

16. The combination, with the sled, of the ratchet counter-wheel, pawl *p p*, swinging pendant J, pawl *p p'*, and lateral stops *l*, substantially as and for the purpose specified.

318,026. ARTIFICIAL COASTING-COURSE. JOSHUA PUSEY, Philadelphia, Pa. Filed July 24, 1884. (No model.)

Brief.—The cars which travel on the inclined ways are provided with a stop device consisting of an inclined box inclosing part of the periphery of one wheel and containing a ball which prevents the wheel from running backward. Hand-rails are extended a short distance from the stations along the track in such proximity that the passengers may pull the car up thereby without leaving their seats. Each car is provided with a brake applied within an inclosed way in the track.



Claim.—1. The combination of the longitudinal trackways arranged to form inclines ascending in opposite directions, the end platforms of substantially the same altitude or in the same horizontal plane, the cars or coasting-vehicles, and means for preventing the same from running backward down the inclines, all substantially as and for the purpose set forth.

2. In combination with a railway having inclines ascending in opposite directions, the hand-rails C, substantially as and for the purpose specified.

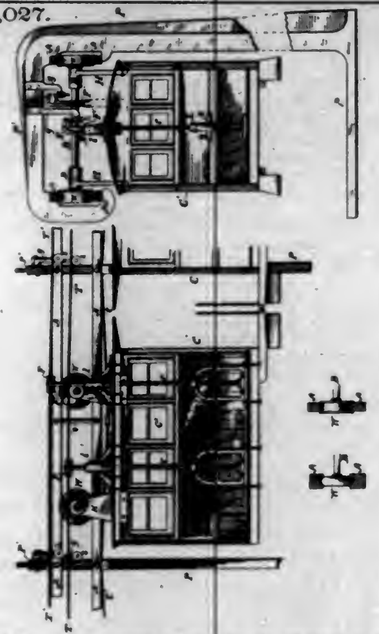
3. The combination, with a coasting-trackway, of the car or vehicle and the inclined box or boxes and ball or balls contained therein, all constructed and adapted to operate substantially as and for the purpose recited.

4. The combination of the longitudinal double trackway arranged to form inclines ascending in opposite directions, the end platforms, the cars, and automatic stop devices, all constructed and adapted to operate substantially as and for the purposes set forth.

318,027. TRACTION ELEVATED RAILWAY. WILLIAM PYLE WILMINGTON, Del. Filed Feb. 15, 1883. (No model.)

Brief.—Cars suspended from axles of wheels which travel rails supported by overhanging posts are propelled through independent gripping devices by cables traveling at different speeds, whereby to start the car the slow cable is grasped and then the fast cable.

318,027.



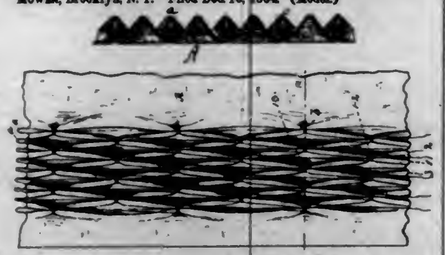
Claim.—1. In an elevated railway, the rails supported by overhanging posts, the car or dummy suspended below the rails from the axles of the wheels, the adjacent endless parallel cables driven at different speeds, together with suitable independent grippers connected to said car or dummy, for gripping and releasing either cable at will, all combined, constructed, and adapted to operate substantially as and for the purposes set forth.

2. The combination, with a car, of the adjacent parallel cables driven at different rates of speed, together with independently-operating gripping and releasing devices connected to said car, substantially as and for the purposes described.

3. The combination of a fast and a slow moving cable with a car running upon a track, and independent gripping devices for connecting the car with either cable, substantially as and for the purpose described.

4. The improvement in propelling cars, consisting in first connecting the same by a gripping device, substantially as described, with a slow-moving cable to start the car, and afterward releasing said gripper from the slow-moving cable, and then gripping the fast-moving cable, substantially as and for the purposes set forth.

318,028. TEXTILE TRIMMING. HENRY F. QUINT and JOHN H. MOWEN, Brooklyn, N. Y. Filed Dec. 16, 1884. (Model.)



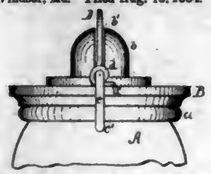
Claim.—1. A trimming made of textile fabric formed into folds, each fold being attached to adjacent folds upon the back of the trimming at alternate points and the goods extended, whereby alternate folds are left intact and alternate folds are straightened out to produce puffs and depressions in two directions, as set forth.

2. A fabric or trimming composed of a textile fabric bent upon itself to form folds, the folds thus formed being each attached to the adjacent fold at regular alternate points upon opposite sides, as set forth.

3. A trimming formed of textile fabric, the said fabric being arranged into regular folds, as 1 2 3, and stitched at points, as 1 2 and 1 3, as set forth.

4. The fabric or trimming described, consisting of the body A, formed into folds *a*, and secured at points, as shown, by threads *b*, the whole being adapted to be extended and secured upon a proper base, as and for the purposes set forth.

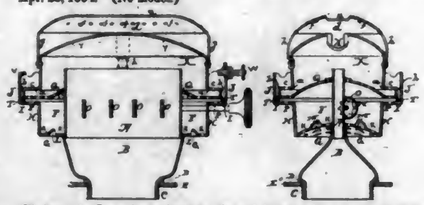
318,029. TOP FOR FRUIT-JARS. EPHRAIM B. REPP and GEORGE H. BROWN, New Windsor, Md. Filed Aug. 13, 1884. (No model.)



Claim.—1. A top for jars, consisting of the main body B, notched at b^2, and provided with a knob, *b*, notched centrally at *b'*, in combination with the wire C, having downward projections *c*, and hooks *c'*, and a bail, D, coiled around the wire C, and provided with straight ends *d'*, for the purpose set forth.

2. In combination with the jar A, having rim *a*, provided with notches *a'*, the top B, having notches b^2, and centrally-slotted knob *b*, the wire C, having downward projection *c* and hooks *c'*, and the bail D, coiled around the wire C, and having straight ends *d'*, for the purpose set forth.

318,030. LAMP-BURNER. ELIAS B. REQUA, Jersey City, N. J. Filed Apr. 23, 1884. (No model.)



Claim.—1. In a lamp-burner, the wick-tube, in combination with a flame-dome and the encircling-bowl F, the base of which is provided with openings L and deflectors M, substantially as set forth.

2. A lamp-burner consisting of the bowl F, encircling the wick-tube, and composed of the perforated base, wall H, horizontal portion I, and flange J, in combination with the foraminous plate Q and dome X, an air-passage being provided at the base of the latter for permitting the entrance of the air into the chimney, substantially as set forth.

3. A lamp-burner consisting of the bowl F, inclosing the wick-tube A and box N, which covers the wick-raising wheels O, in combination with the dome X, the bowl F being provided with apertures for the passage of air, and an air-passage at the base of the dome being also provided to permit the entrance of air into the chimney, and the bowl and dome being substantially in line with each other, as and for the purposes described.

4. In a lamp-burner, the combination of the wick-tube, bowl F, having a perforated base and perforations P, foraminous plate Q, and dome X, having perforations *c*, the vertical walls of the bowl and dome being substantially in line with each other, as described.

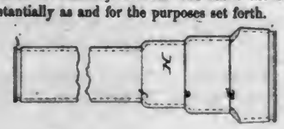
5. In a lamp-burner, the combination of the wick-tube, the bowl F, consisting of perforated base G, wall H, perforated portion I, and flange J, the foraminous plate Q, having flange T, the dome X, whose vertical walls are in line with those of the bowl F, and having the perforated chimney-support *a* and flange *b*, substantially as specified.

6. A lamp-burner consisting of the bowl F, inclosing the wick-tube and composed of the perforated base, walls H, horizontal portion I, and flange J, in combination with the foraminous plate Q, having the flange T, and the dome X, having the flange *b*, the said dome and bowl being in line with each other, as described.

318,031. LAMP-CHIMNEY. ELIAS B. REQUA, Jersey City, N. J. Filed Apr. 23, 1884. (No model.)

Claim.—1. A lamp-chimney which is oval in cross-section, and is provided with the deflector d^2 adjacent to the base of the flame, and the deflector *e*, at a point adjacent to the upper part of the flame, the deflector d^2 diminishing in depth toward the end walls of the chimney, substantially as and for the purposes set forth.

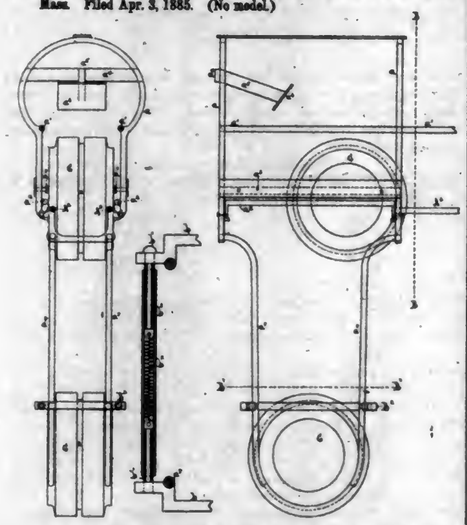
2. A lamp-chimney having a deflector, d^2, adjacent to the base of the flame, and a deflector, *e*, at a point adjacent to the top of the flame, those portions of the chimney between and above the deflectors being vertical, substantially as and for the purposes set forth.



318,031.



318,032. CASH-CARRYING APPARATUS. DAVID H. RICE, Lowell, Mass. Filed Apr. 3, 1885. (No model.)



Claim.—1. In combination with the track and a cash-carrier adapted to traverse the same, a trap or space adapted to allow the carrier to fall downward through it, and a receiver formed of two or more opposite elastic sides graduated to check the carrier in its descent between them toward its lower end, substantially as described.

2. In combination with the track and a cash-carrier adapted to traverse the same, a trap or space adapted to allow the carrier to fall downward through it, and a receiver formed of two or more opposite elastic sides curved inward at or near their lower ends to arrest and hold the carrier between them and allow it to be withdrawn downward, substantially as described.

3. The combination of the track, a trap-section adapted to be normally open to allow certain carriers to fall through the same, and to be closed to allow certain other carriers to pass over the same, the cash-carrier adapted to traverse said track, and a receiver provided with two or more opposite elastic sides graduated to check the carrier in its descent, between them, substantially as described.

4. The combination of the track, a trap or opening therein, the cash-carrier adapted to traverse said track, and the elastic depending rods, a^7 a^7 beneath said opening, graduated to press upon and check the descent of the carrier falling between them without entirely arresting such descent, substantially as described.

5. The combination of the track, the trap or opening therein, the cash-carrier adapted to traverse said track, and the yielding depending rods a^7 a^7 beneath said opening, curved inward at or near their lower ends sufficiently to arrest the descent of the carrier falling between them, and allow it to be withdrawn from between them downward by hand, substantially as described.

6. The combination of a track provided with a trap or opening, the cash-carrier adapted to traverse said track and pass through said opening, and the deflector a^8, placed in the path of said carrier, prolonged beyond the break in the track, and adapted to be struck by the carrier and to deflect it from its course over said track downwardly into said trap, substantially as described.

7. The combination of the track provided with a trap-section adapted to be opened to allow certain carriers to fall through the same, and to be closed to allow certain other carriers to pass over the same, the carrier adapted to traverse said track, and the movable deflector a^8, adapted to be automatically moved out of and into the path of the carrier by the spline A^7, lying in said path in advance of the deflector, and suitable connecting devices conveying the motion of said spline to said deflector, substantially as set forth, as and for the purpose described.

8. The combination of the track adapted to allow a carrier to traverse it, and provided with the trap or opening in the same, the yielding rods or straps a^7 or a^8, forming opposite frictional faces of the receiver and attached beneath the said opening, and the springs b^2 b^2, connecting the said opposite frictional faces outside the path of the carrier in descending between them, substantially as described.

9. In combination with the upper track, A^2, the lower track, A^3, the opening or trap in said upper track, and a counterweighted rising and falling bar, c^3, extending transversely between the tracks and in the path of the carrier falling through said trap, and adapted to check the descent of the same in passing from one track to the other, substantially as described.

10. The combination, with the track A^2, of a conduit leading upon the same from above, formed of the side guides, c^3 c^3, the front guide, c^4, having its lower end a sufficient distance above the track to allow a carrier to pass between them, and one or more rear guides, c^5, and the counterweighted rising and falling bar c^3, crossing said conduit transversely of the track and above the latter, and adapted to be struck by the carrier falling through said conduit and check its descent and deliver it upon the track, substantially as described.

11. The combination of the track A^2, the track A^3, the conduit formed of the side guides, c^3 c^3, and the front guide, c^4, and the vertically rising and falling bar c^3, extending transversely across between said tracks and at such a distance horizontally from the front guide, c^4, as to be adapted to support the carrier beneath it and upon the opposite side of its center of gravity from said front guide, substantially as described.

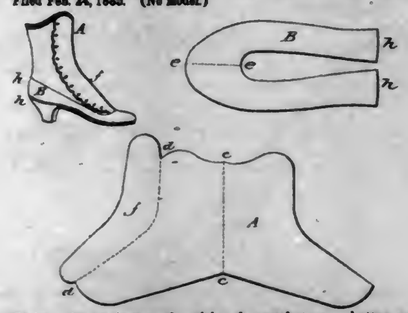
12. In combination with the carrier C, provided with an axial chamber through it, a cash-box formed of two cups, c^2 c^2, pivoted in the wheels or disks c^3 c^3, and fitting one within the other, substantially as described.

13. The combination, in the carrier C, of the pivoted cup c^2, formed with the enlargement c^6, and the pivoted cup c^2, fitting within the other and formed with the corresponding elastic enlargement c^6, substantially as described.

14. The combination, with the carrier C, of the wheels c^3 c^3, fitted on each side of the carrier into cavities in the carrier and capable of rolling therein, and the cup c^2, attached to the wheel c^3, and the cup c^2, attached to the wheel c^3, and fitting the one into the other and forming a closed box or receptacle capable of revolving either with or independently of said wheels in the axial chamber in the carrier, substantially as described.

15. The combination of the track, a movable trap therein adapted to be opened to allow certain carriers traversing said track to fall through the same, and to be closed to allow certain others of such carriers to pass over the same, and a movable deflector, a^8, adapted to be moved into or out of the path of said carriers, and suitable connecting devices, substantially as set forth, between said deflector and the spline A^7, located in the path of the carrier, adapted to transmit the motion of the latter to said deflector and move the same into or out of the path of the carrier with the opening or closing of said trap, substantially as described.

318,033. BUTTON-GAITER. PETER J. RUETZEL, New York, N. Y. Filed Feb. 24, 1885. (No model.)



Claim.—As an improved article of manufacture, a button-gaiter formed from the patterns or blanks A and B, the former constructed with an extension, *f*, for the button-fly and crimped on the lines *c e d d*, and the latter consisting of the vamp portion and the side extensions, the two parts united together, as described, and attached to the sole and heel in any well-known manner.

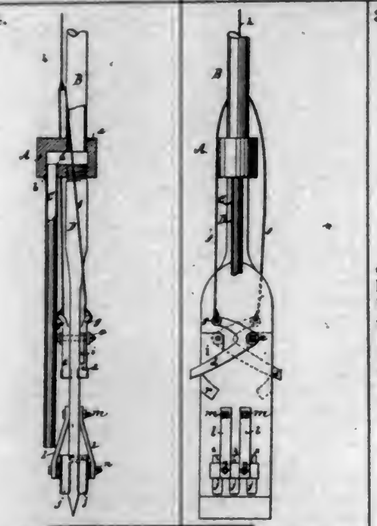
318,034. TOOL FOR BORING WELLS. HENRY C. SAFFORD, Brooklyn, N. Y. Filed Sept. 11, 1884. (No model.)

Claim.—1. The combination, substantially as hereinbefore described, with the drill D, of the cleaning-pipes B C and the coupling A.

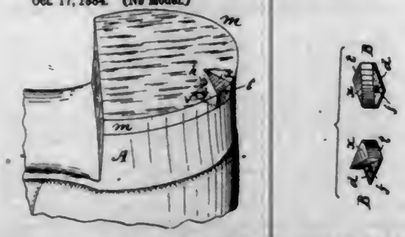
2. The combination, substantially as hereinbefore described, with the drill D, of the disintegrating-tubes *j j*.

3. The combination, substantially as hereinbefore described, with the drill D, of the cleaning-pipes B C and the disintegrating-tubes *j j*.

318,034.

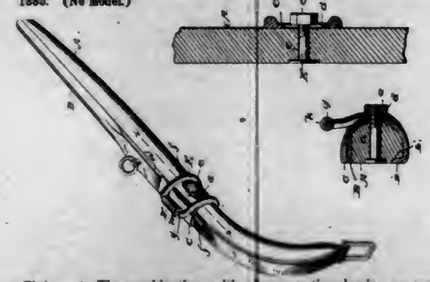


318,035. HEEL-PROTECTOR. ISAAC R. SANFORD, Boston, Mass. Filed Oct. 17, 1884. (No model.)



Claim.—A boot or shoe heel protector consisting of a triangular body pointed at its inner end and rounded at its outer end, said body being provided at its lower side with a laterally-projecting flange having a hole for receiving the rivet by which the protector is attached to the lift of the heel, substantially as set forth.

318,036. HAME. HENRY C. SARGENT, Machias, Me. Filed Mar. 7, 1885. (No model.)



Claim.—1. The combination, with a hame-section having a recess, and a facing of metal fitted therein, of a plate having an inwardly-extending lip, D, fitting a recess, *b*, in the hame, a loop, and means, substantially as described, whereby the plate may be vertically adjusted.

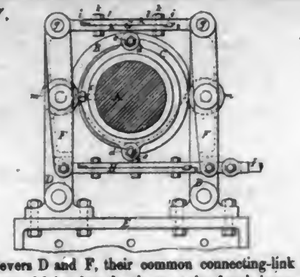
2. The combination, with a hame-section, of a plate carrying a loop and having an inwardly-extending lip, D, a bolt, E, fitted in a passage in said section, and having its head located in a countersunk opening, said bolt engaging the plate C, and a nut to engage said bolt, as set forth.

3. The combination, with a hame-section, of a plate or clamp having an inwardly-extending lip or flange, and an elongated slot, and a bolt and nut, substantially as set forth.

318,037. MECHANISM FOR OPERATING SLIDE-VALVES. JOHN W. SARGENT, Cambridge, Mass. Filed Nov. 24, 1884. (Model.)

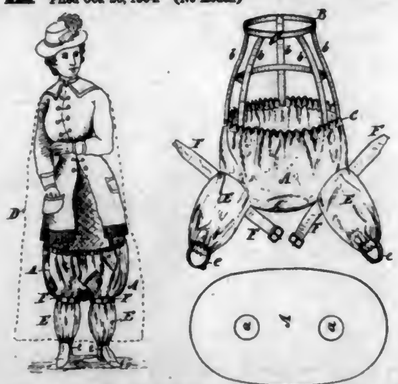
Claim.—The valve cut-off motion or operative mechanism, substantially as described, consisting of the two cams B and C, the two pairs

318,037.



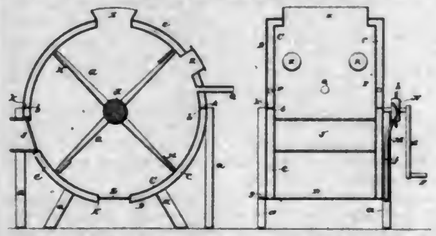
of vibratory levers D and F, their common connecting-link G, and the link H, joining and jointed to the shorter pair of such levers, such cams being applied to the shaft A, and the levers D being fulcrumed at or near their lower ends, and all being adapted in manner to operate essentially as represented.

318,038. SKIRT-PROTECTOR. ANNIE E. SAWYER, Charlestown, Mass. Filed Oct. 20, 1884. (No model.)



Claim.—A dress or skirt protector composed of the body A, made from a single piece of material and gathered by an elastic cord or tape at the upper edge, the leggins E E, attached to the body A, and provided with the straps F F, and elastics at the lower ends, the straps *b b*, and the waistband B, all substantially as and for the purpose set forth.

318,039. FEATHER-RENOVATOR. FRIEDRICH SCHACH and WILHELM STELTER, Sedalia, Mo. Filed Oct. 11, 1884. (No model.)



Claim.—1. In a feather-renovator, the combination, with a drum and a rotary fan located within said drum, of a reciprocating sieve located in the bottom of the drum and devices connecting the sieve with the fan-shaft, whereby the fan and sieve are operated simultaneously.

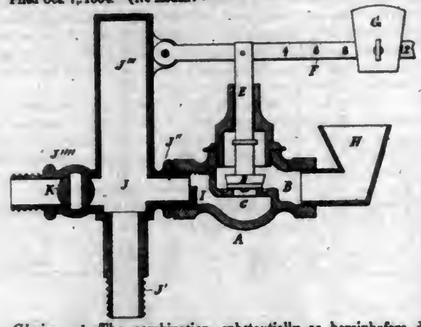
2. In a feather-renovator, the combination, with a drum, a steam-boiler communicating therewith, and a fan located within the drum, of a reciprocating sieve located at the bottom of the drum and devices connected with the fan-shaft for reciprocating the sieve, substantially as set forth.

3. The combination, with a drum having double walls, a boiler communicating with the interior of the drum and with the space between the walls, and a fan located within the drum, of a reciprocating sieve, a lever connected with the sieve and operated by the fan-shaft for moving the sieve in one direction, and a spring for moving the sieve in the opposite direction, substantially as set forth.

4. The combination, with a drum, of a fan secured to a shaft passing through the drum and a sieve secured to a rod pivoted to the main frame, the upper end of the rod being curved and engaging pins on a wheel secured to said shaft, substantially as set forth.

5. The combination, with a drum having a shaft passing through it, of a sieve, one end of which is secured to a spring fastened to the main frame, a rod pivoted to the main frame, and having its lower end secured to the sieve and its upper end curved, and a wheel secured to the shaft and provided with pins engaging the curved end of said rod, substantially as set forth.

318,040. SAFETY-VALVE FOR BEER-CASKS. JOHN C. SCHAEFER, New York, N. Y., assignor to himself and John A. Hagmeyer, same place. Filed Oct. 7, 1884. (No model.)

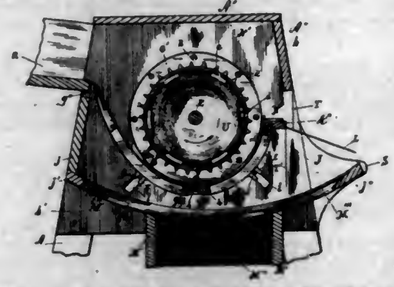


Claim.—1. The combination, substantially as hereinbefore described, with the valve-shell, the valve-seat, and the weighted valve-disk, of the lubricating cup or vessel connected to the valve-shell, for the purpose set forth.

2. The combination, substantially as hereinbefore described, with the valve-shell, the valve-seat, and the weighted valve-disk, of the lubricating cup or vessel connected to the outlet-orifice of the valve-shell.

3. The combination, substantially as hereinbefore described, with the valve-shell, the valve-seat, and the weighted valve-disk, of the dam or gate arranged in the inlet-orifice of the valve-shell, for the purpose set forth, and the lubricating cup or vessel connected to the valve-shell.

318,041. CORN-SHELLER. SILAS C. SCHOFIELD, Freeport, Ill. Filed Apr. 14, 1884. (No model.)



Claim.—1. The combination of the shelling-cylinder B, concaves *g' g*, connected by the bars *g''' g''* and projections *h*, substantially as described and shown, rods *f*, and springs *k*, pressing said concaves inward toward the shelling-cylinder, the heads O O', and rods R, forming a cage concentric with the cylinder B, but outside thereof, and means for rotating said shelling-cylinder and for rotating said cage in the same direction as the shelling-cylinder, but at a slower rate of speed.

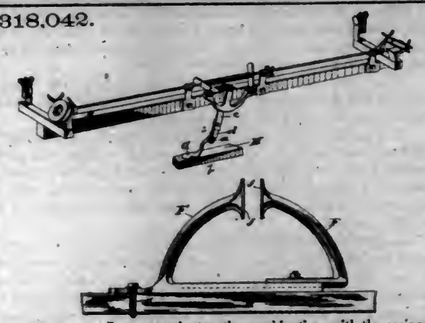
2. The combination of the shelling-cylinder B, the concaves *g' g*, rods *f*, and rings *m*, formed integrally therewith, bolts *o*, bearings *l*, springs *k*, and nuts *n*, combined and operating substantially as set forth, whereby the ends of said concaves are independently adjustable with reference to the surface of the shelling-cylinder.

3. The combination of the feeding and shelling mechanism shown and described, the frame M M' *j' j''*, partial screen-bottom M'', and screen-bottomed discharge-spout M', substantially as shown and described, and for the purpose set forth.

4. The combination of the feeding and shelling mechanism shown and described, a screen-bottom having a central opening extending from end to end of the sheller and beneath the shelling-cylinder, and a screen-bottomed discharge-spout lying beneath said opening and adapted to clean as well as discharge the shelled grain, substantially as shown and described, and for the purpose set forth.

318,042. CHECK-ROW ATTACHMENT FOR CORN-PLANTERS. L. SCOFIELD, Grand Haven, Mich., assignor to the Challenge Corn Planter Company, same place. Filed Nov. 25, 1884. (No model.)

318,042.



Claim.—1. In a corn-planter, the combination, with the reciprocating slide-bar or seed-slide and the vibrating part of a check-row attachment, of adjustable stops mounted upon and moving with the slide-bar, and co-operating with the vibrating part of the check-row attachment, whereby by setting the said stops against the vibrating part of the check-row attachment when said vibrating part and the seed-slide are at their extremes of movement in both directions the proper action of the seed-slides is insured, substantially as described.

2. In a corn-planter, the combination, with the slide-bar, of an adjustable bracket mounted on the slide-bar, and a second adjustable bracket adjustably mounted on the first-mentioned bracket, and having its bearing-face that constitutes one of the stops or bearings for the pin of the check-row attachment adjustable with reference to the face of the other bracket that constitutes the opposite bearing for said pin, substantially as described.

318,043. MANUFACTURE OF COMPOSITE PAVEMENT. JAMES P. SCOTT, Philadelphia, Pa., assignor to the American Artificial Stone Pavement Company, (Limited,) same place. Filed Mar. 21, 1885. (No specimens.)

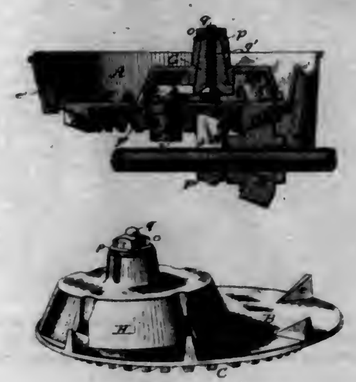
Claim.—1. A composite or wearing surface for a pavement or other analogous use, composed of Portland or other natural cement containing silicate of calcium and alumina thoroughly mixed with any hydraulic limestone that contains or is composed of calcium, alumina, and silica broken or crushed into small cubes or pieces, substantially as set forth.

2. The herein-described mode of making an artificial stone for pavement and other analogous use, consisting in breaking or crushing into small cubes or pieces natural hydraulic limestone which contains or is composed of calcium and alumina, and adding thereto Portland or other natural cement containing silicate of calcium and alumina, and thoroughly amalgamating the same with sufficient water to reduce the mixture to a plastic state, and molding or spreading the same over a suitable foundation as a wearing-surface, substantially as described.

318,044. PROCESS OF GRINDING CAUSTIC SODA. CONRAD SIEMER, Philadelphia, Pa. Filed Mar. 23, 1885. (No specimens.)

Claim.—The hereinbefore-described improvement in the process of grinding or triturating caustic soda or caustic alkali at ordinary temperatures, which improvement consists in adding to the broken mass of caustic soda ground salt-cake or dried sulphate of soda, and grinding and bolting the mixture, substantially as and for the purpose described.

318,045. FERTILIZER-DISTRIBUTER. RICHARD B. SHELDON and JOSEPH V. PEACOCK, Shortsville, assignors to the Crown Manufacturing Company, Phelps, Ontario County, N. Y. Filed Mar. 5, 1885. (Model.)



Claim.—1. The herein-described fertilizer-distributer, consisting of shell or cup A, provided with bridge F, rotary disk B, crank-arm G, provided with cross-pin *k*, and rotary scraper H, mounted upon the upper stem of said crank-arm, substantially as set forth.

2. In combination with a cup or case, A, provided with bridge F, having a central socket provided with abutment *j*, and grooves *l*, crank-arm G, provided with lugs *i*, and cross-pin *k*.

3. The combination, in a distributer, of a cup or case, a bridge beneath said case having a central hole or socket provided with vertical grooves, a crank-arm having a downwardly-turned post provided with a cross-pin, a rotary disk seated within the cup and encircling said post, and a rotary scraper mounted on an upright post of the crank-arm, substantially as shown.

4. In a fertilizer-distributer, the combination of a cup having a bridge across its under side provided with a central socket having grooved walls, a rotary feed-disk seated in said cup, a rotary scraper, and a crank-arm having a downwardly-turned post at one end passing through the feed disk and bridge and provided with a cross-pin, and an upright post at the opposite end bearing the scraper, substantially as described.

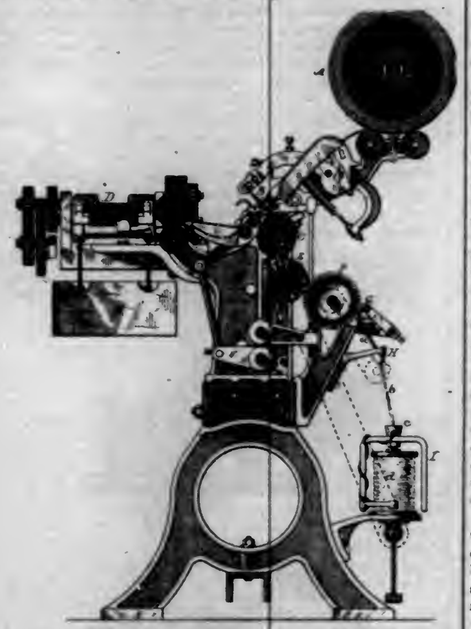
5. In a fertilizer-distributer, substantially such as described, the combination of a cup formed with a bridge having a grooved socket, a rotary feed-disk within said cup, a rotary scraper, and a crank-arm for supporting the scraper and holding the feed-disk in place having a supporting-post provided with a cross-pin, said post being adapted to turn a limited distance within its socket to bring the cross-pin into or out of line with the grooves thereof, substantially as and for the purpose set forth.

6. In a fertilizer-distributer, the combination of a cup or shell, A, a rotary disk, B, provided with ribs or teeth *e*, and a rotary scraper, H, provided with notches to receive the ribs or teeth *e*, the spaces between the teeth and between the notches being materially wider than the teeth and the notches themselves.

7. The combination, substantially as described and shown, of a cup or shell, a rotary disk having ribs or teeth on its upper surface, a rotary scraper acting in combination therewith and notched to receive the teeth of the disk, the disk and the scraper being respectively formed with extended feeding and scraping surfaces between their teeth and notches, as and for the purpose explained.

318,046. COMBING-MACHINE AND METHOD OF WORKING SHORT COTTON DELIVERED THEREFROM. CHARLES W. SIMMONS, Providence, R. I., assignor to William C. Wood, Washington, D. C. Filed Jan. 27, 1883. Renewed Feb. 6, 1884. (No model.)

Brief.—The short cotton is doffed from the combing-cylinder, and by means of a condenser and drawing-rolls is concentrated laterally and wound, under trifling tension, upon a flier, from which it may be subjected to operations preliminary to spinning.



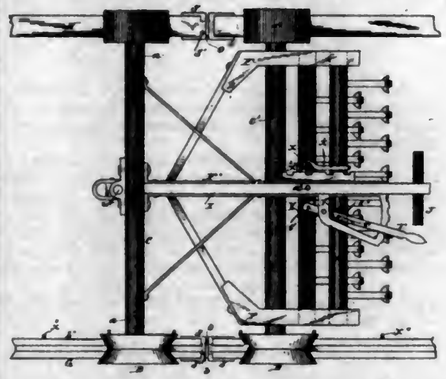
Claim.—1. The combination, substantially as hereinbefore described, of cotton-combing mechanism, a doffer-cylinder for receiving the short cotton rejected by the combing devices, a comb for clearing a web of short cotton from said cylinder, and a condensing device for laterally concentrating said web into a sliver, as and for the purposes specified.

2. The combination, substantially as hereinbefore described, of cotton-combing mechanism, a doffer-cylinder receiving short cotton rejected by the combing devices, a comb for clearing a web from said cylinder, a condensing device for laterally concentrating said web into a sliver, and mechanism, substantially as described, for conveying and coiling said sliver into a condition suitable for subsequent workings preliminary to spinning.

3. The combination, substantially as hereinbefore described, of two or more cotton-combing heads, their doffer-cylinders and combs, a web-condensing device for each cylinder, and doubling mechanism common to all the combing-heads, substantially as described, whereby slivers of short cotton are delivered from each doffer-cylinder and the several slivers condensed into one sliver, as set forth.

4. The method of working short cotton rejected by cotton-combing machines, substantially as described, which consists in directly concentrating a web of said cotton into a sliver in the combing-machine and coiling the same into condition suitable for spinning purposes without carding or other reworking, as set forth.

318,047. GARDENING-MACHINE. JOSEPH G. SMITH, Kinderhook, Ill. Filed Dec. 13, 1884. (No model.)



Claim.—1. The combination, with a guide or carrying rail having a row of removable pins projecting laterally from said rail, of a gardening-machine carrying the seed-box, and a lever, x^4, connected with the seed-slide and adapted to be struck by the pins, substantially as specified.

2. The combination, in a gardening-machine having a seed-box secured to the rear end thereof, of a guide and carrying rail and a lever adapted to strike in succession the row of pins placed in the side of the said carrying-rail, substantially as specified.

3. The combination, with a guide or carrying rail having projections fitted to or formed thereon, of a gardening-machine having its seeding devices arranged to be operated by the said projections to drop the seed at regular distances or intervals, as and for the purpose set forth.

4. The combination, with the posts set in the ground and guide and carrying rails supported on said posts, of a gardening-machine having its wheels running on the rails and provided with implements or devices to act upon the crop or soil between the rails, as set forth.

5. The combination, with the guide or track rails supported above the ground in parallel rows or lines, one set having plain faces and the alternate set having flanged faces, of a gardening-machine having plain wheels at one side and grooved wheels at the other side to correspond with the rails, said machine carrying implements or devices for acting upon the crop or soil between the rails, as set forth.

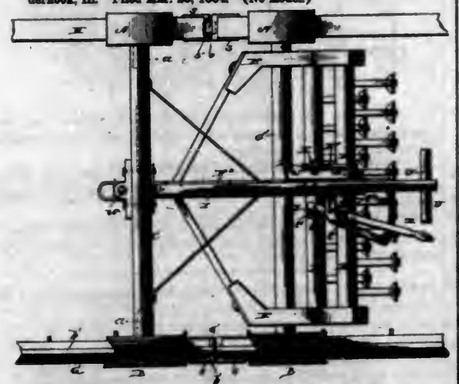
6. The combination, with the guide and carrying rails arranged across the garden or field so as to subdivide the latter into parallel rows, of the gardening-machine mounted on wheels at each side which run on the rails, and implements carried by the machine between the wheels to act upon the soil or crop between the rails, as and for the purpose set forth.

7. The combination, with the guide or track rails arranged across the field in parallel rows, of a gardening-machine mounted on two sets of wheels which run on said rails, the axle of the forward set of wheels being pivoted, and an attachment for the said pivoted or movable axle, so as to allow the turning of the machine on the rails when the end of the row is reached, as set forth.

8. The combination, with the guide or track rails arranged across the field in parallel rows, of a gardening-machine mounted on wheels running on the rails, one set having a rigid axle and the other set having a pivoted axle, and a handle connected with the latter and extending back toward the rear of the machine, so as to operate the axle and turn the machine on the rails, as set forth.

9. The combination, with the guide or track rails arranged in a series of sets or rows extending across the field, and each set comprising a plain rail and a flanged rail, of a gardening-machine having a double set of wheels correspondingly plain and grooved to run on the rails, said machine carrying implements or devices to act upon the soil or crop between the rails, as set forth.

318,048. SEED-DRILL AND CULTIVATOR. JOSEPH G. SMITH, Kinderhook, Ill. Filed Mar. 25, 1884. (No model.)



Claim.—1. In a gardening-machine, the combination, with the rods carrying the gangs of shovels or plows, and provided with the grooved blocks, of the handle-lever carrying pins to engage any one of the grooves on the blocks, so as to increase or diminish the longitudinal adjustment of the rods, as set forth.

2. In a gardening-machine, the combination, with the end bars of the frame and the central cross-piece, of the rods having shovels or plows attached thereto at suitable points of their length and arranged transversely of the machine and journaled in the end bars and central piece, blocks provided on the face of the rods and formed with two or more continuous grooves, and a handle-lever, pivoted as shown, and provided with pins to engage the groove so as increase or diminish the longitudinal adjustment of the rods, as set forth.

3. In a gardening-machine, the combination, with the frame, of the two rods fitted in openings of the latter and carrying shovels or plows, and a handle-lever arranged to engage with the rods, so as to shift one rod in one direction and the other in the opposite direction, and thus cause the plows or shovels of the forward rod to occupy the space between the plows or shovels of the rear rod, as set forth.

4. In a gardening-machine, the combination, with the frame, of the journaled rods carrying the shovels or plows, and a double lever having stirrups connecting with the rods, and arranged to rotate them simultaneously to elevate the plows, as set forth.

5. In a gardening-machine, the combination, with the frame, of the journaled rods carrying the plows or shovels, and levers attached to the rods, the forward lever having an operating-handle, and the rear lever clasping the handle of the forward lever and sliding vertically thereon, so that both rods are operated simultaneously and by the same movement, as set forth.

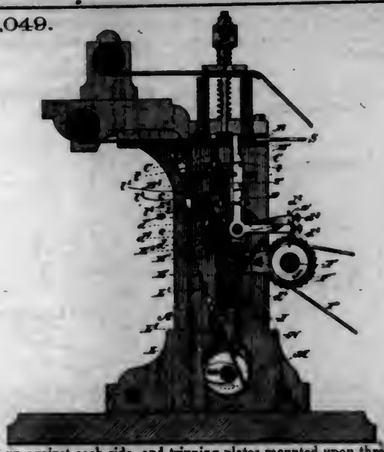
318,049. MACHINE FOR CUTTING MUSIC-PAPER FOR AUTOMATIC MUSICAL INSTRUMENTS. ROSWELL T. SMITH, Nashua, N. H. Filed Aug. 29, 1883. (No model.)

Claim.—1. The combination, with the cutting-punches arranged in double rank and alternated in the manner described, of operating devices, substantially as described, mounted upon a reciprocating support beneath said punches, and selecting-arms extending from the operating devices toward the front of the machine and carrying pins in their ends, the latter being alternated to correspond with the alternation of the punches, and a single stencil with which said pins engage, the relative arrangement of the longitudinal cuttings being the same as in a stencil used with a single rank of punches, substantially as described.

2. The combination, with cutting-punches arranged in two ranks and alternating with each other, of dogs mounted upon a reciprocating support and having similar arrangement, selecting-arms extending from said dogs toward the front of the machine, and a tripping-plate supported in front of each rank of dogs by a vertically-adjustable bar carried by a lever pivoted to the reciprocating support and vibrated by a cam on the main shaft, substantially as described.

3. The combination, with the parallel lever-arms having threaded ends, of a bar placed thereon and adjustably secured by nuts below and above, rods passing through perforations in said bar and having nuts

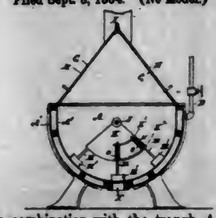
318,049.



turned up against each side, and tripping-plates mounted upon threaded portions of said rods and adjustably secured in place by nuts turned against both faces of said plates, substantially as described.

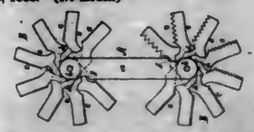
4. The combination, with the reciprocating support, of the dogs arranged in two ranks, the selecting-arms D′, having pins d^2, and extending toward the front of the machine, the arms of the rear rank being curved over the mountings of the front rank, and a single stencil, P, the arms D′ being of equal length, whereby the pins d^2 are alternated to correspond with the arrangement of the dogs, substantially as described.

318,050. OFFAL-DRIER. JOSEPH SPRATT, Victoria, British Columbia, Canada. Filed Sept. 8, 1884. (No model.)



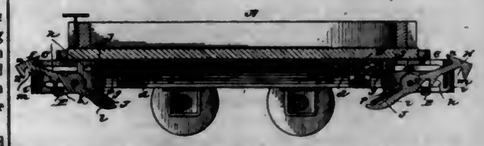
Claim.—In combination with the trough A, provided with inlet-pipe D and outlet-pipe D′, and constructed of double walls, the shaft J, carrying a series of quadrant-plates, K, provided with spiral springs N, boxes O, and arms M, having stirrers M′, as set forth, for the purpose described.

318,051. SCREW-THREAD GAGE. LEROY S. STARRETT, Athol, Mass. Filed Sept. 5, 1883. (No model.)



Claim.—The screw-thread gage, substantially as described, the same consisting of the handle A, made of two metallic strips, *a a*, side by side, and having the notches *f* at opposite sides at the ends, and the two series of blades B B, one series hinged at each end of the handle A, such blades having the teeth *c* on one edge and notched at *e* at the back, forming a reduced or narrowed portion where the teeth are, and having the notch *d* at the inner end of the teeth, all constructed and arranged as and for the purpose set forth.

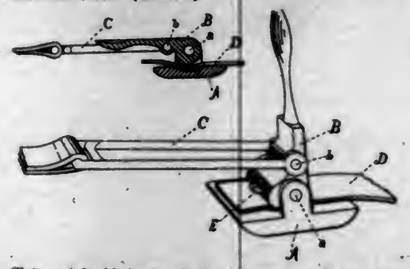
318,052. CAR-COUPLING. ISAAC L. STOVER, Centralia, Ill. Filed Jan. 21, 1885. (No model.)



Claim.—In a car-coupling, the combination, with a draw-head, of a pivoted coupling-bar having the arm *l* at its rear end provided with a

recess on its upper side, the head H, having the recess *n* on its under side, and an upwardly-extending end having an inclined front face, as set forth.

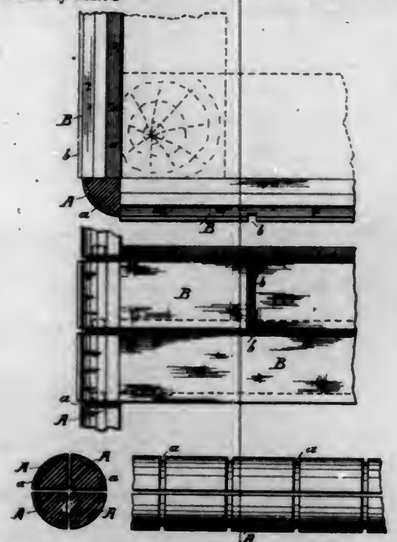
318,053. LEVER-BUCKLE. WINFIELD S. THURLOW, Boston, Mass. Filed Mar. 9, 1885. (No model.)



Claim.—A buckle having the base A, cam-lever B, and frame C, the cam-lever pivotally attached to the base and the frame pivotally attached to the lever, all substantially as set forth.

318,054. MANUFACTURE OF IMITATION BRICK WEATHER-BOARDING. PETER TOGLIO, Charleston, S. C. Filed Oct. 24, 1884. (No model.)

Brief.—Weather-boarding having additional grooves upon its surface corresponding in position to the joints of brick-work is given a primary coat of paint, covering also the bottom of said grooves. Then a roller supplied with paint of a different color is revolved upon the surface of the weather-boarding. The corner-strips of the form of the sector of a circle in cross-section provided with grooves upon its circumferential surface is similarly treated.

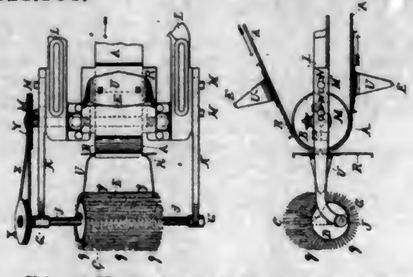


Claim.—1. In the manufacture of imitation brick weather-boarding, the herein-described process of first applying to weather-boarding having additional grooves upon its surface corresponding in position to the joints in brick-work, a priming-coat of paint, which also covers the bottom of the said grooves and gives them the appearance of mortar or cement joints, and then applying a thin and even coat of paint to the surface of the weather-boarding between the said grooves by revolving thereupon a roller supplied with paint, so that the said intervening surface is given the appearance of brick, substantially as described.

2. As an article of manufacture, the corner-strip A, forming substantially the sector of a circle in cross-section, and provided with the grooves *a* upon its circumferential surface, treated in imitation of brick-work by the process hereinbefore described and set forth.

318,055. DEVICE FOR CLEANING CUT-OFF WIRES OF BRICK-MACHINES. JOHN N. TIERNEY, Philadelphia, Pa., assignor to Cyrus Chambers, Jr., same place. Filed Dec. 23, 1884. (No model.)

318,055.

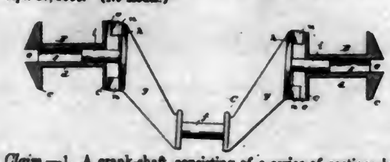


Claim.—1. The combination, with the cut-off wires, of a cleansing-brush constructed and arranged, with relation to said wires, substantially as and for the purpose specified.

2. The combination, with the cut-off wires, of the brush mounted obliquely to the path of said wires, substantially as and for the purpose described.

3. The combination, with the cut-off wires, of the brush, with means for adjusting the same with relation to the said wires, substantially as and for the purpose set forth.

318,056. CRANK-SHAFT. FULLER TRUMP, Springfield, Ohio. Filed Apr. 17, 1885. (No model.)

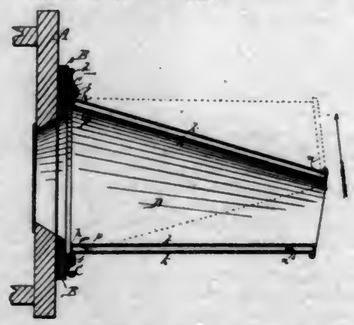


Claim.—1. A crank-shaft consisting of a series of sections loosely connected to turn together, but so as to permit one section to have a limited lateral play in respect to the adjacent sections, substantially as set forth.

2. The combination, in a crank-shaft, of a series of crank-sections and a series of intermediate sections adapted to bearing-boxes, each section having one or more recesses at the end adapted to receive corresponding but smaller projections upon the adjacent section, substantially as described.

3. The combination of a series of coupling pieces or sections adapted to turn in boxes secured to independent supports and a series of intermediate crank-pieces or sections, each section having upon each end projections or recesses adapted to fit loosely corresponding projections or recesses at the opposite ends of the adjacent sections, substantially as set forth.

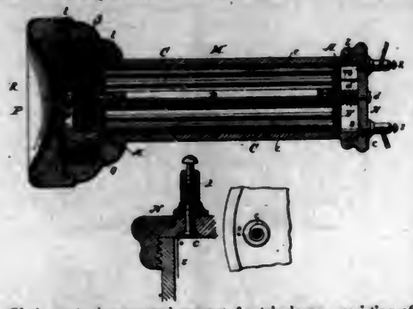
318,057. TELEPHONE ATTACHMENT. GEORGE R. TYLER, Palmyra, N. Y. Filed Dec. 30, 1884. (No model.)



Claim.—1. In a telephone, the combination, with the box A, of the cross-bar B, extending across the front of the box, the rim C, hinged thereto, and the tube D, fitted to the rim to turn therein, the base end of the tube being beveled at an obtuse angle, so that when turned in the rim its outer end will stand at varying heights, as herein shown and described.

2. In a telephone, the tube D, constructed with double walls, leaving a dead-air space between, with vent-holes *n n* in the outer walls near the outer end, and corresponding vent-holes, *p p*, in the inner walls near the inner end, as shown and described, and for the purpose specified.

318,058. MAGNETO-TELEPHONE. HENRY E. WAITE, New York, N. Y. Filed Aug. 28, 1884. (No model.)



Claim.—1. A compound magnet for telephones, consisting of a central permanent magnet surrounded by a number of other permanent magnets at equal distance therefrom, soft-iron disks joining the ends of the permanent magnets, a soft-iron core projecting from one of the disks, and a helix surrounding the core, as and for the purpose set forth.

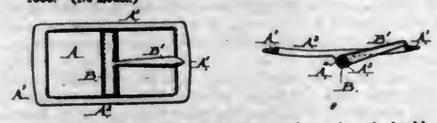
2. The combination, with the diaphragm, of a compound magnet, constructed substantially as described, and an angular bent spring-arm carrying a body of magnetic material secured to its end, the spring being secured to the permanent magnet, between the end thereof and the coil, and adapted to normally press against the diaphragm, substantially as described.

3. The combination, with a telephone-case, of soft-iron disks adapted to fit the body of the case, a series of permanent magnets supported by said disks, and a soft-iron core, D, substantially as described.

4. The combination, with a telephone-case, of a series of permanent magnets consisting of a large central magnet and smaller ones arranged concentrically around the same, soft-iron disks supporting the magnets, a soft-iron core attached to one disk and surrounded by a helix, and a stem attached to the other disk and provided with adjusting devices, substantially as described.

5. The combination, with the case of a telephone and a binding-post, of a screw for holding the binding-post, said screw fitting a recess in the case having a passage extending from the recess to surface of the case, and a coiled-wire terminal extending through the passage and coiled or laid in the recess, whereby good electric contact is made and maintained, substantially as described.

318,059. BUCKLE. JULIUS WAGNER, Reading, Pa. Filed Feb. 27, 1885. (No model.)



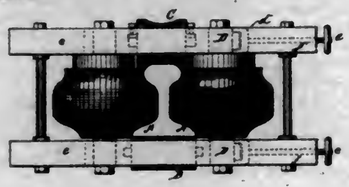
Claim.—In combination with the frame and cross-bar of a buckle, a tongue having an integral shell or sleeve which is clamped in the form of a sleeve closely on said cross-bar, substantially as set forth.

318,060. CAR-SEAL. PETER WAGNER, Chicago, Ill., assignor to Freeman C. Gillmore, same place. Filed Aug. 9, 1884. (No model.)

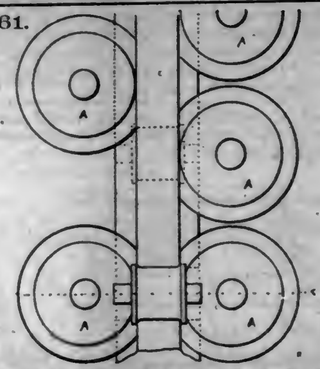


Claim.—The combination of strip A with the looped strip B, the ends of the latter folded over the sides of one end of the former, the loop *b* of said strip B passing through the holes *a a* in the ends of the strip A, and then pressed down, forming a lock on top of the ends of long strip A, as and for the purpose shown.

318,061. MACHINE FOR STRAIGHTENING RAILS. DAVID WALTERS, Cleveland, Ohio. Filed Sept. 1, 1883. Renewed Dec. 1, 1884. (No model.)

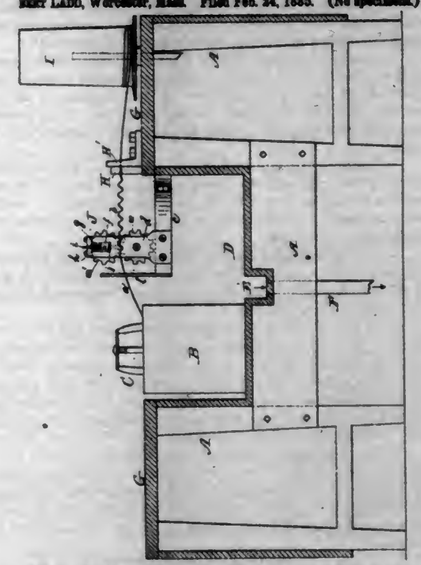


318,061.



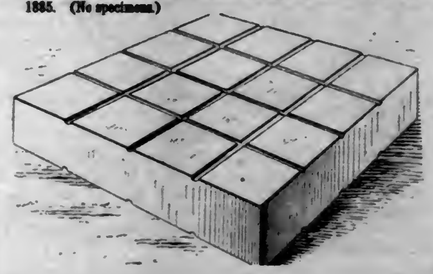
Claim.—In a machine for straightening railroad-rails, a roll-train of any desired number of rolls arranged in sets of four each, two revolving vertically and two horizontally, the first and last sets having each their axes in the same plane, the intermediate sets having the pairs arranged alternately, the peripheries of said rolls when viewed from one end of the train showing a space between them corresponding with a cross-section of an ordinary T railroad-rail, as shown in Figs. 2 and 4, the boxes or bearings supporting said rolls being adjustable, the whole constructed and arranged substantially as shown and described, and for the purpose stated.

318,062. ART OF DRAWING WIRE. EDWARD L. WARREN and ALBERT LADD, Worcester, Mass. Filed Feb. 24, 1885. (No specimens.)



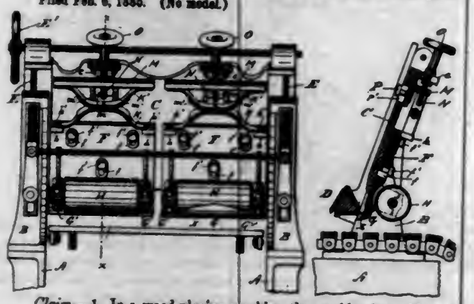
Claim.—In the art or process of making wire, crimping said wire after having been coated and prior to being drawn, to facilitate said drawing operation, substantially as shown and described.

318,063. PREPARATION OF MINERAL FILLING FOR PAPER-MAKERS' USE. ZENAS C. WARREN, Springfield, Mass. Filed Apr. 20, 1885. (No specimens.)



Claim.—The method of preparing mineral filling for use in paper-stock, which consists in forming from a semi-fluid mass of said filling and water blocks of the same by pressure, of sufficient hardness to permit of handling, but retaining sufficient water to cause said filling to readily mix with paper-stock, substantially as set forth.

318,064. PRESSER-ROLL. GEORGE F. WITHERELL and REHARD B. JONES, Chicago, Ill., assignors of one-third to Ransom Richards, same place. Filed Feb. 6, 1885. (No model.)



Claim.—1. In a wood-planing machine, the combination, with sustaining-posts, of the cross-head having its main portion extending approximately in the horizontal plane of the journal-bearings of the cutter-head, and the chip-breaker and housings bearing against said cross-head, substantially as described.

2. The combination, with the sustaining-posts, of the cross-head extending between said posts, the housings connected to said cross-head, the chip-breakers formed in piece with said housings, and the presser-rolls and cutter-head journaled in said housings, said several parts being relatively arranged for co-operation substantially as described.

3. In a wood-planing machine, the combination, with the sustaining-posts, the cross-head, and the independent housings arranged transversely of the machine and connected to the cross-head, of the independently-adjustable plate-springs bearing against each of said housings, said parts being relatively arranged for co-operation substantially as described.

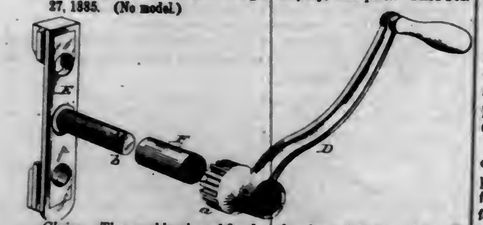
4. In a wood-planing machine, the combination, with the sustaining-posts, the cross-head, the slotted housings, and bolts, of the chip-breakers formed in piece with the housings, the springs for exerting downward pressure on said housings, the cutter-head, and presser-rolls, substantially as described.

5. In a wood-planing machine, the combination, with the sustaining-posts, the cross-head, and the housings, of the separate sets of reversely-bowed springs having their ends loosely connected to the housings, substantially as described.

6. In a wood-planing machine, the combination, with the sustaining-posts, the cross-head extending transversely of the machine and connected to the sustaining-posts, and the housings connected to said cross-head, of the separate sets of springs for exerting pressure on said housings, adjustable bearing-plates, substantially as set forth, for said springs, and bolts for clamping said plates to the cross-head, said several parts being relatively arranged for co-operation substantially as set forth.

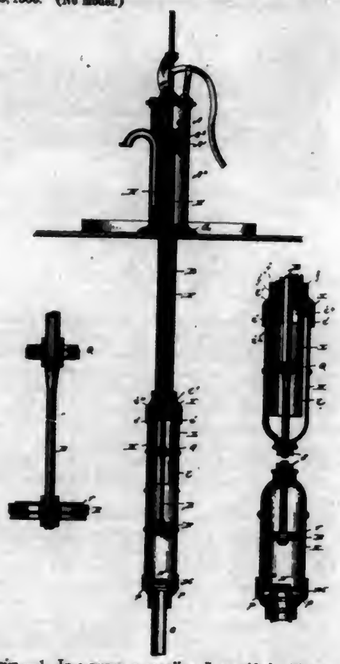
7. In a wood-planing machine, the combination, with the sustaining-posts, the cross-head, the slotted housings, and bolts for connecting the housings and cross-head, of the sets of reversely-bowed springs having slotted ends, the bearing-lugs for said slotted ends, formed upon the housings, and adjustable bearing-plates for the springs, substantially as described.

318,065. JOURNAL AND BUSHING. HENRY J. WHITE, Auburn, N. Y., assignor to the Empire Wringer Company, same place. Filed Feb. 27, 1885. (No model.)



Claim.—The combination of fixed stud or journal *b*, loose sleeve F, encircling said journal, and crank or winch D, having its hub encircling the sleeve, the sleeve being free to rotate upon the journal, and the crank-hub being free to rotate upon the sleeve, whereby the wearing-faces of the journal, sleeve, and crank are constantly changed and the wear made uniform at all points.

318,066. PUMP. WILLIAM E. WILLIAMS, Pittsford, Mich. Filed Feb. 13, 1885. (No model.)



Claim.—1. In a pump, a coupling, I, provided with two upper and two lower flanges and four or more curved ports opening to the air-chamber, said coupling by means of its four flanges forming a connection between the stock, air-chamber, piston-rod casing, and outer and inner cylinders, K L, substantially as set forth.

2. In a pump, the combination, with the air-chamber, discharge-pipe, piston-casing, and the four-flanged coupling I, provided with curved ports, of the outer lower tubular casing and inner tubular casing provided with a waste-water chamber, i^4, substantially as set forth.

3. In a pump, the combination, with the air-chamber A^2, piston, stock, perforated flanged coupling I, and outer and inner tubular casings, of a valve, Q, in the inner casing, normally opening downward, substantially as set forth.

4. In a pump, the combination, with the air-chamber and operating-piston, stock, and flanged connecting-coupling, of the lower outer and inner tubular casings and the valves Q *r*, one of which is normally opened downward and closes with the downstroke of the piston, the other opening upward with downstroke of piston, substantially as set forth.

5. In a pump, the combination, with the flanged coupling uniting the upper and lower portions of the pump, of the inner tubular casing provided with a waste-water chamber and a piston having a valve-opening downward in said casing, substantially as and for the purpose set forth.

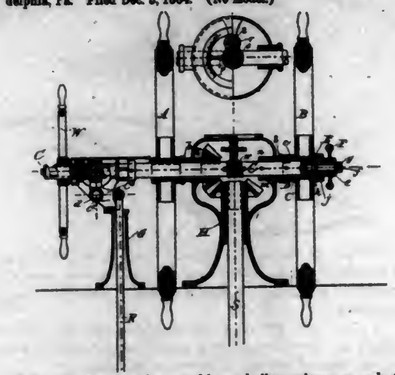
318,067. PROCESS OF DEOXIDIZING MOLTEN IRON IN THE MANUFACTURE OF STEEL. NOEL B. WETTMAN, Pittsburg, Pa., assignor to Pittsburg Steel Casting Company, same place. Filed Apr. 26, 1884. (No specimens.)

Claim.—1. In the Bessemer process, the method of eliminating the oxide of iron formed in the bath during the conversion thereof, which consists in adding silicious material containing a large proportion of free silica to the molten bath in about the proportions above stated at or approximately at that period of the operation at which the oxidation of the silicon of the bath ceases, substantially as set forth.

2. In the Bessemer process, the method of producing steel low in carbon, which consists in adding silicious material containing a large proportion of free silica to the molten bath in about the proportions stated for the elimination of the oxide of iron therefrom, and finally adding ferro-manganese to neutralize the sulphur and carburize the metal of the bath, substantially as set forth.

3. In the Bessemer process, the method of eliminating the oxide of iron and the gases from the metal of the bath, which consists in adding silicious material containing a large proportion of free silica thereto in the proportions above described at or about the end of the blowing operation, substantially as set forth.

318,068. STEERING MACHINERY. HERMAN WEYER, New York, N. Y., and WILLIAM C. WILLIAMSON, Philadelphia, Pa., assignors to George W. Williamson, John D. Williamson, and William C. Williamson, Philadelphia, Pa. Filed Dec. 5, 1884. (No model.)



Claim.—1. In a steering-machine, a hollow column or pedestal, as H, provided with shaft-bearings, as *b b*, and carrying in said bearings a rotary hand-power shaft, as C, in combination with bevel-gearing and shafting inclosed within said column, and connected to the drum-shaft or chain-wheel and rudder, as described, whereby the rudder is operated by hand-power alone by rotating said shaft, substantially as and for the purposes set forth.

2. In a combined hand and steam power steering-machine, in combination with a hollow column or pedestal, as H, carrying in suitable bearings a steering-wheel shaft, as C, and inclosing bevel-gear and shafting for transmitting motion from said shaft to a chain-wheel or drum for actuating the rudder, a second hollow column or pedestal, as G, supporting said shaft and a steering-wheel, as W, and inclosing a rod operated by said wheel, and connected to steering-engines for actuating said engines in either direction by the movements of said wheel, substantially as and for the purposes set forth.

3. In a steering-machine, a hollow column or pedestal, as H, provided with shaft-bearings, as *b b*, and carrying in said bearings a rotary hand-power shaft, as C, in combination with gearing and shafting inclosed within said column and connected to a tell-tale or pointer, as *p*, and to the drum-shaft or chain-wheel and rudder, as described, whereby the rudder is both operated by hand-power alone, and at the same time its angle with the ship's course, if any, or desired change of ship's course, indicated by rotating said first-named shaft, substantially as and for the purposes set forth.

4. In a steering-machine, a hand-wheel shaft, as C, provided with a serrated flange or collar, as D, in combination with a hand-wheel, as B, loosely mounted on said shaft, and having a correspondingly-serrated hub, whereby said shaft and said wheel are coupled together when said serrations are interlocked, but uncoupled when said serrations are withdrawn from each other, substantially as set forth.

5. In a steering-machine, a hand-wheel shaft, as C, provided with a serrated flange or collar and a screw-threaded end, as *e*, in combination with a hand-wheel, as B, loosely mounted on said shaft and having a serrated hub and a cap, as E, and operated by a key and bolt within said shaft, and a hand-wheel, as F, upon the threaded end of said shaft, whereby said wheel B is connected to said shaft or disconnected therefrom at will, substantially as and for the purposes set forth.

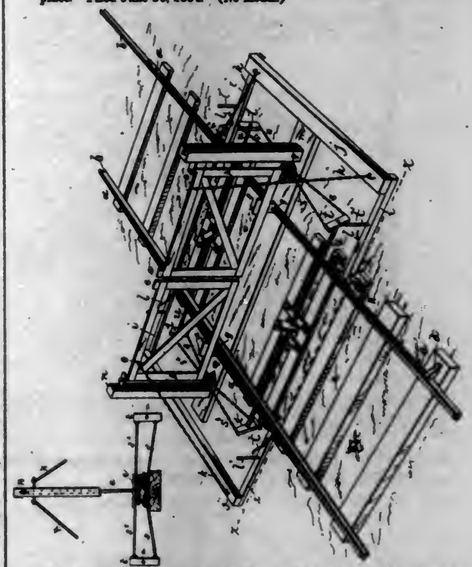
6. In a steering-machine, in combination with a steering-drum, as L, for driving the same and being driven thereby, a pinion, as K, and a gear-wheel, as K', detachably connected to said drum, whereby said gear-wheel may be disconnected from said drum and turned to change the teeth in gear with said pinion and reseeured to said drum without altering the set of either said drum or said pinion upon their respective shafts, substantially as and for the purposes set forth.

7. In a steam steering-machine, in combination with a worm-wheel for actuating the chain-wheel or steering-drum, a driving-shaft provided with a worm sliding upon said shaft, and adjusted by movable end bearings, whereby provision is made for taking up the wear of said worm and end thrust upon said shaft prevented, substantially as and for the purposes set forth.

8. In a combined hand and steam steering-machine, the combination of a driving-drum or chain-wheel, as L, keyed fast to a shaft, as L', a power-driving gear-wheel, as N, loose on said shaft, and a sliding clutch-coupling consisting of a cone-friction wheel, as P, and an interior clutch, forming a male and female coupling, as P', with said power-driving gear-wheel, whereby both a frictional or rolling contact and a positive contact are secured between said wheels, substantially as and for the purposes set forth.

9. In a combined hand and steam steering-machine, the combination of a driving-drum or chain-wheel, as L, keyed fast to a shaft, as L', a power-driven gear-wheel loose on said shaft, and a clutch-coupling sliding upon said shaft, but rotating therewith, and keyed to a sliding bolt within the shaft L', said bolt being operated by a threaded sleeve or hub secured to a hand-wheel, as *o*, and screwed into the end of the shaft L', whereby said power-driven wheel is either connected to the shaft L', to rotate therewith, or disconnected therefrom by screwing up or unscrewing the wheel *o* for hand-power steering or steam-power steering, as may be desired, substantially as set forth.

318,069. AUTOMATIC RAILWAY-GATE. JAMES T. WITHROW, Jr., Huntsville, Ark., assignor of one-third to James T. Withrow, Sr., same place. Filed June 30, 1884. (No model.)



Claim.—1. The combination, with a swinging gate and mechanism for automatically operating the same, of the false-bowed rails *a*, cap *d*, holding said rails in place, levers *i*, their short ends working under false rails *a*, and springs *l*, attached on the upper side of said levers *i*, all substantially as shown and described, and for the purposes set forth.

2. The combination, with gates *e*, of weights *j*, secured on the outer ends of levers *i*, chains *k*, secured to rods *o* in the upper beams of gates *e* and to said weights *j*, levers *i*, pivoted on rods *h'*, their short ends *h* working under false rails *a*, false rails *a*, their ends working in caps *d*, and latches *f*, secured in the lower beams of gates *e* and dropping into notches *g*, all substantially as shown and described, and for the purposes set forth.

3. The combination of the levers *v*, rigidly secured on rods *u*, levers *t*, also rigidly secured on said rod, chains *s*, passing around pulleys *q*, rigidly secured on the lower end of beams *b* of the gates *e*, each end of said chain being secured to the lower ends of levers *t*, and chains *s'*, their ends secured to the upper ends of said levers *t*, all substantially as shown and described.

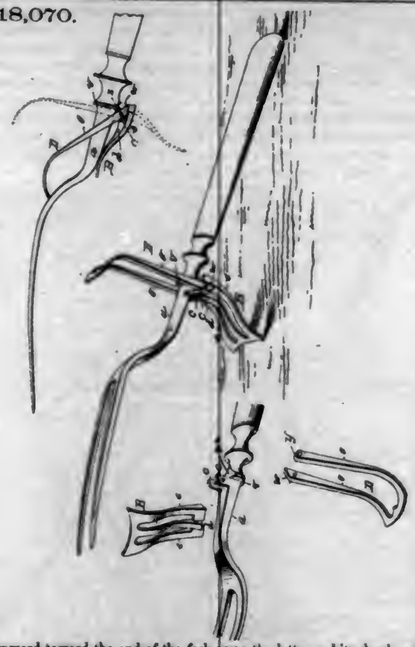
318,070. FORK GUARD AND REST. EDWARD E. WOOD, Jr., Northampton, Mass. Filed Mar. 9, 1885. (Model.)

Claim.—1. A fork guard and rest consisting of a guard of bifurcated form pivoted at the ends of its legs to supports on the shank of the fork, a rest having a tongue located centrally between two side bars, the end of said tongue being connected to the guard-pivot between said supports, and the ends of said bars having a bearing against the ends of the guard-legs, combined with the shank of the fork and operating substantially as set forth.

2. In combination, the shank of the fork having the laterally-projecting supports *e e*, the shoulder *v*, and the face v^3, the guard D, having the legs *o o*, one or both of which has the cam *w* thereon pivoted to said supports, and the rest B, having the bars *e e* and the spring-tongue *d*, the latter being pivotally connected to the shank between the legs *o* of the guard, substantially as set forth.

3. The combination, with the shank of a fork, of a guard and a rest, substantially as described, pivoted to said shank, both on the same pivot, and having their pivoted ends engaging with each other and capable of swinging together to a position at right angles to the shank and thence

318,070.



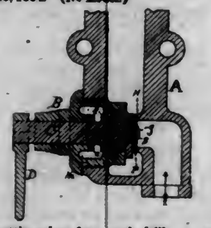
downward toward the end of the fork upon the latter and its shank, substantially as set forth.

318,071. SCREW-THREADING TAP. JAMES E. WOODBRIDGE, Hartford, Conn. Filed Mar. 6, 1883. (No model.)



Claim.—As an improved article of manufacture, a tap having its teeth formed of full width, front and back, and with concave sides, all substantially as described.

318,072. THROTTLE-VALVE. LEANDER S. WOODBURY, Calumet, Mich. Filed Dec. 15, 1884. (No model.)

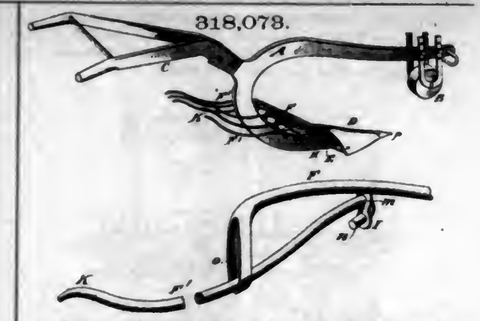


Claim.—In a throttle-valve for a rock-drill, a combination of the stem C, valve F, and seat H with the gland B, constructed substantially as shown, to serve as both a gland for the stem and a nut for the thread of the stem, the part serving as a nut being split, substantially as shown, for the purpose of obtaining a moderate friction upon the screw and compensation for any wear at that point.

318,073. POTATO-DIGGER. GEORGE WRAGG, Sharpsburg, Pa. Filed Feb. 2, 1885. (No model.)



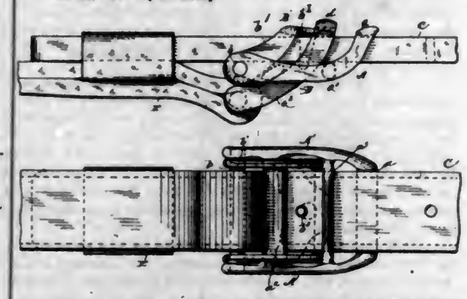
318,073.



Claim.—1. The combination, with beam A, of a mold-board having an under lip at the front end and a slotted frame, E, made adjustable vertically on said frame, whereby the pitch of plow may be regulated as described.

2. The fingers F, having downward loop, and the bar I, having two holes, *m n*, the shaking-finger F passing through said loop and working in the holes of said bar, as shown and described.

318,074. BUCKLE. MELANCTHON E. ZELLER, Bluffton, Ohio. Filed Jan. 28, 1885. (No model.)



Claim.—1. In a trace-buckle, the buckle-frame having two cross-bars, a' a^2, and the tongue-frame pivoted to the forward end of said buckle-frame by the cross-bolt *b*, and having a tongue-plate provided with a stud, in combination with a bail which passes between said cross-bars of the buckle-frame, and adapted to bear on the tongue-plate and against the approximate edges of said cross-bars, substantially as described, and for the purpose set forth.

2. In a trace-buckle, the combination of the buckle-frame having curved side bars united at their rear ends by a cross-bar and provided with lower cross-bars arranged in a line substantially with each other, a tongue-frame pivoted to the forward ends of the side bars of the buckle-frame by the removable cross-bolt *b* and provided with a plate having a stud, and a bail connected to the hame-tug and arranged between the side bars of the buckle-frame and bearing on the tongue-plate, all as and for the purpose described.

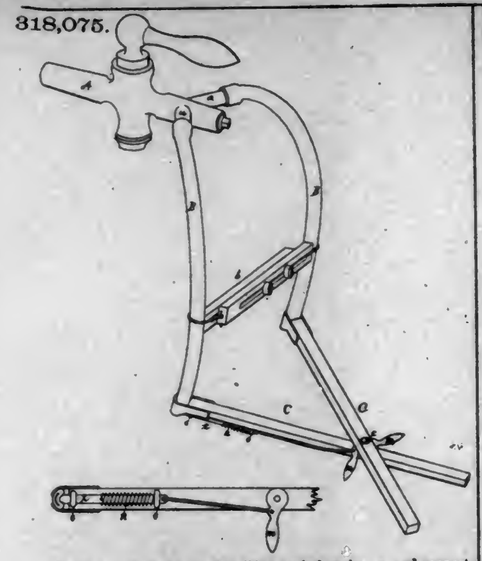
3. In a trace-buckle, the combination of the buckle-frame consisting of curved side bars A' A', united at their rear ends by a cross-bar, *a*, and provided with lower cross-bars, a' a^2, a tongue-frame, C, having side bars b', pivoted by a removable cross-bolt, *b*, to the ends of the side bars A' of the buckle-frame, and united at their ends by a bearing-plate having an extension, b^4, with rounded edges, and a bail, D, connected to the hame-tag and having its side bars arranged between the cross-bars a' and a^2 of the buckle-frame, and united at their upper ends by a cross-bar, d', having shoulders d^2, arranged to bear against the tongue-plate, and a trace, all arranged substantially as described, and for the purpose set forth.

318,075. DEVICE FOR WATERING PLANTS. DARWIN F. ALLEN, Conway, Mass. Filed Sept. 10, 1884. (No model.)

Claim.—1. The watering device herein described, consisting, essentially, of the cock A, having the lateral arms *a*, of the flexible tubes B, of the overlapping and adjustable bars *b*, of the adjusting and intersecting bars C, held together by the bolt *c*, and having straps for holding the ends of the tubes, and of the slides *x*, spiral springs *n*, connecting-rods, and hand-levers *m*, all the said parts constructed and combined as shown and described.

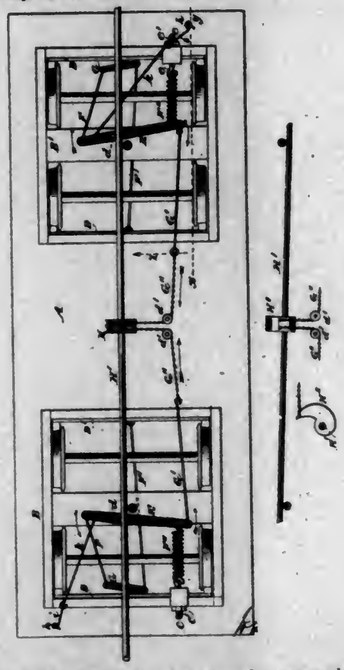
2. In a watering device, the adjusting and intersecting bars C, pivoted together and provided with straps for holding the ends of the tubes, in combination with the flexible tubes B, as and for the purpose described.

318,075.



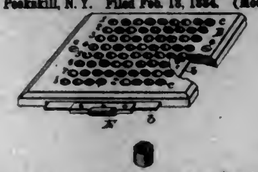
3. In a watering device, the slide *x*, spiral spring *n*, and connecting-rod arranged on the under side of an adjusting-bar, in combination with a hand-lever and strap fastened to the end of the bar, as set forth.

318,076. AUTOMATIC CAR-BRAKE. JOHN H. AMES, St. Paul, Minn. Filed Sept. 23, 1884. (No model.)



Claim.—The combination of the cars of a train, each having braking and coupling appliances and a series of coupled bars or shafts, or their equivalents, extending throughout the train and independent of the car-couplings, with springs or their equivalents for drawing or forcing the brakes against the wheels, and with a steam, air, or water cylinder, or equivalent operating device, with necessary mechanism, whereby rotary movement and torsional strain can be imparted to the bars, or their equivalents, in opposition to the action of the springs, so as to insure the simultaneous withdrawal or application of the brakes throughout the train, the strain upon the bars and the operation of the brakes being unaffected by any strain exerted upon the ordinary couplings or bumpers, all as set forth.

318,077. INDEX-PLATE FOR TYPE-WRITING MACHINES. HOMER ANDERSON, Peekskill, N. Y. Filed Feb. 13, 1884. (Model.)

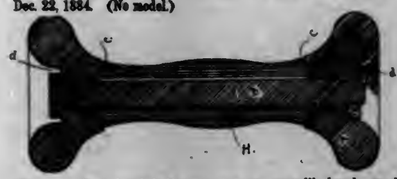


Claim.—1. An index-plate for type-writers illuminated by the application of light-colored substances, substantially in the manner and for the purpose described.

2. An illuminated index-plate for type-writers having the letters or signs marked on the walls of the perforations in the plate, substantially as described.

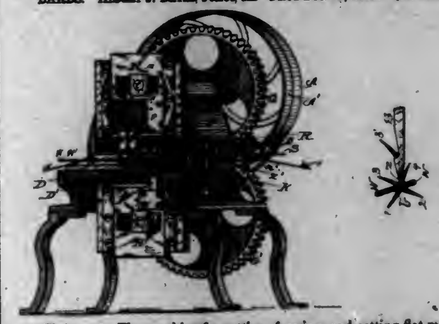
3. An index-plate for type-writers charged or coated with luminous paint, for the purposes herein set forth.

318,078. DUMB-BELL. GILBERT L. BAILEY, Portland, Me. Filed Dec. 22, 1884. (No model.)



Claim.—In a dumb-bell, two separate metallic heads, made substantially as herein described, in combination with a non-metallic handle secured between them by means of a screw-threaded bolt passing through the whole and a screw-threaded nut, substantially as herein shown and described.

318,079. MACHINE FOR FORMING AND SETTING FLAT METAL BARBS. ALBERT J. BATES, Joliet, Ill. Filed Dec. 20, 1884. (No model.)



Claim.—1. The machine for cutting, forming, and setting flat metal barbs, consisting of the bed D', bed-plate D, sliding heads H H', shafts and crank-pins for operating said sliding heads, gear-wheels G G', punches P P' P², dies *c c' a*, gage *d*, feed-rolls K, and their operating parts, all arranged to operate as and for the purpose stated.

2. In the machine described for cutting, forming, and setting flat metal barbs, the combination of the punches P P' P² and dies *c c' a*, and the means described for operating said parts, as and for the purpose set forth.

3. The means described for cutting, forming, and setting between a pair of strand-wires a four-pointed flat metal barb, consisting of the punches P P' P² and dies *c c' a*, supported and formed substantially as shown, and arranged to operate as specified.

4. In combination with the bed-plate D and the punches and dies for cutting a four-pointed flat metal barb, as shown and described, the gage or guide *d*, arranged and formed as and for the purpose set forth.

5. In the machine for making flat metal barbs described, the train of punches and dies arranged and formed, as shown, to cut and form three prods of a barb while between two strand-wires, and simultaneously cut and form one rear prod of the next succeeding bark, as set forth.

318,080. COMBINED WHIP AND REIN HOLDER. ALFRED E. BATMAN, Joliet, Ill. Filed Mar. 12, 1885. (No model.)

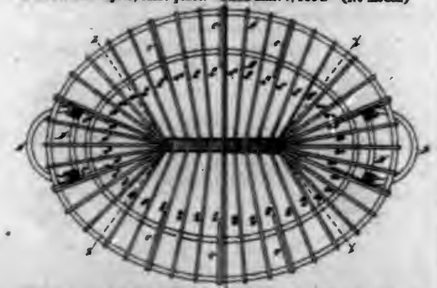
318,080.



Claim.—1. The combined whip and rein holder, constructed substantially as shown and described, consisting of the stationary concaved part D, having its lower end terminating in the integral upturned hook R, in combination with the concave part B, pivotally attached thereto at or near its center, and having its lower end inclosed by said hook R, substantially as and for the purpose set forth.

2. In the combined whip and rein holder shown and described, the combination of the front pivoted part B, with the rear stationary part, D, having the horn or hooked part R integral therewith, and formed to extend upward and inclose the lower end of said front pivoted part, and arranged to clamp the reins S by means of a whip-handle inserted between said parts B and D, in the manner set forth.

318,081. WIRE BASKET. WILLIS B. BURKE, Lowell, Mass., assignor to Frederick Taylor, same place. Filed Mar. 7, 1884. (No model.)



Claim.—1. A wire basket in which a part of the side wires are laid along the bottom of the basket to form a core, and the remainder of the side wires are wound about said core, as and for the purpose specified.

2. A wire basket provided with a top ring and a bottom ring, and wire braces connecting said rings, said braces being provided with spirals, in combination with handles the sides of which are surrounded and held in place by said spirals, as and for the purpose specified.

3. A wire basket provided with a top ring and a bottom ring, and wire braces connecting said rings, said braces being provided with spirals, in combination with handles the sides of which are surrounded and held in place by said spirals, the wire which forms said handles being bent below said spirals parallel with said top ring to form a finger-rest, as and for the purpose specified.

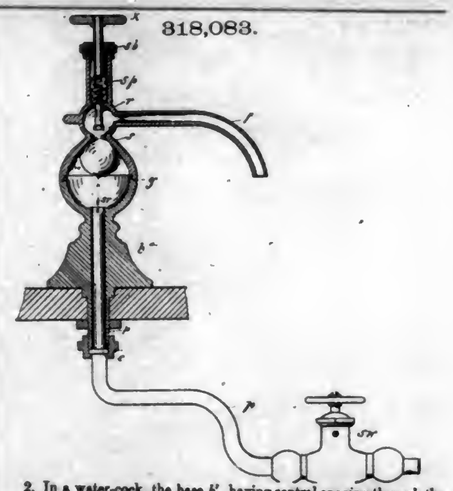
318,082. ADJUSTABLE METALLIC PACKING. FRANCIS M. BLAKE, Worcester, Mass. Filed Oct. 29, 1883. (No model.)



Claim.—1. The combination, with a sliding or rotating shaft or piston-rod and its fixed box or bearing, of a double spiral metallic packing, consisting of an outer spiral coil having a tapered hole and a conical spiral coil filling the tapered hole of the outer coil, and all inclosing said shaft or piston-rod and contained in its fixed bearing or box, and means for applying pressure to the larger end of the inner coil, whereby it is compressed upon the shaft and the outer coil expanded against the inner walls of the fixed box or bearing, as and for the purpose set forth.

2. The combination of rod or shaft A', box B', having a cylindrical annular chamber, packing-rings D', consisting of a conical spiral ring, packing-ring D'', consisting of a spiral ring having a tapering hole corresponding with the conical surface of the ring D', and a follower or nut, C', resting upon the larger end of the coil D', with connected means for pressing the nut C' upon the coil D', as and for the purpose set forth.

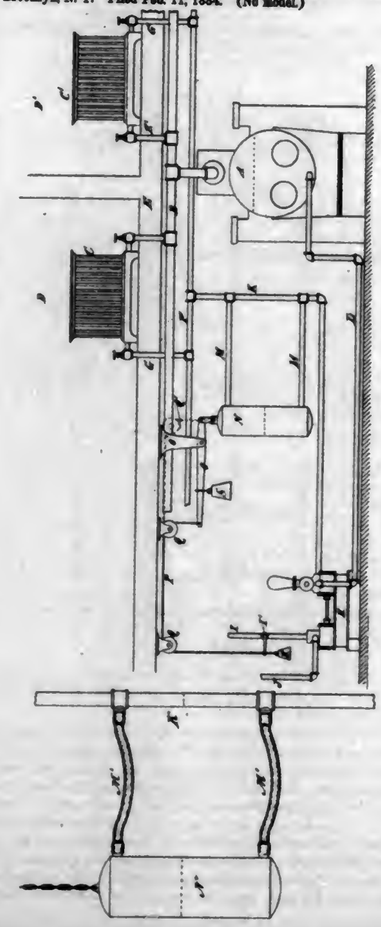
318,083. SELF-CLOSING COCK FOR WATER-PIPES. JAMES M. BRENNAN, Elkhart, Ind. Filed Mar. 3, 1885. (No model.)
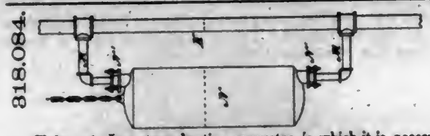


Claim.—1. The self-closing and self-draining water-cock herein described, wherein the globe *g* incloses a ball, *b*, of greater specific gravity than water, this ball adapted to be forced upward to the seat *s* by means of the water-pressure from below, the spring-rod *r*, with knob *k* for forcing the ball *b* away from the seat, and the seat-rest *sr*, provided with openings for allowing the water to drain off, all combined substantially as described.

2. In a water-cock, the base *b'*, having central opening through the same, the hollow portion *g*, provided with seat-rest *sr* below, the seat *s* above, the ball *b*, having greater specific gravity than the water, the spring-rod *r*, stuffing-box *sb*, faucet *f*, connecting-pipe *p*, and the stop and waste cock *sw*, all combined substantially as described.

318,084. STEAM-HEATING APPARATUS. HENRY W. BRINCKERHOFF, Brooklyn, N. Y. Filed Feb. 11, 1884. (No model.)



318,084.

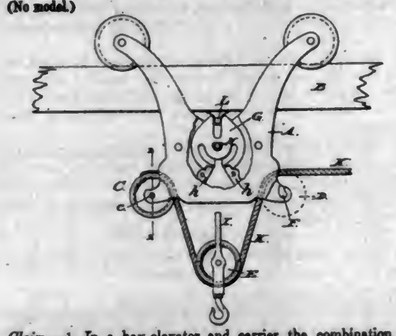


Claim.—1. In a steam-heating apparatus in which it is necessary to employ a pump, injector, or other water-forcing device to return water formed by the condensation of steam to the boiler from which the heating apparatus is supplied with steam, the combination of a regulating-vessel having a vertical movement dependent upon the column of condense-water reaching a certain height, means connecting the vessel with the said return-water pipe or system of the heating apparatus in order that the height of the water in the vessel and in the said return pipe or system may be the same, and connections between the vessel and the regulating-valve of the pump, injector, or other water-forcing device, substantially as and for the purpose specified.

2. In a steam-heating apparatus, the combination of a steam generator or boiler, a main steam-pipe leading therefrom, steam-radiators and appliances connected therewith, a main pipe for carrying away water formed by the condensation of steam and connected with the steam-radiators or appliances, a pump, injector, or other water-forcing device, a pipe leading from the main condensed-steam, water, or return pipe to the pump, a regulating-vessel having a vertical movement dependent on the column of condense-water reaching a certain height, a pipe or pipes extending to the regulating-vessel from the pipe which leads to the pump, and a cord or chain between the said regulating-vessel and the throttle-valve of the pump, injector, or other water-forcing device, substantially as specified.

3. In a steam apparatus, the combination of a steam-generator, A, pipe B, steam-radiators C C', pipes E E', pipe F, pipes G G', pipe K, pump H or other water-forcing device, pipe L, vessel N, pipes M, lever O, cord or chain P, and weights R S, substantially as specified.

318,085. HAY ELEVATOR AND CARRIER. MARCUS W. CHAMBERLAIN, Branchville, N. J., assignor of three-fourths to E. A. Ely and F. S. Ely, both of same place, and P. A. Ely, Madison, N. J. Filed Oct. 4, 1884. (No model.)



Claim.—1. In a hay elevator and carrier, the combination, with the carriage and the pulleys mounted therein, of the slotted journal-bearings F, formed within the frame, and adapted to allow a ready removal of the pulleys and an exchange thereof the one for the other, substantially as and for the purpose set forth.

2. In a hay elevator and carrier, the combination, with its carriage and pulleys mounted therein, and with a pivoted bolt-plate, of a pivoted bearing for said bolt-plate, consisting of a loose pin mounted in vertical slots or grooves in the frame of the carriage and passing through a laterally-enlarged opening in the plate, substantially as and for the purpose set forth.

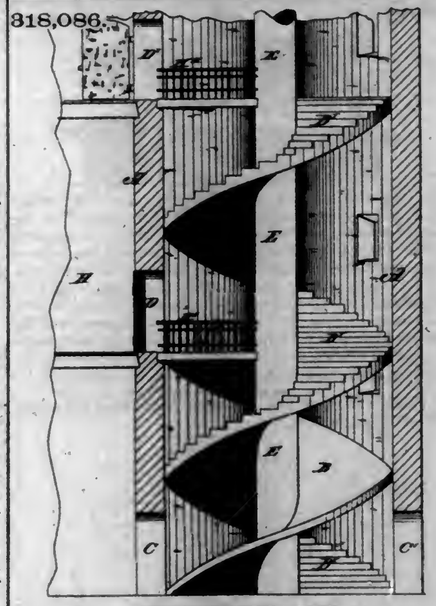
318,086. FIRE-ESCAPE TOWER. CHRISTOPHER CLARKE, Northampton, Mass. Filed Mar. 10, 1884. Renewed Oct. 20, 1884. (No model.)

Brief.—A fire-escape tower having two or more spiral passage-ways arranged around a common axis, and not communicating with each other, and having separate entrances and exits.

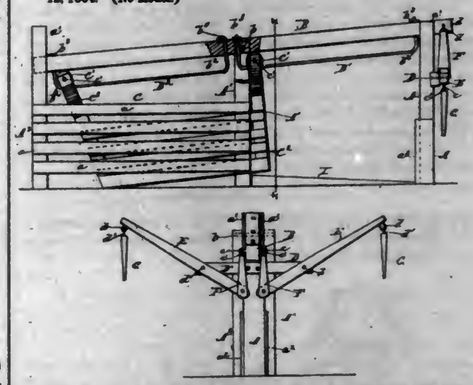
Claim.—1. The within-described improvement in fire-escape towers, consisting of the arrangement within a tower and around a common axis of two or more spiral passage-ways having separate entrances and exits, and each constructed to have no intermediate passage-way leading thereto from beginning to end, and each to have no possibility of exit therefrom from end to end, for the purpose as set forth.

2. In a fire-escape tower, the combination and arrangement within a tower and around a common axis of two or more spiral passage-ways adapted to be each inaccessible from the others, and to be each smoke-tight and isolated from the others, for the purpose as set forth.

318,086.



318,087. GATE. WILLIAM E. CONNELLY, Hubbard, Tex. Filed Nov. 12, 1884. (No model.)



Claim.—1. In a gate, the combination, with the fence and gate posts, of a centrally-pivoted oscillating beam having two rods separately secured thereto and arranged beneath the same, a gate consisting of parallel bars and a vertical and an inclined upright to which said bars are secured, each of said uprights having bearing-rollers mounted in separate brackets secured thereto, and operating-levers pivoted to a cross-bar of the post A and to links connected to the beam, substantially as and for the purpose set forth.

2. In a gate, the combination of the following elements: posts A A^2, bifurcated at their upper ends, pivotal posts A', having frictional rolls a^2, adapted to bear on the lower bar of the gate, beam B, pivoted at *b* to the posts A', and having rods B' B^2, secured thereto beneath the same, gate C, consisting of parallel bars and uprights, each of the latter having bearing-rollers mounted in brackets secured at the upper ends thereof, as at c^2, bar D, secured to the post A, levers E, pivoted to said bar and having operating-handles G, and links F, pivotally connected to the levers E and forward end of the beam B, all arranged and combined substantially as shown and described.

318,088. DIE FOR CORRUGATING SHEET METAL. CHARLES B. COOPER, New York, N. Y. Filed May 22, 1884. (No model.)

Claim.—1. The combination, with the shaping or forming block in a die for pressing sheet metal, of a hinged presser-plate carried by the punch-block, to enter a recess in the forming-plate with a swinging movement, substantially in the manner and for the purpose herein set forth.

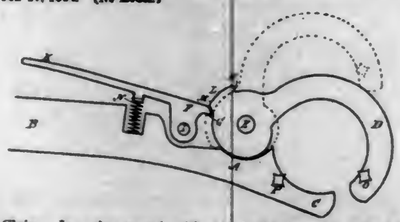
318,088.



2. The combination, in a die for pressing sheet metal, with a spring-actuated yielding presser-plate, D, on one side of the punch of the die, of a second swinging presser-plate pivoted to the punch to drop against its opposite side and close with the punch into a recess in the former of the die, substantially in the manner and for the purpose herein set forth.

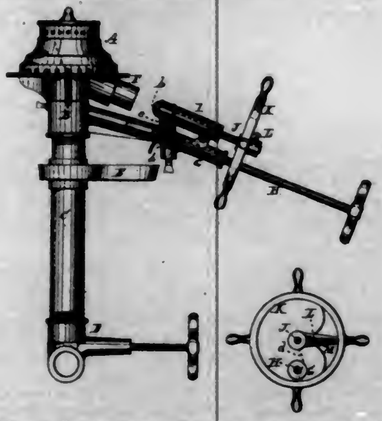
3. In a die for pressing sheet metal, the combination, with an adjustable sliding forming-bar moving in a recess in the forming-block, of one or more wedge-blocks carried by the punch to engage said sliding bar and move it laterally in its recess, and a swinging presser-plate hinged to the punch to enter the recess in advance of the laterally-moving bar, substantially in the manner and for the purpose herein set forth.

318,089. PIPE-WRENCH. PERSHAM CROCKER, Olean, N. Y. Filed Oct. 17, 1884. (No model.)



Claim.—In a pipe-wrench with a swinging jaw, the projection L upon the pivotal part of the swinging jaw D, in combination with the dog F, attached to the shank and fixed jaw, the dog F and the shoulder M upon the projection L being so arranged and inclined that the pressure of the dog upon the shoulder shall hold the jaw D in contact with the pipe when closed, and with the handle K of the dog F extending along the shank or handle of the wrench, and with the spring N, operating between the handle K and the shank A, so that the whole is under the immediate and convenient control of the operator, substantially as shown and described.

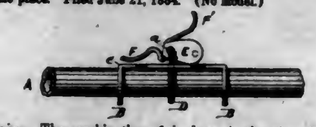
318,090. VAPOR-BURNER. DAVID A. DANGLER and EDWARD H. WACKERMAN, Cleveland, Ohio; said Wackerman assignor to said Dangler. Filed June 25, 1884. (No model.)



Claim.—1. In vapor-burners, the combination of the valve-chamber I, valve-stem J, the hub of the hand-wheel provided with the adjusting set-screw L, hand-wheel K, having web M, and the valve-stem H, whereby the movement of the valve-stem I is regulated, substantially as and for the purpose described.

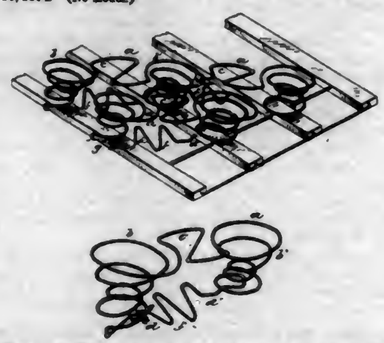
2. In vapor-burners, the combination of the valve-chamber I, stem J, the hub of the hand-wheel provided with the adjusting set-screw L, hand-wheel K, with its web M, valve-stem H, valve-tube G, plug-valve a, and burner-tube F, all substantially as and for the purpose described.

318,091. CUT-OFF DEVICE FOR FLEXIBLE TUBES OR HOSE. A. E. DARY, Providence, R. I., assignor of one-half to Samuel H. Tingley, same place. Filed June 21, 1884. (No model.)



Claim.—The combination of the hose A, the plate C, having rings B, whereby it is adjustable along said hose, the loop D, and the cam-lever E F F', mounted upon said loop, all arranged and operating substantially as specified.

318,092. BED-SPRING. CHARLES R. DAVIS, Dallas, Tex. Filed Mar. 31, 1884. (No model.)

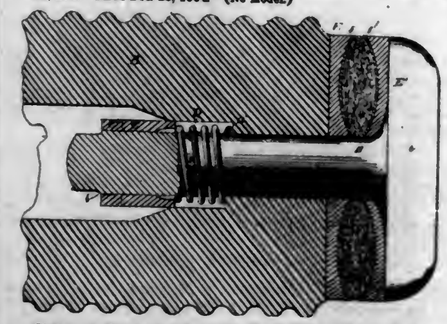


Claim.—1. The springs connected together at their upper ends and provided with slat-receiving bends at their lower ends, a hook provided on the bend of one of the springs, and a tie formed with the bend of the other spring and provided with a hook to engage the hook of the adjacent spring, as and for the purpose set forth.

2. The springs connected together at their upper ends, and an adjustable tie comprising parallel bends in the form of a serpentine for connecting the lower ends of the springs, the bends of said tie being capable of adjustment to accommodate the tie to varying distances between slats, as set forth.

3. The twin springs for bed-bottoms, consisting of a single piece of wire bent to form the springs and their upper connection, then bent to form the slat-receiving bends, then bent to form a serpentine tie, and provided with engaging hooks connected together beneath the bed-slats, substantially as specified.

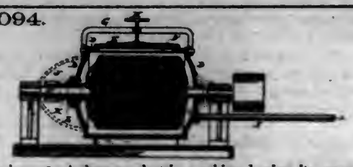
318,093. GAS-CHECK FOR ORDNANCE. JAMES B. DAVIS, Washington, D. C. Filed Dec. 23, 1884. (No model.)



Claim.—1. In combination with the breech-plug and mushroom-head, a pair of steel rings surrounding the stem of said head, said rings having annular concave spaces in their proximate faces, and a textile bag filled with fibrous material between said plates, substantially as described.

2. The combination, with the breech-plug of a heavy gun, of a mushroom-head secured thereto by nuts on the mushroom-spindle, a spring pressing the mushroom backward, a pair of steel rings, E E', between the head and plug, and an elastic cushion between the steel rings, all substantially as shown and described.

318,094. DYNAMO-ELECTRIC MACHINE. JOSIAH S. DU BOIS, Camden, N. J. Filed Sept. 27, 1884. (No model.)



Claim.—1. A dynamo-electric machine having its armature inclosed within a case in which a partial vacuum is maintained, substantially as and for the purpose specified.

2. A dynamo-electric machine having its armature and poles of its field-magnets inclosed within a stationary case in which a partial vacuum is maintained, substantially as and for the purpose specified.

3. A dynamo-electric machine having its armature inclosed within a case in which a partial vacuum is maintained, in combination with vacuum-creating mechanism and connecting-pipes, substantially as and for the purpose specified.

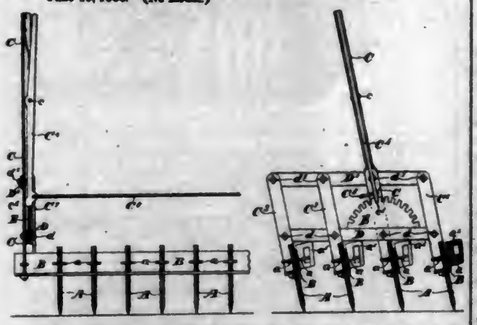
4. The combination of a series of dynamo-electric machines, having their armatures inclosed in vacuum-boxes, with pipes I, main J, and vacuum-pump N, substantially as and for the purpose specified.

5. The combination of a series of dynamo-electric machines, having their armatures inclosed in vacuum-boxes, with pipes I, valves I', main J, and vacuum-pump N, substantially as and for the purpose specified.

6. A dynamo-electric machine provided with an air-tight case, inclosing the armature, in which a partial vacuum is maintained, and a removable cover or door to said case, substantially as and for the purpose specified.

7. The combination, in a dynamo-electric machine, of field-magnet poles B, armature C, shaft C', vacuum-case D, metallic ring L, insulator-disk J, and wires K, passing to the commutator, substantially as and for the purpose specified.

318,095. HARROW. WILLIAM H. DUNCAN, Rocklane, Ind. Filed June 19, 1883. (No model.)



Claim.—1. The combination, in a harrow, of the teeth A, bar B, formed of angle-iron, said bar having a perforation in its horizontal part, through which the teeth are inserted, and clips a in its vertical part, which surround the upper end of said teeth, said clip a, and the link-shaped wedge a', inserted in the rear end of said clip behind the rear face of the vertical portion of the bar, as a means for drawing said clip tightly against the tooth and securing it in position, substantially as set forth.

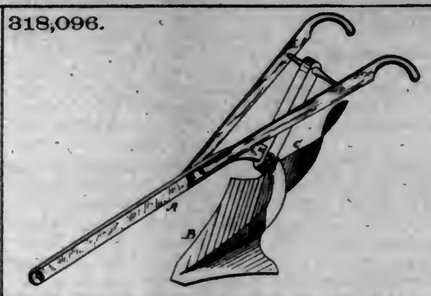
2. In a harrow, the combination of the teeth A, angle-iron bars B, clips a, and wedges a', as a means for securing said teeth in said bars, levers C, connected to one of the bars B at their lower ends, uprights $C' C^2 C^3$, extending up from said bars B, cross-bars D D', connecting the levers C, and uprights $C' C^2 C^3$, segments E, and a bar, C^3, connecting a latch upon the lever at one end of the harrow with a similar latch at the other end, whereby both latches may be disengaged simultaneously and from one side of the harrow, said several parts being arranged and operating substantially as set forth.

318,096. PLOW. FRANKS EMERSON, JOSEPH J. FAIRES, JONATHAN L. FAIRES, and JOHN R. CUMMINS, McKinney, Tex. Filed Dec. 17, 1884. (No model.)

Claim.—1. A share for mold-board plows, having a curved face on the mold-board side and a flat horizontal extension on the other side, presenting practically a second mold-board, substantially as and for the purpose set forth.

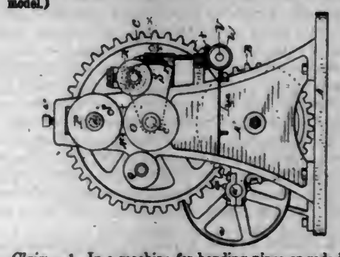
2. A share for mold-board plows, having a curved face on the mold-board side, a flat horizontal extension on the land side, and a vertical central face along the central line of the same, substantially as and for the purpose set forth.

3. The combination, with the mold-board of a plow made without a landside, of a double share having the curved face on the mold-board



side, a flat horizontal extension on the land side, and a vertical central face along the central line of the same, substantially as and for the purpose set forth.

318,097. MACHINE FOR COILING PIPE. JAMES M. EVARTS and JOSEPH H. GREENLEAF, New Haven, Conn. Filed May 1, 1884. (No model.)



Claim.—1. In a machine for bending pipes or rods into coils, a set of bending-rolls, one of which is vertically adjustable for varying the diameter of the coils, and also laterally adjustable for varying the spread thereof.

2. In a pipe-bending machine, the combination, with the rolls P O, of the roll R, which is laterally movable on its shaft, and the adjusting devices M' m', whereby this movement is affected for the purpose of varying the spread of the coils, substantially as set forth.

3. The combination, with the bending-rolls, of the adjustable roll R and toothed sector S, upon which it is carried, and connections to raise or lower said sector.

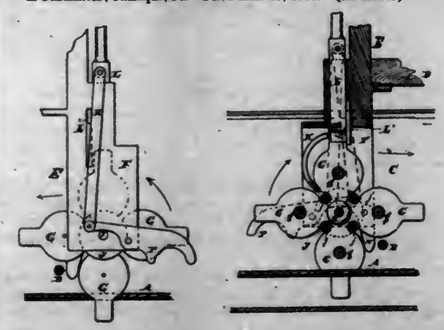
4. The detachable yoke y, for guiding the pipe until it acquires sufficient curvature, in combination with the roll P, to which said yoke is attached at will, and the remaining rolls of the set, substantially as set forth.

5. The combination, with the bending-rolls and adjustable roll R, of the fork M, having the adjusting-screw m', and the pinching-screw m, substantially as set forth.

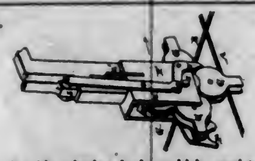
6. The combination, in a pipe or tube bending machine, of the wheel C, provided with either one or more pins X, the star-wheel W, connections to the worm T, and sector S, which carries the roll R, substantially as set forth.

7. The combination, with the shaft V, of the gears U and U', sleeve U^2, longitudinally movable upon shaft V, and means for moving it, and of connections to the sector S, whereby the same may be raised or lowered, as desired, by the rotation of the shaft V, substantially as described.

318,098. GRIPPING DEVICE FOR CABLE RAILWAYS. BENEVILLE L. FETHEROLF, Tamaqua, Pa. Filed Mar. 18, 1885. (No model.)



318,098.



Claim.—1. A cable-gripping device, which consists of an arm depending from the car combined with rotary gripping-jaws arranged in two or more pairs, substantially as and for the purpose specified.

2. A cable-gripping device, which consists of an arm depending from the car combined with rotary gripping-jaws arranged in two or more pairs and a lock to secure any pair of said jaws in gripping position, substantially as and for the purpose specified.

3. A cable-gripping device, which consists of an arm depending from the car combined with rotary gripping-jaws arranged in two or more pairs and a cam or wedge mechanism to cause the lowermost jaws to grip the cable, substantially as and for the purpose specified.

4. A cable-gripping device, which consists of an arm depending from the car combined with two or more pairs of gripping-jaws, a lock to secure any pair of said jaws in gripping position, and automatic lever mechanism actuated by contact with a crossing cable or obstruction to unlock said jaws, allowing one of the raised pairs of jaws to step or turn down and over the said cross-cable or obstruction into gripping position on its own cable, substantially as and for the purpose specified.

5. A cable-gripping device, which consists of an arm depending from the car combined with two or more pairs of gripping-jaws, a lock to secure any pair of said jaws in gripping position, and automatic lever mechanism actuated by contact with a crossing cable or obstruction to unlock said jaws, allowing one of the raised pair of jaws to step or turn down and over said cross-cable or obstruction into gripping position on its own cable, and automatic lever mechanism to lock said descending pair of jaws in their new position, substantially as and for the purpose specified.

6. The combination of frame F with axle I, star or radial gripping-jaws G, and springs *g*, substantially as and for the purpose specified.

7. The combination of frame F with axle I, star or radial gripping-jaws G, springs *g*, skeleton hub J, and washer H, substantially as and for the purpose specified.

8. The combination of frame F with axle I, star or radial gripping-jaws G, and springs *g*, skeleton hub J, washer H, and wedge M, substantially as and for the purpose specified.

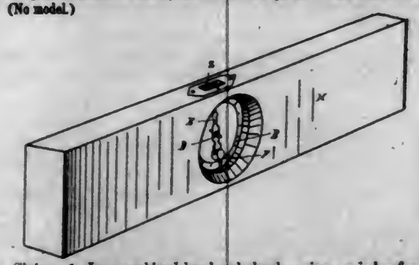
9. The combination of frame F with axle I, star or radial gripping-jaws G, springs *g*, skeleton hub J, washer H, wedge M, and cams K, substantially as and for the purpose specified.

10. The combination of frame F, having cams K, with star or radial gripping-jaws G, arranged in pairs and pivoted to the frame F, bar L, having wedge M, levers N P, and bars R and O, substantially as and for the purpose specified.

11. The combination of frame F, having cams K, with star or radial gripping-jaws G, arranged in pairs and pivoted to the frame F, washer H, springs *g*, bar L, having wedge M, levers N P, and bars R and O, substantially as and for the purpose specified.

12. The combination of frame F, having cams K, with star or radial gripping-jaws G, arranged in pairs and pivoted to the frame F, bar L, having wedge M, and stop-plate L', levers N P, and bars R and O, substantially as and for the purpose specified.

318,099. PENDULUM-LEVEL. ADDISON E. GARDNER, Milan, Mich., assignor of one-half to Henry B. Benson, same place. Filed Feb. 5, 1885. (No model.)

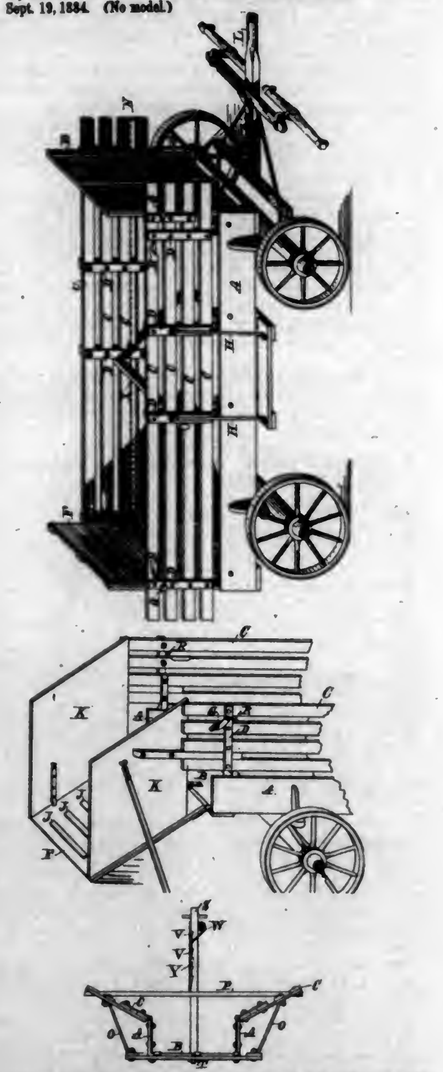


Claim.—1. In a combined level and plumb, a ring, an index-finger supported upon a shaft which has its bearings in two crystals secured within such ring, in combination with a double-faced dial inclosed between said crystals, and upon which the degrees of a circle are indicated, substantially as described.

2. In a combined level and plumb, a ring within which is secured a two-faced annular dial, the opposite faces of which indicate the degrees of a circle, in combination with two crystals, a shaft, and bifurcated index-finger, the parts being constructed and operating substantially as specified.

3. The combination of the ring A, dial B, crystal C, shaft D, overweighted and bifurcated index-finger, and a level-block having a mortise in its upper face, the parts being constructed, arranged, and operating substantially as and for the purposes set forth.

318,100. WAGON-RACK. HENRY GERBER, Fox Lake, Wis. Filed Sept. 19, 1884. (No model.)



Claim.—1. The wagon-rack consisting of side rails removably affixed to the top of the side-boards of a wagon-box, and end-gates removably affixed to the wagon-box and adapted to serve as end-gates to the rack, and also one or both adapted to serve as a bridge from the ground to the wagon-box, substantially as described.

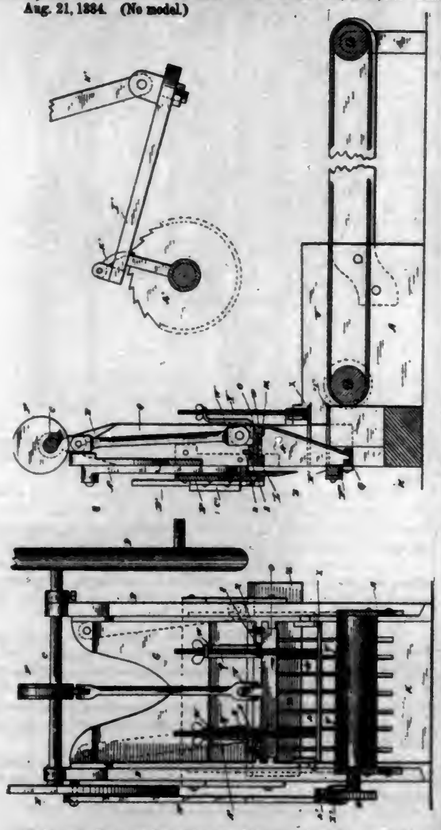
2. The wagon-rack consisting of the side rails C C, removably hinged to the top of the side-boards of the wagon-box, and the end-gates E and F, removably hinged to the bottom of the wagon-box and adapted to serve as ends to the rack, and one or both adapted to serve as a bridge from the ground to the wagon-box, substantially as set forth.

3. The wagon-rack consisting of one or more side rails, C C, rigidly held together by the cross-bars D D, removably hinged to the top of the side-boards of the wagon-box and supported by the rod-braces H H, and the end-gates E and F, removably hinged to the bottom of the wagon-box and adapted to serve as end-gates to the wagon-rack and as bridges from the ground to the wagon-box, substantially as set forth.

4. In a wagon-rack, the combination of a rack having end-gates E and F and side rails with spaces between the rails with the space-filling rails N, substantially as set forth.

5. In a wagon-rack, the combination of a rack having side rails, C C, and end-gates E and F, which end-gates, either one or both, are adapted to serve as bridges from the ground to the wagon-box, with the wings or guards K K, substantially as set forth.

318,101. CARAMEL-CUTTER. CHARLES GERBER, York, Pa. Filed Aug. 21, 1884. (No model.)



Claim.—1. In a candy-cutting machine, a series of knives advancing parallel cuts into a sheet of candy and a single knife operating at an angle to the others to divide the strips into blocks.

2. In a candy-cutting machine, a series of knives advancing parallel cuts into a sheet of candy and adjustable as to the width of the strips cut and a knife operating at an angle to the others to divide the said strips into blocks.

3. In a candy-cutting machine, a series of knives advancing parallel cuts into a sheet of candy and adjustable as to the width of the strips, a knife operating to cut the strips into blocks, and a feed giving an adjustable intermittent advancing motion to the candy.

4. In a candy-cutting machine, a reciprocating frame guided between two standards, the said frame carrying a series of knives removably secured to it for cutting a sheet of candy into strips, and a knife at an angle to the others for cutting the strips into blocks.

5. In a candy-cutting machine, a reciprocating frame guided between two standards and given motion by a drive-shaft, to which it is connected, the said frame carrying a series of knives for cutting a sheet of candy into strips, a knife at an angle to the others for cutting the strips into blocks, and a clamp for holding the sheet while being cut.

6. A series of triangular knives sharpened on the slanting edge and secured in a frame, the said frame moving perpendicular to the material to be cut, so that the knives will make an advancing or shear cut in operation.

7. In combination with a frame having a beveled cross-piece, a triangular knife sharpened on the slanting edge and provided with an extension having an undercut bevel, and a lock-piece fitting over both the extension on the knife and the cross-piece on the frame and provided with a beveled flange which engages with one side of the said extension on the knife, the lock-piece being removably secured in the frame, substantially as and for the purpose specified.

8. In combination with a movable frame, a knife hung to the frame by pivoted links and provided with a slanting bar or post operating in ways or guides set at the same angle as the said bar and secured to a piece or plate which is fastened to the standards in which the movable frame operates, the knife having an advancing downward motion as the frame descends.

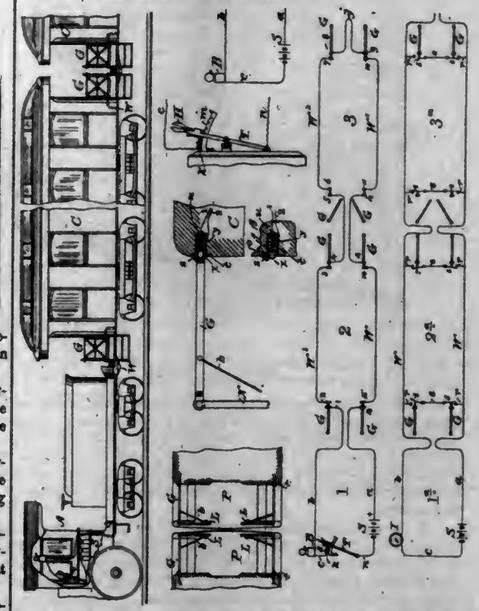
9. In combination with a frame carrying a series of triangular knives, a slotted bed or block carrying on its upper surface a plate having a series of tongues projecting from one side, the knives operating between them and being guided thereby, the plate being beveled on the other side, substantially as and for the purpose specified.

10. In a candy-cutting machine, a clamp consisting of a tongued plate secured to a movable frame by means of spring-surrounded bolts provided with thumb-screws and supported by standards.

11. A candy-cutting machine consisting of a bed having at one end standards carrying a drive-shaft, a movable frame having a series of triangular knives removably and adjustably secured to it, an adjustable spring-clamp secured also to the frame, a knife at an angle to the others and hung by pivoted links to the said frame having a slanting post which is guided in ways secured by a plate to the standards, and an adjustable intermittent advancing mechanism consisting of a ratchet secured to a belt-roller shaft and a pawl pivoted to a slotted lever operated by a pitman secured to a wheel on the drive-shaft, which also operates the movable frame by means of a pitman and an eccentric, the series of knives being guided by a tongued plate which receives a sheet of candy from the feeding-belt, the several parts combining to cut the sheet into blocks at one operation, substantially as and for the purpose specified.

12. In combination with a cutting-knife, a renewable bed consisting of a bracket secured to the standards supporting the knife at some distance above their base and a comparatively-narrow strip of wood or like material adapted to be slipped into the bracket and on which the edge of the knife rests after having severed the candy-strips.

318,102. ELECTRIC TRAIN-SIGNALING. EZRA T. GILLILAND, Boston, Mass. Filed Feb. 24, 1885. (No model.)



Claim.—1. The combination, with a locomotive and a train of cars, of a series of platform-gates for the said cars, an electric circuit, a series of circuit-controllers included in the said circuit, and independent of but mechanically actuated by the said gates, and a signaling-instrument placed on the locomotive and adapted to give a signal in response to the united action of all of the circuit-controllers, substantially as and for the purpose specified.

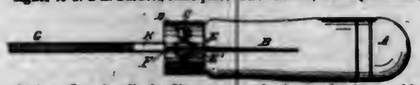
2. The combination, with a locomotive and a train of cars attached thereto, and provided, as shown and described, with platform-gates, of an electric circuit extending from the engine to the several cars, an alarm-instrument included in the said circuit and placed on the engine, a series of circuit-changers in the said circuit, one for each platform-gate, automatically actuated by the opening and closing of said gates, and means,

substantially as indicated, whereby the circuit may be automatically opened and closed when the engine is started and stopped, substantially as described.

3. The combination, with a locomotive and a train of cars provided, as hereinbefore described, with platform-gates, of an electric circuit including a signaling-instrument placed on the engine, and a battery or other equivalent source of electric energy, a series of circuit-changers included in and controlling the said circuit, each circuit-changer being adapted to be automatically operated by the opening and closing of one of the platform-gates, so that the concurrent action of all the circuit-closers is required to actuate the signaling-instrument, and an auxiliary circuit-changer also included in the same circuit but controlled by the throttle-lever of the locomotive so that the said lever when moved to start and stop the engine is enabled at the same time to actuate the said auxiliary circuit-closer and open and close the circuit, substantially in the manner and for the purposes specified.

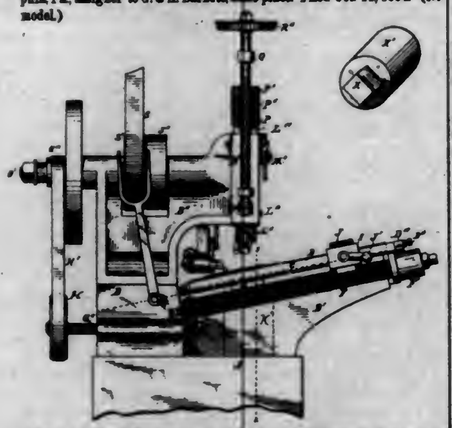
4. The combination of an electric circuit, a circuit closer or changer therefor, and a locomotive-engine throttle or regulator, whereby the circuit may be opened by the action of starting the engine and closed by the action of stopping the engine, or vice versa, as described.

318,103. TOOL-HANDLE. HENRY J. GOULDS, Philadelphia, Pa., assignor to G. & H. Barnett, same place. Filed June 7, 1884. (No model.)



Claim.—In a handle for files, rasps, and other tools, the combination of handle A, with a split, B, inner contained split-clamp, I, split ferrule C, screw-threaded pierced ears E E', and screw-threaded bolt D, the said clamp I being adapted, when compressed, to hold and retain the tang or butt of a rasp, file, or other tool, substantially as described.

318,104. FILE-CUTTING MACHINE. HENRY J. GOULDS, Philadelphia, Pa., assignor to G. & H. Barnett, same place. Filed Oct. 11, 1884. (No model.)

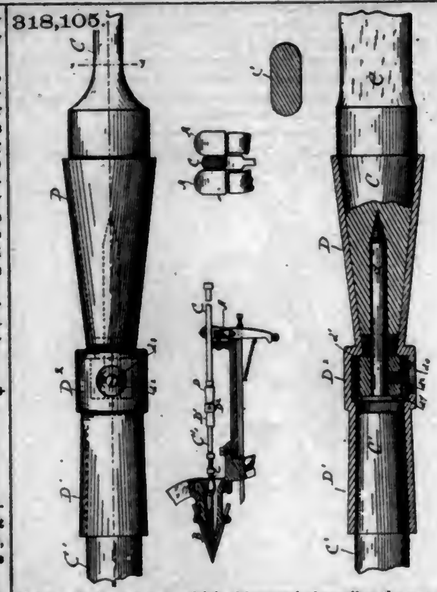


Claim.—1. In a file-cutting machine, the combination of the main frame B B' B'' and the independent anvil K K', set in a recess or opening in said frame directly beneath the chisel L and resting below upon the block or support A, whereby the vibrations caused by the descent of the chisel will be received directly upon the independent anvil and the main support, instead of being sustained by the main frame, substantially as described.

2. In combination with the main frame B B' B'', the plunger L I V, having a serrated face, as shown, adjusting-block M', tappet M, and nut M'', projecting through the recess or opening M''', the rear end of said tappet coming in contact with the eccentric O, whereby said tappet and the plunger L I V are raised between the strokes of the chisel L, and the depth of stroke of the latter is regulated or adjusted, substantially as described.

3. In a file-cutting mechanism, the presser-foot U'', suspended in a grooved hanger, T, from the main frame, provided with a short shaft, U, through the block T'', worm-wheel V, worm V', hand-wheel V'', whereby the presser-foot can be inclined and made to bear upon either side of the file-blank, and the lever W, by the raising of which the operator can elevate the presser-foot and release the file blank from beneath it, substantially as described.

318,105. NIPPER-ROD FOR NAIL-PLATE FEEDERS. JNO. C. GOULD, Chicago, Ill. Filed Jan. 27, 1885. (No model.)



Claim.—1. The combination, in a nail-plate feeder, with the grippers of the kind shown, and which intermittently seize and feed the nipper-rod, of a two-part rod joined by a swivel-coupling, the part acted upon by the grippers being flat, substantially as and for the purpose set forth.

2. The combination, with the two-part nipper-rod, of the socket-piece having a tapered portion to receive the tapered end of one of the rod-sections, the pin inserted in said tapered section, and the collar secured adjustably to the pin, substantially as specified.

3. A swivel-coupling for the sections of a two-part nipper-rod, consisting of sockets for each of the rod-sections, one socket being adapted to hold its section rigidly, and the other to rotate upon its section, both sockets being formed in one piece, substantially as specified.

4. The combination, with a two-part nipper-rod, of a socket-piece tapering at one end, and means, substantially such as specified, for securing and tightening the rod in such tapered portion, substantially as specified.

5. The combination, with a two-part nipper-rod, of the socket-piece D D' D^2, made in one piece and having the opening d^2, the pin d, the collar and screw, substantially as specified.

6. The piece D D' D^2, made in one piece, having the enlarged chambers d^3, in combination with a collar and its holding-screw, substantially as specified.

318,106. GAS-GENERATING APPARATUS. ARTHUR O. GRANGER, Philadelphia, Pa. Filed Dec. 10, 1884. (No model.)

Brief.—Hydrocarbon oil is forced through a coil in a steam-heated chamber, and thence in the form of fine spray or vapor into the fixing-chamber to carburet the water-gas.

Claim.—1. A superheater for gas apparatus, consisting of a fire-brick chamber filled with vertical tubes of fire-brick up through and between which the water-gas passes, and a supporting-arch having openings or passages connecting with the flues and intertubular spaces, in combination with a gas-generator, substantially as and for the purpose specified.

2. A superheater having a roofed combustion-chamber at the bottom and its body filled with vertical tubes of fire-brick, through and between which the water-gas passes, the said roof of the combustion-chamber being provided with holes or apertures connecting with the flues and the intertubular spaces between them, substantially as and for the purpose specified.

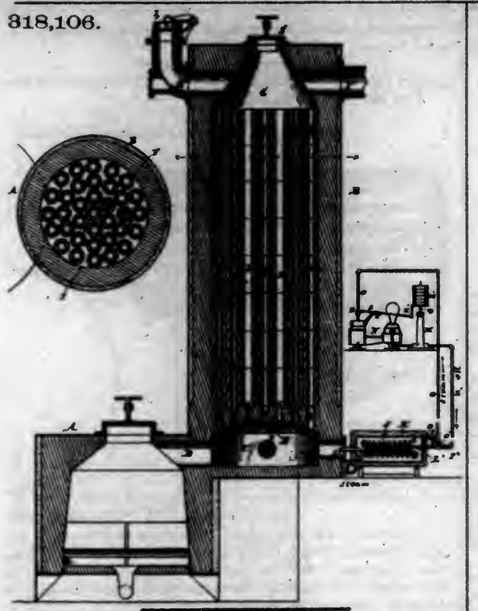
3. The combination of a superheater of a gas apparatus with the oil-nozzle L^2, coils L, cylinder J, and steam-pipes to conduct steam through said cylinder, substantially as and for the purpose specified.

4. The combination of a superheater of a gas apparatus with the oil-nozzle L^2, coils L, pipes O L', and steam-pump N, substantially as and for the purpose specified.

5. The combination of a superheater of a gas apparatus with the oil-nozzle L^2, coils L, pipes O L', steam-pump N, and a regulator, substantially as and for the purpose specified.

6. The combination of a superheater of a gas apparatus with the oil-nozzle L^2, coils L, pipes O L', valves O' P^2, and a connection between pipes O and L', substantially as and for the purpose specified.

318,106.



318,107. CAR-COUPLING. SAML. F. GREEN, Salamanca, N. Y. Filed Mar. 11, 1885. (No model.)



Claim.—A car-coupler comprising a spring-metal head, A, having the oval opening E, the jaws B, having the heart-shaped opening D and curved faces *b*, the lever F, having projection G, the notched bar H, and the arrow-headed link or bolt C, substantially as described.

318,108. ADJUSTABLE CRESTING. CHRISTIAN HANIKA, Springfield, Ohio. Filed Jan. 20, 1885. (No model.)

Brief.—L-shaped slots at one side of the sections are engaged by L-shaped hooks having downward-projecting ends. The foot has a horizontal portion with a T-slot.

Claim.—1. In an adjustable cresting, an ornament-section provided at one side with an L-shaped or right-angle hook adapted to engage with an L-shaped or right-angle slot formed in a frame-bar extending from the frame of the ornament-section next adjoining, substantially as described, and for the purpose set forth.

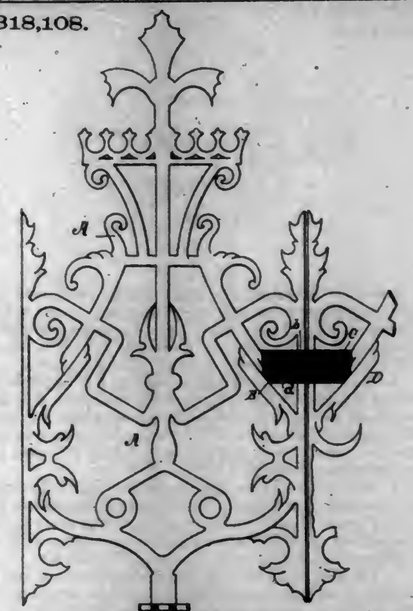
2. An ornament-section for adjustable cresting, having a frame-bar extending from one side thereof, provided with a projecting right-angled hook having a downwardly-projecting end, said hook being adapted to engage with an angular slot in the frame-bar extending from the side of the ornament-section next adjacent, the slot and hook being so shaped as to permit the connecting of ornament-sections without tipping them at an angle to one another, substantially as described.

3. The ornament-section A, provided at one side with the frame-bar B, provided with the slot *b*, of a shape substantially as shown, and at the other side with the frame-bar C, provided with a projecting right-angle hook, *c*, having the downwardly-projecting end *d*, substantially as and for the purpose described.

4. An ornament-section for cresting, the foot piece or base E of which is provided with a T-shaped slot, whereby the ornament-section may be adjusted, if desired, substantially as set forth.



318,108.



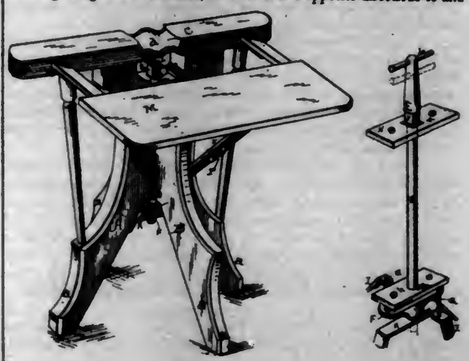
318,109. SHUTTER-WORKER. JAMES HARGRAVES, Providence, R. I. Filed Mar. 19, 1885. (No model.)



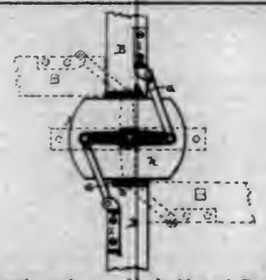
Claim.—In a shutter-worker, the combination, with a shaft having a bevel-gear at one end and means at its other end to operate same, and with a shutter provided with a hinge, of a bevel-gear having its hub provided with a central bore and slot to fit the hinge, substantially as and for the purpose set forth.

318,110. FOLDING STOOL. AMOS B. HARNISH, Medway, Ohio. Filed June 6, 1884. (No model.)

Claim.—1. A folding table with two stationary legs and two movable legs hinged to the former, so as to fold in opposite directions to and



318,110.



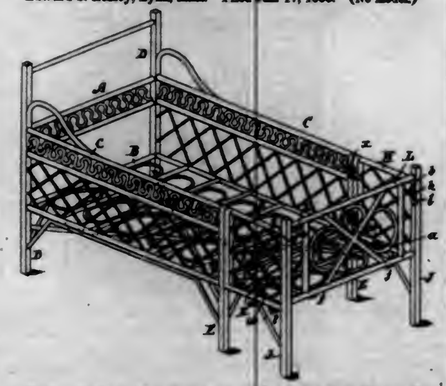
by the sides of said stationary legs, combined with a rod, E, mounted to turn in bearings attached to the stationary legs and provided with the crank-plate F and links G G, jointed to said crank-plate and to the removable legs at the respective ends of said links, as set forth, whereby the said legs may be simultaneously moved by turning said rod.

2. The stationary legs A and the movable legs B B, hinged thereto, combined with the links G G, each jointed at one end to one of the movable legs, the crank-plate F, jointed at its ends to the other ends of said links, respectively, and the rod E, with a sliding connection at its lower end with the plate F, and a locking-plate for locking said rod in position, substantially as set forth.

3. The frame A, with the legs *a*, the movable legs B, hinged thereto so as to swing around and fold against the permanent legs, the links G G, and the crank-plate F, combined with the rod E, having a sliding connection with said crank-plate and the squared or angular part J, and the correspondingly-socketed plate H, substantially as set forth.

4. The frame A and legs *a*, the hinged legs B, the rod E, with the crank-plate F and links G, and the locking-plate H, for locking said rod, crank, and legs in place, combined with the bar C across the top, and the falling leaf M, hinged thereto, and the jointed prop N.

318,111. CRIB. JAMES A. HEALEY, Wakefield, assignor to himself and Edward S. Healey, Lynn, Mass. Filed Jan. 17, 1885. (No model.)



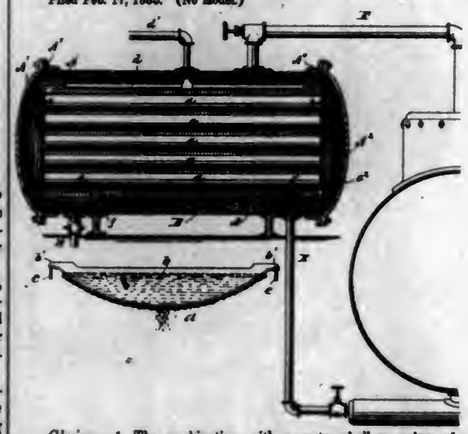
Claim.—1. In a crib substantially such as described, the combination of the following instrumentalities, to wit: a body, posts for supporting said body, a foot-piece hinged to and adapted to form auxiliary side pieces to said body, an auxiliary bottom hinged to said body, an auxiliary foot-piece hinged to the auxiliary bottom, and suitable hooks or catches for the foot-piece, auxiliary bottom, and auxiliary foot-piece, substantially as described.

2. In a crib substantially such as described, a foot-piece composed of the sections H, hinged to the posts E, and provided with the hook *l*, loops *i*, and eyes *g h a*, in combination with the bottom B, provided with the catches *r*, auxiliary bottom K, provided with the hooks *w*, and auxiliary foot-piece L, provided with the hooks *b*, said auxiliary bottom K being hinged to the bottom B, and said auxiliary foot-piece L hinged to said auxiliary bottom K, substantially as set forth.

3. In a crib substantially such as described, the auxiliary hinged bottom K, provided with the rigid hooks *w*, standing at right angles to its sides, and the auxiliary hinged foot-piece L, provided with the rigid hooks *b*, arranged in parallelism with its sides, in combination with the hinged sections H, provided with eyes adapted to engage said hooks when the crib is extended, substantially as and for the purpose set forth.

4. The improved crib herein described, the same consisting of the head-piece A, bottom B, provided with the catches *r*, side pieces, C, posts D E, hinged sections H, provided with the loops *i*, eyes *g h a*, hook *l*, and posts J, the hinged auxiliary bottom K, provided with the hooks *w*, and the hinged auxiliary foot-piece L, provided with the hooks *b*, constructed, combined, and arranged to operate substantially as described.

318,112. FEED-WATER HEATER. JOHN J. HOPPER, Springfield, Ohio. Filed Feb. 17, 1885. (No model.)



Claim.—1. The combination, with an outer shell or casing, of a series of horizontal troughs placed one above another, said troughs being closed at each end, so that the water received therein will flow over the sides thereof and in a uniform sheet under the bottom, substantially as and for the purpose specified.

2. The combination, with the outer casing provided with removable heads, of a series of troughs arranged one above the other and closed at each end by end pieces provided on each side with projections adapted to rest on longitudinal rods or ways in said casing on which said troughs are adapted to slide, substantially as set forth.

3. The combination, with the outer casing and the longitudinal troughs arranged in series one above the other therein, of the longitudinal plate under the said troughs and the vertical perforated plates under said longitudinal plate, whereby a filtering-chamber is formed under said troughs, substantially as specified.

4. The combination, with the horizontal troughs supported on longitudinal rods or ways in a cylindrical casing, of a longitudinal water-supply pipe above said troughs, a longitudinal plate under said troughs provided with a head or flange at the rear, and vertical perforated plates under said longitudinal plate adapted to form therewith a deposit-chamber, a filtering-chamber, and an exit-chamber, substantially as set forth.

5. The combination, with horizontal troughs supported on longitudinal rods or ways in a cylindrical casing and a water-supply pipe above said troughs, of a longitudinal plate under said troughs provided at its rear end with an upwardly-projecting flange and vertical perforated plates under said longitudinal plate adapted to form therewith a deposit-chamber, a filtering-chamber, and an exit-chamber, a discharge-pipe leading from said deposit-chamber, and an exit-pipe leading from said exit-chamber, substantially as specified.

6. The combination, with an outer casing, of a series of troughs adapted to receive a deposit or incrustation from the water passing thereover, said troughs being formed of sheet-steel to secure a degree of resilience, whereby the incrustations may be readily and easily removed therefrom, substantially as set forth.

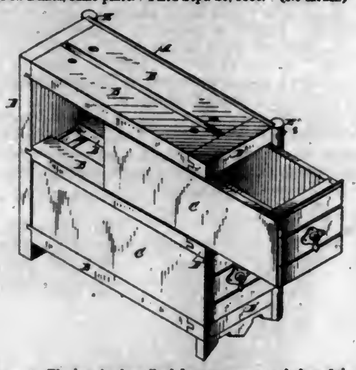
318,113. POTATO-DIGGER. CORNELIUS F. HORNBECK, Owego, N. Y. assignor to Carrie E. Hornbeck, same place. Filed Mar. 19, 1885. (No model.)



Claim.—1. In a potato-digger, the combination, with the plow having the bail F, provided with a spring, L, secured to the tongue, the arms *d d'*, pivoted to the axle and secured to the plow, of the lever M, having the arm *m* resting under said spring to raise and lower the plow, said spring also serving to allow said plow a vertical movement, as shown and described, and for the purpose set forth.

2. The combination, with the separator-frame pivoted at its front portion and having toothed wheels *i i'* journaled thereon, of the chains *k k'*, supporting the rear end of the frame from the axle and adjustable to vary the vibration of said frame, as set forth.

318,114. DRAWER-CASE. NICHOLAS A. HULL, Peru, Ind., assignor to Aaron N. Dukes, same place. Filed Sept. 25, 1883. (No model.)

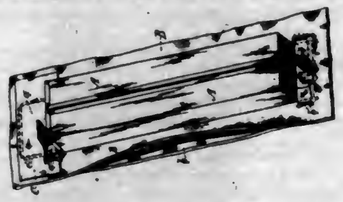


Claim.—1. The herein-described drawer-case, consisting of the sides A, composed each of a veneer and backing, grooved end pieces, D and D', brace-bars B, running parallel and tenoned to said grooved end pieces, and the rabbeted posts E, the latter serving to support the end pieces, D', secure the sides A in place, and form a finish and protection for the corners, substantially as shown and described.

2. A drawer-case consisting of the sides A, each composed of a veneer and backing, and end pieces, D and D', in combination with the rabbeted posts E, supporting the end pieces, D', and securing the sides A in place, and the parallel brace-bars B, independent of the sides A and securing the end pieces, D and D', together, substantially as shown and described.

3. In a drawer-case for sewing-machine or other like tables, the combination of suitable sides composed each of but two pieces—the veneer and backing—with grooved end pieces, longitudinal parallel brace-bars tenoned to said grooved end pieces independent of the sides, and round rabbeted corner posts, substantially as shown, and for the purpose specified.

318,115. PENCIL AND RULE POCKET. JONATHAN W. HUNT and JOHN BRESSLER, Crescent City, Cal. Filed Sept. 12, 1884. (No model.)



Claim.—1. A pocket for a carpenter's pencil and rule, consisting of a metal casing, A, formed of a single piece open at the top and closed at the bottom, and a piece of suitable fabric, B, to which said casing is secured, whereby it is adapted to be attached to the overalls or other working-trowsers, substantially as herein described.

2. A pocket for a carpenter's pencil and rule, consisting of the casing A, made of a single piece of sheet metal open at top and closed at the bottom on each side of the center, and bent to leave a longitudinal central slot in its face, substantially as and for the purpose herein described.

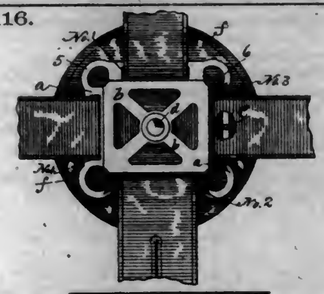
3. The metal casing A, forming a pocket having tongues *a* at the top and bottom, the folded piece of fabric B, having a slit, *b'*, for the reception of the bottom tongue, and the piece of leather C, covering and securing the upper tongue to the fabric B, the whole being constructed and arranged substantially as and for the purpose herein described.

318,116. COUPLING DEVICE FOR HARNESS-STRAPS. NATHANIEL W. HUNTER, Des Moines, Iowa. Filed Jan. 2, 1885. (No model.)

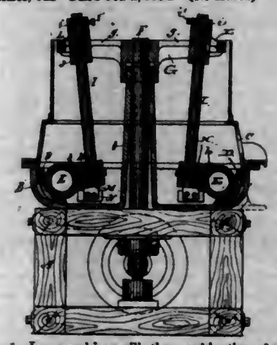
Claim.—1. As an improved article of manufacture, a harness-strap-coupling device, consisting of a ring or frame having an elevated middle portion that has horizontal slots on its sides near the base to admit the ends of leather straps, two or more loops on its outside, studs projecting downward from the middle portion to enter perforations in the straps, and a perforation in the center of the middle portion to admit a rivet.

2. The metal frame and coupling device *a b*, having slots 1 2 3 4, a central perforation, two or more studs on its under side, and two or more loops on its outside, in combination with two or more straps and a leather, *f*, for the purposes stated.

318,116.



318,117. CENTRIFUGAL CRUSHING-MILL. FRANK A. HUNTINGTON, San Francisco, Cal. Filed Oct. 2, 1884. (No model.)



Claim.—1. In a crushing-mill, the combination of the balls, a suitable pan or bed provided with a ring-die, the mullers, the arms I, adapted to have a swinging movement in radial lines, and a driver for revolving said mullers to throw them outward by centrifugal force against the balls, substantially as described.

2. In a crushing-mill, the pan B, having the ring-die D, and the balls E, in combination with the rotating driver G above the pan, the mullers H, bearing against the balls, and connections between said driver and mullers, whereby the latter are suspended and revolved, substantially as herein described.

3. In a crushing-mill, the pan B, having the ring-die D, and the balls E, in combination with the rotating driver G, the mullers H, arms I, and means by which said arms are pivoted to the driver to adapt the mullers to have a movement in radial lines, substantially as and for the purpose herein described.

4. In a crushing-mill, the balls, a suitable pan or bed, the rotating driver G, having boxes or bearings L, and the sleeves J, having cross pins or hangers K, journaled in the bearings, in combination with the mullers H and arms I, passing through and suspended from the sleeves, substantially as herein described.

5. In a crushing-mill, the balls and a suitable pan or bed, in combination with the mullers H, arms I, the rotating driver G, and the means for suspending said mullers from the driver and adapting them to have a swinging movement in radial planes, for the purpose described, consisting of the sleeves J, through which the muller-arms loosely pass, the collars *i* on the arms, the cross-pins or hangers K on the sleeves, and the boxes or bearings L on the driver in which the hangers are mounted, substantially as herein described.

6. In a crushing-mill, the pan B, having the die D, and the revolving centrifugally-acting mullers H, in combination with the hollow balls E, between the mullers and die, substantially as and for the purpose herein described.

7. In a crushing-mill, the combination of the balls, the pan having a suitable die, and the revolving centrifugally-acting mullers H, having the scrapers N at their bases operating against the charge in the bottom of the pan, substantially as and for the purpose herein described.

318,118. AXLE FOR VEHICLES. WILLIAM E. JACOBS, Columbus, Ohio. Filed Jan. 30, 1885. (No model.)

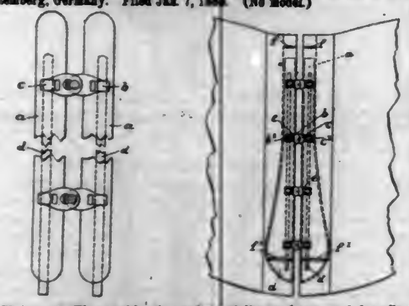


Claim.—1. A straight uniform-surfaced revolving axle with tubular bearing or bearings between the wheels and held in its place longitudi-

nally by end shoulders, one or both of which are removable, in combination with the plain wheel-boxes rotating freely upon the wheel-arms either forward or backward, substantially as described.

2. The straight uniform-surfaced revolving axle with removable shoulders at its ends, in combination with a long tubular stationary bearing, the axle forming two arms for wheels, and the bearing inclosing nearly the whole length of the axle between said arms, substantially as and for the purpose described.

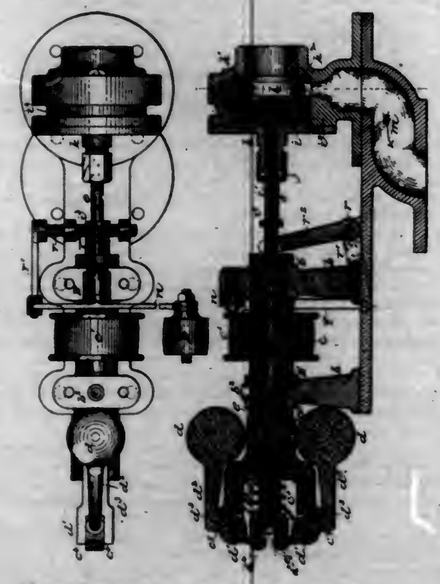
318,119. CORSET-FASTENING. HERMANN JETTER, Göppingen, Würtemberg, Germany. Filed Jan. 7, 1885. (No model.)



Claim.—1. The combination, substantially as shown and described, with flat strips of metal, as *a*, of fastening-pieces, (button and eye pieces,) as *b* and *c*, provided with rectangularly-bent loops, as *b'* and *c'*, which are fitted into and inserted through corresponding holes provided in the said metal strips, and of the metal strips, as *d*, the latter pushed through the said loops of fastening-pieces, all for the purpose set forth.

2. The combination, with removable busks, as *a*, of a corset provided with plaits which have slots, as *f* and *f'*, and cut-outs, as *e*, the fastening-pieces, as *b* and *c*, with rectangular loops, as *b'* and *c'*, said loops fitted into corresponding holes in said busks, and the removable strips of metal, as *d*, inserted on the back side of said busks through said loops of the fastening-pieces, all for the purpose set forth, and substantially as shown and described.

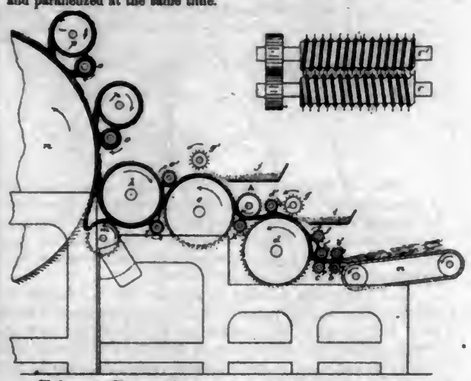
318,120. STEAM-GOVERNOR. JOHN KILLIP, Allegheny City, Pa., assignor of one-half to Henry C. Bair, same place. Filed July 17, 1884. (No model.)



Claim.—In a steam-governor, the combination of the governor-stem with a throttle-valve overbalanced on the side opposite to the governor-stem, and having a stem which abuts against the end of the governor-stem, but is disconnected therewith, so that the valve-stem shall be held against the governor-stem in its reverse movement by the pressure of the steam in the valve-chamber, substantially as and for the purpose specified.

318,121. DRAWING AND UNBURRING DEVICE FOR CARDING ENGINES. PETER L. KLEIN, Düsseldorf, Prussia, Germany, assignor of one-half to Paul H. Müller, same place. Filed Dec. 23, 1882. (No model.) Patented in Germany Oct. 19, 1880, No. 15,182, Nov. 9, 1880, No. 13,897, and Jan. 25, 1881, No. 15,166; in Belgium Dec. 21, 1880, No. 53,377, and June 29, 1881, No. 55,037; in France Dec. 23, 1880, No. 140,305; in England Jan. 10, 1881, No. 116, and in Austria-Hungary Jan. 31, 1881, No. 4,726 and No. 34,656.

Brief.—The teeth of feed-rollers are arranged spirally with grooves of semicircular section between the rows. The burring, stripping, and drawing rollers are arranged to act in pairs, and are driven at successively-increasing circumferential speeds, whereby the wool is unburred and parallelized at the same time.



Claim.—1. The combination of a pair of feed-rollers having teeth arranged spirally thereon, substantially in the manner described, and formed with grooves between said rows of teeth, as and for the purpose set forth.

2. The combination of a pair of feed-rollers, each having teeth arranged in rows thereon and formed with grooves between said rows of teeth, as and for the purpose set forth.

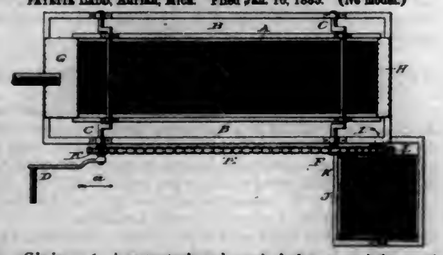
3. The stripping-roller *h*, in combination with the burring-rollers *d e*, and drawing-rollers *d' e'*, and belts and gearing, substantially as described, whereby rollers *d*, *d'*, *h*, and *e e'* are driven at circumferential speed, increasing successively in the sequence named, as and for the purpose set forth.

4. In combination with the stripping-roller *b* and drawing-roller *h'*, the burring-roller *d* and drawing-roller *d'*, said rollers *d d'* and *h h'* being arranged in pairs, a second burring-roller, *e*, and belts and gearing, substantially as described, for rotating said pairs of rollers and the roller *e* at successively-increasing circumferential velocity, as and for the purposes set forth.

5. The herein-described apparatus for drawing and parallelizing wool, consisting of feed-rollers, a burring-roller, *d*, and a drawing-roller, *d'*, stripping-roller *h*, and drawing-roller *h'*, burring-roller *e*, and drawing-roller *e'*, all arranged in pairs, substantially as described, rollers for passing the material from the last pair above named onto the carding-cylinder, and belts and gearing whereby said pairs of rollers and the subsequent rollers are revolved at successively-increasing circumferential velocity, substantially in the manner and for the purpose set forth.

6. The several pairs of rollers, *b b'*, *e e'*, *d d'*, *h h'*, and *e e'*, and rollers for taking the material from the last-named pair and delivering it onto the carding-cylinder, in combination with belts and gearing, substantially as herein described, whereby the said pairs of rolls and the delivery roller or rollers are driven at successively-increasing circumferential velocity, as and for the purpose set forth.

318,122. MACHINE FOR SEPARATING SEEDS FROM PULP. LAFAYETTE LADD, Adrian, Mich. Filed Jan. 10, 1885. (No model.)

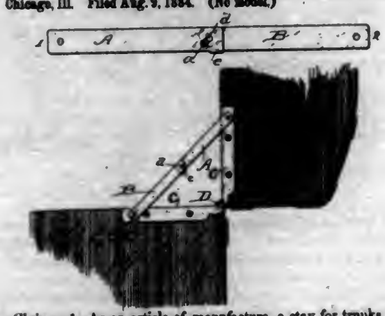


Claim.—1. A water-tank and crank-shafts mounted thereon, in combination with a sieve suspended from said cranks within said tank, whereby said sieve is moved in and out of the water in the tank and is given a forward movement when above the water-line and a backward movement when immersed in the water, substantially as set forth.

2. A tank, B, crank-shafts C C, mounted thereon, and a sieve, A, suspended from said cranks within said tank, in combination with an apron, H, attached to the bottom of the sieve and to the discharge end of the tank, substantially as set forth.

3. The tank B and the sieve A, in combination with the cylindrical screen J, and a pipe, I, leading from the tank B into the interior of said screen, and the tube inside of screen J and around pipe I, substantially as set forth.

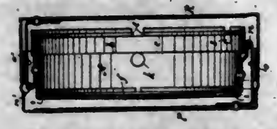
318,123. STAY FOR TRUNKS, CHESTS, &c. HENRY LAURENCE, Chicago, Ill. Filed Aug. 9, 1884. (No model.)



Claim.—1. As an article of manufacture, a stay for trunks, chests, &c., formed of the two arms A B, the end of arm A having a straight slot oblique to the length of the arm, and on the edge under said slot having the lug *e*, and the end of the arm B having a pin attached thereto working in said slot, as and for the purpose shown.

2. The combination of the stay made of the two arms A B, the arm A having a straight slot oblique to the length of the arm, and on the edge under said slot having the lug *e*, and the end of arm B having a pin attached thereto, and working in said oblique slot, with two parts, C C, hinged together at D, the free ends of arms A B being attached, respectively, to free ends of parts C C, as and for the purpose shown.

318,124. WATCH-MOVEMENT BOX. ROBERT B. LESTER, Brooklyn, N. Y. Filed Feb. 9, 1885. (No model.)



Claim.—1. The secondary box A, having a seating, *b*, for the watch-movement, and a rim extending above the dial, in combination with a ring for holding the movement in place, substantially as set forth.

2. The secondary box A, adapted to receive and hold a watch-movement, in combination with the external box and a hinge to connect the secondary box to the external box, substantially as set forth.

3. The combination, with the external box, P R, of the secondary box A, to hold a watch-movement, the standards *o o'*, and hinges *n n'*, by means of which the secondary box is connected to the outer box and the parts capable of being opened, substantially as set forth.

4. In a box for holding watch-movements, a bottom and cover, in combination with an intermediate secondary box for the movements, standards connected by hinges to the secondary box and to the bottom and cover, respectively, a movable ring to hold the movement into the secondary box, and a glass in the lower part of the secondary box, substantially as set forth.

318,125. DOOR-HANGER. DAVID MANUEL, Hyde Park, Mass., assignor to himself, George Haigh, same place, Herbert C. Somes, Milton, and Thomas Lonergan, Canton, Mass. Filed May 22, 1884. (Model.)



Claim.—1. The combination, substantially as set forth, of a hanger-box having a circular opening in its bottom, concave rollers journaled within said box, and a ball interposed between said rollers and bottom and projecting through said opening below said bottom.

2. The combination, substantially as set forth, of a hanger-box the bottom of which is provided with a circular opening and with downward-projecting studs on opposite sides of said opening, concave rollers journaled within said box, and a ball interposed between said rollers and bottom and projecting through said opening below said bottom between said studs.

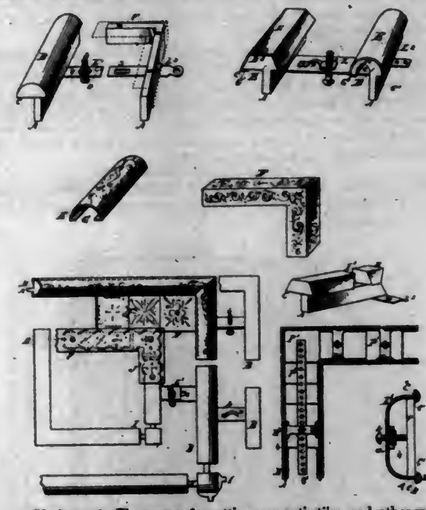
3. The combination, in a door-hanger, of an inclosing box or body having a slot in its bottom plate, and a cap having a vertical arm which shuts within the vertical flange of said body and projects into said slot, substantially as described.

4. The combination, in a door-hanger, of a box comprising a body composed of an angular plate the horizontal arm of which has a circular opening, a rectangular slot and downward-projecting studs on opposite sides of said opening, and a cap connected to said body and having an inner vertical flange which enters said rectangular slot, a ball within said box projecting through said circular opening, and rollers journaled within said box and resting on said ball, substantially as described.

5. The combination, with a door-hanger, of angular attaching metallic straps provided with slots in their upper ends transversely to the hanger, and screw-bolts passing through said slots into said hanger, whereby the door may be laterally adjusted on the hanger, substantially as described.

318,126. APPARATUS FOR SETTING ENCAUSTIC TILES, &c. RIVERIUS MARSH, New Brunswick, N. J. Filed May 8, 1884. (No model.)

Brief.—An adjustable sectional frame consisting of sections connected together and adjusted longitudinally by slides and held in position by adjustable cross-bars. The grooved corner-sections are arranged to receive the slides from either side of the frame. The sections are strengthened and supported by curved cross and longitudinal bars at the back of the sections.



Claim.—1. The means for setting encaustic tiles and other material in adjustable sectional frames without the use of plaster or cement, consisting of set-screws or springs attached to or passing through the cross-bar in the back of the frame and acting against the back of tile, forcing and holding it up against the lower part of the top piece, B, or the slide or covering E, substantially as described.

2. In a section of an adjustable frame for holding tiles and other material, the adjustable cross-bar *L'* with slot and screw, in combination with the side sections, A, and top B, and arranged to adjust the width of the section laterally, substantially as described.

3. In a section of an adjustable frame for holding encaustic tiles and other material, the cross-bar L with its screw or spring, in combination with the side pieces, A, and top pieces, B, and slide or covering E, and arranged to connect with other sections by means of the said slide or covering E, substantially as shown and described.

4. In a section of a frame for holding encaustic tiles and other material, the channeled or grooved corner-section, I, arranged to receive the slide or covering from either side of the frame, substantially as described.

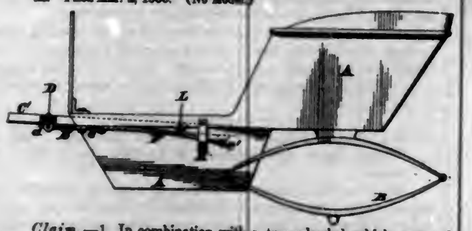
5. In a frame for holding encaustic tiles and other material, the combination of two or more adjustable sections arranged to receive a slide or covering and adjustable both laterally and longitudinally, as shown and described.

6. In a section of a frame for setting and holding encaustic tiles and other material, the flat or angle-shaped slide or covering F, in combination with an adjustable sectional frame, substantially as shown and described.

7. In a section of a single frame for holding encaustic tiles and other material, the side pieces, A, and top B, arranged to receive a slide or covering, in combination with the curved cross-bar L^3 and longitudinal bar O' and screw 4, substantially as shown and described.

8. In a frame for holding encaustic tiles and other material and composed of adjustable sections, the combination of the following parts: the side sections, A, and top B, the channeled or grooved corner-section I, cross-bars L' L^3, longitudinal bar O', screw and nut 4, and slide or covering E and F, all constructed and arranged substantially as herein shown and described.

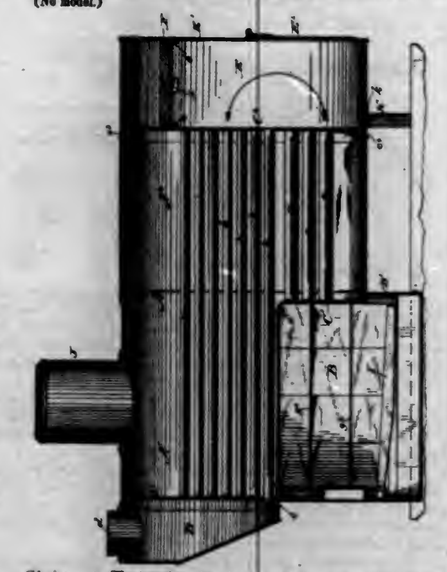
318,127. TWO-WHEELED VEHICLE. JOHN T. McINTYRE, Chicago, Ill. Filed Mar. 2, 1885. (No model.)



Claim.—1. In combination with a two-wheeled vehicle mounted on suitable riding-springs, B B', the springs E F E' F', attached to the body at *e f*, and coupled in front by their short or relatively-rigid portions to the splinter-bar D, the rear or flexible ends of these springs E F E' F' being united to the shafts C C' at or near the rear ends of the latter, for the purpose specified.

2. In combination with a two-wheeled vehicle mounted on suitable riding-springs, B B', the springs E F E' F', attached to the body at *e f*, and coupled in front by their short or relatively-rigid portions to the splinter-bar D, the rear or flexible ends of said springs E F E' F' being provided with outwardly-projecting studs G G', that engage with boxes *c c'*, which latter are fastened to the shafts C C', and at or near the rear ends of the latter, for the purpose specified.

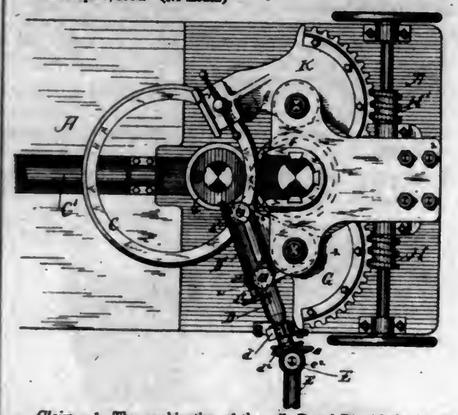
318,128. PORTABLE TUBULAR BOILER. WILLIAM MORAN, Erie, Pa., assignor to the Erie City Iron Works, same place. Filed Dec. 2, 1884. (No model.)



Claim.—1. The combination, in a portable return-tube tubular boiler having the cylindrical portion over the fire-pot, the elliptical portion in rear thereof, the direct and return tubes, and the chamber connecting said tubes, as described, of the removable brick-lined fire-pot and the smoke-box, all constructed and arranged substantially as described.

2. The combination, in a portable return-tube tubular boiler having the cylindrical portion over the fire-pot, an elliptical portion in rear thereof, the direct and return tubes, and the chamber connecting said direct and return tubes, of the removable deflecting-partition arranged in said chamber above the plane of the return-tubes, the smoke-box, and the removable brick-lined fire-pot, substantially as described.

318,129. TIRE-ROLLING MACHINE. JAMES MURTON, Maywood, Ill. Filed Apr. 8, 1884. (No model.)



Claim.—1. The combination of the rolls B and B' with horizontal edging-in rollers D and D', a movable housing on which roller D' is mounted, and gearing connecting roller D with the driving-shaft, substantially as specified.

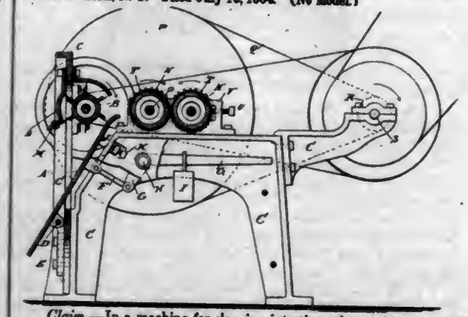
2. The combination of rolls B and B' with horizontal edging-in rollers D and D', a movable housing for roller D', and gearing, substantially such as described, for driving said roller D at a higher surface-speed that that of the main roll B, substantially as specified.

3. In a tire-rolling machine, the combination of the rolls B and B', pivoted segment G, provided with housing F for roll D', vertically-adjustable bearings d^3, screws d^3, toothed wheels d^3, shaft d^3, provided with worms d^3, substantially as specified.

4. The combination of the rolls B and B', horizontal edging-in rollers D and D', and friction-rollers d' d', for supporting the inner end of said roll D, substantially as specified.

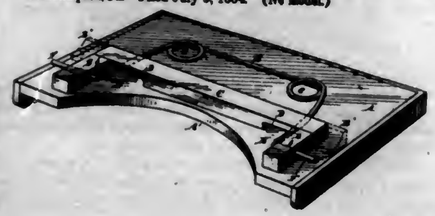
5. The combination of the vertical rolls B and B', provided with collars or flanges *b* at their bottom edges or ends only, with the horizontal edging-in rollers D D', substantially as specified.

318,130. MACHINE FOR CLEANING INTESTINES. CHARLES NIDA, New York, N. Y. Filed July 16, 1884. (No model.)



Claim.—In a machine for cleaning intestines, the combination, with a rotary scraper, of a pivoted board adapted to swing toward and from the scraper, the lugs J, projecting from the back of the board, and the screws K, held in the ends of the said lugs and adapted to strike against the frame of the machine, and thus limit the vibrating movements of the platform, substantially as herein shown and described.

318,131. TRAY FOR CHILDREN'S CHAIRS. HENRY H. PAINE, Philadelphia, Pa. Filed July 3, 1884. (No model.)



Claim.—1. A tray for a baby's chair, having supporting-pins one or both of which are forced outward by springs, whereby they may automatically adjust themselves to chairs of different width, in combination with said springs, substantially as and for the purpose specified.

2. A tray for a baby's chair, having supporting-pins secured to or carried by springs, in combination with said springs, and guides to limit the movement of said pins, substantially as and for the purpose specified.

3. A tray for a baby's chair, having supporting-pins secured to or carried by springs, in combination with said springs, and guides to limit the movement of said pins and support said springs to said tray, substantially as and for the purpose specified.

4. A tray for a baby's chair, having supporting-pins one or both of which are forced outward by springs, whereby they may automatically adjust themselves to chairs of different width, and supporting-blocks to fit upon the rounded arms of the chair to hold the tray horizontally, in combination with a chair having rounded arms, substantially as and for the purpose specified.

5. A tray for a baby's chair, having adjustable supporting-pins and supporting-blocks to fit upon the rounded arms of the chair to hold the tray horizontal, in combination with a chair having rounded arms, substantially as and for the purpose specified.

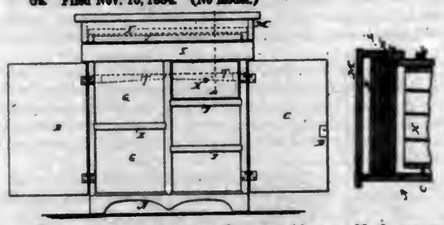
6. The combination of tray A, blocks B, pins F, and springs E *e* E', substantially as and for the purpose specified.

7. The combination of tray A, blocks B, guide-piece C, having slots D, pins F, and springs E *e* E', substantially as and for the purpose specified.

8. The combination of tray A, blocks B, supporting-blocks B', pins F, and springs E *e* E', substantially as and for the purpose specified.

9. The combination of tray A, blocks B, guide-piece C, having slots D, supporting-blocks B', pins F, and springs E *e* E', substantially as and for the purpose specified.

318,132. HOUSEHOLD FURNITURE. FELIX G. G. PEEK, Philomath, Ga. Filed Nov. 10, 1884. (No model.)



Claim.—1. The stand having the removable cover M, the removable pastry-board K, and the stationary meat-slab J, a space being left between the pastry-board and the top of the cover, substantially as and for the purpose described.

2. The stand consisting of the frame A, divided into suitable compartments and having doors B C, the upper part of the stand consisting of the meat-slab J, pastry-board K, and top or cover M, the two latter being removable and having a space between them, substantially as and for the purpose set forth.

318,133. BATHING-SUIT. JOHN J. PFISTER, San Francisco, Cal. Filed Oct. 2, 1884. (No model.)

Claim.—1. As a new article of manufacture, a knit bathing-suit having both halves of the body, together with the legs and stockings, knit in continuous cylindrical pieces and united down the back, substantially as herein described.

2. As a new article of manufacture, a knit bathing-suit consisting of the pieces A, each knit in a continuous cylindrical piece and united in the back of the suit, the crotch-piece B, sleeves C, and collar E, substantially as herein described.

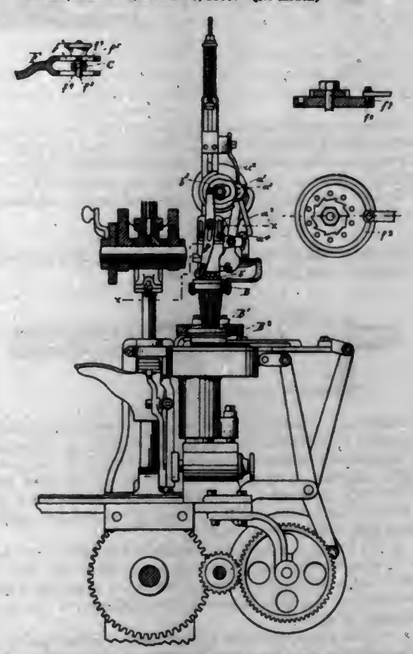
3. In a bathing-suit, the combination, with the pieces A, each knit in a continuous cylindrical piece and united, as described, of the auxiliary strip or flap D on the shoulders and extending down back and front a short distance, substantially as and for the purpose described.



318,133. [illegible]



318,134. HEEL-NAILING MACHINE. FREEBORN F. RAYMOND, 2d, Newton, Mass. Filed Mar. 18, 1885. (No model.)



Claim.—1. In combination with a nail-distributer adapted to receive nails singly and to deliver them to a nail-holder, a nail-holder arranged to receive nails singly and hold them in a group for delivery, nail-making devices having a variable wire-feeding mechanism, and a cam or pattern for automatically adjusting or regulating the feeding device, all substantially as and for the purposes described.

2. The combination of a nail-distributer, B, adapted to receive nails singly from a nail-making device, a nail-holder, B, adapted to receive the nails from the distributer and hold them in a group, a nail-making device having a variable wire-feeding mechanism, devices, substantially as specified, for setting or regulating the operation of the wire-feeding mechanism, and a cam or pattern connected with the said devices for

adjusting the feeding and connecting mechanism, whereby the size of the nail may be predetermined and fixed, and variation from this predetermined length made, all substantially as and for the purposes described.

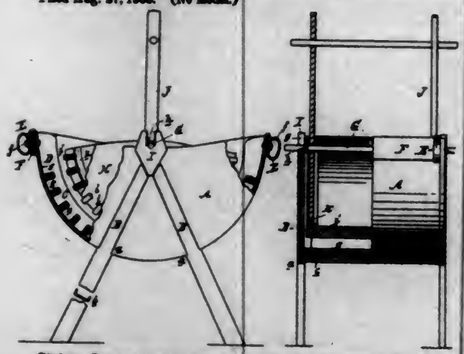
3. The combination, in a heel-nailing machine, of the nail-distributer adapted to receive nails singly, a nail-holder adapted to receive nails from a distributer singly and to hold them in a group for delivery, a cam or pattern for automatically governing the length of the nails fed to the nail-distributer, and the nail-carrier B and nail-driving devices, all substantially as and for the purposes described.

4. The combination of the cam or pattern D, the lever E, link F, and the arm C, all substantially as described.

5. The combination of the arm C and the movable arm F for operating it, and devices, substantially as specified, for changing or adjusting the position of the arm C in relation to the arm F, all substantially as described.

6. The combination of the mechanism for feeding the wire, the devices for varying the feed, the lever C, for operating said devices, the cam or pattern and connecting devices, substantially as specified, for moving the lever C automatically, and the nail-driver, all substantially as described.

318,135. WASHING-MACHINE. William J. Reed, St. John's, Mich. Filed Aug. 27, 1883. (No model.)



Claim.—In combination with a tub having a semi-circularly-shaped bottom, a rubber consisting of two segmental non-corrosive slat-holders, D, formed of metallic strips D', provided with slots and having projecting flanges *c*, and transverse slats *e* passing into said slots, the ends of said flanges *c* being bent over to form hooks and handles, substantially as and for the purposes set forth.

318,136. SCREW-PLATE. Jules E. Reinecker, Chemnitz, Saxony, Germany. Filed June 9, 1884. (No model.)



Claim.—1. A die-head and screw-cutting dies transversely grooved, as described, in combination with an adjusting-disk having axial motion and provided with eccentric ribs or flanges which turn in said grooves to adjust said dies, a perforated or recessed clamping-ring which holds said disk in its place, and a pivoted catch which moves with said disk and locks the latter, when desired, by engaging with said perforated or recessed plate, substantially as set forth.

2. The band *c*, in combination with the adjusting-disk *f*, to which it is clamped, the dies *b c d*, adjusted by the turning of said disk, the pivoted catch *p*, and handle *q*, whereby said disk is turned, and a fixed plate which is perforated or recessed for the engagement of said catch, substantially as set forth.

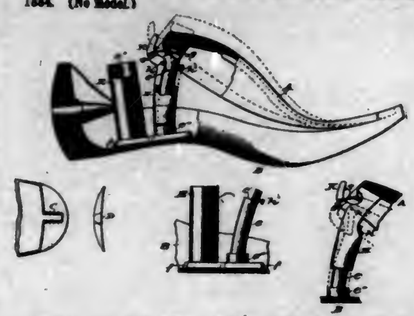
3. A die-stock provided with a guide having a central opening for directing the tube to be screw-threaded into said die-head, said guide being attached to said stock and removable therewith, substantially as set forth.

4. The combination of a guide-plate having a central opening and guide-rods with a die-head through which said rods move, for the purpose set forth.

5. The combination of guide-plate *u*, having central opening, *u'*, with tubular guide-rods *s t*, die-head *a*, through which said guide-rods move, and replacing-springs *t'*, substantially as set forth.

6. The detachable plates *v*, in combination with the die-head to which they are fastened, the guide-plate *u*, the tubular guide-rods *t*, and the helical springs *t'*, inclosed, respectively, within said guide-rods, each of said springs bearing at one end against one of said plates *v* and at the other end against said guide-plate *u*, substantially as set forth.

318,137. LAST. George A. Reynolds, Utica, N. Y. Filed Jan. 31, 1884. (No model.)

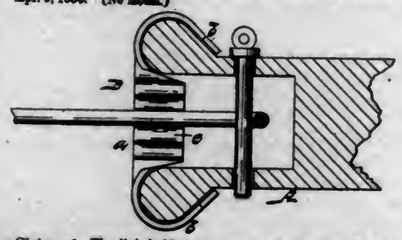


Claim.—1. In a metallic collapsible shell-last, part A, provided with tongue D, part B, provided with groove C, socket E, upright *e*, with shoulders *e'* and *e''*, formed in one piece, with projecting flanges fitting in a groove and held rigidly to the instep of section B, a tubular socket, H, rigidly secured to A and fitting over the upright *e*, and provided at the lower end with circular band, as described, screw *h''*, to prevent excessive expansion, and catch K, for holding the sections when expanded, in combination, substantially as described

2. The herein-described collapsible shell-last having two sections joined at the toe by dovetail groove and tongue, as described, the lower section of the last having a dovetail groove in the longitudinal center of the heel, in combination with socket E and upright *e*, held in place by dovetail flange inserted in a groove and rigidly secured to section B, a tubular socket secured to A and fitting over the upright, and provided with suitable means for opening and closing the two sections of the last, as described.

3. In a metallic collapsible shell-last, upright *e*, attached to section B, as described, in combination with tubular socket H, secured to section A, adapted to fit over the upright post, as described, and catch K, held in place by spring S, adapted to hold the last rigidly when expanded and to permit the contraction of the last at the will of the operator, as described.

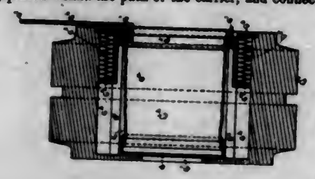
318,138. CAR-COUPLING. Solomon J. Rhoads, Metropolis, Ill. Filed Apr. 9, 1885. (No model.)



Claim.—1. The link holder or supporter herein described, consisting of the corrugated springs, plates, or arms secured to the draw-head and extending within the mouth of the same, substantially as described, and for the purpose set forth.

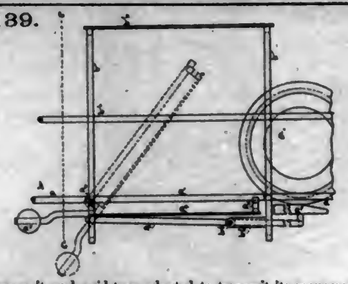
2. A spring link-holder for draw-heads of railway-cars, consisting of the corrugated horizontal spring-arms *c*, adapted to receive and hold the link, the connecting-arms *b*, and the band *c*, adapted to be secured to said draw-head, as and for the purpose set forth.

318,139. CASH-CARRYING APPARATUS. David H. Rice, Lowell, Mass. Filed Apr. 20, 1885. (No model.)



Claim.—1. The combination of the way A, a normally-open trap suspended in said way upon pivots transversely thereto, the yielding spline a^2, placed within the path of the carrier, and connecting mechanism between it and said trap adapted to transmit its movement when struck by a carrier to said trap, and close the same to allow said carrier to pass thereover, substantially as described.

318,139.



2. In the carrier C', the combination of the chamber *c*, the cash-box C^2, provided with the cover c^3, and one or more springs, c^3, adapted to normally hold said cash-box within said chamber, substantially as described.

3. In the carrier C', the combination of the chamber *c*, the cash-box C^2, one or more springs, c^3, adapted to normally hold said cash-box within said chamber, and the cover c^3, pivoted to said cash-box by a pivot parallel, or nearly so, to the axis of the box, and adapted to be swung past the outer face of the carrier and to hold the box outward against said springs, substantially as described.

4. The combination, in the carrier C', of the chamber *c*, the cash-box C^2, sliding therein, and the supplemental aperture *c'* in the bottom of said chamber extending through the wall of the carrier and adapted for pressing through it against the said box and sliding it out of said chamber, substantially as described.

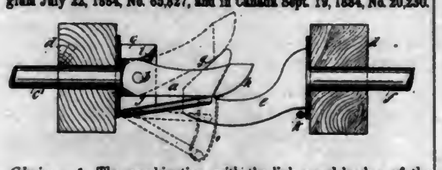
5. The combination, in the carrier C', of the chamber *c*, the cash-box C^2, sliding therein, one or more springs, c^3, pressing said cash-box into said chamber, and the supplemental aperture *c'* through the wall of the carrier in the bottom of said chamber, substantially as described.

6. The combination, in the carrier C', of the chamber *c*, the cash-box C^2, sliding therein and capable of having its open end and cover withdrawn within said chamber, and the cover c^3, fitting said chamber in cross-section, pivoted upon the cash-box to swing transversely of the chamber, and capable of being locked by being withdrawn into the same with the cash-box, substantially as described.

7. The combination, in the carrier C', of the chamber *c*, the cash-box C^2, sliding therein, the cover c^3, pivoted to said cash-box to swing transversely of said chamber and enter the same when closed, and the stop c^5, adapted to check the turning of said cover when it registers with the cash-box, substantially as described.

8. The combination, in the carrier C', of the chamber *c*, the cash-box C^2, sliding therein, provided with a flexible portion, c^4, and a rigid portion, c^5, and one or more springs, c^3, adapted to bear upon and compress said rigid portion upon said flexible portion of the cash-box, substantially as described.

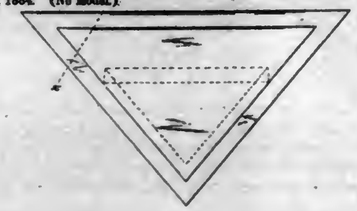
318,140. CAR-COUPLING. Edmond Richmond, Leicester, County of Leicester, England. Filed Aug. 4, 1884. (No model.) Patented in England Jan. 3, 1884, No. 498; in France July 22, 1884, No. 163,434; in Belgium July 22, 1884, No. 65,827, and in Canada Sept. 19, 1884, No. 20,230.



Claim.—1. The combination, with the link *a* and hook *e*, of the guard *o*, substantially as described, for the purpose specified.

2. The combination of link *a*, hook *e*, draw-head *c*, rod *k*, handle *n*, and guard *o*, substantially as described, for the purposes specified.

318,141. DIAPER. Leopold S. Samuel, Newark, N. J. Filed Oct. 31, 1884. (No model.)

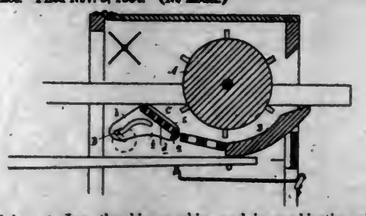


Claim.—1. A diaper made of textile fabric and adapted to be secured on a child's body, said diaper being doubled into a triangular two-ply sheet to provide three ends adapted to be passed around the body and between the child's legs, respectively, and removable paper lining adapted to protect said textile fabric, said parts being arranged and operating substantially as and for the purposes set forth.

2. A diaper, substantially such as described, consisting, essentially, of a textile fabric doubled into a triangular shape to provide three ends adapted to be secured around the child's body and between his legs, and an impervious lining adapted to protect said textile fabric, said parts being arranged, combined, and adapted to operate substantially as set forth.

3. As an article of manufacture, the removable lining for diapers, consisting, essentially, of a two-ply triangular sheet having between the plies thereof an impervious sheet, said lining being adapted to protect the textile diaper when secured upon the child's body, as described.

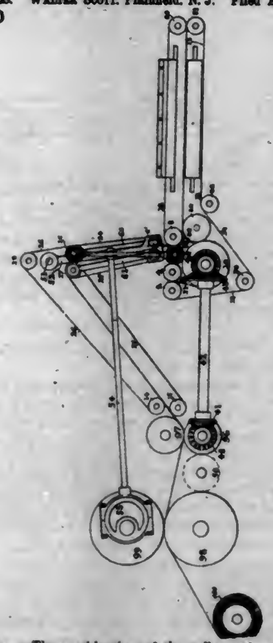
318,142. EXTENSION-GRATE FOR THRASHING-MACHINES. Christian Schafer, Three Rivers, Mich., assignor to Cyrus Roberts, same place. Filed Nov. 5, 1884. (No model.)



Claim.—1. In a thrashing-machine, and in combination with the concave and side walls thereof, the extension-grate C, pivotally secured between the side walls of the machine independently of the concave, and provided with a curved slot at each end, as shown, and the crank-shaft D, journaled in the sides of the frame and engaging with said slots in the grate, substantially as and for the purposes specified.

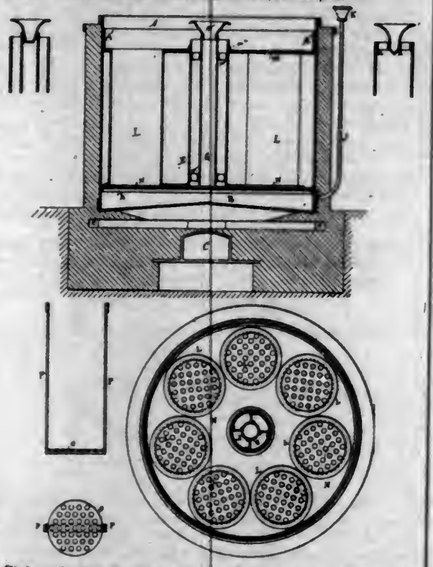
2. In a thrashing-machine, and in combination with the concave and side walls thereof, the extension-grate C, provided with the pintle-bar *a*, by which it is pivotally secured between the side walls, and the plates *b*, having S-shaped slots formed therein, and the crank-shaft D, journaled in the side of the frame and engaging with said slots, substantially as and for the purposes specified.

318,143. SHEET-DELIVERY MECHANISM FOR PRINTING-MACHINES. Walter Scott, Plainfield, N. J. Filed Aug. 3, 1883. (No model.)



Claim.—The combination of the rollers 16 and 17, loosely-suspended arms 60 and 61, carrying rollers 62 and 63, and the rock-shaft 51, carrying arms 52 and 53, provided with slots *c c'*, and the rollers 62 and 63, substantially as described.
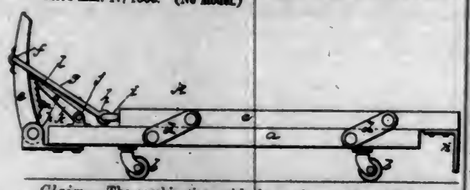
318,144. APPARATUS FOR DYEING. IWAN SIMONIS, Verviers, Belgium. Filed July 8, 1884. (No model.) Patented in Belgium Dec. 26, 1883, No. 63,661, and in France Jan. 9, 1884, No. 159,837.



Claim.—1. In a dyeing apparatus, the combination, with the fire-place, of a boiler provided with one or more central vertical tubes, having a distributing-funnel at the top, and vertical cylinders surrounding said tubes and having perforated bottoms, as set forth.

2. In an apparatus for dyeing, the combination, with the cylinders L L, of the fabric-removing apparatus consisting of the rods P P, united at the bottom, and having the perforated disk *o*, as set forth.

318,145. STOVE-TRUCK. FREDERICK B. SMITH, Coldwater, Mich. Filed Mar. 17, 1885. (No model.)



Claim.—The combination, with the truck consisting of the upper platform, *c*, bed *a*, hinged to one another, as shown, and provided with the wheels *b*, tongue *e*, and connecting-bar, of the lock-bar *k*, pivoted to the lug *j*, secured to the upper face of the body *a*, and provided with the lateral pin *p*, and adapted to engage the rack-bar *m*, secured to the upper face of the tongue, and the stop *n*, secured to the rear portion of the platform *c*, whereby the forward movement of the platform is limited, the whole arranged as shown and described.

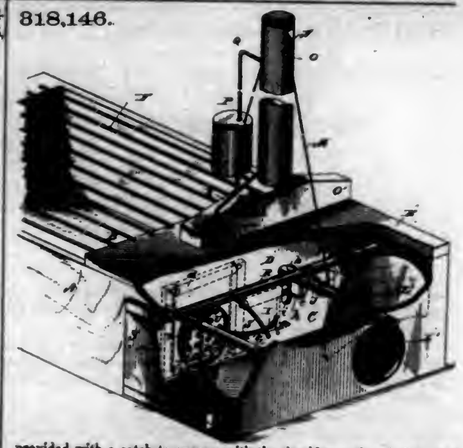
318,146. ANIMAL-TRAP. LEWIS N. B. SORRELL, Washington, D. C. Filed July 23, 1884. (No model.)

Claim.—1. In an animal-trap, the combination of a rotatable winding-shaft carrying a door and provided with a shoulder, a weight connected to said shaft by a cord or rope, a rotatable trip-shaft provided with a catch to engage with the shoulder on the winding-shaft, a bait-hook having a connection with said tripping-shaft, and a stop to check the rotation of the winding-shaft, whereby the tripping-shaft will be operated from the bait-hook to close the door, and the said stop will check the movement of the door across its opening, substantially as described.

2. In an animal-trap, the combination of a rotatable winding-shaft carrying a door and provided with a shoulder, a weight connected to said shaft by a cord or rope, a rotatable trip-shaft provided with a catch to engage with the shoulder on the winding-shaft, a rotatable shaft carrying a bait-hook and having a connection with the trip-shaft, and a stop to check the rotation of the winding-shaft, substantially as and for the purposes described.

3. In an animal-trap having two compartments, the combination of a rotatable winding-shaft carrying a door and provided with a shoulder, a weight connected to said shaft by a cord or rope, a rotatable trip-shaft

318,146.



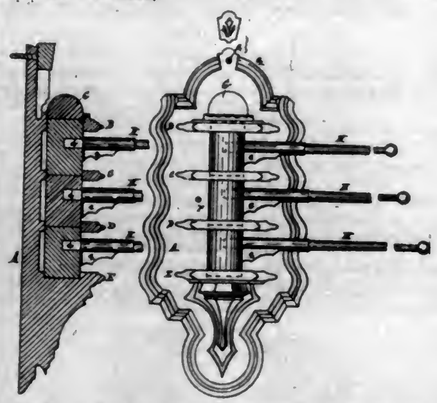
provided with a catch to engage with the shoulder on the winding-shaft, a bait-hook having a connection with said trip-shaft, a door closing an opening between the two compartments, and a stop to engage with the shoulder on the winding-shaft to check the rotation of the latter, said stop having a connection with the door between the two compartments and operated by the movement of said door to release the winding-shaft, substantially as described.

4. In an animal-trap having two compartments, the combination of the rotatable shaft carrying a door and provided with a shoulder, a movable shaft provided with an arm to engage with said shoulder, and a door to control an opening between the two compartments having a connection with the shaft carrying said arm, whereby the movement of said door will operate said shaft to move its arm from the shaft having the shoulder, substantially as described.

5. In an animal-trap, the combination of the rotatable shaft carrying the door and provided with a shoulder, a rotatable trip-shaft provided with a catch to engage said shoulder, a rotatable shaft carrying a bait-hook, and arms connecting said trip and bait shafts, substantially as and for the purposes described.

6. In an animal-trap having two compartments, the combination of a rotatable winding-shaft carrying a door and provided with a shoulder, a weight connected to said shaft by a rope or cord, a rotatable trip-shaft provided with a catch to engage with the shoulder on the winding-shaft, a rotatable shaft carrying a bait-hook and having a connection with the trip-shaft, a door closing an opening between the two compartments, a movable shaft having an arm to engage with the shoulder on the winding-shaft, and an arm connecting said door and shaft carrying said arm, whereby the door on the winding-shaft will be closed by interference with the bait-hook and opened by movement of the door between the two compartments, substantially as described.

318,147. TOWEL-RACK. PHILIP STEVENS, Toledo, Ohio. Filed Apr. 26, 1884. (No model.)

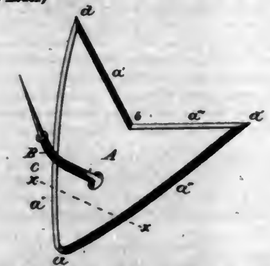


Claim.—1. In a towel-rack, the combination, with the supporting-plate A, provided with top and bottom bearings, B and E, and intermediate bearings, C and D, of the sectional shaft F, stepped in said bearings, whereby each section of the shaft has a bearing at its top and

bottom, and the bars H, inserted in the sections of said shaft, substantially as and for the purpose specified.

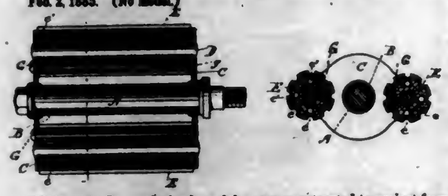
2. The combination, with the supporting-plate A, provided with bearings, as described, of the sectional shaft F, stepped in said bearings, and the arm H, provided with a tenon to engage a hole in said shaft, and on its under side with a stop-brace, *e*, substantially as and for the purposes specified.

318,148. SCUFFLE-HOE. HENRY STILL, Beloit, Kans. Filed Mar. 1, 1884. (No model.)



Claim.—As a new article of manufacture, a hoe combining a blade having slightly-curved triangular-shaped cutting-edges *a'' a'''*, with the two rear cutting-edges, *a' a''''*; projecting inwardly and toward the median line *b* to *a* of the blade from the points *d' d*, so as to form an acute angle with the lateral cutting-edges *a' a'''*, said edges being beveled or rounded from the upper surface outwardly to the lower surface, and a shank secured to the central upper surface of the blade for attaching a handle or shaft, substantially as shown and described.

318,149. VELOCIPEDE-PEDAL. ALBERT E. WALLACE, Hartford, Conn., assignor to the Pope Manufacturing Company, same place. Filed Feb. 2, 1885. (No model.)



Claim.—1. In a velocipede pedal, a stop constructed to project from the frame into or upon an elastic pedal-bar and hold it from revolution on its axis under the action of the foot, essentially as set forth.

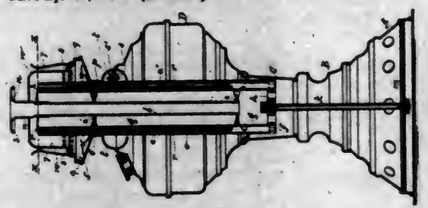
2. In a velocipede-pedal, a stop constructed to project from an elastic pedal-bar into or upon the frame and hold the bar from revolution on its axis under the action of the foot, essentially as set forth.

3. The combination, in a velocipede-pedal, of a metallic frame consisting of a barrel, B, and plates C C, and rivets D D or their equivalents, rubber bars E E or their equivalents, and positive detachable stops G G or their equivalents, essentially as set forth.

4. Combined in a velocipede-pedal, the plates C C, rivet D, bar E, having longitudinal holes or grooves *e* or *e'*, and a stop, G, essentially as set forth.

5. In an elastic velocipede pedal-bar, an auxiliary or double pin operating to keep the bar from turning under the action of the foot, essentially as set forth.

318,150. LAMP. JAMES H. WHITE, New York, and THOMAS HIPWELL, Astoria, assignors to the Manhattan Brass Company, New York, N. Y. Filed Apr. 26, 1884. (No model.)



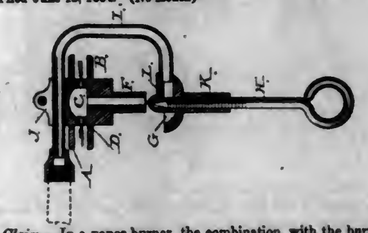
Claim.—1. The tubular wick-holder and the rack connected near the middle thereof, and having a projection, *p'*, at its lower end with such wick-holder, in combination with the reservoir having a wick-tube with a groove, in which such rack is guided, and a ratchet-wheel to act upon such rack, substantially as set forth.

2. The wick-tube and reservoir, the latter having a recessed upper end around the wick-tube, in combination with the annular ratchet-cover, also surrounding the wick-tube and resting at its lower edge upon the reservoir, and the wick-raiser and its shaft, supported by the ratchet-cover, substantially as specified.

3. The combination, with the tubular air-guide, of a hollow flame-spreader of sheet metal, the edge of which is thickened by the sheet metal being rolled over, substantially as set forth.

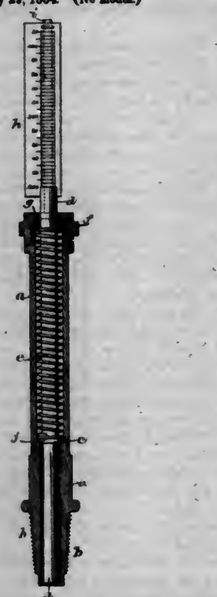
4. The combination, with the tubular wick-holder, of a rack connected at its lower end with the middle part of the wick-holder, and having a projection at the upper end of said rack, extending toward but not attached to the wick-holder, substantially as set forth.

318,151. VAPOR-BURNER. FREDERICK B. WIBLE, Mansfield, Ohio. Filed June 13, 1884. (No model.)



Claim.—In a vapor-burner, the combination, with the burner, consisting of the plates A B and perforated wall D, made integral with each other, and forming a chamber, C, of the tube I, sleeve J, securing the tube I to the burner, tube F, leading into the chamber C, tubes K L, drip-pan G, and the screw H, the above parts being combined and adapted to operate substantially as set forth.

318,152. HIGH-PRESSURE INDICATOR. ALEXANDER T. WILLARD, Chelsea, Mass. Filed May 29, 1884. (No model.)



Claim.—The combination of cylinder *a*, having shoulder *c*, formed by the larger and smaller bore therein, plunger *d*, fitting loosely in the smaller bore in said cylinder and provided with collar *j*, to be engaged by said shoulder, cap *f*, packing *g*, and spring *e*, arranged on said plunger between shoulder *c* and said packing, substantially as specified.

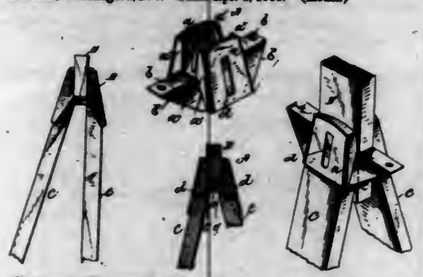
318,153. METHOD OF RELIEVING SCREW-TAPS. JAMES E. WOODBRIDGE, Hartford, Conn. Filed Aug. 23, 1884. (Model.)

Claim.—The within-described method of relieving a tap, which consists in advancing it in successive steps through the plane of motion of a cutter which cuts between successive teeth in alternation with the step-by-step progression of the tap, which is advanced by using its own thread as a lead-screw, all substantially as described.

318,153.



318,154. COMBINED TRESTLE SOCKET AND CLAMP. GEORGE W. ZIEGLER, Washington, D. C. Filed Apr. 1, 1885. (Model.)



Claim.—1. The combination, with the legs or braces, of a socket-clamp formed of two sides inclining toward each other at the top, and having lateral brackets extending at right angles thereto, substantially as described.

2. The combination, with the legs or braces, of a socket-clamp formed in one piece, and consisting of two tapering sides inclining toward each other at the top, and lateral brackets extending at right angles thereto, substantially as described.

3. The combination, with the legs or braces, of a socket-clamp formed of two sides inclining toward each other at the top, and having lateral brackets extending therefrom, said sides extending above the brackets to form lateral supports for a tie-beam, substantially as described.

4. The combination, with the legs or braces, of a socket-clamp formed of two sides inclining toward each other at the top, and extending inward at opposite points, as at a', and terminating at each end with a bracket for the support of a tie-beam, substantially as described.

5. The combination, with the legs or braces, of a socket-clamp formed of two sides inclining toward each other at the top, and extending inwardly at opposite points, as at a', and terminating at each end with a lateral extension or bracket for the support of a tie-beam, said sides proper extending above the top of the brackets for the lateral support of said beam, substantially as described.

6. The combination, with the legs or braces, of a socket-clamp formed of two sides inclining toward each other at the top, and terminating with end brackets or extensions, said sides having each an elongated slot, whereby the legs may be adjusted and secured by a screw, substantially as described.

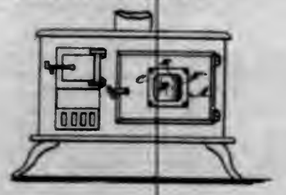
7. The combination, with the legs or braces, of a socket-clamp formed of two sides inclining toward each other at the top, extending inward, as at a', to form sections a'', and terminating at each end with brackets b, said brackets having sides b' inclining toward their points of intersection with a'', substantially as and for the purpose described.

8. The combination, with the legs or braces, of a socket-clamp formed of two sides inclining toward each other at the top, and having brackets b b and the inward extension a' a', said sides rising above the brackets, and the webs c c uniting the sides at a point outside of the inward extension, substantially as described.

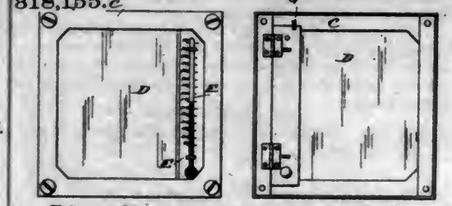
9. The combination, with the socket-clamp, constructed substantially as described, of legs or braces having beveled sides and edges, whereby they may be placed within the socket at various angles or degrees of pitch, as set forth.

10. The combination, with the socket-clamp, formed substantially as shown and described, of legs having beveled edges or sides, whereby they may be secured within the socket at an angle or incline, as set forth.

318,155. ATTACHMENT FOR OVEN-DOORS. ISAAC A. ABBOT, Denver, Colo. Filed Nov. 18, 1884. (No model.)



318,155.*c*

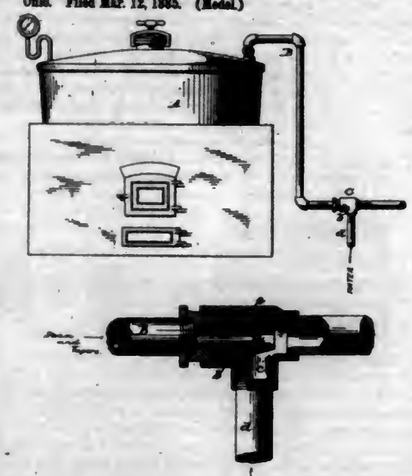


Claim.—1. The combination, with an oven-door, of a thermometer hinged on the same, substantially as herein shown and described.

2. The combination, with an oven-door having an opening, of a frame secured on the door and holding a pane of glass or mica, and of a thermometer hinged on the frame, substantially as herein shown and described.

3. The combination, with an oven-door having an opening, of a frame secured on the door and holding a pane of glass or mica, a thermometer hinged to the frame inside of the glass, and a spring for holding the thermometer parallel with the glass, substantially as herein shown and described.

318,156. RENDERING-TANK. VALERIUS D. ANDERSON, Cleveland, Ohio. Filed Mar. 12, 1885. (Model.)

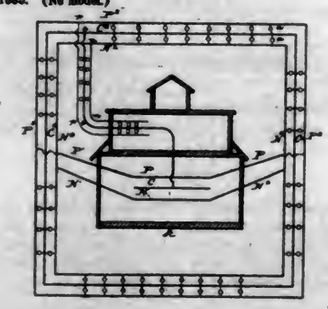


Claim.—1. In combination with a rendering tank or vessel, an escape-pipe opening therefrom, a blast pipe or nozzle connected with said pipe, and a shell or jacket encircling said nozzle and communicating with a water-supply, substantially as and for the purpose set forth.

2. The combination, with a rendering tank or vessel, of an escape-pipe, a nozzle applied to said pipe, a water-supply, and a pipe extending from the water-supply to a point near the discharge end of the nozzle, whereby the escaping steam from the tank is caused to draw up water and mingle it with the steam.

3. The combination of tank A, escape-pipe B, water-pipe d, and blast device C, consisting of nozzle a and shell or body b, having interior space, c, and inlet c, connected with pipe d.

318,157. SYSTEM OF ELECTRIC LIGHTING. WILLIAM S. ANDREWS, New York, N. Y., and THOMAS SPENCER, South Meriden, Conn. Filed Jan. 17, 1885. (No model.)



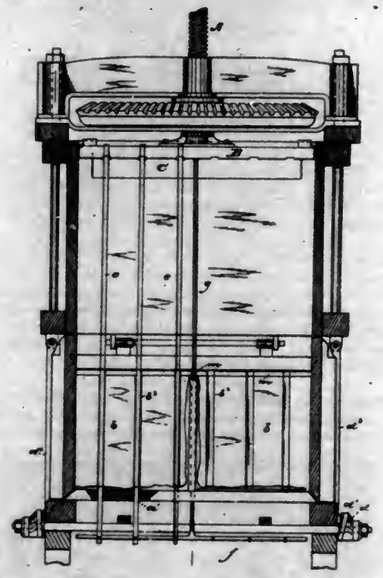
Claim.—1. In a compensating system of electrical distribution, the combination, with two or more feeding-circuits, of a single compensating-conductor for both or all of them, substantially as set forth.

2. In a compensating system of electrical distribution, the combination of the lighting-circuits consisting of positive, negative, and compensating conductors, the two or more feeding-circuits, each consisting of a positive and a negative conductor, and a single conductor extending from a compensating-conductor of the lighting-circuits to the point of division of the source of supply, substantially as set forth.

3. In a compensating system of electrical distribution, the combination of the lighting-circuits consisting of positive, negative, and compensating conductors, the two or more feeding-circuits, each consisting of a positive and a negative conductor, and a derived circuit from said lighting-conductors, consisting of positive and negative conductors, between which electric lamps are connected in multiple series, and a compensating-conductor connected at the point of division of the source of supply, substantially as set forth.

4. In a compensating system of electrical distribution, the combination of the lighting-circuits consisting of positive, negative, and compensating conductors, the two or more feeding-circuits, each consisting of a positive and a negative conductor, and a conductor extending from a compensating-conductor of the lighting-circuits to the point of division of the source of supply, said conductor being of sufficient size to convey the current of the largest generator of the system, substantially as set forth.

318,158. BRAN-PACKER. OLIVER ANKETELL, Newark, N. J. Filed Apr. 14, 1885. (No model.)



Claim.—1. In combination, in a bran-press, the body thereof having doors in all sides, a follower, mechanism for operating said follower, substantially as described, and one or more partitions therein, for the purposes herein set forth.

2. In combination, in a bran-press, the body thereof having doors in all sides, a follower, a rod secured to and moving with said follower, and extending down through the press, having a cross piece or rod, f, partition b', grooved partition b, and slotted bed a, all arranged and operating for the purposes set forth.

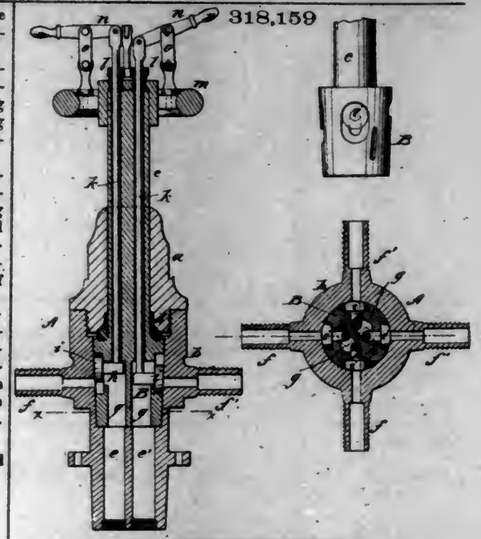
3. In combination, in a bran-press, the body thereof having doors on all sides, a follower, mechanism for operating said follower, substantially as described, one or more partitions arranged in said press, having grooves in top thereof, and cap-pieces adapted to fit in the top grooves in said partition, for the purposes set forth.

318,159. COMPOUND VALVE. GEORGE W. APPLEBY, Cohoes, N. Y. Filed Jan. 3, 1885. (No model.)

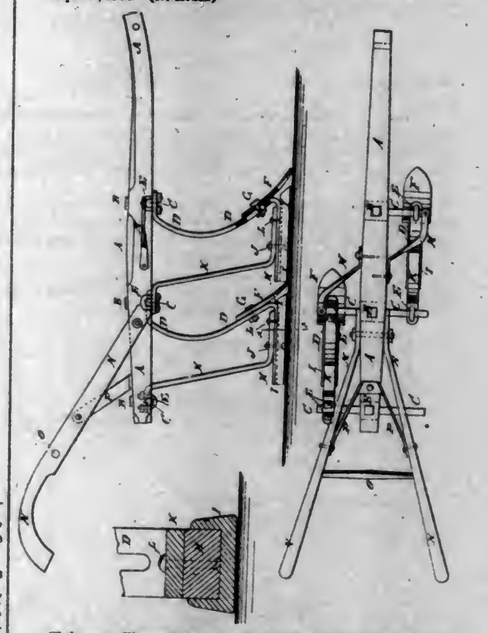
Claim.—1. The compound valve consisting of body A, made with separate inlet and discharge passages, the plug B, having separate passages, and the slide-valves i, seated upon the plug, and having stems extending to the outside for their operation, substantially as described.

2. The combination, in a compound valve, of the valves i, stems k, and levers n with the plug B, substantially as shown and described.

318,159



318,160. PLOW. DANIEL M. BARRINGER, Bennettsville, S. C. Filed Sept. 13, 1884. (No model.)



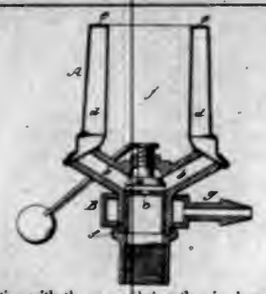
Claim.—1. The combination, with the beam A and the bars C, secured thereto, of the plow-standards D, secured to said bars C, and having their lower ends bent rearwardly, and the braces K, secured to the bars, and having their lower ends bent forward and secured to the rearwardly-bent ends of the plow-standards, substantially as herein shown and described.

2. The combination, with the beam A, the cross-bars C, and the braces M, secured to the cross-bars and beam, of the slotted plow-standards D, having their lower ends bent rearwardly, the braces K, having their lower ends bent forward over the rearward-bent ends of the plow-standards, and the shoes I, substantially as herein shown and described.

318,161. OXYGEN-GAS ATTACHMENT FOR GAS-BURNERS. CHAS. BESELER, New York, N. Y. Filed Apr. 5, 1884. (No model.)

Claim.—1. The combination, with an ordinary Argand burner, A, of an oxygen-gas receiver connected to the same and having outlet-open-

318,161.

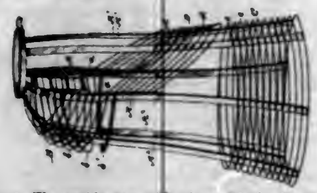


ings communicating with the space *f* below the circular series of openings *e*, substantially as set forth.

2. The combination, with the shank *f* of an ordinary Argand burner, of the chamber B, fitting thereon and provided with a nipple, *g*, and with openings *h* in its upper wall, substantially as set forth.

3. As a new article of manufacture, an oxygen-gas attachment for Argand burners, consisting of the chamber B, having a central aperture to fit over the shank of said burner, a nipple, *g*, and openings *h*, substantially as set forth.

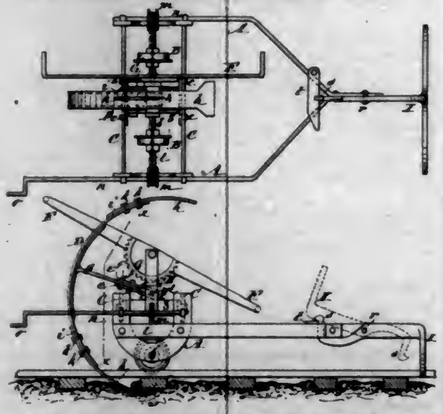
318,162. HOOP-SKIRT. HARRY H. BRAMHALL, Madison, Wis. Filed May 24, 1884. (No model.)



Claim.—1. The combination, with a hoop-skirt having a bustle and bottom springs, of independent diagonal springs *d*, terminating at their upper ends at the side tapes of the skirt, and flexible connections uniting said upper ends of the springs with the said side tapes, substantially as described.

2. The combination, with the side tapes, A, and bustle-springs secured thereto, of independent diagonal springs *d*, and separate tapes *a*, having terminals of the diagonal springs secured thereto and being themselves secured to the side tapes, substantially as described.

318,163. RAILWAY-TAMPER. RUFUS P. BRYANT and JOHN H. GILLELAND, Jacksonville, Ala. Filed Feb. 19, 1885. (No model.)



Claim.—1. The combination, with the main frame of the apparatus and its running wheels, of an oscillating tamping-tool having opposite tamping extremities, and a sliding frame or support for said tool arranged to traverse crosswise of the main frame, essentially as and for the purposes herein set forth.

2. The oscillating tamping-tool D, provided with adjustable and removable tamping-blades A A at its opposite outer working ends, essentially as described.

3. In combination with the cross-traversing frame S of the apparatus, and main frame A, carried by running wheels B, the tamping-tool D, having opposite outer tamping extremities and made adjustable in or out relatively to its axis of motion for varying the stroke of the tool, substantially as specified.

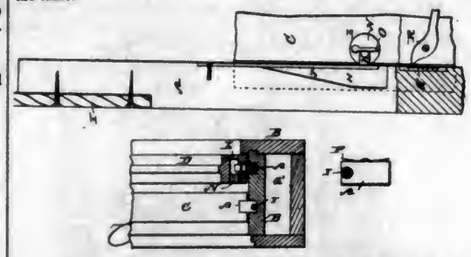
4. The combination of the gears G H and working beam or handle F with the oscillating tamping-tool D and its traversing frame S, essentially as described.

5. The combination, with the main frame of the apparatus and its sliding cross-frame S, of the band or chain wheels *m m* and band rope or chain *l*, substantially as specified.

6. In a railroad tamping apparatus, the combination, with the main frame of the apparatus and its running wheels B, of the pivoted forwardly and backwardly swinging front rest I, of hook shape or construction in its rear, and a catch or fastening for holding the rest in its supporting position, essentially as and for the purposes herein set forth.

318,164. WINDOW. WILLIAM C. BULLIVANT, Boston, Mass. Filed May 9, 1884. (No model.)

Brief.—Consisting of guide-strips running in grooves of the sash and frame, recessed to receive a spring-strip having a prong projecting into a transverse aperture extending to the inner face of the sash. A spring-plate is secured to the outer side of the guide and runs the length of the same.

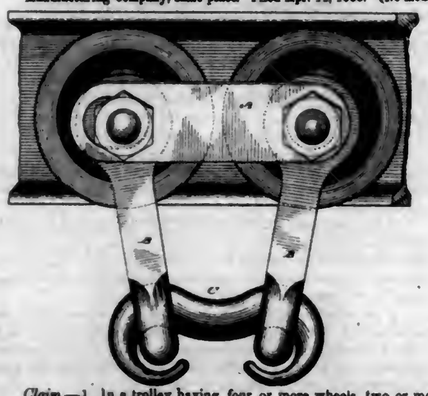


Claim.—1. The combination, with a vertically-sliding guide, A, held in grooves in the end of the sash and frame, of the spring-plate P, secured to one side of the guide, and a spring-latch for holding the sash on the guide, substantially as herein shown and described.

2. The combination, with the grooved frame B and the recessed and apertured sash C, of the guide A, having the recess H, spring-strip J, secured to the guide, and provided with the prong K, and the ping N, having the slot O, substantially as herein shown and described.

3. The combination, with the vertically-sliding guide A, of the serrated plate Q on the same, the sash C, the latch-lever R, pivoted in the same, and a spring-catch for holding the sash on the guide, substantially as herein shown and described.

318,165. TROLLEY FOR OVERHEAD TRACKS OR TRAMWAYS. ROBERT CARTWRIGHT, Stamford, Conn., assignor to the Yale & Towne Manufacturing Company, same place. Filed Apr. 11, 1885. (No model.)



Claim.—1. In a trolley having four or more wheels, two or more coupling-links connecting the wheels and united by a swiveling yoke, substantially as described.

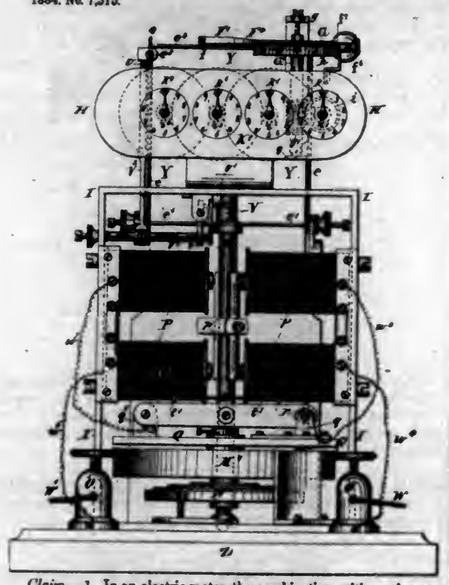
2. In a trolley having four or more wheels, the combination of the axles and coupling-links depending from them, with one or more bars or separators for holding the axles and links in place and allowing them to have radial motion relatively to each other, substantially as described.

3. In a trolley, the combination of two or more pairs of flanged wheels connected by coupling-links, and the coupling-links being connected by a swiveling yoke, substantially as described.

4. In a trolley, the combination, with the axles of the wheels, of the side bars, A, links B, and yoke C, substantially as described.

5. In combination with a wheel, a roller-bushing composed of two annular end bearings provided with pockets for supporting the projecting anti-friction rollers, substantially as described.

318,166. ELECTRIC METER. JULES CAUDERAY, Lausanne, Switzerland. Filed Nov. 15, 1884. (No model.) Patented in France Mar. 17, 1883, No. 154,362; in Belgium Apr. 2, 1883, No. 60,946, and July 3, 1883, No. 61,911; in Germany July 9, 1883, No. 26,209; in Italy Aug. 23, 1883, No. 15,793; in Spain Nov. 16, 1883, No. 4,791, and in England May 9, 1884, No. 7,515.



Claim.—1. In an electric meter, the combination, with a galvanometer and a registering mechanism, of intermediate mechanical connections whereby the deflection of the galvanometer-needle will be caused to transmit a corresponding movement to the register, substantially as described.

2. In an electric meter, the combination, with a galvanometer and a registering mechanism, of intermediate mechanical connections arranged to transmit motion from the galvanometer-needle to the register, and a time mechanism arranged to modify the operation of said intermediate mechanical devices, substantially as described.

3. The combination, with the galvanometer having a pointer connected with its needle, and a registering mechanism, of the toothed cylinder arranged to operate upon the pointer, an intermediate series of mechanical devices arranged to transmit motion from the said pointer to the register, and a time mechanism arranged to give the toothed cylinder a complete rotation in a given period, substantially as and for the purpose set forth.

4. The combination, with the toothed cylinder and the non-polarized pointer of the galvanometer actuated thereby, of the balance-staff oscillating in given periods, and intermediate mechanical connections for transmitting rotary motion to the cylinder from said balance-staff, substantially as described.

5. The combination, with the balance-staff provided with suitable armatures and a returning-spring, of the electro-magnets arranged to attract said armatures, and a circuit-closer operated by said staff for closing an electric circuit through the coils of said magnets, substantially as described.

6. In an electric meter, the combination, with a galvanometer in a main circuit, a registering mechanism, intermediate connections for transmitting motion from the galvanometer-needle to the register, and a time mechanism controlled by electric devices in a circuit derived from said main circuit and arranged to modify the operation of the said intermediate motion-transmitting devices, substantially as described, and for the purpose set forth.

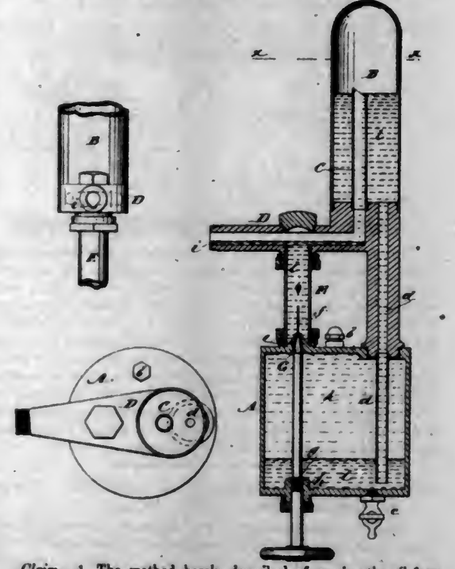
7. The combination, with the galvanometer having its needle provided with a pointer, and the registering mechanism, of intermediate mechanical devices for transmitting motion from the pointer to the said registering mechanism, and the cylinder having full teeth and fractional teeth for operating said pointer, substantially as and for the purpose set forth.

318,167. STOVE-PIPE. DANIEL R. CLARK, Rochester, N. Y. Filed Feb. 13, 1885. (No model.)



Claim.—The within-described stove-pipe A, provided with inclined air-tubes B B, arranged so as to cross one another upon the interior of the pipe, substantially as and for the purpose specified.

318,168. AUTOMATIC LUBRICATOR FOR STEAM-ENGINES. CHAS. COOKE, Belleville, N. J. Filed Oct. 23, 1884. (No model.)



Claim.—1. The method herein described of passing the oil from the lubricating-cup to mingle with the steam in the engine where the oil is required to be used, which consists in flushing the oil from the cup by water of condensation as derived from the steam, substantially as and for the purposes specified.

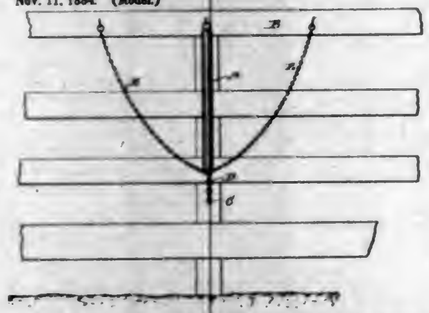
2. The combination, with the oil-receptacle A and the tube E, arranged to connect with an upper combined steam-passage and oil-discharge duct, and provided with a lower valve for the admission of oil, of the elevated condenser B, having a stand or condense-water-supply pipe in connection below with said steam-passage and oil-discharge duct, and

a duct or pipe extending from said condenser down into the oil-receptacle A, essentially as described.

3. In an automatic lubricator, constructed to operate substantially as described, the combined steam-passage and oil-discharge duct D, of tapering or spread construction, and provided with a lower longitudinal channel or groove, *i*, whereby said duct serves both as a condensing device and flushing passage for the oil, substantially as described.

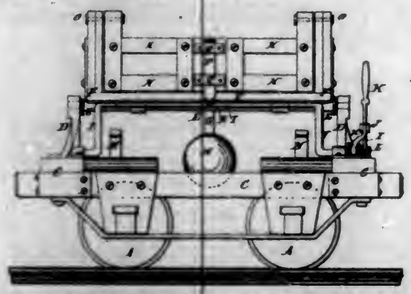
4. The combination of the oil-receptacle A, the condenser B, fitted with a stand or overflow pipe, C, the duct *d*, the transparent tube E, with its adjustable needle-valve G *f*, and the duct D, provided with a lower longitudinal passage, *i*, substantially as shown and described.

318,169. HITCHING DEVICE. JAS. T. CRABB, Eminence, Ky. Filed Nov. 11, 1884. (Model.)



Claim.—In a hitching device, the combination, with the hinged or swinging rod A, of the snap-hook C, held on the free end, and of the chains or rods E, secured to the free end of the rod and to the object on which the rod is held some distance from the inner end of the rod, substantially as herein shown described.

318,170. DUMPING-CAR. CHAS. CULVERSON, Wacousville, Pa. Filed Apr. 10, 1885. (No model.)

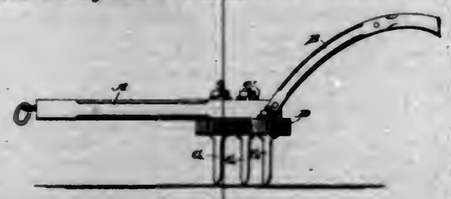


Claim.—1. In a gravel-car, the combination, with the truck-frame C and the car-body F, of the brackets D, attached to the said truck-frame, the axle E, attached to the said car-body and journaled in the said brackets, and the rigid arm G, and weight H, substantially as herein shown and described, whereby the said car-body can be readily dumped and will be returned automatically to a horizontal position, as set forth.

2. In a gravel-car, the combination, with the truck-frame C and the car-body F, of the long cranks I, having their journals bent outward and upward, the levers K, pivoted to the truck-frames, and the rods J, connecting the said levers and bent journals, substantially as herein shown and described, whereby the said car-body can be fastened in a horizontal position and can be readily released and dumped, as set forth.

318,171. COMBINED AGRICULTURAL IMPLEMENT. J. F. DAVIS, near Tupelo, Miss. Filed Oct. 9, 1884. (No model.)

Claim.—A combined agricultural implement, comprising the main beam A, having handles B B, secured thereto, cross-beam D, having



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slots *c*, and secured to the main beam by king-bolt C, adjusting screw-threaded braces *d d*, and the nuts and bolts for attaching interchangeably the braces and the cultivator-standards E E and H, shoes or shovels F F, and teeth G G G, all constructed and arranged to operate substantially as described, and for the purposes as set forth.

318,172. DEVICE FOR PROTECTION OF MEN FROM DISASTROUS EFFECTS OF HIGH-TENSION CURRENTS. PATRICK B. DELANY, New York, N. Y. Filed Jan. 9, 1885. (No model.)



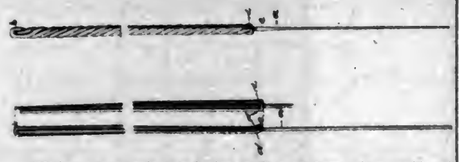
Claim.—1. A device adapted to be worn upon the human body to short-circuit high-tension electric currents, consisting of the combination of an electric conductor or conductors of a sufficiently low resistance to short-circuit such currents, and the terminals of said conductor or conductors adapted to make contact with the limbs of the wearer and having a sufficiently large conducting contact-surface, so that should the wearer become interposed in the circuit of a high-tension current the current will be shunted around his body.

2. A device adapted to be worn upon the human body to short-circuit high-tension electric currents, consisting of the combination of a conductor or conductors of sufficiently low resistance to short-circuit said currents and terminals of said conductor which make contact with the hands of the wearer, substantially as set forth.

3. A device adapted to be worn upon the human body to short-circuit high-tension electric currents, consisting of the combination of a conductor or conductors of sufficiently low resistance to short-circuit said currents, the terminals of said conductor having a sufficiently large conducting contact-surface and adapted to make contact with the limbs of the wearer, and a sole-plate electrically connected with said conductor.

4. The combination of the conductor A, the hand-contacts or gloves, the conductor C, and the sole-plate, substantially as and for the purpose set forth.

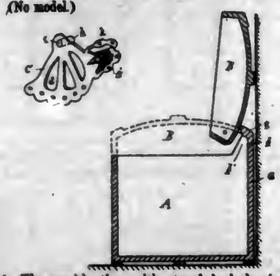
318,173. DENTAL INSTRUMENT. ROBERT B. DONALDSON, Washington, D. C. Filed Feb. 14, 1885. (No model.)



Claim.—1. A pulp-canal plugger formed from wire capable of being bent as desired, the blade portion being reduced to the desired attenuation and the handle formed by twisting together two or more folds of the wire, as set forth.

2. A pulp-canal plugger formed from steel piano-wire, the blade and handle formed from a single piece with the folds and bends *b c d*, and the parts twisted together, as set forth.

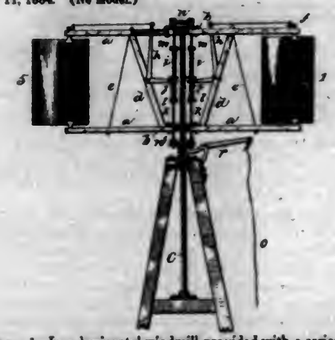
318,174. TRUNK. GODFREY S. EGGEMANN, Toledo, Ohio. Filed Oct. 22, 1884. (No model.)



Claim.—1. The combination, with a trunk-body having its back carried up to or nearly to the plane of the top, and the projections *b'*, of the ends connected by the rail *c*, of the brackets C, having a portion, *d*, to embrace the ends of the trunk, a portion, *i*, to embrace the rear wall, and a portion, *k*, to embrace said rail *c*, and forming a part of the pivotal connection between said body and a swinging top, substantially as described.

2. The combination, in a trunk, of the top B, the body A, having end projections, *b'*, the rail *c*, connecting said projections and forming a stop for said top, and the corner-iron brackets C, carrying trunnions *k*, which form the pivot-point on which said top turns, substantially as described.

318,175. WINDMILL. FRANKLIN FANNING, St. Joseph, Mo. Filed Mar. 11, 1884. (No model.)



Claim.—1. In a horizontal windmill provided with a series of arms, such as *a*, a set of sails, as described, in combination with cranks *f*, rods *g*, bent levers *h*, rods *k*, and means, substantially as shown, for governing and regulating the sails.

2. The set of sails provided with cranks *f*, in combination with rods *g*, bent levers *h*, and rods *k*, provided with springs *i*, whereby the pressure from the levers *h* is counteracted or resisted, substantially as herein set forth.

3. The rod *k*, in combination with the spring *i*, nut *l*, and nut *m*, whereby the position of the spring on the rod is regulated and the requisite degree of stiffness thereof maintained, substantially as herein set forth.

4. The bent lever *h*, in combination with the screw-threaded rod *k* and sliding sleeve *j*, whereby the lever is permitted to move up and down upon the rod without liability of injury thereto, substantially as herein set forth.

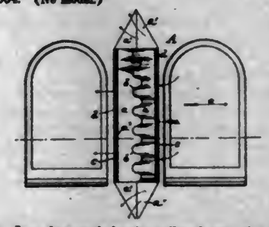
5. The bent lever *h* and rod *k*, in combination with the headed sleeve *j*, spring *i*, nut *l*, and nut *m*, substantially as herein set forth.

6. The bent levers *h*, and the rods *k*, carrying the springs, sleeves, and nuts, as described, in combination with the weights *n n'*, whereby the lifting force of the levers in compressing the said springs is resisted, substantially as and for the purpose set forth.

7. The rod *k*, provided with the sleeves, springs, and nuts, as described, in combination with the weights *n n'* and spiders *b b*, substantially as herein set forth.

8. The rods *k*, provided with means for resisting the force of the sail-levers, as described, in combination with the weights *n n'*, and the lever *p*, fulcrumed on the tower, whereby the mill may be easily thrown in and out of gear, substantially as herein set forth.

318,176. DUST-EXCLUDER. HENRY W. FOX, Baltimore, Md. Filed Aug. 18, 1884. (No model.)

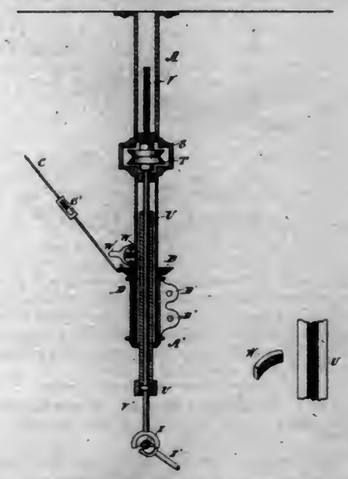


Claim.—1. In a dust-excluder for railroad-cars, the combination of the car-body A, the surfaces *a a*, each placed at an angle to the side of the car-body and at a distance therefrom, and the end pieces, *a'*, which are attached to the ends of the pieces *a* and secured to the car-body, thereby forming the space *d*, as herein shown.

2. In a dust-excluder for railroad-cars, the combination of the car-body A, the surfaces *a a*, each placed at an angle to the side of the car-body, the end pieces, *a'*, secured to the pieces *a a* and to the car-body, and the screen *c*, the whole arranged as herein set forth.

3. In a dust-excluder for railroad-cars, the pieces *a a*, placed at an angle thereto, in combination with the pieces *a'*, which are placed at an angle to the plane of the surfaces *a a*, and in such a position to the car-body that a current of air will be established upward from the windows, for the purpose as herein set forth.

318,177. DENTAL ENGINE HOLDER. CHARLES H. GILBERT, Andover, Mass. Filed Aug. 2, 1884. (No model.)

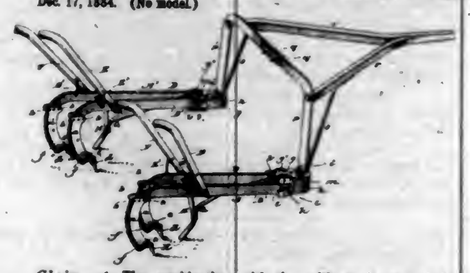


Claim.—1. The combination, with a suspended tube adapted to support a bracket, of a shaft within said tube, provided with a pulley, and means for vertically adjusting the said shaft in the tube, substantially as herein shown and described.

2. The combination, with the tube A, of the shaft V, the pulley T on the same, the milled tube U, surrounding the shaft V, and devices for locking the milled tube in the tube A, substantially as herein shown and described.

3. The combination, with the tube A, of the shaft V, provided with a pulley, T, the milled tube U, the milled piece W, and the cam-lever W', substantially as herein shown and described.

318,178. CULTIVATOR. JOSEPH U. GILLESPIE, Belmont, Ala. Filed Dec. 17, 1884. (No model.)



Claim.—1. The combination, with the cultivator-beams, of the draft-block pivoted between the forward ends thereof, a notch or recess in said block, and a pin to fit the same, whereby its vertical movement is limited, substantially as set forth.

2. In a cultivator, the combination of the beams, one of said beams having a vertical pivot-bearing and the other a longitudinal pivot-bearing, said beams carrying shovels, substantially as set forth.

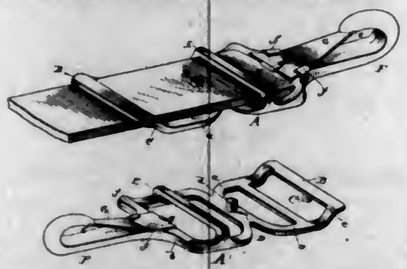
3. In a cultivator, the combination, with the beams carrying shovels, one of said beams having a vertical pivot-bearing and the other a longitudinal pivot-bearing, of plates connecting said beams adjustably, substantially as set forth.

4. In a cultivator, the combination, with the beams carrying shovels, one of said beams being pivoted at its forward end in such manner that its shovel may be moved to or from the other beam, of a set-screw adapted to bear against the forward end of said plow-beam to hold the same rigid, substantially as set forth.

5. In a cultivator, the combination, with the horizontally-pivoted beam and the vertically-pivoted beam, of laterally-adjustable plates connecting the said beams, the plate of the horizontally-pivoted beam being pivoted thereto, substantially as set forth.

6. In a cultivator, the combination, with the horizontally-pivoted beam and the vertically-pivoted beam carrying the teeth or shovels, of a handle attached to the horizontally-pivoted beam, said handle being mounted at its lower end upon an outwardly-extending bolt of said beam, and having a recess, and a supplemental washer or plate to fit said recess, substantially as set forth.

318,179. COMBINED BREAST-STRAP BUCKLE AND SNAP. JAS. S. GROVER, St. Louis, Mo. Filed Feb. 17, 1885. (No model.)



Claim.—The herein-described buckle, consisting of the sides bent upwardly at one end and connected by a cross-bar having a downwardly-extending pin, a cross-bar, D, having an upwardly-extending pin, cross-bars connecting the sides on each side of the said bar D, one of said bars being raised to form a tuck-loop, in combination with a snap-hook formed integral with the bar *b*, substantially as set forth.

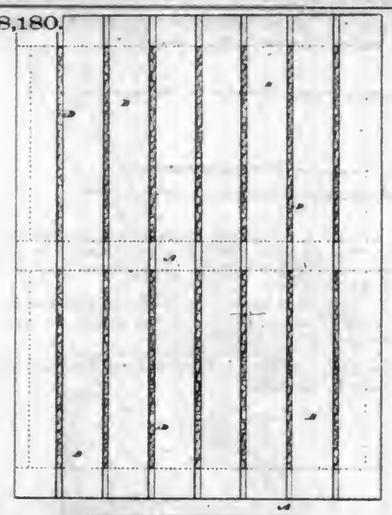
318,180. PAPER-STOCK DRAINER. WATSON GRAY, Three Rivers, Mich., assignor of one-half to Richard H. Webb, same place. Filed Apr. 17, 1885. (No model.)

Brief.—Improvement on applicant's invention filed September 12, 1884.

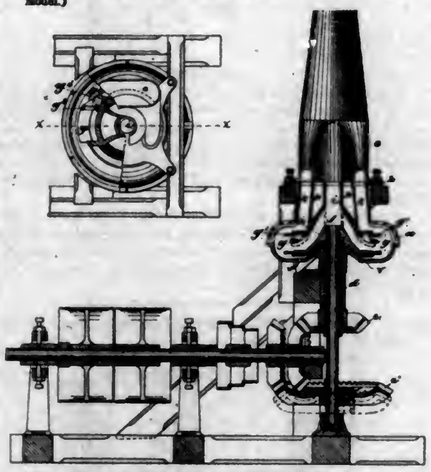
Claim.—As an improvement in paper-stock draining, a drainer for the bottom of a paper-stock receptacle composed of a frame, an upper and lower series of slats parallel to each other, so that the spaces between the edges of the slats are about coincident, and a body of straining material inclosed in the space between the two series of slats, substantially as set forth.



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318,181. ORE-PULVERIZER. JAMES K. GRIFFIN, Brooklyn, N. Y., assignor to the Griffin Manufacturing Company. Filed Mar. 19, 1885. (No model.)



Claim.—1. In an ore-pulverizer, a horizontally-arranged conveyer having two or more distinct openings for the passage of the material to be reduced and for the air to carry off the same when pulverized, substantially as described.

2. In an ore-pulverizer, the combination, of the conveyer having openings for the passage of the material to be reduced and for the air to carry off the same when pulverized, an outer rotating shell or case, and means for rotating the latter, substantially as described.

3. In an ore-pulverizer, the combination of a revolving conveyer having openings for the passage of the material to be reduced and for the air to carry off the same when pulverized, an outer rotating shell or case, and means for rotating both the conveyer and the shell, substantially as described.

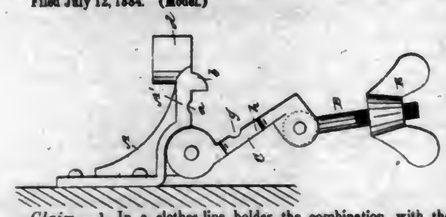
4. In an ore-pulverizer, the combination of a conveyer having ore and air passages, and an outer rotating shell or case, said conveyer and shell being so adapted that the ore delivered through the conveyer will form with the ore adhering to the shell a line of attrition on their opposing surfaces, and means for rotating the shell, substantially as described.

5. In an ore-pulverizer, the combination of a rotating conveyer having ore and air passages, and an outer rotating shell or case, said conveyer and shell being so adapted that the ore delivered through the conveyer will form with the ore adhering to the shell a line of attrition on their opposing surfaces, and means for rotating both the conveyer and shell, substantially as described.

6. In an ore-pulverizer, the combination of an inner rotating conveyer, an outer rotating shell, independent means for rotating the conveyer and the shell, and a hopper, constructed and arranged substantially as described

7. An ore-pulverizer comprising the conveyer *e*, having ore-passages *g g*, air-passages *p p*, cap *b*, adjustable plates *g' g'*, division-plates *m m*, shell *a*, shafts *d* and *f*, gearing C, and adjustable gearing C', all constructed and arranged substantially as described.

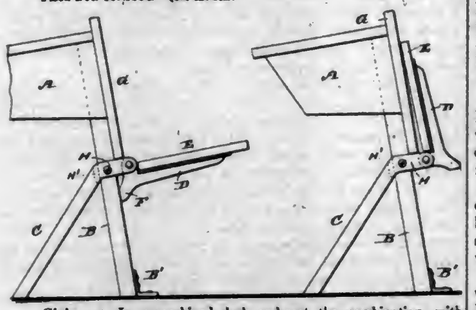
318,182. CLOTHES-LINE HOLDER. LOUIS C. GUHL, Rossland, Ill. Filed July 12, 1884. (Model.)



Claim.—1. In a clothes-line holder, the combination, with the bracket having upon its under side a recess or cavity and lugs near one end, and upon its upper side parallel lugs, of the plate hinged to the bracket, and having upon its upper side a recess or cavity, and the bolt pivoted to the outer free end of the said plate and fitting between the upper lugs of the bracket, said bolt having a holding-nut, substantially as and for the purpose set forth.

2. In a clothes-line holder, the combination, with the bracket having upon its under side a recess or cavity and lugs near one end, and upon its upper side parallel lugs, of the hinged plate having a recess or cavity upon its upper surface, offsets upon its sides, and a forked outer free end, and the bolt pivoted between the forked end of the said plate and fitting between upper lugs or jaws of said bracket, said bolt having a winged nut, substantially as and for the purpose set forth.

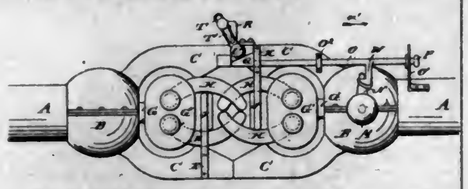
318,183. SCHOOL DESK AND SEAT. GUSTAVUS HAMEL, De Soto, Mo. Filed Dec. 10, 1884. (No model.)



Claim.—1. In a combined desk and seat, the combination, with the desk A and its legs B, of the braces C, having projecting ends, and of a seat hinged to the braces, substantially as herein shown and described.

2. In a combined desk and seat, the combination, with the desk A and its legs B, of the braces C, having projecting parts H H', the brackets D, pivoted to the parts H, and having lugs F, and of the seat E, secured to the brackets D, substantially as herein shown and described.

318,184. CAR-COUPLING. JOSEPH HAMPL and DAVID JACOBS, Fort Clark, Tex. Filed Mar. 25, 1885. (No model.)



Claim.—1. The combination, with a draw-bar having a socket on its outer end, of a ball in the socket, a stem projecting from the ball, jaws formed on the end of the stem, and curved coupling-hooks pivoted in the jaws, substantially as herein shown and described.

2. The combination, with the draw-bar A, having a socket, B, and buffer-prongs C on its end, of the ball E, the coupling-hooks H, pivoted in jaws connected with the ball, and the plate J, having lugs K, which are secured to the sides of the prongs C, substantially as herein shown and described.

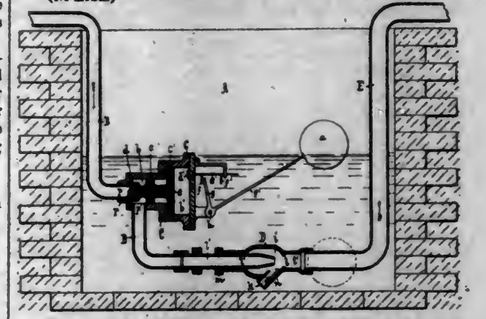
3. The combination, with a draw-bar A, having a socket, B, and buffer-prongs C on its end, of the ball E, the coupling-hooks H, pivoted on jaws on the ball, the weighted stem L, and a rod provided with a hook for holding the stem L raised, substantially as herein shown and described.

4. The combination, with the draw-bar A, having a socket, B, of the ball E, coupling-hooks connected with the ball, the stem L, the sliding rod O, and the laterally-projecting hook W on the same, substantially as herein shown and described.

5. The combination, with a draw-bar having a socket and buffer-prongs on its end, of the ball E in the socket, the hooks H, the stem L, the sliding rod O, having a hook, W, and beveled head Q, the arm R on the top buffer-prong, the slotted link T, and the ball U on the lower end of the same, substantially as herein shown and described.

6. The combination, with the draw-bar having a socket, B, and buffer-prongs C on its end, of the lug S and the arm R on the top buffer-prong, the sliding rod O, having a hook, W, and beveled head Q, the slotted link T on the arm R, the ball U on the end of the link, the ball E in the socket B, the coupling-hooks H, and the weighted stem L, substantially as herein shown and described.

318,185. FLUID-EJECTOR FOR DRAINING CELLARS. GEORGE HAYDN, Baltimore, Md., assignor of two thirds to Benjamin B. Friedenwald and Joseph Friedenwald, both of same place. Filed Nov. 15, 1884. (No model.)



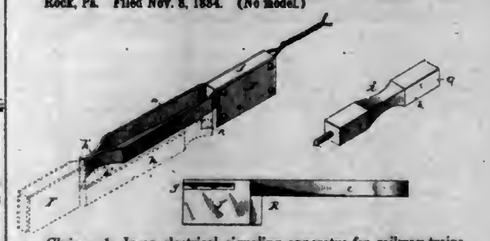
Claim.—1. In a fluid-ejector, the combination of the discharge-pipe E, the ejector D, the supply-pipe B, the float-ball *a*, and the valve C, provided with piston-heads of different diameters, and the valve *d'*, which is operated by the ball *a* and intervening mechanism therefor, as herein set forth.

2. In a fluid-ejector, the combination of the discharge-pipe E, the ejector D, the supply-pipe B, the valve C, the float-ball *a*, attached to a lever which is pivoted, and intervening mechanism, substantially as described, that will permit the ball to travel a certain distance either way without operating the valve C, for the purpose as herein set forth.

3. In a fluid-ejector, the supply-pipe B, provided with a cut-off valve therein, constructed substantially as described, the discharge-pipe E, the ejector D, and the inclined port *k*, in combination with the adjustable nozzle *l'*, whereby the fluid to be ejected is directed in the desired course, and the amount discharged regulated according to the height it is to be lifted, as herein set forth.

4. In a fluid-ejector, the discharge-pipe E, the supply-pipe B, the ejector D, and the float *a*, attached to a pivoted lever, in combination with mechanism, substantially as shown, by means of which the cut-off valve is instantly opened when the float reaches its given level, and the full force of the fluid is applied to the ejector independently of any further movement of the float.

318,186. ELECTRIC RAILWAY-SIGNAL. OSCAR S. HERTZOG, Blue Rock, Pa. Filed Nov. 8, 1884. (No model.)



Claim.—1. In an electrical signaling apparatus for railway-trains, the combination, with the bell or other alarm, of the battery, electric-circuit wires, couplers attached on the ends of the wires, and having springs *h* formed therewith and bent inward at *h'*, to provide a contact-point in closing the circuit, and supports G, secured to each end of the

car, and comprising the contracted middle portion, *i*, and the enlarged head *k*, arranged and operating as described, whereby the spring *h* may be clasped over the head *k* to the middle portion, *i*, so as to be separated from each other, and thus hold the circuit open along the entire line, as set forth.

2. In an electrical signaling apparatus, the combination, with the train having the bell or other alarm, the battery, and electric-circuit wires arranged along each car of the train, of the couplers for connecting the wires of each car, consisting of the metallic sides *e*, formed with pockets *g*, to receive the uncovered ends of the wires, and springs *h*, projecting from the sides and bent inward so as to come together at *h'*, and supports attached to each end of the car, which supports have a contracted middle portion and enlarged heads or ends, the springs of one car fitting over the projecting heads of the coupler of the succeeding car, and bearing against the sides to complete the system, arranged and operating so that when a car separates from the train the springs slip over the projecting heads of the couplers and come together to close the circuit and ring the bell, as and for the purpose set forth.

3. In an electrical signaling apparatus, the combination, with the bell or other alarm, of the battery, electric-circuit wires, and couplers attached to the ends of the latter and comprising the body portion *f*, having a beveled head, R, and the sides *e e*, secured to the body portion, and provided with springs *h*, bent inward at *h'*, to provide a contact-point in closing the circuit, the said springs passing over the head R, and extending the entire length of the sides, so as to be separated from each other, as set forth.

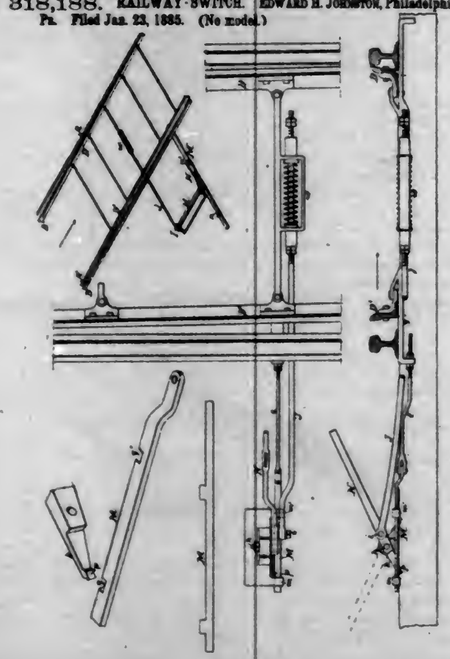
318,187. CAR-AXLE BOX. ROBERT HUNTER, Detroit, Mich., assignor of one-fourth to Thos. Davis, same place. Filed Mar. 25, 1885. (No model.)



Claim.—1. In an axle-box in which the lid is operated between close-fitting grooves in the box and kept into engagement therewith by a central screw, as F, the wedge ears *c*, formed on the box outside the groove, and the lid having wedge ears *d*, formed to engage therewith, all combined and operating as and for the purposes set forth.

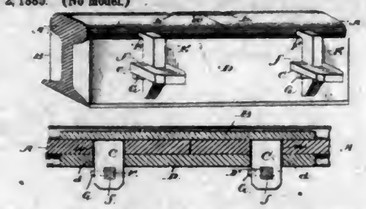
2. In a car-axle box, the combination, with the box A, provided with rib projection D, and cast integral therewith the channeled side ribs, B, the ends *a* of which project above the top plane of said box, of the cover C, provided with a projection, E, and a vertical slot beneath said projection, and the set-screw F, working in said slot, and adapted to engage the projection D on said box when the cover is raised, substantially as and for the purpose specified.

318,188. RAILWAY-SWITCH. EDWARD H. JOHNSTON, Philadelphia, Pa. Filed Jan. 23, 1885. (No model.)



Claim.—The combination of the switch and operating-lever N, and the rod J, connected at one end directly to the said lever and at the opposite end by a yielding attachment to the switch, with a safety-bar, M, rigidly connected to the switch, and constructed with relation to the short arm of the said lever, substantially as set forth.

318,189. RAIL-JOINT. JOSEPH KELLOW, Pen Argyl, Pa. Filed Mar. 2, 1885. (No model.)



Claim.—The rails having slots or openings and recesses *b*, in combination with a fish-plate having flanges provided with holes or openings, a rib on the fish-plate to fit the recesses *b*, wedges having inturned flanges, and keys to fit openings in said wedges, as set forth.

318,190. FISHING-REEL. JOHN KOPP, Brooklyn, N. Y., assignor of one-half to Thomas B. Mills, same place. Filed Aug. 11, 1884. (No model.)



Claim.—1. The combination, with a spool and a pinion thereon, of a lever fulcrumed at one end and movable at the other or free end, a wheel and its shaft journaled in said lever between its ends and carrying the handle, and a throwing-off device, substantially as described, connected with the free end of said lever and operating as described, substantially as and for the purpose set forth.

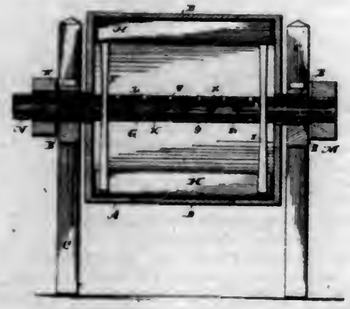
2. The combination, with a spool and a pinion thereon, of a lever fulcrumed at one end and movable at the other or free end, a wheel and its shaft journaled in said lever between its ends and carrying the handle, and a throwing-off device, substantially as described, connected with the free end of said lever and extending through the cap or cap-like portion of the reel-head, substantially as and for the purpose set forth.

3. The combination, with a reel-spool and a pinion thereon, of a lever fulcrumed at one end and having at its free end a yoke, a wheel and its shaft journaled in said lever between its ends and carrying a handle, and a shaft extending through the cap portion of the reel, capable of operation at the face of such portion and provided with a cam working in said yoke, substantially as and for the purpose set forth.

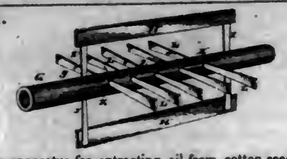
4. The combination, with the spool and head of a reel, of a brake-spring, F, attached to the inner side of the head, and a screw and nut, *k l*, for the brake, the screw being attached to the spring and the nut being held against movement lengthwise of its axis in the head, substantially as set forth.

318,191. APPARATUS FOR EXTRACTING OIL FROM COTTON-SEED. GEO. LEDER, Demopolis, Ala. Filed July 19, 1884. (No model.)

Claim.—1. In an apparatus for extracting oil from cotton-seed, the combination, with a drum having tubular bearings, of a hollow shaft trunnioned in said bearings, said hollow shaft being provided with scrapers and blades, substantially as set forth.



318,191.



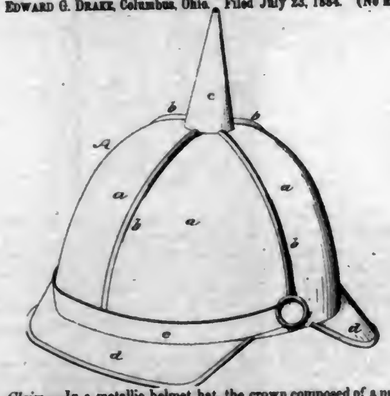
2. In an apparatus for extracting oil from cotton-seed, the combination, with a drum having tubular bearings, of a hollow shaft journaled in said bearings, and provided with scrapers and disintegrating-blades, and means for rotating the shaft independently of the drum, substantially as set forth.

3. In an apparatus for extracting oil from cotton-seed, the combination, with a drum having tubular bearings, of a hollow rotary scraper-shaft journaled in said bearings, said shaft being provided with perforations, whereby the steam entering the end of the shaft is allowed to escape into the meal within the drum, substantially as set forth.

4. In an apparatus for extracting oil from cotton-seed, the combination, with a drum having tubular bearings, of a hollow shaft provided with two diametrically-opposite scraper-arms adapted to pass within close proximity to the sides of the drum, and further provided with blades set diametrically opposite each other, substantially as set forth.

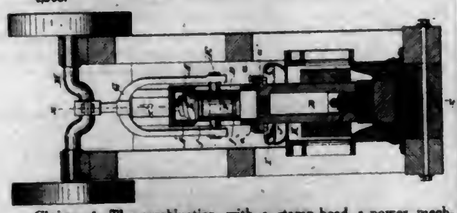
5. In an apparatus for extracting oil from cotton-seed, the combination, with a drum having tubular bearings, of a hollow rotary shaft provided with two diametrically-opposite scraper-arms adapted to pass within close proximity to the sides of the drum, and further provided with blades set diametrically opposite each other, with the edges of the blades set at right angles to the axis of the shaft, substantially as set forth.

318,192. METALLIC HELMET HAT. CHARLES H. LINDENBERG and EDWARD G. DRAKE, Columbus, Ohio. Filed July 23, 1884. (No model.)



Claim.—In a metallic helmet hat, the crown composed of a number of concaved triangular sections jointed together at their side edges, substantially as shown and described.

318,193. ORE-STAMP. JOHN W. MARSHALL, Stamford, Conn., administrator of Charles Shall, deceased. Filed Mar. 17, 1885. (No model.) Patented in England July 13, 1875, No. 2,524, and Sept. 7, 1883, No. 4,303.



Claim.—1. The combination, with a stamp-head, a power mechanism, and a pneumatic chamber and piston connecting the same, of a water-supplying apparatus for cooling the chamber, consisting of a series of pipes arranged in proximity to the chamber and having jet or spray orifices on their inner faces, substantially as and for the purposes set forth.

2. The combination, with a stamp-head and a power mechanism, of a pneumatic chamber having longitudinal slots through the sides and between the ends thereof, a piston, and a rod attached to said piston through the slots, the chamber and rod being connected with said head and power mechanism, substantially as and for the purposes set forth.

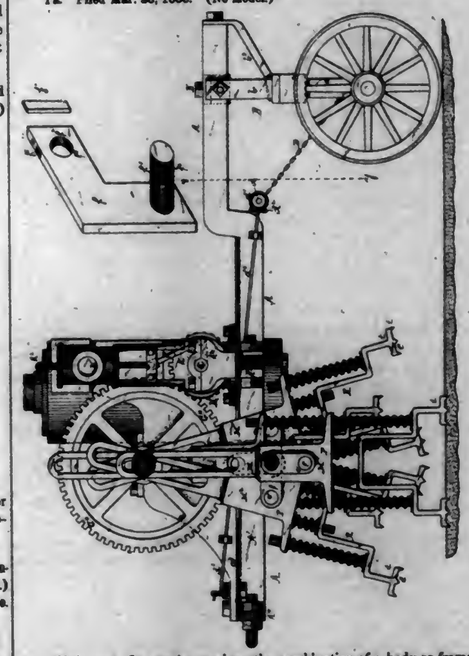
3. The combination, with a stamp-head and a power mechanism, of a pneumatic chamber having longitudinal slots through the sides and between the ends thereof, a piston, and a rod attached to said piston through the slots, the chamber and rod being connected with said head and power mechanism, and the chamber being constructed in two parts, the dividing plane of which passes through the slots, whereby the construction and assembling of the parts are facilitated, substantially as set forth.

4. The combination of a stamp-head, a power mechanism, a pneumatic chamber and piston connected the one with said head and the other positively with the power mechanism to be reciprocated thereby, and a spring acting between the piston and chamber to return said parts to a position which will enable a pneumatic cushion to be formed on either side of the piston, substantially as and for the purposes described.

5. The combination of a stamping-head and an opposing block, a power mechanism, a pneumatic chamber and piston between said mechanism and head for reciprocating the latter, and a hopper or conduit, said chamber and head being formed with a central feed-aperture communicating with the conduit, substantially as and for the purposes described.

6. The combination, with a stamp-head and a power mechanism, of a pneumatic chamber and piston connected with said head and power mechanism, the chamber being provided with the alloy lining A', having lateral flanges clamped between the parts of said chamber, substantially as and for the purposes described.

318,194. TRACTION-ENGINE. HENRY B. MCMURRAY, Bargettstown, Pa. Filed Mar. 28, 1885. (No model.)



Claim.—1. In traction-engines, the combination of a body or frame having guide-wheels at the forward end, a power-shaft mounted in said frame and having a series of cranks therein, and a series of supporting-legs journaled on the cranks of the power-shaft and acting to support the rear part of said frame through the power-shaft, substantially as set forth.

2. In traction-engines, the combination, with a power-shaft and a series of operative legs or bars journaled thereto and having imparted to them a pushing stroke thereby, of a guide-shaft above the power-shaft and having said legs connected thereto by a sliding connection, substantially as set forth.

3. In traction-engines, the combination of a power-shaft having a series of cranks therein, a guide-shaft above it, and a series of operative legs or bars journaled to the cranks of said power-shaft and connected to said guide-shaft by a sliding connection, substantially as set forth.

4. In traction-engines, the combination, with the body A, of the crank-shafts E E, the legs M, journaled to the cranks thereof, and the connecting-sleeve E', substantially as and for the purposes set forth.

5. In traction-engines, the combination, with the body A, of the crank-shaft E, the guide-shaft G, and the legs M, journaled to the crank-shaft and having the extensions M', provided with the slots m^2, through

which the guide-shaft passes, substantially as and for the purposes set forth.

6. In traction-engines, the combination of the power-shaft E, the guide-shaft G, the legs M, journaled to said power-shaft and having slotted extensions through which the guide-shaft passes, and the collars *n* on said guide-shaft, substantially as and for the purposes set forth.

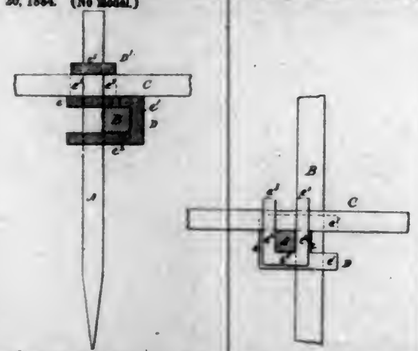
7. In traction-engines, the operative leg having the body P and auxiliary frame R, in combination with guide and spring connections between them, substantially as and for the purposes set forth.

8. In legs for traction-engines, the combination of the body P, having the guide-bars *p*, frame R, having guide-bars *r*, and springs around said bars confined between said body and frame, substantially as and for the purposes set forth.

9. The combination of the frame A, secured to the engine-body and having the bearing-plate *b'*, provided with the enlarged hole *b³*, the frame *c*, secured to the axle and having the bearing-plate *c'*, the spring *c³*, and the king-bolt, substantially as and for the purposes set forth.

10. The combination of the frame A, secured to the engine-body and having the bearing-plate *b'*, provided with the enlarged hole *b³*, the frame *c*, secured to the axle and having the bearing-plate *c'*, the spring *c³*, the king-bolt, and the spring-bars *b³*, substantially as and for the purposes set forth.

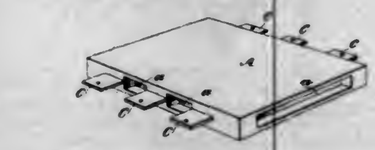
318,195. HARROW-TOOTH FASTENER. JAMES MILLER, Atwater, Minn., assignor to himself and Edwin P. Burt, same place. Filed Aug. 20, 1884. (No model.)

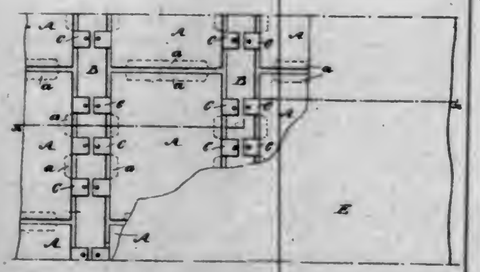


Claim.—1. In a harrow-tooth fastening, the clip composed of the lower portion having an apertured upper plate-like part with downwardly-extended parallel continuations bent to form a slotted part opening from the back and closed in front, the said slotted part being arranged parallel with the plate-like part, and the upper portion bent to form right-angled upper continuations with a cross-end piece, substantially as and for the purpose set forth.

2. In a harrow-tooth fastening, the clip having the upper and lower loops or slotted arms, the said arms or loops being disposed at right angles to each other, and having an intermediate apertured plate-like part, substantially as and for the purpose set forth.

318,196. WALL AND CEILING OF BUILDINGS. LEWIS A. MITCHELL, Elizabeth, N. J., assignor to Seth B. Ryder, same place. Filed Dec. 4, 1884. (No model.)





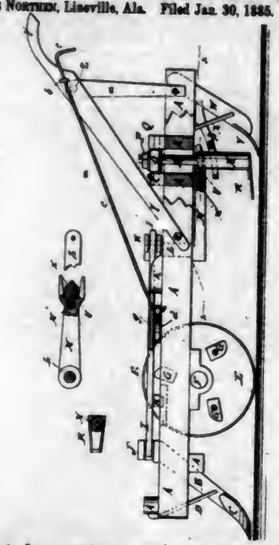
318,196. (Reissue.)



Claim.—1. As a new article of manufacture, the cement block A, having fastening-plates C at its edges, and formed with recesses *a* between the fastening-plates C, substantially as described.

2. The block A, formed with recesses *a* at its upper edge and lower edge, and with similar recesses at its side edges, in combination with the fastening-plates C, that pass through the block, substantially as described.

318,197. COMBINED SWEEP, COTTON CHOPPER, AND DIRTER. THOMAS NORTHEN, Lineville, Ala. Filed Jan. 30, 1885. (No model.)



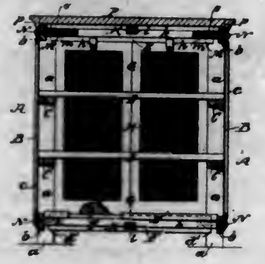
Claim.—1. In a combined sweep, cotton chopper, and dirter, the combination, with the frame A and the swinging chopper-standard N, of the two wheels E, rigidly connected with the same axle and provided with projections G, the sliding bars I, provided with projections H, and the pivoted cross-bar K, connected with the two sliding bars and carrying a forked arm, M, to engage with the said chopping-standard, substantially as herein shown and described, whereby the said chopping-standard will be vibrated by the advance of the machine, as set forth.

2. In a combined sweep, cotton chopper, and dirter, the combination, with the frame A and the swinging chopper-standard N, of the pivoted brace-bar S, substantially as herein shown and described, whereby the said standard is strengthened against rearward pressure, as set forth.

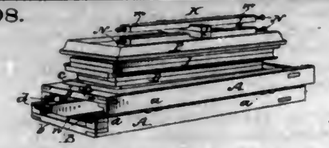
3. In a combined sweep, cotton chopper, and dirter, the combination, with the vibrating forked arm M, having a recess, M', at the bottom of its fork, and the swinging chopper-standard N, of the pin U, substantially as herein shown and described, whereby the said standard will be rocked as it is vibrated by the said arm, as set forth.

4. In a combined sweep, cotton chopper, and dirter, the combination, with the handle Y, the frame A, and the sliding bar I, having slot *f*, of the sliding rod *e*, the elbow-lever *d*, and the spring *g*, substantially as herein shown and described, whereby the chopper can be readily thrown out of gear, and will be held in gear when in use, as set forth.

318,198. PROVISION-SAFE. JEFFERSON ODENBAUGH, Wharton, Ohio. Filed Sept. 10, 1884. (No model.)



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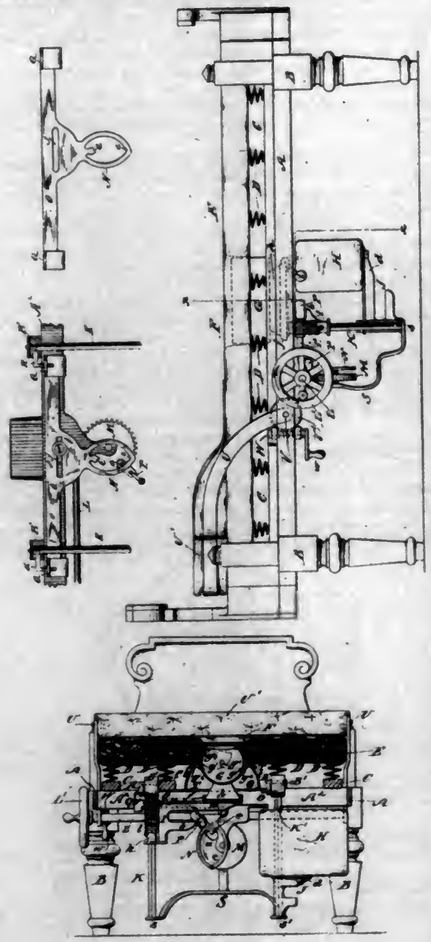
Claim.—1. A provision-safe constructed with end parts, A A, having recesses *d d'*, bars E F, loosely fitting into the recesses, frames K K, formed of connected and crossed bars *k l*, and the nuts M and screws N, arranged substantially as specified, and with back frames, G, held to the bars E F by dowel-pins *g* and buttons *h*, and with doors I I, all substantially as shown and described.

2. A provision-safe constructed with end parts, A A, provided with recesses *d d'*, bars E F, loosely fitting into the recesses, and upper and lower frames, K K, consisting of connected and crossed bars *k l* arranged between the parts A A and E F, and provided with the nuts M, and the screws N, passing through the parts A and bars *k* into the nuts, substantially as shown and described.

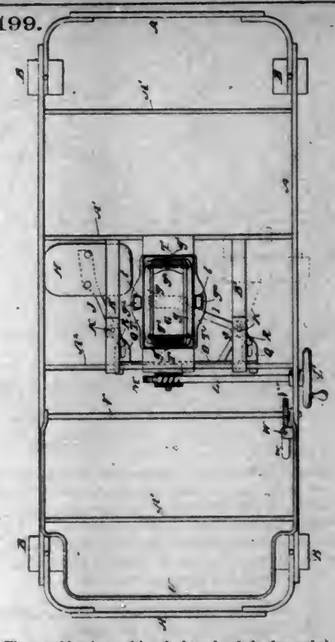
3. The combination, with a knockdown safe, of the back frames, G, provided with dowel-pins *g* and buttons *h*, for the purpose set forth.

318,199. INVALID-BED. CARL OLSEN, Long Island City, N. Y. Filed Jan. 17, 1884. (Model.)

Claim.—1. The combination, with a bedstead, of the rods K K', attached to the bottom of the bedstead, the slotted arms I J, loosely mounted on said rods and carrying a commode and cushion, respectively, a shaft journaled below the bedstead and provided with the crank-arm P, and means for operating said crank-arm, substantially as herein shown and described.



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2. The combination, with a bedstead, of the journaled rods K K', having the cranks R R', the arms I J, provided with a commode and cushion, respectively, and loosely mounted on said rods, the plate O, provided with the slotted plates Q, and guides for said plate attached to the bottom of the bedstead, substantially as herein shown and described.

3. The combination, with the worm-shaft L and worm-wheel M, having arm P and stud *a* secured thereto, of the elliptical cam N, sliding plate O, provided with the slotted plates Q, vertically-sliding arms I J, and pivoted vertical rods K K', provided with cranks R R, engaging the plates Q Q, all arranged to operate substantially as and for the purposes set forth.

4. The combination, with a bedstead, of the rods K K', the bifurcated arms I J, loosely mounted on the said rods, the worm-shaft L, and the worm-wheel M, having the crank-arm P, substantially as herein shown and described.

5. The combination, with a bedstead, of the rod K, the sleeve *k*, provided with the shoulder *m'* and mounted on the said rod, the slotted arm I, provided with the stop *m'* and loosely mounted on the sleeve, the spring *l*, connecting the arm I to the sleeve, and a shaft journaled below the bottom of the bedstead and provided with the crank-arm P, substantially as herein shown and described.

6. The combination, with the commode G, of the covers *g* and the springs g^3, for automatically closing the commode, substantially as described.

7. The combination, with a bedstead provided with an opening and having stops T, of the commode G, provided with the pivoted and spring-closed covers *g*, having lips g^2, a vertical guide secured to the bedstead at one side of said opening, and a support for said commode loosely mounted on said guide, substantially as described.

8. The combination, with a bedstead provided with an opening and having the plates T, provided with the slots *t*, of the commode G, the pivoted covers *g*, having lips g^2, and the spring g^3, connecting said covers, substantially as herein shown and described.

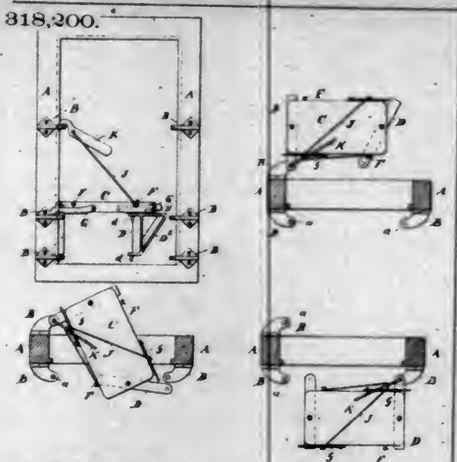
9. The combination, with a bedstead, of the rods K K', provided with the crank-arms R', the arms I J, mounted loosely on said rods, the worm-wheel M, provided with the crank-arm P and stud *a*, the sliding plate O, provided with the slotted plates Q, and the elliptical cam N, having notch *c*, said slotted plates Q being connected to the crank-arms R, substantially as shown and described.

318,200. WINDOW-SHELF. JOSEPH G. O'NEILL, Nevada City, Cal. Filed Oct. 24, 1884. (Model.)

Claim.—1. The combination, with the shelf C, of the brackets D, the bail J, the hook-lever K, and the lugs B on the standards of the window-frame, substantially as herein shown and described.

2. The combination, with a window-shelf, of a bracket pivoted centrally on the bottom of the same at each end, and supports for said brackets, substantially as herein shown and described.

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3. The combination, with a window-shelf, of a bracket pivoted to the under side of the same at each end, and of latches for holding the brackets parallel with the ends of the shelf, and supports for said brackets, substantially as herein shown and described.
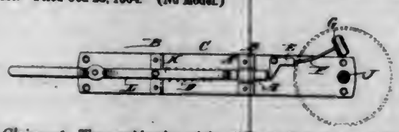
4. The combination, with the shelf C, of the brackets D, pivoted thereto, and having pins *d*, and of the apertured lugs B on the window-frame, substantially as herein shown and described.

318,201. STOCKING OR SLEEVE SUPPORTER. ELIAS OPPENHEIMER, New York, N. Y. Filed Oct. 4, 1884. (No model.)



Claim.—A stocking and sleeve supporter constructed substantially as herein shown and described, and consisting of the plate A, having a forwardly-projecting inwardly-inclined flange, D, upon its curved lower end, and two or more slots in its shank, the plate B, having a rearwardly-projecting outwardly-inclined flange, E, upon its curved lower end, and the connecting-pivot C, as set forth.

318,202. ELEVATOR ALARM-BELL. LOUIS W. PEDICORD, St. Joseph, Mo. Filed Oct. 23, 1884. (No model.)

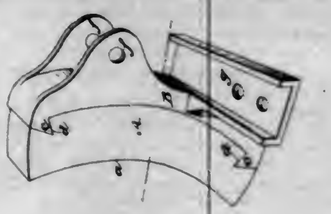


Claim.—1. The combination of the sliding bolt A, the gong H, the elbow-lever E at one end of the bolt, the hammer G, connected with said elbow-lever, and the lever for actuating the bolt, substantially as and for the purpose set forth.

2. The combination, with the plate C, of the sliding bolt A, the gong H, the elbow-lever E at one end of the bolt, the hammer G, connected with the elbow-lever E, and a pivoted lever for actuating the bolt, substantially as herein shown and described.

3. The combination, with the plate C, of the sliding bolt A, the spring D, the link K, the lever L, the elbow-lever E, a hammer connected with the same, and the gong H, substantially as herein shown and described.

318,203. BRAKE-SHOE. JOHN H. PITARD, Mobile, Ala., assignor to himself and Myer I. Goldsmith, same place. Filed Apr. 8, 1885. (No model.)



Claim.—The metal head or backing B of the shoe, provided with a single side flange, *b*, and having hook or tooth-shaped opposite ends, *c c*, in combination with the rubber or friction block A, having recesses *d d* arranged to receive the hook or tooth-shaped ends *c c* within them, substantially as shown and described.

318,204. GARMENT-SUPPORTER. AUSTIN PROUDFIT, Madison, Wis. Filed May 1, 1884. (No model.)



Claim.—1. The combination, with a hose-suspender, of a clasp having two opposing jaws movable laterally toward and from each other, one of said jaws being provided with obliquely-arranged points projecting inwardly and toward the point of attachment of the clasp, substantially as and for the purpose set forth.

2. The combination of the two opposing spring-jaws, one of which is provided with inwardly-projecting points located at some distance from the ends of the jaws, whereby the ends of the jaws are held apart, and a permanently open space thereby afforded between the extreme ends of said jaws, substantially as and for the purpose set forth.

3. The combination, with the opposing spring-jaws, of a clasp provided with inwardly-projecting points, of a lever having one of its arms between and the other exterior to said jaws, substantially as described, and for the purposes set forth.

4. In a spring metal clasp, the combination, with an opposing jaw, of a jaw having an offset, and provided with an aperture at said offset, and a lever having its long arm depending through said aperture and its short arm between the jaws, substantially as described.

5. In a spring metal clasp, the combination, with an opposing jaw, of a jaw provided with an apertured offset, and a bent wire lever, C^2, having notches c^4, said lever being inserted through said aperture and engaged with the jaws, substantially as described, and for the purposes set forth.

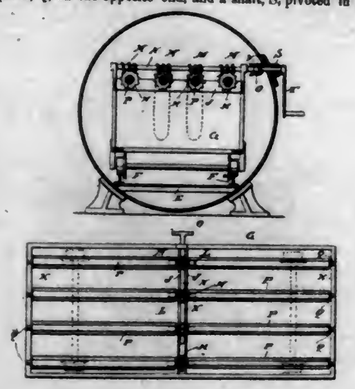
6. In a sheet-metal spring-clasp, the combination, with an opposing jaw, c^3, of a jaw, c', having inwardly and downwardly projecting points c^3 formed on the upper margin of a transverse slot, c^4, substantially as described.

7. The sheet-metal blank D, for forming the spring-clasp described, said blank being provided with a series of serrations, and having the tongue *d* terminating at its base at the line in which the blank is bent to form the clasp, substantially as described.

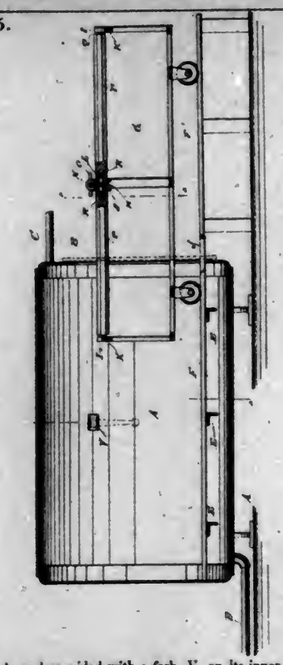
8. The combination, with a hose-suspender, of a clasp, C, constructed to engage the margin of the corset, and having a flat part or body portion, as c^2, located in a plane parallel with the jaws of the clasp, and a flat strap-loop, C', located approximately in the same plane with the body of the clasp, and connected with the latter by means of a pivot, as *c*, passing through the said loop and the clasp-body, substantially as and for the purpose set forth.

318,205. APPARATUS FOR STEAMING DYED FABRICS. EUGENE RAU, Brooklyn, N. Y. Filed Mar. 11, 1884. (No model.)

Claim.—In an apparatus for steaming dyed fabrics, the combination, with the boiler or steam-vessel A, of the car G, the cross-bars J K, the shaft N, the worms M, the worm-wheels H, the short shafts L, having squared ends, the rods P, having each a socket, R, in one end and a pivot, Q, on the opposite end, and a shaft, S, pivoted in the side

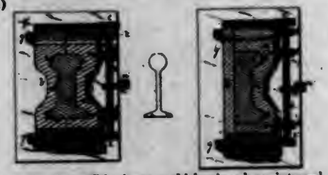


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of the boiler A, and provided with a fork, V, on its inner end, substantially as herein shown and described.

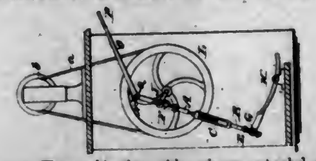
318,206. INGOT-MOLD. ABRAM REESE, Pittsburg, assignor of one-half to Robert C. Totten, Allegheny City, Pa. Filed July 17, 1884. (No model.)



Claim.—1. A partible ingot-mold having lugs integral with the mold-halves thereof, in combination with securing-bolts passing through said lugs, and bars journaled in said bolts and carrying cams or eccentrics adapted to press against the mold, substantially as and for the purposes set forth.

2. In a partible ingot-mold, the combination of the mold-halves, securing-bolts, bars journaled therein and carrying cams or eccentrics, and the connecting-levers and link-bar, substantially as and for the purposes set forth.

318,207. PITMAN ATTACHMENT FOR SEWING-MACHINES. PETER S. ROY, Denver, Colo. Filed Mar. 17, 1885. (No model.)



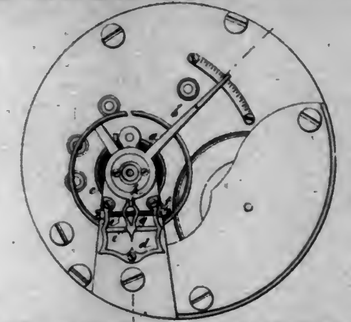
Claim.—1. The combination, with a pitman extended above the crank, of a handle-bar connected with the upper end of the pitman, substantially as herein shown and described.

2. The combination, with a pitman, of a handle-bar hinged on the same, and devices for holding the handle-bar at any desired angle to the pitman, substantially as herein shown and described.

3. The combination, with a pitman, of hinged clamping-pieces for holding the same on the treadle pivot or crank, substantially as herein shown and described.

4. A pitman provided with an extension above the crank, and having the toothed or ribbed disk M on the end of the extension, substantially as herein shown and described.

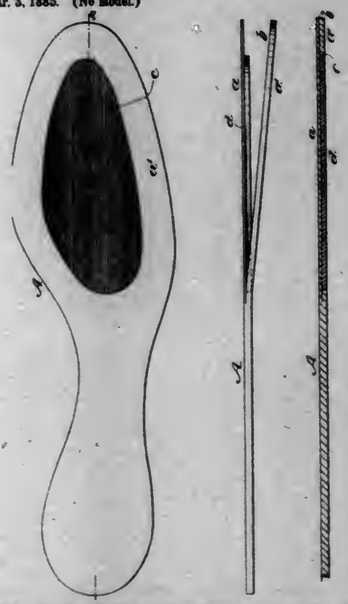
318,208. WATCH-REGULATOR. SWEN P. SANDMARK, Ishpeming, Mich. Filed Dec. 22, 1884. (No model.)



Claim.—1. In a regulator for watches, the combination, with the ring of the regulator having a lug, of the split slide-piece, and the forked frame having the screw with heads bearing upon said frame, substantially as and for the purpose set forth.

2. In a watch-regulator, the combination of the forked frame *d*, the cross-bar *i*, the double-headed screw *e*, and the slide *g*, substantially as shown and described.

318,209. INNER SOLE FOR BOOTS OR SHOES. CHARLES J. SCHMID, Portsmouth, Ohio, assignor to Padan Brothers & Co., same place. Filed Mar. 3, 1885. (No model.)



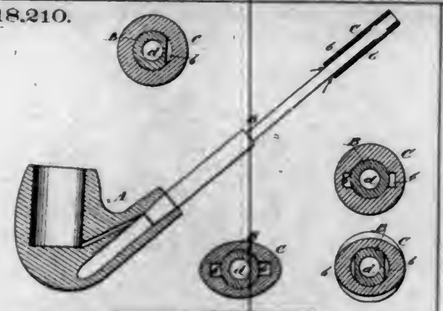
Claim.—1. In a flexible insole for boots and shoes, the sole split or divided intermediately of its thickness from the toe to or toward the shank, to form upper and lower face portions, and having its lower split face portion provided with an opening between the toe and the shank, substantially as specified.

2. In a flexible insole for boots and shoes, the sole A, split or divided, as at *b*, from the toe to or toward the shank, with the split portions *a a'* afterward cemented or united together, and having an opening, *c*, in its lower portion, *a'*, in combination with the filling-piece *d*, of flexible material, essentially as shown and described.

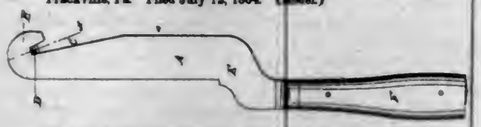
318,210. MOUTH-PIECE FOR PIPES. WILLIAM SEABROOK, Edisto Island, S. C. Filed Mar. 22, 1884. (No model.)

Claim.—The removable mouth-piece C, having the open channels or grooves *b*, extending from end to end thereof and formed in the wall of its central bore, which is adapted to receive a pipe-stem, whereby when the device is applied in use the pipe-stem forms the inner side of said channels, thus converting them into isolated air-ducts, as specified.

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318,211. KNIFE FOR CUTTING OIL-CLOTH. ALFRED S. SEAMAN, Frackville, Pa. Filed July 12, 1884. (Model.)



Claim.—1. As an improved article of manufacture, a knife for cutting oil-cloth, substantially as herein shown and described, and consisting of a blade provided with a cutting-hook at the free end and with a bend at the handle end, the bend extending in the opposite direction of the hook, as set forth.

2. A knife for cutting oil-cloth, consisting of the blade A, provided at its forward end with a hook, having a cutting-edge within said hooked portion, and also formed with the straight guide-edge *a*, the lower outer edge of the hook and the guide-edge *a* being in alignment, as set forth, whereby the point of the hook is prevented from cutting a carpet or floor upon which the oil-cloth to be cut is laid.

318,212. RATCHET APPARATUS. GEORGE M. SHAW, Pittsburg, Pa. Filed Apr. 13, 1885. (No model.)

Claim.—1. In a ratchet apparatus, the combination, with the ratchet-face and pawl, of a plain surface beside said ratchet-face, adapted to press against and raise the pawl above the ratchet-face, substantially as and for the purposes set forth.

2. In ratchet apparatus, the combination of a ratchet-face, a plain surface beside it, and a pawl having an engaging-tooth and a lug or tail-piece resting against said plain surface, substantially as and for the purposes set forth.

3. In ratchet apparatus, the combination of a ratchet-face, a plain surface beside it, and a pawl having an engaging-tooth and a lug or tail-piece pressing against said plain surface, said pawl swinging within a recess of greater width at the base than the pawl, substantially as and for the purposes set forth.

4. In ratchet apparatus, the combination of the shaft *a*, ratchet-wheel *d*, plain-faced pulley *f*, inclosing-case *g*, having the recess *k* and opening *r*, and the pawl *h*, having the tooth *l*, tail-piece *m*, and thumb-piece *p*, substantially as and for the purposes set forth.

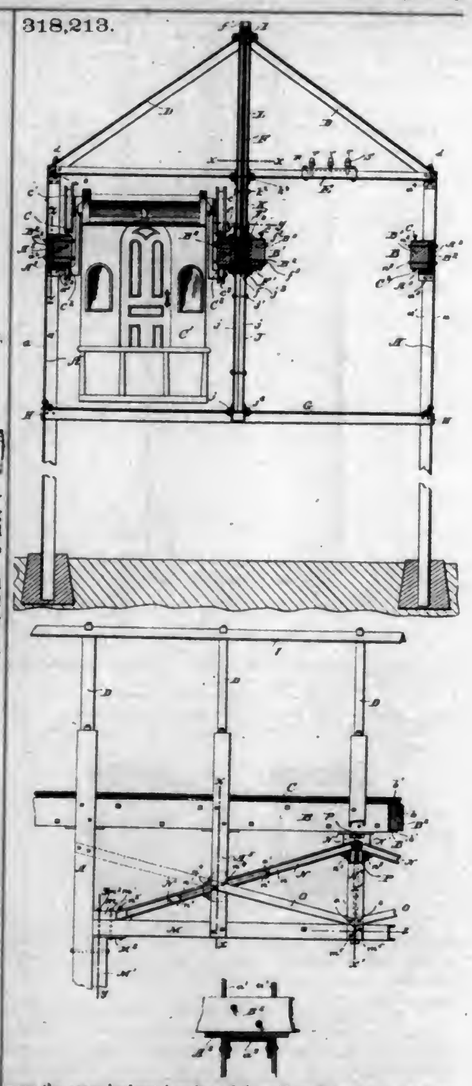
5. In ratchet apparatus, the combination of the ratchet-face *d*, plain surface *f*, and pawl *h*, having the tooth *l* and tail-piece *m* at the opposite sides of the base thereof, substantially as and for the purposes set forth.

318,213. SUPERSTRUCTURE OF ELEVATED RAILWAYS. WILLIAM F. SHERMAN, Chicago, Ill. Filed Oct. 3, 1883. (No model.)

Brief.—Vertical channel-beams are notched in their edges to receive longitudinal channel-beams in which are held wooden stringers, upon which the track-rails rest, filling-blocks being inserted between the vertical channel-beams and the longitudinal ones. The central rail-stringers are supported by a vertical rod depending from a transverse truss supported upon the top of the vertical channel-posts.

Claim.—1. The combination, with a metal beam provided with a horizontal flange upon its lower edge, of a wooden stringer secured to one side of the beam above the flange thereof and a track-rail secured

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upon the upper horizontal surface of the said wooden stringer independently of the metal beam, substantially as and for the purpose set forth.

2. The combination, with a track-rail, of a stringer consisting of a metal channel-beam and a wooden filling inserted between the flanges of said beams and constructed to project therefrom, so as to afford support for the rail upon its projecting portion, substantially as described.

3. The combination, with the vertical channel-beams A, provided with notches A′ in their flanges, of horizontal channel-beams B^2, located in said notches, and wooden stringers B^3, inserted and secured between the flanges of said beam B^2, substantially as described.

4. The combination, with the supporting-posts A, composed of channel-beams and provided with notches A′ in their flanges, of stringers B, secured in said notches, and plates A^3, interposed between the lower edges of the said beam and the posts, substantially as described.

5. The combination, with the vertical channel-beam A, provided with notches A′ in its flanges extending partially through the same, of a stringer, B, secured in said notches, and blocks A^3, interposed between the web of the beam and the stringer, substantially as described.

6. The combination, with the outer and inner track-stringers of a double-track elevated railway, of posts A, constructed to support the outer stringers, a transverse truss resting at its outer ends upon the said posts for supporting the inner stringers, and a suspension-rod, F, constructed to support the inner stringers from the center of the truss, substantially as described.

7. The combination, with the outer and inner track-supporting stringers of a double-track elevated railway, of posts A, constructed to support the outer stringers, inclined struts D, resting at their outer ends upon the said posts and meeting at the center of the structure, a tie-beam joining the said outer ends of the struts, and a suspension-rod constructed to support the inner stringers from the upper ends of said struts, substantially as described.

8. The combination, with the stringers B of a double-track elevated railway and supporting-posts A, constructed to uphold the two outer stringers, of a truss arranged transversely over the tracks and resting at its ends upon the said posts, said truss being provided with rigid tension member or tie-beam, E, a suspension-rod, F, constructed to support the two inner stringers from the said truss, girts G, joining the said posts at opposite sides of the structure below the stringers, and beams J and K, rigidly connecting the said stringers with the girts G and the tie-beams E, respectively, substantially as described.

9. The combination, with the stringer and supporting-posts of an elevated-railway structure, of a tie-beam, M, located below and parallel with said stringer, vertical posts A^5, secured to said tie-beam and stringer, inclined struts N, joined to the ends of the tie-beams and constructed to abut against the sides of the said posts A^5 at their points of intersection therewith, and a suspension-rod, P, constructed to support the center of the tie-beam from the upper ends of the struts, substantially as described.

10. The combination, with the stringers B and posts A, of a tie-beam, M, struts N, suspension-rod P, and a vertical post, A^4, connected with said tie-beam and struts, and constructed to support said stringers, substantially as described.

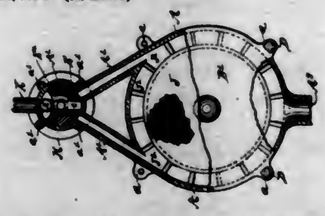
11. The combination, with the stringer B and supporting-posts A, of a horizontal tie-beam, M, struts N, connected with the end of said tie-beam, a suspension-rod, P, a post, A^4, connected with the said tie-beam and with the said stringer, posts A^5, located between the post A^4 and the end of the tie-beam and connected with the said tie-beam, the struts N, and the stringers and struts O, connected with the lower end of the suspension-rod and with the struts N and posts A^5, substantially as described.

12. The combination, with the stringer B and the supporting-posts A, of the tie-beam M, the vertical posts A^4 and A^5, and the inclined strut N, extending between the end of the tie-beam M and the post A^4, and constructed to abut against the opposite sides of the post A^5, substantially as described.

13. The combination, with a vertical post, A, composed of a channel-beam, of a cross-piece, a^4, secured between the flanges of said post near its upper end, and a transverse truss constructed to rest at its end upon said cross-piece and between the flanges of the post which project above said cross-piece, substantially as described.

14. The combination, with the vertical post A, composed of a channel-beam, of a cross-piece, a^4, secured between the flanges of said post near its upper end, a tie-beam, E, and strut D, composed of channel-beams, and constructed to rest at their ends upon said cross-piece and between the flanges of the post, and means constructed to secure the said post, tie-beam, and strut together, substantially as described.

318,214. WATER-WHEEL. JESPER SMITH, Washington, N.J. Filed Apr. 24, 1884. (No model.)



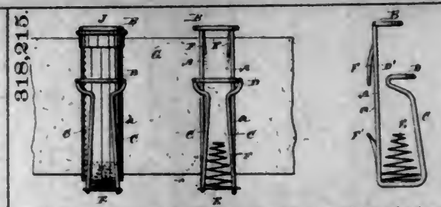
Claim.—In a reversible water-motor, the combination of the water-wheel, the casing having inclined recessed extensions terminating in a circular valve-chamber, the valve having a central water-way provided with an enlargement in its upper part, as described, and the valve-operating shaft, all constructed and arranged to operate as and for the purpose set forth.

318,215. CARTRIDGE-SHELL HOLDER. SIDNEY S. STAHL, Connellsville, Pa. Filed Jan. 2, 1885. (No model.)

Claim.—1. A cartridge-shell holder formed of wire bent to form the upright parts A, the cross-piece B, and the parts C in front of the parts A, and united by a cross-piece, D, substantially as herein shown and described.

2. A cartridge-shell holder formed of a wire bent to form the parts A, united at the top by a cross-piece, B, the parts C united by a cross-piece, D, and the parts A having the prongs or pins F F′ for holding the holders on a belt, substantially as herein shown and described.

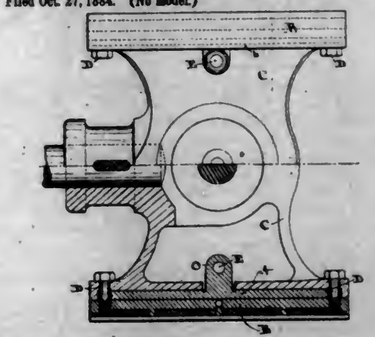
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3. In a cartridge-shell holder, the combination, with a wire bent to form the parts C in front of the parts A, of the spiral springs E on the parts uniting the parts A and C at the bottom, said parts A having a connecting cross-piece, B, substantially as herein shown and described.

4. In a cartridge-shell holder, the combination, with a wire bent to form the parts A and C, of the side wires, H, and the spiral springs E, said parts A having a connecting cross-piece, B, substantially as herein shown and described.

318,216. CROSS-HEAD FOR STEAM-ENGINES. JAMES B. STANWOOD, Cincinnati, Ohio, assignor to the Lane & Bodley Company, same place. Filed Oct. 27, 1884. (No model.)



Claim.—1. In a double-guide-engine cross-head, wedges A, adjustable transversely to the line of the guides, having full longitudinal bearing on both cross-head and slippers, and provided with adjusting-screws adapted for wedging out the slippers in closer contact with the slides, substantially as described.

2. In an engine cross-head, in combination with wedge-blocks A, having full longitudinal bearing on cross-head and slippers, clamp-screws D, shouldered in the cross-head frame and tapped into the slippers, substantially as and for the purpose specified.

3. In an engine cross-head, slippers B, adjustably secured to the cross-head by clamp-screws D, wedge-blocks A, and adjusting-screws E, in combination, substantially as set forth.

4. In an engine cross-head, slippers B, having transverse inclined inner surfaces, *a*, in combination with wedge-blocks A, and adjusting-screws E, threaded in projecting lugs O on the wedge-blocks, substantially as and for the purpose specified.

5. In combination with the cross-head frame C and slippers B, having side flanges, *b c*, the wedge-blocks A, formed with lugs O, and adjusting-screws E and set-screws D, substantially as and for the purpose specified.

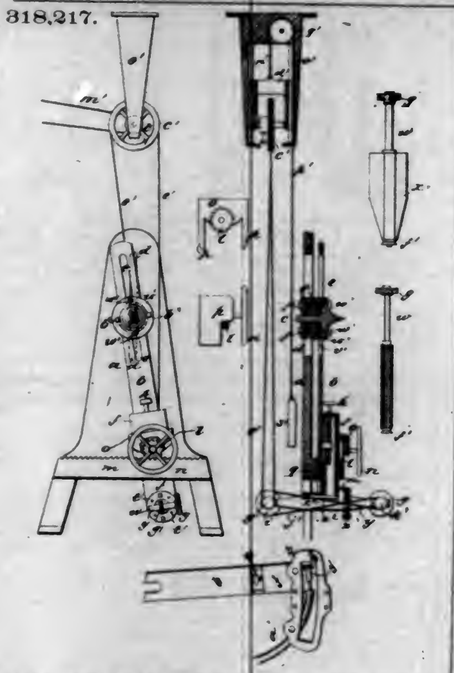
6. The herein-described arrangement in an engine cross-head of a transverse wedge-block, A, having full longitudinal bearing on the slipper, and provided with lug O, having threaded or shouldered therein adjusting-screw E, passed through or threaded in the sides of cross-head frame, and with slotted ends for passage of clamp-screws D and slipper B, with retracted flanged sides *b c*, inclined inner bearing-surface, *a*, and having threaded therein at the ends clamp-screws D, and adapted in contact with the wedge-block and clamping-screws to be adjusted with respect to the engine-slide, or to be removed from the cross-head independent thereof, the whole combined and operating substantially as described.

318,217. LINK-FITTING APPARATUS. JAMES H. STIMPSON, Springfield, Ill. Filed May 26, 1884. (No model.)

Claim.—1. The combination of a pendulum *b*, and slide *f*, carrying a grinder or a milling-tool, and means for securing it to the slide in positions to revolve parallel with and at right angles to the slide, whereby the tool is adapted to dress the link lengthwise and transversely, substantially as described.

2. The combination, with the pendulum *b*, of the vertically-adjustable slide *f* and grinder or milling-tool *g*, supported in a box secured to

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said slide, whereby the link may be dressed on the upper and lower faces of the slot, substantially as described.

3. The combination, with the pendulum *b*, slide *f*, and rotary tool *g*, of means, substantially as described, for vibrating the pendulum and at the same time revolving the rotary fitting-tool, substantially as herein set forth.

4. The combination of the pendulum *b*, having the adjustable tool-slide *f*, with the reciprocating bed *t*, working at right angles to the plane in which the pendulum swings and being adapted for holding the work, substantially as described.

5. The combination of the pendulum *b*, having the adjustable tool-slide *f*, and a rotary fitting-tool, *g*, located thereon, with the laterally-moving bed *t*, the said tool being provided with means for causing it to rotate while it is swung by the pendulum, substantially as described.

6. The pendulum *b*, mounted adjustably on a pivot, *c*, which is adjustable on the support *a*, the pendulum being provided with an adjustable tool-slide, *f*, carrying a rotary fitting-tool, *g*, in combination with the laterally-traversing bed *t*, substantially as described.

7. The combination of the rotary fitting-tool *g*, detachable support-ing-box therefor, driving mechanism for said rotary tool, and the adjustable slide *f*, with a pendulum-bar and work-holding bed, substantially as described.

8. The combination of the driving-pulley *c'*, mounted in the adjustable hanger *d'*, and having means for driving it, with the pendulum *b*, carrying a rotary fitting-tool, *g*, substantially as described.

9. The combination of the driving-pulley *c'*, adjustable hanger *d'*, and counter-balance *p' s'* with the pendulum *b*, carrying a rotary fitting-tool *g*, substantially as described.

10. The combination of the cross-head *o*, pinion *l*, mounted thereon, and the toothed bar *m* with the pendulum *b*, carrying a rotary fitting-tool, *g*, substantially as described.

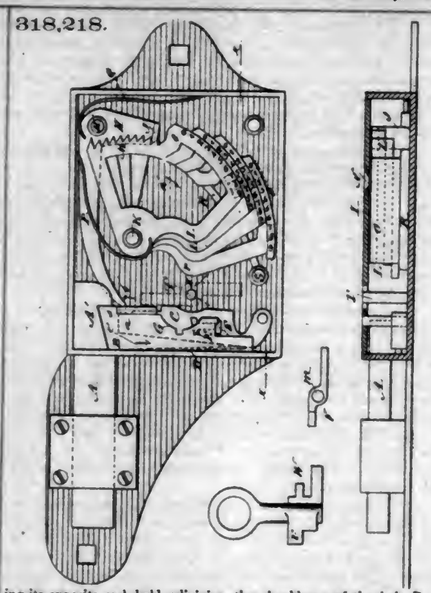
11. The combination of the cross-head *o*, having gib-fingers *p*, and carrying the pinion *l*, with the pendulum *b*, carrying the rotary tool *g*, and with the toothed bar *m* and face *q* of the support *a*, between which the pendulum swings, substantially as described.

12. The combination of the box x^2 and bearing *y*, adjustably connected by flanges *z*, with the slide *f* and pendulum *b*, the said bearing *y* carrying the rotary fitting-tool, and the box x^2 being attached to said slide *f*, substantially as described.

318,218. INDICATOR-LOCK. HORACE G. STRIPE, Omaha, Nebr. Filed Apr. 16, 1884. (No model.)

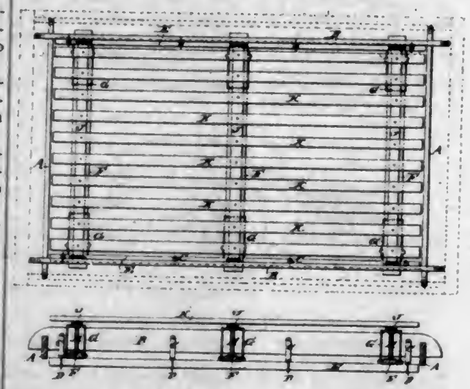
Claim.—1. In a lock, the combination, with the sliding bolt A, of the latch-bolt B, provided with the shoulders *s*, the series of frames L, provided with racks M, and flat parts O, carrying numbers or characters, the angle-lever H, provided with the tooth J on one end and having its opposite end held adjoining the shoulders *s* of the bolt B, and of springs acting on the lever H and on the several frames L, substantially as herein shown and described.

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2. The combination of the sliding latch-bolt B, provided with a key-recess and a stud, E, and a pivoted slotted tumbler for engaging said stud, with the pivoted frames L beyond the latch-bolt, and provided with racks M and flat numbered faces O, and the elbow-lever H, pivoted beyond the racks M, and provided with a tooth, J, on the short arm for engaging the racks, the long arm being operated by the downward movement of the latch-bolt to disengage it from the racks, and springs for returning said plates and lever to their normal position, substantially as herein shown and described.

318,219. SPRING-FRAME FOR BEDS, &c. BENJAMIN TAYLOR, Morrillton, Ark. Filed Sept. 3, 1884. (No model.)

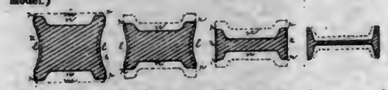


Claim.—1. A spring-frame formed of slats resting on cross-bars supported by springs resting on other cross-bars, said latter bars resting on longitudinal bars suspended by springs from longitudinal rails having their ends united by cross-bars, substantially as herein shown and described.

2. In a spring-frame, the combination, with the rails B and cross-bars A, of the bars E, suspended from the rails B by springs, the cross-bars F, the U-shaped springs G, secured on the edges of the bars F, the bars J, and the slats K, substantially as herein shown and described.

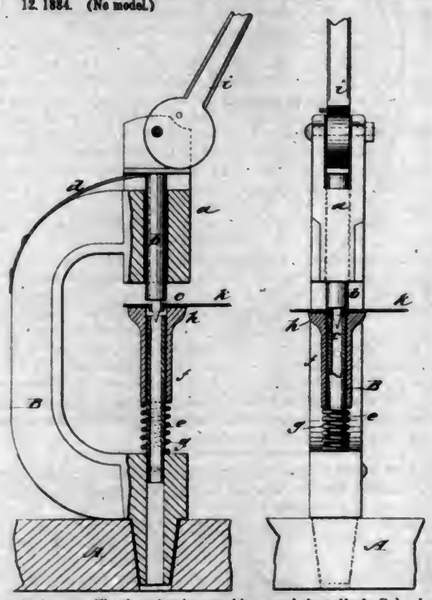
3. In a spring-frame, the combination, with the rails B and cross-bars A, of the bars E, the springs C, the bars F, the springs G, the bars J, the upright wire frames M on the bars F, and of the studs N, passed through the wire frames M into the ends of the bars J, substantially as herein shown and described.

318,220. PROCESS OF ROLLING BEAMS. CHARLES L. TAYLOR, Swissvale, and JOSEPH SKEWIS, Pittsburg, Pa. Filed Sept. 30, 1884. (No model.)



Claim.—The method herein described of rolling beams, consisting in first reducing and concaving the ingot or pile across the edges or flange ends thereof, and then reducing and concaving it across the sides to form the web and raise the flanges.

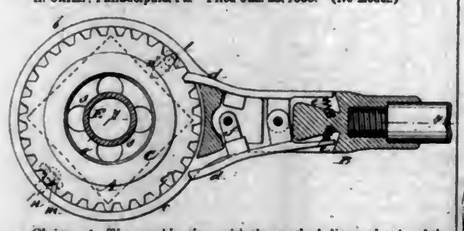
318,221. COMBINED PUNCHING AND FLANGING MACHINE. SHERMAN T. THOMPSON and WILLIAM B. RICHARDS, Adams, N. Y. Filed June 12, 1884. (No model.)



Claim.—1. The tinner's tying-machine, consisting of body B, having head *a*, plunger *b*, punch *c*, fixed tube *e*, spring-supporting face-plate *h*, and cam-lever *i*, substantially as described, combined for operation as specified.

2. In a tinner's tying-machine, the combination of plunger *b*, tube *e*, slide-tube *f*, and spring *g*, substantially as described, for operation as specified.

318,222. PIPE-THREAD-CUTTING STOCK. ANOS TROUT and CHARLES H. ORTLIP, Philadelphia, Pa. Filed Jan. 22, 1885. (No model.)



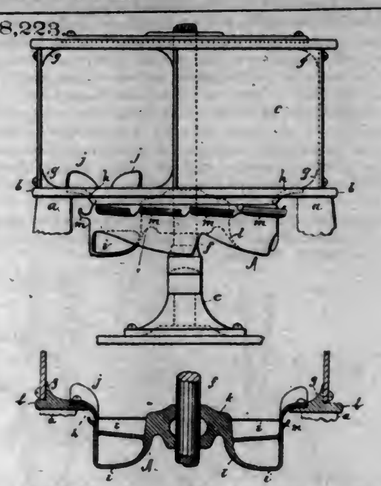
Claim.—1. The combination, with the toothed die-carrier A, of the starting or feeding and centering or guiding screw-threaded tube D, the adjustable reverse angular or V-shaped jaws F G and the vibrating lever B, having reversing-pawls *d d*, substantially as shown and described.

2. In combination with the screw-threaded tube D of the die-carrier, the reverse angular-or V-shaped jaws F G, and the screw H, having double-speed and single-speed threads *e' f'* on it for simultaneously operating said jaws, essentially as described.

318,223. TURBINE WATER-WHEEL. JACOB W. TRUAX, Essex Junction, Vt. Filed May 16, 1884. (Model.)

Claim.—1. The ring *h*, curved inward and downward and provided with vertical spiral blades *j*, forming chutes open at their tops and sides, whereby clogging of the chutes will be prevented, as described.

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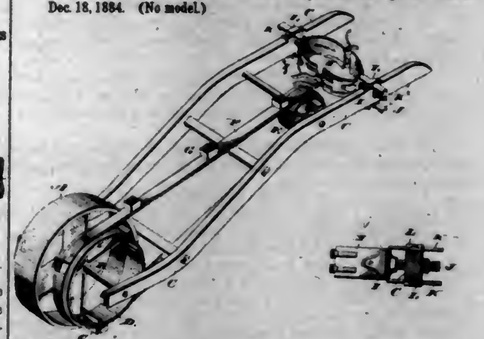


2. The combination, in a turbine water-wheel, with the ring *h*, curved inward and downward below the bottom of the case, and provided with a series of vertical spiral blades, *j*, forming chutes open at their tops and sides, of the wheel A, mounted on shaft *f*, with its outer edge adjacent to the lower inner edge of the ring *h*, the whole upper surface of the wheel being entirely uncovered, substantially as set forth.

3. In a turbine water-wheel of the character set forth, the casing *c*, having an opening in its side, a top, and the ring *b* around its bottom edge, in combination with the vertical shaft provided with the horizontal wheel A, having buckets *i*, the upper edges of which are on a plane below the bottom ring, *b*, and the ring *h*, secured to the inner edge of the ring *b*, curved inward and downward to the outer top edge of the wheel A, and provided with the vertical spiral blades *j*, forming chutes open at their tops and sides between them, substantially as set forth.

4. The combination, in a water-wheel of the character described, with the case *c*, having a side opening, a top, and a concave fillet, *g*, around its lower inner edge, of the horizontal water-wheel A, the upper surface of which is in a plane below the case, and the ring *h*, having its outer upper surface flush with that of the fillet *g*, and curving inward and downward therefrom to the outer upper edge of the wheel A, the said ring being provided on its upper surface with the vertical spiral blades *j*, forming chutes open at their tops and sides, the double curve formed by the fillet and ring serving to direct the entire column of water upon the top of the water-wheel with the least possible resistance to its flow, as set forth.

318,224. POTATO-PLANTER. FRANCIS F. WOLGAMUTH, Philadelphia, Pa., assignor of one-half to Edward K. Wolgamuth, same place. Filed Dec. 18, 1884. (No model.)



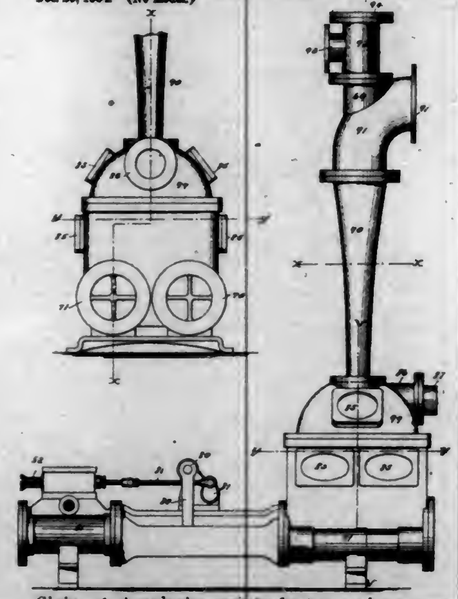
Claim.—1. In a potato-planter, the combination, with a frame, of a ground-wheel journaled therein and provided with a laterally-projecting circular flange concentric with the ground-wheel and smaller in diameter than the said wheel, a belt-wheel journaled in said frame near the opposite end thereof, an endless belt passing around said flange and belt-wheel, and cups secured on said belt, substantially as set forth.

2. In a potato-planter, the combination, with a frame and a ground-wheel journaled thereto, of a belt secured to the machine, for attachment to the body of the operator, and devices for feeding the potatoes to the ground, substantially as set forth.

3. The combination, with a potato-planter having a ground-wheel journaled in one end thereof, and an endless belt driven by the ground-wheel and passing about a roller near the operator, and provided with seed-receptacles, of a belt adjustably secured to the machine, for attachment to the body of the operator, substantially as set forth.

4. The combination, with a shaft or side rails and a ground-wheel journaled in one end thereof, and a belt secured to the side rails of the machine, for attachment to the body of the operator, of an endless belt driven by said ground-wheel, said belt passing about a roller near the operator, and provided with seed-receptacles, substantially as set forth.

318,225. CONDENSING APPARATUS FOR STEAM-ENGINES. JOHN L. ALLEMONG, BeGalo, N. Y., and THOMAS SAULT, New Haven, Conn. Filed Dec. 29, 1884. (No model.)



Claim.—1. A condensing apparatus for steam-engines, vacuum-pans, and similar apparatus, consisting of a duplex pump and an injector or ejector condenser, the two being combined and arranged to co-operate substantially as described.

2. A condensing apparatus for steam-engines, vacuum-pans, and similar apparatus, consisting of the duplex pump and an injector or ejector condenser which is arranged to communicate directly with the suction-chamber of the pump, substantially as described.

3. A condensing apparatus consisting of the duplex pump, the enlarged tail-pipe 97, communicating directly with the suction-chamber of the pump, the pipe 90, and the nozzle 88, substantially as described.

4. A condensing apparatus consisting of the duplex pump, the enlarged tail-pipe 97, inclosed within the pump-casing and opening into the suction-chamber, the pipe 90, and the nozzle 88, substantially as described.

5. The combination, with the pipe 90, of the chamber 92, having the removable cover 94, and the pipe 99, having the nozzle 88 and bail 95, substantially as described.

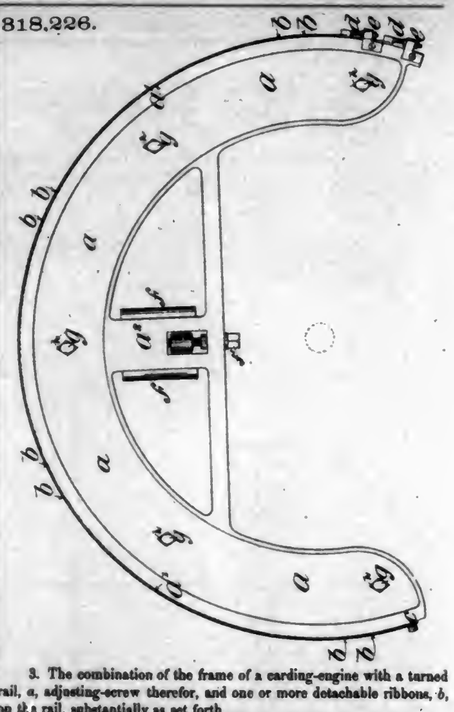
318,226. CURVED GUIDE FOR THE TRAVELING FLATS OF CARDING-ENGINES. GEORGE ASHWORTH and ELIJAH ASHWORTH, Manchester, County of Lancaster, England. Filed Oct. 29, 1883. (No model.) Patented in England May 15, 1883, No. 2,432; in France Nov. 20, 1883, No. 156,673, and in Belgium Dec. 27, 1883, No. 63,671.

Brief.—The rail is turned to be a true segment of a circle, and its periphery is provided with one or more thin strips of metal detachably secured thereto. Said rail is attached to the engine by bolts, and is adjustable on said engine by an adjusting-screw, the holes for said bolts being slotted.

Claim.—1. As a segmental circular guide for the traveling flats of a carding-engine, the turned rail having one or more ribbons or strips, *b*, resting directly on the turned periphery thereof and detachably secured thereto, whereby wear may be compensated for by the removal of a ribbon or strip, substantially as set forth.

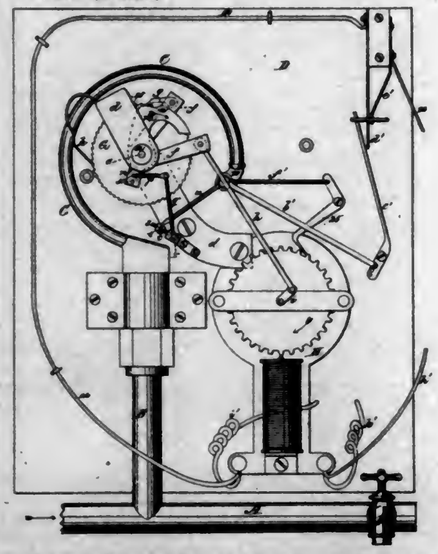
2. The turned-up rail provided with one or more detachable strips, *b*, securing-screws *c*, bracket *e*, screws *d*, and nuts therefor, substantially as described.

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3. The combination of the frame of a carding-engine with a turned rail, *a*, adjusting-screw therefor, and one or more detachable ribbons, *b*, on the rail, substantially as set forth.

318,227. APPARATUS FOR REGISTERING THE FLOW OF FLUID AND DETECTING WASTE. J. CULLEN AYER, Boston, Mass. Filed June 20, 1884. (No model.)



Claim.—1. In a meter, the combination of a registering-train having indicating-dials, a mechanism for actuating the same, an independent motor connected with and adapted to operate said mechanism, a cut-off or compensating device for governing the action of said mechanism, a pressure device controlling the movement of the cut-off, and adapted to be connected with the pipe through which flows the liquid to be measured, and receiving motion from the varying pressure of the said fluid, and a connection, substantially as described, between said pressure device and the cut-off or compensating device, whereby the action of the mechanism is regulated and the movements of the registering-train controlled in accordance with the pressure of the liquid in the pipe, substantially as and for the purpose set forth.

2. In a meter, the combination of an independent motor, a pawl mounted on a rocking arm actuated by said motor, a toothed wheel driven by said pawl and connected with a registering-train having indicating-dials, and a cut-off or compensating device for regulating the active stroke of the pawl and the consequent amount of movement of the registering-train, said cut-off being controlled by the movements of a pressure device connected with the pipe through which flows the liquid to be measured, substantially as described.

3. In a meter, the combination of an independent motor, a pawl, *g*, mounted on a vibrating carrier actuated by said motor, a toothed wheel, G, driven by said pawl and secured to a shaft, *e*, connected with the registering train or mechanism, a retaining-pawl, *k*, applied to the wheel G, a rocking cut-off, *m*, carried on an independent mounting, and having a portion, *a'*, adapted to intercept the pawl *g* and retain it out of contact with the teeth of the wheel G, and a pressure device connected with said cut-off and with the pipe through which the fluid is flowing, whereby the action of the pawl is controlled and the movement of the wheel G correspondingly increased or diminished as the pressure of the fluid in the pipe varies, substantially as and for the purpose set forth.

4. In a meter, the combination of an independent motor, a mechanism driven thereby for actuating the registering-train, a cut-off or compensating device for controlling the action of said mechanism, and a pressure device consisting of a Bourdon spring connected with said cut-off and with the pipe through which flows the fluid to be measured, all operating substantially in the manner and for the purpose described.

5. In a meter, the combination, with a pressure device connected with the pipe through which flows the fluid to be measured, of the cut-off *m*, connected with said pressure device by a mechanism made adjustable by means substantially as described, and the stop 15, for limiting the movement of the cut-off *m* in one direction, all constructed to operate substantially in the manner and for the purpose set forth.

6. In a meter, the combination, with a registering-train having indicating-dials and mechanism for operating the same, of an independent electromotor for actuating said mechanism and a cut-off or compensating device actuated by a pressure device adapted to be connected with the pipe through which flows the fluid to be measured, substantially as set forth.

7. In a meter, the combination, with the registering mechanism, an independent motor for actuating the same, a cut-off or compensating device, and a pressure device regulated by the cut-off and connected with the pipe through which flows the fluid to be measured, of the electric terminals K L, connected by wires *i' k'* with an electric circuit passing through the apparatus, whereby the fact that the meter is in operation can be determined and waste or unnecessary flow of the fluid thereby detected by connecting said terminals with a current-indicating device, substantially as described.

8. In a meter, the combination, with the motor for actuating the registering mechanism and the pressure device for operating the cut-off or compensating device, of the lever 25, connected with the pressure device and adapted to start or stop the motor, substantially as set forth.

318,228. CAR-COUPLING. OLIVER RANGE, New Haven, Conn., assignor of one-half to William H. Andrews, same place. Filed Apr. 13, 1885. (No model.)



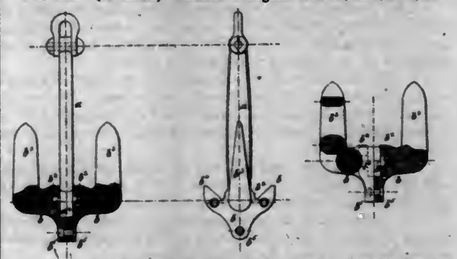
Claim.—1. The herein-described car-coupling, consisting of the bar A, terminating in the head B, the said head having an opening vertically through it, the opening extending rearward into the bar, and with the shoulder *a* in each side of said opening, combined with the tongue E, hung in and so as to swing up and down through said opening, the link constructed with a shoulder, *b*, upon each side adapted to engage the corresponding shoulder, *a*, in the head, and with a T-shaped outer end to form laterally-projecting shoulders *d*, and so as to engage the corresponding shoulders of a like head, B, substantially as described.

2. The combination of the bar A, terminating in the head B, with an opening vertically through the head, extending rearward into the bar, with a recess in each side of said opening to form shoulders *a*, and also constructed with a longitudinal slot, D, through the said bar at right angles to the opening in the bar, the tongue E, hung in said slot and adapted to swing up and down through the opening in the head, said link constructed with shoulders *b*, corresponding to the shoulders *a* in the head, and also constructed with laterally-projecting shoulders *d* near its outer end adapted to engage corresponding shoulders in the other head, substantially as described.

3. The combination of the bar A, terminating in the head B, and constructed with a vertical opening through the head, the said opening extending rearward into the bar, and also constructed with recesses in each side of said opening to form shoulders *a*, with a flange or stop, *e*, in said recesses, with a link, E, hung in said opening, and so as to swing up and down through the head, and constructed with shoulders *b*, corresponding to the shoulders *a* in the head, with shoulders *d* near its outer end adapted to engage corresponding shoulders in the other head, substantially as described.

4. The herein-described car-coupling, consisting of the bar A, terminating in the head B, the said head having an opening vertically through it, the opening extending rearward into the bar, and with the shoulder *a* in each side of said opening, combined with the tongue E, hung in and so as to swing up and down through said opening, the link constructed with a shoulder, *b*, upon each side adapted to engage the corresponding shoulder, *a*, in the head, and with a T-shaped outer end to form laterally-projecting shoulders *d*, and so as to engage the corresponding shoulders of a like head, the said link also constructed with an extension at its outer end having an opening vertically through it, substantially as described.

318,229. ANCHOR. SAMUEL BAXTER, London, England. Filed Nov. 6, 1884. (No model.) Patented in England Nov. 11, 1880, No. 4,650.



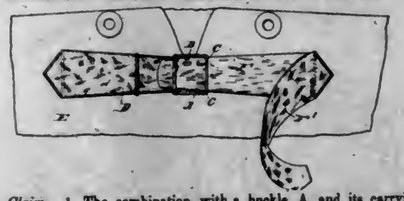
Claim.—1. The combination, with the shank *a*, having the trunnions *a'*, of the two-part crown *b*, provided with cavities b^3 for the reception of said trunnions, secured together substantially as set forth.

2. The combination, with the shank *a*, having the circular enlargement a^2, and the trunnions *a'*, of the two-part crown provided with the cavities *b'* and b^2 for the reception of said enlargement a^2 and trunnions *a'*, respectively, substantially as set forth.

3. The combination, with the shank *a*, having the trunnions *a'*, of the two-part crown *b*, having the cavities b^3, the projections b^4 and b^5, and the bolts *c*, all arranged substantially as set forth.

4. The combination, with the shank *a*, of the oscillating crown *b*, having the flukes b^2 on the respective sides of said shank, and the projections b^4, located in the same plane as said shank, substantially in the manner and for the purposes set forth.

318,230. GUARD FOR BUCKLES FOR WEARING-APPAREL. M. BERNSTEIN, New York, N. Y. Filed Jan. 19, 1885. (No model.)



Claim.—1. The combination, with a buckle, A, and its carrying-strap D, of the strap F and superimposed strip F', united together at one end to the garment and extending together to pass the one under the outer bar of the buckle and over the points of its tongues, and the other over the buckle-bar and its tongues through transverse loops fitted upon the carrying-strap, substantially in the manner and for the purpose herein set forth.

2. The combination, with a carrying-strap and a buckle secured thereto, and with a draw-strap engaged by the buckle and an outer strip overlying and covering the draw-strap and the outer bar and tongues of the buckle, of a lining-piece fitted under the carrying-strap to extend beyond the attachment of the buckle thereto, to cover the under side of its cross-bar and tongue and bend over the points of the tongues and re-curve over their upper face, substantially in the manner and for the purpose herein set forth.

318,231. PEN-HOLDER. EUGENE C. BURROWS, Brooklyn, N. Y. Filed Aug. 8, 1884. (No model.)



Claim.—As a new article of manufacture, a pen-holder formed of a thickness of horn cut transversely into short sections from the tip of the horn of animals, said sections being secured together as shown, and for the purpose set forth.

318,232. **HARNESS-SADDLE.** CHARLES E. CAHOON, Newark, N. J. Filed Mar. 5, 1885. (No model.)



Claim.—1. A saddle-tree having side flanges and a plate arranged between said flanges, the said plate being secured at its opposite ends to the tree and forming a chamber between the tree or the plate, being longitudinally depressed for that purpose, said parts being arranged and combined substantially as and for the purposes set forth.

2. In combination with the depressed tree having bearings a' a', one of which is perforated to receive a tongue, c, a cover, d, having said tongue arranged in the perforated bearing, and having the opposite end secured to the other bearing, substantially as set forth.

3. The flanged tree having a depression in the length and flanges at the sides thereof, in combination with a cover arranged between said flanges and extending from one bearing formed by the depression to the other and thereat permanently fastened, substantially as and for the purposes set forth.

4. In combination, the tree having the oblong slot, the back-band, and a bolt provided with the ornamental head, a shank, and a shoe to engage the slotted tree, substantially as and for the purposes set forth.

5. In combination, in a saddle, a slotted tree, a back-band, and a bolt having a head, a shank provided with a smaller neck portion, and a shoe, substantially as described, for the purposes set forth.

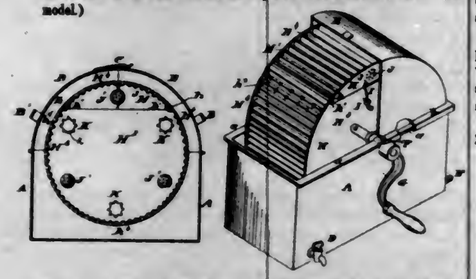
318,233. **MANUFACTURE AND PREPARATION OF MATERIALS TO BE EMPLOYED FOR INSULATING.** JOHAN L. CLARK, 6 Westminster Chambers, County of Middlesex, England. Filed Dec. 9, 1884. (No specimens.) Patented in England Dec. 22, 1883, No. 5,845, and in France June 21, 1884, No. 162,881.

Claim.—1. The hereinbefore-described compound, consisting of oxidized oil and asphalt, pitch, or bitumen.

2. The compound herein described, consisting of oxidized oil, asphalt, pitch, or bitumen, and hydrocarbon oil or spirit, mixed substantially in the manner and proportions specified.

3. The compound herein described, consisting of oxidized oil, asphalt, pitch, or bitumen, and india-rubber or gutta-percha, either with or without hydrocarbon oil, wax, or spirit, as specified.

318,234. **WASHING-MACHINE.** LEON CLINE, St. Louis, Mo., assignor of one-half to Amedee Valles, same place. Filed Feb. 23, 1884. (No model.)



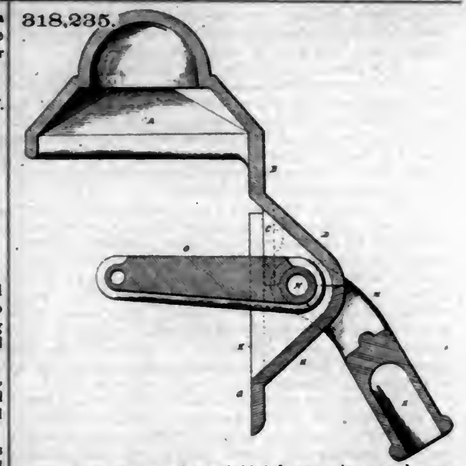
Claim.—1. The rotary cylinder comprising body H, having lid H' and the tubes K, extending from end to end of the cylinder, the periphery H^4 of the body and lid being formed of corrugated metal having perforations at the outer angles, A^4, opposite the tubes, and the tubes being formed of corrugated metal having perforations k at their inner angles, as set forth.

2. A rotary cylinder comprising the body H and the lid H', the body and lid being provided with perforated corrugated tubes K, extending from end to end thereof, flat ends H^2 H^3, having series of perforations J, convex perforated plates covering the series of perforations, and a corrugated periphery having perforations A^4, as set forth.

318,235. **PUMP-HANDLE.** AUGUST D. COOK, Lawrenceburg, Ind. Filed May 21, 1884. (No model.)

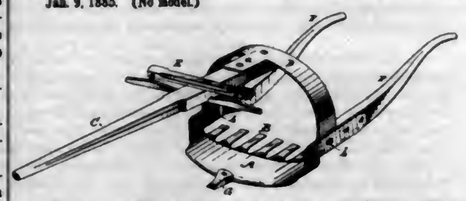
Claim.—1. The cap with its downward extension, with a recessed hood projecting therefrom, in combination with a plate having a corresponding recessed hood, and a slot behind the same, the parts when combined being adapted to receive a pump-handle, and to exclude dirt and the like, substantially as described.

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2. The combination of the cap having a downward extension from which projects a recessed hood, the slotted plate with its corresponding recessed hood, and the handle consisting of a socket, a divided extension, a cross-piece connecting the same, and an arm projecting from the cross-piece, all the parts being arranged to operate substantially as and for the purpose specified.

318,236. **POTATO-DIGGER.** WALDEN EDDY, Greenwich, N. Y. Filed Jan. 9, 1885. (No model.)



Claim.—1. The combination, with the concave plate constituting the plow, the semicircular tongue-frame to which it is pivoted, and rigid rearwardly-projecting handles, of the fulcrum-piece G, which is secured to and beneath said plow and projects downward therefrom, as shown and described, to operate as specified.

2. The frame D, formed of the narrow semicircular wrought-metal plate having the forward projection, a, in combination with the tongue, which is bolted beneath, and the plow A, pivoted to the lower ends of said frame, and also constructed of a thin curved plate, as shown and described.

318,237. **ANTI-FRICTION BEARING FOR ROLLER-SKATES.** EDWARD E. EDGERTON, Chicago, Ill. Filed July 15, 1884. (No model.)



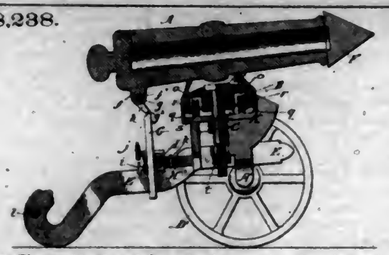
Claim.—In a roller-skate, the combination, with the axle C, provided on the outer end with the flanged head a', of the washer b', the series of friction-rollers b, the journal-box a, and the adjustable collar D, all combined, arranged, and operating substantially as and for the purpose set forth.

318,238. **GUN-CARRIAGE.** FRANS O. EKHOLM, Chicago, Ill. Filed Sept. 19, 1884. (No model.)

Claim.—1. The shield F, having the conical form, and hinged to the muzzle of the gun A, substantially as and for the purpose described.

2. The turret B, provided with the two standards T, affording bearings for the trunnions of the gun, and held down upon the carriage by the bolt K, and provided under its base with friction-rollers q, corresponding with the rail s on the platform D, substantially as and for the purpose described.

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3. The combination of the axle, the cross-bar C, and the circular platform D, the latter being provided with a circular V-formed rail, s, corresponding in form and proportions with the pulleys q in the revolving turret, substantially as and for the purpose described.

4. The combination of the devices for operating the shield F, consisting of the gun, the frame c, having the hooks c^2 for the eyes of the shield, and hinged to the muzzle of the gun, and the rod d, with its tubular bearing, substantially as described.

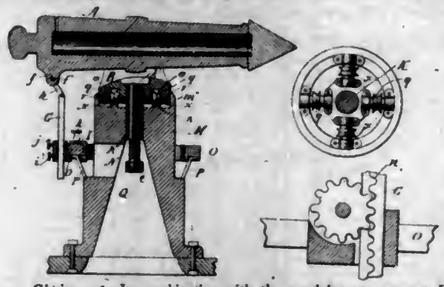
5. In combination with a gun and its supporting-turret mounted on a carriage, the shield or conical projection secured to the axle of the carriage, presenting its point in the same general direction with the muzzle of the gun when mounted, and so fastened upon the carriage as not to interfere with the revolving motion of the turret, substantially as and for the purpose described.

6. In combination with a gun, its supporting-turret, and a carriage supporting the same, a box, I, supported on the carriage and carrying a vertically-reciprocating rack-bar, and a link hinged to the upper end of the bar and pivoted to the breech of the gun, whereby the breech may be moved in an arc, while the bar moves in a right line, substantially as and for the purpose described.

7. In combination with a gun and its supporting-turret mounted on a carriage, the segment-bar H, borne by the carriage, the box I, traveling upon the same, and carrying a vertically-reciprocating rack-bar, together with a link-connection between the rack and the breech of the gun, substantially as set forth.

8. In combination with a gun supported upon a carriage, and traversable with respect thereto, a segment-bar borne by the carriage, a box, I, traveling on the bar and pierced horizontally therefor, and having a vertical opening for a rack-bar, which has a link-connection with the breech of the gun, together with mechanism for operating the rack-bar to elevate or depress the gun, substantially as described.

318,239. **GUN-CARRIAGE.** FRANS O. EKHOLM, Chicago, Ill. Filed Nov. 24, 1884. (No model.)



Claim.—1. In combination with the revolving gun-support B, carrying in its base the grooved anti-friction rollers q, the stationary turret M, having a circular V-shaped tread for the rollers q, and a flange, m', which encircles and supports the revolving gun-support B, substantially as and for the purpose described.

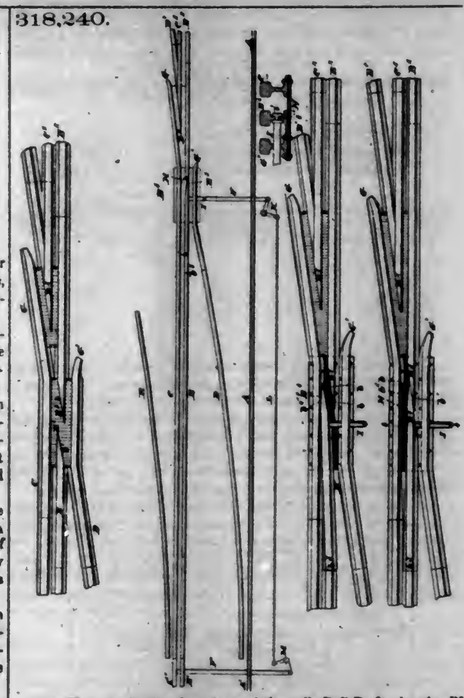
2. In combination with a gun, its supporting-turret, the studs P, borne thereby, the annular bar grooved underneath and supported by such studs, the box I, traveling on such bar, and the gun-elevating mechanism supported by such box, substantially as set forth.

3. In combination with a gun and its turret, having an annular bar supported about it, a box, I, traveling on the bar, and having a vertical chamber for the support of a rack-bar and its operating-gear, and a link-connection between the rack-bar and the breech of the gun, whereby the gun may be both elevated and traversed on its stationary support, all substantially as set forth.

318,240. **RAILWAY-FROG.** HENRY ELLIOT, St. Louis, Mo. Filed Feb. 13, 1885. (No model.)

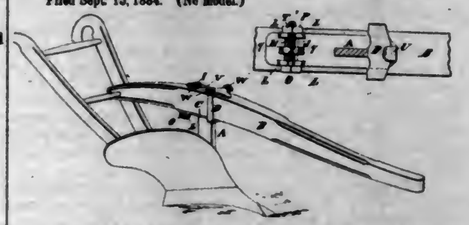
Claim.—1. The combination, in a frog, of rails set to different gages and a movable tongue with device for moving the same from side to side.

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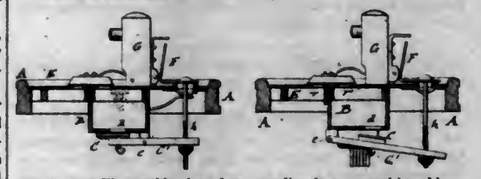
2. The combination, in a frog, of the rails B C D, fixed point B^3, and movable point or tongue B^4, all constructed and arranged substantially as and for the purpose set forth.

318,241. **PLOW ATTACHMENT.** LOUIS EVEN, Jeffriesburg, Mo. Filed Sept. 15, 1884. (No model.)



Claim.—In a plow, in combination with the post and beam, the plate formed upon or secured to the post, clip for holding the beam on one end of the plate, bolt for holding the beam upon the other end of the plate, its lower end fitting in a slot in the plate, and the threaded bolt passing through the head of the first-mentioned bolt and fitting between lugs on the plate, substantially as and for the purpose set forth.

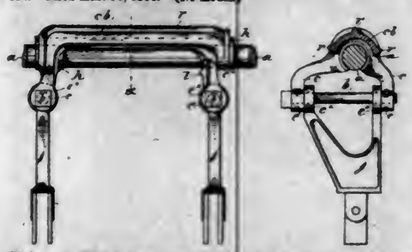
318,242. **ACCORDION.** FRIEDRICH GEBNER, Magdeburg, Prussia, Germany. Filed Feb. 29, 1884. (No model.) Patented in Germany Feb. 3, 1884, No. 28,057.



Claim.—The combination of an accordion-frame, a reed-board having two parallel rows of reeds, a wind-chest attached to the under side of said reed-board, one of the walls of said wind-chest extending between said rows of reeds, bellows attached to said frame and inclosing said wind-chest, the registers for one set of reeds opening directly into said bellows and the registers for the other set of reeds opening into said reed-chest, a spring-actuated valve in the bottom of said wind-chest,

and means for operating said valve from the outside of the frame, consisting of a bell-crank lever at the back of the key-board and a rod connecting one arm of said lever with said valve, substantially as described.

318,243. CULTIVATOR-COUPLING. JOHN GOODNOUGH, Indianapolis, Ind. Filed Mar. 30, 1885. (No model.)

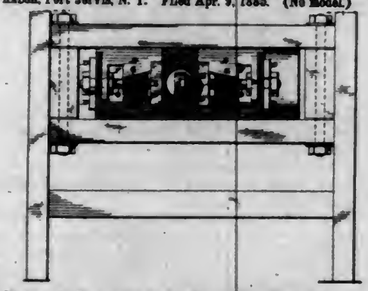


Claim.—1. The arched brace *cb*, having the open hubs *h*, and the eyes *e* in projections forming a jaw to receive the eyes *e'* of the jaw *j*, connected with the plow-beam, substantially as described.

2. The arched brace *cb*, having the open hubs *h* at either end, and projections above and below such hubs to receive the jaws *j*, connected with the plow-beam, and the lever *l*, connected with said brace, the plow-beams *pb*, and jaws *j*, connected therewith, and the bolts *b*, for uniting the parts, all combined substantially as described.

3. A pair of open hubs adapted to receive the axle *a*, and connected by a brace provided with jaws at each end to receive corresponding jaws connected with the plow-beam, substantially as described.

318,244. CROSS-HEAD FOR STEAM-ENGINES. SAMUEL GREENHALGH, Port Jervis, N. Y. Filed Apr. 9, 1885. (No model.)



Claim.—1. In a cross-head, the combination of the two wings, having inclined surfaces formed upon their inner sides, with the wedges, which are placed between the inclined surfaces, and the operating-screws for moving the wedges, the wedges being centered in position so as to cause them to move straight, substantially as shown.

2. In a cross-head, the combination of two wings provided with inclined surfaces and the guide I for holding the wings in line with each other, substantially as described.

3. The combination of the wings provided with the extensions on their ends, and having inclined surfaces, with the wedges, and the screws by means of which the wedges are operated, the screws being made to pass through the slotted extension on the wings, substantially as set forth.

4. The combination of the cross-head provided with the bearings L, which extend through the wings and serve to center the wedges in position, with the wings having inclined surfaces, the wedges, and the screws by means of which the wedges are moved.

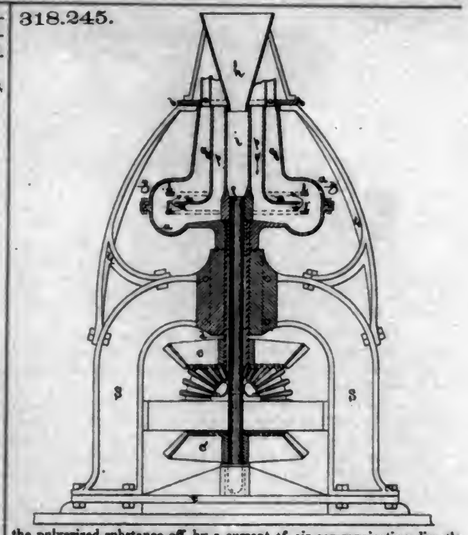
5. The combination of the cross-head provided with the end pieces between which the wings are placed, and the bearings L, which extend through the wings, with the wedges and the screws for operating them, substantially as shown and described.

318,245. METHOD OF REDUCING ORES, &c. JAMES K. GRIFFIN, Brooklyn, N. Y., assignor to the Griffin Manufacturing Company. Filed Aug. 14, 1884. (No model.)

Claim.—1. In the reduction of ores and other substances by attrition, the herein-described method of carrying off the reduced substances, which consists in passing a current of air directly upon the line of attrition between opposing revolving surfaces of the material being reduced, substantially as described.

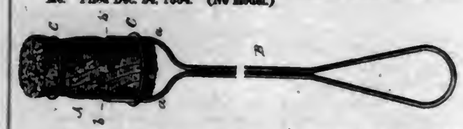
2. The herein-described method of reducing ores or other substances, which consists in forming and maintaining a line of attrition between opposing surfaces of the substance to be reduced by passing said substance through a rotating conveyer and against an annular wall of the same substance firmly compacted in a rotating shell, and then carrying

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the pulverized substance off by a current of air communicating directly with the line of attrition, substantially as described.

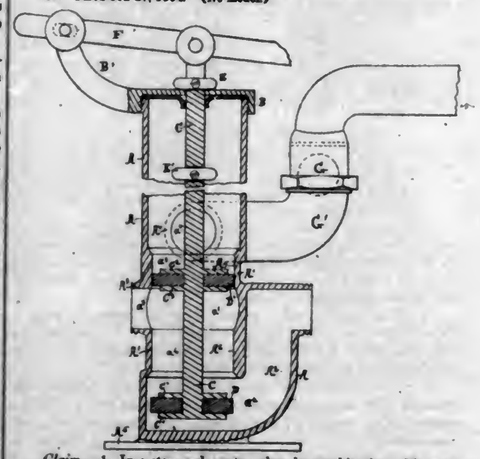
318,246. FIRE-KINDLER. ALFRED WINSLOW HALL, Presque Isle, Me. Filed Dec. 24, 1884. (No model.)



Claim.—1. As an improved article of manufacture, the fire-kindler herein described, consisting of the handle having the securing-arms at opposite ends of its branches, the asbestus A, having flattened opposite sides, and the binding-wires for securing the asbestus to the handle, substantially as specified.

2. A fire-kindler consisting of asbestus held to a rod-handle by binding-wires, and having its opposite sides flattened and its opposite ends exposed, substantially as specified.

318,247. STOP AND WASTE VALVE. PATRICK HARVEY, Chicago, Ill. Filed Oct. 27, 1884. (No model.)

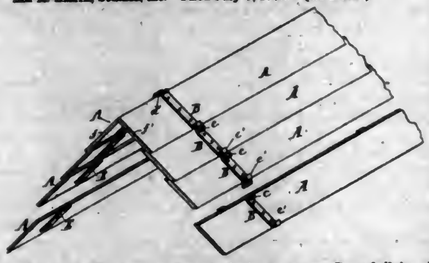


Claim.—1. In a stop and waste valve, in combination with an integral shell having an induction, an eduction, and a waste port, and an end opening for the valve-stem, said four openings being in the longitudinal order named, and cylindrical valve-seats—one between the induction and eduction ports, and one between the eduction and the waste ports—a valve-stem having two piston-valves rigid with it adapted to pass through the end opening and to seat, one in each of said cylindrical

seats, the distance between said valves being less than the distance between the extreme edges of said seats and greater than the sum of the distance between their proximate edges and the length of either seat, substantially as set forth.

2. In a stop and waste valve, an integral valve shell having an induction, an eduction, and a waste port, the first being the lowest and the last being the highest, cylindrical seats between said ports, and enlarged cavity between and beyond said seats, and an end opening above the waste-port, in combination with two piston-valves, made rigid with each other, fitting the two seats and adapted to pass freely through the end opening and the actuating-stem of said valves and stops to limit their play, the distance between said valves being less than the distance between the extreme edges of the valve-seats and greater than the sum of the distance between their proximate edges and the length of either seat, substantially as and for the purpose set forth.

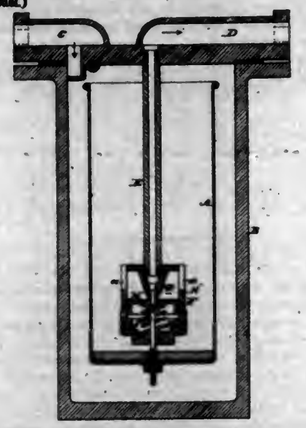
318,248. PORTABLE ROOF FOR HAY AND GRAIN RICKS. WILLIAM R. HEATH, Sedalia, Mo. Filed July 5, 1884. (No model.)



Claim.—1. The combination of planks A, straps B, and links *d* substantially as and for the purpose described.

2. A portable roof for hay and grain ricks, which comprises in its construction planks A, provided with straps B, and links *d* on their outer surface, and battens E on their inner surface, which are of less length than the width of the planks to which they are applied, substantially as and for the purpose described.

318,249. STEAM-TRAP. ROBERT B. HELLIWELL, Philadelphia, Pa., assignor of one-half to Daniel Steinmetz, Sr., and Philip J. Steinmetz, same place, and Daniel Steinmetz, Jr., Colmar, Pa. Filed Jan. 24, 1885. (No model.)



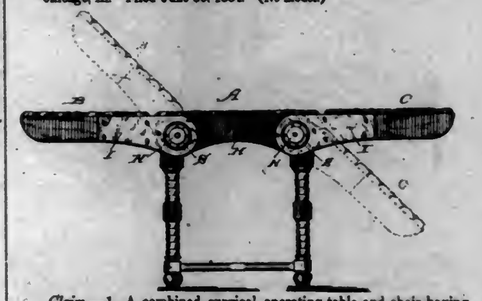
Claim.—1. A steam-trap provided with a float and having within the said float a depending pipe secured to the casing and a fixed valve-box secured to said pipe, the said valve-box having a main valve furnishing a seat for an auxiliary valve, substantially as described.

2. A steam-trap having a casing and a float therein, and a fixed valve-box, the latter being within the float and provided with a main valve, an auxiliary valve, and seats therefor, the auxiliary valve being attached to and moving with the float, substantially as and for the purpose set forth.

3. In a steam-trap, a piston having a valve and a valve-seat, an auxiliary valve attached to the float of the trap, and a spring within the valve-box bearing against the piston, for forcing the valve thereof against its seat in said box, said parts being combined and operating substantially as and for the purpose set forth.

4. In a steam-trap, a valve-box having a valve-seat, in combination with a piston carrying a valve and having a valve-seat for an auxiliary valve, which latter is connected with the float of the trap, said box and piston having a space between them, substantially as and for the purpose set forth.

318,250. COMBINED TABLE AND CHAIR. HERMAN E. HILDEBRAND, Chicago, Ill. Filed June 30, 1884. (No model.)



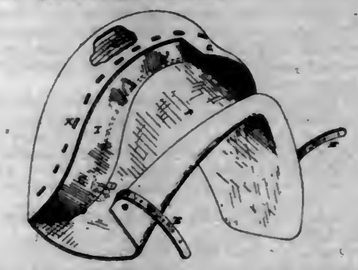
Claim.—1. A combined surgical operating table and chair having a central part, A, provided on each opposite end with a hinged extension movable laterally and adjustable to any desired angle with the central part, A, by means of meshing-gear provided on the sides of the extensions and central part, substantially as described.

2. In a combined surgical operating table and chair having a central part, A, and hinged extensions on opposite ends, mechanism for adjusting laterally an extension to any desired angle with the part A, comprising teeth projecting laterally from the central part, A, teeth projecting in the opposite direction from such extension in line with those provided upon the part A, and set-screw mechanism on such extension operating to force the gear-teeth on the part A and extension in and out of mesh, substantially as and for the purpose set forth.

3. A combined surgical operating table and chair comprising, in combination, a central part, A, provided on each side toward the extremities thereof with circularly-arranged teeth F, projecting in the same direction from the opposite sides of the part A, hinged extensions on opposite ends of the part A, provided with lateral plates I, each having toward one extremity circularly-arranged teeth G, projecting in the same direction on opposite sides of each extension in line with the teeth F, and set-screw mechanism for each extension operating to bring the teeth F and G in and out of mesh with each other, substantially as and for the purpose set forth.

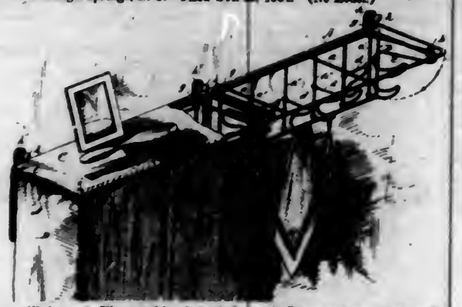
4. A combined surgical operating table and chair comprising, in combination, the following elements: a central part, A, provided on opposite sides with plates H, each having circularly-arranged teeth F toward the extremities of one face and projecting from the opposite sides of the part A in the same direction, extensions B and C at opposite ends of the part A, each provided on both sides with plates I, having circularly-arranged teeth G toward the extremity of one face of each and projecting in the same direction from the opposite sides of the extension to mesh with the teeth F on the plates H, a stationary shaft, D, passing at its extremities through the centers of the circularly-arranged teeth F and G to hinge each extension to the part A, and set-screw mechanism N S, operating upon the threaded extremity of each shaft D to force an extension in a lateral direction, and thereby bring the teeth G thereon in and out of mesh with the adjacent teeth on the part A, the whole being constructed and arranged to operate substantially as and for the purpose set forth.

318,251. HORSE-COLLAR PAD. JOHN PAUL HOFFMANN, Dubuque, Iowa. Filed Mar. 9, 1885. (No model.)



Claim.—As an article of manufacture, a collar-pad having a filling, packing, or enlargement resting to the rear of the collar-bearing portion, said filling, packing, or enlargement increasing in size in its downwardly-projecting portions, substantially as and for the purpose specified.

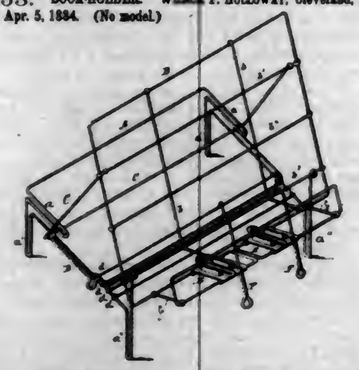
318,252. PORTABLE FOLDING WARDROBE. ALONZO J. HOLMES, Saratoga Springs, N. Y. Filed Dec. 23, 1884. (No model.)



Claim.—1. The combination of the rack B, provided with lugs *h'*, folding hooks *d d*, and hinged shelf-supporting hooks *e e'*, with the shelf A, hinged thereto, and provided with cross-bars *b b*, having lugs *c c*, adapted to engage with the bracket-hooks *e e* and secure the same in position, substantially as and for the purpose described.

2. A series of racks each having hinged connection with the rack adjoining and each provided with hooks *d d*, folding bracket-hooks *e e*, and lugs *h'*, and the shelf A, hinged thereto, having cross-bars *b b*, provided with lugs *c c*, adapted to engage with the bracket-hooks and secure the same in position, substantially as and for the purpose specified.

318,253. BOOK-HOLDER. WILBUR F. HOLLOWAY, Cleveland, Ohio. Filed Apr. 5, 1884. (No model.)



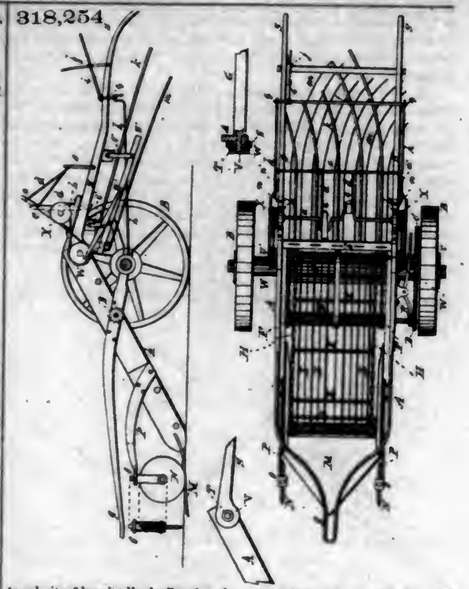
Claim.—1. The combination, with a shelf having at one side a ledge consisting of parallel wires, of a slide mounted on said rods and provided with a socket, and a bent rod, one end of which rests in said socket and the other projects over the shelf, substantially as and for the purpose hereinbefore set forth.

2. The combination, with a book-shelf provided with a ledge having parallel edges, of a slide mounted on said ledge and containing two parallel sockets, and a leaf-holder having two parallel rods projecting therefrom, one of which rests in one of said sockets, and the other registers with the other of said sockets, substantially as shown, and for the purpose specified.

3. A stand for a book-rest, consisting of a wire frame-work, the top of which is in the same plane, and having one or more wires attached thereto and projecting above and parallel with the top, in combination with a shelf hinged to one side of said stand, and a brace attached to said shelf and having at its other end a transverse bar, which rests on the top of the stand beneath the wires parallel thereto, substantially as and for the purpose hereinbefore set forth.

4. In a book-support, the combination, with a stand, a shelf hinged to one side thereof, and a brace hinged to the shelf and resting on the stand, of a catch attached to the brace near its lower end, and a series of stops in the stand, in one of which the other end of the catch rests, substantially as and for the purpose hereinbefore set forth.

318,254. POTATO-DIGGER. ISAAC W. HOOVER, Milan, Ohio. Filed Mar. 16, 1885. (No model.)



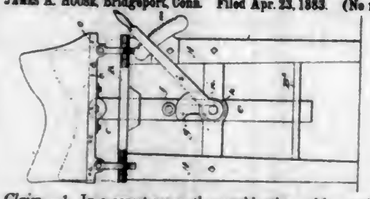
Claim.—1. In a potato-digger, the vibrating double sifters *k m*, arranged one above the other, having curved bars in reverse direction to each other, in combination with raking-arms *c c*, journaled upon a crank-shaft, substantially as and for the purpose herein set forth.

2. In a potato-digger, the adjustable double sifters *k m*, arranged one above the other and hung by links in connection with the frame S, to admit of longitudinal vibration thereof, as shown, in combination with the raking-arms *c c*, and crank-shaft arranged above the sifters, as and for the purpose substantially as specified.

3. In combination with a potato-digger, the sleeve T, projecting from the side of the frame A, with the shaft of the roller G, having its bearing therein, and the inner ends of the frame S, hung upon the outside of said sleeve, and arranged in co-relation with the adjustable vibrating sifters *k m*, substantially as and for the purpose herein set forth.

4. In a potato-digger, the adjustable frame S, journaled or hung at its inner end upon the sleeve T, in combination with the vibrating sifters *k m*, links *h*, a shaft having cranks *g g*, and lever *i*, with a ratchet for engaging said lever, whereby the said frame may be raised or lowered and held in position in the manner and for the purpose substantially as hereinbefore described.

318,255. CORSET STRETCHING AND FINISHING MACHINE. JAMES A. HOUSE, Bridgeport, Conn. Filed Apr. 23, 1883. (No model.)



Claim.—1. In a corset-press, the combination, with a mold, of devices for clamping the corset over the mold and devices for pressing the mold upward against the fabric, substantially as described.

2. A corset-press containing a pivoted movable mold, combined with clamping devices or holders to retain the corset by its edges while the form is moved, to operate all substantially as described.

3. The slide-bar *e* and the form pivoted thereon, combined with clamping or holding devices for the edges of the corset while being stretched, and with means to lift the said slide-bar, substantially as described.

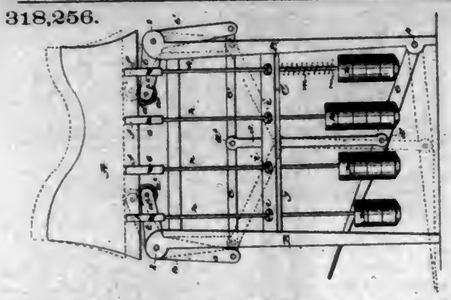
318,256. APPARATUS FOR SHAPING CORSETS. JAMES A. HOUSE, Bridgeport, Conn. Filed July 16, 1883. (No model.)

Claim.—1. In a corset-shaping machine, the form and devices for holding the corset, combined with the vibrating arms or supports for the form to move it to shape the corset, substantially as set forth.

2. In a corset-shaping machine, the form and devices for holding the corset over the form, combined with the movable arms or supports for the form, and with rollers upon which the form rests loosely, substantially as described.

3. In a corset-shaping machine, the form and devices to hold the corset over the form, and movable rollers on which the form rests loosely, and by which it is raised at or near each end, combined with means to move the said rollers up and down to raise the form and press the same into the corset, substantially as described.

318,256.



4. In a corset-shaping machine, the form and devices to hold the corset over the form, and arms or supports for the form near its ends, combined with devices for moving the said arms upward to force the mold into the corset, substantially as described.

5. In a corset-shaping machine, the form and suitable frame-work, combined with two arms or supports having their axes in the said frame and located at each end of the said frame, and devices for turning the said arms or supports with relation to their axes to move the mold upward, substantially as described.

6. In a corset-shaping machine, the form provided with grooves or recesses at its under side, and devices to hold the corset about the form, combined with arms or supports through which the form is supported near each end and prevented from being moved laterally, substantially as described.

7. In a corset-shaping machine, the form, arms, or supports for each end of the same, and on which the form is placed loosely, combined with arms *b b'*, connected with the axes of the arms or supports for the form, and with links attached to the arms *b b'*, and with a connected treadle or lever to actuate the arms *b b'* and move the form, substantially as described.

8. In a corset-shaping apparatus, a hollow form and four arms or supports upon which the said form is placed loosely, two at or near each end, combined with means to turn the said arms or supports and raise and lower the form, and with devices to clamp and hold the edges of the corset, substantially as described.

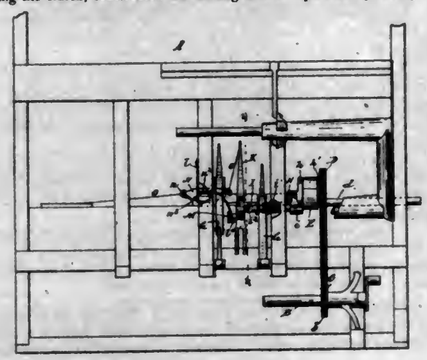
9. In an apparatus for shaping corsets, a form and a movable support on which it is mounted, and by which the form is raised and lowered, combined with a series of clamps and carrier-rods provided with weights to act upon the corset when the form is elevated by the supports, substantially as described.

10. In an apparatus for shaping corsets, a form and arms to support and raise and lower the same, and rollers interposed between the said supports and form, combined with a series of clamps, clamp-carriers, and weights to act upon a corset and stretch it over the form as the latter is lifted, the form being free to turn longitudinally under unequal strain of the corset upon it, substantially as described.

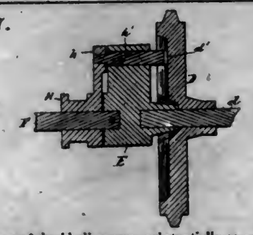
11. In an apparatus for shaping corsets, the form, the arms or supports *f f'*, the links *e e'*, and connecting-rod *d*, and a lever to move it, combined with the clamps, clamp-carriers, and weights, as and for the purposes set forth.

318,257. GRAIN-BINDER. GEORGE G. HUNT, Bristol Station, and GEORGE H. STEWARD, Plano, assignors of three-fourths to the Plano Manufacturing Company, Plano, Ill. Filed Dec. 28, 1882. (No model.)

Claim.—1. In a grain-binder, an independent packer-shaft, in combination with a separate driving-shaft, clutch mechanism for connecting and disconnecting said shafts, a binding-arm, and mechanism for operating the clutch, constructed and arranged to be operated by the opening and closing of the binding-arm, substantially as and for the purposes set forth.



318,257.

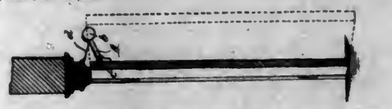


2. The packer-shaft F, in combination with the drive-wheel D on the independent shaft *d*, and the clutch H *h'* on the packer-shaft, whereby the latter may be connected to and disconnected from the driving-shaft, substantially as described.

3. The block E, in combination with the packer-shaft F, attached to said block, the clutch H *h'*, the independent shaft *d*, mounted loosely in the block E, and the wheel D, mounted on said shaft and provided with clutch-stops, substantially as described.

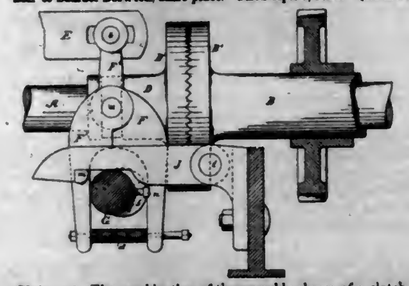
4. The wheel D, mounted on the shaft *d*, in combination with the independent packer-shaft F, the clutch H *h'*, the spring shipping device I *i*, and the binding-arm K, substantially as and for the purposes set forth.

318,258. DOOR-CLOSER. MATTHEW P. ISMAY, Newcastle-upon-Tyne, England. Filed Jan. 5, 1885. (No model.) Patented in England Dec. 22, 1884, No. 16,818.



Claim.—The combination, with the door and the frame thereof, of the lever A, connected at one end to said door, the connection *d*, connected at one end to said door-frame and at the other to the lever A, and the weight *b*, supported by said lever A, all arranged to operate substantially as set forth.

318,259. CLUTCH. EDWARD KAY, Philadelphia, Pa., assignor of one-half to Samuel Berwick, same place. Filed Apr. 8, 1885. (No model.)



Claim.—1. The combination of the movable sleeve of a clutch and an operating-arm therefor with a catch adapted to lock said arm when the clutch is in gear, all substantially as set forth.

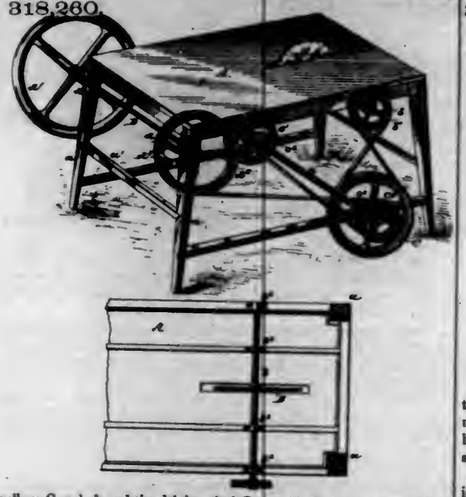
2. The combination of the movable sleeve of the clutch and the operating-arm therefor, a catch engaging with said arm and serving to lock the same in position, and a shaft having a cam or projection adapted to act upon the clutch-arm, and a projection for acting upon the catch in advance of the movement of the clutch, as specified.

318,260. CIRCULAR SAWING MACHINE. WARREN KELLER, St. Joseph, Mo., assignor to himself and Allan Lard, same place. Filed Mar. 23, 1885. (No model.)

Claim.—1. In a sawing-machine, the combination, with a table, of a circular saw mounted on a shaft provided with bearings on either side of the said saw, and a pulley for driving it, an intermediate shaft running in bearings and provided with a fly-wheel, a small driving-pulley, and a large pulley connected to the driving-pulley on the saw-shaft, and a driving-shaft running in bearings, and provided with a fly-wheel and a driving-pulley provided with a handle for imparting motion to the said intermediate shaft, substantially as described and shown, and for the purpose set forth.

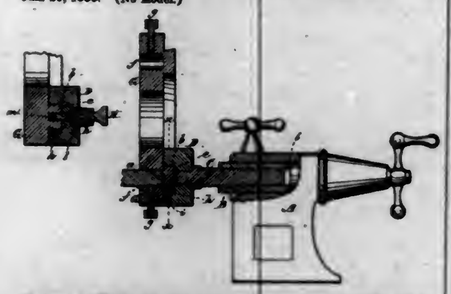
2. In a sawing-machine, the combination of table A, circular saw B, shaft *b*, provided with bearings b^2 on either side of the said saw, and pulley *b'*, intermediate shaft, *c*, provided with bearings c^2, fly-wheel c',

318,260.



pulleys O and o^2, and the driving-shaft D, provided with bearings d, fly-wheel d', driving-pulley d^2, and handle d^3, substantially as described and shown, and for the purpose set forth.

318,261. TOOL-HOLDING ATTACHMENT FOR LATHES. CHARLES H. KELLEY, Revere, assignor to Charles E. Kimball, Lynn, Mass. Filed Jan. 29, 1885. (No model.)



Claim.—1. The herein-described tool-holding attachment for lathes, consisting, essentially, of a block or rest provided with a shank adapted to fit within the dead-spindle, a tool-carrying head or disk supported by and revolving in a vertical plane on said block, and means, substantially as described, for locking the rotating head immovably in place when adjusted, all operating substantially in the manner and for the purpose set forth.

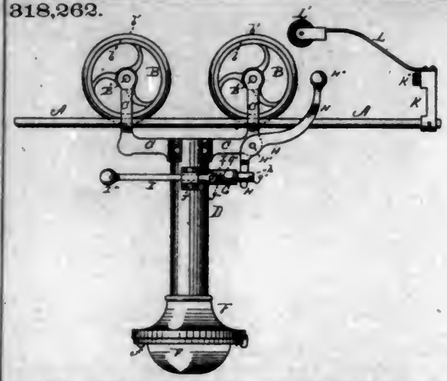
2. The combination, with a block or rest, D, provided with a shank, C, adapted to fit within the dead-spindle of a lathe, of the tool-holding head or disk G, supported by and revolving in a vertical plane on the said block D, and a spring-catch or locking device, H, for holding the head G immovably in place when adjusted, to bring any one of its tools into line with the center, substantially as set forth.

3. The combination, with the block D, provided with a shank, C, adapted to fit within the dead-spindle of a lathe, and having the curved dovetail groove b, of the head or disk G, adapted to revolve in a vertical plane, and provided on its front face with sockets for holding a series of tools, and having on its rear side an annular dovetail rib or flange, e, fitting within the groove b of the block D, and the spring bolt or catch H, for holding the head G immovably in place when adjusted, substantially as described.

4. In a tool-holder, the combination, with the block D, provided with a shank, C, and having a dovetail groove, b, and the vertical revolving head or disk G, with its annular flange e fitting within the groove b, of the curved gib h, introduced into the space between the flange e and the side of the groove b, and the set-screws i, arranged to bear upon the gib h, all operating substantially in the manner and for the purpose described.

318,262. CASH-CARRIER. CHARLES H. KELLEY, Revere, assignor of one-half to Francis C. Perkins, Somerville, Mass. Filed Mar. 16, 1885. (No model.)

318,262.



Claim.—1. In a cash-carrier, the combination of vertical telescopic tubes depending from the frame thereof, and mechanism adapted automatically to release one or more of said tubes and allow them to drop by gravity when the carrier reaches the stopping place or station, substantially as and for the purpose set forth.

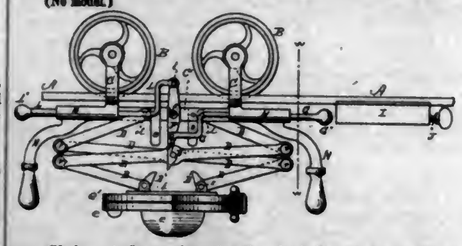
2. The combination of the stationary tube D, provided with the internal flange, D', the internal telescopic tube, E, provided with the collar or thickened portion E' and supporting the cash-receptacle, and the catch g, provided with mechanism whereby it is retracted when the carrier reaches a station, substantially as and for the purpose described.

3. The combination of the stationary tube D, barrel G, catch g, shank g', provided with the spring g'' and pin h, elbow-lever H, pivoted to the frame C, and the standard K, erected on the track, substantially as and for the purpose set forth.

4. The combination of the tube D, provided with the guide J, the barrel G, catch g, and shank g', and the horizontal slide-rod I, having one end secured to said shank, all arranged and constructed substantially as and for the purpose described.

5. In a cash-carrier, the combination of a substantially vertical stationary tube and a cash-box supporter or stem adapted to play vertically in said tube, and mechanism whereby the said supporter or stem drops automatically when the carrier reaches its station, substantially as and for the purpose set forth.

318,263. CASH-CARRIER. CHARLES H. KELLEY, Revere, assignor of one-half to Francis C. Perkins, Somerville, Mass. Filed Mar. 21, 1885. (No model.)



Claim.—1. In a cash-carrier, the wheels B, each having its periphery provided with a central circumferential V-shaped projection, substantially as and for the purpose described.

2. The combination of the system of levers D, pivoted catch F, rod G, provided with the spring H', tube or barrel H, and a suitable stop or buffer, substantially as and for the purpose described.

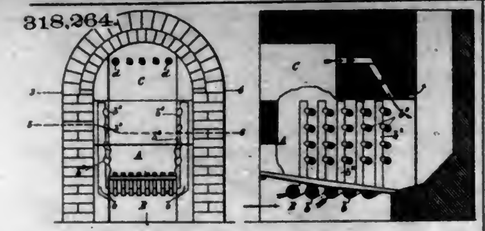
3. In a cash-carrier, the combination of the frame provided with the tube or barrel H, and the spring K, secured under the track, said barrel being adapted to slide under said spring, which presses on the same, whereby the stopping of the carrier is made gradual, substantially as and for the purpose set forth.

4. The combination of the system of levers D, pivoted to the frame, catch F, rod G, provided with the spring H', barrel H, stationary trough I, provided with the spring K, and screw J, substantially as and for the purpose described.

5. The combination of the catch F, secured to the frame, the levers D, provided at their joints with the pivots d', springs O, and thumb-pieces P, and mechanism for dropping the levers when the train reaches a station, substantially as and for the purpose set forth.

318,264. CONSTRUCTION OF KILNS, POTTERY OR COKE OVENS, &c. HENRY KNOWLES, Woodville, County of Leicester, England. Filed Dec. 4, 1884. (No model.) Patented in England Jan. 2, 1884, No. 474.

318,264.



Claim.—1. A fire-place for a kiln or oven having in the side walls air-inlets b at the ash-pit, vertical passages b^2, leading therefrom, and a series of branch perforations, b^3, from said passages into the fire-place and combustion-chamber, substantially as described.

2. A fire-place for a kiln or oven having its inner walls grooved or corrugated, and having air inlets and passages b b^2, and branch perforations b^3 from said passages into the fire-place at different levels, substantially as set forth.

3. A fire-place for a kiln or oven having in its arch air-flues d, with their inner ends, d' d', directed downward into the combustion-chamber at different angles, substantially as specified.

318,265. CONTINUOUS-ACTION KILN FOR BURNING BRICKS, &c. HENRY KNOWLES, Woodville, County of Leicester, England. Filed Oct. 20, 1884. (No model.) Patented in England Jan. 2, 1884, No. 351.

Brief.—Improvement on invention of Patent No. 302,413, dated July 22, 1884.

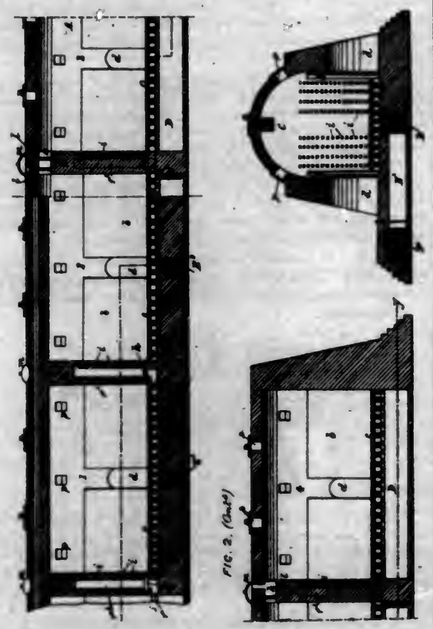


FIG. 2. (Sheet)

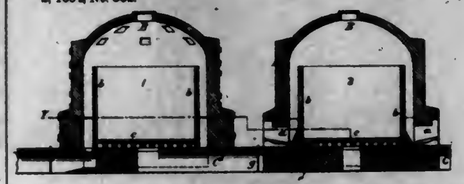
Claim.—1. A continuous or semi-continuous action kiln divided into a series of adjoining chambers separated by partition-walls containing connecting-flues f g f', provided with perforations i throughout the length of the flue f', as set forth.

2. A continuous or semi-continuous action kiln divided into a series of adjoining chambers by partition-walls having connecting-flues f g f' therein from the floor of one to the next chamber, with direct connecting-flues k, having dampers, substantially as set forth.

3. A continuous or semi-continuous action kiln divided into a series of adjoining chambers by a partition-wall having flues f g f' therein from the floor of one chamber to the main portion of the next, and direct connecting-flues k at the top, with two dampers, l l, substantially as described.

4. The combination of the adjoining chambers with intermediate partition having connecting-flues f g f', damper h, and perforations i, with direct flues k at the top, and dampers l, all substantially as specified.

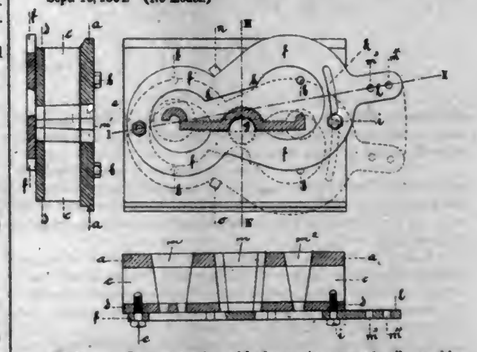
318,266. OVEN OR DETACHED KILN FOR BURNING BRICKS, POTTERY-WARE, &c. HENRY KNOWLES, Woodville, County of Leicester, England. Filed Dec. 22, 1884. (No model.) Patented in England Jan. 2, 1884, No. 352.



Claim.—1. The combination of adjoining ovens or kilns and branch and main flues leading to the chimney, with connecting-flues between the ovens or kilns, and branch terminal flues e, leading from the connecting-flue up into the oven or kiln, substantially as set forth.

2. The combination of adjoining ovens or kilns and branch and main flues leading to the chimney, with connecting-flues between the ovens or kilns, and branch terminal flues e, having outlets varying in size, substantially as described.

318,267. MOUTH-PIECE OF PRESSES FOR THE MANUFACTURE OF TILES. CARL F. E. KRETZNER, Kunzendorf, Prussia, Germany. Filed Sept. 16, 1884. (No model.)



Claim.—1. In combination with the mouth-piece of a tile-machine, a plate pivoted thereto at one side, and having a boss, g, for forming a raised middle part in the tile-cord, the pivoting of said plate allowing it to be conveniently shifted at will into or out of position for said boss to come in contact with the clay, substantially as set forth.

2. In combination with the mouth-piece of a tile-machine, a plate pivoted thereto and having a shoulder, h, for depressing the middle part of the clay cord, substantially as set forth.

3. The pivoted plate f, provided with boss g, shoulder h, and slot k, in combination with the mouth-piece plate d, the stops n o, and the guide-screw i, all constructed, arranged, and operating substantially as and for the purpose set forth.

318,268. MAGAZINE-GUN. WILLIAM J. KRIX, St. Louis, Mo., assignor of one-half to Joseph D. Lucas, same place. Filed July 21, 1884. (No model.)

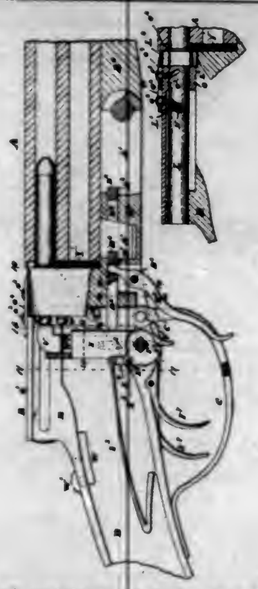
Brief.—The breech-bolt is operated by a lever with a sliding extension, which gives it a reciprocating and a rotary movement. The extractor is carried by and moves on the breech-bolt. The cartridges are fed up an incline from a magazine in the stock by a spring-lever pivoted in the frame and suitable operating mechanism. The hammer is extensible by means of a trigger and connecting devices, so as to strike either one of two firing-pins.

Claim.—1. In a fire-arm, the breech-bolt having a spiral groove and locking-lugs and adapted to have endwise and rotary movement, in combination with the surface of the frame against which the lugs bear, and the lever having a sliding extension provided with a projection to fit in the groove in the breech-bolt, substantially as and for the purpose set forth.

2. In a fire-arm, the breech-bolt provided with lugs and a spiral groove and adapted to have endwise and rotary movement, in combination with the lever having a sliding extension for operating the breech-bolt, and the stock provided with notches to receive the lugs on the breech-bolt, substantially as and for the purpose set forth.

3. In a fire-arm, the combination of the breech-bolt adapted to have a compound endwise and rotary movement, a lever provided with a sliding extension for operating the breech-bolt, and an extractor secured to the breech-bolt by a block and a screw or screws, the inner end of one

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of the screws fitting in a spiral groove in the breech-bolt to cause the advance movement of the extractor as the breech-bolt is turned, substantially as and for the purpose set forth.

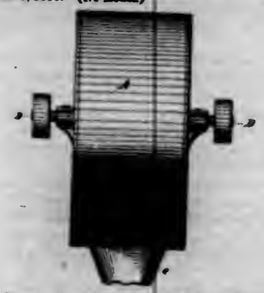
4. In a fire-arm, the combination of the breech-bolt, hollow stock, main lever, sliding extension to the lever connecting the breech-bolt directly to the lever, and an arm hinged to the stock and connected to the lever, the arm adapted to take the cartridges from the stock in rear of the lever, as set forth.

5. In a fire-arm, the combination of the breech-bolt for forcing the cartridges into the barrel, a lever for operating the breech-bolt, and a spring-arm with a hooked or notched outer end connected to the lever and adapted to raise the cartridges into a position to be operated upon by the breech-bolt, substantially as set forth.

6. In a fire-arm, the combination of the breech-bolt for forcing the cartridges into the barrel, a lever for operating the breech-bolt, and a spring-arm having a hooked or notched outer end and connected to the lever by a short shaft, crank, slotted link, and pin, substantially as and for the purpose set forth.

7. In a fire-arm, the combination of a hammer, an adjustable block on the hammer, a lever hinged to the stock, and a link connecting the block and lever, the block being adjusted by said lever and link to place it in position for striking fire-pins arranged one above the other, as set forth.

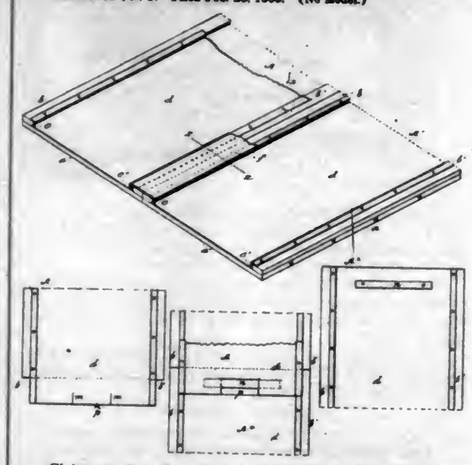
318,269. APPARATUS FOR DRYING GRAIN BY MEANS OF AIR-CURRENTS. JACOB A. LATCHA, Cleveland, Ohio. Filed Apr. 2, 1883. Renewed Mar. 3, 1885. (No model.)



Claim.—1. In a device for conveying grain, the combination, with a fan, of a fan-casing provided with an induction-opening and with an eduction-chamber having divergent outlets, substantially as set forth.

2. In a device for conveying grain, the combination, with a fan, of a fan-casing having an induction-opening and a chamber having divergent outlets and an inclined screen covering the upper outlet, whereby the grain thrown by the fan and arrested by the screen will fall through the lower outlet, substantially as set forth.

318,270. METAL-COVERED ROOF FOR PORTABLE HOUSES. E. LEE, Corona, N. Y. Filed Feb. 25, 1885. (No model.)

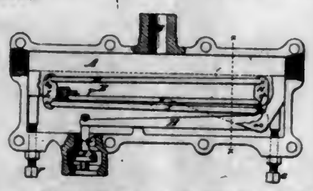


Claim.—1. A roof-panel, constructed as described, with a backing, *a*, side strips, *b b'*, having their inner edges beveled to form recesses *c c'*, and a sheet-metal covering, *d*, laid over said backing and attached at its overlapping sides to the strip *b b'*, said panel being adapted, as described, to be used in connection with a metal cap, *f*, constructed, as described, to cover said strips *b b'* of adjoining panels and fit into the recesses *c c'*, as set forth.

2. A roof composed of a series of panels, A A', each constructed with the backing *a*, strips *b b'*, having beveled edges to form recesses *c c'*, and sheet-metal covering *d*, said panels being laid side by side, and their adjoining side strips, *b b'*, covered by a metal cap, *f*, adapted to fit over said strips *b b'* and into the recesses *c c'*, as shown and described.

3. The combination of the panel A, provided with a portion of its metal covering *d* extending beyond its lower end, and slit at intervals to form flaps *p*, and the panel A^2, provided with the strip *n* to receive said flap or flaps, each of said panels constructed as shown and described, and the whole arranged as and for the purpose set forth.

318,271. STEAM-TRAP. CHARLES H. MASCOM, St. Johnsbury, Vt., assignor of one-half to Henry Fairbanks, same place. Filed Aug. 25, 1884. (No model.)



Claim.—1. The combination of the chamber A, constructed with an inlet, B, and outlet C, the frame E, arranged in said chamber upon adjusting-screws F G, the lever H, hung in said frame, the valve D, hung upon said lever H, an expansion-rod, one end taking its bearing in the shorter arm of said lever H, the other resisted by said frame, substantially as described.

2. The combination of the chamber A, constructed with the inlet B and outlet C, the frame E, arranged in said chamber, the lever H, hung in said frame, the valve D, hung upon the longer arm of said lever H, and a system of expansion-rods and levers, L N, arranged as shown in said frame, one end resisted by the frame, the other taking a bearing on the shorter arm of said lever H, substantially as described.

3. The combination of the chamber A, constructed with the inlet B and outlet C, the frame E, arranged in said chamber, the lever H, hung in said frame, the valve D, hung upon the longer arm of said lever H, a system of expansion-rods and levers arranged in said frame, one extreme resisted by the frame, the other extreme taking a bearing on the shorter arm of said lever H, and the adjusting-screws F G, whereby the position of the frame, levers, and valve may be adjusted with relation to the opening C, substantially as described.

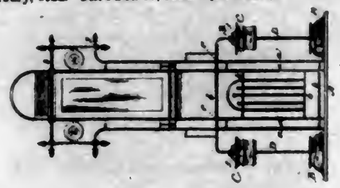
318,272. ADJUSTABLE CLOTHING-STIFFENER. CARRIE F. MARSH, Detroit, Mich., assignor of one-half to Alida Pitman, same place. Filed May 31, 1884. (No model.)

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Claim.—A stiffener for the edges of gossamer cloaks, consisting of strip-sections connected by flexible joints and sleeve-joint stiffeners, substantially as specified.

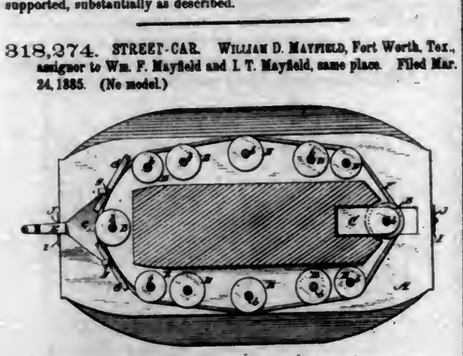
318,273. HAT-STAND. HENRY A. MATTHEWS and DAVID M. IRELAND, Waterbury, Conn. Filed Dec. 19, 1884. (No model.)



Claim.—1. A hat-stand composed of uprights *a* and cross-bars *b*, said uprights and cross-bars made from tubing, said cross-bars and uprights united by a mortise in the one and a block, *d*, extending through said mortise in the one into the adjacent ends of the others, and whereby said cross-bars and uprights are held and secured in their proper relative position to each other, substantially as described.

2. In a hat-stand the frame of which is composed of metal tubing, the drip-basin B, arranged upon the base, a vertical upright, D, extending upward from the center of each basin into connection with the frame above, the metal rings C, arranged concentrically around said uprights and above said basins, the hub E on said uprights, with arms extending therefrom into connection with the said rings, and whereby said rings are supported, substantially as described.

318,274. STREET-CAR. WILLIAM D. MAYFIELD, Fort Worth, Tex., assignor to Wm. F. Mayfield and I. T. Mayfield, same place. Filed Mar. 24, 1885. (No model.)



Claim.—1. The combination, with a car, of a draft attachment connected thereto and adapted to be adjustable from one end of the car to the other without being detached or removed therefrom, substantially as and for the purpose set forth.

2. The combination, with a car provided with a continuous bearing, of a draft attachment having a band encircling such bearing and movable thereon, whereby such attachment may be adjusted from end to end of the car, substantially as set forth.

3. The combination, with a car provided with a continuous bearing, of a draft attachment having a band encircling and movable on such bearing, said band being flexible, whereby to readily conform to the bearing, substantially as set forth.

4. The combination, with a car provided with a continuous bearing and a continous rest attached to the car outside of said bearing, of the draft attachment having a band encircling said bearing and a tongue-arm supported and movable on the rest, substantially as set forth.

5. The combination of the car having a continuous bearing supplied with anti-friction pulleys and the draft attachment having a band encircling said bearing and engaging the anti-friction pulleys, substantially as set forth.

6. A car having a continuous bearing provided with a movable band-tightening section, combined with a draft attachment having a flexible band encircling such bearing, substantially as set forth.

7. The combination of a car, a draft attachment connected with and adjustable from end to end thereof, and latch devices whereby to hold the said draft attachment, substantially as set forth.

8. The combination of a car having a continuous bearing, a flexible band encircling said bearing, two connecting-bars secured between their ends to the band, and the tongue-arm having its inner end pivotally attached to the connecting-bars at the point of juncture of the latter with the band, substantially as set forth.

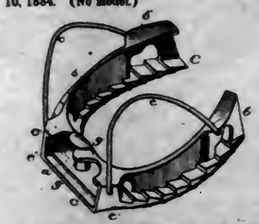
318,275. COMBINED KEY-HOLE GUARD AND CIGAR-CUTTER. G. MCGOVERN, Richmond, Va. Filed Dec. 16, 1884. (No model.)



Claim.—1. The combination, with the casing A B, of the levers C E, provided with springs *a a* and projecting teats G G, as and for the purpose set forth.

2. The combination, with the casing A B, having hole H, of the levers C E, each having a spring, *a*, cutting-edge *e*, and projecting teat G, as set forth.

318,276. HORSESHOE. G. FRANK MESSINGER, Stockertown, Pa. Filed Dec. 10, 1884. (No model.)

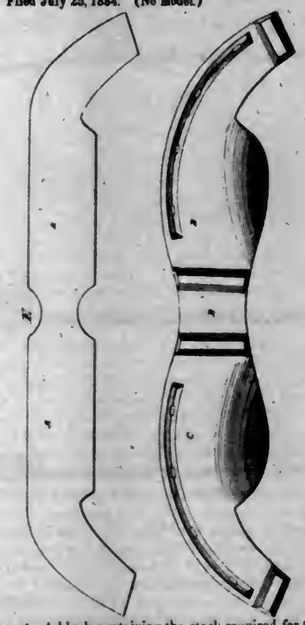


Claim.—1. The supplemental horseshoe herein described, consisting of the crimp-like base formed with the rabbeted front portion and the calk-walls *c' c'* and the web *b*, curving outwardly at its extremities and formed with the widened upper surfaces, *b'* and *c'*, substantially as described.

2. The combination, with a supplemental horseshoe, C, constructed with the crimped base and the side wall or web, *b*, of the spring wire clamps *c c* and strap *d*, substantially as described.

3. The combination, with a horseshoe, of a supplemental shoe formed with a rabbeted front portion, as at *a*, hook *g g'*, and side portions, *c' c'*, whereby the toe-calk is prevented from vertical and sidewise displacement, substantially as described.

318,277. BLANK FOR WROUGHT-METAL OX-SHOES. WILLIAM K. MILLER, Whitneyville, assignor to Woodruff Miller & Co., Mount Carmel, Conn. Filed July 25, 1884. (No model.)

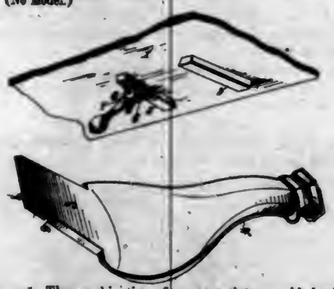


Claim.—1. A blank containing the stock required for two ox-shoes, and shaped to define the inner and outer faces of the curved toe ends of the shoes, substantially as set forth.

2. A blank containing the stock required for two ox-shoes, having its central portion essentially straight and its end shaped to the curved outline of the toe ends of the shoes, substantially as set forth.

3. A blank containing the stock required for two ox-shoes, and shaped to define the inner and outer faces of the curved toe ends of a pair of shoes, substantially as set forth.

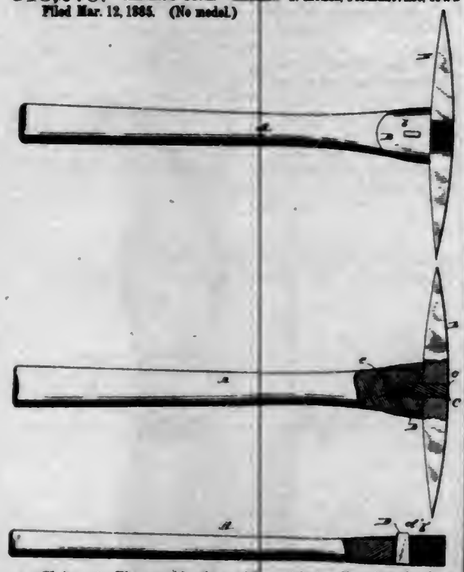
318,278. STOVE-LEG ATTACHMENT. OLIVER F. MITCHELL, Merrill, Wis., assignor of one-half to Myron H. McCord, same place. Filed Jan. 29, 1885. (No model.)



Claim.—1. The combination of a stove-plate provided with two guide-lugs, a leg or foot having a slot in one of its side edges, and adapted to slide longitudinally between the lugs, and a gravitating weighted pawl pivoted to one of said guide-lugs, to swing in a vertical plane at right angles to the length of the leg-shank, for bringing its inner engaging end in the path of the shank when inserted to enter the slot in the side edge thereof, substantially as described.

2. The combination of a stove-plate having a seat, a leg or foot having a shank provided at one of its side edges with a slot, and having a beveled rear end, a pawl weighted at its outer end and pivoted to swing at right angles to the path of the shank, so that by the insertion of the shank its rear beveled end acts to depress the inner engaging end of the pawl to permit such engaging end to be thrown upward into the slot of the shank by the weighted outer end of the pawl, substantially as described.

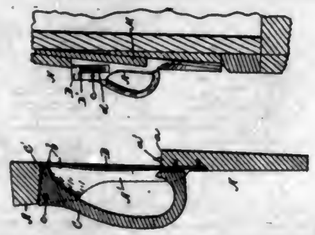
318,279. MINER'S PICK. ANDREW T. MOATS, Pleasantville, Iowa. Filed Mar. 12, 1885. (No model.)



Claim.—1. The combination, with a pick-handle, of a shank attached to the end thereof by means of a transverse pin and having a threaded portion projecting beyond the end of said handle, and a pick-blade having a screw-threaded eye to engage said projecting portion, so that said blade may be secured in position on the handle, with a bearing against the end thereof, substantially as set forth.

2. The combination, with a pick-handle, of a socket, B, embracing one end of the same and provided with openings *b*, a recess formed in the end of the handle for the reception of a shank, having an opening registering with the openings *b*, and with a threaded portion projecting beyond the end of said handle, a wedge-shaped key passing through said socket and shank openings, and a pick-blade having a screw-threaded eye for the engagement of the projecting portion of the shank to secure said blade relative to said handle, so as to have a bearing against the end of the same and the socket thereof, substantially as set forth.

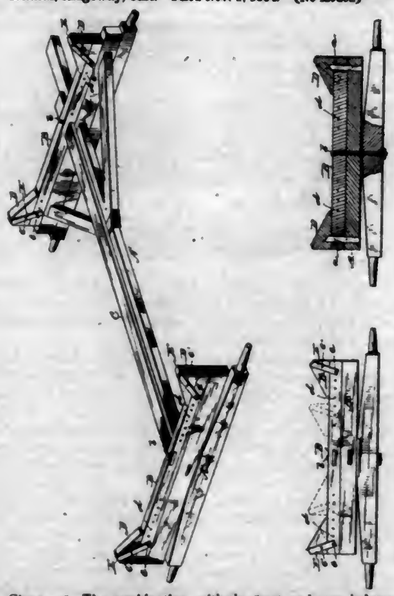
318,280. SIDING-GAGE. PETER V. MOORE, Marinette, Wis. Filed Nov. 14, 1884. (No model.)



Claim.—1. The combination, with the body A, having shoulder *a* about midway of its length, provided with points *a'*, of spring B, mounted in that portion of the body above the said shoulder and provided with points *b*, and lever C, having cam projection C', to operate said spring, substantially as and for the purposes specified.

2. The combination, with the body A, provided with a graduated extension-piece at its upper end, and having the shoulder *a* about midway of its length provided with points *a'*, of spring B, arranged in that portion of the body above the shoulder *a*, and provided with points *b*, and lever C, having cam projection C', to operate said spring, substantially as and for the purposes specified.

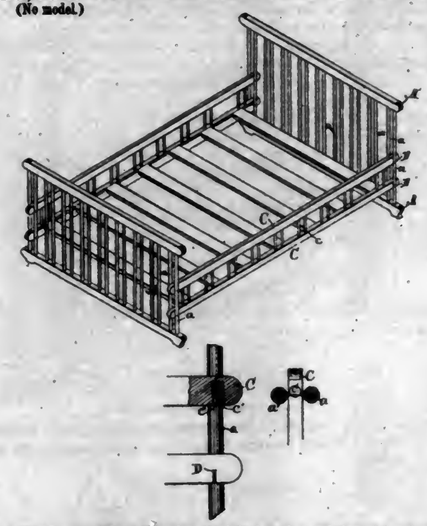
318,281. LOG-CARRYING ATTACHMENT FOR WAGONS. JAMES J. MONROE, Ridgeway, Ohio. Filed Nov. 1, 1884. (No model.)



Claim.—1. The combination, with the front and rear bolsters of a wagon, of vertical standards carried by said bolsters, supplemental bolsters perforated for the engagement of said standards, a reach, C, connecting said supplemental bolsters, and blocks E, having each an inclined face and connected to the bolster by a strap, substantially as set forth.

2. The combination, with the front and rear bolsters of a wagon, of vertical standards carried by said bolsters, supplemental bolsters vertically perforated for the engagement of said standards, and having a series of transverse perforations, a reach, C, connecting said supplemental bolsters, and blocks E, having each an inclined face carrying a strap, and a pin for pivoting said strap in one of the transverse perforations, substantially as set forth.

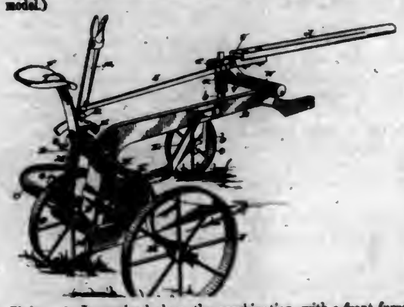
318,282. BED. JAMES P. MOORE, Gardiner, Me. Filed Jan. 27, 1885. (No model.)



Claim.—1. The within-described bedstead, consisting of head and foot boards and side rails composed of bars C C', united by dowels, and having the plugs *c'*, through which are cut slots *c²*, combined with pins D D, passing through the dowels *a a*, substantially as described.

2. In a bedstead, the side rails composed of bars C C', united by dowels, and having the plugs *c'*, through which are cut slots *c²*, combined with pins D D, passing through the dowels *a a*, substantially as shown and described.

318,283. WHEEL-PLOW. WILLIAM NEWLIN, Attica, assignor of one-half to James S. Warwick, Lafayette, Ind. Filed Feb. 28, 1885. (No model.)



Claim.—1. In a wheel-plow, the combination, with a front furrow-wheel, a lever, and a rear furrow-wheel journaled on an axle secured to the lower end of said lever, of a rod connecting the lever and front furrow-wheel, whereby they are simultaneously elevated and depressed, substantially as set forth.

2. In a wheel-plow, the combination, with the plow-frame and the land-wheel axle, of a lever journaled on said axle, a rear furrow-wheel journaled in the lower end of said lever, and means for locking the lever in rotary adjustment, and thereby determining the elevation of the furrow-wheel relatively to the frame, substantially as set forth.

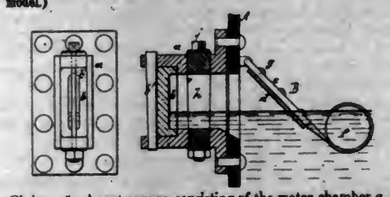
3. The combination, with the plow-frame and the land-wheel axle journaled therein, of a lever fulcrumed on said axle, a rear furrow-wheel journaled in the lower end of said lever, a front wheel secured to the beam in rocking adjustment, and devices connecting the lever and front furrow-wheel, whereby the front and rear furrow-wheels are simultaneously elevated or depressed relatively to the frame, substantially as set forth.

4. The combination, with the frame and the land-wheel axle journaled therein, of a lever carrying the rear furrow-wheel in its lower end and secured in rotary adjustment on the land-wheel axle, whereby the positions of the land-wheel and furrow-wheel relatively to each other and to the frame may be changed, substantially as set forth.

5. The combination, with a front furrow-wheel axle journaled in the bearings secured to the plow-beam and provided with an upwardly-extending arm, and a rear furrow-wheel secured in the lower end of the lever fulcrumed on the land-wheel axle, of a rod connecting the said arm and lever, whereby the two furrow-wheels are operated simultaneously, substantially as set forth.

6. In a plow, the combination, with the frame and the land-wheel axle journaled therein, of a lever and support fulcrumed on said axle, a rear furrow-wheel journaled in the lower end of said lever and support, foot-rests secured on the supports on opposite sides of the wheel, whereby the weight of the driver will assist the lever in throwing the furrow-wheels forward, substantially as set forth.

318,284. WATER-GAGE. HENDRIK OCHWADT, Von der Heydt, near Saarbrücken-on-the-Saar, Prussia, Germany. Filed Jan. 8, 1885. (No model.)

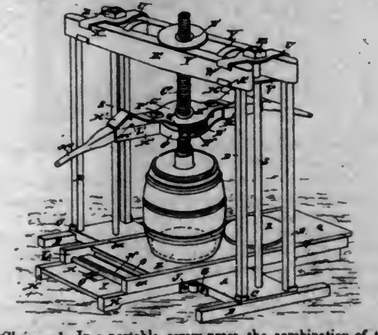


Claim.—1. A water-gage consisting of the water-chamber *a*, which is provided with a channel, *h*, the glass *b*, secured to the face of the water-chamber and closing said channel and the plug or cock *j*.

2. A water-gage consisting of the water-chamber *a*, which is provided with two or more channels, *h*, the glass plates *b'*, secured to the water-chamber and closing said channel or channels, and a plug or cock, *j*, which opens or closes both channels.

3. The combination, substantially as hereinbefore described, with a steam-boiler, of a water-gage consisting of a water-chamber, *a*, secured to the boiler-head and provided with a channel or with channels *h*, connecting with a slot or opening in the boiler-head, the glass or glasses *b*, secured to the water-chamber and closing the channel or channels, a plug or cock, *j*, for controlling the opening or closing of the channel or channels, a stuffing-plate, B, pivoted to the boiler-head and adapted to close the opening in the boiler-head, and a float, *f*, which controls the motion of the stuffing-plate.

318,285. PORTABLE SCREW-PRESS. JOHN P. PARKER, Ripley, Ohio. Filed Apr. 4, 1885. (No model.)



Claim.—1. In a portable screw-press, the combination of the bed A, having the notches F and lips G at their side edges, and flanges C at their ends, the bed-extensions I, having sills H and lips J, the top piece having castings U and V, the vertical notted rods, and the props D, as and for the purpose shown and set forth.

2. In a portable screw-press, the combination of the beams Y of the top piece, with the casings U and V, having flanges W and X, clamping the edges of the ends of the beams and having perforations for the passage of the vertical rods and flanges for the upper ends of the props, as and for the purpose shown and set forth.

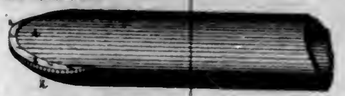
3. In a screw-press, the combination of the bed-extensions having the longitudinal slots K, the carriage L, having the rollers and provided with the stops P, and the platform having the blocks for the reception of the ends of the hogsheads, as and for the purpose shown and set forth.

4. In a screw-press, the combination of the plates F' G', fitting upon the screws and forming sockets having upwardly-bulged upper sides and transverse perforations, with the levers having their inner ends pivoted upon bolts passing through the said perforations, as and for the purpose shown and set forth.

5. The combination of the screw having the cogged nut D', the plates F' and G', having the bolt P', the double pawl O', having the inwardly-beveled lugs Q', pivoted upon bolt P', and having the beveled

rib R' and the spring-actuated bolt S', having its outer end beveled at both sides bearing against the beveled rib, as and for the purpose shown and set forth.

318,286. TUBE. PETER PATTERSON, McKeesport, Pa., assignor to the National Tube Works Company, same place and Boston, Mass. Filed July 24, 1884. (No model.)

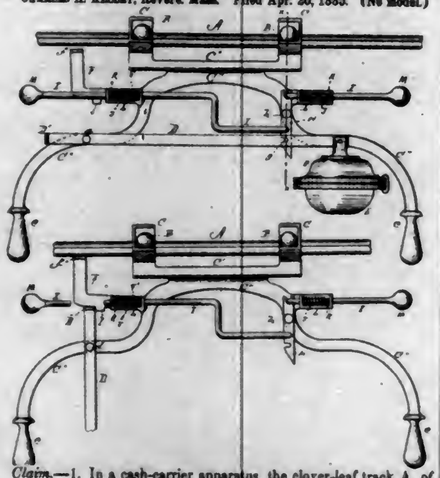


Claim.—1. A wrought-metal tube having a closed and welded end, the weld thereof being formed between the inner faces of the tube, substantially as set forth.

2. A wrought-metal tube having a closed and welded end, the weld thereof extending in the form of a lip across the end of the tube, substantially as set forth.

3. A wrought-metal tube having a closed and welded end, the weld thereof extending across the end of the tube, and the faces of the tube gradually approaching said weld, substantially as set forth.

318,287. CASH-CARRIER. FRANCIS C. PERKINS, Somerville, and CHARLES H. KELLEY, Revere, Mass. Filed Apr. 20, 1885. (No model.)



Claim.—1. In a cash-carrier apparatus, the clover-leaf track A, of substantially the shape shown and described.

2. In a cash-carrier, the combination, with the track, of two balls having bearings in the supporting-frame and resting upon opposite sides of said track, substantially as and for the purpose described.

3. In a cash-carrier, the combination, with the track and a supporting-frame adapted to travel upon the same, of a safety-ball having bearings in said frame beneath said track, substantially as and for the purpose set forth.

4. The combination of the clover-leaf track A, the supporting-frame C, and the balls B, having bearings in said frame and arranged relatively to the track in the positions specified, substantially as and for the purpose described.

5. In a cash-carrier, the combination, with the track and the supporting-frame, of a brake pivotally secured to the carrier, and a cash-box supporter which strikes said brake and forces it against the under side of said track when it drops at a station.

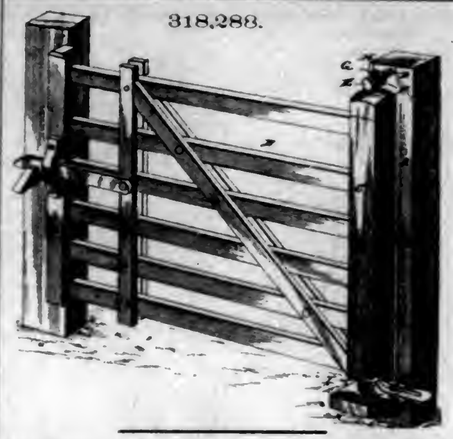
6. The combination of the track, the frame, the elbow F, pivotally secured to said frame, and the swinging bar D, provided with the broadened end or cross-piece D', substantially as and for the purpose described.

7. The combination of the track A, frame C'', provided with the stop *l*, elbow F, bent horizontally at *f*, and the bar D, provided with the broadened end D', and pivoted to said frame, substantially as and for the purpose set forth.

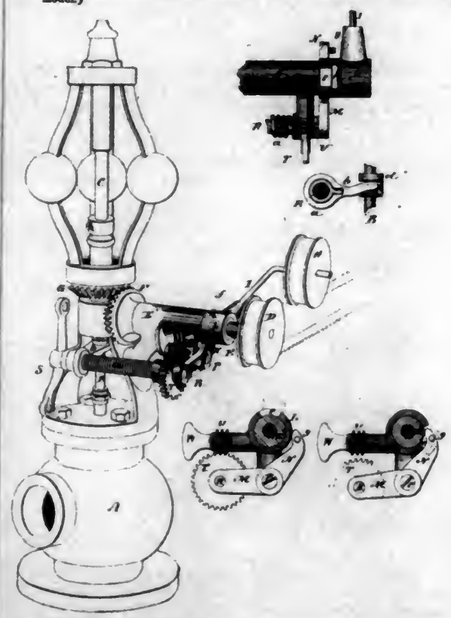
318,288. HINGE FOR GATES. MINER T. PERKINS, Mount Sterling, Ky., assignor of one-half to Adam Bach, same place. Filed Mar. 30, 1885. (No model.)

Claim.—In a gate, the combination, with the hinge-post having a swiveled bearing for its upper end, and having a rounded pivot at its lower end, of a bar at the bottom of said post having a cup-shaped bearing at one end and a longitudinal slot at the other, and a screw for adjusting said bar, as and for the purpose shown and set forth.

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318,289. SAFETY ATTACHMENT FOR STEAM-ENGINE GOVERNORS. THOMAS R. PERKINS, Portland, Conn. Filed Mar. 30, 1885. (No model.)



Claim.—1. The combination of a steam-governor, the valve-stem B in connection with said governor, a shaft, R, an arm, *b*, extending from said shaft into engagement with the said stem, a torsion-spring, one end engaged with said arm *b*, a stop arranged to hold the other end of the spring, a cam, the idler H, hung upon an arm extending from said cam and whereby as the idler falls the cam will be turned, and a stop arranged to hold the other end of said spring when the idler is running, said cam adapted to disengage said stop when the idler falls, substantially as described.

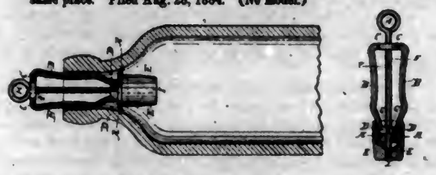
2. The combination of a steam-governor, the valve-stem B in connection with said governor, the shaft R, arm *b*, extending from said shaft, gear T, also on said shaft, a torsion-spring, *a*, one end connected with said gear T and the other with the said arm *b*, the lever N M, the wheel end of said shaft hung in the said arm M, worm U, arranged to work into the teeth of the said gear, a cam, L, provided with an arm extending therefrom, and an idler-pulley on said arm, the cam constructed with a recess, *e*, the arm N extending into the path of said recess, substantially as and for the purpose described.

3. The combination of a governor for steam-engines, a cam provided with an arm extending therefrom, an idler arranged upon said arm and so as to run upon the governor-band, but free to fall when the band breaks, a lever, M N, the one arm, N, arranged to bear upon said cam,

the cam constructed with a recess into which said arm may turn, a shaft, R, one end supported in the arm M of said lever, said shaft carrying an arm, *b*, extending into connection with the valve-stem, a torsion-spring, one end engaged with said arm *b*, and a stop arranged to hold the other end of the spring, or from which the said spring will be released, according to the position of the said lever M N, substantially as described.

4. The combination of a steam-engine governor, cam L, provided with an arm, I, idler H on said arm and arranged to run on the governor-band, the lever M N, the arm N, arranged to bear upon said cam, the cam constructed with a recess, *e*, into which said arm N may enter, and with the flange *f*, the arm N provided with a stud, *g*, to engage said flange, the shaft R, one end arranged in the said arm M, an arm, *b*, extending from said shaft into connection with the valve-spindle, a torsion-spring, one end engaged with said arm *b*, and a stop arranged to hold the other end of the spring, or from which the said spring will be released, according to the position of the said lever M N, substantially as described.

318,290. REMOVABLE INTERNAL BOTTLE-STOPPER. EDWIN S. PIPER, Bristol, Conn., assignor, by mesne assignments, to Walter E. Strong, same place. Filed Aug. 28, 1884. (No model.)



Claim.—1. A removable internal bottle-stopper having a plunger, a contractor, and a stopping-disk interposed between the said plunger and contractor, substantially as set forth.

2. A removable internal bottle-stopper having a plunger, a contractor, and a stopping-disk consisting of an elastic flanged button interposed between the said plunger and the contractor, substantially as set forth.

3. A removable internal bottle-stopper having a frame provided with a plunger, a contractor, and a stopping-disk interposed between the said plunger and contractor, substantially as set forth.

4. A removable internal bottle-stopper having a frame, the spring-arms of which are provided at their lower ends with bearings forming a plunger, a contractor, and a stopping-disk, the said bearings of the frame, and the contractor, substantially as set forth.

5. A removable internal bottle-stopper having a plunger, a contractor located upon a spindle mounted in the frame of the stopper and held in place thereby, and a stopping-disk interposed between the plunger and the contractor, substantially as set forth.

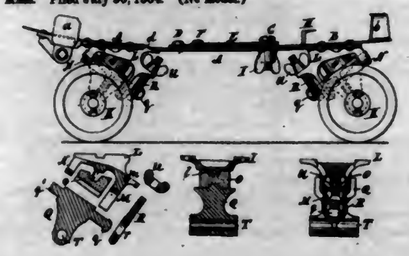
6. A removable internal bottle-stopper having a plunger, a contractor located upon a spindle mounted in and extending above the frame of the stopper and having its upper end enlarged or provided with equivalent means for seizure, and a stopping-disk interposed between the said plunger and contractor, substantially as set forth.

7. A removable internal bottle-stopper having a plunger, a removable contractor, and a stopping-disk interposed between the said plunger and contractor, substantially as set forth.

8. A removable internal bottle-stopper having a plunger, a contractor consisting of a thimble which is secured to a spindle, and a stopping-disk interposed between the said plunger and contractor, substantially as set forth.

9. A removable internal bottle-stopper having a frame composed of two spring-arms united at their upper and separated at their lower ends, which latter are constructed to form a plunger, a contractor located upon a spindle journaled in the frame and held in place by the lower ends thereof, and a stopping-disk interposed between the lower ends of the frame and the contractor and perforated to receive the spindle of the latter, substantially as set forth.

318,291. ROLLER-SKATE. CADWALLADER M. RAYMOND, Boston, Mass. Filed July 30, 1884. (No model.)



Claim.—1. The frame L, provided with the brackets M N, in combination with the hanger Q, provided with the bearings *q q'*, the screw-bolt R, having eye *r*, to receive the bearing *q*; and nut U, and the elastic cushion O, as and for the purpose set forth.

2. The screw-bolt R, having eye *r* and nut U, the hanger Q, having bearings *q q'*, and the frame L, having bracket N, open bracket M, and projection *m*, all combined and operating as and for the purpose set forth.

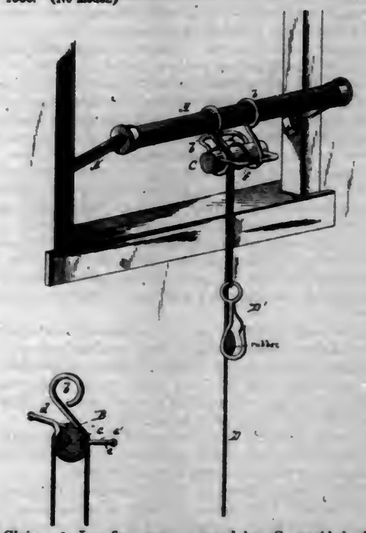
3. The combination, with the plate L, having the central projection, *l*, of the tapering cushion O, provided with a central depression in one side and a groove in the other side, and the hanger Q, having a rib upon its upper flat surface to enter the groove in the cushion, substantially as described.

318,292. LAP-RING. ORMOND D. READ, Daviess County, Ky. Filed Feb. 24, 1885. (No model.)



Claim.—In combination with the main body A, having the shank and cross-head E, the hinged lap-section B, provided with the recesses F F', and the latch G, pivoted in a recess in the under side of the lap-section, whereby, when the parts are closed, the cross-head is locked in the cross-recess of the lap-section and the latch secreted on the inner side of the ring.

318,293. FIRE-ESCAPE. HENRY REISCH, Quincy, Ill. Filed Apr. 2, 1885. (No model.)



Claim.—1. In a fire-escape, a round bar, C, provided with a supporting-bar, B, having looped ends, the central portion of the bar B forming a bail or loop, in combination with a rope which is twisted around the bar C within the loop, substantially as shown, and for the purpose set forth.

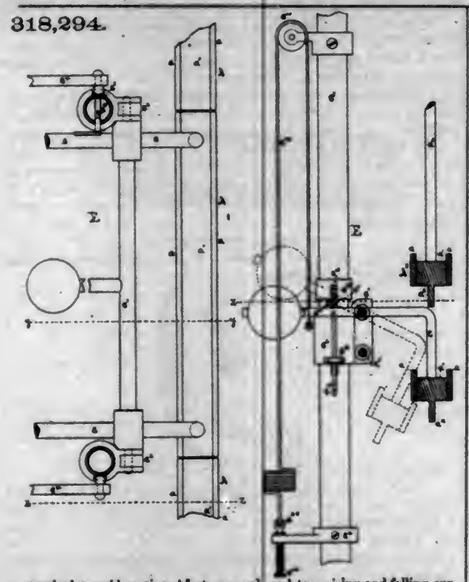
2. In combination with a main supporting bar or rod, a round supplemental bar attached beneath the same by means of a bar bent as shown, and a rope coiled upon said bar and provided with attaching-hooks D', substantially as shown, and for the purpose set forth.

3. In a fire-escape, the supporting-bar A, in combination with the bar C, suspended therefrom, a bar, B, suspending said bar C, said bar being bent so as to form a loop, and bail *e*, having its end members inserted in the bar C, adjacent to the sides of the supporting-bar B, the parts being organized substantially as shown, and for the purpose set forth.

318,294. CASH-CARRIER APPARATUS. DAVID HALL REX, Lowell, Mass. Filed Feb. 18, 1885. (No model.)

Claim.—1. In a cash-carrier apparatus, the rail A, in combination with the track-section A^2, forming part thereof at a station intermediate between two other stations on said rail, and the supporting arm or arms

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e, attached to said section A^2 at one end, and to a rising and falling support independent from said track near the other, and provided with suitable mechanism for permitting said track-section and arm or arms to drop downward out of the path of a carrier traversing said track past said intermediate station, substantially as described.

2. In a cash-carrier apparatus, the rail A, in combination with the track-section A^2, forming part thereof at a station intermediate between two other stations on said rail, and provided with suitable attached mechanism for allowing said track-section to drop out of said rail to a position beneath the path of a carrier thereover, and with a latch mechanism locking said track-section to said rail, and adapted to be unlocked by a predetermined carrier passing thereover, substantially as described.

3. In a cash-carrier apparatus, the rail A, in combination with the track-section A^2, forming part thereof, and provided with suitable attached mechanism, substantially as described, for allowing said track-section to drop out of said rail, and with a latch mechanism, substantially as described, locking it to said rail, and adapted to be unlocked by a predetermined carrier passing over said track before the latter enters upon said track-section, and to be held in an unlocked position while said carrier passes upon said track-section and descends therewith, substantially as described.

4. In combination with the rail A, the track-section A^2 and its attached pivoted arm or arms e, swinging down with the track out of the path of a carrier passing over said track, substantially as described.

5. In combination with rail A and rods a^2 a^2, the track-section A^2 and attached pivoted arm or arms e, and the track-section A^2, sliding up and down on said rods, substantially as described.

6. In combination with rail A and rods a^2 a^2, the track-section A^2 and attached pivoted arm or arms e, and locking mechanism for locking said track-section in said rail, substantially as described.

7. In combination with the rail A, the removable track-section A^2, provided with elastic buffer-pieces a^4 a^4, and suitable mechanism for dropping said section out of and replacing it in said rail, substantially as described.

8. The combination of the rail A, track-section A^2, arm or arms e, pivot e', and hook or stop e^{25} for arresting the rotary movement of said arm and pivot, substantially as described.

9. In combination with the rail A, the track-section A^2, arm or arms e, rod or rods e^3, and sliding sleeve or sleeves e^3, forming a drop-elevator, substantially as described.

10. The combination of the rail A, track-section A^2, arm or arms e, pivot e', rod or rods e^3, and sliding sleeve or sleeves e^3, substantially as described.

11. The combination of the rail A, track-section A^2, arm or arms e, pivot e', sliding sleeve e^3, hook or stop e^{25}, and rod or rods e^3, substantially as described.

12. The combination of the rail A, track-section A^2, suspended by suitable pivot or pivots placed one side of and having their axes parallel to it, and adapted to rotate thereon away from the path of the carrier-wheels passing over track A, suitable latch mechanism locking said track-section to said rail, and a carrier adapted to strike against and unlock said latch mechanism and pass upon said track-section and descend therewith, substantially as described.

13. The combination of the fixed rail A, movable track-section rail A^2, and rotary latch n', pivoted in one of said rails and locking into the other, substantially as described.

14. The combination of the tubular rail-support a^3, rail A, and track-section A^2, with the rotary latch mechanism locking them together and having its pivot-shaft prolonged upward into said tube a^3, and provided with suitable mechanism or attachment to rotate the same through a slot in said tube, substantially as described.

15. In combination with rail A and track-section rail A^2, the rotary latch pivoted in one of them, and a beveled slot, n^{10}, and mortise n^2 in the other, adjusted to automatically lock said latch and secure said rails together as they are brought past each other, substantially as described.

16. The compound rail A, formed of alternate sections of metal and paper or other similar fibrous material, substantially as described.

17. The rail A, formed of two outside tracks, *a a*, for the passage of the wheel, and a longitudinal projecting web or guide-piece for the carrier, substantially as described.

18. In combination with the sleeve e^3 and pivoted arm e, the rod e^3, provided with a double latch or stop mechanism, one member of which is adapted to engage with said sleeve and lock it in position upon rod e, substantially as described.

19. In combination with the rod e^3 and sleeve e^3, sliding thereon, the pivoted arm e, and the stop e^3, adapted to engage with said arm and raise it to a horizontal position as the sleeve rises, substantially as described.

20. The combination of the fixed rail A, the movable track-section rail A^2, a suitable latch mechanism for locking the same together, and provided with an unlocking attachment adapted to be struck by the carrier and unlocked by it before the latter enters upon said track-section, and to be held in said unlocked position while the carrier descends through the space in said rail A occupied by said track-section, substantially as described.

21. The combination of rod e^3, vertical sliding sleeve e^3, pivoted arm e, and latch e^7, placed in said rod and adapted to lock said sleeve in a fixed position thereon, substantially as described.

22. The carrier C, provided with wheels for traversing the track, an outer casing, c^4, an inner box or casing, c^5, and one or more springs, c^7, adapted to automatically lock said outer and inner casings together and to be unlocked by pressure thereon applied to their parts projecting outside of said inner box, substantially as described.

23. The track A, provided with two wheel-tracks, *a a*, for a double wheel-carrier, having a portion of their opposite parts cut away, and the movable sections *i i*, fitted therein to form a continuous track, said sections *i i* being adapted to be simultaneously moved aside to permit the carrier-wheels to ascend past them and to then return to position and complete the tracks *a a*, substantially as described.

24. In combination with the rail having two wheel-tracks, *a a*, cut away in parts opposite to each other, the movable sections *i i*, adapted to be pushed to one side by the carrier-wheels rising under them, and allow the latter to ascend above the tracks *a a*, and to then be returned to place under said wheels and complete said track, substantially as described.

25. The combination of the track formed with two wheel-paths, *a a*, cut away in opposite parts, two movable sections, *i i*, placed therein and adapted to be moved to one side simultaneously by the pressure of the carrier-wheels to allow the latter to pass upon said track, and an elevator adapted to bring said wheels beneath and press them upward against said section, substantially as described.

26. The combination, in the carrier-track, of the wheel-rails *a a*, the movable sections *i i*, beveled on their lower edges, and the spring i^3, substantially as described.

27. The combination, in the carrier-track, of the wheel-rails *a a*, the movable sections *i i*, beveled on their lower edges, the spring i^3, and the stripe i^3 i^3, substantially as described.

28. In combination with the cashier's desk, forming a station thereon, the track A, having one portion inclined from said station to other stations, and another portion inclined from said other stations to said station K, and the short incline A' at said station K connecting the other inclined portions, substantially as described.

29. In combination with the elevator E, the pulley e^{27} and cord e^{28}, attached at one end to said elevator and at the other to an elastic or yielding support, substantially as described.

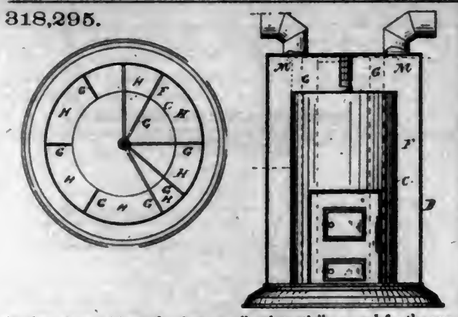
318,295. HEATING STOVE OR FURNACE. CHARLES L. RIDGWAY, Boston, Mass., assignor to the Ridgway Furnace and Stove Company, Nashua, N. H. Filed Oct. 13, 1883. (No model.)

Claim.—1. In a heating stove or furnace, the combination of the shells C D, forming the chamber F, with a series of adjustable plates, G, for dividing the said chamber into sections, all substantially as and for the purposes described.

2. The combination, in a heating stove or furnace, of a heating-chamber, F, and one or more movable partition-plates, G, for dividing the said chamber into sections, and means for moving said partition plate or plates from without the furnace, all substantially as and for the purposes described.

3. The combination, in a heating stove or furnace, of the air-heating chamber F, one or more movable partition-plates for dividing said chamber into sections, and means for locking said movable plates in any given position, all substantially as and for the purposes described.

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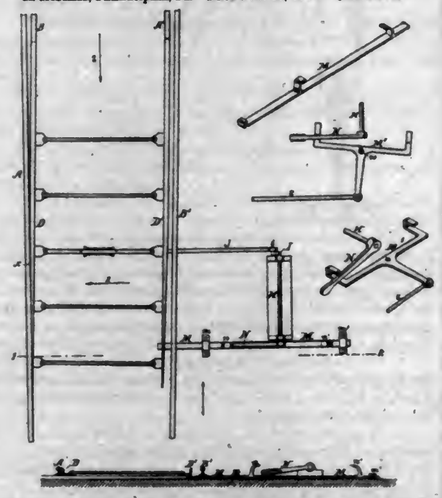
318,296. REVERSIBLE SEAT. JOSHUA R. RITCHIE, Philadelphia, Pa., assignor of one-half to William Abbott, same place. Filed Feb. 20, 1885. (No model.)



Claim.—1. A support having a shoulder, and a reversible frame having a central rim formed by double rabbets, in combination with an annulus which is coincident with said shoulder, whereby the rabbets are occupied by said shoulder and annulus in either position of the frame, substantially as and for the purpose set forth.

2. The doubly-rabbeted frame having a central rim, the support with a shoulder, an annulus, and fastening bolts or screws connecting said annulus, frame, and support, substantially as and for the purpose set forth.

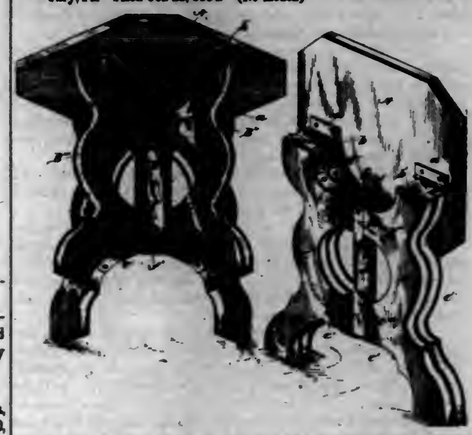
318,297. SAFETY DEVICE FOR RAILROAD-SWITCHES. ALFRED R. ROBERTS, Philadelphia, Pa. Filed Nov. 10, 1884. (No model.)



Claim.—1. The combination of a switch, a lever for operating the same, and a yielding connection of one to the other, with a safety device rigidly connected to the switch, but free from connection with the switch-operating device and constructed for restricting the movement of the switch-lever without locking the same when the switch is obstructed, all substantially as specified.

2. The combination of the switch, the operating-lever, and the yielding connection of one to the other with a safety device comprising a guided bar, M, rigidly connected to the switch and having stops *n n'*, for restricting the movement of the lever when the switch is obstructed, substantially as specified.

318,298. FOLDING STAND OR TABLE. WILLIAM P. ROBERTS, Sunbury, Pa. Filed Oct. 22, 1884. (No model.)

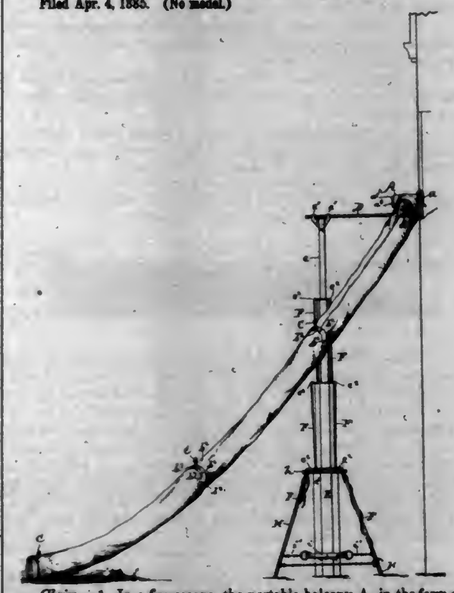


Claim.—1. In a folding table or stand, for the purpose set forth, the top A, provided with hinges *a a'*, having leaves of different lengths attached to the upper portion of the legs B'' B''', and legs C C', centrally pivoted to the legs attached to the top, substantially as shown, and for the purpose set forth.

2. In a folding table or stand, the top A, having hinges *a a'*, attached to one side of the center of the same and provided with leaves *b b'* of different lengths, which are let into the top of the legs B'' B''', said legs being each rigidly connected to a central upright, B', in combination with the legs C C', connected to each other by straps or plates *c c'*, and attached to the central upright by bolts *f f*, substantially as described, and for the purpose set forth.

3. In a folding table or stand, the legs B'' B''', hinged to the top, substantially as described, in combination with the legs C C', connected to each other and pivoted to the upright B', so that the legs will fold against each other, the upper portion of the legs C' being provided with a recess, A, substantially as and for the purpose set forth.

318,299. FIRE-ESCAPE. SILVESTRE SAMPER, New York, N. Y. Filed Apr. 4, 1885. (No model.)



Claim.—1. In a fire-escape, the portable balcony A, in the form of a folding box provided with hooks *a*, hinged sides *a'*, made inclining, the hinged front a^2, made narrower than the back, and the latches and pins for holding said sides and front in position, substantially as described and shown, and for the purpose set forth.

2. In a fire-escape, the chute B, made in sections which may be joined together, and provided with the arched plates b^4 of iron, the flat plates b^5 of softer material, and the rings C, substantially as described and shown, and for the purpose set forth.

3. In a fire-escape, the portable balcony A, provided with hooks *a*, hinged sides *a'*, made inclining, the hinged front a^2, made narrower than the back, the latches and pins for holding the sides and front in position, and the studs a^4, in combination with the chute B, made in sections joined together, and provided with the arched plates b^4 of iron, the flat plates b^5 of softer material, and with holes *b* at the top end of the chute, substantially as described and shown, and for the purpose set forth.

4. In a fire-escape, the combination of the lower tower-section and ring G, having a flange, as specified, with the hinged rings A, chains *i*, and stand H, all as shown and described.

5. In a fire-escape, the combination of the tower E, made in sliding sections, and provided with the pulleys e^3, cords F, sockets *e'*, the bar D, and portable balcony A, provided with hooks *a*, hinged sides *a'*, made inclining, the hinged front a^2, made narrower than the back, and the latches and pins for holding the said sides and front in position, substantially as described and shown.

6. In a fire-escape, the combination of the tower E, made in sliding sections, and provided with the pulleys e^3, cords F, and sockets *e'*, the rings G, attached to the bottom sections of the tower, the stand H, provided with legs, hinged rings A, rings *i*, and chains i^1, the bar D, the portable balcony A, provided with hooks *a*, hinged sides *a'*, made inclining, the hinged front made narrower than the back, the latches and pins for holding the said sides and front in position, and the studs a^4, and the chute B, made in sections, substantially as described and shown, and for the purpose set forth.

318,300. CARBON BATTERY-ELECTRODE. HERMANN F. B. SCHAEFER, Berlin, Germany. Filed Nov. 13, 1884. (No model.)



Claim.—1. A galvanic element composed of a tubular envelope which is filled with comminuted carbon and wound in the form of a spiral.

2. A galvanic element composed of a tubular envelope of woven metallic threads or wire filled with comminuted carbon and spirally wound, substantially as described.

3. A galvanic element composed of a tubular envelope formed of the fibers of a refractory substance—such as asbestus—and of a filling of comminuted carbon.

4. A galvanic element composed of a spirally-wound tubular envelope filled with comminuted carbon, and a metallic core extending through the carbon filling, substantially as described.

318,301. SAFETY-FLUE FOR CHIMNEYS. SAMUEL W. SCHMABEL, Mayview, Mo. Filed June 23, 1884. (No model.)

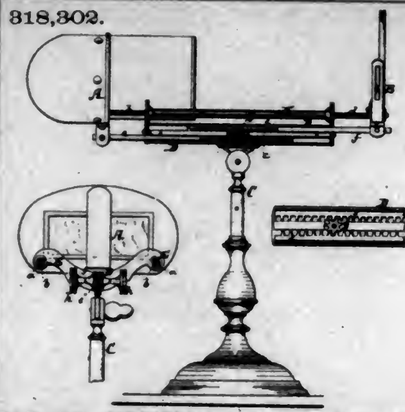


Claim.—The improved lining or flue for chimneys, consisting of the main body A, having an opening, B, at its lower front sides, the base C, placed below the said body and extended outward therefrom on all sides and adapted to support the wall of the chimney around the flue, the wall-support or arched plate D, placed against the outer side of the body and over the opening B, and provided with a drawer-opening coincident with the said opening B, and a soot-drawer having its outer end extended outward under and approximately flush with the outer edge of the arched plate, and having in its outer end a separate compartment, E', which, together with the arched plate D, forms a dead-air space, substantially as and for the purposes set forth.

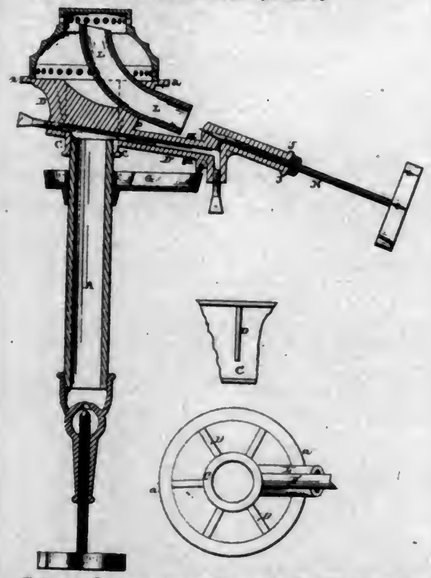
318,302. STEREOSCOPE. GUSTAV SCHWEX, Jersey City, N. J., assignor to Lewis, Pattberg & Brothers, New York, N. Y. Filed Dec. 6, 1884. (No model.)

Claim.—The combination of the stand C, frame E, and hollow bar D with the pinion *g*, toothed rods *e f*, lens-holder A, object-holder B, and rods *b d*, substantially as described.

318,302.



318,303. VAPOR-BURNER. PAUL SCHNEIDER and HENRY TRENKAMP, Cleveland, Ohio. Filed Feb. 27, 1884. (No model.)

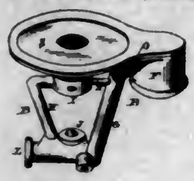


Claim.—1. In a vapor-burner, the combination of the stand-pipe A, the burner applied directly to its top, the inclined pipe D', projecting directly from the side of the burner and supporting the needle-valve and its barrel upon its outer end, the inclined needle-valve N, and the inclined induction-tube L, having its upper end curved and cut off at an angle, so as to prevent the delivery of a greater amount of gas upon one side of the mixing-chamber than upon the other, substantially as shown.

2. The combination of the stand-pipe A, the base or socket fitting directly upon the upper end thereof, and provided with the heating-ribs D and the flat base *a*, and the perforated burner-cap supported by said base, substantially as described.

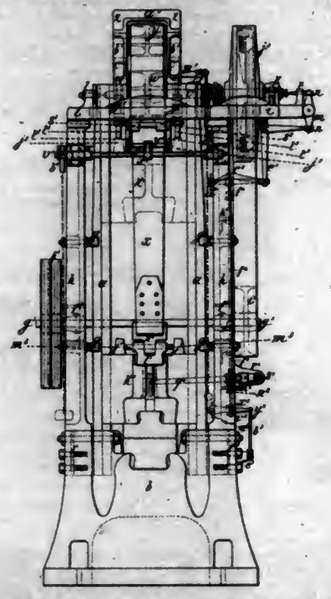
3. In a vapor-burner, an induction-tube, L, having its upper end cut away, as shown, so as to prevent a greater delivery of gas upon one side of the chamber than upon the other, substantially as specified.

318,304. VAPOR-BURNER. PAUL SCHNEIDER and HENRY TRENKAMP, Cleveland, Ohio. Filed Feb. 27, 1884. (No model.)



Claim.—In a vapor-burner, the casting B, consisting of the cap F, plate S, for supporting the burner, webs O, supply-tube G, supports H, ring I, needle-barrel and bearings J L, all made in a single piece, substantially as shown and described.

318,305. DROP-HAMMER. GABRIEL N. SCHOENHERR, Boulogne, France. Filed Aug. 2, 1884. (No model.)



Claim.—1. The guide-bars *a a*, combined with the base *b*, leather packing-strips, and metal packing-strips *d*, substantially as herein shown and described.

2. The combination of the guide-bars *a a* with the base *b*, leather packing-strips, metal packing-strips *d*, filling-block *e*, cover *f*, cap *c*, steadying-pieces *g*, and standards *h*, substantially as herein shown and described.

3. The combination of the rod b^2 with the crank-shaft *v'*, hooks *l' l'*, monkey *k'*, having pins m^2 and with the cushioned rods *l'*, substantially as herein shown and described.

4. The monkey *k'*, provided with the upwardly-extending bosses *j'*, and with the horizontally-projecting adjustable tappet i^3, substantially as herein shown and described.

5. The combination of the monkey *k'* with the separable block l^3, pin m^3, and link n^3, the pin m^3 projecting beyond said block l^3, substantially as and for the purpose herein shown and described.

6. The combination of the monkey *k'* with the tappet i^3, lever q^3, rod f^3, toggle c^3, levers e^3 and *m*, and clutch mechanism, as described, all arranged to set the clutch when the tappet i^3 strikes the lever q^3, as specified.

7. The combination of the vertically-movable rod f^3 and its bolt g^3 with the bolt *r'*, crank-pin *o'*, lever *m'*, and sliding spring-rod *l'*, substantially as and for the purpose specified.

8. The combination of the guide-pulley *y* with the bearings *d'*, disk *e'*, springs on said disk, slotted frame *z a'*, plate *i*, and with the clutch mechanism shaft *v*, and wheel *w*, carried by said plate *i*, as specified.

9. In a power-hammer, the combination of a reciprocating monkey with cushioned and adjustable guides, substantially as herein shown and described.

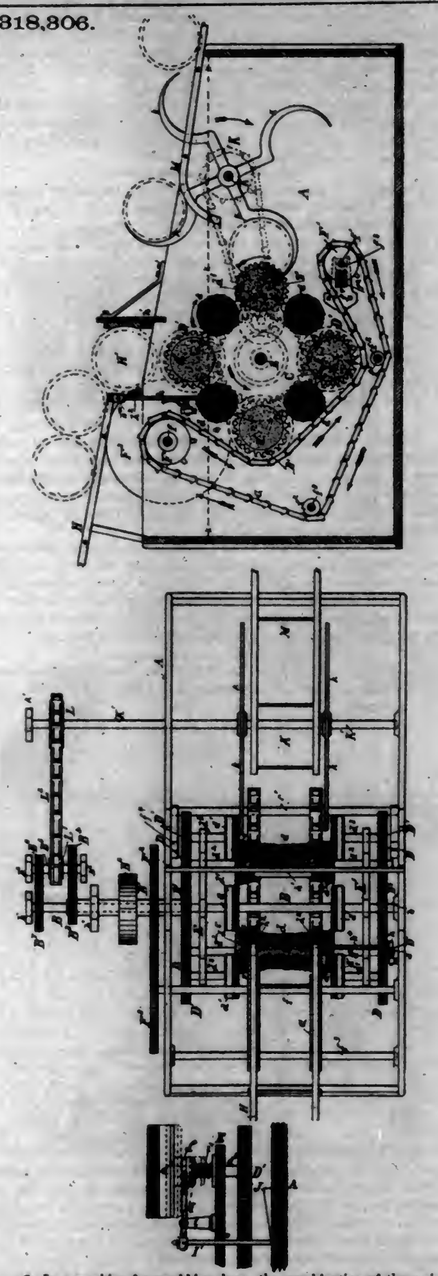
10. In a power-hammer, the combination of a reciprocating monkey with cushioned and adjustable guides and with adjustable standards, substantially as herein shown and described.

11. In combination with the reciprocating monkey, the cushioned guides, and top springs that are compressed when the monkey is elevated, as specified.

318,306. BEER-KEG WASHER. ADAM SCHULTZ, Cincinnati, Ohio. Filed Mar. 13, 1884. (No model.)

Claim.—1. In a machine for scrubbing kegs, the combination of a series of horizontal revolving brushes and a series of revolving vertical brushes, with devices, substantially as shown, for delivering the kegs to the revolving scrubbing-brushes and removing the cleaned keg from said brushes, and a water-tight tank, A, substantially as described.

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2. In a machine for scrubbing kegs, the combination of the series of horizontal revolving brushes *d*, the series of revolving vertical brushes *d'*, and the housings E E', with devices, substantially as shown, for the delivery of the keg to the brushes and removing the cleaned keg from the brushes, substantially as described.

3. In a machine for scrubbing kegs, the combination of a feed mechanism consisting of the swinging lever *h*, detents h^3, and abutments *h'*, with the horizontal revolving brushes and the vertical revolving brushes, arranged, substantially as shown, to receive the kegs from the said feed mechanism, substantially as described.

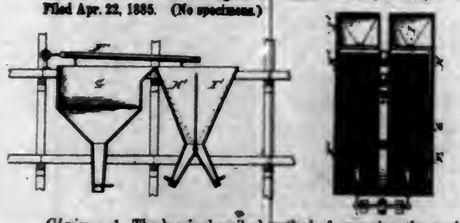
4. In a machine for scrubbing kegs, the combination, with housings E E', horizontal brushes *d d*, and rings d^6, of the endless chain G and sprocket-wheels F F', substantially as described.

5. In a machine for scrubbing kegs, the combination of the keg-discharging mechanism consisting of the revolving lifter *k*, having hooked arms *k k*, and the inclined track M, with the revolving brushes adapted to scrub the kegs and the conveyer for delivering the kegs to the discharging mechanism, substantially as described.

6. In a machine for scrubbing kegs, the combination, with the horizontal revolving brushes and the keg-feeding mechanism, of the vertical brushes *d'*, shipper-bar I, fulcrum *i*, spindle I', inclined planes J J', and spring *i'*, substantially as described.

318,307. METHOD OF PREPARING AND TREATING STARCH.

JOHN C. SCHUMAN, Akron, assignor to William T. Jebb, Buffalo, N. Y. Filed Apr. 22, 1885. (No specimens.)

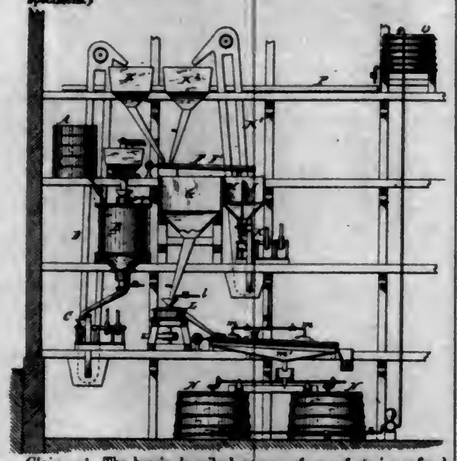


Claim.—1. The herein-described method of preparing the mash, which consists in steeping the corn, then detaching the hulls and germs from the starchy portions of the kernels by whipping or beating without additional water, then separating the hulls and germs from the starch-meal by sifting, and then mashing the starch-meal under the pressure of the atmosphere, substantially as set forth.

2. The herein-described method of preparing the mash, which consists in steeping the corn, then detaching the hulls and germs from the starchy portions of the kernels by whipping or beating without additional water, then separating the hulls and germs from the starch-meal by sifting, then reducing the starch-meal to a liquid by mixing it with water, and then mashing the starch-liquid, substantially as set forth.

318,308. MANUFACTURE OF STARCH.

JOHN C. SCHUMAN, Akron, assignor to William T. Jebb, Buffalo, N. Y. Filed Apr. 22, 1885. (No specimens.)



Claim.—1. The herein-described process of manufacturing refined starch from Indian corn, which consists in steeping the corn, then detaching the hulls and germs from the starchy portions of the kernels by whipping or beating without additional water, then separating the hulls and germs from the crude starch by sifting, and then refining the separated crude starch, substantially as set forth.

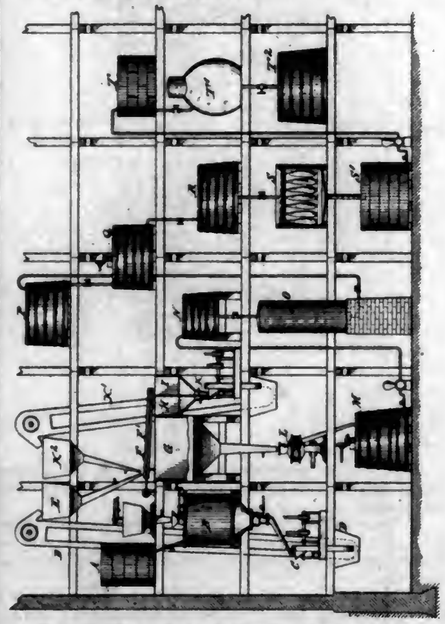
2. The herein-described process of manufacturing refined starch from Indian corn, which consists in steeping the corn, then detaching the hulls and germs from the starchy portions of the kernels by whipping or beating without additional water, then separating the hulls and germs from the crude starch by sifting, then grinding the separated crude starch with water, and then refining the ground starch, substantially as set forth.

3. The herein-described process of manufacturing refined starch from Indian corn, which consists in steeping the corn, then detaching the hulls and germs from the starchy portions of the kernels by whipping or beating without additional water, then separating the hulls and germs from the crude starch by sifting, then grinding the separated crude starch with water, then separating the remaining fibrous matter or offal from the starch by sifting, then treating the separated starch with caustic alkali, and depositing the starch, substantially as set forth.

4. The herein-described process of manufacturing refined starch from Indian corn, which consists in steeping the corn, then detaching the hulls and germs from the starchy portions of the kernels by whipping or beating without additional water, then separating the hulls and germs from the crude starch by sifting, then grinding the separated crude starch with water, then separating the remaining fibrous matter or offal from the starch by sifting, then treating the separated starch with caustic alkali, and then removing the remaining traces of impurities by repeatedly depositing and washing the starch, substantially as set forth.

318,309. MANUFACTURE OF GRAPE-SUGAR AND GLUCOSE.

JOHN C. SCHUMAN, Akron, assignor to William T. Jebb, Buffalo, N. Y. Filed April 22, 1885. (No specimens.)

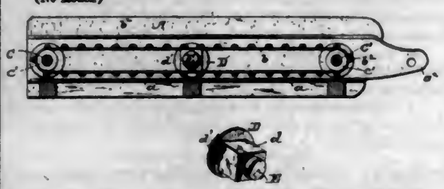


Claim.—1. The herein-described process of manufacturing grape-sugar or glucose from Indian corn or maize, which consists in steeping the corn, then detaching the hulls and germs from the starchy portions of the kernels by whipping or beating without additional water, then separating the hulls and germs from the crude starch by sifting, and then converting the separated crude starch into grape-sugar or glucose, substantially as set forth.

2. The herein-described process of manufacturing grape-sugar or glucose from Indian corn or maize, which consists in steeping the corn, then detaching the hulls and germs from the starchy portions of the kernels by whipping or beating without additional water, then separating the hulls and germs from the crude starch by sifting, then acidulating the crude starch and converting it into grape-sugar or glucose under pressure, substantially as set forth.

318,310. RATTLE-RAKE FOR THRASHING-MACHINES.

WILLIAM SCHWARTZ and JOHN SCHWARTZ, Lake Prairie, Miss. Filed Jan. 26, 1885. (No model.)



Claim.—The combination, with the trough A and an endless slatted carrier, of the angular rotary tappets having guide-flanges for the carrier on their outer ends, and the headed journal-studs E, rigidly secured to the cheeks of the said trough, substantially as and for the purposes described.

318,311. SEED-PLANTER.

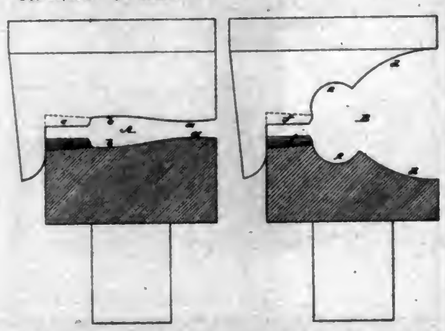
ARTHUR E. SCOTT, Long Grove, Tex. Filed Jan. 27, 1885. (No model.)



Claim.—In a seed-planter, the combination of the seed wheel or disk having a series of seed cups or recesses in its periphery with a band or tire fitting upon the periphery of the disk having slots registering with the recesses and provided at one end of each slot with an inwardly-bent tongue forming an adjustable wall for each recess, as and for the purpose shown and set forth.

318,312. DIE FOR MAKING HATCHETS.

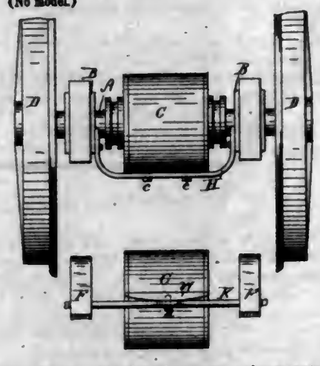
GEORGE SELSOR, Philadelphia, Pa., assignor to the Germantown Tool Works, same place. Filed Feb. 24, 1885. (No model.)



Claim.—The dies A B, having working-faces consisting of the parts *a b c* and *d e f*, conforming to the contour of the sides and top and bottom portions of a hatchet, substantially as described.

318,313. LOCOMOTIVE-ENGINE.

WILLIAM C. SHEARER, Atlanta, Ga., assignor of one-half to Asa L. Harris, same place. Filed July 17, 1883. (No model.)



Claim.—1. The combination of a rotary engine mounted upon the driving-axle of a locomotive, with a lug on the forward part of the engine-cylinder, and a bar upon which the lug rests, said bar being supported by the engine-frame and free to oscillate or slide in its bearings, substantially as shown and described.

2. The combination of a rotary engine mounted upon the driving-axle of a locomotive, with a lug on the forward part of the engine-cylinder, provided with a curved face, a bar upon which the lug rests, and the engine-frame, substantially as shown and described.

3. The combination of a rotary engine mounted upon the driving-axle of a locomotive, with a brace supporting the engine made fast to the axle-boxes, and a compensating support for any movement of the engine at the forward end, substantially as shown and described.

4. The combination of a rotary engine mounted upon the driving-axle of a locomotive, with a brace for supporting the engine, the bolt-holes of the said brace being elongated, the axle-boxes, the lug on the forward part of the engine-cylinder, the supporting-bar, and its bearings, substantially as shown and described.

318,314. PULLEY-BLOCK.

MERRILL R. SKINNER, Hamburg, N. Y. Filed Mar. 5, 1885. (No model.)



Claim.—1. The combination, with a pulley-block, of a chain-catch secured to the casing of the block, and a changeable support, whereby the position of the block can be changed to place the catch in an operative or inoperative position at desire, substantially as set forth.

2. The combination, with the pulley-casing, of a supporting-loop, B, provided with two bearings, *b' b²*, substantially as set forth.

3. The combination, with the pulley-casing provided with depending rear portions, *a'*, of a catch, E, attached to said rear portions, and a loop, B, provided with two bearings, *b' b²*, substantially as set forth.

4. The combination, with the pulley-casing, of a chain-catch composed of a cross-piece, E, provided with jaws *e e*, having notches *f* on their under sides, substantially as set forth.

5. The combination, with the casing of a pulley-block and its pulley or sheave, of a chain-catch adjustably secured to the casing, substantially as set forth.

318,315. REVOLVING FIRE-ARM.

DEXTER SMITH, Springfield, Mass. Filed Mar. 23, 1885. (No model.)



Claim.—1. In a revolving fire-arm, the combination, with the barrel and frame joint thereof, of an extractor-disk located in said joint having an arm thereon extending to the extractor-stem and two curved slots therein, a transversely-moving spring-actuated pawl located in the joint part of the frame, having a post thereon extending through the latter, and an arm thereon engaging with slots in said disk, and an inclined part engaging with the end of a curved slot in one of the joint parts of the barrel, substantially as set forth.

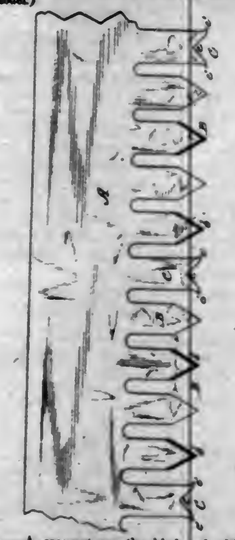
2. In a revolving fire-arm, the combination, with the extractor-stem and the joint parts *c c'* of the barrel, said part *c* having a curved slot therein, of the disk *e*, having the slots *e e'* and the arm *z* thereon, the spring-actuated pawl *n*, having the arm 5 and the incline 3, and the part A of the frame, having the cheek-piece *a* thereon perforated and grooved to receive said pawl, substantially as set forth.

3. In combination, the frame part A, having the cheek-pieces *a a'*, the pawl *n*, located in said cheek-piece *a*, spring *m*, the disk *v*, located between the joint parts *c c'*, and provided with the arm *z*, and having the slots *e e'* therein, in which said pawl engages, and the joint parts *c c'* of the barrel, said part *c* having a curved slot therein, substantially as set forth.

4. The combination, with the frame and barrel joint parts of a revolving fire-arm and with the extractor-stem thereof, of a disk, substantially as described, hung to reciprocally rotate on the joint-pin, and having an arm thereon engaging with said extractor-stem, and a pawl, substantially as described, having a movement bodily in the frame of the arm in a line with the joint-pin and capable, by means substantially as described, of automatic engagement with and disengagement from said disk, substantially as set forth.

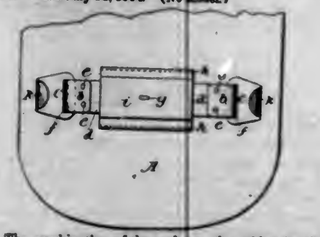
5. In combination with the frame and barrel joint parts of a revolving fire-arm, the extractor-stem o, the disk v, having the slots s s' therein, and the arm z, and the pawl x, engaging with the slots in said disk, said pawl having the post 4 thereon, passing transversely through the frame part A near said joint parts, and capable of being acted upon from the outside of said frame part independent of the movement of the joint parts, substantially as set forth.

318,316. SAW. ISAAC M. SMITH, Palmyra, Ind. Filed Mar. 6, 1885. (No model.)



Claim.—A crosscut-saw the blade of which is provided with a series of lancet-shaped teeth having beveled cutting-edges and set alternately in opposite directions, in combination with straight-sided teeth made slightly shorter than the said lancet-shaped teeth and having their lower extremities formed into two hooks which have their points in opposite directions, said straight-sided teeth alternating between each series of the lancet-shaped teeth, substantially as described and shown, and for the purpose set forth.

318,317. SWEAT AND CHAFE PAD FASTENING. JOHN A. SMITH, Turner, Me. Filed July 31, 1884. (No model.)



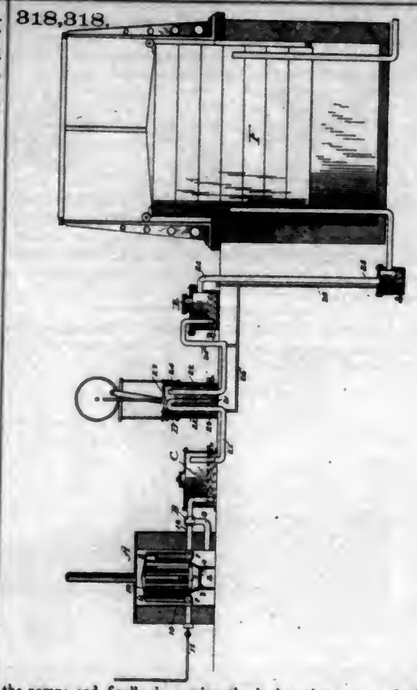
Claim.—The combination of the pad e a, the rubber band d d, the leather sheath i, and metallic or rubber clasps c c, as and for the purpose set forth.

318,318. PROCESS OF MANUFACTURING GAS. ROBERT B. STAPP, Denver, Colo., assignor, by mesne assignments, to the United States Carbonous Oxide Illuminating Gas Company, same place. Filed Apr. 11, 1885. (No model.)

Claim.—1. The method hereinbefore described of operating the described apparatus, consisting in, first, generating carbonic-oxide gas and passing the same to the reservoir, heating the retorts by the same operation; then shutting off the carbonic-oxide gas and admitting hydrocarbon oil to the retorts, generating therefrom a gas; and, finally, mixing the same with the carbonic-oxide gas, all substantially as described.

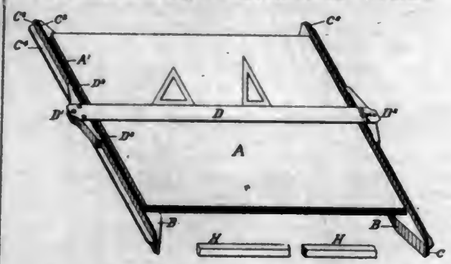
2. The method hereinbefore described of operating the described apparatus, consisting in first opening the pipes leading from the lower chamber and supplying air to the fuel for the combustion, and in operating the pump to draw the carbonic-oxide gas and force it to the receiver; secondly, in allowing the pump to remain at rest to act as a washer, admitting the hydrocarbon oil to the retorts while the carbonic-oxide gas is shut off and the passage is open between the retorts and

318,318.



the pump; and, finally, in passing the hydrocarbon gas to the holder and mixing it with the carbonic oxide, substantially as described.

318,319. DRAWING-BOARD AND DRAFTING APPLIANCE. WALTER G. STEWART, Reading, Pa. Filed Mar. 16, 1885. (No model.)



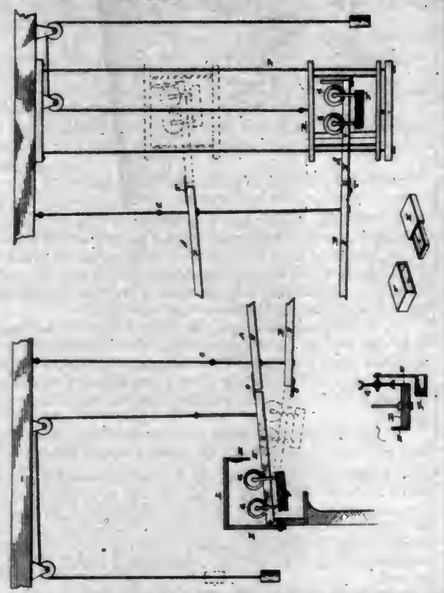
Claim.—1. As an improvement in the construction of drawing-boards, the suitable attachment to the beveled ends thereof of battens B, extending upon either side beyond the width of the same, and provided with metallic T-guides C, said battens so placed as to leave a suitable space between the ends of said boards and the inner face of the projected arm of the T-guide for the reception of a wedge sectional piece, H, substantially as and for the purpose set forth.

2. The blade D, provided with a fixed head, D', and a movably-adjustable head, D^2, having a recess therein containing a case, E, anti-friction roller E', spring-pocket E^2 and spring F, the heads D' D^2, having feet D^3, and the blade D, slightly carved away from the board at the center of its length, whereby it may be moved over the paper without soiling the same, substantially as and for the purpose shown and declared.

3. The combination of a drawing-board and a ruling-blade having, essentially, the following elements: a board with beveled ends A', and battens B, secured to each end thereof, said battens provided with metallic T-guides having one arm of the T projected above the attaching-face of the batten, and extending beyond the width of the board on one or both sides of the same, in combination with the paper-securing wedges H, and the blade D, having a fixed head, D', and adjustable head D^2, the latter provided with an anti-friction roller, E', retained in place against the outer face of the projected T-guide at its end of the board, and movably holding the fixed head D' against its guide upon the opposite end thereof, whereby the blade may be moved over the board

from either head of the same or by the blade alone, substantially as and for the purpose set forth.

318,320. CASH-CARRIER. ANSEL STRICKLAND, Cumming, Ga. Filed Mar. 31, 1885. (No model.)

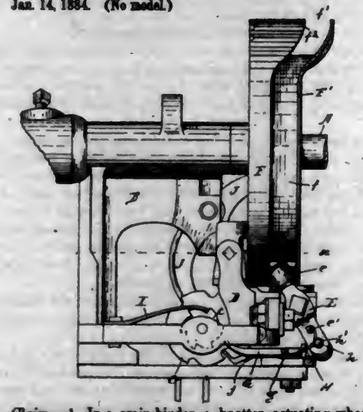


Claim.—1. In a cash-carrying system, in combination with fixed tracks, a pivoted section at one end moving vertically and carrying the cars or conveyers from one track to the other, substantially as and for the purpose specified.

2. In a cash-carrying system, in combination with fixed inclined tracks, a pivoted section at one end moving from one track to the other, and an elevator at the other end carrying a tilting section and moving from one track to the other, substantially as and for the purpose specified.

3. In combination with inclined fixed tracks having a vertically-moving pivoted section at one end and a tilting section at the other end, a car consisting of a box or receptacle hung from wheels arranged on a line one with the other, substantially as and for the purpose specified.

318,321. GRAIN-BINDER. DANIEL STRONG, Minneapolis, Minn., assignor of two-thirds to Minneapolis Harvester Works, same place. Filed Jan. 14, 1884. (No model.)



Claim.—1. In a grain-binder, a knotter-actuating wheel provided with a cam-groove on its inner side and a cam-track on its periphery, in combination with a stripper constructed and arranged to be operated by the first-named cam-groove, and the actuating mechanism of the cord-holder, constructed and arranged to be operated positively in both directions by the peripheral cam-track, substantially as and for the purposes set forth.

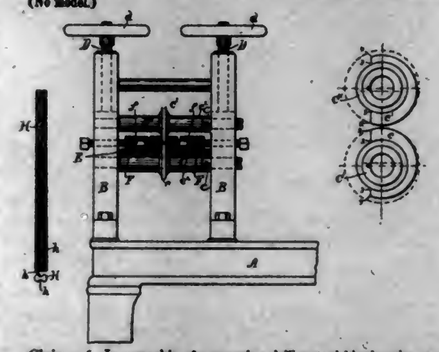
2. In a grain-binder, an actuating-cam, in combination with a cord-holder mechanism and cord-tucker, and intermediate mechanism whereby both are adapted and arranged to be operated by the said single actuating-cam, substantially as and for the purposes set forth.

3. The wheel F, provided with a cam-groove, *f*, in combination with the cord-holder, the lever E, the pawl G, and the cord-tucker K, provided with the crank-arm *k'*, all arranged and operating substantially as and for the purposes set forth.

4. The wheel F, provided with a cam-groove on its inner side and a cam-groove on its periphery, in combination with the stripper constructed and arranged to be operated by the first-mentioned cam-groove, the actuating mechanisms of the cord-holder, and the cord-tucker, both constructed and arranged to be operated by the cam-groove on the periphery of the said wheel, substantially as and for the purposes set forth.

5. The wheel F, provided with a cam rim or flange arranged on its periphery, in combination with the bent plate E, fastened to the outer side of the wheel, the pawl-lever E, which actuates the cord-holder, and the cord-tucker K, all constructed and arranged to operate substantially as and for the purposes set forth.

318,322. MACHINE FOR MAKING DRILL-BLANKS. WALTER E. TAFT, Providence, R. I., assignor, by direct and mesne assignments, to the Taft Twist-Drill and Tool Company, same place. Filed Mar. 3, 1884. (No model.)



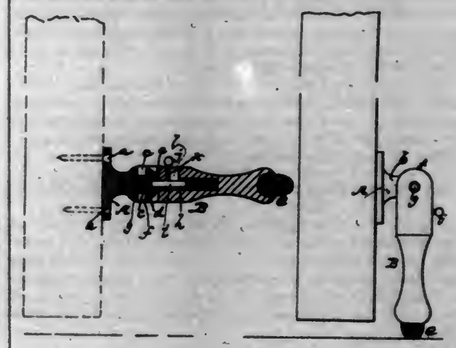
Claim.—1. In a machine for grooving drill or tool blanks, the combination, with a pair of rolls having each a flange of unequal radius, of a former constructed to hold the blank and form the sides of the tool, and also to receive the roll-flanges for forming the grooves, substantially as described.

2. The combination, with a former and a pair of rolls having flanges of decreasing depth, of a pair of sliding blocks arranged to hold the former and to allow it to move during the operation of grooving, substantially as described.

3. The combination, with the frames B B, the screws D, and the adjustable roll C', having the flange *c'*, of the fixed roll C, having the flange *c*, the shelf E, having the central aperture, the guide-blocks F, having disks *f*, and the screws *f'*, all constructed and arranged substantially as described.

4. The combination, with the frames B B, carrying the shelf E, and the operating-screws D, of the rolls C C', carrying the flanges *c c'*, the sleeves c^2, the slides F, with their adjusting-screws and disks *f*, and the former G, all constructed and arranged substantially as and for the purposes specified.

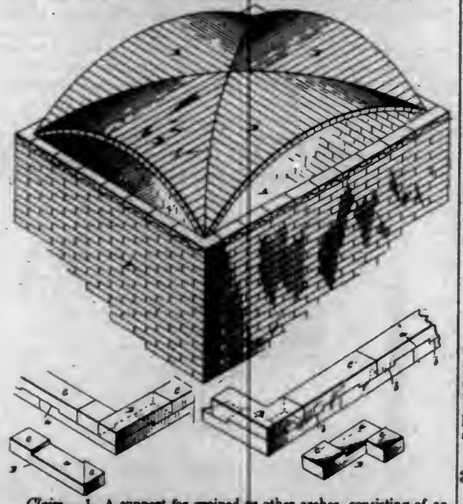
318,323. DOOR-CHECK. WILLIAM H. THIESEL, Detroit, Mich. Filed Sept. 24, 1884. (No model.)



Claim.—1. The combination, in a door-stop, of two arms jointed together, one of which is adapted to be secured to a door with a spring-latch for engaging one of the arms with and disengaging it from the other arm, substantially as and for the purposes described.

2. The combination, with a stationary arm adapted to be secured upon a door, of a movable arm pivotally connected therewith, a spring-latch located within said movable arm and adapted to be engaged with and disengaged from the outer end and under face of said stationary arm, substantially as described.

318,324. WALL FOR THE SUPPORT OF ARCHES AND BRICKS FOR THE CONSTRUCTION OF THE SAME. ELAM TERRELL and WILLIAM H. PEEK, Columbus, Ohio. Filed Mar. 9, 1885. (No model.)



Claim.—1. A support for groined or other arches, consisting of an ordinary masonry wall, in which are built courses of interlocking bricks or blocks, substantially such as shown and described, to support the thrust of the arches, as set forth.

2. A wall for the support of groined arches, having embedded therein courses of interlocking bricks or blocks, the corners of said walls being also bound together by interlocking bricks or blocks, substantially such as described, whereby the thrusts of the groins compensate each other, as set forth.

3. A brick for joining the corners of the walls, provided with square or mitered projections c and central depressions, *a*, in combination with runner or stretcher bricks having end projections and central depressions, as set forth.

318,325. STOPPER. ADELBERT R. THAYER, Cheboygan, Mich. Filed Aug. 23, 1884. (No model.)



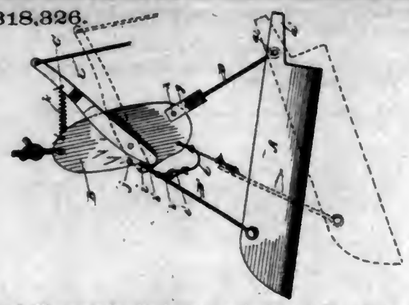
Claim.—1. A stopper provided with one or more kerfs extending from the bottom toward the top, leaving an external flexible shell, interior core, and solid top, said shell tapered toward the lower end, the construction being such that the stopper is greater in diameter at the top than at the bottom, substantially as described.

2. A stopper provided with one or more kerfs extending from the bottom toward the top, leaving an external flexible shell, an interior core, and a solid top, said stopper being compressed at its bottom end to more or less close the lower end of the kerf, substantially as shown and described, for the purposes set forth.

318,326. EXCAVATOR. RICHARD P. THOMAS, Camden, Ind. Filed Feb. 24, 1885. (No model.)

Claim.—1. The appliances for elevating and dumping purposes, comprising a suspending-bar having a projection or hook on its forward edge and a dumping or tilting lever with its forward end disposed alongside of said projection or hook, in combination with a receptacle suspended from said bar and with its suspending medium adapted to connect with the projection or hook of said bar, substantially as and for the purpose set forth.

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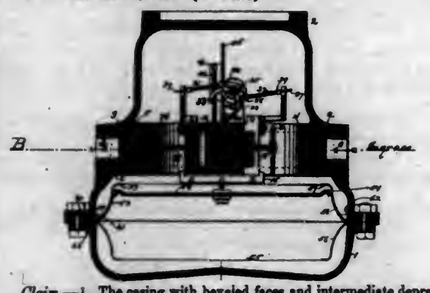


2. The suspending-bar having a projection or hook and a dumping or tilting lever with its forward end disposed alongside of said projection or hook, said lever being connected by a spring at one end to said bar, in combination with a receptacle suspended from said bar, the suspending medium being adapted to be connected to the hook or projection of said bar, substantially as and for the purpose set forth.

3. The suspending-bar having the hook or projection and stops at its forward edge and the dumping or tilting lever connected by a spring to the said bar, in combination with a receptacle suspended by bails from said bar, one of said bails having a loop or ring adapted to be held upon the hook or projection of said bar, substantially as and for the purpose specified.

4. The suspending-bar having the hook or projection upon its front edge and a hook at its upper end and the lever with its forward end disposed alongside of the front edge of the hook or projection and connected at one end by a spring to said bar, said lever also having an operating-cord, in combination with the scoop suspended by bails from said bar, the forward bail being connected by a chain and link to said bar and having a ring or loop adapted to be held upon forward edge projection or hook of the said bar, substantially as and for the purpose set forth.

318,327. DIAPHRAGM FLUID-METER. JOHN THOMSON, Brooklyn, N. Y. Filed Jan. 31, 1885. (No model.)



Claim.—1. The casing with beveled faces and intermediate depressions, and the sluice-ring with corresponding faces and intermediate depressions, the said depressions, when the ring is in position, equally and jointly constituting a series of water sluices or channels, substantially as described.

2. The casing having inlet and outlet ports, and partitions 7, and channels *y z*, in combination with a detachable sluice-ring carrying partitions 8, and a detachable valve-casing provided with a valve and channels, and fitting between the partitions 8, substantially as described.

3. The cap-piece 2, having upper and lower bearing surfaces and faces or partitions, 5 6, at an obtuse angle connecting the said surfaces, and thereby forming intermediate depressions, and the sluice-ring having corresponding bearing-surfaces and partitions at a like obtuse angle, and intermediate depressions, substantially as described.

4. The sluice-ring having faces at an obtuse angle, and detachable valve-casing fitting between said faces, and with bearings corresponding thereto, substantially as described.

5. The combination of the casing having opposite inlet and outlet passages, *a b*, and channels *y z*, and partitions 8 8, substantially as described, and a detachable valve-casing carrying a valve, and provided with a central channel, 22, and side channels, 24, substantially as specified.

6. The valve sliding across a casing having a central and side channels and consisting of a rectangular frame, substantially as described.

7. The valve-casing provided with central and side channels and with side ports, 19 21, and transverse valve-seat, in combination with a frame-valve and valve-actuating piston-rod, substantially as described.

8. The valve-casing having central and side channels and lateral ports, in combination with a frame-valve the ends of which are less in thickness than the width of the side channels, for the purpose specified.

9. The combination, with the valve of a water-meter, of plates supported thereby, arranged to counterbalance the effect of water-currents upon the ends of the valve, substantially as described.

10. The combination of the casing, ports, channels, piston, and valve crossing and controlling the ports and provided with arms carrying plates 29 30, for the purpose set forth.

11. The valve supported by a narrow longitudinal bearing, substantially as described.

12. The valve-casing in two parts, with an intermediate valve supported by a narrow strip clamped between said parts, substantially as described.

13. The combination, with a sliding valve, of a rock-shaft provided with arms operating on the valve, and with arms connected to rods on opposite sides, extended through vibrating bearings, and with springs arranged on the said rods to be compressed as the connecting-points of the rods approach a line drawn through the axis of the shaft and said vibrating bearings, the said springs acting against each other, and thereby balancing their thrust upon the rock-shaft, substantially as described.

14. The combination of the sliding valve, rock-shaft 36, its arm 35, rods connected to said arm on opposite sides and sliding in bearings of vibrating brackets 93, and springs interposed between the brackets and bearings on the rods, substantially as described, the arrangement and construction being such that the valve is positively started by the direct action of the piston before the springs are carried beyond their dead-center, substantially as described.

15. The combination of the sliding valve, diaphragm, rock-shaft carrying arms arranged to make contact with said valve, an arm on the rock-shaft connected to rods sliding in stationary bearings at the outer ends, springs around said rods, and connections between the piston and rock-shaft, substantially as described.

16. The combination of the piston, piston-rod, grazed rack connected with the rod, rock-shaft, and toothed pinion thereon gearing with the rack, and the spring or springs directly connected to the said toothed pinion, substantially as described.

17. The diaphragm and piston, combined with pressure-cones detachable from the case, arranged above and below the same and curved inward, substantially as and for the purpose set forth.

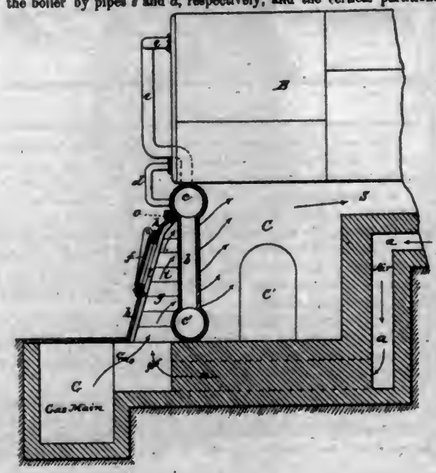
18. The cones combined with the flexible diaphragm and provided with upturned flanges adapted to a recess in the casing, substantially as described.

19. The cones with inturned flanges at their inner edges and combined with the flexible diaphragm, as and for the purpose set forth.

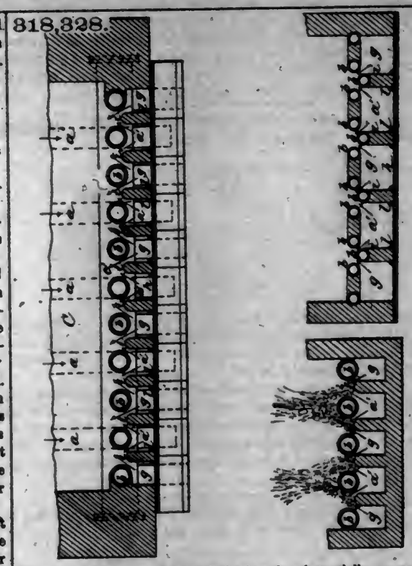
318,328. FURNACE FOR BURNING GASEOUS FUEL. EDWARD A. UEHLING, Bethlehem, Pa. Filed July 12, 1884. (No model.)

Claim.—1. In a furnace adapted for burning gaseous fuel, a burner composed of a series of vertical and horizontally-arranged pipes, through which is maintained a circulation of water, and a series of partitions interposed between said vertical pipes, combined with suitable inlets for supplying a volume of gas and air to the burner, substantially as described, for the purpose specified.

2. In a furnace adapted for burning gaseous fuel, the combination, with the boilers B, of the horizontally-arranged pipes c and *c'* and vertical pipes *b*, the said pipe c connected with the steam and water spaces of the boiler by pipes *e* and *d*, respectively, and the vertical partitions



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i, arranged between the vertical pipes *b*, substantially as and for the purpose described.

3. In a furnace adapted for burning gaseous fuel, in combination with the horizontal pipe *c*, formed with the lug o along its front, the inclosing-plate *h*, formed with doors *f*, and lugs *l*, combined with the pipe *c'*, vertical pipes *b*, and fire-brick partitions *i*, substantially as and for the purpose described.

4. In a furnace having the absorption-chamber S and combustion-chamber C, the air-main A, formed at the rear of the furnace beneath the absorption-chamber, the series of narrow passages *a*, passing beneath the absorption and combustion chambers, and the gas-main G at the front of the furnace, having series of narrow inlets *g*, combined with a burner composed of a series of horizontal and vertically-arranged water-pipes, and fire-brick divisions or partitions, substantially as and for the purpose described.

5. A burner for furnaces adapted for burning gaseous fuel, composed of a horizontally-arranged pipe, a series of pipes connecting the horizontal pipe, and a series of divisions or abutments interposed between said vertical pipes to form narrow openings between the abutment ends and vertical pipes, substantially as and for the purpose described.

6. A burner for furnaces adapted for burning gaseous fuel, composed of a series of vertically-arranged pipes or deflectors, a series of abutments arranged to project between said vertical pipes or deflectors, a series of spaces formed between the vertical abutments or partitions, and a series of air-inlets communicating with the spaces between the abutments or partitions, combined with a gas-main at the front of the furnace communicating with every alternate flue-space, and an air-main beneath the rear of the absorption-chamber of the furnace, also communicating with every alternate flue-space, substantially as and for the purpose described.

7. The combination, with a combustion-chamber, of a series of separate burner-entrances for gaseous fuel, formed by and between water-protected pipes and abutments relatively arranged to direct streams of flame, gas, and air over and around their walls under pressure into the combustion-chamber.

8. The combination, with the main G, containing gas under pressure, of a system of water-protected pipes and wall-abutments arranged to form burner-orifices over and around said pipes, communicating with said main, and independent air-supplying inlets communicating with said burner-orifices over and around said pipes.

9. The combination, with a system of separated water-protected pipes and vertical abutments arranged at the front wall of the combustion-chamber to form burner-orifices over and around said pipes, of front doors, *f*, arranged to give access to the burner-orifices between said vertical abutments.

10. The combination, with a system of water-protected pipes, and wall-abutments arranged to form burner-orifices, and gas and air supplying mains communicating with said burner-orifices, of ignition-chambers *a' g*, arranged between the said burner-orifices and the said supply-mains, whereby the gas and air are caused to commingle in combustion and to pass in flame under pressure through the burner-orifices into the combustion-chamber.

11. The combination, with a furnace combustion-chamber and a system of pipes and abutments constructed and arranged to form burners for gaseous fuel, and one or more steam-boilers, of means for connecting said burner-pipes with the boiler water-space, substantially as described, whereby to afford water-protection to said burner-pipes.

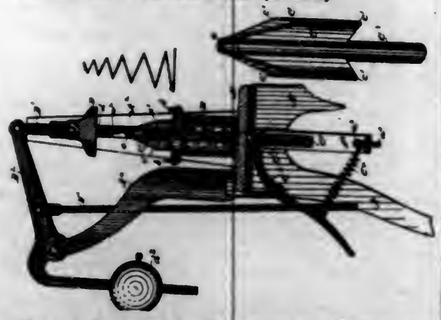
318,329. STEM-WINDING DEVICE FOR WATCHES. HENRY VERT, Chicago, Ill. Filed June 17, 1884. (No model.)



Claim.—1. The combination, in a watch, of the following elements, viz: gearing for winding and setting, a lever for shifting the gearing, an adjustable pendant adapted to operate said lever, and a tube provided with an L-shaped slot, as and for the purpose set forth.

2. The combination, in a watch, of the following elements, viz: gearing for winding and setting, a lever for shifting the gearing, an adjustable pendant adapted to operate said lever, a tube provided with an L-shaped slot, and suitable collars provided with spiral grooves for forcing said tube into contact with the lever, as and for the purpose set forth.

318,330. MACHINE FOR SETTING SPIRAL SPRINGS. ARA O. WALKER, Erie, Pa. Filed Jan. 7, 1885. (No model.)



Claim.—1. In a spring-press, the combination, substantially as set forth, of a press-stand, a mandrel which fits within the coils of the spring and works through the face of the press-stand, and a presser which acts upon the spring and mandrel, substantially as shown.

2. In a spring-press, the combination, substantially as set forth, of a press-stand, a winged mandrel which fits within the coils of the spring and works through slots in the face of the said stand, and a presser which pushes the mandrel out of the spring and flattens the spring upon the face of the presser-stand.

3. In a spring-press, the combination of the press-stand B, having slots b' b' b' b', the mandrel C, having wings c' c' c' c', which move within said slot in the press-stand, and the presser D, with the pin d in its face, said parts operating substantially as and for the purposes mentioned.

4. In a spring-press, the combination of the press-stand B, with openings b' in its face, the mandrel C, with stem C', point c, and wings c' c' c' c', the lever C^2, and spring C^4, for moving said mandrel, the gage-screw a^3, for limiting the movement of said mandrel, the presser D, and the lever D^2, for moving said presser.

318,331. ADJUSTABLE-FACED PLANE. EDWIN WALKER, Erie, Pa. Filed Feb. 6, 1885. (No model.)

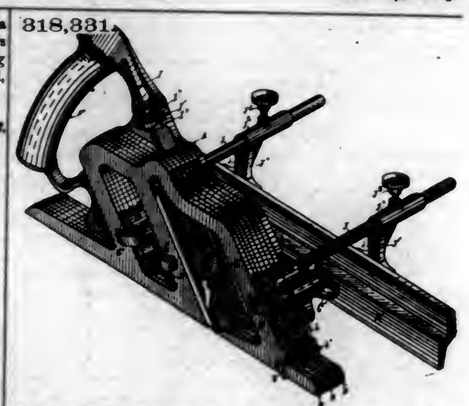
Claim.—1. The combination, in a plane-stock, of a plane-stock frame with series of two or more vertical longitudinal plates which may be adjusted up and down upon said frame and clamped thereto, substantially as and for the purpose set forth.

2. In a plane-stock, the combination of a plane-stock frame provided with guides and clamping mechanism with a series of two or more vertical longitudinal plates the lower edges of which form the face of the plane-stock, said plates being vertically adjustable in said guides on the plane-stock frame, substantially as and for the purpose set forth.

3. The combination, in a plane-stock, of a plane-stock frame and a series of two or more vertical longitudinal plates which may be adjusted upon and clamped to said frame, with removable fence-supporting rods and a fence adapted to be adjusted both vertically and laterally thereon, substantially as and for the purpose set forth.

4. In an adjustable-faced plane-stock, the combination of the plane-

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stock frame A, provided with the slotted lugs I^2 I^2 thereon, with the screw-threaded adjusting-rod I, the thumb-nut I', operating between the lugs I^2 I^2, and the bit H, all operating together substantially as and for the purpose set forth.

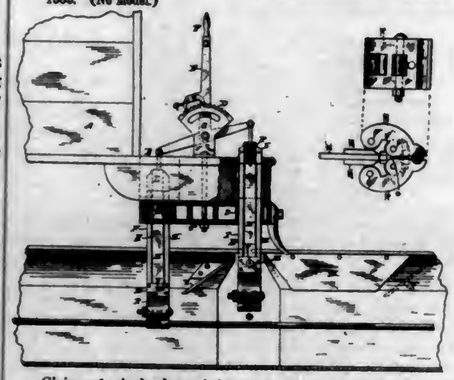
5. In a plane-stock, the combination, with the plane-stock frame A and the vertically-adjustable longitudinal plates B B, of the set-screws a a, substantially as and for the purpose set forth.

6. In combination with a plane-stock consisting of the plane-stock frame A and the vertically-adjustable longitudinal plates B B, the adjustable depth-gage M, substantially as and for the purpose set forth.

7. In combination with a plane-stock consisting of a plane-stock, frame A, and vertically-adjustable longitudinal plates B B, clamped thereto, adjustable cutters b b, substantially as and for the purpose set forth.

8. The combination, in a plane-stock, of a plane-stock frame, A, provided with guides D D D, clamps C C C, the vertically-adjustable longitudinal plates B B, the bit-securing mechanism E G G', bit-adjusting mechanism I I', and bit H, all constructed and operating together substantially as and for the purposes set forth.

318,332. CABLE RAILWAY. GEORGE WARBURTON, Philadelphia, Pa., assignor of one-half to William Webster, same place. Filed Mar. 9, 1885. (No model.)



Claim.—1. A clutch consisting of pivoted jaws with extensions beyond the pivotal points, and a wedge acting by gravity to normally close the said jaws, substantially as and for the purpose specified.

2. A clutch consisting of pivoted jaws with extensions beyond the pivotal point, a spring tending to separate the said jaws, and a wedge normally closing the same, substantially as and for the purpose specified.

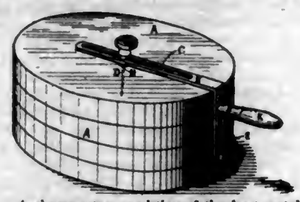
3. The combination of a clutch consisting of pivoted jaws on the lower end of a plate with a plate or plates carrying wedge-plates, and having a play relative to the plate carrying the jaws, substantially as and for the purpose specified.

4. In combination with a main clutch and an auxiliary clutch, a lever for each, said levers having each an arm at an angle to the longer arm thereof, and provided with a pawl engaging with a fixed rack, substantially as and for the purpose specified.

5. The combination, with a vertically-moving main clutch having a projection on one side and a auxiliary clutch or grip having a projection on each side, of an incline placed before a cable-crossing, a decline beyond it, and both on the same side of the cable-way coincident with

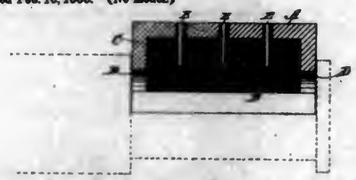
projections on both clutches and grips, and an incline beyond the decline and on the other side of the said cable-way, all combining to operate substantially as and for the purpose specified.

318,333. CHEESE-CUTTER. WILLIAM R. WARDEN, Somerville, assignor to Daniel H. Bishop, Boston, Mass. Filed Jan. 26, 1885. (No model.)



Claim.—A cheese-cutter consisting of the bent metal bar B, the horizontal portion of which is provided with a longitudinal slot, C, provided with a piercing device, D, and the vertical right-angle portion having a longitudinal slot, E, provided with an adjustable knife or cutter, L, adapted to operate substantially as described.

318,334. JOURNAL-BEARING. ALVIN M. WEATHERLY, Selma, Ala. Filed Feb. 10, 1885. (No model.)



Claim.—The combination of a metallic box, A, a series of oil-tubes, E, extending within the box from its exterior, and a composition of asbestus and white lead filling the box between the tubes and shaped on its inner face, substantially as described, to constitute a journal-bearing.

318,335. TOY MOTOR. WILLIAM N. WEEDEN, New Bedford, Mass. Filed Sept. 5, 1884. (Model.)

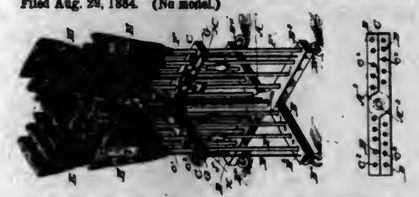


Claim.—1. In a toy motor, in combination with the boiler, the steam-chest, journal-bracket, whistle, throttle-valve box, and whistle-valve box, made in one piece of cast metal, supported upon the boiler, the throttle and whistle valves, the drive-wheel, the shaft thereof journaled in the bracket, and the oscillating cylinder supported from the casting, provided with suitable ports, the piston, and piston-rod, substantially as and for the purpose described.

2. As an improvement in toy motors, in combination with the boiler and the engine, substantially as described, with its valves and whistles supported upon the boiler, the fire-box below the boiler, the door for the box, and the lamp supported from and swinging with the door, substantially as and for the purpose described.

3. The hereinbefore-described toy motor, in which are combined in one organization, substantially as shown and described, the boiler, the fire-box provided with the hinged door, the lamp supported upon and swinging with the door, the combined engine-frame, steam-chest, and whistle supported upon the boiler, the valves and valve-boxes therefor, the pivoted cylinder, the driving-shaft and fly-wheel, and the safety-valve, all combined into one organization as a toy motor, and adapted to operate in the manner substantially as shown and described.

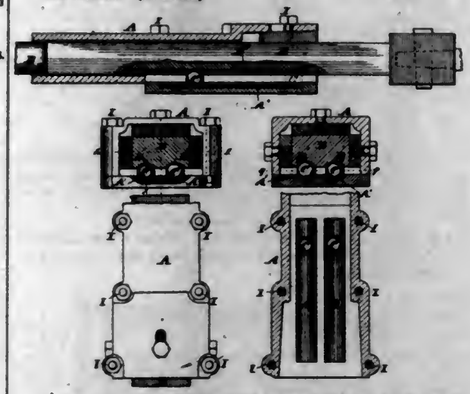
318,336. DISPLAY-RACK. BENNEVELL B. WEIDNER, Reading, Pa. Filed Aug. 29, 1884. (No model.)



Claim.—1. An improved portable display-rack comprising the following elements: a central post, A, with head A', stem A^2, and pin A^3, a lower set of arms, B, semi-perforated at B^3, half-lapped at the center, said center perforated to slide freely over the post A, an upper set of arms, C, similarly half-lapped at the center, said center perforated to slide freely over the stem A^2, arms perforated at C^3 to admit the passage of the handles F of the brooms E, and iron rods D, binding the same together, in combination with the casters B^4 and broom E F, substantially as and for the purpose set forth.

2. A portable display-rack adapted to be opened and folded with the faces of its arms at top and base upon the same plane, supported and combined by a central post, and in combination therewith eyes G and rods H, with heads H', as and for the purpose shown and described.

318,337. MINING-MACHINE. BERNARD YOCH, St. Louis, Mo. Filed Jan. 12, 1885. (No model.)



Claim.—1. In a mining-machine, the combination of the piston-rod, a sleeve or frame through which said piston-rod works, having a removable side piece, and one or more balls or rollers interposed between said rod and the sleeve, substantially as and for the purposes set forth.

2. In a mining-machine, the combination of the piston-rod adapted to carry a pick, a sleeve or frame through which said piston-rod works, having a removable bottom piece, and one or more balls or rollers interposed between the said rod and the bottom piece of the sleeve, substantially as and for the purposes set forth.

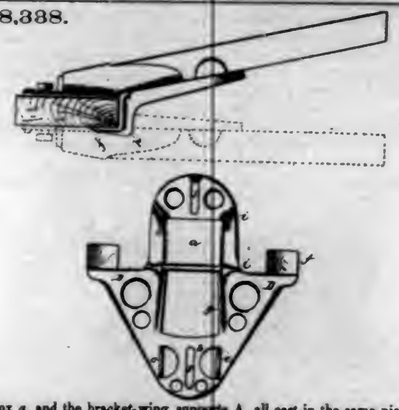
3. In a mining-machine, the combination of a piston-rod having one or more longitudinal grooves in its under side, a sleeve or frame through which said piston works, having a removable side piece, and a groove or grooves in its bottom plate corresponding to those in the piston-rod, and one or more loose balls or rollers placed therein, substantially as and for the purpose set forth.

318,338. SELF-ADJUSTING CLAMPING DEVICE. GEORGE W. ZINGLER, Washington, D. C. Filed Feb. 24, 1885. (No model.)

Claim.—1. As an article of manufacture, a combined clamping device and support consisting of the box, the bearings, and the extended bracket-supports, the latter having upturned stay or tie lugs, as described.

2. A combined clamp and leg-support having the top and bottom bearings, n o, the side or binding lugs, c c, the strengthening-flange g.

318,338.



the box *a*, and the bracket-wing supports A, all cast in the same piece, substantially as described.

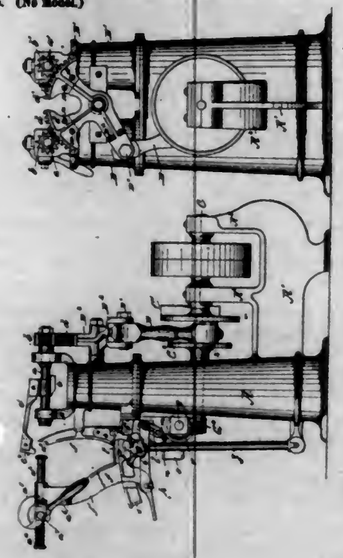
3. The combination of a clamping device having front and back bearings, loop or box *a*, and bracket-wing supports, with the leg C and beam B, substantially as described, whereby the leg secures the beam to the casting, as set forth.

318,339. SUSPENDER-END. J. ARTHUR ADAMSON, Philadelphia, Pa. Filed Sept. 11, 1884. (No model.)



Claim.—A suspender-end composed of a doubled piece of flat braid provided with a transverse aperture, one branch of said end passing through the aperture and extending adjacent to the other branch, as set forth.

318,340. BURNISHING-MACHINE. CHARLES J. ADDY, Malden, assignor to the Tapley Machine Company, Boston, Mass. Filed Mar. 18, 1885. (No model.)



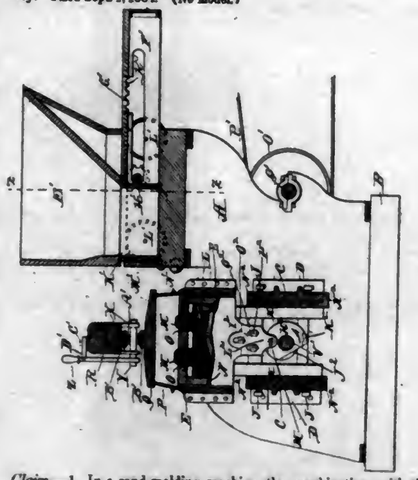
Claim.—1. In a heel-burnishing machine, two or more jacks to hold the boots or shoes the heels of which are to be burnished, and two or more shafts having attached pinions, tool-carrying arms, and burnishing-tools, combined with the series of reciprocating racks to engage and turn the said shafts and cause the burnishing-tools to pass about the rear of the heel from breast to breast, substantially as described.

2. In a heel-burnishing machine, two or more jacks, yokes, or guides for the same, and two or more hooks or links, combined with one shaft having two or more arms, with which the said hooks or links are connected to enable all the jacks to be moved from one shaft, substantially as described.

3. In a heel-burnishing machine, a jack to hold the shoe the heel of which is to be burnished, combined with a yoke or guide and pivoted jack lowering and raising lever, arranged substantially as described and adapted to receive the jack and gradually lower the same as the latter is drawn in toward the burnishing-tool, and while the latter acts successively on the heel from its top-lift end toward the heel-seat, as set forth.

4. In a heel-burnishing machine, the jack and its slide-rod, combined with the lever a^4, having a curved scroll-like finger, the said lever being movable substantially parallel with the side of the jack, substantially as described.

318,341. SAND-MOLDING MACHINE. WILLIAM AIKIN, Louisville, Ky. Filed Sept. 1, 1884. (No model.)



Claim.—1. In a sand-molding machine, the combination, with the flask and frame supporting the flasks, of a yoke pivoted at one end to swing in a horizontal plane, and having means for retaining its other end when swung over the flask, a binder-plate fitting over the open top of the flask, toggle-arms pivoted to the under side of the yoke and to the top of the binder-plate, connecting-rods hinged to the middle joints of the toggle-arms, a shaft pivoted in lips under the middle of the yoke, and having a lever upon its middle, to the ends of which the connecting-rods are hinged, a hand-lever secured to the outer end of the shaft, and having a rearwardly-projecting bolt, and a cogged rack upon the upper side of the yoke engaging the bolt upon the hand-lever, as and for the purpose shown and set forth.

2. In a sand-molding machine, the combination, with the flask and frame supporting the flask, of a sand-hopper, a sand-drawer open at top and bottom and reciprocating under the open lower end of the hopper, and a flap or bridge pivoted at its lower edge to the forward edge of the recess, in which the sand-drawer reciprocates, and having counterpoises at its ends forcing the flap into its vertical position when the drawer is withdrawn from the flask, the free edge of the flap resting upon the rear edge of the flask when tilted forward by the drawer, as and for the purpose shown and set forth.

3. In a sand-molding machine, the combination, with the frame of the machine, and the sand-hopper supported at the top of the same, of a sand-drawer reciprocating under the open lower end of the hopper, having longitudinal slots in the rear portions of its sides, having grooved ways or flanges at the upper edges of its sides, and having a cogged rack at one side, disks journaled at the sides of the frame, and having the grooved ways traveling upon them, and a shaft journaled in bearings in the frame, passing through the slots in the sides of the drawer, having a pinion meshing with the rack, and provided with a hand-wheel at one end, as and for the purpose shown and set forth.

4. In a sand-molding machine, the combination of the plunger carrying the patterns, and having feet sliding vertically in bearings, the follower having apertures in its plate for the passage of the patterns, and having feet provided with downwardly-projecting lips, having inwardly-projecting lugs at their lower ends, and a cam-shaft having eccentric cams formed with a swell to one side bearing against the plunger-feet, and having cams formed with swells corresponding in shape to the swells of the aforesaid cams, formed with swells diametrically opposite to the said swells, formed with cut-away portions subsequent to the last-named swells, and having outwardly-projecting wedge-shaped lips upon their outer sides engaging the lugs upon the follower-feet, as and for the purpose shown and set forth.

5. The combination of the cam-shaft operating the plunger and follower with the machine-frame, having the lips B^3, formed with recesses C^3, the nuts D^3, fitting in the recesses, the set-screws E^3, fitting in the nuts, and the boxes or bearings for the cam-shaft supported upon the ends of the set-screws, as and for the purpose shown and set forth.

6. The combination, with the plunger-feet, of the side pieces of the machine-frame, the vertical plates C C, secured with their ends between the side pieces of the frame, the rectangular ways I, having the lips N^3 at the upper ends of the flanges, of the ways resting against the plates C, and the set-screws J, bearing against the sides of the ways, as and for the purpose shown and set forth.

7. The combination, with the cam-shaft operating the plunger and follower, of the machine-frame having the lips B^3, formed with the recesses C^3, and with the vertical slots A^3, the bearings or boxes for the cam-shaft having the perforated ears Y', the nutted bolts Z', sliding adjustably in the slots, and fitting in the ears of the bearings, the nuts D^3, fitting in the recesses C^3, and the set-screws E^3, fitting in the nuts and bearing against the under sides of the bearings, as and for the purpose shown and set forth.

318,342. PROCESS OF MAKING COMBINED KNIT AND FELT BOOTS. SAMUEL G. ALEXANDER, Detroit, assignor to C. E. Wakeman & Co., Pontiac, Mich. Filed Jan. 15, 1885. (No model.)

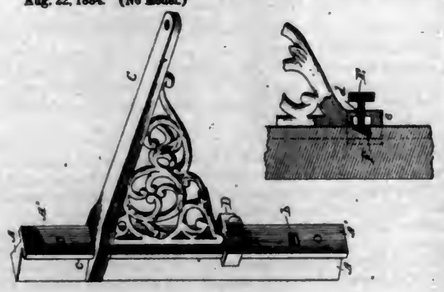


Claim.—1. In the manufacture of felted boots in which a knitted or woven wool stocking is incorporated with a layer of felt, the process herein described of incorporating said stocking and felt, which consists in first stretching the stocking upon a flat form, and, second, applying to the said stocking one or more bats of wool which previous to their application are reduced in thickness and hardened and strengthened by the felting process, then incasing and compressing the same by a jacket stretched snugly over the form, and finally submitting the said package thus made to the felting process in a jigger, substantially as set forth.

2. In the manufacture of boots in which there is combined a knit or woven woolen stocking and a surface of felt, the employment of a flat form within the stocking for stitching the latter and bats of wool which are first reduced in thickness and hardened and strengthened by the felting process, and subsequently applied to the stocking upon the flat form, substantially as described.

3. As a means for insuring a uniform layer of felt upon the stocking, the combination, with the stocking in the process of manufacture of the boot, of an interior flat form, one or more layers of wool in the form of a bat which has been previously reduced in thickness, hardened, and strengthened in the felting process and subsequently applied to the stocking, and a close-fitting jacket adjusted over the whole before finally felting, substantially as described.

318,343. BRACKET. GEORGE E. BAUMLER, St. Joseph, Mo. Filed Aug. 22, 1884. (No model.)



Claim.—1. In combination with a supporting-strip, A A', having notches *b* formed therein, the movable bracket-support C, having a clamping-jaw, and a catch, F, adapted to be placed in and out of engagement with the notches *b* by means of a set-screw, substantially as shown, and for the purpose set forth.

2. In combination with a bracket-strip having notches *b* formed therein, a shelf-support, C, with clasping-jaws *c*, and the clasp B, embracing the strip, and having a recess, *e*, for the reception of a catch, F, which is attached to the end of a set-screw, substantially as shown, and for the purpose specified.

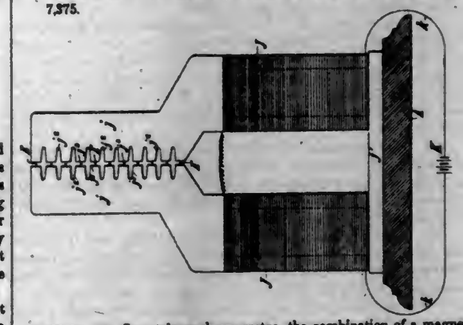
318,344. CORSET. MAUREE R. BONTAZE, Chicago, Ill. Filed Jan. 31, 1883. (Model.)



Claim.—1. In a corset the breast-piece of which is stiffened by vertical boning, an upper extension of the breast-piece connected to the lower part by a flexible joint formed transversely to the vertical boning, substantially as described.

2. As a new manufacture, a corset having breast-pieces provided with vertical bones in the extension above the top line of the corset, and adapted to fold below or extend above said top line by means of a flexible joint, which separates said vertical bones from the lower part of said breast-pieces, substantially as described.

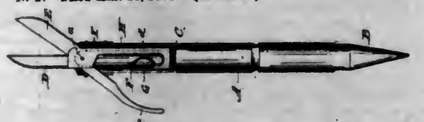
318,345. TELEGRAPH. ROBT. K. BOYLE, Liverpool, England. Filed June 24, 1884. (No model.) Patented in England May 7, 1884, No. 7,375.



Claim.—1. In a telegraph apparatus, the combination of a magnet having polar extensions corrugated or grooved on their opposing faces, a series of line-wires stretched between the polar extensions, a secondary or local circuit, and one or more circuit-controllers therefor controlled by the stretched wires, substantially as described.

2. In a telegraph apparatus, the combination of a magnet having polar extensions corrugated or grooved on their opposing faces, a series of line-wires or continuations of line-wires stretched in the magnetic field between the polar extensions, and a secondary or local circuit containing receiving or recording apparatus, substantially as described.

318,346. COMBINED SCISSORS AND PENCIL HOLDER. CHARLES BRAMBERG, Brooklyn, assignor to the Eagle Pencil Company, New York, N. Y. Filed Mar. 23, 1885. (No model.)

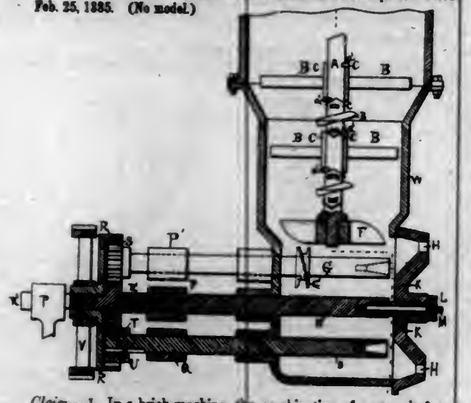


Claim.—1. The scissors-carrying block having spring-metal side pieces which normally close toward one another, in combination with the pencil-holding tube and the scissors-blades pivoted and clamped between the free ends of said spring-acting side pieces, substantially as and for the purposes hereinbefore set forth.

2. The sliding scissors-carrying block and the scissors-blades pivoted between the side pieces of said block, in combination with the sheet-metal shell H and the pencil-holding tube, substantially as and for the purposes hereinbefore set forth.

3. The combination of the spring-acting scissors-carrying block, the scissors-blades mounted therein, the scissors-opening spring, the shell H, and the pencil-holding tube, substantially as and for the purposes hereinbefore set forth.

318,347. BRICK AND TILE MACHINE. ALBERT L. BREWER and HENDRICK HERRIN, Tecumseh, Mich., assignors to themselves, Hudson W. Conklin, Charles J. Brewer, and Herbert Stout, all of same place. Filed Feb. 25, 1885. (No model.)



Claim.—1. In a brick-machine, the combination of a core-shaft to support a cone in position and two or more auger-shafts arranged relatively to the core-shaft to act upon the core carried thereby, substantially as described.

2. In a brick and tile machine, the combination, with a core-supporting shaft, of three auger-shafts arranged around said core-shaft in a circle, substantially as shown and described.

3. In a brick and tile machine, the combination of a shaft having a beveled hole in its end, and a screw-threaded hole tapped therein at the bottom of said beveled hole, with a removable hollow core-pin having one end beveled on the same angle as the hole in the end of said shaft, and a retaining-bolt adapted to pass through said hollow core-pin and screw into the threaded hole in said shaft, substantially as shown and described.

4. The combination of the auger-shaft G, having therein the beveled hole *b* and the threaded hole *a*, with the removable hollow core-pin *n*, having the hole *r* through the wall thereof, and the bolt M, screw-threaded at both ends, and having thereon the wrench-shoulder *i*, substantially as shown and described.

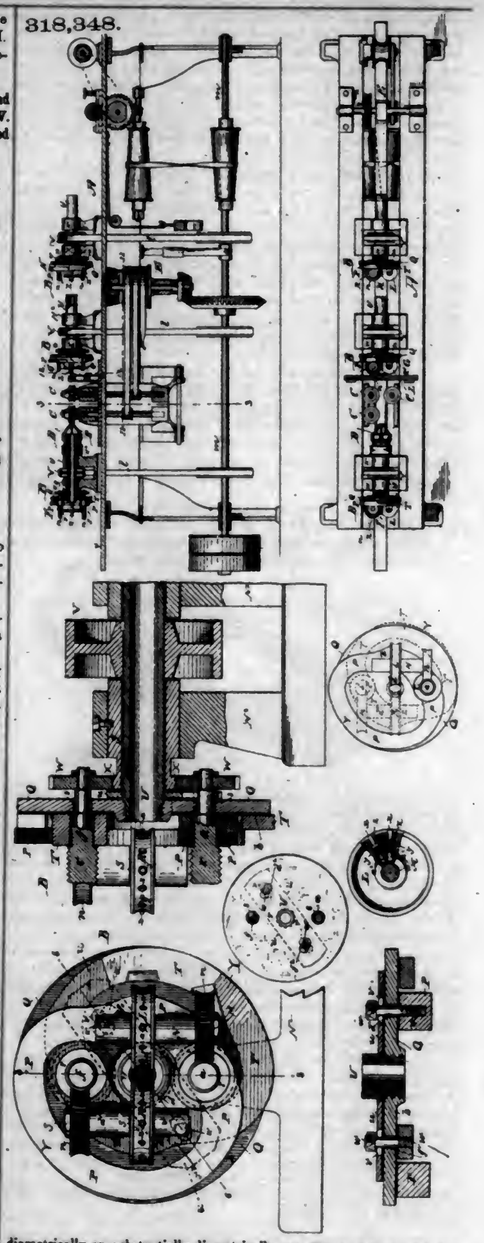
5. In combination with the grinding or pugging shaft of a brick and tile machine, pugging-knives each cast on a plate having therein two curved slots, and bolts adapted to pass through the slots in said plates and through said shaft, substantially as and for the purposes set forth.

6. In a brick and tile machine, the combination of the shaft A with the knives B, each cast on a plate, C, having therein the two curved slots *d e*, and also having thereon the lugs *a'*, substantially as shown and described.

7. The combination of the shaft A, knives B, each cast on a plate, C, having thereon the lugs *a'*, and the bolt B', substantially as shown and described.

8. In combination with the gear-wheel R, the three auger-shafts G O *g*, each carrying a pinion adapted to gear with said wheel R, the pinion on said shaft O being movable, as shown, whereby said pinion may be thrown out of gear with said wheel R, substantially as shown and described.

318,348. MACHINE FOR THE MANUFACTURE OF WHIP-STOCKS, &c. ORRIN BRYANT and ELNATHAN RING, Westfield, Mass. Filed July 19 1884. (No model.)



Claim.—1. In a machine for cutting and trimming whip-stocks, &c., feed-rolls arranged to turn in suitable bearings, each upon a separate arm pivoted to the face or side of a disk or plate constructed and arranged to revolve in any suitable manner, each arm being pivoted to such disk at a point midway between its center and circumference, and curved around its center of rotation, a portion, Y, of each arm being weighted, and diametrically or substantially diametrically opposite to and at a greater radial distance from the central axial line of said disk than that portion Z of said arm on which its roll is attached, substantially as and for the purpose specified.

2. In a machine for cutting and trimming whip-stocks, &c., feed-rolls arranged to turn in suitable bearings, each upon a separate arm pivoted to the face or side of a disk or plate constructed and arranged to revolve in any suitable manner, each arm being pivoted to such disk at a point midway between its center and circumference, and curved around its center of rotation, a portion, Y, of each arm being weighted, and diametrically or substantially diametrically opposite to and at a greater radial distance from the central axial line of said disk than that portion Z of said arm on which its roll is attached, in combination with a bar or plate, *u*, attached to said arms by a pin, *w*, and slot *v*, connected and arranged to turn upon the shaft of or concentrically with said disk, said pins *w* passing through slots d^2 and f^2, respectively, in said disk, substantially as and for the purpose specified.

4. In a machine for cutting and trimming whip-stocks, &c., feed-rolls arranged to turn in suitable bearings, each upon a separate arm pivoted to a revolving disk, the shaft of each roll being provided with a worm-gear engaging with a worm on the pivot of its arm, each pivot having a gear-wheel, W, engaging with a stationary gear-wheel, X, upon the frame, substantially as and for the purpose specified.

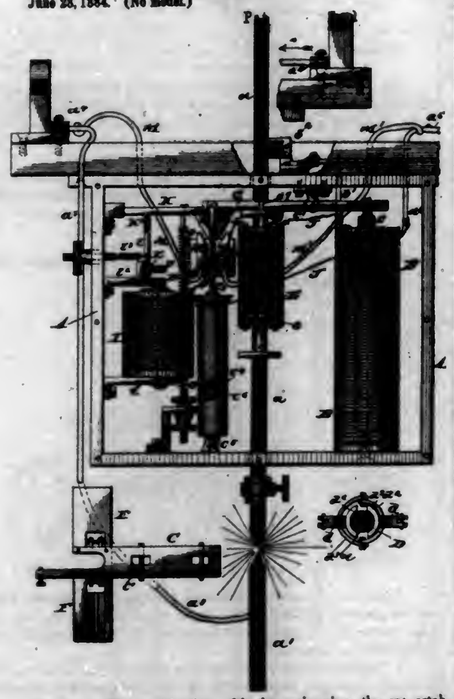
5. A disk or plate, Q, constructed and arranged to revolve in any suitable manner, and carrying on one of its sides feed-rolls L R, arranged to revolve thereon, said rolls having gear-wheels arranged to engage with a gear independent of the shaft of said disk, for the purpose specified.

318,349. FEED-TROUGH. FRANK L. BUCHANAN, Howard, Ohio. Filed Feb. 3, 1885. (No model.)



Claim.—The combination, in a feeding-trough for animals, of the frame, the reversible trough pivoted endwise between the end posts of the frame, the longitudinal bar connecting the end posts above the trough, and the latch hinged upon one end of said bar and adapted to interlock with its lower end against one of the end pieces of the trough, substantially as and for the purpose set forth.

318,350. ARC LAMP. WILLIAM F. BUCKLEY, Cleveland, Ohio. Filed June 28, 1884. (No model.)



Claim.—1. The combination, with the main wires, the arc-establishing magnet B, and the shunt-wires, of the magnets E, the armature, the horizontal bar C, carrying the carbon-gripping device, the iron cores of the said magnets E, and the lower horizontal bar, H, carrying the vertically-arranged inner beveled projections, h^2, substantially as specified.

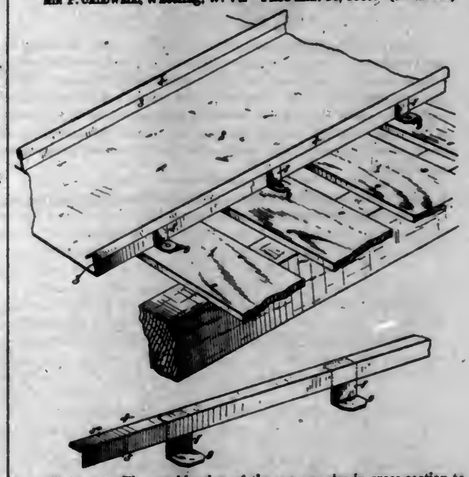
2. The combination, with the main wires, the shunt-wires, and short-circuit wires, of the coil I, having the core I', the pivoted bar K, carrying the copper block *k*, the terminals N N', the rock-bar L, and the spring O, substantially as specified.

318,351. BEDSTEAD. GEORGE BULL, Winfield, Kans., assignor of one-half to John D. Pryor, same place. Filed May 3, 1884. (No model.)



Claim.—In a bedstead, the combination, with a foot-post provided with an interiorly-threaded socket, of a head-post provided with a longitudinally-slotted sleeve, and a headed tension-rod, substantially as set forth.

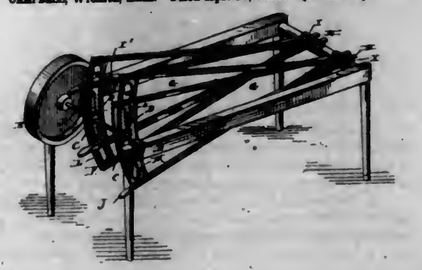
318,352. CAP AND ANCHOR FOR METALLIC ROOFING. BENJAMIN F. CALDWELL, Wheeling, W. Va. Filed Mar. 10, 1885. (No model.)



Claim.—1. The combination of the cap angular in cross-section to form two flanges approximately at right angles to each other, and one of the flanges having its edge turned inward to form a longitudinal guide-groove, with the anchor, having one end angularly bent to form two arms, one engaging the guide-groove and the other bearing against the opposite flange of the cap, said anchor being adjustable along the length of the cap, substantially as described.

2. The combination of the angular cap comprising two flanges standing approximately at right angles to each other, and one flange having its longitudinal edge turned inward, with the anchor, having one end bent into an angle the apex of which fits the angle of the cap, and constituting two arms, one engaging the inward-turned flange and the other bearing against the opposite flange of the cap from the angle of the latter to its outer edge, substantially as described.

318,353. COMBINED HAND AND FOOT POWER. WILLIAM H. H. CAMPBELL, Wichita, Kans. Filed Apr. 16, 1885. (No model.)



Claim.—1. The combination of a pinion, a plate having a segmental cogged slot of a width greater than the diameter of the pinion, and having a segmental block or strip upon one side, rounded at its ends, and a block bearing with its sides and ends against the sides and ends of the segmental strip upon the plate guiding the same, to reciprocate segmentally and radially, as and for the purposes shown and set forth.

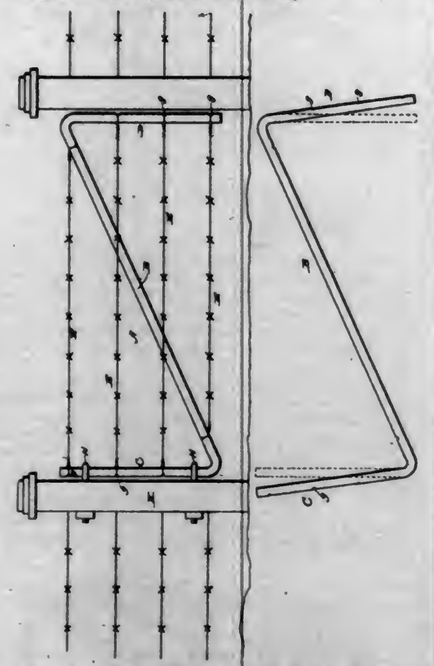
2. In a hand and foot power, the combination of a shaft having pairs of pinions, and provided with a fly-wheel, pairs of plates having segmental cogged slots of a width greater than the diameter of the pinions secured upon the ends of radial bars having their ends united and provided with flat bars sliding in bails, and having a handle at the upper end of one plate of each pair, and a treadle at the lower end of a plate of each pair, and segmental blocks or guide-strips secured upon the facing-sides of each pair of plates, and bearing with their edges and rounded ends against each other, guiding the plates in a segmental and radial reciprocating motion, as and for the purpose shown and set forth.

318,354. VEHICLE RUNNING-GEAR. ALEXANDER CHALFANT, Mulberry Grove, Ill. Filed Feb. 24, 1885. (No model.)



Claim.—The combination of the front axle, a plate or casting secured thereto and having an upwardly-extending stud provided with a vertical recess, the reach-cap having a vertical perforation near its front end, a plate secured to the under side of the bolster and having a central perforation, and a coupling-pin extending through a vertical perforation in the bolster into the vertical recess of the stud of the base-plate, all arranged and operating substantially as and for the purpose herein shown and specified.

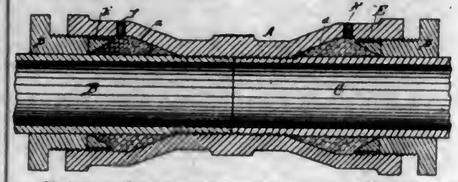
318,355. GATE. CHARLES A. COFFIN and THOMAS FERGUSON, Parkersburg, Iowa. Filed Aug. 22, 1884. (No model.)



Claim.—1. A gate consisting of gas-pipe bent to form the end bars and the oblique brace-bar, and the transverse wires passed over notches in said end bars, bent around the outside of the bars, and secured by twisting on the main wires, substantially as specified.

2. The combination, with a length of bent gas-pipe having spring ends C D, of the transverse barb-wires strained by said ends, and the eyebolts or hinge-connections, substantially as specified.

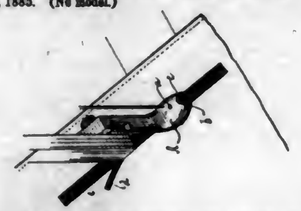
318,356. PIPE-COUPLING. ROBERT B. COGAN, Braddock, Pa., assignor of two-thirds to Simon C. Collin and John Rinard, same place. Filed Mar. 14, 1885. (No model.)



Claim.—1. In a pipe-coupling, the combination, with the internally-threaded collar A, adapted to receive the threaded pipe-sections, and having the enlarged and chambered ends *a*, also internally threaded, of the collars E, having their inner surfaces inclined, the threaded followers D, adapted to screw into the enlargements *a*, and a suitable packing, substantially as described.

2. The improved pipe-coupling consisting of the internally-threaded collar A, adapted to receive the threaded pipe-sections, and having the enlarged and chambered ends *a*, also internally threaded and formed conical between the inner and outer threaded portions, in combination with the collars E, having their inner surfaces inclined, threaded followers D, adapted to screw into the enlargements *a*, and a suitable packing, substantially as described.

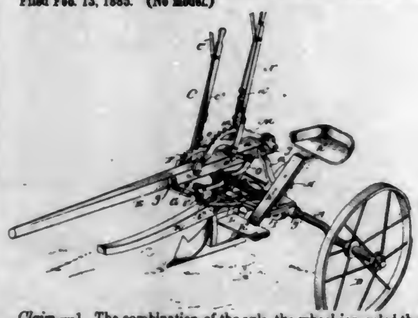
318,357. COMBINED BRAIDING AND CORDING ATTACHMENT FOR SEWING-MACHINES. DAVID H. COLES, New York, N. Y. Filed Jan. 29, 1885. (No model.)



Claim.—1. The presser-foot provided with a needle-hole extending transversely through it, and two independent longitudinal channels, one above the other and in advance of the needle-hole, said channels separated by an intervening longitudinal partition forming a part of the presser-foot and terminating in advance of the needle-hole.

2. A presser-foot provided with a needle-hole extending transversely through it, a braid-guide situated in advance of the needle-hole and centrally in regard to the same, and a cord-guide situated above the braid-guide and eccentrically in regard to the needle-hole.

318,358. SULKY-PLOW. WILLIAM G. DANIELSEN, Richmond, Utah. Filed Feb. 13, 1885. (No model.)



Claim.—1. The combination of the axle, the wheel journaled thereon, the draft-pole attached thereto, the stirrup I, hinged to the axle, the plow secured to the stirrup, and the levers N O, for tilting the plow, substantially as described.

2. The combination of the axle, the wheel journaled thereon, the draft-pole, the stirrup hinged to the axle, the plow secured to the stirrup and adapted to be laterally adjusted thereon, and the levers N O, for tilting the plow, substantially as described.

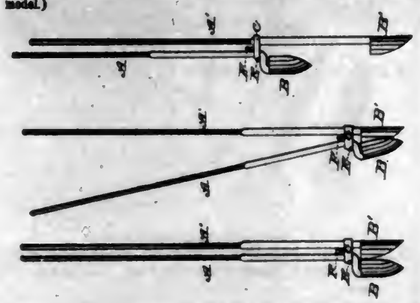
3. The combination of the axle, the wheel journaled thereon, the draft-pole, the stirrup hinged to the axle, the plow secured to the stirrup, the lever O, fulcrumed on the axle and connected to the plow by the links o', the hand-lever N, fulcrumed on the draft-pole, and the link o^3, connecting the levers N O, substantially as described.

4. The combination of the bent axle, the wheel journaled thereon, the hand-lever C, fixed to the axle, the draft-pole hinged to the axle, the stirrup hinged to the axle, the plow secured to the stirrup, and the levers N O, for tilting the plow, substantially as described.

5. The combination of the bent axle, the wheel journaled thereon, the hand-lever C, fixed to the axle, the stirrup hinged to the axle, the plow secured to the stirrup, the lever O, fulcrumed on the axle and connected to the plow by the links o', the lever N, fulcrumed on the draft-pole, and the link o^3, connecting the levers N O, substantially as described.

6. The combination of the bent axle, the wheel journaled thereon, the hand-lever C, fixed to the axle, the draft-pole hinged to the axle, the rack F, and bolt *c*, for securing the lever C to the pole at any desired point, the stirrup hinged to the axle, the plow secured to the stirrup, the supporting-wheel in rear of the plow, the lever O, fulcrumed on the axle and connected to the plow by the links o', the hand-lever N, fulcrumed to the draft-pole, the link o^3, connecting the levers N O, and the rack *m* and bolt *n'*, for securing the hand-lever N at any desired point, substantially as described.

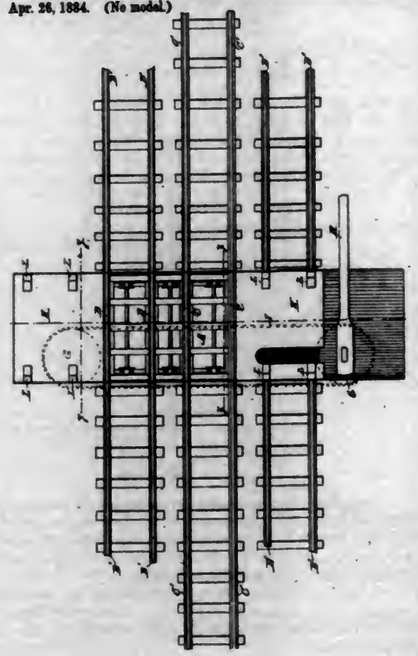
318,359. POST-HOLE DIGGER. JAMES E. DAVIS, Palmyra, assignor of one-half to Thomas C. Snyder, Canton, Ohio. Filed Oct. 2, 1884. (No model.)



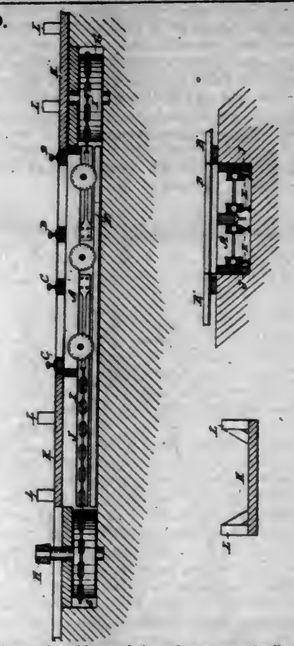
Claim.—1. In a post-hole digger, the sliding clamp C, provided with the bar E and the headed arm F, all arranged substantially as shown and described, and for the purpose specified.

2. In a post-hole digger, the separable handles or arms A A', provided with the spades B B', in combination with the sliding clamp C, provided with the headed arm F, substantially as and for the purpose specified.

318,360. CAR-TRANSFER APPARATUS. RILEY L. DAVIS, Mocresville, N. C., assignor of one-half to John F. McLean, same place. Filed Apr. 26, 1884. (No model.)



318,360.



Brief.—A transfer-table consisting of two sets of rails arranged in a pit at right angles to the track, and a truck moving thereon, which is secured to an endless chain arranged in a horizontal plane and moving around two horizontally-arranged pulleys. To one of the pulleys an operating lever-arm is attached, and to the sides of the truck are secured platforms or frames for keeping the pit always covered.

Claim.—1. The combination, with the platform or truck A, bearing two sets of rails and arranged in a pit in the road-bed, to be adjusted at right angles to the track-rails, of the endless chain disposed in a horizontal plane and attached to the truck, the large horizontal pulleys arranged upon opposite sides of the track and distending the chain, and the lever-arm H, attached rigidly to one of said pulleys, as and for the purpose described.

2. The combination, with a railroad-track having a transverse recess or pit, of the laterally-adjustable truck A, having side wings or frames, K, to keep the pit always covered, as and for the purpose described.

3. The combination, with a railroad-track having a transverse recess or pit, of the laterally-adjustable truck A, having side wings or frames, K, with stop blocks or braces L, as and for the purpose described.

318,361. FENCE-POST. JOHN W. DAVY, Kingston, Ontario, Canada. Filed Oct. 27, 1884. (No model.)



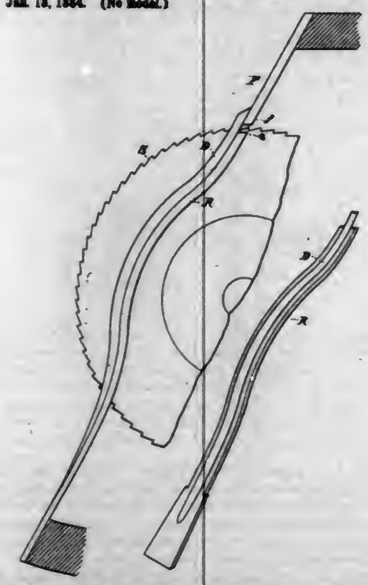
Claim.—1. In a fence-post, the combination, with a triangular bottom frame having loops at the front corners, of a triangular front frame, the lower ends of the legs of which are connected to the loops at the front corners of the bottom frame and the upper end of which has a loop connected by a brace with the rear corner of the bottom frame, substantially as and for the purpose set forth.

2. In a fence-post, the combination of a triangular bottom frame, a triangular front frame, the legs of which extend slightly below the front corners of the bottom frame, to which they are connected, and a brace

connecting the upper corner of the front frame with the rear corner of the bottom frame, substantially as and for the purpose herein set forth.

3. The combination, in a fence-post, of a triangular bottom frame, a triangular front frame, and a brace secured at the corners of the said bottom frame, and connected at their upper ends, and a weight supported upon the said bottom frame, which is provided with cross-pieces, substantially as and for the purpose set forth.

318,362. COTTON-GIN. WILLIAM DEERING, Louisville, Ky. Filed Jan. 12, 1884. (No model.)



Claim.—1. The lower separable section of a cotton-gin rib provided with a middle projecting flange extending partially the width of the main body of the section and upward beyond the same, in combination with an upper rib-section or feeder, whereby the formation of obstructing shoulders at the points where the saws carry the seed-cotton out of the roll-box is prevented, substantially as specified.

2. In a saw cotton-gin in which the ribs terminate at or about the base line of the teeth of the saws and begin again at or about the line of the outer points of the said teeth, the combination of the upper and lower sections, the latter having middle flanges projecting up over the lower ends of the upper ribs or feeders, to prevent the formation of obstructing shoulders at the points where the saws carry the seed-cotton out of the roll-box, substantially as specified.

318,363. SAW-SHARPENING MACHINE. ANDREW C. EIDELBACH, Platonia, Tex. Filed Nov. 15, 1884. (No model.)

Claim.—1. The combination of the bed-block A and connecting device I with the cutter-block B, cutting bar or tool D, gage-bar E, strips C C, and lever F, substantially as specified.

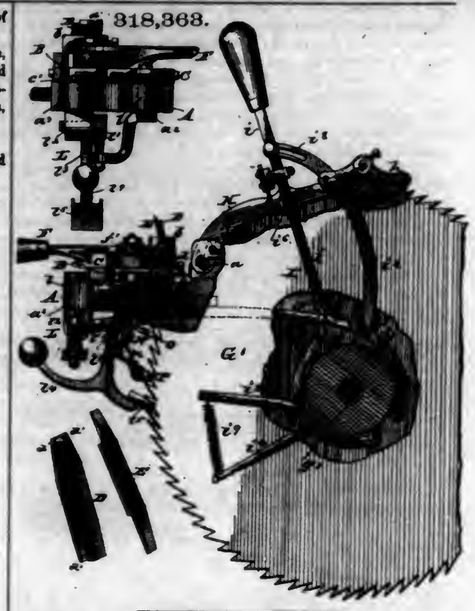
2. The combination of the bed-block A and forwarding device L with the connecting device I and steadying-bar J, substantially as specified.

3. The combination of the bed-block A, cutter-block B, and tool D with the forwarding device L, connecting device I, and steadying-bar J, substantially as specified.

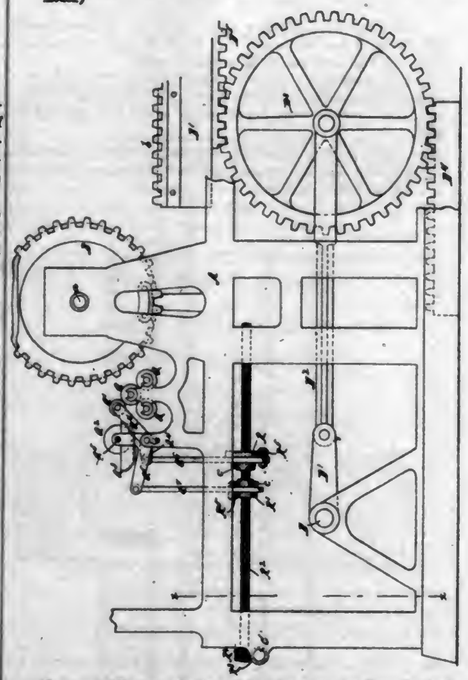
4. The combination of the bed-block A, cutter-block B, tool D, gage-bar E, lever F, and connecting device I with the forwarding device L and chamfering device N, substantially as specified.



318,363.



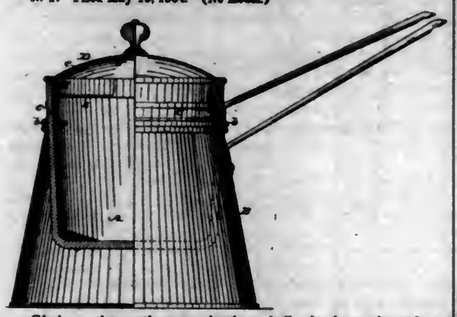
318,364. DAMPENING APPARATUS FOR LITHOGRAPHIC PRESSES. GEORGE P. FENNER, New London, Conn. Filed May 22, 1884. (No model.)



Claim.—1. The combination of the dampening-rollers, the feed-roller, the taking-roller, the levers Q^4 Q^5, and the pivoted arms q q', forming the bearings for the feed-roller and taking-roller, the counter-shaft, and the adjustable cams of said counter-shaft, which engage the levers, substantially as and for the purpose specified.

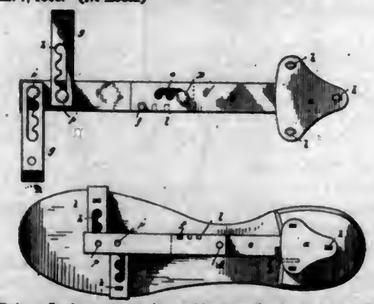
2. The combination, with the feed-roller, of the driving-pulley mounted loosely on the roller-shaft, and the sliding clutch keyed to the shaft and constructed to engage the pulley, substantially as and for the purpose set forth.

318,365. STEWING-KETTLE OR BOILER. H. CLAY PEER, Brooklyn, N. Y. Filed May 15, 1884. (No model.)



Claim.—An earthenware kettle or boiler having a circumferential groove and a metallic band fitted thereinto provided with a bead, the band and groove interlocking, and the bead forming a shoulder at the bottom of the band, substantially as and for the purpose set forth.

318,366. ICE-CREEPER. HOMER L. FITCH, Youngstown, Ohio. Filed Mar. 7, 1885. (No model.)

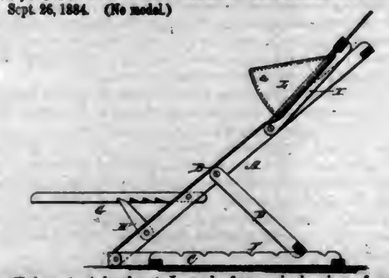


Claim.—In ice-creepers, in combination, the heel-plate *a*, the pin *b*, the jointed strap *c*, provided with the slot *e*, the indentations *l l*, and the pins *d f*, the arms *g g*, provided with the slots *h h*, having each an indented edge, and the downward-projecting points *k* of any suitable number, substantially as described in the foregoing specification, and for the purposes therein stated.

318,367. GLUE. REINHOLD GAHLER and THEODOR PILS, Baltimore, Md., assignors of one-half to Ephraim M. Cohen, same place. Filed Apr. 14, 1885. (No specimens.)

Claim.—The method herein described of making prepared glue, consisting of, first, treating as described ordinary dry piece glue with nitric acid and powdered zinc oxide; second, steaming the glue thus treated until melted or dissolved and then skimming the greasy impurities from the surface, and, third, adding to the mass nitric acid substantially in the proportion described, as set forth.

318,368. HEAD-REST. DANIEL D. GITT, Arendtsville, Pa. Filed Sept. 26, 1884. (No model.)

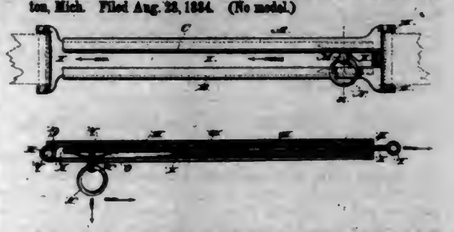


Claim.—1. A head-rest, L, made from a single piece of wire and provided with the side portions, *a*, the parts being covered with canvas or other suitable material, substantially as shown.

2. The head-rest L, made from a single piece of wire, which is bent as shown and covered with canvas or other suitable material, substantially as set forth.

3. The combination of the reclining-frame A and a suitable support therefor with the head-rest provided with side portions, *a*, for preventing the head from dropping or rolling to one side, substantially as specified.

318,369. COUPLING FOR STRAPS, &c. PETER R. GOTTSTEIN, Houghton, Mich. Filed Aug. 23, 1884. (No model.)



Claim.—1. In a coupling or fastening for straps, gloves, and the like, a sheath provided within with a series of teeth, in combination with a slide provided with one or more rigid projections or teeth at or near its end adapted to engage the teeth on the sheath, and a spring adapted to normally press the slide end toward the serrated surface of the sheath wherever such slide end may be within the sheath, substantially as and for the purpose described.

2. In a coupling or fastening, a sheath provided within with a series of ratchet-teeth, in combination with a slide sliding within the sheath, provided with one or more teeth or projections adapted to engage those on the sheath, and one or more springs carried by and moving with the slide, engaging the inner face of the sheath and adapted to press the slide normally toward and against the serrated surface of the sheath, substantially as and for the purpose described.

3. In a coupling or fastening, a sheath provided with a longitudinal slot or opening in its top and a series of ratchet-teeth within along its bottom, in combination with the slide adapted to slide within the sheath, provided at or near its end with one or more teeth to engage the ratchet-teeth on the sheath, the springs on the top of the slide between it and the sheath-top, and the stud or arm attached to the slide and passing up through the opening in the sheath-top, substantially as and for the purpose described.

318,370. BARREL. PETER R. GOTTSTEIN, Houghton, Mich. Filed Feb. 19, 1885. (No model.)



Claim.—1. In combination with the barrel and the hoop thereon provided with several openings, the removable head, the bolts passing up through the openings in the hoop and through the head, and provided with heads engaging the outer side of the hoop and nuts on the upper and inner ends of the bolts, above the barrel-head, substantially as and for the purpose described.

2. In combination with the removable head and the hoop on the barrel provided with several openings, the bolts extending upward and inward through such openings and the edge of the barrel-head, having on their lower ends heads provided with claws adapted to project inward under the lower edge of the hoop, and the screw-nuts on the upper ends of the bolts, substantially as and for the purpose described.

3. In combination with the removable head and the lugs or blocks on its upper side, around its edge, the hoop on the barrel end provided with openings, the bolts extending up through the openings in the hoop and the lugs and provided on their lower ends with heads having claws engaging the lower edge of the hoop, and the nuts on the upper ends of the bolts, all substantially as and for the purpose set forth.

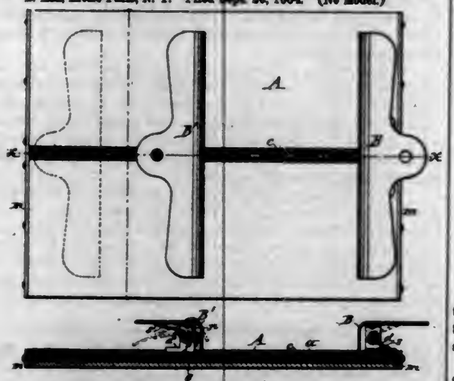
4. In combination with the rabbeted barrel end, the removable head, the metal ring on its top, around its edge, the blocks on the ring, having their upper faces sloping inward, the hoop around the upper end of the barrel, having openings below the plane of the head, and bolts passing up through the openings in the hoop and its blocks and provided on their upper ends with screw-nuts and on their lower ends with heads to engage the hoop, substantially as and for the purpose described.

5. In combination with the removable head and the blocks thereon around its edge, the adjustable hoop around the upper end of the barrel, consisting of the band having thereon an adjustable connection between its ends, the holes in the hoop below the plane of the blocks on the head, the bolts passing upward and inward through the holes in the hoop, the staves of the barrel, and the blocks, and provided on their outer ends with heads having claws projecting under the lower edge of the hoop, and the screw-nuts on the upper ends of the bolts, substantially as and for the purpose described.

318,371. FERTILIZER. LEVI HAAS, Chester, Pa. Filed May 19, 1884. (No specimens.)

Claim.—A fertilizer composed of furnace-slag, oyster-shells, charcoal, tan-bark waste or its equivalent, tobacco-stems, broom-corn-seed meal or its equivalent, nitrate of soda, sulphate of soda, salt, diluted sulphuric acid or ammonia, plaster, ashes, phosphatic iron ores, phosphatic rock, ground slag, and kainit, intermingled and blended in the manner substantially as described.

318,372. CARD-HOLDER. JAMES M. HANNAS, Syracuse, and FRANK B. LEE, Little Falls, N. Y. Filed Sept. 26, 1884. (No model.)

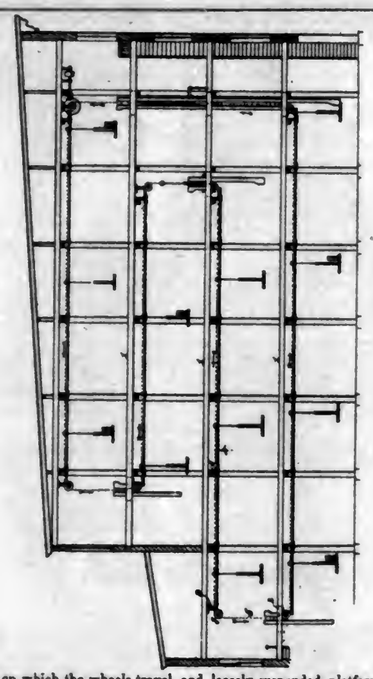


Claim.—1. The adjustable card-holder consisting of the base A, guide-rod *a*, and spring-jaws B B', one or both of which jaws are movably connected with said guide-rod, substantially as and for the purpose set forth.

2. The combination of the base A, provided with the groove *c*, the guide-rod *a*, sustained in said groove, the bracket *d'*, movably connected with the said guide-rod, the jaw B', hinged on said bracket, the spring *s'*, arranged to press the jaw toward the base, the bracket *d*, secured stationary on the base A, the jaw B, hinged on said bracket, and the spring *s*, arranged to press said jaw toward the bed, substantially as shown.

3. In combination with the base A, provided with the groove *c*, jaw B, and guide-rod *a*, the bracket *d'*, formed with the central loop, *e*, embracing the said guide-rod, and with the vertical shanks *f f*, the yoke *n*, formed with the shanks *o o*, the hinge-pin *l*, extending through the several shanks aforesaid, the jaw B', attached to the yoke *n*, and the spring *s*, wound around the pin *l* and having one end bearing on the bracket *d'*, and the opposite end bearing on the jaw back of the fulcrum thereof, all constructed and combined substantially in the manner specified and shown.

318,373. ELEVATING MECHANISM FOR BUILDINGS. WILLIAM B. HAYDEN, Columbus, Ohio. Filed Apr. 8, 1885. (No model.)



Claim.—1. The combination of a chain extending longitudinally through the stories of a building and vertically through the flooring with devices loosely suspended from the chain for taking articles from one story to and longitudinally through another story or stories, substantially as described.

2. The combination of a chain extending longitudinally through the stories of a building and vertically through the flooring with tracks for steadying and supporting the chain in its longitudinal movement through the stories, and devices suspended from the chain for taking articles from one story to and longitudinally through another story, substantially as described.

3. The combination of a pair of connected and parallel chains extending longitudinally through the stories of a building and vertically through the flooring with devices loosely suspended from the chains for taking articles from one story to and longitudinally through another story, substantially as described.

4. The combination of a pair of parallel chains extending longitudinally through the stories of a building and vertically through the flooring with cross-bars connecting the chains, guide-wheels, horizontal tracks on which the wheels travel, and loosely-suspended platforms for taking articles from one story to and longitudinally through another story, substantially as described.

5. The combination of a pair of parallel chains extending longitudinally through the stories of a building and vertically through the flooring with cross-bars connecting the chains, guide-wheels upon the cross-bars, horizontal tracks on which the wheels travel, and platforms loosely suspended from the cross-bars for taking articles from one story to and longitudinally through another story, substantially as described.

6. The combination of a chain extending longitudinally through the stories of a building and vertically through the flooring with guides arranged through the flooring, and platforms having a pivotal connection with the chain and adapted to engage the guides when moving vertically for taking articles from one story to and longitudinally through another story, substantially as described.

7. The combination of a pair of parallel chains extending longitudinally through the stories of a building and vertically through the flooring with horizontal tracks, cross-bars connecting the chains, guide-wheels moving on the tracks, loosely-suspended platforms, and vertically-arranged guides through the flooring, with which the platforms engage in their vertical movement, substantially as described.

8. The combination of the endless chains, the loosely-suspended platforms, and the vertical guides with which the platforms engage in their vertical movement, substantially as described.

9. The combination of the endless chains, the loosely-suspended platforms having studs or rollers at their edges, and the vertical guide-grooves with which the studs or rollers engage in their vertical movement through the flooring, substantially as described.

10. The combination of the endless chains, the loosely-suspended platforms having studs or rollers at their edges, and the vertical guides having converging entrances, substantially as described.

11. The combination, with a traveling chain, of a table for supporting the articles to be carried, and loosely-suspended platforms for automatically picking up the articles from the table, substantially as described.

12. The combination, with a traveling chain, of a table for supporting the articles to be carried, and a loosely-suspended platform having a passage-way or opening to receive the table for automatically picking up the articles therefrom, substantially as described.

13. The combination, with a traveling chain, of a loosely-suspended platform having a passage-way or opening to permit the articles to be introduced upon the platform, substantially as described.

14. The combination, with a traveling chain, of the loosely-suspended platform having a passage-way or opening and an adjustable side or sides for carrying different sizes of articles, substantially as described.

15. The combination of traveling endless chains extending longitudinally through the stories of a building and vertically through the flooring with pivotally-suspended platforms, and a table by which the platforms pass for picking up articles therefrom, substantially as described.

16. The combination of endless traveling chains extending longitudinally through the stories of a building and vertically through the flooring with horizontal tracks for supporting the chains, loosely-suspended platforms, and a table from which the platforms automatically pick up the articles to be carried and distributed, substantially as described.

17. The combination of a traveling endless chain, loosely-suspended platforms, a table for supporting the article to be carried by the platform, and a device for automatically discharging or removing the article from the platform, substantially as described.

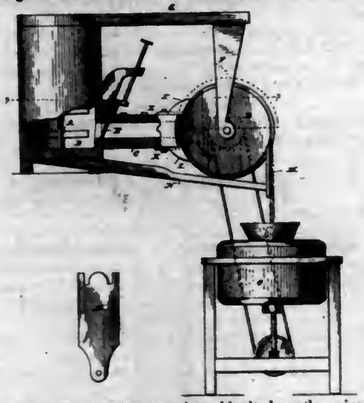
18. The combination of an endless chain extending longitudinally through the stories of a building and vertically through the flooring, a track for steadying and supporting the chain in its longitudinal movements, loosely-suspended platforms, guides for the vertical movement of the latter, and a table from which the articles to be carried are automatically picked up by the platforms, substantially as described.

19. The combination of chain-wheels in the respective stories, wheel-shafts, chains, and carrying-platforms with gear-wheels on one pair of the chain-wheel shafts, a shaft having pinions engaging the gear-wheels, bevel-wheels, and a driving-shaft, substantially as described.

20. The combination, with a building, of pivotally-suspended platforms, traveling supports therefor extending horizontally through the stories of the building and vertically through the flooring, and guides for preserving the horizontal position of the platforms in their vertical movement, whereby articles placed on the platforms may be moved from one story to and horizontally through another story, substantially as described.

21. The combination, with a building, of pivotally-suspended platforms, traveling supports therefor extending horizontally through the stories of the building and vertically through the flooring, guides for preserving the horizontal position of the platforms in the vertical movement through the flooring, and a table from which the articles to be carried are automatically picked up, substantially as described.

318,374. APPARATUS FOR THE MANUFACTURE OF WHITE LEAD. GEORGE L. IRWIN, Allegheny City, assignor to C. F. Wells & Co., Pittsburg, Pa. Filed Mar. 27, 1885. (No model.)



Claim.—1. In devices for conveying white lead or other pigments from the mixing vat or tank to the grinding-mill, a rotating wheel provided with a grooved periphery to receive the material from the spout of the mixing-tank and carry it over to the grinding-mill, as set forth.

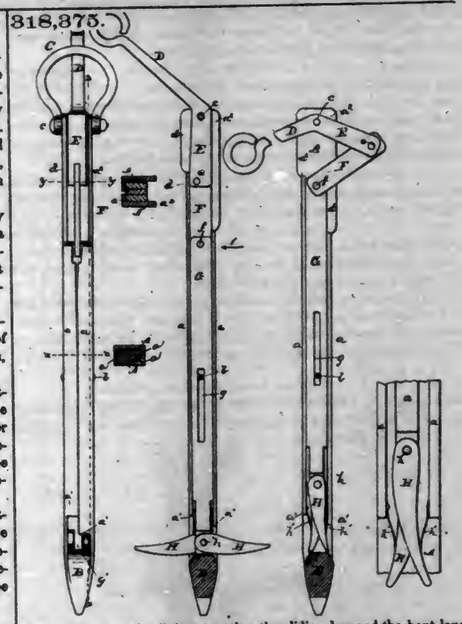
2. In devices for manufacturing white lead or other pigments, a grooved wheel adapted to be revolved in close proximity to the spout of the mixing vat or tank to receive the lead therefrom and convey it in a uniform quantity to the grinding-mill, as set forth.

3. In devices for conveying lead or other pigments from the mixing-tank to the grinding-mill, a valve-regulated spout for conveying the lead from the mixing-vat to a groove in the periphery of a revolving wheel, and a scraper adapted to remove the lead from said groove and permit it to fall into the grinding-mill located at the opposite side of the wheel from the mixing-tank, as set forth.

4. In a device for conveying lead or other pigments from the mixing to the grinding mill, a trough or spout having its front end concave to receive the convex periphery of a grooved wheel, in combination with an adjustable gage-plate, *e*, whereby the quantity of lead to be carried in the groove of the wheel can be regulated, as set forth.

318,375. HORSE HAY-FORK. FREDERICK E. KOHLER, Canton, Ohio. Filed June 19, 1884. (No model.)

Claim.—1. In a horse hay-fork, the combination of the boxing formed of the sides A A and the edges *a a*, the tines, the sliding bar, the bent lever, and a link connecting the sliding bar and the bent lever, the lower end of the bent lever being adapted to rest against the inner face of the boxing at *d* to lock the tines in an extended position, substantially as set forth.



2. In a horse hay-fork, a boxing or casing consisting of the sides having their edges bent toward each other to form the edges of the casing, substantially as set forth.

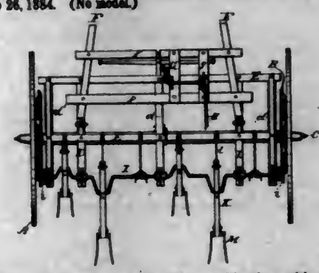
3. In a horse hay-fork, the combination of the sliding bar, the link F, the bent lever D E, and the boxing in which said parts are mounted, it consisting of the sides A A, between which the bent lever is pivoted, and the edges cut away or left open at their upper ends to permit the movements of the lever D E, the rear edge being carried up higher than the front edge, to receive the thrust of the lower end of the lever and lock the tines in their extended position, substantially as set forth.

4. In a horse hay-fork, the combination, with the casing, of the bent lever, the link F, the sliding bar, and the tines pivoted to the sliding bar near their rear ends, and adapted to be thrust outward when the sliding bar descends by engagement with the upper corners of the spear-head B, substantially as set forth.

5. In a horse hay-fork, the combination of the casing, the tines, mechanism, substantially such as described, for operating the tines, and springs adapted to bear against the tines when drawn within the casing, to prevent them from vibrating or becoming accidentally extended, substantially as set forth.

6. In a horse hay-fork, the combination of the casing, the sliding bar, the link F, the bent lever, the tines pivoted to the sliding bar, and springs *h'*, supported upon the casing and adapted to bear against the tines to prevent them from vibrating, substantially as set forth.

318,376. HAY-TEDDER. FREDERICK E. KOHLER, Canton, Ohio. Filed June 26, 1884. (No model.)



Claim.—1. In a hay-tedder, the combination, with the supporting-wheels, the axle, and the cogged rims concentric with the axle, of the main frame eccentrically pivoted to the axle, the crank-shaft, pinions carried by the crank-shaft adapted to mesh with the cogged rims,

and a lever attached to the axle and adapted to rock the axle in its pivotal connection with the main frame to withdraw the pinions from mesh with the cogged rims, substantially as set forth.

2. In a hay-tedder, the combination, with the supporting-wheels and the axle C, of the cogged rims, the main frame pivoted above the axle, the crank-shaft and its pinions, the thills hinged at their rear ends to the main frame, the lever mounted upon the thills for tilting the main frame, and the lever rigidly attached to the axle for withdrawing the pinions from mesh with the cogged rims, substantially as set forth.

3. In a hay-tedder, the combination, with the supporting-wheels, the axle, and the cogged rims, of the main frame, the crank-shaft, the pinions carried by the crank-shaft, the perforated lugs or ears *c c*, secured to the axle, the pivots carried by the main frame, which engage with said ears, and the lever attached to the axle, by which the axle is rocked upon said pivots to move the pinions into or out of mesh with the cogged rims, substantially as set forth.

4. In a hay-tedder, the combination, with the supporting-wheels, the axle, and the cogged rims, of the main frame eccentrically pivoted to the axle, the crank-shaft, the pinions carried by the crank-shaft, the lever J, attached to the axle, the bent lever Q *q*, and the link *p*, substantially as set forth.

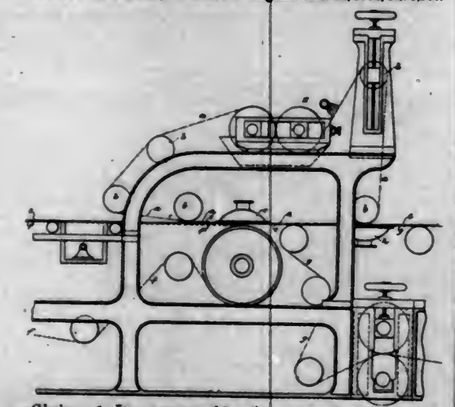
318,377. PROCESS OF ELEVATING, CONVEYING, PURIFYING, AND DRYING GRAIN. JACOB A. LATHAM, Cleveland, Ohio. Filed Apr. 15, 1884. (No model.)



Claim.—1. In a device for conveying, purifying, and drying grain, the combination, with a fan-casing having induction-tube and eduction-tube connected thereto, of a hood surrounding the upper end of the eduction-tube, and provided with a discharging-tube, and a deflecting-plate secured to said hood directly over the end of the eduction-tube, substantially as set forth.

2. In a device for conveying, purifying, and drying grain, the combination, with a fan and fan-casing, and an induction-tube and an eduction-tube connected with said casing, of a hood surrounding the upper end of the eduction-tube and forming a chamber or receptacle into which the grain falls, a grain-discharge pipe connected to the lower portion of the hood, and a deflecting-plate secured to said hood directly over the upper end of the eduction-pipe, substantially as set forth.

318,378. PAPER-MAKING MACHINE. WILLIAM LEHMAN, Two Waters Mill, Hemel Hempstead, County of Herts, England. Filed Jan. 19, 1885. (No model.) Patented in England Mar. 24, 1884, No. 5,360.



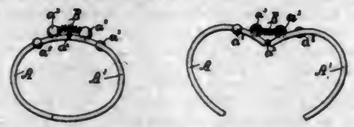
Claim.—1. In a paper-machine, the combination, with a felt or apron, of an exhaust-box placed above said felt or apron with its opening in proximity thereto, as explained.

2. In a paper-machine, the combination, with a lower couch-roll and the first press-felt, of a superposed felt spanning the space between said couch-roll and first press-felt and an exhaust-box placed above said superposed felt, as and for the purpose set forth.

3. The wire-cloth *f*, the lower couch-roll *d*, and the first press-felt *g*, in combination with the superposed felt *a* and the exhaust-box *e*, located above said felt *a* and over the couch-roll *d*, as and for the purpose set forth.

4. In combination, the wire-cloth *f* and the lower couch-roll *d*, the superposed felt *a*, and the exhaust-box *e*, placed above said felt, for causing the paper-pulp web to adhere to the under surface thereof and the first press-felt *g*, and the exhaust-box *h*, for drawing said paper-pulp web from the felt *a* onto the felt *g*, substantially as set forth.

318,379. SPRING-HINGED BRACELET. PHILIPP LETTRÉ, North Attleborough, Mass., assignor to Sandland, Capron & Co., same place. Filed Sept. 10, 1884. (No model.)



Claim.—1. In a spring-hinged bracelet, a spiral spring located in exposed position above the hinge and arranged to hold the hinged band sections or wings in closed condition, substantially as described.

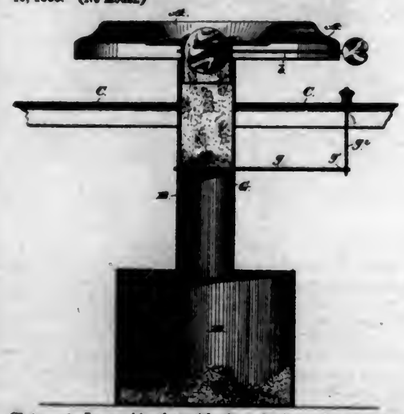
2. A spiral spring located in exposed position above the hinge and arranged to hold the bracelet in closed position, and also constituting an ornamental feature of the bracelet, substantially as set forth.

3. The combination, with a bracelet composed of two sections united by a single hinge, of a spiral spring placed above the hinge and extending in longitudinal alignment with the sections and operating to hold said sections in closed condition, substantially as specified.

4. The combination, with the sections A A′, of the spring B, having its ends set against or within the ornaments attached to the hinged ends of the sections, said spring extending in longitudinal alignment with the sections and operating to hold the same in closed condition, as described.

5. The combination, with the sections A A′, having the bent ends *a a′*, of the single hinge a^3, connecting said ends, the ornaments a^3, and the spring B, arranged above the hinge and in longitudinal alignment with the sections, as and for the purposes set forth.

318,380. STOVE. WILLIAM H. LOGAN, Millerstown, Pa. Filed Feb. 19, 1885. (No model.)



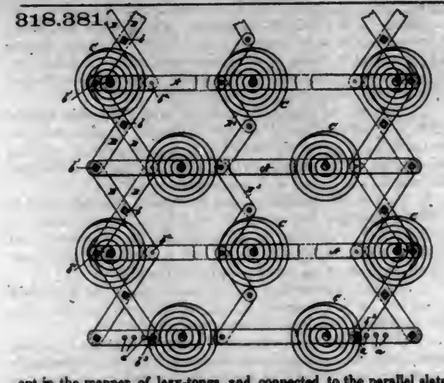
Claim.—1. In combination with the ash-pit section of a stove, a pipe extending between the same and a close ash-receptacle in the room below, and two valves which are arranged within and adapted to close said pipe, and are capable of being independently operated, substantially as and for the purpose specified.

2. In combination with the base-plate A, the pipe B, ash-receiver E, valves F and G, and means, substantially as shown, whereby said valves may be independently manipulated to close or open said pipe, substantially as and for the purpose set forth.

318,381. ADJUSTABLE SPRING BED-BOTTOM. MELVIN N. LOVELL, Erie, Pa. Filed June 9, 1883. Renewed June 9, 1884. (No model.)

Claim.—1. In a spring bed-bottom formed of slats and springs, the combination, with the parallel slats, of cross-stays extending across the width of the bed, formed of pieces B B, &c., jointed together through-

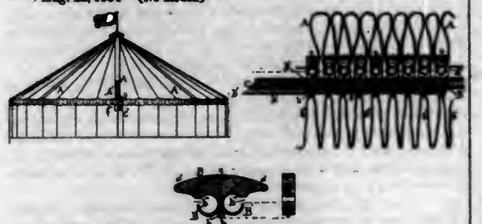
318,381.



out in the manner of lazy-tongs, and connected to the parallel slats by each of the angle-pivots on one side of said cross-stays, leaving all the other pivots free, substantially as and for the purposes mentioned.

2. In a spring bed-bottom, substantially as shown, the combination of the slats A, having attached thereon the springs C, and the cross-stays formed of sections B B, &c., jointed together in the manner of lazy-tongs, and connected with said slats at the pivot-points *b′*, and to one or both of the outer slats by an adjustable fastening, as at *a a*, substantially as and for the purposes set forth.

318,382. TENT. WILLIAM H. LOMBADEN, Covington, Ky. Filed Aug. 22, 1884. (No model.)

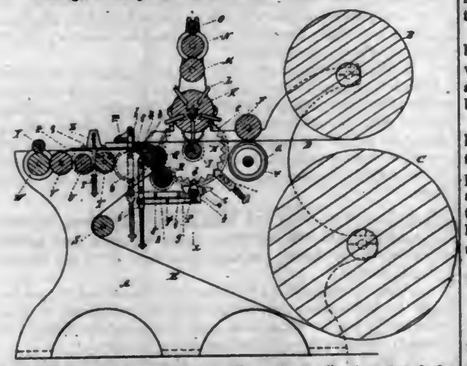


Claim.—1. The series of clamps substantially as shown, having double hooks and covered by a cap of canvas, in combination with the sides and roof-sections of a tent, substantially as and for the purpose described.

2. The metal clasps D D′ and guide-piece C″, in combination with a tent-section and the covering cap-piece A, substantially as and for the purpose described.

3. The combination of the covering cap-piece A, having a series of lacing-clamps, and the two edges of the sections of a tent-roof, substantially as and for the purpose described.

318,383. PRINTING-MACHINE. CHARLES MACHEN, Detroit, Mich., assignor, by direct and mesne assignments, of three-fourths to ISAAC M. Wellington, same place. Filed Jan. 21, 1884. (No model.)



Claim.—1. In combination with a pair of rolls adapted to feed a strip of paper, a type-cylinder which prints the same in slips, a reciprocating knife adapted partially to sever the printed strip between each slip and completely to sever the same at regular intervals, and a presser-foot adapted to press each printed piece, when severed, against a piece of cover-paper, substantially as shown and described.

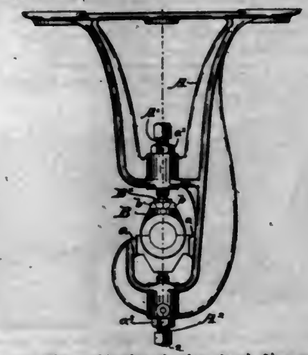
2. In a machine for printing slips, the combination of the following elements, viz: a pair of rolls adapted to feed a strip of paper, a type-roller adapted to print slips on the paper, a reciprocating knife adapted partially to sever the printed strip between each slip and completely to sever the same at regular intervals, a presser-foot adapted to press each printed piece, as soon as severed, against a piece of cover-paper, a pair of feed-rolls adapted to feed a strip of cover-paper under the printed strip, a reciprocating knife adapted to sever the strip of cover-paper whenever the printed strip is severed, and a folding device, such substantially as described, adapted to fold the severed piece of cover-paper, substantially as shown and described.

3. In combination with the feed-rolls and type-cylinder K, actuated by the star-wheel *b*, having a prolonged tooth, *c*, the knife-frame *n*, carrying the beveled knife *l*, and the lever *s*, pivoted at one end to said knife-frame and having at the other end a pin, *t*, adapted to engage with the teeth of star-wheel *b*, substantially as shown and described.

4. The combination of the folding-rolls T and U, the roll U carrying a form of type secured therein, with the reciprocating folder-knife Z and inking-roll V, substantially as described.

5. The combination of the roller B, carrying the strip of paper D, gummed on one side, the wetting-roll G, the feed-rolls I H_1 type-cylinder K, knife *l*, and presser-foot *m*, operated substantially as described, with the roller C, carrying the strip of cover-paper E, feed-rolls Q R, geared to feed paper E faster than paper D is fed, knife *k*, operated substantially as described, folder-knife Z, and rolls T U, substantially as and for the purposes described.

318,384. BOX-SUPPORTER. DANIEL W. MARMON, Indianapolis, Ind., assignor to the Nordyke & Marmon Company, same place. Filed Apr. 13, 1885. (No model.)



Claim.—1. The combination of a box for shafting, and means for supporting the same, consisting of a ball-and-socket joint at one side, and a sliding block held in contact with its surface at the other.

2. The combination of a box-support, a box, B, a block, B′, on said box, and a screw, A′, substantially as set forth.

3. The combination of a hanger, a box supported by screws mounted in said hanger, and a block on said box, one of said screws entering a bearing in said block, and the other entering a bearing in the box, substantially as and for the purposes specified.

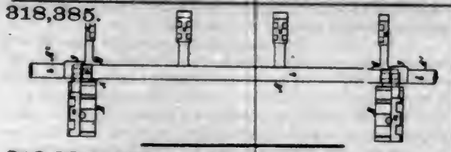
4. The combination of a hanger, A, a box, B, projections *b b*, a block, B′, having a concave surface which fits onto a corresponding convex surface on the box, and set-screws A′ and A^2, one of which enters a bearing in said box, and the other of which enters a bearing in said block, substantially as set forth.

5. The combination of a hanger having projections *a a*, a box, B, having grooves which fit over said projections, and projections *b b*, between which is a convex-bottomed space, a block, B′, fitted between said projections, and set-screws A′ and A^2, mounted in bearings in said hanger above and below said box, one of which enters a bearing in said box, and the other of which enters a similar bearing in said block, whereby the box is adapted to automatically adjust itself to the line of the shafting mounted therein.

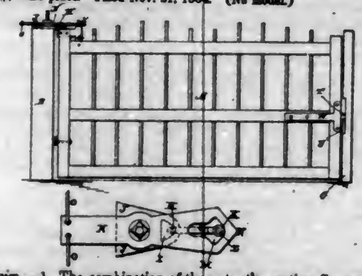
318,385. CAP-BAR SUPPORT FOR SPINNING-MACHINES. FREDERICK MASON, Taunton, Mass., administrator of WILLIAM MASON, deceased. Filed Aug. 16, 1883. Renewed Jan. 5, 1885. (No model.)

Claim.—The spinning-machine cap-bar slides B, provided with the bearing-cylinders *c*, having horizontal notches *e* in them, as set forth, in combination with the cap-bar provided with the journals *f* and lips *g*, extending from it, and each lip curved transversely, as described, to or about to but not more than the arc of a semicircle, all being substantially as represented.

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318,386. GATE. JOSEPH B. MAY, Lexington, Ky., assignor to Benj. L. May, same place. Filed Nov. 21, 1884. (No model.)



Claim.—1. The combination of the gate, the casting G, secured to its inner and upper end and provided with a pintle at one corner and a projection at the other, the plate J, secured to the post B and provided with an opening to receive the pintle, and the operating-lever N, having an opening at its front to catch over the projection K and connected at its rear end to the operating-wires, substantially as shown.

2. The combination of the operating-lever N, for opening and closing the gate, the connecting cords or wires, the cranked levers P, to which the wires are connected, the connecting-rods Q, and the levers R, pivoted upon the posts E, substantially as described.

318,387. LATHE-CHUCK. SAML. T. NEWMAN, Danbury, Conn. Filed Oct. 9, 1884. (No model.)



Claim.—1. In a chuck, a sliding block having a rack engaging a spur-gear and a lug engaging one of the jaws, in combination with other jaws having racks and operated through spur-gears from the rack on the sliding block.

2. The sliding block and operating-screw, in combination with the spur-gears and the jaws.

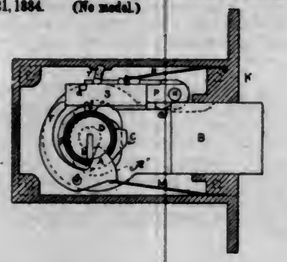
3. The sliding block having a lug-engaging jaw, C, and a rack-engaging spur-gear, I, in combination with spur-gear L and jaws having racks which engage the spur-gears.

4. The operating-screw having flange G' and head G^2, and the sliding block having internal screw-thread engaging said screw, a lug, H', and a rack, H^3, in combination with the spur-gears and the jaws.

5. The sliding block having lug H^4 and rack H^3, in combination with spur-gear I, engaging said rack, spur-gear L under the sliding block and engaging spur-gear I, and the jaws.

6. In a chuck, a sliding block operated by a screw and having a lug and rack, as shown, in combination with the spur-gears and the jaws.

318,388. LOCK. CALVIN W. PARKER, Scranton, Pa., assignor of one-fourth to Arthur C. Logan and Charles E. Chittenden, both of same place. Filed Jan. 21, 1884. (No model.)



Claim.—1. In a lock, the combination, with the levers A, actuated by a proper key, so as to make their arms F move unequally, and the spring or springs M, acting on the levers in an opposite direction to said key, of the slides S, supported by and moving longitudinally on the bar L, pivoted at H, substantially as specified.

2. In a lock, the combination, with the levers A, provided with the arms F, and barrel D, having attached the cam C, provided with detent-points *d* and *e g*, of the tooth T and slides S, provided with the notches *a*, and sliding between the lateral flanges of the bar L, provided with tooth L', and pivoted at H, substantially as specified.

3. In a lock, the combination, with the levers A, provided with arms F, slides S, provided with notches *a*, bar L, provided with detent L', and the tooth T, of the barrel D, having attached the cam-rollers C and E, and the bolt B, sliding in the case K, and having in it a proper slot to be reciprocated by the cam E, substantially as specified.

4. In a lock, the combination of the cam C, having the stops *d* and *e g*, and the bar L, pivoted at H, and provided with tooth L', of the slides S, spring N, and block W, substantially as specified.

5. In a lock, the combination, with the bar L, partitions P, pivoted together with the bar L at H, and the slides S, moving longitudinally between said partitions, and having their lower front corners below the edges of the partitions and bar, of the bolt B, provided with the shoulder G, which, when the bolt is drawn in, impinges on lower corners of the slides and brings the latter into proper position, substantially as specified.

6. The combination, with the levers A, of the longitudinally-movable slides S, each of which is provided with a notch, *a*, and one or more of which is provided with a plurality of said notches, and capable of adjustment into different position, whereby the lock may be adapted for operation by keys of different formation, substantially as set forth.

7. In a keyed lock, the combination of the slides S, the levers A, the cam E, having that portion of its periphery farthest from its center of rotation concentric with the same, and covering approximately sixty degrees of arc, and the cam C, having points *d e*, the said points being formed a distance apart not greater than the concentric or idle part of cam E, substantially as and for the purposes specified.

8. The combination, in a lock, with the chamber R, having an opening in one side, of the levers A, pivoted as described, and having their ends operating through the opening in the side wall of the chamber R, the contour of said ends being formed of arcs of circles concentric with the pivot J, whereby said levers wholly close and obstruct the opening in the wall of the chamber R, and prevent all access to the interior of the lock, substantially as set forth.

9. In a lock, the combination of the levers A, the bars L, the slides S, supported by and movable along the bars L, and the ward or tooth T, all arranged and operating substantially as set forth, whereby the slides may be detached from and moved beyond possible contact with the levers before the said slides are presented to the ward or tooth T, as and for the purposes specified.

318,389. COMPOUND FROM WHICH CAN BE MADE A LUBRICATING-OIL OF LOW COLD TEST. RICHARD PATTIN, Harmar, Ohio, assignor to the Argand Refining Company, Marietta, Ohio. Filed Dec. 31, 1884. (No specimens.)

Claim.—1. The process of making a compound from which can be made a zero and below cold-test oil by mixing therewith crude petroleum and stilling in the ordinary way, said process of making said compound consisting of mixing residuum from an ordinary oil-refinery of carbon illuminating-oil in the proportions hereinbefore named with benzine in the proportions above named and agitating and stirring thoroughly, and then mixing with it sulphuric acid in the proportions above named and agitating and stirring thoroughly, and allowing the same to settle for from twelve to twenty-four hours.

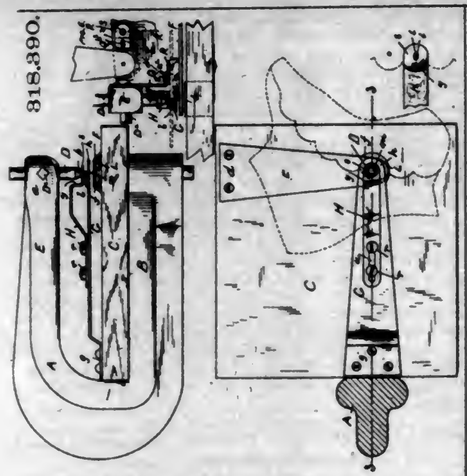
2. The composition itself, which is formed or made by the process of mixing from eight to forty parts of residuum from an ordinary coal-oil refinery for making carbon oil for illuminating purposes by the ordinary method with from sixteen to sixty parts of benzine and stirring and agitating the same till thoroughly mixed, and then putting therein from one to two parts of sulphuric acid and agitating again till thoroughly mixed, and allowing the same to settle for from twelve to twenty-four hours.

318,390. MACHINE FOR MARKING THE QUARTERS OF BOOTS OR SHOES FOR THE BUTTONS. ALBERT F. PRESTON, Lynn, assignor to the Preston Machine Company, Boston, Mass. Filed Apr. 19, 1884. (No model.)

Claim.—1. Plates F and G, constructed and adapted to mark the upper of a boot or shoe, respectively, where the buttons are to be secured thereto and the button-holes made therein, in combination with means for operating the same, substantially as described.

2. Plates F and G, constructed and adapted to mark the upper of a boot or shoe, respectively, where the buttons are to be secured thereto and the button-holes made therein, and provided with an adjustable gage, S, and rest or tube D, in combination with means, substantially as described, for operating the same, substantially as set forth.

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3. Plates F and G, constructed and adapted to mark the upper of a boot or shoe, respectively, where the buttons are to be secured thereto and the button-holes made therein, and provided with a concave or V-shaped gage, *y*, and rest or tube D, in combination with means, substantially as described, for operating the same, substantially as set forth.

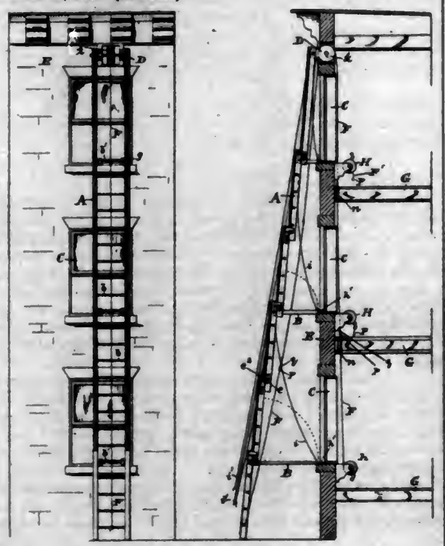
4. The combination, with a bed-plate or table, C, having a block, L arranged to move vertically therein, of plates F and G, having pins *n* and *l*, respectively, and rest or tube D, when all arranged together for operation, substantially as and for the purpose specified.

5. The combination, with a bed-plate or table, C, having a block, L, arranged to move vertically therein, of plates F and G, having pins *n* and *l*, respectively, a gage, *y*, and rest or tube D, when all arranged together for operation, substantially as and for the purpose specified.

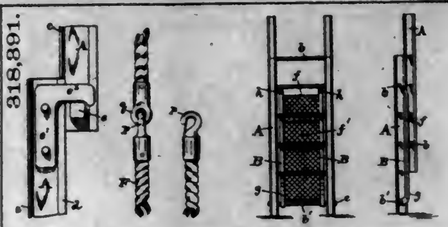
6. The combination, with a bed-plate or table, C, having a block, L, arranged to move vertically therein, of plates F and G, having pins *n* and *l*, respectively, spring H, gage *y*, and rest or tube D, when all arranged together for operation, substantially as and for the purpose specified.

7. The combination, with a bed-plate or table, C, having a block, L, arranged to move vertically therein, of plates F and G, having pins *n* and *l*, respectively, and a plate, R, provided with an opening, S, said plate R being connected to said plate C so it can be adjusted thereon, substantially as and for the purpose specified.

318,391. FIRE-ESCAPE. WILLIAM R. PRICE, Still Pond, Md. Filed Mar. 25, 1885. (No model.)



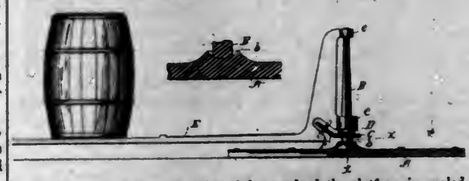
318,391.



Claim.—1. The combination of a ladder made in sections which slide lengthwise on each other, a ladder-support to which the topmost ladder is attached, a rope in sections joined by a coupling device, and having one end attached to the lowermost ladder-section and passed up over an elevated pulley, and thence down, and two or more windlasses, one on each floor of a building, each provided with an independent supply of rope, F', for connection with the said sectional rope, as and for the purpose set forth.

2. The combination of a ladder made in sections which slide lengthwise on each other, a platform hinged by one end to one of the ladder-sections, and a rope, *i*, having one end attached to the free end of the platform and passed over an upper rung on the ladder-section to which it is hinged, and thence down, as set forth.

318,392. BARREL-STAND. ISAAC G. POLLARD, Sanville, Pa. Filed Mar. 30, 1885. (No model.)

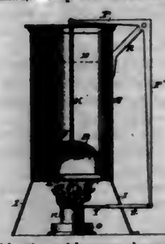


Claim.—1. The combination of the standard, the platform journaled thereto, and an anti-friction wheel supported in the inner lower end of the platform and bearing against the standard, substantially as set forth.

2. The combination, with the standard and the platform journaled thereto, of the anti-friction wheel journaled to the inner lower end of the platform and arranged at an angle to the standard, whereby it sustains the vertical as well as the lateral pressure of the platform, substantially as set forth.

3. The barrel-support herein described, consisting of the base, the standard mounted thereon and provided with a gutter, *b*, a toothed plate, C, and a shoulder, D, the platform journaled at one end to the standard, and a toothed wheel, F, journaled to the platform, arranged at an angle to the standard and geared with the plate C, substantially as set forth.

318,393. HEAT-REGULATOR. CARROLL L. RIKER, New York, N. Y., assignor to C. Gallman, no place. Filed Nov. 1, 1881. (No model.)

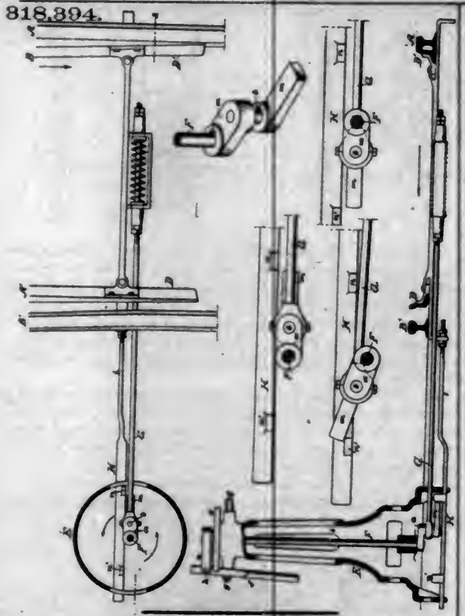


Claim.—In combination with a vessel containing liquid desired to be kept at or near its boiling-point, the submerged accumulator B and connecting-rod K, operating an automatic cut-off by the force of vapor accumulated below the surface of the liquid under said accumulator acting in one direction and by the force of gravity acting in the other direction, substantially as shown and described.

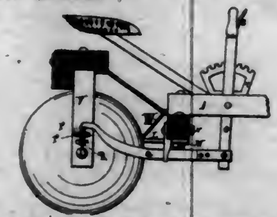
318,394. SAFETY DEVICE FOR RAILROAD-SWITCHES. ALFRED R. ROBERTS, Philadelphia, Pa., assignor to the Wharton Railroad Switch Company, same place. Filed Apr. 13, 1885. (No model.)

Claim.—The combination of the switch-stand and its notched plate *d*, the operating-shaft having a crank, *a*, and pivoted arm *f*, the switch, the yielding connection of said switch to the crank, an arm, *m*, on the operating-shaft, and a bar rigidly connected to the switch and having projections arranged in respect to the arm, as described.

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318,395. DISK-HARROW. HENRY M. ROSE, Waterman, Ill. Filed Jan. 9, 1885. (No model.)



Claim.—1. In a disk-harrow, the disk-gangs provided with eye-bolts at their inner ends, combined with a pintle or hook-bar inserted through said eyebolts and attached to the draft-frame, whereby said disk-gangs are coupled and maintained in place.

2. The combination, in a disk-harrow of the kind referred to, of two gangs of disks, each jointed to its drag-bar at or near its center of length, the eyebolts P P in the adjacent ends of the said gangs, respectively, the connecting-rod Q, with a pintle, R, at one end, and the hand-lever O, fulcrumed on the frame and jointed to the other end of said connecting-rod.

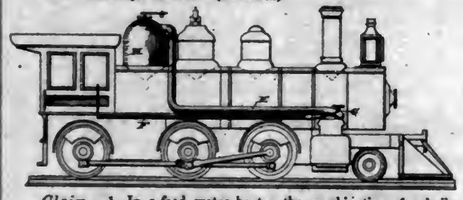
3. In a disk-harrow, the disk-gangs coupled at their centers and at their inner ends to the draft-frame by means of the draw-bars L, plate M, eyes P P, and a connecting-rod, Q, with a pintle or hook at its rear end in engagement with said eyes.

4. The combination, in a disk-harrow, of the following elements: a draft-frame, disk-gangs C D, each set up in sections, a non-rotating axis-rod, girt U, and supporting-hangers V, said gangs being coupled together at their adjacent ends by means of eyes P P, attached to said gangs, respectively, a connecting-rod, Q, with pintle R, in engagement with said eyes, a pivoted draft-block, J, on said axis-rod at or near its center, a drag-bar, L, pivoted to said block and to the draft-frame, and a joint-plate, M, on a horizontal axis-pin, N.

5. The combination, in a disk-harrow, of the following elements: a draft-frame, disk-gangs, each composed of two independent sections, a non-rotating axis-rod, a girt, U, and hangers V, at the ends and middle of said gangs, the eyes or eyebolts P P, attached to or projecting from the inner end hanger, and the connecting-rod Q, with its pintle R in engagement with said eyes.

6. The combination, in a disk-harrow, of the harrow-gang attached at its middle to the drag-bar by a joint having a vertical axis, and said drag-bar at its front end attached to the dragging-frame, with a joint having both a horizontal and a vertical axis by means of the joint-plate M, whereby said gang is enabled to move in all directions to vary its obliquity to the line of draft and to follow the undulations of the ground without cramping or binding.

318,396. FEED-WATER HEATER. OSCAR ROTHROCK, New York, N. Y. Filed Apr. 13, 1885. (No model.)



Claim.—1. In a feed-water heater, the combination of a boiler with a tank located on the boiler over the fire-box and an exhaust-steam pipe passing through the tank, substantially as described and shown.

2. In a feed-water heater, the combination of a boiler with a tank located on the boiler, an exhaust-steam pipe passing through the tank, and a valve for directing the exhaust through the pipe or up the stack.

3. In a feed-water heater the combination of the tank provided with the gage-cocks and safety-valve with the exhaust-pipe passing through it, said tank being located upon the boiler, substantially as described.

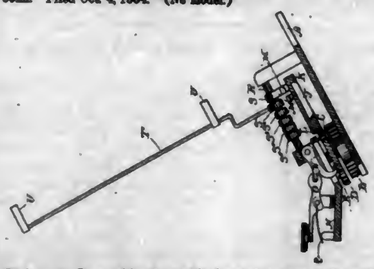
318,397. MECHANICAL TELEPHONE. JOHN C. ROUNDS, Meravia, N. Y. Filed Apr. 29, 1884. (No model.)



Claim.—1. The combination, in a mechanical-telephone receiver, of the ring B', plate B^2, the concave plate *a*, the diaphragm, and the diaphragm-supporting plate C, said plates B^2, *a*, and C being arranged substantially as described, whereby air-chambers G and H are interposed between the diaphragm and the external air, substantially as set forth.

2. The herein-described mechanical-telephone receiver, composed of concave plate *a*, having central opening, *a'*, the ring B', and plate B^2, the diaphragm, the line, and the plate C, supporting the diaphragm and having its outer edges resting on the outer edges of the plate *a*, and its middle portion perforated with air-opening smaller than the opening *a'*, the said middle portion being extended into the opening *a'*, substantially as set forth.

318,398. MUSIC-LEAF TURNER. JOHN H. SHELTON, Bridgeport, Conn. Filed Oct. 4, 1884. (No model.)



Claim.—1. In combination with the spring mounted on the back plate, the geared wheel having upwardly-projecting beveled teeth and resting upon and receiving motion from said spring, the racked plate bearing the short racks and meshing with the circumferential teeth of the said geared wheel, the pivoted dog controlled by the trigger and holding upon the upwardly-projecting teeth of the geared wheel against the resiliency of the said spring, and the journaled segments holding the supporting-wires and adapted to be engaged and turned in rotation by the short racks upon the sliding plate, all arranged as described, and for the purpose set forth.

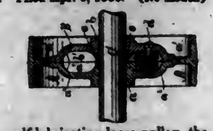
2. In combination with the geared and toothed wheel mounted upon the coil-spring and receiving motion therefrom, the L-shaped dog pivoted in an upward projection of the bridge-plate, controlled at its heel end by the pivoted trigger, and holding upon the vertical surface of the beveled teeth on the gear-wheel against the resiliency of the coil-spring, substantially as described.

3. In combination with the geared wheel, to the shaft of which is secured the inner end of the coil-spring, the rack-plate, the edge of which meshes with the circumferential teeth of said wheel, having the

short racks upon its upper surface adapted to slide upon the way-strip and to either receive motion from the gear-wheel when the spring is at tension and the dog withdrawn from its hold on the teeth or to impart motion to said gear-wheel and tension to the spring when pushed from right to left, substantially as set forth.

4. The combination of back plate, A, spring B, geared wheel D, bearing teeth E, bridge-plate H, having pivoted therein dog N, and thereon trigger O, way-strip J, bearing racked plate K, adapted to slide thereon, and having short racks M, and segments S, journaled independently on the same shaft, and having attached thereto the wires for holding the leaves, all arranged as described, and adapted to be operated substantially as hereinbefore set forth and specified.

318,399. SELF-LUBRICATING LOOSE PULLEY. GEORGE H. SMITH, Providence, R. I., assignor to the Brown & Sharpe Manufacturing Company, same place. Filed Apr. 2, 1885. (No model.)



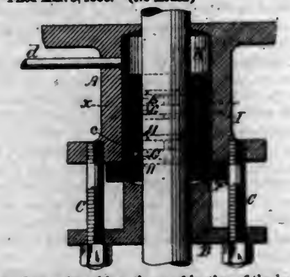
Claim.—1. In a self-lubricating loose pulley, the space or channel *e*, the oil-chamber, and the partitions terminating short of the margin of said chamber, as described.

2. The combination, with the web *a'*, having the rim A, hub *a*, and swell a^2, with the half-partitions a^4, of the separate piece B, having the swell, the hub *b*, and half-partitions *b'*, as set forth.

3. The combination, with the web *a'*, having swell a^2, with its half-partitions a^4, the rim A, hub *a*, and shoulder a^3, of the separate piece B, with its swell and half-partitions *b'*, and the screws *d*, as specified.

4. The combination, with the web *a'*, having rim A, hub *a*, swell a^2, shoulder a^3, and half-partitions a^4, of the separate piece B, having its swell and hub *b*, and half-partitions *b'*, the screws *d*, and the filling-opening with its plug F, as described.

318,400. PISTON-ROD PACKING. SPENCER D. THURSTON, Philadelphia, Pa. Filed Mar. 3, 1885. (No model.)



Claim.—1. In a rod-packing, the combination of the longitudinally-divided packing-box having recesses formed therein with the packing rings and springs, substantially as described.

2. In a rod-packing, the combination of the packing-box having recesses that form separate compartments with the two rings triangular in section in each compartment and the coil-spring, substantially as described.

3. In a rod-packing, the combination of the box having separate compartments with four rings in each compartment, two being triangular and two square in cross-section, and the coiled spring, all arranged substantially as shown and described.

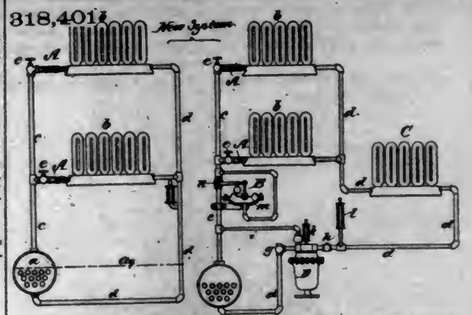
4. In a rod-packing, the combination of the packing-box having separate compartments and provided with a flange at one end with the rings, the stuffing-box, and the gland secured to the lower portion of the packing-box by bolts or rods, substantially as described.

318,401. STEAM-HEATING APPARATUS. FREDERIC TUDOR, Boston, Mass. Filed Jan. 13, 1884. (No model.)

Claim.—1. A steam-heating apparatus constructed with restricted supply-throats between supply-pipes and radiators, having a definite relation or proportion to the condensing-surface of the radiator, so as to admit practically only the amount of steam which the radiator can condense, substantially as and for the purpose set forth.

2. A steam-heating apparatus consisting of a boiler or source of steam, one or more radiators, a supply-pipe extending from the steam-space of the boiler and connecting with each radiator, and provided with throttling-valves at each radiator and with restricted supply-throats so proportioned to the radiator as to admit only the quantity of steam which it can condense under normal conditions, and a return-pipe without throttling-valves extending from each radiator to the water-space of the boiler, arranged and operating substantially as and for the purpose set forth.

318,401.



3. An improved steam-heating apparatus formed by the combination, with a steam-boiler and a series of radiators, of a return-pipe extending from the water-space of the boiler and connecting to all the radiators in common at points above the water-line, and a steam-supply pipe extending from the steam-space of the boiler to the radiators, with restricted supply-throats between the radiators and the supply-pipe so proportioned to the radiators as to admit only the quantity of steam which it can condense under normal conditions, substantially as herein shown and described.

4. A steam-heating apparatus consisting of a boiler or source of steam and one or more radiators, a supply-pipe extending from the steam-space of the boiler to each radiator and provided with throttling-valves and with restricted supply-throats so proportioned to the radiator as to admit only the quantity of steam which it can condense under normal conditions, with a return-pipe extending from the radiators to the water-space of the boiler and provided with an air-valve common to the system, substantially as herein shown and described.

5. A steam-heating apparatus substantially such as set forth, having restricted supply-throats A, so proportioned to the radiators as to admit only the quantity of steam which they can condense under normal conditions, between supply-pipe and radiators, and a condenser, C, upon the return-pipe, substantially as and for the purpose set forth.

6. A steam-heating apparatus substantially such as set forth, having a pressure-regulator, such as B, between the boiler and radiators and supply-throats between the supply-pipe and radiators, with a return-pipe so proportioned to the radiators as to admit only the quantity of steam which they can condense under normal conditions, opening freely from each radiator and finally discharging into the boiler, and provided with means to prevent the backing up of water therein, substantially as herein set forth.

7. A steam-heating apparatus substantially as shown in Fig. 4, consisting of a boiler, *a*, supply-pipe *c*, with valves *e*, and restricted throats A, so proportioned to the radiators as to admit only the quantity of steam which they can condense under normal conditions, radiators *b b*, return-pipe *d*, condenser C, and trap D, arranged and operating substantially as herein shown and described.

8. A steam-heating apparatus substantially such as shown in Fig. 4, consisting of a boiler, *a*, supply-pipe *c*, pressure-regulator B, valves *e*, restricted throats A, so proportioned to the radiators as to admit only the quantity of steam which they can condense under normal conditions, radiators *b b*, return-pipe *d*, condenser C, and trap D, arranged and operating substantially as and for the purpose set forth.

318,402. CABINET-CREAMER. THOMAS S. VAN DEVORT, Superior, Mich. Filed Sept. 15, 1884. (No model.)



Claim.—1. The combination of a milk-can having the externally-threaded tube E rising within its interior, and provided with a flange, F, which rests in a recess on the bottom of the can and retains the tube in place, with the elastic washers or packing-rings N N and P, the jam-nut H, and stuffing-box I, substantially as specified.

2. The combination of the tube E, provided with the flange F, to retain it within the milk-can, and the apertures Y Y, with the movable tube M, provided with the skimming-cup S, substantially as described.

318,403. CASTER. WILLIAM G. WALTER, Pittsburg, Pa. Filed Sept. 30, 1884. (No model.)



Claim.—1. A caster or bottle-holder consisting of a vitreous stand, a metallic handle, and a suitable foot or base, all secured together by a single screw or pivot passing through the base and stand and into the handle, substantially as described.

2. The combination of glass stand A, a metallic handle, a bottom plate, B, and nut C, with glass base E, and screw D, passing through said base and stand and into said plate, substantially as described.

318,404. PENCIL-SHARPENER. HOWARD WHITE, Philadelphia, Pa. Filed Dec. 22, 1884. (No model.)

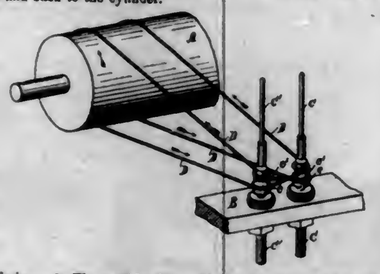


Claim.—1. A pencil-sharpener consisting of a plate having a sharpening-surface and a supporting-frame open at one side thereof, the said plate having a gutter or channel on the side toward the open side of the frame, substantially as and for the purpose set forth.

2. The sharpening-plate A, provided with a gutter, C, in combination with a supporting-frame, B, the walls of which rise above said plate, the latter being inclined downward from the front, forming the channel C', substantially as and for the purpose set forth.

318,405. SPINNING AND TWISTING MACHINE. G. MARSTON WHITIN, Whitinsville, Mass., assignor to the Whitin Machine Works, same place. Filed July 25, 1884. (No model.)

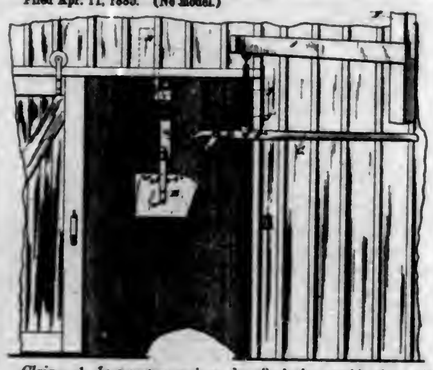
Brief.—To compensate for the elasticity of the spindle-driving band, and to secure proper evenness of movement of the spindles, each spindle is provided with two whirls, and each band is made to pass from the driving-cylinder completely around one of the two whirls of each spindle of a pair, and thence partially around the remaining whirl of each spindle and back to the cylinder.



Claim.—1. The combination, with the driving-cylinder and the spindles having each two whirls, of the band passing completely around one whirl of the first spindle, thence completely around the other whirl of the second spindle, thence partially around the driving-cylinder, thence partially around one whirl of the second spindle, thence partially around the other whirl of the first spindle, and thence partially around the driving-cylinder and back to the starting-point, substantially as and for the purpose described.

2. The combination, with the cylinder A and the spindles C C', having each the two whirls *c c'*, of the band D, passing first completely around the lower whirl, *c*, of the first spindle, then completely around the opposite whirl, *c'*, of the second spindle, then partially around the cylinder, then partially around the lower whirl, *c*, of the second spindle, and then partially around the opposite whirl, *c'*, of the first spindle, as and for the purpose set forth.

318,406. STABLE-CLEANER. LORENZO ZIMMERMAN, Sherwood, Mich. Filed Apr. 11, 1885. (No model.)



Claim.—1. In a system such as described, the combination, with the elevated rail, the traverser mounted thereon and provided with devices for detachably suspending the bucket, of the crane, the lever suspended from said crane and provided with hooks for engaging, lifting, and removing the bucket from the traverser, substantially as described.

2. In combination with the elevated rail provided with the side flanges, as described, the traverser consisting, essentially, of the roller and the hanger mounted upon the axle of the roller, extending beneath the rail, and provided with a hook, from which the bucket is suspended, substantially as described.

3. In combination with the elevated rail, the traverser mounted thereon and provided with the dependent hanger, the bucket detachably secured to the said hanger, the crane carrying a suspended lever, the latter provided with open hooks to engage pins upon the vertical standard of the bucket-frame, whereby the bucket can be shifted from the traverser to the lever and swung on the crane, substantially as described.

4. In combination with the pivoted bucket, its frame and upright provided with the pins, as described, and the pivoted latching-lever applied thereto, a lever carrying hooks for engaging said pins and suspending the bucket, said lever carrying a plate co-operating with the latching-lever and releasing the bucket when the lever is tilted, substantially as described.

5. In combination with the vertical post of the frame in which the bucket is pivoted, and the two sets of pins applied thereto as described, and the locking-lever, a suspended lever carrying hooks to engage said pins, and provided with tripping-plates to engage the locking-lever and release the bucket, substantially as described.

6. In combination with the lever carrying hooks to receive and sustain the bucket-frame, the latter provided with a locking device, substantially as described, the plate and curved arms applied to the said lever, and adapted to engage the locking device and release the bucket when said lever is presented to the bucket-frame from either direction, substantially as and for the purpose set forth.

7. In combination with the bucket, its supporting-frame and locking device, the lever for suspending the bucket, provided with the two curved and pivoted side plates, and adjustable bottom plate having projections engaging said side plates, substantially as described.

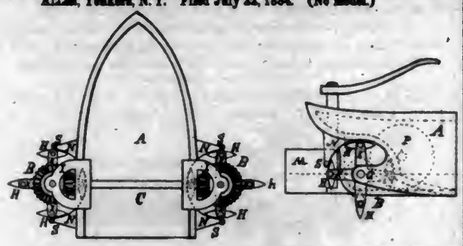
8. In combination with the lever carrying the hooks to receive the pins on the bucket-frame, the curved plates pivoted to the sides of the lever, and an adjustable plate applied below said side plates, and having projections or lugs upon which the side plates rest, whereby the side and bottom plates can be simultaneously adjusted to effect the unlocking of the catch on the bucket-frame, substantially as described.

318,407. FASTENING DEVICE FOR SHOES, GLOVES, &c. SOLOMON ABRAHAMS, Boston, Mass. Filed Mar. 2, 1885. (No model.)



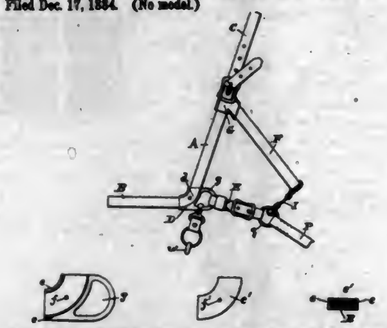
Claim.—A fastening device consisting of the holding-plate D, lever B, provided with the finger or tongue *b'*, and slotted plate A, in combination, substantially as described.

318,408. PADDLE-WHEEL FOR PROPELLING VESSELS. JOHN S. ALLEN, Yonkers, N. Y. Filed July 22, 1884. (No model.)



Claim.—In a feathering wheel, the paddles H H, rotating freely on central trunnions, presenting either side to the water, when passing the lower half-arc of a circle, in combination with guides N N, against which either side of the paddles may move through the upper half-arc of a circle.

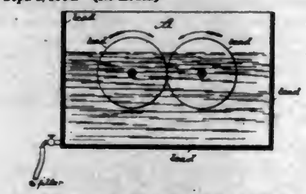
318,409. BRIDLE AND HALTER. JACOB ANDES, Wilkes-Barré, Pa., assignor of two-thirds to Michael Andes and Henry Andes, same place. Filed Dec. 17, 1884. (No model.)



Claim.—1. A head-gear for animals, having a cheek-strap and nose-band formed of one piece with an edgewise bend, *d*, at the uniting-angle, and provided with a metal trimming, D, entirely covering the edgewise bend, the said trimming consisting of a plate having two concentric curved flanges, *e*, with a flat surface between them, and a segment-shaped plate, *e'*, fitting and secured between the two flanges to confine the edgewise bend, as set forth.

2. A metal trimming for the head-gear of animals, consisting of a plate having two concentric curved flanges, *e*, with a flat surface between them, and provided on the edge with a loop, *g*, and a segment-shaped plate, *e'*, fitting between the said curved flanges, as set forth.

318,410. TREATMENT OF COTTON-SEED OIL. JOHN B. ARMSTRONG, Chicago, Ill., assignor of one-half to Solomon Porter Brockway, same place. Filed Sept. 1, 1884. (No model.)



Claim.—1. The process of treating oil, consisting in causing a wheel or wheels covered with lead to revolve in contact with the oil, substantially as described.

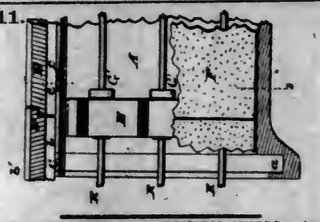
2. The process of treating cotton-seed oil, consisting in dissolving in said oil the proportion of oxide of lead and then filtering the oil through a filter of animal charcoal and coke, substantially as described.

318,411. ELECTRIC WAY. WILLIAM E. RANTA, Springfield, Ohio, assignor of two-fifths to John M. Dodd and Abner M. Crowthers, both of same place. Filed Mar. 10, 1884. (No model.)

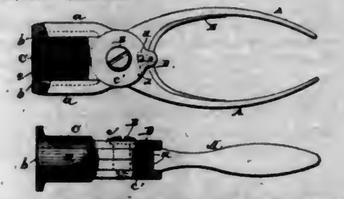
Claim.—1. In an electric way, the trough A, closed above by luted crown-sheets C, occupying grooves *a''* in the trough-walls, and by a protecting rigid cap-course, B, substantially as set forth.

2. In an electric way, a series of supporting-piers composed of blocks E, having rabbets *e*, which receive one or more longitudinal partitions, F, substantially as set forth.

318,411. [illegible]



318,412. IMPLEMENT FOR CRIMPING SHELLS. ALBERT BOWN, Streator, Ill., assignor of one-half to Fawcett Plumb, same place. Filed Jan. 27, 1885. (No model.)

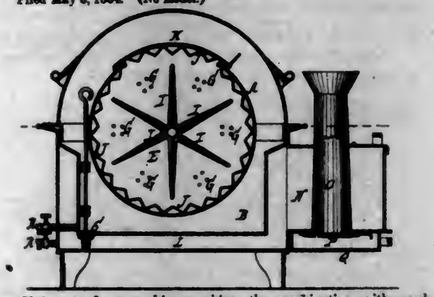


Claim.—1. The combination, with a pair of levers hinged together in the form of pinchers and provided with inwardly-projecting curved lips, of a plug located between the jaws, and secured on the pivotal bolt of the levers, and pins passing through one or both of the levers and the rear end of the plug, whereby the plug is centered when the levers are opened, substantially as set forth.

2. In a shell-crimping implement, the combination, with a pair of levers hinged together in the form of pinchers, and provided with the inwardly-projecting crimping-lips, and a spring for holding the levers in open adjustment, of a plug located between the jaws and connected to the levers at two points, whereby it is held against movement when the jaws are in open adjustment.

3. In a shell-crimping implement, the combination, with a pair of lever-jaws provided with crimping-lips, of a plug adapted to fit within the shell, said plug being secured on the pivotal bolt of the lever-jaws and provided with a pin passing through elongated perforations in the levers, whereby the levers, when open, bear in opposite directions on the pin, and thereby center the plug, substantially as set forth.

318,413. WASHING-MACHINE. GUSTAV BURKHARDT, Homer, Ill. Filed May 8, 1884. (No model.)



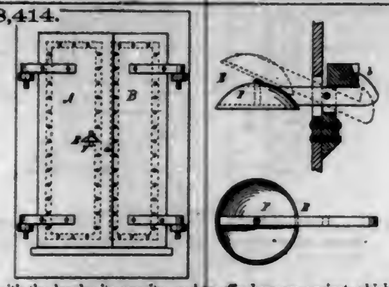
Claim.—1. In a washing-machine, the combination, with a suds-box, of a closed revolving drum having conical heads E, provided with holes G, and a circular range of buckets, F, secured to and projecting outwardly from the exterior surfaces of the drum-heads, for lifting up the suds from the box and discharging the same therefrom into the drum through the holes, and a series of radial ribs, I, secured to the under surfaces of the drum-heads with their inner edges approximately in line with the base of the conical heads, substantially as described.

2. The combination of the suds-box, an outer jacket therefor on the bottom and part of the sides, a heating-chamber upon one side communicating with the jacket, a heating device, substantially such as described, located mainly beneath the heating-chamber and part thereof passing therethrough, a valve controlling communication between the suds-box and the jacket, and closed revolving drum seated in the suds-box, substantially as described.

318,414. SHUTTER-FASTENER. JOHN A. BURR, New York, N. Y. Filed June 27, 1884. (No model.)

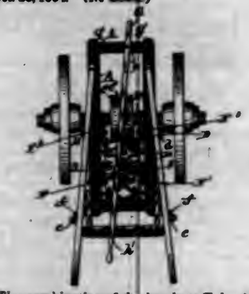
Claim.—The combination, with the shutters A B, springs D, and bar C, of the latch E, having the hook *b* to engage the bar C to lock it, and the inverted concavo-convex plate F to hold said hook in engage-

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ment with the bar by its gravity, and to afford means against which to direct a stream of water to release the latch to open the shutters in case of fire, all substantially as shown and described.

318,415. COTTON-CULTIVATOR. NELSON R. H. BURNET, Matthews, N. C. Filed Oct. 23, 1884. (No model.)

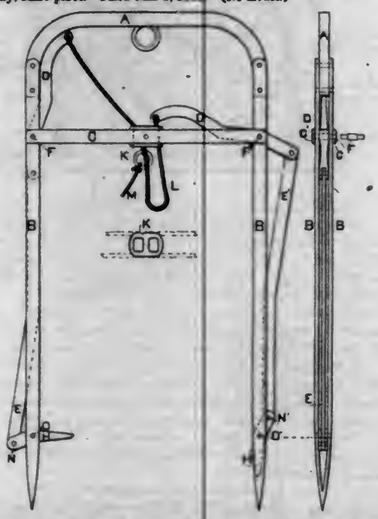


Claim.—1. The combination of the brackets F, having arms F' and F², and standards *a* and *b*, scrapers *d*, cultivator-teeth *f*, and frame A, substantially as shown, and for the purpose described.

2. The combination of frame A, pressure-nut b^2, having rod b' and handle b^3, spring-bar b^4, having spring b^5, bridge *g*, secured to brackets F, carrying cultivator-teeth *f*, and scrapers *d*, substantially as shown, and for the purpose described.

3. The combination of the frame A, pressure-nut b^2, spring-rod b^4, bridge *g*, cultivator-frames *e*, brackets F, and the V-shaped brackets F^2, supporting shaft D', substantially as shown and described.

318,416. HAY-FORK. WILLIAM H. BURNHAM and CHARLES H. HALEY, Batavia, Ill., assignors to the United States Wind Engine and Pump Company, same place. Filed Jan. 2, 1885. (No model.)

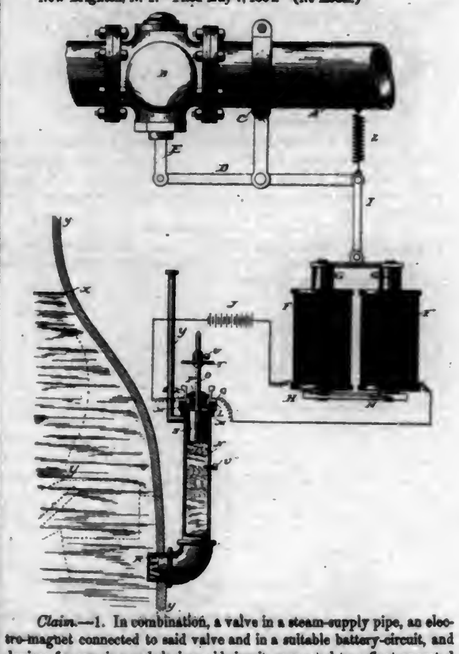


Claim.—1. In a hay-fork, the double-eyed rope-guide K, in combination with the rope L and levers D and D', substantially as shown and described.

2. In a hay-fork, the stud-rivet F, milled on the end when used as a fulcrum and rivet, in combination with the levers D and D' and rope L, for the purpose specified.

3. In a hay-fork, the levers D and D', curved to fit the internal curve of the yoke A, in combination with the rope L, rope-guide K, links E and E', and fulcrum F and F', substantially as shown and described.

318,417. ELECTRIC MARINE GOVERNOR. BRADEN J. CARROLL, New Brighton, N. Y. Filed May 7, 1884. (No model.)



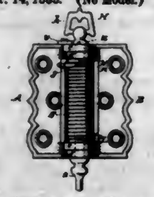
Claim.—1. In combination, a valve in a steam-supply pipe, an electro-magnet connected to said valve and in a suitable battery-circuit, and devices for opening and closing said circuit, connected to a float operated by a column of water, and directly in contact therewith, in communication with the water outside of the ship.

2. The tube N, having its opening to the outside near the shaft of the screw, a float in said tube, the stem of which carries a disk adapted to close the circuit when the float falls, and an electro-magnet and means for opening and closing the valves through the said magnet, substantially as described.

3. The tube N, opening to the outside near the shaft of the screw, the float S, having a metallic disk upon its stem, an air-tube, Y, and points K and I in connection with the wires of the circuit, all substantially as described.

4. In combination with the steam-supply pipe, a valve in the steam-supply pipe auxiliary to the ordinary throttle-valves, an electro-magnet connected to the auxiliary valve and in a suitable battery-circuit, and devices for opening and closing said circuit by the rise and fall of the stern of the ship, all substantially as described.

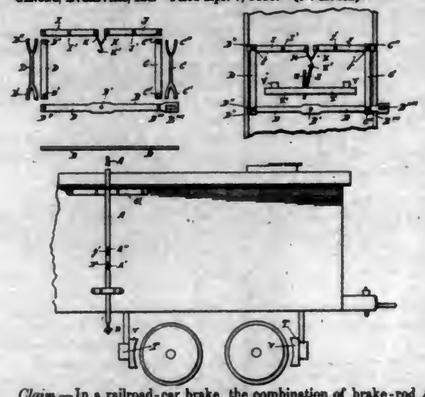
318,418. SPRING-HINGE. BENONI COLVIN and JOHN WOLFLEY, Freeport, Ill. Filed Mar. 14, 1885. (No model.)



Claim.—1. A hinge having one section provided with a fixed pintle squared at its upper end portion and rounded between its lower end and base, the other section provided with a removable pintle-key engaging a pawl or bearing thereof, and a spring having end caps engaging the pintle-key and the fixed pintle, substantially as specified.

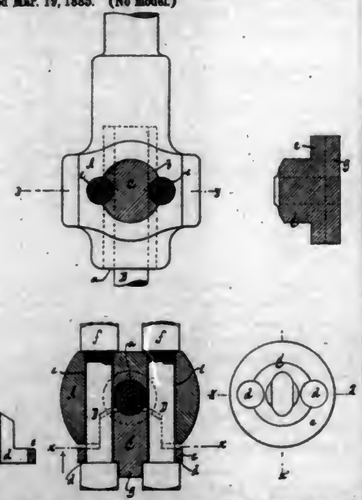
2. The combination, with the hinge-section A, having a pawl, the hinge-section B, having a fixed pintle squared at its upper end, and the removable pintle-key having a ratchet-shoulder, of the spring provided with end caps engaging the fixed pintle and pintle-key, substantially as specified.

318,419. CAR-BRAKE. PAUL H. CURTNER, Hazleton, and CHARLES C. GENUIS, Evansville, Ind. Filed Apr. 7, 1885. (No model.)



Claim.—In a railroad-car brake, the combination of brake-rod A, curved over the roof of the car, having slots A' A'', the clamp G, having spring H, and provided with teeth adapted to hold said rod A, the spring *g*, secured at its upper end to the side of the car, having an elbow, *g'*, and the stud F, with the bar B, having its outer end supported by slotted angle-plate F, the bolt B', cross-piece L, connecting-rods C D, the bars I and J, having pivots I' J', and chains K, adapted to engage with brake-beam rods S U, whereby the brake-beams T and shoes V may be caused to bear against or be removed from the car-wheels, substantially as described, and for the purposes set forth.

318,420. CHUCK FOR ROCK-DRILLS. JAMES E. DENTON, Hoboken, N. J. Filed Mar. 19, 1885. (No model.)



Claim.—1. The combination of the enlarged head A, provided with socket *a* and aperture *b*, formed in its body and surrounded by the metal of the body, and the chuck or clamp C, provided with flange *c* and bolt-holes *d*, and the bolts D D, substantially as described.

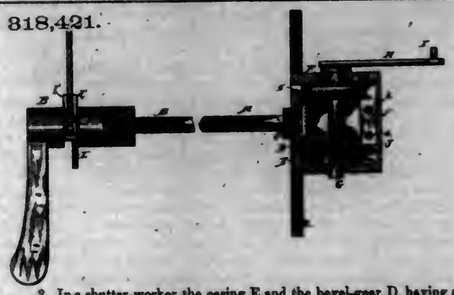
2. The combination of the enlarged chuck-head A, provided with circular aperture *b*, to receive the chuck or clamp C, and the bolt-holes *c*, the chuck or clamp C made cylindrical in form and fitting into the aperture *b*, and provided with the flange *c* and bolt-holes *d*, and the bolts, substantially as described.

318,421. SHUTTER-WORKER. RUSSELL G. DUDLEY, Jersey City, N. J., assignor to the Dudley Shutter Worker and Burglar Alarm Company of New York. Filed Feb. 28, 1885. (No model.)

Claim.—1. In a shutter-worker, the casing E and the bevel-gear D, having a hub fitting into a bearing on one side of said casing only, and held in position by the bevel-gear F, in combination with the vertical shaft G, carrying said bevel-gear F, and the arm H, for operating the shutter, substantially as described.

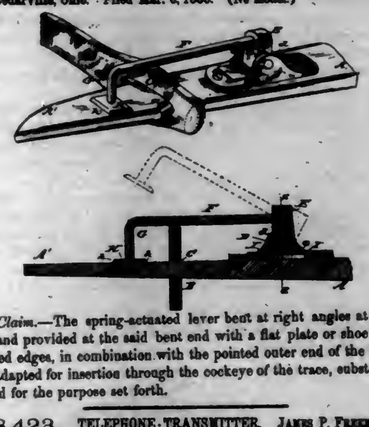
2. The combination, with the spindle of a shutter-operator, of the pivoted jaws *l* M and the eccentric lever N, substantially as described.

318,421.



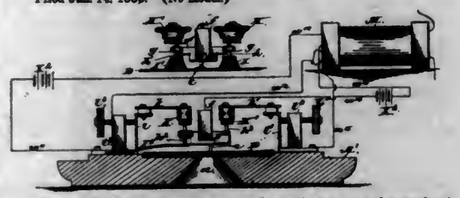
3. In a shutter-worker, the casing E and the bevel-gear D, having a hub provided with a polygonal recess, and fitting into a bearing in one side of the casing, in combination with a handle, B, also provided with a polygonal recess, and the bar A, having its ends loosely fitting said hub and handle, substantially as set forth.

318,422. TRACE-FASTENING. JOHAN EBY and DAVID N. TARBOX, Cedarville, Ohio. Filed Mar. 6, 1885. (No model.)



Claim.—The spring-actuated lever bent at right angles at its free end, and provided at the said bent end with a flat plate or shoe having beveled edges, in combination with the pointed outer end of the whiffletree adapted for insertion through the cockeye of the trace, substantially as and for the purpose set forth.

318,423. TELEPHONE-TRANSMITTER. JAMES P. FREEMAN, Chicago, Ill., assignor of nine-twentieths to E. M. Marble, Washington, D. C. Filed Jan. 14, 1885. (No model.)



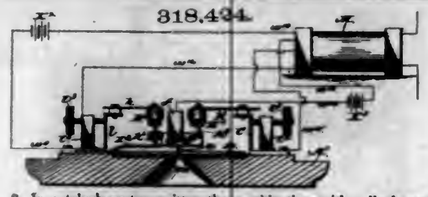
Claim.—1. The method of transmitting articulate speech telephonically which consists, first, in causing primary intermittent electrical impulses in the transmitting-circuits through the agency of sound-waves due to articulate speech; secondly, causing said primary impulses to generate secondary electrical impulses of an alternating nature; thirdly, causing said secondary electrical impulses to actuate a receiving-telephone at a distant station and reproduce said articulate speech accurately and clearly, substantially as described.

2. The method of transmitting articulate speech telephonically by causing intermittent electrical impulses to traverse an electrical circuit, and thereby generate secondary electrical impulses, which secondary electrical impulses in turn actuate a telephone-receiver and cause it to accurately reproduce the aforesaid articulate speech, substantially as described.

318,424. TELEPHONE-TRANSMITTER. JAMES P. FREEMAN, Chicago, Ill., assignor of nine-twentieths to E. M. Marble, Washington, D. C. Filed Apr. 21, 1885. (No model.)

Claim.—1. In a telephone-transmitter, the combination, with a diaphragm or vibrator and an induction-coil having two primary circuits which are on opposite sides of its secondary circuit, of circuit closing and breaking devices included in said primary circuits, respectively, and arranged to break one of said circuits and close the other in response to each half-vibration of the diaphragm, substantially as described.

318,424.



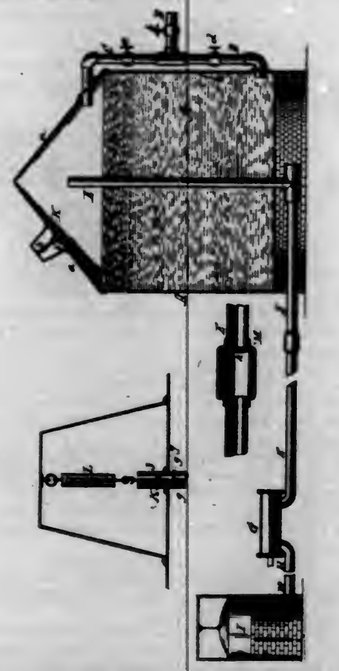
2. In a telephone-transmitter, the combination, with a diaphragm and an induction-coil having two primary circuits, one on each side of its secondary circuit, of circuit closing and breaking devices included in each separate primary circuit, the electrical currents of which flow from the same poles of two separate batteries through the electrodes and the primary wires of said induction-coil, the electrodes being operated by the vibrations of the diaphragm to produce a closing action of one set and a breaking action of the other set of said circuit closing and breaking devices, as set forth.

3. In a telephonic transmitter, the combination, with the diaphragm and an induction-coil having two primaries which are respectively on opposite sides of its secondary, of the rocking lever arranged to be rocked, and a pair of electrodes in the circuit of each of said primaries arranged to be controlled by the opposite ends of said rocking lever, respectively, one pair being brought into electric connection by the movement of one end immediately after the other pair is electrically disconnected by the movement of the other end of said lever, substantially as described.

4. The combination, with the diaphragm, the rocking lever, and the intermediate actuating-pin on one side of the pivot of the said lever, of the insulated contact-pins carried by said lever at its opposite ends, and the spring-supported electrodes arranged to contact with the opposite ends of each of said pins, substantially as described.

5. In a telephonic transmitter, the combination, with a diaphragm and an induction-coil having two primaries, one on each side of a common secondary coil, of circuit closing and breaking devices included in circuit with each of said primaries, and arranged for operation by the diaphragm, substantially as described.

318,425. APPARATUS FOR STORING OIL AND UTILIZING THE VAPORS OF THE SAME. ANDREW J. GOULD, Quincy, Cal. Filed Oct. 24, 1884. (No model.)



Claim.—1. A storage apparatus for oil, consisting of a closed tank, A, a vapor-discharge pipe or conductor, E, and a pump, G, operating substantially as and for the purpose herein specified.

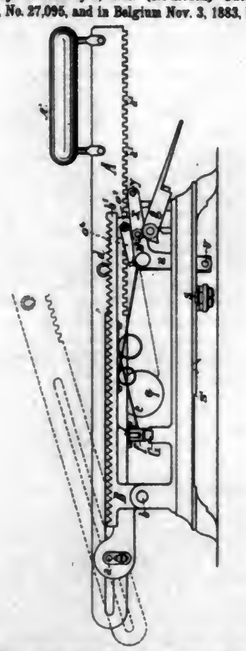
2. The combination of a closed tank, A, vapor-discharge pipe or conductor E, exhaust-pump G, and check-valve M, substantially as and for the purpose herein specified.

3. The combination of a closed tank, A, supply-pipe B, controlled by a valve, *b*, vapor-discharge pipe E, and exhaust-pump G, substantially as and for the purpose herein specified.

4. The combination of a closed storage-tank, A, vapor-discharge pipe or conductor E, pump G, and vapor-receptacle I, substantially as and for the purpose herein specified.

5. The combination of a closed tank, A, vapor-discharge pipe or conductor E, exhaust-pump G, and inlet safety device J K L, substantially as and for the purpose herein specified.

318,426. TYPE-WRITING MACHINE. HEDERICH A. H. GUHL, Hamburg, Germany. Filed May 9, 1884. (No model.) Patented in Germany Oct. 29, 1883, No. 27,095, and in Belgium Nov. 3, 1883, No. 63,089.



Claim.—1. The combination, in a type-writer, of the longitudinally and transversely moving type-bar A, pressure-roller b^2, together with the stationary roller g^2, having a ratchet-wheel, g', and lever g, substantially as and for the purpose specified.

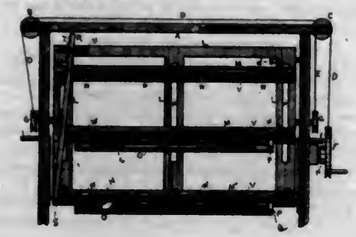
2. In type-writers, the combination of the printing-block z and roller g^2 with the levers x u and pressure-rollers b^2 and y, substantially as and for the purpose specified.

3. In type-writers, the combination, with the paper pressure roller carried by the levers x u, of the connecting-bar v, having the sliding boss w, operated by lever t, substantially as and for the purpose specified.

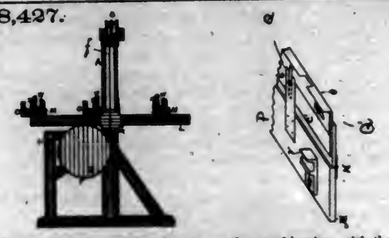
318,427. FORM AND FRAME FOR BUILDING IRON FENCE. F. O. HANSON, Kenton, Ohio. Filed Sept. 11, 1884. (No model.)

Claim.—1. In a frame for building iron fence, a pivoted swaging-form having devices to keep it in a vertical or horizontal position, substantially as set forth.

2. In a form for building iron fence, the adjustable rail-holding troughs V, the hinged guide O, and the adjustable hinged guide O', as and for the purpose set forth.



318,427.



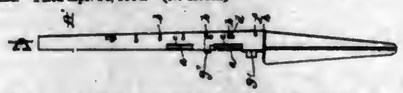
3. In a form for building iron fence, the combination, with the rail-holding troughs V, of the adjusting-lever R and screw T, whereby the pitch of the panel is regulated, as and for the purpose set forth.

4. The combination, with the pivoted form for building iron fence, of the pulleys B C, ropes D E, windlass F, and pins *d*, as and for the purpose set forth.

5. The combination, with pivoted form L, for building iron fence, of the spring-stop I, for holding the form in a horizontal position, as and for the purpose set forth.

6. The combination, with the swinging form L and rail-guides W, of the rolling work-bench Y, upon which the part X of guides or clamps W rests, and the swaging-bar *a*, fitting snugly in between the rail V and top of bench Y, forming an anvil to steady the rail and receive the impact of the blows in swaging or plugging the picket in.

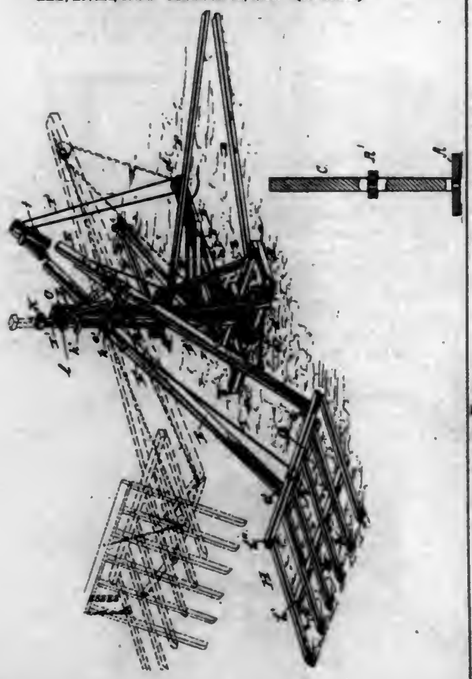
318,428. FENCE-POST. SAML. B. HARROD, Jennings, Scott County, Ind. Filed Apr. 14, 1884. (No model.)



Claim.—1. A fence-post consisting of a lower fluted section having a shoulder and a vertical T-shaped rib the flat side of which is recessed and has integral therewith two outwardly-projecting lugs, and an upper pyramidal section detachably connected to said lower section, substantially as shown and described.

2. In combination with the lower fluted section having a vertical T-shaped rib, the upper pyramidal section having slots for the reception of panels, and also slots for the reception of wires secured by keys, substantially as shown and described.

318,429. HAY-STACKER. JOHN W. HOGELAND and PETER M. HOGELAND, Lovilia, Iowa. Filed Feb. 12, 1885. (No model.)

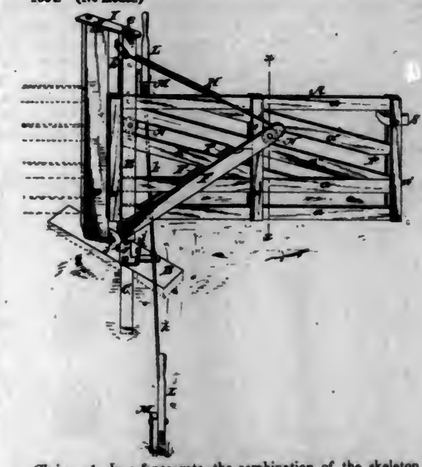


Claim.—1. In a device for stacking hay and straw, the combination of a frame or support, a pivoted crane, a hay-carrying frame pivotally attached at one end of said frame, means for elevating the crane, a sliding bar carried at the other end, and a cord attached to said bar and to the hay-carrying frame at the end of the crane, so as to maintain said frame in a horizontal position when the crane is elevated, the parts being organized substantially as shown and set forth.

2. In the device for stacking hay and straw, the combination of a frame or support, an upright post pivotally mounted upon said support, a crane, and means located at one end of said crane for elevating the same, arms located at the other end, a carrying-frame pivoted thereto, a sliding bar, I, attached to said vertical post, and an automatic latch, also attached to said post so as to engage with the sliding bar, and a cord attached to the frame and to the lower end of the sliding bar, substantially as set forth.

3. In a device for stacking hay or straw, the combination of the frame or support A, mounted on runners, the platform A', supported above said frame, arms B B', pivoted to said frame and platform, a vertical post, C, journaled in the frame and platform, and provided with a pivoted crane, the frame H, carried by the crane at one end, a vertical sliding bar attached to said post, a latch, L, a connecting-cord, and means for elevating the crane, substantially as set forth.

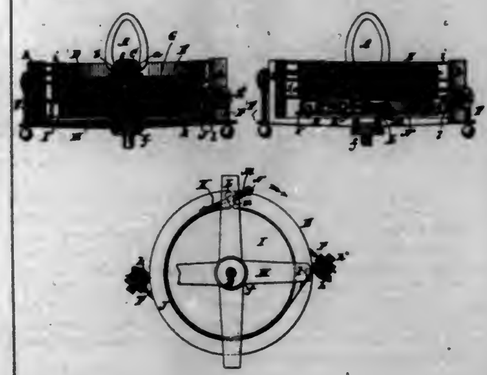
318,430. GATE. EUGENE E. HUNT, Bettsville, Ohio. Filed Sept. 18, 1884. (No model.)



Claim.—1. In a fence-gate, the combination of the skeleton post E, the upper pivot-plate, I, the lower angular pivot-plate, J, connecting-rods *k*, and levers L with the sliding gate fitted in the skeleton post, fixed post D, and base-sill B, substantially as described.

2. In a fence-gate, the combination of the gate-frame having oblique track-rails and the skeleton post E, carrying converging braces F and H, and the roller N, arranged at the junction of said braces with the main post D, and pivot-plates I and J, substantially as described.

318,431. SUSPENSION DEVICE FOR LAMPS. CHARLES H. LYMAN, Ansonia, Conn., assignor to the Ansonia Brass and Copper Company, same place, and Wolcott A. Hull, New York, N. Y. Filed Jan. 27, 1885. (No model.)

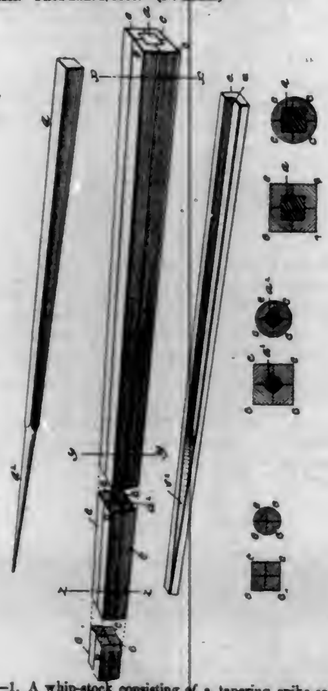


Claim.—1. In a suspending device for a lamp or other article, the combination of an arbor, a non-rotary frame upon the arbor, a rotary drum upon the arbor, one or more cords or chains wound upon the drum, a counterbalance-spring acting in conjunction with the drum, and one or more guides upon the frame, over which the one or more cords or chains pass to the lamp or other article to be suspended, the drum and frame being provided one with a cylinder or cylindric portion and the other with a brake-band surrounding the cylinder, and connected at one end with an unyielding support and at the other end with a yielding support, substantially as specified.

2. In a suspending device for a lamp or other article, the combination of an arbor, a non-rotary frame upon the arbor, a rotary drum upon the arbor, one or more cords or chains wound upon the drum, a counterbalance-spring acting in conjunction with the drum, and one or more guides upon the frame, over which the one or more cords or chains pass to the lamp or other article to be suspended, the drum and frame being provided one with a cylinder or cylindric portion and the other with a brake-band surrounding the cylinder, and connected at one end with an unyielding support and at the other end with a yielding support consisting of a spring interposed between this end of the brake-band and the part with which it is connected, substantially as specified.

3. In a suspension device for a lamp or other article, the combination of an arbor, a non-rotary frame upon the arbor, a rotary drum upon the arbor, one or more cords or chains wound upon the drum, a counterbalance-spring acting in conjunction with the drum, and one or more guides upon the frame, over which the one or more cords or chains pass to the lamp or other article to be suspended, the drum and frame being provided one with a cylinder or cylindric portion and the other with a brake-band surrounding the cylinder, and connected at one end with an unyielding support and at the other end with a yielding support consisting of a spring interposed between this end of the brake-band and the part to which it is connected, and a nut for varying the resistance of the spring, substantially as specified.

318,432. WHIP-STOCK. HENRY MILLER and JAMES NOBLE, Jr., Westfield, Mass. Filed Mar. 2, 1885. (No model.)



Claim.—1. A whip-stock consisting of a tapering spike square in cross-section having a tapering cylindrical point and four sidings, substantially as described, each having a groove therein fitting upon and corresponding to the form of the corners of the spike and the cylindrical sides of the point thereof, the said sidings lying side by side above the point of the spike, all suitably secured together, substantially as set forth.

2. The within-described sidings for whip-stocks, consisting of strips of suitable material each having a tapering groove formed therein having sides at right angles to each other, said groove terminating in one of tapering curved form, substantially as set forth.

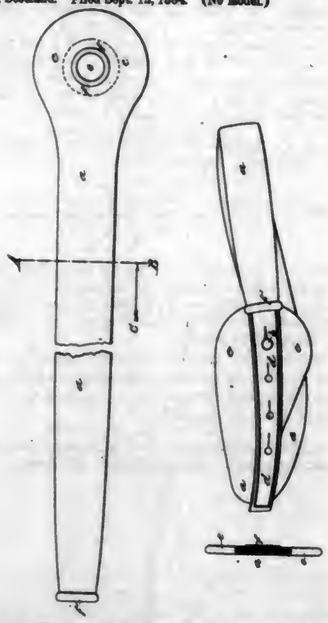
318,433. MANUFACTURE OF FIBER FOR PAPER, &c. ANTON E. NEWMAN, New York, N. Y., assignor of one-half to Carleton C. Valentine, same place. Filed Oct. 16, 1884. (No specimens.)

Claim.—1. The above-described process of obtaining fiber from fibrous stock or materials, said process consisting in first boiling the materials in a solution of caustic lye, with tallow soap and chloride of tin added thereto, and in boiling a second time in a solution of blue vitriol, whereby the fiber is produced, all substantially as described.

2. The described method of treating fiber to render it fire-proof or uninflammable, the same consisting in boiling said fiber in lime, blood, and muriatic acid mixed with water, as and in the proportions substantially as described.

3. The method of treating fibrous stock or material, consisting in first boiling in caustic lye, tallow soap, and chloride of tin, and subsequently in blue vitriol; second, in drying the fiber and again boiling it in water with lime, blood, and muriatic acid, all substantially as described.

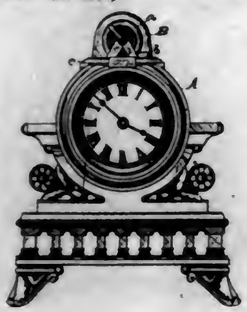
318,434. TRUSS. ALFRED PULLAR, Edinburgh, County of Mid-Lothian, Scotland. Filed Sept. 12, 1884. (No model.)



Claim.—1. The combination, with the belt and pad of a truss, of a flexible sheath for completely inclosing them, open at one end and having an eye for the passage of a stud projecting from the back of the truss, as and for the purpose set forth.

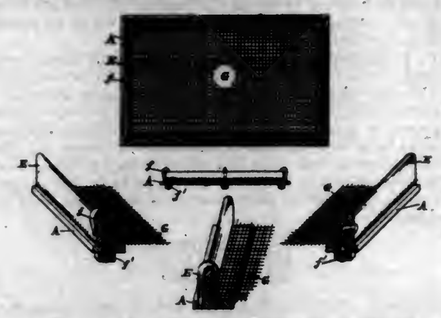
2. In combination, a truss having a band or belt, a pad, and a stud, *b*, projecting therefrom, a sheath, *a*, open at one end, having an enlargement, *c*, at the other, and an eye for the passage of the stud *b*, and a rubber washer, *e*, surrounding said stud, as and for the purpose set forth.

318,435. CLOCK-CASE. JOHN L. RUTHERFORD and ALLEN F. WOOD, Meriden, Conn., assignors to the Parker & Whipple Company, same place. Filed Oct. 1, 1883. (No model.)



Claim.—The combination of a clock-case proper having the opening for the balance-wheel frame, and a shade-seat formed around said opening, the balance-wheel frame projecting through the opening in said case, the shade B for inclosing said balance-wheel frame, and fastening mechanism for securing said shade to the shade-seat at the foot of said shade, substantially as described, and for the purpose specified.

318,436. TRAY FOR DRYING FRUIT. SAMUEL E. SPROUT and JAMES M. SPROUT, Muncy, Pa., assignors to said Samuel E. Sprout. Filed Aug. 12, 1884. (No model.)

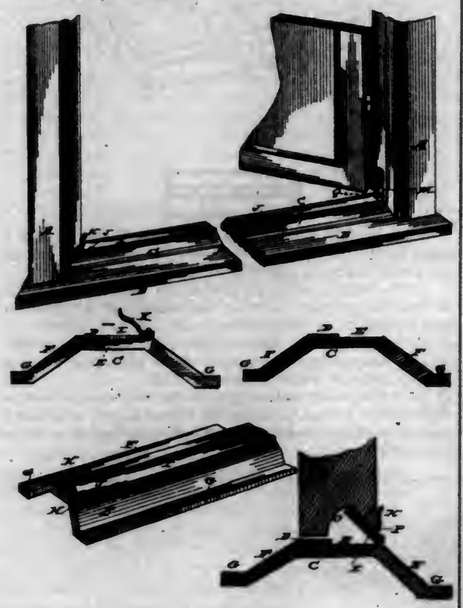


Claim.—1. A tray for drying fruit, consisting of a top frame, E, which forms the upright flange, a woven-wire bottom, G, below the said upright flange, a bottom frame composed of a bar or bars, A, and hook-bolts *f*, or equivalent fastening devices to secure the upright flange, wire bottom, and bottom frame together, as set forth.

2. A tray for drying fruit, consisting of a woven-wire bottom, G, a frame composed of a flat metal bar or bars, A, with their broad surface in contact with the lower side of the bottom, a metal frame, E, made of thin flat metal with its thin or narrow edge in contact with the upper side of the said bottom, whereby the two frames form in cross-section an L-shaped angle, and hook-bolts *f*, or equivalent fastening devices securing the bottom and top frames together, as set forth.

318,437. WEATHER-STRIP. JOHN TRACHSEL, JACOB K. LIPPS, and WILLIAM H. TURNEY, Columbia City, Ind. Filed May 17, 1884. (No model.)

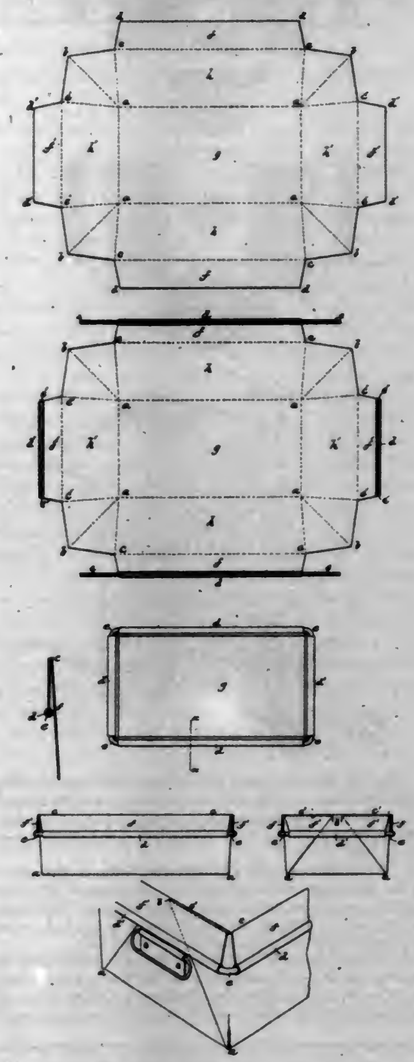
Brief.—A spring secured in a recess in the jamb of the door locks the strip in a lowered position, the strip, when the door is open, resting in a recess in the carpet-strip, and is elevated through a finger, against which the edge of the door acts.



Claim.—1. The combination, with a carpet-strip having a suitable recess, of a hinged weather-strip fitting in the said recess and a spring attached to the jamb of the door and adapted to lock the said weather-strip in a lowered position when the door is open, substantially as herein described.

2. The combination of a carpet-strip having a recess at its upper front edge, a weather-strip suitably hinged to the said carpet-strip and fitting in the said recess, a cam or finger at the outer end of the said weather-strip, a locking-spring attached in a recess in the door-jamb at the hinged end of the door, and a door provided in its lower edge with a groove adapted to receive the weather-strip when the latter is raised, said groove being provided with a rubber or other elastic cushion on its front side, substantially as and for the purpose herein shown and set forth.

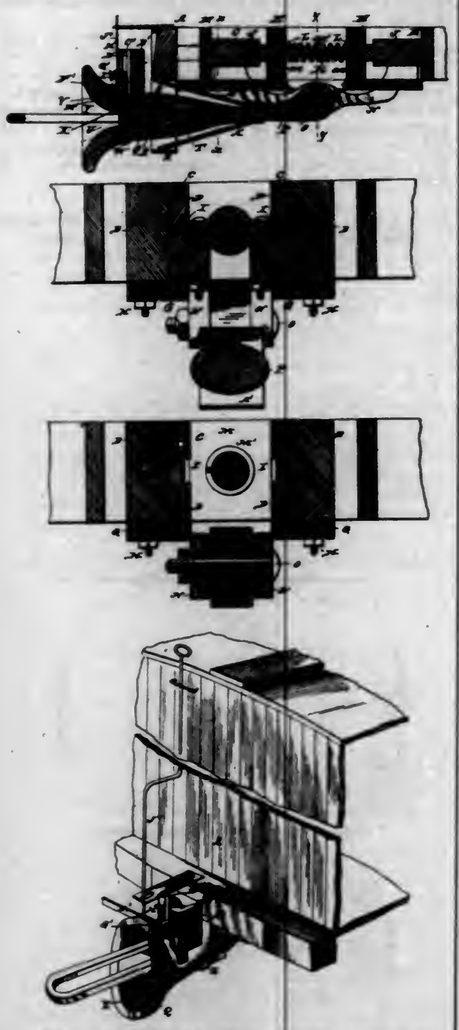
318,438. RECTANGULAR BAKING-PAN. SETH J. WILLIAMS and HIRAM RISLEY, Sing Sing, N. Y. Filed Dec. 6, 1883. (No model.)



Claim.—1. A blank of sheet metal of the form shown by the solid lines of Fig. 1 of the drawings, for the purpose set forth.

2. In a rectangular baking-pan, the folded-over and wired side and end prolongations, in combination with the folded corners, all relatively arranged as described and illustrated.

318,439. CAR-COUPLING. CHRISTIAN H. ZIMMERMAN, Burbank, Ohio, assignor of one-half to Charles W. Weiser, same place. Filed Feb. 7, 1885. (No model.)



Claim.—1. The combination, with the longitudinal beams or stringers of a railway-car, of a frame fitted and secured between said stringers, and the draw-head hinged to hangers connecting a pair of slides moving longitudinally in the said frame, substantially as and for the purpose herein set forth.

2. The combination, with the longitudinal beams or stringers, of the frame fitted between said stringers, and consisting of side pieces connected by cross-pieces, and provided at their lower edges with flanges extending under the stringers, and secured thereto by means of vertical bolts, substantially as and for the purposes herein set forth.

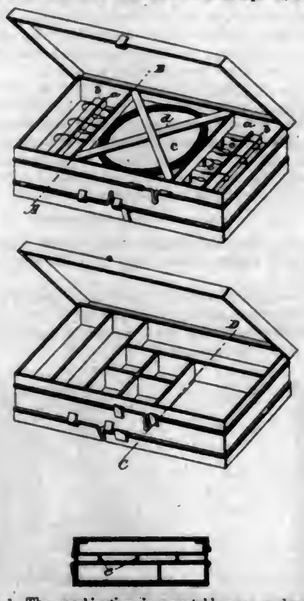
3. The combination of the longitudinal beams or stringers, the frame fitted and secured between the same, and having grooved inner sides and connecting cross-pieces, the slides moving longitudinally in said frame and connected by a shouldered rod, the plates or washers mounted upon said rod, a spring arranged upon said rod between the plates or washers, hangers connecting the under sides of the said slides, and the draw-head having upwardly-curved rear end or shank hinged upon a bolt between the said hangers, substantially as and for the purpose herein set forth.

4. The combination of the frame secured between the longitudinal stringers of a car, the slides moving longitudinally in said frame, the hangers connecting said slides, the draw-head having upwardly-curved rear end or shank hinged between said hangers, and springs secured to the upper and lower sides of the draw-head, and bearing, respectively, against the bottom of the car, and a bail secured to the under side of the car and encircling the draw-head, substantially as and for the purpose herein shown and specified.

5. The draw-head having a longitudinally-sliding pin-supporting-spring-actuated block, and a suitable stop to arrest the forward motion of the same, and provided with an upwardly-extending lug having a pin-hole registering with the pin-holes of the draw-head, laterally-extending grooves, and a vertical slot in its front wall, in combination with a pin having flanges extending laterally from the sides of its head, and a forwardly-extending hook, and a lever pivoted to the draw-head, extending under said hook, and adapted to raise the pin for the purpose of uncoupling, substantially as herein described, for the purpose shown and specified.

REISSUES.

10,598. FISHING-TACKLE CASE. HENRY F. PECK, Brooklyn, N. Y. Filed Feb. 10, 1885. Original No. 275,703, dated Apr. 10, 1883.



Claim.—1. The combination, in a portable case, as described, of a central partition, the uprights *e*, and the shallow well provided with an open face, as and for the purpose set forth.

2. The combination, in a portable case, of a partition, *a*, and cork *b*, the former being made to retain and secure the latter and allow it to serve in holding hooks and their attachments, as herein specified.

3. In a portable case, the series of longitudinal uprights *e*, arranged under the well *c*, in combination therewith, and with one or more soft strips, *b*, all adapted to serve as herein specified.

4. A fishing-tackle case consisting of two compartments having a single partition adapted to serve as the bottom of both, and provided with the partitions *a*, cork strips *b*, and well *c*, substantially as shown and described.

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DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

Supreme Court of the United States.

THOMSON *et al. v.* WOOSTER.

Decided March 30, 1885.

The appellee, complainant below, filed his bill alleging infringement of certain letters patent, reissued, for an improved folding-guide for sewing-machines. The defendants appeared by their solicitor, but filed no answer and made no defense, and a rule that the bill be taken *pro confesso* was entered, and a decree duly made to the effect that the letters patent were valid, that defendants had infringed them, and that complainant recover the profits and damages. Under this decree the parties went before the master, whose report found certain damages and profits, and, on exceptions, the court made a decree allowing the profits, but disallowing the damages. On the appeal therefrom, assigning reasons for reversal relating to the account before the master and his report thereon, and relating to the validity of the letters patent, the decree is affirmed, for the following reasons:

1. Under the equity rules prescribed by the Supreme Court the defendants are concluded by the decree *pro confesso*, so far at least as it is supported by the allegations of the bill, taking the same to be true. They are barred and precluded from questioning its correctness on appeal, unless on the face of the bill it appears manifest that it was erroneous and improperly granted.
2. The fact that the reissue was applied for fourteen years after date of the patent, if urged on defense against its validity, would have been strongly presumptive of unreasonable delay; but it might possibly have been explained, and the court, which did not have the original patent before it, could not say, as a matter of law, that it was insusceptible of explanation.
3. The decree having declared the reissued patent to be valid, the attempt to show before the master that it was for a different invention from that described in the original patent, or that it was void for unreasonable delay, was inadmissible. Nor can facts (the original patent) not embraced in the allegations of the bill be introduced on appeal for the purpose of countervailing the decree.
4. To the argument that the bill avers that the validity of the original patent was established in numerous suits during the fourteen years prior to reissue, thereby averring, substantially, that it was valid and operative, and that therefore the reissue, which is dependent on the invalidity or inoperativeness of the original patent, is void, the answer is that these suits may have pertained to parts of the invention as to which the specification was clear, full, and sufficient, and the court cannot say, as mere matter of law, that there was not defectiveness or insufficiency in the specification relating to other parts of the invention, or modes of using it and putting it into operation, which were not noticed until the application for reissue was made.
5. The reasons of appeal, based on the aforesaid exceptions taken to the master's report, are, after examination, overruled.
6. *Quaere*, Whether the existing eighteenth rule in equity, providing that after a decree *pro confesso* "the cause shall be proceeded in *ex parte*," intended a different practice in respect of the right of the defendant to appear before the master from that contemplated by the former rules, which did not contain this *ex parte* clause.

APPEAL from the Circuit Court of the United States for the Southern District of New York.

Mr. J. C. Clayton and *Mr. A. Q. Keasbey* for the appellants.

Mr. Frederic H. Betts for the appellee.

Mr. Justice BRADLEY delivered the opinion of the Court.

The appellee in this case, who was complainant below, filed his bill against the appellants, complaining that they infringed certain letters patent for an improved folding-guide for sewing-machines, granted to one Alexander Douglas, of which the complainant was the assignee. The patent was dated October 5, 1858, was extended for seven years in 1872, and was reissued in December, 1872. The suit was brought on the reissued patent, a copy of which was annexed to the bill, which contained allegations that the invention patented had gone into extensive use, not only on the part of the complainant, but by his licensees, and that many suits had been brought and sustained against infringers. The bill further alleged that the defendants, from the time when the patent was reissued down to the commencement of the suit, wrongfully and without license made, sold, and used, or caused to be made sold, and used, one or more folding-guides, each and all containing the said improvement secured to the complainant by the said reissued letters patent, and that the defendants derived great gain and profits from such use, but to what amount the complainant was ignorant, and prayed a disclosure thereof and an account of profits and damages and a perpetual injunction. The bill of complaint was accompanied with affidavits verifying the principal facts and certain decrees or judgments obtained on the patent against other parties, and Douglas's original application for the patent, made in April, 1856, a copy of which was annexed to the affidavits. These affidavits and documents were exhibited for the purpose of obtaining a preliminary injunction, which was granted on notice.

The defendants appeared to the suit by their solicitor, May 3, 1879, but neglected to file any answer or to make any defense to the bill, and a rule that the bill be taken *pro confesso* was entered in regular course June 10, 1879. Thereupon, on the 2d of August, 1879, after due notice and hearing, the court made a decree to the following effect, viz: First, that the letters patent sued on were good and valid in law; second, that Douglas was the first and original inventor of the invention described and claimed therein; third, that the defendants had infringed the same by making, using, and vending to others to be used, without right or license, certain folding-guides, substantially as described in said letters patent; fourth, that the complainant recover of the defendants the profits which they had derived by reason of such infringement by

any manufacture, use, or sale, and any and all damages which the complainant had sustained thereby; and it was referred to a master to take and state an account of said profits, and to assess said damages, with directions to the defendants to produce their books and papers and submit to an oral examination, if required. It was also decreed that a perpetual injunction issue to restrain the defendants from making, using, or vending any folding-guides made as theretofore used by them, containing any of the inventions described and claimed in the patent, and from infringing the patent in any way. Under this decree the parties went before the master, and the examination was commenced in October, 1879, in the presence of counsel for both parties, and was continued from time to time until November 3, 1880, when arguments were heard upon the matter, and the case was submitted. On November 12th the report was prepared and submitted to the inspection of counsel. On the 18th motion was made by the defendants' counsel, before the master, to open the proofs and for leave to introduce newly-discovered evidence. This motion was supported by affidavits, but was overruled by the master, and his report was filed December 10, 1880, in which it was found and stated that the defendants had used at various times, from January 18, 1877, to the commencement of the suit, twenty-seven folding-guides infringing the complainant's patent, and had folded one million two hundred and seventeen thousand eight hundred and seventy yards of goods by their use, and that during that period there was no means known or used, or open to the public to use, for folding such goods in the same, or substantially the same, manner, other than folding them by hand, and that the saving in cost to the defendants by using the folding-guides was three cents on each piece of six yards, making the amount of profit which the complainant was entitled to recover $6,089.35; and that during the same period the complainant depended upon license fees for his compensation for the use of the patented device, and that the amount of such fees constituted his loss or damage for the unauthorized use of his invention; and that, according to the established fees, the defendants would have been liable to pay for the use of the folding-guides used by them during the years 1877, 1878, and 1879, (the period covered by the infringement,) the sum of one thousand three hundred and fifty dollars, which was the amount of the complainant's damages. The evidence taken by the master was filed with his report.

By a supplemental report, filed at the same time, the master stated the fact of the application made to him to open the proofs on the ground of surprise and newly-discovered evidence, as before stated, and that after hearing said application upon the affidavits presented, which were appended to the report, he was unable to discover any jus ground therefor. The defendants did not object to this supplemental report, but on the 10th of January, 1881, they filed exceptions to the principal report, substantially as follows:

1. That instead of the double guide or folder claimed in the complainant's patent being the only means for folding cloth or strips on each edge during the period of the infringement, (other than that of folding by hand,) the master should have found that such strips could have been folded by means of a single guide or folder, and that the use of such guides was known and open to the public long before 1877, and that such guides were not embraced in the complainant's patent.

2. That the amount of profits found by the master was erroneous, because it appeared that folded strips—such as those used by the defendants—were an article of merchandise, cut and folded by different parties at a charge of twenty-five cents for one hundred and forty-four yards.

3. That the profits should not have been found greater than the saving made by the use of the double guide as compared with the use of a single guide, or greater than the amount for which the strips could have been cut and folded by persons doing such business.

4. That the damages found were erroneous.

Other exceptions were subsequently filed, but were overruled for being filed out of time. Before the argument of the exceptions the defendants gave notice of a motion to the court to refer the cause back to the master to take further testimony in reference to the question of profits and damages chargeable against them under the order of reference. In support of this motion further affidavits were presented. The exceptions to the report and the application to refer the cause back to the master were argued together. The court denied the motion to refer the cause back, overruled the exceptions to the report, and made a decree in favor of the complainant for the profits, but disallowed the damages. That decree is now brought here by appeal. The appellants have assigned fourteen reasons or grounds for reversing the decree. The first nine relate to the taking of the account before the master and his report thereon. The last five relate to the validity of the letters patent on which the suit was brought. It will be convenient to consider the last reasons first.

The bill, as we have seen, was taken *pro confesso*, and a decree *pro confesso* was regularly entered up, declaring that the letters patent were valid; that Douglas was the original inventor of the invention therein described and claimed; that the defendants were infringing the patent, and that they must account to the complainant for the profits made by them by such infringement and for the damages he had sustained thereby; and it was referred to a master to take and state an account of such profits and to ascertain said damages.

The defendants are concluded by that decree, so far, at least, as it is supported by the allegations of the bill, taking the same to be true. Being carefully based on these allegations, and not extending beyond them, it cannot now be questioned by the defendants, unless it is shown to be erroneous by other statements contained in the bill itself. A confession of facts, properly pleaded, dispenses with proof of those facts, and is as effective for the purposes of the suit as if the facts were proved, and a decree *pro confesso* regards the statements of the bill as confessed. By the early practice of the civil law failure to appear at the day to which the cause was adjourned was deemed a confession of the action; but in later times this rule was changed, so that the plaintiff, notwithstanding the contumacy of the defendant, only obtained judgment in accordance with the truth of the case as established by an *ex parte* examination. (Keller, Proced. Rom., section 69.) The original practice of the English Court of Chancery was in accordance with the later Roman law. (*Hawkins* v. *Crook*, 2 P. Wms., 556.) But for at least two centuries past bills have been taken *pro confesso* for contumacy. (Ibid.) Chief Baron Gilbert says:

> Where a man appears by his clerk in court, and after lies in prison, and is brought up three times to court by habeas corpus, and has the bill read to him, and refuses to answer, such public refusal in court does amount to the confession of the whole bill. Secondly, when a person appears and departs without answering, and the whole process of the court has been awarded against him after his appearance and departure, to the sequestration; there also the bill is taken *pro confesso*, because it is presumed to be true when he has appeared and departs in despite of the court and withstands all its process without answering. (*Forum Romanum*, 36.)

Lord Hardwicke likened a decree *pro confesso* to a judgment by *nil dicit* at common law, and to judgment for plaintiff on demurrer to the defendant's plea. (*Davis* v. *Davis*, 2 Atk., 21.) It was said in *Hawkins* v. *Crook*, (*qua supra*,) and quoted in 2 Eq Ca. Ab., 179, that—

> the method in equity of taking a bill *pro confesso* is consonant to the rule and practice of the courts at law, where, if the defendant makes default by *nil dicit*, judgment is immediately given in debt, or in all cases where the thing demanded is certain; but where the matter sued for consists in damages a judgment interlocutory is given, after which a writ of inquiry goes to ascertain the damages, and then the judgment follows.

The strict analogy of this proceeding in actions of law to a general decree *pro confesso* in equity in favor of the complainant, with a reference to a master to take a necessary account, or to assess unliquidated damages, is obvious and striking.

A carefully-prepared history of the practice and effect of taking bills *pro confesso* is given in *Williams* v. *Corwin*, (Hopkin's Ch. Rep., 471,) by Hoffman, master, in a report made to Chancellor Sanford, of New York, in which the conclusion come to (and adopted by the Chancellor) as to the effect of taking a bill *pro confesso* was that—

> when the allegations of a bill are distinct and positive, and the bill is taken as confessed, such allegations are taken as true without proofs,

and a decree will be made accordingly; but

> where the allegations of a bill are indefinite, or the demand of the complainant is in its nature uncertain, the certainty requisite to a proper decree must be afforded by proofs. The bill, when confessed by the default of the defendant, is taken to be true in all matters alleged with sufficient certainty; but in respect to matters not alleged with due certainty, or subjects which from their nature and the course of the court require an examination of details, the obligation to furnish proofs rests on the complainant.

We may properly say, therefore, that to take a bill *pro confesso* is to order it to stand as if its statements were confessed to be true, and that a decree *pro confesso* is a decree based on such statements, assumed to be true, (1 Smith's Ch. Pract., 153,) and such a decree is as binding and conclusive as any decree rendered in the most solemn manner.

> It cannot be impeached collaterally, but only upon a bill of review, or [a bill] to set it aside for fraud. (1 Daniell's Ch. Pr., 696, 1st Ed.: *Ogilvie* v. *Hearne*, 13 Ves., 563.)*

*Reference is made to the first edition of Daniell (pub. 1837) as being, with the second edition of Smith's Practice, (published the same year,) the most authoritative work on English chancery practice in use in March, 1842, when our equity rules were adopted. Supplemented by the General Orders, made by Lords Cottenham and Langdale in August, 1841, (many of which were closely copied in our own rules,) they exhibit that "present practice of the High Court of Chancery in England" which, by our ninetieth rule, was adopted as the standard of equity practice in cases where the rules prescribed by this court, or by the circuit court, do not apply. The second edition of Mr. Daniell's work, published by Mr. Headlam in 1846, was much modified by the extensive changes introduced by the English orders of May 8, 1845, and the third edition by the still more radical changes introduced by the orders of April, 1850, the statute of 15 & 16 Vict., chapter 86, and the general orders afterward made under the authority of that statute. Of course, the subsequent editions of Daniell are still further removed from the standard adopted by this Court in 1842; but as they contain a view of the later decisions bearing upon so much of the old system as remains, they have on that account a value of their own, provided one is not misled by the new portions.

Such being the general nature and effect of an order taking a bill *pro confesso*, and of a decree *pro confesso* regularly made thereon, we are prepared to understand the full force of our rules of practice on the subject. Those rules, of course, are to govern so far as they apply; but the effect and meaning of the terms which they employ are necessarily to be sought in the books of authority to which we have referred.

By our rules a decree *pro confesso* may be had if the defendant, on being served with process, fails to appear within the time required; or if, having appeared, he fails to plead, demur, or answer to the bill within the time limited for that purpose; or, if he fails to answer after a former plea, demurrer, or answer is overruled or declared insufficient. The twelfth rule in equity prescribes the time when the subpœna shall be made returnable, and directs that—

> at the bottom of the subpœna shall be placed a memorandum that the defendant is to enter his appearance in the suit in the clerk's office on or before the day at which the writ is returnable; otherwise the bill may be taken *pro confesso*.

The eighteenth rule requires the defendant to file his plea, demurrer, or answer (unless he gets an enlargement of the time) on the rule day next succeeding that of entering his appearance; and in default thereof the plaintiff may, at his election, enter an order (as of course) in the order-book, that the bill may be taken *pro confesso*, and thereupon the cause shall be proceeded in *ex parte*, and the matter of the bill may be decreed by the court at any time after the expiration of thirty days from the entry of said order, if the same can be done without an answer, and is proper to be decreed; or the plaintiff, if he requires any discovery or answer to enable him to obtain a proper decree, shall be entitled to process of attachment against the defendant to compel an answer, &c.; and the nineteenth rule declares that the decree rendered upon a bill taken *pro confesso* shall be deemed absolute, unless the court shall at the same term set aside the same, or enlarge the time for filing the answer, upon cause shown upon motion and affidavit of the defendant.

It is thus seen that by our practice a decree *pro confesso* is not a decree as of course according to the prayer of the bill, nor merely such as the complainant chooses to take it; but that it is made (or should be made) by the court, according to what is proper to be decreed upon the statements of the bill, assumed to be true. This gives it the greater solemnity, and accords with the English practice, as well as that of New York. Chancellor Kent, quoting Lord Eldon, says:

> Where the bill is thus taken *pro confesso* and the cause is set down for hearing, the course (says Lord Eldon in *Geary* v. *Sheridan*, 8 Ves., 192) is for the court to hear the pleadings, and itself to pronounce the decree, and not to permit the plaintiff to take, at his own discretion, such a decree as he could abide by, as in the case of default by the defendant at the hearing. (*Rose* v. *Woodruff*, 4 Johns. Ch., 547, 548.)

Our rules do not require the cause to be set down for hearing at a regular term, but after the entry of the order to take the bill *pro confesso* the eighteenth rule declares that thereupon the cause shall be proceeded in *ex parte*, and *the matter of the bill may be decreed by the court* at any time after the expiration of thirty days from the entry of such order, if it can be done without answer, *and is proper to be decreed*. This language shows that the matter of the bill ought at least to be opened and explained to the court when the decree is applied for, so that the court may see that the decree is a proper one. The binding character of the decree, as declared

in Rule 19, renders it proper that this degree of precaution should be taken.

We have been more particular in examining this subject because of the attempt made by the defendants, on this appeal, to overthrow the decree by matters outside of the bill, which was regularly taken *pro confesso*. From the authorities cited and the express language of our own rules in equity it seems clear that the defendants, after the entry of the decree *pro confesso*, and while it stood unrevoked, were absolutely barred and precluded from alleging anything in derogation of or in opposition to the said decree, and that they are equally barred and precluded from questioning its correctness here on appeal, unless on the face of the bill it appears manifest that it was erroneous and improperly granted. The attempt, on the hearing before the master, to show that the reissued patent was for a different invention from that described in the original patent, or to show that there was such unreasonable delay in applying for it as to render it void under the recent decisions of this Court, was entirely inadmissible because repugnant to the decree. The defendants could not be allowed to question the validity of the patent which the decree had declared valid. The fact that the reissue was applied for and granted fourteen years after the date of the original patent would undoubtedly, had the cause been defended and the validity of the reissued patent been controverted, been strongly presumptive of unreasonable delay; but it might possibly have been explained, and the court could not say as matter of law, and certainly, under the decree of the court, the master could not say that it was insusceptible of explanation. And on this appeal it is surely irregular to question the allegations of the bill. If anything appears in those allegations themselves going to show that the decree was erroneous, of course it is assignable for error; but any attempt to introduce facts not embraced in those allegations, for the purpose of countervailing the decree, is manifestly improper. The introduction of the original patent pending the appeal was clearly irregular.

The appellants have called attention to one matter in the allegations of the bill on which they rely for the purpose of showing that, as matter of law, the reissued patent must be void. It is stated in their tenth assignment of error as follows:

> 10th. For that, on the face of the bill and the patent, the reissued patent in suit was illegally granted, and therefore void, and the court should have so held; and this court is now asked to so hold, because the bill avers that during the fourteen years of the original term of the patent the validity of said letters patent was established in numerous suits in the circuit courts of the United States, and that all persons sued took licenses and paid therefor, as well as many others not sued, thereby averring, in substance, that the original letters patent were *valid* and *operative*:
> Wherefore, appellants ask this Court to hold that the original letters patent having been *valid* and *operative*, as averred by complainant, for over fourteen years, no reissue thereafter could be legally obtained, because *invalidity* or *inoperativeness* are conditions precedent to the grant of a reissue.

The answer to this assignment is obvious. The suits brought on the original patent may have been for infringements committed against particular parts of the invention, or modes of using it and putting it into operation, as to which the specification was clear, full, and sufficient; while, at the same time there may have been certain other parts of the invention, or modes of using it and putting it into operation, as to which the specification was defective or insufficient, and which were not noticed until the application for reissue was made; or in the original patent the patentee may have claimed as his own invention more than he had a right to claim as new—a mistake which might be corrected at any time. At all events, the Court cannot say, as mere matter of law, that this might not have been the case.

We think that the objection to the decree going to the validity of the patent and the whole cause of action cannot be sustained.

We are then brought to the proceedings in taking the account. The errors assigned on this part of the case are based on the exceptions taken to the master's report, which have already been noticed. They resolve themselves into two principal grounds of objection: *First*, that the master allowed the complainant all the profits made by the defendants by the use of the patented machine in folding cloths and strips, as compared with doing the same thing by hand; whereas he should only have allowed the profits of using the complainant's patented machine as compared with a single folder, which the defendants allege was open to the public before their infringement commenced. *Secondly*, that the master, in allowing profits, took no account of the fact that folded strips—such as those used by the defendants—were an article of merchandise, cut and folded by different parties at a charge of only twenty-five cents for one hundred and forty-four yards, or about one-sixth of a cent per yard, whereas the defendants were charged with a profit of one half of a cent per yard.

As to the first of these objections, it is to be observed, first, that no evidence was produced before the master to show that during the period of the infringement there was open to the public the use of any machine for folding a single edge which was adapted to the work done by the defendants. The only evidence adduced for that purpose was the letters patent granted to S. P. Chapin, February 19, 1856, and the letters patent granted to J. S. McCurdy, dated February 26, 1856. No evidence was introduced to show that the folding-guides described in those patents were adapted to the folding of strips for corsets, which was the work required by the defendants, and for which they used the complainant's invention. On the contrary, it was proved by the positive testimony of the complainant (and not contradicted) that the Chapin device could not be used for folding strips of materials on one or both edges for use upon corsets, for reasons fully detailed in the testimony, and that

> the McCurdy device is a binder calculated and adapted to fold selvaged-edged goods—such as ribbon and braid—and will fold the strip passing through it in the center only, and cannot be used for folding raw-edged strips of cloth, either on one or both edges.

The complainant also testified that there was no other way known to him (and he testified that he had large experience on the subject) to do work like that done by the defendants, except by hand, or in the use of another patent owned by him, namely, the Robjohn patent, dated April 19, 1864, (which was produced in evidence,) which consisted of a folding guide, folding one edge in combination with a device for pressing said fold to an edge, and then passing said folded strip through a narrower folder, folding the other edge, and pressing said fold by a pressing device. No evidence was adduced by the defendants to contradict this testimony.

It is proper to remark here that the affidavits presented to the master, and those afterward presented to the court as grounds of the respective applications to reopen the proofs cannot be looked into on this hearing. They form no part of the evidence taken before the master on the reference, and no error is assigned (even if error could be assigned) to the refusal of the court to refer the case back to the master for the purpose of taking further testimony.

The second objection to the report is that the master, in estimating the profits chargeable to the defendants, did not take into account the fact that folded strips, such as those used by the defendants, were an article of merchandise cut and folded by different parties at a charge of only twenty-five cents for one hundred and forty-four yards. To this objection it may be observed that the evidence before the master did not show by what process such folded strips were made, nor whether they were not really made by infringing the complainant's patent. As the proof stood before the master they must have been made by the use of the complainant's machine, for there was no other known machine by which they could have been made at any such cost; and if made by the use of complainant's machine the inference must be that the persons making them were infringing the complainant's patent, for they are not named in the list of those to whom the complainant had granted licenses, which list was presented before the master at the defendant's request. If made by such infringement, they can hardly be set up against the complainant to reduce the amount of profits made by the defendants. There is something singular about this part of the case. If folded strips suitable for the defendants' purpose could have been procured in the market by them at such a low price as is pretended, why did they not procure them in that way after being enjoined against using the complainant's machine, instead of making them by the disadvantageous method of using a single folder and folding one edge at a time? Was it from a knowledge of the fact that the persons who folded such strips were infringing the complainant's patent, and a consequent unwillingness to become further complicated in such infringements? At all events, since the defendant chose to make their own folded strips in their own factory, instead of going outside to purchase them or have them made by others, they cannot justly complain of being accountable for the profits realized in using the complainant's machine for that purpose. It might have been a better financial operation to have bought of others or employed others to make the folded strips which they required, just as in the case of the Cawood patent the railroad company would have done better not to have mended the ends of their battered rails, but to have had them cut off; but as they chose to perform the operation they became responsible to the patentee for the advantage derived from using his machine. (94 U. S., 710.) We do not think that the objection is well taken.

It follows that all the reasons of appeal must be overruled.

No error or ground of appeal is assigned upon the refusal of the court below to refer the cause back to the master for the purpose of reopening the proofs, although some observations on that point are submitted in the brief of the appellants. We think that that matter was fairly addressed to the discretion of the Court, and cannot properly be made the ground of objection on this appeal. New evidence, discovered after the hearing before the master is closed, may, in proper cases, be ground for a bill of review, on which issue may be joined and evidence adduced by both parties in the usual way. The defendants are not concluded by the refusal of the Court, on mere affidavits, to refer the cause back to the master. An examination, however, of the affidavits presented to the Court, does not convince us that a further inquiry should have been ordered.

In thus considering the case on its merits, as presented by the evidence taken before the master, his report thereon, and the exceptions to such report, we have deemed it unnecessary to make any remarks as to the *status* of a defendant before a master on a reference under a decree *pro confesso*. Both parties in this case seem to have taken for granted that the rights of the defendants were the same as if the decree had been made upon answer and proofs. In the English practice, it is true, as it existed at the time of the adoption of our present rules, (in 1842,) the defendant, after a decree *pro confesso* and a reference for an account, was entitled to appear before the master and to have notice of, and take part in, the proceedings, provided he obtained an order of the court for that purpose, which would be granted on terms. (2 Daniell's Chan. Pract., 804, 1st Ed.; ditto, 1358, 2d Ed. by Perkins; *Heyn* v. *Heyn*, Jacob's Rep., 49.) The former practice in the Court of Chancery of New York was substantially the same. (1 Hoff. Ch. Pr., 520; 1 Barb. Ch. Pr., 479.) In New Jersey, except in plain cases of decree for foreclosure of a mortgage, (where no reference is required,) the matter is left to the discretion of the court. Sometimes notice is ordered to be given to the defendant to attend before the master, and sometimes not, as it is also in the Chancellor's discretion to order a bill to be taken *pro confesso* for a default, or to order the complainant to take proofs to sustain the allegations of the bill. Nixon's Digest, Art. Chancery, section 21; Gen. Orders in Chancery, XIV., 3-7; *Brundage* v. *Goodfellow*, 4 Halst. Ch. R., 513.

As we have seen, by our eighteenth rule in equity it is provided that if the defendant make default in not filing his plea, demurrer, or answer in proper time, the plaintiff may, as one alternative, enter an order as of course that the bill be taken *pro confesso*, "*and thereupon the cause shall be proceeded in ex parte.*" The old rules, adopted in 1822, did not contain this *ex parte* clause. They simply declared that if the defendant failed to appear and file his answer within three months after appearance day the plaintiff might take the bill for confessed, and that the matter thereof should be decreed accordingly, the decree to be absolute, unless cause should be shown at the next term. See Equity Rules VI. and X. of 1822, 7 Wheat, VII, and *Pendleton* v. *Evans*, 4 Wash. C. C. R., 335; *O'Hara* v. *McConnell*, 93 U. S., 150. Under these rules the English practice, was left to govern the subsequent course of proceeding, by which, as we have seen, the defendant might have an order to permit him to appear before the master and be entitled to notice. Whether under the present rules a different practice was intended to be introduced is a question which it is not necessary to decide in this case.

The decree of the circuit court is affirmed.

U. S. Circuit Court---Southern District of New York.

TOMKINSON *v.* THE WILLETS MANUFACTURING COMPANY.

Decided March 7, 1884.

1. A decree entered by consent in a prior suit between the parties declaring the complainant to be the sole owners of the letters patent in suit, and that they are good and valid in law, is valid and binding upon the rights of both parties, and as to all questions determined by it is *res judicata*.
2. It is not necessary that the design patented should be copied in every particular to constitute it an infringement. It is enough that it has the same general appearance if the variations are slight and to the eye of an ordinary person the two things are substantially similar.
3. If the resemblance is such that a purchaser would be deceived, it will not aid the infringer to show that he has deviated slightly in details or has omitted something which an expert can discover.

Mr. Frank v. Briesen for the complainant.
Mr. Philo Chase for the defendant.

COXE, *J.:*

This is an equity action for infringement founded upon Design Patent No. 13,295, granted to John Slater, assignor to Gildea & Walker, September 12, 1882, for a design for a vegetable-dish. The patent is now owned by the complainant.

The invention relates to a new shape or configuration for a vegetable-dish or other similar household article of china.

The claims are as follows:

1. The design for a rectangular vegetable-dish, having upper straight section, *c*, central curved section, *d*, and lower straight section, *e*, substantially as shown.
2. The design for a rectangular vegetable-dish, having straight top and a section, *d*, curved first outward and then inward in such manner that the base of the dish is smaller than its top, substantially as shown.
3. The design for a vegetable-dish, having parallel sides *a a'* and parallel sides *b b'*, and composed of the sections *c d e*, substantially as shown.

It will be observed that as to the handles, ornamentation, size, and color of the dish nothing is said in the claims. They are for the shape only.

In June, 1883, prior to this suit, the complainant commenced an action in the United States Circuit Court, District of New Jersey, against the defendant for an infringement of this patent. The complaint was in all respects similar to the one in the present suit. The defendant appeared by its president and consented to a decree and an injunction as prayed for. On or about the 21st of July, 1883, a final decree was entered, by which it was determined that the complainant is the sole owner of the letters patent in suit, and that they are good and valid in law. This decree was pleaded and proved in this action; is valid and binding upon the rights of the parties, and, as to all the questions determined by it, is *res judicata*. Unfortunately, perhaps, for the defendant, the court is not now permitted to consider the defenses, which, by the defendant's own action, are thus eliminated from the case. The question of infringement is alone open to investigation.

In approaching this subject the rule with reference to design patents should be kept steadily in view. It is by no means necessary that the patented thing should be copied in every particular. If the infringing design has the same general appearance, if the variations are slight, if to the eye of an ordinary person the two are substantially similar, it is enough. It was of no consequence that persons skilled in the art are able to detect differences. Those who have devoted time and study to the subject, who have spent their lives in dealing in articles similar to those in controversy, may see at a glance features which are wholly unimportant and unobserved by those whose pursuits are in other directions and who are attracted only by general appearances. If the resemblance is such that a purchaser would be deceived it will not aid the infringer to show that he has deviated slightly from a straight line in one place and from a curved line in another, or that he has added or omitted something which an expert can discover. (*Gorham Company* v. *White*, 14 Wall., 511; *Lehnbenter* v. *Hothous*, 105 U. S., 94; *Wood* v. *Dolby*, 19 Blatchf, C. C. R., 214; Simonds on Patents, 218; Walker on Patents, sec. 375.) Tested by this rule I am constrained to say that the defendant infringes.

The principal difference pointed out between the two dishes in controversy is that in the upper vertical section of defendant's dish the sides are not exactly parallel, but bulge outwardly, departing from a straight line something less than half an inch. It is thought, however, within the rule above adverted to, that this divergence is not sufficiently marked to arrest the attention of the average observer. Bearing in mind that the patent deals with shape alone, the same conclusion must be reached with reference to the other differences suggested by the defendant's witnesses.

There should be a decree for the complainant.

U. S. Circuit Court---Northern District of New York.

VACUUM OIL COMPANY *v.* BUFFALO LUBRICATING OIL COMPANY.

Decided March 20, 1885.

1. EVEREST—APPARATUS FOR DISTILLING PETROLEUM.
   The second and twelfth claims of Letters Patent No. 68,426, granted September 3, 1867, to Hiram B. Everest, for an improvement in apparatus for distilling petroleum, declared void for want of novelty.
2. DISCLAIMER.
   A disclaimer cannot be filed after the expiration of the term of a patent.

WALLACE, *J:*

For the reasons stated orally at the hearing of this cause the second and twelfth claims of the patent in suit (No. 68,426, granted September 3, 1867, to Hiram B. Everest, assigned to complainant) are clearly void for want of novelty. Inasmuch as no disclaimer has been filed it is unnecessary to consider the validity of the other claims. After the term of a patent has expired it is too late to file a disclaimer. The suit cannot therefore be maintained, and the bill is dismissed.

ent, or to show that there was such unreasonable delay in applying for it as to render it void under the recent decisions of this Court, was entirely inadmissible because repugnant to the decree. The defendants could not be allowed to question the validity of the patent which the decree had declared valid. The fact that the reissue was applied for and granted fourteen years after the date of the original patent would undoubtedly, had the cause been defended and the validity of the reissued patent been controverted, been strongly presumptive of unreasonable delay; but it might possibly have been explained, and the court could not say as matter of law, and certainly, under the decree of the court, the master could not say that it was insusceptible of explanation. And on this appeal it is surely irregular to question the allegations of the bill. If anything appears in those allegations themselves going to show that the decree was erroneous, of course it is assignable for error; but any attempt to introduce facts not embraced in those allegations, for the purpose of countervailing the decree, is manifestly improper. The introduction of the original patent pending the appeal was clearly irregular.

The appellants have called attention to one matter in the allegations of the bill on which they rely for the purpose of showing that, as matter of law, the reissued patent must be void. It is stated in their tenth assignment of error as follows:

> 10th. For that, on the face of the bill and the patent, the reissued patent in suit was illegally granted, and therefore void, and the court should have so held; and this court is now asked to so hold, because the bill avers that during the fourteen years of the original term of the patent the validity of said letters patent was established in numerous suits in the circuit courts of the United States, and that all persons sued took licenses and paid therefor, as well as many others not sued, thereby averring, in substance, that the original letters patent were *valid* and *operative*:
> Wherefore, appellants ask this Court to hold that the original letters patent having been *valid* and *operative*, as averred by complainant, for over fourteen years, no reissue thereafter could be legally obtained, because *invalidity* or *inoperativeness* are conditions precedent to the grant of a reissue.

The answer to this assignment is obvious. The suits brought on the original patent may have been for infringements committed against particular parts of the invention, or modes of using it and putting it into operation, as to which the specification was clear, full, and sufficient; while, at the same time there may have been certain other parts of the invention, or modes of using it and putting it into operation, as to which the specification was defective or insufficient, and which were not noticed until the application for reissue was

may have alleged the profits resulting the complainant's patented machine as compared with a single folder, which the defendants allege was open to the public before their infringement commenced. *Secondly*, that the master, in allowing profits, took no account of the fact that folded strips—such as those used by the defendants—were an article of merchandise, cut and folded by different parties at a charge of only twenty-five cents for one hundred and forty-four yards, or about one-sixth of a cent per yard, whereas the defendants were charged with a profit of one half of a cent per yard.

As to the first of these objections, it is to be observed, first, that no evidence was produced before the master to show that during the period of the infringement there was open to the public the use of any machine for folding a single edge which was adapted to the work done by the defendants. The only evidence adduced for that purpose was the letters patent granted to S. P. Chapin, February 19, 1856, and the letters patent granted to J. S. McCurdy, dated February 26, 1856. No evidence was introduced to show that the folding-guides described in those patents were adapted to the folding of strips for corsets, which was the work required by the defendants, and for which they used the complainant's invention. On the contrary, it was proved by the positive testimony of the complainant (and not contradicted) that the Chapin device could not be used for folding strips of materials on one or both edges for use upon corsets, for reasons fully detailed in the testimony, and that

> the McCurdy device is a binder calculated and adapted to fold selvaged-edged goods—such as ribbon and braid—and will fold the strip passing through it in the center only, and cannot be used for folding raw-edged strips of cloth, either on one or both edges.

The complainant also testified that there was no other way known to him (and he testified that he had large experience on the subject) to do work like that done by the defendants, except by hand, or in the use of another patent owned by him, namely, the Robjohn patent, dated April 19, 1864, (which was produced in evidence,) which consisted of a folding guide, folding one edge in combination with a device for pressing said fold to an edge, and then passing said folded strip through a narrower folder, folding the other edge, and pressing said fold by a pressing device. No evidence was adduced by the defendants to contradict this testimony.

It is proper to remark here that the affidavits presented before the master they must have been made by the use of the *complainant's* machine, for there was no other known machine by which they could have been made at any such cost; and if made by the use of complainant's machine the inference must be that the persons making them were infringing the complainant's patent, for they are not named in the list of those to whom the complainant had granted licenses, which list was presented before the master at the defendant's request. If made by such infringement, they can hardly be set up against the complainant to reduce the amount of profits made by the defendants. There is something singular about this part of the case. If folded strips suitable for the defendants' purpose could have been procured in the market by them at such a low price as is pretended, why did they not procure them in that way after being enjoined against using the complainant's machine, instead of making them by the disadvantageous method of using a single folder and folding one edge at a time? Was it from a knowledge of the fact that the persons who folded such strips were infringing the complainant's patent, and a consequent unwillingness to become further complicated in such infringements? At all events, since the defendant chose to make their own folded strips in their own factory, instead of going outside to purchase them or have them made by others, they cannot justly complain of being accountable for the profits realized in using the complainant's machine for that purpose. It might have been a better financial operation to have bought of others or employed others to make the folded strips which they required, just as in the case of the Cawood patent the railroad company would have done better not to have mended the ends of their battered rails, but to have had them cut off; but as they chose to perform the operation they became responsible to the patentee for the advantage derived from using his machine. (94 U. S., 710.) We do not think that the objection is well taken.

It follows that all the reasons of appeal must be overruled.

No error or ground of appeal is assigned upon the refusal of the court below to refer the cause back to the master for the purpose of reopening the proofs, although some observations on that point are submitted in the brief of the appellants. We think that that matter was fairly addressed to the discretion of the Court, made upon answer and proofs. *In the English practice*, it is true, as it existed at the time of the adoption of our present rules, (in 1842,) the defendant, after a decree *pro confesso* and a reference for an account, was entitled to appear before the master and to have notice of, and take part in, the proceedings, provided he obtained an order of the court for that purpose, which would be granted on terms. (2 Daniell's Chan. Pract., 804, 1st Ed.; ditto, 1358, 2d Ed. by Perkins; *Heyn* v. *Heyn*, Jacob's Rep., 49.) The former practice in the Court of Chancery of New York was substantially the same. (1 Hoff. Ch. Pr., 520; 1 Barb. Ch. Pr., 479.) In New Jersey, except in plain cases of decree for foreclosure of a mortgage, (where no reference is required,) the matter is left to the discretion of the court. Sometimes notice is ordered to be given to the defendant to attend before the master, and sometimes not, as it is also in the Chancellor's discretion to order a bill to be taken *pro confesso* for a default, or to order the complainant to take proofs to sustain the allegations of the bill. Nixon's Digest, Art. Chancery, section 21; Gen. Orders in Chancery, XIV., 3-7; *Brundage* v. *Goodfellow*, 4 Halst. Ch. R., 513.

As we have seen, by our eighteenth rule in equity it is provided that if the defendant make default in not filing his plea, demurrer, or answer in proper time, the plaintiff may, as one alternative, enter an order as of course that the bill be taken *pro confesso*, "*and thereupon the cause shall be proceeded in ex parte.*" The old rules, adopted in 1822, did not contain this *ex parte* clause. They simply declared that if the defendant failed to appear and file his answer within three months after appearance day the plaintiff might take the bill for confessed, and that the matter thereof should be decreed accordingly, the decree to be absolute, unless cause should be shown at the next term. See Equity Rules VI. and X. of 1822, 7 Wheat, VII, and *Pendleton* v. *Evans*, 4 Wash. C. C. R., 335; *O'Hara* v. *McConnell*, 93 U. S., 150. Under these rules the English practice, was left to govern the subsequent course of proceeding, by which, as we have seen, the defendant might have an order to permit him to appear before the master and be entitled to notice. Whether under the present rules a different practice was intended to be introduced is a question which it is not necessary to decide in this case.

The decree of the circuit court is affirmed.

U. S. Circuit Court---Southern District of New York.

TOMKINSON *v.* THE WILLETS MANUFACTURING COMPANY.

Decided March 7, 1884.

1. A decree entered by consent in a prior suit between the parties declaring the complainant to be the sole owners of the letters patent in suit, and that they are good and valid in law, is valid and binding upon the rights of both parties, and as to all questions determined by it is *res judicata*.
2. It is not necessary that the design patented should be copied in every particular to constitute it an infringement. It is enough that it has the same general appearance if the variations are slight and to the eye of an ordinary person the two things are substantially similar.
3. If the resemblance is such that a purchaser would be deceived, it will not aid the infringer to show that he has deviated slightly in details or has omitted something which an expert can discover.

Mr. Frank v. Briesen for the complainant.
Mr. Philo Chase for the defendant.

COXE, *J.*:

This is an equity action for infringement founded upon Design Patent No. 13,295, granted to John Slater, assignor to Gildea & Walker, September 12, 1882, for a design for a vegetable-dish. The patent is now owned by the complainant.

The invention relates to a new shape or configuration for a vegetable-dish or other similar household article of china.

The claims are as follows:

1. The design for a rectangular vegetable-dish, having upper straight section, *c*, central curved section, *d*, and lower straight section, *e*, substantially as shown.
2. The design for a rectangular vegetable-dish, having straight top and a section, *d*, curved first outward and then inward in such manner that the base of the dish is smaller than its top, substantially as shown.
3. The design for a vegetable-dish, having parallel sides *a a'* and parallel sides *b b'*, and composed of the sections *c d e*, substantially as shown.

It will be observed that as to the handles, ornamentation, size, and color of the dish nothing is said in the claims. They are for the shape only.

In June, 1883, prior to this suit, the complainant commenced an action in the United States Circuit Court, District of New Jersey, against the defendant for an infringement of this patent. The complaint was in all respects similar to the one in the present suit. The defendant appeared by its president and consented to a decree and an injunction as prayed for. On or about the 21st of July, 1883, a final decree was entered, by which it was determined that the complainant is the sole owner of the letters patent in suit, and that they are good and valid in law. This decree was pleaded and proved in this action; is valid and binding upon the rights of the parties, and, as to all the questions determined by it, is *res judicata*. Unfortunately, perhaps, for the defendant, the court is not now permitted to consider the defenses, which, by the defendant's own action, are thus eliminated from the case. The question of infringement is alone open to investigation.

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The principal difference pointed out between the two dishes in controversy is that in the upper vertical section of defendant's dish the sides are not exactly parallel, but bulge outwardly, departing from a straight line something less than half an inch. It is thought, however, within the rule above adverted to, that this divergence is not sufficiently marked to arrest the attention of the average observer. Bearing in mind that the patent deals with shape alone, the same conclusion must be reached with reference to the other differences suggested by the defendant's witnesses.

There should be a decree for the complainant.

U. S. Circuit Court—Northern District of New York.

VACUUM OIL COMPANY *v.* BUFFALO LUBRICATING OIL COMPANY.

Decided March 20, 1885.

1. EVEREST—APPARATUS FOR DISTILLING PETROLEUM.
   The second and twelfth claims of Letters Patent No. 68,426, granted September 3, 1867, to Hiram B. Everest, for an improvement in apparatus for distilling petroleum, declared void for want of novelty.
2. DISCLAIMER.
   A disclaimer cannot be filed after the expiration of the term of a patent.

WALLACE, *J.*:

For the reasons stated orally at the hearing of this cause the second and twelfth claims of the patent in suit (No. 68,426, granted September 3, 1867, to Hiram B. Everest, assigned to complainant) are clearly void for want of novelty. Inasmuch as no disclaimer has been filed it is unnecessary to consider the validity of the other claims. After the term of a patent has expired it is too late to file a disclaimer. The suit cannot therefore be maintained, and the bill is dismissed.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 31—No. 8. TUESDAY, MAY 26, 1885. PRICE—$5 per year.

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The Official Gazette.

The OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Indexes to Patents on Electricity.

Appendix No. 2 to the index to patents relating to electricity, covering the period of time from July 1, 1882, to June 30, 1883, has been issued, and is now for sale. These indexes, arranged alphabetically, numerically, and by classes, are completed to June 30, 1883, and comprise the following volumes:

Vol. 1. Index to patents relating to electricity granted by the United States prior to June 30, 1881, with an appendix, July 1, 1881, to June 30, 1882. One volume, 250 pages. In paper covers, $3; bound, $5.

Vol. 2. Appendix No. 2, July 1, 1882, to June 30, 1883. One volume, 50 pages. In paper covers, $1.50.

Vol. 3. Appendix No. 3, July 1, 1883, to June 30, 1884. One volume, 60 pages. In paper covers, $1.50.

Indexes to Foreign Patents.

The following indexes to foreign patents have been translated, compiled, and published under the authority of the Commissioner of Patents, and may be obtained as a Patent Office publication at the prices given below.

INDEX TO FRENCH PATENTS, 1791 to 1876, inclusive, (subject-matter,) one volume, 935 pp., bound in cloth $10 00

INDEX TO ITALIAN PATENTS, 1848 to May 1, 1882, (subject-matter,) one volume, 120 pp.—
- Bound half-turkey 2 50
- Bound in cloth 1 25
- Paper covers 1 00

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Order No. 259.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., May 22, 1885.

In compliance with the request of the Examiner, the following changes are hereby ordered in the classification in Division XIII:

The title of Class 53 is changed from "Hardware-Making" to "Miscellaneous" and the following additional sub-classes formed:
- Stamping.
- Lamp-work.

In Class 78, "Metal-Forging," the following additional sub-classes are formed:
- Compressing.
- Compositions.
- Shafting and Pulleys.
- Structural work.

In Class 80, "Metal-Rolling," the following additional sub-classes are formed:
- Angle-Irons.
- Compound Plates and Bars.
- Re-working.

In Class 134, "Metal Tubing and Wire," the following additional sub-classes are formed:
- Drawing.
- Lapped Tubing.
- Rolled Tubing.
- Seamless Tubing.
- Reeling.
- Rods for wire.

In Class 86, "Arms and Projectiles, Making," sub-class 6, "Ordnance," is abolished.

M. V. MONTGOMERY,
Commissioner.

Issue of May 26, 1885.

Patents	498	No. 318,440 to No. 318,937, inclusive.
Designs	14	No. 16,101 to No. 16,114, inclusive.
Trade-Marks	16	No. 12,261 to No. 12,276, inclusive.
Labels	5	No. 4,458 to No. 4,462, inclusive.
Reissues	5	No. 10,599 to No. 10,603, inclusive.
Total issue	538	

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Argentine Republic	.....	.....	Germany	9	.....
Austria-Hungary	2	.....	Ireland	1	.....
Barbadoes	.....	.....	Mexico	.....	.....
Belgium	.....	.....	Newfoundland	.....	.....
Bermuda	.....	.....	Russia	.....	.....
British Columbia	.....	.....	Scotland	2	.....
Canada	3	.....	Spain	1	.....
Chili	1	.....	Sweden	1	.....
Columbia, U. S. of	.....	.....	Switzerland	1	.....
Cuba	.....	.....	West Indies	.....	.....
Denmark	.....	.....			
Ecuador	.....	.....	Total to citizens of foreign countries	38	
England	12	.....			
France	5	.....			

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	3	.....	Nebraska	4	.....
Arizona Territory	.....	.....	Nevada	.....	.....
Arkansas	1	.....	New Hampshire	5	.....
California	15	.....	New Jersey	25	.....
Colorado	2	.....	New Mexico Territ'y	.....	.....
Connecticut	33	.....	New York	93	10
Dakota Territory	2	.....	North Carolina	.....	.....
Delaware	2	.....	Ohio	42	2
District of Columbia	1	1	Oregon	.....	.....
Florida	.....	.....	Pennsylvania	45	1
Georgia	1	.....	Rhode Island	7	.....
Idaho Territory	.....	.....	South Carolina	.....	.....
Illinois	36	1	Tennessee	8	.....
Indiana	22	.....	Texas	5	.....
Indian Territory	.....	.....	Utah Territory	.....	.....
Iowa	12	.....	Vermont	1	.....
Kansas	3	.....	Virginia	2	.....
Kentucky	5	.....	Washington Territ'y	.....	.....
Louisiana	3	.....	West Virginia	3	.....
Maine	2	.....	Wisconsin	8	.....
Maryland	8	.....	Wyoming Territory	.....	.....
Massachusetts	38	5	United States Army	.....	.....
Michigan	16	1	United States Navy	.....	.....
Minnesota	8	.....			
Mississippi	.....	.....	Total to citizens of the United States	474	21
Missouri	13	.....			
Montana Territory	.....	.....			

DESIGNS.

16,101 and 16,102.—FONT OF PRINTING-TYPE.—*William F. Capitain*, Chicago, Ill. Applications filed February 19, 1885. Term of patents 3½ years.

16,103.—FONT OF PRINTING-TYPE.—*William F. Capitain*, Chicago, Ill. Application filed February 19, 1885. Term of patent 7 years.

16,104 to 16,106, inclusive.—FONT OF PRINTING-TYPE.—*William F. Capitain*, Chicago, Ill. Applications filed February 19, 1885. Term of patents 3½ years.

16,107.—CARPET.—*Arthur L. Halliday*, Yonkers, N. Y., assignor to *The Bigelow Carpet Company*, Clinton, Mass. Application filed Febuary 13, 1885. Term of patent 3½ years.

16,108.—CURTAIN FABRIC.—*Richard Paul Hemming*, Philadelphia, Pa., assignor to *George W. Ennis & Co.*, same place. Application filed April 16, 1885. Term of patent 3½ years.

16,109 to 16,112, inclusive.—OIL-CLOTH.—*Charles T. Meyer* and *Victor E. Meyer*, Bergen, N. J., assignors to *Edward C. Sampson*, New York, N. Y. Applications filed April 29, 1885. Term of patents 3½ years.

16,113.—PULLEY-FRAME.—*Daniel J. Weir*, New York, N. Y. Application filed April 16, 1885. Term of patent 14 years.

16,114.—ORNAMENTATION FOR HARNESS.—*Samuel E. Tompkins* and *John F. Goodsell*, Newark, N. J. Application filed January 21, 1885. Term of patent 7 years.

TRADE-MARKS.

[Certificates of registration of Trade-Marks numbered 8,191 and upward are registered under the act of March 3, 1881.]

12,261.—REMEDY FOR THE CURE OF FEVER AND AGUE AND DISEASES CAUSED BY MALARIA.—*Allen, Merrill & Co.*, Washington, D. C. Application filed April 29, 1885.

"The representation of the reverse face of a five-dollar gold coin, a sprig of herbs on either side of it, and the words 'GOLD COIN REMEDY.'"

12,262.—FURNISHING-GOODS AND UNDERWEAR.—*Elijah F. Bermingham*, New York, N. Y. Application filed March 11, 1885.

"The letters 'E. F. B.'"

12,263.—BRACKET, HACK, AND MEAT SAWS.—*George N. Clemson*, Middletown, N. Y. Application filed April 1, 1885.

"A star and a circle inclosing the same."

12,264.—MATRIX-PAPER.—*The Crocker Manufacturing Company*, Holyoke, Mass. Application filed April 25, 1885.

"The representation of a printing-press with the words 'CROCKER'S AMERICAN' in an arched line above, and the words 'MATRIX PAPER' in a horizontal line below it."

12,265.—WHISKIES.—*James Emmitt*, Waverly, Ohio. Application filed September 18, 1884.

"The letters 'E & D.'"

12,266.—COUGH-TEA.—*Ignatz Lange*, Chicago, Ill. Application filed March 2, 1885.

"The words 'PROF. DR. LIEBIG'S,' together with the figure of a man on the left-hand side of the label carrying packages under each arm, and on the right the figure of a woman administering cough-tea to an infant."

12,267.—DISINFECTING OR DEODORIZING COMPOUNDS OR FLUIDS.—*Jean A. Mathieu*, Detroit, Mich., and Philadelphia, Pa. Application filed May 2, 1885.

"The word-symbol 'ARABIC.'"

12,268.—BRAIDS.—*Nonantum Worsted Company*, Newton, Mass. Application filed March 23, 1885.

"The word 'NONANTUM.'"

12,269.—WORSTED AND WOOLEN YARNS.—*Nonantum Worsted Company*, Newton, Mass. Application filed March 25, 1885.

"The words 'LADY GREY.'"

12,270.—PORTABLE ARMS, AS GUNS, REVOLVERS, SWORDS, &c.—*Ostheimer Brothers*, Philadelphia, Pa. Application filed April 30, 1885.

"The representation of a pair of balances and the words 'COPPEL ARMS CO.'"

12,271.—WINE AND BEER.—*Redling & Neubauer*, New York, N. Y. Application filed April 16, 1885.

"The representation of a bird and of a cherub seated thereon."

12,272.—PAINT CALLED HYGIENIC CALCIMINE.—*Rubber Paint Company of Cleveland Ohio*, Cleveland, Ohio. Application filed April 23, 1885.

"The representation of a temple, sphinx, goddess, Uncle Sam, and a pail of colors."

12,273.—WRITING-PAPER.—*Valley Paper Company*, Holyoke, Mass. Application filed March 25, 1885.

"The representation of a shield bearing a fleur-de-lis, with the letters 'V. P. Co.' across the top."

12,274.—NASAL SUPPOSITORIES.—*Vita Company*, New York, N. Y. Application filed April 27, 1885.

"A representation of the head and bust of a human being, the head in profile, and one hand raised and in the act of inserting a suppository into the nostril."

12,275.—BITTERER ANSATZ.—*Augustus W. Weismann*, New York, N. Y. Application filed March 7, 1885.

"The representation of a knight in armor, a four-leaved plant, a shield, and plumes."

12,276.—UNFERMENTED FRUIT-JUICES.—*August Werner*, New York, N. Y. Application filed May 1, 1885.

"The arbitrary word 'MILK.'"

LABELS.

4,458—Title: "WYLIE'S RHEUMATIC OIL."—*George H. Charland*, Keeseville, N. Y. Application filed April 29, 1885.

4,459.—Title: "DOUCE-HALEINE" (FOR A PREPARATION FOR CLEANSING ARTIFICIAL TEETH, &c.)—*Fred F. Gage*, Boston, Mass. Application filed April 15, 1885.

4,460.—Title: "GRAFF'S SEAMLESS SHOE."—*Andrew Graf*, Brooklyn, N. Y. Application filed May 2, 1885.

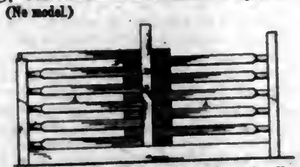
4,461.—Title: "REX MARINUS" (FOR A MEDICINE FOR CURE OF SEA SICKNESS.)—*Harry L. Moody*, New York, N. Y. Application filed May 1, 1885.

4,462.—Title: "PEPTONIZED SODA MINT" (FOR DYSPEPSIA, &c.)—*Ryer & Berrian*, New York, N. Y. Application filed April 22, 1885.

PATENTS

GRANTED MAY 26, 1885.

318,440. FENCE-LOCK. JOHN D. ALBERT, Prospect, Pa. Filed June 4, 1884. (No model.)

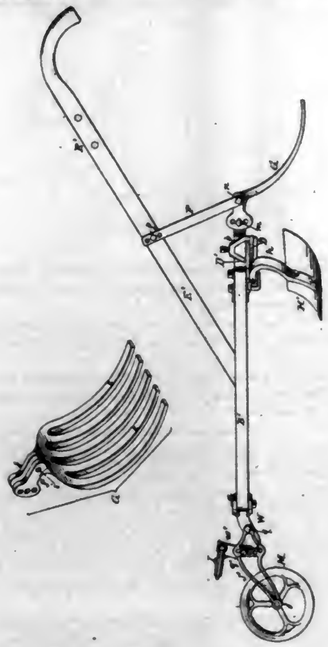


Claim.—The combination of the rails A, the stakes B, placed upon opposite sides of the fence where the ends of the rails cross each other, and the wire D, which has its lower end fastened to one of the stakes, which is then passed through the fence and wrapped or passed around the other stake, and which wire has its upper end fastened to the top rail of one of the panels for the purpose of tightening it in place, substantially as shown.

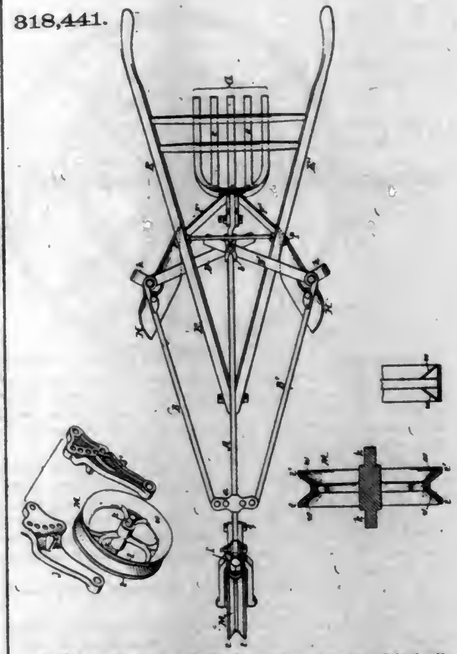
318,441. FURROWING AND COVERING MACHINE. SAMUEL L. ALLEN, Philadelphia, Pa. Filed Feb. 4, 1884. (No model.)

Claim.—1. The combination, in a covering-machine, of a frame and mold-board carried thereby with the leveler G, secured to the frame and having rearwardly-projecting prongs for bearing on without scraping or raking the soil, substantially as set forth.

2. The combination of the frame and mold-boards of a covering-machine with an adjustable leading-wheel in advance of the said mold-boards and an adjustable pronged leveler at the rear of the same, substantially as described.

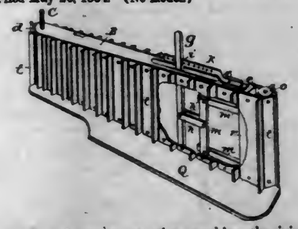


318,441.



3. The combination, with the frame of a cultivator, of the leading-wheel having a rim internally inclined, as set forth.

318,442. CONVEYER-APRON FOR HARVESTERS. WENEL J. BELIMA, Owatonna, Minn., assignor of one-half to Joseph W. Kaplaw, same place. Filed May 26, 1884. (No model.)



Claim.—1. In a harvester or other machine, the jointed metallic apron composed of plates of metal sliding upon the flange Q, in combination with the frames B B', spur-wheels *d* and *d'*, frames *g* and *m'*, pulleys O and P, and lever *g*, all substantially as and for the purpose set forth and described.

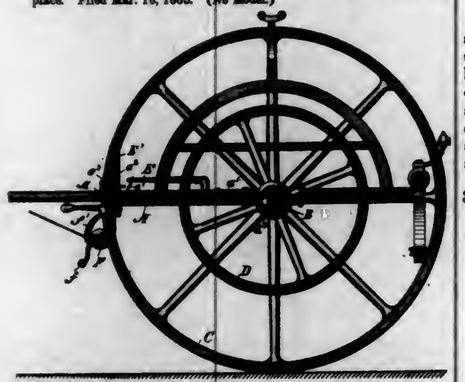
2. In a conveyer-belt for harvesters or other machines, the metal plates formed with flanges at their opposite sides bent in opposite directions, whereby each plate is adapted to overlap the succeeding plate, in combination with an endless chain or chains having links with raised bodies, all substantially as and for the purpose set forth and described.

318,443. CHECK-REIN SWIVEL FOR BRIDLES. WILLIAM J. BUTTZ, Toledo, Ohio. Filed July 30, 1884. (No model.)



Claim.—The frame B, consisting of the arms *b b'*, provided with studs *c c'*, and terminating in an arm, C, and the shank *i*, having the cross-bar *c c'* arranged at a right angle to the arm C, all cast in one piece, in combination with the roller D, journaled between the arms *b b'*, substantially as described.

318,444. HOSE-CARRIAGE. CHARLES A. BLUHM, Michigan City, Ind., assignor to himself, Henry H. Bluhm, and Fred H. Bluhm, all of same place. Filed Mar. 16, 1885. (No model.)



Claim.—1. The combination, in a hose-cart, of its axle and wheels with a hose reel or drum fitted loosely so as to turn freely on said axle, and a clutch consisting of a clutch-face on the wheel and a sliding clutch-sleeve on the axle, whereby the reel may be made to revolve with the wheels when desired, substantially as specified.

2. The combination, with hose-reel D, provided with grooved ring or saddle *d*, of axle B, provided with ring or projection b^3, wheels C, provided with clutch-faces *c*, and clutch-sleeves *d'*, substantially as specified.

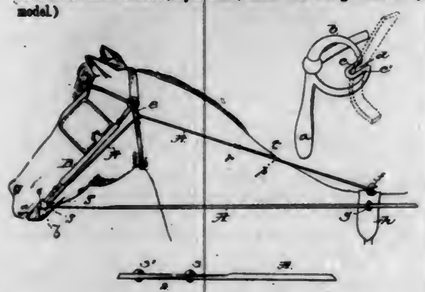
3. The combination, with hose-reel D, provided with grooved ring or saddle *d*, of axle B, provided with ring or projection b^3, wheels C, provided with clutch-faces *c*, clutch-sleeves *d'*, clutch-levers E, and hand-lever E', substantially as specified.

4. The combination of hubs d^3 with drum-pieces d^5 and threaded rods d^6, substantially as specified.

5. The combination of hubs d^3, drum-pieces d^5, rods d^6, grooved ring or saddle *d*, made in parts and secured to said drum-pieces, and axle B, provided with ring or projection b^3, substantially as specified.

6. The combination, with the axle and wheels of a hose-cart, said wheels having clutch-faces, of a reel or drum mounted on said axle, a pair of sliding clutch-sleeves adapted to engage the clutch-faces of said wheels, and levers for operating said clutch-sleeves, substantially as specified.

318,445. HARNESS. WILLIAM S. BOWER, Gardiner, Me., assignor of one-half to Jairus H. Scott, Hyde Park, Mass. Filed Aug. 4, 1884. (No model.)



Claim.—1. A bit having a ring or cheek-piece provided at its periphery with an open-ended slot, substantially as described, into which the driving-rein may be passed laterally, substantially as described.

2. A bit having a portion of its ring or cheek-piece bent outwardly to form a lateral extension, *c'*, on which the flat part of the rein may rest, substantially as described.

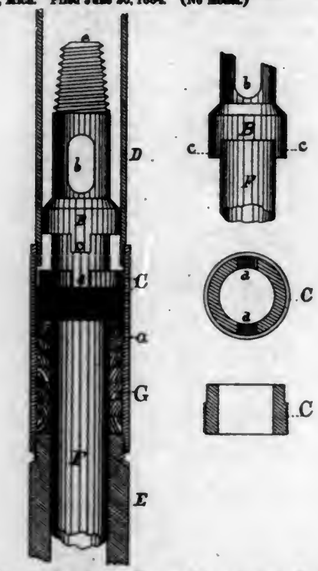
3. In a bridle, a bit having a portion of its ring or cheek-piece at each side provided with an open-ended slot, *d*, for the reception of the driving-rein, combined with a driving-rein having stops to co-operate, as described, with the said ring or cheek-piece, the said reins being adapted to extend from the position of the driver, and also constitute a check-rein, substantially as described.

318,446. BOOT OR SHOE HEEL AND GUARD. ISAAC S. BREWSTER, Dover, N. H. Filed Mar. 16, 1885. (No model.)



Claim.—The combination of a re-enforce, as described, composed of a quadrantal plate having slots and holes in it, and also having a flange extending from it at its periphery, as set forth, with a shoe or boot heel composed of a series of lifts of leather, and having such re-enforce placed on and fastened to one lift and extending into a notch in another lift, and the latter lift and said re-enforce, except its flange, covered by the outermost lift of the heel notched to receive the flange, and fastened in place by nails driven through it, the said outermost lift and the re-enforce, and into the adjacent lifts, all as represented.

318,447. PACKING DEEP-WELL PUMPS. HENRY M. CAMPBELL, Bay City, Mich. Filed June 20, 1884. (No model.)



Claim.—1. In a deep-well pump, the projecting collar B, provided with lugs *c c* in connection with plunger F, having orifice *b* and thread *a*, for the purposes specified.

2. In a deep-well pump, the combination, with stuffing-box *a* and flexible packing G, of the follower C, provided with slots *d d*, for the purpose set forth.

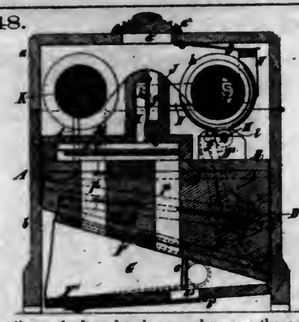
3. In a deep-well pump, the combination, with collar B and lugs *c c*, of the follower C and slots *d d*, all substantially as shown, and for the purpose specified.

318,448. MECHANICAL MUSICAL INSTRUMENT. J. HERBERT CRANE, Brooklyn, N. Y. Filed Sept. 7, 1883. (No model.)

Claim.—1. In a mechanical musical instrument, the combination of a driving-shaft, a music-sheet, a take-up roller, whereby the latter is taken up in playing, and a movable frame provided with bearings for both journals of the take-up roller, and adapted to be moved to vary the position of the take-up roller relatively to the driving-shaft and the pressure under which it is subjected to the action of the driving-shaft, substantially as specified.

2. In a mechanical musical instrument, the combination of a driving-shaft, a music-sheet, a take-up roller, whereby the latter is taken up in playing, a movable frame provided with bearings for both journals of

318,448.



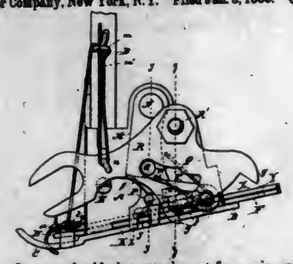
the take-up roller, and adapted to be moved to vary the position of the take-up roller relatively to the driving-shaft and the pressure under which it is subjected to the action of the driving-shaft, and a resilient cross-bar on said frame, whereby a yielding pressure may be exerted upon the take-up roller, substantially as specified.

3. In a mechanical musical instrument, the combination of a driving-shaft, a music-sheet, a take-up roller, whereby the latter is taken up in playing, a movable frame pivoted to a fixed portion of the instrument, and provided with bearings for both journals of the take-up roller, and adapted to be moved to vary the position of the take-up roller relatively to the driving-shaft and the pressure under which it is subjected to the action of the driving-shaft, substantially as specified.

4. In a mechanical musical instrument, the combination of a driving-shaft, a music-sheet, a take-up roller, whereby the latter is taken up in playing, a movable frame provided with bearings for both journals of the take-up roller, and adapted to be moved to vary the position of the take-up roller relatively to the driving-shaft and the pressure under which it is subjected to the action of the driving-shaft, a cross-bar on said frame, and a hinged cover provided with a presser for bearing upon the cross-bar and acting upon the same with a yielding force, substantially as specified.

5. In a mechanical musical instrument, the combination of a driving-shaft, a reed-board, a music-sheet, a take-up roller, whereby the latter is taken up in playing, and a frame in which the said roller is journaled, and which is pivoted to the ends of the reed-board, substantially as specified.

318,449. EMBROIDERING ATTACHMENT FOR SEWING-MACHINES. FRANKLIN H. CHILTON, New Rochelle, assignor to the Empress Embroiderer Company, New York, N. Y. Filed Jan. 5, 1885. (No model.)



Claim.—1. In an embroidering attachment for sewing-machines, a longitudinally-reciprocating looper, a carrier pivoted thereto and having both a reciprocating and vibrating movement, and a switch engaging said carrier and provided with a laterally-extending arm, in combination with an operating-lever engaging said arm and adapted to be secured to the needle-bar of a sewing-machine, substantially as set forth.

2. In an embroidering attachment for sewing-machines, a longitudinally-reciprocating looper, a carrier having both a reciprocating and a vibrating movement, and the pivotally-secured switch *b*, engaging said carrier and having a laterally-projecting arm, *f*, in combination with an oscillating lever, R, engaging the latter and adapted to be secured to the needle-bar of a sewing-machine, substantially as set forth.

3. In an embroidering attachment for sewing-machines, a longitudinally-reciprocating looper and a thread-carrier having both a reciprocating and a laterally-vibrating movement, in combination with the pivotally-secured switch *b*, engaging said carrier and having a laterally-extending arm, *f*, the actuating-lever R, which engages the arm *f*, and adapted to be secured to the needle-bar of the sewing-machine, and the dog T, by which the arm F is locked at the end of its forward throw, substantially as set forth.

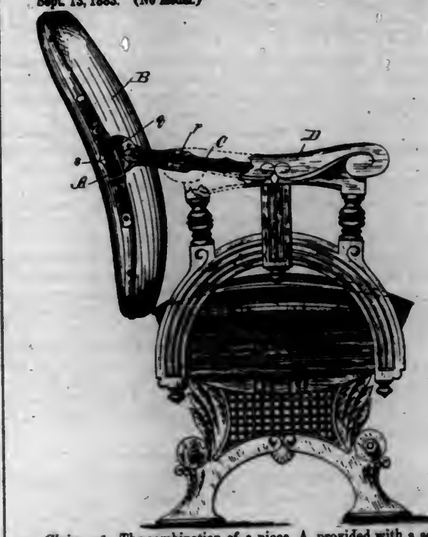
4. In an embroidering attachment for sewing-machines, the supporting bracket and foot, in combination with a longitudinally-reciprocating looper, a reciprocating and laterally-vibrating carrier, the switch *b*, engaging the carrier and having a laterally-extending arm, *f*, the actuating-lever R, engaging the arm *f*, the dog T, adapted to lock the arm F upon the termination of its forward stroke, and the vibrating arm M, having pins O P, the former of which engages a cam-slot in said lever R, and the latter the forward end of the dog T, substantially as set forth.

5. In an embroidering-machine, the combination, with a supporting bracket and foot, of a longitudinally-reciprocating looper having a point formed on the end thereof and to one side of the vertical path of the sewing-needle, the reciprocating thread-carrier X, pivoted to the rear end of said looper, and a switch adapted to communicate motion from the operating-lever to the thread-carrier, substantially as set forth.

6. In an embroidering attachment for sewing-machines, the combination, with the looper F, formed with a point, H, on the end thereof and to one side of the vertical path of the sewing-needle, of the thread-carrier X, pivoted to the looper and provided with the eyes Z and point *a*, a switch connected with the thread-carrier, and an actuating-lever connected to the said looper and switch, substantially as set forth.

7. In an embroidering attachment for sewing-machines, the combination, with the looper F, having a laterally-extending arm, J, of the thread-carrier X, arranged over said looper, the vibrating lever M, the lower end of which engages the arm J, and which is provided with a pin, O, which enters a cam-slot formed in the actuating-lever R, and means for imparting to the thread-carrier a laterally-vibrating motion during its longitudinal movement, substantially as set forth.

318,450. CAR-SEAT. HENRY R. COBB, Wilmington, Del., assignor to the Hale & Kilburn Manufacturing Company, Philadelphia, Pa. Filed Sept. 13, 1883. (No model.)



Claim.—1. The combination of a piece, A, provided with a socket, a bar, C, provided at the end which enters the socket with a slot, *t*, and with shoulders or stops *r*, and a bolt or pin passing through the socket-piece and slot for securing the parts together, whereby the bolt is shifted from one end of the slot to the other with each reversal of the seat-back, and tipping of the back is prevented by the bearing of the socket-piece against the shoulder, substantially as described.

2. The combination of the piece A, provided with a socket, bolt *s*, and bar C, said bar being provided with the shoulders *r* and *q* and with the slot *t*, substantially as described.

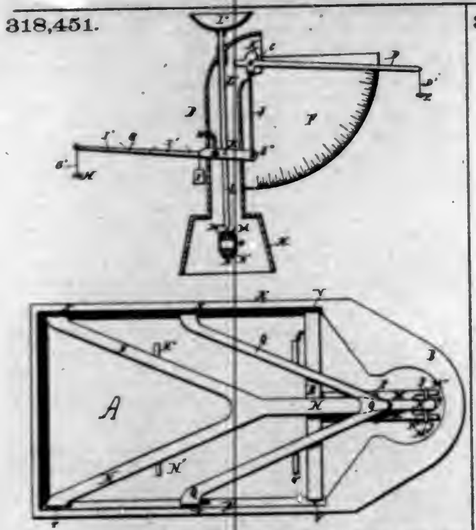
318,451. WEIGHING-SCALE. HENRY D. COFFEY, Massie's Mills, Va., assignor of one-third to Lysander N. Miller, same place. Filed June 13, 1884. (No model.)

Claim.—1. The combination, with a platform-scale, of two indicating-levers pointing in different but parallel directions, a graduated arc, and means, substantially as shown, for varying the value of the graduations.

2. The platform pressure-transmitting levers M N Q, terminally provided with pins, the said levers being so pivoted that they operate forwardly, and the last two, N N Q Q, of the series so disposed as to deposit their entire pressure on the lever M, thereby actuating the same, in combination with the rod L and the mechanism, substantially as shown, for affecting it synchronously with the impulses of the said transmitting-levers.

3. In a platform-scale, the rod L, integral with rod L', operated, respectively, by the platform and the pan, in combination with the grad-

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nated are F, the indicator D, and flexible connection J, the latter being mediately united at one end to the rod and at the other to the indicator, whereby variable impulses imparted by differing pressures in the pan or on the platform may be correctly indicated.

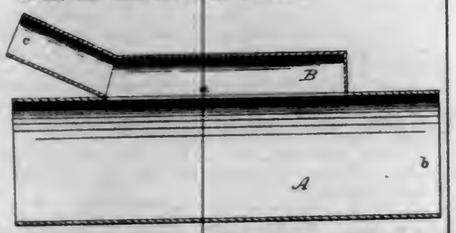
4. The pan L'', in combination with the rod L', lever G, pivoted as described, pin X, connection J, bell-crank K, indicating-lever D, pivoted as shown, and graduated arc F.

5. The rod L, actuated as described, in combination with the lever G, pivoted as illustrated, notched at I' I', poise I, weight H, suspension-bar G', arm W, pin X, connection J, bell-crank K, indicator D, pivoted as shown, weight E, suspension-bar D', and graduated arc F.

6. The levers M N Q, having pins N'' N'' Q'' Q'', located as described with respect to said levers, in combination with the platform A, having legs A'''' A'''', arc F, the means, substantially as shown, for transmitting the pressure on said platform, and the levers G D, for indicating the same.

7. The levers M N Q, pivotally secured as herein described, having pins N'' N'' Q'' Q'', located as specified, in combination with the platform A, having legs A'''' A'''', the links O P, the rod L L', the levers G D, connected and adjusted as illustrated, and graduated arc F, the whole co-operating in the relation, for the purpose, and by the means herein fully shown and described.

318,452. VENTILATED SEWER-PIPE. MICHAEL J. COHOLAN, New Britain, Conn. Filed Jan. 29, 1885. (No model.)

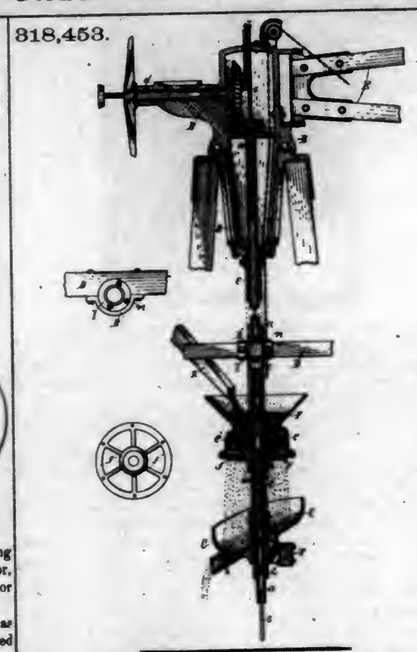


Claim.—In combination with a sewer-pipe, an extended gas-collecting chamber parallel with and open throughout its entire length to said sewer-pipe, and a gas-discharge pipe leading outward from said chamber, all substantially as herein described, and for the object specified.

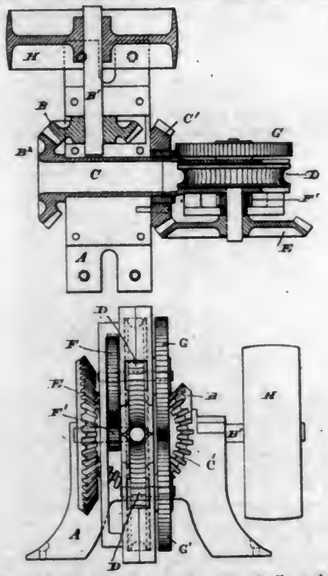
318,453. POWER-WINDMILL. HUTSON B. COLMAN, Kalamazoo, Mich. Filed Feb. 17, 1885. (No model.)

Claim.—In a wind grinding-mill, the combination of a wind-wheel shaft, a swiveled bearing-support for said shaft, a vertical shaft-extension of the bearing-support, a power-shaft concentric with the shaft-extension and forming operative engagement with the wheel-shaft, and a grinder having an active and a passive grinding-burr centrally connecting with and surrounding said concentric shafts in operative relation, substantially as set forth.

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318,454. MACHINE FOR THE MANUFACTURE OF STICK-CANDY. JAMES J. COUSINS, San Francisco, Cal. Filed June 27, 1884. (No model.)



Claim.—1. In the manufacture of candy, a feeding, stick-forming, and twisting mechanism consisting, essentially, of a rotary tube and two grooved and serrated wheels or rollers placed in juxtaposition, and operated by toothed gears and beveled wheels connected to suitable gears mounted upon a standard or frame, whereby a horizontal and feeding and a rotary or twisting motion is produced, substantially as described.

2. In a machine for the manufacture of stick-candy, the grooved wheels or rollers operating within a suitable casing by means of a spur and pinion, beveled gears, and toothed wheels, and provided with a feeding and guiding tube connected by a male and female coupling to a rotary tube, C, placed transversely across the standard or frame, whereby a passage is had for the stick to pass through the machine as it is being formed, as described.

3. In a machine for the manufacture of stick-candy, the combination and arrangement of the grooved wheels or rollers with the threaded tube or pipe C and beveled wheel C', beveled wheel E, spur and pinion F F', and toothed gears G G', mounted upon a suitable frame, constructed, arranged, and operating substantially in the manner herein set forth and specified.

318,455. TRUNK. GUSTAVE DEMEL, Hancock, Mich. Filed July 19, 1884. (No model.)

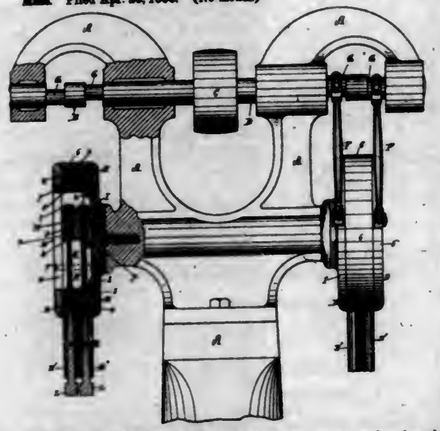


Claim.—1. In a trunk, the combination, with the body thereof, of the cap-pieces secured to the ends thereof, and the India-rubber rings fitted and held within grooved recesses formed in said cap-pieces.

2. In a trunk, the combination, with the body thereof, of the bands secured thereto, and the yielding or elastic rings fitted and secured to said bands, and the cap-pieces secured to the ends of the trunk and provided with yielding or elastic rings.

3. The combination, with a trunk-ring constructed of India-rubber, of a cap-piece connected thereto and adapted to be connected to the trunk-body.

318,456. MECHANICAL MOVEMENT. J. WESLEY DODGE, Malden, Mass. Filed Apr. 30, 1885. (No model.)



Claim.—1. The improved mechanical movement embracing the following elements: the disks D D and rings E E, provided with tool-holders E' E', in combination with pitmen F F and eccentrics G G on the driving-shaft B, substantially as shown, and for the purpose described.

2. Rods K K, the inner ends of which, being near the center of moving circular rings, are substantially at rest, the outer ends of which move with the rings and bear upon operating-tools, in combination with a spring or springs for the purpose of transmitting to such tools a degree of elasticity, as shown and described.

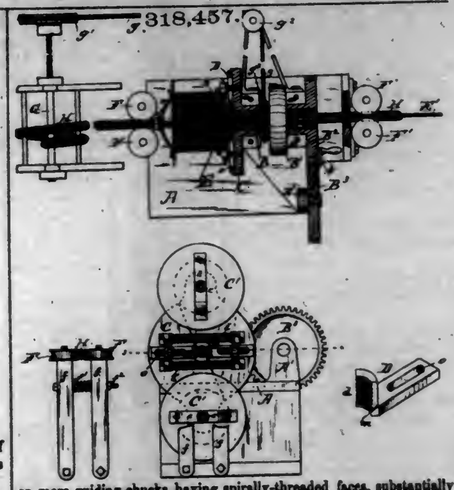
3. The disk D, in combination with two rings, E E, and tool-holders E' E', having a simultaneous reciprocating motion in opposite directions, substantially as set forth, and for the purpose described.

318,457. MACHINE FOR COVERING HOSE WITH WIRE. GEORGE B. DURKEE, Chicago, Ill., assignor to Wilson Haight, same place. Filed Jan. 15, 1885. (No model.)

Claim.—1. In a machine for covering hose with wire, the combination, with the wire carrying and winding head revolving around the hose and having an adjustable guide or guides for laying the wire mounted thereon, of the stationary mandrel for keeping the hose expanded and the support for such mandrel, substantially as specified.

2. In a machine for covering hose with wire, the combination, with the wire carrying and winding head revolving around the hose, of one

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or more guiding-chucks having spirally-threaded faces, substantially as specified.

3. In a machine for covering hose with wire, the combination, with the wire-carrying head and a guide or guides for laying the wire mounted upon said head, of the mandrel for keeping the hose expanded and the support for such mandrel, substantially as specified.

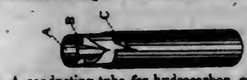
4. In a machine for covering hose with wire, the combination, with the wire carrying and winding head revolving around the hose and the expanding-mandrel, of the clamping-rollers F F, located as shown, for preventing torsion of the hose, substantially as specified.

5. The combination, with a machine for winding wire upon rubber hose, of a power-actuated reel, G, belt g, and pulleys g', g^2, and g^3, substantially as and for the purpose specified.

6. In a machine for covering hose with wire, the wire-carrying head having the guiding chuck or chucks, the hose-expanding mandrel and its support, and the clamping-rollers F F, all combined and arranged substantially as specified.

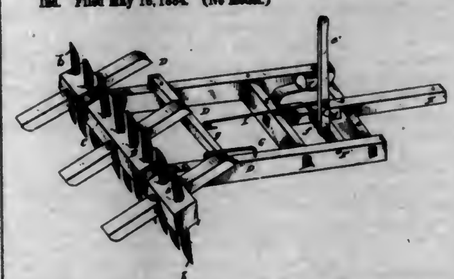
7. The combination, with the head rotating around the hose, of the wire-supplying spool or spools, the chucks, and the guiding-rollers, all carried by the head, substantially as specified.

318,458. INDIA-RUBBER GAS-PROOF TUBING. THOMAS FLETCHER, Warrington, County of Lancaster, England. Filed Nov. 15, 1884. (No model.) Patented in England June 4, 1884, No. 8,563.



Claim.—A conducting-tube for hydrocarbon gases, made up of an inner and outer coating of vulcanized rubber and an interposed layer of metal foil, substantially as described.

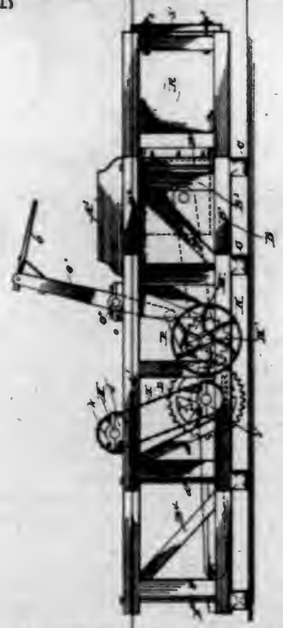
318,459. HAY-RAKE. RUDY FREE and OLIVER J. ROWE, Harrisville, Ind. Filed May 16, 1884. (No model.)



Claim.—1. The hay-rake described, comprising a supporting-frame, a rake journaled at the rear end thereof, stop-arms on said rake, a bar to engage one of said stop-arms, a bracket to limit the movement of the bar, a lever mounted on a bar at one side of the frame and adapted to move the locking-bar into and out of engagement with said stops, and sleeves on said bar to bear against each side of the lever, substantially as set forth.

2. The combination, with the frame, of a draft-tongue secured to the forward end thereof, a rod mounted between said draft-tongue and the side of the frame, a lever mounted on said rod, and sleeves on said rod bearing against each side of said lever to hold the same in place, substantially as set forth.

318,460. BALING-PRESS. JAMES E. FULLER, Monticello, assignor of one-half to George Houghton, Minneapolis, Minn. Filed Aug. 9, 1884. (No model.)



Claim.—1. In a baling-press for hay, straw, and similar material, the horizontal press-body provided with pressing mechanism, in combination with swinging bale-forming chambers hinged to the end of the press-body at opposite sides thereof, substantially as described.

2. In a baling-press for hay, straw, and other material, the horizontal press-body provided with folding mechanism and pressing mechanism, in combination with swinging bale-forming chambers hinged to the end and at opposite sides of the press-body, and having retainers and doors whereby their outer free ends are closed, substantially as described.

3. In a baling-press for hay, straw, and other similar material, the press-body having a plunger operated by toggle-timbers E E′, in combination with swinging bale-forming chambers R, hinged to the end of the press-body and provided with retainers S, latch *r*′, and door S′, substantially as described.

4. In a baling-press for hay, straw, and other similar material, the side frame B, constructed as described, having the sills B′, top timbers B^2, uprights B^3, braces B^4, cross-timbers C C′, and straining-rods B^5, in combination with the toggle-timbers E E′, plunger G, and operating mechanism, substantially as described, and for the purpose set forth.

5. In a baling-press for hay, straw, and other similar material, the combination of the press A, having frames consisting of the sills B′, top timbers B^2, uprights B^3, braces B^4, cross-timbers C C′, and straining-rods B^5, with the plunger-operating toggle-timbers E E′, actuated by mechanism substantially as described, and a swinging chamber, R, wherein the bale is formed, substantially as described.

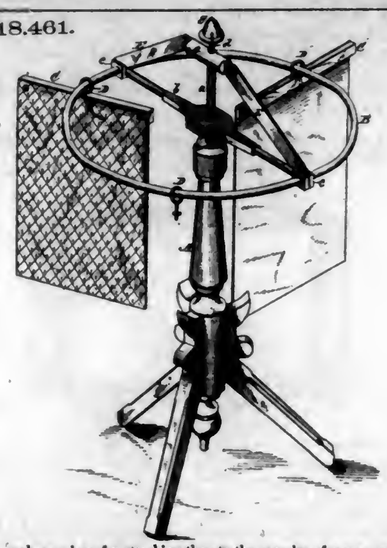
6. In a baling-press for hay, straw, and other similar material, the combination of the press-frame constructed as described, and provided with plunger-operating toggle-timbers E E′, operating mechanism therefor, and swinging chamber R, wherein the bale is formed, with supplemental side frames D, having sills *d*, top timbers *d*′, uprights d^2, braces d^3, and straining-rods d^4, substantially as and for the purpose set forth.

7. In a baling-press for hay, straw, and other similar material, the combination of the folder O, having lever O′ and links P P′ P^2, substantially as described, with the plunger-operating toggle-timbers E E′ and their operating mechanism, as herein set forth.

318,461. WALL-PAPER RACK. DELMER GARDNER, Prattsburg, N. Y. Filed May 19, 1884. (No model.)

Claim.—1. In a device for displaying and exhibiting wall-paper, a suitable standard provided with a revolving ring, in combination with

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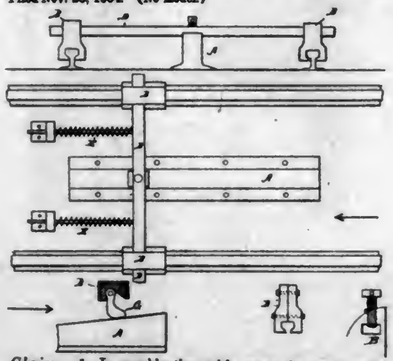


eyes and cross-bars for attaching thereto the samples of paper, substantially as and for the purpose specified.

2. In a device for exhibiting and displaying wall-paper, a suitable standard having an upright rod, in combination with a ring adapted to revolve around said rod, and carrying a series of eyes sliding thereon, and to which are connected cross-bars for fastening the samples of paper thereto, substantially as and for the purpose specified.

3. In a device for displaying and exhibiting wall-paper, a suitable standard having an upright rod to serve as a pivot, in combination with a ring adapted to revolve thereon, cross-bars to which the paper is attached, adapted to slide thereon, and two cross-braces arranged on different horizontal planes, the rod passing up through the braces, and the ring held on the rod by a nut or other fastening device, substantially as and for the purpose set forth.

318,462. TRACK-BUFFER. ROBERT P. GARNER, Norristown, Pa. Filed Nov. 28, 1884. (No model.)



Claim.—1. In combination with supporting-rails, and fastened thereto and adapted to slide thereon the projections B, supporting a friction-bar, D, in a manner to allow of its being raised or lowered when bearing upon the inclined face of bar A, and said bar A, substantially as and for the purposes set forth.

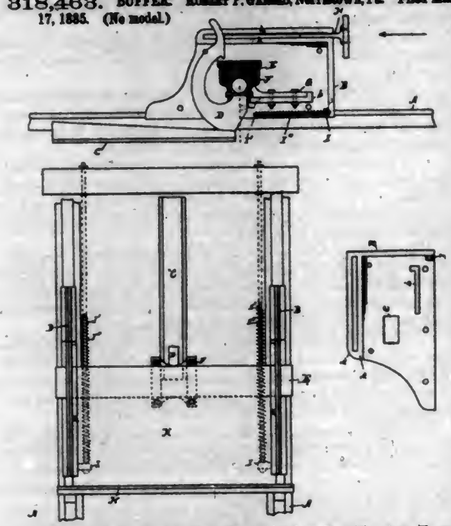
2. In combination with supporting-rails, and adapted to slide thereon the projections B, with openings adapted to support friction-bar D and allow it to raise or lower, said friction-bar D, and an inclined-faced friction-bar, A, substantially as and for the purposes set forth.

3. In combination with supporting-rails, and adapted to slide thereon the projections B, supporting a friction-bar, D, the bar A, receiving pressure from bar D, and a cam adapted to release the friction-bar from engagement, substantially as and for the purposes set forth.

4. The supporting railway-tracks and a sliding supporting device with a friction-bar, D, supported thereby, the friction-bar A, and a cam so used in combination as to cause the disengagement of the friction-bars, and a spring, E, adapted to return the device to its normal position.

5. In combination, the friction-bar A, with an inclined side, the supporting projections B, and the bar D, with screws to regulate its tension, substantially as and for the purposes set forth.

318,463. BUFFER. ROBERT P. GARNER, Norristown, Pa. Filed Mar. 17, 1885. (No model.)



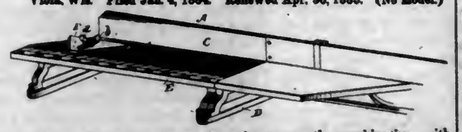
Claim.—1. In combination, the projections B, with a bar, E, supported thereby, and a cam, D, with sliding bar H, so arranged that upon their advance cam D is held in a position by said bar H to cause friction, substantially as and for the purposes set forth.

2. In combination, the projections B, with spring-lugs fastened thereto and adapted to slide upon rails A, the springs I″, and friction-bars E and C with said rails A, substantially as and for the purposes set forth.

3. In combination, the sliding supporting projections B, friction-bar E, and cam D, with bar G, so supported that it braces cam D in position upon its operation, substantially as and for the purposes set forth.

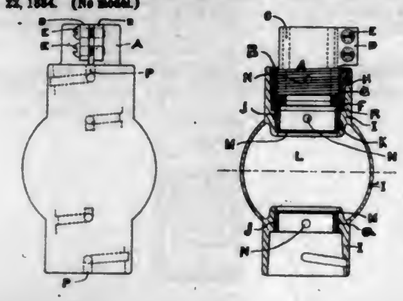
4. In combination, the sliding supporting projections B, with friction-bar E supported thereby, cam D, with journal-box F attached to bar E, and adapted to hold the cam and allow of its movements upon the advance and retreat of the buffer upon the rails A, and said rails, substantially as and for the purposes set forth.

318,464. MITER-BOX. THOMPSON E. GARNOUR and THOMAS JONES, Viola, Wis. Filed Jan. 4, 1884. Renewed Apr. 30, 1885. (No model.)



Claim.—In an attachment for miter-boxes, the combination, with the bed-piece B, having scale-graduations corresponding with the scale-graduations on a scale-bar, E, at the front of the bed-piece provided at its rear edge with the back-piece C, of the triangular stop-gage F, slotted transversely at *a*, and removably and adjustably secured to the scaled bed-piece by the thumb-screw bolt and nut *d b*, substantially as specified.

318,465. FILTER. ALFRED J. GIBERSON, Boston, Mass. Filed May 22, 1884. (No model.)



Claim.—1. The filter as constructed with the two taper-surfaced sockets for rings J, provided with the pins K, and the two taper-surfaced sockets for nut B, their inclined grooves and nut B, the rings J, provided with gauze or perforated plates M, and the screw-bib provided with the lining C, ears D, and screws E, substantially as described.

2. The gauze-supporting rings J, as constructed and fitted, with the described pin K or Q set in the described taper surface, and in combination with the correspondingly-fitted case, substantially as described.

3. In the construction of a filter, the nut B, when provided with the taper surface having the lug H, and fitted to a corresponding taper surface having the inclined groove in the filter-case, substantially as described.

4. In a filter, the clamp-bib as constructed with the exterior screw, interior packing-ring, the two ears D, and the slot extending between the ears to the screw, substantially as described.

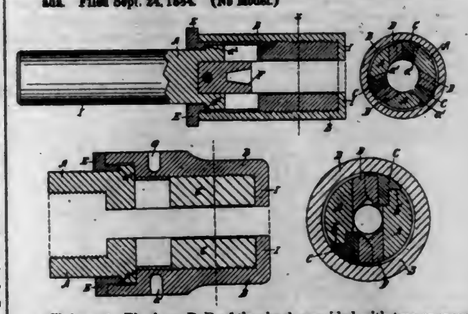
5. The filter as constructed with the nut B having the internal screw-thread, external taper surface, and lug and flange F, substantially as described.

6. The combined ring J and gauze or perforated plate provided with the external taper surface and inclined groove and bail-sockets and bail, in combination with the corresponding taper socket and lug in the filter-case, substantially as described.

7. A filter-case as constructed, with the taper sockets and a corresponding taper nut, pin, and inclined groove for adjustment to either end of the case, substantially as described.

8. A filter-case constructed with the taper sockets, the pin or lug, and inclined groove, correspondingly-fitted nut, and gauze-supporting rings, substantially as described.

318,466. DRILL-CHUCK. SIMON P. GRAHAM, London, Ontario, Canada. Filed Sept. 24, 1884. (No model.)



Claim.—1. The jaws D D of the chuck provided with two or more inclined flanges, G G, on each jaw, substantially as shown and described, and for the purpose specified.

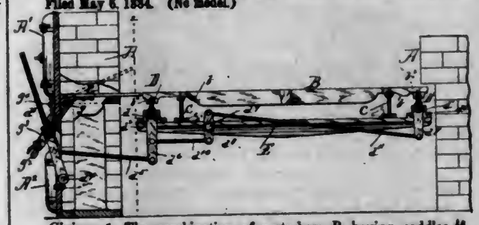
2. The slides C C, provided with two or more inclined flanges, G G, on each slide, substantially as shown and described, and for the purpose set forth.

3. The jaws D D, provided with two or more inclined flanges, G G, on each jaw, in combination with slides C C, provided with two or more inclined flanges, G G, on each slide, substantially as shown and described, and for the purpose specified.

4. The combination of the parallel sleeve B, provided with a screw-thread on its inner face, and an inward flange, I, with the slide C, provided with a screw-thread on its outer face directly over the grip of the jaw on the drill, substantially as described.

5. In combination with a chuck, a bar, K, provided with a tapered groove, F, substantially as shown and described, and for the purpose specified.

318,467. GRATE FOR FURNACES. GEORGE GULICKSON, Chicago, Ill. Filed May 6, 1884. (No model.)



Claim.—1. The combination of grate-bars B, having saddles b^2, with rocker-bars D and D′, each engaging the saddles on alternate grate-bars, shaker-arms d^9 and d^7, intermediate lever, d^{11}, connecting-rods d^{10} and d^{11}, operating-lever d^3, and connecting-rod d^5, substantially as specified.

2. The combination of reciprocating grate-bars B with a pivoted or hinged dump-plate G, lever g^3, pawl g^3, and ratchet g^4, substantially as specified.

3. The combination, with bearing-bars C, of beams E, secured to said bearing-bars and supported thereby, rocker-bars D and D', mounted in suitable bearings on said beams E, and grate-bars B, having their ends projecting over said bars C and provided with cams b to engage said bearing-bars, and saddles b^2, engaging alternately with rocker-bars D and D', substantially as specified.

4. The combination, with bearing-bars C, of beams E, secured to said bearing-bars, rocker-bars D and D', mounted in suitable bearings on said beams E and provided with shaker-arms d^6 d^7, grate-bars B, having their ends projecting over said bars C and provided with cams b and saddles b^2, intermediate lever, d^8, and rods d^{10} and d^{11}, connecting said shaker-arms d^6 d^7 and operating-lever d^3, and rod d^5, connecting said lever d^3 with shaker-arm d^4, substantially as specified.

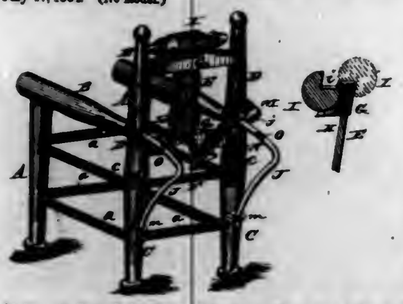
5. The combination, with bearing-bars C, of grate-bars B, having their ends projecting over said bearing-bars and provided with saddles b^2, rocker-bars D and D', engaging with said saddles on alternate grate-bars and provided with shaker-arms d^6 d^7, intermediate lever, d^8, and rods d^{10} and d^{11}, connecting said shaker-arms d^6 and d^7 and operating-lever d^3, and rod d^5, connected to said shaker-arm d^4, substantially as specified.

6. The combination, with the grate-bars, of a pivoted dump-plate, G, at the front end thereof to regulate the draft, substantially as specified.

318,468. EYE REMEDY. RUDOLPH D. HALEY, Terre Haute, Ind. Filed Mar. 19, 1885. (No specimens.)

Claim.—The herein-described composition of matter to be used for the cure of diseased eyes, consisting of sulphate of copper, saltpeter, dairy-salt, and stick-brimstone, combined and mixed with sulphate of zinc, corrosive sublimate, crushed or loaf sugar, and water, in the proportions specified.

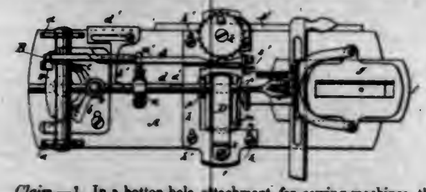
318,469. CHAIR. BENJAMIN F. HARDENBURGH, Rockland, N. Y. Filed July 17, 1884. (No model.)



Claim.—1. In a chair, the combination, with a pivoted back and curved notched arms projecting rearwardly from the chair, of oppositely-inclined levers fulcrumed upon the chair-back, and provided with a finger-piece and spring, substantially as set forth.

2. The combination, with the pivoted chair-back, of the notched arms extending through the side pieces of the back and the oppositely-arranged levers, one of which is diagonally slotted, substantially as set forth.

318,470. BUTTON-HOLE ATTACHMENT FOR SEWING-MACHINES. JOHN K. HARRIS, Springfield, Ohio, assignor to the Harris Button Hole Attachment Company, New York, N. Y. Filed Sept. 17, 1884. (No model.)



Claim.—1. In a button-hole attachment for sewing-machines, the combination, with a cloth-clamp and an oscillating and longitudinally-movable feed-bar, of a ship-over slide to which said bar is connected, a ratchet-wheel and eccentric for operating said ship-over slide, and mechanism for partially rotating said ratchet-wheel at intervals, substantially as set forth.

2. In a button-hole attachment for sewing-machines, the combination, with a cloth-clamp and a feed-bar therefor, of clutch-lever for moving said feed-bar longitudinally, a slide-plate having an irregular or offset slot for the fulcrum-pin of said lever, a ship-over slide to which said feed-bar is connected, a ratchet-wheel, two reversely-placed eccentrics, an operating-lever, and a pawl loosely connected with the latter for partially rotating said ratchet-wheel and eccentrics at intervals, substantially as set forth.

3. The combination of the ratchet-wheel k, eccentrics l l', slide-plates h i, clutch-lever D, ear-plate m, and feed-bar d, substantially as described.

4. The combination, with the cloth-clamp and the oscillating feed-bar, of the ship-over slide i, the oscillating ear-plate m, attached thereto, the slide-plate h, having the slot r', and the clutch-lever D, having fulcrum-pin r, engaging said slot, substantially as set forth.

5. In a button-hole attachment for sewing-machines, the combination, with a cloth-clamp and an oscillating and longitudinally-movable feed-bar, of a ship-over slide for moving said feed-bar laterally, and devices for automatically shifting said bar when an end of a button-hole is reached, substantially as set forth.

6. In a button-hole attachment for sewing-machines, the combination, with a cloth-clamp and a feed-bar, of a clutch-lever for moving said bar lengthwise, a pivoted adjusting or reversing plate having a connection with said clutch-lever, and positively-operating mechanism for retracting said plate in reversing said lever, substantially as set forth.

7. In a button-hole attachment for sewing-machines, the combination, with a cloth-clamp and a feed-bar therefor, of a clutch-lever for feeding said bar longitudinally, a pivoted reversing-plate having a pin engaging said clutch-lever, and a pivoted oscillating plate having a pin for vibrating said reversing-plate, substantially as set forth.

8. The combination, with the bed-plate having the fixed and movable stops or projections a' and b', the operating-lever B, and the pawl s, having a T-slot at its rear end, of the ratchet-wheel k, and the feed-bar d, having the pivoted arm u', for throwing the said pawl into operation at intervals, substantially as set forth.

9. The projections a' b', the pawl s, having a T-slot, and the arm u' on the feed-bar, combined to bring the pawl into operation at the extremes of feed movement, substantially as described.

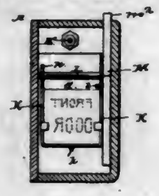
318,471. BUTTON-HOLE ATTACHMENT. JOHN K. HARRIS, Springfield, Ohio, assignor to the Harris Button Hole Attachment Company, New York, N. Y. Filed Nov. 12, 1884. (No model.)

Claim.—1. In a button-hole attachment for sewing-machines, the combination, with an oscillating and longitudinally-movable feed-bar pivoted near its center and provided at its forward end with a cloth-clamp, and at its rear end with a continuous rack, both ends of which are rounded, of an intermittingly-rotated pinion, a guide for retaining the latter in continuous gear with said rack, and mechanism for operating said pinion, substantially as set forth.

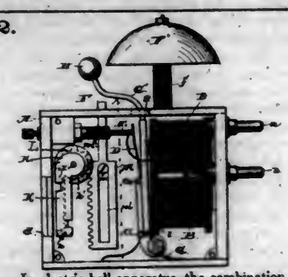
2. In a button-hole attachment for sewing-machines, the combination, with a cloth-clamp, of a feed plate or bar therefor provided with a continuous adjustable or extensible rack having semicircular or rounded ends, an intermittingly-rotating pinion, an adjustable or extensible guide for retaining the latter in gear with the said rack, and mechanism for operating said pinion, substantially as set forth.

3. In a button-hole attachment for sewing-machines, the combination, with an oscillating and longitudinally-movable feed-bar carrying a cloth-clamp at its forward end, and provided at its rear end with a continuous adjustable or extensible rack having rounded ends, an intermittingly-rotated pinion, an adjustable or extensible guide for the pinion, stud, and mechanism for operating said pinion, whereby fabrics may be automatically moved to entirely work different-sized button-holes without turning the goods or cloth-clamp bodily around the vertical line in which the needle reciprocates, substantially as set forth.

318,472. ELECTRIC-SIGNAL BELL. CHARLES HENGEL, New York, N. Y. Filed Mar. 16, 1885. (No model.)



318,472.



Claim.—In electric-bell apparatus, the combination of a case inclosing and carrying the same, and having an opening in one of its sides, the armature having a projecting stud or shoulder, the hinged frame having the quarter-circular slot, the loose pinion journaled in line with the hinged end of the frame and having a stud that enters the slot in the hinged frame, and the rack-bar that meshes with the loose pinion, for the purpose set forth, substantially as described.

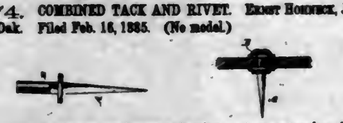
318,473. GAS-PRESSURE GAGE. CHARLES HOFFMANN, New York, N. Y. Filed Feb. 17, 1885. (No model.)



Claim.—1. In a gas-pressure gage, the glass tubes G G', the metal tube T, rod R, scale E, and bodies B b, in combination with the stop-cocks C C' and the valve-screw S, substantially as set forth and described.

2. In a gas-pressure gage, the glass tubes G G', metal tube T, rod R, scale E, bodies B b, stop-cocks C C', and screw S, in combination with the adjustable pointers I i, for indicating the pressure, substantially as set forth and described.

318,474. COMBINED TACK AND RIVET. ERNST HOHNECK, Jamestown, Dak. Filed Feb. 16, 1885. (No model.)

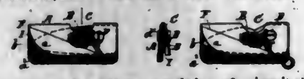


Claim.—1. A sharp metal prong having a rivet-extension formed integral with its head, substantially as set forth.

2. A tack having a rivet-extension of less diameter than the head formed integral therewith, substantially as set forth.

3. A tack having a rivet-extension formed integral therewith, said rivet-extension having a hollow end, substantially as set forth.

318,475. ENVELOPE-OPENER AND PAPER-CUTTER. GEORGE C. HOLDEN, Worcester, Mass. Filed Mar. 5, 1885. (No model.)

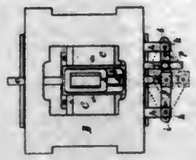


Claim.—1. An envelope-opener consisting of a longitudinally-disposed blade, B, inclosed and secured within the guard A, the latter formed of a folded plate arranged over the edge of said blade in the manner substantially as shown and described.

2. The combination of the folded sheet-metal guard A, having the opening C in the line of its fold, the longitudinally-disposed blade B, with its edge extending across said opening, and the holding device, as D, substantially as and for the purposes set forth.

3. The combination of the guard A, having the V-shaped passway I, the top opening, C, and rounded corner at a, the pointed blade B, secured therein in position, as shown, and the indicating-line F, substantially as and for the purpose set forth.

318,476. PISTON WATER-METER. FREEMAN W. HOOD and ARTHUR F. HOOD, Boston, Mass., assignors, by mesne assignments, to Freeman W. Hood, same place. Filed Mar. 16, 1885. (No model.)

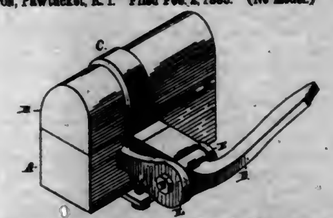


Claim.—1. The combination, with the meter-piston and its auxiliary valve having the recessed extension, as described, and with the duplex cam provided with mechanism for operating it, as set forth, of the chambered slide S, arranged within the recess of such extension, the guide-rods of such slide, and the toggles and their spring applied to one of such guide-rods and to posts extending from the piston, the said duplex cam being within and to operate with the slide, as set forth.

2. The combination, with the duplex cam and its spindle, and with the auxiliary valve of the piston, of the slide i^3, its operative spring k', and friction-roller, the latter bearing against the bottom of the recess of the extension of the valve, and all being to operate substantially as set forth.

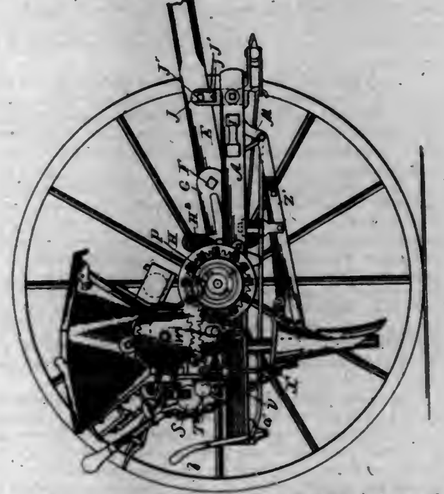
3. The combination, with the piston and its auxiliary valve, and with the slide S, its guide-rods, toggles, and their spring, of the friction-roller P, applied to one of said toggles, and the post q, extended from the piston, all being substantially as set forth.

318,477. ANTI-RATTLER FOR THILL-COUPLINGS. CHARLES A. HORTON, Pawtucket, R. I. Filed Feb. 2, 1885. (No model.)



Claim.—An anti-rattler for carriage-shackles, composed of two parts, F and G, the former, F, being a solid rubber block with the flaring tenon of a dovetail on its front face, and the latter, G, being formed of brass or analogous material, having a solid unbroken front face and a dovetail mortise on the rear thereof, to receive the tenon on the rubber piece, as set forth.

318,478. FERTILIZING GRAIN-DRILL. JOHN F. KELLER, Shepherdstown, W. Va. Filed Nov. 19, 1883. (No model.)



Claim.—1. The combination, with the shouldered stud upon the rear cross-bar, of the pole E, provided with shouldered clamping-jaws.

2. The combination of the cross-bar having shouldered and slotted stud, the pole provided with shouldered clamping-plates, and the adjustable bolt I.

3. The combination of the cross-bar, the slotted and grooved stud upon the cross-bar, the clamping-plates having projections which are adapted to engage with the grooves upon the stud, and the adjustable bolt adapted to the slot in the stud.

4. The combination, with the pole E, of the shouldered clamping-plates and the springs g.

5. The combination, with the pole E, of the clamping-plates G G, flanged as described, and pivotally secured to such pole and adjustably secured to the stud H, substantially as set forth.

6. In a grain-drill, the combination of a front cross-bar, vertical posts or standards secured upon such cross-bar, a pole or tongue pivotally

secured between such posts or standards, a rear cross-bar in front of and independent of the axle-tree of the drill, a stud which is provided with a vertical curved transverse slot and with an enlarged outer end projecting from the front of such rear cross-bar, clamping-plates which are attached to the sides of the pole or tongue and which engage the projecting stud behind the enlarged outer end of the same, and an adjusting-bolt which extends transversely through the clamping-plates and through the curved slot in the projecting stud.

7. The combination, with the pole E, of the securing-bolt J", the pivot-bolt F, and the adjustable bolt I.

8. The combination of the stud H, fixed to the frame, transversely slotted, and longitudinally grooved, as described, with the pole E, having spring-actuated clamping-plates which are adapted, as described, to engage with the grooves in the stud.

9. The combination, with the axle-tree B of the drill, of the hub N, having flange or rim O and serrations O', and the detachable actuating-cap P.

10. The combination, with the axle-tree B of the drill, of the hub N, having serrations or stops, and the cap P, provided with keepers Q' and Q^2 and spring-pawls Q.

11. The combination, with the axle-tree B of the drill, of the hub N, having flange O and serrations O', and the cap P, having pivoted spring-pawls which are adapted, as described, to engage with the serrations upon the hub.

12. The combination of an axle-tree, driving or ground wheels upon such axle-tree, a projecting hub upon such wheels, a flange or rim projecting outwardly from such hub, serrations upon the inner face of such flange, and a detachable cap which has a central perforation by which it is fitted upon the axle-tree, a transverse perforation to receive a securing-pin, and spring-pawls secured upon its inner face for engagement with the serrations upon the inner surface of the flange.

13. In the running-gear or carriage of a grain-drill, the combination of an axle-tree which has a transverse perforation near each end thereof, a hub upon such axle-tree, an annular flange upon the outer end of such hub, serrations upon the inner face of the annular flange, a detachable cap which is provided with a longitudinal perforation to receive the axle-tree, which is provided also with a transverse perforation to receive a securing-pin, which is provided also with keepers, and which is provided also with spring-pawls which are in engagement with the serrations upon the flange when the vehicle is moved forward, and which are disengaged from such serrations when the vehicle is moved backward, and a securing-pin which extends through the transverse perforation in the detachable cap and through the transverse perforation in the axle-tree.

14. A grain-drill the carriage of which is provided with an axle-tree, each of the wheels of which has upon its hub a detachable non-adjustable cap which is provided with a pawl which is in engagement with the hub when the wheel is revolved in one direction, and which is thrown out of engagement with the hub when the wheel is revolved in the opposite direction.

15. In the running-gear or carriage of a grain-drill, the combination of an axle-tree which has a transverse perforation near each end thereof, a hub upon such axle-tree, an annular flange upon the outer end of such hub, serrations or ratchet-teeth upon the inner face of the annular flange, a detachable cap which is provided with a longitudinal perforation to receive the axle-tree, which is provided also with a transverse perforation to receive a securing-pin, which is provided also with keepers, and which is provided also with spring-pawls which are pivoted upon the face of such cap, and at their pivoted end are seated in such keepers, and a securing-pin which extends through the transverse perforation in the detachable cap and through the transverse perforation in the axle-tree.

16. In the running-gear or carriage of a grain-drill, the combination of an axle-tree which has a transverse perforation near each end thereof, a hub upon such axle-tree, an annular flange upon the outer end of such hub, serrations upon the inner face of such annular flange, a detachable cap which is provided with a longitudinal perforation to receive the axle-tree, which is provided also with a transverse perforation to receive a securing-pin, which is provided also with two pairs of keepers, one member of each pair of which serves as a seat for a spring and also for a pawl, and the other member of which serves as a seat for a spring alone, and which is provided also with pawls and with springs which are pivoted upon the face of such cap, the keepers, the springs, and the pawls being applied upon the cap near the periphery of the same, and a securing-pin which extends through the transverse perforation in the detachable cap and also through the transverse perforation in the axle-tree.

17. The combination, with the frame A, of the bars L L', the journal-pins K and K', and the securing-cap I'.

18. The combination, with the frame A, of the bars L and L', connected by toothed caps A and A', the journal-pins K and K', and the securing-cap I.

19. The combination, in a grain-drill, of a hopper the bottom of which is provided with a series of discharge-openings, a regulating-slide upon the bottom of the hopper, undercut projections corresponding to the openings in the bottom of the hopper upon such slide, and a series of stops corresponding to the projections upon the slide secured upon the bottom of the hopper at one side of the openings therein.

20. The combination, in a grain-drill, of a hopper which is mounted upon the frame of the drill, a series of discharge-openings in the bottom of the hopper, an independent non-discharging opening in the bottom of the hopper, a regulating-slide for controlling the discharge-openings, downwardly-extending projections corresponding to the independent opening upon the bottom of the regulating-slide, a lever which is secured to the drill, and projections upon the upper end of the lever which extend into the independent opening and engage with the projections upon the bottom of the regulating-slide.

21. The combination, in a grain-drill, of a hopper which is mounted upon the frame of the drill, a series of discharge-openings in the bottom of the hopper, an independent non-discharging opening in the bottom of the hopper, a regulating-slide for controlling the discharge-openings, downwardly-extending projections corresponding to the independent opening upon the bottom of the regulating-slide, a lever which is secured to the drill, projections which extend into the independent opening and engage therein with the projections upon the bottom of the regulating-slide upon the upper end of the lever, and an adjusting-screw which is connected to the lever which actuates the regulating-slide.

22. The combination, in a grain-drill, of a frame which is composed of longitudinal and transverse bars, an axle-tree which is journaled upon the frame, traveling wheels upon the axle-tree, actuating-caps which are provided with keepers and pawls, as described, and pins which engage the actuating-caps and the axle-tree, and secure both the wheels and the caps in their only operative position.

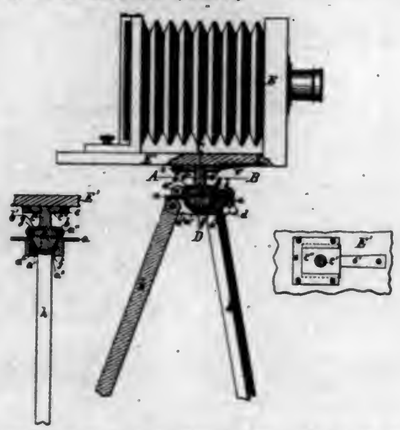
318,479. COMBINED FILLER AND FAUCET. EDWD. KELLS, Cleveland, Ohio. Filed Mar. 30, 1885. (No model.)



Claim.—1. In a combined filler and faucet, the cap attached to the can, sleeve D, arranged to be screwed thereon, a tubular stem, E, threaded into said sleeve, and provided at its lower end with a valve adapted to the seat in the interior of the cap, and a chambered head, F, at the upper end of the stem in open relation with the spout and the conduit *d*, substantially as set forth.

2. The chambered head F, attached to the tubular stem E, and having an induction-opening from the conduit *d* of the stem, and an outlet through the spout, arranged in relation to the sleeve and cap, substantially as herein set forth, and for the purpose described.

318,480. CAMERA-TRIPOD JOINT. DYER T. KENDRICK, Providence, R. I. Filed Feb. 24, 1885. (No model.)



Claim.—1. The herein-described tripod-joint consisting of the lower cup-shaped plate, *a a'*, and upper clamping-plate, *b*, hinged together at *a"*, and provided with the fastening-screw *d*, in combination with the ball *c* and its shank *c'*, as and for the purpose set forth.

2. The lower cup-shaped plate, *a a'*, and upper clamping-plate, *b*, hinged together at *a"*, and provided with clamping-screw *d*, in combination with the bearing-surfaces *f f g*, and the ball *c* with its shank *c'*, as and for the purpose set forth.

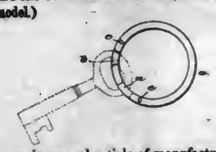
3. The cup-shaped plate *a a'* and upper clamping-plate, *b*, hinged together at *a"* and having clamping-screw *d*, as described, in combination with ball *c*, shank *c'*, and plate *c"*, the guide-plate *e*, and locking-spring *e'* on the base of camera E, as and for the purpose set forth.

318,481. RUBBER-SHOE FASTENER. JOHN A. KESSEL, Buffalo, N.Y., assignor to himself and Johanna Richert, same place. Filed Feb. 24, 1885. (No model.)



Claim.—An elastic band or cord having a metallic hook at each end, substantially as specified, in combination with the eye portions *c'*, having the sharp-pointed projections *c d' e'*, adapting them to be readily attached to the sides of a rubber shoe, substantially as and for the purposes described.

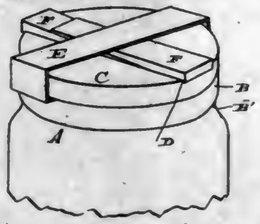
318,482. KEY-RING. HUGH H. V. LILLEY, Milford, Mass. Filed Sept. 8, 1884. (No model.)



Claim.—1. As an improved article of manufacture, a key-ring composed of two independent metal segments rigidly attached to each other side by side, substantially as described, the end of one segment overlapping the space left between the ends of the other segment, all substantially as set forth.

2. In a key-ring, two flattened metallic segments, one of steel, the other of soft metal, united together, one end of one segment overlapping one end of the other segment, the open space between the ends of each segment coming opposite a portion of the other segment, and forming a space for the application of the key to the ring, substantially as described.

318,483. FRUIT-JAR. SAMUEL L. LOOMIS, Wright's Station, Cal. Filed Feb. 19, 1885. (No model.)



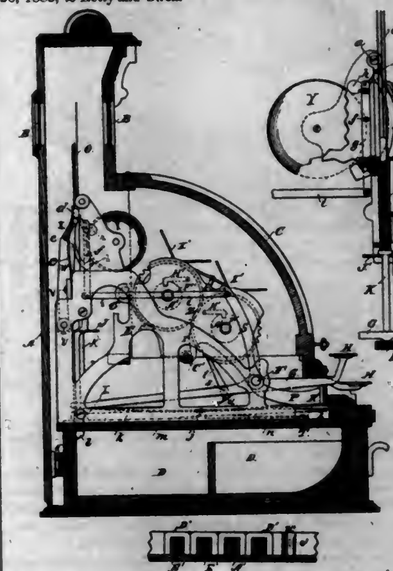
Claim.—The combination, with the jar A, having a collar, B, and channel B', and the cover C, provided with a transverse depression, D, of the clamp E, having downward and inward projecting ends for engaging the lower edge of the collar, and the overlapping wedges F F, the lower wedge being secured from lateral displacement, and the upper wedge resting in the transverse depression of the cover, substantially as described.

318,484. MANUFACTURE OF THE DERIVATIVES OF AURIN. C. LOWE, Reddish, near Stockport, County of Lancaster, England. Filed Mar. 10, 1885. (No specimens.) Patented in England Nov. 22, 1882, No. 5,554.

Claim.—The herein-described conjugated acid red coloring-matter, a derivative of aurin, which combines with alkali to form solid or pasty salts of deep red color by transmitted light, and of green color by reflected light, said salts being insoluble in benzole, but soluble in alcohol or water, and the latter solution producing on silk or wool in either neutral or acid baths red shades of color varying from pink to crimson, as set forth.

318,485. CASH-REGISTER. CLINTON H. MALTBY, Dayton, Ohio, assignor to the National Manufacturing Company, same place. Filed Sept. 21, 1883. (No model.)

Brief.—An improvement upon Patent No. 271,363, dated January 30, 1883, to Retty and Birch.



Claim.—1. In a cash-register, and in combination with the series of figures, disks arranged in two banks, a key-lever, and intervening mechanism for operating independently each disk of the lower bank, and the disks of the upper bank operated upon at predetermined intervals by the corresponding disks of the lower bank, the two parallel shafts for supporting the said upper and lower series of disks slotted and containing the spring-pressed pawls, one for each disk, whereby the disks of either or both series can be turned back to zero-point by a single rotation of its shaft, substantially as described and for the purpose specified.

2. The combination of the independently-operating disks each having a notch on its inner peripbery, the shaft having the longitudinal slot and the recesses for the springs, the staple-shaped pawls working in the slots of the shaft, and the springs located in the recesses in the shaft beneath the pawls and between their depending legs, substantially as described.

3. The combination of the wing V, the slotted arm W, the hammer *b*, the bell *y*, the trip-lever *g*, the link *i*, the arm *s*, and the vibrating frame P P R, with the operating-keys G and tablet-rods K, substantially as described, and for the purpose set forth.

318,486. PROTECTOR FOR BOOK-CORNERS. THOMAS F. MARTIN, Lynn, Mass. Filed Feb. 27, 1884. (No model.)

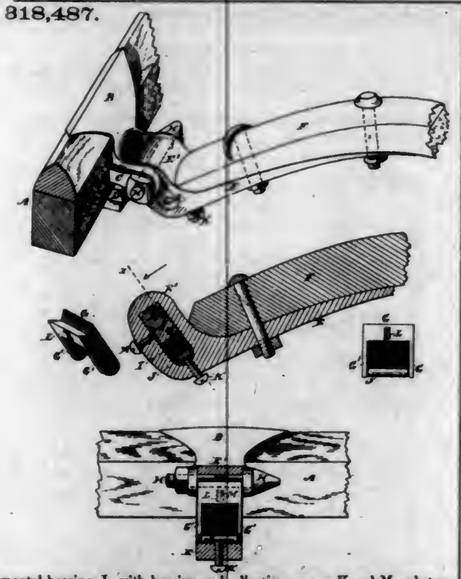


Claim.—A non-metallic support and protector for book-covers, consisting, essentially, of the leather or other strip, A, having a rounded or folded portion, *a*, and the notched flange *a'*, arranged in a plane substantially at right angles to the plane of the portion *a*, the said portion *a* being bent at a point next the notch in the flange *a'*, as specified, and having the tapered ends *c*, all substantially as described, and for the purpose set forth.

318,487. THILL-COUPLING. WILLIAM T. MASON, West Acton, Mass. Filed Apr. 11, 1885. (No model.)

Claim.—1. In an anti-rattler coupling for carriage-thills, a thill-iron eye, E', constructed with a vertical chamber, in combination with a removable supporting-block, G, confining an elastic cushion, I, and seg-

318,487.



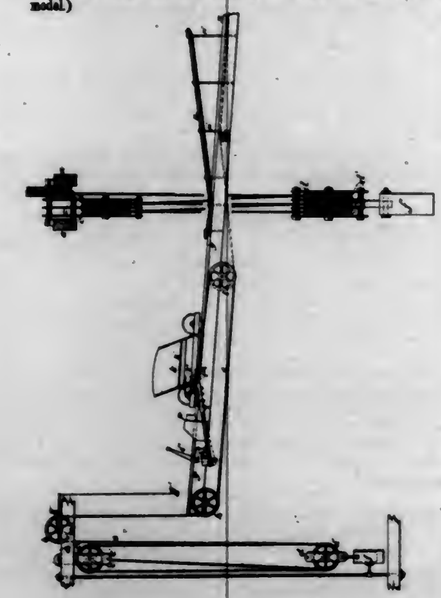
mental bearing J, with bearing and adjusting screws K and M, substantially as described, and for the purpose set forth.

2. In an organized assemblage of devices constituting an anti-rattler coupling, the adjustable supporting-block G, having an upper V-shaped bearing-surface inclosing end walls, G' G', and depression L, to permit the vertical play of said block, in combination with a perforated chambered thill-iron eye, E', all substantially as herein described.

3. In an anti-rattler thill-coupling, the combination of the recessed supporting-block G with an interchangeable elastic cushion, I, metal bearing or shoe J, and operating-screws K and M, as herein set forth.

4. In combination with a chambered thill-iron eye, E', and organized devices G I J, constituting an anti-rattler coupling, the bearing-screw K, and adjusting-screw M, controlling, respectively, the vertical and horizontal movement of said organized parts, as herein described and illustrated.

318,488. COAL AND ORE SHIFT. THOMAS MCCARTY, GEORGE E. TEMER, and JAMES MCAFEE, Pittsburg, Pa. Filed Mar. 27, 1885. (No model.)

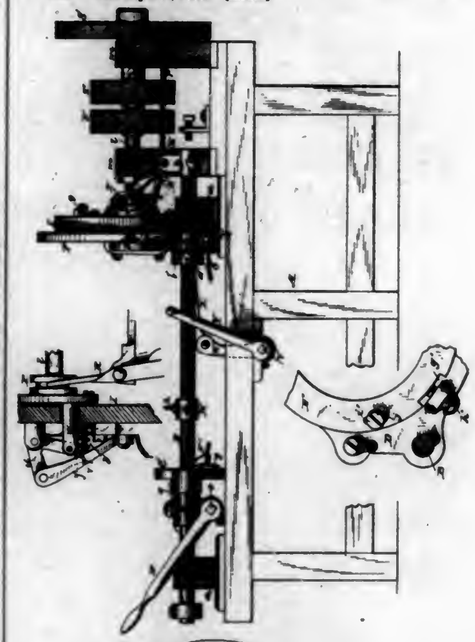


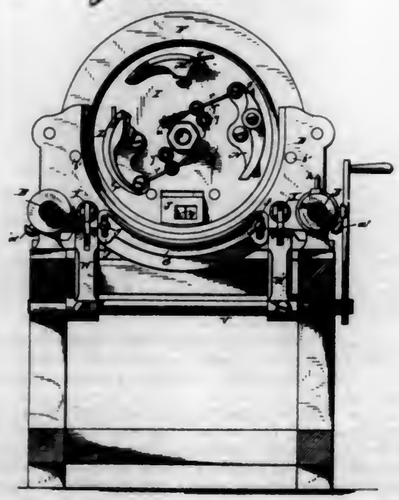
Claim.—1. In a coal and ore shift, the combination of an inclined track, a block and tackle provided with a falling weight, a traction-rope connected with and operated by the block and tackle, and a car mounted on the track and connected to the traction-rope, substantially as and for the purposes described.

2. In a coal and ore shift, the combination of inclined track, a car, a traction-rope, a falling weight connected to the traction-rope to raise the car, and a sheave beneath which the rope passes, placed below the upper stopping-place of the car, substantially as and for the purposes described.

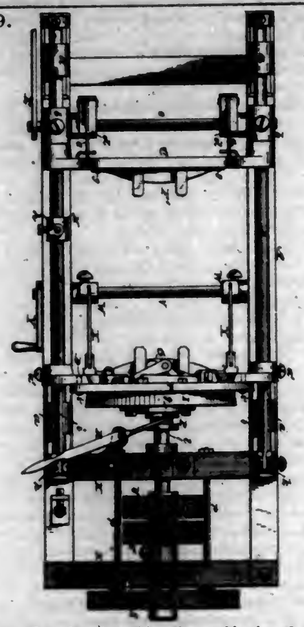
3. In a coal and ore shift, the combination of a car having doors at the sides, a pivoted lever connected to the doors, the end of which is capable of turning inward past its pivotal point to lock the doors shut and outward beyond such point to release them, an inclined and converging rail arranged alongside of the track in the path of the lever to effect such inward motion, and a tripping device arranged at the side of the track at the discharging-point in the path of the lever, to effect the outward or releasing motion, substantially as and for the purposes described.

318,489. BARREL-MACHINE. THOMAS W. MCGREGOR, Rushford, Minn. Filed Sept. 25, 1883. (Model.)





318,489.

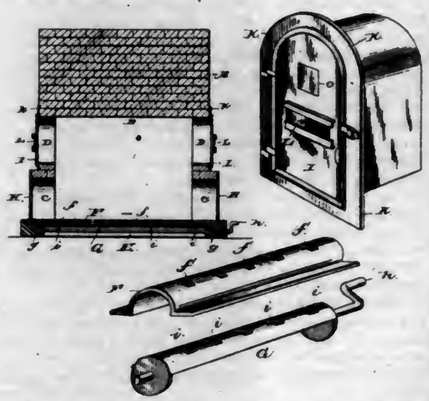


Claim.—1. In a barrel-machine, the combination of a rotary cutter-head, a longitudinally-sliding guide-frame, a reciprocating tail-block, and means for imparting an independent reciprocatory movement thereto, mounted on said guide-frame, the tail-block carrying an adjustable barrel-rest, a head-block supported by said guide-frame and provided with an adjustable head-ring, and an independently-adjustable barrel-rest, as and for the purposes set forth.

2. In a barrel-machine, the combination of a rotary cutter-head, a longitudinally-sliding guide-frame, a head and tail block longitudinally adjustable on said frame, each provided with a vertically-adjustable barrel-rest, means connected with the frame to give the tail-block an independent longitudinal movement, and a head-ring adjustably secured to the head-block independently of the barrel-rest, the parts being constructed, arranged, and operating as and for the purposes set forth.

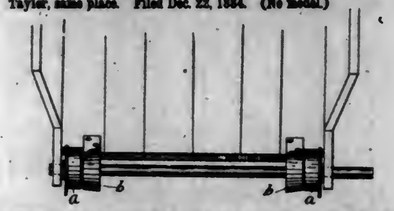
3. In a barrel-machine, the combination, with the cutter-head thereof and the head and tail blocks, of an adjustable collar mounted upon a rod or other suitable support, said collar having a spur to enter the barrel and form a pivot upon which the barrel is turned, substantially as and for the purpose described.

318,490. BRICK-KILN. THOMAS MCNICHOLAS, Memphis, Mo. Filed Jan. 28, 1885. (No model.)



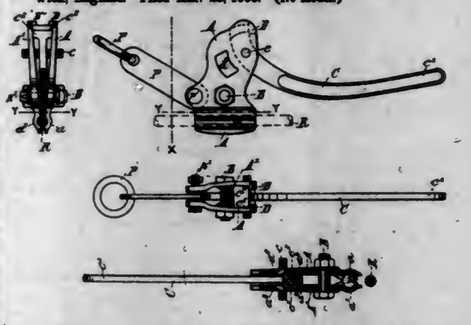
Claim.—A brick-kiln having transverse arches, upper and lower openings at the ends of the arches, and doors for closing the upper openings, said doors being provided with dampers and openings for viewing the interiors of the arches, flues located below the arches and communicating therewith, and dampers located in the flues, said dampers having openings, and being adapted to be partly rotated in the flues to cut off the draft from the flues to the arches, substantially as described.

318,491. BELT-GUARD FOR STRAW-CARRIERS. JONATHAN J. MOORE and JAMES A. HALL, Thorntown, Ind., assignors of one-half to J. C. Taylor, same place. Filed Dec. 22, 1884. (No model.)



Claim.—The combination, with the straw-carrier trough, the driving-pulleys, and the conveyer-belt, of the above-described belt-guard for straw-carriers, consisting of a pair of flat bars curved to form flaring partial rings, as described, secured to the straw-carrier trough and projecting outward therefrom along the sides of the driving-pulleys, in the manner and for the purpose specified.

318,492. CLIP FOR ROPE-HAULAGE. SAMUEL MORGAN, Baxterley, near Atherstone, assignor to James Morgan, Bentley, County of Warwick, England. Filed Mar. 23, 1885. (No model.)



Claim.—1. In a clip for rope-haulage, the combination of the lever C, having projecting parts c^2, with a pair of clipping-plates provided with suitable inclined parts, a^2, and connected together by a cross-bolt, B, all substantially as described, and for the purposes set forth.

2. The pair of loosely-connected gripping-plates provided with inclined parts a^2, combined with a lever, C, having projecting matching parts c^2 and pivoted between said plates, substantially as described.

3. The pair of gripping-plates A A', having gripping-surfaces a a' and inclined parts a^2 a^2, the adjustable connecting-bolt B for said plates, and the lever C, pivoted between said plates and having projecting inclines c^2 c^2, matching the inclined parts of the plates, substantially as described.

4. The pair of loosely-connected gripping-plates provided with inclined parts a^2 and openings a^3, combined with a lever, C, having projecting matching parts c^2 and pivoted between said plates, substantially as described.

5. The pair of loosely-connected gripping-plates provided with inclined parts a^2, combined with a lever, C, having projecting matching parts c^2 and pivoted between said plates, and stops c' c^3 c^3 c', substantially as described.

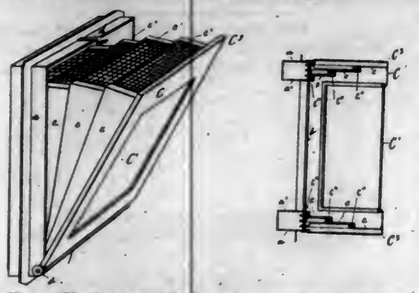
318,493. GRIDIRON. LEWIS T. NEWELL, Albany, N. Y. Filed Oct. 24, 1883. (No model.)



Claim.—1. In a broiler, a series of bars, a, each made inclined transversely, and having a groove, c, on its lower edge, and on its upper edge a vertical flange, d, as and for the purpose set forth.

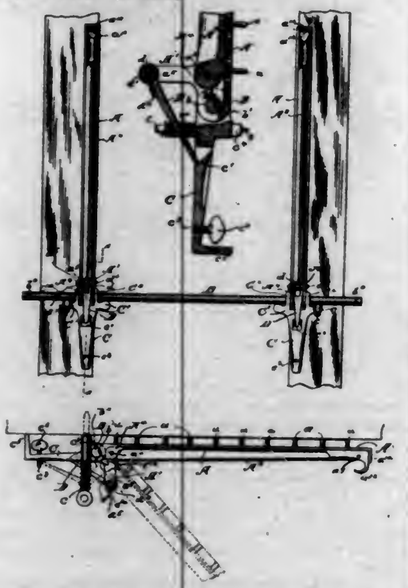
2. In a broiler, the combination of the bars a a, made inclined transversely, having grooves c c on their lower edges, and on their upper edges vertical flanges d d, the bars arranged parallel, the lower edge of each bar nearly to or in a vertical line with the bar next to it, the openings e e, and the receiving-gutter b, the whole constructed and combined as and for the purpose set forth

318,494. VENTILATOR. ADOLPH OLSEN, Boston, Mass., assignor of one-half to Albert Habenstreit, Frank A. Ladwig, and Charles J. Olsen, all of same place. Filed Mar. 18, 1885. (No model.)



Claim.—The herein-described ventilator, consisting of the frame *a a'* and cover C, hinged together, in combination with a series of overlapping and pocket-jointed side pieces, *c c''*, and their perforated or netted tops *c' c' c'*, substantially in a manner and for the purpose as set forth.

318,495. LATHING APPARATUS. STUART PERRY, Newport, N. Y. Filed Oct. 8, 1884. (No model.)



Claim.—1. The combination, with a lath-holding-bar, of means for supporting said bar, consisting of an arm pivotally connected with the said bar and provided with fastening devices constructed to detachably secure the said arm to the surface to which the laths are applied, and means, substantially as described, for holding the bar in position with the laths supported thereby against the surface to be lathed, whereby the arm may be lowered to receive the laths and lifted and held with the laths in position for nailing, substantially as described.

2. The combination, with a lath-holding bar, of means for supporting said bar, consisting of an arm pivoted to the bar and provided with fastening devices constructed to detachably secure said arm to the surface to which the laths are applied, and automatically-acting means, substantially as described, for holding the bar in position with the laths thereon against the surface to be lathed, substantially as described.

3. The combination, with a lath-holding bar, of means for supporting said bar, consisting of arms pivoted to the bar and provided with a fastening device for detachably securing said arms to the surfaces to which the laths are applied, and a spring-pawl pivoted upon the bar, said arm being provided with a stop adapted for engagement with said pawl, so as to hold the bar in position with the laths thereon against the surface to be lathed, substantially as described.

4. The combination, with a lath-holding bar, of means for supporting the said bar upon the surface to be lathed, consisting of an arm pivoted to the said bar and provided with a fastening device, substantially as described, the said bar being provided with a projection, A', adapted to engage the arm so as to sustain said bar in position to receive the laths, and means, substantially as described, for holding the bar with the laths held thereon in position for nailing, substantially as and for the purpose set forth.

5. The combination, with a lath-holding bar, of means for supporting said bar upon the surface to be lathed, consisting of an arm pivoted to said bar and provided with a fastening device, substantially as described, a projection, A', upon the bar adapted to support said bar in position for receiving the laths, and a pawl pivoted upon the said projection A', the said arm being provided with a stop adapted to engage the pawl so as to hold said bar against the surface to be lathed, substantially as and for the purpose set forth.

6. The combination, with a lath-holding bar, of means for supporting said bar upon the surface to be lathed, consisting of an arm pivotally connected with said bar and provided with a fastening device, substantially as described, a projection, A', upon the bar adapted to rest against the arm so as to sustain the bar in position for receiving the laths in lathing a vertical surface, and a pawl pivoted upon said projection A', the said arm being provided with a stop adapted to engage the pawl so as to hold the bar with the laths thereon in position for nailing, and also with a stop for engaging the pawl so as to sustain the bars in position to receive the laths in overhead work, substantially as described.

7. The combination, with a lath-bar provided with a suitable lath-holding device, of means for supporting said bar upon the surface to be lathed, consisting of an arm, C, pivotally connected with said bar and provided with a fastening device, substantially as described, a projection, A', upon the bar, and a pawl pivoted upon the said projection A', the said arm being provided with a stop, *c'*, adapted for engagement with the said pawl, and a movable stop, *c²*, adapted to be placed in position for engaging the pawl in overhead work, substantially as described.

8. The combination, with two lath-holding bars, and means for supporting said bars upon the surface to be lathed, consisting of arms pivoted to the bars and provided with attaching devices, substantially as described, of means, substantially as described, for uniting the said bars, substantially as and for the purpose set forth.

9. The combination, with two lath-holding bars, and means for supporting the said bars upon the surface to be lathed, consisting of arms pivoted to the bars and provided with attaching devices, substantially as described, of a rod uniting the said bars and having sliding connection with one or both of the latter, substantially as and for the purpose set forth.

10. The combination, with the lath-holding bars, of arms C, provided with fastening devices whereby said arms may be detachably secured to the surface to be lathed, a grooved rod, B, affording pivotal connection between said bars and arms, the said bars being provided with splines engaged with the groove of the rod, whereby said bars are adapted to slide longitudinally upon the rod and are held parallel with each other, substantially as described.

11. The combination, with a lath-holding bar, of means for supporting said bar upon the surface to be lathed, consisting of an arm, C, pivoted to the said bar and provided with a fastening-pin, *c*, substantially as and for the purpose set forth.

12. The combination, with a lath-holding bar, of an arm, C, pivoted to said bar, a fastening-pin, *c*, held in a suitable guide-aperture in the said arm, a stop for limiting the longitudinal movement of the said pin, and a spring applied to retain the pin at the outward limit of its movement, substantially as and for the purpose set forth.

13. The combination, with a lath-bar provided with two or more separate series of apertures, of a series of lath-holding studs adapted for insertion in either of said series of apertures, whereby the width of the spaces between the said studs may be changed, substantially as and for the purpose set forth.

14. The combination, with a lath-bar provided with two or more separate series of apertures, of a series of headed lath-holding studs adapted for insertion in either of said series of apertures, and a removable bar attached to the said lath-bars over the heads of the studs, substantially as and for the purpose set forth.

15. The combination, with a lath-bar, A, provided with two or more series of apertures, of a series of headed lath-holding studs adapted for insertion in either of said series of apertures, a bar, A^2, hinged at one end to the said lath-bar, and a catch for detachably securing the opposite end of the said bar A^2 to the lath-bar, substantially as and for the purpose set forth.

16. The combination, with a lath-holding bar, of an arm, C, hinged to said bar and provided with a fastening device whereby it may be attached to the surface to be lathed, and with a projection, *c⁴*, upon its inner face adapted to rest against a base-board or the top lath of a group of previously-attached laths, substantially as and for the purpose set forth.

17. The combination, with a lath-holding bar, of an arm, C, hinged to said bar and provided with a fastening device whereby it may be attached to the surface to be lathed, said arm being provided upon its inner face with a projection, *c⁴*, adjacent to its point of connection with the lath-bar, and with a projection, *c⁵*, at its free end, substantially as and for the purpose set forth.

18. The combination, with a lath-holding bar, A, of an arm, C, hinged to said bar and provided upon its inner surface with a projection, *c⁴ c⁵*, and upon its outer face with a stop, *c'*, a fastening device upon said bar for detachably securing it upon the surface to be lathed, a pawl, D, pivoted to the bar A, and constructed to engage the stop *c'*, and a set-screw, *c³*, inserted through the arm C and adapted to project from the outer face thereof, so as to form a stop for the pawl D in doing overhead work, substantially as described.

19. The combination, with a lath-holding bar, A, of an arm, C, hinged to said bar, a fastening device for detachably securing said arm upon the surface to be lathed, and a pawl, D, pivoted to the said arm A, said arm C being provided with a stop, *c'*, for the pawl, having an inclined surface operating to force the bar toward the surface to be lathed when the end of the pawl is thrust inwardly thereon, substantially as described.

318,496. COKE-OVEN. HENRY M. PIERCE, Nashville, Tenn. Filed July 31, 1884. (No model.)



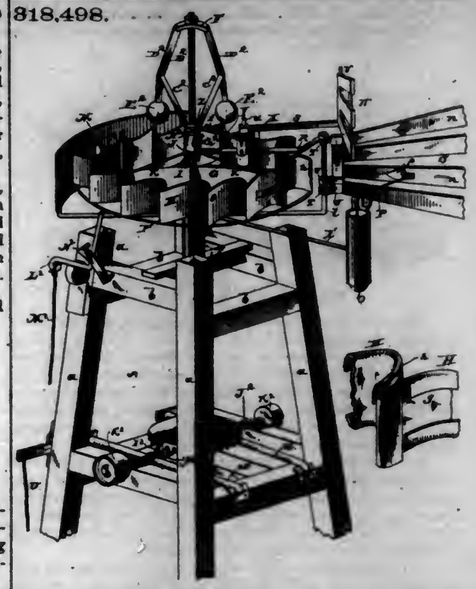
Claim.—1. A coke-oven having a coking-chamber, a series of combustion-flues arranged immediately under the floor of the coking-chamber so as to heat the same, and a vertical central downtake-flue leading from the upper part of the coking-chamber to the center of the combustion-chamber, substantially as and for the purposes specified.

2. A coking-oven having a coking-chamber, a combustion-chamber arranged immediately under the coking-chamber so as to heat the same, and a central gas-exit flue which connects the upper part of the coking-chamber with the combustion-chamber, the floor of the coking-chamber being inclined from the gas-exit flue to the discharge-doors of the coking-chamber, substantially as and for the purposes specified.

318,497. PROCESS OF MANUFACTURING COKE. HENRY M. PIERCE, Nashville, Tenn. Filed July 31, 1884. (No specimens.)

Claim.—In the art of manufacturing coke, the method of conducting the furnace operation and increasing its yield, which consists in partially filling the oven with an initial charge and coking the same by downward progression; then, while such charge remains stationary within the oven, and near the end of the said coking operation, filling the oven to a farther height by an additional charge, thereby retarding the coking of the initial charge, coking the second charge, and proceeding in like manner, the coking going on progressively until the oven is filled, substantially as described.

318,498. WINDMILL. GEORGE H. POE, Roundhead, Ohio. Filed Sept. 23, 1884. (No model.)



Claim.—1. In a windmill, the combination, with the main shaft mounted in the tower, of the wind-wheel secured to the shaft and comprising a hub, radial arms or spokes, concentric rings or bands attached to the latter, one within the other, and blades or buckets arranged in a horizontal plane between the rings or bands and resting on and secured to the latter, as set forth.

2. In a windmill, the combination, with the main shaft, of the wind-wheel secured on the same and comprising a hub, arms or spokes, and concentric rings or bands, and blades or buckets, semi-elliptical in form, arranged between the rings in a horizontal plane, the blades or buckets being secured at their ends to the outer ring or band, and at or about their centers to the inner ring or band, as set forth.

3. In a windmill, the combination, with the main shaft, of the wind-wheel attached to the latter and having a series of blades or buckets which are semi-elliptical in form, said blades being fitted in place independent of each other, the edges of the adjacent blades being lapped over and secured to form a complete connection throughout the series, as set forth.

4. In a windmill, the combination, with the main shaft mounted in the tower, of the wind-wheel attached to the main shaft and arranged in a horizontal plane, and consisting of a hub, radial arms or spokes projecting therefrom, concentric rings attached to the arms, blades or buckets semi-elliptical in form and attached to the rings, the adjacent edges of the blades being lapped over and secured, and a band or collar fixed on the main shaft and having bracing-arms for the spokes of the wind-wheel, as set forth.

5. In a windmill, the combination, with the main shaft, of the wind-wheel arranged in a horizontal plane, and a shield quadrantal in form arranged outside of and covering a portion of the circumference of the wheel, said shield turning loosely around the latter, so that as the speed of the wheel increases it will be caused to partly cover that portion of the wheel where the wind strikes, as set forth.

6. In a windmill, the combination, with the tower and main shaft, of the wind-wheel fixed on the shaft, a shield turning on the shaft around the circumference of the wheel, and a governor acting automatically by the revolution of the shaft to cause the shifting of the shield to any point of the circumference, as set forth.

7. In a windmill, the combination, with the tower and main shaft, of the wind-wheel, a shield turning around the circumference of the wheel, a large vane connecting with the shield, and a smaller vane arranged at an angle to the larger vane, whereby when the large vane has been carried around to its limit of movement the small vane will come into action to receive the direct force of the wind so as to carry the shield around to cover the wheel, as set forth.

8. In a windmill, the combination, with the tower and main shaft, of the wind-wheel, a shield turning around the circumference of the same, a vane connecting with the shield, a governor for operating the vane, and means, substantially as described, for causing the return of the vane to its normal position, as set forth.

9. In a windmill, the combination, with the tower and main shaft of the wind-wheel, a shield turning around the circumference of the same, a vane connecting with the shield, and a governor for operating the vane, as set forth.

10. In a windmill, the combination, with the tower and main shaft, of the wind-wheel, a shield for the same, a vane connecting with the shield and carrying a smaller vane, means for returning the vanes to their original positions, and a governor connecting with the aforesaid vanes, as set forth.

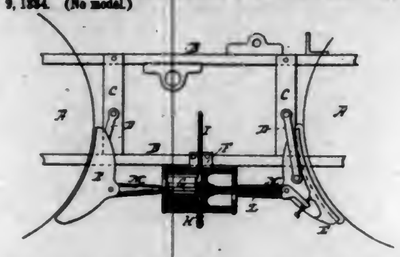
11. In a windmill, the combination, with the main shaft, of the wind-wheel, a shield for the same, a vane connecting with the shield and arranged to turn the same around to partly cover that portion of the wheel where the wind strikes, and devices for returning the vane to its original position, as set forth.

12. In a windmill, the combination, with the tower and main shaft, of the wind-wheel, a sleeve or hub working on the shaft and having a series of arms, a shield attached to a pair of the arms, a vane turning on one of the other arms, a casing attached to the remaining arm, and a weight moving in the casing and connecting with the vane, as set forth.

13. In a windmill, the combination, with the tower and main shaft, of the wind-wheel, a sleeve or hub working on the shaft and having a series of arms, a shield attached to a pair of the arms, and a vane turning on the other and having a weighted rope connecting with the remaining arm, as set forth.

14. In a windmill, the combination, with the tower and main shaft, of the wind-wheel, a shield working around the circumference of the same, a pivoted vane connecting with the shield, a casing or chamber, also connecting with the shield, a weight moving in the casing, and having a rope which is attached to the vane, means for limiting the movement of the vane in either direction, and a governor connecting by intermediate devices with the vane, as set forth.

318,499. CYLINDER AND PISTON. GEORGE H. POOR, St. Louis, Mo., assignor to the American Brake Company, same place. Filed Dec. 9, 1884. (No model.)



Claim.—1. In combination with its two opposite and equal pistons, a cylinder open at each end, having on its inner surface, near the end thereof, a channel or groove to collect and discharge the water of condensation, substantially as and for the purposes specified.

2. A cylinder open at each end, having on its inner surface, at or near the end of the cylinder, a drip groove or channel, and a discharge-channel arranged to one side of the vertical median line of the cylinder, substantially as and for the purposes specified.

3. In combination with their cylinder, open at each end, two equal and opposite pistons having each on its interior face a truncated projection adapted for impact, and on its opposite side a projection with a cupped recess to form a ball-and-socket connection with the piston-rod, said projections, both interior and opposite, being integral with the piston, substantially as and for the purposes specified.

4. In combination with their cylinder, open at each end, two equal and opposite pistons, one of which has on its interior face a truncated projection adapted for impact, and both of which have on the opposite side a projection with a cupped recess to form a ball-and-socket connection with the piston-rod, said projections being integral with the piston, substantially as and for the purposes specified.

318,500. VELOCIPEDE. CHARLES E. PRATT, Boston, Mass., assignor to the Pope Manufacturing Company, Hartford, Conn. Filed Feb. 2, 1885. (No model.)



Claim.—1. The combination, in a velocipede, of a handle-bar, and a handle-bar lug constructed with a mortise or opening to receive and be partially filled by the handle-bar, and a complementary key operating in said opening and between the bar and the lug to secure the two together, essentially as set forth.

2. The combination of a lug having jaws *a a'*, a bar, B, a segment, C, and a key, D, essentially as set forth.

3. In combination, a bar or rod, a lug having an opening to receive said bar, conformed on a part or parts of its inner surface to the exterior surface of the bar, and a key having a part of its surface conformed to the exterior surface of the bar and a part of its surface conformed to the inner surface of the lug, essentially as set forth.

4. In combination with the handle-bar and its lug, the pin *d* and its slot, constructed and operating essentially as set forth.

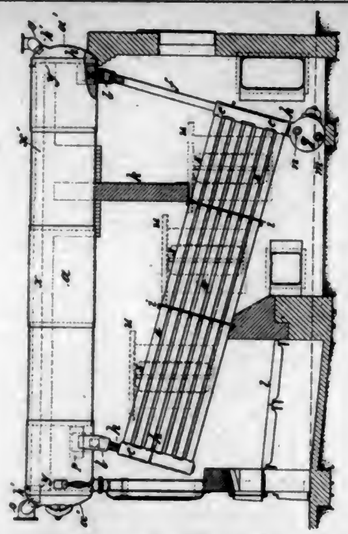
5. In a velocipede, the combination of a steering-head and a continuous handle-bar and a handle-bar lug with a device or devices for securing them together and releasing them when constructed so that said devices are and operate substantially within both the longitudinal and the radial contour of the lug, essentially as set forth.

318,501. STEAM-GENERATOR. NATHANIEL W. PRATT, Brooklyn, N. Y. Filed June 30, 1884. (No model.)

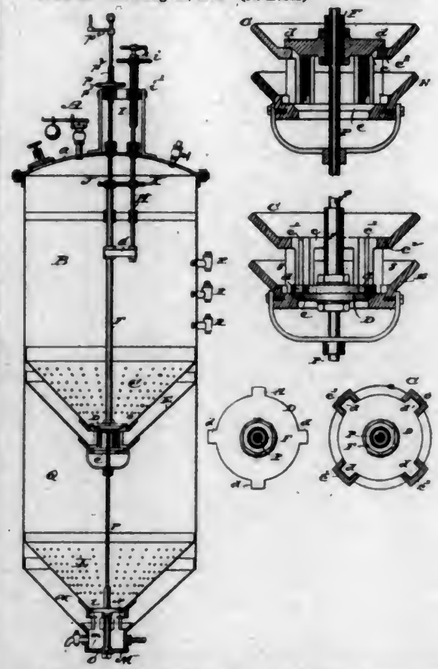
Claim.—1. In a water-tube generator having a series of generating-tubes, said tubes being secured at one end to a continuous header and at their opposite end to a header composed of communicating sections, whereby said header composed of communicating sections provides for its greater rate of expansion, as described.

2. In a water-tube generator having a steam and water drum communicating through openings with a series of circulating or heating tubes, substantially as described, a deflecting plate or diaphragm arranged within said drum near and directly over or in line with said openings, whereby the course of the current of steam and water entering the drum is changed, for the purpose specified.

318,501.



318,502. LARD AND OIL RENDERING TANK. HENRY RALL, St. Louis, Mo. Filed Aug. 23, 1884. (No model.)



Claim.—1. A lard-tank having an upper and a lower compartment, as and for the purpose described.

2. The herein-described improved mode of rendering lard, which consists in precipitating the residue from the chamber containing the lard before drawing off the lard.

3. A lard-tank having an upper and a lower compartment, said compartments being separated by means of the perforated bottom, the closed bottom, and the valve, substantially as described.

4. The combination of the tank A, the valve D, the stem F, the arm G, the rod H, the screw I, and the bearing *i*, substantially as described.

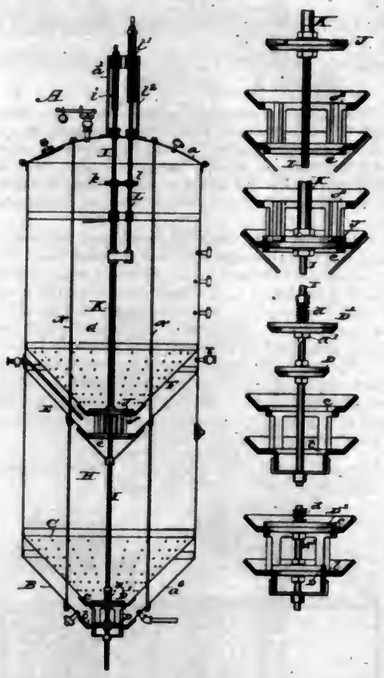
5. The combination of the tank A, the valve D, the bottom C, the stem F, the arm G, the rod H, and the gears J K, substantially as described.

6. The combination of the tank A, the valve D, the bottom C, the stem F, the arm G, the rod H, the screw I, the bearing *i*, and the gears J K, substantially as described.

7. The combination, in the tank A, of the perforated bottom C, the imperforated bottom E, the valve D, the stem F, and the upper and lower compartments, B Q, substantially as described.

8. The combination, in the tank A, of the upper and lower compartments, B Q, the valve D, the valve-rod P, and the tubular valve-stem F, substantially as described.

318,503. LARD AND OIL RENDERING TANK. HENRY RALL, St. Louis, Mo. Filed Sept. 10, 1884. (No model.)



Claim.—1. The herein-described lard and oil tank A, having the stay-rods N N, the valve D D', and the valve-rod I, said stay-rods and said valve-rod and valve being independent of each other, substantially as described.

2. The lard-tank A, having the upper and lower compartments, G H, the valves J and D D', the rod I, and the stay-rods N N, substantially as described.

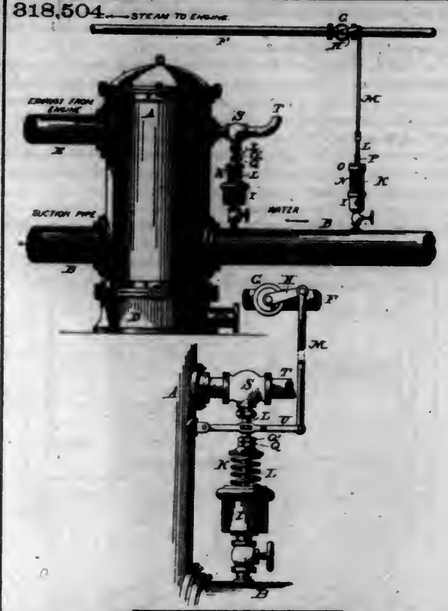
318,504. STEAM PUMPING-ENGINE. EDWIN REYNOLDS, Milwaukee, Wis. Filed Dec. 27, 1884. (No model.)

Claim.—1. In combination with the suction-pipe of a pumping-engine and with a condenser, a cylinder communicating with the suction-pipe, a piston within said cylinder sustained against the normal suction thereof, an air-inlet valve communicating with the vacuum-chamber of the condenser, a valve controlling the steam-supply, and connecting devices, such as shown and described, connecting the piston with the air-inlet valve and with the steam-valve, substantially as described and shown.

2. In combination with steam-supply pipe F and its valve G, condenser A, provided with air-inlet T, having valve S, cylinder I, communicating with the suction-pipe of the condenser, and piston J, mounted in said cylinders and connected with valves G and S, substantially as and for the purpose set forth.

3. In combination with the suction-pipe of a steam-engine and with a condenser, a cylinder communicating with the suction-pipe, a piston within said cylinder sustained against the normal suction of the pipe, an air-inlet valve communicating with the vacuum-chamber of the condenser, and a rod or connecting device connecting the piston and the air-inlet valve, whereby an abnormal suction is caused to open the valve and admit air to the vacuum-chamber, substantially as described.

318,504.—STEAM TO ENGINE. EXHAUST FROM ENGINE. SUCTION PIPE. WATER.



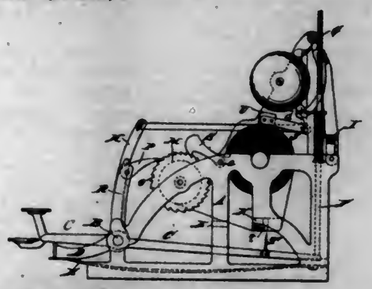
318,505. SWEAT-PAD FASTENER. BENJAMIN F. REE, Stillwater, Minn. Filed Nov. 8, 1884. (No model.)



Claim.—1. The combination, with a horse-collar, hames, and sweat-pad, of a fastener consisting of a pin and hook section, whereby it is connected to the pad, a curved section, E', partially encompassing the rim of the collar, and a triangular section, E², fitting into the cavity between the body and rim of the collar, and adapted to partially encompass the hames, substantially as and for the purpose described.

2. A fastener for the sweat-pads of horse-collars, consisting of a spring-pin and hook section, a curved loop-section, E', and a triangular section, E², all formed in one piece of bent wire, said loop-section being connected to said pin-section at a point below the line of said pin, whereby a portion of the substance of the pad may be clamped between said pin and said curved section, substantially as and for the purpose set forth.

318,506. CASH-RECORDER. JAMES RITTY, Dayton, Ohio, assignor to the National Manufacturing Company, same place. Filed Sept. 21, 1883. (No model.)

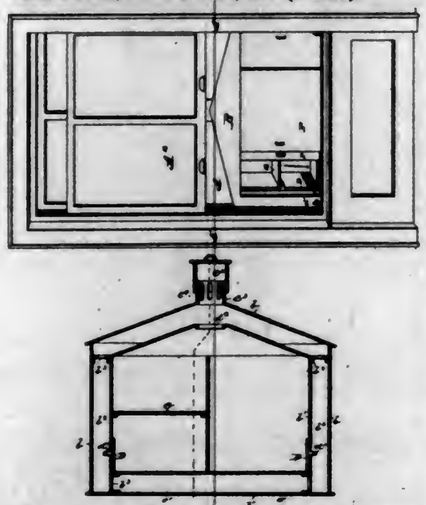


Claim.—1. In a recording and indicating machine, the combination, with a series of operating-keys of fixed values and a series of indicating-tablets, one for each key and operated thereby, of two rolls, paper wound thereon and of a width equal to the entire bank of keys, said paper being marked or printed upon with characters in rows coincident with said keys, and a punch or perforating device applied to each key, and connecting mechanism whereby when any key is operated a punc-

ture for each operation of the key may be made in the paper adjacent to the character on the paper corresponding with that represented by the depressed key, substantially as set forth.

2. The combination of the keys C, provided with perforating-pins F, the supply-roll J, perforating-bar K, rewinding-roll M, a paper winding from the roll J onto the roll M, and marked or printed upon in rows with characters coincident with said keys, operating-dog P, and locking-dog S, with connecting mechanism adapted to permit any of the keys when operated to make a puncture for each operation of the lever at or adjacent to the character of the paper corresponding with that represented by the depressed key, substantially as set forth.

318,507. WINDOW COLD-AIR REFRIGERATOR. CHARLES W. ROTH, New York, N. Y. Filed Feb. 6, 1885. (No model.)



Claim.—1. The combination, in a window cold-air refrigerator, of the ventilating and cold-air chamber between the outer and the inner walls of the refrigerator, having perforations in the bottom and a slotted flue in the roof, covered by a movable ventilating-cap for regulating the circulation of air through the ventilating-chamber, arranged substantially as described.

2. A window cold-air refrigerator having an outer and an inner wall with an air-chamber between, in combination with window-opening A and sash A^2, the refrigerator being held or secured in the opening to the casing, arranged substantially as described.

3. The combination, in a window cold-air refrigerator, of a ventilating and cold-air chamber between the outer and inner walls of the refrigerator, as described, with slotted ventilators near the bottom of the inner wall, controlled by dampers D D', and opening d^3 in the roof, for circulating air through the refrigerator, substantially as described.

4. The herein-described cold-air refrigerator having a cold-air chamber between an outer and an inner wall, opening C' in the bottom, flue C^3 in the top, with slots C^4 in the sides of the flue, covered by movable cap C^2, for controlling circulation of air in the chamber, slotted ventilators *d* in the inner wall, controlled by dampers D D by means of connecting-rods d' d', opening d^3 in the roof of the inner wall, for controlling the circulation of air, sliding doors F F, the refrigerator held in the window-opening, as shown, all combined and arranged as described.

318,508. AUTOMATIC FIRE-EXTINGUISHER. MARCUS RUTHERBURG, Cincinnati, Ohio. Filed Dec. 17, 1883. (No model.)

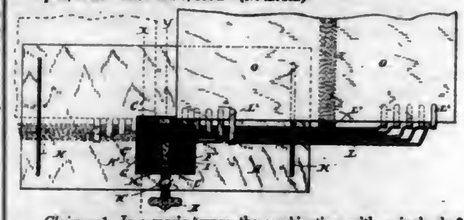


Claim.—1. The combination of nozzle A, pan-deflector E, bars F, guard D, valve B, arm G, lever H, having limb *h*, and fusible sleeve J, as set forth.

2. The valve B, guard D, and hemispherical shell C, in combination with a nozzle, deflector E, bars F, lever H, arm G, and fusible sleeve, the shell C adapted to distribute the lever-pressure, as set forth.

3. The combination of pan-deflector E, formed with orifice *e*", lip *d'*, projection *e*, bars F, the lever H, having limb *h* to bear on the valve, arm G, secured to the projection, and fusible sleeve J, to hold the lever and arm together, as set forth.

318,509. MUSIC-LEAF TURNER. FREDERICK E. SACKETT, Bridgeport, Conn. Filed Oct. 9, 1884. (No model.)

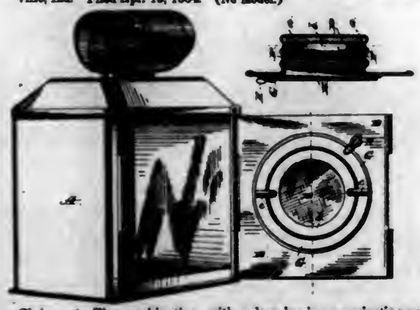


Claim.—1. In a music-turner, the combination, with a single shaft carrying a ratchet-wheel and a series of arms, of a spring for operating said shaft, a spring-pressed pawl or tooth for controlling said ratchet-wheel, a finger-lever for operating said pawl or tooth, and a series of independently-movable leaf holders or turners having sectors of gear-teeth, and thus adapted to be operated by said arms, substantially as set forth.

2. In a music or leaf turner, the combination, with a supporting block or rack having standards, of a shaft journaled in said standards, and provided with a ratchet-wheel and a series of arms, a volute spring for operating said shaft, a finger lever extending lengthwise of said shaft, and having a spring-pressed pawl or tooth for controlling said ratchet-wheel, and a series of leaf holders or turners having teeth, and thus adapted to be operated by said arms, substantially as set forth.

3. The combination, with a block or rack having a recess, A', and standards within said recess, in which are journaled a shaft having a ratchet-wheel and a series of radial arms, and a series of leaf-holders adapted to be engaged by the arms, of a spring for actuating the shaft, and a pawl and ratchet for controlling its movement.

318,510. LOCOMOTIVE HEAD-LIGHT. GEORGE N. SCHEYS, Evansville, Ind. Filed Apr. 15, 1884. (No model.)



Claim.—1. The combination, with a door having a projecting neck or barrel screw-threaded internally, said barrel being provided at its outer end with a flange, of the locking band or ring screw-threaded externally and fitting within said barrel, a lens, and a flexible gasket interposed between the outer end of the locking band or ring and the lens, substantially as set forth.

2. The combination, with a door for lamp-casings, having an outwardly-projecting barrel, the latter being provided with a flange, of a locking-ring provided with an annular pocket, a flexible gasket seated in said pocket, and the lens, substantially as set forth.

3. The combination, with a door provided with the neck C, of a lens fitting in said neck, a band, E, gasket F, and springs H, all of the above parts combined and adapted to operate substantially as set forth.

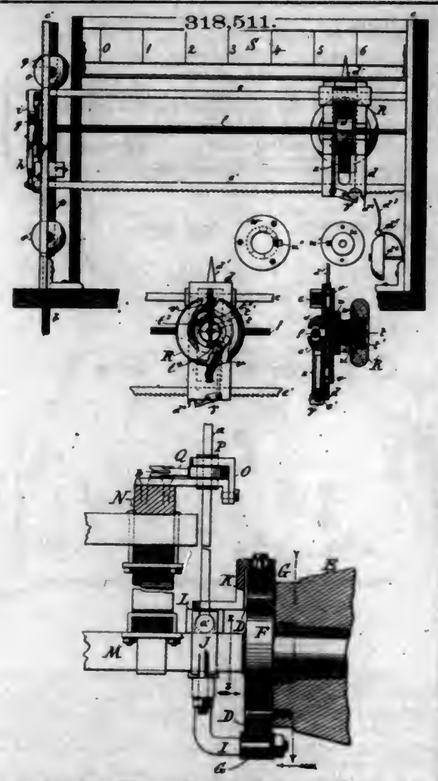
318,511. DISTANCE-REGISTER FOR VEHICLES. EMIL SCHUCHARDT, New York, N. Y. Filed Sept. 17, 1884. (No model.)

Claim.—1. A carriage provided with a distance-register disposed near the driver's seat and in view of passenger and driver, in combination with the eccentric D, strap G, and arm K, adapted to receive a reciprocating movement from a wheel of the carriage, and a suitable device, as the rod *a*, carrier O, and rope *b*, adapted to communicate such movement to the register to operate the same, substantially as described.

2. In a distance-register for carriages, the eccentric D, strap G, arm K, and rod *a*, in combination with a floating carrier, as O, adapted to be operated by the rod *a* on a shifting plane, substantially as described.

3. In a distance-register for carriages, the floating carrier O, rope *b*, and register near the driver's seat, in combination with the eccentric

318,511.

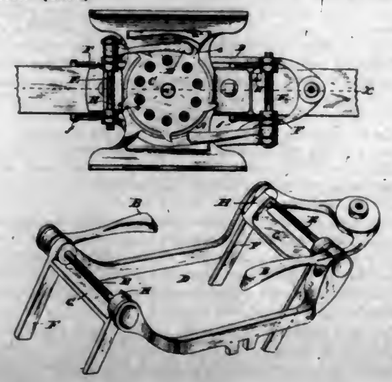


D, strap G, and arm K, actuated by a wheel of the carriage, adapted to impart a reciprocating movement to the carrier O, substantially as described.

4. In a distance-register for carriages, the scale, as 8, index-carrier *d*, rod *f*, ratchet *g*, rod *p*, and means, as the rope *b*, to operate the rod *p*, in combination with the reciprocating lever *k*, adapted to engage with and be operated by the rod *p* for a determined part of the scope of movement of the rod *p*, then to be disengaged therefrom, and to re-engage therewith when the rod *p* assumes its normal position, substantially as described.

5. In a distance-register for carriages, an index-scale, as 8, index-carrier *d*, provided with the handle R and its connections for setting the same on the rod *f*, the actuating-rod *f* and its connections, in combination with the notched way *e'* and catch *y*, adapted to permit the index to be moved freely in one direction, and to prevent movement in the opposite direction, substantially as described.

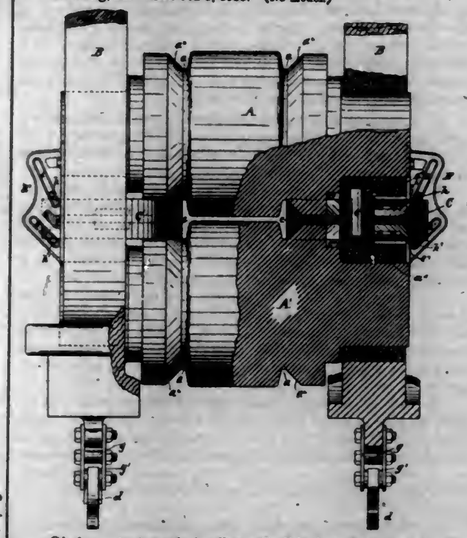
318,512. CORN-PLANTER. LEVI SCOFIELD, Grand Haven, Mich., assignor to Challenge Corn Planter Company, same place. Filed Mar. 10, 1885. (Model.)



Claim.—1. The combination, with the seed-plate and the casting upon which the seed-plate is mounted and rotates, of the horizontally-swinging frame and its pawls, and the vertically-swinging supports for the said frame, having the wide bars or cross-pieces adapted to co-operate with the casting to limit the throw of the frame and its pawls, substantially as described.

2. The combination, with the seed-plate and the casting upon which the seed-plate is mounted and rotates, of the horizontally-swinging frame and its pawls, and the vertically-swinging supports for the said frame, having the wide bars or cross-pieces adapted to co-operate with the casting to limit the throw of the frame and its pawls, and having also the studs or projections for engaging with the teeth of the seed-plate and preventing the racing of the latter, substantially as described.

318,513. MACHINE FOR ROLLING BILLETS. JOSEPH S. SEAMAN, Pittsburg, Pa. Filed Oct. 1, 1883. (No model.)



Claim.—1. A vertical roll or rolls dish-shaped or recessed at the ends thereof, in combination with a pair of horizontal rolls, each having a working-face terminating in an inwardly-sloping bevel or incline at one or both ends thereof, which latter bevels or inclines overlap the bevels or inclines of the recessed ends of the vertical rolls, substantially as set forth.

2. An adjustable vertical roll or rolls dish-shaped or recessed at the ends thereof, in combination with a pair of horizontal rolls, one at least of said rolls being adjustable, and each having a working-face terminating in an inwardly-sloping bevel or incline at one or both ends thereof, which latter bevels or inclines overlap the bevels or inclines of the recessed ends of the vertical rolls, substantially as set forth.

3. In a metal-rolling machine having rolls arranged for simultaneous operation on all sides of the same bar, billet, slab, &c., the combination of the following elements: a vertical roll or rolls having dish-shaped or recessed ends, and a pair of horizontal rolls having at one or both ends of the working-faces an inwardly-sloping bevel or incline arranged to overlap the corresponding bevel or incline of the adjacent vertical roll, substantially as set forth.

4. In a metal-rolling machine having rolls arranged for simultaneous operation on all sides of the same bar, billet, slab, &c., the combination of the following elements: an adjustable vertical roll or rolls having dish-shaped or recessed ends, and a pair of horizontal rolls, one at least of said rolls being adjustable, and each of such rolls having at one or both ends of its working-face an inwardly-sloping bevel or incline arranged to overlap the corresponding bevel or incline of the adjacent vertical roll, substantially as set forth.

5. In a rolling-machine, the combination of the following mechanisms: adjustable recessed vertical roll or rolls having an incline or bevel, *c'*, on each end thereof, and a pair of horizontal rolls, one at least of said rolls being adjustable, and each of such rolls having a cut-away part on its periphery and provided with an inwardly-sloping bevel or incline, a^3, at one or both ends of such cut-away part, arranged to overlap the corresponding bevel or incline, *c'*, of the adjacent vertical roll, substantially as set forth.

6. The combination of a pair of horizontal rolls having each a length of bite shorter than the greatest width of the bloom or other article to be rolled, and one at least of such rolls being adjustable toward

one or from the other, and one or more adjustable vertical rolls dish-shaped or recessed at their ends, and arranged for edgewise bearing and operation against the edge or edges of such bloom or other article as laterally widened by the horizontal rolls, the horizontal rolls being provided with an inwardly-sloping bevel or incline, a^3, at one or both ends of the working-faces of each, the bevels or inclines a^3 being constructed to overlap the corresponding bevels or inclines on the ends of the adjacent vertical roll or rolls for the edgewise spreading of the bloom or other article under the compressing or upsetting action of the vertical roll or rolls, substantially as set forth.

7. The combination of a pair of horizontal rolls having each a length of bite shorter than the greatest width of the bloom or other article to be rolled, one at least of such rolls being adjustable toward and from the other, and one or more vertical rolls dish-shaped at their ends, and arranged for edgewise bearing and operation against the edge or edges of such bloom or other article as laterally widened by the horizontal rolls, and adjustable in or out automatically by or from the horizontal rolls in the adjusting movement imparted to them, said horizontal rolls being provided with an inwardly-sloping bevel or incline, a^3, at one or both ends of the working-faces of each, said inclines or bevels a^3 being constructed to overlap the corresponding bevel or incline on the ends of the vertical roll or rolls, substantially as set forth.

8. A vertical roll, C, having dish-shaped or recessed ends, and having its periphery or working-face operative within the grooves of a pair of horizontal rolls, and in combination with such rolls, substantially as set forth.

9. In a metal-rolling machine having rolls arranged for simultaneous operation on all sides of the same bloom or other article to be rolled, and in combination with the horizontal rolls thereof, one at least of such rolls being adjustable, a vertical roll or rolls adjustable to and from the path of the article to be rolled, and actuated by the horizontal rolls in the adjusting movement imparted to them, substantially as set forth.

10. In a mill for rolling structural irons and steels, the combination of one or more vertical rolls having dish-shaped or recessed ends, and a pair of horizontal rolls provided with bevels or inclines a^3, each of which overlaps the corresponding incline, c', of the adjacent vertical roll, such rolls being so arranged that the vertical rolls are driven by frictional contact of such overlapping beveled faces, substantially as set forth.

11. In a mill for rolling billets, slabs, and other structural irons and steels, the combination of a pair of horizontal rolls mounted in suitable housings, one at least of said rolls being adjustable, a pair of vertical rolls mounted in the same housings, and an inclined guide mechanism for adjusting the vertical rolls horizontally, actuated by the horizontal rolls in the adjusting movement imparted to them, substantially as set forth.

12. In a mill for rolling billets, slabs, and other structural irons and steels, the combination of a pair of horizontal rolls, one at least of said rolls being adjustable, a pair of vertical rolls, and a vertical lift mechanism for imparting a vertical movement to the vertical rolls, actuated by the horizontal rolls in the adjusting movement imparted to them, substantially as set forth.

13. In a mill for rolling structural irons and steels, the combination of a pair of horizontal rolls, one at least of said rolls being adjustable, a pair of adjustable vertical rolls, the inclined guide mechanism, and the vertical lifting mechanism for adjusting the vertical rolls, the moving elements of these two mechanisms being actuated by or from the horizontal rolls in the adjusting movement imparted to them, substantially as set forth.

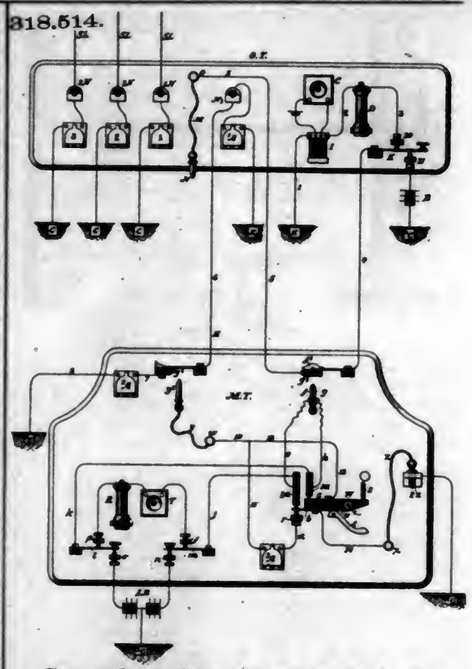
14. In a mill for rolling structural irons and steels, the combination of an adjustable vertical roll or rolls dish-shaped or recessed at their ends, a pair of horizontal rolls, one at least of said rolls being adjustable, and each provided with a bevel face or incline at one or both ends of its working-face, said bevel or incline overlapping the corresponding bevel on the adjacent vertical roll, the inclined guide mechanism, and the vertical lift mechanism for holding said beveled faces in contact at different points of roll adjustment, substantially as set forth.

15. In a mill for rolling billets, slabs, beams, and other structural shapes, the combination of a pair of horizontal rolls, rods b', provided with lugs supporting the carriers a^4 of the upper roll, with vertical rolls C, carriers a^5, rods f, provided with lugs f', levers g, having rollers g', cross-bars d, and weighted levers D, substantially as set forth.

16. A pair of horizontal rolls, one at least being adjustable, and each having a working-face terminating in an inwardly-sloping bevel or incline at one or both ends thereof, and one or more vertical rolls having dish-shaped or recessed ends, said rolls being relatively arranged so that the bevels or inclines of the horizontal rolls shall overlap the corresponding inclines of the vertical rolls, and operate by a hook-like action on each other for purposes of adjustment, in combination with a spring, n, arranged to operate against such hook-like action of the inclines, substantially as set forth.

318,514. TELEPHONE-EXCHANGE. JOHN A. SEELY, New York, N. Y. Filed Oct. 6, 1884. (No model.)

318,514.



Claim.—1. In a telephone-exchange, an operator's line for each operator's table, including a spring-jack for looping in the manager's telephone, a manager's line for each operator's table, and plugs and spring-jacks for joining any two managers' lines together through the manager's table, and a looping apparatus for joining the manager's apparatus in an operator's line.

2. In a telephone-exchange, the combination of an operator's and a manager's line at each operator's table, a manager's telephone and signaling devices, switching devices for looping two manager-lines together through the manager's table, and switching devices for looping the manager's table into an operator's line.

3. In a telephone-exchange, the combination of an operator's table at which a part of the subscribers' wires terminate, an operator's line, including a spring-jack for looping a conductor therein, a manager's table, a manager's line for each operator's table of the exchange, a manager's telephone adapted to be looped into the operator's line, a battery at the manager's table, a switch at said table, two switch-plugs for connecting with managers' lines, and two signaling-keys, substantially as described.

4. In a telephone-exchange, the combination of an operator's line having a telephone and a spring-jack for connecting a loop-wire therein, and a series of subscribers' wires each having an earth-connection at the switch-board, and respective spring-jacks, whereby the operator's line may be connected to any one of the subscribers' lines terminating at the operator's table, and the earth-connection of the subscribers' lines may at the same time be broken.

5. In a telephone-exchange, the combination of an operator's line whose ends are respectively connected to earth and to a switch-plug embracing a telephone and a spring-jack, a battery at the operators' table, and a key for connecting said battery to the operator's line, an independent manager's line extending from the operator's table to the manager's table, having a spring-jack and annunciator at each end, a loop conductor embracing an annunciator terminating in two switch-plugs for connecting two operators' tables together through the manager's table, a battery, a switch, W, and two keys for signaling from the manager's table to either operator when connected together, and a loop-circuit embracing the manager's telephone which may be inserted into an operator's line.

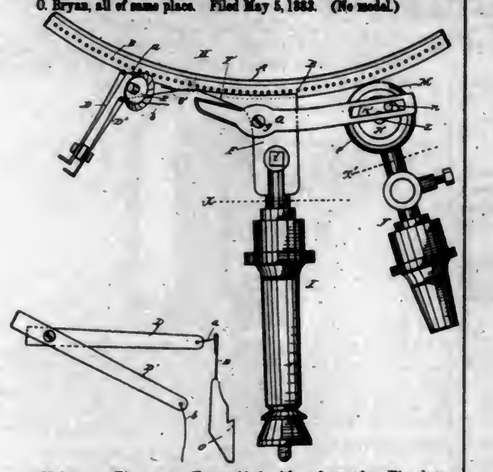
6. In a telephone-exchange at a manager's table, the combination of a loop branch, including annunciator 3 A, which terminates in switch-plugs y' and $2\,z$, earth-connection 2 G, switch W, substantially as described, battery L B, and earth-connection 3 G, keys l and m, and a loop conductor embracing the manager's telephone R T and terminating in switch-plug $f\,g$.

7. In a telephone-exchange, the combination of a series of manager's lines, H, extending to the operator-tables, each line having a spring-jack and annunciator at both ends, a loop conductor embracing

annunciator 3 A, and terminating in switch-plugs y' and $2\,z$ for connecting any two of the lines H, and an earth-connection, 2 G, for connecting any one of the manager's lines to earth through annunciator 3 A.

8. In a telephone-exchange, the combination of a manager's line to enable the manager and operator to signal each other when at their respective tables, an operator's line extending from the operator's table by way of the manager's table to the switch-board, and switching devices for looping the manager's telephone into the operator's line.

318,515. KNITTING-MACHINE. JAS. H. SHERWOOD, Amsterdam, N. Y., assignor to Edward McDonnell, Chas. D. Dean, James R. Snell, and Henry O. Bryan, all of same place. Filed May 5, 1883. (No model.)



Claim.—1. The presser F, provided with a shear-edge, F', substantially as specified.

2. The presser F, provided with a shear-edge and a thread-guide, substantially as specified.

3. The presser F, provided with a shear-edge, in combination with a vibratory shear-blade, substantially as specified.

4. The presser F, provided with a shear-edge and a vibratory shear-blade, in combination with power-conveying devices mounted independently of and receiving motion from the needle-cylinder, substantially as specified.

5. The presser F, having a shear-edge and a thread-guide at that side thereof which is arranged toward the looper-wheel, in combination with a vibratory blade arranged and operating with said shear-edge, substantially as specified.

6. The combination of the presser F, constructed as described, the vibratory shear-blade G, pivoted thereon, and the shaft L, carrying devices constructed, arranged, and operating substantially as described, whereby motion received from the cylinder is conveyed to the shear-blade.

7. The presser F, having a shear-edge, F', and a thread-guide, H, in combination with a vibratory blade, G, pivoted to said presser and having a shank, the shaft L, carrying a disk, N, having a pin, n, the wheel M, and the cylinder A, substantially as shown and described.

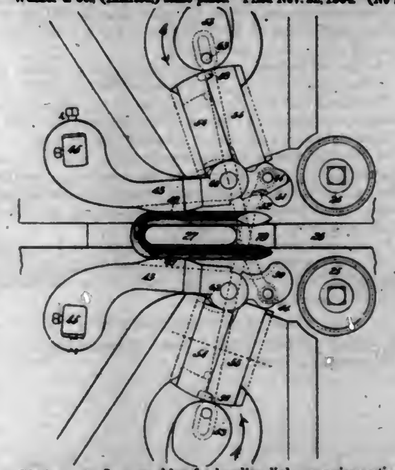
318,516. PERMANENT FILE FOR LETTERS, INVOICES, &c. MARCUS SILVERMAN, Chicago, Ill. Filed Oct. 14, 1884. (No model.)



Claim.—1. The improved permanent letter-file, consisting of the covers A A, in combination with the sheets B, of various sizes, all turned with either their top or left-hand edges to the back of the file, and arranged part with their upper left-hand corners even and at the upper left-hand corner of said covers, and part with their lower-left hand corners even and at the lower left-hand corner of said covers, and a thread, D, inserted through holes d, near the back edge of the file, said thread D having sufficient slack to permit the file to open, substantially as specified.

2. The process or method of permanently filing letters, invoices, &c., consisting in, first, taking the letters from the temporary indexed binder and arranging each sheet with its same side up, and either its top or left-hand edge turned to the back of the file, and part of said sheets with their upper left-hand corners even and part with their lower left-hand corners even; then applying glue or paste to the back of the file to hold the separate sheets in place; next piercing a number of holes through the sheets near the back edge of the file at such distance apart that one or more holes will pass through the narrowest sheet, and then inserting a thread through said holes to bind said sheets together, substantially as specified.

318,517. LINK-BENDING MACHINE. JAMES H. SIMPSON, WILLIAM G. GLADHILL, and CARL GAILLOT, Pittsburg, Pa., assignors to Wilson, Walker & Co., (Limited,) same place. Filed Nov. 22, 1884. (No model.)



Claim.—1. In a machine for bending links, a reciprocating mandrel, in combination with a pair of bending-rollers arranged on opposite sides of the path of the mandrel, a pair of compressing-arms similarly arranged, and a pair of independently-oscillating point-benders, substantially as set forth.

2. In a machine for bending links, a reciprocating mandrel, in combination with a pair of movable compressing-arms arranged on opposite sides of the path of the mandrel and a pair of point benders or folders hinged to the compressing-arms, substantially as set forth.

3. In a machine for bending car-links, a mandrel, in combination with a pair of compressing-arms, a pair of point benders or folders, and a lifter adapted to raise one arm of the partially-formed link, substantially as set forth.

4. In a machine for bending car-links, a mandrel, in combination with pivotal arms and pivotal point-benders for closing a link-blank around said mandrel, substantially as set forth.

5. In a machine for bending links, a reciprocating mandrel, in combination with a pair of compressing-arms, a pair of independently-oscillating point benders or folders, said arms and folders being arranged on opposite sides of the path of the mandrel, and mechanism for moving said arms and folders toward and from the mandrel, substantially as set forth.

6. In a machine for bending links, a reciprocating box or carrier, in combination with a block carrying a mandrel mounted in said carrier, and a lever pivoted to said carrier and adapted to hold the mandrel in operative position, substantially as set forth.

7. In a machine for bending links, a reciprocating box or carrier, in combination with a mandrel mounted in said carrier, a lever pivoted in the rear end of the carrier and adapted to raise and hold the mandrel in operative position, and a cam operative on the lever for lowering the mandrel, substantially as set forth.

8. In a machine for bending links, a reciprocating box or carrier, in combination with a mandrel vertically movable in the carrier, a lever pivoted in the front end of the carrier and bearing at its inner end against the mandrel, and a roller adapted to bear upon the outer end of the lever for raising the mandrel, substantially as set forth.

9. In a machine for bending links, a reciprocating box or carrier, in combination with a mandrel, a lever pivoted to the carrier and adapted to hold the mandrel in operative position, a cam operative on the lever for lowering the mandrel, and pivoted dogs adapted to catch under the lever, and thereby hold the mandrel in its lowered position, substantially as set forth.

10. In a link-bending machine, a box or carrier, in combination with a mandrel vertically movable in said carrier, and a lever, 39, pivoted to the carrier and adapted to raise and lower the mandrel, substantially as set forth.

11. In a link-bending machine, a mandrel, in combination with a pair of compressing and clamping arms, and a pair of independently-moving point-benders, and mechanism for causing said arms and benders to act in succession on the link-blank, substantially as set forth.

12. In a link-bending machine, a mandrel, in combination with pivoted compressing-arms 43, point-benders 44, interlocked slide-bars 54 and 55, arranged to bear at one end against said arms, and benders and cams 53 and 53*, arranged to operate on the outer ends of said bars, substantially as set forth.

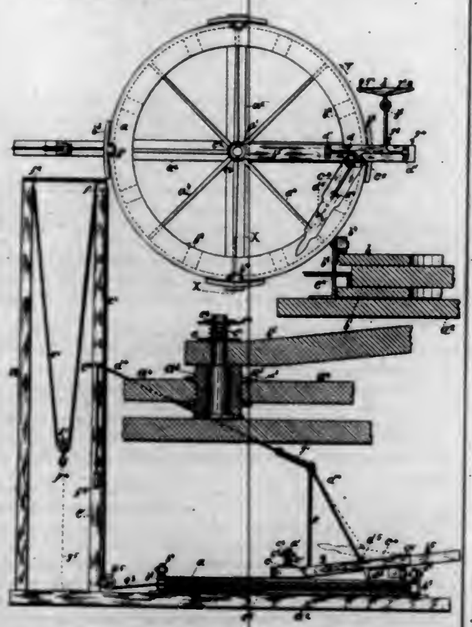
13. In a link-bending machine, a mandrel, in combination with a pair of compressing and clamping arms, a pair of point-benders pivoted to said arms, cams for forcing said arms and benders around the mandrel, and rods connected to the benders and to the cams operative on the opposite arms and benders for forcing said arms and benders away from the mandrel, substantially as set forth.

14. In a link-bending machine, a mandrel, in combination with a pair of clamping-arms, 43, a pair of point-benders, 44, pivoted to the arms, interlocked slide-bars 54 and 55, cams 53 and 53*, and rods 61, so arranged as to connect the bender on one side of the mandrel with the cam on the opposite side thereof, substantially as set forth.

15. In a link-bending machine, a reciprocating mandrel, in combination with a pair of compressing-arms and point-benders, and a cam for moving said mandrel in between said arms and benders and holding it in such position during the completion of the bending operation, substantially as set forth.

16. In a link-bending machine, the combination of a reciprocating mandrel provided with a journal-pin, a cup-shaped friction-roller mounted on said pin, and a cam provided with a groove for the reception of the friction-roller, substantially as set forth.

318,518. HORSE-POWER. HIRAM R. SMITH, Attica, N. Y. Filed Feb. 9, 1885. (No model.)



Claim.—1. In a horse-power, a horizontal wheel provided with a rope, c^3, arms a^4, to engage with a tripping-bar, and shields b^3, provided with friction-rollers b^4, for keeping the rope in place and the wheel in a horizontal position, in combination with a bar or arm, b^2, having hooks g^3 or g^4, and provided with a tripping-arm, c^4, having a bar, d^3, for the purposes described.

2. In the combination above specified, the pivoted bar *d*, connected with the tripping-arm and having a hook for connecting with a whiffletree for operating the tripping device automatically by the weight of the whiffletree.

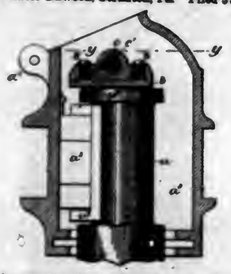
3. In the combination hereinbefore described, the hand tripping-lever adapted to be operated by hand near the horse, substantially as described, in combination with the rope or cord d^4, vertical bar *e*, and swivel g', the rope passing to a point convenient to be operated near the load, substantially as specified.

318,519. BELT-DRIVING PULLEY. JAMES STANLEY, Newark, N. J., assignor to Henry Congar, same place. Filed Aug. 31, 1884. (No model.)



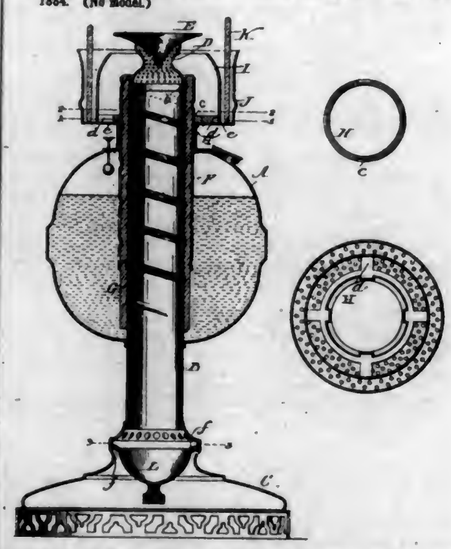
Claim.—A driving-pulley composed of leather scraps cemented together, substantially as herein set forth.

318,520. CAR-AXLE BOX. THOMAS THATCHER, Utica, N. Y., assignor of one-half to Walter Dawson, Scranton, Pa. Filed July 16, 1884. (No model.)



Claim.—The herein-described axle-end bearing for car and locomotive trucks, having a disk held to a seat supported in the oil-box in proximity to and opposite the end of the axle by a pivotal retaining-bolt passing through the walls of the oil-box and seat, for adjusting the disk and receiving the end-thrust of the axle, combined and arranged as described, for the purposes stated.

318,521. LAMP. WILLIAM C. THAYER, Chicago, Ill. Filed Mar. 5, 1884. (No model.)



Claim.—1. The combination, with a main air-supply tube provided near its upper end with a suitable support, of a perforated ring resting on said support and a deflector supported by said ring, as and for the purpose set forth.

2. The combination, with a stationary and revolving tube provided with male and female screws, of a notched collar secured to the revolving tube and a burner-cone provided with inwardly-projecting arms resting in said collar, as and for the purpose set forth.

3. In a lamp, a drip-cup provided upon diametrically-opposite sides with suitable lugs, and situated within the interior of the base of said lamp, in combination with said base provided with notched ledges, as set forth.

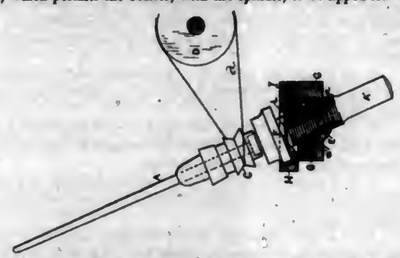
4. The combination, with cone I, provided with inwardly-projecting arms *d*, ring J, surrounding said cone, and perforated disk *e*, of

notched collar H, revolving tube F, stationary tube B, and wick G, tubes B and F being provided with male and female screws, as and for the purpose set forth.

5. The feont A, provided with a screw-threaded opening, in combination with stem *i*, provided with a screw-threaded section, *j*, and float M, secured to said stem, as and for the purpose set forth.

318,522. SPINNING-MACHINE. ELEAZER THOMAS, Pawtucket, R. I. Filed Nov. 19, 1883. (No model.)

Brief.—The bolster is provided with a step for the spindle, and is exteriorly threaded to receive a ball which has a bearing in the bolster-rail and is adjustable. The top flange of the bolster rests partly on an open ring and partly on a movable face-plate. When doffing is to be effected, the face-plate is moved out, and the flange then rests on a spring-ring, which permits the bolster, with the spindle, to be tipped forward.



Claim.—1. In combination, the bolster-rail, the bolster pivoted therein, the spindle, the open collar secured on top the bolster-rail, and the face-plate movably mounted on top the rail, as set forth.

2. In combination, the spindle, the bolster having a step for the spindle, the ball secured on the bolster, and the bolster-rail having a bearing to receive the ball, whereby the spindle and bolster may be tipped forward to facilitate doffing, as set forth.

3. In combination, the spindle, its bolster, the flange F, the bolster rail, the open ring I, and the movable face-plate, as set forth.

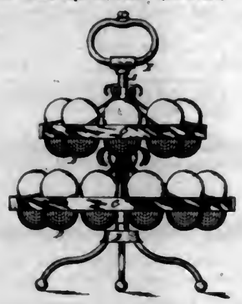
4. In combination, the spindle, its bolster having exterior thread, the ball E, having interior thread, and the bolster-rail having bearing to receive the ball, as set forth.

5. In combination, a spindle, its bolster, a ball adjustable on the bolster, and a bolster-rail provided with a bearing for said ball, as set forth.

6. In combination, a spindle, a bolster having a circumferential flange, the bolster-rail, a joint between said bolster and bolster-rail, which permits the bolster to tip, and a spring tending to maintain the spindle in its vertical position, as set forth.

7. In combination, the spindle, its bolster having flange F and ball E, the open ring, the movable face-plate, the spring L, and the bolster-rail having bearing to receive ball E, as set forth.

318,523. EGG BOILER AND CASTER. MARY E. TREDALE, Cedar Rapids, Iowa. Filed Sept. 29, 1884. (No model.)

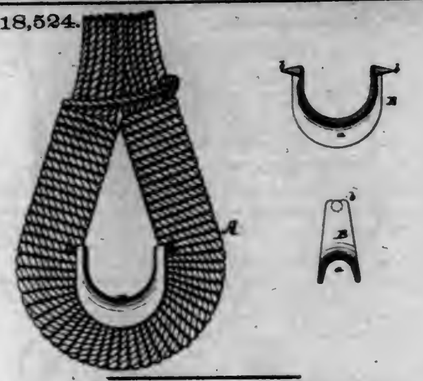


Claim.—In a combined egg boiler and caster, the ledges having egg-holding cups substantially conforming to one-half the egg, in combination with a central stem mounted on a suitable base, and having at its upper end a handle or ring adapted to turn down for the purpose of reducing the height, substantially as shown and described.

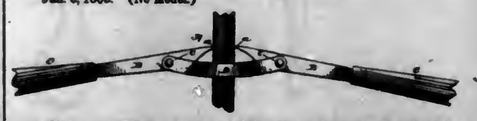
318,524. THIMBLE FOR HAMMOCKS, &c. VINCENT P. TRAVERS, New York, N. Y. Filed Feb. 16, 1885. (No model.)

Claim.—The thimble B, provided with prongs *b b*, that project outwardly from its ends, and that are adapted to enter into the body of a hammock-loop which said thimble is to line, substantially as herein shown and described.

318,524.



318,525. BOLT-CUTTER. THOMAS J. VINTON, Holly, Mich. Filed Jan. 6, 1885. (No model.)

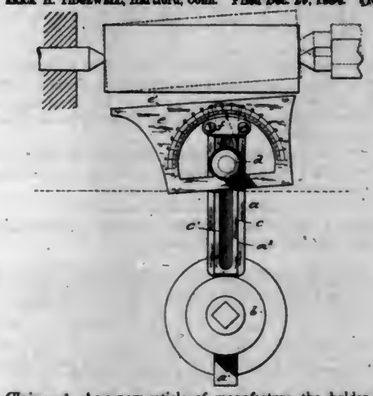


Claim.—1. The combination of the connecting-arms D, adapted to receive the bolt or rod to be cut, and the cutters pivoted to the outer ends of the arms, said cutters being adapted to impinge upon the bolt or rod at their inner ends when the outer ends of the cutters are pulled outwardly, substantially as described.

2. The combination of the connecting-arms, the cutters pivoted to the outer ends of the arms and provided with suitable handles at their outer ends, the inner cutting-edges of the cutters being arranged transversely to the bodies thereof, and adapted to impinge upon the bolt or rod when the handles are pulled outwardly, substantially as described.

3. The combination of the connecting-arms D, having their centers curved outwardly, and the cutters pivoted to the outer ends of the arms, said cutters being adapted to impinge upon the bolt or rod to be cut when their outer ends are pulled outwardly, substantially as described.

318,526. TAPER-MEASURING TOOL. FREDERICK WAITE and FREDERICK H. TIDSWELL, Hartford, Conn. Filed Dec. 29, 1884. (No model.)



Claim.—1. As a new article of manufacture, the holder having a shank, a blade extensible beyond the front end of the holder, an angle-plate pivoted to the holder and having a working-edge, a graduated arc, and a clamp device, all substantially as described.

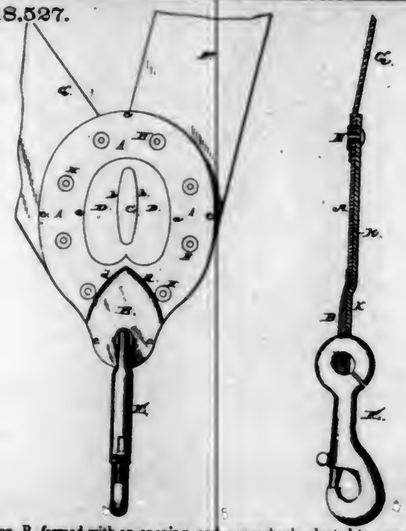
2. In combination, a body or holder having a shank for attaching it to a tool-post, an adjustable angle-plate having a working-face and a graduated arc, and a clamping device, all substantially as described.

3. In combination, a body or holder, *a*, having a shank, *a'*, an angle-plate, *e*, with a channeled working-edge, *e'*, and a graduated arc, an extensible plate, *c*, with a channeled working-edge, and a clamp device, all substantially as described.

318,527. METAL BREECHING-EYE. CHARLES B. WEBB, Hopkinsville, Ky. Filed Feb. 16, 1885. (No model.)

Claim.—1. The combination, with the breeching-straps, of the metal plate riveted to and connecting the same, said plate having an enlarged

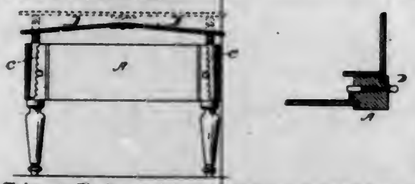
318,527.



portion, B, formed with an opening, and a snap-hook adapted to engage said opening, substantially as set forth.

2. The combination, with the breeching and hip straps, of a metal plate located on the outer side thereof, and a leather strip on the other side, said plate and strip being secured together and connecting the breeching and hip straps at one end, and having registering-openings, substantially as described, and for the purpose set forth.

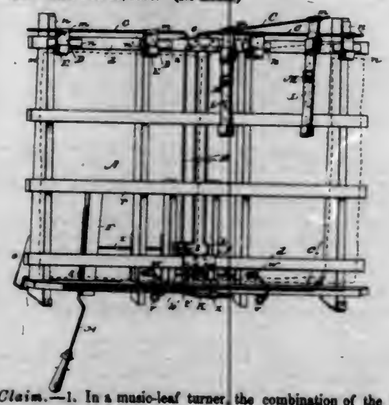
318,528. DRAFTING-TABLE. HENRY C. WHEDEN, Boston, Mass. Filed Dec. 26, 1884. (No model.)



Claim.—1. The improved drafting-table herein described, having a divided top separate or detached from the body or legs of the table, and formed of hinged or flexibly-connected leaves, each leaf being provided with vertically-adjustable supports flexibly connected thereto, all substantially as herein described.

2. In a drafting-table, the combination, with the body A, of the flexibly-connected leaves B B, vertically-adjustable supports C, and retaining-pegs D, all substantially as herein set forth.

318,529. MUSIC-LEAF TURNER. HARRY D. WHEATLEY, Centreville, Ohio. Filed Dec. 29, 1883. (No model.)



Claim.—1. In a music-leaf turner, the combination of the journaled turning-rods formed with double cranks, and mechanism, substantially as described, for operating the said rods, substantially as described.

2. In a music-leaf turner, the combination of the journaled turning-rods formed at the upper ends with horizontal arms and at the lower ends with double cranks, and mechanism, substantially as described, for operating the same, substantially as described.

3. In a music-leaf turner, the combination of the journaled turning-rods formed with the double cranks, and the operating mechanism provided with double fingers or triggers to operate the turning-rods in both directions, substantially as described.

4. In a music-leaf turner, the combination of the journaled turning-rods formed with the double cranks, and the operating mechanism, with the pivoted shifting-lever and extended handle, substantially as described.

5. In a music-leaf turner, the combination of a plurality of journaled turning-rods formed with the double cranks at their lower ends and horizontal arms at their upper ends, carrying the tapes and clasps for attachment to music-sheets, and operating mechanism, substantially as described.

6. In a music-leaf turner, the rods bearing the leaf-turning arms, formed at their lower ends with bends forming cranks at right angles to each other, as set forth.

7. In a music-leaf turner, the rods bearing the leaf-turning arms at their upper ends, and the double cranks arranged at right angles near their lower ends, substantially as specified.

8. In a music-leaf turner, the S-shaped rod having the ends bent inward to form fingers or triggers, and connected to a pivoted lever, substantially as described.

9. In a music-leaf turner, the pivoted lever carrying the shifting-rod to operate the turning-arms, formed with a perforation and provided with a clip-plate to receive interchangeable handles, substantially as described.

10. In a music-leaf turner, the leaf-turning arms, in combination with the bearing-plates, the upper one of which has its outer bearing-passages made elongated, for the purpose stated.

11. A music-leaf turner consisting of a plurality of journaled turning-rods formed with double cranks and horizontal arms, the elastic tapes with clamps, the operating-rod with triggers engaging the cranks of the turning-rods, and the pivoted shifting-lever and handle, substantially as described.

318,530. SCISSORS AND SHEARS. DWIGHT WHEELER, Bridgeport, Conn., assignor of two-thirds to John A. Croft and David C. Wheeler, both of same place. Filed July 15, 1884. (No model.)



Claim.—As a new manufacture, plated scissors or shears having portions of their surface ground smoothly before plating and polished after plating, and other portions cast with a roughened surface and left unpolished, whereby said portions are given a frosted appearance.

318,531. WHIP-SOCKET. CYRUS L. BARD, San Buenaventura, Cal. Filed Apr. 1, 1885. (No model.)



Claim.—1. A whip-socket having one or more air bulbs or cushions adapted to bind upon and hold the whip-stock, substantially as herein described.

2. A whip-socket having one or more elastic air bulbs or cushions in its interior, adapted to bind upon and hold the whip-stock, substantially as herein described.

3. In a whip-socket, one or more air bulbs or cushions, B, having an enlarged body and a neck, by which the bulb is secured to the wall of the barrel, substantially as herein described.

4. In a whip-socket, the combination of the barrel A with an annular series of air bulbs or cushions, B, secured to said barrel and projecting within its interior, substantially as herein described.

5. In a whip-socket, the barrel A, having the apertures *a*, in combination with the air bulbs or cushions B, having enlarged bodies, and necks *b'*, fitting in apertures *a*, whereby said bulbs are adapted to be secured, substantially as herein described.

6. In a whip-socket, the barrel A, having the apertures *a*, in combination with the air bulbs or cushions B, having enlarged bodies *b*, necks *b'*, fitting the apertures *a*, and heads b^3, with flanges b^3, whereby said bulbs or cushions are held in place, substantially as herein described.

7. In a whip-socket, the barrel A, having the apertures *a*, in combination with the air bulbs or cushions B, having enlarged bodies *b*, necks *b'*, fitting the apertures *a*, heads b^3, with flanges b^3, engaging the apertures from without, and flanges b^3 around the neck engaging the apertures from within, substantially as herein described.

8. In combination with a barrel of a whip-socket, one or more air bulbs or cushions, B, made of some elastic material and provided with air-vents, said bulbs or cushions being secured to the barrel with their bodies projecting into its interior, substantially as and for the purpose herein described.

9. In combination with the barrel A of a whip-socket having apertures *a*, the elastic air bulbs or cushions B, having enlarged bodies *b*, and necks *b'*, fitting and secured within the apertures *a*, said bulbs having an aperture or vent, b^4, in the apex of their bodies, substantially as and for the purpose herein described.

10. In a whip-socket, the barrel A, having apertures *a*, in combination with the elastic air bulbs or cushions B, having enlarged bodies *b*, necks *b'*, fitting and secured within the apertures *a*, and open-mouthed heads projecting without, substantially as and for the purpose herein described.

11. In a whip-socket, the barrel A, having apertures *a*, in combination with the elastic air bulbs or cushions B, having enlarged bodies *b*, with an air-vent, b^4, necks *b'*, fitting and secured within the apertures *a*, and open-mouthed heads projecting without, substantially as and for the purpose herein described.

12. In a whip-socket, the barrel A, having apertures *a*, in combination with the air bulbs or cushions B, having necks *b'*, of harder or thicker rubber than their bodies, and fitting and secured within the apertures *a*, substantially as and for the purpose herein described.

13. In a whip-socket, the bearing-plate I in the bottom of the barrel, having the shape of a truncated cone, with a concaved top, substantially as and for the purpose herein described.

14. In combination with the barrel A of a whip-socket, the truncated conical bearing-plate I in its bottom, having a concaved top, and apertures *i'* in its lower rim, substantially as and for the purpose herein described.

15. The plate I in the bottom of a whip-socket, said plate having the shape of a truncated cone, with a concaved top in which the butt of the whip rests, and having an aperture, *i*, in its top, and apertures *i'* in its lower rim, substantially as and for the purpose herein described.

318,532. VELOCIPEDE. ARTHUR J. BRAVE, Monmouth, and FRANK S. BRAVE, Peoria, Ill. Filed Aug. 2, 1884. (No model.)



Claim.—In combination with the forks of a bicycle, the arms M, projecting rearwardly from the said forks, the spur-gears D, having tubular hubs *d*, held in said arms, crank-arms C, fast on said hubs, treadles C', projecting from said crank-arms, bolts B and nuts *b'* for securing the gears D to the arms M, and the spur-gears E, fast on the ends of the drive-wheel's axle and arranged to mesh with said gears D, as and for the purpose set forth.

318,533. CASTER. JULIUS BERKEY, Grand Rapids, Mich. Filed Feb. 10, 1885. (No model.)

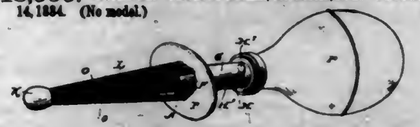


Claim.—In a caster-socket, the half-socket A, provided with a tongue, *a*, integral with and formed of a part of the half-socket A, substantially as and for the purpose described.

318,534. BUCKBOARD-WAGON. FRANK B. BENNETT and LUKE E. BENNETT, St. Cloud, Minn. Filed Nov. 15, 1884. (No model.)



318,535. SYRINGE. ANTHONY BOHLER, Rochester, N. Y. Filed July 14, 1884. (No model.)

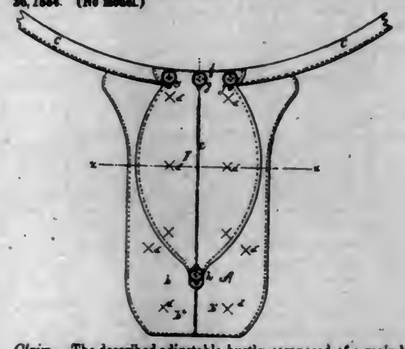


Claim.—1. A vaginal syringe provided with flexible distending-springs connected with a stationary sleeve provided with a flexible shield, substantially as specified.

2. A vaginal syringe provided with flexible distending-springs connected to a plate on the stationary sleeve, and having a flexible porous shield on said plate, substantially as specified.

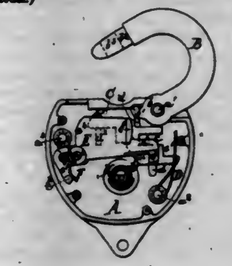
3. The combination, with the movable sleeve, the solid top, and the central tube connecting said sleeve and solid top, of flexible springs connecting said solid top with the spirally-slotted stationary sleeve on the movable sleeve, substantially as specified.

318,536. BUSTLE. BIANCA BLEEKER, New York, N. Y. Filed Dec 26, 1884. (No model.)

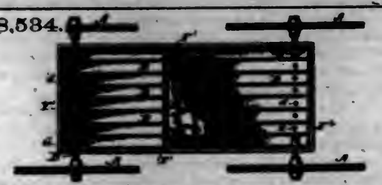


Claim.—The described adjustable bustle, composed of a main bustle formed of an under and upper piece of cloth, the under piece being smaller in all dimensions than the upper piece, said pieces being united at their edges, and a suitable waistband attached to the upper edges thereof, and a smaller superimposed bustle detachably attached to the main bustle, substantially as and for the purposes set forth.

318,537. PADLOCK. WILSON BOHANNAN, Brooklyn, N. Y. Filed Feb. 24, 1885. (Model.)



318,584.



Claim.—1. The combination, in a buckboard-wagon, of the wheels and axles, the slats secured at their ends to the axles and forming a spring-bottom, and a bottomless encircling-box to inclose the spring-bottom, substantially as described.

2. The combination of the wheels A, axles B, slats D, secured to the axles, and box F, the side-boards of which are arranged to project below the slats, substantially as and for the purpose described.

3. The combination of the wheels, the axles, the slats secured to said axles, and a box or body flexibly connected to the slats and axles, substantially as and for the purpose described.

Claim.—1. In a padlock, the combination of a spring-acted bolt, C, a self-locking spring-acted tumbler, E, having a raised lug, e^3, and a shackle, B, having a lug, b', and locking portion b^2, said portion and lug being adapted to engage and hold the tumbler, substantially as and for the purpose described.

2. In a padlock, the shackle B, provided with a projection, b, at its rear end, in combination with the bolt C and a spring-acted swinging and sliding tumbler, E, substantially as described.

3. In a padlock, a shackle having a projection, b', on its rear end, in combination with a swinging and sliding tumbler, E, engaging said projection, and having a slotted portion, $e\,e'$, at one end, and a hook, e^3, at the other end, a post, d, on the shell A, adapted to engage said hook and the spring-bolt C, whereby the tumbler E, after having been raised to the proper height, can only be made to clear said post and projection by being moved forward, substantially as described.

318,538. COMBINED STORM-SHIELD AND OVERDRESS.

MAGGIE BOYD, Riverside, Cal. Filed Oct. 27, 1884. (No model.)

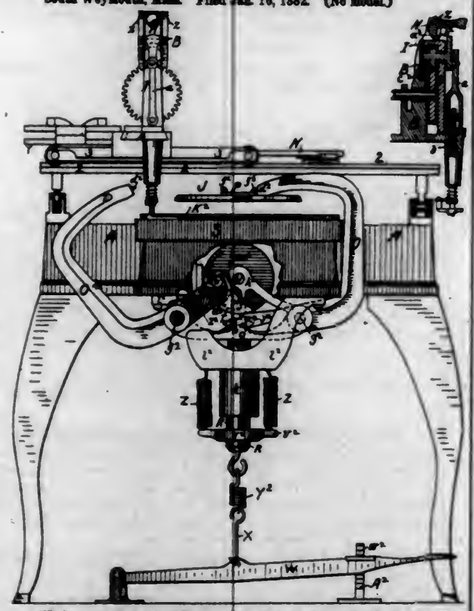


Claim.—1. The combination, with the cape or body-piece, of the expansible hood or umbrella, the fastening-straps by which it is attached to the shoulders, and the means for securing it and holding it on the head, substantially as herein described.

2. The umbrella or expansible hood or head-piece attached to the shoulders, in combination with cape or body-piece, as shown, and the veil or fabric having the ends secured to the hood passing through rings at the side, so that the ends may be secured beneath the chin, substantially as herein described.

318,539. MACHINE FOR GRADING PATTERNS.

JAMES J. BERACH, South Weymouth, Mass. Filed Jan. 16, 1882. (No model.)



Claim.—1. A tracer, M, made in two parts, $c\,d$, adapted to slide one upon another, and provided with a coiled spring, g, which has a bearing against each of said parts, in combination with the yielding ratchet or toothed arm m, applied to part d, pattern or former L, and stationary guideway f, all substantially as and for the purpose described.

2. A pattern, L, substantially as described, and adapted, in combination with jaws or levers r, which are constructed, arranged, and applied to the pattern, to confine and hold it at opposite points of the pattern, substantially as set forth.

3. A pattern, L, having holes p, and rest-block C, having pins o, in combination with jaws or levers r, which are constructed, arranged, and applied to the pattern to confine and hold it at opposite points of the pattern, substantially as and for the purpose described.

4. A former or pattern, L, having edges v at opposite points thereof, in combination with levers r, constructed and arranged to bear against said edges v, substantially as described, and for the purpose specified.

5. A former or pattern, L, having holes t at opposite points thereof, levers r, adapted to enter said holes t, and each having an offset, u, to press downward upon said pattern, in combination with a rest-block, C, substantially as and for the purpose described.

6. A former or pattern, L, its rest-block C, pins o, and holes p, in combination with levers r, constructed and arranged to confine and hold the pattern, substantially as and for the purpose described.

7. A pattern, L, and levers, r, in combination with an operating-pin, D, for said levers, each and all relatively constructed and arranged for the levers to be engaged with the pattern L and to be operated by the pin D, substantially as and for the purpose described.

8. A cutter-bar, b, carried and guided by a support, I, arranged to be moved up and down to place the operating mechanism for the bar b into and out of connection, in combination with a lever, H, having cam-edge a^3 and end b^3 applied and arranged in relation to said support I, all substantially as and for the purpose described.

9. A clamp composed of jaws K^2 and J, adapted to be opened and closed, in combination with lever-arms O, carrying one of said jaws at opposite points thereof, and mechanism to operate on said levers to place them in and out of connection with said jaw, substantially as and for the purpose described.

10. A clamp composed of two jaws, K^2 J, in combination with levers O, which carry jaw J at opposite points thereof, and are hung upon separate fulcra g^3 and adapted to bear upon separate rotating cam-edges m^3, substantially as and for the purpose described.

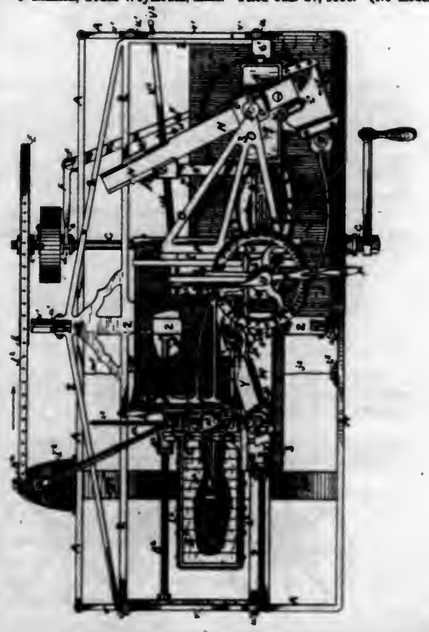
11. A clamp composed of jaws K^2 J and of lever-arms O, which carry jaw J at opposite points thereof, and are hung upon separate fulcra g^3 and bear upon separate rotating cam-edges m^3, in combination with the vertical gear-wheels T of shaft U, each of which gear-wheels carries a cam-edge, m^3, and with gear-wheels n^3 and t^3 on shaft c^3, adapted to turn in a loose collar, q^3, of shaft U upon a shaft, V, having gear-wheel s^3, substantially as described, for the purpose specified.

12. A clamp composed of jaws K^2 J, adapted to be opened and closed, in combination with lever-arms carrying one of said jaws at opposite points thereof, and mechanism to operate on said levers to place them in and out of connection with and to open and close said jaw, substantially as and for the purpose specified.

13. A clamp composed of jaws K^2 J and of lever-arms O, which carry jaw J at opposite ends thereof, and are hung upon separate fulcra g^3 and bear upon separate rotating cam-edges m^3, in combination with the vertical gear-wheels T of shaft U, and each carrying a cam-edge, m^3, gear-wheels n^3 and t^3 of shaft c^3, turning in a loose collar, q^3, of shaft U and upon a shaft, V, having gear-wheel s^3, and treadle-lever W, having yielding connection with the support for the fulcra of the lever-arms O, substantially as described, for the purpose specified.

318,540. MACHINE FOR CUTTING BOOT AND SHOE SOLES.

JAMES J BERACH, South Weymouth, Mass. Filed Jan. 27, 1881. (No model.)



Claim.—1. A tracer arranged to travel and to follow about the edge or the periphery of a sole or other former, and constructed in itself and arranged in relation to its operating mechanism to secure an automatic arrest of its movement, substantially as and for the purpose described.

2. The combination of a sole or other suitable former, L, and of a tracer, M, arranged to travel and follow about the former L, with studs or pins $q'\,r'$, arranged in relation to each other and to an operating mechanism for the tracer, all substantially as and for the purpose described.

3. A tracer, M, made in parts adapted to slide upon each other and to be pressed in opposite directions and constructed for a lever, V^2, to be interlocked with one of its parts, substantially as and for the purpose described.

4. A swiveling cutter-bar, m^4, of polygonal shape in cross-section, adapted for a reciprocating movement in relation to a block or platform, K^2, in combination with a foot-piece, n^4, which is constructed and arranged for said cutter-bar in its said movement to pass through it, and also to press or drag upon the material being cut by the cutter-bar at and about the line of such cut, all substantially as and for the purpose described.

5. A swiveling cutter-bar, m^4, of polygonal shape in cross-section, adapted for a reciprocating movement in relation to a block or platform, K^2, in combination with a foot-piece, n^4, which is constructed and arranged for said cutter-bar to pass through it and for it to enter and remain in the line of cut from the cutter-bar in the material which is being cut at a point behind the cutting action of the cutter-bar, all substantially as and for the purpose described.

6. A swiveling cutter-bar, m^4, of polygonal shape in cross-section, and adapted for a reciprocating movement in relation to a block or platform, K^2, in combination with a foot-piece, n^4, which is constructed and arranged for said cutter-bar in its said movement to pass through it, and to both press or drag upon the material being cut by the cutter-bar at and about and to enter and to remain in the line of such cut, all substantially as and for the purpose described.

7. A cutter-bar, m^4, constructed and arranged, substantially as herein described, to swivel, to reciprocate, and to be connected to and disconnected from its operative mechanism at pleasure, in combination with a cutting platform or block, K^2, all substantially as described.

8. The gear-wheels s^3 t^3, their respective supports, carriage 4, and upright u^3, arranged the latter to be moved up and down to engage and disengage the said gear-wheels, the concentric tubular extension x^3 w^3 of said supports, in combination with a cutter-bar, m^4, eccentrically connected to gear-wheel s^3, and moving through the tubular extension w^3, and with a spring, z^3, connected to each of said supports, all substantially as and for the purpose described.

9. A swiveling cutter-bar, m^4, adapted for a reciprocating movement upon a suitable carrier therefor, which in turn is arranged to move across such line of movement of the cutter-bar and in two directions at right angles to each other, in combination with mechanism in substance composed of two universal joints, E^2 G^2, and a telescoped and longitudinally-splined connecting-rod, F^2, and arranged to connect the operating mechanism for the said cutter-bar m^4 with any suitable driving mechanism, all substantially as and for the purpose described.

10. The foot-piece n^4, either with or without an edge, u^4, and a collar, r^4, in combination with a swiveling cutter-bar, m^4, and its guiding-tube W^2, having shoulders q^4 s^4, and a spiral spring, p^4, all substantially as and for the purposes and operations described.

11. A block or platform, K^2, supported on a suitable support, in combination with a carrier for a clamping-plate arranged to be swung upon said plate and to be fastened against such movement, either to said plate or to a suitable stationary abutment, such as a rail, W^2, or to both, all substantially as and for the purpose described.

12. A block or platform, K^2, supported upon a suitable support, and a carrier for a clamping-plate arranged to be swung upon said plate and to be fastened against such movement, either to said plate or to a stationary abutment, such as a rail, W^2, or to both, in combination with mechanism for releasing said fastening of the plate, all substantially as and for the purpose described.

13. A block or platform, K^2, supported upon a suitable support, and a carrier for a clamping-plate arranged to be swung upon said plate and to be fastened against such movement, either to said plate or to a suitable stationary abutment, such as a rail, W^2, or to both, in combination with mechanism for releasing said fastening of the plate and for swinging the said clamp-carrier upon the said clamp, all substantially as and for the purpose described.

14. A block or platform, K^2, supported upon a suitable support, and a carrier for a clamping-plate arranged to be swung upon said plate and to be fastened against such movement, either to said plate or to a suitable stationary support, such as a rail, W^2, or to both, in combination with a treadle-lever, Q^2, which is connected to a releasing-lever, Y^2, for the said fastening, and also to the clamp-carrier in a manner to secure through the movement of the treadle in one direction both a release of said fastening and a swing of the clamp-carrier, all substantially as and for the purpose described.

15. A block or platform, K^2, supported upon a suitable support, and a carrier for a clamping-plate, U^2, arranged to be swung upon said plate and to be fastened against such movement by bolt g^3 interlocking with said plate, and a lever, V^2, interlocking with a stationary abutment, such as a rail, W^2, and connected together so as to be simultaneously disengaged through the lever V^2, all substantially as and for the purpose described.

16. A block or platform, K^2, supported upon a stationary post, x^4, in combination with a U-bracket which projects over both sides of said platform, and is arranged to swing upon and to be moved along the length of said post, each independently of the other, and at one side of the platform has a clamping-plate, U^2, swiveled to it, all substantially as described, for the purpose specified.

17. The combination, with a block or platform, K^2, supported by a post, of a U-bracket which projects over both sides of said platform, and is arranged to be swung upon and to be moved along the length of said post, and at one side of said platform has a clamping-plate, U^2, swiveled to it, with a treadle-lever, Q^2, connected to said U-bracket, and arranged to move it and its clamping-plate in one direction relative to said platform and to fasten it and its plate in such position, and to allow it, when unfastened, to move in the other direction under the action of a spring, y^4, or otherwise, all substantially as described, for the purpose specified.

18. First, a sole or other suitable former; second, a tracer adapted to travel around the same; third, a carriage pivoted to said tracer, and adapted to travel upon another supporting-carriage in parallel lines to one direction of the sole-former, and to travel conjointly with such supporting-carriage in parallel lines across said direction of travel relative to the sole-former; and, fourth, a carriage arranged upon said supporting-carriage to travel in one direction of its said two directions of travel upon it and in the other direction in conjunction with it, in combination with mechanism which connects said supporting-carriage to both of the other carriages aforesaid, and is constructed and arranged to maintain at any and all points in the travel of all of said carriages the same relative perpendicular distances between the said pivotal points of such connecting mechanism, all substantially as and for the purpose described.

19. A sole or other former, L, and a tracer, M, adapted to travel around the same, in combination with carriages 1 2 3, and a radius-bar, N, directly pivoted to carriages 1 and 3, and adapted to play lengthwise through a clasp, d^3, pivoted to carriage 2, when severally arranged and combined together to operate as a whole, substantially as and for the purpose described.

20. A carriage arranged to travel upon another carriage and together with such supporting-carriage to move as one across the line of such travel, and constructed in parts arranged the one to be moved and adjusted and set upon the other in a direction across its said line of travel upon said supporting-carriage, and in such moving part pivoted at j^2 to a slide, i^3, of a radius-bar, N, which moves lengthwise through a clasp, d^3, pivoted to said supporting-carriage, and is connected by a pivot, c^3, to a carriage, 1, in turn hung by a pivot, s', to a tracer, M, arranged to move about a sole or other suitable former, all substantially as described, for the purpose specified.

21. First, a sole or other suitable former; second, a tracer adapted to travel around the same; third, a carriage pivoted to said tracer, and adapted to travel upon another and supporting-carriage in parallel lines to one direction of the sole-former, and to travel with such supporting-carriage in parallel lines across said direction of travel relative to the sole-former; and, fourth, a carriage arranged upon said supporting-carriage to travel upon it in one direction of its said two directions of travel, and in conjunction with it in the other direction, and provided with a carriage that is arranged to travel upon it across its direction of travel upon its supporting-carriage, in combination with mechanism which connects said latter carriage to the carriage that moves, as aforesaid, upon the supporting-carriage, and to a support thereof, moving therewith only in its travel upon and not in its travel with its supporting-carriage, and which is constructed and arranged to maintain at any and all points in the travel of said latter carriage across the carriage which carries it the same relative perpendicular distance between the several pivotal points of such connecting mechanism, all substantially as described, for the purpose specified.

22. A carriage, 3; constructed in parts adapted to slide and to be adjusted and set, the one upon the other, and in its said moving part pivoted to a radius-bar, Y, which is in turn pivoted to a carriage, 4, arranged to move upon said carriage 3 across the slide of its said part, and which is arranged to travel lengthwise through a clasp swiveled to a frame, A^2, that is stationary as to the movement of carriage 4 upon carriage 3, in combination with a carriage, 2, upon and along which carriage 3 with carriage 4 moves at right angles to the line of movement of carriage 4 upon carriage 3, all substantially as described, for the purpose specified.

23. A carriage, 3, constructed in parts adapted the one to slide and be adjusted and set upon the other, and connected through the radius-bar N to carriages 1 and 2, which are arranged for the former to move upon the latter, and carriage 3 upon the latter, in combination with mechanism constructed in itself and arranged in relation to the said sliding part

of carriage 3 to secure through its operation a movement of said part, and thus the adjustment of its connection along the length of said radius-bar, all substantially as described, for the purpose specified.

24. A carriage, 3, constructed in parts adapted to slide and to be adjusted and set, the one upon the other, and in its said moving part connected through the radius-bar Y to carriage 4, which travels upon said carriage 3, and provided with mechanism constructed in itself and arranged in relation to said moving part of said carriage 3 to secure a movement of said part, and thus adjustment of its connection along the length of said bar, all substantially as and for the purpose specified.

25. A carriage, 3, made in parts, constructed and arranged the one to move upon and be fastened to the other, in combination with a shouldered screw-bolt, q^3, arranged in relation to said parts, all substantially as and for the purpose described.

26. A sole or other suitable former, a tracer adapted to travel around the same, carriages 1, 2, and 3, arranged in relation to each other and to said tracer, and connected to a radius-bar, N, in combination with a carriage, 4, arranged to travel upon carriage 3, and pivoted to a radius-bar, Y, which is in turn pivoted to carriage 3, and is adapted to play lengthwise through a clasp pivoted to a support, A^2, stationary as to the movement of carriage 4 upon carriage 3, and of carriages 2 and 3 in same direction, but moving with carriage 3 upon carriage 2, when severally combined and arranged together, all substantially as herein described, and for the purpose specified.

27. The hand-wheel T, connected with the moving part O of carriage 3, and notched about its periphery, as at t^2, in combination with a stop-pin, u^3, arranged to engage with said notches, all substantially as and for the purposes described.

28. The notches z^2 of hand-wheel T, in combination with a handle-lever, V, arranged to engage with said notches, and otherwise connected with the moving part W of carriage 3, to which carriage 4 is connected, all substantially as and for the purpose described.

29. The hand-wheel T, provided with two series of notches, t^2 z^2, in combination with a stop-pin, y^3, and handle-lever y, both arranged in relation thereto, and the wheel and handle-lever V, connected through gearing or its equivalent to the parts O and W of carriage 3, adapted to slide thereon, all substantially as and for the purpose described.

30. The wheels u', having flanges x', provided with inside beveling faces, y', and arranged to run by such beveling faces against and along beveling faces of a rail, v', in combination with a shouldered axial pin, z', all substantially as described, for the purpose specified.

31. A machine for grading patterns, composed of a frame, A, a stationary former, L, a tracer, M, carriages 1, 2, 3, and 4, frame A^2, radius-bars N and Y, a reciprocating cutter, m^4, and its foot-piece n^4, and platform K^2, with its clamp U^2 and its carrier P^2, severally constructed and combined and arranged together to act in conjunction with and in relation to each other upon the application of power thereto, all substantially as and for the purpose specified.

32. The dovetail grooved block a^3 of clamp-plate U^2, having pin d^3, and the dovetail block b^3, having notch c^3, and swiveled to U-bracket P^2, in combination with notched block f^3 of clamp-plate U^2 and locking-bolt g^3, all substantially as and for the purpose described.

318,541. HEATING-DRUM. George L. S. Brock, Decatur, Ind. Filed Feb. 26, 1885. (No model.)

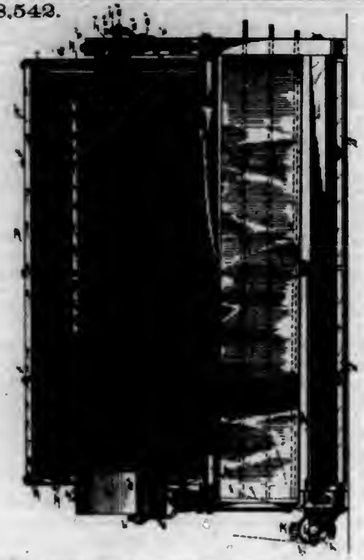


Claim.—A drum composed of the flue A, a damper located in said flue, flues D E F G, arranged around flue A, flue D communicating with flue A, as at a, flue G communicating with flue A, as at g, the flues E and F communicating with each other at their upper ends, the flues F and G and D and E communicating with each other at their lower ends, for the purpose set forth, substantially as described.

318,542. TOBACCO-GRANULATING MACHINE. Leander Burdick and William F. Coleman, Toledo, Ohio, assignors to Chase, Isherwood & Co., same place. Filed Sept. 24, 1884. (No model.)

Claim.—1. In a tobacco-granulator, the tobacco-breaker composed of a number of adjacent circular and independently-moving blocks with pockets arranged at intervals in their peripheries, and each having a central hub, combined with a shaft upon which they are supported, a wire-cloth cylinder, and means for rotating said cylinder, as set forth.

318,542.



2. The tobacco-breaker composed of a number of adjacent circular and independently-moving blocks having a series of pockets in their peripheries, and each having a short hub, combined with a suitable shaft upon which they are supported, means for holding and adjusting the breaker in a wire-cloth cylinder, the said cylinder, and means for rotating it, as set forth.

3. The combination of the wire-cloth cylinder with the wooden breaker, constructed substantially as described, means for holding and adjusting said breaker, subjacent sieves of different fineness, and means for holding and vibrating said sieves, as set forth.

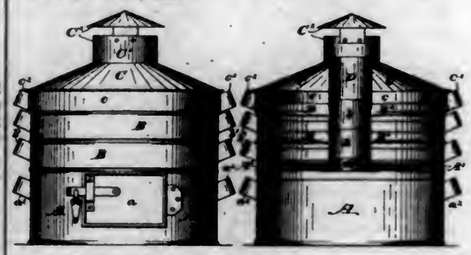
4. The tobacco-breaker composed of a series of wooden blocks, o o, having pockets o^3, hub o^3, and circular opening o^4, combined with tube o', tie-rod o^3, arm a', cross-tie a^3, and arm a^3, having set-screw x', arm a^4, cross-tie a^5, the open spider-shaft I', box I^2, arm a^6, having set-screw x^3, block a^7, the uprights i i, screw I^3, and the wire-cloth cylinder D, as set forth.

5. The cylinder D, supported at its front end by the drum F, having a raised portion provided with groove K, and having its rear end composed of an open spider, G, consisting of a flanged rim, G', radial arms H, hub I, and its shaft I', combined with the sheaves L L, box I^2, screw I^3, and the uprights i i, as set forth.

6. The cylinder D, having the flange D', cogged rim E, and grooved drum F, cast in one piece, combined with the sheaves L L, cog-wheel d, shaft C, and the pulley b thereon, as set forth.

7. The cylinder D, composed of the flange D', cogged rim E, and grooved drum F, the wire-cloth portions D^2, and the open spider G, the whole held together by the band-iron ribs M, the wooden strips N, and the bolts and nuts f f', combined with the breaker O, the box I^2, framework i i i', screw I^3, pulleys L L, cog-wheel d, shaft C, and the pulley b thereon, all as set forth.

318,543. FRUIT-DRIER. Stephen Collins, Huntsville, Ala. Filed Dec. 5, 1884. (No model.)



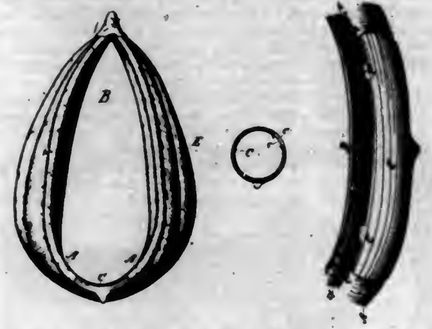
Claim.—1. An evaporating or fruit-drying apparatus consisting of a furnace and a drying-chamber, said drying-chamber being composed of removable sections, each section being provided with a portion of the smoke-pipe, each of which engages directly with the other portions, whereby a continuous pipe is provided, substantially as set forth.

2. An evaporating apparatus consisting of the furnace A, having a top consisting of a portion, A', having a layer of dirt, A^4, therein, and a drying-chamber composed of sections B, mounted on said furnace, each of said sections having an open or perforated floor, B', substantially as set forth.

3. The combination of the furnace A, having top A', with flange a', mounted thereon, drying-chamber composed of the sections B, arranged one on top of another, joints of pipe b, one secured in each portion B, and the cover C, substantially as set forth.

4. The combination of the furnace A, drying-chamber composed of sections B, mounted one on top of another, the joints of pipe b, one secured in each section and connecting with each other, the lower one of which connects with the flange a' on the top of the furnace, the cover C, mounted on the top of said drying-chamber with an opening between said cover and said top, the ventilator C', and the joint of pipe D, mounted on the top of the joint b, and extending up into the ventilator, substantially as described, and for the purposes specified.

318,544. HORSE-COLLAR. William Cosser, San Francisco, Cal. Filed Oct. 16, 1884. (No model.)

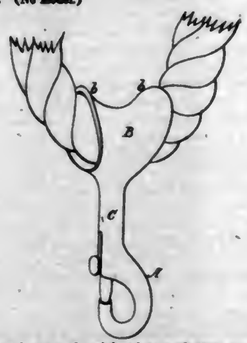


Claim.—1. In a horse-collar, the metallic open-end tubular throat-piece C, formed in a single piece and having the elongated slot c at its back, through which the edges or lips of the rim and the fly D project, said throat-piece having cross-ties C' traversing the slot, and passing through said edges or lips and the intervening fly, substantially as herein described.

2. In a horse-collar, the metallic tubular throat-piece C, having an elongated slot, c, at its back, the edges of which are suitably rounded or beveled for the purpose described, and having the cross-ties C', said throat-piece being fitted to the rim of the collar, the edges or lips of which, with the intervening fly, project through the slot and are engaged by the cross-ties, substantially as herein described.

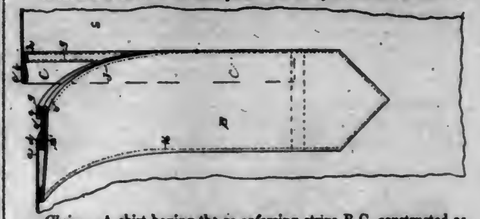
3. In a horse-collar, and in combination with its rim and belly continuous at the throat, the metallic tubular throat-piece C, made in one piece, and having an elongated slot, c, at its back, by which it is fitted to the rim, and through which the edges or lips of said rim and the fly D project, substantially as described.

318,545. SNAP-HOOK. James C. Covert, West Troy, N. Y. Filed Nov. 28, 1884. (No model.)



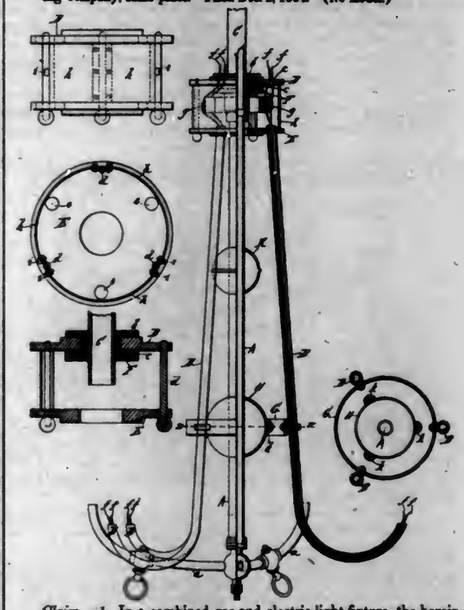
Claim.—As an improved article of manufacture, a snap-hook having an extended shank provided with an end loop expanded transversely, so as to form a sleeve with convex interior surfaces and flaring upturned edges or lips b b, by means of which said snap-hook is adapted to slide freely upon a rope or chain, substantially as and for the purpose specified.

318,546. SHIRT. Clayton H. Davis, Fort Edward, N. Y., assignor of one-half to Davis & Co., same place. Filed July 19, 1884. (No model.)



Claim.—A shirt having the re-enforcing strips B C, constructed as shown, and having the fly-edge a, edge B', and edge of strip C stitched together at d, the folded strip B being stitched at J to strip C, and at K to the shirt, as shown and described.

318,547. COMBINED GAS AND ELECTRIC LIGHT FIXTURE. C. Deavs, New York, N. Y., assignor to the Archer & Pancoast Manufacturing Company, same place. Filed Dec. 2, 1884. (No model.)



Claim.—1. In a combined gas and electric light fixture, the herein-described box or chamber having removable walls and containing the cut-outs, said box being mounted upon and supported by the gas-service pipe insulated therefrom, and supporting the tubes containing the electric conductors, substantially as shown and described.

2. The combination, with the gas-service pipe, of the box or chamber mounted thereon and insulated therefrom, said box being arranged to sustain the tubes for the electric conductors, and being composed of the two main perforated plates, united as explained, and the movable walls, substantially as and for the purposes set forth.

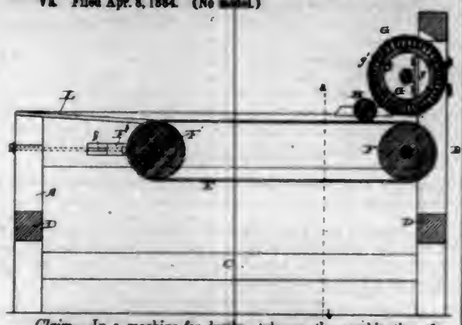
3. In an apparatus of the character herein set forth, the combination, with the gas-service pipe, of the insulating-disks serving to insulate the box and its attachments, the box containing the cut-outs and having the removable walls, the sustaining metallic nut applied upon the end of the service-pipe, and the tubes supported by said box, substantially in the manner and for the purposes set forth.

4. In an apparatus of the character herein set forth, the tubes for containing the electric conductors, a ring for connecting the same, the central gas-supply tube, and the interposed non-conductors arranged to prevent electric contact of the vibrating parts of the structure, substantially as shown, and for the purposes set forth.

318,548. PROCESS OF MALTING, BREWING, &c. Rudolph D'Heureuse, New York, N. Y. Filed July 12, 1883. (No specimens.)

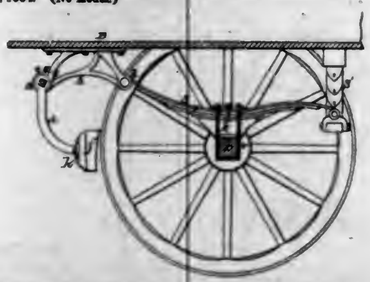
Claim.—The herein-described improvement in brewing and like processes, said improvement consisting in treating the water preparatory to use in such processes by forcing air through the same, and then applying the water to the grain or other material employed, substantially as set forth.

318,549. TOBACCO-DUSTING MACHINE. JOSEPH G. DULL, Richmond, Va. Filed Apr. 8, 1884. (No model.)



Claim.—In a machine for dusting tobacco, the combination of an endless apron having a flat portion upon which the leaves can be smoothly laid, a roller, H, which holds the tobacco upon the apron, and the revolving brush G, situated above the end of the apron in proximity to said roller, whereby the dust is thrown away from the path of the tobacco, and arranged to have its filaments move substantially in the direction of the travel of the apron, as described.

318,550. WAGON-BRAKE. GEORGE DULLS, Millvale, Pa. Filed Aug. 29, 1884. (No model.)



Claim.—1. In a wagon-brake, the combination of the hanger A, the spring S, which is connected at its inner end, and a second spring S, which is connected to the front end of the spring S', with the brake-rod, which is journaled in the rear end of the casting A, and the brake, substantially as shown.

2. The combination of the casting A, which has a spring connected to one end and the brake-rod *c* journaled in the opposite end, with the arm *d*, slotted plate *h*, and brake-rod F, substantially as set forth.

3. The plate *l*, with its projections *m* and *n*, in combination with the block K, clips V, spring S, and axle D, substantially as set forth.

318,551. PROCESS OF MAKING WROUGHT-IRON DIRECT FROM IRON ORES. CHARLES J. EAMES, New York, N. Y., assignor to the Carbon Iron Company, same place. Filed Sept. 27, 1884. (Specimens.)

Claim.—The process, substantially as hereinbefore specified, for the production of wrought-iron direct from the ore, which consists in reducing the ore upon a friable graphitic hearth, composed of plumbago, pulverized fire-brick, and a carbonaceous adhesive binder, whereon the ore is subjected to a suitable temperature, and finally balling and blooming the sponge thus formed, substantially as and for the purposes specified.

318,552. PROCESS OF MANUFACTURING IRON SPONGE, WROUGHT AND STEELY IRONS DIRECTLY FROM THE ORE. CHARLES J. EAMES, New York, N. Y., assignor to the Carbon Iron Company, same place. Filed Dec. 6, 1884. (No specimens.)

Claim.—1. The method herein described for the production of iron sponge direct from the ore, which consists in charging the ore intermingled with lumps of graphitic carbon on a friable graphitic hearth, and subjecting the charge to a dull-red sustained heat until deoxidation of the ore is accomplished, substantially as and for the purposes specified.

2. The method herein described for the production of iron sponge direct from the ore intermingled with lumps of graphitic carbon on a friable graphitic hearth, covering the charge with a layer of graphitic carbon in lumps, and finally subjecting the charge to a dull-red sustained heat until deoxidation of the ore is accomplished, substantially as and for the purposes specified.

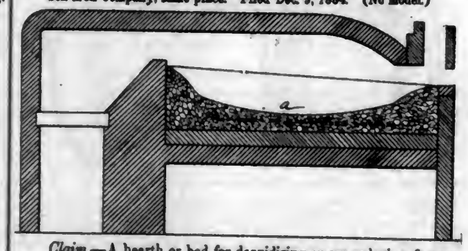
3. The method herein described for producing steelified iron direct from the ore, which consists in charging the ore mingled with lumps of graphitic carbon on a friable graphitic hearth, covering the charge with a layer of graphitic lumps, subjecting the charge thus formed first to the action of a dull-red sustained heat until deoxidation is accomplished, and then to a higher sustained heat short of the fusing-point of the metal for a further period of six (6) or more hours, substantially as and for the purposes specified.

318,553. PROCESS OF MANUFACTURING SPONGE AND WROUGHT IRON DIRECTLY FROM THE ORE. CHAS. J. EAMES, New York, N. Y., assignor to the Carbon Iron Company, same place. Filed Dec. 6, 1884. (No specimens.)

Claim.—1. The method herein described for the production of iron sponge direct from the ore in its natural state, and without admixture of flux, carbon, or graphite, which consists in charging the ore on a friable graphitic hearth, covering the charge with a layer of lump-graphite, and then subjecting the charge to a dull-red sustained heat until deoxidation is accomplished, substantially as and for the purposes specified.

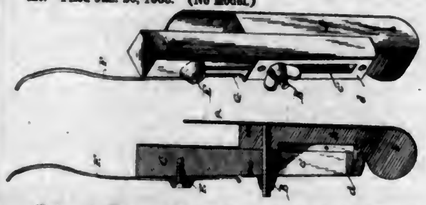
2. The method herein described for the production of wrought-iron direct from the ore, which consists in charging the ore on a friable graphitic hearth, covering the charge of ore in its natural state, and without admixture of flux, carbon, or graphite, with a layer of lump-graphite, subjecting the charge to a dull-red sustained heat until deoxidation takes place, and then slightly increasing the heat for a short period to agglomerate the mass, so that the sponge can be balled and removed to the blooming apparatus, substantially as and for the purposes specified.

318,554. HEARTH AND LINING OF GRAPHITE FOR METALLURGIC FURNACES. CHAS. J. EAMES, New York, N. Y., assignor to the Carbon Iron Company, same place. Filed Dec. 9, 1884. (No model.)



Claim.—A hearth or bed for deoxidizing or ore-reducing furnaces, composed of graphitic lumps, substantially as and for the purpose specified.

318,555. WEATHER-BOARDING GAGE. JAMES ESSEX, Lancaster, Mo. Filed Jan. 20, 1885. (No model.)



Claim.—1. The combination, in a weather-board gage, with the base-strip and gage-strip vertically adjustable thereon, of an arm pivotally secured to the outer face of the gage-strip and normally projecting above the same, said arm being adapted to be turned laterally upon its pivot, substantially as and for the purpose set forth.

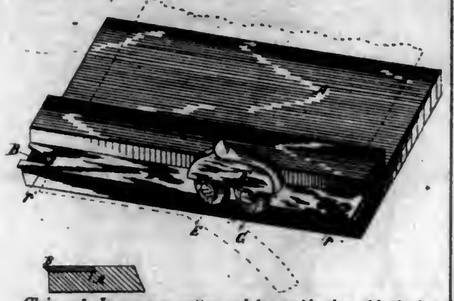
2. The combination, in a weather-board gage, with the base-strip and gage-strip vertically adjustable thereon, of an arm pivoted to the gage-strip and comprising an arm portion projecting below and above the pivot, the arm being reversible upon its pivot to bring either of said arm portions into position, substantially as and for the purpose set forth.

3. The combination, in a weather-board gage, with the base-strip and gage-strip vertically adjustable thereon, of a disk pivoted to the outer face of the gage-strip and carrying arms projecting in opposite directions and adapted to be brought into use when the disk is turned upon its pivot, substantially as and for the purpose set forth.

4. The combination, in a weather-board gage, with the base-strip having the retaining-plate and provided with a longitudinal groove in its outer face, of a gage-strip vertically adjustable thereon, and provided with a spur entering the groove and guiding the said strip during its vertical adjustment, and an arm pivoted to the outer face of the gage-strip and projecting above and below its pivot, substantially as and for the purpose set forth.

5. The combination, in a weather-board gage, with the base-strip having the retaining-plate and provided with a longitudinal groove in its outer face and with the knob at its lower end, of the vertically-adjustable gage-strip having the spur entering said groove to guide the strip during its adjustment, and the disk pivoted upon the face of the gage-strip and carrying the arm comprising the portions projecting above and below the disk, substantially as and for the purpose set forth.

318,556. DEVICE FOR TRIMMING WALL-PAPER. JOHN T. FRENCH, Taunton, Mass. Filed Feb. 6, 1884. (No model.)



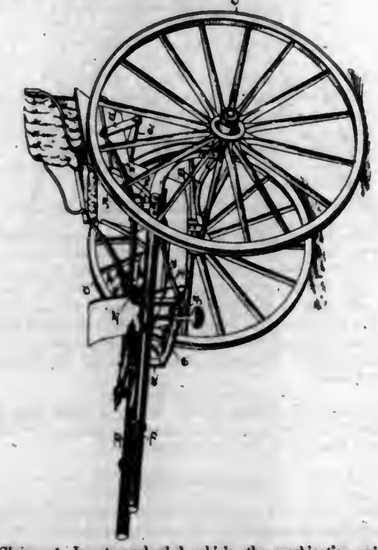
Claim.—1. In a paper-cutter, and in combination with the bed-plate and presser-bar, the rotary cutting-disk provided with a cylindrical portion or roller to engage the presser, substantially as described.

2. In a paper-cutter, the slotted and notched presser-bar, in combination with the fixed cutting-plate and holding-pins, substantially as described.

3. The fixed cutter and removable presser-bar, in combination with the cutting, guiding, and pressing rollers, substantially as described.

4. The presser-bar provided with a plate or ledge, in combination with the fixed cutter, the holding-pins, the flanged pressing-roller, and the cutting-disk, substantially as described.

318,557. TWO-WHEELED VEHICLE. THOMAS N. GARAGHTY, Templeton, Pa. Filed Jan. 12, 1885. (No model.)



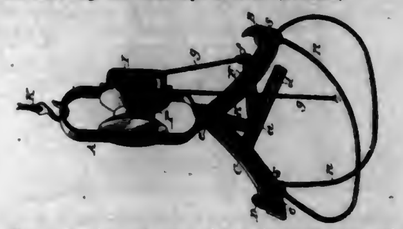
Claim.—1. In a two-wheeled vehicle, the combination, with the shafts, of springs pivoted upon the upper sides thereof, downwardly-extending plates pivoted to the rear ends of said springs and connected by a cross-bar, and intermediate connections between the forward end of the body and the springs, and means, substantially as described, for supporting the body in its proper relative position, as set forth.

2. In a two-wheeled vehicle, the combination, with the shafts, of springs pivoted upon the upper sides of said shafts, depending plates pivoted to the ends of said springs, bars connecting said plates, and straps connecting one of said bars with the body, and means, substantially as described, for supporting the body in its proper relative position, as set forth.

3. The combination, with the shafts, of springs pivoted upon the upper sides thereof and connected at their rear ends, springs arranged upon the under sides of the shafts and connected with the springs F at their forward ends, means, substantially as described, for limiting the downward movement of the rear end of the body, and intermediate connections between the forward ends of the springs and the body, substantially as set forth.

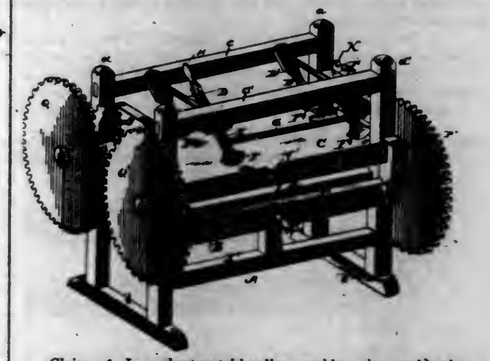
4. The combination, with the shafts, of springs pivoted upon the upper sides thereof, depending plates at the rear ends of said springs, a bar connecting said plates, depending plate at the forward end of said springs, a bar connecting the same, straps connecting said bar and the body, and springs secured to the under side of the shafts and pivotally connected with said bar, substantially as set forth.

318,558. HAY AND GRAIN UNLOADER. ROBERT M. GARDINER, Fredericksburg, Ohio. Filed Apr. 18, 1885. (No model.)



Claim.—In a hay and grain unloader, the combination, with the unloading-sling R, provided with terminal loops *s*, of the elevating-tackle A, having opposite hooked arms B C, the arm C, provided with the detaching-lever hook D, having slot *d*, the trip-lever E F, coacting therewith by the sliding pivot *a*, trip-rope *g*, and trip-pulley I, substantially as set forth, and for the purpose specified.

318,559. MACHINE FOR MAKING METALLIC ROOFING. FRANK A. GUTHRIE, Gallipolis, Ohio. Filed Sept. 30, 1884. (No model.)



Claim.—1. In a sheet-metal-bending machine, the combination, with the table, its supporting-frame, and means for clamping the metal against the table, of shafts carrying bending-knives, arranged in an upper and lower series and journaled in boxes, the boxes of the upper series being set out beyond the boxes of the lower series, and means, substantially as described, for operating the knives of each set, as set forth.

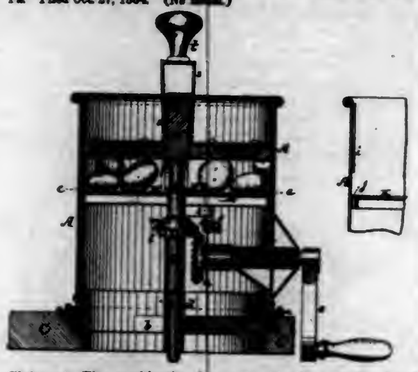
2. In a machine for bending sheet metal, the combination, with its supporting-frame, of the clamping-platform cut out or recessed at or near the corners to work between and fit around the posts of the frame, knives for bending the sheet metal, the shafts on which the knives are mounted, and arms or cams on the ends of the shafts and actuated by the movement thereof to bear against the projecting ends of the platform, as set forth.

3. In a sheet-metal-bending machine, the combination, with the table and its supporting-frame, of the platform, means for locking it down against the table, knives for bending the sheet metal, the shafts on which the knives are secured, a set of gearing to operate the shafts, and arms or cams carried by the latter to bear against the under side of the platform and elevate the latter after the knives have completed the successive operations, as set forth.

4. In a machine for making metallic roofing, the combination, with the table and its supporting-frame, of the platform carrying hooked rods at the sides, and hooked rods attached to the frame and adapted to interlock with the rods of the platform, as set forth.

5. In a machine for making metallic roofing, the combination, with the table and its supporting-frame, of the platform for clamping the metal against the table, devices for locking the platform down in position, shafts journaled in the supporting-frame at each side, one above the other, bending-knives secured to the shafts, gear-wheels mounted on the shafts, a pinion for imparting motion to the gear-wheels, and a crank-handle for transmitting motion to the pinion, as set forth.

318,560. VEGETABLE-SLICER. HENRY HASSENPFLUG, Huntingdon, Pa. Filed Oct. 27, 1884. (No model.)



Claim.—1. The combination, in a vegetable-slicer, of the disk E, having downwardly-extending vertically-slotted flange *g*, with the L-shaped knife F and screw *f*, said screw being parallel with the cutting-blade of the knife, substantially as described.

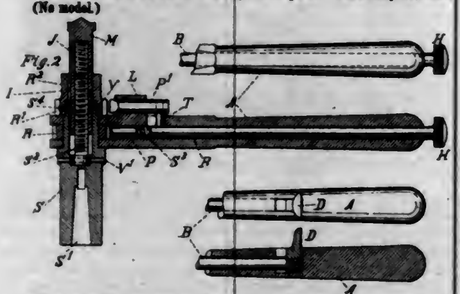
2. The combination, in a vegetable-slicer, of the disk E, having downwardly-projecting slotted flange *g*, and lateral extension A thereon, with the L-shaped knife F and screw *f*, substantially as herein shown and described.

3. The combination of the cylinder A, flanged ring B, shaft D, toothed wheel *l*, and conical cap *m* thereon, with the disk E, having L-shaped knife or knives F, and with the shaft G, having gear-wheel *n*, substantially as described.

4. The cylinder A, having ribs *i*, combined with the partition H, having clamp *pq*, and with the follower I and cutter-disk E, as specified.

5. The follower I, made in two parts which are connected by the strap *s*, in combination with the partition H, cylinder A, and cutter-disk E, substantially as herein shown and described.

318,561. RATCHET-DRILL. HENRY D. HINCKLEY, Hartford, Conn., assignor of one-half to Amos Whitney, same place. Filed May 23, 1884. (No model.)



Claim.—1. In a ratchet-drill, in combination, a handle, as A, a spindle, S, having a screw and nut, as S^2 and M, ratchet R, pawl F, ratchet R', pawl P', a thumb or hand piece, as H, and a suitable connection between said thumb or hand piece and said pawl P', substantially as and for the purpose set forth.

2. In a ratchet-drill of the class described, ratchet R', pawl P', connected to rod B, rod B, having a suitable thumb or hand piece, and a spring adapted to hold said pawl P' away from said ratchet, combined and operating substantially as described.

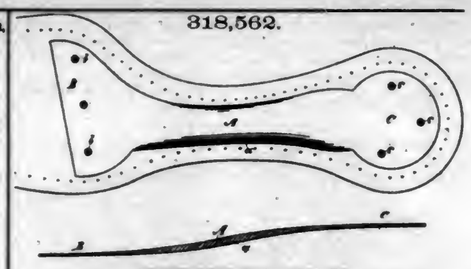
3. In combination, pawl P', connected to rod B, rod B, pawl P, and spring S^3, placed between said pawl P and rod B, substantially as described.

318,562. SHANK-STIFFENER FOR BOOTS OR SHOES. ADAM HUMMER, San Francisco, Cal., assignor of one-half to Michael Youngpeter, same place. Filed Mar. 20, 1885. (No model.)

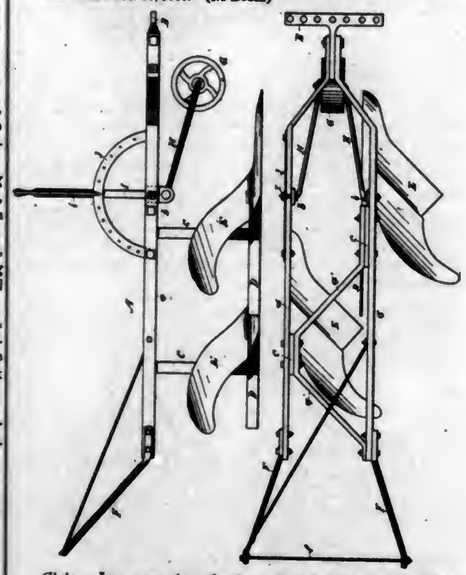
Claim.—1. A metallic shank for boots or shoes, having the front end made broad and thin, with its edges conforming to the lines of stitching for the sole, a centrally-thickened shank, and a circular rear end fitting within the heel, conforming in shape to the lines of stitching, substantially as herein described.

2. A metallic boot and shoe shank having its outlines conforming with the interior lines of stitching of the soles, the central portion being thickened, and the front and rear ends being drawn broad and thin and perforated with holes, by which they may be secured to the insole, substantially as herein described.

318,562.



318,563. VINEYARD GANG-PLOW. RASMUS B. JOHNSON, Fresno, Cal. Filed Feb. 18, 1885. (No model.)



Claim.—In a gang-plow, the frame A, the side bars of which are parallel, and have forward ends converging at the same angle and receiving the clevis between them, and the plow-bottoms E, secured one to each of the side bars of the frame, in combination with the wheel G, located under the front of and in the vertical plane of the central longitudinal line of the frame, the two-armed crank H, in which the wheel is mounted, the bearings A on the side bars of the frame, and the lever I, by which the crank is operated, substantially as and for the purpose herein described.

318,564. WIRE-NAIL STOCK. HORACE K. JONES, Hartford, assignor to the Russell & Erwin Manufacturing Company, New Britain, Conn. Filed Feb. 24, 1885. (No specimens.)

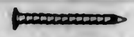
Claim.—The within-described nail-stock, consisting of a continuous metallic rod or wire having formed on its periphery throughout its entire length, for the purpose specified, a spiral rib whose upper face is approximately at right angles to the longitudinal center of said rod or wire.

318,565. WIRE-NAIL STOCK. HORACE K. JONES, Hartford, assignor to the Russell & Erwin Manufacturing Company, New Britain, Conn. Filed Feb. 24, 1885. (No specimens.)

Claim.—The within-described nail-stock, consisting of a continuous metallic rod or wire having its periphery throughout its entire length formed with barbs arranged concentric with said rod or wire, the upper face of each of said barbs being approximately at right angles to the line of wire, all for the object specified.

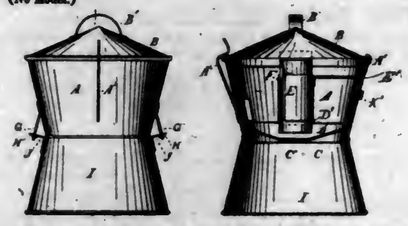
318,566. NAIL. HORACE K. JONES, Hartford, assignor to the Russell & Erwin Manufacturing Company, New Britain, Conn. Filed Feb. 25, 1885. (No specimens.)

318,566.



Claim.—As a new article of manufacture, a suitably headed and pointed drive-nail whose body portion is formed with a series of concentric barbs or cones, the end of said barbs or cones which confronts the head of the nail being approximately at right angles to the longitudinal center of said body, forming ratchet-teeth, substantially as described, and for the purpose specified.

318,567. ASH-SIFTER. CHARLES L. KIPP, Dilworthtown, assignor of one-half to Brinton J. Hampton, Leni Mills, Pa. Filed July 22, 1884. (No model.)



Claim.—1. A sifter having a concave bottom perforated centrally, a transverse sieve arranged above said bottom and provided with a central opening, a carrier or guide, and a tube supported thereby and adjustable through the sieve and onto the concave bottom, substantially as set forth.

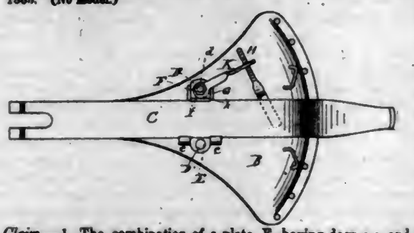
2. The combination, in a sifter with a concave perforated bottom and a transverse sieve having a central opening, of a carrier or guide and a tube supported thereby, and arranged and adjustable substantially as set forth.

3. The combination, in a sieve with the concave bottom and transverse sieve arranged above said bottom, both provided with concentric central openings, of a tube suitably supported and movable through the sieve and onto the bottom, substantially as set forth.

4. The combination of the sifter having rods G, provided with nuts H, with the receptacle having lugs J, formed with slots J', substantially as and for the purposes set forth.

5. The improved ash-sifter, substantially as herein described, consisting of the sifter-compartment A, provided with hook A' and latch A^3, the lid B, provided with handle B', the rods G, nuts H, the concave bottom C, perforated at C', the sieve D, having central opening, D', the carrier or guide, the tube F, formed with lug F', and the receptacle I, provided with lugs J, slotted at J', substantially as set forth.

318,568. VELOCIPEDE-SADDLE. JOHN KNOUS, Hartford, Conn., assignor to the Pope Manufacturing Company, same place. Filed Feb. 7, 1885. (No model.)



Claim.—1. The combination of a plate, E, having dogs *e e*, and a way, G, a slide-follower, F, operating in the way, and a cam-lever, K *k*, to operate the follower, essentially as set forth.

2. In a velocipede-saddle, and combined with mechanism for attaching it to and releasing it from a spring or perch, a detent, H, and a lever, K, with a spring and cam or equivalent mechanism, constructed and operating essentially as set forth.

318,569. LOCK-BUCKLE. MATTHEW W. LYNCH, Madison, Wis. Filed Oct. 14, 1884. (No model.)

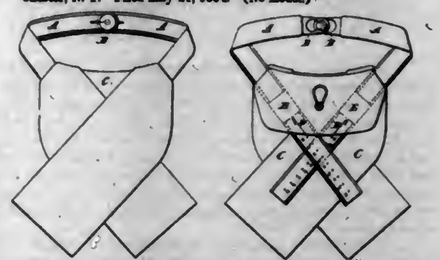


Claim.—1. The buckle-frame having the hollow bar and provided with the seat for the end of the tongue, in combination with the tongue and rotating locking-cylinder arranged within the hollow bar of the frame and adapted to confine the end of the tongue to its seat, substantially as described.

2. The combination of the buckle-frame having the hollow bar provided with the seat for the end of the tongue, and the locking-cylinder operating, when turned, to confine the end of the tongue, and having the lateral pin or stud projecting through the slot in the tubular bar and serving to prevent longitudinal movement of the cylinder, and also as a means for turning the cylinder in its bearings, substantially as described.

3. The combination, with the buckle-frame having recessed side bars, and the hollow end bar having the seat for the end of the tongue, of the tongue, the spring-seated pins working in the recesses of the side bars, and the rotatable locking-cylinder adapted to engage the end of the tongue, provided with the lateral perforations and sliding pins, and with the longitudinal key-slot, the whole constructed and arranged substantially as described.

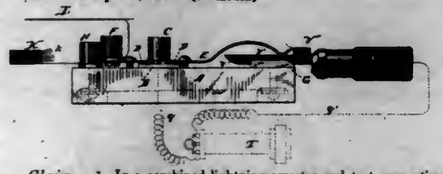
318,570. NECKTIE-FASTENING DEVICE. CLARENCE S. LYON, Port Chester, N. Y. Filed May 21, 1884. (No model.)



Claim.—1. The combination, with the shield C and means of adjustably securing a neckband thereto, of a neckband in two parts, each provided with button-holes at their rear extremities and with elastic sections to maintain the button-holes in place on the button and prevent the accidental unbuttoning of the neckband.

2. The combination, with a shield, C, and fastening means—as pins D—of a neckband in two parts, each part having button-holes at their rear extremities and both marked with measuring-divisions to insure the adjustment for size from the button-holes of both sides equally.

318,571. COMBINED LIGHTNING-ARRESTER AND TEST-CONNECTION. HENRY B. LYTLE, Boston, Mass., and JOHN A. MCCOY, Baltimore, Md. Filed Apr. 30, 1884. (No model.)



Claim.—1. In a combined lightning-arrester and test-connection, the combination, with two contacting and separable electrodes, of separate lightning-arresting devices connected with each and provided with means for connection to conductors, substantially as and for the purpose set forth.

2. The combined lightning-arrester and test-connections consisting of the non-conducting base, the ground-strip, the metal cross-springs in close proximity to but insulated from said strip, the metal shoes arranged to receive the pressure of said springs, the readily-fusible conductors connected to said shoes, and suitable devices for connecting said readily-fusible conductors to other conductors, substantially as described.

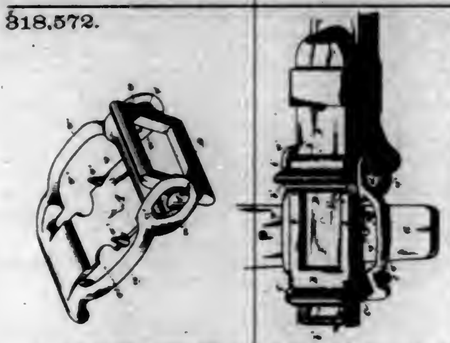
3. The combination, with the combined lightning-arrester and testing-connections having the ground-strip and ground-wire, contiguous metallic cross-pieces, and contact-plates therefor, of an electric testing-instrument having one terminal connected with said ground-wire and its other terminal adapted to be connected with either of said metallic cross-pieces or their contact-plates, substantially as described.

318,572. TRACE-BUCKLE. OGDEN MALLORY, Auburn, Cal. Filed Mar. 9, 1885. (No model.)

Claim.—1. A trace-buckle comprising the inner plate, A, the outer plate, B, the link C, pivoted in the rear end of the outer plate, embracing the trace and engaging the rear of the inner plate, and the link D, pivoted in the hame-tug and forward end of the outer plate and embracing said outer plate, substantially as herein described.

2. In a trace-buckle, the slotted inner plate, A, having slotted ears a^2 at its forward end, and the outer plate, B, having a lip, *b'*, and a tongue, b^2, at its forward end, in combination with the link C, pivoted in the rear end of plate B and in the rear of the slotted plate A, and the link D, having side bearing-lugs, *d*, loosely pivoted in the slotted ears of plate A, said link being pivoted in the hame-tug and adapted to fit over the lip *b'* of the plate B, substantially as herein described.

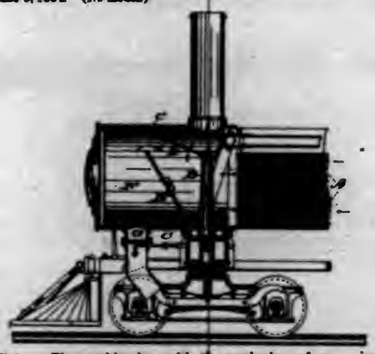
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3. A trace-buckle comprising the inner plate, A, formed with a depressed center or body portion, *a*, having tongues a^4 above and below, side portions, *a'*, forming guiding-slots a^3, and forward ears, a^2, having elongated slots a^2, the outer plate, B, formed with a lip, *b'*, and a tongue, b^2, at its forward end, and a socket, B^4, at its rear end, the link C, pivoted in socket b^4, and having cross feet or lugs *c*, adapted to pivot in the rear of the slots a^3 of plate A, and the link D, pivoted in the rear of the hame-tug, and having side bearing-lugs, *d*, pivoted loosely in the slotted ears of plate A, said link being adapted to fit over the lip *b'* of plate B, substantially as herein described.

4. A trace-buckle comprising the inner plate, A, formed with a depressed center or body portion, *a*, having tongues a^4 above and below, side portion, *a'*, forming slots a^3, and forward ears, a^2, having elongated slots a^2, the outer plate, B, formed with side flanges, *b*, a lip, *b'*, with a bed-groove, b^3, and tongue b^2 at its forward end, and a socket, b^4, and loop b^2 at its rear end, the link C, pivoted in the socket b^4, and having cross feet or lugs *c*, adapted to pivot in the rear of the slots of plate A, and the link D, pivoted in the rear of the hame-tug, and side bearing-lugs, *d*, pivoted loosely in the slotted ears of plate A, said link being adapted to fit over the lip *b'* of plate B and rest in the bed-groove b^3, substantially as herein described.

318,573. SPARK-ARRESTER. WILLIAM MEIER, Newark, N. J. Filed June 5, 1884. (No model.)



Claim.—The combination, with the smoke-box of an engine, of a spark-arrester consisting of a deflecting-plate, as E, extending from the bottom of said smoke-box near the boiler-tubes, and inclining forward and upward toward the top of the smoke-box, dividing said box into two divisions connected over the top of said plate, and a perforated deflecting-plate, as D, arranged between the smoke-stack and said deflecting-plate E, being secured to the top of the smoke-box forward of the smoke-stack, and extending backward and downward toward the boiler-tubes, which, together with the plate H, forms a pocket under the foot of the smoke-stack, said plate D being arranged at an angle to the plate E adapted to direct the sparks deflected against the same by the said plate E into the pocket F, substantially as set forth.

318,574. ADJUSTING DEVICE FOR ROLLS. ABSALOM N. MILLER, Pottstown, Pa. Filed Apr. 3, 1885. (No model.)

Claim.—1. As an improvement in tightening-down gear for roll-screws, the enlarged width given the key-way in the screw driving wheel, and filling out the space left between its sides and the main fixed key of the screw-neck with one or more loosely-fitted sub-keys proportionally divided relative to the pitch, respectively, of both gearing and screw, substantially as described, and for the purpose set forth.

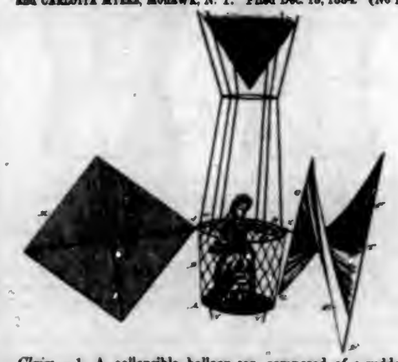
2. In combination with the usual tightening-down gear for screws

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of plate or bar rolls, a fixed key, C, in the neck of the screw, flanked on one or both sides with loosely-fitted sub-keys D E, the key-way in the hub of the neck-wheel being of a width adapted to receive both main and sub keys, the latter being made to vary in length and thickness, as described, and for the purpose specified.

318,575. GUIDING APPARATUS FOR BALLOONS. CARL E. MYERS and CARLOTTA MYERS, Mohawk, N. Y. Filed Dec. 18, 1884. (No model.)



Claim.—1. A collapsible balloon-car composed of a rudder-platform, A, surrounded by elastic netting B, suspended by an expansion-hoop, H, to which is attached a balloon by cords, and arranged to permit by changes in the aeronaut's position of such angular deviations in the level of the platform A that it may serve as a steering-rudder as well as a supporting-platform in the air, as specified.

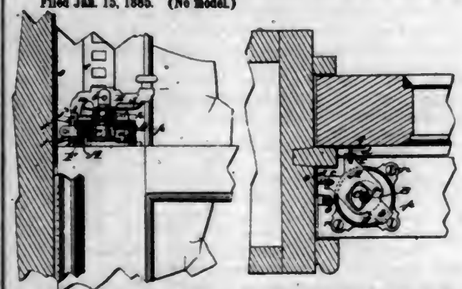
2. In combination with a balloon and the described balloon-car A B H, the described anchoring-spikes V, fitted with skew-nuts attached to the platform A, and operating as grappling devices by convergence of the several points when inserted in earth, or as anchoring-hooks when the balloon draws the platform along the ground, as specified.

3. An aerial screw-sail composed of a crank-shaft, D, having a fixed hub, T, and loose hub X, which extend yard-arms F F G G and support a loose sail-cloth, E, so that revolutions of crank-shaft D convert sail E into a helical form by air-pressure, and create rearward-flowing currents, which may serve to elevate, depress, or deviate the course of an attached aerial body, or give it steerage-way for guidance by a rudder.

4. In combination with a balloon-car or air-ship, the kite-shaped rudder K, described and shown, composed of a square of cloth stretched upon four arms joined by a common pivot at S, and having outward extension of one arm attached to the car or air-ship, as shown, by a universal joint, J, permitting the rudder to occupy any desirable position in horizontal, vertical, or inclined plane.

5. In combination with a balloon or other aerial support, the described platform-car A B H, to the front of which is attached the described screw-sail as a draft-propeller for creating rearward-flowing currents of air, and in rear of which is attached the rudder-kite K by a universal joint, J, so that rearward-flowing currents of air may strike the rudder-kite surface at any desirable angle, horizontal or vertical.

318,576. SASH-FASTENER. CHARLES W. NIDA, New York, N. Y. Filed Jan. 15, 1885. (No model.)



Claim.—1. In a sash-fastener, the combination, with a casing, of a bolt in said casing provided with an aperture, a spindle arranged to turn

in the casing and provided on its lower end with a cam and a plate below the cam, and a lever pivoted in the apex of said spindle and adapted to turn the spindle, substantially as herein shown and described.

2. In a sash-fastener, the combination, with the casing D, of the spindle B, the bolt A, the lever E, pivoted in the top of spindle B, and a spring, *j*, placed below the lever on said spindle, substantially as herein shown and described.

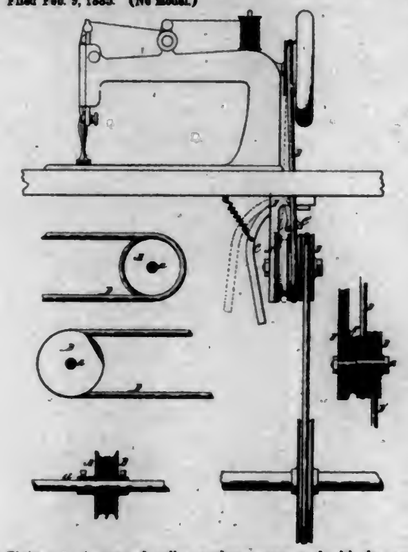
3. The slotted sliding bolt of the sash-fastener, having locking projections at its forward end at right angles, or thereabout, to each other, and provided with pivoted toothed catches arranged for independent operation in relation with the sash and window-frame, substantially as shown and described.

4. A bolt, A, provided at its forward end with angular projections *c*, a centrally-located slot or opening, *a*, and a guiding tail-piece, *b*.

5. The combination, with a casing, of a bolt, A, and catches *d*, provided with teeth on their forward and rear edges, substantially as shown and described.

6. The combination, with said bolt, spindle, and casing, of a lever pivoted in apex of spindle and provided with a button at one end for operating and a heel at the other acting as a pawl, a spring, and two perforated metallic racks attached and operating in the manner heretofore shown and described.

318,577. BELT-GEARING. WILLIAM A. OTTO, Cedar Rapids, Iowa. Filed Feb. 9, 1885. (No model.)



Claim.—1. A grooved pulley or sheave connected with the source of motion, and having one or more segments of one or both its flanges removed, whereby the belt may be shifted to and from an idle-wheel, substantially as shown and described.

2. An idle-wheel having a single flange, and a slight groove in its periphery to retain a round or analogous belt, and adapted to operate in connection with an active pulley having one or more segments removed from the flange adjoining the side of the idler devoid of a flange, substantially as and for the purpose set forth.

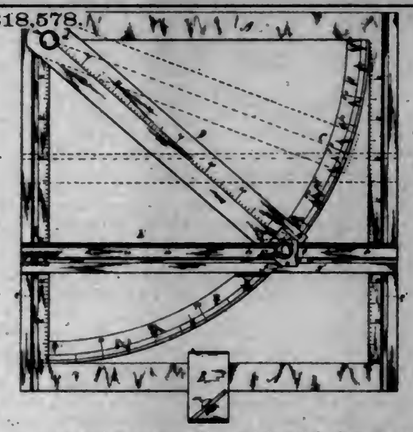
3. An active grooved pulley or sheave having one or more segments of flange removed, in combination with a loose or fixed idle-wheel having only one flange, said wheels being so arranged that their lesser faces are contiguous, substantially as and for the purpose set forth.

4. In combination with a belt-shifter, a grooved active pulley or sheave having one or more segments of flange removed, and an idle-wheel devoid of a flange on the side adjoining the active pulley, and the incomplete flange thereof, and all constructed, arranged, and operating substantially as and for the purpose set forth.

318,578. MECHANICAL TRAVERSE-TABLE. WILLIAM D. PATTERSON, Savonas Ferry, British Columbia, Canada. Filed Aug. 26, 1884. (No model.)

Claim.—1. A mechanical traverse-table consisting of the rectangular frame A, having its side or sides graduated, as described, and provided with longitudinal grooves *c'*, the arc C within it and graduated, as described, the swinging radial graduated arm D, playing over said arc, said arm having at one end a sight-aperture and at the other a set-screw to fix it where adjusted, and the graduated slide-bar E, having studs *e*, fitting grooves *c'* in the sides of the frame, all arranged and operating substantially as and for the purpose herein described.

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2. A mechanical traverse-table consisting of the frame A, having graduated sides, the graduated arc C, the pivoted swinging graduated radial arm D, and the graduated slide-bar E, traversing the frame at right angles, and having the adjustable reading-glass F upon it, substantially as herein described.

318,579. ARTIFICIAL DENTURE. LOUIS T. SHEFFIELD, New York, N. Y. Filed Aug. 12, 1884. (No model.)



Claim.—1. The within-described improvement in manufacturing artificial dentures, the same consisting in, first, forming a trial-plate of wax or equivalent material fitted to the mouth, applying the said plate to the mouth and mounting the artificial teeth thereon in proper articulation with the teeth of the other jaw, then investing the teeth and trial-plate and supporting-crowns in investment material, removing the plate, and connecting the teeth together, substantially as set forth.

2. In the manufacture of artificial teeth, fitting the supporting tooth-crowns to the roots and teeth in the mouth, preparing a cast thereof, making a mold from said cast representing the jaw, preparing a trial-plate of wax, fitting the said mold, mounting thereupon the artificial teeth which are to form the bridge, adjusting said artificial teeth upon said trial-plate by placing the said trial-plate in the mouth fitted with the supporting-teeth, thereby securing a proper articulation, and then investing the said bridge-teeth and the said supporting-teeth, together with the trial-plate, in the mouth and removing them together, substantially as described.

3. In the manufacture of artificial teeth, fitting the supporting tooth-crowns to the roots and teeth in the mouth, preparing a cast thereof, making a mold from said cast representing the jaw, preparing a trial-plate of wax, fitting the said mold, mounting thereupon the artificial teeth which are to form the bridge, adjusting said artificial teeth upon said trial-plate by placing the said trial-plate in the mouth fitted with the supporting-teeth, thereby securing a proper articulation, and then investing the said bridge-teeth and the said supporting-teeth, together with the trial-plate, in the mouth and removing them together, removing the wax, additionally investing the teeth sufficient to keep them in their relative positions, and then soldering the denture together, making a completed whole, substantially as described.

4. The within-described improvement in manufacturing artificial dentures, the same consisting in forming a model of the mouth in plaster representing the supporting-teeth or crowns in position, and adjusting thereto a temporary trial-plate of proper material, to which are attached the crowns and the dummy artificial teeth which form the bridge, for the purpose of obtaining a perfect articulation of the teeth of the opposite jaw without grinding, substantially as set forth.

318,580. ARTIFICIAL DENTURE. LOUIS T. SHEFFIELD, New York, N. Y. Filed Aug. 12, 1884. (No model.)

Claim.—1. The within-described improvement in the manufacture of artificial dentures, the same consisting in first forming a mold of both the upper and lower natural jaw and teeth and of material hardened

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around both jaws and teeth when the same are closed, and then forming casts of opposite sides of said mold and adapted to but separable from each other, and in then adjusting and fitting the dentures in relative position upon said casts, substantially as set forth.

2. In the manufacture of artificial dentures, first forming a mold by applying plastic material to both the natural jaws and allowing it to harden while the jaws are in their closed position; second, forming a cast from one side of said mold, third, forming a second cast from the opposite side of said mold, which fits a portion of the cast first formed; and, fourth, adjusting the artificial teeth in proper position upon said cast, and fitting and connecting them to the supports thereon, all substantially as set forth.

3. In the manufacture of artificial dentures, applying crowns to the supporting-teeth of the jaws, then forming a mold of both jaws by material hardened around the same while they are brought together, then removing the mold, with the crowns in position, and forming casts from opposite sides of said mold, and then securing the supports for the artificial teeth to the crowns and mounting the said teeth thereon, substantially as specified.

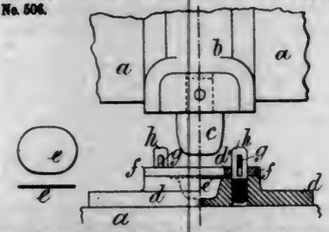
318,581. SUPPORT FOR ARTIFICIAL DENTURES. WASHINGTON W. SHEFFIELD, New York, N. Y. Filed Aug. 18, 1884. (No model.)



Claim.—1. The within-described improvement in the manufacture of artificial dentures, the same consisting in connecting metallic crowns adapted to the teeth by a bar extending over the alveolar ridge, attaching the said bar to a plate adapted to rest upon a portion of said ridge, and mounting the artificial teeth upon said bar, substantially as set forth.

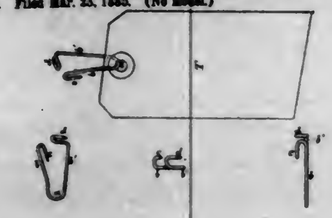
2. The combination, in an artificial denture, of attachments adapted to the natural teeth or roots, a bar supporting the artificial teeth connected to said attachments, and a plate adapted to rest upon a portion of the alveolar ridge attached to said bar, substantially as specified.

318,582. MACHINE FOR MAKING ELEVATOR-BUCKETS. SAMUEL S. STOTT and RICHARD BIRTWISTLE, Haslingden, County of Lancaster, England. Filed Mar. 10, 1885. (No model.) Patented in England Jan. 14, 1885, No. 506.



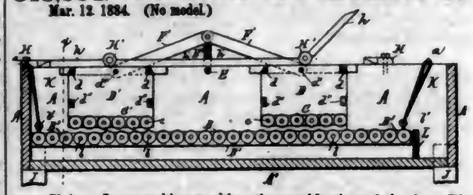
Claim.—In mechanism for striking up buckets from sheet metal, the recessed die *d*, in combination with the draw-plate *f*, having two openings, arranged one on each side of the central recess of the said die, two vertically-slotted detachable studs, *h*, which extend through the said openings of the draw-plate and screw into the body of the die, transverse tapering cotter-pins *g*, which pass through the slots of said studs and clamp said draw-plate to said die, and the solid reciprocating die *c*, which operates against the sheet of metal that is held by said draw-plate over the recess of die *d*, substantially as set forth.

318,583. TAG-ATTACHING DEVICE. JOHN W. TUTTLE, Watertown, Mass. Filed Mar. 23, 1885. (No model.)



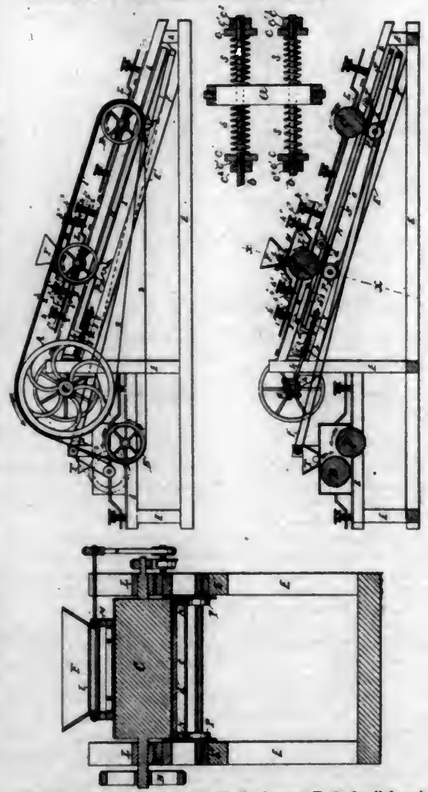
Claim.—As an improved article of manufacture, the tag attachment, substantially as set forth, consisting of a piece of wire bent at its middle in the form of an eye or hook, and having the prongs *b b'*, extending therefrom, terminating in hooks *c d*, one of which turns downwardly into or about into parallelism with the rest of the prong, and the other projects inwardly toward the first, and thence outwardly in an opposite direction, all being essentially as represented.

318,584. WASHING-MACHINE. JOHN O. WEBB, Knobel, Ark. Filed Mar. 12, 1884. (No model.)



Claim.—In a washing-machine, the combination of the bars B', provided with rollers B, and suspended from the tub-walls by elastic bands K K, the frames D *d d''* D' *d d''*, provided with rollers C C' and supported by means of the shafts *d' d'*, arranged to slide in recesses in the tub-walls, the toggle-bars F F', shaft E, having cranks E', the strips A A', having hinges H', and the buttons H, as for the purpose set forth.

318,585. GRAIN-REDUCING APPARATUS. ALBERT J. WILLIAMS, Hannibal, N. Y. Filed May 12, 1884. (No model.)



Claim.—1. In combination with the hopper F, feed-roll *l*, and the slide *m*, adapted to move freely to and from the feed-roll, the slide *m'*, arranged over the slide *m*, and the set-screws *n*, hand-wheels *n'*, and spring n^2, for controlling the slide *m'*, substantially as described and shown.

2. In combination with the grain-reducing roll and the hopper, a frame interposed between said parts, and a series of plates clamped detachably in said frame and disposed longitudinally and edgewise in relation to the roller, substantially as specified and shown.

3. In combination with the main frame of the machine, a reciprocating plate, a grain-reducing roller over said plate, the frame L, extended across the main frame and provided with journal-bearings for the aforesaid roller, springs *i i* interposed between said frames, set-screws holding the frame L on the springs *i i*, and springs i^2 i^2 interposed between the frame L and heads of the set-screws, substantially in the manner specified and shown.

4. In combination with the grinding-plate *d*, roller C, and its supporting-frame L, the frame M, mounted on the frame L, springs i^2 i^2 interposed between said frames, set-screws holding the frame M on the springs i^2 i^2, springs i^2 i^2 interposed between the frame M and heads of the set-screws, and the hopper mounted on the frame M, substantially as set forth and shown.

5. In combination with the reciprocating frame N, carrying sieves and corrugated plates, and the grain-reducing roller C, revolving with the upper portion of its periphery toward the head of the reciprocating frame, the endless belt O, arranged to convey the grain from the roller to the head of the aforesaid frame, substantially as described and shown.

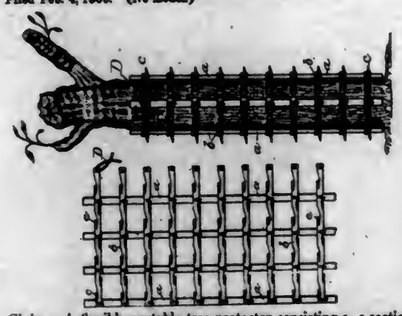
6. In combination with the reciprocating frame N, carrying sieves and corrugated plates, and the grain-reducing roller C, revolving with the upper portion of its periphery toward the head of the frame N, the endless belt O, arranged to convey the grain from the roller to the head of the aforesaid frame, and a brush or brushes attached to said belt, substantially as described and shown.

7. The combination of the reciprocating frame N, provided with the grain-reducing plate *d*, the supporting-rollers P P under said frame, and the grain-reducing roller C over the plate *d*, substantially as described and shown.

8. In combination with the reciprocating frame N, provided with the corrugated plates *d* and sieves S, the corrugated rollers C over the plates *d*, the chute *e* under the sieves, a set of co-operating grain-reducing rollers, D D, and a conveyer, *f*, extended from the foot of the reciprocating frame to the hopper of the rollers, substantially as described and shown.

9. In combination with the reciprocating frame N, provided with corrugated plates *d d*, corrugated rollers C C over said plates, and a set of grain-reducing rollers, the main driving-pulley A, pulleys B, B, and B', connected, respectively, to rollers C C and D, the belt 1, connecting the two pulleys B B, the belt 2, extended around the driving-pulley and farthest pulley B, and running thereat on top of the belt 1, and the belt 3, extending from the driving-pulley A to the pulley B', and running on top of belt 2 between the farthest pulley B and driving-pulley A, substantially as described and shown.

318,586. TREE-PROTECTOR. JESSE F. WILSON, Terre Haute, Ind. Filed Feb. 4, 1885. (No model.)



Claim.—A flexible portable tree-protector consisting of a section of slats and a series of flexible metal bands permanently secured to the outer surface of said slats and provided with barbs and with fastening devices for connecting the ends of the bands, in combination with removable keys for regulating the tension of the bands and holding the protector against displacement, substantially as described.

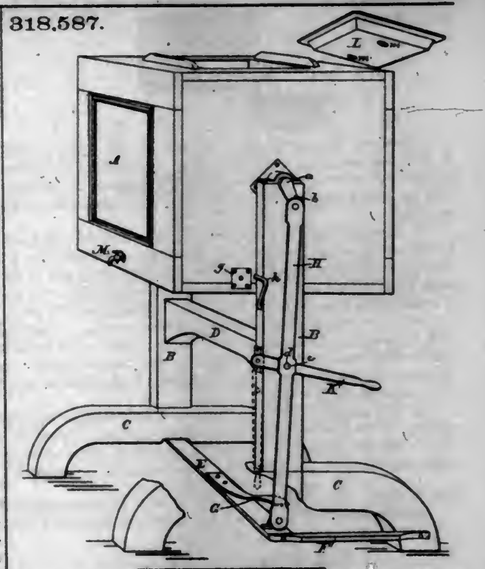
318,587. OSCILLATING CHURN. HENRY C. WINQUIST, Fairfield, Iowa. Filed Jan. 2, 1885. (No model.)

Claim.—1. In combination, a suitable supporting-frame, the oscillating body A, provided with the trunnions *a a*, crank *b*, connecting-rod H, having opening *d*, pivoted hand-lever K, provided with pin C, pivoted lever E, and spring G, substantially as described.

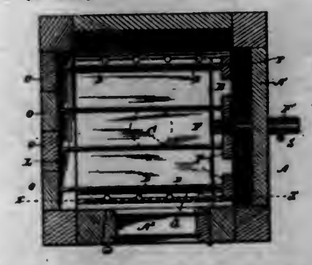
2. In oscillating churns, the combination, with a suitable supporting-frame, churn-body, and connecting-rod H, of the pivoted levers E and F, crank *b*, and a spring, G, on the upper surface of lever E, whereby a cushion is formed which prevents the too sudden stoppage of the body at the extremity of its oscillation.

3. The combination of the following instrumentalities: supporting-bars C C, uprights B B, brace-bar D, oscillating body A, trunnions *a a*, crank *b*, connecting-rod H, having the opening *d*, the pivoted hand-lever K, provided with pin *c*, the pivoted levers E and F, and spring G, to oscillate churn-bodies and analogous devices, substantially as described.

318,587.



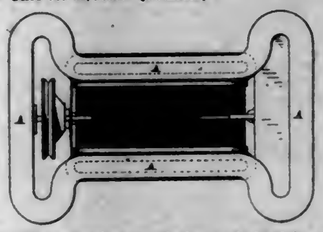
318,588. DRIER. CHARLES F. WOLF, Terre Haute, Ind. Filed Oct. 17, 1884. (No model.)



Claim.—1. The combination of the drying-chamber having the opening in its bottom plate for the ingress of heat and also the ventilation-openings, and the sliding heating-chamber provided with a discharge-pipe, and having the ventilating-openings in its flange corresponding with the ventilating-openings in the bottom plate of the main chamber, substantially as described.

2. The combination, with the drying-chamber, of the upper and lower horizontal guide-rods, the latter being supported at one end by the cross-bar L and having the shoulders arranged near the said cross-bar, and the sliding racks adapted, when drawn out to their fullest extent, to be supported in a horizontal position and prevented from sagging by means of the shoulders on the said guide-rods, substantially as described.

318,589. ELECTRIC MOTOR. LEONIDAS G. WOOLLEY, Kalamazoo, Mich. Filed Oct. 21, 1884. (No model.)



Claim.—In an electric motor, the base or body of the magnet having the outward curvatures or bends for the purpose of increasing the length of the magnet, the limbs of the magnet, and the posts or supports for the armature being formed upon its top, substantially as specified.

318,590. COMBINED MATCH-BOX AND CIGAR-CUTTER. CHARLES BARTENS, Orange, N. J. Filed Apr. 5, 1884. (No model.)

318,590.



Claim.—1. The combination of a match-box, A, having a cutter, B, projecting out of the box, with a cover, A', hinged to the box and provided with a side opening, C, and with a spring-plate, D, that forms with the cover a receptacle for the cut-off tips of the cigars, substantially as set forth.

2. The combination of a match-box, A, being provided with a cutter, B, secured to and projecting out of the box, a hinged cover, A', having a side opening, C, and an abutment, *d*, at the front part of the same, and a spring-plate, D, attached to the rear wall of the cover, and provided with a catch, *d'*, at the front end, substantially as set forth.

3. In a combined match-box and cigar-cutter, a cover, A', provided with a side opening, and a spring-plate attached at one end to the same and provided with a catch at its free end, so that the spring-plate can be bent to the outside of the cover for removing the tips collected in the cover, substantially as set forth.

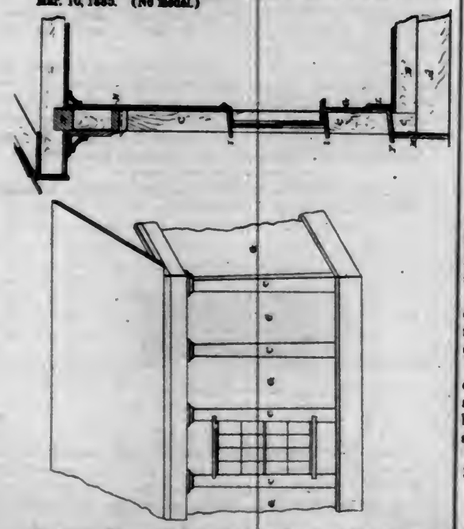
4. In a combined match-box and cigar-cutter, a cover having a side opening for the insertion of the tip end of the cigar, and a spring-plate that is attached at one end to the cover and adapted to rest by its opposite free end on an abutment of the cover, substantially as set forth.

318,591. CAR-COUPLING. HENRY T. BEAN, Palestine, assignor of two-thirds to William C. Jones and A. P. Woodworth, Robinson, Ill. Filed Nov. 22, 1884. (No model.)



Claim.—The combination of a hook-shaped pin, B, lying loosely within a draw-head, a key, C, pivoted to the draw-head under the pin B, and a draw-head provided with a rest to support the key, substantially as and for the purpose described.

318,592. FRAME BUILDING. LEWIS W. BEARD, Arcadia, La. Filed Mar. 16, 1885. (No model.)

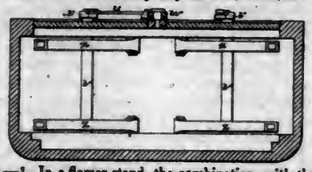


Claim.—1. The combination of the studding provided with grooves with the water-board, which is applied thereto, substantially as shown.

2. The combination of the studding having any plain or ornamental finish on their outer sides with the planking applied to their inner sides, the edges of the boards being beveled or matched, substantially as described.

3. The combination of the studding, grooved as shown, the water-board applied thereto, and the planking, which is applied directly to the inner sides of the studding, substantially as specified.

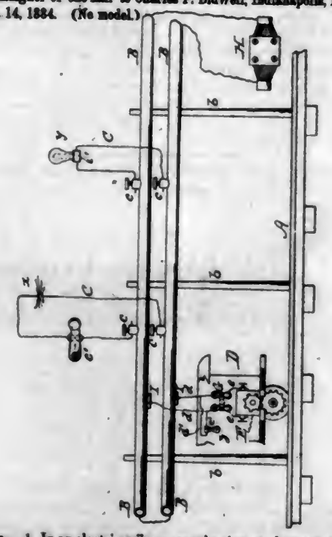
318,593. FLOWER-STAND. ROBERT H. F. BEHRENS, Hamburg, Germany. Filed Nov. 15, 1884. (No model.) Patented in Belgium Feb. 15, 1884, No. 63,926; in France Apr. 3, 1884, No. 159,866; in Spain May 5, 1884, No. 5,458, and in Germany May 23, 1884, No. 28,166.



Claim.—1. In a flower-stand, the combination, with the vertically-adjustable plate *a*, of the adjustable supporting-levers *x* and *y*, the latter being carried by shafts *v*, lever-arms *x* on the outside of the flower-stand, attached to the shafts *v*, and means for locking the levers *x* in different positions, substantially as set forth.

2. In a flower-stand, the combination of the adjustable plate *a*, the levers *z*, pivoted to the frame, the shafts *v*, provided with levers *y*, and arms *x* outside the frame, the rods *u*, the lever *w*, having slots *q* therein, and the pin *t*, for locking the adjustable plate and levers in any desired position, substantially as described and shown.

318,594. ELECTRIC RAILWAY. BENSON BIDWELL, Philadelphia, Pa., assignor of one-half to Charles F. Bidwell, Indianapolis, Ind. Filed Aug. 14, 1884. (No model.)



Claim.—1. In an electric railway, cars having an electromotor, a line circuit, movable circuit-connection between the line-circuit and said motors, a branch circuit in said movable circuit, and an electric lamp with switch mechanism in said branch circuit, substantially as shown and described.

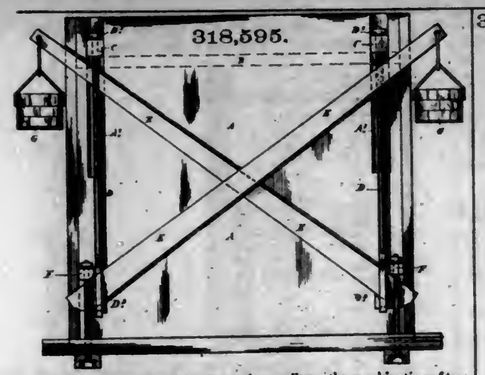
2. In an electric railway having a line-circuit and a movable circuit-connection between the latter and the cars, which includes an electromotor, a circuit breaker and closer, and a branch circuit including an electric lamp and switch, substantially as shown and described.

3. In an electric railway, the combination of line-circuit B B, generator H, branches C, having lamps and switch mechanism, brushes I, and car D, having electromotor E, switch G, circuit-connections *e d*, and branch circuit *d'*, including an electric lamp and switch, substantially as shown and described.

318,595. APPARATUS FOR COMPRESSING ENSILAGE. EDWARD T. BLUNT, Blaby Hill, County of Leicester, England. Filed Apr. 1, 1885. (No model.)

Claim.—1. In an apparatus for compressing ensilage, the combination, with a weighted lever, E, fulcrumed upon a fixed support, F, of a rod, D, or its mechanical equivalent, the length whereof is adjustable, substantially as and for the purpose specified.

318,595.



2. In an apparatus for compressing ensilage, the combination of two weighted levers, E, connected by screw-rods D, with the lid B, fulcrumed upon fixed supports F, and crossing each other approximately midway between said supports, substantially as specified, and shown in Fig. 1 of the accompanying drawings.

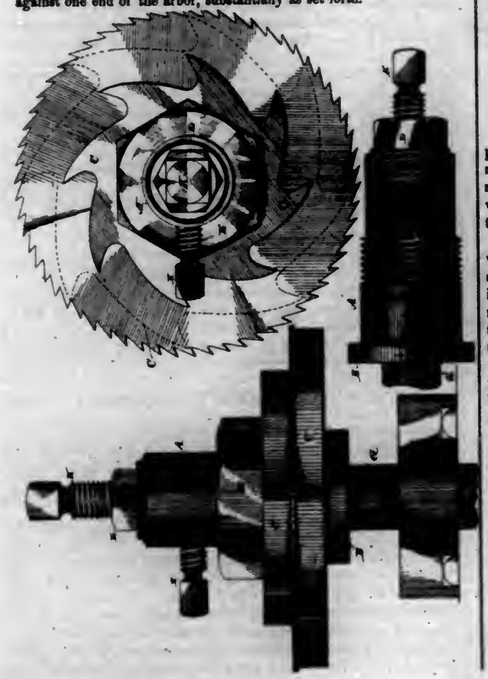
3. In an apparatus for compressing ensilage, the combination of two weighted levers, E, connected by screw-rods D, with the lid B, fulcrumed upon fixed supports F, located near together and extending in an upward and outward direction, substantially as specified, and shown in Fig. 2 of the accompanying drawings.

4. In an apparatus for compressing ensilage, the combination of four weighted levers, E, arranged in pairs, one pair in each side of the chamber or stack, each lever being independent of its fellows, but the whole adapted to act together upon the lid B, substantially as specified.

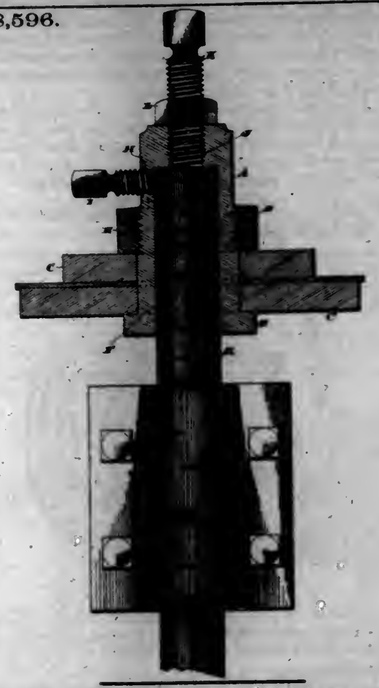
318,596. RABBETING CUTTER-HEAD. PARK A. BUELL, Stockton, Cal. Filed Jan. 7, 1885. (No model.)

Claim.—1. The combination, with a hollow cutter-head having a flange thereon, of a removable box for closing one end of said head, cutters, devices for locking the cutters on the head, and a set-screw for locking the head to the arbor, substantially as set forth.

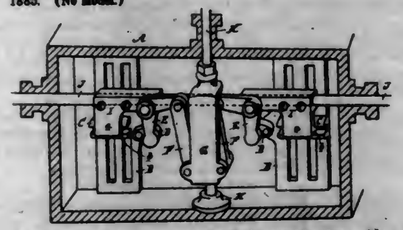
2. The combination, with hollow cutter-head having a flange thereon and a female screw-threaded end, of one or more cutters, a nut screwed onto the cutter-head for locking the cutters in position, a screw-threaded box removably secured in the screw-threaded end of the head, a set-screw for locking the head in the arbor, and a set-screw adapted to bear against one end of the arbor, substantially as set forth.



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318,597. CUT-OFF VALVE. HENRY BURTON, Port Huron, Mich., assignor to Wm. S. Jenks and Orrin L. Jenks, same place. Filed Jan. 2, 1885. (No model.)

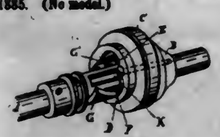


Claim.—1. In an automatic cut-off, the combination, with a single pair of independent valves, of a single valve-stem, by which they are moved simultaneously in the same direction, a steam-governor, and connections arranged within the steam-chest and operated by the governor, whereby said valves are moved in toward or from each other to control the amount of steam, as set forth.

2. In an automatic cut-off, the combination, with a single pair of valves, B B, serving to control the steam-ports of a steam-chest, of a valve-stem adjustably connected with said valves to move them simultaneously in either direction, a steam-governor, and connections, as described, arranged within the steam-chest and between the valves B B, whereby the said governor will serve to operate the valves in opposite directions to control the steam-supply, as set forth.

3. The combination, with the two valves B B, having guides C, the cross-heads I, and stem J, of the governor-standard G, bell-crank levers E E, and links F D, arranged and operating as and for the purpose set forth.

318,598. REVERSING-GEAR. HENRY BURTON, Port Huron, Mich. Filed Jan. 14, 1885. (No model.)

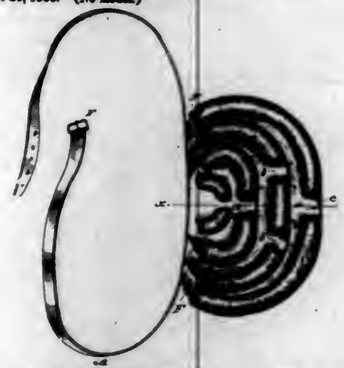


Claim.—1. In a reversing-gear, a sliding sleeve upon the shaft of the eccentric, operated by the reversing-lever, and having two spiral wedges inverse to each other upon its face, in combination with an eccen-

trie pivotally secured upon the shaft, and having an opening through it, through which the shaft and the spiral wedges pass, and of suitable size to oscillate the eccentric to effect the reversal by the operation of the spiral wedges upon the sliding sleeve directly upon the eccentric, substantially as and for the purposes described.

2. In a reversing-gear, the shaft A, having fixed collar B, the eccentric C, having pivot D, and opening E, the sliding sleeve F, having inverse spiral wedges G G', operating directly upon said eccentric, the reversing-lever H, operating the sliding sleeve, and the stop I, all combined, constructed, and operating substantially as specified.

318,599. BUSTLE. FREDERICK W. CROCKER, Macedon, N. Y. Filed Mar. 20, 1885. (No model.)



Claim.—1. As a new article of manufacture, a bustle the leaves of which are arranged one above the other, provided with padded pockets and flexible hinges between the padded pockets, for the purpose shown and described.

2. As a new article of manufacture, a bustle the leaves of which are arranged one above the other, with padded pockets, with flexible hinges between the padded pockets, and having a fullness or slack at the junction of each leaf with the belt, substantially as shown and described.

3. As a new article of manufacture, a bustle the leaves of which are arranged one above the other, with padded pockets, with flexible hinges between the pockets so arranged as to break joints, and having a fullness or slack at the junction of each leaf with the belt, substantially as shown and described.

4. In a bustle, the combination of the belt with several several series of padded pockets provided with flexible hinges between the padded pockets, each series being provided with a fullness or slack where joined to the belt, substantially as shown and described.

318,600. FIRE-ESCAPE. WILLIAM C. CROSSKEYES, Pittsburg, Pa. Filed Mar. 24, 1885. (No model.)



Claim.—1. The combination of the axle *a*, wheels *n*, and drum *m*, with the two arms *u w*, post *v*, ladder *f*, and the rope *q*, substantially as described.

2. The combination of the axle, the wheels *n*, the drum, and the arms *u w*, with the slotted post *v*, the slide *i*, rope *q*, ladder *f*, and the braces *k l*, substantially as set forth.

318,601. POST AND STAKE BAR. WILLIAM CRONK, Havana, N. Y. Filed May 24, 1884. (No model.)

Brief.—A tubular handle has a detachable point and an expander for opening the hole, fitted over which is an additional shell or enlarging-expander.



Claim.—1. In a post and stake bar, the combination of expanders C and *b'*, substantially as set forth.

2. The combination, with the expanders C and *b*, of the hollow handle *a*, substantially as set forth.

3. In a post and stake bar having detachable expanders, the combination, with the expanders C and *b*, of the detachable steel point *d*, substantially as set forth.

318,602. LABEL-HOLDER FOR FREIGHT-CARS. CHARLES W. CUSHMAN, Buffalo, N. Y. Filed Apr. 6, 1885. (No model.)



Claim.—1. The combination, with a car, of a label-holder or rack having two compartments, one above the other, each compartment opening at the top, and provided with a cover and with a spring for closing the same, substantially as shown.

2. A label-holder for freight-cars, having two compartments, one above the other, each compartment opening at the top, and provided with a hinged cover, an open space in front, and an opening at its lower edge to facilitate in the removal of cards from the rack, substantially as and for the purpose specified.

318,603. PROCESS OF SEPARATING BASIC COMPOUNDS FROM SLAGS. GOTTLIEB DEUMELANDT, Potsdam, Prussia, Germany. Filed Nov. 22, 1884. (No specimens.) Patented in Belgium Sept. 30, 1884, No. 66,351; in England Oct. 16, 1884, No. 12,595, and in France Dec. 10, 1884, No. in 165,857.

Brief.—The basic compounds are oxides, hydroxides, and carbonates of lime, magnesia, alumina, and iron.

Claim.—1. The process herein described of treating basic slag for utilizing the free bases contained therein, which consist, first, in treating the pulverized slag with a solution of ammonium salts and filtering off the dissolved lime, magnesia, and manganous oxide therefrom; second, in boiling the residue with a solution of ammonium salt and filtering off the dissolved alumina and ferrous oxide; third, in oxidizing and precipitating the dissolved salts of manganous oxide by introducing air into the ammoniacal solution; fourth, in precipitating the salts of calcium and magnesium dissolved by the introduction of carbonic acid; and, finally, in effecting the oxidation and precipitation of the ferrous oxide by introducing air in the presence of ammonia, substantially as set forth.

2. The process herein described of treating basic slag for separating the free bases contained therein, which consists in treating the pulverized slag at the boiling temperature with a solution of a suitable ammonium salt, filtering off the solution from the residue, and treating the filtered solution with a mixture of air and carbonic acid in the presence of ammonia to precipitate the dissolved oxides, substantially as and for the purpose set forth.

3. In the process of treating basic slag for utilizing the free bases contained therein, treating the ammoniacal solution containing the dissolved free bases with air and carbonic acid in presence of ammonia, so as to regain the ammonium salt originally employed, substantially as set forth.

318,604. BLAST-FURNACE TUYERE. WALTER B. DEVEREUX, Aspen, Colo. Filed Nov. 29, 1884. (No model.)

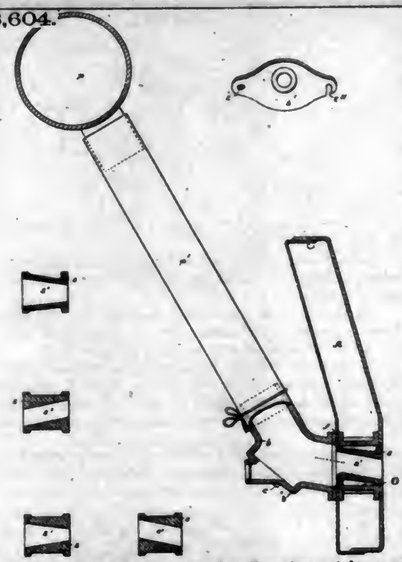
Claim.—1. A blast-furnace tuyere consisting of a removable sleeve fitting into a permanent opening in the side walls of the furnace, and arranged to be removed and replaced without disturbing the bonnet by a similar sleeve having an interior opening of a varying size, shape, or inclination, according to the pressure, quality, and direction of the blast desired.

2. In a blast-furnace tuyere, the combination, with a removable sleeve, of a bonnet or connecting-piece covering the tuyere-opening and connecting it with the supply-pipe, and having an opening in its side walls provided with a movable cover, said bonnet and cover being of such size and shape as to permit the removal of the sleeve without disconnecting said bonnet from the wall of the furnace, substantially as specified.

3. In a blast-furnace tuyere, the combination, with a removable sleeve, of a bonnet or connecting-piece surrounding the tuyere-opening and connecting it with the supply-pipe, and having an opening in its rear walls provided with a movable cover, said bonnet being of such shape and dimensions that the sleeve may be removed and replaced without substantially diverting the direction of the blast.

4. In a blast-furnace tuyere, the combination, substantially as hereinbefore set forth, of the permanent tuyere-opening in the side walls of the furnace, the movable sleeve fitting into the same, and capable of being

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replaced by interchangeable sleeves of various dimensions and shapes, and the bonnet or connecting-piece covering the tuyere-opening and connecting it with the supply-pipe, having an opening in its side walls provided with a movable cover, whereby the sleeve may be removed at pleasure without disconnecting said bonnet.

5. In a blast-furnace tuyere, the combination, substantially as hereinbefore set forth, of the permanent tuyere-opening in the side walls of the furnace, the movable sleeve fitting into the same and capable of being replaced by interchangeable sleeves of various dimensions and shapes, the bonnet or connecting-pieces covering the tuyere-opening and connecting it with the supply-pipe, having an opening in its side walls provided with a movable cover, and of such shape and size that the sleeve may be removed and replaced without sensibly diverting the direction of the air-current, and without disconnecting said bonnet, and the peep-hole in the movable cover, for the purposes specified.

6. A blast-furnace tuyere consisting of a sleeve fitting into a permanent opening in the side walls of the furnace, said sleeve having an inclined air-passage therethrough, and being arranged so as to be rotated in said opening as desired, thereby changing the direction of the air-passage, substantially as set forth.

318,605. PROCESS OF DEOXIDIZING IRON ORE. CHAS. J. EAMES, New York, N. Y., assignor to the Carbon Iron Company, same place. Filed Feb. 27, 1885. (No specimens.)

Claim.—The process herein described for the deoxidation, or deoxidation and carburization, of ore in the manufacture of iron sponge, wrought-iron, and steely iron, which consists in coating the lumps of ore with a graphitic paste, and then subjecting them to a dull-red sustained heat in a suitable furnace, substantially as and for the purposes specified.

318,606. PROCESS OF REDUCING IRON ORE. CHAS. J. EAMES, New York, N. Y., assignor to the Carbon Iron Company, same place. Filed Feb. 27, 1885. (No specimens.)

Claim.—1. The process herein described of producing iron sponge direct from the ore, which consists in intermingling the ore in its natural state with lumps of graphitic carbon, and subjecting the mixture in a reverberatory or other suitable furnace to a dull-red sustained heat until deoxidation is accomplished, substantially as and for the purposes set forth.

2. The process herein described, which consists in intermingling the ore in its natural state with lumps of graphitic carbon, subjecting the mixture in a reverberatory or other suitable furnace to a dull-red sustained heat until deoxidation is accomplished, and then to a higher sustained heat for a suitable short period to agglomerate the mass, so that the sponge can be balled and removed to the blooming apparatus for the production of wrought-iron, as hereinbefore described, or for a suitable longer period for the production of steelified iron, as described, substantially as and for the purposes set forth.

318,607. PROCESS OF MANUFACTURING WROUGHT AND STEELY IRON DIRECT FROM THE ORE. CHAS. J. EAMES, New York, N. Y., assignor to the Carbon Iron Company, same place. Filed Feb. 27, 1885. (No specimens.)

Claim.—1. The process herein described, which consists in charging the ore on a friable graphitic hearth, covering the charge of ore with a layer of lump-graphite, subjecting the charge to a dull-red sustained heat until deoxidation is accomplished, and then to a higher sustained heat for a suitable short period to agglomerate the mass so that the sponge can be balled and removed to the blooming apparatus for the production of wrought-iron, as hereinbefore described, or for a suitable longer period for the production of steel or steelified iron, substantially as described.

2. The process herein described, which consists in charging the ore mingled with lumps of graphitic carbon on a friable graphitic hearth, covering the charge with a layer of graphitic lumps, subjecting the charge thus formed, first, to the action of a dull-red sustained heat until deoxidation is accomplished, and then to a higher sustained heat short of the fusing-point of the metal for a suitable short period of time, for the production of wrought-iron, as hereinbefore described, or for a suitable longer period for the production of steelified iron or steel, as described.

318,608. FURNACE FOR THE MANUFACTURE OF SPONGE, WROUGHT-IRON, AND STEELY IRON DIRECT FROM THE ORE. CHAS. J. EAMES, New York, N. Y., assignor to the Carbon Iron Company, same place. Filed Feb. 27, 1885. (No model.)



Claim.—1. A deoxidizing-furnace for the treatment of ores, said furnace having a balling-hearth and a deoxidizing-hearth provided with a friable graphitic bottom, said hearths arranged in sequence, substantially as and for the purposes specified.

2. The combination, in a furnace for deoxidizing ores, of a feeding and drying chamber for preliminary treatment of the charge, and a deoxidizing-hearth having a friable graphitic bottom, substantially as and for the purposes specified.

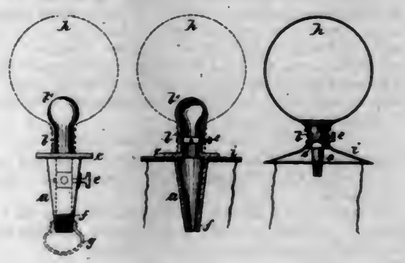
3. In a furnace for deoxidizing ores, the combination of a balling-hearth, a deoxidizing-hearth having a friable graphitic bottom, and a preliminary drying and feed chamber for receiving the fresh charge, all arranged in sequence, substantially as and for the purposes specified.

4. In a furnace for deoxidizing ores, the combination of a balling-hearth and a deoxidizing-hearth having a longitudinal bridge-wall, substantially as and for the purposes specified.

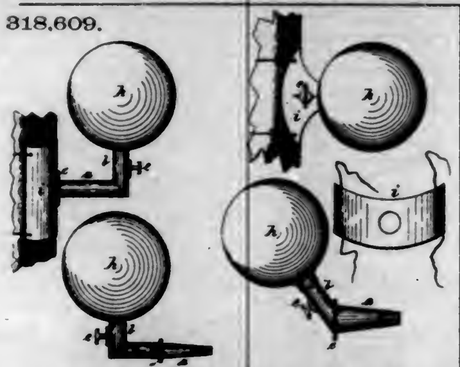
5. In a furnace for deoxidizing ores, the combination of a drying and feeding chamber, a deoxidizing-hearth having a longitudinal bridge-wall, and a balling-hearth, all arranged in sequence, substantially as and for the purposes specified.

318,609. INJECTING DEVICE FOR PLANTS. ANDRÉ R. ESCOURROU, Moux, France. Filed Oct. 30, 1884. (No model.) Patented in France Nov. 4, 1882, No. 151,877, and in England May 7, 1884, No. 7,386.

Claim.—1. An injector especially adapted for use in treating diseases of plants, consisting of a conical injector-nozzle screw-threaded at the smaller end to receive a rose-head and terminating at the other end in a nipple, a collar or flange arranged at a point intermediate of the nipple and screw-threaded portion, and a valve or stop-cock arranged in the passage of the nozzle and adapted to be manipulated to open or close said passage, in combination with an expansible receiver for the substance to be injected, connected with the nozzle at the nipple portion thereof, for the purposes set forth.



318,609.



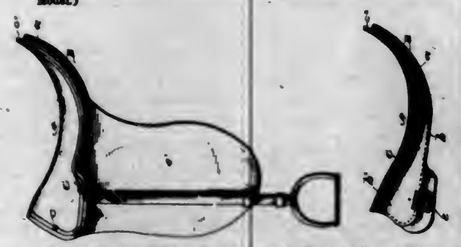
2. An injector especially adapted for use in treating diseases of plants, consisting of a conical injector-nozzle having at one end a nipple, a collar or flange arranged at a point intermediate of the nipple and small end of the nozzle, and a valve or stop-cock in the passage thereof, adapted to be manipulated to open or close said passage, in combination with an expansible receiver for the substance to be injected, and an apron arranged between the receiver and small end of the nozzle, as described, for the purpose specified.

3. An injector especially adapted for use in treating diseases of plants, consisting of a conical injector-nozzle terminating in a nipple at one end, a collar or flange arranged at a point intermediate of the nipple and the small end of the nozzle, and a valve or stop-cock in the passage thereof, adapted to be manipulated to open or close the said passage, in combination with an expansible receiver for the substance to be injected, and an apron integral therewith, formed around the orifice of the receiver, as described, for the purpose set forth.

4. An injector especially adapted for use in treating diseases of plants, consisting of an angular tapering nozzle terminating at one end in a nipple, a collar or flange intermediate of the nipple and the opposite end of the nozzle, and a valve in the passage of the latter, adapted to be manipulated to open or close said passage, in combination with an expansible receiver for the substance to be injected, applied to the nipple portion of the nozzle, as described, for the purpose set forth.

5. An injector especially adapted for use in treating diseases of plants, consisting of an angular tapering nozzle terminating in a nipple at one end, a flange intermediate of the nipple and small end of the nozzle, and a valve in the passage of the latter, adapted to be manipulated to open or close said passage, in combination with an expansible receiver applied to the nipple end of the nozzle, and an apron arranged between the receiver and small end of said nozzle, as described, and for the purpose specified.

318,610. RIDING-SADDLE. JOHN M. FISK, Louisville, Ky., assignor of one-half to Henry B. Feldhaus, same place. Filed Jan. 2, 1885. (No model.)

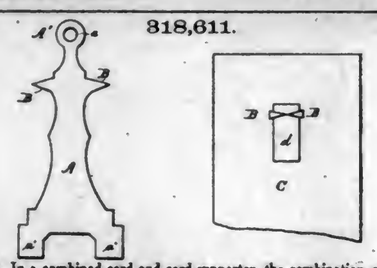


Claim.—The herein-described improved riding-saddle, consisting of the leather tree formed entirely of layers of leather sewed together, the leather seat-cover conforming to and secured over the tree by means of headed tacks at its forward end, and having the remainder secured by an adhesive substance, the seat-cover being extended beyond the edges of the tree to protect and hide the same, and projecting below the tree at the forward ends to cover the stirrup-connections, as described, and for the purpose set forth.

318,611. CARD AND CARD-SUPPORTER. GEORGE ST. J. H. FLOYD, New York, N. Y. Filed June 26, 1884. Renewed May 1, 1885. (No model.)

Claim.—1. In a combined card and card-supporter, the brace A, hanger A', perforation *a*, arms B B, and legs *a' a'*, all struck out in one piece from flexible sheet metal, as herein set forth.

318,611.

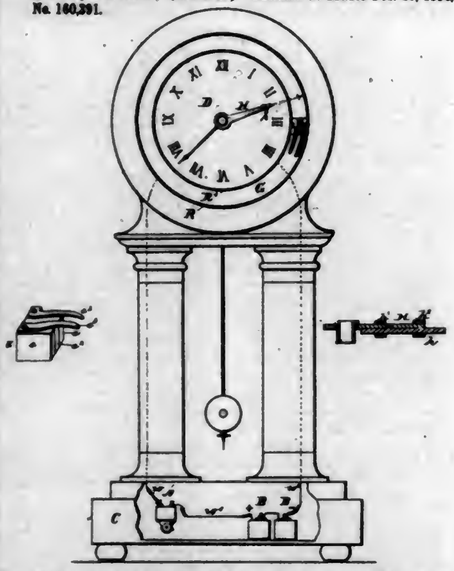


2. In a combined card and card-supporter, the combination of the brace A, hanger A', perforation *a*, arms B B, legs *a' a'*, and holes *c c*, as described.

3. In a combined card and card-supporter, the combination of the brace A, hanger A', perforation *a*, arms B B, legs *a' a'*, card C, holes *c c*, slot D, and sachet *d*, substantially as herein set forth.

4. As a new article of manufacture, the combined card and card-supporter, consisting of the card or other object, E, card C, holes *c c*, slot D, sachet *d*, brace A, legs *a' a'*, arms B B, hanger A', and perforation *a*, all combined and constructed substantially as herein set forth.

318,612. ELECTRIC ALARM-CLOCK. VICTOR GALLET, Brest, France. Filed Sept. 25, 1884. (No model.) Patented in France Feb. 19, 1884, No. 160,391.



Claim.—1. In a time-piece, the combination, substantially as described, with one of the hands thereof constructed to operate as a time-index and circuit-closer, or a time-index only, of an electric circuit the isolated terminals of which are arranged in and adjustable along the path of the said hand, and an alarm mechanism interposed in said electric circuit, for the purpose specified.

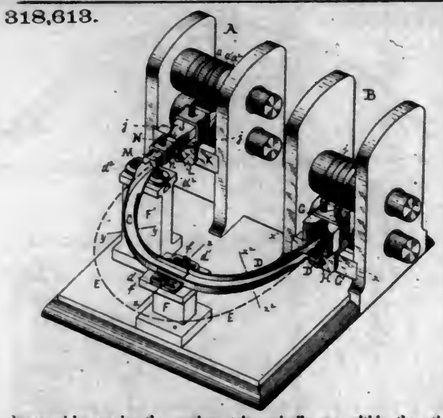
2. In a time-piece, an electric circuit having its terminals in the path of one of the hands of said time-piece and an alarm mechanism interposed in said electric circuit, in combination with one of the hands of the time-piece, constructed to be extended or lengthened and act as a circuit-closer, as described, for the purpose specified.

3. In a time-piece, the combination of the dial and two metallic rings arranged thereon, an electric circuit connected with the rings, and an alarm mechanism interposed in said circuit with contacts constituting the terminals of the circuit arranged to slide between the rings, and one of the hands of the time-piece constructed to be extended over the contacts or retracted therefrom, as described, for the purpose specified.

318,613. CONDUCTOR FOR WIRE-ROD MILLS. WILLIAM GARRETT, Pittsburg, Pa. Filed Jan. 15, 1885. (No model.)

Claim.—1. A guide for wire-rod rolls, consisting of a curved conductor formed of two or more sections having their meeting ends so shaped and telescopically united on a line at a sufficient angle with the line of the feed of the rolls as to enable the distance on a straight line between the adit and exit extremities of the conductor to be increased or

318,613.



decreased by moving the sections telescopically one within the other, substantially as and for the purpose specified.

2. The combination, in a conductor for wire-rod rolls, of the two curved sections C and D, the section C being capable of being telescoped or moved within the other section, substantially as specified, said section D being supported by a stand or support and adjustably attachable thereto, as and for the purposes described.

318,614. TAG-ATTACHING DEVICE. FRANK P. GUIDON, Franklin, Mass. Filed Feb. 14, 1885. (No model.)



Claim.—An improved tag-attaching device consisting of a wire bent to form an eye, E, a straight portion, A, an eye, D, and a loop, B, terminating in a free end hook, C, adapted to interlock with the eye D, all substantially as set forth.

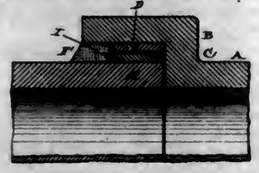
318,615. CHAIN-PUMP BUCKET. WILLIAM P. HARRISON, Columbus, Ohio. Filed Dec. 6, 1883. (No model.)



Claim.—1. The conical screw-threaded shank A, having four series of projections, a^2, arranged in rows thereon, in combination with loops A' and A^2 and washer or disk B, substantially as and for the purpose described.

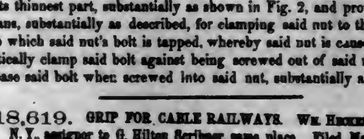
2. The combination of the rubber bucket C with the conical screw-threaded shank A, having projections a^2, and flanges *b* and *b'* integral therewith, and internal washer or disk, B, substantially as and for the purpose described.

318,616. JOINT FOR PIPES FOR WATER, GAS, ELECTRIC WIRES, &c. WILLIAM HASSALL, Boston, County of Nottingham, England. Filed Aug. 1, 1884. (No model.) Patented in England Mar. 4, 1884, No. 4,357.



Claim.—The combination of a pipe-section provided with a straight socket having a square shoulder at its inner end, a ring within said socket concentric therewith, a spigot-section provided with an exterior ring adapted to fit within the socket-ring, the inner edge of said spigot-ring being beveled opposite the straight face of the socket-ring, and a ring or band of cement within said socket above said rings, substantially as described.

318,617. INK-FOUNTAIN FOR PRINTING-PRESSES. JOHN T. HAWKINS, Taunton, Mass. Filed May 23, 1884. (No model.)



Claim.—1. In an ink-fountain, in combination with a film-regulating blade, as D, cheek-pieces, as E, adjustably secured thereto by grooves, as at *g*, and constituting the ends of the ink-reservoir forming part of said fountain, substantially as and for the purpose set forth.

2. In an ink-fountain, in combination with a film-regulating blade, as D, having cheek-pieces, as E, adjustably attached to it, a back-piece, as B, adjustably attached also to said cheek-pieces, and having adjustable plates, as B', for adjusting its length, substantially as and for the purposes set forth.

3. In an ink-fountain, in combination with a film-regulating blade, as D, having cheek-pieces, as E, adjustably attached thereto, an ink-roller, as R, having adjustable collars, as *c*, to hold said cheek-pieces in contact with the ends of the ink-surface of said roller, substantially as and for the purposes set forth.

4. An ink-fountain consisting of an ink-roller, as R, having adjustable collars, as *c*, an adjustable film-regulating blade, as D, secured in position by pins, as B^2, having adjustably attached thereto cheek-pieces, as E, and a back-piece, as B, having adjustable plates to vary its length, as B', the whole being interadjustably carried in a base-piece or frame, as A, and operating substantially as and for the purposes set forth.

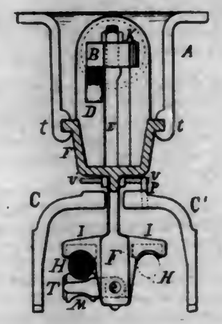
318,618. FRICTIONAL LOCK-NUT. JOHN T. HAWKINS, Taunton, Mass. Filed Sept. 12, 1884. (No model.)



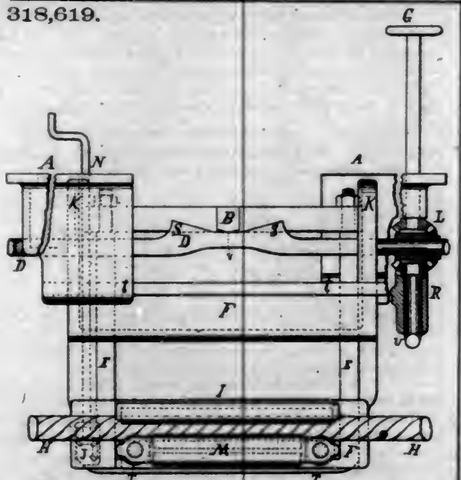
Claim.—1. A frictional check-nut or lock-nut having a threaded bore slotted on one side, and provided with an offset and pin, as E, for entering into a hole in the material into which said nut's bolt is tapped, substantially as and for the purposes set forth.

2. A frictional check-nut or lock-nut having a threaded bore and its material surrounding said bore graduated to vary in thickness, slotted at its thinnest part, substantially as shown in Fig. 2, and provided with means, substantially as described, for clamping said nut to the material into which said nut's bolt is tapped, whereby said nut is caused to automatically clamp said bolt against being screwed out of said nut, and to release said bolt when screwed into said nut, substantially as set forth.

318,619. GRIP FOR CABLE RAILWAYS. WM. HENKERT, Yonkers, N. Y., assignor to G. Hilton Scribner, same place. Filed Mar. 21, 1885. (No model.)



318,619.



Claim.—1. The brackets A A, fixed to the car, with slides *t t* for receiving the frame F and shaft D, all constructed as and for the purposes specified.

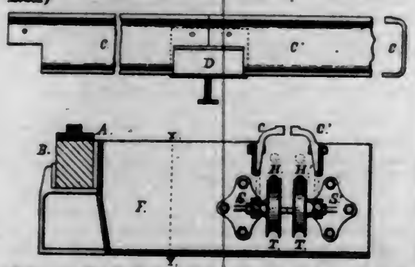
2. The frame F, with fixed jaws I I, in combination with bars E E, having changeable jaw M, pivoted on shaft *e*, to move through the upper arc of a circle, as and for purposes specified.

3. The brackets A A, frame F, reversible jaw M, operated by gears J, and shaft N, constructed as and for purposes specified.

4. The shaft D, with combined crank and inclines S S, for regulating degree of grip, in combination with girt B, bars E E, and reversible jaw M, as and for purposes specified.

5. The shaft D, gears L, shaft, and hand-wheel G, in combination with shaft R and arms V V, to be operated by fixed stops P, as and for purposes specified.

318,620. CABLE RAILROAD. WM. HECKERT, Yonkers, N. Y., assignor to G. Hilton Scribner, same place. Filed Mar. 27, 1885. (No model.)



Claim.—1. The tie D, having formed on it the brackets E E', for supporting the ends of the tube-sections C C', and forming the bottom and part of the sides of said tube, as and for purposes specified.

2. The tie D, with its bearings, to support sleepers B B' and brackets E E', in combination with the tube-sections C C', interlocking and bolting together in ready-made interchangeable sections made as and for purposes specified.

3. The sectional tubes C C', formed by casting or rolling, and having their ends so shaped as to interchange and fit on either of the ties D or F, forming a continuous tube, as represented, and for purposes specified.

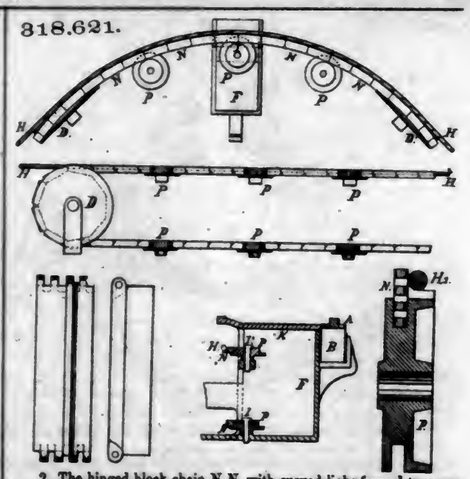
4. The box-tie F, forming a bearing for the timbers B B', and adjustable brackets S S', and provided with a lid or doors, K, and bearings for the tube-sections C C', as and for purposes specified.

5. The tie F and adjustable brackets and wheels S S' T T, arranged to carry two cables, said tie acting as a receptacle for snow, water, and dust swept from tubes, as fully specified.

318,621. MEANS FOR SUPPORTING TRACTION-CABLES ON CURVES. WM. HECKERT, Yonkers, N. Y., assignor to G. Hilton Scribner, same place. Filed Mar. 27, 1885. (No model.)

Claim.—1. A chain formed of hinged curved links, with the joints working in but one direction from direct line, and having the sides or edges of links curved to the arc of a circle and provided with flange or groove in which a cable may move, as and for purposes specified.

318,621.



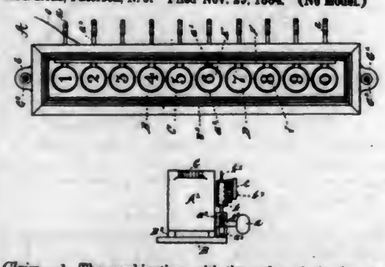
2. The hinged block-chain N N, with curved links formed to move over pulleys set in the arc of a circle, rotating in vertical or horizontal planes, and provided with flange or groove in which a cable or cables may ride, in combination with pulleys P P and D D', constructed as and for the purposes specified.

3. The box-tie F, provided with pulleys P P, for supporting chain N N and cable H, as and for the purposes specified.

4. A section of a movable guide to carry a cable or belt around a curve, consisting of a block or plate formed to a section of said curve.

5. A movable guide for carrying cables or belts around curves, consisting of a number of curved sections hinged together, forming a continuous chain.

318,622. BARBER'S TURN-INDICATOR. WILLIAM J. HOLT and JOSEPH HOLT, Paterson, N. J. Filed Nov. 29, 1884. (No model.)



Claim.—1. The combination, with the series of circular plates D, having figured disks H, said disks provided with either figures, letters, or dots, and blank disks E, with the spindle *a'*, having cranks a^3, to engage cams k' k^3 to reverse the circular plates D, the spindle having thumb-pieces *a*, for turning the plates D, with collars F'', of the cams k' k^3, for extending the plates, and band *k*, for carrying said cams, with frame A', substantially as described, and for the purpose set forth.

2. The combination, with the band *k*, carrying cams k' k^3, of the pulley *b*, having a ratchet-wheel, with pulley *b'*, for actuating the band *k*, with lever *c*, having pawl and spring for actuating said ratchet-wheel and pulleys, with cord *o*, for operating the lever *c*, and spring *f*, with rib *h*, plate *n*, screw-pins b^2 b^3, molding B', projection B^2, with lugs G G, for securing the device, and stop-pins for stopping the plates, substantially as described, and for the purpose set forth.

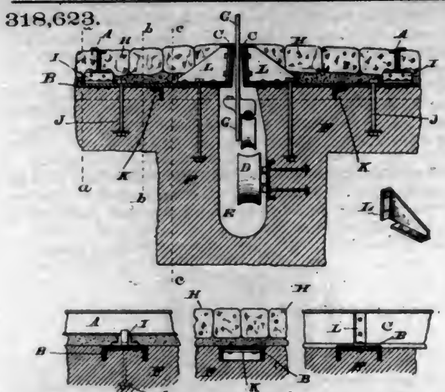
318,623. CONCRETE TUBE FOR CABLE RAILWAYS. JOHN D. ISAACS, Oakland, Cal. Filed Aug. 25, 1884. (No model.)

Brief.—Channel-iron sleepers have cross-keys which enter the concrete and anchor the sleepers. The slot-irons are secured by gusset or knee irons attached to the tops of the sleepers by fastenings, some of which are anchored in the concrete.

Claim.—1. In concrete tubes for underground cable railways, in combination with the sleepers B B and slot-irons C, the key-piece K, firmly secured to said sleepers and embedded in the concrete, substantially as and for the purpose described.

2. In underground tubes for cable railways, the combination of the sleepers B, slot-irons C, and thin plate-metal gusset-piece L, substantially as and for the purpose described.

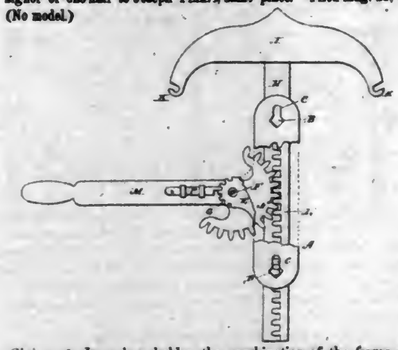
318,623.



3. In concrete tubes for cable railways, the combination of the sleepers B, slot-irons C, rails A, and key-piece K, substantially as and for the purpose described.

4. In underground tubes for cable railways, the combination of the slot-irons C and gusset-piece L, suitably anchored directly or indirectly to the material forming the tubes, substantially as and for the purpose described.

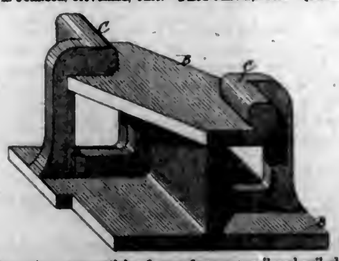
318,624. BAG-HOLDER. ISAAC B. JENNINGS, McPherson, Kans., assignor of one-half to Joseph Finkle, same place. Filed Aug. 23, 1884. (No model.)



Claim.—1. In a bag-holder, the combination of the frame-plate adapted to be suspended from or secured to a suitable support, and which is provided with suitable guiding-loops, a single standard, H, which passes through the loops, and is provided at its upper end with the bag-holder, and with teeth formed upon one of its edges, and an operating-lever having a toothed segment engaging with the teeth on the standard, substantially as shown.

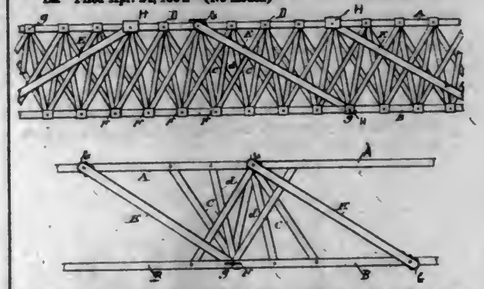
2. The plate A, provided with a projection and rack-teeth, means for securing said plate in place, and loops D, in combination with the standard H having rack-teeth L, bag-holder I, secured to said standard, lever M, having toothed segment N, said lever being pivoted to the projection of the plate, and a bolt, P, secured to the lever and engaging with the rack-teeth G, substantially as described.

318,625. RAILROAD-RAIL CHAIR FOR CLAMPING THE RAILS. TOM L. JOHNSON, Cleveland, Ohio. Filed June 2, 1884. (No model.)



Claim.—As a new article of manufacture, a railroad-rail chair made of cast metal, consisting of a horizontal base provided with vertical angle-webs and diagonally-placed lugs above said webs, for clamping the base-flanges of the rails and securing the rails in track, substantially as set forth.

318,626. TRUSS FOR ROOFS OF BRIDGES. JOHN H. JONES, Clio, La. Filed Apr. 24, 1884. (No model.)



Claim.—1. The braces C C *d d*, in combination with the braces E E and chord B, having slots F, for the purpose set forth.

2. The braces E E, in combination with the saddles H and chords B, having slots F.

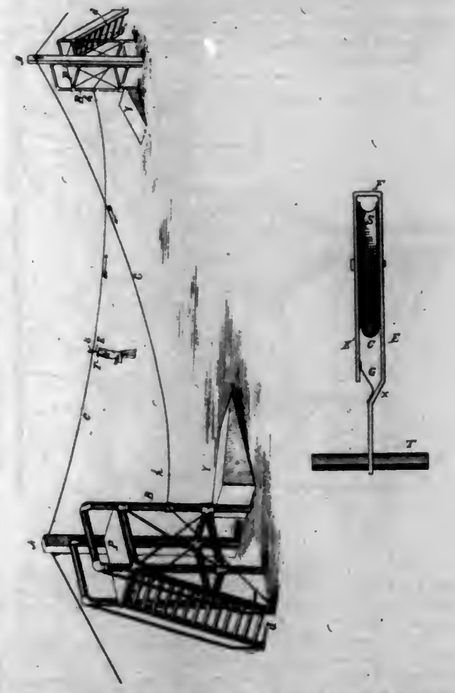
3. The braces C C *d d*, in combination with the braces E E, saddles H, and chord B, provided with slots F.

4. The braces C C *d d*, in combination with the caps D D, approximately flush with the chords, and chords A B.

5. The chord B, having slots F, in combination with the braces C C E E *d d*, caps D D, and pins *g g*.

318,627. ELEVATED CABLE GRAVITY-ROAD. WILLIAM N. KELLER, Philadelphia, Pa., assignor to himself, Lorin T. Hibbs, and George R. Callahan, all of same place. Filed May 13, 1884. (No model.)

Brief.—Two oppositely-inclined cable-ways upon which travels a revoluble sheave having an attached rigid hand-bar. Platforms are located near the lower ends of both cables and stairways and elevated landings at the highest or starting level.



Claim.—1. In combination with the two adjacent oppositely-inclined cables, the platform Y, located near the lower end of the cables, respectively, and beneath the same, and inclined in a direction opposite to that of the inclination of the cable, substantially as and for the purpose specified.

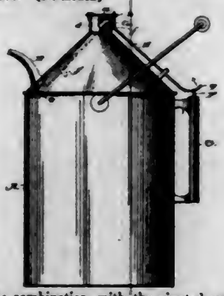
2. In combination with the inclined cables, the revoluble sheave or

pulley, adapted to run upon a cable, its frame consisting of two lateral limbs, both extending below the sheave and unconnected, so as to form a passage-way for the cable, together with the rigid hand-bar, substantially as described.

3. The combination of the revolvable sheave, its frame, and the rigid hand-bar, substantially as and for the purpose specified.

4. The combination, with the sheave and its frame composed of the two limbs unconnected, as shown, of the spring H, pivoted lever L, connecting-rod *r*, and spring G, substantially as and for the purpose specified.

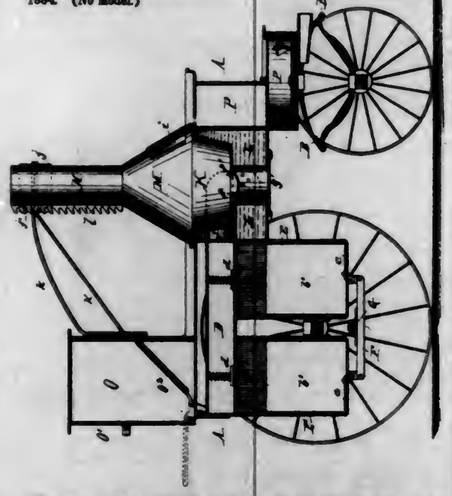
318,628. OIL-CAN. DAVID M. KIRKPATRICK, Kansas City, Mo., and MELVIN J. FRENCH, Preston, Iowa; said Kirkpatrick assignor to said French. Filed Jan. 13, 1885. (No model.)



Claim.—1. The combination, with the pivoted arm E, having the arm G, a disk on the lower end of said arm E, of the spring-hinged cap having the arm *b*, and a spring connecting the outer end of the arm E with the can, substantially as described.

2. The combination, with an oil-can, of a lever bent at about its center to form an eye or loop, a disk on the lower end of said lever, forming a check-valve, a bracket for limiting the downward movement of the lever, a spring connecting the outer end of the lever with the can, a spring-hinged cap, a short arm on the same, and an arm on the lever connected therewith, as set forth.

318,629. PORTABLE FORGE. AUGUST KÖHS, Brooklyn, N. Y., assignor to himself and George L. Bergheim, same place. Filed Aug. 16, 1884. (No model.)



Claim.—1. The combination of a wheeled body having a wind-chest and bellows at the rear part and a hearth at the front part, said hearth being connected with the wind-chest by an air-channel, substantially as set forth.

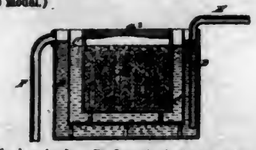
2. The combination, with a portable furnace, of an upright chest having a hinged working-bench and hinged rear and side walls, the latter being adapted to be thrown sidewise of the forge to protect the same against the wind, substantially as set forth.

3. The combination, with a wheeled vehicle, of a bellows and wind-chest at the rear part thereof, a hearth at the front part thereof, connected with said wind-chest, a vertically-adjustable hood and smoke-pipe, and a thimble attached to bracket-rods, for supporting said hood and smoke-pipe, substantially as set forth.

4. The combination, in a portable forge, of the bellows, a fulcrumed lever connected therewith, a handle for operating said bellows, and a retaining socket and chain attached to the upper part of the forge for supporting said handle, substantially as set forth.

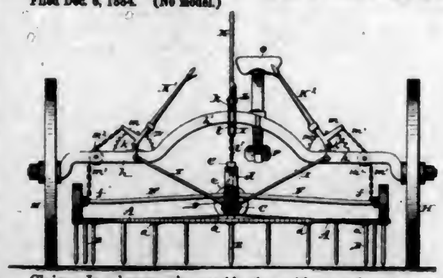
5. The combination, in a portable forge, of the hearth, a water-chamber surrounding the walls of the hearth, and a storage-chamber arranged in front of the water-chamber and provided with hinged doors or covers, substantially as and for the purpose set forth.

318,630. METHOD OF MAKING HARD SUGAR FROM SOFT SUGAR. OTTO H. KRAUSE, Jersey City, N. J., assignor to the F. O. Matthiessen & Wiechers Sugar Refining Company, same place. Filed Apr. 21, 1885. (No model.)



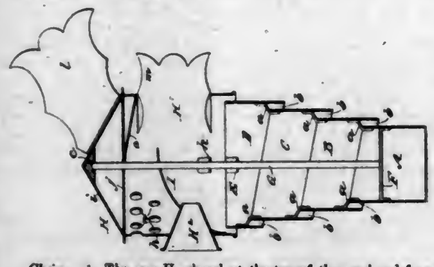
Claim.—The herein-described method of promoting the uniform and rapid crystallization of sugar from a more or less highly concentrated hot white-liquor contained in the interstices of cakes made of lightly-compacted soft sugar or granulated sugar, the same consisting in immersing said cakes, after they have been charged with the said hot white-liquor, in a concentrated cold white-liquor, substantially as set forth.

318,631. ROTATING HARROW. HIRAM H. LADD, Fremont, Nebr. Filed Dec. 6, 1884. (No model.)



Claim.—In a harrow, the combination, with an axle, a beam depending therefrom, arms projecting from the beam, and rollers journaled on said arms, of a horizontally-rotating harrow pivoted to the beam, a lever pivoted to the axle and connected to the beam, and levers pivoted to the axle and connected with the projecting arms, substantially as set forth.

318,632. CHIMNEY-COWL. IRA G. LANE, New York, N. Y. Filed Apr. 2, 1885. (No model.)



Claim.—1. The cap H, placed at the top of the cowl and formed with the opening H′ at one side, and provided with the funnel H^2 and deflector I, the funnel being placed opposite to opening H′ and extended through the deflector, substantially as described.

2. The cap H, placed at the top of the cowl and formed with opening H′ at one side, and with holes *n* opposite opening H′, and provided with the funnel H^2, located below the holes *n*, substantially as described.

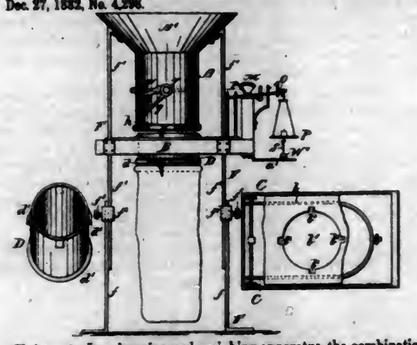
3. The cap H, formed with opening H′ at one side, and with holes *n* opposite to opening H′, and provided with deflector I and funnel H^2, the latter located below holes *n* and extended through deflector I, substantially as described.

4. The cap H, formed with opening H′ and holes *n*, in combination with the funnel H^2 and curved deflector I, substantially as and for the purpose set forth.

5. The top H, formed with opening H′ and openings *n*, in combination with funnel H^2, deflector I, and inclined plate *o*, substantially as and for the purposes set forth.

6. The series of tubes A B C D, made of different diameters and attached together as described, in combination with the standard G and revolving cap H, formed with opening H′, holes *n*, and provided with funnel H^2 and deflector I, substantially as described.

318,633. GRAIN-BAGGING APPARATUS. VINCENT LAPLACE and EDOUARD LAPLACE, Issoudun, France. Filed Dec. 13, 1882. (No model.) Patented in France June 17, 1882, No. 140,665; in Belgium Dec. 5, 1882, No. 59,744; in Germany Dec. 5, 1882, No. 23,290; in Austria-Hungary Dec. 5, 1882, No. 41,235/361 and No. 7,014/304; in England Dec. 5, 1882, No. 5,794; in Italy Dec. 5, 1882, XVI, 14,964; in Sweden Dec. 5, 1882; in Denmark Dec. 5, 1882; in Russia Dec. 8, 1882, No. 8,296, and in Spain Dec. 27, 1882, No. 4,296.



Claim.—1. In a bagging and weighing apparatus, the combination, substantially as described, with a feed-spout, a valve therein, a tripping-lever connected with a valve, and a bag-holder, of a platform-scale, the platform of which is arranged below the feed-spout and provided with an opening for the reception and suspension of the bag-holder, and a tripping device connected with the platform to trip the valve through the medium of the tripping-lever for the purposes specified.

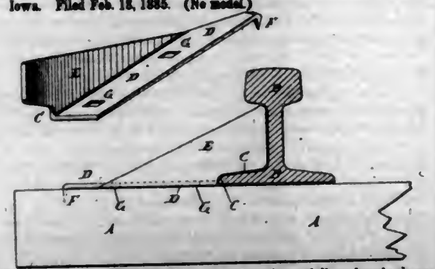
2. In a bagging and weighing apparatus, the combination, substantially as described, with a feed-spout, a valve therein, a two-armed tripping-lever connected with the valve, and a bag-holder, of a platform-scale, the platform of which is arranged below the feed-spout and provided with an opening for the reception and suspension of the bag-holder, a tripping device connected with the platform to trip the valve through the medium of the valve-lever, the scale-beam, and a fractional weight, W′, for the purposes specified.

3. The combination, substantially as described, of the valved feed-spout A, provided with a packing at its discharge end, and a tubular bag-holder, with a platform-scale, the platform *b* thereof provided with an opening for the reception and suspension of the bag-holder, the upper edge of which is adapted to bear against the packing of the feed-spout, for the purposes specified.

4. The combination, substantially as described, with the feed-spout A, the valve V thereof, the lever G, connected with the valve, and a tubular bag-holder, of a platform-scale, the platform *b* thereof provided with an opening for the reception and suspension of the bag-holder, a tripping-lug, *h*, connected with said platform, the scale-beam, and the fractional weight W′, said parts being arranged for co-operation, for the purposes specified.

5. In a bagging and weighing apparatus, the combination, with a feed-spout, a scale, and a bag-support adapted to be suspended from the platform of said scale, of a vertically-adjustable supporting-frame for said parts, as and for the purpose specified.

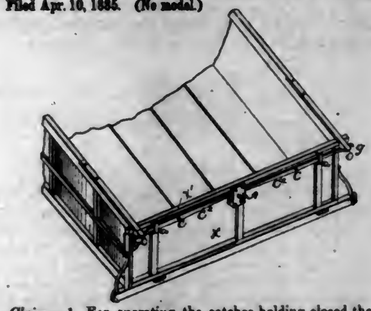
318,634. RAILROAD-RAIL BRACE. LEWIS LARCHAR, Cedar Rapids, Iowa. Filed Feb. 18, 1885. (No model.)



Claim.—1. A railroad-rail brace made, substantially as herein shown and described, of a right-angled plate having a recess, C, at its right angle and bent at right angles to form a base-plate, D, and a wing, E, having its acute angle bent downward to form a point, F, to be driven into the tie and perforated to receive the fastening-spikes, as set forth.

2. The combination, with the tie A and the rail B, of the brace having a recess, C, at its right angles, having its acute angle bent downward to form a point, and perforated to receive the fastening-spikes, substantially as herein shown and described, whereby the rail will be held to its seat and will be supported against the outward pressure of the engine and car wheels, as set forth.

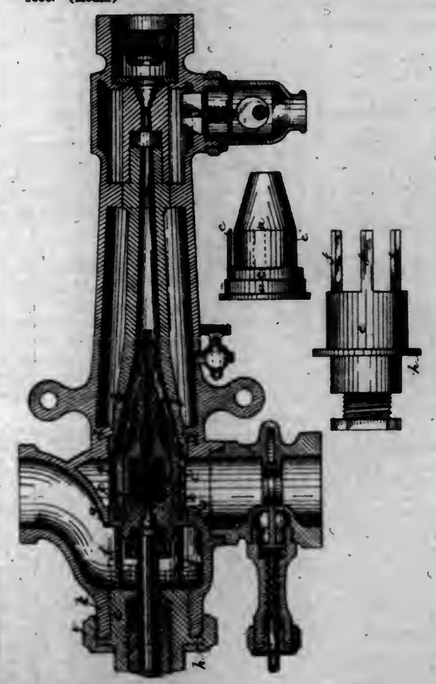
318,635. WAGON END-GATE. LEANDER LEHMAN, Harrisburg, Pa. Filed Apr. 10, 1885. (No model.)



Claim.—1. For operating the catches holding closed the end-gate of a wagon, the trip mechanism, substantially as set forth, consisting of a lock-form casing, a trip-cam or sliding block guided vertically in the same, a spiral spring under the latter in said casing, a rotary tumbler for tripping said cam, provided with suitable handle, and two pivoted levers having their inner ends inserted in bearings in said cam, and having their outer ends in communication with said catches for tripping the same, substantially as set forth.

2. In combination with an end-gate, X, of wagon-bed, provided with closing-catches *o* for the same, the levers C^2, secured to end-gate by pivots C and staples *a*, the casing B, containing trip-cam D L in communication with the inner ends of said levers, the tumbler M for said cam, and a suitable rigid or laydown handle for rotating said tumbler, and thereby actuating said cam, levers, and catches, substantially as and for the purposes set forth.

318,636. INJECTOR. WILLIAM B. MACK, Boston, Mass. Filed Feb. 16, 1885. (Model.)



Claim.—1. In an injector, the external shell or casing having seats for the steam-cone and combining-cone, arms or projections supported by the steam-cone and holding the delivery-cone against its seat, and arms or projections secured to the casing and holding the steam-cone against its seat, as set forth.

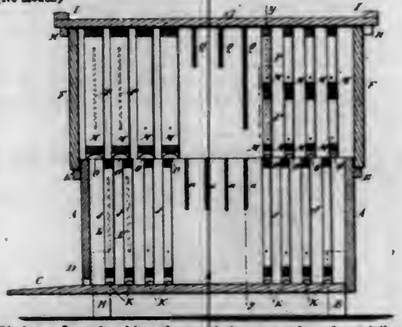
2. The combination of the casing, the cones *a b*, bearing on seats formed in the casing without positive attachment thereto, the ring *c*, having arms *c'*, supported by the cone *a* and bearing against the cone *b*, and the collar or filling-piece *e*, positively secured to the casing and having arms *f*, which bear against the cone *a*, and thereby hold both cones in place.

318,637. FAUCET ATTACHMENT FOR SHIPPING-CANS. JOHN MARSHALL, Brooklyn, N. Y. Filed Feb. 20, 1885. (No model.)



Claim.—The combination, with a can, of the cylindric neck or socket B, having at the bottom a valve-seat, *a'*, and a pouring-spout, D, extending from the neck or socket above the valve-seat, the neck or socket having a smooth and straight interior throughout the principal portion of its length and above the pouring-spout, and having at its outer end an internal screw-thread, *b*, and a stopper, C, consisting of a body, *c'*, externally screw-threaded to engage the internal screw-thread, *b*, and a plug or packing of soft or yielding material secured to said body *c'*, fitting tightly in the smooth interior of the neck or socket B, and forming a valve, *c*, to close on the valve-seat *a'*, substantially as herein described.

318,638. BEE-HIVE. JOHN W. MARTIN, Winchester, Ky., assignor to himself and Freeman Tutt Martin, same place. Filed Dec. 24, 1884. (No model.)



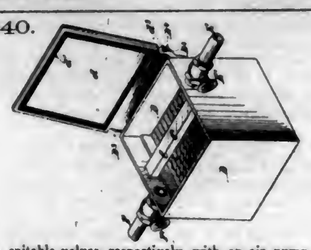
Claim.—In a bee-hive, the comb-frames made, substantially as herein shown and described, with their side bars projecting below their bottom bars, and with recesses in the said projecting ends, whereby the bees can readily pass back and forth between the spaces below and at the sides of the frames, as set forth.

318,639. TRANSFORMING SOFT SUGAR INTO HARD SUGAR. F. O. MATTHIESSEN, Irvington, N. Y. Filed Feb. 24, 1885. (Specimens.)

Claim.—The herein-described process of transforming soft sugar or granulated sugar, or mixtures thereof, into hard sugar by cementation of the particles of soft sugar or granulated sugar to each other, produced by the crystallization of sugar from white-liquor which has been introduced, in the form of a more or less concentrated hot solution, into the interstices between the particles of soft sugar or granulated sugar, and then allowed to cool.

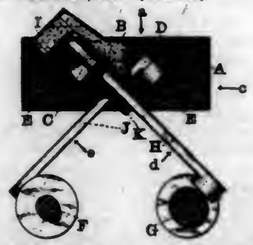
318,640. APPARATUS FOR CEMENTING GRANULATED SUGAR INTO BLOCKS. FRANZ O. MATTHIESSEN, Irvington, N. Y., and OTTO H. KRAUSE, Jersey City, N. J. Filed Apr. 21, 1885. (No model.)

Claim.—1. The herein-described apparatus for employment in manufacturing soft sugar or granulated sugar, or mixtures of soft sugars and granulated sugars, into cakes, tablets, or prisms of hard sugar, the same embracing, essentially, the following devices, to wit: first, a molding device for molding soft sugar or granulated sugar into cakes, tablets, or prisms of the desired form and dimensions preparatory to baking such cakes, tablets, or prisms in a suitable oven; secondly, a suitable frame adapted to contain a prescribed number of cakes, tablets, or prisms, and provided with a handle, by means of which it can be lifted; thirdly, a charging-box adapted to receive the said frame, and provided with a removable tight-fitting cover, and connections, by means of pipes provided with suitable valves, respectively, with an air-pump or vacuum-chamber and with a reservoir for supplying the hot white-liquor; and, finally, a cooling-tank for containing a bath of concentrated cold white-liquor, and means for keeping down temperature of the cold white-liquor in the cooling-tank after the frames containing the hot charged cakes of sugar are deposited therein.



2. Apparatus substantially such as herein described for charging soft sugar or granulated sugar, or mixtures of soft and granulated sugars, with hot white-liquor, the said apparatus consisting of a box or receptacle for said soft sugar or granulated sugar, or mixtures thereof, and a removable cover adapted to bear upon and make a tight joint with the open top or end of the box or receptacle, and connections, by means of pipes provided with suitable valves, respectively, with an air-pump or vacuum-chamber and a reservoir for supplying hot white-liquor.

318,641. VALVE MECHANISM FOR DUPLEX STEAM-PUMPS. J. R. MAXWELL, Hamilton, Ohio, assignor to the Gordon & Maxwell Company, same place. Filed Feb. 7, 1885. (No model.)



Claim.—1. In a valve-operating mechanism for duplex steam-pumps, the combination, with two piston-rods and two valve-stems, of two diagonally-disposed levers arranged in planes intersecting each other, substantially as and for the purpose set forth.

2. In a valve-operating mechanism for duplex steam-pumps, a steam-chest, a bracket projecting from the front thereof, and two diagonally-disposed levers arranged in planes intersecting each other and fulcrumed in supports in said bracket, combined substantially as and for the purpose set forth.

3. In a valve-operating mechanism for duplex steam-pumps, the combination of a steam-chest, two valve-stems, a bracket projecting outward from the steam-chest between the two valve-stems, a pair of diagonally-disposed levers arranged in planes intersecting each other, fulcrum-supports for the levers upon the bracket, and guiding-lugs for the valve-stems, projecting from the sides of the bracket, substantially as and for the purpose set forth.

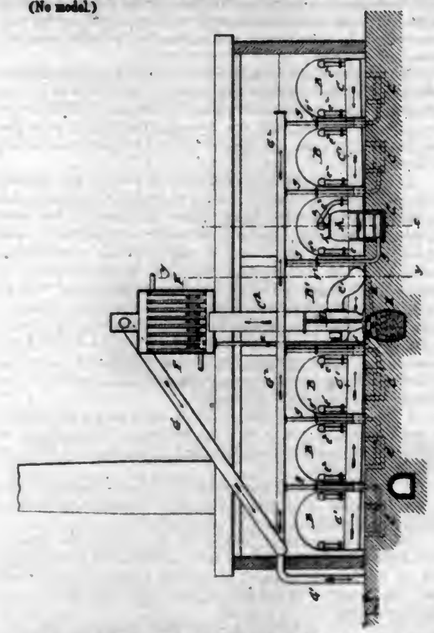
4. In a valve-operating mechanism for duplex steam-pumps, the combination, with two valve-stems and two piston-rods, of a diagonally-disposed lever of the first order and a diagonally-disposed lever of the second order, the two levers being arranged in planes intersecting each other, substantially as and for the purpose set forth.

5. In a valve-operating mechanism for duplex steam-pumps, the combination, with two valve-stems and two piston-rods, of a pair of levers diagonally disposed in planes intersecting each other, journals projecting from the levers into engagement with eyes on the valve-stem, fulcrum-bosses on the levers engaging fulcrum-jaws, and fulcrum-bosses on the ends of the levers engaging grooved collars upon the piston-rods, substantially as and for the purpose set forth.

6. In a valve-operating mechanism for duplex steam-pumps, a pair of valve-stems arranged to reciprocate in right lines, a pair of piston-rods arranged to reciprocate in right lines, and a pair of levers, one engaging each valve-stem and the piston-rod which actuates it, the levers being attached to the valve-stem, as set forth, so that such attaching-point of each lever moves in a right line with its valve-stem, and attached to their fulcrum-supports and to the piston-rod which drives them in such manner, as set forth, that the piston-rod points and fulcrum-points are capable of approach and recession with reference to the point of valve-stem attachment, substantially as set forth.

7. In a valve-operating mechanism for duplex steam-pumps, the combination of steam-chest A, bracket B, valve-stems C D, provided with eyes, guide-lugs E, piston-rods F and G, provided with grooved collars, and levers M and J, provided with journals engaging the eyes of the valve-stems, with fulcrum-bosses, and with end swells engaging the grooved collars, and the jawed fulcrums I and K, formed on the bracket B, substantially as and for the purpose set forth.

318,642. APPARATUS FOR THE MANUFACTURE OF VARNISH. SIEGFRIED W. MAYER, New York, and PETER J. BUNGART, Brooklyn, assignors to Mayer & Loewenstein, New York, N. Y. Filed Dec. 10, 1884. (No model.)



Claim.—1. The combination of varnish-kettles, furnaces beneath said kettles, suction-pipes connected to the discharge-pipes of the kettles, trunk-pipes connected to the suction-pipes, a suction-fan connected to the suction-pipes, a condenser, and distributing-pipes leading from the condenser to the furnaces of the varnish-kettles, substantially as set forth.

2. The combination of varnish-kettles, furnaces beneath said kettles, suction-pipes connected to the discharge-pipes of the kettles and provided with air-induction openings, trunk-pipes connected to the suction-pipes, a suction-fan connected to the suction-pipes, a condenser, and distributing-pipes leading from the condenser to the furnaces of the varnish-kettles, substantially as set forth.

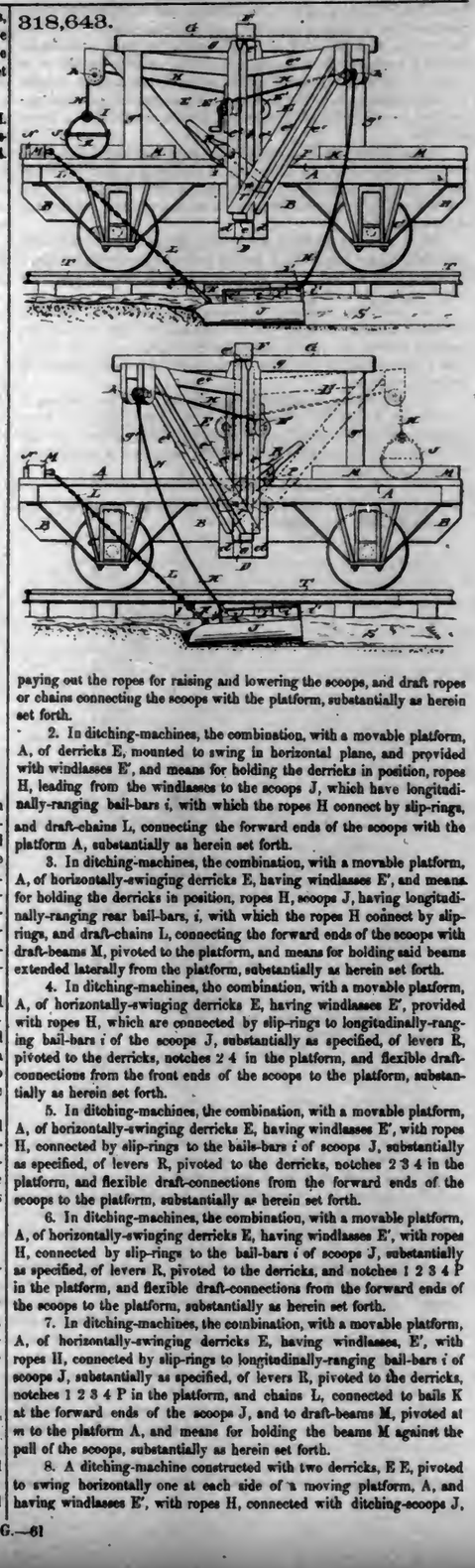
3. The combination of the varnish-kettles, furnaces beneath said kettles, suction-pipes having hood-shaped ends arranged above the discharge-pipes of the varnish-kettles, a trunk-pipe or trunk-pipes connected to the suction-pipes, a suction-fan, a condenser connected to the fan, a hermetically-sealed collecting-tank connected to the trunk-pipes and to the condenser, and distributing-pipes leading from the condenser to the furnaces of the different varnish-kettles, substantially as set forth.

4. The combination of the varnish-kettles, furnaces beneath said kettles, suction-pipes having hood-shaped ends arranged above the discharge-pipes of the varnish-kettles, a trunk-pipe or trunk-pipes connected to the suction-pipes, a suction-fan, a condenser connected to the fan, a hermetically-sealed collecting-tank connected to the trunk-pipes and to the condenser, and distributing-pipes leading from the condense to the furnaces of the different varnish-kettles, provided with regulating-valves, substantially as set forth.

5. The combination of a movable varnish-kettle, a furnace for heating said kettle, two horizontally-swinging suction-pipes having hood-shaped ends adapted to be placed successively over the discharge-pipe of the kettle while in position over the fire-place and while cooling, respectively, a trunk pipe or pipes, a suction-fan, a condenser, and distributing-pipes leading from the condenser to the furnace of the varnish-kettles, substantially as set forth.

318,643. RAILROAD-DITCHING MACHINE. ALONZO H. MCGREW, Hurley, Dak. Filed Dec. 11, 1884. (No model.)

Claim.—1. A ditching-machine constructed with a movable platform, horizontally-swinging derricks, levers pivoted to the derricks and adapted to enter notches or catches on the platform, ditching-scoops suspended from the derricks by ropes or chains, means for hauling in and paying out the ropes for raising and lowering the scoops, and draft ropes or chains connecting the scoops with the platform, substantially as herein set forth.



2. In ditching-machines, the combination, with a movable platform, A, of derricks E, mounted to swing in horizontal plane, and provided with windlasses E', and means for holding the derricks in position, ropes H, leading from the windlasses to the scoops J, which have longitudinally-ranging bail-bars *i*, with which the ropes H connect by slip-rings, and draft-chains L, connecting the forward ends of the scoops with the platform A, substantially as herein set forth.

3. In ditching-machines, the combination, with a movable platform, A, of horizontally-swinging derricks E, having windlasses E', and means for holding the derricks in position, ropes H, scoops J, having longitudinally-ranging rear bail-bars, *i*, with which the ropes H connect by slip-rings, and draft-chains L, connecting the forward ends of the scoops with draft-beams M, pivoted to the platform, and means for holding said beams extended laterally from the platform, substantially as herein set forth.

4. In ditching-machines, the combination, with a movable platform, A, of horizontally-swinging derricks E, having windlasses E', provided with ropes H, which are connected by slip-rings to longitudinally-ranging bail-bars *i* of the scoops J, substantially as specified, of levers R, pivoted to the derricks, notches 2 4 in the platform, and flexible draft-connections from the front ends of the scoops to the platform, substantially as herein set forth.

5. In ditching-machines, the combination, with a movable platform, A, of horizontally-swinging derricks E, having windlasses E', with ropes H, connected by slip-rings to the bails-bars *i* of scoops J, substantially as specified, of levers R, pivoted to the derricks, notches 2 3 4 in the platform, and flexible draft-connections from the forward ends of the scoops to the platform, substantially as herein set forth.

6. In ditching-machines, the combination, with a movable platform, A, of horizontally-swinging derricks E, having windlasses E', with ropes H, connected by slip-rings to the bail-bars *i* of scoops J, substantially as specified, of levers R, pivoted to the derricks, and notches 1 2 3 4 P in the platform, and flexible draft-connections from the forward ends of the scoops to the platform, substantially as herein set forth.

7. In ditching-machines, the combination, with a movable platform, A, of horizontally-swinging derricks E, having windlasses, E', with ropes H, connected by slip-rings to longitudinally-ranging bail-bars *i* of scoops J, substantially as specified, of levers R, pivoted to the derricks, notches 1 2 3 4 P in the platform, and chains L, connected to bails K at the forward ends of the scoops J, and to draft-beams M, pivoted at *m* to the platform A, and means for holding the beams M against the pull of the scoops, substantially as herein set forth.

8. A ditching-machine constructed with two derricks, E E, pivoted to swing horizontally one at each side of a moving platform, A, and having windlasses E', with ropes H, connected with ditching-scoops J,

watch have draft-connections to the platform, and said derricks having pivoted levers R, adapted to enter notches 1 of the platform, which also has notches P, as specified, and said notches 1 P being reversely arranged at opposite sides of the car to allow the opposite derricks to be swung toward opposite ends of the car and be locked in place, and also allowing the scoops to be laid by the derricks one on each end of the car-platform, to evenly distribute the weight thereon, substantially as herein set forth.

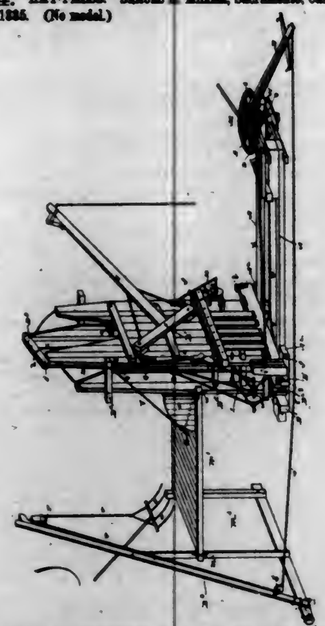
9. In ditching-machines, the ditching-scoop constructed with means for connecting a draft rope or chain to its forward end, and with a rear bail, I, having a longitudinally-ranging bar, *i*, extending from the rear end of the scoop to a point forward of its transverse center, substantially as herein set forth.

10. In ditching-machines, the ditching-scoop constructed with a forward bail, K, and a rear bail, I, having a longitudinally-ranging bar, *i*, extending from the rear end of the scoop to a point forward of its transverse center, substantially as herein set forth.

11. In ditching-machines, the ditching-scoop constructed with a forward bail, K, and with a rear bail, I, formed of two bars or rods lying together to form the central longitudinally-ranging bar, *i*, and having ends *i'* bent toward and made fast to the sides of the scoop, substantially as herein set forth.

12. In a ditching-machine, the combination, with the platform A, of a derrick, E, provided with a windlass, and having the lever R, arranged to be engaged with notches in the side of the platform, the rope H, the scoop J, draft-chain L, and pivoted draft-beam M, substantially as shown and described.

318,644. HAY-PRESS. SAMUEL B. MILLER, Sacramento, Cal. Filed Jan. 28, 1885. (No model.)



Claim.—1. The combination of a press-box, a follower that is adapted to travel vertically therein, an elevating-chain for the follower, guiding-sheaves for the chain, a wheel, a shuttle that is adapted to travel loosely around the rim of the wheel, the free end of the chain being attached to the shuttle, and a dog or latch for securing the shuttle to the wheel, and a stop for tripping the dog or latch and releasing the shuttle from the wheel, substantially as described.

2. The combination of the press-box, the follower, the elevating-chain, guiding-sheaves for the chain, the wheel C, having the extended flange C' C², the shuttle that is secured to the flange and is adapted to play around the rim of the wheel and to which the free end of the chain is secured, the dog for securing the shuttle to the wheel, and the incline F, for raising the dog, substantially as described.

3. The combination of the press-box, the follower, the rock-arms, bails hinged thereto for engaging with the follower, the capstan having a sliding collar, a chain connecting the rock-arms with said collar, guiding-sheaves for the chain, and a latch for securing the collar to the capstan, substantially as described.

4. The combination of the press-box, the follower, the rock-arms, bails hinged thereto for engaging with the follower, the capstan, a chain connecting the rock-arms therewith, and guiding-rods for the free ends of the bails, substantially as described.

5. The combination of the press-box, the follower, the elevating-chain, guiding-sheaves therefor, a wheel attached to a capstan, a shuttle that is adapted to travel loosely around the wheel, the free end of the elevating-chain being attached to the shuttle, a dog or latch for securing the shuttle to the wheel, a stop for tripping the dog or latch and releasing the shuttle from the wheel, rock-arms that are pivoted to the press-box, bails hinged thereto for engaging with the follower when the shuttle is loose from the wheel, a collar loose on the capstan, a latch for securing the collar to the capstan, and a chain for connecting the rock-arms to the collar of the capstan, and guiding-sheaves for the chain, substantially as described.

6. The combination of the press-box, a door hinged thereto at its lower side, the follower, the elevating-chain, guiding-sheaves therefor, an operating-wheel for raising and lowering the follower to which the elevating-chain is attached, and a rope connecting the free side of the door with the elevating-chain, and a guiding-sheave for the rope, substantially as described.

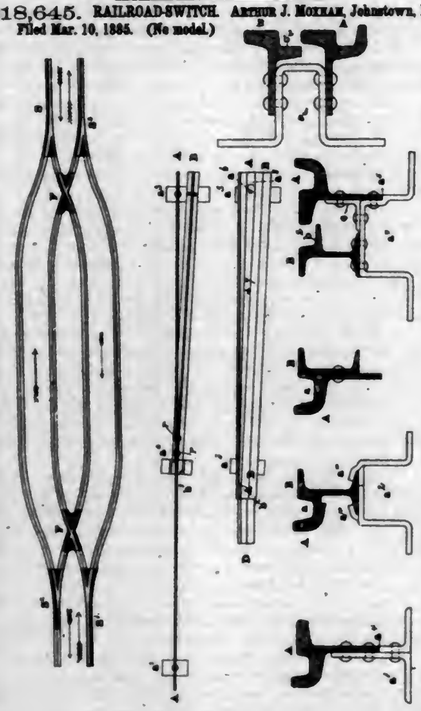
7. The combination of the press-box, the follower, the elevating-chain, guiding-sheaves therefor, a wheel attached to a capstan, a shuttle that is adapted to travel loosely around the wheel, the free end of the elevating-chain being attached to the shuttle, a dog or latch for securing the shuttle to the wheel, a stop for tripping the dog or latch and releasing the shuttle from the wheel, rock-arms that are pivoted to the press-box, bails hinged thereto for engaging with the follower when the shuttle is loose from the wheel, a collar loose on the capstan, a latch for securing the collar to the capstan, a chain for connecting the rock-arms to the collar of the capstan, guiding-sheaves therefor, a weighted lever pivoted to one side of the press-box and having extended arms, chains connecting said arms to the rock-arms, and guiding-sheaves for said connecting-chains, substantially as described.

8. The combination of the ground-sills, the press-box hinged thereto, and keepers *q*, secured to the extended ends of a cross-beam and adapted for the reception of axle-spindles, for the purpose set forth, substantially as described.

9. The combination of the ground-sills, the press-box hinged thereto, and trucks that are provided with winches for raising the press and transporting the same, substantially as described.

10. The combination of the press-box, the follower, the elevating-rope, guiding-sheaves therefor, the elevating-wheel, the hoisting-frame, and the hay-fork suspended by a rope from a pulley on the hoisting-frame, the free end of the rope being secured to the sweep for the elevating-wheel, substantially as described.

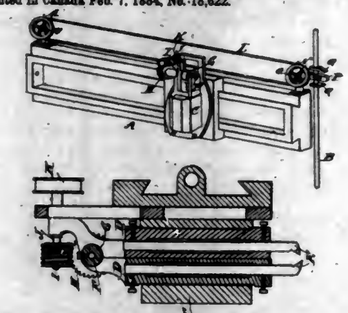
318,645. RAILROAD-SWITCH. ARTHUR J. MOXHAM, Johnstown, Pa. Filed Mar. 10, 1885. (No model.)



Claim.—1. A railway-switch for street-car tracks, composed of one rolled girder guard-rail and one rolled girder-rail, cut and fitted together at the necessary angle to deflect the car, secured together at their junction, and at their divergent ends to the main rails of the track, substantially as and for the purposes set forth.

2. In combination with the main rails, a railway-switch for street-car tracks, composed of one rolled girder guard-rail and one rolled girder-rail, cut and fitted together at the necessary angle to deflect the car, secured together at their junction, and provided with a movable hinged tongue near their divergent ends, whereby the car is deflected in either of two directions, as may be desired, substantially as and for the purposes set forth.

318,646. TOOL-HOLDER FOR PLANING-MACHINES. ROBERT R. NEILD, Stratford, Ontario, Canada. Filed Dec. 29, 1884. (No model.) Patented in Canada Feb. 7, 1884, No. 18,622.

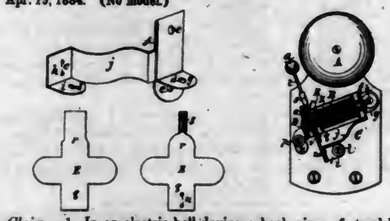


Claim.—1. The tool-holders D, held to have movement vertically in the tool-box C, in combination with a cam arranged to act upon the said tool-holders to reciprocate the same, and mechanism for operating the cam, substantially as and for the purpose set forth.

2. The tool-holders D, held within the tool-box C, in combination with the double cam G, spindle F spur-wheel H, and worm-pinion I, connected to some reciprocating part of the machine, substantially as described.

3. The tool-holders D, held within the tool-box C, the double cam G and spindle F on the tool-box, spur-wheel H, worm-pinion I, spindle J, and pulley K, in combination with cord L and pulleys M and N, the said pulleys deriving motion from the reciprocating motion of feed-rod B, that is provided with dogs set to come alternately in contact with arm P, substantially as and for the purpose specified.

318,647. ELECTRIC BELL. AUGUSTUS H. PALMER, Utica, N. Y. Filed Apr. 19, 1884. (No model.)



Claim.—1. In an electric-bell device, a back piece, *f*, stand having foot *g*, stand *h*, having foot *i*, and connecting-bar *j*, formed of one piece of sheet metal, substantially as and for the purposes set forth.

2. In an electric-bell device, a stand, D, having foot *n*, the same being one piece of sheet metal bent at right angles to form both the foot and upright part, as shown and described, and bearing a contact-point, *o*, as set forth.

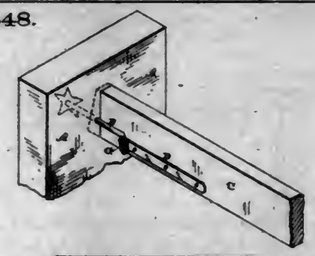
3. In an electric-bell device, an armature, E, having arms *q* and *r*, and socket *s*, formed of one piece of sheet metal, substantially as and for the purposes set forth.

4. The combination of the back piece, *f*, stand *h*, and connecting-bar *j*, formed of one piece of sheet metal, stand D, armature E, having arms *q* and *r*, and spring F, substantially as and for the purposes set forth.

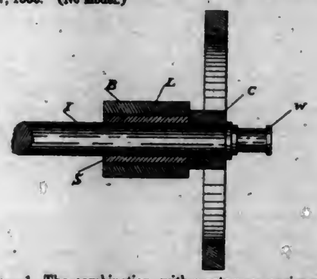
318,648. ANCHOR FOR BUILDINGS. FRANK D. PARADISE, Memphis, Tenn. Filed Mar. 10, 1885. (No model.)

Claim.—The combination of the anchor having its ends bent or turned downward, the beam, and a strap secured to the beam having an eye or loop formed upon its inner end, so as to catch over the turned-down end of the anchor, substantially as shown and described.

318,648.



318,649. SHAFT-BEARING. WM. A. PATRICK, Rutland, Vt. Filed Apr. 7, 1885. (No model.)



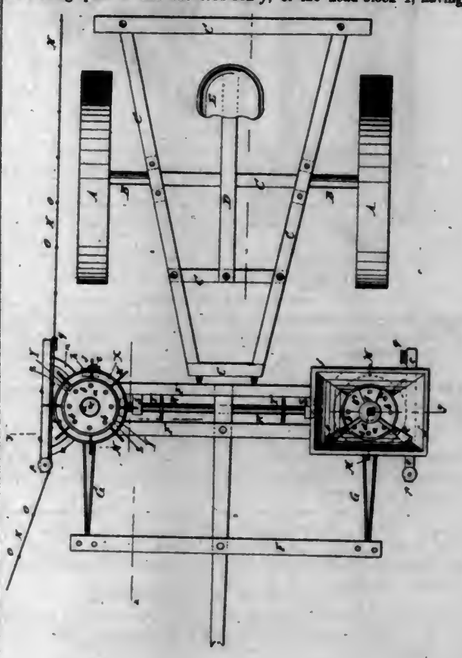
Claim.—1. The combination, with a rotary or reciprocating shaft, of an attached journal-sleeve, S, of larger diameter than the shaft, and the bearing-box B, made to receive said sleeve within it, substantially as and for the purpose or purposes herein described.

2. In a crank or other shaft, the combination of the detachable hardened sleeve S, secured to said shaft and of larger diameter than it, and the bearing-box B, essentially as shown and described, and for the purposes specified.

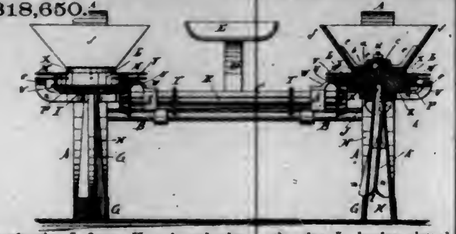
3. The combination of the shaft I of the crank-wheel C, having a wrist-pin, W, the pitman P, the enlarged journal-sleeve S, secured to said shaft, and the bearing-box B, substantially as specified.

318,650. CHECK-ROW CORN-PLANTER. HENRY F. PEARSON and GEORGE W. JARMIN, Genoa, Nebr. Filed Jan. 17, 1885. (No model.)

Claim.—1. In a check-row corn-planter, the combination, with the conducting-spout H and the seed-box *f*, of the head-block I, having



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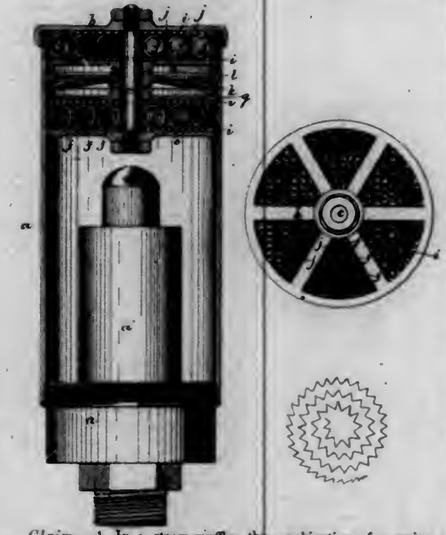


perforation J, flange K, and projection c; the ring L, having slotted arms M and flanges U X, the arm W, engaging the flange U to hold the ring in place, the perforated seed-dropping plate *a*, held within the flange X, and the cut-off *g*, substantially as herein shown and described, whereby the said seed-dropping plate will be operated to drop the seed by the balls of the check-wire, as set forth.

2. A check-row corn-planter consisting, essentially, of the frame, the runners, the spout, the apertured head-block I, provided with top projection, *c*, side flange, K, arms *n*, and bar *o*, provided with pulleys *p q*, the ring L, supported on the flange K of the head-block, and provided with slotted arms M, gear P on its under side, and flange X on its upper side, the seed-dropping plate *a*, held in the flange X, the spider *e*, fitted over the projection *c*, the hopper *f*, the gear *h*, having a crank-pin *i*, and meshing with the gear P, the valve-plate *k*, and the connecting-lever *j*, substantially as set forth.

3. In a check-row corn-planter, the combination, with the flanged ring L, of the roller V and arm W, substantially as herein shown and described, whereby the said ring is held down to its seat, as set forth.

318,651. STEAM-MUFFLER. WILLIAM E. PEARSON, Saugus, Mass. Filed Oct. 10, 1884. (No model.)



Claim.—1. In a steam-muffler, the combination of a casing or passage for escaping steam, two fixed spiders or open supports affixed to said casing, and rings or coils of spiral wire placed between said supports and held thereby to form a steam-subdividing partition, as set forth.

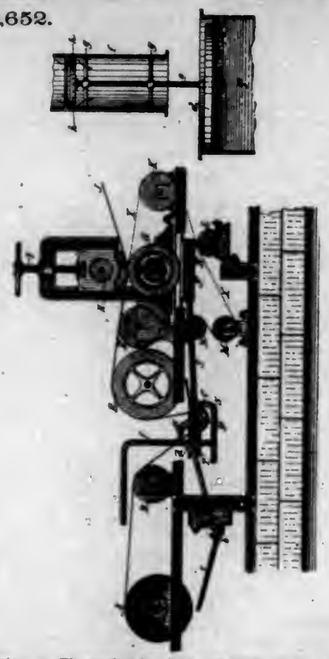
2. The combination of the rings or coils of spiral wire arranged to form a steam-subdividing partition, and the interposed rings or bands of metal, whereby the rings or coils of spiral wire are kept separate, as set forth.

3. In a muffler, the combination of the casing, two steam-subdividing partitions, each composed of rings or coils of spiral wire, and the perforated plate *k* and flange or baffle-plate *l*, arranged between said partitions, as set forth.

4. The improved muffler composed of the casing, the open cap or spider *b*, the stud *c*, depending from said cap, the spiders or open supports *e e* on said stud, the coils or rings of spiral wire on said spiders, and the perforated plate *k* and flange or baffle-plate *l*, all arranged substantially as set forth.

318,652. METHOD OF AND APPARATUS FOR COLORING PAPER. LUDWIG PIETTE, Pilsen, Austria-Hungary. Filed Sept. 13, 1884. (No model.)

318,652.



Claim.—1. The method herein described of coloring paper in endless rolls, which consists in passing the paper through a bath of the coloring-fluid, so as to thoroughly impregnate the paper, removing the surplus color by pressure, and then drying the paper in the usual manner, substantially as set forth.

2. The combination of the rollers A and B, color-reservoir D, roller C, supported in said reservoir, guide-rollers E and F, pressure-rollers G and H, and an endless band, X, that is guided through between the pressure-rollers, substantially as set forth.

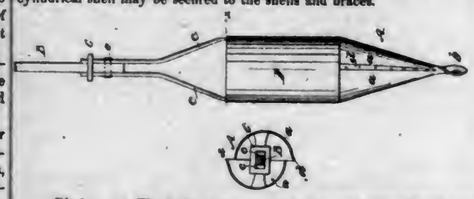
3. The combination of the rollers A and B, color-reservoir D, roller C, supported in said reservoir, guide-rollers E and F, pressure-rollers G and H, endless band X, guided through between the pressure-rollers G and H, and a collecting vat or trough, R, below the lower pressure-roller, G, substantially as set forth.

4. The combination of the rollers A and B, color-reservoir D, roller C, supported by arms *a a* in said reservoir, guide-rollers E and F, pressure-rollers G and H, endless band X, rollers K, L, M, and N for guiding the band, and a collecting vat or trough, R, below the lower pressure-roll, G, substantially as set forth.

5. The combination of the color-reservoir D, receiving-vessel T, float *d*, having a stem, *e*, and valve *h* at the upper end of the stem, and supply-pipe *f*, having guide-sleeves *g g* for the stem, and an annular valve-seat, *i*, whereby by the rise and fall of the float the supply of color is regulated, substantially as set forth.

318,653. EARTH-AUGER. THOMAS A. PORTER, Cameron, Tex. Filed July 30, 1884. (No model.)

Brief.—Two semi-cone-shaped shells are joined together at their lower ends, and provided with a penetrating-point and secured to braces, and so arranged with their cutting-edges out of line with each other that the filling-throats thus formed run their whole length. An additional cylindrical shell may be secured to the shells and braces.



Claim.—1. The body A, composed of two semi-cone-shaped sections, *a a*, joined together at their lower ends, with their vertical cutting-edges out of line to form two throats on opposite sides of the body, penetrating-point *b*, and braces *c c*, riveted to the upper ends of said sections, to one side of their centers, to hold the sections apart at their upper ends,

whereby the throats are made to extend from end to end of the body, substantially as set forth.

2. The combination, with the cone-shaped head A and braces *c*, of the extension D, attached to the upper end of the head A, substantially as shown and described.

318,654. TAPPING DEVICE. JOHN H. RATHBUN, New York, N. Y., assignor of one-half to Cornelius H. De Lamater, George H. Robinson, and William De Lamater, all of same place. Filed Oct. 23, 1884. (No model.)



Claim.—1. In a tapping device, the combination, with a chuck to be secured to a rotating spindle and having a polygonal socket formed by spring-jaws or elastic fingers, of a polygonal shank, by means of which a tap is to be turned, fitting in and to be driven by said chuck, substantially as herein described.

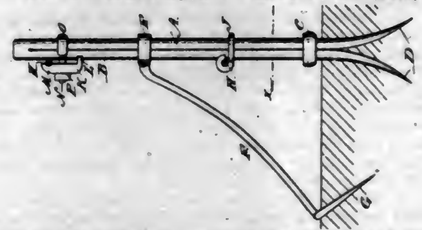
2. In a tapping device, the combination, with an externally-screw-threaded chuck having a polygonal socket formed by spring-jaws or elastic fingers, of a grip ring or nut adjustable on the chuck to vary the elasticity of the said jaws or fingers, and a polygonal shank, by means of which a tap is to be turned, fitted to said chuck, substantially as herein described.

3. The combination, with a chuck having a polygonal socket and spring-jaws, of a tap-driver having a polygonal shank fitting said chuck, substantially as herein described.

4. The combination, with an externally-screw-threaded tap-driver, of a ring or nut adjustable thereon, and a stirrup or piece secured to said ring or nut having an opening for the passage of a tap through it forming a stop to limit the entrance of a tap, substantially as herein described.

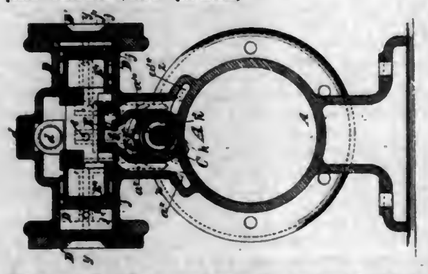
5. The combination, with a tap-driver, B, having a cylindric cavity, of the tap head or holder E, contained in said cavity and having the spiral projections *d*, the pin *g*, engaging with the ends * of said projection to turn the tap-head forward, and the pins or projections *h*, engaging with the ends *i* of said spiral projections to turn the head backward, substantially as herein described.

318,655. WIRE-FASTENING DEVICE FOR METAL FENCE-POSTS. WILLIAM H. M. REBER, Calliope, Iowa. Filed Dec. 31, 1884. (Model.)



Claim.—The combination, with a post, of the clamp-plate K, having a groove, M, at or near one end and a forked projection, L, at the other end, the hook-bolt N, and the nut P, substantially as herein shown and described.

318,656. DIRECT-ACTING ENGINE. GEO. H. REYNOLDS and THOS. J. RIDER, New York, N. Y., assignors of three-fourths to Cornelius H. De Lamater, George H. Robinson, and William De Lamater, all of same place. Filed Dec. 4, 1884. (No model.)



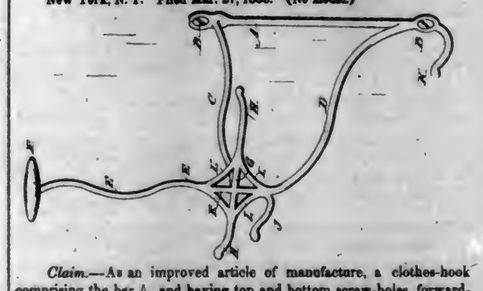
Claim.—1. In a direct-acting engine, the combination, with the main and auxiliary cylinders A D and the main and auxiliary pistons B E' and valve E, of the cylindric auxiliary valve-chest C, arranged parallel with the main cylinder, and communicating therewith by openings *k* near the ends thereof, ports and passages, substantially as herein described, providing for the supply of motive fluid to and its exhaust from the main and auxiliary cylinders, and the oscillating or rocking auxiliary valve F F', arranged in the chest C parallel with the axis of the main cylinder A, and provided with cams *l*, projecting through the openings *k* in the path of the main piston B, and adapted to be operated on alternately by said piston to turn the auxiliary valve in a plane transverse to the axis of the main cylinder, and auxiliary valve-chest C, substantially as and for the purpose herein set forth.

2. In a direct-acting engine, the combination, with the main and auxiliary cylinders A D and the main and auxiliary pistons B E' and valve E, of the cylindric auxiliary valve-chest C, arranged parallel with and extending from end to end of the main cylinder, and communicating therewith by openings *k* near the ends thereof, the heads A' A^2, closing the ends of the main cylinder A and chests C, ports and passages, substantially as herein described, providing for the supply of motive fluid to and its exhaust from the main and auxiliary cylinders, and the oscillating or rocking auxiliary valve F F', arranged in the chest C parallel with the axis of the main cylinder A, and provided with cams *l*, projecting through the openings *k* in the path of the main piston B, and adapted to be operated on alternately by said piston to turn the auxiliary valve in a plane transverse to the axis of the main cylinder and auxiliary valve-chest C, substantially as and for the purpose herein set forth.

3. The combination, with the main and auxiliary cylinders A D and the auxiliary valve-chest C, constructed with the ports and passages *e f f' f'' g g' g'' g'''*, the auxiliary valve-chest C being parallel with the main cylinder A, of the main and auxiliary pistons B E', and the main valve E, and the auxiliary valve F F', arranged parallel with the axis of the main cylinder and provided at the ends with the cams *l l*, which are acted on alternately by the main piston to rock the auxiliary valve in a plane transverse to the axis of the main cylinder, all substantially as herein described.

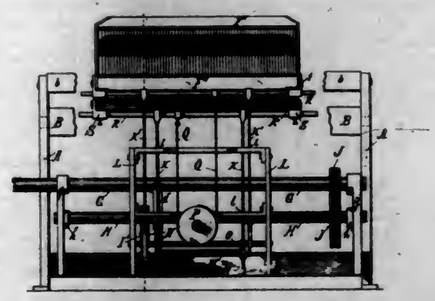
4. The combination, with the main and auxiliary cylinders A D, and the auxiliary valve-chest C, and externally-recessed lining C', all constructed with the ports and passages *e f f' f'' g g' g'' g'''*, of the main and auxiliary pistons and the auxiliary valves F F', provided with the cams *l l*, substantially as herein described.

318,657. HOOK FOR HATS OR GARMENTS. EUGENE R. RICHARDS, New York, N. Y. Filed Mar. 27, 1885. (No model.)



Claim.—As an improved article of manufacture, a clothes-hook comprising the bar A, and having top and bottom screw-holes, forwardly-projecting bracket-arms C D, upright piece E, uniting the said arms at their forward ends, and having a disk, F, on its upper end, cross-piece G at the front end of the arm C, and terminating in the horizontal hooked arms H H, hook J at the upper end of the bracket-piece D, hook K at the lower end of the bar A, and the curved pieces L, uniting the upright E and cross-piece G, substantially as set forth.

318,658. HEDDLE SUPPORTING AND OPERATING MECHANISM FOR LOOMS. JAMES ROBERTS, Philadelphia, Pa. Filed Feb. 2, 1884. (No model.)



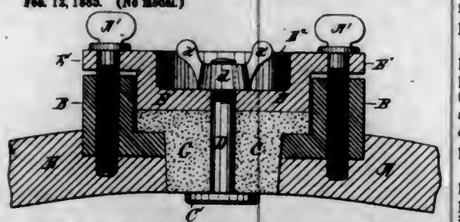
Claim.—1. In combination, a heddle-frame, F, provided with tenons *f*, a framing-bar, R, heddle-carriers K, means for operating the said heddle-carriers, a pair of heddle-brackets, S, provided with sockets *s*, by means of which the brackets are mounted and adapted to have a longitudinal movement upon the framing-bar, and likewise provided with mortised flanges s^2 s', for engagement with the tenons of the frame, and means for securing the said brackets S to the framing-bar R, substantially as described.

2. In combination, a heddle-frame, F, provided with tenons *f*, a framing-bar, R, heddle-carriers K, means for operating the said heddle-carriers, a pair of heddle-brackets, S, provided with sockets *s*, by means of which the brackets are mounted and adapted to have a longitudinal movement upon the framing-bar, and likewise provided with mortised flanges s^2 s', for engagement with the tenons of the frame, and set-screws T, for securing the said brackets in given positions upon the framing-bar R, substantially as described.

3. The combination of the heddle-frames F F', the heddle-carriers K K', means for connecting said heddle-frames to said heddle-carriers, means for operating the said heddle-carriers, the straps Q, the idler-pulley P for said straps, the carrier-frame L, the rocker-frames M M', provided with levers N N', the rocker-shaft O, the cams I I', adapted to tread upon the levers N N', the cam-shaft H, and means for actuating said cam-shaft, substantially as set forth.

4. The combination of a series or pair of rocker-frames, M M', each of which is provided with two arms for connection with the heddle-carriers, with two widely-separated points of bearing upon a common rocker-shaft and with a rearwardly-extending lever, all of which levers are upon corresponding sides of the said frames, a rocker-shaft, O, common to all of said frames, a cam-shaft, H, and cams I I' upon said shaft, which tread separately upon the respective levers of the frames, with heddle-carriers K K', heddle-frames F F', means for connecting the said heddle-frames to said heddle-carriers, the straps Q, the idler-pulley P, and the carrier-frame L, substantially as set forth.

318,659. BARREL-BUNG. HENRY BOSENBILDT, Baltimore, Md. Filed Feb. 12, 1885. (No model.)

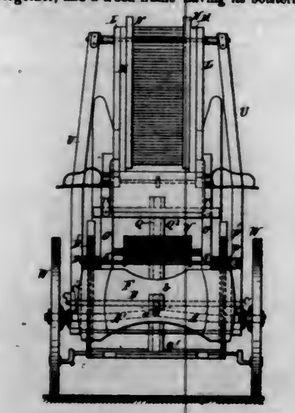


Claim.—In a barrel-bung, the combination of seat B, having its thumb-screws A' A', with cap E, having flanges E' and recess E^2, rod D, with its rigid button C', collar C, and nut *d*, having arms *d'* *d'*, all arranged substantially in the manner and for the purpose described.

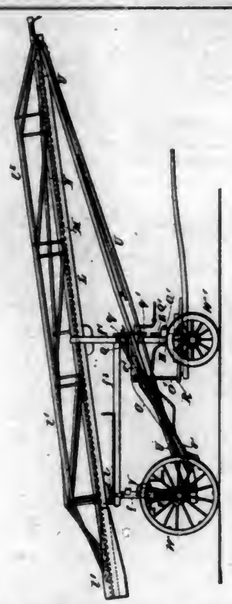
318,660. FIRE-LADDER. PAUL SCHMAHL, Biberach-on-the-Riss, Wurtemberg, Germany. Filed Dec. 16, 1884. (No model.)

Claim.—1. In a fire-ladder, the combination, substantially as described, with the truck-frame and the bolster of the aft train of the truck, of a two-part aft train-axle hinged together and to said bolster, for the purpose specified.

2. In a fire-ladder, a wheeled truck from which the ladder is supported, composed of a carriage having its rear train-axle formed in two parts, hinged together, and a truck-frame having its bolsters pivoted to



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the carriage-axles, and in combination therewith a leveling mechanism for leveling the frame on the carriage, substantially as and for the purpose specified.

3. In a fire-ladder, a wheeled truck from which the ladder is supported, composed of a carriage having its rear train-axle formed in two parts hinged together, and a truck-frame having its bolsters pivoted to the axles of the carriage, and buffers interposed between the rear bolster and its axle, and in combination therewith leveling mechanism for leveling the truck-frame on the carriage, substantially as and for the purpose specified.

4. In a fire-ladder, a wheeled truck from which the ladder is supported, composed of a carriage having its rear train-axle formed in two parts hinged together, a sixth-wheel having an annular groove formed in its upper face and connected with the fore train, a truck-frame having its bolsters pivoted to the carriage-axles to allow said frame to oscillate laterally, a leveling mechanism consisting of rack-bars and worm-gear operated by crank and applied to the aft truck-frame, and the rack-bars E, and toothed wheels G, said rack-bars being stepped in the groove of the sixth-wheel, said parts being arranged for co-operation, substantially as and for the purpose specified.

5. In a fire-ladder, a wheeled truck from which the ladder is supported, composed of a carriage having its rear train-axle formed in two parts hinged together, a sixth-wheel connected with the fore train, having an annular groove formed in its upper face, a truck-frame supported from the carriage and free to oscillate laterally, and in combination therewith a leveling mechanism for the fore train portion of the frame, composed of rack-bars E, stepped in the groove of the sixth-wheel and the toothed wheels G, and a locking device to lock the rack-bars and wheels against operation, substantially as and for the purpose specified.

6. In a fire-ladder, a wheeled truck from which the ladder is supported, composed of a carriage having its rear train-axle formed in two parts hinged together, a truck-frame supported from the carriage-axles and free to oscillate laterally thereon, and in combination therewith buffers interposed between the rear train-axle and bolster, a leveling mechanism for leveling said frame applied to the fore and aft portions of the frame, and operated from their latter portion, and locking devices connected with said leveling mechanism and operating to lock the same out of operation, substantially as and for the purpose specified.

7. In an extensible fire-ladder, the combination, substantially as described, with the carrying-truck, the truck-frame, and a ladder pivoted at its lower end to said truck-frame, of an elevating mechanism consisting of a screw-spindle, a nut operating on said spindle, and connecting-braces connecting the nut with the upper end of the ladder.

8. In a fire-ladder, the combination, substantially as described, with the rear wheel-axle formed in two parts pivoted together, and the rear truck-frame bolster connected with the pivot of said axle by a link and adapted to oscillate laterally, of buffers interposed between the axle and bolster, for the purpose specified.

9. In a fire-ladder, the combination, substantially as described, of the rear wheel-axle, the aft train truck-frame bolster adapted to oscillate

laterally on the rear wheel-axle, and a locking-dog to lock said bolster against lateral oscillation, for the purpose specified.

10. In a fire-ladder, the combination, substantially as described, with a wheeled truck and a ladder-section pivoted thereto at one end, of an elevating mechanism consisting of a screw-spindle rotating in fixed bearings, a nut operating on said spindle, struts connected with said nut and the upper end of the ladder, and grooved guides to guide the lower end of the struts, for the purpose specified.

11. The combination, substantially as herein described, with the guide-beams O, the brace O', the truck-frame, and bolster H, of the fore axle-tree, the sixth-wheel R, and the fifth-wheel, for the purpose specified.

318,661. FLOOR-COVERING. RUDOLPH SCHRÖDER, New York, N.Y. Filed Apr. 24, 1885. (No model.)



Claim.—A floor-covering composed of a foundation-layer of concrete, an intermediate layer of sand, a superposed layer of cement, and floor-tiles set into the cement, substantially as set forth.

318,662. TOPICAL REMEDY. ERNST W. R. SCHRÖTER, Hamburg, Germany. Filed Aug. 5, 1884. (No specimens.)

Claim.—1. The hereinbefore-described ichthyolsulphur acid, consisting of an oil containing sulphur and sulphuric acid chemically combined, in the proportions and for the purpose set forth.

2. As a manufactured product, ichthyolsulphur acid, consisting of schist-oil and concentrated sulphuric acid in chemical combination in the proportions hereinbefore described, and for the purpose set forth.

318,663. STEAM-ENGINE GOVERNOR. FRANCIS SCHUMANN, Trenton, N. J., assignor of one-half to W. D. HAVEN, same place. Filed Jan. 31, 1885. (No model.)



Claim.—1. In a steam-engine governor, the combination of a shaft, a plate secured thereto having ways C, a slide mounted on said plate to reciprocate transversely to the shaft, an eccentric carried by the slide and having a slot parallel with the lines of reciprocation and at an angle to the line of greatest and least eccentricity, a weighted lever pivoted to the plate, a spring for opposing the centrifugal tendency of the lever, and a link connecting the lever directly to the slide, substantially as set forth.

2. In a steam-engine governor, the combination of a shaft, a plate secured thereto having ways C, a slide mounted on said plate to reciprocate transversely to the shaft, an eccentric carried by the slide, a weighted lever pivoted to the plate, a spring connected with the plate and bearing on the lever for opposing its centrifugal tendency, and a link connected directly with the lever and pivoted to the slide substantially in line with its center of gravity, as set forth.

3. In a steam-engine governor, the combination of a shaft, a plate secured thereto, a slide mounted on said plate to reciprocate transversely to the shaft, an eccentric carried by the slide, two weighted levers on opposite sides of the shaft and pivoted to the plate, a collar and links for connecting and equalizing the force of the levers, springs for opposing their centrifugal force, and a link for connecting one of the levers to the slide, substantially as set forth.

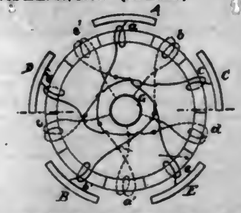
4. In a steam-engine governor, the combination of a shaft, a plate secured thereto, an eccentric surrounding the shaft, a weighted lever or levers pivoted to the plate and connected with the eccentric to shift the same, and a spiral compression spring or springs held between two bearings or seats, one seat being connected pivotally with the plate and the other being connected pivotally with the lever, said seats having cylindrical bosses extending into and fitting the interior of said springs, substantially as set forth.

5. In a steam-engine governor, the combination of a shaft, a plate secured thereto, an eccentric surrounding the shaft, weighted levers fulcrumed on said plate and connected with the eccentric to shift the same, and spiral compression-springs suspended between seats connected with points of attachment on the plate and levers, each seat being suspended from that point which is at the opposite end of the spring, substantially as set forth.

6. In a steam-engine governor, the combination of a shaft, a plate secured thereto, an eccentric surrounding the shaft, a weighted lever or levers fulcrumed to the plate and connected with the eccentric, a spiral compression spring or springs, bearings for the ends of the same, and rods secured to one bearing engaging with the opposite bearing and passing thence to points of attachment on the lever and plate, substantially as set forth.

7. In a steam-engine governor, the combination, with a shifting eccentric and weighted centrifugal arms, of a device for controlling the weighted arms, consisting of a spiral compression-spring, M, seats *m* *m'* at each end thereof, and rods N and O, each secured to one of the seats and passing through the opposite seat to the point of attachment of the rods, substantially as set forth.

318,664. ARMATURE FOR DYNAMO-ELECTRIC MACHINES. D. A. SCHUYLER, New York, N. Y., assignor to the Schuyler Electric Light Company of New York. Filed Dec. 27, 1882. Renewed Feb. 12, 1884. Again renewed Mar. 23, 1885. (No model.)



Claim.—1. In a dynamo-electric machine, an armature whose diametrically-opposite bobbins have their inner or outer ends, as the case may be, connected together, while their remaining or free ends are connected the one to a commutator plate or segment and the other to a common electrical joint.

2. In a dynamo-electric machine, an armature whose pairs of diametrically-opposite bobbins have their inner ends connected together, while their outer ends are connected the one to the commutator and the other to a common joint, the connections of the successive bobbins being, however, reversed, so that every other bobbin in progression around the armature has its two ends connected the one directly to a commutator-segment and the other to a bobbin on the opposite side of the armature, while the alternate bobbins have their corresponding ends connected the one to a bobbin on the opposite side of the armature and the other to a common electrical joint, whereby the current is taken from said bobbins in sets of four in series.

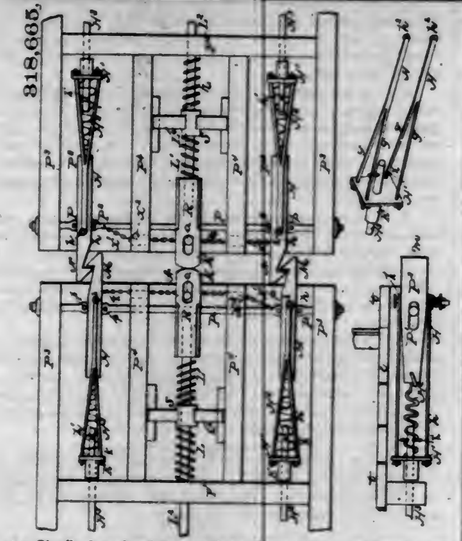
3. The combination, with the armature for a dynamo-electric machine, of a series of bobbins equal in number to four or a multiple of four plus two, a connection from every other bobbin to a common electrical joint, a series of commutator-segments equal to half the number of bobbins, to which the alternate bobbins are directly connected at one end, and electrical connections from the opposite ends of said bobbins to the diametrically-opposite bobbins connected to the common electrical joint.

318,665. CAR-COUPLING. HENRY H. SMITH, Bainbridge, Pa. Filed Jan. 28, 1885. (No model.)

Claim.—1. Two hook-form draw-heads provided with horizontal slots in the body of each, and supported on a fixed transverse bar inserted through said slots, in combination with two other corresponding hook-form draw-heads similarly supported on a transverse bar fixedly inserted through timbers of the opposite car-platform, with rear stays pivoted above and below to said draw-heads in front of said slots therein, said stays having their rear ends secured to fixed back rests, and with spiral springs supported upon guides projected from said back rests, and having the front end of each spring attached to the rear end of draw-head, and its opposite end attached to said back rest and guide thereon, substantially as and for the purposes set forth.

2. The combination of two couples of self-coupling hook-form draw-heads, M N, a couple arranged on each side of the centrally-arranged buffers K L^2, with the mechanism for uncoupling the same, composed of the sleeve *b*, provided with the chains *x* *x'*, the shaft *a*, inserted through said sleeve, the interlocking turn-button *d*, supported in journal-box Q, attached to the upper end of said sleeve, and the ratchet G^2, with its pivoted

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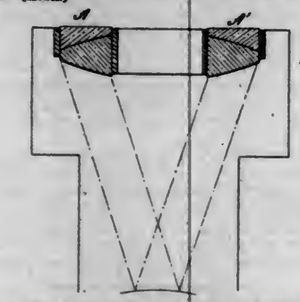


stop G', all adapted and co-operating substantially as and for the purposes set forth.

3. The combination of the hook-form draw-heads M N, their transverse supports P, springs H^3, stays H, rests E H', the latter's supports H^4, chains $z\,z'$, pulley x^2, and upright shaft a, provided with sleeve b, connected with said chains and thereby with the said draw-heads, the journal-box Q, and the button d, all adapted and connected for coupling automatically and uncoupling mechanically, substantially as set forth.

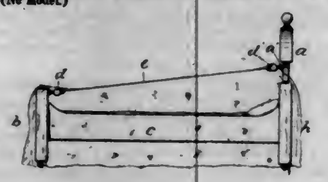
4. The combination of two pairs of couplers, M N, of two transverse supports, P, provided with limiting-stops $p\,p$, and secured to car-platforms, of spiral springs H^3, and stay-rods H H at rear end of each coupler connected thereto, and adapted to allow the heads M N to bob, of chains $z\,z'$, sleeves b, shafts a, turn-buttons d, journal-box Q, and buffers K L^2, provided with springs L L' and supports S, all arranged and coacting substantially as and for the purposes set forth.

318,666. OBJECT-LENS FOR TELESCOPES AND CAMERAS. JAMES A. SMITH, Decorah, Iowa, and ALFRED J. ATWAY, Sparland, Ill. Filed Oct. 22, 1884. (Model.)



Claim.—A lens for telescopes, cameras, &c., consisting of two separated transparent sections of a lens of a given diameter, which sections are spaced from each other such a distance that the exterior surfaces of the convex portions are concentric, and the inner surfaces of the convex portions are also concentric with each other, substantially as set forth.

318,667. MOSQUITO-BAR CANOPY. JOSEPH P. SMITH, Glastonbury, Conn., assignor of one-half to Charles Snow, same place. Filed Mar. 17, 1884. (No model.)



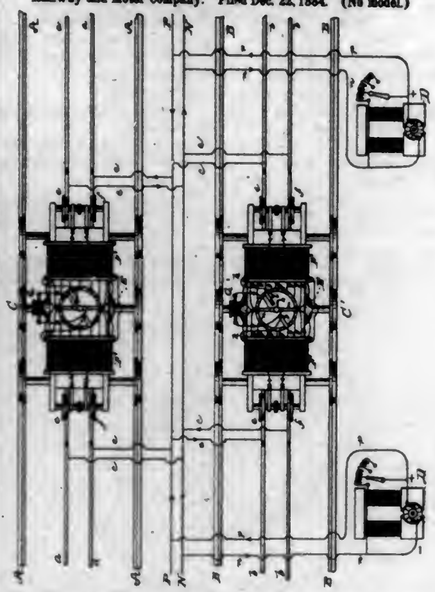
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Claim.—1. In combination, a bed-frame, the head and foot boards bearing hooks or like means of support, cross-bars d and d', bearing loops or eyes for engaging the hooks on the bed-frame, the elastic cord e, connecting the cross-bars and rove back and forth between them, substantially as described, and the netting c, connected to the bars and supported in part by the cords when extended, all substantially as described.

2. As a new article of manufacture, a device for supporting mosquito-netting or the like fabric, consisting of bars d and d', each bearing hooks, loops, or like means for attachment to a frame or standard, and each bar bearing also a plural number of pulleys or eyes, and connected by an elastic cord, e, rove back and forth through the pulleys or eyes, all substantially as described.

318,668. METHOD OF OPERATING ELECTRIC-RAILWAY TRAINS. FRANK J. SPRAGUE, New York, N. Y., assignor to the Sprague Electric Railway and Motor Company. Filed Dec. 22, 1884. (No model.)



Claim.—1. The method herein described of braking an electric-railway train, which consists in increasing the counter electro-motive force of the motor propelling the train until it exceeds the initial electro-motive force on the line.

2. The method herein described of braking an electric-railway train, consisting in increasing the strength of the field-magnet of the motor propelling the train until the counter electro-motive force developed by its armature exceeds the initial electro-motive force on the line.

3. The method of operating electric railways herein described, which consists in increasing the counter electro-motive force of each motor when slowing down until it exceeds the initial electro-motive force on the line.

4. The method of operating electric railways herein described, which consists in increasing the counter electro-motive force of each motor when running on a downgrade until it exceeds the initial electro-motive force on the line.

5. The method herein described of maintaining the counter electro-motive force of an electric-railway motor above the initial when the train is slowing down, which consists in increasing the strength of the field-magnet of the motor as the speed of the train slackens.

6. The method herein described of slowing down or stopping an electric-railway train, which consists in increasing the strength of the field-magnet of the motor propelling the train until the counter electro-motive force of the armature exceeds the initial electro-motive force on the line, and then further increasing the said field-magnet strength to maintain the counter electro-motive force above the initial as the speed of the train slackens.

318,669. CIGAR BUNCHING MACHINE. FRANCIS THOMPSON and EDWARD H. THOMPSON, Allegheny, Pa. Filed Apr. 16, 1884. (No model.)



Claim.—In a cigar-bunching machine, the combination, with the base having the transverse recess H, and formed in its sides with slots whose walls are of a V-shaped contour, the roller P, moving in said slots, formed with corresponding V-shaped grooves, the feed-hopper, and the grooved roller C, having an operating-crank connected with a restoring-spring, of the belt M, rigidly secured to one end of the base, passing over the roller P and around a cylinder at the opposite end of the base, said belt designed to be sufficiently slack in operation to be carried around the filler and its wrapper, whereby the latter is maintained tightly in place, substantially as set forth and described.

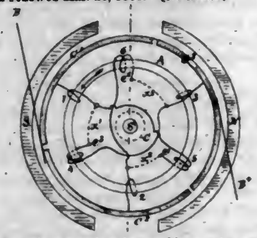
318,670. CRUSHING-MILL. EUGENE M. VILLEROY, Schramberg, Würtemberg, Germany. Filed Jan. 23, 1885. (No model.)



Claim.—1. In a crushing-mill, the combination of the inclined shaft c, the rotating basin b, the ball a, the adjustable bearing l, having pivots on the sides of it, and the adjustable support m, in which the said bearing is pivoted, substantially as and for the purpose set forth.

2. In a crushing-mill, the combination of the inclined shaft c, the rotating basin b, the ball a, the adjustable suppport m, in which the said bearing is pivoted, the vertically-adjustable plate g, and the stands h, substantially as and for the purpose set forth.

318,671. DYNAMO-ELECTRIC MACHINE. ADDISON G. WATERHOUSE, New York, N. Y., assignor, by mesne assignments, to the Schuyler Electric Light Company, same place. Filed Feb. 14, 1883. Renewed Feb. 12, 1884. Again renewed Mar. 28, 1885. (No model.)

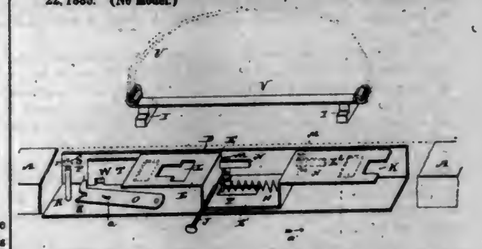


Claim.—1. In a dynamo-electric machine, an armature provided with coils of electric conductors arranged in pairs, with one free end of each pair connected to a separate commutator-plate and the other end being connected to the wire that connects the two coils of another pair, substantially as and for the purpose set forth.

2. In a dynamo-electric machine, the combination, with two armature-coils or bobbins arranged in substantially the same armature-plane and connected to work in series, of a connection from the wire joining said coils to one terminal of another pair of bobbins in another armature plane or portion of the magnetic field, the other terminal of said pair being connected to a commutator-segment.

3. In a dynamo-electric machine, an armature provided with pairs of connected coils on opposite sides thereof, one free end of each pair being connected to a commutator-plate, while the other free end is connected to the wire joining the coils in a plane near to that occupied by the first-named pair.

318,672. DETACHABLE HANDLE AND SAFETY-LOCK ATTACHMENT FOR VALISES, &c. CHARLES WHITE, Osceola, Nebr. Filed Jan. 22, 1885. (No model.)



Claim.—1. The combination, with the lock-frame of a valise or luggage holder and a locking mechanism arranged to operate, substantially as described, at the opposite ends thereof, of a detachable handle constructed to engage with its ends the said locking mechanism, whereby said handle may be entirely removed from the valise, substantially as set forth.

2. In a lock for hand-luggage, the combination, with the lock-frame, slotted at opposite ends on its upper surface, and a locking-slide within the said frame, of a detachable handle pivoted at its opposite ends with lugs constructed to pass through said slots and be locked by the slide, substantially as and for the purpose set forth.

3. In a lock for hand-luggage, the combination, with the lock-frame, of a slide provided with bolts, a tumbler for locking the slide in place, and of detachable handle having lugs, substantially as herein shown and described.

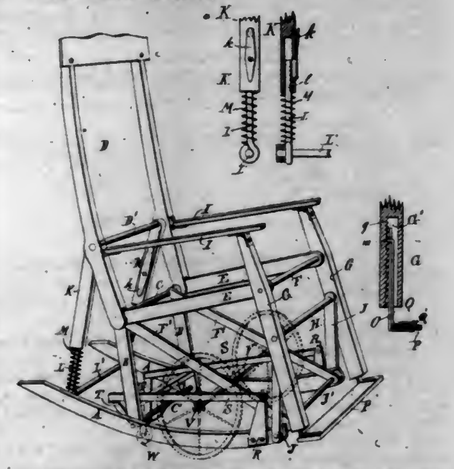
4. In a lock for hand-luggage, the combination, with the lock-frame having slots, of a slide in the lock-frame, and provided with slots and notches and with bolts, and of a detachable handle provided with lugs, substantially as herein shown and described.

5. In a lock for hand-luggage, the combination, with the casing having slots B, of the slide E, having a slot, L, and notch K, and a slot, F, the stud G, the spring H, the pin J, and the tumbler O, substantially as herein shown and described.

6. In a lock for hand-luggage, the combination, with a casing having slots and a notch, of the part T, having a notch, W, the bolts N, the tumbler O, having a tooth or projection, P, and of the key-post R, substantially as herein shown and described.

7. In a lock for hand-luggage, the combination, with a casing having slots, of a slide in the casing, a pin projecting from the slide through a slot in the side of the casing, and a detachable handle having lugs which can be passed through the slots in the casing, substantially as herein shown and described.

318,673. ADJUSTABLE CHAIR. DANL. WILCOX, Springwater, N. Y. Filed Nov. 3, 1884. (No model.)



Claim.—1. In an adjustable chair, the combination, with rockers or runners, legs pivoted on the rockers, and a seat and back pivoted on the legs, of telescopic braces secured to the rockers and to the back-rest, substantially as herein shown and described.

2. In an adjustable chair, the combination, with rockers or runners, legs pivoted on the rockers, and a seat and back pivoted on the legs, of

the braces K, connected with the back-rest, the rods or bars L, connected with the rockers and projecting into the braces K, and of springs surrounding the bars L, between the lower ends of the said bars L and the lower ends of the braces K, substantially as herein shown and described.

3. In an adjustable chair, the combination, with rockers or runners, legs pivoted on the rockers, and a seat and back pivoted on the legs, of the braces K, connected with the back-rest and provided with apertures in their lower ends, the latches *k* on the braces K, the bars L, pivoted on the runners and projecting into the apertures in the braces K, on which racks *l* are formed, substantially as herein shown and described.

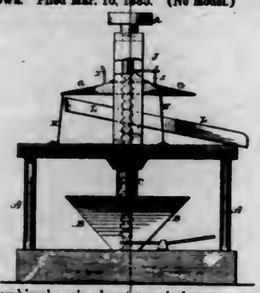
4. In an adjustable chair, the combination, with the runners A, the front legs, J, the rear legs, B, and the seat-bars E, of the front leg-bars, G, pivoted to the arm-rest I, the seat-bars E, and the front legs, J, and of an adjustable foot-board held on the bars G, substantially as herein shown and described.

5. In an adjustable chair, the combination, with the runners A, the front legs, J, the rear legs, B, and the seat-bars E, of the leg-bars G, pivoted to the arm-rests I, the side bars, E, and the front legs, J, of an adjustable foot-rest held on the bars G, and of latch-bars held on the foot-rest and adapted to catch on racks formed in the bars G, substantially as herein shown and described.

6. In an adjustable chair, the combination, with the runners A, the front legs, J, the rear legs, B, and the seat-bars E, of the front leg-bars, G, having apertures in which racks *g* are formed, the foot-board P, the bars O Q, and the springs Q', substantially as herein shown and described.

7. In an adjustable chair, the combination, with a supporting-frame and the runners A, of the standards R, the bars S, the cross-piece T, the caster W, the axle V, wheels on the ends of the axle, the latches *a* on the bars S, and the pivoted plates *d* on the rear legs, B, substantially as herein shown and described.

318,674. GRAIN ELEVATOR AND CLEANER. FRANCIS M. WILLIAMS, Down, Iowa. Filed Mar. 10, 1885. (No model.)



Claim.—A combined grain elevator and cleaner comprising a hopper, a tube, the elevating-shaft, the convex screen, spring-supports, the projections upon the top of the screen, an arm secured to the revolving shaft, and the receptacle placed under the screen to catch the grain, substantially as shown and described.

318,675. MINUTE WHEEL AND PINION. CHARLES V. WORRD, Waltham, Mass. Filed Nov. 26, 1884. (No model.)



Claim.—1. The improved minute wheel and pinion swaged from a single piece of metal, as set forth.

2. A minute wheel and pinion made in a single piece, as set forth.

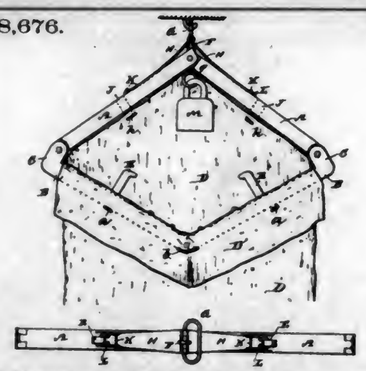
318,676. MAIL-BAG. EDWARD B. YOUNG and FRANK E. PTOOL, Mare Isld, Me. Filed Dec. 31, 1884. (No model.)

Claim.—1. The combination, with the bag D, of the hinged bars A A B B, the staple F, held at the joint of the bars A, the latches H, connected with the staple F, and the hook-prongs E on the bars B, substantially as herein shown and described.

2. The combination, with the bag D, of the hinged bars A A B B, the staple F, the latches H, having pins L, the staples K, and the hook-prongs E, substantially as herein shown and described.

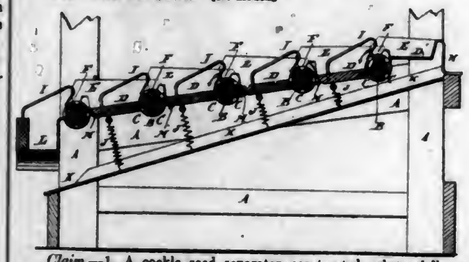
3. The combination, with the hinged bars A B, of the bag D, secured to the bars B a short distance from its upper edge, to form the flap D', the other two bars A being disconnected from the bag, and adapted to fold on the flap in closing the bag, substantially as herein shown and described.

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4. The combination, with a frame formed of four bars hinged together, of a bag secured to two bars, a staple held in the joints of the two bars opposite those to which the bag is secured, spring-strips connected with the staple, and hook-prongs projecting from the bars to which the bag is secured, substantially as herein shown and described.

318,677. COCKLE-SEED SEPARATOR. GEORGE ADAMS, Sherburne, Minn. Filed Oct. 8, 1884. (No model.)



Claim.—1. A cockle-seed separator constructed substantially as herein shown and described, and consisting of a series of rollers having indentations and corrugated end wheels, a series of plates interposed between the rollers, and having end plates provided with toes, a series of springs for holding the plates down, a series of guard-springs to prevent the indentations from carrying out small kernels of wheat, and a driving mechanism, as set forth.

2. In a cockle-seed separator, the combination, with the rollers B, having indentations C, and the interposed plates D, of the bent springs I, having forked ends, substantially as herein shown and described, whereby the said indentations will be kept from carrying out small kernels of wheat, as set forth.

3. In a cockle-seed separator, the combination, with the frame A and the rollers B, of the chain-wheels N, the endless chain O, the tension-rollers P, and their supports Q, substantially as herein shown and described, whereby the said rollers will be revolved together, as set forth.

318,678. BOLT-THREADING MACHINE. JAMES W. ADAMS, Chicago, Ill. Filed Jan. 26, 1885. (No model.)

Claim.—1. The split heads, the actuating-shaft therefor, and a sleeve upon said shaft, in combination with bars arranged on one side of a line through the meeting faces of the split head, and connecting both parts of the split head with the collar, substantially as described.

2. The split head, the actuating-shaft, and a sleeve, in combination with bars sliding upon the head and rigidly secured to the collar, substantially as described.

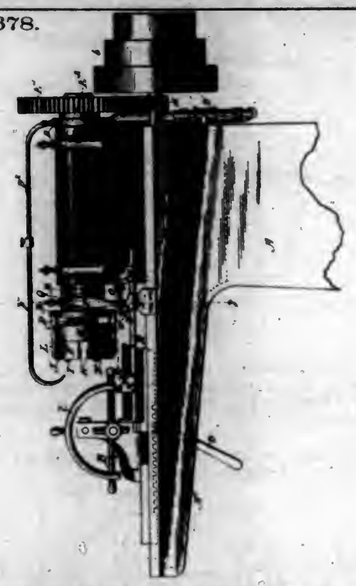
3. The actuating-shaft, the split head, and the sleeve, in combination with the connecting-bars provided with inclined grooves and corresponding projections on the head engaging said grooves, substantially as described.

4. The split heads and the tongues removably secured thereto, in combination with the sleeve and the grooved bar secured to said sleeve, and provided with corresponding grooves engaging the tongue on the head, substantially as described.

5. The split head, the sliding sleeve, and a connection between the sleeve and head for actuating the latter, in combination with a locking device connecting said head and sleeve when the head is closed, whereby the connection for opening and closing the head is relieved from strain during the threading operation, substantially as described.

6. The split head, the sleeve, and devices for actuating the head, in combination with a head-block and locking-pins secured to the sleeve,

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passing through the head-block, and engaging and locking the head when closed, substantially as described.

7. The combination of the split head, the inclined projection thereon, and the sleeve with a bar connecting the sleeve and engaging said projection, and provided with longitudinal ribs, substantially as described.

8. In a screw-threading machine, the shaft and the sleeve sliding thereon, in combination with a yoke provided with a stem having an end bearing, and a lever straddling and for actuating said yoke to reciprocate the sleeve, substantially as described.

9. The shaft, the sleeve, and the yoke, in combination with the lever straddling the yoke, a notched plate, and a stud upon the lever for engaging the notch thereof, substantially as described.

10. The shaft, the sleeve, and the actuating-lever therefor, provided with a stud, in combination with an adjustable notched plate for engaging the stud and a spring for actuating the said lever, substantially as described.

11. The shaft, the sleeve, and the actuating-lever therefor, provided with a stud, in combination with an adjustable notched plate for engaging the stud, a spring for actuating said lever, and means for adjusting the tension of the spring, substantially as described.

12. The sleeve, the yoke, the lever, and the stud thereof, in combination with a rod or bar actuated by the feed-carriage and provided with stops engaging the lever, substantially as described.

13. The sleeve, the yoke, the lever, and the notched plate, in combination with the bar and the adjustable stops thereon, provided with reversely-inclined faces engaging the lever, and means for actuating said bar and stops, substantially as described.

14. In a screw-threading machine, a feed-carriage, an oil-receptacle below the path of the same, and a removable perforated pan on the feed-carriage, substantially as described.

15. The feed-carriage, in combination with the bars C' C' and means for adjusting the same to clamp the nut, a nut-pusher, and a revolving split head, and a screw-tap held by said head, substantially as described.

318,679. PEN. J. SPRAGUE BARD, New York, N. Y. Filed Dec. 1, 1884. (No model.)

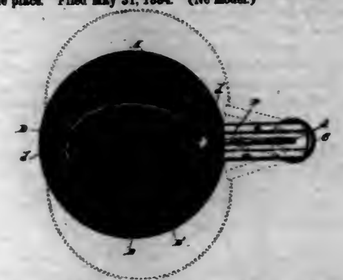


Claim.—1. A pen having flat nibs in two divergent planes, which are united with the arch of the body by two indentures or externally-concave curvatures, substantially as shown and described.

2. A pen having its nibs in two divergent planes, which are continued back of the slit, and between which and the arch of the body are two indentures or externally-concave curvatures, *e e*, substantially as shown and described.

3. A pen having its nibs in two divergent planes, which are united with the arch of the body by two indentures or externally-concave curvatures, *e e*, in rear of the shoulders *d d* of the pen, substantially as herein shown and described.

318,680. FLOUR-SIFTING SCOOP. AUGUSTUS C. BARLER, Chicago, Ill., assignor, by mesne assignments, of one-half to Elbridge R. Burley, same place. Filed May 31, 1884. (No model.)

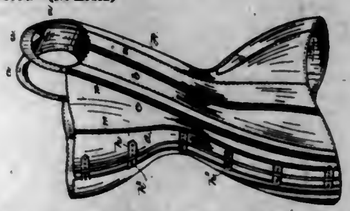


Claim.—1. A flour-sifting scoop consisting of a dipper having a sieve-bottom and a handle pivotally supported in rigid brackets, said handle being provided with a wire fixed thereto, and extending forward and downward within the scoop and across the bottom thereof, substantially as and for the purposes set forth.

2. A flour-sifting scoop consisting of a dipper having a sieve-bottom and an upright handle pivotally supported in rigid brackets or bearings extending outwardly therefrom, said handle being provided with a wire rigidly fixed thereto, and bent forward and downward within the scoop and across the bottom thereof one or more times, whereby the lateral movement of said scoop will cause the flour to sift through said sieve by being brought in contact with said wire extension, substantially as described.

3. In a flour-sifting scoop, the combination of the sieve-bottomed cup A, handle-supports *a a*, and pivoted handle C, with rigid wire extension D D', substantially as and for the purposes set forth.

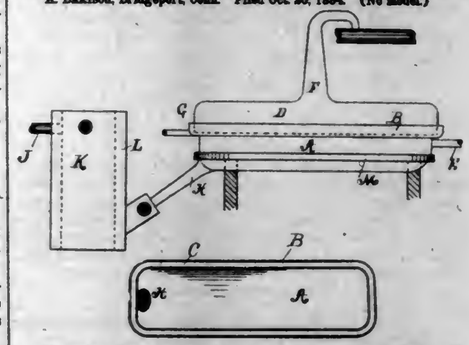
318,681. WAIST. CHARLOTTE M. A. BARRY, Boston, Mass. Filed Apr. 28, 1884. (No model.)



Claim.—1. A waist for ladies' wear, consisting of a back, A, the shoulder-straps *a*, bias cuts *e e* in said back, gores *g*, the pieces *b c d*, suitable stiffeners, *m*, and the independently-adjustable fastening devices for the front, substantially as shown and described.

2. In a waist for ladies' wear, the back A, comprising the bias curvilinear cuts *e e*, having their edges united and arranged on each side of the longitudinal center of the back, and beginning at points above the waist-line from near the arm-sizes and terminating at or near the bottom, substantially as set forth.

318,682. STILL FOR CONCENTRATING SULPHURIC ACID. CHAS. A. BARTON, Bridgeport, Conn. Filed Oct. 20, 1884. (No model.)

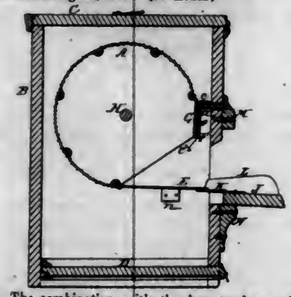


Claim.—1. In an apparatus for concentrating sulphuric acid, the combination, with a furnace, of a still extending outside of the furnace and having an outlet-pipe extending from the lowest part of the still and outside of the furnace, substantially as described.

2. In an apparatus for concentrating sulphuric acid, the combination, with a still having an outlet-pipe at its lowest point, of an equalizing-jar connected to the still by said outlet-pipe, whereby the depth of the acid in the still is determined by the jar, as set forth.

3. In an apparatus for concentrating sulphuric acid, the combination of a still practically cylindrical in form, a separable cover having an opening connected with a condenser, an outlet-pipe at the lowest point of the still and outside the fire-box, a jacketed equalizing-jar connected to said pipe, and an outlet for the said jar, substantially as described.

318,683. REVOLVING ASH-SIFTER. WILLIAM H. BATLES, Port Jefferson, N. Y. Filed Aug. 29, 1884. (No model.)



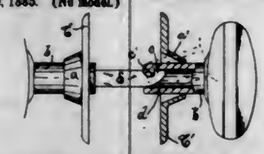
Claim.—1. The combination, with the box having a side hinged chute, a revolving screen having a hinged section, and a catch for securing said section in a closed position, of a button having a pin or arm passing through a slot in the box, the said button being adapted to fasten the side chute when closed, to unlatch the hinged screen-section, and to stop the revolution of the screen, substantially as described, for the purpose specified.

2. The ash-sifter box having a side chute adapted to open outward, and provided with an inwardly-projecting plate, in combination with a screen having a hinged section, a sliding catch, and a turn-button having an eccentric arm passing through a slot in said box, whereby said button is limited in its movement, to fasten said side chute when closed, and to carry its eccentric arm in position to unfasten the screen-catch by the act of unfastening the side chute, substantially as described, for the purpose specified.

3. The combination, with a revolving screen having a hinged section, E, and a fastening-catch therefor, and a box having a hinged side chute, J, provided with the wings L, of a turn-button, M, arranged upon the outside of the box, provided with an outside arm, *m*, and an eccentric inwardly-projecting arm, *a*, the wings L of said chute having such relation to the hinged screen-section E that the latter will, when unlatched, fall against and open the side chute, substantially as herein set forth.

4. The box having the hinged side chute and the curved slot *b*, in combination with a turn-button, M, having an eccentric inwardly-projecting arm, *a*, and a revolving screen having a hinged section and a fastening-latch therefor, the said turn-button being limited in its movement by said eccentric arm and slot, and serving to cover the latter when in position to fasten the chute, as herein set forth.

318,684. KNOB ATTACHMENT. CHARLES H. BEEBE, Norwich, Conn. Filed Jan. 10, 1885. (No model.)

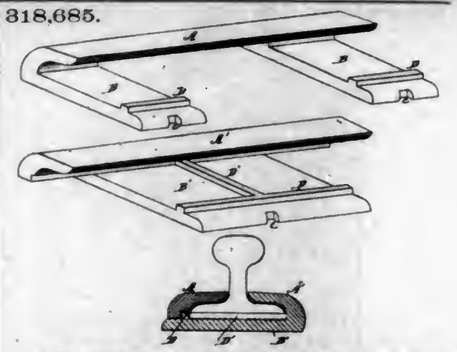


Claim.—In combination with a lock-hub having a rectangular spindle-hole, a spindle adapted to enter and nearly fill said hole and provided at one or both ends with a locking-hook, substantially as described, knob-necks having within their free ends a locking-hook which may, by elevating the knob end of said neck or necks, be slipped over the spindle-hooks, and means for retaining said knob-necks in longitudinal alignment with said hub-spindle, all as and for the purpose specified.

318,685. RAIL-CHAIR. SAML. M. BERRY, Omaha, Nebr. Filed July 16, 1884. (No model.)

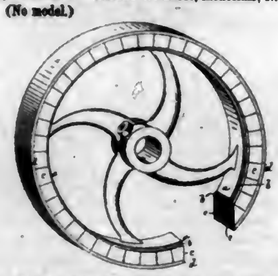
Claim.—1. The combination of the part of the chair composed of flange A and separated base-sections B B, having ribs D D, with the parts composed of flange A' and broad base-section B', having the rib D', the said parts being adapted to fit together, as shown and described.

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2. The combination of the part composed of flange A', base-section B', having side and transverse ribs D and D', with the other part composed of flange A and the two separated base-sections B B, as shown and described.

318,686. PULLEY. ROBERT W. BETTS, Montclair, N. J. Filed Jan. 22, 1885. (No model.)

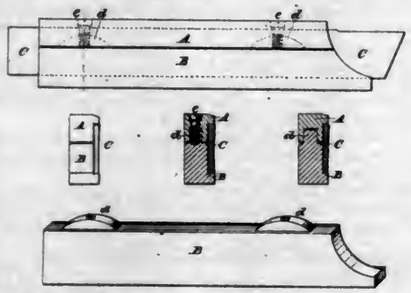


Claim.—1. The combination of a paper covering, *b*, and a segmental covering, *c*, with the rim *a* of a pulley, substantially as described.

2. The combination of a paper covering, *d*, a segmental sheathing, *c*, with an external coating of paper, *b*, with the rim *a* of the pulley, substantially as described.

3. The combination of a segmental covering, *c*, provided with the grooves *f*, and the cords *e e*, with the rim *a* of a pulley, substantially as described.

318,687. CUTTING-OFF TOOL. CHARLES E. BILLINGS, Hartford, Conn. Filed Dec. 11, 1884. (No model.)

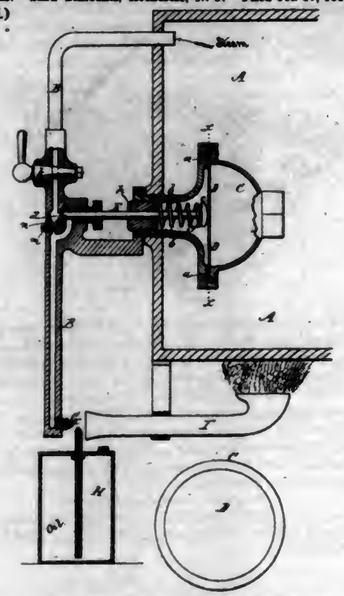


Claim.—1. The combination of the cutter plate or blade C with the stock or holder A B, consisting of the two segments A and B, connected together by the lugs *d d*, substantially as and for the purpose specified.

2. The combination of the cutter C with a holder consisting of two segments, A and B, which are connected by the lugs *d d* and screws *e e*, substantially as described, and for the purpose specified.

3. An improved tool-holder, consisting of two separable segments, A and B, provided with lugs *d d* and screws *e e*, for holding said segments in their proper relative positions of contact or juxtaposition, as the case may be, said screws having their heads countersunk in A, and their points within the lugs *d d*, in combination with the blade or cutter-plate C, all constituting a combined cutting-off tool and holder thereof having a uniform cross-section and a convenient external form for insertion in and withdrawal from the tool-post of a lathe.

318,688. REGULATOR FOR CONTROLLING COMBUSTION IN FURNACES. SETH BRAGDON, Rochester, N. Y. Filed Oct. 17, 1884. (No model.)



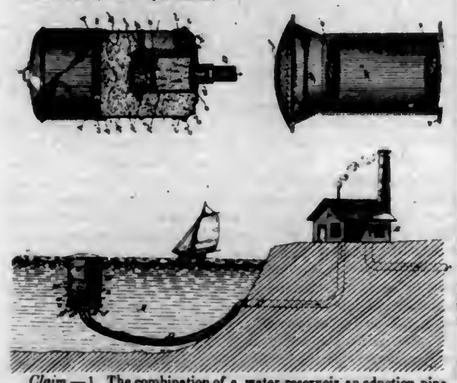
Claim.—1. The combination, with a steam boiler or generator, of a steam-pipe extending therefrom, a valve or cut-off adapted to open or close the passage through the pipe, and a device located in the boiler adapted to actuate the valve, and consisting of a closed bulb or chamber containing a fluid, substantially as herein set forth.

2. The combination, with a steam boiler or generator, of a steam-pipe extending therefrom, a valve or cut-off adapted to open or close the passage through the pipe, a device located in the boiler adapted to actuate the valve, and consisting of a closed bulb or chamber containing a fluid, and an atomizer connected with the steam-pipe for raising oil from a reservoir to support combustion under the boiler, substantially as herein set forth.

3. The combination, with a steam boiler or generator, and with a steam-pipe extending therefrom, of a bulb or chamber located in the boiler, having a movable diaphragm on one side, and a neck or projection for securing it to one side of the boiler, and a cut-off valve located between the diaphragm of the bulb or chamber and a valve-seat in the steam-pipe, substantially as and for the purpose herein specified.

4. The combination, with the steam-pipe B and valve-rod E, of a branch pipe, *n*, connecting the steam-passage around the valve, and a screw, *m*, screwing into the pipe across the branch pipe, as and for the purpose specified.

218,689. FLOATING FILTER. JOHN H. BREER, Davenport, Iowa. Filed Jan. 2, 1885. (No model.)



Claim.—1. The combination of a water-reservoir, an eduction-pipe, a floating filter, and a flexible pipe connecting said floating filter with said eduction-pipe, said filter consisting of a buoyant air-chamber, two concentric filtering-cylinders, the outer filtering-cylinder being perforate, and the inner filtering-cylinder being imperforate and extending from the bottom of the outer cylinder upward about half the height of the outer cylinder, leaving a space between the tops of said inner and outer cylinders, and a perforate cap surmounting said inner cylinder, substantially as described.

2. The combination of a water-reservoir, an eduction-pipe, a floating filter, and a flexible pipe connecting said floating filter with said eduction-pipe, said filter consisting of a buoyant air-chamber and two concentric filtering-cylinders, the outer filtering-cylinder being perforate and the inner filtering-cylinder imperforate, and provided with a perforate top and extending from the bottom of the inner cylinder upward about half the height thereof, leaving a space between the tops of said inner and outer cylinders, the bottom of said filter being provided with open perforations outside the inner cylinder, which admit the free passage of water and prevent the accumulation of sediment, substantially as described.

3. A floating filter consisting of a buoyant air-chamber and two concentric filtering-cylinders of different diameters, the outer cylinder being perforated, and the inner cylinder being imperforate and extending from the bottom of the outer cylinder upward about half the height of the outer cylinder, leaving a space between the tops of said inner and outer cylinders, and a perforate cap surmounting said inner cylinder, substantially as described.

4. A floating filter consisting of a buoyant air-chamber, two concentric filtering-cylinders of different diameters, the outer filtering-cylinder being perforate, and the inner filtering-cylinder imperforate and extending from the outer cylinder upward about half the height of the outer cylinder, leaving a space between the tops of said inner and outer cylinders, and a sponge-chamber having a perforated top surmounting said inner cylinder, substantially as described.

5. A floating filter consisting of a buoyant air-chamber, two concentric filtering-cylinders of different diameters, the outer filtering-cylinder being perforate, and the inner filtering-cylinder imperforate and extending from the outer cylinder upward about half the height of the outer cylinder, leaving a space between the tops of said inner and outer cylinders, and a removable filtering or sponge chamber having a perforated top surmounting said inner cylinder, substantially as described.

6. A floating filter consisting of the buoyant air-chamber, two concentric filtering-cylinders of different diameters, the outer cylinder being perforate and the inner cylinder imperforate, said inner cylinder extending upward from the bottom of the outer cylinder about half the height of the latter, and a perforated sponge-chamber surmounting said inner cylinder, within the outer cylinder, provided with an interior downwardly-inclined flange which projects inward beyond the outer margin of the filtering material or sponge within said chamber for directing the water toward the center of the latter, substantially as described.

7. A filter having a chamber containing filtering material, said chamber being provided with an inwardly-projecting downwardly-inclined flange extending beyond the outer margin of the filtering material and serving to direct the water toward the center thereof and to prevent its escape down the sides of the chamber without the proper action of said material, substantially as described.

8. A floating filter consisting of a buoyant air-chamber, two concentric filtering-cylinders of different diameters, the outer cylinder being perforate and the inner cylinder shorter than the outer cylinder, and a perforated sponge-chamber provided with an interior flange for directing the water onto the sponge, substantially as described.

318,690. FURNACE. JOS. W. BRIGHTMAN, Cleveland, Ohio, assignor of one-half to N. W. Taylor and Frank E. Brightman, both of same place. Filed Dec. 26, 1883. Renewed Jan. 21, 1885. (No model.)

Claim.—1. In a furnace, the combination, with a series of inclined movable grate-bars, a hopper, and a coal-pusher situated within the hopper, of devices, substantially as described, for moving the grate-bars and operating the coal-pusher.

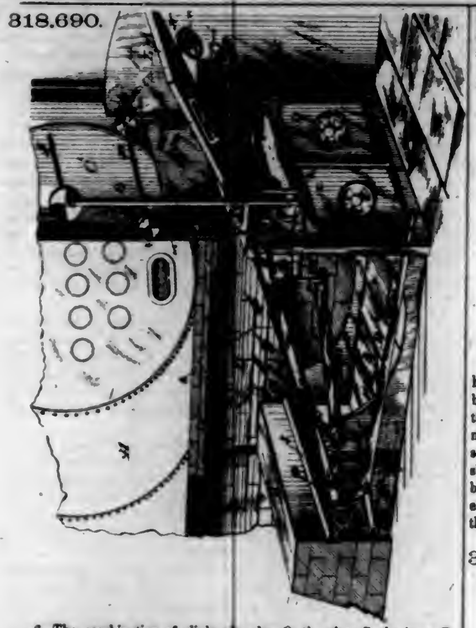
2. In a furnace, the combination, with a series of inclined movable grate-bars, a hopper, a coal-pusher located within the hopper, and the vertically-sliding plate L', of the devices, substantially as described, for simultaneously operating the grate-bars and coal-pusher.

3. In a furnace, the combination, with a series of inclined grate-bars and a bridge-wall situated at the lower end of said bars, of a revolving clinker-breaker, situated between the bridge-wall and grate-bars, and devices for operating the breaker, substantially as set forth.

4. In a furnace, the combination, with an inclined grate, a bridge-wall situated at the lower end of the grate, and devices for automatically feeding fuel to the furnace, of a hollow cylindrical clinker-breaker situated between the grate and bridge-wall and provided with air-escape orifices, through which air is fed to the burning fuel.

5. In a furnace, a hollow cylindrical clinker-breaker extending crosswise of the furnace and near the back end thereof, and provided with hollow conical projections, the holes of which are in open relation with the chamber in the cylindrical part of the clinker-breaker, substantially as set forth.

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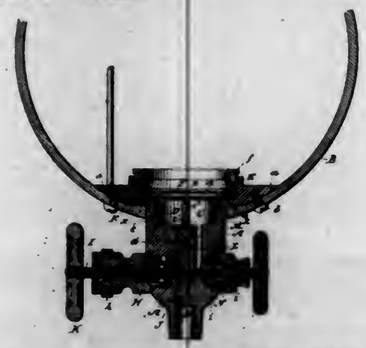


6. The combination of clinker-breaker O, the plate S, the lever P, and the pawl R, substantially as set forth.

7. The block J, in combination with the slotted rods *j*, embracing pins or projections extending from the block, and actuating-cranks *i*, by means of which an intermittent reciprocating motion is given to the said block, substantially as set forth.

8. The slotted gage K, provided with the incline *k*, in combination with the pawl *h'* and the ratchet-wheel I', substantially as set forth.

318,691. STEAM-GAGE. GEORGE W. BROWN, Mansfield, Ohio. Filed Feb. 18, 1885. (No model.)



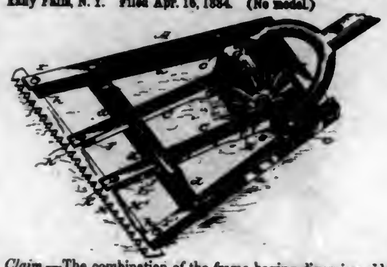
Claim.—1. The combination, with a casing provided with a steam-chamber, of a plate secured in said casing over the chamber and provided with an opening, a diaphragm secured above the plate, a washer located between the plate and diaphragm, forming a chamber between them, said casing being provided with an inlet and outlet passage connecting with the steam-chamber, and valves for opening and closing said passages, substantially as set forth.

2. The combination, with the casing having a steam-chamber formed therein, of a plate secured above the chamber and provided with an opening, a diaphragm secured above the plate with a steam-space between them, said casing being provided with an inlet and outlet to the chamber, and with a passage connecting them, and valves for opening and closing said inlet and outlet, substantially as set forth.

3. The combination, with the casing A, provided with the chamber C, having the partition *c'*, and passages G, L, and M, of the plate D, washer E, diaphragm F, and valves for operating the passages G and L, substantially as set forth.

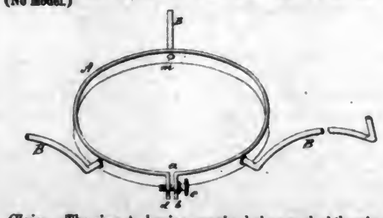
4. The combination, with the casing A, provided with the chamber C and passages G, L, and M, of the plate D, washer E, diaphragm F, ring *f*, screw-plugs H and N, and valves J P, all of the above parts being constructed and adapted to operate substantially in the manner and for the purpose set forth.

318,692. FIELD AND LAWN MOWER. LAURISTON S. BROWN, Oriskany Falls, N. Y. Filed Apr. 16, 1884. (No model.)



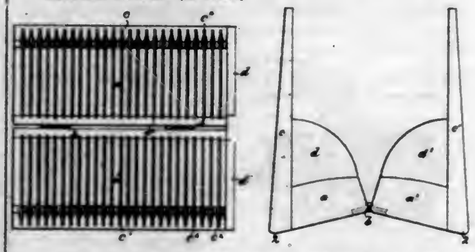
Claim.—The combination of the frame having diverging sides, the handle hinged upon the rear end of the frame, the slotted brace or cross-bar near the outer end of the same, the guide-bolts in the outer ends of the diverging arms, the drive-wheel having scalloped sides or faces, the movable arms or levers pivoted upon the frame on opposite sides of the scalloped drive-wheel, and having friction-rollers bearing against the sides of the same, and the cutters pivoted in the outer ends of the movable arms or levers, one above the other, and having slots in their outer ends, through which the guide-bolts are inserted, substantially as and for the purpose herein shown and set forth.

318,693. SHADE-HOLDER. EDSON L. BRYANT, Ansonia, Conn., assignor of one-half to Wallace & Sons, same place. Filed Feb. 9, 1885. (No model.)



Claim.—The ring A, having angular holes punched therein to form a flange, *h*, surrounding said angular hole, combined with the arms B, their inner ends of an angular shape corresponding to the said holes in the ring, and so as to form a shoulder upon the body of the arm to bear against the outer end of the flange, said angular portion of the arms extended through their respective holes to the inside of the ring and riveted down thereon, substantially as described.

318,694. BREAD-CUTTER. NATHAN CHAPMAN, Nantucket, Mass. Filed June 16, 1884. (No model.)



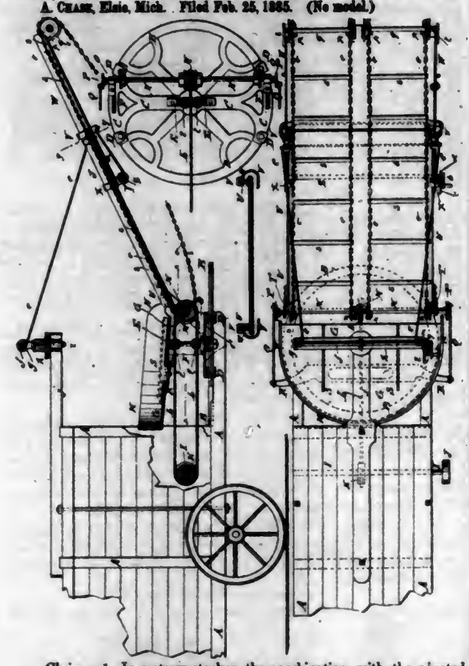
Claim.—1. A bread-cutting apparatus composed of a bed and slitted knife-guiding and loaf-holding uprights firmly secured at the sides thereof, the said bed being made in two parts hinged together at their inner sides, whereby the uprights may be moved toward each other on the hinge or axis of the bed to bear against the sides of the loaf and hold the same, substantially as described.

2. In a bread-cutting apparatus, the bed made in two portions pivotally connected together, combined with the slitted knife-guiding and loaf-holding uprights connected with the sides of the said blade and inclined with relation thereto, whereby when the uprights are separated to receive a loaf between them the base is supported at its edges only, and thus tends to press the said uprights toward one another, substantially as and for the purpose described.

3. The bed made in two portions hinged together, and having its upper surface curved, as described, combined with the knife-guiding and loaf-holding uprights connected with the said bed, substantially as described.

4. The sectional hinged bed combined with the slotted uprights *c c*, firmly secured thereto, having a pivotal movement toward each other on the hinge or axis of the bed, and end pieces, *d d'*, connected with the said bed-sections, substantially as described.

318,695. STRAW-STACKER FOR GRAIN-SEPARATORS. LUCIEN A. CRANE, Elsie, Mich. Filed Feb. 25, 1885. (No model.)



Claim.—1. In a straw-stacker, the combination, with the pivoted cross-bar C, the standards F, carrying the receiving-table G, and the shafts I N, of cranks P, connecting-rods Q, sliding cross-bar R, sliding toothed bar S, the center pulleys and band, K L M, the pairs of guide-pulleys *t*, and the chain-wheels and endless chains of the carrier, substantially as herein shown and described, whereby the operation of the mechanism will be unaffected by the lateral adjustment of the carrier, as set forth.

2. In a straw-stacker, the combination, with the pivoted cross-bar C, the standards F, the receiving-table G, and the shaft N, of the cranks P, the connecting-rods Q, the sliding cross-bar R, and the sliding toothed bars S, substantially as herein shown and described, whereby the straw will be fed from the said table, as set forth.

318,696. MACHINE FOR ENLARGING FINGER-RINGS. NORMAN CLARK, Sterling, Ill. Filed Apr. 9, 1885. (No model.)

Claim.—1. In a finger-ring enlarger, the combination of the tapering rolls H and E, relatively journaled, and suitable mechanism for imparting to such rolls mutual rotation, substantially as shown, and for the purpose described.

2. The combination of the frame A, provided with jaws C and D, the bearing G, the rolls H and E, provided, respectively, with the gears J and F, the crank K, and screw L, substantially as shown, and for the purpose specified.

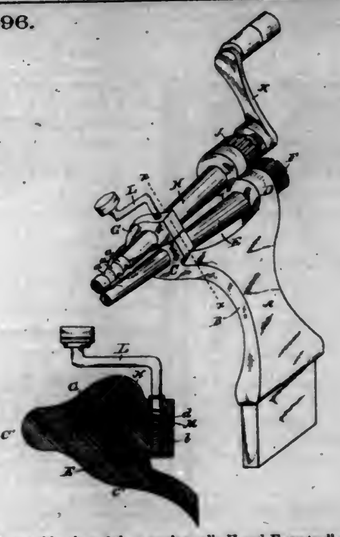
3. The combination of the rolls H and E, provided, respectively, with the gears J and F, the crank K, jaws C and D, and adjustable bearing G, substantially as shown, and for the purpose mentioned.

4. In a finger-ring enlarger, the combination of the tapering rolls H and E, journaled in suitable relation to each other and provided, respectively, with the gears J and F, the frame A, the crank K, adjustable bearing G, screw L, and spring M, substantially as shown, and for the purpose described.

5. In a finger-ring enlarger, the combination of the roll H, provided with the annular recesses *a*, the roll E, and mechanism for mutually rotating such rolls, substantially as shown, and for the purpose specified.

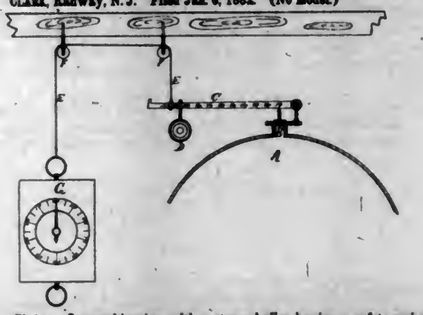
6. The combination of the tapering rolls H and E, journaled adjustably in suitable mutual relation, and provided with means of rotation, substantially as shown, and for the purpose mentioned.

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7. The combination of the tapering rolls H and E, mutually geared to have the same rotary velocity, and having their smaller ends projected beyond the jaw C and bearing G, so as to receive and uniformly enlarge closed rings, substantially as shown, and for the purpose named.

318,697. COMBINED DYNAMOMETER AND SAFETY-VALVE. P. CLARK, Rahway, N. J. Filed Jan. 6, 1882. (No model.)



Claim.—In combination with a steam-boiler having a safety-valve, B, the lever C, weight D, cord E, connected at one end with said lever, the spring-dynamometer G, attached to the other end of said cord, and having on its face inversely-arranged graduated figures, the dynamometer to be drawn by the fireman or attendant, substantially as and for the purpose set forth.

318,698. STILL AND FILTER. ROLLIN C. CLARK and MURRAY H. WARREN, Corry, Pa. Filed Dec. 26, 1884. (No model.)

Claim.—1. In an oil-still, the combination, with a heating-chamber and a still located therein, of a heat-generator located within an air-chamber and communicating directly with said heating-chamber, a hot-air flue leading from said air-chamber, and a chimney in open relation with the heating-chamber, substantially as set forth.

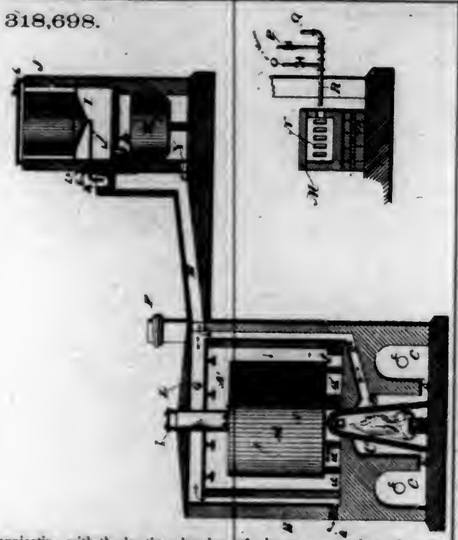
2. The combination, with a heat-generator located within an air-chamber and communicating within an upper chamber, and a still situated in said upper chamber over the generator, of a hot-air flue leading from the air-chamber upwardly alongside of the upper chamber, and a flue or chamber opening into the outer air and communicating with the hot-air flue, substantially as set forth.

3. The combination, with a heat-generator, a heating-chamber located over said generator and in communication therewith, and a metal cover or top for said chamber, of a filter and the flues c^3 and E, leading from around the heating-chamber to the filter, substantially as set forth.

4. The combination, with a still inclosed within a heating-chamber, a metal floor constituting the top of said chamber, and a filter, of a passage-way for conducting air over said metal floor to the filter, whereby the air is heated on its passage to the filter, substantially as set forth.

5. The combination, with a still inclosed within a heating-chamber, an air-chamber located below said heating-chamber, and a chimney com-

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municating with the heating-chamber, of a heat-generator located partly within the air-chamber and terminating within the heating-chamber, and a hydrocarbon-burner constructed substantially as described and located within said generator, substantially as set forth.

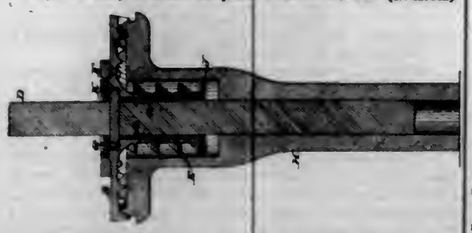
6. The combination, with a heating-chamber, a still located therein, and a heat-generator located below said heating-chamber, of a filter inclosed within a chamber, a flue, E, passing directly over the heating-chamber, a flue connecting the heat-generator and filter-inclosing chamber and connecting with the flue E, and a damper for closing the opening between the flues and filter-inclosing chamber, substantially as set forth.

318,699. COMBINED POCKET-KNIFE AND SCISSORS. FRIEDRICH A. CLAUBERG and EWALD SUTTERLÜTE, Solingen, Germany. Filed Nov. 8, 1884. (No model.) Patented in Germany Apr. 19, 1884, No. 29,556.



Claim.—The combination, with the handle A, of a pocket-knife, the ring C, forming part of said handle, the blade D, hinged to the handle A, and the blade E with ring F, hinged to the scissors-blade D, arranged to operate in the manner and for the purpose described.

318,700. GRINDING-MILL. HENRY H. COLES, Philadelphia, Pa., assignor to Henry Troemner, same place. Filed Jan. 24, 1885. (No model.)

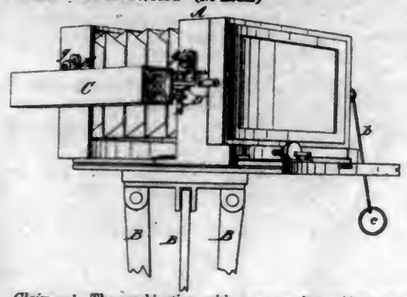


Claim.—1. The casing of a grinding-mill formed with bosses, the bed-plate having lugs, bolts, and nuts, and Babbitt metal interposed in the joints between the lugs and bosses, combined and operating substantially as and for the purpose set forth.

2. A runner having the recess F and a shaft having a cross-bar, G, fitted therein, and Babbitt metal interposed in the joints between the cross-bar, runner, and shaft, combined and operating substantially as and for the purpose set forth.

3. A runner and spiral conveyer, in combination with a shaft having grooves and provided with a cross-bar, and Babbitt metal interposed between said cross-bar, spiral conveyer, runner, and shaft, and filling said grooves, substantially as described.

318,701. PHOTOGRAPHIC APPARATUS. HENRY CORREJA, Paris, France. Filed June 9, 1884. (No model.)



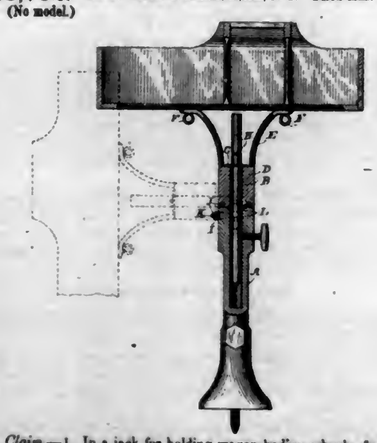
Claim.—1. The combination, with a camera for rapid or instantaneous photographing, of an attached sighting-tube arranged outside of or to one side of the instrument provided with cross hairs or strips, dividing the field within it, and adjustable relatively to the camera to properly place the object on the sensitive plate of the camera as it appears in corresponding position on the field within said tube, substantially as specified.

2. The finder or side tubular attachment, C, constructed with vertical and horizontal cross hairs or strips *d d* at or near its one end and diagonal cross hairs or strips *d' d'* at or near its opposite end, for use in connection with a camera adapted to produce rapid or instantaneous photographing, essentially as described.

3. The ground glass G of the camera, having vertical, horizontal, and diagonal pencil or other marks, *d² d³*, upon it, in combination with the tube C, adjustably connected with the camera on its outside, and provided at or near its one end with vertical and horizontal cross hairs or strips *d d*, and at or near its other end with diagonal cross hairs or strips *d' d'*, substantially as and for the purposes herein set forth.

4. In combination with the camera, the tube C, with its vertical, horizontal, and diagonal cross hairs or strips *d d'*, arranged as described, and the adjusting slotted bars D D' and E E', essentially as and for the purpose described.

318,702. JACK. AMOS L. DENNO, Salem, N. Y. Filed Mar. 31, 1885. (No model.)



Claim.—1. In a jack for holding wagon-bodies, wheels, &c., while being worked upon, the standard A, the sliding rod B, and the frame D, substantially as described.

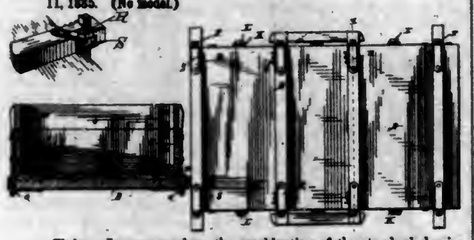
2. A jack consisting of the standard A, provided with the hand-screw, the sliding rod B, made in two parts connected by a hinge-joint, and the frame D, substantially as described.

3. In a jack for holding wagon-bodies, wheels, &c., while being worked upon, the standard A, having the set-screw, the sliding rod made in two parts, joined by a hinge-joint, and the frame consisting of the base or hub D, and the upwardly-extending arms having retaining devices, substantially as described.

4. In a jack of the kind described, the standard A, provided with the set-screw, the rod B, and the frame D, the under side of the hub D' of which is provided with a series of depressions, and the spring projection I, having the projection K, taking into the said depressions, substantially as described.

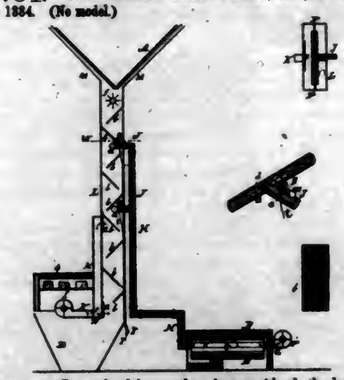
5. In a jack of the kind described, the standard provided with suitable means for securing it firmly in position, the rod B, made in two parts, connected by the hinge-joint, the frame consisting of the hub and the upwardly-extending arms, the under side of said hub being provided with depressions, and the spring-catch placed upon the said standard and taking into the depressions, substantially as described.

318,703. WAGON-BOX. JACOB DEIK, Greenville, Ohio. Filed Apr. 11, 1885. (No model.)



Claim.—In a wagon-box, the combination of the standards having horizontal transverse grooves in their lower ends, the bottom cross-pieces having slots in their ends for the reception of the ends of the standards, the catch-plates pivoted with their inner ends upon the under sides of the cross-pieces and engaging the grooves with their outer ends, and the turn-buttons pivoted upon the sides of the cross-pieces, preventing the catch-plates from turning, as and for the purpose shown and set forth.

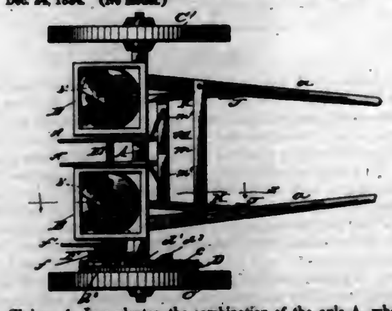
318,704. GRAIN-DRIER. GEORGE H. DIEHL, Lake, Ill. Filed Sept. 15, 1884. (No model.)



Claim.—1. In grain driers and coolers combined, the hot-air pipe J H H, one or more, communicating with a heating-furnace, D F, and an air-distributing pipe, *a*, placed inside of the shaft L, and the cold-air pipe K, having one or more open communications, N, with the shaft for attaining a hot-air blast in the shaft L above a cold-air blast, and the shaft taking the grain at its top and conducting it to a place of delivery at its bottom, as specified.

2. In grain driers and coolers, the shaft L, which at its upper portion is supplied with a hot blast and the lower portion with a cold blast, and the agitator *f*, rotated by the gravity of the grain, in combination with the deflectors *b*, as and for the purpose specified.

318,705. SEED-PLANTER. WILLIAM M. DIRST, Mercer, Pa. Filed Dec. 24, 1884. (No model.)

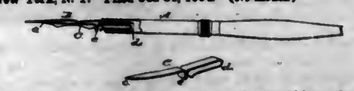


Claim.—1. In a planter, the combination of the axle A, wheel C, ring *c*, and ring D, provided with the lugs *d²*, and circumferentially adjustable on the ring *c* by means of the bolts *d*, ratchet-teeth *d'*, and pawl *d³*, with the disk F, provided with the radial lugs *f*, and splined on the shaft E, and the lever *f'*, pivoted on the seed-box or frame, with its notched or forked lower end engaging the edge of the disk F, substantially as set forth.

2. In a planter, the combination of the axle A, wheel C, ring *c*, and ring D, circumferentially adjustable on the ring *c*, and provided with the lugs *d²*, with the shaft E, disk F, provided with the radial lugs *f*, gear-wheel G on the shaft E, and crown-gear *h* on the lower surface of the disk H, which is pivoted centrally within a seed-box, substantially as specified.

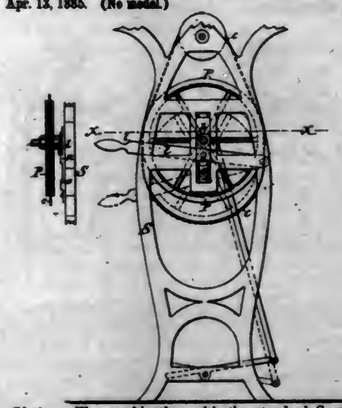
3. In a seed-planter, the combination of the shafts *a*, bracket J, rods K, and planting-tubes L, with the cross-bar M, provided with the central hinge, *m*, rods or links *m'*, and levers N, substantially as specified.

318,706. FOUNTAIN ATTACHMENT FOR PENS. JOHN W. DREWETT, New York, N. Y. Filed Oct. 31, 1884. (No model.)



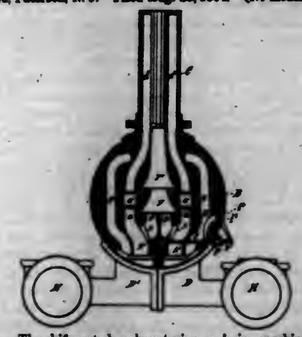
Claim.—A pen attachment constructed of a thin strip of metal adapted to fit within the pen-holder underneath the nib of the pen, having a spring formed integrally with the strip by doubling its inner end upon itself, and an offset formed by a fold in the strip interposed between its spring and outer end, substantially in the manner and for the purpose herein set forth.

318,707. BELT-TIGHTENER. MICHAEL DUGAN, Brandt, Pa. Filed Apr. 13, 1885. (No model.)



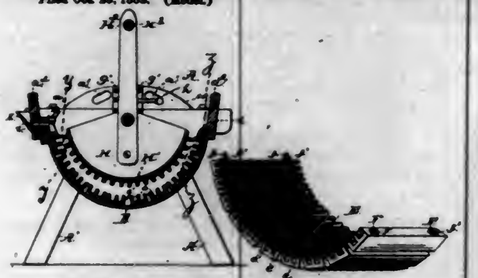
Claim.—The combination, with the standard S, of the guide *a*, slide *b*, lever *l*, pulley P, pivoted on the slide, and the stops *n* on the standard, substantially in the manner described and shown.

318,708. EXHAUST MECHANISM FOR LOCOMOTIVES. SAMUEL H. DUNNING, Paterson, N. J. Filed Aug. 23, 1884. (No model.)



Claim.—The bifurcated exhaust-pipe *a b*, in combination with a pipe, *a²*, extending from one of its branches, *a*, to the open air, a bell-shaped nozzle, F, into which the other branch, *b*, discharges, a valve, *f*, which directs the steam to one or the other of said branches at will, rock-shaft *f'*, arms *f² f³ f⁴*, connecting rod or link *f⁵*, and lever or handle *f⁶*, pivoted in the cab, in order that the engineer may control the draft of the engine through the devices aforesaid, substantially as set forth.

318,709. WASHING-MACHINE. GRANT DUNWOODY, Peoria, Iowa. Filed Oct. 23, 1883. (Model.)



Claim.—The combination, in a washing-machine, of the suds-box having a curved bottom, B, a stop-bar, C, secured in the suds-box and having sockets *c* in its under side, a button or buttons, D, arranged on the inner side *bf* the suds-box, opposite bar C, and the rubber E, consisting of transverse rubber-bars strung on flexible rods, whereby it may conform to the curvature of the bottom B, the said rubber being provided with projections *f*, entering the sockets *c* and clamped to and against the full length of the bottom B, between the bar C and buttons D, substantially as and for the purpose specified.

318,710. UMBRELLA. WILLIAM EGAN, PURDON, TEX. Filed Apr. 14, 1884. (No model.)



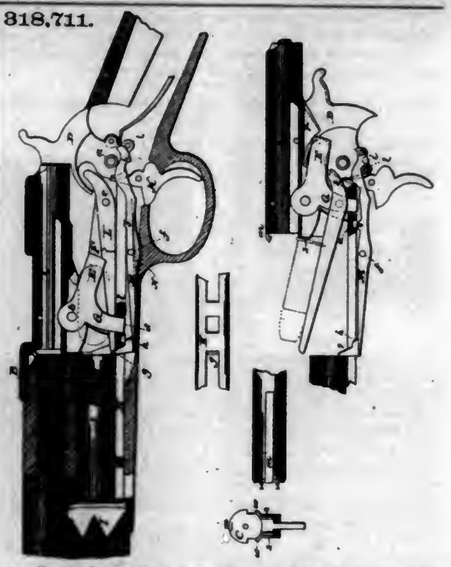
Claim.—The herein-described umbrella or sunshade frame, adapted to be attached to the person of the wearer, consisting of the top or cap piece, A, having the projecting studs or pivots B B, fixed ribs G, fastened rigidly in the back part of the cap, fixed supports D, bent to form the bulge E, and adapted to be fastened with their lower ends in a suitable brace or support, and movable ribs C, arranged in pairs and pivoted upon the studs or pivots B, the whole constructed and combined substantially as and for the purpose herein shown and specified.

318,711. MAGAZINE FIRE-ARM. CARL J. EBERIS, Hartford, Conn., assignor to Colts Patent Fire Arms Manufacturing Company, same place. Filed Mar. 23, 1885. (No model.)

Claim.—1. In a magazine fire-arm, the combination of a longitudinally-reciprocating breech-piece, a longitudinally-sliding handle beneath the barrel, provided with a slide extending therefrom rearward into connection with said breech-piece, and by which the said longitudinal movement is imparted to said breech-piece, a hammer hung below the breech-piece, its nose in the path of said moving breech-piece, and whereby in the rear movement of the breech-piece the hammer will be turned rearward to its full-cock position, the said breech-piece constructed upon its under side with a downward projection, *r*, forward of its rear end, and so as to engage said hammer and turn it beyond its extreme cocked position, the lever M hung below said slide H, its forward end constructed to form a latch at the rear end of the magazine, its rear end constructed with a shoulder, *i*, and the hammer provided with a corresponding stud, *l*, the said lever constructed with an incline, *h*, and the slide H with a corresponding bearing, and through which shoulder and bearing the said lever will be turned as the handle approaches its extreme forward position, substantially as and for the purpose described.

2. In a magazine fire-arm, the combination of the longitudinally-reciprocating breech-piece, a longitudinally-sliding handle beneath the barrel provided with a slide, H, extending rearward into engagement with said breech-piece, and whereby the said reciprocating movement is imparted to said breech-piece, a hammer hung below said breech-piece, with its nose in the path of said breech-piece, and whereby in the rear movement of said breech-piece the hammer is thrown to its full-cock position, the lever M hung beneath said slide, one arm extending rearward, and constructed with a shoulder, *i*, adapted to engage a corresponding stud, *l*, on the hammer below its pivot, the forward arm of said lever constructed to form a latch at the rear end of the magazine, and also with a shoulder, *h*, near its forward end, the lever also constructed with an upward projection, *s*, in rear of its pivot, the said slide H constructed with a bearing corresponding to said shoulder *h*, whereby said lever will be turned as the handle reaches its extreme forward position, and the hammer thereby released, said slide also constructed with a recess, *u*, corresponding to the projection *s* on said lever, substantially as and for the purpose described.

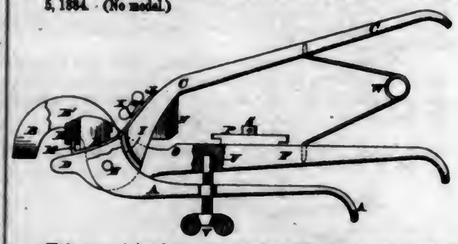
318,711.



3. In a magazine fire-arm, the combination therewith of the longitudinally-reciprocating breech-piece, constructed with projections 2 2 at its forward end and below the abutting face of the breech-piece, one of said projections being upon one side of the center and the other upon the opposite side, substantially as described.

4. In a magazine fire-arm, the combination therewith of the longitudinally-reciprocating breech-piece constructed with projections 2 2 at its forward end below the abutting face of the breech-piece, one of said projections being upon one side of the center and the other upon the opposite side, the front face of each of said projections inclined downward and forward, substantially as and for the purpose described.

318,712. SAW-SET. JOHN A. FISCHER, Covington, Ky. Filed Dec. 5, 1884. (No model.)



Claim.—1. A hand saw-set consisting of three independently-operated levers, whose shorter ends are mortised one within the other, in the manner herein described, and united by a common pivot, the outer lever having a jaw, the intermediate lever being provided with an anvil, and the inner lever being furnished with a punch, for the purpose specified.

2. A hand saw-set consisting of three independently-operated levers, whose shorter ends are mortised one within the other, in the manner herein described, and united by a common pivot, the outer lever having a jaw, the intermediate lever being furnished with a punch, and said intermediate lever having an adjustable stop or gage applied to it, for the purpose specified.

3. A hand saw-set consisting of three levers, whose shorter ends are mortised one within the other, in the manner described, and united by a common pivot, the outer lever having a jaw, the intermediate lever being provided with an anvil, the inner lever being furnished with a punch, and the outer lever having a set-screw engaged with it, which screw bears against said inner lever, for the purpose specified.

4. A hand saw-set consisting of three levers, whose shorter ends are mortised one within the other, in the manner described, and united by a common pivot, the outer lever having a jaw, the intermediate lever being provided with a main anvil and a secondary punch, and the inner lever being furnished with a main punch and a secondary anvil, for the purpose specified.

5. A hand saw-set consisting of three levers, whose shorter ends are mortised one within the other, in the manner described, and united by a common pivot, the outer lever having a jaw, the intermediate lever being provided with a main anvil and a secondary punch, and the inner lever being furnished with a main punch, a secondary anvil, and an adjustable stop or gage, for the purpose specified.

6. A hand saw-set consisting of three levers, whose shorter ends are mortised one within the other, in the manner described, and united by a common pivot, the outer lever having a jaw and an adjustable set-screw, the intermediate lever being provided with a main anvil, a secondary punch, and an adjustable stop or gage, and the inner lever being furnished with a main punch, a secondary anvil, and a secondary adjustable stop or gage, for the purpose specified.

7. A hand saw-set consisting of three levers, whose shorter ends are mortised one within the other, in the manner described, and united by a common pivot, and provided with a jaw, an anvil, and a punch, the adjustable stop or gage J K L M L' M', and retaining-screw X, for the purpose specified.

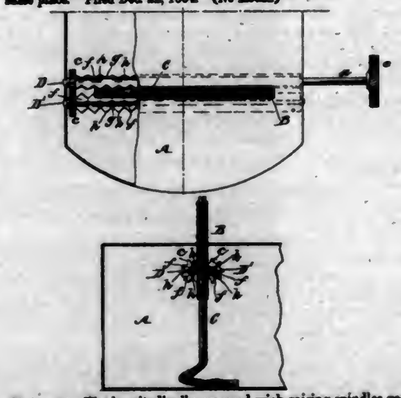
8. A hand saw-set having an adjustable stop or gage, P, attached to the lever F by a screw, S, said gage being slotted longitudinally at R, and being provided at its opposite ends with rabbets T T', of unequal size, for the purpose specified.

318,713. SAW-JOINTER. FRANCIS B. FITZPATRICK, Dallas, TEX. Filed Apr. 7, 1885. (No model.)



Claim.—The combination of two castings having longitudinal triangular grooves upon their inner facing sides, having the lower portions of their inner facing sides cut away to form a longitudinal groove, B, and having the upper portions of their inner facing sides bulged to form longitudinal halves of a socket, with a screw passing through the castings in the space between the bulged socket portions and the longitudinal grooves, the said grooves being adapted to receive a triangular file having its lower face at right angles to the sides of the groove B, as and for the purpose shown and set forth.

318,714. WICK-ADJUSTER. CHARLES A. FLETCHER and WILLIAM H. WILDER, Gardner, Mass., assignors to the American Oil Stove Company, same place. Filed Dec. 22, 1884. (No model.)

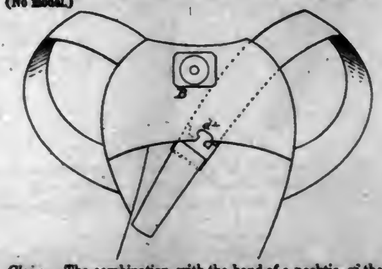


Claim.—1. The longitudinally-grooved wick-raising spindles geared for operation in unison, as described, so that each longitudinal rib on either spindle will register with a longitudinal groove in the other spindle, substantially as described.

2. The longitudinally and transversely grooved wick-raising toothed spindles geared for operation in unison, as described, so that each longitudinal row of teeth on either spindle will register with a longitudinal groove in the other spindle, substantially as described.

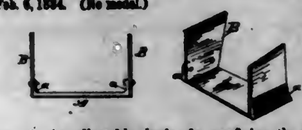
3. In duplicate wick-raising spindles arranged for operation on reverse sides of the wick, and geared together for action in unison, and in which the wick-raising teeth are formed by longitudinal and transverse grooves in said spindles, the geared spindles D D', having their longitudinal grooves *f* and transverse grooves *g* forming teeth *h*, arranged to alternate with one another both longitudinally and transversely throughout the two spindles, substantially as shown and described.

318,715. NECKTIE-FASTENER. THOMAS J. FORD, Geneva, Ohio, assignor of one-half to Denman A. Warner, same place. Filed Feb. 2, 1885. (No model.)



Claim.—The combination, with the band of a necktie, of the buckle C, consisting of plate *c*, having tapering slot and secured to the band by the prongs *c'*, and the plate D, having slots *d d* and hook *d'*, and provided with the teeth for securing it to the band, substantially as and for the purpose specified.

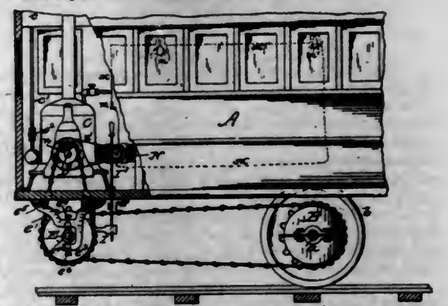
318,716. ADJUSTABLE FIRE-BOX. MARY FRANCK, Cleveland, Ohio. Filed Feb. 6, 1884. (No model.)



Claim.—1. An adjustable device for confining the fuel within a limited space in fire-boxes or on grates, consisting, essentially, of a flat or horizontal portion adapted to cover a portion of the grate, and vertical walls at the opposite ends of the flat portion, to enable the device to be used at either end of the fire-box, substantially as set forth.

2. An adjustable device for confining fuel within a limited space in fire-boxes, consisting, essentially, of a horizontal plate and vertical plates secured to opposite ends of the horizontal plate, substantially as set forth.

318,717. DRIVING-GEAR FOR STREET-CARS. FRANK G. FRESHE, Philadelphia, Pa. Filed Feb. 17, 1885. (No model.)



Claim.—1. The combination, in a car, of a motor or engine shaft, D, counter-shaft E, having loose wheel d^3 and clutch mechanism H, and gearing interposed between wheel d^3 and engine-shaft D, and between shaft E and one of the axles of the car, substantially as shown and described.

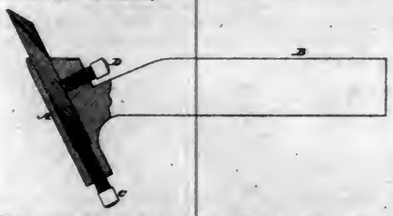
2. The combination, in a car, of a motor or engine, C, having oil-fuel-supply tank c and driving-shaft D, counter-shaft E, having loose wheel d^3 and clutch mechanism H, and gearing between said driving and counter shafts, and between the latter and one of the axles of the car, substantially as shown and described.

3. A car provided with an adjustable counter-shaft, E, having loose wheel d^3, clutch mechanism H, and in gear with one of the car-axles, and a motor or engine located on said car, substantially as shown and described.

4. In a car, a continuously-rotating engine or motor driving-shaft having a fixed sprocket-wheel, a counter-shaft having a loose sprocket-wheel, a drive-chain connecting said wheels, a clutch mechanism for the sprocket-wheel on the counter-shaft, and gearing interposed between
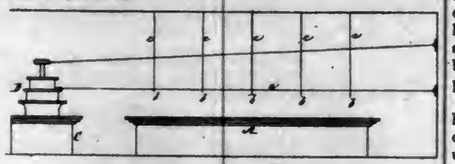
the latter and one of the axles of the car, substantially as shown and described.

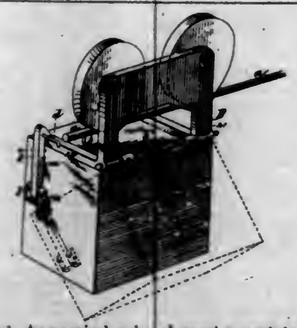
318,718. TOOL-HOLDER. J. HOWARD GIBSON, Philadelphia, Pa. Filed Dec. 15, 1884. (No model.)



Claim.—A tool-holder having screws which are fitted to the socket of the same, one of the screws being in the direction of the length of the tool, and the other screw being at an angle thereto, substantially as described.

318,719. CASH AND PARCEL TRANSMITTING APPARATUS FOR STORE-SERVICE. WILLARD H. GILMAN, Boston, Mass. Filed Apr. 27, 1885. (No model.)





Claim.—1. An organized cash and parcel transmission apparatus for store-service, in which a track consisting of a single wire or rail embodies the following features, viz: a common forwarding and return way—*i. e.*, a single way employed for both of said purposes—one way common to a number of salesmen's stations, and such way constructed substantially as described, in order to promptly insure the automatic derailment of a series of carriers at the respective stations to which they belong, for the purpose desired.

2. A way common for both the forwarding and return of the carriers for a number of salesmen, said way consisting of a single wire or rail either permanently horizontal or capable of being alternately inclined in opposite directions and having a series of graduated tripping devices connected therewith or located contiguous thereto, in combination with a series of carriers so constructed as to engage therewith for the purpose of being automatically derailed at their proper stations, substantially as set forth.

3. A single wire or other single rail track having graduated tripping devices, and a series of carriers having tripping devices adapted to engage therewith and effect the automatic derailment of the carriers at their proper stations when said carriers are moving in one direction, and allow of the uninterrupted passage of the carriers when moving in the opposite direction, constructed and arranged to operate for the object desired.

4. A single rail or wire track having a series of graduated tripping devices, and a series of carriers provided with devices to engage therewith in such manner that each carrier on arriving at its proper station may be liberated from its normal upright position on the track and have its center of gravity changed so as to destroy its equilibrium in order that the carrier may assume an inclined position and be free to be automatically derailed and removed, the operating parts being constructed to operate substantially as described.

5. A continuous unbroken track having a single wire or rail forming a straight line, or a line partly straight and partly curved, for the common use of a number of salesmen, as a combined forwarding and return way, and provided with a series of tripping devices, in combination with carriers provided with tripping devices to engage therewith, said carriers being so constructed that their equilibrium will be automatically destroyed, and the carriers automatically derailed at their respective stations on their return from the cashier, for the purpose enumerated.

6. A continuous track without switches, having a single wire or rail forming a straight line, or a line partly straight and partly curved, as a combined forwarding and return way for the common use of a number of salesmen, and having a series of graduated tripping devices, in combination with a series of carriers provided with tripping devices which, when the carriers are moving on the track, occupy positions under the same at graduated distances, increasing from the carrier of the first station to the carrier of the last station, and so constructed that the carriers will lose their equilibrium and be automatically derailed at their respective stations on their return from the cashier, for the purpose set forth.

7. In combination, a forwarding-way consisting of a single wire or rail, a return-way consisting of a single wire or rail, the latter provided with a series of graduated tripping devices, and a series of carriers having tripping devices to engage therewith, all constructed and arranged to destroy the equilibrium and insure the automatic derailment of the carriers at the stations to which they respectively belong.

8. A single wire or rail inclined downward to the cashier's station and used by the salesmen as a common forwarding-way, and a single wire or rail provided with graduated tripping devices and extending either horizontally or inclining down from the cashier's station to the several stations of the salesmen, and constituting a common return-way, in combination with carriers provided with tripping devices, as and for the purpose explained.

9. A carrier having one or more wheels the axis of which is so hung in bearings that the wheel or wheels are capable of being swung over and automatically derailed from a return-way provided with graduated tripping devices, the carrier leaving the track only at the station to which it belongs, as set forth.

10. A carrier having one or more wheels, an axis supported in bearings and free to swing or rotate therein, a device actuated by a spring for locking the axis in its normal position, a tripping device connected with the carrier, and a single-rail track having a tripping device for actuating the carrier-tripping device and releasing the spring-locking device, all constructed and arranged to cause the automatic derailment of the carrier, in combination with a receiver located at its station, for the purpose specified.

11. The receptacle *c'*, pivoted to the truck or standard in which the axis of the carrier wheel or wheels bear, in combination with the device for locking and retaining the receptacle in its normal or upright position, and devices for tripping and unlocking the same to allow it to swing on its pivot and automatically leave the track on its return from the cashier, substantially as herein shown and described.

12. A carrier having one or more wheels, an axis, *h*, and the bearing or bearings *g*, in which it is adapted to rotate, a hooked arm, *k*, pivoted to the carrier, and its spring *m*, for pressing it into a position for locking the axis, a tripping projection, *d*, connected with the carrier, and a single-rail track having a graduated tripping device, *b*, extending out into the path of the carrier-tripping device *d*, all combined and arranged to operate substantially as set forth.

13. A wheel-carrier, an axis, an upright bearing, 21, having a foot-piece, 22, integral therewith or secured thereto, a receptacle, *c'*, pivoted to the lower end of the bearing, a spring-actuated hooked arm, *k*, and a tripping device, *d*, projecting therefrom, in combination with a track having a single wire or rail, and a tripping device projecting therefrom, as described.

14. In combination with a single rail or wire forwarding-track and a single wire or rail return-track, a series of supports common to both ways, as specified.

15. A receptacle for receiving the carrier when derailed from the return-way, in combination with and secured to the track-supports *c c*, and a spring for automatically allowing of the gradual descent of the receiver when the carrier, &c., is contained therein, and for automatically elevating the receiver, when empty, to a position contiguous to and under the carrier-station, as described.

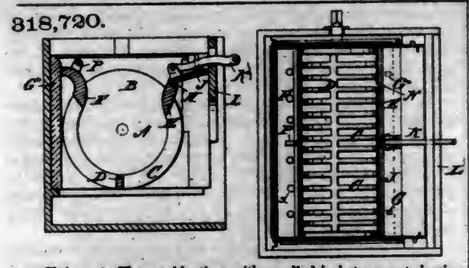
16. The carrier-receiver G, its sliding sleeve *p* and spring *q* thereunder for automatically raising the same to its receiving position, and the rod *w*, for depressing it, in combination with the track-supporting rod *c*, as set forth.

17. A device for conveying the carrier and its contents to its position on the forwarding-way, said device consisting of a receptacle, H, of a shape adapted for holding the carrier, and a handle, *t*, for elevating the same, substantially as set forth.

18. A carrier-conveying device, in combination with a track-support having a hook, *v*, as and for the purpose described.

318,720. GRATE. WILLIAM L. GOLDER and WILLIAM P. GOLDER, Patchogue, N. Y. Filed Oct. 10, 1884. (No model.)

318,720.



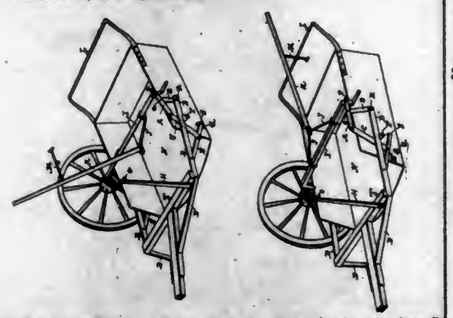
Claim.—1. The combination, with a cylindrical stove-grate having a longitudinal opening, of a damper-plate hinged to the surrounding casing, and resting on one longitudinal edge bar of the opening, substantially as herein shown and described.

2. The combination, with the cylindrical gate A, having the bars E F, of which the former has recesses or apertures G, of the damper-plate J, hinged to the surrounding casing, and provided on its under side with pins H, adapted to be passed into the apertures G in the bar E, substantially as herein shown and described.

3. The cylindrical grate A, having a longitudinal opening and longitudinal bars E F, of which the latter is curved transversely upward and outward to rest against the back fire-brick, substantially as herein shown and described.

4. The combination, with the grate A, having bars E F, provided, respectively, with apertures, and an apertured lug, P, of the grate-section M, provided with bars O I, the former having an aperture to receive lug P, and the latter pins N to enter the apertures in bar E, substantially as set forth.

318,721. EARTH-SCRAPER. WILLIAM H. C. GOODE, Sidney, Ohio. Filed Dec. 3, 1884. (No model.)



Claim.—1. The combination, with the scraper having stop-lugs G and F on its sides, of the crank-axle I, rigidly-attached bars A, draft-bars D, pivoted at R to the sides of the scraper and resting on lugs F, the bars B, pivoted at R, and also to bars A at Q, the bars C, pivoted to A as toggle-arms, and bars E, pivoted to bars D and C, and having hooked ends S, adapted to engage with stop-lugs G, substantially as shown and described.

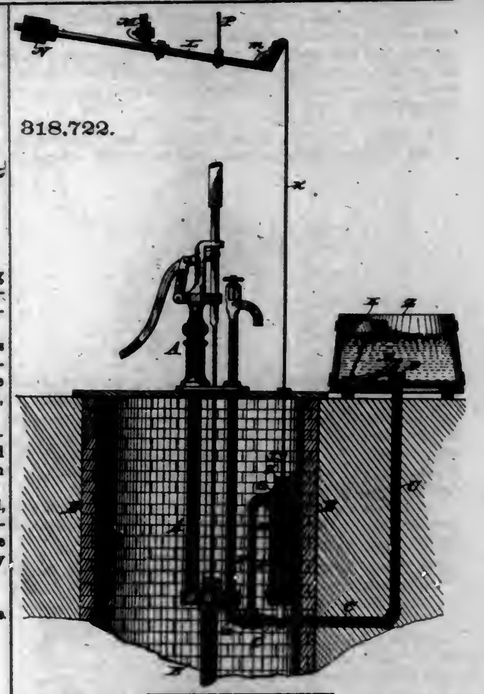
2. The combination, with the scraper having stop-lugs G and F on its sides and a rear bail, L, of the crank-axle I, rigidly-attached bar K, with spring-catch M, the rigidly-attached bars A, draft-bars D, pivoted at R to the sides of the scraper, the bars B, pivoted at R, and also to bars A at Q, the bars C, pivoted to A as toggle-arms, and bars E, pivoted to the bars D and C, and having hooked ends S, adapted to engage with the stop-lugs G, substantially as shown and described.

3. The combination, with the scraper having stop-lugs G and F on its sides and a rear bail, L, of the crank-axle I, rigidly-attached bar K, with spring-catch M, the rigidly-attached bars A, draft-bars D, pivoted at R to the sides of the scraper, the bars B, pivoted at R, and also to bars A at Q, the bars C, pivoted to A as toggle-arms, bars E, pivoted to draft-bars D and bars C, and having hooked ends S, adapted to engage the stop-lugs G, and the standard H, with catch *o*, substantially as shown and described.

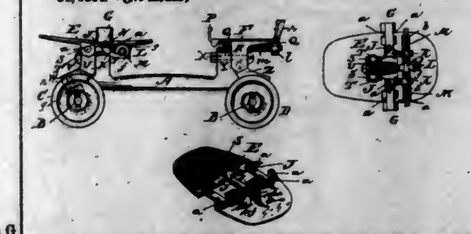
318,722. HYDRAULIC REGULATOR. JOHN R. GORRELL, La Otto, Ind., assignor of two-thirds to Francis A. Hogue and W. James Hogue, same place. Filed Nov. 20, 1884. (No model.)

Claim.—A hydraulic regulator for windmill-pumps, having a counterbalance-lever formed with an upturned operating-arm and connected to the piston I, the regulating-cylinder H, communicating with the supply-pipe of the pump, and the tank Z, having a float operating the valve of the outlet of the supply-pipe in said tank, substantially as specified.

318,722.



318,723. ROLLER-SKATE. EDGAR HALL, Boston, Mass. Filed Dec. 31, 1884. (No model.)

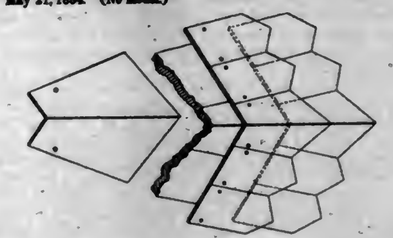


Claim.—1. In a roller-skate, the ball and toe plate E, having ribs *a*, notched bearing-block L, and ear-pieces S, all of one piece with the plate E, in combination with the side clamp-jaws G, operating screw-rod therefor, and swivel-pin T of skate body or bar A, substantially as described, for the purpose specified.

2. In a roller-skate, the heel-plate having stationary clamp-jaws N at the rear and a bearing-block, R, all of one piece with the plate, in combination with the movable clamp-jaw P at the front of the heel-plate, operating screw-rod therefor, and a swivel-pin, X, of skate body or bar, substantially as described, for the purpose specified.

3. In skates, a heel-plate having rear clamp-jaws, N, of one piece therewith, in combination with a movable clamp-jaw, P, at the front, and its operating screw-rod *m*, and bearing-block R of heel-plate therefor, substantially as described, for the purpose specified.

318,724. ROOFING-SHINGLE. GILES HALL, East St. Louis, Ill. Filed May 21, 1884. (No model.)



Claim.—A shingle formed of enameled or vitrified metal or other substance bent centrally through its length in conformity to the angle, valley, or other analogous portion of a roof, said shingle having a broad end and sides approaching a narrow end, the weather end of the said shingle being formed plain or ornamental, substantially as and for the purpose specified.

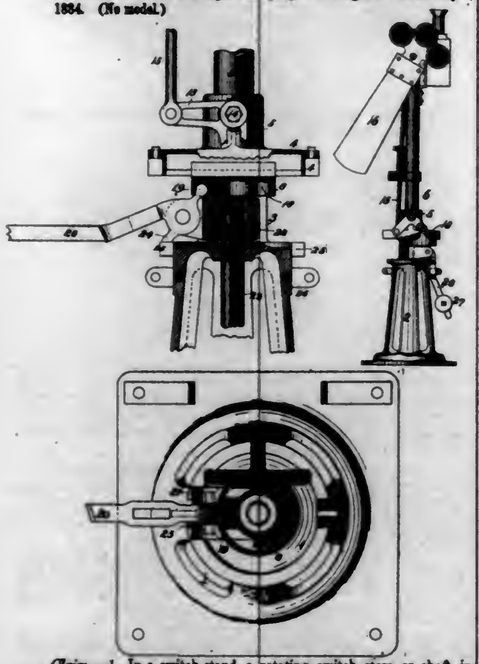
318,725. TRICYCLE. LUTHER HALL, Boston, Mass., assignor of one-half to Henry C. Willis, same place. Filed Feb. 28, 1885. (No model.)



Claim.—1. The following coacting elements, viz: the driving-wheels B B of a tricycle, provided with long hubs *h h*, extending inwardly toward each other, and having secured thereto or formed integral therewith the notched portions H H, sleeves I I, surrounding the same, balls or rolls *k k k*, interposed between the sleeves and notched portions, a pair of connecting-rods, L L, and a pair of working-levers, G G, combined to operate substantially as and for the purpose described.

2. In combination with the upright levers G' G', the connection *m*, extending between them and around the axle of the driving-wheels, as and for the purpose set forth.

318,726. SWITCH-STAND. JAMES T. HANRAY, Allegheny, assignor to the Union Switch and Signal Company, Pittsburg, Pa. Filed July 7, 1884. (No model.)



Claim.—1. In a switch-stand, a rotating switch stem or shaft, in combination with a lever pivoted to said shaft, and adapted to lock the shaft as against rotary motion, and a signal operated by said lever in its locking and unlocking movement on both sides of the switch-stand, substantially as set forth.

2. In a switch-stand, a rotating switch stem or shaft, in combination with a lever pivoted to said shaft, and adapted to lock the shaft as against rotary motion, a signal adapted to be set at "danger" by the lever in its unlocking movement, and mechanism for holding the signal at "danger" until the switch has been changed, and then shifting the signal to indicate the position of the switch, substantially as set forth.

3. In a switch-stand, a rotating switch stem or shaft, in combination with a lever pivoted to said shaft, and adapted to lock the shaft as against rotary movement, a signal, and mechanism having permanent connection to the lever and signal, said mechanism being so constructed as to be operated by the unlocking movement of the lever to set the signal at "danger," and by the locking movement of said lever to set the signal in such position as to indicate the position of the switch-rails, substantially as set forth.

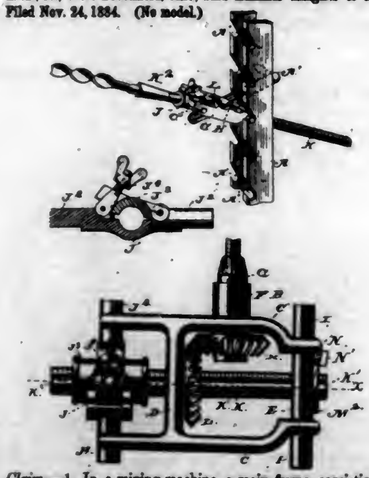
4. In a switch-stand, a rotating switch stem or shaft, in combination with a lever pivoted to said shaft, and adapted to lock the shaft as against rotary movement, a signal mechanism having permanent connection to the lever and signal, said mechanism being so constructed as to be operated to set the signal to "danger" and to such positions as will indicate the position of the switch-rails by the vertical movement of the lever, and mechanism for holding the signal at "danger" during the horizontal movement of the lever, substantially as set forth.

5. In a switch-stand, a rotating switch stem or shaft, in combination with a signal operated independent of the switch, a lever pivoted to the switch-shaft and connected to the signal, and adapted when the switch-rails are in operative positions to automatically lock said switch and to set the signal, substantially as set forth.

6. In a switch-stand, a rotating switch stem or shaft, in combination with a lever pivoted to said shaft, a sliding block having continuous engagement with the lever, and an oscillating signal connected to said block, substantially as set forth.

7. In a switch-stand, a frame or support provided with a peripherally-notched top plate, in combination with a rotating stem or shaft, a weighted lever pivoted to said shaft and provided with a lug adapted to rest on said top plate, a sliding block connected to the lever, and an oscillating signal connected to the sliding block, substantially as set forth.

318,727. ROCK-DRILLING MACHINE. JOHN HAMMER and XAVIER KERR, Jr., West Brookfield, Ohio; said HAMMER assignor to said KERR. Filed Nov. 24, 1884. (No model.)



Claim.—1. In a mining-machine, a main frame consisting of side bars rigidly united by a cross bar or bars, and having at one end seats or bearings for the threaded barrel, and at its opposite end lateral trunnions fitted to be journaled in the supporting-frame, combined with the supporting-frame and the threaded barrel, substantially as set forth.

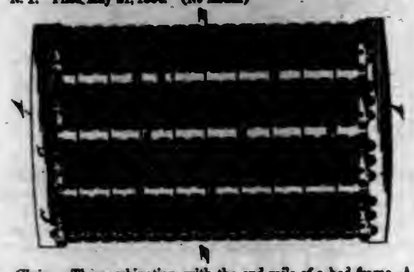
2. The combination, in a mining-machine, of the main frame provided with an opening for the passage of the feed-screw, the feed-screw inserted through said opening and provided with a longitudinal groove or keyway, the collar provided with a key fitting into the groove or way of the screw and inserted into the screw-opening in the main frame, and provided at one end with a radial flange extended laterally beyond the screw-opening, and a retaining-screw turned into the main frame and provided with a head extended laterally over the flange of the bearing-collar, substantially as and for the purposes specified.

3. The combination, in a mining-machine, of the main frame provided in its forward end with notches or seats, and with trunnions extended laterally from its rear end, and having a cross-bar and base-bar connecting its side bars, the feed-screw, the threaded barrel having lateral arms seated in the notches of the main frame, the rotating gear journaled in the cross-bar and keyed to the feed-screw, the drive-gear, and the bearing-collar journaled in the base-bar and keyed to the feed-screw, substantially as set forth.

4. The combination of the main frame provided in its forward end with seats or notches, and having trunnions projected laterally from its rear end, and having its base-bar provided with a feed-screw opening, the threaded barrel having lateral trunnions held in the notches or seats, the feed-screw, and the bearing-collar placed on the feed-screw and provided with a radial flange, and the retaining-screw turned into the main frame and having its head extended over the radial flange of the bearing-collar, substantially as set forth.

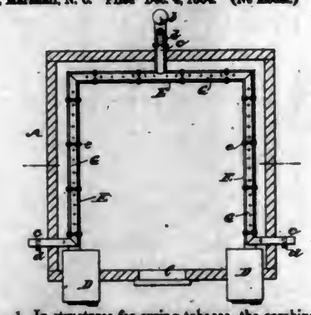
5. The combination, in a mining-machine, of the main frame provided with an opening for the passage of the feed-screw, the feed-screw inserted through said opening and provided with a longitudinal groove or keyway, the bearing-collar provided with a key fitting into the groove of the screw, and journaled and held in the screw-opening in the main frame, substantially as set forth.

318,728. FOLDING WIRE MATTRESS. CHARLES H. HARD, Oneida, N. Y. Filed May 21, 1884. (No model.)



Claim.—The combination, with the end rails of a bed-frame, A, of the narrow stripe B, of woven wire, re-enforced along their side edges by additional wires, and provided with the end plates, C, adapted to be connected farther in or out onto the upper surface of the end rails, according to the amount of tension required, and the stiff detachable wires *a*, connecting at intervals the adjacent edges of the stripe B, substantially as specified.

318,729. TOBACCO-DRIER. JAMES K. HARDWICKE and EDWARD B. WELLES, Marshall, N. C. Filed Dec. 4, 1884. (No model.)



Claim.—1. In structures for curing tobacco, the combination, with the hot-air or heat-distributing pipes arranged within the building, of a perforated cold-air pipe or pipes arranged over or in proximity to said hot-air pipes throughout or in direction of their length, substantially as specified.

2. In structures for curing tobacco, the combination, with one or more furnaces and heat-distributing pipes therefrom arranged within the building, of perforated cold-air pipes mounted over said heat-distributing pipes and provided with inlets and valves controlling the admission of air thereto, essentially as and for the purposes described.

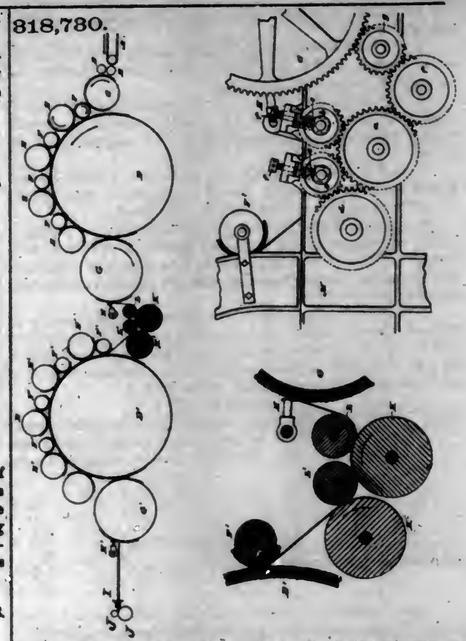
3. The combination, with the barn A and its poles or stretchers B, for suspending the tobacco to be cured, of the furnaces D D, the heat-distributing pipe E therefrom, and the perforated cold-air pipe G, mounted over the heat-distributing pipe and provided with inlet branches *c* and dampers or valves *d*, substantially as shown and described.

318,730. ART OF REMOVING FOREIGN SUBSTANCES FROM WOOL AND OTHER TEXTILE FIBERS. ERNEST HARMEL, Val Des Bois, France, assignor to the Société Harmel Frères, same place. Filed Jan. 13, 1883. (No model.) Patented in France May 15, 1882, No. 143,946; in England July 29, 1882, No. 3,802; in Belgium Aug. 3, 1882, No. 58,852, and in Italy Nov. 30, 1882, No. 14,787.

Brief.—Between two carding-engines are placed four rolls, the upper being arranged to press strongly against the lower rolls. The wool is conducted in a thin fleece from the first carding-engine between these rolls, which crushes the burrs and other foreign substances therein. The fleece is then passed through the second carding-engine, which removes the crushed particles therefrom.

Claim.—The improved method of treating wool and other textile fibers for the removal of burrs, stems, and other foreign substances, which consists in first carding or partially carding the fibers and forming them into a lap sufficiently thin to expose the foreign substances, then passing such lap between pressure-rollers, whereby the foreign substances are crushed, and then completing the carding of the fibers, whereby the greater portion of the crushed substances is removed from the fiber, substantially as set forth.

318,780.



318,731. SHOE-UPPER MACHINE. CHARLES B. HATFIELD, Rochester, N. Y., assignor of one-half to John C. Heaghes and Henry Loewer, both of same place. Filed Jan. 24, 1885. (No model.)



Claim.—1. The combination, in a shoe-beading machine, of the beading-irons E E' and reciprocating jaws F F', substantially as described.

2. The combination, in a shoe-beading machine, of the beading-irons E E' and reciprocating jaws F F', having extensions I I', substantially as and for the purposes set forth.

3. In a shoe-beading machine, the separate yielding beading-irons E E', substantially as described.

4. The combination, with the yielding beading-irons E E', of the base A, standard B, swinging arm C, reciprocating jaws F F', and suit-

able mechanism for imparting reciprocating motion to the jaws, substantially as described.

5. The combination, with the yielding beading-irons E E', of the swinging arm C, shaft K, pulley L, reciprocating jaws F F', and treadle-connection J, substantially as described.

6. The combination, with the shaft K, eccentrics *a a'*, and rods *r r'*, of the reciprocating beading-jaws F F', attached to the rods by a suitable yielding connection, and the beading-irons E E', substantially as described.

7. In a shoe-beading machine, the combination, with the beading-irons E E', of the reciprocating jaws F F', provided on their opposing faces with the cushions *o o'*, substantially as described.

8. In a shoe-beading machine, the combination, with a beading or turning iron adapted to receive the work turned right side out, of automatic compressing-jaws operating on both sides of the edge of the work to simultaneously compress the same while it is still on the turning-iron, substantially as described.

9. In a shoe-beading machine, the combination, with a beading or turning iron having yielding jaws and adapted to receive the work turned right side out, of automatic compressing-jaws operating on both sides of the edge of the work to simultaneously compress the same while it is still on the turning-iron, substantially as described.

318,732. **CARVING-FORK.** WILLIAM B. HATFIELD, Sheffield, County of York, England, assignor to Joseph Rodgers & Sons, (Limited,) same place. Filed Feb. 24, 1885. (No model.) Patented in England Apr. 29, 1881, No. 1,851.



Claim.—1. The combination, with a fork provided with a guard-holder, of a rotary guard therefor provided with resilient arms fitting the holder and interlocking therewith in different positions when rotated, substantially as specified.

2. The combination, with a fork having an elliptical or analogously-shaped hole extending obliquely through its shank or body, of a guard provided with resilient arms fitting within and interlocking with the said hole, substantially as specified.

3. The combination, with a fork having an elliptical or analogously-shaped hole extending obliquely through its shank or body, of a guard provided with resilient arms fitting within and interlocking with said hole, and catches below the hole to prevent the guard from being pulled out of the hole, substantially as specified.

318,733. **FRAME FOR EYEGLASSES AND SPECTACLES.** CHARLES B. HEADLY, Philadelphia, Pa. Filed May 5, 1884. (No specimens.)

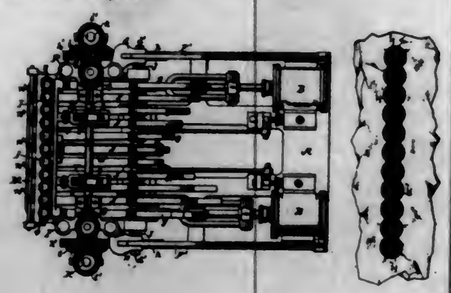
Claim.—As a new article of manufacture, a frame for an eyeglass or spectacle, formed of copper and tin alloyed in the proportions substantially as specified.

318,734. **FRAME FOR EYEGLASSES AND SPECTACLES.** CHARLES B. HEADLY, Philadelphia, Pa. Filed May 5, 1884. (No specimens.)

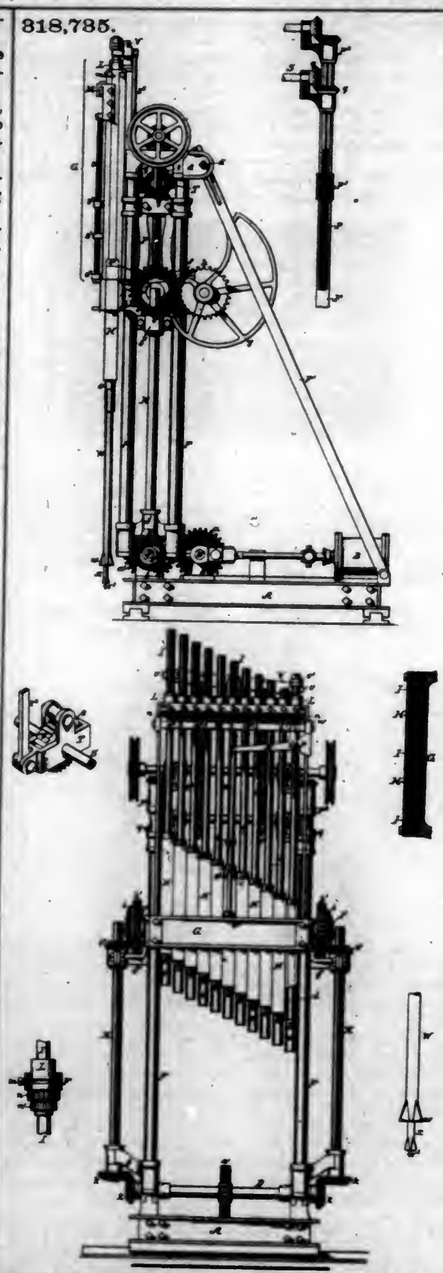
Claim.—As a new article of manufacture, a spectacle or eyeglass frame the outer surface of which is of gold and the inner substance of copper and tin alloyed in the proportions substantially as specified.

318,735. **MACHINE FOR CHANNELING SLATE, &c.** JOHN RENWOOD, Philadelphia, Pa. Filed May 12, 1884. (No model.)

Claim.—The combination, in a machine for channeling slate and similar laminated minerals, of a series of drill-spindles guided side by side and having overlapping bits with mechanism for rotating and reciprocating said spindles.



318,785.



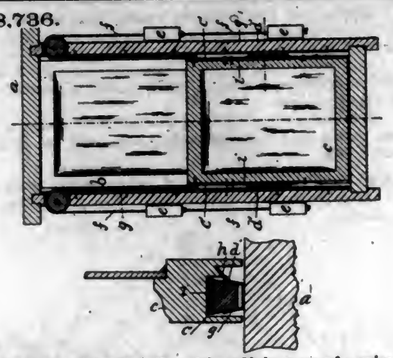
318,786. **WINDOW-SASH.** CHESTER J. HOLMES, Stafford Springs, Conn. Filed Oct. 15, 1884. (No model.)

Brief.—A groove in the window-sash contains a slide, which is pressed outward by a spring and into a trough-shaped guide fastened to the casing. A rubber weather-strip is fastened in the groove and presses against the guide.

Claim.—1. In combination with a window sash or frame, a metallic trough-shaped guide fast to the frame, a sash having lateral grooves, each groove bearing a spring-seated slide, and within the groove an elastic cushion between the side of the groove and the side of the guide, all substantially as described.

2. In combination, a window-frame having a trough-shaped metallic guide, and a sliding sash with lateral grooves, and bearing a spring-

318,736.

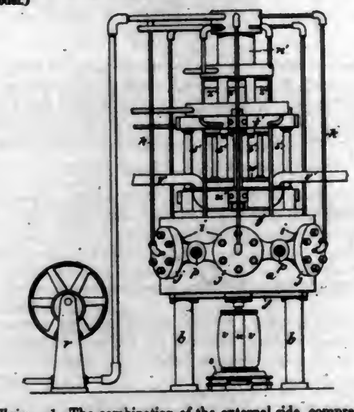


seated slide pressed into the hollow of the guide by means of a spring, all substantially as described.

3. In combination with a window-frame and a sliding sash, a metallic trough-shaped guide fast to the frame, and a slide borne on the sash and moving in the hollow of the guide, all substantially as described.

4. In combination with a window-sash having a grooved sliding face, a frame bearing a trough-shaped guide entering the groove, and an elastic packing, also located in the groove and between the side of the groove and the guide, all substantially as described.

318,737. **MANUFACTURE OF BARREL-BODIES FROM PULP.** SAMUEL M. HOTCHKISS, Hartford, Conn. Filed Jan. 24, 1885. (No model.)



Claim.—1. The combination of the external side compressors, the hydraulic rams operating the same, and the hydraulic pump operating all the rams, substantially as described, and for the purpose set forth.

2. The combination of the external side compressors, the rams operating the same, the interspace compressors, and the rams operating the interspace compressors, substantially as described, and for the purpose set forth.

3. The combination of core and external side compressors with the annular pulp-reservoir *u'*, located over the same, and the ring-gate *w'*, substantially as described, and for the purpose set forth.

4. The combination of the external side compressors with a core raised and lowered by a water-ram, and the ring-gate operated by water-rams, substantially as described, and for the purpose set forth.

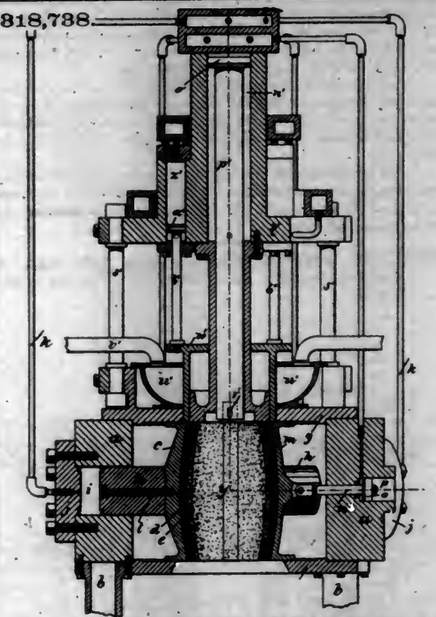
5. In combination, the frame-ring *a*, made in one piece, the cylinders *i p*, formed therein, the external side compressors and interspace compressors, and the pistons, substantially as described, and for the purpose set forth.

6. The interspace compressors, combined with the external side compressors, and held backward thereagainst by a fluid-pressure applied to the piston-heads appurtenant to the interspace compressors, substantially as described, and for the purpose set forth.

318,738. **MANUFACTURE OF BARREL-BODIES FROM PULP.** SAMUEL M. HOTCHKISS and BENJAMIN A. MASON, Hartford, Conn. Filed Jan. 24, 1885. (No model.)

Claim.—1. The combination of the core-spine with the collapsible core-blocks and core-sections, substantially as described, and for the purpose set forth.

318,738.



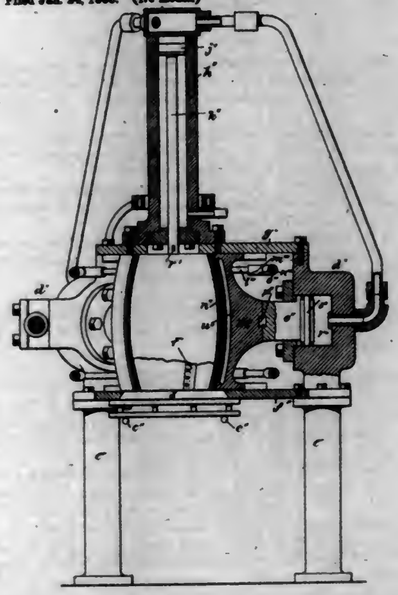
2. In combination, the core-plate *s*, having the mortises *s f'*, the removable core-spine *t*, the core-sections *u*, provided with bolts *g'*, and the core-blocks *v*, provided with bolts *a'*, substantially as described, and for the purpose set forth.

3. In combination, the core-plate *s*, having the mortises *z*, the core-sections *u*, bolts *g'*, racks *h'*, pinion *i'*, and ring-gear *j'*, substantially as described, and for the purpose set forth.

4. In combination, the core-plate *s*, having mortises *f'*, core-blocks *v*, bolts *a'*, racks *b'*, pinion *c'*, and ring-gear *d'*, substantially as described, and for the purpose set forth.

5. In combination, the core-plate *s*, having mortises *z f'*, core-sections *u*, core-blocks *v*, bolts *a' g'*, racks *b' h'*, and ring-gears *d' j'*, substantially as described, and for the purpose set forth.

318,739. **MACHINE FOR DRYING AND PRESSING PULP BARREL-BODIES.** SAMUEL M. HOTCHKISS and BENJAMIN A. MASON, Hartford, Conn. Filed Jan. 24, 1885. (No model.)



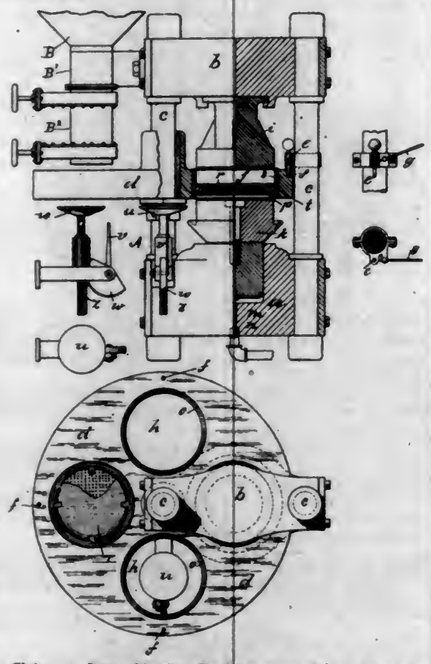
Claim.—1. In combination, the core-blocks and core-sections chambered by heat-ducts, the core-spine provided with a steam-chest, and the reciprocating pipes which connect said steam-chest and said ducts, substantially as described, and for the purpose set forth.

2. In combination, the core-blocks and core-sections chambered by heat-ducts, the core-spine provided with steam-chests at top and bottom, and the two sets of reciprocating pipes which connect said steam-chests with said heat-ducts, substantially as described, and for the purpose set forth.

3. In combination, the core-blocks and core-sections chambered by heat-ducts, the core-spine provided with steam-chest a''', the reciprocating pipes e''', disk g''', and rods h''', all substantially as described, and for the purpose set forth.

318,740. MAKING BARREL-HEADS FROM PULP.

SAMUEL M. HOTCHKISS and BENJAMIN A. MASON, Hartford, Conn. Filed Jan. 24, 1885. (No model.)



Claim.—1. In combination, the fixed platen, the pressing-piston, revolving table provided with forming-orifices, the head-formers *r*, and the rim-formers *t*, substantially as described, and for the purpose set forth.

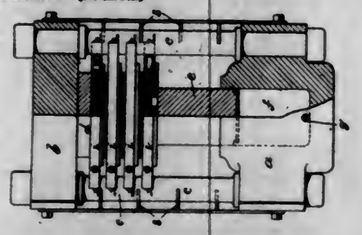
2. In combination, the fixed platen, the pressing-piston, a forming-orifice, the head-former *r*, the rim-former *t*, and the cup-ring *s*, substantially as described, and for the purpose set forth.

3. In combination, the fixed platen, the pressing-piston, the rotating table provided with forming-orifices, and the ejector, substantially as described, and for the purpose set forth.

4. In combination, the fixed platen, the pressing-piston, the rotary table provided with forming-orifices, the ejector, the head-former, the rim-former, and the cup-ring, substantially as described.

318,741. PRESS FOR DRYING BARREL-HEADS OF PULP, &c.

SAMUEL M. HOTCHKISS and BENJAMIN A. MASON, Hartford, Conn. Filed Jan. 24, 1885. (No model.)



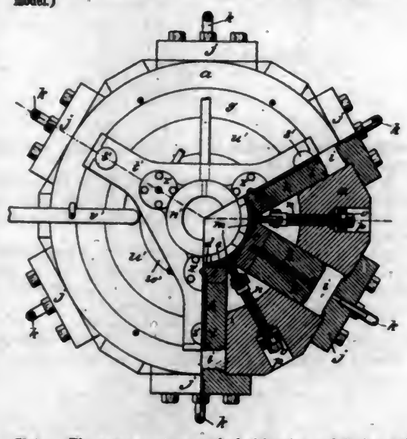
Claim.—1. In combination, the pressing-piston, the fixed platen, the drying-cases, and the rim-formers, substantially as described, and for the purpose set forth.

2. In combination, the pressing-piston, the fixed platen, and the drying-cases chambered by heat-ducts, substantially as described, and for the purpose set forth.

3. In combination, the pressing-piston, the fixed platen, the drying-cases, and the catch-fingers, substantially as described, and for the purpose set forth.

318,742. MANUFACTURE OF BARREL-BODIES FROM PULP.

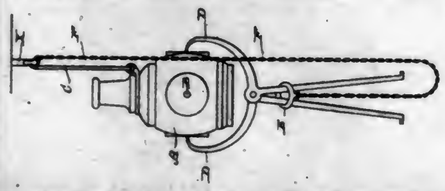
SAMUEL M. HOTCHKISS, Hartford, Conn. Filed Jan. 24, 1885. (No model.)



Claim.—The process, art, or method of forming and drying articles made from pulp, which consists in forming the article (and expressing the water to a great degree) upon a core in one machine, conveying it on such core to another machine, in such other machine drying it under heat and pressure, substantially as described, and for the purposes set forth.

318,743. AUTOMATIC FIRE-EXTINGUISHER.

JAMES A. HOUSE, Bridgeport, Conn. Filed July 21, 1884. (No model.)



Claim.—1. In a device of the character described, a receptacle containing a fire-extinguishing fluid and suspended by a fusible connection, in combination with a breaker, substantially as described, attached to said receptacle, whereby upon the fusing of the connection the receptacle is caused to fall and be crushed, substantially as set forth.

2. An automatic fire-extinguisher, the same consisting of a receptacle containing a fire-extinguishing fluid, a connection of metal fusible at a low temperature for suspending the same, and a breaker, substantially as described, attached to said receptacle, whereby upon the fusing of the connection the breaking of the receptacle may be accomplished, substantially as set forth.

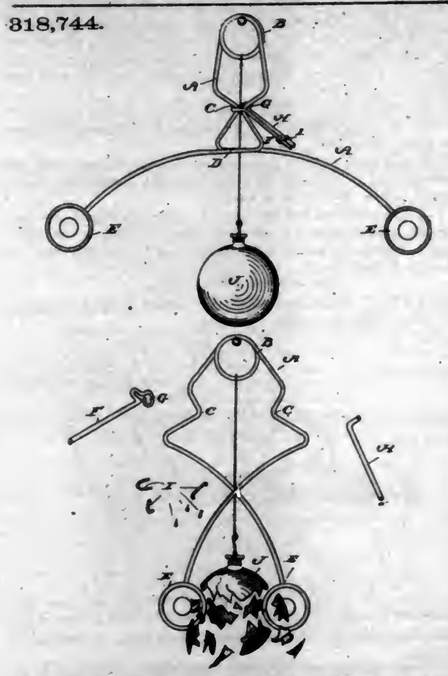
3. In a fire-extinguisher, the receptacle containing the fluid suspended by a fusible connection, in combination with a breaker, substantially as described, connected to the receptacle, and also connected independently with the support for the receptacle, whereby when the fusible connection is destroyed the receptacle falls and operates the breaker to destroy the same.

318,744. FIRE-EXTINGUISHER.

JAMES A. HOUSE and CHARLES H. DIBBLE, Bridgeport, Conn. Filed Dec. 3, 1884. (No model.)

Claim.—1. In a fire-extinguisher of the character described, the combination, with a suspended fragile receptacle containing the fire-extinguishing fluid, of a spring-wire bent as described and provided with hammers upon its ends, wires adapted to retain said spring-wire against its resiliency, and a fusible band placed around the extremities of said wires, and thereby securing the latter in their position around the spring-wire, substantially as set forth.

318,744.



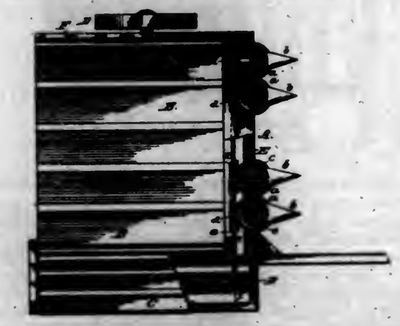
2. In a fire-extinguisher of the character described, the combination, with a suspended fragile receptacle containing the fire-extinguishing fluid, of hammers secured to the two extremities of a single spring-wire, and a fusible link or band attached to said wire and adapted to resist its resiliency and keep said hammers in a distended position, substantially as shown and described.

3. In a fire-extinguishing apparatus, the combination, with a suspended fragile receptacle containing the fire-extinguishing fluid, of hammers secured to the extremities of a spring-wire bent as shown, and means secured to said wire by a fusible connection and adapted to hold said hammers distended, whereby upon the fusing of the connection the wire may be released and the hammers dashed against said receptacle, substantially as set forth.

4. The combination, with the suspended receptacle, of wire A, bent as described, and provided with hammers E, the securing-wires F H, and the fusible band I, all arranged as described, and for the purpose specified.

318,745. CUTTING APPARATUS FOR HARVESTERS.

DANA W. HOVEY, Winthrop, Iowa. Filed Feb. 14, 1884. (No model.)

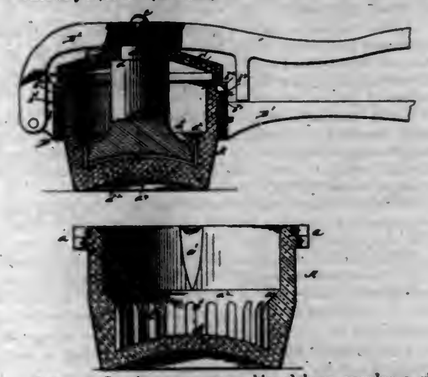


Claim.—1. The combination, with a pair of circular cutters, of worm-wheels, one secured to each cutter, and two worms upon the same shaft engaging said worm-wheels, one worm being right-handed and the other left, as shown and described.

2. The combination, with the circular cutters *a*, guards *b*, and bar E, of the shaft *e*, worms *d*, gear *f*, drive-wheel D, and worm-wheels *c*, substantially as shown and described.

318,746. LEMON-SQUEEZER.

GEORGE J. L. JAMES, Chicago, Ill. Filed July 30, 1884. (No model.)



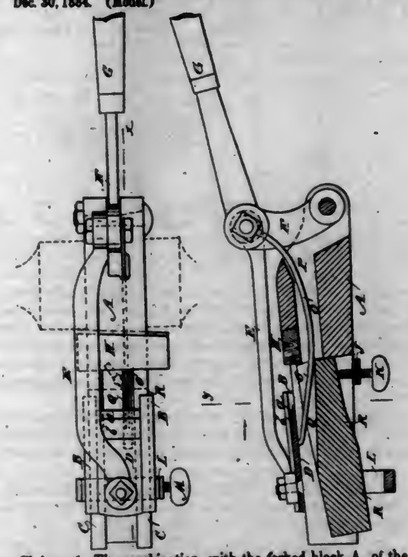
Claim.—1. In a lemon-squeezer, a hinged lever carrying a glass cap or cover, in combination with a wooden plunger passing through said cover and abutting against the lever, substantially as and for the purpose set forth.

2. A lemon-squeezer consisting, essentially, of a suitable cup, A, a glass cover, C, having downwardly-projecting flanges, a plunger, C', having extension *d''*, passing through an opening in the cover, and a screw, *c*, for connecting the said plunger and cover to a suitable device for reciprocating the plunger, substantially as and for the purpose set forth.

3. The glass cup A, formed with flange *a*, and having its interior made smaller at its lower end, the ring B and handle B', secured to the cup by screws b^2, and the rubber washers b' b^2, in combination with the hinged lever B^3, concavo-convex glass cap C, rubber cushion *c'*, and plunger C', of wood, shouldered and passed entirely through the cap, substantially as and for the purpose set forth.

318,747. WEDGE-CUTTER.

JAMES T. JENKINS, Clements, Cal. Filed Dec. 30, 1884. (Model.)



Claim.—1. The combination, with the forked block A, of the sliding blade D, the connecting-rod E, the angle-lever F, pivoted on the closed end of the block A, and of the block H, held transversely in the top of the block A, substantially as herein shown and described.

2. The combination, with the forked block A, of the sliding blade D, the angle-lever F, pivoted in the closed end of the block, and of the ejector-wire O, passed through the block A and connected with the lever O, substantially as herein shown and described.

3. The combination, with the forked block A, the reciprocating blade D, held to slide on said forked portion, the stirrup L, and cross-piece J, connecting the arms of the fork below the blade, the horizontal screw M, passing through one arm of the stirrup and fork, the vertical

screw K, passing up through the piece J into the space within the fork, and the gage R, adapted to be held in proper position by said screws, substantially as set forth.

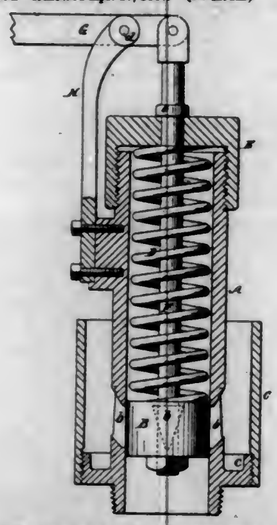
4. The combination, with the forked block A, of the blade D, held to reciprocate on the arms of said fork, and having its cutting end beveled, as shown at *a b*, and a gage-block, R, adjustably secured between the arms of the fork below the said reciprocating blade, substantially as set forth.

5. The combination, in a wedge-cutter, with a block, of a blade mounted thereon, a lever pivotally connected with the block and blade for reciprocating the latter, and an ejector connected to the said lever, extending therefrom to a point below the blade and adapted to eject the cut wedges, substantially as set forth.

6. The combination, with the forked block A, of the sliding blade D, connected by a connecting-rod with a pivoted lever having a suitable handle, a gage-block placed between the prongs of the fork, and screws for adjusting the gage-block, substantially as herein shown and described.

7. The combination, with the forked block A, of the sliding blade D, connected by a connecting-rod with a pivoted lever having a suitable handle, the gage-block R, having a groove, Q, a spring ejector-wire, O, connected with one end of the angle-lever and passed through the groove, and screws for adjusting the gage-block, substantially as herein shown and described.

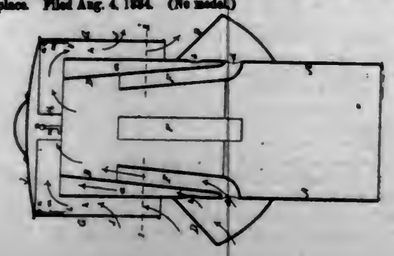
318,748. SAFETY-VALVE. THOMAS KATE, Newton, N. J., assignor to the Lawrence Non Explosive Boiler Company, New York, N. Y. Filed May 27, 1884. Renewed Apr. 17, 1885. (No model.)



Claim.—1. In piston safety-valves, the combination of a spring to close the valve with the tube or cylinder in which the piston or valve moves, provided with one or more lateral escape-apertures of tapering construction in a reverse direction to the movement of the piston thereover when opening, whereby the spring acts in concert with the tapering apertures to secure a gradual closing of the valve, essentially as described.

2. The combination of the tube A, having lateral downwardly-tapering escape-apertures *b*, the piston B, the spring D, the adjustable follower E, the rod F, and the hand-lever G, substantially as specified.

318,749. CAP FOR CHIMNEYS AND SMOKE-STACKS. HORACE F. KIRK, Philadelphia, Pa., assignor of one-fourth to John Champion, same place. Filed Aug. 4, 1884. (No model.)



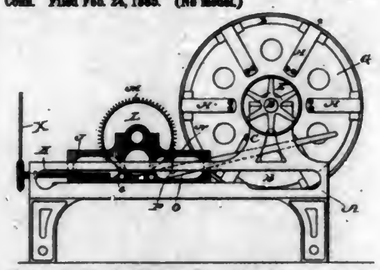
Claim.—1. The combination of the casing A, the external hood, G, extending above the same, and of greater diameter than the said casing, so as to form a discharge-passage, H, around the same, and the cap or cover J, adjustable so as to provide an opening above the hood for a direct draft, as set forth.

2. The combination of the casing A, having openings *b* and *d*, the internal tube, B, and flues F, and the external hood, G, extending above the casing, as set forth.

3. The combination of the casing A, having openings *b* and *d*, the external hood, G, extending above the casing, the internal tube, B, and flues F, and the deflector D, as specified.

4. The combination of the casing A, having openings *b*, the internal tube, B, external hood, G, extending above the casing, and the partitions *x*, between the hood G and the casing and between the latter and the tube B, as set forth.

318,750. HACKLING-MACHINE. CHARLES E. KEITH, Bridgeport, Conn. Filed Feb. 24, 1885. (No model.)



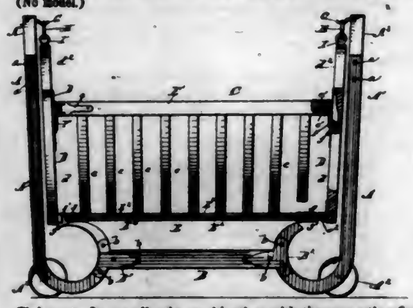
Claim.—1. In a hackling-machine, the disks bearing upon their peripheries clamps, as described, in combination with a drum having hackle-teeth thereon, a movable carriage, and a brake, substantially as set forth.

2. The combination of the disks, the clamps mounted thereon, and means for rotating said disks and clamps, with the carriage, the screw for reciprocating the same, the toothed drum journaled thereon, the lever fulcrumed to the carriage, and the brake, substantially as described.

3. In a hackling-machine, the combination, with the frame or bed, the movable carriage, and the toothed drum journaled in said carriage, of a strap-brake encircling the drum, and a lever and a segmental rack for holding the same, substantially as set forth.

4. The combination of disks F G, mounted on shaft D, clamps I, carriage J, toothed drum L, brake N, lever O, rack Q, and the screw K, all arranged as described, and for the purpose set forth.

318,751. FOLDING CRADLE. JOHN H. LAGE, Michigan City, Ind., assignor of one-half to Oliver S. Dale, same place. Filed Sept. 30, 1884. (No model.)



Claim.—1. In a cradle, the combination, with the supporting-frame thereof, of a body composed of end and side sections, the side sections being hinged to the end sections by a double joint and adapted to be folded one upon the other, and the end sections to fold beneath the same, substantially as herein described.

2. In a cradle, the combination, with the supporting-frame thereof, of the side rails, curved slats, and bottom rails having end plates provided with hooks adapted to engage with staples secured to the inside of the end sections, said rails and slats forming the sides and bottom of the cradle, substantially as herein described.

3. In a cradle-body, the combination of the side rails, curved slats, and bottom rails having end plates and hooks adapted to engage with staples on the end sections, and to be released from engagement therewith by springing the said slats upwardly, as herein described.

4. In a cradle-body, the combination, with the end sections having staples, of the side sections hinged thereto by a double joint and detachably connected therewith, whereby the sections are adapted to fold at approximately right angles upon each other, substantially as described.

5. In a cradle, and in combination with the supporting-frame thereof, a body suspended therefrom and composed of end sections having recesses and staples, and side sections having their upper rails hinged to the end sections by a double joint, and connected by carved slats with the bottom rails having hooks adapted to be detachably connected to the staples of the end sections, as herein shown and described.

318,752. CASTER. MILTON LACROIX and ALBERT K. HAHN, Springfield, Ohio. Filed Sept. 15, 1884. (No model.)



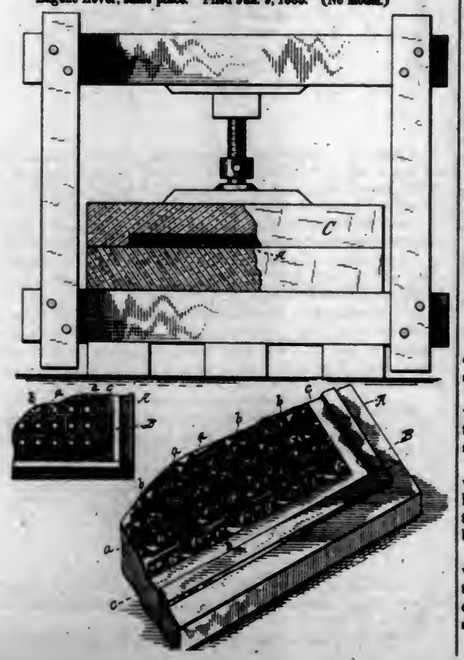
Claim.—The improved caster-wheel consisting of a body having a convex periphery and V-shaped annular grooves, and a tire formed from a cylindrical annulus of rubber, fitting over the convex periphery and having its inner edges occupying the V-shaped grooves.

318,753. COMBINED SEED-PLANTER AND FERTILIZER-DISTRIBUTER. ROBT. A. LAMBERT, Mobile, Ala. Filed Feb. 9, 1885. (No model.)



Claim.—In a seeding-machine, the combination, with a seed-hopper having a longitudinal feed-aperture in its bottom, of a transverse oscillating shaft, a series of teeth, U, radiating from the under side of the shaft and having longitudinal slots V, and longitudinally-slotted extension-fingers V', sliding adjustably with set-screws W in their slots in the slots of the aforesaid fingers, as and for the purpose shown and set forth.

318,754. DIE FOR THE FORMATION OF CHAIR SEATS, BACKS, AND SIMILAR ARTICLES FROM CAOUTCHOUC AND OTHER PLASTIC MATERIAL. FREDERICK LATOUF, Syracuse, N. Y., assignor to R. Eugene Hover, same place. Filed Jan. 9, 1885. (No model.)

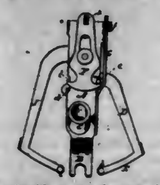


Claim.—1. A die or matrix formed with sets of longitudinal, transverse, and diagonal intagliated grooves, and projections or punches formed in relief in spaces between such grooves at uniform distances apart, substantially as described.

2. A die or matrix for producing in rubber, caoutchouc, and the like, imitation of cane seats and backs for chairs and similar articles, consisting of a body having in its surface double sets of intagliated grooves that lie in longitudinal and transverse paths, similar single grooves crossing the others diagonally in two directions, and punches formed in relief in the intermediate spaces, substantially as described.

3. A die or matrix formed in its surface with sets of intagliated grooves, which lie in longitudinal, transverse, and diagonal paths, and having punches formed in relief in the intermediate spaces and an outer rim or flange in relief, whereby a strengthening-border is formed in the finished article, substantially as described.

318,755. EMBROIDERING ATTACHMENT FOR SEWING-MACHINES. JOSEPH P. LAVIGNE, Wallingford, Conn., assignor to the Sackett Manufacturing Company, same place. Filed Aug. 15, 1884. (No model.)



Claim.—In an embroidery attachment, the combination of the vibrating arm D, hung to the base-plate, and provided with the thread-carrying eye at its free end, and with a stud, *d*, one side of its pivot, and a stud, *e*, upon the opposite side of its pivot, the reciprocating slide F, constructed with a hook, *l*, upon one side, and a like hook, *m*, upon the opposite side, said hooks corresponding, respectively, to the studs *d e*, the bottom of the recess in the edge of the plates by which the hook is formed inclined outward, and the lever G, hung to the base and constructed for engagement with the needle-arm of the sewing-machine, substantially as described, and whereby a longitudinal reciprocating movement is imparted to said slide F between said studs *d e*, the inclined edge of the recesses in the slide operating upon the respective studs to impart vibratory movement to said slide in a horizontal plane between said studs.

318,756. LAMP-HANGER. LYMAN T. LAWTON, Meriden, Conn., assignor to the Meriden Malleable Iron Company, same place. Filed Mar. 16, 1885. (No model.)



Claim.—1. In a lamp-hanger, the combination of two or more pulleys hung therein, adapted to revolve in radial planes, U-shaped springs applied to said pulleys, one leg upon one side and the other upon the opposite side, and so that said pulleys are embraced by said legs, substantially as described.

2. In a lamp-hanger, the combination of two or more pulleys arranged to revolve in radial planes, disks *c*, arranged to bear against the sides of said pulley, but without rotation therewith, with U-shaped springs, the legs of the U applied to the said disks, one each side the pulley, and so as to embrace the pulley between said disks with frictional contact, substantially as described.

318,757. ELEVATOR FOR MINING PURPOSES. ROBERT LEE, Cable, Ill. Filed Mar. 10, 1885. (No model.)

Claim.—1. The combination, with the elevator-bucket, of a pocket closed by a gate adapted to be opened by the bucket upon its descent, substantially as and for the purposes specified.

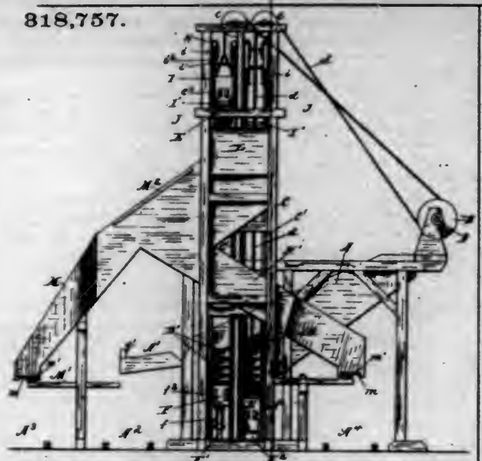
2. The combination, with an elevator-bucket, of a pocket provided with a sliding gate arranged to close the lower end of the pocket, and to be engaged by the bucket upon its descent to lower the said gate, substantially as and for the purposes specified.

3. The combination, with the elevator-bucket, of a pocket provided with a gate for closing the lower end of the said pocket, and adapted to be lowered by the bucket upon its descent, and a suitable weight or spring to return the said gate to its normal position upon the ascent of the bucket, substantially as and for the purposes specified.

4. The combination, with the bucket E, of the pocket B, provided with a sliding gate, F, having one or more projections, *f'*, arranged in the path of the bucket, and the lever F', connected to the said gate at one end and provided with a weight, F', on the other end, substantially as and for the purposes specified.

5. The combination, with the bucket E and pocket B, provided

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with a gate for closing the lower end thereof, of one or more inclined passages arranged above the said gate to return any surplus coal from the bucket to the pocket, substantially as and for the purposes specified.

6. The combination, with the bucket E and pocket B, provided with a gate to close the lower end thereof, of a series of inclined plates, B', arranged above the said gate and forming inclined passages, substantially as and for the purposes specified.

7. The combination, with an elevator-bucket provided with a discharge-opening closed by a sliding gate, of a lifting arm or arms actuated by the movement of the bucket to raise the said gate, substantially as and for the purposes specified.

8. The combination, with an elevator-bucket provided with a discharge-opening closed by a sliding gate, of a slide or slides actuated by the said bucket and connected to a lever or levers pivoted at or near one end, and having connected to the other end a lifting-arm adapted to engage and open the sliding gate, substantially as and for the purposes specified.

9. The combination, with the bucket E, provided with gate E^2, of the slides G, levers H, connected thereto, and lifting-arms I, having projections to engage the guiding-grooves *j*, substantially as and for the purposes specified.

10. The combination, with the bucket E, provided with gate E^2, having projections e^4, of the slides G, levers H, and lifting-arms I, provided with cross-bar I', to engage the projection e^4, substantially as and for the purposes specified.

11. The combination, with the levers H, of the adjustable lifting-arms I, substantially as and for the purposes specified.

12. The combination, with the levers H, of the lifting-arms I, each composed of an upper stirrup-section pivoted to the levers and a lower section passing through the said stirrup and screw-threaded to receive a nut above and below the stirrup, substantially as and for the purposes specified.

13. The combination, with the lifting-arms I and the mechanism for operating the same, of the cross-bar I', connecting the lower ends of the lifting-arms, and having its projecting ends i^3 arranged to slide in the guide-grooves *j*, substantially as and for the purposes specified.

14. The combination, with the bucket E, having sliding gate E^2, and the mechanism for raising the said gate, of a stop or stops, e^3, arranged above the said gate to limit the upward motion of the same, substantially as and for the purposes specified.

15. The combination, with the slide or slides G, which operate the discharge mechanism, of a safety-stop to limit the upward motion of the said slide or slides, substantially as and for the purposes specified.

16. The combination, with the slide G, of the bell-crank lever K, pivoted therein, and having one end, k', thereof arranged to project normally in the path of the bucket, and the other end, k^2, bearing against a suitable support provided with a slot or recess, g', to receive the said end to limit the upward motion of the slide, substantially as and for the purposes specified.

17. The combination, with the elevator-bucket E, having inclined bottom E', of the discharge-opening arranged at the lower edge of the said inclined bottom and provided with a sliding gate to close the said opening, substantially as and for the purposes specified.

18. The combination, with the elevator-bucket E, of inclined flanges e^3 and e^4, substantially as and for the purposes specified.

19. The combination, with an elevator, of one or more chutes connected therewith and having their lower ends provided with plates to close the said ends, substantially as and for the purposes specified.

20. The combination, with the chute M or N', of the plate *m*, sliding in suitable ways at the lower end of the said chute, lever M', and connecting-link *m'*, substantially as and for the purposes specified.

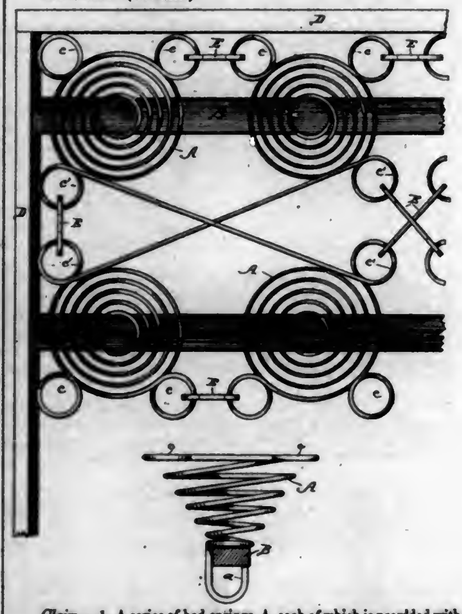
21. The combination, with the chute M, having screen N, of retarding devices arranged above the said screen to retard the motion of the coal as it passes over the screen, substantially as and for the purposes specified.

22. The combination, with the chute M, having screen N, of the dependent hinged plates O, arranged above the screen, substantially as and for the purposes specified.

23. The combination, with the chutes M and N', of a screen arranged at the junction of the two chutes, a portion of the said screen being capable of being raised to allow the coal to pass freely from one chute to the other without passing through the screen, substantially as and for the purposes specified.

24. The combination, with the chutes M and N', of the screen N, arranged at the junction of the two chutes, the upper portion of the said screen being capable of flexure at the point *n*, substantially as and for the purposes specified.

318,758. BED-SPRING. JOSEPH F. LEGGETT, Carrollton, Mo. Filed Feb. 7, 1885. (No model.)

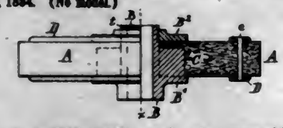


Claim.—1. A series of bed-springs, A, each of which is provided with the hook *a* and with the loops *c* and *c'*, united together diagonally in pairs by a wire which forms the continuation of the said loops *c'*, substantially as shown and described, and for the purpose set forth.

2. A series of bed-springs, A, each of which is provided with the hook *a* and with the loops *c* and *c'*, united together diagonally in pairs by a wire which forms the continuation of the said loops *c'*, in combination with the hooks E, for further uniting the next adjacent spring of the series, substantially as described and shown.

3. The combination of a series of bed-springs, A, each of which is provided with the hook *a*, and with the loops *c* and *c'*, united together diagonally in pairs by a wire which forms the continuation of the said loops *c'*, hooks E, for further uniting the next adjacent springs in the series, slats B, and frame D, substantially as described and shown.

318,759. COMPOSITION DRIVING-PULLEY. THEODORE F. LEMASSENA, Newark, N. J., assignor to Lillian Lemassena, same place. Filed May 16, 1884. (No model.)



Claim.—1. A driving-pulley made of a composition of leather scraps and paper combined with cement, substantially in the manner and proportions set forth.

2. The combination, with a pulley molded to the required form, as described, of a flanged and ribbed hub having a loose flange screwed upon the end, substantially as and for the purpose set forth.

3. The combination, with a pulley formed of loose scraps cemented together, as described, of the rings applied to the sides of the pulley and clamped thereto, substantially as and for the purpose set forth.

318,760. DEVICE FOR ADMINISTERING BATHS. DAVID LESTER, Lockport, N. Y. Filed May 9, 1884. (No model.)

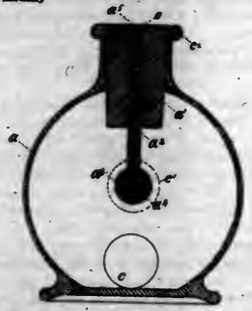


Claim.—1. A case or inclosure, B', in which to administer baths to a prostrate patient, consisting of a lower part, D, and a cover, A, for the part D, joined to the latter so as to be opened or closed over the patient, the part D being provided with a mattress or couch, P, and the space within the cover A divided by a partition, *l*, forming an apartment or chamber, B, for the head of the patient, separate from the remaining space in the cover, with an opening, C, from without into the chamber B, substantially as shown and described.

2. A case or inclosure, B', in which to administer baths to prostrate patients, consisting of a lower part, D, containing an ordinary bath-tub, Z, and mattress P, and a cover, A, for the part D, the interior of said cover being divided by a partition, *l*, and made with a steam-space, *c*, substantially as set forth.

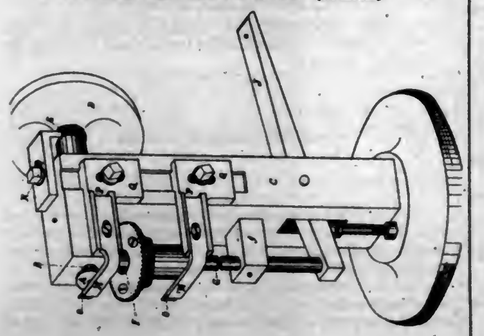
3. A case in which to administer baths, consisting of a lower part or body, an upper portion hinged thereto, a bath-tub placed in the lower portion, a mattress placed on the upper side of the tub, and a steam-box placed beneath the mattress, said steam-box being provided with curved exit-pipes S, having their outer ends upturned, said pipes being swiveled or pivoted to the steam-box, so as to be capable of being swung around thereon, for the purpose set forth, substantially as described.

318,761. EXPLOSIVE HAND-GRENADE EXTINGUISHER. AUGUSTUS F. LEESON and FREDERIK HORSBURG, Buffalo, N. Y. Filed Mar. 19, 1884. (No model.)



Claim.—A glass hand-grenade extinguisher consisting of a single shell, *a*, to hold the fire-extinguishing liquid, a cork, *a'*, provided with a bulb and tube filled with a charge of gunpowder, and a suitable covering of tin-foil or equivalent water-proof material, substantially as and for the purpose described.

318,762. MACHINE FOR FASTENING CLOCK-PINION LEAVES. B. B. LEWIS, Bristol, Conn. Filed Oct. 22, 1883. (No model.)



Claim.—1. In a machine for fastening the leaves of lantern-pinions in place, the combination, with a fastening-tool and means for operating it, of a support, a movable center and lever-connections for moving such support toward and away from the fastening-tool, and devices for retaining the pinions in position, substantially as set forth.

2. In a machine for fastening the leaves of lantern-pinions in place, the combination, with a fastening-tool and means for operating it, of a support having a toothed edge, and devices for retaining the pinion in position, substantially as set forth.

3. In a machine for fastening the leaves of lantern-pinions in place, the combination, with a fastening-tool and means for operating it, of a rotary support having a toothed edge, means for moving such support toward and away from the fastening-tool, and devices for retaining the pinions in position, substantially as set forth.

4. In a machine for fastening the leaves of lantern-pinions in place, the combination, with a fastening-tool and means for operating it, of a support, means for moving it toward and away from the fastening-tool, and rests having open or exposed bearings for retaining the pinions in position, substantially as set forth.

5. In a machine for fastening the leaves of lantern-pinions in place, the combination, with a knurl mounted upon a longitudinally-adjustable shaft, of a rotary platform having a toothed edge, a movable center and lever-connections for moving the platform toward and away from the knurl, and adjustable grooved rests for retaining the pinions in position, substantially as set forth.

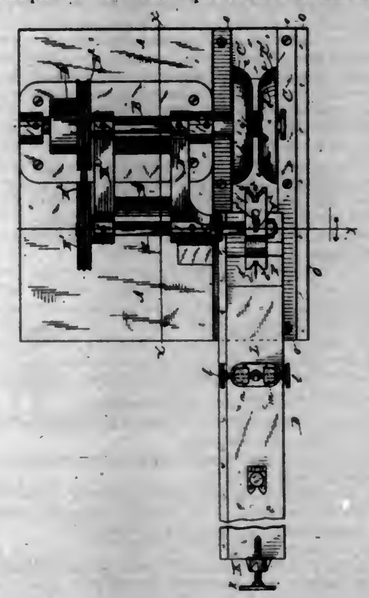
318,763. MACHINE FOR FORMING OAR-BLADES. GEORGE W. LINGLE and JAMES F. ROOP, Stryker, Ohio. Filed Mar. 3, 1885. (No model.)

Claim.—1. In an oar-planing machine, the combination of a revolving cutter, a carriage having a cam-track, a pivoted vertically-adjustable frame having an adjustable standard carrying a roller adapted to bear in the cam-track, and a shaft mounted in said frame and carrying a cutter-head, said standard having a cross-head adapted to move in guides or uprights secured to a platform, substantially as and for the purpose specified.

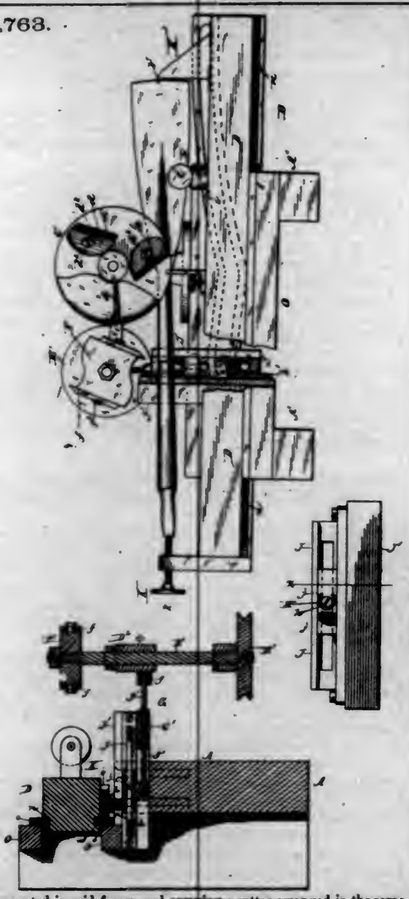
2. The combination of a power-shaft carrying a cutter, a pivoted frame carrying a cutter, the shaft of which is geared with said power-shaft, and having a standard which is raised and lowered by a carriage with which said standard is connected as said carriage moves under the cutters, substantially as and for the purpose set forth.

3. The combination of a power-shaft having a cutter, a pivoted vertically-adjustable frame having a supporting-standard at one end carrying a roller, a shaft belted to said power-shaft and carrying a cutter in line with the cutter on the power-shaft, and a carriage provided with a cam-track in which said roller is adapted to bear and govern the movements of the frame, substantially as and for the purpose described.

4. In an oar-planing machine, the combination of a carriage provided at one side with a cam-track, a power-shaft mounted in standards and having a cutter arranged over said carriage, a pivoted frame having a standard provided with a roller adapted to bear in the cam-track, and



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a shaft mounted in said frame and carrying a cutter arranged in the same plane of the power-shaft cutter, substantially as and for the purpose described.

5. In an oar-planing machine, the combination of a power-shaft mounted in standards and carrying a cutter-head, a pivoted vertically-adjustable frame having a standard provided with a roller, guides secured to a standard between which the frame-supporting standard is adapted to move, a carriage having a cam-track, and a shaft mounted in the arms of said frame and carrying a cutter-head arranged over the carriage, substantially as and for the purpose described.

6. In an oar-planing machine, the combination of a power-shaft, B, having a pulley and a cutter, C, a frame, D', having its arms pivoted to said shaft and having a standard, G, pivotally connected thereto, a roller mounted on said standard, a carriage having a cam-track, *i*, and a shaft, E, mounted in said frame and carrying a cutter, F, substantially as shown and described.

7. In an oar-planing machine, the combination of a power-shaft, B, having a pulley, B^2, and a cutter, C, comprising two disks having adjustable cutter-blades, a pivoted frame having an adjustable standard carrying a roller, a carriage provided with clamping devices, and a cam-track in which the roller is adapted to bear, and a shaft, E, mounted in said frame and belted to the power-shaft, and a cutter-head, F, secured to said shaft E and having adjustable cutter-blades, substantially as and for the purpose described.

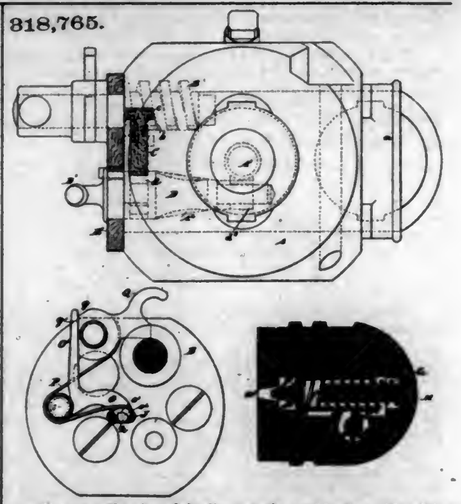
318,764. FOOD PRODUCT. HERMANN LORCH, Milwaukee, Wis. Filed Apr. 17, 1885. (No specimens.)

Claim.—1. As a food product, smoke-dried unripe spelt in a cracked or coarsely-ground condition.

2. The herein-described food product, consisting of smoke-dried unripe spelt in a cracked or coarsely-ground condition and impregnated with the flavors of pepper, nutmeg, and juniper-berries.

318,765. LOCK FOR ORDNANCE. WILHELM LORENZ, Carlsruhe, Baden, Germany. Filed Dec. 9, 1884. (No model.)

318,765.



Claim.—1. In a breech-loading gun, the combination, with a firing-pin having its bearings in the movable breech-piece, of the locking bolt or screw which holds the breech-piece in position, and intermediate mechanism, as described, whereby the manipulation of said screw to allow the opening of the breech will automatically place the firing-pin at half-cock, as set forth.

2. The combination, with the movable breech-piece, the firing-pin having its bearings in said breech-piece, and the breech-screw, of a firing-shaft having projections which engage with projections upon said firing-pin, and mechanism, as C, arranged between and engaging both the firing-shaft and the breech-screw, as and for the purposes set forth.

3. In a breech-loading ordinance, the combination, with the firing-pin having its bearings in the movable breech-piece, and provided with teeth or projections, of a firing-shaft having its bearings also in the breech-piece, and teeth which engage with the teeth on the firing-pin, and a slide engaging projections upon the firing-shaft and connecting the same with the breech-screw or other device for locking the breech-piece, as set forth.

4. In combination with a movable breech-piece and securing device, as B, a firing-pin, F, arranged centrally in the breech-piece, and having teeth *f*, a spring, G, bearing against said firing-pin and serving to hold it with a constant force in the direction of the cartridge, a firing-shaft, D, having teeth d^3, which engage the teeth *f*, and having projections *d d'*, and a slide, C, having a hook which engages the projection *d* or *d'* upon the firing-shaft and connects the same with the breech-securing device B, as and for the purpose set forth.

5. The combination, with the firing-pin and firing-shaft, as described, having projections *d* and *d'*, of the breech-screw B, having opposing faces *b b'*, the hook-slide C, connecting said breech-screw with the firing-shaft, and a spring-pawl, H, arranged to engage one of the projections *d* or *d'* and hold the firing-shaft, as and for the purposes set forth.

6. The combination, with the breech-screw B and firing-shaft D, as described, and the pawl H, engaging said shaft, and having arm *h*, which projects through the slot J of the breech-piece, of the elbow-lever O, the spring P, operating against said lever O to hold it in contact with the said arm *h*, and the arm Q, having faces *q q'*, which alternately engage the arm O' of the lever O, as and for the purposes set forth.

318,766. EXERCISING-BAG. CHARLES E. LOMBERD, New Haven, Conn., assignor to the Seamless Rubber Company, same place. Filed Jan. 26, 1885. (No model.)



Claim.—1. The herein-described improvement in exercising-bags, consisting of a bag adapted to be inflated, constructed with a tube longitudinally through it, open at both ends, and through which the suspending device may pass, substantially as described.

2. An exercising-bag adapted to be inflated, constructed with a tube longitudinally through it, of larger diameter than the suspending-cord, combined with a sleeve at each end of the tube, the opening

through which corresponds substantially to the diameter of the suspending-cord, substantially as described.

3. An exercising-bag adapted to be inflated, constructed with a tube longitudinally through it, open at both ends, the said tube of larger diameter than the suspending-cord, a removable sleeve introduced into the ends of the tube, the opening through the sleeve corresponding substantially to the suspending-cord, the sleeves constructed with a head to rest against the end of the bag, substantially as described.

318,767. CAR-COUPLING. JOHN A. LOOPER, Rockpile, Ga. Filed Apr. 3, 1885. (No model.)

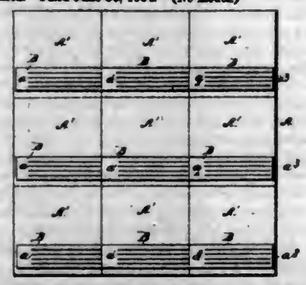


Claim.—In a car-coupling, the combination of the draw-head having the longitudinal slot in its top, the hook pivoted in the inner end of this slot, the upright posts M, having staples L and oblique notches N, the transverse bar O, sliding with its ends in the said staples, and the short chain secured to the coupling-hook and to the middle of the transverse bar, as and for the purpose shown and set forth.

318,768. PREPARING AND CURING SPELT. HERMANN LORCH, Milwaukee, Wis. Filed Nov. 19, 1884. (No specimens.)

Claim.—The hereinbefore-described process of preparing and curing spelt for a food product, consisting in subjecting the ears of the grain in a green state to heat and smoke from green wood until dry, then separating the kernels from the husks and subjecting them for two days to a temperature of about 84° to 88° Fahrenheit, then cracking or coarsely grinding the kernels and subjecting the product for ten hours each and successively to the vapors of heated pepper, nutmeg, and juniper-berries, substantially as set forth.

318,769. ELECTION-SLIP. CHAS. X. MACHEIN and JNO. F. HAACKER, Detroit, Mich. Filed June 30, 1884. (No model.)



Claim.—1. As an article of manufacture, a cover-sheet having a blank slitted sheet gummed upon one side secured thereto, substantially as described.

2. As an article of manufacture, a cover-sheet provided with a series of blank slitted sheets gummed upon one side secured thereto, the construction being such that the cover-sheet may be cut into a series of covers, each cover having a slitted sheet secured thereto, substantially as described.

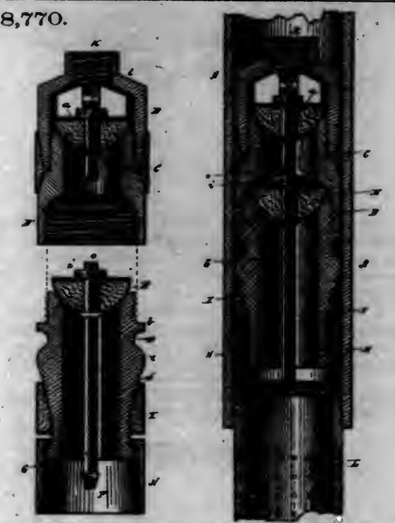
3. As an article of manufacture, a cover-sheet having a blank slitted sheet secured thereto, the construction and arrangement being such that the cover-sheet and the slitted sheet may both have the name of the candidate printed thereon by a single form, substantially as described.

318,770. TUBULAR-WELL VALVE. RUFUS G. MARCY, Kendallville, Ind. Filed Feb. 5, 1885. (No model.)

Claim.—1. The combination, with the irregularly-shaped cylinder D, having a screw-threaded flange at its lower end, of the elastic packing-ring I and packing-cylinder H, screw-threaded near its upper end, whereby it is made to turn clear of the flange and above the same, and be held thereby against accidental removal, substantially as specified.

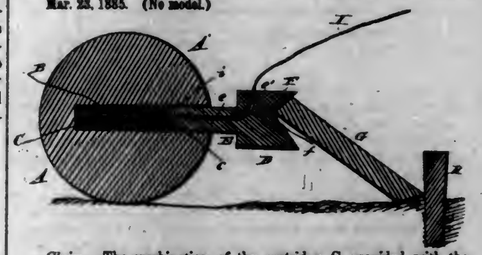
2. The combination, with the irregularly-shaped cylinder D, of the beveled packing-ring I, the packing-cylinder H, adapted to screw over

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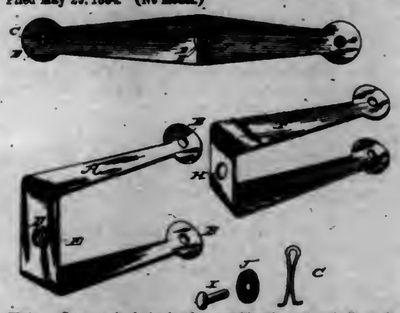
and clear of the lower end of the cylinder D, and the strainer-case L, whereby the packing-cylinder is forced against the packing-ring, substantially as and for the purposes specified.

318,771. BLASTING-PLUG. WM. T. MCCALL, St. Clair, Ala. Filed Mar. 23, 1885. (No model.)



Claim.—The combination of the cartridge C, provided with the opening *c* and fitting in a transverse opening in a log, with its center in the axial line of the same, and the retaining-block D, fitting down on the cartridge, and provided with the canal *e* and re-entering shoulder *f*, with the brace-bar G, having its upper end formed to engage against said shoulder, and the brace-block H, against which the lower end of the bar G bears when the retaining-block is in place, substantially as specified.

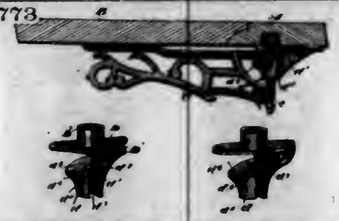
318,772. SWIVELED CLEVIS. WILLIAM H. MCCUMBER, Trenton, Mo. Filed May 29, 1884. (No model.)



Claim.—In a swivel-clevis, the combination of a bail, A, having opening D, surrounded by a struck-up flange, E, with a bail, F, having opening H, and a connecting bolt or rivet, I, and washer J, substantially as and for the purpose herein set forth.

318,773. TABLE-LEAF SUPPORT. CHARLES E. MCGLINCHEY, Cleveland, Ohio, assignor to Henry A. Lozier and Charles F. Stokes, both of same place. Filed Feb. 24, 1885. (No model.)

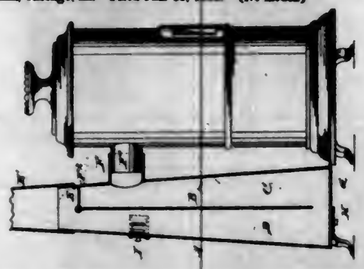
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Claim.—1. In a table-leaf support, the combination, with a supporting device rigidly secured to the table and provided with a socket and a cam, of a laterally-swinging arm adapted to rest on said cam, and a spindle secured to said arm and resting within the socket of the supporting device, substantially as set forth.

2. In a table-leaf support, the combination, with a laterally-swinging arm and a vertical spindle connected therewith, of a supporting device for the arm, consisting of a socket for the spindle, a screw-cam for elevating the arm, and the slots d^2 and d^3, substantially as set forth.

318,774. HEATING ATTACHMENT FOR STOVES. MICHAEL G. MCGUIRE, Chicago, Ill. Filed Jan. 13, 1885. (No model.)



Claim.—1. The suspension pipe-section A, having the lateral tubular neck F and upward tubular shank or extension F^2, in combination with a register, H, at the bottom of the pipe-section, the partition B, extending past the neck and into the tubular shank or extension, and the damper E, pivoted to the upper end of the partition, substantially as described.

2. The tapering pipe-section A, having its largest diameter at the bottom, and provided with the bottom register, H, and tubular neck F, in combination with the partition B, extending above the neck, and a damper, E, also above the neck, substantially as described.

3. The suspended pipe-section A, having one or more diving-flues and one or more ascending flues, in combination with the bottom register, H, and the register I in the upper portion of the pipe-section, substantially as described.

318,775. AUTOMATIC CAR-BRAKE. GARRETT B. MCLAUGHLIN, Petersburg, W. Va. Filed Apr. 13, 1885. (No model.)

Claim.—1. The combination of the draw-bar A, fitted to slide lengthwise in a car, the lever T, secured at one end to the car and connected midway with the draw-bar, the sliding rod B, notched to receive the lever T, and connections from the said rod B to the brakes, substantially as shown and described, whereby sliding motion of the draw-bar may actuate the brakes, as set forth.

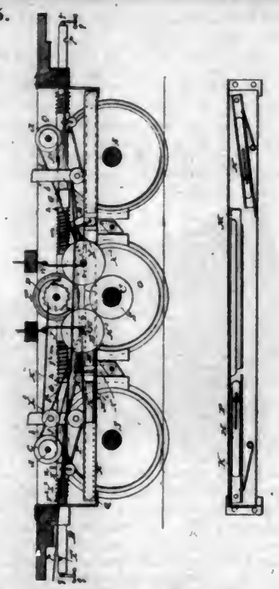
2. The combination of the draw-bar A, fitted to slide in a car, the lever T, secured at one end to the car and connected midway with the draw-bar, the rod B, notched to receive the lever T, and the crank q, reversibly hung to the said rod B, as shown and described, whereby the rod is weighted to hold its notch up or down, as specified.

3. The combination of the draw-bar A, the lever T, engaging the draw-bar, the rod B, fitted to slide lengthwise, and to revolve in bearings, and notched in its side to receive the lever T, and the crank q, reversibly hung to the rod B, and provided with a wrist-pin extending at two sides of the crank bar or arm longitudinally with the car, substantially as shown and described.

4. The combination of the draw-bar A, the lever T, engaging the draw-bar at one end of a car, the rod B, extending from end to end of the car, and provided with a notch on one side at one end to receive the lever T, and with a similar notch on the opposite side at the opposite end, and another similar draw-bar and lever at the said opposite end of the car, the lever adapted to engage the notch or to be disengaged therefrom, substantially as shown and described, whereby the braking device is adapted to act in unison alternately on the two ends of a car without interference, as set forth.

5. The combination of the wheels O and axles S, the wheel C, fixed on an axle S, the wheel D, mounted on a shaft, V, and connected there-

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with by means of a pawl and ratchet, the friction-wheel E, loosely mounted on a shaft, E^2, the communicator-rod B, connected to slide with the draw-bar, a sleeve, J, mounted on the rod B, the shaft E^2, fixed to the said sleeve, and a drum, W, on the shaft V, connected by a chain, X, with the car-brake, substantially as shown and described.

6. The combination of the shaft V, the drum W, loosely mounted thereon, the collar W^2, screw-threaded thereon, the spring W^3, between the said collar and drum, a chain connecting the drum with a car-brake, and an automatic device, substantially as described, connecting the shaft V with the car-wheels, as specified.

7. The combination of the rod B, connected to slide endwise with the draw-bar of a car, the sleeve J, loosely mounted on the rod B, the spiral spring m around the said rod, connected with the sleeve J, the pin h, fixed in the rod to engage the spring, and a crank, q, attached to the end of the rod, substantially as shown and described.

8. The combination of the rod B, connected with the draw-bar of a car, the sleeve J, loosely mounted on the rod, the spring m around the said rod and connected with the said sleeve, another sleeve, G, on the rod attached to the spring at the opposite end to the sleeve J, a pin, h, in the rod engaging the spring, and a lug or stop-pin, q', in the sleeve G in the path of pin h, substantially as shown and described.

9. The combination of the slide-rod B, the sleeves J and G, and the spring m, connecting them, the spring-axle d, secured at one end to the car, the double drum c, mounted on the other end of the said spring, the friction-wheel E, the shaft E^2 therefor, fixed to sleeve J, the chain f, connecting the drum with the sleeve G, and the chain b, connecting the drum with the shaft E^2.

10. The combination of the slide-rod B, the sleeves J and G, and spring m thereon, the spring-axle d, secured at one end to the car, the double drum c, mounted on the other end of the said spring, the friction-wheel E, the shaft E^2 therefor, fixed to sleeve J, the chains f and b, connecting the drum c with the sleeve G and shaft E^2, respectively, and the stop lug or pin e, secured in the frame in the path of the axle d, substantially as shown and described.

11. The combination of the slide-rod B, the sleeve I thereon, the trough K, secured to the car, the push-bars H and M in the trough, the chain M^2, connecting the bar M with the car-brake, and the brace P, hinged at one end to the sleeve I, and at the other end to the bar H, substantially as shown and described.

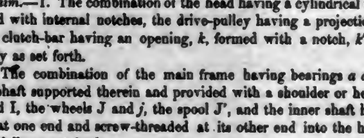
12. The combination of the platform N, secured to the car, the trough K, pivoted at the end Q to the platform, the trough K^2, secured to the platform in line with trough K, the push-bars H and M, fitted to slide in the said troughs, the chain M^2, connecting the bar M with the car-brake, the slide-bar B, the sleeve J thereon, the axle E^2, secured to sleeve J, the wheel F, connected with the running-gear of the car, and the switch Y, loosely mounted on the shaft E^2, provided with an inclined blade, R, adapted to swing between the sections K and K^2 of the trough, and provided with a friction-roller, Z, adapted to engage the wheel F, substantially as shown and described.

13. The combination of the sections of trough K and K^2, the wheel F, the switch Y, provided with the inclined blade R at one end, the

roller Z at the other end, and the springs Z^2, the switch pivoted to swing with the roller Z tangent to the wheel F, as shown and described.

14. The combination of the sectional push-bar H M, the sectional trough K K^2, the trough K, pivoted at Q, and the switch Y, provided with the inclined blade R, adapted to swing between the sections of trough K and K^2, substantially as shown and described, for the purpose specified.

318,776. CORSET ATTACHMENT. MARY MCWATERS, Bethel, Conn. Filed Apr. 14, 1884. (No model.)



Claim.—1. The combination, with a corset or other under-garment, of perforations formed in the lower portions of the same in each side thereof, wire coils secured to said corset or garment to encircle said perforations and re-enforce the same, and studs B B', located in said perforations, substantially as set forth.

2. The combination, in a corset or other under-garment, of perforations formed at each side thereof, curled wires secured to said corset or garment so as to embrace and re-enforce said openings, and having an eccentric extension, D', a stud bearing in said perforation, and a loop, E, hung on said stud under said eccentric extension, substantially set forth.

318,777. CAR-COUPLING. WILLIAM S. MEAD, Spencer, Ind. Filed Apr. 22, 1885. (No model.)

Claim.—1. In a car-coupling, the combination of a draw-head provided on its upper side with a pair of rearwardly-extending lugs or lips, a rock-shaft mounted in the bearing formed by the rear lip, and having a forwardly-extending link, forwardly-extending perforated arms at the ends of said rock-shaft, and pins adapted to connect said arms with the body of the car, so as to retain the link in a raised position, substantially as and for the purpose set forth.

2. In a car-coupling, the combination of a draw-head provided on its upper side with a pair of rearwardly-extending lips or lugs, a beveled shoulder formed in rear of the rear lip or lug, a transverse shaft mounted in the bearing thus formed, and provided with a forwardly-extending link, and the staples arranged and adapted to support the ends of the transverse coupling-rod or rock-shaft, substantially as and for the purpose herein set forth.

318,778. LATHE. GRANVILLE E. MEDLEY and MARION W. WILLIAMS, Hopkinsville, Ky. Filed Apr. 7, 1885. (No model.)

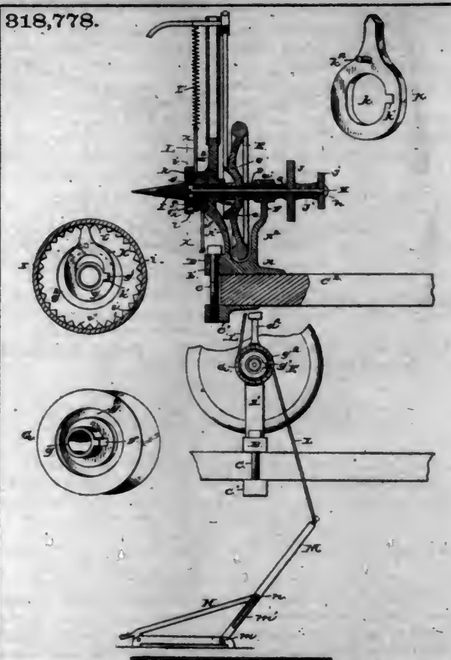
Claim.—1. The combination of the head having a cylindrical flange provided with internal notches, the drive-pulley having a projection, g', and the clutch-bar having an opening, k, formed with a notch, k', substantially as set forth.

2. The combination of the main frame having bearings a a', the hollow shaft supported therein and provided with a shoulder or head, d, the head I, the wheels J and j, the spool J', and the inner shaft having a head at one end and screw-threaded at its other end into the head I, substantially as set forth.
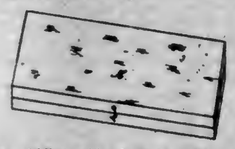
3. The combination of the head having an internally-notched flange, i, the drive-pulley having a hub, g, provided with a rib, g', and having a groove, g^3, formed in its side next the flange i, and the clutch-bar adapted at one end to engage the flange i, and provided near its other end with an elongated opening fitted on hub g, and having a notch arranged to fit over the rib g', and a pin projected from the clutch-bar into the groove of the drive-pulley, substantially as set forth.

4. The combination of the head I, having a threaded socket and an internally-notched flange, i, the hollow shaft, the inner shaft screw-threaded into the head I, the wheels J and j, and the spool J', secured by said inner shaft, the drive-pulley G, provided with a hub, g, having a rib, g', and having a groove, g^3, cut in its face next flange i, and the clutch-bar adapted at its outer end to engage the flange i, and provided with a pin entering groove g^3, and with an elongated opening, k, having a notch, k', substantially as set forth.

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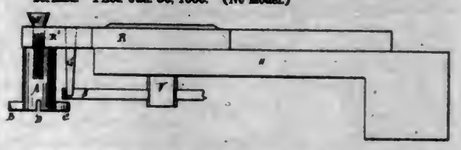


318,779. FOLDING TABLE. JAMES C. MENAFFEY, Kansas City, Mo. Filed Aug. 18, 1884. (No model.)



Claim.—In a folding table, the top sections, raised border-strips encircling the edge of each, rectangular supporting-frames hinged to fold inward longitudinally upon the under surface of the top, their cross-bars resting in notches formed in the strips connecting the top sections, and being severed upon a central line and provided with hinges to allow of a transverse fold in closing the said top sections together, bifurcations in the lower extremities of the said frames, and braces hinged to the under surface of the top for engaging such bifurcations, all combined and arranged substantially as set forth.

318,780. WATCH-REGULATOR. ADOLF MERKELBACH, Bienne, Switzerland. Filed Jan. 30, 1885. (No model.)



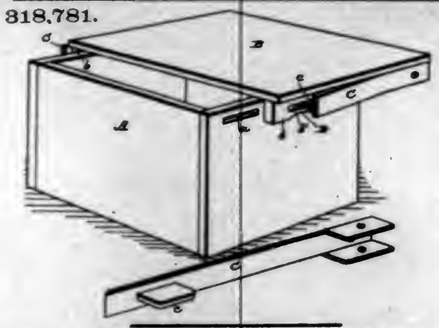
Claim.—The combination, with the regulator-lever and the pin G, of regulator-pin A, having a screw-threaded hole, and the fingers and a screw passing through the regulator-lever and into the regulator-pin for holding the same, substantially as set forth.

318,781. BOX-FASTENER. ISAAC J. MILLER, Nashville, Tenn., assignor to Henry J. Wiggs, same place. Filed Aug. 16, 1884. (No model.)

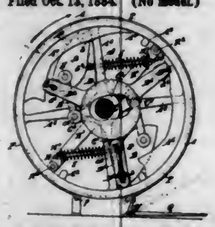
Claim.—1. The combination of a box having in its sides proper slots or openings, a removable lid, and spring bars or plates secured by one end to the lid, and provided on the other end with lugs which enter the slots in the box and hold the lid securely in place, substantially as specified.

2. In a packing-box, the combination of the box A, provided with the slots a a, the lid B, having secured to its side edges the clips b b, provided with the slots b' b' and finger-holds D D, and the springs C C, provided with the lugs c c, substantially as specified.

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318,782. STEAM-ENGINE GOVERNOR. MATTHEW R. MOORE, Indianapolis, Ind. Filed Oct. 13, 1884. (No model.)



Claim.—1. The steam-engine governor described, having a heavy dead-wheel, A, unencumbered by the transmission of power, mounted loosely on the shaft C, in combination with a shifting eccentric, D, and operating mechanism arranged, substantially as described, so as to cause the advance of the dead-wheel by its momentum and the drag by its inertia to shift the eccentric, substantially as herein specified.

2. In a steam-engine governor, the loosely-mounted dead-wheel A, with connections, as d' A^4 A^5, for shifting the point of cut-off by the inertia, in combination with weights B and means, as I, for urging such weights inward, so as to govern the speed by the joint influence of sudden changes and centrifugal force, as herein specified.

3. In a steam-engine governor having a shifting eccentric and provisions, substantially as specified, for adjusting the point of cut-off by the changes in speed, the arm C' on the shaft C, and the arm D' on the eccentric loosely connected by the pivot D^4, in combination with each other and with provisions, as D^2 A^4 D^4 A^5, for shifting the eccentric in a curved path, substantially as herein specified.

4. In a steam-engine governor, a dead-wheel, A, capable of running faster or slower than the shaft C, weights B, and links E, arranged to allow of reversing, as herein specified.

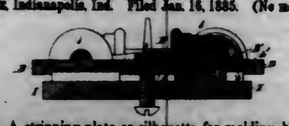
5. In a steam-engine governor, a dead-wheel, A, shaft C, weights B, and links E, in combination with each other and with a brake, P, and operating means, as Q, arranged to serve as herein specified.

6. A steam-engine governor having a shifting eccentric, D, means, as C' D' D^4, for causing the eccentric to turn with the shaft, and independent means offering friction, as D^2 A^4 D^4 A^5, for changing the eccentricity of the eccentric, combined and arranged, as shown, so that the eccentric shall be held by friction at some points and be urged by the resistance of the valve alternately into positions of greater and less eccentricity at other points, all substantially as herein specified.

7. In a steam-engine, the loose, unloaded, or dead wheel A, and connected shifting eccentric D, in combination with the loose hub R, with arms R' and means, as w r X' W S, for urging the dead-wheel forward or backward, substantially as and for the purposes herein specified.

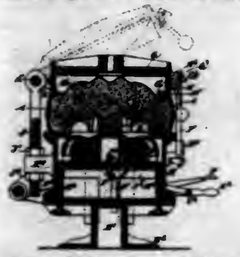
8. In a steam-engine governor having a loose fly or dead wheel and connections therefrom to the shaft and to the mechanism for supplying steam to the engine, the combination, with such dead-wheel, of a brake, P, and means for operating it to retard the dead-wheel, and also of means, as S T R R', for positively turning the dead-wheel in one direction or the other relatively to the shaft, all substantially as and for the purposes herein specified.

318,783. APPARATUS FOR MAKING SAND MOLDS. MATTHEW R. MOORE, Indianapolis, Ind. Filed Jan. 16, 1885. (No model.)



Claim.—A stripping-plate or silhouette for molding, having a body of hard material, B, and a soft lining, B', around the pattern-holes engaged together by the groove b', to resist displacement in any direction, and also by the offset b to contribute extra resistance against the soft lining being forced downward, all arranged to serve substantially as herein specified.

318,784. MACHINE FOR MAKING MOLDS FOR CASTINGS. MATTHEW R. MOORE, Indianapolis, Ind. Filed Jan. 30, 1885. (No model.)



Claim.—1. In a machine for making molds for castings, the rigid platen G and diaphragm or yielding presser G', connected with the body E by a hinge-joint on one side and detachable links on the other, arranged to operate as herein specified.

2. In a machine for making molds for castings, the diaphragm G' and means for forcing it with a yielding pressure against the sand in the flask, in combination with the pattern-plate I, carrying its patterns i, and suitable means for operating the latter, combined and arranged to serve as herein specified.

3. In a machine for making molds for castings, the hinge-posts J and adjusting means J' J^3, in combination with the hinged platen G, holding means F, and flexible presser G', arranged to serve relatively to each other and to a flask and contents, substantially as herein specified.

4. In a machine for making molds for castings, the platen G, diaphragm G', and provisions for depressing the latter to force down the sand, in combination with the top box, H, turning on the same hinge or axis, K, and adapted to contain surplus sand, as herein specified.

5. In a machine for making molds for castings, the addition-pieces H', and means for securing them to the top box, H, in combination with the latter and with the platen G and diaphragm G', to allow the depth of the top box to be varied, as herein specified.

6. In a machine for making molds for castings, the catch H^3, in combination with the top piece, H, platen G, and diaphragm G', arranged to serve as herein specified.

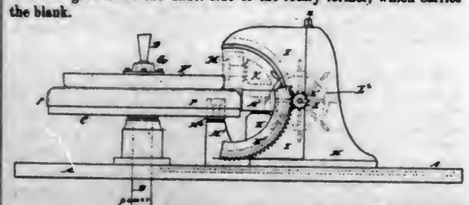
7. In a machine for making molds for castings, the pump O, hose N, air-reservoir W, and check-valve N', in combination with each other and with the hinged platen G, diaphragm or presser G', and means for presenting a flask and patterns thereto, all arranged for joint operation substantially as herein specified.

8. In a machine for making molds for castings, the reservoir, pump, and pipes N and O', in combination with the cock M, provided with three-way connections, and vent m, adapted to allow a pressure upon the diaphragm, to relieve such pressure, and to induce a partial vacuum at will, as set forth.

9. In a machine for making molds for castings, the air-pressure device G', connection G^3, rigid platen G, flexible presser G', and the valves M and Q, controlling connections from the said parts to the compressed-air reservoir W, combined and arranged for joint operation substantially as herein specified.

318,785. FLANGING-MACHINE. MATTHEW R. MOORE, Indianapolis, Ind. Filed Jan. 23, 1885. (No model.)

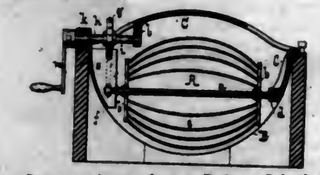
Brief.—Flanges boiler-heads of non-circular shape. The flanging-roll is kept to its work by means of a stud carrying a roller, which works in a cam-groove on the under side of the rotary former, which carries the blank.



Claim.—1. The revolving irregular former C, having a groove, C', and the holder F, capable of also revolving, in combination with each other and with the carriage H and roller H^3, traversing on fixed ways toward and from the axis of C, and with a roller, M, and means for carrying the latter strongly downward and changing its inclination so as to form the irregular flange required against the periphery of C, as herein specified.

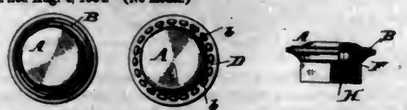
2. The revolving shaft B, irregular former C, having the groove C' and follower F and its operating means, in combination with each other and a reciprocating carriage, H, having an arm, H', and roller H^3, vertically-adjustable carriage I, rocking piece K K', roller M, and operating means L L' L^3, arranged for joint operation as herein specified.

318,786. EGG-BEATER. JACOB L. NEWCOMER, Baltimore, Md. Filed Dec. 10, 1884. (No model.)



Claim.—In an egg-beater, the pan B, frame C, having the box e and bearing d, rotary whip A, the shaft of which is situated below the upper edge of the said pan B, shaft h, situated over the upper edge of the pan, and means to communicate a rotary movement from the upper to the lower shaft, substantially as specified.

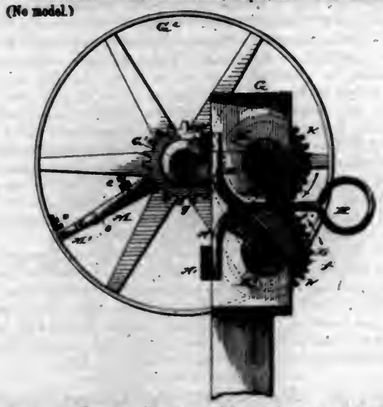
318,787. TOP-PROP NUT. ARIJAH S. PARKER, Cincinnati, Ohio. Filed Aug. 4, 1884. (No model.)



Claim.—1. As an article of manufacture, a cast top-prop nut stamped to imitate a stitched leather-covered nut, substantially as described.

2. As an article of manufacture, a cast top-prop nut cored out to form a recess, substantially as described.

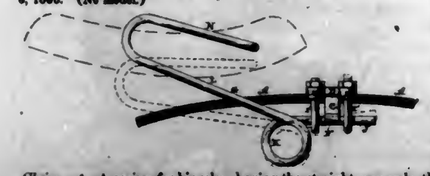
318,788. MACHINE FOR WELDING AND TAPERING THE SHANKS OF EYEBOLTS. WILLIS D. PARKER, Delphi, Ind. Filed Mar. 17, 1884. (No model.)



Claim.—1. In a machine for welding and tapering eyebolts, the combination of segmental welding and drawing rolls with curved and beveled guide-bars adapted to operate substantially in the manner and for the purposes specified.

2. The combination, with the grooved rolls, the guide-bars, and driving-gearing, of the safety-catch for loosening the driving-pulley on its shaft to prevent injury by undue strain, substantially as described.

318,789. BICYCLE. JOHN H. PATTON, Harrisburg, Pa. Filed Apr. 6, 1885. (No model.)



Claim.—1. A spring for bicycles, having the straight rear ends, the coil, the upwardly-inclined portion and abrupt bend in front, and the rearwardly-inclined portion to which the saddle is clamped, substantially as shown.

2. A seat-spring for bicycles, having the straight rear ends, a coil which extends down below these straight portions, the upwardly and forwardly inclined portion, the abrupt bend in front and at the highest point, and the rearwardly and downwardly inclined front or portion to which this saddle is fastened, substantially as described.

3. The combination of the upper portion, B, of the clamp, with the lower portion, C, provided with bearings for the spring, the adjusting clamping-bolts, and the seat-spring, whereby the ends of the spring can be adjusted up and down, substantially as set forth.

4. A clamp composed of the upper portion, B, having a projection at each corner, in combination with the lower portion, C, having the upward projections which catch in the recesses in the ends of the upper portion, and the downward projections which catch upon the top of the spring, and the clamping hooks or bolts, substantially as specified.

318,790. PIPE-COUPLING. WILLIAM P. PATTON, Harrisburg, Pa., assignor of one-half to James R. Piper, same place. Filed Feb. 10, 1885. (No model.)



Claim.—The combination of the two parts of the coupling, each of which is provided with a central boss and a triangular-shaped groove, with the bolt, suitable packings applied to its ends, and the ring which is placed in the grooves, substantially as specified.

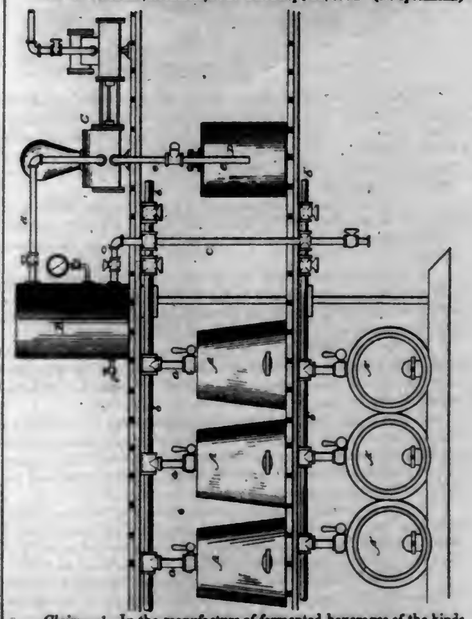
318,791. PAINT. JAMES P. PERKINS, Pullman, Ill. Filed Jan. 31, 1885. (Specimens.)

Claim.—A paint composed of silicate slag ground in oil, as set forth.

318,792. METHOD OF MAKING BRICK, &c. JAMES P. PERKINS, Pullman, Ill. Filed Apr. 11, 1885. (No specimens.)

Claim.—The method of making burned products of clay, which consists in mixing oil with the clay preparatory to forming and burning such products.

318,793. ART OF MAKING CERTAIN FERMENTED BEVERAGES. CASPER PFAUDLER, Rochester, N. Y. Filed Sept. 13, 1884. (No specimens.)



Claim.—1. In the manufacture of fermented beverages of the kinds which are subjected to a prolonged secondary fermentation for the purpose of aging or ripening them, the process of accelerating such aging or ripening, which consists in inclosing the beverage, after it has undergone the main fermentation, in a vessel surrounded by a cool atmosphere and abstracting the atmospheric air and the gaseous products of fermentation as they accumulate in the upper part of the vessel until the beverage attains the desired condition, substantially as described.

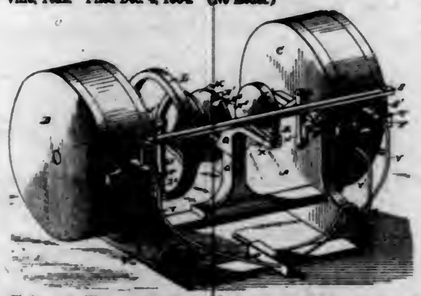
2. In the manufacture of beer of the kinds which are subjected to a prolonged secondary fermentation for the purpose of aging or ripening them, the process of accelerating such aging or ripening, which consists in inclosing the beverage, after it has undergone the main fermentation, in a vessel surrounded by a cool atmosphere and abstracting the gaseous products of fermentation as they accumulate in the upper part of the vessel until the beverage attains the desired condition, substantially as described.

3. In the manufacture of beer by bottom or lower fermentation, the process of accelerating the ripening of the beverage after it has passed through the main fermentation, which consists in inclosing it in a storage-vessel and maintaining in the vessel a rarefied atmosphere and abstracting the gaseous products of fermentation as they accumulate, substantially as described.

4. In the manufacture of beer, the process of accelerating the finishing and clarifying of the beverage after it has passed through the aging or ripening process in the storage-casks, which consists in inclosing it in a vessel, exciting in it a new fermentation, maintaining in the vessel a rarefied atmosphere, and abstracting the accumulating gaseous products of fermentation, substantially as described.

5. The process of making beer which consists in first fermenting the wort, then inclosing the beverage in vessels and maintaining in the said vessels a rarefied atmosphere, thereby accelerating the after-fermentation and aging, then transferring the beverage from the last-named vessels to the finishing-casks and maintaining it therein under a rarefied atmosphere, and finally bunging the cask to saturate the beverage with the requisite quantity of self-generated carbonic-acid gas, substantially as described.

318,794. ROTARY STEAM-ENGINE. GEORGE A. PICKUP, Shelbyville, Tenn. Filed Dec. 4, 1884. (No model.)



Claim.—1. The combination, with the steam-cylinders having the steam and exhaust ports and pipes and the hinged valve between the inlet and outlet, of the driving-shaft having pistons at the end located within the cylinders, and the cam-wheels K' K', the disks with sliding tappets, the oscillating lever, and the bar connecting the steam-valves, substantially as specified.

2. The combination, with the shaft of a rotary engine, of the disks arranged on said shaft, the spring-actuated tappets, the governor-balls, and rods connecting the latter with the tappets, as and for the purpose set forth.

3. The combination, with the cylinders having the hinged valves and the driving-shaft with the blades E' E', of the disks having the spring-actuated sliding tappets and governors, the oscillating lever Q, and the bar connecting the steam-valves, as set forth.

4. The combination, with the shaft of a rotary engine, of the governor-balls connected with the shaft so as to be actuated by the movement thereof, and sliding tappets operated by the movement of the balls, as and for the purpose set forth.

5. The combination, with the cylinders, steam-pipe V, and driving-shaft, of the valves H, for closing the steam-ports, cam-wheels located on the driving-shaft, and means, substantially as described, connecting the cam-wheels with the valves for operating the latter as the shaft rotates, for the purpose set forth.

6. The combination, with the steam-cylinder and the valves, of the operating-rods therefor, the driving-shaft carrying disks, the governor-balls, and the sliding tappets connecting with the latter and arranged to be drawn inward by the outward movement of the balls, as set forth.

7. The combination, with the steam-cylinders, the pipes for admitting steam to the same, and the valves within the pipes, of the operating-rod for the valves, the driving-shaft carrying the governor-balls, and means, substantially as described, actuated by the movement of the balls, whereby when the speed of the engine increases the balls will be automatically forced out and operate said means to increase the number of oscillations or movements of the valve-operating rod, as set forth.

318,795. RECLINING-CHAIR. FRANK H. PLUMMER, Henniker, N. H. Filed Feb. 6, 1885. (No model.)

318,795.



Claim.—1. In a reclining-chair, the combination of the seat-rails, the back-frame, and leg-rest frame, hinged or pivoted, respectively, at the rear and front ends of the same, and the crossed legs arranged in pairs transversely under the seat, having their upper ends attached to the front and rear ends of the seat-rails and connected by the central pivoting-bar, the rear legs being set in a rearwardly-inclined position, so as to brace the chair, substantially as set forth.

2. The combination of the seat-frame, the legs or supports, the hinged back-frame, the leg-rest frame hinged at the front ends of the seat-rails, and having sockets provided with forwardly and upwardly curved lever-arms, the arm-rests connecting the latter pivotally with the sides of the back-frame, the extension-frame arranged to slide on cleats upon the inner sides of the side rails of the leg-rest frame proper, and cords connecting the lower corners of said extension-frame with the upper front ends of the arm-rests, substantially as and for the purpose set forth.

3. In a reclining-chair, substantially as described, the leg-rest frame consisting of side rails, connected by cross-bars or braces having cleats upon their inner sides, and covered with flexible or textile material, in combination with the extension-frame covered with flexible material arranged to slide upon the cleats and under the covering of the main frame, and having a foot-rest hinged to its lower edge and adapted to be retained at right angles to the frame by means of hasps, and the operating-cords, all arranged and operating substantially as set forth.

4. The combination of the seat-frame, the legs or supports, the hinged back-frame, the hinged leg-rest frame having forwardly and upwardly extending lever-arms, the arm-rests connecting the latter pivotally with the back-frame, perforated lugs pivoted to the sides of the arm-rests, and curved rods pivoted at the rear ends of the seat-rails, extending through said perforated lugs and provided with adjustable stop-collars, substantially as and for the purpose herein set forth.

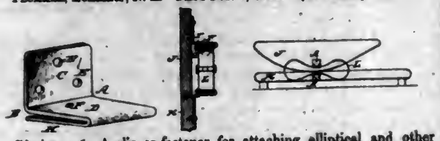
318,796. RECLINING-CHAIR. FRANK H. PLUMMER, Henniker, N. H. Filed Feb. 6, 1885. (No model.)



Claim.—1. The combination of the seat-rails having slots at their front ends, the back hinged at the rear ends of the said seat-rails, the leg-rest frame, sockets at the upper ends of the side rails of the latter having laterally-extending studs journaled in the slots of the seat-rails and provided with upwardly and forwardly extending curved lever-arms, and the arm-rests pivoted to the side rails of the back-frame and provided with longitudinally-sliding adjustable rods, the front ends of which have laterally-extending studs journaled in the upper ends of the lever-arms, substantially as herein described, for the purpose set forth.

2. The combination, with the chair-body, constructed substantially as described, and the seat-rails of which are provided with downwardly-extending studs and bolts, of the rocker-frame, the top rails of which are provided with perforations to receive the said studs and bolts, and thumb-nuts fitting the said bolts for securing the chair-body detachably upon the rocker-frame, substantially as and for the purpose herein set forth.

318,797. CLIP FOR THE ATTACHMENT OF SPRINGS. FRANK H. PLUMMER, Henniker, N. H. Filed Feb. 6, 1885. (No model.)

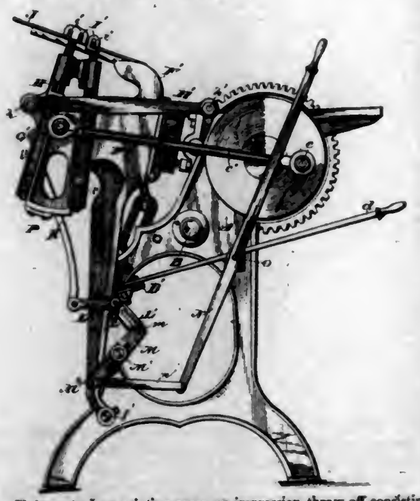


Claim.—1. A clip or fastener for attaching elliptical and other springs, consisting, essentially, of a plate or body having an underturned end or leaf, approximately parallel thereto, an intermediate space being left for the reception of the spring, and having its other end turned or bent upward, so as to form a leaf, which is provided with perforations, substantially as and for the purpose set forth.

2. A spring-clip or attaching device comprising a body, D, having perforation F, an underturned leaf, H, having perforation G, registering with the perforation F, and an upturned leaf, C, having perforations E E, substantially as and for the purpose herein set forth.

3. The combination, with an elliptical or other spring, of the clip or attaching device A, constructed as herein described, and having the perforations E E and rivet-holes F G, and the rivet I, all arranged and operating substantially as and for the purpose herein set forth.

318,798. PRINTING-MACHINE. WILLIAM H. PEECE, Jr., Cleveland, Ohio. Filed July 5, 1884. (No model.)

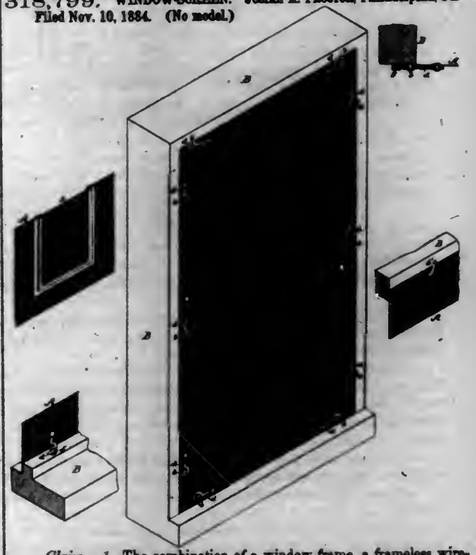


Claim.—1. In a printing-press, an impression throw-off consisting, essentially, of a shaft passing laterally through the bed and journaled therein, and provided with wrists eccentric with the shaft, and to which the side arms are attached that oscillate the bed, and a rock-arm projecting from the shaft and connected by suitable mechanism to a hand-lever, by the movement of which the shaft is turned to make the throw-off operative or inoperative, the parts being arranged substantially as described, so that the operation of the throw-off lessens the movement or throw of the bed without changing the terminus of the backward throw of the bed, and so that the hand-lever and connecting mechanism sustain themselves in the positions, respectively, that make the throw-off operative or inoperative without fastening, substantially as set forth.

2. In an impression throw-off for a printing-press, the combination, with the shaft G, having eccentric-wrists, with the arm L and the slotted arm L', integral and fulcrumed and connected, as aforesaid, of the arm M, provided with the wrist *m*, operating in the slot of the arm L', and suitably connected with a shifting-lever, by means of which the arm L is shifted to either of the positions shown, and the arrangement of parts is such that the two arms L' and M are at right angles in either of the positions required, and the parts thereby held in position without fastening, substantially as set forth.

3. In an impression throw-off for printing-presses, the combination, with the bed and a shaft journaled therein, and provided with wrist eccentric with said shaft, of the arms L, connected indirectly with said shaft, the arm L', having the elongated slot therein, the arm M, having a wrist resting within the slot in the arm L, an operating-lever, and devices connecting said lever and arm M, the parts being so constructed that the end walls of the elongated slot form a stop to limit the movement of the arms, substantially as set forth.

318,799. WINDOW-SCREEN. JOSIAH K. PROCTOR, Philadelphia, Pa. Filed Nov. 10, 1884. (No model.)



Claim.—1. The combination of a window-frame, a frameless wire-gauze screen, and devices, substantially as described, whereby said screen is detachably secured to the window-frame.

2. A frameless wire-gauze screen having openings the edges of which are strengthened by means of eyelets, as set forth.

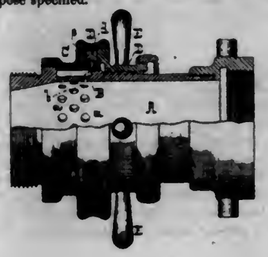
3. A frameless wire-gauze screen having fastening-hooks hung thereto, as set forth.

4. The combination of a window-frame having pins or projections with a frameless wire-gauze screen having hooks engaging with said pins or projections and serving to secure the screen to the frame, as set forth.

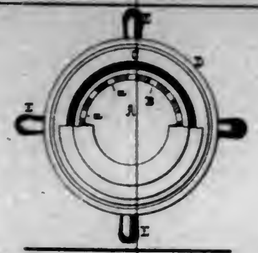
5. The combination of a window-frame, the frameless wire-gauze screen, devices for securing the screen to the frame, and strips *g g* adjacent to the edges of the screen, as set forth.

318,800. NOZZLE. JOHN F. PRUNTY, Baltimore, Md. Filed Jan. 26, 1885. (No model.)

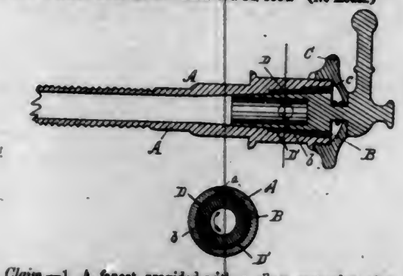
Claim.—A hose-pipe nozzle having an annular chamber around the same in communication with the interior of the nozzle by means of suitable holes, and an angular outlet leading rearward, combined with a lip having an inclined face leading forward, and a longitudinal-moving sleeve adapted to be forced toward or from the said lip, substantially as and for the purpose specified.



318,800.



318,801. FAUCET. ALVIN D. PUFFER, Medford, assignor to A. D. Puffer's Sons, Boston, Mass. Filed Oct. 14, 1884. (No model.)



Claim.—1. A faucet provided with a silver protecting-plate, the latter being arranged facing the outlet of the liquid-way, substantially as set forth.

2. In combination with a faucet-plug, a silver protecting-plate on the inside of the faucet-case, arranged facing the outlet of the liquid-way *b* of the plug, substantially as set forth.

3. A protecting-plate, D, set into the counterbored inner face of a faucet-case facing the liquid-ways of the plug, in combination with the ring E, which is set into the same counterbore and holds said plate in place, said ring being soldered to said faucet-case, substantially as set forth.

4. A faucet-plug of hard metal, provided with a countersunk plate or plates of non-corrosive metal, which are presented to the liquid for the purpose of protecting the body of said plug, substantially as set forth.

318,802. HARVESTER CUTTER-BAR. JAMES E. RATCLIFF, Dawson, Ill., assignor of one-half to John McGinnis, same place. Filed Mar. 26, 1884. (No model.)



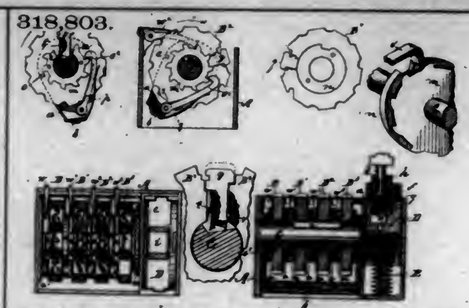
Claim.—1. A harvester cutter-bar made in sections bored longitudinally, the sections having lap-projections at one end and a corresponding rabbet at the opposite end, on their under sides, and knife-seats formed in the upper face at the meeting ends of the sections, the connecting-rod passed through the aligned bores of the bar-sections and secured in place by a tightening-nut, whereby the knives may be removably secured in their seats without rivets or bolts, and the sections prevented from turning on the connecting-rod, substantially as described.

2. The combination of the heel-section *a*, the toe-section *b*, the intermediate sections, *c*, the knives *l*, and the connecting-rod *e*, passing through the aligned bores of the sections, the sections having the lap-projections *i* and rabbets *i'* on their under sides, and the under-beveled shouldered knife-seats on their upper sides at their meeting ends, and the knives having notches *m* in the opposite edges of their shanks, said notches being beveled to fit the under-beveled shoulders of the seats of the bar-sections, substantially as described.

318,803. CONSECUTIVE-NUMBERING MACHINE. JAMES H. REINHARDT and CHARLES S. ELLIS, Memphis, Tenn.; said Ellis assignor to George Schmalsried, same place. Filed May 3, 1884. (No model.)

Claim.—1. A numbering device consisting of a series of wheels, with means, substantially as described, for effecting consecutive changes in position, in combination with a spring-seated plunger having a vertically-projecting and radially-swinging head-plate for depressing the plunger and yielding laterally to the inking-roller, as described.

2. The combination, with the spring-seated plunger D, having socket-piece *h* pivoted thereto, and maintained in a vertical position by



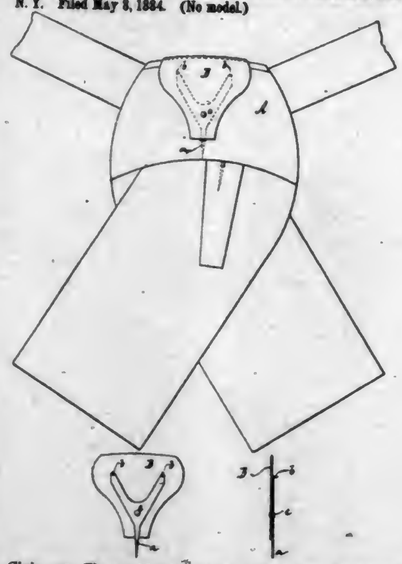
a spring, of a spring-seated stem and head-plate located within said socket-piece, and adapted to lock the socket-piece on its pivots by engagement with a notch in the plunger, as described.

3. The combination, with the case A, having two compartments with a slotted partition between, of a set of numbering-wheels, an axial shaft, and a swinging frame *a a' b*, with pawls arranged in one compartment and a vertically-sliding spring-seated plunger, D, arranged in the other compartment, and having a pin, *e*, protruding through the partition, and engaging with the swinging frame to actuate the wheels, substantially as shown and described.

4. The combination, with the center shaft having a channel or recess in one side of the same, of the numbering-wheels having the type-section bearing the cipher made radially adjustable, and adapted, as described, to drop into said channel or ride upon the shaft.

5. The numbering-wheel having a radially-sliding type-section with a spring, *t*, and shoulder *u*, as and for the purpose described.

318,804. NECKTIE-PROTECTOR. WILLIAM T. RICHMOND, New York, N. Y. Filed May 3, 1884. (No model.)



Claim.—1. The combination, with a necktie, of a detachable protecting-plate, B, slightly projecting above the top of the necktie, substantially as and for the purpose specified.

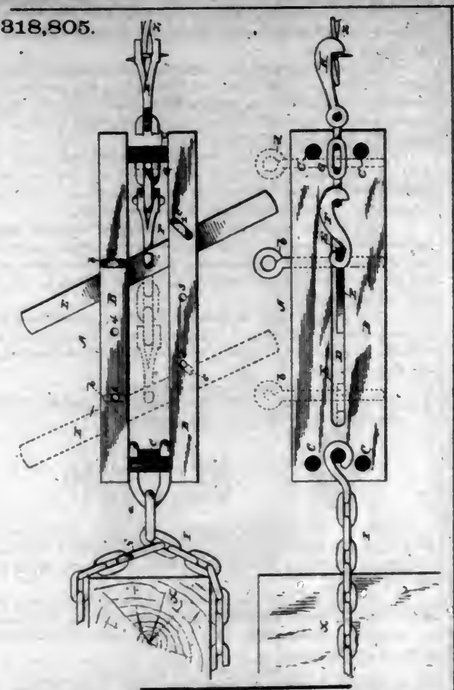
2. The combination, with a necktie, of the protecting-plate B, secured to the rear face of the necktie by means of the pin *a*, and spurs *b b*, substantially as described.

3. A necktie-protector composed of a plate, B, a pin, *a*, and spurs *b b*, as shown and described.

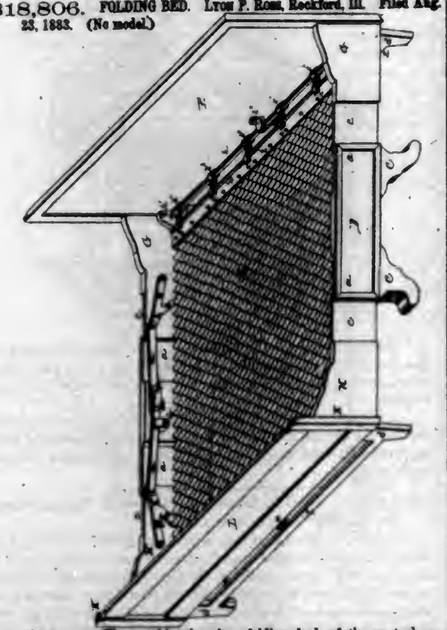
318,805. WIRE-STRETCHER. EDWARD D. ROBERTS, Williamsburg, Iowa. Filed Jan. 30, 1885. (No model.)

Claim.—The combination of the stretcher-frame having the slots and the openings, the lever which extends through the slots, a hook secured to the lever, and pins which are adapted to be inserted in the openings behind the lever, and a chain having a hook, the chain being adapted to be secured to the hook of the lever, and a pin for passing through the chain and securing it to the stretcher-frame, substantially as described.

318,805.



318,806. FOLDING BED. LYON P. ROSS, Rockford, Ill. Filed Aug. 23, 1883. (No model.)



Claim.—1. The combination, in a folding bed, of the central section provided with the vertical side pieces, the head and foot sections provided with corresponding side pieces pivoted to the ends of the sides of the central section by a lap-joint, the stop secured to the inner face of the central section, and the toggle-levers pivoted at their outer ends to the end sections, and one of said levers engaging said stop, substantially as set forth.

2. The combination, with the non-folding central section provided with fixed supporting-legs, of a foot-section pivoted thereto by a lap-joint and provided with a foot-board having pivoted legs, as described, a head-section pivoted to the central section by a lap-joint and having a head-board attached thereto of sufficient height to overlap the foot-board when the bed is folded, and a clasp to connect the head and foot sections, substantially as set forth.

3. In a folding bed, the combination, with the overlapping head-board, of corner-clasps secured to the outer side of the head-board, substantially as set forth.

318,807. TWO-WHEELED VEHICLE. JOHN F. SCHWARTZ, Alma, Mich. Filed Mar. 11, 1885. (No model.)



Claim.—1. The combination of the side shaft-springs, C C', each connected intermediate of its extremities with a cross-spring, and the cross-spring provided with means of engagement with the vehicle-body, whereby it may be vertically adjusted therewith, said side springs adapted at their extremities to be secured to the vehicle-shafts, substantially as described.

2. The side springs, C C', each connected intermediate of its ends with a cross-spring, said cross-spring provided with oscillatory means of engagement with a vehicle-body, whereby it may be vertically adjusted therewith, said side springs adapted at their extremities to be secured to the vehicle-shafts, substantially as described.

3. The side springs, C C', each connected intermediate of its ends with a cross-spring, said cross-spring provided with an oscillatory adjusting-bolt, whereby it may be engaged with the vehicle-body, said side springs adapted at their ends to be secured to the vehicle-shafts, substantially as described.

4. The combination, with a vehicle-body, of shafts pivotally engaged with the forward end of the body, side springs, C C', engaged at their extremities with said shafts, each of said springs connected intermediate of its ends with a cross-spring, said cross-spring adjustably engaged with said body, substantially as described.

5. The combination, with vehicle-shafts, of a pivotal support for the forward end of the vehicle-body, and springs C C', engaged at their extremities with said shafts, each of said shaft-springs connected intermediate of its ends with a cross-spring, said cross-spring provided with means of engagement with the vehicle-body, whereby it may be vertically adjusted in connection therewith, substantially as described.

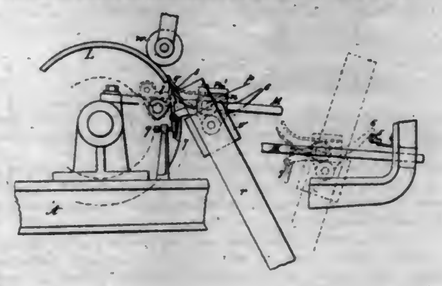
6. The combination, with vehicle-shafts, of a support for the forward end of the vehicle-body, having an adjustable and a pivotal connection with said shaft-springs C C', secured at their ends to said shafts, each of said springs connected intermediate of their ends with a cross-spring, said cross-spring provided with mechanism whereby it may be adjustably connected with the vehicle-body, substantially as described.

7. The combination, with a vehicle-body, of shafts pivotally connected with the forward end of the body, springs C C', secured at their extremities with said shafts, each of said springs engaged with a cross-spring connected with the vehicle-body, and spring-reliefs engaged with said body adjacent to said cross-springs, substantially as and for the purpose described.

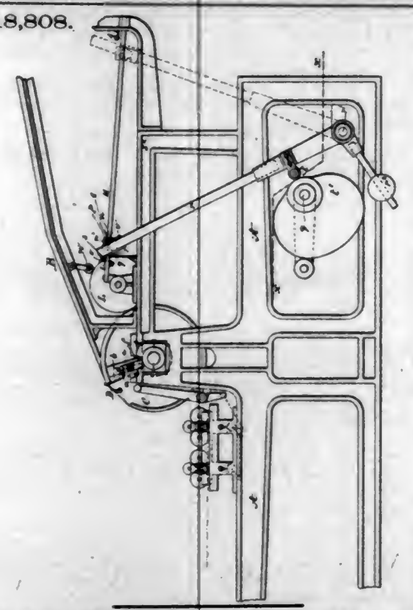
318,808. DELIVERY MECHANISM FOR PRINTING-MACHINES. WALTER SCOTT, Plainfield, N. J. Filed Jan. 14, 1884. (No model.)

Claim.—1. The sliders *n*, bars M, cross-bar *n'*, and gripper-fingers *o*, in combination with the rack-shaft *p*, gripper-fingers *s*, lever 6, latch 7, and stop 9, substantially as set forth.

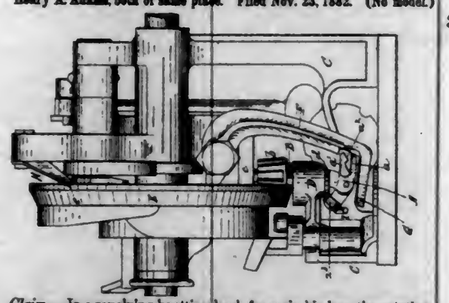
2. In combination with the sheet-delivery cylinder and grippers, the lever-arms *r*, pivots *r'*, weights r^2, the rollers *t*, and adjustable connections between the rollers and levers, substantially as set forth.



318,808.

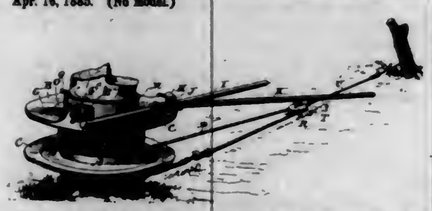


318,809. KNOTTING MECHANISM FOR GRAIN-BINDERS. CALVIN P. SHUFELT, Sandwich, Ill., assignor of one-half to J. Phelps Adams and Henry A. Adams, both of same place. Filed Nov. 23, 1882. (No model.)



Claim.—In a revolving knotting-hook for grain-binders, the rotating shaft B, which carries the hook, in combination with the rigid jaw *a*, the pivoted jaw *a'*, the heel end of which projects beyond the heel of the rigid jaw, a cam, *d*, on the bearing of the shaft, and a guide, I, arranged to prevent the heel of the pivoted jaw from dropping when the loop is shed, substantially as and for the purposes set forth.

318,810. STUMP-EXTRACTOR. FRANK R. SMITH, Tomah, Wis. Filed Apr. 16, 1885. (No model.)



Claim.—1. In a stump-extractor, a windlass or winding-drum adapted to be adjusted upon and revolve around a tree-stump, substantially as herein described, for the purpose shown and specified.

2. In a stump-extractor, the combination of a windlass or winding-drum having a cylindrical tubular barrel with flanged collars, adapted to form an axle for the same, substantially as herein described, for the purpose shown and specified.

3. In a stump-extractor, the combination of a windlass having a cylindrical tubular barrel and collars adapted to be adjusted upon a tree-stump, so as to form bearings for the said windlass, the lower and upper collars being provided with annular horizontal flanges, respectively at the lower edge and at the middle, substantially as herein described, for the purpose set forth.

4. In a stump-extractor, the herein-described windlass or winding-drum having flanges at its upper and lower edges, said flanges being provided on their inner faces, near the edges, with annular ribs having smooth polished faces and rounded edges, substantially as herein described, for the purpose set forth.

5. The windlass or winding-drum consisting of a flanged tubular cylinder the upper flange of which is provided with a perforation, and a perforated hook registering therewith for the attachment of the rope, substantially as herein described, for the purpose set forth.

6. The windlass or winding-drum consisting of a flanged tubular cylinder the top flange of which is provided with a hook and with a laterally-extending stud, in combination with the sweep or operating-lever and a connecting-link, substantially as herein described, for the purpose set forth.

7. In a stump-extractor, a draft-pulley having a yoke adjusted upon its block or clevis, and adapted to bear against the rope and hold it in contact with the rim of the pulley, substantially as herein described, for the purpose set forth.

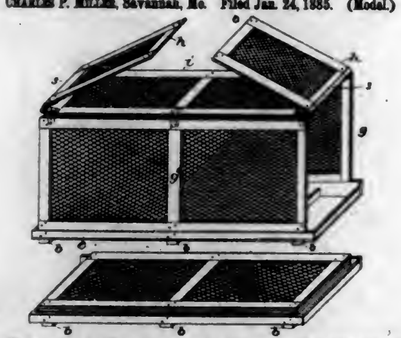
318,811. CASTER. JOHN W. SMITH, Chicago, Ill. Filed Apr. 21, 1884. (No model.)



Claim.—1. The process of forming caster-wheels by first forming the flanged and ribbed hub, then placing the tire upon it, and finally compressing the flanges upon the tire, substantially as and for the purpose set forth.

2. As a new article of manufacture, a caster-wheel having its hub formed with side flanges and transverse ribs, and its tire molded thereon and retained by upsetting upon it the flanges, as described, substantially as shown and described.

318,812. FOLDING STOCK-SHIPPING CAGE. RUSSELL I. SMITH and CHARLES P. MILLER, Savannah, Mo. Filed Jan. 24, 1885. (Model.)



Claim.—1. A folding crate with a bottom having one side higher than the others, and having hinged thereto the back and front, the top hinged to the front, the ends hinged to the top, as and for the purposes set forth.

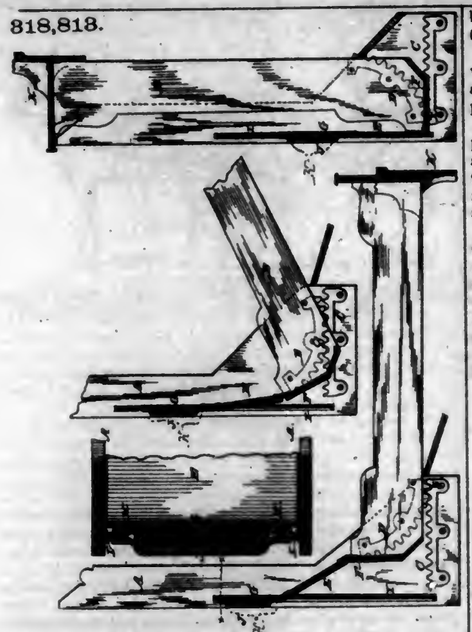
2. A crate having an end or side hinged to the top so as to swing outward and beveled at the hinged joint and capable otherwise of swinging inward, whereby the end or side may be swung inwardly at its ends, as set forth.

318,813. FOLDING BEDSTEAD. WILLIAM D. SNYDER, Columbia City, Ind. Filed Feb. 16, 1884. (No model.)

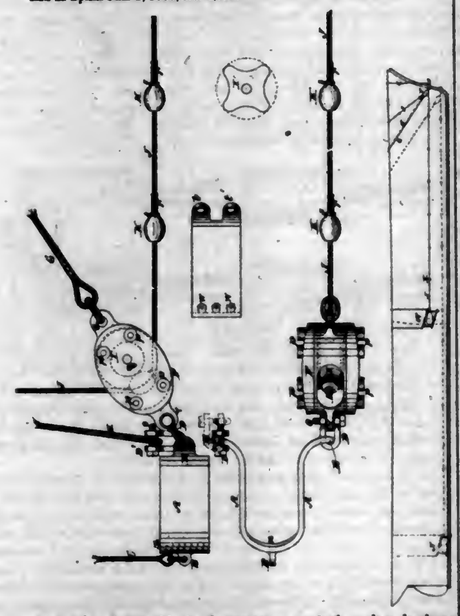
Claim.—1. In a folding bed, in combination with the casing A and the frame B, the horizontal ways C, secured upon the inner sides of the side pieces of the casing, near the lower ends, the rockers D, forming the traveling fulcrum and secured upon the outer sides of the side pieces of the bed-frame, near their inner ends, the head-board F, of the form shown, the sliding panel G, provided with grooved anti-friction rollers H, engaging with the beaded guides in ways I, the panel E, hinged at its lower edge to the upper edge of the head-board F and at its upper edge to the lower edge of the sliding panel G, and the counterpoise J, secured to the back of the sliding panel G, substantially as described.

2. In a folding bed, the sliding panel G, the counterpoise J, secured to the back of the panel G, the swinging panel E and the head-board F, of the form shown, the said panel E hinged at its upper end to G and its lower end to F, the horizontal ways, and the rockers, all arranged as shown, whereby when the bed is folded up the said counterpoise will bear directly upon the upper edge of the said head-board, and when the bed is lowered the sliding panel G is forced downward and outward against the head-board F, and the head-board F forced and held outward, so that the head of the bed shall be nearly outside of the casing, substantially as described.

318,813.



318,814. TACKLE FOR WORKING SHIPS CLEANING APPARATUS. ALEXANDER D. SPIER, Glasgow, County of Lanark, Scotland, assignor of two-tenths to Archibald Scott Brown, same place, and David Hunter, Troon, Scotland. Filed July 1, 1884. (No model.) Patented in England Mar. 31, 1884, No. 5,717; in France Aug. 9, 1884, No. 163,705; in Germany Aug. 9, 1884, No. 31,491; in Belgium Dec. 30, 1884, No. 67,376, and in Spain Jan. 2, 1885, No. 4,734.



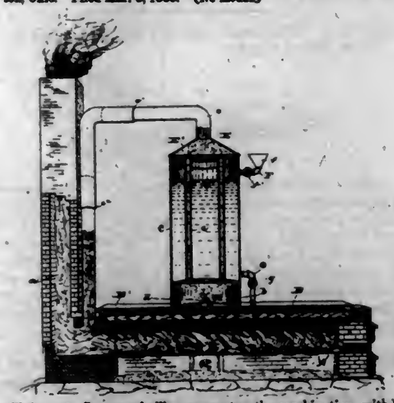
Claim.—1. In a tackle for the purposes set forth, a shoe, hook, or clamp placed on the cut-water and having lines for raising and lowering it to position, in combination with a padded pulley or sheaf block or blocks and a rope or ropes having bobbins, rollers, or knobs, substantially as described.

2. In tackle for the purposes set forth, a shoe (to fit on the cut-water) formed with an eye or eyes in its outwardly-curved rear ends and with a guide-line eye in its forward bearing end, which is serrated, plain, or furnished with rollers, substantially as described.

3. In a tackle for the purpose set forth, a shoe, hook, or clamp placed upon and embracing the cut-water, as described, lines for raising and lowering it, and a pulley-block secured thereto, in combination with the implement to be manipulated, and a cable connected to said implement, passed through the block, and thence to the deck, substantially in the manner and for the purpose set forth.

4. In a tackle for the purpose set forth, the combination, with a shoe or clamp secured to the cut-water, the implement for cleaning the sides of the ship, and means for raising and lowering it, of a cable connected to said implement and extending to the shoe or clamp on the cut-water and thence to the deck, having loose bobbins or rollers journaled directly on said cable, (which forms their axis,) substantially in the manner and for the purpose set forth.

318,815. SAP-BOILING APPARATUS. JESSE M. SPROAT, North Benton, Ohio. Filed Mar. 5, 1885. (No model.)



Claim.—1. In a sap-boiling apparatus, the combination, with boiler B, of sap-heater C, operatively connected with said boiler and provided with sap-holding chamber C', located between vapor-chambers D and E, said vapor-chambers connected together by flues *c*, traversing chambers C', said combination adapted to heat the sap in the latter chamber by the vapor in chambers D and E and flues *c*, substantially as set forth.

2. In a sap-boiling apparatus, the combination, with boiler B, of sap-heater C, operatively connected with said boiler, said heater having the chambers D and E, connected together by flues *c*, and having also sap-chamber C', located between the chambers D and E, said chamber C' traversed by flues *c* and provided with supply-pipe F and discharge-pipe G, chamber E, having outlet-pipe *e*, connecting with furnace-draft, said pipe having slip-joints *e' e²*, all for the purposes set forth and described.

3. In a sap-boiling apparatus, the combination, with the boiler, of heater C, operatively connected with said boiler, said heater having the vapor-chambers D and E, connected together by suitable vapor-conducting devices, said heater having also the sap-holding chamber C', located between chambers D and E and in operative connection with said vapor-conducting devices, chamber E being provided with escape-pipe *e*, discharging into the furnace-draft, substantially as set forth.

4. In a sap-boiling apparatus, the combination, with heater C, of the detachable top E, having the discharge-pipe *e*, provided on its horizontal arm with slip-joint *e'* and on its vertical arm with slip-joint *e²*, substantially as set forth.

5. In a sap-boiling apparatus, the combination, with boiler B, having top B', provided with open-top cone *d*, of heater C, having a convex bottom provided with aperture *b*, through which said cone projects, substantially as set forth.

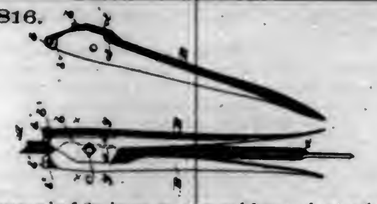
6. The conical top E', provided with an escape-pipe emptying into a furnace-draft, substantially as set forth.

318,816. FENCE-POST. CHARLES W. STANBAUGH, Cleveland, Ohio. Filed Jan. 3, 1885. (No model.)

Claim.—1. The combination, with a fence-post, of braces pivoted to the post and provided with locking lips or lugs, whereby the lower ends of the braces are held in extended adjustment, substantially as set forth.

2. The combination, with a fence-post, of braces provided with lips or lugs adapted to impinge against the opposite sides of the post, where-

318,816.



by the lower ends of the braces are prevented from coming together, substantially as set forth.

3. The combination, with a fence-post, of braces provided with inwardly-projecting lugs adapted to bear against the sides of the post, and having the outwardly-projecting lugs adapted to bear against the outer edge of the adjacent brace, whereby the lower ends of the braces are held in extended adjustment, substantially as set forth.

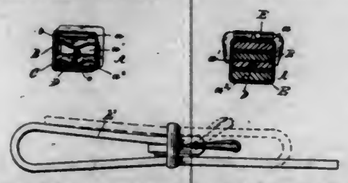
4. The combination, with a fence-post, of braces pivoted to the post, and stops adapted to limit the movement of the braces in folding, and a locking device to hold the lower end of the braces extended, substantially as set forth.

318,817. SNAP-HOOK. HENRY A. STAPLER, Delington, Pa. Filed Feb. 26, 1885. (No model.)



Claim.—The combination, in a snap-hook, of the hook proper, having its shank provided with a mortise, B, the tongue D, pivoted at C within the mortise and having a rear extension, F, having its ends arranged to move flush against the rear wall of the mortise B, having a depending wing, E, formed with a front curved edge, *e*, moving flush with the front wall edge of the mortise, a square shoulder, *d'*, arranged slightly in advance of the pivot C, and a rubber block, G, arranged and bearing between the rear wall of the mortise and the shoulder *d'*, and under the extension F, substantially as set forth.

318,818. HARNESS-LOOP. CHARLES F. G. STENDER, Chicago, Ill., assignor of one-half to the Garfield Manufacturing Company, same place. Filed May 12, 1884. (No model.)



Claim.—1. A harness-loop composed of a solid rectangular body, one or more cross-bars, a stud or studs attached to one of the cross-bars or to a corresponding part of the body, and ways formed by the cross-bars and body, that one of the ways into which the stud projects being twice the height of the other ways, and the stud being half the height of the said way, substantially as shown and described, and for the purposes specified.

2. A harness-loop composed of a solid rectangular body, one or more cross-bars, a stud or studs attached to one of the cross-bars or to a corresponding part of the body, and ways formed by the cross-bars and body, that one of the ways into which the stud projects being twice the height of the other ways, the stud being half the height of said way, and the cross-bar or portion of the body above said stud being integral and rigid in contradistinction to a cross-bar divided into two or more parts to be bent down upon the strap, substantially as and for the purpose specified.

3. A harness-loop composed of a main body, two cross-bars, B and C, provided with wings *b c*, projecting outward from one or both edges thereof, and a stud, D, on one of the said bars, substantially as and for the purposes set forth.

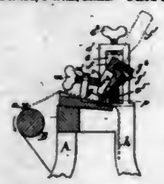
318,819. CHECK-REIN. SARAH H. STEWART, Concord, N. H. Filed July 1, 1884. (No model.)

Claim.—The herein-described check-rein attachment, consisting of the combination, with the hook B and rein A, of a strap, G, connected with said rein and passing back to the vehicle, and the rigid elevated guide F, mounted upon the harness in rear of and in line with the hook B, whereby the rein may be operated as described, substantially as set forth.

318,819.



318,820. MACHINE FOR TREATING HIDES. WILLIAM R. STONE and ALBERT W. PRATT, Salem, Mass. Filed Jan. 5, 1885. (No model.)



Claim.—1. In a hide-treating machine, a bed or table combined with a drawing-roller provided with a flexible loop with which to engage the end or edge of the hide to draw it across the bed or table, substantially as described.

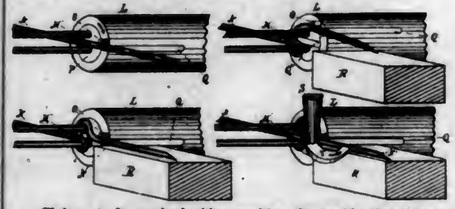
2. The bed or table provided with the diagonally-placed teeth to shield the hide, and the roller having the attached flexible loop *a*, combined with the beam and its attached metal blade *g*, to operate substantially as described.

3. The bed or table and the drawing-roller provided with the flexible loop *a*, combined with the beam mounted in adjustable plumber-boxes, and with the blade *g*, attached to the said beam, substantially as described.

4. The bed or table and the drawing-roller having the flexible loop *a*, combined with the beam provided with a strip of india-rubber to work out the drench-liquor, substantially as described.

318,821. WIRE-BARBING MACHINE. DANIEL C. STOVER, Freeport, Ill. Filed Apr. 27, 1883. (No model.)

Brief.—The barb-wire is fed in between the main wires and below the wrapping-pin in the end of the sleeve which is then rotated. Just before the pin has made a complete revolution the anvil is thrust into the path of the end of the barb being wrapped. At the completion of the revolution of the wrapping-pin the barb is shouldered, and is brought into line with the slots in the sleeve and spindle. The tucker then pushes the end of the barb through said slot and between the main wires. The barb is then severed from the barb-wire. To complete the barb its ends are bent, one up and the other down.



Claim.—1. In a wire-barbing machine, the combination of mean for supporting the main wires to be barbed, means for wrapping the barb about said main wires, an anvil adapted to form a bend or shoulder in one of the ends of said barb, substantially as shown, and means for tucking such shouldered end between the main wires, substantially as shown and described, and for the purpose set forth.

2. In a wire-barbing machine, the combination of means for supporting the main wires to be barbed, means for wrapping the barb about said main wires, a movable anvil adapted to permit the partial wrapping of the barb without obstruction, and to interpose during the completion of the wrap and form a bend or shoulder in one of the ends of the barb, means for imparting reciprocal motion to said anvil, and means for tucking the shouldered end of the barb between the main wires, substantially as shown and described, and for the purpose set forth.

3. The combination of the perforated and slotted spindle P, the slotted sleeve L, rotating on said spindle and provided with a wrapping-lug in its end face, means for imparting reciprocal rotary motion to said sleeve, the reciprocating anvil R, having its upper face in the plane of the lower face of the slots Q Q', means for actuating said anvil, and means for tucking the end of the barb through the slots Q Q', substantially as shown and described, and for the purpose set forth.

318,822. WIRE-BARBING MACHINE. DANIEL C. STOVER, Freeport, Ill. Filed Aug. 9, 1883. (No model.)



Claim.—1. In a wire-barbing machine, the combination of suitable means for supporting two main wires to be barbed, means, substantially as shown and described, for wrapping about the main wires the end of a barb-wire passed between said main wires, and means, substantially as shown and described, for tucking the end of said barb-wire forward between said main wires, the main wires being stationary during the operations of wrapping and tucking.

2. In a wire-barbing machine, the combination of a supporting-spindle longitudinally perforated for the passage of the two main wires of a fence-cable, a shell rotating on said spindle and provided with a wrapping-lug in its end face, a finger lying in a plane at right angles to the plane of the main wires supported by said spindle, and adapted to be rotated in its own plane through the space between said main wires in front of said shell and spindle, and means, substantially as shown and described, for rotating said finger between said main wires.

3. The combination of the sleeve and spindle L L', rod N, finger O, rigidly attached thereto, means for rotating said sleeve, and means for rotating said rod N forward, and thus passing its point across and in front of the face of said sleeve and spindle, substantially as shown and described, and for the purpose set forth.

4. The combination of the sleeve and spindle L L', the wrapping-lug P, attached to the face of the sleeve and having a length equal to twice the diameter of the barb-wire, the rod and finger N O, means for rotating said sleeve, and means for rotating said rod and finger forward, and thus passing the point of said finger across and in front of the face of said sleeve and spindle, substantially as shown and described, and for the purpose set forth.

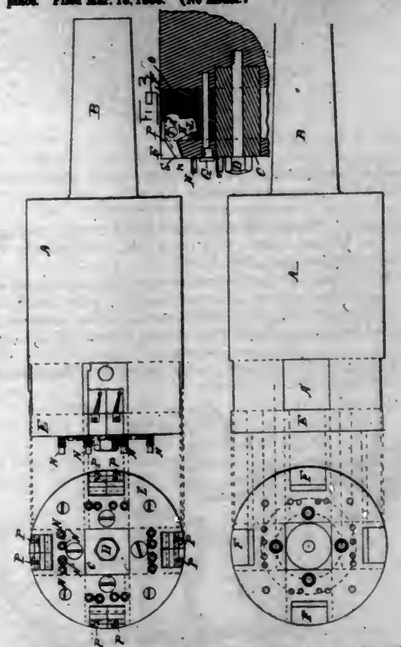
318,823. SPELLING TOY OR PUZZLE. WALTER STRANDBERG, New York, N. Y., assignor to Peter G. Thomson, Cincinnati, Ohio. Filed July 18, 1884. (Model.)



Claim.—1. A spelling toy or puzzle consisting of a dissected picture and a dissected word designating some object in the picture, and one or more substitute sections, the introduction of which produces a new word or words designating some other object or objects in the picture, substantially as set forth.

2. A spelling toy or puzzle consisting of a dissected picture, a dissected word designating some object in the picture, substitute sections of the picture, and substitute sections of the word, the dissected picture and the dissected word being placed on a series of strips, and the substitute sections of the picture and the substitute sections of the word being placed on the other sides of the strips, substantially as set forth.

318,824. RIFLING-MACHINE FOR HEAVY GUNS. JAMES R. STREET, Washington, D. C., assignor of one-half to James H. L. Eager, same place. Filed Mar. 18, 1885. (No model.)



Claim.—1. A rifling-head having radial grooves, cutter-boxes therein, pivoted cutter-carriers in said boxes, and cutters on said carriers, as set forth.

2. In combination with a rifling-head, a radially-movable box therein, a cutter-carrier in said box, having a firm abutment to resist its outward extension while moving forward, and a spring which yields to permit the depression of the cutter while withdrawing the head.

3. The combination, with a rifling head-stock having radial grooves, of a series of cutter-boxes, cutters, and carriers mounted in said grooves.

4. In a rifling-head, the combination of a grooved stock, a face-plate attached thereto, a series of cutter-boxes in said grooves, and pivoted cutter-carriers in said boxes, as set forth.

5. The cutter-boxes, the pivoted cutters therein having close joints with the boxes, and springs for rocking the cutter-carriers on their pivots.

6. The combination, with the cutter-boxes and pivoted cutters mounted therein, of adjusting-screws in front of said cutter-carriers to determine the limit of movement thereof.

7. The combination, with the rifling-head, of a series of cutter-boxes in radial grooves therein, and a plurality of cutters mounted in each cutter-box, substantially as described.

8. In a rifling-head, the combination, with the stock, of a radially-movable central wedge-piece, a series of cutter-boxes surrounding said wedge-piece and keyed thereto to permit radial but not longitudinal movement, and a plurality of pivoted cutter-carriers mounted in said boxes.

9. In a cutter-carrier box, the combination of the base *b*, the side pieces, *a a*, rabbeted thereto, and the cutter-carriers pivoted in said box on a pivot passing through the sides thereof, substantially as described.

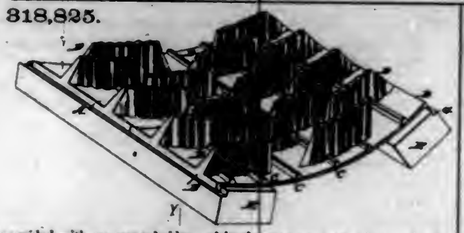
10. The combination, with the stock A, of the face-plate E, having removable center piece E', the wedging center piece C', the screw *e*, which actuates said center piece, and the cutter-boxes keyed to said center piece, as set forth.

11. The combination, with the set-screws of a rifling-head, of a graduated wrench-plate and the wrench pivoted in said plate, as set forth.

318,825. CONCAVE FOR CLOVER-HULLERS. FREDERICK STROBEL, Marion, Ohio. Filed Jan. 12, 1885. (No model.)

Claim.—In a concave for clover-hullers, the bed-beams having grooved edges, in combination with the plates or sections of concavo-convex shape, provided at their front and rear edges with downwardly-extending flanges, and having their upper concave sides provided with transverse ribs and longitudinal teeth or ridges, arranged in alternating or intersecting rows, said ridges being wider at the base than at the top,

318,825.

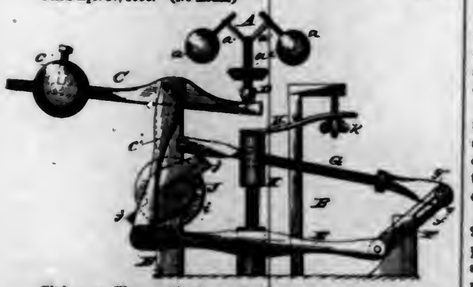


provided with corrugated sides and having concave top edges, substantially as and for the purpose set forth.

318,826. PROCESS OF PREPARING DRIED BLOOD. WILLIAM G. STRIPE, Wicklow, Ireland. Filed Feb. 6, 1884. (No specimens.) Patented in England Jan. 5, 1884, No. 787.

Claim.—The herein-described process of preparing dried blood as a manure or for other purposes, said mode consisting in first forming sulphate of alumina or alum into a solution, then adding this solution to the blood, and finally drying the blood thus treated, substantially as set forth.

318,827. VALVE-GEAR. LOUIS SUHRHEINRICH, Evansville, Ind. Filed Apr. 17, 1885. (No model.)



Claim.—1. The combination, with the governor, of the centrally-pivoted lever having the rigid downwardly-projecting arm, the pitman, the auxiliary lever, the lever passing through the slotted upper end of the valve-stem, the valve-stem having the slotted upper end, the adjustable spring, and the cam having the wings or projections arranged to operate in the manner set forth, substantially as described.

2. The combination, with the governor, of the centrally-pivoted lever provided with the adjustable weight and having the rigid downwardly-projecting arm, the pitman, the auxiliary lever, the lever passing through the slotted upper end of the valve-stem, the valve-stem having the slotted upper end, the adjustable spring, and the cam arranged to operate in the manner set forth, substantially as described.

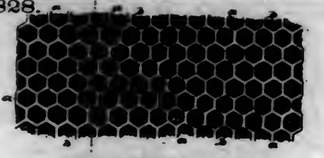
3. The combination, with the governor, of the centrally-pivoted lever having the rigid downwardly-projecting arm, the pitman, the auxiliary lever having the longitudinal slot in its upper end, the lever adjustably secured at one end to the slotted upper end of the auxiliary lever and passing through the slotted upper end of the valve-stem, the valve-stem having the upper slotted end, the adjustable spring, and the cam arranged to operate in the manner described.

4. The combination, with the governor, of the centrally-pivoted lever provided with the adjustable weight and having the rigid downwardly-projecting arm, the pitman, the auxiliary lever having the longitudinal slot in its upper end, the lever adjustably secured at one end to the slotted upper end of the auxiliary lever and passing through the slotted upper end of the valve-stem, the valve-stem having the upper slotted end, the adjustable spring, and the cam arranged to operate in the manner described.

318,828. SECONDARY BATTERY. JOSEPH W. SWAN, Latimer, Bromley, County of Kent, England. Filed May 3, 1883. (No model.) Patented in England May 24, 1881, No. 2,272; in Cape of Good Hope Mar. 25, 1882; in India Apr. 18, 1882, No. 62; in Sweden Apr. 21, 1882; in Victoria May 1, 1882, No. 3,306; in South Australia May 5, 1882, No. 254; in New Zealand May 17, 1882, No. 649; in Natal June 29, 1882, No. 78; in Norway Aug. 15, 1883; in New South Wales Oct. 13, 1882; in Denmark Feb. 15, 1883, and in Canada Mar. 31, 1883, No. 16,553.

Claim.—In a battery plate or electrode composed of a conducting-support combined with active material, the support in the form of a plate with angular or equivalent holes, cells, or perforations extending through the same, and separated from one another by webs, walls, or partitions of uniform cross-section, the active material being placed in said holes, cells, or perforations, substantially as set forth.

318,828.



318,829. SCREW-CAP FOR JARS. CREPIN H. TAYLOR, Brooklyn, assignor to Tracy Cott, New York, N. Y. Filed Mar. 10, 1885. (Model.)

Brief.—The screw-ring has a circular opening the edge of which binds frictionally on a slightly-conical annular shoulder projecting from the top of the cap. The cap and ring are thus detachably connected.



Claim.—1. The combination, with a fruit-jar, of a glass cap having its upper side provided with an annular projecting shoulder and a land outside of and surrounding the shoulder, and a securing-ring resting on said land and having an annular opening the edge of which frictionally engages the shoulder on the cap, substantially as described.

2. The combination of a fruit-jar having a screw-threaded neck, the glass cap having its upper side provided with an annular projecting shoulder and a land outside of and surrounding the shoulder, the gasket on which the cap bears, and the screw-threaded securing-ring resting on the land and having an annular opening the edge of which frictionally engages the shoulder on the cap, substantially as described.

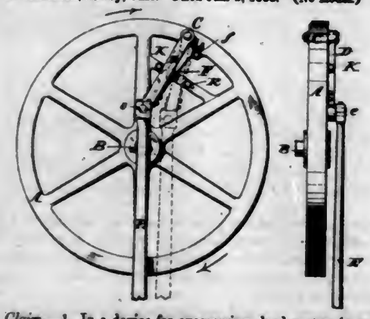
3. The combination, with the jar having a screw-neck, a shoulder, 9, and a top, 8, above such neck, of the glass cap having its upper side provided with an annular projecting shoulder and a land outside of and surrounding the shoulder, the gasket, and the screw-threaded securing-ring resting on said land and having the bead 13, and provided with an annular opening the edge of which engages the shoulder on the cap, substantially as described.

318,830. PROCESS OF MAKING NAILS. CHARLES F. THAYER and JOHN LOWE, Providence, R. I., assignors to the Rhode Island Metal Company, same place. Filed Dec. 3, 1884. (No model.)



Claim.—The within-described process for securing heads to nails, tacks, brads, and screws, by forming blank disks into saucer or flat shaped heads having a recess in one side thereof, which recess is placed over the swelled end of a nail or screw blank and the metal of the head stamped, pressed, or swaged around the swelled end, substantially as and for the purpose described.

318,831. DEVICE FOR OVERCOMING DEAD-CENTERS. ORRIN B. THOMPSON, Jersey, Ohio. Filed Jan. 9, 1885. (No model.)



Claim.—1. In a device for overcoming dead-centers in any crank-movement, an arm pivoted at one end to the crank and at the other to the pitman, and pressed by a spring in a direction opposite to the direction of the motion of the shaft, and so arranged as always to stand at an acute angle to the line of dead-center, substantially as described.

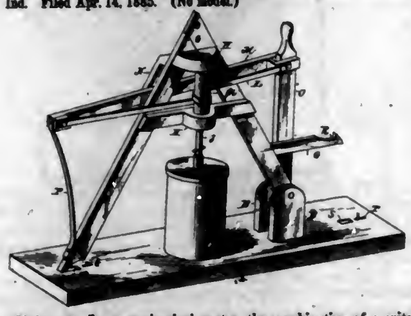
2. In a device for overcoming dead-centers, the arm D, pivoted at one end to the wheel or crank and at the other end to the pitman, in combination with a spring and stops K K, substantially as and for the purpose described.

3. In a device for overcoming the dead-centers in a crank-movement, the pitman E, pivoted to a spring-actuated crank-arm, so that power applied to the pitman moves the crank beyond the dead-center line, substantially as and for the purpose described.

4. In a device for overcoming dead-centers, a flexible crank consisting of two or more pieces or arms attached together by pivots and a spring, so that the crank may always be moved by the pitman out of the dead-center line, substantially as described.

5. In a device for preventing dead-centers, a spring-crank composed of the fly-wheel or an arm from the shaft, and the arm D, pivoted to the fly-wheel or arm from the shaft and held in place by a spring and stops, substantially as and for the purpose specified.

318,832. MECHANICAL MOTOR. JOHN H. THORNBURG, Harrisville, Ind. Filed Apr. 14, 1885. (No model.)



Claim.—1. In a mechanical motor, the combination of a suitable base, a triangular frame pivoted at one end and connected detachably with the base at the other, a shaft journaled vertically in the upper portion of the said frame, a drum upon the said shaft, a bow arranged to reciprocate in suitable bearings at the upper end of said frame, a cord wound upon the drum and attached to the ends of the bow, an operating-lever attached to one end of said bow, and a retracting-spring connected with the other end of the latter, substantially as and for the purpose herein set forth.

2. In a mechanical motor, the combination of the base, a tilting frame having a laterally-extending arm, means for connecting said arm or the free end of the frame detachably with the base, a shaft journaled in said frame, a bow arranged to oscillate the said shaft, a retracting-spring connected with one end of said bow, and an operating-lever connected with the other end of the latter, substantially as and for the purpose herein set forth.

318,833. NEEDLE FOR LEATHER-SEWING MACHINES. WALTER G. TILLOU, New Haven, assignor to Nathan A. Baldwin, Milford, Conn. Filed Oct. 3, 1884. (No model.)



Claim.—1. The herein-described needle, having the eye transversely through it near the point, a longitudinal groove on one side from the eye upward, and a groove upon the opposite side from the eye downward, the last-mentioned groove of a depth more than half the diameter of the needle, and so as with the groove above to form a continuous direct tubular-like passage through the needle, the said last-mentioned groove running from the eye spirally to the point, substantially as described.

2. A needle having a flat or awl shaped point, constructed with an eye, *b*, transversely through it near the point and in a plane parallel with the point, the groove *c*, extending from the eye upward, and the groove *d*, upon the side opposite the groove *c*, extending downward and spirally around onto one of the flat sides of the point, the depth of the last-mentioned groove being more than one-half the diameter of the needle, and which, with the groove *d*, forms a continuous tubular-like passage longitudinally through the needle, substantially as described.

3. The herein-described needle, having the eye transversely through it near the point, a longitudinal groove on one side from the eye upward, and a groove upon the opposite side from the eye downward, the last-mentioned groove of a depth more than half the diameter of the needle, and so as with the groove above to form a continuous direct tubular-like passage through the needle, the said last-mentioned groove running from the eye spirally to the point, the side of the needle opposite the groove above the point flattened, substantially as described.

318,834. BURGLAR-ALARM. A. CLARKE TOWNER, Canton, Ohio. Filed Oct. 20, 1884. (Model.)

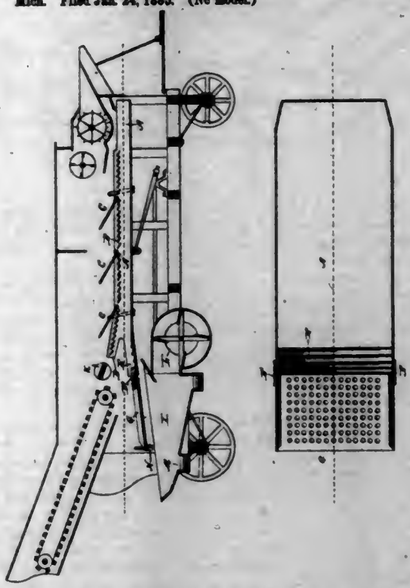


Claim.—1. In an alarm, the combination, with a base-plate, gong, hammer, escapement mechanism, and spring for actuating the same, of a slide, E, adapted to bear against the arm of the hammer, a lever adapted to be brought against said slide to hold it against the hammer-arm, and a hinged plate adapted when in one position to hold said slide against movement, and then in another position to release it, substantially as described.

2. In an alarm, the combination of a base-plate provided at one point with a bent spur-arm, and at another with a hinged spur-arm, a gong, hammer, escapement mechanism, and spring for actuating the same, a slide, E, operating to control the movement of the hammer, a pivoted lever, F, for locking said slide, and a hinged plate, L, formed with a slot adapted when in one position to fit about the end of the slide E, to hold it, and when in another position to release it, substantially as described.

3. The combination, with base-plate A, spider D, and gong M, of the winding-post H, toothed disks I and J, and spring N, connected with said post, escapement *d*, and hammer *e f*, slide E, lever F, and the hinged slotted plate L, the several parts adapted to operate substantially as described.

318,835. GRAIN-SEPARATOR. JAMES S. UPTON, Battle Creek, Mich. Filed Jan. 24, 1885. (No model.)



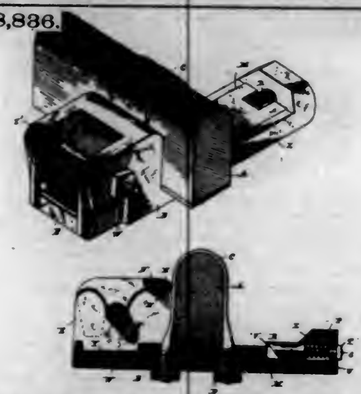
Claim.—1. In a grain-separator, a shaker having a solid bottom and slatted top, and at the rear a V-shaped continuation, the upper arm thereof carrying slats and the lower arm a notched continuation of the bottom, both arms being at an angle to the plane of the bottom proper, substantially as and for the purpose specified.

2. In a grain-separator, in combination with a shaker, a continuation thereof consisting of a perforated board flexibly connected to said shaker, and adjustable supporting-rollers for its free end, substantially as and for the purpose specified.

3. In a grain-separator, in combination with a shaker having a solid bottom and slatted top, which at the rear diverge, the bottom being notched, a perforated continuation of the bottom flexibly connected thereto, and adjustable supports at the free end of said continuation, substantially as and for the purpose specified.

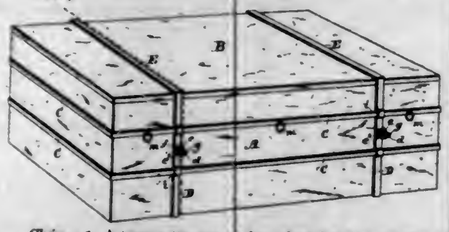
318,836. THILL-COUPLING. JOHN F. VAN AUKER, Youngstown, Ohio. Filed June 30, 1884. (No model.)

318,836.



Claim.—In a shackle for vehicles, the combination of the lower plate, provided with recessed lugs, with the upper plate, having slotted lugs and a bearing setting in the rear recesses of the lugs of the lower plate, the said upper plate being slotted at the rear, so as to fit over the lower plate, and provided with a spring-actuated bolt, whereby the parts may be locked together.

318,837. COFFIN. WILLIAM M. WALSH, Philadelphia, Pa., assignor of one-half to William Kohrer, same place. Filed Jan. 15, 1885. (No model.)



Claim.—1. A terra-cotta case or box adapted to the reception of the ordinary coffin or burial casket, and provided, as shown, with longitudinally-arranged metallic strengthening bands or hoops C C, all substantially as and for the purposes described.

2. A terra-cotta box or case adapted to the reception of a burial casket or coffin, and having its body portion and lid glazed or vitrified on either their interior or exterior surfaces, or both, with the exception, however, of the upper edge of the body portion A and that portion of the lowermost or inner surface of the lid B which comes directly opposite to the edge of said body portion, in order that a perfect cementation of the body portion and lid of the case may be effected, all as hereinbefore set forth.

3. In combination with the body or box portion A and the lid B of a terra-cotta case, longitudinal metallic hoops or bands C C, transversely arranged, clamping or securing bands D D and E E, and means for securing together the adjacent ends of the said transversely-arranged bands, all substantially as and for the purposes hereinbefore set forth.

4. In combination with a terra-cotta box or case provided with metallic strengthening and clamping devices substantially such as specified, a series of handle-like devices applied to some one or more of the said metallic devices, all substantially in the manner and for the purposes hereinbefore explained.

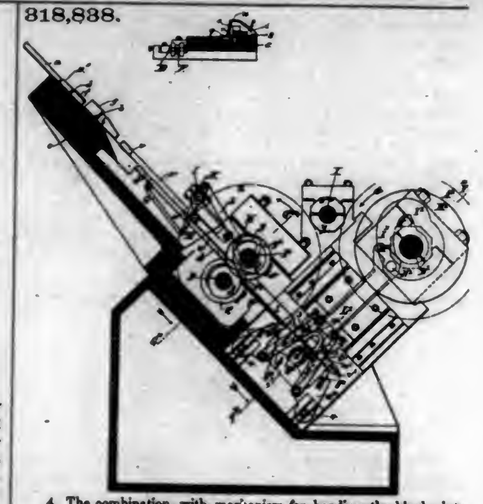
318,838. HORSESHOE-MACHINE. CARL R. WEDELIN, Gothenburg, Sweden. Filed Jan. 30, 1885. (No model.) Patented in England Dec. 3, 1884, No. 15,913.

Claim.—1. In a horseshoe-machine, and in combination with the mechanism for shaping and bending the blanks, the inclined spouts or guides, arranged in advance of the bending mechanism, for conducting the bar and unbent blanks from one part of the machine to another by gravity, substantially as described.

2. In a horseshoe-machine, the combination, with the stationary guides or spouts, the movable guides or spouts, and the knives, of the bar *o*, provided with projections *m* and *n*, and the movable bottom *r*, substantially as described.

3. The combination, with the guide or spout for the entering bar, the slider, and the knives, one stationary and the other movable, of the piece for straightening the end of the bar, the said piece being carried by the slider and arranged opposite a shoulder on the bed, substantially as described.

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4. The combination, with mechanism for bending the blanks into horseshoe form, of the overlapping pressing-rollers by which the blanks are shaped preparatory to bending, the said pressing-rollers having the pass between them formed in the adjacent faces or ends of the rollers, substantially as described.

5. In a horseshoe-machine, the rollers *r'*, the cheeks *w'* and *n'*, and the filling-piece *p'*, having on the bottom the shape of the mid part of the shoe, in combination with the mandrel or anvil, the blank being confined by the cheeks while being bent upon the mandrel, to prevent distortion, substantially as described.

6. In a horseshoe-machine, the movable rods *c''* and fixed rods *g''* and the movable bottom *o'*, in combination with the cheeks, filling-piece, and mandrel or anvil, substantially as described.

7. In a horseshoe-machine, the combination, with the mandrel or anvil, and the cheeks and filling-piece for carrying the blank down on said mandrel, of the levers which bend in or bear upon the lower parts of the shoe, said cheeks and levers being actuated as described, so that while the cheeks are being withdrawn after the blanks are bent the said levers still exert a pressure to retain the blanks on the mandrel or anvil, substantially as set forth.

8. In a horseshoe-machine, and in combination with the mandrel or anvil, the swages or pressing-tools, and co-operating parts for acting upon the blank on the mandrel, swages or pressing-tools comprising a swage for pressing upon the front part of the shoe to form the creases and nail holes or points, and a second or supplementary swage for pressing upon the shoe at the heels to form the calks, or to squeeze or shape the ends when calks are not to be made on the shoes, substantially as described.

9. The combination, with the mandrel and former, having a hole to receive the shoe, of the swage *l''*, forming the inner wall to said hole, and movable so as to dislodge the formed shoe from the mandrel or anvil, substantially as described.

10. The combination of the overlapping rollers, the guides or spouts, the anvil or mandrel, the cheeks and filling-pieces, the bending-levers, and the swages for acting upon the blanks on the anvil, substantially as described.

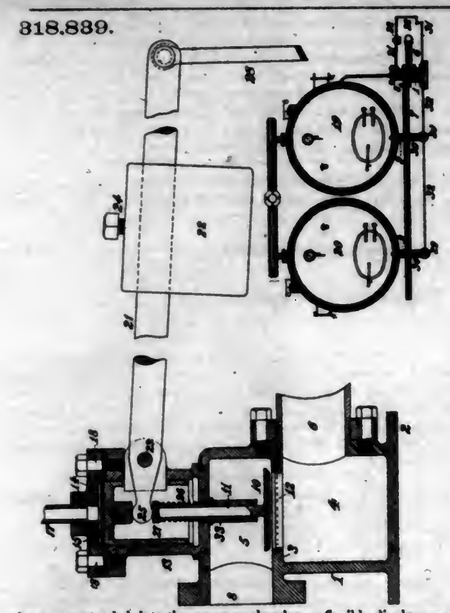
11. The overlapping pressing-rollers mounted upon parallel axes, and having a pass or groove of varying cross-section formed in the adjacent ends of said rollers, substantially as described.

318,839. REGULATOR FOR GAS AND AIR SUPPLY TO FURNACES. GEORGE WESTINGHOUSE, Jr., Pittsburg, Pa. Filed July 1, 1884. (No model.)

Claim.—1. The combination of a valve-casing, a gas-supply and a gas-delivery opening communicating therewith on opposite sides, respectively, of a partition therein, a gas-supply valve governing an opening in said partition and having a stem extending into a pressure-chamber, a piston or pressure-plate fitting said chamber, a steam-pressure supply-pipe connected to said chamber above the pressure-plate, a double-armed lever pivoted to said chamber and having a bearing on one of its arms abutting against the pressure-plate and gas-supply valve-stem, a counterbalance-weight connected adjustably to the opposite arm, and a rod adapted to connect the counterbalance-arm with an air-supply valve, substantially as set forth.

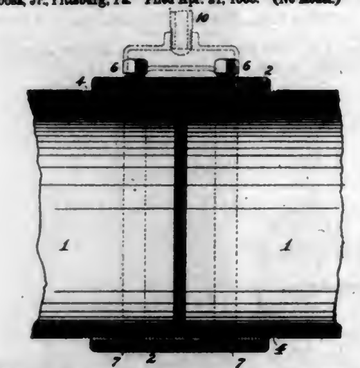
2. The combination of a valve-casing, a pressure-chamber connected thereto, a valve governing an opening in a partition therein and having

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its stems extended into the pressure-chamber, a flexible diaphragm extending across said pressure-chamber, a piston or pressure-plate fitting the chamber below the diaphragm, a double-armed lever pivoted to the pressure-chamber and having a bearing on its inner arm fitting between the pressure-plate and the valve-stem, a counterbalance-weight connected adjustably to the opposite arm of said lever, and a spring bearing against a collar or stop on the valve-stem and tending to maintain the same in contact with the bearing on the lever-arm, substantially as set forth.

318,840. PIPE-COUPLING FOR GAS-MAINS. GEORGE WESTINGHOUSE, Jr., Pittsburg, Pa. Filed Apr. 21, 1885. (No model.)



Claim.—1. An internally-threaded coupling-socket having an annular groove or recess in its bore below its screw-thread and on each side of its transverse center, said grooves forming chambers or receptacles which are closed at their outer ends by the metal of the socket, substantially as set forth.

2. An internally-threaded coupling-socket having an annular groove or recess in its bore on each side of its tranverse center, and having that portion of its thread lying between its recesses of slightly-reduced diameter relatively to the portions between said recesses and the ends of the socket, substantially as set forth.

3. An internally-threaded coupling-socket having an annular groove or recess in its bore on each side of its transverse section, said recesses having openings or vents adapted to be closed by tight plugs or connected to communicating pipes, substantially as set forth.

4. The combination of an internally-threaded coupling-socket having two annular grooves or recesses in its bore, each having its outer end wall formed by the metal of the socket, and two externally-threaded pipe-sections, each fitting the socket on both sides of a recess thereof, substantially as set forth.

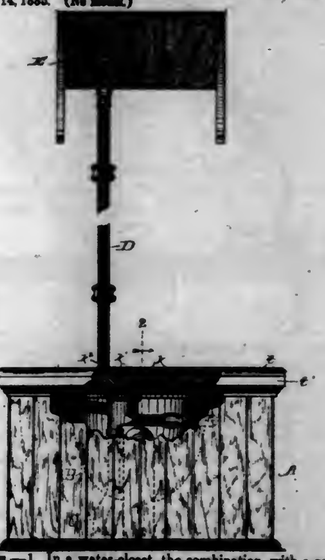
318,841. PIPE-JOINT FOR GAS-MAINS. GEORGE WESTINGHOUSE, Jr., Pittsburg, Pa. Filed Apr. 25, 1885. (No model.)



Claim.—1. The combination, with a bowl-and-spigot joint or coupling, of a ring or annular plate of curved, inclined, or corrugated section fitting against the surface of one of the pipe-sections, and packing filling the space within the joint which is unoccupied by the ring, substantially as set forth.

2. The combination, with a bowl-and-spigot joint or coupling, of one or more rings or annular plates of curved section, each fitting against one of the pipe-sections and forming a chamber or receptacle between its inner surface and the adjacent pipe-section, packing filling the space within the joint exterior to the ring or rings, and a vent or escape-passage communicating with the chamber or chambers of the rings, substantially as set forth.

318,842. WATER-CLOSET. DAVID WHITEFORD, Chicago, Ill. Filed Jan. 14, 1885. (No model.)

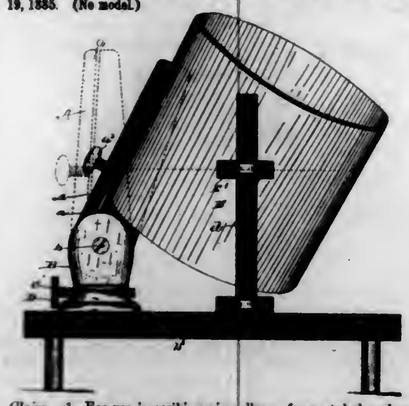


Claim.—1. In a water-closet, the combination, with a reservoir, E, and bowl, of a valve-chamber, *n*, connected with the reservoir and bowl, a plunger, *m*, within the valve-chamber carrying a rod, *k'*, projecting upward through the top of the valve-chamber, a spring, *k*, supporting the plunger and confined between suitable stops, a valve, *l*, projecting downward from the plunger, a valve-chamber, *p*, communicating with a water-supply and leading into the valve-chamber *n*, and a valve, *o*, within the valve-chamber *p* and connected with the plunger *m*, to be maintained normally against its seat by the spring *k*, which maintains the valve *l* normally away from its seat, the whole being constructed and arranged to operate substantially as described.

2. In a water-closet, the combination, with a reservoir, E, and bowl, of a valve-chamber, *n*, connected with the said reservoir and bowl, a plunger, *m*, within the said valve-chamber carrying a rod, *k'*, projecting upward through the top of the said valve-chamber, a spring, *k*, supporting the said plunger and confined between suitable stops, a valve, *l*, provided with a vertical opening, *l'*, and projecting downward from the lower side of the said plunger, a valve-chamber, *p*, communicating with a water-supply and leading into the said valve-chamber *n*, and a valve, *o*, within the said valve-chamber *p* and connected with the said plunger *m*, to be maintained normally against its seat by the spring *k*, which maintains the valve *l* normally away from its seat, the whole being constructed and arranged to operate substantially as and for the purpose set forth.

3. A water-closet comprising, in combination, a reservoir, E, valve-chamber *n*, underneath the forward end of the hinged seat *t'* of the said water-closet and communicating with the said reservoir, a plunger, *m*, within the said valve-chamber carrying a rod, *k'*, projecting upward through the top of the said chamber to afford contact of its upper extremity with the lower surface of the said seat, a spring, *k*, confined between suitable stops to support the said plunger and afford an elastic resistance against pressure exerted upon the said rod, a valve, *l*, projecting downward from the lower side of the said plunger and provided with a channel, *l'*, extending vertically through it, a valve-chamber, *p*, communicating at one end with the valve-chamber *n*, and at its opposite end with the water-supply, a valve, *o*, within the chamber *p* and connected with the said plunger *m*, to be maintained normally against its seat by the pressure of water underneath it and by the spring *k*, which maintains the valve *l* normally away from its seat, a bowl, B, behind the valve-chamber *n*, and below the forward end of the seat *t'*, and communicating from its rear side by means of a conduit, F, with the said valve-chamber *n*, and provided with a flushing-rim, *i*, a trap, *s*, communicating with the said outlet-opening in the bowl B, and a rear channel, *h*, leading from the said flushing-rim into the said trap, the diameters of the said channel *h* and flushing-rim *i* being substantially equal to the diameter of the conduit F, the whole being constructed and arranged to operate substantially as described.

318,843. PIPE-ELBOW SCRIBER. OSCAR BELLMAN, Hagerstown, Md., assignor of one-half to Samuel D. Martin, same place. Filed Feb. 19, 1885. (No model.)



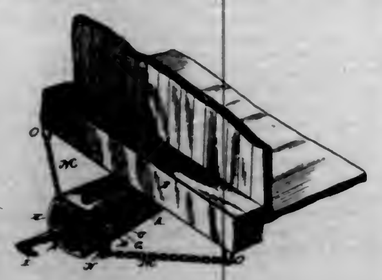
Claim.—1. For use in scribing pipe-elbows from a tubular piece of sheet metal, a pipe-elbow scriber consisting of a slotted arm pivoted in a bracket and having a screw-threaded plate, and operated by a helical screw, in combination with a gage having a slide and an index or pointer, substantially as shown and described.

2. The slotted arm having a thumb-screw and pivoted in a bracket and having a threaded plate and operated by a helical screw, in combination with a gage having a slide and an index or pointer, substantially as shown and described.

3. The gage having a slide and an index or pointer, in combination with the slotted arm pivoted in a bracket and having a screw-threaded plate and operated by a helical screw, substantially as shown, and for the purpose specified.

4. The combination of the slotted arm A, having thumb-screw *a'*, bracket B, having helical screw D, and plate *b'*, substantially as shown, and for the purpose described.

318,844. CAR-COUPLING. HENRY WISE, Marion, Ind. Filed Mar. 30, 1885. (No model.)



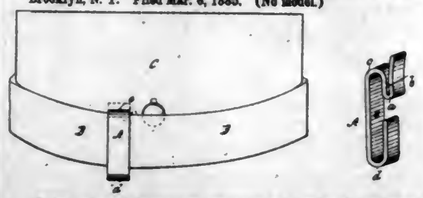
Claim.—The combination of the draw-head having the slot in its bottom and provided with the eyes N at both sides of its bottom, forward of the slot, the hook pivoted upon a transverse bolt in the draw-head and having the downwardly-curved eyed rear end projecting through the slot in the bottom of the draw-head, and the chain secured at its middle to the eye of the hook, passing through the eyes at the bottom of the draw-head and secured at its ends to the platform of the car, as and for the purpose shown and set forth.

318,845. PROCESS OF MAKING CUT NAILS. JOHN YOUNG, Wheeling, W. Va. Filed Apr. 14, 1885. (No model.)



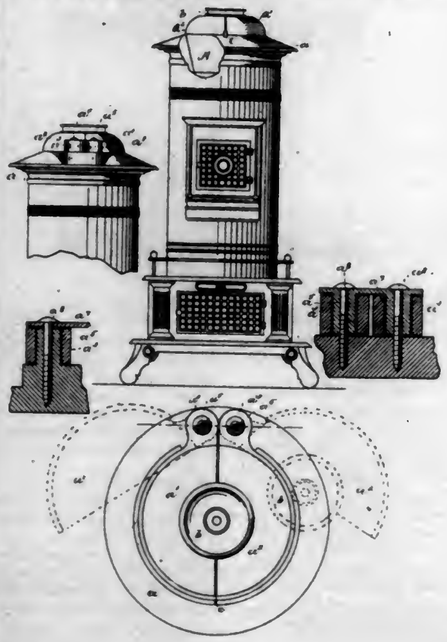
Claim.—The process of making cut nails with homogeneous and strongly-adhering flat heads, which consists in cutting the nail-blank, then clamping its sides with dies short of the place where the head is to be formed, then swaging the end into a flat head, and simultaneously swelling the neck by crowding a portion of the surplus metal longitudinally down toward the body of the nail, substantially as herein shown and described.

318,846. NECKTIE-BAND RETAINER. WILLIAM G. ALDERTON, Brooklyn, N. Y. Filed Mar. 6, 1885. (No model.)



Claim.—A necktie-retainer consisting of a strip of elastic material having one end bent around and outward to form the clamp *b*, for receiving the lower edge of a collar, and having its opposite end bent around in a direction toward the other bent end to form the loop *c*, for loosely receiving the tie, substantially as described.

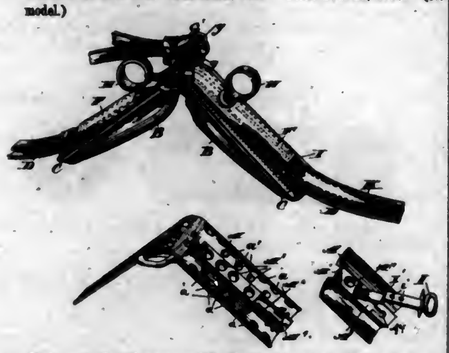
318,847. HEATING-STOVE. EDGAR W. ANTHONY, Boston, Mass. Filed Mar. 15, 1884. (No model.)



Claim.—1. The combination, in a heating-stove, of the oven A, the top plate, *a*, the two-part cover *a' a²*, which entirely covers the oven-opening when closed, each of which parts is independently pivoted to its post or support attached to the top plate of the stove, and the stop *c*, all substantially as and for the purposes described.

2. In a heating-stove, the combination of the oven A, the top plate, *a*, having the posts *a²*, and the cover-sections *a' a²*, pivoted to said posts and independently movable thereon, all substantially as and for the purposes described.

318,848. HARNESS-SADDLE. ALPHEUS ARTER, New Lisbon, and WILLIAM R. KNOWLES, Columbiana, Ohio. Filed Feb. 24, 1885. (No model.)

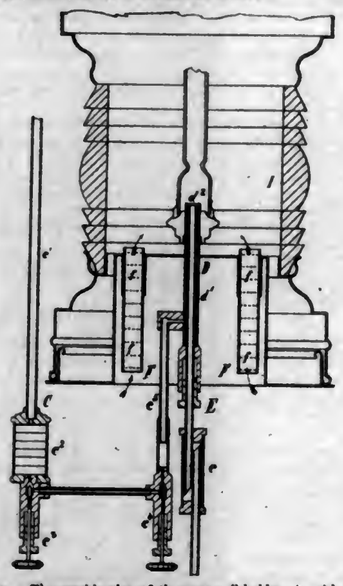


Claim.—1. In a harness-saddle, the combination, with a metal tree with edges curved outward and upward, and holes along the edges, and a raised central part forming a channel underneath, of a pad secured to the tree, the latter, as far as it extends, forming a cover for the pad, and a strip between the pad and channel, substantially as set forth.

2. In a harness-saddle, the combination, with a tree, as described, and a pad attached thereto, of the hook I with offset, shank, and part J secured thereto, arranged to lock in the tree, substantially as set forth.

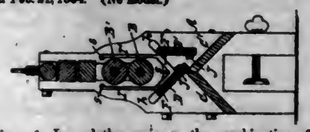
3. In a harness-saddle, the combination, with a tree, as described, and a pad attached thereon, of a housing, skirt, and jockey so arranged that these latter three parts may be stitched together and completed before they are applied to the tree, substantially as set forth.

318,849. LAMP FOR LIGHT-HOUSES. MORIZ ARZBERGER, Vienna, Austria. Filed Dec. 11, 1884. (No model.) Patented in Belgium Nov. 19, 1884, No. 66,931; in England Nov. 21, 1884, No. 15,359; in Italy Dec. 31, 1884, XXXV, 48, and in Sweden Jan. 10, 1885.



Claim.—The combination of the upper oil-holder, A, with the passage C, the burner D, the overflow E, and the lower oil-holder, B, for the purpose specified.

318,850. CLOTHES-WRINGER. ALFRED M. BAILEY, Middlefield, Conn., assignor to the Metropolitan Manufacturing Company, same place. Filed Feb. 21, 1884. (No model.)



Claim.—1. In a clothes-wringer, the combination of the frame A, the flat drip-board having its ends pivoted in close proximity to the frame, and having a transverse groove in its upper surface adjacent to each end, and the deflectors secured in direct contact with the frame, and having lips to enter the grooves in the drip-board for preventing the water from running off at the ends of the flat drip-board, substantially as described.

2. The combination of the frame, the interchangeable drip-boards, each having its inner surface provided with a stud or projection at the lower edge, and an intermediate support for the boards, substantially as described.

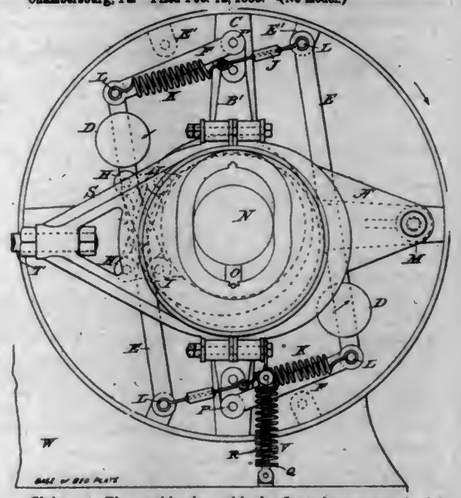
3. The combination of the frame, the water-shed, and the pivoted swinging interchangeable drip-boards, each having its inner surface provided with a stud or projection at the lower edge, substantially as described.

318,851. PRESERVATIVE COATING FOR MEATS. CARL BARTELS, Boston, Mass. Filed Apr. 3, 1885. (No specimens.)

Claim.—1. A compound for preserving meats, &c., consisting of dissolved isinglass or gum, and an aromatic compound obtained from galangal, cubebs, aloes, angelica-root, and masterwort by distillation or filtration, dissolved resin and Venice turpentine, substantially in the proportions set forth.

2. A preservative for preserving meats, &c., consisting of an aromatic compound obtained from galangal, cubebs, aloes, angelica-root, and masterwort, by distillation or filtration, with a gummy or resinous addition consisting of isinglass or gum and resin dissolved and mixed with Venice turpentine, the said compound being applied to the meat successively, substantially and for the purposes set forth.

318,852. GOVERNOR FOR STEAM-ENGINES. ROBERT M. BUCK, Chambersburg, Pa. Filed Feb. 12, 1885. (No model.)



Claim.—1. The combination, with the flanged governor-wheel C, keyed to engine-shaft N, and the eccentric A, adapted to swing orer said shaft and having an arm, A', pivoted to the wheel, of the sleeve B, mounted on the hub of the wheel and provided with arms B' B', the weighted levers E E, fulcrumed to the wheel and connected to the armed sleeve by links F F, the adjustable springs K K, and the links G G for connecting the eccentric and armed sleeve, substantially as described.

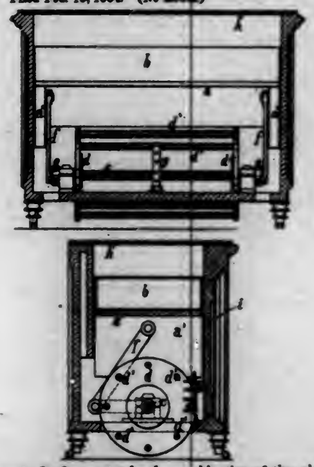
2 The combination, with the shifting eccentric A and the flanged governor-wheel C, having lugs E' E', of the vibratory sleeve B, provided with arms B' B', the links G G, adjustable weighted levers E E, links F F, and adjustable springs K K, substantially as described.

3. The combination of the shifting eccentric A, the governor-wheel C, the reversible weighted levers E E, fulcrumed to said wheel, a vibratory sleeve, B, mounted on the hub of said governor-wheel, in connection with the eccentric, and having arms B' B', that are connected to

the weighted levers by links F F, the adjustable springs K K, and the auxiliary spring V, substantially as described.

4. The combination, with a shifting eccentric, of a spring, V, connected to the eccentric-strap and to a rod, R, that is pivoted to the engine-frame, said spring being adapted to act expansively against the eccentric for the purpose of overcoming any tendency to irregularity in the motion of the eccentric, substantially as described.

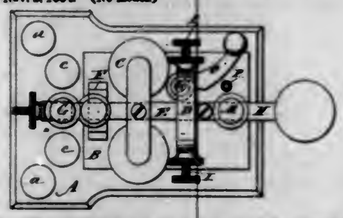
318,853. FLOWER-STAND. ROBERT H. F. BEHRENS, Hamburg, Germany. Filed Feb. 15, 1884. (No model.)



Claim.—1. In flower-stands, the combination of the plate *a*, with the reel *d*, shaft *c*, levers *e*, connecting-rods *f*, and means for locking said reel, substantially as set forth.

2. In flower-stands, the combination of the plate *a*, the guides *a'*, the connecting-rods *f*, the levers *e*, the reel *d*, provided with rods *d'* and mounted upon the lever-shaft *c*, and the hinged lever *g*, substantially as and for the purpose set forth.

318,854. KEY AND SOUNDER. PERLEY P. BELT, Columbus, Kans. Filed Nov. 2, 1884. (No model.)



Claim.—The combined sounder or receiver and transmitter, comprising the sounder E, disposed between the helices of the magnet C and beneath the upper connecting-bar of said helices, said sounder being pivoted at its inner end in the arch D, the post F, supporting the adjusting-screw of the sounder and the sounder-tension-spring adjusting-screw, and the key H, pivoted in the sounder-arch, and having one end resting upon a point, N, of the lower cross-piece of the magnet-helices, together with the main line and local battery binding-posts, substantially as set forth.

318,855. CAR-AXLE BOX. GEORGE W. BERRY, Sr., and THOMAS BERRY, Cincinnati, Ohio, assignors of one-third to Jno. W. Roberts, Indianapolis, Ind. Filed Mar. 24, 1885. (No model.)

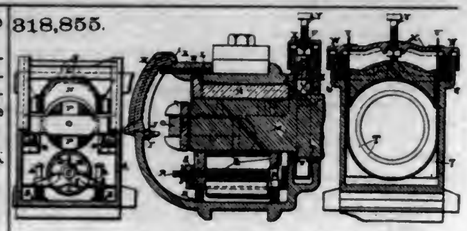
Claim.—1. The combination of the box with the sliding door H, which is grooved upon its sides and lower edges and provided with the flange I, which catches inside of the box, substantially as described.

2. The combination of the axle-box with the sliding door, which is grooved and provided with flanges, and the studs or projections C upon the inner side of the box, to force the lower flange, I, upon the door tightly against the inner side of the box, substantially as set forth.

3. The combination of the box A, provided with shoulders D, the stirrup O, the end bearing-piece, P, and the axle, substantially as set forth.

4. The combination of the box, the axle, the packing-chamber, the packing-plates, the packing-band, the gland, the cover of the chamber, and the set-screw for bearing against the gland, substantially as described.

318,855.



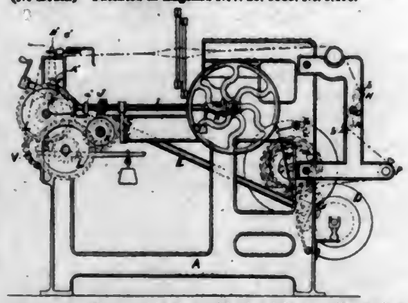
5. The combination of the box having a packing-chamber formed in one end, the cover of the chamber, and the springs W, for supporting the weight of the cover, substantially as specified.

318,856. WATER-PIPE. CONRAD BILZ, Linden, N. J. Filed Mar. 16, 1885. (No model.)



Claim.—A water-pipe provided with a lining of cork composed of ring-shaped sections, substantially as set forth.

318,857. TAKE-UP AND LET-OFF MECHANISM FOR LOOMS. THOS. H. BLAMIRE, Huddersfield, County of York, England. Filed Jan. 10, 1884. (No model.) Patented in England Nov. 23, 1883, No. 5,495.



Claim.—1. The combination, with the delivery roller or drum, of the warp-beam and the inclined bearings for the warp-beam, constructed to be adjusted and provided with adjusting mechanism, substantially as described, whereby their inclination may be varied, as set forth.

2. The combination, with the warp-beam and its delivery roller or drum, of the hinged bars M and their screws and nuts, said bars constructed to form an adjustable inclined bearing for the beam, substantially as set forth.

3. The combination of the warp-beam, its delivery roller or drum, the shaft E, and bevel-gears G, the worm-wheel F, the sand-beam U, the shaft I, and its worm J, the worm-wheel K, and train L, the crank-shaft B, bevel-gears H, take-up beam V, and its yielding support, all constructed and arranged to operate substantially as set forth.

318,858. ADJUSTABLE BUTTON. WILLIAM BOURKE, Brooklyn, N. Y. Filed Aug. 6, 1884. (No model.)



Claim.—1. In a button of the character herein set forth, the shank perforated at its lower extremity, the lugs secured upon the inner face of the exterior plate of the movable part, and located at one side of the center thereof, a hinge pin or axis connecting the lugs and shank, a spring bearing in the slot in the shank, and a slotted covering-plate, the same being combined substantially as shown and described.

2. In a button of the character herein set forth, the shank connected with the exterior plate of the movable part by a hinge-joint, and a spring located in said movable part, connected with said exterior plate, and bearing upon the shank at a point above and in close proximity to the hinge-axis, these parts being combined and arranged substantially as shown and described.

3. In a button of the character herein set forth, the shank perforated at its lower extremity, the exterior plate of the movable part, the lugs secured upon the inner surface of said plate, the hinge-pin connecting the lugs and shank, the spring-plate located in the movable part,

and the cap-plate or cover for the spring-plate, all combined and arranged substantially as shown and described.

318,859. DREDGING-MACHINE. ALPHONSO R. BOWERS, San Francisco, Cal. Filed Dec. 9, 1876. Renewed Apr. 16, 1879.

Brief.—The invention consists of a rotary bottomless-bucket excavator-wheel of moderate size, novel construction, and great capacity, combined with a hydraulic transporting apparatus of equal capacity, by means of which the spoil may be cheaply carried to a distance of several miles over land or water, and across navigable channels without interruption of navigation, together with novel feeding devices, through which the percentages of earth excavated by the cutting-wheel, and of the water therewith delivered, are adjustable to the precise amount of each necessary for most economical working, and by means of which clean work is done, the excavator going twice over no ground and missing no ground, thus saving much time and effecting a material reduction in the cost of apparatus, repairs, and cost of dredging and of disposing of the spoils, these being the chief objects of the invention.

Claim.—1. In a dredging-machine having devices for swinging and working a side feed, vertical anchors arranged to give a forward feed by serving as alternate pivots, upon which the dredger swings as it cuts from side to side.

2. A dredge-boat having a self-contained pivot or center of oscillation, upon which said boat swings when at work, and a device for swinging and working said boat upon said pivot, in combination with a spud arranged to prevent said boat from drifting from its proper position while said self-contained pivot and boat are being moved into place preparatory to a new swing of the dredger in its successive stages of work.

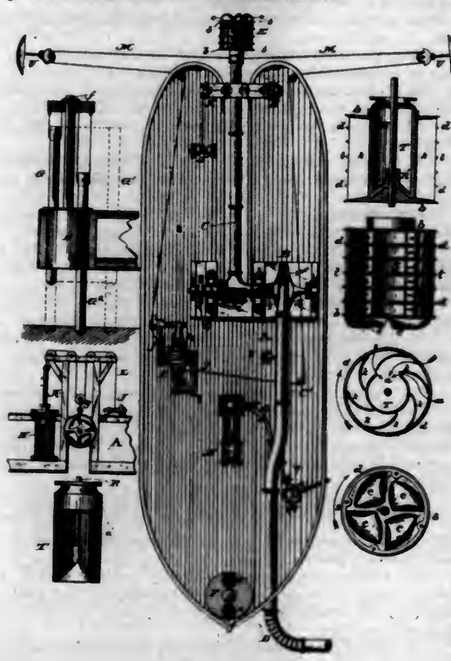
3. A dredge-boat having a self-contained pivot or center of oscillation, with devices for swinging and working said boat on said pivot, in combination with a spud arranged to measure, regulate, and fix the amount of forward feed in each successive advance in the successive stages of work, and to hold the boat in proper position while said advance is being made.

4. In dredging-machines, the combination of the turn-table F and vertical anchors G G^2, as a means of moving the machine forward or otherwise, substantially as described.

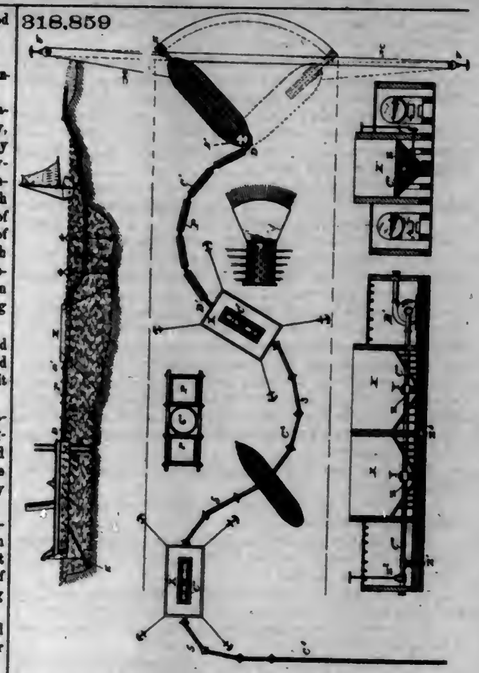
5. In a dredging-machine, the turn-table F, arranged upon the floating hull out of contact with the mud bottom, and provided with means for anchoring it in a fixed relation to said bottom, for the purposes specified.

6. In a dredging-machine, the combination, with the hull of a turn-table, F, (arranged upon the hull out of contact with the mud bottom and provided with means for anchoring it in a fixed relation to said bottom,) of warping-lines, substantially as specified.

7. The combination, in a dredging apparatus, of a self-contained pivot or center of oscillation and a variable side feed.



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8. The combination, in a dredging apparatus, of a self-contained pivot or center of oscillation and a variable winding device for swinging said apparatus upon said pivot.

9. A dredge-boat having a self-contained pivot forming a center of oscillation, with devices for swinging and working said boat upon said pivot, in combination with a suction-pipe and exhausting apparatus.

10. A dredge-boat having a self-contained pivot forming a center of horizontal oscillation, with devices for swinging and working said boat upon said pivot, in combination with a suction-pipe, exhausting apparatus, and rotary excavator.

11. A dredge-boat having a self-contained pivot or center of oscillation, with devices for swinging and working said boat upon said pivot, in combination with a pipe for discharging the spoils.

12. In a dredging apparatus having a side feed and a self-contained pivot or center of oscillation, a discharge-pipe flexibly mounted at or near said pivot, to allow said apparatus to swing without material alteration of the position of said discharge-pipe.

13. In a dredging-machine having a device for excavating from side to side of the cut, a discharge-pipe extending from a discharging apparatus to or near a center of oscillation, where it is provided with a hollow flexible joint or other suitable connection, and is prolonged thence to a place of discharge.

14. An excavating device having an oscillating or swinging movement, and having a conduit-discharge flexibly joined thereto at or near the center of horizontal oscillation of said device.

15. A mud-transporting apparatus having an oscillating or swinging movement, and having a conduit-discharge flexibly joined thereto at or near the center of horizontal oscillation of said apparatus.

16. A dredge-boat and oscillating section of a conduit-discharge flexibly joined to a non-oscillating section, to allow said boat to feed forward and said oscillating section to swing upon the flexible joint connecting said oscillating and non-oscillating sections.

17. A conduit-discharge for transporting spoils to a place of deposit, said discharge being flexibly joined to an excavating device (having a horizontal swinging or oscillating movement) at or near the self-contained pivot forming the center of horizontal oscillation of said device, and provided with floats for supporting said conduit.

18. A conduit for transporting earthy and similar substances, flexibly joined to a discharging apparatus, (having a horizontal swinging or oscillating movement) at or near the center of horizontal oscillation of said apparatus, and provided with floats for supporting said conduit.

19. A conduit for transporting mud, flexibly joined to an excavating and forcing apparatus (having a horizontal swinging or oscillating movement) at or near the center of horizontal oscillation of said apparatus, and provided with floats for supporting said conduit.

20. A discharge-pipe consisting of a series of sections flexibly joined

together and supported by long, narrow, hollow floats, in combination with a dredge-boat and rotary excavator.

21. A discharge-pipe consisting of a series of sections flexible joined together and supported by long, narrow, hollow floats, in combination with a dredge-boat and rotary excavator with inward delivery.

22. A discharge-pipe consisting of a series of sections flexibly joined together, in combination with a dredge-boat having a self-contained pivot or center of horizontal oscillation, with devices for swinging and working said boat on said pivot.

23. A discharge-pipe consisting of a series of sections flexibly joined together, in combination with a dredge-boat and rotary excavator.

24. A discharge-pipe consisting of a series of sections flexibly joined together and supported by long, narrow, hollow floats.

25. A discharge-pipe consisting of a series of sections flexibly joined together and supported by floats, in combination with a dredger having a rotary excavator.

26. A conduit for transporting earthy and semi-liquid substances, said conduit consisting of an outer rigid non-oscillating section flexibly joined to an inner oscillating section, the inner end of said oscillating section being flexibly joined to a discharging device.

27. A conduit for transporting earthy and semi-liquid substances, said conduit consisting of an outer rigid non-oscillating section flexibly joined to an inner oscillating section, the inner end of said oscillating section being arranged to receive said substances, said conduit being provided with a motor.

28. Hollow floats, in connection with and secured to the flexibly-connected pipe C'.

29. Hollow floats, in combination with a conduit for discharging mud and semi-liquid material.

30. In combination with a dredge-boat and pump for transporting spoil, a conduit-discharge provided with a pressure-gage, substantially as and for the purpose specified.

31. In combination with an apparatus for transporting earthy and semi-liquid material, the submerged conduit 3, suspended from buoys.

32. In combination with excavating devices to cut or scoop up mud, a submerged discharge-pipe resting upon the bottom.

33. A submerged discharge-pipe, in combination with excavating devices adapted to cut up the mud and with mud-forcing apparatus.

34. A relay-pump for renewing propulsion, in combination with and flexibly joined to the discharge-pipe of a mud-transporting apparatus, to permit said pipe and transporting apparatus to oscillate while the relay-pump remains stationary.

35. A relay-pump for renewed propulsion, in combination with and flexibly joined to the discharge-pipe of an excavating apparatus, to permit the oscillation of said apparatus while the relay-pump remains stationary.

36. A relay-pump for renewed propulsion, in combination with an earth-transporting apparatus and discharge-pipe.

37. A relay-pump for renewed and continuous propulsion of semi-liquids and of earthy material, in combination with a conveying-conduit.

38. An apparatus for transporting earthy and similar material through a long conduit by means of a carrying stream of water, in combination with a device having openings to allow the escape of the heavier portions of said transported material, while the larger portion of the water and lighter material pass over and are discharged farther on.

39. A mud-forcing apparatus having a closed conveying-pipe leading therefrom and a sampling pipe and valve connected to the closed pipe.

40. In combination with a mud excavating and discharging apparatus and discharge-pipe, the weighing-tank W, substantially as and for the purpose described.

41. In combination with pipe C', the pump N and its connections, substantially as and for the purpose specified.

42. A force-and suction pump, in combination with pipe C', and arranged to force into or draw from said pipe as regulated by the valves.

43. A force-pump and injection-pipe, in combination with pipe C', and arranged to force into said pipe, for the purposes specified.

44. A suction-pump, in combination with pipe C', and arranged to exhaust from said pipe, for the purpose specified.

45. In combination with a mud-forcing apparatus having a submerged discharge-pipe, a pump arranged to raise said pipe by substituting air for the contents of said pipe.

46. In combination with an excavating device to draw, cut, or scoop up mud, a flexibly-jointed discharge-pipe resting upon the bottom, substantially as described.

47. A flexibly-jointed submerged discharge-pipe, in combination with a rotary excavator and with mud-forcing apparatus.

48. In combination with discharge-pipe C' and a dredging and transporting device, a pump, B', for exhausting from said pipe.

49. A dredge-boat having a self-contained pivot forming a center of horizontal oscillation, with devices for swinging and working said boat upon said pivot, in combination with a rotary excavator.

50. The combination, with a dredge-boat and non-rotative suction-pipe, of a rotary excavator having an inward delivery, and arranged to force the loosened material through said excavator toward the mouth of the suction-pipe.

51. A dredge-boat having a self-contained pivot, with devices for swinging and working said boat on said pivot, in combination with a suction-pipe and a rotary excavator with inward delivery.

52. A dredge-boat having a self-contained pivot or center of oscillation, with devices for swinging and working said boat on said pivot, in combination with an exhausting and discharging device, suction-pipe, and rotary excavator having an inward delivery.

53. The combination, with a non-rotative suction-pipe, of a rotary excavator having an inward delivery through said excavator.

54. The combination, with a dredge-boat and non-rotative suction-pipe, of a rotary excavator having an inward delivery through said excavator.

55. The combination, with a suction-pipe, of a rotary excavator delivering inwardly through itself and rotating independently of said pipe.

56. A rotary bottomless-bucket excavator-wheel having an internal bearing and a hub constructed and arranged to hold and support the wheel and allow a free discharge.

57. A rotary bottomless-bucket excavator-wheel with driving-shaft and suitable bearings, in combination with pipe C and an exhausting apparatus.

58. A hollow rotary excavator with inward delivery, in combination with a suction-pipe provided with an elbow and suitable bearings in the axis of vertical oscillation of said pipe, said elbow being connected by means of a stuffing-box or other suitable connection with a stationary continuation of a suction-pipe leading to an exhausting apparatus, the whole being constructed and arranged to allow said excavator to be raised and lowered without breaking the suction and flow.

59. A rotary excavator with inward delivery, in combination with a non-rotating suction-pipe mounted upon strong trunnions or equivalent joints, to permit the excavator and outer end of the suction-pipe to be raised and lowered to suit the depth at which the work is progressing.

60. A rotary bottomless-bucket excavator-wheel having detachable cutting-edges secured to said buckets, with driving-shaft and suitable bearings, in combination with a suction-pipe, exhausting apparatus, and dredge-boat.

61. A rotary bottomless-bucket excavator-wheel with suitable inner bearings and inner delivery, in combination with a suction-pipe, exhausting apparatus, and dredge-boat.

62. A rotary excavator carrying sharp cutting-edges with inward delivery, in combination with a non-rotative suction-pipe and dredge-boat.

63. A rotary excavator having edges cutting parallel with the axis of rotation, with other edges cutting perpendicularly to said axis, for the purpose of slicing up and subdividing the spoils, in combination with a suction-pipe and exhausting apparatus.

64. A rotary excavator having a screen secured to and in combination with said excavator.

65. A suction-pipe and rotary excavator, in combination with a device for excluding coarse substances from said pipe.

66. A rotary excavator and receiving-pipe, and pump for freeing said pipe of the excavated material by suction, in combination with a device for excluding from said pipe substances too coarse to pass through the pump.

67. A rotary excavator having ring-knives *d* arranged at intervals around its periphery, to slice and subdivide the material to enter the conduit.

68. A rotary excavator, in combination with a device for screening the spoils and preventing obstructions from entering said excavator.

69. A rotary excavator with inward discharge, combined with a pump, a suction-pipe, and devices to exclude from the suction-pipe substances too hard to be cut and too coarse to pass through the pump.

70. Cutting, protecting, and screening knives passing across the mouth of, secured to, and in combination with an excavating-bucket.

71. An excavating-bucket, in combination with a screen or bars for screening the material and preventing the coarser portions from entering said bucket.

72. A rotary excavator having buckets or scoops on its end adapted to cut and deliver the material inward and through said excavator, for the purpose of allowing said excavator to cut and advance in the line of the axis of rotation, in combination with a conduit for discharging said material, said excavator being arranged to deliver its contents directly into said conduit.

73. A rotary excavator having projecting excavating devices on its lowermost part, and provided with strengthening-braces to re-enforce the supports that carry said devices, in combination with a suction-pipe and exhausting apparatus.

74. A rotary excavator having projecting excavating devices on its lowermost part, and provided with a strengthening-ring to re-enforce the support which carries said devices, in combination with a suction-pipe and dredge-boat.

75. In dredging-machines, a non-rotating suction-pipe, in combination with a rotary excavator provided with excavating devices arranged to deliver inward to a space in the interior of said excavator.

76. In combination with a dredging-machine, a non-rotating suction-pipe and hollow rotary excavator provided with buckets or scoops having an inward delivery through said excavator.

77. A rotary bottomless-bucket excavator-wheel provided with ring-knives *d*, substantially as described.

78. A rotary bottomless-bucket excavator-wheel having ring-knives *d*, detachable knives S, and cutting-lips *c*, substantially as set forth.

79. A rotary excavator with inward delivery, in combination with an inner stationary chamber arranged to form a bottom to the buckets as they revolve around said chamber until said buckets reach the place of discharge.

80. A rotary excavator with inward delivery, in combination with an inner hollow chamber having an opening through which the excavator discharges into said chamber.

81. The self-adjusting steam counter-balance H, in combination with hawser L and a dredging device, substantially as described.

82. The combination, with the excavator, of a hawser, L, passing from a counter-balance, through the suspending-block *g*, and around suitable guiding-sheaves to the hoisting apparatus, to raise and lower the excavating apparatus without interrupting the action of the counter-balance.

83. A hydraulic hoist, in combination with a dredge-boat, rotary excavator, and suction-pipe.

84. A hydraulic hoist, in combination with an excavating device.

85. In combination with a dredge-boat, winding-drums, and warping-lines, the blocks U U, anchored substantially as described.

86. In combination with a dredge-boat and warping-line, a block, U, anchored to the bottom or to the shore, around which said warping-line passes for the purpose of swinging and warping said boat, substantially as described.

87. In combination with a dredge-boat having devices for swinging and working said boat with a side feed, a hauling-line having connection direct from the anchorage to the excavator-support and near the point of resistance, and arranged to throw a large portion of the strain of the side feed on the outer end of the apparatus carrying the excavating device.

88. In combination with the discharge-conduit of a mud-forcing apparatus, guys 6, for holding said conduit in position.

89. In combination with a mud-transporting apparatus and discharge-pipe having branches and valves, as described, and relay-pump, the mud-receiver X, substantially as and for the purpose set forth.

90. In combination with a dredging-machine, discharging apparatus, and relay-pump, a floating vessel carrying said relay-pump.

91. A floating mud-barge having inlet and valve Z^2, arranged to admit water for diluting the spoils.

92. A mud-receiver having a suction pipe, with a branch and valve through which the mud is exhausted from said receiver, substantially as described.

93. A floating mud-barge having inlet and valve Z^2, with branch pipes and orifices to admit water for diluting the spoils.

94. In combination with a floating mud-barge having inlet and valve Z^2, and a pipe through which the spoils are withdrawn, the pump B', or equivalent exhausting apparatus.

95. In combination with a dredge-boat and discharge-pipe, the valve Y, for the purposes specified.

96. A floating mud-barge having an exhausting device and pipe with branches and valves Z Z', for the purpose set forth.

97. In a mud-receiver, the pipe C'', with branches and valves Y Z Z^2.

98. In a floating mud-receiver, the pipe C'', with branches and valves Y Z' Z^2.

99. In a floating mud-receiver having inlet and valve Z^2, the pipe C'', with its branches and valves and an exhausting apparatus for withdrawing the spoils.

100. A floating vessel and mud-transporting apparatus, in combination with a dredge-boat, to continuously receive and transport through a discharge-pipe to a place of deposit the spoils as delivered by said dredge-boat.

101. In combination, a suction-pipe and exhausting apparatus for raising and a conduit for discharging spoil, said conduit being provided with openings for separating the spoil from a large percentage of the water which passes the openings and is discharged farther on.

102. The combination, with a rotary excavator, suction-pipe, and exhausting apparatus, of a conduit-discharge having openings in said conduit for delivering spoil, while a large portion of the water passes by and is discharged farther on.

103. An excavating-bucket provided with a fender, to prevent said bucket from catching upon obstructions.

318,860. ART OF DREDGING. ALPHONZO B. BOWERS, San Francisco, Cal. Filed Apr. 24, 1885. (No model.)



Claim.—1. The improvement in the art of dredging, which consists in oscillating the dredge-boat on a center, thereby continuously removing the spoil from an arc-shaped surface, conveying the same into the boat, and forcing it thence through a closed conduit by a series of impulses, diluting the spoils in its passage to facilitate discharge.

2. The improvement in the art of dredging, which consists in successively oscillating a dredge-boat about a contained center, thereby removing successive arc-shaped layers while swinging sidewise, substantially as described.

3. The improvement in the art of dredging, which consists in oscillating the boat on a contained center, thereby making an arc-shaped cut during the side movement of the boat, substantially as described.

4. The described method of dredging, which consists in oscillating the dredge-boat on a contained center, and by such oscillation forcing the excavator continuously sidewise, and so making an arc-shaped cut and continuously bringing the excavated material inward, substantially as described.

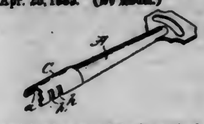
5. The described method of dredging, which consists in oscillating the dredge-boat on a center, and by such oscillation forcing an excavator continuously sidewise, thus making an arc-shaped cut and drawing the excavated material inboard by suction.

6. The method of diluting the spoils to facilitate its discharge, which consists in forcing the same through a closed conveyer, and forcing a supplementary diluting substance into said closed conveyer.

7. The method of conveying mud from a dredger, which consists in forcing it continuously through a closed conduit by a succession of forward impulses, as set forth.

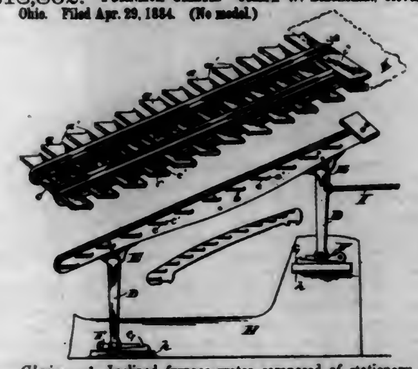
8. The process of transporting mud and semi-liquid material, consisting in forcing the same through a succession of coacting pumps and pipes to a place of deposit.

318,861. KEY. EDWARD W. BERNELL, Newark, N. J., assignor of one-half to Charles W. A. Remer and John H. Wilkins, both of same place. Filed Apr. 25, 1885. (No model.)



Claim.—A semicircular metal key notched or bitted on its sides, substantially as shown and described.

318,862. FURNACE-GRATE. JOSEPH W. BERNSTEAN, Cleveland, Ohio. Filed Apr. 29, 1884. (No model.)



Claim.—1. Inclined furnace-grates composed of stationary and movable sections arranged alternately, each section being provided with overlapping shelves, and the shelves of one section interlocking with the shelves of the adjacent sections.

2. Furnace-grates in section that incline downward from the front toward the rear of the furnace, and provided with laterally-projecting shelves that extend toward each other from adjacent sections and interlock and overlap each other, as shown, and so arranged that air-spaces are had between the interlocking shelves, substantially as set forth.

3. Furnace-grates in section that incline downward from the front toward the rear of the furnace, and provided with laterally-projecting shelves that interlock and overlap each other, as shown, and alternate sections provided with suitable mechanism by means of which they may be reciprocated approximately horizontally, substantially as set forth.

4. Furnace-grates in section inclined and provided with laterally-projecting interlocking shelves, as aforesaid, and the shelves so arranged on the respective sections as to leave graduated air-spaces between the shelves, preferably of small area at the upper portion of the grate and

increasing in area toward the lower portion of the grate, substantially a set forth.

5. The combination, with the sections C, adapted to be reciprocated between the sections A, of the rock-arms D and cross-bars E, adapted to support the sections C in the reciprocating movements, and the rock-arms provided at the bottom with adjusting mechanism, preferably as shown, by means of which they may be adjusted vertically, substantially as set forth.

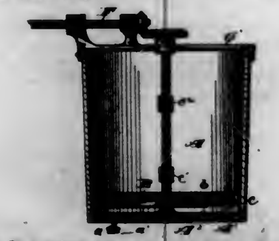
318,863. VEHICLE-GEAR. JOHN N. BROWN, New London, Conn., assignor to the Brown Carriage Company, same place. Filed Sept. 25, 1884. (No model.)



Claim.—1. A crank-axle composed of axle-shanks provided at their outer ends with axle-spindles and at their inner ends with perforated ears, a depressed axle-body, and dependent arms connecting said body with said axle-shanks, said parts being integral and in the same vertical plane, substantially as described.

2. The combination of a crank-axle composed of shanks provided at their outer ends with axle-spindles and at their inner ends with perforated ears, a depressed axle-body, and dependent arms connecting said body with said axle-shanks, said parts being integral and in the same vertical plane, pivoted links connected to said ears, and a spring connected to said links and in the same vertical plane with said axle-body, substantially as described.

318,864. PAINT-MIXER. ORLANDO J. BUSH, Chicago, Ill. Filed Jan. 3, 1885. (No model.)



Claim.—1. In a paint-mixing apparatus, the combination, with a mixing-tub having a horizontal partition or false bottom therein, the latter being provided with an opening, a strainer secured to said partition over the opening, and a discharge-opening formed in the bottom of the tub, of a horizontal shaft provided with arms located within the main body of the tub, and within the space between the partition and bottom of the tub, substantially as set forth.

2. In a paint-mixer, the combination, with a tub having a horizontal partition provided with an opening therein, a strainer secured to said partition over the opening, and a discharge-opening formed in the bottom of the tub, of a central shaft having arms above and below the horizontal partition, and a brush moving in contact with the upper surface of said partition, substantially as set forth.

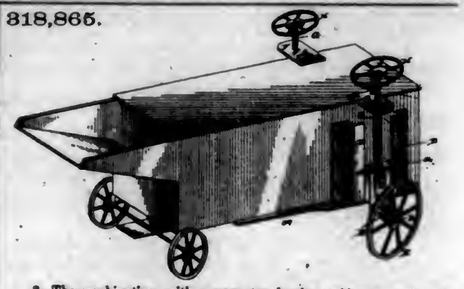
3. In a paint-mixer, the combination, with the tub divided into two communicating compartments by a horizontal partition having an opening therein, a strainer secured to the partition over said opening, and a discharge-spout secured to the bottom of the tub, of the vertical shaft, the arms secured thereto above and below the partition, and the brush arranged as described and secured to one of said arms, substantially as set forth.

318,865. LEVELING ATTACHMENT FOR SEPARATORS. JORDAN H. BURGESS and JOSEPH BURGESS, Jr., Leesburg, assignors of one-third to E. H. Miller, Greenfield, Ohio. Filed Feb. 20, 1885. (No model.)

Claim.—1. The combination, with a separator, of vertically-adjustable slides having carrying-wheels mounted on axles thereof, substantially as set forth.

2. The combination, with a separator having guides secured to its sides near the rear end thereof, of slides located therein and carrying wheels, and means, substantially as described, for raising and lowering the separator, substantially as set forth.

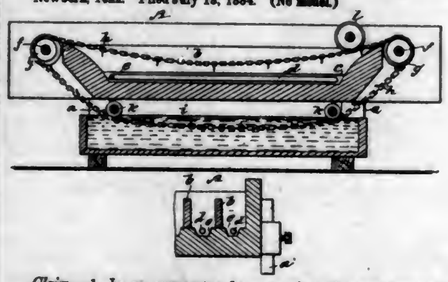
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3. The combination, with a separator having guides secured to its sides, of slides located therein, said slides having extensions provided with stub-axles, carrying-wheels, and means, substantially as described, for raising and lowering the separator, substantially as set forth.

4. The combination, with a separator having guides secured to its sides near the rear end thereof, slides located therein, and having extensions formed with stub-axles, carrying-wheels, ears or lugs at the top and bottom of the separator, and screw-rods having reduced ends, said screw-rods working in threaded openings or passages in the slides, substantially as set forth

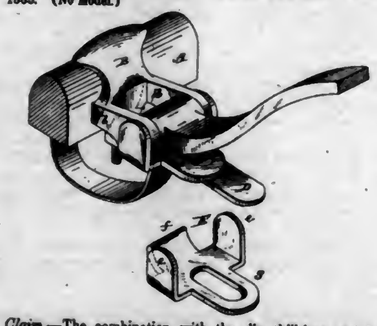
318,866. EVAPORATOR FOR CANE-JUICES. WILLIAM E. BUTLER, Newbern, Tenn. Filed July 18, 1884. (No model.)



Claim.—1. In an evaporator for cane-juices, the pan having between its partitions grooves arranged below the bottom edges of said partitions, and the pipes disposed in said grooves, substantially as and for the purpose set forth.

2. The combination, with pan A and skimming-chains *h*, of the water-tank *i*, substantially as and for the purpose specified.

318,867. THILL-COUPLING. V. WINSLOW BUTTS, Hamden, N. Y., assignor of one-half to Louis W. Ferenson, same place. Filed Jan. 22, 1885. (No model.)

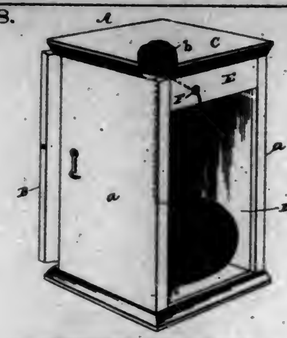


Claim.—The combination, with the clip, thill-iron, and bolt, of a curved spring-bar attached at the lower portion of the clip, and provided near its opposite end with a plate and an independent plate secured thereto, and having curved side wings and an upturned portion which bears against the curved end of the thill-iron, substantially as set forth.

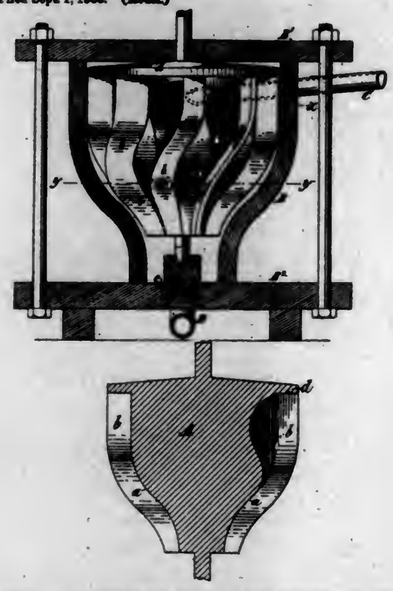
318,868. TWINE-HOLDER. JOSEPH L. BYERS, Dysart, Iowa. Filed June 21, 1884. (No model.)

Claim.—As an improved article of manufacture, the twine-holder described, consisting of the case A, having its rear side provided with a hinged door, the top having the inner central vertically-depending guide-loop, *b*, the front top strip, E, having the guide-aperture F, and the glass arranged in the front of the case, substantially as specified.

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318,869. WATER-WHEEL. EDWIN M. CARHART, Providence, R. I. Filed Sept. 1, 1883. (Model.)



Claim.—1. A water-wheel having a body decreasing in size toward its lower end, blades or buckets conforming to the contour of the body, extending therefrom and spirally around it, and cavities arranged in the body between the blades or buckets, and serving to direct water entering them upon the faces of the blades or buckets.

2. In a water-wheel, the body thereof having blades or buckets extending therefrom and spirally around the same, and cavities arranged therein between the blades or buckets, substantially as described, whereby water upon entering acts against the faces of the blades or buckets, then is deflected and enters the cavities, and is subsequently directed by the curve of the cavity upon the lower portion of the blades or buckets.

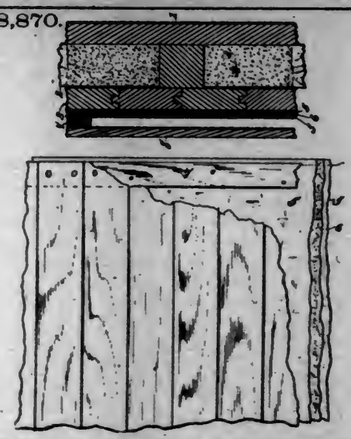
3. A water-wheel having a body decreasing in size toward one end, blades or buckets conforming to the contour of the body, extending spirally around the same, and cavities arranged in the body between the blades, said cavities having their tops rounded into their backs, and the lower portions of the backs curved toward the opposite blades, substantially as specified.

4. The combination, with a curb or case, of a water-wheel supported above the bottom thereof a distance sufficient to admit of a free discharge of water, said wheel having a body decreasing in size toward one end, blades or buckets extending spirally around the same, and cavities arranged in the body between the blades or buckets, substantially as specified.

318,870. WALL FOR REFRIGERATOR STRUCTURES. ANDREW J. CRANE, Boston, Mass. Filed Mar. 21, 1885. (No model.)

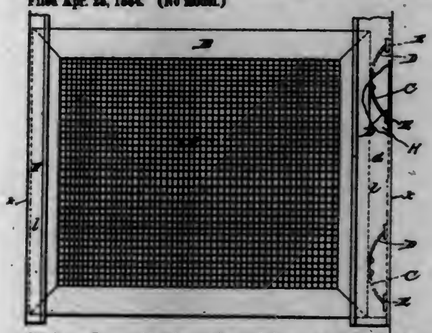
Claim.—1. A double wall for a refrigerator structure containing a packing or lining of a compound fabric made of sheets of paper and an interposed layer of cotton or vegetable fiber, substantially as described.

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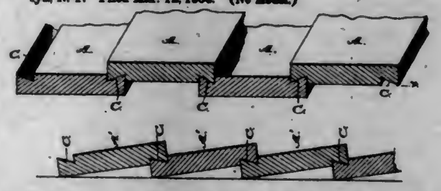
2. A non-conducting wall for a refrigerator structure consisting of inner and outer boarding, an intermediate space filled with a dry non-conducting substance, a compound fabric of paper and cotton secured to the inner boarding, furring-pieces secured over the compound fabric for holding it in place, and inner sheathing secured to said furring, substantially as described.

318,871. WINDOW-SCREEN. GEORGE R. CLARK, Dubuque, Iowa. Filed Apr. 28, 1884. (No model.)



Claim.—In combination with a window-screen, A B, the arc springs C, having their ends D turned outwardly, the rubber pads or bearings E, and the rectangular metallic slide-bearings *k l*, all constructed, arranged, and operating as set forth.

318,872. ROOFING AND SIDING BOARD. JAS. W. CRABBE, Brooklyn, N. Y. Filed Mar. 12, 1885. (No model.)



Claim.—1. A roofing or siding board formed with counterpart single-faced inwardly-inclined rabbets C C upon both its lateral edges, substantially in the manner and for the purpose herein set forth.

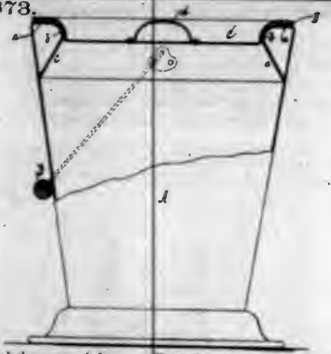
2. The combination with each other of two or more boards, each having single counterpart inwardly-inclined rabbets formed upon both edges thereof, and superimposed so that the rabbet of the one shall overlap the corresponding rabbet of the other, substantially in the manner and for the purpose herein set forth.

318,873. CHAMBER-PAIL. CHARLES F. CROCKETT, Mount Vernon, N. Y. Filed Apr. 9, 1885. (No model.)

Claim.—1. A chamber-pail having its upper part turned inward and then downward to join the side of the pail and form a seat integral with the body of the pail and stiffened by its union with the side of the pail, substantially as described.

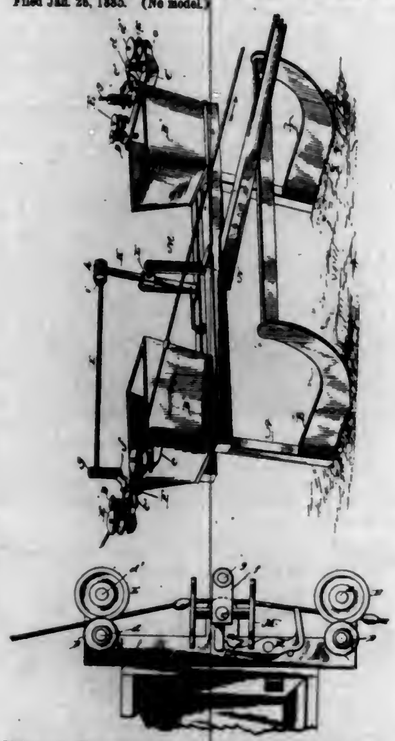
2. The combination of a pail, A, having its upper part, *c*, turned

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inwardly and then curved downwardly at *b* to form a seat, a cover, C, curved to fit the seat, and a gasket, D, attached to the cover and taking upon the seat, substantially as described.

318,874. CHECK-ROW PLANTER. NOBLE E. CROTHERS, Paxton, Ill. Filed Jan. 26, 1885. (No model.)



Claim.—1. The combination, in a check-row planter, of the rollers and pulleys mounted on a bracket on the sides of the hoppers, the lock-lever forked at one end and provided with a semicircular stud at the other, the driver mounted on the bracket intermediate of the roller and lock-lever and having transverse forks at each end, and the adjustable slide-operating mechanism connected to the driver, substantially as described.

2. The combination, with the operating devices arranged at opposite sides of the hoppers, of the reversible rod connecting at one end with such devices, as at *g*, and the other end adjustably connected to lever K, as at *i* A, said lever K being supported in a frame and adjustable by a set-screw, substantially as described.

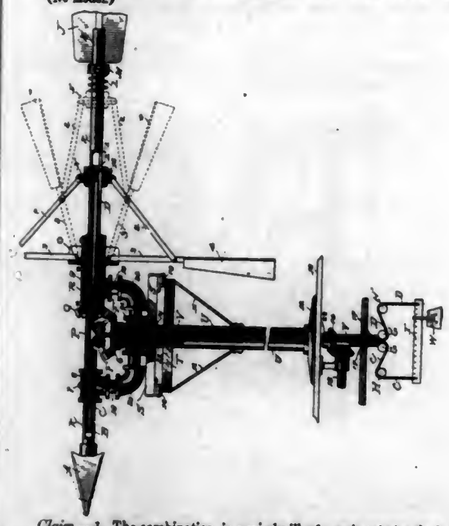
3. The combination of the driver having forks G and bent arm *f*, and the slide-operating lever, the lever K, adjustable by a set-screw and supported in a frame, the rod I, connected at one end to the operating devices, as at *g*, and connected at its other end to lever K by the adjustable head A and joint-nut *i*, substantially as described.

318,875. BOX FOR MEAT AND OIL PRESSES. JOHN J. CULBERTSON, Paris, Tex., JOHN C. O'CONNELL, Montgomery, Ala., and BERNARD GASTON, Paris, Tex. Filed Mar. 11, 1885. (No model.)



Claim.—The press and meat box or receptacle A, provided with the lining *a*, placed in the box to prevent accumulation of meat in the box, substantially as described.

318,876. WINDMILL. ALFRED CURRIER, Grand Rapids, Mich., assignor of one-half to W. H. De Camp, same place. Filed Dec. 10, 1884. (No model.)



Claim.—1. The combination, in a windmill, of a main tubular shaft, a hub on said shaft connected with gears for transmitting the power, fans pivoted on said hub, a sliding ferrule, N, mounted on the main shaft and connected to the fans, and a sliding block within the shaft secured to the ferrule and connected with devices, substantially as described, for regulating the movement of the ferrule, the said fans being adapted to close upon or toward the shaft by pressure of the wind, substantially as described.

2. The combination, in a windmill, of the main tubular shaft K, supported on a turn-table, a hub carrying pivoted fans and fixed to a sleeve, R, mounted on the said shaft K, a bevel-gear on the front of said sleeve meshing with a like gear on the end of a vertical tubular shaft, a sliding block within the shaft K, having a rope, D, connected to the end E thereof, and connections between the block and the fans, whereby the said fans are opened, all substantially as described.

3. The combination, in a windmill, of a main tubular shaft, a hub fixed to a sleeve carrying a bevel-gear, which meshes with a like gear on a vertical tubular shaft for communicating power, fans pivoted on said hub and connected to a sliding ferrule, N, mounted on the tubular shaft and fixed to a sliding block within the tubular shaft K, and means, substantially as described, connected to the ends B E of the sliding block, for operating and regulating the pivoted fans, all as set forth.

4. The combination, in a windmill, of the main tubular shaft K, the hub carrying the pivoted fans connected to the ferrule N, said fans being adapted to close toward or upon the shaft, and with a sliding block within the shaft K, having the rope D connected to the end E thereof, for opening the fans through the said ferrule, the sleeve R serving as a rear bearing for the shaft K, and supporting the hub O and the front bearing, S, the said bearings being supported from the turn-table and encircling the tubular shaft, all as described, and for the purpose set forth.

318,877. FOLDING SQUARE. HENRY DAVIDSON, Brooklyn, N. Y. Filed Jan. 26, 1885. (No model.)

Claim.—1. A right-angle jointed square or rule having both blades on a plane provided with a self-locking device consisting of a brace and catch-spring, adapted to slide along the edge of one blade, and when pressed into the angle formed by the two blades extended will lock the blades in that position through the catch-spring fitting or setting into a notch formed in the edge of the blade, upon which the device slides, substantially as shown and described.

318,877.

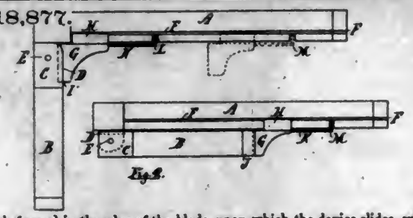


Fig. 2.

2. In combination with a square or rule having arms A and B, the brace G, provided with spring K, arranged and secured thereto, substantially as shown and described.

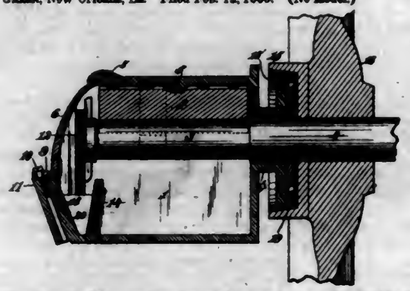
3. The combination of arms A B, the arm B provided with plates C and groove D, and the arm A provided with grooves F, with the sliding and self-locking brace G, provided with spring K, all adapted to operate substantially as shown and described.

318,878. MACHINE-SEWED BOOT OR SHOE. LUTHER DAY, Haverhill, Mass. Filed Jan. 19, 1885. (No model.)



Claim.—In a boot or shoe, an outer sole cut from its edge to form a channel-flap, and cut away or beveled between the channel-flap and the inner surface of the sole, to form a sloping surface, and having the flap cemented to said surface, as set forth.

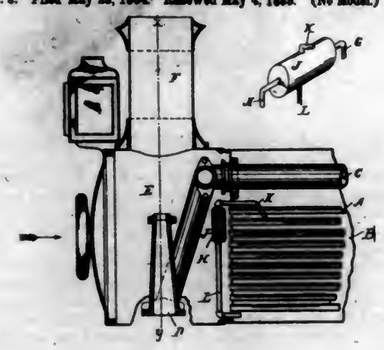
318,879. CAR-AXLE BOX. GEORGE E. DE GRAFFE and WILLIAM G. GREEN, New Orleans, La. Filed Feb. 12, 1885. (No model.)



Claim.—1. The combination of the axle-box provided with the hub or boss 17, formed integral with the annular metallic disk 18, with the flexible packing-disk 19, attached directly to the inner face of the metallic disk, the axle, the wheel, and the cap-shaped annular flange 15, substantially as described.

2. The car-axle box provided with the transverse division-plate 14, having its upper and lower horizontal edges terminated, respectively, at a distance from the car-axle and the bottom wall of the box, substantially as and for the purpose described.

318,880. FEED-WATER HEATER. WILLIAM H. ROSEPORTH, Camden, N. J. Filed May 23, 1884. Renewed May 4, 1885. (No model.)



Claim.—In a locomotive or other engine, in combination, a water feed pipe or feed pipes leading from the water-tank to or terminating in a water-drum so located in a smoke-box as to be surrounded by the heat thereof, two or more pipes leading from said coil or drum to and emptying into the boiler below the water-line and at points at or near the top and bottom thereof, respectively.

318,881. TOBACCO-PULP. JOSEPH DE SUBNI, New York, N. Y. Filed Oct. 18, 1884. (No specimens.)

Claim.—1. The method herein described of preparing tobacco or other plants, or admixtures of the same, for smoking, chewing, or snuffing, by combining the same in any suitable proportion or manner with vegetable tar, substantially as and for the purpose specified.

2. The tobacco or other plants, or admixtures of the same, for smoking, chewing, or snuffing, having combined with them in any suitable manner vegetable tar, substantially as and for the purpose set forth.

3. The process herein described of preparing tobacco or other plants for stock, or filling, or binders, or wrappers for cigarettes, cigars, cheroots, or like articles, or for smoking, chewing, or snuffing purposes, the same consisting in moistening or saturating the same with a solution of vegetable tar in a volatile liquid, and then evaporating the solvent, leaving the tar thoroughly distributed and incorporated throughout the tobacco or other material, substantially as and for the purpose set forth.

4. The process herein described of preparing tobacco or other plants for stock, or filling, or binders, or wrappers for cigarettes, cigars, cheroots, or like articles, or for smoking, chewing, or snuffing purposes, which consists in moistening or saturating the same with tarred water, and then drying it, substantially as set forth.

5. The process herein described of preparing tobacco or other plants for stock, or filling, or binders, or wrappers for cigarettes, cigars, cheroots, or like articles, or for smoking, chewing, or snuffing purposes, the same consisting in submitting the materials of said articles to the volatile emanations of vegetable tar at the natural temperature or to the vapor or smoke of said substance, substantially as and for the purpose set forth.

6. The process herein described of preparing the wrappers, bags, cases, and other packages for cigarettes, cigars, cheroots, and like articles, or for smoking, chewing, or snuffing goods, the same consisting in moistening or saturating the said material with a solution of vegetable tar in a volatile liquid, or with tarred water, substantially as described.

7. The process herein described of preparing the wrappers, bags, cases, and other packings for cigarettes, cigars, cheroots, and like articles, or for smoking, chewing, and snuffing goods, which consists in submitting the same to the volatile emanations of vegetable tar at a suitable temperature, substantially as described.

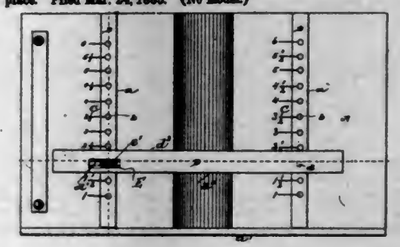
8. The process herein described of preparing the wrappers, bags, cases, and other packings for cigarettes, cigars, cheroots, and like articles, or for smoking, chewing, or snuffing goods, the same consisting in applying to any convenient portion of the inside parts of the same a suitable quantity of vegetable tar in its natural state, substantially as and for the purpose set forth.

9. The process herein described of preparing the wrappers, bags, cases, and other packings for cigarettes, cigars, cheroots, and like articles, or for smoking, chewing, or snuffing goods, the same consisting in subjecting them to a solution of tar in glycerine, potassa, or soda, substantially as described.

318,882. PROCESS OF DECORATING ZINC. GUSTAV H. DITTMAR, Lake View, assignor to the Adams & Westlake Manufacturing Company, Chicago, Ill. Filed Apr. 25, 1884. (Specimens.)

Claim.—The herein-described process for decorating surfaces of zinc and protecting the decoration, the same consisting in, first, printing or painting the ornamental design upon the clean zinc surface in printers' ink or other suitable material; second, submitting this pictured surface to a bath in a solution of antimony or antimony and copper, substantially as specified in the formula; third, washing out or removing the ink or paint by which the design was made on the surface; and, fourth, covering the entire ornamented surface when dried with a suitable varnish, substantially as and for the purposes set forth.

318,883. GAGE FOR TINNERS' SHEAR-TABLES. CHARLES H. DODGE, Augusta, Kans., assignor of one-half to E. C. Boyle & Co., same place. Filed Mar. 24, 1885. (No model.)



318,883.

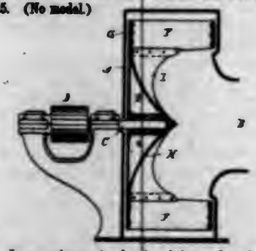


Claim.—1. The combination of the table having the shear-edge and the grooves with the slides that work in the grooves, the gage-bar adapted to be secured to the slides, and the set-screws for clamping the slides in the grooves, substantially as described.

2. The combination of the table having the shear-edge and the grooves with the slides provided with the series of spaced openings and working in the grooves, the scales on the table alongside the grooves, the gage-bar adapted to be secured to the slides, and the set-screws for clamping the slides in the grooves, substantially as described.

3. The combination of the table having the shear-edge, the grooves, and the scales alongside the grooves with the slides having the spaced openings and working in the grooves, the gage-bar having the stud and the slot, the headed stud, and the set-screws for clamping the slides in the grooves, substantially as described.

318,884. EXHAUST-FAN. WM. M. DWIGHT, Detroit, Mich. Filed Jan. 21, 1885. (No model.)



Claim.—1. In an exhaust-fan having inlet and outlet apertures and revolving fan-blades, a series of spiral wings, I, arranged in front of the air-inlet and secured to the revolving fan, for the purpose of serving as propeller-blades to form a vacuum in front of the inlet, as set forth.

2. In an exhaust-fan, the combination of the fan-blades F and the deflector H with receding spiral wings I, developing from the center or from points near and concentric to the center of the deflector, and, gradually becoming wider, form supports for the inner ends of the said fan-blades, substantially as described.

3. In an exhaust-fan, and in combination with the deflector H, the spiral wings I, developing from the center toward the outer edge of the deflector, so as to recede from the direction in which the fan-wheel moves, and, increasing in width from the center toward the fan-blades, form outwardly-curved arms, to which the fan-blades are secured, substantially as described.

4. In an exhaust-fan, the combination of the fan-case A, the disk G, having the hub *a*, the fan-blades F, secured to said disk, and the deflector H, provided with spiral wings I, also secured to said disk, substantially as and for the purposes specified.

5. In an exhaust-fan, the combination, with the case A, having an inlet and outlet, of the disk G, having hub *a*, and extending nearly to the outer edge of the case, the deflector H, secured to said disk, the fan-blades F, also secured to said disk, and the receding spiral wings I, developing from the center toward the outer edge of said deflector, and forming supports for the inner ends of the fan-blades, substantially as described.

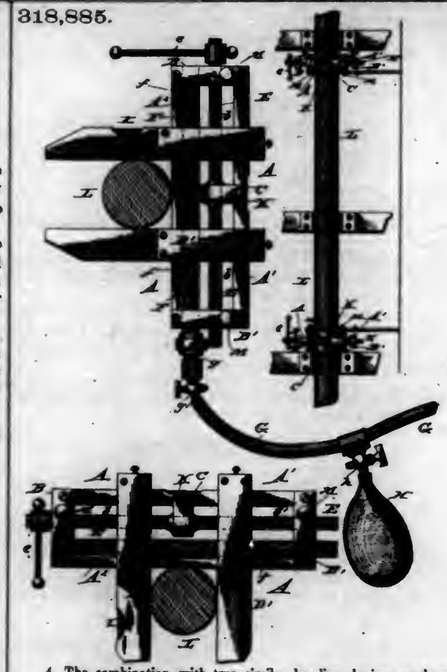
318,885. DEVICE FOR LEVELING AND ALIGNING SHAFTS. C. ESPENSCHIED, Hastings, Minn. Filed Jan. 31, 1885. (No model.)

Claim.—1. In a device to level and align shafts, the combination, with a rectangular frame having attached a centering block or piece, of two similar jaws traveling in opposite directions on said frame, with their clamping-surfaces at right angles to the frame and equally distant from the centering-block, and levels to set the said clamping-surfaces either vertical or horizontal, substantially as specified.

2. In a device to level and align shafts, the combination, with a rectangular frame provided with a centering piece or block, and a screw having bearings in the end bars of said frame, and provided with right and left hand threads, respectively, on each side of the centering-block, of two similar jaws operated by said threads and sliding on the frame in opposite directions, with their clamping-surfaces at right angles to the same and equally distant from the centering-block, and levels to set the clamping-surfaces either vertical or horizontal, substantially as specified.

3. In a device to level shafts, the combination, with the frame A, having attached the gage-tube F, marked with the gage-scale *f*, and the centering-block C, jaws D D', right-and-left screw E, and level I, of the tube G and bulb H, substantially as specified.

318,885.

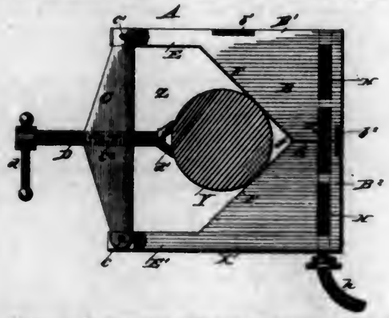


4. The combination, with two similar leveling devices, each provided with a gage-tube, F, marked with a gage-scale, *f*, of a bulb, H, provided with a cock, *h*, and tubes G, each provided with a cock, *g'*, and connecting the bulb above its cock with the lower end of a tube, F, substantially as specified.

5. In a device to align shafting, the combination, with the frame A, having attached the centering-block C and level K, of the jaws D D' and right-and-left screw E, substantially as specified.

6. The combination of two or more shaft-centering devices adapted to be placed upon a shaft at different points, and provided with graduated glass tubes arranged to receive liquid from a common source under pressure, and indicate the differences of level of the points of the shaft upon which the centering devices are sustained, substantially as specified.

318,886. DEVICE FOR LEVELING AND ALIGNING SHAFTING. C. ESPENSCHIED, Hastings, Minn. Filed Mar. 10, 1885. (No model.)



Claim.—1. In mechanism to discover the departure from level of shafting, a clamping device provided with a rectilinear edge having a level attached to bring it horizontal, a recess, Z, having a right angle, *f*, the bisecting line of which is parallel to the rectilinear edge of the clamping device, and a clamping-screw adapted to bind the shaft against the edges F F of the recess Z, with its axis in the same horizontal plane as the bisecting line of the angle *f*, substantially as specified.

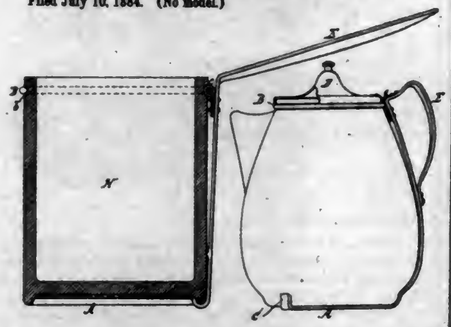
2. In mechanism to discover the departure from alignment of shafting, a clamping device provided with a rectilinear edge having a level attached to bring it horizontal, a recess, Z, having a right angle, *f*, the bisecting line of which is perpendicular to the rectilinear edge of the device, a centering-mark made on the extension of the said bisecting

line, and a clamping-screw adapted to bind the shaft against the edges F F of the recess Z, with its axis passing through the vertical plane in which the centering-mark lies, substantially as specified.

3. In mechanism to ascertain the departure from level of shafting, the combination of two or more clamping devices, A, each composed of the body-plate B, clamping-bar C, and clamping-screw D, and each provided with a recess, Z, rectilinear edge B', and level *b'*, substantially as specified.

4. In mechanism to ascertain the departure from level and alignment of shafting, the combination of two or more clamping devices, A, each composed of a body-plate, B, clamping-bar C, and clamping-screw D, and each provided with the rectilinear edges B' B^2, levels *b'* b^2, centering-mark G, and recess Z, substantially as specified.

318,887. HOLDER FOR VESSELS. JOHN P. EUSTIS, Newark, N. J. Filed July 10, 1884. (No model.)

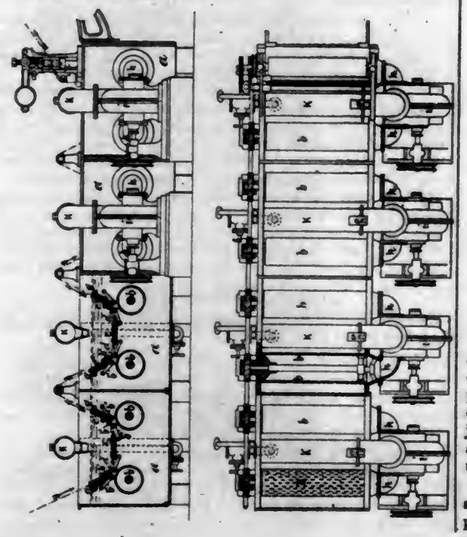


Claim.—1. A pot-holder consisting of the base A, for receiving the bottom of the pot, the handle E, connected with the base, and the ring-clamp B, connected with the handle for encircling the top part of the pot, substantially as described.

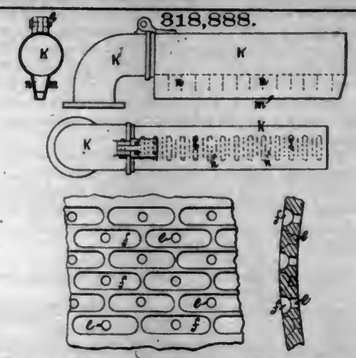
2. A pot-holder consisting of the base A, for receiving the bottom of the pot, the handle E, connected with the base, and the expansible spring-clamp connected with the handle for encircling the top part of the pot, substantially as described.

3. A pot-holder consisting of the base A, for receiving the bottom of the pot, the handle E, connected with the base, the ring-clamp connected with the handle for encircling the upper portion of the pot, and the cover D, for closing the pot, substantially as described.

318,888. APPARATUS FOR WASHING, BLEACHING, AND DYEING FABRICS. JAMES FARRER, Salford, County of Lancaster, England, and AUGUSTE LALANCE, Mulhouse, Germany. Filed Aug. 28, 1884. (No model.) Patented in England July 31, 1884, No. 10,792; in France Aug. 1, 1884, No. 163,502; in Belgium Aug. 4, 1884, No. 65,943; in Germany Aug. 6, 1884, No. 31,352; in Spain Nov. 15, 1884, No. 4,412, and in Austria Feb. 21, 1885, No. 3,272.



318,888.



Claim.—1. The combination of the vat and a hollow cylinder having perforations and recesses on the outside about said perforations, with conduits for supplying the liquid to the tank and discharging it from the interior of the cylinder, substantially as set forth.

2. The combination of the vat and hollow cylinders having perforations and recesses on the outside about said perforations, with one or more perforated plates for supporting the cloth, and supply and discharge conduits for the liquid, substantially as described.

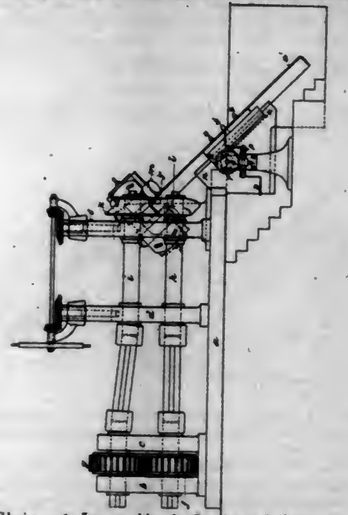
3. The combination of the vat and supply-conduit for the liquid, with a hollow cylinder having a discharge-outlet from the interior thereof, and having perforations *e*, and about each perforation on the outside a countersunk elongated groove, *f*, substantially as specified.

4. The combination of the vat, a hollow perforated cylinder and inlet and outlet conduits, with two guide-rollers, *d d*, and a third intermediate roller, *b'*, adapted to be in contact with the other two adjacent to the cylinder, substantially as described.

5. The combination of the tank, two perforated cylinders, *b b*, and guide-rollers, with an intermediate perforated plate, C, and inclined perforated plates *c'*, substantially as set forth.

6. The combination of the tank with a supply-pipe, K, having cheeks *m m* and lips *n n*, substantially as and for the purpose set forth.

318,889. FLANGING-MACHINE. SAMSON FOX, Harrogate, County of York, England. Filed Mar. 12, 1884. (No model.) Patented in England Sept. 3, 1883, No. 4,229, and in France Feb. 22, 1884, No. 160,514.



Claim.—1. In a machine for flanging end plates of steam-boilers and similar articles, the combination of a pair of overhanging rolls, *j k*, one of which is provided in its periphery with a V-groove and the other provided with a double bevel, arranged as described, so that the periphery of the latter will run in the groove of the former one, with an adjustable support, such as *n*, placed at an angle of forty-five degrees to the axes of said rolls, whereby a plate carried by said adjustable support may be flanged, in the manner and for the purpose hereinabove described.

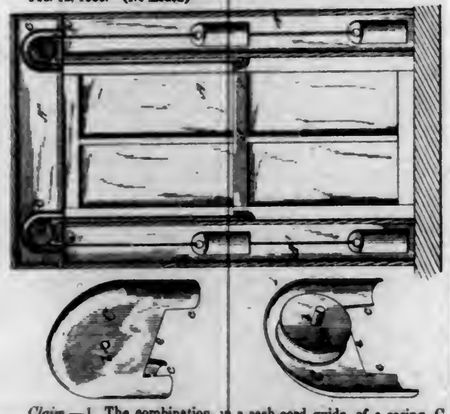
2. In a machine for flanging end plates of steam-boilers and similar articles, the combination of a pair of overhanging rolls, *j k*, the latter provided with a V-groove in its periphery and the former provided with

a double bevel and a projection, *j'''*, with an adjustable support, such as *z*, placed at an angle of forty-five degrees to the axes of said rolls, whereby a plate carried on said support to the rolls is flanged and the edge of the flange is finished at one operation, substantially as described.

3. In a machine for flanging end plates of steam-boilers and similar articles, the combination of flanging-rolls *j k* and finishing-rolls *l m*, for finishing the edge of the newly-formed flange, substantially as described and illustrated.

4. The improved machine for flanging end plates of steam-boilers and similar articles, comprising flanging-rolls *j k*, means for driving the same, finishing-rolls *l m*, a slide-bed, *n*, with slide *o*, means for adjusting the same, and a table, *v*, to receive and support a plate to be flanged, the whole constructed, arranged, and operating as hereinabove described and illustrated.

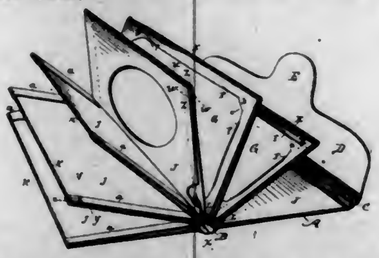
318,890. SASH-PULLEY. JAMES D. FYKE, Los Angeles, Cal. Filed Feb. 12, 1885. (No model.)



Claim.—1. The combination, in a sash-cord guide, of a casing, C, provided with projecting portions *c* and straight edges *e*, and a pulley located in said casing and supported upon a rivet, *b*, journaled in the sides of the casing, substantially as set forth.

2. In combination with the box A'', the bottom board of which is provided with circular perforations *a a*, located as shown, casings C, adapted to inclose a pulley which is journaled upon a central rivet, projecting portions *c c*, integral with the casing, adjacent to the straight edges *e e*, the parts being organized substantially as shown, and for the purpose set forth.

318,891. ALBUM. LESTER GOODWIN, Newton, Mass. Filed Feb. 1, 1882. (Model.)



Claim.—1. In an album, the combination, with a cover having corrugated front and back edges, of means, substantially as described, for holding cards therein.

2. The combination, with a cover having corrugated front and back edges and a tongued flap, of a strip folded to and fro upon itself and secured at its two ends within the cover, and means, substantially as described, for securing cards, &c., for the purpose specified.

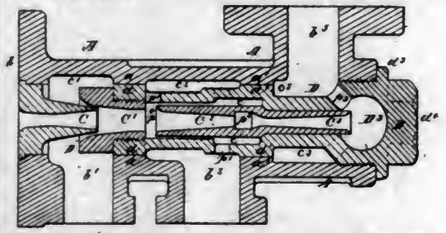
3. The combination, with the cover of an album, of a piece of sheet material secured thereto and provided with slits to hold cards, &c., a part of each of said slits being adapted to cross a portion of the card to be held therein, and another part of each of the slits to lie parallel to one edge of said card, substantially as shown and described.

4. A piece of sheet material having a slit in it to receive a portion of a card or other sheet material, a part of said slit being shaped to cross a portion of the piece to be held thereby, and another part or parts of said slit being parallel with one or more edges of the said piece, as and for the purpose specified.

5. The combination, with a book-formed album-cover, of a strip of sheet material having narrow folds along its side edges and folded to and fro transversely to the said folded edges forming book-leaves, the ends of the strip being secured to the cover, substantially as and for the purpose specified.

6. The combination, with a book-formed album-cover and a strip of sheet material folded to and fro upon itself, forming book-leaves, and secured at the two ends of the said strip in the said cover, of a strip of sheet material, N, secured to the back edges of the said leaves and to the cover and corrugated between the lines of attachment, substantially as shown and described.

318,892. INJECTOR. JAMES GRESHAM, Manchester, County of Lancaster, England. Filed Oct. 6, 1884. (Model.) Patented in England May 2, 1884, No. 7,116, and July 23, 1884, No. 10,475, and in France June 14, 1884, No. 162,753.



Claim.—1. In an injector, the combination, with a lifting-cone, C', of a combining and discharging cone controlled by the force of the jet of steam, or by that of the combined jet of steam and water, to automatically vary the area of the space intervening between said lifting and combining cones or close said passage, as described, for the purpose specified.

2. In an injector, the combination, with a lifting-cone, C', of combining and discharging cones having overflow-ports interposed between their axial passages, said cones being controlled by the force of the jet of steam, or by that of the combined jet of steam and water, to automatically vary the area of the space intervening between the lifting and combining cones, as described, for the purpose specified.

3. In an injector, the combination, with a steam-cone and a lifting-cone, C', of combining and discharging cones controlled by the force of the jet of steam, or that of the combined jet of steam and water, to automatically vary the area of the space intervening between the combining-cone and the lifting and steam cones, as described, for the purpose specified.

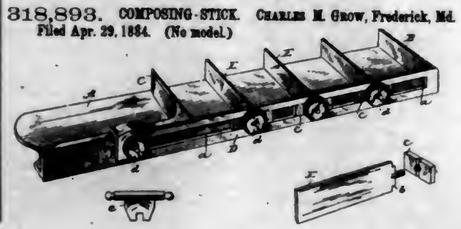
4. In an injector, the combination, with a steam-cone and a lifting-cone, C', of combining and discharging cones having overflow-ports interposed between their axial passages, said cones being controlled by the force of the jet of steam, or by that of the combined jet of steam and water, to automatically vary the area of the space intervening between the combining-cone and the lifting and steam cones, or close the passage between the combining and lifting cones, as described, for the purpose specified.

5. In an injector, the combination, with the injector-casing, of an internal casing provided with bearings for a lifting-cone and a combining and a discharging cone, said internal casing being adapted for endwise removal from the injector-casing, for the purposes stated.

6. In an injector, the combination, with the injector-casing having steam and water overflow and delivery branches, of an internal casing constituting the bearings for the lifting, combining, and discharging cones, and adapted for removal from the casing with said cones without uncoupling the injector from either of its connected branches, as described.

7. The combination, substantially as herein described, with the casing A, its steam and water overflow and delivery passages, and the steam-cone C, of the casing D, screwed at one end into casing A, the lifting-cone C', secured to one end of casing D, and the combining and discharging cones C^2 C^3, having overflow-ports p^2 between their axial passages, said cones C^2 C^3 being arranged to slide longitudinally within the casing D, said parts co-operating to the ends stated.

318,893. COMPOSING-STICK. CHARLES M. GROW, Frederick, Md. Filed Apr. 29, 1884. (No model.)



Claim.—The composing-stick consisting of plate A, fixed side wall, the slotted rear wall, the plates *c*, adapted to said slot, the gages adapted to said plates, and the tightening devices therefor, all operating in connection with each other as described.

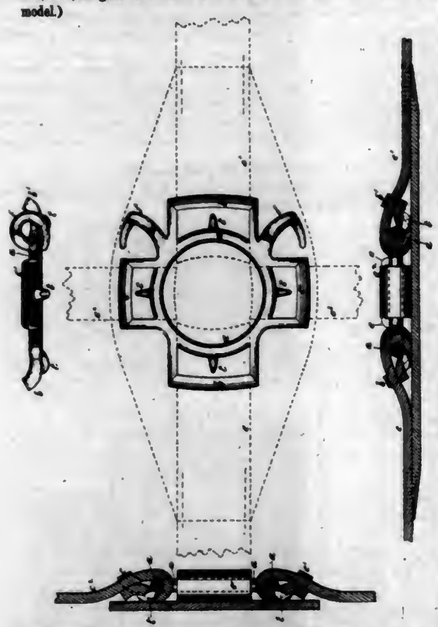
318,894. STRAIGHT-WAY STOP-VALVE. HENRY HALL, Lansingburg, N. Y., assignor to the Rensselaer Manufacturing Company, same place. Filed Feb. 9, 1885. (No model.)



Claim.—1. In a straight-way stop-valve, the combination of the nut G, traveling without rotation on the stem E, and provided with the arms *g*, having the flanges *g'* and lugs H, with the gates I, provided with the flanges *i*, shoulders *i*, and beveled edges J, the stop B', and valve-ports B, substantially as described.

2. In a straight-way stop-valve, the combination of the valve-casing A, provided with the stop-lug B', situated centrally on the interior surface of its base, and the recesses C C, at right angles to the axis of the ports B B, with the valve-stem E, rotating in the sleeve D, the nut G, traveling on the valve-stem, and provided with the arms *g*, having upon them the flanges *g' g'* and lugs H H, and the gates I I, provided with the flanges *i i*, having the shoulders *i' i'* and beveled edges J, the parts being so arranged that when the flanges *i* impinge on the stop-lug B' the lugs H will press outward the edges J and bind the gates on the ports, and before the flanges *g'* lift the shoulders *i'* the lugs H will have released the beveled edges and the gates from the ports, substantially as specified.

318,895. HARNESS ATTACHMENT. ROBERT G. HANFORD, Jr., Newark, N. J., assignor to Crane & Co., same place. Filed May 12, 1884. (No model.)

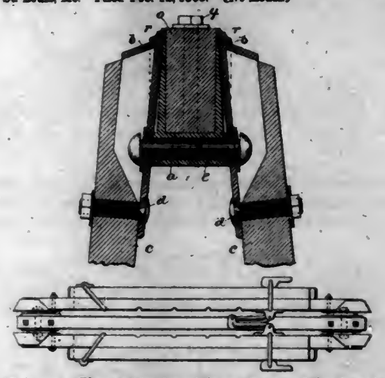


Claim.—1. A device consisting of a frame-like portion, such as *a*, a number of loops, *b b' c c'*, extending therefrom, cross-bars on said loops elevated relatively to the frame-like portion, and hook-shaped tongues *f*, extending downwardly and obliquely from the frame-like portion opposite the loops and toward the cross-bars of the loops, said device being in combination with straps severally passed under an outer portion of a loop, up through the loop, and over and through the frame-like portion, and having its end after passing through the frame-like portion turned under and engaged with a hook-shaped tongue opposite the loop, substantially as specified.

2. The device consisting of the loops *b b' c c'*, extending from a common bar, hook-shaped tongues *f*, extending downward and obliquely from said common bar, and the hooks *f*, also extending from said common bar and made integral therewith, substantially as specified.

3. The device consisting of loops extending from a common bar, tongues extending from said bar opposite the loops, and hooks made integral with and extending from the bar between adjacent loops downwardly and thence laterally toward certain of the loops, and serving to support traces, substantially as specified.

318,896. FOLDING AND EXTENSION TRESTLE. GUSTAV HAMMEL, St. Louis, Mo. Filed Feb. 12, 1885. (No model.)

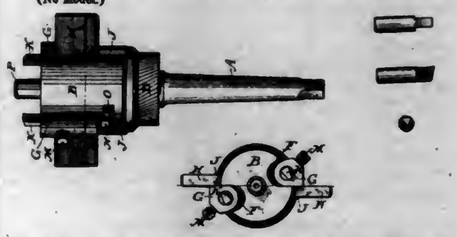


Claim.—1. The combination of the casting *a* and the shoes *b b* with the bolts *d d* and axle *c*, whereby said shoes are capable of a lateral movement to and from said shoes and also a swinging movement to permit them to be folded compactly.

2. In combination with the notched legs *c* and plain legs *g*, the clamps *h* and *i* and cam-lever *j*, substantially as described and set forth.

3. The combination of the casting *a*, shoes *b*, bolts *d*, axle *c*, beam *o*, legs *c*, and brace *f*, substantially as shown and described.

318,897. CUTTER FOR FLUE-HOLES IN TUBE-SHEETS OF BOILERS. WILLIAM F. HARRISON, Wilmington, Del. Filed Mar. 12, 1885. (No model.)



Claim.—1. In a tool for cutting tube-holes in flue-sheets, the combination of two independently-adjustable and laterally-sliding tool-holders provided with cylindrical sockets for the reception of cutting-tools with a clamping bar and nut arranged to simultaneously clamp both sliding tool-holders, substantially as set forth.

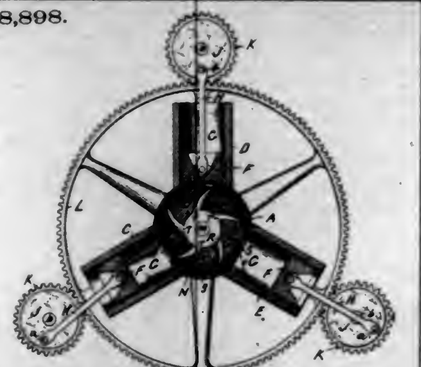
2. In a tool for cutting flue-holes in tube-sheets, the combination of two independently laterally-sliding tool-holders, each provided with a screw for longitudinal adjustment of the cutters and a screw for holding the said cutters in proper angular adjustment with a clamping device arranged, as described, to hold said tool-holders in adjustment and a central steadying pin or guide provided with cutting-teeth for the purpose of insuring a perfect fitting of the guide and hole in the plate, substantially as set forth and described.

3. In an implement for boring tube-sheets, the combination of cutting-tools K, having cylindrical shafts fitted into cylindrical sockets and adjustable both lengthwise and upon their axes therein and having endwise-adjusting screws and clamping devices arranged, as described, for holding said tools in adjustment in the sockets with a clamping device for clamping said sockets in radial adjustment to a central boring and steadying bit, P, substantially as shown and described.

318,898. COMPOUND ENGINE. SHERIDAN L. HATFIELD, Reading, Mass. Filed June 30, 1884. (No model.)

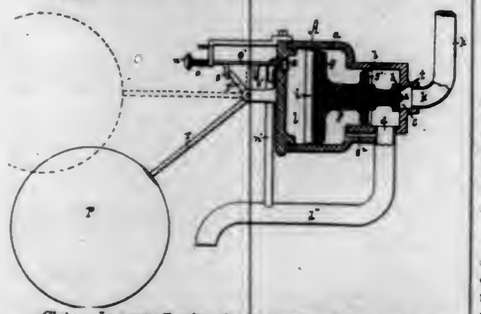
Claim.—The combination, with a steam-chest arranged to revolve in a suitable steam cylinder or casing, and provided with steam radial and exhaust passages, and having communication with a steam-supply, of steam piston cylinders having communication with said steam-cylin-

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der, the piston-heads of which piston-cylinders are connected to gear-wheels arranged to engage with a gear-wheel attached to the shaft of said steam-chest for operation, all substantially as and for the purpose specified.

318,899. VALVE FOR WATER-CLOSETS, &c. GEORGE HAYDN, Baltimore, Md., assignor of two-thirds to Benjamin B. Friedenwald and Joseph Friedenwald, both of same place. Filed Oct. 11, 1884. (No model.)

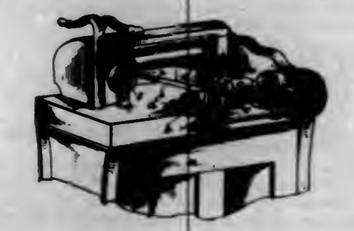


Claim.—In a cut-off valve, the combination of the casing A, provided with different-diameter chambers, the piston-heads *g* and *g'*, the central port, *i*, the ingress-port *c*, the egress-port *d*, and the oval screen 2, arranged over the port *i* and in a position to the ports *c* and *d* that any sediment which may accumulate thereon, and which is thereby prevented from entering the port *i*, is removed by the action of the water as it passes from the port *c* to the port *d*, thus cleansing the same and preventing it from becoming clogged up, as herein specified.

318,900. RAILWAY-HEAD, DRAWING-MACHINE, &c. WILLIAM HECKLEVE, Nashville, Tenn. Filed Apr. 2, 1884. (No model.)

Brief.—A lever is connected at one end with the top roller and at the other with the gear of an indicator which has both a live and a dead pointer. The live-pointer passes through an elongated loop connected with the dead-pointer and moves the latter, which is thus affected only by material variation in the thickness of the sliver.

Claim.—1. The combination, with the calender-rollers of a railway-head or drawing-machine, of the pivoted lever connected to the upper of said rollers, an indicator having a dial-face and a pivoted pointer, gears for connecting the free end of the lever to the pivoted pointer, and a dead-pointer in the dial-face, having a loop through which the pivoted pointer passes, for the purpose set forth, substantially as described.



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2. The combination of the dial-plate, the pinion *h*, the pointer *i*, fast therewith, the pivoted lever, the roller journaled in one end thereof, a gear connecting the free end of the pivoted lever with the pinion *h*, and the dead-pointer having a loop through which the pivoted pointer extends, for the purpose set forth, substantially as described.

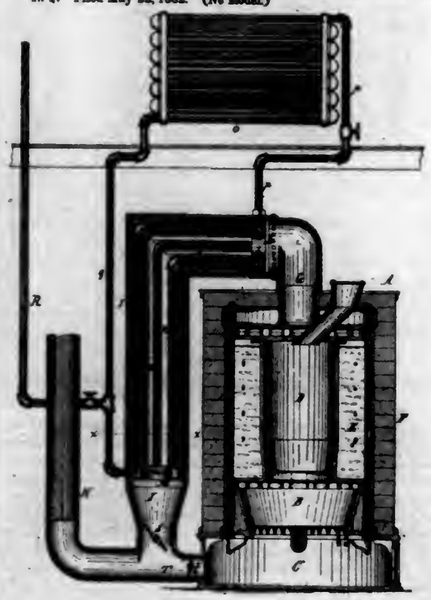
318,901. SYSTEM FOR CONVEYING GAS UNDER PRESSURE. W. A. HOEVELER, Pittsburg, Pa. Filed Apr. 8, 1885. (No model.)



Claim.—1. In a system for conveying gas, the combination, with the high-pressure main or mains, of a subterranean conduit adapted to receive the same and afford circulation around and access thereto, of low-pressure branches connected through pressure-reducing devices to said high-pressure main or mains, and surrounded by larger casings or pipes communicating at one end with said conduit, and through the other adapted to convey or discharge the leakage-gas into the atmosphere, substantially as described.

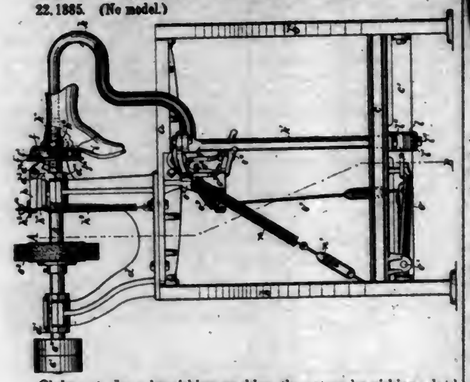
2. In a system for conveying gas under high pressure, the combination, with two or more high-pressure mains, of a subterranean conduit adapted to receive the same and maintain them separately and independently, low-pressure lateral branches leading from said mains, and pressure-reducing devices located wholly within said conduit, substantially as described.

318,902. STEAM-GENERATOR. ABEL P. HOLCOMB, Silver Creek, N. Y. Filed May 22, 1882. (No model.)



Claim.—The combination, with a steam-generator and the exit-passage through which the hot gases escape from the generator, of a water-heater arranged in said passage independent from the steam-generator and composed of annular heads L and M, provided, respectively, with openings *l* and *m*, and pipes N, connecting said heads, substantially as set forth.

318,903. HEEL-BURNISHING MACHINE. JAS. H. HOWARD, Stoneham, Mass., assignor to Samuel W. Chamberlin, same place. Filed Jan. 22, 1885. (No model.)



Claim.—1. In a burnishing-machine, the rotary burnishing-wheel *f*, in combination with the rocking lever A, adapted to swing on fulcrum d^4, and having friction-block *h'* in its outer end, bearing against the burnishing-wheel, and provided with a yielding spring, A^3, or its equivalent, and means for regulating it, as and for the purpose set forth.

2. The combination of the rotary burnishing-wheel and a yielding adjustable friction device acting directly on the wheel, to heat the same by friction during its rotation, with a swiveled and rocking boot or shoe support, and springs for automatically forcing the support toward the friction-heated wheel, substantially as described.

3. The combination of the rotary burnishing-wheel and a yielding and adjustable friction device acting directly on the wheel, to heat the same by friction during its rotation, with a swiveled and rocking boot or shoe support, springs for forcing the boot or shoe support toward the friction-heated wheel, and treadle mechanism connected with the boot or shoe support for moving it away from said wheel, substantially as described.

4. The combination, with a chambered burnishing-wheel, of a yielding adjustable friction device arranged in the chamber of the wheel and acting directly upon the interior of the latter for heating the same by friction, substantially as described.

5. The combination, with a burnishing-wheel, of a jack-post having its lower end loosely supported, and a boot or shoe support, *k''*, swiveled on a spindle, k^3, connected with the jack-post so as to turn on the spindle when the boot or shoe is rotated, substantially as described.

6. The combination, with a burnishing-wheel, of a jack-post, *k'*, loosely supported at its lower end so as to rock to and fro, a jack, *k*, connected with the post, a boot or shoe support, *k''*, swiveled to the jack, to turn axially thereon when the boot or shoe is rotated, and a spring connected with the post for forcing the parts toward the wheel, substantially as described.

7. The rotary burnishing-wheel *f* and its yielding friction-lever A A', in combination with the spring A^3, regulating-nut A^4, and intermediate relieving-piece, A^5, for the purpose of regulating the pressure or wheel *f*, as herein set forth.

318,904. APPARATUS FOR CLEANING THE SIDES AND BOTTOMS OF SHIPS. DAVID HUNTER, Troon, County of Ayr, assignor of eighteen-twentieths to Alexander Donaldson Spier and Archibald Scott Brown, both of Glasgow, Scotland. Filed July 1, 1884. (No model.) Patented in England Sept. 11, 1883, No. 4,340, extended to the Island of St. Helena.

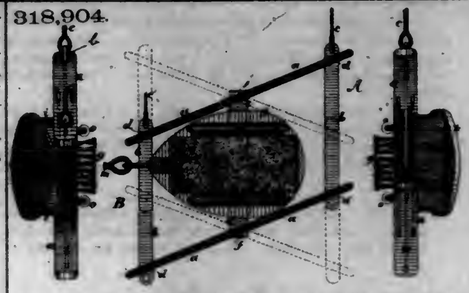
Claim.—1. In a device, substantially as herein described, for cleaning the sides and bottoms of vessels afloat, the combination, with a frame, of one or more rollers having solid continuous parallel surfaces, which are adapted to bear from end to end flush against the surface to be cleansed for breaking the barnacles, as set forth.

2. In an apparatus for cleaning the sides and bottoms of vessels





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afloat, the combination, with a suitable frame and a brush, of one or more rollers having continuous parallel surfaces adapted to bear from end to end flush against the surface to be cleansed, for breaking the barnacles so that they may be easily removed by the brush, as described.

3. In a device for cleansing the sides and bottoms of ships afloat, the combination, with a frame, a brush, and means for moving it over the surface to be cleansed, of a roller having continuous parallel surfaces journaled in said frame, and carried thereby in advance of the brush, as and for the purpose set forth.

4. In apparatus for cleaning the sides and bottoms of ships afloat, a brush or cleaner having a fixed inclined plane on the back of it, and strips of leather, canvas, or equivalent material extending from it to the body of the cleaner, substantially as described.

5. In apparatus for cleaning the sides and bottoms of ships afloat, a brush or cleaner having an adjustable inclined plane on the back of it, and strips of leather, canvas, or equivalent material extending from it to the body of the cleaner, substantially as described.

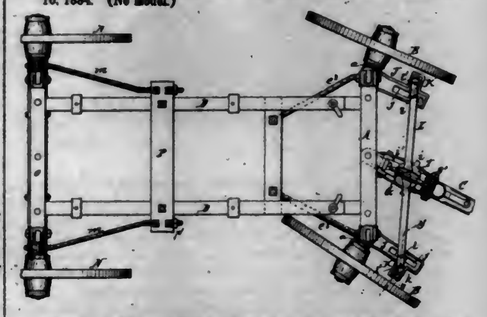
318,905. FRICTION-CLUTCH. CHARLES M. HUNTINGTON, East Randolph, N. Y. Filed Mar. 31, 1885. (No model.)



Claim.—1. The combination, in a friction-clutch, of a friction-wheel, a slotted ring provided with wedge-shaped ears at opposite sides of the slot, and an apertured arm adapted to engage the wedge-shaped ears of the slotted ring, substantially as herein shown and described.

2. The combination, in a friction-clutch, of the wheel A, the slotted ring C, provided with wedge-shaped ears *b*, the apertured arm E, embracing the said wedge-shaped ears, and the lever D, pivoted to the arm E and turning on the shaft B, as herein described.

318,906. WAGON RUNNING-GEAR. LORENZO D. HURD, Wellsville, assignor of one-third to Joseph C. Sampson, Elmira, N. Y. Filed Dec. 10, 1884. (No model.)



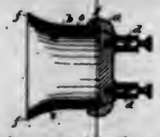
Claim.—1. The combination, with the tongue and front axles, pivoted separately to a supporting-frame and provided with actuating-arms, of a cross-piece moving laterally with the tongue in turning the same and connected with said actuating-arms by a shifting connection, whereby the operative lengths of the arms is made unequal in turning the tongue, thereby causing one axle to be turned more than the other by the same movement of the tongue, substantially as set forth.

2. The combination, with the axle-frame A and pivoted axles *a*, provided with arms J, having slots *j* and *k*, of the tongue C, cross-bars L L', and bolts *l l'*, connecting the cross-bars with the slotted arms J, substantially as set forth.

3. The combination, with the axle-frame A and pivoted axles *a*, provided with slotted arms J, of the tongue C, frame I, surrounding the tongue, frame G, supporting the frame I, and cross-bars L L', pivoted to the frame I and connecting with the slotted arms J, substantially as set forth.

4. The combination, with the rear axle, M, and reach D, of the cross-piece P, secured to the reach, bracket *p*, secured to said cross-piece, and braces *n*, secured with their rear ends to the axle and adjustably attached with their front ends to the brackets *p*, substantially as set forth.

318,907. **TELEPHONE.** JOSÉ D. HUBBARDS, Valparaiso, Chili, assignor to the American Bell Telephone Company, Boston, Mass. Filed Oct. 13, 1884. (No model.) Patented in England Mar. 10, 1883, No. 1,177.



Claim.—1. In a telephone-transmitter, the combination of a vibratory tube or chamber forming the mouth-piece and a variable resistance in contact therewith, said tube and resistance being included in the circuit, substantially as described.

2. In a transmitting-telephone, a mouth-piece consisting of two concentric cylinders, tubes, or chambers, forming, respectively, the two terminals of an electrical circuit, combined with an interposed variable resistance.

3. In a telephone, a mouth-piece or chamber consisting of a flexible vibratory surface, responsive to sound vibrations, and forming part of the circuit.

4. In a telephone, a vibratory mouth-piece surrounded with a chamber lined with a conducting material, said mouth-piece and material being included in the circuit, substantially as described.

5. In a telephone, two concentric surfaces, one or both of which are capable of vibration, forming, respectively, the opposite electrodes of an electrical circuit, and an interposed variable-resistance medium consisting of carbon in a loose finely-divided or granulated condition.

318,908. **PHOTOGRAPH-ALBUM.** ALVIN P. JOHNSON, Boston, Mass. Filed June 13, 1884. (No model.)

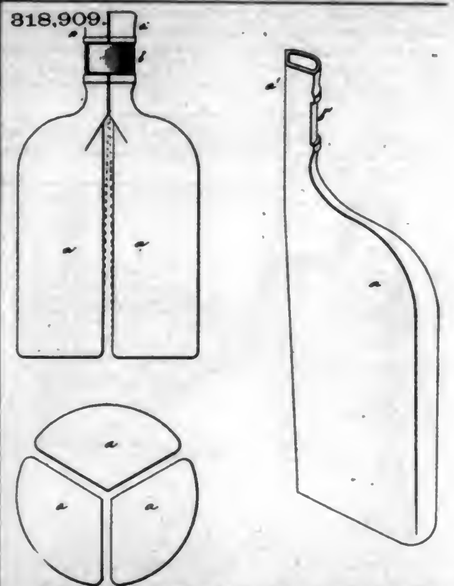


Claim.—1. A photographic-album leaf composed of a picture-supporting leaf provided with two narrow bands of tough paper or cloth secured thereto by their ends only, and adapted to impinge upon two opposite ends of the photograph to hold the same in position, and a duplex matting in the form of an envelope to receive said picture-supporting leaf, provided with suitable openings through which to view the pictures, and adapted to be applied thereto or removed therefrom.

2. The combination of the picture-supporting leaf B, provided with the bands *b b*, and having its upper and lower edges made slightly converging, and the mats D D, secured to the filling-pieces *d d d'*, arranged to form a chamber to receive the leaf B and fit its taper edges, substantially as described.

3. The combination of the leaf B, hinged to the strip A, and having its upper and lower edges made slightly converging, and the mats D D, secured to the filling-pieces *d d d'*, arranged to form a chamber to receive the leaf B and fit its tapered edges, substantially as described.

318,909. **HAND-GRENADE FIRE-EXTINGUISHER.** ARTHUR JONES, Chicago, Ill. Filed Sept. 15, 1884. (No model.)



Claim.—1. The herein-described hand-grenade, consisting of a glass bottle or receptacle having one or more flat sides and formed with a neck or shank projecting outward from the flat side at a slight angle with the main body and of the same form in cross-section, substantially as and for the purpose set forth.

2. In a hand-grenade, the bottle *a*, having an extension or neck, *a'*, formed with a circumferential groove, in combination with a securing-band, *b*, secured in said groove, the main bodies of the receptacles having one or more flat sides and formed with their necks or shanks projecting outward from the flat side at a slight angle with the main body, whereby the necks are held together compactly, while the main bodies are slightly separated to facilitate breaking, substantially as shown and described.

318,910. **ROOFING-FELT AND ITS MANUFACTURE.** JOSIAH JOWITT, Stanley, N.J. Filed Apr. 2, 1883. (No model.) Patented in England July 25, 1882, No. 3,539, and in France Jan. 24, 1883, No. 153,302



Claim.—1. A roofing-felt or similar fabric, composed of a roll of two or more extended stripe or layers of tar-saturated paper, hot-pressed and dried, cemented together by a coating or coatings of pitch or other similar adhesive substance intervening between the layers of paper and not extending to the exterior surface of the fabric, whereby the latter is externally dry, non-adhesive, and cleanly, substantially as specified.

2. The improved process of making roofing-felt or other similar fabric, which consists in applying a coating of pitch or other suitable cementing substance to a web or layer of paper or other fabric, partially drying said web by passing it over heated surfaces, and finally rolling the same in contact with one or more webs or layers of fabric which have previously been saturated with water-proof material and dried, substantially as set forth.

3. The improved process of making roofing-felt or other similar fabric, which consists in applying a coating of pitch or other suitable cementing substance to a web or layer of paper or other fabric, passing said web between heated pressure-rolls, partially drying said web, and finally rolling it, while its coating of pitch is still adhesive, between two webs or layers of suitable fabric which have been previously saturated with waterproofing material and dried, substantially as set forth.

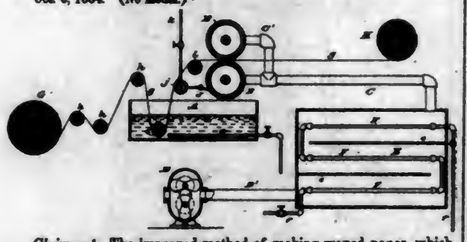
4. The improved process of making roofing-felt or other similar fabric, which consists in applying to a web of paper a coating of pitch, partially drying the same by passing said web over heated surfaces, and finally rolling said web in contact with one or more webs or layers of fabric which has been previously saturated with tar and dried, and which

is heated before coming in contact with said coated layer, whereby the thorough adherence of the layers is insured, substantially as set forth.

5. The improved process of making roofing-felt or other similar fabric, which consists in first coating a web or layer of paper with pitch; second, passing the said web so coated over a heated cylinder with its coated surface against said cylinder, and causing the cylinder to travel at a surface-speed different from said web, whereby the coating thereon is spread more uniformly thereover; and, finally, uniting said web to one or more other webs, substantially as set forth:

6. The improved process of making roofing-felt or other similar fabric, which consists in passing a web of paper through a bath of hot pitch, squeezing the same between rollers, passing it over a heated cylinder on one side, which rotates at a surface-speed different from the web and over a heated stationary roller or tube on the other side, whereby the coating on both sides thereof is spread more uniformly over it, and finally rolling it between two webs of uncoated material, substantially as set forth.

318,911. **WAXING PAPER.** JOSIAH JOWITT, Stanley, N. J. Filed Oct. 6, 1884. (No model.)

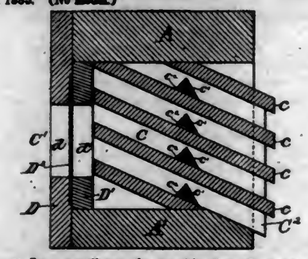


Claim.—1. The improved method of making waxed paper, which consists in passing a web of paper in contact with melted wax, and thence in contact with smooth cold surfaces, whereby the wax is simultaneously hardened and burnished, substantially as set forth.

2. The improved method of making waxed paper, which consists in passing a web of paper through a bath of melted wax, then over a heated surface, and then between cold pressure-rolls, substantially as set forth.

3. The improved apparatus for waxing paper, which consists of the combination of a tank, A, for containing the melted wax, hollow pressure-rolls B B, and suitable means, substantially as described, for cooling said rolls by passing a cold fluid therethrough, substantially as set forth.

318,912. **VENTILATOR.** FREDERICK KELLER, Milwaukee, Wis. Filed Jan. 16, 1885. (No model.)



Claim.—1. In a ventilator, the combination of an open frame or casing with inclined flat boards or slats c c extending entirely across the opening between the sides of the casing, the transverse notched strips $c' c'$, and register C', substantially as set forth.

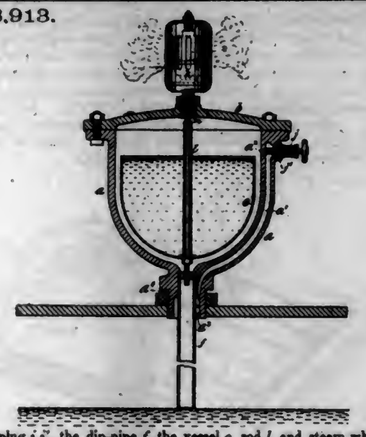
2. In a ventilator, the combination, with the frame or casing, of the inclined slats c c, provided with the transverse strips $c' c'$ on their upper faces, the said strips having notches or holes $c^3 c^3$, substantially as set forth.

318,913. **LOW-WATER ALARM.** JOHN W. KENYON, New York, N. Y., assignor to George H. Clarke, Montclair, N. J. Filed Mar. 28, 1885. (No model.)

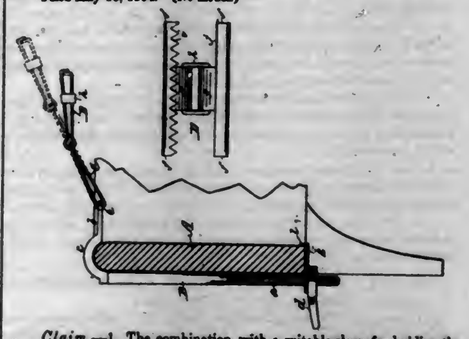
Claim.—1. In a low-water alarm, a water-chamber secured on the top of the boiler, provided with a dip-pipe extending down to the water, and a channel or passage-way formed in its side or wall, and connecting the steam-space of the boiler with the upper part of the water-chamber, in combination with a stop-cock or screw-plug fitted in said chamber, so as to close said passage-way, substantially as and for the purpose set forth.

2. In a low-water alarm, in combination, the water-chamber *a*, having the channel or passage-way *a'*, formed in its side or wall, the screw-plug *j j'*, the dip-pipe *f*, the vessel *o*, rod *l*, and steam-whistle *k*, substantially as set forth.

318,913.



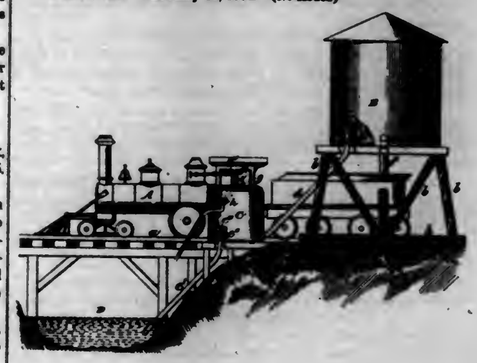
318,914. **BED-CLOTHES CLAMP.** BENJAMIN KIAH, Houston, Tex. Filed May 15, 1884. (No model.)



Claim.—1. The combination, with a suitable clasp for holding the bed-clothes and its link C, of the means for adjustably securing it to the bed-rail, consisting of a rod, B, having its lower end screw-threaded and provided with a nut, *d*, and washer *k*, and having on its upper end a hook-shaped projection that is adapted to pass over and around the upper edge of the bed-rail, and is provided with an eye at *c* for connection with the clamp, as shown and described.

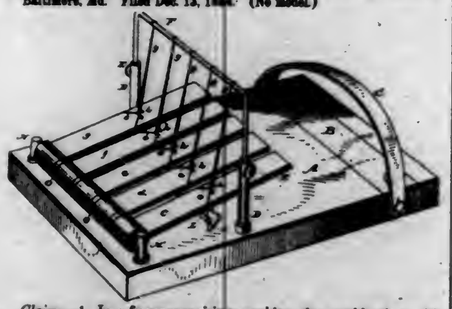
2. The combination, with a suitable clasp for holding the bed-clothes, and an elastic connection, C, of the rod B, screw-threaded at its lower end, and provided with a nut, *d*, and washer *k*, and having at its upper end a hook-shaped projection, *c*, adapted to pass over and around the upper edge of the bed-rail, and formed with an eye at *c* for the connection with the clasp, as described.

318,915. **WATER-ELEVATOR.** CHARLES M. KIMBALL, Toledo, Ohio, assignor of two-thirds to E. T. Keyes, same place, and Patrick Dowling, Holland, Ohio. Filed May 19, 1884. (No model.)



Claim.—In an apparatus for elevating and storing water for delivery to the tanks of locomotive-tenders, the vacuum-chamber C, having the pipe c', valve c''', and steam-pipe g, combined with the elevated storage-tank E, having the delivery-pipe e, pipe d, and valve d'', the whole arranged with relation to a railroad-track and a locomotive-boiler, substantially as set forth.

318,916. FINGER-EXERCISING MACHINE. GUSTAV A. LIEBIG, Jr., Baltimore, Md. Filed Dec. 13, 1884. (No model.)



Claim.—1. In a finger-exercising machine, the combination, with the base-board, of the pivoted key-levers, a supporting top bar, and resilient connections between said levers and bar, substantially as shown and described.

2. In a finger-exercising machine, the combination, with the base-board, of the pivoted key-levers, a supporting top bar, and resilient connections between said levers and bar and between said levers and base-board, substantially as shown and described.

3. In a finger-exercising machine, the combination, with the base-board, pivoted key-levers, top bar, and resilient connections, of the sleeve-standards, within which the said top bar is adjustable, substantially as shown and described.

4. In a finger-exercising machine, the combination, with the base-board and pivoted key-levers, of the side standards, N, and the removable top bar, and locking-piece F, substantially as shown and described.

5. In a finger-exercising machine, the combination, with the depressible key-levers, of the hand-strap C, substantially as shown and described.

318,917. ART OF MOLDING POTTERY. GEORGE LEBOWSKY, Cincinnati, Ohio. Filed Aug. 29, 1884. (No specimens.)

Claim.—1. The above-described process of molding pottery, consisting in casting from the original mold an intermediate or last pattern of readily-removable material, reducing the seams upon said intermediate pattern, casting a working mold thereon, and molding therefrom.

2. An intermediate or last pattern composed of an integral shell of cohesive frangible material, substantially as and for the purposes described.

3. A waste or last pattern composed of a thin integral shell of sulphur, substantially as and for the purpose specified.

318,918. BOX-NAILING MACHINE. GEORGE LEES, Holloway, and ALFRED BRIDEMAN, Stoke-Newington, County of Middlesex, England. Filed Oct. 14, 1884. (No model.)

Claim.—1. In a nailing-machine, a horizontal cylinder having separate nail-sockets for each nail, in combination with nail-feeding tubes.

2. A horizontal cylinder having nail holes or sockets, and sliding perforated bars for opening or closing the holes or sockets, as set forth.

3. The combination, with the horizontal cylinder having nail holes or sockets and perforated sliding bars, of the fixed cam to close the nail holes or sockets and a lever and sliding cam to open the nail holes or sockets, as set forth.

4. The combination of the horizontal cylinders d, having nail holes or sockets d' and sliding perforated bars d^2, a fixed cam, e, to act upon the bars at one end, a lever, g', to act upon the bars at the other end, a cam to operate the lever, and feeding funnels or tubes, as set forth.

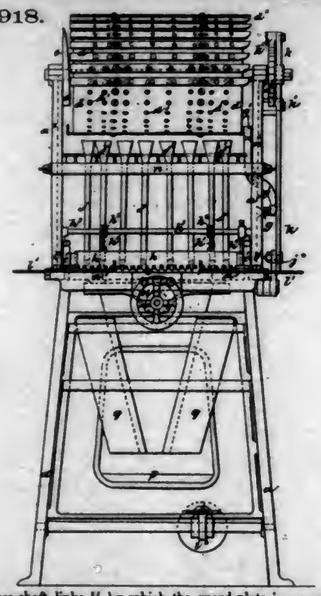
5. The combination of the bed or table, a grooved nail-plate, and screws working through the bed or table and bearing upon the under side of the nail-plate, for adjusting the latter as to height and inclination.

6. The combination, with the stationary feeding-tubes, guides, and grooved plate, of the guard-plate having toothed edge fitting in the grooved plate and adapted to be elevated, as set forth.

7. The combination of guard-plate h, cross-shaft h^3, levers h^2, fixed



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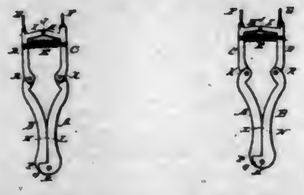
to the cross-shaft, links k', by which the guard-plate is suspended on the levers, and devices, substantially as described, by which the shaft is connected to the pusher-bar, as set forth.

8. The combination of the nail-cylinder, ratchet-wheel fixed to the axis thereof, levers j', shaft j^3, lever k, axis k', and pawl k^2, secured to the lever k to adjust the cylinder, as set forth.

9. The combination of the cylinder having sockets and bars to slide over the sockets, the levers j'' and k, the shaft j and axis k', for said levers, the sliding cam-bar g, connected to the lever k, and the lever g', between the cam sliding bars, as set forth.

10. The combination of the table having inclined guide-slots a^3, the nail-plate c, having the angularly or radially arranged grooves or guides, the bars b', carrying angularly or radially arranged pushers or drivers b, and having projections working in the guide-slots, the bar b^2, devices by which the bar b^2 is caused to advance the pusher or driver bars, and devices for retracting the latter, substantially as set forth.

318,919. CLASP FOR SUPPORTING GARMENTS. GEORGE W. LUCE, Albany, N. Y. Filed Feb. 27, 1885. (No model.)



Claim.—1. A clasp for stocking-supporters and the like having pivoted clamping-jaws closing toward each other edgewise, pivoted arms attached to the outer ends of said jaws and having branch arms pivoted together, and a spring for forcing the jaws toward each other, substantially as described.

2. A clasp having pivoted clamping-jaws closing toward each other edgewise, pivoted arms attached to the outer ends of said jaws and terminating in pressing projections, branch arms pivoted together, and a spring for forcing the jaws toward each other, substantially as shown and described.

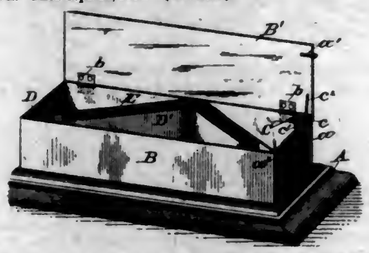
318,920. COMBINATION-TOOL. ALBERT E. LITTLE, Chicago, Ill., assignor of two-thirds to John Dargan and G. Ellis Taggart, same place. Filed Mar. 24, 1885. (No model.)

Claim.—A combination-tool consisting of the hatchet head and handle A A', cast in one piece, and provided with the scale or rule a', tack-claw a, hammer head and claw b b', ratchet-wrench C, hinged screw-driver c, and hinged hoop-lifter D, all constructed and arranged for operation substantially as herein shown, and for the purpose set forth.

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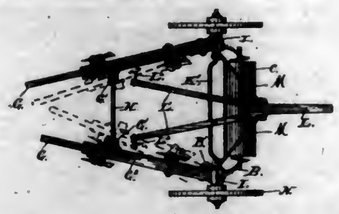
318,921. ENVELOPE-MOISTENER. JOHN A. MANTHE, Milwaukee, Wis. Filed Sept. 30, 1884. (No model.)



Claim.—1. An envelope-moistener consisting of a water-box, in combination with an absorbent pad extending the height of the box, and a hinged lid or cover adapted to be pressed thereon, substantially as set forth.

2. An envelope-moistener consisting of a water-box, in combination with an absorbent pad extending the height of the box, a hinged lid or cover adapted to be pressed thereon, and a spring adapted to force the lid back and keep it open when pressure is removed from the same, substantially as set forth.

318,922. CULTIVATOR. MILLARD F. MCCRAY, Glasgville, Mo. Filed Feb. 7, 1885. (No model.)

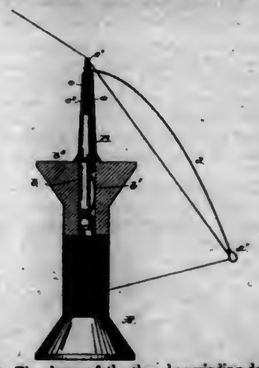


Claim.—1. The combination of the axle, the boxes supported on such axle, and the beams connected by a vertical pivot with said boxes, whereby they may be adjusted in a horizontal plane, substantially as set forth.

2. The combination of the beam, the block D, having lugs D', the bolt F, having eye F^2 and passed through block F, and the beam with its eye F^2 between the lugs D', and the tooth passed through one of lugs D', thence through eye F^2 and the other lug D', substantially as and for the purposes specified.

3. The combination of the beams, the teeth secured thereto, the arch having axles K, the boxes adapted to support the beams and pivoted to the axles, the bars B, projected forward from the beams, and the roller supported by said beams, substantially as set forth.

318,923. SEWING-MACHINE-THREAD UNWINDER. ALFRED B. MORSE, South Easton, Mass. Filed Dec. 12, 1884. (No model.)

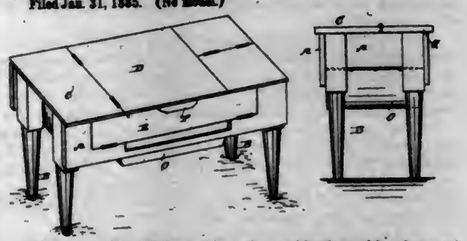


Claim.—1. The sleeve of the thread-unwinding device, adapted to be inserted into a spool, and bored at its end for the reception of a spindle, combined with a spindle inserted therein provided with a guide-eye, and having a spring-wire arm, d, provided with a guide-eye, and coiled about and soldered or brazed to said spindle, substantially as described.

2. The sleeve provided with the foot to enter the spool, and with a spring to engage the spool, and with a hole for the reception of the spindle, combined with the spindle having a thread-guiding eye, and with the spring-arm having a thread-guiding eye, substantially as described.

3. The sleeve having the foot to enter the spool, and the spindle entered into the said sleeve, combined with the spring-arm, it having a thread-guiding eye at one end, and coiled at its other end about the spindle, substantially as described.

318,924. KITCHEN-CABINET. THOMAS NICHOLAS, Calumet, Mich. Filed Jan. 31, 1885. (No model.)



Claim.—1. In a kitchen-cabinet, the combination, with a frame, of the leaf D, the board E, hinged on the front the flour-box O, and the hinged dough-board G, forming the cover of the flour-box, substantially as herein shown and described.

2. In a kitchen-cabinet, the combination, with the frame A, of the flour-box O, the hinged dough-board G, forming the cover for the flour-box, the salt-box P, and its cover Q, substantially as herein shown and described.

3. In a kitchen-cabinet, the combination, with the frame A, of the flour-box O, the hinged dough-board G, the board E, hinged on the front of the frame, the leaf D, hinged on the top C, and the cleat F, secured on the bottom edge, substantially as herein shown and described.

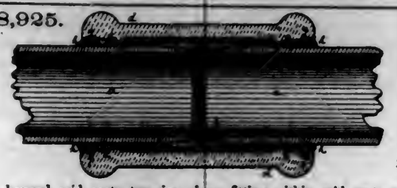
4. In a kitchen-cabinet, the combination, with the frame A, provided with the compartments T, of the flour-box O, the hinged dough-board G, and the hinged board E on the front, substantially as herein shown and described.

318,925. TUBE-COUPLING COVER. PETER PATTERSON, McKeesport, Pa., assignor to the National Tube Works Company, same place. Filed Apr. 8, 1885. (No model.)

Claim.—1. In combination with a tube-coupling, a sleeve extending over the same and having tapering seats at the ends thereof, and tapering rings fitting within said seats and binding the sleeve upon the tubing, substantially as and for the purposes set forth.

2. In combination with a tube-coupling, a sleeve extending over the same and having tapering seats at the ends thereof and calking-re-

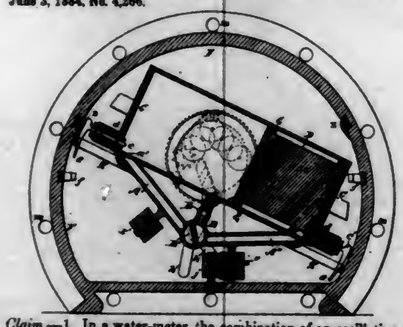
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cesses beyond said seats, tapering rings fitting within said seats and binding the sleeve upon the tubing, and calking material within said recesses, substantially as and for the purposes set forth.

3. In combination with a tube-coupling, a sleeve extending over the same and having tapering seats some distance beyond the ends of the coupling-socket, and tapering rings fitting within said seats and binding the sleeve upon the tubing, substantially as and for the purposes set forth.

318,926. OSCILLATING WATER-METER. PLÁCIDO TARDÁ PUIG, Barcelona, Spain. Filed Mar. 3, 1885. (No model.) Patented in Spain June 3, 1884, No. 4,266.



Claim.—1. In a water-meter, the combination of an oscillating cylinder, a piston sliding back and forth within it, a four-way cock for controlling the admission and discharge of water to and from the said cylinder, and pivots situated between the said cylinder and four-way cock, so that they move in opposite directions about the said pivots as a center during each oscillation, substantially as described and shown, and for the purpose set forth.

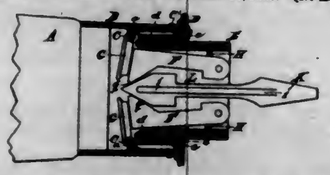
2. In a water-meter, the combination of an oscillating cylinder, a piston sliding back and forth within it, a four-way cock for controlling the admission and discharge of water, the arms A and A', secured to the plug of the said four-way cock, and the boss m''', for reversing its movement, substantially as described and shown, and for the purpose set forth.

3. In a water-meter, the combination of the cylinder C, oscillating upon pivots E, the piston D, the pipes A' and A'', the four-way cock B, having plug B', provided with arms A and A', boss m''', for operating said arms, the rubber-covered arms x' and x'', and the rubber-covered boss j, for arresting the motion of the said cylinder, substantially as described and shown, and for the purpose set forth.

4. In a water-meter, the combination of the oscillating cylinder C, the piston D, the striker-pin c, provided with a head, c', having a point, e, the guides g, which prevent said pin-head from turning, and the hollow boss f, attached to the side of the casing-box F, substantially as described and shown, and for the purpose set forth.

5. In a water-meter, the combination of the oscillating cylinder C, the piston D, the striker-pin c, provided with a head, c', having a point, e, the guides g, the hollow boss f, and the boss z, for forcing inward the said pin when the end of the cylinder which carries it is raised, substantially as described and shown, and for the purpose set forth.

318,927. DEVICE FOR LINING BANDS OF WHEEL-HUBS. ERNESTE ROTHLISBERGER, Cincinnati, Ohio. Filed Jan. 16, 1885. (No model.)



Claim.—1. A spinning-tool consisting of a revolving stock carrying one or more revolving pivoted rollers, G, adapted to spin and turn the inner end of the hub-lining over the flange inside of the hub of the wheel, substantially as described

2. A spinning-tool adapted to spin the linings of the hub-band after it is placed upon the wheel, consisting of the revolving stock E, arms F F, rollers G, and spreading-plunger I, constructed and operated substantially as herein specified.

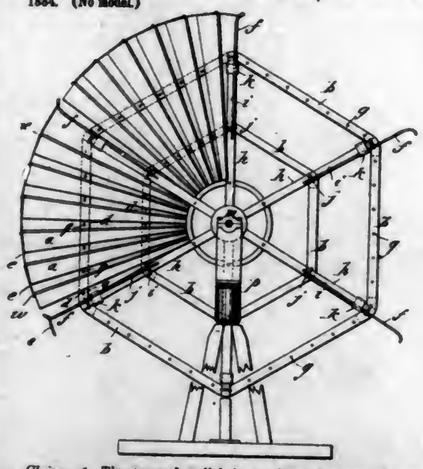
3. A spinning-tool consisting of the annulus D, stock E, arms F, rollers G, and plunger I, adapted to spin the metal of the lining C over the shoulder a of the band B, substantially as described.

4. A spinning-tool adapted to spin the lining of hub-bands after they are placed on the wheel, consisting of stock E and arms F F, carrying shaping or spinning surface A upon their inner ends, adapted to be spread to turn the lining over the shoulder a as the parts are revolved, substantially as specified.

5. In combination with the stock E, the spreading-plunger I, arms F F, spinning-surface A, and springs H, whereby the tool is readily inserted into the hub, and the lining spun over the shoulder as the tool is pressed inward, substantially as herein specified.

6. In combination with the stock E, the plunger I, provided with grooves i, and guide k, adapted to spread two spinning-tools, G, as the plunger I is pressed inward, substantially as specified.

318,928. WINDMILL. JOHN H. ROWELL, Solon, Me. Filed Apr. 26, 1884. (No model.)

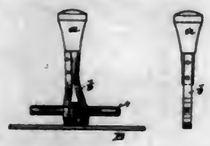


Claim.—1. The tapered radial fans a, hinged at one edge to the wheel-frame and connected at the outer end at or near the opposite edge with the links e and pivots w to springs f, arranged to hold said fans to receive the wind for driving the wheel, substantially as described.

2. The tapered radial fans hinged to the wheel-frame at one edge, in combination with the torsional springs connected to the outer end at or near the opposite edge of the fans, the slide fitted upon the wheel-frame and the springs, said springs being disposed to hold said fans to receive the wind to drive the wheel, substantially as and for the purpose set forth.

3. In a windmill, the pump-rod carrying a roller bearing upon an eccentric of the driving-shaft, said rod also having a cross-head, in combination with the inclined slide disposed below the said cross-head and the automatic governor connected by a bell-crank lever and link to said slide, substantially as and for the purpose set forth.

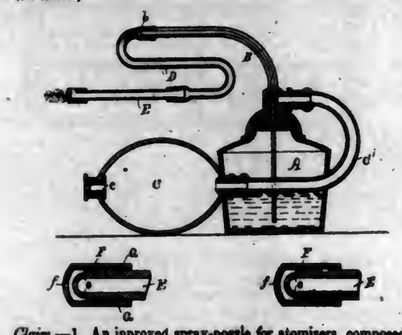
318,929. CONNECTING DEVICE FOR SWITCH-BOARDS. ELPHALET W. SMITH, Newark, N.J. Filed Sept. 10, 1884. (No model.)



Claim.—1. A contact device having a suitable handle and broadened spring-bands secured thereto, the lower end of said bands being turned in toward each other, and adapted to be used substantially as and for the purpose set forth.

2. A clasping conductor having a suitable handle and broadened metallic plates secured thereto, the ends of said plates being turned in toward each other and upward toward the handle, forming a bar-opening therebetween, and adapted to be used substantially as and for the purpose set forth.

318,930. ATOMIZER. BENJAMIN F. SUTTON, Providence, R. I., assignor to the Davol Rubber Company, same place. Filed Feb. 17, 1885. (No model.)



Claim.—]. An improved spray-nozzle for atomizers, composed of a discharge-nozzle having one or more lateral openings, and a cap having a perforation in its end, the said nozzle and cap with their perforations being constructed to break up the combined air and liquid, as described.

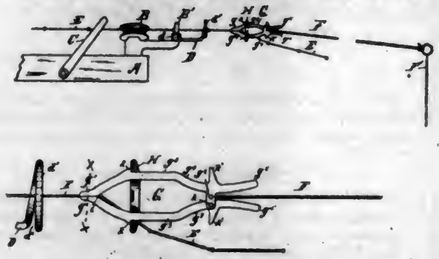
2. The combination, with the tube E, provided with one or more lateral openings, of the adjustable perforated cap F.

3. The combination, with the tube E, provided with one or more lateral openings and the perforated cap F, of the flexible tube D, constructed to connect the said tube E with an atomizer, as described.

4. The combination, with a tube having a spray-nozzle and attached to an atomizer receptacle, of a second tube having also a spray-nozzle and a flexible extension-tube for connecting the two tubes together, substantially as described.

5. The combination, with the atomizer having the discharge-pipes with the spray-nozzle, of the flexible tube fitting at one end over the spray-nozzle, the rigid tube closed at one end and formed with the holes e, and the screw-cap working upon the closed end of the rigid tube and formed with a hole, f, as specified.

318,931. CHECK-ROWER APPARATUS FOR CORN-PLANTERS. CHARLES E. SWEENY, Pierceton, Ind. Filed Jan. 12, 1885. (No model.)



Claim.—1. The combination, with an anchor-line for check-row lines, of an automatically-detachable line-holder, substantially as described.

2. The combination, with an anchor and an anchor-line for check-row lines, of a line-holder having a portion adapted to be connected to the anchor-rope and a portion adapted to detachably hold the check-row line, substantially as described.

3. The combination, with an anchor and an anchor-line for check-row lines, of a line-holder having retaining-jaws for detachably holding the check-row line, substantially as described.

4. The combination, with the anchor-line for check-row lines, of a line-holder having retaining-jaws for detachably holding the check-row line, and having a guard for temporarily holding said jaws in locked position, substantially as described.

5. The combination, with the anchor-line, of the line-holder having the retaining-jaws, the guard-ring for said jaws, and the stops for holding the guard-ring on the jaws, substantially as described.

6. The combination, with the anchor-line for corn-planter check-row lines, of the line-holder having the retaining-jaws, the guard, and a spring for temporarily holding said guard in locked position, substantially as described.

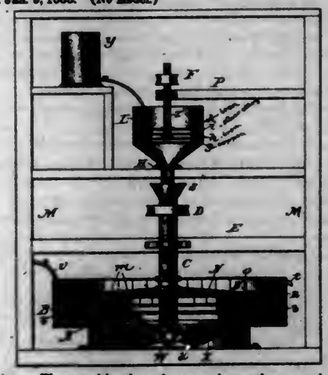
7. An anchor attachment for check-row lines, consisting of pivoted retaining-jaws, a guard-ring for said jaws, stops for said guard-ring, and projecting arms for opening said jaws to insert the check-row line, substantially as described.

8. The combination, with the anchor-line for a corn-planter check-row line, of a line-holder having retaining-jaws arranged to clamp onto the check-row line at any desired point in its length, substantially as described.

9. The combination, with the anchor-line, the check-row line, and detachable line-holder for connecting the two, of a check-rower having a tripping device for releasing the line-holder, substantially as described.

10. The combination, with the anchor-line, the check-row line, and a detachable line-holder for connecting the two, of a check-rower provided with a tripping device for releasing the line-holder, said tripping device having an open portion to permit the insertion of the check-row line, substantially as described.

318,932. AMALGAMATOR. SYLVANUS L. TRIPPE, Denver, Colo. Filed Jan. 5, 1885. (No model.)



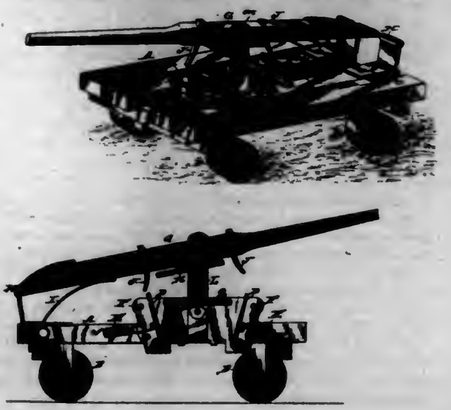
Claim.—The combination of an amalgamating-vessel containing mercury, amalgamating-plates, means for distributing pulverized ore beneath the surface of a body of mercury, enlarged cylindrical section of the vessel containing appliances for separating the mineralized portion of the ore from the gangue, and the cylindrical vessel L, located above the hopper S, discharging pulp therein, and containing the series of muller-plates g, h, i, and k, constructed of different metals for the development of electricity by friction on the muller-plates and in the presence of the mineral and mercury for amalgamation, substantially as described.

318,933. TWINE-PACKAGE. ALFRED R. TURNER, Jr., Malden, Mass. Filed Feb. 24, 1885. (No model.)



Claim.—The combination, with the box A, having at one end a cap or cover, b, provided with a delivery aperture or guide, c, of the roll of twine B, contained within the box A, and formed by building it up from one end to the other as it is wound, in such manner that in unwinding it will be gradually reduced in length until entirely used up, substantially as described.

318,934. MACHINE FOR PRESSING MOLDED BRICKS. NEWTON I. WOLFE, Canal Winchester, Ohio. Filed Mar. 2, 1885. (No model.)



Claim.—1. In a machine for pressing molded brick, the combination of two rigid side plates, two end plates pivoted at their ends between the corners of the side plates, and an upper and lower platen secured rigidly at a distance from each other, sliding between the side plates, and diverging studs engaging the free ends of the end plates when forced against them, as and for the purpose shown and set forth.

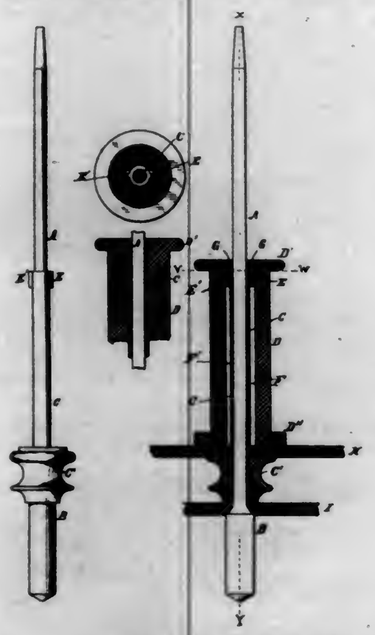
2. In a machine for pressing molded brick, the combination of a frame having two vertical side plates secured in it, two end plates pivoted between the lower corners of the side plates, and having cross-bolts preventing them from tilting out too far, springs secured to the end plates and to the frame, drawing the end plates outward, a lever pivoted at one end to the frame and having a spring bearing against its under side, diverging studs projecting from the under side of the lever above the ends of the pivoted end pieces, a top platen secured to the under side of the lever between the diverging studs, a slotted arm secured by a set-screw to one side of the lever and sliding in a vertical bearing upon the outer side of one of the side plates, and having an upwardly-bent lower end, and a lower platen pivoted at its under side upon the end of the upwardly-bent lower end of the flat slotted bar, as and for the purpose shown and set forth.

318,935. WOOD-FILLER. SAMUEL F. WOODHOUSE, Philadelphia, Pa. Filed Mar. 17, 1885. (No specimens.)

Claim.—A composition of matter forming a filling for wood, consisting of china-clay, corn-starch, linseed-oil, turpentine, varnish, and japan-drier, the said materials being combined in the proportion and manner substantially as described.

318,936. SPINNING-FRAME. ROBERT WRIGHT, Philadelphia, Pa. Filed June 7, 1884. (No model.) Patented in England Aug. 20, 1884, No. 11,432.

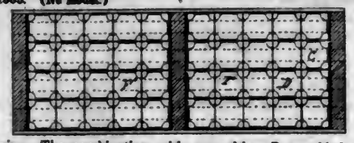
Brief.—The internally-grooved bore of the bobbin, adapted to receive and the bobbin thereby to be driven by a loose sleeve provided with feathers, is contracted at its upper end to fit the spindle, to secure greater steadiness of movement.



Claim.—1. A bobbin or spool, D, provided with the internal groove, F, adapted to receive a feather, as described, in combination with the feathered sleeve C and spindle A, the bore of the said bobbin being of enlarged diameter to clasp the sleeve, and contracted above the sleeve to clasp the spindle, substantially as described.

2. The combination of a spindle, A, provided with a loose sleeve, C, which is provided with a feather, E, and a spool or bobbin, D, having a groove, F, adapted to engage with said feather E, the lower part of the bore of said bobbin fitting snugly around said sleeve, and the upper part of the bore being smaller, as at G G', and fitting snugly around the spindle A above the upper end of sleeve C when in place, substantially as described.

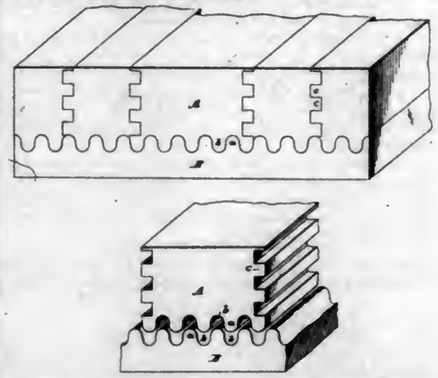
318,937. KNOCKDOWN FRUIT-BOX. SIMEON T. JENKINS, Baltimore, Md., assignor of one-half to Thomas J. McGuire, same place. Filed Apr. 7, 1885. (No model.)



Claim.—The combination, with a partition, B, provided with the openings *b*, of the vertical partitions C, provided with the slits *c* and notches F, and the partitions D, provided with the slits *d* and notches F', the notches F and F' intersecting each other and lying immediately adjacent to the openings *b*, substantially as specified.

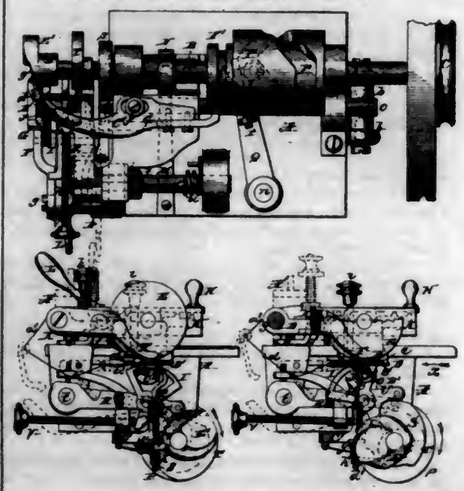
REISSUES.

10,599. COMPOUND LUMBER. COMPOUND LUMBER COMPANY, New York, N. Y., assignee, by mesne assignments, of Daniel M. Cummings, deceased. Filed Apr. 21, 1885. Original No. 183,042, dated Oct. 10, 1876; Reissue No. 8,807, dated July 15, 1879.



Claim.—As a new article of manufacture, compound lumber composed of different woods united at their inner faces by means of parallel tongues and grooves, substantially as described and shown, for the purpose set forth.

10,600. MACHINE FOR SEWING STRAW BRAID. MARY P. C. HOOPER, née Mary P. Carpenter, New York, N. Y., assignor, by mesne assignments, to the Carpenter Straw Sewing Machine Company. Filed Jan. 30, 1885. Original No. 171,774, dated Jan. 4, 1876.



Claim.—1. The combination, with the eye-pointed circular needle J and a work-feeder, of the loop catching and spreading hook B', and operating mechanism, as described, whereby three distinct motions are imparted to said hook—namely, an oscillating motion on its own axis, a vibratory motion in a transverse relation with the feed, and a reciprocating motion in direction of the feed, substantially as specified.

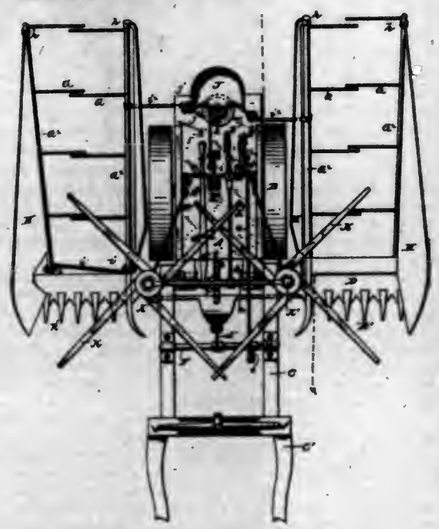
2. The oscillating feeder I, in combination with the oscillating needle J, having the shank or carrier O, arranged to pass through the feeder, and to work or oscillate between the center of motion of the feeder and its feeding-surfaces, substantially as described.

3. The work-table and presser-foot supporter or carrier D, in combination with the main frame A, carrying the feeder and sewing mechanism, said supporter or carrier being hung at its rear end to the rear portion of the main frame A, whereby the work supporting and holding devices and the work itself may together be thrown up or back without interfering with or disturbing the sewing and feeding devices, substantially as specified.

4. The combination of the shaft or carrier O, carrying the oscillating piercing-needle J, and constructed with a screw, *s*, with the cam P and shaft B, arranged parallel with said shaft or carrier O, and the lever Q, working as a nut on said screw, whereby the proper oscillating motion is given to said needle, as set forth.

5. The combination of the presser-foot F, the lever K, carrying the presser-foot, the roller-guide E, and the lip, substantially as described.

10,601. CORN AND CANE HARVESTING MACHINE. HUGH W. MATTHEWS, Baltimore, Md. Filed Apr. 13, 1885. Original No. 309,639, dated Dec. 23, 1884.



Claim.—1. In a corn and cane harvesting machine, the combination, with the main frame and the main carrying and driving wheels, of a cutting apparatus secured to the forward end of the frame and projecting on opposite sides of the frame and wheels, a draft-frame hinged to the forward end of said main frame, the rock-shaft on said draft-frame, and connecting devices, substantially as described, for rocking said main frame and adapting the height of cut to be adjusted while the machine is in operation.

2. In a corn and cane harvesting machine, the combination, with the main frame and carrying and driving wheels, of a pendent bracket or hanger rigidly secured to the forward end of the main frame, the finger-bar rigidly secured to said hanger in front of the wheels and projecting on opposite sides of the frame and wheels, and a draft-frame hinged to the forward end of the main frame, substantially as described.

3. In a corn and cane harvesting machine, a main frame and its carrying-wheels arranged to pass between adjoining rows of corn, a straight continuous finger-bar secured to the forward end of said frame in front of the driving-wheels, and a single knife-bar working in connection therewith, both with their cutting portions projected laterally on opposite sides of said frame and wheels, a draft-frame hinged to the forward end of said main frame, and an adjustable reel at each side thereof secured to and adjustable with said frame and cutting apparatus.

4. In a corn and cane harvesting machine, the combination of the main frame arranged between the main carrying and driving wheels, a cutting apparatus secured to the forward end of said frame in front of the driving-wheels and having its cutting portions projected laterally on opposite sides of said frame and wheels, tilting reels secured to and adjustable with said frame and cutting apparatus, means, substantially as described, for tilting said reels simultaneously while the machine is in motion, a draft-frame hinged to the forward end of the main frame, and means, substantially as described, for rocking the main frame on the axle and adjusting the height of the forward end of the main frame, cutting apparatus, and reels.

5. In a corn and cane harvesting machine, the combination, with the main frame and its main carrying-wheels arranged to pass between adjoining rows, of a cutting apparatus, the finger-bar of which is rigidly connected with the forward end of said frame in front of the carrying-wheels by a pendent bracket or hanger and has its cutting portions projected laterally on opposite sides of said frame and wheels, braces extending rearward and upward from said cutting apparatus to the main frame, and a draft-frame hinged to the forward end of said main frame, substantially as described.

6. In a corn and cane harvesting machine, the combination of the main frame, the supporting and driving wheels, a straight continuous finger-bar in front of the wheels and provided with two sets of guard-fingers, the single cutter-bar provided with two sets of cutters, and means, substantially as described, for rocking the main frame and adjusting the height of the cutting apparatus.

7. In a corn and cane harvesting machine, the combination of a main frame, A, a draft-frame, C, pivoted to the main frame, a finger-bar supported below the pivoted end of the main frame, a rock-shaft, F, on the draft-frame, an arm, *d'*, on the rock-shaft, a guard, D^2, projecting from the finger-bar, a rod, d^3, connecting the arm and guard, a lever, D^3, on the main frame, an arm, *e*, on the rock-shaft, and a link, *e'*, connecting the said lever and rock-shaft to arm *e*, as set forth.

8. In a corn and cane harvesting machine, the combination, with a dropper consisting of the arms G G and shafts G^2 G^2, of the wheels *i i*, chain i^2, arm i^3, chain *j*, guide-pulley j^2, pulley *k*, link *k'*, and treadle G', for rotating both parts of the dropper simultaneously, as and for the purpose set forth.

9. In a corn and cane harvesting machine capable of cutting two rows at a time, a dropper on each side of the frame and wheels consisting of the rock-shafts G^2 G^2 and their arms G G, or their equivalent, in combination with means, substantially as described, for rocking said shaft and operating both droppers simultaneously, as set forth.

10. In a corn and cane harvesting machine, the combination of the finger-bar and knives, means to regulate their height, two reels, a moving frame whereby both reels may be simultaneously rocked forward and aft, and the lever to hold the parts in their adjusted position, as set forth.

11. In a corn and cane harvesting machine, the combination of the finger-bar and knives, means to regulate the height of cut, reel-shafts K' K', supporting-sleeves N N, and means, substantially as described, for adjusting said reel-shafts simultaneously, as and for the purpose set forth.

12. In a corn and cane harvesting machine, the combination of the finger-bar R and cutter-bar D, adapted to operate on two rows at a time, a draft-frame, C, main frame A, hanger T, and brace-rods T' T', as and for the purpose set forth.

10,602. WIRE ROPE OR CABLE RAILROAD. CHARLES W. RASMUSEN, Chicago, Ill., assignor to the United States Cable Railway Company, same place. Filed Mar. 17, 1883. Original No. 243,665, dated Oct. 25, 1881.

Claim.—1. In a cable-railway car, the combination, with mechanism for attaching the car to a moving cable and brake-beams for arresting the movement of the car, of the winding-posts, and means for connecting the mechanism for attaching the car to the cable with and positively operating it from the winding-post, and means for connecting the brake-beams with and operating them likewise from the winding-post, whereby the stopping and starting of the car may be positively and gradually controlled by the operator, substantially as described.

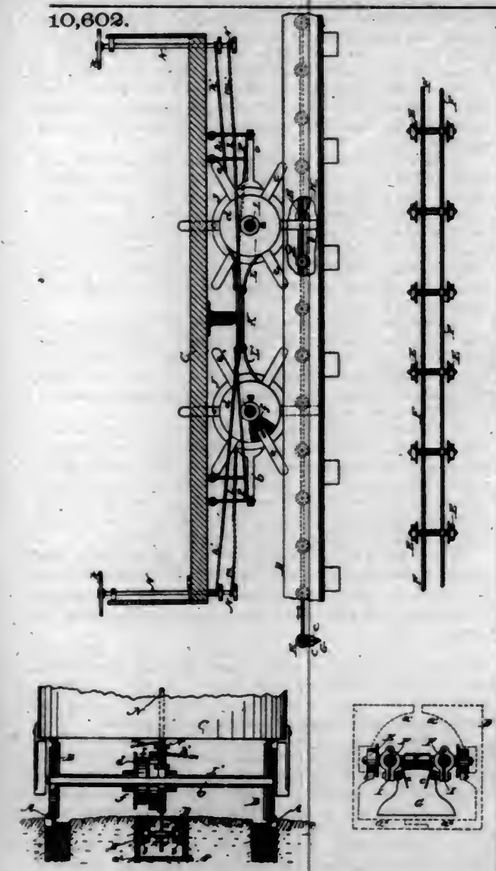
2. In a cable-railway car, the combination, with mechanism for attaching the car to a moving cable and brake-beams for arresting the movement of the car, of the winding-posts, and double connections extending from each of said winding-posts and operated thereby in reverse manner, whereby the starting and stopping of the car may be gradually and positively controlled by the operator, substantially as described.

3. The combination, with the mechanism for connecting the car with a moving cable and brake-beams for stopping the car, of lever mechanism having double connections extending to each winding-post of the car and attached to said post in reverse manner, substantially as described.

4. The combination, with a car, of projecting arms for connecting the car with a moving cable, a friction-clutch for arresting the movement of said arms, brake-beams, and mechanism for operating conjointly the brake-beams and friction-clutch, substantially as described.

5. The combination, with the traction-cable supported upon trucks, of a cable-tube having rails and having a slot located out of line with the cable and with the rails of the tube, substantially as described.

10,602.



6. The combination, with a traction-cable supported on trucks, of a cable-car having a series of movable depending arms for connecting the car with the cable, substantially as described.

7. The combination, with a car provided with revolving projecting arms, of the traction-cable supported upon trucks, and a cable-tube having rails and having a slot located out of line with the cable, substantially as described.

8. The combination, with a cable-tube and cable, of a clamp, and truck-wheels located out of alignment with the slot of the cable-tube, and an axle or extension for supporting said truck-wheels located beneath the slot of the tube, substantially as described.

9. The combination, with the cable, of a clamp having flanges, and bolts for securing the clamp to the cable, and having truck-wheels connected to said clamps, substantially as described.

10. The combination, with the spoked wheel and the car, of the two cables F F, arranged side by side, and clamping devices therefor, and the trucks consisting of axles H and wheels E, and the tube D, having the lengthwise ribs and corresponding grooves to receive the wheels, substantially as described.

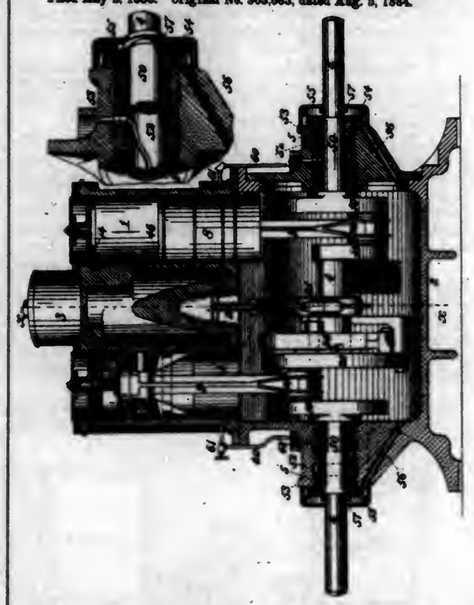
11. The combination of springs with the hinged clearer and traveling cable-trucks, substantially as described.

12. The combination of a lever with a wheel having radial arms, and mounted loose on the car-axle, the friction-band passing around the hub of the wheel and operated by traction on the lever, a winding-post, a rod, and chain attached thereto and to the lever, substantially as described.

13. The combination of the winding post and lever, and devices connecting them and wound reversely on the former, the friction-bands, the propelling-wheels having friction-hub and radial arms, the brake-beams, and the rods connecting them with the lever, substantially as described, whereby the application of the friction-bands releases the brakes, and vice versa, substantially as set forth.

14. The combination of springs and sliding spokes with the wheel-hubs having radial sockets, substantially as described, and for the purpose specified.

10,603. STEAM-ENGINE. H. HERMAN WESTINGHOUSE, New York, N. Y., assignor to the Westinghouse Machine Company, Pittsburg, Pa. Filed May 2, 1885. Original No. 303,063, dated Aug. 5, 1884.



Claim.—1. The combination, substantially as set forth, of a cylinder having its piston connected to a pin upon a crank-shaft, a closed case serving as a tank or receptacle for lubricating material, a main or distribution valve governing the supply and exhaust of the cylinder, and a centrifugal governor located within the case and coupled to an eccentric which actuates the valve.

2. The combination, substantially as set forth, of a pair of vertical single-acting cylinders, each located above and having its piston connected to the crank-pin of a double crank upon a common crank-shaft, a main or distribution valve working in a valve-chamber between said cylinders and governing the supply and exhaust thereof, and a centrifugal governor fixed upon the crank-shaft between its cranks, and coupled directly to an eccentric which reciprocates the main valve and is movable transversely relatively to the crank-line.

3. The combination, substantially as set forth, of a pair of vertical single-acting cylinders, each located above and having its piston connected to the crank-pin of a double crank upon a common crank-shaft, a differential piston main or distribution valve operated by an eccentric on said shaft and governing the supply and exhaust of the cylinders, said valve having an upper piston of greater area than its lower piston, and a valve-chamber having a supply-pipe which admits steam between said pistons, these members being combined for joint operation to effect the balancing of the weight of the valve and eccentric by the excess of pressure on the larger valve-piston.

4. The combination, substantially as set forth, of a pair of vertical single-acting cylinders, each having a port for the admission and exhaust of steam at or near its upper end, pistons fitting said cylinders and connected to cranks on a common crank-shaft, and a water-relief passage leading from each of said cylinders to the exhaust-pipe, said passages having their openings to the bore of the cylinders located at such level therein as to be uncovered by the pistons when at the lowest extremity of their strokes.

5. The combination, substantially as set forth, of a pair of vertical single-acting cylinders located above a closed crank-case, and having their pistons coupled to cranks on a shaft rotating therein, a main or distribution valve governing the supply and exhaust of said cylinders, and a drain-pipe leading from the exhaust-passage of the main valve-chamber to the crank-case, and provided with a regulating cock or valve.

6. The combination, substantially as set forth, of a pair of vertical single-acting cylinders located above a closed crank-case, and having their pistons coupled to cranks on a shaft therein, a main valve working in a valve-chamber located between said cylinders and actuated by an eccentric on said shaft, an oil-reservoir fitting in the space between the cylinders and valve-chamber, and oil-supply pipes leading from said oil-reservoir to the oil-cups of the crank-shaft bearings.

N. PETERS, Photo-Lithographer, Washington, D. C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

Supreme Court of the United States.

BUTTERWORTH, COMMISSIONER OF PATENTS, *v.* HILL *et al.*

Decided March 30, 1885.

1. A bill in equity implies a suit in equity with process and parties, and a bill brought under section 4915, Revised Statutes, is no exception to this rule.
2. Section 739 Revised Statutes applies to suits brought under section 4915 Revised Statutes.
3. In his official capacity the Commissioner of Patents is an inhabitant of Washington, in the District of Columbia.
4. The Commissioner of Patents, by accepting service of a process issued under a bill brought under Section 4915, Revised Statutes, in the district of Vermont, and accompanying such acceptance with a letter declining to appear in defense of the suit, does not consent to the jurisdiction of the court, and, therefore, the court were without authority to proceed and enter the decree which has been appealed from.

APPEAL from the Circuit Court of the United States for the District of Vermont.

Solicitor General Phillips and *Mr. Frank T. Brown* for the appellant.

Mr. W. E. Simonds for the appellee.

WAITE, *C. J.*:

This is an appeal from a decree on a bill in equity filed in the Circuit Court of the United States for the District of Vermont against the Commissioner of Patents, under section 4915 of the Revised Statutes. That section is as follows:

Sec. 4915. Whenever a patent, on application, is refused, either by the Commissioner of Patents or by the Supreme Court of the District of Columbia upon appeal from the Commissioner, the applicant may have remedy by bill in equity; and the court having cognizance thereof, on notice to adverse parties and other due proceedings had, may adjudge that such applicant is entitled, according to law, to receive a patent for his invention as specified in his claim, or for any part thereof, as the facts in the case may appear. And such adjudication, if it be in favor of the right of the applicant, shall authorize the Commissioner to issue such patent on the applicant filing in the Patent Office a copy of the adjudication, and otherwise complying with the requirements of law. In all cases where there is no opposing party a copy of the bill shall be served on the Commissioner, and all the expenses of the proceeding shall be paid by the applicant, whether the final decision is in his favor or not.

On the filing of the bill a subpœna was issued commanding the "Commissioner of Patents of the United States of America" to appear before the court in Vermont and answer. On the 18th of October, 1883, the Commissioner made the following indorsement on the writ:

WASHINGTON, D. C., *October* 18, 1883.

I hereby accept service of the within subpœna, to have the same effect as if duly served on me by a proper officer, and I do hereby acknowledge the receipt of a copy thereof.

E. M. MARBLE, *Com'r of Patents.*

(Office of Com'r of Patents, Received Oct. 18, 1883.)

And afterward, and on said 23d day of October, A. D. 1883, a letter from the Commissioner of Patents was filed, which said letter is in the words and figures following:

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., October 18, 1883.

SIR: I am in receipt of your letter of the 16th instant, inclosing copy of a bill of complaint entitled *Hill & Prentice et al. v. The Commissioner of Patents of the United States of America*, in the United States Circuit Court for the District of Vermont, praying that said court direct the Commissioner of Patents to issue a patent to the assignees of Hill & Prentice for the invention disclosed and claimed in their application filed in this Office March 30, 1880, for an improvement in milk-coolers; also, a subpœna to appear and answer to said bill on the 5th proximo and a certified copy of said subpœna. I herewith return the subpœna, service accepted, and have to inform you that I shall not appear in defense in said bill.

Very respectfully,

E. M. MARBLE, *Commissioner.*

Mr. W. E. Simonds, Hartford, Conn.

No other service of process was made on the Commissioner, and he made no other appearance in the cause than such as may be implied from his acceptance of service and his letter as above. In due course of proceeding a decree was entered adjudging that—

Samuel Hill and Benjamin B. Prentice, as inventors, and the Vermont Machine Company, as assignee of said inventors, are entitled to have issued to them letters patent, * * * as prayed for in the petition and bill of complaint.

No one was made defendant to the bill except the Commissioner of Patents, and Hill, Prentice, and the machine company, the complainants, were all citizens of Vermont. Benjamin Butterworth, the Commissioner of Patents, took this appeal, and the only question presented under it for our consideration is whether the Circuit Court of the District of Vermont had jurisdiction so as to bind the Commissioner by the decree which was rendered.

It is contended that the Supreme Court of the District of Columbia has exclusive jurisdiction of suits against the Commissioner brought under this section of the Revised Statutes. In the view we take of this case, however, that question need not be decided. By section 739 of the Revised Statutes, as well as by the act of March 3, 1875, chapter 137, section 1, (18 St., 470,) it is provided in substance that, with some exceptions which do not apply to this case—

no civil suit shall be brought before either of said courts [the circuit or district courts of the United States] against an inhabitant of the United States, by any original process, in any other district than that of which he is an inhabitant, or in which he may be found at the time of serving the writ.

We entertain no doubt that this statute applies to suits brought under section 4915. The applicant is to have his remedy under that section by bill in equity, and by the *adjudication*—

of the court having cognizance thereof, on notice to adverse parties, and other due proceedings had.

A bill in equity implies a suit in equity, with process and parties. The prayer for process is one of the component parts of the structure of a bill, and its purpose is to compel the defendant to appear and abide the determination of the court on the subject-matter of the proceeding. (Story, Eq. Pl., sec. 44.)

The bill in this case was filed against the Commis-

sioner alone, and it does not appear that he was an inhabitant of the district of Vermont. The Patent Office is in the Department of the Interior, (Rev. St., sec. 475,) which is one of the executive departments of the Government at the seat of Government, in the District of Columbia. (Rev. St., sec. 437.) The Commissioner of Patents is by law located in the Patent Office. (Rev. St., sec. 476.) His official residence is therefore at Washington, in the District of Columbia. The subpœna in this case was delivered to him in the District of Columbia, and his acceptance of service was made there. That is apparent from the face of his indorsement and the letter which was written afterward, and filed in the cause undoubtedly as proof of a delivery of a copy of the bill which the law required should be served on him. Both the indorsement and the letter purport to have been written at Washington, and the letter in the Patent Office. Unless, therefore, the acceptance of service as indorsed on the writ is to be treated as a voluntary appearance by the Commissioner in the court in Vermont, without objection to the jurisdiction, the case stands as it would if the process had been actually served on him in the District of Columbia by some competent officer. The circuit court was of opinion that by his acceptance of service the Commissioner waived all objection to the jurisdiction, and consented to be sued away from the seat of Government and from his residence. In this we think there was error. The fair meaning of the indorsement on the writ is that the Commissioner admits the service with the same effect it would have if made by an officer in the District of Columbia. No appearance is thereby entered in the cause. Service of the subpœna in the District is acknowledged, but nothing more. In the letter which followed the indorsement of service both counsel and the court were informed that the Commissioner declined to appear. The parties proceeded, therefore, at their own risk, and without the consent of the defendant to the jurisdiction of the court. Such being the case, we are of opinion that the court was without jurisdiction, and had no authority to enter the decree which has been appealed from. The act of Congress exempts a defendant from suit in any district of which he is not an inhabitant, or in which he is not found at the time of the service of the writ. It is an exemption which he may waive; but unless waived he need not answer, and will not be bound by anything which may be done against him in his absence. What is here said, of course, does not apply to cases where the suit is brought and service is made under sections 736, 737, and 738 of the Revised Statutes.

Without considering any of the other questions which have been presented in the argument or which might be suggested under the statute, we reverse the decree of the circuit court and remand the cause, with instructions to dismiss the bill without prejudice, for want of jurisdiction.

Supreme Court of the United States.

THE CALIFORNIA ARTIFICIAL STONE PAVING COMPANY *v.* MOLITOR. THE CALIFORNIA ARTIFICIAL STONE PAVING COMPANY *v.* MOLITOR.

Decided March 2, 1885.

A decree was made and a perpetual injunction issued against the defendant for infringement of letters patent for an improvement in concrete pavements. Defendant having varied his method of laying the pavement, but, as alleged, still infringing, complainant obtained a rule to show cause why he should not be punished for contempt. The judges were divided on the question of infringement, and certified it in three divisions for decision; on consideration thereof the case is dismissed, with direction to the circuit court to proceed according to law, for the following reasons:

1. **The question to be certified under section 652 R. S. must be a question of law, and must be capable of being presented in a single point.**
2. **In this case the question is a mixed one of fact and law, which the circuit court must decide for itself in the ordinary way. If the judges disagree, the defendant must be discharged, and the complainant may then either seek a review in this Court, or, which is the better way, bring a new suit for the infringement.**

APPEAL from and in error to the Circuit Court of the United States for the District of California.

Mr. M. A. Wheaton for appellant.
Mr. E. M. Marble for appellee.

Mr. Justice BRADLEY delivered the opinion of the Court.

A bill was filed by the appellant in this case against the appellee, complaining that the latter had infringed and continued to infringe certain letters patent granted to one John J. Schillinger, and which had been assigned for the State of California to the complainant. The patent was for an improvement in concrete pavement, and was originally issued July 19, 1870, and reissued May 2, 1871. The improvement, as described in the reissued patent, consisted in laying the pavement in detached blocks, separated from each other by strips of tar-paper or other suitable material, so as to prevent the blocks from adhering to each other. As stated in the specification—

> The paper constitutes a tight water-proof joint; but it allows the several blocks to heave separately from the effects of frost, or to be raised or removed separately, whenever occasion may require, without injury to the adjacent blocks.

Prior to this invention it seems, from the statement of facts made by the court, that concrete pavements had been made in one continuous sheet, without being divided into blocks, whence it was liable to crack in irregular directions and to break up in such a manner as to render it useless. The specification of the reissued patent contained the following clause:

> In such cases, however, where cheapness is an object, the tar-paper may be omitted and the blocks formed without interposing anything between their joints, as previously described. In this latter case the joints soon fill up with sand or dust, and the pavement is rendered sufficiently tight for many purposes, while the blocks are detached from each other, and can be taken up and relaid, each independent of the adjoining blocks.

But this clause had been disclaimed by filing a disclaimer in the Patent Office. The patent had two claims, as follows:

> 1. A concrete pavement laid in detached blocks or sections, substantially in the manner shown and described.
> 2. The arrangement of tar-paper, or its equivalent, between adjoining blocks of concrete, substantially as and for the purposes set forth.

The defendant answered the bill, denying the validity of the patent and denying infringement, and declaring that the concrete pavements made by him were made under and in accordance with certain letters patent granted to one J. B. Hurlburt, April 20, 1875, the process of which is described in the answer, as follows:

> The said Hurlburt invention is a novel method of forming blocks of artificial stone or cement pavement, whereby they are prevented from becoming uneven by sinking below or rising above a common plane, and consists in beveling the edges of the blocks so that they will measure more across their under side in one direction and less across their upper side than across their under side in the other or opposite direction; and also consists in the novel construction of a forming-frame, whereby the blocks are beveled as devised by using the different sides of the frame alternately; and also in the novel construction of a parting-strip, whereby the colors are kept separate, showing a straight line between the blocks and while forming their edges in actual contact, the same strip being of great service to rest a straight-edge upon while beveling the block in process of formation, and that by said invention the process of laying cement pavements saves from ten to fifteen per cent. in cost of labor over any other known process, entirely dispenses with tar-paper or any equivalent and all other expensive superfluities, and makes a close beveled joint, it being impossible to raise, or attempt to raise, any separate piece of work without chiseling and digging and materially injuring adjacent work.

What the proof was as to the actual process employed by the defendant, whether it strictly accorded with Hurlburt's plan or not, does not distinctly appear. The appellee's counsel in his brief states that the respondent was originally adjuged to have infringed the rights secured by the patent, by reason of having pressed into the joints made by the cutting of the large sections into blocks with a trowel a fine concrete, which was held to be the equivalent of the tar-paper, as it accomplished the objects claimed to be gained by the patented invention—viz., producing a suitably tight joint and yet allowing the blocks to be raised separately without affecting the block adjacent thereto, and allowed the several blocks to heave separately from the effects of frost. But this fact is not shown by the record before us, and we are in the dark as to what particular form of pavement was adjudged by the court to have been an infringement of the patent sued on. We only know that, proofs having been taken and the cause heard, the circuit court, on September 10, 1881, decreed as follows:

> That the Reissued Letters Patent No. 4,364, granted and issued on the 2d day of May, A. D. 1871, to John J. Schillinger, of New York, being the patent referred to in the bill of complaint herein, are good and valid in law. * * * That the said defendant, Charles A. Molitor, has infringed said reissued letters patent, and upon the exclusive rights of the complainant under the same—that is to say, by making or selling one or more artificial concrete cement pavements within the State of California, and while the complainant was the owner of said reissued letters patent, as charged in said bill of complaint. * * * And that a perpetual injunction be issued in this suit against the said defendant, Charles A. Molitor, restraining him, his agents, clerks, servants, and all claiming or holding under or through him, from making, selling, or using, or in any manner disposing of any artificial stone-block pavements embracing the invention and improvements described in the said reissued letters patent, pursuant to the prayer of the said bill of complaint.

Had the defendant continued to make concrete pavements in the manner set up in his answer, or in the manner in which it was proved he did make them, and which the court decided to be an infringment, there could have been no doubt that he would have violated the decree; but it would seem that he varied his mode of making the pavement by ceasing to make it in separate and detached blocks, and only making a mark or indentation on the surface, while in a plastic state, with a trowel or marker extending to a depth of from one-eighth of an inch to an inch, and thus giving the pavement the appearance of being made in detached blocks, and, in fact, answering all the purposes of detached blocks, the crease on the surface being sufficient to produce the results obtained by Schillinger's process.

In October, 1883, more than two years after the decree was entered, the complainant obtained a rule on the defendant to show cause why he should not be punished for a contempt of court in disobeying the decree, the alleged contempt consisting of the construction by the defendant of concrete pavements in the manner last mentioned, to wit, at Redwood City, in San Mateo county. Of course, the question was at once raised whether the process now used by the defendant was an infringement of the patent. The judges being opposed in opinion, a decree was made in conformity with that of the circuit judge, declaring that the pavements thus constructed by the defendant did not infringe the patent, that there was no violation of the injunction, and that the order to show cause be discharged. A certificate was thereupon made showing the points on which the judges disagreed, and the cause has been brought here both by appeal and by writ of error—brought in both ways, as counsel state, because of the uncertainty as to which was the right method.

For the purpose of showing how the points of disagreement arose, and of furnishing materials for deciding them, the certificate exhibits the record and facts upon which (it is stated) the matter was heard below, consisting of—

1st. The bill, answer, replication, decree and injunction, and the order to show cause why the defendant should not be punished for contempt.

2d. A statement of facts deduced by the court below from the evidence in the case and the report of a master. This statement embraces a copy of the reissued patent of Schillinger, with the drawings annexed thereto, and a statement deduced from the testimony, describing, among other things, the manner in which the defendant, after the entry of the decree, constructed a certain pavement in Redwood City—to wit: substantially as before mentioned. The statement closes with the following declaration, to wit:

> While the blocks laid in strict accordance with the specifications in the Schillinger patent can be more readily taken up, still the cutting and marking, or the mere marking of the surface with the marker alone, as described, affords, to a very large extent, the advantages mentioned obtained by the use of the Schillinger patent, the additional cutting with the trowel during the process of formation to a greater or less extent increasing those advantages. The Exhibit C, offered as follows, is a photograph of the sidewalk as laid by defendant Molitor, claimed to be an infringement of the patent in question.

The photograph exhibit is annexed to the statement. The certificate then concludes as follows:

> At the hearing of said order to show cause at the present term of the court upon said record, and upon the facts hereinbefore stated, there occurred as questions arising thereon—
> 1. Whether the laying of said concrete pavement of plastic material on the ground in the manner stated, and dividing it into smaller blocks upon the surface by cutting across the surface of the larger blocks with a trowel, and afterward running the marker along the line of the cutting with the trowel, in all respects as hereinbefore stated, constitutes an infringement of the patent to Schillinger set out in this certificate?
> 2. Whether the laying of the said concrete pavement of plastic material on the ground in the manner stated, and dividing it into smaller blocks upon the surface by cutting across the surface of the larger blocks by running the marker, without any other cutting with a trowel or other instrument than the marker described, across the blocks, on a line previously marked, as a guide, in all respects in the manner as hereinbefore stated, thereby controlling the line of cracking and obtaining in a greater or less degree the advantages pertaining and belonging to the pavements laid in all respects in accordance with the specifications of said Schillinger patent, constitutes an infringement of said patent?
> 3. Whether the defendant Molitor, by constructing the said pavement in all respects in the manner hereinbefore stated, is guilty of violating the injunction granted and made perpetual by the decree in this case?
> Upon which said several questions and upon each of them the opinion of the judges were opposed.

These are the questions which we are now called upon to answer. We are met, however, at the outset by a preliminary question—to wit: whether the points thus presented by the certificate of the judges below come within the meaning of the statute which authorizes this Court to decide questions of law on which the judges of the circuit court are opposed in opinion. It is not a difference of opinion on the general case which may be thus certified. Such a difference would properly result in a decree for the defendant or party holding the negative, subject to an appeal to this Court in

the ordinary course. It is only a difference on a special point of law which can be distinctly stated that may be certified to this Court under the statute. Section 652 of the Revised Statutes declares that when a judgment or decree is entered in a civil suit in a circuit court held by two judges, in the trial or hearing whereof *any question* has occurred upon which the opinions of the judges were opposed, the point upon which they so disagreed shall be stated and certified, &c. The language is copied from the act of 1802, and shows that a certificate can only be resorted to when "a question" has occurred on which the judges have differed, and where "the point" of disagreement may be distinctly stated. This Court has frequently held that the "question" referred to must be a question of law, and must be capable of being presented in a single point.

Chief Justice Marshall, in *Wayman* v. *Southard*, (10 Wheat., 20,) said:

> The law which empowers this Court to take cognizance of questions adjourned from a circuit gives jurisdiction over the single point on which the judges were divided, not over the whole cause.

In *Dennistoun* v. *Stewart* (18 How., 565) the matter is examined with precision. In that case the judges differed in opinion as to the charge which should be given to the jury upon the evidence adduced. The evidence was set forth in the certificate, and the points upon which the judges differed as to the charge to be given were stated. The Court, speaking by Mr. Justice Daniel, (p. 568,) recapitulated the interpretations which had been given to the act in reference to the requisites of its jurisdiction on such certificates. 1. They must be questions of law and not questions of fact—not such as involve or imply conclusions or judgment by the judges upon the weight or effect of the testimony or facts adduced in the cause, (referring to 8 How., 258;) and the *question* on which the judges differed must be stated—not whether a demurrer made on several grounds should be sustained, (referring to 5 How., 208.) 2. The points stated must be single, and must not bring up the whole case for decision, (referring to 9 Pet., 257; 12 Pet., 207, 238; 6 How., 41; 10 How., 54;) and inasmuch as the certificate in that case (*Dennistoun* v. *Stewart*) did not present a single or specific question of law arising in the progress of the cause, but referred to this Court the entire law of the case as it might arise upon all the facts supposed by the Court, the case was remanded to the circuit court, to be proceeded in according to law, without any answer to the questions propounded.

The cases and points adjudged on the subject are very fully rehearsed by Mr. Justice Swayne in *Daniels* v. *Railroad Company*, (3 Wall., 250.) That was an action for an injury caused by a collision of railroad-cars, and after reciting the evidence the certificate stated that this was *all* the evidence, and thereupon it occurred as a question whether in point of law, upon the facts as stated and proved, the action could be maintained, and whether or not the jury should be so instructed; and on this question the judges were opposed in opinion. The Court refused to consider the case and dismissed the certificate.

The case of *Wilson* v. *Barnum* (8 How., 258) is especially worthy of note in this connection. The question certified in that case was whether upon the evidence given the defendant infringed the complainant's patent. Chief Justice Taney, delivering the opinion of the Court, said:

> The question thus certified is one of fact, and has been discussed as such in the arguments offered on both sides. It is a question as to the substantial identity of the two machines. * * * The jurisdiction of this Court to hear and determine a question certified from the circuit court is derived altogether from the act of 1802, and that act evidently gives the jurisdiction only in cases where the judges of the circuit court differ in opinion on a point of law. * * * In the multitude of questions which have been certified, this Court has never taken jurisdiction of a question of fact; and in a question of law it requires the precise point to be stated, otherwise the case is remanded without an answer.

And the case was remanded for want of jurisdiction.

It seems to us that the certificate in the present case is obnoxious to the objections presented in the cases cited. The new controversy raised by the defendant's construction of the pavement in Redwood City is substantially a new suit on the patent, and we are asked to decide it. We are asked to say whether a pavement constructed in such and such a manner is an infringement of the patent as the circuit court has construed the patent. And this is a mixed question of fact and law. By the final decree in the case, made in 1881, the court decided that the pavements which the defendant had been theretofore making did infringe the patent. How those pavements were constructed we are not informed, and therefore we do not know what was the precise construction given by the court to the patent. Whether the new pavement constructed in Redwood City is an infringement or not is just as much a mixed question of law and fact (as the case is presented to us) as was the question whether the pavements formerly constructed by the defendant were an infringement. It is a question which the circuit court must decide for itself in the ordinary way. If the judges disagree there can be no judgment of contempt, and the defendant must be discharged. The complainant may then either seek a review of that decision in this Court or bring a new suit against the defendant for the alleged infringement. The latter method is by far the most appropriate one, where it is really a doubtful question whether the new process adopted is an infringement or not. Process of contempt is a severe remedy, and should not be resorted to where there is fair ground of doubt as to the wrongfulness of the defendant's conduct.

The case must be dismissed, with directions to the circuit court to proceed therein according to law.

THE OFFICIAL GAZETTE OF THE United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

VOL. 31—NO. 9. TUESDAY, JUNE 2, 1885. PRICE—$5 per year.

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The Official Gazette.

The OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Indexes to Patents on Electricity.

Appendix No. 2 to the index to patents relating to electricity, covering the period of time from July 1, 1882, to June 30, 1883, has been issued, and is now for sale. These indexes, arranged alphabetically, numerically, and by classes, are completed to June 30, 1883, and comprise the following volumes:

Vol. 1. Index to patents relating to electricity granted by the United States prior to June 30, 1881, with an appendix, July 1, 1881, to June 30, 1882. One volume, 250 pages. In paper covers, $3; bound, $5.

Vol. 2. Appendix No. 2, July 1, 1882, to June 30, 1883. One volume, 50 pages. In paper covers, $1.50.

Vol. 3. Appendix No. 3, July 1, 1883, to June 30, 1884. One volume, 60 pages. In paper covers, $1.50.

Indexes to Foreign Patents.

The following indexes to foreign patents have been translated, compiled, and published under the authority of the Commissioner of Patents, and may be obtained as a Patent Office publication at the prices given below.

INDEX TO FRENCH PATENTS, 1791 to 1876, inclusive, (subject-matter,) one volume, 935 pp., bound in cloth	$10 00
INDEX TO ITALIAN PATENTS, 1848 to May 1, 1882, (subject-matter,) one volume, 120 pp.—	
Bound half-turkey	2 50
Bound in cloth	1 25
Paper covers	1 00

Order No. 260.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., May 26, 1885.

In compliance with the recommendation of the Examiner in charge of Division XXIII, the following additional sub-classes are formed in Class 73, "Measuring-Instruments:"

Proportional meters.
Ships' logs.
Spirit-levels.
Plumb-levels.
Plumb-bobs.

M. V. MONTGOMERY,
Commissioner.

Issue of June 2, 1885.

Patents	497	No. 318,938 to No. 319,434, inclusive.
Designs	9	No. 16,115 to No. 16,123, inclusive.
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Reissues of patents	4	No. 10,604 to No. 10,607, inclusive.
Total issue	537	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	2	.....	Nebraska	5	.....
Arizona Territory	.....	.....	Nevada	.....	.....
Arkansas	3	.....	New Hampshire	2	.....
California	11	.....	New Jersey	32	1
Colorado	2	.....	New Mexico Territ'y	.....	.....
Connecticut	20	1	New York	100	10
Dakota Territory	2	.....	North Carolina	1	.....
Delaware	.....	.....	Ohio	28	.....
District of Columbia	3	1	Oregon	2	.....
Florida	.....	.....	Pennsylvania	42	2
Georgia	2	.....	Rhode Island	3	.....
Idaho Territory	.....	.....	South Carolina	1	.....
Illinois	38	.....	Tennessee	1	.....
Indiana	15	.....	Texas	4	.....
Iowa	12	.....	Utah Territory	2	.....
Kansas	7	.....	Vermont	4	.....
Kentucky	5	1	Virginia	3	.....
Louisiana	2	1	Washington Territ'y	1	.....
Maine	4	.....	West Virginia	4	1
Maryland	10	1	Wisconsin	8	2
Massachusetts	48	2	Wyoming Territory	.....	.....
Michigan	22	2	United States Army	.....	.....
Minnesota	5	.....	United States Navy	.....	.....
Mississippi	2	.....			
Missouri	15	.....	Total to citizens of the United States	474	25
Montana Territory	1	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Australia			France	5	
Austria-Hungary			Germany	6	
Barbadoes			Holland	1	
Belgium	1		Italy	1	
Bermuda			Norway		
Brazil			Russia		
Canada	5		Scotland		
Chili			Spain	1	
Colombia, U. S. of			Sweden		
Cuba			Switzerland	2	
Denmark					
Egypt			Total to citizens of foreign countries	32	2
England	10	2			

DESIGNS.

16,115 to 16,119, inclusive.—OIL-CLOTH.—*Charles T. Meyer* and *Victor E. Meyer*, Bergen, New Jersey, assignors to *Edward O. Sampson*, New York, N. Y. Application filed May 2, 1885. Term of patent 3½ years.

16,120.—TOY SAVINGS-BANK.—*Edward L. Morris*, Boston, Mass. Application filed December 18, 1884. Term of patent 3½ years.

16,121.—TOY SAVINGS-BANK.—*Julius Mueller*, Wilmington, N. C., assignor to *Charles G. Shepard* and *Walter J. Shepard*, both of Buffalo, N. Y. Application filed January 15, 1885. Term of patent 7 years.

16,122.—TYPE.—*William F. Capitain*, Chicago, Ill., assignor to *Marder, Luse & Co.*, same place. Application filed March 28, 1885. Term of patent 3½ years.

16,123.—BUCKLE.—*Henry O. Johnson*, El Dorado, Ark. Application filed April 24, 1885. Term of patent 14 years.

TRADE-MARKS.

[Certificates of registration of Trade-Marks numbered 8,191 and upward are registered under the act of March 3, 1881.]

12,277.—PILLS.—*William Henry Comstock*, Morristown, N. Y. Application filed May 1, 1885.

"The words 'INDIAN ROOT' and the fac-simile signature of Wm. N. COMSTOCK."

12,278.—PILLS.—*William Henry Comstock*, Morristown, N. Y. Application filed May 1, 1885.

"The fac-simile of a Confederate note having upon its reverse side the words 'INDIAN ROOT' and the name 'W. H. COMSTOCK.'"

12,279.—HARD SOAP.—*Curtis Davis & Co.*, Boston, Mass. Application filed January 9, 1885.

"A device produced by the combination and alternate arrangement of red and yellow spaces."

12,280.—CURE FOR MALARIAL DISEASES.—*George Van Den Hoeck Dunn*, New York, N. Y. Application filed May 2, 1885.

"The arbitrary word 'KASKINE.'"

12,281.—CERTAIN MEDICINAL COMPOUND FOR DISEASES OF THE THROAT AND LUNGS.—*Bert S. Lauderback*, Newark, N. J. Application filed February 2, 1885.

"The word-symbol 'BRAZILIAN' and the pictorial representation of two women."

12,282.—PALE ALE.—*Thomas McMullen & Co.*, New York, N. Y. Application filed May 8, 1885.

"The words 'Bass & Co.'s PALE ALE,' under these the word 'EXTRA,' the words 'AGENT THOMAS MCMULLEN, 44 BEAVER ST., NEW YORK,' in or near the center, inclosed in a circle, surmounted by a crown, with the figure of a lion on one side and a unicorn on the other side, and a scroll below the circle with the words 'DIEU ET MON DROIT;' the words 'BASS & CO.' in fac-simile of signature below the scroll, and the words 'BURTON ON TRENT, ENGLAND' below the fac-simile of signature of Bass & Co., the whole inclosed in a plain border."

12,283.—WHEAT-FLOUR.—*Robert Franklin Piper*, Boston, Mass. Application filed April 29, 1885.

"The arbitrary words 'HIGHLAND GEM.'"

12,284.—HAIR-TONIC.—*Josephine Semmes*, Washington, D. C. Application filed April 10, 1885.

"The word and letters 'ELECTRIC.'"

12,285.—TEXTILE FABRICS HAVING WOVEN FIGURES THEREON.—*The Brussels Tapestry Company*, New York, N. Y. Application filed April 23, 1885.

"A lion's head resting upon a heraldic cap and the words 'SEMPER OPTIMUS.'"

12,286.—LAUNDRY SOAP.—*Commercial Oil and Soap Company*, Parkersburg, W. Va. Application filed April 20, 1885.

"The words 'FRENCH PROCESS.'"

12,287.—SMOKING AND CHEWING TOBACCO, SNUFF, CIGARS, CIGARETTES, AND CHEROOTS.—*F. W. Felgner & Son*, Baltimore, Md. Application filed April 15, 1885.

"The word-symbol 'SHOO FLY' and the pictorial representation of a woman reclining upon a lounge and keeping flies from her face with a fan."

12,288.—CIGARS.—*Isaac Harris*, New York, N. Y. Application filed May 9, 1885.

"The name 'HIAWATHA.'"

12,289.—BISCUITS, CRACKERS, AND WAFERS.—*Holmes & Coutts*, New York, N. Y. Application filed May 9, 1885.

"The word 'CHIEFTAIN.'"

12,290.—CERTAIN-NAMED WOOLEN WEARING-APPAREL.—*Dr. Jaeger's Sanitary Woollen System Company, (Limited,)* London, England. Application filed January 8, 1885.

"The fac-simile autograph 'PROF. DR. G. JAEGER.'"

12,291.—CERTAIN-NAMED WOOLEN BEDDING.—*Dr. Jaeger's Sanitary Woollen System Company, (Limited,)* London, England. Application filed March 6, 1885.

"The fac-simile autograph 'PROF. DR. G. JAEGER.'"

12,292.—DISINFECTING OR DEODORIZING COMPOUNDS OR FLUIDS.—*Jean A. Mathieu*, Detroit, Mich., and Philadelphia, Pa. Application filed May 2, 1885.

"The representation of an unfurled banner and a pole, the banner having arranged centrally thereon a Maltese cross."

12,293.—COFFEE.—*Ricker, Crombie & McLaren*, Milwaukee, Wis. Application filed March 7, 1885.

"A red cross, whether expressed by words or pictorially, the pictorial representation of the same being always a red Maltese cross."

12,294.—BAKING-POWDER.—*Ricker, Crombie & McLaren*, Milwaukee, Wis. Application filed March 7, 1885.

"A red cross, whether expressed by words or pictorially, the pictorial representation of the same being always a red Maltese cross."

12,295.—CIGARS.—*Frank W. Sigourney*, Bristol, Conn. Application filed April 22, 1885.

"The word-symbol 'DYNAMITE.'"

12,296.—PLUG SMOKING-TOBACCO.—*Union Tobacco Works, Geo. S. Schwartz & Co.*, Louisville, Ky. Application filed February 6, 1885.

"The words 'WHITE FAWN.'"

12,297.—CIGARS, SMOKING AND CHEWING TOBACCO, AND CIGARETTES.—*William E. Barton*, Syracuse, N. Y. Application filed April 30, 1885.

"The word 'PARTHENIA.'"

LABELS.

4,463.—Title: "GLASS CUTTER COMBINATION" (FOR COMBINATION TOOL.)—*Thomas J. Andress*, Philadelphia, Pa. Application filed May 11, 1885.

4,464.—Title: "DOMESTIC SPANISH" (FOR LEAF TOBACCO.)—*Lewis Bremer's Sons*, Philadelphia, Pa. Application filed March 31, 1885.

4,465.—Title: "MASSEY'S CONCENTRATED ESSENCE OF COCA AND PEPSIN."—*Caswell, Massey & Co.*, New York, N. Y. Application filed May 6, 1885.

4,466.—Title: "DR. BALL'S COILED SPRING ELASTIC SECTION CORSET."—*Detroit Knitting & Corset Works*, Detroit, Mich. Application filed February 20, 1885.

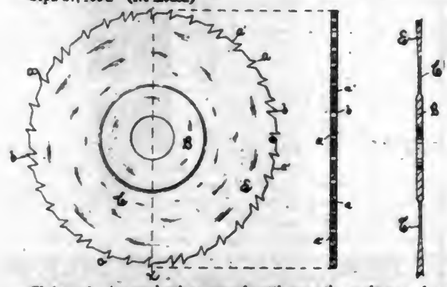
4,467.—Title: "A. O. HEBRARD'S WORLDS EXPOSITION SOUVENIR" (FOR KNAPSACK, MATCHBOX, ETC.)—*Albert Oscar Hebrard*, New Orleans, La. Application filed May 11, 1885.

4,468.—Title: "THE SILK CORDED END BRACE" (FOR SUSPENDERS.) *National Suspender Company*, New York, N. Y. Application filed May 1, 1885.

PATENTS

GRANTED JUNE 2, 1885.

318,938. CIRCULAR SAW. EDWIN ALLEN, Norwich, Conn. Filed Sept. 27, 1884. (No model.)



Claim.—1. A saw having sets of cutting-teeth *a*, sharpened on alternately opposite edges, and having an occasional clearing-tooth, *b*, all formed as integral parts of the same plate, tooth *a* being cut away on its rear side but half the depth of its cutting or front edge, the outer edge of the elongated portion *a'* being concentric with the circle described by the cutting-points of teeth *a*, all substantially as and for the purpose specified.

2. A circular-saw plate having the cutting portion E tapered inwardly from its periphery, the centrally-perforated hub portion B, with parallel sides, and the straight portion C, concentric with and intervening between portions E and B, said intervening portion, C, being of equal thickness throughout its entire width, and with sides parallel to the sides of the hub portion, as described, and for the object set forth.

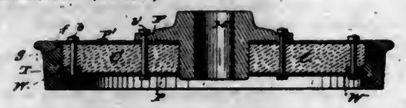
318,939. DETACHABLE CALK FOR HORSESHOES. JACOB A. ALLEN, Cincinnati, Ohio. Filed Dec. 13, 1884. (No model.)



Claim.—1. A detachable horseshoe-calk consisting of the plate A, which springs inwardly toward its rear end, and is provided with a toe-clip, B, intermediate clip, C, heel-clip F, toe-calk D, and heel-calk E, which clips grasp the edges of a shoe in the manner described, and the upper or extended surface of said plate bears directly and wholly against the under surface of the quarter of the shoe, the plate A being made without any connecting portions at the toe, in order that the calk-plate on one side of the shoe may be separate and distinct from the calk-plate on the other side thereof, thereby permitting either of said calk-plates to be removed without disturbing the other, as herein explained.

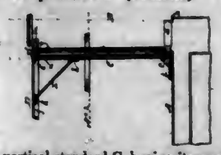
2. As a new article of manufacture, a detachable calk consisting of the spring-plate A, provided with upwardly-projecting clips B C F, downwardly-projecting calks D E, and one or more longitudinal ridges, as G, on the upper surface of said plate, as and for the purpose described.

318,940. CAR-WHEEL. RICHARD N. ALLEN, Cleveland, Ohio. Filed Dec. 26, 1884. (No model.)



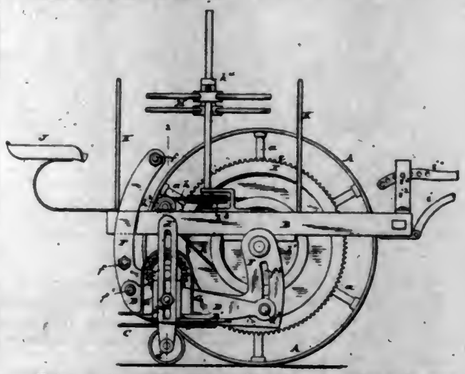
Claim.—A car-wheel composed of a tire provided with a web, W, projecting inwardly from its face and located off from its central line, a central core, C, a hub, H, and side plates, P and P', one of which is bolted directly to the web of the tire, while the opposite plate is secured to the tire by a flange upon its periphery entered into a corresponding groove formed in the edge of the tire, the several parts being secured together by bolts, substantially as set forth.

318,941. PORTABLE STOVE-PIPE SHELF. EVERTON BARNARD, Albany, N. Y. Filed Apr. 21, 1884. (No model.)



Claim.—The vertical standard C, having its marginal side portions, *d d*, curved or flared rearwardly, and provided with the forwardly-extended foot *b*, in combination with shelf D, resting on the upper end of said standard, and secured by lugs *g g* to said standard, and brace E, connected with both the said standard and shelf, and devices connected with the shelf for clamping the same to the pipe, all substantially as described, for operations and purposes set forth.

318,942. STALK AND CANE CUTTER. ALEXANDER BAUMGARTNER, Belleville, Ill., assignor of one-half to John George Ordnung, same place. Filed Oct. 8, 1883. (No model.)



Claim.—1. In a stalk-cutting machine, the combination of the main frame B, driving-wheel A, frame F, provided with the curved slots f^2, and frames D, pivoted to the frame F, and provided with adjusting means engaging said curved slots f^2, as described, and for the purpose set forth.

2. The combination of the main axle, the main frame, the frame F, pivoted to the axle and provided with the curved slots f^2, the frames D, pivoted to the frame F and provided with adjusting means engaging said curved slots f^2, the adjustable rollers *d*, and the cutting apparatus, as described, and for the purpose set forth.

3. In a stalk-cutting machine, the combination of the main axle, the main frame B, the pivoted frames F and D, the circular revolving cutters C, bevel-gears *c c'*, counter-shaft c^3, pinion c^3, and driving-gears E, as described, and for the purpose set forth.

4. The combination, in a corn-harvesting machine, of the main frame B and the centrally-arranged driving-wheel A, with the frame F, carried upon the axle of said wheel, and the cutter-carrying frames D D, pivoted to said frame F, and adjustably connected thereto for adjustment upon said pivots, substantially as described, for the purpose specified.

5. In a corn-harvesting machine, the combination, with the driving-wheel, the frame F, hung upon the axle thereof, and the adjustable sup-

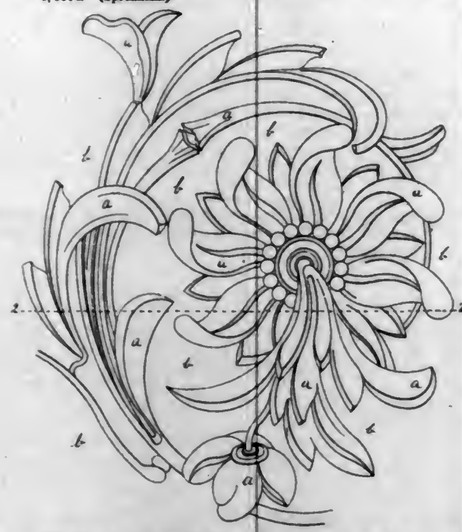
porting-rollers *d d* for said frame, of the cutter-carrying frames D D, carried by said frame F, and made adjustable thereon in the arc of a circle, as described, and for the purpose specified.

6. The combination, in a corn-harvester, of the centrally-arranged carrying and driving wheel having the separate gears *e e*, with the separate side revolving cutters, each mounted upon a vertical shaft in an independent adjustable side frame, D, suitable gearing for connecting said separate revolving cutters with the separate gears of the driving-wheel, and clutch devices for separately controlling the operating-connection of each cutter, substantially as described, for the purpose specified.

7. The combination, in a corn-harvesting machine, of the separate side revolving cutters, C C, and the independent reels H, mounted upon the main frame, with separate adjustable side frames, each frame carrying a cutter, the centrally-arranged carrying and driving wheel having the separate gears *e e*, and operating mechanism for the separate cutters and for the separate reels, substantially as described, for the purpose specified.

8. The combination, in a corn-harvester, of the separate side revolving cutters and the independent reels H with the side frames, D D, the centrally-arranged carrying and driving wheel, and operating mechanism for the separate cutters and for the separate reels, consisting of the bevel-gears *c c'*, counter-shaft c^2, and pinion c^3, and the pulleys h^2, h^2, and h', and their separate belt-connections *h*, substantially as described, for the purpose specified.

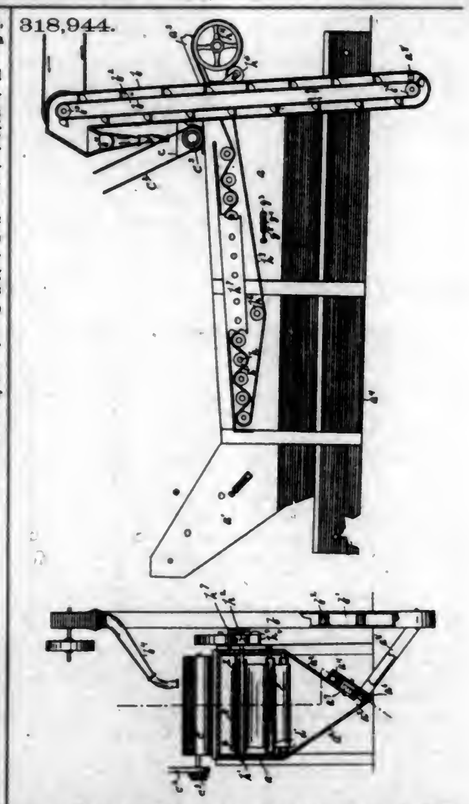
318,943. STENCIL. FREDERICK BECK, New York, N. Y. Filed Mar. 6, 1884. (Specimens.)



Claim.—1. As a new article of manufacture, a stencil for use on irregular surfaces, composed of paper, cloth, or other like pliant material, stiffened and bound together with an adhesive substance which stiffens when dry, the under side whereof matches the irregular surface, substantially as and for the purposes set forth.

2. As a new article of manufacture, a stencil adapted to act as a counterpart to another stencil and made by uniting by arched connections the parts cut out of the other stencil, the said parts being arranged and located in the same relative position which they occupied prior to being removed from the counterpart stencil, substantially as and for the purposes set forth.

318,944. APPARATUS FOR FLOCKING WALL-PAPER, &c. GEORGE K. BIRGE, Buffalo, N. Y. Filed Jan. 20, 1885. (No model.)



Claim.—1. An apparatus for flocking paper, &c., consisting, essentially, of a closed box or compartment having therein an endless band or apron which serves to move the paper being flocked, a drum located below such apron and extending only partially across the compartment, leaving spaces between such drum and the side walls, through which the surplus flock may fall to the bottom of the compartment, beaters arranged below the drum for agitating the loose flock upon the paper, and a hopper for continuously supplying the flock to the sized paper, substantially as shown and described.

2. A flocking-compartment having its lower walls converging to a trough for the reception of the surplus flock, substantially as shown and described.

3. A flocking-compartment having its lower walls converging to a trough for the reception of the surplus flock, and a conveyer operating in such trough to clear it of the collected flock, substantially as shown and described.

4. The combination of a flocking-compartment having its lower walls converging to a trough for the reception of the surplus flock, a conveyer operating in such trough to clear it of the collected flock, and an elevator for automatically carrying the collected surplus flock from the trough back to the hopper, substantially as shown and described.

5. In an apparatus for flocking paper, &c., the combination, with the endless band or apron *e*, the large rollers *d d*, and the smaller rollers $d' d^2 d^3$, so arranged with the apron as to form a dip therein, substantially as shown, of the beater *f*, acting upon the apron, substantially as and for the purpose stated.

6. In an apparatus for flocking paper, &c., the combination, with the endless band *e*, of the adjustable rod *l*, with its side friction-rollers, *l' l'*, substantially as and for the purpose stated.

7. In an apparatus for flocking paper, &c., the combination of the rollers *n n*, the thin endless bands *n'*, the guide *o o'*, and the revolving beaters *p p*, the line of the endless bands being in an upwardly oblique direction.

8. In an apparatus for flocking paper, &c., the combination, with the endless apron *e* or the drum *g*, or both, of a set of beaters which alternate in the direction of their revolution, substantially as and for the purpose stated.

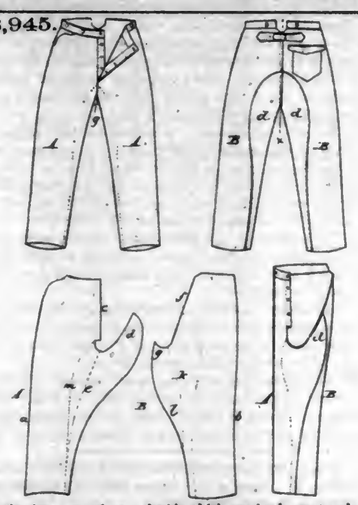
9. In an apparatus for flocking paper, &c., the combination, with the drum *g* or apron *e*, or both, of the revolving beaters *h*, with their pulleys h^2, and the endless belt h^3, passing alternately under and over the pulleys, in order to alternate the direction of the revolution of beaters, substantially as shown and described.

318,945. PANTALOONS AND OVERALLS. SAMUEL D. BLAKE, Dallas, Tex. Filed July 3, 1884. (Model.)

Claim.—1. In a pair of pantaloons, a leg, A, having its inner side and its seat re-enforced by an extension, *d*, formed, as described and shown, on one of the inner edges and lapped and stitched on the other inner edge of the same leg.

2. In a pair of pantaloons, the leg composed of the two patterns A and B, having their inner edges formed with the extensions *d*, *e*, *l*, and *g*, constructed and arranged to overlap, as described and shown,

318,945.

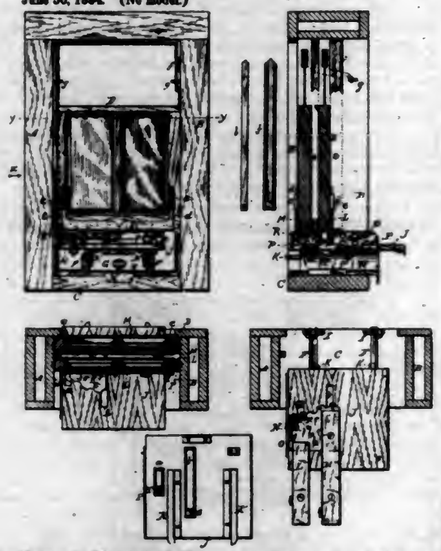


whereby the legs are given a double thickness in the seat and also on the inner sides from the crotch at the lower ends.

3. A pair of pantaloons the seat of which is of double thickness, produced by extending and overlapping the inner forward edge of each leg on the rear edge of the same leg in the manner described and shown.

4. In a pair of pantaloons, the leg consisting of the parts A and B, the former having an inside extension *d*, and the latter an inside extension *g*, the two lapped and united, as shown, whereby the garment is given a double thickness in the crotch and in the seat.

318,946. DEVICE FOR REMOVING WINDOW-SASH FROM FRAMES. JOHN BOWEN and MICHAEL H. CROKER, Chicago, Ill. Filed June 30, 1884. (No model.)



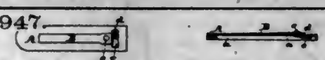
Claim.—1. The chairs L M, constructed to swing as set forth, and combined with the carriage J and racks P O, for swinging both sash at a desired angle for cleaning purposes, as specified.

2. In devices for removing window-sashes, the chairs L M, constructed with upwardly-projecting sides to support the sash and to swing, as set forth, in combination with the carriage J, guides K, and track F F for swinging the sash and bringing them in from the frame, as and for the purpose specified.

318,947. MUSICAL REED. MELLEN BRAY, Newton, Mass. Filed July 10, 1884. (No model.)

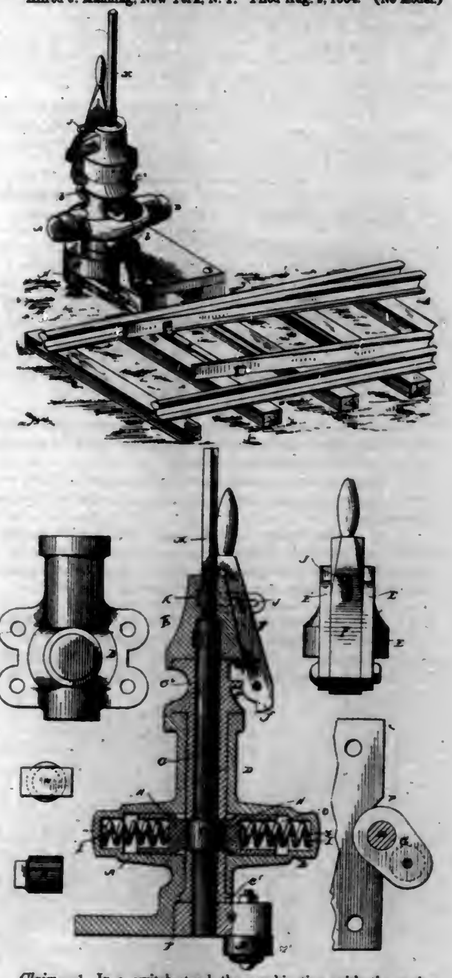
Claim.—The reed-plate A, provided with the rectangular throat *b*, the downwardly-projecting circumferential rib *a*, and a slot or recess

318,947.



formed in its upper surface, in combination with a reed or tongue made separate from the plate and provided with the lug *d*, extending transversely across its butt-end and secured in position upon the plate A by means of the rivet *e* and the lug *d*, substantially as described.

318,948. RAILROAD-SWITCH STAND. THOMAS R. BROWN, Jersey City, N. J., assignor of two-thirds to Walter C. Meeker, same place, and Alfred J. Manning, New York, N. Y. Filed Aug. 9, 1884. (No model.)



Claim.—1. In a switch-stand, the combination, with the rocker-shaft, of the spring-cups H, H, having their bottoms bearing against the projection C' of the rocker-shaft, as set forth.

2. The combination, with the internal shaft and operating-lever, of the loose sleeve and the springs, combined and operating to relieve the shaft of unbalanced pressure and strain in its bearings, as set forth.

318,949. BOOT OR SHOE. PHILIP C. BROWN, Brooklyn, N. Y. Filed Aug. 25, 1884. (No model.)

Claim.—1. The improved method of constructing a boot or shoe, consisting in first preparing the usual leather upper in the usual manner, thereupon attaching a correspondingly-shaped upper of soft vulcanized rubber to the leather upper by means of a suitable cement, securing the rubber upper by pressing it with a heated roller or mold, and thereupon attaching the outer sole and heel in the usual manner, as and for the purpose shown and set forth.

2. The improved method of constructing a boot or shoe, consisting in first preparing the leather upper and insole in the usual manner upon a last, thereupon attaching a correspondingly-shaped soft vulcanized rub-

318,949.

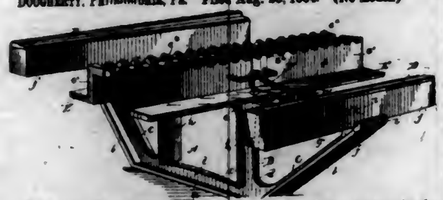


ber upper upon the outside of the leather upper by suitable cement, then securing an intermediate sole of soft vulcanized rubber to the shoe by suitable cement, securing the rubber upper and sole by the pressure of a heated roller or mold, and at last securing the outer sole and heel in the usual manner, as and for the purpose shown and set forth.

3. As an improved article of manufacture, a shoe having the usual leather upper and sole, and also having an outer upper of vulcanized rubber secured to the leather upper by means of suitable cement, as and for the purpose shown and set forth.

4. As an improved article of manufacture, a shoe or boot having the usual leather upper and sole, having an outer layer of vulcanized rubber cemented to the leather upper and to the insole, and having the outer sole secured over the layer upon the insole.

318,950. CABLE RAILWAY. GEORGE B. BRYANT and EDWARD D. DOUGHERTY, Philadelphia, Pa. Filed Aug. 28, 1884. (No model.)

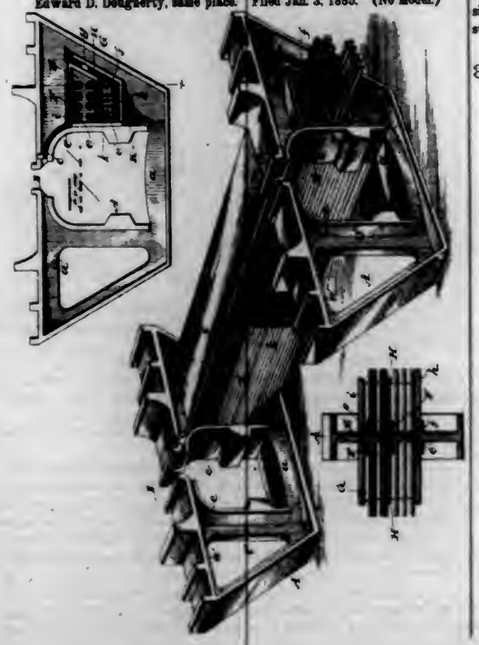


Claim.—1. In a cable railway, angle-irons forming a groove for the travel of the gripper, and having their upper surface provided with slanting corrugations, substantially as set forth.

2. In a cable railway, angle-irons forming a groove for the travel of the gripper, and having their upper surfaces provided with U-shaped corrugations.

3. In a cable railway, the combination, with suitable bracket or support, of angle-irons secured thereto and forming a groove for the travel of the gripper, said irons having their upper surfaces provided with slanting U-shaped corrugations, substantially as set forth.

318,951. COMBINED SUPPORTING-BRACKET FOR UNDERGROUND TRACTION-RAILWAYS AND ELECTRICAL-WIRE CONDUITS. GEORGE B. BRYANT, Philadelphia, Pa., assignor of one-half to Edward D. Dougherty, same place. Filed Jan. 3, 1885. (No model.)



Claim.—1. The combination, with a supporting-bracket for cable railways, of electric-wire supports formed integral therewith, and means for attaching an electric-wire conduit thereto, substantially as set forth.

2. The combination, with a supporting bracket for cable railways, of a perforated web formed integral therewith for supporting a system of electric wires, substantially as set forth.

3. The combination, with a supporting-bracket for cable railways, of a perforated web provided with flanges for supporting electric wires and the conduit inclosing the wires, substantially as set forth.

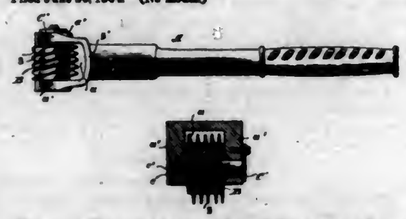
4. The combination, with cable-railway supporting-brackets, of an electric-wire conduit supported by said brackets, said conduit being accessible from the cable-conduit, substantially as set forth.

5. The combination, with cable-railway supporting-brackets, of electric-wire conduits composed of sections extending between each two successive brackets, said conduits being accessible from the cable-conduit, substantially as set forth.

6. The combination, with cable-railway supporting-brackets, of electric-wire conduits supported by said brackets, the walls of said wire conduit being perforated for the attachment of branch wires and for access from the cable-conduit, substantially as set forth.

7. The combination, with a cable-railway supporting-bracket, of a web formed integral with the bracket, the web being perforated in groups for the passage of different wires, and the groups separated by projections for securing a partition-wall, substantially as set forth.

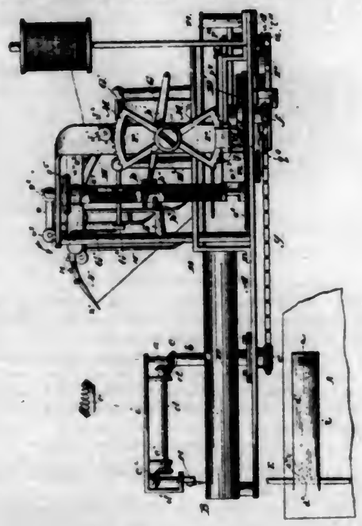
318,952. TOOL FOR DRESSING EMERY-WHEELS. LEWIS BUSH, Jr., Chicago, Ill., assignor to the American Machinery Company, same place. Filed June 20, 1884. (No model.)



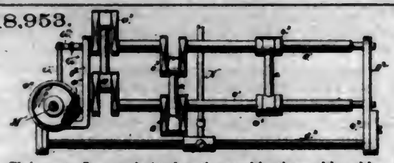
Claim.—1. The combination, with a rotating cutter and a removable shaft or pivot-pin therefor, of a cutter holder or body provided with pivot-pin supports, one of which is apertured to admit the full size of the pin and provided with a retaining-cap, and the opposite one of which is recessed at *c* on its inner surface to admit the end of the pin, and is provided with a small hole, *c'*, extending from the recess through the support, substantially as described.

2. The combination, with a rotating cutter, of a tool-body provided with a transversely-arranged convexly-curved shoulder, *b'*, upon its under side, adapted for engagement with a lathe-rest or other support, substantially as and for the purpose set forth.

318,953. GRAIN-BINDING HARVESTER. ALVIN O. CARMAN, Potterville, Mich. Filed May 3, 1883. (Model.)



318,953.



Claim.—1. In a grain-binder, the combination, with raking, binding, and packing mechanism, of devices for operating the raking and binding mechanism while the packing mechanism is idle, and devices for operating the packing mechanism while the raking and binding mechanisms are idle.

2. The combination, with suitable binding mechanism, packers, and a hinged butt-board adapted to strike or operate against the butts of the grain, of mechanism for operating the butt-board and packers while the binding mechanism is idle, and mechanism for operating the binding mechanism when the other parts are idle.

3. The combination, with a crank-shaft and a series of packers operated thereby, of a butt-board provided with a laterally-projecting arm, G^2, and the pitman G^4, connecting said arm to the crank-shaft.

4. The combination of two horizontal crank-shafts connected together by links, and one provided with a cranked end, depending packing-fingers secured to said links, a hinged butt-board, and a pitman connecting said board to said cranked end, substantially as and for the purpose set forth.

5. The combination, with suitable packing and binding mechanisms, of a vertical shaft having loose driving-wheels thereon, a clutch or sleeve secured on said shaft, a spring for moving the clutch toward one driving-wheel, and a lever for moving it toward the other.

6. The combination, with suitable packing and binding mechanisms, of a driving-shaft having loose gear-wheels provided with hubs with clutch-teeth, a sleeve or clutch provided at opposite ends with teeth adapted to engage the teeth on the hubs of the driving gear-wheels, a spring for forcing the clutch or sleeve in engagement with one of the gear-wheels, a lever for forcing it in engagement with the other wheel, and a rigid finger engaging the collar on the sleeve for the purpose of holding said sleeve in engagement with the last-mentioned wheel.

7. The combination, with suitable knot-tying mechanism, of a shaft provided at one end with a pinion, a needle secured to said shaft, a shaft situated under the needle-shaft and provided with a pinion, a compressor-arm secured on said last-mentioned shaft, the double sector for simultaneously moving the needle and compressor-arm, and devices for moving the double sector.

8. The combination, with the needle, compressor-arm, and double sector for operating the needle and compressor-arm, of a vibrating lever, the inner end of which is pivotally secured to the machine-frame and the opposite end connected to the double sector, and a cam-wheel for vibrating the lever.

9. The combination, with the needle, compressor-arm, and double sector, of a vibrating lever the inner end of which is pivotally secured to the machine-frame while the opposite end is connected to the double sector, a combined gear-and-cam wheel for vibrating the lever and transmitting the motion of the driving-shaft to the knot-tying mechanism, and a chain-wheel secured to the lower end of the shaft of the combined gear-and-cam wheel for operating the rake.

10. The combination, with the combined gear-and-cam wheel, the lever, and the double sector for operating the needle and compressor-arm, of a second gear-and-cam wheel journaled in the machine-frame, and a vibrating lever connected therewith for operating the cord cutter and holder of the binding mechanism.

11. The combination, with the combined gear-and-cam wheel, a lever engaging the cam for operating the needle and compressor-arm, a similarly-shaped gear-and-cam wheel, and a vibrating lever engaging the cam thereof for operating the cord cutter and holder of the binding mechanism, of a cam-wheel rigidly secured to the shaft of the last-mentioned gear-and-cam wheel, and a lever engaging therewith for operating the cord-guiding arm.

12. The combination, with the cam-wheel the periphery of which is provided with a cut-away portion and a toothed portion or segment-rack above the cut-away portion, of the ejector-actuating shaft provided with a shoe and pinion, and the tying-shaft provided with a shoe and pinion, all of the above parts combined and adapted to operate as described.

13. The combination, with the cam-wheel the periphery of which is provided with a cut-away portion and a toothed portion or segmental rack above the cut-away portion, of a vibrating lever engaging the cam-groove in said wheel and adapted to operate a cord-guiding arm, the knot-tyer shaft provided with a delay-shoe adapted to bear against the smooth periphery of the wheel, a pinion engaging the segment-rack, and the ejector-actuating shaft provided with a similar shoe and pinion, substantially as and for the purpose set forth.

14. The combination, with a smooth wheel having a cut-away portion and a segment-rack above the cut-away portion, of the knot-tyer shaft and ejector-actuating shaft situated on opposite sides of the wheel, each shaft being provided with a pinion adapted to be engaged by said segment-rack, whereby the shaft is revolved, and a shoe for holding the shaft immovable after the pinion has been turned by the rack.

15. The combination, with the vertical shaft p^{10}, provided at its upper end with a crank, of the ejector pivotally secured to the frame of the machine, and the pitman p^9, connecting said ejector and crank.

16. The combination, with the vertical shaft p^{10}, having a cranked upper end, and a pinion secured to its lower end, said pinion adapted to mesh with the segment-rack on the wheel P', an ejector adapted to rest under the platform, and a pitman connecting said crank-shaft and ejector, of a compressor-arm adapted to form an abutment for the grain, and mechanism for lowering said compressor-arm simultaneously with the upward movement of the ejector.

17. The combination, with the wheel P', of the ejector-actuating shaft having a pinion and delay-shoe on its lower end, an ejector, and a pitman connecting the ejector and shaft.

18. The combination, with the knot-tyer shaft having a pinion on the lower end thereof, of the gear-and-cam wheel P', the lever v^3, engaging the cam in said wheel, the cord-guiding arm, and the pitman v^4, connecting said arm and lever, substantially as set forth.

19. The combination of a suitable tying-bill, a cord-guiding arm, a sliding cord holder and cutter, a wheel, P', for operating the bill and guiding-arm, and a finger secured to the sliding cord holder and cutter and adapted to carry the cord under the tying-bill after the cord-guiding arm has brought it within reach.

20. The combination of the tyer-shaft having a jaw at its upper end, means for revolving said shaft, a vertically-movable sleeve mounted on said shaft and provided with a jaw, means for moving the sleeve up and down, the cord-guiding arm Q, the lever v^3, and a suitable cam-wheel for vibrating the lever and operating the cord-guiding arm.

21. The combination, with the revolving tyer-shaft having a jaw at its upper end and a pinion at its lower end, and a vertically-movable sleeve, also provided with a jaw, of the cord-guiding arm, the wheel P', for operating the tying-bill and guiding-arm, and the finger R^3, all of the above parts combined and adapted to operate as described.

22. The combination, with the tying-jaws and mechanism for moving the lower one, of the plate R, having an open slot, one side of which forms a cord-cutting blade, and the movable cord-cutting blade and cord-holding jaw, the latter being situated below the cutter.

23. The combination, with the plate R, having an open slot, one side wall of which forms a cutting-blade, of the movable plate having an L-shaped blade connected thereto, and a cord-holding jaw situated below the cutting-blade, all of the above parts combined and adapted to operate as described.

24. The combination, with the plate R, having an open slot, one side wall of which forms a cutting-blade, and a second plate rigidly secured to the plate R and provided with grooves, of a movable plate held in position between the two rigid plates and provided with a curved finger for carrying the cord under the tying-bill, a cutting-blade adapted to act in conjunction with the rigid cutting-blade, and a cord-holding jaw adapted to clamp the free end of the cord between it and the grooved plate.

25. The combination of the plate R, provided with an open slot, one side wall of which forms a cutting-blade, a second plate rigidly secured to the plate R, the tying-jaws, devices for lowering and raising the lower jaw, and the movable plate provided with a curved cord-carrying finger, a cutting-blade, and a cord-holding jaw.

26. The combination of the tying-bill, the bell-crank, the plate R, having the open slot, one side wall of which forms a cutting-blade, and the movable plate provided with the curved cord-carrying finger, the L-shaped cutting-blade, and cord-holding jaw, all of the above parts constructed, combined, and adapted to operate as described.

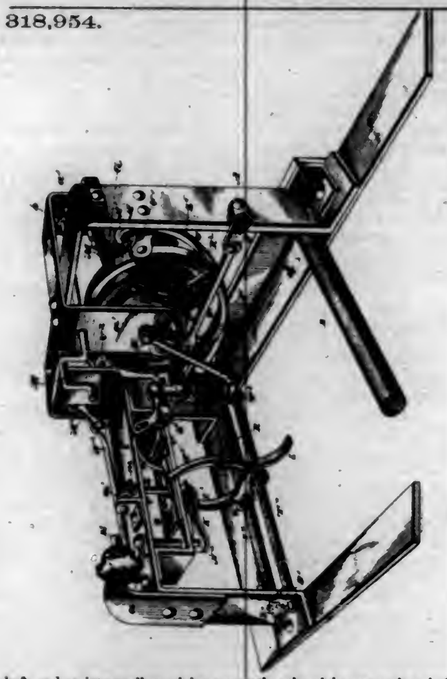
318,954. SELF-BINDING HARVESTER. ALVIN O. CARMAN, Potterville, Mich. Filed Aug. 15, 1883. (Model.)

Claim.—1. In a grain-binding harvester, the combination, with a main shaft, loose wheels mounted thereon, and a longitudinally-sliding sleeve located between the wheels for alternately locking them to the main shaft, of a packer-shaft operated by one of said wheels, an endless conveyer operated by the packer-shaft, and tying mechanism operated by the other wheel.

2. The combination, with a main drive-shaft and a pinion and a combined cam-and-gear wheel loosely mounted thereon, and a sleeve situated between the pinion and cam-wheel and adapted to move longitudinally on the shaft independently thereof, of an endless conveyer and packer-shaft indirectly connected with the pinion, tying mechanism indirectly connected with the combined cam-and-gear wheel, and devices for automatically moving the sleeve, whereby the packer and conveyer and tying mechanism are operated alternately.

3. The combination, with the endless conveyer, packer-shaft, drive-chain, and pinion secured to the packer-shaft, of the drive-shaft, loose gear-wheel mounted thereon, devices for locking the gear-wheel to the

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shaft, and an intermediate pinion connecting the pinion on packer-shaft with the pinion on the drive-shaft.

4. The combination, with the main driving-shaft, the loose pinion, and the loose cam-and-gear wheel, the adjacent ends of the hubs of the said pinions and cam-wheel being provided with teeth, of a toothed sleeve, and means whereby the said sleeve is moved longitudinally by the pressure of grain against the compressor-arm.

5. The combination, with the main driving-shaft, the loose pinion, and the combined cam-and-gear wheel mounted thereon, the adjacent ends of the hubs of the pinion and cam-wheel being provided with teeth, of the sleeve having a collar, a spring for forcing the sleeve against the cam-wheel, a lever pivotally secured to the cam-wheel and provided with an anti-friction roller adapted to bear against the collar on the sleeve, the compressor-arm, and trip-bar, the latter adapted to engage the lever for the purpose of forcing the sleeve against the pinion.

6. The combination, with the main driving-shaft, pinion, and cam-wheel, of the sleeve, spring-lever pivoted to the cam-wheel and provided with an anti-friction roller which bears against the collar on the sleeve, and the curved trip-bar actuated by the compressor-arm and adapted to shift the sleeve from the cam to the pinion, and vice versa.

7. The combination, with the endless conveyer and packer-shaft and suitable tying mechanism, of the main driving-shaft pinion, combined cam-and-gear wheel, the lever secured to the latter, sleeve, spring, and trip-bar, all of the above parts adapted to operate as described.

8. The combination, with the cam-wheel having the cam-groove J therein, of the lever M, link N, bell-crank lever N′, connecting-rod N², and the cord-guiding arm K.

9. The combination, with the needle and needle-shaft, a compressor-arm shaft, compressor-arm yieldingly secured on said latter shaft, and intermeshing pinions secured to said shafts, of a main driving-shaft, a pinion loosely connected to said shaft, a clutch for locking the pinion to the shaft, devices connecting the needle-shaft and pinion, an arm connected with the compressor-arm shaft, and devices operating in conjunction with said arm for moving the clutch out of engagement with the pinion.

10. The combination, with the needle-shaft, the shaft I⁴, pinions connecting the said shafts, sleeve R, and compressor and ejector secured to said sleeve, of the crank R′, pitman R², pinion *j*, segment-gear U, stud on sleeve R, and spring V.

11. The combination, with the compressor-arm shaft, of the sleeve, compressor-arm, ejector, crank R′, pitman R², pinion *j*, and spring V.

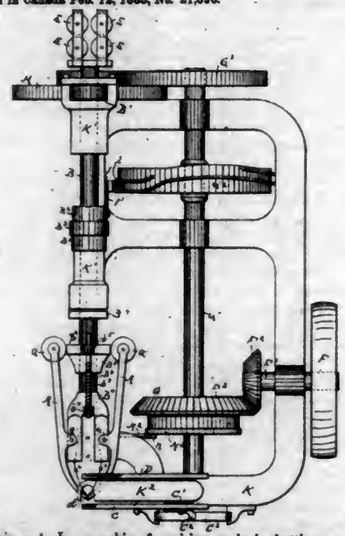
12. The combination, with the needle and compressor-arm, of the compressor-arm shaft having the right finger W thereon, for the purpose set forth.

13. The combination, with the compressor-arm, ejector, needle, and spring-actuated sleeve R, of the compressor-arm shaft having the finger thereon, substantially as set forth.

14. In a grain-binding harvester wherein the tying mechanism is situated above the platform, the combination, with suitable packers for delivering the grain, a compressor-arm shaft, a compressor-arm yieldingly secured on said shaft, and tying mechanism, of a main or driving shaft, loose wheels thereon and operating respectively the packing and tying mechanism, a clutch located between the wheels, and devices operated by the yielding compressor-arm for throwing the packing mechanism out of gear with the main or driving shaft.

15. The combination, with the compressor-arm, compressor-arm sleeve, and spring for holding the compressor-arm up in position, of the compressor-arm shaft and finger W, substantially as set forth.

318,955. MACHINE FOR WIRING THE CORKS IN BOTTLES. ORAMILL C. CARPENTER, Brooklyn, N. Y., assignor to Nathaniel B. Abbott, same place. Filed June 12, 1884. (No model.) Patented in England June 23, 1884, No. 9,297; in France July 17, 1884, No. 163,355; in Belgium July 19, 1884, No. 65,220; in Germany Nov. 10, 1884, No. 30,026, and in Canada Feb. 12, 1885, No. 21,096.



Claim.—1. In a machine for wiring corks in bottles, a rotary and reciprocatory shaft provided with four longitudinal tubes or holes through its entire length for conducting wires, and means for rotating and means for reciprocating said shaft, in combination with jaws for grasping the wires, mechanism for opening and closing the jaws, and means for rotating the jaws, substantially as described.

2. The sliding head-piece B³, provided with a locking or latching piece, A′, arranged to engage in a suitable notch or serration in the shaft B to hold the said sliding head secured in place with its jaws A closed, the said latch-piece being provided with a spring-lever, A³, which permits the latch to engage with its notch in the shaft at the end of its rearward stroke, and to engage with a fixed stop, A⁴, at the front end of its stroke, so as to release the said latch and allow the jaws to open.

3. The combination of a rotary sliding shaft, B, a head, B⁴, fixed thereto, and provided with a lug or lugs, *b*⁴, wire-grasping jaws A, pivoted to said fixed head, and provided with arms extending back of said fixed head, a sliding tapered head, B³, on said shaft, provided with a lug or lugs, *b*³, a rod or rods, B⁶, connecting said heads, a spring or springs, *b*⁵, on said rods for throwing the sliding head out of contact with said arms, and means for moving said sliding head between said arms for closing the jaws, substantially as described.

4. The nippers C, operated by the elliptical cam C′, the connecting-rod C⁵, the cam C⁶, and the operating-cam C⁴ on the shaft G′, which close the said nippers quickly and hold them closed for a considerable part of the time of each revolution of the shaft G′, substantially as described.

5. The spring C⁸, arranged to habitually throw the nippers C inwardly, but with such a yielding pressure as to allow them to move slightly from the bottle during the wiring operation.

6. The combination of a rotary sliding shaft, wire-grasping jaws pivoted thereto, a sliding tapered head on said shaft in rear of the pivot-points of the jaws, means for sliding said head, a catch for holding said head, and an adjustable stop for releasing said catch, substantially as described.

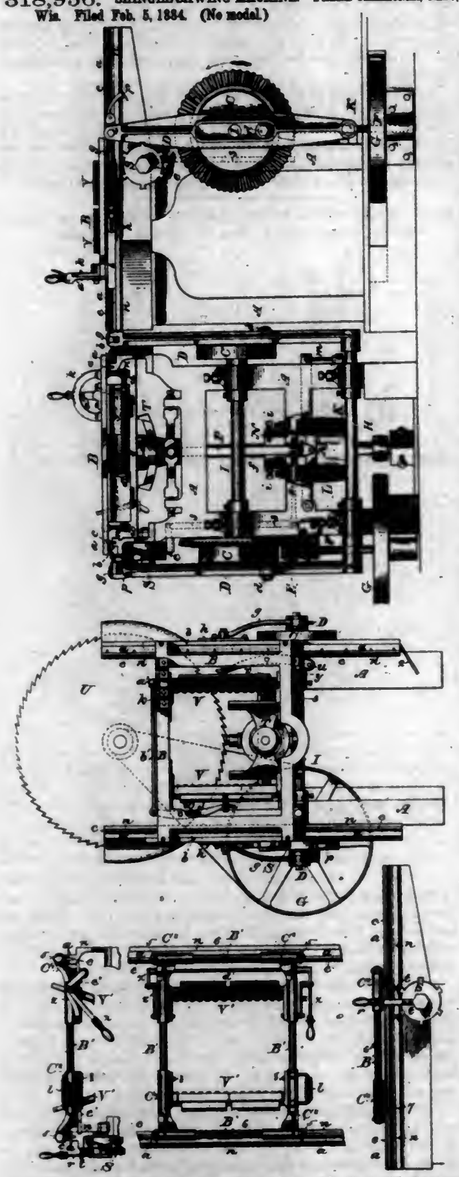
7. The combination of the bottle-wiring mechanism, the motion-transmitting mechanism, the clutch, and a recoil-stop consisting of a spring-catch, M, and a stop on the wheel H of the motion-transmitting mechanism, substantially as described.

8. In a machine for wiring bottles, the combination of a rotary reciprocating shaft, pivoted wire-grasping jaws connected thereto, and a sliding tapered head on said shaft for closing said jaws, substantially as described.

9. In a machine for wiring bottles, the combination of a rotary reciprocating shaft, pivoted wire-grasping jaws connected thereto, a sliding tapered head on said shaft for closing said jaws, and a spring to open said jaws, substantially as described.

10. The reciprocating shaft provided with wire-conducting tubes or holes, the clamping-jaws and means for rotating them, and the sloping sliding head, in combination with the nippers C and their actuating mechanism.

318,956. SHINGLE-SAWING MACHINE. FRANK CHALLONER, Omro, Wis. Filed Feb. 5, 1884. (No model.)



Claim.—1. In a shingle-machine, the combination, with the power-carriage ways *n n* and slicing-saw U, of the narrow hand-carriage ways *c c*, raised upon and supported by said ways *n n*, parallel thereto, and a light removable hand-carriage, substantially as and for the purposes set forth.

2. The combination, in a shingle-machine, of the power-carriage B, rabbeted on the inner upper corners to receive the overlapping cap-plates *a a*, the externally-rabbeted ways *n n*, in which said guides *b b* are adapted to slide, and cap-plates *a a*, substantially as and for the purposes set forth.

3. The combination, in a shingle-machine, of a carriage, B, provided with guides *b b*, the ways *n n*, grooved to receive said guides *b b*, upright yokes D D, secured at their lower ends upon the ends of the transverse shaft K, and connected at their upper ends with the ends of said carriage B, and wheels C C′, mounted upon the ends of the transverse shaft I, and provided with the crank-pins and friction-rollers *d d*, passing through central vertical slots in said yokes D D, together with mechanism for rotating said wheels C C′, substantially as and for the purposes set forth.

4. In a shingle-machine, the combination of a power-carriage adapted to move back and forth over the slicing-saw in ways raised upon the frame of said machine, together with yokes D D, pivoted at their lower ends to said frame, connected at their upper ends with said carriage by means of pivoted rods *g g* and slotted adjusting-plates *h h*, and provided with the central vertical slots through which protrude the crank-pins and friction-rollers of gear C and crank-wheel C′, shaft I, having bearings in the frame of the machine, and supporting gear C, and crank-wheel C′ at its ends, and small bevel-gear E, mounted on the top of vertical shaft F, to which is keyed the driving-pulley G, substantially as and for the purposes set forth.

5. In a shingle-machine, the combination of the ways *n n*, provided with outwardly-opening grooves to receive the guides *b b* of the carriage B, and of the narrow steel ways *c c*, set into and secured in ways *n n*, substantially as and for the purposes set forth.

6. In a shingle-machine, the combination of carriage B, yokes D D, pivoted below to the frame A, and connected with the ends of said carriage by rods *g g*, gravitating pawl *p*, pivoted to the front end of one of said rods *g*, cam S, tilting grate T, provided with upright stock P, which rests in pivoted cup o, together with their connections, and mechanism, as described, for vibrating said yokes D D, substantially as set forth.

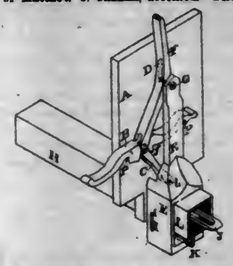
7. In a shingle-machine, the combination, with the slicing-saw U and tilting grate T, of the power-carriage ways *n n*, and the narrow hand-carriage ways *c c*, raised thereon and supported by said ways *n n*, and the interchangeable power-carriage B and hand-carriage B′, substantially as and for the purposes set forth.

8. The combination, in a shingle-machine, of a hand-carriage, ways *c c*, upon which it moves back and forth over the saw U, tilting grate T, provided with stock P, which is supported in the cup o, pivoted in the lever M, cam S, and actuating hand-lever *r*, together with their connections, substantially as and for the purposes set forth.

318,957. ART OF RECUTTING FILES. LUKE CHAPMAN, Collinsville, Conn. Filed Mar. 11, 1885. (No specimens.)

Claim.—The art of recutting files which consists in coating the file with copper, and then submitting it to the action of an acid bath, substantially as herein described.

318,958. CAR-COUPLING. JESSE R. COOLBAUGH, Wyoox, Pa., administrator of Matthew C. Cannan, deceased. Filed June 7, 1883. (No model.)



Claim.—1. In a car-coupling, the combination of the upright lever, the cross-levers pivoted together, and the vertically-sliding box carrying the coupling-pin, whereby the coupling is effected from the top of the car, or from either side by operating one of the levers, substantially as described.

2. In a car-coupling, the combination of the vertically-sliding box provided with a coupling-pin, the side levers, and the lever connecting the said side levers to the sliding box, substantially as and for the purpose described.

3. In a car-coupling, the vertically-sliding box E, sliding over the draw-head, and into which the draw-bar passes, and provided with a coupling-pin, in combination with the toggle-jointed levers for operating the same, substantially as described.
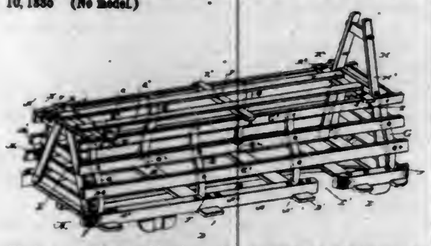
4. In a car-coupling, the combination, with the draw-head provided with the collar O, of the link pivoted to said collar, substantially as and for the purpose described.

5. The combination, with the draw-head, of an open link secured to said draw-head, the collar, to which said link is pivoted, the link-follower provided with a socket to receive the end of the link, and the spring V, substantially as and for the purpose described.

6. In a car-coupling, the combination, with the vertically-sliding box, the side levers pivoted together, and provided with the shoulders or offsets, in combination with pins P, whereby the levers and the coupling-pin are held in their proper place when the car is coupled or uncoupled, substantially as described.

7. A car-coupling comprising, in combination, the draw-head, the box provided with a coupling-pin sliding over and above the draw-head, the top and side levers for operating said sliding box, the link pivoted within and permanently secured to the draw-head, the draw-bar provided with the socketed head, and the springs in connection with the draw-bar, substantially as described.

318,959. WAGON-RACK. CHARLES COTTON, Olean, N. Y. Filed Feb. 10, 1885. (No model.)



Claim.—1. The combination, with the sectional side beams, the transverse beams, and the longitudinal bifurcated middle beam, of the curved standards having the rails secured thereto, and provided with staples, and the end-gates having the bolts on a slat near the bottom, as set forth.

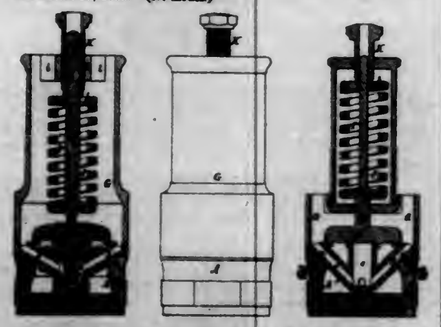
2. The combination, with the rack-sides and rack-cover having the slotted and notched cross-strips, of the S-hooks and keys for securing the cover in place, as set forth.

318,960. REVOLVING LETTER OR CHARACTER SIGN. JOHN CRAGG, Brooklyn, N. Y. Filed July 3, 1884. (No model.)



Claim.—A revolving letter or character sign consisting of letters, characters, or numbers D D D, made to revolve by being attached to the spindles of a series of cog-wheels, C, adapted to be driven by any form of motive power attached to a driving-wheel, B, in which driving-wheel the cogs are removed from *e* to *e*, thus allowing the letters, characters, or numbers to become stationary at intervals, and to be thus displayed as words, figurative characters, or series of numbers, or as a combination of words, characters, or numbers, all substantially as set forth.

318,961. SAFETY-VALVE. GEORGE H. CROSBY, Somerville, Mass. Filed Mar. 31, 1885. (No model.)



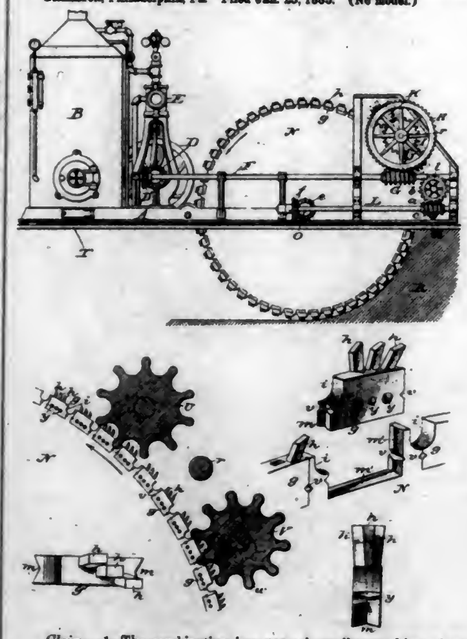
Claim.—1. In a safety-valve, the base or shell A thereof, provided with the two concentric annular valve-seats *a* and *b*, and with the central chamber, *c*, extending down from and opening through the inner of said seats, and with passages *g*, leading out of the said chamber and opening upward into the space encompassing the valve D and within the case G, surrounding and extending above such valve, all being substantially as set forth.

2. The base or shell A, provided with the two annular concentric valve-seats *a* and *b*, and with the central chamber, *c*, extending down from and opening through the inner of such seats, and with passages *g*, leading out of such chamber and inclined upward to and opening into the space encompassing the valve D and within the case G, surrounding and extending above such valve, all being substantially as set forth.

3. The base or shell A, provided not only with the two annular concentric valve-seats *a* and *b*, the central chamber, *c*, extending down from and opening through the inner of the said seats, and the passages, *g*, leading out of such chamber and opening upward into the space encompassing the valve, but with a screw, *n*, screwed into such shell, so as to extend into one of such passages transversely thereof, all being essentially as represented.

4. The base or shell A, provided with the two annular concentric valve-seats *a* and *b*, the central chamber, *c*, opening through and down from the inner of such seats, and the passages *g*, leading out of such chamber, in combination with the valve provided with guides arranged above its seat, whereby the said chamber becomes entirely unobstructed for the passage of steam into and through and from it, as set forth.

318,962. STONE-CUTTING MACHINE. JOHN CRUMP and RICHARD BERRETON, Philadelphia, Pa. Filed Jan. 23, 1885. (No model.)

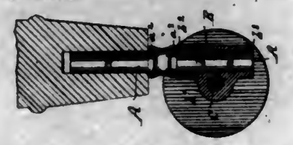


Claim.—1. The combination, in a stone-channeling machine, of one or more disks, N, provided with a series of detachable blocks, *g*, each having a recess, *i*, for the teeth of the driving-wheel to bear against, and one or more driving-wheels, U, having its teeth arranged to engage with and bear against the recesses in said blocks, with mechanism, substantially such as shown, for imparting motion to the same.

2. The detachable blocks *g*, arranged to fit in recesses in the periphery of the disk N, said blocks being provided with a series of sockets of differing inclinations laterally for the reception of the straight teeth or tools A, whereby the projecting points of said teeth are made to spread and cut a channel of greater width than the thickness of the disks or blocks without any curvature of the teeth or any lateral cutting-lips formed thereon, substantially as shown and described.

3. The combination, in a stone-cutting machine, of the frame A, with one or more cutting-disks, N, mounted therein, and an engine, E, mounted on said frame and having its shaft P connected at opposite sides by means of bevel-gear with shafts F, mounted in bearings at opposite sides of the frame, said shafts being each provided with a worm, G, engaging with worm-wheels H, connected by suitable intermediate gearing with the drive-wheel U, having its teeth or ribs arranged to engage with notches in the periphery of the disks N, the whole being arranged to operate substantially as shown and described.

318,963. CASTER. GEORGE W. CUREY, St. Louis, Mo. Filed Nov. 10, 1884. (No model.)

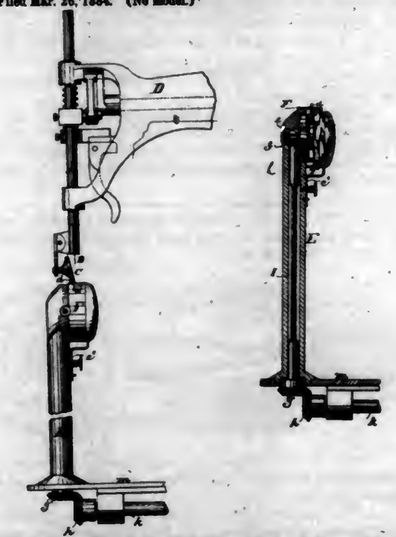


Claim.—1. In an improved caster, the combination of a reversible shank or spindle, and the reversible socket-collar supported to turn on rollers, substantially as and for purposes set forth.

2. The combination of the shank or spindle having shoulders at a^2 a^3, the socket-collar piece B, consisting of a socket, *b*, open at both ends, and the collar *b'*, mounted to turn on the axis of a pair of rollers, substantially as and for the purposes set forth.

3. The combination, with a pair of rollers, of the axis C, carrying the socket-collar piece B, consisting of the socket *b*, open at both ends, and its collar *b'*, the latter turning freely on said axis, substantially as and for the purpose set forth.

318,964. SEWING-MACHINE. GEORGE H. W. CURTIS, Brooklyn, N.Y. Filed Mar. 26, 1884. (No model.)



Claim.—1. In a sewing-machine for sewing hollow articles, the combination of a vertical hollow standard terminating at the top in a hollow side overhanging bulb, F, a rotating hook arranged in a vertical plane upon a horizontal shaft within said bulb, a pressing device arranged above and directly over said overhanging bulb, and operating with the feed-dog to feed the material, and a vertical gear-operating shaft having gear-connection with the shaft of said rotating hook arranged within the standard at the side of the overlapping bulb, substantially as and for the purpose herein set forth.

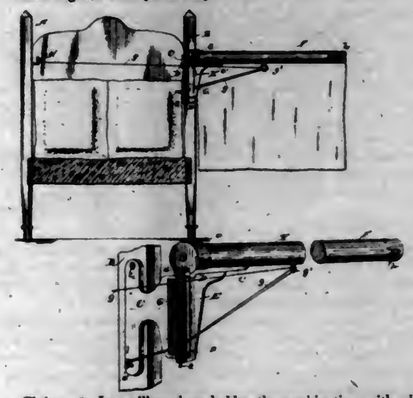
2. In a sewing-machine for sewing hollow articles, the combination of a tubular substantially vertical standard, E, constructed with a horizontal substantially cylindrical or overhanging bulb having a bearing communicating with the interior of the said tubular standard, the vertical revolving hook placed in said bulb in a position transverse to the same, the shaft G, working through the bore of the bulb, and having attached to it the hook at one end and the bevel-pinion *e*, and the shaft I, arranged in bearings in the vertical tubular standard, and having the bevel-pinion *f*, gearing into the pinion *e*, the said parts being constructed and arranged for joint use and operation, substantially as and for the purpose herein set forth.

318,965. DEVICE FOR FASTENING MOUTH-PIECES TO GAS-RETORTS. JOHN DELL, St. Louis, Mo. Filed Aug. 9, 1884. (Model.)



Claim.—The combination of a retort having recesses near its front end, the mouth-piece having a flange, a clamp having one end turned to enter a recess, and the other end turned to take over the flange, and a set-screw fitted in the clamp and bearing against the flange.

318,966. PILLOW-SHAM HOLDER. WILLIE E. DEWEY, Racine, Wis. Filed Aug. 4, 1884. (No model.)



Claim.—1. In a pillow-sham holder, the combination, with a head-post of a bedstead, of a horizontally-swinging pole hinged thereto, substantially as set forth.

2. In a pillow-sham holder, the combination, with a bracket secured to a head-post, of a sham-supporting horizontally-swinging pole hinged thereto, and a cord for operating the same, substantially as set forth.

3. In a pillow-sham holder, the combination, with a bracket secured to a head-post, of a spring-actuated horizontally-swinging pole hinged to said bracket, substantially as set forth.

4. In a pillow-sham holder, the combination, with a bracket secured to one of the head-posts, and a pole journaled on said bracket and adapted to swing in a horizontal plane, of a spring for swinging or forcing the pole to one side or away from the bed.

5. In a pillow-sham holder, the combination, with a horizontally-swinging sham-support operated by a spring and cord, of devices for locking the support in position across the head of the bed, substantially as set forth.

318,967. BARBED-WIRE SPOOL. ANDREW F. DICE, Joliet, Ill. Filed Oct. 23, 1884. (No model.)



Claim.—1. In a spool for spooling wire, the removable rotating cross-bars *c*, having the prods *a* hinged thereto, as shown, and key-aperture *a'*, in combination with the tie-wire D and ends or heads of the spool, as and for the purpose set forth.

2. A spool for spooling wire, formed of the two wooden ends or heads B B' and the removable rotating cross-bars *c*, formed of metal tubes, and having the prods *a* hinged thereto, as shown, for connecting said heads, and key-aperture *a'*, substantially as and for the purpose set forth.

3. In a spool for spooling wire, the removable rotating tubular cross-bars *c*, having the hinged prods *a* attached thereto, as shown, and key-aperture *a'*, in combination with the heads B B' of the spool, by means of which cross-bars said heads are detachably connected, substantially as and for the purpose set forth.

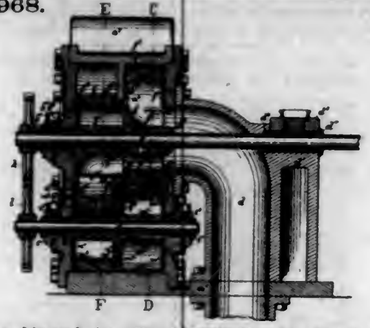
4. The combination of the heads B B', tubular cross-bars *c c*, having the hinged prods *a* and key-aperture *a'*, wire W, and supporting-posts R R, arranged to stand between the arms of said heads loosely and within the wire wound on the spool, and held in place by said wire coil, as and for the purpose set forth.

5. The combination of the heads B B', tubular cross-bars *c*, having the hinged prods *a* and key-aperture *a'*, and wire W, as and for the purpose set forth.

318,968. DUPLEX-CRANK PISTON-PUMP. JOSIAH DOW, Lowell, Mass. Filed Mar. 10, 1884. (No model.)

Claim.—1. In a pump, the rotary hollow cylinder *f*, provided with

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screw-shaped internal wings, f'', and formed with an inlet-channel at its end, said channel on one side of said wings extending through to the opposite end of the cylinder and on the other side through the periphery thereof, substantially as described.

2. In a pump, the hollow cylinder *f*, formed with a supply-channel having its inlet at the end of said cylinder, a discharge-channel leading out through the periphery of the cylinder, and internal suction-wings located in said discharge-channel and forming a continuous guide for the fluid through said channel, substantially as described.

3. In a pump, the shell *a*, constituting a piston-chamber, in combination with an abutment-valve and a cylinder located within said shell and provided with a piston extending from its periphery and formed with a supply-channel communicating with an opening through the shell, said opening surrounding the shaft upon which the cylinder rotates and covering the open end of said cylinder, the supply-channel communicating with the piston-chamber through the periphery of its internal cylinder, the said piston-chamber having an exit-opening through the shell, substantially as described.

4. In a pump, the rotary hollow cylinder *f*, with its internal guide-wings, f'' f'', side opening, f^3, internal passage, f^4, piston f^5, piston-packing f^6, and segmental packings f^7 f^8 at the outer edges of cylinder *f*, as set forth.

5. In a pump, the shell *a*, having recess *a'*, the valve-cylinder *m*, fitted within said recess and having the portion m' cut away, in combination with the cylinder *f*, provided with the piston extending from its periphery and formed with an internal supply-channel communicating between the inlet-opening *c'* and the piston-chamber, the said inlet-opening surrounding the shaft upon which the cylinder rotates and covering the open end of said cylinder, said shell also having the exit-opening a^2, and the shafts of the cylinder *f*, and valve-cylinder *m* geared together, substantially as described.

6. In a pump, the shell *a a'*, with its perforated division-wall a^3, the rotary shaft *e*, having attached to it the respective hollow cylinders *f g*, located side by side, in communication, and having diametrically-opposed openings f^3 g^3 and pistons f^4 g^4, in combination with the shaft *i*, equally geared to shaft *e* by means of gears *k* and *l*, and having secured to it the respective valve-cylinders *m n*, each one having its cut-away portions m^3 n^3 arranged in diametrically-opposite positions and balancing each other, as set forth and described.

7. In a pump, the shell *a a'*, cast in one piece, the portion *a* adapted to serve as a pump-chamber for the reception of the rotary piston and intermediate connecting mechanism to the driving-shaft *e*, and having an air-chamber, a^2, formed on the side thereof and communicating directly with discharge-opening *a'*, in combination with an abutment-valve arranged in the part *a'*, substantially as described.

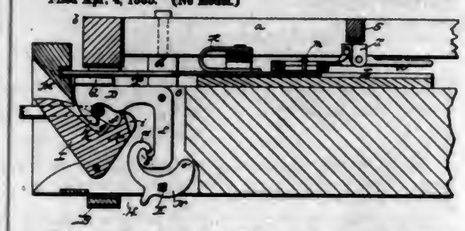
8. In a pump, the shell *a a'*, having grooves a^4 a^5, for the reception of wood or metal packings m^5 n^5, combined with the valve-cylinders *m n*, secured in diametrically-opposite positions on shaft *i*, and having segmental packing-rings m^6 n^6 at the junction of sides and ends of the said respective valve-cylinders, substantially as set forth.

9. The combination of the shell *a*, the hollow cylinder *f*, having piston f^5, extending from its periphery, the guide and suction wings f'' f'', forming an internal supply-passage having its inlet at the end and its discharge at the periphery of said cylinder, the said inlet communicating with the opening *c'* through the shell, and the supply-pipe *d*, covering said opening, and the shaft *e*, passing through said opening *c'* and the supply-pipe *d*, substantially as described.

10. In a pump, the rotary hollow cylinder *f*, with its internal guide or suction wings, f'' f'', having outer propeller-shaped edges, f^{10} f^{10}, at entrance from supply-pipe *d*, as shown and described, to facilitate the passage of the fluid to the interior of the pump, as set forth.

11. In a pump, the hollow cylinder *f*, having a piston extending from its periphery and provided with curved internal suction-wings forming continuous guides for the fluid in its passage through an internal channel having its inlet at the end and its exit through the periphery of said cylinder, substantially as shown.

318,969. CAR-COUPLING. DUNCAN K. EASTMAN, Charlestown, N. H. Filed Apr. 4, 1885. (No model.)



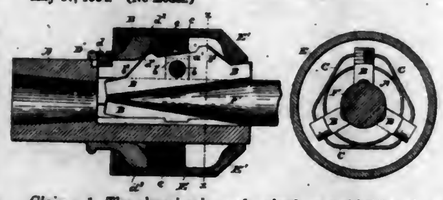
Claim.—1. In a device for coupling cars, the combination, with the draw-head having its lower wall slotted vertically and longitudinally, of the jaw I, arranged therein, having its forward upper side curved upwardly and rearwardly to a transverse shoulder, *f*, and provided in the said curved portion with a vertical longitudinal slot, *g*, adapted to receive a link-engaging hook, substantially as specified.

2. The combination, with the draw-head having its lower wall provided with a pivoted jaw, I, as described, of the guide arranged in the upper wall thereof, and the pivoted jaw D, having its forward longitudinal portion provided with a hook adapted to enter the slot in the said jaw, substantially as specified.

3. The combination of the draw-head, the link-engaging jaw, cam-lever N, the rods for operating the same, and the gimbal-joints connecting the hand-levers or rods with the pivoted rod of the link-engaging jaw, substantially as specified.

4. In a car-coupler, the combination, with the draw-head having the slideway and the link-engaging jaw, arranged as described, of the slide, its friction-spring, slotted hand-levers connecting the said slide, and the swiveled brackets supporting the said levers, all adapted to operate substantially as set forth.

318,970. CHUCK. AUGUSTUS E. ELLENWOOD, Akron, Ohio, assignor of two-thirds to Lewis Miller and Henry Young, both of same place. Filed May 17, 1884. (No model.)



Claim.—1. The clamping-jaws of a chuck or tool-holder, pivoted within radially-adjustable bearing-blocks, substantially as and for the purpose described.

2. The clamping-jaws of a chuck or tool-holder, pivoted within sliding bearing-blocks adjustable radially in the slots of the mandrel, substantially as specified.

3. The clamping-jaws of a chuck or tool-holder, pivoted within radially-adjustable blocks, in combination with means for adjusting the jaws, substantially as described.

4. The combination, with the mandrel, of the radially-moving jaws pivoted within the sliding adjustable blocks working therein, and the inner longitudinally-adjustable collar and the outer covering shell or collar, both provided with intermeshing screw-threads, and internal inclined faces for acting upon the inclined edges of the radially-moving clamping-jaws for adjusting the latter, substantially as and for the purpose specified

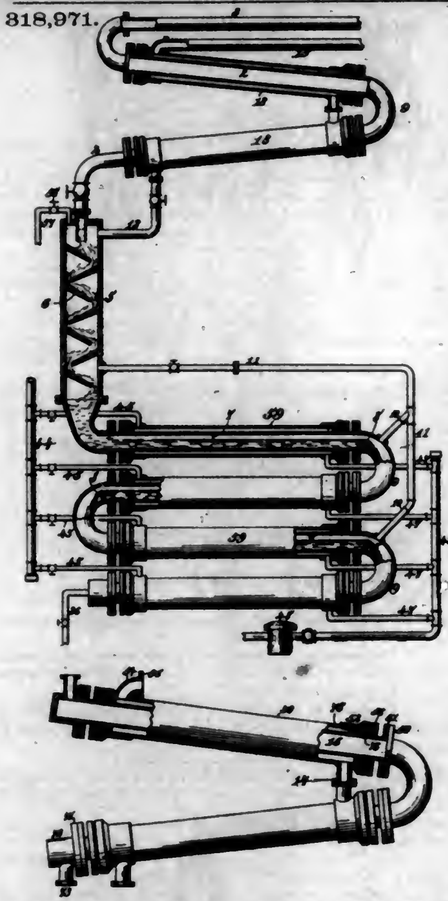
318,971. ABSORPTION ICE-MACHINE. CHARLES H. EVANS, New York, N. Y., assignor of one-half to Daniel E. Craig, agent, same place. Filed Sept. 19, 1884. (No model.)

Claim.—1. In an ice-making or refrigerating machine, an intercepter interposed between the inlet-pipe and the still, the cold ammoniacal liquor and the gas liberated by the still passing through said intercepter and exercising a reciprocal heating and cooling action, whereby the steam and watery vapor is condensed out of the gas and returned to the still, substantially as described.

2. In an ice-making or refrigerating machine, the combination, with the inlet-pipe and the still, of an interposed intercepter through which the cold ammoniacal liquor flowing to and the gas liberated by the still pass in opposite directions, whereby a reciprocal heating and cooling is effected, raising the temperature of the inflowing liquor and condensing the steam and watery vapor out of the gas and returning said condensed fluid to the still, substantially as described.

3. In an ice-making or refrigerating machine, an intercepter consisting of concentric pipes or tubes, through one of which passes the gaseous liquor to the still, the liberated gas passing through the other,

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the incoming liquor and outflowing gas passing in opposite directions for mutual action upon each other as to cooling and heating, substantially as set forth.

4. In an ice-making or refrigerating machine, a dome or stand-pipe interposed between the supply-reservoir and the still, consisting of an exterior casing and interior downwardly-projecting baffle or check plates alternately attached to and projecting from two opposite sides of the exterior casing, substantially as set forth.

5. In an ice-making or refrigerating machine, the combination, with the pipes forming the still, of internally and upwardly projecting check or baffle plates, whereby chambers for retaining the liquor are formed, substantially as set forth.

6. In an ice-making or refrigerating machine, the combination, with the pipes forming the still, of a series of pipes connected thereto and forming a by-pass or shunt-path for the liberated gas around the still, substantially as set forth.

7. In an ice-making or refrigerating machine, the combination of a supply reservoir or tank, a stand-pipe or dome, a still, and an intercepter for heating the incoming liquor, interposed between the supply-reservoir and the dome or still, substantially as set forth.

8. In an ice-making or refrigerating machine, the combination, with the steam chambers or spaces of the still, of a common supply-pipe, branches therefrom to each steam chamber or space, a common outlet or exhaust pipe, and branches therefrom to each steam chamber or space, substantially as set forth.

9. In an ice-making or refrigerating machine, the combination, with the steam or heating pipes or chambers, of a common supply-pipe, and a common exhaust or outlet pipe, and connections from both to each steam or heating pipe or chamber, whereby the heat and pressure are equalized throughout the still, substantially as set forth.

10. In an ice-making or refrigerating machine, the combination, with the dome or stand-pipe and the intercepter, of a branch connection delivering the freed gas into the space surrounding the supply-pipes, substantially as set forth.

11. In an ice-making or refrigerating machine, the combination of the still, the by-pass or shunt-path for delivering the freed gas around the still, the dome or stand-pipe, the intercepter, and the branch connection for delivering the freed gas from the dome or stand-pipe to the exterior chamber of the intercepter, substantially as set forth.

12. The combination, in an ice-machine, of an intercepter composed of the interior pipes and the exterior pipes eccentric thereto, with the chambered thimbles on the exterior pipes, containing packings, the glands or thimbles on the interior pipes, having tubular flanges or projections entering the chambered thimbles, and the return bends or elbows connecting the interior pipes for securing tight joints and permitting expansion and contraction of the part, substantially as described.

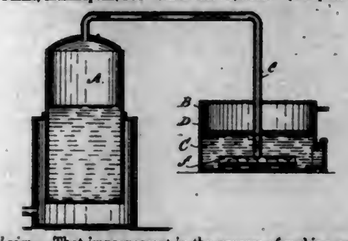
13. In an ice-making or refrigerating machine, the combination of the still, the weak-water cooling-chamber 78, and pipe-connections, substantially as shown, for passing the weak or spent water therethrough and partially cooling it on its road to the absorber, substantially as set forth.

14. In an ice-making or refrigerating machine, the combination of an intercepter, a stand-pipe or dome, a still, a condenser, a receiver, an expander and refrigerator, an absorber, and pipe-connections, substantially as set forth.

15. In ice-making or refrigerating machines, the improved method of heating the incoming liquor and cooling the outflowing freed gas, consisting in causing them to flow in opposite directions in contact with each other through the dome or stand-pipe, and out of contact in concentric pipes through the intercepter, substantially as set forth.

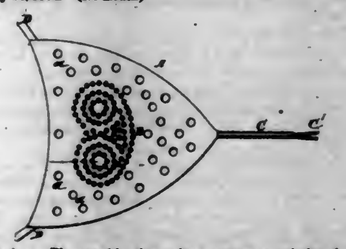
16. In an ice-making or refrigerating machine, the combination, with the still, intercepter, expander, and condenser, of the spent or weak water cooling-chamber 78, system of pipes 40, and pipe-connections therefor, substantially as set forth.

318,972. PROCESS OF MAKING AMMONIUM SULPHATE. EDWARD A. FALES, Indianapolis, Ind. Filed Feb. 16, 1885. (No specimens.)



Claim.—That improvement in the process of making sulphate of ammonia which consists in passing the vapor arising from the distillation of ammoniacal liquor through sulphuric acid covered with a layer of coal-tar, substantially in the manner specified.

318,973. ANIMAL-GUARD. JOHN H. FENTON, Chicago, Ill. Filed May 24, 1884. (No model.)



Claim.—The combination, with a mat or guard for the purpose specified, having straps for securing and holding the same in position, of the blunt-pointed flexible projections, all constructed substantially as described.

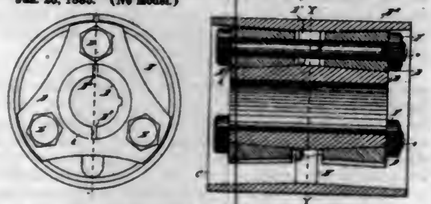
318,974. COLLAR OR SLEEVE BUTTON. DANIEL P. FITZGERALD, Newark, N. J. Filed Feb. 14, 1885. (No model.)



Claim.—1. A collar or sleeve button consisting of a single piece of metal wire having the head portion A and shoe portion C both integral therewith and both upset from the said wire, substantially as set forth.

2. A collar or sleeve button consisting of a single piece of metal wire having the head portion A and shoe portion C both integral therewith and both of varying thickness, substantially as and for the purpose described.

318,975. SHAFT-COUPLING. CHARLES E. GEE, Lowell, Mass. Filed Jan. 28, 1885. (No model.)



Claim.—1. The combination of a sleeve divided longitudinally into halves, said halves being connected by a web and tapering from said web toward the ends, two thimbles having tapering bores and internal longitudinal bolt-slots, bolts having threaded ends, and nuts turning upon said threaded ends against the outer faces of said thimbles, as and for the purpose specified.

2. The combination of an inner sleeve adapted to receive the adjacent ends of two lengths of the same line of shafting, and an outer sleeve concentric with said inner sleeve, a web connecting said outer and inner sleeves near the middle of the same, and provided with bolt-holes, said inner sleeve, outer sleeve, and web being slotted from end to end of said sleeves, said inner sleeve tapering from said web to the outer ends of said sleeve, two thimbles having tapering bores, and internal longitudinal bolt-slots, bolts having threaded ends and placed in said bolt-slots and nuts turning upon said threaded ends of said bolts against said thimbles, as and for the purpose specified.

318,976. SAW-SETTING DEVICE. THOMAS GIBBONS, St. Louis, Mo. Filed Feb. 14, 1885. (No model.)



Claim.—1. The combination, in a saw-set, with a rigid jaw having an anvil secured thereto and a setting-lever, of a jaw having its face located at an angle to the face of the said anvil, said jaw being movable on the rigid jaw in a plane parallel with the face of said anvil, substantially as set forth.

2. The saw-set having an adjustable jaw, K, with lip overlying the saw, side pieces or bars, K^3, forming guides, and slotted part K^3, having rounded upper side attached to the fixed jaw by screws, substantially as set forth.

3. The adjustable jaw K, having a lip, K', overlying the saw, side bars, K^3, and a slotted lip, K^3, made crowning, so as to have the described adjustment by means of the attaching-screws L.

4. The combination of jaw and handle made in one piece and having an anvil, G, a movable handle or lever, H, a setting-lever, D, actuated by the handle H, and an adjustable jaw having a lip, K', overlying the saw.

5. The combination of the piece A B with fixed anvil, setting-lever D, and hand-lever H, fulcrumed to the piece A B respectively above and beneath said piece, a spring beneath the setting-jaw, an adjustable jaw with a lip to overlie the saw, with an opening therein to reveal the teeth, side bars, K^3, a slotted lip, K^3, having a rounded bearing on the under side of part A B, and attaching-screws L, for the purpose set forth.

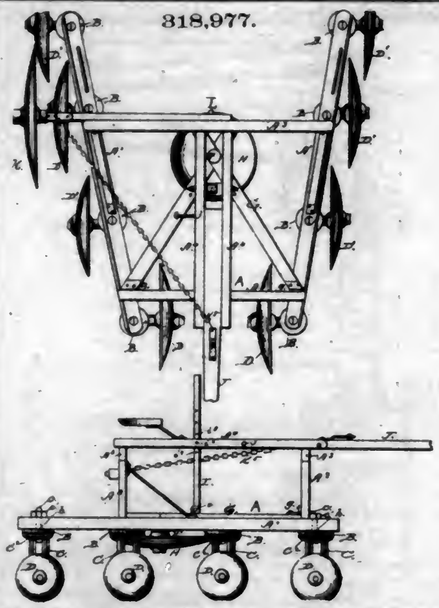
6. In a saw-set, the combination, with the rigid jaw having a straight back and a face formed at an angle thereto, of a movable jaw secured adjustably to the back of the rigid jaw, the faces of said jaws being parallel, as and for the purpose set forth.

7. In a saw-set, the combination, with a rigid jaw, of an adjustable jaw movable relatively to the rigid jaw in such a plane that the angle between the faces of the jaws shall remain unchanged, substantially as set forth.

318,977. COMBINED PLANTER, COVERER, AND MARKER. THEODORE GIFFORD, Columbus, N. J. Filed July 7, 1884. (No model.)

Claim.—1. In combination with the frame of a planter, as herein described, a horizontal covering-disk and means, substantially as shown, for varying its position in a vertical plane, as set forth.

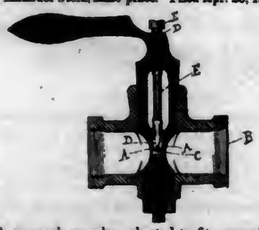
2. The pivoted frame G, having journal-pin g' and hinged perforated rod I, in combination with the bars A^4 A^5, the pin i^3, and the disk-coverer H, substantially as specified.



3. The pivoted arm K^3, having holes k^4 and marker-disk K, in combination with the spindle K', pivoted at k to the arm K^3, and the adjusting-pin k^3, for the purpose set forth.

4. The frame A, telescopic arm K^3, having a series of holes, k^4, spindle K', disk K, and pin k^3, in combination with the guy-chain K^5 and pole J, substantially as shown and described.

318,978. GAS-COCK. THOMAS GORDON, Philadelphia, Pa., assignor of one-half to Emanuel Stein, same place. Filed Apr. 28, 1884. (No model.)



Claim.—A gas cock or valve adapted to fit a gas-pipe and regulate the flow of gas therein, consisting of a plug recessed on its periphery to form a gas port or passage, A, and cross-drilled through such recess to form a second gas port or passage, C, open when the first is closed, and provided also with a central longitudinal opening, D, in combination with a central core, E, fitting in said opening D, and capable of being moved therein to cover and uncover at pleasure said gas-port C wholly or partially, as may be desired, said device being constructed and operating substantially as and for the purpose set forth.

318,979. TOOL FOR MOLDING THE MOLD-BOARDS OF PLOWS. WILLIAM M. GOREY, Willimantic, Conn. Filed Sept. 29, 1884. (No model.)



Claim.—A pattern (for that class of plow mold-boards in which a ledge is cast as an integral part of said mold-board) having the ledge-pattern e doweled removably to the mold-board pattern, and having on its under side core-prints i i, extending to the point of junction with said mold-board, all as and for the purpose specified.

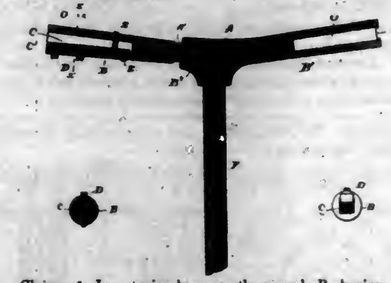
318,980. PLOW. WILLIAM M. GOREY, Willimantic, Conn. Filed Oct. 23, 1884. (No model.)

Claim.—1. In combination with the mold-board having the beam-standard a, ledge d, and point-supporting shell all cast integral with each other, the point C, extending above the point of junction with the mold-board, and having its landside face cut back, forming an acute angle with the line of movement of the complete plow, and a landside whose outer lower side (beginning at the point end) is formed with a gradually-increasing concavity, all as and for the purpose specified.



2. In a plow, a point-section whose landside face is cut back, forming an acute angle with the line of movement of the plow, a mold-board, substantially as described, and a landside whose outer lower side is gradually concaved from the point rearward, said landside being so cut away at its rear end that its heel is opposite the heel of the point, the complete plow being balanced on said heels, all of said elements being combined and used as and for the purpose specified.

318,981. TUNING-HAMMER. ANDREW W. GREEN, Peoria, Ill. Filed Oct. 3, 1883. (No model.)



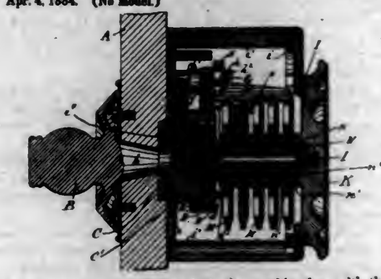
Claim.—1. In a tuning-hammer, the wrench B, having opening O, in combination with strip C and the screws D and E, substantially as and for the purpose specified.

2. In a tuning-hammer, the wrench B, having opening O and dovetail notch O', in combination with the strip C, having foot C', and the screws D and E, substantially as and for the purpose set forth.

3. The socket A, having wrench B' formed as a part thereof, in combination with the wrench B, removable from said socket, and the handle F, having screw-threaded end, substantially as and for the purpose specified.

4. In a tuning-hammer, the socket A, having the wrench B' formed as a part thereof, in combination with the wrench B, detachable from said socket and provided with means for retaining it therein, for the purpose set forth.

318,982. PERMUTATION-LOCK. HENRY GROSS, Chicago, Ill. Filed Apr. 4, 1884. (No model.)



Claim.—1. In a permutation-lock, the combination, with the operating-arbor, of a divided drive-wheel carried by said arbor and formed of two connected sections, each provided with a notch to receive a latch-bar when the notches of the drive-wheel sections are brought coincident, substantially as described.

2. In a permutation-lock, the combination, with the operating-arbor, of a double drive-wheel formed of two sections, one of which is fixed on the operating-arbor and the other of which is provided with a slot to receive a pin projecting from the adjoining section, substantially as described.

3. In a permutation-lock, the combination, with the operating-arbor, of a drive-wheel and a hub fixed upon said arbor, a drive-yoke encircling the arbor, and a latch-bar and a locking-bolt connected to said drive-yoke, substantially as described.

4. In a permutation-lock, the combination, with the operating-arbor and a hub and drive-wheel thereon, of the drive-yoke encircling the arbor, the locking-bolt and latch-bar attached to said yoke, and the dogging-lever connected with the latch-bar, substantially as described.

5. In a permutation-lock, the combination, with the locking-bolt having a shoulder thereon, of a dogging-lever having an end for engaging said shoulder, a latch-bar connected to said dogging-lever and to the locking-bolt, and a drive-wheel and arbor for operating said latch-bar, substantially as described.

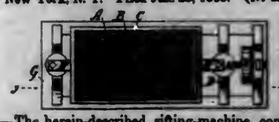
6. In a permutation-lock, the combination of an operating-arbor, a drive-wheel, a drive-yoke, a latch-bar and locking-bolt connected with said drive-yoke, a dogging-lever having an angle-bar, and a series of tumblers, substantially as described.

7. In a permutation-lock, the combination, with the main casing having a detachable back plate or cap carrying a journal screw-pin distinct from the main arbor, which terminates at the tumblers, of a series of tumblers having individual hubs or sleeves mounted on said journal-pin, substantially as described.

8. In a permutation-lock, the combination, with the series of tumblers and a journal-pin therefor, of a series of individual hubs or sleeves having reduced and cut-away portions, the reduced portion of one hub being of a size to fit within the cut-away portion of the adjoining hub, substantially as described.

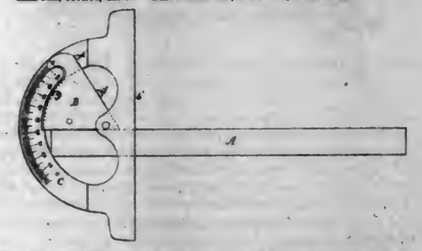
9. In a permutation-lock, the combination, with a series of tumblers and their journal-pin, of a series of individual hubs or sleeves for the tumblers, said hubs or sleeves having reduced or cut-away portions adapted to fit together, as set forth, and having the flanges to hold the tumblers apart, substantially as described.

318,983. BOLTING-MACHINE FOR FLOUR-MILLS, &c. JOHN V. HECKER, New York, N. Y. Filed Jan. 23, 1885. (No model.)



Claim.—The herein-described sifting-machine, comprising the vertical shafts geared to revolve together, the crank-disks M M, the frame B, having the arms B', and the sieve A, loosely held in said frame, so as to have motion in all directions, substantially as and for the purposes set forth.

318,984. BEVEL FOR DRAFTSMEN OR ARTIFICERS. JASPER J. HENDEE, Athol, Mass. Filed Mar. 16, 1885. (No model.)



Claim.—The bevel, substantially as described, consisting of the slotted head and its arch, the ruler grooved and extended through the head, as described, and the sector pivoted to the head and arranged against the ruler, and provided with mechanism for clamping such sector to the arch, and also to the ruler, as explained, the arch having upon it a scale of degrees and the sector having an index to extend therefrom to the scale, and all being arranged essentially as set forth.

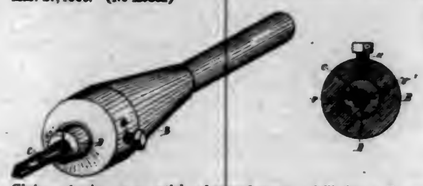
318,985. MANUFACTURE OF THERMOMETERS. JAMES J. HICKS, 8 Hatton Garden, County of Middlesex, England. Filed Mar. 9, 1885. (No specimens.)

Claim.—1. The mode of treating thermometer-tubes, which consists in annealing the tubes intermediate of the filling and marking operations, substantially as set forth.

2. The process of annealing thermometer-tubes after they have been supplied with mercury or other liquid and sealed or closed, which consists in submitting them for a considerable time to a temperature above the highest point to which they are required to indicate, and then pointing, dividing, and figuring, substantially as set forth.

3. The process of manufacturing thermometer-tubes, which consists in taking a length of tubing, forming an enlargement, prolongation, or chamber at the upper end, supplying the tube with mercury or other liquid, and sealing or closing it, submitting the tube for a considerable time to a temperature above the highest point to which it is required to indicate, and afterward pointing, dividing, and figuring it, substantially as set forth.

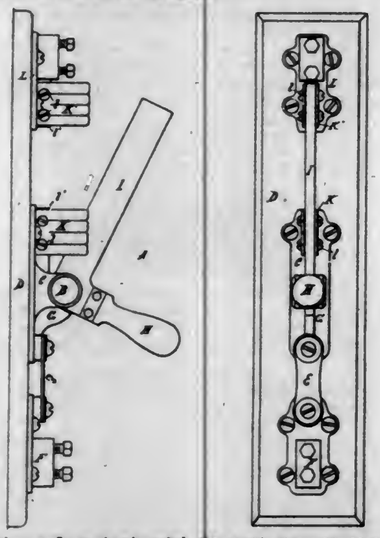
318,986. DRILL-CHUCK. IRA V. HEER, Kalamazoo, Mich. Filed Mar. 27, 1885. (No model.)



Claim.—1. As a new article of manufacture, a drill-sleeve, D, constructed with the longitudinal opening *v* and channel *v'*, substantially as and for the purpose set forth.

2. The combination of a side-open and channeled sleeve, a chambered drill-spindle, and a clamp-screw, substantially as and for the purpose specified.

318,987. ELECTRIC SWITCH. ARTHUR J. HOLT, Grand Rapids, Mich. Filed Jan. 6, 1885. (No model.)



Claim.—1. In an electric switch, the combination, with frictional contacts connected to the two terminals of the switch, of a bent lever pivoted intermediate its ends to one terminal plate, that portion of the lever on one side of its pivotal bearing consisting of a long conducting-arm arranged to engage the frictional contact, and that portion on the opposite side of its pivotal bearing consisting of a short insulated handle, substantially as set forth.

2. In an electric switch, the combination, with frictional contacts connected to the two terminal plates of the switch, of a bent or two-armed lever pivoted at the junction of its two arms to one of the terminal plates, one of said arms constituting a long conducting-arm and the other a short insulated handle, and a stop attached to one of the terminal plates for limiting the movement of the lever, substantially as set forth.

3. In an electric switch, the combination, with the two terminal plates and frictional contacts connected therewith, of a switch-lever adapted to engage said frictional contacts and arranged to move in a plane at right angles to the base of the switch, substantially as set forth.

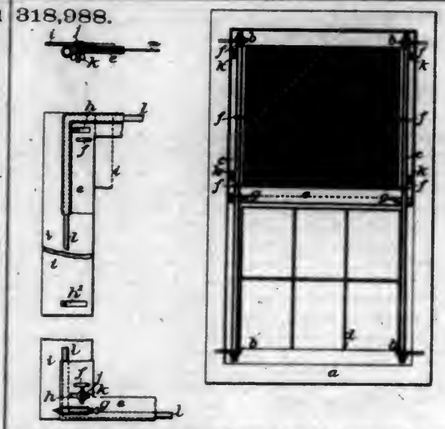
4. In an electric switch, the combination, with the two terminal plates, each having a frictional contact connected therewith, of a two-armed lever pivoted to one plate and adapted to be moved to engage with the frictional contacts on both terminals and a stop for retaining the conducting-arm of the switch-lever always in engagement with one of the frictional contacts, substantially as set forth.

5. In an electric switch, the combination, with two terminal plates and a pair of spring-contacts secured to each terminal, of a bent or two-armed lever pivoted intermediate its ends to one terminal plate, one arm of the lever consisting of a long conducting-arm adapted to be moved between the spring-contacts on each terminal plate, and the other arm constituting a short insulated handle, substantially as set forth.

318,988. WINDOW-SCREEN. FRANK HUBKA and ANTON HUBKA, Chicago, Ill. Filed June 6, 1884. (No model.)

Claim.—1. A rigid window-screen provided with eyes *f* upon one

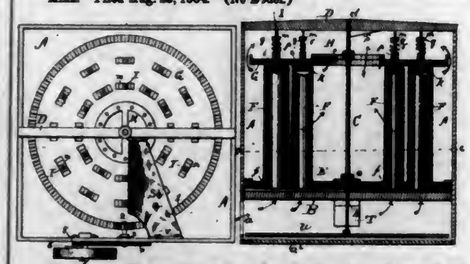
318,988.



of the face sides of the frame, and bolts *g* upon its lower edge, in combination with rods *c*, substantially as specified.

2. A window-screen having a rigid frame upon which there are eyes *f* on one of its faces, in combination with adjustable rods *c*, passing through said eyes, and supports *b*, substantially as specified.

318,989. DUST-COLLECTOR. ALEXANDER INGRAHAM, Minneapolis, Minn. Filed Aug. 23, 1884. (No model.)



Claim.—1. The combination of the rotating disks E and G, the dust-tubes F, the spring-rods connected with the heads of said dust-tubes, and the inclined plate S, all relatively arranged substantially as described.

2. The combination, with the perforated disk E, of the dust-tubes F, secured inside said perforations, the heads *k*, secured inside the dust-tubes at their upper ends, the disk G, carrying bridges *m*, the spring-rods I, attached to the heads of the dust-tubes, and the inclined plate S, all substantially as shown and described.

3. The combination, with the inclosing-casing, of a rotating dust-collector a little above the bottom thereof, and a bar or sweep secured to and moving with said collector to agitate the dust on the floor of the casing, substantially as described.

4. The combination, with the rotating disks E G and the dust-tubes F, of the bridges *m*, the rods I, attached to the heads of the dust-tubes, the springs *o*, for pressing said rods upward, and the piece S, for depressing said rods, as described.

5. The revolving disks E G and the dust-tubes F, in combination with the driving-gear 1, the small gear 2, the shaft 3, gear 4, and small gear 5, whereby the disks are made to rotate slowly and with uniform movement, substantially as described.

6. The wooden disk E, having perforations, the tubes F, secured therein and provided with wooden heads *k*, in combination with means for supporting said tubes at their tops, substantially as described.

318,990. PAPER-FILING IMPLEMENT. LAWSON P. KEEN, Brooklyn, N. Y. Filed Apr. 10, 1884. (Model.)

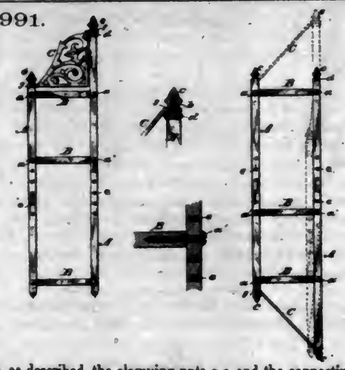


Claim.—The filing implement made of sheet metal folded as described, with wire bound along one edge and extended from one end sufficient to form a handle for withdrawing the same from the end of a volume, substantially as described.

318,991. FOLDING BOOK-RACK. WILLIAM H. KELLY, New York, N. Y. Filed May 6, 1884. (No model.)

Claim.—1. In a folding book-rack, the combination of the shelves pivoted to the posts, the rear corner-posts provided with fixed screw-

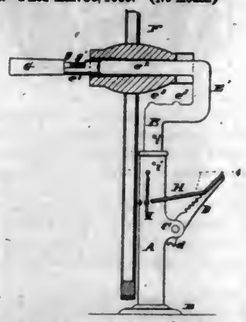
318,991.



bolts *b b*, as described, the clamping-nuts *c c*, and the connecting-rod D, provided with a horizontal eye, *d*, at each end thereof, through which fixed screw-bolts constructed on the rear posts pass, and further provided with hanging loops *d'*, as and for the purposes specified.

2. In a folding book-rack constructed with posts provided with fixed vertically-projecting screw-bolts *b* at the ends thereof, in combination with the connecting hanging rod D, provided with horizontal eyes *d*, through which the screw-bolts pass, as described, the braces C, provided with eyes *g g* at the ends thereof, through which the screw-bolts also pass, clamping-nuts *c c*, and shelves pivoted to the posts, substantially as set forth.

318,992. CARRIAGE AND WAGON JACK. PHILIP L. KOSCIALOWSKI, St. Louis, Mo. Filed Mar. 30, 1885. (No model.)



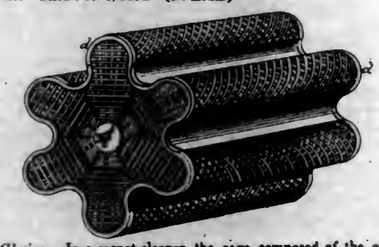
Claim.—1. A jack comprising a stand having an arm or horn adapted to sustain the end of the axle on the stand and to receive the wheel as it is removed from the spindle.

2. The combination, in the lifting-bar of a jack, of a curved nose adapted to engage the spindle end before the removal of the wheel from the spindle, and a horn, of which the nose forms the extremity, adapted to enter the bore of the hub and support the wheel.

3. The combination of lifting-bar having a horn, e^2, with nose e' and cog-rack *e*, and a treadle-lever, D, with cog-sector *d*, engaging the rack *e*, substantially as set forth.

4. The combination, in the lifting-bar E, of the head having a return-bend with horn e^2 and nose e', substantially as and for the purpose set forth.

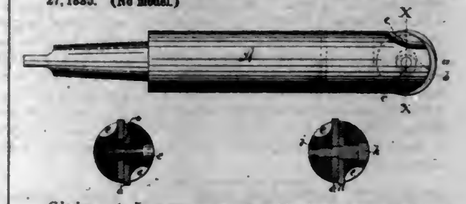
318,993. CARPET-CLEANER. WILLIAM H. LA FOUNTAIN, Cleveland, Ohio. Filed Nov. 3, 1884. (No model.)



Claim.—In a carpet-cleaner, the cage composed of the open or latticed heads, consisting of the spokes *a a*, covered with slats, and secured at the center to hubs *b*, provided with journals *c*, and having ogee rims constructed of curved angle-pieces *d*, forming a corrugated periph-

ery, to which are secured the alternately closed and slatted sides, the radial and bent internal slats, *e*, forming the incline end walls, substantially as described, and for the purpose specified.

318,994. REAMER. EVERETT L. LAKE, Syracuse, N. Y. Filed Feb. 27, 1885. (No model.)



Claim.—1. In reamers, an adjustable circular cutter, in combination with a holder, substantially as described.

2. In reamers, two square-faced circular cutters placed side by side in a holder, in combination with means for adjusting them axially, substantially as described.

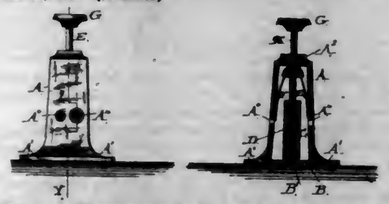
3. In reamers, two square-faced circular cutters placed side by side in a holder, in combination with means for adjusting them laterally, substantially as described.

4. In reamers, two square-faced circular cutters placed side by side in a holder, in combination with means for retaining them, substantially as described.

5. In reamers, two square-faced circular cutters placed side by side in a holder, in combination with means for adjusting them axially, and means for adjusting them laterally, and means for retaining them, substantially as described.

6. In reamers, a square-faced circular reversible cutter, substantially as described.

318,995. CIGAR-CUTTER. WILLIAM H. LILLY, Reading, Pa. Filed June 23, 1884. (No model.)

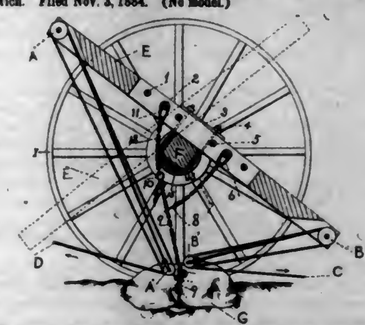


Claim.—1. The cigar-cutter herein described, consisting, essentially, of a tapering hollow case, A, having a removable bottom, and provided with side perforations, a central cylinder containing a spring, and a plunger carrying two flexible steel knives, substantially as set forth.

2. A plunger, E^2, for a double-knifed cigar-cutter, having stem E, abutment E', lips E^2, knob G, and flexible knives F, in combination with an internally-tapered case, A, spring D, tube C, center plate, B, and stem B', said case being provided with beveled perforations A^4, substantially as shown, and for the purpose described.

3. The removably-attached base center plate, B, with its stem B', tube C, and spring D, in combination with the plunger E^2, stem E, knives F, case A, and knob G, all arranged, adjusted, and adapted to be operated as and for the purpose set forth.

318,996. STUMP-PULLING MACHINE. FRANCIS P. MARGOT, Glenn, Mich. Filed Nov. 3, 1884. (No model.)



Claim.—1. In a stump-pulling machine, the combination of wheels I I, axle F, and rocking beam E, having the slot H, provided with pins 1 2 5 14, and sheaves B B and A A, arranged in the ends thereof, respectively, mounted on said axle F, and rigidly secured by straps 13,

plates 3, and nuts 4, and braces *a a a a*, with packing blocks or bearings 15, arranged upon three sides of said axle, and the chains 7 and 12, having grab-links 8 and 10 arranged in said slot H, substantially as described.

2. In a stump-pulling machine, the combination of the wheels I I, axle F, and rocking beam E, having the slot H, provided with pins 1 2 5 14, and sheaves B B and A A, arranged in the ends thereof, respectively, mounted on said axle, secured by straps 13, plates 3, nuts 4, and braces *a a a a*, and packing blocks or bearings 15, arranged upon three sides of said axle, the chains 7 and 12, having grab-links 8 and 10 arranged in said slot H, tackle-blocks B' and A', having lines C and D, respectively, arranged and adapted to actuate beam E in conjunction with sheaves A A and B B, substantially as described, and chain 9, adapted to act in conjunction with said chains 7 and 12, substantially as described.

318,997. ORNAMENTAL CHAIN. RUFUS S. MATTESON, Providence, R. I. Filed Dec. 1, 1884. (No model.)



Claim.—An ornamental chain composed of the links A of bent stock, having their ends *a a* turned inwardly, as shown, and the bead-links B, in whose concave interior surface said ends *a a* of the links A are engaged, substantially as specified.

318,998. SASH-FASTENER. JACOB F. MAUGANS, Bellefontaine, Ohio. Filed Feb. 2, 1884. (No model.)



Claim.—1. In a window-sash fastener and holder, the combination, with dogs G H, having the shoulders Y Z, and rack D, of the lever O and bolt U, for operating and locking the dogs.

2. In a window-sash holder and fastener, the combination, with the dogs G H, having the shoulders Y Z and rack D, of the supplemental dogs I I', as and for the purpose set forth.

3. The combination, with dogs G H, having the shoulders Y Z and rack D, of the lever O and wing M, in a window-sash holder and fastener, as and for the purpose set forth.

318,999. SIGHT FOR FIRE-ARMS. WM. MAYNARD, Boston, Mass., assignor, by mesne assignments, to William Maynard and Henry Mortimer, same place. Filed Mar. 23, 1885. (No model.)



Claim.—1. The combination of the tube-sight, slotted transversely, as described, with an eye-piece, substantially as represented, extended into the slot, such tube-sight being provided with a device or turn-button pivoted to it and arranged with its slot, and adapted to swing over it in order to secure the eye-piece in place, as set forth.

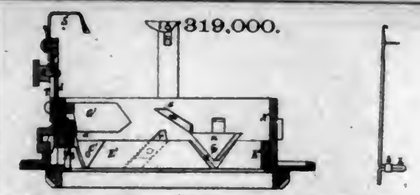
2. The combination of the eye-piece, substantially as described, having shoulders *i i*, and consisting of two concentric rings and their connection-piece, with a slotted tube-sight and a foresight, as represented.

3. The combination of the tube-sight, slotted transversely and having a mortised base, and adapted to swing over it in order to secure the eye-piece in place, as set forth, with the foresight having a tenon to extend into the mortise of the base, and a pin to go through the base and tenon, and with an eye-piece, substantially as represented, extended into the slot, such tube-sight being provided with a device or turn-button pivoted to it and arranged with its slot, as set forth.

319,000. KNITTING-MACHINE. WILLIAM H. MAYO, Lynn, Mass. Filed Mar. 19, 1884. (No model.)

Claim.—1. The cam F', constructed in two sections, *a* and *b*, and having one, *a*, of them movable vertically and the other stationary, in combination, and so as to operate, substantially as described, with the long and short beel needles, as represented.

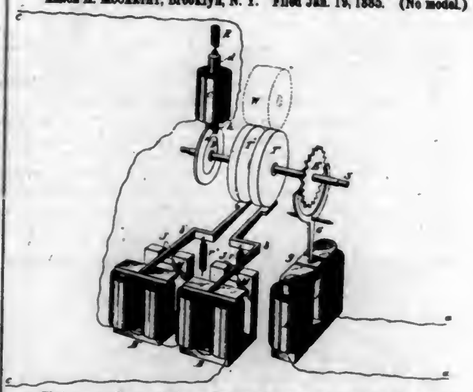
2. In combination with the cylinder N, and with its cam F', constructed in two sections, *a* and *b*, and having one of them movable and the other stationary, as described, the auxiliary yarn-guide *l* and the lip



m and two movable cams, *n* and *r*, arranged and applied substantially in manner and provided with mechanism for operating them as set forth.

3. The heeled needles provided with the collars on their heels, as explained, in combination, and arranged with the needle and skeleton cylinders as set forth.

319,001. UNISON DEVICE FOR PRINTING-TELEGRAPHS. LAWRENCE A. MCCARTHY, Brooklyn, N. Y. Filed Jan. 19, 1885. (No model.)

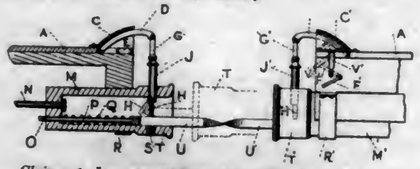


Claim.—1. In a printing-telegraph instrument wherein the escapement-magnets are in one circuit, controlling type-wheels and an escapement-wheel fixed on the same shaft, and in a second circuit are polarized magnets, each responding to a current opposite in polarity to the other for actuating the printing-levers, a unison device consisting of a neutral magnet placed in said second circuit, said magnet constructed with a sliding core and its retractile spring, together with a disk notched to receive the end of said core, fastened to the same shaft as the escapement and type wheels, all substantially as described, and for the purpose specified.

2. In a printing-telegraph instrument, a unison-magnet having a sliding core, in conjunction with a notched disk fastened to the type-wheel shaft, in combination with polarized magnets, printing-levers, and type and escapement wheels, all substantially as described, and for the purpose specified.

3. In a printing-telegraph instrument, the combination of a unison-magnet having a sliding core with a notched disk fastened to the type-wheel shaft, all substantially as shown.

319,002. CAR-COUPLING. MICHAEL G. MCCARTY, Grand Rapids, Mich. Filed Jan. 19, 1885. (No model.)



Claim.—1. In a car-coupling, the combination, with a draw-bar head, T, provided with a pin-receiving opening, S, having intersecting transverse grooves upon either side thereof, of the pendulous pin-support H, having the notch I, and the laterally-projecting arms L L, adapted to said grooves, and resting upon shoulders at the bottom of said grooves, suspending said pin-support in said draw-head at right angles to and in a line with the axis of said pin-receiving openings in a position to swing laterally underneath said pin-opening when the pin is raised, and the pin J, the connecting-rod G, and the arm D, hinged to the floor of the car, as shown, arranged substantially as described, and for the purposes set forth.

2. In a car-coupling, the combination of the pin-supporter H, the draw-bar M, and the link U, having stem P and actuating-spring Q, arranged substantially as described.

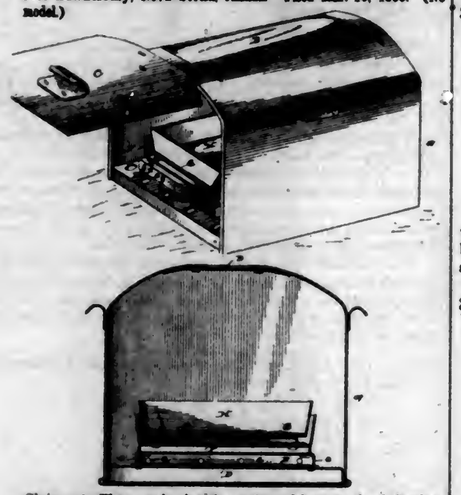
3. In a car-coupling, the combination of the shaft W, having end crank, E², and handles V, provided with dogs F F', with the arm D, having the rod G, and the pin J, suspended from arm D, arranged substantially as described.

4. In a car-coupling, the combination of the shaft W, having end crank, E², and handles V, arranged across the end of a car, and hood C, secured to the bottom of the car, for covering the arm D, the arm D, the brace G, and the pin J, arranged substantially as described, and for the purposes set forth.

5. In a car-coupler, the combination of the links U, having stem P, adapted to override each other, and their actuating-springs Q, and the pin-supporter H, arranged in the draw-head T, and the shafts W W', having handles V, and cranks E², arranged across the end of a car, and the arm D, rod G, and pin J, arranged substantially as described, and operating substantially in the manner specified.

6. The combination, in a car-coupler, of the links U, having stem P, and actuating-springs Q, adapted to override each other, the pin-supporter H, adapted to support the pin J, the crank-shaft W, arranged across the end of a car and adapted to lift the arm D, the arm D, secured to the floor of the car, and the pin J and rod G, the hood C, secured to the floor of a car and covering the arm D, and the dogs F F', secured to the side of the car and adapted to the handles V, arranged substantially as described, and operating as specified.

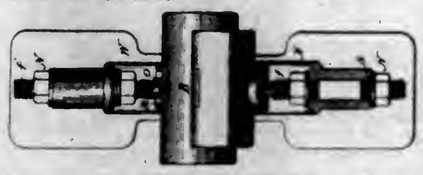
319,003. BAKING-OVEN. RONALD MCDONALD and CAMERON FRASER, Port Hawkesbury, Nova Scotia, Canada. Filed Mar. 10, 1885. (No model.)



Claim.—1. The oven having the perforated bottom, the deflecting-plate E, supported horizontally above the bottom, and the tray F, supported horizontally above the plate E, substantially as described.

2. The oven having the perforated bottom, the deflecting-plate E, supported horizontally above the bottom, and the tray F, supported horizontally above the plate E, said tray having the false bottom G, substantially as described.

319,004. SHAFT-HANGER. PHILIP MEDART, St. Louis, Mo. Filed Jan. 24, 1885. (No model.)



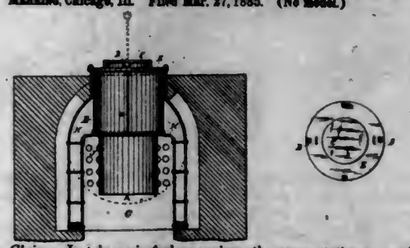
Claim.—1. In a shaft-hanger, the lateral slots *s s* in the arms of the hanger adapted to receive and hold the screw-bolts *f f'* and permit them to be shifted from side to side, for the purposes set forth.

2. In a shaft-hanger, a loose head, *o*, on the screw-bolt *f'*, fitting the recess R tightly in its shorter diameter and loosely in its longer diameter, all operating to take up any variation which the shaft-hanger A, when put up, may have from a perpendicular to the line of the shaft.

3. In a shaft-hanger, the arms of the hanger A, provided with the slots *s s*, in combination with the screw-bolts *f f'*, operating to adjust the box B to the line of the shaft.

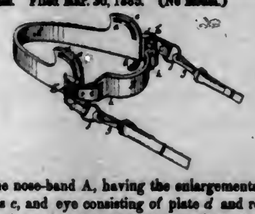
4. In a shaft-hanger, the combination of the loose head *o* on the screw-bolt *f'* with the oblong recess R and the screw-bolt *f'*, all operating to adjust the box B to the line of the shaft.

319,005. FUEL-MAGAZINE FOR STEAM-GENERATORS. GEORGE MERRING, Chicago, Ill. Filed Mar. 27, 1885. (No model.)



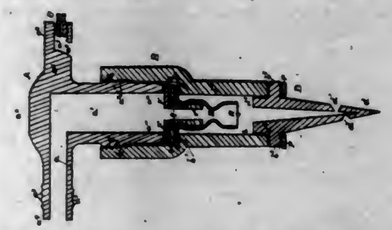
Claim.—In telescopic fuel-magazines, the upper stationary section, B, attached to the crown-sheet H and wagon-top F and placed over the grates of the fire-box, in combination with the lower section, A, and ring E, and also with the rods *a a*, which are attached to the said section A, extend through the ring E, and are provided with loop-handles D D at their top ends for suspending the lower section from the ring and elevating it, as and for the purpose specified.

319,006. DRIVING-CHECK FOR HORSES. ERASTUS L. METCALF, Franklin, Mass. Filed Mar. 30, 1885. (No model.)



Claim.—The nose-band A, having the enlargements *a b*, provided with curved slots *c*, and eye consisting of plate *d* and roller *e*, in combination with the clamp B and the looped straps C C, all constructed and arranged as and for the purpose specified.

319,007. VENT. HERMANN METZNER, North Springfield, Mo. Filed Apr. 3, 1885. (No model.)



Claim.—1. In a vent, a tube, A, having an opening, *a a'*, with threads a^2 a^3, and a cap, a^4, tube B, having threads *b*, shoulder *b'*, barrel b^2, shoulder b^3, tube D, having openings *d'*, flaring outwardly, sharp point *d*, and a washer, F, all substantially as shown and described.

2. In a vent, the combination of tube C, having a flange, *c*, tube E, having flange c^2, and end *e*, substantially as and for the purpose set forth.

3. In a vent, the combination of a tube, A, having an opening, *a a'*, threads a^2 a^3, with part B, having threads *b*, shoulder *b'*, barrel b^2, shoulder b^3, tube D, openings *d'*, and a point, *d*, with tube E, having flange c^2, and a tube, C, having flange *c* and lower end, c^3, substantially as shown and described.

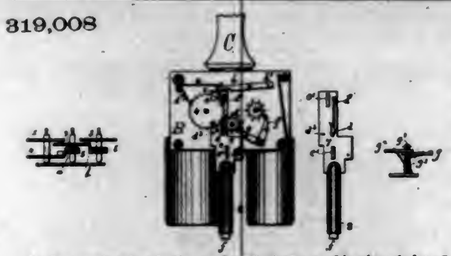
4. The combination, with a hollow punch, O, having opening a^7 a^8, of a vent composed of a tube, A, having an opening, *a a'*, tube D B, having shoulders *b' b²*, sharp point *d*, openings *d'*, washer P, tubes E C, and washer F, all substantially as and for the purpose set forth.

5. The combination of a tube, A, tubes D B, washer P, tubes C, E, and G, washer F, and punch O, all arranged and constructed substantially as and for the purpose set forth.

319,008. AUTOMATIC REGISTERING-STAMP. CHARLES C. MONTAGUE, Augusta, Ark. Filed Nov. 28, 1884. (No model.)

Claim.—1. In a registering device, as above described, the combination of plate 7, having hollow foot 8 and rubber cushion *f*, slots *c' c'*, working on pins *c c*, spring *d'*, and pawl *d*, pivoted to said plate and operating wheel 4, pin d^2, secured in said plate and checking said wheel 4, and springs *e* and *e'*, returning said plate to position, substantially as shown and described.

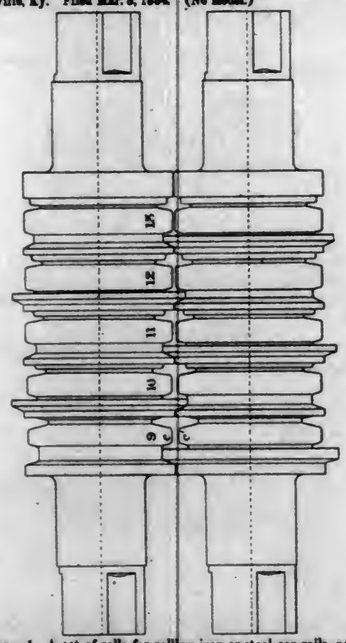
319,008



2. In a registering device, as described, the combination of plate 7, having foot 8, rubber cushion *f*, with springs *e* and *e'*, lever *h*, pin *h'*, and dial-plate 3, substantially as shown and described.

3. The combination of the registering device A with stamp C, said device being bound to the lower end of the handle of said stamp by the strap D and the straps E E, in the manner described, with its foot 8 extending below the lower end of said stamp, for the purposes described.

319,009. ROLL FOR ROLLING CAR-RAILS. ARTHUR J. MOXHAM, Louisville, Ky. Filed Mar. 3, 1884. (No model.)



Claim.—1. A set of rolls for rolling iron or steel car-rails, provided with a finishing-pass substantially of the shape shown in Fig. 4, and with roughing and finishing passes shaped and combined as described, whereby the web and foot of the rail are prepared in said passes for said final pass by elongation of metal, and the head and upper flanges of the rail are prepared in said passes for said final pass partly by uniform displacement and partly by elongation of metal, substantially as and for the purposes set forth.

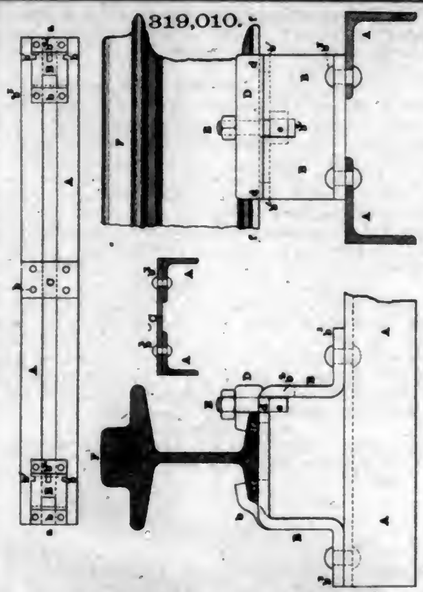
2. In rolls for rolling iron or steel car-rails, in combination with a finishing-pass substantially of the shape shown in Fig. 4, a series of roughing and finishing passes substantially of the respective shapes numbered from 1 to 12, inclusive, whereby the finished rail is produced from the original ingot, substantially as and for the purposes set forth.

319,010. METAL CROSS-TIE FOR RAILROADS. ARTHUR J. MOXHAM, Johnstown, Pa. Filed Feb. 11, 1885. (No model.)

Claim.—1. A hollow or skeleton metal cross-tie for street-railways built up of angle-pieces of the proportions substantially as described and with the edges of their horizontal flanges juxtaposed, said flanges being tied together and leaving between said edges sufficient width only for the admission of a tamping-tool for tamping earth or ballast between the inner sides of the vertical flanges, substantially as and for the purposes set forth.

2. A built-up metal cross-tie composed of two angle-pieces, spaced apart, as described, and tied together at top by end rail-chairs and a center tie-plate, leaving an opening or openings longitudinally in the

319,010.

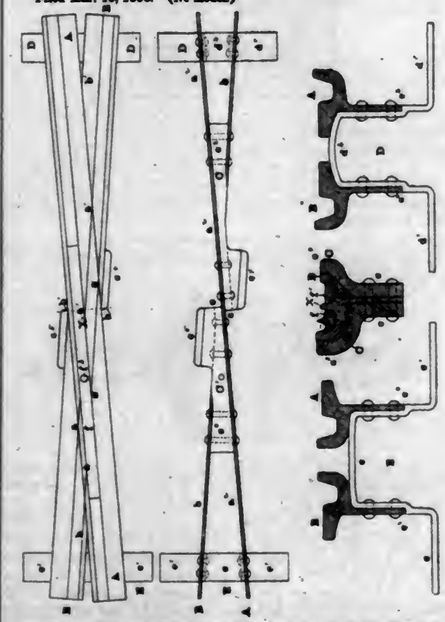


top of the cross-tie between the juxtaposed edges of its horizontal flanges, substantially as and for the purposes set forth.

3. A built-up metal cross-tie composed of two angle-pieces having horizontal flanges juxtaposed and spaced apart, as described, and tied together by a center piece and two end rail-chairs, each chair provided with one fixed and one movable lug for clamping the rails to said cross-tie, substantially as and for the purposes set forth.

4. A skeleton metal cross-tie having its ends tied together by a box-chair of plate metal provided with one fixed lug for clamping the flange of a rail and a movable lug for the same purpose, set in two side slots in said chair and bolted thereto through a central slot, substantially as and for the purposes set forth.

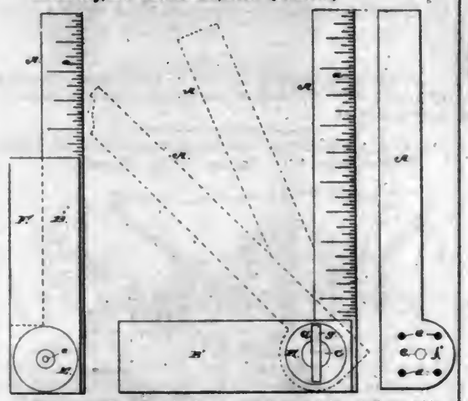
319,011. RAILROAD-FROG. ARTHUR J. MOXHAM, Johnstown, Pa. Filed Mar. 10, 1885. (No model.)



Claim.—A frog forming a crossing for the wheels of railway-cars, composed of rolled girder guard-rails, having the webs of said rails se-

cured together by a chock or chocks, and bolts or rivets near the apexes of said frogs, and said rails near their divergent ends secured to the rails of the track, substantially as and for the purposes set forth.

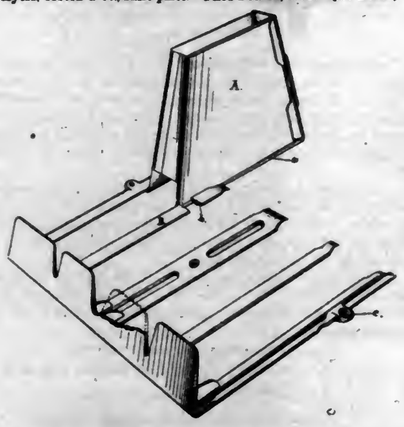
319,012. COMBINED SQUARE, MITER, AND BEVEL. JOHN MÜLLER, Kansas City, Mo. Filed Jan. 27, 1885. (No model.)



Claim.—1. In a combined square, miter, and bevel, the combination, with plates, of a blade pivoted between the same, downwardly-extending pins on said blade, openings in the lower plate to receive the same, and a supplemental plate between the plates B B', as set forth.

2. In a combined square, miter, and bevel, the combination, with the plates B B', the plate B having a series of openings and a screw-threaded opening, as shown, the plate B' having an opening surrounded by a countersink, of a blade having downwardly-extending pins, a set-screw having a finger-piece and a collar, and a supplemental plate fitted between the plates B B', as set forth.

319,013. OIL-STOVE. HARRY E. MYERS, Cleveland, Ohio, assignor to Myers, Osborn & Co., same place. Filed Dec. 24, 1883. (No model.)

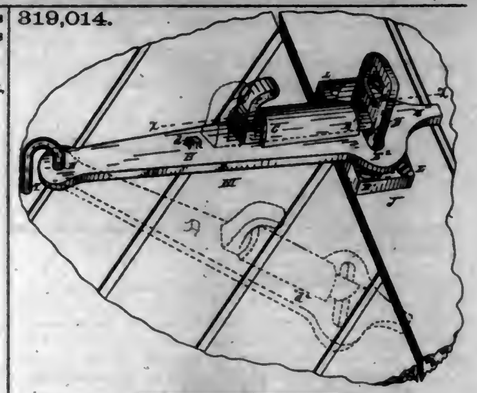


Claim.—In an oil-stove, the combination, with a wick-cone and a sliding chimney, A, formed with the outwardly-projecting bottom flanges, *a*, of the detachable bars B, located on the upper side of the cone-plate C and contiguous to its base, said bars being connected together at their rear end by stop D, cast solid with them, and said bars also provided, respectively, with the longitudinal groove *b*, formed on their under edge next to the wick-cone and the cone-plate, substantially as set forth.

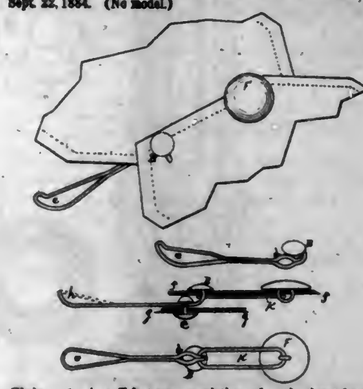
319,014. COMBINED HASP AND BOLT. ALBERT P. OLMSTEAD, Troy, N. Y. Filed June 23, 1884. (No model.)

Claim.—In a door or gate hasp, the combination of the hasp-body constructed with an eye for pivotal attachment at one of its ends, and made with an eye or slot to receive a staple at the other end, a latch-bolt and spring arranged on the outer face of the said hasp within a housing or side inclosure thereon, a staple adapted to be attached to a door-jamb and to receive the free eye end of the hasp when passed on over it, an upper and a lower opening in said staple, with the lower opening adapted to receive said bolt-latch, as shown and described.

319,014.



319,015. CUFF-FASTENER. GEORGE C. PAINE, Boston, Mass. Filed Sept. 22, 1884. (No model.)



Claim.—1. A cuff-fastener consisting of a wire bent into a loop, C, at the bight, and provided with a button or loop at its opposite end, and with a supplementary intermediate loop, *d*, as and for the purpose substantially as described.

2. The combination, with a cuff-fastener consisting of a wire forming a loop, C, and provided with a button, B, and a supplementary loop, *d*, of the loop K and button F, as and for the purpose substantially as described.

319,016. TOOL-HOLDER. ALONZO PAWLING, Milwaukee, Wis. Filed Nov. 24, 1884. (No model.)



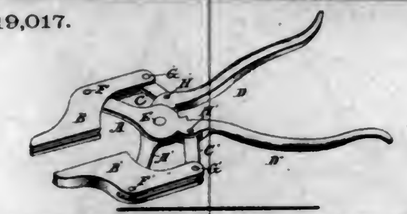
Claim.—1. The turning-tool holder consisting of the stock A, having an aperture crosswise near its front end for the cutting-tool and an intercepting aperture lengthwise for a key and adjusting-bolt, sliding key C, having its front end adapted to fit into recesses on the rear of the cutting-tool, and adjusting-bolt D, provided with a screw-thread working in a corresponding thread in the longitudinal aperture in the stock, and having a square head or equivalent means of turning said bolt, substantially as set forth.

2. The stock A, provided with sliding key C and adjusting-bolt D, in combination with cutting-tool B, having recesses *c* on its rear, and adapted to receive the front end of the key, substantially as described.

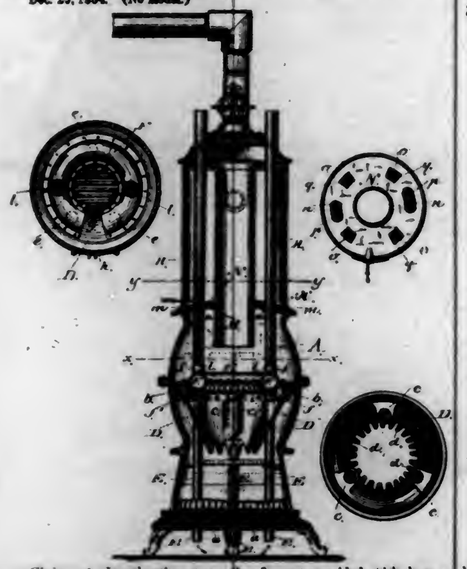
319,017. GRIPPING IMPLEMENT. GEORGE C. PAYNE, Washington, D. C. Filed Mar. 24, 1885. (No model.)

Claim.—In a gripping implement, the combination of the two levers A D' and A' D, pivoted together, the slotted gripping-jaws B B', pivoted to the outer extremities of the shorter arms A A' of the levers, and the links C C', pivoted to the rear ends of the gripping-jaws and pivoted in the slots of the longer lever arms or handles, the combination operating to keep the faces of the jaws parallel.

319,017.



319,018. HEATING-STOVE. OLE PEDERSON, Columbus, Ohio. Filed Dec. 29, 1884. (No model.)



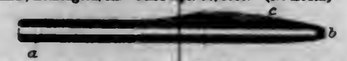
Claim.—1. In a heating-stove, the fire-pot provided with lugs e, and the cold-air pipes passing through the base of the stove, in combination with a horizontal segmental tubular chamber composed of two sections bolted together and formed with an opening between their ends, substantially as described.

2. In a heating-stove, the fire-pot, in combination with a horizontal tubular chamber formed in two sections, *f f'*, the section *f'* having three short depending tubes, *e*, and the section *f* having a less number of short tubes, *l*, arranged out of line with the tubes *e*, and pipes E and H, substantially as described.

3. In a heating-stove, the fire-pot and two-part horizontal and tubular chamber, in combination with cold-air pipes protruding through the base of the stove and engaging the lower section, *f'*, and a less number of hot-air pipes extending from the upper section, *f*, through the top of the stove, substantially as described.

4. In a heating-stove provided with a perforated plate, M, the combination, with it fire-pot and horizontal chamber, as described, of a register consisting of a sliding plate, N, having openings front and rear concentric slots engaging the pipes, and a means, such as a knob, for operating the plate to open or close the register, substantially as described.

319,019. COMBINED SAW-SET AND NAIL-PUNCH. ALBANO F. PERLMAN, Kensington, Ill. Filed Apr. 16, 1885. (No model.)



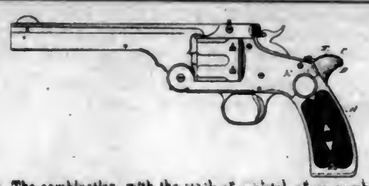
Claim.—1. A saw-set, as herein described, consisting of a bar, *a*, having on one side a fish-bellied edge, *c*, and sides *d d*, substantially as specified.

2. The combined saw and nail set formed of a bar, *a*, having point *b* and fish-bellied edge *c*, with flat sides *d d*, substantially as specified.

319,020. RECOIL ATTACHMENT FOR PISTOLS. HENRY G. PIFFARD, New York, assignor of one-half to Charles A. Tucker, Brooklyn, N. Y. Filed Feb. 20, 1885. (No model.)

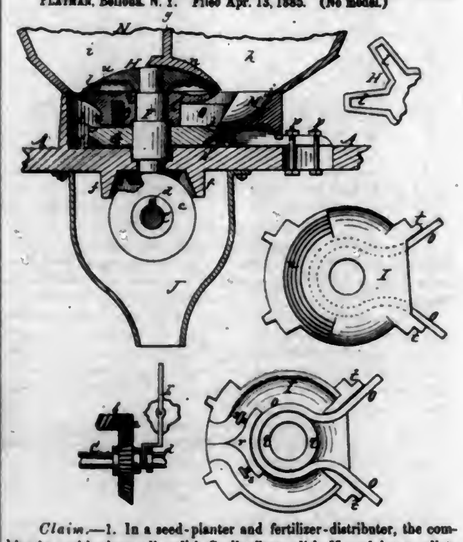
Claim.—1. The combination, with a pistol, of an elastic spur located above the grip and between the same and the barrel, as and for the purpose described.

319,020.



2. The combination, with the stock of a pistol, of an overhanging plate (as F) and an elastic cushion fixed beneath the same, as and for the purpose described.

319,021. SEED-DRILL AND FERTILIZER-DISTRIBUTER. ROBERT PLATMAN, Bellona, N. Y. Filed Apr. 13, 1885. (No model.)

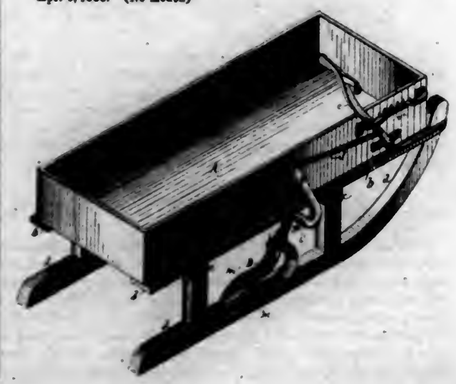


Claim.—1. In a seed-planter and fertilizer-distributer, the combination, with the seeding-disk G, distributer-disk H, and intermediate plate, I, of the rubber packing-strip O, set edgewise on the under side of the intermediate plate, bearing on top of the seed-disk, making a circuit around the shaft of the disks at the rear, and expanding in front to allow entrance of the seed to the seeding-disk, as herein shown and described.

2. In a seed-planter and fertilizer-distributer, the combination of the seed-disk G, the fertilizer-disk H, the intermediate stationary plate, I, and rubber packing-ring O, the intermediate plate being flat on the top at the rear and provided with the circumferential corrugations or ribs *u u*, as and for the purpose specified.

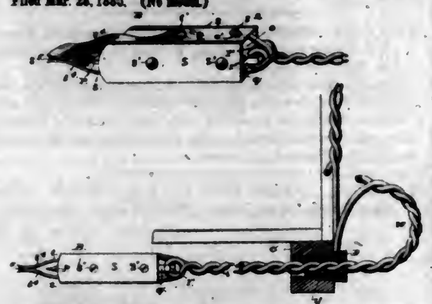
3. The combination of the seed-disk G, the fertilizer-disk H, the intermediate stationary plate, I, the rubber packing-ring O, and the separate seed-pocket M, arranged to operate in the manner and for the purpose specified.

319,022. SLED-BRAKE. BURD P. POTT, Thompson Falls, Mont. Filed Apr. 6, 1885. (No model.)



Claim.—The combination of the short arms g^3 of the lever-bar g', the foot-boards *b b*, side bars, *i i*, and dogs D, whereby the upward throw of the arms g^3 will be arrested by the boards *b*, and the dogs D held to their work and the sleigh prevented from backward movement, substantially as described.

319,023. RAILWAY-SIGNAL. SMITH C. PULLMAN, Catskill, N. Y. Filed Mar. 28, 1885. (No model.)

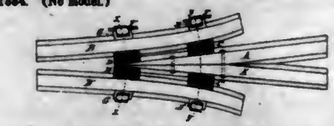


Claim.—1. The coupling B, having the projection *p*, rearwardly-extending shoulder *q*, having openings *r*, and the spring-plates *t*, that are secured to the body of the coupling, substantially as described.

2. The coupling B, consisting of the non-conducting body having the projection *p* and the rearwardly-extending shoulder *q*, having openings *r*, and the spring plates *t*, that are formed of conducting material and secured to the body of the coupling, said spring-plates being curved, as at *t'*, and adapted to come in contact with each other at their front ends when the couplings are disconnected, substantially as described.

3. The combination of the coupling, the wires, the rubber plug through which the wires are passed, and the cleat that is adapted to receive the plug, substantially as described.

319,024. RAILWAY-FROG. JOHN T. RENARDSON, Harrisburg, assignor of one-half to Alexander H. Ege, Mechanicsburg, Pa. Filed June 28, 1884. (No model.)

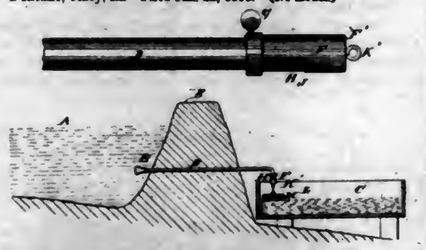


Claim.—1. A railroad-frog consisting of two solid points, constructed substantially as described, curved wing-rails, throat-pieces adapted to fit the point and wing-rail, brace-blocks bearing against the wing-rails, binding-bar having a split end, substantially as described.

2. The combination, with the point and wing-rail throat and brace-bars of a frog, of a curved binding-bar, and clips *k* for securing the bar in place, substantially as described.

3. The combination, with the wing-rail of a frog and the binding-bars therefor, of a section of angle-bar having notches, secured to the outer side of the wing-rails and between the binding-bars, substantially as described.

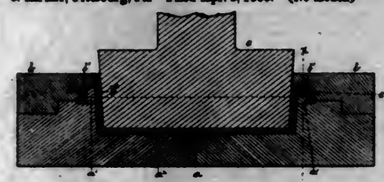
319,025. AUTOMATIC VALVE FOR DRINKING-TROUGHS. JAMES I. RICHEY, Olney, Ill. Filed Jan. 22, 1885. (No model.)



Claim.—1. The combination, with the supply-pipe and a valve seated thereon, of a valve case or cap fitted adjustably on the end of said pipe, a spring interposed between said valve and the end of said cap, and a weighted float connected with said valve, all constructed and arranged to operate substantially as set forth.

2. The combination, with the pipe D and the valve I, seated thereon, of the cap or valve-case F, secured adjustably to the end of said pipe by means of set-screw G, the spring J, interposed between said valve and the end of said cap or case, the valve-stem K', and the float M, suspended directly from said stem, substantially as and for the purpose set forth.

319,026. MANUFACTURE OF HANDLED GLASSWARE. DANIEL C. RIPLEY, Pittsburg, Pa. Filed Apr. 9, 1885. (No model.)



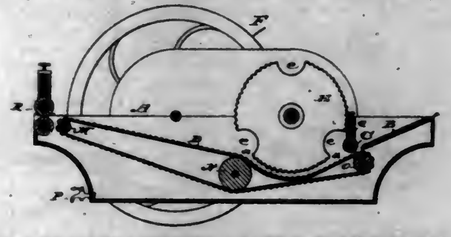
Claim.—The combination of a mold with its ring, one of which contains a lug, the inner side of which is flush with the adjacent side of a corresponding cavity formed on the other, the lug being shorter and narrower than the cavity, and the cavity communicating with the mold-cavity, so that the glass may flow around and over the end of the lug, substantially as and for the purposes described.

319,027. METHOD OF MAKING TWISTED BORING-TOOLS. CHAS. ROBIN, Chester, Conn. Filed Apr. 2, 1884. (No model.)



Claim.—The method of making a boring-bit which consists in swaging a blank with a plane and a concave side, and twisting the same to form a bit with a deep spiral groove on one side and a shallow spiral groove on the opposite side, as specified.

319,028. WASHING-MACHINE. WILLIAM ROCHLITZ, St. Louis, Mo. Filed Aug. 27, 1884. (No model.)



Claim.—1. The combination of the tub A, the endless carrier D, the rollers M N O, and the rubbing-roller E, having the recesses *e e e*, substantially as described.

2. The combination of the tub A, the apron B, the feed-roller C, the rubbing-roller E, having the recesses *e e e*, and the endless carrier D, and its supporting-rollers M N O, substantially as described.

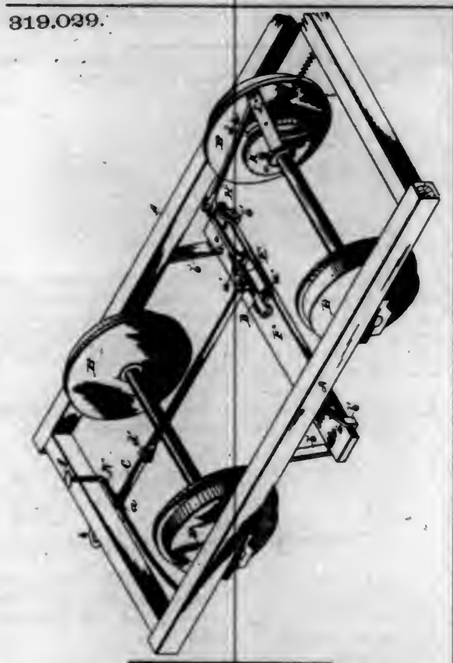
319,029. CAR-STARTER. SAMUEL ROCKAFELLOW, Muscatine, Iowa, assignor of one-half to William G. Reeve, Pera, Ill. Filed Mar. 13, 1885. (No model.)

Claim.—1. In a car-starter, the combination, with the rock-shaft E, placed in bearings under the car-floor, the levers D G, rigidly attached to the ends of the rock-shaft, the ratchet-wheel K, attached to an axle or a hub of one of the wheels of the car, the bifurcated lever L, provided with a pawl, *b*, and having collars *c* extended loosely around the ratchet-wheel hubs, and the connecting-arm H, jointed to the levers G and L, of the draw-bar C, having its lower end connected with the lever D, and means, herein set forth, for locking and unlocking the draw-bar, and for returning the bar and connecting devices to their ordinary position, substantially as and for the purposes described.

2. In a car-starter, the combination, with the rock-shaft E, the levers D G, the connecting-arm H, the bifurcated lever L, provided with the pawl *d*, and the draw-bar C, provided with the notch *c'*, of the spring-rod N, extended upward and provided with the foot-piece *f*, substantially as and for the purposes described.

3. In a car-starter, the combination, with the draw-bar C, rock-shaft E, levers D G, ratchet-wheel K, bifurcated lever L, and pawl *d*, of the connecting-arm H, provided with the lug *h*, adapted to catch over the upper portion of the pawl and hold it out of gear, and allow the free forward movement of the draw-bar, substantially as and for the purposes described.

319,029.



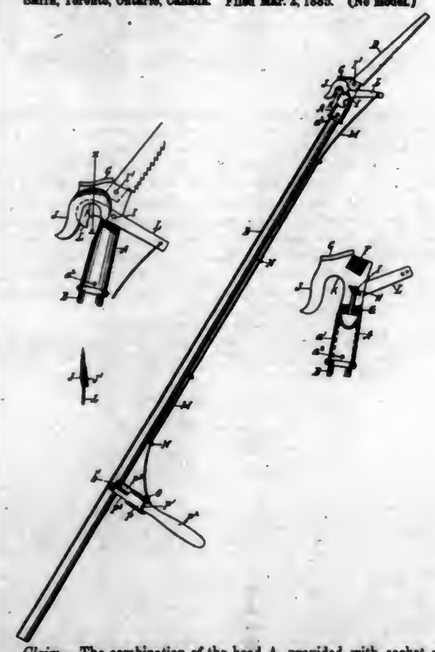
2. In a plow-clevis for double plows, the combination of plate G, having slots H, bolt J, and hook K, substantially as and for the purpose set forth.

3. The combination of two plows, clevis-plate G, connecting the forward ends of the plow-beams, braces B, disks D, jaw-piece E, provided with pins, bolts F, and shackle-bar C, substantially as and for the purpose set forth.

319,032. CHROMIUM MORDANT. RUDOLF SILBERBERG, Jersey City, N. J., assignor of one-half to Henry W. Hoops, Jr., same place. Filed Mar. 25, 1885. (No specimens.)

Claim.—The within-described mode of making a mordant, consisting of oxalate of chromium, the same consisting in adding to a solution of bichromate of potash water, and nitric acid a solution of oxalic acid in water and glycerine, and then boiling the solutions and drawing off the clear liquor, substantially as described

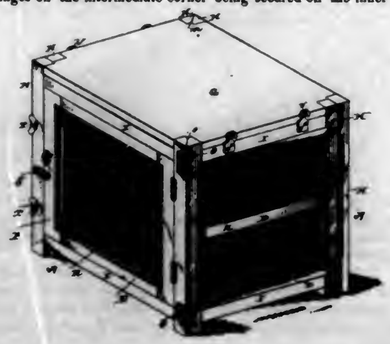
319,033. PRUNING KNIFE AND SAW COMBINED. MARTIN L. SMITH, Toronto, Ontario, Canada. Filed Mar. 2, 1885. (No model.)



Claim.—The combination of the head A, provided with socket *a'*, recess F, and brace G, with the chisel C, curved hook J, provided with notched recess J' and knife L, substantially as shown and described, and for the purpose specified.

319,034. KITCHEN-SAFE. JOHN F. SNYDER and JOHN C. KNAPP, South Easton, Pa. Filed Feb. 11, 1885. (No model.)

Claim.—The combination of the sides B, C, D, and E, which are hinged together, the hinges on diagonally-opposite corners of the safe being secured on the outer sides thereof, and said corners being mitered, the hinges on the intermediate corner being secured on the inner side



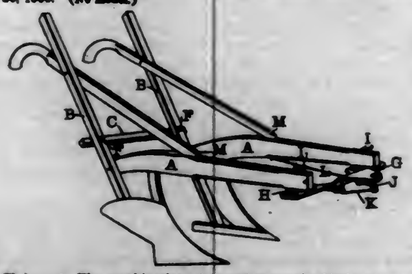
319,030. GLOVE-FASTENER. GEORGE P. ROSS, Chicago, Ill. Filed Jan. 13, 1885. (No model.)



Claim.—1. The fastener B, formed of base *b''*, having hole *c*, and arms *b b'*, having the two sets of holes *c* and *d*, in combination with a glove and the cord ends *a* and *a'*, substantially as and for the purpose set forth.

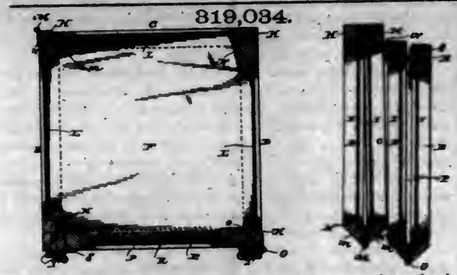
2. The fastener B, formed of base *b''*, having hole *c*, and arms *b b'*, having the two sets of holes *c* and *d*, in combination with a glove, cord ends *a a'*, and button *g*, substantially as and for the purpose set forth.

319,031. PLOW. CONRAD SIMONITSCH, Hamilton, Ohio. Filed Apr. 20, 1885. (No model.)



Claim.—1. The combination of two plows, a shackle-bar connecting them at the rear, as described, a clevis-plate provided with slots at its ends, bolts loosely connecting the clevis-plate to the forward ends of the plow-beams, a bolt at the forward end of the clevis-plate for the double-tree, and draft-rods connected at their rear ends to the plow-beams and converging to an attachment with the said double-tree bolt, substantially as and for the purpose set forth.

319,034.



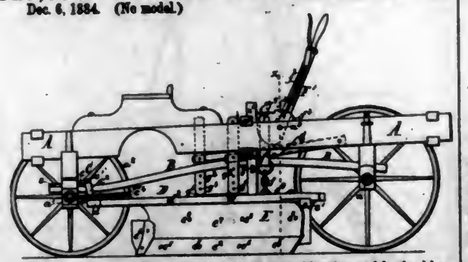
thereof, and the sides at the remaining corner being secured together by screws or catches, and shelves that are adapted to be placed between the sides, and a top for the upper side of the safe, substantially as described.

319,035. TIME-PIECE DIAL. JONATHAN STERN, Savannah, Ga. Filed Dec. 20, 1883. (No model.)



Claim.—The time-indicating plate divided into the divisions of standard time, and having in each of the divisions a tongue which can be turned outward to serve as a pointer, and having also an opening for the accommodation of the hour-shaft of a time-piece, substantially as described.

319,036. ROAD-SCRAPER. JOHN P. SUMMERS, Tiffin, Ohio. Filed Dec. 6, 1884. (No model.)

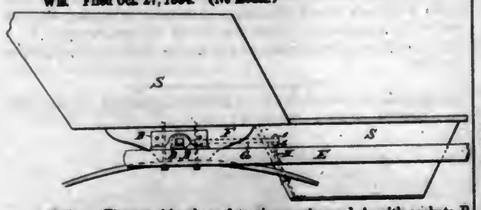


Claim.—1. In a diagonal scraper, the combination, with the kingbolt of a wagon, of scraper E, frame D, and flexible connection $c c' c^2 c^3 c^4$, substantially as and for the purpose described.

2. In a diagonal scraper, the combination of the center bar, *d*, attached to the bar *c*, the vertical guide-bars a^4 of the wagon-frame A, and a flexible connection between said bar *d* and the forward axle of frame A, substantially as and for the purpose described.

3. In a diagonal scraper, the combination of the scraper-frame D, cam-levers F F', levers G G', chains $f f'$, and adjustable link-straps $f^2 f^3$ $g^2 g^3$, substantially as and for the purpose described.

319,037. TWO-WHEELED VEHICLE. HENRY C. SWAN, Oshkosh, Wis. Filed Oct. 27, 1884. (No model.)

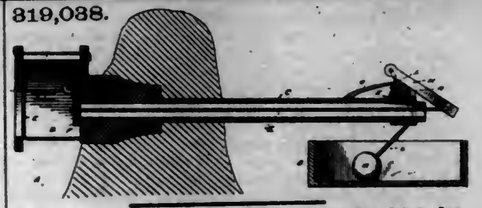


Claim.—The combination of torsion-spring rod A with sockets B C D and lever G, prop H with nuts I I and rubber cushions *z z* and spiral springs P P, substantially as described, and for the purpose intended.

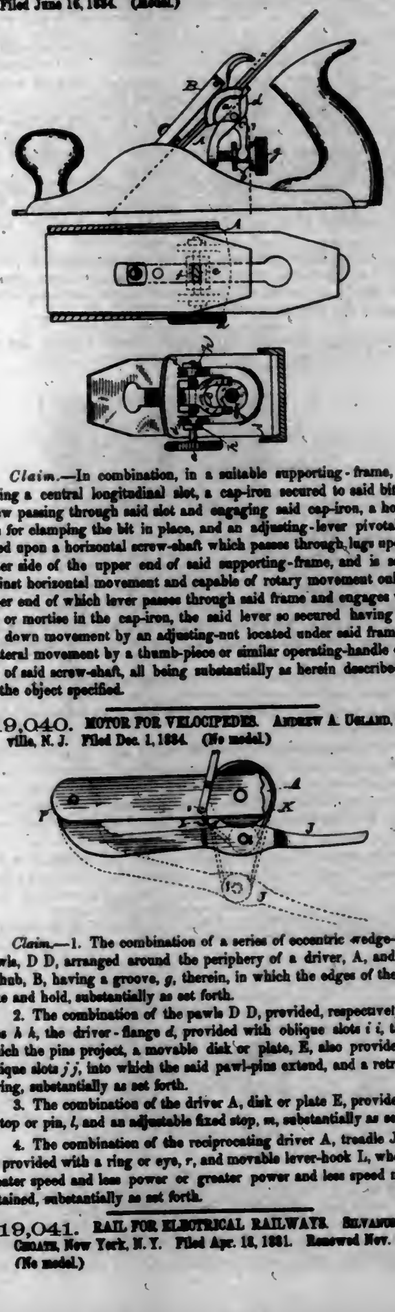
319,038. APPARATUS FOR WATERING STOCK. FURNESSON TEAL, Utica, Iowa. Filed Apr. 10, 1885. (No model.)

Claim.—The combination of the valve-seat, the pipe connected thereto, the valve located in the seat, the rod secured to the valve, the lever journaled on the outer end of the pipe connected to the outer end of the rod, floats secured to the lever, the ratchet-wheel on the lever, and the pawl for engaging with the ratchet-wheel, substantially as described.

319,038.



319,039. BENCH-PLANE. JUSTUS A. TRAUT, New Britain, Conn. Filed June 16, 1884. (Model.)



Claim.—In combination, in a suitable supporting-frame, a bit having a central longitudinal slot, a cap-iron secured to said bit by a screw passing through said slot and engaging said cap-iron, a holding-iron for clamping the bit in place, and an adjusting-lever pivotally secured upon a horizontal screw-shaft which passes through lugs upon the under side of the upper end of said supporting-frame, and is secured against horizontal movement and capable of rotary movement only, the upper end of which lever passes through said frame and engages with a slot or mortise in the cap-iron, the said lever so secured having an up and down movement by an adjusting-nut located under said frame, and a lateral movement by a thumb-piece or similar operating-handle on the end of said screw-shaft, all being substantially as herein described, and for the object specified.

319,040. MOTOR FOR VELOCIPEDES. ANDREW A. UGLAND, Smithville, N. J. Filed Dec. 1, 1884. (No model.)

Claim.—1. The combination of a series of eccentric wedge-shaped pawls, D D, arranged around the periphery of a driver, A, and a disk or hub, B, having a groove, *g*, therein, in which the edges of the pawls take and hold, substantially as set forth.

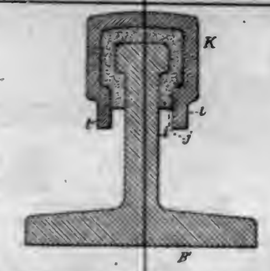
2. The combination of the pawls D D, provided, respectively, with pins *h h*, the driver-flange *d*, provided with oblique slots *i i*, through which the pins project, a movable disk or plate, E, also provided with oblique slots *j j*, into which the said pawl-pins extend, and a retracting-spring, substantially as set forth.

3. The combination of the driver A, disk or plate E, provided with a stop or pin, *l*, and an adjustable fixed stop, *m*, substantially as set forth.

4. The combination of the reciprocating driver A, treadle J, strap K, provided with a ring or eye, *r*, and movable lever-hook L, whereby a greater speed and less power or greater power and less speed may be obtained, substantially as set forth.

319,041. RAIL FOR ELECTRICAL RAILWAYS. SILVANUS F. VAN CLEATH, New York, N. Y. Filed Apr. 18, 1881. Renewed Nov. 6, 1882. (No model.)

319,041.



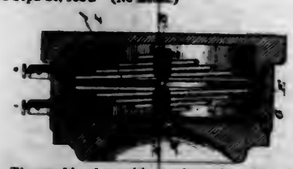
Claim.—1. A railway-rail consisting of a main or supporting rail irregular in cross-section, a cap-piece conforming to the irregularities of the main rail, so as to thereby be held in place, and interposed insulating material, substantially as and for the purpose described.

2. A railway-rail consisting of a main supporting-rail with an enlarged head, a cap of elastic material conforming to said rail and head, and an exterior cap of metal compressed upon and conforming to the shape of its support, substantially as described.

3. A railway-rail consisting of a main or supporting rail and a metallic cap insulated from the main rail and provided with a drip or watershed extending below the insulation, substantially as shown and described.

4. A railway-rail consisting of a main or supporting rail provided with an enlarged head, an exterior cap-piece of metal bent inward toward the web of the rail, and an interposed layer of cushioning material, as and for the purpose described.

319,042. ELECTRIC TELEPHONE. HENRY E. WAITE, New York, N. Y. Filed Sept. 20, 1884. (No model.)



Claim.—1. The combination, with an electrode, of a volute spring, the electrode being secured to the smallest coil of the spring and extending beyond the largest coil, substantially as described.

2. The combination of two electrodes, each supported in a volute spring, and a holder for the springs, substantially as described.

3. The combination, with two electrodes, each supported by a volute spring of conducting material, of an insulating-holder supporting the springs.

4. The combination, with two electrodes of carbon, each supported in a volute spring of conducting material, of an insulating-holder for the springs and a platinum electrode supported between the carbon electrodes, substantially as described.

5. The combination, with a case having an internal screw-thread and carrying a diaphragm, of a holder having a corresponding screw-thread and carrying two electrodes supported in volute springs, one of the electrodes bearing against the diaphragm, substantially as described.

6. The combination, with a case and diaphragm therein, of a holder of insulating material, volute springs connected to the holder, electrodes carried by said springs and one arranged in contact with the diaphragm, means for adjusting the holder in the case, and an elastic cushion between the holder and the case, substantially as described.

319,043. TELEPHONE APPARATUS. HENRY E. WAITE, New York, N. Y. Filed Oct. 30, 1884. (No model.)



Claim.—1. The combination of a battery inclosed in a short cylindrical sealed case and adapted to be carried in the pocket of the operator, an independent portable telephone-transmitter flexibly connected to the battery, and an independent portable telephone-receiver, also flexibly connected, and a reel or coil of line-wire in electrical connection with the operating-instruments, the battery and telephone-instruments being inclosed in short cylindrical cases, and all adapted to be carried upon the operator, substantially as described.

2. In a military signaling system, the combination, with the portable battery inclosed in a short cylindrical case, of a transmitter consisting of a short cylindrical case, and having a series of electrodes supported upon the diaphragm and a circuit-breaking key upon the outside of the case, whereby both may be easily carried in the pocket and telephonic and telegraphic signals may be sent, substantially as described.

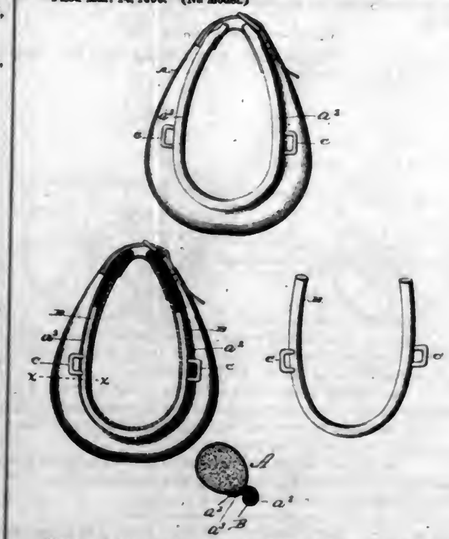
3. In a military signaling system, the combination, with a portable battery line and transmitter, of a magneto-receiver provided with a metal disk or gong and a hammer adapted to impinge upon said gong and operated by the receiver-magnet, substantially as described.

4. In a system of military signaling apparatus, the combination, with a portable battery and line, of a transmitter having electrodes and a circuit-breaker, a receiver having the usual diaphragm, and a gong and operating-hammer, whereby various kinds of signals may be sent to line, substantially as described.

5. In a system of military signaling apparatus, a line-reel having two conducting-rings upon one end connected to the terminals of the line-wire and brushes upon the frame of the reel in electrical contact with the rings, substantially as described.

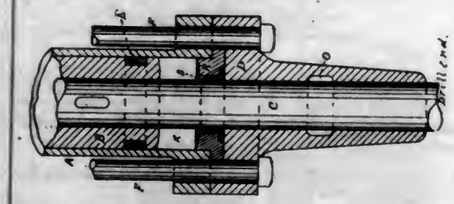
6. In a military signaling apparatus, and in combination with a portable battery and receiver, a portable transmitter consisting of a diaphragm supporting a series of electrodes, and a flattened induction-coil inclosed in the case, substantially as described.

319,044. HORSE-COLLAR. WARREN E. WALLER, Charles City, Iowa. Filed Mar. 14, 1885. (No model.)



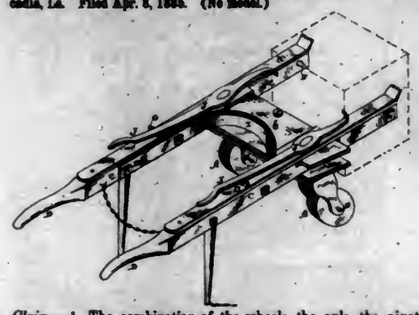
Claim.—A horse-collar having extended flaps a^2 on its front side, and a draft-frame around which the flaps are bent and secured, whereby the draft-frame is secured to the front side of the collar and prevented from working rearwardly through the stuffing therein, substantially as described.

319,045. ROCK-DRILL. LEANDER S. WOODBURY, Calumet, Mich. Filed Dec. 29, 1884. (No model.)



Claim.—In a rock-drill, the combination of the head D, recessed, substantially as shown, for the purpose of self-lubrication, the packing-ring S, formed substantially as shown, the ring R, for holding the same, with the cylinder A, and piston-rod C, all arranged substantially as shown, and for the purposes set forth.

319,046. HAND-TRUCK. ARON A. ACKLES and URIAH C. PEPER, Arcadia, La. Filed Apr. 8, 1885. (No model.)

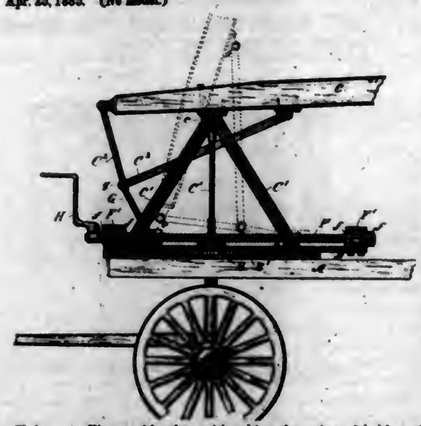


Claim.—1. The combination of the wheels, the axle, the pivoted side bars provided with handles at one end and sharp projections at the other, and a spring for forcing the handles apart, substantially as shown.

2. The combination, with a truck, of the pivoted sharp-pointed levers placed upon its top, with the ratchets for holding the levers in any desired position, substantially as shown.

3. The combination, in a hand-truck, of the wheels, the axle, the pivoted side bars provided with sharp projections, and the spring for forcing the ends of the side bars apart, with the pivoted levers placed upon the tops of the side bars, and the ratchets for holding the levers in any desired position, substantially as set forth.

319,047. FIRE EXTENSION-LADDER. EDMUND ADCOCK, Chicago, Ill., assignor to E. B. Preston and George E. Preston, same place. Filed Apr. 25, 1885. (No model.)



Claim.—1. The combination, with a hinged or pivoted ladder, of a turn-table, a slideway secured to said turn-table, a sliding block or nut traveling in said way, a screw, and a pivoted link connecting said sliding block and ladder, substantially as specified.

2. The combination, with pivoted ladder C, of brace-arms C^3 C^3, turn-table ring B', slideway D, sliding nut or block E, screw F, and pivoted link G, substantially as specified.

319,048. ELECTRIC TELEPHONE. CHARLES E. ALLEN, Adams, Mass. Filed Nov. 4, 1884. (No model.)



Claim.—1. The combination, with the diaphragm and a body or mass of conducting material in a loose or pulverized or granulated state, of a connecting-piece touching the diaphragm and the mass or body, and a spring to cause the connecting-piece to promptly follow the diaphragm and release its pressure upon the mass.

2. The combination, with the diaphragm, connecting or contact piece, and retracting-spring provided with an adjusting-screw, of the mass or body of conducting material in a loose or pulverized or granulated state.

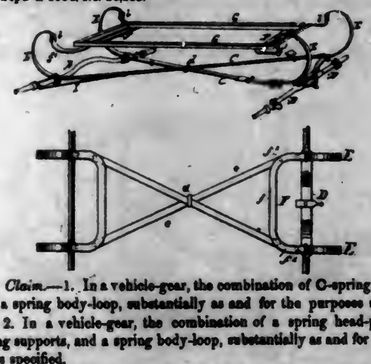
3. The combination, with the mass of pulverized or granulated conducting material, vibrating platinum plate provided with a post for connection with the diaphragm, and a spring for throwing the platinum plate away from the mass, said post and spring being provided with platinum-covered portions where they touch each other to aid in varying the working strength of the current, as set forth.

4. The combination, with the diaphragm, contact-piece, and retracting-spring, of the mass of pulverized or granulated conducting material, the adjusting-plug C^3 C', provided with the platinum top, a diaphragm, and resistance devices, as set forth, and the threaded metal sleeve D, as set forth.

5. A case for transmitters, consisting of the body A, having the longitudinal central opening, with the screw-threaded sleeve D, extending beyond the end of the body, and the cap A', for screwing upon the sleeve and covering the parts.

6. The combination, with the diaphragm of a transmitter, of metallic electrode contact-pieces making electrical contact with each other independent of the diaphragm contact, as those formed by the end of the spring and pin on the post, and a carbon electrode, as set forth.

319,049. VEHICLE RUNNING-GEAR. JOHN B. ARMSTRONG, Guelph, Ontario, Canada. Filed Oct. 18, 1884. (No model.) Patented in Canada Sept. 4, 1884, No. 20,133.



Claim.—1. In a vehicle-gear, the combination of C-spring supports and a spring body-loop, substantially as and for the purposes specified.

2. In a vehicle-gear, the combination of a spring head-plate, C-spring supports, and a spring body-loop, substantially as and for the purposes specified.

3. In a vehicle-gear, the combination of C-spring supports, a spring body-loop, and swinging shackles, substantially as and for the purposes specified.

4. In a vehicle-gear, the combination of C-spring supports, a spring body-loop, and spring-cushions arranged on the perch below and in line with the spring body-loop, substantially as and for the purposes specified.

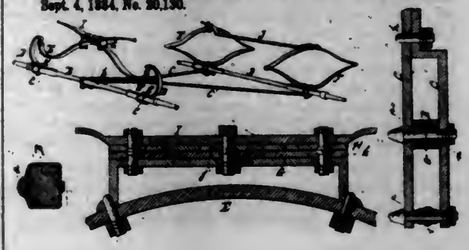
5. In a vehicle-gear, the combination of taper single-plate C-spring supports, taper-spring body-loop, swinging shackles for connecting the same, and spring-cushions arranged on the perches below and in line with the spring body-loop, substantially as and for the purposes specified.

6. The combination, with the vehicle-body, of the transverse spring body-loop having its ends curved upwardly and outwardly and C-spring supports, substantially as and for the purposes specified.

7. The combination of the body-sills G, provided with metal bearing-plates h and g, the body-loop F, and the clips H, substantially as and for the purposes specified.

8. In combination with the sill, body-loop, and its clip, the interposed metal wedges e, substantially as and for the purposes specified.

319,050. VEHICLE RUNNING-GEAR. JOHN B. ARMSTRONG, Guelph, Ontario, Canada. Filed Oct. 18, 1884. (No model.) Patented in Canada Sept. 4, 1884, No. 20,130.



Claim.—1. In a vehicle-gear, the combination, with suitable bed or body and axles, of elliptical rear springs, a cyma-reverse front spring having C-spring supports and converging spring-steel perches, substantially as and for the purposes specified.

2. In a vehicle-gear, the combination of a single-plate tapering cyma-reverse transverse spring, tapering C-spring supports attached to the axle near the shoulders thereof, free swinging shackles, and spring or elastic cushions secured to the axle below the lower curves of the cyma-reverse spring, substantially as and for the purposes specified.

3. The combination of the front axle, the C-supports, and a draw-jack provided, respectively, with teats or projections and corresponding depressions, and a clip-bar and bolts for rigidly connecting the said parts, substantially as and for the purposes set forth.

4. The combination, with the front axle recessed at the pivot-point, of steel-plate perches having round bosses for engaging in the recesses in the axle and a pivot-bolt for securing the parts, substantially as and for the purposes specified.

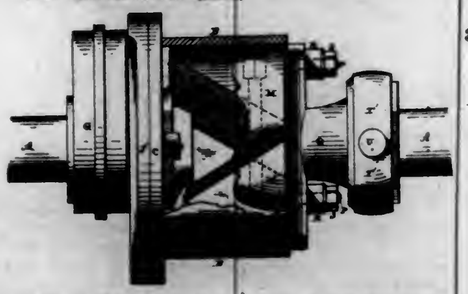
5. The combination, with the front and rear axle, of the converging spring-steel perches embracing the front axle, pivoted thereon, and projecting beyond the same in front to form a compensating and stiffening safety-clevis, substantially as and for the purposes specified.

6. The C-spring support arranged parallel with the axle, having the semicircular clip-bolt recesses, in combination with clip-bolts which hug the axle, substantially as and for the purposes specified.

7. The combination, with a transverse front spring, of a skeleton supporting-saddle mounted on the transverse spring, for the reception of the wear-plate, substantially as and for the purposes specified.

8. The combination, with a transverse front spring, of a skeleton supporting-saddle and a spring-bar pivoted on the saddle, substantially as and for the purposes specified.

319,051. REVERSE-GEAR FOR ENGINES. OLIVER AVERY, Groton, N. Y. Filed Feb. 20, 1885. (Model.)



Claim.—1. The combination of the sleeve to which the reversing-lever is connected, the slide having the slotted arms, the bolts secured to the followers, the followers, the inclined guides, and the slide and eccentric, substantially as shown.

2. The combination of the pulley having its end form both a face-plate and a hub, and provided with slots for the movable inclined guides to pass through, with the slide D, eccentric, and the guides J, applied to the end of the face-plate, substantially as shown.

3. The combination of the pulley having one end formed into a face-plate, the stationary inclined guides, and the movable inclined guides, the followers, and the slide which is moved by the reversing-lever, substantially as set forth.

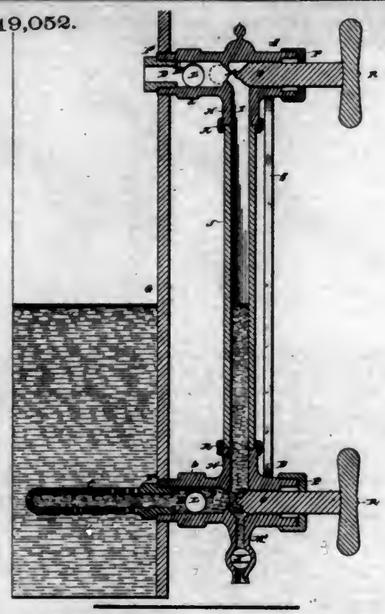
319,052. AUTOMATIC WATER-GAGE. LEWIS C. BAILEY and W. SCOTT ALEXANDER, McConnellsburg, Pa. Filed Aug. 21, 1884. (No model.)



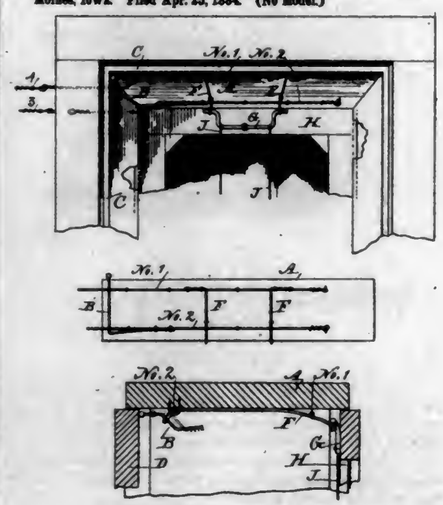
Claim.—1. The combination, with the steam and water gage cocks and connecting glass tube, of the herein-described detachable strainer comprising the hollow body open at one end, which end is provided with a threaded extension screwing into the inner end of the water-gage cock and securing the ball-valve therein and having a squared or angular portion thereon beyond the extension, the remaining portion of the body being perforated, as and for the purpose set forth.

2. The combination, with the steam and water gage cocks and connecting glass tube, of balls moving in the passage of the same, thimbles F F', formed with a nut portion and a threaded extension, so as to project a short distance within the inner end of the passage and form stops for the balls, the lower thimble, F', for the water-gage cock having a perforated strainer formed therewith, arranged and operating as set forth.

319,052.



319,053. ELECTRIC BURGLAR-ALARM. JOSEPH BARKHEIMER, Des Moines, Iowa. Filed Apr. 25, 1884. (No model.)



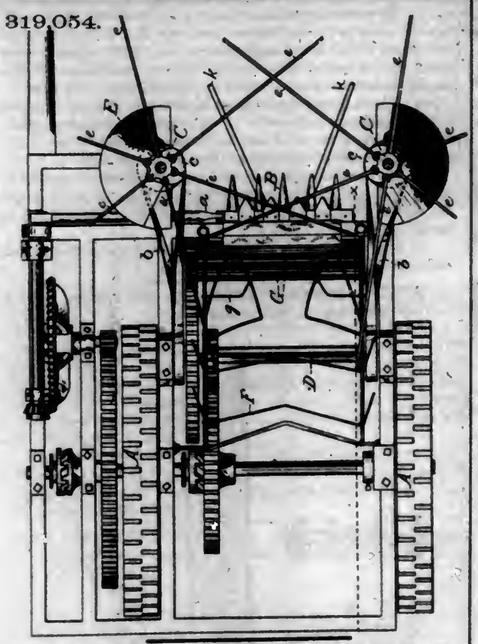
Claim.—The combination of conductors Nos. 1 and 2, fixed in a door-frame, the conducting-wires Nos. 3 and 4, connected with an electric bell, the spring-wires and circuit-closers B and F, the duplex spring G, and cords or wires J, and two doors, substantially as shown and described, to operate in the manner set forth, for the purposes specified.

319,054. CORN-HARVESTER. HARRY S. BARTHOLOMEW, Bristol, Conn. Filed Sept. 17, 1883. (No model.)

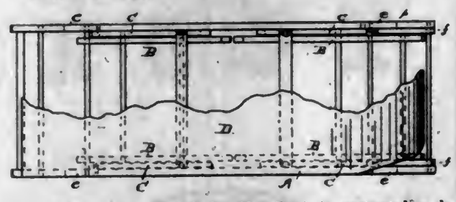
Claim.—1. In a corn-harvester, the combination of cutting mechanism, the revolving shafts C C, one upon each side thereof, a set of hinged fingers secured to each of said shafts, and the stationary cams upon which the fingers bear, the whole combined so that the fingers are successively raised as they come together over the cutting mechanism and fall into a pendent position after passing each other, substantially as described, and for the purpose specified.

2. In a corn-harvester reel, the combination of the revolving shaft C, two sets of hinged fingers secured thereon, one over the other, and the stationary cams c and c', supported by suitable standards, substantially as described, and for the purpose specified.

319,054.



319,055. COT-BED. GEORGE E. BEDELL, Herkimer, N. Y. Filed Mar. 5, 1884. (No model.)



Claim.—1. In a cot-bed, the side rails, A A, constructed, as described, with the slots *c c c c* in each end of both rails, in combination with the legs B B and C C, pivoted together, as described, and also pivoted to the inside of the side rails of the bed at the upper ends of those legs which slant up toward the middle of the cot, the legs which slant toward the ends of the cot being provided with projecting pins, which operate in said slots in the side rails, which facilitate the folding of the legs of the cot up between the side rails when the cot is not in use, as set forth.

2. In a cot-bed, the combination of the side rails, A A, provided at their ends with the slots *c c c c*, with the legs B B and C C, pivoted together, and pivoted to the inside of the side rails at the upper ends of those legs which extend toward the middle of the cot, the ends of the legs which extend upward and incline toward the ends of the cot being provided with projections which are journaled loosely in the slots *c c c c* in the side rails, the upper ends of the two of these legs which are situated at the head of the bed extending up above the level of the side rails to a sufficient height to form an elevated portion, which serves as the support for a head-rest, substantially as described, and for the purposes specified.

3. In a folding cot-bed, the side rails, A A, provided with the slots *c c c c*, and also provided at the ends which are at the head of the bed with arms which are pivoted to the side rails on the inside of said side rails near the head of the bed, said arms slotted, as described, at the ends opposite the ends which are pivotally connected to the side rails, in combination with the two legs at the head of the bed which extend toward the middle of the bed, and the two legs at the head of the bed which extend upward and toward the head end of the bed, said legs provided, as described, with pins, which move freely in the slots in the arms which are pivoted to the inside of the side rails and the legs at the foot of the bed, all constructed and operating substantially as described, and for the purposes set forth.

4. In a folding bed or cot having pivoted leg-supports, two of which extend above the bed to form a head-support, in combination with the sides having a prolongation and the independent slotted head-supports, the said extended leg, the sides, and the head-support being pivoted together, for the purpose herein described.

5. A folding bed or cot having pivoted legs and sides, the ends of two of the legs extending above the bed and the side extending beyond the legs, in combination with pivoted head-supports connecting the said extensions, substantially as described, whereby when the cot is stretched the canvas will be held taut in its normal condition.

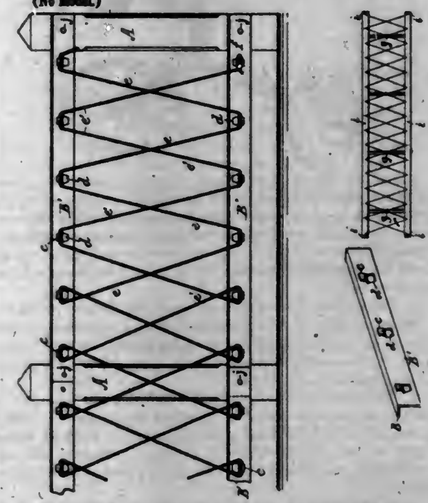
319,056. POWDER-PUFF. AUGUST BENDER, New York, N. Y. Filed Nov. 19, 1884. (No model.)



Claim.—1. A powder-puff consisting of a facing of rabbit-skin trimmed to proper shape, and of a cushion provided with a handle, substantially as set forth.

2. A powder-puff consisting of a facing of rabbit-skin and of a cushion having a handle attached thereto, substantially as described.

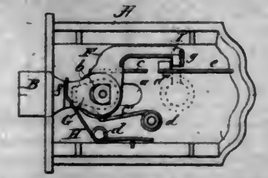
319,057. FENCE. JOHN H. BERKLEY, Dover, N. J. Filed Sept. 8, 1884. (No model.)



Claim.—1. The combination, with two angle-rails, B' B', arranged parallel to one another and provided with the integral hooks c, projected away from the opposite rail in the manner described, of the wire or wires woven back and forth over the hooks, substantially as herein shown and described.

2. As a new article of manufacture, the fence-panel composed of the parallel metallic angle-rails formed with integral hooks projected away from the opposite rail, and having wire woven transversely between the rails and secured to the hooks by bending the latter, substantially as herein shown and described.

319,058. LOCK. EDWARD W. BERSTELL, Newark, N. J., assignor of one-half to Charles W. A. Remer and John H. Wilkins, both of same place. Filed Mar. 17, 1885. (No model.)



Claim.—In a lock, the combination of a key mechanism inclosed in a case of cylindrical form, said mechanism consisting of three or more wards and one or more tumblers, all provided with semicircular key-slots, and the tumblers formed with levers, and thin flat perforated disks

separating said wards and tumblers, with a semicircular metal key adapted to operate said mechanism, substantially as and for the purpose set forth.

319,059. WHEEL-PLOW. LEVI M. BROCK, Mackinaw, Ill. Filed Mar. 14, 1885. (No model.)



Claim.—1. The combination of the beam provided at its rear end with a wing extended laterally to the mold-board side, and at its forward end with an arm extended also to the mold-board side of the beam, caster-wheels having their brackets swiveled to such arm and extension or wing, the plow supported on the beam between such parts, and the driver's seat supported on the rear lateral wing of the beam, substantially as set forth.

2. The combination of the vertically-movable standard provided in its mold-board side with a vertical groove, and the brace secured at one end to the framing, and provided at its other end with a shoulder bearing in rear of the standard, and with a pin projected into the groove thereof, substantially as set forth.

3. The vertically-movable standard and a suitable brace for its lower end, in combination with the beam and keeper-clips for holding said standard to the beam, one of said clips having its shank lapped alongside the beam and provided with horizontally-elongated slots, and fastening-bolts passed through said slots into the beam, substantially as set forth.

4. The combination, in a tongueless plow, of the beam, the clevis having horizontal brace, and base-plates fixed to such beam and arranged one in front of and below the plane of the other, both being perforated, the king-bolt fitted to the perforation of the base-plate, and the hammer-strap connected at one end with the upper end of the king-bolt, and having its other end bent upward, substantially as set forth.

319,060. TWO-WHEELED VEHICLE. THOMAS H. BROWN, Milwaukee, Wis. Filed Mar. 13, 1883. (No model.)



Claim.—1. The thills herein described, the rear ends of which are formed in two parts arranged one above the other, the rear ends of the bars forming the upper parts being curved downward and rigidly attached to the lower bars, and the front ends of the bars forming the lower parts being curved upward and rigidly attached to the upper bars, said bars thus combined being adapted by their curved shape to mutually strengthen and support each other, substantially as and for the purpose specified.

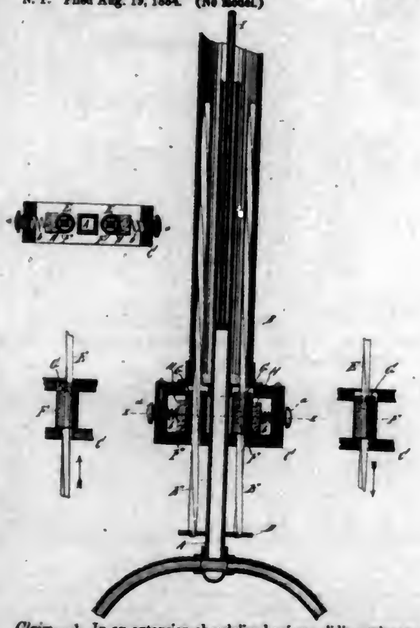
2. The combination of bars F, having downward-curved rear ends, bars E, having upward-curved front ends, axle D, and side bars, C, the curved ends of each of the respective bars being rigidly attached to the others, the rear ends of said lower bar, E, being attached by a flexible coupling to said axle and its front end to said side bars, as set forth.

3. In a two-wheeled vehicle, the combination, with the respective thills, of the brackets H and bar J, said brackets being provided with several holes or places of adjustment, M, whereby the thills may be adjusted to correspond to the height of the horse, as set forth.

4. The combination of thills formed of parts E and F, brackets H, bar J, coupling G, and axle D, said couplings being adapted to permit said thills to be adjusted to the several holes in said brackets, as and for the purpose set forth.

5. The combination, with the bar E of the thills herein described, formed in two parts, of the step O, as set forth.

319,061. EXTENSION-CHANDELIER. JOHN F. BROWN, Brooklyn, N. Y. Filed Aug. 19, 1884. (No model.)

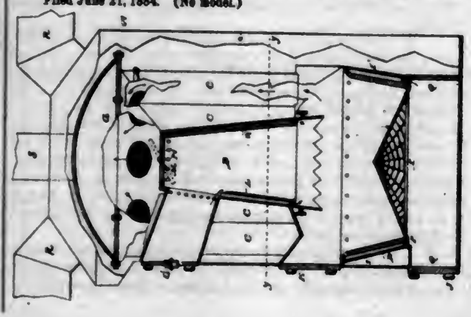


Claim.—1. In an extension-chandelier having a sliding tube or rod, one or more twisted or spirally-ribbed rods or tubes movable up and down simultaneously with said sliding tube or rod, and combined with friction-producing mechanism, substantially in the manner and for the purposes set forth.

2. In an extension-chandelier, the main pipe or pendant, the sliding tube or rod movable therein, one or more twisted or spirally-ribbed rods or tubes, also movable within the main tube, and friction-producing mechanism operated by said twisted rods or tubes, combined and arranged substantially as shown and described.

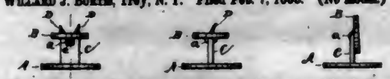
3. The combination of the main tube B, sliding rod or tube A, one or more twisted rods, E, clamp F G, box C, and friction-producing block H, substantially as shown and described.

319,062. HOT-AIR FURNACE. STEPHEN T. BRYCE, Dayton, Ohio. Filed June 21, 1884. (No model.)



Claim.—A hot-air furnace having the casing provided with a register for admitting cold air above the fuel in the magazine, a magazine having an inner and an outer wall, the inner wall being provided with openings near its top, whereby a current of cold air is passed downwardly between the walls of the magazine to the combustion-chamber, a radiating-chamber located above the magazine, flues communicating with the radiating-chamber and with the combustion-chamber for conveying the heated air to the radiating-chamber, and a trap between the upper end of the magazine and the radiating-chamber, for the purpose set forth, substantially as described.

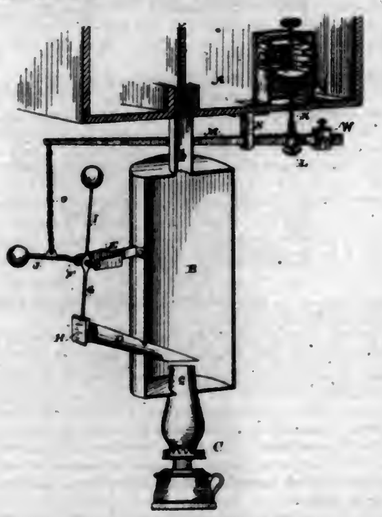
319,063. COMBINED COLLAR-BUTTON AND NECKTIE-HOLDER. WILLARD J. BURTIS, Troy, N. Y. Filed Feb. 7, 1885. (No model.)



Claim.—1. A collar-button and necktie-holder combined, formed of two holding-plates connected by a post formed from a single piece of metal, one end of the post being fixed to one plate, the other end of the post terminating in points or spurs, and the intermediate portion of the post being provided with a hinge-connection, substantially as described, adapted to form a hinge-joint with the other plate, which is perforated to receive the terminal points of the post, substantially as described, and for the purposes set forth.

2. In a collar-button and necktie-holder combined, the combination of plate A, post C, having hinge-connection *d*, and points D, integral therewith, perforated plate B, and hinge-plate *b*, substantially as and for the purposes set forth.

319,064. HEAT-REGULATOR. LYMAN C. BUCK and ALMIRA DIAS, (administratrix of Isaac L. Dias, deceased,) Petaluma, Cal. Filed Feb. 9, 1885. (No model.)



Claim.—1. The combination, with an apartment, a heating device, and a pipe or passage, D, extending from above and near the source of heat to the open air, of a valve and a suitable thermostat or regulator in the apartment, and connections between the thermostat and the valve, whereby the heat may be diverted through said pipe or allowed to pass by it into the apartment, substantially as herein described.

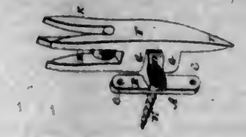
2. A heat-regulating device consisting of the vessel B, the pipe or passage D, leading from above and near the source of heat to the open air, and the valve H, adapted to open or close the end of the pipe, in combination with the rock-shaft F, having valve-arm G and crank-arm J, a suitable thermostat or regulator, and a connection between said thermostat and the crank-arm, whereby the shaft F is rocked and the valve operated, substantially as and for the purpose herein described.

3. A heat-regulating device consisting of the vessel B, pipe or passage D, in approximate relation with the source of heat, the rock-shaft F, having valve-arm G, the valve H, adapted to open and close the pipe for the purpose described, and the crank-arm J, in combination with a thermostat or regulator provided with the expansion-chamber, the contact-plate *k* thereunder, having rod K, the pivoted weighted lever M, to which the rod is joined, and the chain O, by which the lever and crank-arm J are connected, all arranged and adapted to operate substantially as and for the purpose set forth.

4. The apartment A, heat-cylinder passage or vessel B *b*, and the lamp C in the bottom of the passage, and having chimney or vent *c*, in combination with the pipe or passage D, supported just over the chimney or vent and projecting without the cylinder B, the valve H, and a suitable thermostat or regulator within the apartment to open or close the pipe D, and connections between the valve and thermostat, whereby the heat is diverted into the open air or allowed to pass up through the passage B *b* into the apartment, substantially as herein described.

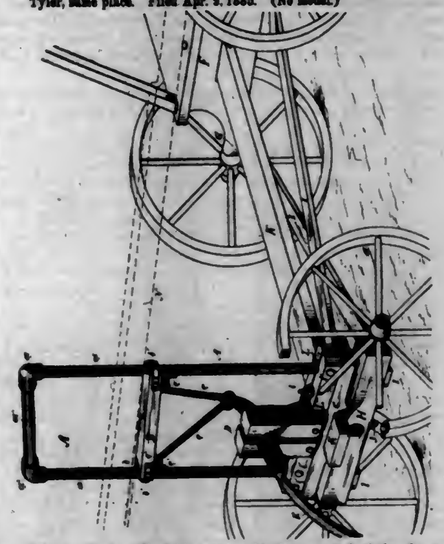
5. The apartment A, having a thermostat or regulator, T, within it, the heat-cylinder passage or vessel B *b*, and the lamp C or other source of heat in the bottom of the passage and having a chimney or vent, *c*, in combination with the pipe or passage D, supported just over the chimney or vent and projecting without the cylinder B, the valve H, adapted to open or close the outer end of pipe D, the rock-shaft F, mounted on the side of the cylinder and having valve-arm G and crank-arm J, the pivoted swinging lever M, and chain O, connecting it with crank-arm J, and the rod K on the lever M, passing up into the apartment and having a contact-plate, *k*, under the thermostat or regulator, substantially as and for the purpose herein described.

319,065. COMBINED GATE HINGE AND ROLLER. JOHN H. CARLILE, Greeley, Kans. Filed Nov. 29, 1884. (No model.)



Claim.—In a hinge for a sliding gate, the combination of the plate B, provided with a screw-shank, E, and having the projection D on its outer side, with the bracket F, having a recess in its side to receive the projection D, the arms K upon its top, and the bearing I on its lower end, the roller L, and the pivotal bolt which binds the two parts of the hinge together, substantially as shown and described.

319,066. ADJUSTABLE ELEVATOR-SUPPORT FOR DERRICK-WAGONS. JAMES CARLTON, Willow, Cal., assignor of one-half to E. M. Tyler, same place. Filed Apr. 9, 1885. (No model.)



Claim.—1. An adjustable support for the rear end of the elevator of a feeder, consisting of the base-piece L, the frame A, supported by said base-piece, the moving cross head or bar B, mounted between the sides of the frame, and the means for vertically adjusting said cross-head, consisting of the lever E, pivoted in the standard D, supported by the base-piece, and the links *e*, connecting the lever with the cross-head, substantially as herein described.

2. A device for supporting the rear end of the elevator of a feeder, consisting of the base-piece L, the frame A, supported thereon, the cross-head B, sliding within and guided by the frame, the slotted standard D, the lever E, provided with a series of holes, *m*, by which it may be adjustably pivoted in the standard D, and the links *e*, connecting the lever with the cross-head, substantially as herein described.

3. In a device for supporting the elevator of a feeder, the frame A, consisting of gas-pipe standards *a*, and gas-pipe cross-head *a'*, connected with the sides of the frame by elbows, the two-part base-piece L, receiving the gas-pipe side pieces, and the clamping-bolts *l'*, by which the two-part base-piece is made to bind and secure the frame A, in combination with the vertically-adjustable cross-head B, mounted upon and between the side standards of the said frame, substantially as herein described.

4. The supplementary wheeled axle H, connected with the derrick-wagon, and the bolster C on said axle, in combination with the frame A, secured to the bolster, and the vertically-adjustable cross-head B in the frame A, substantially as herein described.

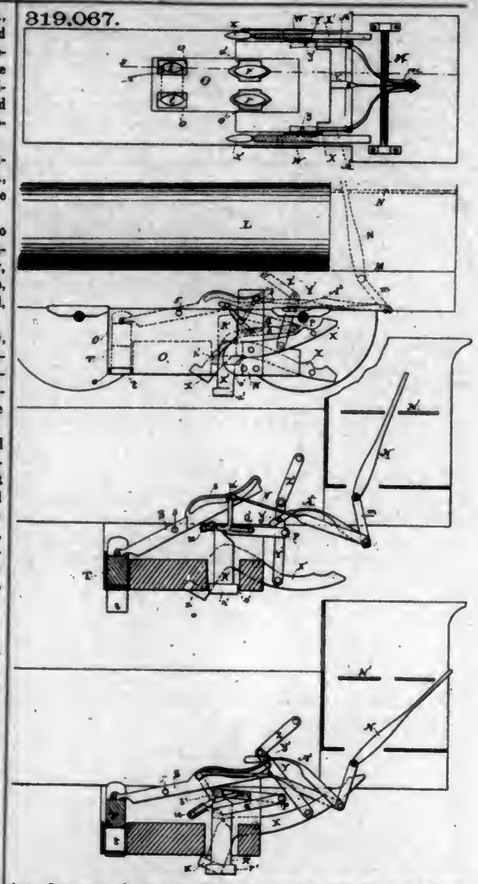
5. The supplementary wheeled axle H, connected or attached to the rear of the derrick-wagon, and the bolster C on said axle, in combination with the two-part base-piece L, secured by bolts *l* to the bolster, the frame A, clamped by said base-piece, the cross-head B in the frame, the lever E, and links *e*, by which the cross-head is vertically adjusted, substantially as herein described.

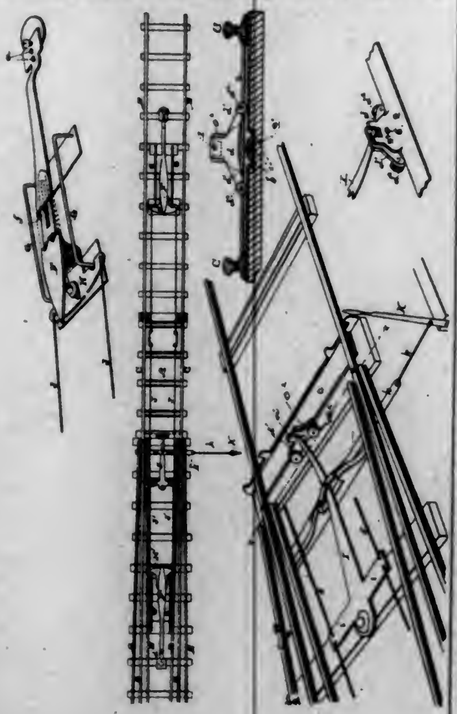
6. In combination with the derrick-wagon F, having a rear axle, G, and an elevator, N, as described, the supplementary wheeled axle H, connected with the rear axle of the derrick-wagon, the bolster C on the supplementary axle, the frame A, secured to the bolster, and the vertically-adjustable cross-head or rest B in the frame and adapted to support the rear end of the elevator, substantially as herein described.

7. In combination with the derrick-wagon having a rear axle and an elevator, the supplementary wheeled axle H, having a pivoted bolster, C, the frame A, secured to the bolster, the sliding cross head or rest B in the frame, and the lever E and links *e*, by which said cross-head is vertically adjusted, and the means by which the supplementary axle is connected with the derrick-wagon, consisting of the cross-reaches I, pivoted to the supplementary axle and to the rear axle of the derrick-wagon, and the connecting-bar K, secured to the bolster C and pivoted to the rear axle-bed of the derrick-wagon, all arranged and adapted to operate substantially as herein described.

319,067. RAILWAY-SWITCH. GEORGE CHALMERS, San Juan, Cal. Filed Apr. 14, 1884. (No model.)

Claim.—1. In a railway-switch, the combination of the horizontal levers F F', pivoted in the road-bed, the T-shaped levers H H', pivoted in the road-bed and to the levers F F', the lever I, pivoted in the road-bed and connected with the throw-rails of the track, said lever having arms *i*, the rods J J', connecting the arms of the levers H H' with the arms *i*, and suitable devices on the locomotive for moving said levers F F', whereby power is transmitted through levers H H', rods J J', and lever I to move the throw-rails into connection with the main or side tracks, substantially as herein described.





2. In a railway-switch, the combination of the horizontal spear-like-shaped levers F F', pivoted in the road-bed, the parallel side guide-bars G G' on each side of said levers, the pivoted T-shaped levers H H', connected with levers F F', the pivoted lever I, having arms *i*, and connected with the throw-rails, the rods J J', connecting levers H H' and lever I, and suitable projections or feet on the locomotive adapted to pass between either or both edges of the levers F F', and the guide-bars G G', whereby said levers are moved to transmit power to move the throw-rails into connection with the main or side tracks, substantially as herein described.

3. In a railway-switch, the combination of the horizontal levers F F', having the series of holes *a a'*, by which they are pivoted and adjusted in the road-bed, the studs *f*, and the pivoted T-shaped levers H H', having slotted legs, through which the studs *f* fit, and in which they are adapted to be moved or adjusted, substantially as and for the purpose herein described.

4. In a railway-switch, the throw-rails C, having the tie-rod *c*, with a transverse rib, *c'*, and the series of spaced sockets *b* in the road-bed under the tie-rod, and into which the rib *c'* is adapted to fit, in combination with the pivoted horizontally-swinging lever I, and the connection between said lever and tie-rod whereby the throw-rails are moved sidewise, and the rib of their tie-rod fitted in the different sockets, consisting of the upright arm c^3 on the tie-rod, having a notched top in which the end of lever I plays, the piece *d*, pivoted to the upright arm, and through whose top the lever I passes, and the wheeled legs *d''* on the base of said pivoted piece, all arranged and operating substantially as and for the purpose herein described.

5. In a railway-switch, the horizontally-swinging and adjustable levers F F' in the road-bed, connected with and adapted to operate by their movement the throw-rails, in combination with the pair of vertically-adjustable feet *t* under the locomotive, adapted to pass on each side of and impinge against the edges of levers F F' to move them to a straight position parallel with the tracks, whereby the switch-rails are thrown into connection with the main track, and a lever, N, and its connections for operating the feet, substantially as herein described.

6. In a railway-switch, the horizontally-swinging and adjustable levers F F' in the road-bed, connected with and adapted to operate by their movement the throw-rails, in combination with the pair of narrow feet *t* and wider feet *r r'* under the locomotive, and a lever and series of arms on said locomotive, adapted to alternately force downward said feet to engage with the levers F F', whereby they are forced to a straight or inclined position to either side to connect the throw-rails with the main track or either side track, substantially as herein described.

7. In a railway-switch, the adjustable spear-shaped levers F F', pivoted in the road-bed and connected by rods J J', and side guide-bars, G G', in combination with the vertically-adjustable oval or elliptical feet under the locomotive, adapted to enter and pass between said levers and bars to move the levers, substantially as and for the purpose herein described.

8. In a railway-switch in which the switch-rails are adapted to be moved by suitable levers in the road-bed, the feet *r r'* on the locomotive, adapted to engage with and operate said levers to move the switch-rails to the side tracks, in combination with the mechanism for alternately projecting said feet to their engagement, consisting of the pivoted slotted arms Q Q', connected with the legs of the feet *r r'*, respectively, the crank-shaft U, having oppositely-extending cranks *u u*, engaging with the slotted arms, the rock-shaft M, having crank-arm *m*, rod V, connecting said arm with the crank-shaft U, and the lever N in the cab of the locomotive, substantially as herein described.

9. In a railway-switch in which the throw-rails are adapted to be moved by suitable levers in the road-bed, the combination of the pair of feet *t* on the locomotive adapted to engage with and operate the levers to move the throw-rails to the main track, and the mechanism for projecting said feet to their engagement and withdrawing them therefrom, consisting of the pivoted lever S, pivoted to the leg of the feet *t*, and having the curved slotted arm *s*, the shaft U, having crank *u'* engaging with said slotted arm, the rock-shaft M, having crank-arm *m*, rod V, connecting said arm with crank *u'*, and the lever N, substantially as herein described.

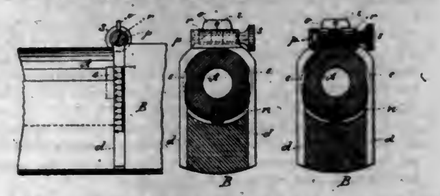
10. In a railway-switch in which the throw-rails are adapted to be moved by suitable levers in the road-bed, the combination of the pair of feet *t* and the feet *r r'* on the locomotive, adapted to engage with and operate said levers to move the switch-rails to the main track or to either side track, respectively, and the mechanism for alternately projecting or withdrawing said feet to or from their engagement, consisting of the pivoted lever S, connected with the leg of feet *t*, and having the slotted curved arm *s*, the pivoted slotted arms Q Q', connected, respectively, with the legs of feet *r r'*, the shaft U, having the oppositely-extending cranks *u*, engaging with the slotted arms Q Q', and the intervening crank, *u'*, engaging with the slotted arm *s*, the rock-shaft M, having crank-arm *m*, the rod V, connecting said arm with crank *u'*, and the lever N in the cab, substantially as herein described.

11. In a railway-switch, the combination, with the lever F' in the road-bed, for operating the throw-rails, of the side feet, *x x'*, on the locomotive, adapted to engage said lever F' from a side track to throw the switch-rails to the main track, and mechanism, as described, for alternately projecting or withdrawing said feet to or from their engagement, substantially as herein specified.

12. In a railway-switch, the combination of the lever F' in the road-bed, by which the throw-rails are adapted to be operated, the side feet, *x x'*, on the locomotive, adapted to engage said lever F' from a side track to throw the switch-rails to the main track, and the mechanism for alternately projecting or withdrawing said feet from their engagement, consisting of the pivoted curved bars X X', to which said feet are joined, the pivoted links Y Y', and oppositely-inclined pivoted links Z Z', the rock-shaft M, having crank-arm *m*, connecting-rods A' A^3, joining said arm with the links Y Y', and the lever N in the cab, substantially as herein described.

13. In a railway-switch in which the throw-rails are adapted to be operated by a lever, F', in the road-bed, the combination of the alternately-adjustable feet *t r r'* on the locomotive for engaging said lever from the main track, the side feet, *x x'*, on the locomotive, adapted to engage with said lever from a side track, in combination with the mechanism by which said feet *t r r' x x'* are projected or withdrawn to or from their engagement to prevent interference one with the other, as described, consisting of the pivoted lever S, connected with the leg of feet *t*, and having the slotted arm *s*, the pivoted slotted arms Q Q', connected with the legs of feet *r r'*, respectively, the crank-shaft U, having cranks *u u u'* engaging with slotted arms *s* Q Q', the pivoted curved bars X X', to which the feet *x x'* are joined, the pivoted links Y Y', having studs *y y'*, the oppositely-inclined pivoted links Z Z', the rock-shaft M, having crank-arm *m*, the rod V, connecting said arm with crank *u'*, and the rods A' A^3, connected with said arm, and slotted on the studs *y y'* of links Y Y', and the main lever N in the cab, all arranged and operating substantially as and for the purpose herein described.

319,068. SIGHT FOR FIRE-ARMS. HENRY F. CLARK, Poughkeepsie, N.Y. Filed Sept. 1, 1884. (No model.)



Claim.—1. A sight for fire-arms, having two downward extensions forming legs for supporting such sight, in combination with slides upon the sides of the barrel or housing, into which the legs pass, there being divisions and a pointer upon the slides and leg, respectively, substantially as specified.

2. A sight for fire-arms, having downward extensions forming legs for supporting such sight, in combination with slides upon the sides of the barrel or housing, into which the legs pass, and a spring, *s*, for applying friction to the legs, there being divisions and a pointer upon the slides and legs, respectively, substantially as specified.

3. A sight for fire-arms, having downward extensions forming legs for supporting such sight, in combination with slides upon the sides of the barrel or housing, into which the legs pass, the cylinder *r*, extending across the top portion between the legs, the screw within such cylinder, and a head at the end of the same, and the sight-piece projecting above the cylinder and having a stock within the cylinder forming a nut for the screw, substantially as specified.

319,069. BRAIDING ATTACHMENT FOR SEWING-MACHINES. WILLIAM R. CLARK, Detroit, Mich., assignor to the Singer Manufacturing Company of New Jersey. Filed Aug. 7, 1884. (No model.)



Claim.—1. The combination, with the throat or work plate of a sewing-machine, having a recess open at the top of said plate, of an axially-adjustable braid-guiding tube having a guiding-passage open at one side, substantially as set forth.

2. The combination, with a braid-guide, of a spring arranged in the braid-passage thereof, and a removable block, also in said passage and serving to hold said spring in its operative position, substantially as set forth.

3. The combination, with an adjustable cylindrical braid-guiding tube and a recessed holder, as a work or throat plate in which said tube is placed, of a fastening device, as a set-screw, for holding said tube in position after adjustment, substantially as set forth.

4. The combination, with a work or throat plate having a recess, of an adjustable braid-guiding tube placed in said recess and having an enlarged onter or front end, and a set-screw bearing against the front face of said tube and serving to hold the same in position after adjustment, substantially as set forth.

5. The combination, with the work-plate of a sewing-machine, of a braid-guide placed below the upper surface of said plate, and having guiding-passages of unequal diameters, the longer of which is inclined relative to the plane in which the needle reciprocates, substantially as set forth.

6. The combination, with a sewing-machine work-plate having a braid-guiding passage, of a feed-dog having working portions extending on opposite sides of a portion of said guiding-passage, and having a rearwardly-flaring recess or groove, substantially as set forth.

7. The combination, with the work-plate of a sewing-machine, of a braid-guide placed below the upper surface of said plate, and having a guiding-passage of unequal diameters, the longer of which is inclined relative to a vertical plane, of a feed-dog having a rearwardly-flaring groove or recess and a grooved presser-foot, substantially as set forth.

319,070. INSTRUMENT FOR ENTERING AND DRAWING TACKS. WILLIAM M. CLARK, Brooklyn, N. Y. Filed Oct. 27, 1884. (No model.)

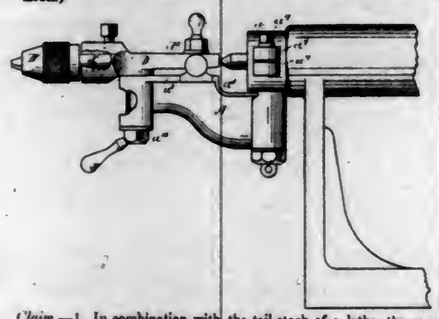


Claim.—1. A sheath or thimble for entering tacks, made of rigid material and longitudinally curved or convex on the under side to fit the ball and tip of the thumb, substantially as herein described.

2. The combination, with a sheath or thimble for entering tacks, made of rigid material and longitudinally curved or convex on the under side to fit the ball and tip of the thumb, of a lid or cover whereby the top or open end of the sheath or thimble may be closed when not in use, and the thimble thereby be made to constitute a closed box for containing tacks, substantially as herein described.

3. A sheath or thimble for entering tacks, made of rigid material and longitudinally curved or convex to fit the ball and tip of the thumb, and having at its extremity a claw or sharp edge for the purpose of drawing tacks, substantially as herein described.

319,071. TOOL-HOLDING ATTACHMENT FOR LATHES. CHARLES W. COLESWORTHY, Boston, assignor of two-thirds to James R. Carter, Newton, and Edward H. Palmer, Reading, Mass. Filed Jan. 29, 1885. (No model.)



Claim.—1. In combination with the tail-stock of a lathe, the arm A, adapted to have movement to and from a position in front of the center, as specified, and to hold, carry, or present tool holders or supports, all substantially as and for the purposes described.

2. In an attachment to the spindle of a tail-stock of a lathe, a tool-holder carrying and supporting arm having a clamp or fastening device at one end upon which the arm is movable, and also adapted to receive, hold, and carry a tool-holder or support centrally, all substantially as and for the purposes described.

3. The combination of a spindle extending from the spindle of a tail-stock of a lathe with an arm, A, for supporting tools or tool-holders, movable in relation to the stock, and a locking device for locking the arm when moved into operative position, all substantially as and for the purposes described.

4. The combination of the spindle B of tail-stock, a spindle extending therefrom, the swinging tool-holder-carrying support or arm A, and a tool-holder attached thereto, all substantially as and for the purposes described.

5. The combination, in a swinging tool-holder-carrying support or arm adapted to be attached to the spindle of a tail-stock of a lathe, of the arm A and a removable tool holder or support, all substantially as described.

6. The combination, in a swinging tool-holder-carrying support or device adapted to be attached to the spindle of a tail-stock of a lathe, of the arm and a tool holder or support carried or supported thereby and adapted to have a movement upon a vertical center therein, all substantially as described.

7. The combination, in a tool-holder supporting or carrying device adapted to be attached to the spindle of a tail-stock of a lathe, of the arm A, a tool holder or support, and a lock for fastening it to the arm, all substantially as described.

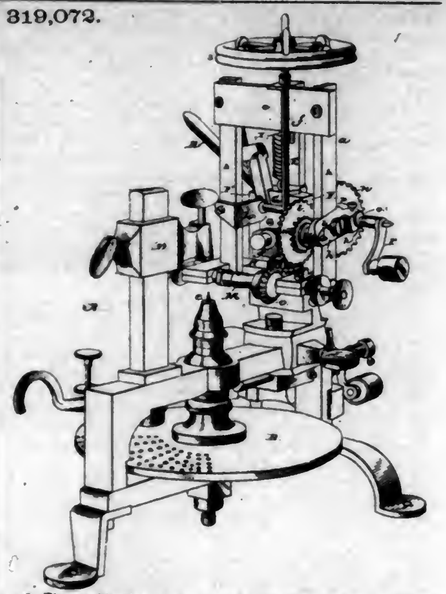
8. The combination, in a tool-holder supporting or carrying device adapted to be attached to the spindle of a tail-stock of a lathe, of the arm A, a tool holder or support adapted to have a movement upon a vertical center, and adjusting-screws for moving the same and locking it in any desired position, all substantially as described.

9. The combination, in a tool-holder supporting or carrying device adapted to be attached to the spindle of a tail-stock of a lathe, of the arm A and the revolving turret tool holder or support G, all substantially as described.

319,072. WATCH-MAKER'S WHEEL-CUTTING ENGINE. JAMES COOK, Chattanooga, Tenn. Filed Apr. 15, 1885. (No model.)

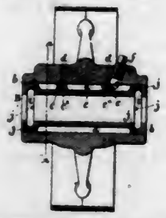
Claim.—1. The combination of the frame *a*, the vertical shaft *f*, gear *g*, and fly-wheel *s* on shaft *f*, shaft *i*, journaled in the frame, wheel *l*, fixed to the shaft and meshing with gear *g*, pinion *m* on shaft *i*, shaft *k*, journaled in frame *a*, and having wheel *n*, meshing with pinion *m*, and a crank, the frame *a* being secured to the mandrel-frame of a watch-maker's lathe, and a gear-wheel on the mandrel for meshing with the gear *g*, substantially as described.

319,072.



2. The combination of the frame *a*, the vertical shaft *f*, journaled thereto, gear *g*, and fly-wheel *s* on said shaft, shaft *i*, journaled in the frame, wheel *l*, fixed to the shaft and meshing with gear *g*, pinion *m* on shaft *i*, circular bosses *o*, secured to the frame, set-screws *p* for the bosses, shaft *k*, journaled eccentrically in the bosses, and having wheel *n*, meshing with pinion *m*, and a crank, the frame *a* being secured to the mandrel-frame of a watch-maker's lathe, and a gear-wheel on the mandrel meshing with the gear *g*, substantially as described.

319,073. LOOSE-PULLEY AND WHEEL LUBRICATOR. JAMES CORNELIUS, Brooklyn, N. Y. Filed Oct. 13, 1884. (No model.)



Claim.—1. The combination, with an annular oil reservoir or chamber within the hub of a loose pulley or wheel, of one or more oil-ducts leading from said reservoir or chamber to the bore of the hub and having their outer ends or orifices near the outer wall of said annular reservoir or chamber, substantially as and for the purpose herein described.

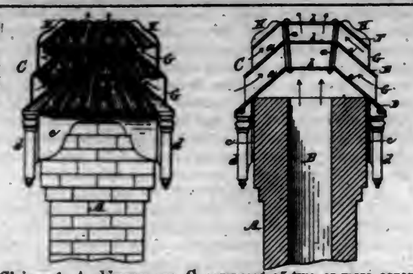
2. The combination, with the hub or box of a loose pulley or wheel and an annular oil reservoir or chamber therein, of oil-ducts leading from the reservoir or chamber to the bore of the hub or box, having their outer ends or receiving-orifices near the outer wall of said annular reservoir or chamber and inclined in opposite directions in the plane of rotation of the pulley or wheel, substantially as and for the purpose herein described.

3. The combination, with the hub A and annular oil-chamber *a* therein, of oil-ducts *c c'*, inclined in opposite directions in the plane of rotation of the hub, having their outer ends or orifices near the outer wall of the chamber *a*, and their inner ends or orifices coincident or in the same line lengthwise of the hub, substantially as and for the purpose herein described.

4. The combination, with the hub A, containing the annular oil-chamber *a*, and having in the bore the circumferential channel *i* and a duct, *j*, between the channel *i* and said chamber *a*, of one or more oil-ducts leading from said chamber to the bore, and having their outer ends or orifices near the outer wall of said annular oil-chamber, substantially as and for the purpose herein described.

319,074. CHIMNEY-TOP. GEO. CROMPTON, Worcester, Mass. Filed Mar. 10, 1885. (No model.)

319,074.

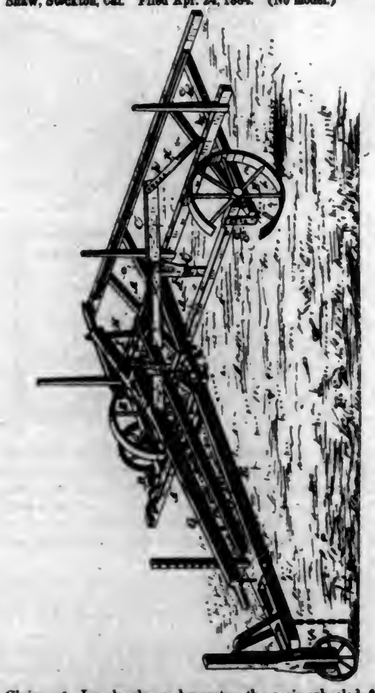


Claim.—1. A chimney-cap, C, composed of two or more square or rectangular plates placed one above the other, and having central openings therein, and provided with divisions or partitions G, extending between the plates at the corners thereof, for the purpose stated, substantially as set forth.

2. A chimney-cap, C, composed of two or more square or rectangular plates having central openings therein, and having divisions G, extending between said plates at the corners thereof, the inclined sides *a* of the several plates having corrugations or grooves *g* therein, substantially as and for the purpose stated.

3. A chimney-cap, C, composed of two or more square or rectangular plates having central openings therein, and provided with divisions G, extending between the same at the corners thereof, the top plate having ridges or fins H extending up therefrom at the corners thereof, substantially as set forth.

319,075. HEADER. CHARLES H. DEANE, Hopeton, assignor to H. C. Shaw, Stockton, Cal. Filed Apr. 24, 1884. (No model.)



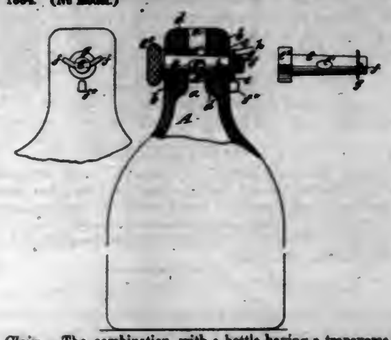
Claim.—1. In a header or harvester, the main wheeled frame A, in combination with the platform C, having arms *c*, hinged by vertically-adjusting hinges to the central bar or axle of the main frame, and a forked lever fulcrumed by a hinged connection on the main frame, and adjustably secured to the platform for supporting and turning said platform to an inclination, substantially as herein described.

2. In a header or harvester, the main wheeled frame, in combination with the platform having arms *c*, the vertically-adjustable strap-hinges *c'*, connecting said arms with the main frame, and means for supporting and turning the platform to an inclination, substantially as herein described.

3. In a header or harvester, the platform C, having arms *c*, hinged to the main wheeled frame by adjusting-hinges, in combination with the lever G, fulcrumed on the main frame, and having a branching or forked forward end, and the perforated links H, connecting the ends of its branches directly with the platform, substantially as herein described.

4. The platform C, hinged to the main frame by adjustable strap-hinges, in combination with the forked lever G, the hinged fulcrum-standards I, secured to the axle, and the adjustable connecting-links H, attached directly to the platform, substantially as and for the purpose herein described.

319,076. BOTTLE-STOPPER. SAMUEL G. DURHAM, New York, N. Y., assignor of one-half to George W. Rayner, same place. Filed Sept. 1, 1884. (No model.)

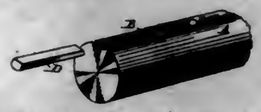


Claim.—The combination, with a bottle having a transverse plug-seat formed in the neck, the neck being integral with the bottle both above and below the plug-seat, and having an inwardly-projecting flange at the end of the plug-seat, of a lining fitting the plug-seat and bearing at one end against said flange, and a plug-valve fitting said lining and projecting through the flange at the end of the plug-seat, substantially as herein described.

319,077. MANUFACTURE OF BEET-SUGAR. EDWARD F. DYER, Alvarado, Cal. Filed Feb. 13, 1885. (No specimens.)

Claim.—The process of defecating and increasing the purity coefficient of beet-root molasses so that it may be boiled to granulation in the strike vacuum-pan by mixing it with raw juice and defecating it, substantially as herein described.

319,078. KEY AND KEY-SEAT. EMIL EHNFELDT, Davenport, Iowa. Filed Apr. 10, 1885. (Model.)

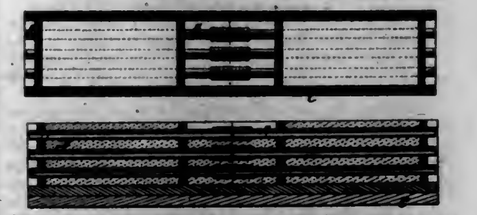


Claim.—1. A key for securing wheels, cranks, &c., to shafts, having a flat body and a convex face on one side, substantially as and for the purpose set forth.

2. In combination with shaft A, having concave seat B, crank or hub C, and key D, having a rectangular portion seated in the crank or hub, and a convex face resting in the key-seat of the shaft, substantially as shown and described.

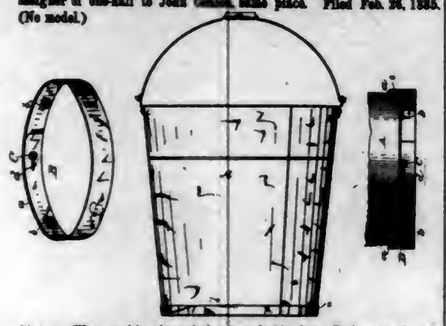
3. A key for securing wheels, cranks, &c., to shafts, having the face which rests in or upon the shaft curved on an arc of a circle of a diameter greater than the thickness of the key.

319,079. COMPOSITION OF MATTER FOR THE PRESERVATION OF PAPER OR VEGETABLE TUBING USED FOR THE INSULATION OF TELEGRAPH-WIRES. JAMES W. ELLIS, Brooklyn, N. Y., assignor of two-thirds to Josiah W. Parker, same place, and Henry D. Harris, New York, N. Y. Filed Mar. 9, 1885. (No specimens.)



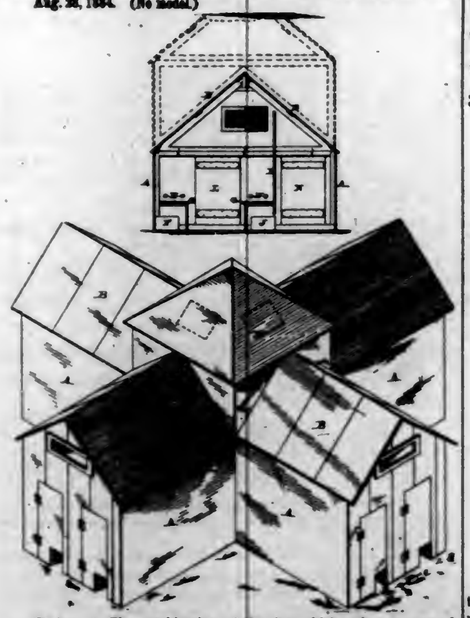
Claim.—The herein-described composition of matter to be used for the preservation of paper or vegetable tubing used as insulators for telegraph-wires, &c., consisting of asphaltum, resin, petroleum, vulcanized rubber, and sulphur in the proportions specified.

319,080. SHEET-METAL PAIL. ISAAC N. ELLMAKER, Sterling, Ill., assignor of one-half to John Conlee, same place. Filed Feb. 26, 1885. (No model.)



Claim.—The combination of the detachable base B, having flange *a*, and provided with the slot *d* and the bolt C, and the pail A, provided with the ridge *e*, substantially as shown, and for the purpose described.

319,081. CHICKEN-HOUSE. HENRY EVERSON, Hempstead, N. Y. Filed Aug. 26, 1884. (No model.)



Claim.—1. The combination of the four chicken-houses secured together at their inner ends so as to form a middle room or chamber, with the frames D, which are applied to the inner end of each one of the houses, and the roof or covering E, which is built upon the tops of the frames, substantially as shown.

2. The combination of the four houses secured together at their inner ends for the purpose of forming a central room or chamber, with a roof or covering for this central chamber, which is supported upon the inner ends of the four houses, substantially as described.

319,082. MANUFACTURE OF SACCHARINE COMPOUNDS. CONSTANTIN FAHLBERG, New York, N. Y., assignor of one-half to Adolph List, Leipsic, Germany. Filed Aug. 7, 1884. (Specimens.) Patented in Belgium Aug. 16, 1884, No. 66,043, and in France Aug. 16, 1884, No. 163,797.

Claim.—1. The process of making a new sweet compound from toluene and other derivatives of coal-tar, which consists of the following successive steps: first, converting toluene and the substitution products of benzine and its homologues into toluene-monosulphonic acids by fuming or concentrated sulphuric acid; second, converting the toluene-monosulphonic acids into calcium toluene-monosulphonates by chalk or carbonate of lime; third, converting the calcium toluene-monosulphonates by sodium carbonate or bicarbonate or any carbonate of the alkalies into sodium toluene-monosulphonate or any toluene-monosulphonate of the alkalies; fourth, evaporating the sodium toluene-monosulphonate in open or vacuum pans, and cooling and drying the same; fifth, converting the dry product into the two isomeric toluene-monosulphochlorides and phosphoroxychloride by the action of phosphor-pentachloride and separation of the resulting solid toluene-monosulphochloride in a centrifugal machine; sixth, converting the liquid toluene-monosulphochloride into the corresponding amid by treatment with caustic or carbonate of ammonia, seventh, treating the amid thus obtained with certain oxidizing agents in an alkaline solution to obtain the salts of the same, and, eighth, separating the pure saccharine compound from its salts by acids, acid salts, and hydrogen sulphide, substantially as described.

2. The process of making a new sweet compound from toluene and other derivatives of coal-tar, which consists in converting toluene into toluene-sulphonic acid, oxidizing said acid or its salts into sulphobenzoic acid or its salts, then evaporating the latter and treating it with phosphor-pentachloride and caustic or carbonate of ammonia, and finally separating the pure saccharine from the ammonium salt thus obtained, substantially as set forth.

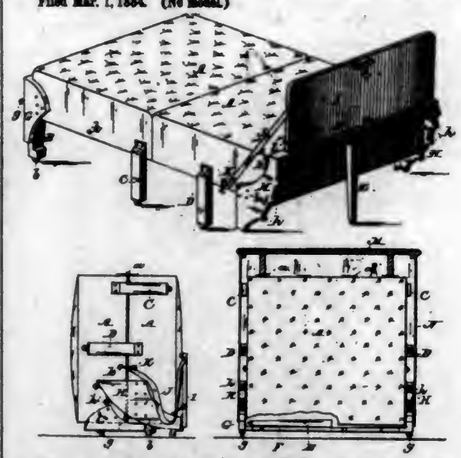
3. The regeneration of toluene and the generation at the same time of hydrochloric and sulphurous acids from the solid toluene-monosulphochloride by the action of carbon, water, and superheated steam under pressure, substantially as described.

4. The generation of chlorine for the preparation of phosphor-pentachloride from phosphoroxychloride, bleaching-powder (hypochlorite of lime) and water, respectively, hydrochloric and phosphoric acids, or one of them, substantially as set forth.

5. The saccharine compound, benzoic sulphinide, made by the process herein described.

6. The new saccharine compound, toluene-monosulphamid having the characteristics described.

319,083. FOLDING BED. BENJAMIN F. FARRAR, San Francisco, Cal. Filed Mar. 1, 1884. (No model.)



Claim.—1. In a folding bed, a sectional mattress or bed, the sections of which are hinged together at their meeting ends, in combination with suitable anti-friction rollers or casters at the foot of the mattress, to furnish a bearing upon which said foot turns, and suitable anti-friction rollers or casters at the head of the mattress, arranged in an arc or curve, and upon which the head of the mattress turns, substantially as herein described.

2. In a folding bed, the sectional mattress or bed A, hinged transversely, in combination with the rigid legs B at the foot, having casters *b*, and the plates H at the head, having casters *h*, substantially as herein described.

3. In a folding bed, the sectional mattress or bed A, hinged transversely, in combination with the rigid legs B at the foot, having casters *b*, the pivoted leg E at the head, and the plates H at the sides of the head, said plates having curved faces with casters *h*, substantially as herein described.

4. In a folding bed, the sectional mattress or bed A, hinged transversely, in combination with the legs B at the foot, having casters *b*, the plates G at the sides of the foot, and having casters *g*, and the plates H at the sides of the head, having curved faces with casters *h*, substantially as herein described.

5. In a folding bed, the sectional mattress or bed A, hinged transversely, and the head-board I, hinged to said mattress, in combination with the legs B and the plates G at the foot, and having suitable casters, and plates H at the head, having curved faces and casters *h*, substantially as herein described.

6. In a folding bed, the sectional mattress or bed A, hinged transversely, and the foot-legs B, having casters *b*, in combination with the head-leg E, the side legs, D, at the middle of the head-section of the mattress, said legs having casters, and the side plates, H, having curved faces made on an arc passing through the bottom of side legs, D, and having casters *h*, substantially as herein described.

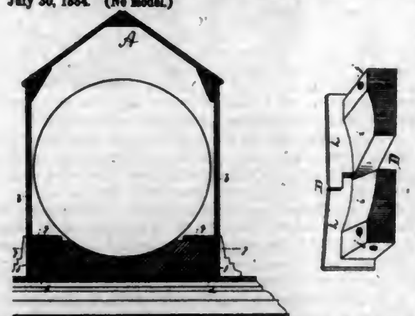
7. In a folding bed, the sectional mattress or bed A, hinged transversely, and the foot-legs B, the side legs, C D, and the head-leg E, in combination with the plates G at the foot, having casters *g*, and the plates H at the head, having curved faces, and casters *h*, substantially as herein described.

319,084. PREPARATION AND PRODUCTION OF INSULATING MATERIALS. JOHN A. FLEMING, Pimlico, London, County of Middlesex, England. Filed Apr. 3, 1885. (No specimens.) Patented in England Apr. 22, 1884, No. 6,647.

Brief.—Improvement on Patent No. 284,289, dated September 4, 1883, to same inventor.

Claim.—The preparation or production of insulating materials or articles by the employment of wood or other vegetable fibrous material, as herein set forth, in a finely-divided condition, desiccated and saturated or impregnated with a mixture consisting of melted bitumen or asphalt incorporated with silicate of magnesia, or silicate of lime, or silicate of iron, or silicate of alumina, or two or more of such silicates used in conjunction, and with amber resin or equivalent resin, the whole being molded under pressure, substantially as hereinbefore described.

319,085. CLOCK-CASE. HERMANN FOCKEN, New York, N. Y. Filed July 30, 1884. (No model.)

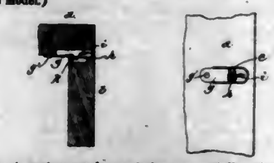


Claim.—1. The combination of clock-case A with slide D, having shanks *i*, substantially as and for the purpose specified.

2. The combination of clock-case A, having tapering ledges *f*, with slide D, having jointed back A and shanks *i*, substantially as specified.

3. The combination of clock-case A, having ledges *f* and shoulders *g*, with slide D, having jointed back A and shanks *i*, the shanks being provided with inclined holes *j*, substantially as specified.

319,086. DOOR-CHECK. PETER FORD, Boston, Mass. Filed June 16, 1884. (No model.)



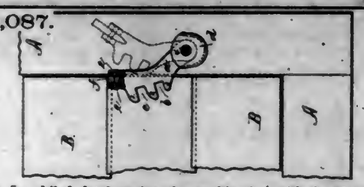
Claim.—1. A spring-catch consisting, essentially, of a spring-plate, *g*, having a projection or lip, and provided at one end with means for its attachment, and the said plate having a slot to engage a headed pin, stud, or screw, whereby the movement of the free end of the said plate may be regulated and its projection be made to offer greater or less resistance, substantially as set forth.

2. A support having a recess and provided with a spring-plate secured at one end thereto, said spring-plate having a stud or projection and a slotted free end held in the recess by means of a headed pin, as specified, combined with a door, lid, or other movable object having a recess and keeper, substantially as specified.

319,087. BLIND-SLAT FASTENING. AUGUSTUS M. FREEMAN, Ocean Grove, N. J., assignor to himself and John I. Holly, New York, N. Y. Filed Mar. 21, 1885. (No model.)

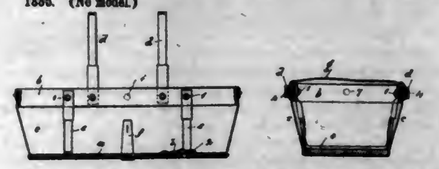
Claim.—1. In a blind-slat fastening, the combination, with the plate *a*, having slots *b* and *c*, of the cup or socket *d*, to which the plate *a* is pivotally connected at its lower end, and the swinging tumbler-lock *f* upon its upper end, substantially as specified.

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2. In a blind-slat fastening, the combination, with the plate *a*, having the slots *b* and *c*, of a screw for connecting said plate to the blind, and a swinging tumbler-lock pivotally connected to the upper part of plate *a*, and adapted to being turned down to lock the slats, substantially as specified.

319,088. BASKET. AUGUSTUS M. FREEMAN, Ocean Grove, N. J., assignor to himself and John I. Holly, New York, N. Y. Filed Mar. 30, 1885. (No model.)



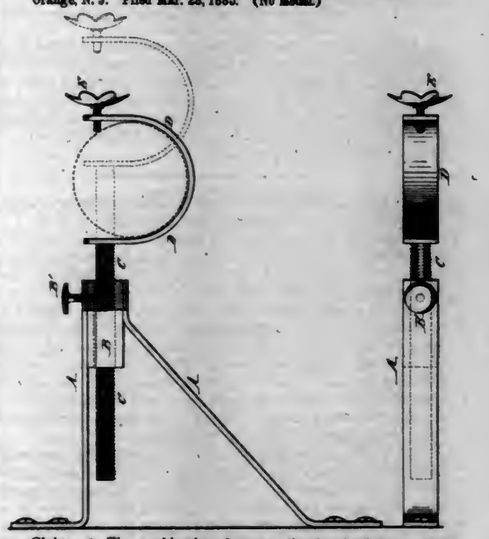
Claim.—1. The combination, in a collapsible basket, with the bottom *a*, frame *b*, and flexible sides *c*, of the stretchers *e*, pivoted at 1 upon the frame, the rib 2, and spring-catch 3, and the separate handles *d*, substantially as set forth.

2. The combination, in a collapsible basket, with the bottom *a*, frame *b*, separate handles *d*, and flexible sides *c*, of the stretchers *e*, the straps *f*, the cover *g*, and the straps and button-holes in said cover, and the knobs 4 7, whereby the cover on the frame *b* can be secured upon the basket, substantially as specified.

3. In combination with a collapsible basket, a cover, *g*, in the form of a bag of flexible material, and adapted to be fastened upon the basket and to receive the basket in a collapsed condition, substantially as set forth.

4. The combination, in a collapsible basket, with the bottom *a*, frame *b*, and flexible sides *c*, of the stretchers *e*, and a stop upon the bottom of the basket to hold the braces *e* when the basket is distended, substantially as set forth.

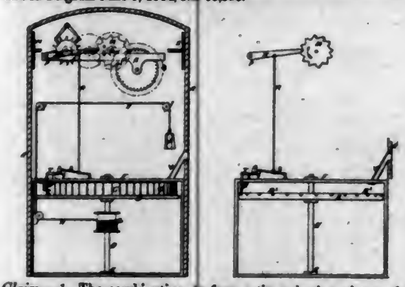
319,089. CURTAIN-POLE BRACKET. ROBERT S. GOULD, East Orange, N. J. Filed Mar. 28, 1885. (No model.)



Claim.—1. The combination of a supporting-bracket having a fixed screw-nut with a bent curtain-pole-supporting piece having a threaded shank passing through said nut, substantially as set forth.

2. The combination of a supporting-bracket having a fixed screw-nut and a clamp-screw with a bent curtain-pole-supporting piece having a threaded shank flattened or cut away at one side, substantially as set forth.

319,090. TIME-CHECK RECEIVER. LUTHER HAMSON, Halifax, County of York, England. Filed Sept. 5, 1884. (No model.) Patented in England Feb. 14, 1884, No. 3,361; in France May 31, 1884, No. 162,498, and in Belgium June 5, 1884, No. 65,395.



Claim.—1. The combination, to form a time-check register, of the intermittently-rotating horizontal table B, mounted on a vertical axis, a circular series of boxes, C C, borne thereby, a stationary chute, V, under which said boxes pass successively, and a clock-work mechanism for controlling the intermittent advances of the table, all combined and arranged to operate substantially as set forth.

2. The combination of table B, means, substantially as described, for imparting to it a tendency to revolve in one direction, a series of holes or sockets, c c, in said table, a bolt or pin, U, adapted to enter said holes, mechanism, substantially as described, for withdrawing said bolt, and a clock-work adapted to control the operation of such mechanism, substantially as set forth.

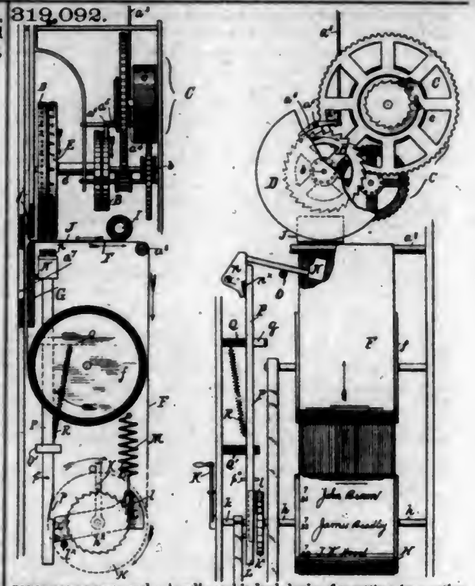
3. The combination of table B, means, substantially as described, for imparting to it a tendency to revolve in one direction, holes c c in said table, bolt U, lever T, hammer-arm S, connecting-rod R, lever N, toothed wheel M, and a clock-work adapted to rotate said wheel, substantially as set forth.

319,091. HANDLE FOR SHOE-KNIVES. THEODORE HARRINGTON, Southbridge, Mass. Filed Mar. 27, 1885. (No model.)



Claim.—As an improved article of manufacture, a shoe-knife or other similar implement having a handle of suitable size to be held within the hand of the operator, the said handle being provided at the end adjoining the blade with two seats, one at each side of the blade, shaped and located to be engaged by the thumb and finger of the hand grasping the handle, enabling the same to be securely held without danger of turning, substantially as described.

319,092. TIME-RECORDING APPARATUS. CHARLES S. HASKELL, Philadelphia, Pa. Filed May 23, 1884. (No model.)



Claim.—1. In a time-registering apparatus, the combination of a movable strip or scroll of paper or kindred fabric, type-carrying disks or printing or embossing contrivances, suitable motive mechanism for actuating said disks to predetermined rotation, suitable means for at will pressing the strip of paper against the printing-disks, a casing inclosing the said several above-named instrumentalities, and having a slot or opening, through which the strip of paper presents in such manner that a name can be written upon it, and suitable actuating mechanism for not only advancing the strip of paper a given distance, but for operating the mechanism which occasions the printing or embossing of the paper by the type-disks, and a handle or kindred contrivance for operating said actuating mechanism, substantially as set forth.

2. In a time-registering apparatus, the combination of an inclosing-casing provided with a slot or other opening through it, a disk provided with types to designate the minutes in an hour, a disk provided with types to designate the hours in a day, suitable motive devices for revolving the minute-disk once in an hour and the hour-disk once in twenty-four hours, a scroll of paper mounted so as to not only travel in such manner as to present itself with respect to the slot in the casing, but beneath and in line to be acted upon by the hour and minute disks, a printing-ribbon or kindred inking instrumentality interposed between the disks and the paper, a mallet adapted to make contact between the paper, the printing-ribbon, and the disks, suitable means for actuating the hammer to its throw and the scroll of paper to a predetermined advance movement, and a handle or kindred device for setting into action the said actuating mechanism, substantially as described.

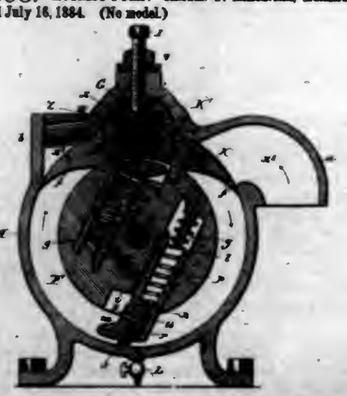
3. In combination, the hour and the minute disks, the scroll of paper, the printing-ribbon, the mallet, the actuating-bar, the dog, the winding-drum, the ratcheted disk connected with said winding-drum, and a handle for operating the dog, substantially as described.

4. As a device for operating the printing-mallet in an apparatus of the class above recited, the combination of the mallet-carrier, constructed as described, the mallet-actuating bar controlled by a spring and provided with a notch near its lower extremity, the spiral spring of the dog, and the handle upon the shaft of the dog, substantially as set forth.

5. The combination, to form a contrivance for operating the scroll of paper in an apparatus of the class above recited, of the winding-drum, the ratcheted disk on the shaft of said drum, the dog provided with a pawl adapted to engage with the ratcheted disk, the spring for the dog, and the handle upon the shaft of said dog, substantially as described.

6. The combination, to form a device for both operating the printing-mallet and the scroll of paper, of the mallet-carrier, constructed as described, the mallet-actuating bar controlled by a spring and provided near its inner extremity with a notch, the dog provided with the pawl, the spring for controlling the dog, the handle mounted upon the shaft of the dog, the winding-drum, and the ratcheted disk upon the shaft of said winding-drum, substantially as described.

319,093. ROTARY PUMP. REUBEN P. HASSINGER, Adamsburg, Pa. Filed July 16, 1884. (No model.)



Claim.—1. A pump provided with a cylindrical casing having inlet and outlet ports, and a recess formed between said ports by an upward extension of the casing, and a cylindrical piston-carrier provided with an inwardly-converging peripheral groove and tangential sliding

pistons, and a cam-block with narrow arms crossing said ports, approximately fitting and adjustably supported within the said recess and the said peripheral groove, substantially as described.

2. A pump provided with a cylindrical casing having inlet and outlet ports, and a recess formed between said ports by an upward extension of the casing, and a cylindrical piston-carrier provided with an inwardly-converging annular groove, and tangential sliding pistons projecting forwardly across said groove, and a cam-block having a hollow body portion approximately fitting and adjustably supported within said recess and the said peripheral groove, and terminating in narrow arms crossing said ports, and an adjustable packing-block fitting and closing the said recess in the cam-block and the said groove between said ports, substantially as described.

3. A pump provided with a cylindrical casing having inlet and outlet ports, a cylindrical piston-carrier provided with an inwardly-converging peripheral groove, and tangentially-arranged piston-chambers with guide-channels extending to the edges of the outer walls of said groove, and a cam-block provided with an upwardly-extending hollow body portion adjustably fitting and supported within a recess in said casing between said ports, and a packing-block fitting adjustably within said hollow portion of the cam-block and closing said peripheral groove, and a screw for forcing said cam-block and packing into said groove, and spring-actuated pistons sliding and fitting within said chambers and provided with side extensions fitting said guide-channels, substantially as and for the purpose set forth.

4. A piston-carrier having an annular groove with beveled sides, and tangentially-arranged piston-chambers with guide-channels extending to the edges of the outer walls of said groove, in combination with spring-actuated pistons sliding and fitting within said chambers, and each having side and end grooves, and a packing-block arranged within said grooves and projecting beyond the body of the piston, the side extensions fitting and sliding in said guide-channels, substantially as and for the purpose set forth.

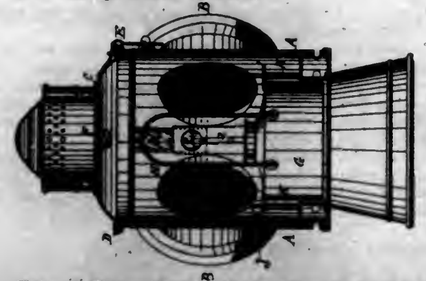
5. The combination of the hollow body of the cam-block with the packing-block M, packing-strip *z*, shaped as shown, and metal plates *v v'*, each having approximately-convex surfaces, and the metallic cylinders or rods *w w*, interposed between the said convex surfaces and the upturned sides of strip *z*, and means for compressing said parts within the hollow cam-block, substantially in the manner and with the effects specified.

6. The chamber or recess in the top of the casing between the ports, in combination with the body portion of the cam-block K', packed therein by interposing and arranging the packing-strips *o' o'* G between the said cam-block and the roof of said recess, and compressed by means of the screw I and the nut *q*, forming a convenient and effectual packing, substantially in the manner and for the purpose specified.

7. The combination, in a rotary pump, of the casing having a chamber arranged between the inlet and outlet ports by an upward extension of said casing, and a revolving piston-carrier provided with a wedge-shaped peripheral groove and sliding pistons, and a cam-block provided with tapering arms connected by an upwardly-extended hollow body portion, K', fitting into said chamber and packed therein by compressing between it and the roof of said chambers the packing-strips *o' o'* G by means of screw I and nut *q*, and the packing-block M, packing-strip *z*, plates *v v'*, and metallic cylinders or rods *w w* within said cam-block and upon the periphery of the said piston-carrier, by the means supporting the said cam-block within said recess and the said peripheral groove, substantially as described.

8. The revolving chambered piston-carrier provided with pistons, each having side and end grooves, and a U-shaped packing consisting of one piece, and a U-shaped key, *u*, fitting said side and end grooves and means for securing the parts together, substantially as described.

319,094. LAMP OR LANTERN. LAWSON G. HUNTINGTON, New York, N. Y. Filed Apr. 23, 1884. (No model.)



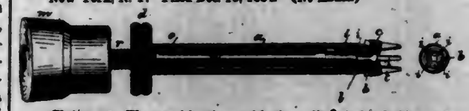
Claim.—1. The combination, with a lamp-body having a hinged top, of an oil-pot resting upon springs within the body and provided with a handle for its introduction, and removable through the top, substantially as described.

2. The combination, with a lamp-body having a hinged top, of an oil-pot supported upon springs within the body, said pot and supporting-springs together being of smaller diameter than the inner diameter of the lamp-body, to permit the introduction and withdrawal of the pot through the top of the lantern, substantially as described.

3. In a lamp or lantern of the character herein specified, body A, upright standards J, oil-pot G, and springs K, the whole combined substantially as shown and described.

4. The combination, with a hinge-top lamp or lantern, of the perforation L and slot *l* in the side wall, the slide M, and the removable oil-pot G, the burner employed in said oil-pot bearing an elongated wick-regulating shaft, N, the whole arranged substantially as shown and described.

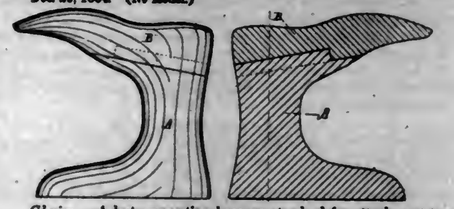
319,095. HOLDER FOR THE SETTING OF STONES. SAMUEL JOEL, New York, N. Y. Filed Dec. 15, 1884. (No model.)



Claim.—1. The combination, with the split tubular holder *a*, having the shoulder *b*, of a rod having a tapering end, introduced within the tubular holder and acting to expand the holder for retaining the setting, substantially as set forth.

2. The combination, with the tubular split holder *a*, having the shoulder *b*, and internal screw-thread, *c*, of the rod *n*, having a tapering end and a screw at *r*, and the handle *m*, into which the rod *n* is fastened, substantially as set forth.

319,096. LAST FOR BEATING-OUT MACHINES. EDWARD C. JUDD, Lynn, Mass., assignor of one-half to Arthur Fuller, same place. Filed Dec. 29, 1884. (No model.)



Claim.—A last-supporting base or standard for attachment to a beating-out machine, having a last-supporting surface provided with a groove or tenon adapted to receive lasts of different sizes or styles, and having a bottom flat surface, substantially as set forth.

319,097. SOAP FOR RESTORING COLOR TO PLUSHES, VELVETS, &c. ANNA KENDALL, St. Louis, Mo. Filed Apr. 3, 1885. (No specimens.)

Claim.—1. As an improvement in detergents for restoring color, soap in a solidified form containing a coloring-matter which is imparted to the article to be cleansed when the soap is applied, as set forth.

2. A detergent for restoring color, consisting of soap, coloring-matter, ammonia, and sal-soda, in about the proportions stated and in a solidified form, as set forth.

319,098. GUARD FOR CARVING-FORKS. GUSTAV KRAUTH, Brooklyn, N. Y. Filed Mar. 9, 1885. (Model.)

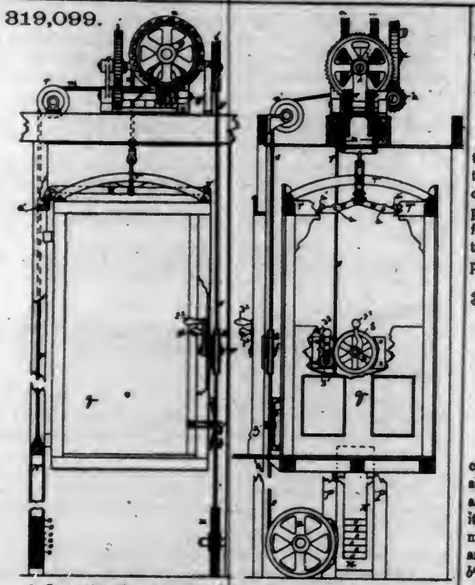


Claim.—The combination of fork A, having shoulders *n n*, pivot-pin *b*, and inclined surface *m*, with guard-rest C, having legs C' C', and central hooked tongue, D, the inclined surface *m* allowing the easy removal of the guard, substantially as specified.

319,099. ELEVATOR. WILLIAM A. KOHEMAN, Chicago, Ill. Filed Oct. 27, 1884. (No model.)

Claim.—1. In combination with the cab of an elevator, an endless power rope or chain passing over pulleys or sprocket-wheels at both top and bottom of the elevator-well, and arranged to be operated by power applied to one part of said rope from within the cab, by power applied to the other part of said rope from position on the floor or floors, as set forth.

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2. In combination with the cab of an elevator, an endless power-chain passing over pulleys or sprockets at both top and bottom of the elevator-well, said chain at one side of said pulley being passed through or adjacent to the cab, and the part on the other side being arranged through or adjacent to the several floors crossed by the elevator, so that the cab may be caused to move by power applied to said chain or rope at any accessible point.

3. In combination with an elevator-cab, its lift-rope and drum, a skew-toothed or worm wheel meshing with a worm which is controlled and operated by a power rope or chain which passes over sprockets or pulleys at top and bottom of the elevator-well, whereby the drum and cab are forced to move when power is applied to revolve said worm, and restrained from revolving by said worm at all other times.

4. In combination with the cab of an elevator and an endless power chain or rope passing over sprockets at top and bottom of the elevator-well, and arranged on one side to pass said cab, and on the other to pass through or adjacent to the floors crossed by the elevator, and sprocket or pulley power-wheels in engagement with said power chain or rope, said power-wheels being provided with operative cranks severally accessible from the cab and from the floor, substantially as set forth.

5. The combination, with an elevator-cab and a power rope or chain which passes over sprockets or pulleys at both top and bottom of the elevator-well, of sprocket-wheels S, provided with operative cranks c', and leading-wheels S' S', whereby the power-chain is maintained in proper engagement with said sprocket, as set forth.

6. The cab q, with its lifting-rope m, drum a, and counter-weight n, combined with the skew-toothed wheel D, attached to the shaft of the drum a, the worm g, pinion h on said worm-shaft, the wheel i, in mesh with said pinion, and the power-chain v, accessible alike from the cab q and from the floors crossed by the cab, as and for the purpose set forth.

7. The power-rope of an elevator, combined with a crank-pulley, S, movable pinching-pulleys S' S', and a cramping-lever, whereby they may be moved to pinch or liberate the power-rope, as and for the purpose set forth.

8. The power rope or chain v, combined with the crank-pulley S, the pinching-pulleys S' S', mounted on a movable bar, y, and the eccentric center pin, y', whereby said bar and pinching-wheels may be moved toward or away from the crank-wheel S.

9. The cab of an elevator and an endless power rope or chain arranged to pass over pulleys or sprockets at both top and bottom of the elevator-well, with one part of said rope or chain passing through or adjacent to the cab, and the other part passing through or adjacent to the several floors crossed by the cab, combined with crank-pulleys arranged at the several stations from which said elevator may be operated, as set forth, and pinching-pulleys arranged to clamp said rope or chain at will against their crank-pulley, whereby said power-rope may be out of engagement with all the pulleys except the one whereby it is being operated, as set forth.

10. The cab of an elevator and its lift-rope, combined with the brake-bar W, pivoted at one end to the cab and at the other end connected with the toggle brake-levers w w', and the spring H, whereby if the lift shall break said toggle brake-arms will be immediately caused to engage the elevator-guides with a grip proportionate to the weight of the cab and load.

319,100. COMPOSITION FOR FIREPROOFING FABRICS. FRANZ KONRAD, Zschierne, near Dresden, assignor to himself and Josef Ferdinand Notz, Dresden, Saxony, Germany. Filed Apr. 7, 1885. (No specimens.)

Claim.—The liquid for rendering fabrics, &c., fire-proof, repellent to vermin, and counteractant to morbid or diseased matter, or the infection from spores, fungi, bacteria, &c., composed of a solution of sulphate of ammonia, carbonate of ammonia, borax, bichloride of mercury, peppermint, carbolic acid, bitungstate of soda, and chloride of lime transformed into an emulsion by leading into the solution the products obtained from the distillation of a solution of Peruvian balsam and camphor, substantially as set forth.

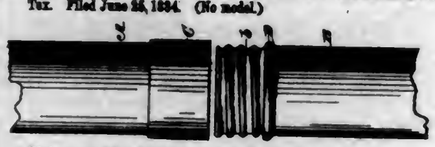
319,101. STOVE-PIPE SHELF. JOSEPH KURTZ, Springfield, Ohio. Filed Sept. 15, 1883. (No model.)



Claim.—1. The improved means for supporting a stove-pipe shelf, consisting of a shelf-holding arm, B, provided in its outer end with V-shaped retaining notch or notches b', extended inward and downward at an angle, and the shelf-shank C', having its outer portion or extremity engaged under a suitable stop or bearing, and having near its end next the shelf V-shaped lug or lugs inclined outward and downward, and conformed to and adapted to drop into the V-shaped notch or notches b', substantially as set forth.

2. The stove-pipe shelf composed of the socket having top plate, and depending side walls provided in their outer ends with inclined notches, the cross-rod connecting the side walls, and the shelf-shank provided with a suitable hook and having lateral inclined lugs, all arranged and operating substantially as specified.

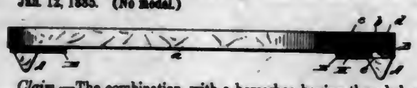
319,102. STOVE-PIPE JOINT. WILLIAM N. LADSHELM, Midlothian, Tex. Filed June 25, 1884. (No model.)



Claim.—1. The combination, with the screw-threaded pipe-sections A B, of the inclosing ring or band C, substantially as described.

2. The combination of the threaded pipe-sections A B, the ring or band C, and the stop D, substantially as described.

319,103. HORSESHOE. FERDINAND F. LUTZ, Louisville, Ky. Filed Jan. 12, 1885. (No model.)



Claim.—The combination, with a horseshoe having threaded apertures, of a calk having a threaded stem and an angular portion at the base thereof, and a securing-plate adapted to engage the said angular portion and serve the additional function of a lever for screwing the said calk into a shoe, substantially as specified.

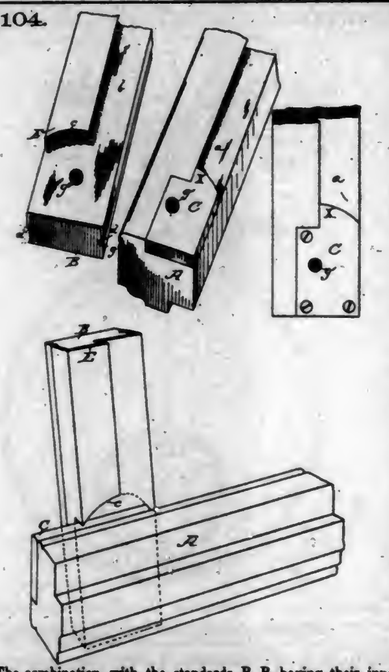
319,104. WINDOW. ANTON MATUSKA, Chicago, Ill. Filed May 1, 1884. (No model.)

Brief.—A concavo-convex disk-spring, through which the pivotal rivet passes, holds the sash-frame and stile in frictional contact. The metal-covered stiles and sash-frames are longitudinally rabbeted, and when in a closed position interlock with each other. A screw-plate is secured to the hinge end of the sash, through which the pivot passes, and is made to fit a corresponding recess in the stile.

Claim.—1. The combination, with the standards B B, having their inner edges covered by the plate E, and the window-sash A, having secured thereto the plate C, of the rivet g' and the concavo-convex disk-spring G, substantially as described.



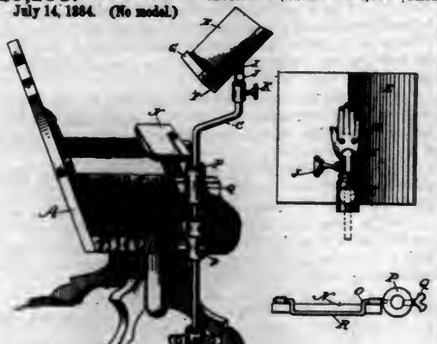
319,104.



2. The combination, with the standards B B, having their inner vertical edges provided with longitudinal rabbets, and having the advanced surface cut away to form a shoulder, c, of a window-sash having the outer edges of its sides provided with longitudinal rabbets so arranged that the advanced surface made thereby will be opposed to that of the contiguous edges of the said standards, and provided with a plate, C, as described, and a pivotal rivet, g', substantially as and for the purposes set forth.

3. The combination, with the standards B B, having their inner edges covered by the plate E, and the window-sash, of the rivet g' and the concavo-convex disk-spring G, substantially as described.

319,105. BOOK-REST. JESSE D. MCCLURE, Jeffersonville, Ind. Filed July 14, 1884. (No model.)



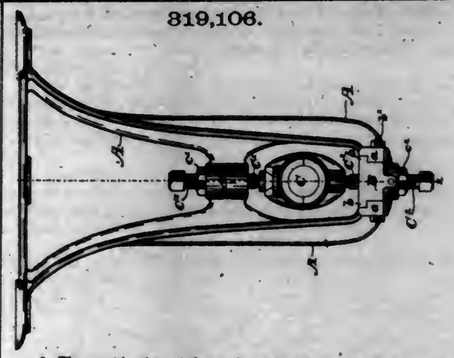
Claim.—1. The combination of the clamp B, the bar C, fitted therein, the block P, fitted upon the said bar, the set-screw Q, the rod O, shaped with an offset, R, and the shelf hinged upon the rod O, substantially as shown and described.

2. The combination of the standard with the rod O, shaped with a horizontal offset, R, and a shelf hinged on the rod, the latter serving as a pivot to the hinge, substantially as shown and described.

319,106. SHAFT-HANGER. JAMES F. MCCORMICK, Indianapolis, Ind. Filed Apr. 13, 1885. (No model.)

Claim.—1. A hanger for shafting, consisting of a main casting having two similar sides extending down equally and provided with appropriate faces, and a removable block adapted to be inserted and secured between said faces.

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2. The combination of the main casting A, having faces a a, and the block B, constructed to fit between said faces and be there secured, substantially as set forth.

3. The combination of the main casting A, having faces a a, with notches therein, and the block B, having projections b b, adapted to fit into said notches, and be thus supported thereby.

4. The combination of the main casting having faces provided with notches, a block adapted to fit between said faces and having projections adapted to fit into said notches, and bolts for securing the same in position, substantially as set forth.

5. The combination of the main casting having faces provided with notches inclined upwardly, a block adapted to fit between said faces, and having downwardly-inclined projections adapted to fit into said notches, and bolts for securing the same in position, substantially as set forth.

6. The combination of the main portion A, the block B, the bolts b', the box C, and the set-screws C' and C^2, substantially as shown and specified.

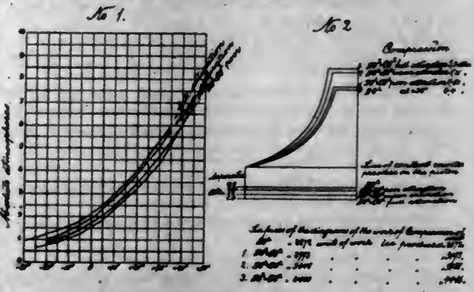
319,107. SELF-STRIPPING MECHANISM FOR CARDING-MACHINES. JOHN T. MEARS, Taunton, Mass. Filed Aug. 25, 1884. (No model.)

Brief.—A friction-clutch is interposed between the belt-driven pulley of the stripping mechanism and the parts driven by said pulley, so that the clutch yields to any obstruction which would ordinarily break the stripping mechanism.



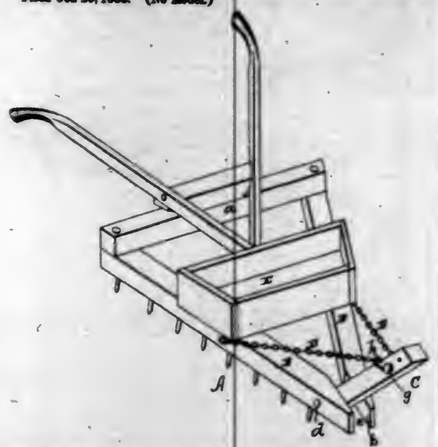
Claim.—The stripper, its arms, the cam-wheel for operating the said arms, the pinion c, a driving-pulley therefor, and means to connect the pinion with and actuate the cam-wheel, combined with a friction-clutch interposed between the said pinion and its driving-pulley, to hold the two in operative connection while running under ordinary strain, and to slip under extraordinary strain to stop the pinion, substantially as and for the purpose set forth.

319,108. COMPOUND LIQUID FOR USE IN THE ART OF REFRIGERATION. JOSEPH H. P. MENDÈS, Paris, France, assignor to Société Anonyme Dite Compagnie Industrielle des Procédés Raoul Pictet, same place. Filed Apr. 8, 1885. (No specimens.)



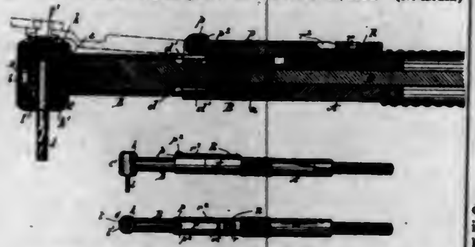
Claim.—As an improvement in the art of refrigeration, the employment in refrigerating-machines of sulphurous acid more or less saturated with carbonic acid in solution, substantially as and for the purpose herein described.

319,109. DRAG-HARROW. PHILIP MEYER, Falls City, assignor of two-thirds to Jacob Reyer and Peter G. Mason, Richardson County, Nebr. Filed Oct. 29, 1883. (No model.)



Claim.—The drag-harrow described, consisting of the frame a B, the draft-beam C, pivoted between the forward ends of the beams B by the bolt *d*, which secures the frame, and having the loose bolt *g* with hooks *h*, the weight-box E, and the chains D, connecting the draft-bar with the frame at a point adjacent to the load or weight, whereby the strain on the harrow may be adjusted at will with reference to the weight and quality of the soil, as set forth.

319,110. ANGLE ATTACHMENT FOR DENTAL ENGINES. CHAUNCEY D. MILLER, Poughkeepsie, N. Y. Filed Dec. 27, 1884. (No model.)



Claim.—1. The combination, with the tubular holder and stock screwed together, of the shaft D, the gear at the end thereof, the enlargement D', and the collar *d*, resting against a shoulder within the holder, substantially as set forth.

2. The combination, with the tubular arbor having a gear around it, of the tubular socket and the ring-formed bearing *k*, having a conical bearing for the end of the tubular arbor, and a screw-thread upon the outside to screw into the tubular socket, substantially as set forth.

3. The combination, with the tubular arbor, of a slotted tubular chuck having conical ends and a clamp-screw to give pressure endwise upon the chuck and hold the tool, substantially as set forth.

4. The combination, with the holder and its transverse socket, of the shaft D, having incisions in it, the gear-wheels, the tubular arbor, the chuck for holding the tool, a screw-clamp for the same, and a lever and tooth to hold the parts while the chuck is being opened or clamped, substantially as set forth.

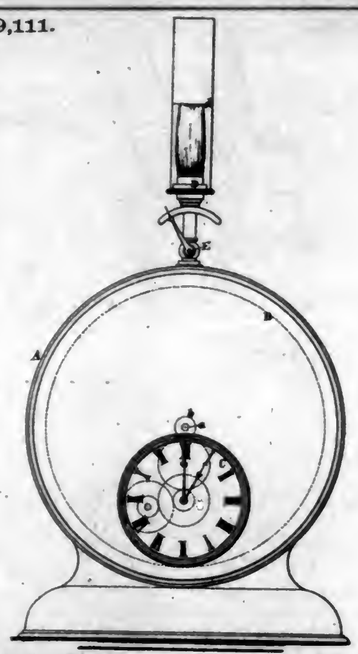
5. The lever and tooth pivoted to the tubular holder and the key or wrench upon the same, in combination with the tool-holding chuck, the shaft, gears, and holder of the angle attachment, substantially as set forth.

319,111. GAS-METER. WILLIAM N. HILSTED, Brooklyn, N. Y. Filed June 13, 1884. (No model.)

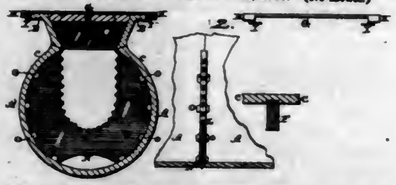
Brief.—Gas being supplied under constant pressure, its quality is indicated by the height of flame.

Claim.—The combination of a standard gas-burner, a clock or register furnished with a clock-dial, and a gas meter or motor geared with the said clock or register, for the purpose of driving it by the motive power furnished by the pressure of the gas passing through the said meter or motor to the said burner, substantially as and for the purpose herein described.

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319,112. UNDERGROUND CONDUCTOR FOR WIRES. BURNET L. NEVIUS, Washington, D. C. Filed Mar. 12, 1885. (No model.)



Claim.—1. A conduit for underground wires or cables having an opening in its top which extends from one end to the other, and which is provided with flanges B and shoulders *c*, so that the earth will catch between the flanges and shoulders and cause the conduit to move with the earth, and thus always preserve a uniform level, substantially as described.

2. A conduit for underground wires and cables having an opening along its top, in combination with a board which is placed inside of its top edges and suitable cross-braces which are applied to the under side of the board, substantially as set forth.

3. The combination of the sections of a conduit with a division which is provided with projections upon opposite sides, so as to catch within the ends of the sections, and thus support the division in place.

4. The combination of the curbstone having a recess formed in its top with the end sections of the conduit which abut against opposite sides of the curbstone, and a flanged cover which extends over the outer side of the curbstone, substantially as set forth.

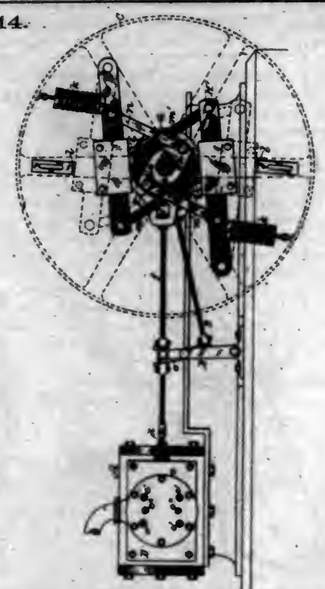
319,113. DOOR-HANGER. SILAS H. NYE, Union City, Mich. Filed Dec. 10, 1884. (No model.)



Claim.—A barn-door hanger the head B of which is provided with a recess, *a*, communicating with a channel, *b*, in the shaft, substantially as and for the purposes set forth.

319,114. STEAM-ENGINE VALVE-GEAR. JOHN D. OLDS, Fort Wayne, Ind. Filed June 19, 1884. (No model.)

319,114.



Claim.—1. The combination, substantially as hereinbefore described, of the two independent valve-working eccentrics mounted loosely on the crank-shaft, and a governor mounted on and rotating with said crank-shaft and coupled to said eccentrics, substantially as described, whereby said eccentrics can be variably rotated by the governor in opposite directions.

2. The combination, with the crank-shaft, of a weighted arm, the two eccentrics loosely mounted on said shaft, each provided with an arm or lever, and both connected by a link to said weighted arm.

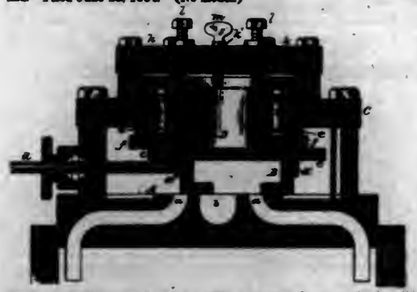
3. The combination, with the crank-shaft, of the two weighted arms, the two eccentrics, each provided with an arm or lever, and each connected by links to both of said weighted arms.

4. The combination, substantially as hereinbefore described, of a balanced valve, a vibratory rocker-arm, a rocking lever mounted on said arm, a pair of eccentrics oppositely set on their shaft, coupled, respectively, to the rocker-arm and to the rocking lever, and a valve-rod which connects said rocking lever with the valve.

5. The combination, with the governing mechanism, including the two eccentrics and the complex rocker-arm, of a slide-valve, substantially as described.

6. The two eccentrics, one tightly mounted upon a sleeve and provided with a lever radiating from said sleeve, and the other loosely mounted on said sleeve and provided with a lever, substantially as described, whereby both of said eccentrics may be connected to a fly-wheel governor, as set forth.

319,115. BALANCED SLIDE-VALVE. JOHN D. OLDS, Fort Wayne, Ind. Filed June 23, 1884. (No model.)



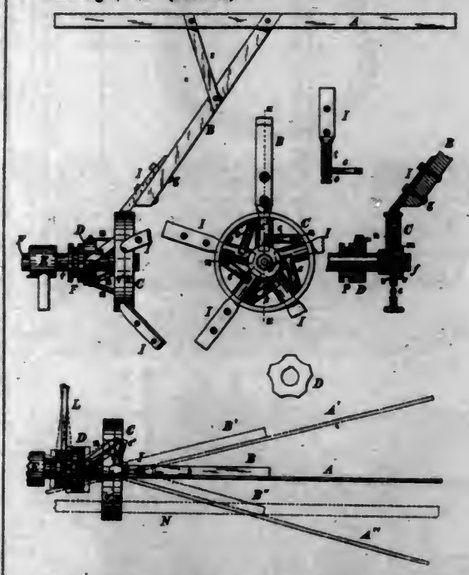
Claim.—1. The combination, with a steam-chest, a single slide-valve, its seat, and ports, of a balance-plate provided with a hollow cylindrical piston, and opposite the valve-seat, in the cover of the steam-chest, a piston-cylinder which includes within its sectional area that portion of the valve-seat which is occupied by the induction and exhaust ports, and also the main portion of said seat, substantially as described, and for the purpose specified.

2. The combination of the balance-plate piston provided with valve-guiding-flange, the steam-chest, its cover and cylinder, the four adjusting-screws, and the two lifting-screws, located at opposite sides of the piston, substantially as described.

3. The combination of the steam-chest cover and its cylinder, the balance-plate piston, the bull-ring, its springs, and the metallic packing-rings, substantially as described, whereby said piston, without impairing the packed joint between it and its cylinder, can be canted or tipped, as set forth.

4. The combination of the slide-valve, its seat, the steam-chest having the large cylinder in its cover opposite the valve-seat, as described, the balance-plate piston, its valve-guiding flange, its packing-rings, and the adjusting and lifting screws, substantially as described.

319,116. HARVESTER-REEL. LAMBERT L. OLP, Mount Morris, N. Y. Filed Aug. 1, 1884. (No model.)



Claim.—1. The herein-described overhung harvester-reel, provided with a series of adjustable blades, A, attached near the center of length to the angularly-arranged reel-arms B, the inner ends of which are pivoted in the reel-head C, located at one end of the reel, and provided with suitable mechanism for varying the adjustment of the blades relative to the cutter-bar by turning the pivots in sockets in the reel-head while the machine is in operation, substantially as described.

2. The combination, with the revolving reel-head C, of the pivot I, angularly-arranged reel-arm B, reel-blade A, and brace *s*, substantially as described.

3. The combination, with the revolving reel-head C, of the adjustable reel-blade A, angularly-arranged reel-arm B, pivot I, provided with arm *e*, link *n*, and sliding collar D, substantially as described.

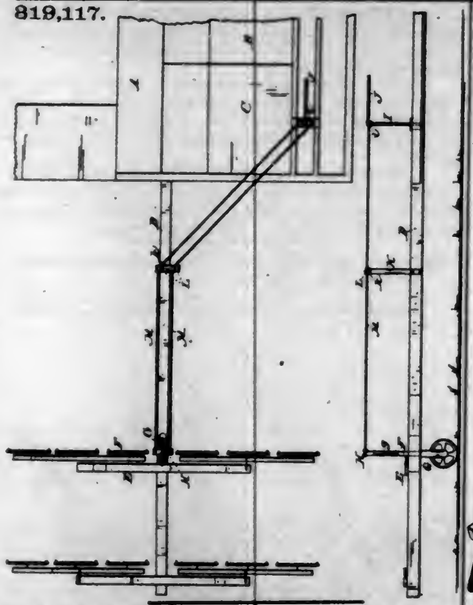
4. The combination, with the adjustable reel-blades A and angularly-arranged reel-arms B, of the divided reel-head C, provided with sockets for the stems *t* of the pivots I, and slots for the arms *s* and links *n*, substantially as described.

5. The combination of the adjustable wooden reel-blade A, angularly-arranged wooden reel-arm B, bent metallic pivot I, and the divided reel-head C, provided with sockets for the pivots, substantially as described.

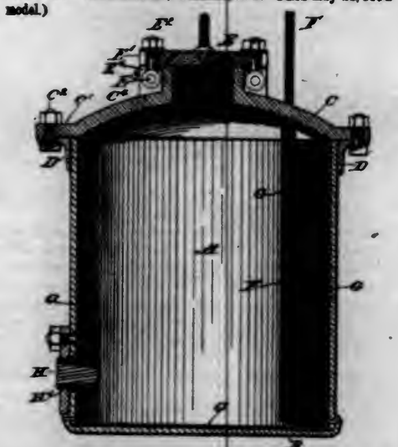
319,117. STEERING MECHANISM FOR HEADERS AND THRASHERS. WILLIAM H. PARKS, Jr., Marysville, Cal. Filed July 26, 1884. (No model.)

Claim.—In combination with the push-beam D of a combined header and thrasher, and the steering-wheel G, having spindle *g*, a means by which said spindle is oscillated to operate the steering-wheel, consisting of a lever, H, upon the top of the spindle, the pulleys L upon a suitable standard secured to the push-beam, the oscillating shaft I on the platform of the header portion of the machine, having lever *i* upon its top, the operating-lever J, connected with said lever *i*, and the cords or ropes M, connected with lever H, passing around pulleys L and connected with lever *i*, substantially as and for the purpose herein described.

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319,118. SOLUTION OF DICHLORIDE OF COPPER, &c., FOR TREATING ORES. ABEL PATCHEN, Westfield, N. Y. Filed May 21, 1884. (No model.)



Claim.—The process herein set forth of making a product for use in treating ores, which consists in treating sulphate of copper in the presence of salt, water, and metallic copper under pressure and with heat.

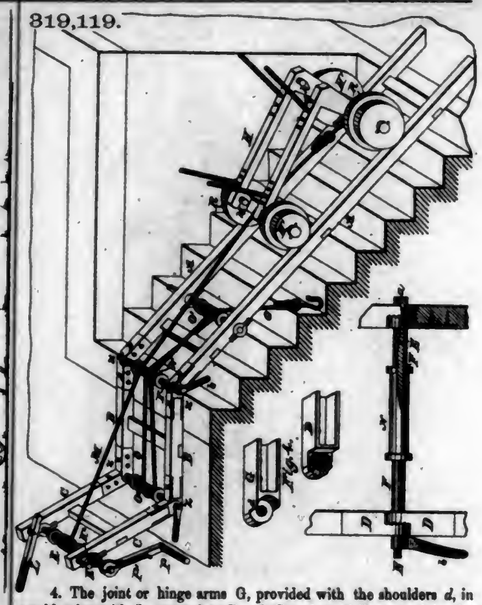
319,119. BARREL-ELEVATOR. LEVI PRITZ, Canton, Ohio, assignor of two-thirds to Joseph L. Higley and George N. Yoke, same place. Filed Feb. 16, 1885. (No model.)

Claim.—1. In a barrel-elevator, the combination, with the main track-section A for a wheeled truck, of a secondary track-section, B, hinged to one end of the main track-sections, an extension track-section, C, hinged to one end of the secondary track-sections, a winding-drum or windlass mounted in the upper end of the extension track-section, and a cable for connecting the drum with a wheeled truck adapted to travel on the main and secondary track-sections, substantially as described.

2. The combination of the main track-section A for a wheeled truck, the secondary track-section B, hinged to one end of the main track-sections, an extension track-section, C, hinged to the secondary track-sections, spools N and O^2 at the ends of the secondary track-section, a windlass, O', mounted in the main track-section, and a cable, O, substantially as described.

3. The hollow pipe F, located on the rod E, in combination with the ratchet-arms D and the track A, substantially as and for the purpose specified.

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4. The joint or hinge arms G, provided with the shoulders *d*, in combination with the extensions B and C, substantially as and for the purpose specified.

5. The handle and skid I, provided with the recessed ends J, in combination with the truck or carriage H, substantially as and for the purpose specified.

6. The extension C, provided with the windlass K, said windlass being provided with the ratchet-wheel K', which engages the dog K^2, substantially as and for the purpose specified.

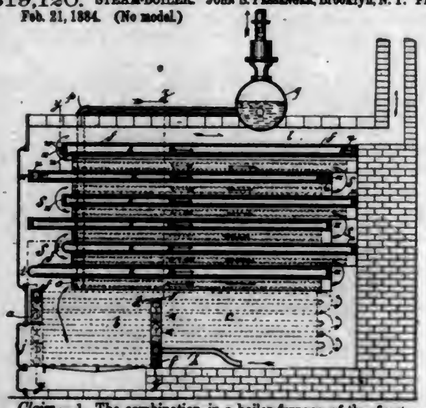
7. The ratchet-arms D, located on the track A, and the extension B, substantially as and for the purpose specified.

8. The crank P, provided with the spring-catch P', in combination with the windlasses K and O', substantially as and for the purpose specified.

9. The windlasses K and O', having attached thereto the ropes or cords M and O, in combination with the truck or carriage H, substantially as shown and described.

10. The truck or carriage H, provided with the flanged wheels H', and having the elevating rope or cord attached to the rear axle of said truck or carriage, and said elevating rope or cord passing over the forward axle, substantially as and for the purpose specified.

319,120. STEAM-BOILER. JOHN S. PRESSINGER, Brooklyn, N. Y. Filed Feb. 21, 1884. (No model.)



Claim.—1. The combination, in a boiler-furnace, of the front wall, *a*, side walls, *b*, bridge-wall *d*, and the side walls, *c*, back of the bridge-wall, consisting of plates formed of coils of pipe incorporated with metal jackets cast upon the coils, and the coils being connected for the circulation of the water through the plates, substantially as described.

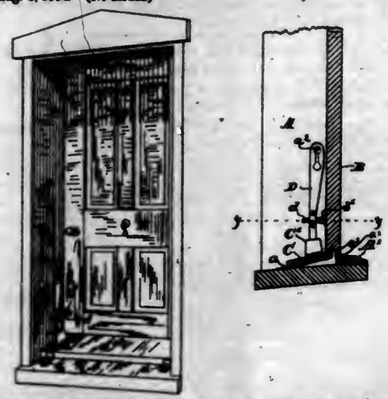
2. The combination, with a boiler, of furnace-walls consisting of coils of pipe incorporated with cast metal jackets cast upon the coils and forming plates, and said coil-plates having suitable connections for causing the circulation of water through them to the boiler, substantially as described.

3. Coil-plates for sectional boilers, consisting of a plain flat plate with a flange along the margins of one side to support the plates over a space for a heat-flue, said plates having the coil of pipes incorporated in the main body and in the flanges, substantially as described.

4. The combination, in a steam-boiler, of sectional flanged coil-plates of steam-pipe incorporated with cast-metal jackets, and furnace-walls, also consisting of coil-plates of steam-pipe incorporated with cast-metal jackets, said furnace-walls and sectional plates being suitably connected for the circulation of water and steam, substantially as described.

5. The combination, in a steam-boiler, of furnace-walls consisting of plates formed of coils of pipe incorporated with metal jackets cast upon the coils, and a series of superimposed plain flat coil-plates having a flange along the margins of one side to support them over spaces for heat-flues, said plates being alternately detached from and connected at the ends with the end walls of the furnace to form a flue extending along both sides of each plate, substantially as described.

319,121. WEATHER-STRIP. JOHN W. POWER, Carthage, Ind. Filed Aug. 1, 1884. (No model.)



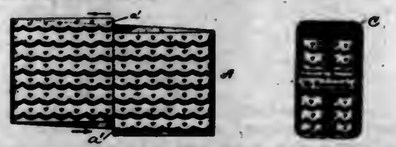
Claim.—1. The combination of a door, its frame, the weather-strip having an upwardly-projecting arm, C', and the bar D, pivoted to the door-frame, and provided with a projection, *d*, substantially as shown and specified.

2. The combination, with a door and its frame, of a weather-strip, C, secured in place by the stops *a*, and provided with an upwardly-projecting arm, and the bar D, pivoted to the door-frame, and provided with a projecting portion, with which the door, as it closes, comes in contact, substantially as set forth.

3. The combination, with a door, its frame, and a weather-strip, of an operating-bar pivoted to the door-frame and engaging with said strip, said bar being provided with a projection in the form of an adjusting-screw, substantially as shown and specified.

4. The combination of a door having a groove in its lower end, the door-frame, a weather-strip having a bead adapted to enter said groove, and provided with an upwardly-projecting arm, and a swinging bar pivoted to the door-frame and connected to said arm, said bar being also provided with a projection, *d*, with which the door is adapted to engage, and thus operate said mechanism, substantially as set forth.

319,122. EMBROIDERY. MORRIS H. PULASKI, Philadelphia, Pa. Filed Jan. 3, 1885. (No model.)



Claim.—1. As a new article of manufacture, a web of separable embroidery-stripe having frangible weakened lines between each strip, joined at its two ends into one continuous band, and having one of the separable stripe thereof at the top and bottom free and unattached, whereby the embroidery-stripe can be detached from the plain fabric in one continuous length, as and for the purpose intended, substantially as described.

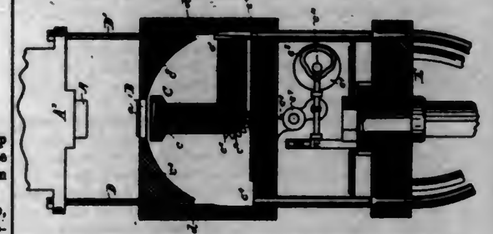
2. As a new article of manufacture, a web of embroidery-stripe provided with weakened frangible separable lines surrounding, adjacent, and conforming to the contour of the lower edge of each strip, said web being joined along its end edges its full length, except that the edge of one strip at the top and another at the bottom is left free and unattached, whereby all of the embroidery-stripe assume a spiral course, as and for the purpose intended, substantially as described.

319,123. STIRRUP. WILLIAM H. RAWLEY, Agency, Mo. Filed Nov. 20, 1884. (No model.)



Claim.—The stirrup described, consisting of the body A, having inclined faces *a* and plane vertical faces *a'*, the mounting B C, made of a single piece of metal, and secured to said body as shown, the shaft D, having rivet-plates rigid with the shaft, and having flat bearings upon the inclined faces of the mounting, and the strap-block B, having end bearings against the mounting, whereby the strap-block is allowed to revolve, and the shaft is held rigid, all combined and operating as and for the purposes set forth.

319,124. NAIL-DISTRIBUTER FOR HEEL-NAILING MACHINES. FREDERIC F. RAYMOND, 2d, Newton, Mass. Filed Jan. 17, 1885. (No model.)



Claim.—1. The combination, with nail-punching devices arranged to cut nail's heads and points from a nail-plate, of a carrier having the movements in relation to the die set forth, whereby the nails are received in succession from the die and delivered head up in their respective passages, all substantially as and for the purposes described.

2. The combination of the reciprocating punch A, the die B, and a carrier comprising one or more magnets adapted to receive and hold each nail, and to move it in a direction to bring its head uppermost, and a stripping device, all substantially as and for the purposes described.

3. The combination of the punch A, the die B, the magnet-carrier, the guide-tubes c^4, and the strippers *d*, all substantially as and for the purposes described.

4. The combination of the die B, the carrier C, and a cam for moving the same, all substantially as and for the purposes described.

5. The combination of the punch and die, the carrier C, adapted to receive and deliver the nails, as specified, the guide-tubes c^4, and the distributer, all substantially as and for the purposes described.

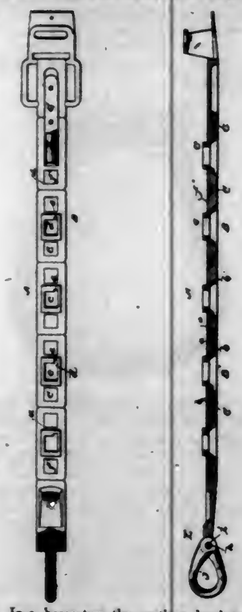
6. The combination of devices for punching nails from nail-plate and delivering them head up to a distributer, the distributer, and a carrier for transferring the nails from the distributer to a driving position, all substantially as and for the purposes described.

7. The combination of devices for punching nails from a nail-plate and delivering them heads up to a distributer, said distributer, and a nail-holder, all substantially as and for the purposes described.

319,125. PROCESS OF WORKING AND USING ASPHALTUM. JUDSON REES and ANDREW STINSON, San José, and ISAAC L. THURBER, Santa Cruz, Cal. Filed Oct. 2, 1884. (No specimens.)

Claim.—The process of preparing roofing and paving material consisting in the following steps: first, softening pure native asphaltum by the application of hot water or steam thereto, and, secondly, pressing it under heated rollers or other heated irons, substantially as and for the purpose set forth.

319,126. HAME-TUG. THOMAS L. RIVERS, Montclair, assignor of one-third to Josephine Thomas, Newark, N. J. Filed Nov. 10, 1884. (No model.)



Claim.—1. In a hame-tug, the sections having beveled ends and rectangular openings near said ends, in combination with detachable connecting-links having attaching-lugs, substantially as set forth.

2. In a hame-tug, the combination, with the sections having rectangular openings at their ends, the sides of which incline inwardly, and seats upon the under sides of said sections at each end, of links connecting said sections, as set forth.

3. In a hame-tug, the sections having a central elongated opening, rectangular openings at their ends, said rectangular openings having inclined sides, seats on the under sides of said sections, said sections having beveled ends, in combination with connecting-links, as set forth.

4. The combination, with the hame-sections, of connecting-links having lugs at each end, said lugs having inclined end faces and adapted to interlock with the slotted ends of the sections, substantially as set forth.

5. The combination, with the hame-sections, of connecting-links having lugs at their ends, provided with side flanges, and being also provided with inclined end faces, as set forth.

6. In a hame-tug, a plate having a lug at one end and a sectional clip at its other end, in combination with a series of detachable hame-sections, substantially as set forth.

7. In a hame-tug, a plate having a lug at one end and a sectional clip at its other end, said lug having side flanges, as shown, in combination with the hame-sections, as set forth.

8. In a hame-tug, a trace-carrier having an extension at its rear end and a lug at its other end, in combination with the hame-sections, substantially as and for the purpose set forth.

9. In a hame-tug, a trace-carrier having a lug at one end and a guide-loop at its other end, in combination with the hame-sections.

10. In a hame-tug, a trace-carrier having a lug at one end and a loop and extension therefrom at its other end, in combination with the hame-sections, as set forth.

11. In a hame-tug, detachable sections connected by links having upwardly-extending lugs, a trace-carrier attached to the rear section, and attaching means, substantially as described, connected with the forward section.

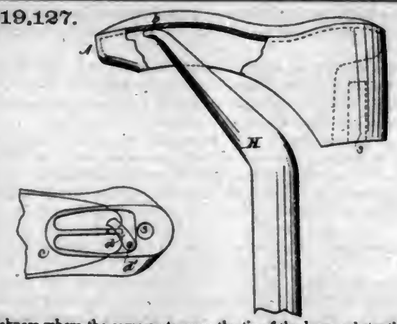
319,127. MACHINE FOR UNITING SOLES AND UPPERS. STILLMAN W. ROBINSON and ORLANDO E. LEWIS, Columbus, Ohio. Filed Sept. 29, 1884. (No model.)

Claim.—1. The hollow metallic shell-like last cut away substantially as shown and described, whereby the top of the horn may have a bearing entirely around the toe portion of the last, substantially as described.

2. The hollow metallic shell-like last having the chamber for the reception of the horn, and provided with the hole 3 and the block, to operate substantially as described.

3. The hollow metallic shell-like last having its bottom of uniform

319,127.



thickness where the same rests upon the tip of the horn, substantially as and for the purpose described.

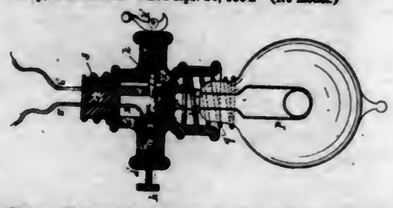
4. The combination, with a horn, of the hollow metallic shell-like last cut away to permit the entrance of the tip of the horn into the toe of the last opposite the point at which the sole-fasteners are to be inserted, substantially as described.

319,128. LACQUER FOR USE IN SOLDERING. WILLIAM ROSENBERG, New York, N. Y. Filed Apr. 1, 1885. (No specimens.)

Claim.—1. A lacquer to be used in soldering, consisting of kauri gum, rosin, and alcohol, substantially as specified.

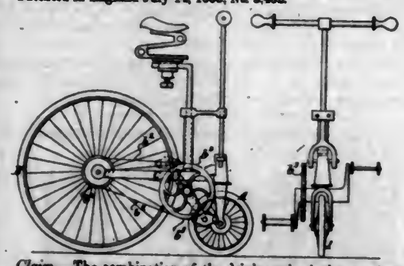
2. A lacquer to be used in soldering, consisting of kauri gum, rosin, alcohol, and benzine, substantially as specified.

319,129. INCANDESCENT ELECTRIC LAMP. EMILE L. ROUSSY, Vevay, Switzerland. Filed Apr. 26, 1884. (No model.)



Claim.—The combination, with the electric lamp containing a carbon filament, of a holder, *z*, of insulating material, having a cavity and a resistance-column of finely-divided carbon therein, the clip-plate *d'* upon the exterior of the holder covering said cavity, a metallic screw, *h*, passing through the clip-plate and pressing upon the resistance-column, a circuit-closing key, a metal screw or plug, *m*, closing the inner end of aforesaid cavity, and conducting-wires so arranged that one of the conductors is connected with the clip-plate and the other with the lamp, substantially as and for the purposes set forth.

319,130. VELOCIPEDE. WILLIAM A. RUDLING and JOHN F. COFFIN, Southsea, County of Hants, England. Filed Apr. 19, 1884. (No model.) Patented in England July 14, 1883, No. 3,432.

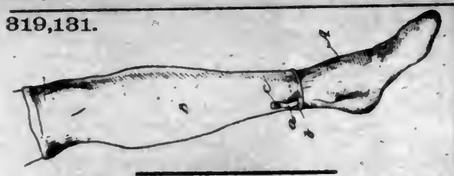


Claim.—The combination of the driving-wheel, the steering-wheel arranged in front thereof, and the intermediate power-wheel, the outer circumference of which is overlapped by the outer circumferences of the said driving and steering wheels, substantially as herein described.

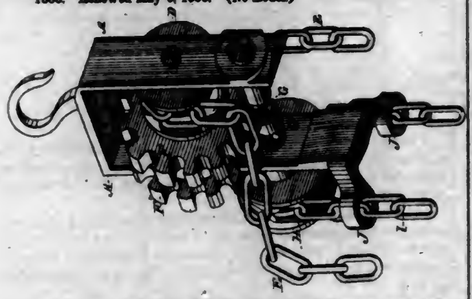
319,131. STOCKING. BENJAMIN F. RYER, Chicago, Ill., assignor of one-half to Louis Gathmann, same place. Filed Apr. 10, 1884. (No model.)

Claim.—As a new article of manufacture, a stocking composed of parts A B, part B provided with buttons *c*, and with suitable openings, *b*, near its lower end, and part A provided with straps *a*, adapted to pass through openings *b* and engage with buttons *c*, as and for the purpose set forth.

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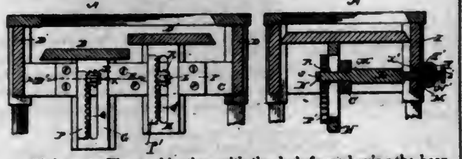


319,132. LIFTING APPARATUS. CLARENCE SANBORN, Sacramento, assignor of one-half to A. T. Dewey, San Francisco, Cal. Filed Apr. 30, 1883. Renewed May 6, 1885. (No model.)



Claim.—In a lifting apparatus, gears or racks having toothed surfaces placed side by side, so that the teeth of one are opposite the spaces of the other, in combination with a shaft having eccentric pins upon opposite sides of the center and within the diameter of the shaft, one of said pins engaging the teeth of each wheel, so that said teeth may pass beyond the center of the shaft, substantially as herein shown and described.

319,133. WRITING-DESK. JOHN J. SCHMITT and MICHAEL W. DOUGHERTY, Weston, W. Va.; said Dougherty assignor to Thomas Malaskey, same place. Filed Aug. 4, 1884. (No model.)



Claim.—1. The combination, with the desk-frame having the bearing-rail provided with the flanged guide-blocks, of the slotted standards working vertically in the guideways provided in the guide-blocks, vertical racks provided on one of the faces of the standards, table-sections fitted to the upper ends of the standards, the shafts passing through the slot of the standards, and provided with a pinion engaging its rack, and knobs for operating the shafts and holding them in any position desired, as set forth.

2. The combination, with the desk-frame and the adjustable table-section moving in the same, of the standards to which the sections are fitted, the shafts operating the standards at one end and journaled in the desk-frame at the other end, keeper-plates attached to the desk-frame, and a knob sliding loosely on the extended ends of the shafts, and provided with locking means to engage the keeper-plates, arranged and operating as and for the purpose set forth.

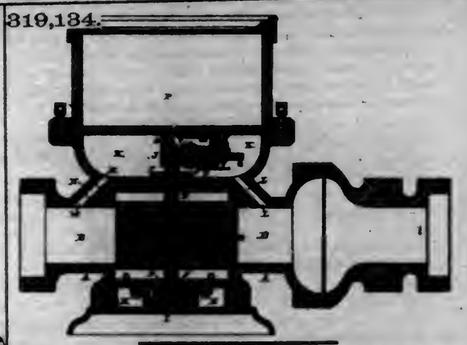
3. The combination, with the desk-frame, the adjustable table-sections, and the standards to which they are fitted, of the shafts for operating the standards, knobs sliding over the ends of the shafts and capable of rotating the same, keeper-plates fitted to the desk-frame, and pins or studs provided on the sliding knobs to engage the said plates when said knobs are pushed inward, as set forth.

319,134. ROTARY WATER-METER. HUGO SCHNEIDER, Cleveland, Ohio. Filed Dec. 19, 1884. (No model.)

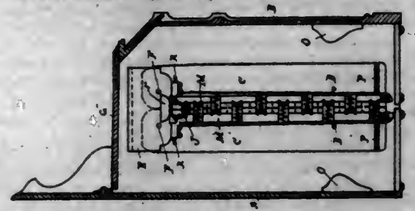
Claim.—In a meter, the combination of the water-way, the wheel placed therein, with the passages through which the water wastes past the wheel, and a cock placed in the passage so as to control the flow of water through the passage, substantially as set forth.



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319,135. FOLDING CABINET-BED. FREDRIK SCHRAY, Buchanan, Mich., assignor to the Buchanan Manufacturing Company, same place. Filed Nov. 12, 1884. (No model.)



Claim.—1. In a cabinet folding bedstead, the combination of main side rails adapted to be folded in the center, with folding sub-rails sliding on the main rails and carrying the mattress independent of the main side rails, substantially as and for the purpose described.

2. In a cabinet folding bedstead wherein the rails are folded upward in the center, a series of cross-slats carried by one half of the side rails, and a series of cross-slats carried by the other half of the side rails, both series being so arranged that when folded the slats of one series will enter into the interstices between the slats of the other series, substantially as described.

3. In a cabinet folding bedstead, the combination, with the side rails, of the sub-rails M, the hangers I, secured to said sub-rails, and the slats G, supported by said hangers below the lower edge of said side rails, substantially as and for the purposes specified.

4. In a folding cabinet-bedstead, the combination, with the side rails, of a cap-rail, E, to which said rails are pivoted, a cam-block, N, secured to said cap-rail, sub-rails M, provided with extensions *m*, and the flexible strap L, connecting said extensions, substantially as described.

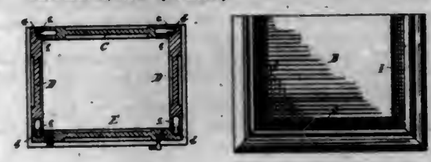
5. In a cabinet folding bedstead, the combination of the main side rails adapted to be folded upward in the center, of sub-rails divided in the center and adapted to slide on the main side rails, of center cams operating against the inner ends of the sub-rails when the bed is folded, and of end cams operating against the outer ends of the sub-rails when the bed is unfolded, substantially as described.

6. In a cabinet folding bedstead, the combination, with the side rails adapted to be folded in the center, of the sub-rails divided at the center and arranged to slide on the side rails, and the cams O, operating on the outer ends of said sub-rails, substantially as and for the purposes specified.

319,136. PROCESS OF GRAINING SKINS. EMIL SCHRODER, San Francisco, Cal. Filed Apr. 24, 1884. (No specimens.)

Claim.—The improvement in graining skins consisting in swabbing with or otherwise applying to the outer or grain surface of the skins a diluted mixture of nitric and muriatic acids, whereby the grain is loosened, and then in removing the grain in the usual manner, substantially as herein described.

319,137. KNOCKDOWN CLOSET. GEORGE SCHULZ, Toledo, Ohio. Filed Mar. 12, 1884. (No model.)



Claim.—The closet herein described, having three sides separably secured together, and a door-frame detachably secured to the front edge of two of said sides, and a door hinged to one side of said frame, substantially as described, in combination with a top and a bottom having channels to receive the top and bottom edges of the said sides and the door-frame, substantially as and for the purpose set forth.

319,138. CORKING-MACHINE. JOHANN J. H. SCHULTE, Hamburg, Germany. Filed Oct. 9, 1884. (No model.) Patented in England Mar. 31, 1883, No. 1,636, and in Germany July 5, 1883, No. 23,902.



Claim.—1. In a machine for corking bottles, the combination of the vertically-sliding piece *b*, provided with a crooked slit, *d*, the compressor-frame *f*, adapted to slide horizontally and provided with roller *e*, the jaw *i*, secured to frame *f*, the base-plate *g*, provided with the fixed jaw i^2, and the sliding jaw i', working on guides formed upon the surface of plate *g*, so that the horizontal movement of frame *f* causes the jaws to compress the cork, substantially as described and shown.

2. In a machine for corking-bottles, the combination of the vertically-sliding piece *b*, provided with a crooked slit, *d*, and with the crooked guides *h*, the roller *k*, pivoted to the frame of the machine, the base-plate *g*, receiving an oscillating movement from the guides *h*, the platform *p*, having mouth-piece *r* therein, and the brush *s*, for cleaning the bottom of the cork, substantially as shown and described.

3. In a machine for corking bottles, the combination of the pusher *a*, the vertically-sliding piece *b*, having crooked slit *d* and crooked guides *h*, the weight-lever *c*, the compressor-frame *f*, adapted to slide horizontally and provided with roller *e*, the jaw *i*, secured to frame *f*, the base-plate *g*, oscillated by the guides *h* and provided with the fixed jaw i^2, the sliding jaw i', the roller *k*, pivoted to the frame of the machine, the platform *p*, having mouth-piece *r* therein, and the brush *s*, substantially as described and shown, and for the purpose set forth.

319,139. TROUGH-CLAMP. ROBERT D. SEWARD and SYLVESTER D. NOEL, Bloomington, Ind. Filed Mar. 7, 1885. (No model.)



Claim.—1. In a trough-clamp, the combination, with the frame proper mounted in standards, and having approximately semicircular trough and bead seats in its head and transverse pieces, of the upper frame hinged thereto, and having its head and intermediate transverse pieces formed with correspondingly-shaped lower edges, the intermediate pieces of the frame proper and the upper frame being set to one side of each other.

2. In a trough-clamp, the combination of the frame proper and the upper frame, hinged together and provided, respectively, with the head and intermediate transverse pieces, those of one frame having trough and bead seats, and those of the other having correspondingly-shaped lower edges and bead-seats, the intermediate pieces of the respective frames being placed to one side of each other.

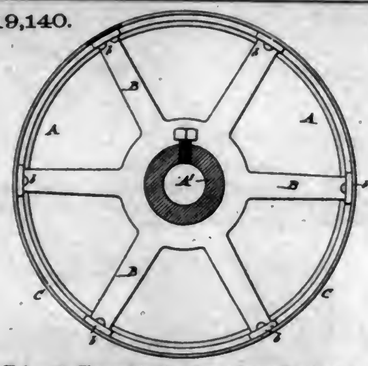
3. In a trough-clamp, the combination, with the detachable pivotally-mounted bails and the frame proper connected therewith, and having its head and intermediate transverse pieces constructed with approximately semicircular trough-seats and with similarly-shaped bead-seats at either side of the trough-seats, of the upper frame hinged to the frame proper, means to clamp them together, the upper frame having its head and transverse pieces constructed with approximately semicircular lower edges and with like bead-seats at either side, the intermediate pieces of the respective frames being placed to one side of each other.

4. A trough-clamp consisting of the frame proper having head and intermediate transverse pieces formed with semicircular trough-seats and like bead-seats at either side of the trough-seats, and of the upper frame hinged thereto, and having its head and transverse pieces constructed with semicircular lower edges and with like bead-seats at either side, and devices to clamp the frames together.

5. In a trough-clamp, the combination, with the frame proper provided with eyes at its ends, of the detachable bails fitted to said eyes and having projecting spindles.

319,140. PULLEY. FREDERICK SCHMIDT, St. Louis, Mo. Filed Dec. 12, 1884. (No model.)

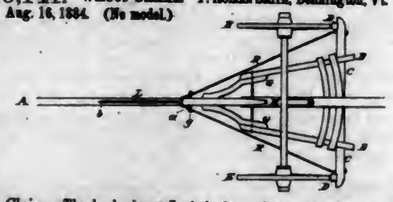
319,140.



Claim.—1. The combination of a cast-iron pulley-frame having arms with laterally-extending ends or heads, and a rim cast in one piece therewith, with a wrought-iron rim attached to the enlarged heads of the arms, substantially as set forth.

2. The combination of a cast-iron pulley-frame having arms with laterally-extending ends or heads, and a cast-iron rim with a wrought-iron rim of greater width than said heads, the wrought-iron rim being attached by countersunk rivets to the heads of the arms, substantially as set forth.

319,141. WAGON-BRAKE. F. ROLLIN SMITH, Bennington, Vt. Filed Aug. 16, 1884. (No model.)



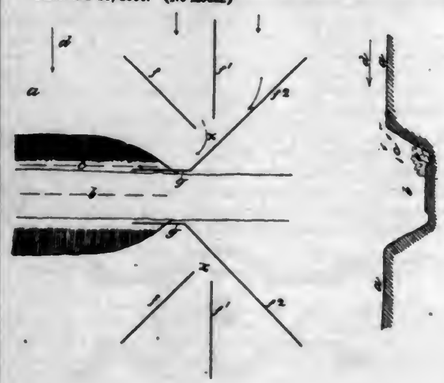
Claim.—The brake-lever L, forked, as shown, for the attachment of draft-rods connected with the brake-beam, and adapted to lie on top side of the pole when not in use, and having provisions at the end of the long arm thereof for attaching a rod or cord for operating the same, in combination with rods R R and brake-beam C, substantially as specified.

319,142. TRIMMING. LEOPOLD STARK, Brooklyn, N. Y. Filed Dec. 12, 1884. (No specimens.)



Claim.—A trimming of a folded or plaited foundation of suitable fabric and herring-bone stitches embroidered on the same and passed through the folds thereof, whereby the folded or plaited parts are united to the base part, substantially as set forth.

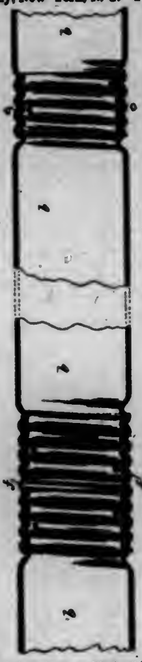
319,143. DEVICE FOR PREVENTING SNOW-DRIFTS IN ROAD-CUTS, &c. WILLIAM T. STEBBER and WALTER H. STEBBER, Howard County, Md., assignors of one-third to Andrew W. Staiger, New York, N. Y. Filed Mar 23, 1885. (No model.)



Claim.—1. A snow drift or blockade preventer consisting of one or more fences or walls, arranged substantially as described and shown, and adapted to deflect currents of air in a longitudinal direction into a railroad-cut in traveled mountain passes or behind obstructions, substantially as and for the purpose set forth.

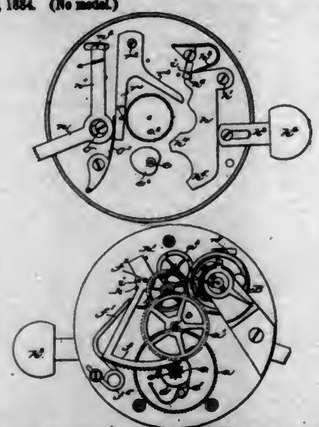
2. The combination, at a railroad-cut, and to prevent a snow drift or blockade from forming therein, of two or more deflecting fences or walls converging toward a point conveniently near the cut, and a guide-fence to lead the deflected current of air into the cut, substantially as for the purposes set forth.

319,144. METHOD OF UTILIZING OLD BOILER-TUBES. NATHAN STEPHENS, Brooklyn, and MATTHEW L. RITCHIE, New York, assignors to the Eagle Tube Company, New York, N. Y. Filed Nov. 26, 1884. (No model.)



Claim.—The method herein specified of utilizing old iron boiler-tubes, consisting in cleaning the surface, bending sheet-metal screws at each end, and coating the same with a protecting material, substantially as specified.

319,145. STOP-WATCH. GEORGE R. ST. JOHN, Boston, Mass. Filed Jan. 7, 1884. (No model.)



Claim.—1. The train of wheel-work and hands carried thereby, combined with a winding and hand-restoring device, whereby the hands are restored to the zero position and the mainspring wound at a single operation, substantially as described.

2. The train of wheel-work and the split second-hand composed of two hands, one moved directly by the train and the other having a spring-connection therewith, combined with a stopping device for the said spring-connected hand and an independent stopping device for the train of wheel-work, and a stop-operating device common to both the said stopping devices, substantially as described.

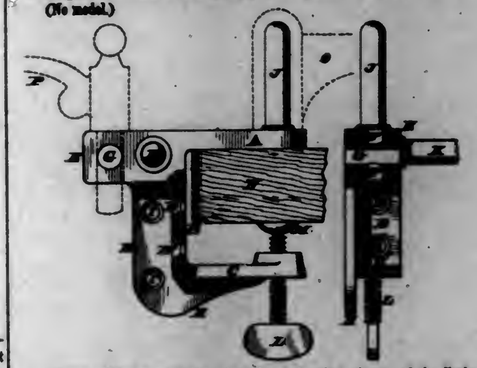
3. The split second-hand composed of one hand carried directly by the train of wheel-work and another hand having a spring-connection therewith and provided with a notched disk, combined with the pivoted stop-arm provided with a stop projection for the said disk, and the stop-lever having a pivotal movement for controlling the train, and a sliding movement, whereby it operates the stop-arm for the said notched disk, substantially as described.

4. The train of wheel-work and ratchet loose on the arbor of one of the wheels, and pinion connected therewith, combined with the toothed winding-segment meshing with the said pinion and the main-spring acting on the said segment, and a hand or pointer fixed on the arbor of the said segment, substantially as described.

5. The train of wheel-work, and toothed winding-segment, and mainspring acting thereon, and the hands frictionally held on the arbor of the wheels of the said train, combined with the winding and hand-restoring device, co-operating with the said segment and hands, whereby the spring is wound and the hands restored to their normal starting-points, substantially as described.

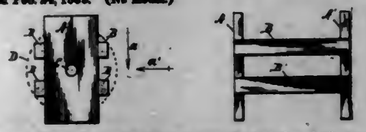
6. The winding-segment and spring acting laterally thereon, the said spring being arranged to act on the said segment between its pivotal point and the point of attachment of the spring, as described, whereby the spring acts with increasing leverage as its power is expended.

319,146. LAMP-BRACKET. ROBERT L. STOKES, Jeffersonville, Ind., assignor of one-half to Charles Joseph, same place. Filed June 22, 1884. (No model.)



Claim.—The combination, in a lamp-bracket clamp, of the limbs A B C, the limb A having a vertical pintle, J, a horizontal pintle, K, and an extension, E, which extension is pierced with two diametrically-opposite sockets, F G, the limb B being perforated at D D', and a flange, H, perforated at I I', being employed to connect the extension E and limbs B C, the latter limb, C, having the screw L engaged therewith, for the purpose herein described.

319,147. BARBED-WIRE SPOOL. DANIEL C. STOVER, Freeport, Ill. Filed Feb. 24, 1885. (No model.)



Claim.—The combination of the centrally-bored end pieces, A A', and the cleats B B B B, nailed upon and connecting said end pieces, substantially as shown and described, and for the purpose set forth.

319,148. HOSE-NOZZLE. EDWIN R. TOBLEMAN, Bridgeport, Conn., assignor to the Eaton Cole & Burnham Company, same place. Filed Oct. 14, 1884. (No model.)



Claim.—1. The combination, with the rotatable sleeve A, of the spindle having the solid head and hollow body portion provided with openings H, and fitting said sleeve, and a pin fixed to the sleeve passing through slots in the hollow portion of the spindle and upon which the spindle slides, substantially as described.

2. In combination with the sleeve A, the metal band D, secured to said sleeve by pin E, passing through the slots in the spindle, the spindle within the sleeve, the collar binding sleeve A to sleeve F, and the sleeve F, threaded internally and engaging with the threaded end of the spindle, all arranged as described, and for the purpose set forth.

3. In combination with the threaded spindle, the interiorly-threaded sleeve F, collar C, band D, pin E, and sleeve A, all arranged as described, and for the purpose specified.

319,149. SCREEN FOR COAL, &c. SAMUEL T. VARIAN, East Orange, N.J. Filed Mar. 21, 1885. (No model.)



Claim.—1. The stationary bars E and chute A B C, in combination with the frame I J and bars L, supported beneath the bars E, and means for adjusting the frame and bars laterally, substantially as set forth.

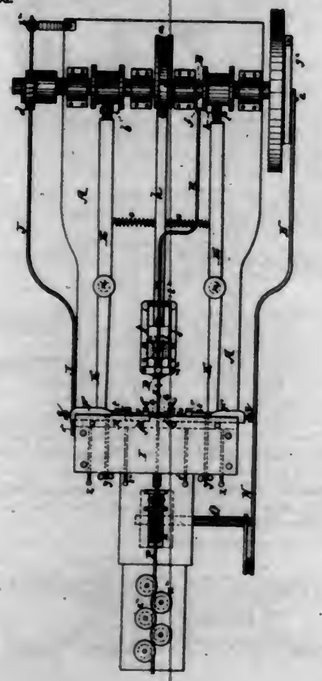
2. The bars E E, end bearers, F G, and central bar, H, for supporting said bars E, in combination with the bars L, notched for the bar H, the end frames, I J, having the ribs, and mechanism for adjusting the frame and bars I J L laterally, substantially as set forth.

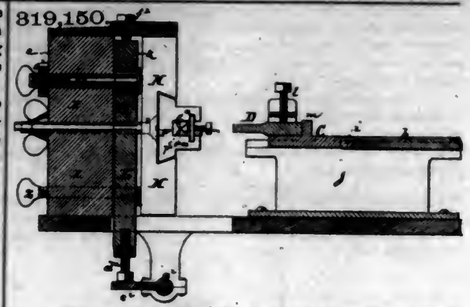
319,150. WIRE-NAIL MACHINE. MAX G. VOGT, Sr., New York, N.Y. Filed Jan. 30, 1885. (No model.)

Claim.—1. The combination of the single shaft B and its eccentric *a*, cams *b b*, eccentric *d*, and crank *e* with the rod A, carriage C, header D, levers E E, slides F F, cutters G, lever J, pin a^2, movable jaw L, upper jaw, M, rod N, shaft O, and feed mechanism h^2 i^2 j^2, substantially as herein shown and described.

2. The combination of the single shaft B and its eccentric *a*, cams *b b*, eccentric *d*, crank *e*, and crank *f* with the rod A, carriage C, header D, levers E E, slides F F, cutters G, lever J, crank-pin a^2, movable jaw L, upper jaw, M, rod N, shaft O, feed mechanism h^2 i^2 j^2, lever R, and ejector S, substantially as herein shown and described.

3. The lever E, combined with the slotted slide F, set-screw *q*, sliding counter-piece *r*, screw *s*, and pin *t*, substantially as herein shown and described.

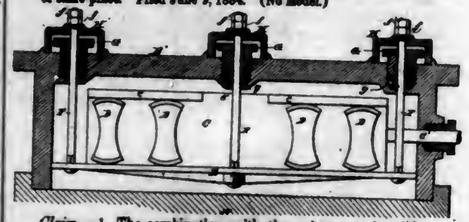




4. The combination of the slide F, having the projection *v* and lips *u u*, with the sliding nut *x*, screw *w*, and cutter G, substantially as herein shown and described.

5. The combination of the slides F F, having cutters G G, with the block H, screw *y*, ledge I, and set-screws *z*, substantially as specified.

319,151. BALANCE SLIDE-VALVE. J. BENNET WALLACE, Chicago, Ill., assignor of two-thirds to Garson Myers and Melville E. Dayton, both of same place. Filed June 9, 1884. (No model.)



Claim.—1. The combination, with the valve-seat, the slide-valve provided with overhanging flanges *c*, and rocking supports for the valves, of movable supports E for the rockers, and means for adjusting the position of said supports constructed to be operated from the exterior of the valve-chest, substantially as described.

2. The combination of the valve-chest, valve-seat, slide-valve provided with flanges, rockers for the support of the valve, movable bars E for the support of the rockers, and screw-threaded rods connected with said bars E and projecting through the top of the valve-chest, and provided with nuts, substantially as described.

3. The combination, with the adjustable rocker-supports E and valve-chest, of rods F, glands G, and bridges H, substantially as described, and for the purposes set forth.

319,152. BUTTON-FASTENER. HENRY J. WELDON, New York, N.Y. Filed Mar. 30, 1885. (No model.)



Claim.—A button-fastener consisting of a base-plate having a post bent at right angles thereto, and provided with an oblique slot adapted to receive and close upon the button-eye to hold the button at the end of the post, substantially as described.

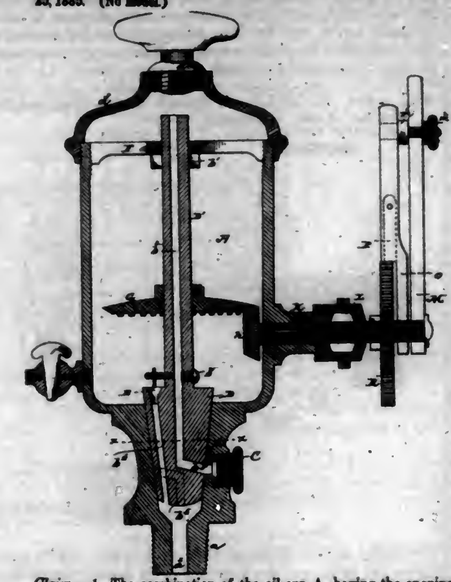
319,153. BIFOCAL LENS FOR SPECTACLES AND EYEGLASSES. GEORGE W. WELLS, Southbridge, Mass., assignor to the American Optical Company, same place. Filed Mar. 23, 1885. (No model.)



Claim.—1. The bifocal lens for spectacles and eyeglasses herein described, consisting of a whole lens of the weaker power required for the upper portion of the completed lens, and a half-lens applied to the inner face of the whole lens to give the stronger power required in the lower portion of the completed lens, substantially as herein described.

2. The bifocal lens for spectacles and eyeglasses herein described, consisting of a whole lens of plano-convex form and of the weaker power required for the upper portion of the completed lens, and a half-lens, also of plano-convex form, applied to the inner face of the whole lens to give the stronger power required for the lower portion of the completed lens, substantially as herein described.

319,154. OILER. EDGAR J. WELLS, Ticonderoga, N.Y. Filed Apr. 25, 1885. (No model.)

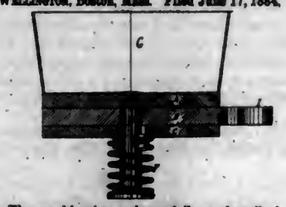


Claim.—1. The combination of the oil-cup A, having the opening a^2, and the bushing C, having the channel *c*, with the revolving oil-feeder B, located in the oil-cup, said feeder being provided with the openings b^2 b^3 b^4, and the valve E, for closing the upper end of the opening b^4, and the screw or plug S, inserted in an opening in the oil-feeder communicating with the opening or channel b^3, near the lower end of the oil-cup, for the purpose set forth, substantially as described.

2. The combination of the oil-cup A, having the opening a^2, and the bushing C, having the channel *c*, with the oil-feeder B, located in the oil-cup, said feeder being provided with the openings b^2 b^3 b^4, and the valve E, for closing the upper end of the opening b^4, the miter-wheel G, secured to the oil-feeder, and the pinion H on the revolving shaft I engaging with the miter-wheel, substantially as described.

3. The combination of the oil-cup A, having the opening a^2, and the bushing C, having the channel *c*, with the oil-feeder B, located in the oil-cup, said feeder being provided with the openings b^2 b^3 b^4, and the valve E, for closing the upper end of the opening b^4, the miter-wheel G, secured to the oil-feeder, and the pinion H on the revolving shaft I, ratchet-wheel R, fixed thereto, arm M, having the slotted quadrant *m*, blocks *m'*, and set-screws m^2, and the arm O, having the pawl P, substantially as described.

319,155. MACHINERY FOR SOWING FERTILIZING MATERIAL. FRANK O. WELLINGTON, Boston, Mass. Filed June 17, 1884. (No model.)

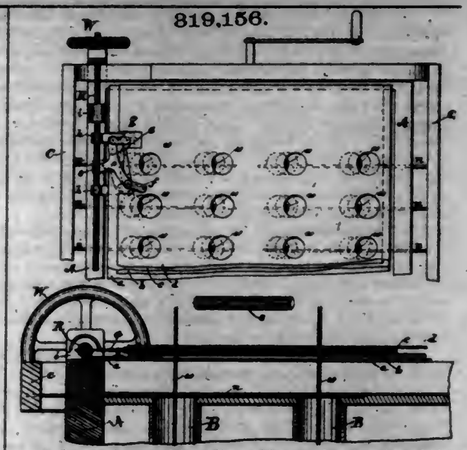


Claim.—The combination, substantially as described, of the hopper having through it the perforations *a a* on one side of the median line of its bottom, the discharger B, having the perforations *b b* on opposite sides of its center, the disk C, having the perforations *c c* on one side of its diameter, the headed bolt D, and the spring F, all arranged and applied essentially in manner and to operate as and for the purpose set forth.

319,156. CANDLE-MACHINE. CASPER L. WERK, Westwood, Ohio. Filed Mar. 10, 1885. (No model.)

Brief.—Improvement on Patent No. 284,785, dated September 11, 1883, to same inventor.

Claim.—1. In a continuous-wick candle-machine, a series of two or more plates similarly perforated with apertures corresponding in position with the candle-molds, arranged to be moved in opposite directions above the mouths of the molds, substantially as and for the purpose set forth.



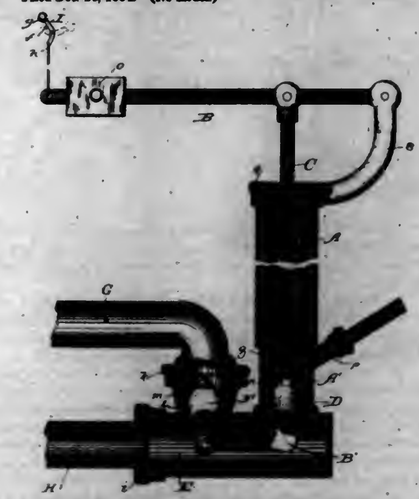
2. In a continuous-wick candle-machine, a series of perforated plates arranged to be moved in opposite directions across the top, in combination with a supporting-base hinged at one side of the machine, substantially as and for the purpose set forth.

3. In a continuous-wick candle-machine, a sliding rod held in bearings at one side of the filling-trough, in combination with a supporting-base hinged thereto, and two or more superimposed perforated plates, and mechanism, substantially as described, whereby the lateral movement of the rod moves the upper plates in opposite directions, yet permits the supporting-base and perforated plates to be swung upon the rod as a hinge to uncover the filling-trough, as set forth.

4. In a continuous-wick candle-machine, the combination of the rod R, hinged plate *a*, movable plates *b c d*, lever *e*, and links *f g*, substantially as set forth.

5. In a continuous-wick candle-machine, in combination with a series of needles arranged to be projected across the mouths of the mold-apertures at the bottom of the filling-trough for holding the wicks centrally against the action of the scrapers in the removal of the surplus stock from the trough, mechanism, substantially as described, for clamping and holding the wicks centrally above the trough, as set forth.

319,157. STOP AND WASTE COCK. DAVID WETHERORD, Chicago, Ill. Filed Dec. 26, 1884. (No model.)



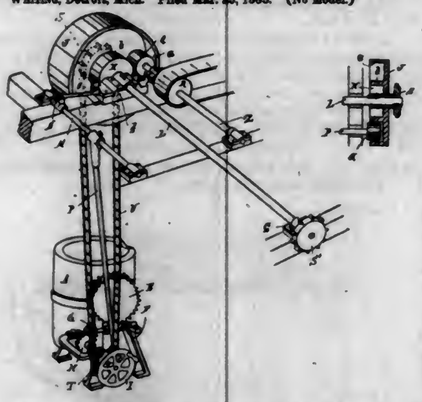
Claim.—1. In a stop and waste cock, the combination, with the water-inlet and water-outlet pipes, of valves adjusted with reference to the supply and waste outlets to control the supply and waste, and fitting upon their seats in opposite directions, and connected together by an arm and a vertical rod connected toward one end with the said valves, whereby raising or lowering the said rod will lift or lower the said valves in opposite directions with reference to their respective seats, but in the same direction with reference to each other, substantially as described.

2. A stop and waste cock comprising, in combination, vertically-operating valves F and D, adjusted with reference to the supply and waste outlets to control the supply and waste, and fitting upon their seats in opposite directions and connected together by an arm, B, a vertical pipe, A, provided with a perforated cap, *t*, having a bracket, *s*, and connected with a pipe, A', having a waste-outlet, *p*, a horizontal pipe, E, communicating with the pipe A', and provided with a chamber, *m*, a vertical rod, C, passing through the pipes A and A', and connected at its lower extremity with the valve D, a water-inlet pipe, G, connected with the said chamber *m* by means of a suitable coupling, *k*, and a water-supply pipe, H, connected with the horizontal pipe E by means of a suitable coupling, *i*, substantially as described.

3. The combination, with the valve portion of a stop or waste cock, of a crank or lever, I, suitably weighted toward one extremity and pivoted below its center of gravity to a suitable support, and connected with the said valves through the medium of a cable, whereby the valve controlling the waste may to "turn on" the water-supply be raised with the assistance of the water-pressure underneath it, and firmly maintained against its seat, substantially as described.

4. A stop and waste cock comprising, in combination, a valve, F, within the water-inlet pipe G, provided with a valve-seat, *e*, a valve, D, within the water-outlet pipe A', provided with a valve-seat, *g*, the said valves being removably attached to opposite extremities of an arm, B', lying within a horizontal pipe, E, connecting the said inlet-pipe G and outlet-pipe A', and from which pipe E a supply-pipe, H, leads, a vertical pipe, A, removably connected with the water-outlet pipe A', a vertical rod, C, removably connected with the said valve D and supported within the pipe A, a horizontal weighted bar, B, connected toward one extremity to the upper end of the said rod C and having its fulcrum *s* projecting from the said pipe A, a weighted crank, I, pivoted to a suitable support within the apartment to which the said water-supply pipe H leads, a pin, *f*, forming a stop for the said crank, and a suitable cable, *h*, connecting the said crank from its extremity with the free end of the said bar B, the whole being constructed and arranged to operate substantially as described.

319,158. DEVICE FOR OPERATING FOUNDRY-LADLES. J. HILL WHITING, Detroit, Mich. Filed Mar. 25, 1885. (No model.)



Claim.—1. The combination, with a tilting ladle, of a friction device, substantially as described, and connections between said ladle and friction device, whereby said ladle can be moved at a faster or slower rate of speed, as desired.

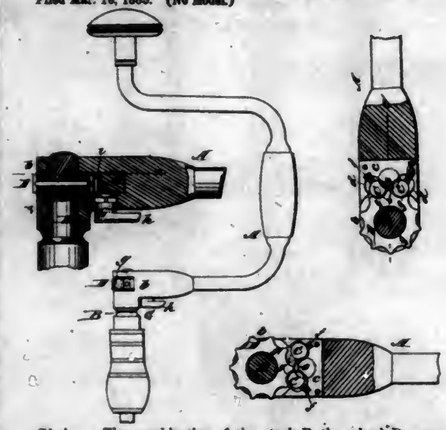
2. The combination, with a tilting ladle, of the gear-wheel E, worm F, friction-wheels J K Q, and intermediate connections, substantially as described, all combined and operating to transmit a slow speed in one direction and faster speed in the opposite direction, as set forth.

3. The combination, with the ladle A, supported upon trunnions B, and provided with gear E, worm F, and bevel-gear G H, of the sprocket-wheel T, shaft L, having sliding bearing *d*, friction-wheels J K, and sprocket-wheel S, carried by said shaft, the friction-wheel Q, secured to the driving-shaft Z, belt U, and means, substantially as described, for controlling the frictional contacts between said friction-wheel, as and for the purposes specified.

4. The combination of the shaft L, having sliding bearing *d*, the friction-wheels K L, carried by said shaft, the friction-wheel Q, adapted to engage with said wheels and transmit motion in opposite directions and at a different rate of speed to the shaft L, with the frame C, ladle A, journaled in said frame, connections, as described, between said ladle and shaft L, and the lever P and intermediate connections, substantially as described, for controlling the frictional contacts between the friction-wheels, as and for the purpose described.

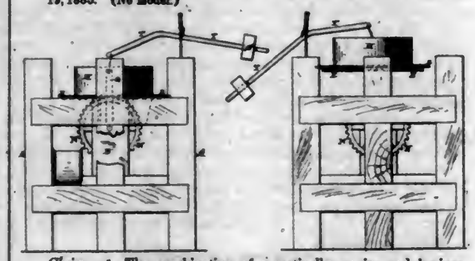
5. The combination of the friction-wheel Q, secured on a stationary shaft driven by power, concentric friction-wheels J K, secured upon a shaft, L, having a sliding bearing, *d*, by means of which either one of them may be engaged with the friction-wheel Q, the lever P, and its connecting devices, with the sliding bearing *d* and suitable intermediate devices for transmitting motion from the shaft L to the worm-gear of the ladle, substantially as described.

319,159. RATCHET-BRACE. EDGAR H. WHITNEY, Winchendon, Mass. Filed Mar. 16, 1885. (No model.)



Claim.—The combination of the stock B, the wheel D, secured thereon and having the circular grooves *g*, the cranked handle having the recess or socket *b*, the cam-piece *c*, located in such socket and having the pockets *d d* and wedge *e* between them, the springs *f f*, located in such pockets, and the rollers C C, placed in such pockets and fitting the grooves *g*, as set forth.

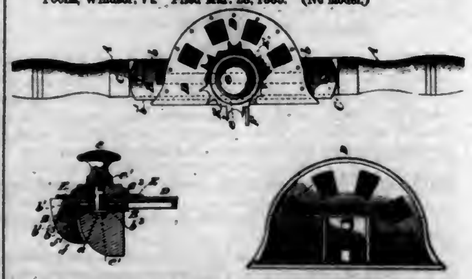
319,160. GRAIN-METER. JOHN WILL, Audubon, Iowa. Filed Mar. 19, 1885. (No model.)



Claim.—1. The combination of a vertically-moving and horizontally-revolving frame divided into compartments, a counter-weight, and driving-wheel, substantially as shown.

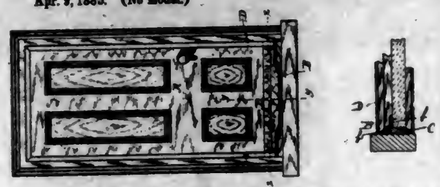
2. The combination of a vertically moving and revolving frame divided into compartments and provided with hinged bottoms and the plate E, which is cut away on one side, a counter-weight which raises both the plate and frame upward, and a driving-wheel for causing the frame to revolve when it sinks downward, substantially as described.

319,161. HAND-READER. ORLANDO E. WILLIAMS and LAWRENCE V. POOLE, Windsor, Vt. Filed Mar. 23, 1885. (No model.)



Claim.—A hand-reader having a stock or handle that has a longitudinal groove in its upper side, a fixed guide secured near the center of stock on the front of it, a metal plate secured to the stock on its upper side and having a longitudinal slot corresponding with the groove in the stock and fitting over it, a screw with its head resting loosely in said groove and under said plate with its shank passing up through the slot in the plate, and a cutter-plate and a cutting-disk resting successively above said metal plate, each having an opening to receive the shank of the screw, and a thumb-nut engaging the end of the screw, whereby the clamps may be so adjusted as to bring the beading-points on either side of the guide, as set forth.

319,162. WEATHER-STRIP. GEORGE ZITZMAN, Bennett, Pa. Filed Apr. 9, 1885. (No model.)

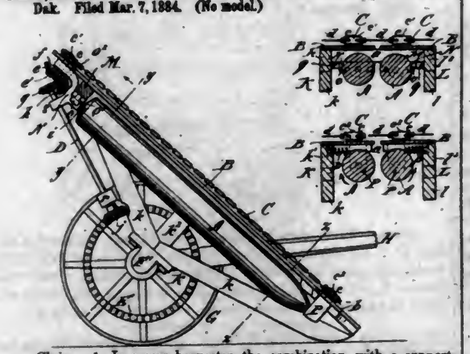


Claim.—1. A weather-strip provided with an apron having an outwardly-curved prolongation, substantially as described, whereby the wear of the carpet-strip is compensated for, as set forth.

2. A weather-strip composed of a body, *b*, having its upper edge beveled, and an apron, *b'*, provided with curved prolongation b^2, substantially as and for the purposes set forth.

3. The combination, with the door A and the door-frame having its rabbet strips D beveled at their lower ends, of the weather-strip B, having apron *b'* adapted to extend beneath said rabbet strips, as and for the purposes described.

319,163. CORN-HARVESTING MACHINE. ELIAS M. AIKIN, Dawson, Dak. Filed Mar. 7, 1884. (No model.)

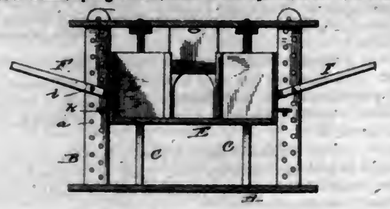


Claim.—1. In a corn-harvester, the combination, with a supporting-truck, of the inclined rollers A, journaled in the same and provided with the gear-wheels A on their upper ends, the springs *p q*, the plates B, having beveled forward ends, *b*, and adjustably supported above the said rollers, the elevators C, provided with the arms *d*, shafts *c'*, provided with the sprocket-wheels *c*, and the gear-wheels *e e'*, the inclined shafts D, provided with the gear-wheel *g*, and means for operating the said shafts by the forward movement of the truck, substantially as herein shown and described.

2. In a corn-harvesting machine, the combination, with the rollers A, elevators C, and oblique shafts D, of the axles F' F^2, the drive-wheel F, provided with the bevel-gear E, the bevel-wheel E' on the axle F', the drive-wheel G, and the tongue H, substantially as herein shown and described.

3. The combination, with the plates B, rollers A, and elevators C, of the gears E E', oblique shafts D D, and suitable gearing for revolving the rollers A and operating the elevators C, substantially as described.

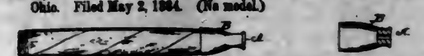
319,164. DEVICE FOR LOADING LIVE STOCK ON WAGONS. TROWBRIDGE ALLEN, Spring Ranche, Nebr. Filed Apr. 23, 1885. (No model.)



Claim.—1. The combination, for the purpose specified, of a perforated standard, B, car E, projections *f* thereon, levers F, pivoted to said car, and removable pins *i k*, substantially as set forth.

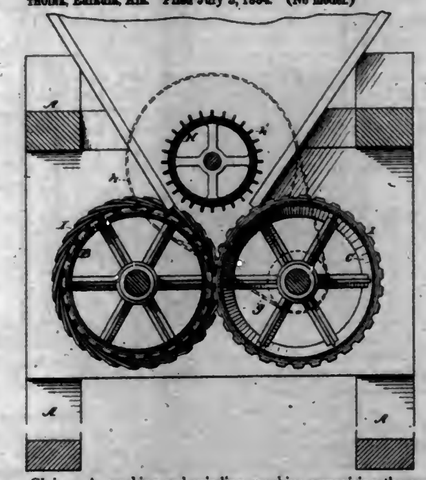
2. The combination, in a device for loading stock, constructed and operating substantially as and for the purpose specified, of castings *d*, as set forth.

319,165. CIGAR MOUTH-PIECE. WILLIAM C. ANDERSON, Cincinnati, Ohio. Filed May 2, 1884. (No model.)



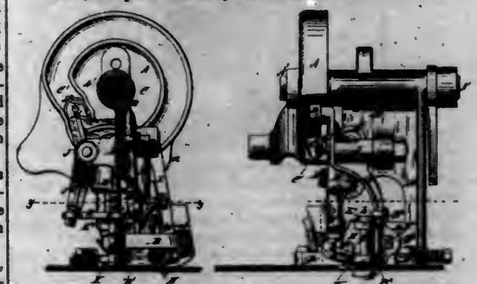
Claim.—A flexible and elastic cigar-tip having a tubular re-enforcing portion inserted into the contracted portion thereof, substantially as described.

319,166. CRUSHING AND GRINDING MACHINE. JAMES W. ANTHONY, Eufaula, Ala. Filed July 3, 1884. (No model.)



Claim.—A crushing and grinding machine comprising the conical rolls B and C, having the diagonally-arranged grooves I formed upon their surfaces, the gear-wheels E and F, the driving-pulley D, the feed-cylinder H, having its surface studded with steel pins *h'*, and the pulleys *g* and *h*, for imparting motion to the said feed-cylinder, substantially as described and shown, and for the purpose set forth.

319,167. KNOTTING MECHANISM FOR GRAIN-BINDERS. JOHN F. APPLEBY, Minneapolis, Minn., assignor to the Minneapolis Harvester Works, same place. Filed July 3, 1884. (No model.)



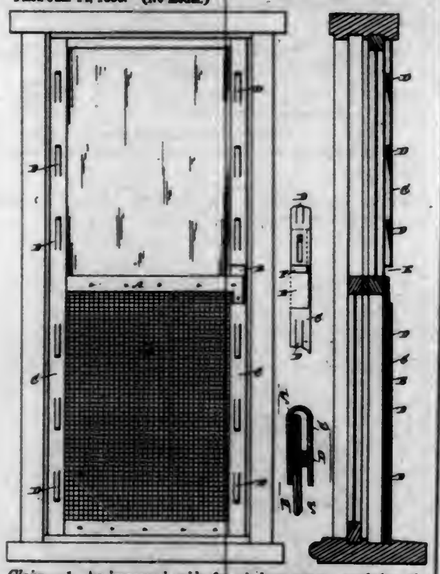
Claim.—1. A knotter-operating wheel provided upon its face with a radially-projecting suitably-beveled rack, in combination with a knotter-shaft journaled in a swinging frame and means for oscillating the said frame, said knotter-shaft having affixed to it a beveled pinion, which at the proper time is engaged and rotated by the rack upon the knotter-operating wheel.

2. In combination with a knotting-bill, a movable knife, and a rotating gripping-disk, substantially such as described, a guide, G, for preventing the binding-cord from being swayed downward by the movement of the gripping-disk, and thereby holding the binding-cord extending from the gripping-disk to the knotting-bill in a position in which it intersects the path of movement of the movable knife.

3. In knotting mechanism, the combination of a knotter journaled in a swinging frame, a gripping-disk operated by a reciprocating pawl, mechanism for severing the binding-cord and disengaging the knotter

from the loop, and a tucker for tucking the binding-cord under the knotting-bill, in combination with a single knotter-operating wheel.

319,168. WINDOW-SCREEN. JAMES W. BACHUS, New Windsor, Ill. Filed Jan. 14, 1885. (No model.)

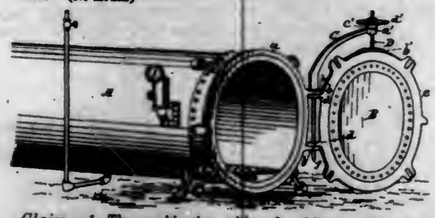


Claim.—1. An improved guide for window-screens, consisting of a U-shaped strip having inwardly-projecting tongues, substantially as herein shown and described.

2. As an improved article of manufacture, the U-shaped guides C for window-screens, having the inwardly-projecting tongues D, the said tongues being integral with the body of the guide, as set forth.

3. The combination, with the U-shaped guides C, having tongues D, and one guide having the opening E, of a window-screen adapted to slide in the guides, and of the slide F, for closing the opening E, substantially as herein shown and described.

319,169. DEVICE FOR HINGING AND SUPPORTING DOORS OF PROCESS-KETTLES. JOHN BAKER, Muscatine, Iowa. Filed Jan. 20, 1885. (No model.)



Claim.—1. The combination, with a door hinged to a vessel, to swing horizontally, of a crane having its shank constructed for and inserted through holes in the hinge-lugs on the vessel and door, and having its upper end extended over and connected with the door by adjustable devices, substantially as and for the purpose described.

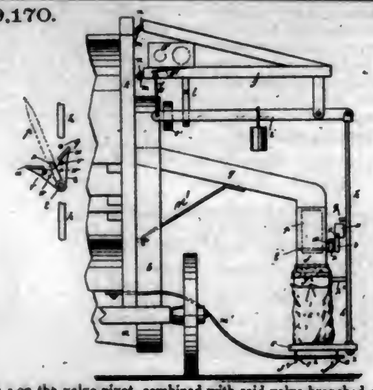
2. The combination, with a door, B, hinged to a vessel, A, to swing horizontally, of the crane C, provided with the hinge-pin shank *f*, inserted through the hinge-lugs *b d*, and provided with the bearing-shoulder A, and having its upper end extended over the door, and the threaded bolt D, attached to the door and provided with the threaded nut *d'*, substantially as and for the purposes described.

319,170. GRAIN SACKING AND WEIGHING ATTACHMENT FOR THRASHING-MACHINES. WILLIAM H. BARBER, Ward, Ohio. Filed Nov. 3, 1884. (No model.)

Claim.—1. The combination, with the branched chute or spout valve having the arm provided with jointed branches, of the studs secured to the block fastened to the valve-rod, and the platform-suspending rod of the weighing-scale, said rod having a stud or pin acting upon one or the other of the branches of the said arm, substantially as and for the purpose set forth.

2. The stud *q* on the platform-suspending rod, and branched shifting-arm *s* on the valve-pivot, combined with said valve-branched spout, substantially as described.

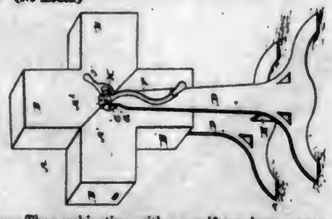
319,170.



3. The branched shifting-arm *s*, having inclines *u*, and joints *v* in its arms, in combination with the reversing-valve *p* in the branched spout, and the platform-suspending rod *h* of the weighing-scale, having the stud-pin *q*, substantially as described.

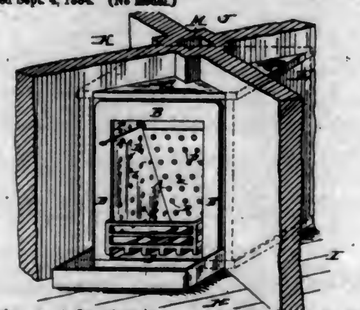
4. The brace *m'*, rigidly fastened to the machine-frame and having eyes e^3, and the guide-studs f^3, attached to the platform *e*, in combination with the weighing-scale, suspending-crane, and bag-holding hoppers, substantially as described.

319,171. CHURN. FINIS M. BARNEY, Kearney, Nebr. Filed Apr. 17, 1884. (No model.)



Claim.—The combination, with a cruciform churn composed of sections $A' A^2$, the adjacent edges of which are inclined, as set forth, of the trunnions or pivots secured to one of said sections, and the pivoted cam-levers J K, pivoted to the opposite section to engage said trunnions or pivots for locking said sections together, substantially as set forth.

319,172. FIRE-PLACE HEATER. THOS. J. BARTLETT, Colorado, Tex. Filed Sept. 4, 1884. (No model.)



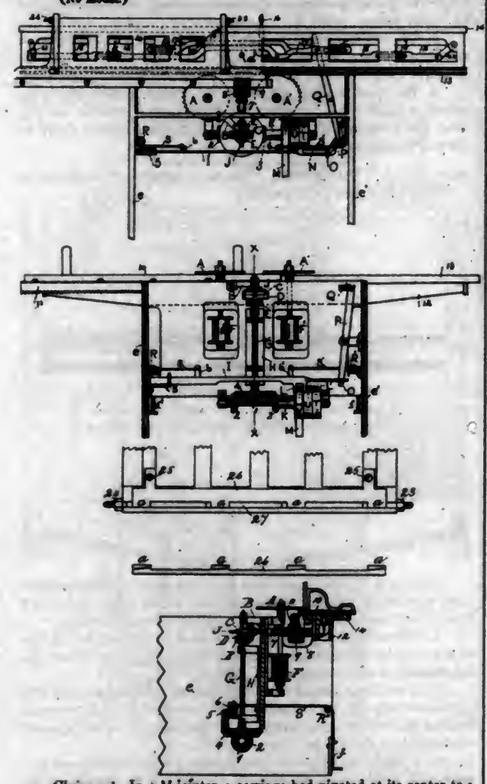
Claim.—1. A fire-place heater constructed with a fire-place, A, provided with apertures *D* in its back and side walls, said apertures being flared backward, as at *d*, and a box or casing, E, connected to the fire-place, so as to receive and radiate the heat therefrom, substantially as described.

2. A fire-place heater constructed with a fire-place, A, having apertures in its back and side walls, a box or casing, E, connected to the fire-place to receive the heat therefrom, and a damper, O, arranged with relation to the fire-place, casing, and smoke-flue, substantially as shown and described.

3. A fire-place heater constructed with a fire-place, A, having apertures in its back and side walls, and a casing, E, connected to the fire-place to receive the heat therefrom, and having the doors L, substantially as shown and described.

4. A fire-place heater consisting of a fire-place, A, and box or casing E, placed at the intersection of the walls of four rooms to heat one room by the fire-place and the other rooms by the box or casing, substantially as shown and described.

319,173. V-JOINTER. ROBERT A. BAUER, Grand Rapids, Mich., assignor of one-half to Anton C. Bauer, same place. Filed May 9, 1884. (No model.)



Claim.—1. In a V-jointer, a carriage-bed pivoted at its center to a suitable frame, and which oscillates intermittently first in one direction and then in the other, in combination with a carriage which travels back and forth on said carriage-bed, mechanism which reciprocates said carriage, and intermittently-operating mechanism which oscillates said carriage-bed, which latter mechanism is automatically set in motion by the carriage when it reaches its limit of motion in either direction, substantially as set forth.

2. The combination of the pivoted carriage-bed, mechanism which turns said bed on its pivot, a carriage which travels back and forth on said bed, a rack secured to said carriage, a pinion mounted on the carriage-bed which engages with said rack, a mechanism which operates said pinion, and a universal joint which connects the shaft of said pinion with its operating mechanism, substantially as set forth, whereby said pinion and rack may properly mesh at whatever angle the bed may be turned.

3. The carriage provided with stops 18 18', mechanism which moves said carriage back and forth, and a bar, 17, provided with catches 19 20, with which the stops 18 18' respectively engage, and thus move said bar alternately in opposite directions, in combination with a sliding bar, I, mechanism which connects the bar 17 with said bar I, whereby the movement of the bar 17 is communicated to the bar I, and a shifting mechanism which connects said bar I with the mechanism which reciprocates the carriage, whereby the motion of the carriage in either direction is stopped, substantially as set forth.

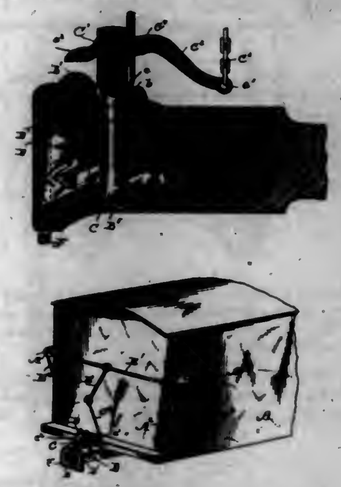
4. The carriage provided with stops 18 18', mechanism which moves said carriage back and forth, a bar, 17, provided with catches 19 20, with which the stops 18 18' respectively engage, a sliding bar, I, mechanism which connects the bar 17 with said bar I, and a shifting mechanism which connects said bar I with the mechanism which reciprocates the carriage, whereby the motion of the carriage in either direction is stopped, in combination with vertically-movable pedals *f f'*, and mechanism connecting said pedals respectively to the opposite ends of the bar I, substantially as set forth, whereby, after the movement of the carriage in one direction has been stopped, the depression of one of said pedals moves said bar I and sets the carriage-operating mechanism in motion in the opposite direction.

5. The combination of the pivoted carriage-bed, the sliding bar 17, mechanism for sliding said bar, the sliding bar 15, mechanism which locks said bars 15 and 17 together, and links 21 22, pivoted, respectively, to opposite ends of the bar 15, and the carriage-bed, whereby the movement of the bar 15 turns the bed on its pivot, substantially as set forth.

6. In a V jointer, the saws A A', in combination with the oscillating carriage-bed provided with a single track, 14, extending longitudinally along one side thereof, and with a double track, 13, extending longitudinally along the other side thereof, and a reciprocating carriage which travels on said tracks 14 and 13, provided with a longitudinal groove on its under side, which engages with either one of the tracks of the double tracks 13, substantially as set forth.

7. The oscillating carriage-bed, the carriage which rests and slides on said bed, and the saws A A', in combination with a spring-plate, 26, attached to the bottom of said carriage and along one side thereof, studs *a a*, formed on said plate, which rest and slide on the carriage-bed, said studs having beveled faces on their upper sides, an adjusting-rod, 27, held between the studs *a a* and the under surface of the carriage, said rod having inclined portions *s s*, which are held in contact with the beveled faces of the studs *a a*, and mechanism for adjusting said rod, whereby one side of the carriage is raised or lowered, substantially as set forth.

319,174. CAR-COUPLING. HENRY T. BEAN, Palestine, assignor of two-thirds to William C. Jones and A. P. Woodworth, Robinson, Ill. Filed Apr. 24, 1885. (No model.)



Claim.—1. In a car-coupler, the pin C, provided with shoulders *c* and a perforation in the upper portion thereof, in combination with the arm C', provided with a projecting shield, c^3, in the forward portion thereof, and a rear arm, C^3, with the key C^4, the link C^5, and the curved side arms, D, pivoted to the sides of the draw-head at points below the top thereof, substantially as and for the purpose described.

2. The combination of the coupling-pin C, arm C^3, and side arms, D, with the link C^5, crank-arms E, crank-shaft E', levers E^2, brackets A', and arm A^2, substantially as and for the purpose described.

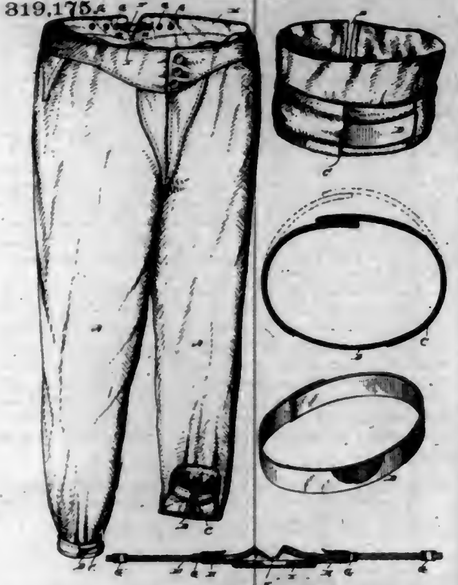
3. In combination with a draw-head, a pin, C, having shoulders *c*, and arms C^3, and key C^4 with curved levers D, pivoted to the forward side of the draw-head below the top thereof and attached to the coupling-pin, substantially as and for the purpose described.

4. The combination of the draw-head B, the coupling-pin C, arm C^3, and screws D' with the yoke F, having coils F^2 around said screws, substantially as and for the purpose described.

319,175. DRAWERS. VERNON BELL, New York, N. Y. Filed Sept. 27, 1883. (No model.)

Claim.—As an improvement in drawers, the combination, with the leg portion having a pocket formed around the lower end and terminating or closed at each side of the slit B, of an elliptical spring arranged within the pocket, the ends of the spring on each side of the slit overlapping each other and serving to automatically adjust or accommodate itself to the size of the wearer's legs, as set forth.

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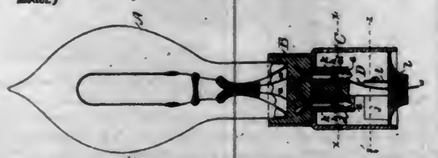


319,176. BROOM-RACK. JOHN M. BENNETT, Cincinnati, Ohio, assignor to Samuel C. Tatum & Co., same place. Filed Aug. 11, 1884. (No model.)



Claim.—In a rack, the combination of the disk A, having countersunk recesses *a* and screw-threaded hub *b*, the disk B, having apertures C and screw-threaded hub *d*, and the standard D, having screw-threaded ends, substantially as described.

319,177. HOLDER FOR INCANDESCENT ELECTRIC LAMPS. ALEXANDER BERNSTEIN, Boston, Mass., assignor to the Bernstein Electric Light Manufacturing Company, Portland, Me. Filed May 12, 1884. (No model.)



Claim.—1. The combination of two metallic pins insulated from one another and forming the terminals of an electric apparatus, sockets for the reception of these pins, each connected with one of the conducting-wires and insulated from one another, and a retaining device in each socket acting by pressure on the pins to firmly hold them in their sockets, and to establish a perfect electrical contact, substantially as and for the purpose set forth.

2. The combination of two pins insulated from one another and forming the terminals of an electrical apparatus, sockets for the reception of these pins insulated from one another and each connected with one of the conducting-wires, and a retaining device in each socket acting on the opposite side of each pin to press it against the opposite inside wall of its corresponding socket, substantially as and for the purpose set forth.

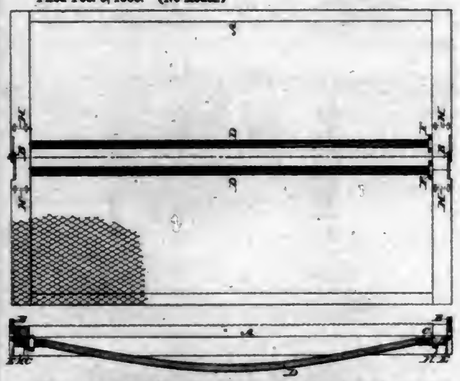
3. The combination of two metallic pins having ovoid-shaped extremities and cemented into the base of an incandescent lamp, insulated from one another, and connected, respectively, with the terminals of the carbon loop, with two metallic sockets each connected with one of the conducting-wires and suitably secured to opposite sides of a plate of insulating material suitably supported upon a metallic plate which is capable of being attached to the fixture, and retaining devices in each socket acting, when the pins are inserted into the sockets, to such an extent as is necessary to fix the lamp in position, to hold the pins, and at the same time to establish a perfect electric connection between the pins and the sockets, substantially as and for the purpose set forth.

4. The combination of the pins *c c*, having ovoid-shaped extremities provided with a contraction or neck, *d*, the metallic sockets *k k*, and horizontal pins *h h*, sliding in these sockets in opposite directions, provided with curved heads, and actuated by springs, substantially as and for the purpose set forth.

5. The combination of the plate D, of infusible insulating material, and the sockets *k k*, secured to opposite sides of said plate, substantially as and for the purpose set forth.

6. The combination of the holder, constructed substantially as described, with the cap C, of porcelain or other similar material, and provided with holes for the insertion of the pins *c c*, substantially as and for the purpose set forth.

319,178. BED-BOTTOM. WILLIAM F. BERNSTEIN, Philadelphia, Pa. Filed Feb. 5, 1885. (No model.)



Claim.—1. A bed-frame formed of sections hinged together and provided with brackets having lugs or stops and curved braces fitted to said brackets and abutting against said lugs, substantially as described.

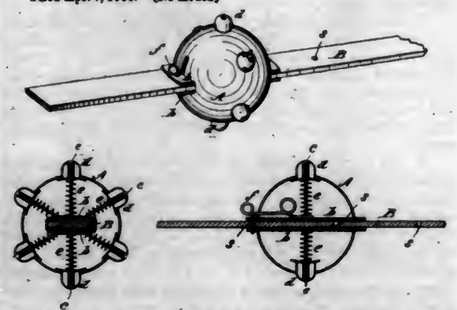
2. The sections of a bed-frame provided with brackets having lugs or stops and braces fitted to said brackets and abutting against said lugs, substantially as and for the purpose set forth.

3. A bed-frame formed of sections hinged together provided with brackets or supports, in combination with braces which are fitted to said brackets and having screw-threads for engagement of tightening-nuts, substantially as and for the purpose set forth.

4. A bed-frame formed of two sections hinged together and provided with pivotal props H near the hinge-joints, substantially as described.

5. A bed-frame formed of sections hinged together provided with props for supporting said sections at or near the joint thereof, substantially as and for the purpose set forth.

319,179. DRIVING-REIN SPUR. FIELDING B. BEVER, Ottawa, Kans. Filed Apr. 7, 1885. (No model.)



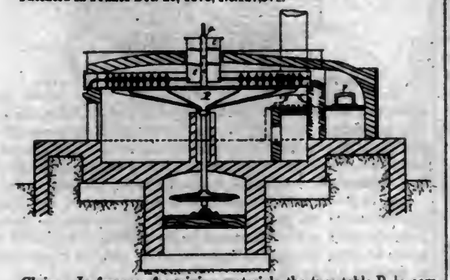
Claim.—1. A rein-line spur in which are combined a case-frame or pricker-holder, a series of projecting attached prickers, and yielding perforated spring protecting-caps arranged to inclose the outer protruding ends of the prickers, substantially as and for the purpose or purposes specified.

2. In a rein-line spur, the combination of the outer case or shell, A, the prickers *c*, the outwardly and inwardly sliding protecting-caps *d*, and the springs *e*, essentially as shown and described.

3. In a rein-line spur, the combination of a spring-catch for holding the spur at any desired point on the rein-line with the outer case or shell, A, the prickers *c*, and the yielding perforated protecting-caps *d* substantially as specified.

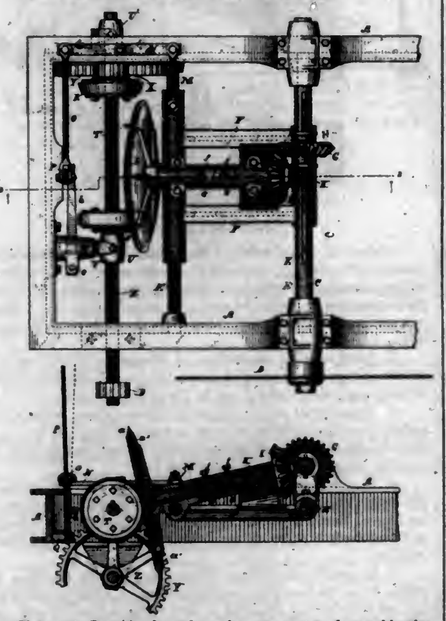
4. The case A of the spur, provided with intersecting plates *b b*, in combination with the spring-catch *f* and the perforated rein-line B, essentially as described.

319,180. FURNACE FOR PREPARING ARTIFICIAL FUEL. VINCENT BIETRIX, St. Etienne, France. Filed Feb. 12, 1885. (No model.) Patented in France Dec. 20, 1878, No. 127,871.



Claim.—In furnaces for mixing materials, the turn-table P, in combination with the fire-box F, scrapers E E and R, blades *a' a' a'*, cylinder *c*, and axis *a*, substantially as and for the purposes set forth.

319,181. FEED MECHANISM FOR SAW-MILL CARRIAGES. EDGAR M. BIRDSALL and GEORGE STRINGER, Auburn, N. Y.; said Stringer assignor to said Birdsall. Filed Mar. 20, 1885. (No model.)



Claim.—1. In a circular-saw-carriage apparatus, the combination, with the main frame, of the shaft C, mounted in suitable bearings thereon, and carrying the saw B, and the bevel-pinion G, sliding by means of an ordinary spline and groove, the sliding frame F, mounted upon the cross-bars E and the shaft C, and carrying the disk-shaft K, the disk L, and the bevel-pinion I, geared with the pinion G, so that reciprocating sliding movement may be simultaneously communicated to the parts G, I, F, K, and L without disturbing their operative relations to each other or to the saw-shaft and saw, substantially as set forth.

2. In a circular-saw-carriage apparatus, the combination of the sliding frame F, mounted as described, disk-shaft K and disk L, mounted thereon, and the bevel-pinions I and G, communicating motion from shaft C to shaft K and disk L, with the friction-wheels R and S, mounted on shaft T, for alternately contacting with the disk L, substantially as and for the purpose set forth.

3. In a circular-saw-carriage apparatus, the combination of the sliding frame F, mounted on saw-shaft C and cross-bars E, engaging pinion-wheels G and I, rotating the shaft K, and disk L, with the lever and link connections M, N, O, and P, as described, pivoted to the main frame, for sliding the frame F and the operative parts it carries, and the pinion G, substantially as set forth.

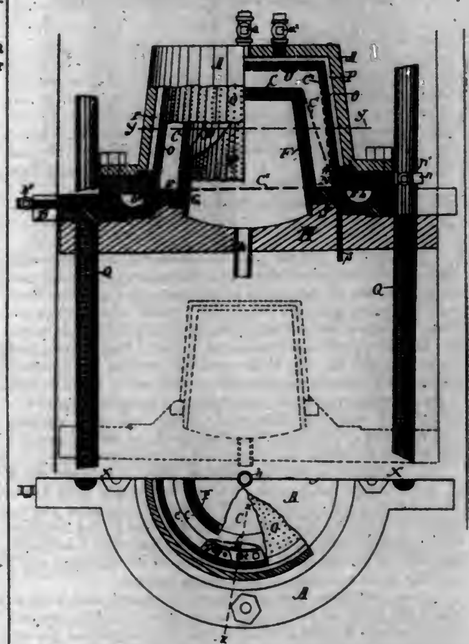
4. In a circular-saw-carriage apparatus, the combination of the pivoted lever P, the pivoted link-connection M N O, and sliding frame F, mounted on saw-shaft C and cross-bars E, the mechanism it carries, and pinion G, with the arm *b* and its movable yoke-connection with the endwise-moving shaft T, carrying the friction-wheels R and S, substantially as set forth.

5. In a circular-saw-carriage apparatus, the pinion G, mounted on the saw-shaft, the sliding frame mounted as described, and the disk L, mounted thereon, connected with the pinion G, and having annular track *a* and groove *a'*, in combination with the friction-wheels R S, mounted on the endwise-moving shaft T, whereby they may be alternately brought into contact with the disk L, substantially as set forth.

6. In a circular-saw-carriage apparatus, the combination, with the disk-shaft K and its bearings, the disk L, and the pinion I, connected to the disk-shaft by a sliding connection or spline and groove, of sleeves *e* and their set-screws, to compensate for wear upon the disk and friction-wheels R S, substantially as set forth.

319,182. MACHINE FOR FORMING HOLLOW WARE FROM PAPER-PULP. JOSEPH G. BODGE, Gorham, assignor to the Indurated Fibre Company, Portland, Me. Filed Feb. 14, 1885. (No model.)

Brief.—Improvement on Patent No. 287,614, dated October 30, 1883.



Claim.—1. In a machine for forming hollow ware from paper-pulp, a perforated inner dome, O, arranged concentric with the outer dome, having space P between the two domes, the surface of inner dome being cushioned or protected by felt or other suitable material, substantially as described.

2. Combination of straight rubber diaphragm C with valve T, with its stiffening-pieces *t*, substantially as shown and described.

3. The combination of straight rubber diaphragm C, flap-valve T, and valve b^3, operated by a stem, S, or other suitable means, as shown and described.

4. The combination of the straight rubber diaphragm C with former made up of inner shell, *f*, outer shell, f^2, gores f^3, and gauze f^4, substantially as shown and described.

5. The former composed of inner shell, *f*, with its gores f^3, the outer shell, f^2, and wire-gauze f^4, substantially as described.

6. The flap-valve T, with its stiffening-pieces *t*, to stop backflow of pulp into pipes, substantially as shown.

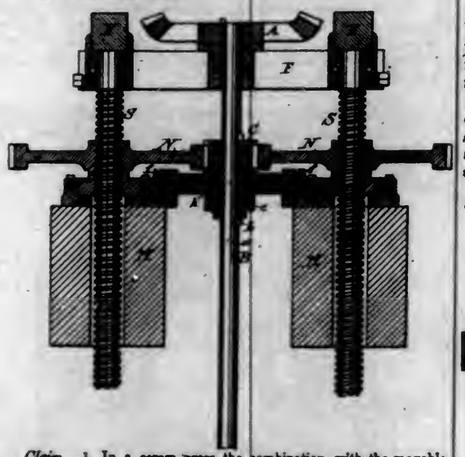
7. The valve b^3, with openings b^4, connecting with ports b^4, and operated by stem S, with its crank S' and pin S^2, substantially as described.

319,183. FIELD OR FARM HOE. EDWARD K. BOOTHBY, Portland, Me. Filed Nov. 2, 1882. (No model.)



Claim.—As a new article of manufacture, a hoe made in one piece, with a plain body portion, and a toothed portion, B, formed on a sinuous curve with a continuous cutting-edge, the teeth being in length about one-third of the depth of the blade, all substantially as shown and described.

319,184. SCREW-PRESS. RUFUS R. BOSCHERT, Syracuse, N. Y. Filed Feb. 6, 1885. (No model.)



Claim.—1. In a screw-press, the combination, with the movable head-block, the two sets of screws arranged stationary at opposite ends of the press, and the geared nuts on the screws, of a stationary frame at the top of the press, the driving-shaft mounted horizontally on said frame, centrally of the press and parallel with the head-block, bevel-pinions fixed to opposite ends of said shaft, a vertical shaft between each set of screws at the ends of the press and provided with a vertical groove, bevel-gears on the upper ends of said vertical shafts, meshing in the aforesaid bevel-pinions, pinions sliding on the vertical shafts longitudinally and confined circumferentially thereon, and yokes connected with the sliding pinions and with the head-block, and carrying said pinions between the geared nuts, substantially as described and shown.

2. In combination with the stationary screws S S, geared nuts N N, movable head-block H, connected to said nuts, vertical shafts B, provided with the groove *a*, and the sliding pinions C, connected with the shaft B by a spline, *b*, the yoke D, having journaled thereon the pinion C, and connected with the head-block by rocker-bearings, to accommodate itself to the deflections and inequalities of the movement of the two sides of the head-block, substantially as specified.

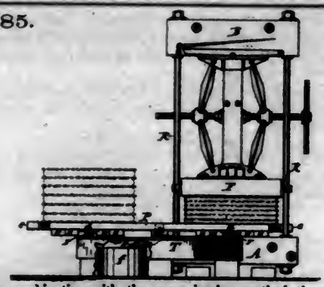
3. In combination with the screws S S, movable head-block H, geared nuts N N, and vertical shaft B, the pinions C, sliding on said shaft lengthwise thereof and confined circumferentially thereon, the collar *c*, clamped on the hub of the pinion C, the yoke D, having journaled thereon the aforesaid pinion and connected with the head-block, and a ball-and-socket joint between the collar *c* and yoke, substantially as and for the purpose set forth.

319,185. PRESS. RUFUS R. BOSCHERT, Syracuse, N. Y. Filed Mar. 25, 1885. (No model.)

Claim.—1. The combination, with the press, of a circular track arranged around a center located at one end of the press-bed, said track being composed of a section terminating at opposite sides of the press-bed, and secured stationary to the floor, and a segmental section secured to and carried by the press-bed, a duplex platform pivoted at its center in the center of the track, and rollers journaled in bearings on the under side of the platform, all constructed and combined substantially in the manner specified and shown.

2. In combination with the press, the circular track arranged stationary around one end of the press-bed and extending across the central portion of the same, the platform pivoted at its center to the end of the press, rollers underneath the platform, and stops arranged to arrest the rotation of the platform in bringing alternately opposite ends of the platform over the press-bed, substantially as set forth.

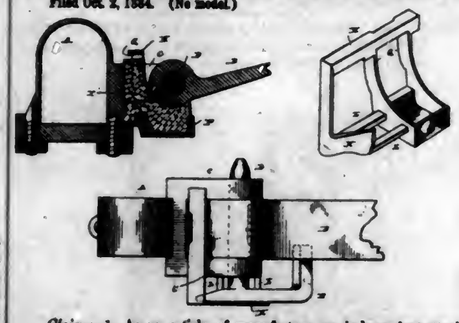
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3. In combination with the press having vertical tie-rods at opposite ends, and the circular track arranged around one end of the press-bed, the platform pivoted at its center to one end of the press-bed and provided at its two ends with projections adapted to collide with the tie-rods at the opposite end of the press-bed during the rotation of the platform, substantially as described and shown, for the purpose set forth.

4. In combination with the circular track, press-bed, and gudgeon *a* on one end of said press-bed, the platform formed with the apertures *c*, and the plank or beam *b*, secured to the platform, and provided with an eye by which the platform is pivoted on the gudgeon *a*, substantially as described and shown.

319,186. THILL-COUPLING. WILLIAM R. BOWMAN, Danville, Ky. Filed Oct. 2, 1884. (No model.)



Claim.—1. As an article of manufacture, an independent attachment for thill-couplings, consisting of a socket or box and upwardly extending arms resting between the wings of the coupling-clip, a cross-piece connecting the arms and resting on the said wings, and a flexible seat sustained in the said chair, substantially as and for the purpose specified.

2. As an article of manufacture, an independent chair-support for a flexible seat, said chair resting between and hung on the wings of a thill-coupling clip, substantially as and for the purpose specified.

3. A removable seat attachment for thill-couplings, consisting of a socket, upwardly-extending arms, an extended cross-piece, and an L-piece secured to one side of the chair a short distance from the same, substantially as and for the purpose specified.

4. In combination with a removable chair or seat attachment for thill-couplings, a pin for securing the shaft-iron to the clip, said pin having one end formed into right-angle extensions, one of which is bent so as to continue parallel to the pin, substantially as and for the purpose specified.

5. In combination with a thill-coupling, a chair consisting of a socket, arms, and cross-piece, and an L-extension, a flexible seat or bearing, and a pin having extensions at right angles to it on one end, one of the said extensions being bent so as to be parallel to the pin, substantially as and for the purpose specified.

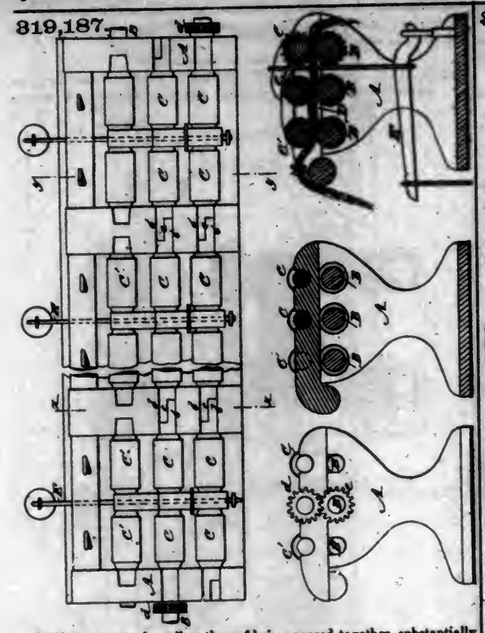
319,187. TOP ROLLER FOR DRAWING-FRAMES, &c. JOHN BRIERLEY, East Hampton, Mass. Filed June 2, 1884. (No model.)

Brief.—The top rollers, coupled together at their ends, are geared with, and thereby positively driven in combination with, the continuous bottom rollers, whereby all liability of slipping is avoided.

Claim.—1. The combination, with two or more series of bottom rollers, B B, of two or more series of clothed top rollers, C C, coupled together in each series by lap-joints *c c* at their ends, and gears *d d*, said top rollers being geared with the bottom rollers, over which they are arranged to operate in unison therewith, and whereby the coupled top rollers are positively driven by the bottom rollers, essentially as described.

2. The series of coupled top rollers, C C, in combination with the continuous bottom rollers, B B, and the gears *d d*, the upper and lower

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coincident or opposite rollers thereof being geared together, substantially as specified.

319,188. STRINGING PIANOS. THOMAS J. BEDINGHEAD, 18 Wigmore Street, County of Middlesex, England. Filed Oct. 24, 1884. (No model.) Patented in England Mar. 28, 1884, No. 5,609; in France May 5, 1884, No. 161,908, and in Germany May 6, 1884, No. 29,461.



Claim.—1. In a piano-forte, the combination, with each string, of a screw-threaded wrest-pin or tuning-pin in line with the string, a nut on said pin and bearing against the frame, means for preventing the pin from turning, while permitting its longitudinal motion, and means, substantially as described, of carrying the string through or alongside of the pin, and of readily attaching it to the pin at a point beyond the nut, and at or near the outer or farther end of the pin, as set forth.

2. The combination, with the wrest-plank and rib thereon, of the screw-pins *a*, passing through the said rib in line with the strings, means for connecting the strings and screws, adjusting-nuts *b*, washers *c*, and a feather and groove or analogous connection between said washers and screws, and ribs, whereby the washers and pins are prevented from rotary movement, and longitudinal movement permitted to the screw, substantially as herein shown and described.

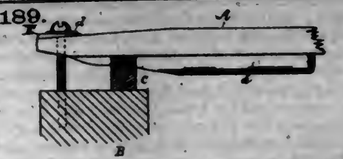
3. In a piano-forte, the combination, with each string, of a screw-pin in line with the string, and having a longitudinal groove at one side, and means of attaching the string to the outer end of the pin, a nut screwing on the pin and supporting the tension of the string, a washer having a feather engaging in the groove of the pin and engaging with the wrest-plank, so as to be prevented from turning, substantially as and for the purpose specified.

4. In a piano-forte, the combination, with a screw-threaded wrest or tuning pin placed in line with and provided with a longitudinal passage for the string, a transverse hole for receiving the end of the strings, a string passing lengthwise of the pin and bent across the outer end of the pin, and a cap, ferrule, or its equivalent for retaining the end of the string in said hole, substantially as shown and described.

319,189. PIANO SOUNDING-BOARD. JOHN BEDINGHEAD, London, England. Filed Nov. 8, 1884. (No model.) Patented in England Aug. 16, 1881, No. 3,587.

Claim.—1. A piano-forte having its sound-board fixed to the bracings or frame by a fulcrum situated between the sound-board and bracings and at a distance from the edge of the former, and by screws bearing against the overhanging edge of the sound-board and producing a leverage action on the sound-board, substantially as specified.

319,189.



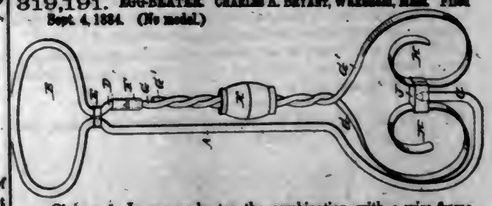
2. In a piano-forte, the combination, with the sound-board, of a fillet situated at a distance from the edge of the sound-board and between it and the bracings, and of screws passing through and bearing against the overhanging edge of the sound-board and screwing into the bracings or frame, substantially as herein shown and described, and for the purpose specified.

319,190. CORSET-LACING. SOLON BRYANT, Worcester, Mass. Filed July 12, 1883. (No model.)



Claim.—The improved corset-lacing herein described, consisting of a series of loops, *a a*, of flexible material, secured at suitable intervals between flaps *b b*, formed at the adjacent edges of the corset-sections and by stitching passing through said flaps, said loops not extending beyond the edges of the flaps of the corset-sections, and being arranged in horizontal pairs and adapted to receive lacing-cords crossing each other between the loops in the recess formed by the flaps, substantially as set forth.

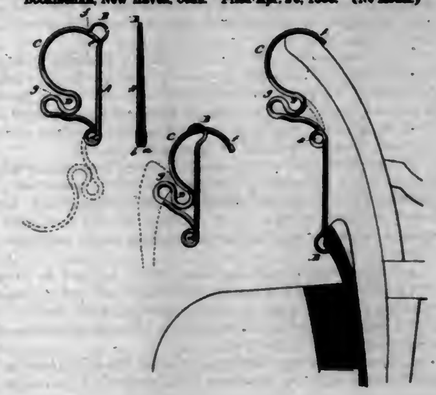
319,191. EGG-BEATER. CHARLES A. BRYANT, Wakefield, Mass. Filed Sept. 4, 1884. (No model.)



Claim.—1. In an egg-beater, the combination, with a wire frame provided with an upwardly-bent lower end and with a socket in its upper portion, of spirally-twisted wires terminating in scrolls at their lower ends, and provided with a socket for the lower end of the frame, substantially as herein shown and described.

2. In an egg-beater, the combination, with the wire frame A, of the sleeve F at the top of the same, the spirally-twisted wires G G', having their lower ends bent to form scrolls H, the cross-piece J, uniting them, and the nut K on the spiral wires, substantially as herein shown and described.

319,192. COMBINED BUTTON AND HAT HOOK. ALEXANDER H. BUCKINGHAM, New Haven, Conn. Filed Apr. 20, 1885. (No model.)



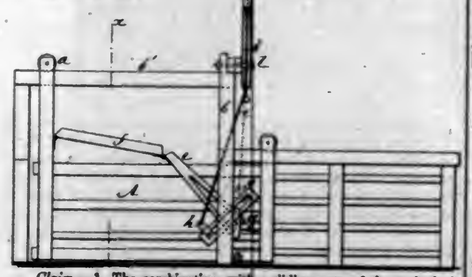
Claim.—1. The herein-described button and hat hook, consisting of the hook C and the shank A, hinged to one end of the said hook C, the said shank terminating at its opposite end in a hook, and so as to fold onto the end of the principal hook C, substantially as described.

2. The principal hook C, made from wire, bent at one end to form the eye *a*, combined with the button-hook consisting of the shank A, terminating at one end in an eye, *b*, and at the other in a hook, B, the two parts hinged together by a rivet through the said eyes *a b*, substantially as described.

3. The combination of the hook C, made from wire, terminating at one end in an eye, *a*, combined with a button-hook consisting of the shank A, terminating at one end in an eye, *b*, and at the other in a hook, B, the said parts hinged together by a rivet through said eyes *a b*, the hook C constructed with a notch, *f*, adapted to engage the end of the hook B, substantially as described.

4. The combination of the hook C, constructed with the auxiliary hook D, combined with the button-hook consisting of the shank A, terminating at one end in the hook B, the other end hinged to one end of the hook C, and adapted to turn toward and from the other end of the hook C, substantially as described.

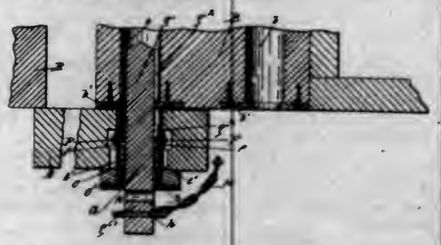
319,193. GATE. POLLIE C. CRISWELL, Macon City, Mo. Filed Oct. 22, 1884. (No model.)



Claim.—1. The combination, with a sliding gate, of the rock-shaft *c*, having connections to the gate for moving it, the cross-arm *g*, slide-piece *h*, rods *i*, and levers *k*, substantially as described.

2. The combination of rock-shaft *c*, sliding clamp *h*, cross-arm *g*, arm *e*, jointed bar *f*, rods *i*, and levers *k* with a sliding gate, substantially as described, for operation as specified.

319,194. CAR LOCK AND SEAL. JOSEPH CHAPMAN, Dubuque, Iowa. Filed Sept. 20, 1884. (Model.)



Claim.—1. The combination, with the socket having L-shaped locking-pieces and spring-pins, arranged substantially as described, of the locking-bolt having cam projections thereon, substantially as and for the purposes specified.

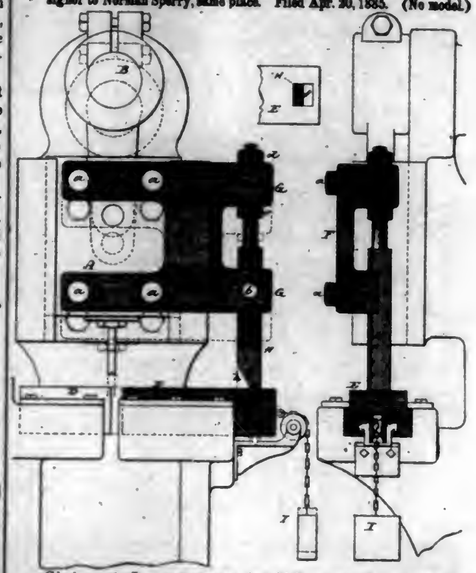
2. The combination, with the socket having L-shaped locking-pieces and spring-pins, arranged substantially as described, of the locking-bolt having cam projections arranged to engage said locking pieces and pins, and provided with an enlarged head, and a seal arranged to prevent the bolt from being forced inward when locked without breaking the seal, substantially as and for the purposes specified.

3. The combination, with the socket C, having the L-shaped locking-pieces E and spring-pins F, arranged substantially as described, of the locking-bolt G, having cam projections g^2 and enlarged head g', and the seal D, having an aperture of less diameter than said head, and arranged between the head and socket, substantially as and for the purposes set forth.

4. The combination, with the locking-bolt G and seal D, of the socket C and disk C', having a seat, *c*, for the seal, said disk having a perforation, *c'*, located in seat *c*, to receive screw c^3, which secures the socket to the door, whereby the seal when in place prevents access to said screw, substantially as set forth.

5. The combination, with the door A, having socket C, as described, and locking-bolt G, having projections g^2, cut away at *g*, of post B, having recess *b*, and plate *b'*, having aperture b^2, substantially as and for the purposes specified.

319,195. POWER-PRESS. ROBERT H. CLARK, Seymour, Conn., assignor to Norman Sperry, same place. Filed Apr. 20, 1885. (No model.)



Claim.—1. In a power-press in which a vertically-reciprocating slide is employed to carry the tool, the combination, with said slide, of a bracket, F, attached to said slide, and so as to partake of its vertical reciprocating movement, said bracket extending to one side of the slide, and the follower H, supported in the extension of said bracket and constructed with a cam-surface, *h*, with the transverse slide E, arranged in the bed of the press, and against which the said follower works, substantially as described, and whereby the vertical reciprocating movement of the slide on the press will impart a transverse reciprocating movement to said slide E, substantially as described.

2. In a power-press substantially such as described, the combination of the vertically-reciprocating slide A, the bracket F, removably attached to said slide, and so as to partake of its reciprocating movement, said bracket extended to one side, the follower H, supported in said extension and made adjustable vertically therein, and the said slide, constructed with a cam-surface, *h*, and the transverse slide E, arranged in the bed of the press, substantially as described.

319,196. COTTON-PRESS. PHILIP C. CLOSE, Augusta, Ga. Filed Oct. 6, 1884. (No model.)

Claim.—1. In a cotton-compressor of the class described, a piston provided with oppositely-arranged wedges, in combination with toggle-levers provided with rollers constructed to operate in connection with said wedges, substantially as specified.

2. The combination of a steam-cylinder, a piston provided with wedges, toggle-levers provided with rollers, a platen, and a follower, substantially as specified.

3. The combination of a steam-cylinder having a piston provided with wedges, a follower, a cross-head secured to said wedges, and toggle-levers provided with rollers, substantially as specified.

4. The combination of the cylinder B, provided with the wedges B^3, and the toggle-levers F F', provided with the rollers I I' J J', and the follower E, substantially as shown and described.

5. The combination of the cylinder B, the piston B^4, having the wedges B^5, the cross-head G, the toggles F F', provided with friction-rollers, the yokes K K', the straps K^2, and the piston E, substantially as shown and described.

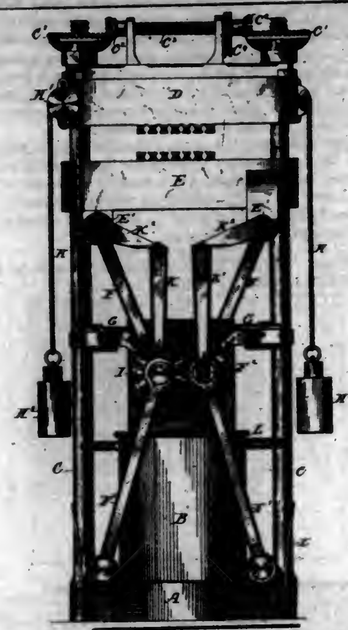
6. The combination of the base having the guides C, platen D, nut C', gear C^2, and shaft C^3, substantially as shown and described.

7. The combination of the base A, the cylinder B, having the supply-pipe B' and exhaust B^2, the piston B^4, provided with oppositely-arranged double wedges B^5, the cross-head G, toggle-levers F F', rolls I I' J J', yokes K K', straps K^2, follower E, and platen, substantially as shown and described.

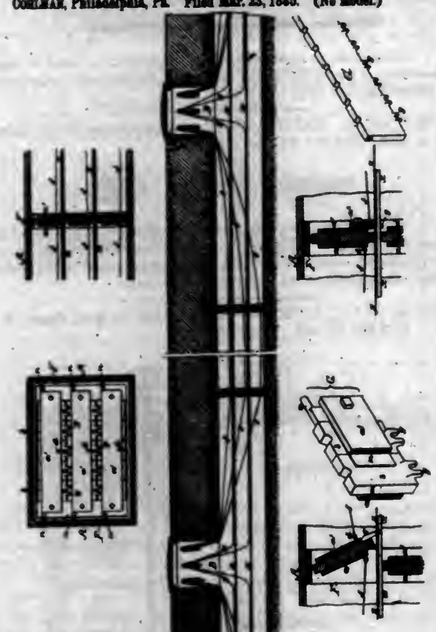
8. The piston B^4, provided with wedges B^5, having oppositely-arranged working-faces B^6, substantially as shown and described.

9. The toggle-levers F F', in combination with the yoke K and strap K^2, substantially as shown and described.

319,196.



319,197. CONDUIT FOR ELECTRICAL CONDUCTORS. WILLIAM CONLMAN, Philadelphia, Pa. Filed Mar. 23, 1885. (No model.)



Claim.—1. The combination of a conduit with pivoted plates forming the wire-supporting bridges, all substantially as specified.

2. The combination of a conduit with pivoted plates forming the wire-supporting bridges and having notches for the reception of the wires, as set forth.

3. The combination of a conduit with wire-supporting bridge-plates consisting of a series of blocks of insulating material held in position between opposite clamp-plates, as specified.

4. The combination of the conduit with the pivoted plates forming the wire-supporting bridges and having projecting fingers for the lateral guidance and retention of the wires, as set forth.

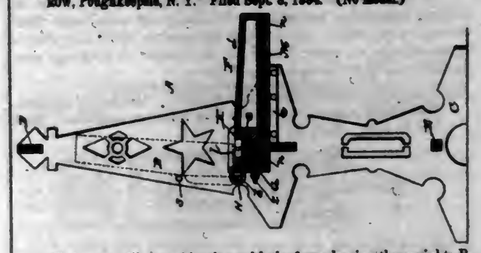
5. The combination of the conduit and its man-hole chambers with pivoted plates forming a series of wire-supporting bridges, and with wires *f*, connecting the plates of the series together and extending to the man-hole chambers, as specified.

6. The combination of a frame adapted to the conduit with plates pivoted to said frame and forming wire-supporting bridges, as set forth.

7. The combination of the bridge-plates with clamp-plates *a a'*, one of which is provided with pivot-pins, as specified.

8. The combination of the conduit and its notched or perforated supports with a series of conductors, *x*, adapted to the notches or perforations of said supports, and a series of drawing-wires, *y*, one for each of said wires *x*, as set forth.

319,198. COMBINED FIRE-SCREEN AND DESK. SAMUEL K. DARROW, Poughkeepsie, N. Y. Filed Sept. 8, 1884. (No model.)

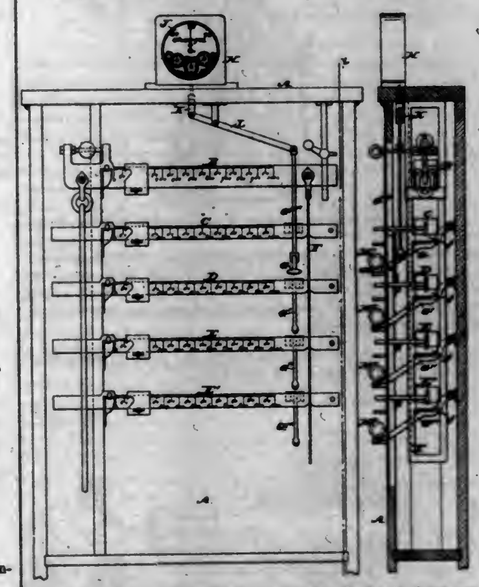


Claim.—1. The combination, with the frame having the uprights B, of the desk F, pivoted thereto, and provided at its upper inner end with the transverse recess *e*, and the trough pivoted within the said recess, whereby the said desk may be turned up over the trough and secured in position, substantially as specified.

2. The combination, with the main frame, of the desk pivoted to the uprights B thereof, and provided at its inner upper side with a transverse curvilinear recess, *e*, the weighted pivoted trough K, having a conformable exterior surface, and devices for holding the desk in a closed and open position, respectively, as set forth.

319,199. COMBINED WEIGHING-SCALE AND REGISTER. AUGUSTUS B. DAVIS, Philadelphia, Pa. Filed Oct. 29, 1884. (No model.)

Brief.—The scale is like that of Patent No. 37,569 or No. 67,264.



Claim.—1. A scale provided with a register having its beam connected therewith and a device for throwing said beam in and out of position for weighing, whereby the operation of said device causes the operation of the register, substantially as described.

2. A scale having a weighing-beam and an auxiliary weighing apparatus, in combination with a register and a device for throwing said apparatus in and out of connection with the weighing-beam, whereby the operation of said device operates the register, substantially as described.

3. A scale-beam, in combination with a register and means for operating said register, and a locking device which prevents the operation of the means by which a register is made, substantially as described.

4. In a combined scale and register, the combination of the scale-beams with means for locking the same and operating the register, and a register, substantially as described.

5. A main beam, in combination with a supplementary scale-beam, a register, and means for actuating either one of said beams, so that the number of weighings by said beam may be indicated by said register, substantially as described.

6. A combined scale and register having tubes secured to the casing of the scales and balls within said tubes, whereby the number of loads of different materials required for any purpose may be shown, substantially as described.

7. The scale-beam B, in combination with a stirrup, a series of auxiliary scale-beams, pivoted levers for raising said scale-beams from the steps of said stirrup, and a register connected to one of said pivoted levers, whereby a register is made of the number of weighings, substantially as and for the purpose set forth.

319,200. AUTOMATIC CAR-COUPLING. GEORGE DE BRADLINE, Toledo, Ohio, assignor of one-half to John Cummings, same place. Filed Jan. 21, 1885. (No model.)



Claim.—1. A car-coupling case having the guiding-lugs V, in combination with the anchor-headed link H and springs T, and rear pivotal and bifurcated coupling-bar I, said bar having overlapping lugs O, substantially as shown, and for the purpose described.

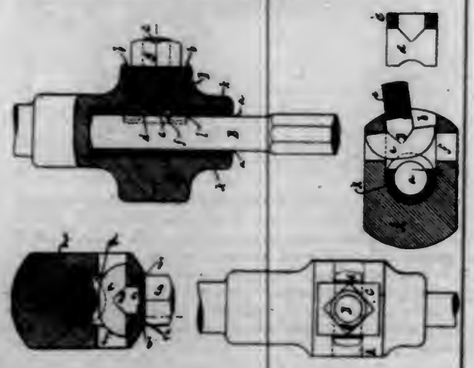
2. A car-coupling having the case M, link H, springs T, and the rear pivotal and bifurcated coupling-bar I, in combination with the sliding opening block P, substantially as shown, and for the purpose described.

319,201. TELEGRAPH-SOUNDER. JOHN W. DELANEY, North Billerica, Mass. Filed Dec. 17, 1884. (No model.)



Claim.—In a telegraph-sounder, the combination, with the electro-magnets B B and the sounding-frame centrally arranged between the said magnets, of the slotted sounding post or bar sliding in guides or bearings in the sounding-frame, a shoulder on the sounding-post, the armature H, resting on the shoulder, the adjustable anvils A *g*, a lever engaging the post, and a tension-spring, *i*, all operating substantially as and for the purpose described.

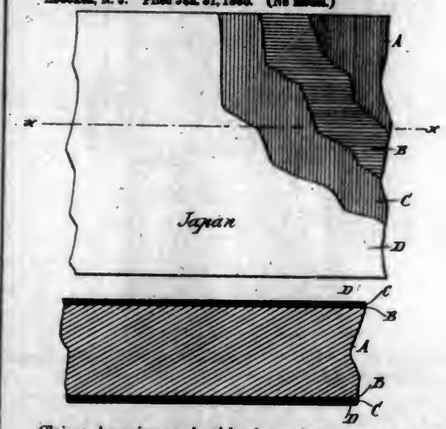
319,202. CHUCK FOR ROCK-DRILLS, &c. JAMES R. DENTON, Hoboken, N. J. Filed Apr. 9, 1885. (No model.)



Claim.—1. In a chuck, of the head A, having a socket forming a rigid bearing, and provided with the transverse channel *f* and cavity *b*, opening thereinto, with the recessed clamping-jaw C, fitting the said cavity, and the clamping-bolt having a shank extending outward through the jaw, and an elongated head, *c*, arranged in the recess of the jaw, and extending into the transverse channel and abutting against a part of the head, substantially as described.

2. The combination, in a chuck, of the head having a socket and a cavity, *b*, the annular bushing *k*, arranged in the socket and having one side recessed, and the clamping-jaw C, arranged in the said cavity, and having its inner end portion entering the recess of the bushing, to bear directly on the drill-rod, for retaining the bushing and clamping the said drill-rod, substantially as described.

319,203. ARTIST'S PANEL OR PLAQUE. EDWARD DE PLANQUE, Hoboken, N. J. Filed Jan. 31, 1885. (No model.)



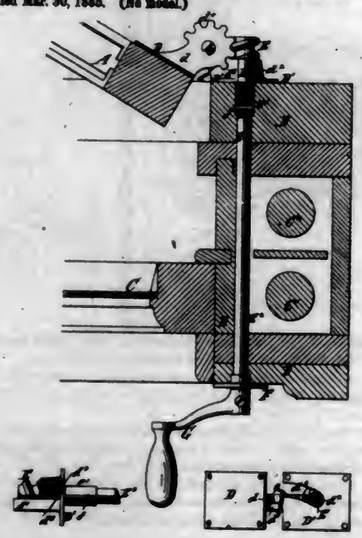
Claim.—As an improved article of manufacture, a panel or plaque consisting of pasteboard having its surfaces provided with layers of shellac, whiting, and japan, as set forth.

319,204. CARPET-FASTENER. CLARENCE ELBERT DE PUY, Jackson, Mich. Filed Nov. 25, 1884. (No model.)



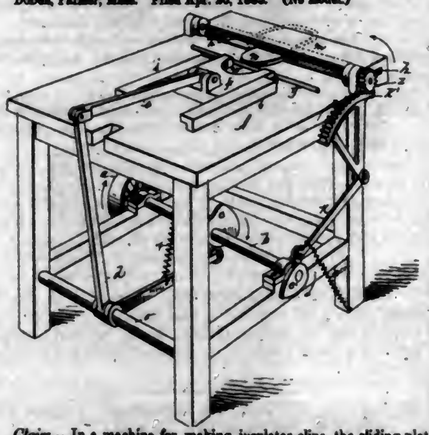
Claim.—In a carpet-tack, a centrally-perforated plate or disk of thin material, having struck-up tongues or points upon its upper side, in combination with a downwardly-pointed tack rigidly secured in said perforation, substantially as and for the purpose set forth.

319,205. SHUTTER-WORKER. ALVIN H. DODD, Hudson, N. Y. Filed Mar. 30, 1885. (No model.)



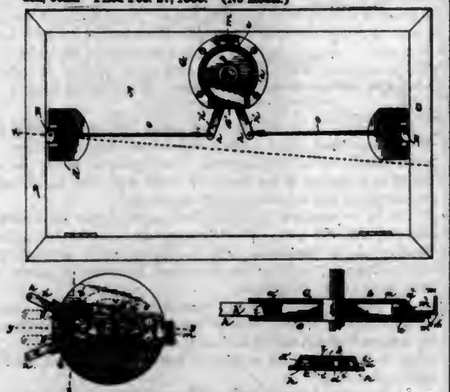
Claim.—The combination of the two leaves D D' and their bearers *d d'*, the bearer *d* being constructed with a toothed segment, d^2, and the leaf D' having a bearing, d^3, and a slot, d^4, extending from said bearing inward to that edge of the leaf at which is the bearer *d'*, and a worm-shaft, E', fitting said bearing, and having at opposite ends the worm E and a socketed head, which form shoulders to prevent axial movement of said shaft, substantially as and for the purpose herein described.

319,206. MACHINE FOR MAKING INSULATOR-CLIPS. ELLEN DODGE, Palmer, Mass. Filed Apr. 20, 1885. (No model.)



Claim.—In a machine for making insulator-clips, the sliding plate *f*, having the circular recess *w* therein, the forming-plate *n*, located opposite the recessed end of the plate *f*, the bending-bar *m*, pivoted at the end of plate *n*, and having the groove *h* therein, and suitable mechanism for giving a reciprocating motion to the plate *f* and a rotary reciprocating motion to the bending-bar *m*, combined and operating substantially as set forth.

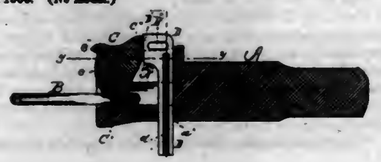
319,207. SHUTTER AND DOOR BOLT. ANDREW J. DOOLITTLE, Hamden, Conn. Filed Feb. 27, 1885. (No model.)



Claim.—1. The combination, with the pivoted levers having the stops h^3 and the spring operating between the same, of the arm located between the said levers, a knob for turning the arm, and the bolts connected to the said levers, substantially as described.

2. The combination of the pivoted levers, the arm located between the said levers, a knob for turning the arm, the bolts connected to the said levers, and the sliding yoke for clamping the ends of the levers, substantially as described.

319,208. CAR-COUPLING. WARREN DORR, Gardiner, Me. Filed Mar. 25, 1885. (No model.)

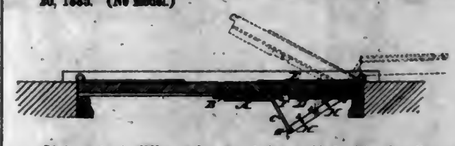


Claim.—1. In a car-coupling, the combination of the dog C, substantially of the shape shown, and provided with the face C'', said dog being pivoted at *c* in the draw-head, and the pin D, of substantially the shape shown, and provided with the face D' and shoulders *d'*, arranged and constructed to operate substantially as and for the purpose set forth.

2. The combination of the dog C, provided with the face C'', and pivoted at *c* in the draw-head, the pins D, provided with the face D' and grooves *d*, and the guides *e*, extending into said grooves from the draw-head, substantially as and for the purpose described.

3. The combination of the dog C, provided with the face C'' and ledge *c''*, said dog being swiveled at *c* in the draw-head, and the pin D D' *d'''*, substantially as and for the purpose described.

319,209. SHUTTER-FASTENER. THERIAS DOUGHERTY, Philadelphia, Pa., assignor of one-half to Thomas J. Andress, same place. Filed Feb. 20, 1885. (No model.)



Claim.—1. A sliding and rotary bolt provided with a handle, and the keeper or barrel thereof, in combination with a slotted guide, and pins which are connected with the under sill and adapted to have the handle of the bolt connected with either of the same for holding the bolt in locked, bowed, and open positions, as stated.

2. A bolt with the handle, and a barrel or keeper for said bolt, in combination with a slotted guide formed with a recess and shoulder, and pins with which said handle engages in the locked, bowed, and open positions of a shutter, substantially as and for the purpose set forth.

319,210. BED-LOUNGE. HENRY EHN, Brooklyn, N. Y. Filed Dec. 30, 1884. (No model.)



Claim.—1. A bed-lounge consisting of a lower or base section forming a receptacle for bed-clothes, an upper section hinged to the base-section and provided with a horizontal edge at its top, a back pivoted to said edge and adapted to swing against the back of the upper section, a head-piece connected with the upper section, and a pillow-piece detachable from the head-piece, substantially as described.

2. A bed-lounge consisting of a lower section forming a receptacle for bed-clothes, a frame hinged to the top portion of the lower section for supporting the mattress, a hinged upper section having a top longitudinal edge, a back hinged to such edge, and a head-piece on the upper section provided with a detachable pillow-section, substantially as described.

3. A bed-lounge consisting of a lower section, a hinged upper section having a back provided with a longitudinal top edge provided with a hinged back, a head-piece on the upper section having its upper edge on a plane with the said horizontal top edge, and a pillow-piece sliding on the head-piece and removable along a plane with the top edge of the back of the upper section, substantially as described.

4. The combination, in a bed-lounge, of the lower section, the upper section hinged thereto and provided with a back having a horizontal top edge, and an ornamental back-top hinged to said horizontal edge, substantially as described.

5. The combination, with the lower section, the upper section hinged thereto and provided with a back having a horizontal top edge, of a head-piece on the upper section, and a pillow-piece removable along an even plane with said top edge of the back, substantially as described.

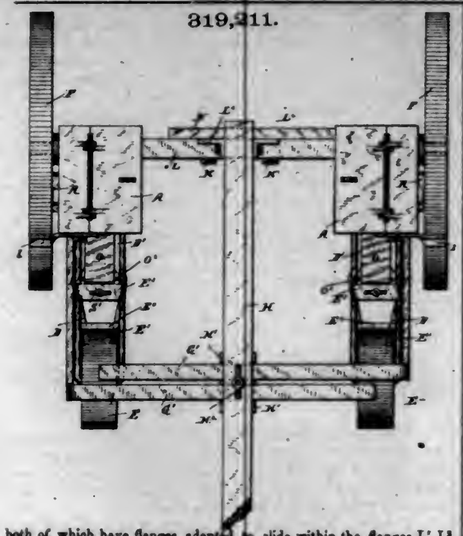
319,211. TWO-ROW SEED-SOWER. EVERETT C. ELLWOOD, Green's Farms, Conn. Filed Oct. 9, 1884. (No model.)

Claim.—1. In a two-row seed-sower, the middle cross-slide to which the handle-bar is attached, in combination with two outer cross-slides adapted to move thereon, by which the operative parts of two independent machines are carried.

2. The middle cross-slide and the handle-bar secured thereto, in combination with front and back cross-slides, each of which carries a hopper and seed-conveyer, and to each of which one of the main wheels is journaled.

3. In a seed-sower, the middle cross-slide having flanges L' L^2, and central openings, L^4, in combination with the front and back cross-slides,

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both of which have flanges adapted to slide within the flanges L' L², and longitudinal slots and bolts N, which secure the slides in place when adjusted.

4. In a seed-sower, the front cross-slide having pocket K' and a platform, P, cast integral therewith, in combination with the middle cross-slide, the back cross-slide having the other platform cast integral therewith, and bolts which hold the cross-slides at any desired adjustment.

5. In a seed-sower, the middle cross-slide and the front and back cross-slides, each having a platform and a seed-conveyer cast integral therewith, in combination with plates P' and the hoppers, said platforms, plates, and hoppers being secured together by bolts P', passing down through the hopper.

6. The combination, with the hoppers, conveyers, and platforms, of the seed-slides having ribs O' upon their under sides, the cut-offs adapted to slide within said ribs, and means, as pins and bolts, for holding the parts when adjusted, whereby the flow of seed may be regulated or entirely cut off without disturbing the adjustment of the regulating-slide.

7. The platforms having guides G², and the conveyers cast integral therewith, and plate P, bolted to the platform, in combination with a seed-slide adapted to work within the guides and having ribs upon its under side, between which a cut-off slides, said ribs projecting slightly beyond the cut-off, so that when the seed-slide is tightened up the cut-off is still free to slide.

8. The main wheels having two sets of lugs alternating in position, in combination with levers at the ends of the agitator-shafts, the ends of which are adapted to be struck alternately by the two sets of lugs, whereby motion is imparted to the agitator-shaft, for the purpose set forth.

9. The main wheels having a set of lugs on the inner side of the rims, and another set upon a ring placed about midway between the rims and the hubs, and alternating in position with the former set, in combination with levers upon the agitator-shafts, the ends of which are adapted to be struck alternately by the two sets of lugs, whereby positive vibratory motion is imparted to the agitator-shaft.

10. The double-armed agitator-lever having a counterpoise, flange R' upon one side of the lower half, and lug R³, in combination with a main wheel having two sets of lugs which alternately strike the upper end of the lever and the flange when the lever is in operative position, and a catch, R⁴, adapted to engage lug R² to hold the lever out of operative position.

11. The handle-bar supports secured to the platforms and extending backward, then across under the handle, in combination with clamp H' and thumb-screw H³, whereby the parts are firmly held in place.

12. The middle cross-slide to which the handle-bar is secured, and the front and back cross-slides, each carrying a main wheel, hopper, seed-conveyer, &c., in combination with the handle-bar supports, the clamp, and means, as bolts and set-screws, for holding the parts in place, whereby the two rows may be sown at any desired distance apart.

13. The markers having rings at their inner ends which turn freely on the marker-bar, in combination with a band adapted to slide but not to turn upon the marker-bar, and provided with lugs which act as stops to hold the marker when out of operative position and to prevent its dropping down when the machine is lifted.

14. The marker having at its inner ends two rings connected by an arched cross-piece having a web, T⁴, in combination with a band, T³, between said rings, which is permitted to slide but not to turn on the bar, and is provided with lugs T⁴, which act as supports for the marker.

15. The marker-bars adapted to slide in guides in the presser-wheel side-bars and held by a thumb-screw, S', in combination with the markers adapted to turn on said bars, and lugs T², which support the marker when out of operative position and when the machine is lifted.

16. The platforms having guides G² and plates P, having guides P⁶ and bosses P⁵, in combination with the seed-slides having slots O⁵ and the cut-offs having slots O', adapted to engage said bosses.

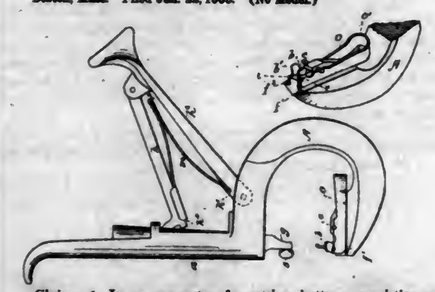
17. The hoppers, conveyers, platforms, and plates P, having guides P⁶ and index-points P⁷, in combination with the seed-slides having gages O⁶.

319,212. SUSPENDER-CLASP. JACOB ELSON, Philadelphia, Pa., assignor of one-half to Henry Bernhardt Gross, same place. Filed Jan. 12, 1885. (No model.)



Claim.—The within-described clasp, consisting of the plate *a*, the elastic tongue *b*, the retainer *d*, and the projection *g*, the latter having a hook or loop, and the plate or tongue having an inwardly-projecting portion or portions, *f*, whereby the slipping of the clasp is prevented, as set forth.

319,218. BUTTON-SETTING INSTRUMENT. ARALDO M. ENGLISH, Boston, Mass. Filed Jan. 22, 1885. (No model.)



Claim.—1. In an apparatus for setting buttons, consisting of a frame, A, provided with a guide, *a*, and a button-carrying plunger, the combination, with a lever and link, of the spring *m*, having one end resting on a shoulder at the lower end of the said lever, and the other embracing the said link, substantially as described.

2. In an apparatus for setting buttons, the lower frame-work or head provided with spring-rests, a fastener rest or support, and a spring-retaining pin, in combination with a fastener-holding spring, O, provided with jaws *t t* and lips *b b'*, all arranged as and for the purpose set forth, substantially as described.

3. In an apparatus for setting buttons, a fastener rest or support, in combination with a spring provided with jaws *t t* and lips *b b'*, whereby the fastener is firmly held in position by the jaws and automatically released by the action of the plunger or button-holding device, substantially as described.

4. In an apparatus for setting buttons, a U-shaped fastener-holding spring provided with jaws, in combination with a fastener rest or support provided with shoulders, and a pin or lug adapted to carry and position said spring, whereby the free lateral movement of said spring allows the fastener to center and position itself, substantially as described.

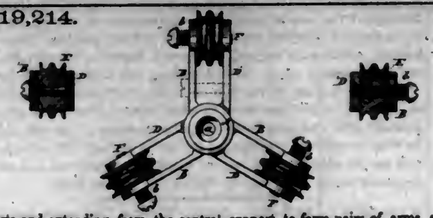
5. In an apparatus for setting buttons, the combination, with a fastener rest or support, of a spring, O, provided with jaws *t t* and lips *b b'*, substantially as described.

319,214. SUSPENSION-PULLEY. JOHN A. EVARTS, Meriden, Conn., assignor to the Bradley & Hubbard Manufacturing Company, same place. Filed Mar. 30, 1885. (No model.)

Claim.—1. A suspension-pulley consisting of the hanger constructed in two parts and extending from the central support to form pairs of arms, the said arms adjustable toward and from each other, combined with a pulley hung upon an axle between each pair of arms, and a screw through one arm into the opposite arm, whereby said arms may be made to grasp the said pulleys with frictional contact, substantially as described.

2. A suspension-pulley consisting of the hanger constructed in two

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parts and extending from the central support to form pairs of arms, a pulley arranged upon an axle between each pair of arms, and a screw through one arm into the opposite arm, and by which said arms may be forced upon said pulleys, with a spring against which the pressure of the said screw will be applied, and whereby said pressure is made yielding, substantially as described

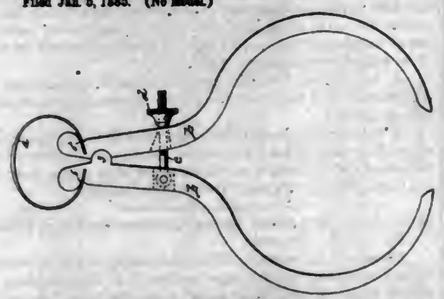
3. A suspension-pulley consisting of the hanger constructed in two parts and extending from the central support to form pairs of arms, a pulley arranged upon an axle between each pair of arms, a screw extending through one arm, through the pulley, and into the opposite arm to form an axle for one pulley, and a spring arranged between the said screw and pulley, whereby the pressure of the said screw upon the pulley is made yielding, substantially as described.

4. A suspension-pulley consisting of a hanger composed of two hubs, A C, one, A, of said hubs constructed with two or more arms, B, and the other hub, C, constructed with corresponding arms, D, the said arms extending from the hub parallel with each other, a pulley arranged upon an axle between each pair of arms, and a screw through one arm into the opposite arm and adapted to draw the said arms toward each other, whereby said pulleys are frictionally grasped between said arms, substantially as described.

5. A suspension-pulley consisting of a hanger composed of two hubs, A C, one, A, of said hubs constructed with two or more arms, B, and the other hub, C, constructed with corresponding arms, D, the said arms extending from the hub parallel with each other, a pulley arranged upon an axle between each pair of arms, and a screw through one arm into the opposite arm and through the pulley between them, and so as to form the axle for the said pulley, with a spring between said screw and pulley, whereby the pressure of the screw to draw the arms upon the pulley is made yielding, substantially as described.

6. A suspension-pulley consisting of a hanger composed of two hubs, A C, the one, A, of said hubs constructed with two or more arms, B, and the other hub, C, constructed with corresponding arms, D, the said arms extending from the hub parallel with each other, a screw, F, extending free through one arm into the opposite arm of each pair, a pulley, E, arranged upon each of said screws as an axle, and a spring, *b*, between the head of the screw and the arm, substantially as described.

319,215. SPRING-CALIPERS. CHARLES P. FAY, Springfield, Mass. Filed Jan. 5, 1885. (No model.)



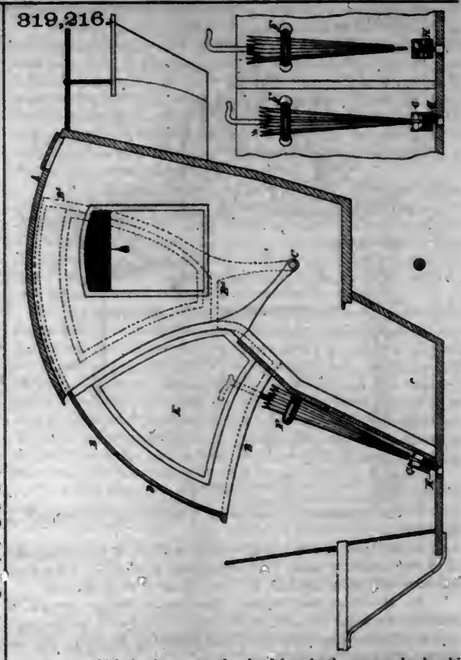
Claim.—1. In a caliper or similar implement, the combination of two legs having, respectively, a fulcrum and socket, as at 3, a curved spring embracing said legs, and an adjusting device for the legs, substantially as described.

2. In a caliper or similar implement, the combination, with the notched legs having fulcrum-and-socket bearing, of the curved spring having notched ends resting in the notches in the legs, and with an adjusting-screw, substantially as described.

319,216. HANSOM-CAB. CHARLES A. FLOYD, Eastbourne, County of Sussex, England. Filed June 5, 1884. (No model.) Patented in England Dec. 17, 1883, No. 5,764, and in France Feb. 19, 1884, No. 160,431.

Claim.—1. The combination, with the stationary roof of a hansom-cab, of a hood consisting of a segmental top with two sides extending down to pivots on which the hood can be turned as on an axis, so that it can be thrown forward or retracted within the stationary roof.

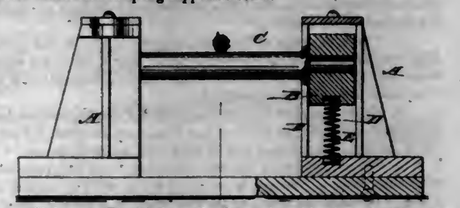
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2. A vehicle having a seat for the driver in the rear and a hood in front provided with glass panels, as and for the purpose described.

319,217. FRICTION-ROLLER FOR WIRE CABLES. THOMAS W. FLYNN, Pottsville, Pa. Filed Oct. 15, 1884. (No model.)

Brief.—The cable travels over rollers having plain cylindrical surfaces which turn in spring-supported boxes.



Claim.—1. The friction-roller C for wire cables, formed with a plain cylindrical surface to allow lateral play to the cable, and spring-boxes for supporting the ends of said rollers.

2. The combination of the roller C, boxes B, stands A, and springs E, substantially as described, for use with wire cables, as specified.

319,218. FILE-CUTTING MACHINE. HENRY A. FORD, Philadelphia, Pa. Filed Apr. 3, 1885. (No model.)

Claim.—1. The combination of the frame and chisel of a file-cutting machine with a feed-plate and continuously-revolving frictional feed-rollers, substantially as described.

2. The combination of the frame and chisel of a file-cutting machine with a carriage and feed-plate secured to the carriage by a swivel-joint, as set forth.

3. The combination of the frame and chisel of a file-cutting machine with a feed-plate and feed-rolls, one being adjustable, as and for the purpose set forth.

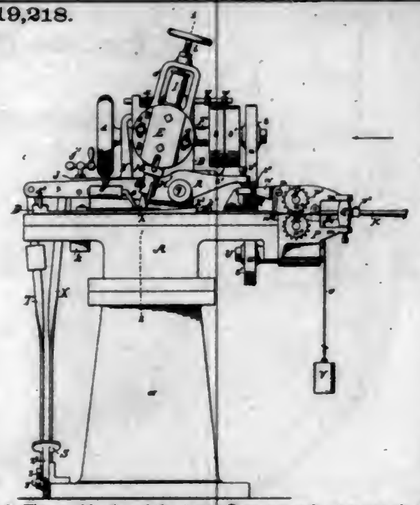
4. The combination of the frame and chisel of a file-cutting machine with a feed-plate and feed-rolls, one of which is adjustable, and a weight, V, substantially as described.

5. The feed-plate of a file-cutting machine having an adjustable stop, w^2, as set forth.

6. The combination of the frame and cutter of a file-cutting machine, the feed-plate, friction-rolls and frame P', shaft *n*, having eccentric n^2, and mechanism for operating the shaft *n* to raise and lower the frame P', substantially as described.

7. The combination of the frame and cutter of a file-cutting machine, the feed-plate, feed-rolls, frame P', shaft *n*, eccentric n^2, arm n', lever R, rod T, and treadle S, as set forth.

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8. The combination of the levers R and *n'* and set-screws *r*², as set forth.

9. The combination, in a file-cutting machine, of the driving-shaft F, pulley *t*, shaft U, pulley *t'*, connecting-belt *u*, worm *u'*, worm-wheel *u*², lower and upper feed-rolls, M N, and gears *u*² *u*², as set forth.

10. In a file-cutting machine, the frame A, having a bracket, P, carrying the lower feed-roll, M, the frame P', hinged to the bracket P and carrying the upper feed-roll, N, and mechanism for raising and lowering said frame P', as set forth.

11. In a file-cutting machine, the frame A, having a bracket, P, carrying a feed-roll, M, the frame P', pivoted to the bracket and carrying a feed-roll, N, arms *m m'* on the bracket and frame, and spring or springs Q, and mechanism for raising the frame P', substantially as described.

12. The combination of the frame and cutter of a file-cutting machine with feed-rollers and feed-plate secured to the carriage, and handle *d*², substantially as described.

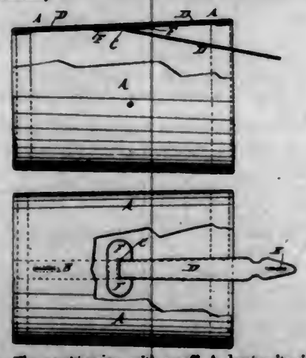
13. The combination of the frame and shaft F of a file-cutting machine with a tool-carrier, an adjustable bar, G, lever *g*, one end of which is operated on by a cam on the shaft F, the other end adapted to lift the tool-carrier, substantially as described.

14. The combination of the frame and shaft F of a file-machine with a vertically-adjustable bar, G, lever *g*, a cam, *f*, on the shaft, the plunger H, recessed to receive an arm of the lever *g*, as set forth.

15. The combination of the frame and shaft F of a file-cutting machine with a bar, G, having a lever, *g*, one end of which is operated by a cam, *f*, the other end acting on the tool-carrier H, a lever, J, pivoted to the frame, and adjusting-screw *j'*, as set forth.

16. The combination of the driving and feed mechanism of a file-cutting machine, the treadle S, rods T X, slotted substantially as described, and levers R and Y, for raising the friction-wheel N and shifting the driving-belt, all arranged and operated substantially as described.

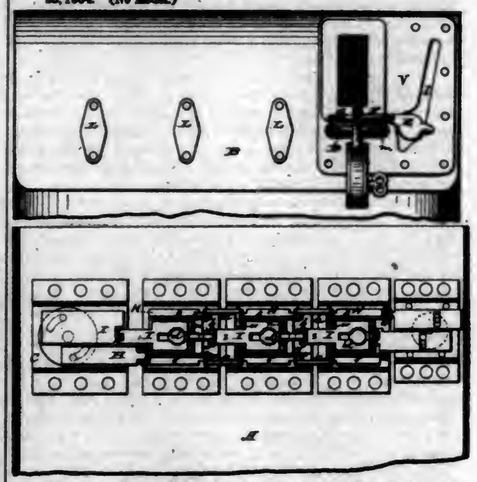
319,219. CUFF. WILLIAM FRANK, New York, N. Y. Filed Feb. 13, 1885. (No model.)



Claim.—1. The combination, with a cuff, A, having its side edges overlapped and sewed to each other, of a tab, D, attached to the inner thickness of the underlapped side midway between the corners, and having its free end projecting at the end of the cuff, and provided with a button-hole, substantially as herein shown and described, whereby the said cuff can be readily put on, secured in place, and taken off, as set forth.

2. A cuff made substantially as herein shown and described, with its overlapped side edges sewed together, tapered from end to end, and provided with a tab attached to the inner thickness of the cuff midway between its ends and projecting at the end of the said cuff, whereby the cuffs can be readily put on, secured in place, and taken off, and can be compactly nested for storage or transportation, as set forth.

319,220. MAIL-BAG. JAMES C. FRANKLIN, Lona, assignor to Henry Stover, Zeeth Hoxie, and Norman Hendryx, Pendleton, Oreg. Filed Oct. 23, 1884. (No model.)



Claim.—1. In a mail-bag fastening, the combination of the catch-studs of the flap with the oppositely-reciprocating series of jointed plates H and I, having key-hole slots turned in opposite directions, the tumbler operating said series of plates and having a looped crank-arm, and the staple D, substantially as specified.

2. In a mail-bag fastening, the combination, with the catch-stud, of the oppositely-reciprocating series of jointed plates H and I, having key-hole slots turned in opposite directions, and means for operating the same, substantially as specified.

3. In a mail-bag fastening, oppositely-reciprocating series of fastening-plates having key-hole slots, in combination with a turning disk or tumbler connected thereto, and a crank-arm of said tumbler having a looped end adapted to fit upon the staple D to receive therewith the hasp of the padlock, substantially as specified.

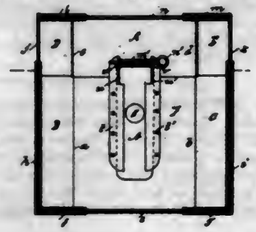
4. In a mail-bag fastening, the jointed plates H, having guides for the jointed plates I, which reciprocate in the opposite direction, substantially as specified.

5. In a mail-bag fastening, the jointed plates H, having laterally-arranged hinge portions and a way between the same, in combination with the jointed plate I, having a centrally-arranged hinge portion at the end of a tongue sliding in said way, substantially as specified.

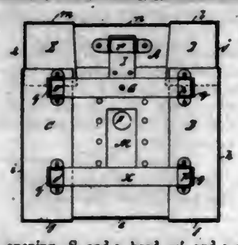
319,221. FIRE-BOARD. MICHAEL GALLAGHER, New York, N. Y. Filed Feb. 16, 1885. (No model.)

Claim.—1. An adjustable fire-board consisting of the top section, A, the side sections, B C, the corner sections, D E, the center piece, F, suitably beaded together, guides secured to the side sections, the guide-bars which engage said guides, the guide secured to the top section, and the guide-bar secured to the center piece and engaging the said guide.

2. The combination of a fire-board having an opening, M, attached guides *t t'*, and perforated lateral projections *u u'*, a slide, N, in the



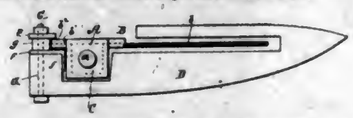
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guides, having an opening, S, and a bead, *m'*, and a ½in, *n'*, passing through the projections, and the bead for supporting the slide, substantially as described.

3. The combination, substantially as hereinbefore described, with the top section, A, the side sections, B C, the corner sections, D E, and the center piece, F, suitably beaded together, of guides secured to the side sections, the guide-bars which engage said guides, the guides secured to the top section, the guide-bars secured to the center piece and engaging said guide, an aperture, M, formed in the fire-board, the adjustable slide N, which covers the aperture, and the opening *s*, formed therein for the reception of the stove-pipe.

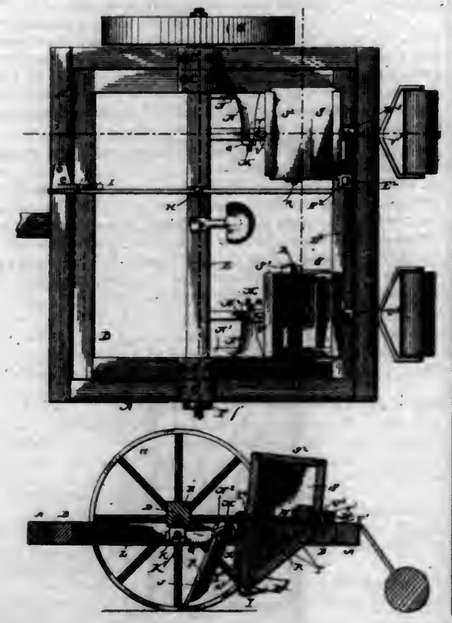
319,222. CUTTING APPARATUS FOR HARVESTERS. CHARLES GALLE, Columbia, Mo. Filed Aug. 4, 1884. (No model.)



Claim.—1. The combination, with the finger-bar, the sickle-bar, the blades having boxes fitted on said bar, and the retaining-nut turned on the sickle-bar, of the wear and lock plate F, removably held to the finger-bar, and having a wing, *f*, depending alongside of and locking the retaining-nut on the sickle-bar, substantially as set forth.

2. In a cutting apparatus, the combination of the finger-bar, the sickle-bar, the sickle-blades having boxes fitted on said bar and provided with rearwardly-projecting flanges *b*², a nut on the sickle-bar, the wear-plate F, having a depending wing fitted alongside of and locking the nut on the sickle-bar, the distance-bar *g*, placed on the finger-bar, the guide-plate E, placed on the distance-bar and projected over the flange *b*² of the sickle-blade, and a fastening-bolt, G, substantially as set forth.

319,223. CORN-PLANTER. JASPER GARNETT, Ruthven, Iowa. Filed Aug. 22, 1884. (No model.)



Claim.—1. The combination, with the oscillating frame A, secured to the axle journaled in the wheels and provided with the curved rack at its front, of the inner oscillating frame provided with the short bolts K and nuts K', the longer bolts M, sleeves N, having arms N', with notches in their upper edges, near their forward ends, the shoulders N² on the inner ends of said sleeves, the plows having their standards provided with holes near their upper ends, and the nuts Q, for securing said standards upon the bolts M against the shouldered ends of the sleeves, substantially as specified.

2. In a corn-planter, the frame provided with laterally-extending bolts K M, in combination with the sleeves carrying the plows and journaled on the bolts M, and arms projecting forwardly from the sleeves and fitting under the bolts K, arranged and operating, whereby when the plow strikes an obstruction the arms will be released from the bolts K and work downward, causing the turning of the sleeves to permit the plow to pass over said obstruction, as set forth.

3. The combination, with the seed-box having the rectangular upper portion and the forwardly-beveled lower portion, and the front and rear opening and the bottom with discharge-opening at the front side, said bottom and openings being above the seed-tubes, of the oscillating seed-slide pivoted upon said bottom, and having its front and rear arms projecting through said front and rear openings, the lever pivoted to the front of the box and connected with the front arm of the seed-slide, and the slotted scatterer pivoted to the front of the seed-box, connected to the lower end of the pivoted lever, and having its blade bent up along the bevel of the box under the seed-tubes, substantially as specified.

4. The combination, with the oscillating frames secured upon the axle, and means, substantially as described, for operating the said frames, the plows secured to the inner frame, the seed-boxes attached to the same near the rear of the plows, scatterers attached to the discharge end of the seed-boxes, coverers, also attached to the seed-boxes, and a packing-roller mounted in the outer frame in rear of the machine, as set forth.

5. In a corn-planter, the combination, with the seed-boxes and their seed disks or slides, of the herein-described scatterer connected to the said disks or slides, so as to be actuated by the movement thereof, as and for the purpose set forth.

6. In a corn-planter, the combination, with the seed-boxes and their seed disks or slides, of levers attached to the latter and pivoted to the boxes, and scatterers connected to the levers, as set forth.

7. In a corn-planter, the combination, with the seed-boxes and their seed disks or slides, of levers connecting with the latter, and scatterers attached to the levers and arranged along the seed-boxes, the lower ends of the scatterers being bent back in the form of a hoe-blade, as set forth.

8. In a corn-planter, the seed-boxes carrying the laterally-working scatterers and adjustable inclined coverers, as and for the purpose set forth.

319,224. AUTOMATIC INSTRUCTOR. WALDO L. GATES, Bayonne, N. J., assignor, by mesne assignments, to the Electric Automatic Instructor Company, Portland, Me. Filed Nov. 24, 1884. (No model.)



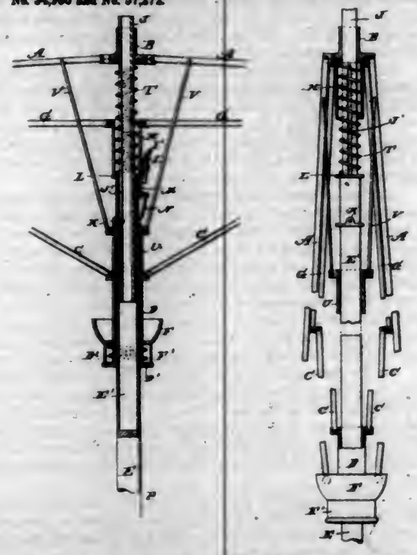
Claim.—1. The board A, carrying questions and answers, in combination with pins or conductors B C, and with wires D, electrically connected thereto, and with the battery M, conductors I K, and bell E, arranged to give intelligent answers to questions, as herein specified.

2. The question-conductors B, in combination with the board A, and means, as J', for locking and thus maintaining the contact of a conductor, as I J, from the battery M, and with such battery and with a connected electric bell or equivalent signaling device, E, and the pins or answer-conductors C, and their several connections I K, and means, as L L', for conveniently making electrical connections with the various answer conductors or pins C, as herein specified.

3. The separate sheets *a*, of paper or other non-conducting material, perforated to correspond with the conductors B C, protruding upward above the surface of the paper, as shown, in combination with the latter and with the board A, carrying questions and answers, and with the connections D, battery M, bell E, and flexible conductors I K, arranged for joint operation, as herein specified.

4. The detachable perforated sheets P, each with one or more flexibly-attached perforated pieces, P² P², in combination with the board A, pins B C, electrical connections D, adapted for joint operation relatively to each other and to the socket-pieces J and L, and suitable connections from each to a battery or source of electrical force, all substantially as herein specified.

319,225. **UMBRELLA.** GIOVANNI GILARDINI, Turin, Italy. Filed June 13, 1884. (No model.) Patented in Italy May 1, 1884, No. 16,784; in England May 13, 1884, No. 7,667; in Germany May 14, 1884; in Belgium May 31, 1884, No. 65,161; in Spain Sept. 10, 1884, No. 4,217; in France Sept. 27, 1884, No. 162,063, and in Austria-Hungary Dec. 12, 1884, No. 34,900 and No. 57,272.



Claim.—1. In an umbrella or parasol, the combination, with the ribs and the usual braces, of braces pivoted to the ribs at or near the same point with the usual braces, and of braces pivoted to the ribs near their upper ends, substantially as herein shown and described.

2. In an umbrella or parasol, the combination, with the stick E, of the sliding tube or rod J, the spring T, the ribs A, the usual braces, C, and the additional braces, G V, substantially as herein shown and described.

3. In an umbrella or parasol, the combination, with the stick E, of the sliding rod or tube J in the end of the same, the ribs A, the usual braces, C, the additional braces, V G, and the spring T, surrounding the sliding rod or tube J and held between the sleeve B and the upper end of the stick, substantially as herein shown and described.

4. In an umbrella or parasol, the combination, with the stick E, of the tube or rod J in one end of the same, the ribs A, the sleeve H, the braces G, pivoted to the sleeve H and to the ribs, the sleeve U and the braces V, pivoted to the upper end of the sleeve U and to the ribs A near their pivoted ends, and of the braces C, pivoted to the sleeve D and to the ribs near or at the same point at which the braces G are pivoted to the ribs, substantially as herein shown and described.

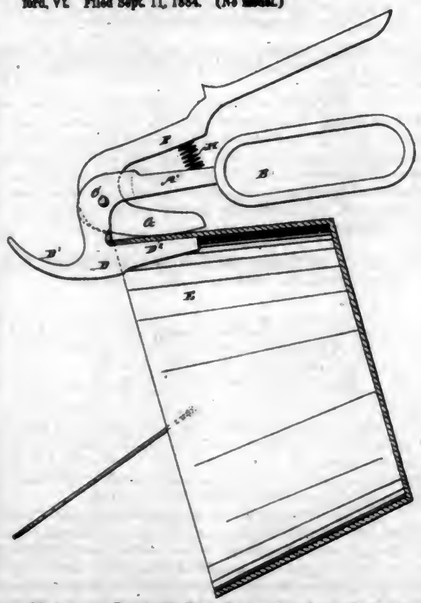
5. In an umbrella or parasol, the combination, with the stick E, having a shoulder or flange, L, at its upper end, of the sliding rod or tube J on the end of the stick, braces A, pivoted to a sleeve, B, on the rod or tube J, the spring T, surrounding the rod or tube J, the sleeve H, having a latch, I, the braces G pivoted to the ribs A and to the sleeve H, the braces V, pivoted to the ribs A near their upper ends and to the sleeve U, and the braces C, pivoted to the ribs and to a sleeve, D, substantially as herein shown and described.

6. In an umbrella or parasol, the combination, with the stick E, having a shoulder or flange, L, at its upper end, of the sliding rod or tube J on the end of the stick, braces A, pivoted to a sleeve, B, on the tube or rod J, the spring T, surrounding the rod or tube J, the sleeve H, having a latch, I, the braces G, pivoted to the ribs A and to the sleeve H, the braces V, pivoted to the ribs A near their upper ends and to the sleeve U, the braces C, pivoted to the ribs and to the sleeve D, the elbow-lever M, pivoted to the stick a short distance below the flange L, and the cord or wire extending from the lever to the handle, substantially as herein shown and described.

7. In an umbrella or parasol, the combination, with the stick E, having a shoulder or flange, L, at its upper end, of the sliding rod or tube J on the end of the stick, braces A, pivoted to a sleeve, B, on the rod or tube J, the sleeve H, having a latch, I, the braces G, pivoted to the ribs A and to the sleeve H, the braces V, pivoted to the ribs A near their upper ends and to the sleeve U, the braces C, pivoted to the ribs and to the sleeve D, the bell-crank lever M, pivoted to the stick a short distance below the flange L, the spring N, the cord or wire P, secured to the same, and the ring R, mounted on the stick at the handle, to which ring R the cord or wire P is secured, substantially as herein shown and described.

8. In an umbrella or parasol, the combination, with the stick E, of the tube or rod J, having a longitudinal slot, J', the screw or pin K, projecting from the stick into the slot J', the spring T, surrounding the tube or rod J, the sleeve B, ribs A, the braces C, the sleeve D, the braces V, the sleeve U, the braces G, the sleeve H, and the latch I, substantially as herein shown and described.

319,226. **DEVICE FOR LIFTING KETTLES.** LUCIUS H. GOFF, Richford, Vt. Filed Sept. 11, 1884. (No model.)



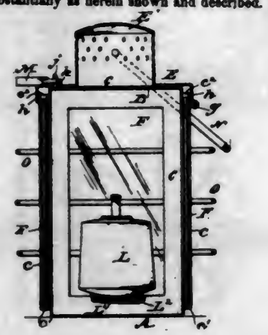
Claim.—1. In a kettle-lifter, the combination, with the lever A, having a hand-loop, B, at one end, bent at right angles at its opposite end, and there provided with a head, D, parallel with the lever, and formed with a flat prong, D^2, and a curved prong, D', of the lever F, having a downward-projecting prong, G, the said levers being pivoted together at their bends, as shown, substantially as set forth.

2. A kettle-lifter consisting in the lever A, having a hand-loop, B, at one end, bent at right angles at its opposite end, and there formed with a head, D, parallel with the lever, and formed with downward-projecting flat prong D^2 and upward-projecting curved prong D', the lever F, curved downward at its outer end to form the prong G, and pivoted at its bend *e* to the bent part C of lever A, and the spring H, interposed between the said levers, substantially as set forth.

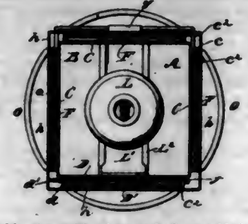
319,227. **LANTERN.** CHARLES W. GOODWIN, New York, N. Y. Filed Jan. 27, 1885. (No model.)

Claim.—1. The lantern herein shown and described, formed or provided with open side frames to receive and hold glass plates or panels, in combination with a top or cover hinged to one of said sides and overlapping the frames and locking device, substantially as described.

2. The combination, with the main frame A B C, the door D, the open frames *c d*, and the glasses D' F, of the cover E, provided with the flange A, substantially as herein shown and described.

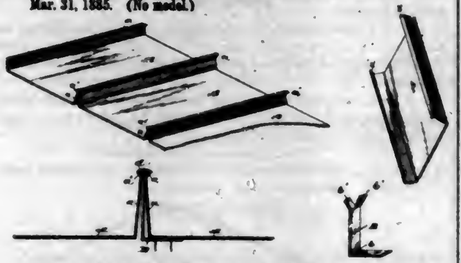


319,227.



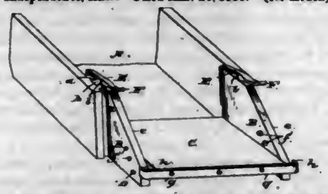
3. The combination, with a lantern-body provided with open frames *d c*, and having a staple secured to its upper portion, of the cover E, provided with the aperture K, substantially as herein described, whereby provision is made for locking the cover in position, as set forth.

319,228. **METAL ROOFING.** BENEDICT GOODMAN, Auburn, Ind. Filed Mar. 31, 1885. (No model.)



Claim.—In metal roofing, metal sheets bent upward along the edges at something less than a right angle, the extreme edges bent farther back, so that two abutting sheets will form a slight trough presenting upward so-called "cleats" consisting of metal strips secured to the roof-boards and extending up between contiguous plates, the cleats preferably slitted at the upper end and the parts bent to conform to the sides of the trough, and the parts secured by soldering in the trough, the solder extending flush with or crowning above the edges of the trough, substantially as set forth.

319,229. **COMBINED END-GATE AND SCOOP-BOARD.** JOHN O. GORDON, Independence, Kans. Filed Mar. 20, 1885. (No model.)



Claim.—The wings or strips having cleats upon their outer sides, a gate pivoted between said wings, a bar connecting the wings and adapted to support the gate when lowered, in combination with guide-cleats secured to the inner sides of the body, spring-catches on said guide-cleats, and a plate or plates, *g*, having bent ends, as shown, and for the purpose set forth.

319,230. **RADIATOR.** JOHN GORMLY, Provo City, Utah. Filed Dec. 11, 1884. (No model.)

Claim.—1. The combination, in a radiator, of the hollow base A and one or more heat-radiating tubes, consisting of a connection, D, having independent passages J K, sheet-metal pipes E F, providing an air-space, *e*, and a space, *f*, for the heating agent, and a cap or head plate, H, closing the space *f*, and having openings I, substantially as herein set forth.

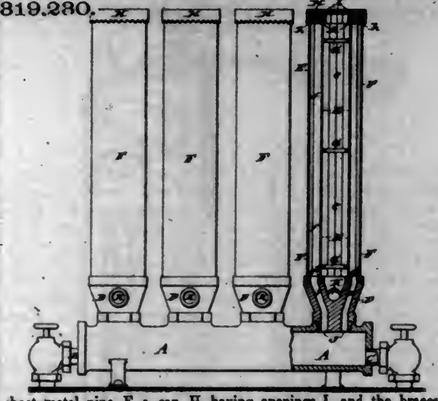
2. The combination, in a radiator, of the hollow base A and one or more heat-radiating tubes, consisting of a connection, D, having independent passages J K, an inner sheet-metal pipe, E, having a corrugated or stellate cross-sectional form, an outer sheet-metal pipe, F, and a cap, H, closing the top of pipe F, and having openings I, substantially as herein set forth.

3. A radiator-tube consisting of a cast-metal base-connection, D, having passages J K, inner corrugated sheet-metal air-pipe, E, outer sheet-metal pipe, F, and a cap, H, having openings I, substantially as herein set forth.

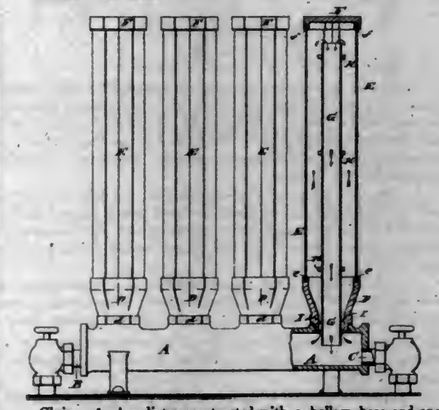
4. A radiator-tube consisting of a cast-metal base-connection, D, having passages J K, inner corrugated sheet-metal air-pipe, E, outer sheet-metal pipe, F, a cap, H, having openings I, and the braces G within the pipe E, substantially as herein set forth.

5. A radiator-tube constructed with an inner sheet-metal air-circulation pipe, and an outer sheet-metal pipe for the heating agent, a cast-metal base-connection, D, having independent passages J K, and a cap, H, having openings I, and said parts D H having grooves *d h*, respectively, to receive the ends of the sheet-metal pipes, substantially as herein set forth.

319,230.



319,231. **RADIATOR.** JOHN GORMLY, Provo City, Utah. Filed Dec. 11, 1884. (No model.)



Claim.—1. A radiator constructed with a hollow base and one or more sheet-metal radiating-tubes attached to the base by detachable hollow cast-metal connections, and having caps at their upper ends, substantially as herein set forth.

2. A radiator constructed with a hollow base, A, and one or more sheet-metal tubes, E, attached to the base by removable cast-metal connections D, and having closed caps F, and said tubes E having a corrugated or stellate construction, substantially as herein set forth.

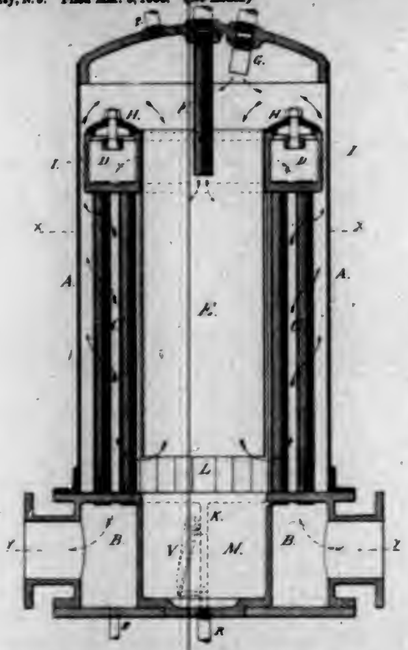
3. A radiator constructed with a hollow base, A, and one or more sheet-metal tubes, E, attached to the base by removable cast-metal connections, D, and having caps F, and with interior tubes, G, fitted in the tubes E, substantially as herein set forth.

4. A radiator constructed with a hollow base, A, and one or more sheet-metal radiating-tubes, E, attached to the base by removable cast-metal connections D, and having caps F, said tubes E having a corrugated or stellate cross-sectional form, and being fitted with interior tubes, G, held to tubes E by braces H, and with their upper ends below the cap, and their lower ends projecting into the base A, substantially as herein set forth.

5. A radiator-tube constructed with a sheet-metal body portion, a removable cast-metal base-connection, D, a cast-metal cap, F, and an interior sheet-metal tube, G, substantially as herein set forth.

6. A radiator-tube constructed with sheet-metal body portion having a corrugated or stellate cross-sectional form, an interior sheet-metal tube, G, held to tube E by braces H, and a cast-metal base-connection, D, and cap F, having grooves *e f*, into which the ends of tube E are made fast, substantially as set forth.

319,232. FEED-WATER HEATER. AUGUSTE A. GOUBERT, Jersey City, N. J. Filed Mar. 5, 1885. (No model.)



Claim.—1. In a feed-water heater, the combination, with a water-chamber, of a set of heating-tubes, a central vertical channel separated from the heating-surface by a tubular shield, all contained within the said water-chamber, and a passage for the water between the lower part of the shield and the bottom of the water-chamber, substantially as and for the purposes herein specified.

2. The combination, in a feed-water heater, of a water-chamber, a set of heating-tubes therein contained, a central vertical channel for the downward flow of the water, and a cold-water-inlet pipe arranged to discharge into the center of the said channel, as and for the purposes herein specified.

3. In a feed-water heater, the combination of a water-chamber, a set of heating-tubes therein contained, a central vertical channel separated from the heating-surface by a tubular shield, a passage for the water between the bottom of the shield and the lower tube-sheet, and a settling and separating well placed below the said passage, substantially as set forth.

4. The combination, in a feed-water heater, substantially as herein described, of the water-chamber A, the divided steam-chamber B, the tubes C, the annular steam-chamber D, the annular passage I, the circulation-pipe E, and the passage L, all arranged to act substantially as herein specified.

5. In a feed-water heater in which the steam travels inside of a set of heating-tubes, the combination of the steam inlet and outlet pipes with a relief valve or valves placed between the said inlet and outlet pipes, and forming, when open, a communication between the two, substantially as set forth.

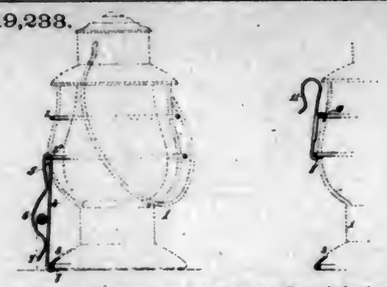
6. The combination, in a feed-water heater, of a water-chamber containing heating-tubes, a steam-chamber divided by a partition into two compartments, the steam being admitted to the tubes through one of these compartments and passing out through the other, and a relief valve or valves placed in the said partition, and forming, when opened, a communication between the said compartments, as set forth.

7. In a feed-water heater, substantially as herein described, the combination of the tubes C, the annular steam-chamber D, and the hand-holes and hand-hole plates H, substantially as and for the purposes herein specified.

319,233. DEVICE FOR ATTACHING LANTERNS TO CARS, CARRIAGES, &c. MILTON E. GREEN, Hartford, Conn., assignor to Mrs. Francis Louisa Green, same place. Filed Mar. 10, 1885. (No model.)

Claim.—1. A holder for lanterns, consisting of a metallic strip having an upper eye or hook, and a lower step for securing it to the wire guards or a guard and base-piece of the lantern, and provided with a hook, substantially as described.

319,233.

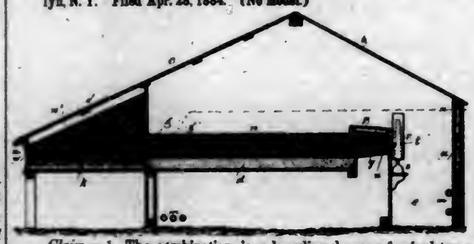


2. A holder for lanterns, composed of a metallic strip having an eye or hook and a step, whereby it is secured to the lantern, and provided with an open hook above, and a lower elastic fastening-hook, substantially as described.

3. In a lantern-holder, the combination, with a lantern having the wire guards 2 and 2a, and the base-piece 3, of a holder having a hook, 10, and a step, 8, and carrying an elastic fastening-hook, 6, substantially as described.

4. In a lantern-holder, the combination, with the holder having attaching devices 8 and 10, of the upper hook, 11, and the lower elastic fastening-hook, 6, substantially as described.

319,234. BROODING-HOUSE FOR CHICKENS. JOHN GREGOR, Brooklyn, N. Y. Filed Apr. 23, 1884. (No model.)



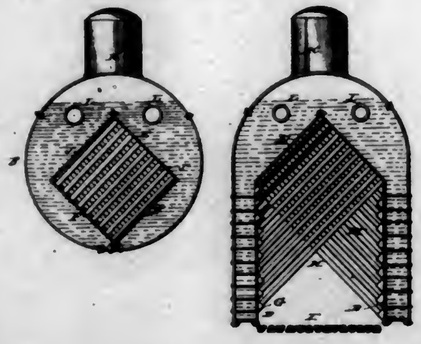
Claim.—1. The combination, in a brooding-house, of raised trays *d*, separated to form passages *f*, and passages *e*, formed between the sides of the building and ends of trays *d*, with partitions *g* and trays *k*, the trays *d* and *k* communicating, as set forth.

2. The tray *k*, containing chaff and sand or similar loose material, adapted to receive the feed, and the tray *d*, in combination with the partition *g*, separating the tray *k* from the tray *d*, and having openings in such partition, the brooder at the inner end of the tray *d*, and the inclosing building and glass roof, the main portion of the building being provided with means for artificial heating, substantially as and for the purposes set forth.

3. The combination, with the tray *d* and the inclined bed *q*, of a brooder having a hot-water vessel with an inclined under surface, the tassel-shields, and the netting partition at *t*, as and for the purposes specified.

4. The long tables or trays divided up longitudinally by fences into runs for the chickens, in combination with brooders at the inner ends of the tables, a partition, *g*, with an opening in it, and an inclosed feeding-place outside the partition, substantially as set forth.

319,235. STEAM-GENERATOR. WILHELM A. GRÖNDAHL, Portland Oreg. Filed Nov. 20, 1884. (No model.)



Claim.—1. In a steam-generator, the combination, with a boiler having an inverted-V-shaped or angular crown-sheet, an extension of which extends throughout the length of the boiler, and a V-shaped sheet or plate connected with the rearward extension of the crown-sheet, of two sets or series of inclined water-tubes connecting the said crown-sheet and its rearward extension with the inner sides of the water-legs and with the said V-shaped plate, substantially as and for the purpose set forth.

2. In a steam-generator, the combination of a boiler having an inverted-V-shaped crown-sheet provided with a rearward extension, as described, and a V-shaped plate extending rearwardly from the fire-box and joined with the rearward extension of the crown-sheet, with the two sets or series of water-tubes crossing each other, as described, and the return fire-flues, substantially as and for the purpose set forth.

319,236. TOOTH-CROWN. CHAS. P. GROUT, New York, N. Y. Filed Nov. 3, 1884. (No model.)



Claim.—An artificial tooth-crown or portion thereof composed of a compound plate of gold and iridium-platina, substantially as and for the purpose herein described.

319,237. DENTAL TOOL FOR PREPARING ROOTS FOR CROWNS. CHAS. P. GROUT, New York, N. Y. Filed Feb. 4, 1885. (No model.)



Claim.—1. The combination, with a facing-cutter, *c*, of the guard therefor, within which the cutter may rotate, and which is cut away at the side to expose the cutter to the depth which it is desired to cut, substantially as herein described.

2. The combination, with a facing-cutter, *c*, of a guard therefor, within which the cutter may rotate, and which is cut away at the side to expose the cutter, and has at the end a bearing to which the end of the cutter is fitted, substantially as herein described.

3. The combination, with a facing-cutter, *c*, of a guard therefor, within which the cutter may rotate, and which is cut away at the side to form a concave surface beyond which the cutter is exposed, substantially as herein described.

4. The combination, with a facing-cutter, *c*, of a guard therefor, within which the cutter may rotate, and which is cut away at opposite sides to form a concave surface and a straight surface, beyond both of which the cutter is exposed, substantially as herein described.

5. The combination, with a facing-cutter, *c*, having a neck of reduced diameter, of a collar loose on said neck and a guard for the cutter secured upon said collar and cut away at the side to expose the cutter, substantially as herein described.

6. The combination, with a facing-cutter, *c*, and a shank, *b*a, having a socket, within which the plain end of the cutter is removably secured, of a collar, *c*a, on the cutter, a solid collar or sleeve fitting loosely between the collar and end of the shank, and a guard secured on the collar or sleeve and cut away at the side to expose the cutter, substantially as herein described.

7. The combination, with a facing-cutter, *c*, and a guard therefor, within which the cutter may rotate, and which is cut away at the side to expose the cutter, the guard having a laterally-projecting arm, of a pin or peg adapted to enter a socket in a tooth-root and forked to receive said arm and prevent the guard from turning with the cutter, substantially as herein described.

8. The combination, with a facing-cutter, *c*, and a guard therefor, within which the cutter may turn, and which has a lip or projection, A', of a pin or peg to enter a socket in a tooth-root, and which is surmounted by a plate or flange, along which the said lip or projection may be traversed to guide the tool, substantially as herein described.

319,238. METHOD OF APPLYING METALLIC TOOTH-CROWNS. CHAS. P. GROUT, New York, N. Y. Filed Apr. 7, 1885. (No model.)

Claim.—1. The method of obtaining a metallic fac-simile of tooth roots or stumps on which to fit metallic tooth-crowns, consisting in trimming or shaping the natural tooth roots or stumps to the desired form; in then enveloping such roots or stumps in soft metal, which is forced down below the free margin of the gum; in then taking a plaster impression of the natural roots or stumps with the soft metal in place, and removing the plaster impression and soft metal from the mouth, and in finally casting from this impression and soft metal a metallic fac-simile having projections which correspond to the form of the natural roots or stumps, substantially as and for the purpose herein described.

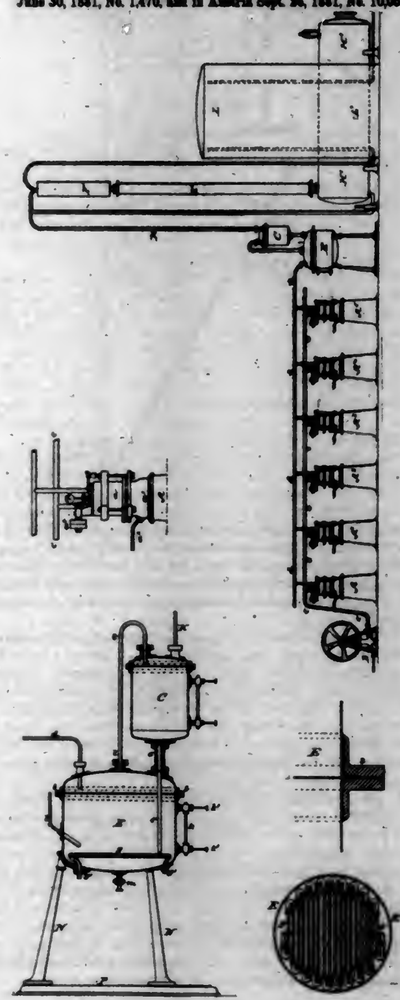
2. The method of obtaining a metal fac-simile of natural tooth roots or stumps on which to fit metallic tooth-crowns, consisting in trimming or shaping the natural roots or stumps to the desired form, and forming in them pin holes or sockets; in then applying soft-metal tubes to the roots or stumps and pressing them down below the free margin of the gum; in inserting pins in the holes or sockets; in then taking a plaster impression of the natural roots or stumps and the soft-metal tubes and pins; in then removing the plaster impression, with the soft-metal tubes and pins, from the mouth, and in finally casting from this impression, with its tubes and pins, a metal fac-simile having projections in which are holes or sockets, and which correspond in form to the natural roots or stumps, substantially as and for the purpose herein described.

3. A metallic fac-simile on which to fit metallic tooth-crowns, having upon it projections provided with grooves at their bases, and corresponding in form to the natural tooth roots or stumps, substantially as and for the purpose herein described.

319,238.



319,239. APPARATUS FOR MAKING SULPHO-CYANIDES. URY DE GÜRENNE and JOSEPH TOURNIAIRE, Paris, France. Filed Dec. 26, 1883. (No model.) Patented in France Dec. 24, 1880, No. 140,327; in Belgium Mar. 19, 1881, No. 54,158; in Italy Mar. 31, 1881, No. 12,733; in England Mar. 22, 1881, No. 1,261; in Germany Apr. 10, 1881, No. 18,005; in Spain June 30, 1881, No. 1,470, and in Austria Sept. 26, 1881, No. 10,053.



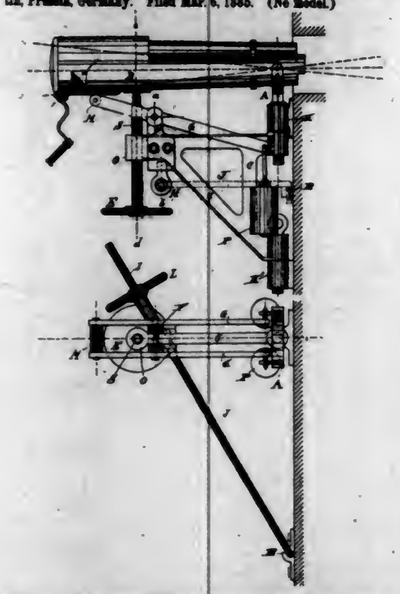
Claim.—The herein-described apparatus for making sulpho-cyanide of ammonia, said apparatus consisting of a pump, B, heating and mixing vessels A A', &c., still E, separator C, condenser, receiver, and gas-holder, all substantially as specified.

319,240. BINDER FOR ROLLER-COUPLINGS. SAMUEL M. GUSS, Reading, Pa., assignor of one-half to Jacob S. Ammon, same place. Filed Apr. 9, 1885. (No model.)



Claim.—As an improved construction of binders for roll-coupling stretchers, a continuous metallic spiral-spring coil of suitable diameter and length, secured in place by compressive and tensional strain by a snap-hook and swivel-eye, or their equivalent, substantially as described, and for the purpose set forth.

319,241. CARRIAGE FOR MACHINE-GUNS. RUDOLPH HAACK, Stettin, Prussia, Germany. Filed Mar. 6, 1885. (No model.)



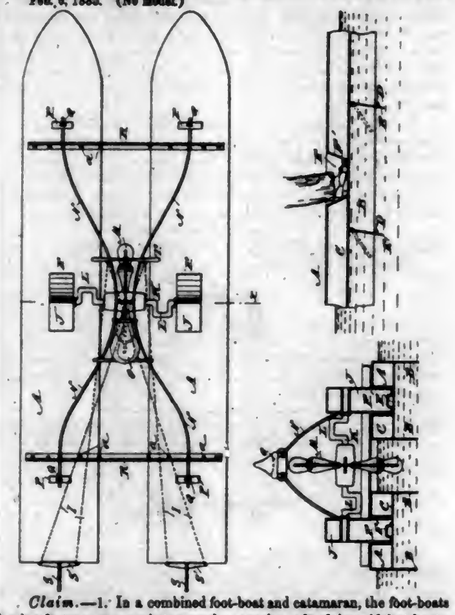
Claim.—1. The combination of the upper and lower eyes, K K', and their supports with the muzzle-supporting fork A, having a depending stem projecting through the upper eye, and the carriage C, pivoted at its top portion upon the projecting end of the stem of the fork, and at its bottom portion pivotally connected with the lower eye, substantially as described.

2. The combination of the upper and lower eyes, K K', and their supports with the muzzle and supporting-fork A, having a depending stem projecting through the upper eye, the gun-carriage C, pivoted at its top portion upon the stem of the fork, and at its bottom portion pivotally connected with the lower eye, the rotating and swiveling nut H at the rear portion of the carriage, the loop R, secured at one side of the pivotal points of the carriage and independent of the latter, and the rod J, connected with the loop, and having a screw-threaded end engaging the nut, substantially as described.

3. The combination of the upper and lower eyes, K K', the carriage C, pivoted to said eyes to swing in a horizontal plane, a support carried by the upper eye for sustaining the muzzle of the gun, the levers G, pivotally supported above the carriage, and counterbalance-weights B, suspended from the forward ends of the levers for throwing their rearward ends against the breech of the gun, substantially as described.

4. The combination of a carriage, C, pivoted to swing in a horizontal plane, a rotating and swiveling nut, H, at the rear portion of the carriage, a loop, R, at one side of the pivotal point of the carriage and independent of the latter, and a rod, J, connected to the loop and having a screw-threaded end engaging the nut, substantially as described.

319,242. FOOT-BOAT. SIVERT HAGEN, New Brighton, N. Y. Filed Feb. 6, 1885. (No model.)

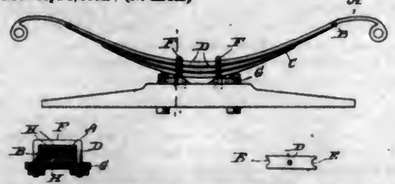


Claim.—1. In a combined foot-boat and catamaran, the foot-boats having foot-recesses, pockets near the opposite ends of the said foot-boats, and set-screws, the removable frames fitting in said foot-recesses, the operating mechanism secured thereto, and the removable longitudinal rods united at or near their centers by a seat-frame, and having their ends secured in the pockets by the set-screws.

2. In a combined catamaran and foot-boat, the combination, with the foot-boats, a removable operating mechanism connecting them, of the longitudinal bars connected at or near their centers by a seat-frame and removably connected at their ends to the opposite ends of the foot-boats, and bars connecting said longitudinal rods near their ends, said bars having a series of perforations, through which said rods may be passed for adjusting the distance between said boats, substantially as set forth.

3. The combined foot-boat and catamaran consisting in the foot-boats A A, having rudders S, foot-recesses F, and pockets P at opposite ends of the boats, provided with set-screws Q, the removable frames J, fitting within the foot-recesses, crank-axle K L, connecting said frames and paddle-wheel on said axle, the longitudinal rods N N, seat-frame O, and steering-lever T at the central parts of said rods, connecting cords or chains I between the rudders and steering-lever, and the perforated bars R at opposite ends of the rods N, for adjusting the distance between the boats, substantially as set forth.

319,243. VEHICLE-SPRING. GEORGE B. HAMLIN, Willimantic, Conn. Filed Sept. 1, 1884. (No model.)



Claim.—1. A spring for vehicles, composed of two or more leaves arranged one above the other, and with their central portions separated from each other by yokes, as described, placed between the leaves, on each side of the center thereof, whereby an independent resiliency is had at said central portions, and the extremities permitted to slide or play freely along the surface of the next succeeding leaf, substantially as set forth.

2. The plates and yokes constructed with teats on their upper faces, in combination with the leaves of the spring having corresponding depressions, and means for securing said parts together, substantially as shown and described.

319,244. REIN-HOLDER. THOMAS W. HAMMOND and MARTIN D. QUAID, Denver, Colo. Filed Apr. 6, 1885. (No model.)

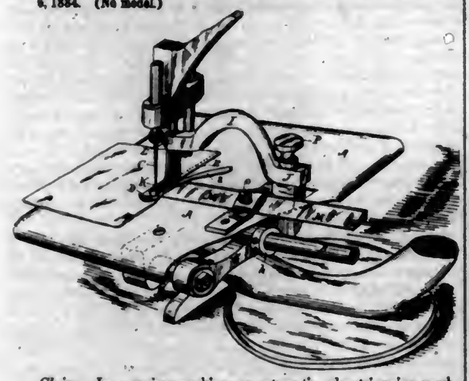
319,244.



Claim.—1. In a rein-holder of the described class, the combination of the jaw-containing hollow box or casting, a pair of jaws or bolts inserted into said hollow box, one on each side, and confined in their respective recesses, so as to slide in a vertical plane only, and a pair of springs adapted to force the jaws or bolts toward each other in a vertical plane, substantially as and for the purpose shown and specified.

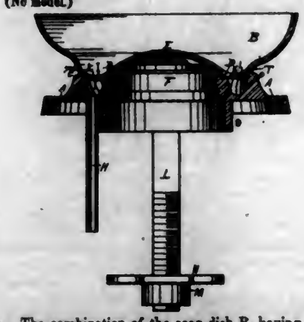
2. In a rein-holder, the combination of two casings secured upon the dash and having longitudinal slots in their inner or facing edges, two bolts projecting with their facing sides or edges through the said slots, and having free play in a vertical plane within said casings, and having straight inner edges or sides, and two curved springs bearing with their curved portion against the middle of the inner sides or edges of the said bolts, substantially as and for the purpose set forth.

319,245. TRIMMING ATTACHMENT FOR SEWING-MACHINES. CHARLES F. HARLOW and EDWIN E. ANGELL, Malden, Mass. Filed Aug. 6, 1884. (No model.)



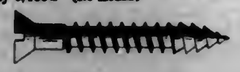
Claim.—In a sewing-machine, an automatic edge-trimming mechanism consisting of the lever G, pivoted at one end and actuated by a cam on the shaft B, with the adjustable arm I, carrying the movable cutter K, in combination with a stationary blade, M, adjustable toward and from the needle, substantially as and for the purpose set forth.

319,246. SOAP-DISH. HENRY C. HART, Detroit, Mich. Filed Mar. 6, 1885. (No model.)



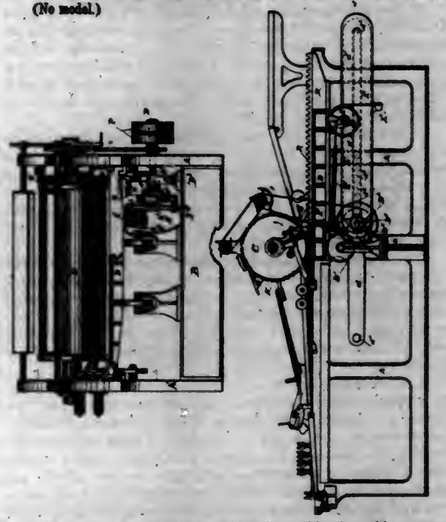
Claim.—The combination of the soap-dish B, having the holes K therein, with the plate A, having therein the chamber I and the waste-pipe H, said soap-dish being removably secured to said plate, substantially as and for the purposes set forth.

319,247. ROLLED WOOD-SCREW. HAYWARD A. HARVEY, Orange, N. J. Filed May 6, 1884. (No model.)



Claim.—A pointed rolled wood-screw having a thread of uniform pitch, the convolutions of which upon and near its pointed end vary in thickness or shape in cross-section from the convolutions upon the adjoining portion of its body.

319,248. MECHANISM FOR OPERATING BEDS OF PRINTING-MACHINES. JOHN T. HAWKINS, Taunton, Mass. Filed Apr. 23, 1884. (No model.)

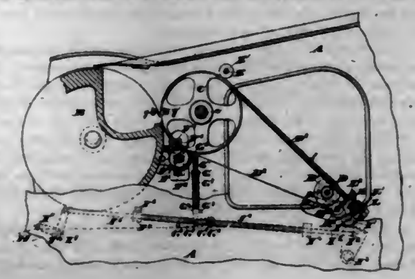


Claim.—1. In a printing-machine, in combination with a reciprocating type-bed and actuating the same, an endless rack, as *d*, connected to said bed by a pivotal attachment and vibrating in a vertical plane on said attachment, and a driving-shaft running in fixed bearings, as D^2, carrying a pinion, as D^4, engaging said rack, all located and arranged so that said rack shall vibrate in a vertical plane, substantially as and for the purposes set forth.

2. In a printing-machine, in combination with a type-bed, an endless rack oscillating in a vertical plane about a pivotal attachment to said bed, a spring, as A^7, secured at one end to the said bed and at the other end to a strap or belt, as A^6, secured to and enwrapping an eccentrical or involute pulley, as A^5, so shaped and proportioned as to compensate the varying tension of said spring, a pulley, as A^3, secured to a shaft, as A', journaled in a bracket, as h, secured to said bed, and a belt or strap, as A^4, having one end secured to and enwrapping said pulley and its other end secured to said rack, all arranged and operating substantially as and for the purpose set forth.

3. In a printing-machine, in combination with a reciprocating type-bed, an oscillating endless rack vibrating in a vertical plane about a pivotal attachment to said bed, a pinion, as D^4, secured to a driving-shaft, as D^2, running in fixed bearings and engaging said rack, and means for counterbalancing the overhung weight of said rack, consisting of a spring, as A^7, a shaft, as A', journaled, as at h, in bearings secured to an eccentric or involute pulley, as A^5, secured to said shaft, a strap or belt, as A^6, secured at one end to said spring and at the other end to and enwrapping said eccentric or involute pulley, and a strap or belt, as A^4, attached at one end to the said endless rack and at the other end to and enwrapping a pulley, as h^3, also secured upon the shaft, the whole operating substantially as and for the purposes set forth.

319,249. SHEET-DELIVERY MECHANISM FOR PRINTING-PRESSES. JOHN T. HAWKINS, Taunton, Mass. Filed July 7, 1884. (No model.)



Claim.—1. In a printing-press in which the sheets are delivered by means of a delivery cylinder or cylinders, as C, which take the sheets from the impression-cylinder by means of grippers, as *g'*, a cleansing and absorbent rotary pad or roller, as F^4, held in contact with said delivery cylinder or cylinders and automatically moved endwise for the purpose of cleansing and keeping the same clean, substantially as set forth.

2. In a printing-press in which the sheets are delivered by means of a delivery cylinder or cylinders, as C, which take the sheets from the impression-cylinder by means of grippers, as *g'*, in combination with said cylinder or cylinders and tapes D^2, a cleansing and absorbing rotary pad or roller, as F^4, automatically moved endwise to present a new, unsoiled, or dried surface in contact with said cylinder, and tapes for the delivery of each sheet, substantially as set forth.

3. In a printing-press in which the sheets are delivered by means of a delivery cylinder or cylinders, as C, and tapes or cords, as D^2, in combination with said cylinders and tapes, a cleansing and absorbent pad or roller, as F^4, held in contact with said delivery cylinder or cylinders and with said tapes or cords, and automatically moved to present a new, unsoiled, or dried surface in contact with the same for the delivery of each sheet, substantially as set forth.

4. In a printing-press, in combination with its delivery mechanism as part thereof, a series of oscillating and rotating fly-fingers coming in contact with the freshly-printed sides of the sheets, whereby an unsoiled surface of said fly-fingers is presented to each succeeding sheet, or a surface upon which the ink shall have had sufficient time to become dried before said surface is presented to a succeeding sheet, substantially as set forth.

5. In a printing-press in which the sheets are delivered by means of a delivery cylinder or cylinders, as C, and cords or tapes, as D^2, a cleansing or absorbent pad or roller, as F^4, held in contact with said delivery cylinder or cylinders and with said tapes or cords, and automatically moved for each sheet, so as to present a new and unsoiled or dried surface in contact with said delivery cylinder or cylinders and with said tapes or cords, in combination with a series of oscillating fly-fingers, as *f*, automatically and slightly rotated, so as to present to each sheet an unsoiled or dried surface, whereby a clean delivery of said sheets is insured, substantially as set forth.

319,250. CAR-COUPLING. JAMES H. HAYES, FARGO, MINN. Filed Mar. 24, 1885. (No model.)

Claim.—1. A link-bearing draw-head the interior chamber or cavity of which is tapered continuously from end to end thereof on both its upper and its lower surface, and which is provided at its extreme outer portion with a spring which rests upon the bottom of the cavity, is disconnected from the sides and from the top of the cavity, and terminates upwardly at about the mid-height of the cavity, and which is adapted, as described, to support the coupling-link in a horizontal position midway between the top and bottom of the cavity.

2. The combination of a link-bearing draw-head the interior chamber or cavity of which is tapered from end to end thereof on both its upper and its lower surface, and which is provided at its extreme outer portion with a spring which, as described, supports the link at a point about midway between the top and the bottom of the cavity, with a draw-head which is provided with an interior slidable tripping-block which has lateral arms, and which is actuated by springs which are exterior to the inner cavity of such draw-head.

3. A draw-head, a link within the draw-head, a spring beneath the outer portion of the link and directly at the mouth of the cavity in the draw-head, an oppositely-placed draw-head, a slidable tripping-block within such draw-head, longitudinal openings or guide-slots in the side walls of such draw-head, lateral arms which project from the rear portion of the tripping-block, which extend through the guide-slots, and which, in the outer adjustment of the tripping-block, bear against the outer end of the guide-slots, and springs which connect the outer extremity of the arms with the outer end of such oppositely-placed draw-head, all in combination substantially as described.

4. The combination, in a draw-head, of an interior slidable tripping-block, longitudinal perforations or guide-slots in the side walls of such draw-head, arms upon the tripping-block which project outwardly through the longitudinal perforations or guide-slots, a recess which extends longitudinally along each side of the draw-head from the front extremity of the longitudinal perforation to a point near the outer end of the draw-head, and springs which are received within the recess and extend from end to end of the same, and which at one end are connected to the arms upon the tripping-block, and which at the opposite end are connected to the outer extremity of the draw-head.

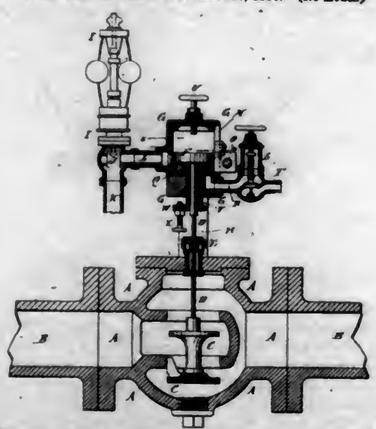
5. The combination, with a railway-car, of a draw-head which carries a slidable tripping-block, a standard which carries a pivoted lever, a coupling-pin which is connected by its chain to the pivoted lever, and a locking-bolt upon such lever and slidable lengthwise along the same, whereby the lever is adjusted in such position as will permit the coupling-pin to be dropped into engagement with the coupling-link and with the vertical perforations in the body of the draw-head, substantially as described.

6. The combination, in a railway-car, of a draw-head, a guard or sheath upon the draw-head, a coupling-pin within the guard or sheath, a tripping-block to support the coupling-pin, a standard upon the roof of the car, an arm upon the standard, a recess upon the arm, a lever pivoted upon the arm, a bolt slidable upon the lever and adapted to engage with the recess upon the arm, and a chain which is connected to the outer end of the lever and to the upper end of the coupling-pin, whereby the lever may be either so adjusted that the coupling-pin may descend to its coupling position through the action of the coupling-link upon the tripping-block alone, or so adjusted that the coupling-pin cannot descend to its coupling position.

7. The combination, in a railway-car, of a link-receiving draw-head, a guard or sheath upon the draw-head, a coupling-pin adapted to the guard or sheath, a tripping-block within the link-receiving draw-head, a vertical standard upon the top of the car, an arm which projects horizontally from the side of the standard toward the side of the car, a lever the outer extremity of which projects over the space at the end of the car to a point directly or nearly directly above the guard or sheath, pivoted upon the arm, a bolt which is secured to the lever and is slidable along the same, and is adapted to engage with the recess upon the arm, and a chain which is connected to the outer end of the lever and to the upper end of the coupling-pin, whereby when the inner end of the lever is elevated the bolt will be locked in engagement with the recess in the lateral arm, and the coupling-pin will be in such relation to the lever and the chain that it will descend to its coupling position when the tripping-block is moved inwardly.

8. The combination, with a link-bearing draw-head, the cavity or passage of which diminishes above and below in vertical dimensions from its outer to its inner extremity, and forming at such inner extremity and at the mid-height of the draw-head a seat of only such vertical extent as will permit the reception of the coupling-link, of a spring at the bottom of the outer extremity of such cavity, and a link which is adapted to fit the seat at the inner extremity of such cavity, and which rests by its outer portion upon the spring at the bottom of the outer extremity of the cavity.

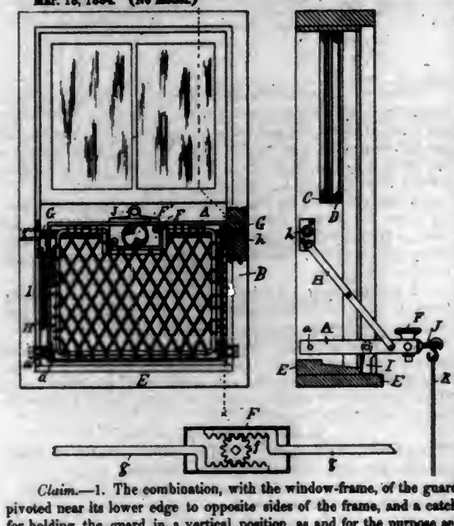
319,251. SPEED-GOVERNOR FOR STEAM-ENGINES. EBENEZER HILL, South Norwalk, Conn. Filed Mar. 16, 1885. (No model.)



Claim.—1. In a speed-governor for steam-engines, the ball-governor I, connected with the engine, and with a pipe, K, leading to a reservoir for fluid under pressure, and provided with a valve, J, opened by the spread of the governor-balls, in combination with the cylinder G, connected with the pipe K, and having side slot, M, and the piston F, connected with the stem D of a throttle-valve, A C, substantially as herein shown and described, whereby provision is made for the escape of the fluid below the piston when pressure is applied to the lower side of the said piston, and permitting a change of speed in the engine to cause a fluid to act on the said piston to move a throttle-valve, and thus regulate the speed of the engine, as set forth.

2. In a speed-governor for steam-engines, the combination, with the cylinder G, provided with a piston, F, connected with the stem D of a throttle-valve, A C, of a second piston, Q, and a safety-valve, S, connected with the compression-chamber of an air-compressor, substantially as herein shown and described, whereby an excess of pressure in said compression-chamber will raise the said pistons and close the said throttle-valve to check the speed of the engine, as set forth.

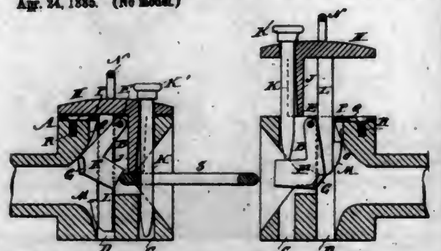
319,252. WINDOW-GUARD. WILLIAM HIRSE, Newark, N. J. Filed Mar. 18, 1884. (No model.)



Claim.—1. The combination, with the window-frame, of the guard pivoted near its lower edge to opposite sides of the frame, and a catch for holding the guard in a vertical position, as and for the purpose set forth.

2. The combination, with the window-frame, of the guard pivoted near its lower edge to opposite sides of the frame, and jointed links H, pivoted to the frame and guard to sustain it in such position, as and for the purpose set forth.

319,253. CAR-COUPLING. GEO. W. HOOVER, Kaithsburg, Ill. Filed Apr. 24, 1885. (No model.)



Claim.—1. The combination, with the draw-head A, of the top plate, H, having the downwardly-projecting bars L, the angle-piece F, pivoted in the draw-head and having the side lugs, G, at the angle, substantially as herein shown and described.

2. The combination, with the draw-head A, of the top plate, H, having the downwardly-projecting bars L, provided with lugs M, and the pivoted angle-piece F, having side lugs, G, substantially as herein shown and described.

3. The combination, with the draw-head A, of the top plate, H, having the downwardly-projecting bars L, provided with lugs M, the plate P, and the angle-piece F, having lugs G, substantially as herein shown and described.

4. The combination, with the draw-head A, having the recess B and grooves O, of the top plate, H, the bars L, having lugs M, the top plate, P, and the angle-piece F, having lugs G, substantially as herein shown and described.

5. The combination, with the draw-head having the recess B and apertures C D, of the top plate, H, having the downwardly-projecting lug J and the downwardly-projecting bars L, the angle-piece F, having side lugs, G, and of the coupling-pin, K, substantially as herein shown and described.

6. In a car-coupling, the top plate, H, having the downwardly-projecting lug J, the downwardly-projecting bars L, and a pin-aperture in front of the lug J, substantially as herein shown and described.

319,254. CORN-PLANTER. HARLAN S. HOWARD, Charles City, Iowa. Filed Jan. 24, 1885. (No model.)



Claim.—1. A dropping mechanism consisting of a perforated plate having radial arms and a central convexity, and a bearing-plate with a corresponding convexity, in combination with a supporting wheel or wheels having a series of stops engaging with the radial arms, substantially as and for the purpose specified.

2. A dropping mechanism consisting of a perforated plate having radial arms and a central convexity, a bearing-plate with a corresponding convexity, and a covering-plate concaved toward a central opening, substantially as and for the purpose specified.

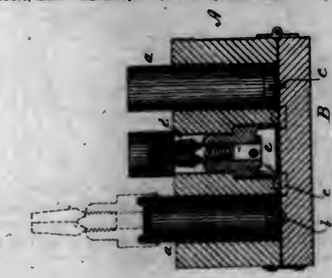
3. The combination, with rimless wheels having markers at the ends of the spokes, and also a series of stops, of a dropping mechanism consisting of a perforated plate with a central convexity forming a pivotal bearing therefor, said plate also having a series of radial arms, substantially as and for the purpose specified.

4. The combination, with rimless wheels having series of stops thereon, of a dropping mechanism consisting of a pivoted and perforated plate provided with radial arms, and a planting mechanism consisting of a valve within the hollow standard of an opening-plow, said valve operated by a slotted lever, the parts operating substantially as and for the purpose specified.

5. The combination, with rimless wheels having series of stops on the spokes and at proper intervals markers at the end thereof, of a dropping mechanism consisting of a perforated plate with radial arms and a central convexity, a plate with a perforation and a central bulge or convexity, and a concave plate with a central opening, and a planting mechanism consisting of a hollow standard-plow, said standard provided with a valve at the end of a lever, which is operated by a lever contacting with one of the series of stops on the wheel, substantially as and for the purpose specified.

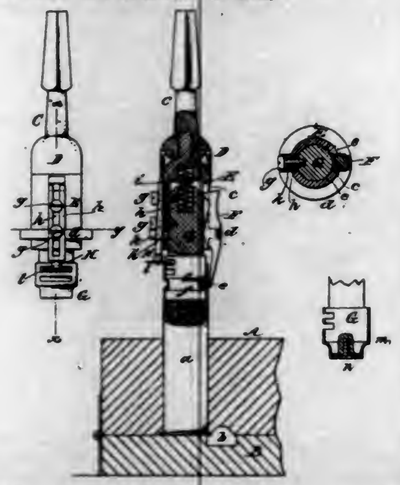
6. A dropping mechanism consisting of a perforated plate having radial arms and a central convexity, and a bearing-plate with a corresponding convexity, substantially as and for the purpose specified.

319,255. CARTRIDGE-LOADING BOARD. HENRY W. HOWE, Lawrence, Kans. Filed Sept. 30, 1884. (No model.)



Claim.—The combination, in a loading-board of the character described, with the board A, having holes for the shells, and a recess, *d*, in the bottom face between each pair of holes, as shown, of the cover B, having the flat wedge-shaped blades *c c*, adapted to enter the recesses *d* and engage the flanges of a pair of shells, whereby all lateral movement of the cover is prevented and the shells held from turning during the operation of crimping, substantially as set forth.

319,256. CARTRIDGE-SHELL CREASER. HENRY W. HOWE, Lawrence, Kans. Filed Feb. 25, 1885. (No model.)



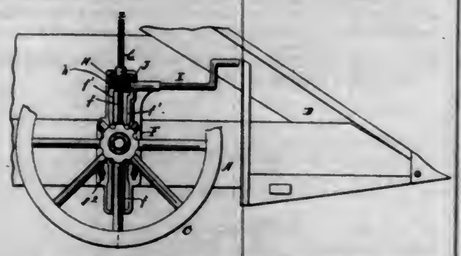
Claim.—1. The within-described rotatable creaser for cartridge-shells, which consists in a rotatable chamber or tube, E, a plug, G, arranged to fit freely within said chamber and to project beyond its lower end for entry within the mouth end of the shell, and of beveled construction on its upper end, a spring, *i*, arranged to press the plug outward, and one or more levers, F, arranged to engage at their upper end with the beveled end of the plug, and having a shell-creasing projection at their lower end for operation together, substantially as specified.

2. In a cartridge-shell creaser, the combination, with a rotatable tube carrying the creaser, of a trimmer attached to said tube and rotating therewith, substantially as herein shown and described, whereby provision is made for trimming the shell while being creased, as set forth.

3. In a cartridge-shell creaser, the combination, with a rotatable tube and plug held therein, of the slotted carrier *k*, secured to the said tube, the knife *l* at the lower end of the said carrier, and the screws *g*, substantially as herein shown and described.

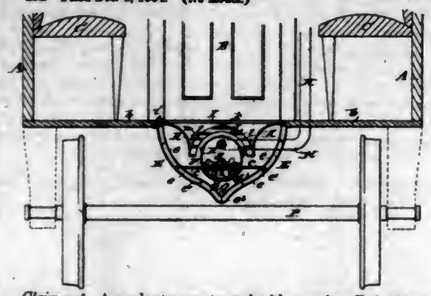
4. The combination, with the bit C and loading-board A, of the creaser consisting of a chamber or tube, E, the plug G, arranged to freely fit said chamber and to project below it, the spring *i*, arranged to press said plug and bit away from each other, and one or more shell-creasing levers, F, actuated by the plug to crease the shell, essentially as described.

319,257. HARVESTER. GEORGE G. HUNT, Bristol, assignor of one half to the Plano Manufacturing Company, Plano, Ill. Filed June 19, 1884. (No model.)



Claim.—The grain-wheel, in combination with the axle-block, grooved as described, the yoke-frame F, provided with guide-flanges, the screw-rod supported at its upper end in the yoke-frame, the screw-pinion, and the crank-shaft and pinion, also mounted on the yoke-frame, substantially as and for the purposes set forth.

319,258. STREET-CAR HEATER. FREEMAN S. HUNTER, Fort Ritner, Ind. Filed Dec. 1, 1884. (No model.)



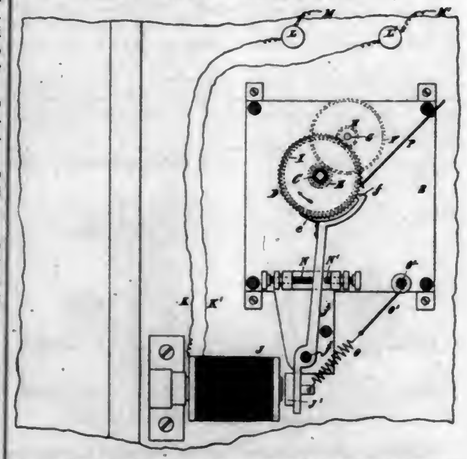
Claim.—1. A car-heater constructed with a casing, E, held below an opening in the car-floor, heating-drums F, supported in the casing and above its bottom, and said drums having draft-apertures at one end and connected at the other end with a flue, H, leading to the car-roof, a slat-guard, L, held above the drums F, and a grating, I, set in the floor-opening above the guard L, substantially as herein set forth.

2. In a car-heater, the combination, with the casing E and heating-drums F, supported therein, of a guard, L, consisting of spaced slats *l*, connected to frame-bars *m* by arms K and supported above the drums, and a grating, I, held above the guard L, substantially as herein set forth.

3. In a car-heater, the combination, with the casing E and heating-drums F, of the slat-guard L, connected to the grating I, and said grating being hinged to the car-floor, substantially as herein set forth.

4. In a car-heater, the casing E, supported from the car-floor and below an opening therein, and constructed with double walls *e e*, converging downward, and provided with outlets closed by plugs or valves O, and brackets *c*, on which to support the heating-drums F clear of its bottom; substantially as herein set forth.

319,259. SECONDARY ELECTRIC CLOCK. CHARLES A. HUSSEY, New York, N. Y. Filed Dec. 12, 1884. (No model.)



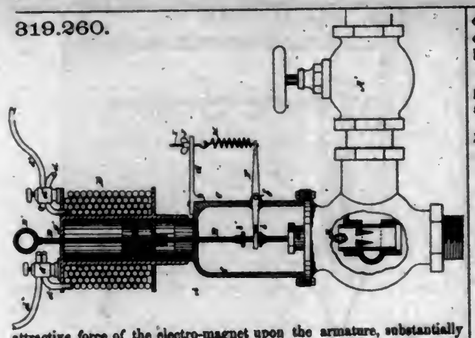
Claim.—1. The combination, with a toothed wheel, of an electro-magnet, a lever actuated thereby having a curved extension extending around a portion of said wheel and provided with a tooth, a resilient push-pawl secured to the lever and extending in a reverse direction to the curved extension around a portion of the wheel and impinging against one of the teeth on said wheel, and a spring for vibrating said lever in one direction, substantially as specified.

2. The combination, with an electro-magnet, of the lever J', the wheel D, the resilient push-pawl *c'*, secured to said lever, the tooth *f* on the lever, and the detent P, substantially as specified.

319,260. GOVERNOR FOR STEAM AND FLUID ENGINES. ALBERT L. IDE, Springfield, Ill. Filed Apr. 22, 1882. (No model.)

Claim.—1. The combination, with the steam-supply pipe of an engine, of a regulator-valve comprising two valve apertures or seats, and a movable part constructed to close one or the other of said apertures by either of its two extreme movements, an electro-magnet, an armature secured upon the stem of said valve, and a spring applied to oppose the

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attractive force of the electro-magnet upon the armature, substantially as described.

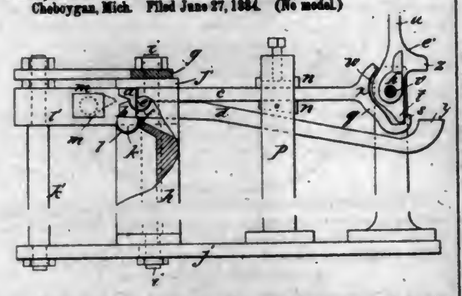
2. The combination, with the steam-supply pipe of an engine, of the valve A, the electro-magnet D, the valve-stem provided with shoulders *b b'*, and carrying the armature, and the pivoted lever F, constructed and organized substantially as described, and for the purposes set forth.

319,261. STEAM-ENGINE VALVE. ALBERT L. IDE, Springfield, Ill. Filed Feb. 7, 1885. (No model.)



Claim.—The combination, with a cylindrical valve, and a valve-chest provided with cylindrical seats having continuous annular steam-passages *h'*, of removable bushings having a series of apertures forming steam-ports, said apertures being straight upon the inlet-sides of the ports and curved upon the opposite or exhaust sides, substantially as described.

319,262. SAW-TOOTH-SWAGING MACHINE. ALEXANDER JACOBS, Cheboygan, Mich. Filed June 27, 1884. (No model.)



Claim.—1. The combination of a pair of gripping and swaging jaws, *a b*, arranged to shift to and from the saw-teeth, and having a working-lever, *u*, arranged to so shift them and also to effect action of said jaws for gripping and swaging the teeth, substantially as described.

2. The combination of a side gage, *a'*, and lever *b'* with the gripping and swaging jaws *a b* and the working-lever *u*, said jaws being arranged to shift to and from the teeth and grip and swage the points, and the side gage, *a'* and *b'*, arranged to gage and hold the teeth laterally while being swaged, substantially as described.

3. The gripping-jaws *a b* and arms *c d*, connected by pivot-boss *e* and cavity *f*, and arranged between cap *g* and rocker-bearing *k*, to be shifted to and from the saw-teeth and to grip and swage the points of said teeth, substantially as described.

4. The combination, with the gripping-jaws *a b* and arms *c d*, connected by pivot-boss *e* and cavity *f*, and arranged between cap *g* and roller-bearing *k*, of the lever *u t*, inclined and hook-ended arm *q z*, stud *z*, and the curved end *y* of arm *d*, for shifting the jaws and swaging the teeth, substantially as described.

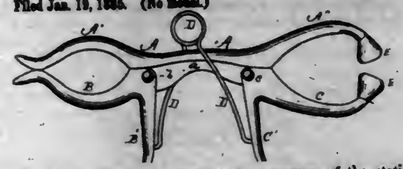
5. The side gage lever, *b' d'*, in combination with the gripping-jaws *a b*, arms *c d*, and the lever *u*, for working said jaws, said lever *u* and lever *b' d'* being arranged for action conjointly with the action of the gripping-jaws, substantially as described.

6. The catch *f''* and cam *h'*, in combination with the lever *b' d'* and lever *u*, said lever *u* being arranged for simultaneously operating the jaw-arms *c d* and the side gage lever, *b' d'*, substantially as described.

7. The combination, with the jaw-arm *c*, arranged with jaw-arm *d*, also arranged in supporting-guides *n*, and provided with crotch *x*, inclined arm *q*, and hook end *z*, of the lever *u*, having nose *t* and stop-boss *w*, substantially as described.

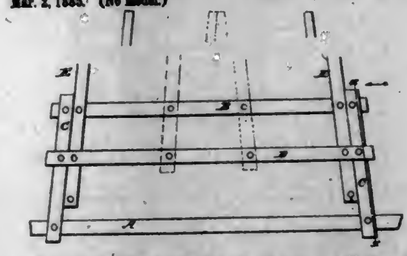
8. The stop-gage *c*, in combination with the lever-head *b''*, side gage, *a'*, and the swaging-jaws *a b*, said jaws being arranged to shift to and from the teeth and to swage the same, substantially as described.

319,263. COW-TAIL HOLDER. HERMAN F. JACOBS, Weston, Mass. Filed Jan. 19, 1885. (No model.)



Claim.—An improved cow-tail holder consisting of the stationary piece A, provided with jaws A' A'' and ledge *a*, all being integral, the movable jaws B C, pivoted at *b c* to the ledge *a*, the handles B' C', made integral with the movable jaws and extending at substantially right angles therefrom, and the spring D, of substantially the shape shown, and whose opposite ends are secured to said handles, whereby the same are held normally apart, all constructed and arranged substantially as and for the purpose set forth.

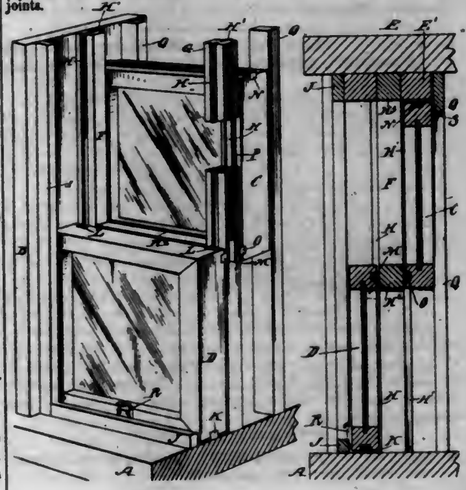
319,264. SULKY-FRAME. JOHN A. JOHNSON, Madison, Wis. Filed Mar. 2, 1885. (No model.)



Claim.—As an improvement in sulky-frames, a rigid frame having forwardly-converging side pieces and parallel cross-pieces, said cross-pieces being provided with four series of forwardly-converging adjusting-holes, two of said series of holes being to the right of the center of the cross-pieces and two being to the left, in combination with a pair of adjustable thills, each thill being provided with a series of adjusting-holes by which they can be adjustably secured upon said cross-pieces, substantially as and for the purpose set forth.

319,265. WINDOW FRAME AND SASH. JOHN E. JONES, New York, N. Y. Filed Jan. 21, 1885. (No model.)

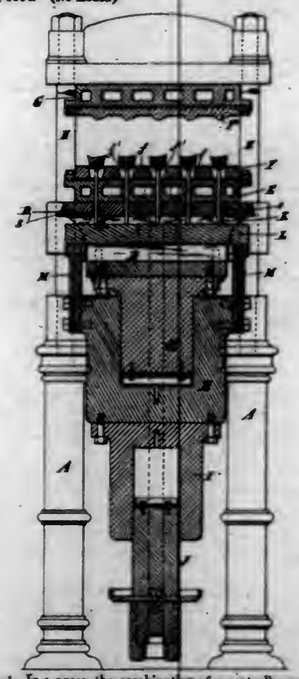
Brief.—The parting-beads have ribs projecting from each side, and the vertical sides of the window-sash are provided with packing-strips grooved to receive said ribs. The sashes also have top, bottom, and horizontal side packing-strips with wedges, and all adapted to form tight joints.



Claim.—1. The sashes provided with packing-strips at their vertical surfaces, in combination with the parting-strips F G, provided with ribs, against which the packing presses, substantially as described.

2. The parting-strips F G, provided with ribs H, in combination with sash D, provided with packing-strips L and wedge R, adapted to come against the cleat J, substantially as and for the purposes set forth

319,266. **PRESS FOR FORMING HEELS FOR INDIA-RUBBER BOOTS OR SHOES.** WILLIAM E. KELLY, New Brunswick, N. J. Filed Dec. 27, 1884. (No model.)

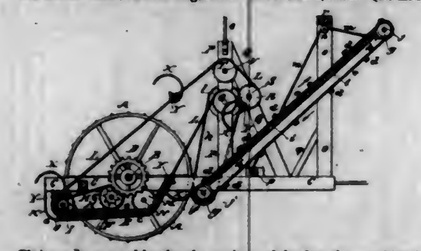


Claim.—1. In a press, the combination of a centrally-arranged ram or rams, a follower provided with slots, bars arranged in these slots, stops for limiting the downward movement of the said bars, and pins which impinge against the said bars during the downward movement of the follower, substantially as specified.

2. In a press, the combination of a follower provided with slots, bars in the slots, stops for these bars, and pins which are arrested by the bars, substantially as specified.

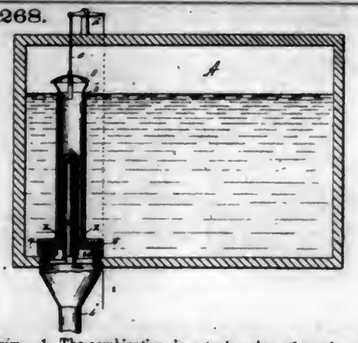
3. The combination of the shouldered rods H, screw-threaded below the shoulders, the casting comprising the cylinder B, and the pillars A, substantially as specified.

319,267. **COMBINED HAY RAKE AND LOADER.** THOMAS KIRBY and ROBERT SHEA, Emmetsburg, Iowa. Filed Dec. 4, 1883. (No model.)



Claim.—In a combination hay rake and loader, the combination, with the wheels and axle A B, the frame C, and the posts and braces P Q, of the gear-wheel D and pinion E, the sprocket-wheels G I K M O R T, the endless chains H L, and the rake-heads Y, substantially as herein shown and described, whereby the hay is collected and delivered upon an elevator, as set forth.

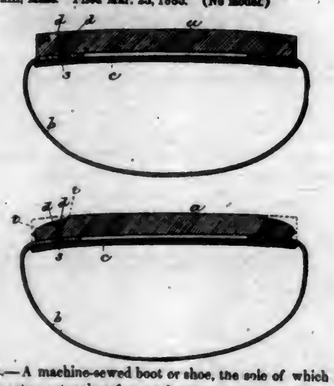
319,268. **SLOW-CLOSING VALVE.** EDWIN L. KIDDER, Springfield, Mass. Filed June 7, 1883. (No model.)



Claim.—1. The combination, in a tank-valve, of a valve-guiding spindle, and a hollow valve-stem to receive said spindle, having a spindle-chamber largest at and just above its lower end, substantially as set forth.

2. In combination with the tank A and the discharge-pipe *i*, the valve-seat *w* and spindle *v*, the valve *z*, having the stem *n* thereon, provided with a spindle-chamber largest at its lower end and having perforations through it near said stem, the overflow-pipe *b* secured to said valve, and suitable means for lifting said pipe and valve, substantially as set forth.

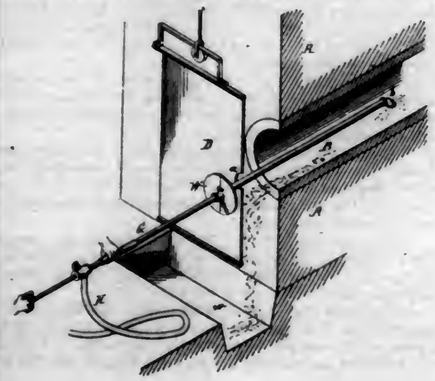
319,269. **MACHINE-SEWED BOOT OR SHOE.** WILLIAM A. KNIPE, Haverhill, Mass. Filed Mar. 23, 1885. (No model.)



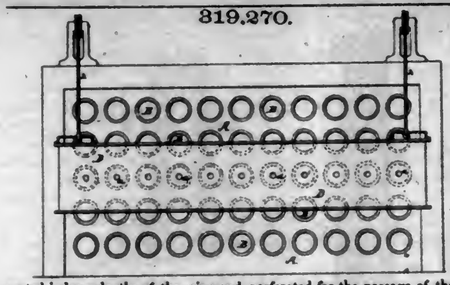
Claim.—A machine-sewed boot or shoe, the sole of which is channeled on its outer or tread surface, and cut away near its edge, to form a surface, *t t*, on which the outer edge of the channel-flap terminates, said surface being above the tread-surface of the sole, as set forth.

319,270. **APPARATUS FOR CLEANING THE RESIDUUM FROM ZINC-RETORTS.** WILLIAM LANYON and ROBERT H. LANYON, Pittsburg, Kan. Filed Jan. 12, 1885. (No model.)

Claim.—1. The combination of a bench of zinc-retorts, a portable pipe constructed for introduction into the retorts and communicating through a flexible pipe with a steam-generator, and the shield D, supported independently of the pipe and perforated for the passage of the latter, as set forth.



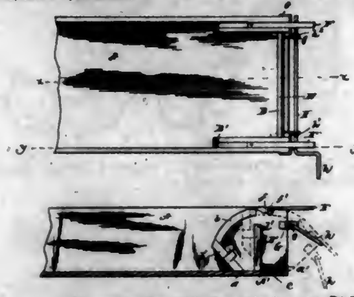
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ported independently of the pipe and perforated for the passage of the latter, as set forth.

2. The combination of the pipe G, communicating with a generator and having a guard-plate, W, with a bench of retorts, and a perforated shield, D, supported independently of the pipe, as specified.

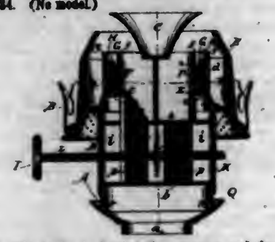
319,271. **WAGON END-GATE.** DAVID R. LANTZ, Bushnell, Ill. Filed Oct. 8, 1884. (No model.)



Claim.—1. In combination with the swinging side B' B' and a wagon-body, the angular clamps G G, rigidly secured to said sides, and constructed with extensions *g g*, and the clamping screw-rod H, passed through said clamp-extensions and provided with a collar, h', and a nut, h^2, all constructed and adapted to operate substantially in the manner and for the purposes described.

2. The combination, with the pivoted sides B' B', having lugs *d*, of the wagon-body having recessed cleats d', adapted to receive said lugs, the angular clamps rigidly fixed to the said sides, and having extensions *g*, and the screw-rod provided with a collar, h', and a nut, h^2, substantially as and for the purposes described.

319,272. **LAMP-BURNER.** EDWIN LAWRENCE, Brooklyn, N. Y. Filed Mar. 31, 1884. (No model.)



Claim.—1. The body A, having the screw *a*, and the tubes D, terminating in the annular tube F, in combination with the tubes *f* and *g*, and means for raising and lowering the said tubes *f* and *g* relatively to the tube F, substantially as and for the purpose specified.

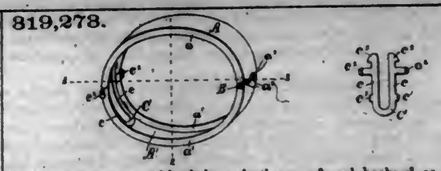
2. The combination, with the body A and the tubes D, secured therein and terminating in the annular tube F, of the tubes *f* and *g*, secured together, the shell M, secured to the tube *g*, the spur-wheel K, knob I, and shaft L, journaled in the shell M, and the rack N, secured to the body A, as and for the purpose specified.

3. The combination, with the body A and the tube F, fixed thereto, and the tubes *f* and *g*, adapted to be raised and lowered, substantially as described, of the spreader C, attached to the tubes *f* and *g*, as and for the purpose specified.

319,273. **BRACELET.** BENJAMIN B. LEDERER, Providence, R. I. Filed Oct. 21, 1884. (No model.)

Claim.—1. The combination, with two hinged sections, A A', having the bent margins *a a'*, with their apertures a^1 a^2 a^3, of the spring C,

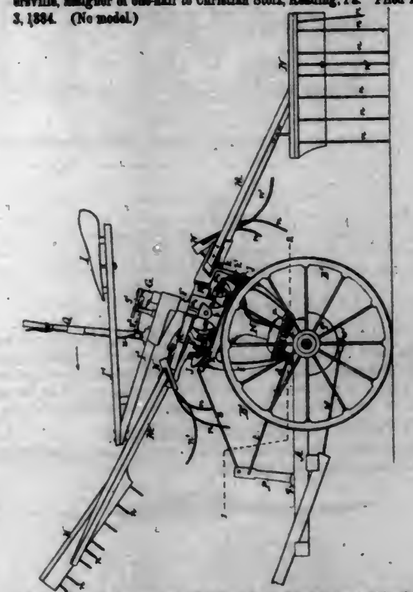
319,273.



having the arms *c c*, with their projections c' c^2, and hooks c^3, as described.

2. The combination, with the sections A A', having the bent margins *a a'*, with their apertures a^1 a^2 a^3, and the bent projections a^2 a^3, of the pivot-pin surrounded by said projections, and the spring C, having the arms *c c*, with their projections c' c^2, and hooks c^3, substantially as and for the purposes stated.

319,274. **COMBINED RAKE AND TEDDER.** JAMES LEE, Jr., Stonersville, assignor of one-half to Christian Stolz, Reading, Pa. Filed Mar. 3, 1884. (No model.)



Claim.—1. A hay-rake in which a wheeled frame is combined with a rake-head carrying the rake-arms and inclined from front to rear, and with mechanism for rotating said rake-head, as set forth.

2. The combination of the wheeled frame, the rake-head mounted thereon and carrying the rake-arms, mechanism for rotating said rake-head, and an inclined supporting-track for the head, said track being highest at the front end and lowest at the rear, as set forth.

3. The combination of the wheeled frame, the rake-head, its arms, and the rakes carried thereby, the inclined supporting-track, the rearwardly-inclined sleeve H, for driving the rake-head, and gearing whereby said sleeve is rotated, as set forth.

4. The combination of the wheeled frame, the driving-sleeve mounted thereon, a rake-head consisting of frames K, each carrying rake-arms, and each hung to said driving-sleeve so as to be free to tilt laterally, and a cam-track serving as a support for said frames, and as a means for laterally tilting the same, as set forth.

5. The combination of the wheeled frame, the standard F, the sleeve H, having a bearing thereon, means for rotating said sleeve, a frame, K, pivoted to the sleeve and having at each end a projecting rake-carrying arm, M, and a cam-track, J, adapted to act upon and cause the lateral tilting of the frame K as the same is rotated, as set forth.

6. The combination of the wheeled frame with a rotating rake-head consisting of rocking frames, each having arms M pivoted thereto, so as to be free to swing upward at the outer ends, as set forth.

7. The combination of the wheeled frame, the rake-head comprising rocking frames K, having stops *p*, rake-carrying arms M, pivoted to the frames K, and mechanism for rotating said frames, as set forth.

8. The combination of the rake having teeth *n* with a reversed tooth, n', serving as a guard, as set forth.

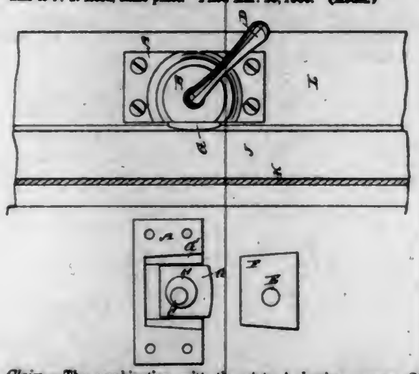
9. The combination of the wheeled frame A of the machine, a rotating rake-head, and a frame, D, carrying said head and hung to the axle of the machine, whereby the angle of the head may be changed by an adjustment of the said frame D, as set forth.

10. The combination of the wheeled frame A of the machine, a rotating rake-head, and a frame, D, hung to the axle of the machine, carrying said head and its rotating devices, and provided with a seat-frame, I', as set forth.

11. The combination of the wheeled frame A of the machine, a frame, D, hung to the axle and having a standard, F, with seat-frame I', rake supporting and operating devices carried by the frame D, an arm, P, hung to the frame A, a shaft, G, adapted to the standard F, and rods *s t*, whereby the arm P is connected to the frame D and to an arm on the shaft G, as set forth.

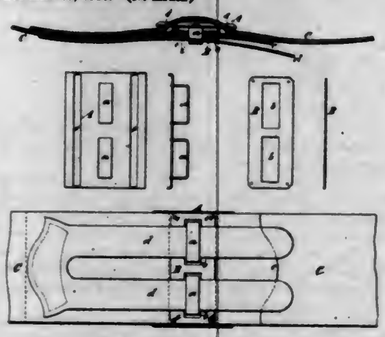
12. The combination of the frame A, the frame D, hung to the axle, the rake-carrying head having a bearing on said frame, gearing for rotating the head from the axle, and a draft-rod, *w*, connected to the frame D, as set forth.

319,275. **SASH-HOLDER.** CEBE LEE, Paducah, Ky., assignor of one-half to P. G. Reed, same place. Filed Mar. 25, 1885. (Model.)



Claim.—The combination, with the plate A, having a recess, G', in its under side, and provided with a casing, B, of the plate F, placed in the recess, the spindle C, journaled in the top of the casing and in the plate F, and having a handle, D, the eccentric plug H on the spindle, and the bolt G, provided with an aperture for receiving the plug H, substantially as herein shown and described.

319,276. **WAIST-BELT CLASP.** OTTO A. LEHMAN, Brooklyn, N. Y. Filed Mar. 25, 1885. (No model.)



Claim.—The belt-clasp herein described, consisting of the member A, having a staple or staples, *a*, projecting from its face, and also having the slots *s*, and the member B, having a hole or holes, *b*, adapted to receive said staple or staples, substantially as herein described.

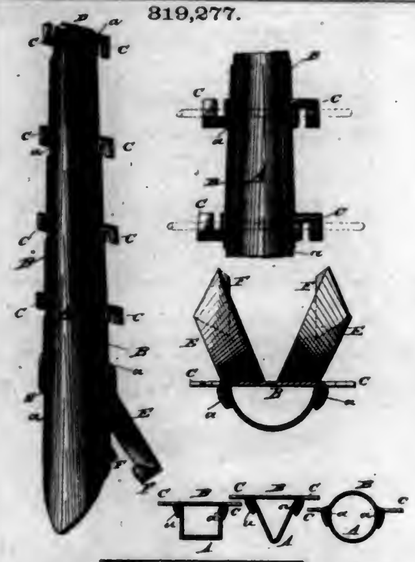
319,277. **FENCE-POST.** CHARLES P. LESSER, Lansing, Mich. Filed Feb. 5, 1885. (No model.)

Claim.—1. A fence-post consisting of two independent sheet-metal sections, secured together by lapping the edges of one section upon the other section, one of said sections having integral wire supports, outwardly-extended braces, and an overlapping top portion, substantially as set forth.

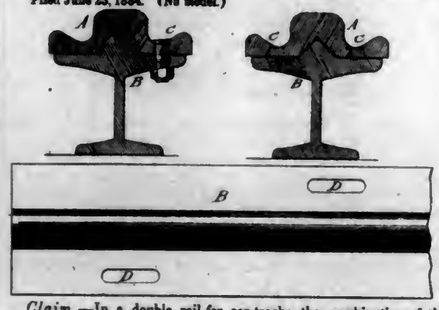
2. A hollow fence-post consisting of sheet-metal sections secured together and provided with integral wire supports and a top cap, substantially as set forth.

3. The combination, with the section A, having a sharpened or beveled lower end, of the section B, secured thereto and provided with inclined braces and a top cap, substantially as set forth.

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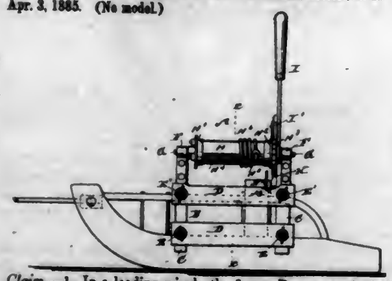


319,278. **RAILROAD-RAIL.** HARDIN H. LITTELL, Louisville, Ky. Filed June 23, 1884. (No model.)



Claim.—In a double rail for car-tracks, the combination of the lower portion, B, constructed with a flattened lower bearing for supporting the rail on the foundation, a thin portion connecting the top with the bottom face of the rail, said top being provided with a flattened broadened surface provided with elongated holes, said surface also provided with a tongue which registers with a corresponding groove in an upper portion, with an upper portion provided with a groove beneath the bearing for the tread of the car-wheels, and also provided with perforations through which pass bolts which unite said upper and lower portions by their flanges, and the bolts C, as set forth.

319,279. **LOADING-WINCH.** FAVOUR LOCKE, Bristol, N. H. Filed Apr. 3, 1885. (No model.)



Claim.—1. In a loading-winch, the frame B, composed of the uprights C, the cross-bars D, and the bolts E and E', having hooks on their inner ends, substantially as shown and described.

2. In a loading-winch, the frame B, having the journal-boxes F, the drum H, the caps H' and H² on the drum H, and the ratchet-wheel H³, in combination with the lever I and pawl I', substantially as shown and described.

3. In a loading-winch, the frame B, drum H, the ratchet-wheel H³, the lever I, the pawl I', and the spring-pawl K, in combination with the lever M, substantially as herein set forth and described.

4. In a loading-winch, the frame B, drum H, the lever I, the pawl I', and the spring-pawl K, in combination with the lever M, and the small lever N, having a shoulder, N', engaging the edge of cross-bar D, substantially as shown and described.

5. In a loading-winch, A, held to a sleigh or wagon, having a drum, H, operating as shown and described, in combination with the rope H⁴, the skid O, fastened to the sleigh or wagon, substantially as herein set forth and described.

319,280. **CUFF-HOLDER.** LITTLETON W. T. LODER, Indianapolis, Ind., assignor to the Novelty Manufacturing Company, same place. Filed Mar. 14, 1885. (No model.)



Claim.—A cuff-holder made of spring-wire crossed to form a loop, and having its ends turned inward until they meet, and then both ends bent in the same direction till they stand at right angles to the body of the holder in the shape of an inverted L, substantially as described, and for the purposes specified.

319,281. **KNOCKDOWN CHAIR.** FREDERICK H. LOGEMAN, St. Louis, Mo. Filed Feb. 26, 1885. (No model.)



Claim.—1. A seat-clamp for knockdown chairs, consisting of a perforated curved center piece, arms extending from the sides of the same at nearly right angles, and flanges projecting horizontally outward from the top and bottom of each of said arms, substantially as and for the purpose set forth.

2. A seat-clamp for knockdown chairs, consisting of a perforated curved center piece, arms extending from the sides of the same at nearly right angles to each other, and flanges projecting outward from the top and bottom of each of said flanges, and a horizontal web or flange across the concave side of said center piece, substantially as and for the purpose set forth.

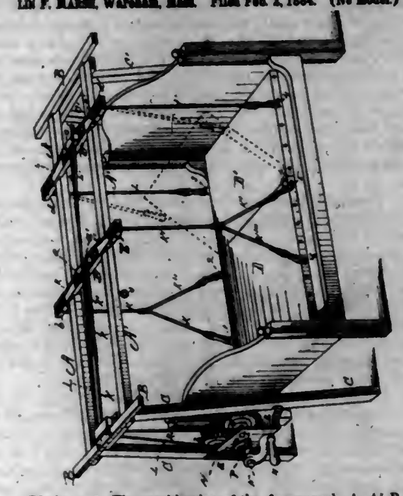
3. A seat for knockdown chairs, consisting of a number of perforated curved clamps having arms extending from their edges, said arms having outwardly-projecting flanges from their tops and bottoms, said clamps being provided with a horizontal web across their concave side adapted to fit in a horizontal kerf in the chair-legs, side and end pieces fitting in said flanged arms of said center pieces, and a covering material secured to said side and end pieces, substantially as and for the purpose set forth.

319,282. **TAILOR'S CHALK-CUTTER.** DAVID MACHOL, New Haven, Conn. Filed Nov. 24, 1884. (No model.)



Claim.—The herein-described tailor's chalk-cutter, consisting of a base, A, the upright B, extending centrally upward from said base and carrying upon its upper end the cutter C, the said cutter standing in a vertical central plane, combined with the cup-like receptacle D upon said base and surrounding the upright, substantially as described.

319,283. **APPLIANCE FOR THE SUPPORT OF INVALIDS.** FRANKLIN F. MARSH, Wareham, Mass. Filed Feb. 2, 1884. (No model.)

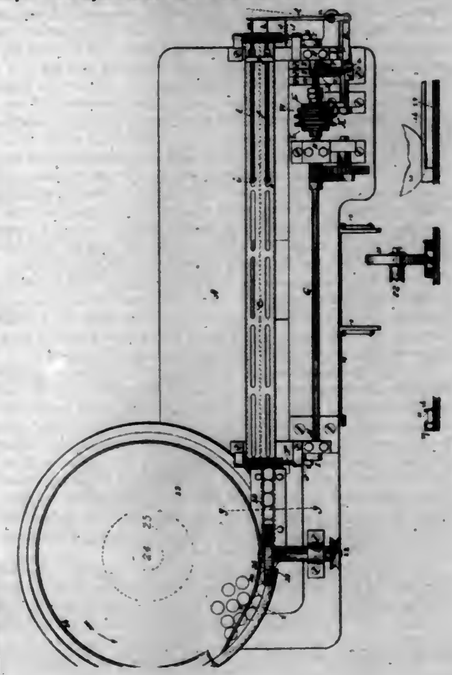


Claim.—1. The combination of the frame-work A A' B B' B'', provided with the horizontal pulleys *a a' c c'* and the vertical pulleys *b b' d d' e e'*, the supporting-legs C C', the jointed stretcher D D', and detachable supporting-cords extending from said stretcher over said pulleys, all constructed and arranged substantially as and for the purpose set forth.

2. The combination, with the frame-work A A' B B' B'' C C', provided with the pulleys *e' a a' b b'*, of the cord K, split into the cords K K' between the pulleys *e'* and *a a'*, and again split into the cords K K'' between the pulley *b* and the stretcher, and into the cords K' K''' between the pulley *b'* and the stretcher on the other side, substantially as and for the purpose described.

319,284. **MACHINE FOR COUNTING GUN-WADS.** WILLIAM MASON, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. Filed Mar. 16, 1885. (No model.)

Brief.—Prefers to use the feeder of Patent No. 242,052. The stops *e i* are adjustable for wads of different sizes.



Claim.—1. The combination of a bar having a longitudinal recess therein adapted to receive a column of wads, a second bar beneath the said recess and upon which the column of wads will rest when in said recess, one of said bars stationary, the other adapted to be moved transversely so as to open and close said recess, an intermittingly-revolving shaft in connection with the said movable part and through which the said transverse reciprocating movement is imparted to said bar, a stop in said recess, and mechanism, substantially such as described, between said stop and shaft, substantially as described, whereby, upon the completion of a column of wads containing the predetermined number, the said column will release said shaft and permit its rotation to discharge said column of wads.

2. The combination of a stationary longitudinal bar, B, the receiver C, constructed with two parallel recesses, D E, and arranged to slide transversely over said bar, a shaft parallel with said bar, crank on said shaft in connection with said receiver, a stop adapted to arrest said shaft at each half-revolution, a stop in each of said recesses, and mechanism, substantially such as described, between said stops in the recesses and the stops which arrest the revolution of the shaft, the said stops in the recesses adapted to be moved by the column of wads forced therein, substantially as described, and whereby, under the completion of a predetermined number of wads in either of said recesses, the stop in said recess will release said shaft and permit its half-revolution.

3. The combination of the longitudinal stationary bar B, the receiver C, constructed with longitudinal recesses D E, and arranged to slide transversely over said bar, the shaft G, carrying cranks in connection with said receiver, arms M N, fixed to said shafts, dogs P R, arranged, respectively, in the paths of the said arms M N, the said dogs constructed, respectively, with an arm, T U, a constantly-revolving cam, W, lever V *b*, one arm adapted to work upon said cam, the other arm extended to the back of the said dog, arms T U, stops *e i* in the respective recesses of the receiver, with extensions *h m* therefrom, levers *t r*, one arm of which is in the path, respectively, of the said extensions *h m*, the other arm carrying, respectively, fingers *u w*, the said fingers extending between the arm *b* of the said lever and the arms of the dog, the said arm *b* constructed with a notch, 4, substantially as described.

4. The combination of the bar B, a receiver constructed with a recess upon its under side parallel with said bar, the one stationary and the other adapted to receive a transverse movement, mechanism, substantially such as described, to intermittently impart said transverse movement to said part, a fixed channel opening to said recess in the receiver and with a feed-wheel adapted to successively force the wads which may be introduced into said channel into the recess in the receiver, and a stop in said receiver to arrest the column of wads when a predetermined number shall have been introduced therein, substantially as described.

5. The combination of the stationary bar B, receiver C, parallel therewith and constructed with two longitudinal recesses, D E, the said receiver adapted to move transversely across said bar to present first one recess and then the other to said bar, a channel in line with said bar and opening to the recess which shall stand over said bar, and a feed adapted to force wads through said channel into the recess in the receiver standing over the bar, and a stop to arrest the column of wads when a predetermined number shall have entered said recess, substantially as described.

6. The combination of the bar B, a receiver constructed with a recess upon its under side parallel with said bar, the one stationary and the other adapted to receive a transverse reciprocating movement, mechanism, substantially such as described, to intermittingly impart said transverse movement to said part, a fixed channel opening to said recess in the receiver and with a feed-wheel adapted to successively force the wads which may be introduced into said channel into the recess in the receiver, and a stop in said receiver to arrest the column of wads when a predetermined number shall have been introduced therein, a disk arranged to revolve in a horizontal plane and in the same plane of the bottom of the said channel, a fixed guard over said disk with an opening through the guard to said channel, substantially as described.

7. The combination of the stationary bar B, receiver C, parallel therewith and constructed with two longitudinal recesses, D E, the said receiver adapted to move transversely across said bar to present first one recess and then the other to said bar, a channel in line with said bar and opening to the recess which shall stand over said bar, a feed adapted to force wads through said channel into the recess in the receiver standing over the bar, and a stop to arrest the column of wads when a predetermined number shall have entered said recess, a disk arranged to revolve in a horizontal plane and in the same plane of the bottom of the said channel, said disk adapted to deliver wads placed thereon into said channel, substantially as described.

8. The combination of the stationary bar B, receiver C, parallel therewith and constructed with two longitudinal recesses, D E, the said receiver adapted to move transversely across said bar to present first one recess and then the other to said bar, a channel in line with said bar opening to the recess which shall stand over said bar, a stop to arrest the column of wads when a predetermined number shall have entered said recess, and a disk arranged to revolve in a plane with the bottom of said channel, said disk adapted to deliver wads placed thereon into said channel and a hopper beneath said bar and into which said recess in the receiver opens for the delivery of the wads, said hopper provided with a mouth through which the wads may escape, substantially as described.

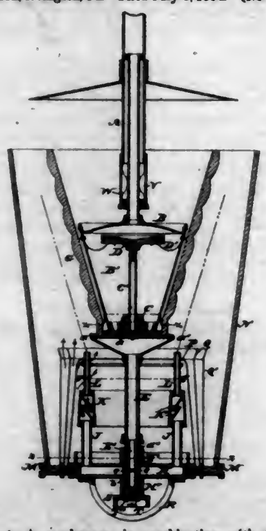
9. The combination of the stationary bar B, receiver C, parallel therewith and constructed with two longitudinal recesses, D E, the said receiver adapted to move transversely across said bar to present first one recess and then the other to said bar, a channel in line with said bar opening to the recess which shall stand over said bar, a stop to arrest the column of wads when a predetermined number shall have entered said recess, and a disk arranged to revolve in a plane with the bottom of said channel, said disk adapted to deliver wads placed thereon into said channel and a hopper beneath said bar and into which said recess in the receiver opens for the delivery of the wads, said hopper provided with a mouth through which the wads may escape, substantially as described.

10. The combination of the bar B, a receiver constructed with a recess upon its under side parallel with said bar, the one stationary and the other adapted to receive a transverse reciprocating movement, mechanism, substantially such as described, to intermittingly impart said transverse movement to said part, a fixed channel opening to said recess in the receiver and with a feed-wheel adapted to successively force the wads which may be introduced into said channel into the recess in the receiver, and a stop in said receiver to arrest the column of wads when a predetermined number shall have been introduced therein, a disk arranged to revolve in a horizontal plane, a fixed guard over said disk with an opening through the guard to said channel, and a hopper beneath said bar, and into which the said recesses in the receiver open for the delivery of the wads, said hopper provided with a mouth through which the wads may escape, substantially as described.

11. The combination of the stationary bar B, receiver C, parallel therewith and constructed with two longitudinal recesses, D E, the said receiver adapted to move transversely across said bar to present first one recess and then the other to said bar, a channel in line with said bar opening to the recess which shall stand over said bar, a stop to arrest the column of wads when a predetermined number shall have entered said recess, and a disk arranged to revolve in a plane with the bottom of said channel, said disk adapted to deliver wads placed thereon into said channel, and a hopper beneath said bar and into which said recess in the receiver opens for the delivery of the wads, said hopper provided with a mouth through which the wads may escape, a double-acting gate adapted to work transversely across the mouth at two points, one above the other, with a cam and levers between said gate and cam, substantially as described.

12. The combination of the stationary bar B, receiver constructed with one or more longitudinal recesses adapted to be presented over said bar and parallel therewith, the recess standing over the bar, and the bar itself forming a channel to receive a series of wads, with mechanism, substantially such as described, to intermittingly impart a transverse movement to said receiver, and a feed adapted to successively deliver the wads into said recess standing over the bar, substantially as described.

319,285. GAS-BURNER. Oscar D. McClellan, Philadelphia, Pa., assignor of two-thirds to Benjamin C. Burns, same place, and Adolph Wasserman, Abington, Pa. Filed July 5, 1884. (No model.)



Claim.—1. A gas-burner, in combination with the pipe E, the lower portion, E', of which having outlets *b*, sleeve F, having openings

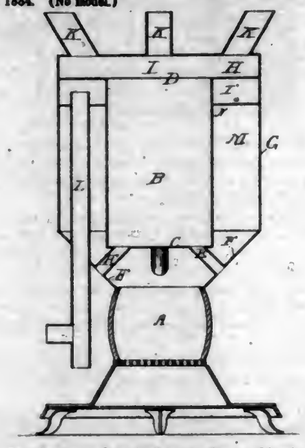
c, the boss H', having arms H, nut S, bolt T, and handle R, attached to said arms, substantially as and for the purpose set forth.

2. The pipe E, in combination with the sleeve F, the boss H', having tubular arms H, the screws M, inserted in ends of arms H, and air-guides P, Q, and Q', the guide P being so placed as to direct the current of air to the inside of the flame, while the currents of air directed by the guides Q and Q' are to be outside thereof, substantially as described.

3. A gas-burner, in combination with the pipe E, having its lower portion, E', provided with a gas-outlet, the sleeve F, surrounding the same, the tubular arms H, the nut S, and bolt T, said arms carrying the burners and made removable from said sleeve F, substantially as and for the purpose set forth.

4. Tubular arms H, provided with screws M, in combination with a chimney, N, and air-guides supported on said screws, substantially as and for the purpose set forth.

319,286. HEATER. Charles J. McGonnell, Moorestown, N. J. Filed Sept. 13, 1884. (No model.)



Claim.—In a heater or hot-air furnace, the combination, with the fire-pot and the jacket or casing mounted thereon, of a drum or cylinder located directly over said fire-pot, fresh-air-inlet pipes communicating with said drum or cylinder, hot-air-distributing chamber above and communicating with said drum, annular smoke-chamber communicating with the smoke-space around the drum and smoke-outlet flue leading from said chamber downward and through the smoke-space, substantially as shown and described.

319,287. MAIL-BAG CATCHER AND DELIVERER. John McHenry, McDonald, Pa. Filed Apr. 21, 1885. (No model.)

Claim.—1. In a stationary apparatus for catching mail-bags, a receiving-frame hinged at one end to a stationary frame and provided with a spring-bottom and an adjustable support, substantially as and for the purpose shown and described.

2. In a stationary apparatus for catching mail-bags, a receiving-frame, C, hinged at one end to a stationary frame and provided with an adjustable support, *c'*, in combination with a spring-arm, *c²*, substantially as and for the purpose set forth.

3. A stationary crane for receiving mail-bags, provided with a frame, E, hinged to said crane, having a projecting receiving-needle, E', substantially as and for the purpose shown and described.

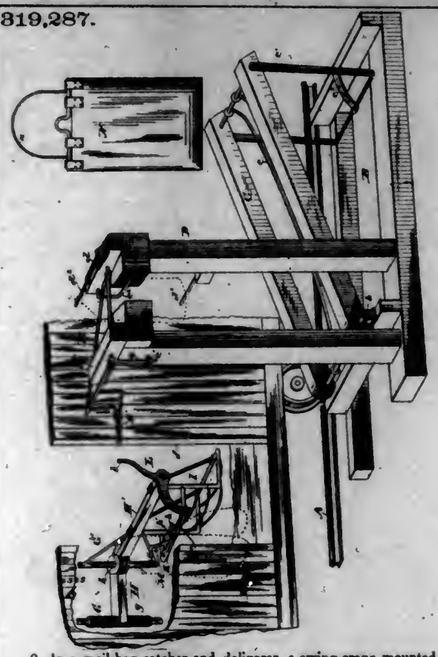
4. In a mail-bag catcher, a swing-crane mounted in suitable bearings on the inside of a car, and provided with a compound arm composed of two sections hinged together and having a receiving-basket on the outer end of said arm, substantially as and for the purpose shown and described.

5. In a mail-bag catcher, the removable crane composed of the post *g*, mounted in suitable bearings on the inside of a car, and the compound arm G in two sections, H H', provided with the receiving-basket I on the outer end of said arm, all arranged substantially as shown and described, as and for the purpose set forth.

6. In a mail-bag deliverer, a swinging crane mounted in suitable bearings on the inside of a car, and provided with a compound arm, G', having secured to its outer end the frame K, having the supporting-hook *k*, in combination with the arm K', provided with the eye *k'*, and the detaching-lever L, having the projecting arm *l*, all arranged and operating substantially as and for the purpose set forth.

7. In a mail-bag deliverer, a swinging crane mounted in suitable bearings on the inside of a car, having the compound arm G', provided with the supporting-hook M, substantially as and for the purpose shown and described.

319,287.



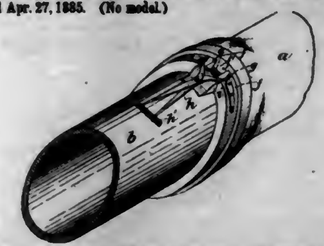
8. In a mail-bag catcher and deliverer, a swing-crane mounted in suitable bearings on the inside of a car and having a compound arm, G', provided on its outer end with a receiving-basket, I, and a frame, K, having the delivering-hook *k*, in combination with the arm K', and the detaching-lever L, having the projecting arm *l*, all arranged and operating substantially as shown and described.

319,288. FASTENING FOR MEETING-RAILS OF SASHES. Thomas L. McKeen, Easton, Pa. Filed Apr. 7, 1885. (No model.)



Claim.—In a fastener for the meeting-rails of sashes, the combination of a casing attached to one of the sashes, a yoke arranged to slide longitudinally in the said casing, a lock-bolt journaled in the said yoke, and having a projecting screw-threaded end, a latch arranged to engage the said yoke, and a casing attached to the other sash and having a screw-threaded socket at its inner end, and a spring arranged to engage the latch, substantially as herein described, for the purpose set forth.

319,289. PIPE-JOINT. Hugh McKenna and George D. Bulmer, Penn, Allegheny County, assignors to Booth & Flinn, Pittsburg, Pa. Filed Apr. 27, 1885. (No model.)

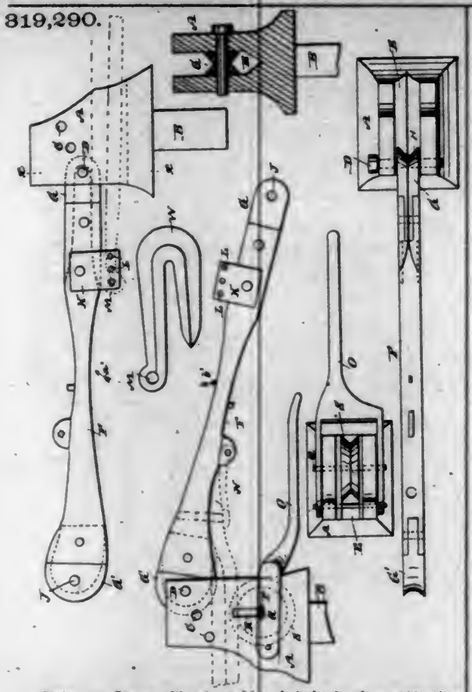


Claim.—1. The combination of the pipe *a b*, rubber ring *f*, provided with hooks *g*, and the tongs *h*, substantially as and for the purposes described.

2. A device for closing the bowl end of pipes, for the purpose specified, consisting of the rubber ring *f*, provided with hooks *g*, in combination with the tongs *h*, substantially as and for the purposes described.

319,290. MACHINE FOR SHAPING CHAIN-HOOKS. Benjamin McKillen, Verona, Mich. Filed Feb. 25, 1885. (No model.)

319,290.



Claim.—1. In a machine for making chain-hooks, the combination, with a forked stock, of a lever pivoted between the prongs of the stock, and of a die held on the pivoted end of the lever, substantially as herein shown and described.

2. In a machine for making chain-hooks, the combination, with a forked stock, of a lever pivoted on the same, a die on the pivoted end of the lever, and devices for holding the eye of the hook on the lever, substantially as herein shown and described.

3. In a machine for making chain-hooks, the combination, with a forked stock having the bottom of the recess shaped to conform to the shape of the bar from which the hook is to be made, of a lever pivoted on the stock, and a die on the lever, the rim of the die being grooved to conform to the shape of the bar, substantially as herein shown and described.

4. In a machine for making chain-hooks, the combination, with a forked stock, of a movable die in the same, a lever pivoted in the stock, and a die held on the pivoted end of the lever, substantially as herein shown and described.

5. In a machine for making chain-hooks, the combination, with the forked stock A, of the pivoted fork O, the die S, held on the same within the stock, the lever F, pivoted on the stock, and the die G', held on the end of the lever, substantially as herein shown and described.

6. In a machine for making chain-hooks, the combination, with a forked stock, of a circular die held in the said stock, substantially as herein shown and described.

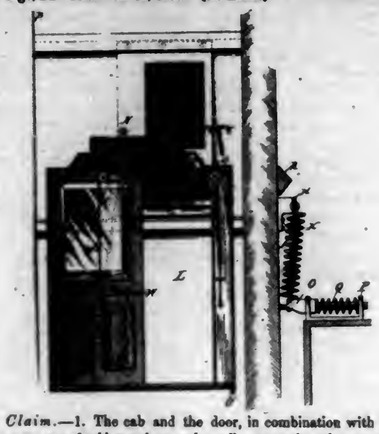
319,291. ICE-CREEPER. WILLIAM MCNIECE, Philadelphia, Pa. Filed Mar. 17, 1885. (No model.)



Claim.—1. An ice-creeper formed of a continuous piece of wire bent so as to surround or embrace the back, sides, and a portion of the front of the heel, then downwardly and laterally so as to come under the heel, and having its ends bent downwardly, forming calks or spurs, substantially as described.

2. An ice-creeper formed of the part *a*, which is adapted to embrace the sides and rear of a heel, the parts *b c*, which are adapted to embrace the front of said heel, the parts *d*, which are adapted to rest on the tread of the heel, and the spurs or calks *e*, substantially as described.

319,292. AUTOMATIC ELEVATOR-GATE. JOHN G. MEISNER, Chicago, Ill. Filed Feb. 16, 1885. (No model.)



Claim.—1. The cab and the door, in combination with a guide way upon one of said members and a roller upon the other member beyond the path of the guideway, and means for engaging said guideway and roller, substantially as described.

2. The cab and the door, in combination with a curved guideway upon one of said members and a roller upon the other member, and a movable extension of and at the extremities of the guideway, substantially as described.

3. The cab, the door, the guideway, and the roller, in combination with movable extensions of said guideway, and a connection between said extensions whereby they may be simultaneously actuated, substantially as described.

4. The door and the latch thereof, in combination with the cab and a yielding bolt on said cab for engaging and lifting the latch, substantially as described.

5. The latch and the bolt and the inclined stud engaging the bolt to release the latch therefrom, substantially as described

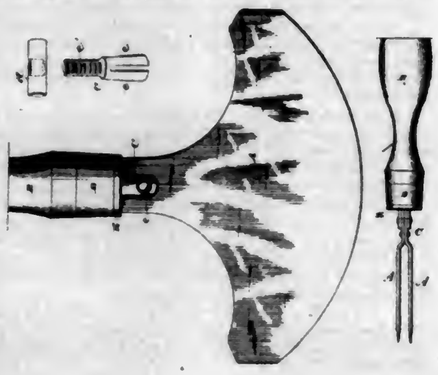
319,293. EYEGLASS-HOLDER. SAMUEL F. MERRITT, Springfield, Mass., assignor to Stephen M. Griswold, New York, N. Y. Filed Mar. 23, 1885. (No model.)



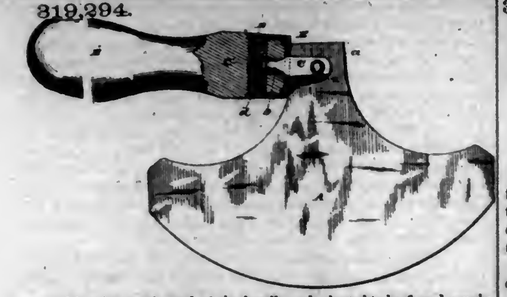
Claim.—An eyeglass-hook made from a single piece of wire flattened and bent at one end to form the hook B, the spring D, the pin C, projecting downward from the spring, and the cross-piece E, produced by making a double loop at the lower rear part of the hook B.

319,294. HAND CHOPPING-KNIFE. WILLIAM MILLSPAUGH, Middletown, N. Y. Filed Sept. 18, 1884. (No model.)

Claim.—The combination, with a blade provided with a tang having its back and side or sides formed of straight edges, of a handle having a nut secured therein, a bifurcated bolt pivoted to the tang so that the latter may be partly rotated thereon, said bolt having a screw-threaded shank that engages the nut in the handle, and a smooth flat



319,294.



metal bearing on the end of the handle and adapted to be forced snugly against the back or side edges of the blade, substantially as set forth.

319,295. METHOD OF TREATING VEGETABLE FIBER FOR MANUFACTURE OF PAPER-PULP. DANIEL MINTHORN, Watertown, N. Y., assignor to M. N. Minthorn, same place. Filed Apr. 11, 1884. (No specimens.)

Claim.—1. The herein-described method of preparing vegetable fiber for the manufacture of paper-pulp and other uses which consists in treating the fiber with a solvent containing hydrofluoric and sulphurous acids, substantially as set forth.

2. The herein-described method of preparing vegetable fiber for the manufacture of paper-pulp and other uses which consists in treating the fiber with a solvent containing hydrofluoric, sulphurous, and boracic acids, substantially as set forth.

3. The herein-described method of preparing a solvent for the treatment of vegetable fiber which consists in generating sulphurous, hydrofluoric, and boracic acids in a suitable furnace and conducting the resulting gases through milk of lime, substantially as set forth.

319,296. SYRINGE. WILLIAM MOLESWORTH, Brooklyn, N. Y. Filed Aug. 2, 1884. (No model.)



Claim.—1. In a dilator, the combination, with a tube having tapered spring-prongs at one end, of a tube adapted to be screwed into the pronged tube and having a tapered end for separating the prongs, substantially as herein shown and described.

2. In a dilator, the combination, with a tube having tapered prongs, of a tube adapted to be screwed into the pronged tube and provided at one end with a tapered part and at the opposite end with a neck, substantially as herein shown and described.

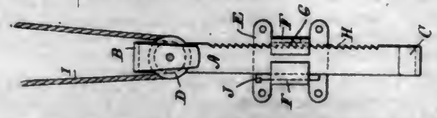
3. In a dilator, the combination, with the tube A, having tapered prongs C, provided with shoulders D, of the tapered tube E, having a head, F, and a neck, G, substantially as herein shown and described.

319,297. SURFACE DRAINAGE WITH SPECIAL REFERENCE TO THE PREVENTION OF FLOODS. ANTONIO MONTENEGRO, Madrid, Spain. Filed Dec. 31, 1884. (No model.)



Claim.—The herein-described method of converting torrential and other rain-falls upon inclined lands into subterranean currents, consisting in forming dikes transversely of the inclines of the land at proper intervals, whereby the rain-fall is caught and filtered through the ground in passing to an outlet, substantially as described.

319,298. CURTAIN-CORD HOLDER. MELVILLE M. MOORE, Oxford, Miss. Filed Oct. 29, 1884. (No model.)



Claim.—The rack having a pulley in its upper hooked end, said rack also having a lower hooked end, in combination with a plate having a pocket provided with a spring-tongue and a clamping or wedging device, substantially as and for the purpose set forth.

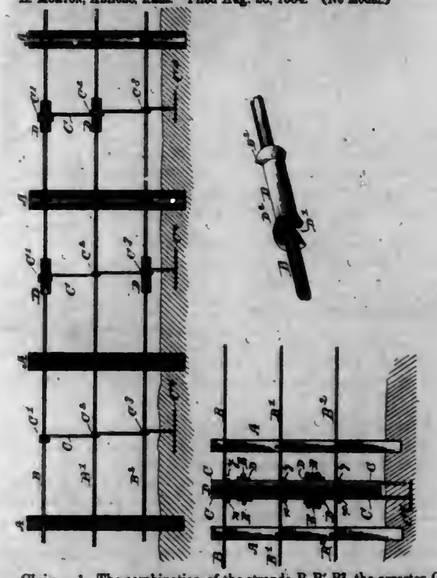
319,299. CONVEYER. CHARLES H. MORGAN, Buffalo, N. Y. Filed Nov. 26, 1884. (No model.)



Claim.—1. The combination, with a conveyer-shaft, of reversible flights, angular bearings or supports which determine the angular position of the flights on the shaft, and fastenings whereby the flights are detachably secured in either of several predetermined positions, substantially as set forth.

2. The combination, with a conveyer-shaft provided with angular openings *e*, of the flights B, provided with fastening-bolts *d*, having angular shanks *c*, which enter the angular openings *e* and hold the flights in the desired inclined position, substantially as set forth.

319,300. LIGHTNING-ARRESTER FOR WIRE FENCES. WILLIAM A. MORTON, Abilene, Kans. Filed Aug. 28, 1884. (No model.)



Claim.—1. The combination of the strands B B' B², the arrester C, the insulators D D, and plate C⁴, substantially as shown and described.

2. The combination of the strands B B' B², and a series of arresters, C, each of which has direct contact with one of the strands and is insulated from direct contact with the remaining strands, and each of which is connected directly with an embedded electrical diffusion plate, substantially as shown and described.

319,301. MACHINE FOR MAKING HAIR-PINS. SAMUEL E. MOWER, New Haven, Conn., assignor to Harry Grant Thompson, same place, and Henry G. Thompson, Milford, Conn. Filed May 5, 1884. (No model.)

Claim.—1. In a machine for forming hair-pins, a rotating carrier, and feed mechanism to feed the wire intermittingly into grooves of the said carrier, combined with a cutter to sever the wire fed into the said grooves, substantially as described.

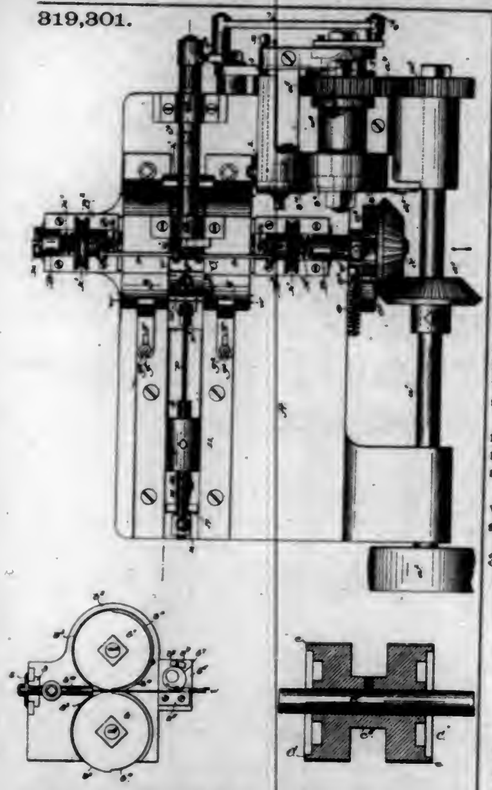
2. In a machine for forming hair-pins, the carrier grooved for the reception of lengths of wire, the spring S, connected therewith, and means to operate the carrier intermittingly, combined with feeding mechanism to feed the wire into the grooves of the carrier, and with a cutter to sever the said wire, substantially as described.

3. The intermittingly-rotated carrier, grooved for the reception of short lengths of wire, and grooved annularly, combined with the sector *f*, and with a spring-presser to act upon and hold the lengths of wire in the grooves of the carrier, substantially as described.

4. The intermittingly-rotated carrier, grooved for the reception of short lengths of wire, and grooved annularly, as described, combined with the die-holding post, and with the die or former *o*, set therein, with its wire-receiving opening inside the circumference of the said carrier, combined with the reciprocating driver provided with a notched end to act upon the wire and drive it through the die, substantially as described.

5. In a machine for forming spiral hair-pins, a spirally-grooved die or former, and a reciprocating carriage and loosely-attached driver-bar

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notched at its front end to engage the wire, whereby the said driver-bar is left free to rotate as it acts to force the wire through the die in the formation of the pin, substantially as described.

6. The die-holding post, the die or former, and reciprocating carriage, combined with the driver-bar, and with a guide, p^2, for the front end of the latter, substantially as described.

7. The die or former and the reciprocating carriage and loosely-held driver-bar notched at its front end and provided with the notched rear end, 16, combined with the wedge-piece 17, to insure the correct presentation of the notched front end of the driver to the wire, substantially as described.

8. In a machine for making hair-pins, a wire-carrier, and springs f^2, to hold the short lengths of wire therein, and a die or former having a spiral groove or way, combined with a reciprocating carriage, and a connected driver-bar, p, notched at its front end to strike the wire, draw it from the carrier and springs, and force it into the said die or former, all substantially as described.

9. A movable carrier to receive short lengths of wire, and a die or former located near the center of the length of the carrier, and to which the carrier presents the said wire, combined with a driver-bar to double and force the said wires into the said die, substantially as described.

10. In a machine for making hair-pins, the die or former and driver-bar, and the movable carrier, grooved at c, to receive and present lengths of short wire to the action of the die and driver-bar, combined with mechanism, substantially as described, for feeding the wire into the groove of the carrier, and a cutter to sever the said wire into short lengths, and with mechanism for operating the cutter and carrier, substantially as and for the purpose described.

11. A spirally-grooved die or former, a driver-bar, and a carrier grooved to receive and feed lengths of wire to the die or former, combined with mechanism, substantially as described, for pointing the ends of lengths of wire held by the carrier before said wire is presented to the die or former, as set forth.

12. The combination, with a carrier grooved to receive short lengths of wire, and mechanism, substantially as described, arranged at opposite sides of the carrier, for simultaneously pointing or sharpening both ends of the wire, moved by the carrier into position between the ends of the pointing mechanism, of clamping mechanism, substantially as described, arranged to clamp the wire in fixed position while its opposite ends are being pointed, substantially as and for the purpose set forth.

13. In a machine for making spiral hair-pins, a rotating carrier adapted to carry lengths of wire, and having a central cut-away portion, a spirally-grooved die or former projecting more or less into the cut-away portion of the said carrier, with the mouth of the die or former at or about the circumferential line of the cylinder, a driver-bar, and a spring or springs adapted to successively hold the lengths of wire across the mouth of the die or former, substantially as set forth.

14. The combination, with an intermittingly-rotating carrier, C, grooved to receive and carry lengths of wire, and having a central peripherally cut-away portion, and mechanism for feeding wire into the said grooves successively, of a yielding guide, 8, and support f, to engage the wire at the cut-away portion of the carrier and direct it into the groove c of the carrier at the opposite side of the said centrally cut-away portion of the carrier, substantially as set forth.

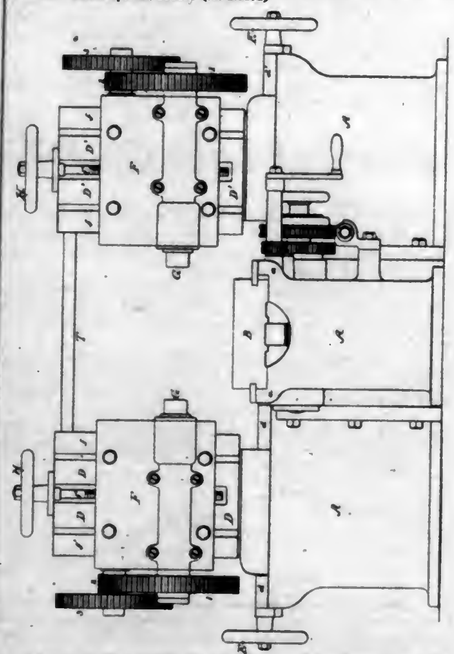
15. The rotating carrier, grooved to receive and carry short lengths of wire, combined with the hoods g and means to press the same against the carrier with more or less force, as and for the purpose set forth.

16. The shouldered feed-rolls $b\,b'$, arranged one above the other, and means to move them, combined with a rotating carrier, grooved longitudinally, as at c, to receive the wire, and with a cutter to sever the wire after the same has been fed into the grooves of the said carrier, substantially as set forth.

17. In a machine for forming hair-pins, the rotating carrier, feeding rollers to feed wire into the grooves of the carrier, and wire-cutting mechanism, combined with the sliding carriages provided with rotating spindles to point both ends of the wire, substantially as described.

18. The rotating carrier and the reciprocating carriages provided with rotating end-pointing spindles, combined with the springs upon the spindles, and with means to slide the carriages, substantially as described.

319,302. MILLING-MACHINE. CHARLES C. NEWTON, Philadelphia, Pa. Filed Apr. 23, 1885. (No model.)



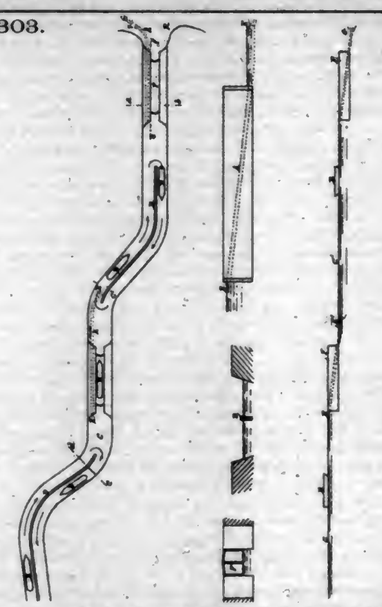
Claim.—1. The combination of the base and traversing work-bed with two frames laterally adjustable in a horizontal plane at right angles to and on opposite sides of the said bed, and vertically-adjustable heads carrying the milling-tools mounted on said frames, substantially as described.

2. The combination of the base and traversing bed of a milling-machine with adjustable frames on opposite sides thereof carrying the milling-tools, and a tie-rod, T, as and for the purpose set forth.

319,303. CANAL AND THE MODE OF NAVIGATING THE SAME. JEAN NOUGUIÉ, Fils aîné, Ogee, France. Filed Mar. 11, 1885. (No model.) Patented in France Aug. 5, 1884, No. 165,650.

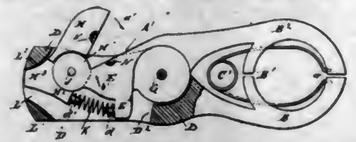
Claim.—A system of navigation for use in canals or canalized rivers, which consists of the various reaches thereof provided with the central longitudinal dikes, D, and the locks provided with feed tubes or channels A, having outfalls E E' at their ends, which arrangement has

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for its object the production of currents which carry the vessels or boats and allow them to be navigated upstream or down, according to the side of the dike at which they are placed.

319,304. IMPLEMENT FOR MOLDING AND NECKING BULLETS. THOMAS OLDHAM, Leipsic, Ind. Filed Mar. 19, 1885. (Model.)



Claim.—1. In a bullet-mold, the combination, with the lever D, having an opening or cavity at one end, of the lever E, pivoted in one end of the opening of the lever D, and the jaw H, pivoted in the opening of the lever D, in which jaw and in one edge of which lever the cavity for receiving the molten metal is formed, substantially as herein shown and described.

2. In a bullet-mold, the combination, with a lever having a cavity, of a lever pivoted at the inner end of the cavity and provided with a pivoted jaw, and of a spring acting on the jaw and pressing the same against the lever in which it is pivoted, said pivoted lever and jaw having mold-recesses, substantially as herein shown and described.

3. In a bullet-mold, the combination, with the lever D, having the cavity L, of the lever E, pivoted in the cavity, and the jaw H, pivoted on the lever E, and having a lug, H^2, said lever E and jaw H having mold-recesses, substantially as herein shown and described.

4. In a bullet-mold, the combination, with the lever D, having a cavity, L, of the plate M, provided with a casting-aperture, M', the lever E, pivoted at the inner end of the cavity L, and the jaw H, pivoted on the lever, said lever E and jaw H having mold-recesses, substantially as herein shown and described.

5. In a bullet-mold, the combination, with the lever D, having a cavity, L, and a casting-aperture in its top, of the lever E, having a recess, N, and the jaw H, pivoted on the lever E, and having a recess, N, which recesses form the cavity for receiving the molten lead, substantially as herein shown and described.

6. In a bullet-mold, the combination, with the lever D, having a cavity, L, of the lever E, pivoted in the said cavity, the jaw H, pivoted on the lever, the pins $d\,d'$ on the lever E and jaw H, respectively, and the spring K, said lever E and jaw H having mold-recesses, substantially as herein shown and described.

7. In a bullet-mold, the combination, with the lever D, having a cavity, L, of the lever E, having a lug, E^2, the pivoted jaw H, and the spring C', for pressing the ends of the levers from each other, said lever E and jaw H having mold-recesses, substantially as herein shown and described.

8. In a bullet-mold, the combination, with the lever D, having a cavity, L, and the shoulder L^2 and stop L', of the lever E, the pivoted jaw H, having a lug, H^2, and of the spring C', said lever E and jaw H having mold-recesses, substantially as herein shown and described.

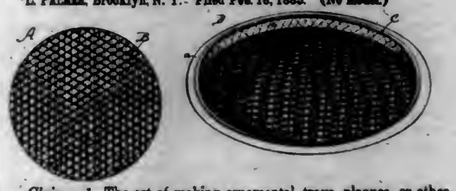
319,305. ANGLE-IRON. DAVID O. PAIGE, Detroit, Mich. Filed Aug. 18, 1884. (No model.)



Claim.—1. As an article of manufacture, an angle-iron having a rolled molding formed integral therewith, substantially as described.

2. As an article of manufacture, an angle-iron having a rolled molding formed integral therewith upon one face and a plain surface upon the other face, substantially as described.

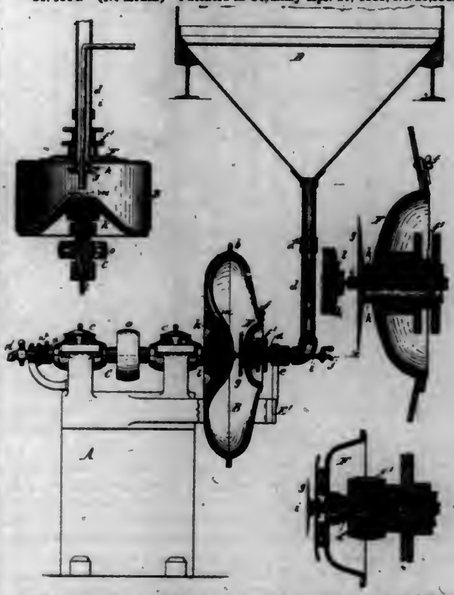
319,306. PROCESS OF MAKING SHEET-METAL WARE. HENRY L. PALMER, Brooklyn, N. Y. Filed Feb. 16, 1885. (No model.)



Claim.—1. The art of making ornamental trays, plaques, or other articles of brass or other suitable sheet metal by first embossing the ornamentation over the entire surface of the blank, then spinning said blank into the required form, then erasing the ornamentation where plain surfaces are desired, and finally finishing by burnishing or by polishing, as herein set forth.

2. The process of making ornamental sheet-metal ware by first embossing the entire surface of the blank, then spinning such blank to its desired form, then on some portions thereof removing entirely the ornamentation by skimming and in other portions only partially removing the same, then burnishing or otherwise polishing the article, as desired.

319,307. CENTRIFUGAL CREAMER. HERMANN PAPE, Hamburg, Germany, assignor to Burrell & Whitman, Little Falls, N. Y. Filed Mar. 21, 1884. (No model.) Patented in Germany Apr. 29, 1883, No. 25,331.



Claim.—1. In a centrifugal separator, the combination, with a tight revolving drum, of an axial feed-conduit tightly connected with the separating-drum and supplying the liquid to the drum under pressure, and two central discharge-conduits through which the separated liquids of different densities are separately expelled by the pressure which the liquid in the feed-conduit exerts upon the contents of the drum, and not by centrifugal force, substantially as described.

2. The combination, with a tight revolving separating-drum, of an axial feed-conduit through which the liquid is supplied to the drum un-

der pressure, and a stationary central discharge-conduit arranged within the feed-conduit, through which the separated liquid is discharged by the pressure in the feed-conduit and not by centrifugal force, substantially as set forth.

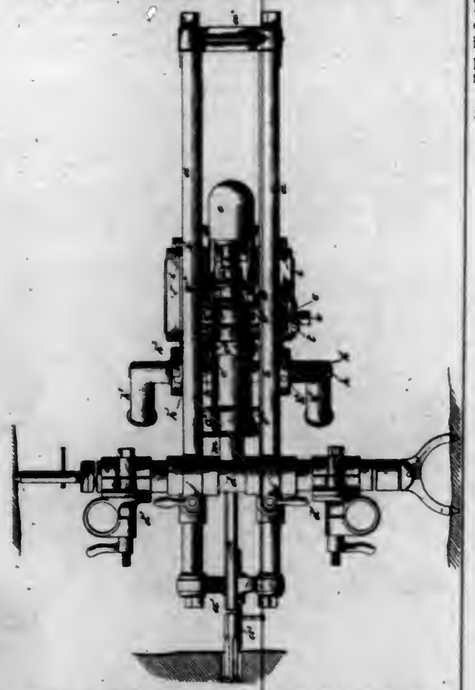
3. The combination, with a tight revolving separating-drum, of an axial feed-conduit through which the liquid is supplied to the drum under pressure, a discharge-conduit arranged within the feed-conduit, and a discharge-conduit arranged within the shaft of the drum, substantially as described.

4. The combination, with a tight revolving separating-drum, of a stationary feed-conduit through which the liquid is supplied to the drum under pressure, a stationary discharge-conduit arranged within the feed-conduit and receiving the liquid near the axis of rotation, and a discharge-conduit arranged in the shaft of the drum and receiving the liquid near its periphery, substantially as described.

5. The combination, with a tight revolving drum and an axial feed-conduit through which the liquid is supplied to the drum under pressure, of two stationary central discharge-conduits tightly connected with said separating-drum, through which conduits liquids of different densities are separately expelled by the pressure in the feed-pipe, and cocks or valves applied to said stationary conduits for regulating the discharge of the separated liquids, substantially as set forth.

6. The combination, with the revolving separating-drum, of a removable cover, a feed-pipe attached to the cover, and a pivoted support to which the removable cover and the feed-pipe are attached, substantially as described.

319,308. ROCK-DRILL. A. INGRAM PARSONS, New York, N. Y. Filed Dec. 26, 1883. (No model.)



Claim.—1. A rock-drill having a cam and shaft therefor, a hammer operated by said cam, a spindle projected into operative position by a spring and retracted by a lever operated by the said cam, oscillating handles, and reciprocating gearing interposed between said handles and the cam-shaft to convert the oscillating or reciprocating motion of the handles into rotary motion of the cam-shaft, substantially as described.

2. The combination, in a rock-drill, of a spindle and an encircling-spring, a cam and shaft therefor, and connections for operating the hammer and spindle from said cam, with handles to which a back-and-forth movement is given, and converting-gearing interposed between the handles and cam-shaft, and reciprocating with the handles to convert their reciprocating motion into a rotary motion of the cam-shaft, substantially as described.

3. The combination, in a rock-drill, of a spring-spindle, hammer, spindle-retracting lever, a cam, and a cam-shaft, with pinions on said shaft alternately fast and loose thereon, toothed racks engaging such pinions, and oscillating handles connected with such racks to reciprocate them to cause a continuous one-way rotary motion of the cam-shaft by means of the pinion then fast on it, substantially as described.

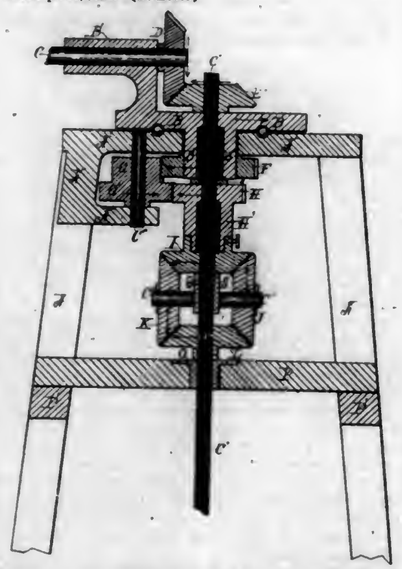
4. In a rock-drill, the drill-frame consisting of parallel bars *a a b'* and rack-bar *b*, connected at their ends by a lower yoke, *a'*, and an upper yoke, a^2, and the struts *d d* and couplings *d'*, swiveled to bars *a a*, combined with the drill-carriage containing the drill-tool, hammer for driving it, and means to rotate and reciprocate said drill-tool, and to automatically feed the carriage forward in the frame, and a shifting-pinion adapted to be manually operated in connection with the rack-bar to run the carriage on and off its frame, substantially as described.

5. The combination, with a drill proper having a reciprocating spindle, and a frame provided with a rack-bar, of a shifting gear-wheel, its shaft having a squared end and a worm-wheel, a pivoted latch engaging one of two grooves in the said shaft to lock it in either of two positions, and a worm engaging said worm-wheel and actuated by the spindle, whereby said gear-wheel may be rotated mannally or automatically to feed the drills as required, substantially as described.

6. The combination, with a drill-frame having the rack-bar *b*, of the drill-carriage, the drill-spindle therein, means, substantially as described, to reciprocate it, the shaft *r'*, arranged transversely of the spindle in its carriage, and provided with the pinion *s*, engaging such rack-bar, the worm-wheel *r* on said shaft, the worm *p*, arranged in the carriage, the ratchet on the worm-shaft, the pawl to engage such ratchet, and the lever connected with the spindle and operated by its reciprocations to operate the pawl to turn the ratchet and thus rotate the worm, substantially as and for the purpose described.

7. In a rock-drill, the frame composed of the bars *a a b'* and rack-bar *b*, and the connecting-yokes *a' a²* for said bars, and the drill-carriage having the slideways c^3 c^3 to engage the bars *b b'*, and containing the drill-tool, hammer, and operating devices, combined with a shifting-pinion to engage said rack-bar free of the drill-advancing mechanism, to permit the ready removal from and insertion of the drill-carriage in its frame, substantially as described.

319,309. GEARED WINDMILL. GEORGE H. PATTISON, Freeport, Ill. Filed Apr. 30, 1885. (No model.)



Claim.—1. In a windmill of the class described, the combination of a turn-table rotating freely about the vertical axis of the mill, a gear formed upon or rigidly fastened to the turn-table, a wind-wheel shaft journaled in said turn-table, two independently-rotating vertical shafts adapted to transmit the power of the mill to other mechanism, a third vertical shaft journaled in suitable bearings attached to the tower of the mill, and gearing, substantially as shown and described, connecting said wind-wheel shaft, said vertical shafts, and the gear attached to the turn-table, whereby the rotation of the turn-table about the vertical axis of the mill rotates one of said vertical power-transmitting shafts, but not the other.

2. In a windmill of the class described, the combination of a turn-table rotating freely about the vertical axis of the mill, a gear formed on or attached rigidly to said turn-table, a wind-wheel shaft journaled in said turn-table, two independently-rotating vertical shafts adapted to

transmit the power of the mill to other mechanism, a third vertical shaft journaled in suitable bearings attached to the tower of the mill, and gearing, substantially as shown and described, connecting said wind-wheel shaft, said vertical shafts, and the gear attached to the turn-table, whereby the reaction of the work to be performed tends to retard the rotation of the wind-wheel shaft in its bearing, but not to rotate the turn-table about the vertical axis of the mill.

3. In a windmill of the class described, the combination of a turn-table rotating freely about the vertical axis of the mill, a gear formed on or rigidly fastened to said turn-table, a wind-wheel shaft journaled in said turn-table, two vertical and independently-journaled shafts placed one above the other and adapted to transmit the power of the mill to other mechanism, a third vertical shaft journaled in suitable bearings attached to the tower of the mill, and a train of gearing connecting said wind-wheel shaft, said vertical shafts, and the gear attached to the turn-table, one element of said train of gearing being a loosely-mounted gear free to rotate on its own axis and to revolve about the axis of rotation of its movable support, whereby the rotation of the turn-table does not tend to rotate the wind-wheel shaft in its bearing or to rotate the lower of said vertical power-transmitting shafts.

4. In a windmill of the class described, the combination of a turn-table rotating freely about the vertical axis of the mill, a gear-wheel formed upon or fastened rigidly to said turn-table, two independently-rotating vertical shafts adapted to transmit the power of the mill to other mechanism, a wind-wheel shaft journaled in said turn-table, a third independent vertical shaft journaled in bearings attached to the tower, and a train of gearing connecting said wind-wheel shaft, said vertical shafts, and the gear on said turn-table, one element of said train of gearing being a loosely-mounted gear free to rotate on its own axis and about the axis of rotation of its movable support, whereby the rotation of the turn-table rotates the upper, but not the lower, of said vertical power-transmitting shafts.

5. The combination of the turn-table B, the gear F, formed thereon, the loose spur and miter gear H I, rotating freely about the vertical axis of the mill, the miter-gear J, engaging with the gear I and free to rotate on its own axis and to revolve about the vertical axis of the mill, the miter-gear L, engaging with the gear J, and the gears G G', connecting the gears F H, and adapted to rotate the gear H at twice the speed of rotation of the gear F, substantially as shown and described, and for the purpose set forth.

6. In a windmill of the class described, the combination of a rotating turn-table, a gear formed on or rigidly attached to said turn-table, a loose gear having its axis coincident with the vertical axis of the mill and rotating freely on said axis, a loosely-mounted gear engaging with said loose gear and free to rotate on its own axis and to revolve about the vertical axis of the mill, the three vertical shafts C' C'' C''', substantially as set forth, and gearing connecting the turn-table, both of said loosely-mounted gears, and said vertical shafts, whereby if the shaft C'' be held stationary a rotation of the turn-table has the same effect on said first-mentioned loose gear as a rotation of the shaft C'.

7. In a windmill of the class described, the combination of a turn-table free to rotate about the vertical axis of the mill, a wind-wheel shaft journaled in said turn-table, a gear formed on said turn-table and rotating therewith, the three vertical shafts C' C'' C''', substantially as shown and described, and a train of gearing connecting the wind-wheel shaft, the turn-table, and the three vertical shafts, one element of said gearing being a loosely-mounted gear-wheel free to rotate about its own axis and to revolve about the axis of its movable support, whereby the turn-table rotates without tending to rotate the wind-wheel shaft in its bearing, and the wind-wheel shaft rotates in its bearing without tending to rotate the turn-table.

8. The combination of the turn-table A and gear F, rigidly attached thereto, the three vertical shafts C' C'' C''', the gear L, mounted rigidly on the shaft C''', the loosely-mounted gear J, engaging with the gear L, and gearing connecting the gears J F, whereby the rotation of the turn-table and its gear F rotates the shaft C', but not the shaft C''', substantially as shown and described, and for the purpose set forth.

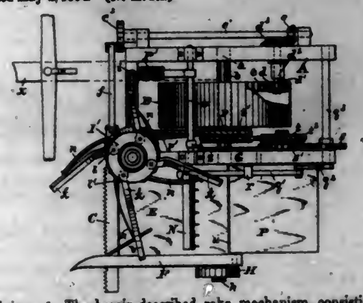
9. The combination, in a mill of the class described, of a turn-table rotating freely about the vertical axis of the mill, a wind-wheel shaft journaled in said turn-table, a gear formed on the turn-table or rigidly attached thereto, two independently-rotating vertical shafts standing in the same straight line and adapted to transmit the power of the mill to other operated mechanism, a third vertical shaft journaled in bearings attached to the tower, and gearing, substantially as shown and described, connecting said wind-wheel shaft, said vertical shafts, and the gear attached to the turn-table, whereby during the simultaneous rotation of the turn-table about the vertical axis of the mill and of the wind-wheel shaft in its bearing the speed of the operated mechanism bears a constant ratio to the speed of rotation of the wind-wheel shaft.

10. The combination of the turn-table B, the wind-wheel shaft journaled therein, the gear F, attached to the turn-table, the loose gear I, rotating freely about the vertical axis of the mill, the gear J, loosely mounted, as set forth, and engaging with the gear I, the vertical shaft C', and the gears D E, connecting it with the wind-wheel shaft, the gear L, engaging with the gear J, and the gears G G' H, connecting the gears F I, whereby the rotation of the turn-table while the gear L is held stationary rotates the gear I on its axis, but does not rotate the wind-wheel shaft in its bearing, substantially as and for the purpose set forth.

11. The combination of the wind-wheel shaft C and the gears D E F G G' H I J L, all constructed, connected, and operating substantially as shown and described, and for the purpose set forth.

12. The combination of the top plate, A', provided with the integrally-formed bracket A''' and bracket A'', and the shaft C''', journaled in said plate and arm, substantially as shown and described, and for the purpose set forth.

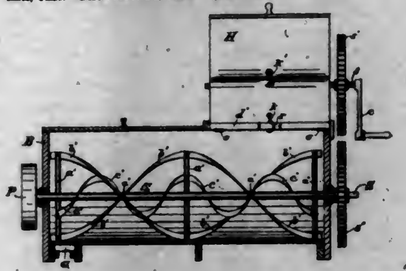
319,310. CORN-HARVESTER. ROBERT L. PEARSON, Chestertville, Md. Filed May 2, 1884. (No model.)



Claim.—1. The herein-described rake mechanism, consisting of a bar, *q'*, having at one end a head, N, hinged thereto by a knuckle-joint, and the other end connected to a crank, and a slotted bearing for the bar fixed between the rake and crank, as set forth.

2. A corn-harvester having, in combination, a recipient, E, a platform, P, hinged at the rear edge of the recipient, a rake consisting of a bar, *q'*, having at one end a head, N, hinged by a knuckle-joint, and the other end connected to a crank, and a bearing for the bar fixed between the rake-head and crank, as set forth.

319,311. COMBINED MIXER AND SIFTER. DANIEL PETERS, Cincinnati, Ohio. Filed Nov. 14, 1884. (No model.)



Claim.—1. In a combined mixer and sifter, the combination of a horizontal casing provided with a sifter at the top near one end, and a discharge-aperture at the bottom near the other end, to emit the mixed contents, a projecting shaft journaled in the ends of the casing, having one end provided with means for the application of power, and the other with means for the transmission of power to the sifter, and intermediate spiral blades of opposite convolutions operating within the casing, substantially as set forth.

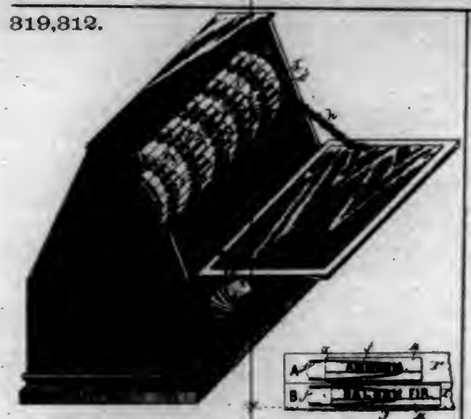
2. In a combined mixer and sifter, a mixer embodying a horizontal shaft provided with concentric spiral blades of opposite convolutions, and a casing having a feeding-aperture at one end and a discharge-aperture at the other, in combination with a sifter arranged above the feed-aperture and suitable driving-connections between the mixer-shaft and the sifter, whereby the two are operated in unison, substantially as set forth.

3. In a combined mixer and sifter, a sifter adjustably mounted at the receiving end of the mixer and power-connections between the two, whereby the latter may be thrown into or out of operating connection, substantially as set forth.

319,312. LABEL-CABINET. CHARLES A. PETERSON, Galesburg, Ill. Filed Apr. 11, 1884. (No model.)

Claim.—1. In a label-cabinet, a rotating carrier provided with suitable supports and having attached to its outer surface a series of clamps, substantially as described, for holding the labels, as set forth.

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2. In a label-cabinet, a rotating carrier provided with suitable supports and having on its outer surface a series of flat faces and a series of clamps attached to the said flat faces, substantially as set forth, for holding the labels in place.

3. A rotating carrier having suitable supports and provided with the letters of the alphabet in a series thereon, in combination with the label-holding clamps arranged on the outer surface of said rotating carrier in series coincident with said letters of the alphabet, substantially as described.

319,313. FARE-BOX. WILLIAM G. PECK, New Orleans, La. Filed Aug. 26, 1884. (No model.)

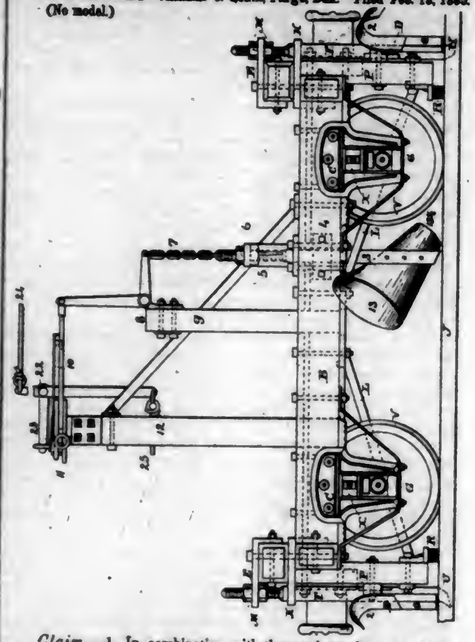


Claim.—1. In a fare-box, a push-block having a toothed plate or comb attachment, in combination with a pivoted toothed plate or comb having a weight or balance connected therewith, whereby it is adapted to be held in position to receive the fares, and to be tilted and relieved of the said fares by the forward movement of the push-block and its comb attachment, the teeth of the latter adapted to operate between those of the pivoted comb, substantially as and for the purpose specified.

2. The combination, in a fare-box, of a push-block having a comb connected therewith, a shaft supporting a second comb the teeth of which are adapted to operate between those of the aforesaid comb, a hammer connected with the said shaft, and a bell or gong, substantially as and for the purpose set forth.

3. In a fare-box, the combination of a push-block having end pieces provided with curved slots for the passage of a shaft supporting a comb, and a hammer adapted to strike a bell, as described, with a comb attached to the push-block, the teeth of the latter comb adapted to operate between those of the former without coming in contact therewith, for the purpose set forth.

319,314. SWITCH, FROG, GUARD-RAIL, AND CROSSING FLANGE AND CLEARER. CHARLES C. QUINN, Fargo, Dak. Filed Feb. 12, 1885. (No model.)



Claim.—1. In combination with the continuously-perpendicular flange-cutter U, tread-clearer O, funnel-excavator 13, conical scoop 2, perpendicular threaded square bar F, and the threaded bar 3, substantially as described.

2. In combination with a railroad-track, the funnel-shaped surface-clearers, adjustable as described.

3. The combination, in a railway-track clearer for cars, of a perpendicular flange-cutter and tread-clearer of a funnel-shaped excavator, adjustable to cut above and below the faces of the rails, substantially as described.

4. The combination of the flange-cutters, the tread-clearers, vertically adjustable, the funnel-shaped excavators adapted to be lifted over switches, and an automatic lock, substantially as described.

5. In a track-clearer, the overhanging deflector 2 and angular perpendicular clearer, in combination with the vertically-adjustable bar F and a car, substantially as described.

6. The combination, with a car, of vertically independently-adjustable funnels 13, suspended flexibly from a rock-shaft, 8, substantially as described.

7. The combination, in a railway-track clearer, of a truck-frame which is laterally adjustable on its axles, substantially as described.

8. The combination, with a car-frame, of the surface-rail clearers and the conical chutes 2, braced and adjustable as described.

9. The combination, with a car-frame, of the surface-clearer, the cutter U, braced and adjustable as described, and the vertical timber P, as specified.

10. The combination, in a railway-track clearer, of a curved surface-deflector, a clearer, U, and a broom, arranged to operate as described.

11. The combination, with the funnel-excavator, adjustable as described, of the tooth 13½, substantially as specified.

12. The combination, in a railway-track clearer, of the vertical stayed timbers P, the adjustable bars F, the guides therefor, the rail flange-cutters U, the brooms, and the surface-clearers, as described.

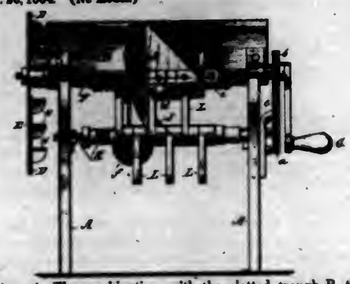
13. A railway-truck frame laterally adjustable on its axles, in combination with vertical frog and side rail-clearers, substantially as described.

319,315. MANUFACTURE OF STARCH, GLUCOSE, &c. PAUL RADENHAUSEN, Altona, Slesswick-Holstein, Prussia, Germany, assignor to the Davenport Glucose Manufacturing Company, Davenport, Iowa. Filed Apr. 30, 1884. (No specimens.)

Claim.—1. The process of arresting ammoniacal putrefaction in the starch-milk after it has been separated and precipitating the solid matters more quickly and effectually, which consists in adding to the ground-up grain or starch liquor sulphuric acid, substantially in the manner and for the purposes described.

2. The process herein described of manufacturing starch, glucose, and other starch products from corn and other grain, which consists in first passing the crushed grain and water through separators, then precipitating the separated starch-milk with sulphuric acid, then drawing off the acid water and soluble constituents of the grain contained in it, and stirring up the residue in dilute sulphuric acid, and afterward passing the liquid thus obtained over the starch-depositors, substantially as and for the purposes specified.

319,316. FAT-CUTTER. THEODORE RAMEK, Baltimore, Md. Filed Mar. 26, 1884. (No model.)

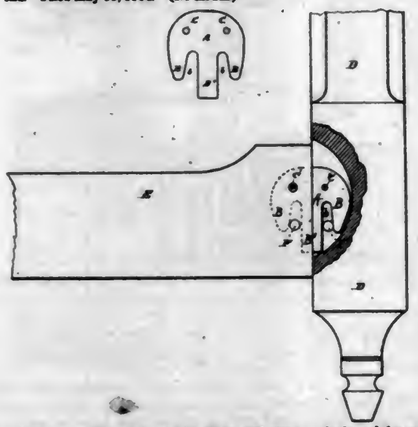


Claim.—1. The combination, with the slotted trough B, the head E, and the blades thereon, of the carriage I, fitted to slide in the trough, the arm J, secured rigidly to the carriage I and projecting downward and rearward through the said slot in the trough, the shaft K, and a series of radial arms, L, secured thereon to engage the slanting arm J successively, as and for the purpose specified.

2. The combination, with the slotted trough B, the carriage I, having the slanting arm J, the shaft K, and arms L thereon, of the pawl *d*, pivoted to the carriage and provided with a weight, *f*, the rack *c*, secured to the trough, and the handle *g* of pawl *d*, projecting into the trough, as shown and described.

3. The combination, with the slotted trough B, the frame A, the head E, and the blades thereon, of the shaft F, the toothed wheel *b* and crank G thereon, the shaft K, the arms L and toothed wheel *a* thereon, the intermediate wheel, *c*, the carriage I, having the slanting arm J, the pawl *d*, and rack *c*, as and for the purpose specified.

319,317. BEDSTEAD-FASTENING. MAURICE F. RALEIGH, Evansville, Ind. Filed May 15, 1884. (No model.)

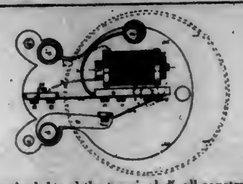


Claim.—1. As a new article of manufacture, a bedstead-fastener consisting of a plate having depending hooks extending one from each side thereof, and a shank extending from between said hooks, and provided with apertures to receive fastening devices.

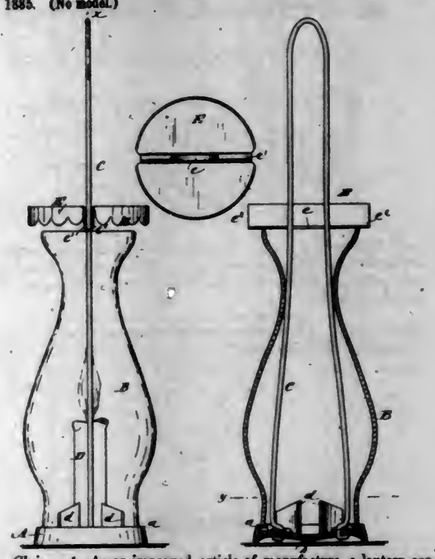
2. In a bedstead-fastener, the combination, with the rail and the post slotted substantially as described, and provided each with a fastening-pin, of the fastening-plate adapted to fit within said slots and provided with depending hooks, one from each side, which fit over said pins, a shank extending from between said hooks, and with apertures and a fastening device.

319,318. ELECTRIC BELL. ERNEST F. RICORDON, Geneva, Switzerland. Filed Oct. 11, 1884. (No model.)

Claim.—In an electric bell, the combination of the plate *k*, having the parts *a a' b* cast entire, the bell adjustably secured to the part *a'*, the electro-magnet secured to the part *a*, the armature and its spring secured to the lug *b*, the hammer attached to the armature, the contact-spring *q*, secured to the terminal *d*, and the terminal *d''*, all constructed and adapted to operate substantially as described.



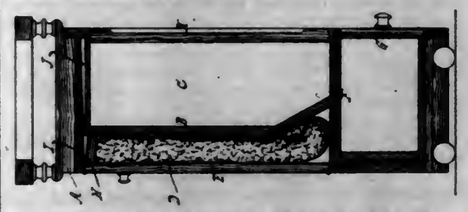
319,319. LANTERN. FORREST RICHARD, Easton, Pa. Filed Feb. 24, 1885. (No model.)



Claim.—1. As an improved article of manufacture, a lantern consisting of the base A, having a flange, *a*, and candle-holding devices, the lamp-chimney B, resting within the flange *a*, the bent-wire handle C, secured at its lower free ends to the base and extended up through the chimney, contacting with the contracted portion thereof to hold said chimney vertical, and the cap having a slot, through which the handle passes, substantially as set forth.

2. The combination, with the base A, the chimney B, and the bent-wire handle C, passed up through the same, of the cap E, folded across the center, as shown at *e'*, to elevate the cap above the chimney, and slotted at *e* for the handle to pass through, substantially as set forth.

319,320. WARDROBE-BEDSTEAD. LOUIS L. RICHMAN, New York, N. Y. Filed Jan. 8, 1885. (No model.)

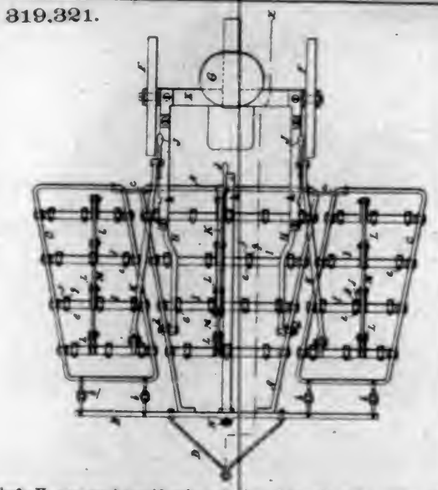


Claim.—In a wardrobe-bedstead, the combination of the lower case or base, a horizontal partition dividing it from the upper case, a vertical partition dividing the upper case into two compartments, a back hinged to the horizontal partition and adapted to form the bed, and the legs hinged to the foot-board and adapted to fold thereover, and be concealed in a recess above the front compartment, substantially as described.

319,321. HARROW. WILLIAM F. M. RICKETTS, Colton, Wash. Filed July 23, 1884. (No model.)

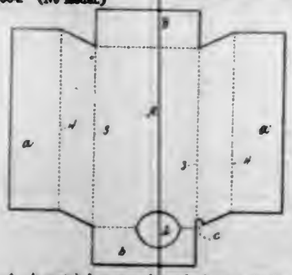
Claim.—In a harrow, the central main section, A, having rearwardly-flared sides, and the side or wing sections, C, of oblique rectangular shape, with their rear ends connected to the central section by rods *c*, and their forward ends connected to a projecting bar, B, of said main section, in combination with the axle E, bearing wheels F, and the

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shafts H, connected to said axle and pivoted to said main section, the said sections A C having pivoted bars I, provided with teeth and crank-arms, with connecting-rods K and levers J, substantially as and for the purpose set forth.

319,322. MATCH-SAFE. GEORGE P. ROBERTS, Norwalk, Ohio. Filed Apr. 28, 1884. (No model.)



Claim.—1. A match box or safe made from a single piece cut to form the sides and top *a a'* and ends *b b'*, the part *b* provided with an opening across its folding line, and having to one side or corner an incision, *c*, the whole being folded and secured, substantially as and in the manner described.

2. The combination, with a match box or safe made from a single piece and cut to form the top and sides *a a'* and ends *b b'*, of the tags having slits 1 2, whereby is formed the suspending portion *c'* and the portion *a*, substantially as described.

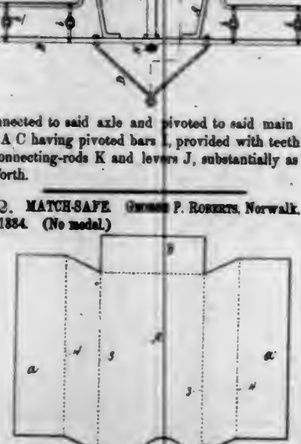
3. A match box or safe having inclined ends turned up from the back thereof, one opening being provided at the angle where the end is turned, and another opening being provided in the side of the box at the corner, substantially as described.

319,323. DETERGENT. CLARK ROBINSON, Hornellsville, N. Y., assignor of one-fourth to JNO. KUNTZ, same place. Filed Feb. 20, 1885. (No specimens.)

Claim.—A detergent for cleaning wall-paper, composed of rye-flour, wheat-flour, corn-starch, glue, and yeast, in or about the proportions specified.

319,324. SASH-FASTENER. THOS. B. ROSS, Evansville, Ind. Filed Dec. 4, 1883. (No model.)

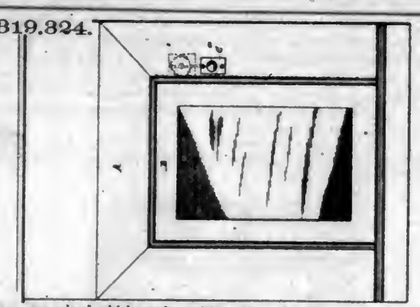
Claim.—1. In a sash-fastener, the combination, with the window-frame provided on one side with a pressure-spring and on the other side with a rack-bar, of a box located within the window-casing, and carrying a gear-wheel which meshes with said rack, the gravitating sliding locking-pawl having a weighted head and a projecting stud, and the pivoted bell-crank lever connected at one end with said gravitating pawl, and provided at the other with a button which slightly protrudes beyond the surface of the casing.



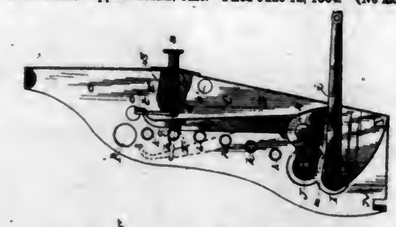
2. In a sash-fastener, the combination, with the box and the gear-wheel mounted therein, of the sliding gravitating locking-pawl provided with a weighted head and a projecting stud, which engages normally with the teeth of said gear and with a series of apertures, and the pivoted bell-crank lever engaging at one end with said apertures and provided at the other with a button.

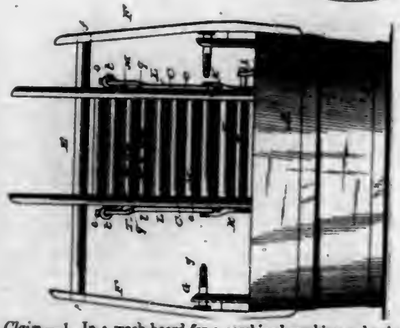
3. In a sash-fastener, the combination, with the sliding gravitating locking-pawl having a series of apertures in one of its members, a weighted head, and a projecting stud, of the bell-crank lever, one end of which is adapted to engage said apertures, and the other of which is provided with a button.

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319,325. COMBINED WASHING AND WRINGING MACHINE. B. H. SANBORN, Tupper's Plains, Ohio. Filed June 12, 1884. (No model.)





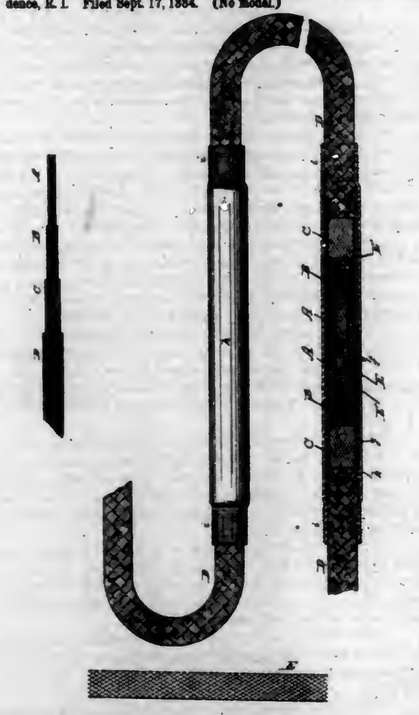
Claim.—1. In a wash-board for a combined washing and wringing machine, the combination, with a series of rollers journaled in a rigid frame, of a roller journaled in adjustable bearings secured to said frame, whereby the wash-board is adapted for use as a wringer, substantially as and for the purpose set forth.

2. The combination, with a combined wash-board and wringer-frame having notches in one end fitting upon the edge of the side of a tub, and having suitable holes at the other end, of a cross-bar passing through said holes and through corresponding holes in the ends of uprights secured to the sides of the tub, a roller secured in stationary bearings within said frame on a shaft, one end of which is square to receive a crank, and a roller secured in adjustable bearings in said frame, and means, substantially as described, for adjusting said adjustable bearings, substantially as shown, and for the purpose set forth.

3. The combination, with a combined wash-board and wringer-frame the side pieces of which have notches at one end, one of which notches is cut near one side of one of the side pieces and the other one is cut near the opposite side of the other side piece, each of said side pieces being also provided with a slot near the end having the notches, and with a hole at the other end, of a cross-bar passing through said holes and through corresponding holes in the ends of uprights secured to the sides of the tub, two rollers passing through the slots in the side pieces of the frame, one of which rollers is secured in stationary bearings, and the other one is secured in adjustable bearings secured to the said frame, and means, substantially as described, for adjusting said adjustable bearings, substantially as shown, and for the purpose set forth.

4. The combination, with a tub, of the uprights F F, having holes *f* and *p*, the cross-bar E, the frame C, having notches N N, slots *m m* and *n n*, and holes P P, the rollers I and J, the fixed plates K K, and movable bearings L L, having short arms *j j* and longer arms *l l*, the latter being provided with shoulders *q q*, and stops *o o* and the curved portions *r r* between, the bent tension-bar T, having an arm, M, near its center and eyes *t t* at its ends engaging with the curved parts *r r*, the springs S S, and the set-screws *s s*, substantially as shown, and for the purpose set forth.

319,326. ELECTRICAL CONDUCTOR. WILLIAM H. SAWYER, Providence, R. I. Filed Sept. 17, 1884. (No model.)



Claim.—1. The combination, with two endwise adjacent braided coreless conductors, of the braided-wire coupling-sleeve embracing the adjacent ends of said conductors, substantially as described.

2. The combination, with the two endwise adjacent metallic circuit-conductors, each comprising two concentric braided conducting members insulated from each other, of the two braided-wire coupling-sleeves connecting corresponding conductors, and suitable insulation between said sleeves, substantially as described.

319,327. HARNESS. CHARLES F. SHEDD, Fairfield, Nebr. Filed Oct. 18, 1884. (No model.)

Claim.—1. A harness formed or provided with plates at the side, to which sliding pieces or other means may be attached for attaching the horse to leading-ropes, as set forth.

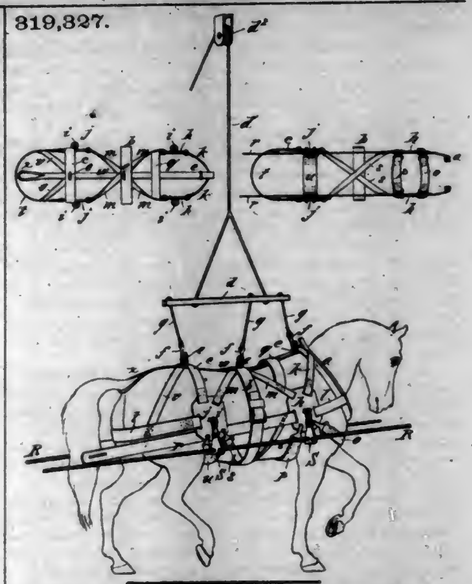
2. The side plates *h j*, provided with eyes *i*, and attached to the harness, substantially as and for the purposes set forth.

3. In a harness, the combination, with the plates *h j*, the collar, and hames, of the under and upper crossed straps, *m s*, connecting the said plates, and the straps *k l*, connecting the plates *h* with the collar and hames, substantially as set forth.

4. The harness herein shown and described, consisting of the plates *h j*, collar and hames *a*, and the back, belly, hip, and breeching straps, arranged substantially as described.

5. In a harness of the character described, the belly-band P, provided with the point *t'* and spring *t²*, in combination with the shield P', arranged as and for the purposes set forth.

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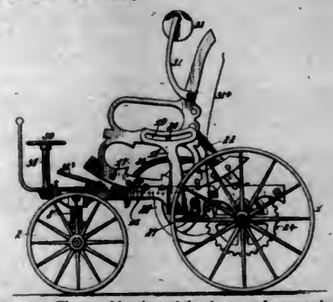
319,328. DEVICE FOR PICKING UP AND AFFIXING STAMPS, &c. GERARD W. SCHIMMEL, Amsterdam, Holland. Filed May 21, 1884. (Model.)



Claim.—1. In a device for picking up and fastening stamps, labels, and other adhesive slips or articles, the elastic or yielding base A, in combination with stationary pins or prickers *b*, arranged to penetrate said base, substantially as specified.

2. As an improved article of manufacture, the stamp-fastener consisting, essentially, of the rubber face-piece A, back B, to which said rubber is secured, and the pins or prickers *b*, secured to the back B, and projecting through and slightly beyond the face of the rubber, as set forth.

319,329. VELOCIPEDE. HIPPOLYTE SCHNEIDER, Pittsburg, Pa. Filed Apr. 24, 1885. (No model.)



Claim.—1. The combination of the front and rear wheeled axles, the latter having a crank, side rails supported by the axle, a rocking seat on the side rails, a pitman connecting the seat with the cranked axle, a gear-wheel on the latter, and a counter-shaft journaled on the side rails and having a balance-wheel, and a pinion engaging the gear-wheel, substantially as described.

2. The combination of the front and rear axles, the latter having a crank and a gear-wheel, the side rails having sleeves in which the rear axle revolves, a counter-shaft journaled on the side rails in front of the rear axle, and provided with a pinion and a combined balance-wheel and pulley, a rocking seat having pins to engage the side rails, and a pitman

directly connecting the seat and the crank of the rear axle, substantially as described.

3. The combination, with side rails having a series of notches or recesses and lateral horizontal flanges, of a seat having rockers, each having a series of pins or studs to alternately engage the notches or recesses, and gearing for revolving the axle by the rocking of the seat, substantially as described.

4. The combination of the front and rear axles, the latter having a crank and a gear-wheel, the side rails supported by the axles, and the counter-shaft journaled on the side rails and having a pinion and balance-wheel, with the rocking seat supported by the rails, the cross-rod secured to the rear of the seat, and the pitman sleeved upon said rod and to the crank of the rear axle, substantially as described.

5. The combination of the side rails having a series of notches or recesses and lateral horizontal flanges, the seat resting on the flanges and having rockers, each provided with a series of pins or studs for alternately engaging the notches or recesses, the upright arms secured to the side and having heads provided with segmental slots engaging pins on the seat, and gearing connecting the seat with the axle, substantially as described.

6. The combination of the front and rear axles, the latter having a crank and a gear-wheel, the side rails supported by the axles, and each having a series of notches and a lateral flange, a counter-shaft journaled on the side rails and having a pinion and a balance-wheel, a seat having rockers resting on the flanges, and each provided with a series of pins or studs to engage the notches or recesses, and a pitman connecting the seat with the crank of the rear axle, substantially as described.

7. The combination of the front and rear axles, the side rails supported thereby, the seat having rockers supported by the rails, the front platform on the rails, the springs connected at one end with the side rails and at the other end with the rear portions of the rockers, and gearing connecting the seat with the rear axle, substantially as described.

8. The combination of the front and rear axles, the side rails supported thereby, the seat having rockers supported by the rails, the front platform on the rails having brackets at its rear end, the springs secured at one end to the brackets and at the other end to the rear portion of the rockers, and gearing connecting the seat with the rear axle, substantially as described.

9. The combination of the front and rear axles, the side rails supported thereby, the rocking seat, the vertical arms secured to the seat, and provided at their upper ends with pivoted weights, and gearing connecting the seat with the rear axle, substantially as described.

10. The combination of the front and rear axles, the side rails connected at their front by a cross-bar, and having a platform provided with a segmental slot having recesses in its edges, the bar supported by the front axle, the king-bolt passing through the said bars, the lever secured to the king-bolt, and having a pin projecting through the slot in the platform, and the sliding tube on the pin for engaging the recesses in the edges of the slot, substantially as described.

11. The combination, with the rocking seat and the side rails having a platform at their front, of the foot-rest, the set-screw attaching the latter to the platform, and the set-screws acting on the foot-rest between its front edge and the said attaching-screw, substantially as described.

12. The combination, with the wheeled frame, driving mechanism and balance-wheel pulley, of legs secured to the frame for lifting the rear wheels from the ground and holding the frame, substantially as described.

13. The combination, with the supporting-frame, of the rocking seat provided with weighted arms, and the spring wires or plates rising from the frame in the path of the weighted arms, substantially as described.

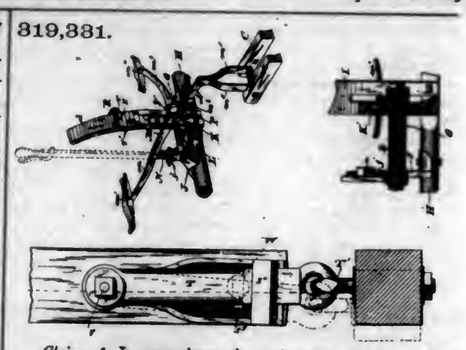
319,330. LADDER. HENRY H. SCHUMANN, Troy, Pa., assignor of one-third to Charles Muth, same place. Filed Mar. 23, 1885. (No model.)



Claim.—1. The combination, in a sectional ladder, of the sides having reduced meeting ends, and plates secured to said ends, one of said plates having a dovetailed flange, while the other is provided with a dovetailed slot to receive the same, substantially as set forth.

2. The combination, in a sectional ladder, of the sides having reduced meeting ends, plates having wedges to fit recesses in said sides, shoulders having recesses and tongues to fit said recesses, and means for holding said sides against vertical draft, as set forth.

319,331. CORN-PLANTER. LEVI SCOFIELD, Grand Haven, Mich., assignor to the Challenge Corn Planter Company, same place. Filed Dec. 13, 1884. (No model.)



Claim.—1. In a corn-planter, the combination, with the main frame and the runner-frame, of the pivoted foot-lever having the projecting stop or stud on its forward arm, a rock-shaft turning independently of the foot-lever, and having the rigid arm for engaging with the stop or stud of the foot-lever, and a hand-lever for operating it, the whole arranged substantially as described.

2. In a corn-planter, the combination, with the main frame and the runner-frame, of the pivoted foot-lever having the projecting stop or stud on its forward arm, a rock-shaft turning independently of the foot-lever, and having the rigid arm for engaging with the stop or stud of the foot-lever, a catch or latch for also engaging said stop or stud, and the hand-lever, the whole arranged substantially as described.

3. In a corn-planter such as described, the combination, with the rock-shaft having the rigid arm and the hand-lever, secured to it, of the foot-lever mounted loosely on the rock-shaft so as to move independently of the same, and having the projecting stud with which the arm of the rock-shaft is adapted to engage, substantially as described.

4. In a corn-planter such as described, the combination, with the pivoted foot-lever having the projecting stop or stud on its forward arm, of a rock-shaft turning independently of the foot-lever, and having the rigid arm for engaging with the stop or stud of the foot-lever, and the hand-lever and means for locking it, substantially as described, and for the purpose specified.

5. In a corn-planter such as described, the combination of the tubular rock-shaft, the hand-lever locked rigidly thereto by means of projections and recesses, the bracket supporting the rock-shaft, the foot-lever mounted loosely on the rock-shaft, and the single screw-bolt operating to hold both the hand-lever and the foot-lever in position upon the rock-shaft, substantially as described.

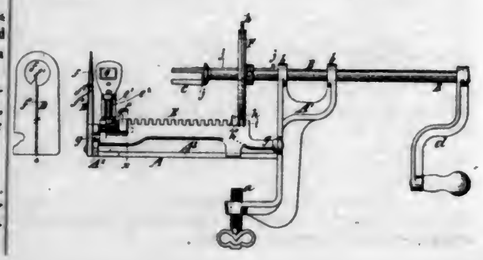
6. The combination of the foot-lever having the projecting stud, the hand-lever and means for locking it, the rock-shaft to which the hand-lever is connected, having the arm for engaging with the stud of the foot-lever, and the automatic latch or catch mounted on said arm and also engaging with said stud, substantially as described.

7. The combination, with the forward foot-rest of the foot-lever, of the automatically-operating catch pivoted to the seat-standard and having the inclined lugs, with which the foot-rest engages, substantially as described.

8. The combination of the pivoted and slotted bracket-plate and the coupling having the loop for limiting the swing of the long link or eye-bolt, with said long link or eyebolt and the securing-bolts, whereby the bracket-plate is rendered capable of adjustment, substantially as described.

9. The bracket-plate having the slot, the loop, the perforation for the bolt upon which it pivots, and the tubular extension which forms the bearing for the link or eyebolt, in combination with said link or eye-bolt, and the bolts by which the plate is secured in adjusted position, substantially as described.

319,332. MACHINE FOR PARING APPLES. L. HERBERT SCOTT, Newark, assignor to Louis A. Sayre, Madison, N. J. Filed May 3, 1884. (Model.)



319,332.



Claim.—1. The combination, with a fork-spindle provided with a disk, F, having upon it a screw-thread cam, of a rack, with which said cam engages for feeding the spindle along, and which is provided with an isolated tooth, with which said cam may be engaged for holding the spindle while placing an apple upon the fork, substantially as and for the purpose herein described.

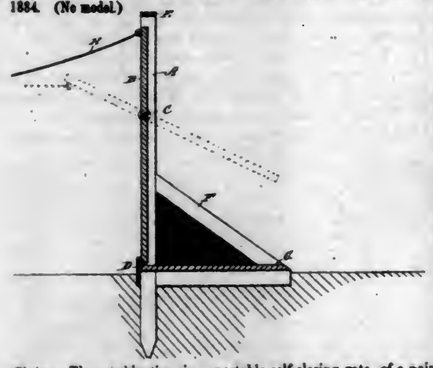
2. The combination, with the frame and its bearings *b*, of the spindle B, provided with the fork *c*, disk F, with its screw-thread cam *h*, the pusher *j*, and the rack E, having the isolated tooth *i*, all substantially as and for the purpose herein described.

3. The combination, with the fork-spindle and its disk F, provided with a screw-thread feeding-cam, *h*, of a rack, E, pivoted at the ends to swing in a plane transverse to its length, a spring for throwing the rack out of operative position, and a latch or catch, whereby said rack is held in operative position for said cam to engage with it for feeding, the latch or catch and cam being arranged and combined substantially as herein described, whereby the cam is caused to act on the catch or latch for throwing it off and releasing the rack at the termination of the feeding movement, to free the cam from said rack, substantially as and for the purpose herein set forth.

4. The combination, with the fork-spindle B, provided with the spiral cam, *h*, of the pivoted rack E and the pivoted latch *g'*, for holding said rack in an operative position, and capable of being acted upon by the end h^6 of said cam, to release the rack and move it into an inoperative position, substantially as herein described.

5. The coring and slicing knife consisting of the slitted piece D, having the aperture *f*, the coring-blade *f'* projecting from the said aperture, and having its edge f^6 set forward to form a slicing-blade, substantially as herein described.

319,333. GATE. JOHN W. SIBE, Jamestown, Ark. Filed June 13, 1884. (No model.)



Claim.—The combination, in a portable self-closing gate, of a pair of posts, A, a floor, G, secured thereto at some distance above their lower ends, a pair of braces, F, connecting the floor with the post, a pair of side boards, F', beneath the braces, a threshold, D, and a lintel joining the posts, a gate, B, pivoted above its center of gravity between the posts, and a rope, H, attached to the gate, the posts A extending below the floor, substantially as shown and described, whereby the gate may be readily secured to the ground, or it may be removed bodily from place to place, for the purpose specified.

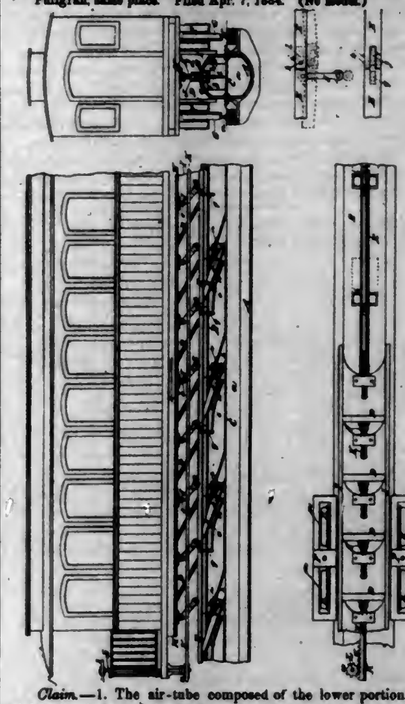
319,334. HOLDBACK-IRON. GEORGE R. SKINNER, Rockford, Ill. Filed Feb. 10, 1885. (No model.)



Claim.—1. The herein-described holdback-iron, consisting, essentially, of a base-plate and a taper hook having an oblique base-connection with the base-plate, substantially as and for the purpose set forth.

2. A holdback-iron consisting of a base-plate and a hook connected obliquely to said base-plate to afford an inclined seat for the holdback-strap, said base-plate being provided with a spring-opening and a depending keeper, and a spring whose free end is adapted to slide in said keeper, substantially as set forth.

319,335. MEANS FOR PROPELLING CARS UPON RAILWAYS. EDWARD G. SMITH, New York, N. Y., assignor of one-half to Rudolph A. Fullgraff, same place. Filed Apr. 7, 1884. (No model.)



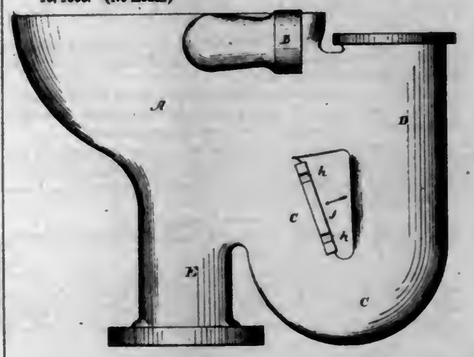
Claim.—1. The air-tube composed of the lower portion, A, containing the air-duct *a*, the partition C, with the attached spouts *b b*, and the shield B, the whole combined substantially as herein described.

2. The combination, with an air-tube placed lengthwise of a railway-track, and having in it at intervals outlets furnished with valves, a railway-car having attached to it a series of buckets, a flexible sectional bar arranged lengthwise of the track and connected with said valves, and a device attached to the car for the purpose of producing the flexure of said bar for operating the said valves, substantially as herein described.

3. The combination, with the air-tube arranged in the track and furnished with air-spouts, and the buckets attached to the car, of a shield flush with ends of the said spouts, and to the surface of which the edges of the said buckets conform, substantially as herein described.

4. The combination, with the air-tube provided with outlets furnished with valves, and a jointed flexible bar connected with said valves, of a railway-car furnished with buckets, into which air may be discharged from said outlets, a series of hangers attached to the car for pressing on the said flexible bar, and a longitudinally-movable rod attached to and arranged lengthwise of the car, for the purpose of depressing said hangers on and producing the flexure of the said flexible bar for operating the said valves, all substantially as herein described.

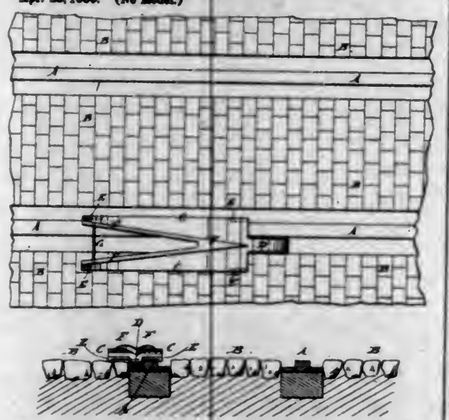
319,336. WATER-CLOSET. SAMUEL F. SNIFFEN, New York, N. Y., assignor to the Meyer-Sniffen Company, (Limited,) same place. Filed Mar. 18, 1885. (No model.)



Claim.—1. A porcelain or other cast water-closet bowl or basin fixture formed or provided with an opening at one side of the ascending leg or upstand portion of the trap, as seen at *g*, and with means for the attachment to the fixture at the locality of said opening of a vent-tube coupling arranged to project to either one or the other side of the bowl, as circumstances may require, substantially as hereinbefore set forth.

2. In combination with a water-closet bowl and trap fixture provided with a vent-opening at one side of the ascending leg or upstand portion of the trap, as seen at *g*, and means for coupling with a ventilating device, a reversible vent-tube coupling, substantially such as hereinbefore described, adapted to be coupled with the bowl-fixture in one or another relative position, accordingly as it may be necessary to have said reversible device communicate with a ventilating tube or shaft at one side or the other of the water-closet, as hereinbefore set forth.

319,337. CAR-REPLACER. ISAAC SNOW, New York, N. Y. Filed Apr. 23, 1885. (No model.)



Claim.—1. A car-replacer made, substantially as herein shown and described, with a plate, C, having an inclined tongue, D, on the center of its forward end, lugs E on the lower side of its corners, and a V-shaped flange, F, on its upper side, as set forth.

2. The combination, with the forked rear end of the plate C, having an inclined tongue, D, on its forward end, lugs E on its lower side, and a V-shaped flange, F, on its upper side, of the cross-rod G, substantially as herein shown and described, whereby the said replacer is strengthened and can be readily handled, as set forth.

319,338. DENTAL BREATH-GUARD. CHARLES C. SOUTHWELL, Milwaukee, Wis. Filed Sept. 17, 1884. (No model.)



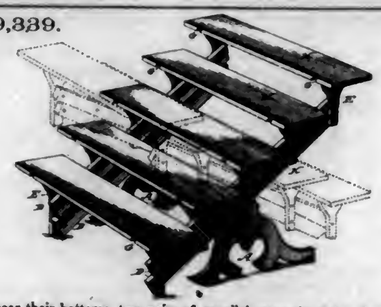
Claim.—1. In a dental breath-guard, the combination of a support adapted to fit the upper lip with a guard hinged thereto, so as to be capable of adjustment, as described.

2. The combination of the plate A, having staple *a'* and fastenings a^2 a^2, the breath-guard C, having the lug *c*, and the band D, substantially as shown and described, and for the purpose set forth.

3. In combination with the rubber dam B and fastenings, the supporting-plate A, having hooks *a a*, staple *a'*, and fastenings a^2 a^2, the breath-guard C, having the lug *c*, and the band D, substantially as shown and described, and for the purpose set forth.

319,339. FLOWER-STAND. M. ELMER STEPHENSON, Boston, Mass. Filed Dec. 24, 1884. (No model.)

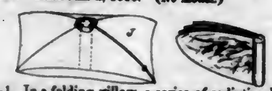
Claim.—1. The combination, with two upright legs, the tops of which are horizontal and provided with dovetailed flanges, of a horizontal shelf having dovetailed grooves on its under side, near its ends, engaging with and connecting the tops of said legs, a brace connecting said



legs near their bottoms, two pairs of parallel arms pivoted at their centers to said legs, a number of bracket-shelves pivotally secured to said arms, and means for retaining said arms in an inclined or a horizontal position, substantially as and for the purpose set forth.

2. The combination, with two upright legs having horizontal dovetailed tops, and connected at their bottoms by a removable brace, of two pairs of parallel arms centrally pivoted to said legs, a number of vertical brackets pivoted to said arms, having their tops horizontal and dovetailed, a number of shelves having dovetailed grooves near their ends, fitting on the tops of said brackets and legs, and a hook secured to the said legs, to engage with pins in said parallel arms, substantially as and for the purpose set forth.

319,340. FOLDING DRESS-PILLOW. HERMAN S. STERNBERGER, Piqua, Ohio. Filed Jan. 2, 1885. (No model.)

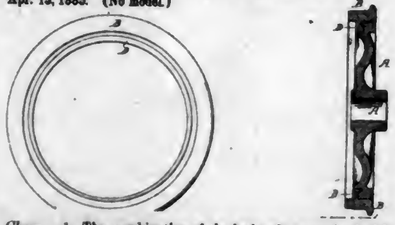


Claim.—1. In a folding pillow, a series of radiating hinged ribs, two of them brought close together and so disposed as to swing around and thus fold up the device, in combination with a catch, K, substantially as herein set forth.

2. In a folding pillow, a cylindrical piece having centrally at the ends circular openings, and outwardly, near the periphery, a series of openings to receive therein a hook, substantially as herein set forth.

3. In a folding pillow, a series of semi-elliptical ribs, with the ends bent inwardly and resting within openings in the heads of the cylindrical piece, in combination with the cylindrical piece, substantially as herein set forth.

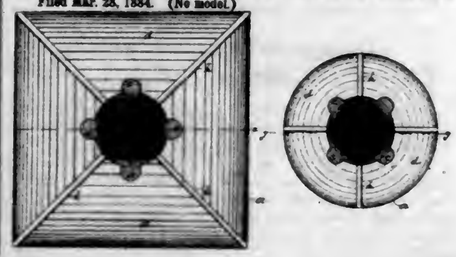
319,341. CAR-WHEEL. JOSEPH P. STEVENSON, Lewistown, Pa. Filed Apr. 13, 1885. (No model.)



Claim.—1. The combination of the body of a car-wheel with a rim or tire secured thereto, the joint between the body and tire presenting two or more annular planes eccentric in respect to each other, as set forth.

2. The combination of the tire of a car-wheel, having an inner web or collar, with the body of the wheel secured to said collar, the tire and body of the wheel having eccentric surfaces forming the joint between the two, as set forth.

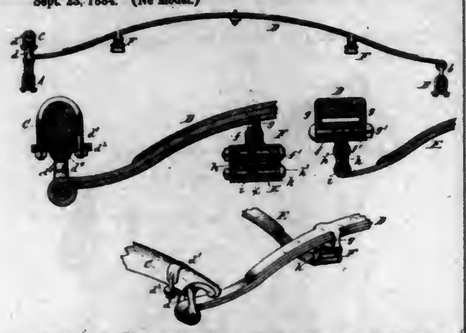
319,342. FURNITURE-LEG SHOE. MAX STRAUS, Baltimore, Md. Filed Mar. 28, 1884. (No model.)



Claim.—1. A furniture-leg shoe or plate, *a*, of any desired form in its outer configuration, and provided on its upper face with a socket, *b*, and an inclined plane or planes, *d*, extending from the periphery of the socket to the periphery of the shoe, as set forth.

2. A furniture-leg shoe or plate, *a*, of any desired form in its outer configuration, and provided on its upper face with a socket, *b*, having opposite notches *c* in its periphery, inclined plane or planes *d*, extending from the periphery of the socket to the periphery of the shoe, and guide-rib *h*, as set forth.

319,343. VEHICLE-SPRING. ALBERT STRAUB, Gowanda, N. Y. Filed Sept. 23, 1884. (No model.)

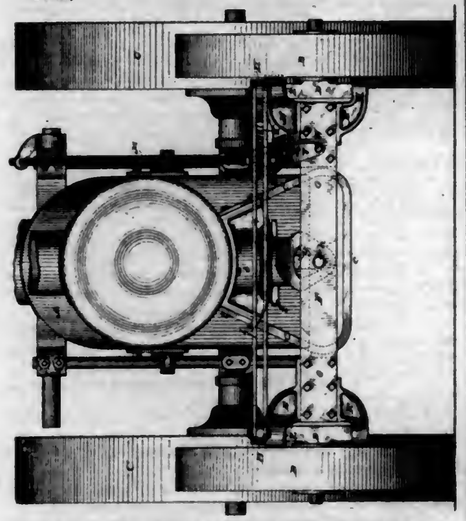


Claim.—1. The combination, with the side springs, D, having downwardly-depending lugs *g*, of the cross-springs E and coupling F, provided with sockets *f f'*, whereby the cross-springs are connected to the side springs, substantially as set forth.

2. The combination, with the side springs, D, having downwardly-depending lugs *g*, of the cross-springs E and coupling F, provided with a socket, *f*, pivoted between the lugs *g* by a bolt, *g'*, and a socket, *f'*, arranged at right angles to the socket *f* and pivoted to the cross-springs E by links *h h* and bolt *i*, substantially as set forth.

3. The combination, with the side springs, D, pivoted at their front end to the bolster C by a shackle, *d*, and clip-plate d^2, and at their rear end to the rear axle, B, and provided with downwardly-depending lugs *g g*, of the cross-springs E, pivoted to the side springs between the bolster and rear axle by couplings F, depending from the lugs *g g*, substantially as set forth.

319,344. TRACTION-ENGINE. GEORGE STRINGER, Auburn, N. Y., assignor to Edgar M. Birdsall, same place. Filed Mar. 19, 1885. (No model.)



Claim.—1. In a traction-engine, the combination, with the main front axle, F, the brackets E, the T-shaped castings D, forming the front wheel-axle, the detachable arms H H, link I, gear K, the endless screw L, and the rod and hand-wheel, substantially as set forth.

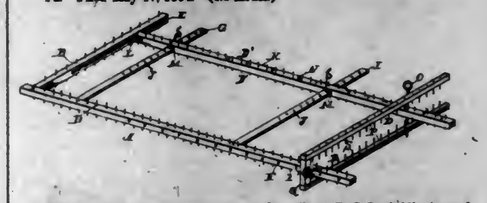
2. The combination of the main front axle, a T-shaped casting, D, a detachable arm, H, a bracket, E, and a bushing, Z, substantially as set forth.

3. In combination with the main axle, a T-shaped casting, D, a bracket, E, and a detachable segmental gear, K, a rod, M, a yoke, R, with spurs engaging with the worm T, the worm-shaft Q, and a pivoted bracket, V, whereby the endless screw and segmental gear can be engaged or disengaged, substantially as set forth.

4. The combination of the main front axle, F, composed of two bars, O and P, separated from each other in the middle, the boiler-support *b*, the brace-bar *c*, the T-shaped support *g*, pivoted to the main axle, but resting upon its top, and the spring-barrel and spring, substantially as set forth.

5. The combination of the main front axle, F, composed of two bars, O and P, separated from each other in the middle, the boiler-support *b*, the brace-bar *c*, the T-shaped support *g*, pivoted to the main axle, but resting upon its top, the spring-barrel and spring, and the wedge I, substantially as set forth.

319,345. CURTAIN-STRETCHER. EUGENE SWEITZER, Allegheny, Pa. Filed May 17, 1884. (No model.)

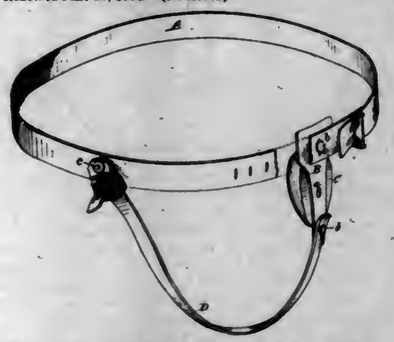


Claim.—1. In a curtain-stretcher, the rails A B G I, rigidly framed together at right angles to each other, the rails A B being provided with pins on opposite sides, and the rail B being grooved as described, in combination with the adjustable tenoned, spiked, and mortised rail K, and the double-united rails, also spiked and adjustable by means of pins O R, all constructed and adapted to operate substantially in the manner and for the purposes described.

2. In a curtain-stretcher, a rigid angular frame consisting of the rail A, provided with pins and perforations, the rail B, provided with pins and a groove, and the perforated tongues or guides G L, in combination with the transversely-adjustable rail K, its pins D' S, and the double-connected rails, also provided with pins and adjustable on the rails A K, substantially as described.

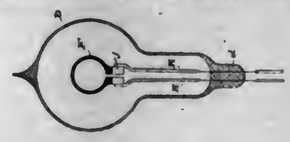
3. In combination with a rigid angular frame and its guides, the laterally-adjustable rail K and the longitudinally-adjustable double rails, all of said rails being provided with pins, substantially as and for the purposes described.

319,346. TRUSS. PEA TEFFT, Oriental, Colo. Filed May 26, 1882. Renewed June 26, 1884. (No model.)



Claim.—The combination, with the slotted belt A and the leg-strap D, provided with the buttons *b b*, integral therewith, of pad C, pivoted to said lever, substantially as herein shown and described, whereby the truss may be reversed, as specified.

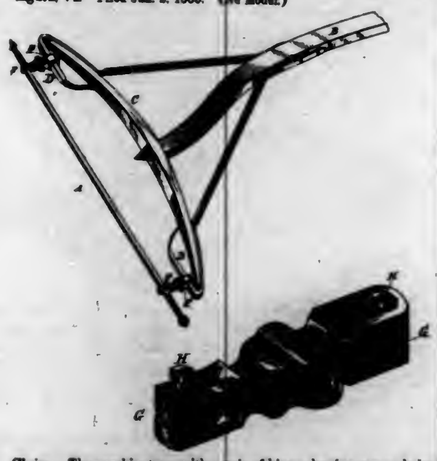
319,347. SYSTEM OF ELECTRIC LIGHTING. WILLIAM M. THOMAS, Grand Rapids, Mich., assignor of one-half to the Grand Rapids Electric Light and Power Company, same place. Filed Apr. 9, 1884. (No model.)



Claim.—1. The combination of an electric generator or source of electric energy, an electric circuit, suitably-equipped arc lights placed in series in said circuit, incandescent lamps also placed in said circuit in series with the arc lights, and an automatic cut-out for each incandescent lamp which short-circuits the carbon or incandescent substance when it is ruptured.

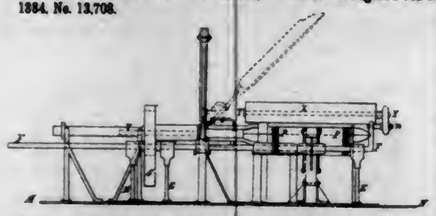
2. The combination, substantially as set forth, of the continuous section or loop of carbon or incandescent substance, the cut-out springs which tend to press the ends or sockets *f* of the carbon loop toward each other, and the conductors.

319,348. POLE AND SHAFT COUPLING. GEORGE E. THOMAS, Abingdon, Va. Filed Jan. 2, 1885. (No model.)



Claim.—The combination, with a pair of hinges having square holes through them, one of which is adapted to receive a carriage-axle parallel with their pivots and split out at their ends, and binding-screws through their ends, of bars D, adapted to fit the other square hole in the hinges, and means for attaching the bar D to a vehicle, substantially as shown and described.

319,349. CIGAR-MACHINE. EDWARD A. TOUCHANT, Antwerp, Belgium. Filed Nov. 25, 1884. (No model.) Patented in England Oct. 16, 1884, No. 13,708.



Claim.—1. In a cigar-machine, the combination of the mold formed of several uniform sections, the revolving shaft carrying the mold, the divided bed for securing the mold, and the transversely-operating roller adapted to operate upon said mold, substantially as described.

2. The combination of the rotary shaft having the wheel R, the rods *t*, pivoted to said wheel and provided with the hooks *b*, the mold-sections carried by said rods *t*, and the vertically-reciprocating rod I, provided with an eye, *a*, with the divided bed for securing the mold and the transversely-operating roller, substantially as described.

3. The combination of the divided bed, the springs acting upon the same, the rods and the levers, and the revolving eccentric wheel with the sectional mold adapted to be held stationary and to rotate in said divided shell, substantially as described.

4. The combination of the laterally-movable roller and the crank-shaft and the connecting-rod with the divided bed and sectional mold, substantially as described.

319,350. HOSE-COUPLING. JOHN T. TITUS, San Francisco, Cal. Filed Jan. 29, 1885. (No model.)

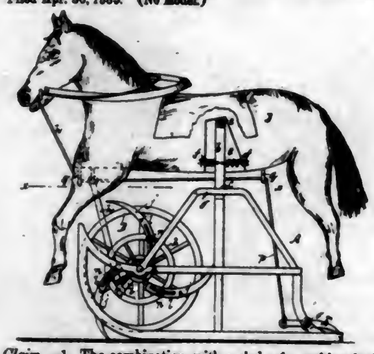


Claim.—1. A hose-coupling consisting of the part A, having the longitudinal grooves *f* and transverse grooves *e*, and the part B, into which the part A is adapted to enter, a seat, *b*, projections *g*, movable lugs or projections *h*, and a revolving ring, H, to which the lugs *h* are secured as a means of throwing the lugs, substantially as described.

2. The combination of the part A, provided with the grooves *e f e f*, with the part B, provided with the projections *g g*, and the movable ring H, provided with the projections *h h*, substantially as set forth.

3. In a two-part coupling, the part A, provided with the grooves described, the part B, having the circumferential slots b^2 and lugs *g*, and the ring H, having the lugs *h*, substantially as and for the purpose set forth.

319,351. ROCKING PROPELLER. CHARLES TORRIMER, Hoboken, N.J. Filed Apr. 30, 1885. (No model.)



Claim.—1. The combination, with a sled, of a rocking device forming a seat, a propeller-wheel which is mounted in the sled, and suitable connections for transmitting motion from the rocking device to the propeller-wheel, substantially as described.

2. The combination, with the sled and with the rocking device, of standards *b b*, rising from the sled-frame, cavities *e*, formed in the rocking device for the reception of the standards, recoil-springs situated in said cavities, the propeller-wheel mounted in the sled-frame, and the connections for transmitting motion to the propeller-wheel, substantially as described.

3. The combination, with the sled, of a structure, C, rising from the sled-frame to form a support for the rider's feet, the standards *b b*, rising from this structure, the rocking device mounted in these standards, the propeller-wheel mounted in the sled-frame, and the connections for transmitting motion from the rocking device to the sled-frame, substantially as described.

4. The combination, with the sled-frame, of the rocking device mounted in standards rising from the sled-frame, the propeller-wheel mounted in the sled-frame, and the connections for transmitting motion from the rocking device to the propeller-wheel, the steering-teeth carried by the sled-frame, and the cords *p*, for governing these steering-teeth, substantially as described.

319,352. APPARATUS FOR GATHERING CRANBERRIES. WILLIAM C. TRAHERN, Elm Lake, Wis. Filed June 19, 1884. (No model.)

Claim.—1. The combination, in an apparatus for gathering cranberries, of a boat, A, provided with an engine and sheave-wheel, the sheave-boat B, the float D, provided with strippers and gatherers, and an endless cable connecting the boats, substantially as described.

2. The boat B, provided with an adjustable sheave-pulley, substantially as described, combined with a floating picker or gatherer, and stationary power for its operation, substantially as described.

3. The cranberry-gatherer consisting of a float carrying an adjustable rake for stripping off the berries, and means, substantially as described, for gathering the floating berries.

4. The combination of strippers *k* with the floats *i*, substantially as shown and described.

5. The combination of strippers *k* and screen *q* with the floats, substantially as and for the purposes specified.

6. The shaft *m* and cutters *m'*, in combination with strippers *k* and floats *i*, substantially as described.

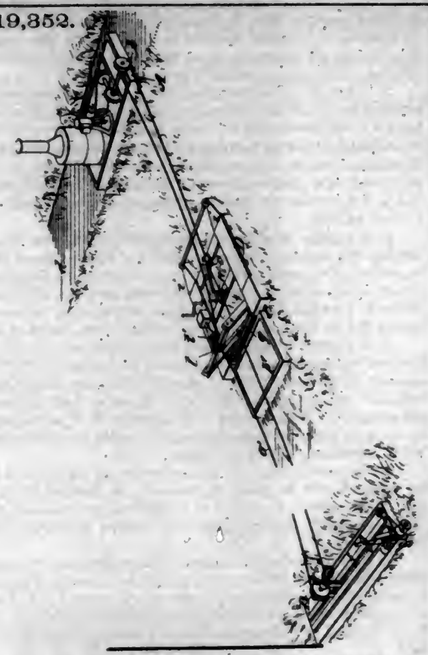
7. The screw *n* and nut *o*, combined with the stripping-fingers *k*, shaft *m*, and floats *i*, substantially as and for the purpose specified.

8. The combination, with floats *i*, carrying strippers, of the elevator for gathering and raising the floating berries, substantially as described.

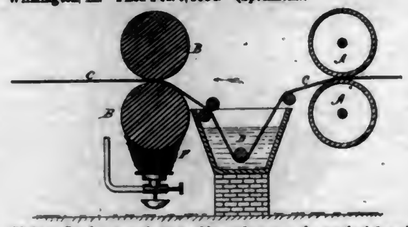
9. The aprons *r*, provided with perforated buckets, the rollers *s*, and supporting-frame, combined with floats *i*, substantially as shown and described.

10. The combination of the endless cable *a'* and the floats *i*, provided with a gripper and a stripping-rake, substantially as described.

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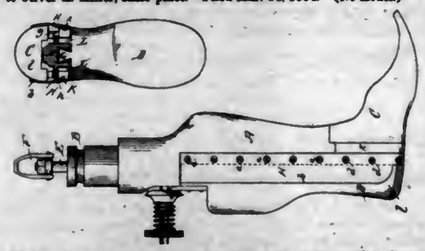


319,353. PROCESS OF CARBONIZING PAPER. STIMSON E. TROTT, Wilmington, Ill. Filed Feb. 6, 1884. (Specimens.)



Claim.—In the manufacture of incandescents, the method described of producing a carbonized paper by passing the paper through a compound or mixture of rubber, asphaltum, and sulphur, and then passing the paper so saturated between rolls heated to such degree as to carbonize the same, and forming the incandescent therefrom, substantially as and for the purpose set forth.

319,354. BOOT-TREE. ABEL D. TYLER, Jr., Brockton, Mass., assignor to Oliver A. Miller, same place. Filed Mar. 14, 1884. (No model.)



Claim.—1. A boot or shoe tree having its body portion formed with separable side pieces to admit of lateral expansion and contraction, in combination with detachable back and foot pieces to adapt the tree for different-sized boots or shoes, substantially as described.

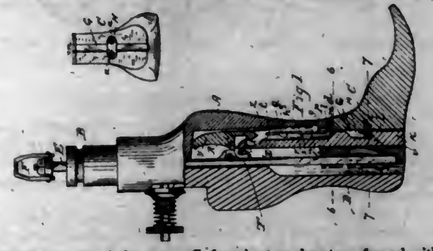
2. A boot or shoe tree having portions K of the sides of its body portion A separate and connected to the body portion by spring-pieces H, substantially as and for the purpose specified.

3. A boot or shoe tree having portions K of the sides of the body portion separate and attached to it by spring-pieces H, and each having a groove, *g*, for tongue *h* on the portion A, substantially as and for the purpose specified.

4. A boot or shoe tree having portions K of the sides of the body portion separate and attached to it by spring-pieces H, in combination with the back D, substantially as and for the purpose specified.

5. A boot or shoe having portions K of the sides of the body portion separate and attached to it by spring-pieces H, and a joint, *f*, substantially as and for the purpose specified.

319,355. BOOT-TREE. ABEL D. TYLER, Jr., Brockton, Mass., assignor to Oliver A. Miller, same place. Filed Mar. 14, 1884. (No model.)

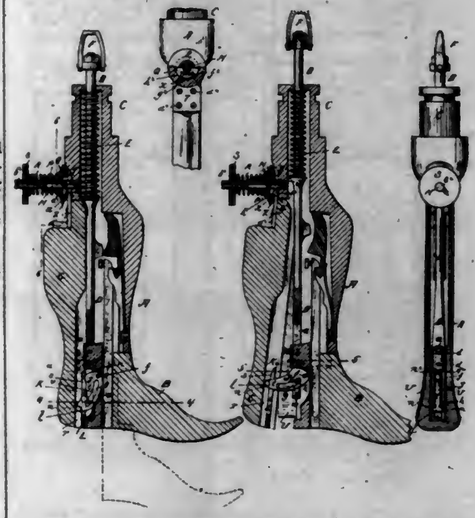


Claim.—1. A foot-piece, C, for a boot or shoe tree, formed with a vertical groove, G, at its back, and provided with a cross-bar, H, secured across said groove intermediate of the upper and lower portions of said foot-piece, for the attachment and detachment of the foot-piece to and from a tree, substantially as described.

2. In a boot or shoe tree, a foot, C, having a groove, G, in its back, and a cross-piece, H, in combination with a bar, K, adapted to fit in said groove and to be attached to the boot-tree, and having an open slot, M, and locking mechanism, substantially as and for the purpose specified.

3. In a boot or shoe tree, a foot having a groove, G, in its back, and a cross-piece, H, in combination with a bar, K, adapted to fit in said groove and to be attached to the boot-tree, and having an open slot, M, and levers P and Q, and spring *n*, substantially as and for the purpose specified.

319,356. BOOT-TREE. ABEL D. TYLER, Jr., Brockton, Mass., assignor to Oliver A. Miller, same place. Filed Mar. 14, 1884. Renewed Nov. 25, 1884. (No model.)

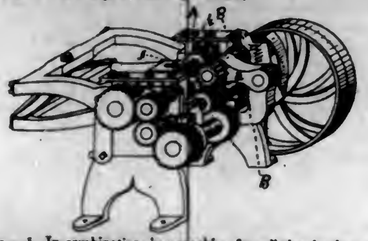


Claim.—1. The combination, with the body of a boot or shoe tree and its center rod, D, arranged to slide therein, of a lever, J, pivoted to said body, and having a slot, *g*, adapted to engage with a pin, *h*, of said rod, and by its side arms, *n*, adapted to engage with a groove in the back, all substantially as and for the purpose specified.

2. In combination with the back of a boot or shoe tree provided with a shouldered catch, f^3, a spring-catch, P, attached to the body, substantially as and for the purpose specified.

3. In combination with the back of a boot or shoe tree provided with a shoulder-catch, f^3, a collar, P, having a shouldered recess, Q, and arranged to slide on a pin, N, provided with a spring, R, and screw-head S, substantially as and for the purpose specified.

319,357. LEATHER-SPLITTING MACHINE. GEORGE L. TYLER, Lynn, Mass. Filed Sept. 3, 1883. (No model.)



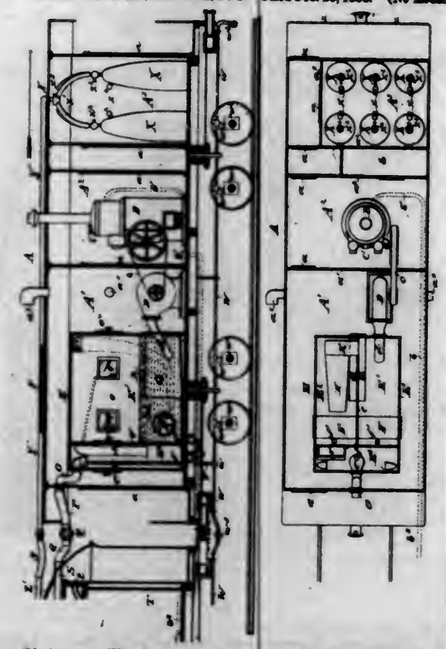
Claim.—1. In combination, in a machine for splitting leather, rolls A B, a splitting-knife parallel with the axis of said rolls, and an edge-trimming knife and suitable guide, said knife and guide being set in the manner described, whereby a part of the leather on the trimmed edge is left unsplit, substantially as described.

2. In combination with a leather-splitting machine, the rolls A B, the splitting-knife *f*, and the trimming-knife 2, with suitable guides, the knife and guides being arranged in relation to each other, as described, whereby the splitting-knife cuts within the line of the trimming-knife and leaves an uncut edge, substantially as described.

3. The combination, in a leather-splitting machine, of the feeding-rolls A A and B B, made of slight conical form, the guard-plate 3 and cutting-knife 2 in the described relation to the feeding-rolls, and the cutting-instrument *f*, all substantially as described.

4. In combination with the guard 3, the plate 4, slotted at one end to receive the knife 2, the said plate being secured to the bottom plate of the machine by the eccentric pins 5 and 6, whereby it is adapted to clamp the knife 2 in position, substantially as described.

319,358. SYSTEM OF VENTILATING, COOLING, HEATING, AND LIGHTING RAILWAY-CARS AND COOLING THEIR AXLE-BOXES. GEORGE VAN DUZER, New York, N. Y. Filed Feb. 25, 1885. (No model.)



Claim.—1. The herein-described system of ventilating, cooling, heating, and lighting trains of railway-cars and cooling their axle-boxes, which consists in combining in an independent car coupled in the train a boiler and engine, a blower or air-forcing apparatus driven by said engine, an air purifying and cooling apparatus, provision of storage of or for generating an illuminant, and means for conducting the air, steam, and illuminant through the other cars of the train, and leading the air to the car-axle boxes by suitable coupled pipes, substantially as herein set forth.

2. In a system of ventilating and cooling trains of railway-cars, the combination, with an independent motive power carried thereby, of an air-forcing apparatus driven by said motor, and an air purifying and cooling apparatus, and conduits therefrom to air-distributing pipes ranging along the cars and discharging the air therein and provided with flexible couplings at their ends, substantially as herein set forth.

3. In a system of ventilating and cooling trains of railway-cars, the combination, with an independent car coupled in the train, of an independent motive power carried thereby, an air-forcing apparatus driven by said motor, and an air purifying and cooling apparatus operating by the forcing of the air through a body or bodies of cold water, and conduits therefrom to pipes ranging along the cars and discharging the air therein, and provided with flexible couplings at their ends, substantially as herein set forth.

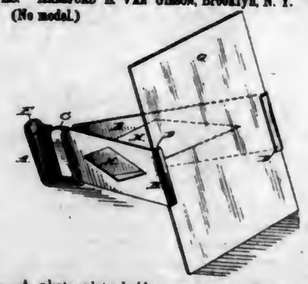
4. In a system of cooling the axle-boxes of railway-cars, the combination, with an independent car coupled in a railway-train, of an independent motive power carried thereby, an air-forcing apparatus driven by said motor, and an air purifying and cooling apparatus, and conduits therefrom to coupled air-distributing pipes ranging along the cars and opening into the axle-boxes of the cars, substantially as herein set forth.

5. In a system of ventilating and cooling railway-cars, the air purifying and cooling apparatus E, constructed with chambers E' E² E³, said chambers E' E³ having bodies of water H I filled into them, respectively, and provided with ice-chambers F G, one or both, air conduits and passages *d* J K M, arranged in the chambers E' E³ and conveying the air to the chamber E³, and the pipes O V, leading the air from chamber E³, substantially as herein set forth.

6. The combination, in the herein-described air purifying and cooling apparatus, with the passage M, connecting its chambers E² E³, and with the air-outlets O V, opening at or near the top of chamber E³, of the air-passage N, opening low down in chamber E³, substantially as herein set forth.

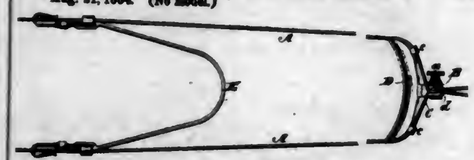
7. In a system of ventilating and cooling railway-cars, the combination, with the cars, air-distributing pipes S, having series of apertures *s*, and valves R, controlling said apertures and provided with flexible end couplings, of the imperforate open-ended pipes U, placed in pipes S, and provided with dampers or valves *u*, substantially as herein set forth.

319,359. AUTOMATIC CLASP AND LIFTER FOR PHOTOGRAPHIC PLATES. RAMSFORD E. VAN GIESON, Brooklyn, N. Y. Filed Jan. 29, 1885. (No model.)



Claim.—A photo-plate holder constructed of the two connected diverging arms B B, whose outer ends are provided with inwardly-projecting lips D D, in combination with the elastic band C, encircling said arms to draw them automatically together, substantially in the manner and for the purpose herein set forth.

319,360. DRIVING-REIN. ALBIN WARTH, Stapleton, N. Y. Filed Aug. 21, 1884. (No model.)



Claim.—1. The combination, with a pair of reins, of a handle interposed between the reins, and a fastening device, substantially as described, carried by the handle for holding both reins.

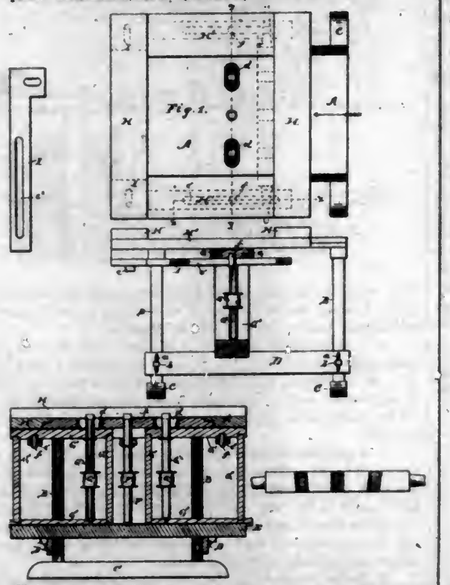
2. The combination, with a pair of reins, of a handle arranged between the reins and having guides through which the reins pass, and a fastening device, substantially as described, carried by the handle for holding both reins.

3. The combination, with a pair of reins, of a handle interposed between the reins, a fastening device, substantially as described, carried by the handle, for holding both reins, and a strap adapted for an additional hold on handle and connected with the reins in advance of the handle.

4. The combination, with a pair of reins, of a handle constructed with a concave face and interposed between the reins, and a fastening device, substantially as described, carried by the handle, for holding both reins.

5. The combination, with a pair of reins, of two grasps—one in advance of the other—one of said grasps being formed by a handle, to which both reins are secured by a fastening device, substantially as described, and the other by the holdback-strap secured to both reins.

319,361. MACHINE FOR CROSS-GROOVING AXLE-TREES. GEORGE WATSON, St. Charles, Minn., assignor to himself and ANDREW MILLER, same place. Filed Mar. 3, 1885. (No model.)



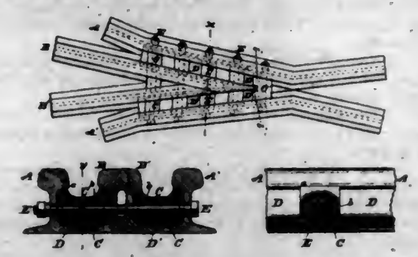
Claim.—1. A machine for cutting cross grooves or gains, consisting of the combination of a table, a vertical central rotating spindle bearing a pulley below and a cutter at its upper end, and vertically-arranged frames disposed in guides upon opposite sides of the central spindle, and bearing each a vertical spindle having a pulley below and a cutter at its upper end, the said frames being made adjustable to or from the central spindle, substantially as shown and described.

2. A machine for cutting cross grooves or gains, consisting of the combination of a table, a vertical central rotating spindle bearing a pulley below and a cutter at its upper end, vertically-arranged frames disposed in guides upon opposite sides of the central spindle, and bearing each a vertical spindle having a pulley below and a cutter at its upper end, the said frames being made adjustable to or from the central spindle, and a sliding frame, H H', arranged to move in guides across the table, and having one of its set of bars flush with the table and the other projecting above it, substantially as described.

3. A machine for cutting cross grooves or gains, consisting of the combination of a table having slots *d*, and a central vertical rotating spindle bearing a cutter, sliding side frames carrying vertical side cutters, and having a motion at right angles to the feed motion of the table, and a sliding feed-frame, H H', having adjustable arms I engaging with the side frames, and adapted to adjust the latter by the feed movement of the frame H H', as and for the purpose described.

319,362. RAILWAY-FROG. FREDERIC C. WEIR, Cincinnati, Ohio. Filed Aug. 14, 1884. (No model.)

Brief.—A railroad-frog in which filling-blocks are fitted within the channel-irons between the rails.

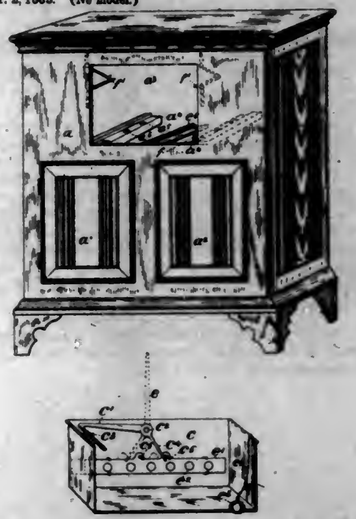


Claim.—1. A railway-frog composed, substantially, of wing and point rails, channel-irons D and filling-pieces, and through-bolt E, adapted to clamp the structure and preserve the space between the rails, substantially as described.

2. In combination with a channel-iron railway-frog, a filling-block, C, fitted to the channels D, substantially as specified.

3. A filling-block, C, provided with lugs *i*, in combination with the channel-irons for supporting the main point-rail, substantially as specified.

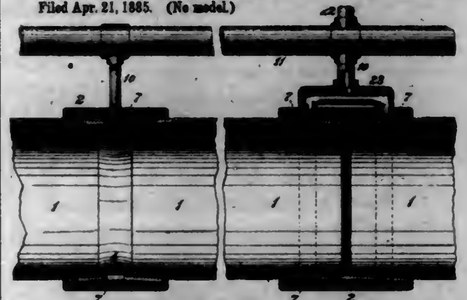
319,363. REFRIGERATOR. JACOB WEYL, Buffalo, N. Y. Filed Apr. 2, 1885. (No model.)



Claim.—1. A refrigerator consisting of the box *a*, provided with the ways a^1, having friction-rollers a^3 and brackets *f'*, in combination with a removable ice-box provided with a plug secured thereto, substantially as and for the purposes described.

2. In a refrigerator, a removable ice-box provided with a bail having a downward extension, in combination with a perforated slideway for automatically opening and closing the holes in the sides of the ice-box, for the purposes described.

319,364. MEANS FOR DETECTING AND CARRYING OFF LEAKAGE FROM GAS-MAINS. GEORGE WESTINGHOUSE, Jr., Pittsburg, Pa. Filed Apr. 21, 1885. (No model.)

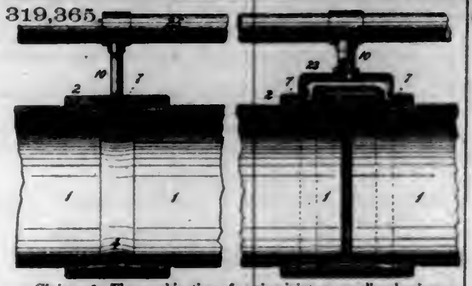


Claim.—1. The combination of a pipe-joint having an internal chamber or receptacle located between the interior wall of the coupling and the exterior wall of a pipe-section, and a vent-pipe leading from said chamber to a suitable point of discharge, substantially as set forth.

2. The combination, in a main or pipe line, of a series of joints or couplings, each having an internal chamber or receptacle located between the interior wall of the coupling and the exterior wall of a pipe-section, a leakage-line having one or more discharge-pipes leading therefrom to points above the level of the ground, and series of vent-pipes, each connecting one of the chambers of the main with the leakage line, substantially as set forth.

319,365. PIPE-LINE FOR GAS-SUPPLY. GEORGE WESTINGHOUSE, Jr., Pittsburg, Pa. Filed Apr. 21, 1885. (No model.)

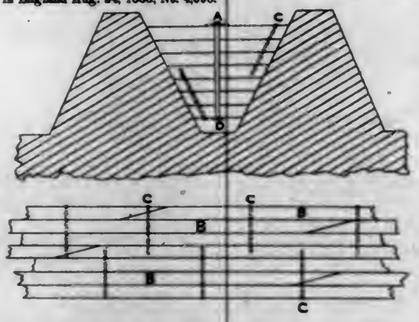
319,365.



Claim.—1. The combination of a pipe joint or coupling having an internal chamber or receptacle located between the interior wall of the coupling and the exterior wall of one or both of the adjacent sections of a main connected by said joint, a low-pressure line extending in corresponding directions with the main, and a low-pressure supply-pipe connecting said chamber with the low-pressure line, substantially as set forth.

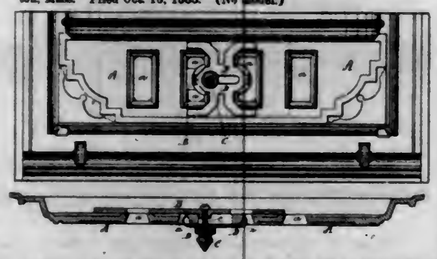
2. The combination of a gas-main or pipe-line having joints or couplings provided with internal chambers or receptacles each located between the interior wall of a coupling and the exterior wall of one or both of the adjacent pipe-sections, a low-pressure line extending in direction corresponding with that of the main, a series of low-pressure supply-pipes each leading from one of said chambers to the low-pressure line, and a series of service-pipes leading from the low-pressure line to points of utilization of the gas, substantially as set forth.

319,366. BELTING OR DRIVING-BAND. WILLIAM WHITE, Bingley, County of York, England. Filed Feb. 19, 1885. (No model.) Patented in England Aug. 24, 1883, No. 4,098.



Claim.—A belt of triangular section constructed in layers cemented together, and central rivets, A, and screwed rivets C, to secure the layers, substantially as set forth.

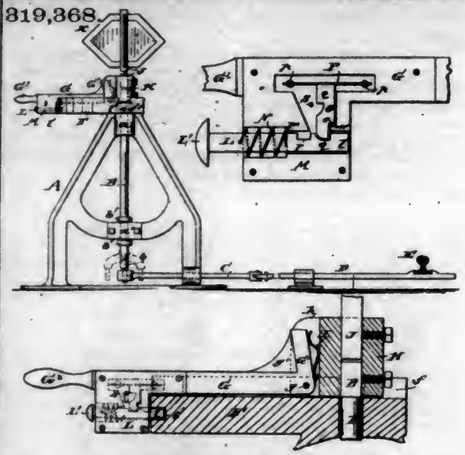
319,367. DRAFT SLIDE OR REGISTER. LEONARD A. WHITE, Taunton, Mass. Filed Oct. 13, 1883. (No model.)



Claim.—The combination of the plate A, having openings *a*, the slide B, for covering or uncovering the openings *a*, the knob C, for actuating the slide B, its stem *c* passing through a slit in the plate A, and the spring D, attached to the plate A, slotted to receive the stem *c* of the knob C and bearing against the knob C, whereby the slide is held against the plate and a smooth bearing is provided for the knob to slide upon, substantially as hereinbefore set forth.

319,368. SWITCH-STAND. CHARLES W. WIDNEY, Wymore, Nebr., assignor to himself and Orwin Wood Hutchinson, same place. Filed Oct. 22, 1884. (No model.)

Claim.—1. A switch-stand constructed with a head-plate, F, having upper notches to receive the throw-lever G, which is pivoted to a



block fixed to the shaft B, which connects to the switch-rails, and a spring, I, acting behind the heel G′ of the lever to hold it down into said notches, substantially as shown and described.

2. A switch-stand constructed with a head-plate, F, having upper notches to receive a throw-lever, G, which is pivoted to a block fixed to the shaft B, connected to the switch-rails, and enters one of said notches, in combination with a horizontally-sliding bolt, L, entering one of a series of holes in the edge of the head-plate F, substantially as herein set forth.

3. A switch-stand constructed with a head-plate, F, having upper notches to receive a throw-lever, G, which is pivoted to a block fixed to the shaft B, connected to the switch-rails, and a horizontally-sliding bolt, L, held in the lever and entering one of a series of holes in the edge of the plate F, and said bolt L having notches *q r*, in combination with the spring-pressed dog O and means for raising the dog from the notch *r*, substantially as herein set forth.

4. The combination with the head-plate F, having a series of upper notches and corresponding edge-holes, of the lever G, having pivotal connection with the shaft B, which is connected to the switch-rails, and said lever having a slide-bolt, L, notched at *q r* and pressed outward by a spring, N, and the dog O, having an end shaped to enter the notch *q* and escape therefrom as the bolt is forced inward, the spring P, and means for raising the dog O from the bolt-notch *r*, substantially as herein set forth.

5. The combination, with the pivoted switch-operating lever G and the bolt L, fitted to slide horizontally in the said lever G, and notched at *q r*, substantially as specified, of the dog O, pressed into the notches by the spring P, and provided with a shoulder, as at *t*, substantially as herein set forth.

319,369. CAR-AXLE. GEORGE W. WILKINSON, West Rutland, Vt. Filed Mar. 12, 1885. (No model.)

Claim.—1. The shaft portion *a*, provided with the collar *e*, in combination with the shell *b*, coupling-plates *c c′*, and the point *b′*, the coupling-plate *c* being secured to the shell *b*, the plate *c′* to the point *b′*, substantially as described.

2. The combination, with the separate point *b′*, shaft portion *a*, and coupling-plates *c c′*, of the adjustable block or head *b²*, arranged substantially as and for the purposes set forth.

3. The point *b′*, provided with the screw *k*, in combination with the adjustable block *b²*, substantially as described.

4. The shaft portion *a* of the axle, in combination with the shell *b* and bearings *i*, said bearings being interposed between said shaft portion and shell, substantially as described.

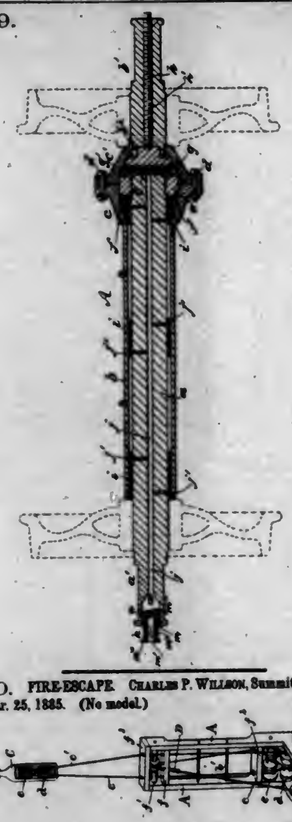
5. The shaft portion *a*, provided with the central oil-opening, *j*, and side oil-passages, *j′*, for conducting the oil to the bearings *i*, substantially as described.

6. The shaft portion *a*, provided with the oil-passage *j*, in combination with the washers *g* and *g′*, the latter being formed with the diagonal oil-passages *l*, substantially as described.

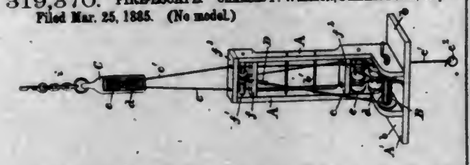
7. The shaft portion *a*, provided with the oil-passage *j*, in combination with the self-closing oil-cup *k*, fitted in its outer end, substantially as described.

8. The shaft portion *a*, formed with oil-passages *j* and recess a^3, in combination with the sleeve *m*, tube *m′*, and spring *k*, the tube being placed in the sleeve *m* and formed with the openings *n*, and provided with outer and inner flanges, m^3 m^4, substantially as and for the purposes set forth.

319,369.



319,370. FIRE-ESCAPE. CHARLES P. WILLSON, Summit Point, W. Va. Filed Mar. 25, 1885. (No model.)



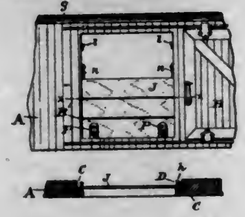
Claim.—1. A fire-escape having in combination a suspended block, C, a carriage having two grooved clutch-rollers, *d e*, and a lowering-rope, *c*, passed over and around the said rollers, thence to the suspended block, thence back to the carriage, and provided on that portion which leads to the clutch-rollers with a friction grip-handle, D, as set forth.

2. A fire-escape having in combination a horizontal rail, G, fixed to the front of a building, a traveler-block having grooved rollers to rest on the rail, and an eye, F, a block, C, suspended from the said eye, a carriage having grooved clutch-rollers, a lowering-rope passed first over the said rollers, thence to the suspended block, and thence back to the carriage, and a friction grip-handle, D, on the rope, as set forth.

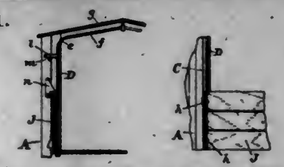
3. A fire-escape having in combination a suspended block, C, a cage-carriage to protect an escaping person from the flames, a leveling-hanger, l, provided with sheaves and attached above the cage-top by a flexible connection, and a lowering-rope passed from one side of the cage-carriage between the sheaves of the leveling-hanger to the suspended block, thence back between said sheaves to the cage-carriage, and through an opening on the opposite side, as set forth.

4. In a fire-escape, a cage-carriage having above it a sheave-block attached to opposite sides of the cage-top by a flexible connection, in combination with a lowering-rope leading from the cage-carriage and passed through the sheave-block, as set forth.

319,371. DOOR FOR GRAIN-CARS. CHARLES P. WILLSON, Summit Point, W. Va. Filed Mar. 25, 1885. (No model.)



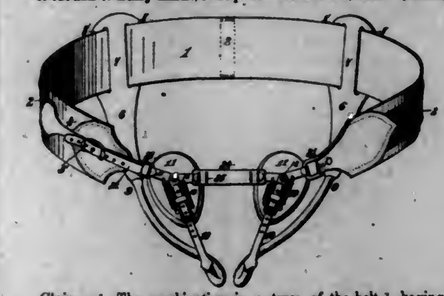
319,371.



Claim.—1. A door for grain-cars having in combination a rod extending vertically at each side of the doorway, and separate board sections having eyes which are open on one side, whereby the board sections may slide up and down on said rods, and also be detached therefrom, as set forth.

2. A door for grain-cars having in combination a rod extending vertically at each side of the doorway, vertical rabbet-shaped guides C, adjacent to the rods, and separate board sections having eyes which are open on one side, as set forth.

319,372. TRUSS. BENJAMIN F. WILLIAMSON, St. Louis, Mo., assignor of one-half to Henry Marks, same place. Filed Feb. 5, 1885. (Model.)



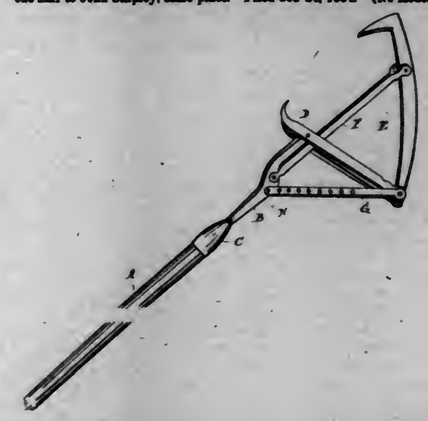
Claim.—1. The combination, in a truss, of the belt 1, having at one end an attached strap, 22, provided with an adjustable buckle, 5, and connected with one of the pads to support the latter, the elastic strap 2, extending around the belt and secured thereto at one extremity, and a strap, 4, secured to the other end of the elastic strap and adjustably connected with the buckle on the pad-supporting strap of the belt, substantially as and for the purpose described.

2. In a truss, the combination, with the pads, of spring-actuated hooked plates pivoted upon the back of each pad, a connecting-strap engaging with the inner or adjacent hooks, and loops upon the ends of the belt which engage with the outer hooks, substantially as described.

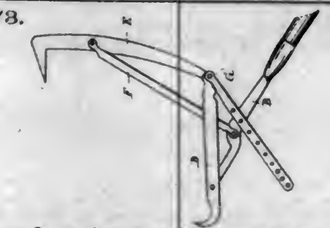
3. In a truss, the combination, with a supporting-belt having a loop at one end and a strap carrying an adjustable loop upon the other, of pad-supports adjustable on the belt, pads connected by buckles to straps on the ends of said supports, spring-actuated hooked plates pivoted on the back of each pad, and a strap connecting the adjacent plates, substantially as described

4. In a truss, the combination, with the pad, of a strap rigidly fastened on the back thereof and carrying a buckle having one end pivotally connected to the back of said pad, and springs connected to said plates at or near their centers and to the pad, whereby the latter is allowed to yield to muscular movement, substantially as described.

319,373. CANT-HOOK. JOHN WIEBENSIEK, Hecla, Ind., assignor of one-half to John Shipley, same place. Filed Oct. 24, 1884. (No model.)



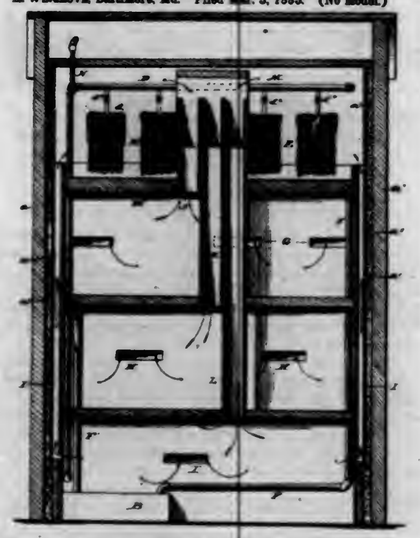
319,373.



Claim.—1. In a cant-hook, the combination, with the bar and lever, the hooks, one pivoted thereto and both pivoted together, and the rod connecting one hook and the bar together, of the perforated strap and the device to secure to the bar.

2. In a cant-hook, the combination, with the bar and lever, the hooks, one being pivoted to the bar and having its body composed of two pieces, and the other being pivoted between said pieces, and the bifurcated rod connecting the latter hook and bar together and passing through the space between said pieces, of the strap pivoted at the junction of the two hooks, and having perforations, and the stud on the bar.

319,374. REFRIGERATOR BUILDING AND APPARATUS. THOMAS R. WINEBROVE, Baltimore, Md. Filed Mar. 3, 1885. (No model.)



Claim.—1. The combination, in a refrigerator-building, of a vertical supply-pipe for the cooling medium, horizontal service-pipes connecting with the upper end thereof, and a series of small circular perforated escape-pipes having fibrous material for the cooling medium extending from the lower faces of the horizontal service-pipes, as set forth.

2. The combination, in a refrigerator-building, of a vertical supply-pipe for the cooling medium, horizontal service-pipes connecting with the upper end thereof, and a series of small circular perforated escape-pipes for the cooling medium extending from the lower faces of the horizontal service-pipes, and provided severally with suitable regulating-valves.

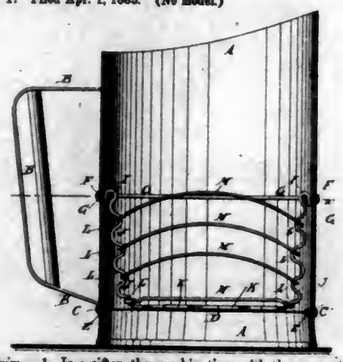
3. The combination, with the vertical supply-pipe, the horizontal service-pipes, and the escape-pipes F F', of the overflow-pipe N, having a safety-valve, N', for the purpose specified.

4. The combination, with a building, of a series of ducts or flues leading from the bottom portion of an upper cooling-chamber into the different stories of the building at a suitable distance above the floors of the several rooms below, other central flues or ducts leading from the top portion of the lower rooms to the upper portion of the upper cooling-chamber, and provided with a cap or deflector for the purpose specified, and a refrigerating apparatus for cooling the air in the upper chamber, as set forth.

5. The combination, with the vertical supply-pipe, the horizontal service-pipes, and the escape-pipes F F', of the floor *a'*, inclined from its center toward either side, and having at its apex a downwardly-deflecting hood, substantially as described.

6. In a refrigerator-building of the described class, the combination, with the upper cooling-chamber, of a series of cold-air flues or ducts alternately arranged in close proximity to each other to form hollow walls of said building, and leading to the different stories at a suitable distance above the floor of the several rooms below, substantially as described.

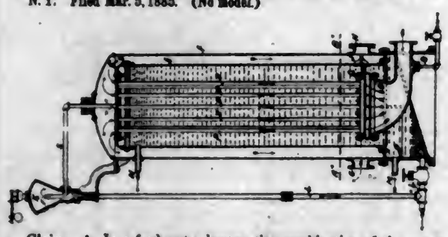
319,375. SIFTER FOR FLOUR, &c. ABRAHAM WOLF, New York, N. Y. Filed Apr. 1, 1885. (No model.)



Claim.—1. In a sifter, the combination, with the scoop A, provided with a sieve, D, and having annular groove F, partly interior and partly exterior, of the wire ring G, having exterior handle, H, and interior eyes, I, and the stirrer J K M, substantially as herein shown and described, whereby a substance placed in the said scoop can be readily sifted, as set forth.

2. In a sifter, the stirrer, made substantially as herein shown and described, and consisting of the uprights J, having hooks upon their upper ends and provided with recesses L, the looped wire K, formed upon the said uprights, and the cross-wires M, secured to the uprights, whereby the stirrer can be readily attached and detached, as set forth.

319,376. FEED-WATER HEATER. WILLIAM H. WOOD, New York, N. Y. Filed Mar. 5, 1885. (No model.)



Claim.—1. In a feed-water heater, the combination of the expansion-ring A, the exhaust-pipe D, and the pipe-plate C, substantially as and for the purpose shown and set forth.

2. In a feed-water heater, the combination of the expansion-ring B, riveted to the casing E, with the pipe-plate C' and casing E, substantially as and for the purpose shown and set forth.

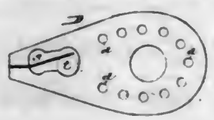
3. In a feed-water heater, the combination of the pipe-plates C and C' with the casing E, expansion-rings A and B, and the exhaust-pipe D, substantially as shown and set forth.

4. In combination with heater-casing E, the expansion-ring B, the steam-pipes P, the pipe-plates C and C', with the expansion-ring A, and the cast-iron base D, having angular bottom, substantially as and for the purpose specified and set forth.

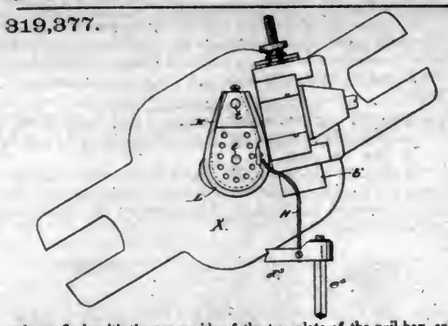
319,377. HEELING-MACHINE. EDWARD B. ALLEN, Portland, Me., assignor to James W. Brooks, trustee, Cambridge, Mass. Filed Mar. 2, 1885. (No model.)

Brief.—Improvement on application for patent, No. 148,666, filed November 24, 1884.

Claim.—1. In a heeling-machine, a nail-box, drivers therein provided with shoulders, and driver-plate, combined with the driver-supporting plate interposed between the nail-box and the driver-plate, the said driver-supporting plate being provided with holes for the passage of the drivers through them when the said plate is in one position, and adapted in its other position to act upon and hold the drivers with their



319,377.

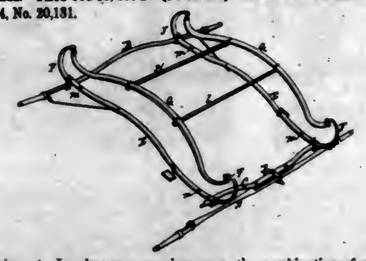


ends up flush with the upper side of the top plate of the nail-box, substantially as described.

2. The nail-box and the driver-plate, combined with the driver-supporting plate interposed between the driver-plate and the nail-box, and with a spring to normally hold the driver-supporting plate in position, substantially as described.

3. The nail-box, the driver-plate, the interposed driver-supporting plate provided with holes, the spring, and the drivers, combined with the finger and means, substantially as described, to operate it to turn the driver-supporting plate and place its holes out of line with the ends of the drivers, to thus keep the upper end of the drivers flush with the upper side of the nail-box, substantially as set forth.

319,378. CARRIAGE-GEAR. JOHN B. ARMSTRONG, Guelph, Ontario, Canada. Filed Oct. 18, 1884. (No model.) Patented in Canada Sept. 4 1884, No. 20,131.



Claim.—1. In a buggy or carriage gear, the combination of spring-perch plates having inwardly-curved C-supports integral therewith and cyma-reversa single-plate side springs, substantially as and for the purposes specified.

2. In a buggy or carriage gear, the combination of C-spring supports, cyma-reversa side springs, and body-loops attached directly to the cyma-reversa single-plate side springs on opposite sides of the transverse center, substantially as and for the purposes specified.

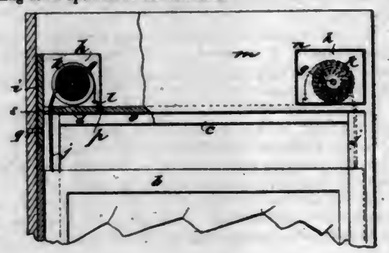
3. In a buggy or carriage gear, the combination of C-spring supports, cyma-reversa single-plate side springs, and body-loops attached directly to the side springs at substantially equal distances from each other and from the ends of the sprig.

4. The combination of a flanged rubber cushion and wrought-metal cushion-clip having a central hole and strap ends, substantially as and for the purposes specified.

5. In vehicle-gear, the combination, with a side spring having a recess or depression, of a clip having inside rounded corners and a tenon or projection on the cross-piece, and a body-loop having projecting annular bosses cut away on the adjacent or spring faces, substantially as and for the purposes specified.

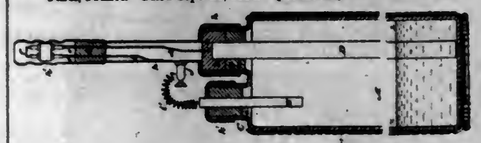
319,379. SASH-BALANCE. GEO. W. ARNOLD, Knoxville, Ill. Filed Nov. 3, 1883. (Model.)

Brief.—Consisting of spring-rollers journaled in a drawer-shaped box sliding in an aperture of the case-head.



Claim.—The combination, with the side *n* of window-case head, provided with the aperture *n*, of the drawer-shaped box *h i*, sliding in said case-head, and the spring-rollers *a k*, journaled in the said box, substantially as herein shown and described, and for the purpose set forth.

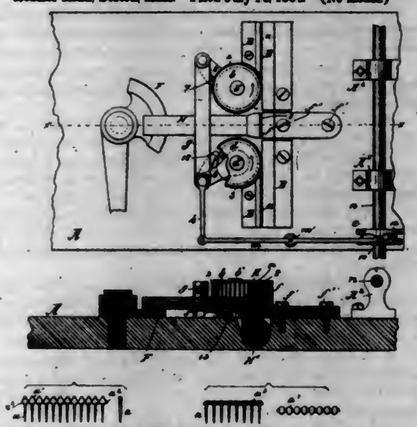
319,380. ELECTRICAL LIGHTING APPARATUS. ERNEST ARNOULD, Paris, France. Filed Sept. 20, 1884. (No model.)



Claim.—1. The combination, to form an electrical igniting apparatus, of a reversing-pile comprising a receptacle for the exciting-liquid with two distinct necks, each provided with a stopper, and the carbon and zinc poles connected, respectively, to said stoppers, the igniting-stem mounted on the neck where the carbon pole is attached, and the electric circuit of which the platinum wire *f* forms a part, the ends of said circuit being connected with the poles of the battery or pile, and the wire *f* being arranged at the extremity of the said igniting-stem, substantially as set forth.

2. The combination of the receptacle A, provided with two necks, B and C, both formed in the same end of the receptacle and side by side, the carbon D, secured hermetically in the neck B, substantially as shown, the zinc E, mounted in the stopper *a'*, the said stopper mounted in neck C, the stem H, secured to the receptacle A over the neck B when the carbon pole is mounted, the platinum wire *f*, and the metallic connection between it and the carbon D, the metallic connection between the wire *f* and the binding-post *j*, the said binding-post, and the wire connecting said post with the zinc, substantially as and for the purposes set forth.

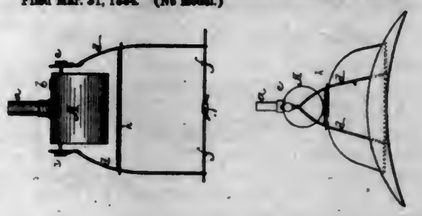
319,381. MACHINE FOR UPSETTING HEADS ON NAIL-STRIPS. ROBERT ASHE, Boston, Mass. Filed July 14, 1884. (No model.)



Claim.—1. In a machine to upset the head-forming projections of a comb-nail strip, the clamp composed of a jaw, *f*, and a movable jaw, H, provided with rests for the web of the strip, the said clamp supporting a part of each side of the web of the strip, combined with two feed-wheels to engage and feed the comb-nail strip between the clamp when the latter is open, substantially as described.

2. In a machine to upset the head-forming projections of a comb-nail strip, a clamp to hold the strip while its head-forming projections are being upset, combined with an independent feed-wheel and means to move it, the feed-wheel engaging the strip and feeding it positively, substantially as described.

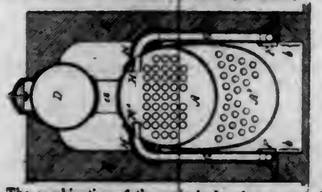
319,382. CAMPAIGN-TORCH. CHARLES E. BARTRAM, Fredonia, N.Y. Filed Mar. 31, 1884. (No model.)



Claim.—1. The combination of the swinging lamp, having the beaded pins or rods *c c* in the sides or ends, the side wire standards, *d d*, and the attached metal ring *f*, all arranged substantially as and for the purpose specified.

2. The combination of the oil-lamp, beaded pins *c c*, wires *d d*, ring *f*, and the fastening-band *g*, all combined and arranged substantially as and for the purpose specified.

319,383. STEAM-BOILER. WILLIAM T. BATE, Conshohocken, Pa. Filed Apr. 23, 1883. Renewed Dec. 16, 1884. (No model.)



Claim.—The combination of the main body of a steam-boiler with a series of hollow supports on each side thereof and communicating with the interior of the boiler, each support consisting of a vertical column, G, base F, and saddle H, substantially as described.

319,384. SAFETY-CATCH PLUG FOR ELECTRIC CIRCUITS. SIGMUND BERGMANN, New York, N. Y. Filed June 6, 1884. (No model.)



Claim.—1. A hollow safety-catch plug formed of non-combustible insulating material and carrying a fusible safety-catch within it, substantially as set forth.

2. A hollow safety-catch plug formed of non-combustible insulating material, carrying two terminals upon its exterior and a fusible safety-catch within it connecting said terminals, substantially as set forth.

3. A hollow glass safety-catch plug having two terminals attached to its exterior and a fusible safety-catch within it connecting said terminals, substantially as set forth.

4. The glass safety-catch plug having a screw-threaded portion for holding the screw-threaded ring-terminal, substantially as set forth.

5. The hollow glass safety-catch plug having a screw-threaded portion for holding the screw-threaded ring-terminal, and an aperture in its bottom for holding the plate-terminal, substantially as set forth.

6. The combination of a hollow safety-catch plug having an aperture in its bottom and a plate-terminal having a tubular stem inserted in such aperture for holding the terminal upon the plug, substantially as set forth.

7. The hollow safety-catch plug with an aperture in its bottom having beveled sides, in combination with the plate-terminal having a tubular stem adapted to be placed in such aperture, and bent out to hold the terminal against the bottom of the plug, substantially as set forth.

8. A hollow safety-catch plug having an exterior ring-terminal and an aperture in the side of the plug, and a projection from the metal of the ring extending into said aperture, to keep the ring from turning on the plug, substantially as set forth.

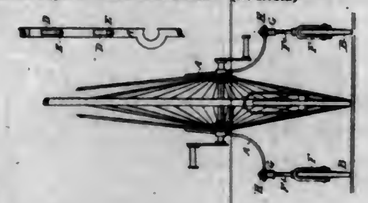
9. In a hollow safety-catch plug, the tubular stem of the bottom terminal entering the plug, in combination with the safety-catch soldered in said tubular stem, substantially as set forth.

10. The cap for closing a hollow safety-catch plug, provided with one or more vent-holes, substantially as set forth.

11. In a hollow safety-catch plug, the combination, with the terminals within the plug, of non-combustible insulating material covering said terminals, substantially as set forth.

12. The combination, with the hollow plug and the cap, of the asbestus piece covering the plug beneath the cap, substantially as set forth.

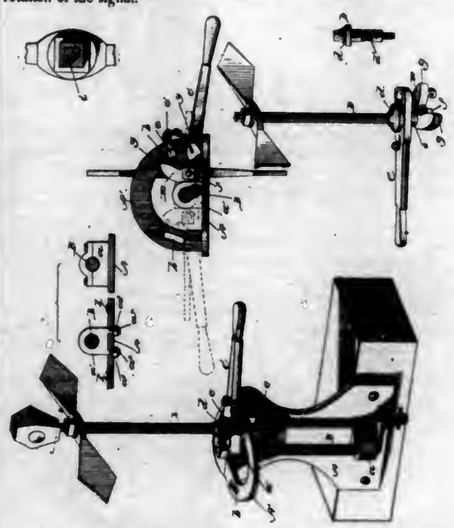
319,385. SAFETY ATTACHMENT FOR BICYCLES. WM. BEVAN London, England. Filed Oct. 23, 1884. (No model.)



Claim.—The combination, with the steering-fork of a bicycle, of the arm A, rigidly attached thereto, having at its end a screw-threaded boss, the auxiliary fork bearing a wheel and having screw-threaded portion F', and the lock-nut H, for fixing it in position, substantially as described.

319,386. SWITCH-STAND. WILLIAM H. BLUE, Grafton, W. Va., assignor of one-half to Eugene W. Johnson, Washington, D. C. Filed June 23, 1884. (No model.)

Brief.—A signal-rod loosely secured in a hand-lever which is attached to a vertical crank-rod has arms which contact with the side of the stand, whereby half a rotation of the lever will effect but a quarter rotation of the signal.



Claim.—1. The combination of a railroad-switch-operating crank-rod, a signal-carrying rod located eccentrically with respect to said rod, and devices for operating said crank-rod and signal-rod to effect, respectively, a greater revolving movement of one than the other, substantially as set forth.

2. A switch and signal stand having an independent switch-operating crank-rod, and a signal-carrying rod located eccentrically relative to said crank-rod, and means for turning both of said rods so that the switch-operating crank-rod will make one half-turn while the signal-carrying rod turns one quarter-revolution, substantially as set forth.

3. In a railroad switch-stand, a rail-operating crank-rod pivoted to a stand and provided with an operating-lever, said operating-lever carrying a signal-rod, so as to be movable therein, and having a cam or dog rigidly attached thereto for changing its position, substantially as set forth.

4. The improved switch-stand provided with a switch-operating crank-rod, a signal-carrying rod, and an operating-lever, the signal-carrying rod having a dog which abuts against the stand, so that when the switch-operating crank-rod is turned one half-revolution the signal-carrying rod will effect a quarter of a revolution.

5. In a railroad switch-stand, a support having bearings for a vertical switch-operating crank-rod, a horizontal lever attached to said crank-rod and carrying a vertical rod with a signal, and a dog for turning said signal-carrying rod.

6. In a railroad switch-stand, a vertical support with horizontal guide and bearings for the reception of the switch-operating crank-rod, a lever secured at its inner end to the switch-operating rod, a signal-carrying rod pivoted to the lever and provided at its lower end with a dog, which abuts against the vertical portion of the stand, and a pin for locking the lever.

7. In a switch-stand, a switch-operating crank-rod, a signal-carrying rod having at its lower end a dog, and an operating-lever, in combination with the stand having a horizontally-projecting lever-guide and a flat portion adjacent to the ends of the lever-guide.

8. The combination, in a switch, of a switch-stand provided with upper and lower bearings, and a guide arranged on a plane with the upper bearing, a rail-operating crank-rod pivoted in said bearings and provided with an operating-lever resting on both the upper bearing and guide, and signal devices, substantially as set forth.

9. The combination, with a switch, of a switch-stand provided with upper and lower bearings, and a guide arranged on a plane with the upper bearing, a rail-operating crank-rod pivoted in said bearings and provided with an operating-lever resting on both the bearing and guide and a signal-rod mounted on said lever between said upper bearing and guide, substantially as set forth.

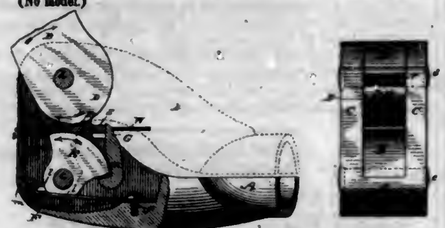
10. The combination, in a railroad switch-stand, of a support having independently-removable bearings, a switch-operating rod bearing therein, a horizontal lever connected to the same and carrying a vertical signal-rod, and a dog for turning said signal-rod, substantially as set forth.

11. The combination, in a switch-stand, of a support having bearings for a vertical switch-rod, and contact-rollers *h*, a lever secured at its inner end to the switch-operating bar and carrying a signal-bar, and a dog connected to said signal-bar for turning the same upon contacting with the rollers *h*, substantially as set forth.

12. The combination, in a railroad switch-stand, of a support having bearings and a guide, a switch-rod bearing in said guides, a horizontally-moving lever secured to said rod and carrying a signal-rod, a dog secured to said signal-rod, and a device for conjointly locking said lever and dog, substantially as set forth.

13. The combination, in a railroad switch-stand, of a support having a vertical switch-operating rod attached thereto, a lever connected to said rod and carrying a vertical signal-rod, and means attached to the signal-rod for changing its position when the lever is moved, whereby the switch-rod can be moved and the position of the signal changed by a single movement of the lever.

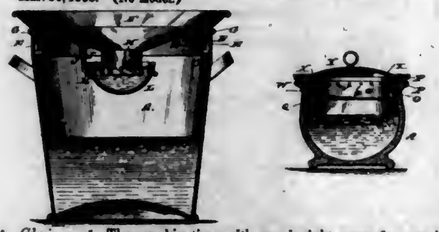
319,387. SEAL-PRESS, (ROLLER.) EDWD. J. BROOKS, East Orange, N. J., assignor to E. J. Brooks & Co., New York, N. Y. Filed Nov. 3, 1884. (No model.)



Claim.—1. The combination, in a seal-press, of a segmental roller-die carried by the pivot end of a lever-handle, a corresponding segmental roller-die adapted to be carried forward by the seal-disk in the pressing operation, and a spring to return the die last named to its position of rest after each pressing operation preparatory to the next, substantially as herein specified.

2. In a seal-press, the combination, substantially as herein specified, of a pair of lever-handles, a pair of roller-dies, one of which is operated by one of said lever-handles and constructed with a retiring curve at its back to admit the seal-disk freely between the dies preparatory to the pressing operation, and a gage-stop to limit such insertion of the seal-disk, for the purpose set forth.

319,388. SLOP-BUCKET. REUBEN BURTON, Richmond, Va. Filed Mar. 30, 1885. (No model.)

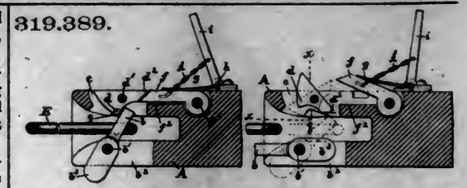


Claim.—1. The combination, with an air-tight cover for vessels having a downwardly-extending flange around the central aperture, of a water-pan hinged to said cover by means of a removable bracket, and a spring to retain said bracket and water-pan in position beneath said flange around said aperture, substantially as and for the purpose set forth.

2. The combination, with a slop-bucket or like receptacle, of a detachable rim or ring having an annular flange at its upper end, and an interior annular flange forming an annular groove, and a cover having a downwardly-extending rim adapted to enter the said groove, substantially as and for the purpose set forth.

319,389. CAR-COUPLING. JOS. BUTTON, Baltimore, Md., assignor of one-half to James Corden, same place. Filed Apr. 23, 1885. (No model.)

Claim.—1. A car-coupling having, in combination, a draw-head provided in its bottom with a slot, b^2, a coupling-pin, *b*, pivoted in the slot, and having below its pivot a weight, a pin-abutment, *d*, pivoted in the top of the draw-head, and a pivoted supporting-arm, *f*, on which one end of the said abutment rests, as set forth.



2. A car-coupling having, in combination, a draw-head provided with a pivoted coupling-pin, *b*, having below its pivot a weight, an abutment for the top part of the pin to rest against, a pivoted arm, *f*, to hold the abutment, a cross-rod having at the side of the car a lever, *l*, and provided with an arm, *n*, a lever, *i*, loosely pivoted on the cross-rod and extending to the car-top, and chains o *k*, separately connecting the pivoted arm *f* with the said cross-rod arm and lever, as set forth.

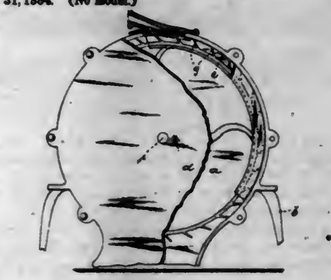
319,390. PROCESS OF MAKING CONCRETE WALLS, BLOCKS, &c. THOMAS W. CARRICO, San Antonio, Tex. Filed Sept. 3, 1884. (No specimens.)

Claim.—1. The hereinbefore-described process of making concrete walls and blocks, which consists in first cleaning the broken stone, spalls, bats, or other material, then placing them in the trench or mold, and then filling the interstices and forming a solid mass by pouring in a thin grout composed of cement or lime and sand, and, finally, removing the sides of the mold and leaving the block to stand alone, as specified.

2. The hereinbefore-described process of forming concrete walls and blocks, which consists in washing the stones, spalls, bats, or other material, then placing them in a mold in as near natural positions as possible, and then binding them by a filling of thin grout, and then removing the walls of the mold and leaving the block to stand alone, substantially as described.

3. In the manufacture of concrete, the preliminary process of washing or soaking the broken stone or other material by supporting said material on a grating or bars, which allows the dirt to be thoroughly washed from said material, for the purpose specified.

319,391. WATER-MOTOR. WM. T. CHRISTY, Newark, N. J. Filed July 31, 1884. (No model.)



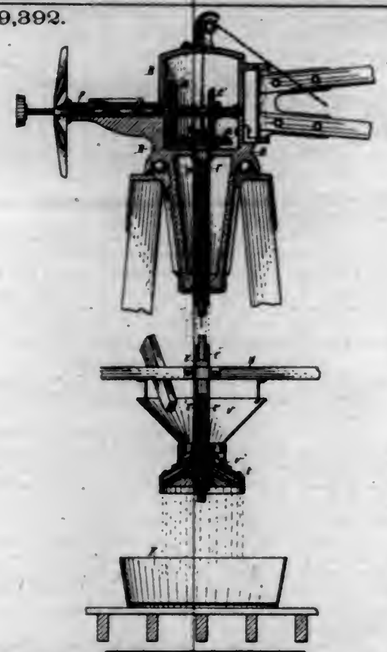
Claim.—1. In a water-motor, the plates *a* and *d*, the water-wheel therebetween, and a hinged nozzle, *m*, said parts being arranged and operating substantially as and for the purposes set forth.

2. The combination of the plates *a d*, water-wheel *e*, a nozzle, and segmental portions engaging the sides of the wheel to form buckets with the wings *g* thereof, and extending but partly around the periphery of said wheel approximately from the inlet-opening to the water-exit, said parts being arranged and operating substantially as and for the purposes set forth.

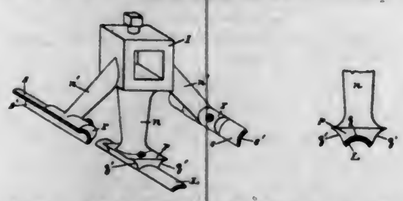
319,392. POWER-WINDMILL. HUDSON R. COLMAN and GEORGE TURNER, Kalamazoo, Mich. Filed Feb. 28, 1885. (No model.)

Claim.—The combination of a wind-wheel shaft, a swiveled bearing-support for said shaft, transmitting power-shafts forming operative engagement with the wheel-shaft, substantially as described, to rotate in opposing directions, and correlative machine parts, each connected with a power-shaft, and adapted to be independently rotated by said power-shafts in opposing directions, substantially as set forth.

319,392.



319,393. FERTILIZER-FEED FOR DRILLS. THOMAS R. CRANE, Heathsville, Va. Filed Apr. 14, 1885. (No model.)



Claim.—1. A fertilizer-feed device for drills, having a head, I, provided with a feed-agitator arm, *n*, and a scraper-prong, *n'*, each side thereof, a bar, L, attached to the feed-arm, and a concaved scraper-bar, *s*, attached to each scraper-prong, as set forth.

2. A fertilizer-feed device for drills, having a head, I, provided with a feed-agitator arm, *n*, a foot, *p*, at the end of the arm, having attached to its bottom a bar, L, and at each side an inclined concave, *q'*, as set forth.

3. In combination with a fertilizer-box having sloping sides and a concaved bottom, and a rock-shaft, the head I, fixed to the rock-shaft and provided with an arm, *n*, having a foot, *p*, with a concaved bottom and an inclined concave, *q'*, at each side, a prong, *n'*, at each side of the said arm, and a concaved bar, *s*, attached to each prong, as set forth.

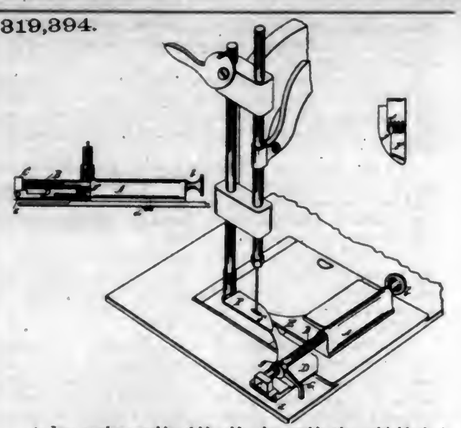
319,394. FOLD-GUIDE FOR SEWING-MACHINES. JOHN W. DEWEES, Philadelphia, Pa., assignor to the Dewees Fabric Trimmer Company, (Limited,) same place. Filed Oct. 20, 1884. (No model.)

Claim.—1. A sewing-machine fold-guide comprising a stock or base, A, adjustable overhanging arm B, and folding-plate D, said arm being extensible on the stock while the latter is stationary, and said plate being hinged at its outer side on said arm, its inner edge lying adjacent to the outer edge of stock A, and, when applied to a sewing-machine, substantially in line with the line of feed, as shown and described.

2. A fold-guide for sewing-machines, comprising a stock or base, A, an adjustable rod or overhanging arm, B, a hinged folding-plate, D, supported at its outer extremity on said arm, and a tension-plate, E, provided with a push-spring and fitted in an undercut recess in said stock, substantially as shown and described.

3. The combination, with a fold-guide having a hinged folding-plate, C, supported by its outer side on an overhanging arm, B, to which it is hinged, of the presser-foot F, having beveled or slanting ribs or serrations on its under side, substantially as and for the purpose set forth.

319,394.

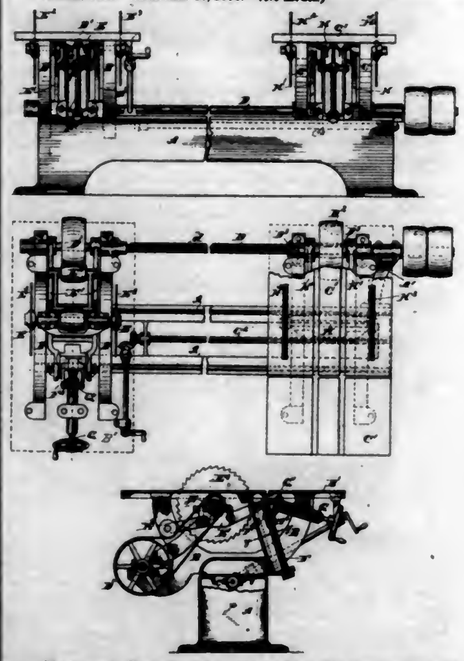


4. In a sewing-machine fold-guide, the combination, with block A, having a groove or guides on its under side, of tension-plate E, having arm *e* and spring *e'*, substantially as shown and described.

5. A fold-guide for sewing-machines, comprising a stock, A, adjustable arm B, hinged folding-plate D, and spring or elastic tension-plate E, said several parts being constructed and combined for operation substantially as and for the purpose set forth.

6. The combination, with a sewing-machine presser-foot, of a fold-guide having a hinged folding-plate and a tension-plate with push-spring, said foot resting upon or over the folding-plate and the tension-plate pressing against said folder, substantially as shown and described.

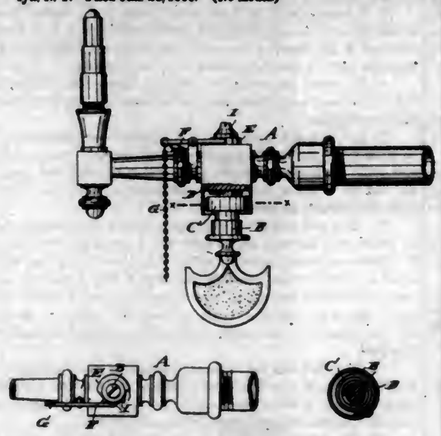
319,395. CIRCULAR SAWING MACHINE. WILLIAM H. DOANE, Cincinnati, Ohio. Filed Jan. 10, 1885. (No model.)



Claim.—1. In a duplex sawing-machine, the combination, substantially as before set forth, of the table on the fixed head-stock, the table on the adjustable head-stock, and an independent saw-arbor for each table, one of the saw-arbors being mounted on an adjustable frame or yoke, the parts being arranged on a suitable supporting-frame.

2. In a duplex sawing-machine, the combination, substantially as before set forth, of the table on the fixed head-stock, the table on the adjustable head-stock, and an independent saw-arbor for each table, each saw-arbor being mounted on an independently-adjustable frame or yoke, the parts being arranged on a suitable supporting-frame.

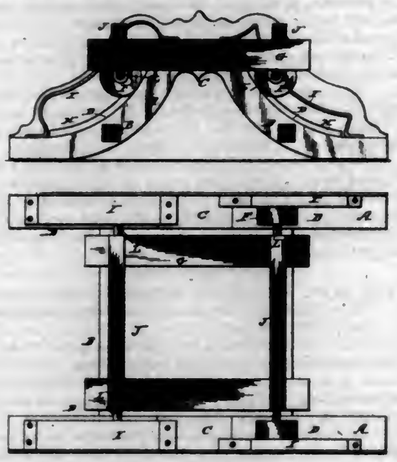
319,396. ATTACHMENT FOR GAS-COCKS. GEORGE DOUTNEY, Brooklyn, N. Y. Filed Jan. 21, 1885. (No model.)



Claim.—1. The combination, with a gas-key, of the spring C, the toothed disk or nut E, the pivoted lever F, the chain or rod G, and the spring H, substantially as herein shown and described.

2. The combination, with the gas-cock A, having a casing, D, of the key B, the spring C, secured to the key and inside of the casing, the toothed disk or nut E, and the lever F, substantially as herein shown and described.

319,397. BASE FOR ROCKING-CHAIRS, &c. MARTIN V. B. EVENSON, Hoboken, N. J. Filed Dec. 24, 1884. (No model.)



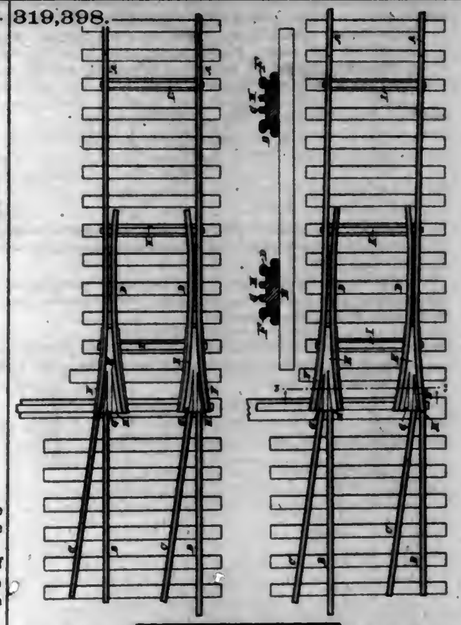
Claim.—1. A base for rocking-chairs, cradles, and hobby-horses, consisting of base-pieces A, which have suitable inclined surfaces formed upon them, in combination with the base provided with rollers which move upon the inclined surfaces, substantially as shown.

2. The combination of a base composed of the pieces A, having inclined surfaces, and provided with suitable guards, with the base to which the chair, cradle, or hobby-horses are secured, and which is provided with rollers for moving upon the inclined surfaces, substantially as set forth.

319,398. RAILWAY-SWITCH. HERBERT L. FORD, Aiken, S. C., assignor of one-half to William Turnbull, same place. Filed Mar. 31, 1885. (No model.)

Claim.—The combination, with a pivoted or switch section of a main track, of a shoe consisting of a raised middle portion and two switch-points, all cast in one piece and carrying a curved section of the main track, and a curved switch-guard, substantially as set forth.

319,398.

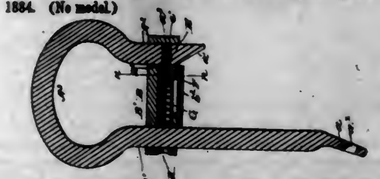


319,399. MUSIC CASE OR PORTFOLIO. JOSEPH R. FRANCE, JAMES H. YALE, and GEORGE W. BEURY, Newark, N. J. Filed Apr. 9, 1885. (No model.)



Claim.—As an improved article of manufacture, the herein-described music-case, consisting of a body of paper or other suitable material, provided with an exterior covering of a compound of nitro-cellulose, and a lining of fabric, substantially as set forth.

319,400. SEAL-LOCK. HIRAM F. GARNER, Rouse's Point, N. Y., assignor of one-third to Robert Emmet Casey, same place. Filed Aug. 27, 1884. (No model.)



Claim.—1. In a seal-lock, the combination of a staple consisting of a single piece of metal having two arms and bent portion with a locking-bar formed of a single piece of metal and provided with a locking-bolt, substantially as described.

2. In a seal-lock, a locking-bar, B, provided with transverse apertures to receive a staple, longitudinal bores to receive a locking-bolt, dovetail groove to receive a seal, and a slot formed in the wall thereof, between the longitudinal bore and dovetail groove, substantially as described.

3. In a seal-lock, a locking-bar, B, provided with transverse apertures to receive a staple, longitudinal bore to receive a locking-bolt, dovetail groove to receive a seal, and a slot between such dovetail groove and longitudinal bore, in combination with a staple, locking-bolt, spring, and a seal of glass or other vitreous or frangible material, substantially as described.

4. In a seal-lock, a locking-bar, B, provided with tranverse apertures *b b'*, longitudinal bore B', opening through one end of said bar, longitudinal bore B², of smaller diameter than bore B' and opening thereto, dovetail groove *b²*, and slot D, with the staple A, having long arm A', provided at its lower end with a flattened portion, *a*, short arm A², having inclined face *a'* and aperture *a²*, locking-bolt E, having thumb-piece F, spring G, and seal C, substantially as described.

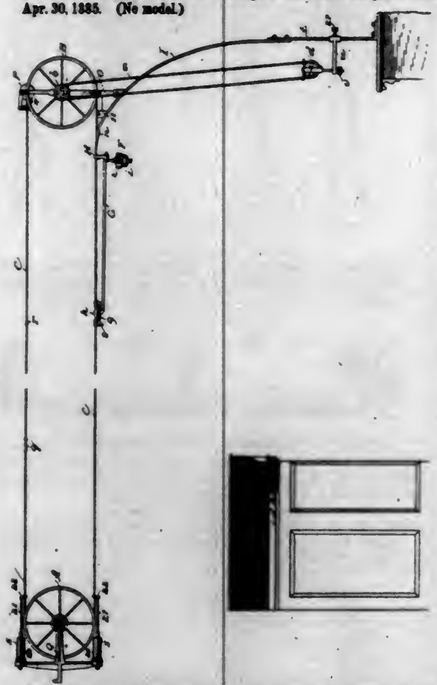
319,401. MICROPHOTOGRAPHIC ATTACHMENT FOR SPECTACLES. ROBERT GALLAND-MASON, Douglas, Isle of Man, England. Filed Oct. 28, 1884. (No model.) Patented in England Jan. 8, 1884, No. 912; in France Oct. 21, 1884, No. 164,911; in Belgium Oct. 22, 1884, No. 66,664, and in Canada Nov. 29, 1884, No. 20,668.



Claim.—1. The herein-described new optical instrument, consisting of a spectacle or eyeglass frame provided with microphotographs, substantially as set forth.

2. The herein-described new optical instrument, consisting of a spectacle or eyeglass frame having detachable portions carrying microphotographs, substantially as described.

319,402. STORE-SERVICE APPARATUS. RICHARD GORNALL, Baltimore, Md., assignor of one-half to George A. Dubreuil, same place. Filed Apr. 30, 1885. (No model.)



Claim.—1. In a cash and parcel carrier, an endless wire mounted upon supporting and driving wheels, and carrying a box or basket detachably connected to the wire, in combination with a fixed inclined track at one end, whereby the box or basket may be caused to descend, substantially as described.

2. In combination with an endless wire and its supporting and driving wheels, an arm pivoted to said wire carrying the box or basket, and provided at the free end with jaws adapted to close over the wire, and a fixed way having its upper end arranged to receive the jaws and to detach them from the wire, substantially as described.

3. In combination with an endless wire and its supporting and driving wheels, the arm G, having one end pivoted to the wire, and the other end provided with jaws adapted to close over the wire, said arm carrying the box or basket, the fixed track I, having its upper end provided with an eye to receive the wire and adapted to open the jaws and to allow said jaws to pass with the basket or box down said track, all substantially as described.

4. In combination with the frame of the driving-wheel B, the track I, fixed to said frame and depending therefrom toward the counter, substantially as described.

5. In combination with the driving-wheel B and its grooved pulley *b*, the pulley *d*, connected with an adjustable bracket, *u*, on the standard or track, substantially as described.

6. The combination of the driving-wheel B, the supporting-wheel A, the endless wire C, and a box or basket carried thereon, with the buffers *s*, arranged one above and the other below the wheel A, and adapted to operate upon the stops of the wire, substantially as described.

7. Combined with the frame of the wheel A, the buffers consisting of the cylinders 20, the piston and piston-rods 21, and their heads 22, arranged in the described relation to the wires, and adapted to operate upon the stops on the wires, substantially as described.

8. The frame supporting the wheel B, having an eye fitted to the bolt of the bracket adjustably and held thereon by a set-screw, substantially as described.

9. In a cash and parcel carrying apparatus, the combination, with an endless way having a carrier thereon and means to propel the same, of a buffer mechanism arranged at one end of the way and adapted to stop the car or carrier both at the salesman's counter and the cashier's desk, substantially as described.

10. In a cash and parcel carrying apparatus, the combination, with an endless way having a carrier thereon and means to propel the same, of a buffer mechanism arranged at one end of the way in line with the upper and lower wire of the same, and stops 9 and *q*, secured, respectively, to the lower and upper wire of said way and adapted to abut against the said buffer mechanism, whereby the carrier is arrested in both directions of its movement at one end of the line, substantially as described.

11. In a cash and parcel carrying apparatus, the combination, with an endless way, of an arm pivoted thereto at one end and supporting a cap or cover, *k*, at the opposite end, and a cup or cash-receptacle adapted to be connected thereto, substantially as described.

12. The combination, with the fixed track I and the endless supporting and impelling wire, of the arm G, having the jaws H, and spring-leg *m*, substantially as described.

13. The combination, with the supporting and impelling wire of the track I, having wedge-shaped portion and rib *n*, of the arm G, carrying jaws H, and the spring-leg *m* on said jaws, adapted to be operated upon by the rib *n*, substantially as described.

14. A store-service apparatus consisting of an endless supporting and driving wire mounted on suitable wheels, an arm pivoted to the lower wire at one end and supporting the cash or parcel receptacle at the other, the said arm being detachably connected to the wire at this end, buffers placed at one end of the way to stop the carrier, whether going in one direction or the other, by means of stops secured to the upper and lower wire of the way, a fixed track at the salesman's counter in line with the way and curving downward, adapted to receive and detach the end of the arm G from the traveling wire and lower it to the hand of the salesman, and means for driving the carrier from the one end of the way to the other, all substantially as described.

15. In a store-service apparatus, the combination, with an endless wire, of a supporting-bracket for the cash or parcel carrier, consisting of a bracket, *g*, loose on the wire, and a central piece, *h*, fixed to the wire between the ends of the bracket *g*, substantially as described.

16. In a store-service apparatus, the combination, with a way and a curved track at one end of the way, of the bar G, pivoted to the way at one end and supporting the cash or parcel receptacle at the other, the upper part of said receptacle being pivoted to the bar G, so that it always retains a horizontal position without regard to the position of the said bar G, substantially as described.

319,403. STORE-SERVICE APPARATUS. RICHARD GORNALL, Baltimore, Md., assignor of one-half to George A. Dubreuil, same place. Filed Apr. 30, 1885. (No model.)

Claim.—1. In a store-service apparatus, a curved track, D, combined with the wire way *d*, and an arm, *e*, carrying the cash-box, connected at one end to an impelling-wire and supported at the other end on the fixed way, this end of the arm *e* being adapted to run down the curved track, substantially as described.

2. In a store-service apparatus, the combination, with an impelling-wire and a supporting-way, *d*, of the curved track D, having a groove and opening to receive and hold the end of the way *d*, and the arm *e*, secured to the impelling-wire and carrying the cash or parcel carrier, substantially as described.

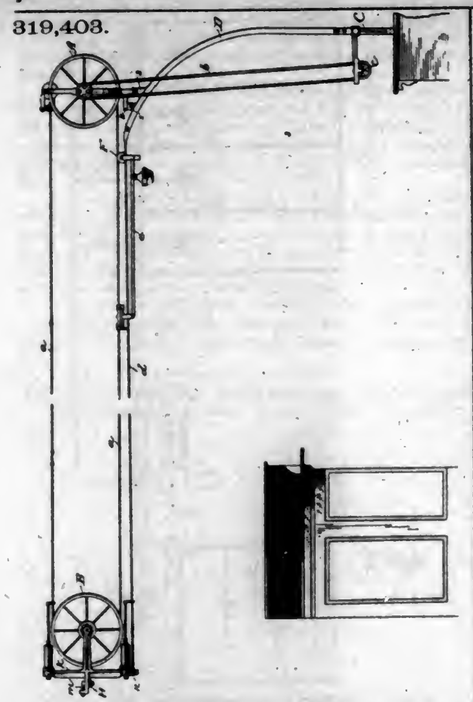
3. In a store-service apparatus, the combination, with the arm *e*, adapted to the way *d*, and the curved track D, of the frame connected to the said arm, provided with a gate adapted to pass the supporting-brackets of the said curved way, substantially as described.

4. In a store-service apparatus, the combination of the standard C, fixed to the counter, the curved track D, the frame supporting the wheel, the brackets *f*, fixed to the sides of the curved track, the pivoted arm *e*, the frame E, and the spring-gate *g*, the parts being arranged and operating substantially as described.

5. In a store-service apparatus, the combination, with an endless wire and the supporting-wheels therefor, of the bracket K, having an arm, *k*, the bar H, bolt 8, the upward extension *l*, and the adjusting-screw *m*, substantially as described.

6. In a store-service apparatus, the combination, with a supporting-wire and bracket, K, of the straining-bolt *a* and fastening-pin 12, substantially as described.

319,403.



7. In a store-service apparatus, a corner bracket consisting of a curved track, M, adapted to support the wire *d* of the way, combined with the impelling-wire, the arm carrying the cash or parcel carrier, and the frame or frames supporting said arm, substantially as described.

8. In a store-service apparatus, the combination, with the curved track M, supporting the wire *d* of the way, and with the arm *e*, carrying the cash or parcel carrier, of the guideway N, frame E, and finger *r*, all substantially as described.

9. In a store-service apparatus, the combination, with the curved track M, supporting the wire *d*, of the guide N, pulleys *p p* and *q*, supporting the endless wire, the arm *e*, attached to the endless wire, and the frame E, provided with the finger *r*, substantially as described.

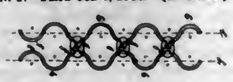
10. In a store-service apparatus, the combination, with the arm *e*, adapted to the way *d* and the curved track D, of the frame E, connected to said arm and carrying the pulley F, and the spring-gate *g*, the parts being arranged and operating substantially as described.

11. In a store-service apparatus, the combination of the driving-wheel A, suitably supported, the band-pulley fixed thereto, the curved track D, and the bracket G, supporting the lower band-pulley, *c*, the said bracket G fitting over the standard C, and adapted to be held thereto at the desired height by means of a set-screw and indentation, substantially as described.

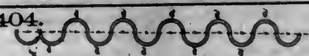
12. In a store-service apparatus, the combination, with the endless impelling-wire and the fixed way *d*, of the arm *e*, carrying the cash or parcel carrier, and having the frames E E', and the flexible connection 19 between the frame E and the endless wire, substantially as described.

13. A store-service system consisting of an endless impelling-wire, supporting-wheels therefor, a fixed supporting-wire beneath the impelling-wire, secured at one end to a wall-bracket and at the other end to a curved track, D, extending downward toward the salesman's counter, an arm, *e*, pivoted at one end to the impelling-wire, with its opposite end carrying the cash or parcel carrier supported upon the fixed way *d*, and adapted to be lowered to the salesman on the curved track D, suitable buffers at the cashier's desk adapted to stop the carrier, whether going in one direction or the other, by acting upon suitable stops on the upper and lower wire of the endless way, and means for imparting motion to the driving-wheel, substantially as described.

319,404. STIFFENING-SPRING FOR CORSETS, &c. OREEN A. GORTON, New York, N. Y. Filed Oct. 6, 1884. (No model.)



319,404.



Claim.—1. A stiffening-spring for body-wear, composed of a wire bent back and forth laterally in a series of compound curves throughout every portion of its length, substantially as set forth.

2. A stiffening-spring for body-wear, composed of a wire bent back and forth laterally in a series of compound curves throughout every portion of its length, the centers of such curves being upon or on opposite sides of a bisecting line, substantially as set forth.

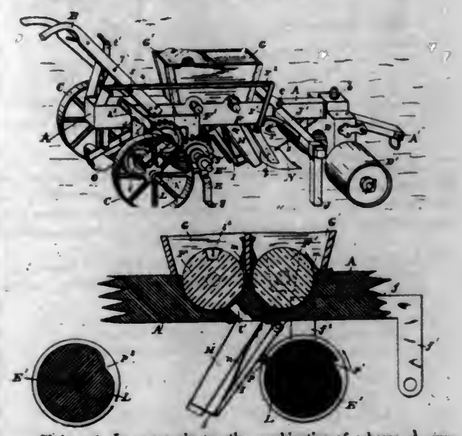
3. The combination of two or more stiffening-springs made of one piece of wire bent back and forth laterally into a series of compound curves, said springs being connected together and adapted for insertion into adjoining sheaths or pockets, substantially as set forth.

4. A stiffening-spring for body-wear, composed of a wire bent back and forth laterally into a series of compound curves, and having inwardly-turned ends, substantially as set forth.

5. A stiffening-spring for body-wear, composed of a wire bent back and forth laterally into a series of compound curves throughout every portion of its length, the centers of such curves being upon or on opposite sides of a bisecting line, and having inwardly-turned ends, substantially as set forth.

6. The combination, with the stiffening-springs bent back and forth laterally in a series of compound curves, used as clasp-springs, of loose clasps connecting two of such springs and permitting lateral movement, substantially as set forth.

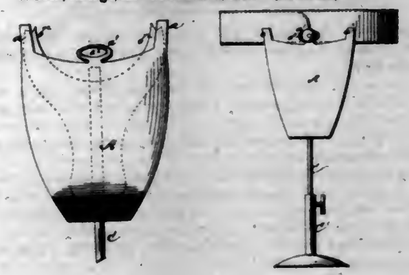
319,405. CHECK-ROW CORN-PLANTER. HENRY F. GRAETZEL, Gardenville, Md. Filed Oct. 15, 1884. (No model.)



Claim.—1. In a corn-planter, the combination of a beam, A, supported at its rear end on wheels C, two rollers, D', at the front end of the beam, a seed-hopper on the beam having feed-rollers F F', a shaft, E', extending crosswise below the said hopper, having a cog-wheel, *k*, which drives the feed-rollers, and a second cog-wheel, *g'*, and provided with a marker, E, a shifting cog-wheel, *h*, to gear with the said second cog-wheel, and having a rod, h^3, for moving it, and a guide-arm, J', pivoted to the side of the beam and having at its end a vertical bar, J, as set forth.

2. In a planter, the combination of the drop-tube H, a cut-off valve in the drop-tube, an arm, I, pivoted at its upper end and attached to the cut-off valve, a cam-wheel, L, and a spring, *n*, whereby the valve is opened and shut, as set forth.

319,406. DEVICE FOR EXHIBITING COLLARS, SCARFS, &c. F. J. GUTH, Chicago, Ill. Filed Feb. 6, 1884. (No model.)

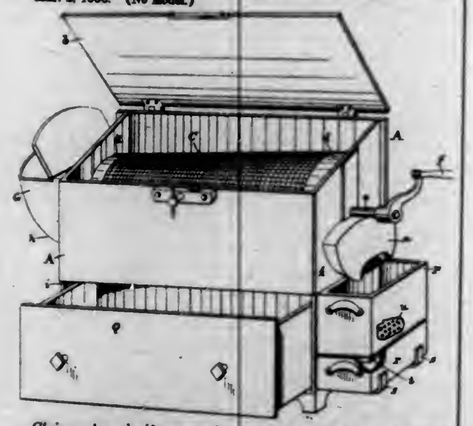


Claim.—1. In a device for exhibiting collars, a shield or plate having two bearing fingers or horns, in combination with a spring-clip arranged upon its rear side, also provided with clamping-points, substantially as and for the purpose set forth.

2. In a device for exhibiting collars, a plate or frame formed or provided with clamping-fingers at its upper corners and a button-hole in its center, in combination with a spring-clip hinged upon it, and a supporting standard or base, substantially as and for the purpose set forth.

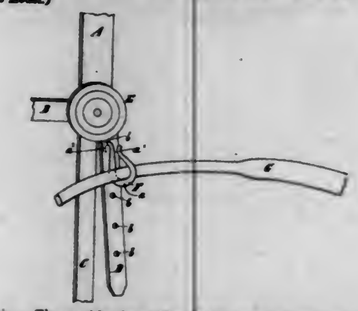
3. The plate A, formed with horns *a*, projection *a'*, and hole *a²*, in combination with the spring-clip B, having bearing-horns *b²*, and the rod C, hollow standard C', and a base or foot, substantially as and for the purpose set forth.

319,407. ASH-SIFTER. ARTHUR HALLWIG, Baltimore, Md. Filed Mar. 2, 1885. (No model.)



Claim.—An ash-sifter comprising a case provided with an ash-receiver and a coal-discharger, a cylindric sieve open at both ends, a water-tight box supported below said coal-discharger, and a coal-box having a perforated bottom, and resting on the water-tight box, as set forth.

319,408. GAG-RUNNER FOR BRIDLES. ROBERT G. HANFORD, Jr., Newark, N. J., assignor to Crane & Co., same place. Filed May 12, 1884. (No model.)



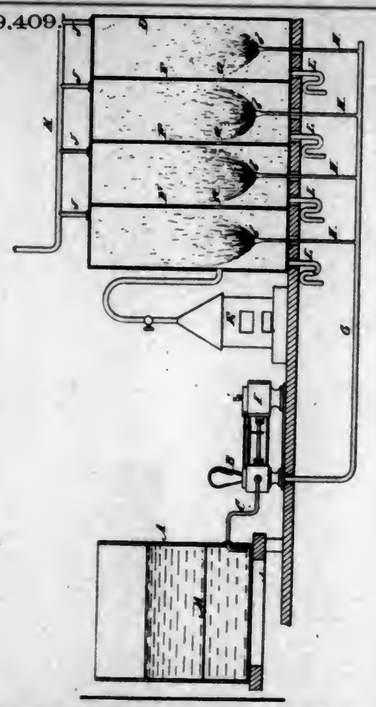
Claim.—The combination, with a bridle provided with a check-rein having a rounded portion and a flat portion, of the gag-runner provided with a hook at one end for attachment to the bridle, its body portion formed into a loop the opening of which is adapted to admit the flat portion of the rein, and so contracted that the rounded portion cannot slip out of the loop, all substantially as set forth.

319,409. APPARATUS FOR BLEACHING LIQUIDS. MELANCTHON HANFORD and CLARENCE C. HANFORD, Boston, Mass. Filed June 20, 1884. (No model.)

Claim.—1. The chamber D, to which the bleaching-gas is supplied, divided into compartments communicating with each other, and combined with the pump B, pipe G, and branches H, which enter the chamber D, and which are provided within the chamber with atomizing-heads *b*, substantially as set forth.

2. The chamber D, divided into compartments communicating with each other, and provided with the pipes J and bent outlet-pipes L, combined with the gas-generator E, tank A, pump B, and connecting-pipes C G and branch pipes H, entering the compartments of the chamber, and provided with perforated or atomizing heads *b*, as and for the purposes set forth.

319,409.



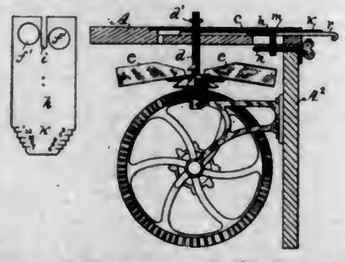
319,410. METALLIC FELLY. GEORGE D. HAWORTH, Chicago, Ill. Filed Mar. 9, 1885. (No model.)



Claim.—1. A means of providing in metallic fellies a remedy for rim-bound wheels, consisting in diminished intervening and coinciding ledges on the conjoining ends of the felly-sections, substantially as described.

2. The means herein set forth for forming an iron felly of uniform strength and rigidity throughout, consisting in the combination, with conjoining ends of different sections of the felly, of a dowel-pin rigid on an end of a section, and having its extreme projection resting on the inner surface of the concavity of the opposite section, and a cross-bar on the end of the opposite section, provided with a slot adapted to receive the dowel-pin and effectually prevent either centripetal or lateral displacement therein.

319,411. BROADCAST SEED-SOWER. OSCAR F. HEARTWELL, Jr., Des Moines, Iowa, assignor of one-half to Alfred D. Place, same place. Filed Nov. 28, 1884. (No model.)



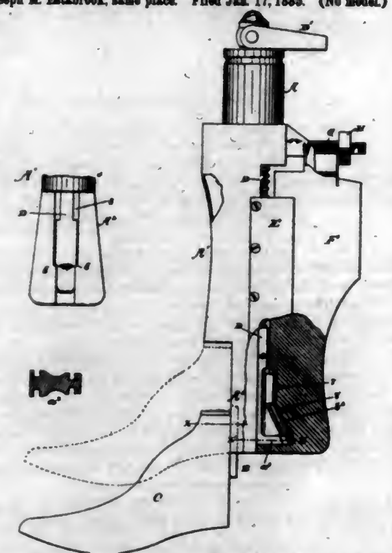
Claim.—1. In a broadcast seed-sower, an adjustable plate having a slot at its rear end and one or more perforations for the passage of seeds, in combination with a fixed and perforated plate in the bottom of a seed-hopper, a graduated scale, a rotating shaft having seed-distributers attached, and mechanism for adjusting the sliding plate, for the purposes set forth.

2. In a broadcast seed-sower, an adjustable gage-plate having perforations to allow seeds to pass through, and a graduated scale on its end to index and regulate the quantity of the seed passed through said perforations, in combination with the perforated bottom of a hopper or perforated fixed plate at the bottom of a hopper, for the purposes specified.

3. The gage-plate *h*, having a slot, *i*, perforations *f''*, and a graduated scale, *k*, on its front end, the elbow-shaped bar *m*, and the screw *n*, in combination with the base A A, having a perforated plate, *c*, and a hopper, *g g'*, fixed on its top surface, and a rotating vertical shaft having a series of radial arms, substantially as shown and described, to operate in the manner set forth, for the purposes specified.

4. The sliding cut-offs *r*, having perforations *f''* and elongated notches *s*, in combination with the base A, the rotating shaft *d*, and a seed-hopper having a perforated bottom, substantially as and for the purposes set forth.

319,412. SHOE-TREE. JOHN A. HIGGINS, Milford, Mass., assignor to Joseph M. Estabrook, same place. Filed Jan. 17, 1885. (No model.)



Claim.—In a shoe-tree, the integral journal and front and slotted stationary center piece provided with shoulders 5, combined with the foot-piece and its attached block B, entered into the slot of the stationary center piece and provided with projections 6, to strike the said shoulders 5 of the stationary center piece, thereby arresting the outward movement of the foot-piece and holding the latter rigidly in place, the foot-piece being adapted to be moved longitudinally upon the center piece without moving the latter, all substantially as shown and described.

319,413. MOLDING-MACHINE. JAMES A. HORTON, Reading, Mass. Filed Sept. 23, 1884. (No model.)

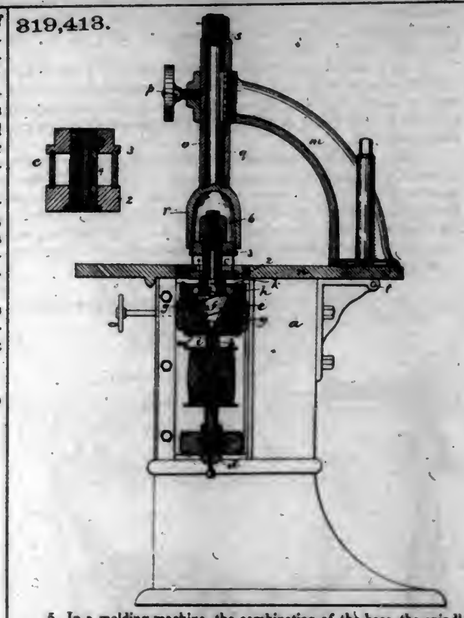
Claim.—1. The cutter-head composed of a sleeve formed to be removably applied to the cutter-spindle, the collars 2 3, secured to and positively connected by said sleeve, and the knives held by grooves in the proximate surfaces of said collars, as set forth.

2. The cutter-head composed of the sleeve 4, threaded at its upper end, the collars 2 3, secured to the sleeve, as described, and the knives inserted at their ends in grooves in the proximate surfaces of the collars and rigidly held by said sleeve and collars whether on or off the cutter-spindle, as set forth.

3. The combination of the sleeve 4, threaded at its upper end and shouldered at its lower end, the collar 2, socketed to receive the shoulder of the sleeve, the collar 3, tapped to receive the threaded end of the sleeve, and the knives inserted at their ends in grooves in the proximate surfaces of the collars and rigidly held by the sleeve and collars, as set forth.

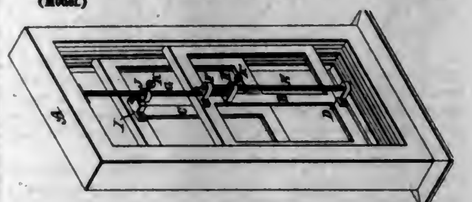
4. The combination, with a laterally unobstructed cutter-head, of the inverted cup or bearing projecting over the same, said bearing being entirely independent of the cutter-head and formed to support and guide the edge of the form or pattern while the edge of the material below it is being shaped by the cutter-head, as set forth.

319,413.



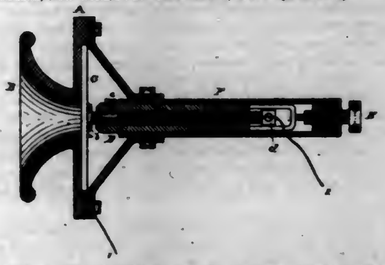
5. In a molding-machine, the combination of the base, the spindle, and the cutter-head journaled therein, and the hinged table having the arm *m*, and the cup or bearing *r*, supported by said arm, as set forth.

319,414. SASH-FASTENER. JOHN HUTH, Canton, Ohio, assignor of one-half to Fred J. Heingartner, same place. Filed Dec. 30, 1884. (Model.)



Claim.—The combination of the vertical rod G, secured at its upper end to the window-frame, and provided at its lower end with a socket, H, having a set-screw, K', the vertical rod E, connected at its ends to the lower sash and capable of sliding through the said socket, and a block, I, secured to the upper sash, and having an adjustable head sliding on the upper vertical rod, and provided with a set-screw, K, substantially as and for the purpose described.

319,415. ELECTRIC TELEPHONIC TRANSMITTER. EDWARD H. JOHNSON, New York, N. Y. Filed Mar. 1, 1883. (No model.)



Claim.—1. In a telephone-transmitter, the combination, with an opposing electrode, of a compound electrode composed of a number of metallic points secured together in a solid body and electrically insulated from one another, and a separate resistance connected with each of such points, substantially as set forth.

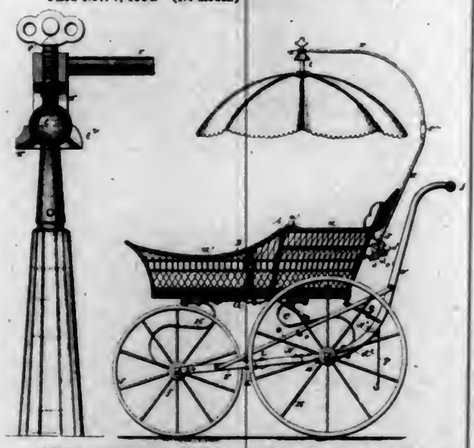
2. In a telephone-transmitter, the combination, with an opposing electrode, of a compound electrode composed of a number of insulated metallic wires of high resistance secured together in a solid body and

presenting at one end to the action of the opposing electrode electrically-separated points, and electrically connected at the other end to a common circuit terminal, substantially as set forth.

3. In a telephone-transmitter, the combination of a flat-surfaced electrode attached to the diaphragm, and a compound electrode consisting of a number of insulated high-resistance conductors massed together and having exposed ends opposed to such flat-surface electrode, substantially as set forth.

4. In a telephone-transmitter, the combination, with an opposing electrode, of a compound electrode composed of a number of insulated metallic wires of high resistance secured together in a solid body and having separated bare points at one end and electrically connected at the other end to a common circuit terminal, and a tube inclosing such body of wires and adjustably supported in the instrument, substantially as set forth.

319,416. CHILD'S CARRIAGE. FREDRIK H. JURY, New York, N. Y. Filed Nov. 7, 1884. (No model.)



Claim.—1. The combination, with the rear and front axles of a carriage, and a pair of jointed handles connecting the axles, of a body-section secured to the rear axle, and a body-supporting frame secured to the front axle and hinged to the said body-sections, whereby the front axle, supporting-frame, and front sections of the handles may be folded beneath the body, substantially as set forth.

2. The combination, with the rear and front axles of a carriage and jointed handles connecting the axles, of a stationary body-section secured to the rear axle, and a body-supporting frame hinged to the said body-section and rigidly secured to the front axle, the frame and handles being so constructed that they may be simultaneously folded beneath the body without being detached from their supports, substantially as set forth.

3. The combination, with the rear and front axles of a carriage and jointed handles connecting the axles, of a stationary body-section secured to the rear axle by springs, and a body-supporting frame hinged to the said body-section and secured to the front axle by springs, the frame and front sections of the handles being adapted to be folded beneath the body, substantially as set forth.

4. The combination, with a pair of stub-axles and a front axle provided with wheels, of a pair of handles connecting the rear and front axles, and provided with joints, whereby the front wheels, together with the front sections of the handles, may be folded beneath the body, the front wheels passing between the stub-axles, substantially as set forth.

5. The combination, with a stationary body-section secured to the rear axles and a body-supporting frame secured to the front axle and hinged to the stationary body-section, of a pair of handles connecting the rear and front axles, provided with a double joint between the axles, whereby the frame and handle-sections may be simultaneously folded beneath the stationary body-sections without detaching either, substantially as set forth.

6. The combination, with a pair of double-jointed handles connecting the rear and front axles of a carriage, of jointed braces adapted to lock the handles in adjustment for use, substantially as set forth.

7. The combination, with a pair of double-jointed handles connecting the front and rear axles of a carriage, of jointed braces adapted to lock one pair of joints in adjustment for use, and thumb-bolts adapted to lock the other pair of joints in adjustment for use, substantially as set forth.

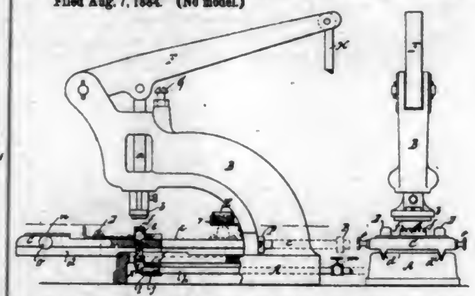
8. The combination, with a folding body-section hinged to a stationary body-section, of a spring-supported frame hinged to the stationary body-section, and devices for locking the folding section to the frame, substantially as set forth.

9. The combination, with a pair of jointed handles connecting the front and rear axles of a carriage, and a stationary body-section secured to the rear axle by springs, of a flexible strap connecting the stationary section, and a cross-brace on the handles, for the purpose substantially as set forth.

10. The combination, with a stationary body-section and a pair of handles, of a pair of stub-axles provided with bearings for the handles and for the lower ends of springs which support the stationary body-section, substantially as set forth.

11. The combination, with a stationary body-section and a pair of jointed handles having a pair of wheels journaled in their forward ends, of a pair of rear stub-axles provided with straps for fastening the handles thereto, and with bearings for the springs which support the stationary body-section, the whole constructed in the manner and for the purpose substantially as set forth.

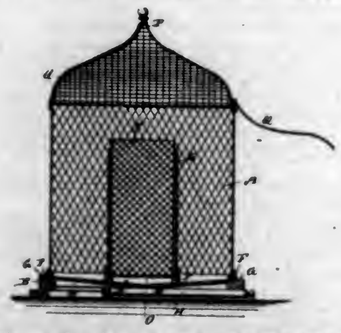
319,417. EMBOSSING-MACHINE. JOHN K. KRIEG, New York, N. Y. Filed Aug. 7, 1884. (No model.)



Claim.—1. The combination of a bed-plate, A, a pivoted lever, F, and a plunger, *a*, having an attached die, *b*, with a plate capable of reciprocating on the bed-plate and provided with an attached gas-burner, *e*, and a surface to receive the article to be embossed, so that by reciprocating the plate either the said surface or the burner can be brought directly under the die, substantially as described.

2. The combination, substantially as herein described, with the die *b*, the plunger *a*, the arm B, which guides the plunger *a*, and the lever F, for operating the plunger *a*, of a movable plate, C, a gas-burner, *e*, secured to said plate, and a bracket, *r*, secured to the arm B, which guides the plunger *a*, said bracket being in such a position in relation to the burner *e* and to the die *b* so that by moving the plate C the gas-burner *e* can be brought either beneath the die *b* or beneath the bracket.

319,418. SHOW-CASE FOR COOLING OYSTERS, &c. ALEXIUS T. LUNDQVIST, New York, N. Y. Filed Nov. 15, 1884. (No model.)



Claim.—1. In a show-case or exhibiting device for oysters and other shell-fish, the combination, with a wire case, of a wire cage or basket within the said case, and an additional cage or basket within the above-mentioned cage or basket, substantially as herein shown and described.

2. In a show-case or exhibiting device for oysters and other shell-fish, the combination, with the wire case A, of the standards J on the bottom of the same, and of the wire cages or baskets L N, substantially as herein shown and described.

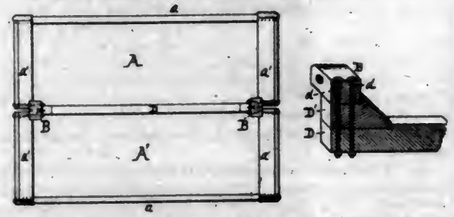
3. In a show-case or exhibiting device for oysters or other shell-fish, the combination, with the case, of the base B, having a groove, G, and channels F, and of the floor C, substantially as herein shown and described.

4. In a show-case or exhibiting device for oysters and other shell-fish, the combination, with the wire case A, of the base B, having a groove, G, and channels F, the case A and the floor C having grooves E, extending toward the middle, and apertures D, substantially as herein shown and described.

5. In a show-case or device for exhibiting oysters and other shell-fish, the combination, with the wire case A, with or without a cover, of the removable ice-basket in the center of the case, substantially as herein shown and described.

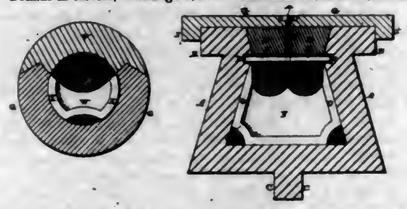
6. In a show-case or exhibiting device for oysters and other shell-fish, the combination, with the case A, having a bottom, C, provided with perforations at the middle, of the drip-drawer H, and an ice cage or basket held above the perforated part of the bottom of the floor, substantially as herein shown and described.

319,419. MATTRESS. FREDERICK MUHL and JOHN S. CARSON, Allegheny City, Pa. Filed Feb. 6, 1885. (No model.)



Claim.—A woven-wire mattress, in combination with a frame to which it is secured, when the frame is made in several sections, hinge-blocks for connecting the same, said hinge-blocks being connected with each of the adjacent sections by a separate pintle, and a brace situate beneath the mattress fabric and connecting said hinge-blocks, substantially as and for the purposes described.

319,420. CONDUIT FOR UNDERGROUND WIRES AND CABLES. BURNET L. NEVIUS, Washington, D. C. Filed Mar. 24, 1885. (No model.)



Claim.—1. The combination of a section, A, provided with the recesses L, with the metallic cover G, the part D, the bolt H, and the locking rod or lever J, substantially as shown and described.

2. The combination of the sections A with the box Y, which is placed between the curbstones, and which is provided with suitable openings, Z, for the passage of wires and cables, substantially as specified.

3. The combination of the box Y with the slide K and cover F, substantially as shown.

4. The combination of the sections A at the street-crossing with the box Y, which is open at both its top and bottom, and provided with openings Z upon opposite sides, the slide K, and the cover *a*, substantially as set forth.

319,421. DITCHING-MACHINE. DAVID J. POWERS, Chicago, Ill. Filed Dec. 8, 1884. (No model.)

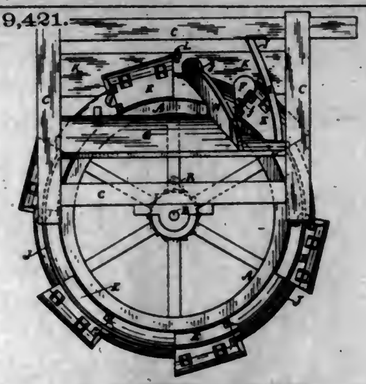
Brief.—Buckets secured by one side only to a wheel have hinged automatically-operated outwardly-opening doors at the other side and at the rear, and a clearing-scraper and "pitch-board", or chute. A scraper cleaning the outside of the buckets is secured to a back board or guard for such cleanings.

Claim.—1. An overhung ditching-machine bucket supported only upon its back side, with an automatically outwardly opening and closing rear end, in combination with suitable opening and closing devices, whereby the bucket is opened for free discharge of the contents in a straight course, substantially as shown and described.

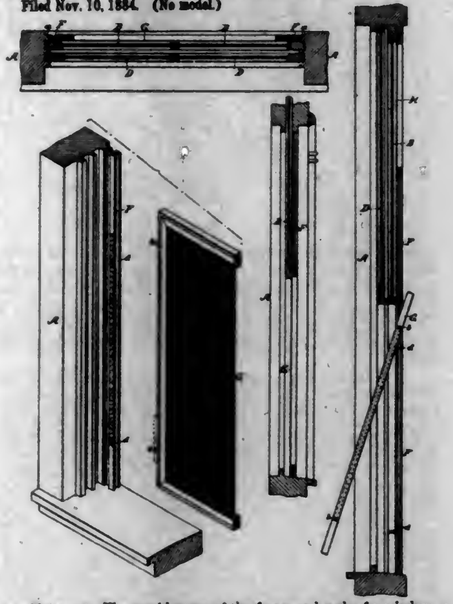
2. An overhung ditching-machine bucket attached and supported upon its back side only, with automatically outwardly opening and closing side and rear doors, with devices for opening the same, in combination with a ditching-wheel, a pitch-board, and scraper, substantially as and for the purpose specified.

3. The back board, K, and clip L, in combination with the ditching-wheel and buckets, substantially as and for the purpose specified.

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319,422. WINDOW-SCREEN. JOSIAH K. PROCTOR, Philadelphia, Pa. Filed Nov. 10, 1884. (No model.)



Claim.—1. The combination of the frame and sash of a window, a single screen larger than the window-opening, the gauze cover of said screen having a bearing upon the lower rail of the sash, opposite projections upon the frame of the screen, and an external retainer recessed for the passage of said projections, as set forth.

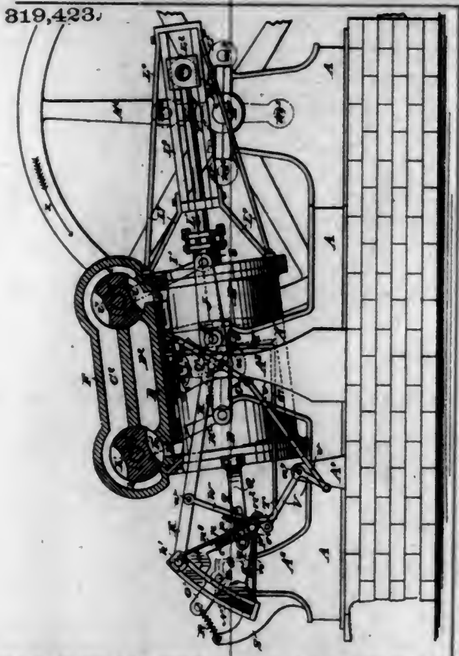
2. The combination of the frame and sash of a window, a recessed external retainer, and a single screen larger than the window-opening, and having opposite projections terminating below the upper edge of the screen, whereby said screen can be elevated in order to pass the lower portion of the same through the window-opening, as set forth.

3. The combination of the frame and sash of a window, a single screen larger than the window-opening and having upper and lower projections, *b*, on each edge, and an external retainer recessed for the passage of said projections, as set forth.

319,423. OSCILLATING ENGINE. DOUIA C. PUTNAM, Wayne County, N. Y. Filed Feb. 12, 1885. (No model.)

Claim.—1. The combination, in an oscillating engine, and with its cylinder, piston, piston-rod, crank, and crank-shaft, and rotary valves H I, seated at opposite ends of the steam-cylinder, and steam and exhaust ports, connecting opposite end cylinder-ports through the agency of the valves, substantially as specified, of arms H' I', fixed to the valves H I, respectively, a bar, J, connecting arms H' I', an angular rocking plate, N, having a link, N', a block, K', fitted in the link-slot, and adapted to be moved therein, a rod, K, connecting the block K' to the bar J and the valve-arms H' I', a rocking plate, O, hung on the pivot of the link-plate N, and having opposite angular edges, *o o'*, converging at *o²*, and said plate N having flanges *n n'*, forming, with the

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edges of the plate O, the opposite guideways, n^3 n^4, and the slot n^2 in front of the end o^2 of plate O, a spring, R, or equivalent means for shifting the plate O so its point o^2 opens ways n^3 n^4 alternately, and a block, P', having a pin, P, adapted to enter and work in the guideways and slot n^2 n^3 n^4, and said block P' fitted adjustably in an arm, Q, fixed to the engine-cylinder, to give motion to the valves, substantially as herein set forth.

2. A valve-motion for oscillating engines, comprising angular plates N O, fitted to rock on the same center, said plate N being provided with a link N', and edge flanges, n n', and said plate O having side edges, o o', converging at o^2, and forming, with flanges n n' of plate N, the guideways and slots n^2 n^3 n^4, in which may work a pin connected with an arm fixed to the engine-cylinder, and the link N' of plate N carrying an adjustable block, K', adapted for connection to the cylinder-valves, to impart motion to them, and a spring, R, substantially as herein set forth.

3. The combination, in an oscillating engine, and with its cylinder, piston, piston-rod, crank, and crank-shaft, and the rotary valves H I, controlling opposite ports of the cylinder, substantially as specified, of the valve-arms H' I', bar J, rocking link and guide-plates N O, block K', rod K, spring R, and a block, P', having a pin, P, and fitted to an arm, Q, fixed to the oscillating cylinder B, and the starting and stopping lever U, connected for shifting the block K' in the link-plate N to either side of the center of the link, substantially as herein set forth.

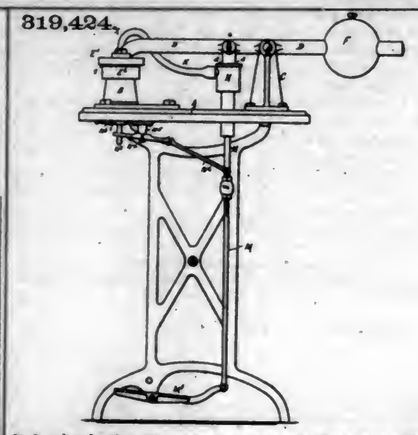
4. The combination, in an oscillating engine, and with its cylinder, piston, piston-rod, crank, and crank-shaft, and the rotary valves H I, controlling opposite ports of the cylinder, substantially as specified, of the valve-arms H' I', bar J, rocking link and guide-plates N O, block K', rod K, spring R, block P', having pin P, and fitted to slide in an arm, Q, fixed to the engine-cylinder, the starting and stopping lever U, connected to rod K, for shifting the block K', and said lever U also connected to the block P', so that the pin P shall be shifted to and from the trunnions of the cylinder simultaneously with the shifting of the block K' in the link N' of the plate N, substantially as herein set forth.

5. The engine-cylinder B, constructed with a bore for the piston and ports B' B^2, and with hollow trunnions C D and steam-passages C' D', and a steam-chest, F, provided with separate steam-chambers C^2 D^2, communicating with ports B' B^3, and rotary valves H I, fitted in seats over ports B' B^2, and cut away at the side, to open and close said ports alternately, substantially as herein set forth.

319,424. CIGAR-WRAPPER-CUTTING MACHINE. WILLIAM ROGERS, St. Paul, Minn. Filed July 24, 1884. (No model.)

Claim.—1. In a cigar-wrapper-cutting machine, a fixed cutter, a rising and falling lever, and perforated mallet attached to said lever and operating in connection with said cutter, in combination with pneumatic appliances connected with said perforated mallet, which force a current of air down through the perforations in said mallet, substantially as set

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forth, whereby the cut wrappers are prevented from being lifted from said fixed cutter.

2. A fixed cutter, a rising and falling lever, and a perforated mallet attached to said lever and operating in connection with said cutter, in combination with a cylinder attached to said lever, a tube connecting said cylinder and perforated mallet, a piston which works in said cylinder, and an operating-rod connected to said piston, substantially as set forth, whereby the upward movement of the mallet is effected simultaneously with the forcing of the air through the perforations in said mallet.

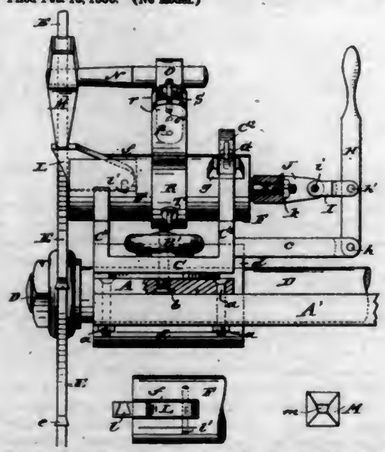
3. The combination of the fixed cutter B, lever D, carrying the perforated mallet E^2, cylinder H, provided with valve e, and pivoted to said lever, tube K, connecting said cylinder and mallet, and connecting-rod M, having piston-head L working in said cylinder, substantially as hereinbefore shown and described.

4. The fixed cutter B and the rising and falling lever D, in combination with a plate, E', fixed to said lever, a perforated mallet, E^2, attached to said plate, and a strip of flexible material, t, between the respective edges of the plate and mallet, whereby an inclosed space is left between said plate and mallet, with which space the perforations in said mallet communicate, substantially as set forth.

5. The cutter B, the follower-plate N' in said cutter, and the rod N^2, attached to the bottom of said follower-plate, in combination with the tapered standard N^3 and the split spring-lever N^4, pivoted to said standard and applied to said rod N^2, substantially as set forth.

6. Rising and falling lever D, mallet E^2, operating-rod M, cutter B, follower-plate N', rod N^2, tapered standard N^3, and split spring-lever N^4, in combination with adjustable collar m on said rod M, and a connecting-rod, N^5, pivoted to said collar and connected with said lever N' by a knuckle-joint, substantially as set forth.

319,425. SAW-TOOTH SWAGE. JOHN M. RYAN, Vicksburg, Miss. Filed Feb. 18, 1885. (No model.)



Claim.—1. In a saw swage and set, the combination of the bed-plate A, slotted at b, the base C, swiveled to the bed-plate on a bolt, B, having a fastening-nut, B', the die-stock F, movable axially and lengthwise in the base and carrying the bed-die, the lever H, link I, swivel-collar J, connected to the die-stock to give it lengthwise movement, the collar R, adjustable around the stock F, the pivoted head-piece O, the die M, having a handle, N, axially adjustable in the head O, and the set-screws S T, substantially as herein set forth.

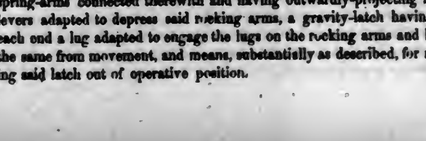
2. In a saw swage and set, the combination, with the die-stock F, movable axially and lengthwise in its base-piece, of a pivoted bed-die, L, substantially as herein set forth.

3. In a saw swage and set, the combination, with the die-stock F, movable axially and lengthwise in its base-piece and carrying the bed-die, of the lever H, link I, swivel-collar J, bolt K, and the clamp-screw G, substantially as herein set forth.

4. In a saw swage and set, the combination, with the bed-plate A, grooved at b, the base-piece C, swiveled on a bolt, B, provided with a nut, B', allowing the base-piece to be turned axially and moved bodily lengthwise of the slot b, of the die-stock F, supported in the base-piece C, and the saw-arbor D, mounted adjacent to the swage and set so that the teeth of the saw on the arbor may be rested on the bed-die in the stock F, substantially as herein set forth.

5. In a saw swage and set, the combination, with a die-stock, F, movable axially and lengthwise in a support and provided with a bed-die, L, having a dovetail-shaped face-cavity, l, of the striking-die M, mounted to be turned axially in a head-piece, O, pivoted to a collar, R, which is adjustable around and along the die-stock, and said die M having a face, m, of similar shape to the cavity l of the bed-die L, substantially as herein set forth.

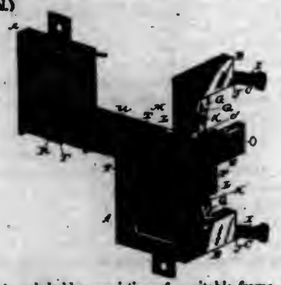
319,426. ENVELOPE-MOISTENER. ELISHA ETDER, Hartford, Conn. Filed Feb. 9, 1885. (No model.)



Claim.—1. A sponge-cup adapted to contain and hold a moist sponge, the said sponge-cup constructed with a transverse slot, a, opening onto the sponge, substantially as described.

2. A sponge-cup adapted to receive and hold a moist sponge, said cup constructed with a projection, B, into which the sponge may extend, the said projection having a transverse slot through it extending from its outer end inward onto the surface of the sponge, substantially as described.

319,427. SASH-FASTENER. WM. J. SLYDER, Troy, Ohio, assignor to the Troy Burlap Manufacturing Company, same place. Filed May 21, 1884. (Model.)



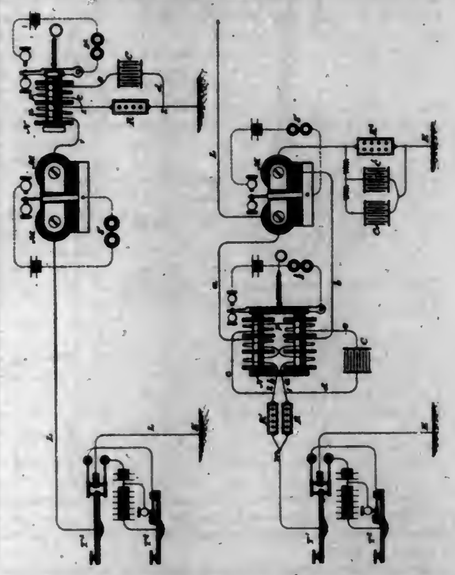
Claim.—1. A sash-holder consisting of a suitable frame, A, latches or pawls having pivotal bearing therein and adapted to engage the respective sashes, levers or arms connected with said pawls and adapted to rock the same, a gravity-latch adapted to engage said pawl-operating mechanism, and means, substantially as described, for retracting said gravity-latch, as and for the purpose set forth.

2. The combination, in a sash-lock, of a gravity-latch adapted to engage the sash-lock-operating mechanism and hold the same rigid, and having a slot or recess therein, a key adapted to fit the recess in said latch and force said latch upward out of contact with the sash-lock mechanism, and a key-guide for guiding said key to and holding it in operative position, substantially as set forth.

3. The combination, with the pivotal pawls or latches, of rocking spring-arms connected therewith and having outwardly-projecting lugs, levers adapted to depress said rocking arms, a gravity-latch having at each end a lug adapted to engage the lugs on the rocking arms and hold the same from movement, and means, substantially as described, for raising said latch out of operative position.

4. The combination, with the pivotal pawls or latches, of the frame A, having guideways for guiding the pawl-operating levers, and the pawl-operative levers adapted to engage said guideways for the purpose of retaining them and the parts connected therewith in position, substantially as set forth.

319,428. QUADRUPLEX TELEGRAPH. GERRITT SMITH, Astoria, N.Y. Filed Jan. 2, 1885. (No model.)



Claim.—1. In a diplex or a quadruplex telegraph system, the combination of a neutral relay and a condenser connected to the main line at a point between the neutral relay and the earth at the receiving end and to the earth.

2. In a diplex or quadruplex telegraph system in which reversals of current are employed for the transmission of one set of signals, a neutral relay, a resistance between said relay and the earth at the receiving end of the line, and a condenser whose opposite poles are respectively connected to the earth and to the main line between the relay and the earth, substantially as shown.

3. In a diplex and quadruplex telegraph system in which reversals of current are employed for the transmission of one set of signals, a neutral relay provided with two coils, one of which is embraced in the main line and the other in a branch, which branch also includes a condenser and is connected with the main line at a point between the earth and said neutral relay and with the earth, substantially as described.

4. In a quadruplex-telegraph system, the combination of main and artificial lines, a differential neutral relay, a condenser branch, including auxiliary coils p and condenser C, connected to the main and artificial lines at points of equal potential, and means at both ends of said telegraph-line for transmitting messages by reversals of current, substantially as described.

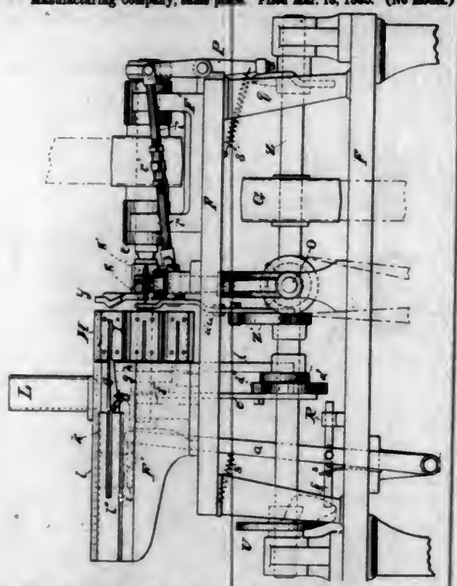
5. In a quadruplex-telegraph system, the combination of a neutral differential relay, a condenser branch connecting auxiliary coils p and condenser C, joining the main and artificial lines at points of equal potential between said neutral relay and the earth-connection at the same station, and a main line having means at both ends, respectively for the transmission of messages by current reversals, substantially as described.

6. In a quadruplex telegraph system, the combination of a neutral differential relay of a main and an artificial telegraph-line, a condenser branch, including condenser C, joining said main and artificial lines at points of equal potential between said neutral relay and the earth at the same station, and means for transmitting messages respectively from both ends of the telegraph-line by current reversals.

7. In a diplex or quadruplex telegraph system, the combination of means for transmitting reversals of current on the main line, a neutral relay, N, having coils n p, resistance R, and condenser C, substantially as described.

8. In a telegraph system, the combination of a main line, a condenser branch, a neutral relay having a primary coil in the main line and a secondary coil in the condenser branch, and a resistance in said main line between said relay and the earth at the receiving-station, to the extremities of which resistance the condenser branch is connected, substantially as described.

319,429. **MACHINE FOR POINTING COTTERS.** WILLARD A. SMITH and IRVING A. WESTON, Syracuse, N. Y., assignors to the Whitman & Barnes Manufacturing Company, same place. Filed Mar. 18, 1885. (No model.)



Claim.—1. A cotter-pointing machine comprising a cotter-carrier provided with an opening through which the shanks of the cotter protrude, and a cutting or abrading tool facing the said opening of the cotter-carrier, as set forth.

2. In a cotter-pointing machine, the combination of a cotter-carrier provided with openings through which the shanks of the cotters protrude, jaws for pressing the protruding shanks of the cotter together, and a rotary cutting or abrading tool facing the ends of said shanks and beveled according to the bevel to be given to the cotter-shanks, as set forth and shown.

3. In combination with the cotter-carrier provided with openings through which the shanks of the cotters protrude and a cutting or abrading tool facing said opening, a push-bar for moving the cotter into its position in the carrier.

4. In combination with the cotter-carrier provided with openings through which the shanks of the cotter protrude and a cutting or abrading tool facing said opening, a push-bar for moving the cotter into its position in the carrier and a chute for delivering the cotter to the push-bar.

5. In combination with the cotter-carrier provided with openings through which the shanks of the cotters protrude and a cutting or abrading tool facing said opening, a channel communicating with the opposite end of the cotter-carrier, a push-bar moving in said channel, and a chute for delivering the cotters in the aforesaid channel between the push-bar and cotter-carrier.

6. The cotter-chute L, provided with the central guide, *b*, substantially as and for the purpose set forth.

7. The cotter-chute L, having its channel formed with a flare at one side for the reception of the shanks of the cotter, and having the plate *a''*, attached to said chute and provided with the rib *b*, projecting into the flaring portion of the channel, substantially as described and shown, for the purpose set forth.

8. The combination of the intermittent rotary head H, cotter-carriers I I, mounted on said head, and combined rotary and intermittent reciprocating cutters facing the cotter-carrier, substantially as set forth.

9. The combination of the intermittent rotary head H, cotter-carriers I I, mounted on said head, jaws *m m*, for pressing together the ends of the cotter-shanks, and combined rotary and intermittent reciprocating cutters arranged in front of the said jaws to bevel the ends of the cotter-shanks, substantially as specified and shown.

10. In combination with the intermittent rotary head H and cotter-carriers I I, mounted thereon, the rotary shaft *t*, arranged movable endwise on its bearings, cutters E E, attached to said shaft, the pivoted lever P, connected at one end with the shaft *t*, the rotary cam *q*, engaging the opposite end of said lever, and the spring S'', holding the lever in contact with said carrier, substantially as described and shown.

11. In combination with the cotter-carrier, a beveled milling-tool arranged to enter between the ends of the cotter-shanks, to bevel said ends on their adjacent sides, substantially as set forth and shown.

12. The combination of the cotter-carrier provided with an opening for the protrusion of the cotter-shanks, and a milling-wheel having on its periphery a V-shaped cutting-edge arranged to enter between the ends of the cotter-shanks, substantially as and for the purpose specified.

13. The combination of the cotter-carrier provided with an opening for the protrusion of the cotter-shanks, a milling-wheel having a peripheral V-shaped cutting-edge arranged to enter between the ends of the cotter-shanks, and jaws arranged to bear against opposite sides of the cotter between the carrier and milling-tool, substantially as and for the purpose set forth.

14. The combination of the intermittent rotary head H, cotter-carriers I I, mounted on said head, the combined oscillatory and rotary shaft Q, the cutting or milling wheel mounted on said shaft and provided with a peripheral V-shaped cutting-edge arranged to enter between the ends of the cotter-shanks, substantially as and for the purpose specified and shown.

15. In combination with the cotter-carrier, the combined oscillatory and rotary shaft Q, cutting or milling wheel E', secured to said shaft, the lever P, rod *r*, connecting the shaft Q with one end of said lever, and the cam *q*, engaging the opposite end of the lever, substantially as and for the purpose set forth.

16. In combination with the head H and cotter-carriers I I, mounted thereon, combined oscillatory and rotary shaft Q, milling-wheel E' on said shaft, lever P, and cam *q*, actuating said lever, the connecting-rod *r*, made adjustable in length to conform to different sizes of milling-wheels, substantially as set forth.

17. The combination of the horizontal rotary shaft O, provided with the miter-gear T, the pedestal P', mounted on said shaft, the vertical shaft Q, journaled on the said pedestal and provided with the miter-gear T', meshing in the gear T, the milling-wheel E', attached to the shaft Q, the box M, riding on horizontal guides, and the reciprocating rod *r*, connected with said box, substantially as specified and shown.

18. In combination with the driving-shaft Z, intermittent rotary head H, and cotter-carriers I I, mounted on said head, the pivoted levers *v v* and *v' v'*, respectively, at diametrically-opposite sides of the head H, the jaws *m m* and *m' m'*, attached to the upper ends of said levers, toggles *u u'*, connected to the opposite ends of the levers, the yoke W, having the guide-slot *w''* astride the shaft Z and connected with the toggles *u u'*, the roller *w'*, pivoted on the yoke, and the cam Z' on the driving-shaft, all combined to operate substantially as specified and shown.

19. In combination with the intermittent rotary head H and cotter-carriers I I, mounted thereon, an intermittent reciprocating retractor adapted to engage the cotter and withdraw it from its carrier during the intervals of rests of the head H, substantially as set forth.

20. In combination with the intermittent rotary head H and cotter-carriers I I, mounted thereon, an intermittent reciprocating slide arranged parallel with the cotter-carriers and an arm hinged on said slide, and having its free end lying toward the head H, and formed with a hook, substantially as and for the purpose set forth.

21. In combination with the intermittent rotary head H and cotter-carriers I I, mounted thereon, the slide B, hooked arm C, hinged on the slide, the lever *a*, pivoted at one end and connected at the opposite end with the slide B, the push-bar *f*, cam U, and retracting-spring S', substantially as described and shown.

22. In combination with the intermittent rotary head H and cotter-carriers I I, mounted thereon, the slide B, hooked arm C, hinged on said slide, the lever *a*, pivoted at one end and connected at the opposite end with the slide, the push-bar *f*, yieldingly connected with the lever *a*, the springs S S', and the cam U, all substantially as described and shown.

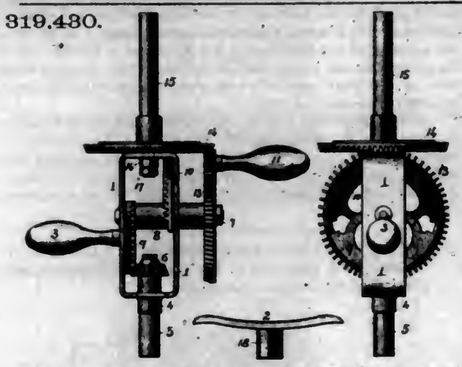
23. In combination with the intermittent rotary head H and cotter-carriers mounted thereon, the slide B, hooked arm C on said slide, rock-shaft J, lever *a*, and the arm *i*, connecting said lever with the rock-shaft adjustably in relation to the length of said arm between its points of connection, whereby the movement of the hooked arm C can be regulated according to the length of the cotters to be operated on, substantially as set forth.

24. In combination with the pivoted head H, the circular rack *h*, ratchet-wheel *g*, and crank *f''*, rigidly attached to the axis of the head H, the cams *d* and *d'*, attached to a rotary shaft, the bell-crank lever *l*, having one arm adapted to engage the rack *h*, and the other arm in contact with the cam *d'*, the pawl *g'*, connected with the crank *f''* and adapted to engage the ratchet-wheel *g*, the pitman *e*, connected at one end with the crank *f''* and having its opposite end slotted and astride the aforesaid rotary shaft, and the roller *d''*, pivoted on the pitman and in contact with the cam *d*, all combined to operate substantially in the manner specified and shown.

319,430. **BRACE.** CHARLES SWEDBURN, Bay City, Mich. Filed Dec. 2, 1884. (No model.)

Claim.—1. In combination with a drill or bit stock and a brace-frame, the devices described, mounted on said frame for imparting motion alternately in opposite directions to said bit-stock, substantially as and for the purpose set forth.

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2. In combination with a brace-frame, a bit or drill stock mounted therein, a pinion on the end of said stock, and two half-circular gears mounted on said frame in such manner as to alternately engage on opposite sides of said pinion, substantially as set forth.

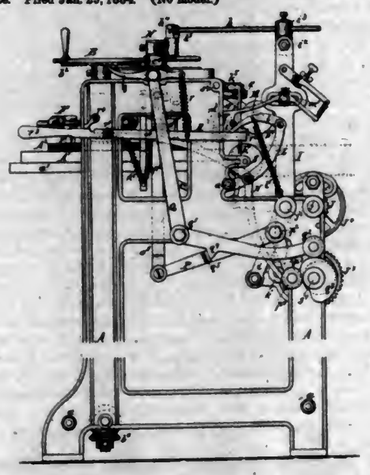
3. In combination with a brace-frame and stock, gears mounted on said frame for imparting alternate motion in opposite directions to said stock, a shaft, also mounted in said frame, adapted to be connected to the spindle of a drill-press, and gears for transmitting power to the reversing mechanism, substantially as and for the purpose set forth.

4. In combination with a brace, segmental transmitting-gear mounted thereon, and a shaft adapted to be connected with a spindle of a drill-press, and a removable hand or breast plate having a socket to be occupied by said shaft, substantially as set forth.

5. The combination, with a drill-brace, of the right and left segmental gear, as described.

6. The combination, in a drill-brace, of the right and left segmental gear, the miter-wheels, their frame and bearings, and a breast, substantially as described.

319,431. **PAPER-FEEDING MACHINE.** ROBERT J. STUART, Poughkeepsie, N. Y., assignor to the Sedgwick Manufacturing Company, same place. Filed Jan. 29, 1884. (No model.)



Claim.—1. In a machine for feeding sheets of paper from a pile, the combination, with a vertically-movable bed supporting the pile, of a gage resting on the pile, mechanism, substantially as described, whereby the gage controls automatically the movement of the pile-supporting bed, a buckling-finger operating, in connection with said gage, to buckle the top sheet, and a rubbing-finger having a curvilinear motion in a plane parallel with the pile-supporting bed, whereby the top sheet is turned on the pile and moved forward, substantially as set forth.

2. In a machine for feeding sheets of paper from a pile, the combination, with a vertically-movable bed supporting the pile, of a gage resting on the pile, mechanism, substantially as described, whereby the gage controls, automatically, the movement of the pile-supporting bed, a buckling-finger operating, in connection with said gage, to buckle the top sheet, a pivot resting on the pile, and a rubbing-finger having a curvilinear motion, whereby the top sheet is turned and removed, substantially as set forth.

3. In a machine for feeding sheets of paper from a pile, the combination, with the stationary frame, pile-supporting bed, and feeding-fingers, of a vertical spindle, a pivot fitted loosely on the lower end of the spindle, and mechanism, substantially as described, whereby the pivot can be raised and lowered on the spindle to bear upon the pile or clear the same, substantially as set forth.

4. In a machine for feeding sheets of paper from a pile, the combination, with the stationary frame, pile-supporting bed, and feeding-fingers, of a vertical spindle, mechanism, substantially as described, whereby a rocking motion is imparted to the spindle, a pivot fitted loosely on the spindle, the mechanism, substantially as described, whereby the pivot is raised and lowered on the spindle to bear upon the pile or clear the same, substantially as set forth.

5. In a machine for feeding sheets of paper from a pile, the combination, with the side frames, pile-supporting bed, cross-piece D, and vertical spindle *c'*, of the pivot C, rock-shaft *g*, and arm *g'*, substantially as set forth.

6. The combination, with the cross-piece D, vertical spindle *c'*, and pivot C, of the rock-shaft *c'*, fingers F, attached thereto, arm c^2, connecting the rock-shaft *c'* with the pivot C, rock-shaft *g*, and arm *g'*, connecting said rock-shaft *g* with the pivot, substantially as set forth.

7. In a machine for feeding sheets of paper from a pile, the combination, with the side frames, pile-supporting bed, and cross-piece D, provided with elongated opening *d*, of the spindle *c'*, screw-sleeve c^2, screw-nut c^3, and clamp-nut c^4, pivot C, and feeding-fingers F, substantially as set forth.

8. In a machine for feeding sheets of paper from a pile, the combination, with the stationary frame, pile-supporting bed, and feeding-fingers F, of the spindle *c'*, provided with arm H, connecting-rod *h*, and rock-arm I, a pivot, C, fitted loosely on the spindle, and a rock-shaft, *g*, and arm *g'*, whereby the pivot is raised and lowered, substantially as set forth.

9. In a machine for feeding sheets of paper from a pile, the combination, with the stationary frame, pile-supporting bed, and feeding-fingers F, the spindle *c'* and pivot C, and the cross-piece D, having an elongated opening, *d*, of bearings G, secured to said cross-piece, a rock-shaft, *g*, supported in said bearings, and an arm, *g'*, connecting said rock-shaft with the pivot, and made lengthwise adjustable on said rock-shaft, substantially as set forth.

10. The combination, with the spindle *c'* and pivot C, of a bearing, E, secured to said spindle, a rock-shaft, *c'*, supported in said bearing, a finger, F, secured to said rock-shaft, and mechanism, substantially as described, whereby said rock-shaft is turned for raising and lowering the finger, substantially as set forth.

11. The combination, with the stationary frame, of a spindle, a pivot fitted loosely on the spindle, a rubbing-finger adapted to turn the top sheet, and mechanism, substantially as described, whereby the pivot and rubbing-finger are raised and lowered simultaneously, substantially as set forth.

12. The combination, with the gage resting on the pile, of holding-down fingers resting on the corners of the pile in front and in rear of the gage, and a rubbing-finger operating to buckle the top sheet against the gage, substantially as set forth.

13. The combination, with the adjustable feed-table, of a gage resting on the pile and made vertically adjustable in its support, and mechanism, substantially as described, whereby the gage controls the feed-motion of the table, substantially as set forth.

14. The combination, with the feed-table, of the gage O, provided with a screw-stem, *o'*, slotted arm o^3, and rod o^5, connecting the gage with the mechanism, whereby the feed-motion of the table is controlled, substantially as set forth.

15. The combination, with the feed-table, of the gage O, arm o^3, rod o^5, bolt *p*, and side frame, A, provided with vertical slot *p'*, substantially as set forth.

16. The combination, with the feed-table, gage O, hold-down finger *l*, and buckling-finger M, of the finger *n*, secured to the elbow-lever N, and adapted to rest upon the corner or edge of the pile, and to be lifted when the top sheet is being drawn from under said finger, substantially as set forth.

17. The combination, with the feed-table, gage O, hold-down finger *l*, and buckling-finger M, of the finger *n*, secured to the elbow-lever N in the slot n^2 of the same, substantially as set forth.

18. The combination, with the lever R, of the gage O and rod o^5, provided with a stop or shoulder, o^6, adapted to be raised by the lever R, substantially as set forth.

19. The combination, with the lever R, of the pawl *q*, pivoted to the lever Q, and the spring *r*, connecting the pawl with the lever R, substantially as set forth.

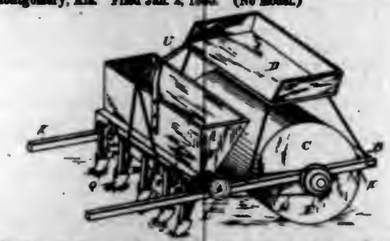
20. The combination, with the pivot C, rubbing-finger F, lever R, rod k^4, and mechanism, substantially as described, whereby said rod is connected with the pivot and rubbing-fingers, of a stop, r^3, formed on said rod and adapted to be lifted by the lever R, whereby the pivot and rubbing-finger can be lifted from the pile, substantially as set forth.

21. The combination, with the gage O, pivot C, and rubbing-fingers F, of the lever R, whereby all of said parts are lifted from the pile

simultaneously, and mechanism, substantially as described, whereby the lever R is connected with said parts, substantially as set forth.

22. The combination, with the feed-table and the vertically-movable gage-rod, of a horizontally-adjustable extension and a vertically-adjustable gage secured thereto, and adapted to be placed at varying distances from the buckling-finger, substantially as set forth.

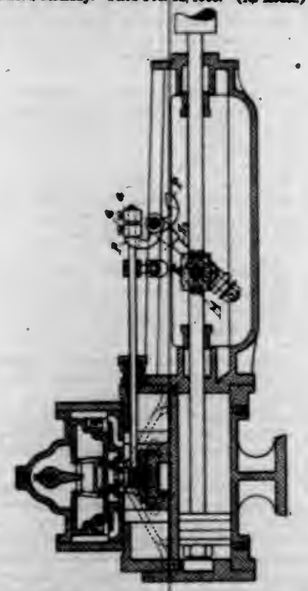
319,432. SEEDING-MACHINE. DANIEL S. TROY and JOHN S. DAVIS, Montgomery, Ala. Filed Jan. 2, 1885. (No model.)



Claim.—1. In a seeding-machine having a crushing-cylinder, a driver's seat, a hopper, seed drills, and tubes, the combination of the spirally-perforated seed-discharging cylinder N, rotated by pulleys and a belt, as described, a perforated seed-slide in the bottom of the hopper, a cam, K, on the shaft of cylinder N, and the angular lever J, substantially as described.

2. The combination, in a seeding-machine, of the shovel-shanks R, the transverse piece S, sliding in ways T and adjustable vertically by a hand-lever, and the hopper provided with a spirally-perforated cylinder and a seed-slide, adjustable as described.

319,433. VALVE-GEAR FOR ENGINES. WILLIAM VOIT, Magdeburg, Prussia, Germany. Filed Feb. 12, 1885. (No model.)



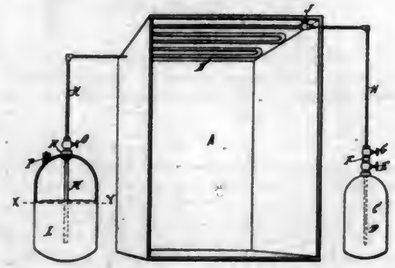
Claim.—1. The combination, with the piston and valve rods, of a socket secured to the piston-rod, a regulating ring or rings on the valve-rod, a rocking axle having directly attached to one end two tappets between which the regulating ring or rings are arranged, and a swinging bar connected with the rocking axle and loosely connected with the socket on the piston-rod, substantially as described.

2. The combination, with the piston and valve rods, of the socket K on the piston-rod, the rocking axle S², provided at one end with two attached tappets between which the regulating-rings Q on the valve-rod are connected, the swinging bar S³, connected with the other end of the rocking axle, and a pivotal connection, Z, between the lower end of the swinging bar and the socket on the piston-rod for swinging the tappets in the arc of a circle and causing them to act upon the regulating-rings from the bottom toward the top thereof, substantially as described.

3. The combination, with the piston and valve rods, of the socket K on the piston-rod provided with a slot, the socket H, having the attached pin Z movable in the slot, the rocking axle S², provided with two attached tappets, P, between which the regulating-rings Q on the valve-rod are arranged, and the swinging bar S³, secured to the other end of the rocking axle and passing through the socket H for imparting to the valve an accelerated motion when the piston-rod approaches the end of its stroke, substantially as described.

4. The combination, with the piston-rod and valve-rod, of the socket K on the piston-rod, the rocking axle S², provided at one end with the tappets P, the rocking bar S³, connected with the other end of the axle and loosely connected with the socket on the piston-rod, and the adjustable screw-nut X and washer Y on the swinging bar, substantially as described.

319,434. APPARATUS FOR GENERATING COLD ARTIFICIALLY. WILLIAM C. WEBB, Brooklyn, N. Y., assignor to William C. Benjamin, same place. Filed Feb. 11, 1885. (No model.)



Claim.—1. In apparatus whereby cold is produced artificially by the expansion of a liquid volatile gas, a detachable and portable storage cylinder or receptacle, C, fitted with a tube or siphon-pipe, D, or so fitted that the contents of said cylinder are discharged at or near the bottom of said cylinder C, and having a connecting-pipe, H, in combination with an expansion coil or chamber, B, and expansion cock or valve J, as shown and described.

2. In apparatus whereby artificial cold is produced by the expansion of a liquid volatile gas in an expansion coil or chamber, B, a detachable and portable cylinder or receptacle, L, fitted with a tube or siphon-pipe, M, or so fitted to an exhaust-pipe, K, that the exhausted and expanded gas from the expansion coil or chamber B is discharged below the level of the liquid absorbent contained therein, in combination with an expansion coil or chamber, B, and a connecting exhaust-pipe, K, as shown and described.

3. A detachable and portable receiving cylinder or receptacle, L, fitted with a tube or siphon-pipe, M, or so connected to an exhaust-pipe, K, that the contents of a detachable and portable storage cylinder or receptacle, C, enter and are discharged below the surface of the absorbent fluid contained in said cylinder L, in combination with an expansion coil or chamber, B, an expansion cock or valve, J, and a detachable and portable cylinder or receptacle, C, all for the purpose shown and described.

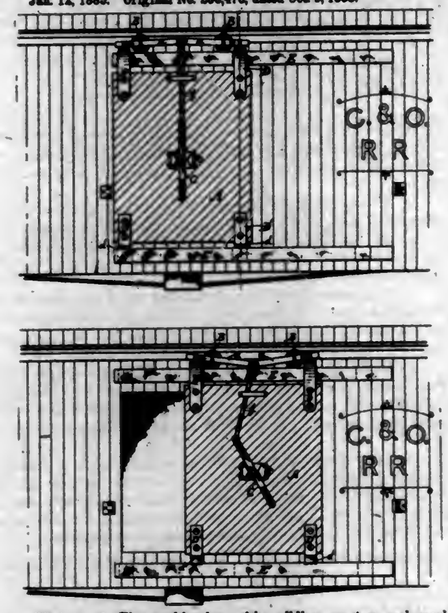
4. A detachable and portable storage cylinder or receptacle, C, fitted with a tube or siphon-pipe, D, or so connected to a connecting-pipe, H, that the contents of said cylinder or receptacle C are discharged at or near the bottom of said cylinder, and a detachable and portable receiving cylinder or receptacle, L, containing a suitable absorbent fluid, and fitted with a tube or siphon-pipe, M, or so connected to an exhaust-pipe, K, and an expansion coil or chamber, B, that the exhausted gas passes directly into the absorbent fluid below the surface thereof, in combination with a cock or valve, G, attached to the end of a connecting-pipe, H, and detachable coupling F, for the purposes shown and described.

5. In apparatus wherein cold is produced by the expansion of a liquefied volatile gas in an expansion coil or chamber, B, a detachable and portable cylinder or receptacle, C, fitted with a tube or siphon-pipe, D, or otherwise connected, as shown, to the expansion coil or chamber B, by an expansion cock or valve, J, having attached thereto by an exhaust-pipe, K, a detachable and portable receiving and absorbing cylinder or receptacle, L, containing a suitable absorbent fluid, said cylinder being fitted with a tube or siphon-pipe, M, or being so connected to an exhaust-pipe, K, that the expanded gas is delivered into the cylinder L below the fluid-line X Y, in combination with a cock or valve, O, attached to and connected with a detachable coupling, N, for the purpose shown and described.

6. The combination, with a detachable and portable receiving cylinder or receptacle, L, containing a suitable absorbent fluid, and fitted to receive exhausted gas, as hereinbefore fully described, of a self-acting pressure-valve, P, attached to and inserted into said cylinder L, for the purpose shown and described.

REISSUES.

10,604. SLIDING CAR-DOOR. EDWD. Y. MOORE, Evanston, Ill. Filed Jan. 12, 1885. Original No. 286,470, dated Oct. 9, 1883.

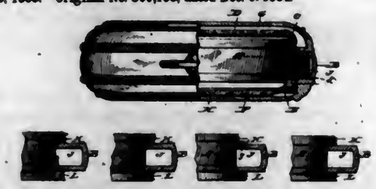


Claim.—1. The combination, with a sliding car-door and mechanism for lifting and lowering it to and from its sliding position, of lateral clamping devices, substantially as described, whereby, when said door is lowered and at rest, it is automatically clamped and forced toward the coincident surface of a car, and thereby rendered tight when closed, and prevented from undue movement whether open or closed, and while the car is in motion, as set forth.

2. The combination, substantially as specified, of the sliding car-door, the levers *a a*, in connection with the door, the rollers B B, journaled in the said levers, and means for tilting the said levers, for the purposes specified.

3. The combination, substantially as specified, with each other and a sliding car-door, of the straps D D, the pivoted hand-lever C, the link *b*, the rollers B B, and the levers *a a*, for the purposes set forth.

10,605. WATCH-CASE. DANIEL O'HARA, Waltham, Mass. Filed Mar. 13, 1885. Original No. 309,158, dated Dec. 9, 1884.



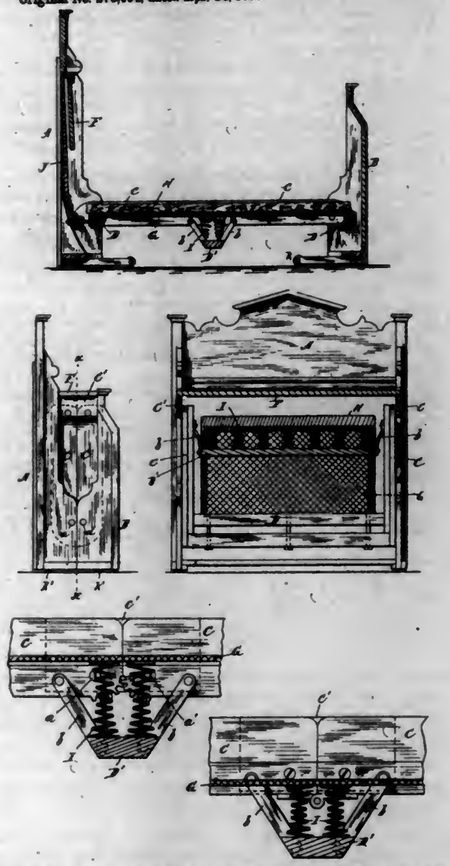
Claim.—1. In a watch-case, a riser or risers adapted for the attachment thereto of parts of the case—such as the front or back cap or plate or bezel-ring and its crystal—and made independent of or separate from all of the other parts of and attached to the case, substantially as described.

2. In a watch-case, a riser or risers adapted for the attachment thereto of parts of the case—such as the front or back cap or plate or bezel-ring and its crystal—and made independent of or separate from all of the other parts and attached to the case, in combination with devices adapted to connect the parts together and prevent their rotation, substantially as described.

3. In a watch-case, a riser or risers adapted for the attachment thereto of parts of the case—such as the front and back cap or plate or bezel-ring and its crystal—and constructed to project from and to overlap the side of the central shell, substantially as described.

4. In a watch-case, a riser or risers adapted for the attachment thereto of parts of the case—such as the front or back cap or plate or bezel-ring and its crystal—and constructed to project and to overlap the side of the central shell, in combination with devices adapted to connect the parts together and prevent their rotation, substantially as described.

10,606. FOLDING BED. DAVID J. POWERS, Chicago, Ill., assignor to the Union Wire Mattress Company, same place. Filed Dec. 14, 1883. Original No. 276,464, dated Apr. 24, 1883.



Claim.—1. In a folding bed, independent upright head and foot sections, which are horizontally movable and constructed to form an inclosing-case when brought together, in combination with side rails hinged at their respective ends to the head and foot sections and jointed about midway of their length by a hinge, which permits them to fold upward, and an elastic bed-bottom or fabric attached at its respective ends to and suspended between supports connected to the head and foot sections, respectively, all constructed and arranged relatively to produce a strain upon the fabric when the sections are separated and the side rails brought into horizontal position, but to release said strain when the side rails are folded up and the sections moved toward each other, substantially as and for the purposes set forth.

2. In a folding bed, independent upright head and foot sections, which are horizontally movable and constructed to form an inclosing case when brought together, in combination with side rails hinged at their respective ends to the head and foot sections, and jointed about midway of their length by a hinge which permits them to fold upward, and an elastic bed-bottom or fabric attached at its respective ends to and suspended between supports connected to the head and foot sections, respectively, and a cross-rail arranged underneath the bed-bottom and connected to the respective side rails near their middle joint, substantially as and for the purposes set forth.

3. In a folding bed, the jointed side rails constructed to fold upward about midway of their length, in combination with a cross-rail arranged underneath the bed-bottom and connected to the side rails near their middle joints by clips pivoted to the respective sections of the side rails, substantially as and for the purposes set forth.

4. In a folding bed, independent upright head and foot sections, which are movable, in combination with jointed side rails and caster-supports attached to the respective sections and projecting inward some distance beyond the bases of said sections, substantially as and for the purposes set forth.

5. In a folding bed, independent upright head and foot sections, which are movable, and which, when closed together, form the main body of the case for the other parts of the bed, in combination with jointed side rails hinged to the respective sections and of a width to fully close the openings between the head and foot sections when the bed is folded up and said sections are brought together, substantially as and for the purposes set forth.

6. In a folding bed, the independent upright movable head and foot sections A and B, which, when closed together, form the main body of the case for the other parts of the bed, in combination with the jointed side rails, C C, hinged to the respective sections, and the hinged clasp-rails C' C', all constructed and arranged substantially as and for the purposes set forth.

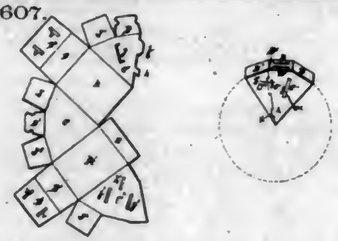
7. In a folding bed, independent upright head and foot sections, which are movable, and which, when closed together, form the body of a case for the other parts of the bed, in combination with folding side rails hinged at their ends to the respective sections, and an elastic bed-bottom or fabric fastened at its respective ends to supports connected to the said respective sections, substantially as and for the purposes set forth.

10,607. PAPER PACKAGE-BOX. THEODORE SCHMIDT, Dayton, Ohio, assignor to Joel O. Shoup, Robert L. Hughes, and Henry H. Lanbach, all of same place. Filed Apr. 2, 1883. Original No. 306,531, dated Oct. 14 1884.

Claim.—1. A quadrant-shaped package-box formed of a single piece having sides secured together by the overlapping sides C' C^2, one of said sides being formed with tucks f g, extending in opposite directions, and the other side with slots f' g', to receive said tucks, and folding overlapping flaps to form a cover on the peripheral edge of the box substantially as described.

2. A package-box composed of the parts A A' C C' C^2, with flap

10,607.



extensions forming the cover of the box, and the side C', overlapping sides C^2, and provided with tucks f g and slots f' g', adapted to interlock to hold the sides of the box together, substantially as herein specified.

3. A quadrant-shaped paper box formed of a single piece having overlapping sides C' C^2, secured together, end flap-extensions projecting from the sides, overlapping flaps B^2 B^2, extending from two of the sides and formed with slots i, and tucks D D', entering slots i, for locking the cover in position, substantially as described.

4. A quadrant-shaped paper box formed of a single piece having overlapping sides C' C^2, folded flap E, forming the closed bottom, and the end folds and flaps projecting from the sides of the box overlapping and interlocking with each other, substantially as described.

5. A package-box having the sides A A' C and overlapping side flaps, C' C^2, in combination with the overlapping cover B B', projecting from the sides A A', and tucks D D', extending from the sides C C' and entering the slots i in opposite directions, substantially as herein specified.

6. A package-box creased for folding, as specified, having side folds, A and A', with flap E, end folds, B B', with each two slots, i i, the bottom fold, C, with two flaps, J J, and tuck D, top fold, C^2, with slots h', f', and g', and flap J^2, top fold, C', with inner tuck, g, and outer tucks, f h, flap J', and tuck D, substantially as shown and described.

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DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

Supreme Court of the United States.

CLARK *et al. v.* THE BEECHER MANUFACTURING COMPANY.

Decided May 4, 1885.

1. Letters Patent No. 66,130, granted to James B. Clark, June 25, 1867, for an improvement in the manufacture of blanks for carriage-thill shackles, are not infringed by the manufacture of blanks for shackles in accordance with Letters Patent No. 106,225, granted to Willis B. Smith, August 9, 1870.
2. The features of the Clark patent are that by dies the arms of the blank are bent into an oblique direction and the body into a curved form, so that the parts where the arms join the body are rounded on the outside as well as the inside, and that when subsequently the curved body is straightened there will be in it sufficient metal to form sharp outside corners by being pushed out into them.
3. The arms of the Smith blank are not bent in an oblique direction, its body is not curved, the parts where the arms join the body are not rounded either on the inside or on the outside, and in afterward straightening the back surplus metal is not pushed toward or into the corners to form them, but the existing corners already formed are forced farther apart by driving surplus metal into the back between the corners.
4. In view of the state of the art and the terms of the Clark patent, it must be confined, at least, to a shape which, for practical use in subsequent manipulation, has a disposition of metal which causes a sharp corner to be formed in substantially the same way as by the use of his blank.

APPEAL from the Circuit Court of the United States for the District of Connecticut.

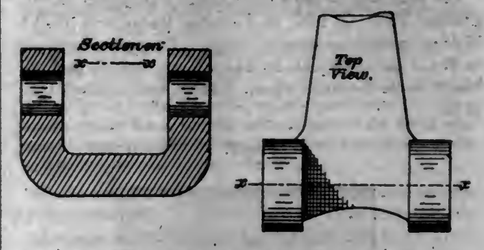
Mr. W. E. Simonds for appellant.

Mr. O. H. Platt for appellee.

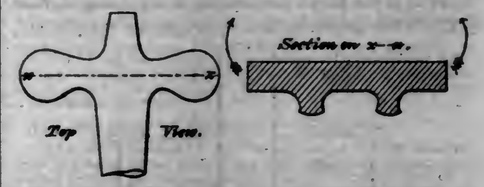
Mr. Justice BLATCHFORD delivered the opinion of the Court.

This is a suit in equity brought in the Circuit Court of the United States for the District of Connecticut by James B. Clark against The Beecher Manufacturing Company, a Connecticut corporation, and D. F. Southwick, for the infringement of Letters Patent No. 66,130, granted to the plaintiff June 25, 1867, for an improvement in the manufacture of blanks for carriage-thill shackles. The main defense to the suit is non-infringement. The circuit court, after a hearing and two rehearings, dismissed the bill, holding that infringement had not been proved. (7 Fed. Rep., 816.) The plaintiff has appealed.

A history of the state of the art and of the progress of invention in making shackle-blanks will conduce to a determination of the questions involved. A carriage-thill shackle is a device by which the thills of a carriage are hinged to the axle. The finished shackle is a horizontal plate with a pair of vertical ears rising therefrom, one at each end of the back. The eye on the end of the thill is received between the ears, and a bolt passing through the ears and the eye secures the parts. The flat back or body part of the article is forged with a projection at each side, forming what is commonly called the "clip," by which the article is secured to the axle. In forming the shackle it is necessary that the outside corners, where the ears join the back, should be sharp, full, and square, to obtain a good bearing on the axle, or the article will not be salable. The old style of shackle was of this shape:



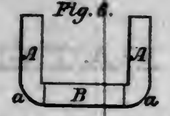
It was formed by bending up the two ears from a piece of metal of equal thickness, and the outer corners became round, and the bearing on the axle was not firm and true. It was desirable to obtain in some way a reservoir or surplus of metal which could be utilized in the bending by being thrown out into or remaining in the corners, to make them full and square on the outside. To attain this result, one James P. Thorp made an invention for which he obtained Letters Patent No. 29,114, granted May 1, 1860, which were reissued to his assignees, H. D. Smith and others, as No. 2,362, September 18, 1866. Thorp's blank was of the following shape:



The two projections on the bottom of the blank were intended to furnish sufficient metal to make the outer corners of the shackle square and sharp when the ears were bent in the direction indicated by the arrows. The projections were at the places where the arms joined the body. Thorp's patent showed a die for making the blank, constructed with recesses or cavities to form the projections, and stated that after the arms

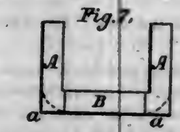
were bent up the blank, instead of being of the old form, Fig. 6, with rounded corners *a a*, thus:

Fig. 6.



would be of the form of Fig. 7, with square or right-angled corners *a a*, thus:

Fig. 7.



the blank being stronger at the junction of the arms and body, and the expansion of the metal in bending the arm being compensated for by a diagonal contraction of the metal, which operated to prevent the destruction of the cohesion of the particles of the metal and the consequent weakening of the blank at the parts where it was bent.

The next step is shown in Letters Patent No. 65,641, granted June 11, 1867, to Leander Burns and Josiah Wilcox on the invention of Burns. That patent shows in Fig. 7 an upper die, M, and a lower die, N, and the blank made between them, with square corners L L, thus:

Fig. 7.

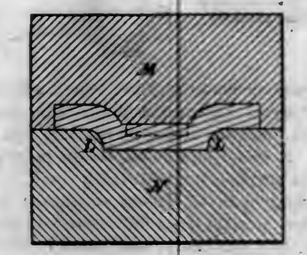
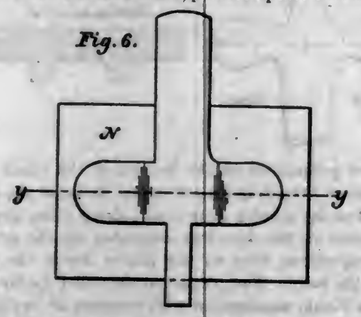


Fig. 7 is a transverse vertical section taken in the plane of the line *y y* in Fig. 6. Fig. 6 is a face view of the lower die, N, and shows also the blank after it is acted on by the dies. The specification states that if the arms of the blank are bent up at right angles, in a direction toward each other, perfect square corners will

Fig. 6.



be left at L L, with the metal through those corners and the other parts of a uniform thickness.

Then followed the patent to the plaintiff, the specification and drawings of which are as follows:

This invention relates to the construction of carriage-shaft shackles from solid blanks, and to the shape of the dies for forming the same, so that with the least amount of labor and power the said shackle may be gradually formed into the required shape.

In the annexed drawings this invention is illustrated. Figure 1 is a vertical sectional view of a shackle-blank, showing it between the dies. Fig. 2 is a top or plan view of a shackle-blank as the same is formed by the dies.

Similar letters of reference indicate like parts.

The blank, which is made in the shape of a cross, in the usual manner, is placed upon the lower die, A, and the upper die, B, is then forced down upon it, whereby the arms *a a* of the blank are bent into an oblique direction, and the body *b* is curved, as shown in the figure.

The portion of the blank where the arms join the body is rounded,

Fig. 1.

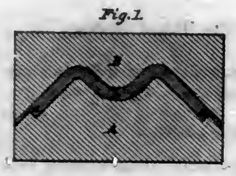
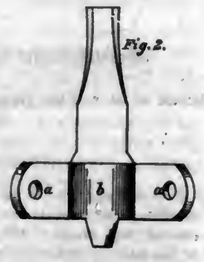


Fig. 2.



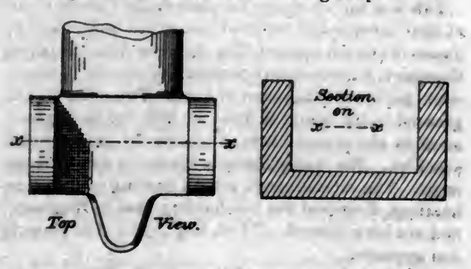
as shown, on both the inside as well as on the outside, the straightening of the body of the shackle pushing out sufficient material for forming the sharp corners, without having any hindersome and impracticable projections. The dies are formed so as to give the blank the required shape.

This process of forming shackle-blanks has proved by practice to be the most expeditious and simple yet performed, as it requires the least amount of machinery and forms each part of the shackle with just the required amount and thickness of metal for completing the article.

The claims, two in number, are these:

1. The carriage-shaft-shackle blank, so formed between dies that the body *b* of the blank is curved, substantially as herein shown and described.
2. The dies A and B, for making the said blank, when so constructed and arranged as to form the rounded corners and the curved body of the said blank, substantially as herein shown and described.

The plaintiff, according to his description, takes a blank in the form of a cross, and by dies of proper shape bends the arms of the blank into an oblique direction and the body into a curved form, the result being that the parts where the arms join the body are rounded on the outside as well as the inside, and when, subsequently, the curved body is straightened there will be in it sufficient metal to form sharp outside corners by being pushed out into them. The plaintiff's patent stops with the curved blank shown in Fig. 1 of his drawings. That blank is in practice afterward formed by other dies into the following shape:



Putting the blank into that shape is what the specification refers to when it speaks of "the straightening of the body," and "forming the sharp corners."

The defendants make shackle-blanks by dies, under Letters Patent No. 106,225, granted to Willis B. Smith

August 9, 1870. Fig. 3 of that patent is a plan view of the blank which the dies forge, and Fig. 4 is an end

Fig. 3.

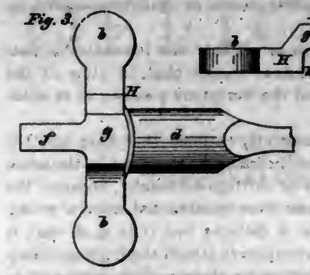


Fig. 4.



view of the blank. In these figures, *b b* are the ears. *d* is the clip. *f* is the shaft. *g* is the body of the blank. *h h* are the corners at the junction of the ears and the body. H is the whole blank. The corners *h h* are formed at right angles to each other. The specification says that the blank H is then placed in a trimming-die, and the surplus metal which projects from its edges is removed, and that the blank is then heated and the oblique portions of the body *g* are bent, so as to throw the ears *b b* upward, in the form shown in Fig. 5, in which operation the corners *h h*, previously formed at right angles, remain unmolested and are square and full.

Fig. 5.



The specification says:

I am aware that dies for the same purpose have been previously used, as shown in the patents to L. Burns, June 11, 1867, and J. B. Clark, June 25, 1867. In Burns's dies the body of the shackle is formed straight, while the ears are curved, the curve commencing at the plane where the ears are to be bent to form the corners, and therefore said corners are not right-angled; neither is it possible for curved ears to be both on one and the same line. In Clark's dies the ears are formed straight, but were arranged on different lines, so that the edge of the blank at the side of each ear was thrown out of a vertical line, which seriously interferes with trimming off the surplus metal. I make no claim to either of the above or similar dies.

Smith's patent claims the blank so constructed and formed, and also the dies for forging it. The circuit court was of the opinion that in straightening the angularly-bent back of the defendants' blank to get it into the shape of Fig. 5 of the Smith patent surplus metal was not pushed toward or into the corners to form them, but the existing corners were forced farther apart, to the extent of one-fourth of an inch by driving surplus metal into the back between the corners.

We are of opinion that this view is correct. Besides this, the arms of the defendants' blank are not bent in an oblique direction, its body is not curved, and the parts where the arms join the body are not rounded, either on the inside or on the outside. The defendants' blank, as in Fig. 4 of the Smith patent, has abundance of material near the corners *h h*, which are to be sharp and square, and are already formed, while the plaintiff's blank, by reason of its rounded corners, has a deficiency of material near the points where the square corners to be formed are to be.

In the efforts to make by dies a shackle-blank which should ultimately have sharp outside corners, the inventors in succession had the idea of a reservoir or surplus of metal. Thorp had it in the downward projections. Burns had it in his sharp lower corners with curved arms. The plaintiff had it in his curved body and rounded corners. Smith has it his shape; but in view of the state of the art and the terms of his patent, the plaintiff must be confined to a curved body, rounded corners, and oblique arms, or, at least, to a shape which for practical use in subsequent manipulation has a disposition of metal which causes a sharp corner to be formed in substantially the same way as by the use of his blank. The defendants' blank does not have such a shape.

Decree affirmed.

U. S. Circuit Court—District of Connecticut.

PARKER, Trustee, *et al. v.* STOW.

Decided April 11, 1885.

1. The invention of Richardson, complainant's assignor, was not anticipated by the prior patent to Bein and Ulrich, for Richardson created a new device from an old one by altering the structure so as to abandon the principal thing which the old one was created to do, and so as to change the principle of the mechanism in order to accomplish what the old structure did not undertake to do. This required invention.
2. Defendants use a certain friction device in their carriage for children, whereby the top may be secured in various positions over the child's head. Said device was known to be a substitute for the spring-latch and notches, which complainants use for the same purpose before the date of their patent, and as the patented invention is broad enough to include equivalents of the described form infringement is proved.

Messrs. Strawbridge & Taylor and Mr. Benj. F. Thurston for the plaintiffs.

Mr. John W. Konralinka for the defendant.

SHIPMAN, *J.*:

This is a bill in equity to prevent the infringement of Reissued Letters Patent No. 10,363, granted to Horatio G Parker, trustee, August 7, 1883, for an improvement in children's carriages.

The nature and distinctive features of the invention are described in the specification of the reissue as follows:

This invention relates to that class of carriages having a square or canopy top; and its object is to enable the child to be seen and taken from the carriage by the attendant without leaving the position she must occupy for propelling it by the handle at the back, and also to enable the child's face to be protected from the sun or wind when they are in the direction in which the carriage is pushed; and it consists in such an arrangement and construction that the top may be dropped in front of the seat as well as behind it, or fixed in an upright position over the carriage, or inclined at various angles; and, also, in the mechanism by which the same is accomplished, consisting of a pair of rigid arms secured rigidly to the carriage-top and jointed to recessed arcs attached to the body, the arms being provided with spring-bolts or their equivalent, which engage with the recesses on the said arcs to retain the top in the desired position.

The first claim of the reissue is as follows:

1. In a child's carriage, a rigid top or canopy, C, fixed upon the arms A, pivoted to the sides of the body, so that said canopy may drop in front of the seat or behind it, or be held in an upright or intermediate position, substantially as and for the purposes set forth.

In order to ascertain the validity of the patent, the extent of the invention, if any was made, and the construction of the recited claim, a knowledge of the state of the art is necessary, and is obtained from two patents—one to Julius Bein and William Ulrich, of February 11, 1868, and the other to Elihalet S. Scripture, of June 9, 1868.

The features of the Bein and Ulrich carriage were

twofold: First, its seat and calash top were reversible, so that both could be placed at the different ends of the carriage-body; and, second, the top "could be supported above the middle of the carriage, to act as a sun-umbrella." The first was the principal object of the carriage, and the mechanism which was apparently necessary to carry into effect that part of the invention could not accomplish the second object. In order to make the top reversible, its bows were pivoted to narrow iron plates, one depending upon each side of the carriage. The lower ends of these plates were pivoted to stiff bars or links, which also were pivoted at their lower ends to the sides of the carriage, so that there were three loose joints between the top and the sides of the carriage. Each of these links or bars rests upon a pin on the side of the carriage. In order to make the changes from one end to the other, the joints must move easily. To have the top stand vertically, a friction-plate and screw are applied to the uppermost joint, and when so applied the top is rigid; but as the middle joint is loose it would tumble down if the carriage should be wheeled over a rough place, and if the middle joint were also provided with a friction contrivance the top would swing from side to side unless the joint at which the bar was pivoted to the carriage should be made firm.

The Scripture device is an ordinary buggy-top having three bows, which are kept apart or brought together by means of a substitute for the ordinary side brace, lettered E F H′ in the patent. All these bows are pivoted upon a common pivot at each side of the seat, as in ordinary buggies, and to the place where they are pivoted there is applied a friction clamp, substantially the same as that shown in the carriage of defendant herein, by means of which the rearmost bow, called in the patent the "back" or "main" bow *a*, can be held in any position between its lowermost position behind the driver and a position vertically above the back of the seat, and when it is in either of these positions or those intermediate between them the other bows can be held in various positions with respect to it by means of the contrivance E F H′.

The top cannot be placed at an angle in front of the seat.

The Bein and Ulrich carriage contained the germ of the invention of the plaintiffs' patent. It had a top which, by means of a friction-plate and screw, could be placed in a vertical position, and could be inclined to some extent either forward or backward, but could not be held in any position except against the end of the carriage, because the other joints were loose and the top must tumble down when the carriage was used.

The invention of Richardson, the plaintiffs' assignor, consisted in discarding the reversible seat and reversible character of the top, and in changing the mechanism which supported the top, so as to have a pair of rigid arms—one on each side of the carriage—rigidly fixed to a canopy top at their upper ends, and their lower ends pivoted to the sides of the carriage-body by either the described or equivalent means, so that the top can drop in front of the seat or behind it or be held in any upright or intermediate position. The plate or arm or casting by means of which it is pivoted to the sides of the body is firmly attached to the body. In the patented device the arms were jointed to recessed arcs attached to the body. The first claim is for the combination of the rigid top, the rigid arms pivoted at their lower ends to the sides of the body by either the described or equivalent means, so that the specified result is produced.

The first question is whether the invention is patentable. The defendant insists that, in view of the Bein and Ulrich and the Scripture patents, it is without patentability.

It cannot be successfully claimed that Bein and Ulrich anticipated the Richardson invention in the sense that their patent was infringed thereby, because the Bein and Ulrich arms were constructed upon a wrong principle and were a failure; but it is said that it would require no invention to attach the friction-clamp of the Scripture patent to their middle joint. It is true that the described alteration would require no invention; but the device would still be a useless one, for the lower joint at the side of the carriage would be a fatal defect. All the joints must be furnished with friction-plates, and even then the support of the top would be cumbersome and insecure.

It is also said that no invention would be required to permanently secure the lower section of the Bein and Ulrich arm to the body of the carriage.

The leading idea of the carriage—the reversible top—would then be abandoned, and to create a new device from an old one by altering the structure so as to abandon the principal thing which the old was created to do, and so as to change the principle of the mechanism in order to accomplish what the old structure did not undertake to do—viz., hold the top in an intermediate position—seems to require invention.

The Scripture patent is not important upon the question of patentability. It used a friction-plate and thumb-screws to hold the rearmost bow of a buggy-top in any desired point. The other bows were held in the desired point by means of another contrivance.

The defendant sells children's carriages having a canopy top rigidly secured to two rigid arms, one depending on each side of the carriage. These arms are pivoted at their loose ends to standards rigidly fastened on each side of the carriage-body. The arms are pivoted by means of friction-plates and a thumb-screw, which causes the plate to which it is attached to relax or renew its grasp, so that the top can be moved in any position, and may drop in front of the seat or behind it, or may be held in an upright or intermediate position. This friction device was known to be a substitute for the spring-latch and notches of the plaintiffs' patent before its date.

The difference between the plaintiffs' and the defendant's carriage is that the former has a longer arm than the latter has, and is jointed to a metal casting which is attached to the body, and which consists in part of a piece of metal in the shape of an arc of a circle, the periphery being provided with a series of notches, and each arm being provided with spring-bolts. The arms of the defendant's carriage are pivoted, by means of friction-plates and thumb-screws, to standards or castings firmly attached to each side of the carriage-body.

As the patented invention did not consist in the form of the pivoting device, but was broad enough to include equivalents of the described form, infringement is proved.

There should be a decree for an injunction against the infringement of the first claim and for an accounting.

THE OFFICIAL GAZETTE OF THE United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

VOL. 31—No. 10. TUESDAY, JUNE 9, 1885. PRICE—$5 per year.

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The Official Gazette.

The OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Indexes to Patents on Electricity.

Appendix No. 2 to the index to patents relating to electricity, covering the period of time from July 1, 1882, to June 30, 1883, has been issued, and is now for sale. These indexes, arranged alphabetically, numerically, and by classes, are completed to June 30, 1883, and comprise the following volumes:

Vol. 1. Index to patents relating to electricity granted by the United States prior to June 30, 1881, with an appendix, July 1, 1881, to June 30, 1882. One volume, 250 pages. In paper covers, $3; bound, $5.

Vol. 2. Appendix No. 2, July 1, 1882, to June 30, 1883. One volume, 50 pages. In paper covers, $1.50.

Vol. 3. Appendix No. 3, July 1, 1883, to June 30, 1884. One volume, 60 pages. In paper covers, $1.50.

Attorneys.

DEPARTMENT OF THE INTERIOR,
Washington, June 1, 1885.

SIR: I am directed by the Secretary to inform you that the order of this Department, dated February 4, 1884, disbarring James F. Lingafelter, of Newark, Ohio, from practice as attorney before this Department was rescinded on the 28th ultimo.

Very respectfully,
GEO. M. LOCKWOOD,
Chief Clerk.

The Commissioner of Patents.

31 o G—9—i

Issue of June 9, 1885.

Patents	511—	No. 319,435 to No. 319,945, inclusive.
Designs	2—	No. 16,124 to No. 16,125, inclusive.
Trade-Marks	11—	No. 12,298 to No. 12,308, inclusive.
Labels	7—	No. 4,469 to No. 4,475, inclusive.
Reissues	1—	No. 10,608.
Total issue	532	

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British Columbia	....	....	Scotland	2	....
Canada	5	....	Spain	....	....
Chili	....	....	Sweden	1	....
Colombia, U. S. of	....	....	Switzerland	1	....
Cuba	....	....	West Indies	....	....
Denmark	1	....			
Ecuador	....	....	Total to citizens of foreign countries	34	1
England	14	....			
France	3	....			

DESIGNS.

16,124.—TYPE.—*Andrew Little*, New York, N. Y. Application filed March 18, 1885. Term of patent 7 years.

16,125.—CIGAR-HOLDER.—*Frank W. Sigourney*, Bristol, Conn. Application filed April 17, 1885. Term of patent 3½ years.

TRADE-MARKS.

[Certificates of registration of Trade-Marks numbered 8,191 and upward are registered under the act of March 3, 1881.]

12,298.—CHEWING-GUM.—*Adams & Sons*, New York, N. Y. Application filed May 13, 1885.
"The word 'SAPPOTA.'"

12,299.—MIRROR-PLATES.—*Semon Bache & Co.*, New York, N. Y. Application filed February 16, 1885.
"The representation of a Maltese cross."

12,300.—HAND SOAP.—*Joseph Biechele*, Canton, Ohio. Application filed May 2, 1885.
"The arbitrary word "BANNER."'

12,301.—WORSTED CLOAKINGS.—*Clark & Keen*, Philadelphia, Pa. Application filed May 18, 1885.
"The title 'MURRAY HILL.'"

12,302.—GRAY AND BLEACHED SHEETINGS, SHIRTINGS, DRILLS, AND JEANS.—*Fearon, Low & Co.*, New York, N. Y. Application filed May 14, 1885.
"The picture of a Chinese sage riding upon a stag."

12,303.—MEDICINAL REMEDIES FOR CHILDREN.—*David B. Hand*, Scranton, Pa. Application filed May 7, 1885.
"A child's head delineated upon the palm of an extended hand."

12,304.—GUANO.—*Richard L. Hickson*, Danville, Va. Application filed May 12, 1885.
"A picture representation of a gull and the word 'BERMUDA.'"

12,305.—BOTTLED SODA-WATER.—*Alois M. Hofmann, George Hofmann*, and *Valentine Hofmann*, Chicago, Ill. Application filed April 30, 1885.
"The word 'BUCK' and a goat."

12,306.—PRINTING-INK.—*Fredk. H. Levey & Co.*, New York, N. Y. Application filed May 13, 1885.
"The words 'INSURANCE POLICY.'"

12,307.—BOOTS, SHOES, SLIPPERS, AND LIKE FOOT-WEAR.—*Robert W. Peckham*, Chicago, Ill. Application filed May 18, 1885.
"The word 'JACK-KNIFE.'"

12,308.—SAFETY-PAPER FOR INDICATING FRAUDULENT CHANGES IN WRITING.—*The Patent Papier Fabrik zu Penig*, Penig, Germany. Application filed March 27, 1885.
"The perspective view of a cube with the words 'FALSA PRODO' and the letters 'P P', marked thereon."

LABELS.

4,469.—Title: "LACTATE BAKING POWDER."—*Avery Lactate Company*, Boston, Mass. Application filed March 16, 1885.

4,470.—Title: "GAUGERS' TACKS."—*Francis M. Berry*, Philadelphia, Pa. Application filed May 15, 1885.

4,471.—Title: "BUSKIRK'S IN AND OUT NOTICE."—*George W. Buskirk*, New York, N. Y. Application filed May 19, 1885.

4,472.—Title: "DOUGLAS' DIARRHŒA MIXTURE."—*H. Olay Douglas*, Washington, D. C. Application filed May 15, 1885.

4,473.—Title: "QUININE CHOCOLATES."—*Caswell, Massey & Co.*, New York, N. Y. Application filed May 13, 1885.

4,474.—Title: "FIRE AND WATERPROOF STONE COMPOSITION-PAINT."—*George Longguth*, Quincy, Ill. Application filed May 14, 1885.

4,475.—Title: "THE AMERICAN SHOE POLISH."—*James F. McGee, A. H. W. Clum*, and *L. C. Walsh*, Washington, D. C. Application filed May 16, 1885.

DISCLAIMER.

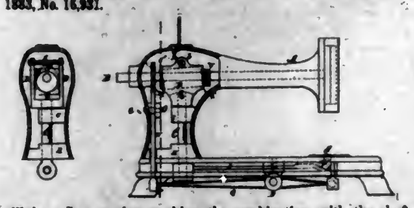
5,487, (Reissue.)—*Esau Tarrant*, Muskegon, Mich. Reissue patent, dated July 15, 1873. IMPROVEMENT IN MACHINES FOR TURNING LOGS. Disclaimer filed June 3, 1885, by the present assignee, *John Torrent*.

"Enters his disclaimer to that part of the claim in the specification which is in the following words, to wit: '1. The tooth-bar herein described, operating substantially in the manner and for the purpose specified.'"

PATENTS

GRANTED JUNE 9, 1885.

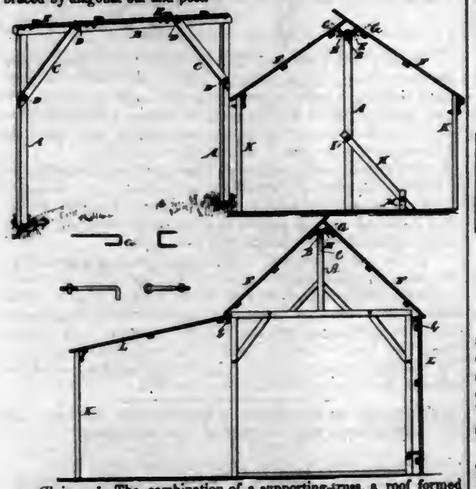
319,435. SEWING-MACHINE. ASAHEL ABELL, Hamilton, Ontario, Canada. Filed Aug. 10, 1881. (Model.) Patented in Canada June 16, 1883, No. 16,931.



Claim.—In a sewing-machine, the combination, with the shafts B and C, of the eccentric G, provided with the hub V, and secured to said shaft B at the desired point by a screw passed through said hub, the box H, made in two halves and inclosing said eccentric, and the eccentric-box case D, provided with screw-bolt K, and secured to the rock-shaft C, said rock-shaft being secured to the shuttle-carrier I, substantially as described.

319,436. PORTABLE BUILDING. JAMES E. ACHESON, Ainsworth, Iowa. Filed Sept. 10, 1884. (No model.)

Brief.—A removable sectional roof is supported by a central longitudinal truss and posts at the outer edges of the roof. Removable sides are extensible to form additional roof-sections. The truss-posts are braced by diagonal bar and post.

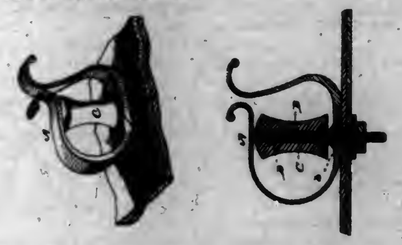


Claim.—1. The combination of a supporting-truss, a roof formed in sections, means for securing the sections to the truss, posts for supporting the outer sides of the roof-sections, and sides that are formed in sections and pivotally secured beneath the outer edges of the roof, whereby they may be extended out so as to form extensions to the roof, substantially as described.

2. The combination of the posts A, beam B, braces C, means for securing them together, roof-sections F, having catches G, posts K, anchor-posts M, and braces H, substantially as described.

3. The combination of the posts A, beam B, braces C, means for securing them together, roof-sections F, having catches G, posts K, and side sections, L, having catches G, substantially as described.

319,437. CHECK-REIN HOOK. ROBERT ATTWOOLL, Clear Lake, Iowa. Filed Mar. 30, 1885. (No model.)

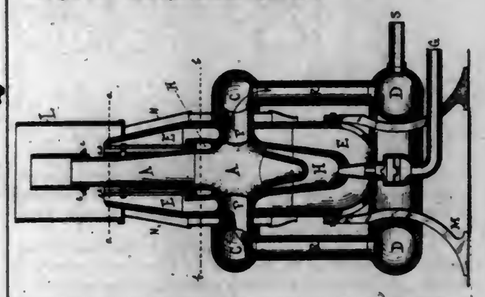


Claim.—1. The combination, with a check-rein hook, of a vertically-arranged spring-actuated roller, as set forth.

2. The combination, with a check-rein hook, of a spindle having a conical shoulder or flange and a roller having a conical lower end to fit the same, as set forth.

3. The combination, with a check-rein hook, of a spindle having a flange, a roller supported on said flange, and a spring located in said roller and bearing against the upper end of the spindle, as set forth.

319,438. REGENERATIVE GAS-STOVE. JOHN W. BAKER, Philadelphia, Pa. Filed Apr. 23, 1884. (No model.)



Claim.—1. A gas-stove consisting of a central flue-chamber closed at its base and a series of gas tubes and jets surrounding the same, in combination with a series of upright radiating flue-tubes arranged below said central chamber and connected therewith, whereby the products of combustion of the ignited gas are drawn down through said central chamber and said flue-tubes and impart heat therefrom by radiation to the surrounding atmosphere, substantially as set forth.

2. A gas-stove for producing both light and heat, consisting of two central flues placed one within the other and affording an air-passage between them, in combination with a series of gas tubes and jets arranged in the air-space between said central flues, and a series of upright radiating-tubes placed below and connecting with the base of said inner central flue, whereby the flame from such ignited gas and air will produce a light above such gas-jets and the products of combustion therefrom will be drawn over and down said inner central flue and carried through said radiating-tubes below to the draft-pipe, thereby imparting heat to the surrounding atmosphere, substantially as described.

3. The combination, in a light and heat producing stove, of the radiating-tubes C, D, and R, the gas-chamber H, the chambers A and E, gas-tubes *e e*, extension-tube *c*, and chimney L, the whole being constructed and arranged substantially as and for the purpose set forth.

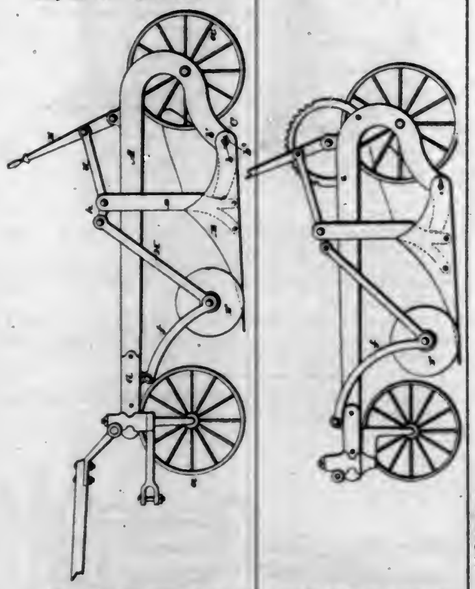
319,439. BRIDLE-BIT. POLLOCK BARBOUR, Louisville, Ky. Filed Nov. 17, 1884. (No model.)



Claim.—1. A detachable curb for bridle-bits, consisting of the curved lever-links D D and rings C C and intermediate chain, E, adapted to co-operate with a bridle-bit, substantially as set forth.

2. The combination, with a bridle-bit having end rings, of a curb composed of the curved lever-links, the intermediate chain, and the end rings, all substantially as set forth.

319,440. WHEEL-PLOW. JOHN W. BARTLETT, Moline, Ill. Filed July 19, 1884. (No model.)



Claim.—1. The combination, with a curved beam, of a plow pivotally secured to the beam near its end, the end of the beam extending forward and forming a loose contact with the standard or other suitable stop, substantially as set forth.

2. In a wheel-plow, the combination, with a beam curved downwardly and forwardly at the rear end, of a plow pivotally secured at its heel to the plow-beam, and having a forward and backward play on the pivotal bolt, whereby the end of the beam is caused to sustain the resistance of the plow when at work, substantially as set forth.

3. In a wheel-plow, the combination, with a plow-beam curved downwardly and forwardly at the rear end, and provided with a horizontal oblong slot located a short distance from its end, of a plow pivotally secured to the beam by a bolt at the heel of its landside, said bolt passing through the slot in the beam, whereby the end of the beam rests in contact with the lower portion of the standard, and takes the full resistance of the plow when at work, substantially as set forth.

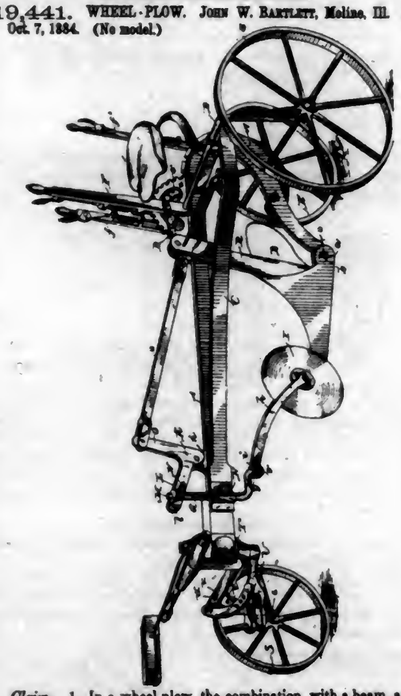
4. In a wheel-plow, the combination, with a plow and a lever for adjusting the plow, of a colter secured to the plow-beam in a free vertically-rocking motion, and a rod connecting the colter and operating-lever, whereby the plow and the colter are simultaneously adjusted to cut deeper or shallower, substantially as set forth.

5. In a wheel-plow, the combination, with a plow pivoted to the frame, and a lever for rocking the plow on its pivot, of a colter secured to the plow beam or frame in a free vertically-rocking motion, and a rod or rods or a link connecting the colter-axle and plow-operating lever, whereby the point of the plow and the colter are simultaneously elevated or depressed, substantially as set forth.

6. In a wheel-plow, the combination, with a plow pivoted at its heel to the beam, and a lever for elevating and depressing the point of the plow, of a colter hinged to the beam in a free vertically-rocking motion, and devices connecting the colter and the plow-standard, whereby the colter is elevated and depressed simultaneously with the plow-point, substantially as set forth.

7. In a wheel-plow, the combination, with a plow and a lever for adjusting the plow, of a vertically-adjustable colter secured to the plow beam or frame, and a rod connecting the colter and operating-lever, whereby the plow and colter are simultaneously adjusted to cut deeper or shallower, substantially as set forth.

319,441. WHEEL-PLOW. JOHN W. BARTLETT, Moline, Ill. Filed Oct. 7, 1884. (No model.)

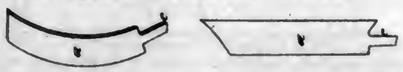


Claim.—1. In a wheel-plow, the combination, with a beam, a plow adjustably secured to said bearing, a lever, F, for adjusting the plow, and a sector, of a colter, a vertically-movable colter-standard, a bell-crank lever pivoted to the plow beam or frame and connected at one end to the colter-standard, and devices connecting the other end of the bell-crank lever to the lever F, substantially as set forth.

2. The combination, with a plow-beam, plow, and a leading furrow-wheel supporting the forward end of the beam, of a clevis provided with a perforated sector-bar formed integral therewith, and devices for locking the said sector-arm to the furrow-wheel axle in horizontal angular adjustment, substantially as set forth.

3. The combination, with a plow-beam, plow, and a leading furrow-wheel supporting the forward end of the beam, of a clevis pivoted on the king-bolt, and provided with an arm adapted to rest in contact with the under side of the furrow-wheel axle, and with a perforated sector-bar formed integral with the arm and clevis, and a bolt passing through the furrow-wheel axle and one of the perforations in the sector-bar, whereby the clevis is locked in any desired horizontal angular adjustment, for the purpose substantially as set forth.

319,442. MANUFACTURE OF KNIFE-BLADES. CHARLES L. BELLAMY, Arlington, N. J. Filed Apr. 25, 1884. (No model.)

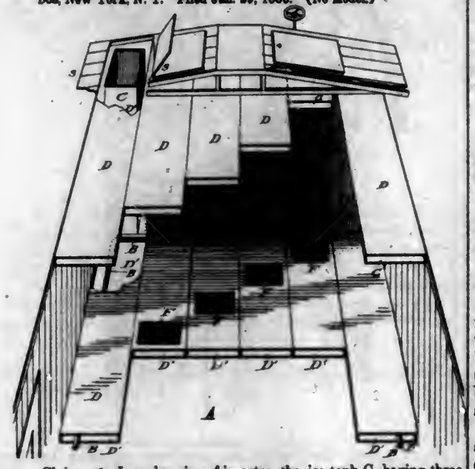


Claim.—1. The mode of manufacturing knife-blades, consisting in first cutting the blade-blanks from sheet metal of uniform thickness, then passing the blanks between rollers so as to impart a wedging form to the blank and compress the metal along the cutting-edge of the blade, substantially as herein set forth.

2. The mode of manufacturing knife-blades herein set forth, consisting in first forming the blade-blanks in a longitudinally-curved form, thence passing this blank longitudinally between inclined or beveled rollers having a wedging coincidence, so as to reduce the concave edge of the blank, and thereby straighten the blank and impart a wedging cross-section thereto, substantially as herein shown and described.

3. The manufacture of knives from sheet metal without waste, consisting in forming the blade-blanks longitudinally curved, with the concave and convex sides parallel, and cutting said blanks in direct succession from sheet metal, and subsequently straightening and beveling said blanks by any suitable means, substantially as herein set forth.

319,443. REFRIGERATOR CAR AND CHAMBER. ROBERT BOGARDUS, New York, N. Y. Filed Jan. 29, 1885. (No model.)



Claim.—1. In a dry-air refrigerator, the ice-tank C, having three vertical and one diverging side, *b*, as illustrated in Fig. 3, substantially as and for the purpose described.

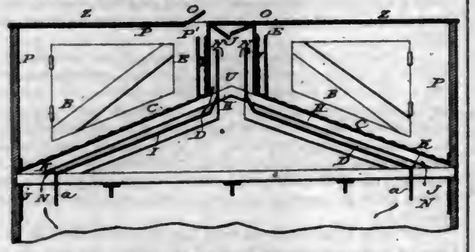
2. In a dry-air refrigerator car or chamber, the flue D, when constructed, arranged, and combined with an ice-tank and chamber A, as and for the purposes substantially as illustrated and described.

3. In a dry-air refrigerator, the ice-tank C, combined with flue D, all being constructed and arranged substantially as illustrated and described.

4. In a refrigerator, the ice-breaker, screen, and guard H, when constructed as described, combined with an ice-tank, substantially as and for the purposes specified.

5. In a dry-air refrigerator car or chamber, the pickle duct or discharge pipe B, when combined with the flue D and ice-tank C, substantially as illustrated and described.

319,444. REFRIGERATOR BUILDING AND CHAMBER. ROBERT BOGARDUS, Albany, N. Y., and WASHINGTON A. H. BOGARDUS, 2d, Chicago, Ill. Filed Apr. 15, 1885. (No model.)



Claim.—1. In a refrigerator, the ice tank or compartment B, having an inclined bottom, C, combined with flue N, all being arranged substantially as and for the purpose described.

2. In a dry-air refrigerator, the ice tank or compartment B, having an inclined metallic bottom, C, and a metallic side, P', combined with flue N, all being arranged as and for the purposes specified.

3. In a dry-air refrigerator, the ice tank or compartment B, having an inclined metallic bottom, C, a metallic side, P', and partition E, combined with flue N, all being constructed and arranged substantially as illustrated and described.

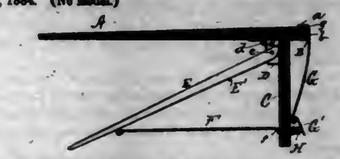
4. In a refrigerator, the flue N, combined with stop-offs or check-drafts J J, arranged to operate substantially as described.

5. In a refrigerator, the inclined or concave ceiling R of the storage-chamber A, combined with warm-air flue U, all constructed and arranged substantially as and for the purpose specified.

6. In a refrigerator, the door-hood F and flue W, combined with ice-tank, or with flue U, substantially as and for the purpose described.

7. In a refrigerator, the combination of chamber A with ceiling R, flue U, flue N, stops J J, ice-tank B, and partition E, all being constructed and arranged to operate conjointly as and for the purpose specified.

319,445. IRONING-TABLE. JOB BORTON, Barnesville, Ohio, assignor to William H. Hobbs and John S. Smith both of same place. Filed May 3, 1884. (No model.)

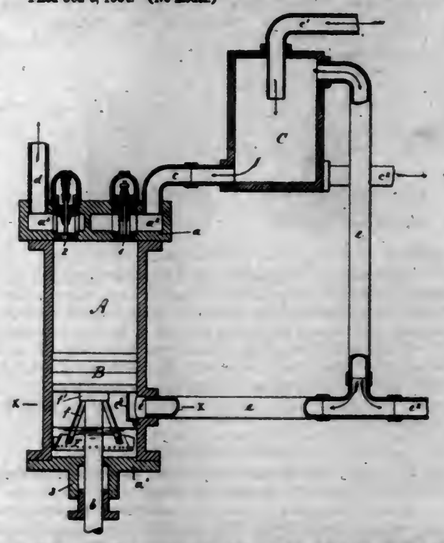


Claim.—1. In an ironing-table, the combination of the ironing-board, the leg C, pivotally secured to and near the rear end of the said board, a latch, G, pivoted to the rear side of said leg C and having its upper end fitted to engage the rear end of the ironing-board, and provided with an extension, G', below its pivot, a spring bearing between the leg C and extension G, and a support for the other or front end of the board, substantially as set forth.

2. The combination, in an ironing-table, of the board A, a strap, *a*, extended across the rear end of same, blocks D D, hinged at their forward upper sides to the under side of board A, and set slightly apart, the leg, C secured to the rear side of and movable with the blocks D, the latch G, pivoted to the leg C, fitted at its upper end to engage the board A, and provided with an extension, G', a spring, H, bearing between the leg C and extension G', the leg E, pivoted to and between the blocks D, and a stay-rod, F, all arranged and operating substantially as and for the purposes specified.

3. The combination of the board A, provided in its rear end with a slot, B, having beveled wall *b*, the straps *a*, secured on the rear end of board A, and elevated or bulged above slot B, the leg C, pivotally secured to the board A, and the latch G, pivoted to the leg C, and provided at its upper end with a hook fitted to engage under the strap *a*, and to be guided into such engagement by beveled wall *b* of slot B, all substantially as set forth.

319,446. GAS-COMPRESSING PUMP. DAVID BOYLE, Chicago, Ill. Filed Oct. 6, 1884. (No model.)



Claim.—1. The combination, with a single-acting gas-compressing pump having an induction-conduit for delivering gas from the evaporating-coils into the condensing end of the pump, and an induction-conduit for delivering gas from the evaporating-coils into the non-condensing end of the pump, of a trap between the evaporating-coils and the pump, whereby the gas supplied to the non-condensing end of the pump shall be freed from liquid, substantially as described.

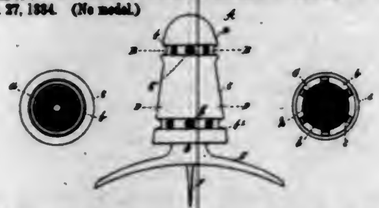
2. The combination, with the single-acting compression-pump cylinder A, having inlet and outlet valves at the condensing end thereof, of the main supply-pipe, consisting of the divided sections *c* and *c'*, the interposed trap C, and the supplemental conduit *e*, leading from the top of said trap to an orifice, *d'*, in the pump-cylinder A back of the piston-head, substantially as described.

3. The combination, with a gas-compressing pump having induction-pipes for delivering gas to the condensing and non-condensing ends of the pump, of a shield for protecting the piston-rod of the pump, substantially as described.

4. The combination, with a vertically-arranged gas-compressing pump having the induction-orifice of the pipe for delivering gas to the non-condensing end located at a sufficient distance above the base of the pump to form an oil-receptacle, of a circular oil-carrier adapted to move with the main piston and apply oil to the sides of the pump-cylinder, substantially as described.

5. The combination, with the main cylinder of the pump having the gas-delivery orifice at its non-condensing end and the piston head and rod, of the trough-shaped oil-carrier connected with the piston-rod, and cut away at a point in front of said gas-delivery orifice, substantially as described.

319,447. INSULATOR. GEORGE L. BROCKHALL, Paterson, N. J. Filed Oct. 27, 1884. (No model.)

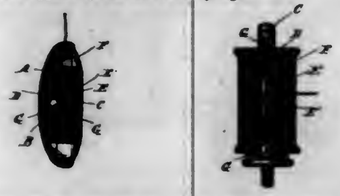


Claim.—1. The combination, with the body A, having on its interior surface a screw-thread, A', to screw on the thread G', cut on the pin G of the metallic cover or case c, having grooves *b b'*, with perforations *g*, arranged in said metallic cover or case c in the grooves *b b'*, with nodes or projections *e*, to keep the wires from contact with the metal *d*, substantially as described.

2. The combination, with the insulator A, having a body, *A*, screw-thread *A'*, and metallic cover *c*, with perforations *g*, and nodes *e*, of the pin G, having screw-thread G', projecting parts E, and pin F, for securing said pin to the telegraph and telephone pole, and the telegraph or telephone pole, substantially as described.

319,448. TENSION DEVICE FOR SEWING-MACHINES. SAMUEL P. BROWN, Bridgeport, Conn. Filed Sept. 22, 1884. (No model.)

Brief.—The spool or bobbin is keyed to the carrier, to which alone the friction is applied by the end of the spring.



Claim.—1. The combination, with the spool or bobbin, of a carrier keyed thereto, a stud upon which the carrier is adapted to rotate, a spring and washers upon said stud, and a screw engaging therewith, whereby the friction of the washers upon the carrier may be regulated.

2. The bobbin-case having a central stud upon which the carrier is adapted to rotate, in combination with the bobbin keyed to the carrier, a spring acting on the carrier, and a screw engaging the stud, which acts to adjust the tension by forcing the carrier against the spring as it is turned in.

319,449. TILE-SETTING APPARATUS. ANDREW N. BYERS, Rising Sun, Ohio. Filed Dec. 29, 1884. (No model.)

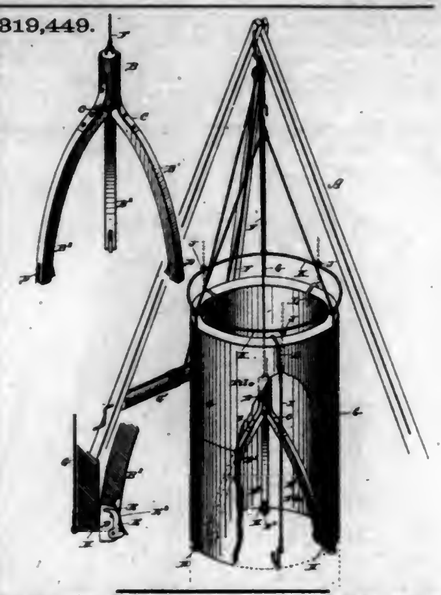
Brief.—Employs a windlass, and metallic cords provided with a guide-ring, and having at their lower ends links which engage detachable spring-actuated hooks in the kerfed lower end of the spring-arms of a setting-fork.

Claim.—1. The combination, with portion B, of the spring-arms provided with the spring-actuated catch-hooks in the lower ends of said arms, as set forth.

2. The combination, with the white-metal cords with links H at their lower ends, of the guide-ring having eyes for said cords, and the setting-fork with the spring-arms kerfed in their lower ends and provided with spring-actuated catch-hooks E, as set forth.

3 The combination, with the white-metal cords with links H at their lower ends and connected to a windlass for operating them, of the guide-ring having eyes for the cords and the securing-hooks and tie-wires, as set forth.

319,449.



319,450. IMPLEMENT FOR APPLYING BAGGAGE AND CAR SEALS. JAMES CALDER and ROBERT W. COURTNEY, Richmond, Va. Filed June 3, 1884. (No model.)



Claim.—1. The implement herein described for attaching baggage and car seals, consisting of a combined jaw and handle, B B', an upper jaw pivoted thereto and having an upper curved surface, a link, D, connected to the lower jaw and surrounding the upper jaw, and a lever-handle pivoted to the upper end by an eccentric connection, the link adapted to be turned back over the curved upper jaw to allow the same to open, and forward to close the same, substantially as shown and described.

2. In an implement for attaching baggage and car seals, the combination of a lower jaw and handle, B B', formed integrally and provided with ears *b*, an upper jaw, A, pivoted between said ears, and having an end projecting backward from between the same, a link connected to the lower jaw and surrounding the upper one, and a handle, C, attached to the upper end of said link by an eccentric connection, the whole arranged as described and shown, so that when the upper end of the link is turned back the handle attached thereto will strike the projecting end of the upper jaw and open the latter, as and for the purpose described.

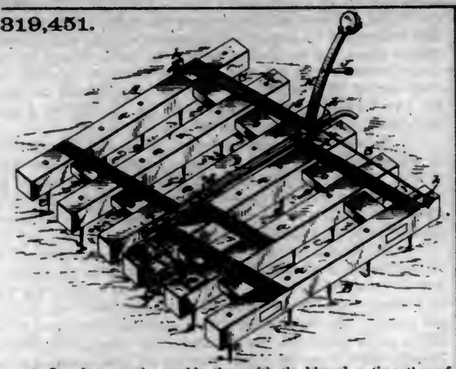
3. In an implement for attaching baggage and car seals, the combination of the lower jaw and handle, B B', made in one piece, the upper jaw, A, pivoted thereto at *a*, the link D, attached to the lower jaw and surrounding the upper one, the handle C, pivotally attached to the upper end of the link, the latter being provided with a shoulder to arrest the handle when it is turned substantially in line with the link, the upper surface of the upper jaw being curved from a center which is approximately the point at which the link is attached to the lower jaw, all as and for the purpose specified.

319,451. HARROW. ASA CARLIN, Groton, Mo. Filed Mar. 20, 1885. (No model.)

Claim.—1. In a harrow, the combination, with the two hinged sections thereof, of a pivoted lever terminating below its pivotal connection with a dog to bear against the inner sides of the section when elevating them, substantially as and for the purpose set forth.

2. In a harrow, the combination, with the two hinged sections thereof, of a pivoted and weighted lever provided with a handle at right angles thereto for operating it in elevating the sections, substantially as and for the purpose described.

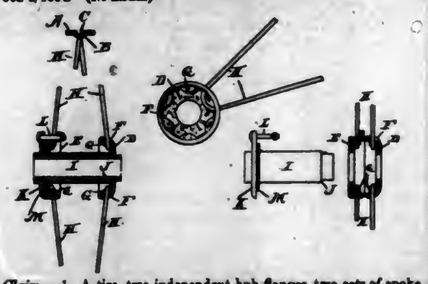
319,451.



3. In a harrow, the combination, with the hinged sections thereof, of a pivoted and weighted lever terminating below its pivotal connection in a dog to bear against the inner side of the sections when elevating them, substantially as and for the purpose set forth.

4. In a harrow consisting of hinged sections, the combination, with a pivoted lever provided with a weight and handle, and terminating at its lower end in a dog, of two lift-rods connected to the lever and to the sections, substantially as and for the purpose described.

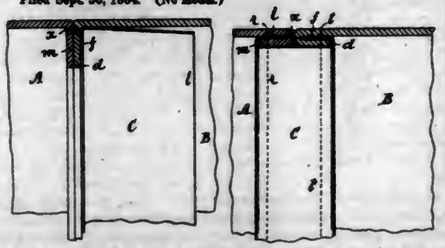
319,452. VEHICLE-WHEEL. ROBERT S. CARR, Hamilton, Ohio. Filed Oct. 4, 1884. (No model.)



Claim.—1. A tire, two independent hub-flanges, two sets of spoke-wires attached inseparably to the tire and to the hub-flanges, and a hub-sleeve passing through one of the hub-flanges and against the other hub-flange, constructed and combined, substantially as set forth, for the purpose of enabling the wheel to be collapsed without disturbing the relation of the spoke-wires and the hub-flanges.

2. In a metallic wheel, the combination, substantially as set forth, of the tire A, the spoke-wires H, having their ends secured to the tire and provided with central bends, the separate hub-flanges D and E, engaged by the bends of the spoke-wires, and the hub-sleeve I, having the shoulder J, and flange K, and the bolts L, the whole arranged to form a wheel capable of collapsing when the hub-sleeve is withdrawn.

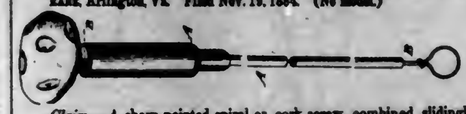
319,453. SEAMED FABRIC. CHARLES C. CORLISS, Boston, Mass. Filed Sept. 30, 1884. (No model.)



Claim.—1. In a seamed fabric, the combination of the united sections, the edges of which are folded back upon the sections, a line of transverse stitching uniting the sections along the lines of the folds, a stay having a folded edge which extends between the fold of one of the sections, being united to said sections by said transverse line of stitching, said stay being folded outward over the edge of one of the folded sections and passed across the joint between said sections, and secured to said sections by lines of stitching which pass through said stay and through the folded edges of the sections on opposite sides of the joint between them, substantially as described.

2. In a seamed fabric, the combination of the united sections, the edges of which are folded back upon the sections, a line of transverse stitching uniting the sections along the lines of the folds, a stay having a folded edge which extends between the fold of one of the sections, being united to said sections by said transverse line of stitching, said stay being folded outward over the edge of one of the folded sections, passed across the joint between said sections, folded over the edge of the other section, extended into the fold of said section, and secured to said sections by lines of stitching which pass through said stay and through the folded edges of the sections on opposite sides of the joint between them, substantially as described.

319,454. VETERINARY SURGICAL INSTRUMENT. SAMUEL COCHRANE, Arlington, Va. Filed Nov. 19, 1884. (No model.)



Claim.—A sharp-pointed spiral or cork screw, combined slidingly and rotatingly with a surrounding tube, the latter adapted to be moved up against a potato or analogous substance in the throat of an animal, and the former to rotate until it takes a sufficient hold, as and for the purpose specified.

319,455. SAW-CLAMP. GALEN COFFIN, Boston, Mass. Filed May 9, 1884. (No model.)



Claim.—1. The combination of the jaw A, provided with slot *a*, the jaw B, provided with holes *b b*, the pin D, and the wedge C, arranged to co-operate with each other to force said jaws toward each other, substantially as described.

2. The combination of the jaw A, provided with the hole *g*, the jaw B, provided with the pocket E, the pin D, the swinging wedge-carrier C, provided with pin *f*, and the bolts or screws *i i*, all arranged and adapted to operate substantially as and for the purpose set forth.

3. In combination with the jaw A and the jaw B, provided with holes *b b*, and secured together at their lower ends, a single pin, D, adapted to be interchangeably inserted in either of the holes *b b*, and a series of wedges, *c c*, attached to a common carrier, all arranged and adapted to operate substantially as and for the purpose described.

319,456. CIGAR-CUTTER. REINARD M. COLLARD, New York, N. Y., assignor to Le Roy W. Fairchild, same place. Filed Dec. 20, 1884. (No model.)

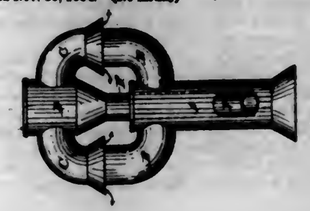


Claim.—1. The herein-described magic cigar-cutter, consisting of the spring extension-case A B, provided with the cigar-holder C and knife *a*, and having the gravitating latch *n*, constructed and arranged to operate in connection with the parts A B, substantially as shown and described.

2. The combination, in a cigar-cutter, of the telescopic case A B and the plate D, having the gravity-hook *n* secured thereto and arranged to engage with the pin or projection *o*, substantially as shown and described.

3. The combination, in a cigar-cutter, of the outer case, A, and the plate D, said plate being provided with the perforated projection *o*, for the reception and support of the stop-pin or screw *h*, and having a space left between its upper edge and the case for the passage of the knife, and between its opposite edge and the case for the slide *l*, substantially as shown and described.

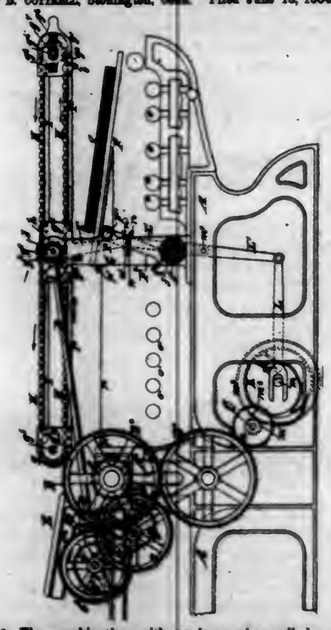
319,457. SPARK-ARRESTER. CHARLES S. COLVILLE, Newark, Ohio. Filed Nov. 15, 1884. (No model.)



Claim.—In a spark-arrester, the combination, substantially as before set forth, of the smoke-stack, the branch pipes leading therefrom, the uptakes open at their lower ends and encircling the upper ends of the branch pipes, the hopper at the upper ends of the uptakes and constructed with a deflector, and the return-flue.

319,458. DELIVERY APPARATUS FOR PRINTING-PRESSES.

CALVERT B. COTTRELL, Stonington, Conn. Filed June 18, 1884. (No model.)



Claim.—1. The combination, with an impression-cylinder and a receiving-table at the farther end of the press, of an endless carrier provided with delivery-grippers arranged at the front of the cylinder and having an alternately accelerated and retarded movement, and tracks or ways for said carrier pivoted between their ends and having a tilting movement in a vertical plane, substantially as and for the purpose herein described.

2. The combination, with an impression-cylinder and an endless carrier provided with delivery-grippers arranged at the front of the cylinder, of tracks or ways supporting said carrier and having a rising and falling movement at their outer ends, and a pivoted receiving-table arranged at the farther end of the press and capable of adjustment to vary its inclination, substantially as and for the purpose herein described.

3. The combination of the cylinder B, endless chains H, provided with delivery-grippers, upper and lower tracks or ways, I I*, pivoted between their ends, having a tilting movement, and provided at their ends with wheels for supporting said chains, and the pivoted and adjustable receiving-table F, substantially as herein described.

4. The combination, with an impression-cylinder and receiving-table arranged as described, of an endless carrier provided with delivery-grippers and arranged at the front of the cylinder, tracks or ways for said carrier having a rising and falling movement at their outer ends, and a stop or barrier carried by the outer ends of the tracks or ways and adapted to come to a bearing upon the pile of sheets to limit said falling movement of the tracks or ways, substantially as and for the purpose herein described.

5. The combination, with an impression-cylinder and receiving-table, B F, of endless chains provided with delivery-grippers and arranged at the front of the cylinder, tilting tracks or ways for said endless chains provided at their ends with wheels for supporting said chains and pivoted between their ends, and a cross-rod, *l*, extending between said tracks or ways and arranged to come to a bearing on the pile of printed sheets to arrest the movement of said tracks or ways, substantially as and for the purpose herein described.

6. The combination, with an impression-cylinder and receiving-table arranged as described, of endless chains provided with delivery-grippers arranged at the front of the cylinder, tracks or ways provided at both ends with wheels for supporting said chains, and chain-driving wheels independent of said supporting-wheels engaging with the lowermost portions of the chains forward of the cylinder and serving to move the latter by a pulling force or tension continuously away from the cylinder, substantially as and for the purpose herein described.

7. The combination, with an impression-cylinder and receiving-table arranged as described, of endless chains provided with delivery-grippers arranged at the front of the cylinder, tracks or ways for said chains provided at their ends with supporting-wheels for the chains, and rotary driving-wheels arranged between and engaging with the upper and lower portions of the chains between the ends of said tracks or ways, substantially as and for the purpose herein described.

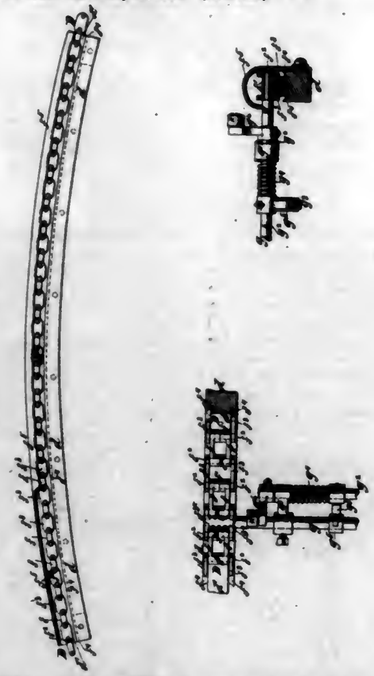
8. The combination, with the cylinder B and receiving-table F, of the endless chains H, provided with delivery-grippers, the tilting tracks or ways I I*, for supporting said chains, wheels *g** at the ends of the tilting tracks or ways for supporting the chains, and chain-driving wheels *k*, eccentric with the pivotal center of said tracks or ways, substantially as herein described.

9. The combination, with the cylinder B and receiving-table F, of the endless chains H, provided with delivery-grippers, the tracks or ways I I*, pivoted between their ends and provided at their ends with the chain-supporting wheels, the cross-shaft J, concentric with the pivotal center of said tracks or ways, the diagonal shaft D, geared to the shaft J and to the cylinder, and cam-shaped spur-wheels interposed between the shaft D and the cylinder, whereby the uniform rotation of the cylinder is made to produce an alternately accelerated and retarded movement of the shaft D, substantially as herein described.

10. The combination, with the cylinder and receiving-table arranged as described, of an endless carrier provided with delivery-grippers arranged at the front of the cylinder, tilting tracks or ways supporting said carrier and made heavier at their outer ends so as to descend automatically at the outer ends, and mechanism, substantially such as described, for effecting the tilting movement of said tracks or ways in one direction and controlling their automatic tilting movement in the other direction, substantially as herein set forth.

319,459. CHAIN AND CHAIN-GUIDE FOR SHEET-DELIVERY APPARATUS FOR PRINTING-PRESSES.

CALVERT B. COTTRELL, Stonington, Conn. Filed July 31, 1884. (No model.)



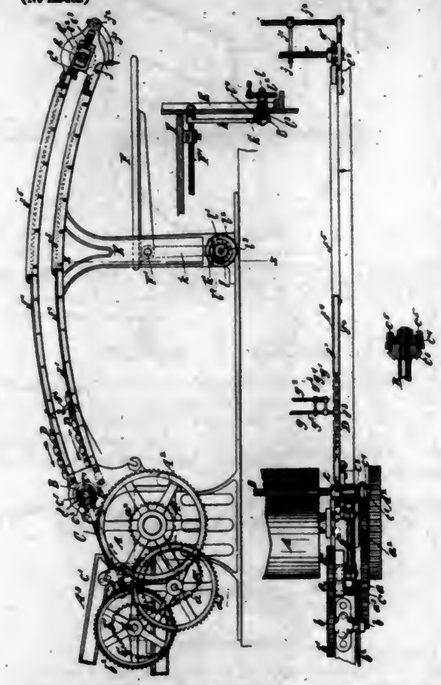
Claim.—1. The combination, with a chain, of a track, way, or guide on which the chain is supported and guided in its movement, and which is guttered or channeled for conducting along it any oil which may drip from the chain, substantially as herein described.

2. The combination, with a chain and a track, way, or guide on which the chain is supported and guided in its movement, of a guard or shield secured to the track or way and inclosing the chain, substantially as and for the purpose herein described.

3. The combination, with a track or way, of the chain herein described having alternate links consisting of side pieces, *f*, provided with inwardly-projecting hubs *f**, bearing on the upper surface of the track or way, and having intermediate links consisting of plates *f**, receiving the track or way between them, substantially as set forth.

319,460. SHEET-DELIVERY APPARATUS FOR PRINTING-MACHINES.

CALVERT B. COTTRELL, Stonington, Conn. Filed Jan. 23, 1884. (No model.)



Claim.—1. The combination, with an impression-cylinder, of an endless carrier provided with delivery-grippers arranged at the front of the cylinder, and mechanism, substantially such as described, receiving motion from the cylinder alone, and imparting an alternately accelerated and retarded movement to said carrier, substantially as herein described.

2. The combination, with an impression-cylinder, of an endless carrier provided with delivery-grippers arranged at the front of the cylinder, and mechanism, substantially such as herein described, and comprising cam-shaped gear-wheels, for transmitting an alternately accelerated and retarded movement to said carrier from a shaft having a uniform rotary motion, as and for the purpose set forth.

3. The combination, with the impression-cylinder A, of the chain-wheel shaft B, arranged at the front thereof and provided with chain-wheels *c*, the endless chains D D, provided with delivery-grippers and operated by said chain-wheels, the shaft *a*, having a uniform rotary motion, the shaft *b*, cam-shaped gear-wheels *a' b'*, connecting the shafts *a b*, the shaft C, the wheel and pinion b^2 *c'*, connecting the shafts *b'* C, and the wheels c^2 c^3, connecting the shaft C and said chain-wheel shaft B, substantially as and for the purpose herein described.

4. The combination of the impression-cylinder A, the chain-wheel shaft B, arranged at the front thereof and provided with chain-wheels *c*, the endless chains D D, provided with delivery-grippers and operated by said chain-wheels, the shaft C, wheels c^2 c^3, connecting the shafts B C, the wheel c^2 being adjustably secured on the shaft B, the shaft *a*, having a uniform rotary motion, and the shaft *b*, geared with the shaft C by the wheel and pinion b^2 *c'*, and geared with the shaft *a* by the cam-shaped wheels *a' b'*, substantially as and for the purpose herein described.

5. The combination, with an impression-cylinder and endless chains provided with delivery-grippers arranged at the front of the cylinder, and having an alternately accelerated and retarded movement, whereby said chains are moved quickly to carry the printed sheets from the cylinder to the receiving-table, and are slowed to deliver the sheets, of tracks or ways for said chains, a chain-wheel shaft and chain-driving wheels at the ends of said tracks or ways which are adjacent to the cylinder, and chain-wheels or idlers supported by said tracks or ways at their opposite ends, substantially as and for the purpose herein described.

6. The combination, with an impression-cylinder and endless chains D D, arranged at the front thereof, of the non-rotary gripper-bar *g*, extending between said chains and provided with arms *g' g'*, the gripper-shaft g^2, journaled in said arms, and provided with gripper-fingers g^3 and with the arm g^4, and a cam, *h*, for acting on said arm g^4, to turn said shaft for opening the grippers, substantially as and for the purpose herein described.

7. The combination, with an impression-cylinder, of endless chains provided with delivery-grippers arranged at the front of the cylinder, tracks or ways for said chains, having an upward curvature between their ends, and a pivoted receiving-table capable of being raised and lowered, substantially as herein described.

8. The combination of the receiving-table F, the rock-shaft F', with its arm and sector *k k'*, and the shaft and pinion *l l'*, for adjusting said table, substantially as herein described.

319,461. HARNESS-TRIMMING.

EDWARD N. CRANE, Newark, N. J., assignor to Crane & Co., same place. Filed Nov. 25, 1884. (No model.)

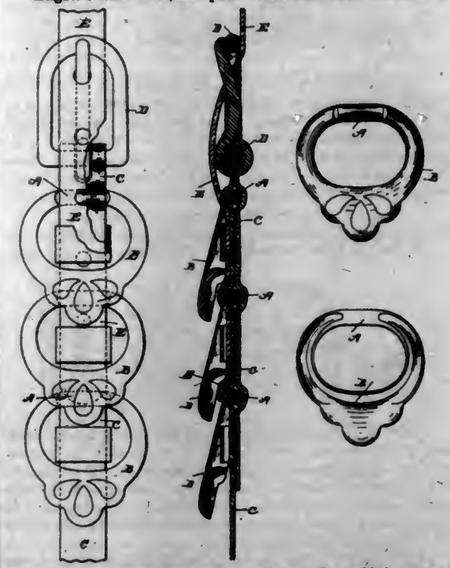


Claim.—1. As an improved article of manufacture, an ornamental chain consisting of a series of rings connected by links of celluloid or its equivalent, substantially as shown and described.

2. An ornamental chain consisting of a series of rings connected by celluloid strips or straps each having its ends united by a buckle to form a closed loop or link, substantially as described.

319,462. HARNESS-TRIMMING.

EDWARD N. CRANE, Newark, N. J., assignor to Crane & Co., same place. Filed Dec. 1, 1884. (No model.)



Claim.—1. As an improved manufacture, the molded ornamental device in one piece of celluloid or artificial ivory, composed of the attaching-bar and the ornamental curved pendant or bow, substantially as described, for the purpose set forth.

2. The combination, with a strap or backing, of a series of ornamental devices, each composed of an attaching-bar by which the device is secured to said strap or backing, and a curved ornamental pendant in one piece with said bar, the pendant of one device overlapping the bar of the succeeding one, substantially as described.

3. The molded device composed of the straight attaching-bar and the ornamental curved pendant in one piece therewith, as shown, the said device being hollow or concave at the back, substantially as described.

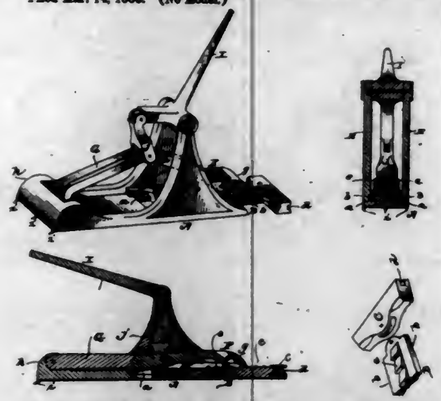
319,463. ADJUSTABLE STAGING-BRACKET.

JOSEPH D. DAVENPORT, Pawtucket, R. I. Filed May 2, 1885. (No model.)



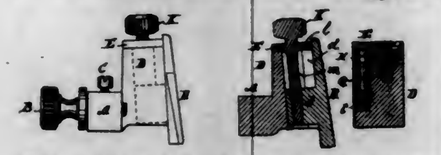
Claim.—In a staging-bracket, the combination of the parallel bars A A and parallel bars B B, jointed to the bars A A by means of the bolt *b*, clamping-bolts *d d*, and holding-spurs *f*, substantially as described.

319,464. FLOOR-CLAMP. CHARLES F. DEARTH, East Sangerville, Me. Filed Mar. 14, 1885. (No model.)



Claim.—In a floor-clamp, the combination, with a base having upwardly-extending arms, of a bell-crank lever pivoted between the latter, a jointed arm, G, pivoted at its rear end to the base and pivotally connected at its joint with the bell-crank lever by a short arm, *j*, a sliding rack-plate adapted to be engaged by the forward end of the jointed arm, a bracket having a groove on its outer side, and a pawl pivoted between the arms E and adapted to engage the rack-plate, as set forth.

319,465. KNIFE-GAGE FOR HEEL-TRIMMING MACHINES. GEO. W. DE LAND, North Brookfield, Mass. Filed Mar. 2, 1885. (No model.)



Claim.—1. In a gage for the knife of a heeling-machine, the combination of the following instrumentalities, to wit: a stock, an adjusting-screw for adjusting the stock on the knife, a set-screw for securing the stock in any desired position on the knife, a vertically-adjustable slide adapted to press against the shoe when in use, an adjusting-screw for said slide, and a friction device or means for holding said slide in position when set, substantially as described.

2. In a gage for the knife of a heeling-machine, the stock A, provided with the arm D, slide H, screw K, and means for keeping said slide in position when set, substantially as set forth.

3. In a gage for the knife of a heeling-machine, the screw K, provided with the flange *l*, in combination with the cap E, spring-rod N, and slide H, substantially as described.

4. The improved knife-gage herein described, the same consisting of the stock A, provided with the screws B C, arm D, and cap E, the screw K, provided with the flange *l*, the rod Q, provided with the spring *t*, and the slide H, provided with the flange J, constructed, combined, and arranged to operate substantially as set forth.

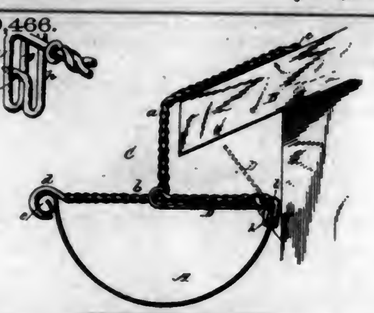
5. A gage for heeling-machines provided with the adjustable slide H, having the projecting flange, in combination with a knife for paring or shaving the heel and means for adjusting and securing the gage on the knife, substantially as described.

319,466. EAVES-TROUGH HANGER. GIDEON S. DUFFEY, Canton, Ohio. Filed Mar. 20, 1885. (No model.)

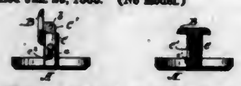
Claim.—1. An eaves-trough hanger formed of twisted wire, and consisting of a shank and transverse brace, one end thereof being bent, as shown at *f g h*, to embrace the edge of the trough, and a spur for fastening the bent end of the brace thereto, substantially as and for the purpose set forth.

2. An eaves-trough hanger formed from a single piece of twisted wire, and having a shank with eyes and a transverse brace terminating at one end in a hook and at the other end bent, as shown and described, its extremity terminating in a spur, substantially as and for the purpose described.

319,466.



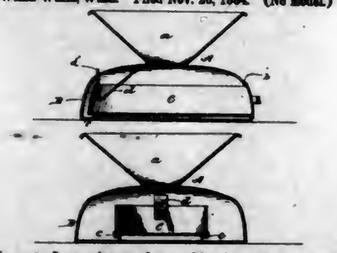
319,467. SLEEVE OR COLLAR BUTTON. JOSEPH H. DOLL, Newark, N. J. Filed Jan. 23, 1885. (No model.)



Claim.—1. The hinged disk B and sliding piece C', in combination with the coiled spring *d*, screw *c'*, and longitudinal and inclined locking-slot *c c'*, substantially as and for the purpose herein set forth.

2. In a sleeve-button, the piece C', sliding inside the fixed slotted tube C, actuated by the spring *d*, and held in place by the stop *c'*, substantially as described.

319,468. SPITTOON. TIMOTHY J. DORSEY and MALCOLM S. MCQUARRIE, Walla Walla, Wash. Filed Nov. 26, 1884. (No model.)



Claim.—1. In a spittoon, the combination, with an outer casing, of a removable pan and a catch secured to the inner side of the outer casing, and adapted to engage the rear end of the inner casing, as set forth.

2. In a spittoon, the combination, with an outer casing, of a removable pan, stops on said pan adapted to bear against the outer side of the outer casing, and a catch secured to the inner side of the outer casing and engaging the rear end of the inner casing, as set forth.

3. In a spittoon, the combination, with an outer casing, of a removable pan, guides located on the bottom of the outer casing, and a catch secured to the inner side of the outer casing, and adapted to engage the inner end of the inner casing, as set forth.

4. In a spittoon, the combination, with an outer casing, of a removable pan, guides located on the bottom of the casing, and stops located at the outer end of the pan, as set forth.

5. In a spittoon, the combination, with an outer casing, of a removable pan having rounded ends, and a catch secured to the rear wall of said pan, and adapted to engage a slot in the outer casing, as set forth.

6. In a spittoon, the combination, with an outer casing, of a removable pan having rounded ends or walls, the front wall extending beyond the sides, and a catch on the rear wall of said pan, said catch being adapted to engage a slot in the outer casing, substantially as set forth.

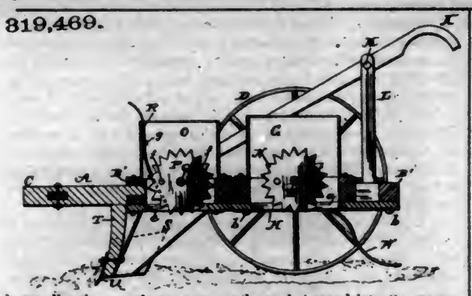
7. In a spittoon, the combination, with an outer casing having an elongated opening and guides arranged upon the floor of said outer casing, of a removable pan and catch, substantially as set forth.

319,469. FERTILIZER AND SEED DISTRIBUTER. JAS. W. DOWNS, Bowden, Ga. Filed July 28, 1884. (No model.)

Claim.—1. The combination, with the fertilizer-box having the slot in its bottom opening into the delivery-spout, of the serrated feed-disk journaled within said box and fitting within said slot, and provided with the projecting pins, and the adjustable curved slide slotted from its lower end inwardly, and fitting on opposite sides of the disk from its lower portion upwardly in the front of the box, substantially as and for the purposes described.

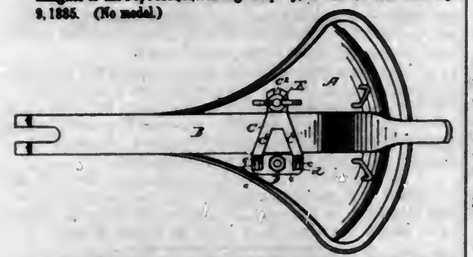
2. The combination, with a plow to open the ground and means for feeding fertilizer and seed to the opened furrow, of the elastic coverer W, located to the rear of the feed mechanism and composed of a single elastic rod bent to form a loop and curved rearwardly and downwardly

319,469.



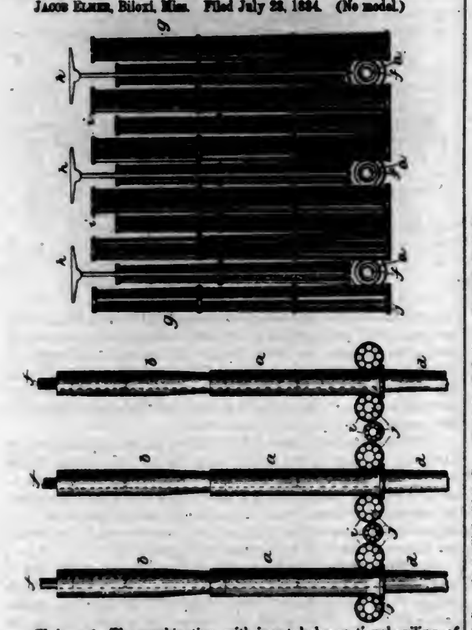
in two directions, as shown, to cover the seed dropped into the furrow, as set forth.

319,470. VELOCIPEDE-SADDLE. FRANKLIN J. DRAKE, Boston, Mass., assignor to the Pope Manufacturing Company, Hartford, Conn. Filed Apr. 9, 1885. (No model.)



Claim.—The combination, in a velocipede-saddle, of a supporting-plate, A, a hinge-lug, D *d d*, with bolt D', a hinged clamp, C, with parts *c c'*, bolt H, and nut E, or their equivalents, constructed to operate essentially as set forth.

319,471. COMPOUND SPILING FOR WHARVES AND BRIDGES. JACOB ELMER, Biloxi, Miss. Filed July 28, 1884. (No model.)



Claim.—1. The combination, with iron tubular sectional spiling, of a sectional wooden core entirely filling the iron sections, as set forth.

2. The combination, with iron tubular sectional spiling, of a wooden core driven tightly into the lower iron section, part way through the same and partly projecting below the same, as set forth.

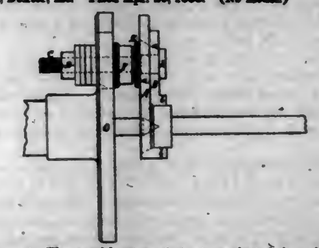
3. Iron spiling comprising tubes or sections, the lower end of each of which (except the lowest section) is inserted into the top of the section next below it, as set forth.

4. The combination of the iron tubular sections of the sectional core, the said core-sections filling the interior of the iron sections and breaking joints therewith.

5. The combination, with the spiling constructed as described, of the rods and anchors, substantially as described.

6. A wharf or river-wall composed of the spiling constructed as described, secured by the described anchors and the fascine, as set forth.

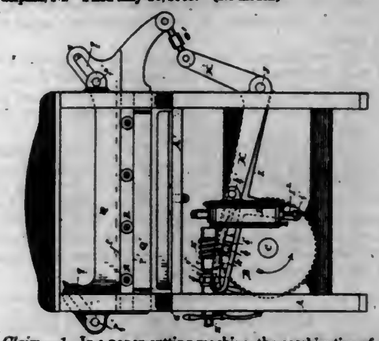
319,472. BOLT-DOG FOR LATHES. NORMAN H. FAY and WALTER SCOTT, Dexter, Me. Filed Apr. 29, 1885. (No model.)



Claim.—1. The combination of the two slotted jawed plates with their clamping screw-bolt and nut, and with the expansive washer, substantially as described, consisting of the tubular screw and nut, arranged on the bolt, as set forth.

2. The combination of the two slotted jawed plates, grooved on their next adjacent faces, as described, with their clamping screw-bolt and nut, and with the expansive washer, substantially as specified, consisting of the tubular screw and nut, arranged on the bolt, as represented.

319,473. PAPER-CUTTING MACHINE. HENRY P. FISHER, Philadelphia, Pa. Filed May 26, 1883. (No model.)



Claim.—1. In a paper-cutting machine, the combination of a paper-clamp, a cutter, mechanism, substantially as set forth, to operate said cutter, vacuum-creating mechanism, substantially as set forth, connecting devices between said mechanism for operating the cutter and vacuum-creating mechanism, and between the latter and the clamp, whereby said vacuum-creating mechanism acts upon the paper-clamp to clamp the paper, substantially as and for the purpose specified.

2. In a paper-cutting machine, the combination of a paper-clamp, a cutter, mechanism, substantially as set forth, to operate said cutter and create a partial vacuum to allow the pressure of the atmosphere to act, and means, substantially as described, arranged to be acted on by said atmospheric pressure through the agency of the above mechanism to cause said clamp to press down upon the paper, substantially as and for the purpose specified.

3. In a paper-cutting machine, the combination of a paper-clamp, a cutter, mechanism, substantially as set forth, to operate said cutter, mechanism, substantially as described, to create a partial vacuum to allow the pressure of the atmosphere to act to clamp the paper, a relief device to limit the extent of vacuum produced, and connecting mechanism, substantially as set forth, whereby said atmospheric pressure acts upon the paper-clamp to cause it to clamp the paper, substantially as and for the purpose specified.

4. In a paper-cutting machine, the combination of a paper-clamp, a cutter, mechanism, substantially as set forth, to operate said cutter, mechanism to create a partial vacuum, and pressure-creating mechanism, substantially as set forth, connecting mechanism, substantially as set forth, whereby the atmospheric pressure made apparent by said partial vacuum and pressure-creating mechanism acts upon the paper-clamp to cause it to clamp the paper, substantially as and for the purpose specified.

5. In a paper-cutting machine, the combination of a paper-clamp, a cutter, mechanism, substantially as set forth, to operate said cutter, mechanism, substantially as set forth, for creating a partial vacuum, and

compression of air, relief devices, substantially as described, to limit the extent of vacuum produced, and connecting mechanism, substantially as described, whereby the atmospheric pressure made apparent by said partial vacuum and pressure-creating mechanism acts upon the paper-clamp to cause it to clamp the paper, substantially as and for the purpose specified.

6. The combination of wheel B, having crank-pin *b*, means, substantially as described, to rotate said wheel, lever K, link O', plate Q, having oblique slots *q*, pins *p'*, clamp Q', connecting mechanism between said wheel B and lever K, and frame A, having a guide-slot, substantially as and for the purpose specified.

7. The combination of wheel B, having crank-pin *b*, means, substantially as described, to rotate wheel, lever K, link O', obliquely-moving plate Q, having oblique slots *q*, pins *p'*, vertically-moving clamp, Q', connecting mechanism between said wheel B and lever K, rollers R, and frame A, having a guide-slot, substantially as and for the purpose specified.

8. The combination of wheel B, having crank-pin *b*, means to rotate said wheel, levers I and K, links O and O', plate Q, having oblique slots *q*, plate P, having oblique slots *p*, knife P', pins *p'*, clamp Q', frame A, having a guide-slot, and means, controlled by the movement of lever I, to cause the clamp to firmly clamp the paper, substantially as and for the purpose specified.

9. The combination of wheel B, having crank-pin *b*, means, substantially as described, to rotate said wheel, levers I and K, links O and O', plate Q, having oblique slots *q*, plate P, having oblique slots *p*, knife P', pins *p'*, clamp Q', frame A, having a guide-slot, cylinder L, piston L', piston-rod L^2, and a resistance device, substantially as described, to control the passage of air into said cylinder, substantially as and for the purpose specified.

10. The combination of crank-wheel B, having pin *b*, lever I, having slot *i*, lever K, cylinder L, having resistance device M, and valves N N', as set forth, piston L', and piston-rod L^2, the cylinder being pivoted to lever K, and piston-rod to lever I, substantially as and for the purpose specified.

11. The combination of levers I and K, means, substantially as described, to oscillate lever I, cylinder L, pivoted to lever K, piston L', piston-rod L^2, pivoted to lever I, and resistance device M, consisting of cylinder M', disks *m* and *m'*, and plug m^2, substantially as and for the purpose specified.

12. In a paper-cutting machine, the combination of a paper-clamp, a cutter, mechanism, substantially as specified, to operate said cutter, pressure-creating devices, substantially as set forth, connecting mechanism between said mechanism for operating the cutter and the pressure-creating mechanism, and between the latter and the clamp, whereby said pressure-creating mechanism acts upon the paper-clamp to clamp the paper with a pressure proportional to the thickness of the paper to be clamped, substantially as and for the purpose specified.

319,474. ROAD-GRADING MACHINE. WILLIAM R. FERGUSON, Marseilles, Ill. Filed Feb. 23, 1885. (No model.)



Claim.—1. In a road-grader, the means, substantially as shown and described, for supporting and adjusting the rear end of the frame to adjust the scraper-blade, consisting of a pair of crank-axles, c c', boxed to the sills S S of the grader, a pair of traveling wheels, D D', having cutting-peripheries and placed on the crank ends of said axles, a pair of hand-levers, P P', rigidly secured to said axles, and each having a latch-bolt, P^3, arranged to engage with the perforated segments *m m'*, in combination with the sills S S, scraper-board A, and a forward supporting-truck, and the means, substantially as shown and described, for adjusting the forward end of the grader-frame to adjust the scraper-shear, as and for the purpose set forth.

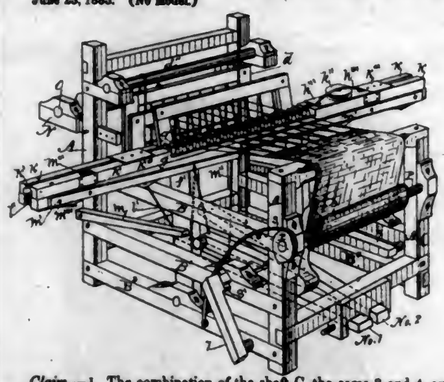
2. In the road-grader described, the combination of the boxes H and R, plate R^3, reach T, having the eye-plate T', crank-screw R', and pin *a'*, with the sills S S, scraper-board A, and forward supporting-truck, all arranged and constructed substantially as and for the purpose set forth.

3. In the road-grader described, the frame, constructed and arranged substantially as shown and described, consisting of the sills S S, cross-beam S^2, side beams, S' S', and cross brace-beams B B, in combination with the scraper A, reach T, adjustably secured to the forward ends of said sills, forward supporting-truck, and the means, substantially as shown and described, for supporting and adjusting the rear end of said frame to adjust said scraper, as and for the purpose set forth.

4. In combination with the body-frame of a road grader and scraper, the scraper-board A, having a cutting-shear, colter *d*, crank-axles *c c'*, wheels D D', having cutting-peripheries, hand-levers P P', each having a latch-bolt, P^3, perforated segments *m m'*, tongue T, adjustably secured to the body-frame, and a forward supporting-truck, all constructed and arranged substantially as and for the purpose set forth.

5. In the road-grader described, the combination of the crank-axles *c c'*, wheels D D', having cutting-peripheries, hand-levers P P', rigidly secured to said axles, and having the latch-bolts P^3, perforated segments *m m'*, sills S S and scraper A, as and for the purpose set forth.

319,475. LOOM. GEORGE W. FRENCH and JACOB A. MATTERN, Colfax; said French assignor to Thomas Mitchell, Mitchellville, Iowa. Filed June 23, 1883. (No model.)



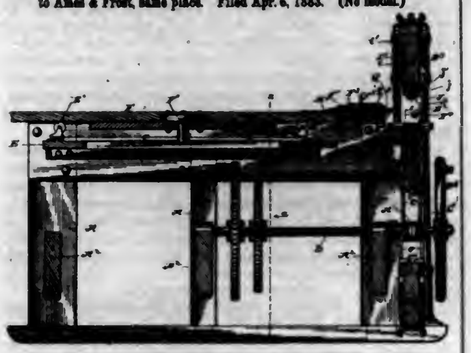
Claim.—1. The combination of the shaft C, the cams 3 and 4, and the arms 5, 6, 7, and 8, the levers 1 and 2, the heddles *d d*, cords for connecting the heddles to the levers 1 and 2, the roller *d''*, and cords for suspending the heddles from said roller, the batten, the spring *f''''*, the levers *m* and *m'*, cords *l'*, cords *m''*, latches *m'''*, springs *m''''* and *l*, and the shuttle-drivers *k''*, substantially as shown and described, to operate in the manner set forth, for the purposes stated.

2. The vibrating batten *f f' f''*, having the parallel bars *g g' g''* fixed on its top, the beam *f* thereof being formed with bifurcated ends, and the bars *k*, having flanges *k'*, the blocks *k''*, having plates *k'''* fixed on their tops, the springs *l*, cords *l'*, the pulleys *l'' l'''*, the levers *m* and *m'*, means for operating the said levers *m* and *m'*, and latches *m'''*, arranged and combined substantially as shown and described, to operate in the manner set forth, for the purposes specified.

3. The vibrating batten, the levers *m'*, the levers *m*, 1, and 2, means for operating the said levers *m*, 1, and 2, the cords *l' m''*, the pulleys *l'' l'''*, the latches *m'''*, the springs *m''''*, the springs *l*, and the shuttle-drivers *k'' k'''*, arranged and combined to operate in the manner set forth, for the purposes specified.

4. The rotating shaft C, having cams 3 and 4 and *a'*, and arms 5, 6, 7, and 8, the heddles *d d*, the roller *d''*, and cords for suspending the heddles from said roller, the vibrating batten, the spring *f''''*, the cords *l'*, the pulleys *l'' l'''*, the shuttle-drivers *k''*, the springs *l*, the levers 1 and 2, cords connecting the heddles with the levers 1 and 2, the levers *m* and *m'*, the cords *m''*, the latches *m'''*, the wheel *r*, the pawl *s*, and the take-up roller P, arranged and combined to operate in the manner set forth, for the purposes specified.

319,476. MACHINE FOR ATTACHING FABRICS TO BED-BOTTOM FRAMES. ABEL H. FROST and FRED L. BRYANT, Chicago, Ill., assignors to Amos & Frost, same place. Filed Apr. 6, 1883. (No model.)



Claim.—1. In a machine for fastening fabric to the end bars of bed-bottoms, the combination, with a rest for the end bar, and a table for the support of the extended fabric, of a horizontally-movable presser-beam, and mechanism for operating the same, substantially as described.

2. The combination, with opposing presser-beams A^2 B, of a movable table for the support of the fabric and end bar in proper relation to each other, substantially as described.

3. The combination, with opposing presser-beams, of a rotating and longitudinally-movable table for the support and movement of the fabric and end bar, substantially as described.

4. The combination, with opposing presser-beams, of a table for the support of the fabric practically flush with the end bar, and means for holding the fabric properly extended, substantially as described.

5. The combination, with a support for the end bar, of an adjacent support for the fabric, having holes f^2, and being about flush with the upper surface of the end bar, and pins f^3, substantially as described, and for the purposes set forth.

6. The combination, with the opposing presser-beams and an adjacent support for the fabric, of an auxiliary spring-presser, I, for holding the fabric, substantially as described.

7. The combination, with the opposing presser-beams, of a rotating table, F, provided with plates F^2 for the end bars at its opposite ends, substantially as described.

8. In combination with the opposing presser-beams, the table F, a central pin, F', a part or parts forming a slot for said pin, and suitable supports for the table, substantially as described.

9. In combination with the opposing presser-beams, rotary table F, provided with a center pin, F', caster-wheels E', for the support of the table, substantially as described.

10. In combination with the rotary and longitudinally-movable table and the presser-beams, a stop or stops for arresting the table in position to bring the cross-bar thereon into place between the presser-beams, substantially as described.

11. In combination with the opposing presser-beams, and means for fixing the position of the end bar, the beam B, together with means for attaching the strip S thereto, and means for gaging the position of the strip when being so attached, substantially as described.

12. In combination with the opposing presser-beam, the beam B, having its face shaped to conform with the outer surface of the cleat S, substantially as described.

13. In combination with the beam B, the points *j* in its lower surface, constructed to enter the cleat and to sustain the same, substantially as described

14. In combination with the movable presser-beam B, the removable plate J, and points *j*, substantially as described.

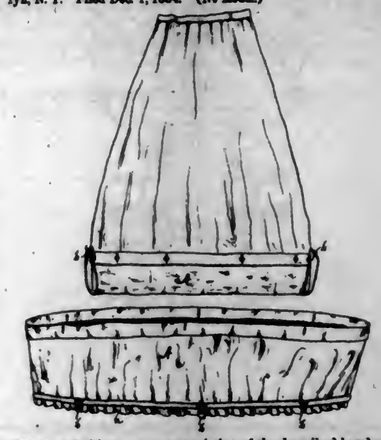
15. In combination with the opposing presser-beams, the transversely-grooved board O, fitted to receive the irons attached to the cross-bar of the bed-frame, substantially as described.

16. In combination with the beam B, provided with means for seizing the cleat S, the grooved gage-board S', constructed to support the cleat in position corresponding with that which it is desired to have when borne against the end bar, substantially as described.

17. In combination with the stationary beam A^2 and connected movable beams B and B', arranged as shown, the toggle-arms C C, pivoted to the beams B' and A^2, the shaft D, having crank c^3, and the connecting-bars C' C', together with means for rotating the shaft D, substantially as described.

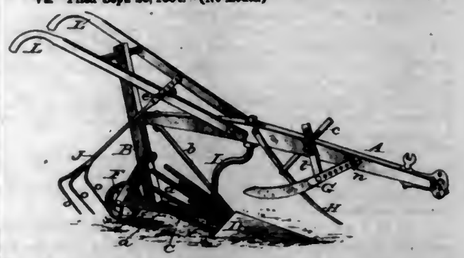
18. In combination with the beams A^2 and B' and toggle-arms C C, the angle-irons C^3, provided with flanges *c'*, and the pivot-bolts c^3, substantially as described.

319,477. LADY'S SKIRT-PROTECTOR. CHARLOTTE A. GANDEL, Brooklyn, N. Y. Filed Dec. 1, 1884. (No model.)



Claim.—A skirt-protector consisting of the described band of waterproof fabric provided at its lower edge with the described elastic gathering-cord and attaching devices, the whole being adapted to be worn with and folded over the lower edge of a lady's skirt, as described.

319,478. POTATO-DIGGER. WILLIAM T. GARRETT, Johnsontown, Va. Filed Sept. 20, 1884. (No model.)



Claim.—1. A potato-digger consisting of the V-shaped share D, having a series of rearwardly-extending and upwardly-inclined rods, *a*, projecting from its rear edge, a frame, substantially such as shown, having its beam A and sole C connected by the curved standard I, and the adjustable wheel F, all constructed and arranged to operate substantially as shown and described.

2. The forwardly-inclined rod H and the rearwardly-inclined cutter G, both pivoted to the beam A, and adapted to be adjusted whereby their inclination and height may be varied at will, substantially as shown and described.

3. The combination, in a potato-digger, of the share D, having the rods *a* attached thereto, secured to a frame substantially such as shown, the adjustable bearing-wheel F, the adjustable vine-lifter H, and cutter G, all arranged to operate substantially as described.

4. In combination with a potato-digger such as shown, the rake J, having its teeth *o* arranged in a line at an angle to the line of draft and inclining upward and backward, attached to the handle L, and adapted to be adjusted thereon, substantially as shown and described.

319,479. PULVERIZING-MACHINE. RYERSON D. GATES and CHARLES KARSTENS, Chicago, Ill. Filed July 2, 1884. (No model.)

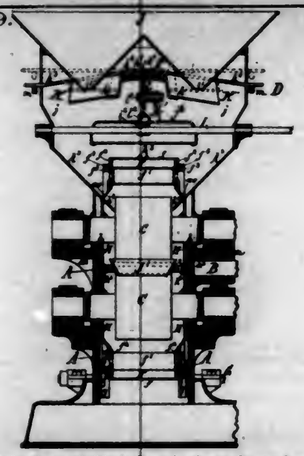
Claim.—1. The combination, in a pulverizer, of a frame, A, a revolving cylindrical screen, the disks H, bolts H', having nuts *h'*, the sleeves h^2, and washers h^3, substantially as and for the purpose described.

2. The combination, in a pulverizer, of a revolving cylindrical screen comprising wire-gauze *f*, side plates, f^2, having rims f^3 below their peripheries, removable tires f^4, the supporting and operating rollers *g*, and shafts G and G', substantially as and for the purpose described.

3. In a pulverizer, a revolving cylindrical screen, in combination with the coupled disks H, having brackets A, and the frame A, having ledges a^3, substantially as and for the purpose described.

4. In a pulverizer, the combination of the revolving cylindrical screen, main shaft B, having tight pulley b^3, shaft G, having loose clutch-pulley g^3, longitudinally-sliding clutch g^4, rollers *g*, and pulley *g'*, the shaft G' having pulley *g'* and rollers *g*, and the belts b^3 g^4, substantially as and for the purpose described.

319,479.



5. In a pulverizer, suitable feed mechanism and a revolving screen, in combination with the main shaft B, having tight pulley b^3, screen-operating shaft G, having loose clutch-pulleys g^3 g^4, longitudinally-sliding coupling-clutches g^1 g^2, feed-operating shaft I, having tight pulley i', and belts b^2 and i, substantially as and for the purpose described.

6. In a pulverizer, the combination, with the oscillatory lever L, having pivoted adjustable portion L^1, set-screw l^2, and friction-blocks l^3, of the chute-support j, chute K, an eccentric, i^2, shaft I, and a hopper, J, substantially as and for the purpose described.

7. In a pulverizer, the combination, with a suitable chute-support and a hopper, of a chute, K, provided with a frame, k', a lever, L, fulcrum or pivot l', an eccentric, i^2, a shaft, I, rock-shaft M, and an arm, m, substantially as described.

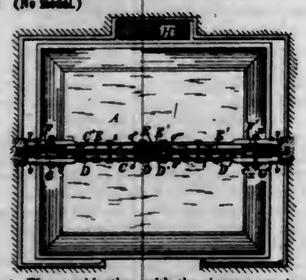
8. In a pulverizer, the combination of a chute-support, j, a chute, K, frame k', arm k^2, pivot k^4, oscillating lever L, eccentric i^2, and shaft I, substantially as and for the purpose described.

9. The combination, with pulverizing mechanism, of the hopper J, having opening j', a chute, K, pivoted at k^4, an oscillating lever, L, and the elevating-shaft M, having the arm m, substantially as and for the purpose described.

10. In a pulverizing machine, an oscillating radially-adjustable chute, K, in combination with the shaft M, having arms m m^2, the elevating-screw n, and the hollow abutment n', substantially as and for the purpose described.

11. In a pulverizing-machine, the combination of pairs of pulverizing-rollers, pairs of journal-boxes c', each box formed of one piece, suitable yokes, c^2, having adjusting devices, and removable half gib-boxes c^3, lined with anti-friction bearing metal c^4, said gib-boxes being capable of insertion into and removal from the journal-boxes c', while the journals of the pulverizing-rollers and journal-boxes remain undisturbed, substantially as described.

319,480. ELEVATOR SAFETY DEVICE. LORENZO S. GRAVES, Rochester, N. Y., assignor to Lorenzo S. Graves & Son, same place. Filed Jan. 30, 1885. (No model.)



Claim.—1. The combination, with the elevator-car A and guideways B B', of the clamps v v, screw G, and the lifting-cables and counterbalance-cables, substantially as described.

2. The combination, with the elevator-car A and guideways B B', of the cross-beams C C', screws G G', and clamps v v, substantially as described.

3. The combination, with the elevator-car A, guideways B B', screw-clamps v v, lifting-cable D, counterbalance-cable E, and suitable corner pulley or pulleys, o substantially as described.

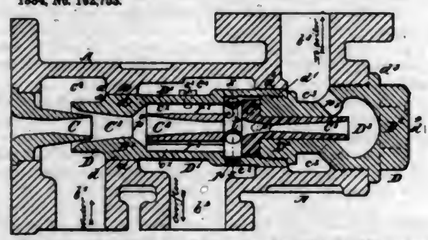
4. The combination, with the car A, of the cross-beams C C', clamps v v, screw G, and nut r, substantially as described.

5. The combination, with the car A and guideways B B', of the cross-beams C C', screws G G', sheaves F F', corner pulleys, o o', and the lifting-cables and counterbalance-cables, substantially as described.

6. The herein-described safety attachment for elevators, consisting, essentially, of a friction-clamp attached to the car and engaging the guideways, in combination with actuating-sheaves, and the lifting and counterbalance cables, the latter applied to the actuating-sheaves and wound in opposite directions thereon, substantially as described.

7. In combination with an elevator-car and its guides, a friction-clamp attached to the car, a screw for actuating said clamps, a sheave or pulley for rotating said screw, and a lifting-cable and counterbalance-cable applied to said sheave or pulley and acting thereon in opposition to each other to hold the screw stationary, whereby the clamp is held suspended by opposing strains upon the lifting and counterbalance cables, and is applied by the counterbalance when the strain is relaxed upon the lifting-cable, substantially as described.

319,481. INJECTOR. JAMES GRESHAM, Manchester, County of Lancaster, England. Filed Oct. 6, 1884. (Model.) Patented in England May 2, 1884, No. 7,116, and July 23, 1884, No. 10,475, and in France June 14, 1884, No. 162,753.



Claim.—1. In an injector, the combination, with the injector-casing and a combined lifting and combining cone, of a discharging-cone arranged to slide in said casing away from the end of the combining-cone under the pressure of the entering jet of steam, and in a direction toward said portion of the cone under the reactive pressure of the combined jet of steam and water, to vary or close the overflow-passage between the discharging-cone and the end of the portion C^2 of the lifting and combining cone, for the purpose specified.

2. In an injector, the combination, with the injector-casing, the steam-cone C, and a combined lifting and combining cone, of a discharging-cone arranged to slide away from the end of said combining-cone under the pressure of the entering jet of steam, and toward said end under the reactive pressure of the combined jet of steam and water, to vary or close the overflow-passage between the two, for the purpose specified.

3. In an injector, the combination, with the injector-casing, and a lifting-cone and combining-cone having an overflow-passage between them, of a discharging-cone and an overflow-passage between the latter and the combining-cone, said discharging-cone being arranged to automatically open or close both the overflow-passages, as described, for the purpose specified.

4. In an injector, the combination, with the injector-casing, of an internal casing detachably connected therewith, in one end of which internal casing is formed a lifting and combining cone, in combination with a discharging-cone arranged to slide freely in a bearing formed in the opposite end of said internal casing, as described, for the purpose specified.

5. In an injector, the combination, with the injector-casing, of an internal casing, one end of which constitutes the lifting-cone, and in which casing are arranged the combining and discharging cones, overflow-passages arranged between each two of said cones, the discharging-cone operating to automatically close or open all the overflow-passages, for the purpose specified.

6. In an injector, the combination, with the injector-casing, of a lifting-cone, a combining-cone, overflow-passages between the two and around the latter cone, a discharging-cone, and overflow-passage between the latter cone and the combining-cone, said combining-cone operating to automatically open or close all the overflow-passages, as described, for the purpose specified.

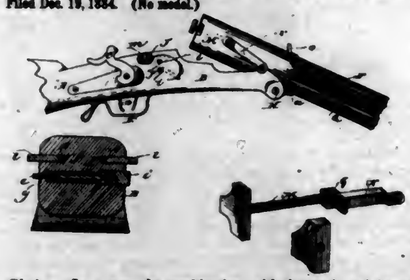
7. In an injector, an outer casing, an inner casing detachably connected with the outer casing, one end of which inner casing constitutes the lifting-cone, the opposite end forming a delivery-chamber, a combining-cone arranged in said inner casing, overflow-passages between the two cones and around and in rear of the combining-cone, and a discharging-cone arranged to slide endwise in said inner casing, to automatically open or close all the overflow-passages, as described, for the purpose specified.

8. The combination, substantially as herein described, with the injector-casing and the discharging-cone arranged to slide longitudinally therein, of a lifting-cone having a tubular extension, the axial opening of which is of greater diameter than that of the cone itself, and a combining-cone provided with radial ribs arranged within the extension of the lifting-cone, so as to form an overflow-passage between the two cones and an overflow-passage in rear of the combining-cone, in communication with the overflow-passage between said cone and the lifting-cone, through the passages formed by the ribs of the combining-cone, as described, for the purpose specified.

9. The combination, with the injector-casing A, having steam-inlet, water-overflow, and delivery branches, and the steam-cone C, of a two-part casing detachably connected together and to the casing A, and forming at one end a lifting-cone, C, and having overflow passages and ports p^4 p, the combining-cone C^2, having ribs r^2, and the discharging-cone C^3, arranged to open the overflow-passages p^4 p under the pressure of an entering jet of steam and close the same under the reactive pressure of the combined jet of steam and water, as described, for the purpose specified.

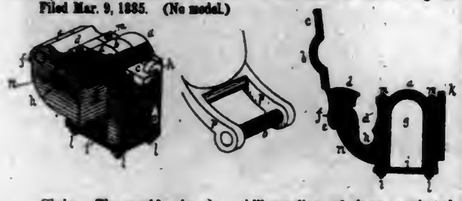
10. The combination, in an injector, constructed for operation as described, with the endwise movable discharging-cone, of the port p^3, for the purpose specified.

319,482. BREECH-LOADING FIRE-ARM. JACOB HARDER, Lock Haven, assignor to Frank E. Harder and George W. Harder, Tyrone, Pa. Filed Dec. 19, 1884. (No model.)



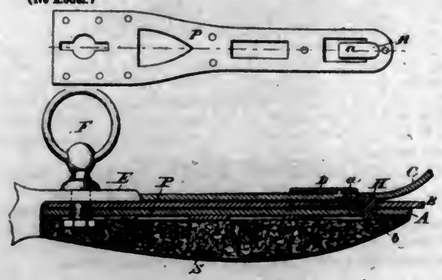
Claim.—In a gun, the combination, with the stock and breech-piece, of the barrels hinged or pivoted to the latter, an extractor seated in a recess, p, formed on one side and between the barrels, a rod, M, working in a passage formed at the junction of the barrels and connected to the extractor, a pin, q, extending outward from the other end of the rod and working in a slot, r, one end of said pin being threaded, as shown, and a lever, N, fitted to the threaded end of the pin, and arranged outside of the barrels and pivoted to the breech-piece, as and for the purpose set forth.

319,483. THILL-COUPLING. JOSEPH HARPOLD, Harrisburg, Ill. Filed Mar. 9, 1885. (No model.)



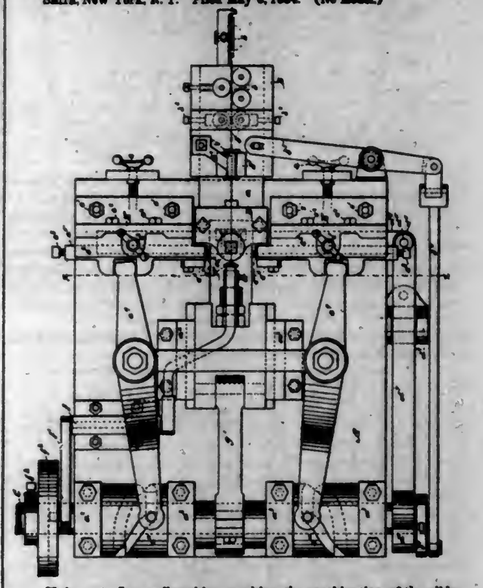
Claim.—The combination, in a thill-coupling, of clamp a, slotted, as set forth, and provided with hook n, lever b, hinged at o to hook n, and formed to fit the slot in the clamp, broadened portion d on lever b, and catch k on the rear portion of the clamp, as and for the purpose set forth.

319,484. GIG-SADDLE. BENJAMIN J. HARTMAN, Wooster, Ohio, assignor of one-half to David W. Immel, same place. Filed Aug. 29, 1884. (No model.)



Claim.—In a gig-saddle, the combination, with the pad S, of the spring-plate P, provided with a hook-fastener, H, at its lower end, constructed as shown, and loop D, the hook and loop adapted to unite the several leather parts and secure them upon the pad without the use of pad-screws or any upper metal plate, substantially as set forth.

319,485. WIRE-NAIL MACHINE. JOHN HASKELL and MINARD M. SMITH, New York, N. Y. Filed May 6, 1884. (No model.)
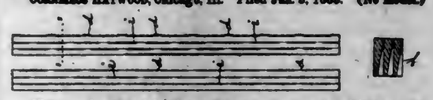


Claim.—1. In a nail-making machine, the combination of the slides E, carriages e^2 and their adjusting and binding screws e, e', e^3, and e^4, so constructed and arranged that the cutting-off dies e^5 may be adjusted both vertically and horizontally by means of the same, substantially as herein shown and set forth.

2. In a nail-making machine, the compound lever d^3 and d^4, in combination with the pressure-adjusting screws d^4 and d^5, the movable holding-die d'', and fixed holding-die d, substantially as and for the purposes herein shown and described.

3. In a nail-making machine, the combination of the milling-rolls b' with the feeding, heading, and cutting-off mechanisms, as herein shown and described.

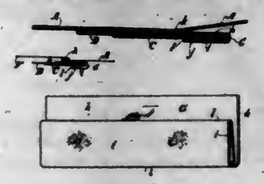
4. In a nail-making machine, the combination of the positively-acting knocking-off finger F and lever f' with the adjustable cam f^3, as herein shown and described.

319,486. SCREEN FOR SIZING ORES AND OTHER SUBSTANCES. CORNELIUS HAYWOOD, Chicago, Ill. Filed Jan. 5, 1885. (No model.)

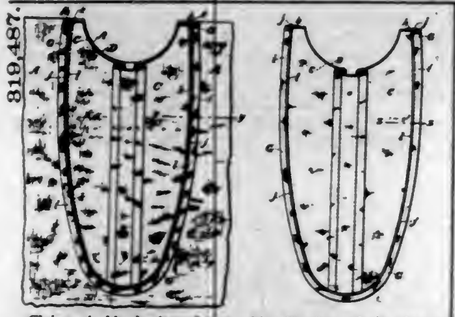


Claim.—As an article of manufacture, a screen for sizing ores, made of a series of bars, a portion of one side of each bar being cut away at intervals, leaving at intervals uncut spaces of the full size of the bar, these uncut spaces between the bars determining the width of the meshes or open spaces in the top surface of the screen, the lower part of the cut-away part being deeper in each bar than the top part thereof, thus making the lower parts of the open spaces between the bars wider than the top parts, as and for the purpose described.

319,487. SHIRT. MAX HERRMANN, Troy, N. Y., assignor to Tim. Wallerstein & Co., same place. Filed Mar. 20, 1885. (No model.)

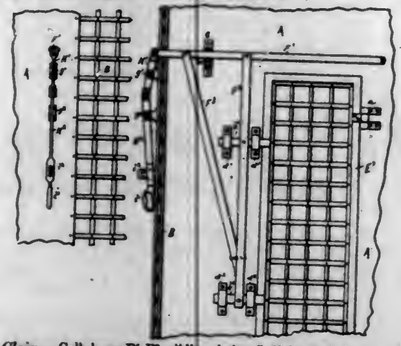


319,487.



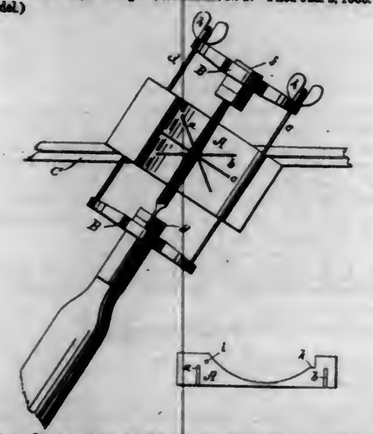
Claim.—A shirt having a bosom with a fly-edge and the edges of the bosom-layers inclosed by a separate folded strip lapping farther inward on the rear side of the bosom than on its front side and attached to the bosom by a row of stitches extending through the bosom-layers and both the front and rear laps of said folded strip, and the bosom attached to the body of the shirt-front by an inner row of stitches extending through the layers of the bosom and body of the shirt-front, and through the rear lap only of the said folded edge-strip, substantially as set forth.

319,488. BOLT-OPERATING MECHANISM. PHILIP HERROD, Minneapolis, Minn. Filed Jan. 31, 1885. (No model.)



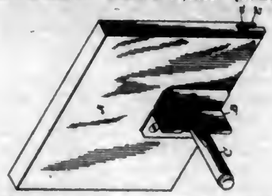
Claim.—Cell-doors E' E^2, sliding bolts d' d^2 for each door, a common sliding bar, F', anti-friction rollers *m m*, upon which said bar slides, vertical rods F^3 F^3, connecting said bar F' with said bolts d' d^2, and diagonal brace-rods F^3 F^3, connecting said bar F' and vertical rods F^3 F^3, in combination with short lever H', the upper end of which is pivoted to said sliding bar F', and pivoted operating-lever H^3, having its short arm pivoted to lever H' and its long arm provided with a handle, substantially as set forth.

319,489. SAW-FILING DEVICE. CHARLES F. HILL, Phelps, assignor of one-half to Rupert Wagner, Rochester, N. Y. Filed Jan. 2, 1885. (No model.)



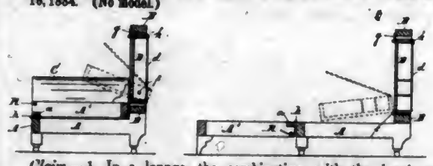
Claim.—In a machine for filing saws, the plate A, provided with the intersecting grooves or openings *a b c*, in combination with the cross-bars B B, rods *d e*, and nuts *h h*, substantially as shown, and for the purpose specified.

319,490. COMBINED WEATHER-STRIP AND DOOR-STOP. GEORGE W. HADERTY, Drifton, Pa. Filed Feb. 16, 1885. (No model.)



Claim.—The combination, with the door, channeled or recessed as described, and the lever C, pivoted to the door, of the arm D, pivoted to the inner end of the lever, a pipe or tube, E, attached to the lower end of the arm, and a weather-strip fitted in a slot of the tube or pipe, as and for the purpose set forth.

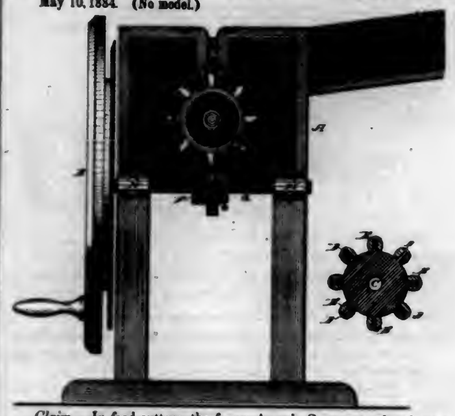
319,491. LOUNGE. SINGLETON L. KING, Indianapolis, Ind. Filed Aug. 16, 1884. (No model.)



Claim.—1. In a lounge, the combination, with the horizontal frame A' for the seat and the upright frame B for the back of the lounge, of an independent wardrobe box or receptacle, D, hinged or pivoted to the frame B in such a manner as to shut into and to form with said frame B the back of the lounge, the cover or lid *d*, and the fastening device *k*, forming means to lock the wardrobe D, and the lock *g*, for holding the wardrobe in its position in the frame B, substantially as described and specified.

2. In a folding bed-lounge, in combination with the horizontal frames A and A', forming, when unfolded, the bed, and the vertical frame-work B, the wardrobe or receptacle D, connected with the frame B by the pivotal pins or hinges *f f*, the lid or door *d*, the lock *k*, and the bolt or lock *g*, forming means to secure the wardrobe D to the frame B, all constructed as described, and for the purpose specified.

319,492. FEED-CUTTER. CHARLES KNAUER, Plymouth, Wis. Filed May 10, 1884. (No model.)

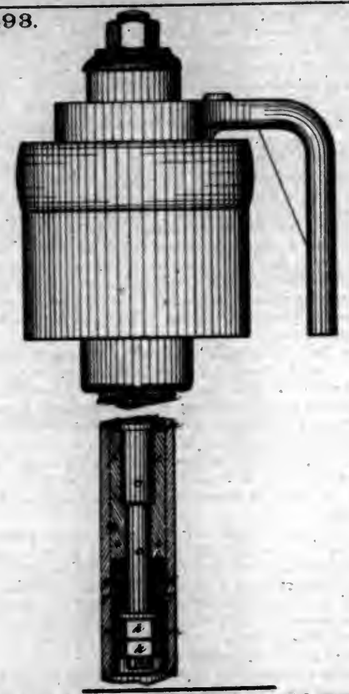


Claim.—In feed-cutters, the frame A, axle G, supported and rotating in bearings H H, said bearings being attached to frame A, knife-carrying wheel B, rigid on axle G, and worm-wheel F upon and rotating with axle G, in combination with spur-wheel C, rigid on the end of one of the feed-rolls, said spur-wheel being provided with cylindrical teeth D D, having anti-friction sleeves E E, substantially as and for the purpose described.

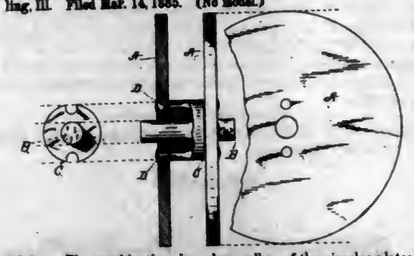
319,493. CENTRIFUGAL MACHINE. JOHN LAIDLAW, Glasgow, County of Lanark, Scotland. Filed Apr. 29, 1885. (No model.)

Claim.—The improvements in centrifugal machines or hydro-extractors wherein the bearings are constructed of one or more annular sets or tiers of truncated conical rollers and rings, all operating substantially as hereinbefore described, and shown on the annexed drawings.

319,493.



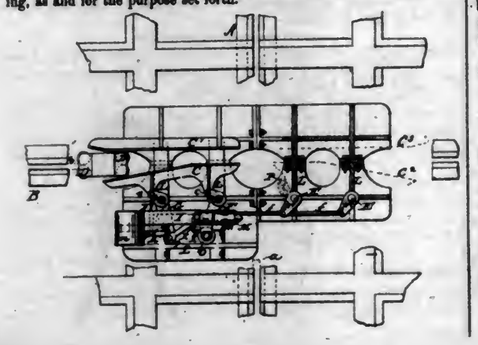
319,494. ROLLER FOR SLIDING DOORS. JOHN H. LAWRENCE, Sterling, Ill. Filed Mar. 14, 1885. (No model.)



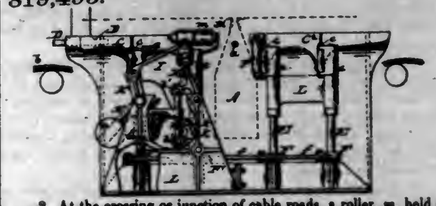
Claim.—The combination, in a door-roller, of the circular plates A A with the shaft B, filling or cylinder C, and connecting-bolts D, substantially as shown, and for the purpose specified.

319,495. CABLE RAILWAY. WILLIAM M. LEVERING, Philadelphia, Pa. Filed Feb. 3, 1885. (No model.)

Claim.—1. At the crossing of cable roads or the junction of lateral roads with the main line, the pin or bar or other projection M, which may or may not have a roller or rollers *m* mounted thereon, said pin or projection being held normally away from and having a motion over and upon the cable of the road to be crossed or joined to and operated by a grip-shank or other attachment to a car running on the road crossing or joining, as and for the purpose set forth.



319,495.



2. At the crossing or junction of cable roads, a roller, *m*, held normally away from and adapted to be moved over and down in contact with the rope *a* in the tubeway of the crossed road, in combination with suitable actuating mechanism operated by a grip-shank or other attachment to the car of the crossing road.

3. At the crossing or joining of cable roads, in combination with a grip, grip-shank, or other attachment to the car running on one of said roads, the bars C, supported on rock-levers *e*, and so arranged as to open at right angles or nearly at right angles to the direction of motion of the grip of the crossing or joining road for the purpose of operating suitable mechanism for moving the cable of road crossed or joined to out of the way of the passage of the grip or other attachments to the car of the road crossing or joining, as described.

4. In combination with bars C C' and their shafts and actuating mechanism, the arms G and H, either or both of which have a sliding motion on its supporting-pin in a direction at right angles to the plane of its rotation, substantially as and for the purpose described.

5. At the junction or crossing of cable roads, two or more parallel shafts connected by actuating mechanism which imparts to such shafts a simultaneous movement of rotation, substantially as shown and described.

6. At the junction or crossing of cable roads, the combination of the projection or pin M, the movable frame I, two or more rock-levers, K, and suitable supporting frame-work, whereby the frame I and projecting pin M are permitted to move in a direction nearly or quite parallel to themselves while the projection M is being moved over and down upon the cable to be crossed, substantially as and for the purpose described.

7. At the junction or crossing of cable roads, the combination of projection M, the frame I, two or more rock-levers, K, counter-weight *n*, and suitable supporting frame-work, whereby the projection M is permitted to move in a direction nearly or quite parallel to itself while being moved over and down upon the cable to be crossed and returned to its original position.

8. At a crossing or junction of cable roads, the combination of the bars C C' C^2 C^3, rocker-arms *e*, shafts E, rocker-arms G and H, frame I, pin or projection M, with or without its roller or rollers *m*, rocker-arms K, and suitable supporting-frame, L, the rocker-arms F, and bars *f*, and counter-weight *n*, the whole being operated by a grip, grip-shank, or other attachment to a car running on one of said roads, substantially as and for the purpose set forth.

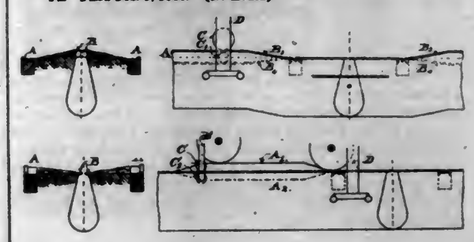
9. The combination, with bars C C' and their actuating mechanism, of the vertical rollers O, projecting slightly into and beyond the line of the tube of the crossed road, substantially as and for the purpose specified.

10. As an attachment to a cable-grip or grip-shank, the rollers D D, rolling in contact with each other, substantially as and for the purpose specified.

11. In a cable-motor railroad, the bars C C' C^2 C^3, arranged on opposite sides of a road or tubeway to be crossed or joined to and so connected as to allow of one end of the operating mechanism attached to the car to enter between the bars C^2 C^3 on one side of the crossed road before the other end of said mechanism has left its position between the bars C C' on the other side of said crossed road, substantially as and for the purpose described.

12. In underground mechanism for cable roads, a fixed bar, in combination with a bar having a motion toward and from said fixed bar, and a grip or grip-shank, or the rollers or other attachment capable of coming in contact with said movable bar, substantially as set forth.

319,496. CABLE RAILWAY. WILLIAM M. LEVERING, Philadelphia, Pa. Filed Feb. 3, 1885. (No model.)



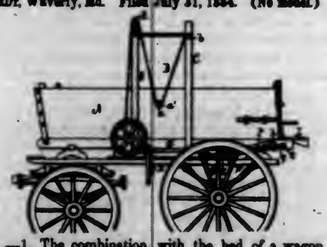
Claim.—1. At or near the crossing or junction of cable roads, or at other points where it is desirable to operate a grip automatically, the slot-irons and rails having their relative elevation with respect to each other changed, substantially as and for the purpose set forth.

2. At or near the crossing or junction of cable roads, or at other points where it is desirable to operate a grip automatically, the slot-irons B' or B², raised or depressed with relation to the tram-rail, in combination with the rollers C and C' or other attachment to the mechanism operating the grip, or either of them, for the purpose of obtaining a positive motion for operating the grip attached to a car moving on such roads, substantially as described.

3. In a cable-motor system or conduit, slot-irons of a form substantially as shown, having internal flanges, in combination with a roller or rollers or other suitable attachment to the grip-operating mechanism moving within or between such flanges and slot-irons, and tram-rails arranged at a different height relatively to each other at or near the points where the grip requires to be operated, as and for the purpose set forth.

4. For the purpose of obtaining a motion for operating the grip attached to a car moving on a cable road, slot-irons and tram-rails, both or either of which are raised above or depressed below their normal level, in combination with an attachment to the grip-operating mechanism, substantially as shown and described.

319,497. DUMPING-WAGON. WILLIAM LEONHARDT and JOHN H. LEONHARDT, Waverly, Md. Filed July 31, 1884. (No model.)



Claim.—1. The combination, with the bed of a wagon, of uprights C D, the body having pivots *a*, and chain B, secured to upright C and passing down under the pivot *a*, and thence up over the upper end of the standards D, and thence down to a suitable winding mechanism, as set forth.

2. The combination, with the bed of a wagon, of the turn-table G, uprights C D, body A, chain B, secured to the upright C and passing under the pivot *a* and over the upright D, and shaft E, gear-wheel *e*, pinion *f*, and crank F, as set forth.

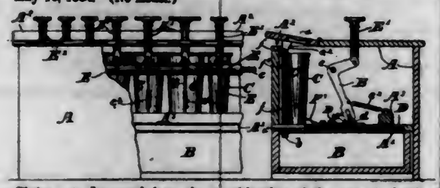
3. The combination, with the bed of a wagon, of the tail-board or end-gate, secured thereto by means substantially as described, whereby it may be moved bodily to the rear, or upon a hinge at either side or hinges on both sides, as set forth.

4. The combination, with the bed of a wagon, of the end-gate composed of parts J J', hinges *j j'*, side bars, K and K², and the adjusting-screw, substantially as set forth.

5. The combination, with the bed of a wagon, of the end-gate consisting of parts J J', hinges *j j'*, end-bar pivoted at *n* to the part J and carrying pin *n'*, and the guide O and staple *n²*, secured to the part J', as set forth.

6. A dumping-wagon provided with a tail-gate made in two sections and provided with mechanism, substantially as described, whereby it may be opened at either side as a rigid gate or in the center as a double gate, as set forth

319,498. CASH-BOX. LEONIDAS W. LOWLESS, Lafayette, Ind. Filed May 10, 1884. (No model.)



Claim.—1. In a cash-box, the combination of the case A, having a horizontal partition, A', a series of tubes mounted on said partition, push-bars, also mounted on said partition behind said tubes and adapted to be slid into the lower end thereof, said push-bars being provided with studs on their top surface, bell-crank levers pivoted on suitable bearings, the end of one arm of which levers is bifurcated and connected with the studs on the top of the push-bars, the end of the other arm being connected to a push-pin which operates in the top of the case, and said push-pin, substantially as set forth.

2. In a money-box, the combination of the case A, having a partition, A', the drawer B, mounted in said case under the partition, tubes C, mounted on the front edge of said partition, with openings in the lower front corners for the discharge of the coins, and the locking device F, consisting of a bar extending across in front of the tubes, and having an upright, *f*, mounted on each end thereof, the lower ends of which extend below the bar sufficiently to enter notches in the upper corners of the drawer, and the upper ends of which extend up sufficiently to engage with the lid A³ of the case, whereby the closing and locking of said lid operates to press said uprights down into the notches in the drawer and the bar down in front of the openings in the tubes, and thus lock all the outlets of the box at one operation, substantially as set forth.

3. In a cash-box, the combination of the case A, having a partition or floor, A', drawer B, mounted therein, the tubes C, also mounted in the case on the floor A', push-bars D, mounted in slides in said floor A', and provided with studs *d*, bell-crank levers E, pivoted on a shaft, *e*, one end being connected to said stud *d* and the other end to a push-pin, E', and said push-pin E', mounted in the top of the case, substantially as described, and for the purposes specified.

4. The combination, in a cash-box, of the case A, having a partition or floor, A', drawer B, mounted in said case below said floor, tubes C, mounted on the front edge of said floor, lid A³ to said tubes, hinged to the top of the case, push-bars D, bell-crank levers E, push-pins E', and locking device F, said locking device having uprights *f*, which extend up to the lid, and said lid being adapted to come in contact with the tops of said uprights and bear them down into notches in the top of said drawer as said lid is closed and the bar down in front of the outlets to the tubes, all substantially as described, and for the purposes specified.

5. In a cash-box, the combination of the case A, partition or floor A', tubes C, mounted on said floor, push-bars D, having studs *d* and mounted in slides in said floor, shaft *e*, extending through said box and having bell-crank levers E mounted thereon, said bell-crank levers, the vertical arms of which are connected to the stud *d* on the push-bars D, springs connected to said bell-crank lever, and the push-pins E', extending down through the top of the box and pivoted to the top arm of the bell-crank lever E, substantially as set forth.

6. In a cash-box, the combination, with the drawer B and tubes C, provided with a lid, A³, of the locking device F, consisting of a bar mounted in front of the tubes and having uprights *f* on each end, mounted in guides *f'*, and having lugs *f''* upon their rear sides, which engage with springs F', said springs F', and the lid A³, said lid being adapted to engage with the top ends of said uprights *f*, whereby said uprights and the bar are borne down as the lid is closed, and thus the locking of said lid operates to lock said drawer and close said tubes, substantially as set forth.

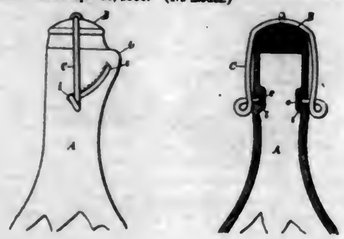
319,499. PLOW. JOHN E. MARSHALL, Seegertown, Pa. Filed Nov. 20, 1884. (No model.)



Claim.—1. The combination, with a tube or housing having a perforation through its lower extremity, of a caster-wheel having its shank perforated to coincide with the perforation in the housing, and a pin, substantially as and for the purpose set forth.

2. A caster-wheel having a perforated shaft, a reduced screw-threaded shank, and coiled spring encircling the same, and regulating-nut engaging with the screw-threaded end of the shank, in combination with a perforated tube or housing incasing said spring and vertically adjustably connected to the beam of a plow or other agricultural machine, and a pin adapted to engage with the perforations, substantially as and for the purpose described.

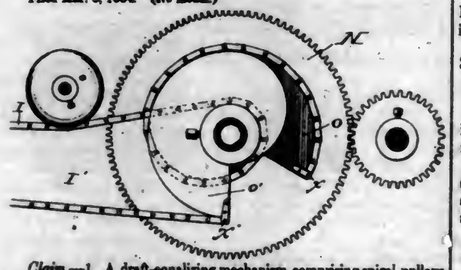
319,500. BOTTLE-STOPPER FASTENER. FRANK MCARDLE, Brooklyn, N. Y., assignor of one-half to Christopher Reimmer and Charles E. Meier. Filed Apr. 16, 1885. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, of the bottle-neck having a lateral projection provided with inclined grooves beginning with offsets at a point in the center line of the neck, and thence extending outward and upward to a point beyond the side of the neck, and the bail supporting the stopper, having its ends provided with pivots for engaging with the grooves and their offsets, for the purpose specified.

2. The combination, with a bail having its ends formed into pivots, of a bottle-neck having a lateral projection and its sides flattened, so as to form two parallel straight surfaces, *f f*, provided with grooves *s s*, having overhanging upper edges, said parallel straight surfaces preventing displacement of the pivots from the grooves, substantially as and for the purpose herein described.

319,501. DRAFT-EQUALIZER. PATRICK E. MCDONNELL, Chicago, Ill. Filed Mar. 8, 1884. (No model.)

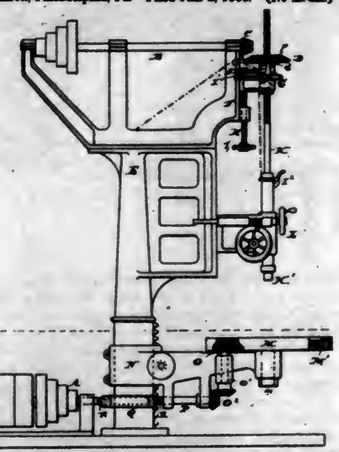


Claim.—1. A draft-equalizing mechanism comprising spiral pulleys upon a common axis arranged in opposition to each other, and flexible connecting media secured thereto, substantially as described.

2. A draft-equalizing mechanism comprising spiral pulleys upon a common axis arranged in opposition to each other, and flexible connecting media arranged to wind upon the pulleys in the line of their spirals when the pulleys are revolved, and secured thereto in such a manner that when the medium moving in one spiral is wound upon its pulley the opposing medium will be unwound, substantially as described.

3. A draft-equalizing mechanism comprising spiral disks O O', arranged in opposition to each other upon a common axis, and flexible connecting media I I', secured thereto, substantially as described.

319,502. COMBINED DRILLING AND BORING MACHINE. GEORGE G. MORRISON, Philadelphia, Pa. Filed Jan. 2, 1885. (No model.)



Claim.—1. In a combination-tool comprising a drilling and boring machine in which either may be used separately, the combination of a drill or tool spindle, mechanism, substantially as set forth, to rotate or prevent rotation of said spindle, a face-plate or table, and mechanism, substantially as set forth, to rotate or prevent rotation of said face-plate, substantially as and for the purpose specified.

2. In a combination-tool, a drill or tool spindle combined with gearing to rotate it, mechanism, substantially as set forth, to separate said gears to arrest the rotation of the spindle, and a lock to prevent the rotation of said spindle when the gears are separated, substantially as and for the purpose specified.

3. In a combination-tool, a drill or tool spindle combined with gearing to rotate it, mechanism, substantially as set forth, to separate said gears to arrest the rotation of the spindle, a lock to prevent the rotation of said spindle when the gears are separated, a face-plate, and mechanism, substantially as set forth, to rotate or prevent rotation of said face-plate, substantially as and for the purpose specified.

4. The combination of shaft B, having bevel-pinion C, frame E, having a guide, F, box G, screw H, to move said box, gear D, carried by said box, and spindle K, substantially as and for the purpose specified.

5. The combination of shaft B, having bevel-pinion C, frame E, having a guide, F, box G, screw H, to move said box, gear D, carried by said box, and a lock to prevent rotation of said gear D, substantially as and for the purpose specified.

6. The combination of shaft B, having bevel-pinion C, frame E, having a guide, F, box G, screw H, to move said box, gear D, carried by said box, lever I, spring I', pin J, and spindle K, substantially as and for the purpose specified.

7. The combination of frames E and N, face-plate M, having gear M', pinion O, shaft O', gears O², shaft P, counter-shaft A, and connecting-sleeve Q, substantially as and for the purpose specified

319,503. OBTAINING A SUBSTITUTE FOR ALBUMEN FROM FISH-ROE. JOHN M. ORDWAY, Boston, assignor of one-half to Edward Emerson Waters, Sandwich, Mass. Filed June 6, 1884. (No specimens.)

Claim.—1. The process of treating roe or eggs of fishes for obtaining a substitute for albumen, consisting, first, in dissolving the roe by means of ammonia, then precipitating by treatment with an acid.

2. The process of treating roe or eggs of fishes for obtaining a substitute for albumen, which consists in digesting the roe in a solution of ammonia or its specified equivalent, then precipitating by the acids named, and washing, pressing, and drying.

319,504. BOTTLE-STOPPER FASTENER. ABIJAH F. PARKHURST, Kewanee, Ill. Filed Feb. 27, 1885. (No model.)



Claim.—1. A stopper-fastener comprising the yoke D, having loops *d²* and arms *d*, pivoted to the neck of the bottle, the eccentric-shaft journaled in said loops *d²*, and a thumb-piece secured to said eccentric-shaft, substantially as described.

2. The combination, with arms *d*, pivoted to the neck of the bottle, having loops *d²*, of the shaft E, the eccentric entirely across the opening in the bottle, and a thumb-piece secured to said shaft for operating the same, substantially as described.

3. The combination, with the collar C, secured around the neck of the bottle, of the yoke D, having loops *d²* and arms *d*, pivoted to said collar, the eccentric-shaft journaled in said loops, and a thumb-piece secured to said eccentric-shaft, substantially as described.

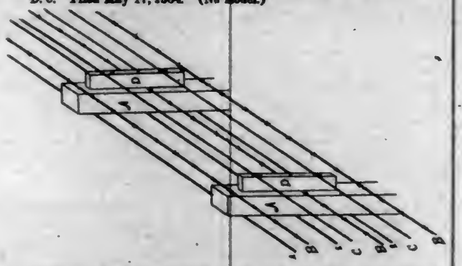
319,505. STATION-INDICATOR. WALTER J. PETTINGELL, Lowell, Mass. Filed Jan. 17, 1883. (No model.)



Claim.—1. As a permanent attachment to the exterior of a railroad-car, and in combination therewith, a suitable frame, inclosed station-plate or series of station-plates having the names of the several stopping-places arranged in the order in which they will be reached, together with a movable shield adapted to be successively closed over the front of said plates as the train proceeds, all substantially as described.

2. In a station-indicator attached to the exterior of a car, as described, the combination of the indicator-case, inclosed station-plates, movable shield for successively covering said plates, and means for operating the shield from within the car, substantially as set forth.

319,506. GUARD FOR BARBED-WIRE FENCES. WILLIAM C. REECKENECKER, Denver, Colo., assignor of one-sixth to Jno. A. Baker, Washington, D.C. Filed May 17, 1884. (No model.)



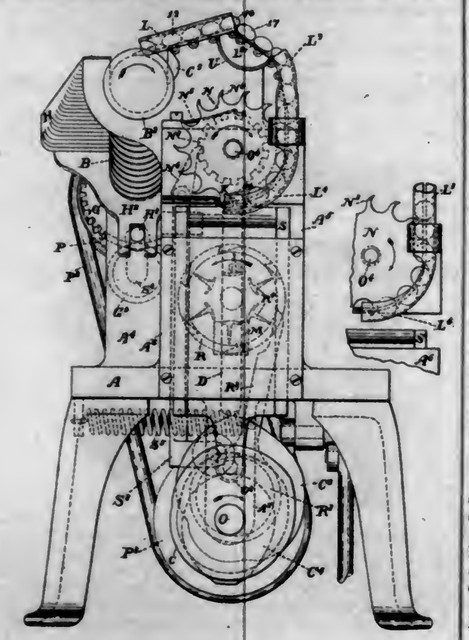
Claim.—1. The combination of the posts A, the barbed wires B, attached thereto, the cleats D, nailed longitudinally to the posts over the barb-wires, a series of plain guard wires or strips attached to and supported by said cleats, and a second series of guard wires or strips attached directly to the posts on the side opposite to the barbed wires, as and for the purpose set forth.

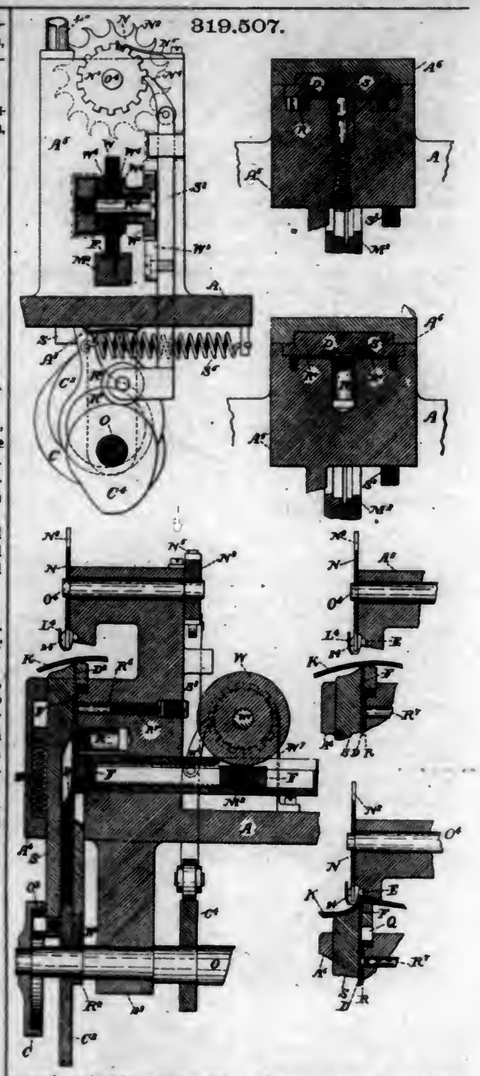
2. The combination of the posts A, the barbed wires B, attached thereto, the cleats D, nailed longitudinally to the posts over the barbed wires, and a series of plain guard wires or strips secured to and supported by said cleats, in the manner and for the purpose set forth.

319,507. BUTTON-FASTENER-SETTING MACHINE. FRANCIS H. RICHARDS, Springfield, Mass., assignor to the American Button Fastener Company, New Britain, Conn. Filed Oct. 6, 1884. (No model.)

Claim.—1. In a button-fastener-setting machine, in combination, a setting-die having a fixed position therein, a presser-slide adapted to hold fabric against said die, and having a driver-channel, substantially as described, a driver adapted to drive button-fasteners through said channel and fabric and against said die, and a cam-shaft having a cam for operating said presser-slide, and a cam for operating said driver, substantially as set forth.

2. In a button-fastener-setting machine, in combination, a setting-die, a presser-slide adapted to hold fabric against said die, and having a driver-channel, substantially as described, a driver adapted to drive button-fasteners through said channel and fabric against said die, a cam for





operating said slide, and a cam for operating said driver, said cams being constructed and arranged to first begin the stroke of the driver, then move up the driver and presser-slide together, and then complete the stroke of the driver, substantially as and for the purpose set forth.

3. In a button-fastener-setting machine, in combination, presser-slide S, having channel D^2, driver D, carrier-wheel R, having openings for receiving the fasteners, and pusher R^6, substantially as described.

4. In a button-fastener-setting machine, in combination, presser-slide S, having channel D^2, driver D, carrier-wheel R, having openings for receiving the fasteners, a magazine, M^2, provided with a fastener-feeding device and pusher R^6, substantially as described.

5. In combination, magazine M and friction-wheel W, and means, substantially as described, for operating said wheel, whereby fasteners F are fed along the groove of said magazine, substantially as described.

6. In combination, carrier-wheel R, having openings R^4 and depressions R^5, a pusher adapted to enter said depressions, and means, substantially as described, for operating the carrier-wheel and pusher, substantially as and for the purpose set forth.

7. In a button-fastener-setting machine, in combination, a button-hopper, substantially as described, having a slot in the bottom thereof, and a screw underneath said slot adapted to engage a projecting part of buttons, substantially as set forth.

8. In a button-fastener-setting machine, in combination, a hopper, H, having a slot in the bottom thereof, a revolving screw underneath

said slot, and a device, substantially as described, for shaking said hopper, substantially as set forth.

9. In combination, a hopper, as H, which has a slot in the bottom thereof and is rigidly fixed at one end and pivotally supported at the other end, a revolving screw underneath said slot, and a hopper-shaking device, substantially as described, adapted to shake said pivotally-supported end, substantially as set forth.

10. Hopper H, having trough T and elevated edge J^3, substantially as and for the purpose described.

11. In a button-fastener-setting machine, in combination, hopper H, having a slot in the bottom thereof consisting of two portions, one wider than the other, said portions being connected by another portion, one side of which is cam-shaped, as at J, Fig. 12, substantially as and for the purpose described.

12. An inclined button-feeding screw having its thread with parallel sides and at less than a right angle to its axis, substantially as and for the purpose described.

13. A button-feeding screw having its thread beveled, as at V^2, substantially as and for the purpose described.

14. In combination, screw B, cam C^6, and a channel, as L, substantially as described.

15. In combination, screw B, cam C^6, channel L, and flange B^2 on said screw, substantially as and for the purpose described.

16. In combination, channel L, channel L^2, and an intermediate bridge, L^3, substantially as and for the purpose described.

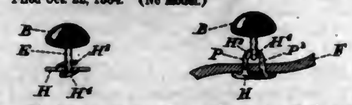
17. The combination of hopper H, channel L, bridge L^2, leading from said channel L, button-feeding devices, substantially as described, for conveying buttons from said hopper into and through said channel to said bridge, and a spout extending from said bridge into said hopper, substantially as described.

18. In combination, hopper H, button-feeding devices, substantially as described, having an overflow, as L^3, and spout U, substantially as and for the purpose described.

19. In combination, a button-channel, as L^2, terminating in the curved part L^4, toothed wheel N, means, substantially as described, for operating said wheel, and die E, said wheel and said part L^4 being so constructed and arranged as to co-operate for the feeding of buttons from said channel to said die, all substantially as set forth.

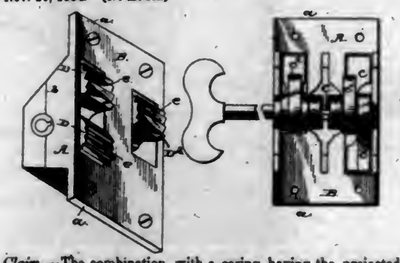
20. In combination, a channel, as L, having a curved part, as L^4, wheel N, having curved teeth N^2, and means, substantially as described, for operating said wheel, substantially as specified.

319,508. BUTTON-FASTENER. FRANCIS H. RICHARDS, Springfield, Mass., assignor to the American Button Fastener Company, New Britain, Conn. Filed Oct. 22, 1884. (No model.)



Claim.—The improved button-fastener herein described, consisting of a bar-shaped head, H, and two prongs, P and P^2, joined to said head and terminating in hooks, as H^3 and H^4, said head having a torsionally-elastic central part, substantially as and for the purpose described.

319,509. SASH-HOLDER. EMORY G. RUST, Grand Prairie, Tex. Filed Nov. 29, 1884. (No model.)



Claim.—The combination, with a casing having the projected ear or lug C, of the dogs D D' D^2, having trunnions bearing in recesses in the sides of the casing, and in an opening in the ear or lug C, said dogs having serrated engaging-faces, the dogs D' D^2 extending upwardly and the dog D downwardly, springs bearing against the dogs, said dogs being formed with passages having grooves communicating therewith, and a key having a rib to fit said grooves, as set forth.

319,510. FIFTH-WHEEL. JOHN B. RUTHERFORD, Netawaka, Kans. Filed May 20, 1884. (Model.)

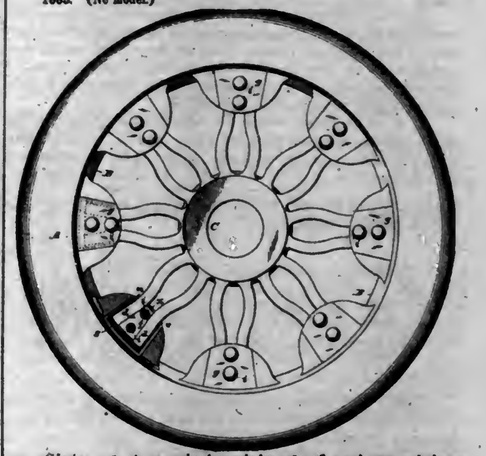
Claim.—In a fifth-wheel, the plates or disks having facing sockets, one of said plates having a triangular recess or depression, in combination with the ball or sphere having the reach-coupling, said coupling ex-

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tending through a tube or casing of one of the plates, substantially as and for the purpose set forth.

319,511. CAR-WHEEL. JOHN K. SAX, Pittston, Pa. Filed Jan. 19, 1885. (No model.)



Claim.—1. A car-wheel consisting of a flanged recessed rim or tire, an inner rim of cast metal, fused or welded to the outer rim, and a body peripherally connected to the inner rim, and formed of a separate piece or pieces, substantially as set forth.

2. The combination, in a car-wheel, of an outer and inner rim, of different metals fused together, and a detachable body portion consisting of a separate piece or pieces fitted and clamped to the inner rim, substantially as set forth.

3. The combination of the outer and inner rims consisting of different metals fused together, a body peripherally fitted to the inner rim, and intervening packings, substantially as specified.

4. The combination, in a car-wheel, of an outer forged recessed rim, an inner rim or section provided with recesses or sockets, and a body portion provided with arms or spokes fitted to said sockets and secured by clamping-plates, substantially as specified.

5. The combination of the outer and inner rims, fused together, and the detachable body having spokes with expanded ends and adapted to sockets or recesses in the inner rim, and a removable cap piece or pieces clamping the body and inner rim together, substantially as specified.

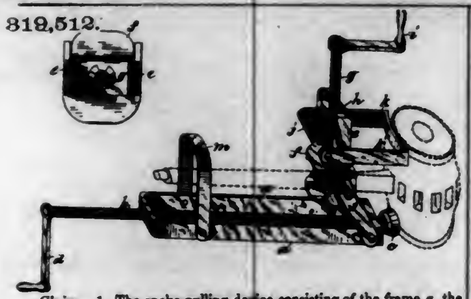
6. The combination, with the rim having sockets expanding toward the periphery and body having arms terminating in fingers adapted to said sockets, of side packings and wedges fitting between the fingers to compress the packings, substantially as set forth.

7. The combination, with the outer forged rim and a detachable body provided with spokes having expanded ends, of an inner cast-metal rim fused to the outer rim and provided with recesses and attachments for the ends of the spokes, substantially as set forth.

319,512. SPOKE-EXTRACTOR. GUSTAV A. SCHOENIKE, Lebanon, Wis. Filed Mar. 19, 1885. (No model.)



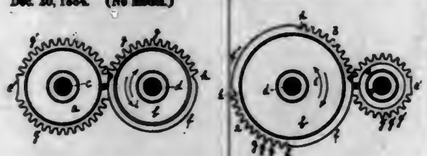
319,512.



Claim.—1. The spoke-pulling device consisting of the frame *a*, the screw-threaded rod *b*, rotating in frame *a*, the frame *e*, suspended upon frame *a*, the cross-head *f*, sliding within the frame *e* and carried upon and moved by the screw-threaded rod *g*, rotating in frame *e*, in connection with such frame clamping the spoke, and the resisting-arm *k*, independent of frame *a*, substantially as described.

2. In spoke-pulling devices, the combination of frame *a* and the therein rotating screw-threaded rod *b* with frame *e*, suspended upon frame *a* by arms *j j*, and provided with spoke-gripping mechanism, and the resisting-arm *k*, pivoted on the arms *j j*, substantially as described.

319,513. GEARING. HERMANN BICKLER-BERGE, Rochester, Pa. Filed Dec. 20, 1884. (No model.)



Claim.—1. A driven gear-wheel whose periphery is provided with a series of the usual gear-teeth and a lock-tooth having a concave bearing-face, in combination with a gear-wheel having a series of gear-teeth corresponding to the series on the said driven wheel and a convex arc whose radius is less than the radius of the toothed segment of the same gear-wheel, including the cogs thereof, said convex arc being the counterpart of the said concave locking-tooth, so as to be capable of bearing against the same, substantially as and for the purposes described.

2. A driven gear-wheel whose periphery is provided with several series of the usual gear-teeth and several locking-teeth having concave bearing-faces, in combination with a gear-wheel having a series of gear-teeth corresponding to the series on the said driven wheel and having part of its periphery convex, said convex part having a radius less than the radius of the toothed portion of the same gear-wheel, including the cogs thereof, and being the counterpart of the said concave locking-teeth, so as to be capable of bearing against the same, substantially as for the purposes described.

319,514. CAR-AXLE BOX. JAMES O. SCOTT, Tyler, Tex., assignor of one-half to F. L. Dilley, same place. Filed Sept. 4, 1884. (No model.)

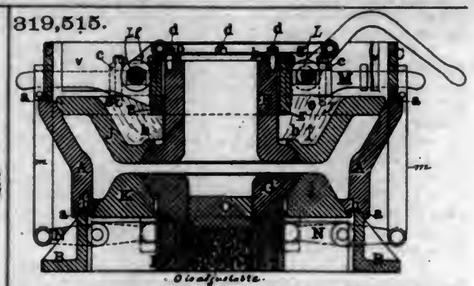


Claim.—In an axle-box, the combination, with the box A, having the wedge-shaped projections *d*, and slots *e e'*, of the cover B', having pins *b'*, and wedge-shaped recesses *c*, formed between said pins and the top of the lid, whereby the gravity of the cover will wedge it to the box when the pins are without a bearing, as set forth.

319,515. METAL MOLD FOR CASTING STEEL WHEELS. WILLIAM SELLERS, Philadelphia, Pa. Filed June 8, 1883. (No model.)

Brief.—The mold, being closed, as appears in Fig. 4, is moderately heated. The metal is poured rapidly at the hub to fill the mold and make one a sinking head at the hub and another at the rim. Air and gases escape between the loose fit at upper edge of the rim or through cross-grooves there filed. Mold stands until skin is set enough to hold the casting in form—say one and a half minutes—and is then parted to permit shrinkage, the casting being then supported by the lower hub portion and a bottom flange on its rim. Pass the wheel directly to an annealing-furnace, cut off the sinking heads, (if cast without a central core bore it,) and finally turn it.

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Claim.—1. In a metal mold for casting steel wheels, a rim, a supporting-frame by which a hub portion of the mold is supported, and a movable relieving-annulus between the rim and the hub portion, substantially as and for the purposes set forth.

2. In a metal mold for casting steel wheels, a rim and supporting-frames which maintain the hub portions of the mold at the proper distance from each other, in combination with a movable annulus which determines the position of its hub portion radially, substantially as described.

3. In a metal mold for casting steel wheels, an upper movable annulus and a lower movable annulus between the rim and the hub portions of the mold, substantially as and for the purposes set forth.

4. In a metal mold for casting steel wheels, an upper and a lower movable annulus, in combination with devices through which one annulus is made to counterbalance the other, substantially as described.

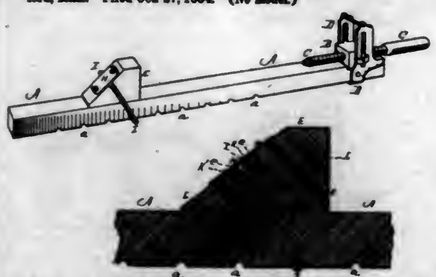
5. A metal mold for casting steel wheels, provided with space for a sinking head within the rim portion of the mold and above the true rim of the finished wheel, substantially as described.

319,516. BAG-FASTENER. HIRAM SHANK, Providence, Lancaster County, Pa. Filed Feb. 7, 1885. (No model.)



Claim.—In a bag-fastener, the combination of the spiral-spring body A, having one end terminating in an arm, *r*, formed with a ring or bearing, *a*, and the other end terminating in a ring-like bearing, C, with the goose-neck lever B E D, all constructed and operating substantially as described and shown.

319,517. CABINET-MAKER'S CLAMP. WILLIAM E. SHELDON, Medford, Mass. Filed Oct. 27, 1884. (No model.)

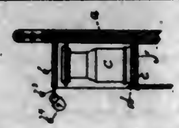


Claim.—In a cabinet-maker's clamp, the combination, with the bar A, grooved at *a*, and provided with the usual head-block and screw, of the tail-block E, chambered at *e* and provided with the covering-plate H, the swinging bar I, and the spring K, secured at one end to the swinging bar in the chamber *e*, and with the free end extending downward and bearing against the under side of the plate H, substantially as and for the purpose set forth.

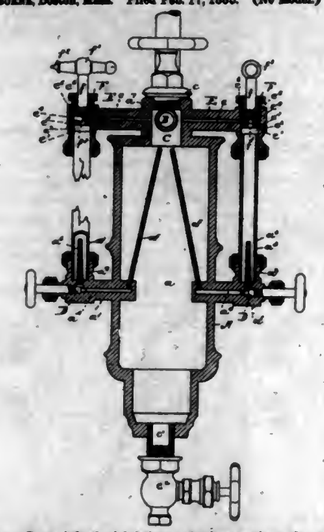
319,518. SAFETY-RECEPTACLE FOR OPERA-GLASSES IN THEATERS, &c. CHAS. B. SHERWOOD, Buffalo, N. Y. Filed Feb. 28, 1884. (No model.)

Claim.—The combination of a chain for securing a pair of opera-glasses and a box having a suitable door or cover, and a recess in its bottom to receive the chain and prevent contact of the opera-glasses therewith, substantially as described.

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319,519. SIGHT-FEED OIL-CUP OR LUBRICATOR. CHARLES W. SHERBURNE, Boston, Mass. Filed Feb. 17, 1885. (No model.)



Claim.—In a sight-feed lubricator for locomotives, the combination of a sight-feed chamber, the passage *c*, connecting the reservoir with the passage G, and a two-way cock, F, having the passage f^3, which connects the sight-feed chamber with the escape-passage and the passage f^4, which is adapted to connect the passage *e* with the escape-passage, whereby the reservoir is connected with the escape-passage by two conduits or passages, both of which are controlled by the same valve, and the opening of one of which passages closes the other, all substantially as and for the purposes described.

319,520. CORE-BAR. FREDERICK SIEKELE, St. Louis, Mo. Filed June 6, 1884. (No model.)

Brief.—The heat of the casting operates to char the strip B, which is of wood or other frangible material, so as to enable it to drop from its position and allow the core-bar to collapse.



Claim.—1. The combination of the shell *a* and the strip B, substantially as described.

2. The combination of the shaft a^4, the brackets a^5, the part a^6, the parts a' a', and the strip B, substantially as described.

3. The combination of the shell *a*, the strip B, and the ties a^7, substantially as described.

4. The combination of the shaft a^4, the brackets a^5, the parts a^6 a' a', the strip B, and the chains a^{12} a^{12}, substantially as described.

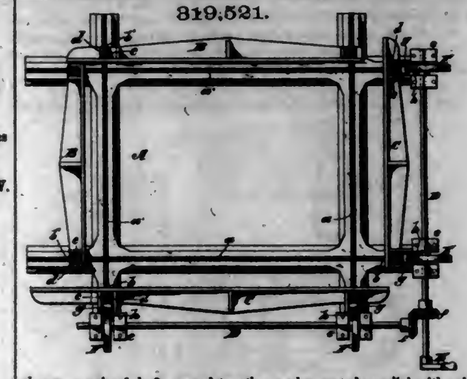
5. A core-bar, shell *a*, with edges a^6 a^6, in combination with the strip B, for the purpose described.

319,521. CLAMP. CHARLES R. SMITH and JOHN B. ADAMS, Choboygan, Mich. Filed Feb. 9, 1885. (No model.)

Claim.—1. In a sash, door, and blind clamp, the combination of a series of stationary and movable head-blocks, forming the sides of an inclosure, with shafts geared together and mounted substantially parallel with the head-blocks, and provided with connections to simultaneously actuate said movable head-blocks, as and for the purposes set forth.

2. In a sash, door, and blind clamp, in combination with a pair of head-blocks at right angles to each other and forming two sides of a rectangular inclosure, and a pair of movable head-blocks completing the inclosure, a pair of shafts geared together, and mounted parallel with said movable blocks, and provided with cams to actuate the same, substantially as described.

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3. In combination with a moving head-block of a clamping device, provided with arms projecting therefrom, and having a roller journaled therein, and a projection extending at right angles to said arms, a shaft having a cam keyed thereto, the latter being provided with a flanged periphery the outer face of which engages said roller and the inner face engaging said projection, substantially as shown, and for the purposes described.

4. The herein-described clamping device, consisting of a bed or frame having longitudinal and transverse undercut grooves, head-blocks secured to said bed in diagonal pairs by bolts working within said grooves, one pair being movable and provided with pairs of rearwardly-extending arms, each pair of which has a roller journaled therein and a lateral projection extending therefrom, a pair of shafts geared together at right angles, and cams keyed to said shafts, and provided with flanged peripheries the outer faces of which engage the rollers of the movable head-blocks and the inner faces their projections, for the purposes described.

319,522. SAND-BAND FOR VEHICLES. CHARLES H. SMITH, Mount Pleasant, Iowa, assignor to the Western Wheel Scraper Company, same place. Filed Mar. 25, 1885. (No model.)



Claim.—The combination, with an axle and a wheel-hub having a sand-band at its inner end, of a sand-cap secured to the axle in sliding adjustment, and consisting, essentially, of a cup-shaped portion the edge of which rests in close contact with the inner end of the hub, and a collar formed integral with the cup-shaped portion and embracing the axle, substantially as set forth.

319,523. WHEEL-HUB. FERDINAND W. STARR, Springfield, Ohio. Filed Oct. 20, 1884. (No model.)



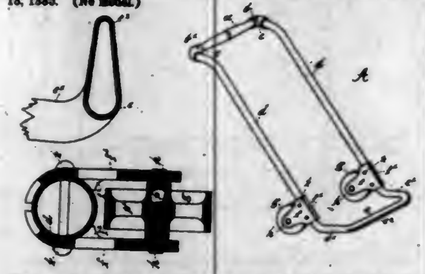
Claim.—1. In a wheel-hub, the combination, with the spoke-socket having divergently-disposed walls, of the wooden wedges tapered to agree with and fit against said walls, and the spokes having their tenons fitted against said wedges.

2. In a wheel-hub, the combination, with an outer metallic shell having a series of spoke-sockets integrally formed therewith, with walls divergently disposed to each other, of the wedges tapered to agree with the sockets, and the spokes having tenons fitted within said sockets and against said wedges, whereby they are provided with wooden contact-surfaces and the application of glue made more effectual.

3. In a wheel-hub, the combination, with an outer metallic shell having a series of spoke-sockets formed integrally therewith, and having two of their walls divergently disposed, and the inner wooden core, the sockets extending to said core, of the wooden wedges tapered to agree

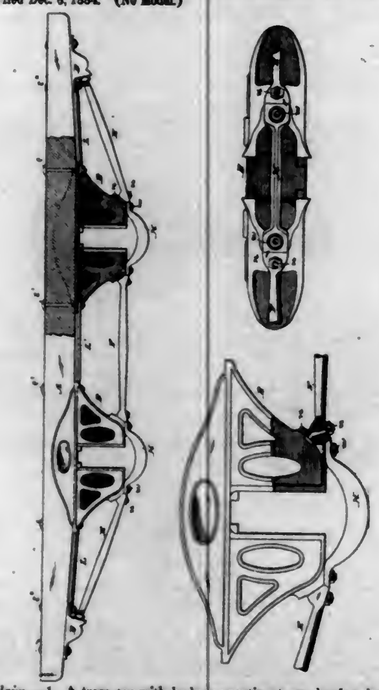
with said sockets, and the spokes having their tenons fitted within said sockets and against said wedges and core, whereby they are provided with wooden contact-surfaces and the application of glue made more effectual.

319,524. HAND-TRUCK. JAMES STEEL, Paterson, N. J. Filed Feb. 18, 1885. (No model.)



Claim.—In a hand-truck, the combination, with the body of the truck A, having a flattened front part, *e* and e^3, and tube-sides *d*, the sides curved upward at *e'* to elevate the front of the truck, and downward at the opposite end to hold the truck in a nearly horizontal position, of the elbows *b b'*, screwed on the ends of said sides *d*, and handle *a*, secured in said elbows, with pins or screws for securing said handle in the elbows, and plates *f f'*, secured to said sides *d*, with rivets *k*, for securing the plates to the sides, and wheels *g*, journaled in the plates *f f'*, the wheel having journals *h* and openings *p'*, the plates having lugs f^3, said lugs conforming rigidly to the tube-sides, substantially as described.

319,525. CAR-BODY TRUSS. JOHN STEPHENSON, New York, N. Y. Filed Dec. 8, 1884. (No model.)



Claim.—1. A tram-car with body-supporting truss, having its upper chord at either side of the car, consisting of the following elements in combination, viz: one central eye-rod, two pedestal bed-plates, two end eye-rods, two strut-thimbles, and fastening-bolts, substantially as described.

2. A tram-car with body-supporting truss, having its lower chord at each side of the car, consisting of the following elements in combination, viz: one center stay-bar, two pedestals, two pedestal base-bars, without fastening connection with either stay-bar or strut-brace, two strut-braces, two strut-thimbles, and fastening-bolts, substantially as described.

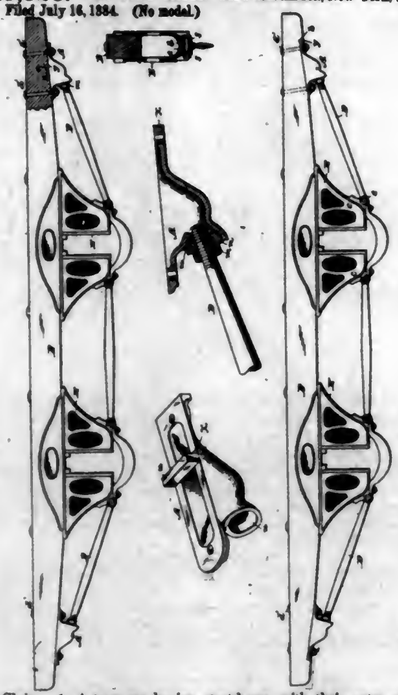
3. A tram-car with the body supported by a truss made of the following elements, viz: two central eye-rods uniting four pedestals with four end eye-rods connecting with four strut-thimbles holding the upper ends of four struts, with their feet fastened to four pedestals, united in couples by two stay-bars fast to the union-bars of pedestals, and carrying four base-bars crossing the pedestals' jaws, and fastening-bolts, substantially as described.

4. A tram-car with supporting-truss under each sill, the pedestals forming queen-posts of the truss, and the bed-plates of the pedestals constituting sections of the upper chord of the truss, substantially as described.

5. A tram-car with truss under its sills, a section of each lower chord crossing the open jaws of a pedestal, and removable without disorganizing the truss, substantially as described.

6. A tram-car-body truss with the upper chord connecting the pedestals and strut-thimbles by eye-rods secured on the fastening-bolts of pedestals and thimbles.

319,526. CAR-BODY TRUSS. JOHN STEPHENSON, New York, N. Y. Filed July 16, 1884. (No model.)



Claim.—1. A tram-car having strut-boxes with their outer ends embedded into the under sides of the sills, the end wall of the cavity affording an abutment for the end face of the strut-box, as and for the purposes set forth.

2. A tram-car having strut-boxes with their outer ends bearing against shoulders of the sill and holding the upper ends of strut-braces, as and for the purposes set forth.

3. A tram-car having strut-boxes with their outer ends bearing against shoulders of the sill and holding the upper ends of strut-braces which have their lower ends fast to the bottoms of the pedestals, as and for the purposes set forth.

4. A tram-car having strut-boxes with their outer ends bearing against shoulders of the sill and holding the upper ends of strut-braces, whose feet, in conjunction with the feet of the coupling-bars, are fastened to the bottoms of the pedestals, as and for the purposes set forth.

5. A tram-car having strut-boxes with their outer ends bearing against shoulders of the sill and holding the upper ends of strut-braces which have their lower ends fast to the bottoms of the pedestals, and coupling-bars between the pedestal-bottoms, the toe of each strut-foot and coupling-brace-bar foot forming abutments for ends of bridge-bars below the pedestals, as and for the purposes set forth.

6. A tram-car with trussed sill, having strut-braces with their feet secured at or near the bottom of the pedestals, and a coupling-bar with its foot secured at the opposite side of the pedestal, with a bridge-bar to each pedestal with ends abutting against the toes of the brace and coupling-bar feet, as and for the purposes set forth.

7. A tram-car with sills trussed, the sill forming the upper chord of the truss, and shaped to form abutments receiving the thrust of the strut-braces, as and for the purposes set forth.

8. A tram-car with trussed sill, the lower chord of the truss consisting of two strut-boxes, two strut-braces, two bridge-bars, four union-bars, two pedestals, and coupling-bar, as and for the purposes set forth.

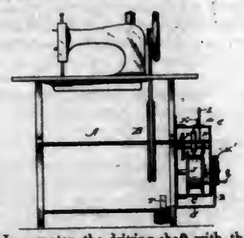
9. A tram-car with trussed sill, the upper chord being the sill with shoulder-abutments for the strut-boxes in which are the two strut-braces with their feet fast to the bottom of the pedestals, a coupling-bar with its feet fast to the pedestals, and two bridge-bars with their ends abutting against the feet of the strut-braces and coupling-bars, as and for the purposes set forth.

10. In a tram-car, the combination of the sills, pedestals, and strut-braces with their feet secured to the pedestals and the upper ends of the truss-braces, with their adjusting nut-bearings of convex form fitting into concave seats in the strut-boxes, as and for the purposes set forth.

11. A tram-car with trussed sills, bridge-bars abutting against the toes of coupling-bars, and strut-braces, as and for the purposes set forth.

12. A tram-car with trussed sill, the upper chord of the truss being the sill, with shoulder-abutments against which are thrust the strut-boxes in which are strut-stays with their feet fast to the bottom of the pedestals, which in like manner hold the feet of the coupling-bar, and a bridge-bar with its ends abutting against the feet of struts and coupling-bar, all constructed to permit the bridge-bar to be inserted and removed without disturbing the truss, the pedestals acting as queen-posts for the truss, and also sustaining the integrity of the lower chord in absence of the bridge-bars, as and for the purposes set forth.

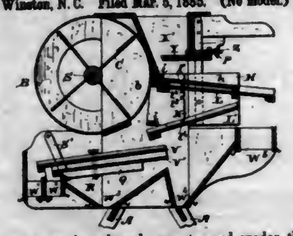
319,527. MOTOR. JERRY SULLIVAN, Dubois, Pa. Filed Apr. 16, 1885. (No model.)



Claim.—1. In a motor, the driving-shaft with the drive-wheel, in combination with the casing or frame C, through which the driving-shaft is extended, the cog-wheel F, the shaft H, pawl or detent G, the train of gearing for operating the cog-wheel, and the handle or lever connecting with the shaft H, for forcing the detent into engagement with the cog-wheel, for the purpose set forth.

2. In a motor, the driving-shaft and the drive-wheel, in combination with the casing C, through which the driving-shaft is extended, the cog-wheel F, the power-spring, and intermediate gearing for operating the cog-wheel, the winding-arbor on which the spring is mounted, the hand-wheel mounted on an extension of the arbor, the brake-lever pivoted at one end to the machine, a pad or cushion fitted to the brake-lever, the other end of the latter being shaped to provide a handle, and adapted to be forced into engagement with any one of a series of notches or serrations or a rack-bar, for the purpose set forth.

319,528. GRAIN AND SEED SEPARATOR AND GRADER. WILLIAM TATE, Winston, N. C. Filed Mar. 5, 1885. (No model.)



Claim.—1. In a grain and seed separator and grader, the combination of the frame A', having the curved slots *r*, frame Q, the hangers S' S', the screens V V', the cross-bar R, having projecting ends, the vertical levers *t*, provided with perforations, the perforated brackets U, bolts *o*, and fan-shaft S, having the crank-pins *d*, substantially as and for the purpose described.

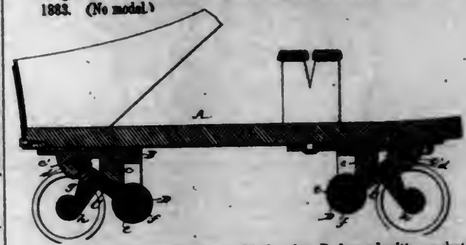
2. A grain and seed separator and grader comprising a suitable hopper, a laterally-vibrating shoe, H, shaft S, diagonally or cam-grooved collar P, horizontal lever M, provided with perforations near its center, perforated bracket N, bolt O, rod *n*, screws L L', the longitudinally-shaking frame Q, cross-bar K, vertical levers *t*, provided with perforations near their centers and slotted at their upper ends, crank-pins *d*, perforated brackets U, bolts *o*, screens V V', spouts W' W^2 W^3 W^4 W^5, and a blast-fan, C, all as and for the purpose set forth.

319,529. TRAP FOR DRAIN-PIPES. RUSSELL THAYER, Philadelphia, Pa., assignor to the Philadelphia Drainage Construction Company, (Limited,) same place. Filed Apr. 6, 1885. (No model.)



Claim.—In a mercurial trap, the combination, with inlet and outlet pipes which rise to points vertically above the joint with the trap-chamber, of a trap-chamber divided into two limbs by a partition, B, extending nearly to the bottom, the limb upon the inlet side being contracted near its lower end, and the outlet-limb being provided with a lateral extension, C, having an inclined bottom and continuously-curved surface throughout, substantially as and for the purposes set forth.

319,530. ROLLER-SKATE. GEORGE H. THOMPSON, Frostburg, Md., assignor to Henry D. Huff and Caleb Brinton, Chicago, Ill. Filed June 4, 1883. (No model.)



Claim.—1. The combination, with the plate B, formed with a socket, *d*, at one end, pendent arms *b* at its opposite end, and the intermediate grooved bearing-block, *c*, of the movable part C, formed at one end with a pin, *c'*, fitting within socket *d*, a head, *e*, at its opposite end, and the pendent wheel carrying arm *g*, the tubular elastic cushion *f*, within the head *e*, and the pin D, passing through the arms *b* and the elastic cushion, substantially as set forth.

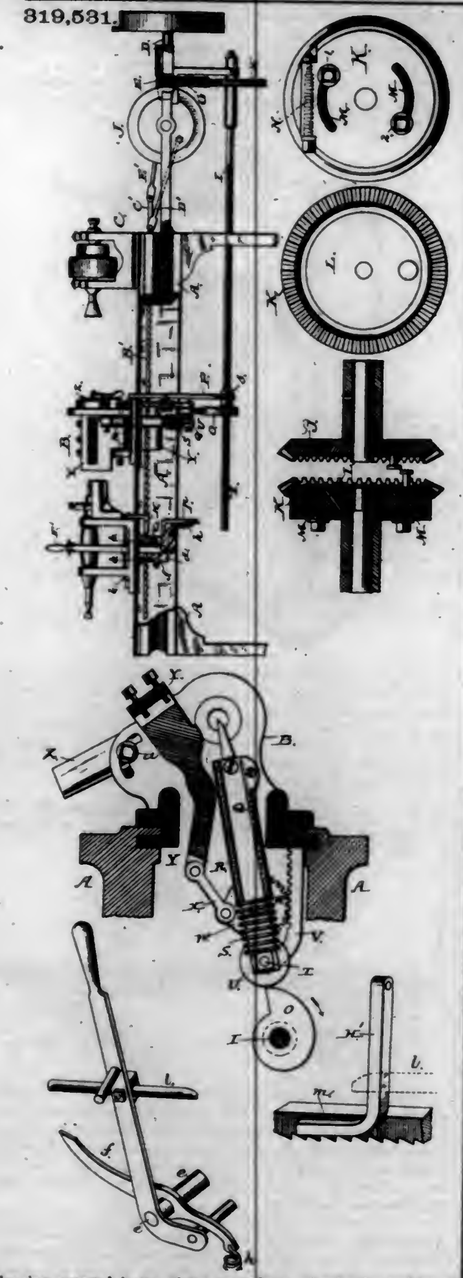
2. The combination, with the plate B, formed with a socket, *d*, and pendent arms *b* at its opposite ends, and the intermediate grooved bearing-block, *c*, of the movable part C, formed with a pin, *c'*, fitting within socket *d*, a cylindrical head, *e*, at its opposite end, and the pendent wheel-carrying arm *g*, having a head, *h*, the tubular elastic cushion *f*, within the cylindrical head *e*, the pin D, passing through the arms *b*, and elastic cushion *f* and the elastic washers *i* on said pin D at opposite sides of head *e*, substantially as set forth.

319,531. WOOD-TURNING LATHE. AUGUSTINE D. WATHOTH, Fitchburg, Mass. Filed Sept. 26, 1884. (No model.)

Claim.—1. In combination with the tail-stock of a lathe, the parallel reciprocating tooth-bars B' C', pinnen D' E', and gears J K, for operating the said bars, and a connection between said bars and tail-stock, substantially as and for the purpose herein set forth.

2. In combination with the tail-stock of a lathe, the oppositely-placed gear-wheels J K, provided with crank-pins, and having a revolv-

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lug dog mounted in one of the gear-wheels, whereby the position of one of the crank-pins is capable of adjustment with relation to the other, the pitmen, and the tooth-bars B′ C′, and a suitable connection between said bars and the tail-stock, all constructed to operate substantially as and for the purpose herein set forth.

3. In a lathe, the gear-wheel K, mounted to receive the disk L, having a crank-pin secured thereto, in combination with a gear-wheel, J, having a fixed crank-pin, slots and set-screws in the gear K, whereby the said disk may have a partial revolution, and the tooth-bars B′ and C′, and the tail-stock having a suitable connection with the bars, all constructed to operate substantially as and for the purpose set forth.

4. In combination with a cutting-off knife having a vertical movement in a suitable guide or holder, a cam mounted upon a grooved bar running lengthwise of the lathe, so that the said cam may have a movement similar to and in unison with the carriage, and suitable gearing for operating the grooved bar, an anti-friction roller, U, attached to the shank of the cutting-off knife, a rack-bar, V, and a connection between the rack-bar and the forming-tool holder, substantially as herein set forth.

5. In a lathe, a cutting-off knife, a holder for the same, a spring for withdrawing the knife, and an anti-friction roller, in combination with a cam having a sliding movement upon a grooved bar, a depending arm for holding the cam in contact with the wheel, a rack-bar, V, gear-wheel W, having pitman X, eccentrically secured thereto, a forming-tool holder, and suitable mechanism for operating the grooved bar, substantially as herein set forth.

6. In a lathe, the tail-stock and a lever, F′, adapted to disconnect the tooth-bars from the tail-stock, in combination with the bars B′ C′, the pitmen D′ E′, and the gears J K for operating the said bars, substantially as herein set forth.

7. In a lathe, a brake pivotally secured to the tail-stock and adapted to press against and hold a tooth-bar, in combination with the said tooth-bar, a pivoted lever, and a bar having one of its ends beveled to engage the brake to release its lower end from the tooth-bar, substantially as and for the purpose herein described.

8. In a lathe, a cutting-off tool and holder for the same, a spring for withdrawing the knife, an anti-friction wheel, and a cam for operating the knife, in combination with a vertically-moving rack-bar, a gear-wheel engaging the rack-bar, and a pitman eccentrically secured on the gear-wheel and connected with the forming-tool holder, so that the forming-tool and cutting-off knife may work in unison, substantially as described.

9. In a lathe, and in combination with the tail-stock provided with depending arms, two or more pawls mounted upon a shaft, springs attached to the pawls to hold them in position, the tooth-bars B′ C′, guide pins or rollers for said tooth-bars, a brake, and a lever for disengaging the pawls and brake, all constructed to operate substantially as and for the purpose set forth.

319,532. DOOR-CHECK. SAMUEL WEAVER, Pottstown, Pa. Filed Feb. 5, 1885. (No model.)



Claim.—The combination, with the longitudinally-disposed plate provided with the groove c^2, of the horizontal double spring-clasp having the straight central portion sealed and secured in said groove and comprising the two bowed or curved spring-arms having their adjoining ends curved inwardly and provided with the oppositely-turned points c^4 within the bowed spring, and a catch for engaging the arms, substantially as and for the purpose set forth.

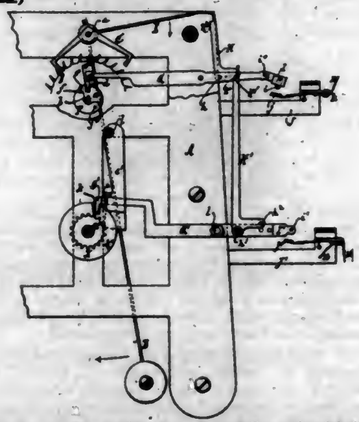
319,533. COFFEE AND TEA BOX. PETER F. WEBER, Chicago, Ill., assignor of two-thirds to Nicholas J. Weber and George Brunnersberger, both of same place. Filed Mar. 24, 1885. (No model.)



Claim.—1. The combination, with receptacle A, provided with casting *k* and measure F, of latch M and spring *k*, as set forth.

2. The combination, with receptacle A, provided with perforated bottom E, of box K and springs L, as set forth.

319,534. CIRCUIT-CLOSER FOR PRIMARY ELECTRIC CLOCKS. WILLIAM P. WESTERMER, New York, N. Y. Filed June 14, 1884. (No model.)



Claim.—1. The combination, substantially as hereinbefore described, with an arbor, and with the clock mechanism which imparts to this arbor a revolving motion, of a disk mounted on or geared together with said arbor, the notch formed in said disk, the lever G, the dog formed on or secured to the inner end of this lever and being balanced so as to have a tendency to bear down upon the disk, the metallic pin attached to the outer end of this lever, the tappet H, secured to said lever, and the arm E.

2. The combination, substantially as hereinbefore described, with an arbor, and with the clock mechanism which imparts to this arbor a revolving motion, of a disk mounted on or geared together with said arbor, the notch formed in said disk, the lever G, the dog formed on or secured to the inner end of this lever and being balanced so as to have a tendency to bear down upon the disk, the metallic pin attached to the outer end of this lever, the gravitating stop, the tappet H, secured to said lever, and the arm E.

3. The combination, substantially as hereinbefore described, with an arbor, and with the clock mechanism which imparts to this arbor a revolving motion, of a disk mounted on or geared together with said arbor, the notch formed in said disk, the gravitating stop mounted loosely on the arbor which carries the disk and situated close to said disk, the notch formed in the gravitating stop, the lever G, the dog formed on or secured to the inner end of this lever and being balanced so as to have a tendency to bear down upon the disk, the metallic pin attached to the outer end of this lever, the tappet H, secured to said lever, and the arm E.

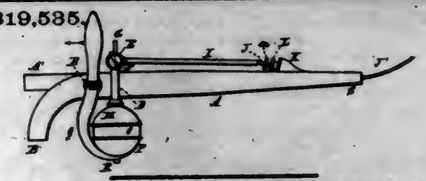
4. The combination, substantially as hereinbefore described, with an arbor, and with the clock mechanism which imparts to this arbor a revolving motion, of a disk mounted on or geared together with said arbor, the notch formed in said disk, the gravitating stop mounted loosely on the arbor which carries the disk and situated close to said disk, the notch formed in the gravitating stop, the arm e^6, projecting from said stop beyond the circumference of the disk, the lever G, the dog formed on or secured to the inner end of this lever and being balanced so as to have a tendency to bear down upon the disk, the metallic pin attached to the outer end of this lever, the tappet H, secured to said lever, and the arm E.

5. The combination, substantially as hereinbefore described, with the second-hand arbor *b* and minute-hand arbor *c*, and with the clock mechanism for imparting motion to these arbors, of the disk F, mounted on or geared together with the arbor by the lever G, the position of which is governed by the disk F, the circuit-closing pin *i*, secured in said lever, the tappet H, the pin h^5, the disk K, mounted on or geared together with the arbor *c*, the lever G′, the position of which is governed by the disk K, the circuit-closing pin i', the tappet H′, and the arm E, for actuating simultaneously the circuit-closing pins *i* and i'.

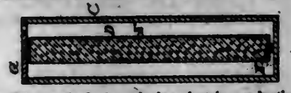
319,535. COMBINED FAUCET AND PUMP. SAMUEL WEEKS, Cleveland, Ohio. Filed Mar. 16, 1885. (No model.)

Claim.—In a combined beer-faucet and air-pump, in combination with the faucet A and pipe J, the bulb O, covered by one or more shells, valves *d* and *e*, key B, and handle for operating the said bulb and key conjointly, and three-way cock, constructed substantially in the manner as described, and for the purpose specified.

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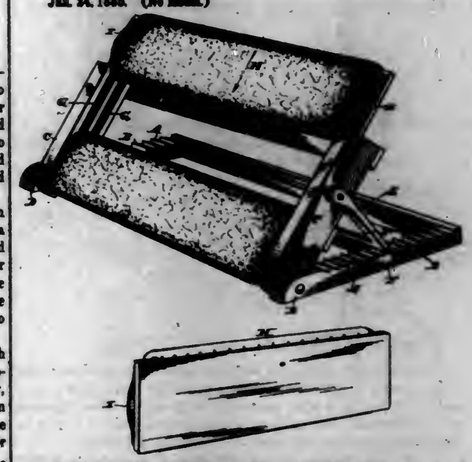


319,536. METHOD OF MAKING ELECTRICAL CONDUCTORS. JOHN J. WILLIAMSON, Boston, Mass. Filed July 9, 1884. (No model.)



Claim.—The method of producing electric conducting-wires composed of copper and copper alloys by casting or pouring molten fluid copper or copper alloys to and around a solid bar or within a hollow ingot of copper or copper alloy, said solid bar or hollow ingot being, while the casting is effected, at such degree of temperature that no metallic fusion between the sections is produced, and afterward reducing such ingot to the diameter proper for electrical conductors by the usual suitable means.

319,537. HEAD-SECTION. HERMANN WEITER, Helena, Mont. Filed Jan. 24, 1885. (No model.)



Claim.—1. The combination, with a supporting-frame and an adjustable head-rest frame secured to said supporting-frame and provided with grooves, of pillow-frames, the opposite ends of which rest and slide within said grooves, substantially as set forth.

2. The combination, with a supporting-frame provided with ratchets, of a head-rest pivotally secured thereto, the said head-rest having two or more grooves on the inner faces thereof and pillows adjustably secured therein, and means for securing the head-rest in elevated and lowered adjustment.

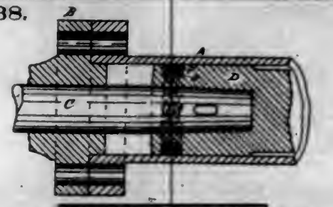
3. The combination, with a supporting-frame provided with ratchets, of a head-rest pivotally secured thereto, the said head-rest having two or more grooves on the inner faces thereof, and pillow-frames having springs on the ends thereof adapted to fit in said grooves, and pawls secured to said head-rest for adjustably supporting the same, substantially as set forth.

4. The combination, with a supporting-frame provided with ratchets, of a head-rest secured thereto, said head-rest having two or more grooves in its inner faces, and pillow-frames having semi-elliptical springs secured thereto, substantially as set forth.

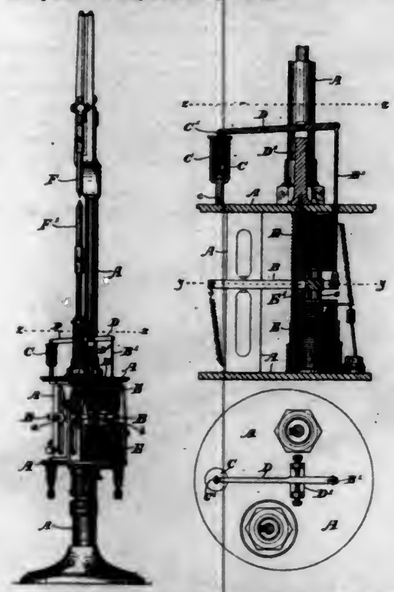
319,538. PISTON-HEAD PACKING FOR ROCK-DRILLS. LEANDER S. WOODBURY, Calumet, Mich. Filed Jan. 8, 1885. (No model.)

Claim.—In a rock-drill, the packing P, consisting of a series of rings of fibrous material of a compact nature—such as leather, rawhide, compressed or vulcanized fiber—each ring being cut substantially as shown, and placed in the groove of the piston-head, as shown, so as to break joints with each other, the groove being filled, yet so as to give the rings a free chance for expansion, as described, in combination with the spring S, the piston D, and cylinder A, all arranged substantially as shown, and for the purpose herein specified.

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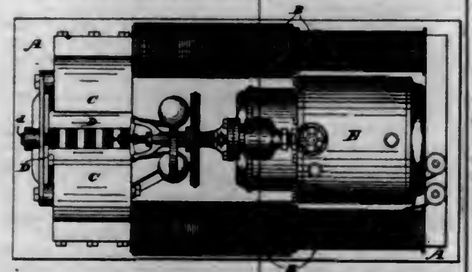
319,539. ELECTRIC LAMP. LEONIDAS G. WOOLLEY, Indianapolis, Ind., assignor to the Woolley Locomotive Electric Headlight Company, same place. Filed May 16, 1884. (No model.)



Claim.—1. In an electric lamp, the combination, with the pivoted frame carrying the governing mechanism and the dash-pot, of a lever, one end of said lever being connected to the piston of said dash-pot, and the other end being connected to said pivoted frame, its fulcrum being located nearest the end which is connected to the frame.

2. The combination, in an electric lamp, of the frame B, dash-pot C, and lever D, the fulcrum of said lever being located at one side of the center, and its long end being connected to the piston of the dash-pot and the short end to the pivoted frame, substantially as set forth.

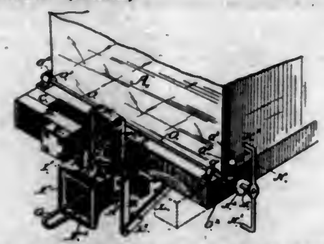
319,540. DYNAMO-ELECTRIC MACHINE. LEONIDAS G. WOOLLEY, Indianapolis, Ind., assignor to the Woolley Locomotive Electric Headlight Company, same place. Filed Apr. 15, 1884. (No model.)



Claim.—1. The combination of the dynamo-electric machine, the rotary engine for driving the same, a common shaft for the engine and the armature of the dynamo, and a common bed upon which said engine and said dynamo are both mounted, said engine being located between the limbs or coils of said dynamo, substantially as set forth.

2. The combination of the dynamo-electric machine, the engine for driving the same, and a common bed upon which both are mounted, said engine being located between the limbs or coils of said dynamo, substantially as set forth.

319,541. CAR-COUPLING. WILLIAM B. ZERR, Reading, Pa. Filed Apr. 16, 1885. (No model.)



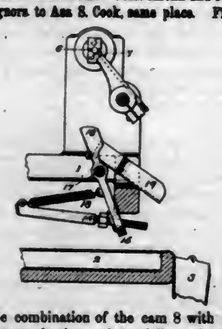
Claim.—1. In combination with a draw-head for an ordinary link-coupled car, the slotted yoke H, with cross-heads I P, provided with guides I' P', moving in slot H', a coupling-pin, J, connected with head I, and a sub-pin, Q, with the head P, a spiral spring, P', or its equivalent between the yoke H and head P, a foot, Q', attached to the pin Q, journals P', links K, arms L, transverse shaft M, levers N, and handles N', substantially as shown, and for the purpose set forth.

2. In combination with a draw-head link-coupler and its transverse actuating-shaft, as described, ratchet-wheels N', pawls O', counter-weights O' on rods O', and set-screws O', the pawls arranged to act upon and to release simultaneously from the ratchets on opposite sides of the car by attachment at opposite ends of a transverse shaft, O, secured in boxes O' at the front and rear on the end sills, B, as shown, and for the purpose set forth.

3. In combination with a draw-head link-coupler, as shown and described, the link-guide F' in the mouth of the draw-head, and the recesses F' at the rear of the draw-head in line with the sub-pin Q and corresponding with the foot Q' of the same, the cross-head P, spring P', yoke H, head I, pin J, links K, arms L, shafts M O, levers N, handle N', pawls O', and counter-weights O', whereby the link is held for engagement with or it is released from the draw-head, as and for the purpose set forth.

4. In combination with a draw-head provided with a slotted yoke, H, cross-heads I P, pins J Q, foot Q', guide F', recesses Q', spring S, saddle R, spring S', bolt U, washer T, nut U', and key U', the whole arranged as shown, and adapted to operate in connection with links K, arms L, shafts M O, levers N, handles N', ratchet N', and pawls O', substantially as and for the purpose set forth.

319,542. SCREW-MACHINE. JOHN ALGER and JOHN F. COOK, Hartford, Conn., assignors to Ann S. Cook, same place. Filed Mar. 14, 1885. (No model.)



Claim.—1. The combination of the cam 8 with the chute 16 by means of intermediate mechanism, substantially as described.

2. The combination, by means of intermediate mechanism, substantially as described, of the cam 8 with the chutes 16 and 19, all substantially as set forth.

319,543. MARKING-TAG. AARON APPEL, Chicago, Ill. Filed Nov 17, 1884. (No model.)

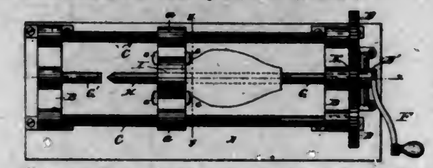


Claim.—1. An improved marking-tag comprising a flat top layer and an under layer provided with a depression or groove forming a straight pin-receiving passage across the middle of the tag, combined with a removable straight fastening-pin adapted to pass through said passage, and when thus applied to extend beyond both ends of the passage, to admit of its engagement with the material upon which the tag is secured, substantially as described.

2. An improved marking-tag comprising a flat top layer and an under layer provided with a depression or groove forming a straight pin-receiving passage, said under layer being narrower lengthwise of the passage than the tag-body, combined with a removable straight fastening-pin adapted for insertion through the passage of the tag, said pin being longer than the passage, but shorter than the width of the tag-body, so that when applied it may be concealed by the same, substantially as described.

3. An improved marking-tag comprising a flat tag-body having across its middle a loop forming a straight transverse pin-receiving passage, which is parallel with the plane of the tag-body and of a less length than the width of the same, combined with a straight fastening-pin, which is longer than the passage and shorter than the width of the tag-body, said tag-body being provided with a notch, *c*, opposite one end of the pin-passage, substantially as and for the purpose set forth.

319,544. MACHINE FOR STRIPPING PRINTERS' ROLLERS. H. BAKER, Catskill, N. Y. Filed Apr. 11, 1884. (No model.)



Claim.—1. In a machine for stripping printers' rollers, the combination of a perforated plate adapted to receive and closely embrace the core of the roller with parallel screw-shafts mounted to rotate on each side thereof, and with nuts traveling upon said screws, by which the plate is moved back and forth along the same to or from a bearing for one end of the roller, substantially in the manner and for the purpose herein set forth.

2. The combination, in a machine for stripping printers' rollers, with a traveling frame mounted between a pair of screw-shafts to be moved by their rotation to or from a stationary support from one end of the roller, of detachable perforated stripping-plates adapted to be fitted and secured in or removed from the frame and to embrace the core of the roller to be stripped, substantially in the manner and for the purpose herein set forth.

319,545. STEAM-BOILER. MILES W. BARSE, Olean, N. Y. Filed Nov. 8, 1884. (No model.)



Claim.—1. In a steam-generator, the combination, with a water-drum, of the hollow fire-bridge connected to the under side of said drum and the pairs of water-tubes projecting across the fire-box, one of the tubes of each pair communicating with the rear portion of the interior of the fire-bridge, and the other with the front thereof, substantially as and for the purpose described.

2. In a steam-generator, the combination, with the water-drum, of the hollow fire-bridge connected to the under side of said drum, the water-tubes straight from one end to the other, but diverging from their elbow-box, and communicating with the interior of the fire-bridge, as set forth, and arranged to project across the fire-box, substantially as described.

3. In a steam-generator, the combination, with the brick-work of the furnace, of the water-drum, the hollow fire-bridge arranged to communicate with the under side of said drum, the water-tubes projecting from the fire-bridge into the fire-chamber, and entering at acute angles their removable elbow-caps, and the covered man-holes formed in the brick-work of the furnace opposite said elbow-caps, substantially as and for the purpose described.

4. In a steam-generator, the water-tubes of unequal lengths, arranged in pairs at an angle one with the other, in combination with the elbow-box J, formed with the hand-hold J', arranged in line with the interior of both of said tubes, the internally-arranged cap-plate J', and externally-arranged crab-collar J', and the bolt J', substantially as and for the purpose described.

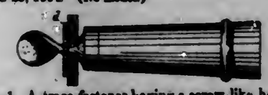
5. The combination, with the water-leg, hollow fire-bridge, or water-reservoir of a steam-generator, of the water-tubes of unequal length, arranged one above the other, to project from said water-reservoir into the fire-space and re-enter said reservoir at their upper ends in a plane parallel with and outside of the vertical plane in which their lowermost ends terminate, substantially as and for the purpose described.

6. The combination, with the water-leg, hollow fire-bridge, or water-reservoir of a steam-generator, of the water-tubes formed of sections of unequal lengths, arranged one above the other, to project from one side of said reservoir, substantially as and for the purpose described.

7. The combination, with the hollow fire-bridge, of a steam-generator formed of straight tubes of unequal length, arranged in series upon opposite sides of said fire-bridge, to project into the fire-spaces in front and in rear thereof, and communicate with the interior of the fire-bridge and terminate therein upon opposite sides thereof, substantially as described.

8. The combination, in a steam-generator, of the water-drum, the hollow fire-bridge communicating therewith, the water-tubes projecting from said fire-bridge into the fire-chamber, and terminating upon opposite sides of said fire-bridge, and a diaphragm-plate, *k*, arranged across the neck or conduit connecting the fire-bridge and water-drum, substantially as and for the purpose described.

319,546. TRACE-FASTENER. CHARLES L. BELLAMY, Arlington, N. J. Filed Oct. 23, 1884. (No model.)

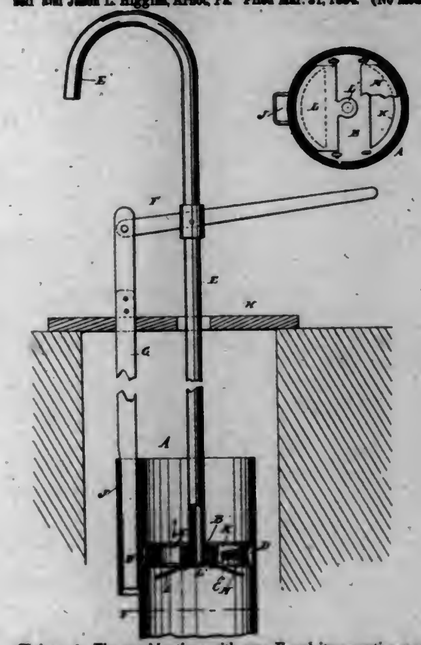


Claim.—1. A trace-fastener having a screw-like head or extremity, substantially as and for the purposes set forth.

2. A trace-fastener consisting of the shank *a*, neck *b*, and twisted or screw-like flange *c*, substantially as set forth.

3. In combination, a fastener having a screw-like head, and a trace with a metallic re-enforcing plate at the eye thereof.

319,547. PUMP. CHARLES H. BENNETT, Bloomsburg, assignor to himself and Jason L. Higgins, Arnot, Pa. Filed Mar. 31, 1884. (No model.)

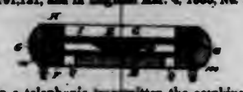


Claim.—1. The combination, with pipe E and its operating mechanism, of the piston B, having a central aperture through which the lower end of the pipe passes, a valve on said piston opening downward at the upstroke, and a valve at the base of the pipe E, connected with the piston-valve and closing on the upstroke, and the cylinder A, open at its upper end, substantially as described, whereby when the pipe and piston are forced down the piston-valve will close and the pipe-valve will

open to allow water to pass into said pipe, and when raised the piston-valve will open and the pipe-valve close to retain the water.

2. In a pump, the combination, with the cylinder A, the piston B, and the pipe E, secured on the piston, of a hinged valve provided with a wing for closing the lower end of the pipe E, substantially as herein shown and described.

319,548. TELEPHONE-TRANSMITTER. ALFRED BERTHON, Paris, France. Filed Nov. 14, 1884. (No model.) Patented in France Mar. 22, 1884, No. 161,121, and in England Mar. 4, 1885, No. 2,893.



Claim.—1. In a telephonic transmitter, the combination, with a vibratory carbon plate supported at the edges and a carbon back plate, of interposed carbon particles loosely confined in contact with said plates, substantially as described.

2. The two carbon plates, both supported at the edges, so as to be capable of vibrating, in combination with the interposed particles of conducting material, such as carbon, loosely confined in contact with said plates, substantially as described.

3. The combination, with the vibratory carbon-plate supported at the edges and the loose particles of conducting material, of the carbon back plate supporting the cup of non-conducting material, whereby the loose particles of conducting material are held in contact with the aforesaid vibratory plate, substantially as described.

4. The two vibratory plates of carbon supported at the edges, in combination with an interposed medium of high resistance for completing the circuit between said plates, so as to allow the resistance of such circuit to be varied in accordance with the vibrations of said plates, substantially as described.

5. In a telephone-transmitter, and in combination with the vibratory diaphragm and the conducting particles, the cup of non-conducting material for containing said particles, the same being flaring or funnel-shaped, substantially as described.

6. The combination, with the vibratory front plate and the back plate, both inclined to the horizontal, of the flaring or funnel-shaped cup of non-conducting material and the loosely-confined particles of conducting material, substantially as described.

7. In a telephone-transmitter, the combination, with the diaphragm and back plate, of a rigid cup attached to the back plate and separated from the diaphragm, and the mass of loose conducting particles partly filling said cup, so that when the instrument is horizontal no circuit is established through the instrument, but when the latter is raised the particles fall forward and complete the circuit, substantially as described.

8. In a telephone-transmitter, the combination, with the diaphragm, of a rigid cup and the small irregular carbon particles loosely confined in said cup at the center of the diaphragm, the said particles constituting the variable-resistance medium, substantially as described.

9. The combination of the case having the back open or perforated, the two vibratory plates supported at the edges in said case, and the variable-resistance medium between said plates, substantially as described.

319,549. PROCESS OF TREATING POMACE FOR KEEPING THE EXTRACT CLEAR. ACHILLES BLAKER, Shadd, Oreg., assignor of one-half to A. Wheeler, same place. Filed Mar. 16, 1885. (No specimens.)

Claim.—1. The improvement in treating pomace to obtain a clear liquid extract, consisting in grinding the fruit or otherwise forming the pomace in or introducing it into the presence of sulphur-fumes or other suitable vapors or gases before it is subjected to the pressing operation, substantially as herein described.

2. The improvement in treating pomace, consisting in forming the pomace in or introducing it into the presence of sulphur-fumes before it is subjected to the pressing operation, whereby the liquid extracted is obtained clear, substantially as herein described.

3. The improvement in treating apple-pomace to obtain a clear cider, consisting in grinding the apples or otherwise forming the pomace in or introducing it into the presence of sulphur-fumes before it is subjected to the pressing operation, substantially as herein described.

4. The improvement in obtaining a clear liquid extract from pomace, consisting in grinding the fruit or otherwise forming the pomace in or introducing it into the presence of sulphur-fumes, and in subsequently pressing the pomace thus treated to obtain a clear extract, substantially as herein described.

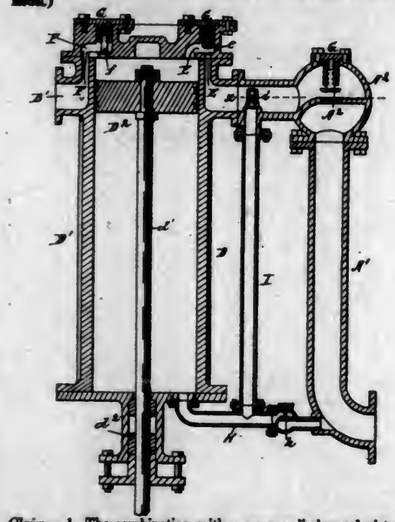
319,550. TRUNK-FASTENING. GILBERT H. BLAKESLEY, Bristol, assignor to the Corbin Cabinet Lock Company, New Britain, Conn. Filed Dec. 12, 1882. (No model.)

Claim.—A trunk-fastener consisting in the combination of two plates provided with dowel and socket interlocking devices, with a loop or hasp hinged to one plate, and provided on its free end with a catch that engages a projection on the opposite plate, substantially as set forth.

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319,551. ICE-MACHINE. JOHN BOUCHARD, Chicago, Ill., assignor of one-half to George H. Webster, same place. Filed Jan. 5, 1885. (No model.)



Claim.—1. The combination, with a pump-cylinder and piston, the said cylinder being provided at one end with an inlet and an outlet port controlled by suitable valves, of the pipe A′, connected to the said inlet-port and provided with a valve, A^2, and the suction-pipe connecting the said pipe A′ with the other end of the cylinder beyond the said valve A^2, said suction-pipe being itself provided with a suitable check-valve and connected to the pipe A′ between the valve A^2 and the cylinder, substantially as and for the purposes specified.

2. The combination, with the pump-cylinder having its inlet and outlet valves arranged at one end, of the inlet-pipe provided with a suitable valve, and a suction-pipe connecting the portion of the inlet-pipe beyond the said valve with the other end of the cylinder, the said suction-pipe being connected to the inlet-pipe between its valve and the cylinder by a suitable connecting-pipe provided with a valve at its junction with the inlet-pipe, and the said suction-pipe being also provided with a valve arranged between the connecting-pipe and the inlet-pipe, substantially as and for the purposes specified.

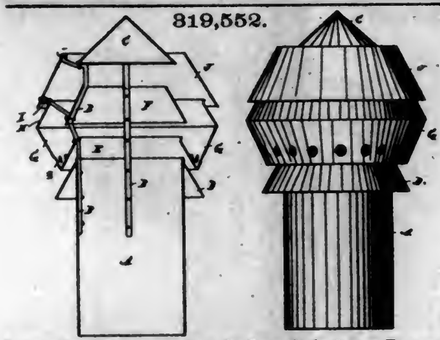
3. The combination, with the pump-cylinder D′, of the inlet-pipe A′, connected therewith at one end through an inlet-port, E, controlled by a valve, *e*, said inlet-pipe being provided with a valve, A^2, of the suction-pipe H, connecting the said inlet-pipe beyond the valve A^2 with the other end of the cylinder, and having a valve, *h*, and pipe I, connecting the pipes H and A′ on that side of their valves nearest the pump-cylinder, and provided itself with a valve, *i*, substantially as and for the purposes specified.

4. The combination, with the pump proper, of the inlet-pipe connected thereto at both ends, a pipe connecting the pipes which connect the inlet-pipe to the two ends of the cylinder, and valves, arranged substantially as described, to control the flow of the gas through the said pipes, substantially as and for the purposes specified.

319,552. CHIMNEY-COWL. THOMAS J. BRADSHER, Detroit, Mich., assignor of one-half to Putnam & Wineman, same place. Filed Mar. 25, 1885. (No model.)

Claim.—1. The flue A, provided with deflecting-flange D, combined with the standards B, secured to said flue, the deflecting-frustum

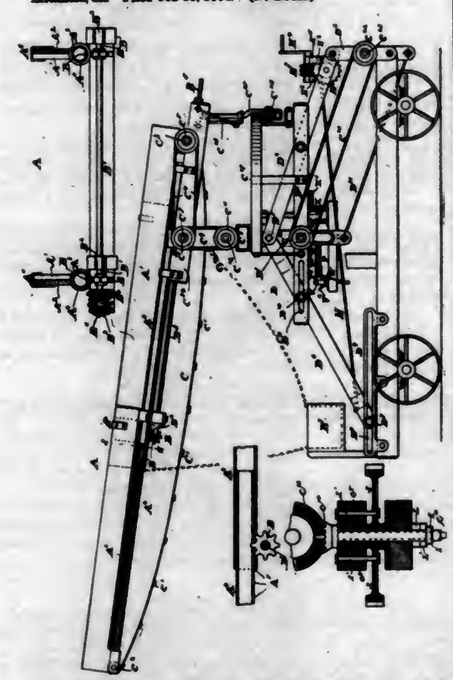
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E, secured to said standards above the flange D, the frustum F, secured to the standards above the frustum E, inverted frustum G, secured to the bottom of the frustum E, and the cone C, of smaller diameter than said flue and supported by said standards, substantially as described.

2. The improved chimney-cowl herein described, consisting of the flue A, standards B, cone-cap C, of smaller diameter than said flue and supported by said standards, deflecting-frustums E F, inverted frustum G, secured to the bottom of said frustum E, and having openings *a*, frustum H, secured to the frustum G, and the upper frustum, J, rigidly secured to the outer ends of the standards B, all arranged and operating as and for the purpose specified.

319,553. STRAW-STACKER. ISAAC BROKAW and WESLEY BUTLER, Litchfield, Ill. Filed Oct. 13, 1884. (No model.)



Claim.—1. In a straw-stacker, the elevator-frame made in two parts, in combination with the telescoping tubes and means for adjusting them, substantially as set forth.

2. In a straw-stacker, the elevator-frame made in two parts, in combination with the inner tubes, outer perforated tubes, sprocket-wheels engaging the perforated tubes, shaft to which the sprocket-wheels are secured, shaft for turning the sprocket-shaft, and miter-wheels connecting the shaft, as set forth.

3. In a straw-stacker, the sectional adjustable elevator-frame and raddle, in combination with the truck and box secured to the truck for holding the raddle when the elevator-frame is contracted, as specified.

4. In a straw-stacker, the combination of the elevator-frame, the toggle-frame, bolster, circular track, hanger for connecting the rear end of the elevator-frame to the track, and means for adjusting the toggle-frame, substantially as set forth.

5. In a straw-stacker, the combination, with the elevator-frame and truck, of the toggle-frame consisting of a vertical part, inclined parts by which the vertical part is supported on the truck, side pieces connecting the inclined parts, one of the inclined parts being adjustable toward the other part, substantially as set forth.

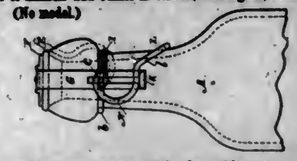
6. In a straw-stacker, the combination, with the elevator-frame and truck, of the toggle-frame consisting of a vertical part, inclined parts, and side pieces, supports for the toggle-frame on the truck, and ropes or chains and drum by which one inclined part is adjusted toward the other part, substantially as set forth.

7. In a straw-stacker, the combination of the shaft O^{10}, sleeve O′ with right and left threads, shaft P with cogs P′ P^6 and crank P^5, pitman T, crank-shaft T^2, arm V with projections V^2, rod V′, lever U^2, shaft U, projection U′, shaft C^{10}, sleeve I, collars L L′, with cams L^2 L^3, segment J, pinion N′, shaft N, and cog-wheel N^2, all arranged and operating substantially as and for the purpose set forth.

8. In a straw-stacker, the slotted pitman T, crank-shaft T^2, in combination with the elevator-frame and devices, substantially as described, by which lateral vibration is imparted to the elevator-frame.

9. In a straw-stacker, the shaft O^{10}, threaded sleeve O, sliding cog-wheel N^2, shaft N, clutch X, and lever X′, in combination with the elevator-frame and devices, substantially as described, by which lateral vibration is imparted to the elevator-frame.

319,554. BOTTLE-STOPPER. HIRAM P. BROOKS, Brooklyn, N. Y., assignor to himself and James L. Carson, Torrington, Conn. Filed Mar. 2, 1885. (No model.)



Claim.—The combination, with the rubber stopper E and button F, of the bail G, slotted longitudinally near the lower ends thereof, the neck-band *b*, having projecting ends passing through slots in the bail G, a lever with two arms pivoted at their ends to the ends of the neck-band wire, and the feet K, projecting at the lower ends of the bail, against which the cam portions N of the lever L act, substantially as set forth.

319,555. SPRING. WILLIAM I. BUSHEE, Chicago, Ill. Filed Jan. 27, 1885. (No model.)



Claim.—1. As a new article of manufacture, a compound compression and extension spring comprising two or more series of coils around the same longitudinal axis, the coils of one series being adapted to be opened or extended as the coils of the other are closed or compressed, substantially as described.

2. As a new article of manufacture, a compound compression and extension spring consisting of alternating series of coils, the coils of one series being adapted to be opened, or closed, or compressed, substantially as described.

3. As a new article of manufacture, a compound compression and extension spring consisting of two or more series of coils around the same longitudinal axis, the coils of one series approaching each other in a state of rest, and requiring the application of positive force to open or extend them, and the coils of the other separating from each other in a state of rest, and requiring the application of positive force to close or compress them, substantially as described.

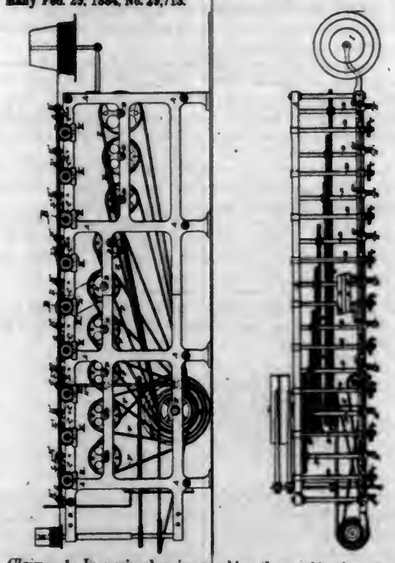
4. As a new article of manufacture, a compound compression and extension spring consisting of two or more series of coils around the same longitudinal axis, the coils of one series being adapted to be extended and the coils of the other compressed, the whole being placed between end caps, pieces, or plates, whereby the ends of the spring are prevented from being separated beyond a predetermined distance, substantially as described.

5. The combination, in a compound compression and extension spring consisting of coils approaching or lying against each other in a state of rest, and coils opened or separated from each other in a state of rest, of end caps or pieces and a connector between said end caps or pieces, substantially as described.

6. The combination, with a buggy or other machine, of a compound compression and extension spring consisting of coils approaching or lying against each other in a state of rest, and coils opened or separated from

each other in a state of rest, and end caps or pieces to prevent the end coils from separating from each other beyond a fixed predetermined distance, and brackets or connectors for securing and holding the spring to the connected parts or pieces, substantially as described.

319,556. MACHINERY FOR THE MANUFACTURE OF WIRE. SAMUEL H. BYERS, Brighouse, County of York, England. Filed Feb. 23, 1884. (No model.) Patented in England Jan. 5, 1884, No. 318; in France Feb. 23, 1884, No. 160,516; in Belgium Feb. 23, 1884, No. 64,252, and in Germany Feb. 29, 1884, No. 29,713.



Claim.—1. In a wire-drawing machine, the combination of a suitable roller for drawing the wire along and a rotary die for reducing the wire, substantially as set forth.

2. The combination of the series of rollers around which the wire passes, mechanism for rotating these rollers, the series of rotating dies, and their holders, substantially as and for the purpose set forth.

3. The combination of the main shaft, its pulleys, of various sizes, the series of axes D, their pulleys driven by belt-connection with pulleys of the main shaft, the series of axes B, the rollers thereon around which the wire passes, the cone-pulley and belt connections between the axes B and D, the series of rotary dies, their shaft, and the mechanism for driving said shaft from the main shaft, substantially as and for the purpose hereinbefore set forth.

4. In a wire-drawing machine, the combination, with the rotary dies and drawing-rollers, of cone-pulleys and belts for independent regulation of the speed of rotation of each roller, substantially as set forth.

5. The combination of the series of dies, the series of rollers around which the wire passes, and the oil-vessels provided with wicks in contact with which the wire passes in advance of the rollers, substantially as and for the purpose set forth.

6. The combination of the series of rotary dies, the series of rollers around which the wire passes, and means for supplying oil and aqueous lubricant to the wire, substantially as and for the purpose set forth.

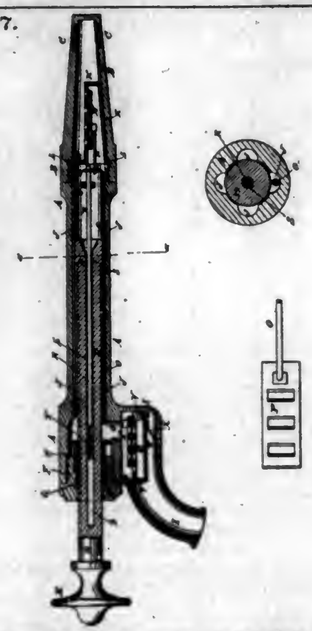
7. The combination of the series of dies, the series of rollers around which the wire passes, the oil-vessels provided with wicks in contact with which the wire passes in advance of the rollers, and the tanks provided with the aqueous lubricant into which the rollers dip, substantially as and for the purpose set forth.

319,557. PUMP-FAUCET. PETER J. CÆSAR, Chippewa Falls, Wis., assignor to himself, GUSTAV CÆSAR, MARTIN NEWMAN, and LORENZO M. NEWMAN, all of same place. Filed Apr. 23, 1884. (No model.)

Claim.—1. In a pump-faucet, the combination, with a cylinder and its plunger, of an inlet and outlet valve connected to the plunger, substantially as herein shown and described, whereby the said valves will be alternately opened and closed by the longitudinal movement of the plunger, as and for the purpose set forth.

2. In a pump-faucet, the combination, with a cylinder and its plunger, of an inlet-valve, an outlet-valve, and connecting-rods for connecting the valves together and to the plunger, substantially as herein shown and described, whereby provision is made for drawing liquid from a closed vessel without the admission of air to the same, as set forth.

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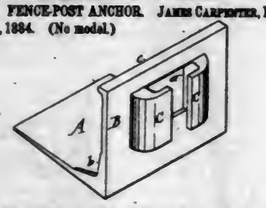
3. In a pump-faucet, the combination, with the cylinder A and the plunger D, having longitudinal perforations, of the valves K M and Q P, the rods R O N, and the rod and spring R T, substantially as herein shown and described, whereby the said valves will be opened and closed by the movements of the said plunger, as set forth.

4. In a pump-faucet, the combination, with the cylinder A, provided with inlet and outlet valves connected together, of the cylindrical plunger D, and the rod R, secured in the cylindrical plunger by its spring T, and connected to said inlet and outlet valves, substantially as herein shown and described.

5. In a pump-faucet, the combination, with the cylinder A, the plunger D, and the annular screw-plug G, of the screw-sleeve H, connected with the said plunger, substantially as herein shown and described, whereby the packing can be compressed by turning the said plunger, as set forth.

6. In a pump-faucet, the combination, with the discharge-valve Q P, having flange V, of the hinged plate W and its spring X, substantially as herein shown and described, whereby the inward leakage of air through the said valve will be prevented, as set forth.

319,558. FENCE-POST ANCHOR. JAMES CARPENTER, Moravia, N. Y. Filed Mar. 1, 1884. (No model.)



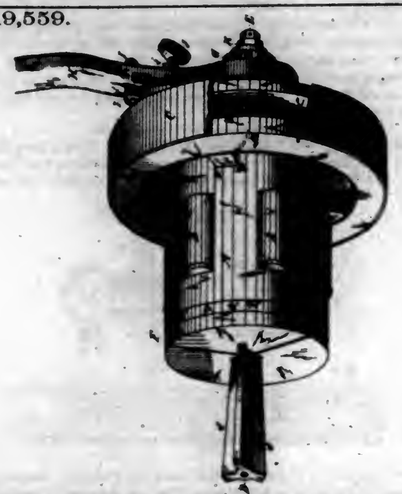
Claim.—1. The within-described fence-post anchor, consisting of a base-plate, a wall rising from said base, post-gripping projections on the side of the wall, an opening in the wall back of the gripe, and a reenforcing rib along the top edge of the wall, all formed in one piece of metal, substantially as described and shown.

2. The anchor consisting of the base A and vertical wall B, provided with gripe C C, all formed in one piece, as described, in combination with the T-post P, inserted with its web between the gripe C C, and upset at the base of the anchor, substantially in the manner shown and set forth.

319,559. BOILER-TUBE EXPANDER. MICHAEL CASHIN, San Francisco, Cal. Filed Aug. 26, 1884. (No model.)

Claim.—1. In an implement, tool, or machine for expanding the ends of boiler-tubes, the head C, consisting of an outer disk and an inner ring, separated to form a peripheral slot, and held together by an encircling-band, said head having radial guides c, in combination with the cylinder-block A, composed of sectors having flanges *a* on their rear ends fitting within the slot of the head, and grooves *a'*, fitted upon the radial guides *c*, the central wedge, D, by which the block is expanded, and the screw E, by which the wedge is operated, all arranged and adapted to operate substantially as herein described.

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2. In an implement, tool, or machine for expanding the ends of boiler-tubes, the head C, having the peripheral slot and radial guides *c*, the segmental block A, having flanges *a* fitting in the slot of the head, and grooves *a'* fitted on the guides *c*, the rollers B on the block, the encircling-spring F, the wedge D, and screw E, all as described, in combination with the ratchets G, fixed on the hub of the head and having oppositely-arranged teeth, the loosely-playing lever K between the ratchets, the spring-pawls I on each side of the lever, adapted to engage with the ratchets, and the winged thumb-shaft J, passing through the lever, to throw the pawls alternately out of or into engagement with the ratchets and reverse the direction of revolution of the implement, substantially as herein described.

319,560. SNAP-HOOK FOR REINS. FRANK H. CHAPMAN, Meriden, Conn., assignor of one-half to Stephen O. Parker, same place. Filed Mar. 30, 1885. (No model.)



Claim.—1. The herein-described snap-hook, comprising the hollow casing or body, a loop at one end, and an open frame at the other end thereof, and a sliding stem working in the casing, and carrying a block working within and guided by the frame, and cushioned at the front end, as set forth.

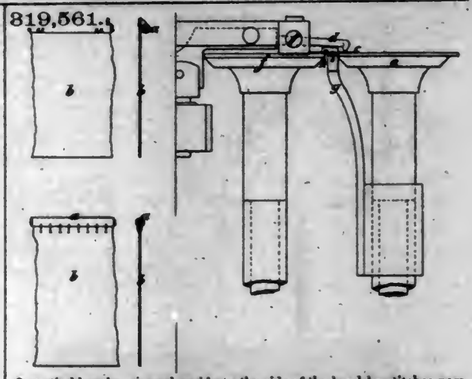
2. In a snap-hook, the casing or body A and a frame, C, projecting therefrom, in combination with the sliding stem and a block or enlargement provided on the end of the stem, the said frame C entirely inclosing the stem and its block, the latter working against the side bars of the frame and serving to hold the check-rein between it and the front bar thereof, as set forth.

319,561. ATTACHING WIRE OR SPRINGS TO HAT-LEATHERS, &c. FREDERICK W. CHESTHAM, Hyde, County of Chester, England. Filed June 10, 1884. (No model.) Patented in England May 29, 1884, No. 8,366; in France June 15, 1884, No. 162,975; in Belgium June 27, 1884, No. 65,596, and in Germany July 21, 1884, No. 30,474.

Brief.—The machine herein shown, that may be employed in carrying out the method, has a guide on each side of the feeding mechanism, the guide in front having a notch to receive the edge of the leather and a hole to guide the covered spring in relation to the sewing mechanism. A hand-tool may be used to force the covered spring, after being sewed to the leather, back into the required position at the extreme edge of the leather. Patented in Great Britain, No. 8,366, dated May 29, 1884; in France, dated June 15, 1884, No. 162,975; in Germany, dated July 21, 1884, No. 30,474, and in Belgium, dated June 27, 1884, No. 65,596.

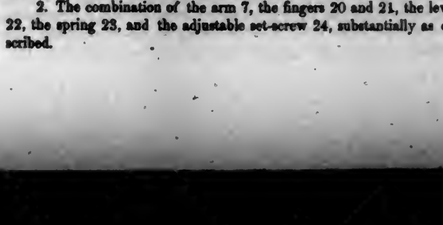
Claim.—The method herein described of securing covered wire or other springs to the sweat-bands of hats, said method consisting in

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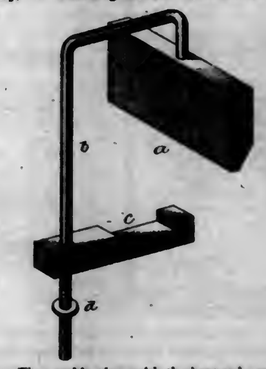
first stitching the covered spring to the side of the band by stitches passing through and over the edge of the band, and then turning the stitched spring into position on the extreme edge of the band, substantially as set forth.

319,562. DRIER. JOHANN H. COHRS, Hamburg, Germany. Filed Mar. 21, 1885. (No model.) Patented in Germany Mar. 3, 1883, No. 23,975, and in England Aug. 12, 1884, No. 11,206.



Claim.—The combination of the drying-chambers R, having openings in the upper part for the air, the double floors *m i*, having openings in the upper part for the passage of the air, and the air-shafts L, having lateral communication with the space within the double floors, all substantially as described, and with reference to the accompanying drawings.

319,563. CLOTHES-CLAMP FOR BEDS. FLETCHER M. CONNER, Henrico County, Va. Filed Aug. 28, 1884. (No model.)



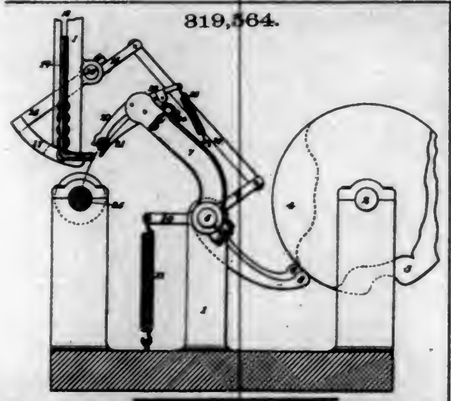
Claim.—The combination, with the bent rod, screw-threaded and provided with a nut, as described, of the upper clamping-block secured to said rod, and the lower clamping-block working on said rod, as described, and adapted to clamp and hold the bed-clothing down between the side rails of a bed and the bed, substantially as set forth.

319,564. SCREW-MACHINE. ASA S. COOK, Hartford, Conn. Filed Mar. 14, 1885. (No model.)

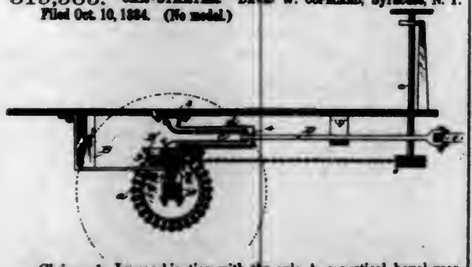
Claim.—1. The combination of the pivoted fingers 20 and 21 with the lever 22 and the spring 23, substantially as described.

2. The combination of the arm 7, the fingers 20 and 21, the lever 22, the spring 23, and the adjustable set-screw 24, substantially as described.

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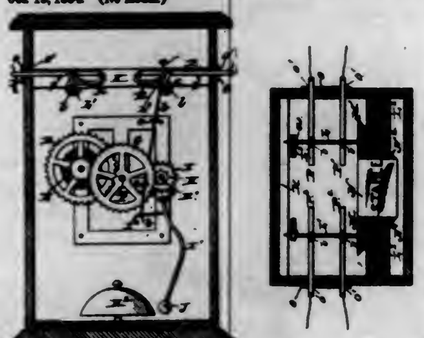
319,565. CAR-STARTER. DAVID W. COPELAND, Syracuse, N. Y. Filed Oct. 10, 1884. (No model.)



Claim.—1. In combination with the axle A, a vertical bevel-gear fixed thereon, a horizontal mutilated bevel-gear mounted on a crank, a draft-bar attached to the crank, and means for returning the crank to the rear, all substantially as described.

2. In combination with the axle A, the bevel-gear *a*, mutilated gear B, crank C, having bearings and pulley on lower wrist, the bar attached to the crank, the shaft *c*, and the chain connecting the pulleys, all substantially as described.

319,566. BURGLAR-ALARM. FRANK CROSS, Washington, Ind. Filed Oct. 18, 1884. (No model.)

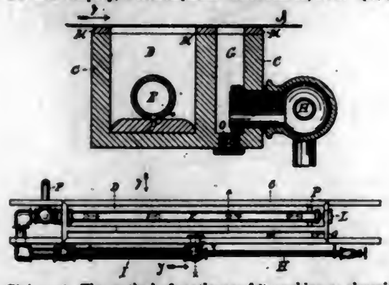


Claim.—1. The combination of the inclosing-case having an opening in one of its sides with the revolving indicating-cylinder journaled in the case behind the opening, the shafts journaled in the case, having spur-wheels and gearing connecting said shafts with the revolving indicating-cylinder, and the slides having rack-bars that mesh with the spur-wheels on the shafts, and stops for limiting the movement of the slides, substantially as described.

2. The combination of the inclosing-case having an opening in one of its sides with the revolving indicating-cylinder journaled in the case behind the opening, the shafts journaled in the case, having spur-wheels and gearing connecting said shafts with the revolving indicating-cylinder, the slides having rack-bars that mesh with the spur-wheels on the shafts, stops for limiting the movement of the shafts, the gong, the striking mechanism, and the trip-rod for releasing the striking mechanism, and the cam on one of the shafts for raising the rod, substantially as described.

3. The combination of the inclosing-case with the gong, the striking mechanism having the bell-lever provided with an eye, the trip-rod which enters the eye of the bell-lever, the shaft journaled in the case, having spur-wheels, and the cam secured to the shaft for raising the trip-lever, and the slides having rack-bars meshing with the spur-wheels on the shaft, substantially as described.

319,567. FELT-CLEANING APPARATUS. GEORGE DUNN, Middletown, Ohio, assignor to himself, and the Rice, Barton & Fales Machine and Iron Company, Worcester, Mass. Filed Jan. 12, 1885. (No model.)



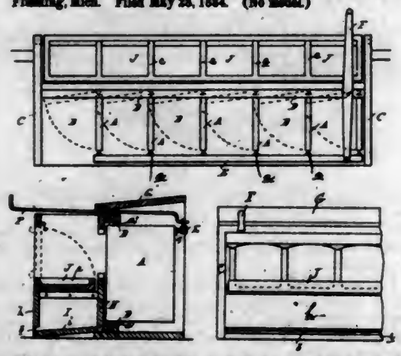
Claim.—1. The method of continuous felt washing or cleansing on paper-making machines while the machine is in operation by passing the outside of the felt, after it has delivered the pulp, over and in contact with warm water in a suitable tank or box gaged to the widest sheet of paper made on the machine, so as to leave the edges of the felt dry, and thence over a vacuum-box, substantially in the manner and for the purposes set forth.

2. The combination of the steam-pipe H with the vacuum-box G and hot-water tank D, provided with perforated pipe E, substantially as and for the purpose set forth.

3. In a paper-making machine, the combination, with the outside of the felt or felts, of a hot-water receptacle or tank, D, and perforated water and steam pipe E, substantially as and for the purpose set forth.

4. The combination, with the outside of the felt or felts of a paper-making machine, of a vacuum-chamber, G, steam-pipe H, exhaust-pipe *g*, and outlet J, substantially as and for the purpose set forth.

319,568. COMBINED FEED-RACK AND STALL. JESSE H. DUNGER, Flushing, Mich. Filed May 29, 1884. (No model.)



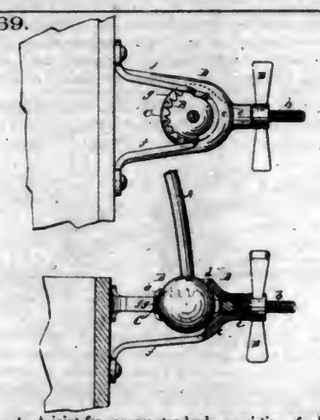
Claim.—1. A feed-rack with pivotally-supported division-walls A, forming stalls B, each of said division-walls being pivotally secured to the bar E, whereby said walls may be operated simultaneously, substantially as and for the purposes specified.

2. A feed-rack with pivotally-supported division-walls A, forming stalls B, each of said division-walls being pivotally secured to a common bar, E, in combination with the lever F, pivotally connected to said bar and to the top rail D, whereby said walls A may be operated simultaneously, substantially as and for the purposes specified.

3. A feed-rack with pivotally-supported division-walls A, forming stalls B, each of said division-walls being pivotally secured to a common bar, E, and a lever, F, for moving such division-walls, in combination with a hay-box, I, having an inclined bottom, and a grain-box, J, the parts being constructed, arranged, and operating substantially as and for the purposes specified.

319,569. STANDARD FOR CHILDREN'S CARRIAGES. GEORGE A. ELLIS and EDWARD L. TAFT, Gardner, Mass., assignors to Henry Heywood, George Heywood, Alvin M. Greenwood, and Amos Merrill, same place. Filed Dec. 11, 1883. (No model.)

319,569.



Claim.—1. A joint for canopy-standards, consisting of a ball, B, in combination with a ring, *g*, provided with teeth *a*, and a bracket, D, as and for the purpose described.

2. In a canopy-standard joint, the following elements in combination: a standard, A, ball B, ring *g*, with teeth *a*, and a screw-shank, *b*, formed thereon, a bracket, D, with a dome-recess, *c*, and a wing-nut, E.

3. In a canopy-standard joint, the bracket D, having the recessed dome *c*, provided with a bevel-edge, *d*, a neck, *e*, and legs *f*, combined with a standard, A, and its ball B, and a ball-seat and means to operate it to draw the ball within the dome, substantially as described.

319,570. COMBINATION-POCKET FOR PANTALOONS. JULIUS FEISS, Cleveland, Ohio. Filed Dec. 29, 1884. (No model.)

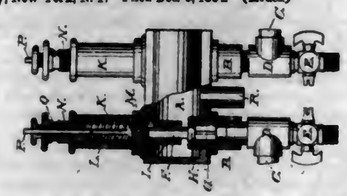


Claim.—1. A pocket for pantaloons having a side opening and a top opening, both of which are temporarily closed by stitching, substantially as set forth.

2. In combination with a pocket for pantaloons, a piece or pieces of tape or equivalent material stitched to the inside of the pants along the top and one side of the pocket, whereby, by removing a portion of said tape, an opening to the pocket can be formed, either at the top or side thereof, substantially as set forth.

3. The combination, with a pocket, of tape or equivalent material stitched across the top and one side thereof and transversely across the pocket, whereby, by removing the tape either at the top or side thereof, an opening into the pocket is formed, and by removing the transverse tape from the pocket the latter is deepened, substantially as set forth.

319,571. RELIEF-VALVE FOR STEAM-ENGINE CYLINDERS. T. M. FELL, Brooklyn, assignor to the United States Steam Specialty Company, New York, N. Y. Filed Dec. 6, 1884. (Model.)



Claim.—1. A double valve apparatus comprising two relief-valves combined with a common discharge or valve chamber, in combination with an engine-cylinder and two pipes leading from the cylinder to said chamber, the pipes or passages between said cylinder and said valves being closed and arranged below the opening into the cylinder, so as to maintain a body of water therein, and each valve controlling the communication of one of said pipes with the discharge-chamber, substantially as described.

2. The combination of the two relief-valves with common discharge-chamber, constructed, top, bottom, sides, and ends, in one piece or casting, the spring-chambers of the valves being made separately from the discharge-chamber and screwed into separate holes in the walls thereof, substantially as described.

3. In combination with a relief-valve, the valve-seat formed of a renewable bushing of softer metal than the said disk, and the compression-pipe connected with said bushing, so that the latter forms a continuation thereof, substantially as described.

4. The combination, with the valve-disk and its upper stem in the form of a rod or cylinder, of the close-fitting sleeve or neck surrounding said stem, the disk above said sleeve or neck, and the relief-spring, also above said sleeve or neck, and pressing against said last-named disk to hold the valve to its seat, said spring and the disk against which it acts being larger in diameter than said stem, substantially as described.

5. The combination, with the discharge or valve chamber, of the valve having an upper stem, the relief-spring, the disk against which said spring acts, and the spring-chamber projecting into said discharge or valve chamber, and being contracted at its inner end, to form a sleeve or neck surrounding said stem, said disk and spring being larger in diameter than the said stem, and being arranged in the enlarged part of the valve-chamber above said sleeve or neck, substantially as described.

6. The double relief apparatus comprising, in combination, the common discharge-chamber, the renewable bushings constituting the valve-seats, the spring-chambers contracted to form a sleeve or neck at the bottom and screwed into the said discharge-chamber on the opposite side from said bushings, the valves having upper stems guided by said sleeves or necks, and the relief-springs, substantially as described.

7. The valve having an upper sliding stem, the spring-chamber contracted at the bottom to form a neck or sleeve in which said stem slides, the disk, the relief-spring arranged in the enlarged part of said chamber above said neck or sleeve, and the perforated screw-plug closing the upper end of said spring-chamber, substantially as described.

8. The valve composed of a valve-disk of hard metal with one or more guide-stems, in combination with the renewable bushing of softer metal constituting the valve-seat, and the compression-pipe connected with said bushing, so that the latter forms a continuation thereof, substantially as described.

9. The combination, with the valve and the discharge or valve chamber, of the screw-bushing constituting the valve-seat, and projecting inside the discharge-chamber on one side of said chamber and the spring-chamber screwed into the opposite side thereof, said spring-chamber containing the relief-spring and forming a guide for the said valve, substantially as described.

10. The combination, with the engine-cylinder, the pipes connected with opposite ends of the cylinder, and the two relief-valves, one for each pipe, of the separate petcocks, one for each pipe, arranged below the corresponding relief-valve, substantially as described.

11. The combination of the valve having an upper stem, the spring-chamber contracted at the bottom to form a guide for said stem, the disk in the enlarged part of said spring-chamber, the relief-spring, the screw-plug in the end of the spring-chamber, and the indicating-rod sliding in said plug and fixed at its lower end in said disk, substantially as described.

12. The combination of the valve, the spring-chamber contracted at the bottom to form a guide for a stem on said valve, the relief-spring, the disk above the valve, the screw-plug in the outer end of the spring-chamber, the stuffing-box in the said screw-plug, and the indicating-rod playing through said stuffing-box and fixed at its lower or inner end in said disk, substantially as described.

13. The combination, with the discharge-chamber, of the valve of hard metal, the chamber forming a guide to said valve and screwed into one side of said chamber, and the screw-bushing of soft metal screwed into the opposite side of said discharge-chamber, and projecting into the latter and forming a seat to said valve, substantially as described.

319,572. BOLTING-REEL. FRANCIS FERRIER, Vallejo, Cal. Filed Jan. 24, 1885. (No model.)

Claim.—1. The combination of the reel-frame, the silk D of a sifting or bolting reel, and the corrugated hoop, E, to which the silk is secured, whereby it is corrugated, substantially as herein described.

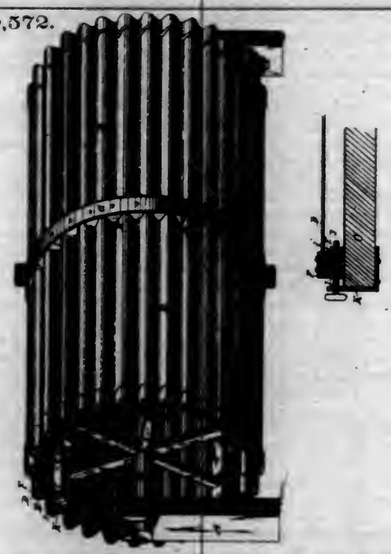
2. In a sifting or bolting reel, the ribs C, corrugated hoops E, and corrugated silk D, secured to the hoops, in combination with the blocks I on the ribs, having nuts *j*, the angle-irons K, and the bolts J, whereby the silk is longitudinally tightened, substantially as herein described.

3. In a sifting or bolting reel, the corrugated hoops E, in combination with the silk D over the hoops, the plain hoops G, and the intervening blocks, H, by which the silk is pressed down upon the hoops E, whereby it is corrugated, substantially as herein described.

4. In a sifting or bolting reel, the spaced corrugated hoops E F, supported by the ribs of the reel, in combination with the silk D, secured between the hoops E F, whereby it is corrugated, substantially as herein described.

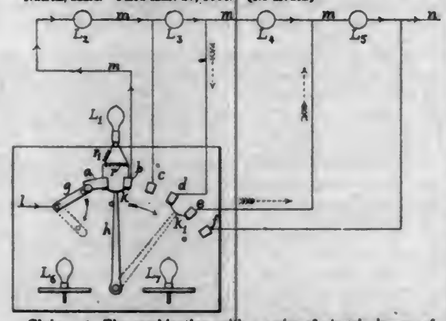
5. A flour-bolt reel or sieve, comprising the shaft B, radial arms *b*,

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ribs C, corrugated hoops E, and silk D, secured to and upon the hoops and corrugated as shown, substantially as herein described.

319,573. ELECTRIC LIGHTING APPARATUS. HORACE R. GALE, Natick, Mass. Filed Mar. 27, 1885. (No model.)



Claim.—1. The combination, with a series of electric lamps, of a group of terminals, means for connecting said terminals, and electrical connections from the terminals to the circuit, whereby a path for the current may be closed around each of the lamps successively, as and for the purpose set forth.

2. The combination, with a series of electric lamps, of a group of insulated terminals connected to points of the circuit between the lamps, a movable contact for connecting the terminals, and a device carrying said contact, whereby a path for the current may be closed around each of the lamps successively, as herein set forth.

3. The combination, with a series of electric lamps, of a group of terminals connected to the circuit in the manner described, a movable contact-maker for connecting said terminals and successively shunting each lamp, a circuit-breaker in the lamp-circuit, and manual or automatic means for operating both the contact-maker and circuit-breaker, substantially as herein set forth.

4. The combination, with a series of electric lamps, of a group of terminals connected with the circuit in the manner described, a contact-maker for connecting the terminals, and thereby shunting the lamps successively, and a lamp or its equivalent in the circuit between the two terminals, connected by the contact-maker in its normal position when the circuit through the series of lamps is complete, as herein set forth.

5. The combination, with a series of electric lamps, of a group of terminals connected with the circuit in the manner described, a contact-maker for connecting the terminals, and thereby shunting the lamps successively, impelling mechanism—such as a spring—for moving said contact-maker, and one or more electro-magnets for controlling the action or operation of the impelling mechanism, as herein described.

6. The combination, with a series of electric lamps, of a group of terminals connected with the circuit in the manner described, a contact-maker for connecting the terminals, and thereby shunting the lamps successively, impelling mechanism—such as a spring—for moving the contact-maker, an electro-magnet in the lamp-circuit for controlling the action or operation of the impelling mechanism, and a circuit around said magnet, with means for controlling the same, as set forth.

319,574. VERTICAL CENTRIFUGAL BOLT OR SEPARATOR. J. GATHMANN, Chicago, Ill. Filed Feb. 27, 1884. (No model.)



Claim.—1. The combination, in a vertical separator, of a rotating drum provided with a spiral flange or flanges, a screen exterior to the drum, and one or more vertical partial partitions or valves arranged to constrict the space between the screen and the drum, substantially as and for the purpose set forth.

2. The combination, in a vertical separator, of a rotating flanged or winged drum, a screen exterior to the drum, and one or more adjustable partitions or valves arranged to constrict the space surrounding the drum, substantially as and for the purpose set forth.

3. The combination, in a vertical separator, of a rotating flanged or winged drum, a screen exterior to the drum, and an adjustable valve or partition, K, having a broad inner face adjacent to the surface of the drum, substantially as and for the purpose set forth.

4. The combination, in a vertical separator, of a rotating flanged or winged drum, and one or more adjustable vertical valves, K, having the inner face transversely ribbed, substantially as described, and for the purpose set forth.

5. The combination, in a vertical separator, of a rotating flanged or winged drum, a screen exterior to the drum, and a broad-faced vertical valve, K, concaved on its face to conform with the drum, substantially as and for the purpose set forth.

6. The combination, in a vertical separator, of a rotating flanged or winged drum, a screen exterior to the drum, one or more valves for constricting the space about the drum, and means for inwardly and outwardly adjusting said valve or valves from the exterior of the machine, substantially as described.

7. The combination, with the drum and exterior screen of a vertical bolt, of a spirally-arranged flange secured to the drum, said flange being inclined upwardly and outwardly from its inner to its outer edge, substantially as and for the purpose set forth.

8. The combination, with the drum and exterior screen of a vertical bolt, of a spirally-arranged flange secured to the drum, said flange being inclined upwardly and outwardly from its inner to its outer edge and having a greater inclination at the lower than the upper end of the drum, substantially as and for the purpose set forth.

9. The combination, with the drum and surrounding screen, of a vertical separator, a spirally-arranged flange or flanges of undulating curved form, substantially as shown, and for the purposes set forth.

10. In combination with the drum and surrounding screen of a vertical separator, a curved or undulating spirally-directed flange secured to the drum and beaters secured to the drum at the elevated points of the undulatory flange, substantially as described.

11. In a vertical separator constructed to carry the material being operated upon upward through the machine, the combination, with a flanged or winged drum, of a surrounding screen made in sections of unequal fineness, the coarser sections being placed above the finer, substantially as and for the purpose set forth.

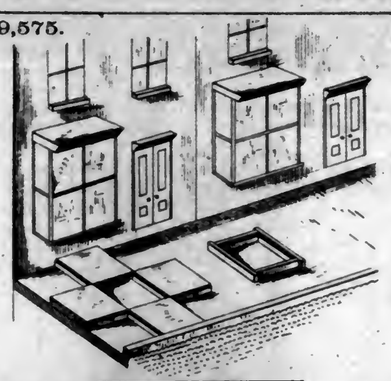
319,575. ARTIFICIAL-STONE PAVEMENT. JOHN GRANT, Omaha, Nebr. Filed Nov. 29, 1884. (No specimens.)

Claim.—1. An artificial pavement composed of a base of coarse material, an intermediate course or layer of finer material subdivided into blocks by strips of suitable material between said blocks, and a continuous upper wearing-surface of finer material, substantially as described.

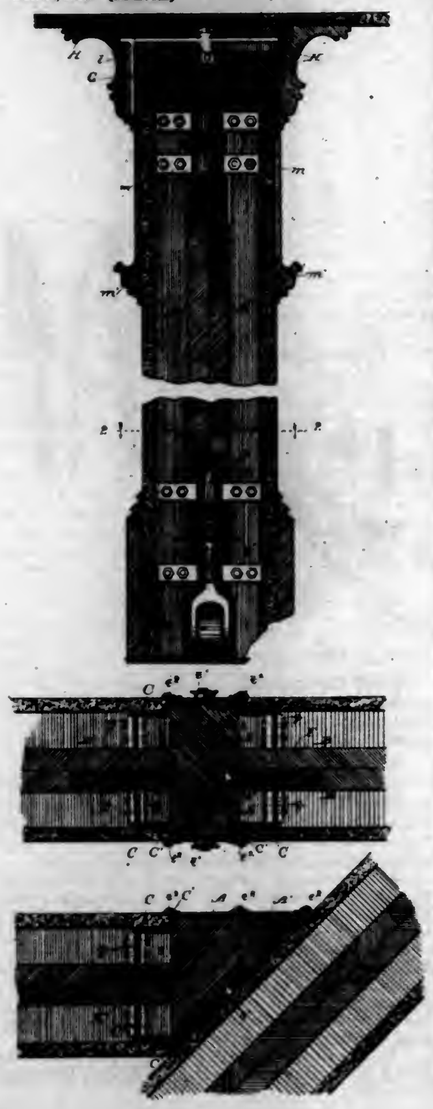
2. An artificial pavement composed of a base of coarse material, an intermediate course or layer of finer material subdivided into blocks by strips of suitable material between said blocks, and a continuous upper wearing-surface of finer material, scored or indented, as described, above the line of strips, substantially as and for the purposes herein set forth.



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319,576. PARTITION-WALL. WM. GRIESSER, Chicago, Ill. Filed Mar. 25, 1885. (No model.)



319,576.



Claim.—1. A portable partition-wall extensible in a vertical direction to bear against ceiling and floor, substantially as described.

2. A portable partition-wall vertically adjustable to bear against ceiling and floor and provided with spring mechanism, substantially as described, whereby it is automatically maintained out of contact with the floor when released from contact with the ceiling, as and for the purpose set forth.

3. A portable partition-wall formed in vertical sections adjusted together to permit to each section independent vertical movement and extensible in a vertical direction to bear against ceiling and floor, substantially as described.

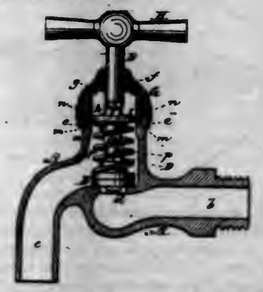
4. A portable partition-wall formed in vertical sections adjusted laterally together to permit to them independent vertical movement and vertically adjustable to bear against ceiling and floor, and provided with spring mechanism, substantially as described, whereby they are automatically maintained out of contact with the floor when released from contact with the ceiling, as and for the purpose set forth.

5. A portable partition-wall formed in vertical sections comprising each a frame and a cap portion, H, fitting over the frame and supported thereon by set-screws F, operating in suitable nuts secured within the frame by turning the set-screws to raise and lower the cap portion H with reference to the frame, as and for the purpose set forth.

6. A portable partition-wall formed in vertical sections comprising each a frame provided with rollers E, carried in suitable bearings upon stems operating in guides within the frame, springs *p* upon the stems, and confined between stops thereon and the uppermost of the said guides, and a cap portion, H, fitting over the frame and supported thereon by set-screws F, operating in suitable nuts secured within the frame by turning the set-screws to raise and lower the cap portion and frame, as and for the purpose set forth.

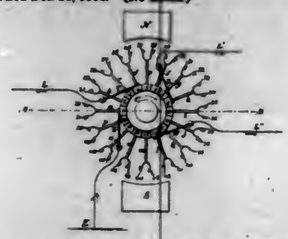
7. A portable partition-wall formed in vertical sections comprising each a frame provided with rollers E, carried in suitable bearings upon stems operating in guides within the frame, springs *p* upon the stems, and confined between stops thereon and the uppermost of the guides, a cap portion, H, fitting over the frame and supported thereon by set-screws F, operating in suitable nuts secured within the frame by turning the said set-screws to lower the cap portion and frame, and a center piece upon opposite sides of which vertical sections are joined to permit to each section independent vertical movement, each center piece comprising separable planks A and A', having each an oblique side adjustable substantially as described, the whole being constructed and arranged to operate substantially as and for the purpose set forth.

319,577. SELF-CLOSING FAUCET. THOS. HALEY, Cambridge, Mass. Filed Mar. 20, 1885. (No model.)



Claim.—In a self-closing faucet, the shell A, provided with screw-threads, to which is secured the cap, the correspondingly screw-threaded cap G, the stationary disk I, rigidly secured between the shell and cap, and provided at its center with an aperture the inner face of which has semicircular projections, which fit between corresponding projections on a stem, in combination with the stem D, which reciprocates vertically as the valve opens and closes, the valve B, rigidly secured to the stem D, and the spiral spring between the valve B and the disk I, substantially as and for the purposes set forth.

319,578. DYNAMO-ELECTRIC MACHINE. GEORGE A. HAMILTON, New York, N. Y., assignor to the Western Union Telegraph Company, same place. Filed Dec. 21, 1882. (No model.)



Claim.—1. As a means for procuring from one dynamo-machine several strengths of current, the combination of an armature whose coils are electrically connected together and to a series of commutator-strips, a commutator-brush connected to earth by a conductor of low resistance, and a series of auxiliary brushes situated in different circumferential positions about the commutator, to which independent conductors are respectively connected, and upon each of which conductors a different potential of current may be obtained.

2. The combination of a series of armature-coils which are electrically connected together and to a series of commutator-strips, substantially as described, two field-magnets respectively in diametrically-opposite positions about the armature-axis, a commutator-brush, X, connected by low resistance to earth, and a series of main-line commutator-brushes, Y, Z, and W, to which are connected lines L L' L".

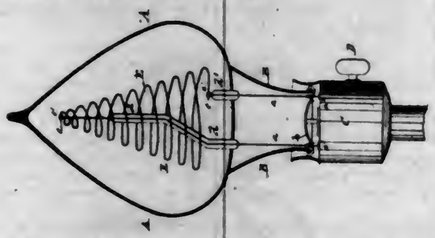
3. The combination of an armature whose coils are electrically connected together and to a series of commutator-strips, substantially as described, two field-magnets of opposite polarity located in diametrically-opposite positions in respect to the axis of the armature, two commutator-brushes, X Y, connected to earth by conductors W W', and a series of commutator-brushes, to which are respectively connected a series of main lines, whereby currents of either polarity, as well as of different strength, can be procured from a single dynamo-machine.

319,579. HARNESS-BUCKLE. BENJAMIN J. HARTMAN, Wooster, Ohio. Filed June 23, 1884. (No model.)



Claim.—The harness-buckle consisting of a metal plate provided with a metal loop at each end thereof and a stiff tongue, said tongue situated near one end of said plate opposite to one of said loops and curved at its top toward the center of said plate, substantially as set forth.

319,580. INCANDESCENT ELECTRIC LAMP. LOUIS HEINER, Newark, N. J. Filed Dec. 15, 1884. (No model.)

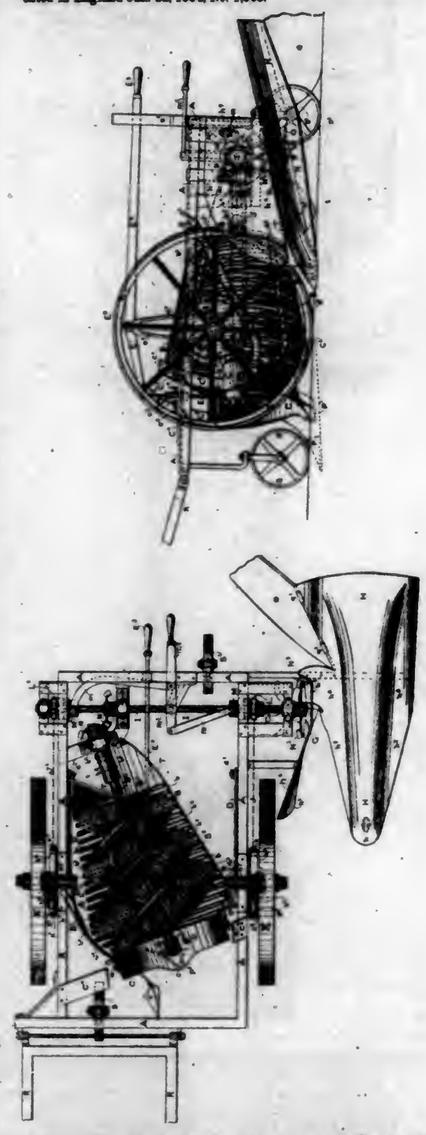


Claim.—1. In an incandescent electric lamp, the combination of the hermetically-sealed bulb A, inclosing an incandescent filament, the neck B, and the conducting-wires *a a*, provided with eyes in their ends, with the socket C and the line-wires *a' a'*, having hooks in their ends for engaging said eyes, and the hand-spring *b*, for detachably securing said neck within said socket, substantially as described.

2. In an incandescent lamp, the combination of an evacuated glass bulb, a helical filament within said bulb, holders or sockets for said filament, one of said sockets extending into the helix, and conducting-wires connected to said sockets, substantially as described.

3. A filament for electric lamps, consisting of a cone-shaped helix, one end of said filament being at the base of the cone and the other end at the apex thereof, whereby said filament may be stamped out from a single flat sheet, substantially as described.

319,581. POTATO-DIGGING MACHINE. JAMES HOLT, Dunham Massey, County of Chester, England. Filed Oct. 22, 1884. (No model.) Patented in England Jan. 22, 1884, No. 1,863.



Claim.—1. In a machine for digging potatoes and other roots, the combination, with a wheeled supporting-frame, A, of the revolving riddling-cage B, provided with a perforated internal screw, B', said cage B being set at an angle to the line of travel of the machine and adapted to receive the roots directly from the ground, as set forth.

2. In a machine for digging potatoes, &c., the combination, with a wheeled supporting-frame, A, of the revolving riddling-cage B, provided with a perforate internal screw, B', and having at its forward end the scoop or shovel C, for delivering the roots directly into the cage, said cage being set at an angle to the line of travel of the machine and adapted to deliver the cleaned potatoes to one side thereof, as set forth.

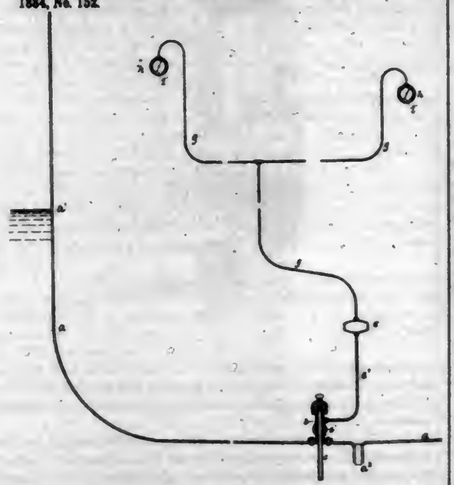
3. In a machine for digging potatoes, the combination, with the driving-shaft I, of the chain-gearing J, ratchet-wheel k^3, pawl k^4, and lever k^5, for conveying motion between the wheels *k* and L and the clutch M, substantially as described and shown.

4. The combination, with the revolving cutter, of the V-shaped guide H, with its partially-rounded ends, and the guide Q, substantially as described.

5. In a machine for digging potatoes, the combination of a frame, a cage carried by said frame, and a fixed semicircular delivery-board at the lower rear edge of the cage, having its flexible portion resting upon the ground, whereby the potatoes are delivered from the cage to one side of the machine, as set forth.

6. The combination, with a revolving cage or drum, B, of a fixed semicircular delivery board or plate, T, at the lower rear end of the cage, and its flexible part *t*, substantially as described.

319,582. HYDRO-AEROSTATIC SHIP-LOG. OLOF HULT, Karlskrona, Sweden. Filed Oct. 8, 1884. (No model.) Patented in Sweden June 5, 1884, No. 152.



Claim.—1. A hydro-aerostatic ship's log composed of a pressure-receiving tube projecting below the bottom of the ship, an air-chamber connected thereto by means of a pipe and located below the water-line, and an indicating gage or gages connected to the air-vessel by means of a small pipe or pipes, in combination, substantially as and for the purpose set forth.

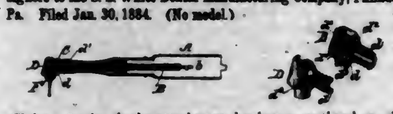
2. The combination, with the pressure-receiving tube and air-vessel of a hydro-aerostatic ship's log, of a pressure-gage provided with means, substantially as described, whereby it is adjusted and set to give correct readings for various load-lines of the ship, as set forth.

3. The combination, with the tube *c*, having closed ends and provided with the holes c^2 c^2 in its sides, of the housing *b*, provided with the stop-cock *b'*, outlet-passage b^2, and retaining-yoke *d d'*, substantially as and for the purpose set forth.

4. In combination, the pressure-receiving tube *c*, with closed lower end and holes c^2 c^2 in its sides, the air-chamber *e*, pipe *e'*, by which it is connected to the housing of the tube *c*, and the small pipes *f g* and pressure-gage *h*, substantially as and for the purpose set forth.

5. The pressure-gage *h*, provided with the adjusting-screw *l'*, by which its indicating mechanism is moved to or from the active surface of its air-chamber, in combination with the air-vessel *e* and pressure-receiving tube of a hydro-aerostatic ship's log, substantially as and for the purpose set forth.

319,583. ANGLE ATTACHMENT FOR DENTAL ENGINES. WILLIAM A. JOHNSTON, Clifton, and ARTHUR W. BROWNE, Westfield, N. Y., assignors to the S. S. White Dental Manufacturing Company, Philadelphia, Pa. Filed Jan. 30, 1884. (No model.)



Claim.—1. An angle attachment having a sectional or divided head fitted with bearings for a tool-holder operating at an angle to the longitudinal line of the attachment, and said head having a reduced shank portion by which it is attached to the barrel or tube of the attachment, substantially as described.

2. An angle attachment having a sectional or divided head fitted with bearings for a tool-holder operating at an angle to the longitudinal line of the attachment, and said head having a screw-threaded shank portion fitted with a bearing for the driving-shaft of the attachment, substantially as described.

3. In an angle attachment for hand-pieces, the combination of a sleeve or tube to fit a hand-piece casing, with a head carrying the tool-holder of the attachment, the combination of said head with said sleeve or tube being effected by means of a threaded and cone connection, substantially as described.

4. The tool-holder of an angle attachment provided with a tapering tool-receiving socket open at each end of the holder, and with an external driving-gear forming part thereof, substantially as described.

5. The tool having a tapered or wedge-shaped shank, an enlargement or shoulder, and an operating end with a reduced portion between said shoulder and said operating end, substantially as described.

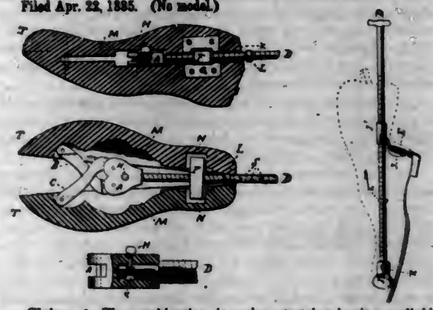
319,584. DENTAL PLIERS FOR ADJUSTING TOOLS IN HAND-PIECES. WILLIAM A. JOHNSTON, Clifton, and ARTHUR W. BROWNE, Westfield, N. Y., assignors to the S. S. White Dental Manufacturing Company, Philadelphia, Pa. Filed Apr. 19, 1884. (No model.)



Claim.—1. An implement having two jaws or beaks, one jaw of which is provided with a plunger or punch, and the other jaw of which is provided with a slot having an enlargement or recess in a portion of its length, substantially as described, whereby the insertion in and removal of tools from a tool-holder may be facilitated, substantially as described.

2. The implement consisting of two jaws, one of which is provided with a slot having an enlargement or recess in a portion of its length, substantially as described.

319,585. BOOT AND SHOE STRETCHER. WILEY JONES, Norfolk, Va. Filed Apr. 22, 1885. (No model.)



Claim.—1. The combination, in a shoe-stretcher having a divided wooden last hinged at the heel, of a swivel-nut, A, and the crossed and interlapped links B and C, as and for the purposes described.

2. The combination, in a shoe stretcher or lengthener having an operating-screw, of a slot, K, in the end of said screw, and a screw, H, carried by a swivel-nut, and gearing into the said slot, substantially as set forth and described.

3. The combination, in a shoe-stretcher having a divided last, of a screw, D, provided with a stop-ring, L, and size-marks S, as and for the purposes described.

4. The combination, in a shoe-stretcher having a divided wooden last hinged at the heel, of a heel-brace, J, carried by the same operating-screw, and adapted to be operated simultaneously with the expanding last, substantially as described and set forth.

5. In a shoe-stretcher, the heel-brace J, having an integral sleeve, J', constructed as described, in combination with the expanding last and the toe-piece I, as set forth and described.

6. The combination, in a shoe-stretcher having a divided last, of the crossed links B and C, cut away and interlapped, as described, so as to balance the pressure, substantially as and for the purposes described.

7. In a shoe stretcher or lengthener, the detachable toe piece or pieces I, provided with the screw-threaded aperture R in its barrel, in combination with the screw D, provided with the annular groove K and thumb-screw H, as set forth and described.

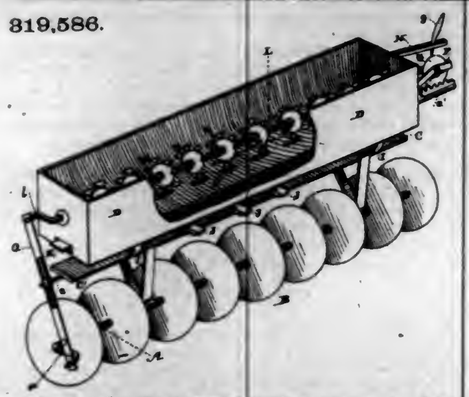
8. The combination, in a shoe-stretcher having a divided wooden last, of chambers N N, face-plates, G, and a screw-threaded nut, F, in combination with the screw D, provided with the size-marks S, as set forth and described.

9. In a shoe-stretcher, the halves T T of the last, provided with grooves M M, chambers N N, and face-plates G, in combination with screw D, heel-brace J, nuts F and A, and links B C, all substantially as and for the purposes shown and described.

319,586. SEED-SOWER. GOTTHOLD E. KALTWETER, San Buenaventura, Cal. Filed Jan. 5, 1885. (No model.)

Claim.—1. In a seed-sower, the box D, having bottom openings or slots, *d*, in combination with the sliding gate-bar E, having openings or slits *e*, and mounted under the box, as described, and the mechanism by which said gate-bar is reciprocated to make its openings coincide

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partially or wholly with the openings *d*, whereby the capacity of the latter is regulated, consisting of the segmental gear G, pivoted on the end of the box, the rack *d'* on the end of the gate-bar, and the lever *g*, by which the segmental gear is operated, substantially as herein described.

2. In a seed-sower, the box D, having bottom openings or slots, *d*, in combination with the sliding gate-bar E, having openings or slits *e*, whereby the quantity of the discharge is regulated, the pivoted segmental lever-gear G and rack *d'*, by which the gate-bar is operated, and the graduated slotted bar H, through which the lever of the segmental gear plays, and by which the amount of discharge is determined, substantially as herein described.

3. In a seed-sower, the box D, having bottom openings or slots, *d*, in combination with the rotating agitators M, within the box, said agitators having T-shaped radial flanges *m*, bolted through their periphery, substantially as and for the purpose herein described.

4. In a seed-sower, the box D, mounted on suitable running-gear and having bottom openings or slots, *d*, in combination with the shaft L, extending longitudinally through the box, and having an end crank, *l*, the agitators M, mounted on the shaft and provided with T-shaped radial flanges, and the means by which a complete rotary motion in a direction the reverse of that of the running-gear is imparted to the agitators, consisting of the bar O, joining the crank of the agitator-shaft with a crank on the axle-shaft or wheel of the running-gear, and slotted on an intermediate fixed pin attached to the bar C, substantially as herein described.

5. The shaft or axle A of a rotary harrow, plow, or pulverizer having an end crank, *a*, and the bar or platform C, carried by said shaft, in combination with the seed-box D, having discharge-openings and mounted above and carried by the bar or platform, the agitators M, with T-shaped flanges in the box, the shaft L, on which they are mounted, having an end crank, *l*, the pin *c*, projecting from the bar or platform, and the bar O, joining the cranks *a l* and slotted on the pin *c*, all arranged and adapted to operate substantially as and for the purpose herein described.

6. In a seed-sower, the box D, having bottom openings or slots, *d* in combination with the spouts J under the box, adapted to receive and conduct the seed, said spouts being secured to the box by bolts and nuts K, whereby they may be reversed and be attached to the opposite side of the box, substantially as and for the purpose herein described.

7. The rotary harrow B and the platform or bar C, carried by it, in combination with the seed-box D, having bottom openings, *d*, the brackets I, by which the box is secured upon and raised above the platform, the reversible spouts J under the box, between it and the platform, the sliding slotted gate-bar E, by which the discharge is regulated, and the rotating agitators M within the box, all arranged to operate substantially as herein described.

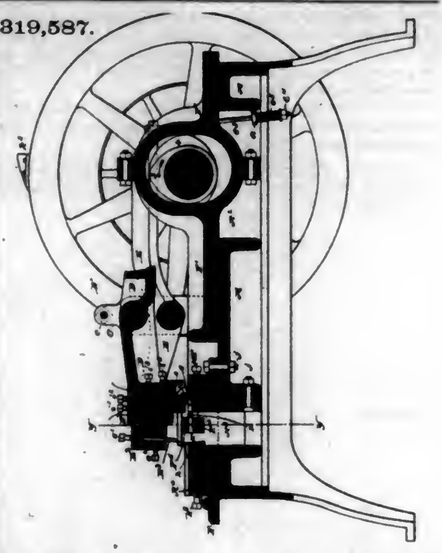
319,587. SPIKE-MACHINE. WILLIAM KOPLIN, Youngstown, Ohio, assignor to the Pullman Iron and Steel Company, Pullman, Ill. Filed July 16, 1883. (No model.)

Claim.—1. The combination, with a stationary heading-die, of the mechanism for grasping the blank, the mechanism for carrying the blank endwise and forcing it against the heading-die to upset the end of the blank, and the mechanism for pointing the blank, substantially as described.

2. The combination, with a stationary heading-die, of grasping-dies for the blank, the mechanism for carrying the grasping-dies and blank toward and forcing the blank against the heading-die, and the mechanism for bending the end of the blank into position to form a laterally-projecting spike-head, substantially as described.

3. The combination, with grasping-dies adapted to seize the blank between its ends, of a stationary heading-die, also serving as a fixed cutter, a movable cutter constructed to sever and also to bend the blank, and the mechanism for carrying the grasping-dies and the blank toward and forcing the blank against the stationary heading-die, substantially as described.

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4. The combination, with the grasping-dies for holding the blank, stationary and movable pointing-dies, and the mechanism for actuating the movable pointing-dies, of a stationary heading-die, and the mechanism for carrying the grasping-dies and the blank toward and forcing the blank against the stationary heading-die, substantially as described.

5. The combination, with the stationary cutter and heading-die and the stationary and movable pointing-dies, of the traveler F, a grasping-die, F^3, fixed to the traveler and provided with a projection, f^3, a grasping-die, F^5, movably secured to the traveler and provided with a projection, f^5, the mechanism for reciprocating the traveler, so as to carry the dies F^3 and F^5 back and forth between the pointing-dies and the heading-die, and to force the blank against the heading-die, and the means for actuating the movable die F^5, substantially as and for the purposes set forth.

6. In combination with the stationary heading-die H, the stationary die I, constructed to form the point and to support the shank of the spike, an opposing pointing and straightening die, I' I², grasping-dies F^3 F^5, constructed with opposing upper and lower projections, f^3 and f^5, respectively, the means for moving the said grasping-dies toward the heading-die, and the means for moving the die I^2 in the laterally-inclined direction set forth, substantially as and for the purpose stated.

7. In combination with the stationary heading-die, the traveler F, provided with downwardly and laterally projecting arms F^4, the die-support F^7, provided with an arm, F^6, pivoted to the lower ends of the arms F^4, the die F^3, fixed to the traveler and provided with a projection, f^3, the die F^5, secured to the die-support F^7, and provided with a projection, f^5, the means for reciprocating the traveler, whereby the blank is forced against the heading-die, and the means for vibrating the arm F^6, substantially as described, and for the purpose stated.

8. In combination with the heading-die, the traveler F, provided with depending arms F^4, the die-support F^7, provided with an arm, F^6, pivoted to said arms F^4, grasping-dies F^3 and F^5, secured, respectively, to the traveler and the die-support, the rod F^{10}, expanding spring f^{10}, the means for throwing the arm F^6 in opposition to the action of the spring, and the means for reciprocating the traveler, substantially as described.

9. In combination with the heading-die, the traveler F, provided with depending arms F^4, the die-support F^7, provided with an arm, F^6, pivoted to said arms F^4, dies F^3 and F^5, secured, respectively, to the traveler and die-support, the means for lifting the die-support, a wedge engaged with the traveler and die-support for forcing the latter downward and inward, and the means for reciprocating the traveler, substantially as described.

10. In combination with the pointing-dies, the stationary heading-die, and the locally-stationary cam-shaft B, a die-carrying traveler, and laterally-movable die-support, grasping-dies, F^3 and F^5, mounted, respectively, upon the traveler and die-support, a suitable cam or cams on the shaft B for reciprocating the traveler, so as to force the blank held in the grasping-die against the heading-die, the means for raising the laterally-movable die-support with its die, a wedge for depressing the die-support, a slide connected with said wedge, and a cam on the shaft B for actuating the slide, substantially as described.

11. The combination, with the machine-bed, cam-shaft, and frame-uprights, of the stationary heading-die, the stationary pointing-die, the pointing-die lever E, die-carrying traveler F, cam on the shaft B for actuating the lever E and for reciprocating the traveler, so as to force the blank against the heading-die, and the devices for engaging the said lever and the traveler with the cams, substantially as described.

12. The combination, with the machine-bed, cam-shaft, and frame-uprights, of the stationary heading-die, stationary pointing-die, die-carrying traveler, a laterally-movable die-support carried by the traveler, grasping-dies mounted upon the traveler and die-support, a pointing-die lever, a cutter-lever, a series of cams on the cam-shaft for actuating the levers mentioned and for reciprocating the traveler, so as to force the blank against the heading-die, and the means for actuating the laterally-movable die-support, substantially as and for the purpose set forth.

13. The combination, with the pointing-dies, and with grasping-dies which hold the blank from longitudinal movement while being pointed, of a stop for arresting the blank, having a backward and forward movement, and means, substantially as described, for feeding the blank to said dies, substantially as and for the purpose set forth.

14. The combination, with the stationary and reciprocating pointing-dies, of a stop pivoted to the removable die-carrier, and riding at its free end upon the stationary die, and means, substantially as described, for feeding the blanks to said dies, substantially as and for the purpose set forth.

15. In combination with a stationary pointing-die and an opposing reciprocating pointing-die, a movable stop constructed to advance when the movable die is raised, and to be retreated by the descent of said movable die, and means, substantially as described, for feeding the blanks to said die, substantially as described.

16. In combination with a pointing die or dies having a recess, as *t'*, traveling mechanism for drawing the spike longitudinally preliminary to its discharge from the machine, substantially as described.

17. In combination with a pointing die or dies having a recess by which a longitudinal rib or projection is formed on the spike, a stationary heading-die, and the means for carrying the blank longitudinally clear of the recess of the pointing-dies, and by the same motion forcing the blank against the heading-die, so as to form the spike-head, substantially as described.

18. In combination with the heading-die and the pointing and straightening die I, constructed to support the blank on its lower surface only, and with an opposing die or dies, I' I², grasping-dies F^3 F^4, constructed to bear upon the sides of the blank throughout the whole or a greater part of its length, and the means for moving the grasping-dies whereby the blank is forced against the heading-die, substantially as described.

19. In combination with the pointing-die I, constructed to support the blank on its lower surface only, and a die opposed to the die I, the movable grasping-dies F^3 F^5, provided, respectively, with the opposing lower and upper projections, f^3 f^5, at their front end, and extended to bear upon the sides of the spike-shank throughout a whole or a greater part of its length, substantially as described.

20. In combination with a support, the die I^2, resting in a horizontal position thereon and provided with a shoulder, i^3, and the pointing-die proper, I^4, resting upon the die I^2 and against the shoulder i^3, together with the means for securing the parts removably in place, substantially as described.

21. In combination with the cam-shaft B and heading and pointing dies, the traveler carrying grasping-dies, the yoke F^2, connected with the traveler and provided with projection F^2, and the cams 3 and 4 on shaft B, whereby the traveler is actuated and the blank forced against the heading-die, substantially as described.

22. In combination with the straightening and pointing dies and with the movable cutter, the heading-die constructed with a recess, *h'*, for guiding the blank-rod, substantially as described.

23. In combination with the movable cutter, the part H, forming the stationary cutter and heading-die and provided with a guiding-recess, *h'*, substantially as and for the purpose set forth.

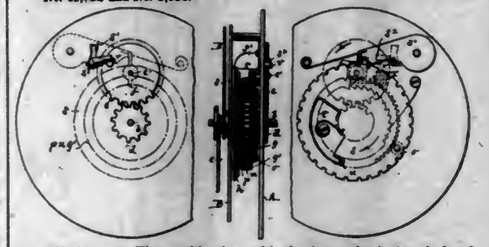
24. In combination with spike-forming dies and a rotating shaft, B, the rod-feeding jaws N^3, a sliding plate to which said jaws are pivoted, a transverse lever, N^4, pivoted to the sliding plate and provided with oblique slots n^2, pins n^3 on the jaws engaged with said slots, the means actuated by the shaft B, constructed to throw the lever N^4 farther than its limit of vibration, whereby the jaws are given a bodily movement after being opened and closed, substantially as and for the purpose set forth.

25. In combination with a recessed pointing-die and grasping-dies operating to withdraw the spike clear of the said recessed die, the means constructed to discharge the spike laterally after it has been withdrawn from the recessed pointing-die, substantially as described.

26. In combination with the traveler F and the heading and pointing dies, the means for actuating the traveler so as to carry the blank forcibly against the heading-die, the rod L, mounted on the traveler, the spring L', lever K, and cam K^2, substantially as and for the purposes set forth.

27. The combination of a movable cutter, a stationary cutter constructed to serve also as a heading-die, pointing-dies that preserve their distance from the heading-die, and movable grasping-dies intermediate to the pointing and heading dies constructed to carry the blank forcibly against the heading-die after said blank is pointed, substantially as described.

319,588. CALENDAR-CLOCK. THOMAS KRUMBOWSKI, Bartschain, Prussia, Germany. Filed Feb. 24, 1885. (No model.) Patented in Germany Aug. 17, 1884, No. 31,294; in England Oct. 31, 1884, No. 14,440; in France Oct. 31, 1884, No. 165,116, and in Austria-Hungary Jan. 24, 1885, No. 41,732 and No. 3,038.

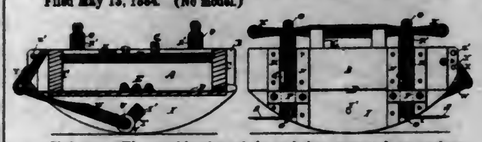


Claim.—1. The combination, with the hour-wheel of a clock, of the wheels *d e f f' g g'*, levers *i i' i²*, wheel *n*, having holes *n'* and *n²*, ring-wheel *p*, disks *q q'*, pinions *r* and *e*, cover-plate *h*, having a spring, *t*, ratchet-wheel *s*, and hand D, substantially as set forth.

2. In a calendar-clock, the combination of a four-years' wheel, *n*, having holes *n'* and *n²*, with the wheels *g g'*, having fulcrumed and spring-pressed levers *i i' i²*, substantially as specified.

3. In a calendar-clock, the combination of the four-years' wheel *n*, ring-wheel *p*, disks *q q'*, and pinion *o* for indicating the February with twenty-eight days in every century year and the February with twenty-nine days in every fourth century, substantially as set forth.

319,589. WASHING-MACHINE. DANIEL KUNKEL, Sr., Oregon, Mo. Filed May 13, 1884. (No model.)



Claim.—1. The combination of the suds-box mounted on rockers, and having the corrugated rubber in its bottom, the spring-bar attached thereto, the handles, and the vertically-adjustable legs working in guides at one side of the machine, substantially as described.

2. The combination, with the suds-box A, mounted on rockers I I, of the vertically-adjustable legs working in guides at one side of the machine, substantially as specified.

3. The combination, with the suds-box and rockers, provided with cleats M N, arranged in pairs on one side of the machine, the cross-stripe P, and screws Q Q, of the legs O O, having notches Q' Q' and perforations R', working between the cleats M N, and the pins R for the perforations R', substantially as specified.

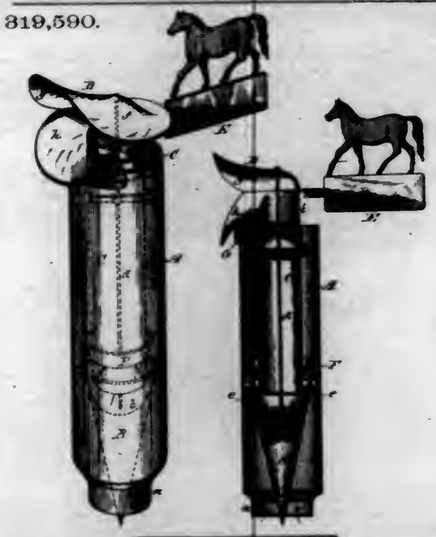
319,590. VENTILATOR. CHARLES B. LOVELESS, Worthington, Minn. Filed Feb. 24, 1885. (No model.)

Claim.—1. The combination, with a ventilator, of a cowl constructed of two segmental concavo-convex independent sections extending from a neck or short pipe-section, the upper one of the concavo-convex sections flaring upwardly at its front end and at its rear end having a flat rim, and the lower section flaring in a downward direction and having depending from its under side a segmental apron, substantially as and for the purpose set forth.

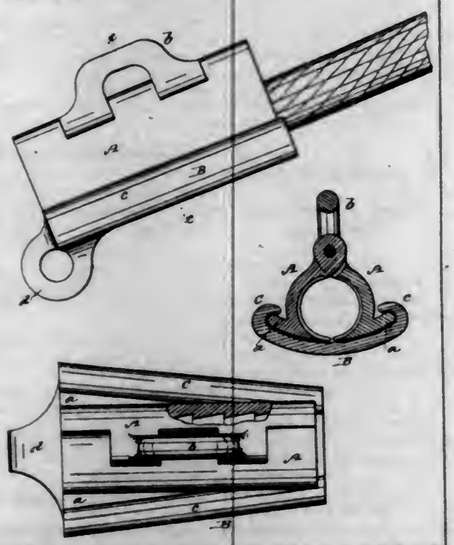
2. In a ventilator, an outer casing provided at or near its lower end with a conical air-chamber having a concave plate at the base thereof, in combination with a central wind-flue having a cowl at its upper end and at its lower end a flaring deflecting-plate, substantially as and for the purpose specified.



319,590.



319,591. ROPE-CLAMP. SAMUEL H. MAGEE, Galveston, Tex., assignor to himself and Alexander P. R. Hanks, same place. Filed Oct. 10, 1884. (No model.)



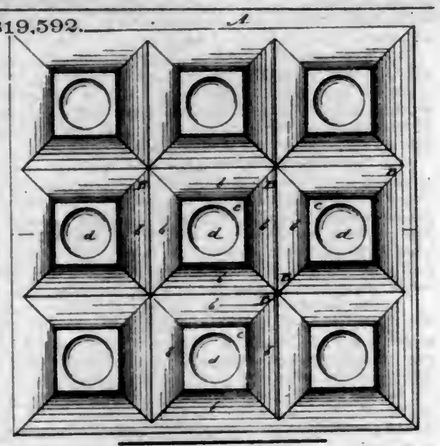
Claim.—1. A rope-clamp consisting of two segments, A A, formed with inclined flanges *a* and the wedge-shaped clamping-plate B, having upturned and inwardly-projecting edges or flanges *c*, substantially as shown and described.

2. The combination of the two segments A A, hinged together and provided with inclined flanges *a*, and the clamping-plate B, formed with turned-up and inwardly-projecting edges *c*, and provided with an eye, *d*, substantially as described, for the purpose specified.

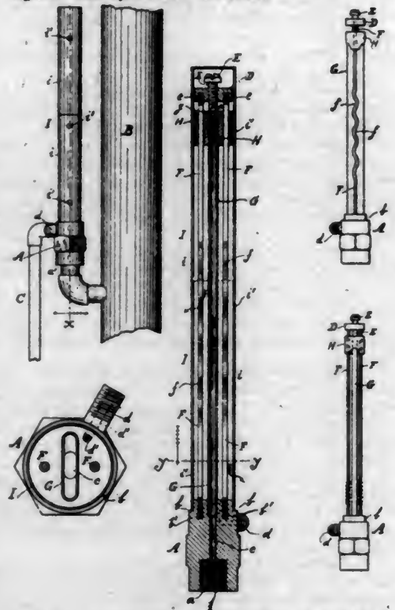
319,592. WINDOW AND OTHER GLASS. MICHAEL MAGRATH, New York, N. Y. Filed Apr. 3, 1885. (Model.)

Claim.—The pane or sheet A of glass, for windows and other glazed structures, having one of its sides or faces *a* plain, and its opposite polished side or face composed of a series of parallelogrammic protuberances, B, arranged in straight lines or courses in directions at right angles with each other, and with their sides *b* beveling and terminating on their inner margins in flat surfaces *c*, of like parallelogrammic configuration as the outer margins of said sides, and having circular concaves *d* in their centers, substantially as and for the purpose herein set forth.

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319,593. AIR-VALVE OR STEAM-TRAP. JAMES P. MARSH, Chicago, Ill. Filed Apr. 14, 1885. (No model.)



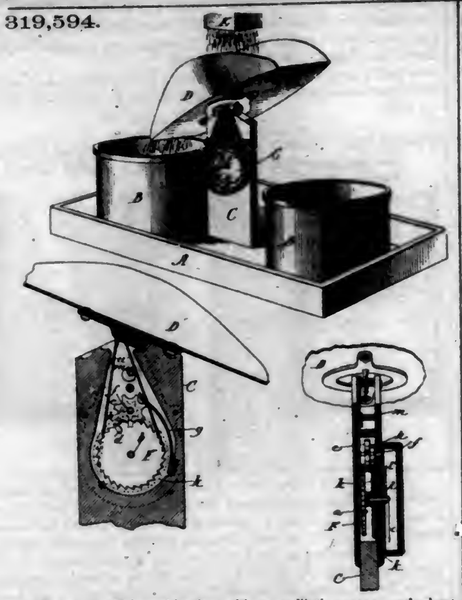
Claim.—1. The combination, substantially as specified, in an air-valve or steam-trap, of a fixed expansible steam-tube ported or open to receive the steam and discharge the air, a base-piece having a channel or conduit communicating with the said tube, a head-plate or top piece, an adjustable valve carried by the said head-plate or top piece, and yielding rods connecting the head-plate or top piece to the base-piece, for the purposes set forth.

2. The combination, in an air-valve or steam-trap, of a flat steam-tube ported or open to receive the steam and discharge the air, a base-piece, a head-plate or top piece carrying a valve or stopper for opening and closing the air-port, and yielding rods passing along the flat sides of the said tube and connecting the head-plate and base-piece, substantially as and for the purposes specified.

3. The combination, substantially as specified, in an air-valve or steam-trap, of a fixed expansible steam-tube ported or open to receive the steam and discharge the air, a base-piece having a channel or conduit therein communicating with the said tube, a head-plate or top piece, an adjustable valve carried by the said head-plate or top piece, and the waving expansible rods F F, connecting the head-plate to the base-piece, for the purposes specified.

319,594. GRAIN-REGISTER. JOHN MARTIN and PHINEAS T. BAKER, Danville, Ill. Filed Jan. 2, 1885. (No model.)

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Claim.—1. The combination, with an oscillating scoop, a wire bent to form two dogs, registering-hands, and suitable mechanism intermediate of the hands and dogs, of an eccentric adapted to throw the parts out of gear, as set forth.

2. The combination, with an oscillating scoop mounted upon a standard formed with a double incline and a wire bent to form two dogs, of a ratchet in gear with such dogs and a registering-hand mounted upon the ratchet-shaft, as set forth.

3. The combination, with an oscillating scoop mounted upon a standard formed with a double incline and a wire bent to form two dogs, of a ratchet in gear with such dogs and provided with a lug, a registering-hand mounted upon the ratchet-shaft, and a second hand operated through the medium of the lug and suitable intermediate mechanism, as set forth.

319,595. MAGAZINE FIRE-ARM. HIRAM S. MAXIM, London, County of Middlesex, England. Filed Mar. 14, 1885. (No model.) Patented in England June 26, 1883, No. 3,173; in France Sept. 4, 1883, No. 156,344, and in Belgium Sept. 6, 1883, No. 62,519.

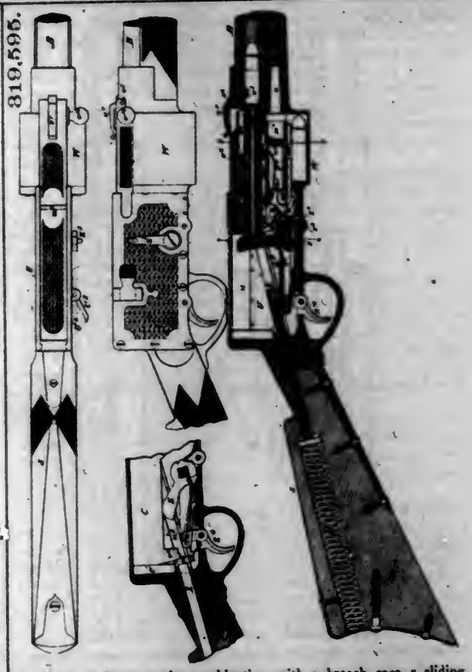
Claim.—1. In a portable fire-arm or rifle, the combination, with the barrel, of a movable breech-lock, a spiral spring placed in the butt or stock, a sliding bar between the breech-block, and the spring, an extractor carried by the breech-block, a feed-wheel for holding the cartridges to be fired, and gears or means for imparting an intermittent rotary motion to the same from the reciprocating breech-block, these parts being constructed and combined in the manner set forth, whereby the explosion of a cartridge in the barrel will cause the recoil of the breech-block and thereby extract the empty shell and store energy in the spring, which by its reaction effects the insertion of another cartridge and prepares the arm for the next discharge.

2. In a fire-arm, an extractor for removing the empty shells, consisting of a fixed jaw, v', forming part of the sliding breech-block, the lever, composed of the jaw v^4 and the arm v^7, pivoted to the breech-block, and a fixed stop in the path of the arm v^7, formed on or by the cover inclosing the breech-block, these parts being constructed and combined in such manner that the contact of the arm v^7 with the stop during the recoil of the breech-block liberates the empty shell from the jaws, as set forth.

3. In a fire-arm, the combination of the sliding breech-block, the cartridge-wheel w in gear therewith, so as to be intermittently rotated by the to-and-fro movement of the breech-block, an extractor carried by the breech-block, and a lever, V, pivoted below the breech-block and having two arms, one of which lies in the line of movement of a part of the breech-block, so that when one arm is encountered by the same the other will be raised into contact with an empty shell and effect the ejection of the same, as set forth.

4. In a fire-arm, the combination, with a sliding breech-block and firing-pin, of the hammer Z and two sears, z^3 z^4, one of which, as z^3, is combined with and operated by a trigger, and the other extending into the path of movement of a projection on the breech-block, so as to be operated by the same, as and for the purpose specified.

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5. In a fire-arm, the combination, with a breech-case, a sliding breech-block, and a spring compressed by the recoil of the same, of a spring-catch, v^{11}, pivoted in a recess in the breech-block, and eccentric U^2 on the case arranged to act on the catch through an opening in the case for locking or unlocking the breech-block, as herein set forth.

6. In a fire-arm, a shell-extracting mechanism carried by the sliding breech-block, consisting of the jaw v^4, pivoted to the forward end of the breech-block, in combination with the rigid jaw v' and a spring-plunger, b^3, that is contained in the breech-block and bears upon the pivoted jaw v^4, as set forth.

7. In a fire-arm, the combination, with a sliding breech-block, a spring placed in the stock, and a connecting-bar between the breech-block and the spring, of a trigger, z^4, and a spring, z^3, connected therewith, and extending into the path of a projection, z^2, on the connecting-rod, as and for the purpose set forth.

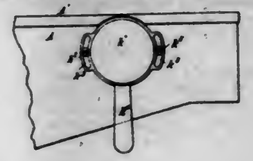
319,596. MACHINE-GUN. HIRAM S. MAXIM, London, County of Middlesex, England. Filed Mar. 14, 1885. (No model.) Patented in England Jan. 3, 1884, No. 606, and in France June 13, 1884, No. 162,737.

Claim.—1. The combination, with the sliding breech-block and the loading, firing, and extracting mechanism connected therewith, of the sliding tubular piece surrounding the muzzle and intermediate connections between the breech-block and the sliding piece, whereby a movement of the latter operates the breech mechanism, as set forth.

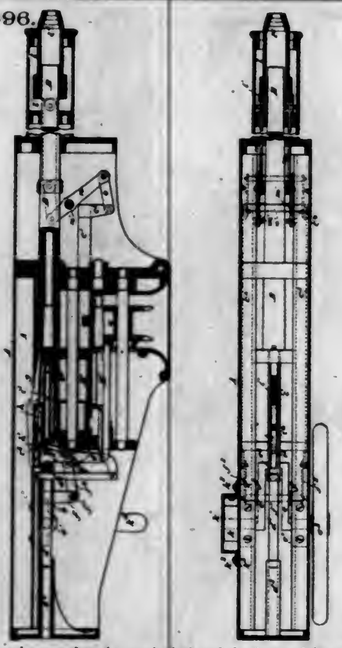
2. The combination, with the sliding breech-block and the loading-firing, and extracting mechanism connected therewith, of the sliding tubular piece surrounding the muzzle, the rods connecting the said piece with the breech mechanism, and the intermediate lever and link between the tubular piece and the connecting-rods, whereby a forward movement of the former produces a rearward movement of the latter, as described.

3. The combination, with the barrel B, of the sliding tubular piece *l*, surrounding the muzzle, socket *l'*, into which the rear end of the same extends, sliding breech-block C, and bars *m* and *c'*, with intermediate links, the said bars and links forming a connection between the sliding breech-block and the tubular piece *l*, as described.

4. The combination of the sliding breech-block and the breech mechanism connected therewith, the crank-shaft *e*, connected with the breech-

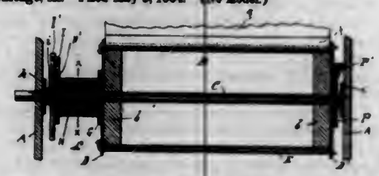


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block, spring *k*, secured to the crank-shaft and the frame of the gun, the sliding tubular piece *l*, surrounding the muzzle, and intermediate connections between the same and the crank-shaft, all as set forth.

319,597. AUTOMATIC ADVERTISING DEVICE. JOHN MCGREER, Chicago, Ill. Filed May 3, 1884. (No model.)



Claim.—1. In an advertising device, the combination, with the inclosing-case having a sight-opening, and with the display-drum having the perforated end plates projecting beyond its periphery, of rods passing through said end plates and removably held therein, substantially as described.

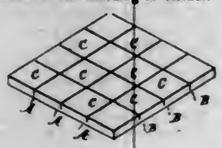
2. In an advertising device, the combination, with the display-drum, of the perforated end plates, the rods removably held in said end plates, and the cards having each a pocket to receive a rod, substantially as described.

3. In an advertising device, the combination, with the drum having the perforated end plates projecting beyond its periphery, of the removable rods having bent ends and staples for holding said ends, substantially as described.

4. In an advertising device, the combination of the drum B, the shaft C, the ratchet-wheel P, the pawl P', the ratchet-wheel G and pawl *g*, the cord-pulley H, the cord M, the weight O, and the escapement mechanism, substantially as described.

319,598. LAUNDRY-STARCH. WILLIAM H. MIDDLEY, Pittsburg, Pa. Filed Sept. 29, 1883. Renewed May 15, 1885. (No specimens.)

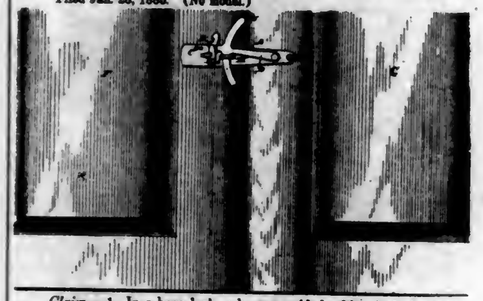
Brief.—The composition consists of spermaceti, rice-flour, gum-arabic, paraffine, stearine, and extract of slippery elm, formed into a homogeneous plastic mass, which is molded into the desired form for mixing with the starch for the starching of clothes.



Claim.—1. A compound for mixing with starch, consisting of the ingredients herein named made into a homogeneous mass and molded into form, as and for the purpose described.

2. The compound hereinbefore described, molded into form or forms and placed in a box or package of starch, as and for the purpose herein set forth.

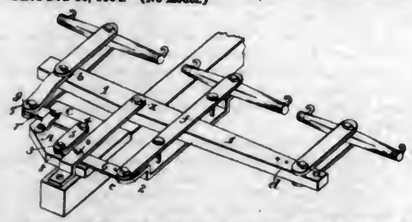
319,599. COMBINED LOCK HASP AND HOOK. FRANK N. MIHILLS, East Bookmantown, assignor of one-half to F. J. Longfield, Cleary, N. Y. Filed Jan. 28, 1885. (No model.)



Claim.—1. In a hasp-lock, a hasp provided with a lock, in combination with a hook pivoted thereto and provided at its free end with an elongated head, D, having a recess in the outer face thereof, said recess adapted to engage the lock-bolt when the parts are in a locked position.

2. In a hasp-lock, a hasp formed with an elongated slot for the reception of a staple near its free end and a hole for pivotally connecting it to a door or casing, and provided with a lock, one side of the housing of which is extended to form a guard, in combination with a hook pivoted to said hasp and provided with an elongated head, the recess in the outer face of which is adapted to engage the lock-bolt, substantially as set forth.

319,600. DRAFT-EQUALIZER. CONSTANTINE MINER, Rochester, Ind. Filed Dec. 10, 1884. (No model.)



Claim.—1. The combination, in a draft-equalizer, of a double-tree, a single-tree pivotally connected at opposite ends thereof, and an intermediate single-tree connected with one of the lateral single-trees by means of the movable block A and the arms 6 and 7 and connection S, substantially as specified.

2. The combination, with the draft-pole and double-tree, of the single-trees, the bars 6 and 7, connected by the plate S, the bar *f*, connecting the intermediate single-tree with the bar 6, the bar 9, connecting the outer end of the bar 7 with the short end of the double-tree, the bar X, and the movable bar A, all adapted to operate substantially as specified.

319,601. STEAM-RADIATOR. HAZEN MOORES, Milwaukee, Wis. Filed July 23, 1884. (No model.)



Claim.—1. In a hot-water or steam radiator, the combination, with the series of sections A A, of the series of sheet-metal plates C C, interposed between the opposing surfaces of said sections, substantially as set forth.

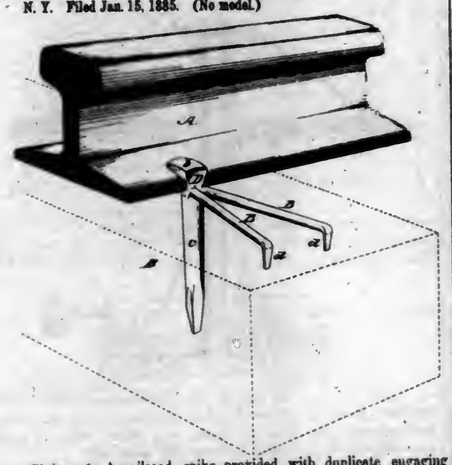
2. In a hot-water or steam radiator, the combination, with the series of sections A A, of the series of sheet-metal plates C C, interposed between the opposing surfaces of said sections, and series of separating-rods M M, substantially as and for the purpose specified.

3. The combination of the several sections A A, provided with notched studs H, tapered keys T, interposed between the contiguous ends of the respective studs, and retaining or binding rods E, supported

at their respective ends in bearings upon the end sections, substantially as set forth.

4. The combination, with the two end sections A A, of the shoulders F F, binding-rods E E, provided at one or both ends with nuts G G, notched studs H, and tapered keys T, all substantially as and for the purpose specified.

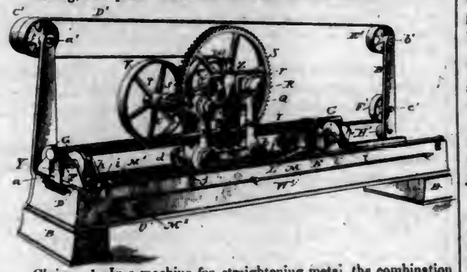
319,602. RAILROAD-SPIKE. ABRAHAM O. MORFORD, Port Chester, N. Y. Filed Jan. 15, 1885. (No model.)



Claim.—1. A railroad-spike provided with duplicate engaging points or projections in rear of and at a distance from the shank of the spike on opposite sides thereof, essentially as specified.

2. A railroad-spike having duplicate claws or anchoring-arms B', arranged to diverge outwardly relative to the back or outer side of the shank *c* of the spike, and provided with downwardly-bent outer entering ends or portions *d*, essentially as shown and described.

319,603. METAL BENDING AND STRAIGHTENING MACHINE. WALTER J. MUNCASTER, Cumberland, Md., assignor of one-half to Merwin McKaig, same place. Filed Mar. 14, 1885. (No model.)



Claim.—1. In a machine for straightening metal, the combination of a frame and a traveling press provided with rests or supports for the metal to be straightened, wholly independent of the bed or frame of the machine upon which the press is supported, and open at the upper side to permit the shaft or bar to be placed upon or removed from the rests laterally.

2. In a machine for bending and straightening metal, the combination of a main frame, supporting devices mounted upon said frame and serving to sustain the shaft or metal to be acted upon during adjustments of the press, and a traveling press mounted upon the frame and provided with supports for the shaft or metal to be acted upon independent of the main frame, said supports extending across the lower side only of the shaft or bar to be operated upon.

3. The combination of a frame or bed, a traveling press mounted thereon and provided with supports wholly independent of the frame to sustain the shaft or bar to be operated upon, and devices, substantially such as shown, adapted to raise and sustain the shaft or bar while the press is being moved upon the frame, and to lower the same to the supports on the press when the press is brought to the required point for operation.

4. In combination with a supporting-bed and a traveling press mounted thereon and provided with rigid supports for the bar or shaft to be acted upon, carriages mounted upon the frame and movable transversely thereon to and from each other, each presenting an inclined surface to the shaft or bar, substantially as shown and described, whereby said shaft or bar may be raised from or lowered to the supports on the press by causing the carriages to approach or to recede from each other.

5. In combination with a supporting-frame and with a traveling carriage mounted thereon and provided with fixed supports to sustain a bar or shaft to be acted upon, carriages mounted upon the frame and adjustable transversely thereof, each carriage presenting an inclined surface to the shaft or bar between them, and right-and-left screws connecting the carriages in pairs and serving to move them to or from each other simultaneously.

6. In a machine for bending or straightening metal and shafting, the combination of a frame, a press movable thereon and provided with rigid supports for the metal or shaft to be acted upon, and mechanism for raising and lowering the metal or shaft, consisting of transversely-movable carriages F, provided with wheels or rollers G, and connected in pairs by right-and-left screws.

7. In a machine for straightening shafting, the combination, with a frame and press, of mechanism for rotating and raising the shafting to be acted upon, consisting of sliding carriages F, provided with wheels G at opposite sides of and below the shaft, said wheels geared to rotate in the same direction transversely to the shaft, the upper face of one wheel being raised above that of the other wheel, and means, substantially such as described and shown, for moving the wheel-carriages together or apart.

8. The combination, substantially as set forth, of frame A, a press mounted thereon, wheels G, arranged in pairs journaled in bearings upon the frame and provided each with a worm-wheel, *e*, and worms *f*, connecting and serving to give motion to the worm-wheels of each pair, substantially as set forth and shown.

9. In combination with a frame and with a press mounted thereon, transversely-movable carriages F, arranged in pairs, right-and-left screws connecting the carriages of each pair, rollers G, journaled in the carriages and provided each with a worm-wheel, *e*, and worms *f*, connecting the worm-wheels of each pair, substantially as and for the purpose set forth.

10. In combination with frame A and press C, carriages F, arranged in pairs and connected by right-and-left screws H, connecting the carriages of each pair, wheels G, journaled in said carriages and each provided with a worm wheel or hub, *e*, and rotary worms *f*, connecting the worm-wheels and serving to rotate the wheels G in the same direction, whereby one roll of each pair is caused to move upward and the other downward at the point where they support the shaft to be acted upon, the upwardly-moving roller being of larger diameter than the other, substantially as and for the purpose set forth.

11. The combination, substantially as described and shown, of frame A, transversely-movable carriages F, rollers G, journaled in said carriages, right-and-left screws H, connecting the carriages in pairs, grooved shaft K, and pinions *h i*, connecting the screws and the shaft, whereby all the carriages may be operated simultaneously and equally.

12. In combination with frame A, transversely-movable carriage F, screw H, grooved shaft K, and gearing *h i*, connecting the screws and shaft, reversible ratchet-lever M, movable along the shaft, whereby the carriage may be controlled from any point in the length of the frame.

13. In combination with frame A, press C, and means for supporting a shaft or bar in the press, fixed block D, provided with transversely-adjustable carriages F, and movable block E, carrying transversely-adjustable carriages F.

14. In combination with a supporting bed or frame, a traveling press, C, consisting of frame N, having uprights *o p*, supports *d*, spindle O, provided with pinion U and band-wheel V, beam P, having opening *r*, and shaft R, provided with eccentric Q, gear-wheel S, and loose band-wheel T.

15. In combination with a supporting bed or frame, a press, C, mounted thereon, and having a frame consisting of casting N, uprights *o p*, supports *d*, link or bar *u*, and links or bars X, pivoted to frame N, and having hooked ends to engage with the axles thereof, substantially as described and shown.

16. In combination with a supporting bed or frame, a press mounted thereon and having a frame provided with supports *d*, uprights *o p*, shafts O R, and links X, hung upon said shafts and serving to open and close the front of the frame, as set forth.

17. In combination with the frame N, having uprights *o p*, supports *d*, and shafts O R, eccentric Q, beam P, and screw Z.

18. In combination with frame N, shaft O, provided with pinion U, band-wheel V, and clutch *s t*, shaft R, provided with gear-wheel S, loose band-wheel J, and eccentric Q, and beam P, pivoted at one end in the frame N, having its opposite end carried by the eccentric Q, and provided with screw Z, all substantially as described and shown.

19. In combination with frame A and press C, pulleys C' E' F', and belt D', passing about said pulleys and about the pulleys of the press, substantially as and for the purpose set forth.

20. The combination, with frame A, roller-carriages F, worms *f*, and pulleys *g*, of a driving-belt, G', passing about said pulleys and about pulleys at the ends of the frame, whereby motion is imparted to the worms and adjustment to the sliding-roll carriage and its worm is permitted.

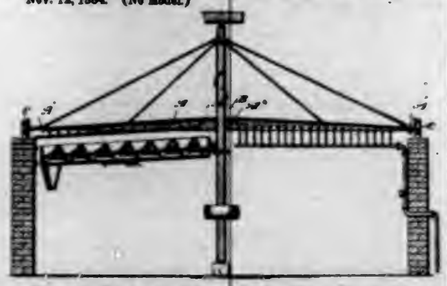
21. In combination with frame A and traveling press C, fixed block D, and movable block E, each bearing transversely-adjustable carriages F, each containing wheel G, worm *f*, and pulley *g*, pulleys C' E' F'' F', belt D', pulleys H' I' J' K' L', and belt G', all substantially as described and shown.

22. In combination with frame A, press C, drum M', sheave N', and rope or band *n*, gear-wheel O', shaft U', rocking plate T', pinions P' Q' R' S', and band-wheel K', substantially as shown.

23. In combination with frame A, press C, drum M', sheave N', and rope *n*, gear-wheel O', rock-shaft U', plate T', and pinions P' Q R' S', all constructed and arranged to operate substantially as explained.

319,604. APPARATUS FOR MANUFACTURING LAMP-BLACK.

PETER NEFF, Gambier, Ohio, assignor to Peter Neff, Jr., same place. Filed Nov. 12, 1884. (No model.)



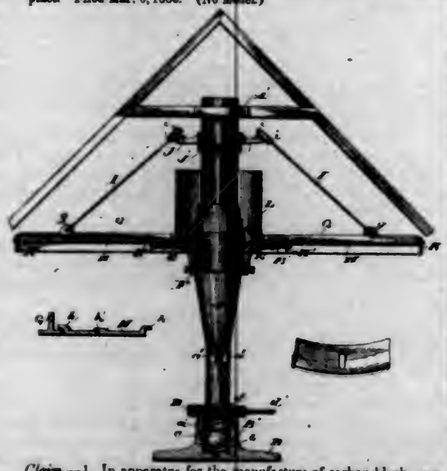
Claim.—1. In a machine for making lamp-black, the combination, with a horizontally-rotating surface constructed to form an inverted chamber for the reception of carbonic-acid gas, of gas-jets located below and in close proximity to said rotating surface, substantially as set forth.

2. In a machine for manufacturing lamp-black, the combination, with a horizontally-rotating surface having a downwardly-projecting flange forming an inverted chamber for the reception of carbonic-acid gas, of gas-jets located below said rotating surface and in close proximity thereto, substantially as set forth.

3. In a machine for making lamp-black, the combination, with a horizontally-rotating surface having a downwardly-projecting flange, of the stationary burners and scrapers located below said rotating surface, substantially as set forth.

319,605. APPARATUS FOR THE MANUFACTURE OF LAMP-BLACK.

PETER NEFF, Gambier, Ohio, assignor to Peter Neff, Jr., same place. Filed Mar. 6, 1885. (No model.)



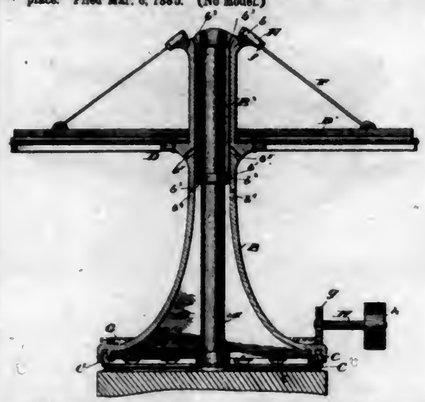
Claim.—1. In apparatus for the manufacture of carbon-black, a revolving black-collector mounted on a hollow shaft, the latter provided below the collector with lateral openings and arranged to operate as a ventilating chimney or flue, substantially as set forth.

2. In apparatus for the manufacture of carbon-black, a hollow upright shaft with lateral openings provided with worm-gears for revolving the shaft and load and a black-collector mounted on the shaft, a flanged collar embracing the shaft to support the center of the collector, a yoke or equivalent device embracing the shaft, and brace-rods attached to support the outer portion of the collector, the said yoke and flanged collar made adjustable vertically on the shaft, substantially as set forth.

3. In apparatus for the manufacture of carbon-black, the combination, with the shaft A and concaved disk *a'*, of the bed-plate B, the disk *b*, and the ball C, substantially as set forth.

319,606. APPARATUS FOR THE MANUFACTURE OF LAMP-BLACK.

PETER NEFF, Gambier, Ohio, assignor to Peter Neff, Jr., same place. Filed Mar. 6, 1885. (No model.)



Claim.—1. In a machine for manufacturing lamp-black, a black-collector mounted on a hollow standard, the latter provided with a broad base and supporting-rollers that operate on a circular track, and a guiding-column inside the standard, substantially as set forth.

2. In a machine for manufacturing lamp-black, a black-collector mounted on a hollow standard, with wheels and circular tracks for supporting the structure, a circular rack attached to the standard, an engaging pinion, and suitable mechanism for revolving the standard, and an upright stationary guiding-column inside the standard, substantially as set forth.

3. In a machine for manufacturing lamp-black, a collector mounted on a hollow standard provided with rollers, circular tracks, and mechanism for revolving the standard and load, a stationary upright guiding-column inside the standard, and inwardly-projecting flanges or heads on the standard to engage the columns, lateral openings in the standard, and vertical openings in the inside flanges, and the parts so arranged that the standard serves as a chimney or ventilating-flue, substantially as set forth.

4. In a machine for manufacturing lamp-black, the combination, with a hollow standard mounted on wheels and an inside guiding-column, of the flanges D and lugs E, integral with the standard, arranged to support the black-collector, substantially as set forth.

5. In a machine for making lamp-black, a horizontally-revolving substantially flat and imperforate collector unprovided with a carbonic-acid-gas retaining rim or flange, substantially as set forth.

319,607. STAPLE.

ABRAM NELSON, New York, N. Y. Filed July 9, 1883. (No model.)



Claim.—1. The improved staple comprising the body made equilateral and rectangular in cross-section, and having its lower extremity drawn to a needle-point located in the axial center of the body, the said body being formed on one side with a shoulder, *a*, near its upper end or head, and the hook made circular in cross-section, and having its shank united to the body at a point slightly above the shoulder *a*, substantially as and for the purposes specified.

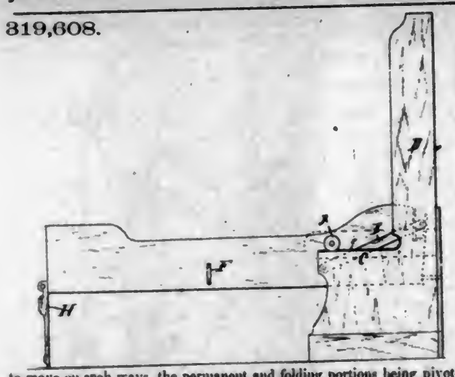
2. As a new and improved article of manufacture, a hook-staple consisting of the body A, made rectangular in cross-section, and having its lower extremity drawn to a needle-point, and having the vertices of its angles notched, the notches of each angle alternating with those of the adjacent ones, and formed on one side, near its upper end or head, with a shoulder, *a*, and the hook made round in cross-section, and having its shank united with the body at a point slightly above the shoulder *a*, substantially as set forth.

319,608. FOLDING BED.

GEORGE A. NELSON, Chicago, Ill., assignor to Charles H. Hildreth, same place. Filed July 23, 1884. (No model.)

Claim.—In a wardrobe-bedstead, the combination of a fixed or permanent portion provided with horizontal ways, and a movable or folding portion provided with rollers, connected directly therewith and adapted

319,608.



to move on such ways, the permanent and folding portions being pivotally connected to each other by a link or links to prevent their voluntary separation and to cause the rollers to move on the ways, substantially as described.

319,609. CULTIVATOR.

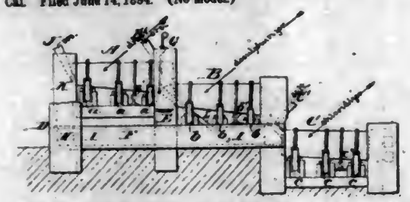
JABEZ C. NELSON, Marion, Ala. Filed Mar. 10, 1885. (No model.)



Claim.—A cultivator constructed substantially as herein shown and described, and consisting of the tongue A, having rounded forward end and forked rear end, the two arched bars D E, attached to the said tongue, the plow-beams attached adjustably to the arms of the arched bars, and the adjustable bent plow-standards having slotted cross-heads and secured to the said plow-beams, as set forth.

319,610. ORE AND SALT DRIER.

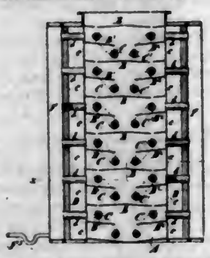
ROBERT A. NEVIN, San Francisco, Cal. Filed June 14, 1884. (No model.)



Claim.—The combination, with the rotating drier A, ore-roaster B, and stack D, of the flues F H and the dampers E G, substantially as shown and described.

319,611. EVAPORATING APPARATUS.

FRANCIS J. OAKES, Brooklyn, N. Y. Filed Mar. 21, 1885. (No model.)

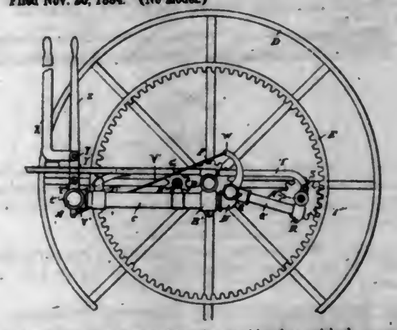


Claim.—1. In an evaporating apparatus, the combination of a chamber for containing liquid to be evaporated, pipes for conveying a heating agent through the same, and pipes or conduits whereby air may be caused to circulate in and through the chamber, substantially as specified.

2. In an evaporating apparatus, the combination of a chamber for containing liquid to be evaporated, diaphragms over which the liquid to be evaporated may flow, pipes for conveying a heating agent through the chamber, and pipes or conduits whereby air may be caused to circulate in and through the chamber, substantially as specified.

319,612. DETACHABLE HAY RAKE AND TEDDER.

JOSEPH E. OFFUTT, Springfield, Ohio, assignor to Joseph W. Thomas, same place. Filed Nov. 20, 1884. (No model.)



Claim.—1. In a hay-tedder, the combination, with the supporting-wheels, the main frame having rearwardly-extending side and intermediate pieces, and the couplings secured thereto below and in rear of the axis of said wheels, of the detachable frame consisting of a transverse shaft mounted in said couplings and of side and intermediate pieces secured thereto and the divided or sectional tedder-shaft mounted in the rear portion of the tedder-frame.

2. In a hay-tedder, the combination, with the main frame having rearwardly-extended side and intermediate pieces and the supporting-wheels having cogged rings, of the tedder-frame having like pieces connected to a transverse shaft mounted in couplings secured to said extensions, the divided tedder-shaft, each portion having a pinion adapted to intermesh with one of the cogged rings, the supporting-bars connected to the main and tedder frames, the arms which engage said bars, and the devices for actuating said arms.

3. In a hay-tedder, the combination, with the main frame having side and intermediate pieces provided with slotted standards and rearward extensions, of the tedder-frame having like pieces connected to the transverse shaft pivotally connected with said extensions, the arms mounted on said transverse shaft, the roller-locks, and the supporting-bars with which they engage, said bars being connected to the main and tedder frames, and the lever rod and arm for elevating the tedder-frame.

4. In a hay-tedder, the combination, with the main frame and the tedder-frame pivotally connected thereto, of the supporting-bars connected to both frames, the arms, and the roller-locks engaging with said bars.

5. In a hay-tedder, the tedder-arm constructed of yielding material and provided with an arch whereby it is made capable of longitudinal contraction and expansion.

6. In a hay-tedder, the tedder-arm constructed of yielding material and provided with an arch and a guide-pin, whereby it is made capable of longitudinal contraction and expansion and prevented from lateral springing.

7. In a hay-tedder, the tedder-arm constructed of thin steel and provided with an arch intermediate its ends, and a guide-pin rigidly secured to the arm above the arch and loosely fitted into and through the arch.

319,613. STOCK FOR FIRE-ARMS.

JOHN P. ONDERDONK, Philadelphia, Pa. Filed Mar. 25, 1885. (No model.)



Claim.—1. A gun-stock having slits or incisions through the stock, arranged substantially parallel, substantially as shown and described.

2. A gun-stock having slits or incisions through the stock, arranged substantially parallel and curved, substantially as shown and described.

3. A gun-stock formed of substantially parallel strips, separated from each other by a space and united at their ends, which strips form springs to resist the recoil of the gun, substantially as shown and described.

4. A gun-stock having slits or incisions through the stock from side to side and from top to bottom, forming strips or rods, substantially as shown and described.

5. A gun-stock having slits or incisions through the stock, the curvature of which gradually decreases from top to bottom toward the center, substantially as shown and described.

319,614. DRILL. JOHN H. PENDLETON, Brooklyn, N. Y., assignor to himself, Alexander H. Tiers and Cornelius Tiers, both of Madison, N. J., William G. Stephens, Chicago, Ill., and Joseph B. Dickson, Morristown, N. J. Filed Sept. 4, 1883. Reissued Nov. 24, 1884. (No model.)



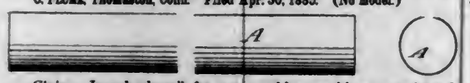
Claim.—The drill having grooves at opposite sides, the bottoms of the grooves being planes 1 2 and 3 4, uniting at 2 near to but at each side of the axis of the drill, the portions 3 4 of the grooves having curved or partially curved surfaces, substantially as set forth.

319,615. METHOD OF MAKING DANDY-ROLLS FOR PAPER-MAKING. FRANK C. PLUME, Thomaston, Conn. Filed Apr. 30, 1885. (No model.)



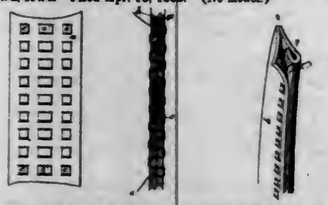
Claim.—The method of making a perforated metal backing for a dandy-roll, consisting in first producing a sheet of metal of the desired size, and having its opposite edge portions imperforate, in then bending the sheet into cylindric form and brazing or soldering the longitudinal joint formed by the meeting edges of the sheet, and in finally perforating or completing the perforation of the cylinder thus produced, substantially as herein described.

319,616. DANDY-ROLL FOR PAPER-MAKING MACHINES. FRANK C. PLUME, Thomaston, Conn. Filed Apr. 30, 1885. (No model.)



Claim.—In a dandy-roll for paper-making machines, a perforated metal backing consisting of a seamless drawn tube of metal, brazed or otherwise secured to the end pieces of the roll and perforated, substantially as herein described.

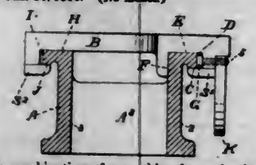
319,617. MANUFACTURE OF LEATHER ARTICLES. ROBT. PORTER, Ottumwa, Iowa. Filed Apr. 13, 1885. (No model.)



Claim.—1. A horse-collar or other article of leather having one or more rows of stitches formed of an approximately-flat continuous metal strip, substantially as described.

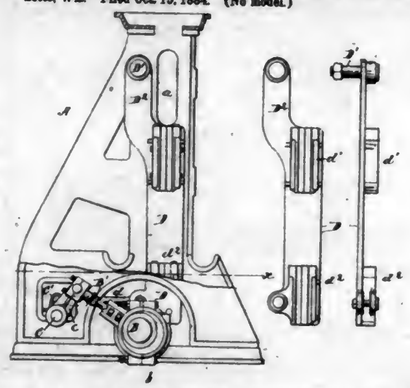
2. A horse-collar or similar article having the front and back united by a seam consisting of successive stitches formed by metal strip or ribbon, substantially as described.

319,618. FRAME AND CARRIAGE FOR MACHINES. FRANCIS A PRATT, Hartford, Conn., assignor to the Pratt & Whitney Company, same place. Filed Jan. 30, 1885. (No model.)



Claim.—The combination of a machine-frame having top bearing-surfaces, E and H, lower bearing-surfaces, C and J, and bearing-surfaces D and F, of which surfaces F has a lateral position between surfaces C and J, and a carriage fitted to slide on said bearing-surfaces, substantially as described.

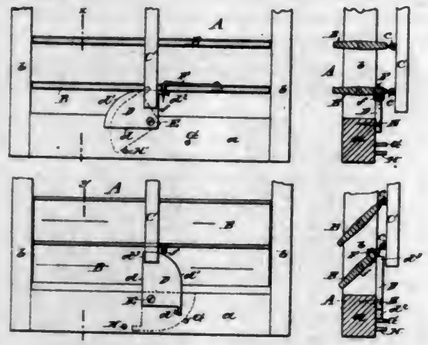
319,619. RECIPROCATING SAW-MILL. DE WITT C. PRESCOTT, Marinette, Wis. Filed Oct. 15, 1884. (No model.)



Claim.—1. In a gang saw-mill, the combination, with the main frame, of the guide-plates having the guide-boxes d' d^2 in line thereon and pivoted to the frame at a point in the rear of the line of said guide-boxes and at a height equal to the highest point of reciprocation of the saw-gate, and mechanism for oscillating said guide-plates, substantially as and for the purposes specified.

2. In a gang saw-mill, the combination, with the main frame, of the guide-plates D, having the rearward and upward extensions, D^2, pivoted to the main frame at a point, D', in the rear of the line of said guide-boxes and at a height equal to the highest point of reciprocation of a saw-gate, and mechanism for oscillating the said guide-plates, substantially as and for the purposes set forth.

319,620. BLIND-SLAT CHECK. JOHN RACEY, Quebec, Canada, assignor to himself and John Williams, same place. Filed Feb. 26, 1885. (Model.)



Claim.—1. The combination, with the lower rail, *a*, and lower slat, *b*, of a blind, of the plate D, pivoted to rail *a*, and provided with a lip, d^3, and the spring-catch F, having loop *f*, and secured to the lower slat, substantially as herein set forth.

2. The combination, with the rail *a*, slat B, spring F, and plate D, of the stops G H, substantially as herein set forth.

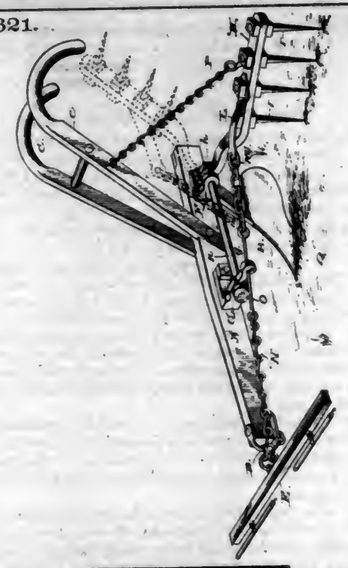
3. As an improved article of manufacture, the slat-check plate D, made with a locking-lip, d^3, and end portion or shoulder, d^3, substantially as herein set forth.

319,621. COMBINED PLOW AND HARROW. WILLIAM H. REPASS and JOHN P. CURRIN, Pulaski Station, Va. Filed Feb. 26, 1885. (No model.)

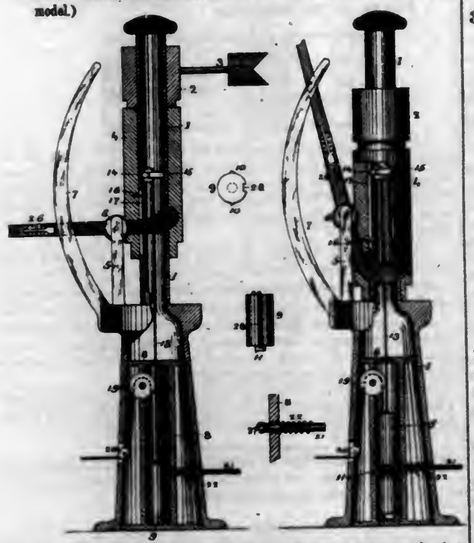
Claim.—1. The combination of the plow, the brackets F G, bolted to the beam thereof, the bolt K, extending through the brackets, the harrow-beam hinged thereon, and the draft-chain secured to the harrow-beam and to the double-tree, substantially as described.

2. The combination of the plow, the brackets F G, bolted to the beam thereof, the bracket G having the extension *g*, the bolt K, extending through the brackets, the harrow-beam hinged thereon, and the draft-chain secured to the harrow-beam and to the double-tree, and having a rod portion, O, that passes through an opening in the extension *g* of the bracket G, substantially as described.

319,621.



319,622. COMBINED GATE AND SIGNAL FOR RAILWAY-CROSSINGS. GEORGE A. REYNOLDS, Utica, N. Y. Filed July 3, 1884. (No model.)



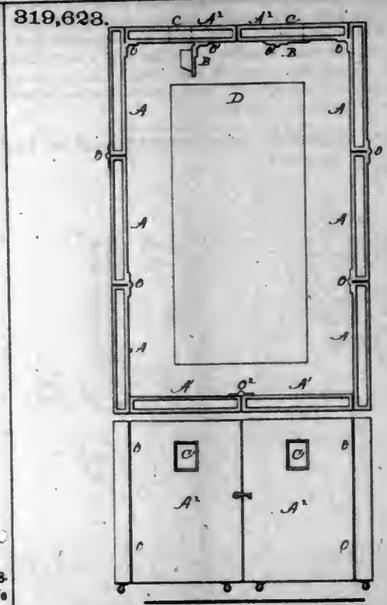
Claim.—1. The combination, with a vertical post or column having a chamber or recess, an exterior encircling weight or collar on the upper portion of said post, a swinging gate adapted to be engaged by said weight, a weight adapted to be moved vertically in said chamber or recess, pulleys, and cord or chain guided thereby located in the post or column and connecting the interior weight to the encircling weight, a retaining and tripping device in said chamber or recess for releasing and retaining said interior weight by approaching and departing trains, substantially as set forth.

2. A hollow column or post having an interior frame in its base portion, a weight fitted to slide in said frame, and a retaining or tripping device, in combination with devices for raising said weight, a swinging gate, and a sliding collar or exterior weight adapted to operate said gate and connected with the interior weight, substantially as herein set forth.

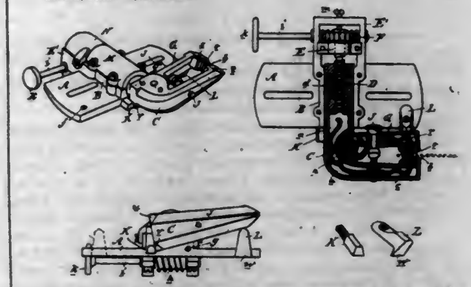
319,623. BED-PROTECTOR. WILLIAM ROBINSON, National Soldiers' Home, Ohio. Filed Apr. 27, 1885. (No model.)

Claim.—In a bed-protector against disturbing noises, hollow panels filled with non-transmitting material, said panels hinged and secured together, substantially as set forth.

319,624.



319,624. SAW-GUIDE. GEO. W. RODERAUGH, Jackson, Mich. Filed Jan. 2, 1885. (No model.)



Claim.—1. In a saw-guide, a partially-rotating and L-shaped hollow arm, in combination with another hollow arm, the two arms being secured together by a knuckle or pivotal joint, and each arm having orifices for the admission of the lubricant and for the wicks, substantially as and for the purposes described.

2. In a saw-guide, the combination, with two hollow arms pivotally secured together by a knuckle or pivotal joint, substantially as described, of a set-screw adapted to turn one of the arms on its pivot, and thus expand or contract the distances between the free ends of said arms, substantially as specified.

3. In a saw-guide, the combination of the box B, the partially-rotating arm C, the shank of which works in said box, and is provided with an internally-threaded orifice, with the adjusting-screw D engaging with the orifice in the shank of said arm, the toothed wheel F, carried by said screw, and the worm *h* upon the rod *i*, journaled in the box E', substantially as and for the purpose specified.

4. In a saw-guide, the combination, with two hollow arms pivotally secured together, of the set-screw described passing through the end of the frame constructed to take up the lost end motion, substantially as specified.

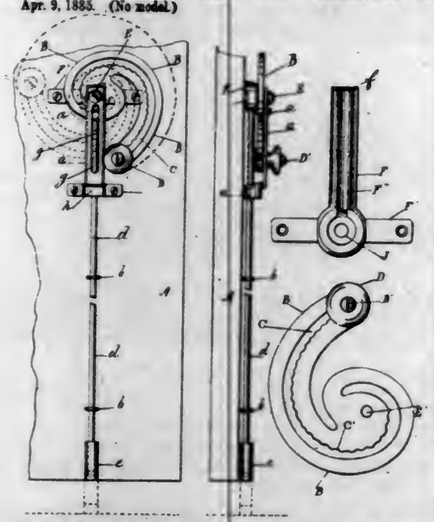
5. In a saw-guide, the combination of two arms pivotally connected together by a knuckle or pivotal joint, and a single stop, K, secured to the frame and constructed to arrest the throw or rotation of one of said arms in either direction, substantially as set forth.

6. In a saw-guide, the combination, with two arms constructed and operating substantially as described, of the two stops K L, removably secured to the frame, substantially as and for the purposes specified.

7. The combination, in a saw-guide, of the hollow arm C, adapted to rotate in its box, a hollow arm pivotally secured to said arm, a set-screw, J, passing through said arms, and the stops L K, removably secured to the frame, the parts being constructed and operating substantially as and for the purposes described.

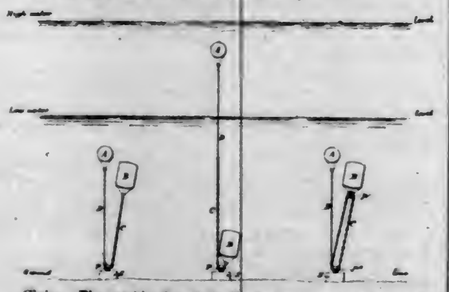
8. In a saw-guide, the combination, with the frame A, box B, arm C, constructed to rotate in said box, the arm G, pivotally secured to said arm C, the screw D, wheel F, carried by said screw, rod *i*, worm-thread *h* upon said rod, and the set-screw *n*, constructed to take up lost end motion of said arm C, all constructed, arranged, and operating substantially as and for the purpose specified.

319,625. DOOR-CHECK. JOSEPH F. ROWLETT, Richmond, Ind. Filed Apr. 9, 1885. (No model.)



Claim.—The supporting-frame F, cap-frame G, revolving conoidal plate B, having involute slot C, provided with corrugated edge, stop-rod *d*, provided with arm *a*, and foot-piece *e*, combined and operating in the manner and for the purposes herein described.

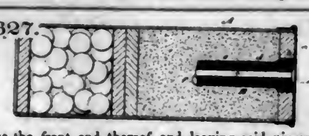
319,626. COUNTERBALANCING-FLOAT FOR MARINE TORPEDOES. RICHARD M. ROCK, Chatham, County of Kent, and EDWYN JONES, Wallington, County of Surrey, England. Filed Apr. 19, 1884. Renewed Mar. 10, 1885. (No model.) Patented in England Feb. 20, 1884, No. 3,654; in France Apr. 10, 1884, No. 161,475; in Belgium Apr. 12, 1884, No. 64,819; in Victoria May 13, 1884, No. 3,722; in Tasmania May 15, 1884, No. 321 9; in South Australia May 17, 1884, No. 453; in Portugal May 21, 1884, No. 916; in New South Wales July 17, 1884, No. 7,331; in Spain Aug. 8, 1884, No. 6,904; in Queensland Aug. 11, 1884, No. 7; in New Zealand Sept. 16, 1884, No. 1,220; in East Indies Nov. 18, 1884, No. 175, and in Norway Nov. 21, 1884.



Claim.—The combination of the floating body, a counterpoise such as described provided with the graduated flexible connection, lightest at its end next the counterpoise, and increasing in weight toward its opposite end, and flexibly connected with the floating body, and the anchoring-pulley about which passes the flexible connection between the floating body and counterpoise, substantially as and for the purpose hereinbefore set forth.

319,627. ELECTRIC PRIMER. SAMUEL RUSSELL, Brooklyn, assignor to the American Electric Arms and Ammunition Company, New York, N. Y. Filed Nov. 29, 1884. (No model.)

Claim.—1. An electric primer consisting, essentially, of a central pin of conducting material, a tubular insulating-sheath surrounding said pin, and a metallic tube inclosing and tightly embracing said sheath, extending to the front end thereof, and leaving said pin exposed at both ends, constructed and adapted to operate substantially as set forth.



2. An electric primer made distinct from and separable from and insertible in a cartridge-shell, consisting of a central conducting-pin, a tubular insulating-sheath surrounding said pin, and a metallic tube inclosing and tightly embracing said sheath and leaving both ends of said sheath and pin exposed, substantially as set forth.

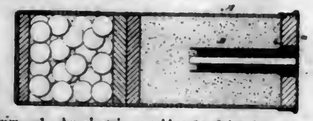
3. An electric primer consisting, essentially, of a central metallic pin, a tubular insulating-sheath surrounding said pin, and a slightly-conical metallic tube forced over and tightly inclosing said sheath, leaving both ends of both sheath and pin exposed, substantially as set forth.

4. An electric primer for firing by incandescence, consisting of a central metallic pin, a tubular insulating-sheath surrounding the same, a metal tube inclosing said sheath, and a high-resistance conductor joined at one end to the front of said pin and at its other end to said tube, substantially as set forth.

5. A cartridge-shell having a metallic base combined with a separable electric primer, B, the latter consisting of an outer metallic tube, *c*, in electrical connection with said metallic base, a tubular insulating-sheath, *d*, a central metallic pin, *e*, and a high-resistance wire, *f*, substantially as set forth.

6. A cartridge-shell, A, having a metallic base, *a*, and an inturned neck, *b*, in combination with a separable electrical primer, B, constructed substantially as described, and having a slightly-conical enlargement, *e'*, at its base tightly fitting said neck, substantially as set forth.

319,628. ELECTRIC CARTRIDGE. SAMUEL RUSSELL, Brooklyn, N. Y. Filed Nov. 29, 1884. (No model.)



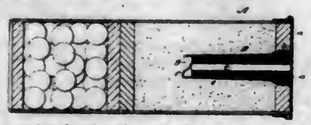
Claim.—1. An electric cartridge for firing by means of an electric spark provided with an annular electric terminal arranged in the powder-space and with the opposite terminal arranged within said annular terminal and substantially equidistant from all sides thereof, whereby the spark passing between said terminals has a choice of radial paths, as set forth.

2. An electric cartridge for firing by means of an electric spark provided with a central electric terminal projecting toward the front, a recess or powder-space, *f*, surrounding said terminal, and the opposite terminal at the margin of said recess, combined substantially as set forth.

3. A spark-primer for an electric cartridge, consisting of a conducting-pin, *c*, a tubular insulating-sheath, *d*, inclosing said pin, and a metal tube, *e*, inclosing said sheath and projecting beyond the front end thereof, thereby forming a recess, *f*, substantially as set forth.

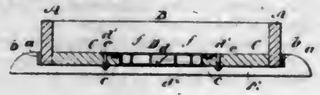
4. A cartridge-shell, A, formed with a metallic base, *a*, and neck *b*, combined with a spark-primer, B, consisting of a tube, *e*, pin *c*, and interposed insulating-sheath *d*, substantially as set forth

319,629. ELECTRIC CARTRIDGE. SAMUEL RUSSELL, Brooklyn, assignor to the American Electric Arms and Ammunition Company, New York, N. Y. Filed Jan. 29, 1885. (No model.)

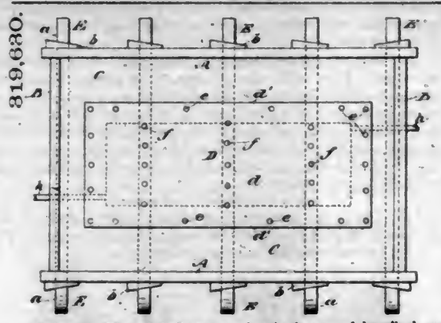


Claim.—An electric primer for firing by incandescence, consisting of a central metallic pin, a tubular insulating-sheath surrounding the same, a metal tube inclosing said sheath and projecting at its front end beyond the end of said sheath, forming thereby a recess, *g*, and a high-resistance conductor connected at one end to said pin and at its other to said tube, and lying partly or wholly in and protected by said recess, substantially as set forth.

319,630. SALT BOILER OR PAN. J. SEELY, Warsaw, N. Y. Filed Sept. 18, 1884. (Model.)



319,630.

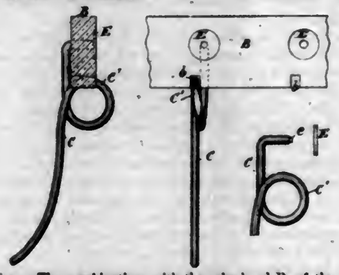


Claim.—1. The salt boiler or pan herein shown and described, consisting of the side and end pieces, A B, bottom C, and steam-chamber D, let into the bottom C, so that its upper surface, *d*, stands flush with the upper surface of the bottom C, substantially as and for the purpose set forth.

2. The bottom C, of wood, formed with the opening *c*, in combination with the side and end pieces, A B, of wood, and the steam-chamber D, fitted in the recess *c*, so that its upper surface stands flush with the upper surface of the bottom C, substantially as and for the purposes set forth.
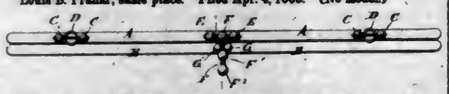
3. The steam-chamber D, composed of the bottom portion, d^2, and top plate, *d*, extended past the lower part, d^2, to form flanges *d'*, the chamber being stayed by bolts or rivets *f*, substantially as and for the purposes set forth.

319,631. HAND-RAKE. WILLIAM SELLERS, Haverhill, Mass. Filed Mar. 28, 1885. (No model.)



Claim.—The combination, with the rake-head B, of the teeth C, having bent portions C', and secured at their upper ends to the rake-head by rivets E, the under side of the rake-head being provided with notches *b*, in which are fitted the bent portions of the teeth, substantially as shown and described.

319,632. FASTENING FOR BAG, POCKET-BOOK, AND PURSE FRAMES. CHARLES S. SHEPARD, Brooklyn, N. Y., assignor to himself and Louis B. Prahar, same place. Filed Apr. 4, 1885. (No model.)



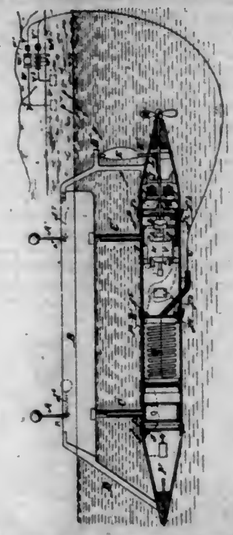
Claim.—1. A fastening for bag, pocket-book, and purse frames constructed substantially as herein shown and described, and consisting of two pairs of studs, and a rod having a knob hinged to one pair of studs and shutting down between the other pair, as set forth.

2. In a fastening for bag, pocket-book, and purse frames, the combination, with the parts A B of the frame, of the pair of studs E, attached to one part, the pair of studs G, provided with the knobs G' and attached to the other part, and the rod F, provided with the knob F', hinged to the studs E and shutting down between the knobs G' of the studs G, substantially as herein shown and described, whereby the said fastening can be readily fastened and unfastened, as set forth.

319,633. TORPEDO-BOAT PROPELLED AND STEERED BY ELECTRICITY. WINFIELD S. SIMS, Newark, N. J. Filed May 29, 1882. (No model.) Patented in England May 25, 1883, No. 2,614.

Claim.—1. The combination, with the described torpedo-boat, provided with a screw-propeller and an electromotor therein, connected to said propeller, so as to communicate motion thereto, of a generator of electricity located outside of said boat and electrically connected by a suitable conductor with said electric motor, arranged in said boat to be paid out therefrom as the boat moves from the generator, whereby the force employed as the propelling-power may be derived from electricity generated outside of said boat and applied to actuate said propelling electric motor within said boat, all as and for the purpose described.

319,633.



2. The combination, with the described torpedo-boat and an electric generator stationed outside of said boat, electrically connected therewith by an electric conductor arranged to be paid out from the boat as the same moves away from the generator, of the described steering mechanism and the electro-magnets I I', provided with armatures J J', by the movements of which the said steering mechanism is actuated, all as and for the purpose described.

3. The combination, with the described main and auxiliary electric circuits, the main and auxiliary electric generators located at the operating-station outside of the boat, and the described propelling-motor and steering-magnets, of the described steering-relay, electrically connected to the auxiliary generator and in the circuit of the main generator, between the said motor and steering-magnets, together with the described accessory devices, whereby the main current, after passing through said motor, may, by means of the auxiliary current, be switched through either of the steering-magnets at the option of the operator, all as specified.

4. The combination, in a torpedo-boat, with the main conductor therein, leading from a generator located at a station outside of the boat, and with a branch of said conductor leading to the explosive charge in the boat, of a relay in the circuit formed by said main and branch conductors, together with the described accessory devices in said relay, whereby, when the current through said main conductor is reversed, it is switched through said branch conductor to the explosive charge, all as and for the purpose described.

5. The combination, in the described torpedo-boat, of the two independent magnets I I', the rudder E, tiller L, armatures J J', arranged to slide in ways *j*, and the rigid tiller-rods *l l'*, as and for the purpose described.

6. The combination, in the described torpedo-boat, of the rudder E, tiller L, magnets I I', and rigid connecting-rods *l l'*, provided with the adjusting screw-swivels *m m'*, as and for the purpose described.

7. The combination, with the described boat and float, of a guard secured to and extending between their bow ends, and inclining rearward from the boat to the float, for the purpose of causing the boat and float, when under way, to be deflected downward and pass under a floating obstruction, as described.

8. The combination, with the described boat and float, of a guard secured to and extending between their bow ends, and made sharp-edged in front, for the purpose of severing floating obstructions, as described.

9. The combination, with the described boat and float, of the guard D', secured to and extending between the stern ends of the boat and float, and inclining rearward from the float to the boat, for the purpose of guarding the rudder of the boat from contact with any object that may pass over the float, as described.

10. The combination, with the described sections of a torpedo-boat, of the described sections of the line-wire electrical conductor therein, the insulated contact-plates *f f'*, and springs *g*, as and for the purpose described.

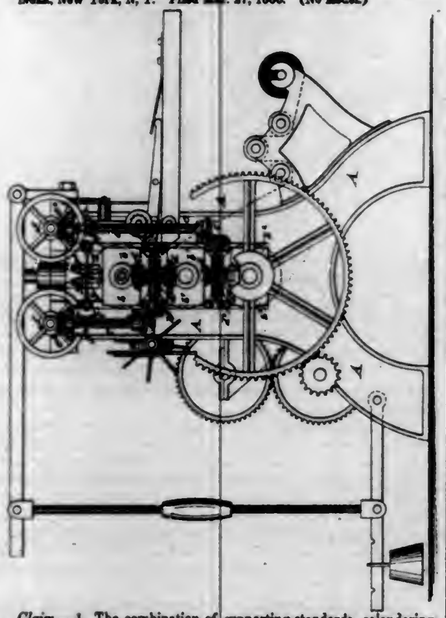
11. The combination, with the float B, provided with the hollows or depressions d^5 d^7, of the sight-rods A A', one or more, hinged to the said float so as to be depressible into the said hollows, and provided with

the described springs, which act to maintain the said rods yieldingly in an erect position, as and for the purpose described.

12. An electrically-propelled submarine torpedo-boat composed of detachable sections containing an electrical propelling apparatus in the circuit of an electrical generator, and a portion of the electrical conductor for transmitting the actuating electrical current through the boat and said apparatus, as and for the purpose described.

13. An electrically-propelled submarine torpedo-boat composed of detachable sections containing electrical propelling apparatus, each of two or more sections of the boat containing a detachable section of the electrical conductor, by which the propelling current is transmitted through the boat and said apparatus, whereby, upon detaching the sections of the boat, the said sections of the conductor may be detached.

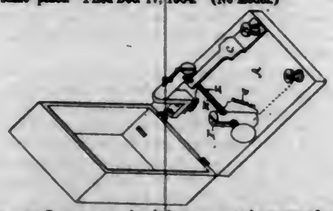
319,634. MACHINE FOR CALENDERING PAPER. MOSES SOUDER, New York, N. Y. Filed Mar. 27, 1885. (No model.)



Claim.—1. The combination of supporting-standards, calendering-rolls having bearings guided in said standards, short vertical shafts engaging, respectively, plain and threaded sockets of said bearings, worm-gears on said vertical shafts, horizontal worm-shaft, vertical shafts, transverse top shafts, and bevel-gears between the vertical and worm shafts, so as to adjust simultaneously the bearings at both ends of the calendering-rolls, substantially as set forth.

2. The combination, with calendering-rolls, bearings supporting said rolls, short vertical shafts engaging plain and threaded sockets of said bearings, intermediate transmitting mechanism, transverse top shafts, and an indicating mechanism for each roll, consisting of a fulcrumed pointer, a transmitting-gearing, and a fixed graduation, substantially as specified.

319,635. AUTOMATIC CUT-OFF FOR BATTERIES. LEON SOULLIER, Chicago, Ill., assignor, by mesne assignments, of one-half to William Rentz, same place. Filed Dec. 17, 1884. (No model.)

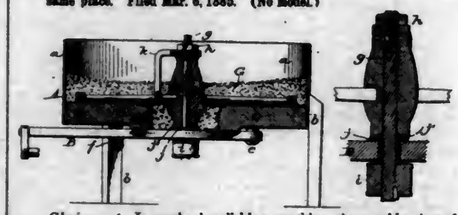


Claim.—1. In an open-circuit battery, a rod or arm of non-conducting material secured at one end and free at the other for holding one section or portion of the circuit in contact with another until weakened or rendered flexible by heat, substantially as described.

2. In an open-circuit battery, the combination of a spring forming part of the circuit and a support of non-conducting material secured at one end and free at the other and holding the spring in contact with another part of the circuit and thereby completing the same, substantially as described.

3. In an open-circuit battery, the combination of a spring secured at one end and free at the other, forming part of the circuit, and a support of non-conducting material, also secured at one end and free at the other, the support pressing at one side of its free end against the spring at one side of its free end, whereby the spring is held in contact with a screw or platinum point to complete the circuit and yielding when weakened by heat, whereby the spring is disengaged to break the circuit, substantially as described.

319,636. MACHINE FOR OILING AND POLISHING WHEELS. FERDINAND W. STARR, Springfield, Ohio, assignor of one-half to Thomas Wall, same place. Filed Mar. 6, 1885. (No model.)



Claim.—1. In a wheel-polishing machine, the combination of a box or receptacle containing a polishing material and a spindle or holder within the box for holding the wheel, said spindle or holder and box being arranged substantially as described, whereby one of said parts may be moved relatively to the other.

2. In a wheel-polishing machine, the combination of a box or receptacle containing a polishing material and a spindle or holder within the box for holding a wheel, said spindle or holder being arranged substantially as shown and described, whereby it may be reciprocated within the box.

3. In a wheel-polishing machine, the combination of a box or receptacle for containing a polishing material and a spindle or holder within the box for holding a wheel, said spindle or holder being arranged substantially as described, whereby it may be rotated within the box.

4. In a wheel-polishing machine, the combination of a box or receptacle containing a polishing material, and a spindle or holder within the box for holding a wheel, said spindle or holder being arranged substantially as shown and described, whereby it may be rotated and reciprocated simultaneously within the box, for the purpose set forth.

5. In combination with box A, having sides *a* and bottom *c*, the latter provided with opening *d*, lever B, pivoted to the box and carrying a spindle or holder to support the wheel, and suitable material, *g*, for smoothing and oiling the wheel, as set forth.

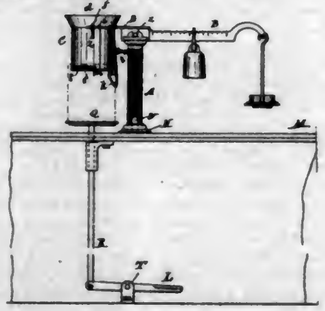
6. In combination with box A, constructed substantially as shown and described, lever B, provided with spindle *g*, said spindle or holder being provided with nut *h* and band-wheel *i*, as set forth.

7. In combination with box A, having sides *a*, legs *b*, bottom *c*, and opening *d*, lever B, pivoted to the box and provided with spindle or holder *g*, nut *h*, wheel *i*, and collar *j*, as and for the purpose set forth.

8. In a wheel-polishing machine constructed substantially as shown and described, lever B, pivoted to the box and carrying a spindle or holder for the wheel to be polished, said lever being enlarged immediately around the spindle, as and for the purpose set forth.

9. A machine for operating upon the surface of vehicle-wheels, consisting, essentially, of a receptacle for holding the abrading or polishing material and an arm or holder or the equivalent thereof, by which the wheel is held and reciprocated or rotated, or both, over and among the polishing or abrading material contained in the receptacle, for the purpose of cleaning, oiling, or imparting a smooth surface to the wheel.

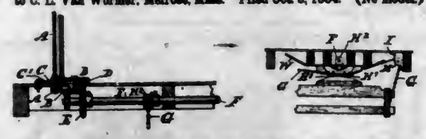
319,637. WEIGHING-SCALE. JOHN H. STEVENS, Sandwich, Mass. Filed Mar. 2, 1885. (No model.)



Claim.—1. The standard A, having vertical slot V, beam B, and a dumping-hopper suspended within the forked ends of said beam, in combination with the hopper H of a grinding-mill, substantially as described.

2. In a sack-scale, the combination of the standard A, the scale-beam B, provided with a bifurcated extension, D, a swinging hopper, C, pivoted on said extension, and provided with the hinged bottom *m*, and with a spring-catch, *k*, attached to its side for retaining said bottom in closed position, and a stop, *r*, attached to the standard for retaining said hopper in position during the releasing of the catch, substantially as described.

319,638. DUMPING-CAR. DAVID S. STIMSON, Concord, N. H., assignor to C. L. Van Wormer, Melrose, Mass. Filed Oct. 8, 1884. (No model.)



Claim.—1. The combination of the winding-shaft A and its spur-pinion C with the spur-gear D, the bevel pinion and gear D′ E, the shaft F, the chain G, and the chain-pulleys H³, H³, H⁴, H′, and H, the free ends of said chain being fastened to the sides of the truck, and the pulleys being located substantially as shown and set forth.

2. The double-ended dog C′, combined with the spur-pinion C and its shaft A, the spur-gear D, the bevel pinion and gear D′ E, the shaft F, the chain G, and the chain-pulleys H³, H³, H⁴, H′, and H, the said chain and pulleys being arranged substantially as shown, as and for the purpose set forth.

3. The cored casting B, adapted to afford a bearing for the shafts A and F and the bevel-pinion D′, and to inclose the spur-gearing C D and the bevel-pinion D′, combined with the said shafts A and F, the latter provided with a bevel-gear E and a chain, G, said chain being arranged in connection with pulleys H³, H³, H⁴, H′, and H, substantially as shown, and fastened to the truck, as and for the purpose set forth.

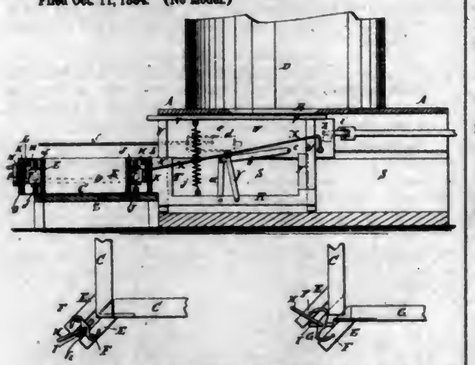
4. The combination of the shaft A and its spur-pinion C with the double-ended dog C′, the cored casting B, the spur-gear D, the bevel-gearing D′ E, the shaft F, the chain G, and pulleys H³, H³, H⁴, H′, and H, the said chain and pulleys being arranged substantially as shown, as and for the purpose set forth.

5. The steady-links J J, having the rigid lever *j*, and pivoted to the eyebolts K, combined with the stud *m*, rod L, and operating-lever M, as set forth.

6. The operating-shaft Y′, combined with the vertically-moving latches Y and the vertically-adjustable eyebolts *y*, substantially as set forth.

7. As a transom, the bars P P, having their ends bent down and outward, and provided with lap-ended stay-plates S and T, combined with the inside sills, provided with the vertically-flanged bed-plates Q Q, the arch W, the plates R R, and the outside sills, all the parts being bolted together substantially as shown, as and for the purpose set forth.

319,639. BRICK-MACHINE. CHARLES A. TARRASON, Portland, Oreg. Filed Oct. 11, 1884. (No model.)



Claim.—1. In a brick-machine, the combination, with the sliding frame K, having cross-bars J, of the molds C, open at the corners and provided with lugs E and pins F, the double hooks G, the cam-plate I, the bent rod H, and the sliding bars L, and armed crank-shaft O, and the spring Q, substantially as herein shown and described, whereby the said molds can be opened and closed by operating the said armed crank-shaft, as set forth.

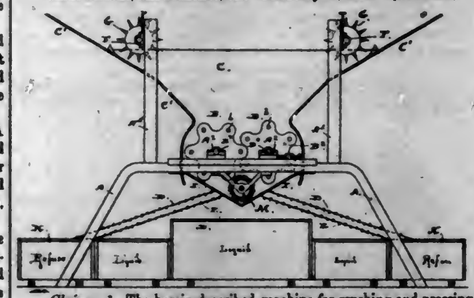
2. In a brick-machine, the combination, with the platform A, having openings B, the guard-plate V, the head-block S, and the frame K, carrying the molds C, of the bars R, having cleats T, the legs U, the side boards W, the lever X, and the connecting-bar Y, and spring *j*, substantially as herein shown and described, whereby the mold-carrying frame can be raised and lowered and will carry the said guard-board with it in its outward and inward movements, as set forth.

3. In a brick-machine, the combination, with the bars R, attached to the mold-carrying frame K and the side boards W, of the rock-shaft *c*, having rigid arms *b*, and the connecting-bars *a*, substantially as herein shown and described, whereby the two bars R are made to move up and down together, as set forth.

4. In a brick-machine, the combination, with the head-block S, and the side boards W, connected with the guard-plate V, of the water-tanks *d*, the shaft *e*, and its crank-arm *f*, substantially as herein shown and described, whereby the said head-block can be readily wet to prevent the clay from adhering thereto, as set forth.

5. In a brick-machine, the combination, with a sliding frame and molds carried in said frame, of cranked shafts, devices connected with said cranked shafts and the molds for locking together and separating said molds at their corners, and of devices for operating the said cranked shafts, substantially as herein shown and described, whereby the bricks will be discharged from the molds, as set forth.

319,640. MACHINE FOR CRUSHING AND PRESSING GRAPES. ISAAC THAYER, San Francisco, Cal. Filed May 27, 1884. (No model.)



Claim.—1. The herein-described machine for crushing and pressing grapes and separating the juice and pulp, consisting of a suitable frame, the corrugated rolls B B, the hopper with feed-tables C′, the screens I, the brush-roller M, the inclined screens D E, and the juice and refuse receptacles K K, substantially as described.

2. In a machine for crushing and pressing grapes, the combination, with the hopper, of the picking-rollers G and the feed tables or surfaces C′, substantially as and for the purposes described.

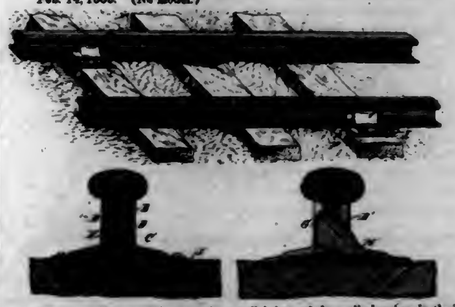
3. In combination with the hopper and crushing apparatus, the screens I I beneath the hopper, the juice-boxes L, the inclined screens D E, and the refuse-boxes K, substantially as and to operate as set forth.

4. The bunch-holding clamp or device for holding and presenting clusters of grapes to a picking or stripping device, consisting of the clamping-bars H H* and the pivoted handles P P, substantially as described.

5. A stripping mechanism for removing grapes in clusters from the stems, consisting of the driven rollers G, having picker-teeth, and the clamp-bars H H*, adapted to grasp and hold the stems of the clusters, substantially as described.

6. The combination of hopper C, corrugated rubber-surfaced rolls B B, brush-roller M, and separating-screens I D E, substantially as described.

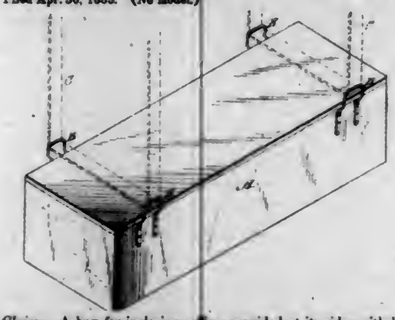
319,641. BOLTLESS RAILWAY-JOINT. WILLIAM S. THAYER, Owego, N. Y., assignor of one-half to Charles M. Haywood, same place. Filed Feb. 14, 1885. (No model.)



Claim.—The combination, in a rail-joint, of the rails having in their meeting ends longitudinal coincident slots, the chair having side plates

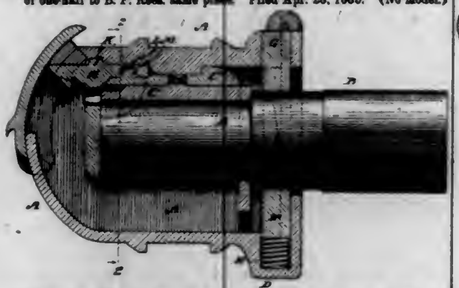
and a central rib, and made of a length equal to or less than one of the slots, and a filling-key placed through and secured in the longer slot between the chair and the rear wall of such slot, substantially as set forth.

319,642. DEVICE FOR LOWERING COFFINS. WILLIAM S. THAYER, Owego, N. Y., assignor of one-half to John J. Van Kleeck, same place. Filed Apr. 30, 1885. (No model.)



Claim.—A box for inclosing coffins, provided at its sides with loops projecting above the box, which also serve as handles, in combination with straps passed through the loop and across the top of the box, as a means for lowering the box in the grave, as and for the purpose set forth.

319,643. CAR-AXLE BOX. JAMES TIBBS, Columbus, Ohio, assignor of one-half to B. F. Rees, same place. Filed Apr. 28, 1885. (No model.)



Claim.—1. The T-shaped plate or end bearing engaging with the box and with a saddle or cap, substantially as set forth.

2. The T-shaped end bearing provided with a rib and recess and with side flanges, substantially as set forth.

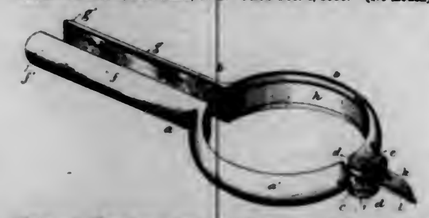
3. The combination of the T-shaped end bearing, the saddle with the rib *m*, engaging with a recess in the plate, and a rib, I, engaging with a recess in the top of the box, substantially as set forth.

319,644. KNOB FOR STOVE-DOORS. HENRY A. TWEED, Brooklyn, N. Y. Filed Feb. 4, 1882. (No model.)



Claim.—In a sheet-metal knob, a circular nut inclosed by the metallic shell and provided with recesses at the bottom, into which extend projections at the bottom of the shell, as set forth.

319,645. COMBINED JAR-WRENCH AND CAN-OPENER. ALEXANDER VAN SLYKE, Fort Plain, N. Y. Filed Feb. 4, 1885. (No model.)



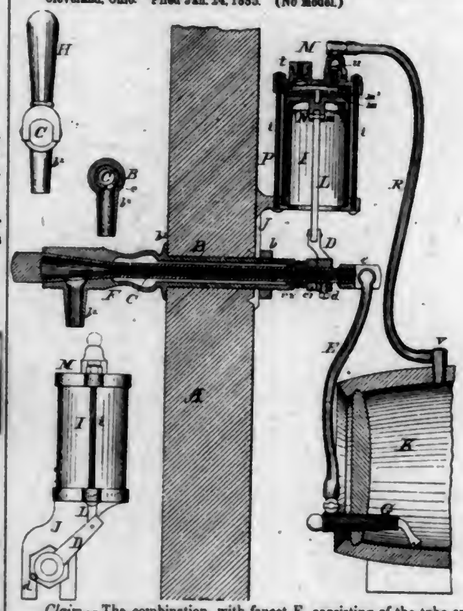
Claim.—1. The pivoted jaws provided with curved members for engaging a can or jar top or cover to operate it, and handle members having squared ends, a spring interposed between said jaws, and a can-cutting device operated by said jaws, substantially as described.

2. The pivoted jaws provided with curved members for engaging a can or jar top or cover to operate it, and handle members having squared ends, and a can-cutting device operated by said jaws, substantially as described.

319,646. PROCESS OF OBTAINING COLORING-MATTER FROM AMIDOAZO-BENZOLE AND HOMOLOGUES. LEO VIGNON, Lyons, France. Filed July 25, 1884. (No specimens.)

Claim.—The process herein described of producing coloring-matter, the same consisting in heating a solution composed of chlorhydrate of amidoazo-benzole, hydrochloric acid, and water to from 140° to 176° Fahrenheit, then gradually adding sulphide of sodium in solution until reduction becomes complete, then filtering to remove the sediment from the liquid, and, finally, oxidizing the liquid, substantially as and for the purpose specified.

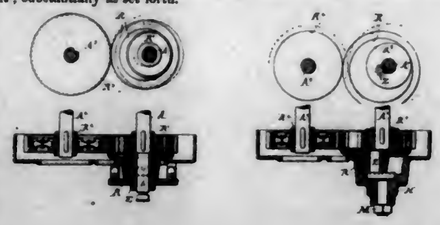
319,647. FORCE AND DRAIN FAUCET. ALBERT J. WEATHERHEAD, Cleveland, Ohio. Filed Jan. 24, 1885. (No model.)



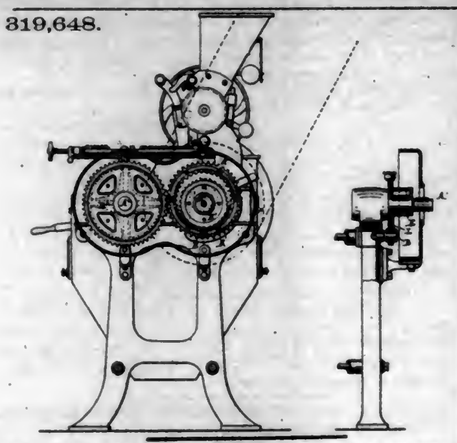
Claim.—The combination, with faucet F, consisting of the tube or barrel B, having open end with tapering bore and provided with discharge b^3, and the tube C, having tapering end fitted to fill said tapering bore and having opening *c*, registering with said discharge b^3, of handle H, the inner end projecting through barrel B, and held by the ring c' and spring c^2, and provided with the crank D, connected to and operating the piston of the pump P, substantially as described, and for the purpose specified.

319,648. WHEEL-GEARING FOR ROLLERS OF ROLLING-MILLS. FRIEDRICH WEDMANN, Zürich, Switzerland. Filed Mar. 24, 1885. (No model.) Patented in England Feb. 5, 1885, No. 1,618; in Belgium Feb. 5, 1885, No. 67,765, and in Italy Feb. 5, 1885, No. 17,888 309.

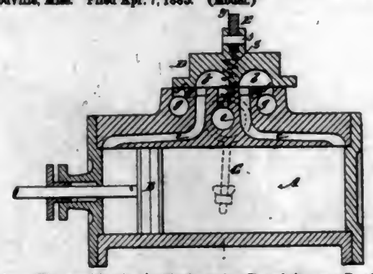
Claim.—A tooth-wheel gearing for connecting two spindles which are to turn in opposite directions, consisting of a tooth-wheel, R′, fixed on its spindle A′, and a tooth-wheel, R^2, fixed on its spindle A^2, and an intermediate tooth-wheel, R, having an inner tooth-rim gearing with the tooth-wheel R′, and an outer tooth-rim gearing with the tooth-wheel R^2, such intermediate wheel, R, being mounted loosely, and its center being adjustable eccentrically relatively to the spindle A′, for the purpose of keeping its outer tooth-rim in proper pitch-line gear with the wheel R^2, substantially as set forth.



319,648.

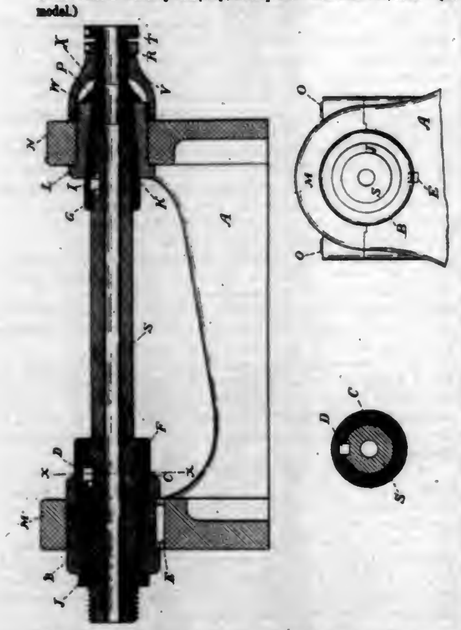


319,649. BALANCED SLIDE-VALVE. COTESWORTH P. WETHERILL, Woodville, Miss. Filed Apr. 7, 1885. (Model.)



Claim.—The combination, with the valve D and its seat C, of the pivoted cross-bar E, the springs S S, and the adjusting screw-bolts G, with their nuts, substantially as specified.

319,650. LATHE-HEAD. AMOS WHITNEY, Hartford, Conn., assignor to the Pratt & Whitney Company, same place. Filed Mar. 27, 1885. (No model.)



Claim.—1. The combination of a suitable frame-work having any suitable back bearing adapted to receive one end of a spindle and to prevent the longitudinal movement thereof, a spindle having a back journal corresponding to said back bearing and a conical front journal, substantially as described, and a front bearing fitting said conical front journal and adapted to slide in said frame, substantially as set forth.

2. The combination of a frame, as A, spindle S, having journal C and nut F, bearing against said journal, and sliding bearing B, substantially as described.

3. The combination of a frame, as A, spindle S, collar J, tubular journal C, nut F, and bearing B, substantially as described.

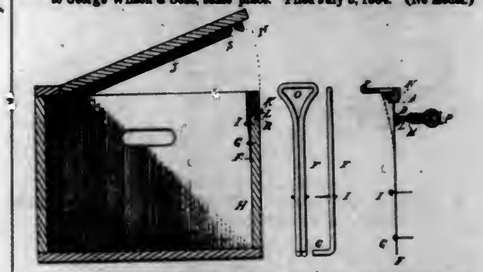
4. The combination of a frame, as A, spindle S, having journal C and nut F, bearing against said journal, a tubular sliding bearing, B, and key E, substantially as described.

5. The combination of bearing L, a spindle having a conical journal, K, and spindle end P, nut V, and step T, substantially as and for the purpose described.

6. The combination of bearing L, a spindle having the tubular conical journal K, nut G, and spindle end P, the nut V, and step T, substantially as and for the purpose described.

7. In a lathe-head, the combination of a suitable frame, as A, and a spindle, as S, having conical journals C and K, nut F, and spindle end P, bearings B and L, nut V, and step T, all constructed and arranged to operate substantially as described.

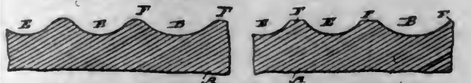
319,651. BOX-FASTENER. GEORGE WILSON, Toledo, Ohio, assignor to George Wilson & Sons, same place. Filed July 5, 1884. (No model.)



Claim.—1. In combination with the box H and cover J, the catch-spring F, having a perforation, O, in its upper extremity, and the striking-plate S, having a depending and offsetting lug, N, said lug being adapted to enter the perforation O, for the purpose herein shown and described.

2. The combination, with the box H and the catch-spring F, having a perforation, O, in its upper extremity, of the flat striking-plate S, with its central perforation and its offsetting lug or catch-bolt N, the pin L, having a retaining-head on its inner end and a hole near its outer end, substantially as and for the purpose described.

319,652. MILLSTONE-DRESS. ROBERT WILSON, Greenup, Ky. Filed Mar. 14, 1885. (No model.)



Claim.—A millstone provided with furrows and lands F, the latter having their tops rounded from their inner ends to a circle around the eye, and having their remaining parts made flat, substantially as herein shown and described.

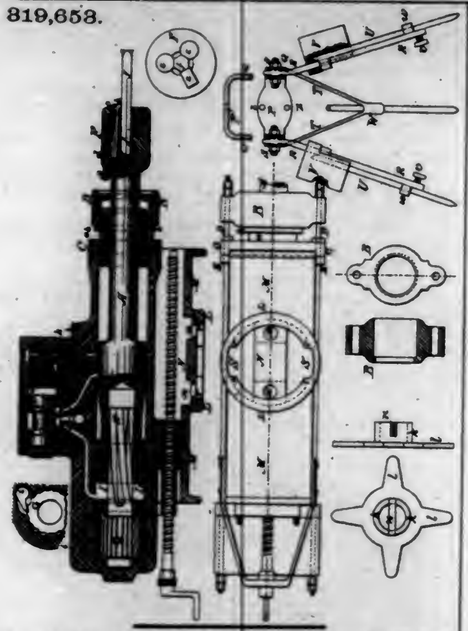
319,653. ROCK-DRILL. DE VOLSON WOOD, Boonton, N. J. Filed June 12, 1882. Renewed Aug. 16, 1884. (No model.)

Claim.—1. In a rock-drill, the piston-rod provided upon its front end with the chuck or tool-holder having a central opening to receive the shank end of the tool and beyond and opening into this central opening a series of holes or sockets, which incline inward, and in which are placed the gibs, which, when given a longitudinally forward movement, have also a forced radially inward movement and clasp the tool, substantially as set forth.

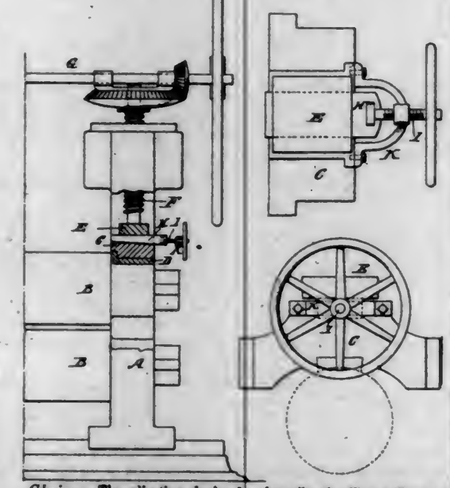
2. The chuck or tool-holder adapted to receive the end of the tool, and provided with a series of holes or sockets which incline inward and in which are placed the gibs, which fit or nearly fit the back and sides of the sockets, but the inner side of which, lettered *g h*, are about parallel to the axis of the drill, the arrangement of the gibs being such that when given a longitudinally forward movement they will have also a forced radially inward movement and clasp the tool, substantially as set forth.

3. A tripod for supporting a rock-drill, which consists of the legs R R and T and the back or seat P, the legs and seat being secured in position by the double-ended screws S S, the said ends projecting beyond each side of the legs R R, and one end being adapted to secure the said legs R R T together and the other the seat P in position, substantially as set forth.

319,653.



319,654. ADJUSTING DEVICE FOR ROLLING-MILLS. JOHN WOOD, Conshohocken, Pa. Filed Dec. 6, 1884. (Model.)



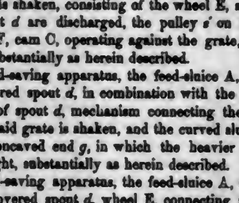
Claim.—The adjusting device for the rolls of rolling-mills, comprising the wedge applied between the bolster and breaker of the housing, the screw with one end fitted to revolve in said wedge, and having a hand-wheel at its other end, and the yoke or bracket secured to the bolster, and having a screw-threaded connection with the screw, substantially as and for the purpose set forth.

319,655. FISH-HOOK. ROBERT WEBBER, Redditch, County of Worcester, England. Filed May 19, 1884. (No model.) Patented in England Mar. 8, 1884, No. 4,561.



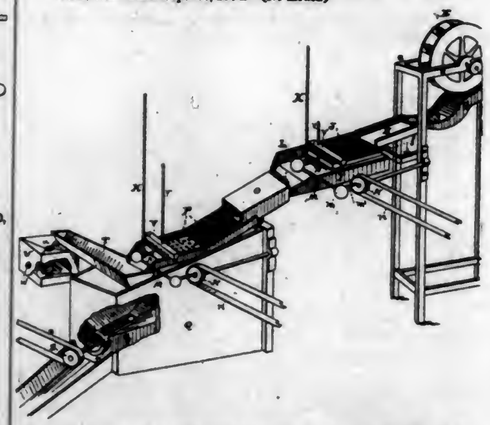
Claim.—A fish-hook having a longitudinal passage, *a*, formed in the upper end of its shank, and a transverse hole, *d*, extending through said shank at the lower end of said passage, substantially as shown.

319,656. STEAM-WASHER. LYMAN C. WRIGHT, Shanesville, Ohio. Filed Jan. 24, 1885. (No model.)



Claim.—In a steam-washer, the combination of chamber A, having a removable cover, water-chamber D, pipes B and C, leading from chamber D into the side of chamber A, one above the other, and pipe I, leading from pipe B downwardly toward pipe C on the inside of chamber A, substantially as described.

319,657. GOLD-SAVING APPARATUS. VICTOR P. YELMINI, Sutter Creek, Cal. Filed Sept. 26, 1884. (No model.)



Claim.—1. In a gold-saving apparatus, the combination of the shaking inclined grate B, adapted to receive the charge, the box D, in which the grate is mounted, covered spout *d*, the shaking screen J, a sluice connecting said screen with spout *d*, the box I, in which the screen J is mounted, covered spout O, the shaking screen P, adapted to receive the contents of spout O, and the tank Q, in which the screen P is mounted, all arranged to operate substantially as herein described.

2. In a gold-saving apparatus, the feed-sluice A, hinged grate B, box D, and covered spout *d*, in combination with the mechanism by which the grate is shaken, consisting of the wheel E, against which the contents of spout *d* are discharged, the pulley *s'* on the shaft of the wheel, the belt F, cam C, operating against the grate, and pulley *f* on the cam-shaft, substantially as herein described.

3. In a gold-saving apparatus, the feed-sluice A, hinged grate B, box D, and covered spout *d*, in combination with the wheel E, rotated by the contents of spout *d*, mechanism connecting the wheel with the grate by which said grate is shaken, and the curved sluice G, under the wheel, having concaved end *g*, in which the heavier gold or precious particles are caught, substantially as herein described.

4. In a gold-saving apparatus, the feed-sluice A, shaking-grate B, box D, having covered spout *d*, wheel E, connecting means by which the grate is shaken, and curved sluice G, having concaved end *g*, in combination with the sluice H, suspended shaking screen J, and box I, having covered spout, O, substantially as and for the purpose herein described.

5. A gold-saving apparatus comprising the laterally-shaking double screen, P, a tank, Q, a rod, *p*, attached to said screen, a cam or eccentric, N, and a ball-and-socket mechanism for vibrating the screen, substantially as described.

6. A gold-saving apparatus comprising a double-inclined and laterally-shaking screen, a tank, Q, having an inclined bottom, a V-shaped end, *q*, a horizontal pipe, *r*, having a slot in its top, a horizontal conveyer, R, and mechanism for operating the conveyer to draw the contents from the tank, substantially as herein described.

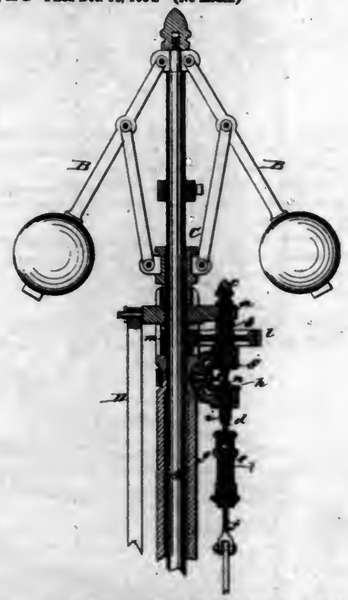
7. In a gold-saving apparatus, the double-inclined screen P, having apron *p*, the box U, and the trough T, to carry off the surface contents

of the screen, in combination with the tank Q, in which the screen is mounted, and the screw-conveyer R, by which the contents of the tank is drawn off, substantially as herein described.

8. A gold-saving apparatus comprising the feed-sluice A, shaking grate B, box D, having covered spout, wheel E, and means for shaking the grate, sluice G, with its end *g*, sluice H, shaking screen J, box I, covered spout O, double-inclined screen P, apron *p*, discharge-trough T, and the tank Q, having screw-conveyer R, all arranged and operating substantially as and for the purpose herein described.

9. A gold-saving apparatus comprising the feed-sluice A, shaking grate B, box D, covered spout *d*, wheel E, and mechanism, as described, by which the power of the wheel is transmitted to shake the grate B, sluices G and H, shaking screen J, its sprinkling-trough V, box I, covered spout O, double screen P, having sprinkling-trough V, apron *p*, and discharge-trough T, box U, having hopper-top *u*, and discharge *u'* above its bottom, and tank Q, having screw-discharge R, all arranged to operate substantially as and for the purpose herein described.

319,658. GOVERNOR FOR STEAM-ENGINES. AARON J. ALLEN, Hope, R. I. Filed Dec. 11, 1884. (No model.)



Claim.—1. In a speed-governor, the combination of the spindle *d*, provided with the clutch-pin *n*, the gearing *g*, *h*, and *k*, and the grooved sleeves *i*, rotating continuously in opposite directions, imparting motion in either direction to said spindle, while permitting of unrestrained longitudinal motion of the spindle to more fully control the action of the engine, substantially as and for the purpose set forth.

2. The combination, with the spindle *d* and the connection *f* to the cut-off or throttle, of the compensating nut *e*, and the disk *i*, fitted in said nut in contact with the lower end of said spindle, substantially as and for the purpose set forth.

319,659. GRAIN-DRILL. GEO. W. ALTLAND, Mount Top, Pa. Filed Apr. 9, 1885. (No model.)

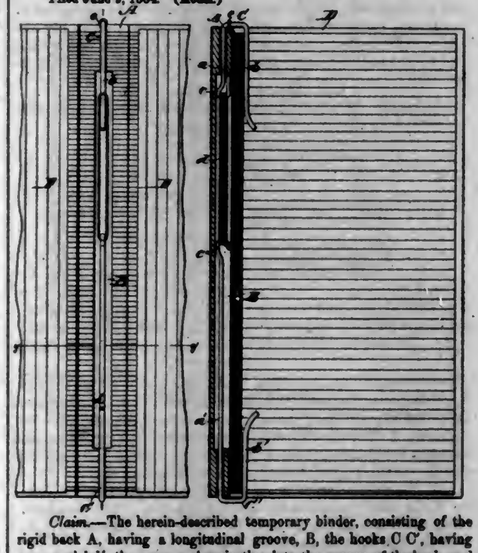


Claim.—1. The means of attaching the wheel-standard to the hoe or shoe of a grain-drill, consisting of a bracket-bar having suitable means of connection with the hoe at top and two-part clamp at bottom, substantially as described.

2. The combination, with a grain-drill hoe and bracket-bar fixed thereto, of a wheel-standard adjustable on said bracket-bar, and a cam-faced locking-lever arranged to operate in connection therewith, substantially as described.

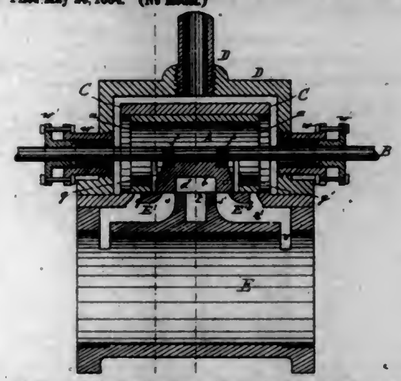
3. In combination with a bracket-bar having tooth or projection, as shown, a notched wheel-standard capable of adjustment on said bracket, and a cam-faced locking-lever, as set forth.

319,660. TEMPORARY BINDER. GEORGE E. ALVORD, St. Louis, Mo. Filed June 9, 1884. (Model.)



Claim.—The herein-described temporary binder, consisting of the rigid back A, having a longitudinal groove, B, the hooks C C', having arms *a a' b b'*, the arms *a a'* projecting into the groove of the back, and the arms *b b'* extending over the inner surface of the back, and the spring *d*, connecting the arms *a a'* of the hooks, as set forth.

319,661. ENGINE-VALVE. MARKLIN C. BAKER, New York, N. Y. Filed May 26, 1884. (No model.)



Claim.—1. The combination, with a valve-seat having two steam-ports upon either side of a central exhaust, of a balanced valve consisting of an open cylinder having two ports, as *g g'*, and of such length as to uncover the outer ports of the valve-seat when the valve-ports register with the inner ports thereof, as set forth.

2. The valve A, of open cylindrical form, having cross-arch, with exhaust-port, and steam-ports, as *g g'*, combined with a valve-seat having two inner ports, as *s s'*, and two outer supplemental ports, as *q q'*, both ports upon either side being uncovered simultaneously by the movement of the valve, as set forth.

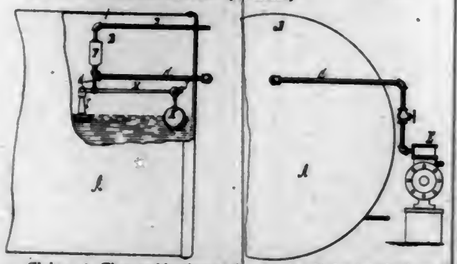
3. The combination, with the valve A, as described, of the shell C, having its bottom formed into regular ports *s s'* and supplemental ports *q q'*, and having flanges *h*, which are clamped between the corresponding flanges of the steam chest and cylinder, as set forth.

4. The combination, with the shell C, having its bottom formed into a valve-seat with ports *s s'* and *q q'*, of the valve A, in the form of an open cylinder, having the arch *b*, with exhaust-passage *d* and ports *g g'*, the said valve being shorter than the shell and adapted to uncover the supplemental ports *q* or *q'* as the ports *g* or *g'* register with the ports *s* or *s'*, respectively, as set forth.

5. The combination, with the shell C and the valve-seat having ports *s s'* and supplemental ports *q q'*, of the valve A, as described, having ports *g g'* and exhaust-passage *d*, the several ports being so arranged that the exhaust-passage will be open upon one side while both ports *s q'* or *q s* are closed upon the other, and that both ports *s' q'* or *s q* upon either side of the exhaust will be uncovered simultaneously, as set forth.

6. The combination, with a cylindrical valve, as A, open at both ends, and provided with cross-bar *b* and ports *d g g'*, of a fixed shell, as C, longer than said valve and inclosing the same, open at both ends, and having as its bottom a valve-seat containing two regular or inner and two supplementary or outer ports, substantially as herein shown and described.

319,662. BOILER-FEEDER AND ALARM. THOMAS BARKER, Flatbush, N. Y. Filed Feb. 28, 1885. (No model.)

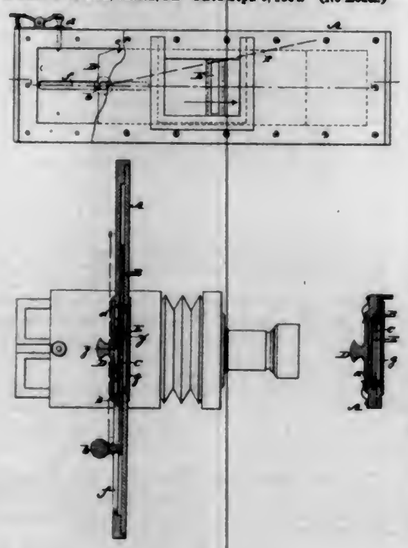


Claim.—1. The combination of the chamber B, having the lateral port *b* and the pipe C, for connecting with the pump E, with the valve F, having the lateral port *g*, and movable lengthwise upon the exterior surface of the chamber, the lever H, connected with the valve, and the float K, connected with the lever, substantially as described.

2. The combination, with the valve F and its port *h*, of the chamber B, the port *d*, formed in this chamber, the alarm-pipe D, communicating with the chamber, the lever H, connected to the valve, and the float K, substantially as shown and described.

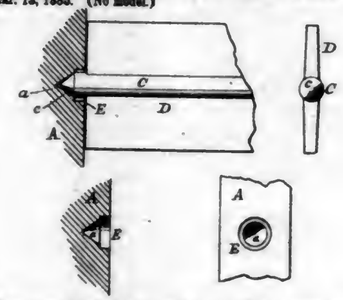
3. The combination, with the valve F and its ports *g h*, of the chamber B, the partition *a*, formed in this chamber, the ports *b d* on opposite sides of this partition, the pipe C, leading from the lower part of said chamber to the pump E, the alarm-pipe D, communicating with the upper part of the chamber, the lever H, connected to the valve F, and the float K, substantially as shown and described.

319,663. APPARATUS FOR INSTANTANEOUS PHOTOGRAPHY. ALBERT S. BARKER, Clifton, Pa. Filed Sept. 6, 1884. (No model.)



Claim.—An apparatus for instantaneous photography, consisting of a frame-work adjustable to the back of a camera, containing a compartment for a sensitized plate, and immediately in front of the plate a shutter with a slot, the shutter being so arranged that the exposure is effected by the passage of a slot from end to end of the plate, and the plate is protected by the solid parts of the shutter before and after the passage of the slot.

319,664. WINDOW-BLIND. ASBURY BARKER, Peekskill, N. Y. Filed Mar. 13, 1885. (No model.)

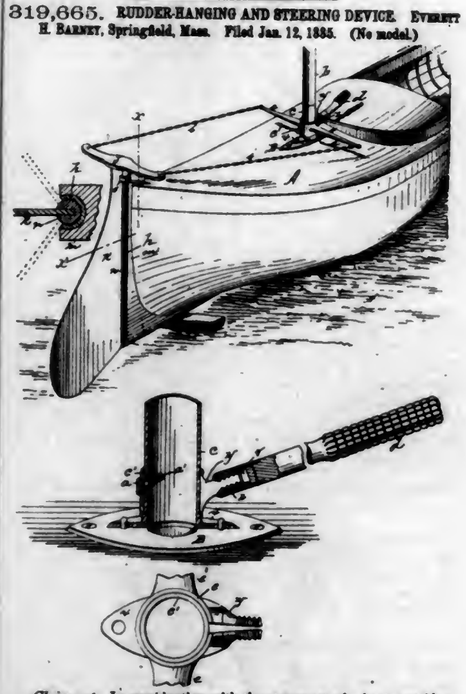


Claim.—1. A blind-slat on which are formed tenons, partly cylindrical and partly conical, the former being the part immediately joining the slat, substantially as shown and described.

2. A socket for a blind-slat tenon, having an inner conical portion, and an outer chamber greater in diameter than the tenon, substantially as shown and described.

3. A blind consisting of slats having tenons with conical ends, and stiles with correspondingly-shaped inner sockets, and an outer chamber, E, larger in diameter than the tenon, substantially as shown and described.

319,665. RUDDER-HANGING AND STEERING DEVICE. EVERETT H. BARNET, Springfield, Mass. Filed Jan. 12, 1885. (No model.)



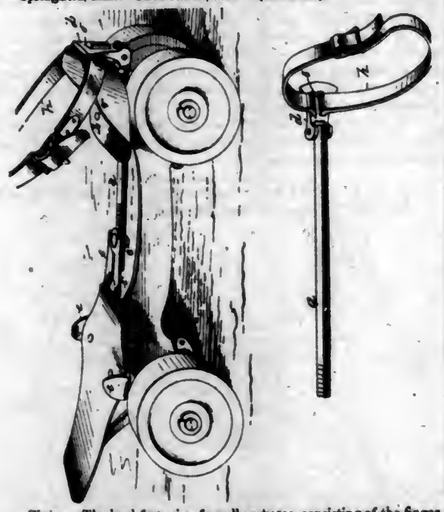
Claim.—1. In combination with the stern-post of a boat, a rudder-hanging consisting of a continuous internally-cylindrical slotted tube secured to said post, the slot opening to the rear of the boat, a cylindrical pintle forming the rudder-stock, fitted in said tube and free to rise and fall therein, the rudder-blade in working position extending through the slot in the tube, as set forth.

2. The within-described tiller-connections, consisting of the tubular yoke-bearing having a transverse slot therein, the yoke consisting of a split sleeve fitting said tubular bearing, and having tiller-chain arms projecting from opposite sides thereof, and provided with the split handle-shank *y* and the screw *a*, and the handle *d*, provided with the ferrule *z*, combined with the tiller and with suitable tiller-chains, substantially as set forth.

3. In combination, the split sleeve *c'*, having the split shank *y* and the arms *e e* thereon, the handle *d*, having the ferrule *z*, a suitable post-support for said sleeve, the tiller, and suitable connections between the latter and said arms, substantially as set forth.

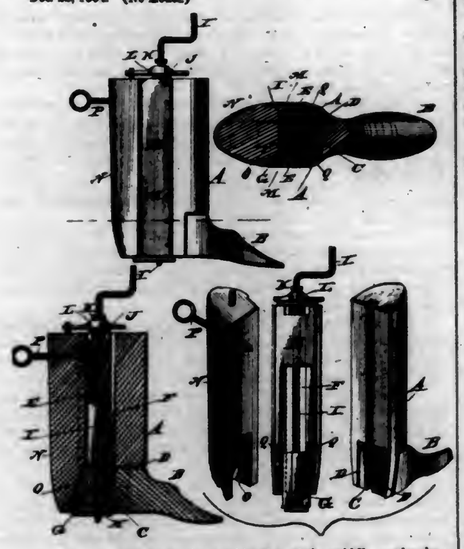
4. In combination, the tubular bearing *c*, the split sleeve *c'*, having the split shank *y* and the arms *e e* thereon, the handle *d*, having the ferrule *z*, the tiller, and suitable connections between the latter and said arms, substantially as set forth.

319,666. ROLLER-SKATE FASTENING. EVERETT H. BARNEY, Springfield, Mass. Filed Mar. 2, 1885. (No model.)



Claim.—The heel-fastening for roller-skates, consisting of the finger-piece *d*, pivoted on the end of the screw-rod *a*, and the ankle-strap *h*, attached to said finger-piece, substantially as set forth.

319,667. BOOT-TREE. GEO. D. BATEMAN, Pinckneyville, Ill. Filed Dec. 22, 1884. (No model.)



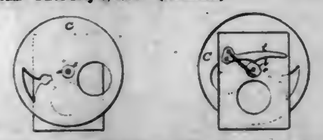
Claim.—In a boot-tree, the combination of the middle section having a slot and a vertically-movable key or wedge, a swiveled operating-screw having a latch or turn-button, and the front and rear expanding sections, the latter of which is provided at its lower end with a wedge-shaped or beveled recess and at its upper end with a thumb-screw, substantially as and for the purpose herein shown and specified.

319,668. PICTURE-FRAME. CHARLES O. BAXTER, St. Louis, Mo. Filed Aug. 26, 1884. (No model.)



Claim.—An advertising picture-frame having descriptive letters or words and monograms cast integral with the substance of the frame, the letters or words being on both sides and both ends of the frame, and the monograms in the corners, as and for the purpose set forth.

319,669. PHOTOGRAPHIC APPARATUS. JOHN K. BEACH, New Haven, Conn. Filed May 5, 1884. (No model.)

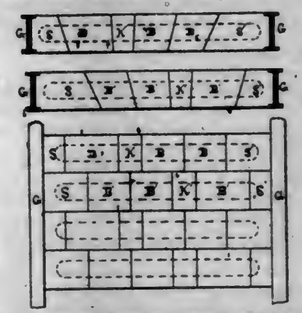


Claim.—1. In a photographic apparatus, the combination of a flanged rotating pivot, mechanism, substantially such as described, to impart rotation to said pivot, latching-disk *l*, of less diameter than the shutter, a shutter constructed with an orifice for exposing the plate and attached to said pivot so as to partake of its rotation, and whereby the aperture in the said shutter is caused to cross the lens-aperture, substantially as and for the purpose specified.

2. The combination of the latching-disk *l*, trigger *t*, and a spring connecting said disk and trigger, substantially as described.

3. In a photographic apparatus, the combination of a stationary plate, rotating shutter C, arranged upon one side of the plate and provided with a pivot, *p*, extending through the said plate and so as to rotate with the shutter, and a shutter latching and rotating device upon the reverse side of the plate, substantially as described.

319,670. FIRE-PROOF FLOOR. JOSEPH BOSTON, Baltimore, Md. Filed Jan. 3, 1885. (No model.)



Claim.—A fire-proof floor consisting of iron girders, in combination with two or more sets of independent arches of suitable size and material, and having hollows running at right angles with the girders, in which the blocks forming adjacent arches break joints with each other.

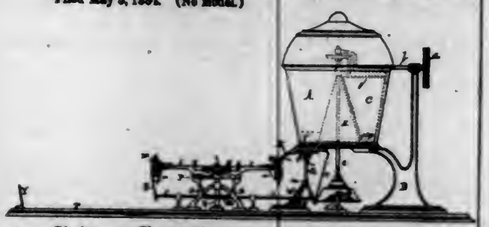
319,671. HORSE HAY-FORK. JOHN T. BROWN, Ottawa, Ill. Filed June 3, 1884. (No model.)



Claim.—1. In a horse hay-fork, the combination, with the crotch-bar, of a tine pivoted to an arm of said crotch-bar and extended upward to within a short distance of the upper end of the crotch-bar to form a handle, and provided with a pin about equidistant between the upper end and the pivot, and a slotted arm pivoted to the crotch-bar and receiving said pin in its slot, substantially as and for the purpose set forth.

2. In a horse hay-fork, the combination, with the crotch-bar provided with an eye in its upper end, and with fixed divergent arms or prongs at its lower end, of the tines pivoted to the outer free ends of said prongs or arms, and extending upward nearly to the upper end of said bar to form handles, and each provided with a pin about equidistant between its upper end and its pivot, arms pivoted to said crotch-bar and provided with slots and notches adapted to engage said pins, and a trip-cord connected to said slotted arms and passing through the eye in said crotch-bar, substantially as and for the purpose set forth.

319,672. APPARATUS FOR MIXING, MEASURING, AND PACKAGING POWDERED MATERIAL. JOSEPH C. BROWN, Burlington, Vt. Filed May 5, 1884. (No model.)



Claim.—1. The combination of a receiver for the powdered or other material, a revolving shaft extending into it, a revolving semi-disk which forces the material through an opening in the bottom of the receiver and then covers or closes the opening to prevent the escape of the material after the box is filled, and the movable box which receives the material and delivers it to the package which is to be filled, substantially as shown.

2. The combination of the receiver, the revolving shaft, revolving cone carrying a disk or device for filling the box and then closing the opening in the bottom of the receiver, the movable box which receives the material from the receiver and then empties it into the package which is to be filled, and a mechanism for both moving the box to discharge its contents and to move a fresh package into position, substantially as described.

3. A circular receiver having a central cone and suitable outlet, in combination with a rotating diaphragm, C, and semi-disk *i*, provided with the trowel *l*, the same being actuated by a central revolving shaft, *e*, and suitable motive power, by means of which the contents of the receiver are mixed and subsequently deposited into a measuring device, F, substantially as shown and described.

4. The box F, having an adjustable bottom and hinged front operated by the spring *q*, through the bar *p*, in combination with the reciprocating lever G, having the slide *j'* held by the set-screw *o* at any point on the scale J, the recessed cam D, shaft *e*, and guard K, substantially as described, and for the purpose set forth.

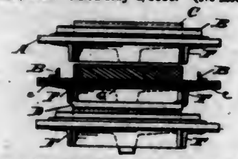
5. The plate N, having radial pivoted arms I, which rotate on the dentated stationary plate P, supported by a suitable frame, R, and rotated through the vertical shaft *t* by the horizontal reciprocating rod J, ratchet-pinion M, and spring-pallet L, all arranged as and for the purpose set forth.

6. In combination with the plate N and dentated plate P, the rotating pivoted arms I, having on their outer extremities the tunnels H, and spring package-supporter *w*, substantially as described, and for the purpose set forth.

7. The reciprocating rod J, having the bar S on its outer extremity, in combination with the reciprocating lever G, to which it is pivoted, and the cam D, rotated on the shaft *e*, substantially as described.

8. In a measuring and delivering device, the reciprocating lever G, having the measuring device attached to its upper extremity, pivoted to the standard W at *m*, in combination with the spring *r* and recessed cam D, rotated on the shaft *e*, substantially as described.

319,673. BOX FOR OIL-PRESSES. WM. P. CALLAHAN and THOS. DE ARMON, Dayton, Ohio. Filed May 4, 1885. (No model.)

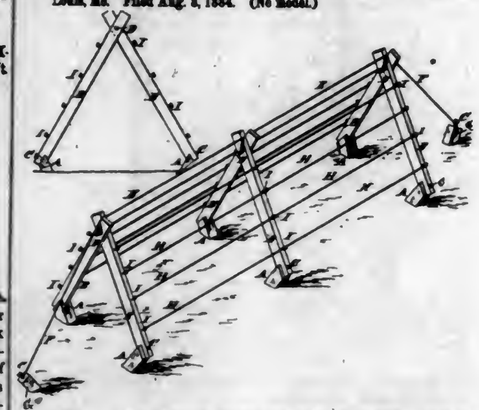


Claim.—1. A box for oil-presses, composed of a wrought metal division-plate, A, supporting the plunger C, and to which is secured on its upper side an angle-iron gutter-rail, B, and on its lower side angle-shaped cast-steel side and end walls, substantially as described.

2. A box for oil-presses, composed of a wrought-metal division-plate, A, supporting the plunger C, and to which is secured on its upper side an angle-iron gutter-rail, B, and on its lower side partially recessed angle-shaped side and end walls constructed of wrought metal or steel, substantially as described.

3. In an oil-press box, the combination, with the inside top of the box, of polished metal plates G, provided with projections *e*, substantially as and for the purpose described.

319,674. TRELLIS FOR GRAPE-VINES. C. H. THEODORE CLAUS, St. Louis, Mo. Filed Aug. 5, 1884. (No model.)



Claim.—1. The improved grape-vine trellis comprising a series of inclined rafters, support for the upper ends of the rafters, stakes on which the rafters are supported, a series of wires strung along the outside of the rafters, end posts, and guy-wires extending from the outside pairs of rafters to the end posts.

2. The improved grape-vine trellis comprising posts A, rafters B, having notched lower ends fitting the posts, fastenings C, for securing the rafters to the posts, bolts D, securing the upper ends of the rafters, end stakes, G, and guy-wires F, connecting the end pairs of rafters to the end stakes.

319,675. RAILROAD-SWITCH. CHARLES CLINTON, Spring City, Tenn. Filed Apr. 2, 1885. (No model.)

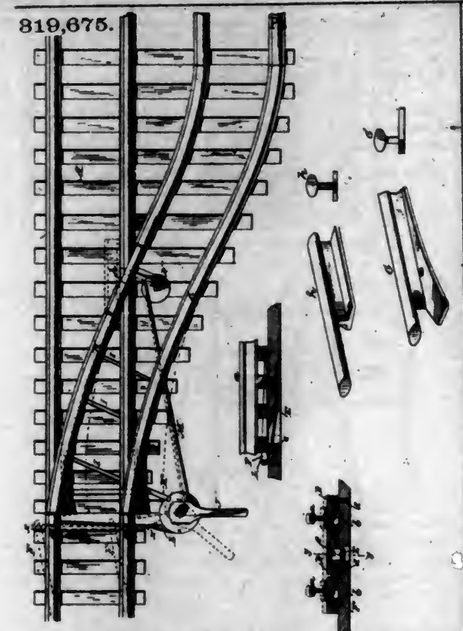
Claim.—1. The combination of the main track having the end of one section supported on a cross tie or beam having longitudinal inclines, pivoted bars arranged to engage said inclines, the switch-rails, an operating-lever, and connections between the pivoted bars and the switch-rails and said lever, substantially as set forth.

2. The combination of the main track, having the end of one section movable vertically, and the switch-rails having their movable ends cut away on one side and arranged to lap on the main track adjacent the vertically-movable portions thereof, substantially as set forth.

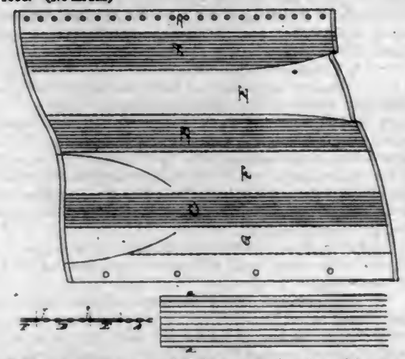
3. The combination of the main track, having the end of one section supported on a cross tie or beam provided with longitudinal inclines, the pivoted bars engaged at one end with said inclines, a spring whereby to depress the said cross-beam, and the switch-rails, substantially as set forth.

4. The combination of the main track having the end of one section supported on a cross-beam provided with longitudinal inclines, pivoted bars arranged to engage said inclines, the main lever connected with the pivoted bars, the switch having its inner rail provided with a straddle-section, a second lever, a link connecting such lever with the straddle-section, a link connecting the switch and the main lever, and connections between the main and second levers, substantially as set forth.

319,675.

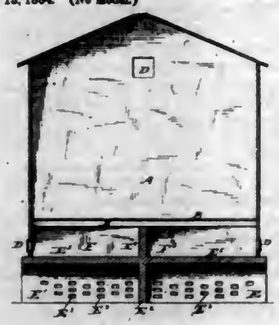


319,676. CORSET. MORITZ COHN, New York, N. Y. Filed Jan. 12, 1885. (No model.)



Claim.—A corset composed of alternate sections formed from a strip of woven material having selvage edges, and of equal width throughout, and with pockets formed therein in the process of weaving, combined with intermediate sections cut from two thicknesses of fabric, the edges of the said woven sections introduced at the edge of the cut sections between the two thicknesses thereof and stitched thereto, substantially as described.

319,677. LUMBER-DRIER. WILLIAM E. COLE, Montgomery, Ala. Filed June 13, 1884. (No model.)



Claim.—1. In a lumber-drier, a stackless flue having a series of perforations in the lower halves of its side walls, and having an imperforated top and end wall, substantially as specified.

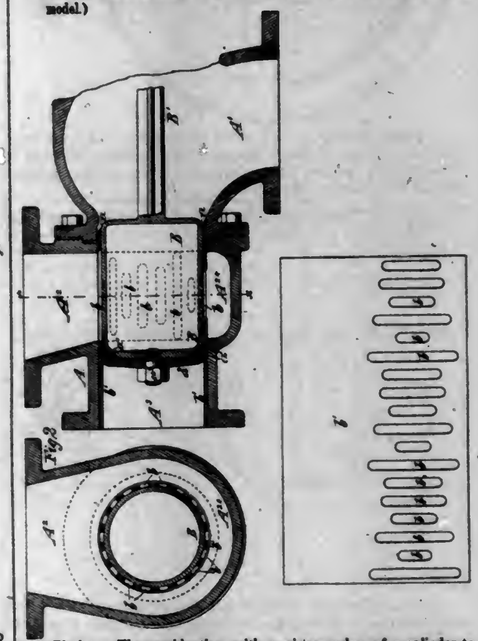
2. In a lumber-drier, the combination of two stackless flues arranged in line with each other, and having imperforated tops or upper side walls, and perforations in the lower halves of their side walls, with a solid wall separating the flues from each other, substantially as shown and described.

3. In a lumber-drier, the main portion A, having nearly-closed sides, ends, and top, and an open flooring, B, in combination with the flues E E', separated by a solid wall, E^2, and provided with perforations E^3 and imperforated tops E^4, substantially as shown and described.

4. In a lumber-drier, a stackless flue having communication through the lower portion thereof with the main portion of the drier, substantially as specified.

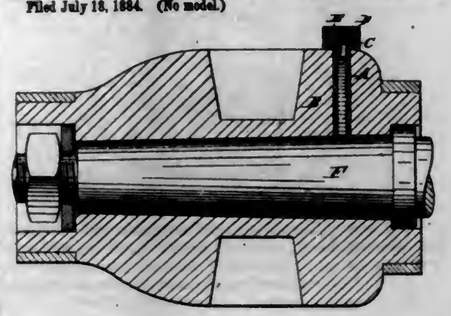
5. In a lumber-drier, a stackless flue, in combination with a main portion provided with an open floor and with sight-openings between the floor and the flue, substantially as specified.

319,678. HYDRAULIC-VALVE FOR ELEVATORS AND OTHER APPARATUS. CHARLES R. CRANE, Chicago, Ill., assignor to Crane Brothers Manufacturing Company, same place. Filed Feb. 26, 1885. (No model.)



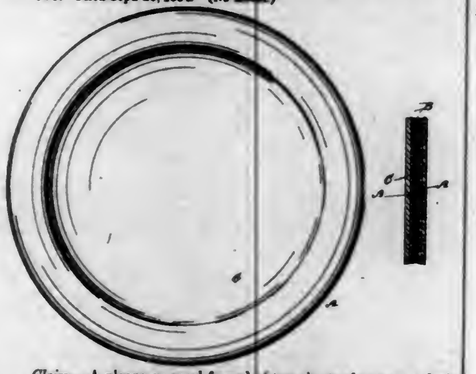
Claim.—The combination, with a piston-valve, of a cylinder to which the valve is fitted, and which is provided around its circumference with water-passages consisting of a series of slots which extend lengthwise of the cylinder and are of different lengths, the ends of slots forming an irregular line, as described, whereby the piston in its movement in the cylinder is made to close and open the slots one after another, or in succession, substantially as and for the purpose herein described.

319,679. AXLE-LUBRICATOR. JOS. M. DENNEY, Wartsburg, Wash. Filed July 18, 1884. (No model.)



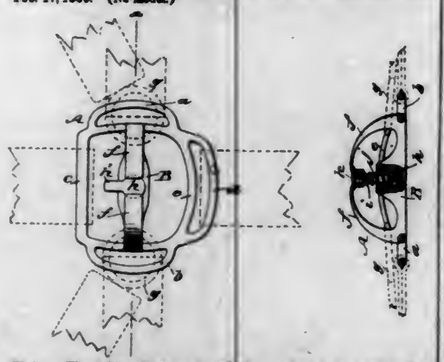
Claim.—The combination, with the hub B, of the externally-screw-threaded tube A, provided with the fixed collar or enlargement C and with an externally and internally screw-threaded neck, D, the internal screw-threaded portion of said neck being adapted to receive a plug, and the external screw-threaded portion thereof being fitted with a cap, E, substantially as shown and described, and for the purpose set forth.

319,680. PLAQUE OR PANEL. EDWARD DE PLANQUE, Hoboken, N. J. Filed Sept. 25, 1884. (No model.)



Claim.—A plaque or panel formed of two sheets of canvas or duck united by a mixture of glue, whiting, and pulverized wood, the face of the panel being provided with a coating of whiting and glue, substantially as herein shown and described.

319,681. TRACE-CARRIER. FRANK O. DEER, Moulton, Iowa. Filed Feb. 17, 1885. (No model.)



Claim.—The bridge B, formed with the socket *h*, in combination with the spring *i*, spindle *j*, head *k*, having the finger-piece *k'*, and upwardly and inwardly curved horns *f*, said horns having their adjacent ends or heads arranged about centrally of the carrier, substantially as and for the purposes set forth.

319,682. VELOCIPEDE. LINDSEY DICKEY, Vibbard, Mo. Filed Mar 27, 1885. (No model.)

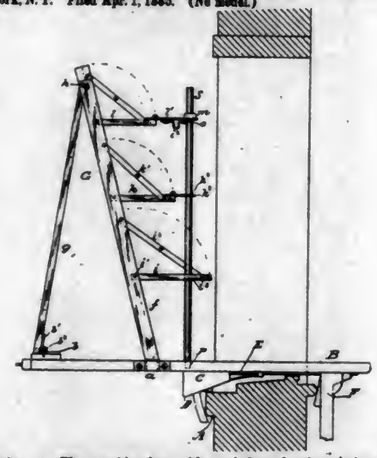


Claim.—1. In a velocipede, the combination, with the wheels A, of the sleeves E, having arms F, the shafts N, the pinions O, the gears D, the shafts S, held in the sleeves E and connected with the driving-wheels, and of a seat-platform hung between the wheels, substantially as herein shown and described.

2. In a velocipede, the combination, with the wheels A, of the hangers G, the platform H, the uprights or frames J, having notches *a*, the pivoted locking-pieces K, having notches *b*, the seat L, and the pivots M, substantially as herein shown and described.

3. In a velocipede, the combination, with the wheels A, having internal gears, D, of the sleeves having arms F, the shafts N, the pinions O, the pockets Q, the latches R, and the shafts S, substantially as herein shown and described.

319,683. WINDOW-CLEANING CHAIR. ANNA DORMITZER, New York, N. Y. Filed Apr. 1, 1885. (No model.)



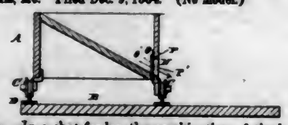
Claim.—1. The combination, with a window-cleaning chair of the character herein specified, and provided with ladder-sockets, as *a*, and hinge-leaves, as *b*, of a step-ladder, G, constructed substantially as herein shown and described, with folding steps, perforated strap-hinges b^2 F, bolts P, rod b^2, and standards S, all arranged and operating as set forth.

2. In a combined window-cleaning chair and step-ladder, a step-ladder constructed substantially as herein shown and described, with lower step perforated for upright standards, and hinged to the front ladder-legs, so that it may be folded up, with next step hinged in like manner and provided with perforated folding strap-hinges that may be extended beyond its tread, and with upper step hinged to the ladder-legs in like manner, and provided with like perforated folding strap-hinges, and with bolts on said hinges, and with standards adapted to be passed down through the perforated hinges and step into the chair-platform, all arranged substantially as set forth.

3. The combination, with the step-ladder G, of the standards S, provided with collars *m* and bolt-holes *o*, substantially as and for the purposes described.

4. The combination, with a window-cleaning chair of the character herein specified, and provided with devices for folding a step-ladder in position on its platform, of a step-ladder having hinged folding steps and provided with devices for securing it in operative position to the said chair, substantially as herein shown and described.

319,684. FEEDER FOR SHOT-SEPARATORS. ALEXANDER EUSTON, St. Louis, Mo. Filed Dec. 9, 1884. (No model.)



Claim.—In a shot-feeder, the combination of the box having a discharge opening or slot formed in its vertical front wall, a fixed perforated plate of ⌐¬ shape in transverse section, secured to the box opposite the slot, a movable perforated plate located between the fixed plate and the box, a set-screw for adjusting the movable plate, and mechanism for reciprocating the box, the bottom of said box being inclined from the back downward toward the front, substantially as and for the purpose set forth.

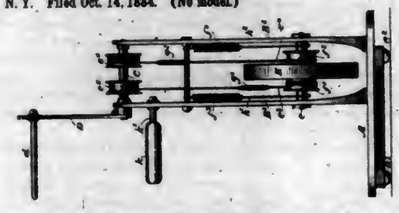
319,685. WINDOW AND DOOR SCREEN. EDWD. FALES, St. Louis, Mo. Filed July 19, 1884. (No model.)

Claim.—A door or window screen composed of a frame and overlapping sections of wire-netting separated at the lap portions by means of short wires inclined alternately in opposite directions, the lower ends of which are brought together, while a space is left between their upper ends and rigidly fastened to the netting, whereby V-shaped passage-ways are formed between the sections.

319,685.



319,686. EXERCISING-MACHINE. MOSES G. FARMER, New York, N. Y. Filed Oct. 14, 1884. (No model.)



Claim.—1. In an exercising-machine, the combination, substantially as hereinbefore set forth, of an arm or crank, its axis, a balance-wheel, its axis, and a cord connecting the axis of said arm or crank with the axis of said balance-wheel, and serving to cause said wheel to revolve in a given direction when said arm or crank is moved in one direction, substantially as described.

2. In an exercising-machine, the combination, substantially as hereinbefore set forth, of a pivoted arm or crank, an axis for the same, a handle extending in a direction parallel to said axis, with a balance-wheel, and two cords or bands winding upon the respective axes in opposite directions, substantially as described, whereby said balance-wheel is caused to revolve in one direction when said arm or crank is moved in a given direction, and in the opposite direction when said arm or crank is moved in the other direction.

3. In an exercising-machine, the combination, substantially as hereinbefore set forth, with the handle *d*, the arm D, and the axis C, of the balance-wheel E, the cords c^2 and c^4, with their respective pulleys, and the spring tending to normally retain said wheel in a given position, substantially as described.

4. In an exercising-machine, the combination, substantially as hereinbefore set forth, of a crank, an axis upon which said crank is carried, a handle for turning said crank upon its axis, with a balance-wheel, two cords or bands winding upon the respective axes in opposite directions, whereby said balance-wheel is turned in one direction or the other accordingly as said crank is moved in one direction or the opposite, an adjustable support or rest, an arm carrying the same, a support for said arms, and means, substantially such as described, for securing said arm to said support in any required position.

5. The combination, substantially as hereinbefore set forth, with the arm D, the handle *d*, the wheel E, and the connections between the same, substantially such as described, of the rest *k*, the arm *k'*, the extension *k*, having the slot k^4, and the set-screw and nut for uniting the last-named arm with said extension.

319,687. PROCESS OF ELECTRO-DEPOSITING COPPER. MOSES G. FARMER, New York, N. Y. Filed Nov. 12, 1884. (No specimens.)

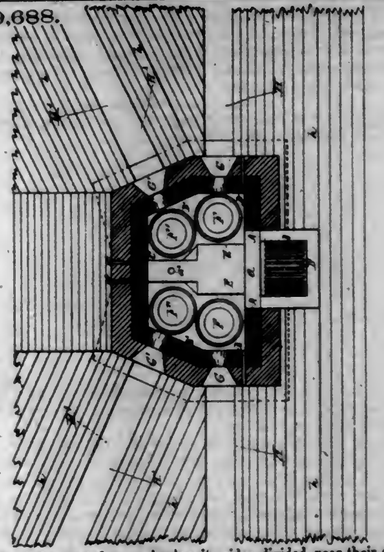
Claim.—The hereinbefore-described process of electro-deposition of copper, which consists in maintaining by electric action a bath consisting of the double nitrate of ammonium and copper, and in depositing from such bath, by electrolysis, pure copper.

319,688. GLASS-FURNACE. DAVID FETTERS, Baltimore, Md. Filed Feb. 13, 1885. (No model.)

Claim.—1. A four-pot furnace having its sides divided near their center, forming straight sections B B', the latter of which is inclined to the former, the upper sections of each being inwardly inclined, and the front and rear walls being arched, as set forth.

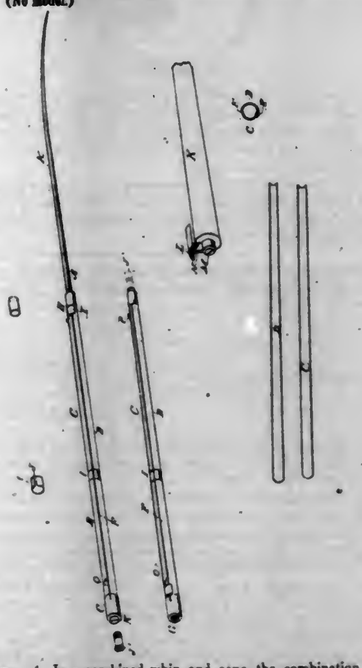
2. A four-pot furnace having its sides divided near their center, forming straight sections B B', the latter of which is inclined to the former, the upper sections of each being inwardly inclined, and the front and rear walls being arched, and the furnace being provided with a pot-supporting plate made in two side sections, the rear half of each of which is carried nearer to the center, leaving a wider central opening in the front than in the rear, as set forth.

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3. A four-pot furnace having its sides divided near their center, forming straight sections B B', the latter of which is inclined to the former, the upper sections of each being inwardly inclined, and the front and rear walls being arched, and the furnace being provided with a pot-supporting plate made in two side sections, the rear half of each of which is carried nearer to the center, leaving a wider central opening in the front than the rear, each of the sections B B' being provided with a work-hole and swingway, those of the sections B' being inclined to those of sections B, as set forth.

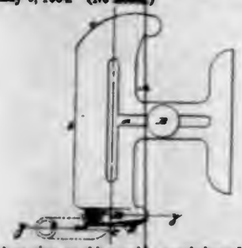
319,689. WHIP. WILLIAM FINK, Pleasant Hill, Ohio. Filed Jan. 2, 1885. (No model.)



Claim.—1. In a combined whip and cane, the combination of a tapered longitudinally-slotted handle provided with tubular screw-tapped end ferrules and an intermediate slotted clasp, I, in combination with spring-catches, a whip, K, and a thumb-slide, L, secured to the butt of the whip, substantially as described.

2. A whip-handle composed of two longitudinal halves united by one edge only, having a slot between the other edges, in combination with the screw-tapered tubular end ferrules, the intermediate slotted clasp-spring catches, and a whip having a T-shaped slide secured to its butt, substantially as described.

319,690. SEWING-MACHINE GUIDE. JOHN FITTING, Hammonton, N. J. Filed May 6, 1884. (No model.)



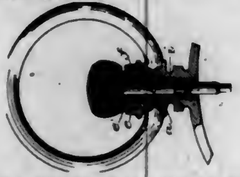
Claim.—1. A sewing-machine guide consisting of a plate having a T-shaped slot and right-line and circular guiding-edges, substantially as and for the purpose set forth.

2. A sewing-machine guide formed with a raised lip, the inner face of which is inclined, substantially as and for the purpose set forth.

3. A sewing-machine guide formed of a plate having a raised lip at one side or end thereof and an inclined plane on the upper face of the plate, adjacent to said lip, the said raised lip and plane serving for a rest for the presser-foot of the machine, substantially as and for the purpose set forth.

4. A sewing-machine guide formed of a plate having right-line and circular guiding portions, a raised lip, and an inclined plane, substantially as and for the purpose set forth.

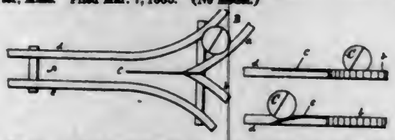
319,691. WATCH-CASE PENDANT. EZRA C. FITCH, Newton, Mass. Filed Apr. 2, 1885. (No model.)



Claim.—1. In a watch-case, the combination of the threaded pendant, the shouldered nut screwed thereon, the disk or washer confined at its margin between the pendant and nut, and the winding arbor or stem passing through a central orifice in the washer without a positive connection therewith, as set forth.

2. The combination of the recessed and externally-threaded pendant, the nut screwed thereon, the grooved arbor or stem, and the arbor-holding collar or sleeve inserted in the pendant and held in place by the nut, as set forth.

319,692. AUTOMATIC CASH-CARRIER. JOSEPH W. FLAGG, Worcester, Mass. Filed Mar. 7, 1885. (No model.)



Claim.—1. The combination, with the inward way of a cash-carrying-apparatus, said way having a converging branch track, of an elastic frog attached to the intersecting rails, extending, in its normal position, midway between the rails of the main track and in the same plane, said elastic frog being capable of vertical deflection downward by the weight of the carrier, whereby the carrier is conducted from the branch track onto the main track, as and for the purpose set forth.

2. The combination, with the outward way of a cash-carrying system and graduated carriers adapted to roll thereon, of a horizontal arm extending over said way in suitable position to receive the impact of certain of the carriers, said arm being attached to a vertical rotating post, a vertical rotating post journaled in bearings at the side of the track, and a section of one or both of the rails forming the way pivoted so they may rotate in a vertical plane and produce an opening in the outward way to allow the carriers to fall, said pivoted rails and rotating post being so connected that the vibration of the horizontal arm extending over the way will simultaneously operate the pivoted rail, as and for the purpose set forth.

3. The combination of the arm l^2, post l^3, arm l', rod k, and a pivoted section of one of the rails of an outward way of a cash-carrying system, said pivoted section being capable of vertical rotation, as and for the purpose set forth.

4. The combination, with a pivoted section, k, of one of the rails of the outward way of a cash-carrying system, said rail being attached to the rocking spindle i, of the spindle i, arm i', attached thereto, and rod k, connecting said arm i' with operating mechanism adapted to be actuated by the carriers, substantially as described, and for the purpose set forth.

5. The combination, with the outward way of a cash-carrying system, of the side bars, j j', spindle i, sections of rails g and k, attached to said spindle, and arm i', connected with operating mechanism adapted to be actuated by the carriers, as and for the purpose set forth.

6. The combination, with the outward track of a cash-carrying system, of a delivery tube through which the carriers are conducted from the outward way downward, said tube having a series of yielding obstructions to the passage of the carrier by which the momentum of the carrier is successively checked, as and for the purpose set forth.

7. The combination, with a delivery-tube leading downward from the outward track of a cash-carrying system, of the plates F, hinged to the interior sides of the tube, and held obliquely to said sides by springs whose tension offers resistance to the passage of the carriers, as and for the purpose set forth.

8. The combination, with a delivery-tube leading downward from the outward way of a cash-carrying system, of the hinged plates F, adjusting-screws f', and springs, substantially as described, between said hinged plates and adjusting-screws, whereby resistance offered by the hinged plates may be varied, as and for the purpose set forth.

9. The combination of tube E, cushioned sides F', hinged plates F, spring l, adjusting-screws f', and links l^5, all arranged substantially as described, and for the purpose set forth.

10. The combination, with the way of a cash-carrying system, substantially as described, adapted to conduct rolling cash-carriers from the cashier's desk to the several salesmen in a store, of a section of one of the rails pivoted at one end so the free end may move laterally outward and allow the carriers to fall through, said pivoted section having connected therewith a latching device for holding it in alignment with the rail, and mechanism adapted to be actuated by the carrier, by which it is unlatched, as described, and for the purpose set forth.

11. The combination, with the outward way of a cash-carrying system, one of whose rails has a section pivoted so as to move laterally outward, of a vertical rotating post journaled at the side of the way, and a horizontal arm attached to said post and extending over the way so as to receive the impact of carriers of a certain size, said post and the pivoted section of rail being so connected that the vibration of the horizontal arm will simultaneously move the pivoted section of rail laterally outward, as and for the purpose set forth.

12. The combination, with the pivoted section m^2, of rail m, rocking shaft o, having a crank, p, engaging a notch in the bar n, and an arm, p', rotating shaft q, with arm q^2, connected with arm p' on the rocking shaft o, and an arm, q^2, extending horizontally over the way, so as to be actuated by carriers of a certain size, as and for the purpose set forth.

13. The combination, with the way of a cash-carrying system and rolling carriers adapted to roll thereon, substantially as described, said way having a section of one of the rails pivoted so its free end may move laterally outward, said pivoted section having connected therewith actuating mechanism operated by the rolling carriers, whereby it is moved outward, of a spring applied to said pivoted section, by which the action of the rail and its connected operating mechanism is reversed, substantially as described, and for the purpose set forth.

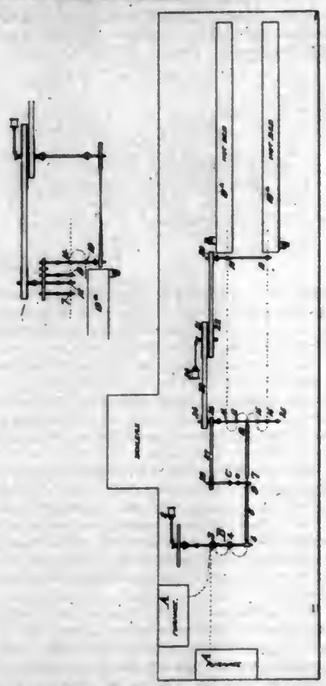
14. The combination, with the outward way of a cash-carrying system, substantially as described, and having a section of one of the rails pivoted so its free end may move laterally outward, said pivoted section having a latching device by which it is held in alignment with the corresponding rail of the way, of a spring applied to the latching devices to effect the automatic action in latching the rail in proper position to allow the passage of carriers, as described, and for the purpose set forth.

15. In a cash-carrying system having an outward inclined way or track on which rolling cash-carriers are conducted from the cashier's desk to the salesmen, the combination, with said way or track, of a delivery-station formed by pivoting a short section of one of the rails of said way so its free end may move laterally outward and form an opening in the track for the passage of the carriers, said pivoted rail having connected therewith actuating devices operated by the rolling carriers, as and for the purpose set forth.

16. The combination, with the outward way of a cash-carrying system having a pivoted section of rail moving laterally outward to effect the delivery of the carriers, of a vertical rotating post connected with and actuating the pivoted rail and carrying a horizontal arm extending across the way to receive the impact of the carriers when said vertical post is placed in advance of the axis of the pivoted rail, so the carrier

will have entered on the pivoted rail before it strikes the horizontal arm, as and for the purpose set forth.

319,693. ROLLING-MILL PLANT. WILLIAM GARRETT, Pittsburg, Pa. Filed Jan. 7, 1885. (No model.)



Claim.—1. A rolling-mill plant for rolling hoop and other forms of merchantable iron directly from blooms, having in combination a billet-train, hoop-finishing rolls, an intermediate pair of rolls, 7, and a shearing mechanism located in the line of feed of the bar or billet as it passes from the billet to the intermediate rolls, substantially as set forth.

2. A rolling-mill plant for rolling hoop and other forms of merchantable iron directly from blooms, having in combination a billet-train, intermediate or feed rolls, said rolls being arranged in or approximately in line with the delivery-rolls of the billet-train, and a shearing mechanism located in the line of feed of the bar or billet as it passes from the billet to the intermediate rolls, substantially as set forth.

3. A rolling-mill plant for rolling hoop and other forms of merchantable iron directly from blooms, having in combination a billet-train, a series of hoop-finishing rolls, rolls located intermediate between the billet-train and the finishing-rolls, and shearing mechanism mounted on the housings of the intermediate rolls, substantially as set forth.

4. A rolling-mill plant for rolling hoop and other forms of merchantable iron directly from blooms, having in combination a billet-train, an intermediate pair of rolls, said rolls being arranged in or approximately in line with the delivery-rolls of the billet-train, shearing mechanism arranged in the line of feed of the bar or billet as it passes to the intermediate rolls, three or more pairs of finishing-rolls, one of said pairs being arranged in or approximately in line with the intermediate rolls, and planishing-rolls, substantially as set forth.

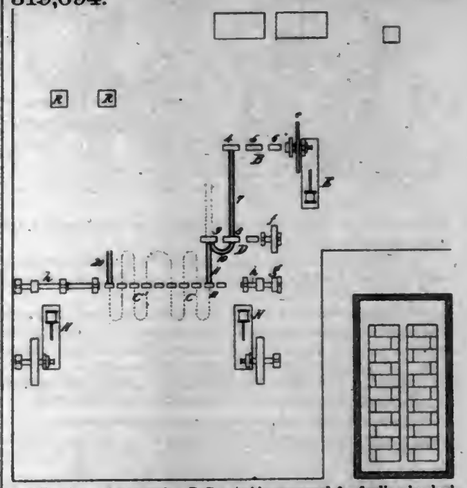
5. A rolling-mill plant for rolling hoop and other forms of merchantable iron directly from blooms, having in combination a billet-train, an intermediate pair of rolls, said rolls being arranged in or approximately in line with the delivery-rolls of the billet-train, shearing mechanism arranged in the line of feed of the bar or billet as it passes to the intermediate rolls, three or more pairs of finishing-rolls, said rolls being arranged with their axes in line with each other and one of said pairs being in line with the intermediate rolls, and planishing-rolls arranged in line with the delivery-rolls of the finishing-train, substantially as set forth.

6. A pair of rolls in combination with a shearing mechanism having its operative blades connected to the housings of said rolls, substantially as set forth.

319,694. ROLLING-MILL PLANT. WILLIAM GARRETT, Pittsburg, Pa. Filed Feb. 25, 1885. (No model.)

Claim.—1. A rolling-mill plant having an end feeding-train adapted to the reduction of a bloom to or nearly to proper size for feeding by

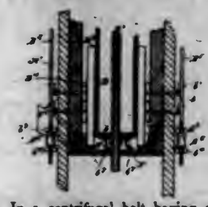
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doubling in, and two trains, D C, suitably arranged for feeding by doubling in the rod, the first receiving-grooves of such two trains being also arranged to receive the rod from the last pass of the preceding train, in combination with driving-gear for operating each successive train at a higher speed than the preceding train, substantially as set forth.

2. In combination with a billet, B, and rod-train C, an intermediate train, D, of two or more pairs of rolls suitably arranged for the direct feeding of the rod from the last pass of the billet-train to the first pass of the intermediate train and from the last pass of the intermediate train to the first pass of the rod-train, substantially as set forth.

319,695. UPRIGHT CENTRIFUGAL FLOUR-BOLT. LOUIS GATHMANN, Chicago, Ill. Filed Sept. 28, 1883. Renewed May 14, 1885. (No model.)



Claim.—1. In a centrifugal bolt having a vertical axis and constructed to carry the material upward, the combination, with a rotating drum provided with beaters, of a surrounding screen and adjustable stationary blades, substantially as described.

2. In a centrifugal bolt having a vertical axis and constructed to carry the material upward, the combination, with a rotating drum provided with beaters, of a surrounding screen, pivoted stationary blades set edgewise to the drum and at a distance from the beaters thereon, and means constructed to adjust the said pivoted blades from the exterior of the machine, substantially as described.

3. In a centrifugal bolt having a vertical axis and constructed to carry the material upward, the combination, with a rotating drum having beaters thereon, of a surrounding screen, stationary blades set edgewise to the drum, but clear of the beaters thereon, pivoted rods secured to said blades passing through the stationary part of the machine, and means exterior to the machine for rotating said rods, substantially as described.

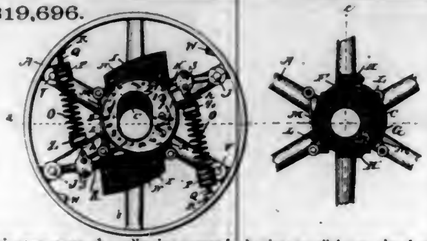
4. The combination, with a rotating drum, B, and receptacle F, of the straight beaters B^3, attached to the drum, having their lower ends bent in the direction of their motion, substantially as described.

319,696. GOVERNOR. CHARLES M. GIDDINGS, Massillon, Ohio. Filed Mar. 12, 1885. (No model.)

Claim.—1. The combination of a fly-wheel or other governor-carrier adapted to be secured to its shaft, a rectilinear guide secured to the same, a valve-operating eccentric fitted to slide on said guide, an adjusting-eccentric free to rotate upon the hub of said governor-carrier, bearing-lugs upon the valve-operating eccentric engaging said adjusting-eccentric, and a pair of centrifugal levers engaging said adjusting-eccentric and adapted to rotate it upon its bearing.

2. In a governor, the combination, with a valve-operating eccentric, its guide and bearing-lugs, and the adjusting-eccentric, of an eccen-

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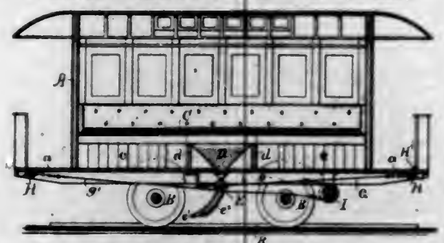


trio-strap upon the adjusting-eccentric, having parallel cross-head surfaces engaging the bearing-lugs.

3. The combination of plugs P, provided with an exterior spring-receiving thread having a notch and stop, *f*, and the spring O, having tooth *g*, substantially as set forth.

4. The combination of spring O, split plug Z, having an exterior spring-receiving thread and a taper hole, and hook *h*, or equivalent end attachment, having a tapered shank, substantially as set forth.

319,697. SAND-BOX FOR STREET-CARS. JAMES GILSON and JOHN W. HOUSTON, Providence, R. I. Filed Jan. 13, 1885. (No model.)
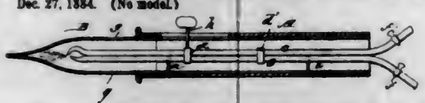


Claim.—1. The combination, with the sand-boxes and the valve-arms *e*, of the connections *g* G H, constructed to operate the valves from either end of the car, as described.

2. The combination, with the sand-boxes, of the valve-arms *e*, the springs F, the connections *g g'*, G, and H, and the drum I, constructed and arranged to operate the valves from either end of the car, as set forth.

3. The combination, with the car-body, of the hoppers D, having the valve-casings E, with their arms *e*, the pipes *e'*, and tubes e^3, the springs F, the drum I, the levers H, having the stems h^2 and lips h^1, the dogs H', having the sockets h^3, and the cords *g* G *g'*, as set forth.

319,698. GAS-CAUTERY. CHARLES GRAEFF, Sandusky, Ohio. Filed Dec. 27, 1884. (No model.)

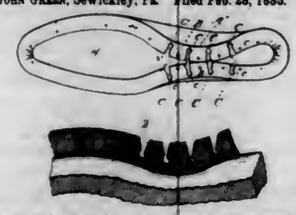


Claim.—1. The combination, with a cautery-tube closed at one end, and a gas-pipe therein, of an air-pipe for discharging a current of air across the gas-flame, to increase the intensity of the flame, and to direct the same into the closed end of the tube, substantially as herein shown and described.

2. The combination, with the cautery-tube B, provided with the openings *g*, of the air and gas pipes *b c*, provided with the valves *f*, substantially as herein shown and described.

3. In a gas-cautery, the combination of the handle A, the cone or cautery B, and the adjustable pipes *b c*, substantially as described.

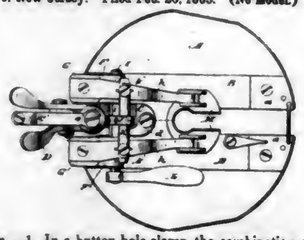
319,699. PREPARATION OF BOOT OR SHOE UPPERS FOR LASTING. JOHN GREEN, Sewickley, Pa. Filed Feb. 23, 1885. (No model.)



Claim.—1. A boot or shoe upper having the curved holes *c* opening to the edge in the shank portions thereof, to facilitate the operation of lasting, all substantially as and for the purposes described.

2. A boot or shoe upper having curved holes opening to the edge in the shank-section thereof, re-enforced or strengthened on its inner surface about the holes by woven fabric or other material united thereto, all substantially as and for the purposes described.

319,700. CLAMP FOR BUTTON-HOLE SEWING-MACHINES. JAMES G. GREENE, Rochester, N. Y., assignor to the Singer Manufacturing Company of New Jersey. Filed Feb. 20, 1885. (No model.)



Claim.—1. In a button-hole clamp, the combination, with the base-plate and the upper and lower clamping plates or jaws adapted to move laterally thereof, of a spreading-slide having rib-and-groove connections with the said lower plates or jaws, substantially as set forth.

2. In a button-hole clamp, the combination, with the base-plate having parallel guides, of two lower plates or clamping-jaws adapted to slide laterally on said base-plate in said guides, two upper clamping-jaws mounted on and rigidly connected with said lower plates or jaws, and a slide for moving the latter plates from or toward each other, substantially as set forth.

3. In a button-hole clamp, the combination, with the base-plate and the upper and lower clamping plates or jaws adapted to move laterally thereof, of a spreading-slide movable longitudinally of the said lower plates or jaws and having rib-and-groove connections therewith, a spreading-lever connected with said slide, and a clamping-lever connected with the said upper jaws, both of said levers being movable in the same direction in performing their respective functions, substantially as set forth.

4. The combination, with the base-plate and the upper and lower clamping-jaws, of a slotted cross-bar for operating the said upper jaws, a pitman, and a shaft having an arm or lever and a crank, whereby the said upper jaws may be positively lifted and forced down, substantially as set forth.

5. The combination, with the base-plate and the lower plates or jaws, of blocks rigidly fixed thereto, plates hinged to said blocks, arms carrying the upper clamping-jaws rigidly attached to said plates, a shaft journaled in said blocks and having an arm or lever and a crank, a cross-bar engaging the said arms of the clamping-jaws, and a pitman or link connecting said cross-bar and crank, substantially as set forth.

6. In a button-hole clamp, the combination, with the base-plate, the upper and lower clamping plates or jaws, the spring-arms by which the upper jaws are carried, and the cross-bar engaging said arms, of a shaft having an arm or lever and a crank, a pitman or link, and a post with which the latter is in contact when the upper jaws are in clamping position and the said crank is past the dead-center, substantially as set forth.

7. The combination, with the base-plate and the lower and upper clamping-jaws, of a slotted cross-bar, through which the spring-arms of the latter loosely pass, regulating-screws on said cross-bar for varying the stress of said arms, and devices for raising and lowering said cross-bar, substantially as set forth.

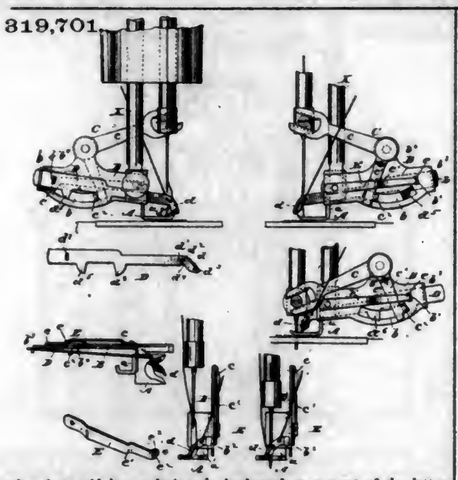
8. In a button-hole clamp, the combination, with the base-plate and the lower clamping plates or jaws mounted loosely thereon and provided with inclined grooves or slots, of a spreading-slide having projections fitting in said grooves or slots, substantially as set forth.

319,701. EMBROIDERING ATTACHMENT FOR SEWING-MACHINES. JOHN M. GRIEST, Chicago, Ill., assignor to the Singer Manufacturing Company of New Jersey. Filed Sept. 18, 1884. (Model.)

Brief.—An embroidering-thread is carried around the needle and its thread at each stitch. The forward end of the looper is free to move sidewise in the widened hole in the frame, through which it loosely plays. The spring for bearing against and locking the looper (in its forward position) is arranged outside of the lever-arm, the spring being so bent that the said arm may work freely under the forward portion of the spring; but when the arm in its backward movement comes in contact with the spring's bent portion the spring will be released from engagement with and pressure against the looper, leaving it free to move sidewise, drawing its thread around the needle as said looper is forced backward by the lever-arm.

Claim.—1. In an embroidering attachment, the combination, with a supporting-frame, a reciprocating looper, and an operating-lever for the latter, of a spring adapted to press against said looper during its forward movement, and means, as an arm of said lever, for releasing said spring from said looper during the backward movement of the latter, substantially as set forth.

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2. In an embroidering attachment, the combination, with a supporting-frame and a looper and its operating mechanism, of a spring adapted to engage said looper and lock the same in place when it has reached the end of its forward throw, and means, as a vibrating arm of a bell-crank lever, for releasing said spring from said looper when the latter is to be moved backward, substantially as set forth.

3. In an embroidering attachment, the combination, with a supporting-frame, a looper having an inclined forward end, and mechanism for imparting an intermittent longitudinal movement to said looper, of a spring normally pressing against said looper when the latter is being moved forward, and means, as a vibrating arm of a bell-crank lever, for releasing said looper from the pressure of said spring when the looper is being moved backward, substantially as set forth.

4. In an embroidering attachment, the combination, with a supporting-frame and a presser-foot having a bifurcated front or toe, the opening between the prongs of which flares or widens outwardly, of a reciprocating looper extending forward during its movements into said opening, and mechanism for operating said looper, substantially as set forth.

5. In an embroidering attachment, the combination, with a supporting-frame and a presser-foot having a bifurcated front or toe, the opening between the prongs of which flares or widens outwardly, and the upper edge of said toe around said opening being chamfered off or beveled, as shown, of an inclined reciprocating looper extending forward during its movements into said opening, and mechanism for operating said looper, substantially as set forth.

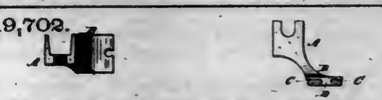
6. In an embroidering attachment, the combination, with a presser-foot and a main plate or supporting-frame carried thereby, and provided with openings affording bearings for the looper, one of said openings being much wider than the thickness of said looper, so that the latter can vibrate therein, of a looper sustained in said bearings, and mechanism for reciprocating said looper longitudinally and vibrating the same laterally, substantially as set forth.

7. In an embroidering attachment, the combination of a presser-foot, a main plate or supporting-frame carried thereby and provided with a curved slot, a bell-crank lever pivoted to said supporting-frame, and having one of its arms adapted for engagement with the needle-bar, and the other arm provided with a lug working in said slot, a looper sustained in bearings in said supporting-frame, and having lugs arranged in the path of the leg on the lower arm of the bell-crank lever, and a spring adapted to press against said looper and to be intermittingly released therefrom by one of the arms of said lever, substantially as set forth.

8. The combination of the presser-foot A, main plate or supporting-frame B, having slot *b'*, bell-crank lever C, having lug c^3 on its lower arm, looper D, having inclined end *d* and lugs d^5 d^6, and the spring E, having bend *e'* and inwardly-bent end *e*, substantially as set forth.

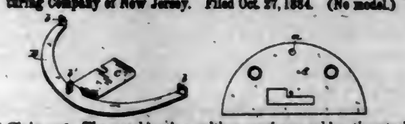
9. The combination of the presser-foot A, main plate or supporting-frame B, having slots or openings *b b'* b^2 b^3, bell-crank lever C, having lug c^3 on its lower arm, looper D, having inclined end *d*, lugs d^5 d^6, and slot d^7, and the spring E, having bend *e'* and inwardly-bent end *e*, having shoulders e^3, substantially as set forth.

319,702. PRESSER-FOOT FOR SEWING-MACHINES. JOHN M. GRIEST, Chicago, Ill., assignor to the Singer Manufacturing Company of New Jersey. Filed Oct. 27, 1884. (No model.)



Claim.—A sewing-machine presser-foot having transverse grooves at its heel and toe in its foot portion proper and between the upper and lower surfaces thereof, substantially as set forth.

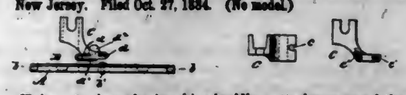
319,703. THROAT-PLATE ATTACHMENT FOR SEWING-MACHINES. JOHN M. GRIEST, Chicago, Ill., assignor to the Singer Manufacturing Company of New Jersey. Filed Oct. 27, 1884. (No model.)



Claim.—1. The combination, with a sewing-machine throat-plate having a recess at or near one side, of an attachment-plate having depending lips or lugs at its ends and an intermediate lip or lug, the latter adapted for engagement with the said recess to hold the said attachment-plate positively in place, substantially as set forth.

2. The combination, with a semicircular throat-plate having a recess, of a curved or semicircular attachment-plate having depending lips or lugs at its ends and an intermediate lip or leg adapted for engagement with said recess, substantially as set forth.

319,704. UNDER-BRAIDER FOR SEWING-MACHINES. JOHN M. GRIEST, Chicago, Ill., assignor to the Singer Manufacturing Company of New Jersey. Filed Oct. 27, 1884. (No model.)

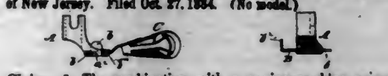


Claim.—1. A sewing-machine braiding attachment consisting of a thin metallic plate having depending lugs by which it is adapted to be removably secured to the throat-plate, and having on its under side a braid-guiding passage combined with a co-operating presser-foot, substantially as set forth.

2. The combination, with a plate having a braid-guiding passage on its under side and depending lugs by which it is adapted to be removably attached to a sewing-machine throat-plate, of a presser-foot having a heel portion extending below its toe portion a distance equal to the thickness of that part of the braid-guiding plate on which said toe portion rests when the device is in operation, substantially as set forth.

3. The combination, with a plate having a braid-guiding passage on its under side and adapted to be removably attached to a sewing-machine throat-plate, of a presser-foot and a plate adapted to be removably attached to said foot and having a lip extending under the heel thereof, substantially as set forth.

319,705. ATTACHMENT-HOLDER FOR SEWING-MACHINES. JOHN M. GRIEST, Chicago, Ill., assignor to the Singer Manufacturing Company of New Jersey. Filed Oct. 27, 1884. (No model.)



Claim.—1. The combination, with a sewing-machine presser-foot provided with transverse grooves having a rib between them, of a forked plate embracing said ribs and adapted to carry an attachment, substantially as set forth.

2. The combination, with a sewing-machine presser-foot provided with transverse grooves, of a forked plate having a slotted or elongated needle-hole and adapted to carry an attachment, substantially as set forth.

3. The combination, with a sewing-machine presser-foot having transverse grooves, of a forked plate adapted to carry an attachment, said plate having an upwardly-turned lug, substantially as and for the purposes set forth.

319,706. TUCK-MARKER FOR SEWING-MACHINES. JOHN M. GRIEST, Chicago, Ill., assignor to the Singer Manufacturing Company of New Jersey. Filed Oct. 27, 1884. (No model.)



Claim.—1. In a tuck-marker, the combination, with a base-plate having a marking-blade, of a rigid vibrating arm, a marker carried by said arm, and a spring attached to said arm about midway between the

ends thereof and connected with the said marker, said spring serving as a yielding connection between the latter and said arm, substantially as set forth.

2. In a tuck-marker, the combination, with a base-plate having a marking-blade, of a rigid vibrating arm having a downwardly-bent end provided with a slot or recess, a marker arranged in said recess, and a spring forming a yielding connection between said arm and marker, said spring being arranged to bear against one edge of the latter to hold it in its recess, substantially as set forth.

3. In a tuck-marker, the combination, with the base-plate having a marking-blade, a rigid vibrating arm having a downwardly-bent end, said end being provided with a slot or recess and a notch, and a tuck-marker arranged in said recess and having a pin or projection working in said notch, the latter with the pin thus serving to limit the movements of the marker relatively to the vibrating arm by which it is carried, substantially as set forth.

4. In a tuck-marker, the combination, with the base-plate and its standards, one of which is provided with an elongated opening smaller at one end than the other, of a vibrating marker-carrying arm having a bent end passing through said standards, said end being recessed to form a neck which fits in the smaller part of said elongated opening, substantially as set forth.

319,707. RUFFLING ATTACHMENT FOR SEWING-MACHINES. JOHN M. GRIEST, Chicago, Ill., assignor to the Singer Manufacturing Company of New Jersey. Filed Oct. 27, 1884. (No model.)



Claim.—1. In a ruffling attachment for sewing-machines, the combination, with the ruffling-blade and its carrying-slide, of an actuating-lever having a stud, a traveling wheel having a notch in which said stud is arranged, and also a lug, and an adjusting-lever carried by said actuating-lever, and arranged to impinge against the lug on said wheel, substantially as set forth.

2. In a ruffling attachment for sewing-machines, the combination, with the ruffling-blade, the actuating-lever, and intermediate connecting mechanism, of a two-armed regulating-lever carried by the former lever and having on its shorter arm an eccentric working portion or cam, whereby the changes in the throw of the ruffling-blade will be more rapid with a given adjustment of the regulating-lever when the strokes thereof are long and the variation in the lengths of said strokes with such adjustment will be finer or less when the strokes are short, substantially as set forth.

3. In a ruffling attachment for sewing-machines, the main plate provided with a rib having a protuberance from which project laterally a lip or lug, a ruffling-blade, and a slide to which said blade is attached, said slide having a slot in which said rib fits, and an upturned end riding over said rib, combined with mechanism for operating said slide, substantially as set forth.

4. In a ruffling attachment for sewing-machines, the combination, with the main plate, the ruffling-blade, and devices for operating the latter, of an adjusting-plate carrying a separator-plate, and having a longitudinal sliding connection with said main plate, and being provided with two holes, stops to limit the movements of the said adjusting-plate, and a pin on said main plate to enter said holes, and thus lock the said sliding adjusting-plate and separator in different positions, substantially as set forth.

5. The combination, with a ruffling attachment adapted to be secured to a sewing-machine above the work-plate thereof, of a resilient semicircular attachment-plate provided with a separator-plate, and having three depending lugs, one at each end and one near its center, whereby said attachment-plate and separator are adapted to be removably secured to the throat-plate of a sewing-machine, substantially as set forth.

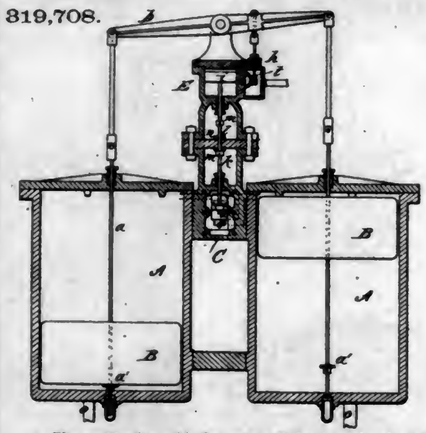
319,708. BOILER-FEEDER. SAMUEL HAIGH, Coquitlam, New Westminster, British Columbia, Canada. Filed Nov. 22, 1884. (No model.)

Claim.—1. The combination, with the cylinders A A, having connections to the steam and water spaces of a boiler and to a water-supply and the steam-chest C in the line of the connection to the steam-space, and having steam-passages leading to the cylinder and for the exhaust, of the valve *d*, the cylinder E, piston *i*, connection *k* to the valve *d*, the valve *t*, the floats B in the cylinders A, the rods *a*, and beam *b*, having connection with the valve *t*, substantially as described.

2. The combination, with the cylinder E, valve *t*, piston *i*, rod *k*, steam-chest C, and valve *d*, of the guide-bar *l*, collars *m*, and rubber buffers *n*, substantially as shown and described.

3. In a boiler-feeder, the combination, with the water-cylinders A, floats B, rods *a*, beam *b*, steam-cylinder E, piston *i*, and rod *k*, of the steam-chest C, provided with ports *e f*, the valve *d*, and connections to a boiler and a water-supply, substantially as shown and described.

319,708.

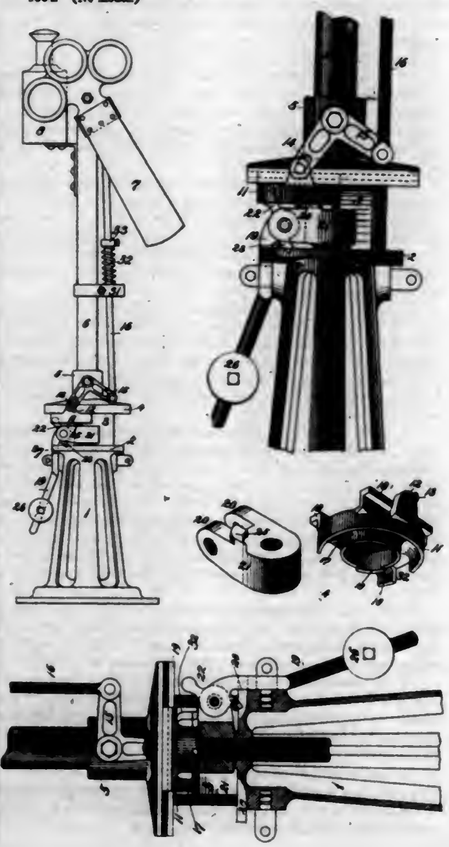


4. The combination, with the water-cylinder A, of the pipe *q* from a water-supply pipe, *p*, to a boiler, cross-pipes *r r*, and check-valves *u*, substantially as shown and described.

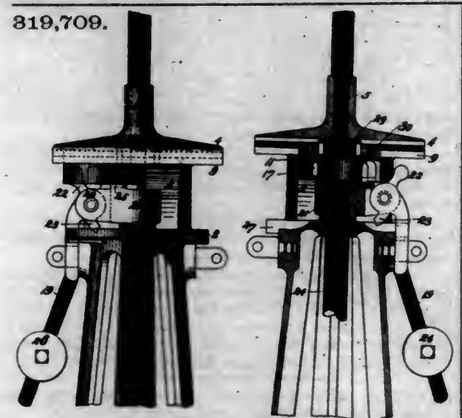
5. In a boiler-feeder, the combination of condenser D with the water-cylinders A, steam-chest C, and valve *d*, substantially as and for the purpose specified.

6. In a boiler-feeder, the pipe *p*, connected to the boiler-pipe *q* from a water-supply, cross-pipes *r*, and check-valves *u*, combined with the water-cylinders A, substantially as described.

319,709. SWITCH-STAND. JAMES T. HANBAY, Allegheny, assignor to the Union Switch and Signal Company, Pittsburg, Pa. Filed July 7 1884. (No model.)



319,709.



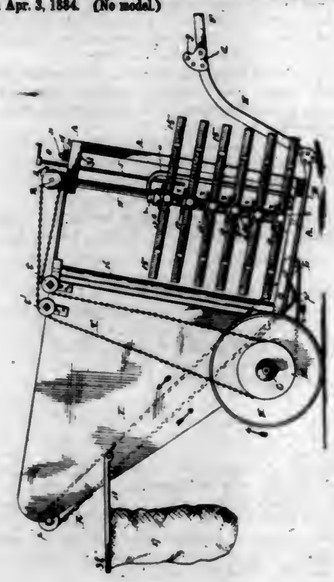
Claim.—1. In a switch-stand, a rotating switch stem or shaft, in combination with a lever pivoted to said shaft and provided with a projection, 22, a sliding block having a groove adapted to receive said projection, and a signal operated by the sliding block, substantially as set forth.

2. In a switch-stand, a rotating switch stem or shaft, in combination with a lever pivoted to said shaft and provided with a projection, 22, a sliding block having a groove adapted to receive said projection, the outer wall of said groove being notched to permit of the passage of the projection to and from the groove, and a signal operated by the sliding block, substantially as set forth.

3. In a switch-stand, a rotating switch stem or shaft having a head-block, 21, provided with the boss 25, in combination with a lever pivoted to the head-block and provided with the projection 22, a sliding block having a groove adapted to receive the projection 22, the walls of said grooves being provided with the depending lugs 18, and a signal operated by the sliding block, substantially as set forth.

4. In a switch-stand, a frame or support provided with a peripherally-notched top plate, in combination with a rotating switch stem or shaft having a head-block provided with the boss 25, a lever pivoted to the head-block, the projection 22, formed integral with said lever, a sliding block having a groove adapted to receive the projection 22, the walls of said grooves being provided with the depending lugs 18, and the outer wall being notched to permit of the passage of the projection to and from the groove, and a signal operated by the sliding block, substantially as set forth.

319,710. COTTON-HARVESTER. DANIEL B. HASELTON, Charleston, S. C., assignor to the Southern Cotton Picking Company, same place. Filed Apr. 3, 1884. (No model.)



Claim.—1. In a cotton-harvester, a series of picker-stems independently mounted upon radially-projecting spindles attached to a forwardly-inclined shaft, in combination with mechanism, substantially as described, whereby said picker-stems will be operated by the forward motion of the machine, as and for the purpose set forth.

2. In a cotton-harvester, the combination of an inclined rotating shaft, a series of revolving pickers independently mounted on radially-projecting spindles on and rotating with said shaft in their own plane, and means, substantially as described, whereby said picker-stems may be raised or lowered, as and for the purpose set forth.

3. In a cotton-harvester, a series of picker-cylinders radially mounted upon a forwardly-inclined shaft journaled in the frame, in combination with means, substantially as described, whereby the inclination of the shaft and frame may be varied, as set forth.

4. The combination, with the shaft R, having gear-wheels P P', and the shafts N N', having gears O, of the rails 2 and 3, brace 4, and the regulating-screws 5, as and for the purpose set forth.

5. The combination of the shaft R, inclined polygonal shafts N N', the rails 2 and 3, tubes 8 8, having caps 6, journaled in said rails, and the regulating-screws, as set forth.

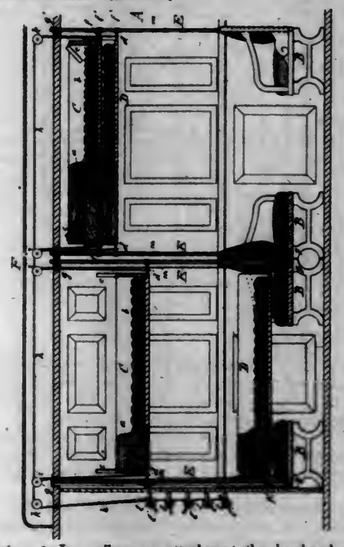
6. The combination of the tube 8, the collar 9, adjustably secured thereto and provided with removable radial spindles 12, the picker-cylinders 15, having friction-rollers 16, and the non-rotating friction driving-plate 17, supported on said rollers, as and for the purpose set forth.

7. The combination of the tube 8, the collar 9, provided with spindles 12, the picker-cylinders 15, rotating on said spindles and having the rollers 16, and the non-rotating driving-plate 17, provided with an annular groove, 27, and rubber track 19, as and for the purposes set forth.

8. The combination, with the driving-plate 17, having the mutilated track 19, of the collar 9, having spindles 12, and the picker-cylinders 15, having friction-rollers 16, as and for the purposes set forth.

9. The combination, with the frame, picker-cylinders, and their operating mechanism, of the adjustable side guards, 35, as and for the purpose set forth.

319,711. SLEEPING-CAR. MILTON W. HAZELTON, New York, N. Y. Filed Dec 15, 1884. (No model.)



Claim.—1. In a railway-car attachment, the sleeping berths C D, arranged to move on vertical guides, and raised and lowered at will, the upper berths, C, being made shorter and narrower than the berths D, so that they will be partly received within said berths D when the berths are elevated, as specified.

2. The series of vertical guides E and berths C D, having arms *f* within guide-embracing wings *f'*, the hoisting cords or chains *d k*, leading to a series of corresponding windlasses congregated at convenient portions of the car, and the sheaves *i k*, all arranged and operating as specified.

3. In a sleeping-car, the guide-standards E, having slots, pivoted stops *m*, and springs for holding said stops outward, as set forth.

4. In a sleeping-car attachment as described, the removable tubular guide-standards E, made in sections, and blocks formed with engaging projections and recesses fitting within said sections, and the whole adapted to serve with sockets *g* and *g'*, as and for the purposes set forth.

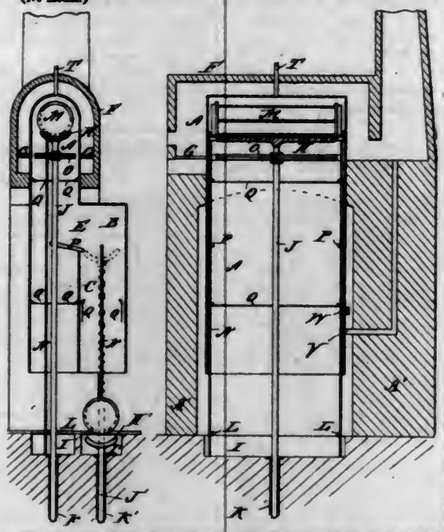
5. In combination with a car having a chamber formed between the ceiling and roof, and having rope apertures and sockets *g'*, formed in said ceiling, the sheaves *i k*, supported within said chambers, the standards E, berths C D, ropes *d h*, and drums *l*, all arranged and operating as set forth.

319,712. ROLLER-SKATE. ELIJAH C. HEDLEY, Richmond, Ind. Filed Oct. 30, 1884. (No model.) Patented in Canada Feb. 10, 1885, No. 21,069.



Claim.—In a roller-skate, the combination, with the sole-plate, of a hanger-frame, a truck-frame pivotally connected therewith, an elastic cushion supported by the truck-frame, and a compression-screw having an enlarged head bearing upon a plate resting upon the upper face of the cushion, and a threaded stem rising from the upper face of said head and seated in a threaded socket in the hanger-frame above said head, as and for the purpose set forth.

319,713. FURNACE FOR ANNEALING METALS. EDWIN M. HERR, Denver, Colo., and GEO. W. CUSHING, Vienna, N. J. Filed Oct. 7, 1884. (No model.)



Claim.—1. In an annealing-furnace, the receptacle A, provided below its top with a lateral wing, B, partition C, separating the wing and receptacle, and an opening, E, above the top of the partition for connecting the two chambers, substantially as set forth.

2. In an annealing-furnace, a receptacle for receiving the articles to be annealed, provided with a gas-supply pipe and a burner, whereby the continuance of the supply of gas may be determined, substantially as set forth.

3. In an annealing-furnace, the combination, with the receptacle A and piston J, of swinging gates or valves for forming transverse partitions therein, substantially as set forth.

4. In an annealing-furnace, the combination, with an air-tight chamber or receptacle, a furnace surrounding the upper part of the same, of a vertically-reciprocating piston having a carrier, and swinging gates pivoted within said receptacle below the furnace on opposite sides of said piston, and adapted to be automatically operated, thereby to form transverse partitions, substantially as set forth.

5. In an annealing-furnace, the combination, with a chamber, vessel, or receptacle open at the bottom and closed at the top, of the piston J, the carrier H, and of the plate O, secured on the piston directly below the carrier, and provided with zigzag grooves, substantially as herein shown and described.

6. In an annealing-furnace, the combination, with a vessel, casing, or receptacle, A, having a wing or enlargement, B, of the pistons J J', the carriers H H', and the tracks P, substantially as herein shown and described.

7. In an annealing-furnace, the combination, with the vessel, casing, or receptacle A, having a wing, B, separated from the said vessel or receptacle by the partition C, of the pistons J J', the carriers H H', and the tracks P, substantially as herein shown and described.

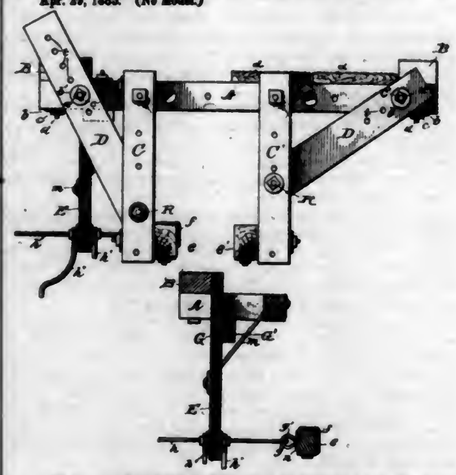
8. The combination, with the receptacle A and tracks P, of a cage for holding metals to be annealed, consisting of two circular end plates united by rods, the said plates being provided with circular flanges along their inner edges, substantially as herein shown and described.

9. In a cage for holding metals, the combination, with the end plates, *d*, having flanges *h*, of the rods *g*, and the hinged portion *h'* of the flanges *h* on the end plates, substantially as herein shown and described.

10. In an annealing-furnace, the combination, with the vessel, casing, or receptacle A, and piston J, of the hinged valves Q, having counterweights R, substantially as herein shown and described.

11. An annealing-furnace consisting, essentially, of a receptacle, A, closed at its top, open at its bottom, and provided with a lateral wing, B, partition C, a furnace, F, surrounding the upper part of the casing, and an exterior casing, A', surrounding the receptacle A, and its wing B, vertically-reciprocating pistons J, swinging valves Q, and swinging tracks P, and the gas inlet and outlet pipes, substantially as set forth.

319,714. WINDOW-SCAFFOLD. CHAS. HYDE, Danville, Ill. Filed Apr. 29, 1885. (No model.)



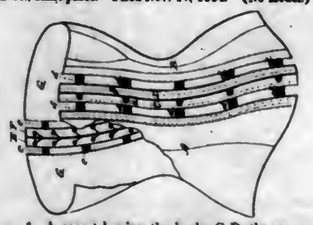
Claim.—1. In a scaffold, the frame, the adjustable legs and braces, and the cross-pieces at the ends extending above the platform, in combination with the platform, as described and set forth.

2. In a scaffold, the frame, the adjustable legs, and braces, in combination with the guide, the tightening-rod, and the brace to hold the guide firmly in place, as described and set forth.

3. In a window-scaffold, the frame A, and adjustable legs C C C' C', pivotally secured thereto, having connections with each other by cross-pieces *e e'*, and the cushion *f*, in combination with the wall of a house, substantially as described.

4. In a window-scaffold, the combination of the frame A, cross pieces or flanges B B, with the adjustable inclined braces D D, and legs C C C' C', and cross-pieces *e e'*, substantially as set forth.

319,715. CORSET. JULIUS HILDORN, New York, N. Y., assignor to M. Cohn & Co., same place. Filed Nov. 17, 1884. (No model.)



Claim.—1. A corset having the busks C D, the one provided with hooks and the other with corresponding eyes, the front portions, A B, cut to leave a space between their front edge and their respective busks, C D, the said busks connected with the adjacent edges of the respective parts A B of the body of the corset across said space by elastic strips *d*, the said elastic strips arranged in line with the respective hooks and eyes on the busks, substantially as described.

2. A corset having the busks C D, the one provided with hooks and the other with corresponding eyes, the front portions, A B, cut to leave a space between their front edge and their respective busks C D, the said busks connected with the adjacent edges of the respective parts A B of the body of the corset across said space by elastic strips *d*, the said elastic strips arranged in line with the respective hooks and eyes on the busks, and the back provided with lacing-strips E F, the back portions, G G, cut to leave a space between said lacing-strips and the adjacent edges of the back portions, the said lacing-strips united to the back portions by elastic connections *e*, corresponding to the elastic connections *d* at the front, substantially as described.

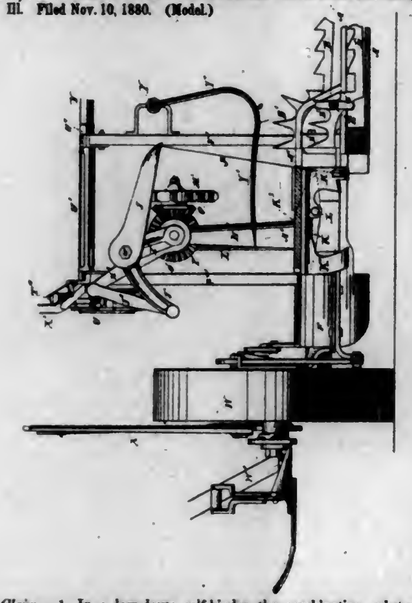
319,716. WIRE SPLICER AND TIGHTENER. WILLIAM P. HINSON, Nashville, Mo. Filed Sept. 11, 1884. (No model.)



Claim.—1. In an implement for tightening the wires of a fence, composed of a lever which is provided with a cylindrical projection, and two catches which are placed upon opposite sides of the projection, substantially as shown.

2. An implement for tightening the wires of a wire fence, consisting of a lever provided with a cylindrical projection having two inclines formed upon it, and two catches, which are placed on opposite sides of the projection, substantially as described.

319,717. GRAIN-BINDING HARVESTER. PLINY F. HODGES, Chicago, Ill. Filed Nov. 10, 1880. (Model.)



Claim.—1. In a low-down self-binder, the combination, substantially as before set forth, of the grain-platform, (comprising means for conveying grain across it,) the low-down binder-table, and an automatic binding mechanism at the delivery side of said grain-platform, and alternately-thrusting packers which positively thrust beyond the point where the point of the binding-arm passes through the grain.

2. In a low-down self-binder, the combination, substantially as before set forth, of the grain-platform, (comprising means for conveying the grain across it,) the low-down binder-table, and an automatic binding mechanism at the delivery side of said grain-platform, alternately-thrusting packers, which positively thrust beyond the point where the point of the binding-arm passes through the grain, and a rotating crank-shaft for operating said packers.

3. In a low-down self-binder, the combination, substantially as before set forth, of the grain-platform, (comprising means for conveying the grain across it,) the low-down binder-table, and an automatic binding mechanism at the delivery side of said grain-platform, the slotted elevated delivery-bridge of said grain-platform, and alternately-thrusting packers, which positively thrust beyond the point where the point of the binding-arm passes through the grain.

4. The combination, substantially as before set forth, of a low-down binder-table, packers which alternately thrust beyond the point where the point of the binding-arm passes through the grain, and a combined binding and discharging arm.

5. The combination, substantially as before set forth, of the platform-carrier, the low-down binder-table, and alternately-thrusting parallel packers, which take the grain and pack it in a gavel on the binder-table.

6. The combination, substantially as before set forth, of the grain platform, the main or drive wheel, the intermediate main frame terminating at the rear on about a line with the front line of the grain-platform, the automatic binder, and the binder-table, supported from the main frame at the delivery side of the grain-platform, a clear space being provided between the binder-table and drive-wheel for the discharge of the bundle wholly outside of the frame-work of the machine.

7. In a self-binding harvester, the combination of a grain-receiving platform, A, overhung from and sustained by a front support, and having an elevated delivery-bridge, A', grain-carriers for conveying the grain transversely across the platform, a shaft for propelling the grain-carriers, the intermediate main frame, F, the main or drive wheel W, and the binder-table A'', the said members being arranged, as described, to leave a clear space between the binder-table and the drive-wheel for the free discharge of the bundle, substantially as described.

8. In a self-binding harvester, the intermediate main frame, F, provided with tracks G, and interposed between the inner end of the finger-beam and the main or drive wheel, and having its rear end in line, or nearly so, with the front of the overhung grain-receiving platform, in combination with a binder-table, and a plate, H, carrying a binding mechanism, and adjustable on the tracks of the intermediate main frame, substantially as described.

9. In a self-binding harvester, a grain-receiving platform, A, overhung from and sustained by a front support having an elevated delivery-bridge, A', combined carriers and packers B B', and a single crank-shaft, E, for reciprocating the combined carriers and packers, in combination with the intermediate main frame, F, main or drive wheel W, and binder-table A'', arranged, as described, to leave a clear space for the discharge of the bundle between the binder-table and the drive-wheel, substantially as and for the purpose specified.

10. In a self-binding harvester, the intermediate main frame, F, provided with tracks G, and interposed between the inner end of the finger-beam and the main or drive wheel, and having its rear end in line, or nearly so, with the front of the overhung receiving-platform, in combination with the adjustable plate H, standard or post H', bearing-arm H'', shaft I, crank I', binding-arm J, and binder-table A'', arranged as described, whereby the bundle can be discharged sidewise between the binder-table and the drive-wheel, substantially as and for the purposes specified.

11. In a self-binding harvester, a grain-receiving platform, A, overhung from and sustained by a front support, as described, combined carriers and packers B B', intermediate main frame, F, located forward of the receiving-platform, with its rear portion between the inner end of the finger-beam and drive-wheel W, all arranged as described, and for the purposes specified, in combination with a binding-arm and binder-table adjustably mounted on the main frame, a driving mechanism for the binding-arm, and a belt or chain tightener for the driving mechanism, whereby the mechanism is operated in whatever position adjusted, substantially as and for the purposes specified.

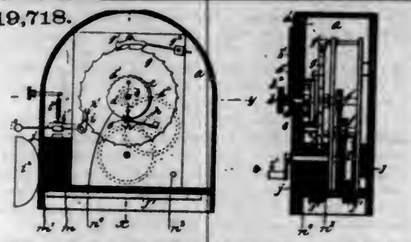
12. In a self-binding harvester, a chain-tightener, N, and bars or supports N' N'', in combination with the chain M, sprocket-wheels M' M'', gear-wheels O O', shaft I, crank I', binding-arm J, and an adjustable support for the shaft and binding-arm located and operating on an intermediate main frame interposed between the main or drive wheel and an overhung receiving-platform, and a binder-table connected with the adjustable support for insuring the driving of the binding-arm, in whatever position adjusted, substantially as specified.

13. In a self-binding harvester, a grain-receiving platform overhung from and sustained by a front support, as described, having horizontal carriers receiving the grain direct from the cutters and delivering the grain to, and packing it in gavels on, a binder-table, an intermediate main frame located forward of the receiving-platform, with its rear portion in line, or nearly so, with the front of the platform and between the inner end of the finger-beam and main or drive wheel, as described, and having a binder mounted thereon, in combination with a seat located outside and at the rear of the drive-wheel for enabling the operator to have the entire mechanism under inspection, substantially as specified.

14. In a grain-binding harvester, the rocking tacker K, located in the slot of the binder-table, the shaft I, crank I', rod L'', and crank L^2, in combination with a binding-arm, J, extension J', link J'', support H^2, bearing-arm H'', standard H', shaft I, crank I', and a suitable driving mechanism for the shaft I, said members being constructed and arranged substantially as and for the purpose described.

319,718. AUTOMATIC RESPONDING-INSTRUMENT FOR ELECTRIC CIRCUITS. ALFRED G. HOLCOMBE, New York, N. Y., assignor to the Equitable Electric Company, same place. Filed Aug. 7, 1884. (No model.) Patented in England Aug. 27, 1884, No. 11,715.

319,718.



Claim.—1. The combination, with an electro-magnet having a movable armature and call-bell operated thereby, an electric circuit, and means for operating the call-bell from a distant station, of a responding-instrument in a local circuit at the same station, the signaling mechanism of which is released free to act by the armature of the call-bell when the call-bell is actuated, substantially as and for the purpose set forth.

2. The combination, with the secondary coil of an inductorium, an electric circuit, and a call apparatus, of an automatic return-signal instrument, a locking device in the return-signal instrument and actuated by the call apparatus, the primary coil of the inductorium, a battery, and a local circuit, substantially as and for the purpose set forth.

3. In combination, an inductorium, a battery, and an automatic responding-instrument provided with a signaling device and connected motor included in a local circuit, a call or bell apparatus constructed, when at rest, to lock the signaling device of the responding-instrument, and means for operating the call-bell, and the secondary coil of the inductorium included in the line-circuit, substantially as and for the purpose set forth.

4. In a telephonic system, a microphonic transmitter, a switch, the primary coil of an inductorium, and a battery in an independent circuit, in combination with the signaling device or contact-spring and disk of an automatic responding-instrument, having a break-wheel located in a branch starting from a point between the microphonic transmitter and the battery and between the switch and the primary coil of the inductorium, said branch being normally opened at the break-wheel, substantially as and for the purpose set forth.

5. In an automatic responding-instrument, in combination, a fixed disk or plate having a series of teeth or notches representing differential signals and an insulated block on its periphery, a contact-brush carried by a rotating shaft concentric with the disk, a motor for imparting motion to said brush, and a locking device for holding the brush stationary on the insulated block and actuated by an electric current to allow the brush to be rotated by the motor, substantially as and for the purpose set forth.

6. In an automatic responding-instrument, in combination, a fixed disk or plate having a series of notches or teeth, a shield-plate arranged concentrically with the fixed disk and connected to and operated by an index-pointer, a dial-plate having marked thereon the signals the instrument is adapted to give, and a contact-brush carried by a wheel or disk whose axis is coincident with that of the shield-plate and fixed disk, and motor for causing the contact-brush to travel around the fixed disk or plate, substantially as and for the purpose set forth.

7. In combination, a battery, the primary coil of an inductorium, the signaling device of an automatic responding-instrument constructed to be operated by means of a motor to indicate by inductive action in the line-circuit any of a set of predetermined impulses, a receiving-instrument, a call apparatus constructed to lock the automatic responding-instrument, the secondary coil of the inductorium, and a current-generator included in the line-circuit, substantially as and for the purpose set forth.

8. In combination, the responding-instrument constructed and operated substantially as described, the battery n^2, the primary coil n' of the inductorium n, the line-wire m, the call apparatus $i\ j$, adapted to lock the responding-instrument, the line-wire m', the secondary coil m^2 of the inductorium n, and the receiving-instrument m^3, and electrical generator, substantially as and for the purpose set forth.

9. In combination, the automatic responding-instrument composed of the disk d, insulated block e, contact-brush h, carried by and forming a part of the motor f, the battery n^2, the connecting-circuit $n^2\ n^4$, and the primary coil n' of the inductorium of a telephonic transmitter, substantially as and for the purpose set forth.

10. A telephonic system comprising the following instrumentalities: the call apparatus $i\ j$, spring-switches $r\ r^2$, lever z, receiver t, and the secondary coil m^2 of the inductorium n included in the line-circuit, the microphonic transmitter o, battery n^2, automatic responding-instrument $d\ e\ h\ f$, the switch o^4, and primary coil n' of the inductorium included in a local circuit, in combination, substantially as set forth.

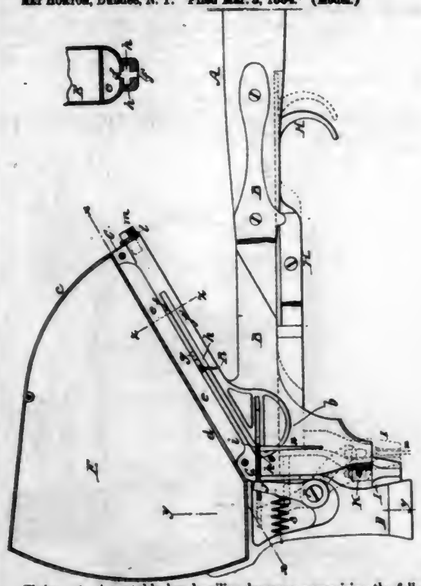
11. In an automatic responding-instrument for electric circuits, in combination, the spring-motor f, the contact-brush h, the fixed disk d, provided with the teeth d', the insulated block e, the circuit-wire n^3, connected to the motor f, and the wire n^4, connected to the disk d, the primary coil n' of the inductorium, and the battery n^2, substantially as set forth.

12. In an automatic responding-instrument for electric circuits, in combination, the fixed disk d, provided with the teeth d', the shield-plate c, shaft b, pointer b', the dial-plate d', and the rotating contact-brush h, carried by the disk g, whose axis is coincident with that of the fixed disk d, and shield-plate c, substantially as set forth.

13. In an automatic responding-instrument for electric circuits, in combination, the wheel g of a motor, the contact-brush h, the stop-pin h', the arm i of the armature i' of an electro-magnetic device, the adjustable shield-plate c, the fixed toothed disk d, and the insulating-block e, substantially as set forth.

14. In an automatic responding-instrument for electric circuits, in combination, the fixed disk d, provided with the series of teeth d' and the series of small teeth d^3, the rotating brush h, the insulated block e, and the shield-plate c, adapted to cover all the teeth d' and leave the teeth d^3 exposed, and to expose one or more of the teeth d' and at the same time cover the teeth d^3, substantially as and for the purpose set forth.

319,719. COMBINED HAMMER AND NAIL-FEEDING DEVICE. EMMET HORTON, Dundee, N. Y. Filed Mar. 3, 1884. (Model.)



Claim.—1. A portable hand nailing-hammer comprising the following elements, in combination, viz: a receptacle for carrying nails, a hammer-head below the same, an inclined duct or guide communicating with the receptacle at its lower side, a nail-holder adjacent to the hammer-head opening into the lower end of said duct or guide, and a handle portion at right angles to and in rear of the head, substantially as set forth.

2. A portable hand nailing-hammer in which are combined a receptacle for carrying nails, duct or guide communicating with an opening in the lower side of the same, a hammer-head secured below the receptacle, a nail-setter adjacent to said hammer-head, and a movable nail-holder below the duct or guide adapted to receive the nails, one at a time, therefrom, and carry them under the nail-setter, and a handle portion secured at right angles to the hammer-head and setter, substantially as set forth.

3. The combination, with the handle portion and the hammer-head D, of the receptacle E above the head, opening d in its lower side, inclined portion C, extending upward and backward from the head, and formed with passages $f\ f'\ h$ and opening g, communicating with opening d, slide G, having an opening, k, adapted to register with the lower end of passage h, a trigger-lever, H, held to slide in bearings at the under side of the handle portion, and connected with the slide G, for operating the same, and a nail-holder arranged below the said slide G, to receive the nails therefrom, substantially as set forth.

4. The combination of the handle portion, hammer-head D, receptacle E over said head, inclined portion C, having the passages $f\ f'\ h$ and opening g, slide G k at the lower end of said passages, trigger-slide H, held to slide on the handle portion B, and provided with a nail-holder at its forward end, lever J, connecting said trigger-slide H with the slide G, and a nail-setter above the sliding nail-holder, whereby the trigger-slide may cause the slide G to drop a nail into the holder I, and then move said slide under the setter, substantially as set forth.

5. The combination, with the hammer-head, handle portion B, and receptacle E, having an opening, d, of the extension C, passages or guides $f\ f'\ h$ therein, communicating with said receptacle, and the pivoted guard R, extending through the passage h, for the purpose described.

6. The combination, with the nail ducts or guides, of the slide G, having a slot with enlarged opening k at its inner end, and the slotted table o, on which the slide moves, and a nail-holder below the table, the slot in the table being of less diameter than the nail-head, substantially as described, whereby when the opening k is directly beneath the nail-duct the nail will fall through said opening and be suspended from the table until the slide in its forward movement causes it to fall into the nail-holder, substantially as set forth.

7. The combination, with the inclined nail duct or guide $f'\ h$, of the horizontal slotted slide G, having an opening, k, normally below the lower end of the nail-duct, the slotted table o, below the slide, and the sliding spring nail-holding jaws below the table o, and a setter, K, above and to one side of the said spring nail-holding jaws, substantially as set forth.

8. In a nailing-machine, the slotted nail-guides, adjustable toward and from each other to contract or expand the nail-slot, substantially as set forth.

9. The combination, with the handle A and the hammer-head D, of the nail-setter K, adjacent to the hammer-head, and the sliding spring nail-holder I I, and trigger-slide H on the lower side of the handle for operating the nail-holder, substantially as set forth.

10. In a nailing-machine, the inclined nail-guide C, having a slot, f, in combination with the adjustable plate forming one side of said slot and provided with slotted lugs l, and the set-screws m, passing through said slots into the part C, as set forth.

11. The slide G, having a nail-aperture, k, through it, in combination with the nail support or table o and the inclined grooved and slotted nailway $h\ f'$, substantially as specified.

12. In a nail assorting and feeding hammer, the combination of the sliding spring-jaws or nail-holders I I and setter K with the slide G, having a nail-aperture, k, through it, the nail support or table o, and the inclined grooved and slotted nailway $h\ f'$, substantially as described.

13. The grooved and slotted nailway $h\ f'$, made adjustable laterally in relation with the slotted channel e, and beneath it, substantially as described.

14. The combination of the spring trigger-slide H with the nail-slide G, the table o, the spring-jaws or nail-holders I I, and the nail-setter K, essentially as specified.

15. In a nail assorting and feeding hammer, the nail box or receptacle E, provided with an outlet, d, and separating-plate F, substantially as and for the purpose herein set forth.

16. In a nail assorting and feeding hammer, the combination, with the handle A and hammer-head D, of the nail-setter K and the sliding spring-jaws or nail-holder I I, essentially as specified.

17. The combination, with the receptacle E and the grooved and slotted portion $h\ f'$, of the guard R, substantially as described, and for the purpose set forth.

18. In a nailing-hammer, the combination, with the spring-actuated trigger, of a depending nail-clamp at the forward end thereof, adjacent to the hammer-head, substantially as set forth.

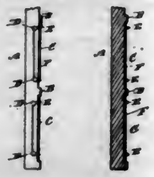
19. In a nailing-hammer, the combination, with the trigger, of a nail-clamp at the end thereof, comprising two spring-jaws, substantially as set forth.

20. In a nailing-hammer, the combination, with the hammer-head, of an independent spring-actuated nail-clamp adjacent to a vertical side of the hammer-head, substantially as set forth.

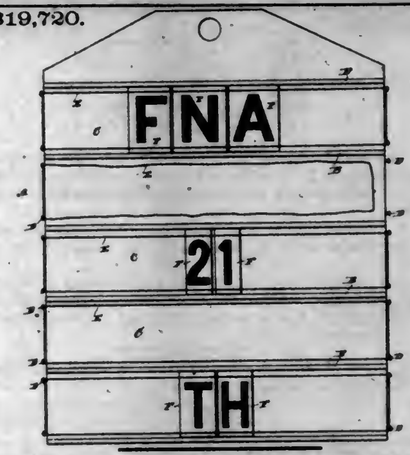
319,720. ADVERTISER AND CARD-HOLDER. JOHN M. HUBBARD, Lake Village, N. H. Filed Oct. 22, 1884. (No model.)

Claim.—1. The combination, with a board having transverse ridges secured to or formed thereon, of elastic cords held at their opposite ends to the board, and extending across the same between and independent of the ridges, substantially as set forth.

2. The combination, with a board divided into a series of fields or spaces formed by transverse ridges on the face of the board, of two pins on the side edges of the board at the end of each field, and of elastic bands or cords held on the pins and extending over the fields, substantially as herein shown and described.



319,720.

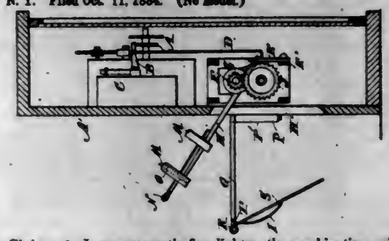


319,721. TUBE. JAMES HUDSON, Birmingham, County of Warwick, England. Filed Sept. 8, 1884. (No model.) Patented in England Jan. 14, 1884, No. 1,386.



Claim.—The within-described improved tube in two sections, consisting of an inner tube and an outer tube, the inner tube formed of a single piece of metal with edges bent to be contiguous to each other and provided with a jaw in its wall removed from said edges and having a continuous surface projecting inwardly, as shown, in combination with an outer tube having its edges clamped within the jaw of the inner tube, substantially as set forth.

319,722. AUTOMATIC FIRE-LIGHTER. CHAS. HUGHES, New York, N. Y. Filed Oct. 11, 1884. (No model.)

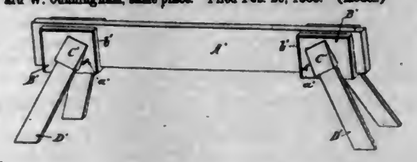


Claim.—1. In an automatic fire-lighter, the combination, with an alarm-clock-work mechanism, of the lever B, the rod D, the trigger E, the match-holding lever H, the pinion G, the cog-wheel J, and the spring L, substantially as herein shown and described.

2. In an automatic fire-lighter, the combination, with a clock-work mechanism, of the trigger E, the rod or wire D, the lever H, the pinion G, the cog-wheel J, the clamps M on the lever H, and the hook G on the lever H, substantially as herein shown and described.

3. In an alarm-clock, the combination, with a clock-work mechanism, of the lever H, a spring acting on it, the rod Q, pivoted on the back of the clock-casing, the arm R, pivoted to the rod Q, and a plate, S, held on the arm R and provided with pins T for holding a piece of sand-paper or analogous material.

319,723. ADJUSTABLE SCAFFOLD-SUPPORT. JAMES L. HUGHES, Lawrence, Kans., assignor of one-fourth to Isaac N. Van Houzen and Richard W. Cunningham, same place. Filed Feb. 20, 1885. (Model.)



319,723.



Claim.—1. In a trestle, the combination of the ledger, the adjustable saddle having the rearwardly and outwardly projecting sockets, the pins for securing the same, and the removable legs, substantially as described.

2. In a four-legged trestle, the combination of the ledger, the saddles, the inclined sockets, the pins, and the legs, substantially as described.

3. An adjustable support for trestle-ledgers, consisting of the perforated malleable-iron saddle having the inclined and rearwardly-extending sockets, forming inclined openings, and having the offsets or shoulders *d'*, substantially as set forth.

319,724. CHAIN-LINK DIE. FRANK A. IDDINGS, Warren, Ohio. Filed May 13, 1884. (No model.)

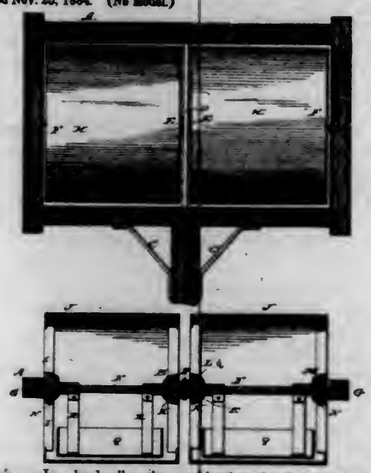


Claim.—1. The dies A A', constructed to grasp and hold the blank, and provided at their inner ends with the form A^2, substantially as set forth.

2. The combination, with grasping or holding dies having a projection for supporting a welded link in position for passing one end of a blank through said link, of dies for welding and shaping the blank, substantially as set forth.

3. The combination, with grasping-dies arranged as aforesaid, of the overlapping welding-dies C C D and E E, arranged and operated as described.

319,725. LAND-ROLLER. JAMES A. JOHNSON, Charlestown, Ind. Filed Nov. 25, 1884. (No model.)



Claim.—In a land-roller, the combination of a frame, a division-bar having conical bearing-studs with cylindrical bearings for the inner ends of the axles, the side beams having boxes or bearings in their inner ends for the outer ends of the said axles, the axles journaled in the bearings of the division-bar and the outer frame-beams, and the rollers, the inner heads or ends of which are provided with cylindrical collars engaging the conical bearings of the division-bar, and the outer ends of which have set-screws for adjusting the rollers upon the axles, substantially as and for the purpose herein set forth.

319,726. STUMP-PULLER. JOHN C. KARNATZ and WILLIAM WIBBE, Forest Glen, Ill. Filed Apr. 17, 1885. (No model.)

Claim.—1. The lever G H, provided with hook *d*, pivoted on one side of bar G, and the hooks *e* and *f*, pivoted on the opposite side of the same bar at equal distances therefrom, the whole adapted to operate chains *a* and *b*, substantially as described.

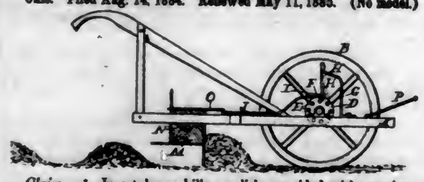
2. The combination of the lever G H and the wheel I, substantially as and for the purpose described.

3. The apparatus composed of lever G H, hooks *d*, *e*, and *f*, and chains *a* and *b*, substantially as and for the purpose described.

319,726.



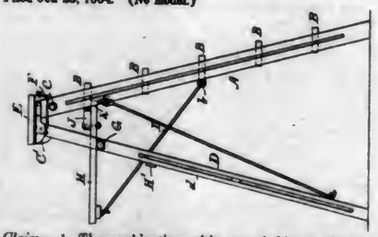
319,727. TOBACCO-HILLER. JACOB W. KAUFFMAN, Miamisburg, Ohio. Filed Aug. 14, 1884. Renewed May 11, 1885. (No model.)



Claim.—1. In a tobacco-hiller, a disk provided with openings and the pins, the spring and support, in combination with the block or piece M, journaled horizontally, the faces provided with tangential wings or blades, as and for the purpose herein set forth.

2. The combination, in a tobacco-hiller, of the frame A, provided with handles, the drive-wheel and axle, with the disk provided with openings and lugs, the spring and support, the rod, and the block or piece M, journaled horizontally, the faces provided with tangential wings or blades, as and for the purpose set forth.

319,728. STEP-LADDER. WILLIAM H. KLINE, Watsontown, Pa. Filed Oct. 23, 1884. (No model.)



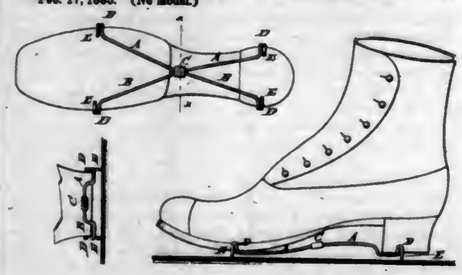
Claim.—1. The combination, with a step-ladder, of the pins C, substantially as and for the purposes set forth.

2. The combination, with the landing E of a step-ladder, of the box or drawer F, pivoted to and arranged under the landing, substantially as described.

3. The combination, with the pivoted support H, arranged to lap under the upper step, B, of the button J, pivoted upon the support and adapted to be turned for bracing the ladder, substantially as described.

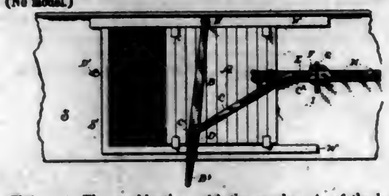
4. In a step-ladder, the combination, with the pivoted support H, disposed to lap under the upper step, B, of the button J, pivoted upon said support, and the brace-rods I, connected to said support and to the front ladder legs or steps, substantially as and for the purpose set forth.

319,729. ICE-CREEPER. PETER B. LAIRD, Brooklyn, N. Y. Filed Feb. 17, 1885. (No model.)



Claim.—As an improved article of manufacture, an ice-creeper formed of the elastic wires A B, connected at their middle portions and bent outward from said middle portions to form an X-shaped frame, the opposite ends of the wires being bent outward, upward, and downward to form lugs D to clasp the edges of the heel and sole, and points E, substantially as set forth.

319,730. FREIGHT-CAR DOOR. JAMES J. LARKEY, Peoria, Ill., assignor of one-half to Michael Wilz, same place. Filed May 1, 1885. (No model.)



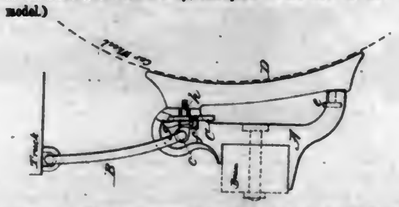
Claim.—1. The combination, with the car-door A, of the lever B, pivoted at one end to the doorway and having its other end formed into a handle, B^2, and the connecting-rod C, pivoted to said lever at an intermediate point thereof, and also pivotally joined to said door, substantially as and for the purpose specified.

2. The combination, with the car-door A, of the lever B, pivoted to the doorway and having the handle B^2 and slot D, the staple D', fixedly projecting from the car into said slot, and the connecting-rod C, pivoted to said lever and to said door, as and for the purposes set forth.

3. In a freight-car door, the combination, with the door A, adapted to slide upon horizontal ways, of the lever B, pivoted to the car-side above said door, the bar E, projecting horizontally from the rear edge of said door and having staples H, the connecting-rod pivoted to said lever and to said bar, the shelves F, perforated to receive a pin, and the pin G, as and for the purpose set forth.

4. The car-door A, adapted to be slid upon horizontal ways, the horizontal bar E, projecting rigidly from said door and having one or more staples, H, the perforated shelves F, affixed to the car-side, and the pin G, in combination with the lever B, pivoted to the car-side above the door and having the handle B^2 and slot D, the staple D', projecting from the car-side and arranged to enter said slot, and the pin D^2

319,731. BRAKE-SHOE. JOHN C. LARKIN, Whitefield, N. H., assignor of one-third to Thomas C. Gray, same place. Filed Nov. 15, 1884. (No model.)



Claim.—1. The combination of the brake-head A, having T-shaped slot *b*, horizontal slot *c*, and recess *d*, the brake-shoe D, having a headed stud, *e*, and a flanged lug, *f*, provided with pin *g* and double incline A, and the turn-buckle C, pivoted in the upper end of the brake-head, substantially as shown and described.

2. The combination of the brake-head A, having jaws *a a* for attachment to the brake-beam, and provided with slots *b c* and recess *d*, the brake-shoe D, having stud *e*, and flanged lug *f*, provided with pin *g* and incline A, the turn-buckle C, and hanger B, substantially as shown and described.

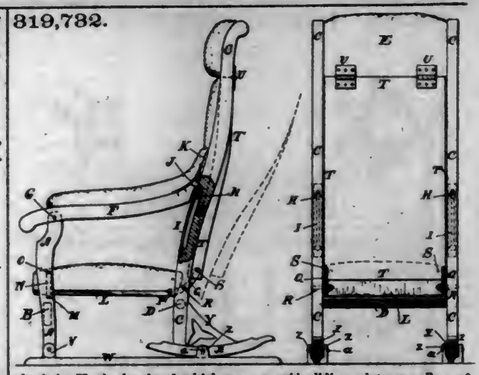
319,732. COMBINED RECLINING AND ROCKING CHAIR. HENRY G. C. LAUER, Iowa City, Iowa. Filed Jan. 5, 1885. (No model.)

Claim.—1. A combined reclining and rocking chair, consisting, essentially, in the forward legs, the rear legs having rockers, the arms having a sliding connection with the rear legs, the seat pivotally connected to the front and rear legs, and the back pivotally connected to the seat and rear legs, whereby the chair may be used as a rocking-chair and will automatically retain any inclined position to which it may be adjusted, substantially as set forth.

2. In a combined reclining and rocking chair, the combination, with the forward legs, A, the rear legs, C, and the short rockers X, attached to the said rear legs, of the base-bars W, having lugs V Z, substantially as herein shown and described, whereby the said chair will be kept in place while being used.

3. In a combined reclining and rocking chair of the character described, the combination, with the front legs and the seat pivotally connected thereto, of the rocking rear legs, to which the seat is also pivotally connected, the slotted plates I in the rear legs, and the arms F, having the bolts H, the heads of which engage said sliding plates to allow of the arms sliding upon the rear legs when the chair is rocked or inclined, substantially as set forth.

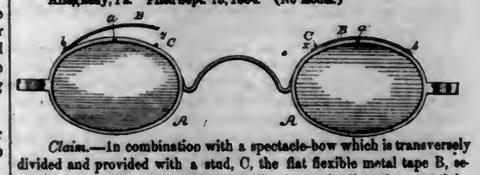
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4. The combination, in a chair of the character described, with the front legs, the rear legs having slotted plates I, and the seat, of the arms F, having bolts H, engaging the slotted plates, and springs J, for covering the slots, substantially as set forth.

5. In a combined reclining and rocking chair, the combination, with the legs A C, the arms F, the seat-frame L, and the back-frame T, of the swinging bars N, the pivoted bent bars Q, and the hinges U, substantially as herein shown and described, whereby the said chair can be readily rocked and adjusted into an inclined position, as set forth.

319,733. SPECTACLE AND EYEGLASS FRAME. LOUIS LAZARUS, Allegheny, Pa. Filed Sept. 13, 1884. (No model.)



Claim.—In combination with a spectacle-bow which is transversely divided and provided with a stud, C, the flat flexible metal tape B, secured by rivet *b*, and having a slot in its free end, all as shown and described.

319,734. BUCKLE. GEO. W. LONGBRAKER, Winchester, Ind. Filed Apr. 14, 1885. (No model.)



Claim.—1. As a new article of manufacture, the herein-described clamping-buckle, consisting of the main frame having the upwardly-projecting teeth, the pivoted combined locking plate and shield, and the pivoted forward locking-plate.

2. The combination of the main frame having the upwardly and rearwardly projecting teeth, the pivoted combined locking plate and shield, and the pivoted forward locking-plate having the downwardly-projecting teeth, as set forth.

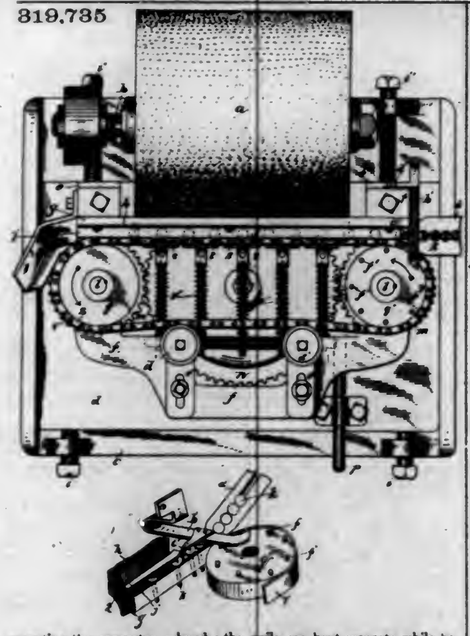
3. The combination of the main frame having the upwardly-projecting teeth, the pivoted combined locking plate and shield, and the pivoted forward locking-plate having the downwardly-projecting teeth, and its rear longitudinal edge bent down at right angles, for the purpose specified.

319,735. MACHINE FOR POINTING WIRE NAILS. SAMUEL LORING, Duxbury, and EPHRAIM S. MORTON, Plymouth, Mass. Filed Sept. 10, 1884. (No model.)

Claim.—1. In an organized machine for pointing headed wire nails and other like articles, the combination of a chute or raceway, a grinding-wheel, a fixed plate having a continuous surface or support for the shanks of the nails and a shoulder to support the heads of the nails, a belt running substantially parallel with said fixed plate and causing the nails to roll along the latter, devices, substantially as described, for pressing the belt against nails interposed between said surface and belt, the belt and co-operating fixed plate being arranged to receive the nails from the raceway and to present their ends to the wheel, as set forth.

2. The combination of the grinding-wheel, the chute, the fixed shouldered plate forming a bearing for the nails, the belt and its pressure devices, the separator, and means, substantially as described, for

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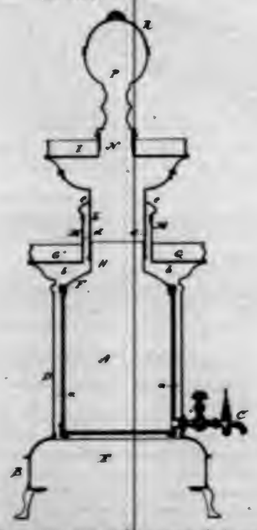


operating the separator, whereby the nails are kept separate while being presented to the grinding-wheel, as set forth.

3. The combination of the grinding-wheel, the frame *f*, the fixed shouldered plate *g*, having a substantially vertical surface. the belt *r*, and pulleys *q q'*, supported by said frame, and means, substantially as described, whereby the frame may be adjusted vertically and horizontally to modify the form of the points made by the grinding-wheel, and positively held at any position to which it may be adjusted, as set forth.

4. The combination of the grinding-wheel, the shouldered plate *g*, having a corrugated surface below its shoulder, the belt *r* and its supporting-pulleys, and the spring-pressure blocks *t t*, as set forth.

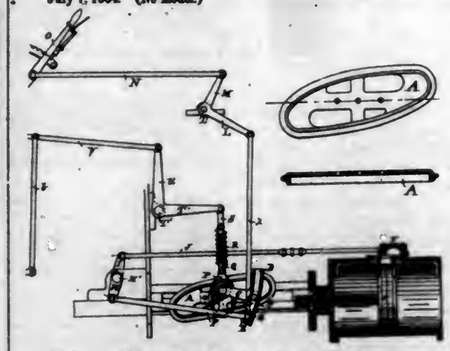
319,736. HOT-WATER URN. EDWARD B. MANNING, Meriden, Conn. Filed Mar. 2, 1885. (No model.)



Claim.—1. The combination of the water-tank A, supported upon a base and provided with a cover, F, the jacket D, surrounding said tank, so as to leave an air-space, *c*, between the tank and jacket, the said jacket extending above the cover of the urn, its upper end closed by a floor, G, to form a tumbler-gallery, and a heating-chamber, *b*, below the said gallery, with an escape-passage, *d*, above said gallery, substantially as described.

2. The combination of the tank A, supported upon a base and provided with a cover, F, the jacket D, surrounding said tank and so as to form an air-space, *a*, between the tank and jacket, the said jacket extending above the cover of the urn, its upper end closed by a floor, G, to form a gallery and an air-space, *b*, between the cover of the tank and the floor of the gallery, a second gallery, I, above the first gallery, with an extension therefrom opening through the cover of the tank, the jacket M, extending from the floor of the gallery upward around the passage from the tank to said second gallery, and with openings *e* from said jacket M, substantially as described.

319,737. VALVE-GEAR. HARRY G. MANNING, Newton, Mass. Filed July 7, 1884. (No model.)



Claim.—1. The combination, with the cross-head A' and valve *v*, of the cam A, roller B, and yoke P, as and for the purposes set forth.

2. The combination, with the valve *v* and cross-head A', of the cam A, roller B, yoke P, and actuating mechanism, as described.

3. The combination, with the valve *v* and cross-head A', of the cam A and actuating mechanism therefor, as and for the purposes set forth.

319,738. STEAM-BOILER COVERING. WILLIAM H. MCKINNEY, Evansville, Ind. Filed Apr. 21, 1885. (No model.)



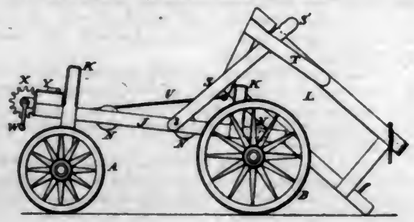
Claim.—1. A steam-pipe having asbestus sheeting cemented on the outside thereof and spirally-wound asbestus rope thereon, in combination with one or more sheet-metal cylinders inclosing said pipe and rope and forming an air-space between the two, substantially as described, and for the purposes herein set forth.

2. The steam-pipe A, having a covering of asbestus sheeting, and the spirally-wound rope F, in combination with cylinder B, having a covering of asbestus sheeting, cylinder C, hair-felt G, and canvas D, as described, and for the purposes set forth.

3. The steam-pipe A, in combination with cap E, having loops *e e'* and bolt *e''*, as described, and for the purposes set forth.

4. The steam-pipe A, the spirally-wound asbestus rope F, secured thereto by wire *f*, the cylinder B, and spirally-woand asbestus rope F', secured thereto by wire *f''*, in combination with outer covering of hair-felt G, canvas D, and cap E, as described, and for the purposes set forth

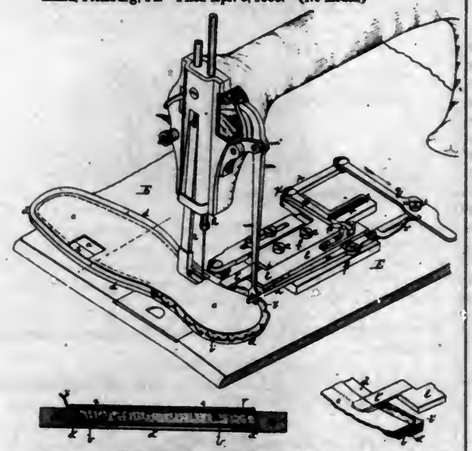
319,739. DUMPING-WAGON. JAMES S. MCMURTRY, St. Louis, Mo. assignor of two-thirds to Marcus T. Milona and William H. P. Harvey, both of same place. Filed Nov. 17, 1884. (No model.)



Claim.—1. In a dumping-wagon, the combination, with the running-gear, of a body or box provided with rails M and projection Q, carrying a cross-bar, Q', and the frame J, having grooved rollers N, upturned hooks P, and guard-plates R, leaving openings R' between them, and means for retaining the body or box in normal condition.

2. In a dumping-wagon, the combination, with the running-gear and supporting-frame, of the body having cleats or strips T, and the arms S, pivoted to the frame, extending between the cleats and the body, and provided with heads S' at their free ends.

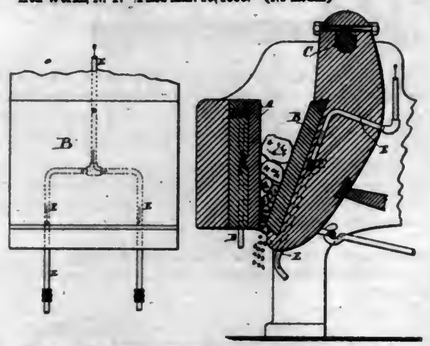
319,740. METHOD OF FORMING INSOLES FOR SHOES. EDUARD REESE, Pittsburg, Pa. Filed Apr. 6, 1885. (No model.)



Claim.—1. The method herein described of covering insoles, consisting in stretching the canvas or like cover over the face of the body within a supporting-frame and turning over the overlapping edges of said cover on the opposite face of the body and sewing it thereto.

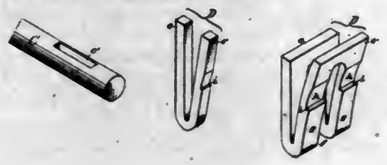
2. The method herein described of covering insoles, consisting in stretching the canvas or like cover over one face of the body and while it is so stretched placing the top cover on the body, turning the overlapping edge of the canvas cover between the body and the top cover, and sewing the parts together.

319,741. STONE AND ORE CRUSHER. WILLIAM A. MILES, Copake Iron Works, N. Y. Filed Mar. 16, 1885. (No model.)

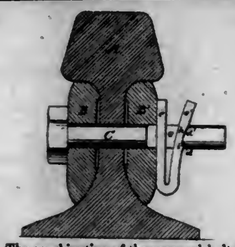


Claim.—The stone-crushing jaws provided with tubes through which a heated fluid is caused to circulate for maintaining a sufficient temperature in the jaws to prevent moisture freezing upon such jaws, substantially as set forth.

319,742. RAIL-FASTENING. WILLIAM F. NEUBOLD, Bristol, Pa. Filed Apr. 20, 1885. (No model.)



319,742.



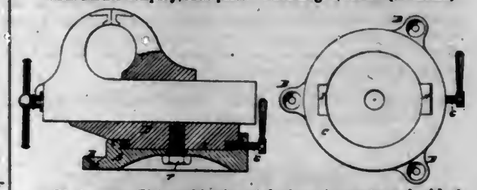
Claim.—1. The combination of the recessed bolt C, having a shoulder or shoulders, *d*, with the spring-wedge having a shoulder or shoulders, *i*, substantially as described.

2. The bolt C, having a recessed portion, *c*, and having at the outer end of the recess shoulders *d d'*, substantially as and for the purpose set forth.

3. The spring-wedge slotted to form lugs or prongs *g g*, and having one of its leaves recessed to form a shoulder or shoulders, *i*, as set forth.

4. The combination, substantially as herein described, of a railroad-rail and its fish-plates with a bolt, C, and spring-wedge D, substantially as set forth.

319,743. VISE. STEPHEN O. PARKER, Meriden, Conn., assignor to the Chas. Parker Company, same place. Filed Aug. 4, 1884. (No model.)



Claim.—1. The combination of the base A, constructed with the circular flange C, forming a circular recess on the top of the base, the stationary part of the vise constructed with a trunnion, E, corresponding to said recess, the screw F, centrally through the base into the body of the vise, the clamping-screw G, arranged radially through the flange C, and shoe H between the end of the screw and the periphery of the trunnions, substantially as described.

2. The combination of the base A, constructed for attachment to the top of the bench, and with the circular flange C upon its upper surface, forming a circular recess therein, the stationary part of the vise constructed with a trunnion to set into said recess, the clamping-screw G, shoe H, and block I, substantially as and for the purpose described.

319,744. TENSION DEVICE FOR SEWING-MACHINES. ALBERT D. PRATT, Elizabeth, N. J., assignor to the Singer Manufacturing Company of New Jersey. Filed Feb. 18, 1885. (No model.)



Claim.—1. In a sewing-machine tension device, the combination, with a lever-spring having a bent end, as shown, and a regulating-screw movable lengthwise of the said lever-spring and bearing against the said bent end, of a pivoted tension-block, against which the opposite end of said lever-spring bears, substantially as set forth.

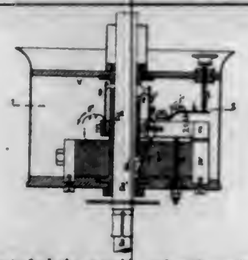
2. The combination, with the cap or face plate of a sewing-machine, of a lever-spring secured inside thereof and having an offset outwardly-projecting portion, a pivoted tension-block, also attached to said face-plate, and a regulating-screw at the top of said face-plate bearing against the upper end of said lever-spring, substantially as set forth.

3. The combination, with the cap or face plate A, of the lever-spring C, having offset portion *c'*, slotted thread-hole *c²*, guiding-notch *c³*, and outwardly-projecting lip *c⁴*, the pivoted tension-block E, and the regulating-screw D, substantially as set forth.

319,745. ELECTRIC-ARC LAMP. HENRI PIEPER, Flé, Liége, Belgium. Filed May 8, 1885. (No model.) Patented in Belgium Dec. 1, 1884, No. 67,060.

Claim.—1. In an electric-arc lamp, the combination, with the movable carbon, of two resilient frictional pawls, to which an alternating motion is imparted by the intermittent action of an electro-magnet connected with the circuit of the lamp, one of the said pawls operating by

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longitudinal motion to feed the movable carbon forward, the other one acting by transverse oscillations to alternately release and hold the same, substantially as hereinbefore described.

2. In an electric-arc lamp, the combination, with the movable carbon-holder *a'* and an electro-magnet connected with the circuit of the lamp, of a lever, *c*, arranged to be vibrated by the electro-magnet, and carrying two resilient frictional pawls bearing against the said holder, the pawls being so attached to the lever *c* that when this lever is vibrated the pawl *f* will advance the carbon, while the pawl *f'* will alternately release and hold the same, substantially as and for the purpose specified.

3. In an electric-arc lamp, the combination, with the movable carbon-holder *a'* and an electro-magnet connected with the circuit of the lamp, of a lever, *c*, arranged to be vibrated by the electro-magnet, and carrying two resilient frictional pawls, *f* and *f'*, bearing against the said holder, the pawls *f* branching off from the lever at a certain distance from its fulcrum, the pawl *f'* radiating from the fulcrum, substantially as and for the purpose hereinbefore set forth.

319,746. ARTIFICIAL TOOTH. HENRY C. REGISTER, Philadelphia, Pa. Filed Feb. 8, 1884. (No model.)



Claim.—1. As a new article of manufacture, an artificial-tooth crown within and surrounded by the substance of the body of which is a cavity or hollow space, from out of which cavity is a hole or kindred channel or opening extending through to the grinding or palatine face of the crown, the said hole containing a lining or bushing of metal, preferably platinum, burned into the substance of the crown, substantially as set forth.

2. In combination with an artificial-tooth crown the body of which is provided with a cavity, from out of which cavity a hole or kindred channel extends through to the grinding or palatine face of said crown, a metal post oppositely threaded as to its respective end portions and secured as to one threaded portion within the crown by cementation within the cavity in said crown by being passed through the hole therein and by having a nut applied to it, substantially as set forth.

319,747. MACHINE FOR SHAPING AND CURLING HATS. GEO. RENFUEW, Philadelphia, Pa., assignor to EVAN MORRIS, same place. Filed Feb. 9, 1885. (No model.)

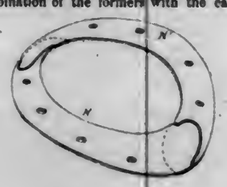
Claim.—1. The combination of the plate G, frames H H', and mechanism for moving the same from or toward each other with the removable frames J J', carrying the curling-plate, substantially as described.

2. The combination of the carrier K, its elastic supports, and steadying-pin U with the frames P, T, and R, and mechanism for acting on the said frame R, substantially as set forth.

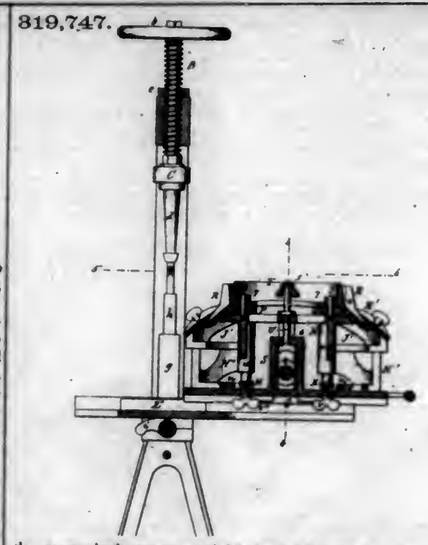
3. The combination of the bed E, mechanism for raising and lowering the same, the curling-plates N N', and supports for the same with blocks or stops V on the frames, substantially as described.

4. The combination of the curling-plates N N', having overlapping ends, recessed as described, so as to present a flat under surface, as set forth.

5. The combination of the formers with the carrier K, having at

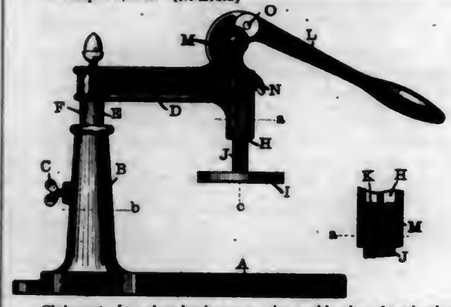


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the corners elastic supports carried by bars M M, with central bearings, as set forth.

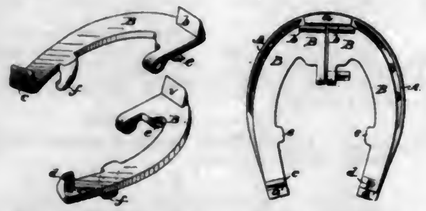
319,748. CIGAR-BOXING PRESS. ADAM REIN, Hamilton, Ohio. Filed Apr. 30, 1885. (No model.)



Claim.—1. In a cigar-boxing press, the combination of a sole-plate, a hollow column rising therefrom and provided with a set-screw, a press-arm provided with a stem and a platen-stem mortise, a stem provided with a platen and with top ears, and a cam-lever pivoted in the arm and engaging the platen-stem, substantially as and for the purpose set forth.

2. In a cigar-boxing press, the combination, with a sole-plate, column, arm, and platen-stem having ears, of a cam-lever having two pivot-holes and a downwardly-projecting extremity to its cam, substantially as and for the purpose set forth.

319,749. HORSESHOE. CHARLES A. SCOTT, Oceanic, N. J., assignor of one-third to William H. Emery, same place. Filed Feb. 4, 1884. (No model.)



Claim.—1. An auxiliary or removable horseshoe made in two parts, provided with side clamps and with front clamps, and a screw at the front of said shoe and inside the same, for pressing the clamps against the inner edge of the fast shoe, substantially as described.

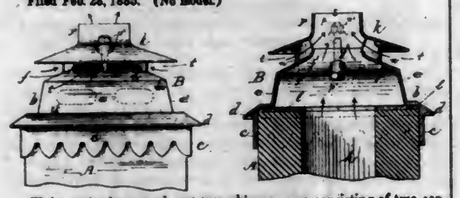
2. A two-part auxiliary horseshoe having toe-clamps and side clamps for embracing the inner edge of the fast shoe, a backward extension

from the front end of each part, and a screw working in said projections for attaching and detaching the shoe, substantially as described.

3. A two-part auxiliary horseshoe provided with toe and side clamps for embracing the inner edge of the fast shoe and a fastening-screw for spreading the parts, the said parts being connected only at the front ends, so that a clear space is left between the sides of the shoe, substantially as described.

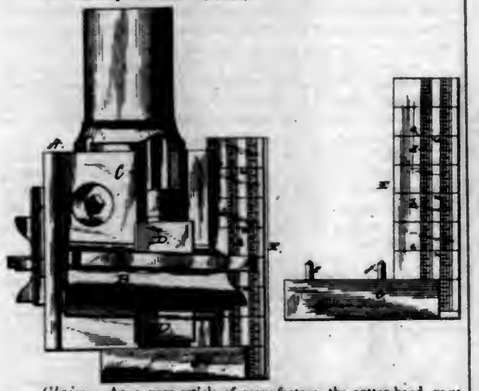
4. An auxiliary horseshoe made in two parts, having toe and side clamps for grasping the inner edge of the fast shoe, and a fastening-screw forming the only connection between said parts, substantially as described.

319,750. CHIMNEY-CAP. PATRICK D. SEXTON, Worcester, Mass. Filed Feb. 28, 1885. (No model.)



Claim.—An improved cast-iron chimney-cap consisting of two separate parts—a bottom or base and a top part or hood—the bottom part being made with a downwardly-projecting flange upon its outer edge adapted to fit over and hold the chimney-top from spreading when placed over the same, with upwardly and inwardly inclined and curved sides terminating in a central opening at the top, of the same size or smaller than the chimney-flue, and with upwardly-projecting flanges at the corners for forming a bearing for the top part aforesaid, and said top part made in the form of a hood, having upwardly and inwardly inclined and vertical sides terminating in a central opening at the top, and holding notches or sockets upon its under side for receiving the upper ends of the supporting-flanges of the bottom part, to hold said top part in position laterally after having been placed and fastened thereon, said top and bottom parts being fastened together by means of suitable bolts and nuts, substantially as shown and described.

319,751. GAGE FOR CUTTER-HEADS. SAMUEL J. SHIRK, Milton, Pa. Filed Apr. 13, 1885. (Model.)



Claim.—As a new article of manufacture, the cutter-head gage herein described, consisting of the gage E, formed of the blade *b*, having graduated measurements indicated thereon, and the shank C, provided with projecting pins *f f*, substantially as described.

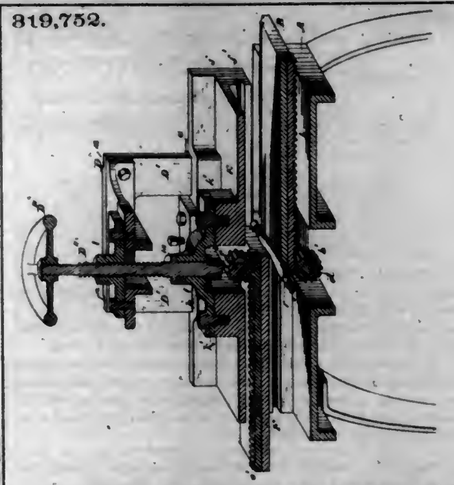
319,752. MACHINE FOR FORGING CAR-AXLES AND OTHER METAL ARTICLES. GEORGE F. SIMONDS, Fitchburg, Mass. Filed Mar. 26, 1884. (No model.)

Claim.—1. A fixed bearing bed or frame provided with grooves to support a movable platen and a vertically-adjustable moving frame provided with grooves to sustain a movable platen, in combination with platens B F, constructed substantially as and for the purpose set forth.

2. The yoke D, provided with grooves or recesses 12 12, in combination with the vertically-adjustable carriage E, provided with overlapping plates *e e* and platen F, substantially as and for the purpose described.

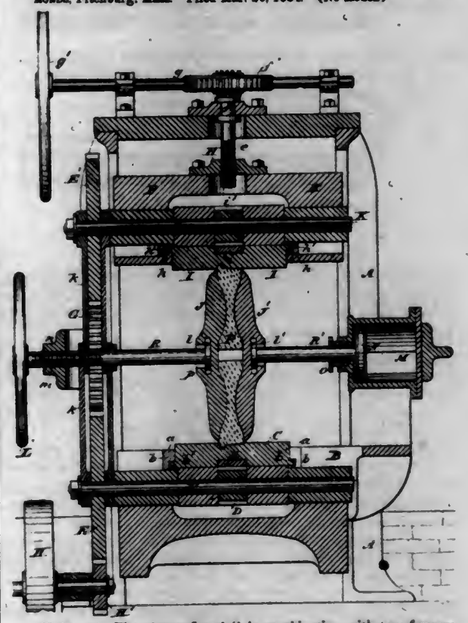
3. In a metal-rolling machine, two oppositely-reciprocating platens, B F, provided with central longitudinal rack-bars, in combination with a stationary supporting-frame, a movable supporting-frame, and two axles, *d e'''*, carrying central pinions, *c' b'*, and rollers 10, 11. 13, and 14, all constructed, arranged, and operated as set forth.

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4. The platens B and F and their operating mechanism, and the carriage E, provided with pillow-block *k*, in combination with the yoke D and screw D'', all constructed, arranged, and operated as described.

319,753. MACHINE FOR MAKING CAR-WHEELS. GEORGE F. SIMONDS, Fitchburg, Mass. Filed Mar. 26, 1884. (No model.)



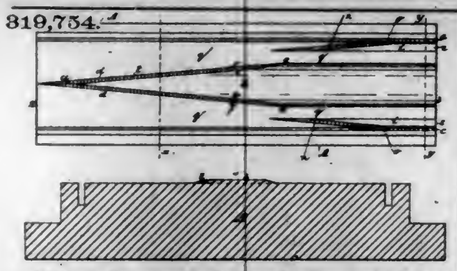
Claim.—1. The platens I and C, in combination with two formers, J J', arranged between said platens, and adapted to revolve as the platens move, substantially as described.

2. The former J and screw-rod R, connected loosely by head *l*, in combination with former J' and rod R', connected loosely by head *l'*, piston N, pump-cylinder M, and platens, I C, all constructed, arranged, and operated as set forth.

319,754. DIE FOR FORGING METAL ARTICLES CIRCULAR IN CROSS-SECTION. GEORGE F. SIMONDS, Fitchburg, Mass. Filed June 16, 1884. (No model.)



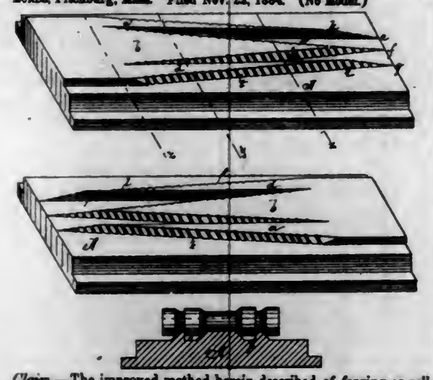
319,754.



Claim.—1. Dies adapted to form metal articles circular in cross-sectional area, with the working parts raised upon a plane surface, and provided with forming-surfaces running in line with the movement of the die, to give the shape required, and diverging reducing and spreading surfaces to force the metal laterally, substantially as described.

2. Dies adapted to form metal articles circular in cross-sectional area, having forming-surfaces to give the shape required, and reducing and spreading surfaces to force the metal laterally, provided with corrugations or irregularities, to engage the mass of metal and insure its rotation, substantially as set forth.

319,755. METHOD OF FORGING METAL BARS. GEORGE F. SIMONDS, Fitchburg, Mass. Filed Nov. 22, 1884. (No model.)



Claim.—The improved method herein described of forging or rolling metal articles, consisting in treating the bar, ingot, or fagot at two or more points simultaneously, to change its form and spread the metal toward its ends, substantially as described.

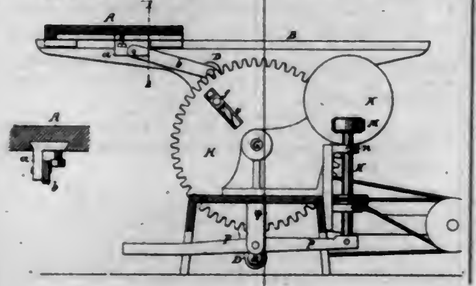
319,756. DIE FOR SPHERICAL ARTICLES. GEORGE F. SIMONDS, Fitchburg, Mass. Filed Nov. 22, 1884. (No model.)



Claim.—1. Dies for making articles of circular cross-sectional area, substantially as described, having the general conformation of their working-faces relieved, as shown, for the purpose set forth.

2. Dies for making articles of circular cross-sectional area, having cross-grooves, corrugations, or irregularities *o o*, partially crossing the spreading and reducing faces, substantially as described.

319,757. MACHINE-TABLE. WALTER SMITH, Sharon Hill, Pa. Filed Apr. 6, 1885. (No model.)



Claim.—1. The combination, with the cylinder A and piston B, of the automatic exhaust-valves G G, attached to the ends of the cylinder A, the bell-crank levers *d d*, and the connecting-rod *e*, whereby the closing of one valve causes the opening of the other, the condensing-coil F, and a pipe or pipes connecting said valves G with said coil F, substantially as and for the purposes set forth.

2. The combination, with the cylinder A and piston B, of the double-headed valves I K I K, the bell-crank levers *d d*, the connecting-rod *e*, and a pipe leading out of the cases of said valves into the water-tank, substantially as and for the purposes set forth.

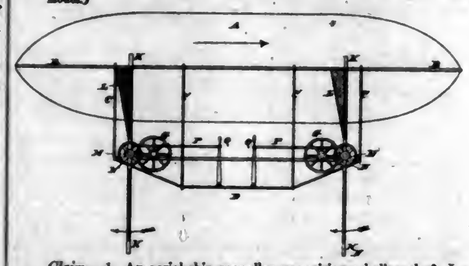
3. The combination, in a steam-engine, of the cylinder A, piston B, valves I I and K K, flexible packing-rings *a a*, mechanism connecting said valves, whereby one is opened when the other is closed, and a pipe leading from the chambers of said valves to a condensing-tank, substantially as and for the purposes set forth.

Claim.—1. The combination of the frame, the bed or carrier A, the slotted arm D, pivoted to the frame and connected to the bed, the wheel H, carrying a pin projecting into the slot of the arm, a driving-shaft rotating at a uniform speed, and transmitting-gearing, part of which is adjustable, as described, whereby the speed of the said wheel H is changed without change in the speed of the driving-shaft, as set forth.

2. The combination of the arm D and means for vibrating the same with the bed or carrier A and the block *a*, adjustably secured to the bed and connected to the arm, substantially as set forth.

3. The combination of the bed or carrier A, the pivoted arm D, connected thereto and having a slot, the wheel H, also having a slot, a pin, *f*, adjustable in the slot of the wheel and adapted to the slot of the arm, and means for rotating the wheel, as set forth.

319,758. AIR-SHIP. ANTON SPIER, St. Louis, Mo., assignor of one-third to William Klusemann, same place. Filed Oct. 24, 1884. (No model.)



Claim.—1. An aerial-ship propeller comprising a hollow shaft, I, a straight bar, K, rigidly secured thereto, folding angle-bar M, hinged to the straight bar, and webbing L, secured to the straight bar and to the angle-bar, substantially as set forth.

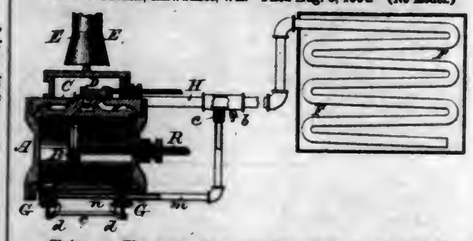
2. An aerial-ship propeller comprising a hollow shaft, I, a straight bar, K, rigidly secured thereto, folding angle-bar M, hinged to the straight bar, and webbing L, secured to both bars to fold between them, in combination with an adjustable shaft having an inclined cam, over which the angle-bar works, substantially as set forth.

3. An aerial-ship propeller comprising a hollow shaft, I, a straight bar, K, rigidly secured thereto, folding angle-bar M, hinged to the straight bar, and webbing L, secured to the bars, in combination with a cam-shaft adjustable in the hollow shaft and having an inclined cam, and means for adjusting the cam-shaft, substantially as set forth.

4. An aerial ship comprising a balloon, frame secured to the balloon, independent adjustable cam-shafts having inclined cams and propellers, each propeller formed with a hollow shaft, straight bar secured to the hollow shaft, folding angle-bar hinged to the straight bar, and webbing connecting the bars, substantially as set forth.

5. The combination of wings having a straight bar or arm fixed to a hollow shaft, an angular bar or arm hinged to said shaft, a shaft forming the bearing of the hollow shaft and carrying an inclined cam acting on the hinged arm, a flexible web or cloth extending from arm to arm, and means for rotating the wing-shaft and turning the cam-shaft, for the purpose set forth.

319,759. EXHAUST ATTACHMENT FOR STEAM-ENGINES. EDMUND M. THOMAS, Milwaukee, Wis. Filed Aug. 3, 1884. (No model.)



Claim.—1. The combination of the frame, the driving-shaft provided with pulleys, the operating-wheel provided with a stud or projection, a grooved slide, and the rod carrying the shaping-tools, substantially as shown.

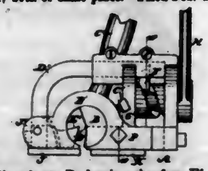
2. The combination of the frame, the driving-shaft provided with suitable pulleys, the operating-wheel provided with a stud or projection for moving the slide vertically, and a cam with a sliding spring-actuated frame, to which the outer end of the rod I', carrying the shaping-tools, is secured, substantially as described.

3. The combination of the driving-shaft provided with suitable pulleys, the operating-wheel provided with a stud or projection for moving the slide, and an inclined pin or projection which passes through the upper end of the rod I', carrying the shaping-tools, with a spring-actuated frame having a guide upon the end through which the rod I' passes, and provided with a stud or friction wheel against which the cam on the driving-wheel bears for the purpose of moving the frame, substantially as set forth.

4. In a machine for forming articles from plastic material, the combination of a revolving operating-wheel for giving the rod which carries the shaping-tools a vertical movement with a sidewise-sliding frame which causes the rod I' to move laterally at the same time that it is moving both upward and downward at the lower end of its stroke, substantially as specified.

5. In a machine for forming vessels from plastic material, the combination of an operating-wheel for moving the rod which carries the shaping-tools vertically, a sliding endwise-moving frame for moving the rod laterally, and an inclined stud or projection for moving the rod downwardly and upwardly at the same time that it is moving laterally, substantially as described.

319,761. TINNER'S SEAMING-TOOL. PETER VANDEN BERGH, Philadelphia, Pa., assignor of two-thirds to Edward W. Richards and Alfred H. Maar, both of same place. Filed Feb. 10, 1885. (No model.)



Claim.—1. The clamp D, having the face E', in combination with the arm D', provided with the nose F, rotary cam G, said cam having bearings in the bed A, and the bed A, substantially as and for the purpose set forth.

2. The bed A, in combination with the bender B, having suitable bearings in said bed and provided with the handle C, die D, arm D' having nose F, rotary cam G, handle H, and blocks J K, substantially as and for the purpose set forth.

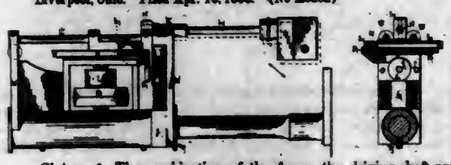
3. In combination with the bed of a seaming-tool, the slide M', having inclined ways M, the block K, having guides N, and screw L, substantially as and for the purpose set forth.

319,762. MACHINE FOR STRIPPING PEANUTS. CLARENCE T. WALKER, Atlanta, Ga., assignor of one-half to George S. Prindle, Washington, D.C. Filed Nov. 21, 1884. (No model.)

Claim.—1. In a peanut-stripper, in combination with a series of transverse bars, a series of transverse bars substantially at right angles to the other bars and flexibly connected together, and means, substantially as described, for causing one of the series of bars to move longitudinally with reference to the other series of bars and close to the same, substantially as and for the purpose described.

2. In a peanut-stripper, as a means for separating the nuts from the vines, flexibly-connected transverse bars moving substantially at right angles to the bars, flexibly-connected transverse bars moving below and close to the other bars and in a direction opposite to that of the movement of such other bars, and suitable driving means or mechanism, substantially as and for the purpose described.

319,760. MACHINE FOR FORMING POTTERY AND GLASSWARE AND FINISHING OR TURNING THE SAME. CASSIUS C. THOMPSON, East Liverpool, Ohio. Filed Apr. 16, 1885. (No model.)



Claim.—1. The combination of the frame, the driving-shaft provided with pulleys, the operating-wheel provided with a stud or projection, a grooved slide, and the rod carrying the shaping-tools, substantially as shown.

2. The combination of the frame, the driving-shaft provided with suitable pulleys, the operating-wheel provided with a stud or projection for moving the slide vertically, and a cam with a sliding spring-actuated frame, to which the outer end of the rod I', carrying the shaping-tools, is secured, substantially as described.

3. The combination of the driving-shaft provided with suitable pulleys, the operating-wheel provided with a stud or projection for moving the slide, and an inclined pin or projection which passes through the upper end of the rod I', carrying the shaping-tools, with a spring-actuated frame having a guide upon the end through which the rod I' passes, and provided with a stud or friction wheel against which the cam on the driving-wheel bears for the purpose of moving the frame, substantially as set forth.

4. In a machine for forming articles from plastic material, the combination of a revolving operating-wheel for giving the rod which carries the shaping-tools a vertical movement with a sidewise-sliding frame which causes the rod I' to move laterally at the same time that it is moving both upward and downward at the lower end of its stroke, substantially as specified.

5. In a machine for forming vessels from plastic material, the combination of an operating-wheel for moving the rod which carries the shaping-tools vertically, a sliding endwise-moving frame for moving the rod laterally, and an inclined stud or projection for moving the rod downwardly and upwardly at the same time that it is moving laterally, substantially as described.

319,761. TINNER'S SEAMING-TOOL. PETER VANDEN BERGH, Philadelphia, Pa., assignor of two-thirds to Edward W. Richards and Alfred H. Maar, both of same place. Filed Feb. 10, 1885. (No model.)

Claim.—1. The clamp D, having the face E', in combination with the arm D', provided with the nose F, rotary cam G, said cam having bearings in the bed A, and the bed A, substantially as and for the purpose set forth.

2. The bed A, in combination with the bender B, having suitable bearings in said bed and provided with the handle C, die D, arm D' having nose F, rotary cam G, handle H, and blocks J K, substantially as and for the purpose set forth.

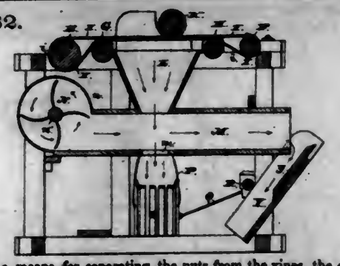
3. In combination with the bed of a seaming-tool, the slide M', having inclined ways M, the block K, having guides N, and screw L, substantially as and for the purpose set forth.

319,762. MACHINE FOR STRIPPING PEANUTS. CLARENCE T. WALKER, Atlanta, Ga., assignor of one-half to George S. Prindle, Washington, D.C. Filed Nov. 21, 1884. (No model.)

Claim.—1. In a peanut-stripper, in combination with a series of transverse bars, a series of transverse bars substantially at right angles to the other bars and flexibly connected together, and means, substantially as described, for causing one of the series of bars to move longitudinally with reference to the other series of bars and close to the same, substantially as and for the purpose described.

2. In a peanut-stripper, as a means for separating the nuts from the vines, flexibly-connected transverse bars moving substantially at right angles to the bars, flexibly-connected transverse bars moving below and close to the other bars and in a direction opposite to that of the movement of such other bars, and suitable driving means or mechanism, substantially as and for the purpose described.

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3. As a means for separating the nuts from the vines, the endless belts I and I, provided with the transverse connecting-rods *i i*, and adapted to move longitudinally, with their contiguous portions moving in opposite directions, substantially as and for the purpose described.

4. In combination with the rollers E F, the rollers G H between them, the belts passing over and around rollers E F and over rollers G H, and the transverse bars connected with and carried by the belts, substantially as and for the purpose described.

5. In combination with the two end rollers and the two intermediate rollers placed between them, the endless apron formed of the two belts carrying the transverse connecting-bars passing around the end rollers and up over the intermediate rollers, and the presser-roller above the upper portion of the belt passing between the end rollers, substantially as and for the purpose described.

6. The hereinbefore-described machine for stripping, separating, and grading peanuts, comprising the operating-rollers E, F, G, and H, endless belts I and I, having the transverse rods *i*, presser-roller K, hopper L, air-box M, provided with opening *m*, blower N, screen O, and trough Y, having the slide *y*, all combined with each other and with operating mechanism, substantially as and for the purpose specified.

319,763. MIDDLINGS-PURIFIER BRUSH. JOHN WEBMAN, Jr., Rochester, N. Y. Filed July 5, 1884. (No model.)

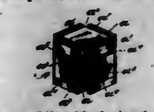


Claim.—1. In a device for brushing the screen of a middlings-purifier, the combination of the reciprocating brush-carriage *d*, ways *f f* for the same, rack *g*, and brush *b*, with its toothed wheel *i*, substantially as and for the purpose set forth.

2. In a device for brushing the screen of a middlings-purifier, the combination of the brush-carriage *d*, ways *f f*, and the bell-crank *t*, with its projection *u*, and belt-shifter *p*, for reciprocating the motion of the carriage, and means, substantially as shown and described, for driving the carriage.

3. In combination with the screen of a middlings-purifier and a clearing-brush therefor, a reciprocating shaft, sprocket-wheel, and connecting-chain for driving the brush, loose and fast pulleys and belts to turn them, and means, substantially as described, for shifting the belts and alternately changing the direction of motion of the shaft, for the purpose specified.

319,764. TOY BUILDING-BLOCK. CHARLES H. WESTCOTT, Seneca Falls, N. Y. Filed Sept. 15, 1884. (No model.)

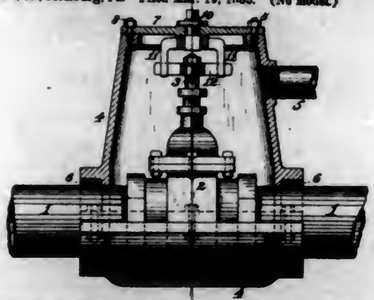


Claim.—1. A toy building-block that is provided at each end with intersecting grooves and upon each side face with a raised panel which at its ends forms shoulders that correspond in position to the bottoms of said grooves and furnish end bearings for the engaging blocks, substantially as and for the purpose shown.

2. A toy building-block which is provided at its ends with intersecting grooves and engaging tongues, and within each side corner has a right-angled rabbet, substantially as and for the purpose set forth.

3. A toy building-block which is provided at each end with intersecting grooves and corresponding tongues, upon each side face has raised panels that constitute end bearings for engaging blocks, and within each side corner is provided with a right-angled rabbet, substantially as and for the purpose shown and described.

319,765. STOP-VALVE BOX FOR PIPE-LINES. GEORGE WESTINGHOUSE, Jr., Pittsburg, Pa. Filed Mar. 19, 1885. (No model.)



Claim.—1. The combination, with a pipe-line and a gate or stop-valve governing communication through said line, of a gas-tight box or casing inclosing said valve and fitting closely around the line at its ends, and a tight removable cover closing an opening in said casing, substantially as set forth.

2. The combination, with a pipe-line and a gate or stop-valve governing communication through said line, of a gas-tight box or casing inclosing said valve and formed of two separate abutting sections fitting at their ends closely around the pipe-line, substantially as set forth.

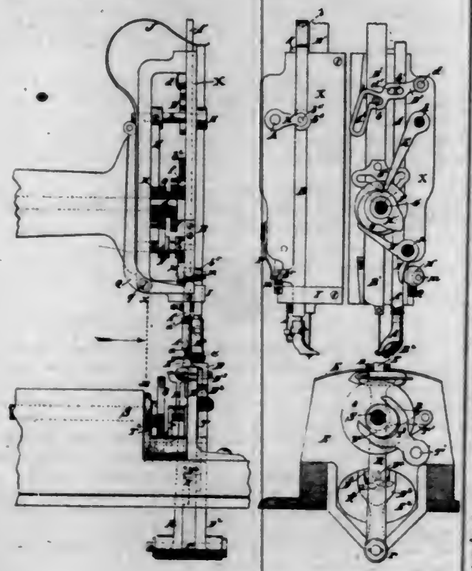
3. The combination, with a pipe-line and a gate or stop-valve governing communication through said line, of a gas-tight box or casing inclosing said valve and fitting closely around the line at its ends, and an actuating-stem passing through the casing and coupled to the valve-stem so as to admit movement to be imparted thereto from the exterior of the casing, substantially as set forth.

4. The combination, with a pipe-line and a gate or stop-valve governing communication through said line, of a gas-tight box or casing inclosing said valve and fitting closely around the line at its ends, and a vent-pipe leading from said casing to a suitable point of discharge, substantially as set forth.

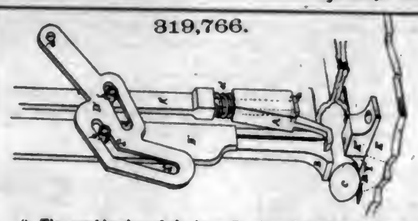
319,766. SEWING-MACHINE. JOHN E. WHITE, Columbus, Ohio, assignor to Peters' Leather Dash Company, same place. Filed Apr. 12, 1879.

Brief.—The machine is designed for sewing materials on one or more sides of a cylindrical or bar-shaped body of any desired form in cross-section—as, for example, sewing the leather cover on the frame rod or bars of dashes, fenders, or bows, &c., of vehicles, and also on the filling of whip-handles or the round parts of harness.

Claim.—1. The combination of presser A A', provided with stud b', lever D', provided with slots d' and d^2, and pivoted at d to a stationary part of the machine, as the head-plate, and the vertically-reciprocating needle-bar B', provided with stud b, substantially as and for the purposes specified.



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2. The combination of the lever D, pivoted at d to the head-plate and provided with slot d^2, and slot d', located between slot d^2 and pivot d, presser A A', provided with stud b', working in slot d', and the vertically-reciprocating needle-bar B', having stud b, working in slot d^2, substantially as and for the purposes specified.

3. The combination of the presser A A', provided with stud b', lever D', provided with slots d' and d^2, and pivoted at d to a stationary part of the machine, as the head-plate, and the vertically-reciprocating needle-bar B', provided with stud b, and raised needle-plate, substantially as and for the purposes specified.

4. The combination of the presser-foot A, spring a', bar A', provided with roller-stud b', lever D', provided with slots d' and d^2, and needle-bar B', provided with roller-stud b, and means for imparting vertical reciprocating motion thereto, substantially as and for the purposes specified.

5. In combination, the presser-foot A, bar A', provided with roller-stud b', lever D', provided with slots d' and d^2, and needle-bar B', provided with roller-stud b, means for imparting a vertically-reciprocating movement to said needle-bar, raised needle-plate E', feed-plate D, and presser-foot B, substantially as and for the purposes specified.

6. In combination, the presser-foot A, provided with spring a', bar A', raised needle-plate E', and feed-plate D, substantially as and for the purposes specified.

7. In combination, the presser-foot A, spring a', bar A', provided with roller-stud b', lever D', provided with the slots d' and d^2, and needle-bar B', provided with roller-stud b, means for imparting vertical reciprocating motion to said needle-bar, raised needle-plate E', and feed-plate D, substantially as and for the purposes specified.

319,767. UMBRELLA AND PARASOL. JAMES WILLIS, Rosendale, Bournemouth, County of Hants, England. Filed Nov. 27, 1883. (No model.) Patented in England May 1, 1883, No. 2,203; in France Oct. 30, 1883, No. 158,325; in Belgium Nov. 12, 1883, No. 63,190, and in Germany Nov. 15, 1883, No. 28,806.



Claim.—1. The combination of the rib, the stretcher pivoted thereto, and the spring operating upon the end of the stretcher beyond its point of pivotal attachment to the rib, and not elsewhere, with a tendency to hold the rib and stretcher close together when the umbrella is closed, substantially as set forth.

2. The combination of the rib, the stretcher pivoted thereto, and the double-acting spring secured to the rib and operating upon the end of the stretcher beyond its point of pivotal attachment to the rib, and not elsewhere, with a tendency to hold the rib and stretcher close together when the umbrella is closed and to keep them apart when the umbrella is open, these members being constructed substantially as set forth.

3. The combination of the trough-like rib, the spring D, having the side projections, D' D', resting upon the rib, and the tail D^2, received into the trough of the rib and fixed there by nipping together the rib sides, substantially as set forth.

4. The combination, in a lock-rib frame, of the ribs flattened at their outer ends with trough-stretchers shaped to receive them and admitting of the flattened portion of the rib resting against the notch of the runner, as and for the purpose set forth.

319,768. FRUIT-JAR. ALLEN F. WILSON, Clayton, N. J., assignor of three-fourths to David Wilson Moore and Joseph Barnford Wilson, same place. Filed Nov. 12, 1884. (Model.)

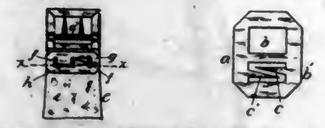
Claim.—1. The clamp M, having ends bent into a hook, O, and eye P, as shown and described, a circular portion adapted to embrace a jar-cover and fit thereon in a groove between projecting rings, and hooks N N, adapted to engage under projections formed on a jar and clamp the cover to the jar, substantially as and for the purpose set forth.

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2. The combination of the clamp M, having ends bent into a hook, O, and eye P, and hooks N N, as shown and described, with the grooved jar-cover E, having a projecting edge, G, gasket H, and jar-neck having helical or inclined projections D, as set forth.

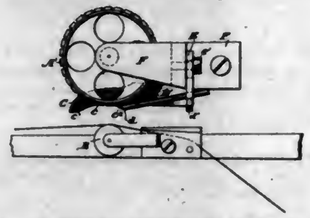
319,769. BUCKLE. GEORGE W. WILSON, Hartford, Conn. Filed Mar. 18, 1884. (No model.)



Claim.—1. In combination, the metallic buckle-frame a', folded back upon itself on all sides, with the tongue-sockets a^2 in the opposite sides of the frame, and a tongue-shaft, d, pivotally supported in the tongue-sockets, the frame bearing the integral sharp-pointed fasteners e e', all substantially as described.

2. The frame-blank a, made from a metallic plate with the corners cut away, and having a tongue-space, b, and the integral fastening-prongs e e', all substantially as described.

319,770. PAPER-GUARD FOR PRINTING-TELEGRAPHS. CARL WEBER, Williamsburg, assignor of one-half to Levi A. Ludwig, New York, N. Y. Filed Mar. 12, 1885. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, with two type-wheels of a printing-telegraph instrument, of a blade or guard extending between the same, and two pins extending in the planes of said type-wheels toward the points at which impressions are effected.

2. The combination, substantially as hereinbefore set forth, of two type-wheels, means for effecting impressions from either at will, the blade C and the pins D' and D^2 together constituting a paper-guard for the type-wheels.

3. The combination, substantially as hereinbefore set forth, with the blade C, having the curved portion c and projection c^2, of the pins D' and D^2, having their ends beveled.

4. The combination, substantially as hereinabefore set forth, of the two type-wheels, a blade or guard extending between the same, two pins or arms in or nearly in the planes of the type-wheels, a support for the same, and means for adjustably attaching the support to the frame of the instrument.

5. The combination, substantially as hereinbefore set forth, of two type-wheels, two pins or arms tangential to said type-wheels and located within the planes of the same, and means, substantially such as described, for adjusting the positions of the extremities of the same.

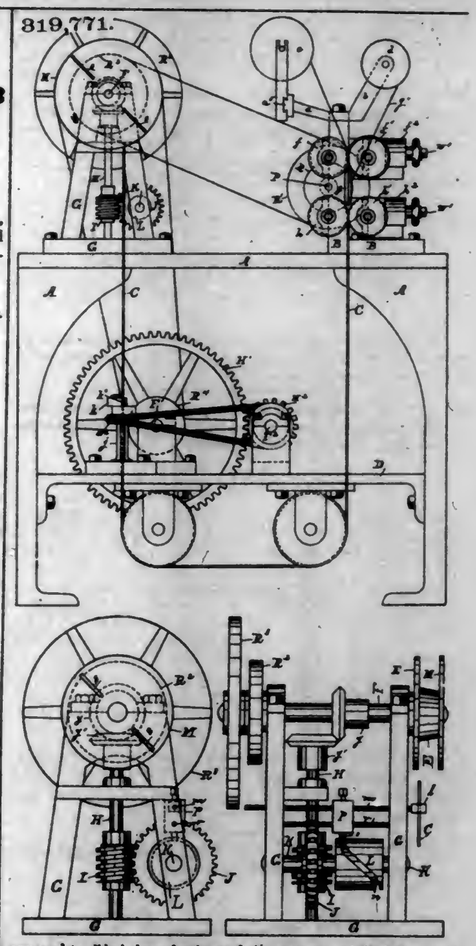
6. The combination, substantially as hereinbefore set forth, with two type-wheels, of four paper-guard points; two located in a plane passing between the type-wheels, and the remaining two in the planes of the respective type-wheels.

319,771. MACHINE FOR MAKING PEG-WIRE. HENRY S. BACON, Milford, assignor to the American Metallic Fastening Association, Boston, Mass. Filed Jan. 24, 1885. (No model.)

Claim.—1. The combination, with the grooving-rolls f f', of the arm a and its adjustable reel-frame, whereby the reel may be adjusted relatively to the rolls, for the purposes and substantially as described.

2. The fixed grooving and finishing rolls f and h, in combination with the movable rolls f' and h', mounted in the blocks f^2 and h^2, each

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arranged to slide independently on their supports, and the hollow guide g, having an opening in its wall for the passage of the thread or cord, substantially as described.

3. The combination, with the fixed roll f, of the roll f' and its block f^2, dovetailed to the supporting-frame, whereby the rolls may be adjusted relatively to each other, for the purposes and substantially as specified.

4. The combination, with the supply-reels c d, of the adjustable grooving-rolls f f', the hollow guide g, whereby the thread is laid in the hollow metal strip, the adjustable finishing-rolls h h', the corrugating-finger k, mounted on a revolving support, guide m, traveler p, secured thereto, and its actuating-cam, for the purposes and substantially as described.

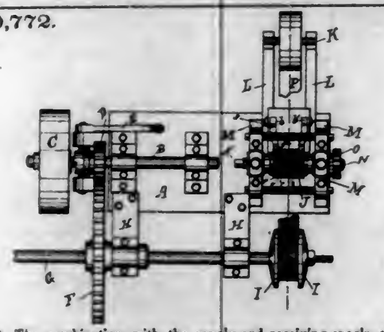
319,772. MACHINE FOR STRIPPING METAL. HENRY S. BACON, Milford, assignor to the American Metallic Fastening Association, Boston, Mass. Filed Feb. 24, 1885. (No model.) Patented in England Aug. 14, 1883, No. 3,944; in Canada Oct. 16, 1883, No. 17,348, and in France Nov. 24, 1883, No. 157,056.

Claim.—1. The combination, with means, substantially as shown and described, for supplying a single strip of metal to be cut and for receiving it after it has been cut, of the rotary compound cutters, each consisting of a series of spaces alternating with cutting-disks having flat peripheries, the cutting-disks in one cutter being arranged to project into the corresponding spaces in the other cutter, for the purpose and substantially as set forth.

2. The combination, with the rotary cutters, of the table a and guide b, arranged to guide the uncut strip and deliver it evenly to the cutters, substantially as shown and described.

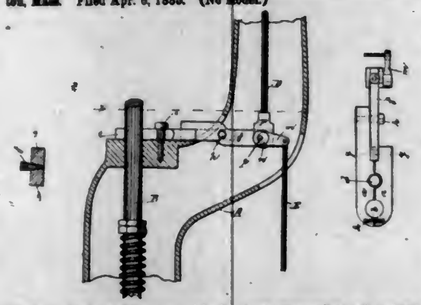
3. The combination, with the rotary cutters, of the fingers a, pivoted behind the cutters and arranged to project into the spaces between the same, substantially as shown and described.

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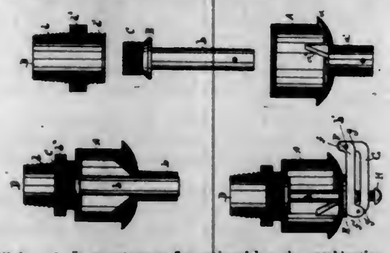
4. The combination, with the supply and receiving spools, of the table *a*, and the guide, the rotary cutters J J, and fingers *d d*, pivoted as shown, all substantially as described.

319,773. BOOT AND SHOE NAILING MACHINE. HENRY S. BACON, Milford, assignor to the American Metallic Fastening Association, Boston, Mass. Filed Apr. 6, 1885. (No model.)



Claim.—The combination, with the horn-supporting rod and grippers, of the gripper-operating lever *f*, block F, and lever *m*, pivoted to said block and provided with eccentric *p*, and having suitable operating mechanism, substantially as shown and described.

319,774. AUTOMATIC FIRE-EXTINGUISHER. CHARLES BARNER, Dayton, Ky. Filed Apr. 2, 1885. (No model.)



Claim.—1. In an automatic fire-extinguisher, the combination, substantially as specified, of the distributer-shell A, deflecting-cap *a*, and brackets a^2, with a valve extending through the distributer-shell and cap and held to its seat by fusible material.

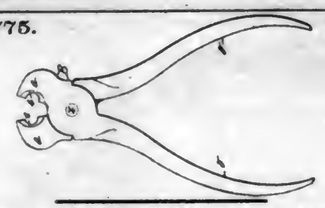
2. A distributer for automatic fire-extinguishers, consisting of the shell A, cap *a*, neck *a'*, brackets a^2, cast in one piece with the piece D, for securing the distributer to the discharge-pipe, and a valve passing through the distributer-shell and held to its seat by fusible material.

3. The combination of the shell A, cap *a*, neck *a'*, and brackets a^2, cast in one piece with the piece D, with valve C, and stem *b*, passing through the shell and neck and secured in its place by fusible pin *b'*, substantially as specified.

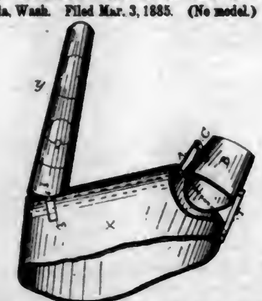
319,775. IMPLEMENT FOR ATTACHING WASHERS ON ROLLER-SKATES. EVERETT H. BARNEY, Springfield, Mass. Filed Jan. 12, 1885. (No model.)

Claim.—The implement B, having in its jaws, at one side thereof, the curved recesses *c c*, and on the opposite side of said jaws the studs *c c*, projecting beyond the side of the latter, each of said studs having a V-shaped edge on the side thereof next to the opening between the jaws, substantially as set forth.

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319,776. AUTOMATIC ARTIFICIAL FINGER. ISAAC BARBORE, Walla Walla, Wash. Filed Mar. 3, 1885. (No model.)

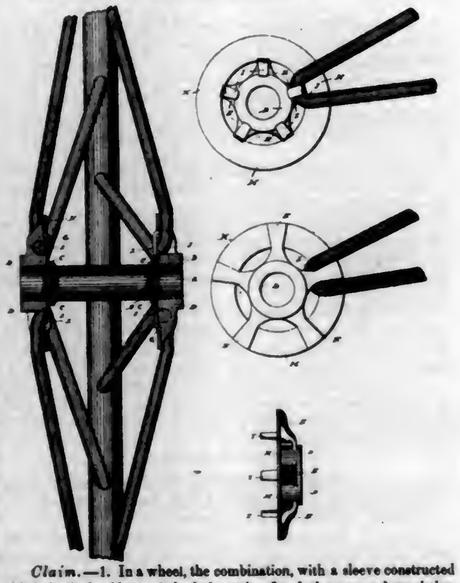


Claim.—1. The combination, with the hand-socket and its rock-shaft, of the working-socket adapted to fit over a remaining member of the hand and operate said shaft, and the jointed artificial finger having internal mechanism, substantially as described, whereby said finger is adjustably opened or closed by the operating of the working-socket and rock-shaft, as set forth.

2. In the artificial finger operated from without, substantially as described, the combination, with the toggle-lever, of the ratchet and dog, a lever extending from the ratchet to the hand-socket, and a lever attached to the second joint, adapted to bend the third joint by the moving of the second, as set forth.

3. The working-socket B, having links T C and lever A, combined with the hand-socket X, having rock-shaft D, the jointed artificial finger Y, having the guides F F, the toggle-lever H I K, the ratchet and dog L N, the lever G, the pin P in the second joint, the lever O, and the piece R, riveted to the third joint at S S, as set forth.

319,777. VEHICLE-WHEEL. ROSCOE BEAN and ARTHUR W. GRANT, Springfield, Ohio, assignors to the Tricycle Manufacturing Company, same place. Filed May 5, 1885. (No model.)



Claim.—1. In a wheel, the combination, with a sleeve constructed with bulged shoulders, of the hub-section fitted thereon and consisting of a ring-like portion having shouldered arms, a rim connecting said arm and retaining-lips, and the spokes fitted between the ring and shoulders on the arms.

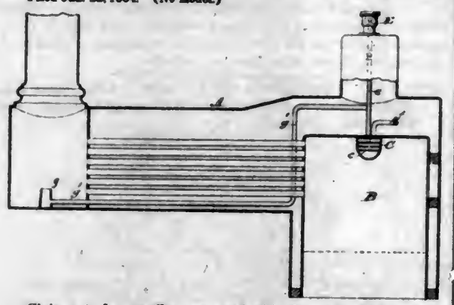
2. In a wheel, the combination, with a sleeve constructed of sheet metal having bulged shoulders, of hub-sections fitted upon the sleeve and constructed to receive spokes.

3. In a wheel, the sleeve constructed of sheet metal and having bulged shoulders.

4. In a wheel, a hub-section constructed of a body or ring-like portion, radial arms extending therefrom, having shoulders, whereby spoke-seats are formed between the periphery of the ring and the shoulder, and a rim connecting said arms together provided with lips.

5. In a wheel, a hub-disk having spoke-retaining lips constructed to be bent across the spoke-seats.

319,778. FIRE-BOX MUFFLER. ALFRED BERNEY, Boston, Mass. Filed Jan. 22, 1884. (No model.)



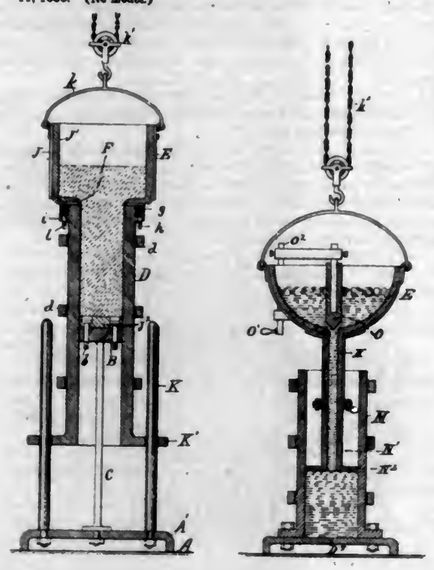
Claim.—1. In a muffler connected with the safety-valve, a perforated hood having tapered tubes arranged on its surface for holding a fire-proof material, in combination with perforated plates and a wire-filling, as set forth.

2. In a muffler connected with the safety-valve, the combination of a perforated hood having perforated plates arranged within it with a branch piece provided with steam-jets for drawing in air and forcing it through said hood into the furnace, substantially as and for the purpose set forth.

3. The combination of a perforated hood, C, having perforated plates and connected by a branch piece, D, with the atmosphere, a pipe, *e*, with the safety-valve, and a pipe, *f*, with the live steam of the boiler, all arranged substantially as and for the purpose herein specified.

4. The combination of a furnace or fire-box with a perforated hood extending transversely across the furnace, having one or more perforated plates, and connected to a safety-valve, all substantially as and for the purposes set forth.

319,779. PROCESS OF CASTING METAL INGOTS. FRANK BILLINGS, Cleveland, Ohio, and WILLIAM R. HINSDALE, Brooklyn, N. Y. Filed Feb. 11, 1885. (No model.)

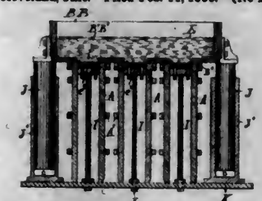


Claim.—1. That process of filling an ingot-mold which consists in drawing (in distinction from pouring) the metal into the mold by a gradual enlargement of its internal capacity, substantially as herein shown and described.

2. That process of filling an ingot-mold which consists in drawing or regulating the flow of the metal into the mold by a gradual enlargement of its internal capacity at such a rate that all the particles of the fluid metal move at a slower rate than that due to the uncontrolled action of gravity, as and for the purpose set forth.

3. That process of filling an ingot-mold from the bottom of a ladle which consists in uniting the bottom of the ladle by a practically air-tight joint to the top of the mold, and gradually increasing the capacity of the mold as the metal is admitted, substantially as shown and described.

319,780. APPARATUS FOR CASTING METAL INGOTS. FRANK BILLINGS, Cleveland, Ohio. Filed Feb. 11, 1885. (No model.)



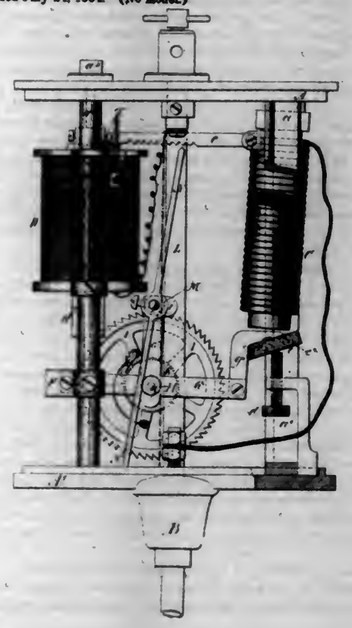
Claim.—1. The combination, with a fluid-metal kettle having an aperture in the bottom, of an ingot-mold fitted to such aperture, and a movable bottom fitted to slide within the mold, as and for the purpose set forth.

2. The combination, with a fluid-metal kettle having an aperture in the bottom, of an ingot-mold fitted to such aperture, and a movable bottom fitted to slide within the mold and to close the aperture from the kettle, as and for the purpose set forth.

3. The combination, with a fluid-metal kettle having an aperture in the bottom, of an ingot-mold fitted to such aperture, a movable bottom fitted to slide within the mold, and means, substantially as described, for moving said bottom and drawing the metal from the kettle into the mold, as and for the purpose set forth.

4. The combination, with a fluid-metal kettle having an aperture in the bottom, of a removable mold secured thereto at the aperture, a movable bottom fitted to the mold, a cylinder having a piston attached to the movable bottom by a piston-rod, means for forcing the piston and bottom upward by hydraulic pressure, and an adjustable escape-cock at the bottom of the cylinder, to regulate the velocity of the piston's descent, as and for the purpose set forth.

319,781. ELECTRIC-ARC LAMP. AUGUST BOSSARD, New York, N. Y. Filed July 24, 1884. (No model.)

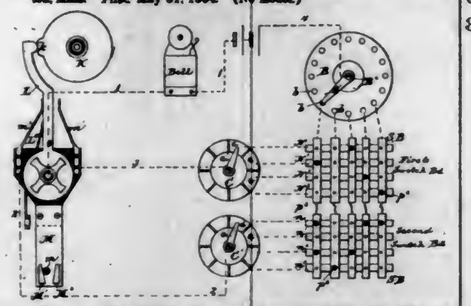


Claim.—1. In an electric-arc lamp, the combination, with the carbon-feeding devices, of a tubular shunt-magnet having an adjustable or sliding pole-piece made in two sections telescoped together, substantially as described, and for the purpose set forth.

2. In an electric-arc lamp, the combination, with the main or working magnet C, having its armature *c* located below its core and pivoted to the frame of the lamp, of the escapement-supporting frame G, pivoted at one end to the frame of the lamp, and at the other end resting or bearing upon the armature of the magnet C, whereby when the armature *c* is attracted it will lift the frame G and separate the carbons, substantially as described.

3. The combination, with the oscillating fly escapement mechanism and the main and shunt magnets, of the lug or arm *s*, attached to the core of the shunt-magnet, and the toothed or serrated lever *o*, resting directly on said lug or arm, and engaging with the upper arm of the oscillating fly, substantially as described.

319,782. ELECTRIC PROGRAMME-SIGNAL. RUFUS B. CARR, Boston, Mass. Filed May 31, 1884. (No model.)



Claim.—1. An electric signal apparatus comprising the following elements, viz: a commutator having a series of contacts and an arm impelled step by step over said contacts at a predetermined rate, additional commutators, each having a series of contacts and co-operating arms impelled at a slower rate than the arm of the first commutator, a signal device, and electrical connections, substantially as described, whereby a predetermined series of signals may be given by each successive revolution of the arm of the first commutator in connection with either of the other commutators, as set forth.

2. An electric signal apparatus comprising the following elements, viz: a commutator having a series of contacts and an arm impelled over the same step by step at a predetermined rate, a second commutator having a series of contacts and a co-operating arm impelled at a slower rate than the arm of the first commutator, a substitute or duplicate commutator, electrical connections, substantially as described, between the said second and substitute commutators and the first commutator, whereby predetermined signals may be given, and automatic switching devices, whereby the second and substitute commutators are made operative alternately each for a predetermined period, as set forth.

3. An electric signal apparatus comprising a commutator having sixty contacts and an arm moved one step in each minute over said contacts, other commutators having twenty-four contacts and arms moved over said contacts one step in each hour, switch-boards having a series of strips connected with the contacts of the first commutator, and a series of cross-strips connected with the contacts of one of the second commutators, and adjustable devices, whereby the strips of any two series may be connected in accordance with different predetermined programmes, as set forth.

4. An electric signal apparatus comprising a commutator having sixty contacts and an arm moved over said contacts one step in each minute, a primary second commutator having twenty-four contacts and an arm moved over the same one step in each hour, a substitute or duplicate commutator, switch-boards, constructed substantially as described, adapted to connect either the second or the substitute commutator with the first commutator, and automatic switching devices, substantially as described, whereby the second and substitute commutators are made operative alternately and for predetermined periods, as set forth.

5. In an electric signal apparatus, the combination of two or more commutators actuated by mechanical means and having different rates of movement, a battery, a signaling device, a mechanically-actuated cam, switching devices controlled by said cam, and two sets of prearranged electrical connections, as described, whereby a certain series of predetermined signals may be repeated one or more times and another series be automatically given at any predetermined sequence, substantially as described.

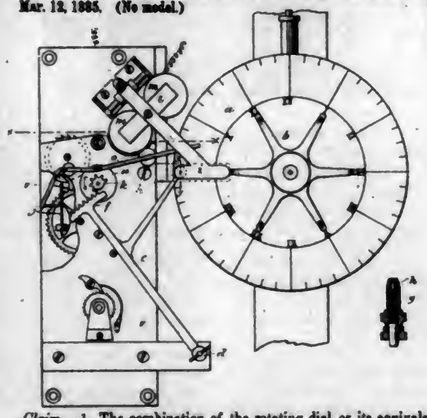
6. In an electric signal apparatus, the combination of two or more commutators arranged in separate circuits, both driven by the motor and arranged to control the circuits of signaling devices, and an electric switch actuated by the same motor and arranged to make the circuit of one and break the circuit of another of the commutators at stated intervals, as set forth.

7. In an electric signal apparatus, the combination, with a series of commutators and circuit connections, as described, of a motor, train driven thereby, a pin, *g*, carried by one of the wheels of said train, a lever, G, engaged by said pin at each revolution of the wheel, and step-by-step devices actuated by said lever for operating said commutators, as set forth.

8. In an electric signal apparatus, the combination of the cam *k*, actuated by a motor, lever L, engaged by said cam, the pin *m*, moved by the same motor, and the lever M, having springs m' m^2, and inclined planes M' M^2, engaged by the pin *m*, all so arranged that by the co-operation of said pin and cam the two-point switch formed by said lever and the springs m' m^2 will be operated, as set forth.

9. In an electric signal apparatus, the combination of two commutators, C C', actuated at equal rates, as described, and a series of switch-boards connected with the same, and a third commutator adapted to circuit the switch-boards successively, as set forth.

319,783. WATCHMAN'S CLOCK. RUFUS B. CARR, Boston, Mass., assignor to the E. Howard Watch and Clock Company, same place. Filed Mar. 12, 1885. (No model.)

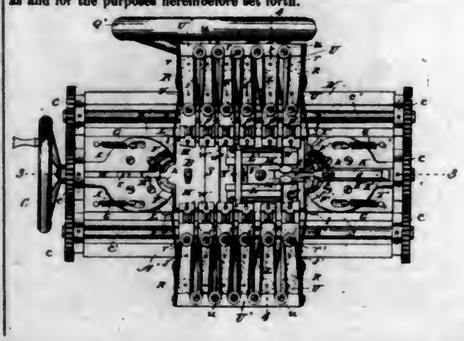


Claim.—1. The combination of the rotating dial or its equivalent, the stylus-carrying arm or lever, the time-movement whereby said lever and stylus are moved progressively, the electrically-operated hammer whereby the stylus is pressed against the dial, and a stop-lever which is pressed against the moving part of the time-movement by the inward motion of said hammer, as set forth.

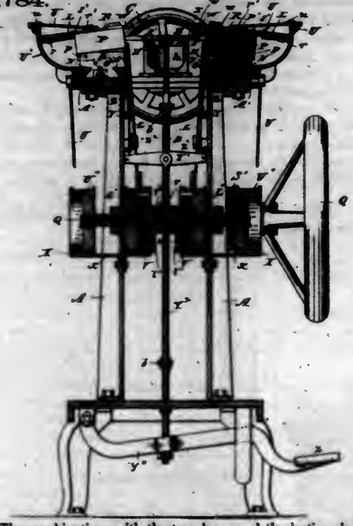
2. The combination of the rotating dial, the stylus-carrying arm or lever, the time-movement whereby said lever and stylus are moved progressively, the electrically-operated hammer, and the movement-stopping devices operated by the hammer, said devices consisting of the two levers having a flexible or yielding connection whereby the free inward movement of the hammer is permitted after the stoppage of the movement, as set forth.

319,784. MACHINE FOR LASTING BOOTS OR SHOES. FRANK CHASE, Boston, Mass., assignor to Charles F. Johnson, same place. Filed Mar. 11, 1885. (No model.)

Claim.—1. In a lasting-machine, the combination of a longitudinally-movable sectional clamp for one end of the last, with mechanism, substantially as described, whereby said clamp by and during its longitudinal movement is caused to simultaneously rise and contract or descend and expand, according to the direction of said movement, substantially as and for the purposes hereinbefore set forth.



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2. The combination, with the toe-clamp and the lasting devices, of the two-part convex presser M and its vertically and laterally yielding supports, as and for the purposes described.

3. The combination, with the clamp for one of the ends of the last, of lasting and crimping devices adapted to move in circular converging paths in the plane of the bottom of the last for gathering in the fullness of the upper at the end of the last, the side wipers, and yielding connections, substantially as described, for actuating said devices in conjunction with but independently of the side wipers, substantially as described.

4. The combination, with the clamp for one of the ends of the last, of the pivoted lasting and crimping arms J, arranged in the plane of the bottom of the last, the side wipers, and yielding devices, substantially as described, for oscillating the arms in said plane to gather and last the fullness of the upper at the end of the last in conjunction with but independently of the side wipers, substantially as set forth.

5. The combination of the wipers and their independent supports pivoted at *p*, and the equalizing and yielding connections attached to said supports for drawing down the wipers to various distances to automatically conform to the bottom of the last and engage with the upper, substantially as set forth.

6. The combination of the wipers and their independent supports pivoted at *p*, the equalizing and yielding connections attached to said supports for drawing down the wipers to engage with the upper, and means, substantially as described—as the springs *q*—for elevating the wipers and stretching the upper, as set forth.

7. The combination of the wipers and their supports pivoted at *p*, holding devices carried by the wipers for engaging with the upper, and means, substantially as described—as the springs *q*—for elevating the wipers and stretching the upper vertically, as set forth.

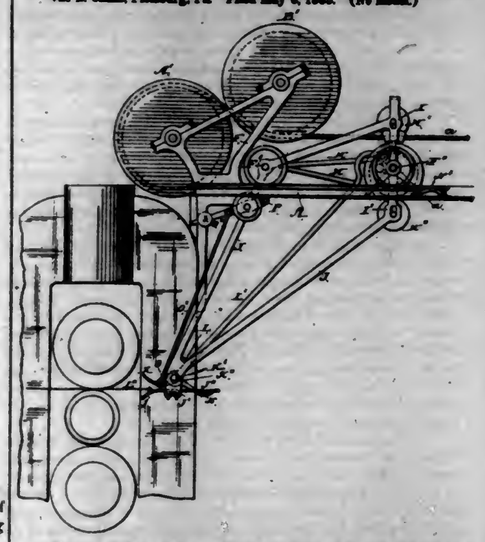
8. The combination of lasting devices or wipers independently movable relative to one another, a power-wheel or equivalent device common to several of said wipers, and the yielding devices, substantially as described, for transmitting power from the wheel to the wipers, whereby the latter may be caused by said wheel to advance upon the last and automatically conform to the same and to the varying elasticity of the upper without previous adjustment, substantially as set forth.

9. The combination, with the two series of wipers for the two sides of the last, of the devices, substantially as described, for actuating each series independently of the other series, a power mechanism, and yielding connections between said power mechanism and the said actuating devices, whereby the two series of wipers may be actuated from a single power mechanism and may still operate independently of one another upon the two sides of the last, substantially as set forth.

10. The combination, with the sliding wipers and the cords and pulleys for actuating them, of the adjustable friction devices for retarding those of the wipers that offer less resistance to the cord, substantially as described.

11. The lasting devices or wipers higher than the bottom of the last and constructed and arranged to be moved over upon the same, said wipers being provided with the sharp projections or hooks *w'*, arranged to point away from the last, and mechanism for actuating the wipers, whereby the upper may be forced over upon the bottom of the last, and there held by the said points while being secured, substantially as and for the purposes described.

319,785. CATCHER AND DRAG-OUT FOR ROLLING-MILLS. HARVEY B. CRIMM, Pittsburg, Pa. Filed May 6, 1885. (No model.)



Claim.—1. The rails A and endless cable *a*, in combination with the carriage F, provided with the depending braces J, and suitable mechanism for gripping the plate and operating the carriage, substantially as and for the purpose set forth.

2. The rails A, endless cable *a*, carriage F, and depending braces J, in combination with the plate J', shoe J'', frame K, provided with the fingers *k*, and spindle K', all constructed to operate substantially as and for the purpose set forth.

3. The carriage F provided with the axles F''', carrying the cam G, in combination with the shoes G'', sheave-hoop G', and idler-pulleys H' H'', all constructed to operate substantially as and for the purpose set forth.

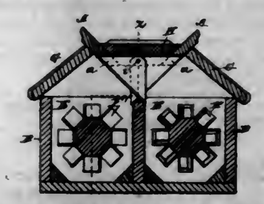
4. The spindle K', provided with the short arm L, the plate J, and the shoe J', in combination with the rod L', arm M, and axle F''', all constructed to operate substantially as and for the purpose set forth.

5. The plate J, shoe J', and spindle K', provided with the arm O and rod O', in combination with the weighted lever O'', provided with a roller, P, and the shoe P', all constructed to operate substantially as and for the purpose set forth.

6. The axle F''', provided with the tappets 1 and 2, the arm M', weight M'', and stops N N', in combination with the cam G, shoes G'', sheave-hoop G', rails A, and cable *a*, all constructed to operate substantially as and for the purpose set forth.

7. The rails A, endless cable *a*, and pulleys A' B', in combination with the pulleys A'' B'', movable frame C, link C', shaft C''', and adjustable weight D, all constructed to operate substantially as and for the purpose set forth.

319,786. CONVEYER FOR FLOUR-BOLTS. MYRON W. CLARK, Parma, assignor to George T. Smith, Jackson, Mich. Filed Dec. 1, 1883. (No model.)



Claim.—1. The combination, with a flour-bolt, of two conveyers arranged side by side, a center-board between the conveyers, and an adjustable chute provided with upwardly-projecting sides and pivoted by its sides above its bottom, whereby the opposite edges of its bottom may be alternately elevated to receive material, and a hopper-bottomed chamber between the chute and the bolt to receive material and deliver it alternately to opposite sides of the chute, substantially as set forth.

2. The combination, in a flour-bolt, of two conveyers arranged side by side, a center-board between the conveyers, an adjustable chute, and a hopper-bottomed chamber between the chute and the bolt to receive

materials and deliver it to the chute, said chute being adapted to retain its position by friction after adjustment, substantially as set forth.

3. The combination, with a flour-bolt, of two conveyers arranged side by side, a center-board between the conveyers, a series of adjustable chutes, each provided with upwardly-projecting sides, a series of supports for the chutes arranged intermediately between the ends of the conveyers, and pivots connecting the sides of the chutes with the supports, substantially as set forth.

4. The combination, with a flour-bolt, of two conveyers arranged side by side, a center-board between the conveyers, a series of adjustable chutes provided with upwardly-projecting sides, a series of transverse bars arranged intermediately between the ends of the conveyers, and pivotal supports connecting the chutes with the bars, the bars being of greater width than the spaces between two adjacent sides of two adjacent chutes, substantially as set forth.

5. The combination, with a flour-bolt, of two conveyers arranged side by side, a center-board between the conveyers, gather-boards connected with the outer casing and inclining downwardly and inwardly toward the center-board, so as to form a longitudinal throat above the center-board, a series of transverse bars supported upon the lower portions of the gather-boards, and a series of adjustable chutes, each provided with upwardly-projecting sides and pivoted by its sides to the under edges of the transverse bars, whereby the opposite edges of the bottoms of the chutes may be alternately elevated to receive material directly from the gather-boards and deliver it alternately at the opposite sides of the center-boards, substantially as set forth.

6. The combination, with a flour-bolt, of two conveyers arranged side by side, a center-board between the conveyers, gather-boards connected with the outer casing and inclining downwardly and inwardly, so as to form a longitudinal throat above the center-board, a series of transverse bars supported upon the lower portions of the gather-boards and having their lower sides grooved longitudinally, and a series of adjustable chutes, each provided with upwardly-projecting sides and pivoted by its sides within the grooves of the transverse bars, substantially as set forth.

7. In a bolting-chest, the combination of the partition C, which separates two contiguous parallel conveyer-troughs, the hopper, and cross-bars H in the bottom of the hopper, located centrally above the partition, and the oscillating chutes I I, pivoted directly to the cross-bars and arranged to swing so that their ends shall rest alternately above the partition and below the under side of the hopper, substantially as set forth.

319,787. ROLLER-SKATE. JOHN S. CLAWSON, Richmond, Ind. Filed Nov. 29, 1884. (Model.)



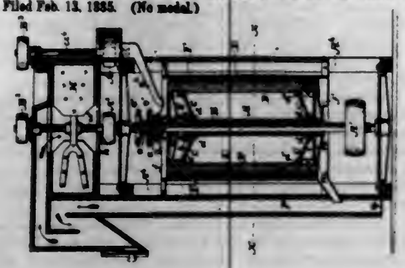
Claim.—1. In a roller-skate frame, the oscillating spring-chair K, provided with the pendent lug O, in combination with the temper-screw *b*, bearing against the lug O, to adjust the chair and regulate the spring-tension, substantially as described.

2. In combination with the truck-frame, the bracket or hanger frame journaled on an axle, which serves as a temper-screw to adjust the chair K and regulate the spring-tension, substantially as specified.

3. In combination with bracket F, oscillating spring-chair K, and temper-screw *b*, bearing against the latter, of the lock-spring R, for holding the screw against the chair, substantially as described.

4. The truck-frame C, provided with stops *a a*, in combination with the bracket F, and the oscillating chair-seat K, interposed between the bracket and frame, and having sides *d*, against which the stops *a a* are adapted to strike, substantially as described.

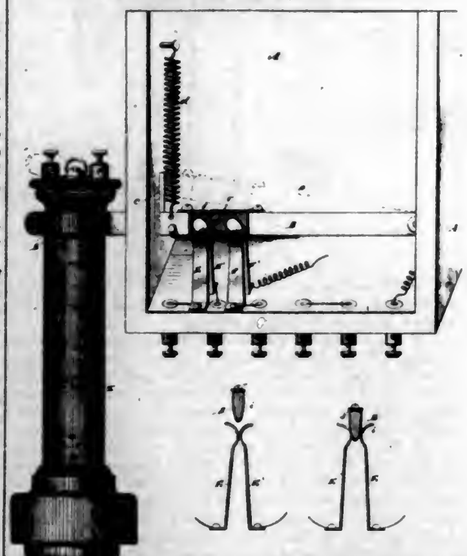
319,788. GRAIN-SCOURER. WILLIAM A. COCKRELL, Cleveland, Ohio. Filed Feb. 13, 1885. (No model.)



Claim.—1. In a machine for cleaning grain, the combination of a scouring-cylinder composed of a woven wire fabric having one or both of its sets of strands flattened, suitable interiorly-arranged cleaning devices, and means for causing the passage of air-currents through the scouring-cylinder and the material being operated upon, substantially as and for the purposes set forth.

2. In combination with a scouring-cylinder, F, composed of a woven wire fabric having the bends of its working-surfaces flattened, as specified, a series of revolving brushes composed of wire, the strands of which are arranged about parallel, and which are backed, as shown and described, to render them comparatively stiff, all as set forth.

319,789. TELEPHONE-SWITCH. HENRY W. COMSTOCK, Red Oak, Iowa. Filed Feb. 16, 1885. (No model.)



Claim.—1. The combination, with two pair of metallic contacts held normally together by spring-pressure, of a non-conducting arm or plate arranged to enter between the contacts of each pair and have a sliding action against the entire engaging surfaces of said contacts, substantially as set forth.

2. The combination, with two metallic springs arranged in a circuit and pressing normally against each other to complete the circuit, of an arm-plate having non-conducting abrasive surfaces, and arranged to move in between said springs for separating them, and to be withdrawn therefrom for closing circuit, substantially as described.

3. In a telephone-switch, the combination, with the metallic springs pressing normally against each other, of the telephone-supporting arm having a portion provided with insulating-surfaces, and arranged to swing in between said springs when depressed by the weight of the telephone, and a spring for retracting said arm from the circuit-springs when the telephone is removed.

4. The combination, with the springs E E', pressing normally against each other and forming part of the circuit, of the hinged telephone-supporting arm having abrasive non-conducting surfaces arranged to enter between and separate said springs and to clean the same, substantially as described.

319,790. BUTTON. JOHN A. COWLEY, Springfield, Mass. Filed Oct. 13, 1884. (No model.)



Claim.—A button consisting of a face part and a stud part fixed to and united by an intermediate shank, substantially as described, said stud having a slot in its border extending to or near to the shank, whose inner opposite sides are parallel with each other and stand at an incline to the inner face of the stud, and having points at the outer extremity of said slot, the points and edges bounding the slot being in the plane of the surface of the stud, substantially as set forth.

319,791. VEHICLE-AXLE NUT-LOCK. JESSE CONWAY, Baltimore, Md., assignor of one-half to John H. Conway, same place. Filed Apr. 16, 1885. (No model.)



Claim.—1. A vehicle-axle having a screw-thread and in its end a socket, in combination with a nut having a crown and provided with a central bolt to enter the said socket and confine the nut to the screw-thread, as set forth.

2. A vehicle-axle having a screw-thread and in its end a socket, in combination with a nut having a crown and provided with a central bolt and a spring to press the bolt into the said socket, and thereby confine the nut to the screw-thread, as set forth.

3. The combination of an axle-arm having a screw-thread and in its end a socket, a nut having a crown with a central hole, and a bolt provided in its outer end with a slot and passing through the central hole into the socket, as set forth.

4. The combination of an axle-arm having a screw-thread and in its end a socket, a nut having a crown with a central hole, and a groove extending crosswise, and a bolt provided in its outer end with a slot and passing through the central hole into the socket, as set forth.

5. The combination of an axle-arm having a screw-thread and in its end a socket of polygonal form, a nut having a crown and a spring, and a polygonal-shaped bolt provided with a slot, as set forth.

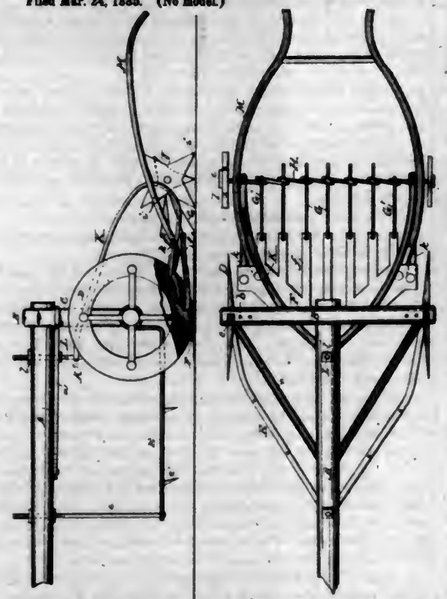
6. The combination of an axle-arm having a screw-thread and in its end a socket, a nut having a crown, a bolt passing from the crown into the said socket and provided with a slot, and a key having substantially a crescent shape with a point at one end, as set forth.

319,792. WOOD-FILLER. JAMES M. COPPERNOLL and JOHN W. BRANDOW, Jordanville, N. Y. Filed Oct. 8, 1884. (Specimens.)

Claim.—1. The herein-described composition of matter, consisting of boiled linseed-oil, corn-starch, gum-shellac, red lead, pulverized raw umber, plaster or gypsum, and a vehicle for mixing them, in the proportions and the manner specified.

2. The herein-described composition of matter for use as a wood-filler, consisting of linseed-oil, corn-starch, gum-shellac, red lead, umber, plaster or gypsum, gypsum white, and a vehicle for mixing the aforesaid ingredients, substantially in the proportions stated.

319,793. POTATO-DIGGER. AMASA CORBIN, Jr., Gouverneur, N. Y. Filed Mar. 24, 1885. (No model.)



Claim.—1. In a potato-digger, the combination of the draft-frame, a harrow adapted to tear up vines and weeds over the row and deliver them to the sides of the machine, the disks adapted to cover the material delivered by the harrow, and the plow or digger, substantially as set forth.

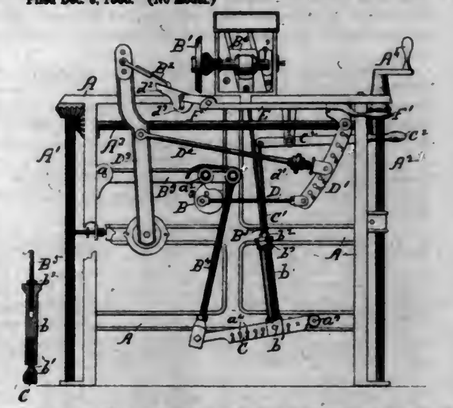
2. In a potato-digger, the combination of the draft-frame, the plow F, provided with rearward-extending fingers *f*, the shaking sifter in rear of the plow, consisting of the rods G, loosely connected at their forward ends to the plow, the bar H, adapted to support the rear ends of rods G, and the rods G', connecting the plow and the bar H, substantially as set forth.

3. In a potato-digger, the combination of the draft-frame, the plow F, the shaking sifter in rear of the plow, consisting of the rods G, loosely connected at their forward ends to the plow, the bar H, adapted to support the rear ends of rods G, and the rods G', connecting the plow and the bar H, substantially as set forth.

4. In a potato-digger, the combination of the main frame, the plow, the sifting-grate in rear of the plow, the agitating star-wheels I upon opposite sides of the grate, and the axle upon which the said wheels are mounted, and which supports the rear part of the grate, each wheel I being provided with a different number of points *i*, whereby an irregular shaking motion is imparted to the grate, substantially as set forth.

5. In a potato-digger, the combination of the main frame, the plow, the sifting-grate in rear of the plow, the agitating star-wheels upon opposite sides of the grate, and the bar H, looped to form eyes *h*, in which lie the rods G, forming the grate, substantially as set forth.

319,794. SAW-SHARPENING MACHINE. MILO COVEL, Chicago, Ill. Filed Dec. 6, 1883. (No model.)



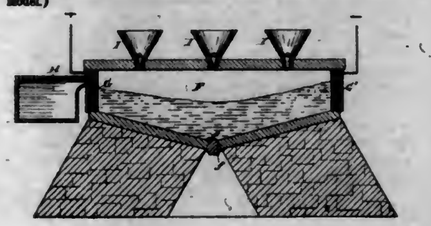
Claim.—1. The combination, with the irregular-shaped cam-wheel B, of the lever B^3, pivoted at one end, the opposite end being adapted to rise and fall, the friction-roller a^2, the rod B^4, the graduated arm C, provided with a number of apertures arranged at regular intervals, and the adjustable connecting-rod B^5, whereby motion is transmitted to the emery-wheel and the shape and depth of the teeth determined, substantially as described.

2. In a saw-sharpening machine, the combination, with an emery-wheel, of a moving gate supporting said wheel, a guide-frame, the loose sleeve *b*, having a loose joint at the lower end, and the shoulder b^3 on the upper end, the rod C', and the hand-lever C^2, whereby the emery-wheel may be raised from contact with the saw without stopping the machine, substantially as set forth.

3. The combination, with the cam B, adapted to perform the functions of a crank-wheel, of the connecting-rod D, the graduated arm D', the adjustable companion rod D^2, the vertical lever D^3, and the feed-finger B^2, whereby the required movement and adjustment are given to said feed-finger, substantially as described.

4. The combination, with the feed-finger B^2, of the adjustable rest d^2, provided with the elongated slot d^3, whereby said feed-finger may be adapted to conform to teeth of various shapes and depths, as set forth.

319,795. PROCESS OF SMELTING ORES BY THE ELECTRIC CURRENT. EUGENE H. COWLES and ALFRED H. COWLES, Cleveland, Ohio, assignors, by direct and mesne assignments, of four-tenths to Edwin Cowles and Charles F. Mabery, both of same place. Filed Dec. 24, 1884. (No model.)



Claim.—1. The method of generating heat for metallurgical operations herein described, which consists in passing an electric current through a body of broken or pulverized resistance material that forms a continuous part of the electric circuit, the ore to be treated by the process being brought into contact with the broken or pulverized resistance material, whereby the heat is generated by the resistance of the broken or pulverized body throughout its mass, and the operation can be performed solely by means of electrical energy.

2. The method of smelting or reducing ores or metalliferous compounds herein described, which consists in subjecting the ore in the presence of carbon to the action of heat generated by passing an electric current through a body of broken or pulverized resistance material that forms a continuous part of the electric circuit, the ore being in contact with the broken or pulverized resistance material, whereby the ore is reduced by the combined action of the carbon and of the heat generated solely by the resistance of the broken or pulverized body throughout its mass.

3. The method of smelting or reducing ores or metalliferous compounds herein described, which consists in pulverizing the ore and mixing with it pulverized or broken carbon or like material, then introducing the mixed ore and carbon within an electric circuit, of which it forms a continuous part, the said circuit being established through the carbon constituents of the mass, whereby the heat is generated by the electrical resistance of the carbon throughout the mass, and the operation can be performed entirely by means of the carbon reagent and the electrical energy.

4. The method of smelting or reducing ores or metalliferous compounds herein described, which consists in subjecting the ore in the presence of a reducing agent to the action of heat generated by passing an electric current through a body of broken or pulverized resistance material that forms a continuous part of the electric circuit, the ore being in contact with the broken or pulverized resistance material, whereby the ore is reduced by the combined action of the reducing agent and of the heat generated solely by the resistance of the broken or pulverized body throughout its mass.

319,796. CAR-BUMPER. LINDSLAND A. COWELL, Cleveland, Ohio. Filed Apr. 14, 1885. (No model.)



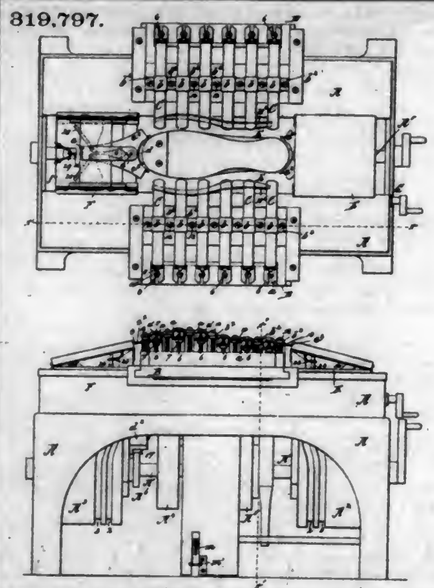
Claim.—1. The combination, with a bar centrally pivoted to the front or outer face of a car-sill, of bumpers secured to the outer face near the opposite ends of said bar, substantially as set forth.

2. In spring car-bumpers, spring-sockets secured to a rock-bar, a bumper face or cap substantially cup-shaped engaging the sockets, the one operating endwise within the other and inclosing a spiral spring, and a link-bolt to secure the parts and limit the recoil of the spring, substantially as set forth.

3. In spring car-bumpers, the combination, with a rock-bar secured by a yoke to the outer face of a car-sill, of spring-sockets provided with ears or flanges for securing the sockets to the rock-bar, a cap or bumper-face substantially cup-shaped embracing the sockets, a spiral spring inclosed therein, and a link-bolt securing the cap, substantially as set forth.

4. In spring car-bumpers, the combination, with the spring-sockets D, secured to a rock-bar or the sill of the car, as may be preferred, of the cap E, spring G, and link-bolt H, substantially as set forth.

319,797. LASTING-MACHINE. HERBERT W. DEAN, Boston, Mass. Filed Mar. 9, 1885. (No model.)



Claim.—1. In a lasting-machine, the series of guides *b* and the guide adjusting and holding devices *b*², loosely connecting the guides together, and the bearings *a*, and the horizontally-arranged fingers C, placed in the said guides, combined with screws to adjust the guides vertically and hold them in place, and with a side lasting-carriage to move the said fingers and their supports, to operate as described.

2. In a lasting-machine, the side lasting-carriages, the end bearings, *a*, mounted thereon, and the side lasting devices or fingers pivoted at their outer ends in the said bearings, combined with a series of loosely-connected vertically-adjustable guides, *b*, to receive and hold the said fingers, substantially as described.

3. In a lasting-machine, the side lasting-carriages, end bearings, *a*, mounted thereon, and the side lasting devices or fingers pivoted at their outer ends in the said bearings, combined with a series of connected guides, and with means, substantially as described, to adjust both the said bearings and the said guides, substantially as described.

4. In a lasting-machine, guide adjusting and holding devices, the series of loops, and the screws to hold and adjust them, combined with the intermediate guides, *b*, having ears to enter or be engaged by the said guide adjusting or holding devices, substantially as described.

5. In a lasting-machine, the side lasting devices or fingers provided at their rear end with tangs, and bearings *a*, to receive the said tangs, combined with catches to engage the said tangs and loosely support and hold the said fingers, and with a series of loosely-connected vertically-adjustable guides, *b*, for the said fingers, between the said bearings and the inner end of the fingers, substantially as described.

6. In a lasting-machine having toe and heel carriages, a slide-plate, *e*, and crimping-jaws pivoted thereon, combined with the independently-reciprocating slotted jaw-closing slide-plate *f*, adapted to engage and close the said jaws, substantially as described.

7. In a lasting-machine, the supports for the heel and toe of the last, and the side rubbers, H A A', combined with the cross-head, and with means, substantially as described, to operate the said cross-head.

8. The supports for the heel and toe of the last, and the side rubbers, H A A', combined with the connected treadle to separate or move the said side rubbers away from each other, substantially as and for the purpose described.

319,798. RAILWAY-BRIDGE. JOHN DENNIS, Oswego, N. Y. Filed May 27, 1882. Renewed Sept. 3, 1884. (No model.)

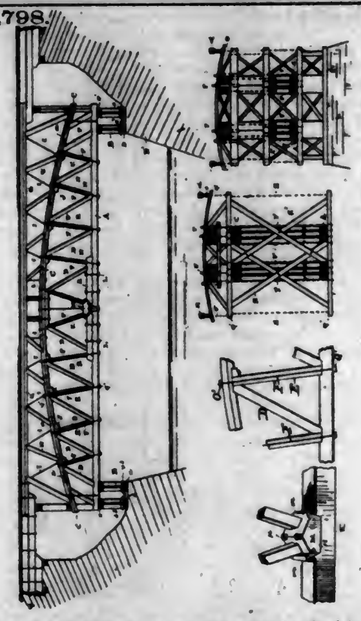
Brief.—Vertically below each track a two or more fold truss is arranged, consisting of bottom chord, arched chord, and intermediate triangular bracing. Above and upon the same the track is supported by stringers and intermediate bracing. Transverse vertical trusses are added to give vertical stiffness. Joints are protected from water by various devices. The braces are boxed into the chords and abut a half upon a chord and a half upon a counter-brace.

Claim.—1. In a bridge having a straight lower chord braced to a central arched chord by diagonal braces boxed into the straight and arched chords, the combination, with said chords and braces, of counter-braces, the upper end of each being set so that one half shall rest against the arched chord and its other half against one of the diagonal braces, the lower end of the counter-brace being similarly situated against the straight lower chord and the bottom end of the next diagonal brace, and suitable bolts extending from the arched chord to the straight chord outside of and parallel with each counter-brace to hold the braces in position and complete the single truss, as specified.

2. In a bridge having a central arched chord braced, as described, to the bottom or lower chord which rests upon the pin, the upper or carrying chord suitably braced to the arched chord by diagonal braces extending from the outer end of the arched chord for the purpose of directing the strain of the load to the outer end of the truss, substantially as and for the purpose specified.

3. In a bridge having a central arched chord braced, as described.

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and the lower straight chord, and an upper or carrying chord braced to the arched chord by diagonal braces, the combination, with such chords and braces, of bolts extending diagonally from the top of the carrying-chord to the bottom of the arched chord and held in position by clamp-pieces, substantially as and for the purpose specified.

4. In a bridge in which the carrying or upper chord is braced to the lower chord, as described, so as to form a complete single truss, three or more trusses so formed placed below each rail and braced or tied together by the transverse beams, in combination with the diagonal braces R and bolts F, situated substantially as shown and described.

5. In a railway-bridge provided with a curved water-proof deck, a wooden hand-rail supported by the metal standards having notched or serrated ends to fit into the hand-rail and deck, as described, in combination with the bolts extending from the top of the hand-rail through the standards and deck to the transverse beam, substantially as and for the purpose specified.

6. In a bridge in which the length of the chords necessitates their being spliced, a tie-piece notched on its bottom surface and placed over the joint on the top edge of each chord, which chord has corresponding notches formed on its top surface, in combination with braces D E, bearing on the tie-pieces, bolts F, arranged to strain the whole together and allow the load on the bridge to assist in strengthening the splice, substantially as and for the purpose specified.

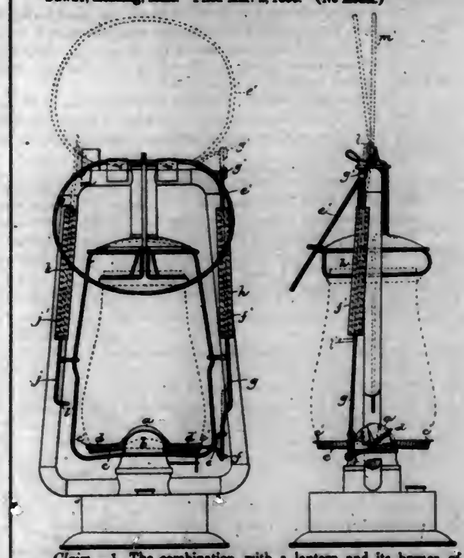
7. In a bridge in which compound trusses are placed below each rail and bound together by transverse beams located on the top and bottom of the trusses and projecting beyond the trusses to the full width of the bridge, the combination, with such compound trusses and beams, of cross-braces extending from the top to the bottom transverse beams, which are drawn together at their outer ends by bolts S, designed to spring the ends of the beams together and impart a tightening strain against the braces and trusses, as set forth.

8. In combination with two timbers the ends of which are connected together by a V-shaped joint, a washer, *h*, embedded in the top surface of the timbers immediately over the V-shaped joint and having spiked ends *h'* to form a lock for connecting the ends of the timbers together, the spaces above the washer being filled and top surface of the timbers covered with a composition of tar or pitch and gravel, substantially as and for the purpose specified.

9. In a truss-bridge in which the center braces are supported on a metal prism having aprons on either end to fit over the tie-piece and stuffing-boxes around the bolts, as described, curved lips formed on either side of the said prism, in combination with a galvanized-iron covering placed on top of the tie-piece supporting the prism, and having curved ends fitting below the curved lips of the prism for the purpose of forming a gutter to receive any water falling from the prism, substantially as and for the purpose specified.

10. A short center block, *p'*, having a hole bored in its center and vertical grooves cut in its outer surface, in combination with a series of posts, *p*, as described, for the purpose of forming a ventilated support to the ends of the bridge, as specified.

319,799. SAFETY ATTACHMENT FOR LANTERNS. FRANCIS O. DEWEY, Reading, Mass. Filed Mar. 2, 1885. (No model.)



Claim.—1. The combination, with a lantern and its burner, of a swinging handle, a pivoted extinguisher which normally covers the flame-aperture of the burner, a crank connected to the extinguisher, and a rod connecting said crank with the handle of the lantern, whereby when the handle is held upright to support the lantern the extinguisher is held away from said aperture, and when the handle falls the extinguisher is permitted to act, as set forth.

2. The combination, with a lantern and its burner, of a swinging handle, a pivoted extinguisher having a crank, a spring whereby said extinguisher is normally caused to cover the flame-aperture of the burner, and a rod connecting the crank of the extinguisher and the handle of the lantern, whereby when the handle is used to support the lantern the extinguisher is held away from the burner, and when the handle is released the spring is permitted to operate the extinguisher, as set forth.

3. The combination, with the lantern and its burner, of the extinguisher having the crank *d'*, the swinging handle *m*, having the arm *g'*, the rod *g*, connecting the crank *d'* and arm *g*, whereby the extinguisher is held away from the flame-orifice in the burner when the handle is used to support the lantern, and the spring whereby the extinguisher is turned to cover said orifice when the handle is released, as set forth.

4. The combination of a lantern, a swinging handle, a burner, a pivoted extinguisher having a crank, a rod connecting the extinguisher-crank and handle, and a rod sliding in guides on the lantern-frame and adapted to support the handle, and thereby hold the extinguisher away from the flame-orifice of the burner, as set forth.

5. In a lantern, the combination of the swinging handle, the burner, the pivoted extinguisher having a crank, a rod connecting said crank and handle, the hooked rod *j*, which slides in guides on the lantern-frame and bears against the handle when the latter is in a nearly upright position, and a retracting-spring, whereby said rod is disengaged from the handle when the latter is raised to an upright position, as set forth.

319,800. FEEDING MECHANISM FOR SEWING-MACHINES. PHILIP DIEHL, Elizabeth, N. J., assignor to the Singer Manufacturing Company of New Jersey. Filed Feb. 10, 1885. (No model.)

Brief.—The feeding rock-shaft is provided with a disk, which latter has a wide vertical recess having undercut sides, within which the feed-bar, provided with a feed-dog at its top, is reciprocated by means of a cam on the shuttle-carrying rock-shaft.



Claim.—1. In a sewing-machine, the combination, with a rock-shaft having a disk, of a feed-bar adapted to slide vertically in ways in said disk, said bar carrying a feed-dog and being provided with an open-

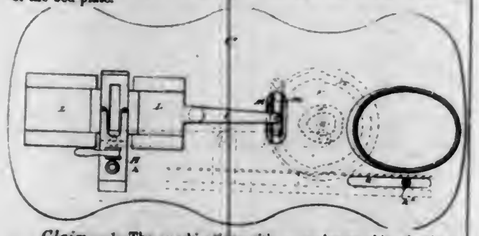
ing, a cam working in said opening, and a shaft by which said cam is carried, substantially as set forth.

2. In a sewing-machine, the combination of a rock-shaft having a disk, a regulator for varying the movements of said rock-shaft, a feed-bar movable vertically in said disk and having an opening, a feed-dog carried by said bar, a cam working in said opening, and a shaft by which said cam is carried, substantially as set forth.

3. The combination, with the rock-shaft A, having a cam, *a'*, of the rock-shaft B, having the recessed disk *b*, the feed-bar D, adapted to slide vertically in said disk, and having the opening *d* and the feed-dog E, substantially as set forth.

319,801. **FEEDING MECHANISM FOR BUTTON-HOLE SEWING-MACHINES.** PHILIP DIXEL, Elizabeth, N. J., assignor to the Singer Manufacturing Company of New Jersey. Filed Feb. 12, 1885. (No model.)

Brief.—The cloth-carrying device, with its operating mechanism, is designed to be applied to sewing-machines having laterally-moving needle-bars and needles to form overseaming-stitches. The rate of feeding may be changed, as desired, by means of the set-nut on the top of the bed-plate.



Claim.—1. The combination, with a sewing-machine having a laterally-moving needle-bar, of a carrying-plate, a cloth-clamp sliding on said carrying-plate, a feeding-wheel having cam-grooves, a feeding-lever loosely connected with said cloth-clamp and operated by said wheel, and a throw-over lever connected with said slide, and also operated by said wheel, substantially as set forth.

2. The combination, with a sewing-machine having a laterally-moving needle-bar, of a carrying-plate sliding in ways extending lengthwise of the bed-plate of the machine, a cloth-clamp movable transversely of the said carrying-plate, a feeding-wheel having cam-grooves, mechanism for operating said wheel, a feeding-lever operated by said wheel and loosely connected with said cloth-clamp, and a throw-over leve operated by said wheel and loosely connected with said carrying-plate substantially as set forth.

3. The combination, with a sewing-machine having a laterally-moving needle-bar, of a grooved feeding-wheel, its operating mechanism, a carrying-slide, a cloth-clamp mounted thereon, a slotted throw-over lever pivoted to the bed-plate of the machine, and having a stud engaging a groove in said wheel, and a link pivoted to said slide and adjustably connected to the said lever, substantially as set forth.

4. The combination, with the cloth-clamp, its carrying-slide, and the feeding-wheel, of the feeding-lever G, the connecting-link *g*, the fulcrum-block *k*, and the adjustable slide K, having an arm, *k'*, substantially as set forth.

5. The combination, with the feeding-wheel, the cloth-clamp, the carrying-slide and intermediate connections between said wheel and the said clamp and slide, of the shaft *b*, cam *d*, yoked connecting-bar D, lever E, having one end slotted and its opposite end recessed, spring e^2, and feed-dog *e*, having a tail-piece entering the recess in the said lever, substantially as set forth.

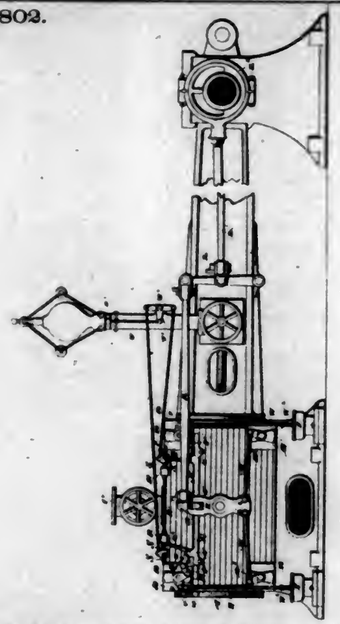
6. The combination, with a sewing-machine having a laterally-moving needle-bar, of a cloth-clamp, a carrying-slide for the same, a feeding-wheel having grooves for operating said clamp and slide, a feeding-lever loosely connected with said clamp and having an adjustable fulcrum, a throw-over lever, a link pivoted to said slide and adjustably attached to said throw-over lever, a feed-dog, a lever for operating the same, a connecting-bar adjustably attached to the latter lever, and mechanism for operating said connecting-bar, substantially as set forth.

319,802. **VALVE MECHANISM.** CHARLES A. DIXON, Newburg, N. Y., assignor to Robert Whitehill, same place. Filed Jan. 12, 1885. (No model.)

Claim.—1. In a valve mechanism, in combination with the crank on the valve-spindle, the endwise-moving bar, a toggle pivotally attached at one end to the bar and at the other to the valve-crank, a device for tripping or flexing the toggle, and a pendent link supporting the end of the bar near the point of connection of the toggle therewith, substantially as and for the purpose described.

2. In combination with the longitudinally-moving bar, the crank on the piston-spindle, a toggle connected at one end with the bar and at the other with the valve-crank, adapted to swing the crank to open the valve as the bar moves outward, a pendent link supporting the bar swinging parallel with the valve-crank as the latter is swung to open the valve, means, substantially as described, for tripping or flexing the toggle, and a device or devices for swinging the valve-crank back to close the valve when the toggle is tripped, substantially as and for the purpose described.

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3. In combination with the valve, and means, substantially as described, tending to keep it closed, a crank on the valve-stem, a longitudinally-moving bar, a toggle pivoted at one end to the bar and at the other to the crank, a lug on the inner end of one of the toggle-links adapted to rest on the bar and support the middle of the toggle, a lug or arm on a portion of the toggle, and a tripping-toe adapted to be engaged by such arm or lug, substantially as and for the purpose described.

4. In combination with the moving bar and the crank-arm on the valve-stem, the elbow-lever pivoted to the bar, the link pivoted to the horizontal arm of the lever and the valve-crank and provided with a supporting-lug adapted to rest on the bar when the pivotal connection of the link and lever is below the line of the crank-pin and pivot of the lever, a tripping lug or toe adapted to be engaged by the upright arm of the lever, a second crank-arm connected with the valve-stem, and means, substantially as described, adapted to exert a yielding force upon this crank, substantially as and for the purpose described.

5. In combination with the tripping toe or lug, the reciprocating or swinging bar, the elbow-lever pivoted thereto, having its upright arm adapted to engage the toe or lug, the crank on the valve-stem, the link pivoted to the horizontal arm of the lever and to the crank, the second crank rigidly connected with the valve-stem, the rod connected with this crank, a piston on the lower end of this rod, and a cylinder or pot in which the piston works, substantially as and for the purpose described.

6. In combination with the supporting pendent link, the bar pivoted thereto, the elbow-lever pivoted on the bar, the two crank-arms on the valve-stem, the link connecting the horizontal arm of the lever with the crank extending down from the valve-stem, the lug on this link, the rod connected with the other crank on the valve-stem, the piston on the rod working in a dash-pot closed at its lower end, and a tripping lug or toe adapted to be engaged by the upright arm of the lever as the bar moves outward, substantially as and for the purpose described.

7. In a valve mechanism, the valve-shifting bar, in combination with the swinging links to which it is pivoted, the wrist-block pivoted to the bar, a pivoted lever provided with a slot engaging the wrist-block, and suitable connections between the eccentric on the main shaft and this lever, substantially as and for the purpose described.

8. In combination with the two rotary inlet-valves, and the cranks on the stems thereof, the swinging bar, the two elbow-levers pivoted to the bar and having their horizontal arms extending outward toward the valve-cranks, and their other arms extending upward, the links pivoted to the ends of the horizontal arms of the levers and to the cranks, the lugs on the links adapted to rest on the bar when the links are down, the lugs adapted to be engaged by the upright arms of the toggle-levers as they travel outward with the bar, and means, substantially as described, tending to rotate the valve stems and cranks inward to close the valves, all substantially as and for the purpose described.

9. In a combination with the slides carrying the tripping toes or lugs for the valve mechanism, the bar upon which the slides move, the pivoted lever, rods connecting the slides with opposite ends of the lever, an arm or lug on the lever, a governor, and a rod connecting the lug or arm on the lever with the governor, substantially as and for the purpose described.

10. In combination with the supporting-bar having angular portions, the slides sliding on such portions, the tripping lugs or toes on these slides, the pivoted lever, the rods connecting the slides with opposite ends of the lever, and means, substantially as described, for swinging the lever on its pivot in opposite directions as the speed of the engine increases or diminishes, substantially as and for the purpose described.

11. In combination with the crank-arm rigidly connected with the valve-stem, a rod pivoted at its upper end to the crank-arm, a cup-shaped piston on the lower end of the rod, having one or more openings in its bottom, and a valve adapted to close the same against downward pressure of the air, and a dash-pot within which the piston fits and works, substantially as and for the purpose described.

12. In combination with the dash-pot, the cup-shaped piston fitting therein, provided in its bottom with one or more openings, a disk or piece of flexible material resting upon the bottom of the piston over such opening or openings, a screw or bolt passing down through the disk and holding it in place, and a spring between the head of the bolt and the disk, substantially as and for the purpose described.

13. In combination with the dash-pot and the piston playing therein, a block attached to the piston, the rod connected with the valve having its lower end extending down through the block, the head on the rod below the block, the collar on the rod above the block, and the spring surrounding the rod between the collar and block, substantially as and for the purpose described.

14. In combination with the valve and the crank-arm on its stem, the dash-pot, and the piston therein, the rod connected at its upper end with the crank-arm and at its lower end so connected with the piston in the dash-pot as not to raise the piston until just as the valve begins to open, substantially as and for the purpose described.

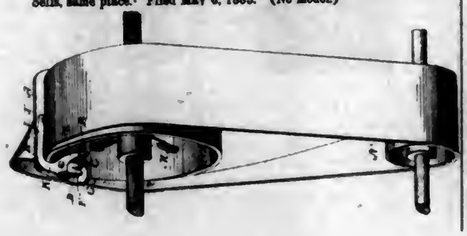
15. In combination with the dash-pot, the cup-shaped piston, the block pivoted in the upper part thereof and provided with a central vertical opening, the rod passing down through such opening, the head on the lower end of the rod, the collar on the rod above the block, and a spring around the rod between the block and collar, substantially as and for the purpose described.

16. In combination with the dash-pot having its upper portion made larger than the lower and the bottom of such upper portion forming an annular shoulder within the pot, the cup-piston conforming in external shape to the interior of the pot, a valve at the bottom of the piston adapted to close against the passage of air down below the piston while allowing it to escape from under the same, and one or more openings extending through the wall of the pot just above the shoulder within the same, substantially as and for the purpose described.

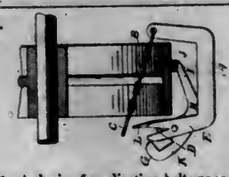
17. In combination with the dash-pot having its upper portion made larger than its lower part, and one or more air-openings extending through its walls at the bottom of the enlarged portion, the cup-piston conforming in shape to the interior of the pot, the valve at the bottom of the piston, the journal-boxes fixed within the upper portion of the piston, the block pivoted in such boxes and provided with a central opening, the rod extending loosely down through the opening, the head on the rod, the adjustable collar on the rod above the block and the spring between the block and collar, substantially as and for the purpose described.

18. In combination with the dash-pot and the cup-piston therein, a block or bar carried within the piston and provided with a central opening, a crank-arm attached to the valve-stem, a rod extending from this arm down through the opening in the bar or block within the piston, a head so situated on the lower end of the rod as to come in contact with the lower side of the bar or block just as the valve opens, a collar on the rod above the block, and a spring between the block and collar, substantially as and for the purpose described.

319,803. **BELT-HANGING DEVICE.** JOSEPH EAGLESTON and WILLIAM EAGLESTON, Franklin County, Ohio, assignors of one-third to W. M. Sells, same place. Filed May 6, 1885. (No model.)



319,803.

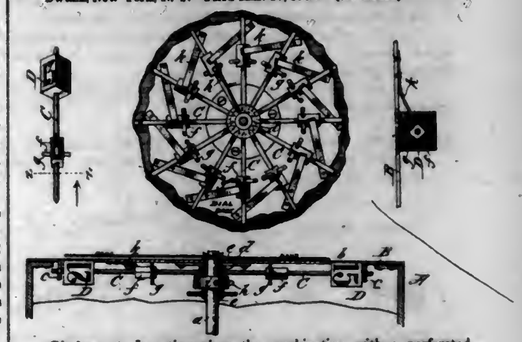


Claim.—1. A device for adjusting belts upon pulleys, consisting of a bail, a chain connected to one arm of the same, and means for connecting the end of the said chain detachably with the end of the other arm of the said bail, substantially as herein described, for the purpose shown and specified.

2. In a device for adjusting belts upon pulleys, the combination of a bail, a chain connected to the end of one of the arms of the same and having a link adapted to enter a notch in the end of the other arm, and a bell-crank lever pivoted to the said arm and having a hook or catch engaging a notch in the end of the said arm, and an arm extending inwardly under the body of the bail, substantially as and for the purpose herein set forth.

3. In a device for adjusting belts upon pulleys, the combination of a bail, a chain attached to the end of one of the arms of the said bail and having a link adapted to enter a notch in the end of the other arm, and a bell-crank lever having a hook or catch adapted to retain the said chain-link in its notch, an inwardly-extending arm, and a beveled latch-arm, by contact of which with the rim of the pulley the device may be automatically detached from the latter, substantially as and for the purpose set forth.

319,804. **DIAL FOR TIME-PIECES.** MARTIN V. B. ETHRIDGE, Boston, Mass., assignor of two-thirds to Henry E. Waite, same place, and John Swann, New York, N. Y. Filed Mar. 17, 1885. (No model.)



Claim.—1. In a time-piece, the combination, with a perforated dial-plate, of a series of radial spindles intermittently rotated in a forward direction, each of said spindles carrying a block, plate, or disk, on the faces of which are delineated numerals designating the twenty-four hours in each day, substantially as described.

2. In a time-piece, the combination of a perforated dial-plate, a radial series of intermittently-rotary spindles, each carrying a numeral-block and provided with a bearing, as *f*, having pins *g g*, and a carrying disk or collar, *i*, mounted on the hour-hand thimble, and having a pin, *k*, thereon, substantially as described.

3. In a time-piece, the combination of a dial-plate having slots or openings *b b* and supporting-springs *k k*, a radial series of intermittently-rotary spindles, C, carrying numeral blocks or plates D, and having bearings *f*, provided with pins *g g*, and a disk or collar, *i*, mounted on the hour-hand thimble *e*, and carrying a pin, *k*, substantially as described.

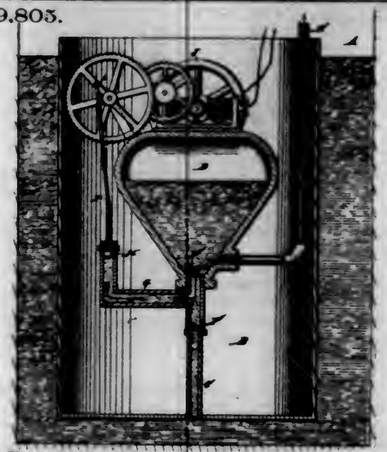
319,805. **COMBINED ELECTRICAL AND WATER RAM FOR RAISING WATER.** FRANK E. FISHER, Detroit, Mich. Filed Dec. 18, 1884. (No model.)

Claim.—1. The combination, with a hydraulic-ram mechanism, of a piston in the place of its ordinary clack-valve, the said piston actuated, in imitation of the movements of said clack-valve, by an external motor, substantially as and for the purpose described.

2. The combination, with a hydraulic-ram mechanism, of a piston in the place of the ordinary clack-valve, said piston adapted to be actuated, in imitation of the motion of said clack-valve, by an exterior electric motor, substantially as and for the purpose described.

3. In connection with a head of water above the level of the piston, and combined with the mechanism of a hydraulic ram, a piston in the place of its clack-valve, and an external motor adapted to drive said piston alternately downward, the construction being such that the hydrostatic pressure will alternately lift the piston on its upstroke, substantially as and for the purposes described.

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4. The combination, with a well or cistern, of a chamber sufficiently submerged to bring the head of water above the piston H, the said chamber provided with hydraulic-ram mechanism, wherein the piston H takes the place of the usual clack-valve, the said piston connected with and adapted to be operated by an exterior electric motor, substantially as and for the purpose described.

319,806. WATER-PROOF WOOD-PULP BOARD FOR ROOFING. JOSEPH F. FOGG, Gorham, Me. Filed June 11, 1884. (Specimens.)

Claim.—1. The combination of wood pulp with the water-proof mixture consisting of petroleum, rosin, alum, and copperas, in about the proportions set forth, substantially as described.

2. A water-proof mixture consisting of petroleum, rosin, alum, and copperas, in about the proportions described.

319,807. BARBED FENCE. FRANKLIN D. FORD, Providence, R. I., assignor of one-half to Cornelius S. Sweetland, same place. Filed June 17, 1884. (No model.)



Claim.—The combination, with a flat fencing-strip having a transverse groove, of a flat barb having a prong at each end and provided with a broad central or body portion, which is inclined at an angle to both the prongs, whereby when lapped upon the fence-strip the broad body portion will fit snugly in the groove, and the prongs will project substantially at right angles to the strip, substantially as described.

319,808. CALCULATING-INSTRUMENT FOR PERCENTAGE AND PROPORTION. MELVIN T. FREEMAN, Richmond, Va. Filed Aug. 4, 1884. (No model.)

Claim.—1. An improved calculator comprising a plane, in figure a ninety-degree arc graduated along its surface that the projections of these lines forming this graduation mark two scales—one along the arc, numbering from 0 to 100, increasing from the base upward, and the other along the perpendicular, increasing also from the base upward, substantially as described.

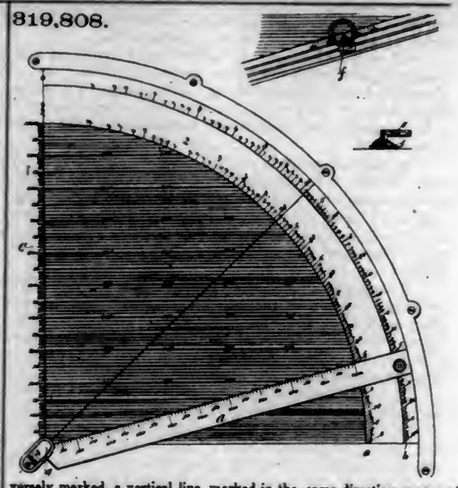
2. A plane having two graduated arcs of ninety degrees, numbering one from 0 to 100, from the top downward, the other from 0 to 100, from the bottom upward, and so arranged, one with reference to the other, that a radius drawn to intersect both arcs will cut them at divisions so numbered that their sum will be 100, substantially as described, and for the purposes specified.

3. In combination, a plane, as A, provided with the vertical graduated scale *c* and the two arcs *a b*, divided and marked as shown, and the movable indicator *d*, marked and divided as shown, all for the purposes specified.

4. A calculator comprising a graduated plane, and having two arcs and a vertical line, all divided and marked as shown and described, and a movable indicator having a rule-joint, and a protector, as *h*, the said indicator being provided with a magnifying-glass and a pointer to indicate more clearly the numbers on the said arcs and the horizontal lines which graduate the plane, as described, and for the purpose specified.

5. A calculator comprising a graduated plane having two arcs in-

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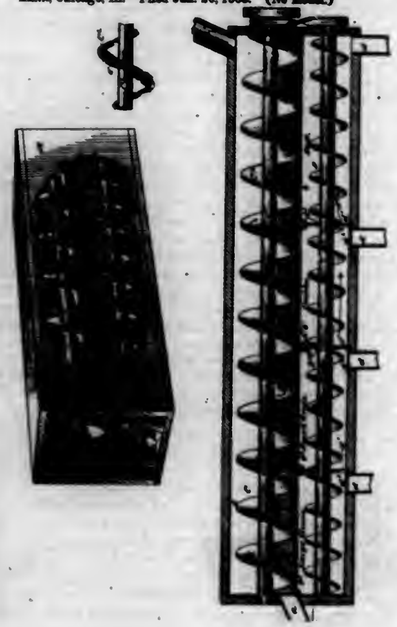


versely marked, a vertical line marked in the same direction as one of the arcs and arising from the center of the two arcs, a graduated movable indicator marked the same as the vertical, and provided with a pivot-joint at the center of said arcs, and a keeper, as *h*, for the purposes specified.

6. A calculator comprising the plane A, provided with a series of horizontal lines, marked as described, and two arcs, one numbered from top to bottom, the other from bottom to top, in combination with the graduated movable indicator, said indicator being marked and numbered as is the vertical, and being provided with a magnifier and a pointer, whereby said indicator more clearly indicates the desired number on the said arcs or on the horizontal lines which graduate the said plane, substantially as described.

7. The combination of an arc numbered from 0 to 100 upward, an arc numbered from 0 to 100 downward, a vertical line erected from the point from which the said arcs are drawn and numbered upward from 0 to 1,000, and a movable indicator divided as is the vertical and pivoted at the angle of the said arcs, (or point from which said arcs are drawn,) and being marked from 0 to 1,000 from the pivot-point toward the free end, substantially as described.

319,809. COMBINED CONVEYER AND SEPARATOR. LOUIS GATHMANN, Chicago, Ill. Filed Jan. 26, 1883. (No model.)



Claim.—1. A combined conveyer and separator comprising a spout, a screen suitable for effecting a separation of grain and permanently dividing the spout into upper and lower longitudinal passages, and a series of discharge spouts or passages connected at different points with the lower longitudinal passage in the spout, substantially as and for the purpose described.

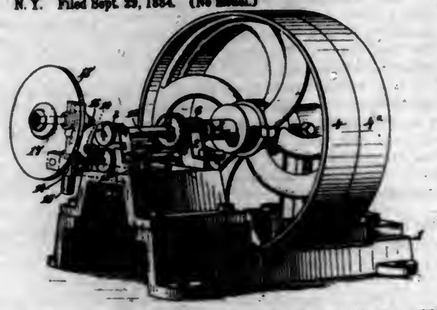
2. A combined conveyer and separator consisting of a spout, a graded screen fixed in the spout and dividing the same into upper and lower longitudinal passages, a rotary conveyer located in each of said passages, and suitable discharge-passages connected with the lower passage at points corresponding with the differently-graded portions of the screen, substantially as and for the purpose described.

3. The combination, in a combined conveyer and separator, of a spout with a graded screen fixed in the spout and dividing the same into upper and lower passages, a rotary conveyer located in each passage, partitions dividing the lower passage into compartments corresponding with the differently-graded portions of the screen, and suitable discharge-passages connected with the said compartments, substantially as described.

4. In a combined conveyer and separator, the combination, with the spout A, conveyer C, and screen B, constructed in graduated sections, of the conveyer D, having a divided blade, the slide or slides *d'*, and the spouts *d*, substantially as and for the purposes set forth.

5. In a combined conveyer and separator, the combination, with a spiral conveyer, C, of a screen, B, and brushes *c'*, attached to the conveyer-blade, substantially as and for the purposes set forth.

319,810. MACHINE FOR COILING WIRE. JOHN E. GAFFLEY, Troy, N. Y. Filed Sept. 29, 1884. (No model.)



Claim.—1. In a machine for coiling wire, the combination, with the positively-revolving feed-rolls 7 and 8, carrier-roll 10, and supporting-frame, of the horizontally-adjustable shaft 13, having an end socket or loop, 14, the vertically and axially adjustable stem 15, fitted in said loop, the arm 16 on the upper end of the stem 15, and the wire-coiling wheel 17, fitted loosely on the arm 16, substantially as described.

2. In a machine for coiling wire, the combination of the horizontally-adjustable arm 13, the vertically-adjustable stem 15, fitted therein, the inclined arm or axis 16, extending from the upper end of the stem 15, and the grooved coiling-wheel 17, fitted loosely on the axis 16, with the supporting-frame and positively-operating rolls for feeding the wire to the coiling-wheel, substantially as described.

3. In a machine for coiling wire, the combination, with feed-rolls advancing the wire, of a coiling-wheel having elliptical form against which the wire is pushed by the feed-rolls, substantially as described.

4. In a machine for coiling wire, the combination, with feed-rolls advancing the wire and a coiling-wheel having elliptical form, against which the wire is pushed by the feed-rolls, of an intermediate carrier-roll supporting said wire, substantially as described.

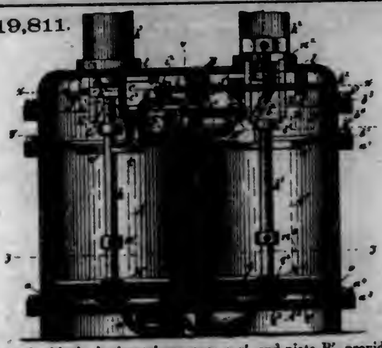
319,811. LIQUID-METER. ROGER W. GRAVES, Buffalo, N. Y. Filed Aug. 22, 1884. (No model.)

Claim.—1. The combination, in a liquid-meter, of two measuring-cylinders, A A', arranged side by side and provided with independent pistons H H' and piston-rods *h h'*, valve-chambers C C', arranged above said cylinders and provided with ports *c c'*, communicating, respectively, with the cylinders A A' above the pistons, and ports *d d'*, communicating with passages *e e'*, leading to the opposite ends of said cylinders, valves G G', arranged in the chambers C C' and provided with valve-rods *i i'*, which extend through the walls of the chambers C C', and are arranged at right angles to the piston-rods, and mechanism whereby the valve-rods are actuated by the piston-rods, substantially as set forth.

2. The combination, with the cylinders A A', provided with marginal flanges a^3 a^3 and passages *e e'*, of the bottom plate, A^3, provided with the passages *a a'*, communicating with the passages *e e'*, plate B', provided with passages *d d'*, communicating with the opposite ends of the passages *e e'*, and cover B, substantially as set forth.

3. The combination, with the cylinders A A', bottom plate, A^3,

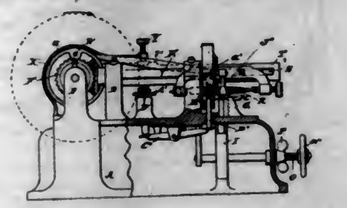
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provided with the horizontal passages *a a'*, and plate B', provided with the passages *d d'*, vertical passages *e e'*, formed on opposite sides of the cylinders and communicating at their opposite ends with the passages *a'* and *d d'*, ports *c c'*, formed in the plate B' and communicating with the cylinders A A', cover B, and chambers C C', arranged above the plate B', and communicating with the passages in the plate B', and provided with slide-valves G G', substantially as set forth.

4. The combination, with the cylinders A A', arranged side by side and provided with independent pistons and piston-rods, of the valve-chambers C C', provided with independent valves G G' and valve-rods *i i'*, arranged at right angles to the piston-rods and extending through the chambers C C', vertical slides *k*, arranged above the piston-rods and provided with inclined slots l^2, rollers *m*, secured to the valve-rods *i i'* and engaging in the slots l^2, and collars secured to the piston-rods, and adapted to engage with the slides *k* and shift the valves when the pistons have completed their stroke, substantially as set forth.

319,812. MACHINE FOR SHARPENING SAWS. JENS P. HANSEN, Odense, Denmark. Filed Mar. 30, 1885. (No model.)



Claim.—1. In a machine for sharpening saws, the herein-described saw-holding device, the same consisting of a fixed or rigid jaw, and a curved spring bearing with its curved side against the face of the said jaw, substantially as and for the purpose herein set forth.

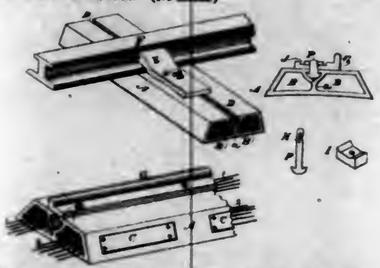
2. In a machine for sharpening saws, the combination, with the saw-holding device, consisting of a fixed jaw and a bent spring bearing against the face of the same, of the vertically-adjustable saw-rest, consisting of a vertically-sliding frame having rods fitting in recesses in the face of the holding-jaw, and mechanism for vertically adjusting and retaining the said frame, substantially as and for the purpose set forth.

3. In a machine for sharpening saws, the combination of the saw-holding clamp, a saw-rest consisting of a vertically-sliding frame having upwardly-extending rods, a longitudinal shaft having an eccentric ring or disk working in the said frame, a hand-wheel, and a thumb-nut working upon a screw-threaded portion of the said shaft, substantially as and for the purpose set forth.

4. In a machine for sharpening saws, the combination of a saw holding device, a vertically-adjustable saw-rest, a vibrating slotted arm carrying a reciprocating file-holder, a set-screw mounted in a spring-arm and arranged to bear against the upper side of a vibrating arm, a vertically-sliding rod having a set-screw supporting the said vibrating arm and resting upon one arm of a lever, a vertically-sliding rod resting upon the other arm of said lever and having a friction-roller at its upper end, and an eccentric disk arranged to bear against the latter, all arranged and operating substantially as and for the purpose herein set forth.

5. In a machine for sharpening saws, the herein-described device for feeding the saw-blade, the same comprising an arm pivoted to a revolving disk, and having at its outer end a pointer and a segmental slot, a set-screw passing through said slot into the face of the disk for the purpose of retaining the arm in any position to which it may be adjusted, and a dog or pawl pivoted to the face of the said arm, and adapted to engage the teeth of the saw-blade, substantially as herein described, for the purpose set forth.

319,813. RAILROAD-TIE. GOTTLIEB C. H. HASSKARL, Philadelphia, Pa. Filed Oct. 13, 1884. (No model.)



Claim.—1. A metallic railroad tie or sleeper provided with a central longitudinal Y-shaped partition and compartments, B B, substantially as described.

2. A metallic railroad sleeper or tie constructed with sides slanting outwardly from top to base, and provided with a central longitudinal Y-shaped partition forming the compartments B B and groove D, substantially as specified.

3. The metal railroad tie or sleeper A, formed with passages B B, central groove, D, and openings in its sides provided with removable covers C, all substantially as and for the purposes set forth.

4. The combination, with a metallic railroad sleeper or tie provided with a central longitudinal Y-shaped partition, *a*, forming the conduits B, and its bifurcation, forming the bottom and sides of the flanged groove D, of means for adjustably securing the rails to the sleepers, substantially as described.

319,814. WATCH-CASE HINGE. EDWARD F. HEFFERMAN, Lockport, N. Y., assignor to Robert John Quigley, Toronto, Canada. Filed May 17, 1884. (No model.)



Claim.—1. As an improvement in hinge-joints for watch-cases, a tube inserted within or through the case-center to furnish a bearing for the hinge-pin, substantially as and for the purpose specified.

2. As an improvement in hinge-joints for watch-cases, a case-center having inserted within one side a tube which is adapted to receive a hinge-pin, and is cut away at or near its longitudinal center to admit of the insertion of hinge lug or lugs, substantially as and for the purpose shown.

3. As an improvement in hinge-joints for watch-cases, a hinge-lug which is provided with an inwardly-extending tail that is adapted to impinge upon the case-center when the bezel is opened and limit farther motion in such direction, substantially as and for the purpose set forth.

4. The case-center A, provided with the rectangular opening a', round opening a^2, and sectional tube B, the bezel C, having attached thereto lugs c, which have the form shown, and are each provided with a tail, c^2, in combination with each other and with the pin D, substantially as and for the purpose shown and described.

319,815. SCHOOL-DESK INKSTAND. ALEXANDER H. HILL, Oskaloosa, Iowa. Filed Dec. 15, 1884. (Model.)

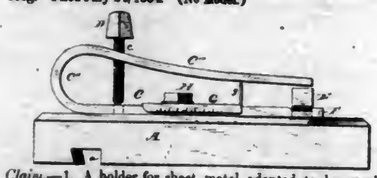


Claim.—1. The combination, with a circular frame, A, having the ears *a*, for attachment to the desk, and provided with the projection *b*, having the ears *c*, of the circular lid B, provided with the neck *e*, which pivots between the ears c and boxing, the flanges *g*, bearing against the under surface of the stopper *a'*, and a removable cap secured to the upper surface of the lid B, to hold the stopper in place, substantially as described.

2. The combination, with the circular lid B, provided with the flanges *g* and projections *h*, of the stopper *a'*, secured in the lid by the cap C, provided with the notches *i*, having beveled edges, substantially as specified.

3. The combination of the circular frame A, adapted to be secured to the desk, and the ink-well D, connected therewith, with the lid B, hinged to the circular frame A, and having the stopper *a'* secured in the lid by the detachable cap C, substantially as specified.

319,816. METAL-CUTTING TOOL. GUSTAVE HOEFER, Champoeg, Oreg. Filed July 24, 1884. (No model.)

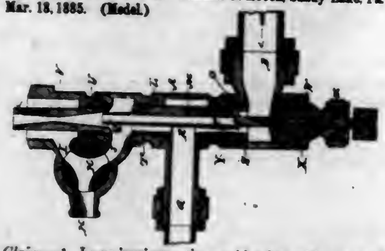


Claim.—1. A holder for sheet metal adapted to be employed in connection with the cutting means, consisting of a block or anvil and a spring and spring-holder secured to a common base, so that the end of the spring-holder will lie immediately above the outer face of the anvil, and a regulating-screw for adjusting the position of the holder toward the anvil, substantially as shown, and for the purpose specified.

2. In combination with a base having an opening, B, formed therein, a bent spring having members C C' C'' C''', a regulating-screw attached to its upper portion and bearing upon its lower side an adjustable gage, and an anvil or block, E, the parts being combined and organized substantially as set forth.

3. In a device for holding and gaging sheet metal, an anvil or block, E, a spring bent upon itself and having one end located above the anvil, a screw for adjusting the pressure of the spring upon the anvil, and an adjustable sliding gage secured between the bent portion of the spring and to one member thereof, and a wedge or equivalent for securing the spring and anvil to a base, the parts being combined and organized substantially as shown.

319,817. INSPIRATOR. PARKER P. HOGUE, Sandy Lake, Pa. Filed Mar. 18, 1885. (Model.)



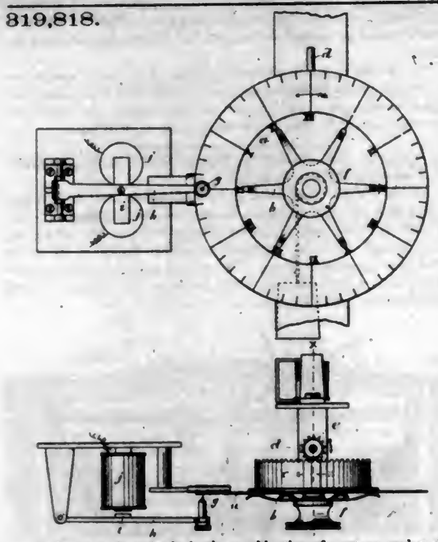
Claim.—1. In an inspirator, the combination, with a casing having steam-entrance, water-entrance, overflow, and connection with the water-space of a boiler, substantially as described, of an interiorly-arranged water tube or passage, an interiorly-arranged barrel having a central perforation terminating in a nipple entering the said water-tube, a recess registering with the water-entrance, and perforations or passages extending upwardly and downwardly from the said recess, and a valve arranged to close the lower end of the central passage of the said barrel, which is located directly above the steam-entrance, substantially as and for the purpose herein set forth.

2. In an inspirator, the combination of a casing having a steam-entrance, water-entrance, overflow, and connection with the water-space of a boiler, substantially as described, and provided with passages I and J, the barrel M, having recess R, and passages P, S, and T, the tube V, three-way cock K, valve Y, and a pivoted rod connecting the stem of the said valve with the handle of the three-way cock, all constructed, arranged, and operating substantially as and for the purpose herein set forth.

319,818. WATCHMAN'S TIME-RECORDER. ALBERT HOWARD, Boston, Mass., assignor to the E. Howard Watch and Clock Company, same place. Filed Mar. 12, 1885. (No model.)

Claim.—1. In a watchman's clock, the combination of a rotary card or dial holder, an electrically-operated stylus or marker, an arbor rotated by a time mechanism or clock, and a yielding connection, substantially as described, between the rotary holder and the arbor, whereby the arbor is permitted to operate independently of the card-holder and the card-holder is rotated independently when released until it is restored to its normal relation with the arbor, as set forth.

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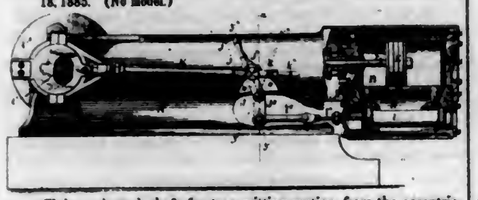


2. In a watchman's clock, the combination of a rotary card or dial holder, an electrically-operated stylus or marker, an arbor rotated by a continuously-operating time mechanism or clock, and a motor which impels the dial-holder at a rate governed by the arbor when the former is in its normal condition, and at a faster rate after a stoppage of the dial-holder until the dial-holder and arbor are restored to their proper relations, as set forth.

3. The combination of the dial or card holder composed of the contrate-wheel and clamping-spider, the electrically-operated marker or stylus, the continuously-impelled arbor *d*, having a projection, *m*, the pinion meshing with the contrate-wheel and mounted loosely on said arbor and provided with a pin adapted to bear against said projection, and means, substantially as described, for holding said pin with a yielding pressure against said projection, as set forth.

4. The combination of the dial or card holder composed of the contrate-wheel and clamping-spider, the electrically-operated marker or stylus, the continuously-impelled arbor *d*, having a projection, *m*, the pinion meshing with the contrate-wheel and mounted loosely on the arbor *d* and provided with a pin adapted to bear against the projection *m*, the arbor *r*, adapted to rotate the dial-holder, and the weight or its specified equivalent, whereby the arbor and card-holder are impelled, as set forth.

319,819. VALVE-GEAR. ALBERT L. IDE, Springfield, Ill. Filed Feb 18, 1885. (No model.)



Claim.—A rock-shaft for transmitting motion from the eccentric-rod to the valve-rod of a steam-engine, provided with projecting arms connected with the valve-rod and eccentric-rod, said arms being placed at an angle with each other, whereby the slide-valve is caused to travel with the same relative speed as the steam-piston at both ends of the stroke, substantially as described.

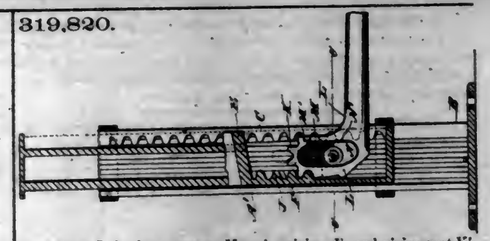
319,820. LIFTING-JACK. MILO H. INGALLS, North Granville, N. Y. Filed Apr. 9, 1885. (No model.)

Claim.—1. The combination, with a lever having a pinion on its end, of a standard in which a rack is formed, and a sliding piece in the standard, on which sliding piece a rack is also formed opposite the rack formed on the standard, substantially as herein shown and described.

2. The combination, with an angle-lever having a pinion on its end, of a standard on which a rack is formed, a sliding part in the standard also provided with a rack, and of a slide in the lever provided with a pin passing through a slot in the sliding part in the standard, substantially as herein shown and described

3. The combination, with the standard A, provided with the rack C, of the sliding part D, provided with a rack, J, and a slot, P, of the

319,820.



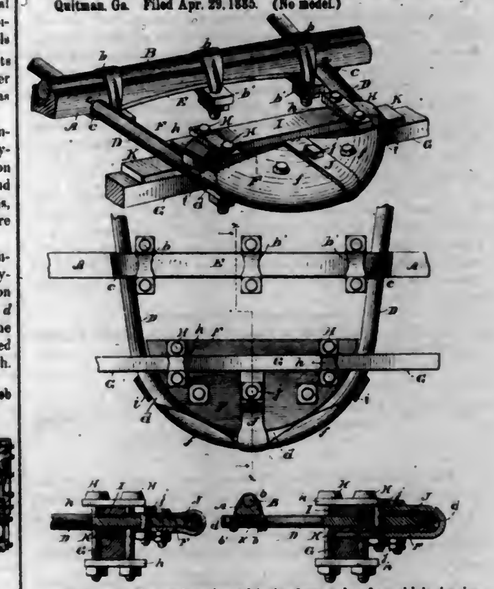
angle-lever L, having a groove, M, and a pinion, K, and pinion part K', having a straight edge on its end, the slide N in the groove M, and of the pin O, projecting from the slide N through the slot P, substantially as herein shown and described.

4. The combination, with the standard A, having the rack C, of the sliding part D, having a rack, J, and a slot, P, the angle-lever L, having a groove, M, the pinion K K' on the lever L, the slide N, the pin O, projecting from the same through the slot P, and the bands G and H, substantially as herein shown and described.

5. The lever L, having a pinion, K, part of which projects from the side of the lever and has a straight edge, substantially as herein shown and described.

6. The angle-lever L, having the groove M in its short arm and the pinion K on the end, which pinion has part projecting from the side of the lever and provided with a straight edge, substantially as herein shown and described.

319,821. RUNNING-GEAR FOR VEHICLES. ALLEN G. JOHNSON, Quitman, Ga. Filed Apr. 29, 1885. (No model.)



Claim.—1. In combination with the front axle of a vehicle, having a segmental plate secured thereto, of a reach attached to and extending beyond the head-block and having its end conform to the curvature of the plate, and a strap or straps, substantially as described, attached to the plate and bent over the curved end of the reach, as and for the purposes set forth.

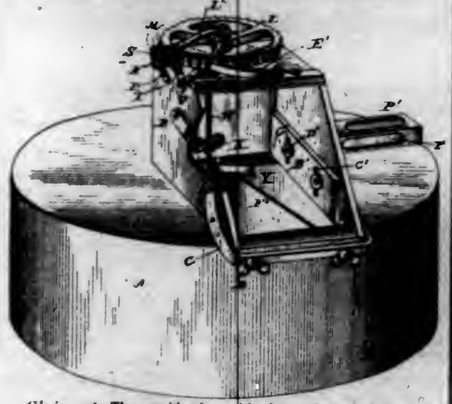
2. The combination of an axle, a segmental plate attached thereto, a reach extending beyond and curving around said plate and resting on a re-enforcement of the axle, and a bar secured to the upper side of the plate, with its ends passing over the curved end of the reach, substantially as shown, and for the purpose specified.

3. The combination, with a head-block notched on its under side, and a reach seated within said notches, its end curving around a segmental plate on the axle, of a plate-bar secured to the under side of the head-block, with its ends bent to partially-embrace the reach, for the purposes described

4. The combination, with a fifth-wheel device consisting of a curved reach and axle-plate, substantially as hereinbefore set forth, of a head-block bound upon the arms of the reach in rear of the axle and supplemented by a metal bar, to which the body-springs are secured, substantially as specified.

5. The combination, in a vehicle running-gear, of the side springs and a head-block, consisting of a cross-bar, A, supplemented by a metal bar, B, and a clamping-plate, E, with a fifth-wheel device consisting of a curved reach, D *d*, and a seat-plate, F, therefor, clamped to the axle, substantially as described, for the purpose specified.

319,822. AUTOMATIC GRAIN MEASURE AND REGISTER. PETER KAUFMANN, Hudson, Ill. Filed Dec. 17, 1884. (No model.)



Claim.—1. The combination, with the vertical shaft, its radial blades, and automatically-acting mechanism, of the adjustable sweep secured to the interior of the hood at one side, substantially as and for the purposes set forth.

2. The combination, with the shaft having radial blades adapted to rotate in the measuring-casing, of the intermittent actuating mechanism arranged to reciprocate idly by means of a tension-spring, and to rotate the shaft automatically by the obstruction of the grain, the sweep arranged above the blades, and the registering-wheels and mechanism for actuating the same, substantially as and for the purposes set forth.

3. The combination, with the vertical shaft E and its ratchet-wheel, of the actuating levers and pawl and the mechanism whereby said levers and pawl are operated to oscillate idly while the spaces between the radial blades are being charged with grain, and for throwing the said levers and pawl into engagement when the blades are to be advanced, and the spring-pawl E', substantially as described, and for the purposes set forth.

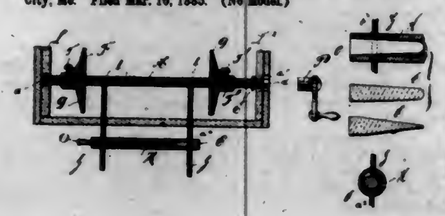
319,823. FENCE-POST. GEORGE W. KILER and CHARLES M. KILER, Indianapolis, Ind. Filed Jan. 16, 1885. (No model.)



Claim.—1. An iron fence-post composed of the rod *p*, its lower end bent and threaded to receive the nut *n*, the rod *p'*, provided with a hook on its lower end, the two rods united at the top, as shown, the clamp *c*, the base *b*, having two or more wings, one of which has the slot *s'* and the one opposite it the hole *h*, all combined substantially as described.

2. A post formed of an iron rod, one part thereof, *p*, having its end bent substantially at right angles to it, another part, *p'*, having its lower end formed into a hook, the base *b*, having wings on opposite sides, one of which is adapted to receive the bent end of the rod *p* in the slot *s'*, with nut *n*, for fastening the same, the other side of the base having the hole *h*, for hinging the hook of the rod *p'*, all combined substantially as described.

319,824. FIRE-ESCAPE LADDER. THEODORE A. KIENELL, Kansas City, Mo. Filed Mar. 10, 1885. (No model.)

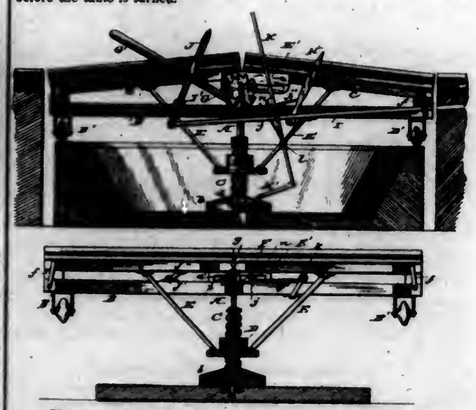


Claim.—1. A fire-escape ladder composed of tubular rounds secured to cables by wedges driven into the ends of the rounds, as described.

2. The herein-described fire-escape ladder, consisting of cables passing through rounds having longitudinal openings in the ends thereof, and plugs in said openings, which press the cables against the interior surface of the rounds, for the purpose substantially as described.

319,825. RAILROAD TURN-TABLE. JOHN A. KNEEDLER, Grant, Pa. Filed July 25, 1884. (No model.)

Brief.—A turn-table having pivoted rail-sections, connected at their meeting ends, mounted thereon, and means for elevating the inner meeting ends, and which rail-sections are connected to a tabular nut moving upon a central screw-post, by which the table is turned by the weight of the car or locomotive thereon. The radially-grooved base of the screw is engaged by a lever-pawl to turn it to rest on the bottom of the pit before the table is turned.



Claim.—1. In a turn-table, the combination, with the pivoted rail-sections having means for oppositely inclining the same, of a central pivot, a threaded sleeve upon the pivot, and a nut connected to the movable ends of the rail-sections, as and for the purpose shown and set forth.

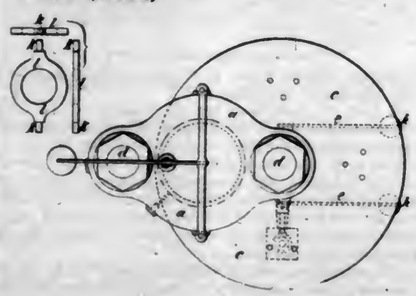
2. In a turn-table, the pivoted stringers and rail-sections having their meeting ends pivotally connected and having interposed rolls seated in the stringers beneath the rail-flanges, as and for the purpose shown and set forth.

3. In a turn-table, the pivoted rail-sections having their inner meeting ends connected by pivoted plates having slots within which is disposed a shaft or bolt with its ends adapted to be engaged by eccentrics mounted upon a common shaft and actuated by a lever, as and for the purpose shown and set forth.

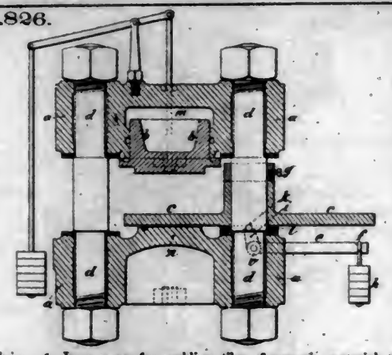
4. In a turn-table, the pivoted rail-sections with their inner meeting ends connected by slotted plates which receive a bolt or shaft engaging notched eccentrics fixed to a common shaft and operated by a lever, said bolt also being adapted to be withdrawn and moved from said eccentrics by socketed sliding plates actuated by a lever, as and for the purpose shown and set forth.

5. In a turn-table, the combination, with the grooved foot of the screw resting upon the table-support, of the engaging lever-pawl, as and for the purpose shown and set forth.

319,826. PRESS FOR MOLDING ORNAMENTAL TILES OR OTHER ARTICLES OF CEMENT. JEAN LARMANJAT, Paris, France. Filed Apr. 21, 1885. (No model.)



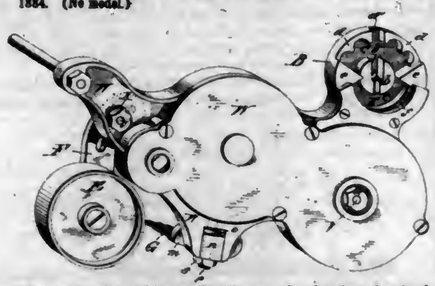
319,826.



Claim.—1. In a press for molding tiles of ceramic material, the method of relieving the mold-table from obstruction by a rising movement, as described.

2. The means of relieving the mold-table shown in the drawings, consisting of a collar, *l*, having pivots *k*, and elbow-levers *i o e*, with counter-weights, as described.

319,827. LAWN-MOWER. WALDO A. LOUD, Springfield, Mass., assignor to the Blair Manufacturing Company, same place. Filed July 28, 1884. (No model.)



Claim.—1. The within-described improved socket-fastening for the handles of lawn-mowers, consisting of a disk, *c*, provided upon the upper part of its perimeter with a socket-rim, *d*, upon the lower part of its perimeter with a socket, *f*, having an opening, *d''*, in its socket-rim, and a centrally-disposed lug, *b*, having an opening, *b'*, in prolongation of opening *d''*, and bisecting lug *b*, having a reduced portion, *b'''*, and one prong, D, of a forked handle having upon one side three aligned studs and an end projecting therefrom, and adapted, substantially as shown, to have its end rest in the socket *f*, its stud side bear upon the faces of the stud *b* and rim *d*, its stud *g* have a journal in lug *b*, its stud *g'* bear between the opposite walls of socket *f* and lug *b*, and adapted to have its stud *g''* move in the space between the rim *d* and lug *b*, and having means for moving said stud into a socket in rim *d* and for clamping it therein to the prong D.

2. The combination, substantially as shown, of a socket-piece, B, consisting of a socket-rim, *d*, socket *f*, opposite abutments, *e e*, separating rim *d* and socket *f*, and forming opposite bearing-surfaces at the same time for opposite edges of a fork-prong, D, journaled between said abutments, and arranged to have its end bear upon either of them, and a two-part lug, *b*, with the prong D of a handle, C, having the studs *g'*, *g*, and *g''* relatively arranged, as shown, and having means for moving stud *g''* and clamping it to the prong D and in a socket of the rim *d*.

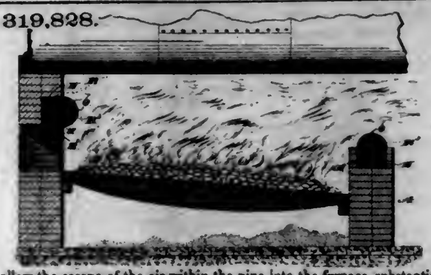
3. The within-described improved supporting-wheels and axle for lawn-mowers, consisting of a journal-rod, V, a tube, I, in two sections, and three wheels, H, provided with journal-bearings for rod V, and with screw-hubs adapted to screw into the ends of said tube-sections, all arranged, substantially as shown, to have the rod V extend through the wheel-hubs and through the center of the tubes, and to have the tubes screw over the wheel-hubs and against the wheel sides, as and for the purpose set forth.

319,828. HOT-AIR FEEDER FOR FURNACES. JAMES W. LOVERIDGE, Jersey City, N. J. Filed Oct. 28, 1884. (No model.)

Claim.—1. An air heating and feeding pipe for furnaces, made of material containing graphite and provided with a series of perforations through its wall to allow the escape of the air from within the pipe into the furnace, substantially as and for the purpose described.

2. An air heating and feeding pipe for furnaces, made of graphite and clay, and provided with a series of perforations through its wall to

319,828.



allow the escape of the air within the pipe into the furnace, substantially as and for the purpose described.

3. In an air heating and feeding apparatus, the pipe made of a mixture of graphite and clay placed within the furnace, provided with a series of small air-discharging openings and adapted to receive air from the outside of the furnace, substantially as shown and described.

4. The air heating and feeding apparatus for furnaces, consisting of the perforated pipe made of clay and graphite placed upon the bridge-wall and adapted to receive air from outside the furnace, substantially as and for the purpose described.

5. The perforated pipe for air heaters and feeders for furnaces, composed of clay and graphite made in sections, each formed on one end with an annular lip around its bore and on the other with a corresponding annular recess, so that when the sections are put together one continuous pipe will be formed, substantially as and for the purpose described.

6. The pipe for air heaters and feeders for furnaces, composed of graphite and clay and made in sections, each one of which is provided on one end with an annular lip and on the other with a corresponding recess, so that when the sections are put together one continuous pipe will be formed, and with longitudinal openings or passages outside of the main boxes of the sections through which metal rods can be passed throughout the length of the pipe to strengthen the pipe or hold the sections together, substantially as and for the purpose described.

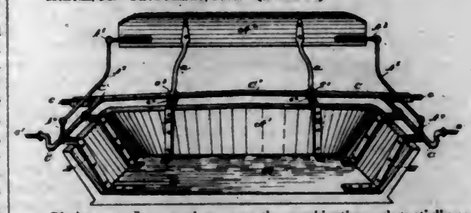
319,829. ARTIFICIAL DENTURE. JAS. E. LOW, Chicago, Ill. Filed July 16, 1884. (No model.)



Claim.—1. A tooth for use in the construction of artificial dentures, comprising a metal base or socket adapted for attachment by means of solder or otherwise to other similar bases or to a metallic support or supports, and a porcelain body or veneer, said metal base or socket and porcelain body or veneer being provided with interlocking recesses and projections and united by cement, substantially as and for the purpose set forth.

2. A bridge-denture consisting of two or more separate metal bases or sockets soldered or otherwise secured to each other, and porcelain bodies or veneers secured to the bases or sockets, substantially as and for the purpose set forth.

319,830. SHIFTING-RAIL FOR CARRIAGES. HENRY MANKEL, Jr., McKean, Pa. Filed Jan. 23, 1885. (No model.)

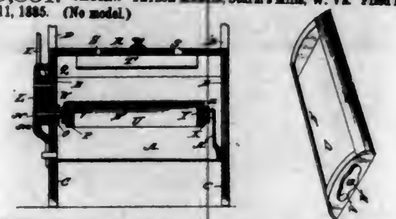


Claim.—1. In a carriage-seat, the combination, substantially as shown, of the sectional rail C C C' and back-strip supports *a a*, adapted, as shown, to form the bolts which secure the sections of rail together.

2. In a carriage-seat, the combination, substantially as shown, of the sectional shifting-rail C C C', the back-strip supports *a a*, adapted, as shown, to form the bolts which secure the sections of rail together, and the back-strip braces consisting of studs A^3 A^3 A^4-A^4 and the rods A^5 A^5, connecting the said studs.

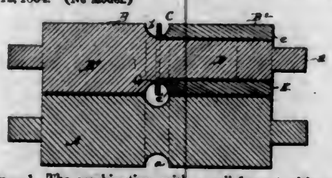
3. In a carriage-seat, the combination, with the back-strip A^2 and the shifting-rail, of the studs A^3 A^3 and A^4 A^4, and the arm-braces A^5, connecting said studs, as described.

319,831. CHURN. TAYLOR MARTIN, Sturm's Mills, W. Va. Filed Mar. 11, 1885. (No model.)



Claim.—In a horizontal churn, the combination of the cylindrical churn-body having a bearing in one end piece, a spring secured at its lower end to the end piece of the churn, at the bottom of the same, and provided with an inwardly-projecting pivot at its upper end, central to the churn, a dasher composed of two end pieces formed in the shape of the halves of an ellipse and two dasher-blades forming parts of a cylinder-surface and secured at their ends to the curved ends of the end pieces of the dasher, the said end pieces having castings, one having a recess for the reception of the pivot end the other having a polygonal recess, a short shaft fitting with its inner end into the polygonal recess at the end piece of the dasher and journaled in the bearing in the end piece of the churn-body, and means, substantially as shown, for oscillating the said shaft, as and for the purpose shown and set forth.

319,832. ROLL FOR METAL RODS. WILLIAM A. MCCOOL, Perryville, assignor of one-half to Paul Oliver, Ashland County, Ohio. Filed May 12, 1884. (No model.)



Claim.—1. The combination, with a roll formed with an annular depression, of a companion roll having a corresponding depression and formed of two sections, and provided with a removable former, substantially as set forth.

2. The combination, with the roll A, formed with an annular depression, *a*, of a two-part roll consisting of the shouldered portion B', formed with a threaded core, a shoulder and an annular depression, and the threaded sleeve B², formed at its inner end with an annular groove to complete the depression *b*, substantially as set forth.

319,833. SIGN. WILLIAM A. MCCOOL, Perryville, assignor of one-half to Paul Oliver, Ashland County, Ohio. Filed Oct. 9, 1884. (No model.)



Claim.—1. In a sign, the combination, with grooved rods between which the sign-letters are secured, of end brackets formed with arms for embracing said rods, substantially as set forth.

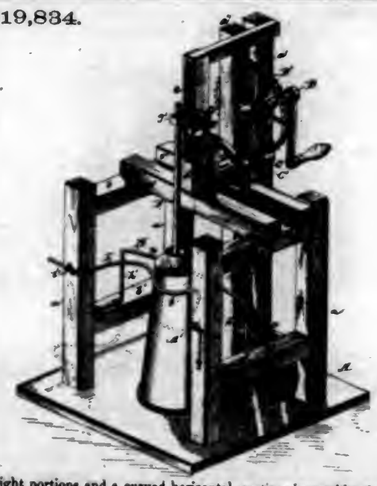
2. The combination, with parallel rods and sign-letters, of ornamental end brackets formed with openings, as described, and adapted to secure said rods against both lengthwise and lateral movement, substantially as set forth.

3. In a sign, the combination, with grooved rods and letters secured thereby, of end brackets formed with lugs to enter the grooves of the rods, lugs against which the rods bear, and arms adapted to be bent around the rods, substantially as set forth.

319,834. CHURN-HOLDING DEVICE. HENRY MILBURN, Jr., Talcott, W. Va. Filed Nov. 13, 1884. (No model.)

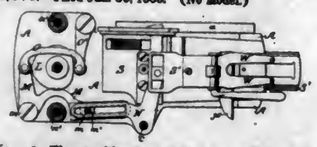
Claim.—As a means for holding a churn or other receptacle in position, a metallic bar rigidly attached to a frame and provided with

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upright portions and a curved horizontal portion, in combination with a metallic bar, I, pivoted to the frame at one end and provided centrally with a curved portion, and at its opposite end with a handle adapted to engage with a hook attached to the same, so as to hold said bar against the churn-body, substantially as shown, and for the purpose set forth.

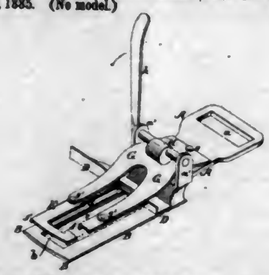
319,835. BUTTON-HOLE-SEWING MECHANISM. DANIEL MILLS, Philadelphia, Pa., assignor to Mills Buttonhole Attachment Company, Camden, N. J. Filed Jan. 30, 1885. (No model.)



Claim.—1. The combination of the clamp-slide of a button-hole-sewing mechanism and a feed-cam for imparting intermittent feed-motion thereto with levers for transmitting motion from the cam to the slide and an adjustable connecting-pin therefor, the said levers having coinciding slots when the slide is at the limit of its outward movement, substantially as set forth.

2. The combination of the clamp-slide of a button-hole-sewing mechanism having a guide, *w*, and a cam for imparting intermittent feed-motion to the slide with levers for transmitting motion from the cam to the slide and an adjustable connecting-pin therefor, the said levers having coinciding slots when the slide is at the limit of its outward movement, substantially as set forth.

319,836. BUTTON-HOLE CLAMP. DANIEL MILLS, Philadelphia, Pa., assignor to Mills Buttonhole Attachment Company, Camden, N. J. Filed Jan. 30, 1885. (No model.)

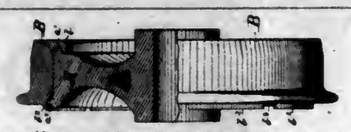


Claim.—A cloth-clamp having slotted jaws, one of said jaws being provided with smooth flanges to enter the slot of the other jaw, and also serrated flanges or teeth along its outer edges, substantially as set forth.

319,837. CAR-WHEEL. JAMES MUNTON, Chicago, Ill., assignor to the Munton Car Wheel Company, same place. Filed Nov. 24, 1884. (No model.)

Claim.—1. The combination of center A, provided with projecting rims *a'* and *a²*, annular groove *a⁴*, and recesses *a³*, with tire B, having annular grooves *b⁴* and *b⁵*, and rim *b⁶*, interlocking with said rims and

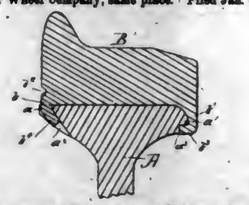
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grooves on said center, and provided with lips *b⁶*, fitting in said recesses *a³*, substantially as described.

2. The combination of cast-iron center A with steel tire B, said center and tire being provided with interlocking annular rims and grooves, said center A having also recesses *a³*, and said tire B having a projecting web, *b⁷*, portions of which are turned down into said recesses *a³*, substantially as specified.

319,838. CAR-WHEEL. JAMES MUNTON, Maywood, Ill., assignor to the Munton Car Wheel Company, same place. Filed Jan. 5, 1885. (No model.)

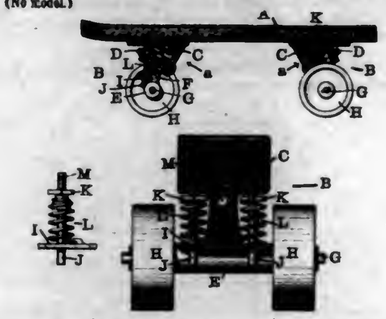


Claim.—1. The car-wheel consisting of the center having two projecting edges, one of which is irregular or recessed, and a steel tire having webs fitting over the edges of said center, portions of one of said webs being bent down into said recessed edge, substantially as specified.

2. The center A, having edges *a* and *a'*, said edge *a* provided with recesses *a³*, in combination with tire B, having grooved web *b'*, and web *b*, furnished with groove *b⁷*, portions of said web *b* being turned down into said recesses, substantially as specified.

3. The combination, with a center having a recessed edge, of a tire fitting on the same and having lips or projecting portions turned down into said recessed edge, substantially as specified.

319,839. ROLLER-SKATE. IRENAEUS P. NELSON, Hamilton, Ohio, assignor of one-half to Napoleon B. Tubbs, same place. Filed Feb. 24, 1885. (No model.)



Claim.—1. In a roller-skate, a hanger below the foot-piece of the skate, a wheeled housing attached thereto by a rocker-pin, a pair of springs disposed one on each side of the rocker-pin and serving to maintain the normal relative positions of the foot-piece and the housing, and rods and adjusting-nuts or their mechanical equivalents for adjusting said springs, combined substantially as and for the purpose set forth.

2. In a roller-skate, a hanger below the foot-piece of the skate, a wheeled housing attached thereto by a rocker-pin, a pair of rods engaging the hanger and projecting downward through footing-shoulders upon the housing, and springs surrounding said rods, combined substantially as and for the purpose set forth.

3. In a roller-skate, a hanger below the foot-piece of the skate, a wheeled housing attached thereto by a rocker-pin, a pair of rods engaging the hanger, and footing-shoulders upon the housings, springs surrounding the rods, and adjusting-nuts upon the rods above the springs, combined substantially as and for the purpose set forth.

319,840. NECKTIE ATTACHMENT. ISAAC NOAR, New York, N. Y. Filed Apr. 15, 1885. (No model.)

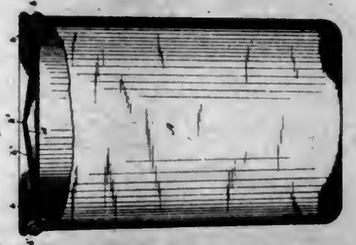


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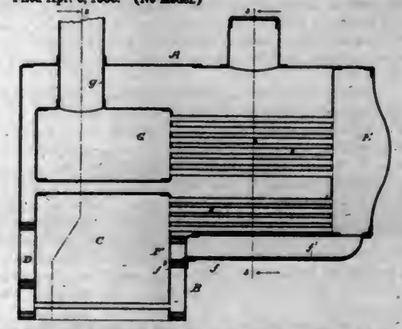
Claim.—The herein-described buckle for neckbands of ties and scarfs, comprising the loop D, provided with the stabbing-pin, the guide-loop having the bend *d* at its upper end, and the upwardly-extending collar-engaging arm rising from the base of the said guide-loop, substantially as specified.

319,841. JAR FOR BUTTER, &c. DANIEL W. NORRIS, Elgin, Ill. Filed Mar. 23, 1885. (No model.)



Claim.—The combination, with the jar externally screw-threaded at its mouth, of a removable screw-threaded sheet-metal top or cap having a screw-threaded outer flange and a plain inner flange between which the edge of the mouth of the jar is confined, and having its central portion made conical, with the concavity on the inner side, and provided with a perforation at the apex of the concavity adapted to be closed by a drop of solder, substantially as described, and for the purpose specified.

319,842. STEAM-BOILER. PATRICK O'CONNOR, Mount Savage, Md. Filed Apr. 6, 1885. (No model.)



Claim.—1. In a steam-boiler, the combination, with a fire-box, a set of flues passing through the boiler, and an auxiliary passage extending from said fire-box below the boiler to the back connection, of a series of return-flues, a smoke-box located above the fire-box and within the boiler, and a connection between said smoke-box and the shell, substantially as described.

2. In a steam-boiler, the combination, with the shell A, having water-leg B, of the fire-box C, the direct tubes B, and passage F, and the return-flues *e*, smoke-box G, and suitable outlet, substantially as shown and described.

3. In a steam-boiler, the combination, with the shell A, of the fire-box C, having arched crown-sheet C', direct flues *d*, and auxiliary passage F, the return-flues *e*, and the smoke-box G, the lower portion of which corresponds in area to the crown-sheet C', the entire structure being below the water-line, substantially as described.

319,843. SIGNAL-TORCH. HENRY J. PAIN, 121 Walworth Road, County of Surrey, England. Filed Aug. 7, 1884. (No model.)

Claim.—1. The combination of the cylindrical casing with the reversible cylindrical torch having the fuse at one end and the shoulder

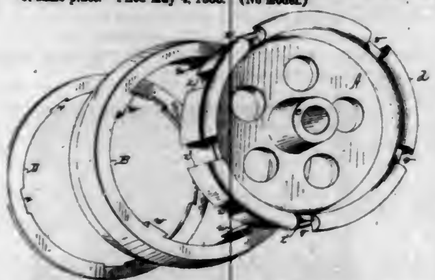
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intermediate of the ends for supporting the torch in reverse positions on one end of the casing, substantially as shown and described.

2. The cylindrical casing having one end provided with a fuse-igniting surface and the protecting-cap fitted on such end of the casing, in combination with the cylindrical torch having the fuse at one end and the shoulder intermediate of the ends, substantially as shown and described, for the purpose set forth.

319,844. TRUCK-WHEEL. ANDREW PARTRIDGE, Springfield, Mass., assignor of five-eighths to Henry K. Wilkins and Henry A. Chapin, both of same place. Filed May 4, 1885. (No model.)



Claim.—1. In an elastic-tired truck or similar wheel, a wheel having a flange on one edge of its rim projecting outwardly at right angles to the face of said rim, a series of transverse grooves in the latter, a portion of which extend through said flange, an elastic tire having transverse projections on its inner side to enter certain of said grooves in the face of the wheel, a ring to bear against one edge of the tire, and a series of keys passing between the wheel-rim and the tire having their heads bearing against said ring and their ends engaged with the opposite edge of the wheel-rim, all combined substantially as set forth.

2. In an elastic-tired truck or similar wheel, a wheel having a series of transverse grooves in its rim or face, combined with an elastic tire having transverse projections on its inner side to enter certain of said grooves in the face of the wheel, a ring bearing against each edge of the tire, and a series of keys passing between the wheel-rim and the tire having their heads bearing against the sides of the said rings and their ends engaged with the edges of the wheel-rim, substantially as set forth.

3. In an elastic-tired truck or similar wheel, a wheel having a series of transverse grooves in its rim or face, combined with an elastic tire, a ring bearing against each edge of the latter, and a series of keys passing between the wheel-rim and the tire having their heads bearing against the sides of said rings and their ends engaged with the edges of the wheel-rim, substantially as set forth.

4. In an elastic-tired truck or similar wheel, a wheel having a series of transverse grooves in its rim or face, combined with an elastic tire having transverse projections on its inner side to enter certain of said grooves in the face of the wheel, and a series of keys passing between the wheel-rim and the tire having their heads bearing against the edges of the latter and their ends engaged with the edges of the wheel-rim, substantially as set forth.

5. In an elastic-tired truck or similar wheel, a wheel having a series of transverse grooves in its rim or face whose sides are undercut, combined with an elastic tire having transverse projections of dovetail form on its inner side to enter said grooves in the face of the wheel, and a series of keys passing between the wheel-rim and the tire having their heads bearing against the edges of the latter and their ends engaged with the edges of the wheel-rim, substantially as set forth.

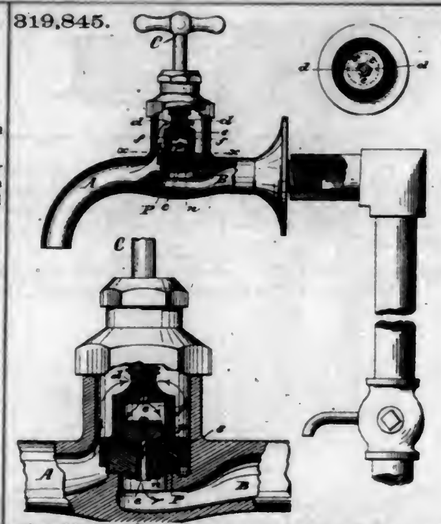
319,845. FAUCET. EDWARD G. PFAU and CHARLES PFAU, Cincinnati, Ohio. Filed Dec. 3, 1884. (No model.)

Claim.—1. The combination, with the partitioned body of a faucet and a valve-plug for closing the same provided with a cylindrical chamber communicating with the two chambers of the faucet, of a piston loosely mounted within said cylindrical chamber, as set forth.

2. The combination, with the partitioned body of a faucet and a valve-plug for closing the same provided with a cylindrical chamber communicating at its upper end with the outlet-port of the faucet by lateral passages and at its lower end with the inlet-port by a tube, of a piston loosely mounted in said cylindrical chamber, as shown and described.

3. In a faucet, the combination, with the partitioned body, of a valve-plug therefor provided with a chamber at its lower end communi-

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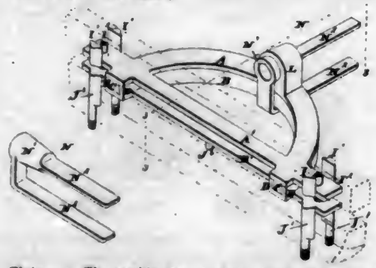


cating with the upper and lower ducts of the faucet and a valve or piston of less diameter than the chamber and placed loosely therein, as and for the purpose set forth.

4. In a faucet, the combination of a partitioned body, a valve or gate for controlling the discharge of water therefrom, said valve or gate carrying at its lower end a chamber, *f*, communicating with the discharge-port by openings *d e*, and with the supply-port by a tube, *c*, and a valve, *p*, of less diameter than and seated in the chamber, and adapted to prevent the egress of water and allow the ingress of air to the chamber, as and for the purpose set forth.

5. The herein-described faucet, consisting of the partitioned body and a valve or plug for closing the same, chamber *f*, provided with openings *d e*, tube *c*, having slot *s*, packing P, and nut *n*, and the valve *p*, of less diameter than the chamber *f*, and carried thereby, as and for the purpose set forth.

319,846. FIFTH-WHEEL. MICHAEL A. PIGOTT, St. Louis, Mo. Filed Nov. 26, 1884. (No model.)



Claim.—1. The combination of a fifth-wheel having a lug or projection, L, formed with a tapering socket, and the perch-clip N, having conical body N', fitting the socket, and arms N^2, the clip being free to turn in the socket.

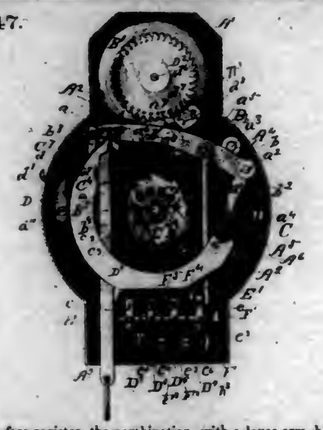
2. The combination of a fifth-wheel having a lug or projection formed with a tapering socket, and the perch-clip formed integral with conical body N', fitting the socket, and arms N^2 N^2 extending above and beneath the fifth-wheel.

3. The combination of the lower member, upper member having a rib working in the lower member and formed with a projection, L, having a tapering socket, a perch-clip, N, having conical body N', fitting the socket, and arms N^2 N^2, above and beneath the members, and a perch secured between the arms in advance of the members.

319,847. FARE-REGISTER. CHARLES E. PRATT, Chicago, Ill., assignor of one-half to Hugh Cunningham, same place. Filed Apr. 9, 1884. (No model.)

Claim.—1. In a fare-register, the combination of a plate having a ratchet-bar and post, B^4, a lever-arm, an operating-handle attached to one end of said lever-arm, and a locking-pawl pivoted to the lever-arm and extending downwardly in front of the ratchet-bar and having its upper end wider than its lower end, substantially as described.

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2. In a fare-register, the combination, with a lever-arm having an operating-handle and a feed-dog, of a unit-dial, B^4, having loose sleeve C, mounted on a shaft and provided with a ratchet-wheel, C', having adjustable pin B^4, a dial, B^3, having loose sleeve C^2, inclosing sleeve C and provided with perforations b^3, and a step, b^2, for operating the pin b^4, substantially as described.

3. In a fare-register, the combination, with the indicating-dials B^2 and B^3, respectively having posts d^4 and d^3, of a ratchet-wheel having shifting-hand C^3, means for locking it against a back movement, and a plug or cap, C^4, for turning it, substantially as set forth.

4. In a fare-register, the combination, with the indicating-dials B^2 and B^3, having, respectively, posts d^4 and d^3, of a shifting-hand, C^3, an arm, C', and a rising step, d^2, for raising said shifting-arm above the posts, substantially as described.

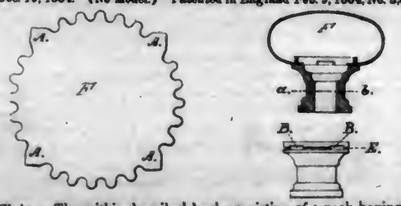
5. In a fare-register, the combination, with the hand C^3, of the arm C', provided with the hook end c^2, the bracket D, and rod d^7, whereby said arm may be drawn back so as to release said hand from engagement with the hook end c^2, substantially as and for the purpose described.

6. In a fare-register, the combination of a lever-arm, A^4, the bracket D, having the locking-arm C', inwardly-curved edge d, and spring d^3, and the hand C^3, substantially as described.

7. In a fare-register, the combination of a registering-dial having a post upon its face, a toothed trip-wheel, D^2, a pinion, d^7, interposed between said dial and wheel and meshing or gearing with said wheel, and a hand, C^3, pivoted in front of the dial and of sufficient length to strike the lowermost cog of pinion d^7, substantially as described.

8. In a fare-register, the combination of the lever-bar having a push-finger, a ratchet-wheel, e^2, mounted on the shaft E, the unit-wheel D^4, the pin F, having collar f' and spring f, a toothed wheel e^3, and the beveled post F', substantially as described, whereby said pin is forced endwise into engagement with said wheel e^3 and rotates the same one notch in each revolution of the unit-disk, and is automatically returned to its normal position when released from contact with said post.

319,848. KNOB. CHARLES PRIESTLAND, Birmingham, England. Filed Dec. 19, 1884. (No model.) Patented in England Feb. 9, 1884, No. 3,004.



Claim.—The within-described knob consisting of a neck having its upper end formed with slots B, extending through the same and having side and top walls, and a plate, F, formed with ears A, and of the desired form, with said ears passing through the slots in the neck and having bearings against the side and top walls of the slots, substantially as described.

319,849. SHUTTLE-SLIDE FOR SEWING-MACHINES. HANS REISS, Jersey City, N. J., assignor to the Singer Manufacturing Company of New Jersey. Filed Feb. 10, 1885. (No model.)

Brief.—A rib projects downward from the bed-plate, and is provided with a vertical groove, in which a tongue on the shuttle-carrier slide projects, which latter is held in position by a plate secured by screws to the bed-plate.

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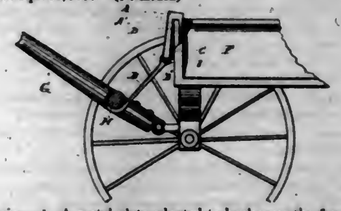
Claim.—The combination, with a sewing-machine bed-plate having a grooved rib on its under side, of a shuttle-slide having a tongue on its upper side adapted to work in the groove of said rib, and a removable supporting-plate below said slide for holding the latter in place, substantially as set forth.

319,850. SHOE. ARTHUR S. RICHARDSON, Reading, Mass. Filed Mar. 19, 1885. (No model.)



Claim.—A shoe having the upper, inner sole, and outer sole united by machine-stitches, the chain portions of which are on the inside and the single-thread portions on the outside of the sole, as set forth.

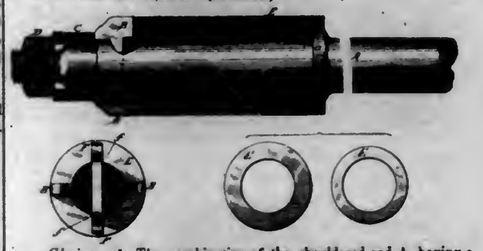
319,851. SHAFT-SUPPORT. JOHN F. RICHARDSON, Boonville, Ind. Filed Apr. 30, 1885. (No model.)



Claim.—1. A metal plate adapted to hook over the front part of a wagon-body, provided with a bolt whereby it may be securely attached thereto, and a spring adapted to bear against and to maintain at different angles to said plate a metal hook pivoted thereto, for the purposes set forth.

2. The plate A, having an opening, A', a bolt, D, slot *a*, and spring C, secured thereto, in combination with a hook, B, having a notch, *b*, the said hook being pivoted to the plate A, in the manner herein described, and for the purposes set forth.

319,852. REAMER. JOSEPH RIDDELL and CONRAD C. TROUT, Sharon, Pa. Filed Mar. 16, 1885. (No model.)



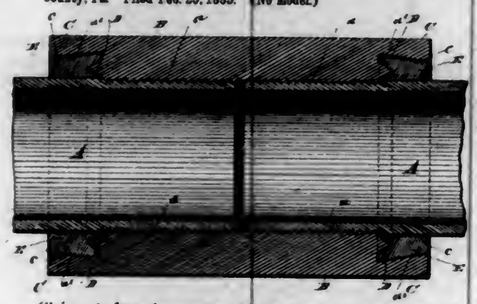
Claim.—1. The combination of the shouldered rod A, having a transverse slot, *a'*, and the guide E, of the cutter B, centrally depressed, and means for securing the same within the slot, as and for the purpose set forth.

2. The combination, with a rod, A, transversely slotted, of a centrally-depressed cutter seated within said slot, the sides of the depression embracing the sides of the bar, a guide-sleeve, and means for holding said cutter in place.

3. The combination, with the bar A, having the annular shoulder *a* and transverse slot *a'*, of the revoluble guide-sleeve E, centrally-depressed cutter B, collar C, and the nut D, the parts being constructed, arranged, and operating substantially as shown and described.

4. A metal-reaming device consisting of the bar A, having the right-angled communicating slots *a' f*, the shoulder *a*, and the screw-threaded end, the revoluble sleeve E, having the shoulder-receiving recess to protect the interior sleeve-bearing, the cutters, their clamping-collar C, and the screw-nut D, all made and arranged as shown and described.

319,853. PIPE-COUPLING. WALTER G. ROBB, Scott, Allegheny County, Pa. Filed Feb. 25, 1885. (No model.)



Claim.—1. In a pipe-coupling, the combination, with the threaded ends of the pipe-sections, of an interiorly-threaded sleeve whose ends are recessed to form beveled seats to receive calking, and annular wedge-shaped flanges D, substantially as set forth.

2. In a pipe-coupling, the combination, with the threaded ends of the pipe-section, of a sleeve into which said ends are screwed, said sleeve having end extensions interiorly beveled, and being formed with a wedge-shaped flange, so that the inner face of the calking of the coupling will be spread to tighten the joint when driven to place, substantially as set forth.

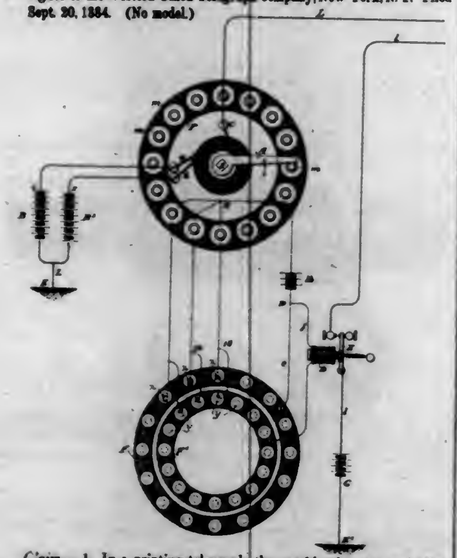
3. The combination, with the pipe ends, of a screw-threaded sleeve formed with end extensions and wedge-shaped flanges, and calking driven into the spaces between the pipes and sleeve-extensions, said calking being separated at its inner edge by contact with the wedge-flanges and driven securely into place, substantially as set forth.

319,854. COMPOSITION FOR SOAP. EUGEN SCHAAL, Stuttgart, Würtemberg, Germany. Filed Mar. 17, 1885. (Specimens.)

Claim.—1. As an ingredient in the composition of soap, the petrol acid herein specified.

2. A soap composed of the petrol acid herein specified and a saponifying alkali, substantially as and for the purpose described.

319,855. PRINTING-TELEGRAPH. GEORGE B. SCOTT, Brooklyn, assignor to the Western Union Telegraph Company, New York, N. Y. Filed Sept. 20, 1884. (No model.)



Claim.—1. In a printing-telegraph, the combination of a main line embracing a printing and an escapement electro-magnet, substantially as described, two type-wheels, a second main line, apparatus whereby said main line is normally kept open and is only closed at or before the time of printing from one of the two type-wheels, and an electro-magnet in said second main line.

2. In a printing-telegraph, the combination of two type-wheels, a laterally-shifting press-roller, an electro-magnet, and an armature-lever for controlling the lateral position of said press-roller, and a main line connected with said electro-magnet, which is normally open, and means for closing the same during the printing of characters from one of the two type-wheels.

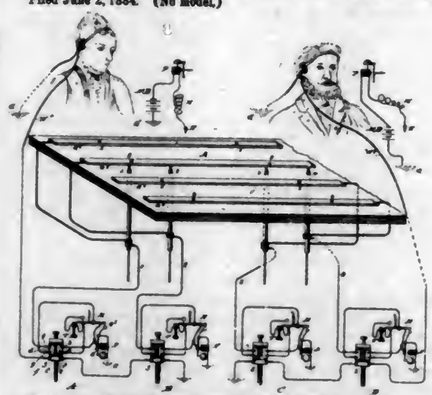
3. The combination, in a printing-telegraph, of a series of letter-keys, a series of figure-keys, local circuits therefor, an electro-magnet, D, in a branch of the figure-keys, a main line, *l*, a press-shifting magnet, N, and double type-wheels T T', substantially as described.

4. The combination of an electrical pulsator for directing short electrical impulses over line L, means for prolonging one of said impulses, a second main line, *l*, a series of letter and figure keys for arresting the pulsator upon the transmission of any desired number of impulses, and means whereby said figure-keys are also adapted to close the second main line to shift the press-roller of a receiving-instrument, substantially as described.

5. In a printing-telegraph transmitter, the combination of a series of stop-magnets, *m*, to each of which are connected two branches of a local circuit, one extending to a letter-key and the other to a numeral-key, a main line, *l*, for determining from which type-wheel of a receiving-instrument impressions shall be taken, and an electro-magnet in one of said local branches for opening and closing said main line.

6. In a printing-telegraph transmitter, two series of keys, respectively representing letters and figures, for arresting the transmitter, a main line for determining from which of two type-wheels of a receiving-instrument impressions shall be taken, and a circuit closer or closers for opening and closing said line, which is controlled by one set of keys only.

319,856. TELEPHONE-EXCHANGE SYSTEM AND APPARATUS. FRANK SHAW, New York, N. Y., and WILLIAM A. CHILDS, Englewood, N. J. Filed June 2, 1884. (No model.)



Claim.—1. In a telephone central-office switch-board, the combination of movable line-terminals, consisting of flexible and extensible automatically-withdrawn switch-cords, and fixed line-terminals arranged in proximity thereto, and consisting of complementary switch devices adapted for connection with the cord ends, said fixed terminals including the lines connected to the movable line-terminals, and also including other lines of the system with which it may be desired to connect the movable line-terminals.

2. The combination, in a telephone central-office system, of subscribers' lines, each terminating at the central office in a normally-connected movable or extensible terminal, and in one or more fixed terminals properly constructed for forming connection with the tips of the extensible terminals when the latter are moved to them.

3. A telephone central-office switch-board having its switching devices arranged in a horizontal plane upon a table, so as to be accessible from two or more sides, each of the lines which terminate in said board in a movable or extensible terminal being provided with a complementary switch-terminal, preferably fixed, said terminals being adapted for connection with one another, as and for the purpose described.

4. In a telephone central-office switch-board, the combination, upon a horizontal switch-table accessible on two or more sides, of extensible line-terminals and fixed line-terminals, as and for the purpose described.

5. In a telephone central-office switch-board, the combination, upon a horizontal table having its switching appliances accessible upon two or more sides, of a series of subscribers' lines and switch-terminals for subscribers' lines adapted for connection with one another, whereby two of the lines upon said horizontal table may be electrically united by simply placing the line-terminal of one line into union with a complementary line-terminal of the other line.

6. In a telephone central-office switch-board, the combination of extensible line-terminals, furnished with connecting-plugs, and line blocks or plates, also connected with said lines, and adapted to receive the plugs or similar connecting devices on the extensible terminals.

7. A telephone-exchange central office having for each line two line-terminals—one an extensible or movable line-terminal, and the other a complementary terminal adapted for union with the extensible or movable terminal of one or more other lines.

8. A telephone-exchange central office having for the several individual lines two line-terminals—one an extensible or movable terminal, and the other a fixed terminal adapted to receive the tip of the movable terminals of other lines.

9. In a telephone central-office switch, the combination of movable or extensible line-terminals, consisting of sliding weights and connectors, and flexible cords and tips, and fixed or stationary line-terminals, consisting of socketed plates or blocks adapted to receive said tips, whereby lines may be connected by simply placing a cord-tip in a fixed block.

10. A telephone central office having for each subscriber's line a movable or extensible terminal, consisting of a flexible conductor having an automatic retractor, and one or more complementary line-terminals, preferably, though not necessarily, fixed, but adapted for union with the first said terminals.

11. The combination, in a central-office telephone-exchange system, of automatic vibrators at subscribers' stations, a bell and battery at the central station, and suitable connecting devices for connecting and disconnecting said bell and battery from any line of the exchange without disturbing the connection between the lines, if said line be connected to any other at the time the test is made.

12. The combination, in a central-office telephone-exchange system, of automatic vibrators at subscribers' stations, and a bell and battery at the central station in a wire normally independent of the connecting devices for connecting two lines together, said bell and battery being combined with switching apparatus, whereby it may be introduced into and taken out of circuit with a line, whether such line be connected with any other line or not, so as to permit a test of the line's condition to be had at pleasure.

13. The combination, with a series of subscribers' lines centering at a common switch-board, of automatic vibrators controlled by switches at the subscribers' stations which cut out the contacts for said vibrators when the telephone apparatus is in use, a bell and battery at the central station, and switch devices for placing said bell and battery into a ground-circuit from a line at the central office.

14. The combination, with automatic vibrators at subscribers' stations, of switches for cutting out the contacts of said vibrators when the telephones are in use, and at the central office a test-bell and battery independent of the connecting-circuit between two connected lines, as and for the purpose described.

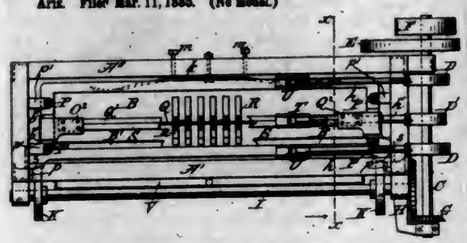
15. The combination, in a telephone-exchange, of automatic vibrators at subscribers' stations, and at the central office a test-battery and indicator having a movable switch-terminal, adapting them for connection to any line of the exchange, as and for the purpose described.

16. The combination, substantially as described, of automatic vibrators at subscribers' stations and a test-battery and indicator independent of the line-connecting wires or strips at the central station, and having means whereby said battery and indicator may at the central office be connected into a circuit that shall be formed through the subscriber's station apparatus.

17. The combination, with a central office of a telephone-exchange having automatic vibrators at subscribers' stations, of a test-battery and indicator and switch apparatus for including the battery and indicator in a circuit formed through a subscriber's station and the central office.

18. The combination, with subscribers' stations having automatic vibrators and switches for switching out said vibrators, as described, of a test-battery and indicator at the central office, and switch apparatus for connecting the same to a subscriber's line, whether connected or unconnected at the central office with some other subscriber's line, whereby a switch-board operator may ascertain whether any line is or is not connected with any other.

319,857. ORE-CONCENTRATOR. ELLIS W. SINCLAIR, Tombstone, Ariz. Filed Mar. 11, 1885. (No model.)



Claim.—1. In an ore-concentrator, the combination, with the endwise and laterally vibratory box B, having a double-inclined bottom, *c d*, and discharge-openings *a b*, of plate Q, provided with the thin inclined agitator-fingers R R, having an endwise movement contrary to that of the concentrator-box, substantially as described.

2. The concentrator-box B, having openings *a b* and a bottom composed of two inclines, *c d*, one of which is wider and higher than the other, and is provided with a longitudinal rib or flange, *e*, on its upper edge, substantially as described.

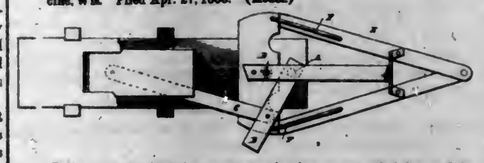
3. The concentrator-box B, having discharge-openings *a b*, extending nearly or quite the whole length on each side, a bottom composed of the inclines *c d*, a bar, B', and a longitudinal division-plate, S, suspended vertically from said bar B', substantially as described.

4. The combination, with the concentrator-box B, having an ore-discharge opening, *a*, extending along one side, of the rod L, having eccentrics L' L', the eccentric-straps M M, the gate O, attached to said straps, and the bolts N' N' and hand-wheels N N, substantially as described.

5. The combination, with the concentrator-box B and adjustable gate O, of the trough or spout V, attached to and movable with said gate, substantially as described.

6. An ore-concentrator comprising the frame A, vibratory concentrator-box B, having discharge-openings *a b*, double-inclined bottom *c d*, division-plate S, and adjustable gate O, the movable plate Q, carrying fingers R R, the shaft C, having pinion G and eccentrics D D D', the rods A A A', the castings on the box B, the shaft I, carrying a gear, H, and cams K K, and the adjustable spring *k*, substantially as described.

319,858. POWER FOR BALING-PRESSES. WILLIS D. SLAUSON, Racine, Wis. Filed Apr. 27, 1885. (Model.)

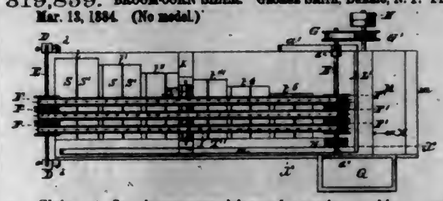


Claim.—1. A pivoted arm or arms having an extended free end, in combination with a connecting-rod pivoted to said arm or arms and a lever pivoted to one side of the pivotal point of the arm or arms, substantially as and for the purpose specified.

2. A lever with a pivoted broad end having stops thereon, in combination with an arm or arms pivoted to one side of the lever-pivot, and having an extended free end, and a connecting-rod or pitman pivoted to the said arms, substantially as and for the purpose specified.

3. A V-shaped lever pivoted at its broad end and provided with stops thereon, in combination with an arm or arms pivoted to one side the pivotal point of the lever, and a connecting-rod or pitman pivotally secured to the arm or arms at a distance from the free end thereof, substantially as and for the purpose specified.

319,859. BROOM-CORN SIZER. GEORGE SMITH, Buffalo, N. Y. Filed Mar. 13, 1884. (No model.)



Claim.—1. In a broom-corn sizing and assorting machine, a series of conveyer-belts consisting each of two parts of belting of different width, said belting being studded with a number of pins, *i*, as and for the object specified, the wider belt forming lateral bearing-surfaces, as specified.

2. In a broom-corn sizing and assorting machine, the combination, with a series of conveyer-belts, of a number of compartments having successively longer entrance-openings, each compartment being provided with a trap-door, and mechanism, substantially as described, for keeping the trap-door in a horizontal position.

3. In a broom-corn sizing and assorting machine, the combination, with the shaft E', carrying the grooved star-wheel N, of the shaft *p'*, having the disk O, provided with the triangular cutter *p*, as stated, said shafts being rotated by proper mechanism, as and for the object specified.

4. In broom-corn sizing and assorting machines, a reversible cutter consisting of a triangular plate sharpened on all its edges, said plate being inserted into a recess, 3, in said disk O, and constructed to operate in conjunction with the star or feed wheel, as specified.

5. The combination, with the endless belt I I', of the supporting-roller K', the carrying-rail K, and L-shaped guides 1 2, substantially as described, and for the purposes set forth.

6. The combination, with the receiving-compartments R, having the trap-doors S S', of the floor V, the spring-fixtures U, and pins *b b'*, as and for the purpose stated.

319,860. SUSPENDER-BUCKLE. WILLIAM E. SMITH, Ansonia, Conn., assignor to Burkhard Goodman, New York, N. Y. Filed Mar. 9, 1883. (No model.)



Claim.—1. A suspender-buckle consisting of the part A and the clamping-lever F, the outwardly-projecting trunnions of the clamping-lever projecting into the hollow space within the metal of the part A, said space being formed by the returning bend of the metal, the bend being provided with lugs, and the clamping-lever being protected by said metal from contact with the garment, substantially as described.

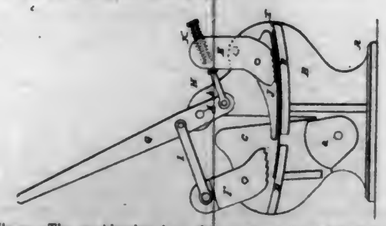
2. The combination of the metal piece A, having the folds C, D, and E, and the lugs G and tongue or lever F, substantially as described.

3. The metal buckle-body A, having the folds C and D, and the projecting lug G, formed of part of the metal of the body and depressed below the surface of the fold D, substantially as described.

4. The combination of the metal buckle-body A, having the folds C and D, and the projecting lug G, formed of part of the metal of the body and depressed below the surface of the fold D, with a tongue pivoted or supported in said buckle-body A, and combined therewith so as to rest, when closed, upon the lug G, substantially as described.

5. The combination of the metal buckle-body A, having the folds C and D, and the projecting lug G, formed of part of the metal of the body, with a tongue pivoted or supported in said buckle-body, and combined therewith so as to rest, when closed, upon the lug G, substantially as described.

319,861. TIRE-UPSETTER. NELSON D. STANLEY, Essex Junction, Vt. Filed May 19, 1884. (No model.)



Claim.—The combination, in a tire-upsetter, of a suitable pivoted operating-lever, the connecting-rods, the two clamps E F, one of the connecting-rods being provided with a spring, the bed D, made in two parts, and the parts C B of the base, substantially as set forth.

319,862. STEAM-BOILER CLEANER. ROBERT STEWART, Pittsfield, Ill. Filed Dec. 23, 1884. (No model.)



Claim.—1. The combination, with a steam-boiler, of a pipe situated near the bottom thereof and provided with short conical-shaped tubes, the nozzles of said tubes being smaller than the base thereof, and a valve, substantially as set forth.

2. The combination, with a steam-boiler, of a pipe situated near the bottom thereof and provided with short conical-shaped tubes, the nozzles of said tubes being beveled from the outside, and a valve, substantially as set forth.

3. The combination, with a steam-boiler, of a pipe situated near the bottom thereof and provided with tubes, the perforation in said tubes being conical-shaped on the inside, and the nozzle thereof being beveled on the outside, substantially as set forth.

319,863. CAR-COUPLING. DANIEL R. TAYLOR and WASHINGTON I. LUDLOW, Cleveland, Ohio; said Ludlow assignor to said Taylor. Filed Apr. 6, 1885. (No model.)



Claim.—1. The combination, in a car-coupling, of a spring-arm arranged beneath a draw-head, and a coupling-pin loosely connected with the forward end of the spring to avoid strain thereon and move in a perpendicular line, and means, substantially as described, for actuating the spring.

2. In a car-coupling, a draw-head having a flaring mouth, in the rear wall of which is formed a series of horizontal transverse notches for supporting the inner end of a coupling-link, either horizontally or in an upward or downward inclined position, substantially as described.

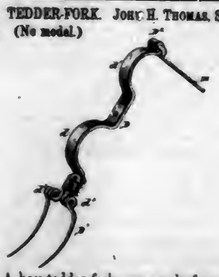
3. In a car-coupling, the combination, with a spring-arm arranged longitudinally beneath a slotted draw-head, of a coupling-pin loosely attached to the forward end of said spring-arm and normally held in engagement with a vertical opening in the mouth of the draw-head, substantially as described.

4. In a car-coupling, the combination, with a spring-buffer or draw-head having a longitudinal slot or groove formed in its under side, of a spring-arm arranged beneath said draw-head and in the longitudinal slot or groove thereof, and a coupling-pin loosely connected at its lower end with the spring, substantially as described.

5. In a car-coupling, the combination of a slotted or grooved draw-head, a spring-arm, one end of which is fixed to the under side of said draw-head, an upwardly-movable coupling-pin carried loosely on the forward end of said spring-arm, but held normally to engagement with the draw-head, and trip mechanism automatically operated by the jar of the cars coming together for actuating said pin and spring-arm, substantially as described.

6. The combination, in a car-coupling, of a draw-head, a spring secured longitudinally beneath the draw-head, a coupling-pin loosely connected with the spring to avoid strain therein and to move in a perpendicular line, and automatic trip mechanism for releasing the spring to actuate the pin, substantially as described.

319,864. TEDDER-FORK. JOHN H. THOMAS, Springfield, Ohio. Filed Oct. 4, 1884. (No model.)

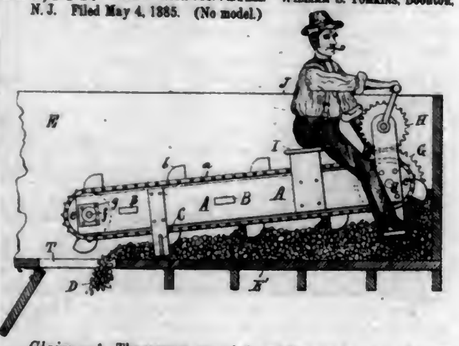


Claim.—1. A hay-tedder fork-arm made from a flat bar of spring metal, and provided with a tedder-fork and crank-box secured thereto, substantially as described, as a new article of manufacture.

2. A hay-tedder fork-arm made of yielding material and provided with an arch or curved portion between the crank-box and fork, and a second arch or curved portion between said crank-box and the radius-bar or supporting-link, substantially as and for the purpose described.

3. In a hay-tedder, the fork-arm made from a flat bar of spring metal and adapted to yield, as described, in combination with the elastic or yielding fork or teeth secured thereto, substantially as and for the purpose described.

319,865. HAND COAL-CONVEYER. WILLIAM S. TOMKINS, Boonton, N. J. Filed May 4, 1885. (No model.)

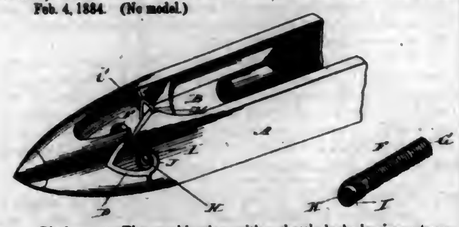


Claim.—1. The conveyer consisting of the side frames, A, having the idle-pulley at one end and the sprocket-wheel at the other, the chain or chains carrying the buckets, the gearing to rotate the sprocket-wheel, and the crank-shaft and hand-cranks to operate the gearing and move the chain, substantially as herein set forth.

2. The combination, with the conveyer constructed as herein shown and described, of the screen arranged to receive the coal from the conveyer and to deliver the dirt outside of the bin and the coal into the bin, as and for the purpose set forth.

3. The combination, with the frame having the sprocket-wheels and chains provided with buckets and provided with the gearing and hand-cranks to operate the same, as described, of the seat arranged upon the frame for the operator, adjacent to the hand-cranks, as and for the purpose set forth.

319,866. LOOM-SHUTTLE. JOHN P. THOMPSON, Phœnix, Md. Filed Feb. 4, 1884. (No model.)



Claim.—1. The combination, with a shuttle-body having a transverse perforation and a slot extending from the bobbin-holding recess to the said perforation, of an eye-piece fitting in the said transverse perforation, having a hollow end slotted to form a spiral tongue, as and for the purpose shown and set forth.

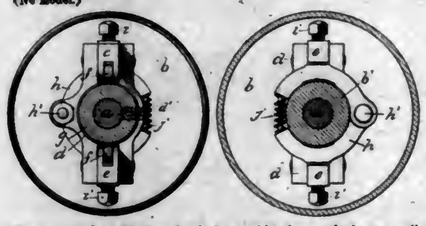
2. The combination, with a shuttle-body having a transverse perforation and a slot extending from the bobbin-holding recess to the said perforation, of a thread-guide at the inner end of the said slot, and an eye-piece fitting in the transverse perforation, having a hollow end slotted to form a spiral tongue, as and for the purpose shown and set forth.

3. The combination, with a loom-shuttle body provided with a V-shaped slot, D, of the adjustable eye-piece formed with a hollow end, and slotted spirally at that end to form a spiral tongue, as and for the purpose shown and set forth.

4. The combination of a loom-shuttle body provided with a V-shaped slot, D, with the spiral wire guide J and the adjustable eye-piece formed with a hollow end, and slotted spirally at the said end to form a spiral tongue turned in the same direction as the spiral guide, as and for the purpose shown and set forth.

5. The combination of a loom-shuttle body provided with a V-shaped slot, D, with the hook or guide K, the adjustable eye-piece formed with a hollow end, slotted spirally to form a spiral tongue, and the spiral wire guide curved in the same direction as the spiral tongue, as and for the purpose shown and set forth.

319,867. FRICTION-CLUTCH. THOMAS H. THOMPSON, Hartford, Conn., assignor to the Sigourney Tool Company, same place. Filed Apr. 23, 1885. (No model.)



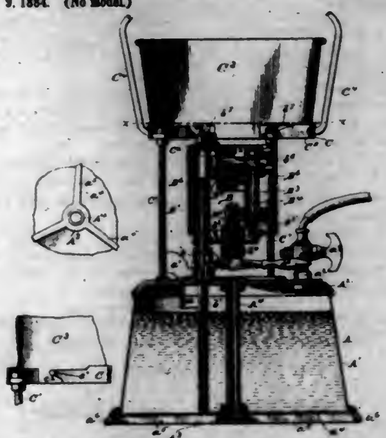
Claim.—1. In a friction-clutch, in combination, a shaft, *a*, a collar, *d*, fast to the shaft and bearing the levers *c*, swinging in a plane parallel to the shaft, and also the spring-retracted transverse jaws *h*, having inturned grasping-faces, and the sliding wedge *g*, all substantially as described.

2. In a friction-clutch, in combination, a shaft, *a*, a collar, *d*, fast to the shaft and bearing the levers *c*, swinging in a plane parallel to the shaft, and also the transverse jaws *h*, having the inturned and relieved grasping-faces, a jaw-retracting spring, *j*, and the sliding wedge *g*, all substantially as described.

3. In a friction-clutch, in combination, a shaft, *a*, a collar, *d*, fast to the shaft and bearing the levers *c*, with anti-friction rolls *f* and adjustable pins *i*, and also the transverse jaws *h*, having inturned grasping-faces, the spring *j*, whereby the jaws are forced apart, and the sliding wedge *g*, with cylindrical surface *g'* and tapered surface g^2, all substantially as described.

4. In a friction-clutch, in combination, a shaft, *a*, a collar, *d*, fast to the shaft and having the levers *c*, with anti-friction rolls *f* and adjustable screws *i*, and also transverse jaws *h*, the spring *j*, whereby the jaws are forced apart, and the sliding wedge *g*, all substantially as described.

319,868. PLUMBER'S HEATER. J. BENNETT WALLACE, Chicago, Ill., assignor to the Myers Manufacturing Company, same place. Filed June 9, 1884. (No model.)



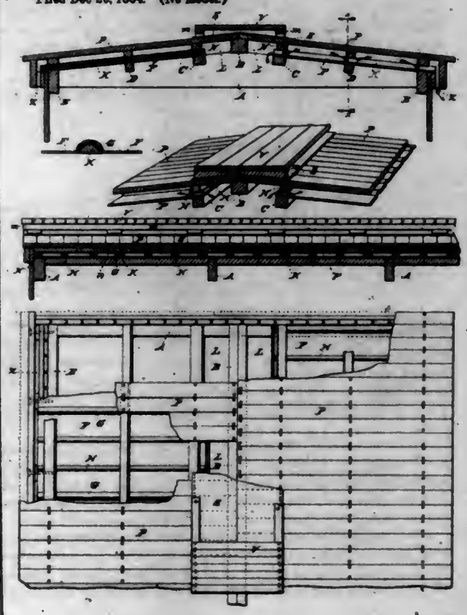
Claim.—1. The combination, with the cast-iron top plate, A^2, and sheet-metal sides and bottom of the reservoir, of a nut, A^3, and rim a^6, connected by arms a^5 with said nut, and a connecting rod or tube, A^4, substantially as described.

2. The combination of the centrally-open burner-head provided with an interior passage extending around the opening of said head, the open vapor-tube, the liquid-induction tube leading into the passage within the head, the transverse tube leading from said passage across the open vapor-tube, and a passage leading from said cross-tube to the needle-valve, substantially as described.

3. The combination of the centrally-open burner-head provided with an interior passage extending around said opening, the open vapor-tube provided with slots below the head, the needle-valve, the liquid-induction tube leading into a passage within the head, the transverse tube leading from said passage across the open vapor-tube, and a passage leading from said cross-tube to the needle-valve, substantially as described.

4. The combination, with the burner B, having an open vapor-tube, B^2, provided with lateral openings b^2, of a shield surrounding the burner, substantially as and for the purposes set forth.

319,869. METALLIC ROOFING. JOHN C. WANDS, St. Louis, Mo. Filed Dec 26, 1884. (No model.)



Claim.—1. In a car-roof, the combination, with the carlings, of the solid central purlin above the level of the lateral purlins, substantially as specified.

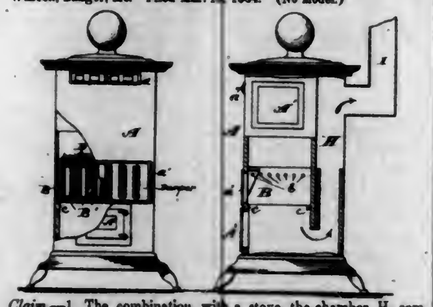
2. The combination, with the purlins and carlings, of the short lateral plates extending to the second purlin, the roof-boards, and the central longitudinal plate under the running-board, substantially as specified.

3. The combination, with the carlings and purlins, of the central opening between the lateral plates covered by the roof-boards and the center plate, and the lateral ventilating-passages extending from said central opening outward, substantially as specified.

4. The combination, in a car-roof, with the lateral roof-plates separated by a central longitudinal opening, of the central longitudinal plate overlapping or extending laterally beyond the inner edges of said lateral roof-plates, substantially as specified.

5. The combination, with the carlings, lateral purlins, and raised central purlin, of the roof-boards, the short lateral plate below the same, the longitudinal center plate above the same, and the running-board covering said center plate, substantially as specified.

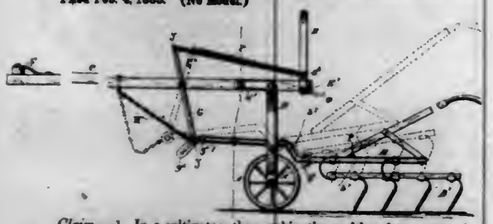
319,870. SMOKE-CONSUMING STOVE AND FURNACE. EMILE R. WESTON, Bangor, Me. Filed Mar. 15, 1884. (No model.)



Claim.—1. The combination, with a stove, the chamber H, communicating therewith at a point below the fuel, and a smoke-pipe connected with said chamber, of a series of hollow perforated bricks located between the fuel and the chamber H, each brick being provided on one side near opposite ends with lugs for holding it away from the next brick, a damper located above the bricks, and a damper for regulating the admission of air to the hollow bricks, substantially as set forth.

2. The combination, with a stove, the chamber H, communicating at its lower end with said stove and divided into a series of combustion-chambers by one or more perforated diaphragms, and a smoke-pipe connected to the upper end of said chamber H, of a hollow grate having side perforations for the passage of air and a damper located above the fuel, whereby the products of combustion are caused to pass downwardly through the grate and become intimately mixed with the hot air issuing from said grate and pass from thence into the combustion-chambers, substantially as set forth.

319,871. CULTIVATOR. EPHRAIM E. WHIPPLE, Eaton Rapids, Mich. Filed Feb. 4, 1885. (No model.)



Claim.—1. In a cultivator, the combination, with a frame comprising two separate tongues, cross-pieces pivotally connected with the tongues, and suitable draft-connections attached to the frame at the rear part of the latter, of drag-bars connected with the frame at points in advance of the draft-connections, substantially as and for the purpose set forth.

2. In a cultivator, the combination of two separate tongues, cross-pieces uniting the tongues and pivotally connected with the latter, draft-connections attached to the tongues at the rear ends of the latter, and drag-bars connected with the tongues at points forward of the said rear ends of the tongues, substantially as and for the purpose set forth.

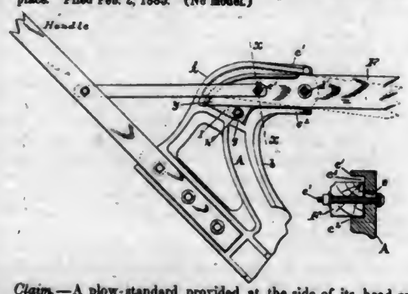
3. In a cultivator, the combination of two separate tongues, a cross-piece pivotally connected with the tongues near their rear ends, and extended laterally from the tongues to afford attachment for the draft-connections, a cross-piece pivotally connected with the tongues at their front ends, and extended to form neck-yokes, and drag-bars attached to said tongues, substantially as described.

4. In a cultivator, the combination of two separate tongues, a cross-piece in the form of an arch pivoted to the tongues and extended beyond the latter to afford attachment of the draft-connections, and drag-bars connected with the tongues at points in advance of the said cross-piece substantially as described.

5. In a cultivator, the combination of a frame comprising two separate tongues and cross-pieces pivotally connected with the tongues, supporting-wheels for the frame, drag-bars pivotally connected at their forward ends to the frame at points forward of the wheels, by means permitting a longitudinal movement of the drag-bars, and means for sustaining the rear ends of the bars from the frame, substantially as and for the purpose set forth.

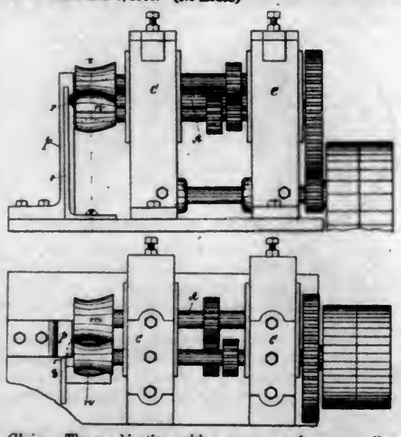
6. In a cultivator, the combination of a frame comprising two separate tongues, C, and cross-pieces E and F, uniting the tongues, supporting-wheels for the frame, drag-bars B, depending links or arms G, connecting the forward ends of the drag-bars with the tongues, chains H, attached to the tongues and drag-bars for limiting the rearward movement of the latter, and means for sustaining the rear ends of the drag-bars from the frame, substantially as described.

319,872. PLOW. ROBERT W. WHITEHURST, Norfolk, Va., assignor of two-thirds to Aurelius Wrenn and McDonald L. Wrenn, both of same place. Filed Feb. 2, 1885. (No model.)



Claim.—A plow-standard provided at the side of its head or top part with a beam-recess formed by an upper flange, *c'*, which continues down at the rear part, *k*, and is adapted to cover the end of the beam, and a lower flange, *c²*, and having a movable seat, substantially as described, at the rear lower part of said recess for adjusting the beam vertically, as set forth.

319,873. MACHINE FOR MANUFACTURING STIFFENERS FOR BOOTS OR SHOES. JOHN M. WILLOUGHBY, Woburn, Mass., assignor, by mesne assignments, to the Simonds Counter Machinery Company, Nashua, N. H. Filed Mar. 9, 1885. (No model.)

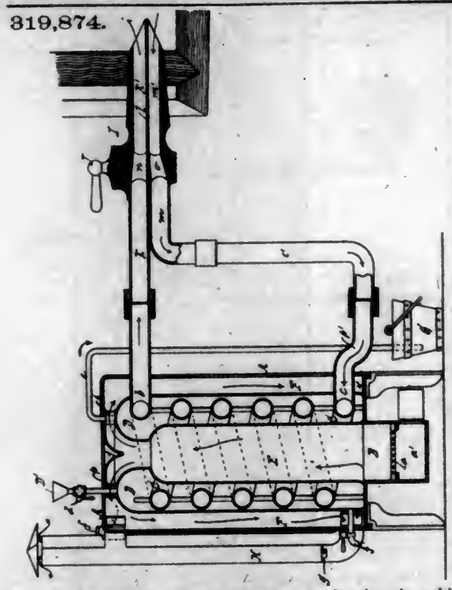


Claim.—The combination, with a concave and convex roll and an adjustable presser-roll, of the rigidly-set end piece, *p*, provided with a mouth, *r*, whereby the flange is turned and set, substantially as shown and described.

319,874. APPARATUS FOR HEATING LIQUIDS. FROMM ANTAL, FRANZ J. KUGLER, and BALLO MATYAS, Buda-Pesth, Austria-Hungary. Filed Feb. 5, 1885. (No model.)

Claim.—1. The combination, substantially as herein described, with

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the coil C, the jacket A, inclosing said coil, and a fire-place situated in the jacket beneath the coil, of a twin pipe, I, a transverse horizontal partition, *l*, arranged in the interior of this pipe, and extending from its mouth and forming the separate passages *k'* and *m'*, and two branch pipes, *k m*, which form the connections of the two passages of the twin pipe with the coil.

2. The combination, substantially as herein described, with the coil C, of a water-chamber, D, inclosing the coil, the jacket A, surrounding the water-chamber, the fire-place situated in the jacket, the twin pipe I, the transverse horizontal partition *l*, arranged in the interior of the twin pipe, and extending from its mouth to form the two passages *k'* and *m'*, and the two branch pipes *k m*, which form the connections of the said passages of the twin pipe with the coil.

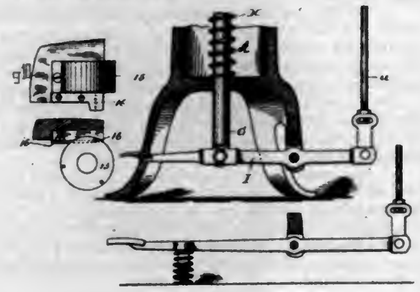
3. The combination, substantially as herein described, with the coil C, the jacket A, inclosing said coil, and the fire-place situated in the jacket beneath the coil, of the twin pipe I, the transverse horizontal partition *l*, arranged in the interior of this pipe and extending from its mouth to form the two passages *k'* and *m'*, two branch pipes, *k m*, which form the connections of the two passages of the twin pipe with the coil, and the trap formed in that branch pipe which connects with the lower end of the coil.

319,875. SHOE-NAILING MACHINE. HENRY S. BACON, Milford, assignor to the American Metallic Fastening Association, Boston, Mass. Filed Dec. 8, 1884. (No model.)

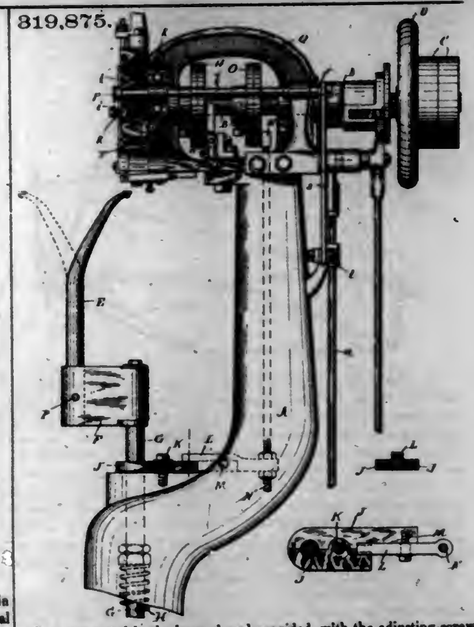
Claim.—1. The curved horn E, mounted for rotation on the shaft G, in combination with the gripping-jaws J, actuated from the driving-shaft, and adapted to alternately support and release the horn, substantially as set forth.

2. In a nailing-machine, the frame and the sliding head carrying the awl and driver, in combination with the tapered gibs U U and the flanged adjusting-screws V W, or equivalent devices, for the purpose set forth.

3. The wire-feeding apparatus herein described, consisting of the



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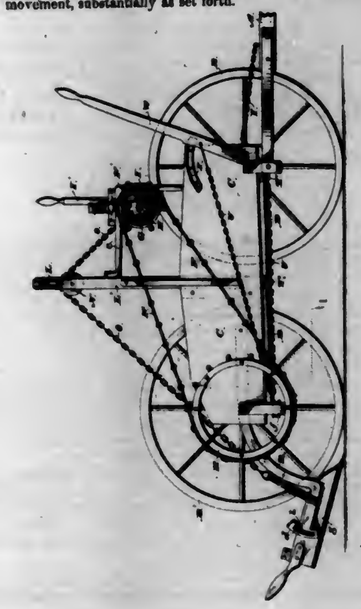


roller *c*, mounted in the lever *d*, and provided with the adjusting-screw *e*, in combination with the roller *b*, toothed wheel *f*, oscillating collar *g* and two or more pawls, *h*, arranged substantially as set forth.

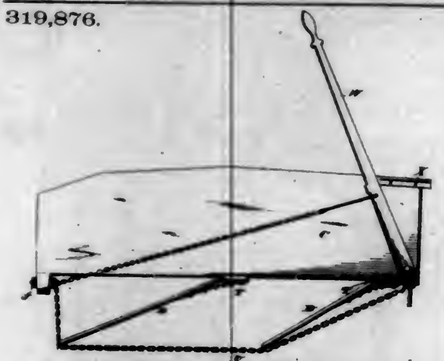
319,876. SELF-LOADING CART. JOHN H. RARRIDGE, Lincoln, Nebr. Filed June 19, 1882. Renewed Nov. 10, 1884. (No model.)

Brief.—A scraper is swung by pivoted arms at the rear end of the wagon, and with its load is raised to dump into the wagon by a chain and drum operated through sprocket-wheels and chain, and a clutch by the rear wheels. The bottom is in swinging sections, opened and closed by a lever and chain rove over pulleys on the rear axle.

Claim.—1. The combination, with a wagon or cart body, of an earth scraper or excavator pivotally connected with the rear end of said body, a lifting-chain actuated by moving the wagon forward, a drum over which the chain passes, and a clutch for throwing the drum in or out of movement, substantially as set forth.



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2. The combination, with a wagon or cart body mounted on suitable drive-wheels, a drive-shaft secured to the said body, a rigid clutch, and a loose drum secured to said drive-shaft, a lever for operating the said drum, and chains connecting the said drive-wheels with the main shaft, of a scraper pivotally secured to the rear end of the machine-body, and a lifting-chain connecting the said scraper to the said driving-shaft.
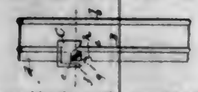
3. The combination, with a wagon or cart body, driving-wheels provided on their inner faces with sprocket or spur wheels, and a scraper pivotally secured to the rear end of the wagon-body, of the driving-shaft, sprocket or spur loosely secured thereon by pawl-and-ratchet engagement, drive-chains connecting the said shaft to the drive-wheels, and a lifting-chain connecting the said scraper to the driving-shaft.

4. The combination, with a wagon or cart body mounted on suitable drive-wheels, of a scraper secured to the said body by the bent arms R, and provided with pins adapted to work in the oblong slots in the ends of the said arms, and means for elevating the said scraper.

5. The combination, with a wagon or cart body having a sectional hinged bottom, of the lever W, chain U, and pulleys *f g*, located under the rear end of the body, whereby the chain passes beneath the bottom and extends forward at the side of the wagon-body, substantially as set forth.

6. The combination, with the body provided with the sectional bottom, chains for operating them, drive-wheels provided with spikes, and the sprocket-wheels rigidly secured to the said drive-wheels, of the drive-chains, drive-shaft, sprocket-wheels secured to the said shaft by ratchet-and-pawl engagement, the clutch, drum, and lever for operating the latter, the cross-beams with the guide-pulley secured thereon, the scraper pivotally secured to the body of the wagon or cart by the curved arms, and the lifting-chain connecting the bail of the scraper to the winding-drum, all of the above parts constructed and adapted to operate as described.

319,877. METAL FENCING. WILLIAM BAYLISS, Wolverhampton, County of Stafford, England. Filed Oct. 4, 1884. (No model.) Patented in England July 26, 1884, No. 10,638, and Aug. 27, 1884, No. 11,683; in Cape of Good Hope Oct. 16, 1884, No. 11/542; in Natal Oct. 23, 1884, No. 2/1885; in Victoria Nov. 11, 1884, No. 3,883; in South Australia Nov. 17, 1884, No. 507, and in Queensland Jan. 17, 1885, No. 7, page 205.



Claim.—1. The combination, with a metal fencing-standard, B, provided with lateral flanges *b b* at its one edge and ribs *c c* near its other edge, of the earth-plate A, provided with clips *a a*, formed as described, and the clips C, constructed to fit over the ribbed front edge of the post or standard and provided with a lip, *f*, to take over the fencing-wire, whereby the earth-plate may be placed on the standard and set in the earth after the fence is set up, as described.

2. The combination, with a metal fencing-standard provided with ribs at or near its front edge, a recess to receive the fencing-wire, and a notch; A, of the clip C, constructed substantially as described and provided with a nose, *g*, adapted, when the clip is in place, to be clinched into said notch, substantially as and for the purposes set forth.

319,878. FENCE-POST. WILLIAM BAYLISS, Wolverhampton, County of Stafford, England. Filed Dec. 29, 1884. (No model.) Patented in England July 26, 1884, No. 10,638; in Cape of Good Hope Oct. 16, 1884, No. 11 542; in Natal Oct. 23, 1884, No. 2/1885; in Victoria Nov. 11, 1884, No. 3,883; in South Australia Nov. 17, 1884, No. 507, and in Queensland Jan. 17, 1885, No. 7, page 205.

Claim.—1. The combination, with a metal earth-plate, A, provided with an aperture, *a*, of the stirrup B, constructed separate from the earth-

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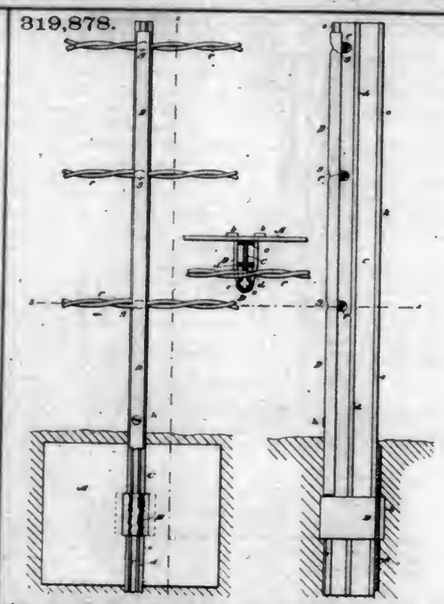


plate and to fit into said aperture *a*, and provided with flanges *b*, as described, and the standard C, constructed to fit into the loop or keeper formed by the stirrup, substantially as set forth.

2. The combination, with a standard or corresponding member of a metal fence provided with clip-retaining beads *e*, and notches in its front edge to receive the wires or other corresponding members of the fence, said notches extending through said retaining-beads *e*, of the elongated sheath D, constructed to fit over the front edge of the standard, as set forth, and to close the notches, whereby said sheath stands wholly in front of the wires, for the purposes set forth.

3. A standard for metal fencing provided with clip-retaining beads *e* at its front edge, notches or recesses to receive the wires, which notches extend through said beads *e*, and a rib or ribs, *d*, back of said notches or recesses, whereby the wire-retaining clip may be mounted on the post or standard wholly in front of the wires, and the backs of the notches are re-enforced, substantially as set forth.

4. The combination of the standard C, provided with clip-retaining beads *e*, a rib or ribs, *d*, and notches to receive the fencing-wires, which extend back into the standard beyond the beads *e*, an elongated sheath, D, constructed to fit over the beads *e* and to close the recesses for the wires, and the fencing-wires arranged in said notches back of the sheath, whereby the elongated sheath may be slipped along the standard in front of all the wires, as set forth.

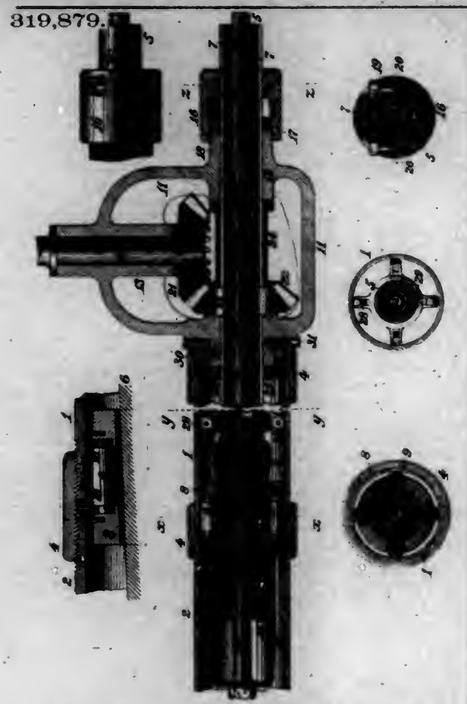
319,879. TUBE-EXPANDER. WILLIAM A. BOLE, Pittsburg, Pa., assignor of one-half to Ralph Bagaley, same place. Filed Feb. 4, 1885. (No model.)

Claim.—1. The combination, in a tube-expander, of a tubular mandrel having a conical or tapering expander-head at one of its ends, a carrier fitted with a series of expander-rollers and mounted upon the expander-head with the capacity of end movement of the latter relatively to the carrier, and a spindle connected to the carrier and passing through the bore of the mandrel to the opposite end thereof, substantially as set forth.

2. The combination, in a tube-expander, of a mandrel having a conical or tapering expander-head at one of its ends, a carrier fitted with a series of expander-rollers and mounted upon the expander-head with the capacity of end movement of the latter relatively to the carrier, a supporting-frame journaled upon the mandrel, a driving-shaft mounted in a bearing on the supporting-frame and carrying a driving-gear, and a gear fitting on the mandrel and having a key or spline engaging a longitudinal keyway therein, said gear meshing with the gear of the driving-shaft, substantially as set forth.

3. The combination, in a tube-expander, of a mandrel having a conical or tapering expander-head, a carrier fitted with a series of expander-rollers and mounted upon the expander-head with the capacity of end movement of the latter relatively to the carrier, driving-gearing for imparting rotation to the mandrel, and a compressible feed-nut fitting around the mandrel and engaging a thread on a fixed support, substantially as set forth.

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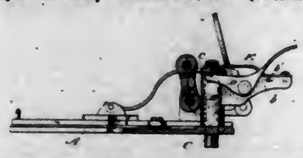


4. The combination, in a tube-expander, of a mandrel having a conical or tapering expander-head at one of its ends, a carrier fitted with a series of expander-rollers and mounted upon the expander-head with the capacity of end movement of the latter relatively to the carrier, a carrier-spindle connected by a strap or stirrup to the carrier and passing longitudinally through the mandrel, driving-gearing for rotating the mandrel, and a series of centering-rollers journaled in a sleeve inclosing the mandrel between the expander-head and driving-gearing, substantially as set forth.

5. The combination, in a tube-expander, of a mandrel having a conical or tapering expander-head at one of its ends, a carrier fitted with a series of expander-rollers and mounted upon the expander-head with the capacity of end movement of the latter relatively to the carrier, a driving-gear supporting-frame journaled on the mandrel, a stop-collar fitting adjustably upon the mandrel and serving as an end abutment for the supporting-frame, and an adjusting-scale or index-plate fixed upon the mandrel, substantially as set forth.

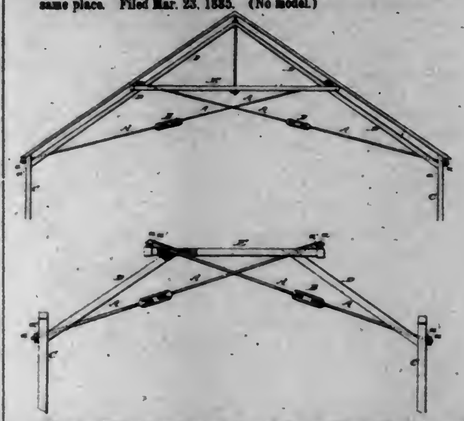
6. The combination, in a tube-expander, of a mandrel having a conical or tapered expander-head at one of its ends, a carrier fitted with a series of expander-rollers and mounted upon the expander-head with the capacity of end movement of the latter relatively to the carrier, a driving-gear supporting-frame journaled upon the mandrel, gearing for rotating the mandrel from a shaft in said frame, and a threaded sleeve fitting on the supporting-frame concentrically with the mandrel, and adapted to engage an internally-threaded socket connected to a pipe which is to be expanded, substantially as set forth.

319,880. CLAMP FOR BUTTON-HOLE SEWING-MACHINES. ROBERT C. BRYDEN, Haverhill, Mass., assignor to the Singer Manufacturing Company of New Jersey. Filed Feb. 20, 1885. (No model.)



Claim.—In a button-hole clamp, the combination, with the base-plate, of a hollow post having a notch at its top and an arm or bracket, a guide-pin fitting in said post and having a flange or projection, a lifting-lever pivoted to said bracket and extending into said notch beneath said flange or projection, and a spring for depressing said pin, substantially as set forth.

319,881. TRUSS-FRAME FOR ROOFS OF BUILDINGS. WILLIAM P. BUCKLEY, Oxford, N. Y., assignor to himself and Ward Van Der Lyn, same place. Filed Mar. 23, 1885. (No model.)

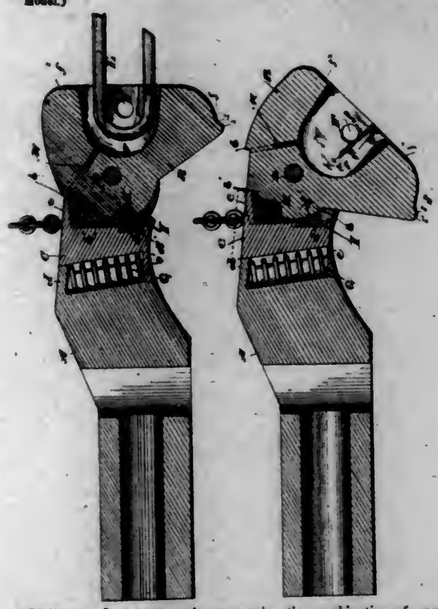


Claim.—The combination of the rods A, provided with right and left hand screw-threads, the swivel-nuts B, posts C, braces D, and beam E, substantially as described and shown, and for the purpose set forth.

319,882. MANUFACTURE OF CHEESE. DAVID H. BURRELL, Little Falls, N. Y. Filed June 4, 1883. (No specimens.)

Claim.—The method of making an anti-huffing cheese from skim-milk and buttermilk, without the use of an alkali or an antiseptic, which consists in heating the buttermilk sufficiently to destroy the ferments or germs contained therein, then adding this buttermilk to the skim-milk, then coagulating the mass, and proceeding in the usual manner, substantially as described.

319,883. CAR-COUPLING. NEWELL P. COWELL, RENSSELAER A. COWELL, and JOHN F. HERRICK, Cleveland, Ohio. Filed Mar. 14, 1885. (No model.)



Claim.—1. In an automatic car-coupler, the combination of a pivoted head provided with an elongated pocket, a broad flat surface forming a buffer around the pocket, and separate and independent devices for locking the pivoted head in its two positions, substantially as set forth.

2. In an automatic hook car-coupler with a pivoted draw-bar head provided with a suitable link-coupling mechanism and a movable key for locking the head to form a hook, a pin inserted in the draw-bar, and an engaging groove in the head for locking the head in position to

present the link-coupling face toward an opposing draw-head, substantially as set forth.

3. In an automatic hook car-coupler, the combination, with a pivoted head provided with a link-pocket and buffer-face, and separate and independent devices for locking the head in two positions, of a bar operating automatically in a chamber of the head to engage the coupling-pin when the latter is elevated, and so arranged that the link will force back the bar and release the coupling-pin, substantially as set forth.

4. In an automatic hook car-coupler, a depression or projection on that part of the head that is engaged by an opposing head, for mutually closing both heads in coupling, substantially as set forth.

319,884. ELBOW FOR STOVE-PIPES. ALONZO W. CRAM, Haverhill, Mass., assignor to Adjustable Elbow and Damper Company, Nashua, N. H. Filed Dec. 29, 1884. (No model.)



Claim.—1. An elbow for stove-pipes, consisting of a cylinder, in combination with movable heads having openings for the ends of the stove-pipes, whereby the openings can be brought in any desired relation to each other, substantially as shown.

2. In an elbow for stove-pipes, the combination of the cylinder, the two revolving heads provided with openings for the stove-pipes, and a means for holding the heads in place upon the cylinder, substantially as described.

3. The combination of the cylinder, the two revolving heads, the pivotal bolt, and a spring which is placed upon the bolt in between the two heads, substantially as set forth.

4. The combination of the cylinder, the revolving heads applied thereto and provided with openings for the stove-pipes, and means for holding the heads in position upon the cylinder, and a damper which is applied to one of the heads, substantially as shown and described.

5. An elbow for stove-pipes, consisting of a cylinder having an opening for the end of the stove-pipe, in combination with a revolving head, also having an opening for the end of the stove-pipe, substantially as shown.

6. An elbow for stove-pipes, which is composed of two heads, which are loosely connected together with a fine space between them, and both provided with an opening or collar for the attachment of one part of the stove-pipe, one or both of the heads being adapted to be revolved or turned upon the other for the purpose of changing the relation of the openings I to each other, substantially as shown.

319,885. TIRE-TIGHTENER. BASCOM CRESLER, Crawford, Miss. Filed Apr. 11, 1885. (No model.)



Claim.—1. In a vehicle-wheel, the springs D, secured by nuts C, and screws D', for securing the wedge-keys E in the recesses between the fellies, substantially as shown and described.

2. The combination of the springs D, wedge-keys E, and felly A^2, substantially as shown, and for the purpose described.

3. A vehicle-wheel whose fellies are tightened as against shrinkage thereof and expansion of the tire by means of wedge-keys secured in position by springs D, held by nuts C, substantially as shown and described.

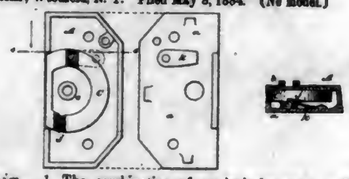
319,886. CIGAR-HOLDER. JOHN L. C. CROWLY, Buffalo, N. Y. Filed Oct. 27, 1884. (No model.)

Claim.—A cigar-holder constructed of flexible material, and composed of an outer body, A, and an inner tube, *c*, both the body and tube being formed of a single tubular piece of practically uniform thickness of material, and said tube being doubled back into the body to extend rearwardly from the mouth-piece and form a collecting-chamber, *c*, with the body A, substantially as set forth.

319,886.



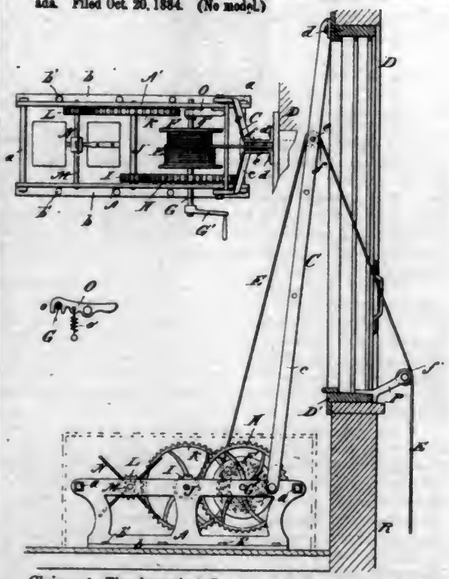
319,887. FASTENING FOR MEETING-RAILS OF SASHES. JOTHAM S. CRUMP, Westfield, N. Y. Filed May 8, 1884. (No model.)



Claim.—1. The combination of an inclosing-case, a disk-bolt mounted rotatively in bearings in said case and cut away segmentally on one side flush with the face of the case when the bolt is in its unlocked position, a leaf-spring fixed within said case and arranged to press against said bolt and frictionally retard its movement, and a notch in said bolt arranged to be entered by said spring when the bolt is unlocked and to retain it in that position, substantially as set forth.

2. The combination of inclosing-case A, disk-bolt C, cut away on one side, mounted rotatively in bearings in the case, and formed with a notch or notches, *f*, and a spring-pawl, *k*, fixed to said case and adapted to engage said notches as the bolt is turned forward and prevent its being turned backward, substantially as set forth.

319,888. FIRE-ESCAPE. JOHN DITTRICH, Smith's Falls, Ontario, Canada. Filed Oct. 20, 1884. (No model.)

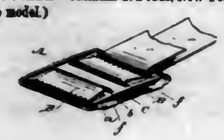


Claim.—1. The drum-shaft G, adapted to be moved endwise, in combination with the dog O and collar *g*, substantially as and for the purposes described.

2. The combination, with the frame and operative parts of the fire-escape and the rope E, of the upright C, having pulley *f*, substantially as and for the purposes set forth.

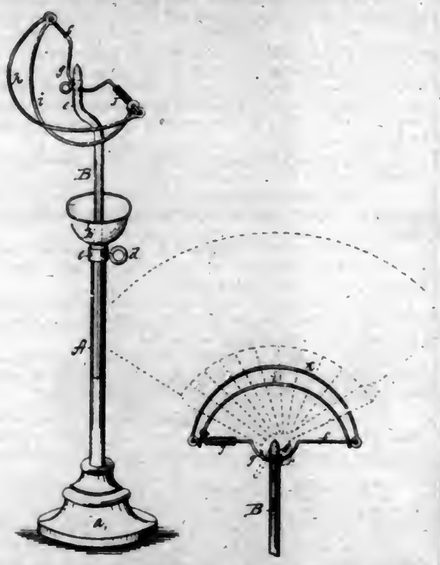
3. The side pieces, A A', adapted to be secured to the floor, in combination with the shafts G J M, drum F, cog-wheels H I K L, and fan N, the shaft G being adapted to be shoved endwise, substantially as and for the purposes set forth.

319,889. BUCKLE. CHARLES G. DOBBS, New York, N. Y. Filed May 1, 1885. (No model.)



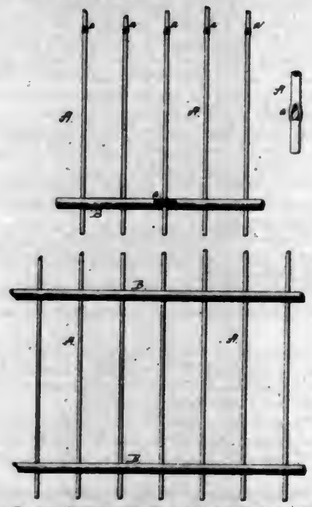
Claim.—The buckle-frame proper and the tongues arranged to work in slots therein and provided each on the rear end with a swell or protuberance between the sides of the tongue, in combination with the spring-acting retaining-frame on the under side of the buckle-frame proper, formed or provided with one or more cross-strips, *c*, upon which bear the swells or protuberances on the rear ends of the tongues, substantially as set forth.

319,890. FAN-HOLDER. BENJAMIN A. DRAYTON, New York, N. Y. Filed May 19, 1884. (No model.)



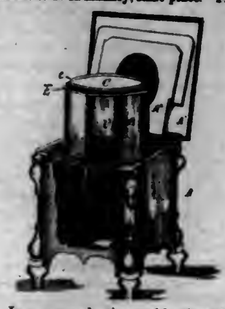
Claim.—As a new article of manufacture, the article-holder herein described, consisting of the tubular standard A, having base *a*, ornamental flange *b*, and set-screw *d*, the rod B, extensible within the standard, and clamping means consisting of the bar *f*, formed with the curved central portion, *g*, the fixed bar or jaw *h*, movable bar or jaw *i*, and the spring *j*, the whole combined, arranged, and adapted for use substantially as described, and for the purpose set forth.

319,891. BIRD-CAGE. BENJAMIN A. DRAYTON, New York, N. Y. Filed Feb. 18, 1885. (No model.)



Claim.—In combination with the perforated horizontal bar or wire B, the vertical wires A, formed with vertical tapering seats *a*, to hold the horizontal bar in position by frictional contact, substantially as described.

319,892. COMMODE. N. GRESHARD DU BOIS, Brooklyn, N. Y., assignor of one-half to F. R. Malmay, same place. Filed Oct. 6, 1884. (No model.)



Claim.—1. In a commode, the combination of an external box and an internal box having stops on its bottom and supports above said stops, substantially as described.

2. In a commode, the combination of an external box having a cover, a^3, and an internal box loosely seated in said box, and having stops on its bottom and supports above said stops, substantially as described.

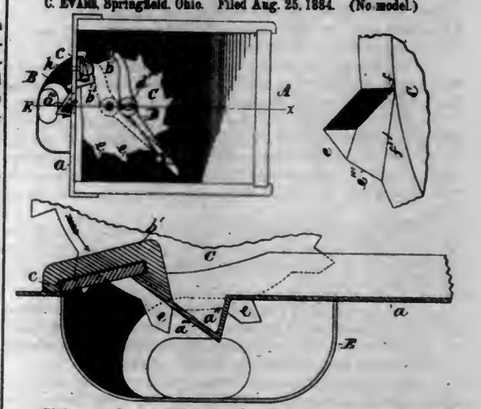
3. In a commode, the combination of an external box provided with an octagonal opening, and an internal box octagonal in cross-section, and having stops on its bottom and supports above said stops, substantially as described.

4. The combination of an external box provided with an octagonal opening, and an internal box octagonal in cross-section and having a circular bottom and stops *b*, substantially as described.

5. The combination of an external box having cover a^3, provided with stops a^4 and a^4, and an internal box having stops *b* and rests b^2, substantially as described.

6. The combination of an external box and an internal box having a vessel in the top, stops in its bottom, supports above said stops, and an opening in the walls below the vessel, substantially as described.

319,893. FERTILIZING ATTACHMENT FOR SEED-PLANTERS. A. C. EVANS, Springfield, Ohio. Filed Aug. 25, 1884. (No model.)



Claim.—1. In a fertilizing attachment for a corn-planter having its discharge-tube outside the hopper, a floor-space or recess in the top of said discharge-tube to catch and retain the fertilizer-dust and allow it to build up in front of the hopper-opening, and thus prevent its escape through the discharge-tube while filling said hopper.

2. In a fertilizing attachment for a corn-planter, the combination, with the hopper having an opening in its side wall for the sowing-disk, of a discharge-tube provided with a recess or floor-space in the top of the same, to allow the fertilizer-dust to catch thereon and build up in front of said hopper-opening, for the purpose set forth.

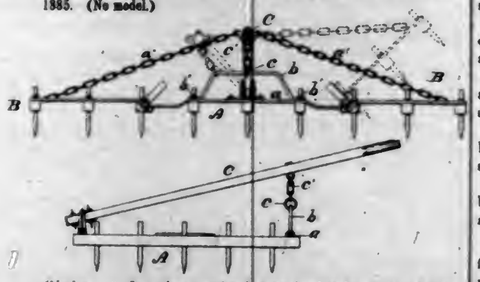
3. In a fertilizing attachment, the combination, with the hopper having the discharge-opening extending over the teeth and a part of the body of the disk, and the cut-off and means for adjusting the same, of the toothed horizontal disk operating in part through said opening, and the agitator consisting of the oscillating lever extending over said disk, pivoted to the latter outside of the center of the same, the forward end of said lever being bent downward and to one side toward said cut-off, and its rear end extending through a hole in a fixed post on the bottom plate, whereby an eccentric motion is given to the front end of said agitator by the motion of the disk, causing it to thoroughly stir the fertilizer-dust and to crush any lumps therein, as set forth.

4. In a fertilizing attachment, the combination of the hopper, the feed-disk rotating therein, and the agitator pivoted to the latter outside of the center of the same and extending across said hopper in a plane above said disk, its rear end being inserted through a post on the bottom plate and its front end bent downward and forward to agitate the fertilizer and crush the lumps in the same, substantially as set forth.

5. In a fertilizer-disk, the tooth *e*, having its face of equal thickness with said disk and beveled on the under side from the lower edge of said face to the rear edge of said tooth, and having its point beveled or inclined toward the rear to facilitate its operation in collecting and discharging the fertilizer substance, as set forth.

6. The combination, with the horizontal rotating feed-disk, of the agitator extending over the same and pivoted about midway of its length thereto, its rear end being loosely inserted through a hole at a fixed point within the hopper to allow it to have a backward, forward, and lateral motion, while its free end is adapted to move eccentrically to the disk to stir the fertilizer-dust and crush lumps in the same.

319,894. HARROW. A. C. EVANS, Springfield, Ohio. Filed Feb. 9, 1885. (No model.)



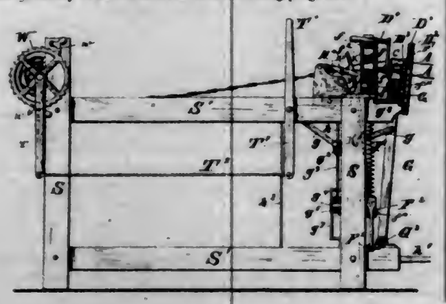
Claim.—1. In a three-section harrow having its sections flexibly connected together, a lever with its front end loosely pivoted extending over the middle section, chains connecting said lever with the outside sections, an elevated bar on the rear of said middle section extending from side to side of the same, and a short chain connecting said lever and bar provided with a ring on its lower end encircling the latter and adapted to slide thereon, whereby said lever is free to move in a horizontal plane over said middle section in elevating the outside sections without disconnecting it from said elevated bar, as set forth.

2. In a three-section harrow having its sections flexibly connected and operated by a lever pivoted over the middle section and connected by chains with the outside sections, the combination, with the middle section and said lever, of an elevated bar on the rear end of said middle section and parallel therewith, its ends bent downwardly and attached to the latter, and a chain connecting said bar and lever together, whereby said lever may be freely operated from side to side of said middle section in the line of said bar without disconnecting it from the latter, as set forth.

3. In combination with the pivoted hand-lever and the bar on the rear of the middle section, the chain or other like means for connecting the former with the latter, adapted to slide loosely on said bar in operating said lever, as set forth.

319,895. MACHINE FOR MAKING PICKET WIRE FENCE. BENJAMIN L. FLETCHER, JOHN M. DUNKIN, LOUIS HANHART, and CHARLES M. TRAUTMANN, Cincinnati, Ohio; said Hanhart and Trautmann assignors to said Fletcher and Dunkin. Filed Aug. 4, 1884. (No model.)

Brief.—The picket is placed between the wires on guides just above the level of the lower wires and attached to the twister-frame. The twister-frame is then swung toward the jaws of the press, carrying the picket into the under jaw of the press. The picket is then clamped in the press, and the twisters begin to operate close up against the picket and gradually recede therefrom as the twisting progresses.



Claim.—1. The twisting-head provided with front openings, b^2, and with rear openings, b^3, the last-named openings being elongated and narrow, substantially as and for the purposes specified.

2. The twisting-head provided with openings b^3, these openings being elongated and narrow, substantially as and for the purposes specified.

3. The twisting-head provided with elongated narrow openings b^3, lying in the same axial plane of the head and closely approaching each other at the axial center of the head, substantially as and for the purposes specified.

4. The twisting-heads, each provided with a chain-pulley, chain D', engaging said pulleys, driving-chain pulley D^2, gear D^3, pinion D^4, the pulley D^5 having tooth D^6, half-pinion D^4, pins D^7, and plate D^8, provided with holes D^9, substantially as and for the purposes specified.

5. In combination with a device for holding the picket after being inserted between the wires of the runners, the twisting-heads journaled on a movable frame adapted to permit the twisting-heads to recede from the picket as the twisting of the runner progresses, substantially as and for the purposes specified.

6. The twisting-heads mounted on frame G G' G', journaled below, substantially as and for the purposes specified.

7. In combination with the jaws F F', the twisting-heads mounted on frame G G' G', journaled below, substantially as and for the purposes specified.

8. In combination with the jaws F F', the twisting-heads provided at rear with slotted openings b^2, and mounted on oscillating frame, substantially as and for the purposes specified.

9. The twisting-heads mounted on an oscillating frame journaled below, and links h h', cross-rod g^3, rod g^2, and treadle rod or piece g^4, substantially as and for the purposes specified.

10. The twisting-heads mounted on an oscillating frame journaled below, and links h h', cross-rod g^3, rod g^2, and treadle rod or piece g^4, and spring g^5, substantially as and for the purposes specified.

11. The jaws F F', and twisting-heads mounted on an oscillating frame journaled below, and links h h', cross-rod g^3, rod g^2, and treadle rod or piece g^4, and spring g^5, substantially as and for the purposes specified.

12. The twisting-heads mounted on an oscillating frame journaled below, and the links g g', cross-rod g^3, rod g^2, lever g^4, and rod h, lever h', rod h^2, and treadle h^3, substantially as and for the purposes specified.

13. The combination of the jaws F F', twisting-heads mounted on oscillating frame and provided with chain-pulleys, chain, and driving-pulley, and gear-pinion and crank, substantially as and for the purposes specified.

14. The twisting-heads provided with elongated rear openings, b^3, and the jaws F F', and mechanism for enabling the heads to separate from the jaws, substantially as and for the purposes specified.

15. The twisting-heads mounted in an oscillating frame and provided with elongated rear openings, and the jaws F F', and means for closing and opening said jaws, substantially as and for the purposes specified.

16. The combination of jaws F F', links f^2, levers f^3, rod f^4, and treadle, substantially as and for the purposes specified.

17. The jaws F F', guides *f*, pins f^3 in jaw F, links f^2, united thereto, levers f^3, one end of each of said levers f^3 pivoted to the lower end of its adjacent link f^2, and the other end bearing up against the jaw F', rods f^4, respectively connecting said levers f^3 and treadle F^2, pivoted at f^{10}, and spring f^5, strained between the lever and the main frame, substantially as and for the purposes specified.

18. The combination of the jaws F F', having block F^3, and twisting-heads mounted on movable frame provided with guides F^7, substantially as and for the purposes specified.

19. The combination of jaws F and F', having teeth F^3, guides *f*, links f^2, levers f^3, rods f^4, treadle F^2, and spring, substantially as and for the purposes specified.

20. The cylinder H, provided with teeth H' on its periphery, and having cogs H^3, pawl H^4, and pawl-disengaging device, substantially as and for the purposes specified.

21. The cylinder H, having teeth H', and cogs H^3, pawl H^4, latch K^2, and rod K, having projection K', substantially as and for the purposes specified.

22. The cylinder H, having teeth H' and cogs H^3, pawl H^4, provided with slot-receiving latch K^2, pivoted at K^3, and pin K^4, and latch-rod K, having projection K', and connected at bottom to treadle F^2, substantially as and for the purposes specified.

23. The combination of the jaws F F', guides *f*, links f^2, levers f^3, rods f^4, and treadle F^2, latch-rod K, pawl H^4, latch K^2, cylinder H, having cogs H^3, and teeth H', substantially as and for the purposes specified.

24. The reel composed of wedge-shaped pieces, and having its ends, respectively, received into the recessed pieces or caps, which are in turn supported by the journals of the reel, substantially as and for the purposes specified.

25. The reel U, composed of the two wedge-shaped pieces *u u*, and cap *v'*, having axis v^2, and cap *v*, having screw V, having a bearing in said cap *v*, substantially as and for the purposes specified.

26. The reel U, composed of the two wedge-shaped pieces *u u*, and cap *v'*, having axis v^2, and cap *v*, having screw V, having an end bearing, v^3, fitting into recess v^4 of said cap, and provided with screw v^5, entering annular groove v^6 on said end bearing, v^3, substantially as and for the purposes specified.

27. The reel composed of wedge-shaped pieces *u u*, cap *v*, having recess v^3, screw V, having screw-bearing fitting into said recess and suitably secured therein, cap *v'*, carrying axis v^2, ratchet-wheel W, pawls *w* and *w'*, lever T, rod T^2, and lever T', substantially as and for the purposes specified.

28. The spools, each provided with beveled gear P, and the adjustable device consisting of frame M, having stud or studs N^2, crank-shaft N N', carrying pinion N^3, and frame adapted at side of each spool to receive said stud or studs N^2, and connecting-bolt, substantially as and for the purposes specified.

29. The combination of jaws F F', guides *f*, links f^2, levers f^3, rods f^4, and treadle F^2, pivoted at f^5 to rods f^4, substantially as and for the purposes specified.

319,896. PRESSURE-REGULATOR. WILLIAM T. FOX, Rochester, N. Y., assignor to the Steam Gauge and Lantern Company, same place. Filed July 30, 1884. (No model.)



Claim.—1. The combination, in a pressure-regulator, of an inlet-chamber, C, a chamber, D, having a discharge-opening, d^2, in its end, a piston, F, arranged in the chamber D above the discharge d^2, and tubular stem *f*, secured to said piston and extending into the chamber C and through the piston, and forming a water-passage between the chamber C and the chamber D below said piston, substantially as set forth.

2. In a pressure-regulator, the combination, with an inlet-chamber, C, and outlet-chamber D, of the piston F, arranged in the chamber D, tubular stem *f*, secured to said piston and forming a communication between the chamber C and the chamber D below the piston, spring H, and an adjusting device whereby the tension of the spring can be regulated, substantially as set forth.

3. In a pressure-regulator, the combination, with an inlet-chamber, C, and outlet-chamber D, of the piston F, arranged in the chamber D, tubular stem *f*, secured to the piston F, and forming a communication between the chamber C and the bottom of the chamber D, spring H, bearing against the piston F, and screw-nut *h*, substantially as set forth.

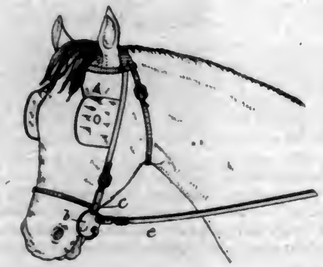
4. The combination, with the inlet-chamber C and outlet-chamber D, connected by a bifurcated frame, E, of the piston F, arranged in the chamber D, and provided with an annular flange or rim, *g*, having openings *g'*, the tubular stem *f*, spring H, and screw-nut *h*, substantially as set forth.

319,897. BRIDLE-BIT. JOHN M. FRENCH, Chelsea, assignor of one-half to George B. Fisher, Millis, Mass. Filed Mar. 19, 1885. (No model.)

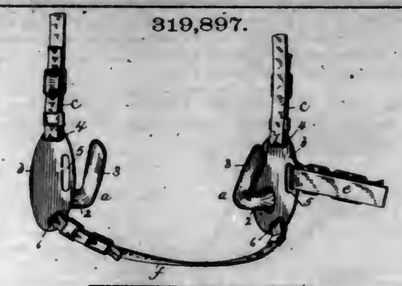
Claim.—1. A bridle-bit composed of two independent hooks, each having a rigidly-attached external tongue or plate, whereby it may be attached to the bridle, as set forth.

2. The combination, with the cheek-pieces of a bridle, of the independent hooks *a a*, having the plates *b b*, slotted to receive the cheek-pieces and the driving-reins, as set forth.

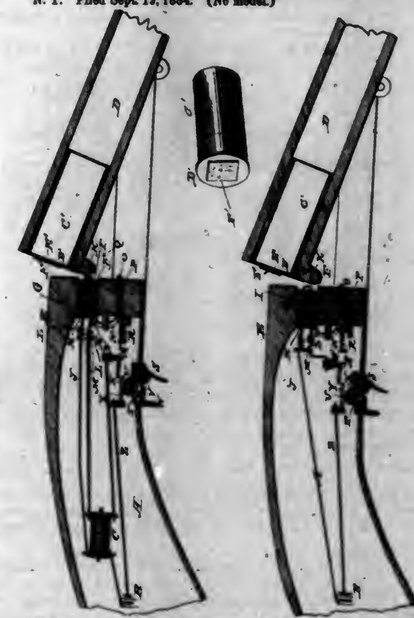
3. The combination of the bridle cheek-pieces, the independent hooks *a a*, secured to the bridle, and the flexible strap *f*, connecting said hooks, as set forth.



319,897.



319,898. ELECTRIC FIRE-ARM. JOSEPH W. FROST, New York, N. Y. Filed Sept. 19, 1884. (No model.)



Claim.—1. In an electric fire-arm for firing a cartridge having a penetrable covering, the combination of the arm having a tilting barrel, two electrodes at the ends of the wires of an electric circuit secured reciprocatingly in the breech-piece of the arm, means for projecting the same into the breech end of the barrel, and suitable means for closing the circuit, as and for the purpose shown and set forth.

2. The combination, in an electric fire-arm, of the barrel having the downwardly-projecting lug, the frame having a larger and a smaller longitudinal perforation in its breech-block, the block sliding in the larger perforation in the breech-block and having the igniting-points, the bolt sliding in the smaller perforation in the breech-block and having means for forcing it outward, and the lever pivoted upon the inner side of the frame between the perforations and pivoted at its ends to the sliding block and bolt, as and for the purpose shown and set forth.

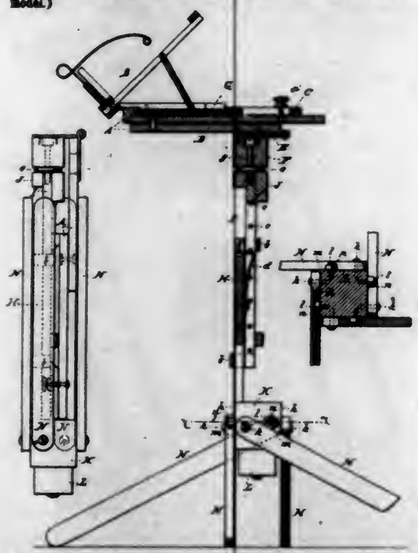
3. The combination of the battery, the induction-coil, the wires of the primary circuit, the trigger having its upper edge covered with insulating material, the spring attached to one of the primary wires and secured above the trigger, the strip secured forward of and above the spring and connected to the other primary wire, and the secondary wires provided at their outer ends with the penetrating igniting-points projecting outside of the frame, as and for the purpose shown and set forth.

4. The combination of the trigger having the upper eccentric edge of its plate covered with insulating material, the spring secured at one end above the said edge of the trigger, and the strip secured forward of and above the spring having its free end pointing towards the free end of the spring and secured at its other end upon a screw, upon which it may be adjusted with its free end nearer to or farther from the free end of the spring, as and for the purpose shown and set forth.

5. The combination of the sliding block having means for sliding it in and out, the wires of the secondary circuit secured inside the frame to brackets formed into coils outside of the brackets, and passing through the sliding block provided with the igniting-points, the primary wires,

the trigger, the spring connected to one of the primary wires and secured at one end above the trigger, and the strip connected to the other primary wire and secured adjustably forward of and above the spring, as and for the purpose shown and set forth.

319,899. **BOOK-SUPPORT.** ARTHUR A. FULLER, Providence, R. I., assignor to Homer Merriam, Springfield, Mass. Filed July 19, 1884. (No model.)



Claim.—1. In a book-support, the holder-arm A, consisting of the inner section, D, hinged to the head-block F of the stand, and the outer section, G, pivoted to said inner section and carrying the slide-clamp, whereby the holder is attached to the arm, substantially as specified.

2. The combination, with the upper stem section or support, of the washer *e*, pivot-screw *g*, head-block F, hinge E, having its barrel portion projecting beyond the side of said head-block, and the flat arm connected by said hinge to said head-block, whereby the said arm may hang in folded position alongside said stem section or support, substantially as specified.

3. In a folding portable book-support, the combination, with the stem and its arm, of the counterbalancing-weight connected to the foot of said stem and the leg-bars extending from said foot, substantially as specified.

319,900. **COMPOUND STEAM-ENGINE.** JOHN A. GROSHON, New York, N. Y. Filed Nov. 10, 1884. (No model.)

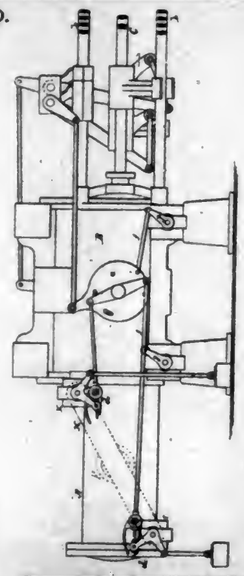
Claim.—1. The combination, with a high and low pressure cylinder, of connected pistons working therein, and valves for simultaneously cutting off the live steam after the pistons have completed a portion of their stroke and admitting steam from the high into the low pressure cylinder to complete the stroke, substantially as set forth.

2. In a steam-engine, the high-pressure cylinder and expansive cylinder having connected pistons, the one in the latter cylinder having a larger area than that in the former, and valves for cutting off the steam after the pistons have made a portion of their stroke and allowing a part of the steam then in the high-pressure cylinder to expand against the increased area of the piston in the expansive cylinder to complete the stroke, substantially in the manner and for the purposes described.

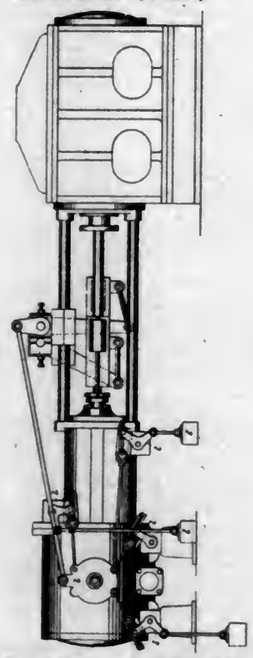
3. In a steam-engine, the high-pressure cylinder containing a piston and supplied with chambers I K, valves J L, ports *m* M, and passage N, combined with the expansive cylinder containing a piston on the same rod with the piston in the high-pressure cylinder, and being provided with a passage, O, valves R S, and ports W X, substantially as and for the purposes described.



319,900.



319,901. **COMPOUND STEAM-ENGINE.** JOHN A. GROSHON, New York, N. Y. Filed Feb. 16, 1885. (No model.)



Claim.—1. The combination, with a high and low pressure cylinder, of pistons working therein, valves for simultaneously cutting off the live steam after the pistons have made a portion of their stroke and admitting steam from the high into the low pressure cylinder, and means, substantially as described, for regulating the relative distance traveled by the two pistons before the cut-off, substantially as set forth.

2. The combination, with a high and low pressure cylinder and pistons working therein, the piston in the latter cylinder having a larger area than that in the former, of valves for cutting off the steam after the pistons have made a portion of their stroke and allow a part of the steam then in the high-pressure cylinder to expand against the increased area of the piston in the expansive cylinder, and means, substantially as described, for regulating the relative distance traveled by the pistons before the cut-off, substantially as set forth.

3. The combination, with a high and low pressure cylinder and pistons working therein, of valves for simultaneously cutting off the live steam after the pistons have completed a portion of their stroke and admitting steam from the high into the expansive cylinders, and a compensating cross-head connected with said pistons for regulating the relative distance traveled by the pistons, substantially as set forth.

4. The combination, with a high and low pressure cylinder and pistons working therein, the piston in the latter cylinder having a larger area than that in the former, of valves for simultaneously cutting off the live steam after the pistons have made a portion of their stroke and allowing the steam in the high-pressure cylinder to expand against the increased area of the piston in the low-pressure cylinder, and a compensating cross-head connected with low-pressure piston-rods for regulating the relative distance traveled by the two pistons, substantially as set forth.

5. The combination, with a high and low pressure cylinder, the former having ports leading from its front and rear ends to the front and rear ends of the latter, of pistons working therein, a compensating cross-head connected with said pistons, and valves for simultaneously cutting off the steam from the high-pressure cylinder after the pistons have completed a portion of their stroke and allowing the steam therein to expand against the piston in the low-pressure cylinder, substantially as set forth.

319,902. **HANDLE FOR CHILDREN'S CARRIAGES.** WINFIELD S. GROVE, Philadelphia, Pa. Filed Dec. 6, 1884. (No model.)

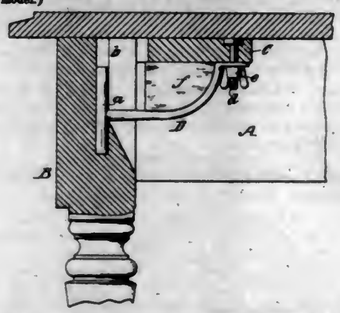


Claim.—1. A handle of a child's carriage, in combination with eyes formed with parallel legs connecting the side arms and cross-bar of said handle, and bands encircling said legs, substantially as and for the purpose set forth.

2. A handle of a child's carriage, in combination with eyes formed with parallel legs connecting the side arms and cross-bar of said handle, and bands encircling said legs, the ends of the legs being formed with lips, substantially as and for the purpose set forth.

3. The cross-bar B, in combination with sheet-metal eyes C, said eyes having an annulus, *a*, parallel legs *b*, and lips E, side arms, A, and band D, substantially as and for the purpose set forth.

319,903. **TABLE-CORNER.** HARVEY N. HALL, Evansville, Ind., assignor of one-half to Uel W. Armstrong, same place. Filed Aug. 11, 1884. (No model.)



Claim.—1. The combination, with the corner frame and leg, the latter having a vertical slot and aperture, of the T-headed clamping-iron and the adjusting-bolt, substantially as and for the purpose set forth.

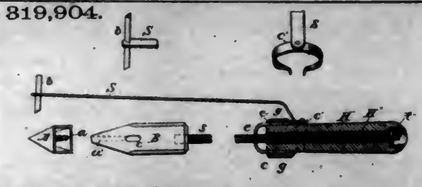
2. The corner-frame constructed, as described, with side and top pieces to receive and brace the leg, in combination with the T-headed curved clamping-iron, and the bracing-stud for clamping the curved iron, and the adjusting-bolt, as set forth.

3. The combination, with the corner-frame, table-leg, and clamping-iron, of the curved bracing-stud and means for adjusting the clamping-iron, substantially as described, whereby the clamping-iron will be drawn inward by adjustment in one direction, and thus made to lock the table-leg firmly to the corner-frame, and unlocked by the contrary adjustment, as set forth.

319,904. **SOLDERING-IRON.** BERTRAND J. HOFFACKER, New York, N. Y. Filed Jan. 22, 1885. (No model.)

Claim.—1. The construction of conical, semi-conical, and rectangular projections attached to square or triangular apex coverings for soldering-irons, in combination with a bar having a bore or groove corresponding to such projections, and a transverse slot or groove through which a spike may be inserted to secure the covering to the bar, substantially as shown, and for the purpose set forth.

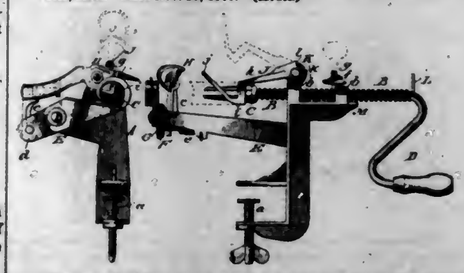
319,904.



2. The construction of a dividable heating-bar and its socket provided with such perforations and grooves as to allow the use of either square or triangular coverings, as specified.

3. The construction of a solder-supply spring, including its anterior triangular perforation and circular fastening-clasp, as described.

319,905. **APPLE-PARING MACHINE.** CHARLES E. HUDSON, Leominster, Mass. Filed Nov. 19, 1883. (Model.)



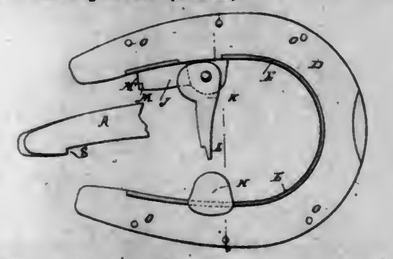
Claim.—1. The screw-shaft B, having both a rotary and longitudinal movement, and having at the crank end of the shaft the part L, projecting out at right angles from the shaft, in combination with the part M, located on the upper part of the frame A, substantially as shown, and for the purpose stated.

2. The screw-shaft B, having both a rotary and longitudinal movement through bearings in the top of the frame A, in combination with the frame A, having the rigid arm E, extending out therefrom at a point below the screw-shaft, said arm E extending forwardly, outwardly, and upwardly away from the frame A and the table, substantially as shown and described.

3. The combination, with the frame A, having an upright, K, and stop *k*, of the screw-shaft B and hinged or pivoted push-off J, having the offset *l*, substantially as shown, and for the purpose stated.

4. The combination, with the frame A and fork-shaft B, of the push-off J, having the projecting part *j*, extending outwardly from the push-off, and parts *i i*, for the purpose stated, substantially as shown and described.

319,906. **DETACHABLE HORSESHOE.** EMIL HUMBERT, Jersey City, N. J. Filed Aug. 14, 1884. (No model.)

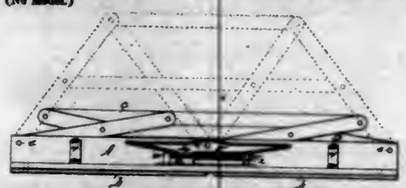


Claim.—1. The detachable horseshoe D, provided with the flange E, the stationary lug H on one prong and the cam-lever K L on the other prong, the said lug and cam-lever being adapted to engage a permanently-secured shoe, substantially as herein shown and described.

2. The herein-described detachable horseshoe, consisting of the shoe D, provided with the upwardly-projecting flange E, the lug H, the plate J, having notch M', and the cam-lever K L, as set forth.

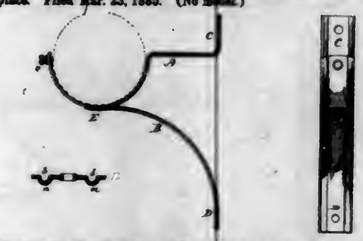
3. The combination, with the fixed shoe A, having beveled edges, as described, and the shoulders S, of the shoe D, having the flange E, and provided with the lug H, the plate J, having notch M', and the cam-lever K L, substantially as herein shown and described.

319,907. BOOK AND MUSIC HOLDER. CHAS. W. HUTCHINS, Springfield, Mass., assignor to Edwin C. Burt, same place. Filed May 22, 1884. (No model.)



Claim.—A book and music holder consisting of the base A, the two separate racks *c c*, pivotally attached to said base and adapted to fold from the center toward the ends thereof, and vice versa, the arms *b*, pivoted to the base and adapted to extend rearward, the cover-holders *x x*, and rotating spring leaf-holder *m*, substantially as set forth.

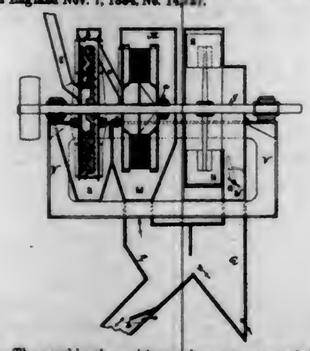
319,908. CURTAIN-BAR BRACKET. THEOPHILUS R. HYDE, Jr., Waterbury, Conn., assignor to the Scovill Manufacturing Company, same place. Filed Mar. 23, 1885. (No model.)



Claim.—1. The herein-described curtain-bar bracket, consisting of the arm A, brace B, both made from a strip of sheet metal corrugated longitudinally and bent into the required shape, one end of the arm constructed to form a flange for attachment to the wall, the other end bent to embrace the bar, one end of the brace applied to the arm, and so that the grooves on the one and ribs of the other on their meeting surface interlock and are there secured, the other end extending downward and adapted to be secured to the wall below the arm, substantially as described.

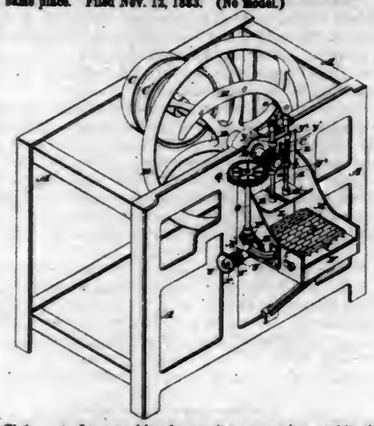
2. The herein-described curtain-bar bracket, consisting of the arm A, brace B, both made from a strip of sheet metal corrugated longitudinally and bent into the required shape, one end of the arm constructed to form a flange for attachment to the wall, the other end bent to embrace the bar, the said other end provided with an internally-screw-threaded brushing, *f*, one end of the brace applied to the arm, and so that the grooves of the one and ribs of the other interlock and are there secured, the other end extending downward and adapted to be secured to the wall below the arm, substantially as described.

319,909. MACHINE FOR SCOURING AND CLEANING GRAIN. THOMAS INGLIS, Leith, Scotland. Filed Feb. 5, 1885. (No model.) Patented in England Nov. 7, 1884, No. 14,727.



Claim.—The combination, with a stationary corrugated disk, B, and a stationary brush, K, of a shaft, S, provided with a corrugated disk, A, and a brush, L, opposite, respectively, to disk B and brush K, a casing provided with a wire covering inclosing disks B and A, a spout, H, leading from the top of said casing to the center of brush K, hoppers G and M, to the disks and brushes, respectively, and a fan, N, mounted on shaft S and communicating with hopper M through a valved conduit, substantially as described.

319,910. MEAT-CUTTING MACHINE. THOMAS JOHNSTON, Newburg, N. Y., assignor to the Chadborn & Coldwell Manufacturing Company, same place. Filed Nov. 12, 1883. (No model.)

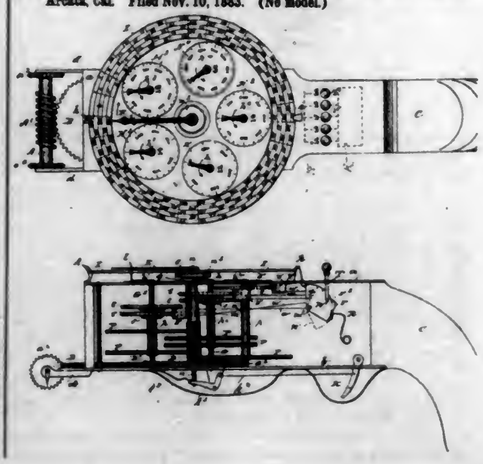


Claim.—1. In a machine for cutting meat, the combination, with the meat-feeding mechanism, consisting, essentially, of an endless apron upon toothed rollers, a vertical shaft connected with the driving-shaft by a worm and wheel, gear-wheels P, R, and U, and wheel K upon the shaft of the toothed roller which propels the endless apron, of an intermediate interchangeable gear-wheel mounted within a longitudinally-slotted arm pivoted upon the lower bearing of the vertical shaft, substantially as and for the purpose described.

2. The combination, in a machine for cutting meat, of the cutting mechanism, substantially as described, and meat-feeding mechanism, consisting, essentially, of an endless apron upon toothed rollers, a vertical shaft connected with the driving-shaft by a worm and wheel, and suitable gears to connect the apron-moving roller with the vertical shaft, and of the mechanism for holding the meat down upon the apron, consisting, essentially, of one or more spring-actuated presser-feet adjustably secured upon the face of the machine, all constructed to operate in the manner and for the purpose substantially as shown.

3. The combination, in a machine for cutting meat, of cutting mechanism, substantially such as described, and automatically-acting meat-feeding mechanism, consisting, essentially, of an endless apron upon toothed rollers, a vertical shaft connected with the driving-shaft by a worm and wheel, and suitable gear-wheels to connect the vertical shaft with the toothed roller which drives the endless apron, of the cone-shaped disk or collar carrying the gear U, with set-nut for clamping said gear upon the collar, and an intermediate interchangeable gear mounted within a longitudinally-slotted arm, whereby the movement of the meat-feeding mechanism may be stopped or the degree of feed changed at will, all constructed to operate in the manner and for the purpose substantially as shown, and combined with suitable mechanism for holding the meat upon the endless apron.

319,911. LUMBER-MEASURING INSTRUMENT. EDWARD Y. KNAPP, Arcata, Cal. Filed Nov. 10, 1883. (No model.)



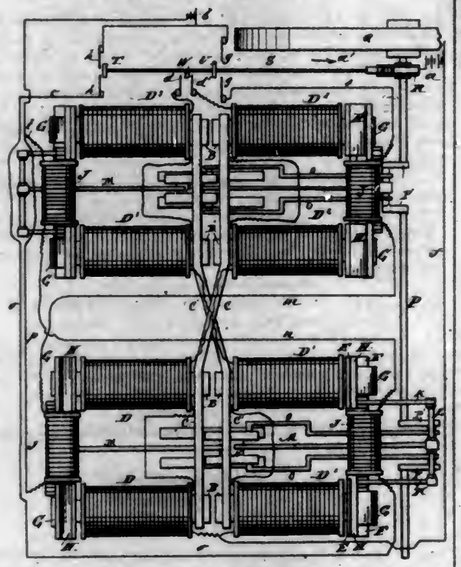
Claim.—1. The combination, with the barrel A, having measuring-wheels a^2 and worm A', of the gear B, pinion D, and the series of wheels P, loosely mounted upon upright arbors G, and mechanism, substantially as described, for locking each wheel to its arbor, and means, substantially as described, for locking the arbor when the wheel is released, substantially as hereinbefore described.

2. The combination, with the upright arbors G, of wheels P loose thereon, the friction-clutches and ratchet-wheels *t*, and the pawls *v* and the mechanism described for throwing them separately into and out of action, substantially as hereinbefore described.

3. The combination, with the ratchet-wheels *t*, of the pawls *v*, the series of plates W, the connecting-wires *w*, spring-plate R, and the push-rods T.

4. The combination of the sleeve *m*, forming part of the driving-pinion D, the loose spindle having index-hand E, the pin *e* on the hand E, the coil-spring *q*, and means for throwing up the spindle, and a spring for returning it into position to couple the hand to the sleeve, substantially as hereinbefore described.

319,912. ELECTRIC ENGINE. WILLIAM A. J. KOHRN, San Francisco, Cal. Filed Feb. 6, 1884. (No model.)



Claim.—1. In an electric engine, the combination, with field-magnets, of swinging armatures having coils wound thereon and an electric battery connected with the field-magnets, another battery connected with the coils of the armatures, and devices for automatically closing and opening the circuits of the field-magnets and of the armatures, substantially as herein shown and described.

2. In an electric engine, the combination, with field-magnets, of swinging armatures, between which electro-magnets are held, an electric battery connected with the field-magnets, another battery connected with the magnets on the armatures, and devices for automatically and alternately closing the circuits of the field-magnets and the corresponding armature-magnets, so that one field-magnet and the corresponding armature-magnets will be excited at the same time, substantially as herein shown and described.

3. In an electro-magnetic engine, the combination of two magnets arranged on opposite sides of a supporting-bar, a swinging armature for each magnet, a coil for each armature, a crank-shaft, and intermediate mechanism for connecting said crank-shaft with the swinging armature, substantially as shown and described.

4. In an electric engine, the combination, with field-magnets and with armatures having cores wound thereon, of a shaft, means for revolving the shaft from the armatures, a rod reciprocated from an eccentric or analogous device on the shaft, which rod is adapted to close and break the circuits of the field-magnets, and the electro-magnets of the armatures, substantially as herein shown and described.

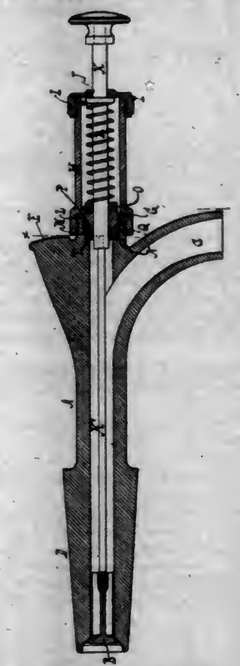
5. In an electric engine, the combination, with field-magnets and armatures having coils wound thereon, of the shaft P, adapted to be operated by suitable devices on the armatures, the rod S, reciprocated by the shaft P, the prong W on the rod S, and the contact-stripe *d* and *d'*, connected with the field-magnets, substantially as herein shown and described.

6. In an electric engine, the combination, with field-magnets, of swinging armatures carrying coils, the shaft P, means for revolving the said shaft from the armatures, the rod S, reciprocated by the shaft P, the prong W, the contact-stripe *d d'*, connected with the field-magnets, the battery *a*, connected with the rod S, the circuit-closing disks U T, and the contact-stripe *h h* and *g g*, connected with the battery and with the opposite magnets on the armatures, substantially as herein shown and described.

7. In an electric engine, the combination, with the field-magnets D D^2 D' D^2, of swinging armatures for each magnet, electro-magnets J, held between the armatures, the shaft P, means for revolving the shaft from the armatures, the rod S, reciprocated by the shaft P, the prong W, projecting from the shaft S, the contact-stripe *d d'*, connected with the field-magnets, the battery *a*, connected with the rod S, the contact-disks T U on the rod S, and the contact-stripe *h* and *g*, connected with the battery *b* and with the electro-magnets on the armatures, substantially as herein shown and described.

8. The combination, with an electro-magnet and its core, of a block held on the end of the core, which block is provided with an outwardly and upwardly projecting arm, and of a rocking or swinging armature, the lower edge of which armature swings resting on the said block secured to the end of the core, substantially as herein shown and described.

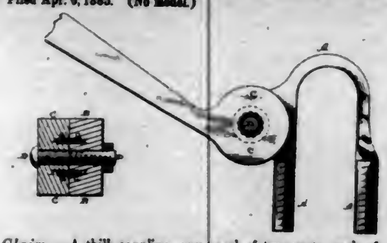
319,913. FAUCET. PAUL KÜWEIL and F. LOUIS LORSCHER, Stapleton, N. Y. Filed Mar. 12, 1885. (No model.)



Claim.—1. The combination of the shell A, having at its inner end a valve, R, and at its outer end a spout, C, and an externally and internally screw-threaded projection, G, the shell H, screwed upon the projection, and having at its outer end the cap I, the stuffing-box screwed into the projection, the shank K, passing through the shell and the stuffing-box and projecting outward through the said cap, to be operated from the exterior, a rod, K', detachably connecting the valve and the shank, and the spring R, bearing at one end against the stuffing-box and at the other end against a collar on the shank, substantially as described.

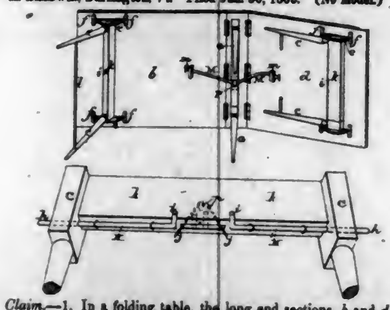
2. The combination of the shell A, having a valve, B, seating upon its inner end, and provided at its outer end with the internally and externally threaded hollow projection G, having a shoulder, T, a stuffing-box screwed into the projection against said shoulder, a shell, H, screwed upon the projection, and having a cap, I, at its outer end, a shank, K, extending through the shell, the stuffing-box, and outward through said cap, and having a collar, S a spring, R, bearing at one end against the stuffing-box and at the other end against the collar, and a connecting-rod between the shank and the valve, substantially as described.

319,914. THILL-COUPLING. JOHN W. LEETE, South Meriden, Conn. Filed Apr. 6, 1885. (No model.)



Claim.—A thill-coupling composed of two parts, each of which has a socket formed in its inner side, in combination with a separate ring which fits in both the sockets, and a clamping-bolt which passes through both parts of the coupling and binds them together, substantially as shown and described.

319,915. PORTABLE FOLDING TABLE. JOEL LINSLEY and JUDSON A. BALDWIN, Burlington, Vt. Filed Jan. 30, 1885. (No model.)



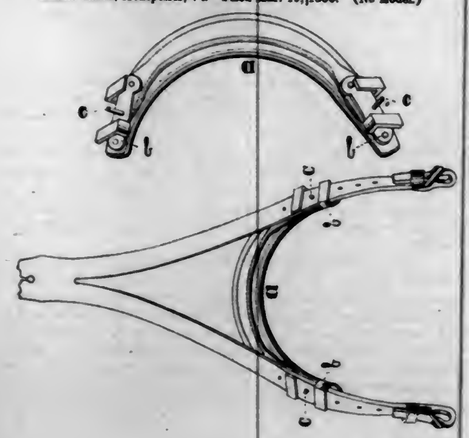
Claim.—1. In a folding table, the long end sections, *b* and *d*, having semicircular braces *e* attached to their under sides, to which the legs C C are pivoted by the strap-bolts *h h*, in combination with the narrow central section, *a*, having legs G rigidly attached to its under side, the elastic straps M, hinged to the plate *r*, and constructed so as to slide in recesses in the stop-blocks *m* as far as their ends *o*, substantially as shown and described.

2. The spring-stops H, having projecting handles *i i*, in combination with the frame-bar *k* and semicircular brace *e*, substantially as and for the purpose set forth.

3. In a folding table, the metallic semicircular brace *e*, securely attached to the under side of a table-top by screws passing through ears *f f*, extending laterally, and having apertures for the ends of the strap-bolts *g* and in its circular rim for the spring-stops *h h*, substantially as and for the purpose specified.

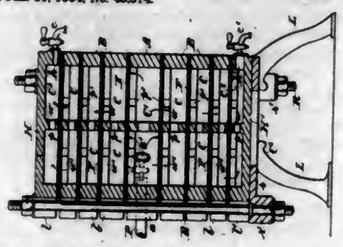
4. The elastic metallic strap M, hinged to the plate *r* on the lower side of the bar *n*, in combination with the recessed stop *m* and hinged leaf of a table-top, substantially as and for the purpose described.

319,916. NOSE-BAND FOR OVERDRAW-CHECKS FOR BRIDLES. HARRY LOWE, Montpelier, Vt. Filed Mar. 19, 1885. (No model.)



Claim.—The combination of the leather band A with the metallic devices *b b*, adapted for attachment to the straps of an overdraw-check, as and for the purposes set forth.

319,917. FILTER. EUGÈNE LOSE and ALPHONSE HELAERS, Fleurus, Belgium. Filed Mar. 16, 1885. (No model.) Patented in Belgium Apr. 17, 1883, No. 61,130; in France May 19, 1883, No. 155,549, and in Austria Jan. 31, 1884, No. 43,814.



Claim.—1. A knockdown filter composed of the head-sections H and H′, provided with discharge-orifices, a central section, A, provided with an inlet-orifice, and sections B, arranged between said central and head sections, in combination with filtering media adapted to be clamped between the sections of the filter to form a central receiving-chamber, C, filtering-chambers C′, and discharge-chambers C², and tie-rods R, common to all the sections for connecting the same together and clamping the filtering media between them, substantially as and for the purpose specified.

2. A knockdown filter composed of two end sections or heads having each a discharge-orifice, an intermediate section having the inlet-orifice, and interchangeable sections of varying depth adapted to be interposed between said end sections and intermediate sections, in combination with tie-rods for uniting said sections together, as described, for the purpose specified.

319,918. PROCESS OF DRAWING AND GALVANIZING WIRE. J. A. MATHIEU, Detroit, Mich. Filed May 31, 1882. (No specimens.)

Claim.—The herein-described process of drawing and coating wire with metal, consisting in passing the wire before it reaches the draw-plate through a mixture of acetate of soda and acetate of potash and acetate of zinc, either in a molten state or in solution with water.

319,919. MICROMETER-GAGE. JERRET MOFFITT, Southbridge, Mass. Filed Mar. 25, 1885. (No model.)

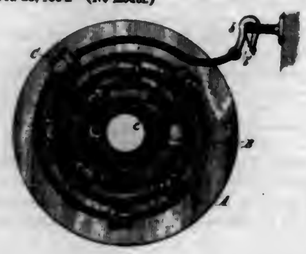


Claim.—1. The tapered nut or ring D, externally and internally screw-threaded, and having the slot *d*, in combination with the gage-screw B and the frame A, having the cylindrical internally-threaded extension A′, substantially as set forth.

2. The combination, with the frame A and micrometer-gage screw B, of the screw I, having the reduced portion *i* and threaded portion *i*′, fitted into the step of the frame in the manner shown and described.

3. In a micrometer caliper or gage, the combination of the gaging-screw B, having the smooth guiding portion and threaded portion, the U-shaped frame A, with the internally-threaded unslotted cylindrical extension A′, the conoidal double-threaded thimble-nut D, supporting said screw within the cylindrical extension, and the step-screw I, having the reduced portion *i* and the threaded portion *i*′, fitted to said frame, substantially as set forth.

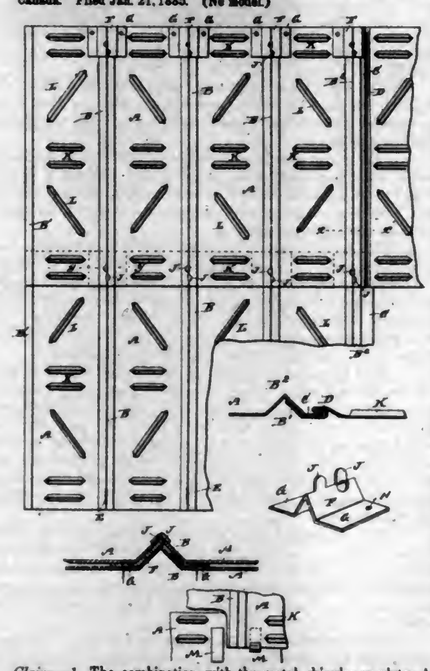
319,920. FIRE-ESCAPE. ROBERT MOLYNEUX, Ransomville, N. Y. Filed Oct. 23, 1884. (No model.)



Claim.—1. The combination, with the rope or cable B, of a series of handles or projections, C, secured to the rope or cable at suitable distances apart, and each composed of a block of wood or other suitable material secured to said rope or cable, and a metal casing, *d*, inclosing said block and provided with a screw-cap, d^2, substantially as set forth.

2. The combination, with the rope or cable B, of the projections C, composed of a metallic casing, *d*, inserted over the rope, blocks *e f*, arranged in said casing, a pin or bar secured to the rope B, and arranged between the blocks *e f*, and screw-cap d^2, applied to the open end of the casing *d*, substantially as set forth.

319,921. METALLIC ROOFING. LEVI H. MONTROSS, Simcoe, Ontario, Canada. Filed Jan. 21, 1885. (No model.)



Claim.—1. The combination, with the metal shingles or plates A, having ribs extending from top to bottom, and having slots E in the lower ends, of the saddles F, shaped to fit the ribs, and having tongues adapted to be passed through the slots in the ribs and lapping opposite inclined sides of the ribs, substantially as herein shown and described.

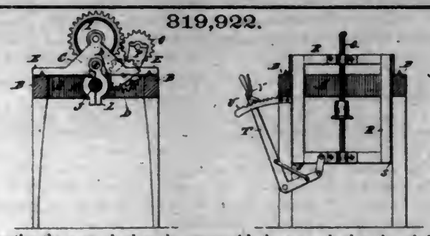
2. The saddle F, with side flanges, G, and tongues J J, struck from the top or ridge from opposite sides thereof, substantially as herein shown and described.

3. A metallic shingle having ribs B B′ B^2 extending from top to bottom, the transverse ribs or ridges K, and the diagonal ribs or ridges L, substantially as herein shown and described.

319,922. LATHE FOR TURNING SPIRALS. SILAS MOORE, Cleveland, Ohio. Filed Oct. 13, 1884. (No model.)

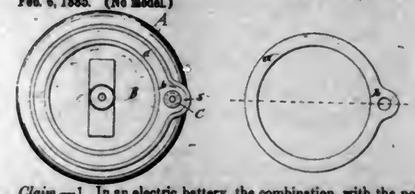
Claim.—1. In a spiral-lathe, the combination, with a head-stock and tail-stock fitted to slide upon the latheways, and means, substantially as described, binding the head and tail stocks to each other to move as one, of a spindle journaled in the head-stock, a gear-wheel on the spindle, a longitudinally-slotted screw journaled in the frame of the lathe and means for revolving it, a gear-wheel fitted to slide upon the screw and provided with a spline engaging the slot in the screw, the last-named gear-wheel being fitted at its sides to bear in a head-stock, intermediate gear-wheels connecting the gear-wheel on the screw with the gear-wheel on the spindle, and a nut engaging the head-stock with the screw, substantially as shown and described.

319,922.



2. In a spiral-lathe, the combination, with a head-stock and tail-stock fitted to slide as one piece on the latheways, of a cutter-spindle journaled in a sash fitted to slide to and from the line of the lathe-centers, a hand-lever pivoted to the lathe-frame, a link connecting it with the said sash, a segment of teeth, U, secured upon the lathe, and a spring-latch, V, pivoted to the lever to engage the said teeth, substantially as shown and described.

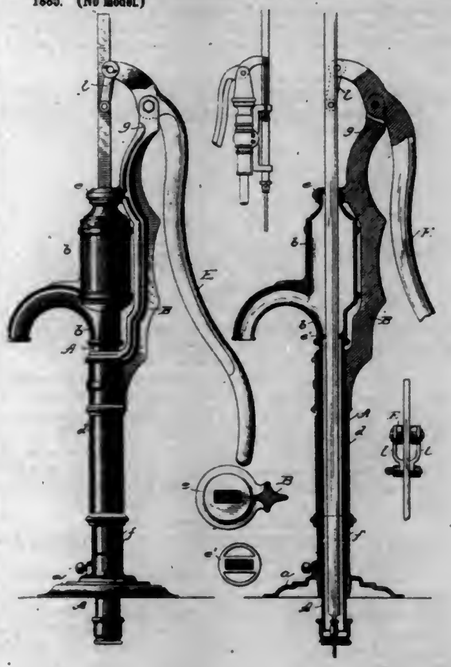
319,923. ELECTRIC BATTERY. M. J. MYERS, Syracuse, N. Y. Filed Feb. 6, 1885. (No model.)



Claim.—1. In an electric battery, the combination, with the porous cell, zinc electrode, and their inclosing cell or jar, of an elastic packing-ring completely surrounding the upper end of the porous cell, and an elastic lateral extension of said packing-ring embracing the zinc electrode, as and for the purpose set forth.

2. In combination with the porous cell B, zinc electrode C, and the inclosing-cell A, provided with the spout *s*, the elastic packing-ring *a*, surrounding the upper end of the porous cell, and formed with the supplemental ring *b* surrounding the zinc electrode, said combined rings being wedged between the cell B, electrode C, and cell A, substantially as described and shown.

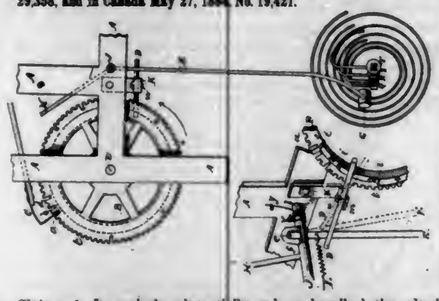
319,924. PUMP. PHILIP A. MYERS, Ashland, Ohio. Filed Mar. 7, 1885. (No model.)



Claim.—1. The combination, in a pump, of the pump-tube, a spout and spout-piece secured to the upper end thereof, a base-plate, and bracket supporting the handle, the lower end of said bracket surrounding the pump-tube, and a projection, *e*, upon the upper part, forming a bearing for the spout-piece, all substantially as described.

2. In a pump, the combination of a pump-tube, spout and spout-piece connected thereto, a handle-bracket having its lower part surrounding the pump-tube and supported from the base-plate, the projection *e*, resting upon the upper part of the spout-piece, said projection having a guide-opening for the pump-rod, and a second guide, *e'*, placed within the spout-piece and movable therein in the adjustment of the bracket and pump-rod, all substantially as described.

319,925. STRIKING MECHANISM FOR CLOCKS. HENRY L. NARAMORE, Sharon, Mass. Filed Apr. 21, 1884. (No model.) Patented in England Feb. 20, 1884, No. 3,665; in France Feb. 23, 1884, No. 160,529; in Belgium Feb. 26, 1884, No. 64,323; in Germany Feb. 26, 1884, No. 29,358, and in Canada May 27, 1884, No. 19,421.



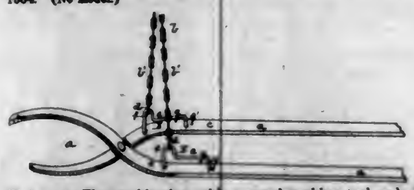
Claim.—1. In a clock substantially such as described, the wheel B, provided with two or more cams or lifts varying in length and height, and adapted to operate on a lever or other device connecting said wheel with the hammer, and thereby move the hammer from bell to bell and regulate its strokes in accordance with the hour being struck, substantially as specified.

2. In a clock substantially such as described, the wheel B, provided with a series of cams or lifts arranged in groups, substantially as and for the purpose set forth.

3. In a clock substantially such as described, the rocker-shaft J, provided with the wire or arm H, slot *z*, stud *f*, hammer-wire E, and springs L *l*, combined and arranged to operate substantially as set forth.

4. In a clock substantially such as described, the rocker-shaft J, provided with the striking-wire H, hammer-wire E, and springs L *l*, the wheel B, provided with the lifts 2 3 4, the wire C, pivoted lever D, and bells Q R S T, combined and arranged to operate substantially as specified.

319,926. DEVICE FOR HANDLING METAL. WILLIAM O. NIGHTINGALE, McKeesport, assignor to James I. Kay, Pittsburg, Pa. Filed Apr. 2, 1884. (No model.)



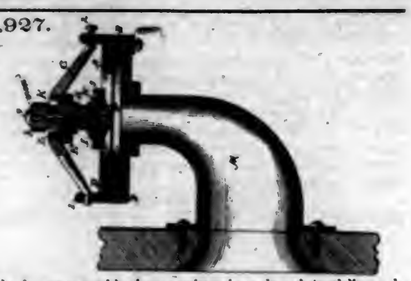
Claim.—1. The combination, with a metal-working tool and suspending rod or chain, of a sliding connection between said chain and tool, substantially as and for the purposes set forth.

2. The combination, with a metal-working tool and a suspending-chain, of a seat to receive the ring or other connection between said tool and chain, and a slide and shoulder back of said seat, substantially as and for the purposes set forth.

3. In combination with a suspending rod or chain having a ring, *d*, at the base thereof, a metal-working tool having a loop, *e*, provided with a raised seat, *f*, and extension *g*, substantially as and for the purposes set forth.

319,927. TELEPHONE-TRANSMITTER. S. P. NUTT, Natchez, Miss. Filed Feb. 12, 1885. (No model.)

Claim.—1. The current-changer or variable rheostat of a telephone-transmitter, comprising a variable pressure-chamber and a conducting liquid or fluid electrode, in combination with an opposing electrode and a tube communicating with said chamber, the sonorous vibrations acting through said pressure-chamber to produce a rise and fall of the liquid in



said tube in contact with the opposing electrode, substantially as described.

2. The combination of a variable pressure-chamber, a conducting liquid or fluid electrode, a tube communicating with said chamber, and an opposing electrode formed by or forming a part of said tube, substantially as described.

3. The current-changer or variable resistance of a telephone-transmitter, comprising a conducting liquid or fluid electrode, a pressure-chamber having a flexible wall, a communicating tube into which the said liquid rises, and an opposing electrode in contact with the liquid in the tube, substantially as described.

4. The current-changer or variable rheostat of a telephone-transmitter, comprising a conducting liquid or fluid electrode, an opposing electrode in contact with the former, and means for increasing the effect of the sonorous vibrations in varying the resistance, said means consisting of a pressure-chamber having a relatively large movable part to be actuated by the vibrations and a contracted tube of much smaller bore communicating with said chamber, substantially as described.

5. In a telephone-transmitter, the combination, with two solid or pressure electrodes, of a variable pressure-chamber having a relatively large movable part, a tube of much smaller bore communicating with said chamber, and a liquid filling said chamber and partly filling said tube for pressing the electrodes into contact, the said liquid, under the action of the sound-waves, rising and falling in said tube, and thus varying the pressure upon said electrodes, and the said variations being magnified in consequence of the relatively small bore of the tube, substantially as described.

6. The combination, with two pressure-electrodes, of a variable pressure-chamber, a communicating tube, a column of conducting-liquid filling said chamber and partly filling said tube for pressing said electrodes into contact, and conductors for establishing an electrical connection with the electrodes through the said liquid, substantially as described.

7. The combination, with the two pressure-electrodes, of the pressure-chamber, the communicating tube, the conducting-liquid constituting a fluid electrode in said chamber and tube, and the opposing electrode in contact with the liquid in the tube, substantially as described.

8. A telephone-transmitter comprising the following elements in combination, namely: a diaphragm, a pressure-chamber whose dimensions are varied by the vibrations impressed upon the diaphragm, a tube communicating with said chamber, a conducting liquid or fluid electrode rising in said tube, and an opposing electrode in contact with said liquid in said tube, substantially as described.

9. The current-changer or variable rheostat of a telephone-transmitter, composed of a carbon tube and a column of mercury which is caused to move in said tube in accordance with the vibrations to be transmitted, substantially as described.

10. The variable pressure-chamber provided with a flexible wall, and composed, mainly, of carbon, in combination with the carbon tube communicating therewith, and the fluid electrode of mercury, substantially as described.

11. The current-changer or variable rheostat of a telephone-transmitter, comprising a column of conducting-liquid, which constitutes a fluid electrode, and which is made to rise and fall under the action of the sound-waves, in combination with a stationary opposing electrode.

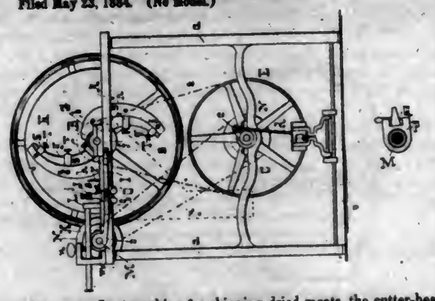
12. The combination, with a stationary pressure-chamber and tube, said pressure-chamber having a flexible wall which is acted upon by the sound-waves, of a conducting liquid or fluid electrode in said chamber and tube, and a stationary opposing electrode, substantially as described.

13. The combination of the diaphragm held in the stationary frame with the variable pressure-chamber and tube adjustably supported in the stationary frame, the conducting liquid or fluid electrode in said chamber and tube, and the opposing electrode in contact with the liquid in the tube, substantially as described.

14. The combination, with the column of conducting-liquid which constitutes the fluid electrode and is caused to rise and fall under the influence of the sound-waves, of an opposing electrode in contact with said column, and a conductor attached to said opposing electrode above the top of said column, substantially as described.

15. The combination of the variable pressure-chamber, the communicating tube, the fluid-electrode, the opposing electrode at the upper end of said tube, and conductors for putting one terminal of the circuit in electrical connection with the liquid in the pressure-chamber and the other terminal in connection with the top of said opposing electrode, substantially as described.

319,928. MEAT-CUTTER. ROBERT B. PUMPHREY, Baltimore, Md. Filed May 23, 1884. (No model.)



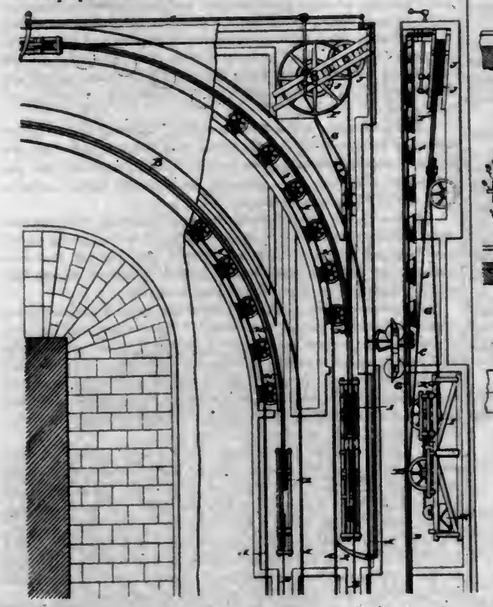
Claim.—1. In a machine for chipping dried meats, the cutter-head G, having the curved wings *g*, and curved knives *h*, secured to the said wings by means of screws *z*, combined with the wedges S, interposed between the said knives and the wings of the cutter-head and slotted to fit around the said screws *z*, and the set-screws T, for adjusting and holding the said wedges and knives in position, substantially as specified.

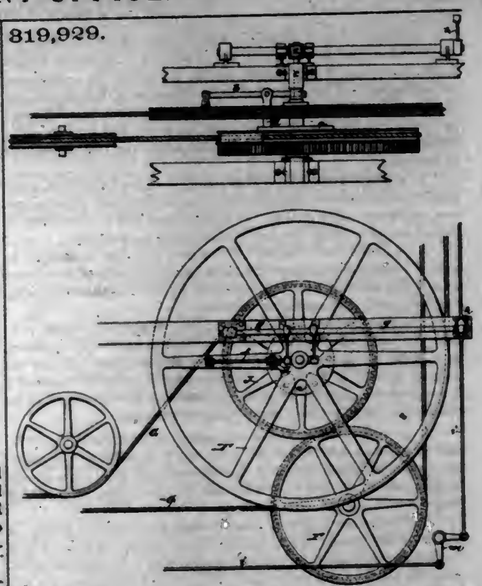
2. In a machine for chipping dried meats, the cutter-head G, having knives, substantially as described, and means to effect its revolution, combined with the continuously-rotating feed-screw M, sleeve P, open nut Q, having a spring to elevate it, button *v*, with its lever *w*, and the fixed pin R, adapted to trip the button and release the said half or open nut, substantially as specified.

3. In a machine for chipping dried meats, the cutter-head G, having knives, substantially as described, in combination with the plate I, feed-screw M, devices for holding the meat adapted to be forced to the cutters from the said feed-screw, the bracket *m*, set-screw *n*, and bar K with the plate L, whereby the meat is guided to the said cutting-head during the feeding operation, substantially as specified.

319,929. CABLE-RAILWAY. HENRY ROOT, San Francisco, Cal. Filed May 31, 1881. (No model.)

Claim.—1. The main cable D, the main sheave F, the supplemental cable G, and the subsidiary-cable sheave J, in combination with a clutch mechanism by which the two sheaves may be connected or disconnected, for the purpose set forth.



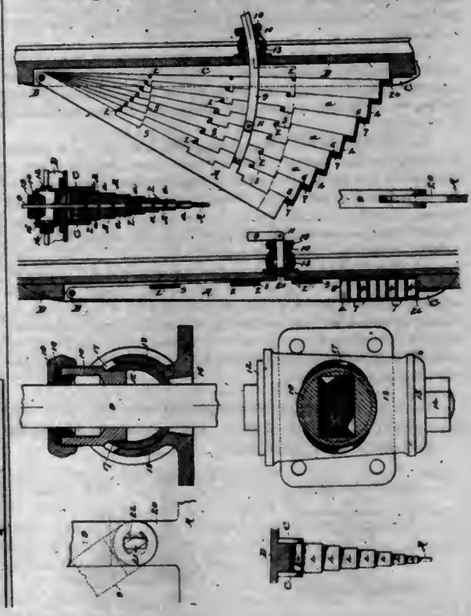


2. The fast and loose cable-sheaves F and J upon a single shaft, and having a clutch mechanism by which they may be united or disengaged, in combination with the connecting rods or devices *i* and the levers *k*, so placed as to be acted upon by the approaching and receding car, substantially as herein described.

3. The combination, in a cable railway, of main and supplemental cables passing around sheaves or driving-wheels at different levels, and guide-pulleys whereby the working portions of both cables are maintained on substantially the same plane, substantially as set forth.

4. The combination, in a cable railway, of a main cable extending beneath the straight or main portions of the track, and a supplemental cable extending beneath the curved portion of the track, and pulleys arranged to carry the working portion of the main cable away from the curve, substantially as set forth.

319,930. CENTER-BOARD. WILLIAM J. ROOT and WILLIAM CHILDS, Brooklyn, assignors, by direct and mesne assignments, to the Radix Manufacturing Company, New York, N. Y. Filed May 27, 1884. (No model.)



Claim.—1. The combination, with a center-board composed of a number of sections pivoted at one end in a recess in the keel or keelson of the boat, each of said sections, except the lower one, consisting of two plates, as *a*, of a rod attached to the lower one of said sections and extending upward between the plates of the other sections and through the bottom of the boat for folding and spreading said sections, and a stuffing-box for forming a water-tight joint around said rod, substantially as described.

2. A center-board composed of a number of pivoted sections, as A, each of which sections, except the lower one, is composed of two plates, as *a*, which are united at their rear ends by cross-plates, which serve to inclose the space within the board, substantially as described.

3. A center-board composed of a number of pivoted sections, as A, each of which sections, except the lower one, is composed of two plates, as *a*, which are united at their rear ends by the cross-plates 4, having the flanges 6 7, substantially as described.

4. A center-board composed of a number of pivoted sections, as A, each of which sections, except the lower one, is composed of two plates, as *a*, which are rigidly united to each other at their upper edges by one or more tie-rods, as 2, and each of which sections, except the upper one, is provided with a recess or recesses for receiving said tie-rods when the sections are folded together, substantially as described.

5. A center-board composed of a number of pivoted sections, as A, each of which sections, except the lower one, is composed of two plates, as *a*, which are rigidly united to each other at their upper edges by one or more tie-rods, as 2, and at their ends by cross-plates, as 4, having flanges, as 6 7, substantially as described.

6. The combination, with a center-board composed of a number of pivoted sections, as A, each of which sections, except the lower one, is composed of two plates, as *a*, united at their rear ends by cross-plates, as 4, of a rod, as 9, secured to the lower one of said sections, and extending upward inside the other sections and through the bottom of the boat, and a stuffing-box for forming a water-tight joint around said rod, substantially as described.

7. The combination, with a center-board composed of a number of pivoted sections, as A, each of which sections, except the lower one, is composed of two plates, as *a*, united at their rear ends by cross-plates, as 4, of a rod, as 9, secured to the lower one of said sections, and extending upward inside the other sections and through the bottom of the boat, and having a joint, as 11, by which it can be folded down onto the bottom of the boat, and a stuffing-box for forming a water-tight joint around said rod, substantially as described.

8. The combination, with a center-board composed of a number of pivoted sections, of a curved rod, as 9, secured to one of said sections and extending upward through the bottom of the boat, and a stuffing-box for forming a water-tight joint around said rod, substantially as described.

9. The combination, with a center-board composed of a number of pivoted sections, of a rod, as 9, secured to one of said sections and extending upward through the bottom of the boat, and an oscillating stuffing-box for forming a water-tight joint around said rod, substantially as described.

10. The combination, with a center-board composed of a number of pivoted sections, of a curved rod secured to one of said sections and extending upward through the bottom of the boat, and an oscillating stuffing-box for forming a water-tight joint around said rod, substantially as described.

11. The combination, with a center-board composed of a number of pivoted sections, each of which sections, except the lower one, is composed of two plates, as *a*, which are rigidly united to each other, of the curved rod 9, secured to one of said sections and extending upward between the others and through the bottom of the boat, and a stuffing-box for forming a water-tight joint around said rod, substantially as described.

12. The combination, with a center-board composed of a number of pivoted sections, of a jointed rod, as 9, passing through the bottom of the boat, for raising and lowering said sections, a stuffing-box for forming a water-tight joint around said rod, and the pivotal connection, as 21 22, between said rod and the lower section of the board, whereby said rod is permitted to oscillate for a limited distance, but no farther, substantially as described.

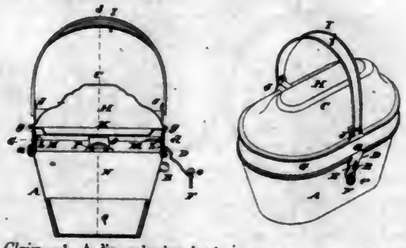
319,931. HARNESS-SADDLE. EMIL ROSENBERGER, Chicago, Ill. Filed Sept. 30, 1884. (No model.)





Claim.—The combination, with the saddle-tree A and back-strap G, of the blocks or straps F, screws E, and terrets D, substantially as and for the purpose specified.

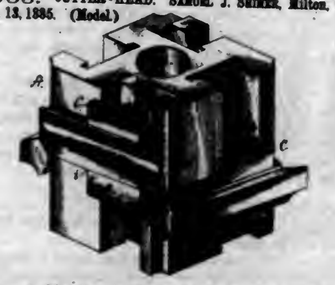
319,932. DINNER-BUCKET. JOHN B. SCHNEIDER, St. Jacob, Ill. Filed Sept. 26, 1884. (No model.)



Claim.—1. A dinner-bucket having a concavo-convex lid pressed the desired shape from a single sheet of metal, and provided with a base rim or flange having the projections *g* to retain the tray K in its proper position, all substantially as shown, and for or with the purpose specified.

2. In the dinner-bucket, the hasp-staple B, having its ends soldered in outward-punctured holes *b*, having lips *b'*, substantially as and for the purpose set forth.

319,933. CUTTER-HEAD. SAMUEL J. SHIRER, Milton, Pa. Filed Apr. 13, 1885. (Model.)



Claim.—1. The clamping device herein described, consisting of the separate upper and lower sections, *f* and *g*, formed with T-shaped bodies and projecting dovetailed clamping-jaws, and provided with a clamping-screw projected through both sections, substantially as described.

2. A cutter-head formed with vertical plane sides and concave corners, and vertical T-shaped slots having the floor or back of the slot curved, and the slots wholly within the plane of the sides and without the vertical axis of the heads, substantially as described, and for the purpose stated.

3. The clamping device herein described, consisting of the separate upper and lower sections, *f* and *g*, formed with T-shaped bodies and projecting dovetailed clamping-jaws inclined from horizontality, and provided with a clamping-screw projected through both sections, substantially as and for the purpose stated.

4. The clamping device herein described, consisting of the separate upper and lower sections formed with T-shaped bodies having curved back faces and projecting dovetailed clamping-jaws inclined from horizontality, and provided with a clamping-screw projected through both sections, substantially as and for the purpose stated.

5. In combination, a cutter-head with four plane vertical sides and concave corners, and formed with vertical T-shaped slots within the plane of the sides and without the vertical axis of the head, and an adjustable bit-clamping device consisting of separate upper and lower sections formed with T-shaped bodies to set the vertical slots in the head, and exterior clamping-jaws to hold the bits against the faces of the head, and provided with a clamping-screw projected through both sections within the slots of the head, substantially as described.

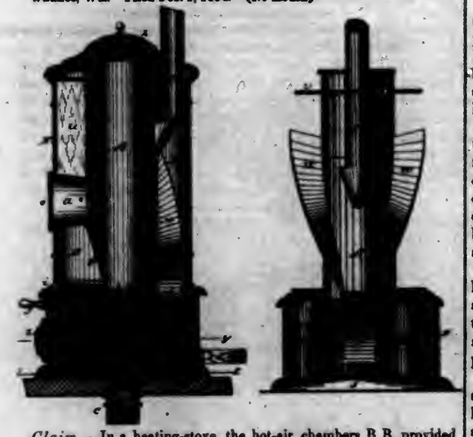
6. In combination, a cutter-head with four plane vertical sides and concave corners, and formed with vertical T-shaped slots within the plane of the sides and without the vertical axis of the head, and an adjustable bit-clamping device consisting of separate upper and lower sections formed with T-shaped bodies to set within the vertical slots in the head, and exterior dovetailed clamping-jaws inclined from horizontality to hold the bits in a clearing position and against the faces of the head, and provided with a clamping-screw projected through both sections within the slots of the head, substantially as and for the purpose stated.

7. In combination, a cutter-head with four plane vertical sides and concave corners, and formed with vertical T-shaped slots within the plane of the sides and without the vertical axis of the head, and formed with curved back faces, and an adjustable bit-clamping device consisting of separate upper and lower sections formed with inner side flanges and curved backs to set within the slots and corners of the vertical slots of the head, and exterior dovetailed clamping-jaws to hold the bits in position against the faces of the head, and provided with a clamping-screw through both sections set within the slots of the head, substantially as described, and for the purpose stated.

8. A cutter-head provided with pin-holes in the bottom thereof, arranged in the direction of the line of bevel of the cutting-bits, for the reception of gage-supporting pins, substantially as described, and for the purpose stated.

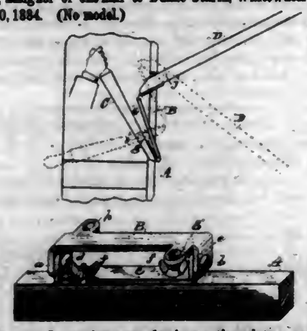
9. In combination with a cutter-head formed with pin-holes in the bottom thereof and a cutting-bit secured to the head, a gage comprised of a shank and a graduated blade set at right angles to each other, and provided with projecting pins fixed in the shank, said pins being arranged to register with and set within the pin-holes in the bottom of the cutter-head, substantially as described, and for the purpose stated.

319,934. HEATING-STOVE. EUGENE SPRENT and LOUIS FIX, Milwaukee, Wis. Filed Feb. 1, 1884. (No model.)



Claim.—In a heating-stove, the hot-air chambers B B, provided with cold-air flue C, having automatically-operating gate *r*, adjustable sliding gates *s*, upwardly-extending and spirally-curving partition-wings *w*, and downwardly-extending and outwardly-opening chamber 2, in combination with chamber A, having grated bottom *a*, and smoke-pipe *f*, adapted for combustion of fuel, all substantially as and for the purpose set forth.

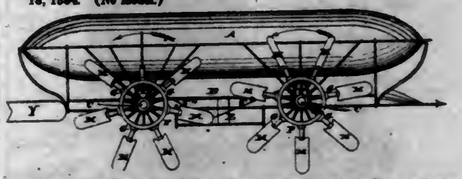
319,935. ROWING-GEAR FOR BOATS. DANIEL STOCKING, Fort Atkinson, assignor of one-half to Duane Starin, Whitewater, Wis. Filed Aug. 30, 1884. (No model.)



Claim.—1. In rowing-gear for boats, the plate *c*, provided with diagonally-opposite recesses on its longitudinal edges adapted to receive and bear against the retaining-bolts fixed in and extending upwardly from the gunwale of the boat, and end lugs *d* and *e*, in combination with the rocking plate B, provided with diagonally-opposite apertures *g* and *h*, for attachment of the oar and lever, and with the end lugs *a* and *b*, by and through which lugs said rocking plate is pivoted to the plate *c*, substantially as and for the purpose set forth.

2. In rowing-gear for boats, the plate *c*, provided with diagonally-opposite recesses on its longitudinal edges adapted to receive and bear against the retaining-bolts fixed in and extending upwardly from the gunwale of the boat, and end lugs *d* and *e*, and rocking plate B, provided with diagonally-opposite apertures *g* and *h*, for attachment of the oar and lever, and with the end lugs *a* and *b*, by and through which lugs said rocking plate is pivoted to the plate *c*, in combination with the lever C and oar D, said lever and oar being both centrally pivoted on the rocking plate, the one at *h* and the other at *g*, and the tension-arm *k*, hinged at one extremity to the inner end of the short arm of the oar, and at the other extremity to the outer end of the short arm of the lever C, substantially as and for the purpose set forth.

319,936. AERIAL SHIP. DAVID STOUT, St. Louis, Mo. Filed Oct. 18, 1884. (No model.)



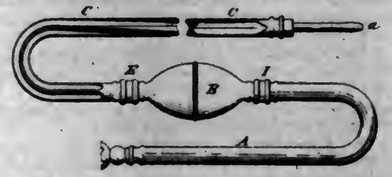
Claim.—1. In an aerial ship, the combination of a balloon, a frame secured to the balloon, shafts or axles mounted in the frame, cams supported around the shafts or axles, and wheels, each wheel comprising a body, hollow radial extensions having grooves or slots, sleeves sliding in the extensions, bearing on a cam and formed with lugs and spiral slots, springs to force the sleeves inward, and wings having stems formed with lugs occupying the spiral slots, substantially as set forth.

2. In an aerial ship, the combination of a balloon, a frame secured to the balloon, shafts or axles mounted in the frame, cams adjustable around the shafts or axles, devices by which the cams are adjusted, and wheels, each wheel comprising a body, hollow radial extensions having grooves or slots, sleeves formed with spiral slots, and lugs occupying the grooves or slots in the extensions, springs to force the sleeves inward, and wings having stems formed with lugs occupying the spiral slots, substantially as set forth.

3. In an aerial ship, the wheels consisting each of a body having hollow extensions, sleeves having lugs fitting in slots in the extensions, and wings having stems provided with lugs fitting in spiral grooves in the sleeves, in combination with cams for forcing the sleeves outward and springs for forcing them inward, substantially as and for the purpose set forth.

4. An aerial ship-wheel consisting of a body having hollow extensions, sleeves having lugs fitting in slots in the extensions, and wings having stems provided with lugs fitting in spiral grooves in the sleeves, substantially as set forth.

319,937. SYRINGE. BENJAMIN F. SUTTON, Providence, R. I., assignor of two-thirds to Russell Parker and James H. Stearns, both of Brooklyn, N. Y. Filed Feb. 12, 1885. (Model.)



Claim.—1. A tube for syringes and like purposes, formed in a corrugated shape, whereby it is expanded when internal pressure is applied and contracted when the pressure is diminished, substantially as described and set forth.

2. In a syringe, the combination, with an elastic bulb, of a collapsible tube having flattened or corrugated walls brought in close proximity on their interior surfaces, whereby said tube is expanded when internal pressure is applied and contracted when the pressure is diminished, substantially as set forth and described.

3. In a syringe, the combination of the elastic bulb B, eduction-vasive E, and collapsible discharge-tube C, as and for the purposes set forth.

319,938. STAY-ROLLER FOR SLIDING DOORS. ALBERT L. SWEET, Medina, N. Y. Filed Mar. 12, 1885. (No model.)

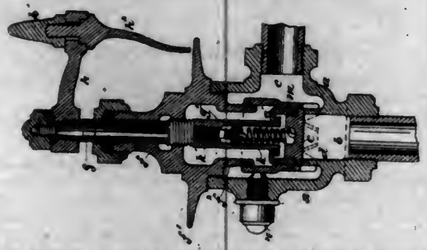
Claim.—1. The combination, with the roller A, of a supporting-bracket consisting of two arms made adjustable with reference to each other and both adapted for attachment to the building, whereby the roller can be adjusted toward or from the door, substantially as set forth.

2. The combination, with the roller A, provided with a journal-pin, *b*, of a bracket, C, composed of the arms *c c*, hinged to the journal-pin and adapted for attachment to the building, substantially as set forth.

319,938.



319,939. VALVE. FREDERIC TUDOR, Boston, Mass. Filed Mar. 1, 1884. (No model.)



Claim.—1. A regulable valve for governing the supply of steam or other fluids combining the following elements: means for adjusting the effective area of the way or passage with a movable valve or stopper for opening or closing said way and a stop to limit the movement of said stopper and representing the maximum movement thereof, substantially as and for the purpose set forth.

2. The regulable valve for steam-heaters or their equivalents, constructed with means for adjusting the effective area of the internal way or passage, in combination with a movable valve or stopper controlling said way, an external operating-handle and index-point, and a graduated scale or dial over which the same is movable, as and for the purpose set forth.

3. A regulable valve for steam-heaters or equivalent purposes combining the following features: means for adjusting the effective area of the internal way or passage, a movable valve or stopper controlling said passage, and an external operating-handle with an index point or finger, a scale or dial over which said handle or index is movable, and a stop or stops limiting the movement of said handle, substantially as and for the purpose set forth.

4. In a regulating-valve, the combination, with an adjustable way, of a movable stopper controlling the same and a yielding stopper adapted to yield and open to increased pressure with means for locking the same against so opening, an external operating-handle, and a graduated scale over which the same is movable provided with graduations representing the open, closed, and locked positions of the said valve, substantially as and for the purpose set forth.

5. The combination, in a regulating-valve, with a valve-seat in the internal way and a movable disk operating in relation therewith to open and close the way, of a notched or perforated sleeve, such as *m*, fitting around the valve or seat and adjustable thereon, for regulating the effective area of the way, substantially as set forth.

6. The combination, in a valve, with a valve-seat in the internal way and a valve-disk operating in relation therewith, of an adjustable screw-sleeve, such as *m*, having a notched or perforated edge fitting around the valve and seat and having a screw-engagement upon a sustaining part of the valve with a clamping device to hold said sleeve at the desired adjustment, substantially as set forth.

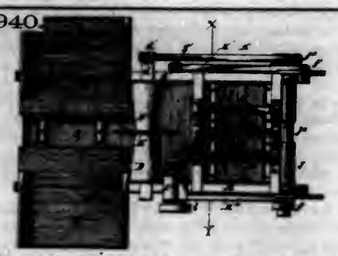
7. The combination, with a valve-casing having the seat *d*, of the valve-disk *e*, the adjustable notched screw-sleeve *m*, fitting around the valve and seat, screwing into the casing, and projecting therefrom for manipulation or adjustment, with the valve-stem *g*, screwing into the said sleeve, and means for turning the said stem and for clamping the said sleeve at desired adjustments, substantially as set forth.

8. A regulable valve combining the following features: a movable stopper for controlling the way with a yielding valve adapted to yield and open to an increased pressure, with means for locking the same against so opening when desired, substantially as set forth.

319,940. BAND-CUTTER AND FEEDER FOR THRASHING-MACHINES. JACOB W. TURNER and EDWARD W. STRACK, Middle Point, Ohio. Filed Jan. 12, 1885. (No model.)

Claim.—1. The combination, with a frame, of a rotatable carrying-belt, rolls tapering from their outer ends toward the middle and provided with a cutter intermediate of their ends, and tables arranged to throw the sheaf upon the middle of the belt so that the band will be in range of the cutter, substantially as described.

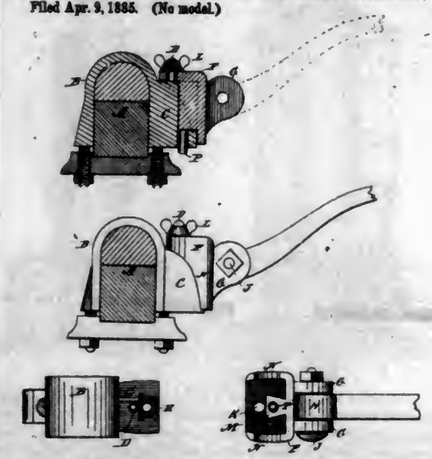
319,940.



2. The combination, with a frame provided with a carrying-belt, of rolls tapering from their outer ends toward the middle and a rotatable cutter located intermediate of the outer ends of said rolls, substantially as described.

3. The combination, with a frame provided with a carrying-belt, of rolls tapering from their outer ends toward the middle and provided with a rotatable cutter intermediate of their outer ends, a spreading-rake located in the rear of the cutter, and tables arranged to throw the sheaf upon the middle of the carrying-belt so that its band will be in range of the cutter, substantially as described.

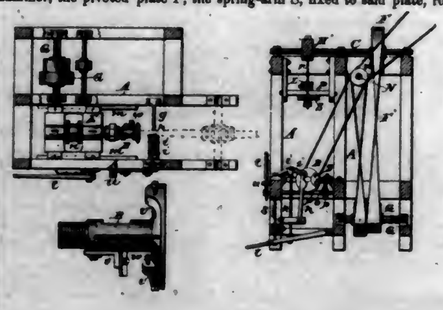
319,941. THILL-COUPLING. GEORGE D. UHLAND, Osceola Mills, Wis. Filed Apr. 9, 1885. (No model.)



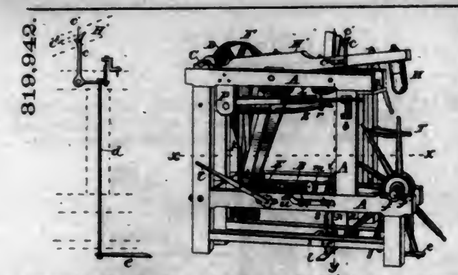
Claim.—The combination of a block, C, upon a carriage-axle clip, B, the said block being dovetail-grooved part way down its front face, and having a round hole from the groove through the bottom of the block, a screw-threaded stud projecting from the top of the block, and a coupler, F, having ears to receive a thill-eye, the top of the coupler extending backward and vertically perforated to engage the stud on the block, and a dovetailed rib on the inner face of the coupler terminating at its lower end in a round stud adapted to engage the dovetailed slot and the hole at its lower end in the said block, the top and front of the coupler being joined by sides, substantially as shown and described, for the purpose specified.

319,942. SPOKE DRIVING AND TENONING MACHINE. HARRY WATKINS, Syracuse, N. Y., assignor of one-half to W. M. Barpee, same place. Filed July 5, 1884. (No model.)

Claim.—1. In combination with the wheel-hub support and trip-hammer, the pivoted plate P, the spring-arm S, fixed to said plate, rod



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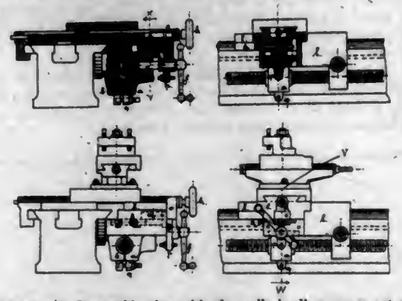


r, connecting the vibrating end of the arm S with the hammer-beam, the lever L, fixed to the plate P, and provided with the arm *a*, and the ratchet *b*, engaging said arm, all combined substantially as described and shown.

2. In combination with the upright frame A, provided at one end with the wheel-support *f*, and the hammer-beam H', pivoted to the top of said frame, as shown, the hammer-head H, composed of transversely-divided sections detachably connected, whereby the said hammer-head may be distended or contracted to conform to the diameter of the wheel to be formed, substantially as set forth.

3. The combination, with the upright frame A, of the boxes *f*, secured to the lower portion of one end of said frame, the trip-hammer H H', pivoted to the top of the frame, the guides *m m* on the inner sides of the lower portion of the frame, the slide E, mounted on said guides, the hollow auger B, journaled on said slide, the pulley *n*, attached to the mandrel of the auger, the rack *o* on the slide, a shaft extended across the frame, a pinion on said shaft engaging the rack, the lever *t*, attached to the same shaft, the stop *u*, secured adjustably in its position on the frame and adapted to arrest the movement of the lever *t*, and mechanism for transmitting motion to the trip-hammer and hollow-auger pulley, substantially as described and shown.

319,943. SCREW-THREADING LATHE. HERMANN WOHLENBERG, Hanover, Prussia, Germany. Filed Oct. 23, 1884. (No model.)



Claim.—1. In combination with the split leading-screw nut *a b*, the coupling-block *r s o*, and pin *k*, for alternately coupling the halves of the split nut with the saddle-spindle, in the manner set forth.

2. In combination with the split leading-screw nut *a b*, saddle-spindle *d*, coupling-block *r s o*, and pin *k*, the stops *g* and *p*, to automatically limit the movements of the halves of the split nut, and of the tool therewith, in the manner set forth.

319,944. CAR-COVER. RICHARD H. WYMAN, Evanston, Ill. Filed Oct. 27, 1884. (No model.)

Claim.—1. A movable cover for railway freight-cars, consisting of two sections formed from a series of slats hinged to each other, one end of each section being attached to a reel at the end of the car, with suitable sprocket-wheels and drive-chains upon the sides of the car and geared to said reels for operating said covers, substantially as and for the purposes set forth.

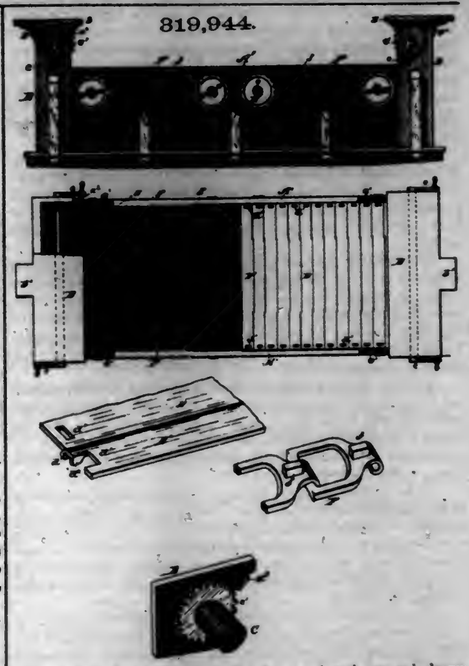
2. A car-cover formed in two sections mounted upon reels at the respective ends of the car, suitable sprocket-wheels and drive-chains upon the sides of the car for engaging said covers, and intermediate gearing connecting the same with said reels, substantially as and for the purposes specified.

3. In a car-cover, the flexible sections D D, mounted upon reels C C, inclosed in suitable boxes at the respective ends of the car, combined with drive-chains and suitable intermediate gearing upon the sides of the car for operating said cover, substantially as described.

4. In combination with a flexible car-cover, substantially as described, the folding supports G H, arranged substantially as specified.

5. The combination, with the box A of a freight-car, of the flexible winding covers D D, reels C C, with suitable supports, G H, beneath,

319,944.

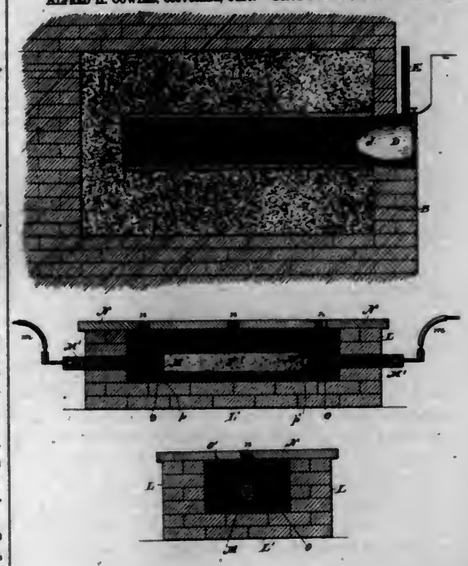


arranged to be folded over the sides of the car when the cover is drawn back, substantially as described.

6. In a car-cover, the flexible sections D D, mounted upon suitable reels inclosed in boxes at the respective ends of the car, combined with drive-chains and suitable intermediate gearing upon the sides of the car, and folding supports G H beneath said cover, all constructed and arranged substantially as and for the purposes specified.

7. A flexible car-cover consisting of one or more sections secured to a reel or reels at the end or ends of the car, suitable sprocket-wheels and drive-chains upon the sides of the car, and connected by intermediate gears with said reel or reels, said chains being provided also with projections for engaging with slots in said cover, all combined and constructed substantially as and for the purposes specified.

319,945. ELECTRIC SMELTING-FURNACE. EUGENE H. COWLES and ALFRED H. COWLES, Cleveland, Ohio. Filed Feb. 24, 1885. (No model.)



Claim.—1. In an electric smelting or reducing apparatus, a chamber or casing having its longest dimensions in a horizontal direction, and adapted to contain a charge of ore and electrical resistance material previously pulverized and mixed together, the oppositely-located electrodes in conductive relation to the charge, but otherwise insulated from one another, and an exit for the escape of the gases and vapors evolved from the charge during the process of reduction, substantially as herein set forth.

2. In an electric smelting or reducing apparatus, the smelting-chamber formed of side and bottom walls of closely-packed pulverized or granular material, and the permeable top wall formed of a layer of granular non-heat-conducting material, and the electrodes oppositely located at the ends of the core or smelting chamber, substantially as herein set forth.

3. In an electric smelting or reducing furnace, the combination of a chamber or casing, the side and bottom layers of closely-packed pulverized or granular material, and the top covering of similar material, made permeable for the escape of gases and vapors, with the electrodes oppositely located at the ends of the chamber or casing and surrounded by the packing or filling which incloses a charge of carbon and ore, substantially as herein set forth.

4. In an electric smelting or reducing apparatus, a smelting-chamber formed of closely-packed granular or pulverized material of a non-heat-conducting nature and of lesser electrical conductivity than the charge to be smelted in the furnace, with two electrodes arranged at the opposite ends of said chamber, for conducting the electricity to the said charge, substantially as herein set forth.

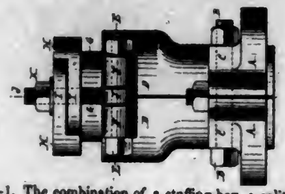
5. In an electric furnace, a body or core of pulverized, granular, or broken resistance material interposed between two electrode-plates, substantially as described, having a greater number of points of contact in a cross-section of the body taken close to the plates than in a cross-section of the same taken at intermediate parts thereof, whereby there is less resistance and consequently less heat at the ends of the core than at other parts thereof.

6. In an electric furnace, a body or core of pulverized, granular, or broken resistance material interposed between two electrode-plates, substantially as described, with fine carbon filling the spaces between the particles of coarse carbon at the ends only of the core abutting against the plates, whereby there is less resistance and consequently less heat at the ends of the core than at other parts thereof.

7. In an electric smelting or reducing apparatus, a smelting-chamber formed of closely-packed pulverized material of non-heat-conducting nature and of lesser electrical conductivity than the charge to be smelted within it, a layer of similar material, permeable for the escape of gas, for closing the said chamber, and two electrodes arranged at the opposite ends of the said chamber, for conducting electricity to the charge, substantially as set forth.

REISSUES.

10,608. STUFFING-BOX. WILLIAM DIMOLE and WILLIAM JENKINS Lake Mahopac; said Jenkins assignor to Arthur F. Wendt, New York, N. Y. Filed May 11, 1885. Original No. 306,230, dated Oct. 7, 1884.



Claim.—1. The combination of a stuffing-box, a split gland made of two transversely-connected parts, and screw-bolts for securing the gland to the stuffing-box, substantially as set forth.

2. The combination of a stuffing-box provided with an enlarged end for the packing and gland, a gland made of two transversely-connected parts and provided with a circumferential rim or flange, and screw-bolts by which the rim or flange of said gland is connected with the stuffing-box, substantially as set forth.

3. The combination of a stuffing-box made in two parts, transverse bolts for connecting said parts, a split gland made of two transversely-connected parts, and screw-bolts for connecting the stuffing-box to the gland, substantially as set forth.

4. The combination of a stuffing-box made in two parts, transverse bolts for connecting the said parts, a split gland made of two transversely-connected parts, and screw-bolt pivoted to the transverse bolts of the stuffing-box and adapted to secure the gland to the same, substantially as set forth.

5. In a stuffing-box, the combination, with the stuffing-box D, made in two parts with smooth inner surface, and provided with bolts E and recessed lugs F, of the gland G, made in two parts with smooth outer surface and provided with overlapping perforated lugs I, and the bolts and nuts J K, substantially as herein shown and described, whereby the said gland will be held securely in place and can be readily applied and removed, as set forth.

6. In a stuffing-box, the gland G, made in two parts with smooth outer surface and provided with perforated overlapping lugs I, substantially as herein shown and described, to adapt it to be secured in the stuffing-box by exterior bolts and nuts, as set forth.

PHOTO LITH NORRIS PETERS WASHINGTON, D.C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

Supreme Court of the United States.

WOLLENSAK *v.* REIHER.

Decided May 4, 1885.

Reissue Letters Patent No. 10,264, issued to Wollensak December 26, 1882, on surrender of original Letters Patent No. 148,538, dated March 10, 1874, for an improvement in transom-lifters. The delay in applying for reissue was for more than five years. The original patent was confined to two claims, which were the first two claims in the reissue; but seven additional claims appear in the reissue, and it was of these that infringement was alleged.

The decision of the circuit court dismissing the bill for want of equity is affirmed for the following reasons:

1. Admitting that the added claims were embraced by the original specification, nevertheless an inspection of the patent when issued would have informed the patentee that it failed to cover the area of his invention; and his failure to improve this opportunity with reasonable diligence constitutes laches, and disables him in equity from enforcing his right to the detriment of those who have thereby been led to act as though it were abandoned.
2. The settled rule is, where the claim is merely expanded, that a delay for more than two years in applying for reissue invalidates the reissue, unless such delay is accounted for and excused by special circumstances. It is a question of law arising on the face of the bill where such delay is not therein explained.
3. The averment in the bill that complainant had presented to the Patent Office a full statement of the facts connected with the delay, and that the Examiner-in-Chief had decided that he had satisfactorily explained the delay and was entitled to reissue, is, therefore, not enough. The Patent Office expressly or implicitly decides the question of diligence in every case of reissue; but the very question for judicial review is whether the Patent Office has decided rightly, and the special circumstances held to have excused the delay should have been set out.

APPEAL from the Circuit Court of the United States for the Northern District of Illinois.

Mr. Ephraim Banning, Mr. Thos A. Banning, and *Mr. L L. Bond* for the appellant.

Mr. Wm. A. McKenney for the appellee.

Mr. Justice MATTHEWS delivered the opinion of the Court.

This is a bill in equity to restrain by injunction the alleged infringement by the defendant below of Reissued Letters Patent No. 10,264, issued to the complainant December 26, 1882, upon the surrender of original Letters Patent No. 148,538, dated March 10, 1874, granted to the complainant for a new and useful improvement in transom-lifters. There was exhibited with the bill, as parts thereof, copies of the original and reissued letters patent The defendant demurred to the bill for want of equity, the demurrer was sustained, and the bill dismissed. From that decree this appeal was taken.

The original patent was confined to two claims, which are also the first two in the reissued patent. The latter, which in its specification and drawings is substantially the same with the original, adds seven additional claims, making nine in all. Of these the bill alleges infringement as to the third, fourth, fifth, sixth, and ninth.

The bill, after averring the issue of the original patent and referring to the copy set out as an exhibit, contains the following averments:

That said letters patent, being afterward found to be inoperative or invalid by reason of an insufficient or defective specification, which insufficiency or defect had arisen through inadvertence, accident, or mistake, and without any fraudulent or deceptive intention on the part of your orator, were afterward surrendered and duly cancelled by the Commissioner of Patents; that thereupon, and upon due application therefor, Reissued Letters Patent of the United States No. 10,264 were issued to your orator, dated the 26th day of December, 1882, granting to him, his heirs, or assigns, for the term of seventeen years from the said 10th day of March, 1874, the full and exclusive right of making, using, and vending to others to be used, the said invention, as by reference to said reissued letters patent here in court to be produced, and a copy of the specification and drawings of which is hereto attached, will more fully appear; that said reissued letters patent were applied for in good faith and not for any fraudulent or improper purpose; that, as your orator verily believes, no other person, firm, or corporation, not acting under his authority, ever began the manufacture, sale, or use of transom-lifters containing or embodying said inventions or improvements until long after your orator had consulted counsel and taken steps toward applying for said reissue, and until long after your orator had applied for and obtained a reissue of his previous patent on transom-lifters, having broader claims than any now contained in said Reissue No. 10,264; that, in making said application for said last-mentioned reissue, your orator presented to the Patent Office a full, sworn statement of facts and circumstances connected with his applying for and obtaining said original Patent No. 148,538, and with his delay in applying for said reissue; that at the first said reissue application was rejected on the ground that such statement did not show or furnish any sufficient explanation or excuse for said delay, and that your orator had lost his rights to such a reissue by reason thereof, the Examiner citing *Miller v. Brass Company,* (104 U. S., 350,) and other cases; that on appeal said decision or rejection was reversed by the Examiners-in-Chief constituting the Patent Office Board of Appeal; that in a long and full opinion, said Examiners-in-Chief expressly held that your orator had sufficiently and satisfactorily explained said delay and was still entitled to such a reissue, and that a part of said opinion, referring to claims appearing in said reissue and now in controversy, was as follows:

"All the above claims, moreover, have been rejected upon a supposed legal bar to enlargement of claim, found in certain recent decisions of the courts, mainly of the Supreme Court of the United States, on which the other decisions cited are based. * * * We find upon review that there was a grave defect in applicant's patent and claims, whereby it was inoperative to protect the invention disclosed by him to the full extent to which he was entitled. * * * We do not find any evidence of such laches or delay, after ascertaining the defects of his patent, as to debar or estop him from the benefits of the statute. We do not find in his renewed application any attempt to enlarge the scope of his invention beyond what was originally disclosed; but, on the contrary, an attempt to secure protection for the invention contained in the patent."

For the purpose of deciding the question of law, arising on the demurrer to the bill, it is not necessary to set out the several claims in the original and reissued patents, with a view to a comparison. It is sufficient to say, that it is not claimed that the defendant is guilty of an infringement of either of the claims in the original patent as repeated in the reissue; and it is admitted that the claims in the reissued patent, in-

fringement of which is averred, are expansions of the original claims, not covered by them, but alleged, nevertheless, to be embraced within the invention as described in the original patent. This is to say, that if, as a matter of fact, the patentee was the first and original inventor of the parts and combinations covered by these claims, the language of the specification to the original patent would sufficiently embrace them.

It follows from this, that if, at the date of the issue of the original patent, the patentee had been conscious of the nature and extent of his invention, an inspection of the patent, when issued, and an examination of its terms, made with that reasonable degree of care which is habitual to and expected of men, in the management of their own interests, in the ordinary affairs of life, would have immediately informed him that the patent had failed fully to cover the area of his invention; and this must be deemed to be notice to him of the fact, for the law imputes knowledge when opportunity and interest combined with reasonable care would necessarily impart it. Not to improve such opportunity, under the stimulus of self-interest, with reasonable diligence, constitutes laches which in equity disables the party who seeks to revive a right which he has allowed to lie unclaimed from enforcing it, to the detriment of those who have, in consequence, been led to act as though it were abandoned.

This general doctrine of equity was applied with great distinctness to the correction of alleged mistakes in patents, by reissues, in the case of *Miller* v. *Brass Company*, (104 U. S. 350.) It was there declared, that where the mistake suggested was merely that the claim was not as broad as it might have been, it was apparent upon the first inspection of the patent, and, if any correction was desired, it should have been applied for immediately; that the granting of a reissue for such a purpose, after an unreasonable delay, is clearly an abuse of the power to grant reissues, and may justly be declared illegal and void; that, in reference to reissues made for the purpose of enlarging the scope of the patent, the rule of laches should be strictly applied, and no one should be relieved who has slept upon his rights, and has thus led the public to rely on the implied disclaimer involved in the terms of the original patent, and that when this is a matter apparent on the face of the instrument, upon a more comparison of the original patent with the reissue, it is competent for the courts to decide whether the delay was unreasonable and whether the reissue was, therefore, contrary to law and void. This doctrine has been reiterated in many cases since, and at the present time has been reconsidered and emphatically repeated as the settled law, in the case of *Mahn* v. *Harwood*, (112 U. S. 354,) where it is said, by Mr. Justice Bradley, delivering the opinion of the court:

> We repeat, then, if a patentee has not claimed as much as he is entitled to claim, he is bound to discover the defect in a reasonable time, or he loses all right to a reissue; and if the Commissioner of Patents, after the lapse of such reasonable time, undertakes to grant a reissue for the purpose of correcting the supposed mistake, he exceeds his power, and acts under a mistaken view of the law; and the court seeing this has a right, and it is its duty, to declare the reissue *pro tanto* void in any suit founded upon it.

It was also there said, that, while no invariable rule can be laid down as to what is reasonable time within which the patentee should seek for the correction of a claim which he considers too narrow, a delay of two years, by analogy to the law of public use before an application for a patent, should be construed equally favorable to the public, and that excuse for any longer delay than that should be made manifest by the special circumstances of the case.

In the present case the delay in applying for the reissue was more than five years. No special circumstances to account for or excuse the delay are set out in the bill. In lieu of such a statement the complainant avers that he presented to the Patent Office a full, sworn statement of facts and circumstances connected with his applying for and obtaining his original patent and with his delay in applying for the reissue, and that the Examiners-in Chief decided that he had sufficiently and satisfactorily explained the delay and was entitled to the reissue. But this does not satisfy the law. The question as to whether the delay had been reasonable or unreasonable is for the Court to determine upon the special circumstances brought to its attention; and it cannot substitute the decision of the Patent Office upon that question for its own. The very question is, whether the Patent Office has decided rightly, and, as it is a question of power and jurisdiction, in which the delay shown is *prima facie* unlawful, it is incumbent on the party seeking to establish the jurisdiction of the Patent Office to grant the reissue to show the facts on which it rests. In every case of a reissue that Office, either expressly or implicitly, decides the question of diligence on the part of the patentee, and the grant of a reissue is a decision that the delay has not been unreasonable. That, therefore, is the very question for judicial review in every suit to enforce a reissued patent in which the question is made, and, as we have seen, the settled rule of decision is that, if it appears in cases where the claim is merely expanded that the delay has been for two years or more, it is adjudged to invalidate the reissue, unless the delay is accounted for and excused by special circumstances which show it to have been not unreasonable.

When, therefore, the injunction bill sets out or exhibits both the original and the reissued patent and it appears from inspection that the sole object of the reissue was to enlarge and expand the claims of the original, and that a delay of two or more years has taken place in applying for the reissue, not explained by special circumstances showing it to be reasonable, the question of laches is a question of law arising on the face of the bill, which avails as a defence upon a general demurrer for want of equity. This rule of equity pleading applies in analogous cases, as where it otherwise appearing on the face of the bill that the claim is stale or is barred by lapse of time, and it is sought to avoid the effect of such a bar on the ground that the fraud complained of was concealed and has been only recently discovered, it is necessary that "the particular acts of fraud or concealment should have been set forth by distinct averments, as well as the time when discovered, so that the Court may see whether, by the exercise of ordinary diligence, the discovery might not have been before made." (*Beaubien* v. *Beaubien*, 23 How., 190; *Stearns* v. *Page*, 7 How., 819; *Moore* v. *Greene*, 19 How., 69; *Marsh* v. *Whitmore*, 21 Wall., 178, 185; *Godden* v. *Kimmell*, 99 U. S., 201; *Badger* v. *Badger*, 2 Wall., 87, 95; *Wood* v. *Carpenter*, 101 U. S., 135; *Lansdale* v. *Smith*, 106 U. S., 391)

The decree of the circuit court dismissing the bill for want of equity was correct and is affirmed.

Supreme Court of the United States.

WOLLENSAK *v.* REIHER.

Decided May 4, 1885.

Reissue Letters Patent No. 9,307, issued to John F. Wollensak for an improvement in transom-lifters, describes, broadly, "any construction, combination, or arrangement of parts which shall support the long or operating rod" for the purpose specified; but in view of the state of the art the claim must be regarded as a narrow one, and limited to the particular combination described.

The defendant Reiher's device, secured to him by Letters Patent No. 226,343, is satisfactorily shown by expert testimony to differ from Wollensak's device in that, proceeding from a different point in the state of the art, it presents a different structure operating upon a totally different principle.

APPEAL from the Circuit Court of the United States for the Northern District of Illinois.

Mr. Ephraim Banning, *Mr. Thomas A. Banning*, and *Mr. L. L. Bond* for the appellant.

Mr. William A. McKenney for the appellee.

Mr. Justice MATHEWS delivered the opinion of the Court.

This bill in equity was filed by the appellant to restrain the alleged infringement by the defendant of Reissued Letters Patent No. 9,307, dated July 20, 1880, the original patent, No. 136,801, dated March 11, 1873, having been issued to John F. Wollensak, the appellant, for an alleged new and useful improvement in transom-lifters. This appeal is from a decree dismissing the bill for want of equity.

The specification and drawings of the patent are as follows:

> Figure 1 is a perspective view showing one means for carrying my invention into operation. Fig. 2 is a side elevation of the same, and Fig. 3 is a detached sectional view.
>
> Similar letters of reference in the several figures denote the same parts.
>
> Transom-lifters have heretofore been constructed with a long upright rod or handle jointed at its upper end to a lifting-arm,

Fig. 1.

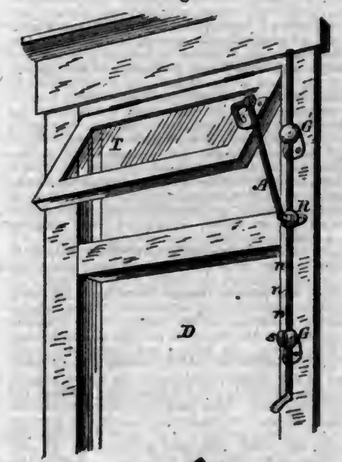


Fig. 2.

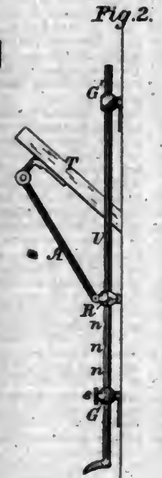


Fig. 3.



> which extends to and is connected with the side or edge of the transom-sash, the sash being opened or closed by a vertical movement of the long rod. When thus constructed, the upright rod is liable to be bent by the weight of the transom, owing to the want of support at or near the point of junction between the long rod and the lifting-arm.
>
> The object of my invention is to remedy this difficulty; and to such end it consists in providing the proper support or support and guide for the upper end of the lifting-rod during its vertical movements and while at rest.
>
> This may be accomplished in a variety of ways, one of which I will now proceed to describe in detail, although I wish it clearly understood that I do not limit my invention to this construction, but regard it as covering, broadly, any construction, combination, or arrangement of parts which shall support the long or operating rod and prevent it from being bent or displaced by the weight of the transom.
>
> In the drawings, D is the door; T, the transom-sash, pivoted at top, bottom, or middle, as preferred; A, the lifting-arm that connects the sash to the upright rod; U, the upright rod, passing through two guides, G G', one above and one below the point of junction with the lifting-arm; R, a friction-roller secured to the lifting-rod so as to bear against the wall and support said rod at its point of junction with the lifting-arm; *n n*, notches cut in the upright rod to receive the end of the set-screw, and *s* a set-screw arranged, in connection with the lower guide and the rod U, so as to be convenient of operation for the purpose of fixing the transom at any required angle. The upright rod is thus supported at three points—to wit, above, below, and at the joint where it sustains the weight of the transom. It can also be adjusted and securely fastened so as to open the sash as much or as little as may be desired, and to lock it in that position.
>
> Having thus described my invention, what I claim as new is—
>
> 1. The combination, with a transom, its lifting-arm, and operating-rod, of a guide for the upper end of the operating-rod to prevent it from being bent or displaced by the weight of the transom.
>
> 2. The roller R, arranged at the junction of the lifting-arm A and upright rod U, in a transom-lifter, substantially as and for the purpose described.
>
> 3. The guide G', arranged above the junction of the lifting-arm and upright rod, in combination with the prolonged rod U, the guide G, and arm A, substantially as and for the purpose specified.

The defenses relied on were that the alleged invention was not patentable; that it had been anticipated by Bayley and McCluskey, to whom a patent had been granted, dated July 7, 1868, No. 79,541, for an improvement in railroad car ventilators, and that the defendant's device, secured to him by a patent dated April 6, 1880, No. 226,353, did not infringe that of the appellant.

The specification and drawings of the appellee's patent are as follows:

Fig. 1.

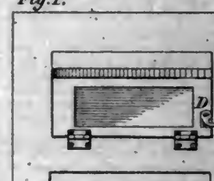


Fig. 3.

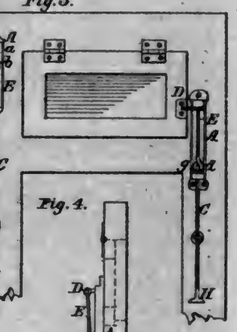


Fig. 2

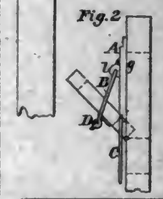


Fig. 4.

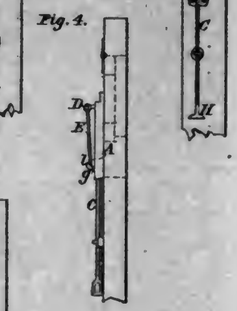
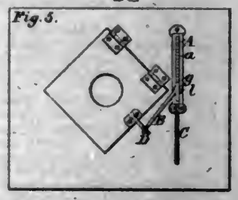


Fig. 5.



> My object is to construct a lifter which will always be ready for use and answer equally well for all kinds of transoms, no matter how the same may be hinged, without exchanging or altering any of the parts in a simple and durable manner.
>
> In the drawings forming part of this specification, Figures 1 and 2 show a front view and side elevation of my lifter attached to a

transom hinged below. Figs. 3 and 4 show the lifter for transoms hinged above. Fig. 5 shows a front view of the lifter attached to a ventilating opening hanging obliquely. Fig. 6 shows the lifter attached to a transom hinged sidewise. Fig. 7 shows the lifter attached to a skylight. Fig. 8 shows a front view, Fig. 9 a vertical longitudinal section, and Fig. 10 an inverted plan, of the casing. Figs. 11 and 12 show the top of lifting-rod with adjusting-block. Fig. 13 shows the lower part of the lifting-rod with handle attachment.

Like letters of reference indicate like parts.

The casing A, which is screwed to the door-frame, is provided on the front plate with a long slot *a*. Sliding loosely up and down in this casing A is the adjusting-block B, which protrudes by the ear *b*, forming part of this block, through slot *a*. Affixed to block B is the lifting-rod C, in such a manner as to allow the rod to turn in said block. For this purpose the block is provided with a wide slot, as shown in Figs. 9 and 12, into which fits loosely the pin *d*, which penetrates the rod C.

Attached to the transom in a position which is regulated by and depends upon the manner of hinging the same, at about midway between the outer swinging point and the center of hinge, is the bracket or loop D. Attached to this loop is the connecting link or arm E, which connects at its other end to the ear *b* of the adjusting-block.

A look at the drawings will show that the upward or downward movement of the adjusting-block, caused by the respective movement of the lifting-rod, will be followed by a swinging movement of the transom on its hinges through the agency of the universal link or arm E.

Fig. 6.

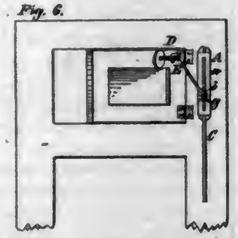


Fig. 7.

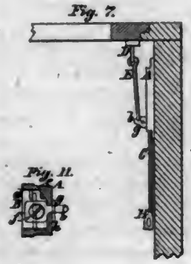


Fig. 11.

Fig. 8.



Fig. 9.

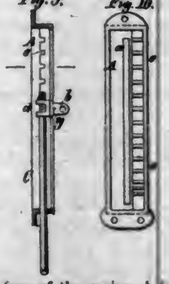


Fig. 10.

Fig. 12.

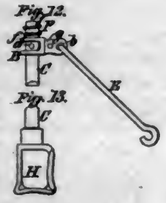


Fig. 13.

The inner face of the casing A (shown in Fig. 9) is provided with a series of notches, *e*. The upper end of the rod C is provided with a spiral spring, F, which, resting at one end in the hole *f* of the adjusting-block B, is affixed at its other end in a groove, *f'*, at the top of rod C. This spring F has the tendency to hold the rod C, which turns loosely in the block B, in such a position as to cause the pin *d*, which projects on both sides of the block B, to fall into one of the notches *e* provided in the casing. Thus the rod, with block B and universal link E, is held in place by the action of spring F and pin *d*, and can be moved only by turning the rod C slightly on its axis, so as to disengage the pin *d* from the notch *e*.

It will be seen that whenever the hand of the operator should happen to loose its hold upon the rod the spring F will cause the pin *d* to fall into the next notch and arrest the further movement of the block B, and thereby the movement of the transom. The transom may thus be locked at any desired position.

The rod C is provided at its lower end with handle H, arranged with an opening for the finger, so that the rod may be with convenience turned or lifted or lowered at will.

For transoms hinged at the lower edge of the frame (shown in Figs. 1 and 2) the transom with loop D hangs in the universal link E. The casing A with adjusting-block is affixed above. When operating the same, the block bears with its shoulders A upon the inner face of the casing A.

For transoms hinged at the upper frame, as shown in Figs. 3 and 4, the casing is fastened below, so that the adjusting-block may be held by the lowest notch *e*. While the transom is closed the universal link hangs downward from the loop D. In this case, when operated, the bearing between block and casing is reversed and is taken up by a pin, *g*, penetrating through the ear of the block and resting upon the outer face of the casing A.

For oblique transoms the lifter is affixed as shown in Fig. 5. Fig. 6 shows a transom hinged at the side. The casing of lifter is affixed vertically at the hinged side, the adjusting-block being in the highest notch when the transom is closed.

For transoms hinged in the middle the lifter may be affixed either above or below the hinged center. For skylights the lifter is affixed as shown in Fig. 7.

It will be seen that the universal link E, with its two swiveling loop ends, will always be ready to form a connection between the transom-loop D and the ear *b* of the adjusting-block, no matter which way the transom may be hinged.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The casing A, with slot *a*, containing the adjusting-block B, with upright rod C, in combination with chain-link E and loop D, all arranged and constructed in the manner as shown, and for the purpose specified.

2. The adjusting-block B, rod C, pin *d*, and spring F, in combination with casing A, provided with slot *a* and notches *e e*, for the purpose set forth.

The specification of the complainant's patent undertakes, broadly, to describe the invention intended to be embraced in it as—

any construction, combination, or arrangement of parts which shall support the long or operating rod and prevent it from being bent or displaced by the weight of the transom.

But, having reference to the state of the art at the date of the alleged invention and the claims of the patent, the patentee must be limited to the combination, with a transom, its lifting-arm, and operating-rod, of a guide for the upper end of the operating-rod, prolonged beyond the junction with the lifting-arm, so as to prevent the operating-rod from being bent or displaced by the weight of the transom. Putting by the question whether this is a patentable invention, in view of the existing state of the art, the claim must be regarded as a narrow one, and limited to the particular combination described. In that view the defendant's arrangement is no infringement. The difference between the two devices is pointed out, and, as we think, satisfactorily, by Mr. Dayton, an expert witness on behalf of the defendant. He says:

When the sash is opened in the Reiher transom not an ounce of its weight falls upon, either laterally or obliquely, the upright rod. The Reiher transom is provided at its lower end with a block which runs in a guide, and which is so constructed, with inner flanges and an external pin, arranged to bear respectively upon the inner and outer faces of the slotted guide which he employs, and which is fixed on the frame, as to receive all the pressure resulting from the weight of the transom. The handle or the long upright rod in the said Reiher transom is designed and serves wholly as a means of reaching the foot of the lifting-arm and pushing it upward or drawing it downward. As I before stated, not a particle of inward or lateral pressure falls upon the end of this rod by reason of the weight of the transom. In my judgment, such upright rod may, for this purpose, as well be absent as present. I stated that the sole purpose of the long upright rod was to reach and lift the foot of the block with the end of the lifting-rod. To be accurate, I also state that it serves additionally to operate a novel locking device with which said foot-piece of the lifting-arm is provided. So far, then, as the function of the guide G' in the Wollensak patent, or the upper guide in the numbers 1 and 3 of the Wollensak transom model, is concerned, I find that the Reiher transom presents a totally different structure, operating on a totally different principle, from that exhibited in the Wollensak transom model. In my judgment the improvements of Mr. Reiher, as exemplified in the Reiher transom exhibit, are based upon and proceed from a totally different point in the state of the art of transom-lifters from that admitted to be old in the passage quoted from Wollensak's patent specifications, and upon which Wollensak's improvements are based. It is a matter of common knowledge, I believe, and it is certainly within my personal knowledge, that transoms or dap-windows were, long prior to the date of Wollensak's original patent, provided with a pivoted brace, the foot of which was movable against the frame of such window or door. This is precisely the point in the art to which Mr. Reiher in his transom-lifter has applied his improvements. His improvements do not involve the removal of the weight of the transom from a direct bearing against the frame at the foot of the lifting-arm, and have not that object. Mr. Reiher sought evidently only to provide a ready locking device by which the foot of the lifting-arm may be secured at any point quickly, and by which he may at once reach the locking device and lift the transom, through the medium of the long upright rod. Said long upright rod in his case is not, therefore, made stronger or weaker with a view to prevent its bending, and is only strong enough in any case to enable him to push up the foot of the lifting-arm, and, by rotating the rod, to unlock his novel fastening device. There was no fault in the old structure upon which Mr. Reiher has made his improvements like that assigned to the old device upon which Wollensak has improved, namely, the bending of the vertical rod having a lifting-rod connected therewith, because said lifting-arm did not, in the old device attacked by Reiher, have any vertical rod at all, and because the lifting-arm distinctly bore against the frame instead of against the rod.

It follows that the decree of the circuit court dismissing the bill for want of equity was correct. It is accordingly affirmed.

Supreme Court of the United States.

THE WESTERN ELECTRIC MANUFACTURING COMPANY *v.* THE ANSONIA BRASS AND COPPER COMPANY.

Decided April 20, 1885.

Complainant's reissued patent for an improvement in insulating telegraph-wires, which covers a product, falls with his original patent, which covered a process, for the following reasons:

1. The process consists in compressing the wax or other suitable material into the pores of the fibrous covering of the wire without scraping off any part of it. This process was anticipated by letters patent to Dundonald and to Bandouin in Great Britain, which describe the compressing of the wax, &c., to attain the same result, namely—the insulation of the wire. The patent is therefore invalid.
2. The difference between the complainant's and the Bandouin process consists merely in the use of a greater quantity of wax. This may be an improvement on the latter process, but it does not involve invention.
3. The allegation of complainant's that one of the features of its process is allowing the wax to cool before compressing it is not sustained by any mention of this feature in either the specification or claim of its patent. As the claim fails to describe this feature, it cannot be held to be covered by the patent.

APPEAL from the Circuit Court of the United States for the District of Connecticut.

STATEMENT.

The case was a suit in equity brought by the appellant, the Western Electric Manufacturing Company, against the Ansonia Brass and Copper Company to restrain the infringement of two reissued Letters Patent, numbered 6,954 and 6,955, respectively, granted to the appellant as the assignee of Joseph Olmsted, both dated February 29, 1876, for improvements in insulating telegraph-wires. The reissues are divisions of original Letters Patent No. 129,858, dated July 23, 1872. The descriptive specifications of the two patents were identical. They differed only in the claims, the first being for a process and the second for the product of the process. The specification of both patents, after stating that Olmsted had invented a new and useful improvement in insulating telegraph-wires, proceeded as follows:

The method of insulating now in use consists in braiding over the wire a fibrous covering, after which it is dipped in wax for the purpose of filling and closing its pores, and, after a subsequent scraping to remove the surplus wax, it is ready for use. This method is, however, objectionable, inasmuch as it leaves the covering in a very rough and soft condition, and fails to secure perfect insulation.

In my improved method, after the wire has received its coating I dip it in paraffine or wax, after which, instead of scraping off the surplus coating, I pass the whole through a suitable machine, which compresses the covering, and forces the paraffine or wax into the pores, and secures perfect insulation. By so compressing the covering the paraffine or wax is forced into the pores, and the surface becomes and appears polished.

Wire insulated in this manner is entirely impervious to the atmosphere, of greater durability, and less cumbersome than any heretofore made.

The claim of the process patent (No. 6,954) was as follows:

The method of insulating telegraph-wires, by first filling the pores of the covering, and subsequently compressing this covering, and thereby polishing its surface, substantially as described.

The claim of the product patent (No. 6,955) was—

An insulated telegraph-wire the covering of which has its pores filled and its surface polished, substantially as described.

The defendant denied in its answer that Olmsted was the first and original inventor of the improvement described in the patents, or of any substantial or material part thereof, or that the same was patentable or the subject-matter of invention, and that the alleged invention had been previously patented by letters patent of Great Britain, granted to Thomas, Earl of Dundonald, dated July 22, 1851, and by Letters Patent of Great Britain granted to Felix M. Bandouin, dated April 3, 1857. The defendant also denied infringement. The circuit court, on final hearing, dismissed the bill, and the plaintiff appealed.

Mr. George P. Barton for the appellant.
Mr. William B. Wooster for the appellee.

Mr. Justice WOODS delivered the opinion of the Court.

It is clear that the two patents must stand or fall together. If the patent for the process is invalid, so must be the patent for the product. What we have to say will refer to the process patent. The alleged invention described in the patent is not for insulating telegraph-wires, for that art long antedated the original patent. The specification disclaims as a part of the invention the braiding of a fibrous covering over the wire and then dipping it in wax for the purpose of filling and closing the pores and the subsequent scraping of the surplus wax from the wire. The patent does not cover the material in which the wire, after it has received its fibrous coating, is dipped, which may be either paraffine, wax, or bitumen, or any other suitable material. The three substances mentioned had long been used for that purpose. Nor does the patent specify or cover any device by which the process is to be carried on. Any suitable machine may be used. The process described by the patent consists, therefore, simply in this: After the wire has received its fibrous coating and been dipped in paraffine, wax, or other suitable substance, the compressing and forcing of the paraffine, wax, or other substance without scraping off any part of it, into the pores of the fibrous material by some suitable means. We think this process was not new. It was substantially anticipated both by the process described in the patent of Dundonald and in that of Bandouin, the first dated January 22, 1852, and the other April 3, 1857. Dundonald describes his process thus:

I also employ a bituminous material to cover, and thus insulate, the conducting-wires of electric telegraphs which are intended to be placed under ground. For this purpose I employ the said bitumen, either simple or compounded, of a flexible description, and pass the wire through it when it is in a melted state, then causing the wire to pass through some die or orifice which will deprive it of all the superfluous bitumen. * * The incasement of this wire with bitumen may also be affected by covering it with a filamentous material which has been previously saturated with melted bitumen, and then passing the wire so covered through a heated die or orifice, so as to melt or soften the bitumen upon the filamentous material, and press the whole of the coating against the wire in such a way as to cause it to form one compact continuous covering of the wire, and thus insure its insulation.

The patent of Bandouin describes his process as follows:

My invention relates to the preparation of conductors of electricity for electric telegraphs, being wires insulated to prevent the loss or deterioration of the electric currents used for that purpose, and also in the machinery for the preparation of manufacture of such conductors. I coat the wires with bituminous or such like fatty matters that are not liable to become hard or cracked, but, on the contrary, are constantly acted on by the temperature of the atmosphere. Coatings of this material in themselves are insufficient to maintain the proper protection and insulation for telegraph-conductors, but when combined with other materials—such as paper, woven fabrics of cotton, silk, wool, or hemp, in a particular manner—are well adapted for the purpose.

I prefer to use three ribbons and bobbins for this purpose, the first covering of the wire being enveloped by the second in such manner that the helical junction of the first ribbon is covered by the second, and the second by the third. The wire is passed through a bath of hot bitumen, and has the superfluous matter removed by passing through suitable dies or parts to scrape and smooth its surface and render it of uniform thickness. The first and second ribbons are also passed through bituminous or other suitable matter to render them more impervious to electricity. The coated and lapped wire is passed through suitable dies to remove superfluous matter, to smooth down the lapping of the ribbons, and to compress and cause their proper adhesion. The coated and lapped wire passes through dies or smoothing-holes both in entering and leaving the rotating frame. These dies or smoothers have a rotary motion, the better to enable them to wipe and smooth the coated wire.

It is plain that these patents anticipate the process set out in the specification of the Olmsted process pat-

ent. They all three describe the compressing of the wax, paraffine, or bitumen coating of a wire covered with the fibrous material, so as to attain the same result—namely, the insulation of the wire. The Olmsted patent, therefore, covers an old process applied to the same subject with no change in the manner of applying it, and with no result substantially distinct in its nature. It cannot therefore be a valid patent. *Penn. Railroad* v. *Locomotive Truck Co.*, U. S., 490; *Vinton* v. *Hamilton*, 104 U. S., 485.

The fact that in the process described in the Olmsted patent the surplus wax or paraffine is not scraped off, but all that adheres to the wire is compressed against it and forms part of the covering, is relied on to distinguish that process from those of Dundonald and Baudouin; but the Dundonald process does not differ in this respect from that of Olmsted, for in the Dundonald process the whole of the coating is pressed against the wire and is left to form the covering; and as to the Baudouin process, the difference consists merely in the use of a greater quantity of wax or paraffine to form the coating. This may be an improvement upon the Baudouin process, but it does not involve invention.

So far as the present case is concerned, another answer to this contention of the appellant is that in this respect the defendant follows the Baudouin, and not the Olmsted, process, by scraping off the superfluous coating material.

It was insisted in argument by appellant's counsel that one of the features of the process described in the Olmsted patent was the allowing of the wax or paraffine covering to cool before compressing it upon the wire, and as this was not done in the Dundonald or Baudouin process they did not anticipate the Olmsted process. But neither the specification nor claim of the Olmsted patent mentions as a part of the process the cooling of the wax or paraffine coating before compressing it upon the wire. The appellant's counsel, however, contends that it must be considered a part of the process, because the polished appearance of the surface of the covering described in the specification is the result of allowing the paraffine or wax to cool before compressing it upon the wire. But, clearly, a patentee cannot claim the benefit of an element of his invention thus vaguely and indefinitely hinted at. The law in force when the patent of Olmsted was issued (act of July 8, 1870, section 4888, Revised Statutes) requires that—

Before any inventor shall receive a patent for his invention or discovery he shall file in the Patent Office a written description of the same and of the manner and process of making, constructing, compounding, and using it in such full, clear, concise, and exact terms as to enable any person skilled in the art or science to which it appertains or with which it is most nearly connected to make, construct, compound, or use the same, and he shall particularly point out and distinctly claim the part, improvement, or combination which he claims as his invention or discovery.

It is clear that if the patentee intended to include the cooling of the wax or paraffine before compressing it upon the wire he has failed to describe in his specification that element of his invention, as required by the statute. Instead of describing the process he mentions a quality of the product and asks the Court to infer the process from that quality. Such a vague and inverted method of description is not a compliance with the statute. That part of the alleged invention is not even referred to in the most distant manner in the claim. It has been held by this Court that—

The scope of letters patent should be limited to the invention covered by the claim; and though the claim may be illustrated it cannot be enlarged by the language in other parts of the specification. (*Railroad Co.* v. *Mellen*, 104 U. S., 112.)

The element of the process under consideration cannot, therefore, be held to be covered by the patent. The contention that the patentee intended to include it in his process is evidently an afterthought.

The result of the views expressed is that both the patents sued on are void.

Decree affirmed.

Supreme Court of the United States.

THE BEECHER MANUFACTURING COMPANY *v.* THE ATWATER MANUFACTURING COMPANY *et al.*

Decided May 4, 1885.

The use in succession of two distinct pairs of dies of well-known kinds, not combined in one machine, nor co-operating to one result, but each pair doing by itself its own work, is not a patentable invention.

APPEAL from the Circuit Court of the United States for the District of Connecticut.

Mr. H. T. Fenton and *Mr. O. H. Platt* for the appellant.

Mr. George S. Prindle and *Mr. J. M. Wilson* for the appellee.

Mr. Justice GRAY delivered the opinion of the Court.

This is an appeal from a decree for an injunction and damages for the infringement of a patent issued to Robert R. Miller on February 22, 1870, and reissued to his assigns on May 6, 1879, for an improvement in dies for forming the clip-arms of king-bolts for wagons. (8 Fed. Rep., 608.) According to the description in the specification, such bolts are made by taking an iron rod of suitable length, splitting it for about two inches at one end, and turning the forks or arms outward; then heating the rod, placing the body in a hole in a block or die grooved to receive the arms, and striking it with a plane-faced upper die, so as to force the arms into and make them take the shape of the grooves, and afterward placing it between two other dies, which give the arms the proper bend to fit them to the axle-tree of a wagon. With the subsequent shaping of the collar and stem of the bolt this patent has nothing to do.

In the original patent, the patentee stated that he did not claim either of the dies separately, and claimed only—

the series of dies [designating them by letters] for forming the clip-arms and wings of the lower ends of king-bolts for wagons, said dies being constructed and operating substantially as herein shown and described.

In the reissue he claimed:

1. The die B *b b'* and the die C, constructed and combined substantially as and for the purpose shown.

2. The series of dies B, C, D, and E for forming clip king-bolts, substantially as shown and described.

The first claim of the reissue is bad, not only because it was for something the patentee had expressly disclaimed in the original patent, but because, as the evidence clearly shows, there was nothing new in the dies themselves.

The second claim of the reissue, like the single claim of the original patent, for the use in succession, or in the patentee's phrase, "the series," of the two pairs of old dies, the one pair to shape the arms of the bolt and the other to give those arms the requisite curve, does not show any patentable invention. The two pairs of dies were not combined in one machine, and did not co-operate to one result. Each pair was used by itself, and might be so used at any distance of time or place from the other; and if the two were used at the same place and in immediate succession of time, the result of the action of each was separate and distinct, and was in no way influenced or affected by the action of the other. This was no combination that would sustain a patent. *Hailes* v. *Van Wormer*, 20 Wall., 353; *Pickering* v. *McCullough*, 104 U. S., 310; *Stephenson* v. *Brooklyn Railroad*, 114 U. S., 149.

Decree reversed and case remanded, with directions to dismiss the bill.

THE OFFICIAL GAZETTE

OF THE

United States Patent Office.

[*BY AUTHORITY OF CONGRESS.*]

VOL. 31—NO. 11. TUESDAY, JUNE 16, 1885. PRICE—$5 per year

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The Official Gazette.

The OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Indexes to Patents on Electricity.

Appendix No. 2 to the index to patents relating to electricity, covering the period of time from July 1, 1880, to June 30, 1883, has been issued, and is now for sale. These indexes, arranged alphabetically, numerically, and by classes, are completed to June 30, 1883, and comprise the following volumes:

Vol. 1. Index to patents relating to electricity granted by the United States prior to June 30, 1881, with an appendix, July 1, 1881, to June 30, 1882. One volume, 250 pages. In paper covers, $3; bound, $5.

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Vol. 3. Appendix No. 3, July 1, 1883, to June 30, 1884. One volume, 60 pages. In paper covers, $1.50.

Indexes to Foreign Patents.

The following indexes to foreign patents have been translated, compiled, and published under the authority of the Commissioner of Patents, and may be obtained as a Patent Office publication at the prices given below.

INDEX TO FRENCH PATENTS, 1791 to 1876, inclusive, (subject-matter,) one volume, 935 pp., bound in cloth	$10 00
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Issue of June 16, 1885.

Patents	506—No. 319,946 to No. 320,451,	inclusive.
Designs	8—No. 16,126 to No. 16,133,	inclusive.
Trade-Marks	21—No. 12,309 to No. 12,329,	inclusive.
Labels	8—No. 4,476 to No. 4,483,	inclusive.
Reissues of patents	6—No. 10,609 to No. 10,614,	inclusive.
Total issue	549	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama			Nebraska	5	
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Iowa	11		Utah Territory	1	
Kansas	2		Vermont		1
Kentucky	7		Virginia	3	
Louisiana	1		Washington Territ'y		1
Maine	6	1	West Virginia		
Maryland	8	1	Wisconsin	11	
Massachusetts	49	1	Wyoming Territory		
Michigan	17		United States Army		
Minnesota	8		United States Navy		
Mississippi	2				
Missouri	13		Total to citizens of the United States	484	25
Montana Territory					

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Brazil	1		Russia		
Canada	4	1	Scotland		
Cape of Good Hope	1		Spain	1	
Colombia, U. S. of	1		Sweden	1	
Cuba			Switzerland		
Denmark	1				
Egypt			Total to citizens of foreign countries	30	4
England	14	1			

DESIGNS.

16,126.—RING-SETTING.—*Harvey Huestis*, Providence, R. I. Application filed February 10, 1885. Term of patent 7 years.

16,127.—WATCH-CASE.—*George W. Ladd*, Providence, R. I. Application filed June 3, 1884. Term of patent 14 years.

16,128 and 16,129.—COUPLING-REACH FOR ROLLER-SKATES.—*Fredrick C. Miller*, Newport, Ky. Applications filed April 25, 1885. Term of patents 14 years.

16,130.—COUPLING-REACH FOR ROLLER-SKATES.—*Fredrick C. Miller*, Newport, Ky. Application filed May 1, 1885. Term of patent 14 years.

16,131 and 16,132.—ORNAMENTAL FIRE-PLACE LINING.—*James Austin Page*, Philadelphia, Pa., assignor to *The Abram Cox Stove Company*, same place. Applications filed May 15, 1885. Term of patents 3½ years.

16,133.—FIRE-PLACE GRATE.—*Joseph A. Read* and *Edward L. Caley*, Philadelphia, Pa., assignors to *Gilbert Combs*, *John Bawden*, and *John H. Bawden*, all of Freehold, N. J. Application filed April 30, 1885. Term of patent 7 years.

TRADE-MARKS.

[Certificates of registration of Trade-Marks numbered 8,191 and upward are registered under the act of March 3, 1881.]

12,309.—ILLUMINATING-OIL.—*Acme Oil Company*, Olean and New York, N. Y. Application filed May 6, 1885.
"The word 'ACME.'"

12,310.—INSTRUMENTS FOR EXERCISING THE FINGERS, HANDS, AND WRISTS.—*James Brotherhood*, Stratford, Ontario, Canada. Application filed May 20, 1885.
"The word 'TECHNICON.'"

12,311.—COOK-STOVES.—*Culter & Proctor Stove Company*, Peoria, Ill. Application filed April 28, 1885.
'The word 'LEXINGTON.'"

12,312.—MEDICINES FOR DISEASES OF THE BLOOD AND NERVES.—*Stephen E. Martin*, Burlington, Vt. Application filed May 12, 1885.
"The two words 'MARTIN'S' and 'BITTERS' crossing each other at right angles in form of a cross, the former word being the upright, and the latter the horizontal, bar, in connection with the figures '1 8 8 5' in the triangular spaces formed by the bars."

12,313.—ILLUMINATING-OILS REFINED FROM PETROLEUM.—*Sone & Fleming Manufacturing Company*, (*Limited*,) New York, N. Y. Application filed May 21, 1885.
"The words 'SILVER LIGHT.'"

12,314.—ILLUMINATING-OILS REFINED FROM PETROLEUM.—*Sone & Fleming Manufacturing Company*, (*Limited*,) New York, N. Y. Application filed May 21, 1885.
"The word 'SUNBEAM.'"

12,315.—YEAST-CAKES.—*Egbert W. Gillett*, Chicago, Ill. Application filed May 11, 1885.
"The arbitrarily-selected word 'MAGIC.'"

12,316.—TURBINE WATER-WHEELS.—*Henry Reese Mathias*, Athens, Ohio. Application filed May 12, 1885.
"The letters and word 'LEVIATHAN.'"

12,317.—JAPAN SILKS.—*Mourilyan, Heimann & Co.*, Yokohama and Hiogo, Japan. Application filed March 23, 1885.
"The picture of six butterflies, two shrubs, and the sun."

12,318.—LIQUID MEDICINE FOR CURE OF STOMACH, LIVER, AND KIDNEY DISEASES.—*Henry C. Paige*, New York, N. Y. Application filed May 12, 1885.
"The arbitrary word 'KRUSEOLA.'"

12,319.—PAPER FOR PHOTOGRAPHIC PURPOSES.—*August Friedrich Siemon*, Dresden, Saxony, Germany. Application filed May 14, 1885.
"The picture of three crowns."

12,320.—TOILET-POWDER.—*Abby Day Slocomb* and *Jennie Whiting Day*, Stonington, Conn. Application filed May 23, 1885.
"The letters 'E D P P' composing a monogram."

12,321.—ICE-BOXES AND REFRIGERATORS.—*Samuel A. Suydam*, New York, N. Y. Application filed May 4, 1885.
"The words 'JACK FROST.'"

12,322.—SMOKING, PLUG, AND FINE-CUT TOBACCO.—*The Wellman & Dwire Tobacco Company*, Quincy, Ill. Application filed May 1, 1885.
"The words 'OLD SETTLER' and a male figure."

12,323.—CUTLERY.—*Hermann Boker & Co.*, New York, N. Y. Application filed May 25, 1885.
"The letters 'R. D.'"

12,324.—WHEAT-FLOUR.—*Fisher & Wise*, Boston, Mass. Application filed May 25, 1885.
"The arbitrarily-selected words 'WAGH'S' and 'SNOW.'"

12,325.—OIL-PRODUCING SEEDS AND THEIR NAMED PRODUCTS.—*William N. Hazall*, Baltimore, Md. Application filed May 23, 1885.
"The word 'SEAL' and the representation of a stag's head on a shield, and the sun with diverging rays on a cushion."

12,326.—BEERS, PORTERS, ALES, AND OTHER MALT LIQUORS.—*Charles Jacobsen*, Washington, D. C. Application filed May 18, 1885.
"The letters 'A. B. Co.' and the picture of an anchor."

12,327.—ALL KINDS OF FIELD, GARDEN, AND FLOWER SEEDS, EXCEPTING CLOVER AND TIMOTHY SEEDS.—*Oliver Landreth*, Philadelphia, Pa. Application filed March 5, 1885.
"The picture of an anchor."

12,328.—CERTAIN NAMED RUBBER ARTICLES OF A PLIABLE CHARACTER.—*Chas. Macintosh & Co.*, Manchester, county of Lancaster, and London, county of Middlesex, England. Application filed May 20, 1885.
"The representation of a cock perched on one leg on a hand and holding in the left claw a sprig."

12,329.—MEDICINE FOR THE CURE OF RHEUMATISM AND LIKE DISEASES.—*Swamp Angel's Rheumatic Cure Manufacturing Company*, Seattle, Wash. Ter. Application filed May 26, 1885.
"The letters, in writing, 'S. A. R. C. MFG. CO.,' arranged as follows, to wit: 'S. A. R. C. MFG. CO.'"

LABELS.

4,476.—Title: "MRS. ALLEN'S INSTANTANEOUS CROUP REMEDY." *Herbert Judson Allen*, Portland, Me. Application filed May 20, 1885.

4,477.—Title: "ACETONE EGG PUNGENTS."—*E. G. Boughton*, Pittsford, N. Y. Application filed May 25, 1885.

4,478.—Title: "EMULSION COD LIVER OIL WITH PEPSIN AND QUININE."—*Caswell, Massey & Co.*, New York, N. Y. Application filed May 25, 1885.

4,479.—Title: "ROLL-HOLDER" (FOR A HOLDER FOR PHOTOGRAPHIC FILMS.)—*Eastman Dry Plate and Film Company*, Rochester, N. Y. Application filed May 25, 1885.

4,480.—Title: "AMERICAN FILM.—*Eastman Dry Plate and Film Company*, Rochester, N. Y. Application filed May 25, 1885.

4,481.—Title: "UNITED STATES FILM."—*Eastman Dry Plate and Film Company*, Rochester, N. Y. Application filed May 25, 1885.

4,482.—Title: "MADAM R. SEVE'S OINTMENT."—*Leopold Seve*, Harrisburg, Pa. Application filed May 20, 1885.

4,483.—Title: "UNIVERSAL HEALER" (FOR A MEDICINE.)—*A. B. Woodward*, Tunkhannock, Pa. Application filed May 21, 1885.

PATENTS

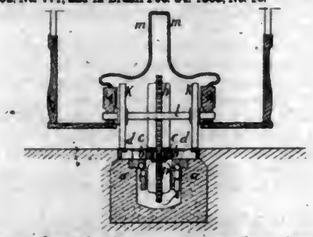
GRANTED JUNE 16, 1885.

319,946. THILL-COUPLING. JOSEPH H. BARKER, Cincinnati, Ohio. Filed Aug. 24, 1883. Renewed Jan. 29, 1885. (No model.)



Claim.—The take-up device for thill-couplings, consisting of the wedge-block D, terminating above in a screw, *d*, the abutment-plate *a*, the spring-washer *c*, and nut *e*, all combined and arranged as shown, and for the purpose specified.

319,947. ELECTRIC TRAMWAY. CARLOS BASTO, Rio de Janeiro, Brazil. Filed Dec. 11, 1883. (No model.) Patented in Portugal Aug. 23, 1882, No. 771, and in Brazil Feb. 24, 1883, No. 16.

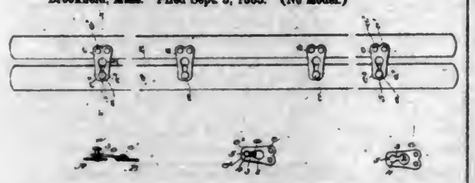


Claim.—1. In an electric-tramway system, the underground open channels having conducting linings G, insulated as described, combined with the elastic friction-pieces L, having extensions M, supported in piece N, the expanding-springs R, and electric connections with the car and motor, as set forth.

2. In combination with the underground channels, as described, and with the spring friction-pieces L, the wheels *h p*, frame *n*, means, as *q*, for adjusting the friction, and connections with the car, as and for the purposes set forth.

3. The combination, with the wheels *h p*, meshed, as shown, of the adjustable frame *n*, the springs *o*, for supporting the said frame *n*, the cams *q*, for adjusting the friction of wheel *p* upon the lower surface of the rail *c c*, the underground channel, and means, substantially as described, for making electrical connections therewith, as herein specified.

319,948. CORSET-STEEL FASTENING. THEODORE C. BATES, North Brookfield, Mass. Filed Sept. 3, 1883. (No model.)

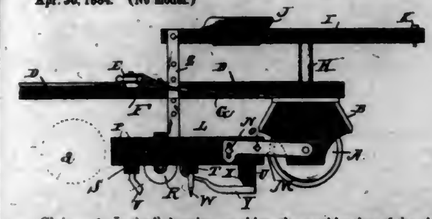


Claim.—1. The combination, with a corset-steel or busk provided with a headed stud, of a steel or busk provided with a lock-clasp composed of spring-arms connected therewith and having a stud-entering opening and a stud-receiving opening joined by a connecting-slot made narrower, substantially as described, than the diameter of the said stud to permit the passage of the said stud-entering opening into the stud-receiving opening, and then contract behind the said stud and retain it locked in the said receiving-opening, for the purposes set forth.

2. The integral lock-clasp plate for corsets, consisting of the two arms c^3 c^3, separated by the narrow slit 5, and having between them two openings, 2 4, of different size, separated by a connecting-slot narrower at some point between the said eyes than the diameter of the headed stud which is to pass from the larger to be retained in the smaller eye, substantially as described.

3. The integral lock-clasp plate having a main eye, 2, for the reception of the headed stud, and the smaller stud-retaining eye 4, in communication therewith, and divided at its outer end, as at 5, to form two springs, substantially as described, whereby the stud may be held in the eye 4, as set forth.

319,949. SOIL-DRESSING MACHINE. ISAAC W. BOATMAN, Seven Mile, Ohio, assignor of one-half to Yingling & Brother, same place. Filed Apr. 30, 1884. (No model.)



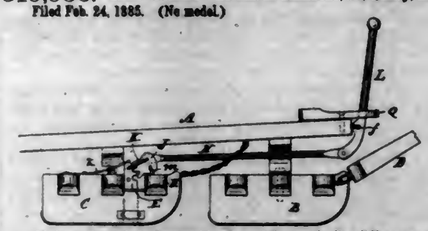
Claim.—1. In a soil-dressing machine, the combination of the rigid-tongued roll structure, a seat-bar pivoted with reference thereto, a front frame provided with teeth and articulated to the roll structure, the gaging-wheels R, the shifting seat J, and the connecting-bars Z, substantially as and for the purpose set forth.

2. The rigidly-tongued roll structure, the soil-dressing frame L, connected thereto in front by pivoted bars, the front row of inclined cutter-teeth V, and one or more rows of harrow-teeth, W, and the scraper X to the rear of the harrow-teeth, combined substantially as and for the purpose set forth.

3. The rigidly-tongued roll structure, the soil-dressing frame L, connected thereto in front by pivoted bars, the front row of inclined cutter-teeth V, the rear row of harrow-teeth W, the scraper X, and the markers Y, combined substantially as and for the purpose set forth.

4. In a soil-dressing machine, the roll structure, the reversible bars M, pivoted thereto, and the soil-dressing frame fitted to have secured to its front and rear ends alternatively said connecting-bars, combined substantially as and for the purpose set forth.

319,950. SLED-BRAKE. LUTHER M. BRADBURY, Jr., Quincy, Mass. Filed Feb. 24, 1885. (No model.)



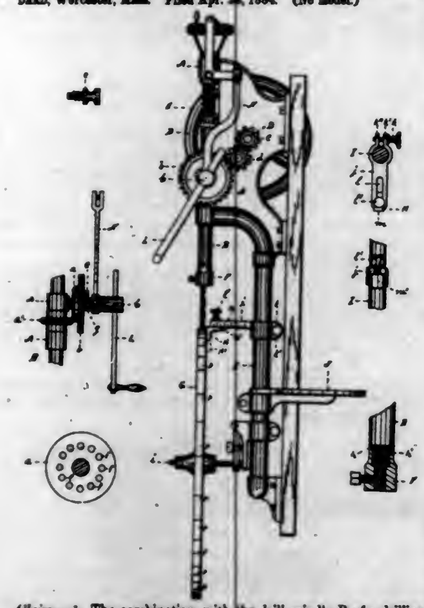
Claim.—In a sled, the combination of the vertically-sliding serrated brake-bar E, a spring, *z*, pressing on said bar, the segment J, intermeshing therewith, the staple *m*, passing through said segment and into the frame of the sled, the link K, connecting said segment and brake-bar,

rod N, connected to said segment, and the pivoted lever L, connected to said rod, substantially as described.

319,951. PAINT. CHARLES E. BROWN, Eau Claire, Wis., assignor of one-third to H. B. Walmsley, same place. Filed Oct. 20, 1884. (No specimens.)

Claim.—The herein-described composition of matter to be used as a general fire-proof and water-proof paint, consisting of white glue, dark glue, alum, salt, red iron ore, Green Bay umber, yellow ocher, and coal-tar, in the proportions specified.

319,952. DRILLING-MACHINE. GEORGE BURNHAM and ASA GODDARD, Worcester, Mass. Filed Apr. 30, 1884. (No model.)



Claim.—1. The combination, with the drill-spindle B of a drilling-machine, bevel-gears *a* and *a'*, and crank-shaft C, of a gear, *b*, loose on the crank-shaft, and having a screw, *c*, entering holes in the gear *a*, and connected balance-wheel shaft, as and for the purpose set forth.

2. In a drilling-machine, the combination, with a crank-shaft, C, of bevel-gears *a* and *a'*, and drill-spindle B, said drill-spindle having a shoulder, *h*, and screw-thread *h'*, and a detachable head or socket, F, as and for the purpose set forth.

3. In a drilling-machine, the combination, with a rotating drill-spindle and a table or means for supporting the work beneath said drill-spindle, of an arm extending laterally from the post of the drilling-machine, between the drill-spindle and the table or means for supporting the work, and adapted to serve as a rest or support to prevent lateral movement of the work during the operation of drilling, substantially as described, and for the purpose set forth.

4. In a drilling-machine, the combination, with a rotating drill-spindle, a table or means for supporting the work beneath said drill-spindle, and a post attached to the frame of the machine and parallel with the drill-spindle, of an arm extending laterally from and adjustable on said post, and adapted to serve as a rest or support to prevent lateral motion of the work during the operation of drilling, as and for the purpose set forth.

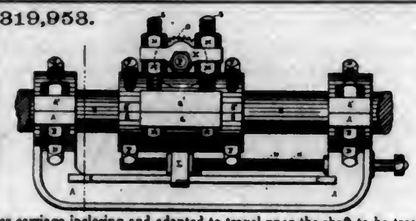
5. The combination, with the rotating drill-spiddle and connected driving mechanism, of an arm, *j*, attached to the post of the drilling-machine and carrying a horizontally-sliding rest, H, and means of attachment to the arm *j*, as and for the purpose set forth.

6. The combination, with a rotating drill-spindle and connected driving mechanism, of a graduated arm, *j*, attached to the post of the drilling-machine, and a horizontally-sliding rest, H, as and for the purpose set forth.

7. The combination, with a rotating drill-spindle and connected driving mechanism, of an arm attached to the post of the drilling-machine, having a vertical center line, *m'*, parallel with the axial line of the drill, as and for the purpose set forth.

319,953. KEY-SEATING MACHINE. JOHN T. BURR, Stamford, Conn. Filed Nov. 6, 1882. (No model.)

Claim.—1. In a key-seating machine, the combination of a cutter-carriage inclosing and adapted to travel upon the shaft to be treated, an adjustable cutter or tool carried by said carriage, a guide for said carriage, and the means for propelling the carriage along the said shaft, substantially as set forth.



2. In a key-seating machine, a cutter-carriage consisting of the parts B B', forming a sleeve adapted to receive the shaft to be key-seated, an adjustable frame or plate, K, mounted upon said carriage, and a cutter or tool mounted upon the frame, in combination with a guide for the carriage and the means for propelling said carriage along the shaft, substantially as set forth.

3. In a key-seating machine, a cutter-carriage consisting of the parts B B', forming a sleeve and adapted to receive the shaft to be key-seated, an adjustable frame, K, carried upon the carriage, and a tool, O, mounted upon a shaft, P, journaled in the frame K, in combination with a guide for the carriage and the means for propelling the same, substantially as described.

4. The cutter-carriage consisting of the parts B B', forming a sleeve, the screws F, stud-bolts S, adjustable frame or plate K, milling-tool O, and shaft P, substantially as and for the purpose specified.

5. The portable clamping-frame A, having its ends turned upward and supplied with boxes A A', said frame having directly below the horizontal line of center through said boxes A A' a guiding-rib, C, in combination with a cutter-carriage adapted to inclose and travel upon the shaft to be key-seated, and carrying a cutter which is adjustable with relation to the shaft, a yoke, L, secured to the cutter-carriage, nut M, located within the yoke, and the screw N, arranged centrally over the rib C, substantially as set forth.

6. The portable clamping frame A, having a guiding-rib, C, in combination with the cutter-carriage consisting of the parts B B', forming a sleeve adapted to inclose the shaft to be key-seated, the adjustable frame or plate K, mounted upon the carriage, the cutter O, secured in the frame K, the yoke L, nut M, and screw N, substantially as set forth.

7. In a key-seating machine, the combination of the cutter-carriage forming a sleeve adapted to inclose and travel upon the shaft to be key-seated, an adjustable cutter or tool carried by said carriage, and the means for propelling the carriage along the shaft, substantially as set forth.

319,954. EGG AND FRUIT HOLDING IMPLEMENT. FRANCIS O. BUTTERFIELD, Lynn, Mass. Filed Nov. 21, 1884. (No model.)



Claim.—1. An egg or fruit holding implement consisting of two half-bowls provided with arms united to form a handle, each of said half-bowls having convex projections on its outer surface, forming an air-chamber opening to the interior surface of the bowl, substantially as described.

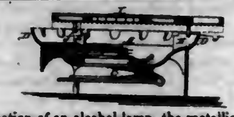
2. An egg and fruit holding implement consisting of two half-bowls provided with independent arms united to form the handle of the implement, the said bowls containing chambers or cavities about their center, said chambers being partially filled with non-conducting material and forming at the same time air-chambers, whereby the heat is prevented from penetrating to the outer peripheries of said cavities, and the hand of the user is thereby protected, substantially as described.

3. An egg or fruit holding implement consisting of two half-bowls held opposite each other and connected by spring-arms united at the rear to form the handle, combined with locking-hooks A, projecting from each arm between the closed handle portion and the open front, the said hooks being adapted to engage with each other and lock the arms together to hold the egg or other article, substantially as described.

319,955. ALCOHOL-STOVE. HERBERT CLAYTON, Cincinnati, Ohio. Filed Sept. 22, 1884. (No model.)

Claim.—1. The combination of an alcohol-lamp with a metallic frame provided with feet or supports of its own, and which is open at its top, and which has an opening through its bottom just large enough to allow the upper end of the lamp to be inserted, the lamp C being held in position by means of a suitable spring, substantially as shown.

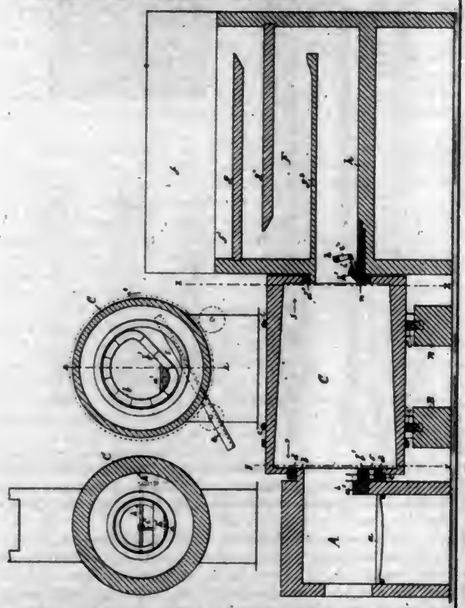
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2. The combination of an alcohol-lamp, the metallic frame A, provided with a notched flange around its upper edge, which tapers downward toward its bottom, so that its lower edge comes in contact with the sides of the lamp, and thus prevents the radiation of heat downward, substantially as described.

3. The combination of the lamp-frame having ribs upon its top, with the griddle having feet which are adapted to rest either upon the frame or upon the ribs, substantially as set forth.

319,956. APPARATUS FOR THE RECOVERY OF SODA. FRANCIS A. CLOUDMAN, Cumberland Mills, Me., assignor to Samuel D. Warren, Boston, Mass. Filed Jan. 26, 1885. (No model.)



Claim.—1. In apparatus for reclaiming soda from the spent liquor of pulp-mill digesters, the combination, with a rotating cylinder having an axial outlet, *d*, of a fire-box provided with an irregular-shaped outlet or eye, *b b'*, adjacent to the outlet *d* of the cylinder and entering the same, the eye being shaped to provide a space between it and the axial outlet *d*, thus affording a discharging-space, to operate substantially as and for the purpose set forth.

2. The combination, with a rotating cylinder having circular axial inlet and outlet openings and sloping interior, as specified, of a fire-box having an irregular partially circular eye, *b b'*, entering the outlet of the cylinder to provide an exit or space between said flue and outlet openings, as and for the purpose specified.

3. The combination, with a rotating cylinder having a projecting outlet, *a*, and a fire-box having an irregular eye opening next the outlet of the furnace to thereby provide an exit or space between the two, of a chute located below the exit or space, as specified.

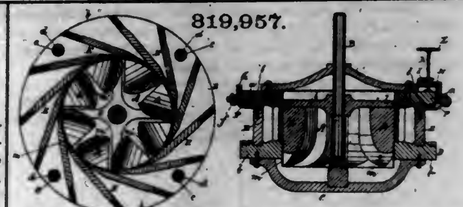
4. The combination, with a rotating cylinder having an axial inlet and outlet, and a fire-box having a flue-opening, *b b'*, next the cylinder-outlet, of an evaporating-chamber having an opening next the cylinder-inlet, and provided with a series of trays, one above another, and projecting alternately from either end of said chamber, and a smoke-exit located above the topmost tray, as and for the purpose set forth.

5. The rotating cylinder having an axial inlet, as specified, and an evaporating-chamber provided with a hearth adjacent to the cylinder-inlet and having a valve-opening combined with a valve or plug, and with means, substantially as described, to operate it, as set forth.

319,957. TURBINE. CHARLES P. COOLIDGE, Orange, Mass. Filed May 20, 1884. (No model.)

Claim.—In a turbine, the ring G, having slots *g*, as described, and the endwise movable gates E, arranged tangentially, as set forth, in combination with the links F and their pivotal bolts *f*, the last being adjustably held in the slots *g*, whereby the position of one or more of said gates can be varied, as and for the purpose set forth.

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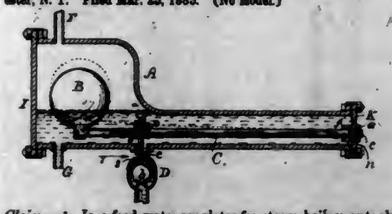


319,958. CHAIN-CONNECTION FOR HARNESS. JAMES C. COVERT, West Troy, N. Y. Filed June 28, 1884. (No model.)



Claim.—As a chain-connection in harness, the snap-hook link A, having the longitudinally-sliding spring-bolt *d*, provided with retracting-knob *e*, in combination with the breast-chain and hame-rings of said harness to co-operate therewith, as described, for the objects herein set forth.

319,959. FEED-WATER REGULATOR. JOHN A. CREELMAN, Rochester, N. Y. Filed Mar. 25, 1885. (No model.)



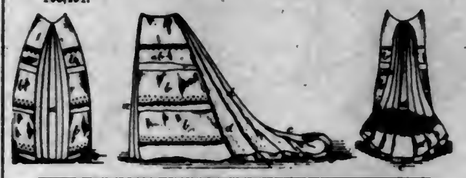
Claim.—1. In a feed-water regulator for steam boilers or tanks, the combination of the float B, the rigid head K, and the springing arm C for the float secured to the head K, substantially as shown and described.

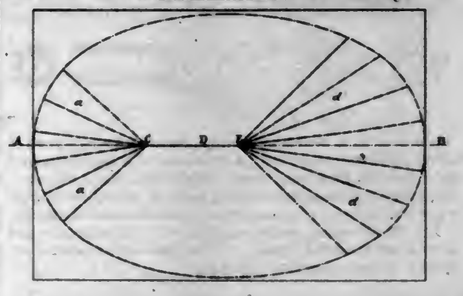
2. In a feed-water regulator, the hollow float B and hollow springing arm C for the float, in combination with the rigid perforated head K, the hollow arm passing through said head and opening outside thereof, substantially as and for the purpose set forth.

3. In a feed-water regulator, the combination of the float B, rigid head K, springing arm C for the float, check-valve *b*, with its inclosures D and seat *c*, and the valve-rod *e*, connected with the springing arm within the inclosure A, substantially as described.

4. In a feed-water regulator, the rigid head K, formed with an orifice, *n*, and concentric cup *f*, in combination with the springing arm C and float B, substantially as shown.

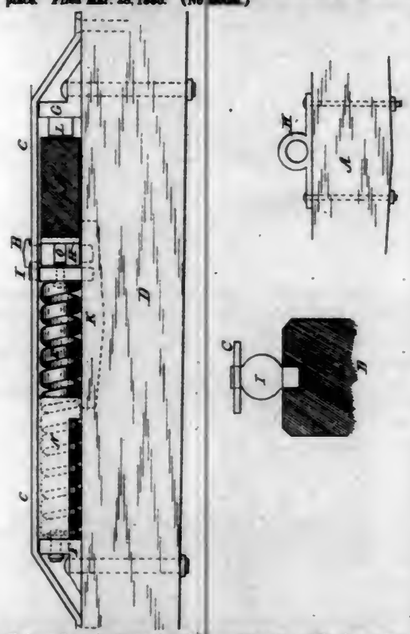
319,960. PETTICOAT. CAMILLE DÉSIRÉ CUPER, Paris, France. Filed Aug. 13, 1884. (No model.) Patented in France July 25, 1884, No. 163,491.





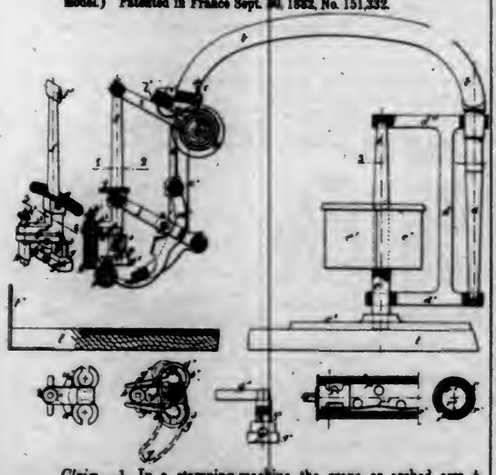
Claim.—The seamless petticoat or skirt constructed of one sheet of material, and having straight incision C D for the waist-opening, prolonged incision D E for the back slit, front tucks, *a*-*a*, and back tucks, *d d*, substantially as herein shown and described.

319,961. **EVENER-SPRING FOR WHIFFLETREES.** EDWARD C. CURRET, Mitchell, Dak., assignor of one-half to Alphonso W. Hager, same place. Filed Mar. 28, 1885. (No model.)



Claim.—In a draft-equalizer, the combination, with the evener, of the spiral spring, the slotted holding-plate, a bolt and head plate moving in a slot in said holding-plate, the bolt-socket, the end braces, guard, and buffers, substantially as and for the purpose set forth.

319,962. **MACHINE FOR STAMPING AND OBLITERATING POSTAGE-STAMPS.** EUGÈNE DAGUIN, Paris, France. Filed Mar. 4, 1884. (No model.) Patented in France Sept. 30, 1882, No. 151,332.



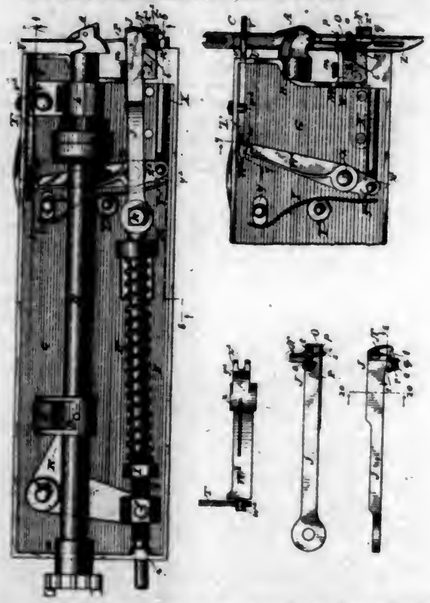
Claim.—1. In a stamping-machine, the crane or arched arm *b*, having front forked support, *c c'*, and rear pivot, *a*, in combination with the pivoted frame *d*, having wings *d'* and *d''*, with the fixed pivot *e*, stem *f*, levers *i j*, movable crane *b c d*, spring R, plate *p*, screw *z*, and one or more stamps, *g g'*, substantially as herein shown and described.

2. The die-carrier *g*, having stem g^3 and tail g^4, in combination with the socketed and slotted stem *f*, and with the retaining-spring *u*, substantially as herein shown and described.

3. The separate levers *m m'*, combined with the inking-roller, separate springs *x x*, lever *j*, roller *v'*, lever *i*, stamp *g*, and stamp-carrying stem *f*, substantially as and for the purpose specified.

4. The combination of the spiral spring R with the plate *p*, screw *z*, lever *i*, and stem *f*, substantially as and for the purpose herein shown and described.

319,963. **BAND-SECURING MECHANISM FOR GRAIN-BINDERS.** JOHN S. DAVIS, Toledo, Ohio, assignor to the Toledo Mower and Reaper Company, same place. Filed Apr. 5, 1884. (No model.)



Claim.—1. A cord-holder having a reciprocating non-turning member provided with a loop-retainer about which the cord passes and is yieldingly held next the clamped end of the band, substantially as and for the purpose hereinbefore set forth.

2. The combination of a knotter, the reciprocating non-turning member of the cord-holder provided with a loop-retainer for detaining cord and giving it up to the knotter, and the fixed member of the cord-holder provided with a bearing against which the cord is yieldingly held by the loop-retainer, substantially as and for the purpose hereinbefore set forth.

3. The combination of a knotter and a cord-holder having a reciprocating non-turning member provided with a loop-retainer about which the cord passes and is yieldingly held, and from which the cord is pulled under tension by the knotter to form the loops of the knots, substantially as hereinbefore set forth.

4. The combination, substantially as hereinbefore set forth, of the rotary knotter, the fixed member of the cord-holder, the movable member of the cord-holder provided with the loop-retainer acting against the yielding bearing provided by the fixed member of the cord-holder, and the binder-arm, for the purpose described.

5. The fixed member of the cord-holder, provided with the face-recess and the yielding bearing for the loop-retainer, substantially as and for the purpose hereinbefore set forth.

6. The combination of the knotter-box provided with the end cavity or niche, the compressible material therein, and the fixed knife-plate by the securing devices of which said material is clamped in place, substantially as and for the purpose hereinbefore set forth.

7. The member J of the cord-holder, provided with the clamping-lip, and having the knife at its inner side and the loop-retainer at its outer side, substantially as and for the purpose hereinbefore set forth.

8. The member J of the cord-holder, provided with the loop-retainer having the inwardly-curved lower end and the rounded edge, substantially as and for the purpose hereinbefore set forth.

9. The combination of the fixed member of the cord-holder and the member J thereof having the loop-retainer curved inwardly at its lower end and the lip projecting beneath and inside of the loop-retainer, substantially as and for the purpose hereinbefore set forth.

10. The combination of the knife having the notch in its lower surface, and the reciprocating member of the cord-holder having the loop-retainer and provided with the lip projecting beneath and inside of the loop-retainer and having the notch in its under surface, substantially as and for the purpose hereinbefore set forth.

11. The combination of the fixed member of the cord-holder, the fixed knife, the reciprocating member of the cord-holder having the knife, the loop-retainer, and the downwardly-projecting clamping-lip, the cord-holder shank above the fixed member of the holder, and means for projecting and retracting the reciprocating member of the holder, substantially as and for the purpose hereinbefore set forth.

12. The combination of the knotter, the binder-arm, and the endwise reciprocating cord-adjuster projected by means of connecting mechanism actuated by the binder-arm, substantially as and for the purpose hereinbefore set forth.

13. The combination, substantially as hereinbefore set forth, of the knotter, the binder-arm, the endwise reciprocating cord-adjuster, the connecting mechanism actuated by the binder-arm to project the cord-adjuster, and the spring actuating said mechanism for retracting the cord-adjuster.

14. The combination of the knotter-box, the reciprocating cord-adjuster projecting through the slot in the knotter-box and provided with the inclined nose and the incline on its lower edge, substantially as and for the purpose hereinbefore set forth.

15. The combination of the knotter-box cover having the cord-guideway Q, and the reciprocating cord-adjuster having the inclined nose projecting through a slot in the knotter-box and provided with the incline on its lower edge, substantially as and for the purpose hereinbefore set forth.

16. The combination of the knotter-box cover, the reciprocating cord-adjuster having the inclined nose projecting through a slot in the knotter-box and provided with the incline on its lower edge, and the guide-stud, substantially as and for the purpose set forth.

17. The combination of the knotter-box cover having the cord-guideway Q, the reciprocating cord-adjuster having the inclined nose projecting through a slot in the knotter-box and provided with the incline on its lower edge, and the guide-stud, substantially as and for the purpose hereinbefore set forth.

18. The combination of the endwise-reciprocating cord-adjuster, the lever having jointed connection therewith, the spring acting on the lever to retract the cord-adjuster, and the push-rod jointed to the lever, and by the actuation of which the cord-adjuster is projected, substantially as and for the purpose hereinbefore set forth.

19. The combination of the endwise-reciprocating cord-adjuster, its spring-actuated lever, and the endwise-reciprocating push-rod jointed to the lever and projecting into the path of the binder-arm, substantially as and for the purpose hereinbefore set forth.

20. The combination of the binder-arm having the inclined nose, the cord-adjuster, and the endwise reciprocating push-rod of its connecting mechanism actuated by the binder-arm, substantially as hereinbefore set forth.

21. The combination of the binder-arm, the bracket-arm secured to the knotter-box and forming the guideway for the ends of the binder-arm, and the push-rod of the cord-adjuster mechanism, substantially as and for the purpose hereinbefore set forth.

22. The combination of the reciprocating cord-adjuster, the lever of its connecting mechanism, the spring supported between its ends projecting in opposite directions and acting at one end on said lever, and the buffer against which the opposite end of the spring bears and by which the inward movement of the cord-adjuster and its mechanism is checked, substantially as and for the purpose hereinbefore set forth.

319,964. **PICKER-FEED COTTON-GIN.** WYMAN DEARBORN, Boston, assignor to F. Rockwood Hall, Brookline, Mass. Filed Aug. 11, 1884. (No model.)

Claim.—1. In a picker-feed cotton-gin, the combination, with the feed-table F, of the picker-trunk E and pivoted deflector *e*, provided with sides *e'*, substantially as described.

2. The combination, with the pickers B D and their screens B' D^2, of the intermediate partition, I', substantially as described.

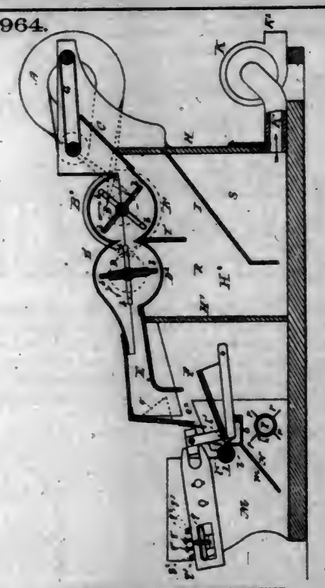
3. The combination of the picker-trunk E, the pivoted swinging deflector *e*, and the flexible apron e^2 with the feed-table F of a cotton-gin proper, substantially as described.

4. The combination, with the dust-chambers R S and screens B' D^2, of the intermediate screen, I, substantially as described.

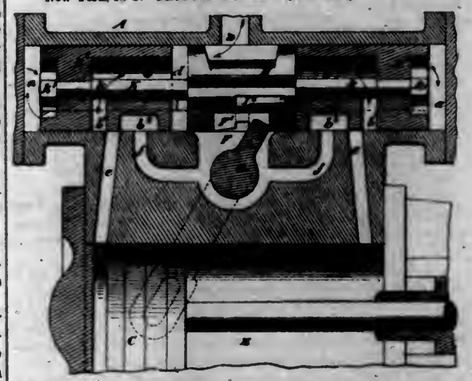
5. The screens B' and D^2, in combination with pickers and with screen I, said screens B' and I having a mesh smaller than that of screen D^2, and the screen D^2 having a mesh large enough for the passage of seeds, substantially as described.



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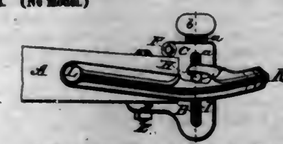
319,965. **STEAM-ACTUATED VALVE.** GEORGE H. DICKSON, East New York, N. Y. Filed Jan. 22, 1885. (No model.)



Claim.—1. The valves B' B^2, rigidly connected by rod K, and the intermediate valve, H, loose on said rod, in combination with a chest having inlet D and channels I^2 I^2, the latter so arranged that the steam will not actuate valves B' B^2 until the main ports are covered, for the purpose specified.

2. In steam-actuated valves, the combination of a chest having the channels I^2 I^2 and live-steam space *d*, the loose middle valve, H, open on top, having exhaust-space F^2, and provided with channels I' I^2, and the piston-valves B' B^2, having steam-spaces *b b'* and end excisions, b^2, as and for the purpose specified.

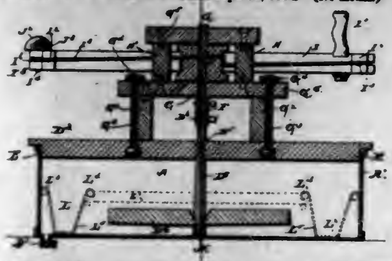
319,966. **PLOW-CLEVIS.** OBLE A. EMMS, Canton, Ohio. Filed Dec. 1, 1884. (No model.)



Claim.—1. The combination of the frame C, provided with the transverse lips *d d*, of the nut G, provided with the arms H, of the screw B, and the clevis K, provided with the recesses J, substantially as described, and for the purpose specified.

2. The frame C, formed in two pieces or halves and provided with the slots I, in combination with the screw B and the clevis K, substantially as and for the purpose specified.

319,967. COMBINED DISH-WASHER AND CHURN. WILLIAM N. FLETCHER, Rhea's Mills, Tex. Filed Sept. 18, 1884. (No model.)



Claim.—1. The combination, with the table A, provided with the thumb-keys, of the vessel A', provided with the sectional cover, the central section, D^2, of which is provided with the frame, the drum-shaft G', the drum J, the removable dasher-stem and dasher-blade, the reciprocating lever provided with the handle and tightening-key, and the cord connecting the reciprocating lever and the drum, substantially as specified.

2. The combination, with vessel A' and the removable sectional cover, of the central section, D^2, provided with the frame having slotted guide-arms H H', the drum-shaft G, the reciprocating lever I, with projections I^2, the rope I^3, and the tightening-key J^2 and stop-screw J^3, substantially as specified.

3. The vessel A', in combination with the dasher working therein, the frame having slotted guide-arms H H', the drum, the reciprocating lever I, working through the slots of the arms, and the cord connecting the drum with the ends of the lever, as set forth.

4. The combination, with the vessel A', of the dasher and the open-work basket comprising the annular pocket and the central raised table, as set forth.

319,968. FLY-WHEEL CLUTCH. WARREN L. FISH, Newark, N. J. Filed July 19, 1884. (No model.)



Claim.—1. In a sewing-machine, the combination of a flanged and threaded shaft or sleeve, a loose belt-pulley, and a threaded finger-piece adapted to clamp said pulley, substantially as and for the purposes set forth.

2. In a sewing-machine, the flanged and threaded sleeve, and a screw finger-piece adapted to clamp the pulley, substantially as set forth.

3. In a sewing-machine, the combination, with the combined pulley and fly wheel and the shaft A, of the flanged and threaded sleeve carrying the said wheel, and a threaded finger-piece, arranged and operating substantially as and for the purposes herein set forth.

4. In a sewing-machine, the combination, with the combined pulley and fly wheel and the shaft A, of the flanged and threaded shaft or sleeve carrying said wheel, and having a suitable stop thereon, and a finger-piece adapted to throw said wheel against the flange, having a limiting pin or projection adapted to engage with said stop, substantially as set forth.

5. The combination of the fly-wheel having a pulley thereon, a flanged sleeve, a shaft, a washer provided with a limiting-recess, and a clamping-screw having a limiting-pin, said parts being arranged and operating substantially as set forth.

6. The combination, with a shaft of a sewing-machine, of a flanged sleeve, a washer on said sleeve, a fly-wheel and pulley loose on said sleeve, and a clamping-screw limited in its movement, substantially as and for the purposes set forth.

7. In sewing-machine clutches for fly-wheels, the combination, with the flanged sleeve and the washer thereof, of a tightening cap provided with a projection adapted to limit the play of said cap, substantially as described.

8. In sewing-machine clutches for fly-wheels, the combination, with the flanged sleeve and the washer thereof, of a tightening-cap provided with a removable projection adapted to limit the play of said cap, substantially as described.

9. In combination, in a sewing-machine, a flanged sleeve adapted to be secured to the main shaft of a sewing-machine, having a screw-threaded end, a fly or pulley wheel fitting loosely on the said sleeve, a washer placed upon the same and adapted to bear against the face of said wheel, and a screw-clamping nut provided with a set-screw or pin projecting through the same to said sleeve or washer, as set forth.

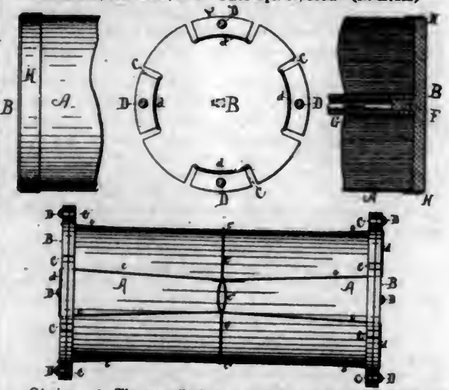
10. The combination of a flanged sleeve having a screw-threaded end and capable of being placed upon and secured to the main shaft of a sewing-machine and of receiving a loose pulley, and a screw-clamping nut or finger-piece having a set-screw or pin projecting through the same inwardly toward the washer or sleeve to enter a limiting-recess in said washer, sleeve, or shaft, substantially as and for the purposes set forth.

11. In a sewing-machine, the combination of a flanged sleeve having a screw-threaded end and adapted to be secured to the main shaft of a sewing-machine, the fly or band wheel fitting loosely upon said sleeve, a washer provided with pins or projections on the side or face thereof and constructed or adapted to hold a fixed relation with said sleeve or shaft, and a cap having a set-screw or limiting-pin, substantially as and for the purposes set forth.

12. In a sewing-machine, the combination, with the flanged sleeve and a finger-piece provided with a limiting-pin, of a washer provided with lugs or pintles suitably disposed to engage the said limiting-pin.

13. In a sewing-machine, a washer having a cross-bar and limiting lugs or projections unequally disposed, substantially as set forth.

319,969. MEANS FOR PROTECTING PAPER IN ROLLS. MAURICE PITTENBROOK, New York, N. Y. Filed Apr. 26, 1884. (No model.)



Claim.—1. The described means of protecting and preserving rolled paper, consisting of two protecting-heads of substantially the size of the ends of the roll, and provided at or near their edges with slots, rings, holes, or equivalent devices for the attachment of a cord or rope, and a cord or rope extending from one head to the other externally of the roll, whereby the heads are firmly held to the ends of the roll, substantially as and for the purposes set forth.

2. As a new article of manufacture, a head for the protection of a roll of paper, consisting of a plate of any suitable material provided at or near its edge with slots, rings, or holes for receiving and holding the bight or the end of a cord or rope, substantially as and for the purposes set forth.

3. The head B, provided with radial slots C, and cord or rope *d*, whereby the tightening of the cord will center the roll of paper relative to the head, substantially as set forth.

4. The combination of the heads B, the hub F, and the hollow spool G, substantially as and for the purposes set forth.

5. The combination of the head B, the legs or feet D, and the cord *d*, whereby the cord is protected from abrasion when the roll is placed on end, substantially as and for the purposes set forth.

6. As a new article of manufacture, the head B, formed of two or more thicknesses of wood, the grain in which cross each other, and the feet D, formed by the heads of nails, which perform the dual function of fastening the several thicknesses of wood together, and also act as feet for the support of the head, substantially as and for the purposes set forth.

7. The combination of the head B, the hollow spool G, the hub F, and the binding-band H, substantially as and for the purposes set forth.

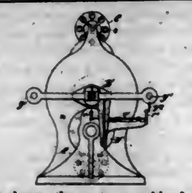
8. The combination of the head B, the roll of paper A, and the binding-piece H, substantially as and for the purposes set forth.

319,970. MOTOR. JAMES M. GASTON, Atlanta, Ga. Filed Aug. 13, 1884. (No model.)

Claim.—1. In an engine operated by explosives, the combination of a revolving magazine having exchangeable cartridge-holding tubes, a cylinder having end ports to receive the products of explosion, a revolving carrier adapted to receive one cartridge at a time and convey it to said cylinder-ports, and means for automatically feeding the cartridges forward and for exploding them, as set forth.

2. In an engine operated by explosives, substantially as described, a cylinder, A, having end ports to receive the products of explosion and

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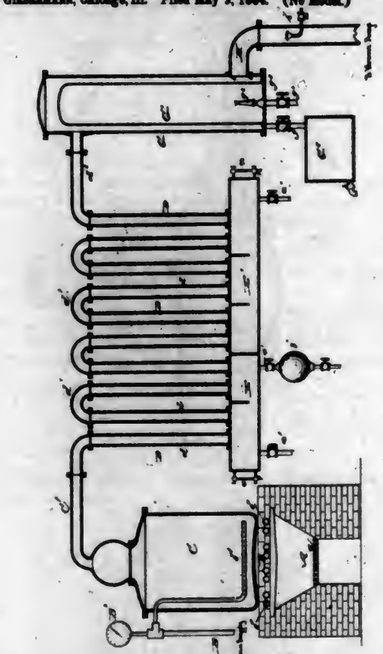
exhaust-ports *a'*, located near the center, combined with a slide, D, and connections with the piston, whereby the said ports *a'* are closed and disclosed automatically to exhaust the gases and to cushion the piston-stroke, as set forth.

3. In an engine, substantially as described, the combination, with the magazines, the carriers, and cylinder A, having ports *a'* and *a'*, of the piston, the slide D, the pins *s*, the firing mechanism, and connections, as and for the purposes set forth.

4. In an engine for operating by explosions, the carrier wheel or disk N, having cavities *n*, in combination with the cylinder A, having a hole, *a*, and with a suitable abutment, A', and firing means *r*, adapted to serve with percussion-cartridges, as herein specified.

5. In an engine for operating by explosions, the series of tubes *c* and springs *c'*, in combination with the intermittently-rotated frame C, disks or carriers N, cylinder A, and piston S, as herein specified.

319,971. APPARATUS FOR DISTILLING GLYCERINE. RUDOLPH GIESEMANN, Chicago, Ill. Filed May 9, 1884. (No model.)



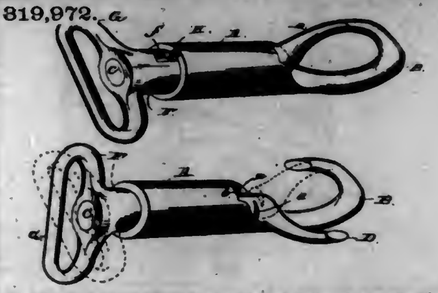
Claim.—In an apparatus for distilling glycerine, the furnace A, having the superheating steam-coil *b*, and still C directly over it, the glycerine-condenser D, and the receivers E E', connected thereto, and provided with gages *e* and draw-off pipes *e'*, in combination with the surface-condenser G G', supply-pipe *g'* and outlet *g*^{3}, and the pipe H, having the jet *h*, and leading to a vacuum-pump, all constructed and arranged to operate substantially as and for the purpose set forth.

319,972. SNAP-HOOK. GEORGE W. GIFFARD, Great Bend, Kans., assignor of two-thirds to Oliver B. Wilson and Moses Bros., same place. Filed Jan. 21, 1885. (No model.)

Claim.—1. In a snap-hook, the combination, with the body carrying a hook, of the sliding stem carrying a hook, and a spring-catch provided on said stem to catch around the body and hold the parts in the locked position, as set forth.

2. In a snap-hook, the combination, with the body carrying a hook, of the sliding stem, also carrying a hook, a loop attached to the rear end of the stem, a coiled spring, and a spring-catch carried by the stem,

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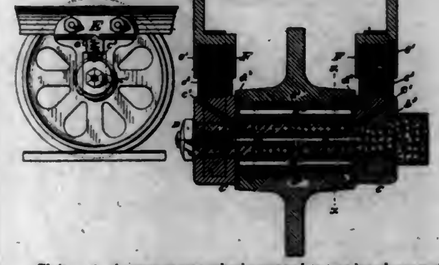


arranged to be pressed inward to withdraw it from engagement and automatically catch around the body to hold the parts in their normal positions, as set forth.

3. In a snap-hook, the combination, with the body carrying a hook, of the sliding stem, also carrying a hook, a coiled spring encircling the stem and arranged within the body, an opening, *a*, cut out of the front end of the said body to provide an abutting wall, and a similar abutting wall, *d*, provided on the stem at the base of the hook to limit the rearward movement of the hook, as set forth.

4. In a snap-hook, the combination, with the hollow body carrying a hook having its end beveled, of the sliding stem, also carrying a hook, D, which has its front end correspondingly beveled and working within the body, the latter hook D being bent or extended laterally to one side of the other hook, and a handle or loop attached to the end of the stem, whereby the pressing or sliding of the stem inward or forward causes its hook to clear the hook on the body, when by giving a quarter-turn to the stem its hook is thrown laterally outward at an angle to the hook on the body, as and for the purpose set forth.

319,973. VEHICLE WHEEL AND AXLE. EDWARD J. GRAY, Baltimore, Md., assignee of one-third to John C. Davis, same place. Filed May 7, 1885. (No model.)



Claim.—1. A car or wagon wheel arranged to turn loosely upon the shaft, and having its hub grooved longitudinally, as shown at *a'*, so as to leave the space a^3 behind the rollers when inserted, in combination with the anti-friction rollers occupying the grooves, and the shaft B, provided with the oil passage-ways *b* and b^2, substantially as shown and described.

2. A car or wagon wheel having its hub countersunk on both faces to receive the collars C, as shown at a^4, and provided with the anti-friction rollers a^3, in combination with the collars C and shaft B, and the oil passage-ways *b* and *c'*, substantially as described and set forth.

3. A car or wagon body having its center of gravity directly over the wheels and bearing upon each side of said wheels, in combination with the shaft B, and collars C, having the grooves c^2, the frame E, having the hangers *e*, adjusted in the grooves c^2, substantially as described.

4. The combination of the collars C, located on each side of the hub, and having the upwardly-projecting socket c^3, and the frame E, having the downwardly-projecting sockets *c'*, into which the sockets c^3 enter neatly and loosely, and the springs F, as shown and described.

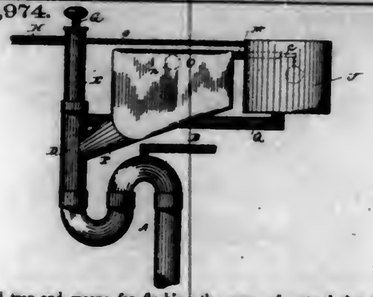
5. The above-described frame E, provided with the downwardly-projecting socket *c'*, and the hangers *e*, in combination with the collars C, provided with the upwardly-projecting socket c^3, and the grooves c^2, and the springs F, substantially as described.

6. A car-wheel arranged to turn loosely upon the shaft, having its hub provided with the anti-friction rollers a^3, and its faces countersunk, as at a^4, in combination with the collars C, frame E, shaft B, and bolt D, arranged and operating together as described and set forth.

319,974. WATER-CLOSET. THOMAS GUNNING and JAMES QUIGLEY, New Haven, Conn. Filed Apr. 3, 1884. (No model.)

Claim.—1. In a water-closet, the combination, with a suitable

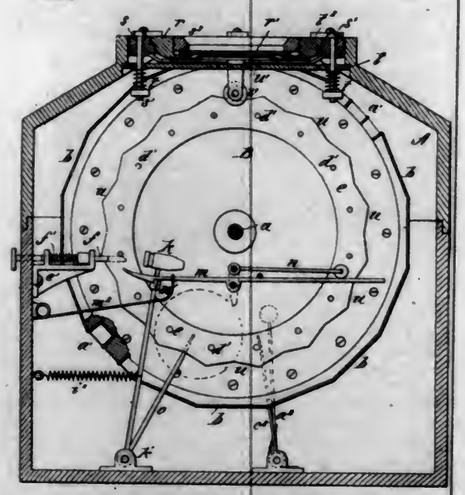
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bowl and trap and means for flushing the same, of a stand-pipe connected with the trap, and having a ventilating-pipe connected with the outer atmosphere, and a stuffing-box for the valve-plunger, and a valve having a hollow plunger provided with perforations at its upper portion, substantially as and for the purpose set forth.

2. The water-closet herein described, consisting of a bowl having a ventilating-pipe and a hollow and perforated rim, a water-supply pipe connected with said hollow rim, a stand-pipe connected with the trap and having at its upper portion a ventilating-pipe, and a stuffing-box for the valve-stem or plunger, a hollow-valve plunger having perforations at or near its upper part, a water reservoir or tank having at its upper portion a ventilating-pipe and at its lower portion a pipe connecting said tank with the trap, whereby the trap or valve may be flushed on the raising of the valve and the tank supplied with water, and a trap having a ventilating-pipe, substantially as and for the purpose set forth.

319,975. PHOTOGRAPHIC-PRINTING APPARATUS. WILLIAM HILL and THOMAS R. WILSON, Salt Lake City, Utah. Filed July 15, 1884. (No model.)



Claim.—1. In a photographic-printing apparatus, the combination of a multifaced cylinder, a holder placed to retain a negative upon one face of the cylinder, a motor connected for rotating the cylinder, and mechanism operated by clock-work for releasing and stopping the cylinder, substantially as described.

2. In a photographic-printing apparatus, the combination, with a cylinder carrying the sensitive paper and fitted for rotation by a motor, of a trigger for arresting the movement of the cylinder, and a regulator rotated by clock-work and acting to release the trigger at intervals, substantially as described.

3. In a photographic-printing apparatus, the combination of the cylinder B, formed with faces *b*, the frame *s*, carrying the negative, the cam-ring *c*, and the grooved rollers *v*, attached to the frame carrying the negative, substantially as described.

4. In a photographic-printing apparatus, the frame *s*, pins *s'*, springs *t*, and rollers *v*, combined with the rotating cylinder B and cam-rings *c*, substantially as described, for operation as specified.

5. In a photographic-printing apparatus, the combination of the rotating cylinder B, trigger *f*, hammer *k*, latch *m*, and the tripping-arm *n*, substantially as described.

6. In a photographic-printing apparatus, the combination of arms *n n'*, carried by one arbor, and the rotating disk *h*, provided with fingers for engaging the arm *n'* with the rotating cylinder B, and a trigger released by movement of the arms *n n'*, substantially as described.

7. In a photographic-printing apparatus, the combination of rotating cylinder B, disk *h*, rotated by clock-work and provided with fingers *i*, and the trip-arm *n'*, operating by its movement to release the cylinder, substantially as described.

8. In a photographic-printing apparatus, the time-regulator *h*, provided with spring-fingers *i*, combined with a clock-work arranged to rotate the regulator, substantially as described.

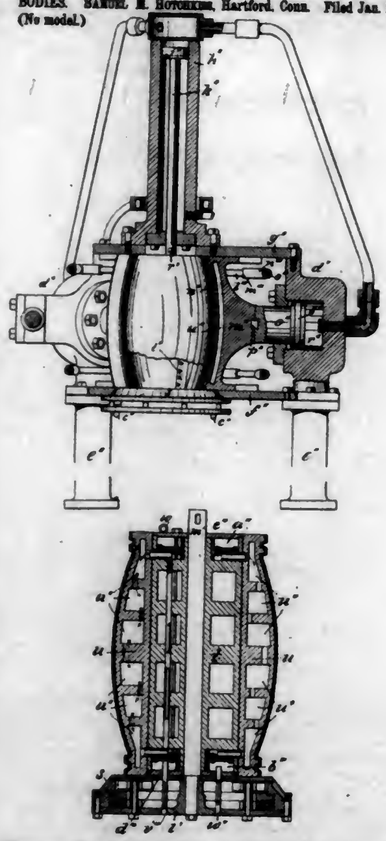
9. In a photographic-printing apparatus, the combination of a rotating cylinder and a time-regulator rotated at varying speeds, for releasing and stopping the cylinder at intervals, substantially as described.

10. In a photographic-printing apparatus, the combination of the eccentric wheel *p*, pinion *p'*, and gearing *q*, with the clock-work C, arbor *g*, and disk *h*, substantially as and for the purposes specified.

11. In a photographic-printing apparatus, the combination, with the rotating cylinder B, of the bell b^2, hammer a^2, and arm c^2, substantially as described.

12. The combination, in a photographic-printing apparatus, of a cylinder geared to a motor, a time-regulator having a constant rotation by a separate motor, and mechanism actuated by the regulator to release and then stop the cylinder, substantially as described.

319,976. MACHINE FOR DRYING AND PRESSING PULP BARREL-BODIES. SAMUEL M. HOTCHKISS, Hartford, Conn. Filed Jan. 24, 1885. (No model.)



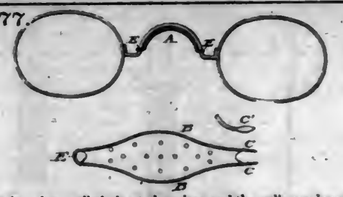
Claim.—1. The combination of the core chambered by heat-ducts and the movable external side compressors chambered by heat-ducts, substantially as described, and for the purpose set forth.

2. The external side compressors chambered by heat-ducts and moved by hydraulic rams taking their water-supply from one common source, substantially as described, and for the purpose set forth.

319,977. NOSE-GUARD FOR SPECTACLES. THADDEUS P. HUBBELL, Mount Vernon, Ill. Filed Feb. 2, 1885. (No model.)

Claim.—1. The nose-guard consisting of the thin piece of sheet

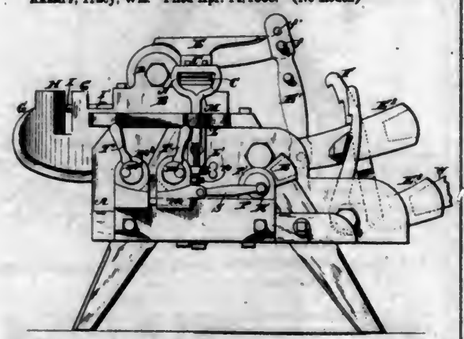
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metal with the edges rolled about the wires and the rolls produced at the ends and flattened, substantially as described, and for the purposes specified.

2. The perforated metal nose-guard, as described, and for the purposes specified.

319,978. PUNCHING AND SHEARING MACHINE. NICOLAUS KAEMPF, Tracy, Wis. Filed Apr. 14, 1885. (No model.)

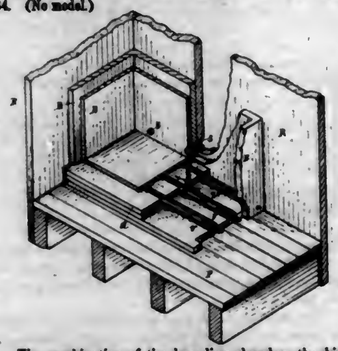


Claim.—1. In a combined punching and shearing mechanism, the combination, with the lever actuating the movable shear-blade, of an operating-lever connected thereto by a link, a helping-lever pivoted beneath said operating-lever, and a toothed connection pivotally mounted upon the one and passing through the other, whereby the helping-lever may be engaged with and disengaged from the operating-lever, substantially as specified.

2. In a combined punching and shearing machine, the combination, with the frame supporting the shear, of a holder having a loop or yoke upon its end and adjustable vertically in its supports, whereby the metal is supported and held during the action of the shears, substantially as specified.

3. In a combined punching and shearing mechanism, the combination, with an operating-lever connected with the lever carrying the shear, of a helping-lever having a pivotally-attached toothed arm passing through a slot in the operating-lever, substantially as specified.

319,979. BEE-CABINET. PETER KOCH, Parkville, Mich. Filed Nov. 18, 1884. (No model.)

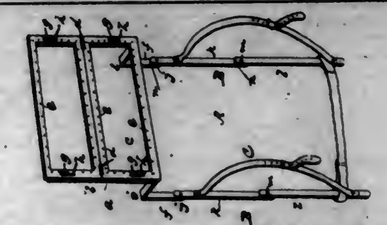


Claim.—The combination of the brooding-chamber, the hive, and the rollers buried in the floor of the hive, extending a little above the surface of the floor and having end bearings in the side walls of the hive, for the objects set forth.

319,980. FOLDING HEAD-REST. MAXIMILIAN J. KOHNS, Jersey Shore, Pa. Filed Aug. 2, 1884. (No model.)

Claim.—The herein-described head-rest, consisting of the perforated head portion *a*, divided into sections *b c*, and hinged to one another and having the slots *h h*, the pivoted arms B B, the upper section, *f*, having

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the T-shaped lugs *g g*, adapted to engage the slots in the head portion, and provided with the securing-straps C C, the whole constructed and arranged as shown and described.

319,981. BOTTLE-STOPPER. CHRISTIAN LANGE, Harlem, Ill. Filed Mar. 5, 1885. (Model.)

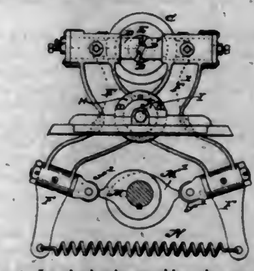


Claim.—1. The combination, with bottle A and wire C, situated below the shoulder of its neck and formed with trunnions *b*, of bail D, bent to form loops or eyes *c d*, and bail E, passed through loops *d*, and at their upper ends through the bottle-stopper, as set forth.

2. The combination, with a bottle and its stopper B B', of bail E, formed at its center into a handle, and with its ends passed through part B', and bent to hold the stopper in place, bail D, formed with loops or eyes *c d*, and wire C, formed with trunnions *b*, as set forth.

319,982. BARB-WIRE MACHINE. GODFREY H. LASAR, St. Louis, Mo. Filed Dec. 18, 1883. (No model.)

Brief.—Improvement on Patent No. 296,190, dated April 1, 1884.



Claim.—1. In a barb-wire machine, the compressor-arms F F', carrying the compressors D D', respectively, and journaled upon the same journal or bearing, and operated by means of the shaft L, cams M M', and spring N, as described.

2. In combination with the barrel B, the compressors D D', and arms F F', adjustable toward the barrel, for the purpose described.

3. The combination of the arms F F', the compressors D D', the barrel B, the journal G, the collar H, the flanges K K, and the set-screws J J, as and for the purpose described.

4. The compressor D', having the notch d^4, and shaped out at d^3 and beveled at d^3, in combination with the compressor D, hollowed out at *d* and beveled at *d'*, as described.

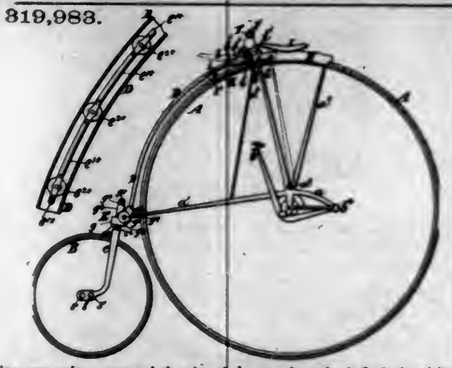
319,983. BICYCLE. CHARLES S. LEDDELL, Morristown, N. J. Filed Nov. 14, 1884. (No model.)

Claim.—1. The combination, with the curved hollow backbone, and the box or frame E at the lower end thereof, having the cavities *g' g'*, and the sheaves *h*, arranged therein, of the fixed frame comprising forwardly-extending portion *a''*, and screws or bolts g^3, forming the pivots for the sheaves *h*, and securing the frame portions *a'*, substantially as herein described.

2. The combination, with the curved hollow backbone D, of the lower box or frame, E, having cavities *g' g'*, closed by caps or bonnets g^3 on their outer sides, of the fixed frame having the portions *a'* extending forwardly to the inner side of the box or frame E, sheaves *h* in the cavities *g'*, and bolts or screws g^3, each serving to secure a cap or bonnet, g^3, and frame portion *a'*, and as a pivot for a sheave, *h*, substantially as herein described.

3. The combination, with the driving and steering wheels, the fixed frame for the driving-wheel, a curved hollow backbone, and flexible steer-

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ing-connections arranged therein, of the steering-wheel shaft c' and its sheave c^3, the lower box or frame having a cavity, g, for said sheave, and an upwardly-extending sleeve forming an upper bearing for the shaft c', and a cap or bonnet, g^4, forming a lower bearing for said shaft, substantially as herein described.

4. The combination, with the driving and steering wheels, the fixed frame for the driving-wheel, a curved hollow backbone, and flexible steering-connections arranged therein, of the steering-wheel shaft c', the lower box or frame having a cavity, g, and upwardly-extending sleeve g^3, forming an upper bearing for said shaft, the adjustable plug g^5, forming a thrust-bearing for the upper end of said shaft, and the cap or bonnet g^4, forming a lower bearing for said shaft, substantially as herein described.

5. The combination, with driving and steering wheels, the fixed frame and hollow curved backbone, and flexible steering-connections extending through the backbone, of the steering-wheel shaft c' and sheave c^3, the box or frame having the cavity g and sleeve g^3, the cap or bonnet g^4, the adjustable plug or thrust-block g^5, perforated for oil, and the jam-nut g^6 and cap-nut g^7, applied to said plug g^5, substantially as herein described.

6. The combination, with the driving and steering wheels, hollow curved backbone, and flexible steering-connections arranged therein, of the box or frame C at the upper end of said backbone, and a fixed frame for the driving-wheel, comprising upwardly-extending portions a^2 a^2, attached to the said box or frame at a^3, substantially as herein described.

7. The combination, with the driving and steering wheels and the fixed frame for the driving-wheel, of the upper box or frame, C, having forwardly-extending necks d^2, the curved tubes D, forming the backbone, the nuts or threaded sleeves d^4, adjustably connecting the necks and tubes, and the jam-nuts d^3, substantially as herein described.

8. The combination, with the driving and steering wheels, the hollow steering-shaft, and a push-rod extending through said shaft, of a brake, G, pivoted at one end and having its opposite end curved upward and constituting a spring portion, f^4, substantially as herein described.

9. The combination, with the driving and steering wheels, the hollow steering-shaft, the curved backbone, and the box or frame C at the upper end thereof, of the brake G, pivoted at f^3, and having its opposite end curved to form a spring portion, f^4, resting upon the box or frame, the push-rod extending through said shaft, and the brake-applying handle, substantially as herein described.

10. The combination, with the driving and steering wheels, the fixed frame, and curved backbone having a box or frame, C, at its upper end, of a seat-support and links or swing-pieces connecting its end with the said box or frame C, substantially as herein described.

11. The combination, with the driving and steering wheels, the fixed frame, the curved backbone and its upper box or frame, C, provided with pairs of rabbeted studs or heads f^5, of the dust-guard H and the rods or braces a^4 for supporting one end thereof, and the links or swing-pieces i^2, slotted and rabbeted as described, and capable of engagement with either pair of rabbeted studs or heads, substantially as herein described.

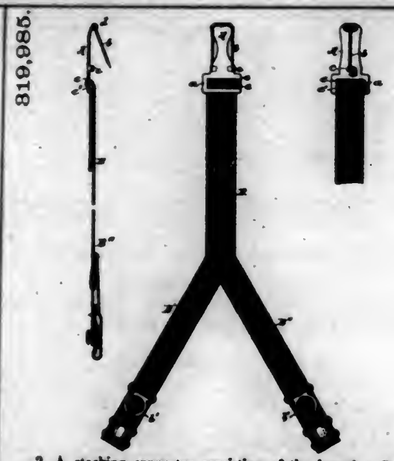
319,984. MIXED PAINT. THOMAS N. LE ROSS, Rochester, N. Y. Filed July 6, 1883. (No specimens.)

Claim.—The fire-proof composition consisting of sulphate of magnesia, glue, white lead, and oil, substantially as herein specified.

319,985. STOCKING-SUPPORTER. JOHN P. LINDSAY, New York, N. Y. Filed Nov. 7, 1881. (No model.)

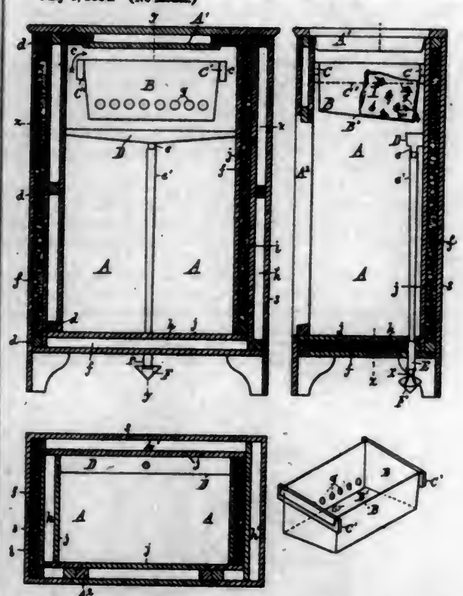
Claim.—1. A stocking-supporter consisting of the branches B' B'', provided with fastening devices b', and the main strap B, provided with a fastening device having the double-slotted slide a for adjusting the length of the supporter at its upper end, substantially as described.

319,985.



2. A stocking-supporter consisting of the branches B' B'', provided with fastening devices b', and the main strap B, provided with the double safety-pin A, having the slots a a' for receiving the strap B to adjust the length of the supporter at its upper end, and having its back plate cut away at the sides to give access to the pins, substantially as described.

319,986. REFRIGERATOR. PAUL L. MALTNER, Newark, N. J. Filed July 1, 1884. (No model.)



Claim.—1. The combination, in a refrigerator-casing, of a metallic lining, a wooden jacket, and a layer of asbestus adjacent to the receptacle, and an intermediate space, and outer sheathing, all substantially as shown and described.

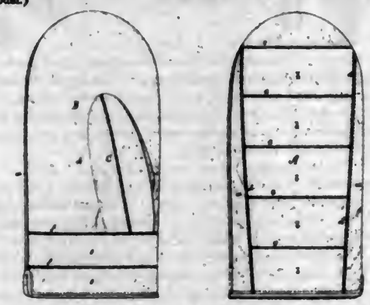
2. The combination, in a refrigerator-casing, of a metallic lining, a wooden jacket, and a layer of asbestus adjacent to the receptacle, an intermediate space filled with felting, and an outer sheathing, all substantially as shown and described.

3. The combination, in a refrigerator-casing, of a metallic lining, a wooden jacket and a layer of asbestus adjacent to the receptacle, an inner space closed by a layer of wood and paper, an outer space closed by a sheathing of wood, and a layer of felting inserted in one of such spaces, substantially as shown and described.

4. The combination, in a refrigerator-casing, of layers of paper, asbestus, and felt, arranged substantially as shown and described.

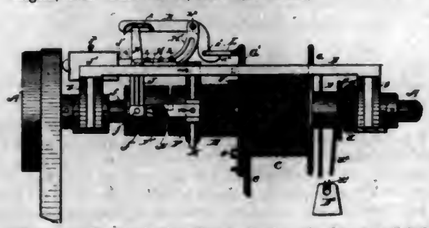
5. The combination, with the receptacle A, of the ice-pan B, suspended in the upper part and formed with the sloping bottom B', the draining-holes b, formed in the lower part of said bottom over the trough D, the trough attached to the back of the receptacle beneath the holes b and rear edge of the ice-pan B to catch the drip and drainage from the ice-pan, and the outlet-pipe from the trough, the whole being arranged and operated as herein shown and described.

319,987. MITTEN. ALFRED G. MARSH, Warner, N. H., assignor to the Merrimack Glove Company, same place. Filed Mar. 23, 1885. (No model.)



Claim.—A mitten having the front provided with a thumb and composed of a single piece of material extending upward from the base of the said thumb, and of one or more wrist portions or pieces extending below the said base, in combination with the back composed of two longitudinal gore-pieces and a series of intermediate sections or pieces, all being arranged and united by sewing, substantially as set forth.

319,988. GRAIN-SHOVELING MECHANISM. JOHN S. METCALF, Burlington, Iowa. Filed Feb. 25, 1885. (No model.)

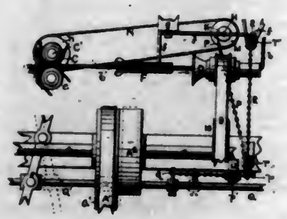


Claim.—1. In a grain-shoveling mechanism, the flange or disk G, provided with oblong tapered lugs g, arranged obliquely to the respective radii of said disk, with the parts C, D, E, and F, cast in one piece, all substantially as and for the purposes specified.

2. In a grain-shoveling mechanism, the combination of the flange or disk G', provided with oblong tapered lugs g, arranged obliquely to the respective radii of said disk, and the tripping-latch L, arranged at right angles to said flange, whereby the movement of said wheel in one direction may cause said latch to pass above said tappets, while its reversal may cause the same to pass beneath them, substantially as and for the purposes described.

319,989. STOP-MOTION FOR WOOL-COMBING MACHINES. JOHN MIDGLEY and WILLIAM HALL, Pawtucket, R. I., assignors of one-half to William F. Sayles and Frederic C. Sayles, both of same place. Filed Feb. 25, 1884. (No model.)

Brief.—The belt-shipper is connected by a chain to a loose clutch member, which, upon the breaking of the sliver, falls into contact with a revolving member, and the chain is wound upon the sleeve of the loose member and the belt-shipper actuated. A second chain, somewhat slack, is so connected to the first and to the loose clutch member as to raise the same out of contact by the time the belt is shipped to the loose pulley.



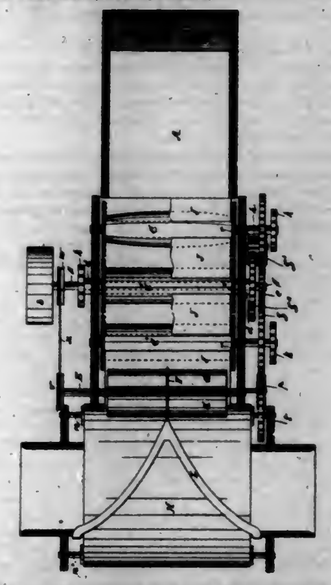
Claim.—1. A stop-motion mechanism consisting of a pivoted lever arranged, as described, to bear against a passing sliver, a clutch member suspended upon said lever, a revolving fellow clutch member located in vertical alignment therewith, and a chain or its equivalent attached to the periphery of the first-mentioned clutch member and connected with the shipping-rod of the machine, whereby when the sliver breaks the two clutch members will be brought into engagement, the chain will be wound around the periphery of the clutch member to which it is attached, and the shipping-rod will be moved to transfer the belt, substantially as set forth.

2. A stop-motion mechanism consisting of a pivoted lever arranged, as described, to bear against a passing sliver, a clutch member suspended upon said lever, a revolving fellow clutch member located in vertical alignment therewith, a chain or its equivalent attached to the periphery of the first-mentioned clutch member and connected with the shipping-rod of the machine, and a chain or its equivalent attached to the first-mentioned chain and to the said pivoted lever, substantially as described, and for the purposes specified.

319,990. SHEEP-DIP. ORWIN B. MONNETT, Bucyrus, Ohio. Filed June 16, 1884. (No specimens.)

Claim.—The herein-described composition of matter, to be used in preventing and healing diseases in the skin and feet of sheep and the foot and mouth diseases of cattle, consisting of water, gas-lime, and blue vitriol, in the proportions specified.

319,991. DOUGH-ROLLING MACHINE. ROMAN MORHARD, Brooklyn, N. Y. Filed Mar. 5, 1885. (No model.)



Claim.—1. The combination of trough A, adapted to receive the dough, with a train of rollers, C C', intermediate tapering guide, L, and apron H, substantially as described.

2. The combination of trough A with rollers C, tapering from the center toward the ends, and with cylindrical rollers C' C', as and for the purpose described.

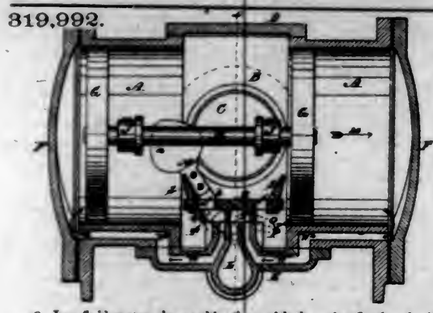
3. The combination of trough A with rollers C C', cutters F G, and tapering guides L, substantially as described.

4. The combination of trough A with cam B, rollers C C', guide-plates J, cutters F G, apron H, and tapering guide L, arranged to operate in the manner and for the purpose substantially as described.

319,992. PISTON WATER-METER. JOHN R. NORFOLK, Boston, Mass. Filed Mar. 28, 1885. (No model.)

Claim.—1. In a fluid-meter, the combination, with the cylinders A A, reciprocating piston G, and the valve-chamber B, of the valve Q, having the ports T T extending entirely through it, the valve-case P, having the inlet-ports W W and the outlet-port L, and the cover R, constructed and arranged, as described, to admit the fluid to the ports T T and allow a free passage of the fluid from the chamber B through the said ports T T to the outlet-port L while the valve is being shifted, and means, substantially as described, for moving the valve Q from one side

319,992.



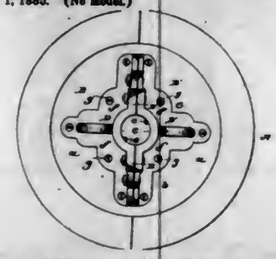
2. In a fluid-meter, the combination, with the valve Q, placed within the valve-chamber B and having the studs U, of the rocking weighted lever M, provided with slots N for the reception of the studs U, the reciprocating piston G, and the piston-rod H, having the collars J J, whereby the lever is carried up to a central vertical position by the movement of the piston and caused to trip or fall over by its own gravity to actuate the valve, substantially as described.

3. In a fluid-meter, the combination, with the valve Q and its case P, and the cover R, of the rocking lever M, composed of two halves or portions suitably secured together, and having the side arms, *b b*, adapted to span the valve-case and pivoted thereto, and provided at its upper end with the weighted projections *a a*, arranged on opposite sides of the piston-rod, all operating substantially in the manner and for the purpose described.

4. In a fluid-meter, the combination, with the valve-chamber B, of the current-deflector C, having a dish-shaped central portion and walls or sides provided with peripheral holes *d*, whereby the inflowing current of fluid is divided and projected into the valve-chamber in small streams at a right angle, or nearly so, to the direction in which the fluid enters the deflector, substantially as described.

5. In a fluid-meter, the combination, with the valve-chamber B, of the current-deflector C, having a dish-shaped central portion provided with peripheral holes *d*, and the cover K^2, arranged on the outside of the deflector and having the inlet K, all constructed to operate substantially as set forth.

319,993. BAND-PULLEY. WILLIAM H. O'CONNOR, South Chicago, Ill. Filed Apr. 1, 1885. (No model.)

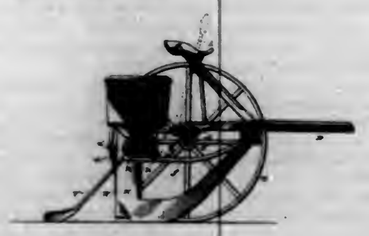


Claim.—1. A pulley composed of sections and sectional clamps secured to and connecting said sections, substantially as set forth.

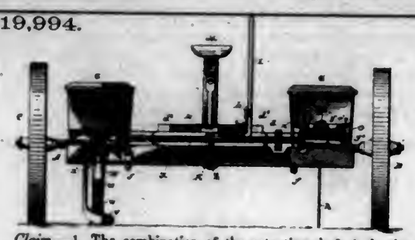
2. A pulley composed of sections and sectional clamps secured to and connecting said sections, and set-screws working in openings in the clamps for holding the pulley rigidly upon the shaft, as set forth.

3. A pulley composed of two sections, clamps secured to each side of said pulley, each of said clamps comprising two sections having outwardly-extending flanges, and wings and bolts connecting said flanges, as set forth.

319,994. CORN-PLANTER. LEVI J. ODELL, Fairbury, Ill. Filed Feb. 11, 1885. (No model.)



319,994.
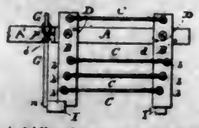


Claim.—1. The combination of the actuating-shaft A, having the driving and supporting wheels, the tongue D, hinged on the shaft A and having the transverse bar E, the runners *h*, pivoted or hinged to the ends of the bar E, the beam F, supported on the runners, and the planting mechanism and seed-hoppers on said beam, and actuating-gearing therefor, substantially as described.

2. The combination of the actuating-shaft A, having the driving and supporting wheels, the tongue D, hinged on shaft A and having the transverse bar E, the runners *h*, pivoted or hinged to the ends of the bar E, the beam F, supported on said runners, planting mechanism and seed-hoppers on the said beam, and actuating-gearing therefor, and the lever I, for raising or lowering the beam F, substantially as described.

3. The combination of the actuating-shaft A, having the driving and supporting wheels, the tongue D, hinged on said shaft and having the transverse bar E, the runners *h*, pivoted or hinged to the ends of the bar E, the beam F, supported on the runners and having the seed-hoppers, the seed-disks O in the bottoms of the hoppers, shaft N, having pinions *n* meshing with the seed-disks, chain-wheel *n'* on shaft N, wheel R on shaft A, and the connecting endless chain S, substantially as described.

319,995. FOLDING FENCE-PANEL. JAMES J. OGILVIE, Staunton, Va. Filed Oct. 12, 1883. (No model.)



Claim.—1. A folding fence-panel consisting of two single uprights, B and B', pivotally attached to the rail A, (said uprights and said rail being of the same width,) and a series of three or more slats or wires extending from B to B' and attached thereto by the projections *b*, each pair of said projections being placed slightly to one side of the pair below, whereby when the panel is folded for transportation it occupies a space equal only to the width of the rail A, substantially as described.

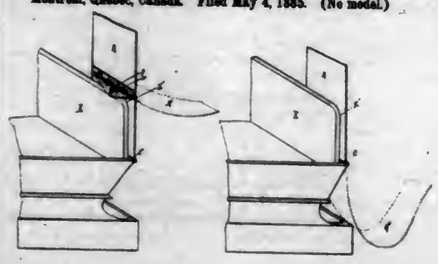
2. In a fence-panel, the combination of the rail A, the uprights B B', the series of wires or slats C, the sills I I', and the brace G, provided with the shoulder *g* and the pin-connection *n o* for the sill, all substantially as described.

3. The combination of the two rails A A' of adjacent panels, rabbeted and notched, as described, with the brace G, the sill I, and the wire-loop *p*, said brace and loop serving the double purpose of support and acting as a lever to bind the ends of the rails together for the purpose of connecting two panels in a straight line, all as shown and described.

4. The combination of the two rails A A' with the upright B', and the pins *r* and *s*, for the purpose of making a connection of two panels placed at right angles to each other, all as hereinbefore described.

5. The combination of the uprights B and B', having projections *b*, with the series of slats or wires C, the rail A, the sill I, having plate *j*, notch *i*, and projection F, the brace G, having shoulder *g*, and the loop *p*, all constructed and operating substantially as hereinbefore shown and described.

319,996. CARRIAGE-TOP. JOSEPH PARISEAU, St. Jean Baptiste, Montreal, Quebec, Canada. Filed May 4, 1885. (No model.)



Claim.—In a carriage-top, the piece F, provided with the button-hole *a*, or any other suitable method of fastening, in combination with the hind quarters, A, stud *g*, and easy back E, all as above described, and for the purposes set forth.

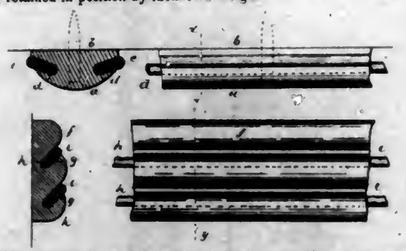
319,997. BUTTON. GEORGE D. PAUL, East Orange, N. J., assignor of one-half to Cyrus E. Vreeland, same place. Filed June 28, 1884. (No model.)



Claim.—A button constructed with a rigid post or shank having an enlarged flat end and provided with a separable shoe, consisting of a spring-metal ring formed with a flaring opening, *a*, through which the post or shank is passed, and with a yielding central portion curved outwardly, forming a seat, *c*, in which the post or shank rests, the said shoe adapted to be secured to the shank between its outer end and the fabric through which the shank is inserted, substantially as set forth.

319,998. CONDUIT FOR ELECTRICAL CONDUCTORS. CHARLES G. PERKINS, New York, N. Y., assignor to the Imperial Electric Light Company, same place. Filed Jan. 16, 1884. (No model.)

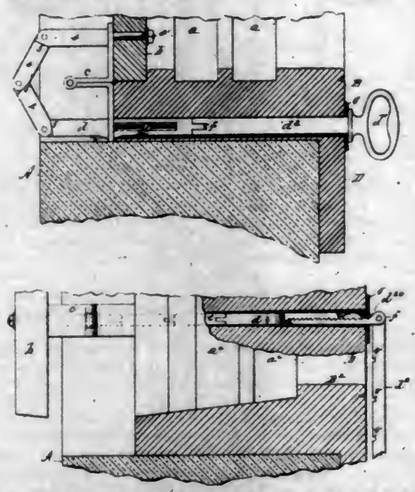
Brief.—A conduit consisting of a strip of insulating material having grooves inclined downward and filling-strips, the wires and strips being retained in position by their own weight.



Claim.—1. A conduit for electrical wires, consisting of a strip of insulating material provided with a groove or grooves, downwardly-inclined and filling strips therefor, whereby the weight of the wires and of the strips retains them in place, and fastening devices therefor are avoided, as set forth.

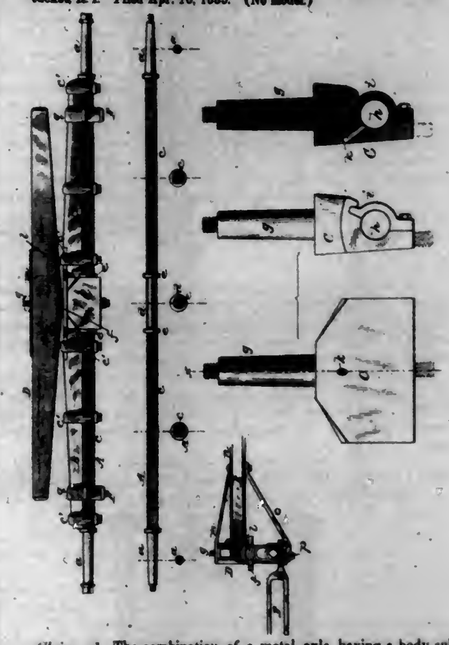
2. The combination, with a strip of insulating material provided with downwardly-inclined grooves, of electrical conductors and insulating groove-strips, the conductors and groove-strips being adapted to be held in position by their own weight, substantially as shown and described.

319,999. SHUTTER-WORKER. GEORGE E. POTTER, Palmer, Mass. Filed May 26, 1884. (No model.)



Claim.—The handle-bar consisting of the bar d^2 and the bar d^{20}, hinged together, and the bar *d*, adjustably attached to the latter, whereby the length of the handle-bar may be varied, the lever-bars *e*, and blind *c*, combined and operating substantially as set forth.

320,000. CARRIAGE RUNNING-GEAR. CARROLL J. PULLEN, Pawtucket, R. I. Filed Apr. 10, 1885. (No model.)



Claim.—1. The combination of a metal axle having a body substantially rectangular in cross-section, and also wheel-journals, substantially concentric with the axial line of the axle, and a wood stock fitted on its upper side to receive the body of the axle in two or more different positions resulting from its rotative adjustment, and clamping devices for uniting said wood stock and axle, the whole organized to admit of the rotative adjustment of the axle with relation to the wood stock, substantially as described, whereby the axle may from time to time be partially rotated on its axis and reset in the wood stock for presenting new bearing-surfaces at the under sides of its journals, as set forth.

2. The combination, substantially as hereinbefore described, of an axle having a centrally-located journal, and a king-bolt block mounted on said journal.

3. The combination, substantially as hereinbefore described, of an axle having a journal centrally located thereon, a king-bolt block mounted upon said journal, and a king-bolt projecting from said block.

4. The combination, substantially as hereinbefore described, of an axle having a centrally-located journal, a king-bolt block mounted on said journal, a wood stock for said axle constructed in two parts, each extending from said journal outwardly, and a slotted bridge-brace loosely surrounding said block and coupling the parts of the wood stock above said journal.

5. The combination, with an axle having a central journal, of a king-bolt block mounted on said journal and provided with an internal pocket for the storage of a solid lubricant, substantially as described.

6. The combination of the axle having a central journal, a king-bolt and its block mounted on said journal, a rocker, a perch, and a brace coupling the top of said king-bolt to the perch, substantially as described.

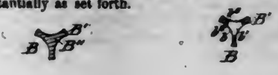
7. The combination of the axle having a central journal, a king-bolt and its block mounted on said journal, a rocker, a perch, and a brace coupling the bottom of said block to the perch, substantially as described.

8. The combination of the wood stock, the axle having a central journal, a king-bolt block mounted on said journal, and a pole or thills rigidly coupled to said axle and wood stock, substantially as described.

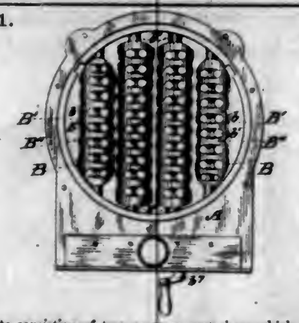
320,001. GRATE-BAR AND GRATE. DWIGHT S. RICHARDSON, Brooklyn, N. Y. Filed Dec. 19, 1884. (No model.)

Claim.—1. A grate-bar consisting, essentially, of the journals *b''* *b''*, the spines B' B' B', and the series of webs B'', having between them the intercommunicating openings *b'*, substantially as described.

2. A three-faced grate-bar, each face of which has a cavity, *b*, in which are openings *b'*, and which has also at each of its two sides a spine, B', such spines constituting the outer lateral extremities of the bar, substantially as set forth.



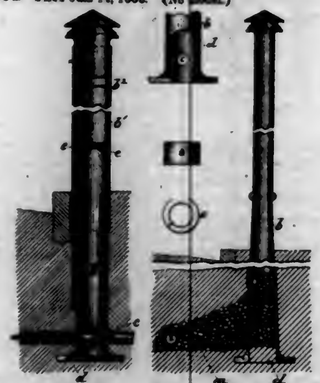
320,001.



3. A grate consisting of two or more grate-bars which are geared together, as described, each bar having end journals, three longitudinal spines, and three longitudinal faces, in each of which is a longitudinal groove or cavity, and a series of transverse perforations, each of which connects with a like perforation in each of the other two cavities.

4. A three-faced grate-bar, each face of which is laterally bounded by a longitudinal rib, which terminates interiorly at a point near the axial center of the bar in a double-inclined surface, whereby the lodgment of ashes upon the inner portion of such rib is rendered impossible.

320,002. VENTILATOR FOR GAS-MAINS. JAMES J. RICKETTS, Pittsburg, Pa. Filed Jan. 14, 1885. (No model.)



Claim.—1. A device for removing leaking gas from underground pipes, which consists of a box or tube through which the gas-pipe passes, said box or tube communicating with the open air, and fitting tightly around the gas-pipe at one side and loosely on the other side of the box, substantially as and for the purpose specified.

2. The combination of a ventilating-box, one of the buried sides of which is open, and a conduit leading from the space about the gas-pipe into the opening in the box, so that the box shall inclose the terminus of the conduit and shall interpose a wall opposite the open side to the lateral flow of the gas, substantially as and for the purpose specified.

3. The combination of a ventilating-box, one of the buried sides of which is open, and a conduit, consisting of a covered ditch containing rubble, leading from the space about the gas-pipe into the opening in the box, so that the box shall inclose the terminus of the conduit and shall interpose a wall opposite the open side to the lateral flow of the gas, substantially as and for the purpose specified.

4. A ventilating-box for underground gas-pipes, having passages at the bottom for the entrance and exit of the gas-pipe, the exit-passage being capable of making a tight joint around the pipe, and the adit-passage being open, so as to make a loose joint with the pipe, in combination with an auxiliary tube or box capable of fitting or telescoping on the ventilating-box, and a wedge for holding said tube or box in position, substantially as and for the purposes described.

5. A ventilating-box for underground gas-pipes, having passages at the bottom for the entrance and exit of the gas-pipe, the exit-passage being capable of making a tight joint around the pipe, and the adit-passage being open, so as to make a loose joint with the pipe, in combination with an auxiliary tube or box capable of fitting and telescoping on the ventilating-box, and a ventilating-cap, *h*, substantially as and for the purposes described.

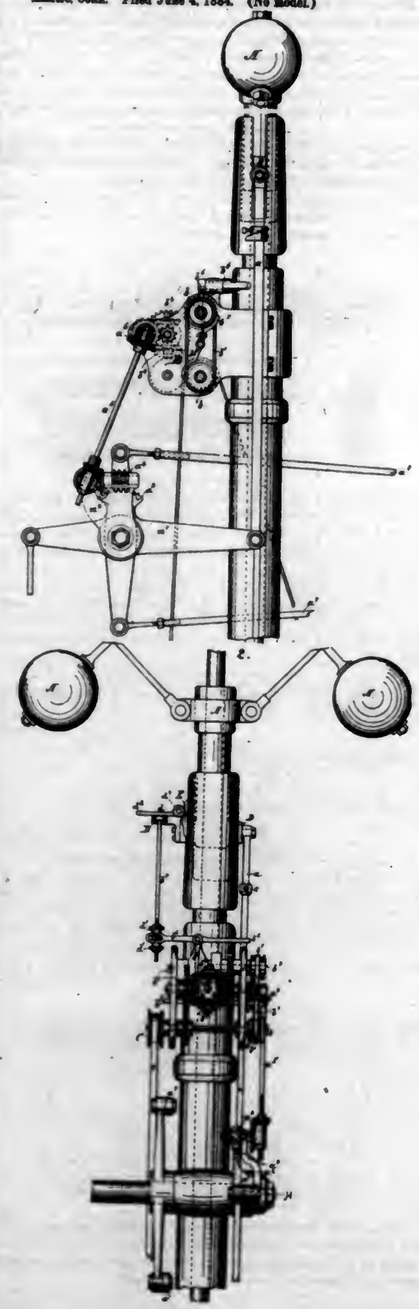
320,003. CONFECTIONERY. SIMON SCHAYER, New York, N. Y. Filed Feb. 13, 1885. (No model.)

320,003.



Claim.—As an article of manufacture, a confection consisting of a layer of fig-paste interposed between and uniting two layers of nut-paste, substantially in the manner and for the purpose described.

320,004. GOVERNOR FOR STEAM-ENGINES. JOHN SCOTT, Willimantic, Conn. Filed June 4, 1884. (No model.)



Claim.—1. In a governor for steam-engines, the combination of the differential gear b^3 b^4 b^4 b^4, cone-pulleys b, and belt b', shipper b^5, lever b^6, and rod b^7, with the governor A, gear a^3, rod a^6, and lever a' a^5, carrying the worm a^4 and segment worm-gear a^2, and the rod a, when constructed and operated substantially as herein shown and set forth.

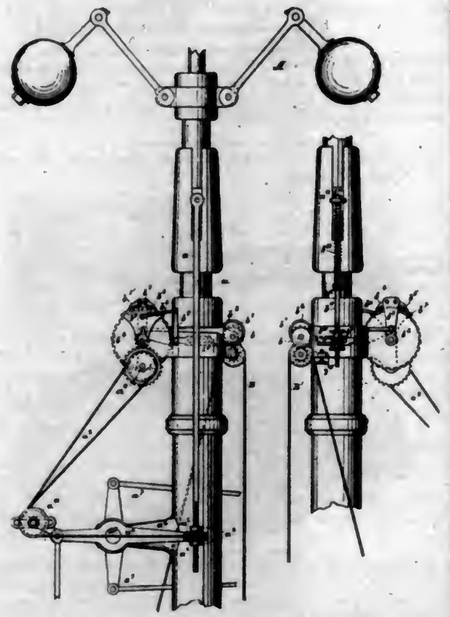
2. In a governor for steam-engines, the lever a', having a worm-gear, a^2, and arm a^5, having a worm, a^4, by means of which the relative angular position of a' and a^5 may be changed and held, in combination with the rod a, operated by the governor, and the valve-connections a^7, substantially as and for the purposes herein shown and set forth.

3. In a governor for steam-engines, the rod b^7, lever b^8, and fork b^9, in combination with the sliding block D and cover d, substantially as and for the purposes herein shown and set forth.

4. In a governor for steam-engines, the rod b^7, lever b^8, sliding block D, and hinged cover d, in combination with the cam E, adjustable collar e, and rod a, when constructed and operated substantially as herein shown and set forth.

5. In a governor for steam-engines, the rod b^7, in combination with the nuts d', lever b^8, fork b^9, and the governor having a sliding block, D, and cover d, constructed and operated substantially as and for the purposes herein shown and set forth.

320,005. GOVERNOR. JOHN SCOTT, Willimantic, Conn. Filed Nov. 14, 1884. (No model.)



Claim.—1. In a governor for steam-engines, the combination of the governor A, rod a, nut a', lever a^4, and valve connections a^7, with the pulleys a^3 a^{10} a^9, and the belt a^8, when the belt a^8 is caused to turn the nut a' by power or mechanism that is put in action and controlled by the change of elevation of the governor A, substantially as herein shown and set forth.

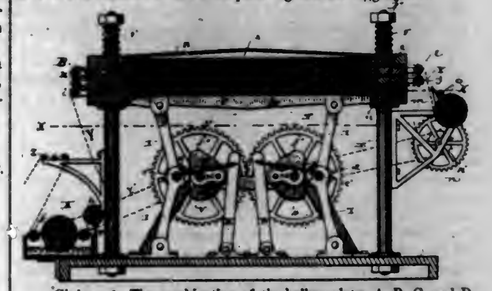
2. In a governor for steam-engines, the nut a', pulleys a^3 a^9, and belt a^8, in combination with and actuated by the ratchet-wheel b^{12}, arm b^{13}, pawls b^4 b^5, connection b^6, eccentric b', pulley b, and belt B, when the action of the pawls b^4 b^5 is limited and controlled by mechanism directly connected with and operated by the governor A, rod-connection b^9, lever b^8, swivel-nut b^{10}, rod b^{11}, and guard-plate b^7, as herein shown and described.

3. In a governor for steam-engines, the connection b^{11}, having a head, b^{12}, spring b^{14}, and adjustable stop b^{15}, in combination with the governor A, and guard b^{14} and adjustable stop b^{15}, when constructed and operated substantially as herein shown and set forth.

4. In a governor for steam-engines, the nut a', turned and controlled by mechanism regulated by the governor, in combination with the rod a, operated by the governor, lever a^4, rock-shaft lever, and valve connections a^7, substantially as and for the purposes herein shown and set forth.

320,006. CLOTH-PRESSING MACHINE. JOHN SHEARER, Preston, Ontario, Canada. Filed May 23, 1884. (No model.) Patented in Canada July 25, 1884, No. 19,858.

Brief.—Four hollow plates are supported by four columns, the lower and upper ones being prevented from dropping too far by shoulders on said columns. The intermediate plates are held apart by threaded rods secured to the top plate by brackets and passing through brackets on the two middle plates. Nuts are arranged on said rods, so that when the lower plate drops the two middle plates will follow till they are brought up by said nuts. The pressure is effected by toggle-joints under the lower plate, operated at their center joints by cams of such shape that when said toggle-joints are straightened the cams will leave the toggle-joints. To break the toggle-joints wipers are provided, working in contact with levers and chains. Springs and nuts are provided at the head of each column to act on the plates against the toggle-joints.



Claim.—1. The combination of the hollow plates A, B, C, and D, the columns E, the springs F, and nuts F', arranged as specified, the arms I, connected to plate D, and provided with knife-joints, as described, the cams J, and mechanism, substantially as described, for operating said cams, substantially as and for the purpose specified.

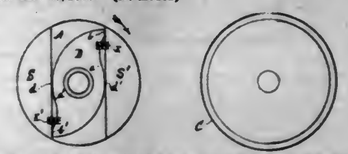
2. The combination of the driving-shaft N, worm-pinion Q, the spur-wheel R, shaft S, the spur-wheels T and U, and the shaft V, with the cams J, the toggle-jointed arms I, the press-plates operated by the said arms I, the wipers M, the bars K, the rods *e*, and the chains L, substantially as and for the purpose specified.

3. The combination, with the cloth-pressing plates C and D, supports for the same, the toggle-joints I, cams for operating said toggle-joints, and means for rotating said cams, of mechanism acting independently of said cams, substantially as described, to break the joints, as set forth.

4. The combination of the top plate, A, plates B C, and the columns E, having shoulders *e* formed thereon, with the studs G, attached to plates A B C, the spindles H, passing through holes made in said studs G, and the nuts *b* and *c* on said spindles, substantially as and for the purposes specified.

5. The cloth-pressing plates, means, substantially as described, for intermittently operating said plates, the winding-roller *m*, the roller X, for continually damping the cloth before its passage between the plates, and mechanism, substantially as described, for rotating said rollers, in combination with the guide-rollers *i j k*, and the roller *h*, and means, substantially as described, for continuously driving the same to draw the cloth from said damping-roller during the time that the plates are held together, as and for the purposes hereinbefore set forth.

320,007. FRICTION-CLUTCH. AMBON D. SIMPSON, Niverville, N. Y. Filed Mar. 26, 1885. (No model.)



Claim.—A friction-clutch made substantially as hereinbefore described, and consisting of a disk or plate provided with a double eccentric hub, B, formed of two eccentric arcs meeting the segments of a circle at points directly opposite each other across the center of the shaft at points marked *a a'*, the segments with straight sides resting against the hub, with springs interposed between the hub and segments, and the cap fitting over them, for the purpose described.

320,008. FILLING-BOBBIN. JAMES A. SIBSON, Greenwich, R. I. Filed Nov. 15, 1884. (No model.)

Brief.—The riser of each step of the base portion of the bobbin is made convex for a short distance down from its top and thence concave, to make the steps more durable, prevent cutting of the yarn, and to hold the cop on more securely.

320,008.



Claim.—A filling-bobbin having the riser of each of the steps of the conical part of the base portion of such bobbin cylindrical, or substantially so, at top and for a short distance therefrom, and thence concave to the tread of the next step below, all being substantially as set forth.

320,009. COMPOSITION FOR CRAYONS. JOSEPH J. SLEEPER, Concord, and HANSON A. JONES, Media, Pa. Filed Sept. 29, 1884. (No specimens.)

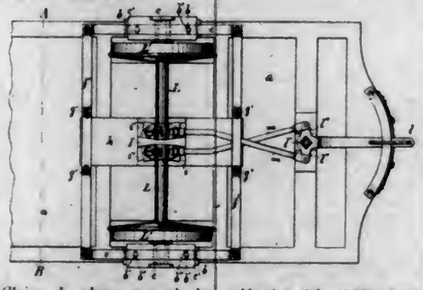
Claim.—The herein-described composition of matter to be used in the manufacture of crayons and other articles for marking and delineating, consisting of water, kaolin, wheat-flour, soapstone, and paris-white, as specified.

320,010. PUMP-VENT. KIRK A. SMITH and JOHN E. WOODARD, Kalamazoo, Mich. Filed Oct. 9, 1884. (No model.)



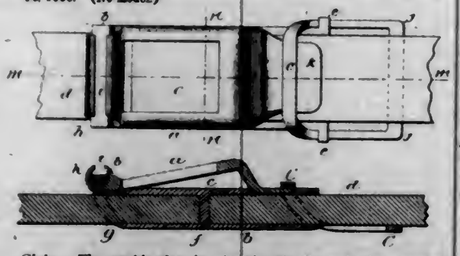
Claim.—In a pump-vent, the valve-seat detachably held against the well-pipe, and a connecting shut-off valve provided with packing interposed between the valve-seat and well-pipe, and the valve-seat and valve, substantially as set forth.

320,011. CAR-TRUCK. GEORGE SOUTHER, Boston, Mass. Filed Feb. 19, 1885. (No model.)



Claim.—In a horse-car truck, the combination of the yielding boxes c c with the bent or curved bars e e, their connecting truss-beams f f' g g', and central longitudinal bearing board or plate, h, for the support of the inner bearings, k k, as and for the purpose set forth.

320,012. BUCKLE. HERMAN STAUSS, Whitewater, Wis. Filed Mar. 14, 1885. (No model.)



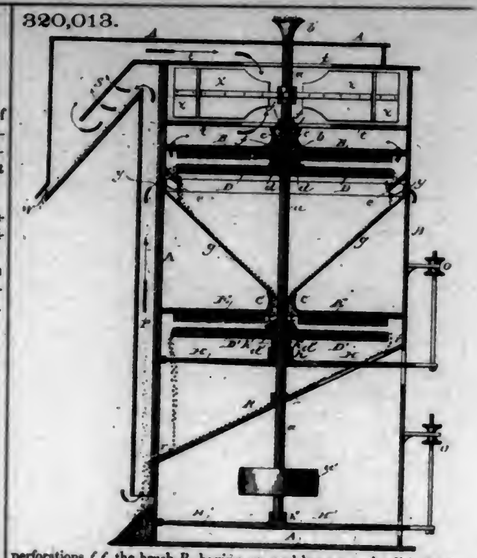
Claim.—The combination, in a buckle, of a frame having one end curved and having a slot, g, therein, and the other end curved and having lugs e e thereon, a lever having one end formed into a hollow cylindrical roller, h, having a slit, i, therein, the wedge having a pin, f, and the clasp C, all substantially as set forth and described.

320,013. GRAIN-CLEANER. LUCIOUS O. STEVENS and LILLIE E. STEVENS, Burlington, Iowa. Filed Aug. 31, 1884. (No model.)

Claim.—1. A machine for cleaning grain, comprising the revolving shaft a, the rotating disk D, having conical-shaped indentations, distributing-cone d, and a stationary brush, B, having covered feed-hopper e, substantially as and for the purpose herein set forth.

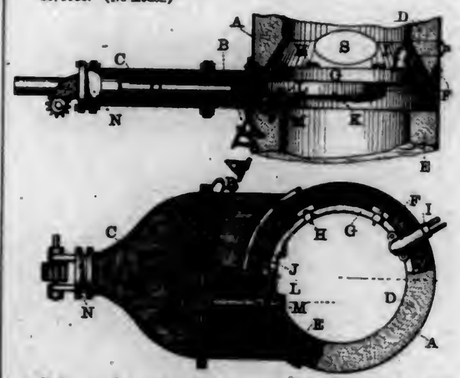
2. A machine for cleaning grain, comprising the shaft a, having

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perforations f f, the brush B, having covered hopper e, the disk D, the brush E, having open hopper e, the disk D', bridge-tree H, lighter-screw O, and a fan having vanes x and x, substantially as and for the purpose herein set forth.

320,014. VALVE. VICTOR O. STROBEL, Allegheny, Pa. Filed Feb. 20, 1885. (No model.)



Claim.—1. In a gate-valve, the combination of a nose-cap, a stem-gland bolted to the outer end thereof, and a pair of pinion-carrying horns projecting from the face of the gland, substantially as and for the purpose set forth.

2. The combination of a metal pipe, a separate inserted ring permanently secured within the pipe, and a neck provided with a concave-joint flange fitting the cylindrical body of the pipe and permanently secured to the outside of the pipe by rivets or the like engaging the neck, the metal of the pipe, and the ring, substantially as and for the purpose set forth.

3. The combination, with a valve-seat, and a sliding-gate valve, of balls disposed below the valve, and ball-tracks disposed below the balls, substantially as and for the purpose set forth.

4. The combination of a metal pipe pierced for the play of the valve, a neck secured at such piercing and provided with ball-tracks M, projecting into the pipe, a sliding-gate valve, and balls interposed between the valve and ball-tracks, substantially as and for the purpose set forth.

5. The combination of a sliding-gate valve, balls disposed below the valve, and ball-tracks disposed below the balls and terminating inwardly in upward slopes, substantially as and for the purpose set forth.

6. The combination of a sliding-gate valve, balls and ball-tracks disposed below the valve, and a flange, R, projecting from the rear and bottom of the valve, substantially as and for the purpose set forth.

7. The combination of a valve-seat-holding ring having a straight or curved taper bore, and a valve-seat having a straight or curved taper

exterior seating in such ring and adapted for oblique adjustment, substantially as and for the purpose set forth.

8. The combination of a valve-seat having a taper periphery, and a thin valve-seat-holding ring having a taper bore engaged by the valve-seat, substantially as and for the purpose set forth.

9. The combination of a valve-seat-holding ring having a taper bore, and a valve-seat provided with a taper periphery engaging such ring, and having a cooling-passage for cooling the valve-seat and the taper joint, substantially as and for the purpose set forth.

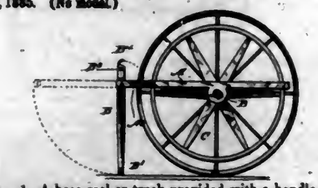
10. The combination of a valve-seat-holding ring, a valve-seat fitting within the bore of such ring, and a key H, engaging the said ring, substantially as and for the purpose set forth.

11. The combination of the chimney-pipe, a valve-seat disposed therein and provided with a cooling-passage, a pipe leading from the atmosphere to such cooling-cavity, and apertures J through the metal of the valve-seat, substantially as and for the purpose set forth.

12. The combination of a pipe, a valve-seat connected therewith, and provided with a cooling-passage having an inlet and an outlet aperture, a draft-chimney or other device for producing a circulation of air, and a conduit connecting said circulating device with one of the apertures of said cooling-cavity, substantially as and for the purpose set forth.

13. The combination of a hollow valve, an inlet through the stem from the atmosphere to the hollow of the valve, an aperture, Q, through one of the faces of the valve, and a partition, P, disposed within the valve between the points of stem attachment and the outlet Q, substantially as and for the purpose set forth.

320,015. HOSE-TRUCK. EDWARD A. TAFT, Davenport, Iowa. Filed Apr. 9, 1885. (No model.)



Claim.—1. A hose reel or truck provided with a handle pivoted to the frame-work of the truck, and adapted to fold down to form a support for the truck-frame, substantially as specified.

2. In a hose reel or truck, the combination of a pivoted handle adapted to fold down to form a support for the same, with devices for securing said handle in an elevated operative position, substantially as specified.

3. In a hose reel or truck, the combination of a pivoted handle provided with a hook, with a frame-work adapted to support the pivot and act as a stop for the handle, substantially as specified.

4. The combination of the frame-work A, extended to form arms A', with the handle B, pivot-bolt B^2, and locking device D, substantially as shown and described.

5. The combination of the frame-work A, comprising arms A' and a tie-bar, A^2, with a handle, B, having hook B^4, and a locking-pin, D, substantially as shown and described.

6. The combination, with the frame A, and the handle B, pivoted thereto, and provided with the T-head, having the curved arms B', substantially as shown and described.

320,016. EXHAUST-NOZZLE. CHARLES A. THOMPSON, Flushing, N. Y. Filed Mar. 24, 1885. (No model.)

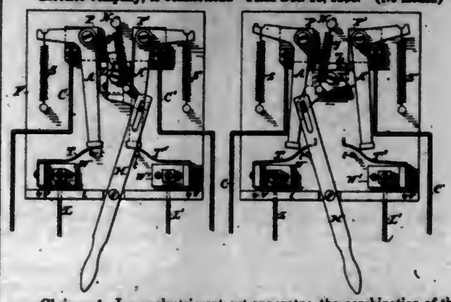


Claim.—1. In an exhaust-nozzle of the character herein set forth, the two steam channels or ways, each open at bottom and receiving steam therethrough in the manner set forth, said channels having relief-ports located below and independent of the upper outlet, which ports serve to establish communication between the two steam-channels and permit the excess of steam in either channel to enter the other channel, substantially as and for the purposes set forth.

2. In an exhaust-nozzle of the character herein set forth, a steam channel or way having relief-ports located below and independent of the upper outlet, and the vertically-moving perforated damper or regulator for controlling the size of the relief-ports, combined with the wall of the steam-channel, substantially as and for the purposes set forth.

3. The herein-described exhaust-nozzle, composed of two parts secured one to the other, the channel in each part being provided with relief-ports, and the vertically-moving perforated regulators for governing said ports, arranged for operation substantially as and for the purposes set forth.

320,017. CUT-OUT FOR ELECTRIC CIRCUITS. ELIHU THOMSON and E. WILBUR RICE, New Britain, Conn., assignors to the Thomson-Houston Electric Company, of Connecticut. Filed Dec. 18, 1883. (No model.)



Claim.—1. In an electric cut-out apparatus, the combination of the two line-contact levers or springs A A', the two contact blocks or points upon which said levers or springs normally rest, a local circuit connected to the contact blocks or points and containing the apparatus to be operated by the electric current, and an intermediate pivoted connecting cam-piece placed between the contact levers or springs, and normally out of contact with the same, but adapted to be turned so as to move both levers simultaneously in opposite directions, so as to cut out the apparatus in the local circuit, while at the same time completing the circuit between them directly.

2. The combination of the elbow contact-levers, contact springs or stops for the same, forming the terminals of a local working-circuit, and a cam-plate, X, located between the levers for operating the same and simultaneously forming a direct connection between them when the connection to the local working-circuit is broken.

3. The combination, with the elbow contact-levers, of the intermediate conducting cam-plate, X, for forcing the levers apart, said plate being adapted to form a direct connection between said levers when by the operation of the latter the connection between the line and the local working-circuit is broken.

4. In an electric cut-out apparatus, the combination, with two contact-levers normally resting against contacts forming terminals of a local circuit and a short-circuiting and operating pivoted cam, of a spring or other device applied in the manner described, so as to act upon the cam on either side of its pivotal point and to hold said cam in either of its extreme positions.

5. The combination, with the contact-levers normally resting against two contact-springs forming terminals for the local circuit, of the intermediate cam-plate, X, and the spring Y, applied to said plate in the manner described, so as to hold it in either of its extreme positions.

6. In an electric cut-out apparatus, the combination of the conducting-blocks P P', the main-circuit wires clamped thereto, the contact-levers mounted on said blocks, an intermediate cam-plate, the conducting blocks W W', local working-circuit wires clamped thereto, and conducting-springs attached to said blocks and having their free ends projected into the path of the contact-levers, as and for the purpose described.

7. The combination, in an electric cut-out apparatus, of two pivoted contact-levers connected to the main circuit, an intermediate cam-plate adapted to connect said levers directly, the projecting operating-handle, and contact-springs connected to the local working-circuit and having their free ends projected into the path of the levers, so that the ends of the latter will make rubbing contact with said springs.

8. The combination, with the plate F, carrying the contact-levers, springs, and operating-levers, and having a lateral extension, i, through which the connecting-wires and operating-lever pass, of the cover B, open at its bottom, as and for the purpose described.

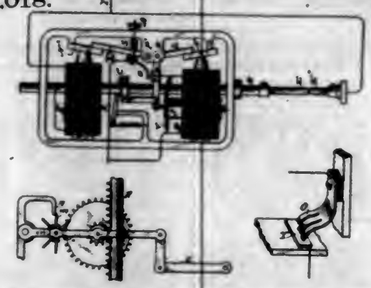
9. The combination, with the two pivoted elbow-levers, the two contact-springs arranged opposite the ends of the levers, so that the ends of the latter may form contacts rubbing upon the springs, and the intermediate cam-plate, X, adapted to move the levers apart, so as to break the working-circuit formed by the levers and springs and at the same time to form a direct connection between the levers.

320,018. ELECTRIC LAMP. ELIHU THOMSON, Lynn, Mass. Filed Nov. 22, 1884. (No model.)

Claim.—1. The combination of a main-circuit magnet, a derived-circuit magnet, and a circuit-controller, which governs the flow of current to the main-circuit magnet, one portion or electrode of said controller being movable with the core or armature of the main-circuit magnet, while the other is governed or actuated by the derived-circuit magnet.

2. The combination, with a main-circuit lifting-magnet and a derived-circuit magnet, of a circuit-controller both contacts or portions of

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which are movable, one with the parts actuated by the main-circuit magnet, and the other with the parts actuated by the derived-circuit magnet, as and for the purpose described.

3. The combination, in an electric lamp, of a lifting armature or lever, an actuating main-circuit magnet therefor, a derived-circuit magnet, and a switch controlling a shunt around the main-circuit magnet and governed by the derived-circuit magnet, one portion of said switch being operated by the lifting-lever and made to follow the movements thereof, as and for the purpose described.

4. The combination, in an electric lamp, of a lifting-lever and main-circuit magnet, a derived-circuit magnet, a branch around the main-circuit magnet, and a variable-resistance switching device controlling the flow of current in said branch, one portion of said switch device being carried by the lifting-lever, while the other portion is actuated by the derived-circuit magnet, as and for the purpose described.

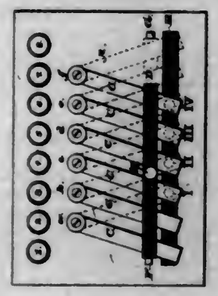
5. The combination, in an electric-arc lamp, of a main-circuit magnet, a lifting-lever actuated thereby, a lifting and releasing feed mechanism, as described, supported thereby and acting to hold and raise the carbon when moved in one direction, a stop or detent acting upon the lifting devices to permit the carbon to feed downward relatively to said device when the latter is moved in the other direction to a predetermined extent, a derived-circuit magnet having an independent retractor, and a circuit-controller controlling a branch around the main-circuit magnet, said circuit-controller being governed in its shunting action by the variations of force in the derived-circuit magnet consequent upon variations in the length of arc.

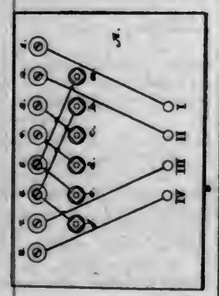
6. The combination, in an electric-arc lamp, of a main-circuit magnet and a derived-circuit magnet, a circuit-controller governing the flow of current in the main-circuit magnet, one portion of said controller being connected with the device moved by the main-circuit magnet and carried in one direction under the influence of the increased current in said magnet and the other portion being connected with devices operated by the derived-circuit magnet in an increase in the length of arc to carry such portion in an opposite direction.

7. In an electric-arc lamp, the combination of a lifting-lever, L, actuated by a main-circuit magnet, a feed-governing mechanism supported thereby, a switch contact or surface carried by said lever, a derived-circuit armature-lever, a second contact carried thereby, and a branch around the main-circuit magnet completed through said contacts.

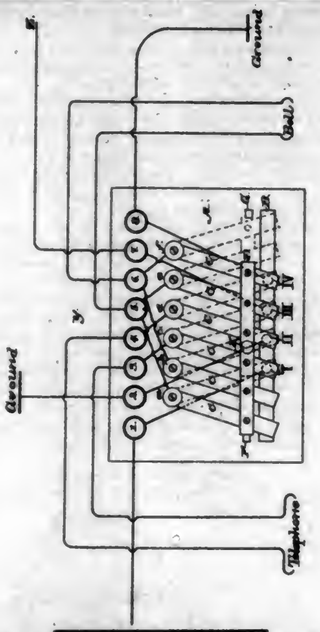
320,019. SWITCH. ERASTUS C. TITUS, Catskill, N. Y. Filed Mar. 7 1885. (No model.)

Claim.—The switch having the binding-posts 1 2 3 4 5 6 7 8, the contact-points I II III IV, and the switch-levers secured to points *a b c d e f*, which levers are connected together and adapted to be moved simultaneously, the contact-points I II being connected to the posts 1 2, contact-points III IV being connected to the posts 7 8, points *a e* being connected to post 5, points *b f* being connected to post 6, point *c* being connected to post 3, and point *d* being connected to post 4, substantially as described.

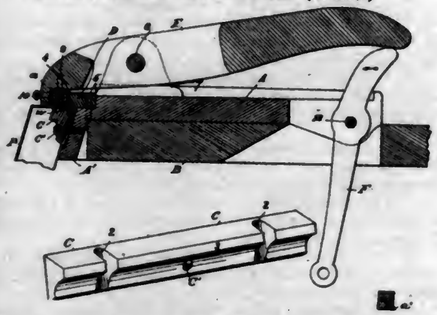




320,019.



320,020. APPARATUS FOR WIRING SHEET-METAL PANS. JOHN WARNER, Boston, Mass. Filed Jan. 12, 1885. (No model.)



Claim.—1. The combination, with the bed A, of the lower jaw, C, of the length of the longer side of a pan and provided with openings 2, to adapt it to the shorter side of a pan, the upper jaw, *a*, having the lip *a'*, the jaw-carrier E, pivoted to the bed, and means to move it, and a gage, D, secured to the bed, substantially as set forth.

2. The combination, with the bed A, of the lower jaw, C, of the length of the longer side of a pan and provided with openings 2, to adapt it to the shorter side of a pan, the upper jaw, *a*, having the lip *a'*, the jaw-carrier E, pivoted to the bed and provided with screws 8 and 10, for adjustably securing the upper jaw to it, and means to move it, and a gage, D, secured to the bed, substantially as set forth.

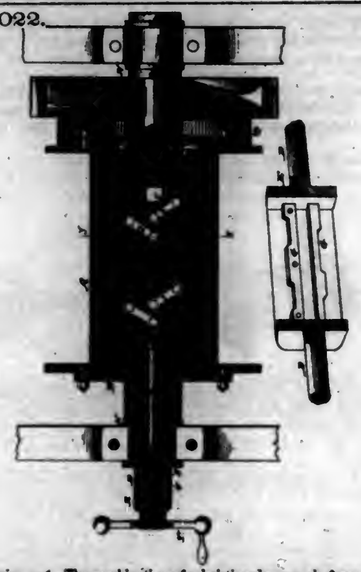
320,021. BUTTON. CLARENCE L. WATSON, Attleborough, Mass. Filed Mar. 20, 1885. (No model.)



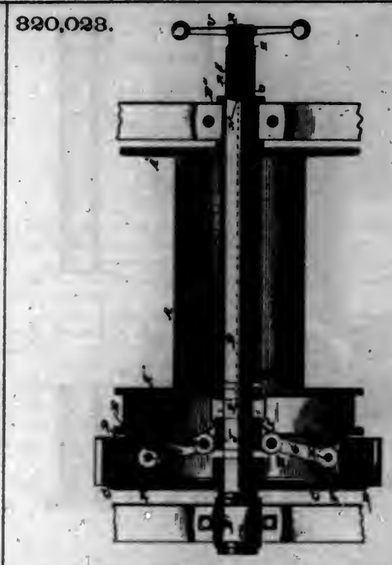
Claim.—The combination, with a shoe consisting of a plate having recesses and an opening therein, the single spring-metal disk, and the cap, of a button-head and a post rigidly secured thereto and provided at its free end with a cross head or bar, which latter is pivotally held by compression between the recessed plate and disk, all of the above parts constructed and combined substantially as set forth.

320,022. HOISTING-DRUM FOR ELEVATORS. PETER L. WEBER, Lebanon, Pa. Filed May 12, 1885. (No model.)

320,022.



320,023.



Claim.—1. The combination of a hoisting-drum, a shaft provided with an enlargement within the drum, a friction-brake carried by the shaft within the enlargement, and suitable means for applying the brake to the inner walls of the drum, substantially as described.

2. The combination, with a hoisting-drum having a smooth inner wall, of friction-brake shoes supported by the shaft and extending nearly throughout the entire length of the drum, and means, substantially as shown, whereby the drum and the shaft can be securely locked together for hoisting, and the velocity of the revolving drum controlled for lowering.

3. The combination of a hoisting-drum loosely mounted upon a shaft provided with an enlargement within the drum, a friction-brake contained within the enlargement, a sliding bar, links connected to the bar, and the boxes containing the brake-shoes, and suitable means for applying the brake to the drum and releasing it therefrom, substantially as described.

4. The combination, with a hoisting-drum revolving upon a shaft provided with a rectangular opening within the drum and carrying a friction-brake, of means, substantially as shown, revolving with the shaft for applying and releasing the frictional surfaces.

5. The combination, with a hoisting-drum mounted upon a shaft having a rectangular opening within the drum, a friction-brake contained within said opening, a sliding bar connected to the brake-shoes, and a rod passing through one end of the shaft and adapted to engage and disengage the frictional surfaces, substantially as described.

6. The combination of the shaft having a rectangular opening provided with the guides having recesses, the boxes having corresponding projections, the sliding bar, the links connecting the boxes and the bar, and suitable means for expanding the boxes, substantially as described.

320,023. HOISTING-DRUM FOR ELEVATORS. PETER L. WEBER, Lebanon, Pa. Filed May 12, 1885. (No model.)

Claim.—1. The combination of a hoisting-drum, a master-wheel, a chilled cast-iron ring, a soft-metal shoe attached to the drum, and means, substantially as described, for expanding the shoe.

2. The combination of a hoisting-drum, a disk provided with a laterally-projecting rim, a chilled cast-iron ring detachably secured to the disk, a soft-metal shoe secured to the drum, a shaft which supports the drum, a sliding sleeve upon the shaft, toggle-levers between the sleeve and the shoe, and means, substantially as described, for expanding and contracting the soft-metal brake-shoe.

3. The combination of a disk provided with a laterally-projecting flange or rim having its inner surface bored out, a ring of chilled cast metal fitting within the ring of the disk, a brake-shoe adapted to fit and bear against the chilled ring, and means, substantially as described, for applying and releasing the frictional surfaces, substantially as described.

4. The combination of a disk or wheel, a hard-metal ring, a soft-metal expansible brake-shoe, and means, substantially as described, for applying and releasing the frictional surfaces, substantially as described.

5. The combination of a disk or wheel, a hard metallic ring removably secured thereto and having its inner surface serrated, a soft-metal brake-shoe having corresponding serrations, and means, substantially as described, for applying and releasing the frictional surfaces.

6. The combination of a disk or wheel having a laterally-projecting flange or rim, a hard-metal ring detachably secured to the disk and having its inner surface serrated, a soft-metal expansible ring provided with corresponding serrations, and means, substantially as described, for expanding and contracting the expansible ring.

7. The combination of a drum and a disk mounted upon a common shaft, a frictional bearing secured to the disk, a brake-shoe secured to the drum and projecting into the disk, a sliding collar, toggle-levers, and a rod supported by and revolving with the main shaft and provided with a nut for imparting a longitudinal motion to the rod to apply and disengage the brake-shoe, substantially as described.

8. The annular metallic brake-shoe, cut as described, and provided with inwardly-projecting lugs, a bolt passing through the lugs, and springs for contracting the ring, substantially as described.

9. The combination of a friction-brake, the shaft, the rod passing through the shaft and screw-threaded at its outer end, the screw-threaded sleeve-nut, the follower, and a hand-wheel secured to the sleeve-nut, substantially as described.

10. The combination of the shaft, a rod passing through the shaft and screw-threaded at its outer end, a shouldered screw-threaded nut, a follower, and friction-rings interposed between the collar on the nut and the follower, substantially as described.

320,024. HOISTING-DRUM. PETER L. WEBER, Lebanon, Pa. Filed May 12, 1885. (No model.)

Claim.—1. The combination of a hoisting-drum provided with a frictional surface, a continuous friction brake-band surrounding the drum, and having one end fixed to a disk or master-wheel and the other end movably secured to one end of a bell-crank lever, with a single lever and intermediate mechanism for locking the drum and the shaft for hoisting and controlling the speed of the revolving drum for lowering, substantially as described.

2. The combination of the hoisting-drum, the friction brake-band surrounding a portion of the drum, a disk adjacent to the drum, to which one end of the brake-band is fixed and the opposite end movably secured to a bell-crank carried by said disk, the toggle-levers within the drum, and a lever and rod for contracting and expanding the brake-band, substantially as described.

3. The combination of the shaft, the chambered journal-box, the flange on the disk or master-wheel, and the friction-disks between the flange and the wall of the chamber in the journal-box, substantially as described.

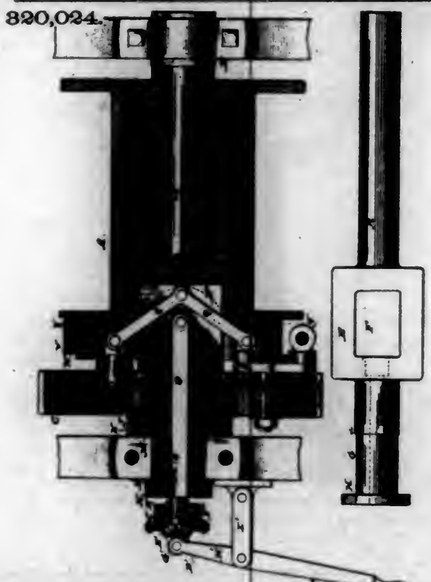
4. The combination of the shaft, and the friction-disks provided with rabbets to form oil-chambers and the channels to distribute the oil, with their inclosing-chamber, substantially as described.

5. A friction-disk having rabbets formed in its periphery and provided with radial channels, substantially as described.

6. The combination, with the brake and its operating mechanism, of the rod having a box on the outer end containing friction-disks, and a lever pivotally fulcrumed and connected to said box, substantially as described.

7. The combination of the brake-operating rod, the box on the

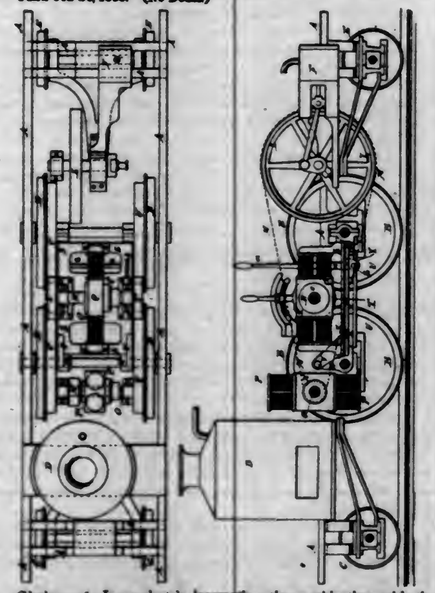
320,024.



outer end thereof containing the friction-disks, the follower and the nut to hold the follower in position, substantially as described.

8. The combination of the hoisting-drum, the master-wheel, the shaft, the friction-disks on the shaft, and suitable bearings therefor, substantially as described.

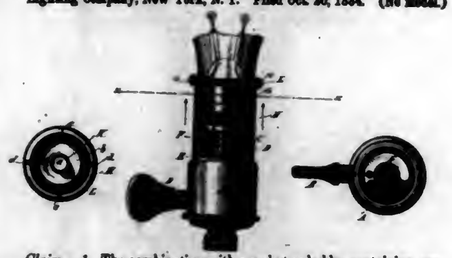
320,025. ELECTRIC LOCOMOTIVE. JOSEPH WEIR, Jersey City, N. J. Filed Oct. 24, 1883. (No model.)



Claim.—1. In an electric locomotive, the combination, with the wheels B, provided with the friction-wheels U, of the swinging frame S, the electric motor Q, supported in said swinging frame and having its armature-shaft R provided with friction-wheels T, engaging the friction-wheels U, and means, substantially as described, for operating the electric motor and raising the same to disengage the friction-wheels, as set forth.

2. In an electric locomotive, the combination, with the wheels B, provided with the friction-wheels U, and the frame X, provided with the arms W, of the frame S, provided with the arms V, pivoted to the arms W, the electric motor Q, secured in said frame S, the friction-wheels T on the armature-shaft of said electric motor, the eccentrics Y, and means, substantially as described, for operating the said motor, as set forth.

320,026. SOCKET OR HOLDER FOR INCANDESCENT LAMPS. EDWARD WESTON, Newark, N. J., assignor to the United States Electric Lighting Company, New York, N. Y. Filed Oct. 20, 1884. (No model.)



Claim.—1. The combination, with a socket or holder containing contacts and having pins *c c* on its sides, of an incandescent lamp and base-carrying terminals, and having a notched flange with which the pins engage when the base is inserted in the socket, as and for the purpose specified.

2. The combination, with a socket or holder containing spring-contacts and having pins *c c* on its sides, of an incandescent lamp and base-carrying terminals, and having a notched flange with which the pins engage when the base is inserted in the socket, as set forth.

3. The combination, with a socket or holder containing spring-contacts and having pins *c c* on its sides, of an incandescent lamp and cylindrical base-carrying terminals, and having its upper edge or rim formed as a bead or flange containing notches and indentations so formed that when the base is inserted in the socket the pins thereon may enter the flange and rest in the indentations, as described.

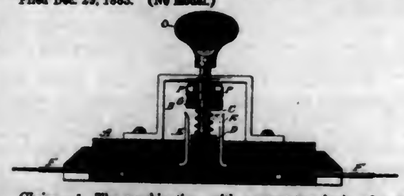
320,027. SOCKET OR HOLDER FOR INCANDESCENT LAMPS. EDWARD WESTON, Newark, N. J., assignor to the United States Electric Lighting Company, New York, N. Y. Filed Oct. 20, 1884. (No model.)



Claim.—1. A socket or holder containing spring-contacts and formed with a flange in which are set pins *a a*, in combination with an incandescent lamp and base having terminal contact-plates and formed with a slotted flange for engaging with the pins and locking the lamp in the socket, as set forth.

2. A socket or holder containing spring-contacts and formed with a flange, D, in which are set headed pins *a a*, in combination with a lamp-base consisting of a metal cylinder having its upper rim formed as a slotted flange and an insulating-plug closing the lower end and carrying terminal contacts, all as described.

320,028. CIRCUIT-BREAKER. EDWARD WESTON, Newark, N. J., assignor to the United States Electric Lighting Company, New York, N. Y. Filed Dec. 29, 1883. (No model.)



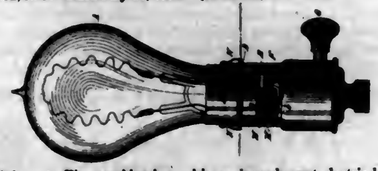
Claim.—1. The combination, with contact-terminals, of a spring-actuated plate, a rotary spindle, guides for preventing the rotation of the plate, and a cam and a projection or projections on said plate and spindle, whereby they engage with one another for the purpose of operating the parts to make or break the circuit, substantially as set forth.

2. The combination, with contact-terminals, of a spring-actuated plate and cam, a rotary spindle and guide-rods passing through the plate, and rollers carried by the spindle for engaging with the cam and imparting movement to the plate, substantially as set forth.

3. The combination, with contact-terminals, of a spring-actuated plate and cam-wheel having notches cut at its widest points, a rotary spindle and guide-rods passing through the plate, and rollers carried by the spindle for engaging with the cam, substantially as and for the purpose set forth.

4. The combination, with substantially parallel contact-terminals E, of the spring-actuated conducting-plate G and the pins K, parallel to the terminals, for supporting and guiding said plate, substantially as set forth.

320,029. INCANDESCENT-LAMP HOLDER. EDWARD WESTON, Newark, N. J., assignor to the United States Electric Lighting Company, New York, N. Y. Filed July 18, 1884. (No model.)



Claim.—1. The combination, with an incandescent electric lamp-globe having a cylindrical neck, a sheet-metal cylinder in which a circular groove or depression is formed, secured to the neck, a plug of insulating material closing the end of said cylinder, and contact-terminals secured thereto, of a socket into which the said cylinder fits, spring-catches secured to the exterior of the socket and extending through the sides of the same for entering the circular groove or depression and holding the lamp in position.

2. The combination, with the lamp having a cylindrical neck, the sheet-metal cylinder E, around which is formed a groove or depression, D, secured to the neck, a plug of insulating material closing the end of the cylinder, and contact-terminals secured thereto, of a socket for receiving the cylinder, contact-terminals secured thereto, and spring-latches N, fixed to and projecting into the socket and adapted to enter the groove D and hold the lamp in position, as set forth.

320,030. HOLDER FOR INCANDESCENT LAMPS. EDWARD WESTON, Newark, N. J., assignor to the United States Electric Lighting Company, New York, N. Y. Filed July 18, 1884. (No model.)



Claim.—1. The combination, with an incandescent electric-lamp globe having a cylindrical neck, a metal cylinder secured around the neck and provided with pins or lugs, a plug of insulating material closing the end of said cylinder, and contact-terminals secured thereto, of a socket for receiving the cylinder, the said socket being of such diameter that the cylinder fits closely therein and constructed to retain the same by engaging with the lugs or pins, substantially as set forth.

2. The combination, with an incandescent electric-lamp globe having a cylindrical neck, a metal cylinder secured around the neck and provided with pins or lugs, a plug of insulating material closing the end of said cylinder, and contact-terminals secured thereto, of a socket for receiving the cylinder, the said socket being of such diameter that the cylinder fits closely therein, circuit-terminal springs secured within the socket, and means, substantially as described, for retaining the cylinder in the socket against the force of said springs.

3. The combination, with the lamp having an open cylindrical neck, the sheet-metal cylinder E, with pins *a a* secured to the same, the plug F, having an extension, G, and circuit-terminals secured to the plug, of a metallic socket, S, of such diameter that the cylinder E fits closely therein, and having a flange or bead, N, with notches cut therein, the perforated block H of insulating material, and spring-contacts secured thereto, substantially as described.

4. The combination, with the lamp having an open cylindrical base or neck, the sheet-metal cylinder E, with pins *a* secured to the same, the plug Q in the neck of the lamp, the plug F, having an extension, G, and circuit-terminals secured to the plug, of the sheet-metal socket S, of such diameter that the cylinder E fits closely therein, and having a flanged or beaded top with notches *n* cut therein, the perforated insulating-block H, and spring-contacts secured to the opposite sides of the same, as and for the purpose specified.

320,031. EMBROIDERY-CUTTING MACHINE. CHARLES WEISS, Baltimore, Md., assignor of one-half to Michael Holzman, same place. Filed Mar. 27, 1884. (No model.)



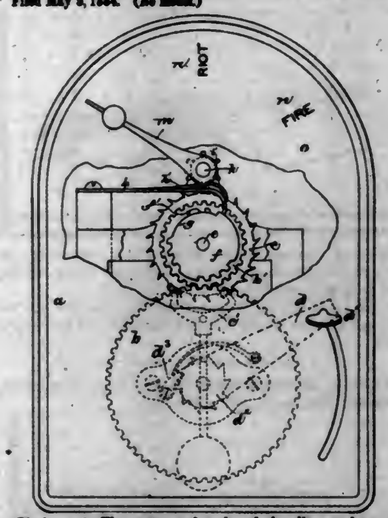
Claim.—1. In a machine for trimming embroidered fabrics, the knife F, in combination with a guiding or supporting surface, g^3, which is parallel to the plane traversed by the cutting-edge of the knife, for the purpose as herein specified.

2. The combination of the knife F, the surface g^3, parallel to the plane traversed by the knife's cutting-edge, and the feed-rollers *c c*, as herein set forth.

3. The combination of the knife F, the surface g^3, parallel to the plane traversed by the cutting-edge of the knife, and the plate *h*, for the purpose as herein set forth.

4. In an embroidery-trimming machine, the combination of the knife F, the guide or supporting surface g^3, and the slot or opening g', the whole being arranged to permit that portion of the fabric that is cut from the embroidery to pass on one side of the knife and the embroidered section to pass on the other side, as herein specified.

320,032. SIGNAL-TRANSMITTER. JOHN C. WILSON, Boston, Mass. Filed May 5, 1884. (No model.)



Claim.—1. The motor and series of signaling-surfaces simultaneously moved thereby, combined with the series of co-operating contact-pieces normally disengaged therefrom, and the movable signal-selecting cylinder provided with a pointer and co-operating mechanically with the said contact-pieces for throwing any desired one of the latter into engagement with the corresponding surface, substantially as described.

2. The motor and series of signaling-surfaces simultaneously moved thereby, combined with the series of contact-springs normally disengaged from the said surfaces, and the selecting-cylinder provided with projections corresponding to the said springs, and distributed about the periphery of the said cylinder, whereby any desired one of the said springs may be brought into engagement with the corresponding one of the said surfaces by the rotation of the said cylinder, substantially as described.

3. The motor and series of break-wheels rotated simultaneously thereby, combined with a series of contact-springs, one of which is normally engaged with the corresponding wheel, and the others of which are normally disengaged from the corresponding wheels, and a selecting device mechanically co-operating with the said springs for throwing any desired one of the latter into engagement with the corresponding wheel, substantially as described.

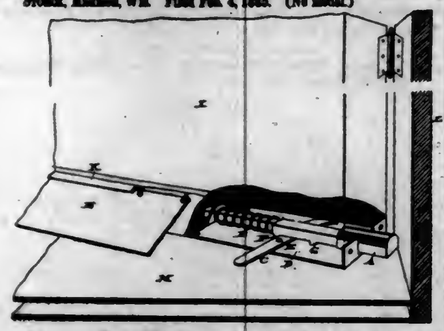
4. The combination, with a series of contact-springs and co-operating members normally disengaged therefrom, of a cylinder provided with projections distributed along and around its surface, and co-operating with the said springs, as described, each projection co-operating with one of the said springs to mechanically press it into engagement with its co-operating member as the said cylinder is turned to different positions on its axis.

320,033. SEWING-MACHINE. JOHN C. WOOD, Table Rock, Nebr. Filed Mar. 31, 1885. (No model.)



Claim.—In changing speed of sewing-machines while in operation without changing the rapidity of the treadle motion, the combination of the cone-pulleys carrying the belt with the hinged fender, as substantially shown and described.

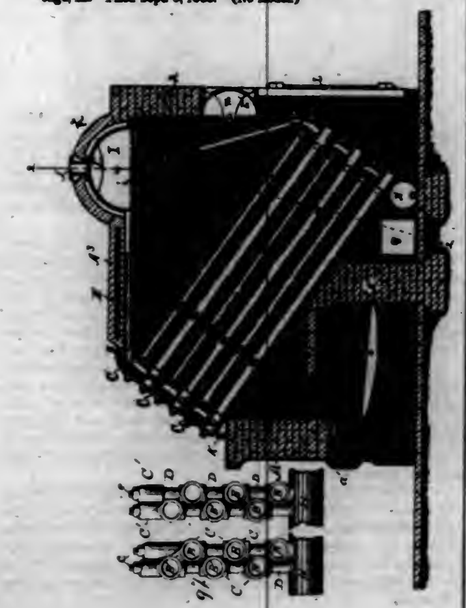
320,034. WEATHER-STRIP. ORSON R. WOODBURY and HENRY W. STORER, Madison, Wis. Filed Feb. 4, 1885. (No model.)



Claim.—1. The combination, with a hinged weather-strip, of an independent pivoted lever operated by a spring-bolt having lugs engaging said lever, substantially as shown and described.

2. The combination of the lever C with the spring-bolt A, weather-strip H, and bed-plate D, substantially as described, and for the purposes specified.

320,035. SECTIONAL STEAM-BOILER. AMASA WORTHINGTON, Chicago, Ill. Filed Sept. 5, 1883. (No model.)

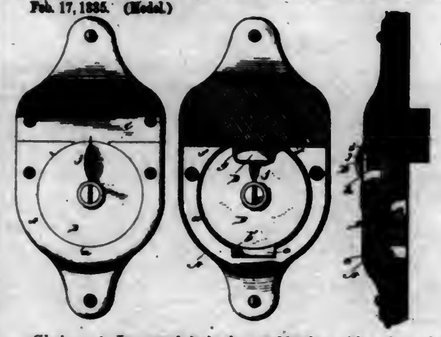


Claim.—1. In a water-tube boiler, the flexible headers consisting of laterally-curved couplings for the purpose of staggering the tubes, said couplings being connected by means of straight vertical pipes, each alternate horizontal row of inclined tubes being united by and each alternate vertical row being in line with said vertical connecting-pipes, substantially as described.

2. In a water-tube boiler, the flexible header consisting of the casting C and the connecting-pipe D, arranged and combined with suitable tubes, in the manner and for the uses and purposes set forth, substantially as described.

3. A water-tube boiler having the connecting-pipes of the headers arranged in a straight line and provided with suitable openings in the top series of headers for the insertion of a mandrel, whereby said connecting-pipes may be readily expanded in position, substantially as described.

320,036. TRUNK-LOCK. WILLIAM P. ADAMS, Kennebunk, Me. Filed Feb. 17, 1885. (Model.)



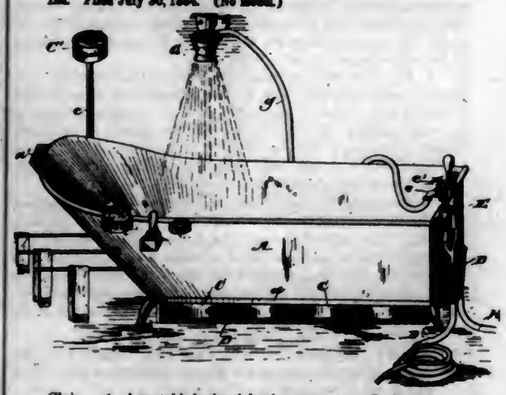
Claim.—1. In a trunk-lock, the combination, with a base-plate having a circular opening, of a revoluble casing having a flange on its outer and flanges at its inner end, and carrying locking mechanism and a keeper, substantially as set forth.

2. In a trunk-lock, the combination, with a base-plate having a slot at its upper end and a recess at its lower end, of a revoluble casing carrying a bolt adapted to engage said recess and mechanism for locking the same, and a keeper having a lug to engage a slot and flange in said casing, substantially as set forth.

3. In a trunk-lock, the combination, with a base-plate having a recess or opening, a slot at its upper end, and a recess at its lower end, of a revoluble casing carrying locking mechanism, and having flanges to bear against the under side of said plate, said casing also having a slot and flange, substantially as described, and a keeper having a lug provided with a slot upon its upper side, substantially as set forth.

4. The combination, with a base-plate having an opening, a slot at its upper end, and a recess at its lower end, of a revoluble casing carrying locking mechanism to engage said recess, flanges on the inner side of said casing, said casing also having a slot and a flange, substantially as described, at its upper end, and a keeper having a lug with a slot on its upper face, and provided with recesses or openings to receive projections of the base-plate, substantially as set forth.

320,037. PORTABLE BATH-TUB. HORACE R. ALLEN, Indianapolis, Ind. Filed July 30, 1884. (No model.)



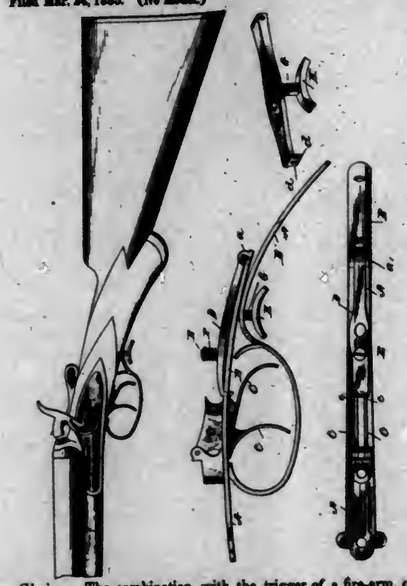
Claim.—1. A portable bath-tub having supports, as B, flanges, as e, and a chute, as e', constructed and adapted to serve as set forth, combined

with removable heating apparatus, as C, and with means for forcing and draining water, as and for the purposes described.

2. A bath-tub having an outside basin secured thereto, an opening communicating with said basin, and the tub closed by a removable plug, in combination with a pump having branch pipes communicating with the tub, the fresh-water supply and shower-er, and with a flexible drain-pipe opening into said basin, substantially as and for the purposes set forth.

3. The pump E, having connections *g* and *f*, as described, and having spout *e*, with cock *d'*, combined with the flexible pipe H, the showering device G, tub A, and plug *f'*, as and for the purposes set forth.

320,038. SAFETY-LOCK FOR FIRE-ARMS. PETER A. ALTWAIES, Harrisburg, Pa., assignor of one-half to Samuel F. Barr, same place. Filed Mar. 24, 1885. (No model.)

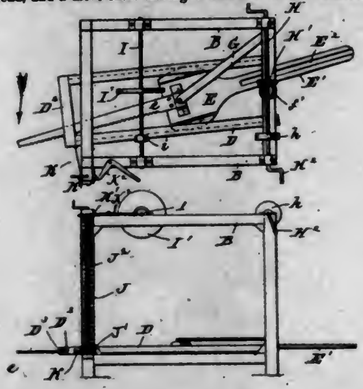


Claim.—The combination, with the trigger of a fire-arm, of the locking-lever D, pivoted to the trigger-plate B, and provided with the projecting curved finger-piece H and the stud E, secured to the trigger-plate and having spiral spring F, adapted to normally hold said lever in contact with and lock the triggers, as and for the purpose set forth.

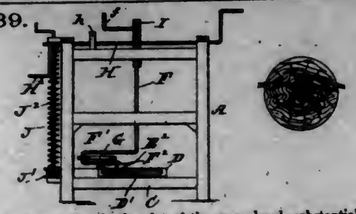
320,039. DRAG-SAW. JOHN W. ANDERSON, Escobel, Wis. Filed Mar. 19, 1885. (No model.)

Claim.—1. The combination, with the main frame of a fire-wood drag-saw, of a guide-frame supported thereby, and a saw-carrying cross-head supported by said guide-frame and having a longitudinal and oscillating movement thereon, substantially as and for the purposes described.

2. The combination of a main frame, a guide-frame, a cross-head held and movable longitudinally and oscillating in said frame and provided with a longitudinal slot, a pitman connected at one end with the cross-head, and a drive-shaft having a crank or cranks connected with



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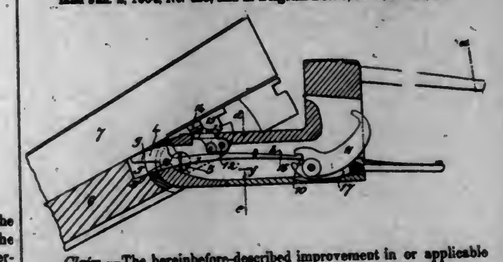
the pitman and operating in the slot of the cross-head, substantially as set forth.

3. The combination, in a sawing-machine, of a main frame, a pivoted guide-frame, a saw-carrying cross-head held movably in said guide-frame and provided with a longitudinal slot, a pitman connected with said cross-head, and a drive-shaft having two cranks, one of which is connected with the pitman and the other of which extends and operates within the groove of the cross-head, substantially as set forth.

4. The combination of a pivoted guide-frame, a saw-carrying cross-head supported thereon, a shaft located laterally to the guide-frame, a coil-spring placed on the shaft and secured at one end thereto and connected at its other end to the pulley, and a cord or connection secured at the one end to the pulley and at its other end to the guide-frame, as set forth.

5. The combination, with a pivoted guide-frame and a saw-carrying cross-head supported thereon, of a shaft journaled laterally to the guide-frame, and provided with a ratchet-wheel, a pawl arranged to engage said wheel, a pulley on the shaft, a coil-spring, also on the shaft, and having one end fixed to the shaft and its other end fixed to the pulley, and a cord or connection extending between the pulley and frame and suitably connected to said parts, substantially as set forth.

320,040. LOCK FOR BREAKDOWN GUNS. FREDERICK BOXLEY, London, England. Filed Jan. 24, 1885. (No model.) Patented in England Jan. 2, 1884, No. 425, and in Belgium Dec. 1, 1884, No. 67,064.

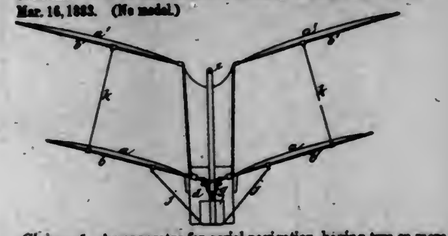


Claim.—The hereinbefore-described improvement in or applicable to breakdown hammerless guns, consisting in the combination, with the tumbler and sear, of the lever, one end, 8, of which is a spring which is connected with the tumbler, and said lever serving the double purpose of a lifting or tumbler-cocking lever when opening the gun, and as a spring for actuating the tumbler for discharging the gun when the gun is closed, and when the latter is released from the sear by the usual action of the trigger, and the tumbler-lever 13, acting on the spring part of said lever 1 to compress it as the gun is closed.

320,041. LINIMENT. WILLIAM S. BRAWNER, St. Louis, Mo. Filed May 31, 1884. (No specimens.)

Claim.—The herein-described liniment or salve, which consists in a composition produced by the mixture of lard, red-cedar chips, saltpeter, salt, spirits of turpentine, and tincture of pennyroyal, in about the proportions named.

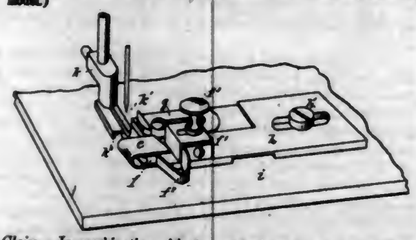
320,042. APPARATUS FOR EFFECTING AERIAL NAVIGATION. FREDERICK W. BRABAZY, Blackheath, County of Kent, England. Filed Mar. 16, 1883. (No model.)



Claim.—1. An apparatus for aerial navigation, having two or more sets of wings or fabrics attached to separate wing-arms in superposed positions, the upper wings having a greater area than the lower ones, all substantially as shown and described.

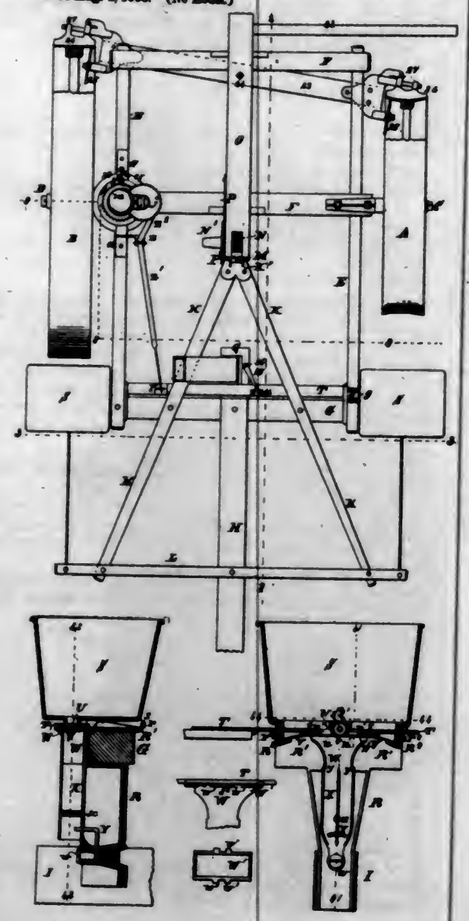
2. In an apparatus for aerial navigation, the combination of the two or more sets of wings in superposed positions, the upper wings having a greater area than the lower ones, with the pectoral elastic cords or springs *j*, each being attached at one end to the wing, and at the other end to a point below the wing, and which cords in their normal or contracted position tend to automatically draw the wings down, substantially as shown and described.

320,043. SEWING-MACHINE ATTACHMENT FOR SEWING WELTS. PERRY BRIGHAM, Boston, Mass., assignor to himself and Hezekiah S. Chase, same place, and Walter N. Dole, Lynn, Mass. Filed July 24, 1883. (No model.)



Claim.—In combination with the work-plate of a sewing-machine, the plate *h*, adjustable with all it carries to and from the path of the needle, and carrying the welt-guide and corder *e*, independently adjustable in the same directions as the plate *h*, said independently-adjustable corder being provided with the spring cording-block *f*, substantially as described.

320,044. CORN-PLANTER. MERCELUS P. BROWN, Fayettsville, Mo. Filed Aug. 1, 1883. (No model.)



Claim.—1. The combination, with a seed-slide, of a spout hinged to oscillate beneath and to support the seed-slide.

2. The combination of a seed-slide and a spout, W, having a pivot on which it oscillates, and a curved face upon which the seed-slide rests, substantially as set forth.

3. The combination of a seed-slide having a mortise, a seed-block having seed-holes, and a spring-plate to support the block in the mortise, as set forth.

4. The adjustable spring-plate V, in combination with a seed-bar having a mortise, and a removable seed-block occupying the mortise and to rest on the spring-plate, as set forth.

5. The combination of a spout hinged at the bottom, and a valve-plate hinged within the spout, as set forth.

6. The combination of a standard having a forked arm fixed thereto, a spout to oscillate on the standard, having a slot on the front side to receive the arm, and a valve-plate hinged within the spout and engaged by the arm, as set forth.

7. The combination of a seed-slide, an oscillating spout supporting the seed-slide and moved by the latter, and lugs to lock the seed-slide and spout together, as set forth.

8. The combination of bar G, seed-box S, and hollow-backed standard R, provided with bracket R', formed to embrace the bar G, and constituting the connection between the said bar and the seed-box S, substantially as set forth.

9. The combination of disk *q*, wheels *f h j k*, shafts *e d i l*, hand-wheel *m*, friction device *i' n²*, and indicator 9 10 11, operated by connection with shaft *i*, for the purpose set forth.

10. The combination of spur-wheels *b c f h j k*, hand-wheel *m*, friction device composed of friction-plate *n²*, shaft *i*, turning in said plate *n²*, and carrying-wheel *j*, vertically adjustable on said shaft and turning therewith, and nut *i'*, pressing the wheel upon the friction-plate *n²*, substantially as and for the purpose set forth.

11. The combination of a hand-wheel, *m*, upon a hinged bracket, *n*, carrying also shafts *i* and *l*, wheels *f h k*, and friction-wheel *j*, and trains of mechanism communicating, respectively, with the drive-wheel B and the seed-slide, for the purpose set forth.

12. The combination of tongue H, hounds K, hinged bar G, and adjusting device consisting of rack M, pinion N, dog P, and notched wheel P', substantially as set forth.

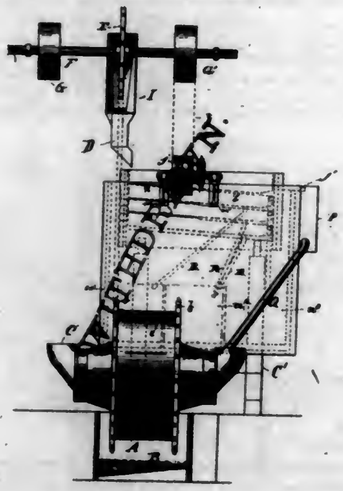
13. The combination of the pointer-bar 21 and an inclined hinge, 22, to which the pointer is secured, substantially as and for the purpose set forth.

14. The combination of hinged scraper 26 and guide-wheel 25, having bearing against the inner side of the wheel-rim, substantially as and for the purpose set forth.

15. A jointed scraper, 26, behind the ground-wheel B, with hinge 27 above a radial line extending from the axle of the wheel through the scraping-edge, for the purpose set forth.

16. The combination, with an adjusting device to the dropping attachment of a corn-planter, of an indicator consisting of threaded shaft 9, nut 10, having pointer 11, and a scale, 12, substantially as and for the purpose set forth.

320,045. ORE-CONCENTRATOR. WILLIAM BRÜCKNER, San Francisco, Cal. Filed Mar. 29, 1884. (No model.)



Claim.—1. In an ore-concentrator, the combination of a slotted pulverizing-drum, the driving-shaft, a chain of elevator-buckets connecting the same, a shaking separating-frame, and suitable mechanism for operating the frame from the said shaft, as set forth.

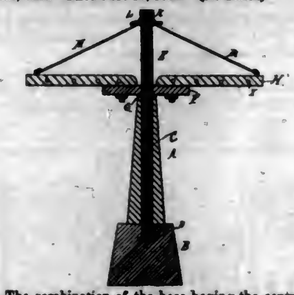
2. In an ore-concentrator, the combination, with slotted drum A and elevator-buckets H, arranged as described, of a shaker-frame, K, divided into compartments by curved and inclined partitions, partly solid and partly perforated, as set forth.

3. In an ore-concentrator, the combination, with slotted drum A and elevator-buckets H, as described, of shaker-frame K, constructed as shown and partly immersed in water, as set forth.

4. In an ore-concentrator, the combination, with the shaking frame and its several ore-separating compartments, arranged in vertical line, of a series of pipes for carrying off the valuable ore and a series of pipes for carrying off the waste, substantially as and for the purpose set forth.

5. In an ore-concentrator, the combination, with the revolving pulverizing-drum and the shaking concentrating-frame having ore-separating compartments, of a hopper, a pipe leading from the upper compartment of the shaking frame to said hopper, and a pipe connecting said hopper with the revolving drum, as set forth.

320,046. REVOLVING CLOTHES-RACK. CHARLES F. BUSHLER, Spencerville, Ohio. Filed June 16, 1884. (No model.)



Claim.—The combination of the base having the central seat provided with the metal-faced bottom, the hollow post, the rod stepped in the seat of the base, passing through the hollow post and projecting above the upper end thereof, the cruciform casting resting on the post and pivoted on the projecting end of the rod, the laterally-bored bars secured to the casting, the line passed through the holes in said bars, the flanged thimble pivoted on the upper end of the projecting rod, and the stay-rods secured to the flange of the thimble and the ends of the bars, substantially as described.

320,047. HOOK. PETER F. CHAMBARD, Fayette, Ohio. Filed Apr. 16, 1885. (No model.)



Claim.—1. The hook A, formed at its end with a shoulder extending at right angles to the hook, and an eye or loop formed with said shoulder, and projecting rearwardly and inwardly therefrom, so that its opening will be on a line with the hook, and also extending downwardly below the shoulder, as shown and described, and for the purpose set forth.

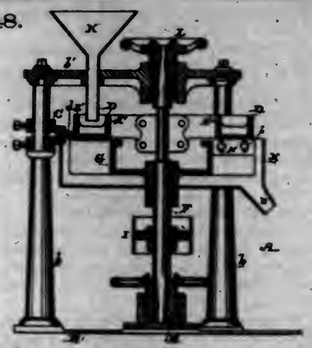
2. The hook A, formed with a shoulder extending at right angles to said hook, and an eye or loop formed with said shoulder and projecting rearwardly therefrom, so that its opening will be on a line with the hook and extending below the shoulder, as shown, in combination with a bar or link pivoted to the hook, and operating as and for the purpose set forth.

320,048. OATMEAL-MACHINE. GEORGE COTTRELL, San Francisco, Cal. Filed Jan. 12, 1885. (No model.)

Claim.—1. In an oatmeal-machine, the screen D, having a hub and ears *d* and guides on the frame, in combination with the means by which motion is imparted to it, consisting of the rotating shaft F, having an eccentric, J, housed in the hub of the screen, and the fixed stud E, fitted in a slot, *e*, in one of the supporting-ears of the screen, whereby the motion of the screen is controlled, substantially as herein described.

2. In an oatmeal-machine, the frame A, having bearings C, the annular screen D, having a hub and ears *d*, adapted to slide in the bearings, one of said ears being slotted, and a fixed stud, E, in combination with the underlying annular cutter-head G, having suitable knives, the driving-shaft F, by which the cutter-head is rotated, and the eccentric

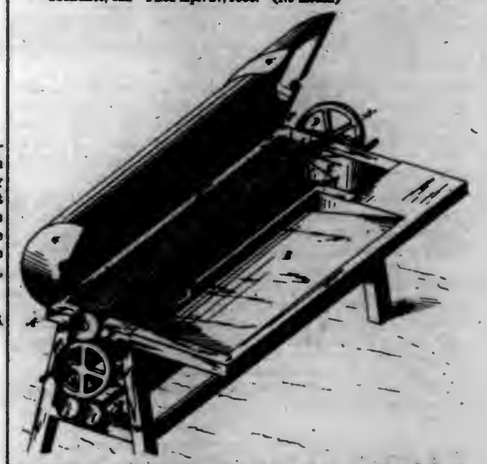
320,048.



J on the shaft, housed in the hub of the screen, whereby said screen is shaken, substantially as herein described.

3. An oatmeal-machine comprising the frame A, having bearings C, the annular screen D, having ears *d* sliding in the bearings, one of said ears being slotted, a fixed stud, E, the hopper K, the annular cutter-head G, having recesses *g* and adjustable knives H therein, the vertically-adjustable driving-shaft F, by which the cutter-head is adjusted and rotated, the eccentric J on the shaft, by which the screen is shaken, and the circumscribing shell or casing N, all arranged and adapted to operate substantially as herein described.

320,049. GRAPE STEMMER AND CRUSHER. AUGUSTE DAVID, San Francisco, Cal. Filed Apr. 27, 1885. (No model.)



Claim.—1. In a grape stemmer and crusher, a rotating shaft provided with a spirally-arranged series of arms adapted to tear the stems from the grapes and convey them to their discharge, substantially as herein described.

2. In a grape stemmer and crusher, a spirally-arranged series of arms on a rotating shaft, in combination with a grating under the arms, substantially as herein described.

3. In a grape stemmer and crusher, the rotating shaft D, having the arms *d* arranged spirally throughout its length, in combination with the laterally-concaved grating E under the shaft, and having parallel spaced bars between which the arms *d* pass, substantially as herein described.

4. In a grape stemmer and crusher, the casing or shell A, having a semi-cylindrical hinged cover, *a*, provided with longitudinal parallel and spaced bars F on its under surface, in combination with the rotating shaft D within the casing, and having arms *d* arranged spirally upon said shaft, substantially as herein described.

5. In a grape stemmer and crusher, the casing or shell A, the laterally-concaved grating E, and the semi-cylindrical or curved cover *a*, having longitudinal bars F on its under surface, in combination with the rotating shaft D, mounted longitudinally in the casing between the grating and cover, and having the spirally-arranged arms *d*, substantially as herein described.

6. In a grape stemmer and crusher, the casing or shell A, the hopper B on its front, having a feed-aperture, *b*, near one end communicating with the casing, and the laterally-concaved grating E in the

casing, in combination with the rotating shaft D, having the spirally-arranged arms *d*, substantially as herein described.

7. In a grape stemmer and crusher, the casing or shell A, having a discharge-chute, C, at one end, and a cover, *a*, provided with an extension, *a'*, and adapted to fit down upon the casing and chute, and the hopper B, having a feed-aperture, *b*, at the end opposite the discharge-chute, in combination with the grating E and the rotating shaft D, having the spirally-arranged series of arms *d*, substantially as herein described.

8. In a grape stemmer and crusher, the combination of the rotating shaft D, having arms *d*, the horizontal screen G, and the intervening concave grating E, substantially as herein described.

9. In a grape stemmer and crusher, the combination of the rotating shaft D, having the spirally-arranged series of arms *d*, the concaved grating E under the shaft, the directing-chute H under the grating, and the rotating crushing-rollers I under the chute, substantially as herein described.

10. In a grape stemmer and crusher, the combination of the rotating shaft D, having the spirally-arranged series of arms *d*, the concaved grating E under the shaft, the horizontal screen G under the grating, the directing-chute H under the screen, and the rotating crushing-rollers I under the chute, substantially as herein described.

11. A grape stemmer and crusher comprising the shell or casing A, having an end chute, C, for the stems, and a cover, *a*, with longitudinal bars F on its under surface, the hopper B, having a feed-aperture at the end opposite the discharge-chute, the grating E in the casing, the rotating shaft D, having the spirally-arranged series of arms *d*, adapted to pass between the bars of the grate and to tear the stems from the grapes and convey them to the discharge-chute, the horizontal screen G under the grating, the directing-chute H under the screen, the rotating crushing-rollers I under the chute, and the discharge-chute J, all arranged and adapted to operate substantially as herein described.

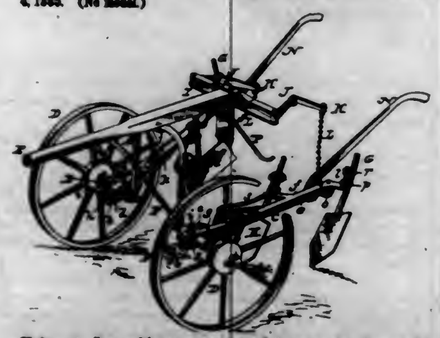
320,050. HEEL-ATTACHING MACHINE. GEORGE T. DUNBAR, Boston, Mass., assignor to the National Heeling Machine Company, same place. Filed Jan. 23, 1885. (No model.)



Claim.—1. The combination of the templet-plate *b*, having the concave surface *b'*, holes *b²*, larger than the awls *c*, and said awls having points straight upon one line and inclined upon the other, all substantially as and for the purposes described.

2. The combination of a templet-plate having holes, a nail-holder having holes of a size larger than the awls *c*, to receive headed nails and to permit of their passage therethrough, a gang or group of reciprocating awls, *c*, and a gang or group of reciprocating drivers of about the size of the holes in the nail-holder and templet, all substantially as and for the purposes described.

320,051. CULTIVATOR. CHRISTIAN DOORNBOS, Amity, Iowa. Filed Apr. 4, 1885. (No model.)



Claim.—1. In a cultivator, a compound beam or drag-bar consisting of bars *e* and *f* and lever *g*, constructed and arranged substantially as described and shown, whereby the bar *f* is caused to move laterally without changing its position relative to the line of draft.

2. The combination, with a cultivator-frame, of a box or sleeve swiveled upon the axle thereof, a bar pivoted to said sleeve, provided with an upright stem in advance of its pivot and extending backward therefrom, a second bar pivoted to the first near the rear end of each and provided with shovel-standards, and a lever pivoted to the box or sleeve, and connected at its front and rear ends, respectively, with the upright stem of the first bar and the forward end of the second bar by sliding connections, all substantially as described and shown.

3. The combination, substantially as described and shown, of wheeled axle A, sleeve B, swiveled thereon, bar *e*, pivoted to the sleeve at *n*, bar *f*, pivoted to bar *e* at *o*, and lever *g*, pivoted to sleeve B at *i*, and having its front end slotted to receive the upturned end of bar *e*, and its rear end connected with the front end of bar *f* by a sliding joint.

4. In combination with axle A and sleeve B, swiveled thereon, bar *e*, pivoted to said sleeve and having upright end A, bar *f*, pivoted to the rear end of bar *e* and slotted at its front end, and lever *g*, pivoted to sleeve B, slotted at its front end to receive the upright A, and provided with guide-pin *i* at its rear end, working in the slotted end of bar *f*.

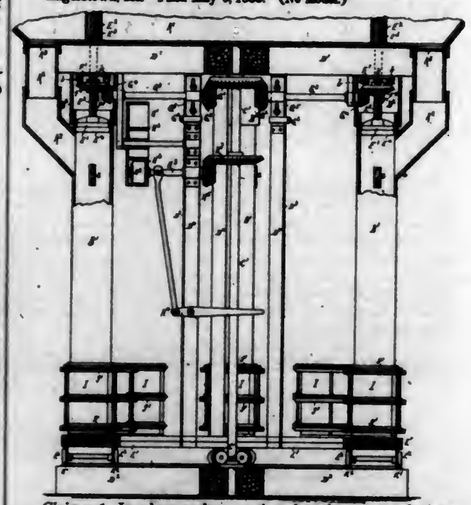
5. In a cultivator, the combination of a frame, a laterally-adjustable beam, a jointed hanger for said beam, and a chain extending from the hanger to the beam.

6. In combination with a wheeled frame or sulky, jointed arms J, provided with hooks K, laterally-adjustable beams, and chains L, connecting the beams and the hooks K, substantially as and for the purpose set forth.

7. The herein-described attachment for cultivator-sulkies, consisting of box or sleeve B and compound beam C, composed of bars *e f* and lever *g*, said parts being constructed, combined, and arranged to operate substantially as set forth.

8. An attachment for cultivator-sulkies, consisting of box or sleeve B, compound beam C, composed of bars *e f* and lever *g*, jointed arms J, provided with hooks K, and chains L, connecting the hooks and beams, substantially as described and shown.

320,052. MACHINE FOR PACKING BRAN, &c. FREDERICK DORSEY, Hagerstown, Md. Filed May 6, 1885. (No model.)



Claim.—1. In a bran-packer, a casing adapted to support the bran-receptacle, a strap, N, encompassing said receptacle on its sides and bottom and provided on its upper end with latches *w'*, having open notches *w²*, follower-plate E¹, having the cover M³ of said receptacle attached to its lower side, and a holding-bar, *w*, adapted to be placed across the top of said follower-plate and with its ends resting in said open notches, substantially as set forth.

2. The combination, with the casing holding the bran-receptacle M', of the strap N, having the notched latches *w'* *w'* on its upper ends and encompassing said receptacle, supporting-plate P, follower-plate E¹, having the channel *x'* and straps *x²*, and holding-bar *w*, substantially as set forth.

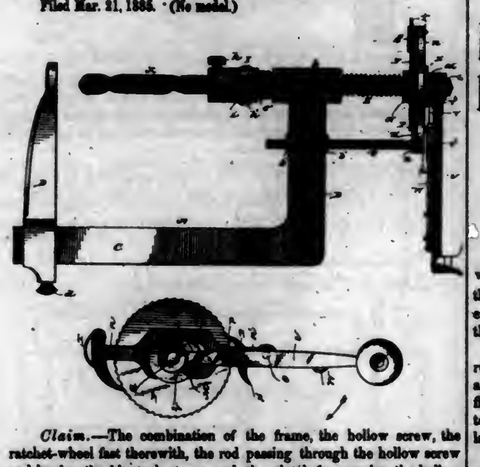
3. The combination, with the casing holding the bran-receptacle M', of the strap N, encompassing said receptacle on its sides and bottom, and the plates T' T², having turned-over edges *s' s²*, resting upon the upper edges of said receptacle, each of said plates adapted to fit down into said receptacle on each side of said strap, substantially as set forth.

4. In a bran-packer, a central shaft, a turn-table adapted to be revolved about said shaft as a center and supporting a number of bran-receptacles, a bin above said turn-table and shaft, a series of reservoirs above said bran-receptacles and connected by suitable feed-spouts with said bin, and a screw having a follower-plate in each of said reservoirs and adapted to be so connected to said central shaft that all of said screws may be run upward and downward within said reservoirs at the same time to force the bran within said reservoirs into said receptacles, substantially as set forth.

5. The combination of the bin A', frame D', reservoirs B', feed-spouts A², connecting said reservoirs and bin, screws E², having follower-plates E', gears F², having nuts F³, fitting said screws, and plates F', having friction-rollers *b*, against which said gear revolves, substantially as set forth.

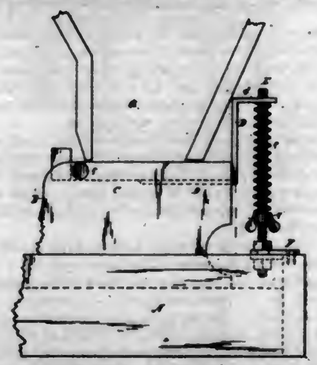
6. The combination of the bin A', frames D' D², connected by struts and rods D³ D⁴, central shaft, C', reservoirs B', suspended from said frame D' and connected to said bin by feed-spouts A², screws E², having follower-plates E', and gears F², means for connecting said gears with said central shaft, constantly-revolving double drum H' H³, friction-pulley H², connected by shaft H³ and gears H³ H' to said central shaft, turn-table L', mounted upon tracks K' K² on said frame D², and bran-receptacle-supporting casing I upon said turn-table beneath said reservoirs, substantially as set forth.

320,053. DRILLING-MACHINE. WESLEY DOWELL, Hicksville, Ohio. Filed Mar. 21, 1885. (No model.)



Claim.—The combination of the frame, the hollow screw, the ratchet-wheel fast therewith, the rod passing through the hollow screw and having the bit-stock at one end, the clutch for securing the hollow screw and the rod together, the eccentric and notched wheel fast to the rod, the crank loose on said rod, the yoke fulcrumed to the frame and operated by the eccentric, the pawls pivoted to the yoke and engaging with the ratchet-wheel, and the pawl secured to the crank and engaging with the notched wheel, substantially as described.

320,054. MILL-STOCK FEEDER. GEORGE DOWNIE and ALBERT F. ERMAN, Marysville, Cal. Filed Mar. 20, 1885. (No model.)



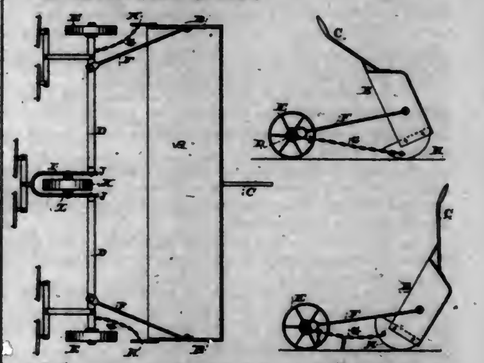
Claim.—1. In a feeder for mill-stock, the swinging feed-board C, the shaker, and the rod or bar D at one side, in combination with the rod E on the shaker, and the spring *e* on the rod, supporting the arm of rod D, substantially as and for the purpose herein described.

2. In a feeder for mill-stock, the shaker A, the rod E thereon, and the spring *e* on the rod, in combination with the sides B on the shaker, the feed-board C, pivoted in the sides, and the bar or rod D on the other side of the board, fitted upon rod E and resting on its springs, substantially as herein described.

3. In a feeder for mill-stock, the swinging or pivoted feed-board C, the shaker, and a bar or rod, D, in combination with the rod E on the shaker, the spring *e* on the rod, supporting the rod D, and the thumb-nut *d'*, supporting and regulating the spring, substantially as herein described.

4. A feeder for mill-stock, comprising the vibrating shaker A, the sides B, pivoted feed-board C, having rod or bar D, the rod E on the shaker, having spring *e*, supporting the arm D, and the hopper G over the feed-board, all arranged and adapted to operate substantially as herein described.

320,055. DIRT-SCRAPER. FRANK DUNT and ARMAN MCCALL, Selma, Cal. Filed Dec. 3, 1884. (No model.)



Claim.—1. In a scraper, the scoop or bowl having the ends provided with curved runners on the front portion, wheels and axle to which the draft-animals are attached, links flexibly connected with the axle and extending to the middle of the scraper ends, and chains extending from the axle to the curved portion of the runners, as herein described.

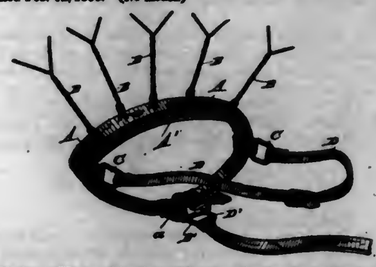
2. In a scraper, the scoop or bowl having ends provided with curved runners at the front, said ends being flexibly connected by links with an axle mounted upon wheels to which draft-animals are connected, and flexible chains adjustable in length extending from the curved runners to the axle, whereby the amount of tilt given the scraper may be regulated, as described.

3. In combination with the scraper having the ends with curved runners, as shown, the connected chains extending from the runners to the axle of the draft-wheels, and the links or rods flexibly connected with the axle at points nearer to each other than the ends of the scraper to which their opposite ends are connected, substantially as herein described.

4. In a scraper, a wheel-axle to which a scoop or bowl is attached, as shown, said axle being divided in the center and having connecting-yoke I flexibly attached to its adjacent ends, and a means for attaching the draft-animals thereto, substantially as herein described.

5. In a scraper, a wheel-axle having a scoop or bowl connected thereto, as shown, said axle being divided in the center, having its adjacent ends connected by a yoke, I, and a supporting-wheel, K, journaled to said yoke, together with a means for attaching draft-animals thereto, substantially as herein described.

320,056. CALF-WEANER. THOMAS W. EVANS, Evergreen, Tex. Filed Feb. 12, 1885. (No model.)



Claim.—The combination, with a strap having its ends united by a buckle, of wires attached to said strap in groups, each group being twisted and the ends of its several members bent outwardly, substantially as and for the purpose set forth.

320,057. GLOVE AND NOTION HOLDER. CHARLES H. FREAMER and SIMON GOLDEN, Fredonia, Kans., assignors of one-half to H. T. Small and William J. Schubert, both of same place. Filed Oct. 25, 1884. (No model.)

Claim.—1. In a glove and notion holder, the combination, with a

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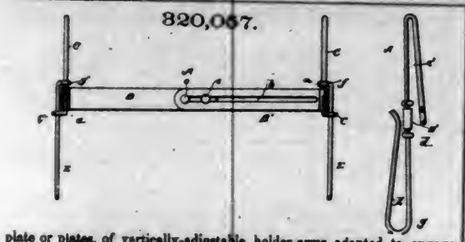


plate or plates, of vertically-adjustable holder-arms adapted to engage the side wall of a box, and attaching-arms, as set forth.

2. In a glove or notion holder, the combination, with a plate or plates, of vertically-adjustable holder-arms, and attaching-arms secured to said plate or plates, said arms being adapted to engage the side wall of a box, as set forth.

3. In a glove and notion holder, the combination, with a plate or plates, of vertically-adjustable spring holder-arms, and attaching-arms connected with said plate or plates, said arms being adapted to engage the side wall of a box, as set forth.

4. In a glove or notion holder, the combination, with a plate or plates, of vertically-adjustable spring holder-arms, and spring attaching-arms connected with said plate or plates, as set forth.

5. In a glove or notion holder, the combination, with a plate or plates, of vertically-adjustable spring holder-arms, and spring attaching-arms rigidly connected with the said plate or plates, said holder-arms being mounted on the attaching-arms, as set forth.

6. The combination, with a plate or plates, of attaching-arms connected therewith, said attaching-arms having loops at their lower ends, and holder-arms adapted to fit and slide in said loops, as set forth.

7. The combination, with a plate or plates, of attaching-arms connected therewith, loops formed at the lower ends of said arms, and having their other ends bent downwardly and formed with loops, and holder-arms mounted to slide on said attaching-arms, as set forth.

8. The combination, with a plate or plates, of attaching-arms rigidly connected with said plate or plates, loops formed at the lower ends of said arms, and holder-arms having their upper ends formed with loops, substantially as set forth.

9. The combination, with a plate or plates, of attaching-arms rigidly secured by the inturned ends of said plate or plates, loops at the ends of said arms, and holder-arms having loops, the loops on the attaching-arms inclosing the holder-arms, while the loops on the holder-arms inclose the attaching-arms, as set forth.

10. The combination, with longitudinally-adjustable plates, of spring attaching-arms and spring holder-arms, substantially as set forth.

11. The combination, with longitudinally-adjustable plates, of attaching-arms and vertically-adjustable holder-arms, as set forth.

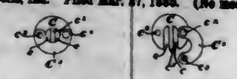
12. The combination, with longitudinally-adjustable plates, of spring attaching-arms and vertically-adjustable spring holder-arms, as set forth.

13. The combination, with longitudinally-adjustable plates, of spring attaching-arms, formed with eyes at their lower ends, and holder-arms formed with eyes, said holder-arms being adjustable upon the attaching-arms, as set forth.

14. The combination, with the attaching-arms bent or doubled, as described, and formed with an outwardly-extending loop at one of its ends, of a holder-arm bent or doubled and formed at one of its upper ends with a loop, said holder-arm sliding upon the attaching-arm, as set forth.

15. The herein-described glove and notion holder, consisting of the longitudinally-adjustable plates, the attaching-arms having the loops, as described, and bent in the manner described, and the holder-arms having loops, as set forth.

320,058. COMBINED WASHER AND LINCHPIN. JAMES F. GILLILAND, Indianapolis, Ind. Filed Mar. 27, 1885. (No model.)



Claim.—1. As a new article of manufacture, a combined washer and linchpin, the main portion C of which is slotted, leaving a central tongue, and having a catch pivoted thereto adapted to be swung around to close the slots and thus secure the device in position on the axle, substantially as set forth.

2. The combination, with a wheel and axle, said axle having a hole therein, of a combined washer and linchpin, C, having a central tongue, c', adapted to pass through said hole, and a catch, C', adapted to be swung around to close said slots, substantially as set forth.

3. The combined washer and linchpin consisting of a main part, C, having the slots $c\ c$, with a tongue, c', between them, a catch, C', secured to the main part by a pivot, c^2, and provided with a projection, c^3, which is adapted to engage with the hole or depression c^4 in said main part C, substantially as set forth.

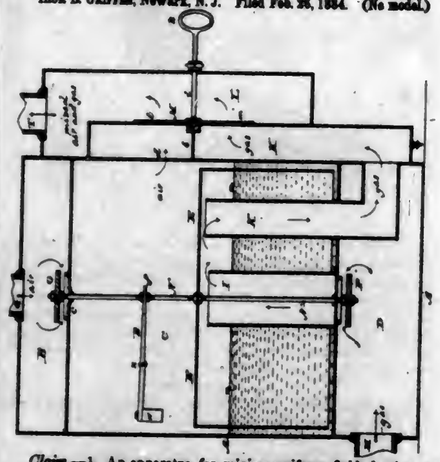
4. A combined washer and linchpin, the main portion of which is formed of sheet metal into which slots $c\ c$ are cut, leaving a central tongue, and a catch secured to said main portion by a pivot which passes through both transversely thereof and is adapted to be swung around and close the slots, thus completely inclosing the shaft when in closed position, substantially as shown and specified.

320,059. COMBINED WASHER AND LINCHPIN. JAMES F. GILLILAND, Indianapolis, Ind. Filed Mar. 27, 1885. (No model.)



Claim.—The combined washer and linchpin consisting of an ordinary washer, C, a latch or latches, C', secured thereto by pivots c, and provided with projections c' and c^2, the former being adapted to engage with the hole in the axle and the latter with the hole or notch in the washer, substantially as described.

320,060. APPARATUS FOR MIXING AERIFORM FLUIDS. ARTHUR B. GRIFFEN, Newark, N. J. Filed Feb. 26, 1884. (No model.)



Claim.—1. An apparatus for mixing aeriform fluids having ports at the air and gas inlets provided with cut-offs connected by mechanism which under the action of the varying volume and pressure of the fluids reduces the flow of either fluid that is in excess of the demand for the mixture and by the same movement inversely increases the flow of the other fluid, substantially as shown and described.

2. In an apparatus for mixing aeriform fluids, cut-offs at the air and gas inlets connected with a gasometer or diaphragm separating the fluids, which is actuated by the varying volume and pressure of the fluids and by its action reduces the flow of the fluid that is in excess of the demand for the mixture and increases the flow of the other fluid, substantially as shown and described.

3. In an apparatus for mixing aeriform fluids, cut-offs at the inlet-ports connected to a gasometer or diaphragm inclosed in a compartment containing the air and separating the fluids, which is operated by the varying volumes and pressure of the fluids, in combination with a gate, M, at the entrance to the mixing-chamber invariable as to capacity for the passage of the combined fluids, but variable as to capacity for the passage of each fluid, substantially as shown and described.

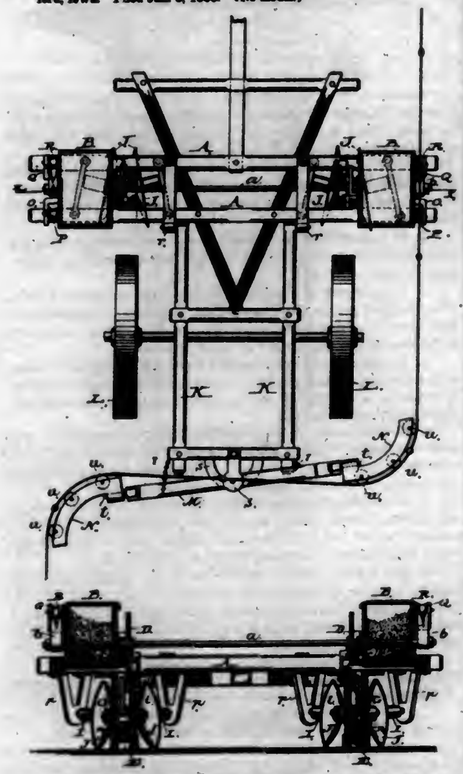
4. In an apparatus for mixing aeriform fluids, the gate M, having perforated quarter-sections l and m, and semicircular disk V, operated by a handle, k, substantially as and for the purposes shown and described.

320,061. BUTTON OR OTHER FASTENING FOR GARMENTS. ALFRED J. HEYS and SAMUEL SALMON, Manchester, County of Lancaster, England. Filed Mar. 19, 1885. (No model.) Patented in England Nov. 5, 1884, No. 14,636.



Claim.—As an improvement in automatic car-couplings, the draw-head A, having a recess, B, in its upper side at the forward end, in combination with the curved pin-support D, pivoted at its upper end within the recess, and having its lower end enlarged so as to rest by its own weight upon the bottom of the draw-head forward of its vertical passage, and a pin-opening, E, provided through the enlarged lower end of the support, the rear wall, F, of the opening being inclined downwardly from the top, and adapted to support the pin, arranged and operating as described, whereby when the cars are coupled the link rests upon the bottom of the draw-head and the pin-support lies with the bottom face of its weighted lower end above and upon the end of the link so as to hold the latter in a horizontal line, as set forth.

320,063. CORN-PLANTER. ANSEL S. HOUCK and EDWIN HOUCK, Bedford, Iowa. Filed Jan. 9, 1885. (No model.)



Claim.—1. In a corn-planter, the frame A and boxes B, said boxes having side feed-openings, in combination with a rod passing transversely across the machine and through the boxes, and segmental plates mounted upon the rod on the outside of the boxes, so as to receive from the boxes and deposit into the runners a specified quantity of grain at each oscillation of the said shaft, substantially as described.

2. In a corn-planter, the frame A, in combination with seed-boxes having curved bottom, and with openings in their inner sides, a shaft or rod passing transversely across the machine and through the boxes, segmental plates with deep flanges mounted upon the rod to receive the grain from the boxes, and a check-wire for imparting an oscillating movement to said shaft and plates, substantially as described.

3. In corn or other planters, runners located at one side of the seed-boxes and provided with suitable passages for the grain, in combination with segmental plates located on the outside of the boxes for receiving grain from the boxes and depositing it into the runners, and a pivoted cut-off, substantially as herein described.

4. In corn-planters, the combination, with the oscillating shaft, the seed-boxes having side feed-apertures, and the segmental plates on the side of the boxes, of the runners E at one side of the boxes and provided with passages g, and valves within the passages adapted to open and close at each oscillation of the shaft, substantially as and for the purpose described.

5. In corn or other planters, the seed-boxes B, with curved bottoms and side outlets, in combination with a pivoted cut-off, segmental plates D on the outside of the boxes, arms b, a transverse shaft, a, and a wire or other similar device for oscillating the plates, for the purpose herein set forth.

6. In a planter, the runners E, located at one side of the seed-boxes with their passages and slots, the valves pivoted in the runners, the pitmen G, and the bent levers provided with notches for engaging projecting studs, in combination with segmental plates on the outside of the boxes, with projections 5 for engaging the upper slotted end of the bent levers to open and close the valves at each oscillation of the plates, substantially as described, and for the purpose specified.

7. In a planter, the frame A, seed-boxes E and runners E, located at one side of the boxes, in combination with the V-shaped depending brackets p, the independent shafts journaled in the brackets and in sides of the runners, and concave disks J, mounted upon the shafts I so that their forward edges approach each other, substantially as described.

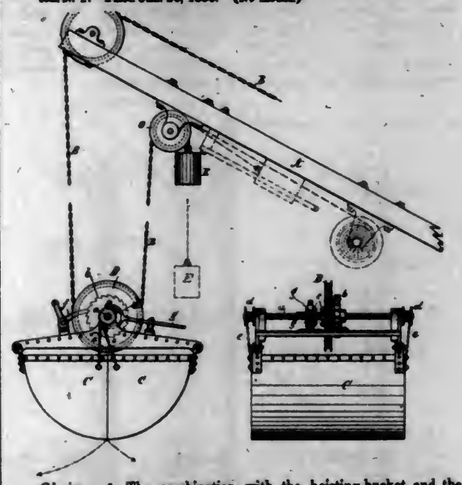
8. In a planter, the frame A, in combination with the supplemental frame K, carrying the wheels, and a swinging bar pivoted within the flanges s, substantially as described.

9. In a planter, the swinging cross-bar pivoted at or near its center to a supplemental frame, and one or more pulleys on each end of said cross-bar, substantially as described.

10. In a planter, the swinging cross-bar, in combination with the reversible arms carrying one or more pulleys, substantially as described.

11. In a planter, the swinging cross-bar provided with short shafts, in combination with curved reversible arms having hubs fitting the shafts and pulleys mounted in the arms, substantially as described.

320,064. HOISTING-MACHINE. CHAS. W. HUNT, West New Brighton, N. Y. Filed Jan. 30, 1885. (No model.)

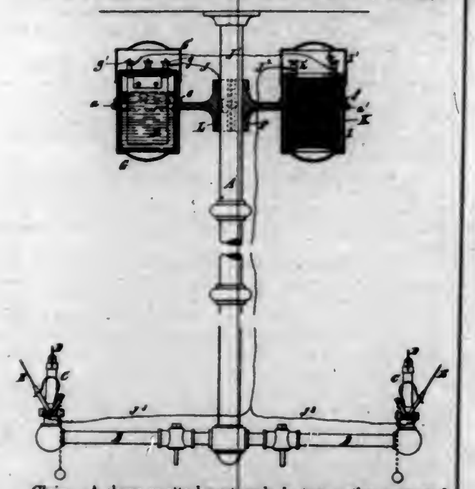


Claim.—1. The combination, with the hoisting-bucket and the wheel and mechanism for closing the same, of a chain and a weight attached to that chain whereby the weight is made to take up the slack of the chain as paid out, and the weight is raised when the chain is drawn upon in closing the bucket before the bucket is raised, substantially as specified.

2. The combination, with the hoisting-bucket and the mechanism for closing the same, of a wheel around which a rope or chain passes, means for drawing upon that rope or chain and rotating the wheel until the bucket is closed, and then elevating the bucket by further drawing

upon the same rope or chain, and with mechanism, substantially as specified, for detaching said wheel so that it becomes a loose pulley, substantially as set forth.

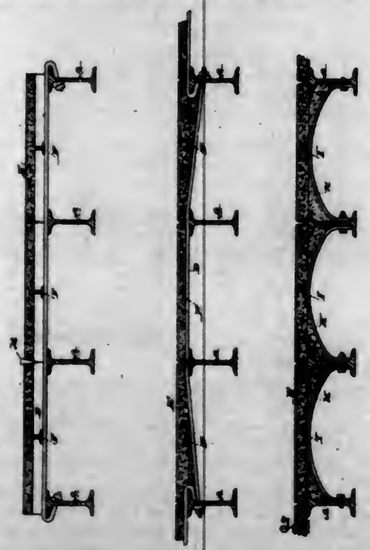
320,065. ELECTRIC LIGHTING ATTACHMENT FOR GAS-FIXTURES. CHARLES A. HUSSEY, New York, N. Y., assignor of one-half to Joseph Snyder, Philadelphia, Pa. Filed Jan. 13, 1885. (No model.)



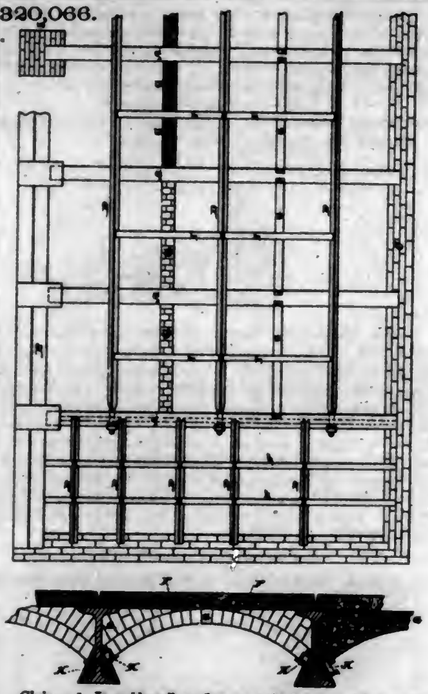
Claim.—A clamp or attachment made in two sections connected, so as to admit of their separation to enable them to be slipped onto the stem of a gas-fixture transversely to the length of the latter, and so as to admit of their being clamped upon the same, said clamp having ring-shaped portions, and being combined with cases fitted in the ring-shaped portions, and serving to contain an electric battery and coil, substantially as specified.

320,066. FLOOR AND SIDEWALK CONSTRUCTION. PETER H. JACKSON, San Francisco, Cal. Filed Dec. 10, 1883. Renewed Dec. 2, 1884. (No model.)

Brief.—Employs metallic beams, independent transverse bearers, and secondary bearers supporting artificial-stone blocks formed in sections, with channels between filled with plastic cement. The whole is supported by sectional brick or metallic arches alternating. The transverse bearers are tensilely strained. The metallic arches have hooks at the ends resting upon the flanges of the beams, and recesses containing wedges or screws bearing against the web of the beam.



320,066.



Claim.—1. In a sidewalk or floor, metallic beams and independent transverse bearers, in combination with artificial stone, concrete, or similar blocks formed in sections, with channels between filled with fusible or plastic cement, substantially as herein described.

2. In a sidewalk or floor, metallic beams and transverse bearers supporting a surface of artificial stone or concrete, said bearers being tensilely strained to act both as bearers and ties, substantially as herein described.

3. In a sidewalk or floor, metallic beams and transverse bearers, in combination with sectional brick or metallic arches alternating, substantially as herein described.

4. In a sidewalk or floor, metallic beams and transverse bearers, with secondary bearers resting upon them, supporting a surface of artificial stone or concrete, said bearers being tensilely strained to act both as bearers and ties, substantially as herein described.

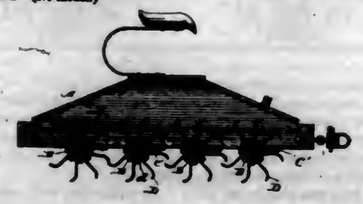
5. In a sidewalk or floor, metallic beams with independent transverse arches or bearers, in combination with wedge-keys or screws, whereby resistance to compression may be applied and adjustment made, substantially as herein described.

6. In a sidewalk or floor, metallic beams, in combination with transverse bearers tensilely strained to act as ties, and alternate brick, concrete, or metal arches or braces, with means for applying a thrust or resistance to compression, substantially as herein described.

7. In a sidewalk or floor, metallic beams with transverse bearers and alternate arches, acting tensilely and compressively, as shown, in combination with a floor or surface of artificial stone or concrete supported upon the fabric, substantially as herein described.

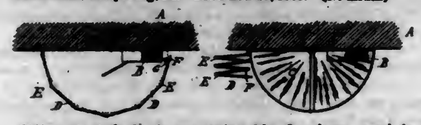
8. In a sidewalk or floor, metallic beams with transverse metallic arches or brackets having hooks or bearings at the top to rest upon the projecting flanges, beams, and recesses where they abut to the body or web, in combination with wedges or keys driven into said recesses, substantially as herein described.

320,067. HARROW. LEWIS JOHNSON, Oaklis, Minn. Filed July 23, 1884. (No model.)



Claim.—In a harrow, substantially as described, the polygonal shaft combined with teeth D, each having a bearing-plate, *d*, and flattened hook end, arranged spirally upon the shaft and in opposite pairs secured in radial positions, each pair by a single bolt, as set forth.

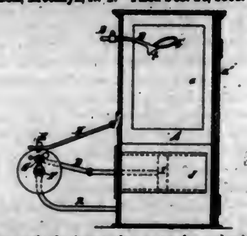
320,068. DEVICE FOR PREVENTING FALSE FIRE-ALARMS. E. JUDERMAN, Gettysburg, Pa. Filed Dec. 29, 1883. (No model.)



Claim.—1. A device for preventing false fire-alarms, consisting of a folding screen secured to a building or other support for an alarm-box, in close proximity to said box, said screen bearing a key thereto, substantially as shown and described.

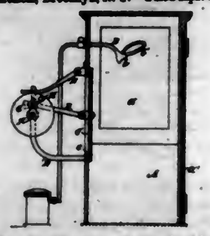
2. A screen composed of leaves D, hinged together, as set forth, and bearing a key, F, roof or canopy C, and box B, the whole combined and arranged to operate substantially as shown and described.

320,069. METHOD OF PRODUCING ARTIFICIAL RESPIRATION. JOSEPH KNUBEN, Brooklyn, N. Y. Filed Feb. 24, 1885. (No model.)



Claim.—The method of restoring natural respiration, consisting in placing a patient in an air-tight chamber with the respiratory organs in communication with the outside atmosphere, and in alternately increasing and reducing the pressure of air in the chamber relatively to normal atmospheric pressure, substantially as specified.

320,070. APPARATUS FOR PRODUCING ARTIFICIAL RESPIRATION. JOS. KNUBEN, Brooklyn, N. Y. Filed Apr. 1, 1885. (No model.)



Claim.—1. The combination, with an air-tight chamber suitable for accommodating a patient, of an air rarefier and compressor operating alternately to rarefy and compress the air within the chamber, substantially as specified.

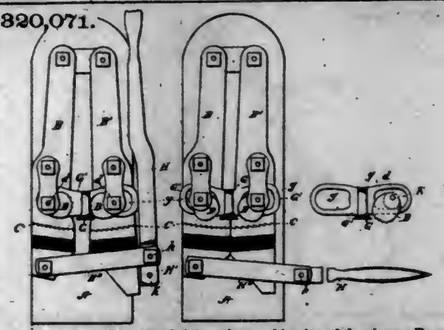
2. The combination, with an air-tight chamber suitable for accommodating a patient, of an air rarefier and compressor for alternately rarefying and compressing the air within the chamber, and mechanism, substantially such as described, for operating the air rarefier and compressor, adjustably connected with the air rarefier and compressor so that it may vary the action of the latter, substantially as specified.

3. The combination, with an air-tight chamber suitable for accommodating a patient, of an air rarefier and compressor for alternately rarefying and compressing the air within the chamber, a rod connected to the air rarefier and compressor, a rotary shaft, and a crank affixed to the shaft, the rod being adapted to be connected at different parts of its length to the crank to cause the range of movement of the air rarefier and compressor to occur at different locations, substantially as specified.

4. The combination, with an air-tight chamber suitable for accommodating a patient, of an air rarefier and compressor for alternately rarefying and compressing the air within the chamber, a rod connected to the air rarefier and compressor, a rotary shaft, and a crank affixed to the shaft, the rod being adapted to be connected to the crank at different distances from the shaft to vary the extent or amplitude of motion imparted to the air rarefier and compressor, substantially as specified.

320,071. TIRE-SHRINKER. HENRY G. LANE, Bucyrus, Ohio. Filed Mar. 12, 1885. (No model.)

320,071.

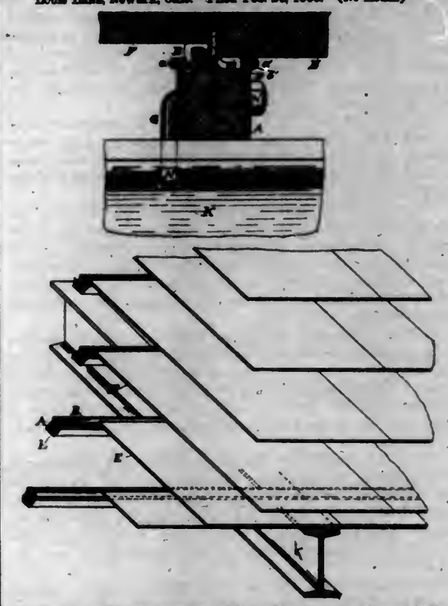


Claim.—1. In a tire-shrinker, the combination of the clamps D, eccentrics E, attached thereto, pivots *d*, and interlocking levers F F', with the block G, filling the space between the clamps, and having lateral arms G', slotted to fit over the eccentrics, whereby upon the movement of said levers the block G is caused to move in unison with the clamps, as and for the purposes set forth.

2. The combination of the fixed beam, the movable beam, both provided with laterally-projecting bearing-shoulders C C between their ends, the straps H², pivoted at one end to the fixed beam, and the lever H, pivoted to the other end of the straps H² and having its short arm connected with the movable beam, substantially as set forth.

3. The improved tire-shrinker herein described, consisting of the fixed beam, the movable beam, both provided with bearing-shoulders C C, the clamp-blocks D, pivoted to the beams and provided with eccentrics E, levers whereby said clamps may be operated, and the filling-block having yokes G', provided with slots *g*, fitted over the eccentrics E, substantially as set forth.

320,072. FIRE-PROOF LATH FOR SLATES. WILLIAM H. LANE and LOUIS LANE, Newark, Ohio. Filed Feb. 24, 1885. (No model.)



Claim.—The combination, with roofing slates or tiles, of hollow metallic lath incasing on three sides a filling of wood or other fibrous material whose exposed side is covered by a layer of felt and cement, substantially as shown and described.

320,073. VELOCIPEDE. CHARLES S. LEDOELL, Morristown, N. J. Filed Apr. 2, 1885. (No model.)

Claim.—1. In a velocipede, the combination, with a driving-axle and bearings, of a clutch mechanism consisting of a cylindric hub fast on the axle, a surrounding clutch-drum provided with inclined surfaces on its inner circumference, and a roller-frame, in which are journaled friction-rollers, which are arranged opposite the inclined surfaces of the drum and bear on the said cylindric hub, a treadle-lever, a strap or band

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attached at one end to the drum and at the other end to said lever, and passing around the drum, whereby the movement of the lever will produce a pull on the strap or band to turn the clutch-drum, and a spring for returning said lever and drum, substantially as herein described.

2. In a velocipede, the combination, with a driving-axle and bearings, of a clutch mechanism consisting of the cylindric hub fixed on the axle, the roller-frame and rollers, and the clutch-drum provided with inclined surfaces on its inner circumference, as described, a treadle-lever, straps or bands attached to the clutch-drum, passing around the same in opposite directions, and attached to the treadle-lever near opposite ends thereof, and a spring for returning the lever and clutch-drum after operation, substantially as herein described.

3. In a velocipede, the combination, with the axle E, of a clutch mechanism consisting of the hub fast on said axle, the roller-frame and rollers, and the clutch-drum, flat metallic bands H H', attached to and passed around the drum in opposite directions, a treadle-lever, to which said bands are attached, and a coiled spring, G^3, whereby the treadle-lever and clutch-drum are returned after operation, substantially as herein described.

4. The combination, with the driving-axle E, of a clutch mechanism comprising the clutch-drum F^2, with its cylindric periphery, the treadle-lever G, the flat metal bands H H', having enlarged heads or end portions, the box H^3, attached to said drum, and having at opposite sides a large opening, h^3, for the introduction of the head of a band, and a narrow slot, h^4, for the passage of the band itself, the two bands being passed in opposite directions around the drum and attached to the lever, all substantially as herein described.

5. The combination, with the drum F^2 and the treadle-lever G, of the bands H H', passed in opposite directions around the drum, and attached at opposite ends to the drum and lever, and a tightening screw and saddle, g^{13} g^{14}, applied to the band H', for taking up slack in both bands, substantially as herein described.

6. The combination, with the axle E and its fixed hub E', of the roller-frame comprising heads or disks *r*, having notched bearings c^3 and rollers *d*, journaled therein, the clutch-drum F^2, having recesses *d'* in its interior circumference, forming opposite inclined surfaces, a treadle-lever, G, and straps or bands passing in opposite directions around the drum, and attached at opposite ends to the said drum and lever, substantially as herein described.

7. The combination, with the axle E and the hub E', fast thereon, of the roller-frame and its rollers *d*, and the stud c^4, projecting from the side thereof, the clutch-drum having the slot h^2 in one of its heads, and the bolt h^1, the slotted plate or link H^2, secured in place by the bolt h^1, and receiving through it the stud c^4, the treadle-lever G, and straps or bands connecting the treadle-lever and clutch-drum, substantially as herein described.

8. The combination, with the axle E and the clutch mechanism for rotating the axle, and comprising the clutch-drum F^2, of the rotary or oscillating frames *f f'* and their lever-supporting rollers f^3, the treadle-lever G, arranged between the said rollers f^3 and the clutch-drum and straps or bands passing around the clutch-drum, and attached at opposite ends to the said clutch-drum and lever, substantially as herein described.

9. The combination, with the rotary frames or rings *f f'* and the screw-threaded pins f^6, connecting them, of the rollers f^5, pairs of nuts f^9, applied to said pins, and spherical rollers f^8 between said pairs of nuts and the rollers f^5, substantially as herein described.

10. The combination, with the axle E and the non-rotary boxes b^3, supported by ball-bearings on said axle, of the yoke F^3, connected by pivot-screws *e* with said boxes, and supporting the fixed frame of the machine, whereby both roller-bearings may be tightened by tightening the outer bearings, substantially as herein described.

11. The combination of the axle E, the sleeves or thimbles *b b'* and hub E', rotating with said axle, the roller-frame and its rollers *d*, and the clutch-drum F^2, inclosing the hub E', and fitted to turn on the sleeves *b b'*, the non-rotary boxes b^3, supported by ball-bearings, and the yoke F^3, supported by said boxes, the rings or frames *f f'*, journaled on the boxes b^3 and provided with rollers f^5, the treadle-lever G, and the operating straps or bands H H', substantially as herein described.

12. In a velocipede, the combination, with a driving-axle and clutch mechanism for driving the same, comprising a clutch-drum, a treadle-lever, and band passing therefrom around the drum for the purpose of rotating the drum, and a curved or arc-shaped link, whereon the fulcrum of said lever is movable, and by which it is guided, and devices for adjusting the link into positions eccentric to or concentric with said driving-axle, substantially as herein described.

13. In a velocipede, the combination, with a driving-axle and clutch mechanism for driving the same, comprising a clutch-drum, a treadle-lever, and band passing therefrom around the drum, for the purpose of rotating the drum, and a curved or arc-shaped link, whereon the fulcrum of said lever is movable, substantially as herein described.

14. The combination, with the axle E and clutch mechanism comprising the drum F^2, of the treadle-lever having a band-connection with the drum, the curved and slotted link G', and a roller fitted to the lever-fulcrum and working in said link, substantially as herein described.

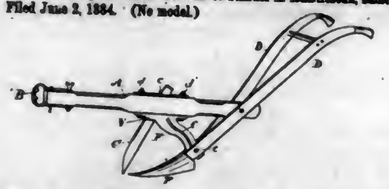
15. The combination, with the slotted link G' and the treadle-lever G, of the fulcrum-pin g^3, a roller, g^4, fitting the link and having a roller-bearing support on said pin, the axle E and its clutch mechanism, and a band-connection between the lever and clutch-drum, substantially as herein described.

16. The combination, with the driving-axle E and clutch mechanism thereon, of the treadle-lever G, for operating axle through the clutch mechanism, the curved link G', wherein the fulcrum of said lever is movable, guides whereon the link may be raised and lowered, and rods extending upward from the link to the top of the machine, and by which the link may be adjusted, substantially as herein described.

17. The combination, with the link G', of the frame portions c^2 c^6, consisting of tubes offset and connected by a coupling, c^6, the tube c^2 serving as a guide for the link, and a rod, *i*, extending from the link upward through the tube c^6, and serving to adjust the link upward and downward, substantially as herein described.

18. The combination, with the links G' and their guides, of the shaft I, journaled in bearings at *j* at the top of the machine, and having sectors I' fixed upon it, the rods *i*, extending upward from said links, the flexible connections i^2 between said rods and sectors, and the screw-threaded handle I^2, serving both to turn and to lock or hold the shaft I and sectors I', substantially as herein described.

320,074. SHOVEL-PLOW. BENJAMIN J. LESLIE, Butler, Ky., assignor, by mesne assignments, of one-half to Samuel E. Huddleston, same place. Filed June 2, 1884. (No model.)



Claim.—1. A shovel-plow with a cast sheth having a flattened head suitable for attachment to under side of draft-bar, and having a rectangular slot therein for the passage of the colter, in combination with the handles D D, attached to the foot of sheth, lying within recesses in the latter, and the shovel-blade E, secured to a shoulder or extension-piece, H, at the foot of the sheth, substantially as described.

2. In a shovel-plow, the combination, with a cast sheth carrying the shovel-blade and handles attached thereto, as described, and having a flattened head adapted to receive the ends of a stirrup bolt or yoke, *d*, and with rib or tenon piece *r*, of an upper plate having an angle-block, *t*, formed thereon, adapted for the passage of colter C and insertion of wedge-pin *c*, and further adapted to receive the curved loop of the yoke *d*, and the yoke *d'*, substantially as described.

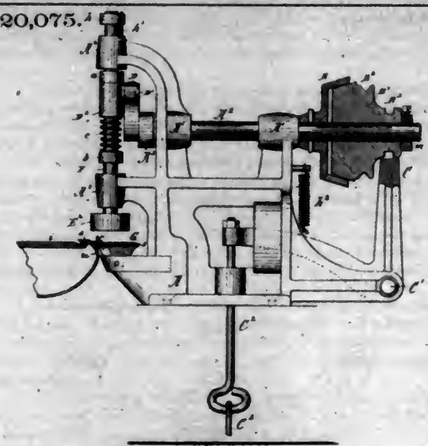
320,075. MACHINE FOR BEATING OUT WELTS. AUGUSTINE F. LITTLEFIELD, Lynn, Mass., assignor to Goodyear & McKay Sewing Machine Company, Hartford, Conn. Filed Mar. 23, 1885. (No model.)

Claim.—1. In a machine for beating out welts attached to the uppers and soles of boots and shoes, the welt-support shaped to enter the space between the upper and its attached welt, combined with the automatically-reciprocated hammer to hammer the said welt, substantially as described.

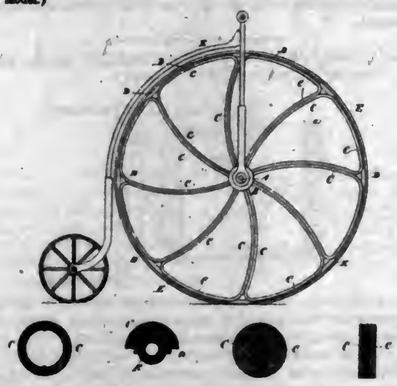
2. The shaft A^2, the clutch-pulley B B', the rod, sleeve D^2, connecting devices between them, and the spring and collars *a b*, and the hammer, combined with the welt-support having a thin or V-shaped edge to enter between the welt and upper, substantially as described.

3. The hammer-carrying bar provided with the two collars or shoulders *a b*, and the sleeve, and means, substantially as described, to move it, combined with the spring *c* and with the support G, to operate as set forth.

320,075.



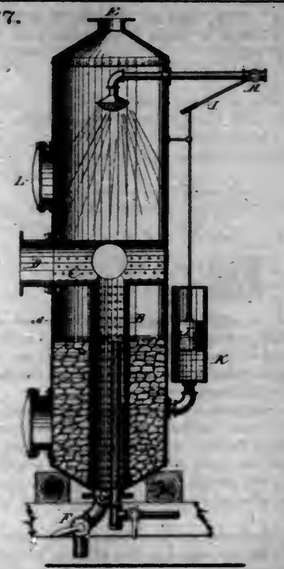
320,076. WHEEL. GEORGE S. LOWE, Hartford, Conn., assignor to himself and George W. Williams, same place. Filed Mar. 6, 1885. (No model.)



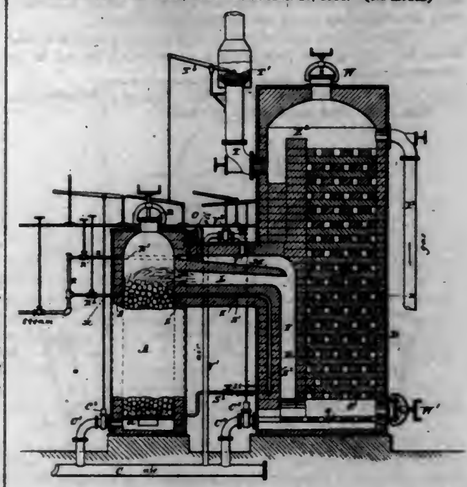
Claim.—1. A wheel composed of spoke-sections and a rim brazed together, each spoke-section forming a part of two spokes, and being secured by brazing to the rim-section and to each adjacent spoke-section, as set forth.

2. The wheel described, having arms and portions of the periphery composed of half-tubes C, in combination with a ring, D, of a similar half-tube, and a soft tire, combined and arranged for joint operation, substantially as herein specified.

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320,078. GAS-MAKING APPARATUS. THOMAS F. MARTIN, Newburg, N. Y., assignor to himself and John C. Adams, same place, and M. S. Frost & Son, New York, N. Y. Filed Mar. 16, 1885. (No model.)



Claim.—1. The combination, in a gas-making apparatus, with the generator and superheater, of a flue, L, passing from one to the other, an inclined table, M, within said flue, and a pipe by which petroleum is supplied upon this table M, substantially as specified.

2. The combination, with the generator and superheater, of the flue L, passing from one to the other, the table M in the upper part of said flue, the petroleum-supply pipe at O, the steam-pipe and valve R R', and the annular chamber E^2, around the upper part of the generator, through which steam passes to the space above the petroleum-supply table, substantially as specified.

3. The combination, in a superheater, of a case, a lining of fire-brick, a bridge-wall, E^2, in the upper part, a descending-flue, and a lateral opening to the base of the chimney below the bridge-wall, for the purposes and as set forth.

4. The combination, with the generator and superheater, of the steam-supply pipe and valve R R^2, the annular chamber S, around the generator, the flue S', below the flue L, the flue S^2, adjacent to the flue F, and the pipe S^3, to convey the superheated steam to the base of the generator, substantially as set forth.

5. The combination, with the generator, superheater, and connecting-flue, of the descending-flue F, the false bottom Q, and the inclined table M, for the petroleum, substantially as specified.

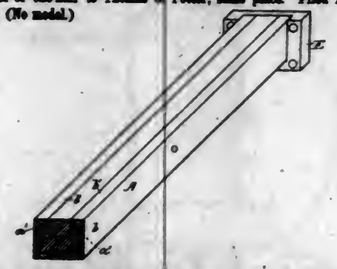
320,077. FEED-WATER HEATER AND PURIFIER. GEORGE H. MALTER, San Francisco, Cal. Filed Aug. 19, 1884. (No model.)

Claim.—1. In a feed-water heater and purifier, a vertical cylinder or chamber, a perforated pipe within said chamber, extending upward from the bottom to a point near the center, with transverse branches at the top and a pipe through which exhaust-steam is admitted to its interior, a mass of filtering or purifying material surrounding said pipe in the lower part of the chamber, and a rose or spray jet in the upper part of the chamber through which water is supplied, substantially as herein described.

2. In a feed-water heater and purifier, a vertical cylinder or chamber, a vertical perforated pipe extending upward from the bottom within said chamber, surrounded with the filtering material and receiving the exhaust-steam into its interior, and a supply-pipe at the top of the chamber through which water is sprayed downward upon the material, in combination with a blow-off pipe and cock at the bottom of the chamber, substantially as herein described.

3. In a feed-water heater and purifier, a vertical cylinder or chamber, a vertical perforated pipe extending upward from the bottom, surrounded with the filtering material and receiving exhaust-steam into its interior, a water supply-pipe above, and a blow-off or discharge pipe at the bottom, in combination with a vertical pipe within the perforated pipe, having its top open near the surface of the contained water to receive it, and connected with the boiler-supplying apparatus, substantially as herein described.

320,079. BEAM, JOIST, &c. WEBSTER W. MARTIN, Boston, Mass., assignor of one-half to Thomas O. Potter, same place. Filed Mar. 15, 1884. (No model.)



Claim.—1. A composite beam, joist, stringer, post, or other similar article comprising a central section of wood and a continuous shell or envelope of steel or iron which closely fits the wood, and which has the flanges *b'* projecting therefrom to inclose the wooden section, all substantially as and for the purposes described.

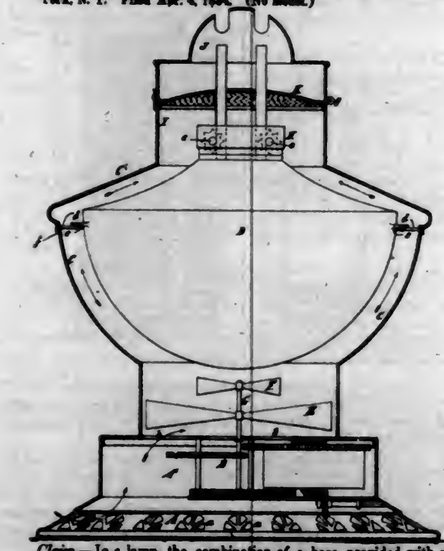
2. The combination, in a post, beam, stringer, joist, or other similar article, of a central section, *a*, of wood, and an exterior shell, *b*, of metal surrounding the wood upon three sides, and having the flanges *b'* extending upon the fourth side thereof, but not to entirely cover the wood, whereby the strength of the composite post or beam is increased and a nailing-surface provided, all substantially as and for the purposes described.

3. A combined wood and metal beam, joist, or other similar structural device having the central section of wood, the exterior shell of metal, and the metal cross-piece E, all substantially as and for the purposes described.

4. A combined wood and metal beam, joist, or other similar structural device having one or more mortises or holes, *b²*, formed in the metal shell, all substantially as and for the purposes described.

5. The combination of two sections of a combined wood and metal beam, &c., with coupling plate or plates *c*, substantially as and for the purposes described.

320,080. FORCED-DRAFT LAMP. WILLIAM S. MCLEWEE, New York, N. Y. Filed Apr. 4, 1884. (No model.)

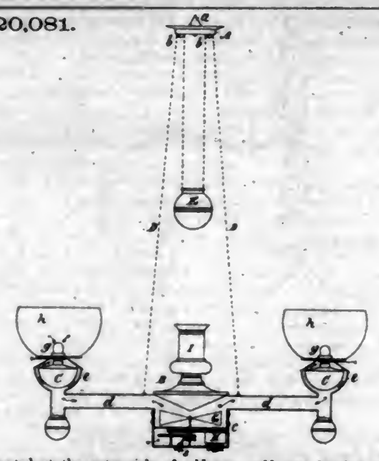


Claim.—In a lamp, the combination of a base provided with air-inlets, a train of wheel-work, two fans arranged one above the other upon the same shaft, one of said fans being of less diameter than the other, a reservoir, a burner on the reservoir, an air-chamber arranged about the burner, a perforated diaphragm within the air-chamber, and a deflector surmounting the air-chamber, substantially as specified.

320,081. LAMP. WILLIAM S. MCLEWEE, New York, N. Y. Filed June 9, 1884. (No model.)

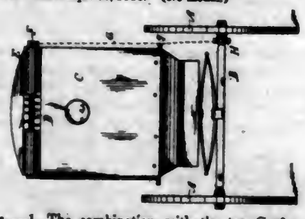
Claim.—The combination, in a lamp, of a body having openings near one end, a fan arranged within the body for forcing air to the openings, a motor for operating the fan, a spreader above the fan, hollow arms extending outwardly from the body, and lamp-reservoir holders

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supported at the outer ends of said arms, said arms forming passages through which air may pass from the fan to the burners, which are arranged on the reservoir at the open top of the holders, substantially as specified.

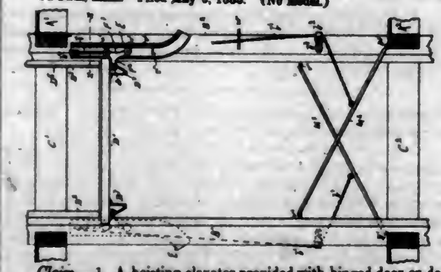
320,082. FAN ATTACHMENT FOR VEHICLES. RANDALL MEAGHAN, Chico, Cal. Filed Apr. 16, 1885. (No model.)



Claim.—1. The combination, with the top C of a vehicle, of a curved open-front casing, E, across its rear, and a rotating fan, D, mounted within the casing, substantially as described.

2. The combination, with the top of a vehicle, of a curved casing, E, at the rear, a fan mounted in said casing, a pulley on the fan-shaft, a pulley on the wheel-hub, a belt, and the guides *g*, substantially as and for the purpose described.

320,083. AUTOMATIC HATCHWAY-GUARD. WALTER S. MORTON, St. Paul, Minn. Filed May 6, 1885. (No model.)



Claim.—1. A hoisting-elevator provided with hinged door or doors adapted to cover its hatchways, a platform, D', adapted to be moved upward and downward through said hatchways, and having bows D^2 above it to open said doors as said platform moves upward, one or more stationary tracks, E, to each of said hatchways, the lower portions of each of said tracks being curved backward away from said platform, a traveler, F', in each of said tracks, having an arm, F^2, projecting therefrom beneath said platform and adapted to move upward and downward in said tracks, and each of said travelers connected by chains *b'* to the door or doors of its respective hatchway, substantially as set forth.

2. The combination, in an elevator-hatchway guard, of the leaders B' B^2, hoisting-platform consisting of the floor D', side frame, D^2 D^3, and head D^4, and provided with the bows D^5, track E, having its lower part curving backward away from said platform and attached to one of said levers or other stationary parts of the building in which said elevator is erected, traveler F', within said track and having arm F^2, and

anti-friction rollers a' a^2, door or doors M' M^2, hinged to the sides of the hatchway-openings, and a chain, *b'*, leading over suitable sheaves or pulleys from said door or doors to said traveler, substantially as set forth.

3. The combination, in an elevator-hatchway guard, of the leaders B' B^2, hoisting-platform consisting of the floor D', side frame, D^2 D^3, and head D^4, and provided with the bows D^5, inclined trip-bars D^6, track E, having its lower part curving backward away from said platform and attached to one of said leaders or other stationary parts of the building in which said elevator is erected, traveler F', within said track and having arm F^2 and anti-friction rollers a' a^2, door or doors M' M^2, hinged to the sides of the hatchway-openings, spring *w*, attached to one of said leaders or other stationary parts of said elevator and adapted to press against said door or doors when they are open, and a chain, *b'*, leading over suitable sheaves or pulleys from said door or doors to said traveler, substantially as set forth.

4. In a hatchway-guard, two doors, M' M^2, hinged to opposite sides of the hatchway-openings and at an angle thereto, and with a diagonal joint along their contiguous edges, the diagonal edge of one door running from the side face of one leader to the opposite side of the other leader, substantially as set forth.

5. The combination, with the doors of the hatchway-openings of elevators, of one or more auxiliary leaves hinged at an angle to said doors or to said hatchway-openings, substantially as set forth.

320,084. CIGAR-CUTTER. WILLIAM H. MYERS, Reading, Pa. Filed Jan. 2, 1885. (No model.)

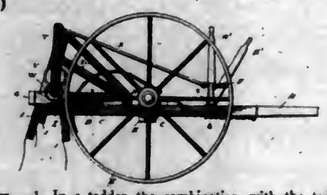


Claim.—1. In a cigar-cutter, the lever E, cast or formed integral with a shaft, E^2, provided with journals E' E^4, a squared portion, E^5, a locking-toe, E^3, and a toothed hub, M, situated upon the squared portion, in combination with the pinion O', knife P, post M^3, spring V, fixed knife L, and the shells C D, having suitable bearings for the shaft and provided with the aperture H, all arranged and operating as and for the purpose set forth.

2. The combination of the sectional frames having an aperture for the insertion of the cigar and provided with bearings of the operating-lever E, cast or formed integral with a shaft carrying a toothed hub, M, and provided with journals E' E^4, a square portion, E^5, and a toe, E^3, by which toe it is retained in its bearings, pinion O', loop-formed knife P spring V, and fixed knife L, substantially as set forth.

3. A cigar-cutter comprising the following elements: two detachable shells, C D, having bearings J K, a guard, J^3, and a seat, I, and provided with aperture H, hollow base B, provided with an aperture, D^4, the pivoted cover D, connecting-post C', screw D^3, plate B, base-piece, screw B^2, lever E, shaft E^2, toothed hub M, pinion O', knife P, and fixed knife L, all combined and arranged as and for the purpose set forth.

320,085. HAY-TEDDER. JOSEPH E. OFFUTT, Springfield, Ohio, assignor to Joseph W. Thomas, same place. Filed May 12, 1884. (No model.)



Claim.—1. In a tedder, the combination, with the tedder-shaft having a pinion, of the friction-rollers provided with an intergearing pinion and mounted in frames pivoted to said shaft.

2. In a hay-tedder, the combination, with the tedder-shaft having pinions, of the friction-rollers having intergearing pinions, and mounted in a frame pivoted to said shaft, and the actuating-rod and rock-shaft yieldingly united.

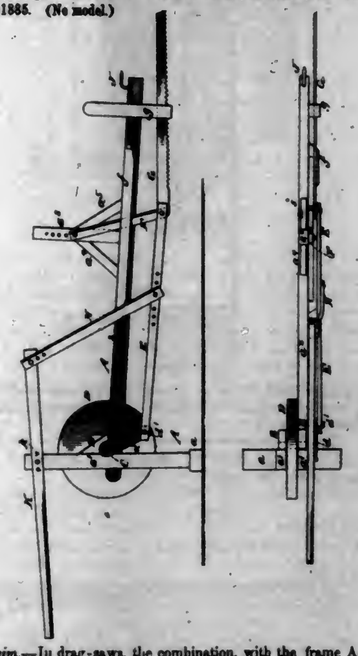
3. In a hay-tedder, the combination, with the tedder-arm, of the connecting-rod, the pivoted sleeve, and the spring mounted on the main frame.

4. In a hay-tedder, the combination, with the tedder-arm, of the connecting-rod provided with a collar, the pivoted sleeve, and the spiral spring therein, said sleeve being connected to the main frame of the machine.

5. In a hay-tedder, the combination, with the tedder-arm, of the clamp, constructed of two parts and provided with adjacent grooves, and the teeth fitted in said grooves and bent forwardly, thence upwardly, thence rearwardly, thence slightly outwardly or laterally, and finally downwardly.

6. In a hay-tedder, the combination, with the tedder-shaft, of the friction-rollers geared therewith, mounted in a frame pivoted to said shaft, and the actuating-rods connected at one end with the frame in which said rollers are mounted, and the rock-shaft, to which the rods are connected, at the other.

320,086. DRAG-SAW. JOHN A. OWENS, McDonald, Ga. Filed Apr. 15, 1885. (No model.)



Claim.—In drag-saws, the combination, with the frame A, of the shaft C, arranged in bearings B, carrying the balance-wheel D, and having crank-arm *d*, the pitman E, pivoted to the crank-pin *d'*, the arm F, swinging in guide-slot and pivoted at bottom to the front end of arm E, the saw G, working in slotted guide *g* and pivoted to the lower end of swinging arm F, the vertical pivoted rod H, connecting with the pitman E, and the hand-lever K, connecting with the upper end of rod H, whereby the saw may be operated, as described.

320,087. CONDENSER FOR STEAM-ENGINES. PAUL B. PERKINS, North Springfield, Mo. Filed Apr. 22, 1885. (No model.)

Claim.—1. The combination, with the outer casing, the cold-water chamber located in the upper portion thereof having a perforated bottom, and the exhaust-steam entrance located at the side of the casing a short distance below the cold-water chamber, of one or more perforated plates located below the exhaust entrance and provided with enlarged steam-passages located at or near the edge of the plate opposite the entrance of the steam, substantially as set forth.

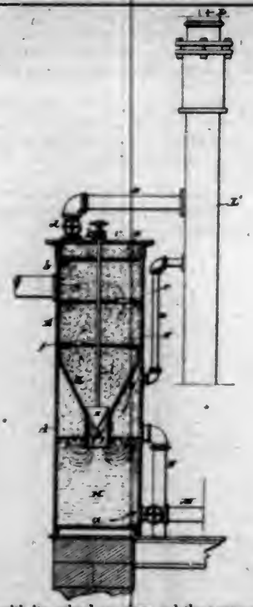
2. The combination, with the cold-water chamber located in the upper portion of the casing and the exhaust-steam entrance, of two or more perforated plates located transversely within the casing and provided with enlarged steam-passages, and a funnel-shaped partition provided with a valved opening, substantially as set forth.

3. The combination, with the several perforated plates secured within the casing and provided with the enlarged steam-passages for causing the steam to traverse back and forth during its descent within the casing, of a water-chamber located in the upper portion of the casing, a funnel-shaped partition located below the perforated plates and provided with an opening into the hot-water chamber, and a valve for regulating the flow of water and condensed steam through the said opening into the hot-water chamber, substantially as set forth.

4. In a steam-condenser, the combination, with the hot-water chamber, of a closed-top pipe leading upwardly therefrom, and means for keeping the pipe cool, substantially as set forth.

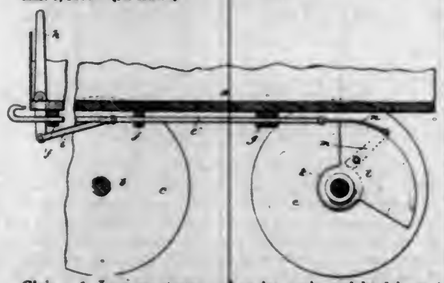
5. The steam-condenser consisting essentially of the cold-water chamber, the perforated plates with their steam-passages, the funnel-

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shaped partition with its valved opening, and the vapor-condensing pipe leading from the hot-water chamber, the whole constructed substantially as set forth.

320,088. CAR-STARTER. MARK POTTER, Syracuse, N. Y. Filed Mar. 9, 1885. (No model.)

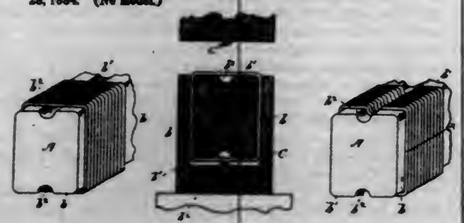


Claim.—1. In a car-starter, a draw-bar, and a weighted lever, *l*, connected to it so as to be drawn forward by it and return automatically, and carrying a dog or pawl to engage a fixed member on the axle, to rotate said axle in the forward movement of the draw-bar, substantially as set forth.

2. In a car-starter, a draw-bar, and a weighted lever connected to it so as to be drawn forward by it and returned automatically, and carrying a dog or pawl to engage a fixed member on the axle to rotate said axle in the forward movement of the draw-bar, combined with an auxiliary hand-operating mechanism for said draw-bar, substantially as set forth.

3. The weight *l*, loose on the axle and provided with the dog *m*, a friction-drum interposed between said dog and the axle, and the draft-bar connected in a right line by a link to said dog, substantially as described.

320,089. BUCKLE. THOMAS O. POTTER, Boston, Mass. Filed Apr. 28, 1884. (No model.)

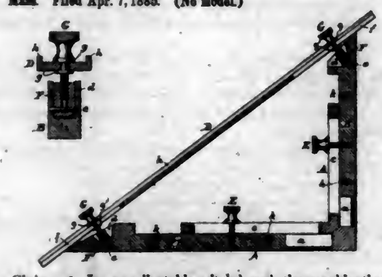


Claim.—1. In a buckle, the frame made of wire and having an inward curve, a^3, formed in the end bars thereof, and the cross-bar *c*, having its ends bent about the end bars of the frame within the curve, and the cross-bar a^3, for uniting and tying the two end bars together, all substantially as and for the purposes described.

2. The combination of the buckle-blank *a*, made of wire, the cross-bars made of wire fastened to the end bars, as specified, and the teeth d'', all substantially as and for the purposes described.

3. The combination of the buckle-blank a', made of wire, the cross-bar *e*, the teeth d'', and the hook G, all substantially as and for the purposes described.

320,090. ADJUSTABLE PITCH-BOARD. JOSEPH M. PRIOR, Boston, Mass. Filed Apr. 7, 1885. (No model.)



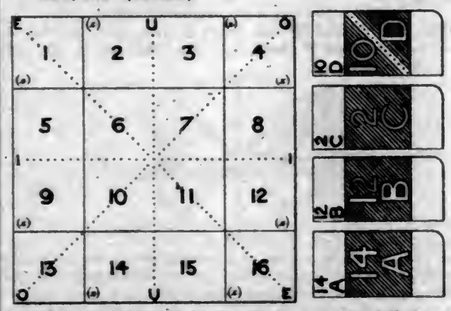
Claim.—1. In an adjustable pitch-board, the combination of two fixed arms secured together at right angles to each other, each arm having in its outer edge a groove, the edges of which are beveled or flared outwardly in such manner that the width of said groove across the said outer edges thereof shall be substantially equal to the thickness of said fixed arm, two extension-pieces fitted to slide within said grooves, and having a width of marking-face substantially equal to the thickness of said fixed arms, and means of securing said extension-pieces in any desired position within said grooves, as and for the purposes described.

2. In an adjustable pitch-board, the combination of two fixed arms secured together at right angles to each other, each provided with a groove in its outer and a slot in its inner edge, two extension-pieces fitted to and adapted to slide within said grooves, and two or more screws passing through the slots in the inner edges of said fixed arms, and adapted to secure said extension-pieces in any desired position within said grooves, substantially as and for the purposes described.

3. The combination of the fixed arms A H, having grooves *a a*, extension-pieces B B, means of securing said extension-pieces in any desired position within the grooves *a a*, the hypotenuse arm D, screws G G, and swivel-nuts F F, substantially as and for the purposes described.

4. In an adjustable pitch-board, a hypotenuse arm made thicker than the remaining portion of the board, so as to form a projecting lip or edge upon either side of said board, substantially as and for the purposes described.

320,091. GAME APPARATUS. JAMES RAM, London, England. Filed Jan. 2, 1885. (No model.)

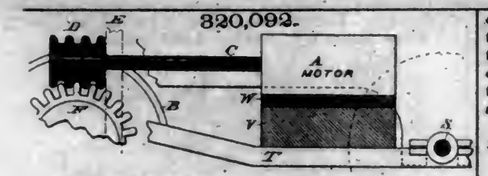


Claim.—1. A chart bearing upon its face cross-lines I U, diagonal lines E O, and subsidiary lines, X X X X, and divided into squares or sections numbered from 1 to 16 or 0 to 15, substantially as set forth and shown.

2. In combination with a chart, as specified, four suits of cards or equivalent tokens, each suit bearing a distinctive device and numbered from 1 to 16 or 0 to 15, substantially as specified.

320,092. ELECTRIC CAR. ANTHONY REICKENBAUN, London, England, assignor to Frederick Reckenzaun, New York, N. Y. Filed Jan. 16, 1885. (No model.) Patented in England Apr. 12, 1884, No. 6,275.

320,092.



Claim.—1. In combination with an electric car, two trucks provided with pivot-joints, which support the car, and two motors adapted to propel said car, one of said motors being located upon one truck, and the other of said motors being located upon the other truck.

2. In combination, substantially as described, with car-trucks provided with pivot-joints, which trucks support both the car and electric motors, of secondary or primary batteries in series with the motors.

3. The combination of the car-trucks provided with pivot-joints, which support a car, and electric motors adapted to drive or propel the car and attached to said trucks.

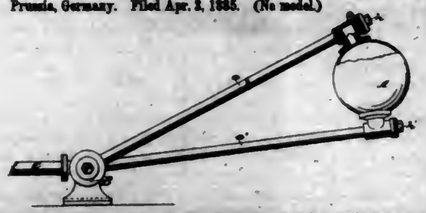
4. In an electric car, in combination with each of the two trucks of a car, a motor whose shaft is provided with the worm-pinion D, which is adapted to gear into the wheel F upon the car-axle, the shaft of the motor being at right angles to the car-axle.

5. The combination, substantially as hereinbefore set forth, of electric car-trucks provided with pivot-joints, which support the car, one or more electric motors in circuit with an electric storage or primary battery contained within the car, and worm-gearing connecting said motors with the axles of the car-wheels.

6. In combination with two parallel beams attached at their ends by journal-bearings to the two car-axles of a car-truck, an electric motor attached to a third beam, which is at right angles to the said parallel beams and which is secured to the said parallel beams.

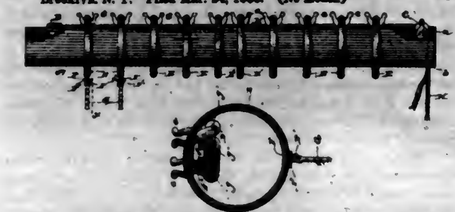
7. An electric motor, in combination with a car-wheel axle and with a truck, which is attached rigidly to the motor and by pivot-joints to the car.

320,093. FEED-WATER REGULATOR. WILHELM RITTER, Altona, Prussia, Germany. Filed Apr. 2, 1885. (No model.)



Claim.—The combination, with a steam-boiler and tubes *a a'*, entering the boiler at different levels, of the hollow sockets B B', with which the tubes *a a'* are in constant communication, the tubes *c c'*, entering and free to turn in the sockets B B', the vessel A, and tubes *a a'*, extending from the top and bottom thereof, and the coupling-piece *b*, connecting the tubes *a a'* and *c c'* and serving to maintain the top of the vessel A in constant communication with the boiler through the tubes *a c e*, and the bottom of said vessel in constant communication with the boiler through the tubes *a' c' e'*, substantially as herein described.

320,094. CURTAIN POLE AND FIXTURE. OTTO F. SCHUMANN, Brooklyn, N. Y. Filed Mar. 24, 1885. (No model.)

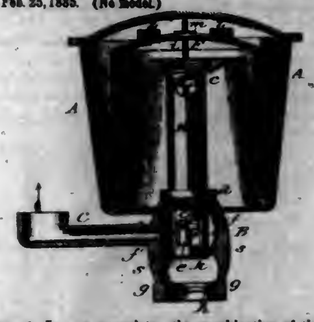


Claim.—1. The combination of the grooved pole, the carriages having the rollers that work in the groove, and the arms projecting above the upper side of the pole, and the rings supported on the carriages between the projecting arms, whereby the rings are supported on the pole and out of contact therewith, substantially as described.

2. The carriages having the rollers, the projecting arms for the curtain-rings, the cord-tubes, and the set-screws for binding the cord to the cord-tubes, substantially as described.

3. The combination of the grooved pole, the carriages D, having the rollers that work in the groove, and the arms projecting above the upper side of the pole, the carriages D', having the rollers that work in the groove, the arms projecting above the upper side of the pole, and the cord-tubes and set-screws, the rings supported on the carriages between the projecting arms, the pulley B, secured in the groove at one end of the pole, the double pulley C, secured in the groove at the opposite end of the pole, and the cord H, which passes over the pulleys and through the tubes of the leading carriages and is secured thereto by the set-screws, substantially as described.

320,095. GAS-REGULATOR. ROBERT SIEMER, St. Paul, Minn. Filed Feb. 25, 1885. (No model.)



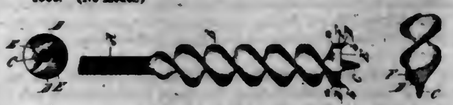
Claim.—1. In a gas-regulator, the combination of the socket B, having a contracted portion in the middle turned out so as to admit of the passage through it of the valve-seat end of the tube E, and the adjustable ring *h*, and outlet-pipe C, combined with the valve-bearing tube E, all as and for the purposes substantially as set forth and described.

2. In a gas-regulator, the combination of a basal socket with adjustable collar or ring *h*, a contracted ring, *s*, outlet-pipe C, upper and lower chambers, A, vertical tube E, having a squared end, orifice *e*, valve *k*, guide *c*, stem F, a bell-shaped float, D, connected with the stem F, a duplex cylindrical reservoir of cast metal containing glycerine, all combined together and arranged substantially as set forth and described.

320,096. REMEDY FOR HOG-CHOLERA. MATTHEW SLEBERT, Lee's Mills, N. C. Filed Aug. 30, 1884. (Specimens.)

Claim.—The herein-described composition of matter to be used as a remedy for diseases of horses, hogs, cattle, sheep, and fowls, consisting of red-oak bark, poplar bark, red-ash bark, sourwood bark, red-dogwood bark, leaf tobacco, copperas, saltpeter, sulphur, sal-soda, and sage-leaves in the proportions specified.

320,097. AUGER. JAMES SWAN, Seymour, Conn. Filed Apr. 2, 1885. (No model.)

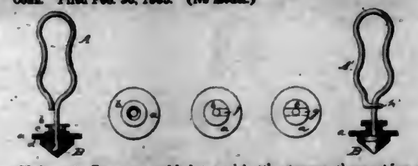


Claim.—1. In an auger or bit, the combination, with floor-lips and side lips provided with cutting-edges, of cutting-spurs upon said side lips, made concave upon their inner sides.

2. In an auger or bit, the combination, substantially as herein set forth, of cutting-spurs made concave upon their inner sides, and tapering outward slightly from their upper ends to their edges, with floor-lips and side lips provided with cutting-edges.

3. A bit having a floor-lip and a side lip with cutting-edges, and a cutting-spur concaved upon its inner side and tapered outward slightly from the top to the edge.

320,098. INTERNAL BOTTLE-STOPPER. JAMES TERRY, Hartford, Conn. Filed Feb. 20, 1885. (No model.)



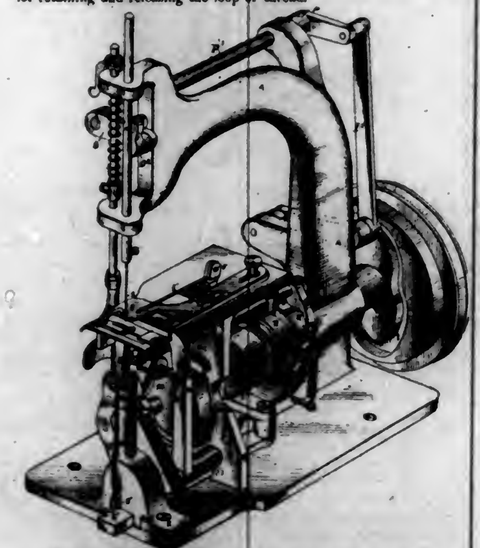
Claim.—1. In a removable internal bottle-stopper, the packing-disk *a*, having a projecting hub and extractor-flange, *b*, upon its outer side, all made practically integral and adapted to slide together upon the stopper-wire, substantially as described, and for the purpose specified.

2. In a removable internal bottle-stopper, the combination of the packing-disk *a*, and metallic hub having the extractor-flange *b*, and the flanges *c d*, for holding said packing-disk, substantially as described, and for the purpose specified.

3. In a removable internal bottle-stopper, the combination of the wire-loop having a free end and the packing-disk having a metal hub with its central hole enlarged at one end, substantially as described, and for the purpose specified.

320,099. SEWING-MACHINE. WILLIAM WALKER, Dunstable, County of Bedford, England. Filed Nov. 23, 1883. (Model.) Patented in England Jan. 10, 1883, No. 142; in France Aug. 8, 1883, No. 156,948; in Germany Aug. 18, 1883, No. 26,806, and in Belgium Aug. 22, 1883, No. 62,372.

Brief.—The invention relates to a single-thread chain-stitch sewing-machine producing a long and a short stitch alternately, and applicable to the manufacture of straw-braid, chip, and other hats and bonnets, and other purposes. Devices are arranged for securing the feed-motion, the threading and unthreading of the double hook-needle, and for retaining and releasing the loop of thread.



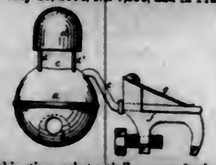
Claim.—1. The combination of a needle-operating double cam, I, a needle having a notch in its side, a needle-bar and its connections with said cam, with the oscillating looper D, feeder C, and double cam G H, whereby two distinct feeding movements are imparted to said feeder, and an alternately long and short stitch are produced from a needle, substantially as described.

2. The needle E, having a notch in the side thereof, the threader B, and mechanism for operating the same, in combination with the double-feed cams G and H and feeder C, substantially as shown and described.

3. The reciprocating notched needle, the looper or unthreader D, and the mechanism for operating the same, in combination with the threader B, its operating mechanism, the double cam G and H, and feeder C, substantially as described.

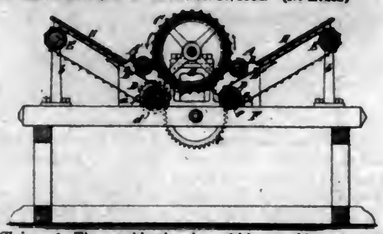
4. The thread-retainer F, having the wire *f'*, and mechanism for operating the same, in combination with the double-feed cams G and H, the feeder C, threader B, unthreader or looper D, and notched needle reciprocating substantially as described.

320,100. BELL FOR BICYCLES. THEODORE R. WARE, Clifton, Bristol, County of Gloucester, England. Filed Nov. 11, 1884. (No model.) Patented in England May 10, 1884, No. 7,556, and in France Oct. 31, 1884, No. 165,129.



Claim.—The combination, substantially as set forth, of the spherical or other suitably-shaped bell *a*, provided with an opening or aperture, *c*, in its upper portion, the ball *b*, and the cup *d*, formed on or fixed to the said bell over the said aperture, the said bell being provided with any suitable mounting or means of attachment to other objects which will admit of its positions being readily reversed, and with any suitable arrangement for retaining the said bell in position for ringing or silence.

320,101. MACHINE FOR FELTING HAT-BODIES, &c. JOHN T. WARING, Yonkers, N. Y. Filed Nov. 13, 1884. (No model.)

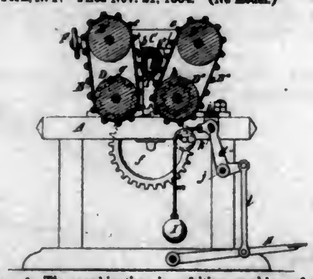


Claim.—1. The combination, in a felting-machine, of an endless apron and drums for supporting and carrying it, a roller or cylinder arranged side by side with said apron external thereto, and mechanism for driving the said apron and roller or cylinder with a movement of their convergent opposite surfaces in opposite directions, substantially as and for the purpose herein described.

2. The combination of cylinder and apron, two of one with one of the other interposed, and mechanism for giving motion to the same, whereby are formed two open troughs or trough-like cavities each having an ascending and descending side, substantially as and for the purpose herein described.

3. The combination of a roller or cylinder and endless apron arranged to form an open trough or trough-like cavity, and mechanism for driving the same at unequal surface velocities, substantially as and for the purpose herein described.

320,102. MACHINE FOR FELTING HAT-BODIES. JOHN T. WARING, New York, N. Y. Filed Nov. 21, 1884. (No model.)



Claim.—1. The combination, in a felting-machine, of two separate endless aprons with their adjacent faces at an inclination to form between them a trough or trough-like cavity within which a roll of hat-bodies or other articles may lie and be retained while subjected to a rolling motion by the friction of the said faces moving in opposite directions, substantially as herein described.

2. The combination, in a felting-machine, of three separate endless aprons, arranged side by side with their adjacent faces convergent to form two troughs or trough-like cavities, and mechanism for driving the said aprons, whereby the adjacent faces are caused to move in opposite directions, substantially as and for the purpose herein described.

3. The combination, in a felting-machine, of two separate convergent endless aprons, arranged to form by and between their adjacent faces an open trough or trough-like cavity, and driving mechanism, whereby the said aprons are driven with their adjacent faces moving in opposite directions at unequal velocities, substantially as herein described.

4. The combination, with the two separate endless aprons and rollers for supporting them in such manner that the two converge and form between them a trough or trough-like cavity, of means of adjusting either of said aprons to vary the convergence of the said aprons, substantially as herein described.

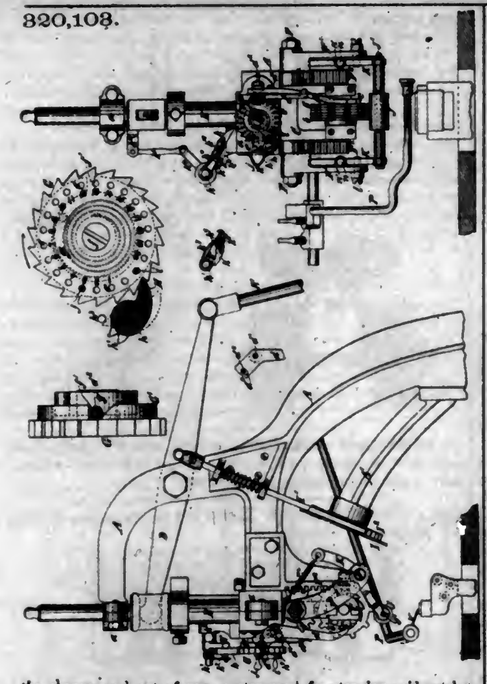
5. The combination, with the two separate convergent endless aprons and rollers for supporting them in a manner to form between them a trough or trough-like cavity, of means of moving either of the said aprons to open and let out the contents of the said trough or cavity, substantially as herein described.

320,103. NUMBERING-MACHINE. EDMOND A. WARREN, Brooklyn, N. Y. Filed Apr. 23, 1884. (No model.)

Brief.—Adapted to print numbers consecutively, or to print each number a desired number of times, according to the adjustment of the parts.

Claim.—1. The combination, with the numbering-head and the change-pawl for effecting the changes of numbers therein, of a cam for throwing and holding the said pawl out of gear, a ratchet-wheel connected with said cam, a dog carried by the numbering-head for operating said ratchet-wheel and cam to produce the throwing and holding of

320,103.



the change-pawl out of gear, a stop-pawl for stopping said ratchet-wheel, a pin carried by said cam and wheel for unlocking the stop-pawl, and the spring for returning the cam to the position, for letting the change-pawl come into gear, substantially as herein described.

2. The combination, with the numbering-head, of the change-pawl carrying a pin at its upper end, a cam turning about a fixed axis and having a notch for the reception of said pin, a ratchet-wheel attached to said cam, and having holes in its face fitted with an adjustable pin, and actuated by the movements of the numbering-head, a spring for moving the cam in the opposite direction to that in which it is turned by the movement of the numbering-head, a stop-pawl for holding the said ratchet-wheel, and an unlocking-piece carried by said stop-pawl to be operated by said adjustable pin for throwing the stop-pawl out of gear, all substantially as herein described.

3. The combination of the change-pawl *d*, the notched cam G', for operating on said pawl, the spring *g*, applied to the said cam, the ratchet-toothed repetition-wheel G, attached to said cam and perforated for the reception in variable positions of a movable pin, the fixed and movable pins *i* and *j*, carried by said wheel, the stop-pawl H, for stopping said wheel, and the unlocking-piece A^4, attached to said pawl and operated by the said fixed and movable pins for throwing the said pawl into and out of gear, all substantially as herein described.

4. The combination, with the change-pawl and ratchet-wheel of a numbering-head, of a pin adjustable in the said pawl and a bearing for the said pin, whereby the pawl is made to turn the said wheel one tooth or two teeth at a time, substantially as herein described.

5. The combination, with the reciprocating numbering-head and the stationary racks F^3 F^3, of the rock-shaft F, carried by said numbering-head and furnished with sectors F^4 F^4 and arms F' F', the inking-roller levers K K, carried by said arms, and the adjusting-screws *s s* in said arms, for adjusting the said levers and the inking-roller, substantially as herein described.

6. The combination, with the gage-carrying bar, of a gage-holder consisting of a clamp, substantially as herein described.

7. The gage-clamp composed of the fixed jaw *p*, the elastic movable jaw *p'*, and the notched thimble or collar attached to and turning on the fixed jaw, substantially as herein described.

320,104. CLASP FOR SHOES OR OTHER ARTICLES. THOMAS P. WEST, Lynnfield, assignor of one-half to Erskine F. Bickford, Malden, Mass. Filed Apr. 13, 1885. (No model.)

Claim.—In a clasp, the combination of the spring-frame consisting of the part B, provided with the opening B', and the part C, provided with the folded tongue C', extending into said opening, and the finger or snap E, hinged to said tongue and provided with the projections *e e*, all arranged and constructed substantially as and for the purpose set forth.

320,104.



320,105. APPARATUS FOR TURNING ON, LIGHTING, AND SHUTTING OFF GAS BY ELECTRICITY. LE ROY S. WHITE, Waterbury, Conn. Filed Nov. 19, 1884. (No model.)



Claim.—1. The combination, with a gas-burner, of an electro-magnet, a core and gas-valve to be operated by the magnet to open the valve, and a mechanism for controlling the closing of the valve, comprising a notched regulator disk or wheel having notches of varying depth, and a stop or detent acting in conjunction with the deeper notches to allow the valve to close and with the shallower notches to hold the valve open, substantially as herein described.

2. The combination, with a gas-burner, of an electro-magnet, a core and gas-valve to be operated by the magnet to open the valve, and mechanism for controlling the closing of the valve, comprising a notched regulator disk or wheel having whole, half, and three-quarter notches, and a stop or detent operating in conjunction therewith, substantially as herein described.

3. The combination, with a gas-burner, of an electro-magnet, a core and gas-valve to be operated by the magnet to open the valve, and mechanism for controlling the closing of the valve, comprising a notched regulator disk or wheel carried by the core, and a stop or detent occupying a fixed position and operating in conjunction with the regulator disk or wheel, substantially as herein described.

4. The combination, with a gas-burner, of an electro-magnet, a core, and gas-valve to be operated by the core to open the valve, the two oppositely-arranged and notched regulator disks or flanges D D', and the interposed stop or detent *g*, acting in alternate conjunction with the said disks or flanges to turn the core and thereby control the closing of the valve, substantially as herein described.

5. The combination, with a gas-burner, of an electro-magnet, a core, and a gas-valve operated thereby to open the valve, the oppositely-arranged notched regulator disks or flanges D D', carried by the core, the upper one, D, having notches of varying depth, and the lower one, D', having ratchet-like teeth, and a stop or detent, *g*, substantially as herein described.

6. The combination, with a gas-burner, of an electro-magnet and a case therefor having a gas-inlet at the bottom and a gas-outlet at the top, a core to be operated by the magnet, and a gas-valve attached to said core and arranged above the magnet, substantially as and for the purpose herein described.

7. The combination, with a gas-burner, of an electro-magnet and a case therefor having a gas-inlet at the bottom and a tip-socket at the top, the head of the magnet having an upward projection entering the tip-socket and forming a valve-seat, a core movable within the magnet, and a valve-stem attached to said core working upward through the seat, and provided above the seat with a valve, substantially as herein described.

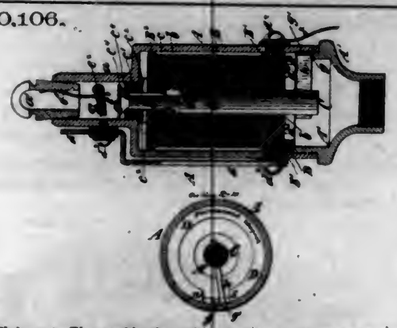
8. The combination, with a gas-burner, of an electro-magnet and its movable core and a case therefor having a gas-inlet at the bottom and a tip-socket at the top, a valve-seat in the tip-socket, and a valve closing thereon and operated by the electro-magnet and its core, substantially as herein described.

9. The combination, with a gas-burner and a fixed contact thereon, of a case having a tip-socket at the top, a rock-shaft carrying outside the tip-socket an arm and movable contact and provided inside the socket with a toe or cam, an electro-magnet in said case, and a movable core provided with an upward prolongation for acting on the said toe or cam, substantially as herein described.

10. The combination, with a gas-burner and fixed contact, *d'*, thereon, of a case, A A', having the tip-socket *a*, the rock-shaft a^3, and its arm *e*, and contact *d'*, the toe e^3, and spring e^4, an electro-magnet in the case, and a core therefor having an upward prolongation for operating the said toe or arm e^3, substantially as herein described.

320,106. APPARATUS FOR TURNING ON, LIGHTING, AND TURNING OFF GAS BY ELECTRICITY. LE ROY S. WHITE, Waterbury, Conn. Filed Nov. 20, 1884. (No model.)

320,106.



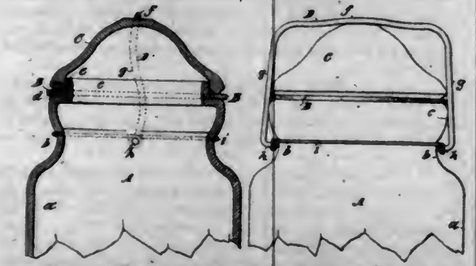
Claim.—1. The combination, with a gas-burner, of an electro-magnet, a movable core and a gas-valve operated by the magnet to open the valve, a permanent magnet, and an arm projecting from the core and lying between the poles of said permanent magnet, and a step or shoulder serving to support the core when attraction takes place between the said arm and one pole of the permanent magnet, substantially as herein described.

2. The combination, with a gas-burner, of an electro-magnet, a movable core and gas-valve operated by the electro-magnet to open the valve, a permanent magnet stationary within the case of the apparatus, an arm projecting from the core and lying between the poles of the permanent magnet, and a step or shoulder in engagement with which said arm is brought by the attraction of one pole of the permanent magnet to hold the core raised and the valve open, substantially as herein described.

3. The combination, with a gas-burner, of an electro-magnet, a movable core and gas-valve operated by the electro-magnet to open the valve, a stationary permanent magnet, an arm fixed to and projecting from the said movable core and lying between the poles of said permanent magnet, and a step or shoulder into engagement with which said arm is brought by the action of the permanent magnet, substantially as herein described.

4. The combination, with the case, consisting of the body A and base-piece A', having the inwardly-projecting flange in which is a notch, *g*, and a step or shoulder, *g'*, of the electro-magnet, and its movable core C, the arm *h*, projecting from the core, and the permanent magnet D, having its poles on opposite sides of the notch, and step *g g'*, substantially as herein described.

320,107. FRUIT-JAR. ABRAM V. WHITEMAN, New York, N. Y. Filed Jan. 27, 1885. (Model.)



Claim.—1. The combination, with a jar, of a cover thereto having an approximately bell-shaped exterior and being flattened upon the top, and a bail journaled in bearings upon the jar and adapted to secure the cover to the jar, substantially as specified.

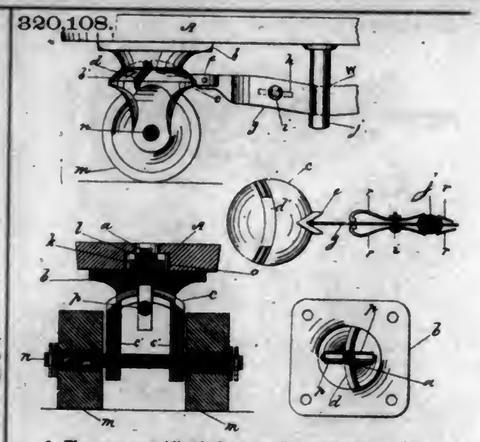
2. The combination, with a jar, of a bail pivoted thereon and a cover for the jar unconnected to the bail, and having a bell-shaped exterior provided with a smooth top surface, the top portion of the cover describing a radius which is shorter than that which the bail describes when being moved onto and off from the cover, substantially as described, whereby the bail will be in contact with the cover and mouth-piece of the jar only when the bail is over the top portion of the cover.

320,108. ROLLER-SKATE. JAMES WILLIAMS, Richmond, Ind. Filed Feb. 27, 1885. (No model.)

Claim.—1. In a roller-skate, the hanger-frame *b*, provided with a concave bearing-surface, having a curved slot, *d*, combined with a convex saddle-block, *c*, provided with a curved rib, *d'*, as herein described.

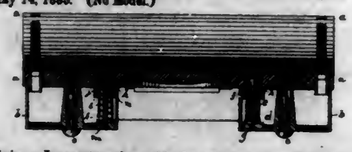
2. The binding-post *a*, constructed as described, provided with friction-rollers *p p*, in combination with hanger-frame *b*, saddle-block *c*, and spring or rubber cushion *k*, as herein set forth.

320,108.



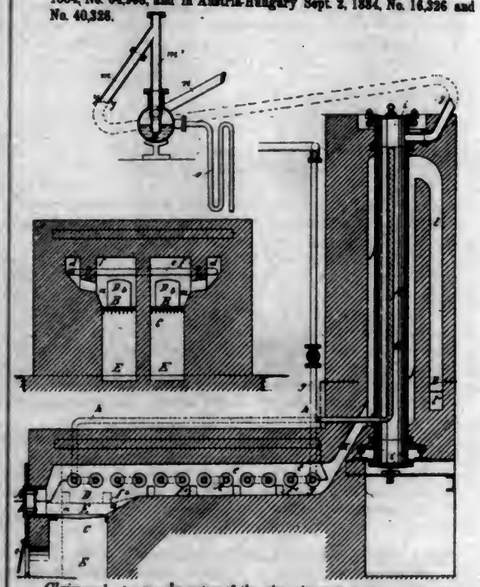
3. The convex saddle-block *c*, provided with V projection *e*, in combination with spring *g* and re-enforce springs *r r* and post *j*, substantially as and for the purposes herein set forth.

320,109. LUBRICATOR. JAMES YOCOM, Jr., Philadelphia, Pa. Filed May 14, 1885. (No model.)



Claim.—In combination with the oil-reservoir of a journal-box, the wick *i*, spool *j*, spring *k*, and fixed rod *m*, in the manner and for the purpose substantially as set forth.

320,110. APPARATUS FOR CARBONIZING BONES, &c. ABRAHAM ZWILLINGER, Vienna, Austria-Hungary. Filed Oct. 4, 1884. (No model.) Patented in Germany Apr. 29, 1884, No. 29,883; in France Apr. 29, 1884, No. 158,468; in England Apr. 29, 1884, No. 6,995; in Belgium Apr. 30, 1884, No. 64,996, and in Austria-Hungary Sept. 2, 1884, No. 16,326 and No. 40,326.



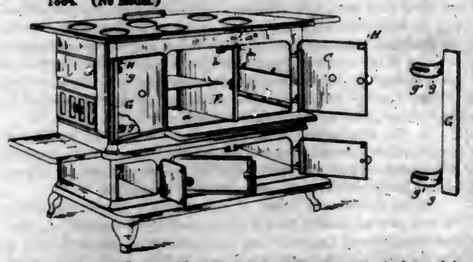
Claim.—1. In an apparatus of the class described, the combination, substantially as set forth, of one or more closed retorts for the material to be treated, a perforated pipe arranged therein and extending nearly the full length of such retort, a steam-generator, a superheater, and connecting-pipes for connecting the retort-pipe with the superheater and the latter with the generator, for the purpose specified.

2. In an apparatus of the class described, the combination, substantially as set forth, of one or more retorts, a liquid seal for sealing said retorts, a perforated pipe arranged in and extending nearly the entire length of said retorts, a steam-generator, a steam-superheater, and connecting-pipes for connecting the superheater with the generator and the retort-pipe, for the purpose set forth.

3. In an apparatus of the class described, the combination, substantially as set forth, of one or more sealed retorts, a perforated pipe arranged in and extending nearly the entire length thereof, and a steam-generator, with a superheating-furnace, and a series of connected pipes arranged in the combustion-chamber of the furnace, said pipe having its initial or point of connection with the steam-generator farthest from the source of heat of said furnace and its terminal or point of connection with the retort-pipe nearest to or at the source of heat, for the purpose set forth.

4. In an apparatus of the class described, the combination, substantially as set forth, with a steam-generator and a superheating-furnace, of a series of connected pipes in communication with the generator, one or more sealed retorts, a perforated pipe arranged in and extending nearly the entire length of said retort or retorts, and connections for connecting the retort-pipe with the superheating-pipe, said superheating-pipes and retorts being located in the combustion-chamber of the furnace or a continuation thereof, for the purpose set forth.

320,111. STOVE. EDGAR W. ANTHONY, Boston, Mass. Filed Mar. 29, 1884. (No model.)



Claim.—1. In a cooking stove or range, an oven, A, located behind the fire-pot, the two swinging doors B C, and a movable vertical partition, E, whereby the stove is provided with one large oven closed by two doors, or two smaller ovens, each of which has a separate door, all substantially as and for the purposes described.

2. The combination, in a stove or range, of an oven, A, the two swinging doors B C, the movable vertical partition E, and the jamb-piece F, attached to the said partition, all substantially as and for the purposes described.

3. The combination of the oven A, having the lower or base plate, *a'*, provided with the depression or recess *a*, and the top plate having the recess *a* for supporting the movable vertical partition-plate E, the said partition-plate, the jamb-plate F, and the oven-doors B C, all substantially as and for the purposes described.

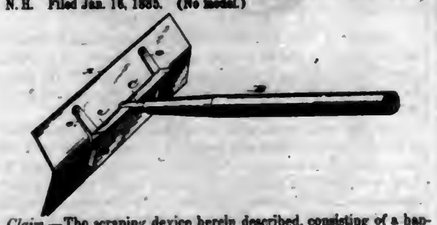
4. The combination of an oven with the doors B C, one of which has the movable flange G, all substantially as and for the purposes described.

5. The combination of the door B and the flange G, adapted to be moved into and out of operative position, and to be supported by the door, all substantially as and for the purposes described.

6. The combination of a door, the movable flange G, having the slotted arms *g*, and the bolts *g²*, all substantially as and for the purposes described.

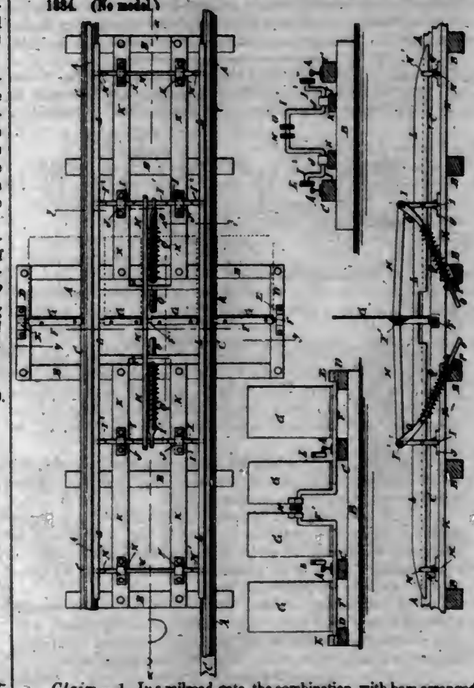
7. The combination of the oven A, the removable partition E, having the jambs *f*, the two doors B C, one of which has the removable flange G, all substantially as and for the purposes described.

320,112. STABLE-SCRAPER. SAMUEL C. ARNOLD, West Lebanon, N. H. Filed Jan. 16, 1885. (No model.)



Claim.—The scraping device herein described, consisting of a handle, a shank fitted thereon, an arm, *c*, having a scraping-edge on said shank, arms *e*, secured to the ends of the arm *c*, and a blade secured to the arms *e*, said arms *e* and the blade being of an extended V shape, substantially as set forth.

320,113. RAILROAD-GATE. FRANKLIN I. RAHM, East York, assignor to himself and Daniel W. Detwiler, Lower Windsor, Pa. Filed June 3, 1884. (No model.)

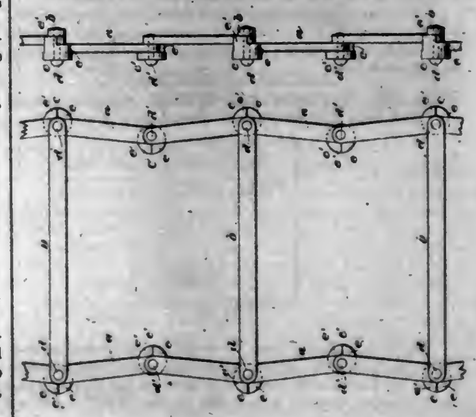


Claim.—1. In a railroad-gate, the combination, with bars arranged at the sides of the rails and a crank-shaft provided with upwardly-projecting plates, of crank-shafts arranged on opposite sides of the shaft carrying the plates and connected together and to the said bars, rods connected to the side cranks, and springs surrounding said rods, substantially as herein shown and described.

2. In a railroad-gate, the combination, with the crank-shafts M and the bars L, arranged at the sides of the rails and pivoted to the said crank-shafts, of the crank-shaft F, the crank-shafts I on opposite sides of the shaft F and connected to the bars L, and the bar H, connecting the crank-shafts F I I together, substantially as herein shown and described.

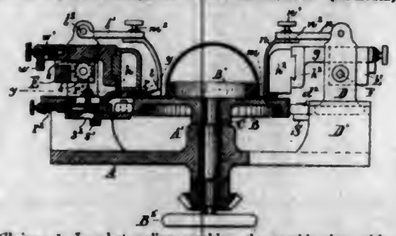
3. In a railroad-gate, the combination, with the crank-shafts F M I, the bars L, arranged at the sides of the rails, and the bar H, connecting the crank-shafts F I I together, of the rods O, connected to the cranks I, and the springs Q, surrounding the said rods, substantially as herein shown and described.

320,114. FOLDING LADDER. AUGUST BORMANN and EMIL EKHARD, Brooklyn, N. Y. Filed May 16, 1885. (No model.)



Claim.—The folding ladder herein shown and described, which consists of the pivoted side links, *a*, rungs *b*, pivoted to every second joint of the links, and the blocks *c c'*, applied to the joints and formed with the shoulders or offsets, to prevent the links from opening beyond a straight line outward, substantially as and for the purposes set forth.

320,115. HAT-CURLING MACHINE. FREDERICK COCKER, Danbury, Conn., and GEORGE TULE, Newark, N. J., assignors to the Hat-Curling Machine Company, Danbury, Conn. Filed Mar. 23, 1885. (No model.)



Claim.—1. In a hat-curling machine, the combination, with a rotary plate and hat-brim supported thereon, of a curling-iron adapted to fold or press the hat-brim upon the plate, and a flat separator inserted within the fold of the rotating curl, and operating to keep the curl from contact with the under brim, substantially as herein shown and described.

2. In a hat-curling machine, the combination, with the curling-iron and breaker, operating together as described, of a flat separator attached to the breaker, as and for the purpose set forth.

3. In a hat-curling machine, the combination, with a breaker adapted to form a flat or Anglesea curl, and an iron beveled to fit the breaker and flattened at the heel to fold down the curl, as described, of a flat separator attached to the breaker and extended under the heel of the iron, as and for the purpose set forth.

4. In a hat-curling machine, the combination, with a vibrating holder, of a tool-carrier and a hinged breaker separately secured thereon, a breaker-gage attached to the tool-holder, and means for adjusting the gage in relation to the holder, as and for the purpose set forth.

5. In a hat-curling machine, the combination, with a vibrating holder, of a tool-carrier and a hinged breaker separately secured thereon, a breaker-gage attached to the tool-holder, and means for adjusting the breaker and the gage separately in relation to one another and to the holder, as and for the purpose set forth.

6. In a hat-curling machine, the combination, with a vibrating holder, of a tool-carrier and breaker separately secured thereon, a curling-iron provided with a notch to admit a breaker-gage, and a gage adjustably secured to the holder and projected through the notch in the lower side of the iron, to operate with the breaker before the iron, as and for the purpose set forth.

7. In a hat-curling machine, the combination, with a curling-iron and the rotary plate supporting the hat-brim, of a holder having a tool-carrier, a breaker, and a breaker-gage, each adjustably attached thereto, and a flat separator combined with the rear edge of the breaker, as and for the purpose set forth.

8. In a hat-curling machine, the combination, with a rotary brim-plate and hat-clamp, of two vibrating holders, one holder being provided with a brim-bending tool, a hinged breaker, a separator, and an adjustable breaker-gage, arranged and operated as described, and the other holder being provided with a flattening-iron and a separator, the whole arranged and operated as and for the purpose set forth.

9. In a hat-curling machine, the combination, with a vibrating holder, of a tool-carrier, a hinged breaker, and a breaker-gage, with means for adjusting the carrier, breaker, and breaker-gage separately, as and for the purpose set forth.

320,116. WATCHMAN'S TIME-RECORDER. EDWARD J. COLBY, Cincinnati, Ohio. Filed Feb. 13, 1885. (No model.)

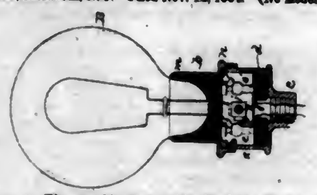


Claim.—1. The combination, substantially as specified, of the time-piece F, having the revolving dial, and a recording-pencil suspended above said dial and adapted to be brought in contact with the dial for the purpose of recording whenever desired, with the case A B C, lock E, and hooked latch *e*, for the purpose of simultaneously locking the parts together by engaging the lugs *d d'*.

2. The combination of a watchman's time-register, secured as shown, and having an arm, M, to actuate the recording devices, with a lever, N, secured to the door-knob or other suitable actuating device, and a wire, as O, to connect the lever N and actuating-arm M, substantially as specified.

3. The combination, in a watchman's time-recorder, of the case A B, time-piece F, and revolving dial F', with the recording devices consisting of rock-shaft H, carrying the arms I I', and pencil-carrier K.

320,117. ELECTRIC-LAMP SOCKET AND SWITCH. DAVID H. CUNNINGHAM, Elizabeth, N. J. Filed Nov. 14, 1884. (No model.)



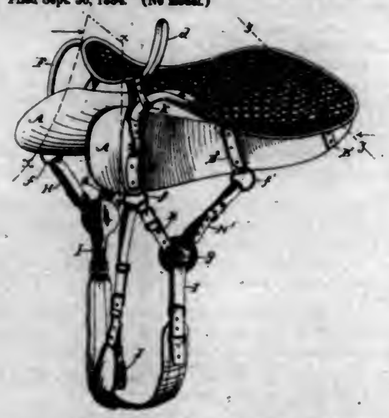
Claim.—1. The combination, with the lamp B and circuit-wires leading thereto, of cylindrical connecting-screws and spiral-spring sockets adapted to receive the said screws, substantially as herein specified.

2. In an electric-lamp socket, an electric switch formed of a revolvable insulating prism, and carrying an insulating wedge-shaped projection, and two or more contact-springs arranged to touch each other and to press against the sides of the insulating-prism, the said contact-springs forming a part of the lamp-circuit, and being capable of separation by the insulating-wedge, substantially as herein specified.

3. The combination, in an electric-lamp socket, of a spring-connector and the switch formed on the revolvable prism *j*, having the insulating wedge-shaped projection *i*, and the springs *g g'*, adapted to press against the side of the prism and each other, as specified.

4. As an improved article of manufacture, a lamp-socket having the two parts of its body formed partly or wholly of insulating material, two contact-screws secured to one part, two spring-sockets secured to the other part and adapted to receive and hold the screws, and a switch formed of a revolvable prism having a wedge-shaped projection on one or more sides thereof, and two or more springs bearing against the prism and capable of touching each other, substantially as herein specified.

320,118. RIDING-SADDLE. MYRA L. EUELL, Northfield, Minn. Filed Sept. 30, 1884. (No model.)

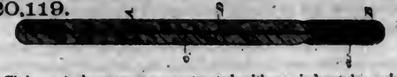


Claim.—1. The combination, with the hinged saddle-trees A A, of the metal fork C, the W-shaped rear seat-support, D, jointed to the hinged saddle-trees, as described, the rigid oval brace F, the horn *d*, and the seat E, sustained upon the said brace, horn, fork, and support D, substantially as shown and described.

2. The combination, with the saddle having rigid strap attachments B B² attached to its sides and separated or spaced from each other, of the converging independent straps H H', having buckles and holes in them to render them adjustable in length, a girth secured to such rigid attachments, and a common connection, *g*, for the two converging ends of the straps H H', and the girth, as shown and described.

320,119. THERMOMETER. FREDERICK EIMER, New York, N. Y. Filed Feb. 11, 1885. (No model.)

320,119.



Claim.—A thermometer constructed with an index-tube sealed at its upper end and containing a column of mercury divided by an air-bubble, and whose lower end approaches closely the bottom of a sealed bulb encircling it, whereby the charge of mercury in the bulb is made to constantly surround and seal the lower end of the tube under all temperatures, substantially in the manner and for the purpose herein set forth.

320,120. WEATHER-STRIP. JOSEPH FISHER, Attleborough, Mass. Filed Apr. 30, 1885. (No model.)



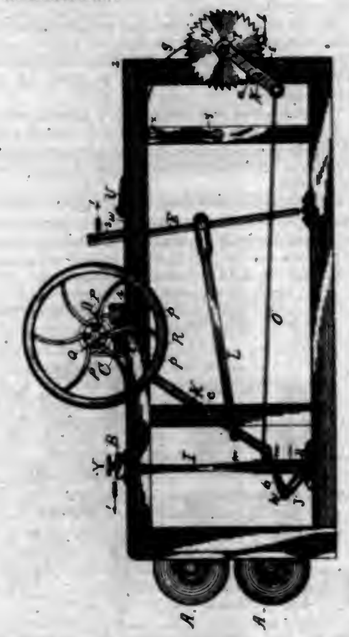
Claim.—1. The combination of a weather-strip with a weighted single hinge-bar having lateral extensions to brace said strip and serve as means for securing the two together.

2. The combination, with a door, of a weighted hinge-bar connected therewith and carrying a weather-strip, of a trip-bar pivoted to said hinge-bar and slotted near its forward end, and a keeper passing through said slot to hold the trip-lever close to the under side of the door.

3. The combination of a weather-strip and its cap-plate with a bracket pivotally supporting said strip, and provided with lateral flanges having an inclined face to brace and strengthen said cap-plate, substantially as shown and described.

320,121. WIRE-FENCE MACHINE. JAMES FINK, Quincy, Ill., assignor to Francis A. Everett, same place. Filed Dec. 1, 1884. (No model.)

Brief.—Improvement on Patent No. 266,072, dated October 17, 1882, and Patent No. 288,913, dated November 20, 1883. Movement of a lever in one direction simultaneously slides the bar carrying the tension devices toward the spools, thereby increasing the tension on the wires, forces the picket into its place, and moves a pawl into position to engage the teeth of the ratchet-wheel on the reel. Movement of the lever in the opposite direction slides the tension-bar forward, releasing the tension, moves the beaters back in position for another picket, and reels up the finished fabric.



Claim.—1. In a wire-fence machine, a sliding tension-bar and a winding-drum, in combination with a rotatable shaft connected with said tension-bar and drum, substantially as set forth, whereby the release of the tension and the winding of the drum are simultaneously effected.

2. In a wire-fence machine, a winding-drum, and a swinging shuttle-frame, in combination with a rotatable shaft connected with said bar, drum, and frame, substantially as set forth, whereby the operations of said parts are simultaneously effected.

3. In a wire-fence machine, separate wire-holding reels, a winding-drum, and wire-twisting spindles, in combination with a sliding tension-bar and separate tension devices, one for each spindle, located on said sliding bar, substantially as set forth.

4. Two upright pivoted hook-catches and a rod connecting the same and pivoted to both, in combination with a spindle-rotating shaft and a pin carried by said shaft which engages alternately with said catches, substantially as set forth.

5. A pivoted V-shaped plate having upwardly-extending arms, in combination with a spindle-rotating shaft and a pin carried by said shaft which engages alternately with said arms, substantially as set forth.

6. Wire-twisting spindles and a swinging shuttle-frame, in combination with shuttle-plates on said frame, each of said plates being formed with a vertical slot and an enlarged aperture in the center of said slot, substantially as set forth.

7. In a wire-fence machine, wire-twisting spindles, mechanism which gives tension to the wires, a swinging shuttle-frame, and a winding-drum, in combination with a cross-bar, T, located between the shuttle-frame and the winding-drum, catch-arms *v v*, pivoted to said cross-bar, and springs which hold said catch-arms normally elevated, substantially as set forth.

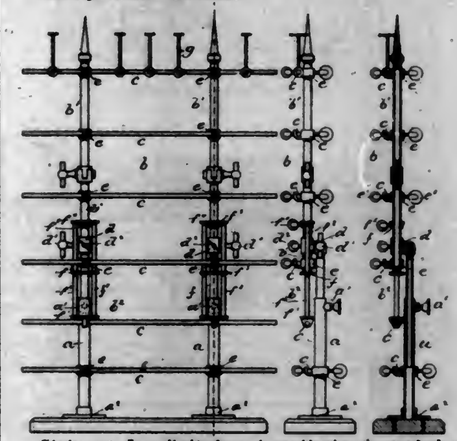
8. In a wire-fence machine, and in combination with the parts co-operating therewith, a roller, V, provided with circumferential grooves, substantially as set forth.

9. The tension-standards W, consisting of a base-plate, vertical side guides, *c' c'*, central vertical guide, Z, and top plate, in combination with tension-plates X X, provided with side grooves, *b' b'*, adapted to said vertical guides *c' c'* Z, and tension-regulating screws Y Y, substantially as set forth.

10. The cross-bar T and the catches pivoted thereto, in combination with the sliding tension-bar, the shuttle-frame, the winding-drum, the spring-pawl which admits of a slight backward movement of said drum, and mechanism whereby said tension-bar and shuttle-frame are simultaneously operated, substantially as set forth.

11. The spindle C, having enlarged front portion, *i'*, provided with curved channels *m' m'*, and its front *o'*, having discharge-apertures *n' n'*, in combination with the removable cap *k'* on the rear of said spindle, having receiving-apertures *l' l'*, substantially as set forth

320,122. DISPLAY-FRAME. WILBUR B. FOSTER, Rockville, Conn. Filed Sept. 26, 1884. (No model.)



Claim.—1. In a display-frame, in combination, the standards *a*, the jointed frame *b*, hinged to the upper part of the standards and extending across the latter through socket-pieces *d*, with clamping-nut *d'* and clamp-screw *d²*, and the cross-bars *c*, borne on the adjustable supports *e*, having clamp-screws, all substantially as described.

2. In a display-frame, in combination, the extensible standards *a*, the frame *b*, with jointed side bars, *b'*, that are each hinged to the top of the standards and extend across the latter through socket-pieces *d*, with the clamping-screws *d'* and *d²*, the extensible section *b³* of the frame with the yoke device *f*, and the cross-bars *c*, borne on the adjustable supports *e*, that have the clamp-screws *e'* and *e²*, all substantially as described.

3. In a display-frame, in combination, the extensible standards *a*,

having clamp-screws d', the extensible frame b, with hinged joints extending across the top of the standards and borne by the hinged socket-pieces d, that have clamp-screws d^2 and d^3, and the cross-bars c, held by the adjustable supports e, having clamp-screws e' e^2, all substantially as described.

4. In a display-frame, in combination, the extensible frame b, having the hinged side bars that are adjustably supported in socket-pieces attached to the top of standards and extend across the latter, the hinged socket-pieces bearing clamp-screws, the standard, and the cross-bars, all substantially as described.

320,123. VIOLIN-BOW. GEORGE H. FRANKLIN and HENRY G. BARR, Providence, R. I. Filed Feb. 20, 1885. (No model.)

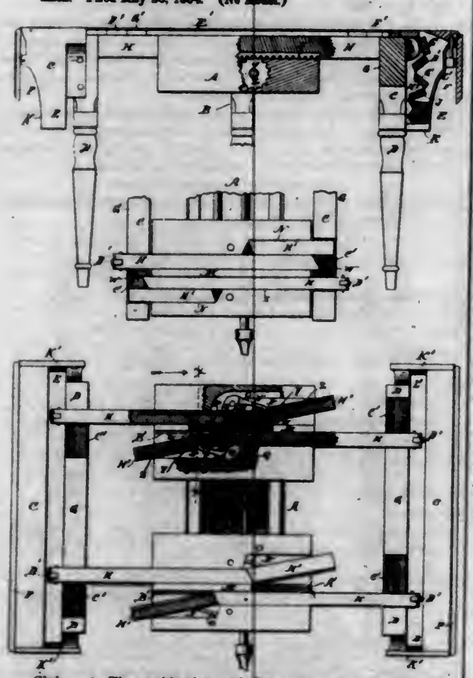


Claim.—1. In a violin-bow, the combination, with the frog B, of a bed-piece, E, and eccentric roller F, the whole constructed and operating to secure the hair in the manner and for the purposes substantially as described.

2. In a violin-bow, the combination, with the frog B, of a bed-piece, E, eccentric roller F, and elastic cushion V, the whole constructed and operating in the manner and for the purposes substantially as specified.

3. In a violin-bow, the combination, with the frog B, of a bed-piece, E, eccentric roller F, and the plate or follower W, the whole constructed and operating in the manner and for the purposes substantially as specified.

320,124. EXTENSION-TABLE. ALBERT E. FRENCH, East Tawas, Mich. Filed May 30, 1884. (No model.)

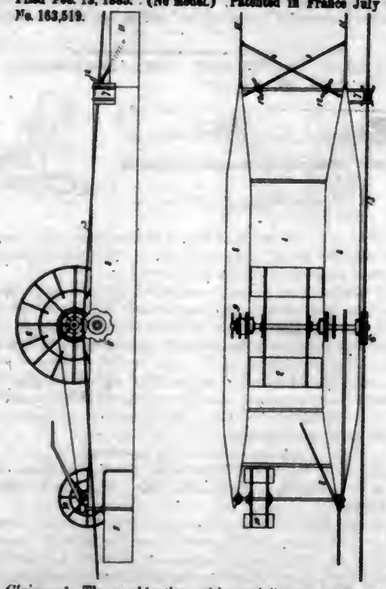


Claim.—1. The combination, with the middle part, A, having guide-ways or passages, and the end parts, C C, of the extensible or sliding arms, each formed of two separate sections having catches for connecting them, whereby said sections are slipped when the table is extended, but are disconnected and one of them forced laterally when the table is contracted, substantially as shown and described.

2. The combination of the part A, having ways with lateral recess N, the extensible arms H, provided with grooves S T, separated by incline U, a separate sliding section H', having groove Z, catch V, and recess Y, and the hooked levers O, pivoted in a recess at one side of said ways and having projections Q R, adapted to be engaged in turn by said inclines for the purpose of oscillating the lever and causing its hooked end to shift the section H' by means of the catch V, substantially as shown and described.

3. The web leaf-section formed of boards G', having oblique transverse mortises, and the flexible connecting-strips H^3, passed through said mortises, substantially as shown and described.

320,125. MEANS FOR UTILIZING THE POWER OF RUNNING WATER FOR PROPELLING VESSELS. LÉOPOLD GAILLARD, Livron, France. Filed Feb. 13, 1885. (No model.) Patented in France July 25, 1884, No. 163,519.



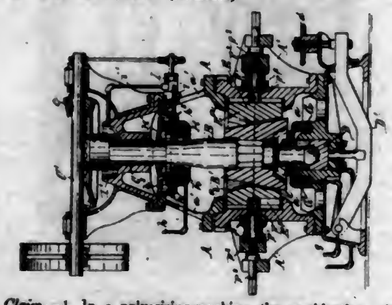
Claim.—1. The combination, with a twin boat, a rudder connected with one of the boats, and a revolving steering-wheel, 10, for steering the other boat, mounted on a cross-shaft carrying a belt-pulley, of the propeller-wheel 2, located in the channel between the two boats, the shaft of which carries a belt-pulley belted to the pulley on shaft of wheel 10, as described.

2. The combination, with a twin boat, of a propeller, 2, located in the channel or space between the two boats, an auxiliary steering and propelling wheel, 10, driven from the propeller 2, and a guide-chain and gearing driven from wheel 2 for guiding or propelling the boat along said chain, as described.

3. The combination, with a twin boat, a propelling-wheel, 2, located in the channel between the two boats, and an auxiliary propelling-wheel, 10, at the stern of the boat, driven from wheel 2, of the gates 11, screw-rods 4, and hand-wheels 12, for adjusting the gates or closing the same, as described.

4. The combination, with a twin boat, a rudder, 5, applied to one of the boats, a propelling and steering wheel, 10, applied in proximity to the other boat, a propeller, 2, located in the channel or space formed between the boats and the gates 11, of the chain 3, and gearing to propel the boat and wheel 10 from wheel 2, as described.

320,126. PULVERIZING-MACHINE. EVERSON D. GATES, Chicago, Ill. Filed Jan. 21, 1885. (No model.)



Claim.—1. In a pulverizing-machine, the combination, with the gyrating pulverizing-cone, of a yielding die surrounding the same, substantially as and for the purposes specified.

2. In a pulverizing-machine, the combination, with the gyrating pulverizing-cone, of a yielding die surrounding the same, and suitable springs to hold the said die up against the cone, substantially as and for the purposes specified.

3. The combination, with the gyrating cone B', of the die E, surrounding the same, thrust-rods F, and springs to hold the said thrust-rods in contact with the said die, substantially as and for the purposes specified.

4. The combination, with the gyrating cone B', of the cylindrical die E, surrounding the same, the casing A, provided with flanges a, upon which the die is supported, thrust-rods F, passing through the said casing, and springs bearing against the outer ends of the thrust-rods to hold their inner ends in contact with the die, substantially as and for the purposes specified.

5. The combination, with the die E and the casing A, surrounding the same, of the thrust-rods F, passing through the casing and bearing against the die, the brackets A', having nuts supported between their arms, the springs F', bearing against the outer ends of the thrust-rods and against the nuts, and screw-spindles mounted in said brackets and passing through the nuts to adjust them in or out, substantially as and for the purposes specified.

6. The combination, with the casing A and the hollow thrust-rods F, having beads f, and mounted in the said casing, of the brackets A', and spindles F^3, mounted in the brackets and extending into the hollow thrust-rods, the nuts F^2, mounted on the spindles, and the springs F', arranged between the said nuts and the beads f, substantially as and for the purposes specified.

7. The combination, with the gyrating cone B', of the cylindrical die E, surrounding the same, and the spring-impelled thrust-rods F, bearing against the said die, one of the said thrust-rods being extended to enter a groove, E', in the die to prevent rotation of the same, substantially as and for the purposes specified.

320,127. DUST-PROOF CASE FOR WATCHES. CHARLES K. GILES, Chicago, Ill. Filed June 30, 1884. (No model.)



Claim.—The box A, composed of the two parts a and b, secured together by threaded sections, as described, in combination with the ring-center d, front ring, f, and back plate, e, all constructed and operating together substantially as and for the purposes set forth.

320,128. COMBINED SIDE AND END LOCK FOR GALLEYS. WILLIAM H. GOLDING, Chelsea, Mass. Filed May 5, 1884. (No model.)



Claim.—1. A combined side and end lock, the body portion of which has the inclined form of an ordinary quoin, substantially as specified.

2. The combined side and end lock, consisting of the body portion e, having an outer inclined side and a laterally-projecting end piece, connected to the body by a bridge, substantially as specified.

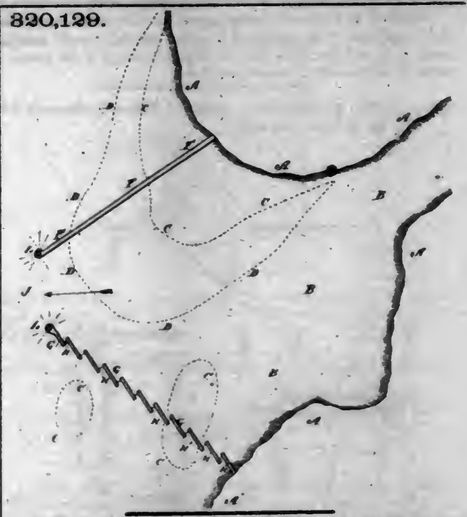
3. The combination of the galley A, side-stick C, quoin D, and the end and side lock, E, having the slotted body e, provided with an outer inclined side, substantially as shown and described.

320,129. PROCESS OF DEEPENING AND MAINTAINING CHANNELS FOR NAVIGATION. JOHN C. GOODRIDGE, Jr., New York, N. Y. Filed Mar. 5, 1885. (No model.)

Claim.—1. The within-described means of making, improving, or maintaining a channel for navigation, consisting of sectional overlapping jetties placed at an angle with the outgoing current, and so arranged as to produce a comparatively gentle and diffuse current on the flood-tide and a comparatively rapid current more or less restricted to the channel on the ebb-tide.

2. The within-described means of making, improving, or maintaining a channel for navigation, consisting of sectional overlapping jetties placed at an angle with the outgoing current, the intervals between which are closed with tidal gates, and so arranged as to afford comparatively unrestricted entrance at many points to the inflowing current, but to close against the outgoing current and divert it, wholly or in great part, through the space intended for said channel.

320,129.

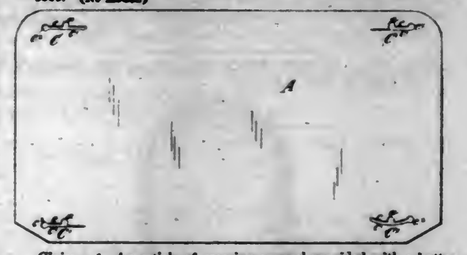


320,130. CARPET-BINDING. ROBERT S. GOULD, East Orange, N. J. Filed Apr. 25, 1885. (No model.)



Claim.—A matting end of a sheet-metal body having backwardly-bent retaining-flanges and a treading or covering plate of elastic fabric, retained by said flanges, substantially as set forth.

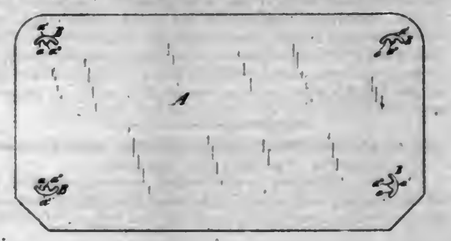
320,131. ARTICLE OF WEARING-APPAREL PROVIDED WITH BUTTON-HOLES. WALLACE P. GROSS, Brooklyn, N. Y. Filed Apr. 3, 1885. (No model.)



Claim.—1. An article of wearing-apparel provided with a button-hole having in one lip or edge a notch or recess, a, and having at its end an eyelet-hole or enlargement, c^2, substantially as and for the purpose herein described.

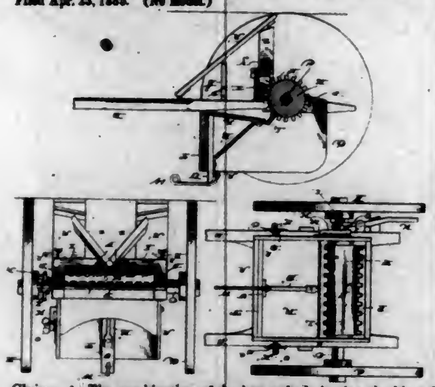
2. An article of wearing-apparel provided with a button-hole having in one lip or edge a notch or recess, a, and having at its end the eyelet-hole or enlargement c^2, that portion of the button-hole between the notch or recess and enlargement consisting of a slot to accommodate the shank of a button, and that portion of the button-hole extending on the opposite side of the notch or recess consisting of a narrow slit, substantially as and for the purpose herein described.

320,132. BUTTON-HOLE FOR WEARING-APPAREL. WALLACE P. GROSS, Brooklyn, N. Y. Filed Jan. 2, 1885. (No model.)



Claim.—An article of wearing-apparel provided with a button-hole made in the form of an arc-shaped or curved slot with parallel sides or margins *a a'*, and having in the convex side or margin *a* the notch or recess *a''*, substantially as herein described.

320,133. MANURE-DRILL. ANDREW J. HEARNE, Battleborough, N. C. Filed Apr. 23, 1885. (No model.)

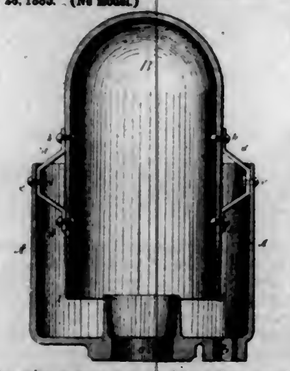


Claim.—1. The combination of the box or body having the hinged bottom, the journaled plate, and the rotating cylinder, and the scraper bearing against the rear side of the cylinder, with the hinged conductors Z below said cylinder, adapted to swing outwardly, and the hinged fenders A', adapted to swing rearwardly, upon the lower ends of which rest the free ends of the conductors, substantially as described.

2. The combination of the body, the rotating cylinder journaled therein, the hinged conductors Z below said cylinder, adapted to swing outwardly, and the hinged fenders A', adapted to swing rearwardly, upon the lower ends of which rest the free ends of the conductors, substantially as described.

3. The combination of the wagon or cart, the rotating cylinder journaled therein, the conductors Z, hinged below the cylinder, adapted to swing outwardly, the hinged fenders A', adapted to swing rearwardly and raise the conductors Z, upon which the lower ends of the hinged conductors bear, the rods B', passing through the keepers C', and having the openings D' and the pins E', substantially as described.

320,134. EXHAUST-STEAM TRAP. JAMES HOEY, Brooklyn, N. Y. Filed Apr. 23, 1885. (No model.)

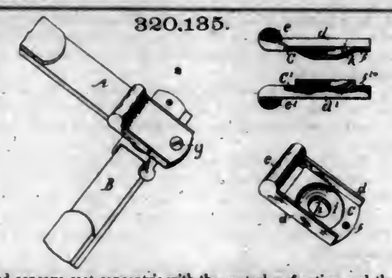


Claim.—An exhaust-steam trap consisting of an exterior cylinder, as A, open at top and closed at bottom, except by an aperture for the entrance of steam and an aperture for the exit of water, in combination with an interior closed top cylinder, as B, inverted over said steam-aperture, but not closing the same, and secured to said exterior cylinder by radial braces in the annular space between said cylinders, whereby the water entering said trap entrained with said steam is trapped therefrom and discharged below, and the steam permitted to escape otherwise unimpeded through said annular space, substantially as and for the purposes set forth.

320,135. COUPLING FOR VEHICLE-SPRINGS. GEORGE M. HUBBARD, New Haven, Conn. Filed May 4, 1885. (No model.)

Claim.—1. A coupling for vehicle-springs, consisting, essentially, of two flanged plates each secured to its spring by a bridge or arch and screw, and having a central perforation, one plate being provided with a

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raised concave seat concentric with the central perforation, and the other being formed with two opposite bearing-surfaces concentric with each other and with the central perforation, one surface convex and adapted to fit on the seat in the opposite plate, and the other concave and adapted to form a seat for the head of a coupling-bolt secured through the plate, all arranged in the manner and for the purpose substantially as set forth.

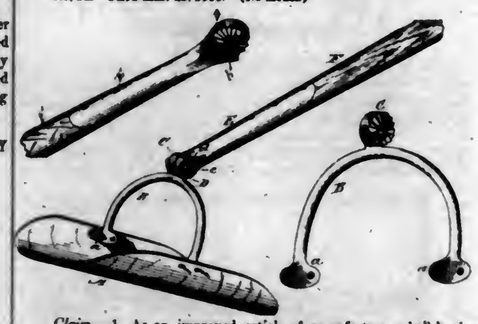
2. On a plate for coupling vehicle-springs, a bridge or arch adapted to hold the plate against the spring, as and for the purpose specified.

3. In a coupling for vehicle-springs, the flanged plate C, having a central perforation, *h*, with bearing-surfaces concentric thereto on each side of the plate, one surface being concave and the other convex, substantially as and for the purpose described.

4. In a coupling for vehicle-springs, the flanged plate C', having a central perforation, *h'*, and a raised concave bearing-surface concentric therewith, substantially as and for the purpose described.

5. The combination, with the plate C, having flanges *d*, bridge *e*, perforation *h*, concave surface *i*, and convex surface *k* on its opposite side, of the plate C', having flanges *d'*, bridge *e'*, perforation *h'*, and concave seat *m*, and the bolt *n*, in the manner and for the purpose described.

320,136. TILE-DITCHING HOE. HENRY IWAN and LOUIS IWAN, Streator, Ill. Filed Mar. 23, 1885. (No model.)



Claim.—1. As an improved article of manufacture, a bail having integrally formed therewith a ratchet-head at substantially right angles to the plane of the bail, its ends expanded to form ears, in combination with a handle having a ratchet-head corresponding to the ratchet-head of the bail, substantially as shown, and for the purposes described.

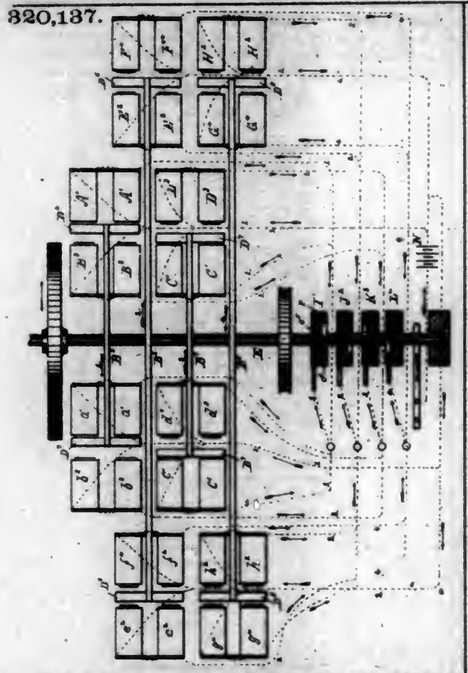
2. As an improved article of manufacture, a ditching-hoe consisting of a concavo-convex blade, a bifurcated shank or bail connected to the sides of the blade, and a ratchet-head formed integral with the bail and at right angles to its plane, in combination with a handle provided with a ratchet-head corresponding to the head of the bail, and having a segmental bearing-shoulder, as and for the purposes described.

320,137. ELECTRIC ENGINE. CHARLES A. JACKSON, Lawrence, assignor to the Jackson Electric Engine Company, Boston, Mass. Filed Jan. 15, 1885. (No model.)

Claim.—1. In an electro-magnetic machine, the combination, with a single brush or contact device, of the compound commutators insulated with respect to each other, and with the metallic portions of their peripheries diametrically opposed, whereby the direction of the motor may be reversed by the shifting of the brush, substantially as herein set forth.

2. In an electro-magnetic engine, the combination of a series of helices and their co-operating mechanism, with a driving-shaft provided with a pair of cranks and a pair of cross-heads actuated by said helices and provided with openings *b²*, which inclose said cranks, the arrangement of cranks and cross-heads allowing the latter to exert opposite alternate thrusts upon said shaft for effecting the rotation thereof, substantially as set forth.

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3. In an electric motor, the combination, with a main shaft having a crank, of a cross-head provided with a recess to inclose said crank, and devices for reciprocating said cross-head to rotate said shaft by its action on said inclosed crank, the opening or recess in said cross-head being of sufficient size and said cross-head being given sufficient thrust to prevent contact between said cross-head and said crank while the latter is passing from an inactive position to an active position, substantially as set forth.

4. In an electric motor, the combination of a cross-head having a circular opening, *b²*, with a main shaft provided with a crank having a disk arranged within said opening, the impulses of said cross-head being communicated to said disk by contact of the wall or side of the opening therewith, and thereby causing the rotation of said main shaft, substantially as set forth.

5. In an electric motor, the combination, with a shaft, a pair of cranks on said shaft, and a pair of cross-heads, each provided with an opening, *b²*, which respectively inclose said cranks, of two commutators, their brushes, and the electric generating and conducting devices which cause said cross-heads to act alternately on said cranks and shaft, substantially as set forth.

6. The combination, with a shaft adapted to furnish motive power, its cranks inclosed by and rotating within reciprocating cross-heads, and the co-operating armatures and helices, of a series of commutators and brushes and the necessary electric connections, whereby said commutators are connected to said helices, and effect successive active thrusts upon said shaft to compel rotation thereof, substantially as herein described.

7. In an electro-magnetic machine, the combination, with a single brush, of a compound commutator provided with two diametrically-opposed metallic contact-surfaces and a disk composed entirely of insulating substance, whereby upon shifting of the brush thereon the machine is stopped, substantially as stated.

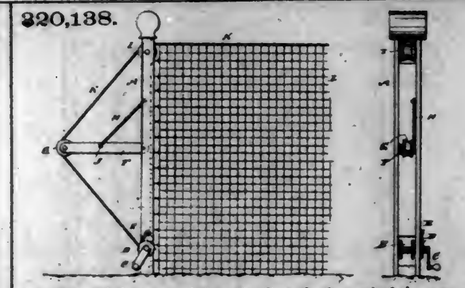
8. In an electro-magnetic machine, the combination, with the main shaft, reciprocating armature, and cross-head, of a crank disposed thereon, said crank being provided with a disk which is disconnected from and actuated intermittently by the said cross-head, to which is secured the said reciprocating armature, substantially for purposes herein set forth.

9. In an electro-magnetic engine, the combination of a main shaft and a crank formed thereon with a reciprocating armature, an electro-magnet, and a cross-head which is actuated by said magnet and armature, said cross-head being unconnected to said main shaft, but intermittently engaging therewith to rotate said shaft, substantially as set forth.

320,138. LAWN-TENNIS-NET TIGHTENER. CHARLES W. JEFFERSON, Rugby, Tenn. Filed Sept. 16, 1884. (No model.)

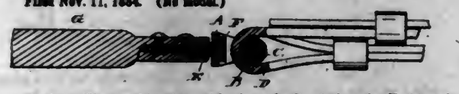
Claim.—The combination, with the post A, of the pulley I at the top, the reel B at the bottom, the pivoted arm F, connected to about

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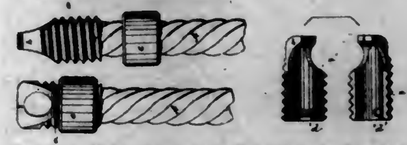
the middle of said post, and the roller G on the free end of the arm, together with the brace H, connected to the post and arm, substantially as herein shown and described.

320,139. CHECK-REIN SWIVEL. JACOB JOHNSON, Ashland, Nebr. Filed Nov. 11, 1884. (No model.)



Claim.—The combination, with the rein G, of the pin E, formed with a flat portion and a head, F, and secured to the rein, the yoke A, held to turn on the pin E adjacent to the head F, and provided with a cross-piece, B, having a loose sleeve, C, mounted thereon, and a bit-strap, D, passing around said sleeve, substantially as set forth.

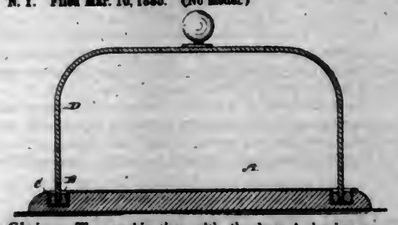
320,140. DRIVING-BELT COUPLING. ALEXANDER KANTNER, Philadelphia, Pa. Filed Mar. 31, 1885. (No model.)



Claim.—1. The combination of cord A with sectional coupling *a a'*, the section *a'* having inwardly-projecting pin *d*, and the section *a* having corresponding perforation *d'*, and with nut *c*, substantially as specified.

2. The combination of cord A with encircling thread *e* and sectional coupling *a a'*, having pin *d* and perforation *d'*, the pins *d* passing between two of the loops of thread *e*, as set forth.

320,141. BASE FOR CHEESE-COVERS. JOHN E. KEEK, New York, N. Y. Filed Mar. 10, 1885. (No model.)

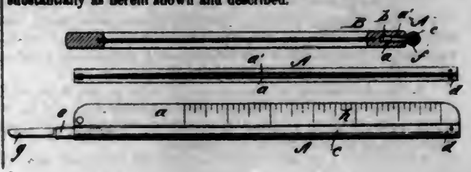


Claim.—The combination, with the base A, having an annular groove in its top, of the lining C in the said groove, substantially as herein shown and described.

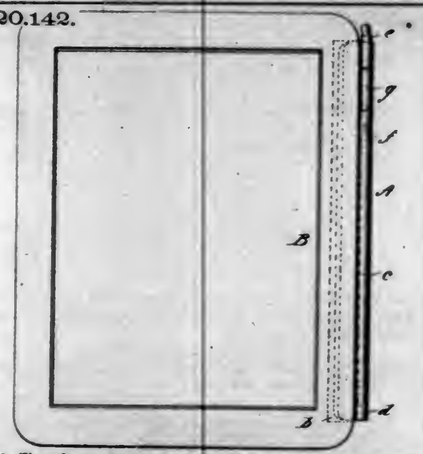
320,142. RULER ATTACHMENT FOR SLATES. JOSEPH R. KENNEDY, Philadelphia, Pa. Filed July 26, 1884. (No model.)

Claim.—1. The ruler A, formed with tongues adapted to enter a slot made in the edge of the slate-frame, substantially as described.

2. The combined slate and ruler consisting of the slate having its frame B formed with the slot *b* in its edge, and the ruler A, consisting of the tube *c* and the tongues *a a'*, for entering the groove of the slate-frame, substantially as herein shown and described.

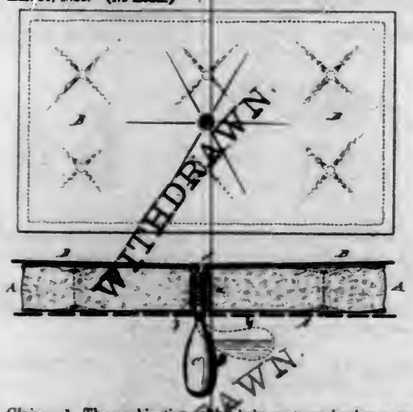


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3. The ruler A, for attachment to slates, formed with the straight tube *c* and the spring-tongues *a a'*, the tongue *a'* being graduated, substantially as herein shown and described.

320,143. BABY-MATTRESS. LUDWIG KOSS, Brooklyn, N. Y. Filed Mar. 30, 1885. (No model.)



Claim.—1. The combination, with a baby-mattress having an opening, of a water-proof covering having a downwardly-extending tube passing through said opening, and a detachable bulb or other receptacle connected to said tube, substantially as set forth.

2. The combination of a mattress having a vertical opening and a spiral spring arranged in the opening, a water-proof covering having a downwardly-extending tube passing through said opening, and a detachable bulb or other receptacle attached to the tube, substantially as set forth.

320,144. APPARATUS FOR COOLING AND FREEZING FLUIDS. ADOLF KUX, Berlin, Germany. Filed July 19, 1884. (No model.)

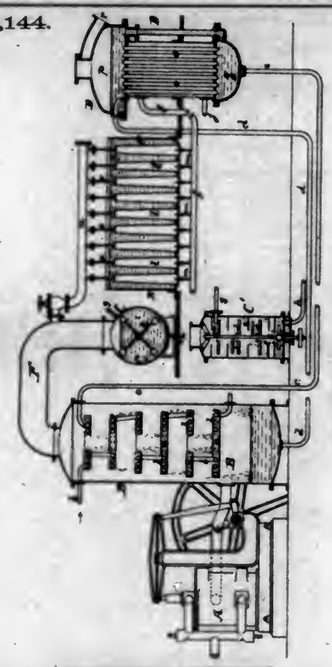
Claim.—1. The combination of the air-pump A, absorber B, cooler C, and concentrator D, suction-pipes F *u*, and steam-pipe *f m* with the tank *k*, having molds *l*, movable mold-bottoms, and supply-pipes *x*, substantially as herein shown and described.

2. In an apparatus for cooling and freezing fluids, the absorber B, consisting of a cylindrical vessel containing alternating annular and cylindrical dishes *a*, with cooling-pipes *b*, acid-pipes *c d*, vapor-supply pipe F, and pipe G, in combination with the cooler C and air-pump A, substantially as shown and described, and for the purposes explained.

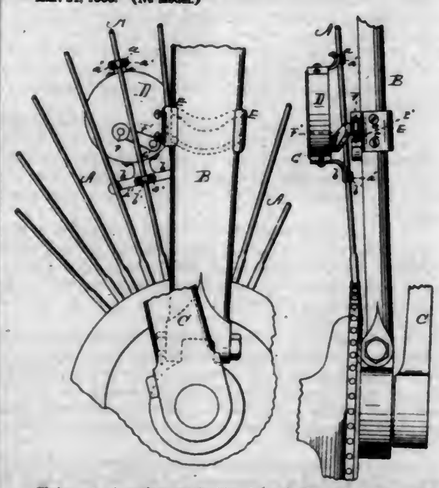
3. In an apparatus for cooling and freezing fluids, the concentrator D, consisting of two vessels, *p q*, connecting-pipes *o*, outer jacket, inlet and outlet pipes *d c*, steam-pipe *f*, the condensed-water pipe *j*, and the vapor-outlet *r*, in combination with the air-pump A, substantially as shown and described, and for the purposes explained.

4. The combination of the air-pump A with the pipe G, absorber B, alternating annular and cylindrical dishes *a*, coils *b*, pipes *c d*, vapor-pipe F, cooler C, stirrer *e*, pipes *g h*, concentrator D, and pipes *f*, *j*, and *r*, substantially as herein shown and described.

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320,145. CYCLOMETER. CHARLES H. LAMSON, Portland, Me. Filed Mar. 21, 1885. (No model.)

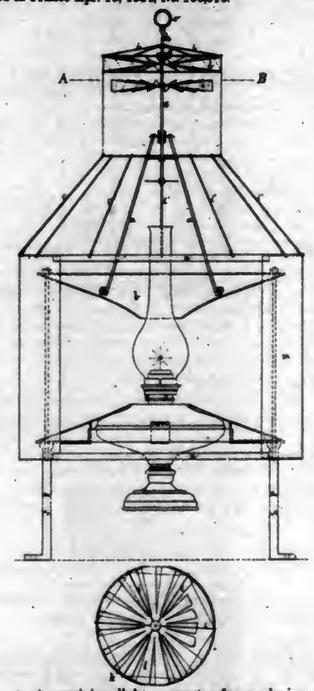


Claim.—1. A cyclometer for bicycles and other velocipedes, adapted to be rigidly secured to one of the spokes of the driving-wheel and provided with an arm or lever connected with the registering mechanism thereof, in combination with a cam secured to the fork or frame, said arm or lever being adapted to be engaged by said cam when the cyclometer passes the fork during its revolution, substantially as and for the purpose set forth.

2. A cyclometer for bicycles and other velocipedes, adapted to be secured to one of the spokes of the driving-wheel and provided with the arm or lever F', connected with the registering mechanism thereof, in combination with the curved cam-clip E E', secured to the fork or frame, substantially as and for the purpose described.

3. The combination, with the casing or box of the cyclometer, of a clamp or bracket for securing the same to the spokes of the wheel of a bicycle or other velocipede, said clamp or bracket extending transversely over or across two or more of said spokes for the purpose of retaining the cyclometer on the same plane as the wheel, substantially as and for the purpose set forth.

320,146. REVOLVING LIGHT APPARATUS. LUDVIG F. LINDSTRÖM, Stockholm, Sweden. Filed Dec. 19, 1883. (No model.) Patented in Sweden May 15, 1873, No. 122; in England Oct. 6, 1882, No. 4,762; in Finland Nov. 22, 1882; in Norway Sept. 11, 1883; in Italy Mar. 3, 1884, No. 435, and in France Apr. 15, 1884, No. 160,016.



Claim.—1. A revolving light apparatus for producing changes of light provided with a central pivot, in combination with a cup and a stationary support to the upper part of which said cup is attached, one or more fixed propellers and deflectors, and a movable propeller and a lamp, substantially as and for the purposes set forth.

2. In a revolving light apparatus, the carrying-frame *t*, in combination with the movable pivot *h*, the suspending-rods *i*, which support said carrying-frame and connect it with the movable pivot, the rods *i'*, connected to said carrying-frame, the ring *u*, to hold the rods *i'* in place, and the occulting-screen *m*, supported by the rods *i'*, substantially as described.

3. A revolving light apparatus for producing changes of light provided with a central pivot, in combination with a cup and a stationary support, to the upper part of which said cup is attached, the deflectors, and a fixed propeller, substantially as described and set forth.

4. In a revolving light apparatus, the deflector *d*, provided at its top with a circular disk of non-conducting material, substantially as and for the purpose described.

5. In a revolving light apparatus, the pivot *h*, in combination with the cup *f*, provided with the loose bottom piece, *f'*, and surrounded by non-conducting material, substantially as and for the purpose described.

6. In a revolving light apparatus, the occulting-screen *m*, provided with the openings, in combination with the revolving pivot and the counterpoises *n*, whereby the vertical position of the revolving pivot is secured, substantially as described.

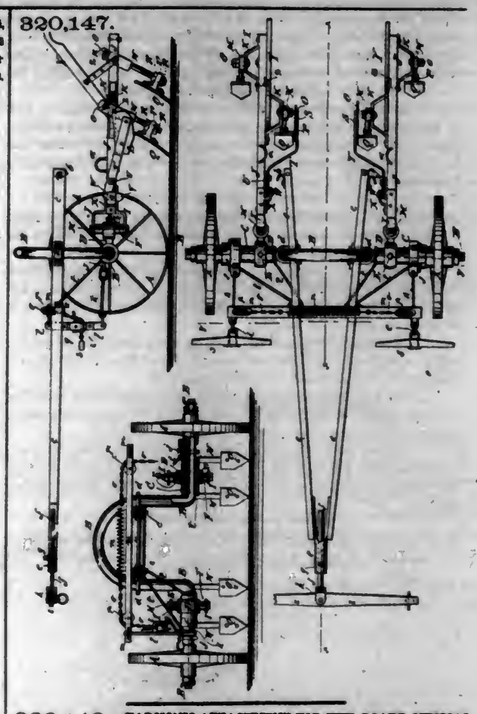
320,147. CULTIVATOR. SUMNER B. LITTLE, Chapin, Iowa. Filed Dec. 30, 1884. (No model.)

Claim.—1. In a cultivator, the combination, with the parts *c* of the tongue, of the tube *e*, the adjustable rod *f*, the set-screw *g*, and the swiveled neck-yoke clevis or strap *h*, substantially as herein shown and described, whereby the tongue can be readily lengthened and shortened, as set forth.

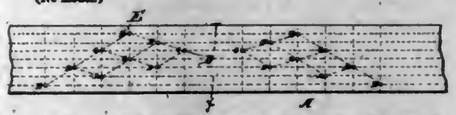
2. In a cultivator, the combination, with the plow-beam J and the fender-bars T, having hooks V, of the pivot-bolts U, the keepers X, and the set-screws W, substantially as herein shown and described, whereby the fenders can be readily adjusted and will be securely held, as set forth.

3. In a cultivator, the combination, with the draw rods or chains *k*, the hanging bars *l*, having pulleys *q*, the cross-bar *m*, having pulleys *p*, and the chains *o*, of the spring *n*, substantially as herein shown and described.

320,147.



320,148. HARMONIC ATTACHMENT FOR KEY-BOARD MUSICAL INSTRUMENTS. JOHN W. LOVE, Weelder, Tex. Filed July 8, 1884. (No model.)



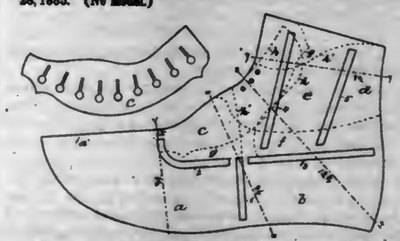
Claim.—1. An attachment for musical instruments, consisting of a case open at the bottom and having a series of bars pivotally supported at each end of the case, springs for maintaining the bars in their normal position, a series of striking-pins on each bar and one or more keys attached to each bar, passing through the top of the case, substantially as described.

2. The combination of the case A, strips or bars B, pivoted at the opposite end of the case and carrying striking-pins and finger-keys, the inner ends of the bars being arranged to break joints, as and for the purpose set forth.

3. An attachment for organs, and the like, having two groups of keys, one on each side of the central line, the groups being arranged in reverse order with relation to each other, substantially as described.

4. In an attachment for musical instruments, two sets of keys arranged in reverse order to each other, and having the tonic, dominant, and subdominant keys of each set on different lines, but on the same relative lines in the two sets, substantially as described.

320,149. BOOT AND SHOE PATTERN. JOHN G. LYNN, Cincinnati, Ohio, assignor of one-half to Richard Wooley, Jr., same place. Filed Mar. 28, 1885. (No model.)



Claim.—1. The herein-described master pattern for forming patterns for boot and shoe uppers, which consists of a single piece of the

size of the desired upper when seamed together, and having slots, arranged substantially as described, subdividing the said piece for forming the different parts of the upper, the said slots being the width of the lap desired for seaming, so that by marking upon the opposite side of the slot from the piece desired the exact pattern is obtained.

2. A master pattern, as hereinbefore described, for a high-cut boot or shoe, having the slots, arranged substantially as described, subdividing it for the several pieces, and combined therewith the perforated lines for making patterns for the various styles of boots or shoes which fit the same last.

320,150. ANÆSTHETIC MIXTURE. URIAH K. MAYO, Boston, Mass., assignor to the Boston Vegetable Anæsthetic Company, Portland, Me. Filed Nov. 28, 1884. (No specimens.)

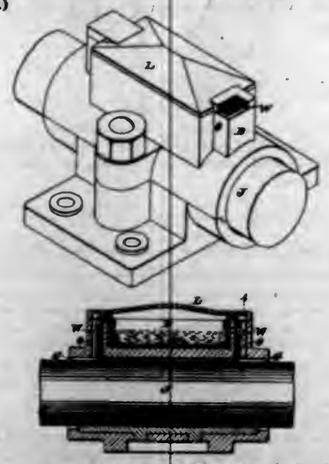
Claim.—1. An anæsthetic composition, substantially as described, for use in surgical operations, &c., consisting of nitrous-oxide gas and the vapor of an alcoholic tincture of hops, stramonium, and valerian, in or about the proportions specified.

2. An anæsthetic compound consisting of nitrous-oxide gas and the vapor of an alcoholic tincture of hops, stramonium, and valerian, and skull-cap, in or about in the proportions specified.

3. An anæsthetic compound, substantially as described, consisting of nitrous-oxide gas and the vapor of an alcoholic tincture of hops, lady's-slipper, and valerian, in or about the proportions specified.

4. An anæsthetic compound, substantially as described, consisting of nitrous-oxide gas and the vapor of an alcoholic tincture of hops, lady's-slipper, valerian, and skull-cap, in or about in the proportions specified.

320,151. JOURNAL-BOX. PHILIP MEDART, St. Louis, Mo., assignor of one-half to William Medart, same place. Filed Jan. 24, 1885. (No model.)



Claim.—1. In an oil-box, the wick W, passing along a groove, G, in the bottom of the upper half of the journal-box B', up through the openings *o o*, and over the edges of the oil-box B and into the same, operating to draw the oil out of the oil-box B and distribute it along the groove G.

2. The combination of the box B, located above the shaft J, and provided with the vertical passages *o* at its ends and the groove G in its under side, with the cover L, having the recesses *e* in its ends, and the endless wick W, which passes through both the box and the groove, substantially as set forth.

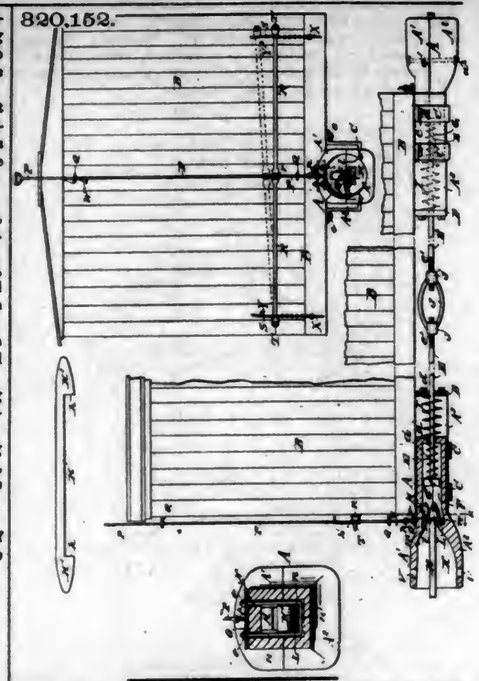
3. In an oil-box, the lid L, provided with depressions *e e* on its under side at or near the ends to allow a free passage of the wick between the lid and the edge of the oil-box.

320,152. CAR-COUPLING. ROSCOE A. MERROW, Farmington, Me. Filed Sept. 30, 1884. (No model.)

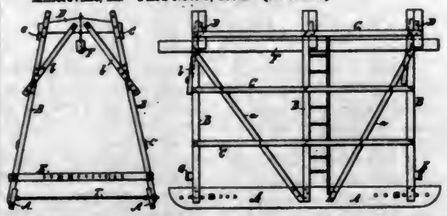
Claim.—1. In car-couplings, the draw-head A, made with a front opening, K, having a throat, *l*, a stud, L, and a rear chamber, F, in combination with the coupling-bar H, having tapering heads H' and shoulder *h*, and a spring, M, for locking the heads H' to the stud L, substantially as herein set forth.

2. In car-couplings, the combination, with the draw-head A, having a stud, L, the headed draw-bar H, pressed on the stud by a spring, and the uncoupling-frame N, of the rod P, extended to the top of the car, and the lever R, pivoted on the rod P and extending to and supported at the side parts of the end of the car, substantially as herein set forth.

320,152.



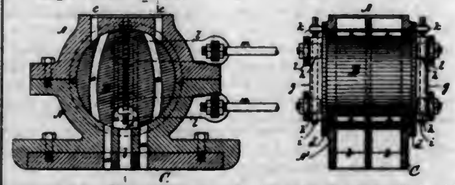
320,153. PORTABLE STACKING-FRAME. SYLVESTER J. MILLER, Millersville, Ill. Filed Nov. 3, 1884. (No model.)



Claim.—1. The combination of sills A, posts B, cross-ties D, and braces *b*, the latter being adjustably secured to allow the distance between the sills to be varied.

2. The combination, in a stacking-frame, of the posts B, cross-ties E G, sills A, and the diagonally arranged, adjustable, and removable tie-rods T.

320,154. STEAM-VALVE. WILLIAM MITCHELL, Altoona, Pa. Filed Aug. 26, 1884. (Model.)



Claim.—The combination, with the casing A A', provided with the steam-ports *a* and exhaust-port *b* in the bottom portion and with the inlet steam-ports *c* in the upper portion, of the cylindrical valve B, provided with the two passages *e* and the exhaust-cavity *f*, the said valve being of equal diameter throughout, and adapted to be rocked to cause its passages *e* to coincide alternately with the ports *a c* of the casing, substantially as herein shown and described.

320,155. MORTISE-LOCK. FRANK W. MIX, New Britain, Conn., assignor to the Corbin Cabinet Lock Company, same place. Filed Mar. 12, 1885. (No model.)

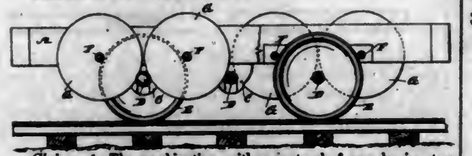
Claim.—The herein-described lock-case, consisting of the lock-plate, the slotted selvage, and the cap, the latter having lugs upon its upper

320,155.



edge which take into the slots in the selvage, substantially as described, and for the purpose specified.

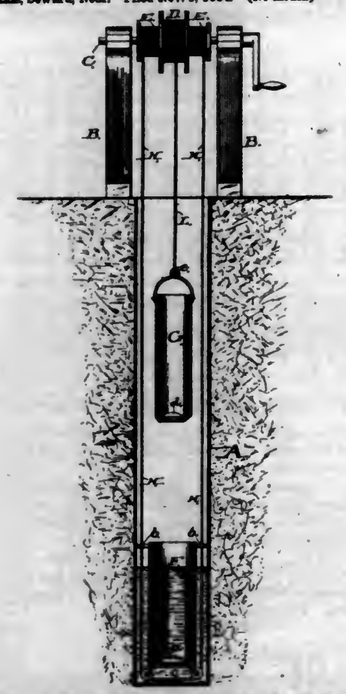
320,156. CAR-TRUCK. CHARLES L. MORSEHOUSE, Brooklyn, N. Y. Filed Oct. 10, 1884. (No model.)



Claim.—1. The combination, with a car-truck frame having two parallel bars at each side, of axles or shafts held in boxes on the said bars, flanged wheels mounted on the axles and located between the bars, and of two additional shafts journaled in the side bars, one at each side of each axle, carrying the flanged wheels above them, and of a wheel on said additional shaft, the said additional wheels being in contact with the opposite sides of the axles carrying the flanged wheels, substantially as herein shown and described.

2. In a car-truck, the combination, with the two pairs of parallel side bars, A, of three axles, D, held in each pair of bars A, flanged wheels E, shafts F, and the friction-wheels G, mounted on the same at the sides of the outer surface of the bars A, substantially as herein shown and described.

320,157. WATER-ELEVATOR. JOHN H. MORRE and THOMAS D. MORRE, Seward, Nebr. Filed Nov. 1, 1884. (No model.)



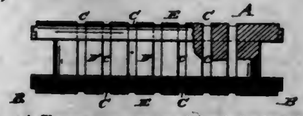
Claim.—1. In a water-elevator, the bucket F, with its valve *c*, rollers *c*, and guides *b*, in combination with a bucket, G, of smaller diameter, and a drum and ropes connected to the buckets, whereby the said buckets approach each other, the upper one displacing and receiving the contents of the lower one, substantially as herein described.

2. In a water-elevator, the bucket F, with a valve in its bottom, and suitable pulleys or rollers, *c*, in combination with the bucket G, the cord or chain H, drums upon each side of a central drum, and a crank or handle for raising and lowering said bucket, substantially as described.

3. In a water-elevator, the bucket G, with its valve *d* and bail *e*, in combination with the bucket F, whose diameter is greater than that of the bucket G, a rope or chain, L, a central drum, and a mechanism for winding the ropes L and H, to cause the buckets F and G to approach each other, substantially as herein described.

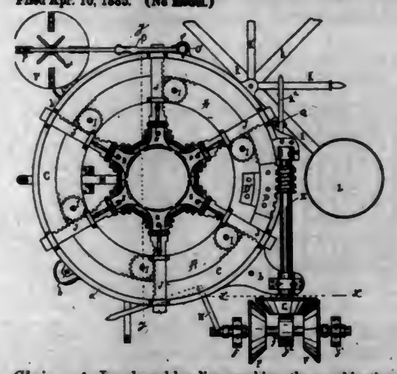
4. A water-elevator, comprising the following elements: a lower bucket with a valve to receive water from the source of supply, an upper bucket of smaller diameter with a valve in its bottom, suitable guides and rollers on the lower bucket, cords or chains attached to both buckets and wound around drums in opposite directions, so that the buckets approach each other, the upper one receiving water from the lower one by the continued descent of the former, and a shaft for imparting motion to both buckets, substantially as described.

320,158. CORE FOR THE ARMATURES OF DYNAMO-ELECTRIC MACHINES. HANS J. MÜLLER, New York, N. Y., assignor to the Zucker & Levett Chemical Company, same place. Filed Jan. 20, 1885. (No model.)



Claim.—A Siemens armature-core formed of a single block of metal, provided with a series of transverse ventilating-apertures extending from side to side and dividing the central portion into transverse gridiron-bars, the said transverse apertures between the bars having the same cross-section from the outer surface of one side of the armature-core to the outer surface of the opposite side, substantially as herein shown and described.

320,159. MACHINE FOR HEADING BARRELS. JOHN MULVANEY, Cincinnati, Ohio, assignor of one-half to Andrew P. Dunler, same place. Filed Apr. 10, 1885. (No model.)



Claim.—1. In a barrel-heading machine, the combination of the supporting-frame, the radial arms J, mounted thereon, and having at their inner ends the hinged fingers N, with suitable driving mechanism to actuate the said arms J radially, for the purpose of spreading the staves to receive the heads, substantially as specified.

2. The combination, in a barrel-heading machine, of the supporting-frame, the radial arms J, mounted thereon, and having at their adjacent ends curved buffers E r, with mechanism, such as described, to actuate said arms radially, for the purpose of compressing the staves upon the inserted head for the easy insertion of the end hoop, substantially as specified.

3. In a barrel-heading machine, the combination, substantially as specified, of the supporting-frame, the radial arms J, mounted thereon, said radial arms being provided at their adjacent ends with the hinged stave-spreading fingers, and the curved stave-compressing buffers R, with suitable driving mechanism, such as shown, to draw the arms outwardly, spreading the staves for the reception of the head, and to force them inwardly to compress the staves upon the inserted head.

4. In a machine for heading barrels, the combination, substantially as specified, of the rack-arm J, fingers N, hinged to the inner end of said arms, the sliding buffer R, rod r', lever r^2, and connecting-rod s', with cogs I and driving mechanism to withdraw the said arms, for the purpose of spreading the staves for the insertion of the head, and when the head is inserted compressing the staves upon it, automatically throwing up the fingers at the same time, to facilitate the placing of the end hoop.

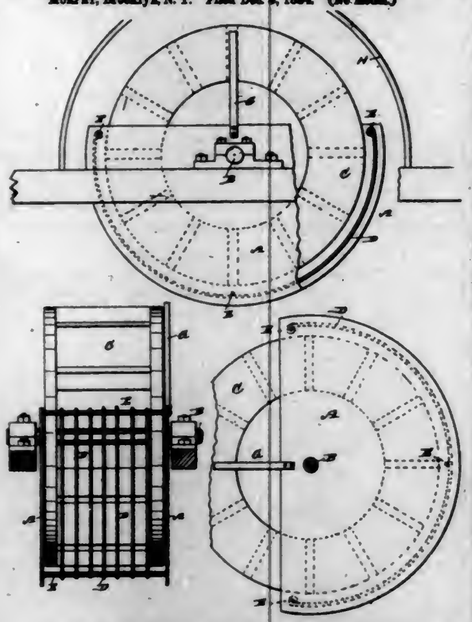
5. The combination, substantially as specified, of the bed A *a*, supported upon legs B, the ring C, having a reciprocating movement upon said bed, actuated by the rack-segment D, and worm-gear on shaft E, and the cog-wheels I, meshing into cogged segments formed upon the

inner edge of said ring C, with the reciprocating rack-arms J, mounted upon said bed, and having a reciprocating radial movement imparted by said cogs I, the said arms being also provided with the hinged fingers N, and the stave-compressing and finger-elevating devices R, r, r^2, and n'.

6. In combination with a barrel-heading machine having devices to spread the staves, as shown, the head-carrying crane O, having the hinged lever o, depending arm o', and pivoted cross-head o^2, for conveying the head within the spreading staves and retaining it in position until clamped in place, substantially as specified.

7. In a barrel-heading machine such as described, the combination of the revolving barrel-carrier K k k', having perforated bosses to receive the shank l of disk L, with treadle M, to elevate the barrel to bring it under the action of the heading devices, substantially as specified.

320,160. GUARD FOR STEAMBOAT PADDLE-WHEELS. JOHN MURPHY, Brooklyn, N. Y. Filed Dec. 3, 1884. (No model.)



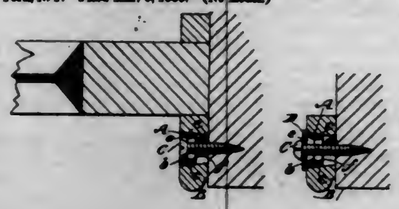
Claim.—1. The combination, with a steamboat paddle-wheel, of a guard hung loosely on the shaft of the wheel and surrounding the wheel below its shaft, whereby the wheel will be protected from floating objects in the forward or backward movement of the boat, substantially as set forth.

2. The combination, with a steamboat paddle-wheel, of a guard hung loosely on the shaft of said paddle-wheel and surrounding said wheel below the shaft, and a lever for adjusting said guard, substantially as set forth.

3. The combination, with a steamboat paddle-wheel, of semicircular side pieces mounted loosely on the shaft thereof at opposite sides of the wheel, and wires between said side pieces to form a guard or cage for receiving or protecting the lower half of the wheel, substantially as set forth.

4. The combination, with the semicircular side pieces, A, mounted to turn on the shaft B, of rods secured between the said side pieces, and of the bar G, secured to one of the side pieces, substantially as herein shown and described.

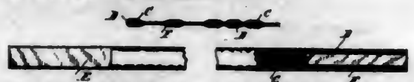
320,161. WINDOW-HEAD FASTENER. CHARLES R. NELSON, New York, N. Y. Filed Mar. 6, 1885. (No model.)



Claim.—1. In devices for adjusting and securing window stop-beads, the box or thimble A, having its exterior sides, c, made tapering, as described, and having its interior b of oblong form, with a countersunk outer marginal surface, e, for use in connection with the screw C, and with the stop-bead D and jamb of the window, substantially as specified.

2. The combination of the roughened washer D with the externally-tapering box or thimble A, having its interior passage, b, of oblong form, substantially as and for the purposes herein described.

320,162. CORSET-STAY. WILLIAM A. NEFFLETON, Bridgeport, Conn. Filed Oct. 9, 1884. (No model.)

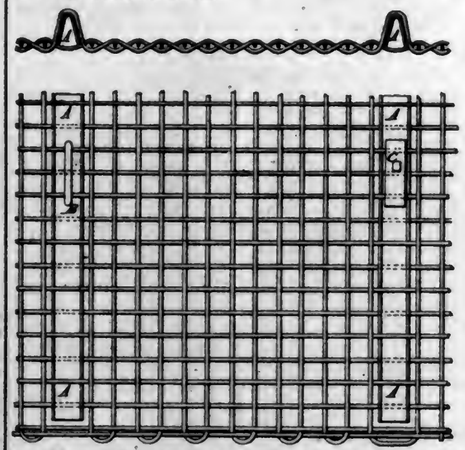


Claim.—1. The combination, with a corset having pockets for stays and binding at top and bottom, of stays shorter than the pockets, one or more layers of covering material, forming a sheathing which extends beyond the stays to the top and bottom of the corset, and seams at top and bottom, which pass through the corset, the binding, and the sheathing.

2. The combination, with the pockets, of strips of steel covered with one or more layers of material, D, pasted together and extending beyond the steels at the ends, forming portions E, and seams H at the top and bottom of the corset, which secure the binding in place and pass through portions E of the covering material, whereby the stays are secured in place without flossing or additional stitching.

320,163. WIRE-CLOTH LATHING. WILLIAM ORR, Trenton, N. J. Filed Jan. 2, 1885. (No model.)

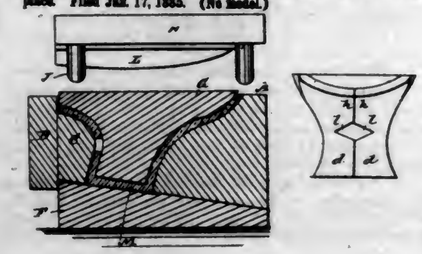
Brief.—Wire-cloth lathing is strengthened by inserting stiffening strips or rods at intervals between the weft and warp wires thereof, and said stiffening-strips may be inserted so as to form a smooth surface on one side and projections on the other.



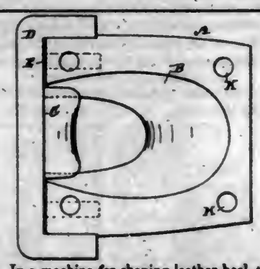
Claim.—1. Wire-cloth lathing combined with stiffening strips or rods inserted at intervals between the weft and warp wires thereof, substantially as described.

2. The combination, with wire-cloth lathing, of stiffening strips or rods inserted at intervals between the weft and warp wires thereof, and forming a smooth surface on one side and projections on the other side of the wire-cloth lathing, substantially as described.

320,164. MACHINE FOR MAKING HEELS FOR LADIES' SHOES. FREDERICK ORTLEPP, New York, N. Y., assignor to Joseph S. Kalisko, same place. Filed Jan. 17, 1885. (No model.)



320,164.

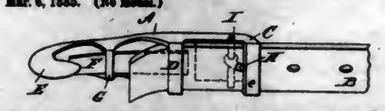


Claim.—1. In a machine for shaping leather-heel shells, the combination, with the die A, having a recess or cavity, B, shaped the same as the heel, of the die G, having its exterior surface shaped the same as the exterior of the heel, and the removable cross-piece D, provided with the piece C, fitting in the front end of the cavity or recess B in the die A, and having its inner surface shaped the same at the front of the heel, substantially as herein shown and described.

2. In a machine for shaping leather-heel shells, the combination, with the die A, having the recess or cavity B, shaped the same as the heel and extending from top to bottom, of the bottom plate, F', having a beveled upper surface, and the cross-piece D, provided with a piece, C, fitting in the front end of the recess or cavity, and having its inner surface shaped the same as the front of the heel, substantially as herein shown and described.

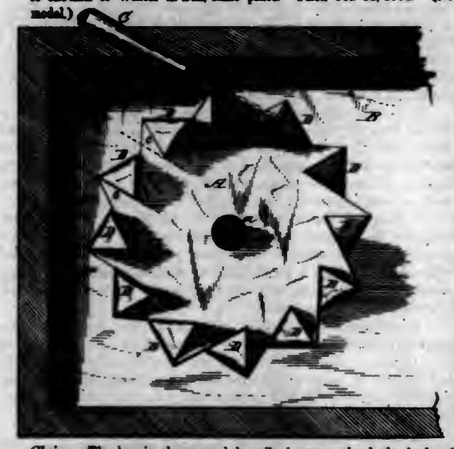
3. In a machine for making heels, the combination, with the die A, provided with a recess or cavity shaped the same as the heel, of the cross-piece D, having a piece, C, fitting in the front end of the recess or cavity and having its inner surface shaped the same as the front of the heel, the bottom plate, F, and the top plate, H, provided on its under side with the projection L, shaped the same as the top of the heel, substantially as herein shown and described.

320,165. SNAP-HOOK. DEXTER W. PALMER, Plymouth, Ma. Filed Mar. 6, 1885. (No model.)



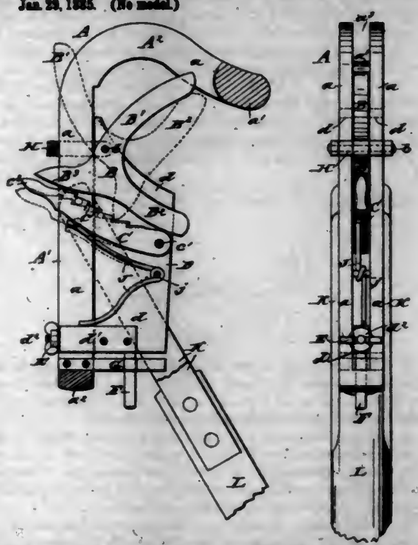
Claim.—The combined snap-hook and buckle comprising the frame A, the hook E, cross-bar c, keeper D, and cross piece or bar G, combined with the spring F and tongued bar I H, the sides of said frame being extended to form the beak of the hook, and the bottom plate of said frame forming the bottom of said hook, substantially as shown and described, and for the purpose set forth.

320,166. MOTOR. JOSEPH P. PARKHURST, Glens Falls, N. Y., assignor of one-half to Walter L. Dix, same place. Filed Oct. 31, 1884. (No model.)



Claim.—The herein shown and described water-wheel, the body of which has integrally formed therewith and on one side thereof rectangular-shaped buckets, the three projecting sides of which converge in straight lines to a focus, the fourth side being within the plane of the body, the buckets being relatively arranged to each other that a line drawn parallel and touching the outermost element of each bucket at every point will pass through the focus of the preceding bucket, substantially as and for the purpose specified.

320,167. ANIMAL-CATCHER. WILLIAM RAHN, Kenosa, Nebr. Filed Jan. 29, 1885. (No model.)



Claim.—1. An animal-catcher comprising a hook-head, A, fixed to a suitable handle, a pivoted catch-lever, B, made with arms B' B^2 and projection B^3, and a spring-pressed toothed pawl, C, substantially as herein set forth.

2. An animal-catcher comprising a hook-head, A, fixed to a suitable handle, a catch-lever, B, made with arms B' B^2 and projection B^3, and a spring-pressed toothed pawl, C, said parts B C being pivoted to a block, D, adapted to slide along the shank of the head A, substantially as herein set forth.

3. An animal-catcher comprising a hook-head, A, fixed to a suitable handle, a catch-lever, B, made with arms B' B^2 and projection B^3, and a spring-pressed toothed pawl, C, said parts B C being pivoted to a block, D, adapted to slide along the shank of the head A, in combination with the clevis or yoke H and bolt and nut d^3 E, substantially as herein set forth.

4. An animal-catcher comprising a hook-head, A, fixed to a suitable handle and formed of spaced and connected plates a a, a block, D, formed of plates d d, connected by a lug, d^2, entering between the plates a a, and having a bolt end, d^3, the nut E, and yoke H, the catch-lever B, made with arms B' B^2 and projection B^3, and the toothed spring-pressed pawl C, said parts B C being pivoted to the block D, substantially as herein set forth.

5. The combination, in an animal-catcher, of the head A, fixed to a suitable handle and formed of spaced and connected plates a a, a block, D, formed of spaced plates d d, connected by a lug, d^2, entering between the head-plates a a, and having a bolt end, d^3, the binding-screw E, yoke H, the pin F, entering a projection, G, the catch-lever B, made with arms B' B^2 and projection B^3, and the toothed spring-pressed pawl C, said parts B C being pivoted to and between the side plates, d d, of the block D, substantially as herein set forth.

320,168. CASH-CARRYING APPARATUS. DAVID H. REED, Lowell, Mass. Filed Apr. 30, 1885. (No model.)

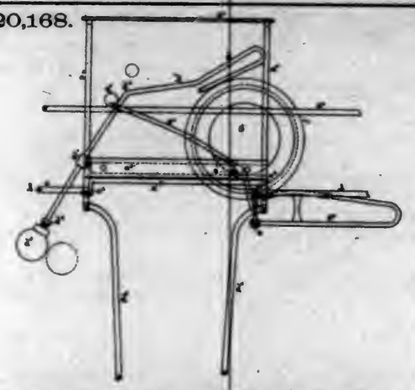
Claim.—1. In combination with the way and a trap or space in it for the descent of the carrier, the movable deflector, mounted upon bearings, and a locking device adapted to lock said deflector in the path of the carrier, substantially as described.

2. The combination of the way, a trap or space in it for the descent of the carrier, the movable deflector, and the locking device adapted to lock said deflector in the path of the carrier, and having one portion of said device projected into the path of the carrier in position to enable the carrier to move and actuate the same, substantially as described.

3. The combination of the way, the pivoted deflector D, automatically moving out of the path of the carrier, and the pivoted weight d^3, adapted when released to descend against the inclined surface of the deflector and move and lock the same into the path of the carrier, substantially as described.

4. The combination of the way, the trap or space therein for the descent of the carrier, the pivoted deflector D and its pivoted locking-arm d^4, provided with the spline d^5, projecting into the path of the carrier, substantially as described.

320,168.



5. The combination of the way having the space therein for the descent of the carrier, the pivoted deflector D, the pivoted arm c^3, carrying the bar e and spline c^4 on the opposite side of its pivot, and the pivoted trap-sections a' a', substantially as described.

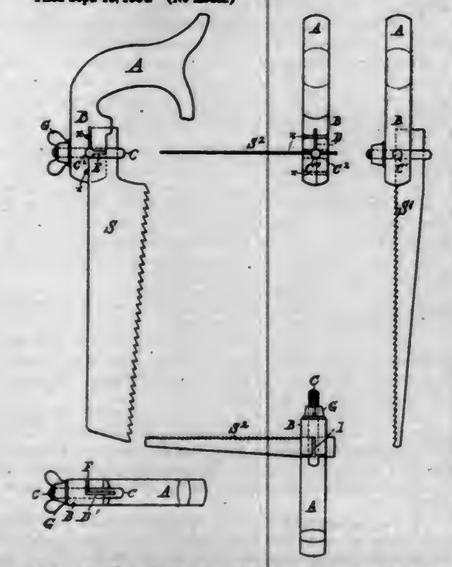
6. The combination of the way having the space therein for the descent of the carrier, the pivoted trap-sections a' a', and the pivoted arm c^3, carrying upon one end of it the part c^3 into and out of the path of the carrier, and upon the other end the bar e and spline c^4, projecting into the path of the carrier, substantially as described.

7. In combination with the way, the trap adapted to be closed to pass the carrier over the same, and the deflector D, formed with a deflecting portion swinging above the path of the carrier and supported upon the pivoted bifurcated arm d, passing down upon each side of that path, and counter-weighted, substantially as described.

8. The combination of the way formed of rails a a, the trap-sections a' a', swinging upon pivots parallel to said way, and the side guides a^3 a^3, extending above and parallel to said track-sections on their inside guiding-faces, substantially as described.

9. The combination of the way having the trap or space in the same and the deflector D, secured in the path of the carriers and formed of spring metal or material, in its projecting and deflecting portion impinged upon by the carrier, substantially as described.

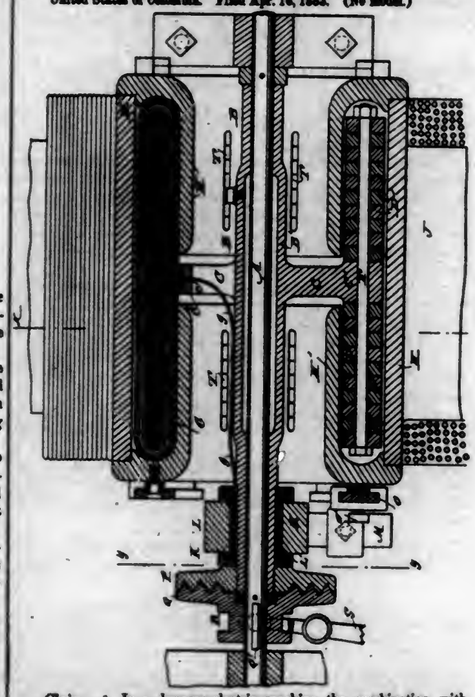
320,169. SAW-HANDLE. CHRISTOPHER RICHARDSON, Newark, N. J. Filed Sept. 15, 1884. (No model.)



Claim.—1. The combination, with the handle-head having grooves D, E, and F, arranged as described, of the hole C′, formed at the intersection of the grooves D and E, the hole C^2, formed across the groove F, and the removable bolt C, adapted to fit either of the holes C′ or C^2, and to clamp a saw-blade in either of the three slots, all substantially as herein shown and described.

2. The combination, with the wooden handle-head and the groove for the saw-blade, of the pins x x, inserted in the wood transversely at the bottom of the groove, as and for the purpose set forth.

320,170. DYNAMO-ELECTRIC MACHINE. JOSÉ M. RIVERA, Bogá, United States of Colombia. Filed Apr. 16, 1883. (No model.)



Claim.—1. In a dynamo-electric machine, the combination, with an armature, of the spider-wheel to which the center of the armature is fastened, a tubular shaft on which the spider-wheel is rigidly mounted, a driving-shaft passing loosely through the tubular shaft, and a clutch for locking the tubular shaft on the driving-shaft, substantially as herein shown and described, and for the purpose set forth.

2. In a dynamo-electric machine, the combination, with an armature, of a spider-wheel to which the middle of the armature is attached, a tubular shaft on which the spider-wheel is rigidly mounted, which tubular shaft is provided with an enlargement forming an oil-chamber, a driving-shaft passing loosely through the tubular shaft, and devices for locking the tubular shaft on the driving-shaft, substantially as herein shown and described, and for the purpose set forth.

3. In a dynamo-electric machine, the combination, with the armature, of the spider-wheel C, attached to the middle of the armature, the tubular shaft B, the driving-shaft A, the clutch-disk P, mounted on the shaft B, the sliding clutch-disk Q, mounted to turn with and slide on the shaft A, and of devices pressing the disk Q against the disk P, substantially as herein shown and described, and for the purpose set forth.

4. In a dynamo-electric machine, the combination, with the armature, of a field-magnet, J, provided with wings H′, forming a tubular space in which the armature can revolve, which wings H′ are provided with slots or openings T, for admitting air to the armature for preventing overheating of the same, substantially as herein shown and described, and for the purpose set forth.

5. An armature for a dynamo-electric machine, constructed of a series of quadrant-pieces, D, having overlapping wedge-shaped pieces D′ at the ends, the rivets E, uniting the several quadrant-sections D, and the bolts F, passed through the apertures d in the said overlapping wedges D′, substantially as herein shown and described, and for the purpose set forth.

320,171. POCKET. LILLY F. ROBERTS, Kentucky Town, Tex. Filed May 20, 1884. (No model.)



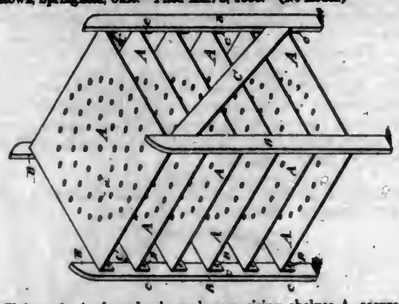
Claim.—The herein-described watch-pocket, consisting of the back A, front B, the lining C, and the fastening-pin D, pivoted to the back, the said back and front being of stiff material, substantially as specified.

320,172. WRENCH. SIMEON ROBINSON, Southington, Conn. Filed July 22, 1884. (No model.)



Claim.—In a wrench of the class described, the ferrule E, the step G, having the pin-receiving recess or bearing, and the recessed shoulder H, all made integral and adapted to be slipped upon the wrench-bar, as described, in combination with the headed screw D E, having the axial hole in its head end, the journal-pin b, loosely fitted within the step G and also within the screw-head, and the spring for holding said journal-pin in place, all substantially as described, and for the purposes specified.

320,173. PIE AND CAKE RACK. LYDIA A. ROWE and DAVID S. ROWE, Springfield, Ohio. Filed Mar. 3, 1885. (No model.)

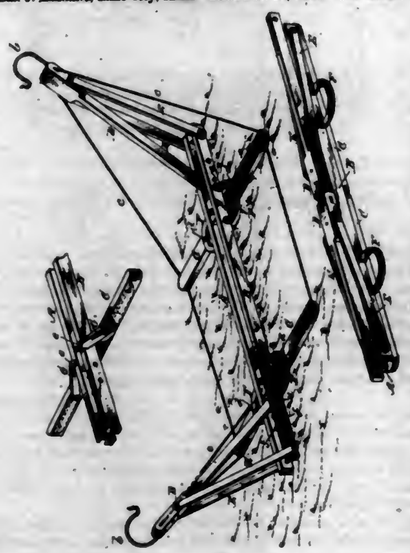


Claim.—1. A pie and cake rack comprising shelves A, secured to a frame consisting of upright corner posts or slats B, connected and braced at three sides of the rack by diagonal braces C, substantially as herein set forth.

2. A pie and cake rack comprising a supporting-frame of uprights B and brace-slats C, and a series of shelves, A, having the bent-under stiffening flange portions a' a^3 a^3 a^4 and the lugs c, perforated at d, and fastened to the frame-slats B by screws or nails D, substantially as herein set forth.

3. A rack-shelf made of metal plates, and provided with the bent-under stiffening flange portions a' a^3 a^3 a^4 and the perforated fastening-lugs c c c c, substantially as herein set forth.

320,174. HAMMOCK HOLDER OR STAND. CHARLES L. RUDD and EDEN J. MANNING, Lake City, Minn. Filed Feb. 18, 1885. (No model.)



Claim.—1. In a portable hammock-stand, two parallel bars connected together and two transverse supports pivoted to the under side thereof, and means for holding the supports extended, in combination with standards pivoted to and between the parallel bars, and capable of adjustment to increase or diminish their height, braces pivoted to the bars and standards, and guy-ropes connecting the latter and to the supports, substantially as and for the purpose set forth.

2. In a portable hammock-stand, two parallel bars provided with adjustable and pivoted standards and pivoted braces, in combination with pivoted transverse supports and pivoted notched stays adapted to engage with the bars to hold the supports extended, substantially as and for the purpose specified.

320,175. SASH-FASTENER. JOB R. RUBEY, Bloomfield, N. J. Filed Apr. 15, 1885. (No model.)



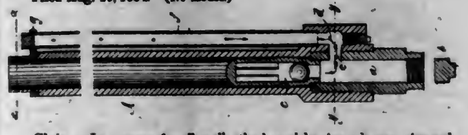
Claim.—1. The combination, with the supporting-plate provided at one end with a stop-notch and the catch-plate provided with a stop-notch, of the latch pivotally supported on the supporting-plate and provided with a depending lug adjustable into engagement with the notch of either the supporting or catch plate, and a spring whereby said latch is given a longitudinal tension, substantially as set forth.

2. A window-fastening consisting of the catch-plate having a stop-notch, the pivoted cylinder, the spring located in said cylinder, the plunger, and the latch connected with the plunger and provided with a depending lug adapted to engage the catch-plate and drop into the notch thereof, substantially as set forth.

3. The combination of the supporting-plate having a circular recess in its upper side and perforated centrally thereof, the cylinder having a projection journaled in the recess of the supporting-plate and having a horizontal shoulder resting on such plate, and a stud projected into and held within the perforation thereof, the latch, the actuating-spring, and the catch-plate, substantially as set forth.

4. As a new and improved article of manufacture, the catch-plate herein described, consisting of the base-plate, the curved upright plate mounted thereon, the top plate having a curved edge and provided with a stop-notch, and the brace-plate mounted on the base-plate, and having its upper edge flush with that of the top plate and in line with the stop-notch therein, substantially as set forth.

320,176. PUMP FOR OIL-WELLS. JAMES M. SANNER, Bradford, Pa. Filed Aug. 29, 1884. (No model.)



Claim.—In a pump for oil-wells, the barrel having a lower, plugged, or closed end, provided with a lateral opening below its valve-chamber connecting with an external supplementary chamber, also having a lower closed end, in combination with a tube with its lower end connected to said supplementary chamber and having an upper perforated portion and upper closed or plugged end, substantially as and for the purpose specified.

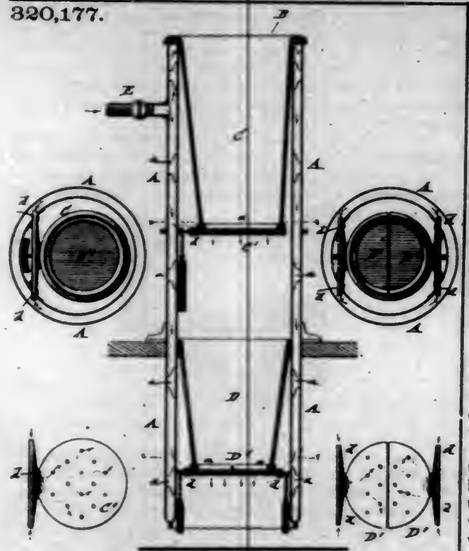
320,177. CLOSET FOR RAILWAY-CARS. JOSEPH SCHAEFER, Jersey City, N. J. Filed June 9, 1884. (No model.)

Claim.—1. A closet for railway-cars, consisting of a double-walled body, a hopper, a double-walled and counterbalanced valve at the bottom of the hopper, said valve having openings in the bottom, and a tubular pivot communicating with the space between the walls of the body, so that a current of warm air is conducted through the valve, substantially as set forth.

2. In a closet for railway-cars, the combination of the double-walled body, an upper hopper having a pivoted and counterbalanced valve at its lower end, and a lower hopper having a pivoted and counterbalanced valve, both valves being hollow and connected by tubular pivots with the space between the walls of the body, substantially as set forth.

3. The combination of a double-walled body, a valved hot-air pipe connecting the body with the car-heater, an upper hopper having a pivoted and counterbalanced valve, and a lower hopper having a pivoted and counterbalanced valve, said valves being made hollow and provided with tubular pivots and openings in their bottom walls, substantially as set forth.

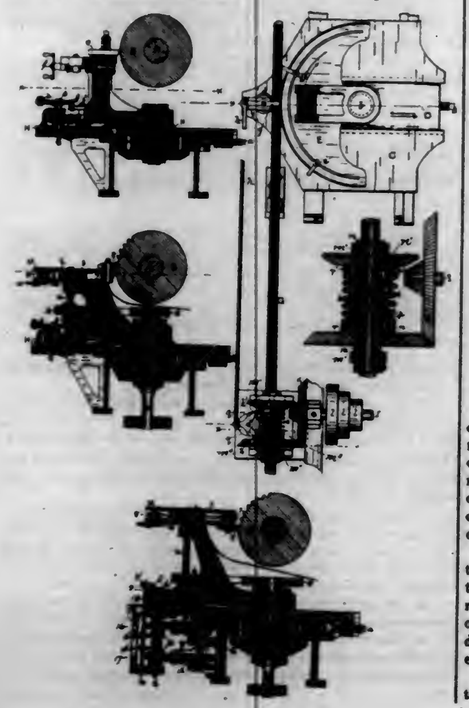
320,177.



320,178. STONE-BOAT. S. REID SCHERERHORN, Paris, Mich. Filed June 24, 1884. (No model.)

Claim.—A sled formed of the bottom A, having the bevel *a* on its front, the rear end piece, E, and the sides D, having the bevels *d*, and a sheet-metal front, B, secured upon the beveled portions *d* and *a* of the frame overlapping the bottom, as shown at *b*, substantially as and for the purposes set forth.

320,179. GEAR-CUTTER. HERMANN SCHULZE-BERGE, Rochester, Pa. Filed July 14, 1884. (No model.)



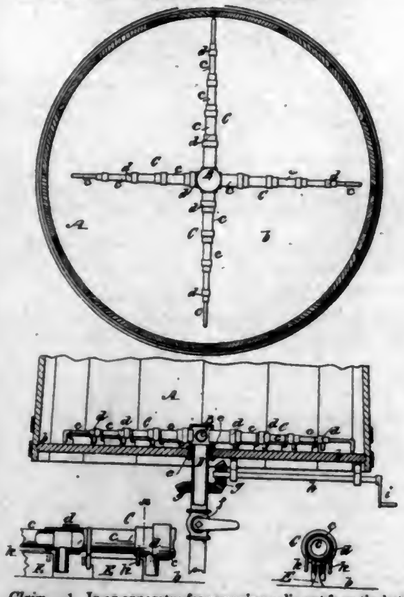
Claim.—1. In gear-cutting machinery, the combination of a revolable lathe-spindle for holding and revolving the block or piece of metal to be formed into a gear-wheel, a tool-holder capable of revolving partially around the piece of metal on a center located in the plane of the equatorial axis of the intended spheroid and capable of adjustment in the said plane, and devices for communicating an intermittent partial revolution of the tool-holder, substantially as described, for the purpose of communicating a spheroidal shape to the block preparatory to cutting the gear-teeth thereon.

2. As a device for cutting gear-teeth on spherical or spheroidal gear-wheels, the combination of a lathe for holding the spherical or spheroidal piece of metal with a tool-holder capable of revolution on a center located in the plane of the equatorial axis of the spheroid, such center of motion being adjustable at right angles to the plane of the polar diameter of the gear-wheel, and devices for communicating an intermittent rotary motion to the tool-holder around said adjustable center and an independent rotary motion to the gear-cutting tool or planer, substantially as described.

3. In gear-cutting machinery, a tool-holder capable of revolving partially or intermittently around a spheroidal piece of metal in the plane of the polar axis of the spheroid, while the spheroid itself is immovably fixed, such tool-holder being furnished with a tool or planer having its cutting-edge substantially parallel to the plane of the equatorial axis of the spheroid.

4. The combination of the screw-shaft G, mounted in bearings attached radially to the lathe, with a worm-gear, *y*, gear-wheel 11, swinging idler 14, journaled in swinging bearings radiating from the axle of the gear-wheel 11, and also radiating from axis of gear-wheel 16, gear-wheel 16, axle *z*, gear-wheel 18, and oscillating tool-carrier F, provided with a segmental gear in which said gear-wheel 18 meshes, substantially as and for the purposes described.

320,180. CISTERN AND TANK CLEANER. RAYMOND B. SCUDDER, New Orleans, La. Filed Oct. 3, 1884. (No model.)



Claim.—1. In an apparatus for removing sediment from the bottoms of cisterns, tanks, &c., the combination, with the cistern or tank, of a many-armed cleaner arranged for rotation in a fixed or positive manner over the bottom of the cistern or tank and provided with a series of under nozzles or inlets in the arms of the cleaner, and a hollow hub or central outlet with tubular extension through the bottom of the cistern for escape of the sediment as induced by the superincumbent pressure of the water or liquid in the cistern or tank, substantially as specified.

2. In an apparatus for cleaning cisterns, tanks, &c., the combination, in a rotary cleaner for operation over the bottom of the cistern or tank, of a discharging hollow hub or head with tubular extension arranged to pass out through the bottom of the cistern or tank, and a series of tubular arms connected with said hub of increasing area in an inward direction and provided with nozzles or openings on their under sides, essentially as described.

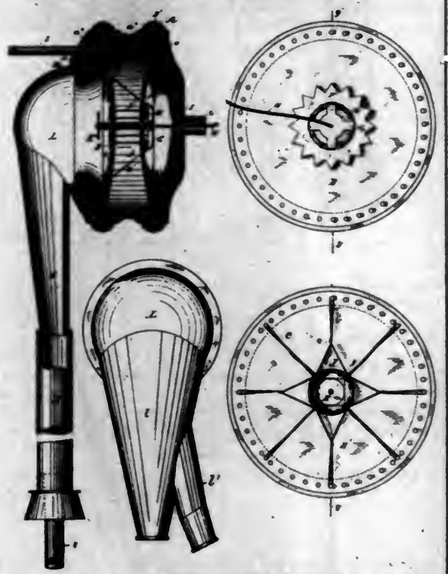
3. In an apparatus for cleaning cisterns, tanks, &c., the combination, in a rotary cleaner for operation over the bottom of the cistern or tank, of a discharging hollow hub or head with tubular extension arranged to pass out through the bottom of the cistern or tank, and a series of tubular arms connected with said hub and provided with nozzles or openings on their under sides arranged at different distances from the hub in each arm as compared with the nozzles or openings in the other arms, essentially as and for the purpose herein set forth.

4. In a rotary cleaner for cisterns, tanks, &c., the combination, with a series of receiving-arms, C, for the sediment, nozzle or inlets on the under sides of said arms, and a hollow hub or head, B, with tubular lower extension, D, of the pivoted scrapers E, for operation in relation with said nozzles, substantially as specified.

5. In a rotary cleaner for cisterns, tanks, &c., the arms C of the cleaner constructed of a series of pipe-sections, *c c*, of diminishing area in an outward direction successively, and reducing-couplings *d*, having nozzles on their under sides, essentially as described.

6. In a rotary cleaner for cisterns, tanks, &c., the combination of the hollow hub or head B with its lower tubular discharge-extension, D, the arms C of varying lengths and of increasing area in an inward direction, the nozzle-couplings *d*, and the pivoted scrapers E, for operation in relation with the bottom of a cistern or tank, substantially as and for the purposes specified.

320,181. MECHANICAL TELEPHONE. HENRY SELIGMAN and EMMA SELIGMAN, Irvington-on-Hudson, N. Y.; said Henry Seligman assignor to said Emma Seligman. Filed Mar. 19, 1884. (No model.)



Claim.—1. In a telephone, the combination, with a main diaphragm and a chamber, of a supplementary diaphragm and a central stem for suspending said supplementary diaphragm within said chamber and connecting it with said main diaphragm, substantially as and for the purpose set forth.

2. In a mechanical telephone, the combination, with a line-wire and a main diaphragm, of a supplementary diaphragm connected to said main diaphragm by a central stem, substantially in the manner and for the purpose set forth.

3. In a mechanical telephone, the combination of an inner and an outer diaphragm, the former being provided with a re-enforce of cork, a metallic ring, and a cap, and the latter with a metallic ring and radiating vibratory cords, the said rings and cords having filamentary connections between them and connection with the line-wire, as described.

4. In a mechanical telephone, the combination of the line-wire, a main diaphragm having a central aperture, a metallic cap attached thereto, a tube or bar secured to said cap and extending through said opening, and an auxiliary diaphragm secured to the end of said tube or bar, as and for the purpose set forth.

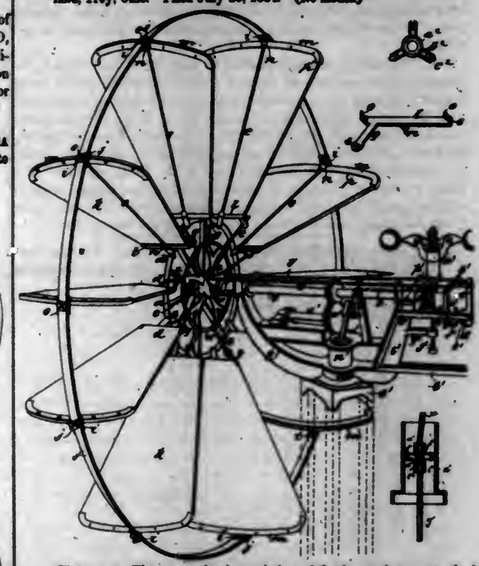
5. In a mechanical telephone, the combination, with a line-wire and a main diaphragm, of an auxiliary diaphragm, the said auxiliary diaphragm having means of connection with the line-wire, consisting of a tube or bar extending through the main diaphragms, but adapted to vibrate independently of them, substantially as set forth.

6. In a mechanical telephone, the combination, with a pair of diaphragms, a ring on the outer face of each, and filamentary connections between said rings, of a re-enforce, substantially as described, interposed between the ring and the face of one of the diaphragms and the line-wire, all arranged and adapted to operate in the manner and for the purpose set forth.

7. In combination with the box or casing of a mechanical telephone provided with an annular flange, with the trumpet also provided with a flange whereby the said tube and the trumpet may be turned and adjusted, as and for the purposes described.

8. In a mechanical telephone, the combination, with a line-wire, a diaphragm, and a ring placed against said diaphragm, substantially in the manner and for the purpose described, of a re-enforce interposed between said diaphragm and ring for preventing the abrasion of the former by the latter, as explained.

320,182. WIND-ENGINE. DAVID SHILLING and WILLIAM W. SHILLING, Troy, Ohio. Filed July 29, 1884. (No model.)



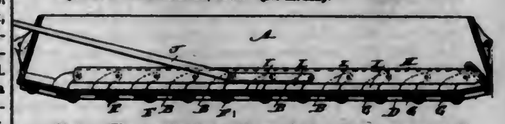
Claim.—1. The vane-wheel consisting of the inner rim, *a*, attached to the hub of the wheel-shaft and having the radial arm-sockets *d*, arms *e*, having taper ends fitted in said sockets and secured by nuts *g*, and the outer rim, *f*, fitted on said arms by the grooved sockets *h i* and secured by nuts *j*, substantially as described.

2. The combination of the toothed wheel *f'*, having arm *i'*, and wheel *e'*, having arm *c'*, with the toothed regulating-rod *g'* of the governor *d'*, and the shifting-rods *y*, connected with the vane-shifting spider *u*, substantially as described.

3. The cross-head a^3, having roller-tipped radial arms b^3, in combination with the connecting-rod *x'*, working-rod *y'*, and the hollow turntable pivot n^3 of the tower-cap, substantially as described.

4. The combination, with the vanes *k*, the spider *u*, having arms *t*, engaging the lower bands, *l*, of the vanes, and the shaft *v*, of the rods *y*, the toothed segment *c'*, having arm *c'*, connected to said rods, the toothed wheel *f'*, having arm *i'*, the cord *z*, attached to said arm *i'*, and the rack-rod *g'*, having a bevel-wheel on its upper end engaging a bevel-wheel on the shaft *v*, substantially as herein shown and described.

320,183. LOCOMOTIVE ASH-PAN. WILLIAM W. SLOCUM, Jr., Reed City, Mich. Filed Mar. 21, 1885. (No model.)

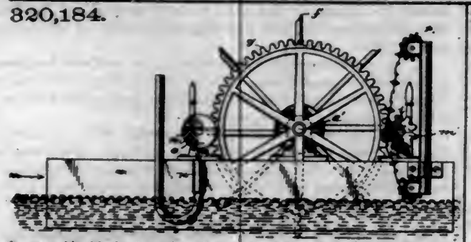


Claim.—The combination, with an ash-pan, of a compartment, M, formed on the front end of the same and in front of the front part of the fire-box, and of the damper-valve N in the top of the compartment M, substantially as herein shown and described.

320,184. FLOATING WATER-ELEVATOR. FRANCIS T. SHIVER, St. Louis, Mo. Filed Mar. 9, 1885. (No model.)

Claim.—1. The twin floats *a*, arranged parallel to each other and secured together, in combination with the water-wheel journaled between the floats, the gear-wheel *g*, fixed to the shaft of the water-wheel, the shafts *i*, swiveled loosely at one end in blocks attached to the floats,

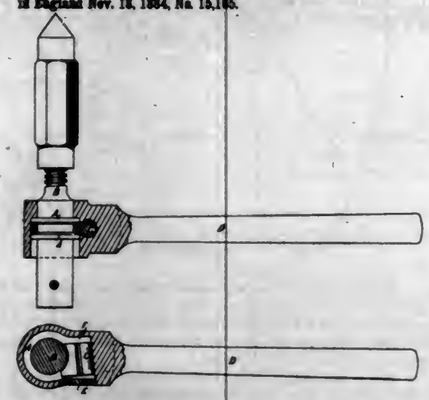
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the movable blocks *k* on the other ends of the shafts, pinions *h* on the latter meshing with the gear *g*, levers *l*, pivoted to the floats and connected to the shafts *i*, and the pumps connected to the latter, as set forth.

2. The floats *a*, arranged parallel to each other, and secured at a suitable distance apart by the beams *b c*, the inner side of the front end of each float being set at an angle, *d*, to the outer side, in combination with the shaft *d'*, journaled in bearings of the floats, a water-wheel mounted on the shaft, gear-wheels *g*, fixed on the ends of the shaft *d'*, the shafts *i*, swiveled loosely at one end in blocks attached to the floats, the movable blocks *k* on the other ends of the shafts, guides for said blocks to move in, pinions *h*, mounted on the shafts and adapted to mesh with the gear *g*, levers *l*, pivoted to the floats and connected to the shafts *i*, and the pumps connected to the latter, for the purpose set forth.

320,185. FRICTION DRILL-BRACE. REINARD S. SORDHON, Cape Town, Cape of Good Hope. Filed Apr. 3, 1885. (No model.) Patented in England Nov. 18, 1884, No. 15,165.



Claim.—The combination, in a drilling-brace, of the collars A A, forming a tapered or V-shaped groove on the spindle B, with the pawl C, set at an angle to the spindle in the angular chamber or recess F in the stock D, the whole constructed, combined, and arranged to operate the brace by friction, substantially as described.

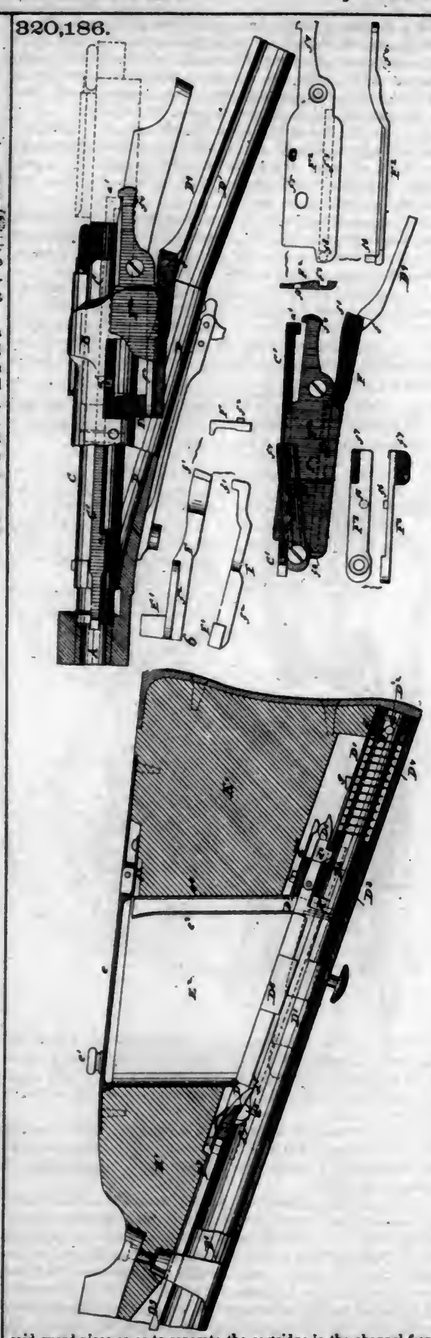
320,186. MAGAZINE FIRE-ARM. MATHIAS SPORER, Hartford, Conn. Filed Nov. 22, 1884. (No model.)

Claim.—1. In a magazine fire-arm, the combination of a reciprocating breech-bolt, a receiver or shoe having an inclined well, a tubular channel extending from the well to the rear part of the butt, a magazine located in the butt and communicating with said channel, a spring-actuated sleeve, a slide-piece having a spring-pressed dog adapted to engage said sleeve, means for releasing said dog from the sleeve, a slide-rod extending along the channel, a horizontally-guided slide-plate connected to the slide-rod and adapted to be actuated by the breech-bolt so as to release or re-engage the spring-actuated sleeve, substantially as set forth.

2. In a magazine fire-arm, the combination of the butt having a vertical magazine, a tubular channel communicating with the magazine and receiver, a spring-actuated sleeve, a slotted slide-piece, intermediate mechanism connecting the slide-piece with the breech-bolt, a pivoted dog at the rear end of the slide-piece, means for engaging the spring-actuated sleeve by the dog, and means for releasing the same, substantially as set forth.

3. In a magazine fire-arm, the combination of the butt having a vertical magazine, a tubular channel communicating with the magazine and the receiver, a slotted slide-piece, intermediate mechanism connecting the slide-piece with the breech-bolt, a pivoted and spring-pressed guard-piece at the front end of the slide-piece, and a lug on said guard-piece adapted to engage a depression in said tubular channel for raising

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said guard-piece so as to separate the cartridge in the channel from the next adjoining cartridge in the magazine, substantially as described.

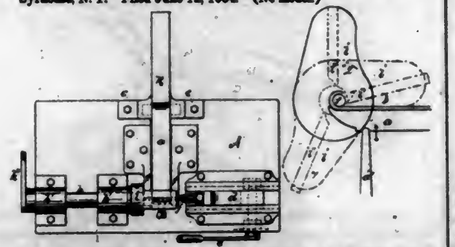
4. In a magazine fire-arm, the combination of the butt, a vertical magazine having guide-flanges for the rims of the cartridges, a tubular channel communicating with the magazine and extending from the same to the receiver, a slotted slide-piece guided in the tubular channel, a dog pivoted to the rear end of the slide-piece, a guard-piece at the front end of the slide-piece, a spring-actuated sleeve adapted to be engaged by said dog, means to release the dog from the sleeve, and means to arrest the sleeve after being released from the dog, substantially as set forth.

5. In a magazine fire-arm, the combination of the butt having a vertical magazine, a tubular channel extending from the magazine to the receiver, a slide-piece having a dog at its rear end, a spring-actuated sleeve adapted to be engaged by said dog, means for releasing the dog from the sleeve, an intermediate slide-rod, a slide-piece pivoted sidewise of the receiver, a breech-bolt having a recessed side tongue, and means whereby the front slide-piece is thrown in or out of the path of the recessed tongue of the breech-bolt, substantially as set forth.

6. In a magazine fire-arm, the combination of a reciprocating breech-bolt having a recessed side tongue, a pivoted thumb-lever, a pivoted covering-plate operated by said lever, an L-shaped slide-piece guided by said covering-plate and adapted to be raised or lowered thereby, cartridge-feeding mechanism, and a slide-rod connected at one end to the slide-piece and at the other end to said cartridge-feeding mechanism, substantially as described.

7. In a magazine fire-arm, the combination of a reciprocating breech-bolt having a recessed side tongue, a pivoted thumb-lever, a pivoted covering-plate operated by said lever, an L-shaped slide-piece guided by said covering-plate and adapted to be raised or lowered by the same, a slide-rod connected to the L-shaped slide-piece, a slide-piece connected to the slide-rod, a dog pivoted to the slide-piece, a guided and spring-actuated sleeve, and means to release the dog from the sleeve, so as to produce the quick forward impelling of the sleeve, substantially as set forth.

320,187. TURNING THE ENDS OF SPRINGS. WILLIAM A. SWEET, Syracuse, N. Y. Filed June 12, 1884. (No model.)



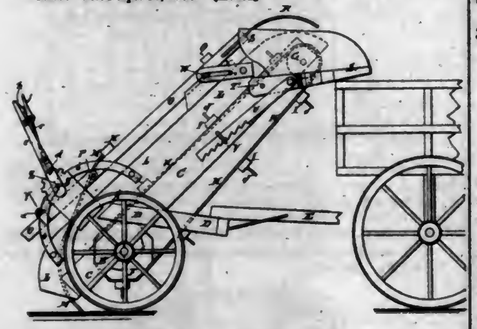
Claim.—1. In combination with the pin *f*, the lifter *a*, having its front end curved upward, as set forth, constructed, arranged, and operated substantially as and for the purposes described.

2. The wiper *i'*, placed and supported eccentric to the sliding pin *f*, as and for the purposes specified.

3. The shaft *h* and wiper-arm *i*, placed eccentric to pin *f*, as and for the purposes specified.

4. The combination of the lifter *a*, having its end turned upward, and the eccentric wiper *i'*, and pin *f*, for turning the ends of vehicle-springs, substantially as herein described.

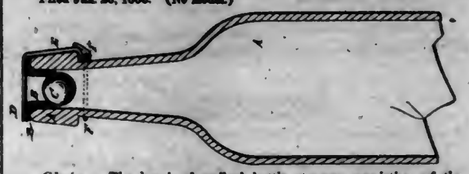
320,188. HAY-LOADER. MAX F. E. STADTMUELLER, Castle Grove, Iowa. Filed Apr. 16, 1884. (Model.)



Claim.—1. In a hay-loader, the combination, with the frame C, side boards, L, rearward-inclined slotted arms X at the forward ends thereof, crank-shaft Z, lever *c*, a locking mechanism for said lever, the parallel guard-bars O, suspended from said crank-shaft at their rear ends, and pins W at the forward ends thereof entering the slots of arms X, rake-bars M, and cross-bars connecting the bars O, substantially as set forth.

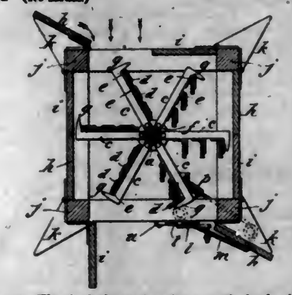
2. In a hay-loader, the combination, with the side boards, L, the guard-frame N Q O O', and the rake-teeth M, of the pins W, the slotted bars X, the crank-shaft Z, the supports *b*, and the locking-lever *c*, substantially as herein shown and described, whereby the said guard-frame and rake-teeth can be readily adjusted, as set forth.

320,189. BOTTLE-STOPPER. WILLIAM STEWART, Brooklyn, N. Y. Filed Jan. 20, 1885. (No model.)



Claim.—The herein-described bottle-stopper, consisting of the tubular packing B, provided with a flanged outer end and having the inner surface of its inner end beveled and flared, the ball-float C, the fastening-wire, and the metal cap provided with the arms E, adapted to have their ends bent around the said fastening-wire, as set forth.

320,190. WINDMILL. OREN STODDARD, Busti, N. Y. Filed Mar. 12, 1884. (No model.)



Claim.—1. The inclosing-tower for a vertical wheel having vanes pivoted to the arms to swing edgewise to the wind on the returning side, having two doors for each side closing to the center plane of the wheel to enable one door to be opened on the driving side of the wheel, and the other door of the same side to be closed for the protection of the returning side of the wheel, and both doors to be opened on the lee side of the wheel, substantially as described.

2. The inclosing-tower for a vertical wheel having vanes pivoted to the arms to swing edgewise to the wind on the returning side, having two doors to each side for opening to the middle plane of the wheel, and also having the inclined stop-rests *k*, to hold the doors suitably to gather and deflect the wind on the wheel, substantially as described.

3. The combination of a cranked drum, *l*, endless cord *m*, and guide-rollers *n*, *o*, *p*, and *q*, with the door of an inclosing-tower of a wind-wheel, said cranked drum, cord, and guide-rollers being arranged to enable the door to be opened from the base of the tower, and said drum being provided with a ratchet and pawl to hold the door open, substantially as described.

320,191. REMOVABLE BOTTLE-STOPPER. JAMES TERRY, Hartford, Conn. Filed Dec. 15, 1884. (No model.)



Claim.—1. The herein-described bottle-stopper, consisting, essentially, of the wire loop, the head A, secured thereto and having the cup-shaped recess, the valve-washer *f*, and the solid disk *d*, substantially as described, and for the purpose specified.

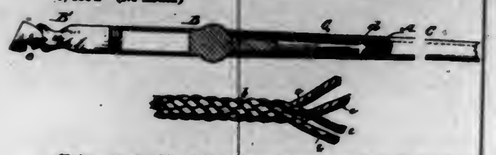
2. In a internal bottle-stopper, the combination of the solid sliding disk *d* with the wire loop having its short free end *c* bent downward by the side of its body to serve as a stop to limit the sliding motion of said disk, substantially as described.

320,192. INTERNAL BOTTLE-STOPPER. JAMES TERRY, Hartford, Conn. Filed Jan. 21, 1885. (No model.)



Claim.—The herein-described removable internal bottle-stopper, consisting of a stopper-wire by which to suspend the stopper within the neck of the bottle, the pressure-disk A, flange *c*, and the packing-disk B, fitted to slide upon the neck between said pressure-disk and flange a distance sufficient to be wholly removed from said pressure-disk, substantially as described, and for the purpose specified.

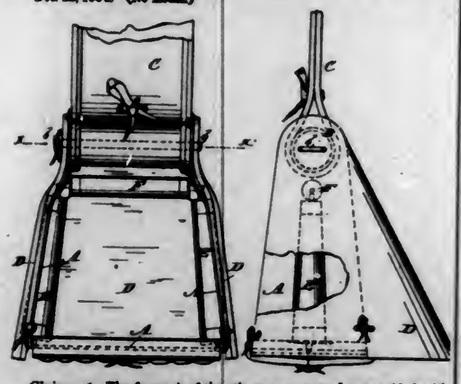
320,198. WHIP. EPHRAIM M. TURNER, Fort Worth, Tex. Filed Dec. 9, 1884. (No model.)



Claim.—1. A whip-stock body or core composed of a loose vegetable fibrous material in one or more twisted strands, the yarns composing which having wires wrapped about them, in combination with a metal or rigid handle to which said core is attached, and a vulcanized rubber covering to said core, substantially as specified.

2. The combination of the hollow metallic handle-sections B and outer end sections, B', fitted thereto, and constructed to form a whistle, the fibrous and wire core A, and the vulcanized rubber covering or coating C, substantially as specified.

320,194. STIRRUP. EPHRAIM M. TURNER, Fort Worth, Tex. Filed Dec. 22, 1884. (No model.)

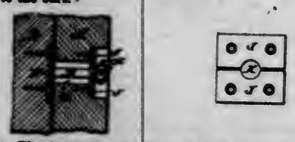


Claim.—1. The frame A of the stirrup, constructed or provided with an upper tubular cross-tie, B, in open communication through the sides of said frame, essentially as and for the purposes herein set forth.

2. The combination, with the upper tubular cross-tie, B, of the stirrup, in open communication through the sides of the latter and serving for attachment of the stirrup-strap, of the fender D and the cord *b*, arranged to unite the upper portion of the fender to the stirrup, substantially as described.

320,195. WINDOW-SASH. HENRY VALK, Chicago, Ill. Filed May 23, 1884. (No model.)

Brief.—The pins, plates, and heads of the pivoting devices are formed in one piece. Plates, with semicircular notches in their inner edges fitting the shank of the pivots, are secured in a recess in the outer edges of the sliding bars, and form bearings for the pivot-heads and secure the sash to the bars.



Claim.—1. The device for pivoting sash and connecting them to sliding side rails, the same consisting of a plate, F, provided with screw-holes, and the headed pin E, which is formed solid therewith, as shown and described.

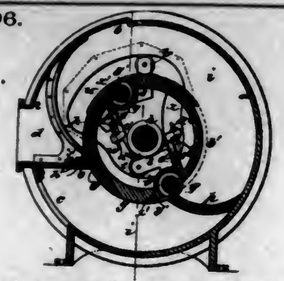
2. The combination, with the sliding side rails having transverse apertures G and recess H, of the pivotal device E E' F and notched plates J J, all arranged as shown and described.

320,196. ROTARY BLOWER. ISAAC D. WEAVER, Lebanon, Pa., assignor to himself and Benjamin F. Harpel, same place. Filed Mar. 4, 1884. (No model.)

Claim.—1. The combination, in a rotary blower, of the cylinder *a*, having offset *b* and abutment *c*, heads *i*, having recesses *d'* and grooves *u v w x*, and drum *g*, having swinging wings *p*, hinged thereto, said wings having arms *s*, offset at *f'*, and rollers *t*, and said rollers *t* arranged to run in the grooves for opening and closing the wings, substantially as described.

2. The combination of the adjusting-keys *d'*, attached to lugs *d''* of

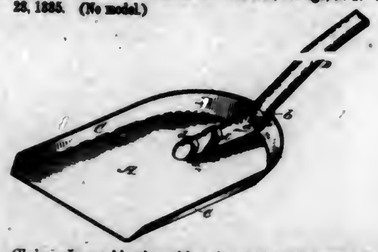
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the interior of the drum, with the arms *s* of the wings *p*, pivoted in the periphery of the drum, substantially as described.

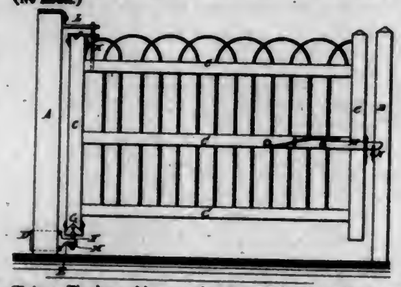
3. The combination, with cylinder-head *i*, provided with a flanged recess, *l m*, of the shaft-bearing *j*, provided with the flange *k*, of less diameter than that of the said recess and resting against the cylinder-head, screws *o*, passing through flange *m* into the cylinder-head, and screws *n*, passing through flange *k* into head *i*, substantially as set forth.

320,197. SHOVEL. HENRY M. WHITNEY, Oswego, N. Y. Filed Feb. 28, 1885. (No model.)



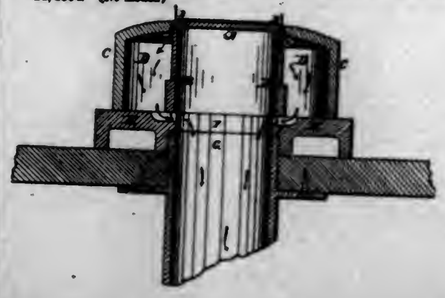
Claim.—In combination with a shovel-blade having integral therewith an upwardly-projecting back rim centrally and outwardly depressed, of a handle fitted to the inner face of said blade and seated within the depression formed in its back rim, and secured in place, substantially as shown and described.

320,198. GATE-HINGE. EUGENIA A. WILLIAMS, Des Moines, Iowa, administratrix of George W. Williams, deceased. Filed Jan. 2, 1884. (No model.)



Claim.—The lower hinge, made substantially as herein shown and described, and consisting of the plate D, the swinging arm E, pivot-pin F, and the socket-cap G, as set forth.

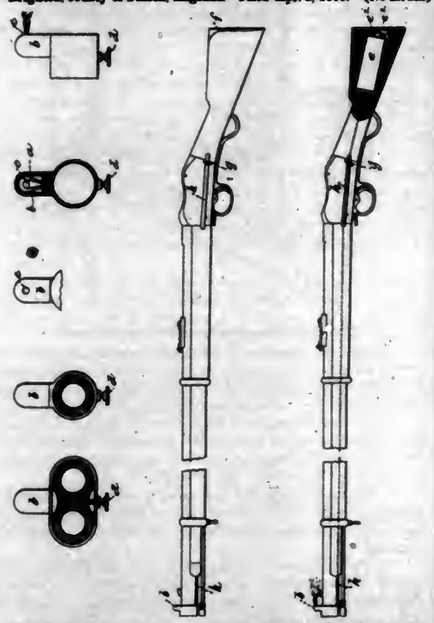
320,199. CIGAR-WRAPPER CUTTER. JOHN R. WILLIAMS, Newark, N. J., assignor to William Eggert, trustee, New York, N. Y. Filed May 28, 1884. (No model.)



Claim.—1. The combination, with a supporting-platen, of an upwardly-extending cutter bounding the platen, a suitable casing surrounding the cutter and provided with openings on the outer side of the latter, and exhaust mechanism for drawing the air through said openings, substantially as set forth.

2. In an apparatus for cutting wrappers or binders for cigars or cigarettes, the supporting-platen A, bounded by an upwardly-projecting cutter, B, as described, in combination with the surrounding casing C, having air-spaces, adjacent to the outer edges of the cutter, and exhaust mechanism, substantially as set forth.

320,200. ELECTRIC SIGHT FOR FIRE-ARMS. WALTER WYMAN, Brighton, County of Sussex, England. Filed Apr. 1, 1885. (No model.)

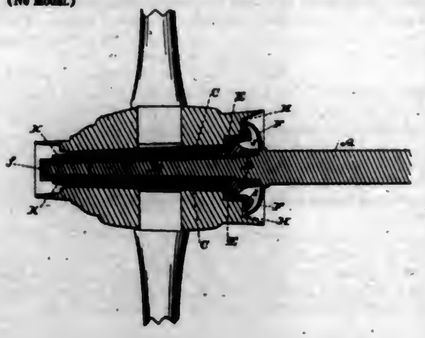


Claim.—1. The combination, with the barrel or barrels of a fire-arm, of an electric front sight and a battery or equivalent source of electricity adapted to supply a current of electricity to the said sight for the purpose of more clearly indicating the position of the front sight and thereby facilitating the sighting of the weapon in the dusk or at night, substantially as set forth.

2. The combination, with the barrel or barrels of a fire-arm, of an incandescent electric lamp elastically supported within a detachable protecting hood or case having a small aperture facing the firer, and a battery connected with the said lamp by suitably-arranged conductors, as and for the purpose set forth.

3. The combination, with the barrel or barrels of a fire-arm, of a battery adapted to the stock of the weapon, a front sight capable of being rendered luminous by electricity, and conductors for conveying the current to said front sight when taking aim, as and for the purpose set forth.

320,201. VEHICLE-AXLE. CHARLES WOMACOTT, Bishop Creek, Cal., assignor of one-half to J. H. Bulpit, same place. Filed Oct. 31, 1884. (No model.)



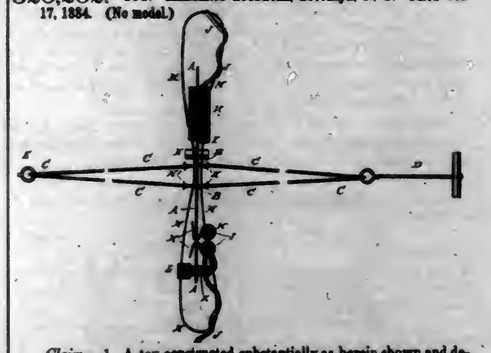
Claim.—1. In a vehicle-axle, the combination, with a spindle having its interior end enlarged and screw-threaded, of an exterior sleeve provided with a corresponding enlargement or hub, against which the hub of the wheel may turn, and having an interior-threaded end adapted to engage the threads on the spindle, substantially as herein described.

2. In a vehicle-axle, a spindle having an enlarged screw-threaded portion at the inner end, an exterior sleeve fitting said spindle, having a corresponding enlargement at its inner end, the interior of which is screw-threaded to fit the screw upon the spindle, the exterior forming a shoulder and tapering inwardly from the shoulder, substantially as herein described.

3. In a vehicle-axle, the concavo-convex disk secured to the inner end of the spindle, a sleeve surrounding the spindle, having a shoulder upon its inner end and made tapering inwardly from said shoulder, together with a wheel-hub having a box fitting against the shoulder of the sleeve, and provided with a projecting vertical flange which fits within the disk upon the axle, while the exterior portion of the hub projects over and beyond the disk, substantially as herein described.

4. A vehicle-axle having a spindle, the interior end of which is enlarged and screw-threaded, an exterior sleeve fitting the spindle, having an enlargement at its interior end to form a collar, and screw-threaded to fit the spindle, together with the exterior nut screwing upon the end of the spindle and having a shoulder which braces against the outer end of the sleeve, substantially as herein described.

320,202. TOY. HARMANUS ZUYDHOFF, Brooklyn, N. Y. Filed Oct. 17, 1884. (No model.)



Claim.—1. A toy constructed substantially as herein shown and described, and consisting of the plate A, having holes B and slots G, the string C, and the wire-gauze cases H, substantially as herein shown and described.

2. In a toy, the plate A, made substantially as herein shown and described, having holes B F and slots G, to adapt the said plate to receive and operating-string or a pivot, and wire-gauze cases for the fire compound, as set forth.

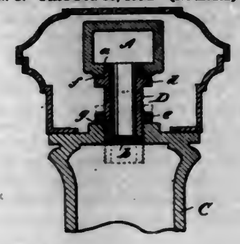
3. In a toy, the combination, with the plate A and string C, of a combustible compound, I, and a fuse, J, substantially as herein shown and described, whereby the said compound can be burned while the toy is being operated, as set forth.

4. In a toy, the combination, with the string C and the plate A, having slots G, of the wire-gauze cases H, substantially as herein shown and described, whereby the fire will be kept from flying around and a different color can be given to the fire, as set forth.

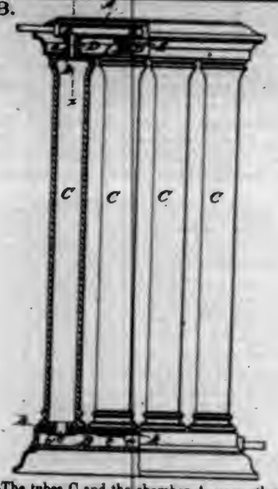
5. In a toy, the combination, with the plate A and the string C, of the loose wire M, substantially as herein shown and described, whereby the circle of fire can be enlarged and the said plate kept at the center of the said string, as set forth.

6. In a toy, the combination, with the plate A, the string C, and the loose wires M, of the eyelets N, substantially as herein shown and described, whereby the loose wire is kept from slipping along the strands of the said string, as set forth.

320,203. STEAM-RADIATOR. JUAN B. ARDI and JOHN CHAPMAN, Brooklyn, N. Y. Filed Dec. 30, 1884. (No model.)

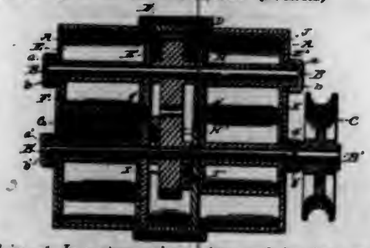


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Claim.—The tubes C and the chamber A, screw-threaded at *a b*, in combination with the coupling-pipes D, collars *d*, and jam-nuts *e*, the coupling-pipes being externally screw-threaded above and below the collars *d*, and the jam-nuts *e* screwed upon the coupling-pipes below the collar *d*, substantially as described.

320,204. ROTARY ENGINE. JOSEPH A. ARTHUR, Louisa, Ky., assignor of one-half to William H. Robinson and Edward Muhleman, both of Wheeling, W. Va. Filed Feb. 14, 1885. (No model.)



Claim.—1. In a rotary engine, a piston made heavier at one point and provided at an opposite point with a straight radial wing having a curved bucket or depression on one side, substantially as described.

2. In a rotary engine, the combination of a piston made heavier at one point, and having a wing with a curved bucket or depression on one side, with a valve having wings of heavier metal and an intermediate semicircular groove throughout its length, substantially as and for the purposes set forth.

3. In combination with a piston having a bucket-wing, a valve having weighted wings and an intermediate groove, the shafts B B', which carry the piston and valve, the gear-wheel H, and the gear-wheel H', provided with the cut-offs I I', substantially as described.

4. In combination with the gear-wheel H', the cut-offs I I', constructed and arranged substantially as described.

5. In combination, the gear-wheel H', carrying the cut-offs I, the live-steam port *g'*, and the piston G, whereby the steam is cut-off at the desired point and caused to work expansively, substantially as described.

6. In combination with the piston G and valve F, the live-steam port *g'* and the exhaust-steam port, arranged, respectively, at the points where the wing of the piston enters and leaves the groove of the valve, substantially as described.

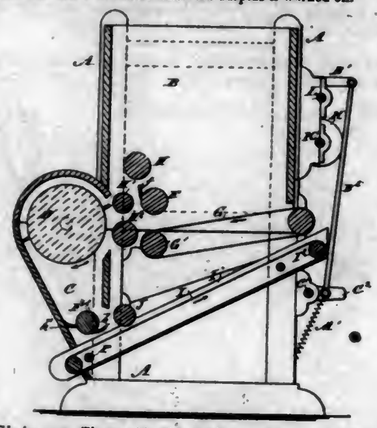
7. The arrangement, in the shell of a rotary engine, of pistons and valves on each side of an intermediate steam-box, such pistons and valves on one side being set oppositely to those on the other side, so that they take and exhaust steam at different intervals of time, whereby a constant positive revolution of both pistons and valves is secured and the use of a fly-wheel avoided, substantially as described.

8. In a rotary engine, in combination with the shafts B B' and the cylinder with its boxes or projections *a a'*, the screw-caps *b b'*, whereby end-play of the shafts is avoided, and all lateral movement of the pistons, valves, and cut-offs is prevented, substantially as described.

9. In combination with the steam-box E', the gear-wheels H H' and the cut-offs I I', composed of the rim-pieces *i i'*, removably secured to the faces of the wheel H', and all arranged within such steam-box, substantially as described.

320,205. FEEDING MECHANISM FOR WOOL-CARDING MACHINES. FRANK G. RADCOCK, Dryden, N. Y. Filed Mar. 26, 1884. (No model.)

Brief.—Uniform feeding is effected by mechanism arranged to yield or diminish in distance of movement to over-accumulation of wool upon the feeding-apron. The lower feed-roller automatically throws the upper feed mechanism out of action when the lower wool-box is over-supplied and sets it in action when the surplus is worked off.



Claim.—1. The combination, with a wool-box, an endless apron or web, and means for operating the same, of a feed-roller provided with fingers for matting the wool upon the apron and means for imparting a rotary reciprocating motion to said feed-roller, substantially as described.

2. The combination, with the wool-box C, the endless apron I, and means for operating the same, of the feed-roller F, provided with fingers, and means for imparting a variable rotary reciprocating motion to the said feed-roller, substantially as described.

3. The combination, with the apron I, roller J, and means for operating said roller, of the feed-roller F' and means for imparting a yielding rotary reciprocating motion to the said feed-roller, substantially as described.

4. The combination, with the primary wool-box B, the apron G, the rolls H' H², and means for operating the apron, of the toothed roller F and means for imparting a rotary reciprocating motion to the said feed-roller, substantially as described.

5. The combination, with the primary wool-box B, the apron G, the rolls H' H², and means for operating the apron, of the feed-roller F, provided with teeth, and means for imparting a variable rotary reciprocating motion to said feed-roller, substantially as and for the purposes set forth.

6. The combination, with the toothed feed-roller F and means for imparting a yielding rotary reciprocating motion to the said feed-roller, of the endless apron G and means for operating the same, substantially as described.

7. The combination, with the wool-box B, the endless apron G, the toothed feed-roller F, and means for operating the apron and for imparting a rotary reciprocating motion to said feed-roller, of the feed-rollers H' H², arranged to operate substantially as described.

8. The combination, with the endless traveling apron G, feed-roller F, rollers H' H², and means for operating the apron, of the roller H and means for imparting a rotary reciprocating motion to the said feed-rollers F H, as and for the purposes set forth.

9. The crank *a*, shaft L, crank P', shaft P, connecting-rod O, and means for operating said shaft L, in combination with the rack Q, the feed-roller F', and pinion *f'*, secured to the shaft or gudgeon of the said feed-roller, and meshing with the rack Q for giving a rotary reciprocating movement to the feed-roller F', substantially as described.

10. The crank *a*, shaft L, crank P', provided with pin *e'*, shaft P, and rod O, provided with slot *e*, in combination with rack Q and pinion *f'*, and the spring R, arranged to normally hold the pin *e'* of crank P' at the upper end of the slot *e*, substantially as and for the purposes set forth.

11. The crank *c*, the shaft L, crank T, and roller H, in combination with the connecting-rod S, rack U, feed-roller F, and pinion *t*, attached to the shaft or gudgeon of said feed-roller for giving a rotary reciprocating motion to the roller, substantially as and for the purpose set forth.

12. The crank *c*, shaft L, the crank T, provided with pin *s'*, roller H, and connecting rod S, provided with slot *s*, in combination with the rack U, pinion *t*, and spring V, the spring being arranged to hold the pin *s'* of crank T in contact with the upper end of the slot *s* in the connecting-rod S, substantially as and for the purposes set forth.

13. The combination, with the lower wool-box, C, the variable feed-roller F' therein, the upper wool-box, B, and the feed mechanism in the upper wool-box, of means, substantially as described, for automatically throwing the upper feed mechanism in and out of action according to the accumulation of wool in the box C, and for reciprocating the feed-roller, substantially as set forth.

14. The primary wool-box B, the shaft L, crank *c*, loose upon the said shaft, clutch-block *d*, and means for connecting said shaft with the feed mechanism in the primary wool-box, in combination with the feed-roller F', a cam, *f²*, lever N', and intermediate mechanism, substantially as described, for sliding the clutch-block *d* upon shaft L, for engaging and disengaging the clutch of the crank *c* and supporting and operating said cams, substantially as and for the purposes set forth.

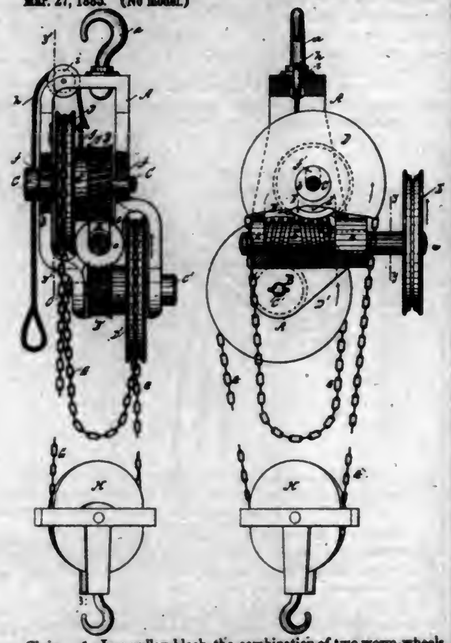
15. The bars D' D², provided with pins and means for reciprocating the said bars alternately in combination with the reciprocating lever N', vertically-reciprocating rod K², notched bar J², the arm J', the vertical shaft E', the clutch-block *d*, the yoke E², the cam *f²*, and the feed-roller F', substantially as and for the purposes set forth.

16. The shafts C' L, walking-beam C², and means for imparting a rotary reciprocating motion to the shaft C' from the shaft L, in combination with the vertical bars D' D² and connecting-rods *d' d'*, substantially as and for the purposes set forth.

17. The combination, with the double crank-shaft G², the connecting-rod S, and means for imparting a rotary reciprocation to the said shaft from the rod S, of the traveling apron G, rollers H' H², the lever W, the pawl *w*, the ratchet-wheel *w'*, the connecting-rod S², the crank *g*, and means for operating the said connecting-rod, substantially as herein described.

18. The feed-roller F', cam *f²* on the shaft of the said roller, the clutch-block *d*, and the vertical shaft E', provided with the coupling E² at its upper end and the cross-head *d⁴* at its lower end, in combination with the pivoted T-lever J', the links *i' i'*, and intermediate mechanism for operating the said lever J' from the cam, substantially as herein shown and described.

320,206. PULLEY-BLOCK. THOMAS BARBER, Flatbush, N. Y. Filed Mar. 27, 1885. (No model.)



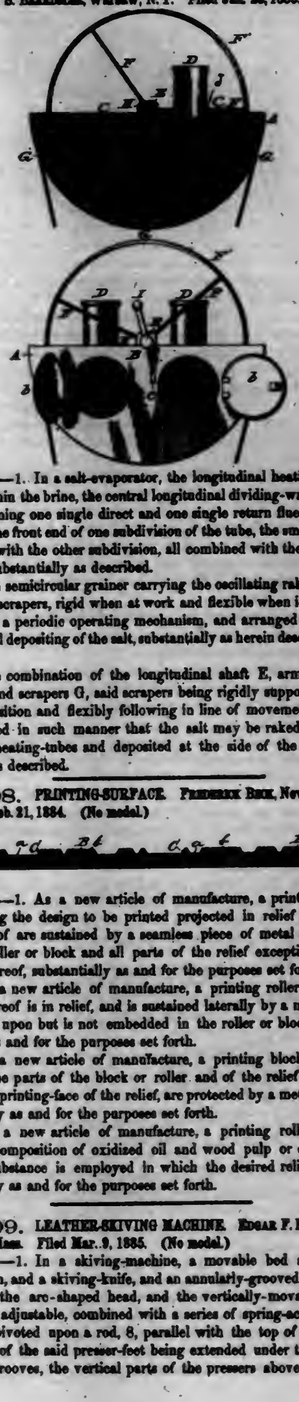
Claim.—1. In a pulley-block, the combination of two worm-wheels, a worm adapted to engage the worm-wheels, the sheaves rotating with the said worm-wheels, and an endless chain extending round the sheaves, substantially as shown and described.

2. In a pulley-block, the combination of two worm-wheels, a worm having right and left hand threads and adapted to engage the worm-wheels, the sheaves rotating with the said worm-wheels, and an endless chain extending round the sheaves, substantially as shown and described.

3. In a pulley-block, the combination of two worm-wheels of different diameter, a worm having right and left hand threads adapted to engage the worm-wheels, the sheaves rotating with said worm-wheels, and an endless chain extending round the sheaves, substantially as shown and described.

4. In a pulley-block, the combination of two worm-wheels, a worm adapted to engage the worm-wheels, the sheaves rotating with the said worm-wheels, an endless chain extending round the sheaves, the collar surrounding the upper pintle, and a rope attached thereto for raising the pintle from its bearings, substantially as and for the purpose described.

320,207. APPARATUS FOR THE MANUFACTURE OF SALT. NATHAN S. BEARDSLEE, Warsaw, N. Y. Filed Jan. 22, 1885. (Medel.)



Claim.—1. In a salt-evaporator, the longitudinal heating-tube submerged within the brine, the central longitudinal dividing-wall within the tube for forming one single direct and one single return flue, the fire-box located in the front end of one subdivision of the tube, the smoke-exit pipe connecting with the other subdivision, all combined with the grainer, and operating substantially as described.

2. The semicircular grainer carrying the oscillating rake-frame, and the hinged scrapers, rigid when at work and flexible when idle, in combination with a periodic operating mechanism, and arranged for the automatic lateral depositing of the salt, substantially as herein described and set forth.

3. The combination of the longitudinal shaft E, arms F, circular bands F', and scrapers G, said scrapers being rigidly supported when in working position and flexibly following in line of movement when idle, and arranged in such manner that the salt may be raked from underneath the heating-tubes and deposited at the side of the grainer, substantially as described.

320,208. PRINTING-SURFACE. FREDERICK BEIK, New York, N. Y. Filed Feb. 21, 1884. (No model.)



Claim.—1. As a new article of manufacture, a printing roller or block having the design to be printed projected in relief thereon, the sides whereof are sustained by a seamless piece of metal entirely covering the roller or block and all parts of the relief excepting the printing-face thereof, substantially as and for the purposes set forth.

2. As a new article of manufacture, a printing roller or block the design whereof is in relief, and is sustained laterally by a metallic plate, which rests upon but is not embedded in the roller or block itself, substantially as and for the purposes set forth.

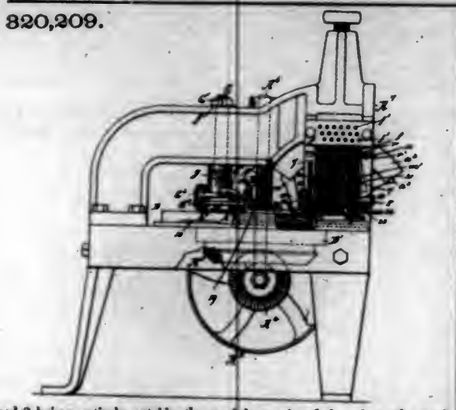
3. As a new article of manufacture, a printing block or roller in which all the parts of the block or roller and of the relief thereon, excepting the printing-face of the relief, are protected by a metallic coating, substantially as and for the purposes set forth.

4. As a new article of manufacture, a printing roller or block, wherein a composition of oxidized oil and wood pulp or other pulp or flock-like substance is employed in which the desired relief is formed, substantially as and for the purposes set forth.

320,209. LEATHER-SKIVING MACHINE. EDGAR F. BELDEN, Fitchburg, Mass. Filed Mar. 9, 1885. (No model.)

Claim.—1. In a skiving-machine, a movable bed and attached mold-section, and a skiving-knife, and an annularly-grooved conical feed-roller, and the arc-shaped head, and the vertically-movable guide in which it is adjustable, combined with a series of spring-actuated presser-feet, *f*, pivoted upon a rod, 8, parallel with the top of the bed, the lower ends of the said presser-feet being extended under the feed-roller and in its grooves, the vertical parts of the pressers above the fulcrum-

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rod 8 being entirely outside the periphery of and free from the feed-roller, substantially as described.

2. The movable bed, its attached mold-section, the conical feed-roller, the arc-shaped head provided with ears to hold the shaft of the feed-roll, the arc-shaped guide in which the said head is made adjustable, and a skiving-knife, combined with a series of pressers extended under the feed-roll, substantially as described.

3. In a skiving-machine, an annularly-grooved feed-roll and a series of spring-actuated pressers, *f*, combined with an eccentric-rod, *g*, to adjust the position to which the said pressers may descend, substantially as described.

4. In a skiving-machine, a movable bed, combined with a blank-holder having two sets of fingers provided with rods or standards to act upon the edges of the forms to be skived, substantially as described.

5. In a skiving-machine, a movable bed, B, and a pivoted blank-holder having adjustable fingers provided with rods, combined with a cam or projection to turn the said holder on its pivot and raise the rods when the feeding end of the blank is to be pushed out from the holder, substantially as described.

6. In a skiving-machine, a blank-holder composed of a plate, m^4, adjustable brackets 19 and 22, and adjustable fingers m m' m^2 m^3, to operate substantially as described.

7. In a skiving-machine, a bed to receive upon it the article to be skived and a cam-plate, D, combined with the vibrating or reciprocating blank-carrier and with means, substantially as described, to operate the said blank-carrier.

8. The bed and blank-holder, combined with the vibrating blank-carrier, slotted or recessed at its acting end to embrace the rear end of the blank, substantially as described.

9. In a skiving-machine, the bed, its mold-section, and the cam D, combined with the arms G^2 G^3, link G^4, adjustable plate *h*, and the vibrating carrier A^2, the shank of the latter being provided with a set-screw to enter the slot of the plate *h* and adjust the throw of the said carrier, substantially as described.

10. The blank-holder, the mold-section, and the independent vibrating carrier, combined with a feed-roll and presser-feet to grasp the leading end of the blank to be skived as the latter is presented to the said feed-roller and pressers by the carrier and mold-section, substantially as described.

320,210. PERCUSSION-FUSE FOR PROJECTILES. THOMAS G. BENNET, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. Filed Mar. 30, 1885. (No model.)



Claim.—1. The herein-described percussion-fuse for projectiles, consisting of the casing A, constructed for attachment to the projectile, the head end closed, the anvil *d* in the opposite end of the casing, adapted to receive and hold the primer, with a hammer arranged within the casing and an elastic sleeve surrounding said hammer, unconnected with the casing and free to move with the hammer toward and from the anvil and in yielding frictional contact therewith, substantially as and for the purpose specified.

2. The combination of the casing A, closed at one end and adapted to be secured in the projectile, the anvil *d*, fixed at the open end of the case, constructed with a recess adapted to receive and support the primer, the ring *h*, introduced into said recess upon the primer and so as to secure the primer upon its seat, with a hammer arranged within the casing and an elastic sleeve surrounding said hammer and in yielding frictional contact therewith, substantially as described.

3. The combination of the casing A, one end closed and adapted for attachment to the projectile, and also constructed with the concentric spindle *m*, extending from the head inward, the anvil *d* at the open end of the casing, adapted to receive and support the primer, the hammer D, constructed to slide upon said spindle as a guide, and the elastic sleeve E, adapted to embrace the hammer with a yielding frictional contact, substantially as described.

4. The combination of the casing A, closed at one end and constructed to be secured to the projectile, the anvil *d*, fixed at the open end of the casing and constructed to receive and support the primer, also constructed with a conical projection upon its inner surface to extend into said chamber, a hammer arranged to move longitudinally in said casing, with an elastic sleeve, E, constructed to embrace said hammer with frictional contact, substantially as described, and whereby as the sleeve passes onto said conical projection on the anvil it will be opened to release its frictional hold upon the hammer, substantially as described.

5. The combination of the casing A, closed at one end and constructed for attachment to the projectile, its internal diameter gradually reduced at the closed end, an anvil, *d*, at the opposite end, constructed to receive and support the primer, a hammer within said casing and arranged for longitudinal movement, an elastic sleeve, E, constructed to embrace said hammer with frictional contact, and also to bear upon the inner surface of the casing at the reduced portion, substantially as described, and whereby said hammer will be held suspended.

6. The combination of the casing A, closed at one end and constructed for attachment to the projectile, and also constructed with a longitudinal groove, *t*, an anvil, *d*, fixed at the open end of the casing and constructed to receive and support the primer, the hammer D, arranged within the casing, and the elastic sleeve E, constructed to embrace said hammer with frictional contact, and also constructed with a rib, *s*, corresponding to the groove *t* in the casing, substantially as described.

7. The combination of the casing A, closed at one end and constructed for attachment to the projectile, the anvil *d*, fixed at the opposite end and constructed to receive and support the primer, a hammer arranged within the casing for longitudinal movement, elastic sleeve E, constructed to partially surround said hammer, unconnected with the casing, and free to move with the hammer toward and from the anvil, and with ribs upon its inner surface to bear upon said hammer with frictional contact, substantially as described.

320,211. TOWEL-RACK. JOSEPH BERGSTEN, Rockford, Ill. Filed Jan. 6, 1885. (Model.)



Claim.—1. A towel-rack comprising a fixed roller and an adjustable roller, both supported in end brackets, springs tending to hold the rollers in contact, and cams hung on one of the rollers and acting when turned to separate the rollers, substantially as herein set forth.

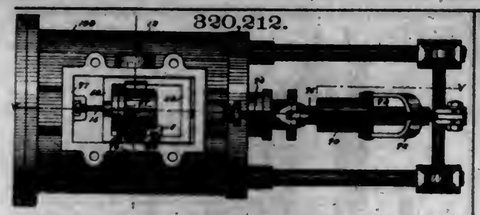
2. The combination, in a towel-rack, of the brackets A A, roller B, journaled in bracket-bearings *a*, a roller, D, journaled in the bracket-slots E, presser-pins G, springs H, and the cams C C, mounted on the roller B, substantially as herein set forth.

3. The combination, in a towel-rack, with the brackets A, provided each with a slot, E, and a recess, F, of roller B, journaled in the outer ends of said brackets, the roller D, journaled in the slots E, the pins G, the springs H, and the cams C on the roller B, as set forth.

320,212. STEAM-ACTUATED VALVE. WILLIAM A. P. BICKNELL, New York, N. Y., assignor to Dauphin S. Hines, William A. Perry, and Charles C. Worthington. Filed Nov. 3, 1884. (No model.)

Claim.—1. In a direct-acting engine, the combination, with the main cylinder, piston, and piston-rod, of the main valve provided with or carrying an auxiliary cylinder having a stationary piston and piston-rod,

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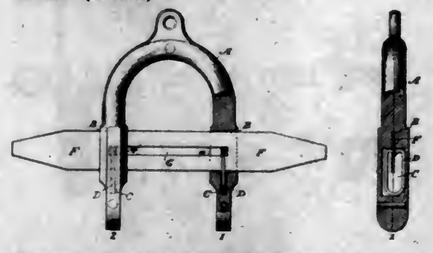
and suitable ports for admitting and exhausting steam, the valve 18, arranged to control the admission and exhaust of the steam to and from the auxiliary cylinder, and connections, substantially as described, by which the valve 18 is moved through its whole stroke and the main valve through a part of its stroke by the main piston, the whole being arranged and operating substantially as described.

2. In a direct-acting engine, the combination, with the main valve 95, carrying the auxiliary cylinder 89, having the stationary piston and piston-rod, and suitable ports for the admission and exhaust of the steam to and from said auxiliary cylinder, which ports are only brought into communication so as to admit the steam after the valve 95 has been moved through a part of its stroke, the valve 18 for controlling the exhaust, and connections, as the yoke 50, valve-rod 94, &c., by which the valve 18 will be moved to open the exhaust of the auxiliary cylinder 89 before the valve 95 commences its stroke, substantially as described.

3. In a direct-acting engine, the combination, with the main cylinder, piston, and piston-rod, of the main valve provided with or carrying an auxiliary cylinder having a stationary piston and piston-rod, and suitable ports for admitting and exhausting steam, the valve 18, for controlling the admission and exhaust of the steam to and from the auxiliary cylinder, connections for operating the valve 18 from the main piston, and the channel 8, arranged to communicate with the ports 5, 6, and 7 substantially as described.

4. In a direct-acting engine, the combination, with the main cylinder, piston, and piston-rod, of the main valve provided with or carrying an auxiliary cylinder having a stationary piston and piston-rod, the valve 18, arranged to control the admission and exhaust of the steam to and from the auxiliary cylinder, and suitable ports for the admission and exhaust of the steam, which are so arranged that after the valve 18 has been moved through its whole stroke and opened the exhaust the main valve must then be moved through a part of its stroke before the admission of the steam to the auxiliary cylinder can take place, all substantially as described.

320,213. SEAL-LOCK. ELIZA BLOOM, New York, N. Y. Filed Jan 20, 1885. (No model.)



Claim.—A seal-lock consisting of a chambered and slotted staple, A, beveled spring-points D, and a beveled and slotted sealing-strip, F, substantially as and for the purposes set forth.

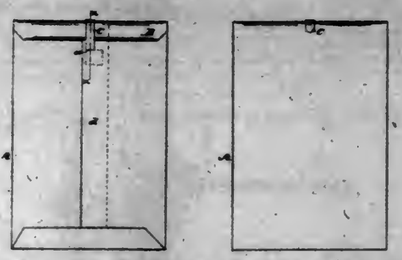
320,214. LIFTING-JACK. GEORGE S. BOWLING and JAMES M. BOWLING, Clarksville, Tenn. Filed May 8, 1885. (No model.)



Claim.—1. A lifting-jack comprising a base, A, having a notched slot, D *d*, a post, B, fitted to slide and turn in the base, and having a pin, E, entering slot D and adapted to its notches *d*, and a lever, C, pivoted to post B and provided with a notch, *c'*, substantially as herein set forth.

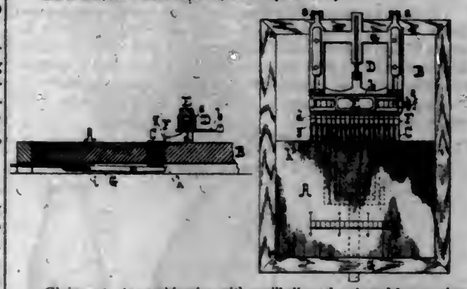
2. The combination, in a lifting-jack, of the base A, having a notched slot, D *d*, a post, B, fitted to slide and turn in the base, and having a pin, E, entering slot D and adapted to its notches *d*, and a lever, C, pivoted at *c* to post B, and provided with a notch, *c'*, located to swing beyond a vertical line drawn through the lever-pivot when the lever is fully down, substantially as herein set forth.

320,215. ENVELOPE. ROBERT P. BROWN, Philadelphia, Pa. Filed July 31, 1884. (No model.)



Claim.—An envelope having the slit *a* in the back of the same, in combination with the flexible metallic clip C, having a head, *c*, the said clip being passed through said slit in the back of the envelope and retained by said head *c*, and having its outer end attachable by bending to the front of the envelope, substantially as described.

320,216. COMBINED PILL TILE AND CUTTER. ALONZO CALDWELL, Baltimore, Md. Filed Apr. 27, 1885. (No model.)



Claim.—1. In combination with a pill-tile and a slotted bar, against which the rolled pill mass is placed, series of cutters adapted to enter the slots of the bar, attached to an extensible hinged frame, substantially as specified.

2. In combination with the slotted bar F and the knives *d*, the said knives being adapted for elevation and depression and to be slid forward and backward, the pill-block C and means to raise it, substantially as and for the purpose specified.

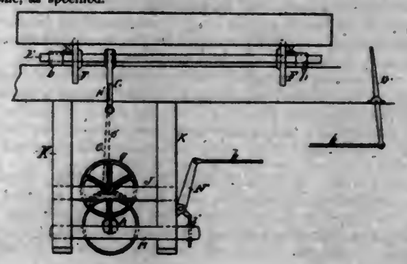
3. In a combined pill tile and cutter, the cutter D, formed of the extensible sections *a* and *b*, knives *d*, and strips *e*, the whole being hinged to a bed in which the said tile is inserted, substantially as specified.

4. In combination with the knives *d* and strips *e*, secured in a suitable holder adapted for elevation and depression, the slotted bar F, pill-block C, and means to elevate the said pill-block, substantially as specified.

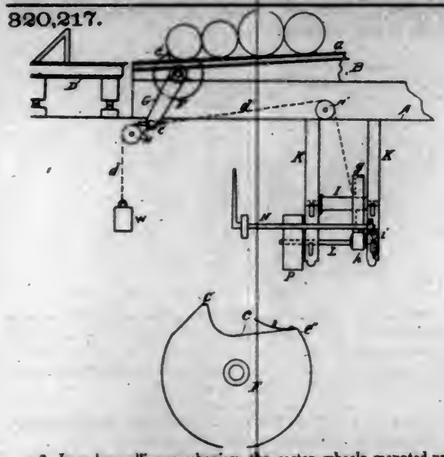
320,217. LOG-LOADER. JOHN CAMPBELL, Muskegon, Mich., assignor to Alexander Rodgers, same place. Filed Mar. 23, 1885. (No model.)

Claim.—1. The log-rolling machine consisting of sector-wheels provided with recesses *c*, and springs *s*, located in said recesses, said sector-wheels being mounted upon a suitable shaft, in combination with the lever G, chain and friction mechanism for operating said parts, and the weights W, arranged to return the sector-wheels to their normal position after they have been partially rotated by the friction-gear.

2. In a log-rolling mechanism, the combination of the shaft E, upon which are the sector-wheels F F, said sector-wheels being provided with recesses *c*, in which are located the springs *s*, the lever or rock-arm G, attached to the shaft E, and the friction-gearing and chain for operating the same, as specified.

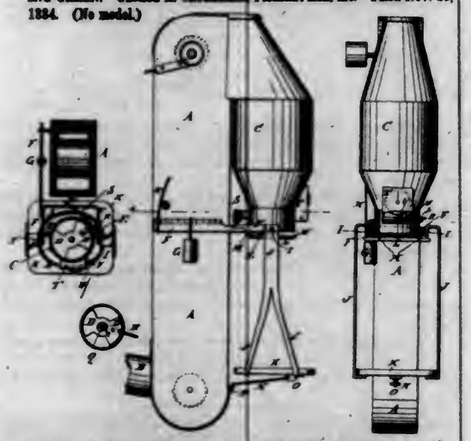


320,217.



3. In a log-rolling mechanism, the sector-wheels mounted upon shaft E, lever G, clevises *e e'* thereon, chains connecting said lever to the weight W, and friction devices for rotating said shaft in opposite directions, in combination with adjustable eyebolt *i'*, rock-shaft N, lever N', connecting-rod *k*, and hand-lever O, connected to each other and to the friction-gearing, and arranged to operate the friction mechanism in the manner shown and described.

320,218. MACHINE FOR SACKING, WEIGHING, AND REGISTERING GRAIN. GEORGE H. CAUSEBEAR, Pleasant Hill, Mo. Filed Nov. 28, 1884. (No model.)



Claim.—1. In a sacking, weighing, and registering apparatus, the combination, with a hopper and a register at one side of the same, of a spring-actuated valve in the bottom of the hopper, provided with a projecting arm for operating the register, substantially as herein shown and described.

2. In a sacking, weighing, and registering apparatus, the combination, with the hopper C, having a slot in its bottom, and the register T, provided with the projecting arm for operating the same, of the spring-actuated valve D, provided with the arm R, substantially as herein shown and described.

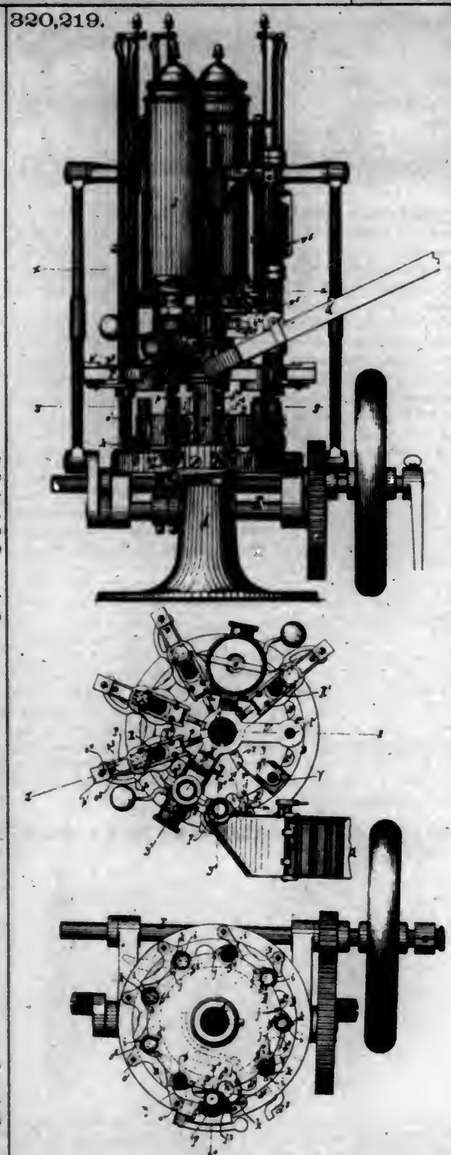
3. In a sacking, weighing, and registering machine, the combination, with the hopper C and the scale-beam F, of the cut-off D, having spring Q and arm R, and the trigger S, substantially as herein shown and described, whereby the discharge from the hopper will be stopped automatically when the said scale-beam is tripped, as set forth.

4. In a sacking, weighing, and registering machine, the combination, with the hopper C and the cut-off D, having spring Q and arm R, of the register T, the sliding rod V, carrying a pawl, U, and the spring W, substantially as herein shown and described, whereby the said register will be operated by the closing of the said cut-off, as set forth.

320,219. METHOD OF CHARGING CARTRIDGES. FRANKLIN L. CHAMBERLIN, Cleveland, Ohio. Filed Nov. 13, 1884. (No model.)

Claim.—The method herein described of charging cartridges, which consists in intermittently moving the shells on a carrier to the powder or shot discharging devices, and causing the shells so intermittently

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moved, by direct pressure on the gate-controlling mechanism, to automatically operate on and open the powder or shot discharging devices and deliver into such shells the charges of powder or shot, then moving the shells past the powder or shot discharging devices, and by such movement releasing and so restoring said devices to their normal or closed position, substantially as set forth.

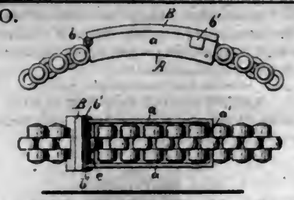
320,220. BRACELET-CLASP. HENRY A. CHURCH, Providence, R. I. Filed Nov. 11, 1884. (No model.)

Claim.—1. An improved bracelet-clasp consisting of a box or body having an aperture in each of its ends, the sides of which engage between the ends of the series of units to hold the band, and provided with a hinged cover, as described.

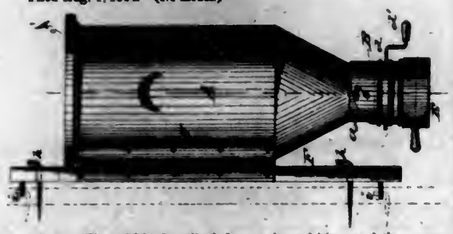
2. The box A, having the sides *a a*, and provided at each end with an aperture, the sides of which engage beneath the ends of the series of units to hold the band, as set forth.

3. The combination, with the box A, having the apertures in its ends, the sides of which apertures engage between the ends of the series of units, in combination with the cover B, having the springs *b'*, and the pin *c*, for securing the end of the band, as specified.

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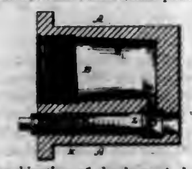


320,221. FLOUR AND MEAL BIN. ROBERT CLARKE, Dallas, TEX. Filed Aug. 1, 1884. (No model.)



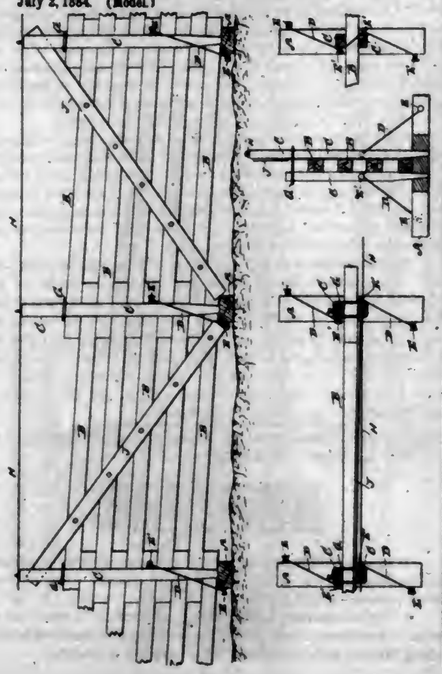
Claim.—The within-described flour and meal bin, consisting, essentially, of receptacle A, cover A', removable cylinder B, sifter D, cup E, bracket F, and strips *g g*, all as herein set forth.

320,222. BUNG. FRED S. CLINTON, Bellaire, Ohio, assignor of two-thirds to Jno. B. Watt and Emil Schmidt, same place. Filed Mar. 10, 1885 (No model.)



Claim.—The combination of the bung A, having the recess B, which is both smooth and threaded, and the openings or passages G H and enlargement I inside of the bung, with the screw-threaded rod J, having the valve L upon its end, the valve being placed in the enlargement and adapted to alternately close both of its ends, substantially as shown and described.

320,223. FENCE. WILLIAM COLATNE, Geetingsville, Ind. Filed July 2, 1884. (Model.)



Claim.—Claim.—The combination of the stakes inserted into bases and looped or connected together, the rails, the oblique board braces and the wire braces, each being a continuous wire fastened at one end to one side of a base, thence extended up and connected to the opposite side of a stake and passed to the opposite side of the fellow stake and fastened, and thence carried down and fastened to the opposite side of said base, substantially as and for the purpose set forth.

320,224. VISE. GEORGE A. COLTON, Syracuse, N. Y. Filed Oct. 30, 1884. (No model.)



Claim.—1. In a vise, a sleeve open at both ends and provided with a nut supported independently and outside of the inner walls of the sleeve, whereby the interior of the sleeve may be finished without removal of the nut, substantially as specified.

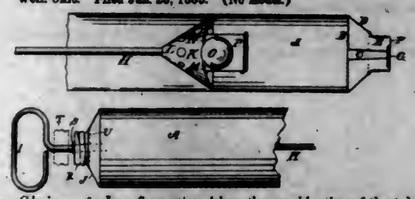
2. In a vise, a fixed jaw, a sleeve, an exterior nut, and its supporting-bracket arranged independent of the walls of the sleeve, the whole cast in one piece, whereby said sleeve may be interiorly finished, substantially as specified.

3. The combination of two castings, the one comprising a fixed jaw, a sleeve, a nut, and its supporting-bracket arranged independent and outside of the sleeve and a supporting-base, and the other comprising a jaw and a hollow cylindrical slotted sliding bar with a suitable jaw-operating screw, substantially as specified.

4. The combination of the fixed jaw A, plate A', sleeve B, nut C, and bracket C', arranged as described and cast in one piece with the integral slotted sliding bar F and jaw E, substantially as shown and described.

5. The combination, with a sliding bar having a standard in which is formed a swivel-jaw seat and curved wall, of a swivel-jaw having a pivot in line with its face, and a wall curved to fit the standard, substantially as specified.

320,225. HAND FIRE-EXTINGUISHER. OLIVER E. CONNER, Hartwell, Ohio. Filed Jan. 28, 1885. (No model.)

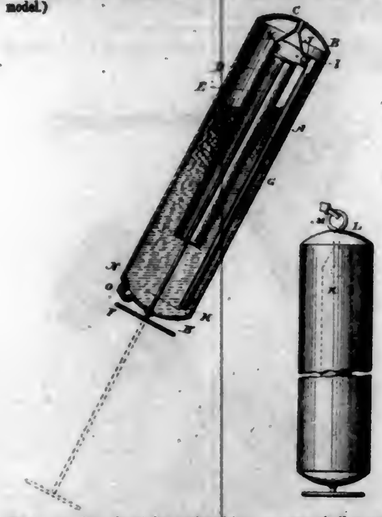


Claim.—1. In a fire-extinguisher, the combination of the tube A, having at one end the head B, provided with the projecting nozzle C, the cap D, provided with a screw-cap, F, the plunger H within the tube A, having a conical-shaped head provided with the depressed valve-seat M, the valve O, cage P, and the head Q, soldered to the rod H, as and for the purpose substantially as herein set forth.

2. In a fire-extinguisher, the tube or liquid-receptacle A, the nozzle C, fixed cap D, removable sealing-cap F, and a head, J, in combination with a perforated plunger, a valve, and a rod therefor, substantially as described

3. The combination, with a fluid-receptacle provided with a nozzle and a closing-cap therefor, a rear head, J, provided with a screw-cap, and a plunger-rod soldered to this cap, substantially as described.

320,226. HAND FIRE-EXTINGUISHER. OLIVER E. CONNER and TIMOTHY E. MCNAMARA, Cincinnati, Ohio. Filed Mar. 11, 1885. (No model.)



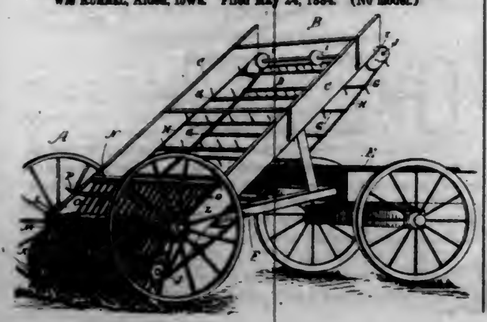
Claim.—1. In a hand fire-extinguisher, an outer shell provided at one end with a nozzle enlarged inwardly, forming an ejecting-tube provided with a plunger having inlet and outlet valves, the inlet-valve communicating with a longitudinal tube extending to the opposite end of the shell, the nozzle having a stopper soldered in position, and the plunger-rod also soldered in position, so as to be readily detached, substantially as herein set forth.

2. In a hand fire-extinguisher, an elongated metallic shell having segmental heads, one of them having an opening for the purpose of charging the device with a fire-extinguishing preparation, one end or head provided with a nozzle enlarging inwardly and provided with a valve and plunger, and a longitudinal tube, one end open and the opposite end provided with a ball-valve communicating with the forward end of the ejecting-tube, both the stopper within the nozzle and the plunger-rod soldered slightly, so as to be readily detachable when desired for use, substantially as herein set forth.

3. In a hand fire-extinguisher, an ejecting-tube, one end provided with a valve and outwardly contracted so as to form a nozzle, having therein a stopper, the said tube provided with a lateral opening having a ball-valve held in position by means of wires communicating by means of a small tube with the fluid at the opposite end, substantially as herein set forth.

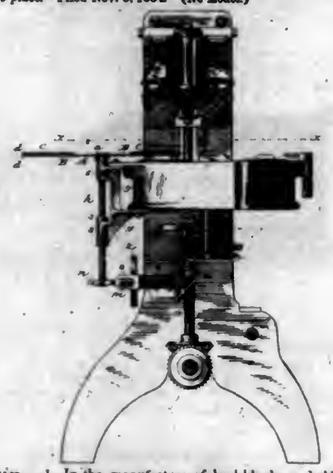
4. The combination of a metallic shell having segmental heads, one of the said heads provided with an opening having a cap soldered thereon, with a pair of inner tubes, one of them having therein a valve, thence contracted outwardly through the head, forming a nozzle, the inner part of the tube provided with a plunger for ejecting the fluid, the other tube extending to the opposite end of the shell, the two connected by means of an opening having therein a ball-valve, the whole arranged as and for the purpose substantially as herein set forth.

320,227. HAY RAKER AND LOADER. J. HUFF CORCORAN and LUDWIG RUMMEL, Aldea, Iowa. Filed May 24, 1884. (No model.)



Claim.—The combination, with the rake and elevator, of a pivotally-secured bar having a series of rods supported on the elevator for weighting the hay in the rake and pressing it against the elevator-apron, substantially as shown and described.

320,228. MACHINE FOR FORMING HEEL-BLANKS. CHARLES L. COTTON, Chelsea, Mass., assignor to the Mansell Heel Machine Company, same place. Filed Nov. 5, 1884. (No model.)



Claim.—1. In the manufacture of heel-blanks, a holder for the pieces of leather from which the lifts are to be cut, consisting of a plate or support, substantially as described, for the leather, an aperture therein corresponding to the shape of the lifts, and suitable clamping means for holding the leather upon the supporting-plate and over said aperture, combined with a cutting-die and block, substantially as described.

2. An attachment for presenting pieces of leather to the cutting-die and block of a heel machine, consisting of a series of holders for the pieces of leather provided at suitable intervals with apertures conforming to the shape of the lift to be cut, suitable clamping means, and means, substantially as described, adapted to move the holder intermittingly to bring each aperture successively over the cutting-die, whereby the lifts are cut from the pieces of leather clamped over such apertures and the heel-blank formed therefrom, substantially as described.

3. An attachment for applying pieces of leather to the cutting-die and block of a heel-machine, consisting of a holder having arms radiating from a central hub, an aperture conforming to the shape of the lift to be cut in the end of each of said arms, clamping devices thereon for holding the pieces of leather, and means, substantially as described, adapted to move the holder intermittingly to bring the aperture in each arm successively to the cutting-die, substantially as described.

4. An attachment for applying pieces of leather to the cutting-die and block of a heel-machine, consisting of a holder with arms radiating from a central hub, each arm being composed of a part, B, and a clamp, C, and both having an aperture conforming to the shape of the lift to be cut, the pieces of leather being held between the parts, and means, substantially as described, adapted to move the arms successively to the cutting-die, substantially as described.

5. An attachment for applying pieces of leather to the cutting-die and block of a heel-machine, consisting of a revolving holder for the pieces of leather provided at suitable intervals with apertures conforming to the shape of the lift to be cut, suitable clamps for holding the leather over such apertures, and mechanism for moving the holder intermittingly, consisting of a shaft, *h*, to which the holder is connected, a ratchet-wheel, *n*, on said shaft, and a pawl mechanism adapted to operate the ratchet *n* through power derived from the driving-shaft of the heel-machine, substantially as described.

320,229. ELECTRIC CABLE. PATRICK B. DELANY, New York, N. Y. Filed Dec. 2, 1884. (No model.)

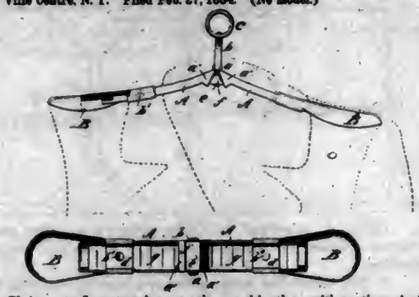


Claim.—1. The combination of a conductor or series of conductors, insulating-buttons strung thereon, and a metallic sheath or pipe formed around the cable, as described.

2. The combination, substantially as set forth, of a conductor or series of conductors, a series of abutting incombustible insulating-buttons strung thereon, and a lead sheath formed thereon, as described.

3. The combination, substantially as set forth, of a conductor or series of conductors, a series of abutting incombustible insulating-buttons strung theron, a metallic sheath formed thereon, as described, and an insulating compound which occupies the space around and between the conductor or conductors and buttons.

320,230. FOLDING COAT-HANGER. GEORGE H. DONALDSON, Westville Centre, N. Y. Filed Feb. 27, 1884. (No model.)



Claim.—1. In a coat-hanger, the combination, with sections A A, of the adjustable block and its supporting screw-rod, said sections being hinged, and said screw-rod being fixed to a common hinge-pin, substantially as and for the purpose set forth.

2. In a coat-hanger, the hinged sections A A, having the sliding sections B B, in combination with the adjustable block *f*, said hinged sections and block being connected to a common hinge-pin, substantially as and for the purpose set forth.

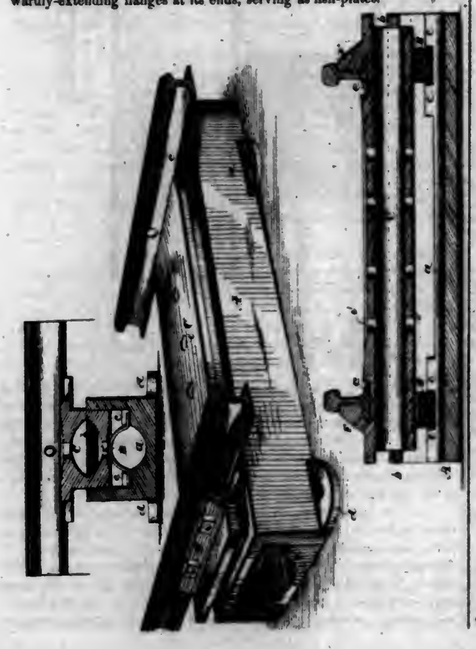
3. In a coat-hanger, the combination, with the hinged sections, of the block adjustable upon a screw-rod fixed to the hinge-pin of said sections, substantially as and for the purpose set forth.

4. In a coat-hanger, the sections A, hinged together and formed with the inclined portions *a' a'*, in combination with the sliding sections B B and adjustable block *f*, for varying the pitch of the sections, substantially as and for the purpose set forth.

5. The sections A A, secured together by the hinge-pin, and provided with the sliding sections B B, the hinge being provided with an adjustable block, *f*, and the yoke *b*, having ring *c* swiveled thereto, substantially as and for the purpose set forth.

320,231. CROSS-TIE FOR RAILROADS. EDWARD D. DOUGHERTY and GEORGE B. BRYANT, Philadelphia, Pa. Filed July 5, 1884. (No model.)

Brief.—The cross-tie rests upon springs mounted within the rectangular supporting-box, and is provided with a perforated concave upper surface. The ends of the ties are recessed for the rail, and have upwardly-extending flanges at its ends, serving as fish-plates.



Claim.—1. The combination, with a rectangular box and a cross-tie to which the rails are rigidly secured, of yielding cushions interposed between the box and tie.

2. The combination, with a rectangular box and a cross-tie resting in said box, of semi-elliptic springs interposed between the box and tie.

3. The combination, with the box having the lugs *c* and the springs, the ends of which rest between the lugs, of a cross-tie resting on the springs.

4. A cross-tie for railroads, having recesses formed therein near opposite ends and upwardly-extending flanges or fish-plates located alongside of said recesses, substantially as set forth.

5. The combination, with a box open at the top and ends, of a tie having vertical perforations or openings passing through the same.

6. The combination, with a box open at the top and ends, of a tie having a concave or dished upper surface and perforations passing through the tie.

7. The combination, with a box open at the top and ends, of a hollow tie having a dished upper surface and perforations passing through the tie.

8. The combination, with the box and the tie, of the springs interposed between the tie and box, all of the above parts combined and constructed as described.

320,232. SECONDARY BATTERY. JAMES DU SHANE, South Bend, Ind. Filed July 26, 1884. (No model.)

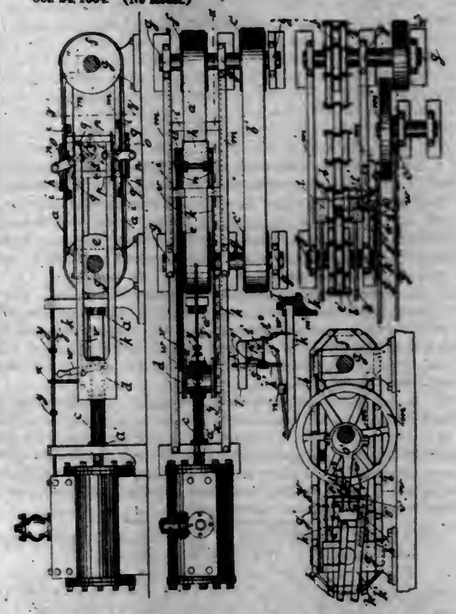


Claim.—1. An electrode for storage or secondary batteries, consisting of a tube of suitable material having a spiral groove formed around its outside by cutting into and upsetting the metal, substantially as specified.

2. An electrode for storage or secondary batteries, consisting of a tube of suitable material having a spiral groove around its outside, formed by cutting and compressing the metal, and lateral perforations, substantially as specified.

3. An electrode for storage batteries, consisting of a metallic tube having a spiral groove around the outside, and lateral perforations extending through the walls, the tube being pinched and closed at one end, substantially as and for the purposes specified.

320,233. STEAM-ENGINE. LARKIN B. ELLIS, Vernon, Mich. Filed Oct. 24, 1884. (No model.)



Claim.—1. The combination, with the piston-rod of a steam-engine or other reciprocating driver, of an endless belt or chain arranged in the

line of the piston-rod, and means, substantially as described, for alternately connecting said rod with the upper and lower ranges of said belt or chain when the motion of the piston reverses, to drive the belt or chain continuously in the same direction, substantially as described.

2. The combination of clamps *h i* with the endless belt *a* and sliding block *l*, connected with the piston-rod *c*, said clamps being provided with means, substantially as described, for causing them to alternately grip and release the upper and lower ranges of the belt, respectively, as the motion of the piston-rod reverses, substantially as herein set forth.

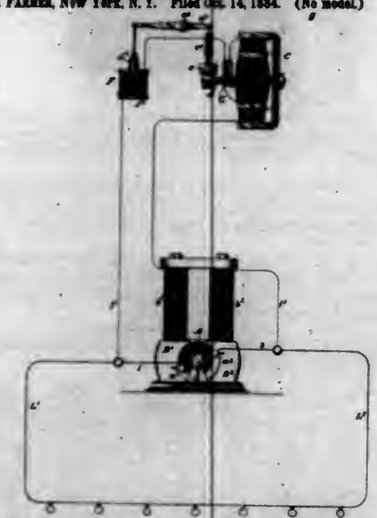
3. The clamp-plates *h* and *i*, pivoted to the links *n* on opposite sides of the belt *a*, and said links *n* pivoted to the slide *l*, in combination with a stop device to hold the clamp slack on the back stroke, substantially as described.

4. The combination, with the slide *l* and clamp-plates *i*, of the stops *p*, connected to rock-arms provided with a crank, and said crank connected with a shifting-lever for reversing said stops to reverse the motion of the driving-belt, substantially as described.

5. The combination of the auxiliary belt *b'* and pulley *c'* with the driving-belt *a* and pulleys *a f*, and a driving-slide, *l*, having means, substantially as described, for alternately engaging and driving the upper and lower ranges of the belt, substantially as set forth.

6. In an endless-chain mechanism, combined with the reciprocating slide *l* of a steam piston-rod, a reversible driving-pawl, *g'*, and means fo rreversing, it arranged on the slide and in relation to the chain, substantially as described.

320,234. REGULATOR FOR DYNAMO-ELECTRIC MACHINES. M. G. FARMER, New York, N. Y. Filed Oct. 14, 1884. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, with a dynamo-electric generator, of an electric motor included in the circuit of the field-magnets of the same, an electro-magnet in the circuit with said field-magnets and motor, and a brake applied to said motor, the pressure of which is decreased or increased by the action of said electro-magnet, accordingly as the strength of current traversing the motor is increased or decreased.

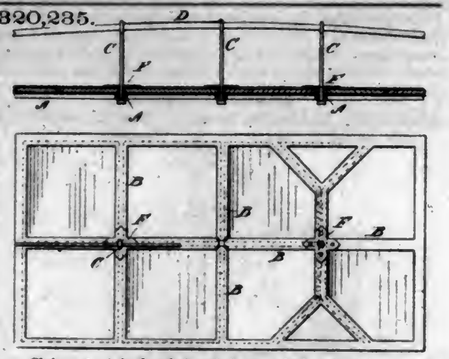
2. The combination, substantially as hereinbefore set forth, with a dynamo-electric generator, of a motor included in circuit with the coils of the field-magnet of said generator, for establishing a counter-current in said coils, and an electro-magnetic regulator included in circuit with said coils and motor, serving to control the strength of such counter-current, substantially as described.

3. In a dynamo-electric machine, the combination, substantially as hereinbefore set forth, with the field-magnet coils and the work-circuit of an electric generator, of an electric motor included in the circuit with said field-magnet coils, a brake applied to said motor, an electro-magnet, also included in the circuit of said field-magnet coils for controlling the operation of said brake, its armature, and a yielding mechanical connection between said armature and said brake.

320,235. CONSTRUCTION OF SKYLIGHTS, &c. ALPHONSE FRIEDRICH, Brooklyn, N. Y. Filed Nov. 3, 1884. (No model.)

Brief.—The meeting-bars of a leaden sash are formed around a central pin. The whole is then flooded with solder and pin withdrawn, leaving a hole at the junction of the bars. There is a wire frame under the leaden sash, connected by rods C, passing through the holes in the sash, to a supporting-frame, D.

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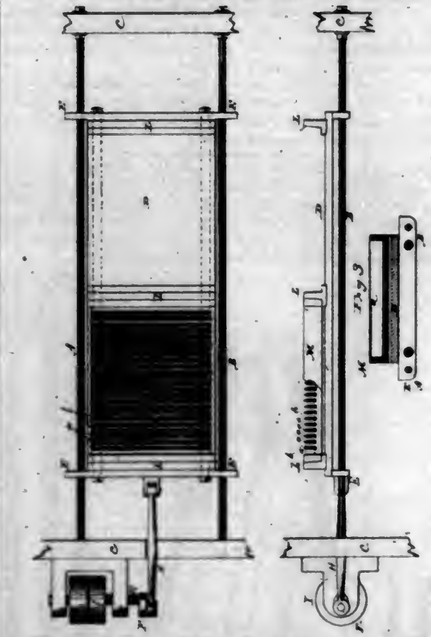
Claim.—1. A lead sash for windows, united at the joints, substantially as described, and having holes through the soldered portion, as specified.

2. The combination, with a leaden sash provided with holes at the points of junction of its bars, of supporting-bars and rods connecting the sash to the said supporting-bars, substantially as specified.

3. The eyelets G, combined with a lead sash, substantially as and for the purposes specified.

4. The combination, with the sash A B, provided with apertures at the points of junction with the sash-bars, of the supporting-bars D and connecting-rods C, substantially as specified.

320,236. MACHINE FOR COUNTING GUN-WADS. JOHN GARDNER, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. Filed Mar. 30, 1885. (No model.)



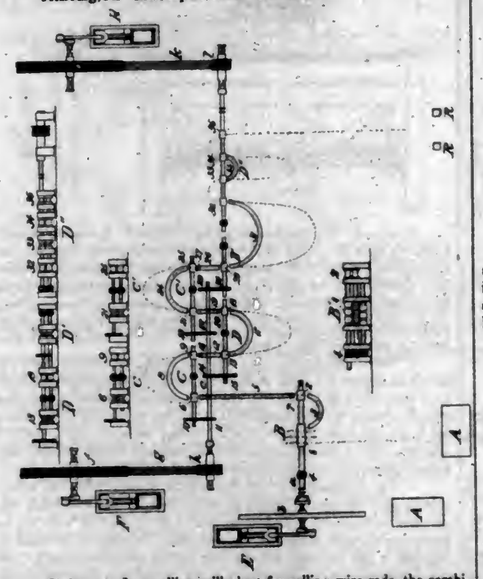
Claim.—1. The combination of a reciprocating carriage, D, with the removable plates M, the said plates constructed with a series of transverse grooves, corresponding in width to the thickness of single wads and in length to the combined diameter of a given number of wads, and the said carriage adapted to receive said plates, and constructed with stops to support said plates against longitudinal movement independent of the carriage, substantially as described.

2. The combination of the reciprocating carriage D with one or more removable plates, M, said plates constructed with a series of transverse ribs, *a a*, forming a corresponding series of transverse grooves, *b*, the said grooves corresponding in width to the thickness of single wads and in length to a given number of wads, the said ribs at their upper edge contracted in thickness to open the entrance to the grooves, the said carriage provided with stops adapted to receive the said plates and

prevent longitudinal movement independent of the carriage, substantially as described.

3. The herein-described plate for counting wads, constructed with a series of transverse ribs, *a a*, forming a corresponding series of transverse grooves, *b*, the said grooves corresponding in width to the thickness of single wads and in length to a given number of wads, the said ribs at their upper edge contracted in thickness to open the entrance to the grooves, substantially as and for the purpose described.

320,237. ROLLING-MILL FOR WIRE RODS. WILLIAM GARRETT, Pittsburg, Pa. Filed Apr. 6, 1885. (No model.)



Claim.—1. In a rolling-mill plant for rolling wire rods, the combination of the billet-train B and the rod-trains C, C', D, and D', each succeeding train being driven at an increased rate of speed as compared with the preceding train proportional to the amount of reduction and consequent elongation effected by the last pass of the preceding train, a finishing-train, D'', and suitable troughs or guides between the last pass of one train and the first pass of the next train for conducting, and, except for the last train, turning the bar or rod on its axis, substantially as set forth.

2. In a rolling-mill plant for rolling wire rods, the combination of the trains B, C, D, and C', each train composed of two pairs or sets of rolls, the train D', the rolls of each train being driven at the same rate of speed, but each succeeding train being driven at an increased rate of speed as compared with the preceding train proportional to the amount of elongation effected by the last pass of the preceding train, curved guides for connecting each pair of rolls composing the trains B, C, D, and C', adapted to permit of the looping out of the rod between such pairs, and a trough and turning-guide between the last pass of one train and the first pass of the next train for conducting and turning the bar on its axis, substantially as set forth.

3. In a rolling-mill plant for rolling wire rods, the combination of the trains B C D C', each composed of two pairs or sets or rolls, the first pair of rolls of each train being provided with suitable grooves for the production of bars square or round in cross-section, and the second pair of rolls of each train having grooves adapted to produce bars or rods oval in cross-section, a train, D', having grooves adapted to produce an oval bar, a guiding-trough and turning device interposed between the last pass of one train and the first pass of the next train for conducting and turning the bar on its axis, substantially as set forth.

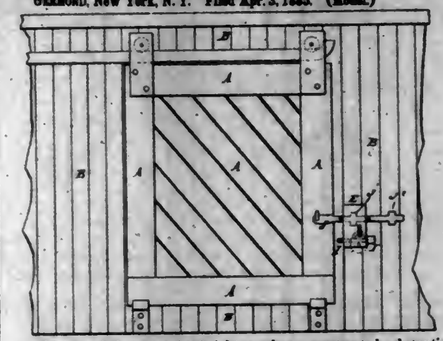
320,238. ELECTRICAL PUSH-BUTTON. JOHN GEARY, Philadelphia, Pa. Filed Apr. 15, 1884. (No model.)



Claim.—1. The combination, in an electrical push-button, of base A, cylinder or cap B, button C, spring D, spring-staple E, having converging ends e^2 e^2, and naked wires *f f'*, which pass through holes in said base and are permanently secured therein, substantially as shown and described.

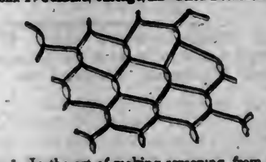
2. In an electrical push-button, the combination, with spring-staple E, having a lug, e' or e^2, of transverse pin *g* in base A, substantially as shown and described.

320,239. FASTENING FOR FREIGHT-CAR DOORS. GILBERT A. GERMOND, New York, N. Y. Filed Apr. 3, 1885. (Model.)



Claim.—A fastening for freight-car doors, constructed substantially as herein shown and described, and consisting of the base part C, having eyebolt D' and cross-grooves C' C², the hinged cover E, having slot E' and eyes F H, the perforated pin I, and the perforated hasp J, having one or more cross-heads, J' J², as set forth.

320,240. PROCESS OF MAKING METALLIC SCREENING MATERIAL. JOHN F. GOLDING, Chicago, Ill. Filed Dec. 13, 1883. (No model.)



Claim.—1. In the art of making screening from slashed metallic plates or sheets, the improvement of bending the strands flatwise, line after line of strands successively, in forming the meshes, and setting the strands, substantially as before set forth, so that the strands will be disposed edgewise in the thickness of the finished screening.

2. The process herein shown for making slashed metallic screening, which consists as follows: making a series of rows of incisions or cuts throughout the metal, and between these incisions or cuts leaving uncut spaces, each uncut space being alongside of and between two incisions or cuts, and at or near the center of said cuts, the incisions or cuts of each row of incisions or cuts made to alternate with the uncut spaces throughout the entire piece of metal, opening the incisions or cuts in a manner to cause the cut edges to be passed by each other all in the same direction perpendicular to the original plane of the metal, thus bending each strand in opposite directions at points at or near the uncut spaces sufficiently to set the metal and maintain the mesh, the metal being so expanded that the several strands have their greatest extension in the direction of or near a right angle to the orignal plane of the metal, and a less movement of the ends toward the center, thus expanding the metal into a mesh.

320,241. MACHINE FOR MAKING SLASHED METALLIC SCREENING. JOHN F. GOLDING and GEORGE B. DURKEE, Chicago, Ill., assignors to the Expanded Metal Company. Filed Aug. 23, 1884. (No model.)

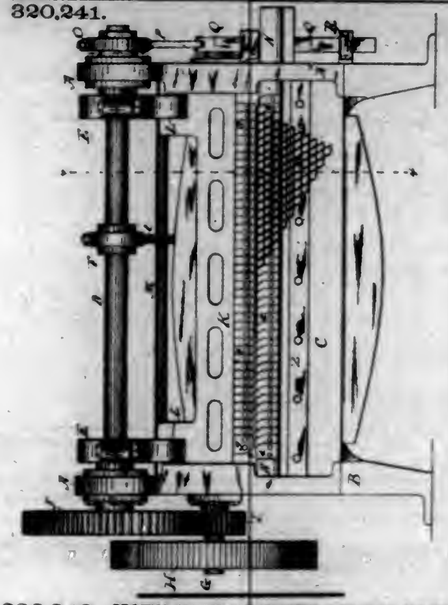
Claim.—1. In a machine for cutting slashed metallic screening, the combination of the upper bar, K, provided with the cutters *g g*, and having a vertical movement, with the lower bar, N, provided with cutters *a a*, and having a longitudinal movement, as and for the purpose shown.

2. In a machine for cutting slashed metallic screening, the bar K, provided with cutters cutting over bar N, provided with similar knives, the first working vertically while the second is working horizontally, to provide the necessary cutting-surface and space for the cut loops to expand.

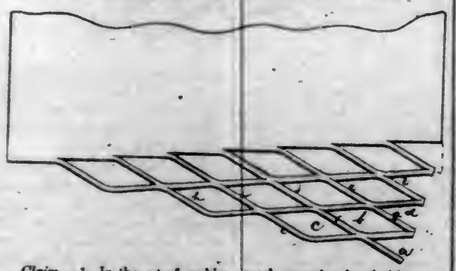
3. In a machine for cutting slashed metallic screening, the cutters in each cutter-bar arranged one overlapping the other, for the purpose of simultaneously cutting a number of slashes and forming loops, leaving uncut sections between them for the purpose of forming a continuous mesh from one piece of metal without cutting away or wasting any of the material, as and for the purpose shown.

4. The combination of the cutter-bar provided with cutters set at a slight angle with the surface of the bar with guides whose faces are parallel with the faces of the cutters, causing the cutters to travel in a line with their own faces and the bar to have a slight oblique movement, substantially as shown.

320,241.



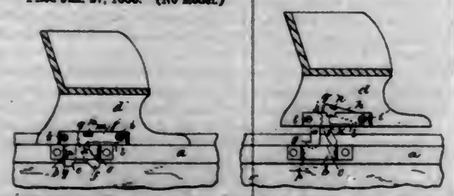
320,242. PROCESS OF MAKING SLASHED METALLIC SCREENING. JOHN F. GOLDING and GEORGE B. DURKEE, Chicago, Ill., assignors to the Expanded Metal Company. Filed Sept. 5, 1884. (No model.)



Claim.—1. In the art of making metal screening by slashing metallic plates or sheets and then bending the strands flatwise line after line successively in forming the meshes and setting the strands, the improvement which consists of opening successive lines of meshes on lines parallel with one another, but oblique to the original edge of the sheet, substantially as before set forth.

2. The process herein shown and described of making slashed metallic screening, which consists in cutting successive slashes or incisions in the sheet, beginning at one side and near the corner thereof, and pressing the strips thus partially disconnected from the sheet successively away from the sheet in a direction oblique thereto, but otherwise in a plane perpendicular to said sheet, or substantially so, the two operations, as well as the further operation of bending the connected material and giving form and set to the meshes, being effected by the simultaneous operations of slashing and pressing.

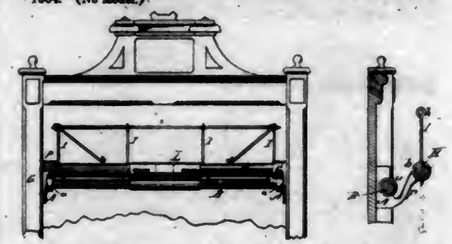
320,243. SEAT-FASTENER. ALBERT B. HALSTED, Hobart, N. Y. Filed Jan. 27, 1885. (No model.)



Claim.—1. The hook-stud *e* and key-latch *f h*, attached to the seat-riser *c*, in combination with the guard-cleat *j* on the seat-riser, and the box-cleat *b* on the seat-supporting rail *a*, said key *f* consisting of a curved prong of the latch-bar *h*, fitted on the pivot *i* of the guard-cleat, and said guard-cleat having a curved recess, *k*, for the key, substantially as described.

2. The key-latch *f h*, having the thumb-bit *n*, and being pivoted to the seat-riser within the guard-cleat *j*, having the recesses *k* and *l*, and notch *m*, in combination with the hook-stud *e*, attached to the seat-riser, and the box-cleat *b*, attached to the rail *a*, substantially as described.

320,244. PILLOW-SHAM HOLDER. WILLIAM E. HAMMOND, Meriden, Conn., assignor to Gilbert A. Gladwin, same place. Filed Sept. 22, 1884. (No model.)



Claim.—1. The combination of the brackets A A, adapted to take a bearing upon the inside of the respective posts of the bedstead, the longitudinal elastic rod B, arranged between said brackets, and so as to bear thereon with an elastic pressure and support the said brackets against the respective posts, the brackets constructed to form bearings for the pillow-sham frame and the pillow-sham frame hung in the said bearings, substantially as described.

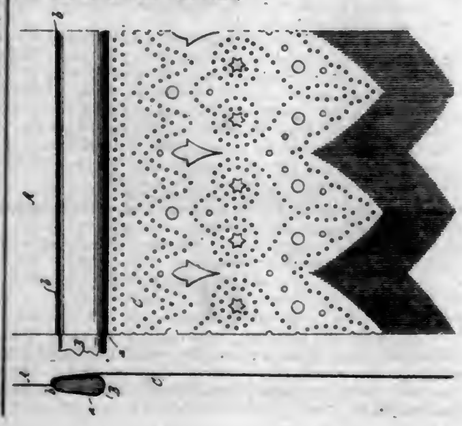
2. The combination of the brackets A A, constructed upon one face to fit against the inside of the respective posts, and upon the inner or reverse side with a socket, *a*, and also with an outwardly-projecting arm, F, each arm constructed with a bearing, G, longitudinally-elastic rod B, its two ends taking a bearing in the socket of the respective brackets, and the shaft H, arranged in said bearings G, and provided with radially-projecting arms I, substantially as described.

3. The combination of the brackets A A, constructed to take a bearing upon the inside of the respective posts of the bedstead, a longitudinally-elastic rod arranged to bear said brackets against the respective posts, each bracket constructed with a bearing, G, the shaft H, arranged in said bearings, and carrying radially-projecting arms I I, one of said bearings constructed with a notch, *d*, and the shaft with a corresponding stud, *e*, substantially as and for the purpose described.

4. The combination of the brackets A A, constructed to take a bearing upon the inner side of the respective posts, the longitudinally-elastic rod B, arranged to bear said brackets against the respective posts, each bracket constructed with a bearing, G, the shaft H, constructed in two parts, a sleeve, L, adjustably uniting the said two parts, and the said parts carrying radially-projecting arms I I, substantially as described.

5. The combination of the brackets A A, constructed to take a bearing upon the inside of the respective posts of the bedstead, the longitudinally-elastic rod B, arranged to bear the brackets against the respective posts, each bracket constructed with a socket, G, and the shaft H, carrying the radial arms I, and supported in said bearings G, one of said bearings G open and provided with the hinged cover P, substantially as described.

320,245. WINDOW-SHADE. ERNEST J. HAHN, Jersey City, N. J. Filed Jan. 29, 1885. (No model.)



Claim.—1. The combination, substantially as hereinbefore described, with a shade-roller and the stiffening-strip, of a paper, muslin, or linen shade made of one piece, and having a portion which overlaps and falls below the stiffening-strip, said portion being provided with perforations and fringe or scallops in imitation of lace.

2. The combination, substantially as hereinbefore described, with a shade-roller and the stiffening-strip, of a paper, muslin, or linen shade which is made of one piece, the loop *c* formed at a distance from its lower end for the reception of the stiffening-strip, the part below the loop being provided with perforations, fringe, or scallops in imitation of lace.

320,246. CAR-WHEEL. JAS. B. HANSELL, Sheffield, County of York, England. Filed Apr. 4, 1885. (No model.) Patented in England Nov. 3, 1883, No. 5,237.

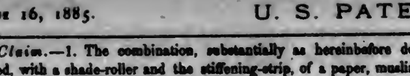


Claim.—1. A wheel having a tire part, A, provided with a rim, C, with a set of inwardly-projecting ears, D, at intervals integral therewith, and a body part provided with a rim, E, having a set of inwardly-projecting ears, H, at intervals integral therewith, spokes, and a hub, the sides of the rim E having recesses J, which coincide in position with the ears H and receive the ears D of the tire part, the two sets of the ears occupying coincident positions on the inner periphery of the wheel, and being firmly secured together, substantially as described.

2. A wheel formed of the tire part A, having a rim, C, with inwardly-projecting ears D, and a body part consisting of a rim, E, with inwardly-projecting ears H and recesses J, and a hub with two sets of spokes which alternate, and are curved in opposite directions, and join the hub in different planes, and join the tire in the same plane, the ears D H occupying coincident positions on the inner periphery of the wheel, and being firmly secured together, substantially as described.

3. A wheel formed of a tire part having a rim and inwardly-projecting ears integral therewith and a body part consisting of a rim having inwardly-projecting ears integral therewith, with spokes and a hub, the sides of the rim of the body part being recessed to receive the ears of the tire part, the two sets of ears occupying coincident positions on the inner periphery of the wheel and secured together, substantially as described.

320,247. SPRING SHADE-ROLLER. STEWART HARPENDING, Millburn, N. J. Filed Aug. 6, 1884. (No model.)



Claim.—1. In a spring shade-roller, the combination, with the roller, of the end plate having a screw-thread collar centrally thereon for entering the bore of the roller, substantially as and for the purpose described.

2. In spring shade-rollers, the combination, with the roller, of the end plate having a central screw-collar for attaching the same to the roller and spindle and spring, the latter being attached by its inner end to the spindle and by its outer end to the end plate by the screw-thread on the collar.

320,248. TEMPORARY WRAPPER FOR CIGARS. CARL H. HAUSE, Brooklyn, N. Y., assignor of two-thirds to Carl Vogt and Charles Vogt, both of same place. Filed June 14, 1884. (No model.)



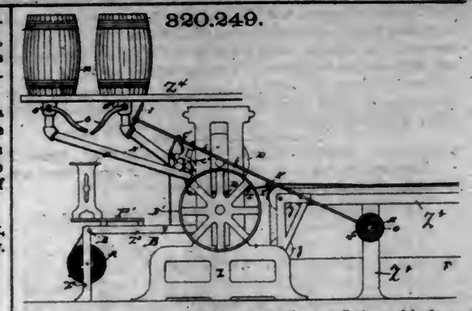
Claim.—A paper wrapper for cigar-bunches, composed of a sheet approximately rectangular in form, and provided with scallops and tongues at opposite edges, which tongues serve to hold the tips and butts, substantially as described.

320,249. STARCHING AND TENTERING MACHINE. CARLOS B. HAYNES, North Adams, Mass. Filed Mar. 18, 1884. (No model.)

Brief.—The machine is so constructed and arranged that a single operator can, without removing from his seat, control and regulate the width of the tentering-chains and flow of starch, and see that the cloth is feeding through said machine properly.

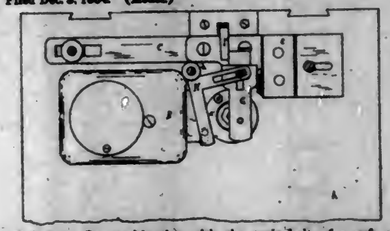
Claim.—1. The combination, with the rolls D, fixed frame Z, extension Z', platform P', and seat P, of the starch-barrels M, the conductors N, cocks O', and long handles O, and means for supporting barrels M and for operating rolls D, as set forth.

320,249.



2. The combination of the rolls D, the seat P, located in front of said rolls, the starch-barrels M, conductors N, cocks O', and long handles O, as set forth, and the screw-shaft G, gears H and H', shaft K, hand-wheel I, and supports for the starch-barrels and seat, as set forth.

320,250. COUPLING DEVICE FOR SAFE-SPINDLES. MENHAM HEISLER, Cincinnati, Ohio, assignor to Mosler Safe and Lock Company. Filed Dec. 3, 1884. (Model.)



Claim.—1. In combination with the train-bolt of a safe and the bolt of a combination-lock, the angle-piece G, secured to the slide of the train-bolt, and the vertical sliding coupling device F, and the crank-lever H, said lever having one arm connected to the sliding bolt F, and the other arm connected to the bolt of the combination-lock, the said coupling device F having a notch, *f'*, to be engaged with and disengaged from the crank-pin of the bolt-spindle by retracting and protruding the bolt of the combination-lock, substantially as specified.

2. The combination, substantially as specified, of the sliding bar C, angle-piece G, secured thereon, and the coupling device F, secured to slide vertically on said angle-piece G, with the spindle E, bell-crank H, and lock B.

320,251. VENTILATOR. REINHOLD F. HEINTHORN, Cleveland, Ohio. Filed June 13, 1884. (No model.)



Claim.—1. In a window-ventilator, the combination, with the metal frame C, having a slot and adapted to be set in a recess of the window-sash, of the valve D, which is pivoted at its lower edge and provided with the arm F, projecting rearwardly through said slot, and the cords extending back through said recess and down the inner side of the window, as shown and described, to operate as specified.

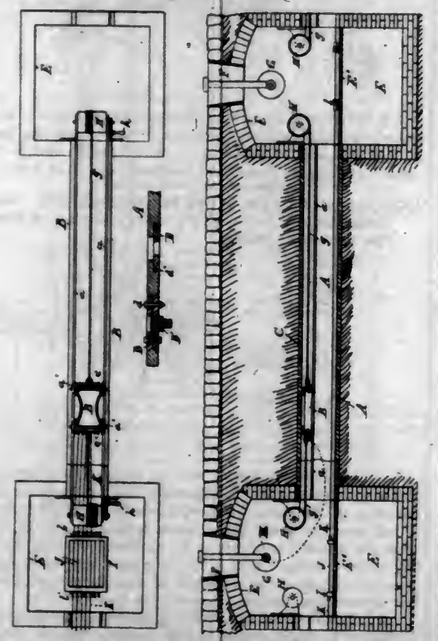
2. In combination with the recessed window-sash and the valve D, pivoted on one side thereof, the deflector I, which is attached on the opposite side of the sash and curved downward, as shown, and the valve-operating cords G, which extend through said deflector and recess, and are thus made accessible on the inner side of the window, as shown and described.

320,252. TEY-SPIGOT FOR BEER. MENHAM HEY, Philadelphia, Pa. Filed Jan. 20, 1885. (No model.)



Claim.—A spigot formed of a shell with an induction-port, *a*, and an eduction-port, *b*, and a rotary valve within the shell having an induction-port *c*, and eduction ports *d e* near the end of the valve, leaving said ends solid, said eduction-ports *d e* extending from the bore of the valve at the front end thereof and adapted to be placed in communication with the eduction-port *b*, which forms the common means of discharge of fluid passed through said ports *d e*, substantially as described.

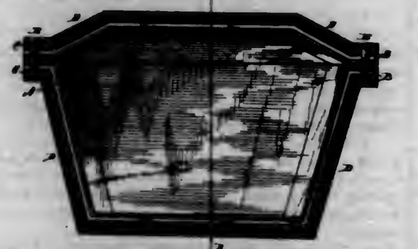
320,253. ELECTRICAL CONDUIT AND DISCHARGER. EDMOND H. HOFFMANN, Newark, N. J., assignor of one-half to Jabez Fearey, same place. Filed June 7, 1884. (No model.)



Claim.—1. The combination, with an electrical conduit and a series of line-wires therein, of a discharging device consisting of a frame containing a series of parallel conductors, clamps or posts at each end of such conductors, and a discharging-wire traversed back and forth between such conductors and connected with the ground, substantially as and for the purpose set forth.

2. The combination, with a conduit adapted to receive a series of electrical line-wires, of man-hole chambers provided with an induction discharging device having a series of separate insulated conductors provided with binding-posts at their extremities, to receive and to extend such line-wires, substantially in the manner herein shown and described.

320,254. BURIAL-CASE. J. CARROLL HOUSE, Lowville, N. Y. Filed July 19, 1884. (Model.)



Claim.—A burial-case constructed of layers of asbestus, superimposed over a suitable form, said layers being cemented each to the other by a stratum of asphaltum or its equivalent, and one or more of the respective layers saturated with a solution of asphaltum or its equivalent, to render it water-proof, the whole strengthened and supported by transverse strips of metal soldered or united at their points of intersection and retained in place between layers of the constituted case, substantially as and for the purpose specified.

320,255. HINGE. DAVID K. JACKMAN, Poughkeepsie, N. Y. Filed Feb. 23, 1885. (Model.)



Claim.—In a hinge, the combination of the hooked lugs *a a'*, formed upon the frame in casting without a core, and the pintle and its arms *b b* cast upon the door itself and furnished with groove *b'* to allow it to pass within the hooked lugs, as shown and described, and for the purposes set forth.

320,256. PROCESS OF MAKING SODIUM CARBONATE. ADOLF KAYSER, Buffalo, N. Y., assignor of two-thirds to Albert B. Young and Horace Williams, both of same place. Filed Apr. 9, 1884. (No specimens.)

Claim.—1. The process herein described of converting sulphate of soda into carbonate of soda, (in contradistinction to converting sulphate of soda into sulphide of sodium,) which consists in heating the sulphate of soda in a suitable vessel to a low red heat below the smelting-point of the sulphate, and causing a current of carbonic-acid gas and carbon-monoxide, substantially one equivalent of each, to flow through the heated sulphate, forming carbonate of soda and sulphurous acid, substantially as set forth.

2. In the manufacture of carbonate of soda, the process of converting common salt into carbonate of soda, which consists in converting sulphate of soda into carbonate of soda by heating the sulphate of soda in a suitable vessel to a low red heat below the smelting-point of the sulphate, and causing a current of carbonic-acid gas and carbon-monoxide, substantially one equivalent of each, to flow through the heated sulphate, forming carbonate of soda and sulphurous acid, and in employing the sulphurous-acid gas generated by this treatment for the conversion of common salt into sulphate of soda, substantially as set forth.

320,257. GATE. JOHN H. KEPNER, Indiana, Pa. Filed Oct. 31, 1884. (No model.)



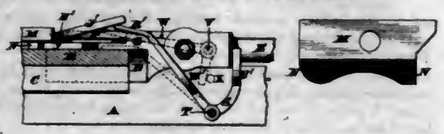
Claim.—1. The combination, in a vertically-adjustable horizontally-swinging gate, of the panels b^2 b^2, the eyebolt-hinges, the slotted face-plate E, the clasps *d d'* d^2, and the nuts, substantially as described.

2. The combination, with the gate and its posts, of the eyebolt-hinges, their clasps and nuts, the slotted plate E, the screw-pivot *a'*, the slotted plate H, and the fastening-bolt, substantially as described.

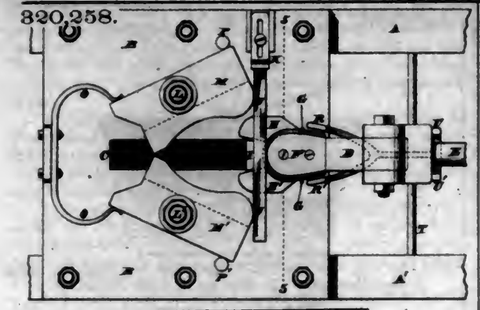
3. In a gate, the combination of the panels b^2 b^2, with the hinge, the slotted face-plate E, the clasps *d* and *d'*, and retaining-nuts, whereby said gate is vertically adjustable, substantially as and for the purposes set forth.

320,258. HORSESHOE-BENDER. WILLIAM S. KNIGHT, Bellevue, Ky., assignor of two-thirds to SAMUEL T. J. COLEMAN and EDMUND B. REYNOLDS, both of Cincinnati, Ohio. Filed Nov. 28, 1884. (No model.)

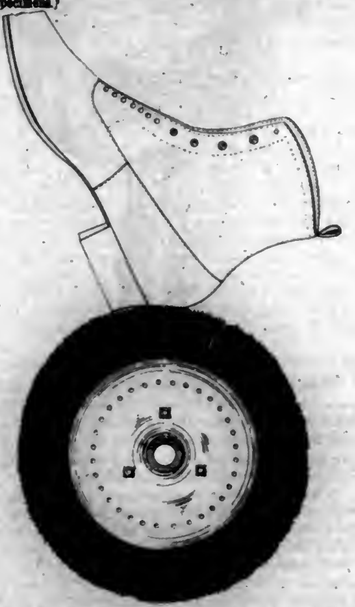
Claim.—The combination, in a bending-machine, of the bed-plate B, provided with a pair of pivoted and rabbeted shaping-jaws L M N L' M' N', and reciprocating plunger D, which latter carries a suitable die, F, and is furnished with a pair of lateral wings, H H', that initiate the closure of said jaws in the manner herein described.



320,258.



320,259. METHOD OF CLEANING AND BRIGHTENING LEATHER SURFACES. WILLIAM A. KNIPE, Haverhill, Mass. Filed Sept. 1, 1884. (No specimens.)



Claim.—The described method of cleaning and brightening leather surfaces, which consists in moistening the same and, while still moist, presenting the same to the ends of absorbent textile fibers borne on a rapidly-rotating wheel, whereby the moisture is absorbed and the surface simultaneously brightened, as set forth.

320,260. LACE-FASTENER. THOMAS H. KNUTH, New York, N. Y. Filed Mar. 31, 1885. (No model.)



Claim.—1. As an article of manufacture, a lace-fastener having a base-plate, two springs bent over the top of the base-plate from opposite sides thereof, the adjacent sides of said springs constituting the gripping-jaws, and means for securing the base-plate to an article of wearing-apparel, substantially as set forth.

2. A lace-fastener consisting of the following parts in combination: the base *a*, the eyelet *b*, and the spring gripping-jaws *c* and *d*, bent over from opposite sides of the base *a*, substantially as and for the purpose set forth.

3. A lace-fastener composed of a single piece of metal, and consisting of the base *a*, spring-jaw *c*, having forked end *c'*, and upward bend c^2, the spring-jaw *d*, having the pocket d^2, and the eyelet *b*, or equivalent securing device, substantially as and for the purpose set forth.

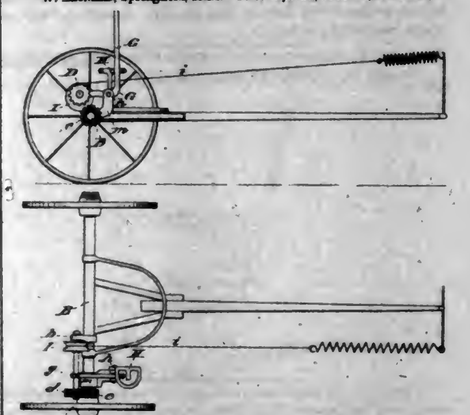
4. A lace-fastener composed of a single piece of metal, and consisting of the base *a*, spring-jaw *c*, longitudinally corrugated and provided with bend c^2, and the spring-jaw *d*, also longitudinally corrugated and provided with the pocket d^2, substantially as and for the purpose set forth.

320,261. SYRINGE FOR APPLYING OINTMENT, &c. JOHN M. LAFLIN, New York, N. Y. Filed Feb. 20, 1885. (No model.)



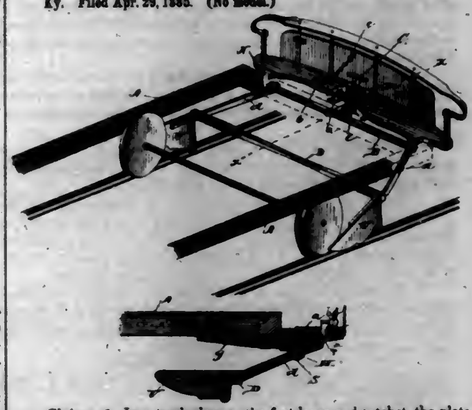
Claim.—In a syringe, the tube *a* and plunger *b*, in combination with stem *c*, provided with slot *l* and notches *m*, gage-thimble *e*, provided with pin *o*, nipple *f*, and cover *d*, substantially as and for the purpose specified.

320,262. VEHICLE DEVICE FOR CHECKING HORSES. WILLIAM W. LEONARD, Springfield, Mass. Filed Apr. 20, 1885. (No model.)



Claim.—In combination with the axle of a vehicle, a wheel provided with a friction-gear, a shaft on the axle having a corresponding friction-gear, and a line leading forward from the shaft for attachment to the animal, a shifting-lever fulcrumed on a projection from the axle and having a bearing for the shaft, so that the friction-gear may be thrown into or out of contact by means of the lever, and a stop by which the lever is held, all substantially as described.

320,263. TRACK-SCRAPER FOR RAILROADS. HARVEY M. LITTELL, St. Paul, Minn., assignor of one-half to Hardin Heth Littell, Louisville, Ky. Filed Apr. 29, 1885. (No model.)



Claim.—1. In a track-cleaner, the foot-lever and ratchet, the plate or guide, and the wedge, in combination with the arms, substantially as described.

2. In a track-cleaner, the foot-lever, the ratchet, the wedge and chain, the plate or guide, the stay-brace, and the oscillating frame B *d'*, in combination with the scrapers, substantially as described, and for the purpose set forth.

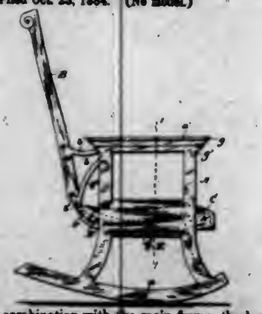
3. In a track-cleaner, the combination of the foot-lever C, placed on the interior of the dash-board L, pivotally secured to the arm *a* and working in the guide *g*, the ratchet *a*, adapted to engage with the groove *r*, the wedge *b*, and chain *c*, and the stay-brace D, holding in place the arms *d d* and scrapers *u u*, substantially as described, and for the purpose specified.

320,264. PIANO SOUNDING-BOARD. JOHN R. LOMAS, New Haven, Conn., assignor of one-half to E. Shendagw, same place. Filed Aug. 25, 1884. (No model.)



Claim.—A sounding-board having a like series of ribs on both surfaces, combined with series of pins extending through the ribs and boards, substantially as described.

320,265. ADJUSTABLE RECLINING-CHAIR. WILLIAM J. MADDOX, Scranton, Pa. Filed Oct. 23, 1884. (No model.)



Claim.—1. In combination with the main frame, the brackets pivoted thereto and fastened to the back, the seat hinged to the back, and the link pivoted to the seat and to the main frame, substantially as described.

2. In combination with the main frame, the brackets pivoted thereto and fastened to the back, the seat hinged to the back and to the link pivoted to the frame, and a locking mechanism for sustaining the seat and back against forward thrusts, substantially as described.

3. In combination with the main frame, the brackets pivoted thereto and fastened to the back, the seat hinged to the lower arm of the bracket, and the links pivoted to the seat and to the frame below the seat, substantially as described.

4. In combination with the main frame and the back and seat, the latter hinged together and supported at one end by the bracket *b* and at the other by the link *c*, and the toothed bars pivoted to the main frame and arranged to engage the lugs attached to the seat, substantially as described.

5. In combination with the movable seat C, provided with the lugs D′, the pivoted bars D, located on either side of the seat and provided with projections *d*, for engagement with lifting-levers, substantially as described.

6. In combination with the movable seat, its lugs D′, and locking-bars D, the two lifting-levers engaging the bars D, connected at their inner ends, substantially as and for the purpose set forth.

7. In an adjustable reclining-chair, and in combination with the main frame thereof, a seat supported at one end upon a link pivoted to the main frame and hinged at the rear end to the back, and a bracket or hanger attached to the back and pivoted to the main frame in advance of the point of attachment to the seat, substantially as described.

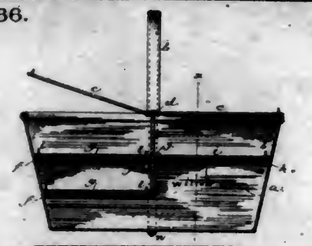
8. In combination with the main frame, the bifurcated brackets or hangers *b*, attached to the back and provided with extensions *b*³, the seat provided with straps *c*′, the pivots, and the links *c*, supporting the forward end of the seat, substantially as described.

320,266. BASKET. EMMA L. HARRIS, New York, N. Y. Filed Sept. 17, 1884. (No model.)

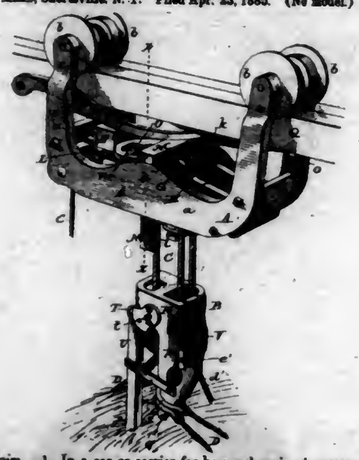
Claim.—1. A provision-basket having a central fixed vertical partition and removable horizontal partition-pieces, with means for supporting the same, whereby several compartments may be formed therein, as and for the purpose set forth.

2. The combination, with the basket-body *a*, provided with the partition *e* and supporting-strip *h*, of the lid *i*, having hook-shaped attachments *j j* for removably securing it in position, as set forth.

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320,267. HAY AND GRAIN ELEVATOR AND CARRIER. EDWIN D. MEAD, Shortsville, N. Y. Filed Apr. 23, 1885. (No model.)



Claim.—1. In a car or carrier for hay and grain elevators and unloaders, the combination of two pulleys provided with teeth upon their opposite faces, and a lever adapted to force the pulleys together or to permit them to separate at will, whereby the pulleys may be caused to rotate together as one pulley or to rotate independently and at different speeds to give additional power when hoisting.

2. In a car or carrier for elevating and unloading hay, &c., the combination of a main body, a frame pivoted therein and provided with two pulleys adapted to be clutched and unclutched to and from each other, a shifting-lever adapted to clutch and unclutch said pulleys, and a beam or lever connected with the pivoted frame and with the shifting-lever, substantially as shown and described, whereby the frame is held up and the pulleys are locked together until a predetermined weight or strain is brought upon the pulleys, and then the frame is caused to descend, raise the beam or lever, and unclutch the pulleys.

3. The combination of a car provided with a vertically-movable frame, pulleys mounted in said frame and adapted to be locked together or disconnected, a shifting-lever for connecting and disconnecting said pulleys, a beam or lever connected with the vertically-movable frame and with the shifting-lever, and a pulley-block suspended from the car by a rope passing about the pulleys of the car and pulley-block, substantially as shown.

4. In combination with a car provided with pulleys adapted to be coupled or uncoupled, and a shifting-lever for controlling said pulleys, a pulley-block provided with pulleys adapted to be coupled and uncoupled, and with a shifting-lever for effecting the coupling and uncoupling of said pulleys, and a rope passing about the pulleys of the car and block, substantially as described and shown.

5. The combination, substantially as set forth, of a car provided with a movable frame, pulleys carried by said frame and adapted to be coupled and uncoupled, a shifting-lever for said pulleys, and a beam connected with the frame and shifting-lever and adapted to be moved by variation of the weight brought upon the pulleys, a pulley-block provided with pulleys adapted to be coupled and uncoupled, a shifting-lever for controlling said pulleys, a push-bar connected with said lever and adapted to be moved by the load as the latter is drawn up to the block, a hoisting-rope passing about the pulleys of the car and block, and a sling or binding-rope attached at one end to the hoisting-rope and at its other end to the pulley-block, whereby the hoisting-rope is caused to move through the car and block equally while the load is being bound or compressed, and then to cease its travel through the block and to have the power of all the pulleys acting independently in lifting the load.

6. In a car or carrier for hoisting, moving, and discharging hay and grain, the combination of body *a*, frame E, pivoted therein, axle *e*, carried in said pivoted frame, pulleys G H, mounted upon said axle and formed with teeth *f*, shifting-lever K, and pivoted beam I, connected with the frame E and shifting-lever K, substantially as described and shown.

7. The combination, in a car or carrier, of a main body, frame E, pivoted therein, and provided with axle *e*, pulleys G H, mounted on said axle and provided with teeth *f*, shifting-lever K, lever I, connected with frame E and lever K, and guide-pulley F, gearing with pulley G, for the purpose explained.

8. In combination with a car or carrier substantially such as described and shown, a guide-pulley mounted therein at one side of the hoisting-rope pulleys, whereby the draft end of the hoisting-rope may be carried beneath the car toward either end thereof without interfering with the hoisting-rope.

9. In combination with track Q, provided with hooks P, car A, provided with yoke M, rod N, pulley *n*, and rope O.

10. In combination with track Q, provided with hooks P, car A, provided with yoke M, pulley-block B, and hoisting-rope C.

11. In a hoisting apparatus, a pulley-block provided with two pulleys adapted to be locked together or released at will, whereby a single or double purchase may be had without changing the arrangement of the hoisting-ropes.

12. In a hoisting apparatus, a pulley-block provided with shell *p*, having inclines *w*, pulleys R S, having teeth *u*, and lever T, provided with inclines *v*, substantially as and for the purpose set forth.

13. In a hoisting apparatus, a pulley-block having its shell *p* provided with inclines *w*, pulleys R S, provided with teeth *u*, lever T, provided with inclines *v*, and push-bar U, connected with the lever T and extending below the lever to be struck and moved by the load.

14. The combination, in a pulley-block, of a pulley having gear-teeth, and a movable frame provided with corresponding teeth and with a nose or dog to enter the groove of the pulley, whereby a rope is permitted to pass freely over the pulley in one direction, but is clamped and held by the dog against movement in the opposite direction.

15. In combination with shell *p* and pulley R, movable frame V, said pulley and movable frame being both provided with teeth *z*, and the frame provided with nose or dog *a*′, substantially as and for the purpose set forth.

16. In combination with shell *p*, pulley R, and frame V, said frame and pulley both provided with teeth *z*, and the frame being further provided with dog *a*′, cord *d*″ for drawing back the frame V.

17. In combination with shell *p*, having nose or horn *q* and latch *r*, pulley R, and frame V, both provided with teeth *z*, and the latter provided with dog *a*′ and roller *c*′, and cord *d*″, attached to latch *r*, passing over roller *c*′ and through shell *p*, substantially as and for the purpose explained.

18. In a hoisting apparatus, the herein-described pulley-block, consisting of shell *p*, provided with inclines *w*, pulleys R S, provided with teeth *u*, lever T, having inclines *v*, push-bar U, frame V, provided with teeth *z* to mesh with like teeth on pulley R, and having dog *a*′ and roller *c*′, and cord *d*″, all substantially as described and shown.

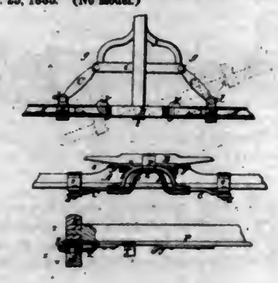
19. The combination, in a car or carrier provided with pulleys G H and shifting-lever K, of a guide-pulley, F, gearing with pulley G, for the purpose explained.

20. The combination of a car provided with pulleys mounted therein and adapted to be locked together or disconnected, a shifting-lever for connecting and disconnecting said pulleys, and a pulley-block suspended from the car by a rope passing about the pulleys of the car and pulley-block, substantially as shown.

320,268. FIRE-KINDLER. JOHN MEIL, Baltimore, Md. Filed Apr. 1, 1885. (Specimens.)

Claim.—As an improved article of manufacture, a fire-kindler consisting solely of fire-clay, treated substantially in the manner set forth, and for the purposes specified.

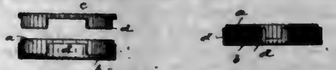
320,269. VEHICLE RUNNING-GEAR. WALTER MILES, Chilton, Wis. Filed Mar. 25, 1885. (No model.)



Claim.—1. In a running-gear, excluding the usual king-bolt and fifth-wheel, the coupling-bars C, counter-pivoted by the double pairs of nut-bolts *d* and *g* to the axle-clips *e*, and the front and rear arms, respectively, of the pair of curved counter-braces *i* and *j*, branching from each side of the perch-plate P, and reciprocally vibrated by the turn and slide of the axle A, underneath the bolster B, mutually counter sliding and riding upon said axle, substantially as and for the purposes herein specified.

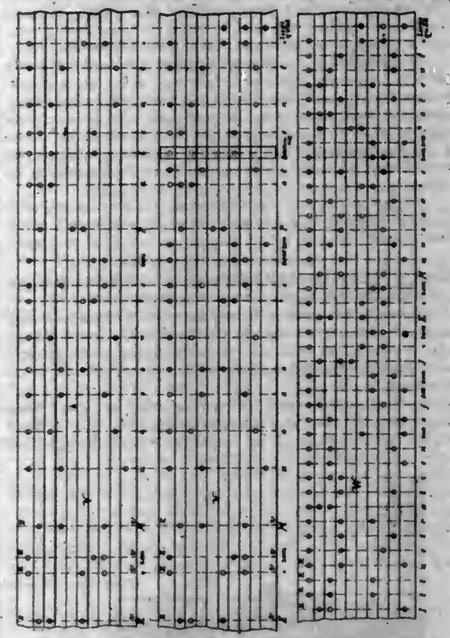
2. The counter riding and sliding bolster-plate *r*, branching from the perch-plate P, furnished with the tongue-hook *t* and the guard-plate *z*, and made to reciprocally operate with the counter-sliding axle-plate *z* by the movement of the axle A, and the mutual counter-vibrations of the doubly-pivoted coupling-bars C, substantially as and for the purposes herein specified.

320,270. NUT-LOCK. ADOLPH L. MITCHELL, Brooklyn, N. Y. Filed Mar. 6, 1885. (No model.)



Claim.—An elastic or yielding washer covered with two metal washers having interlocking flanges, substantially as described.

320,271. PROCESS OF SETTING TYPE. JAMES E. HUDSON, New York, N. Y. Filed May 23, 1882. Renewed Mar. 16, 1885. (No model.)



Claim.—1. The improvement in the art of setting type by machinery, which consists in, first, indicating the composition in or upon a ribbon of paper or similar material by signs representing the different types, spaces, &c., said signs being separated distances proportioned to the running thicknesses of the bodies of the types, &c., represented; second, making the necessary corrections in said ribbon by making additional signs, or eliminating improper ones, or both; third, justifying the composition by making additional signs representing spaces, &c., or eliminating those representing spaces, &c., or both; fourth, reproducing the corrected and justified ribbon, but with its signs uniformly spaced, and, fifth, operating the type-selecting mechanism by means of the ribbon thus produced, substantially as described.

2. The improvement in the art of setting type by machinery, which consists in indicating the composition in or upon a ribbon of paper or similar material by signs representing the types, spaces, &c., said signs being separated distances proportioned to the running thicknesses of the bodies of the types, spaces, &c., represented, substantially as described.

3. The improvement in the art of setting type by machinery, which consists in indicating the composition in or upon a ribbon of paper or similar material by signs representing the types, spaces, &c., said signs being separated distances proportioned to the running thicknesses of the bodies of the types, spaces, &c., represented, and afterward justifying

said composition by making signs representing spaces, &c., or eliminating those representing superfluous spaces, &c., or both, substantially as described.

4. The improvement in the art of setting type by machinery, which consists in indicating the composition in or upon a ribbon of paper or similar material by signs representing the different types, spaces, &c., said signs being separated distances proportioned to the running thicknesses of the bodies of the types, spaces, &c., represented, then making the necessary corrections in said ribbon by making additional signs or eliminating improper ones, or both, and then justifying said composition by making additional signs representing spaces, &c., or eliminating signs representing superfluous spaces, &c., or both, substantially as described.

5. The improvement in the art of setting type by machinery, which consists in indicating the composition in or upon a ribbon of paper or similar material by signs representing the different types, spaces, &c., said signs being separated distances proportioned to the running thicknesses of the bodies of the types, spaces, &c., represented, then correcting and justifying the composition upon said ribbon by making additional signs or eliminating improper or superfluous ones, or both, then reproducing said corrected and justified ribbon, but with its signs evenly spaced, substantially as described.

6. The improvement in the art of setting type by machinery, which consists in, first, indicating the composition in or upon a ribbon of paper or similar material by signs representing the types, spaces, &c., said signs being separated distances proportioned to the running thicknesses of the bodies of the types, spaces, &c., represented; second, correcting and justifying and reproducing said ribbon at a distant point or station by means of automatic telegraphy, and, third, operating the type-selecting mechanism by means of said reproduced ribbon, substantially as described.

7. The method of setting type and justifying the same, which consists in first preparing a pattern-ribbon having varying spaces between its signs, then preparing therefrom an operating-ribbon having uniform spaces, but containing the same number of signs, in the same order and combinations, as the first ribbon, and then operating the electro-magnets of the selecting-plates of the type-setting machine by means of this second ribbon, and suitable intermediate devices, substantially as described.

8. The improvement in the art of setting type by machinery, which consists in indicating the end of each line by the insertion of a quad or block especially designed for that purpose, substantially as described.

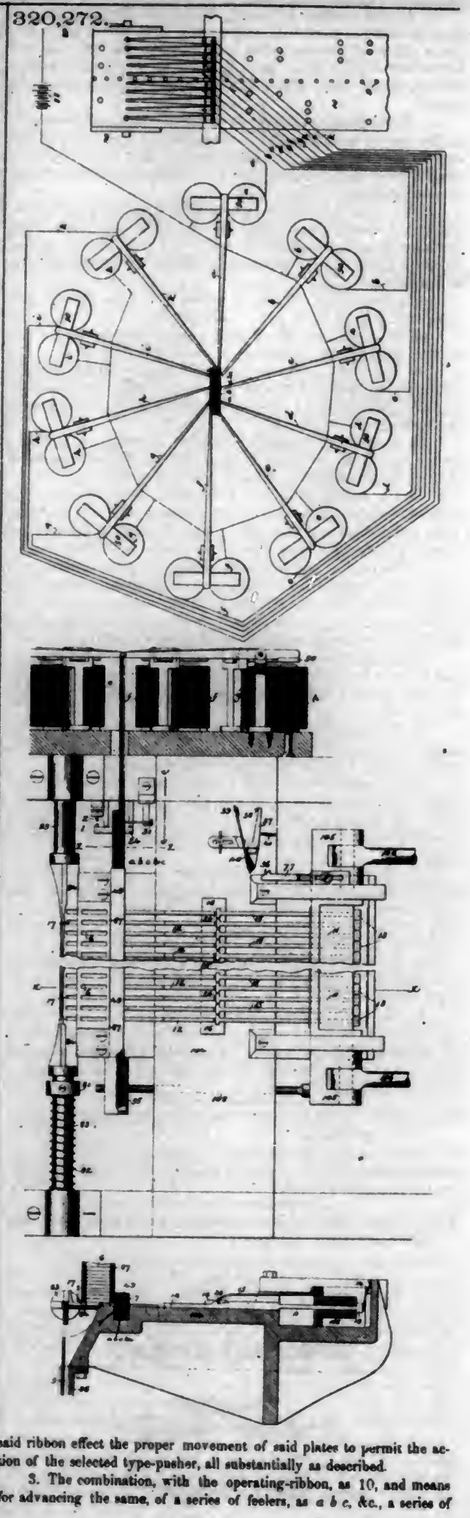
320,272. TYPE-SETTING MACHINE. JAMES E. MUNSON, New York, N. Y. Filed Sept. 9, 1882. Renewed Mar. 18, 1885. (No model.)

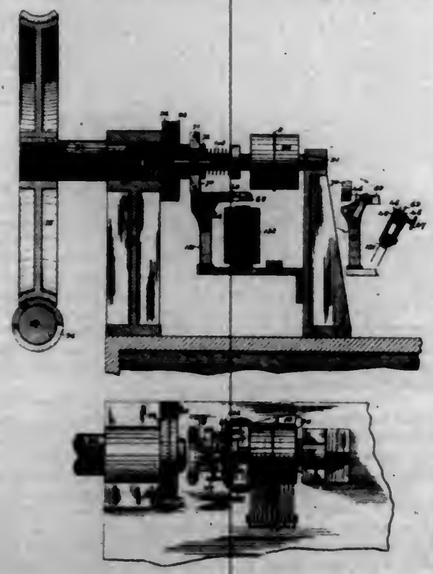
Claim.—1. The combination, with the operating-ribbon, as 10, and means for advancing the same, of a series of feelers, as *a b c*, &c., a series of type-pushers, as 12, and connections whereby the signs upon said ribbon effect the proper selection of said pushers, all substantially as described.

2. The combination, with the operating-ribbon, as 10, and means for advancing the same, of a series of selecting-plates, as *a b c*, &c., a series of type-pushers, as 12, and connections whereby the signs upon said ribbon effect the proper movement of said plates to permit the action of the selected type-pusher, all substantially as described.

3. The combination, with the operating-ribbon, as 10, and means for advancing the same, of a series of feelers, as *a b c*, &c., a series of

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magnets, as *a b c*, &c., a corresponding series of selecting-plates, and connections, all substantially as described.

4. The combination, with a series of movable selecting-plates, as *a b c*, &c., of a corresponding series of magnets and connections, whereby the energizing of said magnets operates said plates, all substantially as described.

5. The combination, with the composing-case and its series of type-channels, of the series of type-pushers and the interposed series of movable selecting-plates, substantially as described.

6. The combination, with a series of type-pushers, as 12, of a series of selecting-plates, as *a b c*, &c., having openings so arranged that by shifting different plates said openings will be made to coincide at different points, and means for shifting said plates, all substantially as described.

7. The combination, with the series of selecting-plates *a b c*, &c., of the series of type-pushers 12, provided with springs 14, the reciprocating pawl or pawls 15, and projection 16, substantially as described.

8. The combination, with the series of type-pushers 12, of the series of selecting-plates *a b c*, &c., and means for shifting said plates and electrical connections, whereby the movement of any one or more of said plates effects the movement of the selected pusher, all substantially as described.

9. The combination, with the movable contact-point 1, actuated by the plates *a b c*, &c., of means for moving it laterally out of contact at the proper time and holding it thus laterally displaced until the plates are again readjusted, so that only a single movement of the pushers will be effected at each adjustment of the plates, all substantially as described.

10. The combination, with the type-pushers 12 and means for operating the same, of the line-pusher 121 and electrical connections, whereby the movements of the latter are controlled by the former, all substantially as described.

11. The combination, with the composing-stick, of the yielding line-pusher 121, and means for imparting to said pusher a reciprocating motion of such length as to permit the types to accumulate in front of it for a short period when the line is arrested in the stick, all substantially as described.

12. The combination, with the feeding-roll 90 and its clutch mechanism, as 92 93, of the line-pusher 121 and electrical connections, whereby the absence of a type in front of said line-pusher stops the feed of the operating-ribbon, all substantially as described.

13. The combination, with the composing-stick 85 and the line-pusher 121 of the spring 43 and lever 123, whereby the presence of a type in front of said pusher prevents the stopping of the setting mechanism.

14. The combination, with the composing-stick 85 and the galley 134, of the column-pusher 135 and its operating mechanism, and electrical connections whereby the arrival of a line of type in front of the galley causes the column-pusher to operate, all substantially as described.

15. The combination, with the reciprocating column-pusher 135, of the galley 134, provided with a flaring elastic side, 137, substantially as described.

16. The combination, with the reciprocating column-pusher 135, of the galley 134, provided with the fixed side 136, having a sharp end, 53, substantially as described.

17. The combination, with the longitudinally-movable column-pusher, of the arm 58 and electrical connections, whereby said arm is set in motion by the arrival of a line of type in position in front of the galley, all substantially as described.

18. The combination, with the feeding-roll 90 and its clutch, as 92 93, of the arms 58 and 64 and electrical connections, whereby the feed of the ribbon is automatically arrested when a line of improper length is presented to the galley, all substantially as described.

19. The combination, with the column-pusher 135 and the two cams 144 145, for operating the same, of the pusher-plate 170, its operating-cam 174, and connections, all substantially as described.

320,273. GAS-PRESSURE REGULATOR. PETER MUHLINGER, Philadelphia, Pa., assignor of two-thirds to James Dale Wilson and William Hayden, both of same place. Filed Feb. 24, 1885. (No model.)

Claim.—1. In a gas-pressure regulator, the following elements in combination: a tight tank for glycerine or other fluid provided with an air-inlet, a valve box or casing provided with an inlet and an outlet for gas, a valve composed of a fixed and a movable portion contained within said valve-box, a closed top valve-float or air-holder suspended by means of an air-chamber in the fluid within the tank, and a hollow valve-spindle connecting together the said float and the movable portion of the valve and adapted to convey the gas in the valve-box to above the valve-float and within the upper part of the tank, all arranged substantially as and for the purposes set forth.

2. The combination, in a gas-regulator, of the tight or closed tank, the valve-float, the air-tube opening within said float, the bell or movable part of the valve having an opening or throat, and a hollow valve-spindle which opens above the crown of the float, is also open at its lower end, and is so connected with the bell as to leave the throat thereof

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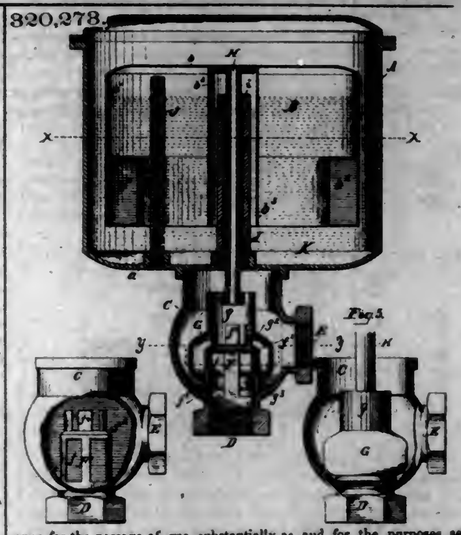


Fig. 3.

open for the passage of gas, substantially as and for the purposes set forth.

3. In a gas-regulator, the combination of the valve-chamber provided with a gas inlet and outlet, the fixed perforated cap therein provided with conical faces, and the movable bell provided with corresponding conical faces and adapted to have a vertical movement with respect to the perforated cap.

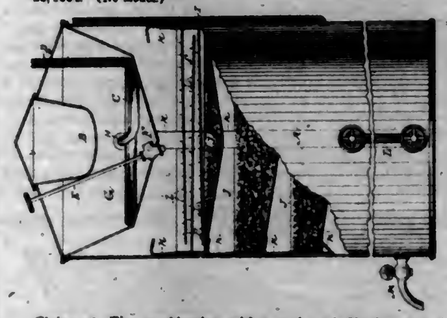
4. In a gas-regulator, in combination with the perforated cap provided with the guides f^4, the bell surrounding and sliding thereon and provided with the vertical throat which has a movement upon said guides.

5. The combination of the valve-chamber provided with a gas inlet and outlet, the fixed perforated cap therein provided with conical faces, the movable incasing-bell provided with corresponding conical faces and adapted to have a movement with respect to the perforated cap, the valve-float, and the hollow spindle connecting the bell with the float and passing through the crown of the float.

6. The combination, in a gas-regulator, of the tight or inclosed tank, the valve-float provided with the central cylindric diaphragm, the air-chamber, and the hollow valve-spindle open at both ends and opening above its crown, and the air-tube opening within said float, substantially as and for the purposes set forth.

7. The combination of the tank containing glycerine or kindred fluid and provided with the air-tube, the valve-float provided with the air-chamber and floating therein, the valve-box provided with a gas inlet and outlet, the perforated cap or fixed portion of the valve, the incasing-bell or movable portion of the valve, and the hollow valve-spindle connecting together the bell and the valve-float and opening on the one hand within the valve-chamber and on the other hand above the float and within the tank.

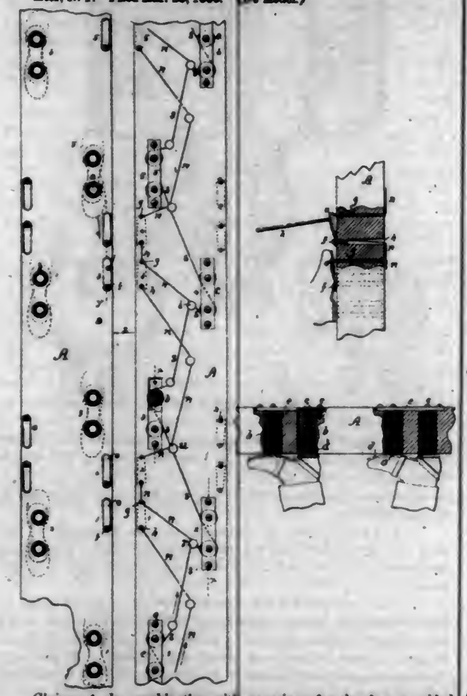
320,274. OIL-FILTER. DANIEL S. NEIMAN, Fargo, Dak. Filed Oct. 23, 1884. (No model.)



Claim.—1. The combination, with a tank and filtering material therein, of a series of strainers, P, placed one above another in the tank, above the filtering material, and the partitions L therein, the strainers being slanted alternately in opposite directions, as and for the purpose specified.

2. The combination, with a tank, filtering material therein, a pan within the tank, above the filtering material, and a coiled steam-pipe in the pan, of a strainer located above the steam-pipe within the tank, as shown and described.

320,275. ELECTRICAL DEVICE TO ENABLE SHOWMEN TO WALK ON THE CEILING. CLYDE H. NEWMAN and WILLIAM BERRIGAN, Rochester, N. Y. Filed Mar. 25, 1885. (No model.)

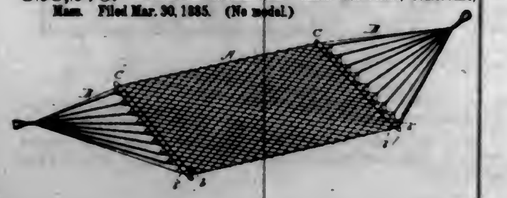


Claim.—1. In combination with coverings for the feet, provided with metallic soles, a series of electro-magnets connected to a frame secured to the ceiling of a room, said magnets placed in positions substantially perpendicular to the plane of a face of the frame, with their poles at or near said plane, arranged in rows and spaced or separated to correspond to the strides of a person walking, with wire connections for said magnets and a cut-out for each, substantially as shown and described.

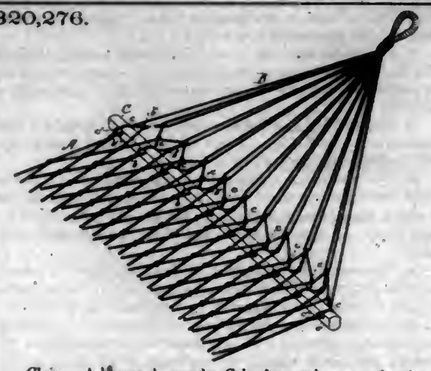
2. In combination with coverings for the feet, provided with metallic soles, a series of electro-magnets connected to a frame secured to the ceiling of a room, said magnets placed in positions substantially perpendicular to the plane of a face of the frame, with their poles at or near said plane, arranged in rows and spaced or separated to correspond to the strides of a person walking, with wire connections for said magnets and a cut-out for each, said cut-outs being arranged to be passed at the right of the person walking along against the magnets, substantially as shown.

3. In combination with coverings for the feet, provided with metallic soles, a series of electro-magnets connected to a frame secured to the ceiling of a room, said magnets placed in positions substantially perpendicular to the plane of a face of the frame, with their poles at or near said plane, arranged in rows and spaced or separated to correspond to the strides of a person walking, with wire connections for said magnets and a cut-out for each, said cut-outs and magnets being numbered to correspond—that is to say, when the circuit through a cut-out of any number is made by the performer the magnet of corresponding number will be rendered inoperative—substantially as described, and for the purpose set forth.

320,276. HAMMOCK-SPREADER. AMOS NICKERSON, Somerville, Mass. Filed Mar. 30, 1885. (No model.)

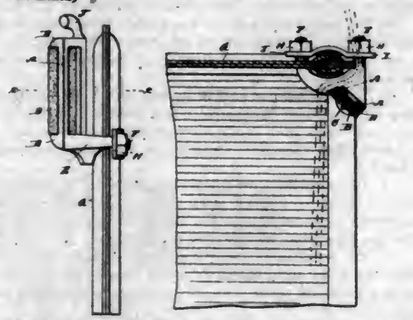


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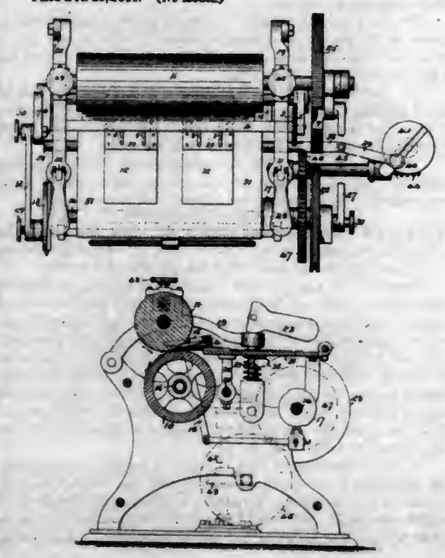
Claim.—A hammock-spreader, C, having notches *c c*, each enlarged at its base in both directions parallel to the length of the spreader, substantially as described, and for the purpose set forth.

320,277. REIN-HOLDER. FRANK S. OSBORN, East Sharon, assignor to himself, and George M. Corwin, Shinglehouse, Pa. Filed Dec. 30, 1884. (No model.)



Claim.—In a rein-holder, the frame A, adapted to be secured to one edge of a dash-board, the said frame being inclined, as shown, and provided with the jaws B, the rod C, connecting said jaws, and the rubber block D, secured behind the rod within the frame, whereby, when secured to a dash-board, as shown, the reins will be bent at or near a right angle between the edge of the dasher and the edge of the block D, to insure a firm hold.

320,278. PLAITING-MACHINE. HARRISON G. OTIS, New York, N. Y. Filed Dec. 29, 1881. (No model.)



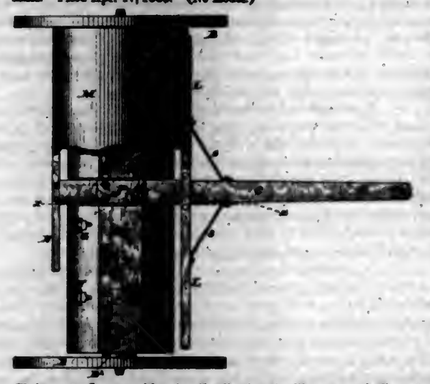
Claim.—1. The combination, with the pressing and feeding rolls 10 11, of the laterally-reciprocating fabric-guide and the tucking-blade 2, provided with means for giving the same a horizontal reciprocating movement, whereby the material is folded into the bite of the rolls, and a vertically-vibrating movement, whereby it is raised out of contact with the material as it is withdrawn from the rolls, substantially as described.

2. The combination, with a plaiting mechanism, of a laterally-reciprocating fabric-guide having a hinged top plate, substantially as described.

3. The combination, with the pressing and feeding rolls 10 11 and the reciprocating tucking-blade 2, of the fabric-guide consisting of a rigid main portion and the hinged top plate, substantially as described.

4. The combination, with the pressing and feeding rolls 10 11, of the laterally-reciprocating fabric-guide, means for adjusting the extent of its reciprocations to vary the pattern of the edge of the product, the tucking-blade 2, provided with means for giving the same a horizontal reciprocating movement, whereby the material is folded into the bite of the rolls, and a vertically-vibrating movement, whereby it is raised out of contact with the material as it is withdrawn from the rolls, and means for adjusting the stroke of said blade to vary the width of the plait, substantially as described.

320,279. FERTILIZER-DISTRIBUTER. HENRY O. PEABODY, Boston, Mass. Filed Apr. 17, 1885. (No model.)



Claim.—1. In a machine for distributing fertilizers, two hollow fertilizer-holding drums mounted upon the same axle with the supporting-wheels, and provided with apertures for discharging the material through their peripheries and a ratchet-wheel upon their outer ends, in combination with a pawl carried by each of the carriage-wheels and adapted to engage each with one of said ratchet-wheels, whereby said drums are adapted to be revolved together or separately, substantially as described.

2. In combination with a revolving hollow fertilizer-holding drum, a series of buckets secured in fixed positions within said drum, and each provided with an opening to the exterior of the drum, and a swinging gate arranged to alternately open and close the entrance to said bucket and the opening through the periphery of the drum, substantially as described.

3. In combination with the hollow revolving drum, the bucket F, provided with the discharge-opening *d*, secured in a fixed position within the drum, the plate G′, adjustably secured to the exterior of the drum, and the gate G, pivoted to said plate, substantially as described.

4. The combination of the drum E, the bucket F, provided with the discharge-opening *d*, and the pivoted and adjustable gate G, provided with the knife-edged rib *g*′, substantially as described.

5. The combination of the drum E, the ratchet-wheel D*a*, *j*, the wheel B, having secured thereon the stand I, the pawl H, and the cam *r*, all arranged and adapted to operate substantially as described.

320,280. POP SAFETY-VALVE. WILLIAM E. PEARSON, Saugus Mass. Filed Apr. 25, 1885. (No model.)

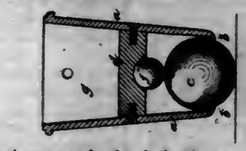


Claim.—1. In a pop safety-valve, the combination of the valve having a spring-supporting surface, a casing having a stud or bearing for the spring independent of the valve, and a volute spring interposed between the valve and bearing, the form of the spring enabling a guiding-spindle to be dispensed with and the length of the casing to be reduced to the minimum, as set forth.

2. In a pop safety-valve, the combination of the valve, the disk or plate *c* above the valve and supported thereby, the casing over the valve, the adjustable stud in the top of the casing, and the interposed volute spring, the form of the spring enabling it to operate without a guide or spindle.

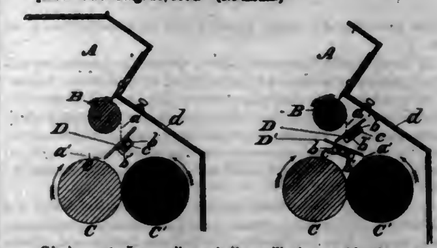
3. In a pop safety-valve, the combination of the valve-supported disk or plate *c*, the stud *f*, the interposed volute spring, and the flexible diaphragm clamped centrally between the upper end of the spring and the stud *f*, and at its margin between the lower end of the spring and the plate *c*, as set forth.

320,281. FURNITURE-CASTER. ERNST PFEIFFER, London, England. Filed June 11, 1884. (No model.) Patented in England Jan. 1, 1884, No. 54, and in Germany Jan. 20, 1884, No. 27,812.



Claim.—A caster made of a single tube or case, *a*, adapted to receive the ball *c* at its top, and provided with an inwardly-projecting lip, *b*, at its bottom, combined with a removable internal plate, *d*, having a central cavity on its under face for a single friction-ball, *f*, and held to place by screws inserted through the case, the plate serving not only to keep the balls to place, but also to divide the tube into two compartments, as set forth.

320,282. FEEDING DEVICE FOR ROLLER-MILLS. GEORGE W. PIERCE, Springfield, Ohio, assignor of one-half to Pearl M. Cartwell, same place. Filed Aug. 25, 1884. (No model.)



Claim.—1. In a roller grinding-mill, the combination, with the feed-roll, the grinding-rolls, and the case, of a deflecting-board, axially pivoted between the walls of the latter, discharging back onto the inner grinding-roll, and having means for adjustment toward and from said grinding-roll, as set forth.

2. In a roller grinding-mill, the combination of the feed-roll, the grinding-rolls, and the case with an axially-pivoted deflecting-board discharging onto the inner grinding-roll, and having means for adjustment toward or from the latter on its pivotal bearings and for inclining the same to any required degree, substantially as and for the purpose set forth.

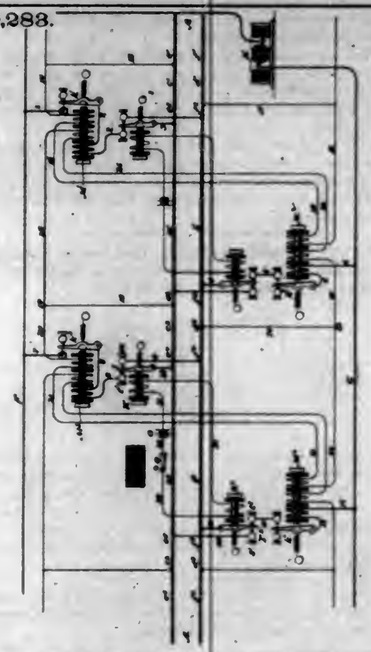
3. In a roller grinding-mill, the combination of the feed-roll, the grinding-rolls, and the case, of a deflecting-board pivoted at either end to the side walls of the latter and provided with transversely-slotted end plates, and pivot-bolts extending through said end plates, whereby it may be adjusted toward and from the grinding-roll on said pivot-bolts and inclined to any degree, substantially as and for the purpose set forth.

4. In a roller grinding-mill, the combination of the feed-roll, the grinding-rolls, and the case, of a deflecting-board pivoted to the side walls of the latter, transversely-slotted plates at either end of said deflecting-board, and an adjusting-screw whereby said deflecting-board is made adjustable in any direction, and may be reversed on its pivots to allow it to discharge onto either the inner or the outer grinding-roll, substantially in the form described, and for the purpose set forth.

320,283. ELECTRICALLY-ACTUATED RAILWAY SYSTEM. FRANK L. POPE, Elizabeth, N. J. Filed Feb. 24, 1885. (No model.)

Claim.—1. In an electrically-actuated railway system, the combination of a main conductor extending along the line of the railway and parallel thereto for supplying an electric current to a vehicle standing or moving upon said railway, circuit-controllers placed at intervals along the line of said railway for establishing and interrupting the passage of the electric current from said conductor through said vehicles, electro-magnets for actuating said circuit-controllers, electric generators carried upon said vehicles, and electrical conductors whereby said generators are placed in connection with said electro-magnets at required points as said

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vehicles pass along the line for actuating said circuit-controllers, as set forth.

2. In an electrically-actuated railway system, the combination of a series of insulated track-sections, each of which receives in turn an electric current from a stationary generator and imparts said current to a reversible traveling electric motor, with a second series of insulated track-sections alternating with the first-named series, each of which receives in turn an electric current from said traveling motor when acting in reverse, and imparts said current to one or more stationary translating devices.

3. In an electrically-actuated railway system, the combination of a series of insulated conductor-sections, each of which in turn receives an electric current from a stationary generator and imparts said current to a reversible traveling motor, with a second series of insulated conductor-sections alternating with the first-named series, each of which receives in turn an electric current from said traveling motor when acting in reverse, and imparts said current to one or more stationary translating devices.

4. In an electrically-actuated railway system, a reversible dynamo-electric machine mounted upon a traveling vehicle having its moving parts mechanically connected with the wheels of said vehicle, in combination with a series of sectional electric conductors extending parallel to the direction of movement of said vehicle, conducting electrical connections between said dynamo-electric machine and that portion of the sectional conductor which is contiguous thereto, conductors connecting each alternate section of said sectional conductor with a source of electrical energy, and conductors connecting the remaining alternate sections with translating devices, as set forth.

5. In an electrically-actuated railway system, the combination of a series of insulated track-sections, each of which in turn receives an electric current from a stationary generator, a second series of insulated track-sections, each having a length approximately the same as that of the extreme wheel-base of the vehicle designed to traverse said track-sections, and alternating with the first-named series, stationary translating devices electrically connected with the last-named series of track-sections, a vehicle having two or more pairs of wheels, and a separate reversible dynamo-electric machine for propelling each pair of wheels, whereby one of said machines may act as a generator at the same time that the other is acting as a motor, as set forth.

6. In an electrically-actuated railway system, the combination of a series of insulated conductor-sections, each of which in turn receives an electric current from a stationary generator, a second series of shorter insulated conductor-sections alternating with the first-named sections, stationary translating devices electrically connected with the last-named series of insulated conductor-sections, a vehicle propelled by two or more independent reversible dynamo-electric machines, and electrical contact devices for connecting said machines independently with the contiguous insulated conductor-section, whereby one of said machines may act as a generator at the same time that another is acting as a motor, as set forth.

7. In an electrically-actuated railway system, the combination of a main conductor extending along the line of a railway and parallel thereto for supplying an electric current to a vehicle standing upon or moving along said railway, an independent electric conductor likewise extending along the line of said railway and parallel thereto, and two independent circuit-controllers, both of which are brought into action upon the severing of said independent conductor to simultaneously interrupt the connection between the supply-conductor and the vehicle on both sides of the latter, as set forth.

8. In an electrically-actuated railway system, the combination of a main conductor extending along the line of the railway and parallel thereto for supplying an electric current to a vehicle standing or moving upon said railway, a stationary circuit-controller placed upon or near the line of said railway for establishing and interrupting the flow of the electric current through said vehicle, an electro-magnet for actuating said circuit-controller, and two distinct electric circuits for actuating said electro-magnet, one of which derives its current from a generator carried upon the vehicle and the other from the main conductor through the circuit which is closed by the circuit-controller itself.

9. In an electrically-actuated railway system, the combination of a main conductor extending along the line of a railway and parallel thereto for supplying an electric current to a vehicle standing upon or moving along said railway, an independent electric conductor likewise extending along the line of said railway and parallel thereto, and a circuit-controller which is brought into action upon the severing of said independent conductor to interrupt or prevent the flow of current from the main or supply conductor to the said vehicle, as set forth.

10. In an electrically-actuated railway system, the combination of a main conductor extending along the line of a railway and parallel thereto, and connected with a suitable source of electric energy for supplying an electric current to a vehicle standing upon or moving along said railway, an independent conductor, also extending along the line of said railway and parallel thereto, and circuit-controllers which are brought into action upon the interruption of said independent conductor to substitute a closed circuit of small resistance in lieu of the circuit extending from said vehicle to and including said source of electric energy.

11. In an electrically-actuated railway system, the combination of a series of insulated conductor-sections, each of which in turn receives an electric current from a stationary generator, and a second series of insulated conductor-sections alternating with the first-named series, each of which receives in turn an electric current from said traveling motor when acting in reverse, one or more stationary circuit-controllers for establishing and interrupting the flow of the electric current from the main or supply conductor to each of the first-named insulated conducting-sections, one or more electro-magnets for actuating said circuit-controllers, and local circuits which convey the current from each one of the second series of insulated conductor-sections to the electro-magnets actuating the circuit-controllers of the adjacent sections in each direction.

12. In an electrically-actuated railway system, the combination of a source of electricity, a series of insulated conducting-sections, a continuous conductor extending from said source into proximity to each of said insulated conducting-sections, electrically-operated circuit-controlling devices for establishing an electric connection between said continuous conductor and said insulating conducting-sections, a reversible electro-dynamic motor actuated by currents supplied thereto through the last-named conductors, and independent electric conductors respectively traversing the actuating electro-magnets of one or more of said electrically-operated circuit-controllers, whereby the latter are actuated by currents produced by said motor when acting in reverse.

13. In an electrically-actuated railway system, the combination of a circuit-controller for establishing and interrupting the flow of the actuating electric current between the source of electric energy and the traveling electric motor, and an electro-magnet for actuating said circuit-controller, provided with three independent helices for operating the same upon the passages of a vehicle in each direction and for retaining the same in action while said vehicle is passing over a determinate distance, as set forth.

320,284. RUBBER OVERSHOE. EDGAR K. RAY, Franklin, Mass. Filed Mar. 27, 1885. (No model.)

Claim.—1. The combination, with the upper, sole, and heel of a rubber shoe, of the re-enforce pieces D and E, formed and placed substantially as and for the purposes set forth.

2. The combination, with upper A, sole B, and heel C, of the re-enforce counter-pieces D E and toe-piece F, substantially as and for the purposes specified.



320,284.



320,285. ELECTRIC IGNITER FOR GAS-ENGINES. DANIEL S. REGAN, San Francisco, Cal. Filed Dec. 6, 1884. (No model.)



Claim.—1. In an electrical igniter for gas-engines, the combination, with a gas-chamber, of terminals normally in circuit located within the same, and a finger carried by the piston-head for breaking the circuit, substantially as set forth.

2. In an electrical igniter for gas-engines, the combination, with a gas-chamber, of terminals normally in circuit located within the same, one of said terminals being movable and the other stationary, and a finger carried by the piston-head and adapted to break the circuit, substantially as set forth.

3. In an electrical igniter for gas-engines, the combination, with a gas-chamber, of a pivoted lever, a stud, said stud and lever being normally in contact, and located within the gas-chamber, wires connecting with the dynamo, and means for breaking the contact of the stud and lever.

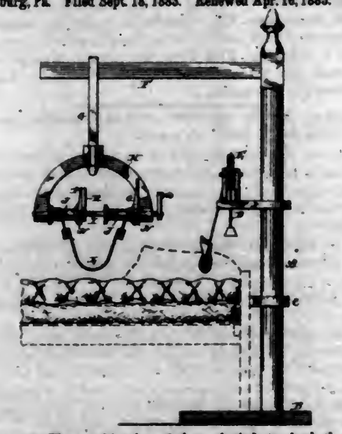
4. In an electrical igniter for gas-engines, the dynamo O and insulated stud, in combination with a pivoted lever, the connecting-wires P Q, and a finger carried by the piston-head, substantially as set forth.

5. The dynamo O, connected by a wire, P, with an insulated stud having its contact end located within the gas-chamber and the connecting-wire Q, attached to the engine, in combination with a movable lever within the gas-chamber, pulleys J' and N', located as described, a belt connecting said pulleys, and means for breaking the contact of the stud and lever, substantially as set forth.

6. In an electrical igniter for gas-engines, the combination, with the gas-chamber, of an insulated stud, a pivoted lever, said stud and lever being normally in circuit, and a finger carried by the piston-head and adapted to break the contact of the stud and lever, substantially as set forth.

7. In an electrical igniter for gas-engines, the combination, with the gas-chamber, of terminals normally in circuits located within the same, one of said terminals having a slot, and a finger having a bent end, and carried by the piston-head to engage the same, substantially as set forth.

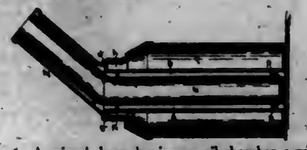
320,286. FRACTURE APPARATUS. ALBERT J. REMBERG, Warfordsburg, Pa. Filed Sept. 18, 1883. Renewed Apr. 16, 1885. (Model.)



Claim.—1. The combination of the swiveled standard, the arm F, hook G, and swiveled frame H, provided with pulleys, and a mechanism on the frame, substantially as shown, for operating them, substantially as set forth.

2. The combination of the swiveled standard, the rigid arm F, hook G, swiveled frame H, shaft I, pulleys J, pawl O, ratchet-wheels N, arm R, and pawl P, substantially as described.

320,287. MINER'S LAMP. HENRY J. RICHARDS, Wilkes-Barré, Pa. Filed Apr. 7, 1885. (No model.)



Claim.—1. A miner's lamp having an oil-chamber, a wick-tube interior thereto, an air-chamber surrounding said tube, and a removable extension of both wick-tube and air-chamber, substantially as and for the purpose specified.

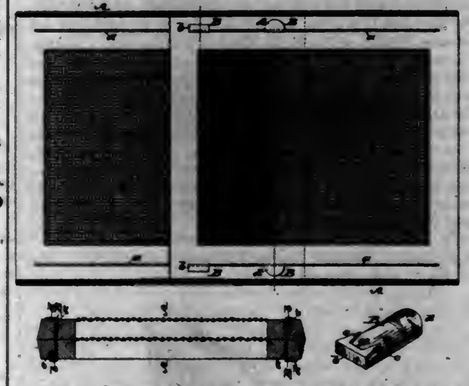
2. A miner's lamp having an oil-chamber, a wick-tube interior thereto and connected therewith, an air-chamber surrounding the wick-tube, an inlet to the oil-chamber, and a vent therein, and a continuation of the wick-tube surrounded by an air-chamber, and removably secured to the lamp-body, substantially as and for the purpose specified.

320,288. CONCAVE FOR THRASHING-MACHINES. GEORGE A. ROBERTS, Three Rivers, Mich. Filed Nov. 26, 1884. (No model.)



Claim.—A concave for thrashing-machines, comprising a series of hollow cylindrical bars, each carrying teeth on the apex or highest part of its surface, in combination with tension-bolts passing through the bars, and with intermediate collars interposed at the points of nearest approach between the adjacent bars, substantially as and for the purpose set forth.

320,289. WINDOW-SCREEN. MORRIS ROSBERG, Philadelphia, Pa., assignor, by mesne assignments, of one-half to Paine, Diehl & Co., same place. Filed Dec. 20, 1884. (No model.)



Claim.—1. A window or insect screen having sliding frames connected by clips which pass through coincident slots in both frames and are rigidly secured to one frame, operating in the slot in the other, substantially as and for the purpose set forth.

2. The frames of a window or insect screen having coincident kerfs or slots, in combination with clips passing through said slots in both frames, substantially as and for the purpose set forth.

3. In a window-screen, a connection for the frame, consisting of a clip having lips at both ends and provided with means for attaching the same to one of the frames, substantially as described.

4. A window-screen having the cross-pieces of the frames beveled in opposite directions, forming a ridge on said cross-pieces, substantially as and for the purpose set forth.

320,290. DEVICE FOR ATTACHING CURTAINS TO ROLLERS. J. ROSCH, New York, N. Y. Filed Feb. 18, 1885. (No model.)

320,290.



Claim.—1. In a device for attaching curtains to rollers, the combination, with a curtain having a corded or wired edge and a roller having a groove to receive the end of a curtain, of a split ring adapted to embrace the end of the curtain and hold the same in said groove, substantially as described.

2. In a device for fastening curtains to rollers, the combination, with the roller having a longitudinal groove, *a*, and the split ring G, of the curtain having a corded or wired edge adapted to fit in said groove, substantially as described.

3. In a device for fastening curtains to rollers, the combination, with a curtain having a corded or wired edge and a roller having a longitudinal groove, *a*, of the end piece or plate, D, having an axle, *d*, the sleeve E on said plate formed with the slot F, and the ring having a slit, *g*, all constructed and arranged substantially as described.

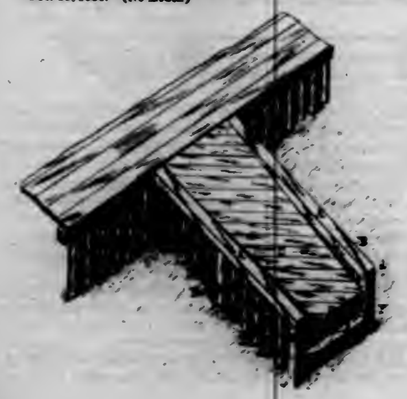
320,291. WICK-ADJUSTER. HOWARD A. SANFORD, New Haven, Conn., assignor of one-half to James A. Crowthers, New York, N. Y. Filed Oct. 13, 1884. (No model.)

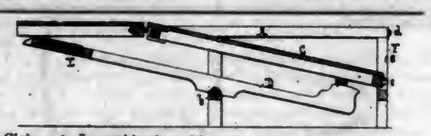


Claim.—1. In a lamp-burner, the combination of the wick-tube B, the horizontal shafts C, parallel with the plane of the wick-tube, free for longitudinal movement and for rotation, the adjusting-wheels D E, arranged loose upon said shaft and extending through slots in the wick-tube, the said shaft and wheels constructed with clutch engagement, either wheel independent of the other or both together, such engagement being made under the longitudinal movement of the shaft, substantially as described.

2. The combination of the wick-tube B, the horizontal shaft C, parallel with the plane of the wick-tube and free for longitudinal and rotative movement in the base of the burner, the two wheels D E, arranged loose upon said shaft and extending through slots in the wick-tube, the wheel D, provided with a shoulder, *b*, on its inside, and with a shoulder, *d*, upon its outside, the wheel E, provided with a shoulder, *e*, corresponding to the shoulder *b* on the wheel D and upon the same side of the wheel E, the said shoulder *e* of greater length than the shoulder *b*, the shaft provided with a stud, *h*, corresponding to the shoulder *e*, with a stud, *f*, corresponding to the shoulder *b*, and with a stud, *i*, corresponding to the shoulder *d*, substantially as described, and whereby at one extreme longitudinal movement of the shaft C the two wheels will be engaged with the shaft, at the other extreme longitudinal movement but one wheel will be engaged with the shaft, leaving the other free, and at an intermediate position the other wheel only will be engaged, leaving the one wheel free.

320,292. WHARF. JOSEPH B. SANFORD, Jersey City, N. J. Filed Feb. 13, 1885. (No model.)

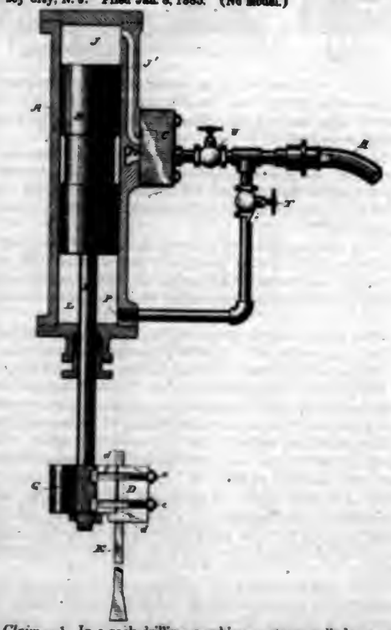




Claim.—1. In combination with a wharf, the stringers A, projecting from the said wharf and supported by the piles B, hinged platform C, situated between the said stringers, counterbalanced supporting-lever D, and bar *b*, extending between the piles which support the said stringers, substantially as specified.

2. In combination with a wharf, a pier extending therefrom, which consists of the stringers A, piles B, hinged platform C, counterbalanced lever D, supporting-bar *b*, and means to hold the said platform at various heights or depressed positions, substantially as and for the purpose specified.

320,293. STONE-CUTTING MACHINE. WILLIAM L. SAUNDERS, Jersey City, N. J. Filed Jan. 8, 1885. (No model.)



Claim.—1. In a rock-drilling machine, a steam-cylinder provided with steam and exhaust ports at one end and having a steam-inlet direct from the source of supply at its opposite end, and means, substantially as described, for increasing or diminishing the pressure on that portion of the cylinder constantly supplied with live steam, as set forth.

2. The combination, with a cylinder, A, having the steam-port J', and exhaust-port J², and suitable valve therefor, and the throttle U, of the piston B, piston-rod R, to which the tools are attached, and the auxiliary steam-pipe H to the lower portion of the cylinder, with throttle T, substantially as described.

320,294. MINING-MACHINE. WILLIAM L. SAUNDERS, Jersey City, N. J. Filed Feb. 14, 1885. (No model.)

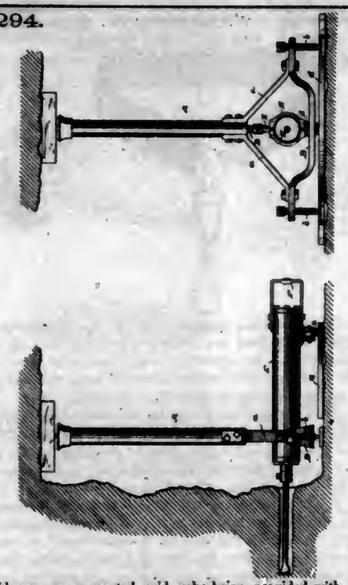
Claim.—1. The combination, with a stationary column having an opening therein, of a reciprocating drilling-engine, a shell or cylinder inclosing said engine, and means consisting of suitable pivots whereby the said cylinder is mounted within the opening in the column, substantially as described.

2. The combination, with a suitable column, of a drilling-engine, a shell or cylinder inclosing said engine, and pivotally supported by said column at a point forward of its center, and provided with a suitable roller or carrying-wheel at a point back of its center, substantially as described.

3. The combination, with an adjustable column having arms or bifurcations forming an opening at one end, said bifurcations being attached to a transverse bar or yoke provided with suitable feet and having a centrally-disposed pivot, of a drilling-engine and a shell or cylinder inclosing said engine, and mounted upon the aforesaid pivot, and provided with a carrying-wheel at its rear end, substantially as described.

4. The combination, with the column A, of the arms *a*, extending from the extremity thereof, an adjustable pivot, D, a yoke or bar, B, to

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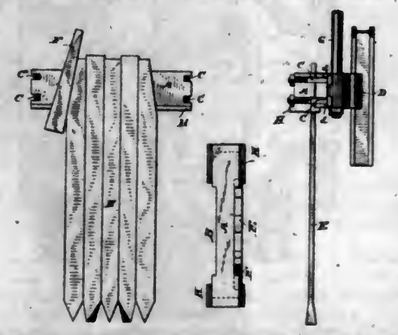


which said arms are connected, said yoke being provided with a pivot, *d*, a reciprocating drilling-engine, and a shell or cylinder inclosing said engine and mounted between said pivots, substantially as described.

5. The combination, with the column A, having arms or bifurcations forming an opening at one end thereof, and the adjustable pivot D, of a yoke or bar to which said arms are connected, said yoke being also provided with a suitable pivot, *d*, a drilling-engine, and a shell or cylinder inclosing said engine, and mounted between the pivots D *d* at a point forward of its center, and provided with a supporting-wheel at or near its rear end, substantially as described.

6. The combination of the column A, provided with the block C and screw-pivot D, a pair of arms extending outwardly and downwardly from said block, a cross bar or yoke, also having a pivot, and to which said arms are united, and a drill-supporting shell or cylinder mounted between said pivots, substantially as described.

320,295. DRILL-HEAD FOR CHANNELING-MACHINES. WILLIAM L. SAUNDERS, Jersey City, N. J. Filed Feb. 14, 1885. (No model.)

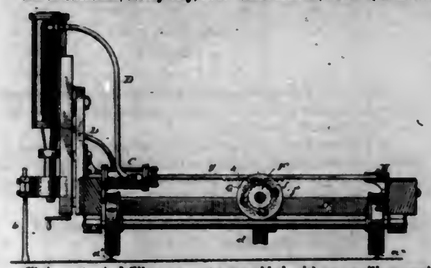


Claim.—1. The combination, with two or more drills of a stone-channeling machine, of a clamp having shoulders or recess against which the drills are forced by a tapered key, said shoulders or recess being formed on opposing faces of the clamp, whereby the clamp is made reversible, substantially as described.

2. A drill-clamp having drill-receiving depressions or recesses formed with longitudinal plane surfaces against which the drills rest, and within which they are secured by suitable key engaging between the shoulders of said drill-receiving recess, and formed with notches at its ends or sides for the reception of supporting-bolts, substantially as set forth.

3. The combination, with the piston of a stone-cutting machine, of a cross-head formed with notches in the ends or sides thereof, a drill-clamp having notches adapted to register with the notches in the cross-head, and the clamping-bolt, substantially as described.

320,296. FEEDING MECHANISM FOR MINING-MACHINES. WILLIAM L. SAUNDERS, Jersey City, N. J. Filed Mar. 21, 1885. (No model.)



Claim.—1. A drilling apparatus provided with an auxiliary engine for automatically propelling said apparatus in the direction of the cut, and steam-connections between the drilling and auxiliary engines, whereby the auxiliary engine is driven only while the drilling-engine is in operation, as set forth.

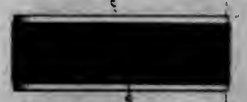
2. A drill-carriage provided with a separate engine, the steam-supply whereof is controlled by the movements of the drilling-engine, for automatically propelling said carriage while the drill is in operation, substantially as described.

3. The combination, with a drilling-engine and a movable carriage or fixed support therefor, of an auxiliary engine and steam-connections between the cylinders of the main and auxiliary engines, and means for transmitting the reciprocations of the piston of said auxiliary engine to the carrying-wheels or bearings of the drilling apparatus, substantially as described.

4. The combination, with a drilling-engine and a movable carriage therefor, of an auxiliary engine, a worm-shaft engaging a worm-wheel carried upon one of the supporting-axles, and connections between the piston of the auxiliary engine and the worm-shaft, substantially as described.

5. The combination, with a drilling-engine and a movable carriage therefor, of an auxiliary engine and connections between the cylinders of the main and auxiliary engines, a worm-wheel fixed to the axle of one of the supporting-wheels, a worm-shaft mounted in proximity to the auxiliary engine, and connections between the piston of said auxiliary engine and the worm-shaft, whereby the reciprocations thereof are conveyed to the wheels of the carriage, which is thereby automatically fed in the direction of the cut during the operation of the drilling, substantially as described.

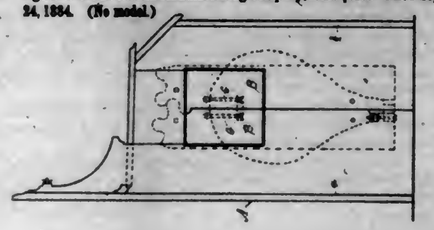
320,297. MANUFACTURE OF FILAMENTS FOR INCANDESCENT LAMPS. FREDERIC SCHAEFER, Boston, Mass., assignor to Leopold Schlegelmilch, trustee, same place. Filed Nov. 26, 1884. (No model.)



Claim.—1. That improvement in the art or method of manufacturing filaments for electric lamps which consists in laying a thread over a yielding carbonizable former, the said former receiving its shape from a mold, which is removed from the former after the thread has been wound thereon, then simultaneously carbonizing the thread and former, whereby the molecular structure of the thread or filament is in no way subjected to a strain, the former yielding in the carbonizing process, thus obviating the breaking of the filaments, substantially as described.

2. That improvement in the art or method of manufacturing filaments for electric lamps which consists in laying a thread in a series of turns over the surface of a yielding carbonizable former, and simultaneously carbonizing the thread and former located within it, thus preserving the thread upon the former in a convenient form for shipment, substantially as described.

320,298. FOLDING BED. FREDERICK SCHRAY, Buchanan, Mich., assignor to the Buchanan Manufacturing Company, same place. Filed Sept. 24, 1884. (No model.)



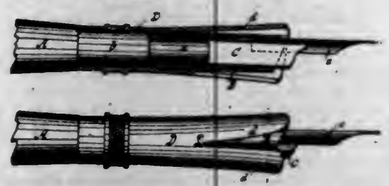
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Claim.—1. The combination, in a folding bed, of the two-part case A, having the side rails, B B, pivotally secured thereto, with the saddles D, substantially as set forth.

2. The combination, in a folding bed, of the two-part case A, saddles D, and side rails, B, provided with intermeshing cogs, and having their ends inclosed beneath and pivoted to said saddles, as and for the purposes specified.

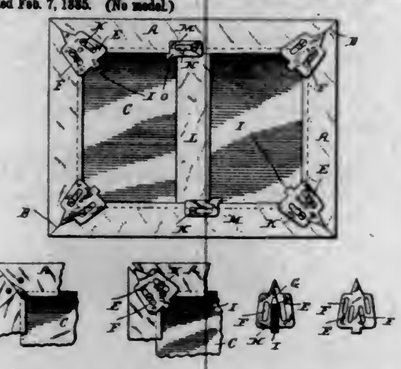
320,299. PEN-HOLDER. OTTO F. SEIBOLD, Brooklyn, N. Y. Filed Jan. 15, 1885. (No model.)



Claim.—1. The combination, with a pen-holder, of a sleeve, D, connected at its inner end portion with the pen-holder, and having its outer extremity longitudinally slitted to form spring-leaves, which are free from contact with the pen-holder and the pen-retaining device, substantially as described.

2. The combination, with a pen-holder, of a sleeve, D, connected at its inner end with the holder, and having its outer extremity provided with spring-leaves bent outwardly to project clear of the pen-holding device, substantially as described.

320,300. STRETCHER-FRAME. AARON D. SHATTUCK, Granby, Conn. Filed Feb. 7, 1885. (No model.)



Claim.—1. The combination, with the side and end pieces of a stretcher-frame having their ends cut to a miter and provided at the corners with recesses, of a corner-key having converging slots, screws or pins which pass through said slots and engage the parts of the frame, and a wedge upon the under side of the key which is adapted to engage the recess and be driven forward to open the frame.

2. The combination, with a stretcher-frame the parts of which are mitered at their ends and the corners of which are provided with recesses, as shown, and a corner-key having converging slots through which screws pass, and a wedge adapted to engage the recess, of a cross-bar extending between the sides, and a slotted key held in position by a screw and having a wedge adapted to act between the cross-bar and the frame.

3. The combination, with a stretcher-frame and means—for example, corner-keys—for opening it, of a cross-bar, and keys consisting of slotted plates having wedges which pass between the ends of the cross-bar and the frame, and a screw which passes through the slot to hold the key in place.

4. The combination, with a stretcher-frame having mitered corners and recesses D, panel C, and cross-bar L, of the slotted metallic keys having wedges, whereby the frame is opened.

5. As a new manufacture, a stretcher-key consisting of a plate having converging slots, a wedge placed centrally, or nearly so, and beveled at its rear end, and a rib extending from the wedge to the heel of the plate.

320,301. STOCKING-SUPPORTER. CHRISTOPHER C. SHELBY, New York, N. Y. Filed Apr. 7, 1885. (No model.)

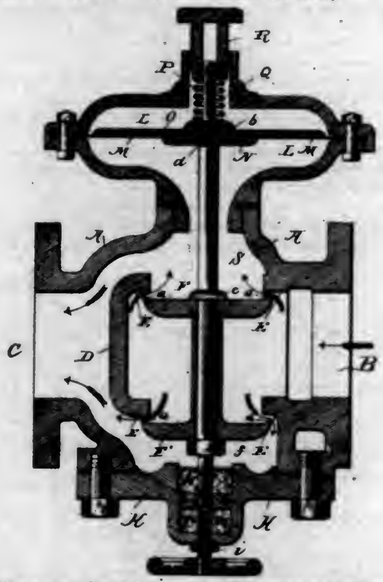


Claim.—1. In a stocking-supporter, the combination of the webbing having the hook and inclosing the wearer's leg, the ring attached to said webbing, the depending portion having the clasp for attachment to the stocking, and the independent metal clamp connecting the depending portion and ring, substantially as described.

2. In a stocking-supporter, the combination of the webbing having the hook and encircling the wearer's leg, the ring connected thereto, the depending portion having the clasp for attachment to the stocking, and the independent metal clamp secured rigidly to the depending portion and sliding on the ring, substantially as described.

3. The combination, with the webbing and the clasp for varying the size of the loop in which the ring is secured, consisting of the plate having the ears *d d*, the cam-plate mounted therein, the slot *e*, and projections *f f*, of the ring, the depending portion having the clasp for attachment to the stocking, and the clamp for securing the ring to said depending portion, substantially as described.

320,302. PRESSURE-GOVERNOR AND REGULATING-VALVE. L. SHOOK, Pittsburg, Pa. Filed Mar. 27, 1885. (No model.)



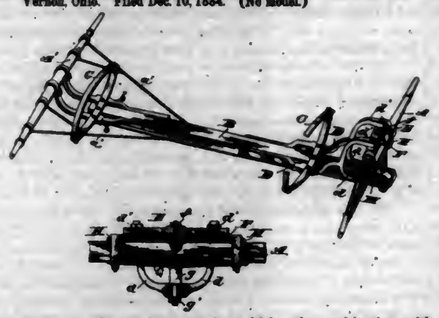
Claim.—1. In a fluid-pressure regulator, the combination of the stem, the two disk-valves formed with knife-edges, the diaphragm, the washers on each side thereof, and the spring bearing on the upper of said washers with a tendency to keep the valve normally open, and the tubular nut to receive the stem and regulate the force of said spring, as set forth.

2. In a fluid-pressure regulator, the combination of a cup, provided with guides for the valve-stem, with the valve-stem and the contained metal or fluid in the cup for protecting the stem, substantially as described.

3. In a fluid-pressure regulator, the combination of a cup, provided with guides for the valve-stem, with the valve-stem, the adjusting or closing screw, and the contained fluid in the cup for protecting the stem, substantially as described.

4. In a fluid-pressure regulator, the combination of the double knife-edge valve, the valve-stem, the lower fluid-protected guide for the stem, with the diaphragm and the spring-adjusting and valve-stem guide-bolt, substantially as and for the purpose set forth.

320,303. RUNNING-GEAR FOR VEHICLES. GEORGE W. SIMMONS, Vernon, Ohio. Filed Dec. 10, 1884. (No model.)

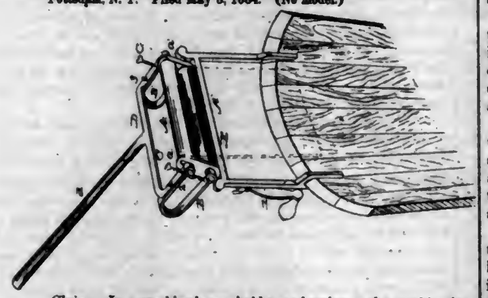


Claim.—1. In running-gears for vehicles, the combination, with a reach depressed below the line of the axles, of rods or arms connecting the reach with the axles or attachments, and diverging from the reach, so as to form broad seats for the springs, substantially as set forth.

2. In running-gears for vehicles, the combination, with a reach depressed below the line of the axles, of the arms D, with portions separated from the reach to support the spring, and with forked ends secured, respectively, to the reach below the axle and to the plate E, substantially as set forth.

3. In running-gears for vehicles, the plates F and G, secured, respectively, above and below the axle, and provided with the pivots or bolts *f* and *g*, of the reach B, the forked arms D, and the plate E, substantially as set forth.

320,304. COMBINED WRINGER AND MOP. CHARLES E. SNELL, Pottsdam, N. Y. Filed May 8, 1884. (No model.)



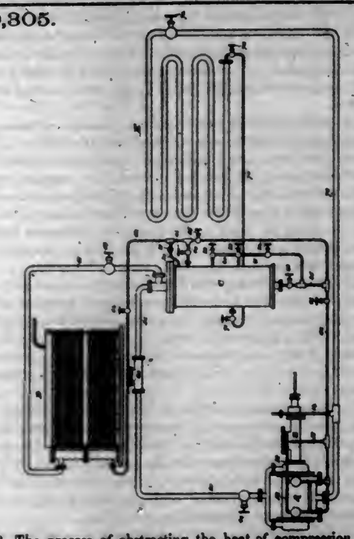
Claim.—In a combined mop holder and wringer, the combination, with the rollers, the plates in which they are held or supported, and the U-shaped springs having set-screws, of the handle-frame having branches 2 3, secured to said springs, as described, and the handle *d*, substantially as set forth and shown.

320,305. COOLING AND SEPARATING A LUBRICATING AGENT FROM A COMPRESSED GAS, AND LIQUEFACTION OF GASES AND PRODUCTION OF REFRIGERATION. JULIUS J. SUCKERT, Ridgewood, N. J. Filed Apr. 24, 1885. (No model.)

Claim.—1. The process of separating a sealing or lubricating agent, liquid or vapor, from a compressed gas or vapor, and liquefying a gas, which process consists in first abstracting the heat of compression, or a part thereof, from such gas and the intermingled sealing or lubricating agent by the vaporization of liquefied gas brought in contact therewith and operating to liquefy and, by such liquefaction, to separate the vaporized and subdivided parts of the sealing or lubricating agent from the compressed gas and the vaporized liquefied gas, prior to the liquefaction of such gases, and then liquefying such gases in a condenser and returning the resulting liquid to the receptacle containing the liquefied gas and the sealing or lubricating agent, separated, except at the line of contact, by their difference in specific gravity, substantially as described.

2. The process of abstracting the heat of compression, or a part thereof, from a gas or vapor under compression, which process consists in first exposing a liquefied gas to a pressure in excess of the pressure of the gas entering the compression-chamber, and while under such pressure abstracting the heat of compression, or a part thereof, from the compressed gas, prior to its entrance into the condenser, by the vaporization of a part of such liquefied gas, substantially as described.

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3. The process of abstracting the heat of compression, or a part thereof, from a sealing or lubricating agent or liquid, its froth and vapor, and of liquefying such froth and vapor, which process consists in first exposing a liquefied gas to a pressure in excess of the pressure of the gas entering the compressor to be compressed, and while under such pressure abstracting the heat of compression, or a part thereof, from the sealing or lubricating agent or liquid and liquefying the froth and vapor of such agent by the vaporization of a liquefied gas, substantially as described.

4. The combination, with a gas-compressor and a condenser, of a tank or receiver and connecting-pipes, when the said tank or receiver is supplied with a body of liquefied gas, operating to abstract the heat of compression from a sealing or lubricating agent and its vapor within said tank by the vaporization of a part of the liquefied gas, substantially as described.

5. The combination, with a gas-compressor and a condenser, of a tank or receiver and connecting-pipes, when the said tank or receiver is supplied with a liquefied gas operating to cool a sealing or lubricating agent and to liquefy the vapor of such sealing or lubricating agent by the vaporization of a liquefied gas maintained at the liquefying pressure, substantially as described.

6. The combination, with a gas-compressor and a condenser, of a tank or receiver and connecting-pipes, when the said tank or receiver has a supply of liquefied gas which operates to cool a sealing or lubricating agent and its vapor and to liquefy such vapor by the vaporization of the liquefied gas, or a part thereof, and the vapor so developed by the vaporization of the liquefied gas is maintained at the liquefying pressure, substantially as described.

7. The combination, with a gas-compressor and a condenser, of a tank or receiver and connecting-pipes, when the said tank or receiver has a supply of liquefied gas which operates to cool a sealing or lubricating agent and its vapor and to liquefy such vapor by the vaporization of the liquefied gas, or a part thereof, and the said sealing or lubricating agent and its liquefied vapor when cooled are maintained or continued under the liquefying pressure, substantially as described.

8. The combination, with a gas-compressor and a condenser, of a tank or receiver and connecting-pipes, when the said tank or receiver is supplied with a liquefied gas which operates to cool a sealing or lubricating agent and its vapor and to liquefy such vapor by the vaporization of the liquefied gas, and the vapor so developed by the vaporization of the liquefied gas is maintained at the liquefying pressure until returned to the condenser, substantially as described.

9. The combination, with a gas-compressor and a condenser, of a tank or receiver and connecting-pipes, when the said tank or receiver is supplied with a liquefied gas which operates to abstract the heat of compression from a compressed gas by the vaporization of the liquefied gas, or a part thereof, under the liquefying pressure when the vapor developed by the vaporization of the liquefied gas is also maintained at the working or liquefying pressure until introduced into the condenser, substantially as described.

10. The combination, with a gas-compressor and a condenser, of a tank or receiver and connecting-pipes, when the said tank or receiver is provided with a liquefied gas operating to abstract the heat of compression from a compressed gas discharged from a compression-chamber by the vaporization of a liquefied gas under the liquefying pressure, substantially as described.

11. The combination of a gas-compressor, a condenser, a tank or receiver and connecting-pipes, when the said tank or receiver is provided with a liquefied gas operating to abstract the heat of compression from a compressed gas by the vaporization of a liquefied gas, and the compressed gas so cooled is liquefied in the condenser, substantially as described.

12. The combination, with a gas-compressor, a condenser, and connecting-pipes, of a tank or receiver supplied with a body of liquefied gas and interposed between the compressor and the condenser, when constructed, connected, and arranged to receive a compressed gas intermingled with a sealing or lubricating liquid, and the vapor of such liquid in contact with a liquefied gas operating by such contact and its vaporization to liquefy the vapor of the sealing or lubricating liquid and to separate it from a compressed gas or a liquefied gas, except at the line of contact, substantially as described.

13. The combination, with a gas-compressor, a condenser, and connecting-pipes, of a tank or receiver arranged and operating to receive a compressed gas and the vapor of a sealing or lubricating agent or liquid in contact with a liquefied gas which operates to separate the vapor of the sealing or lubricating agent or liquid from the compressed gas by the washing of such gas or vapor with the liquefied gas, substantially as described.

14. The combination, with a gas-compressor, a condenser, and connecting-pipes, of a tank or receiver constructed and arranged to receive a compressed gas and a sealing or lubricating agent, or the vapor of such agent from a gas-compressor, when the said tank has a supply of liquefied gas, maintained at the liquefying pressure, operating to liquefy the vapor of a sealing or lubricating liquid by the washing of such vapor with the liquefied gas, substantially as described.

15. The combination, with a gas-compressor, a condenser, and connecting-pipes, of a tank or receptacle having a supply of liquefied gas operating by its vaporization to reduce the temperature of a compressed gas or other vapor when the said tank is provided with an outlet and conduit by which the vapor developed by the vaporization of the liquefied gas is conveyed to a condenser, substantially as described.

16. The combination, with a gas-compressor, a condenser, and connecting-pipes, of a tank or receptacle constructed, arranged, and operating to wash a gas or vapor by showering a liquefied gas in contact with such gas or vapor, substantially as described.

17. The combination, with a gas-compressor, a condenser, and connecting-pipes, of a tank or receptacle having a liquefied gas operating by its vaporization to reduce the temperature of a liquid, a gas, or a vapor admitted therein, when the whole is connected, arranged, and operates to discharge the vapor of the liquefied gas to the condenser, to condense the same, and to return a liquefied gas from such condenser to the said tank or receptacle, substantially as described.

18. The combination, with a gas-compressor, a condenser, and connecting-pipes, of a tank or receptacle having a liquefied gas operating by its vaporization to reduce the temperature of a compressed gas admitted therein, when the whole is connected, arranged, and operates to discharge the compressed gas and the vapor of the liquefied gas to a condenser, to condense the same, and to return a liquefied gas from such condenser to the said tank or receptacle, substantially as described.

19. The combination of a gas-compressor with a tank or receptacle supplied with a liquefied gas and a sealing or lubricating liquid, both maintained under the working or liquefying pressure, a condenser and connecting-pipes, when the said tank or receptacle receives the compressed gas, and a sealing or lubricating liquid discharged from the compressor, and the whole is constructed, arranged, and operates to cool such sealing or lubricating liquid and to separate it from the compressed gas prior to the passage of the compressed gas to the condenser, substantially as described.

20. The combination of a gas-compressor, a condenser, a tank or receiver, and connecting-pipes, when the whole is constructed, arranged, and operates to utilize the said tank for cooling a sealing or lubricating liquid, for a storage-reservoir for the liquefied gas and a sealing or lubricating liquid, and for the separation of a vapor from a sealing or lubricating liquid from the compressed gas, substantially as described.

21. The combination, with a gas-compressor, of a tank or receptacle receiving a compressed gas and a sealing or lubricating liquid, a condenser, and connecting-pipes, when the said tank or receptacle is provided with a receiving-chamber having perforated baffle or retarding plates arranged and operating to settle and quiet the disturbed liquid introduced therein and to separate a sealing or lubricating liquid from a compressed gas or from a liquefied gas, except at the line of contact of the sealing or lubricating liquid and the liquefied gas, substantially as described.

22. The combination of a gas-compressor with a tank or receptacle wherein a sealing or lubricating liquid and its vapor are separated from a compressed gas, a condenser, and connecting-pipes, when the said tank operates as a storage-reservoir for the sealing or lubricating liquid under the working or liquefying pressure, and to furnish therefrom a supply of the sealing or lubricating liquid charged with gas or a liquefied gas, which is introduced to the gas-compressor under a pressure in excess of the pressure of the gas entering the compressor to be compressed, substantially as described.

23. The combination, with a gas-compressor, of a tank or receptacle for a liquid, a condenser, and connecting-pipes, when the said tank or receptacle is under the working or liquefying pressure of a gas-liquefying apparatus and has a chamber operating as a receiving-chamber and another chamber operating as a discharge-chamber, which communicate with each other by apertures or conduits adapted to the equalization of pressures in or between such chambers, substantially as described.

24. The combination, with a gas-compressor, of a tank or receptacle for a liquid, a condenser, and connecting-pipes, when the said tank or receptacle is provided with a receiving-chamber and a discharge-chamber, which communicate with each other by apertures operating to equalize the pressures within such chambers, and the said tank connects with the discharge-pipe of a gas-compressor and receives therefrom a compressed gas and a sealing or lubricating liquid or the vapor of such liquid into one of the said chambers, substantially as described.

25. The combination, with a gas-compressor, the discharge-pipe of such compressor, a condenser, and connecting-pipes, of a tank or receptacle arranged in its relation to the discharge-pipe of the compressor to receive therefrom a compressed gas and a sealing or lubricating liquid or the vapor of such liquid when the said tank or receptacle is provided with a receiving-chamber having a conduit permitting the escape of the sealing or lubricating liquid to a discharge-chamber, a conduit for the passage of liquefied gas to a discharge-chamber, and one or more conduits for the escape of the compressed gas through and from the liquefied gas to a condenser, substantially as described.

26. A tank or receptacle receiving compressed gas and a sealing or lubricating liquid or the vapor of such liquid from the discharge-pipe of a compressor, when the said tank or receptacle is provided with one or more perforated plates operating to divide a chamber of said tank or receptacle into compartments and to divide or subdivide the gas, vapor, or the lubricant by their passage through such plates, substantially as described.

27. A tank or receptacle receiving compressed gas and a sealing or lubricating liquid from the discharge-pipe of a compressor, when the said tank or receptacle is provided with a receiving-chamber having an outlet for the escape of the sealing or lubricating liquid, and a series of funnel-shaped perforated plates placed one above another, with a stratum of liquefied gas interposed between such plates, all arranged and operating to baffle and retard the passage of the compressed gas and the vapor of the sealing and lubricating liquid through the liquefied gas, and to separate the liquefied vapor of the sealing or lubricating liquid from the compressed gas, in combination with a gas-compressor, a condenser, and connecting-pipes, substantially as described.

28. A tank or receptacle receiving a compressed gas and a sealing or lubricating liquid, or the vapor of such liquid, within a receiving-chamber having an outlet for the escape of the sealing or lubricating liquid, and a series of perforated baffle-plates placed one above another, with a stratum of liquefied gas interposed between such plates, when the said chamber is also provided with a series of sheets of material having a fine mesh or small spaces between its strands or web, as wire-gauze, and such sheets are connected with and arranged above the said perforated baffle-plates, between which sheets a liquefied gas is also interposed, the whole operating to retard the compressed gas and the vapor of the sealing or lubricating liquid, to divide and subdivide such gas and vapor into minute divisions, and to liquefy such vapor and separate it from the compressed gas, in combination with a gas-compressor, a condenser, and connecting-pipes, substantially as described.

29. The combination of a gas-compressor, its discharge-pipe, a tank or receptacle into which the compressed gas and a sealing or lubricating liquid or the vapor of such liquid is discharged, a condenser, and connecting-pipes, when the whole is constructed, arranged, and operates to separate the vapor of a sealing or lubricating liquid from a compressed gas by forcing such compressed gas in contact with a shower of liquefied gas, but in a direction different from that taken by the showering liquefied gas, substantially as described.

30. The combination of a gas-compressor, having the gas compressed in its compression-cylinder reduced in temperature by the expansion or vaporization of a gas or liquefied gas, with a tank or receptacle connected therewith, and into which the compressed gas of such compressor is discharged, when such compressed gas is further reduced in temperature within the said tank or receptacle by the vaporization of a liquefied gas operating to reduce the temperature of a superheated gas or vapor to that of a saturated vapor prior to the entrance of such gas or vapor to a condenser, a condenser, and connecting-pipes, substantially as described.

31. A receiving or separating tank having a receiving-chamber, as 8, and perforated baffle-plates, as 1 1 1 1, in combination with a gas-compressor, a condenser, and connecting-pipes, all substantially as described.

32. A receiving or separating tank having a receiving-chamber, as 8, perforated baffle-plates, as 1 1 1 1, and an enveloping-tube with an open bottom, as 19, arranged to form a passage-way between said tube and the receiving-chamber, in combination with a gas-compressor, a condenser, and connecting-pipes, all substantially as described.

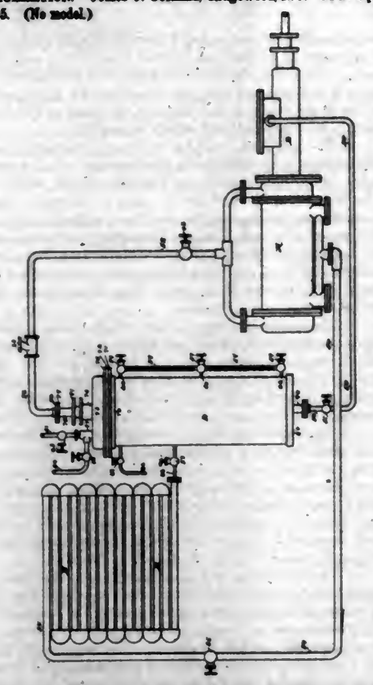
33. A receiving or separating tank having a receiving-chamber with an outlet at or near its bottom, having the discharge-pipe of a gas-compressor entering the receiving-chamber, a device for showering a liquefied gas, as 90, and a conduit with suitable stop-cock communicating with a condenser, in combination with a gas-compressor, a condenser, and connecting-pipes, all substantially as described.

34. A tank or receptacle interposed between a gas-compressor and a condenser, which is provided with a liquid operating to submerge or to seal an outlet of the discharge-pipe of the gas-compressor, when the said tank is in combination with a condenser and the whole are connected by pipes, substantially as described.

35. A tank or receptacle interposed between a gas-compressor and a condenser, which is provided with a liquid operating to submerge or to seal an outlet of the discharge-pipe of the gas-compressor and to wash and to cool a compressed gas discharged from such pipe, when the said tank is in combination with a condenser and the whole are connected by pipes, substantially as described.

36. A tank or receptacle interposed between a gas-compressor and a condenser, which is provided with a liquid operating to submerge or to seal an outlet of the discharge-pipe of the gas-compressor and to liquefy vapor of a sealing or lubricating liquid introduced therein, or to separate a sealing or lubricating liquid or its vapor from a compressed gas prior to the passage of such gas to a compressor, when the said tank is used in combination with a gas-condenser and the whole are connected by pipes, substantially as described.

320,306. PROCESS OF LIQUEFYING GASES AND PRODUCING REFRIGERATION. JULIUS J. SOMERS, Ridgewood, N. J. Filed Apr. 28, 1885. (No model.)



Claim.—1. The process of liquefying gases, which process consists in first cooling a body of liquefied gas within a receptacle by contact with conduits in which a cooling liquid is circulated, and then discharging the compressed gas and an intermingled sealing or lubricating liquid and the vapor of such liquid into such cooled liquefied gas, and transmitting the heat of compression and liquefaction from the compressed gas and the sealing or lubricating liquid and its vapor to the cooling liquefied gas, and thence to the cooling liquid within the conduits, operating thereby to prevent the vaporization of the liquefied gas, and by direct contact with such liquefied gas to liquefy the compressed gas and the vaporized sealing or lubricating liquid, and then effecting, by means of specific gravity, a separation of such sealing or lubricating liquid from the liquefied gas except at the line of contact, substantially as described.

2. The process of liquefying gases, which process consists in first cooling a liquefied gas and then liquefying a compressed gas by discharging it into the body of cooled liquefied gas, and then removing heat of compression and liquefaction transmitted from the compressed gas to the liquefied gas by the circulation of a cooling medium through conduits in contact with the liquefied gas being cooled, substantially as described.

3. The process of liquefying gases, which process consists in first cooling a liquefied gas and then bringing compressed gas in contact with the cooled liquefied gas, and then circulating a cooling medium through conduits in contact with the liquefied gas in sufficient quantity to abstract the heat transmitted to the liquefied gas, thereby preventing its vaporization, substantially as described.

4. A reservoir, tank, or receptacle provided with a body of liquefied gas, and so constructed, connected, and arranged with relation to its internal chamber or chambers and the discharge-pipe of a gas-compressing mechanism that a compressed gas discharged from said discharge-pipe is received into the body of liquefied gas, which is cooled by the circulation of a cooling medium through conduits in contact with the liquefied gas, substantially as described.

5. A reservoir, tank, or receptacle provided with a diaphragm perforated by open tubes, which pass through a chamber of said receptacle, which chamber receives the discharge from the discharge-pipe of a gas-compressing mechanism, and the said tubes communicate with another chamber provided with a conduit operating to supply a circulating cooling medium to such chamber and to the said tubes, when the said tubes are provided with an outlet, and are enveloped or partially enveloped by a liquefied gas, substantially as described.

6. A reservoir, tank, or receptacle provided with a diaphragm perforated by open tubes, which pass through a chamber of the said tank or receptacle, which chamber receives the discharge from the discharge-pipe of a gas-compressing mechanism, and the said tubes communicate with another chamber provided with a conduit operating to supply a circulating cooling medium to such chamber and to the said tubes, when the said chamber or the cooling medium therein operates to cool a sealing, lubricating, or other liquid discharged from a gas-compressing mechanism, and the said tubes are provided with an outlet, and are enveloped or partially enveloped in a liquefied gas, substantially as described.

7. A reservoir, tank, or receptacle, in combination with a gas-compressing mechanism, and so constructed, connected, and arranged as to receive a sealing or lubricating liquid from such gas-compressing mechanism, when the said reservoir, tank, or receptacle is provided with one or more chambers or conduits through which a cooling medium is circulated, operating to absorb heat from the said sealing or lubricating liquid, substantially as described.

8. A reservoir, tank, or receptacle provided with liquefied gas and a means for cooling the same, when the said receptacle is used in combination with a gas-compressing mechanism and communicates with the discharge-pipe of such mechanism, and the said receptacle is also provided with separate chambers, and is constructed, connected, arranged, and operates to receive and with the liquefied gas to liquefy a compressed gas discharged from a gas-compressing mechanism, to receive and cool a sealing or lubricating liquid, to liquefy the vapor of such liquid, and to separate the liquefied, sealing, or lubricating liquid from the liquefied gas, all without the aid of a separate condenser, substantially as described.

9. A reservoir, tank, or receptacle, in combination with a gas-compressing mechanism, when the said reservoir, tank, or receptacle is connected with and is arranged and operates to receive a compressed gas from the discharge-pipe of such gas-compressing mechanism, and the said compressed gas has its heat of compression and liquefaction absorbed by a circulating medium passing through such reservoir, tank, or receptacle in conduits, substantially as described.

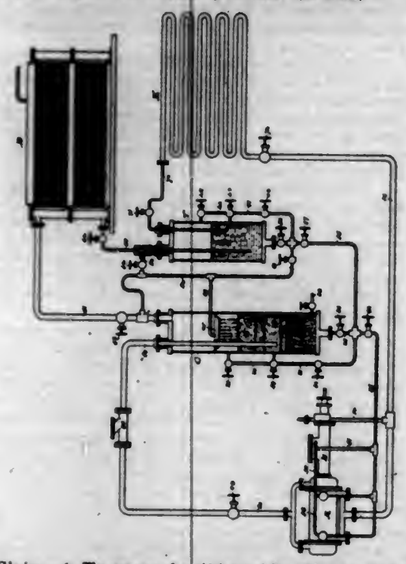
10. A reservoir, tank, or receptacle, in combination with a gas-compressing mechanism, when the said tank or receptacle is provided with a body of liquefied gas and is arranged to and receives the discharge from the discharge-pipe of such compressing mechanism, and is also provided with an air-vent and stop-cock or shut-off valve operating to draw away air from the upper part of said tank or receptacle, substantially as described.

11. A reservoir, tank, or receptacle, in combination with a gas, vapor, or liquid pumping mechanism and a pipe or conduit operating to introduce a gas, vapor, or liquid into such tank or receptacle, when the said tank or receptacle is provided with a perforated diaphragm and has about or inclosing the said pipe or conduit, connected with the said diaphragm and passing through a stuffing-box, a tube, the outer end of which passes through and beyond the surface of a flange screwed thereupon, and enters a recess of another flange secured to the said pipe, and the two flanges are drawn together by bolts, substantially as described.

12. A reservoir, tank, or receptacle, in combination with a gas, vapor, or liquid pumping mechanism and a connecting pipe or conduit introducing a gas, vapor, or liquid into such tank or receptacle, when the said tank or receptacle has a pipe or conduit conveying a cooling medium to a chamber within said tank that passes through a chamber warmer than the cooling medium, and the said pipe is insulated in the warm chamber by passing through a tube closed to the said warm chamber but open to the atmosphere, substantially as described.

13. The combination of the reservoir, tank, or receptacle D, supplied with a liquefied gas, a sealing or lubricating liquid, a means of cooling the liquefied gas and sealing or lubricating liquid, with a gas, vapor, or liquid pumping mechanism, one or more heat-absorbing coils and connecting-pipes, substantially as described.

320,307. METHOD OF AND APPARATUS FOR PURIFYING AND LIQUEFYING GASES AND PRODUCING REFRIGERATION. JULIUS J. SUCKERT, Ridgewood, N. J. Filed Apr. 24, 1885. (No model.)



Claim.—1. The process of purifying and liquefying gases, which process consists in first washing a compressed gas intermingled with a liquid, a vapor, or with both, with a liquefied gas operating by its contact and vaporization to reduce the temperature of the compressed gas and the intermingled liquid or vapor, and to liquefy such vapor and wash and separate the liquid and its liquefied vapor from the compressed gas and the vaporized liquefied gas, and then by condensing the compressed gas and the vaporized liquefied gas, and conveying the purified liquefied gas resulting therefrom to a separate chamber or receptacle, to entirely separate a quantity of such purified liquefied gas from the sealing or lubricating liquid or its liquefied vapor, and then returning a portion of the purified liquefied gas to the separating or washing tank or chamber to continuously cool and wash compressed gas, and to separate intermingled liquid or vapor therefrom, substantially as described.

2. The combination, with a gas compressor and condenser, of a receiving-tank placed between the compressor and condenser, which communicates with the discharge-pipe of the compressor and with the condenser, a second tank connected with the condenser and receiving a liquefied gas therefrom when the said tanks are directly connected by conduits which equalize the pressures in the said tanks, and the whole are connected, arranged, and operate to continuously and automatically transfer a part of the liquefied gas from one of said tanks to the other, substantially as described.

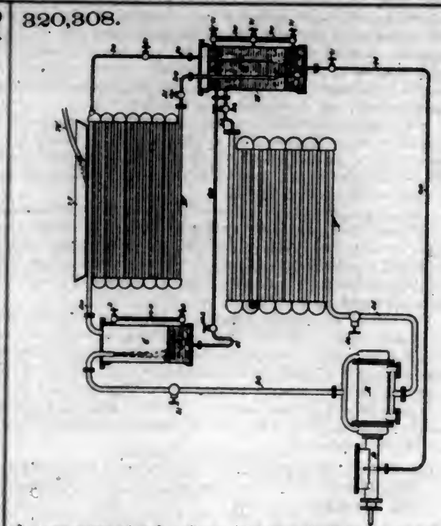
3. The combination, with a gas compressor and condenser, of a receiving-tank communicating with the discharge-pipe of the compressor and with the condenser, a second tank communicating with the condenser and receiving therefrom a liquefied gas when the said tanks are connected by conduits which equalize the pressures in said tanks, and the whole are connected, arranged, and operate to retain a determined quantity of liquefied gas in one tank and automatically supply the other tank, substantially as described.

4. The combination, with a gas compressor and condenser, of a receiving tank placed between the compressor and the condenser, which communicates with the discharge-pipe of the compressor and with the condenser, a second tank connected with the condenser and receiving a liquefied gas therefrom when the said tanks are connected by conduits and the whole is arranged and operates to receive in one tank a liquefied gas entirely free from contact with the sealing or lubricating liquid, and to transfer a part of the liquefied gas to the other tank, substantially as described.

320,308. PROCESS OF SEPARATING AND COOLING A SEALING OR LUBRICATING LIQUID IN APPARATUS FOR PRODUCING REFRIGERATION. JULIUS J. SUCKERT, Ridgewood, N. J. Filed Apr. 28, 1885. (No model.)

Claim.—1. The process of cooling a sealing or lubricating liquid expelled from a compressing-cylinder of a gas-compressor, which process consists in first separating the sealing or lubricating liquid, which is in liquid form, from the compressed gas in a receptacle interposed between the compressing-chamber and the condenser, and then reducing

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the temperature of such sealing or lubricating liquid by the vaporization of a quantity of liquefied gas, in direct or in indirect contact with such sealing or lubricating liquid, in a tank receiving the liquefied compressed gas from the condenser and then liquefying the gas vaporized by the cooling of the lubricant and returning the same to the receptacle in which it was vaporized, substantially as described.

2. The process of cooling a sealing or lubricating liquid expelled from a compressing-cylinder of a gas-compressor, which process consists in first separating the sealing or lubricating liquid, which is in liquid form, from the compressed gas in a tank or receptacle interposed between the compressing-chamber and the condenser, and then reducing the temperature of such sealing or lubricating liquid by the vaporization of a liquefied gas, either in direct or indirect contact with such sealing or lubricating liquid, and while said liquefied gas is under a pressure in excess of the pressure of the gas entering the compressor to be compressed, substantially as described.

3. The process of cooling a liquid, which process consists in introducing the liquid to be cooled into pipes or a coil of pipe inclosed in a tank or receptacle holding a body of liquefied gas, then cooling such liquid by the vaporization of a part of the liquefied gas, and then condensing or reliquefying the gas so vaporized and returning it to the receptacle in which the gas was vaporized, substantially as described.

4. The combination, with a gas compressor and condenser, of a tank or receptacle interposed between the compressor and condenser operating as a separating-tank and separating a liquid from a compressed gas, a tank or receptacle connected with the condenser and arranged to receive a gas liquefied in the condenser, and connecting-pipes, when the separating-tank is constructed, arranged, and operates to discharge a liquid contained therein into the tank or receptacle receiving the liquefied gas from the condenser, substantially as described.

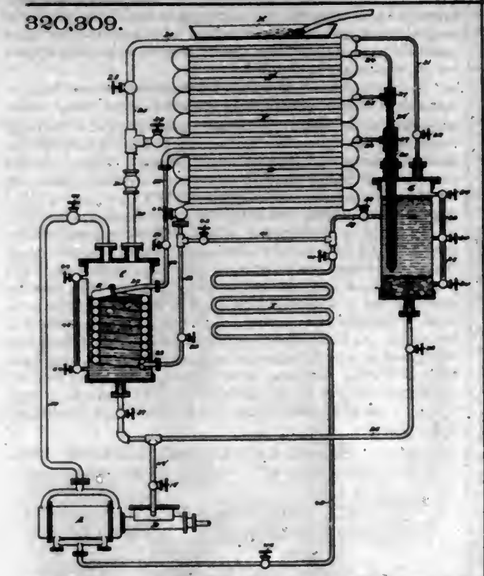
5. The combination of a gas compressor and condenser, of a separating tank or receptacle operating to separate a liquid from compressed gas passing to the condenser, a liquefied-gas tank or receptacle connected with the condenser and receiving liquefied gas from the condenser, when the said separating-tank is constructed and arranged to discharge a sealing or lubricating liquid into a tank or receptacle cooled by the vaporization of a liquefied gas, and the liquefied-gas tank also communicates with the condenser by a conduit through which the gas vaporized in the liquefied-gas tank passes to the condenser for reliquefaction, substantially as described.

320,309. SEPARATING AND COOLING A SEALING OR LUBRICATING LIQUID IN PRODUCING REFRIGERATION. JULIUS J. SUCKERT, Ridgewood, N. J. Filed May 18, 1885. (No model.)

Claim.—1. The process of cooling a liquid, which process consists in introducing the liquid to be cooled into a tank or receptacle, and cooling the same by the vaporization of a liquefied gas in a chamber, or in pipes or a coil of pipe forming part of a separate and closed circuit for the circulation of this gas under the liquefying pressure, and then passing the gas so vaporized to another chamber, or to other pipes or a coil of pipe forming a part of such closed circuit, operating as a condenser and liquefying it, and then returning the gas so liquefied to the chamber, pipe, or pipes in which it was vaporized, substantially as described.

2. The combination, with a tank or reservoir receiving a liquid to be cooled, of two coils of pipe or two chambers which communicate with each other and form a closed circuit for the passage of a gas or

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liquid when one of the said coils or chambers is supplied with a liquefied gas, which by its vaporization operates to cool a liquid within the said tank or reservoir, and the other coil or chamber is reduced in temperature by water or other cooling medium, and by such reduction in the temperature operates to condense the vaporized gas and return it when liquefied to the coil or chamber in which it was vaporized, substantially as described.

3. The combination, with a tank or reservoir receiving a liquid discharged from the discharge-pipe of a gas-compressor, of a coil of pipe or a separate chamber containing a liquefied gas operating by the vaporization of such gas to cool the said tank or its contents when the said chamber or the pipes of the said coil communicate to form a closed circuit with another coil or chamber which has its temperature reduced by contact with a cooling medium, and operating by such reduction of temperature to liquefy a gas within such coil or chamber, substantially as described.

4. The combination, with a tank or reservoir containing a liquid to be cooled, of a coil of pipe or a separate chamber containing a liquefied gas operating by the vaporization of such gas to cool the said tank or its contents when the said chamber or the pipes of said coil communicate with another coil or chamber and form a part of a closed circuit, and one of the said coils or chambers has its temperature reduced by contact with a cooling medium, operating by such reduction of temperature to liquefy a gas within such coil or chamber, substantially as described.

5. The combination, with a tank or reservoir for receiving a liquid to be cooled, of two or more coils of pipes or chambers whose inlets and outlets communicate with each other and form a closed circuit for the circulation of a gas or liquid, when one of the said coils is provided with a liquefied gas operating to absorb heat by the vaporization of such gas, and another coil forming a part of the closed circuit has therein a gas or gaseous vapor at a pressure not less than the liquefying-pressure, and is exposed to a cooling medium operating to liquefy such vaporized gas, substantially as described.

6. The combination, with a tank or receptacle receiving the discharge from a gas-compressor, and having communication with a gas-condenser, of a tank or receptacle receiving the gas liquefied in the condenser, a coil of pipe or chamber within the tank receiving the discharge from the compressor, which coil or chamber communicates with a gas-liquefying coil outside of the said tank when the said coils are connected by pipes and stop-cocks with a separate liquefied-gas reservoir, and are arranged and operate to cool a liquid in a tank receiving a liquid to be cooled by the vaporization of a liquefied gas in one of said coils or chambers, substantially as described.

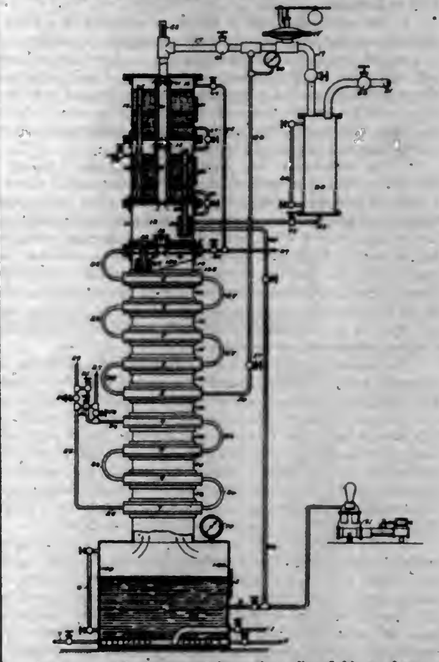
7. The combination, with a tank or reservoir receiving a liquid to be cooled, as C, of a cooling coil or chamber, as 51, and a gas-liquefying coil, as D, when the two coils are connected by conduits and stop-cocks forming a closed circuit, and one of the said coils is supplied with a liquefied gas, and the whole are arranged and operate to cool a liquid by the vaporization of a liquefied gas, substantially as described.

8. The combination, with a tank or reservoir receiving a liquid to be cooled, as C, of a cooling coil or chamber, as 51, and a gas-liquefying coil, as D, when the two coils are connected by conduits and stop-cocks forming a closed circuit, and one of the said coils is supplied with a liquefied gas, and the whole are arranged and operate to cool a liquid by the vaporization of a liquefied gas under the liquefying-pressure, substantially as described.

9. The combination of a gas-compressor, a separating or liquid cooling tank or receptacle, a check-valve, and connecting-pipes, when the said check-valve is interposed between the separating-tank and the condenser and operates to prevent the return of a liquid from the condenser to the said separating-tank, substantially as described.

10. The combination, with a tank or reservoir receiving a liquid to be cooled, of a cooling coil or chamber and a gas-liquefying coil when the two coils are connected by conduits and stop-cock and form a closed circuit for the circulation of a gas or a liquefied gas, and the said circuit is provided with a pipe and stop-cock or valve for the introduction of a gas or liquid therein, and one of said coils is supplied with a liquefied gas and the whole are connected, arranged, and operate to cool a liquid by the vaporization of a liquefied gas, substantially as described.

320,310. METHOD OF AND APPARATUS FOR SEPARATING A LIQUEFIABLE GAS FROM A CONDENSABLE VAPOR. JULIUS J. SUCKERT, Ridgewood, N. J. Filed Mar. 25, 1885. (No model.)



Claim.—1. The process of separating a liquefiable gas from a condensable vapor, which process consists in first reducing the temperature of a solution of the gas by the vaporization of a liquefied gas, and then passing the liquefiable gas and intermingled vapor through such cooled solution, thereby liquefying and separating the vapor, or a part thereof, and then cooling the liquefiable gas and liquefying and separating the remaining condensable vapor by bringing it in direct contact with a liquefied gas exposed at a reduced pressure, substantially as described.

2. The process of separating a liquefiable gas from a condensable vapor, which process consists in first reducing the temperature of a solution of the gas by the vaporization of a liquefied gas, and then passing the liquefiable gas and intermingled vapor through such cooled solution, thereby liquefying the vapor and separating it from the gas, substantially as described.

3. The process of separating a liquefiable gas from a condensable vapor, which process consists in first exposing a liquefied gas at a reduced pressure, and then bringing a liquefiable gas and intermingled vapor in direct contact therewith, thereby liquefying such vapor and separating it from the liquefiable gas, substantially as described.

4. The combination, with a still or gas-generator, of a series of distilling-chambers communicating one with another by a conduit arranged to trap a gas or vapor passing through it, a second series of chambers, also communicating one with another by conduits and separated from the first series by walls or partitions, which are supplied with a cooling medium operating to reduce the temperature of a gas or vapor in transit to or through the distilling-chambers, substantially as described.

5. The combination, with a still or gas-generator, of a series of communicating separating-chambers which are supplied with a liquid, and are provided with a conduit arranged to introduce a gas or vapor passing through said conduit into such liquid, when the said liquid is reduced in temperature by a cooling medium in another chamber, and operates to wash, cool, and separate a gas from a vapor, substantially as described.

6. The combination, with a still or gas-generator, of a series of chambers placed in line vertically, and communicating one with another by a conduit having its outlet sealed with a liquid and operating to trap a gas or vapor passing through such conduit, when the said liquid, gas, and vapor are cooled by a cooling medium in another chamber, and the cooled liquid operates to wash a gas and separate it from a vapor, substantially as described.

7. The combination, with a still or gas-generator, of a series of chambers which are supplied with a liquid, and communicate one with another by a conduit arranged to introduce the gas or vapor passing through such conduit into and through such liquid, when the said chambers are also provided with a liquid-sealed conduit operating as an overflow to convey a liquid from one chamber to another, and the liquid through which the gas or vapor passes is reduced in temperature by a cooling agent or medium not in direct contact with such liquid, substantially as described.

8. The combination, with a still or gas-generator, of a series of chambers supplied with a liquid, which communicate one with another by a conduit arranged to introduce the gas or vapor passing through such conduit into and through such liquid, a series of cooling-chambers, also connected by conduits, a reservoir of liquefied gas, and connecting-pipes, when the whole is connected, arranged, and operates to cool the gas, vapor, and liquid by the vaporization of a liquefied gas in the said cooling-chambers, substantially as described.

9. The combination, with a still or gas-generator, of a series of chambers containing a liquid, which chambers communicate one with another by a conduit arranged to introduce the gas or vapor passing through such conduit into and through such liquid, and the said chambers are also provided with a liquid-sealed conduit operating as an overflow to convey a liquid from one chamber to another, a series of cooling-chambers, also connected by conduits, through which a refrigerating agent circulates, a reservoir of liquefied gas, and connecting-pipes, when the whole is connected, arranged, and operates to cool the gas, vapor, and liquid by the vaporization of a liquefied gas in the said cooling-chambers, substantially as described.

10. The combination, with a still or generator, of a gas drying and separating tower, consisting of a series of separating-chambers supplied with a liquid, and which are interposed between a series of hollow condensing-plates, but communicate one with another by liquid-sealed conduits through which gas or vapor passes, when the hollow condensing-plates also connect by conduits one with another and with a reservoir of liquefied gas, and the whole is constructed, arranged, and operating to separate a gas from a vapor by forcing the gas or vapor through a liquid in the separating-chambers that is cooled by the vaporization of a liquefied gas in the said condensing-plates, substantially as described.

11. The combination, with a still or generator, of a gas drying and separating tower, consisting of a series of separating-chambers supplied with a liquid, and which are interposed between a series of hollow condensing-plates, but communicate one with another by liquid-sealed conduits through which gas or vapor passes, when the hollow condensing-plates also connect by conduits one with another and with a reservoir of liquefied gas, and the whole is constructed, arranged, and operating to separate a gas from a vapor by cooling such gas or vapor in its passage through the tower or the conduits of the separating-chambers by the vaporization of a liquefied gas not in direct contact with the gas or vapor being cooled, substantially as described.

12. The combination, with a still or gas-generator, of a condensing or separating chamber provided with a liquid-sealed conduit through which it receives gas or vapor, and a liquid-sealed conduit arranged to discharge accumulating liquid to another chamber, when the said separating or condensing chamber is also provided with an outlet or escape for gas or vapor, and the chamber and its contents are cooled or reduced in temperature by the vaporization of a liquefied gas in conduits or passages that separate such gas from the contents of the said chamber, substantially as described.

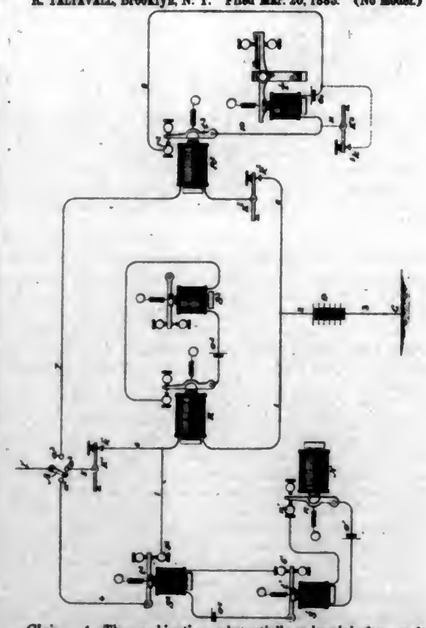
13. The combination, with a still or gas-generator, of a condensing or separating chamber provided with a liquid-sealed conduit through which it receives gas or vapor, a liquid-sealed conduit arranged to discharge accumulating liquid to another chamber, and an outlet or escape for gas or vapor, when the said condensing or separating chamber is cooled or reduced in temperature by a cooling medium that has been reduced in temperature, and is circulated in conduits or passages that separate such cooling medium from the contents of the condensing or separating chamber, substantially as described.

14. The combination, with a still or gas-generator, of a condensing or separating chamber provided with a liquid-sealed conduit through which it receives gas or vapor, a liquid-sealed conduit arranged to discharge accumulating liquid to another chamber, and an outlet or escape for gas or vapor, when the said separating or condensing chamber is provided with liquefied gas, and the whole is arranged and operating to condense a gas or vapor or to dry a gas by its direct contact with a liquefied gas, substantially as described.

15. The combination, with a still or gas-generator, of a condensing or separating chamber provided with a liquid-sealed conduit through which it receives gas or vapor, a liquid-sealed conduit arranged to discharge accumulating liquid to another chamber, and an outlet or escape for gas or vapor, when the said chamber is provided with a liquefied gas and one or more perforated retarding, separating, or condensing plates, and the whole is arranged and operating to condense a gas or vapor or to dry a gas by its direct contact with a liquefied gas, substantially as described.

16. A still or gas-generator, a condensing or separating chamber provided with a liquid-sealed conduit through which it receives gas or vapor, a liquid-sealed conduit arranged to discharge accumulating liquid to another chamber, and an outlet or escape for gas or vapor, when the said condensing or separating chamber and its contents are cooled or reduced in temperature by a cooling medium that has been reduced in temperature, and is circulated in conduits or passages that separate such cooling medium from the contents of the condensing or separating chamber, in combination with one or more condensing or separating chambers that are provided with liquefied gas operating to condense a gas or vapor or to dry a gas by its direct contact with the liquefied gas, substantially as described.

320,311. REPEATER FOR QUADRUPLEX TELEGRAPHS. THOMAS R. TALTAVALL, Brooklyn, N. Y. Filed Mar. 20, 1885. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, with a relay of a quadruplex telegraph system, of a single-wire or branch circuit, means for repeating from said relay into said circuit, and means for transmitting and receiving over said circuit and at the same time repeating over or into said system, substantially as described.

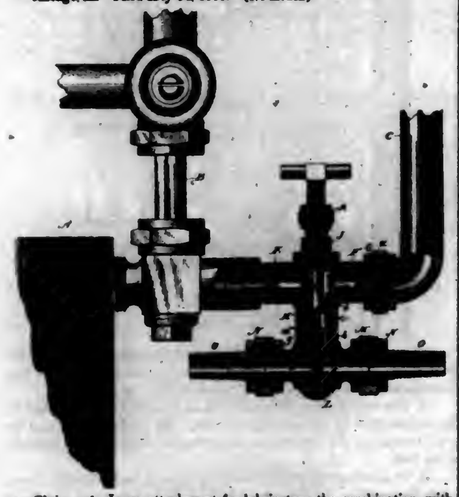
2. The combination, substantially as hereinbefore set forth, with a relay and a transmitter of a quadruplex telegraph system, of a branch conductor leading to an independent station, a repeating-sounder operated by said relay, a battery controlled by the movements of said repeating-sounder for transmitting over said branch conductor, a relay for operating said transmitter, a transmitting-key, and means for disconnecting said branch conductor from the first-named relay and connecting it with the second relay and said transmitting key.

3. The combination, substantially as hereinbefore set forth, with either relay and either transmitter of a quadruplex telegraph, of a branch line, a battery for the same, a repeating-sounder responding to the operation of said relay, a second relay for controlling the movements of said transmitter, a transmitting-key, and means for connecting said branch line, either with the repeating-sounder or with said second relay and key, at will.

4. The combination, substantially as hereinbefore set forth, with a quadruplex telegraph system, of a branch conductor and a three-point switch, one of the points of which switch is connected with a repeating-sounder controlled by an instrument of said system, a second of which points is connected with independent transmitting and receiving apparatus, while the third is connected with apparatus controlling a transmitter of said system.

5. The combination, substantially as hereinbefore set forth, of the branch conductor, the quadruplex transmitter, the local battery for vitalizing the electro-magnet of said transmitter, and the independent key whereby the circuit of said local battery may be completed through said magnet, the relay for operating said transmitter independently of said key, and the battery and key for operating said relay.

320,312. ATTACHMENT FOR LUBRICATORS. JOHN C. TRAYER, Chicago, Ill. Filed May 14, 1885. (No model.)



Claim.—1. In an attachment for lubricators, the combination, with the oil-passage thereof, of a division-plate provided with a knife-edge and extending across said passage, whereby the oil being fed may be divided into two or more equal divisions or streams, substantially as described.

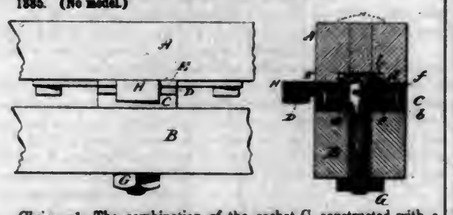
2. In an attachment for lubricators, the oil-passage thereof and a valve for opening and closing said passage, in combination with a division-plate provided with a knife-edge, substantially as described.

3. The passage D and a passage, *c*, in combination with the separate passages *g* and *h* and a division-plate between said passages provided with a knife-edge extending across the passage *c* and removable therefrom, substantially as described.

4. The casting E, provided with the passages D *c*, in combination with the casting L, provided with two or more passages, and a division-plate removable from the casting E, substantially as described.

5. The passage D, provided with an enlarged chamber having a concave bottom, *b*, an opening *c*, and a valve, I, governing the flow of oil through the passage *c*, in combination with the division-plate and separate oil-passages extending down the sides thereof, substantially as described.

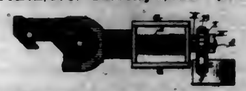
320,313. WHIFFLETREE-COUPLING. WILLIAM S. WARD, Plantsville, Conn., assignor to H. D. Smith & Co., same place. Filed Apr. 13, 1885. (No model.)



Claim.—1. The combination of the socket C, constructed with a central opening through it, flange *d* around said opening extending above the plane of the plate, and also constructed with a recess, *b*, around said opening, and also constructed with a flange, D, extending from one side in a horizontal plane, the said socket being adapted to be attached to the one part, with the plate E constructed for attachment to the other part, and with a central opening, *h*, corresponding to the flange *d* in the socket, and with a hook-shaped extension, H, corresponding to the flange D on the socket, a spring in the recess on the socket on which said plate will bear, and a bolt adapted to bind said plate upon the socket, substantially as described.

2. The combination of the socket C, constructed for attachment to the whiffletree-bar and with a central opening, *a*, and with a flange, *d*, around said opening and projecting above the plane of the socket, and with a recess, *b*, around said opening, and also with a flange, D, projecting from the socket in a horizontal plane, the plate E, constructed for attachment to the whiffletree, and with a hook-shaped projection, H, corresponding to the flange D on the socket, and with a central opening, *h*, corresponding to the flange around the opening in the socket, a spring in said recess upon which said plate will bear, the bolt F, having its head adapted to bear upon the said plate, its neck of shape corresponding to the opening in the socket and adapted to pass through the whiffletree, and provided with a nut whereby the plate may be clamped upon the socket, substantially as described.

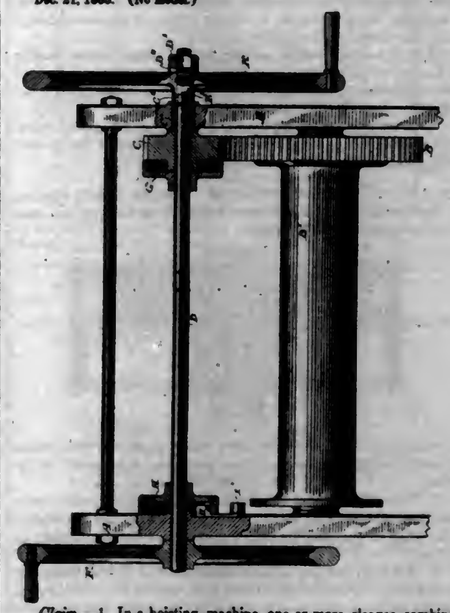
320,314. CAR-COUPLING. FRANK A. WHITBROOK and WINFIELD S. COOK, Port Jervis, N. Y. Filed May 9, 1885. (No model.)



Claim.—1. The combination, of an endwise-moving rod with a nut which is placed thereon, and which has its outer edge formed into ratchet-teeth, with a pawl which is made to operate in connection with the nut, and an inclined surface for operating the pawl, substantially as shown.

2. The combination of the draft-rod, the nut which is applied to its end, the bearing-plates, the pawl, and the inclined surface for operating the pawl, substantially as set forth.

320,315. HOISTING-MACHINE. THOMAS A. WESTON, Stamford, Conn., assignor to the Yale & Towne Manufacturing Company, same place. Filed Dec. 21, 1883. (No model.)



Claim.—1. In a hoisting-machine, one or more sleeves combined with and serving as a bearing for a shaft and provided with one or more frictional inclines, substantially as described.

2. The combination, with a shaft of a hoisting-machine, of a loose sleeve and a loose driver, both of which are provided with helical inclines, substantially as described.

3. In a hoisting-machine, the combination of a main driving-shaft, a loose wheel or pinion thereon provided with an elongated sleeve having a helical incline, a driver having a boss with a corresponding incline, whereby the driver and engaging frictional inclines can be placed outside of the supporting-frame of the machine, substantially as described.

4. In a hoisting-machine, the combination of a main driving-shaft and two independent driving mechanisms constructed and arranged so that both or either will turn the shaft for hoisting, which shaft always remains stationary during the operation of lowering, substantially as described.

5. The combination of the shaft D, a retaining ratchet-wheel, and an operating ratchet-lever provided with a spring, O, substantially as described.

6. The combination of the shaft D with an internally-toothed ratchet-wheel, H, and externally counter-weighted pawl I I', substantially as described.

320,316. HOISTING MECHANISM. THOMAS A. WESTON, Stamford, Conn., assignor to the Yale & Towne Manufacturing Company, same place. Filed Jan. 5, 1884. (No model.)



Claim.—1. In combination with a hoisting-machine, a shaft which automatically oscillates to apply or remove a brake, substantially as described.

2. In combination with a hoisting-machine, a shaft which forms the bearing for the main chain wheel or drum, and which by the revolution of said wheel or drum oscillates to apply or remove a brake, substantially as described.

3. In a hoisting-machine, the combination of a driving and a chain sheave or drum formed in one piece, an oscillating shaft on which the sheaves turn, a helical incline, and a stationary brake, substantially as described.

4. In a hoisting-machine, the combination of one side of the frame having a plain friction-surface, a driving sheave or drum having a corresponding adjacent friction-surface, and friction-disks between the two, whereby the brake mechanism is brought within the lateral thickness of the driving-sheave, substantially as set forth.

5. In a hoisting-machine provided with frictional incline braking mechanism, an adjustable weighted operating-lever, whereby the said brake mechanism is operated or made inoperative, substantially as described.

6. In a hoisting-machine having an automatically-applied brake, an elastic releasing device interposed between the place of the operator and the brake, substantially as described.

320,317. HOISTING MECHANISM. THOMAS A. WESTON, Stamford, Conn., assignor to the Yale & Towne Manufacturing Company, same place. Filed Jan. 8, 1884. (No model.)



Claim.—1. A set of friction-disks loosely supported by a central hub and connected by a rim at their peripheries, substantially as described.

2. The combination of a sprocket-wheel, an abutment-collar, and a screw-threaded shaft with which they both engage, so that the rotation of the wheel in one direction causes frictional contact, substantially as set forth.

3. A driving-pulley or sprocket-wheel provided with an internally-screwed boss, a screwed shaft, friction-disks, ratchet-rim, or equivalent checking device, supporting-hub, and abutment-collar, substantially as described.

4. A pulley-block frame provided with internal bearings for both the driving and main shafts, so that the width of the frame is not increased by said bearings.

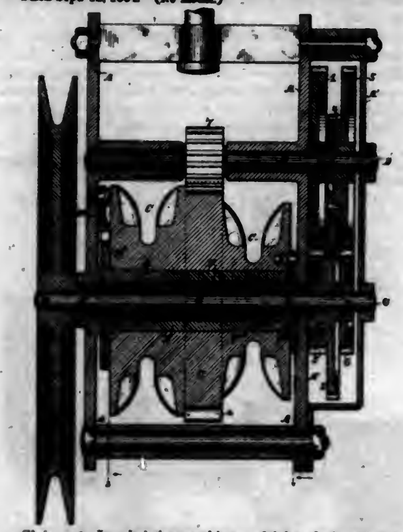
5. In combination with a pulley-block frame, a stay or brace which serves as a shaft-bearing and also a chain-guide, substantially as described.

6. In a pulley-block, the combination of a main shaft and chain-sheave turning upon inwardly-projecting bearings which project into recesses in the chain-sheave, substantially as described.

7. A pulley-block having combined with it differential ratchet and pawls, substantially as described.

8. In a hoist, the combination of a main frame, an abutment-collar, F, and a sprocket-wheel interposed between the two, substantially as described.

320,318. HOISTING MECHANISM. THOMAS A. WESTON, Stamford, Conn., assignor to the Yale & Towne Manufacturing Company, same place. Filed Sept. 12, 1884. (No model.)



Claim.—1. In a hoisting-machine, a driving-shaft and a counter-shaft driven thereby, in combination with and forming the axles or axes of a connected train of spur-gears, substantially as set forth.

2. The combination, with a hoist-frame, A, of the driving-shaft G, the counter-shaft D, the box A', into which the shafts extend, and the gears connecting the two shafts and the sheave or drum C, substantially as set forth.

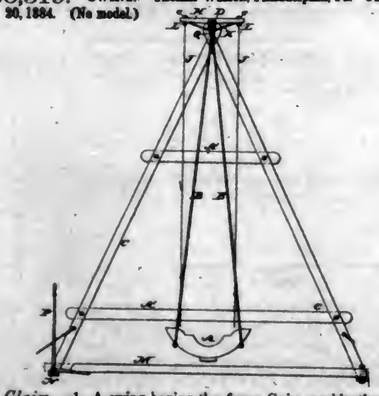
3. In combination with the winding-drum or main lifting-sheave of a hoisting-machine, an internally-contained friction-sleeve or a series of sleeves, operating as an automatic brake actuated by the load, substantially as set forth.

4. In combination with the winding-drum or main lifting-sheave of a hoisting-machine, an internally-contained friction or brake sleeve or sleeves and a ratchet and pawl or equivalent, substantially as set forth.

5. In a hoist, the combination of the shafts D and G, the lifting sheave or drum C, the gears connecting the shafts and communicating lifting-power to the sheave, and a brake-sleeve between the sheave and the shaft G, and mechanism, substantially such as described, to loosely connect the shaft with the sheave, and pawl and ratchet or equivalent checking mechanism connected with the sleeve, all substantially as set forth.

6. The combination, with the winding-drum or main lifting-sheave of a hoisting-machine, provided with an internal friction or brake sleeve, of a driving-shaft and attached plate and stud, whereby the said drum or sheave is rotated, substantially as set forth.

320,319. SWING. THOMAS WILSON, Philadelphia, Pa. Filed Aug. 20, 1884. (No model.)



Claim.—1. A swing having the frame C, in combination with a cross-beam, D, clamped by said frame C, and provided with a transverse arm, H, secured to said beam D by a metallic truss, K, substantially as and for the purpose set forth.

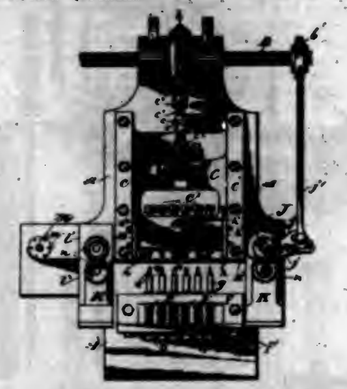
2. A swing having the pivoted frame C C, and the pivoted straps F F, having a common axial bolt, *a*, said straps having threaded upper ends, the plate G, and nut *b*, said parts being arranged and combined substantially as and for the purpose set forth.

3. A swing having an arm attached to the top cross-beam of the same, the same being provided with a truss and bolts, the latter connecting the truss with the cross-beam, and having eyes for the attachment of the ropes, which are reached from the seat, substantially as and for the purpose set forth.

4. A swing provided with a brake consisting of the crank-shaft N, having lever P, and a pivoted bar, M, being attached to the frame of the swing and beneath the seat thereof, substantially as and for the purpose set forth.

5. In a swing, the seat A, in combination with arms B B, cross-beam D, eyebolts E, and bolt Q, said bolts E being secured to said cross-beam, substantially as and for the purpose set forth.

320,320. WASHER-MAKING MACHINE. MAHLON M. ZELLERS and JAMES B. MILLER, Kent, Ohio; said Zellers assignor to said Miller. Filed Dec. 30, 1884. (No model.)



Claim.—1. In a washer-punching machine, in combination with a severing-die, crimper, and center punch arranged concentrically with each other, an opposing combination-tool arranged to operate as a punch for the severing-die, as a die for the center punch, and as a former for the crimping-die, substantially as set forth.

2. In a washer-punching machine, in combination with opposing punches and dies for severing the washers from the blank and punching the center holes in the washers, and a former of suitable shape, a crimping-die arranged to recede during the punching and severing of the washer and to advance and discharge the finished washer, substantially as set forth.

3. In a washer-punching machine, in combination with a stationary die and punch, and an opposing reciprocating tool that serves as a punch for the stationary die and as a die for the stationary punch, and a crowning face to serve as a former, a crimping-die to oppose the former in crimping the washer arranged to slide on the shank of the stationary punch and held toward the blank by a spring, substantially as set forth.

4. In a washer-punching machine, in combination with the crimper G', provided with the head *g'*, and a spring, *g*³, for advancing the crimper toward the blank, the part F, arranged to operate as a stop to limit the advancement of the crimper, substantially as set forth.

5. In a washer-punching machine, a movable stripper or plate yieldingly held by springs arranged to press the blank from the stationary tools as the reciprocating tools recede, substantially as set forth.

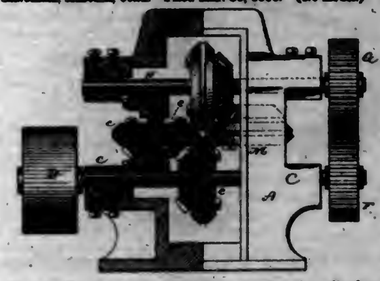
6. In a washer-punching machine, in combination with a stationary stripper for the reciprocating tools, a movable stripper or plate on the opposite side of the blank arranged to press the blank from the stationary tool when the reciprocating tools recede, substantially as set forth.

7. In a washer-punching machine, in combination with the tool-holders E, the block or clamp D, consisting of the plates *d*, bolted together and having holes at the joints for clamping the respective holders, substantially as set forth.

8. In a washer-punching machine, in combination with a reciprocating cross-head, with the attached block D, and the tool-holders E, the screw-bolts C², arranged, respectively, to abut against the ends of the said holders and form an end support and means of adjusting the holders, substantially as set forth.

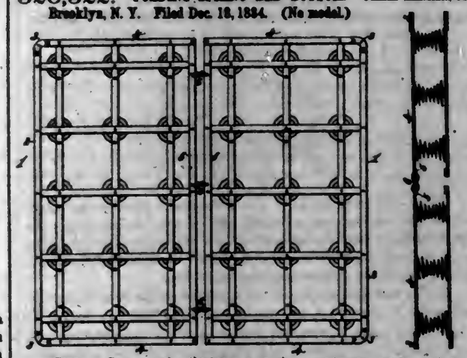
9. In a washer-making machine, the combination, with dies and punches, of feed-rolls arranged in pairs on opposite sides of the machine, the cylindrical block having oblong slots therein, and devices, substantially as described, for operating the feed-rolls and block.

320,321. MACHINE FOR COVERING WIRE WITH METAL. JOSEPH ZIMMERLE, Ansonia, Conn. Filed Mar. 30, 1885. (No model.)



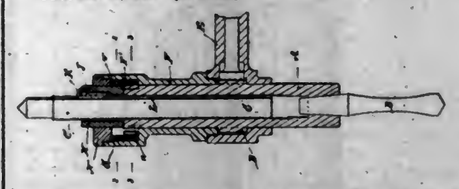
Claim.—The herein-described improvement in rolls for covering wire with metal and analogous purposes, consisting of the four rolls, each composed of a body fixed to its particular shaft, and several segments for each body, the said segments forming a complete periphery and removably secured to the body of the roll, the peripheries of the said rolls each having a groove which, combined, are in shape of the transverse section of the finished wire, substantially as described.

320,322. FOLDING SPRING BED-BOTTOM. JAMES ADDLER, Jr., Brooklyn, N. Y. Filed Dec. 18, 1884. (No model.)



Claim.—In a sectional folding bed, the combination of the end slats, 2, side slats, 4, and cross-slats, 5, arranged at the adjacent ends of the bed-sections, and each having perforations, with the wire links 6, formed ∞-shaped to create an eye at each end, which respectively pass through the said perforations of the cross-slats 5, substantially as shown and described.

320,323. RATCHET-BRACE. JOHN F. ALLEN, New York, N. Y. Filed Mar. 18, 1885. (No model.)



Claim.—1. The combination of toothed spindle A with ring G, adapted to operate the adjusting-screw C by intermediate ring, H, and key K, and made with internal teeth of a larger number than on the spindle A, substantially as described.

2. The combination of toothed spindle A with internally-toothed ring G, and with ring H, keyed to the adjusting-screw C, substantially as and for the purpose set forth.

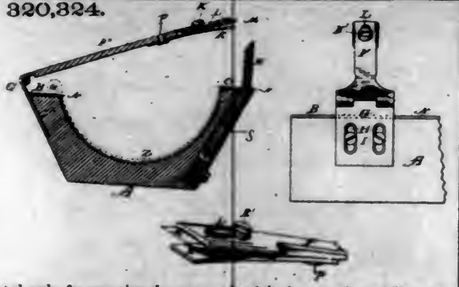
3. In a ratchet-brace, the combination of toothed spindle A, the rings G and H, connected by tongue or projection *v*, the key K, and the adjusting-screw C, having groove L, arranged to operate in the manner and for the purpose substantially as specified.

320,324. GUTTER BOX OR TROUGH. FREDERICK AIT, Franklin, Ind. Filed May 6, 1885. (No model.)

Claim.—1. The combination of the trough A, the presser-levers F, hinged thereto, and the spring-actuated racks E, for engaging the free ends of the presser-levers, substantially as described.

2. The combination of the trough A, the slotted hinges G, secured thereto, the presser-levers secured to said hinges, and the spring-acta-

320,324.



sted racks for engaging the outer ends of the levers, substantially as described.

3. The combination of the trough A, the presser-levers hinged thereto, said levers being provided with the bearing-springs K on the under sides of their outer ends, and the spring-actuated rack for engaging the free ends of the levers, substantially as described.

4. The combination of the trough A, the presser-levers hinged thereto, the outer ends of the levers being provided with the slots L, the bits M, and set-screws K', and the spring-actuated racks engaging with the bits, substantially as described.

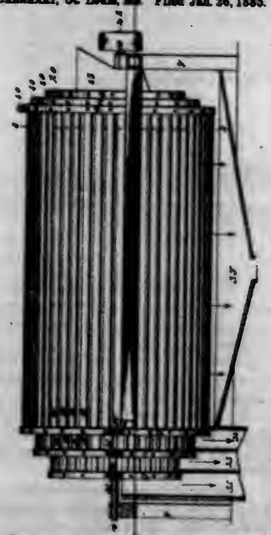
320,325. SOCKET-MOLD FOR SEWER-PIPE PRESSES. OMAS BARBER, Akron, Ohio. Filed Apr. 23, 1885. (No model.)



Claim.—1. In combination with a sewer-pipe press having two or more annular openings each provided with an outer socket-mold, a like number of inner socket-molds mounted on a single base, and arranged to be simultaneously locked in and released from said outer molds, substantially as and for the purpose hereinbefore set forth.

2. The combination, in a sewer-pipe press, of the head B, provided with molds *b*, mandrels *a*, and hooks *i*, with the frame D, having the wrists G, the molds E, mounted thereon, and the segmental racks H, bars I, pinion J, and handle L, all constructed and arranged substantially as shown, and for the purpose specified.

320,326. MACHINE FOR POLISHING AND SORTING NUTS, &c. WILLIAM R. BARNHART, St. Louis, Mo. Filed Jan. 26, 1885. (No model.)



Claim.—1. In a separating-cylinder, the combination, with the longitudinal slats located in the same circular plane, of separate rings or hoops to which the alternate slats are respectively secured, as and for the purpose set forth.

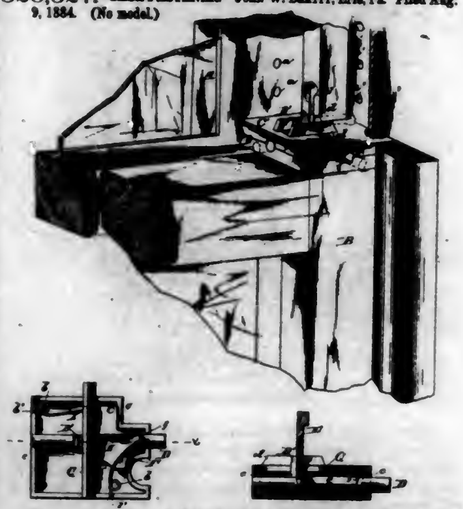
2. In a separating-cylinder, the combination, with the longitudinal slats thereof, of two sets of concentric rings or hoops between which said slats are placed and to which alternate slats are respectively attached, substantially in the manner and for the purpose set forth.

3. The combination, with the longitudinal slats, of two sets of relatively-movable concentric rings or hoops between which said slats are placed and to which alternate slats are respectively attached, as and for the purpose set forth.

4. In a separating-cylinder, the combination, with the shaft 10, having the spokes 11 radiating therefrom, the rings 12, secured to said spokes, and the slats 15, secured to said rings, of the rings 17, encircling said slats, and the intermediate slats, 16, secured to said rings 17, substantially as and for the purpose set forth.

5. The combination, with the shaft 10, having the radial spokes 11, of two or more sets of rings, 12 13, secured thereto, the longitudinal slats 15, secured to said rings, the rings 12' 13', to which said slats are also secured, the rings 17 18, encircling the slats 15, and the alternating slats 16, secured to said rings 17 18, substantially as and for the purposes set forth.

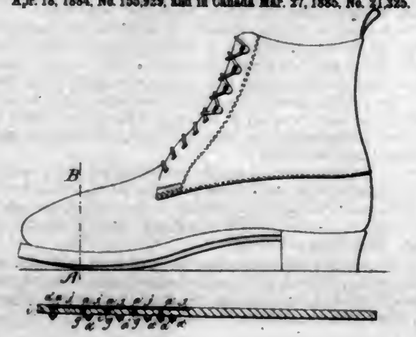
320,327. SASH-FASTENER. JOHN W. BEATTY, Erie, Pa. Filed Aug. 9, 1884. (No model.)



Claim.—1. In a sash-fastener, a case provided on its upper side with lugs *d d*, between which is pivoted an operating-lever, in combination with the recessed bolts D G, which cross each other at right angles, one of said bolts having an upwardly-projecting portion, D', and a side extending portion, H, substantially as shown, and for the purpose set forth.

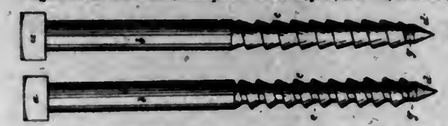
2. In a sash-fastener, for the purpose set forth, a case provided with bolts which cross each other at right angles, said bolts being recessed at their central portions, one of the bolts being provided with an upwardly-extended portion and a laterally-extended portion with an inclined side, springs secured within the case and bearing upon the recessed ends of the bolts, and an operating-lever pivoted to the upper portion of the case, the parts being combined and organized substantially as shown, and for the purpose set forth.

320,328. BOOT AND SHOE SOLE PLATE. JOSEPH BORRETT, London, England. Filed Aug. 26, 1884. (No model.) Patented in England Mar. 19, 1884, No. 5,136; in Germany Apr. 11, 1884, No. 28,725; in France Apr. 18, 1884, No. 155,929, and in Canada Mar. 27, 1885, No. 21,325.



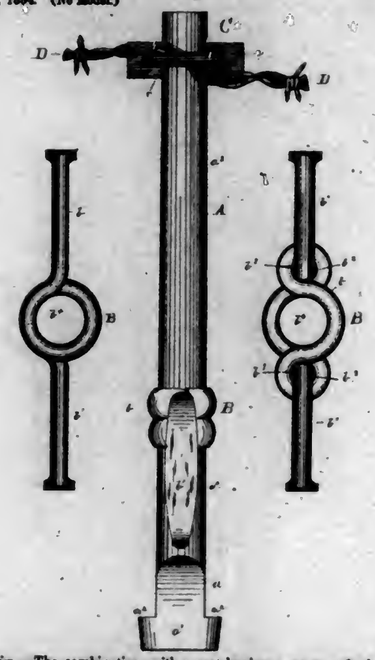
Claim.—The combination, with a leather or other outer sole for boots or shoes, of a cast-metal skeleton frame of smaller size or area than the sole in which it is embedded, and having a course or series of projections on its under side at its outer edge, and having connecting cross-bars, and having, when connected to the leather in which it is embedded, a margin or border of such leather left all around such plate, and whereby the upper of a boot or shoe may be sewed or otherwise secured to the sole around and outside of the edge of such plate and through said margin, as and for the purposes described.

320,329. DRIVE-SCREW. AMOS BROADMAN, Brooklyn, N. Y., assignor to Albert C. Lewis, same place. Filed May 31, 1884. (No model.)



Claim.—A lag, wood, or drive screw having a ratchet-thread and a tapering or conoidal point, the base of which is of the same diameter as the core of the screw at the bottom of the thread, and a cylindrical part between the base of the point and the commencement of the thread, substantially as and for the purposes described.

320,330. FENCE-POST. VINCENT BROWN, Hazzard, Mo. Filed June 27, 1884. (No model.)



Claim.—The combination, with a post having a cutter at its lower end, and tapered from its upper end to the flattened part, which forms the cutter, of an anchor having a hub provided with an eye for the post, and an angular projection provided with a sharpened point, substantially as described.

320,331. PAPER BOX. JOSEPH P. BUCKINGHAM, New York, N. Y. Filed July 31, 1884. (No model.)



Claim.—1. A box-tube made from two substantially rectangular blanks, bent and arranged with their inner sections forming single sides, and their outer sections overlapping to form double sides, substantially as described.

2. A tubular box made from two substantially rectangular blanks, bent and arranged with their inner sections forming single sides, and their outer sections overlapping to form double sides, and having rectangular end closing portions provided with tacking-flaps, substantially as described.

3. A tubular box made from two substantially rectangular blanks of different qualities of material, the outer sections of the blanks being joined to form the double sides, and having rectangular end closing portions of stiff material provided with tacking-flaps, substantially as described.

4. A tubular box made from two substantially rectangular blanks of different qualities of material, bent and arranged with their inner sections forming single sides, and the outer sections of the blanks being joined to form double sides, and rectangular end closing portions provided with tacking-flaps, and having a re-enforcing piece applied to a single side, substantially as described.

5. The combination, with a tubular box, of end closing portions consisting of a rectangular section, *e*, having a hinge-section, *g*, and tacking-flaps *h f*, the flap *h* having slightly-projecting ends, as set forth.

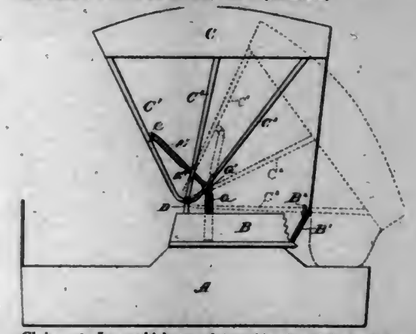
6. The combination, with a tubular box, of end closing portions consisting of a rectangular portion, D, having hinge-section *g* and tacking-flaps *h f*, and a re-enforcing portion, C, secured to the body D, as set forth.

7. The combination, in a tubular box having double sides, the inner sides being cut away so as to form recesses *o*, of an end closing portion having a tacking-flap adapted to be inserted into said recesses, substantially as described.

8. A tubular box made from rectangular blanks A and B, the latter having the corners cut away, as at *i*, the two portions being joined together, as set forth, combined with end closing portions consisting of the end section *e*, hinge-section *g*, and tacking-flaps *h* and *f*, substantially as described.

9. A tubular box-body made from two substantially rectangular blanks, A B, the blank A having a re-enforcing strip, *l*, cut away, as at *j*, and the blank B being cut away, as at *i*, the two blanks being joined together, as set forth, whereby the folding lines are re-enforced, as set forth.

320,332. VEHICLE-TOP. EDWARD W. CANNON and ELIAS H. JONES, Milwaukee, Wis. Filed Feb. 16, 1885. (No model.)



Claim.—1. In a vehicle-top, the combination of the front bow, with plate F, secured thereto, and bearing-lug *e*, hollow section E, pivoted to said lug, and bearing central spindle *f*, vertical standard G, rising from the vehicle-seat, hollow section E', pivoted at G' to the vertical standard G, and adapted to slide within section E, and the loose spiral spring *f'*, all arranged and adapted to operate substantially as set forth.

2. The combination, with the top and yielding brace, of a hook, H^2, as set forth.

320,333. TOP ROLL FOR SPINNING-MACHINES, &c. WILLIAM T. CARROLL, EDGAR J. CARROLL, and ELBERT H. CARROLL, Worcester, Mass. Filed July 29, 1884. (No model.)

Brief.—The recessed ends of the arbors are provided with perforations opening within the shells, and with perforated bearing-pins having flattened ends, and oil-cups in the upper surfaces of the ends, whereby the shells may be oiled while in position upon the arbors.



Claim.—1. The combination of a shaft having its ends provided with recesses or bores and with perforations opening from the said bores in the sides of the shafts, bearing-pins having their ends fitting in the bores of the shaft, provided with an enlarged flattened head and with a channel opening in the upper side of the said head and in the end of the pin,

and a shell or tubular roller journaled upon the end of the shaft, as and for the purpose shown and set forth.

2. The combination of the shaft having the reduced ends provided with the annular recesses, the anti-friction shells fitting and turning in the said recesses and having their middles thicker than their ends, and the shells or tubular rollers, as and for the purpose shown and set forth.

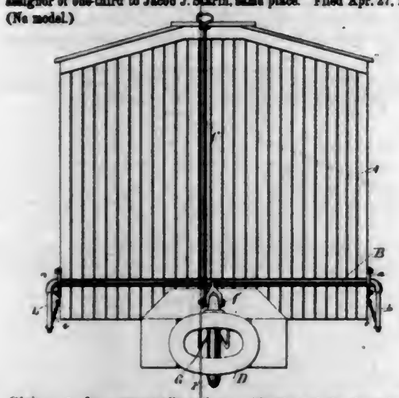
3. The combination of the shaft having its ends provided with longitudinal bores having openings through the sides of the ends and having the wide annular recesses, the anti-friction shells increasing in thickness at their middles and having perforations, the shells or tubular rollers, and the bearing-pins having the enlarged flattened heads, the reduced ends, and the channel opening at the end and in the upper side of the enlarged heads, as and for the purpose shown and set forth.

320,334. HARROW-TOOTH FASTENING. CHARLES E. COOK and JOHN MITCHELL, Delaware, Ohio. Filed Sept. 20, 1884. (No model.)



Claim.—The combination of the parallel harrow bars or beams, the harrow-tooth having a square body and a cylindrical threaded shank, a clip-plate having a star-shaped recess in its under side, upturned edges, and a central perforation, a perforated plate or washer, and a fastening-nut, all arranged and operating substantially as and for the purpose set forth.

320,335. CAR-COUPLING. MICHAEL CRAMER, Whitewater, Wis., assignor of one-third to Jacob J. Starin, same place. Filed Apr. 27, 1885. (No model.)



Claim.—1. In a car-coupling, the combination of the draw-bar D, having vertical perforation *f* and longitudinal perforation *e*, and grooves *g* in the sides of the perforation *f*, with the curved double wire spring G, whose free ends rest within the grooves *g*, substantially as set forth.

2. In a car-coupling, the combination of the car-body and perforated lugs attached thereto with the draw-bar D, pin F, lever-rod B B', having crank-arms *b b* and the chains *c c*, substantially as set forth.

320,336. HAME-FASTENER. JAMES D. CROCKETT, Ripley, Miss. Filed July 22, 1884. Renewed May 12, 1885. (No model.)



Claim.—1. A hame-fastener composed of the two wires A C, the wire A being provided with a hook or catch at one end, and having its other end formed into a spring, and the wire C being made to engage with both the hook and spring, substantially as shown.

2. A hame-fastener composed of the two pieces of wire A C, the part A being provided with the hook B, bends C', D, and F, and the part C being provided with the bend H and attached to the wire A, substantially as set forth.

320,337. CAR-COUPLING. ELWIN W. DAVIS, Geneva, Minn. Filed Apr. 11, 1885. (No model.)

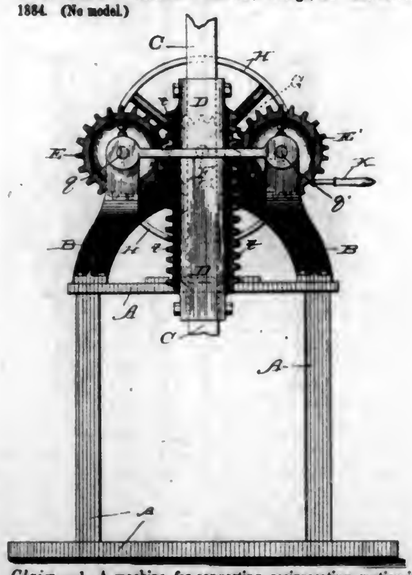


Claim.—1. In a car-coupling, the combination of a hooked pivoted bar having a spring for forcing it upward and pivoted in the bottom of the recess in the draw-head, a flat spring secured at its inner end in the inner end of the recess of the draw-head, and having its outer end curved upward and bifurcated to fit with its bulged forward end over the hook of the bar, the link, and means for depressing the hooked bar, as and for the purpose shown and set forth.

2. In a draw-head having a spring-cushioned hook in its bottom, two curved side guides, M M, in combination with the flat spring O, having its outer end bifurcated and fitting over the end of the hook, as and for the purpose shown and set forth.

3. In a car-coupling, the combination of the draw-head having the recess B, slot C in its bottom, and slot D in its top, bar F, pivoted in slot C, and having spring I, forcing it upward, and formed with hook G at its outer end, cross-piece L, curved side guides, M M, flat spring O, having its outer end bifurcated, the link, and the upright bar E and elbow-lever R, for depressing the hooked bar, as and for the purpose shown and set forth.

320,338. DEVICE FOR CONVERTING RECIPROCATING INTO ROTARY MOTION. WILLIAM G. DAWSON, Chicago, Ill. Filed Nov. 17, 1884. (No model.)

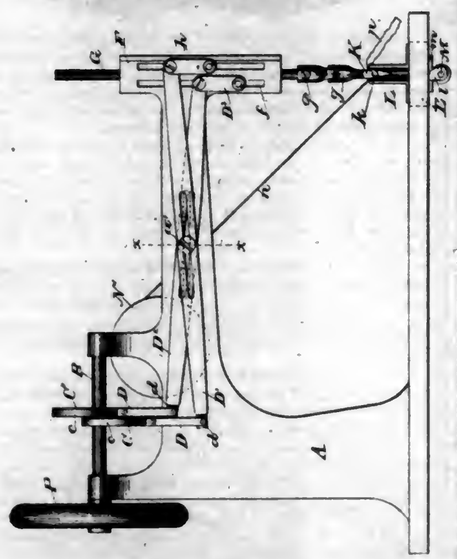


Claim.—1. A machine for converting reciprocating motion into rotary motion, comprising, in combination, a reciprocating pitman, C, provided with a rack, D, cog-wheels E E', supported within suitable bearings to engage with the said rack, a pinion, G, upon a rotary shaft, F, supported within suitable bearings, cog-wheels L and L', supported within suitable bearings to engage with the said pinion, and means connecting the said cog-wheels E and E' with the said cog-wheels L and L', whereby reciprocation of the said pitman shall rotate the said shaft continuously in the same direction, substantially as described.

2. A machine for converting reciprocating motion into rotary motion, comprising, in combination, a reciprocating pitman, C, provided with a rack, D, cog-wheels E E', supported within suitable bearings to engage with the said rack and recessed on one side and provided with ratchets *r*, having their teeth projecting in the same direction, a pinion, G, upon a rotary shaft, F, supported within suitable bearings, cog-wheels L L', supported within suitable bearings to engage with the pinion G, and having each a disk, *n'*, on one face to enter the recess formed in each of the wheels E and E', and provided with dogs *m*, to engage with the ratchets within the said recesses, the whole being constructed and arranged to operate substantially as described.

3. A machine for converting reciprocating motion into rotary motion, comprising, in combination, a reciprocating pitman, C, provided with a rack, D, cog-wheels E E', supported within suitable bearings to engage with the said rack and recessed on one side and provided with ratchets *r*, having their teeth projecting in the same direction, a pinion, G, upon a rotary shaft, F, supported within suitable bearings, cog-wheels L L', supported within suitable bearings to engage with the pinion G, and having each on one face a collar, *n*, and a disk, *n'*, to enter the recess formed in each of the wheels E and E', and provided with dogs *m*, to engage with the said ratchets within the said recesses, clutch mechanism I upon the said shaft F, and means for operating the said clutch mechanism, the whole being constructed and arranged to operate substantially as described.

320,339. MACHINE FOR MAKING RUGS, &c. CHARLES W. DIEHMAN, Racine, Wis. Filed Dec. 13, 1884. (No model.)



Claim.—1. In a machine for making rugs, &c., the combination of a needle and looping-finger mounted on the ends of vertically-reciprocating bars, said bars being connected by levers to eccentrics keyed on the driving-shaft of the machine, whereby the said needle and finger are reciprocated alternately, substantially as set forth.

2. The driving-shaft and its eccentrics in combination with the needle and looping bars, the links, levers, and swinging hangers, substantially as described.

3. The combination of the needle and finger with the block L and platform L', hinged to the base of the frame, and adapted to be lowered for the more ready insertion or removal of work, as set forth.

4. In a machine for making rugs, &c., the combination of the frame A, driving-shaft B, eccentrics C C', keyed thereto, swinging hangers D, and slotted levers D' D^2, pivoted to the arm of the frame and connected to the hangers D by universal joints at one end, and at their other end connected to the upright bars of the needle and looping-finger, substantially as set forth.

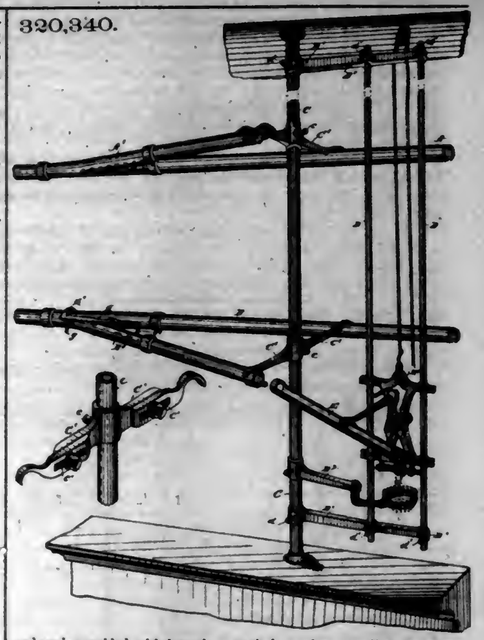
5. In a machine for making rugs, &c., the combination of the driving-shaft, its eccentrics and hangers, and levers D' D^2, connected thereto, with the head F, having vertical slots in its front face, and arms E' and *h'*, passing through and moving in said slots, said arms being connected to the described levers by links A and D^2 outside of said head, and to vertical bars G H by hubs E and H' within said head, substantially as set forth.

6. In a machine for making rugs, &c., the combination of the alternately-reciprocating needle and finger with the block L, hinged platform L', bearing *m*, secured to the under side of the machine-frame, and shaft M, having cam *l* at one end adapted to support one edge of the hinged platform or to permit it to be lowered by turning said cam, substantially as set forth.

320,340. CONVEYER APPARATUS. JEROME F. DOWNING, Erie, Pa. Filed May 14, 1885. (No model.)

Claim.—1. In a conveyer apparatus, the combination, substantially as herein set forth, of two lines of track grading in opposite directions

320,340.

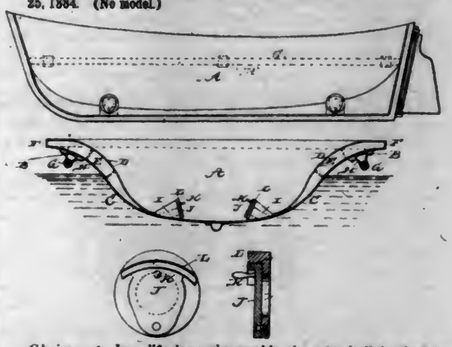


and each provided with branch or switch tracks extending therefrom, vertical posts placed at intervals along said track and firmly secured to the building at top and bottom, cross-arms vertically adjustable secured to said posts and sustaining said tracks and their branches, and, finally, elevator slide-ways connected with arms which are vertically adjustable on said posts.

2. In a conveyer apparatus, the combination, substantially as set forth, of a track or way consisting of a tube having a longitudinal slot on its under side and branch tracks similarly constructed, a movable switch tongue or point arranged, as shown, at the intersecting points, which is retained in one position by a spring, and a lever pivoted on the upper side of said track which connects at one end with the movable switch-tongue and at the other end is provided with an arm which reaches down below the track in position to be acted upon by a passing car, as described, and for the purposes mentioned.

3. In a conveyer apparatus, the combination, substantially as shown, of the slotted tubular main and branch tracks B B', the pivoted switch-tongue F, the lever G, having arms *g'* and G', arranged, substantially as shown, and operatively connected with the switch-tongue F, and, finally, the car or trolley, provided with a fender, *h*, substantially as and for the purposes set forth.

320,341. LIFE-BOAT. DANIEL DWYER, Marshall, Tex. Filed Jan. 25, 1884. (No model.)



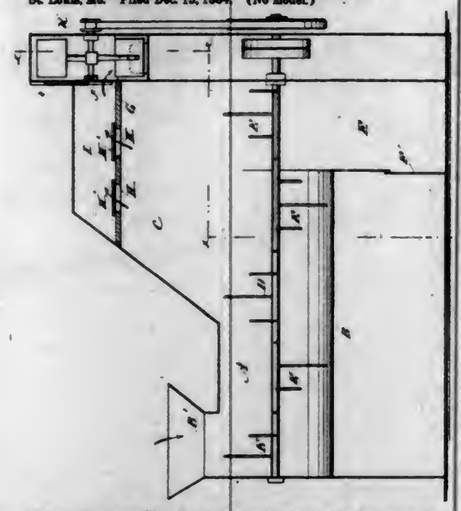
Claim.—1. In a life-boat, the combination of a hull having the portions of its sides above the water-line overhanging and concave and having the portion of its sides below the water-line convex, with air-chambers having their inner walls curved corresponding to the curves of the upper portion of the sides and converging into the sides at their lower edges, the said chambers increasing in capacity toward the upper edges of the sides of the hull, substantially as and for the purpose set forth.

2. In a life-boat, the combination of the hull having the portions of its sides above the water-line overhanging and concave and having the portion of its sides below the water-line convex and provided with an upright gunwale around the edges of its sides, with walls curved to correspond in shape to the sides of the hull, having their upper edges secured at the upper edges of the gunwale and having their lower edges converging into the sides below the water-line, substantially as and for the purpose set forth.

3. In a life-boat, the combination, with the hull having its sides overhanging and concave above the water-line, of a rail supported by brackets upon the under side of the overhanging concave sides, substantially as and for the purpose set forth.

4. In a life-boat, the combination, with the hull, of inclined scupper-chutes arranged alternately in the bottom of the hull, opening with their outer ends through the same to opposite sides and provided with slides at their inner ends, substantially as and for the purpose set forth.

320,342. MACHINE FOR SORTING FEATHERS. HENRY C. DYER, St. Louis, Mo. Filed Dec. 15, 1884. (No model.)

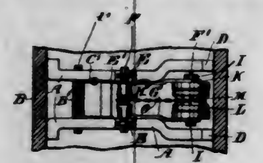


Claim.—1. A machine for picking and assorting feathers, provided with a chamber containing means for agitating the feathers, a blower for producing a current of air, and chambers provided with movable obstructions over which the feathers are carried, substantially as herein shown and described.

2. In a machine for picking and assorting feathers, the combination, with a device for agitating the feathers, of the blower K, and the partition G, having openings H H, substantially as herein shown and described.

3. In a machine for picking and assorting feathers, the combination, with the chamber A, of a device for agitating the feathers, the partition G, having apertures H, the blower K, and of belts and rollers provided with pins held at inclinations to the surfaces of the belts and rollers, and through and over which pins the feathers are carried, substantially as herein shown and described.

320,343. CAR-AXLE LUBRICATOR. ISAIE FRECHETTE and CHARLES L. GIRARD, St. Hyacinthe, Quebec, Canada. Filed Apr. 28, 1885. (No model.)



Claim.—1. The combination of the axle C, roller L, having groove M, arms G, axis F, having groove H, chain O, operating-spring B', connected with arms G, and frame A, the whole constructed and arranged substantially as and for the purposes set forth.

2. The combination of the pivoted and swinging arms G, roller L, having groove M, pin I, spring-arm F', chain O, and spring B', arranged to operate the said arms G, the whole constructed and arranged substantially as and for the purposes set forth.

320,344. MACHINE FOR PRODUCING YARN OF DIFFERENT COLORS. JOHN G. FUYAT, Taunton, Mass., and TOUSSAINT FUYAT, Providence, R. I. Filed May 31, 1884. (No model.)

Brief.—Rovings of different uniform colors are formed into roving of lengthwise alternating colors by being fed each to a pair of combining-rolls which has an intermittent motion imparted to it from a segmental gear. The fast roll of one pair and the loose roll of the other are placed upon the same shaft and the pairs alternate in motion, while the delivery-rolls have a continuous motion.



Claim.—1. The combination of two adjoining pairs of combining-rolls, and means for driving the same with an alternating intermittent or variable movement, with a pair of delivering-rolls and means for driving the same continuously, whereby the rovings of different colors will be alternately drawn forward or pulled asunder, and joined into a single roving of alternating colors, substantially as described.

2. The combination of a shaft and a pair of rolls arranged adjoining each other upon the same, the one fast and the other loose, with a shaft having an oppositely-arranged pair of fast and loose rolls thereon, whereby upon the stoppage or varied movement of either one of the roll-shafts the loose roll thereon will be driven from the opposite shaft, and means for driving the said shafts, substantially as and for the purpose specified.

3. The combination of the roll-shafts with the oppositely-arranged series of combining-rolls arranged in pairs, the one fast and the other loose on their respective shafts, a segmental driving-gear, means for driving the same, and means for communicating a forward rotary movement to the said roll-shafts alternately from the segmental driving-gear, substantially as described.

4. The combination of the roll-shafts and the opposite combining-rolls, the one fast and the other loose on their respective shafts, the one being also provided at its edge with a raised flange and the other with a corresponding groove, substantially as and for the purpose specified.

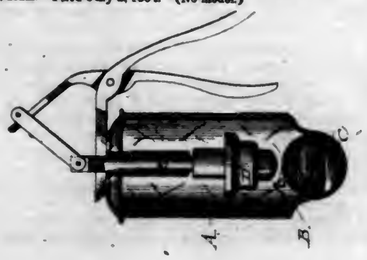
5. The combination of two adjoining pairs of combining-rolls, and means for imparting an alternate intermittent or variable movement to the same, with a pair of drawing and delivering rolls, and means for driving the same continuously, and a roving-guide arranged in the space between the combining and delivering rolls, whereby the rovings drawn asunder by the alternate stoppage of the combining-rolls will be uniformly brought together to form a single roving, substantially as described.

320,345. HINGE FOR CARRIAGE-DOORS. SIGMOND GARDNER, Savannah, Ga. Filed Jan. 8, 1885. (No model.)



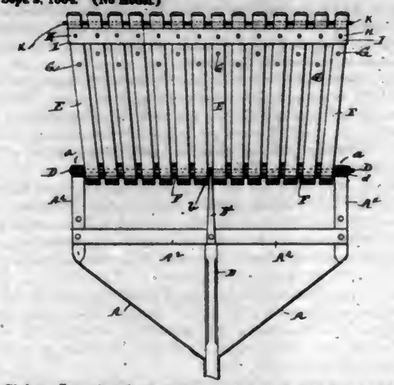
Claim.—In a hinge for a carriage-door, the combination of the outer leaf having the shoulder or flange C^2, the inner leaf having the guard D, provided with flange D' at its outer edge, and the spring for swinging the outer leaf to bear with its shoulder against the guard-flange, as and for the purpose shown and set forth.

320,346. SPRINKLER AND ATOMIZER. MOSES GOLDMAN, Pittsfield, Mass. Filed July 2, 1884. (No model.)



Claim.—The tank A, provided with a holder, B, in combination with an elastic perforated vessel, C, a rod, E, and a plunger for compressing the vessel, substantially as and for the purpose set forth.

320,347. HARROW. WILLIAM H. GOODMAN, Palmyra, Va. Filed Sept. 3, 1884. (No model.)



Claim.—In a drag-harrow, the combination, with the draft-frame formed of the plates A A' A^2, having eyes a, the tongue B, and rod D, of the perforated plate I, and the drag-beams E, provided with pins H, and having perforations in their rear ends adapted to receive the removable rod K, whereby the beams may be rigidly connected and weighted, substantially as described.

320,348. GRAIN-BINDING MACHINE. JAMES F. GORDON, Rochester, N. Y. Filed May 28, 1883. (Model.)



Claim.—1. In a grain-binding machine, the combination, substantially as described, of the harvester-platform to receive the falling grain, the longitudinal conveyers to deliver the grain at the end of said platform, and the secondary endless toothed conveyer-chains arranged at an angle to the longitudinal conveyers, and acting to turn the grain to a position substantially at right angles to that in which it fell upon the harvester-platform, and the binding mechanism located in rear of said secondary conveyers, substantially as described and shown.

2. In an automatic harvesting and binding machine, the combination, substantially as set forth, of the grain-receiving platform in rear of the cutting mechanism, the endless conveyers to deliver grain in a continuous stream at the inner end of said platform, the secondary endless conveyers acting to receive and turn the grain in a backward direction at a right angle, or thereabout, to the position in which it is received, and the binding mechanism located in rear of said secondary conveyers, and adapted, as described, to bind the grain while lying in a position at right angles, or approximately so, to the direction of the travel of the machine.

3. In a harvesting and binding machine, a table or under support for the grain, located at the inner end of the harvester-platform, combined with overhead continuously-acting conveying devices moving in curved or oblique lines, substantially as described, whereby they are adapted to act upon the grain from above and turn the same in an oblique or curved path on the table.

4. In a grain harvesting and binding machine, the combination of the grain-receiving platform, the secondary platform at its end, the conveying mechanism acting lengthwise of the receiving-platform, a second conveying mechanism, substantially as described, to turn the grain horizontally upon the secondary platform at right angles to its original position, and a third conveyer acting at right angles to the conveyers upon the receiving-platform, to carry the grain from the second conveyer directly backward.

5. The combination of the grain-receiving platform in rear of the cutters, its longitudinal conveyers, the secondary platform at the end of the receiving-platform, the secondary overhead conveyers acting to turn the grain upon the secondary platform, and the third conveying mechanism, mounted in the secondary platform and acting to carry the grain to the rear of the machine.

6. In a grain harvesting and binding machine, a grain-receiving platform, in combination with a series of longitudinal conveyer-chains provided with folding teeth, the teeth of each chain being adapted and arranged, as described, to move in an operative position toward the inner end of the machine a greater distance than those of the chain next in its rear, whereby the grain is delivered from the harvester-platform in an oblique position.

7. In a harvesting and binding machine, a horizontal grain-receiving platform in rear of the cutters, combined with a series of parallel conveyer-chains extended longitudinally therein and provided with folding teeth, and tracks or tripping devices to determine the action of said teeth, said tracks being constructed of successively decreasing length from front to rear, as described and shown, whereby the grain is given a partial rotation in a horizontal direction as it is delivered at the inner end of the receiving-platform.

8. In an automatic grain-harvesting and binding machine, the series of substantially horizontal chains extended around guide-rolls having vertical axes in parallel curved lines, the conveyer-teeth pivoted to said chains to fold in a vertical direction, means, substantially as described, to effect the folding of the teeth as they travel in one direction and their projection as they travel in the opposite direction, and mechanism to drive said chains at different speeds, whereby they are adapted to advance the grain with a turning motion and disengage therefrom.

9. In a harvesting and binding machine, a series of horizontal chains moving in curved paths about a common center, rising and falling teeth pivoted to said chains, and stationary tracks acting upon said teeth to control their pivotal motion, whereby the grain may be moved positively with a turning motion in a horizontal direction.

10. In combination with a horizontal grain table or support, a flat frame suspended above and parallel therewith, and a series of endless chains moving in curved lines in or upon the under side of the elevated frame and provided with depending automatically-folding teeth, substantially as described.

11. In combination with the grain platform or support, the overhead frame provided with conveying-chains having depending teeth to act upon the grain and adjustable in a horizontal direction, as described, whereby the delivery of the grain at different points as regards its longitudinal adjustment may be effected.

12. In combination with a grain platform or support and an elevated frame mounted above the same in position to leave an intermediate grain-passage, a series of conveying-chains mounted upon the elevated frame and provided with depending teeth, said chains arranged to move in substantially the arcs of circles described from a given center, and combined with mechanism whereby they are driven at different speeds, substantially as described, whereby the teeth acting at one end of the grain are caused to move at a greater speed than those at the other, and thus the grain is turned horizontally in the arc of a circle.

13. In a harvester and binder, the combination, substantially as hereinbefore described and shown, of the series of conveying-chains, mechanism for guiding their path of movement, whereby they are adapted to move concentrically in the arcs of circles, or substantially so, the folding teeth applied thereto, and the mechanism for imparting to the respective chains differential speed.

14. In combination with a series of conveyer-chains moving in concentric curved paths, or substantially so, the central revolving head provided with teeth to act upon the grain, and thus co-operate with the chains in turning the same.

15. In combination with a series of conveyer-chains moving in curved lines, a frame provided with supporting-pulleys for such chains, and a system of gearing, substantially such as shown, connecting the

pulleys of the several chains with each other, and adapted to effect a movement of the various chains at different speeds.

16. In combination with a pivoted horizontal swinging frame, a series of conveyers moving in curved lines thereon, and means, substantially as described, whereby the operator may adjust and secure said frame at will.

17. In combination with a grain platform or support, the overhead frame F, provided with conveyer-chains, and having its receiving-edge inclined upward on the under side, whereby it is adapted to assist in compressing the grain and guiding it beneath the conveyers.

18. In combination with a grain-supporting platform and the elevated frame provided with conveyers on its under side, the overhead bar S, extending across the harvester from front to rear and sustained by upright supports, and a sliding connection, substantially as described, between said bar and the elevated frame.

19. In combination with a grain-supporting platform, a horizontally-adjustable frame overlying the platform, and provided with a depending flange or guard to act against the ends of the grain, and conveying mechanism to advance the grain beneath said elevated frame.

20. The quadrantal frame adjustable horizontally and provided with the depending guard on its curved edge, combined with the conveying-chains moving in curved lines in or upon the under side of said frame, as described, whereby the grain is received horizontally and its longitudinal position determined by the action of the flange thereon.

21. In combination with a grain platform or support, the quadrant-frame overlying the same, and having a space thereunder for the passage of the grain, provided on its curved edge with a depending flange, pivoted at its forward end and provided with conveyer mechanism upon its under surface, substantially as shown.

22. In combination with a grain platform or support and conveying mechanism to turn the grain horizontally thereon, the overhead horizontally-adjustable frame provided with a depending curved guard, said guard having its end extended rearward beyond the frame, as and for the purpose described.

23. The elevated transverse bar S, extending from front to rear and supported by uprights at its ends, in combination with the elevated frame F and the rigid journal or pivot for said frame, mounted upon the main frame, and sustained at its upper end by a bearing secured to the bar S.

24. In a combined harvesting and binding machine, the combination of the grain-receiving platform and the conveying mechanism acting lengthwise thereof, the secondary platform, the secondary conveying mechanism to turn the grain horizontally, the conveyers M, acting fore and aft of the harvester, the grain-binder located in rear of said conveyers M, and means to lift the grain clear of the last-mentioned conveyers, substantially as described.

25. The grain-receiving platform and the supplemental platform at its end, in combination with the continuously-acting conveyers extending longitudinally of the harvester-frame, and secondary conveyers acting continuously to turn the grain upon the secondary platform, the conveying mechanism M, acting to carry the grain to the rear, the vertically-movable plates N', and means, substantially as described, for automatically elevating said plates above the conveyer during the operations of compressing and binding the grain.

26. The binding-table or grain-receiver, in combination with the overhanging standard A', the two vertical plates D', secured rigidly in position, as described, to act upon the grain from above, and the vertically-moving binder-arm located between said plates.

27. The binding-table or grain-receiver, in combination with the overhanging standard, the binder-arm, and the two fixed vertical plates D', located on opposite sides of the binder-arm, with their lower edges adapted, as described, to assist in compressing and confining the grain beneath them.

28. In combination with a grain table or receiver, an elevated plate, D', to act upon the gavel from above, the vertically-swinging binder-arm, substantially as described, and the vertically-movable arms M, and means, substantially as described, for raising said arms during the depression of the binder-arm, and vice versa, whereby an increased space is afforded for the reception of the grain delivered against the outside of the binder-arm during the compression of the gavel.

29. In combination with the binding mechanism, the conveyers M, the vertically-movable plates N', the vertically-movable arms M', and mechanism for imparting to said parts the relative movements described.

30. In combination with the binding-table or receiver and the fixed plate or plates D, overhanging the same, the vertically-vibrating binder-arm, the rotary ejector-arm having a common center with the binder-arm, and the pendent compressor-arm vibrating about a separate center, as described.

31. In a binding mechanism, the combination of two elevated fixed plates, D', with the binder-arm and the ejector-arm, both located and arranged to move between said plates.

32. The ejector-arm constructed in a U form, as described, and connected at its open end to the operating-shaft, as described.

33. In combination with the U-shaped compressor-arm, sustained at its open end on the outside, the ejector-arm arranged to pass through the open end of the compressor past the shaft or axis thereof, whereby the support of the compressor is prevented from interrupting the movement of the ejector.

34. In combination with the standard or support, the tubular shaft having the ejector thereon, the central shaft having the binder-arm attached, and mechanism, substantially as described, whereby an intermitting rotation is imparted to the ejector in one direction only and a vibratory motion imparted to the binder-arm.

35. In combination with the concentric shafts carrying the ejector-arm and the binder-arm, the shaft *m*, connected by gearing with the ejector-shaft and provided with a short crank, V', connected by a pitman with a long crank, T', upon the binder-arm shaft, whereby the rotation of the shaft *m* is caused to impart a rotary motion to the ejector and a vibratory motion to the binder-arm.

36. In combination with the shaft having the ejector-arm thereon, the rock-shaft *k'*, the driving-wheel L', secured to the ejector-shaft and provided with a cam-groove in its side face, and the lever operated by means of said cam-groove and connected with the compressor-shaft, substantially as described, whereby the wheel L' is caused to impart motion both to the ejector and the compressor.

37. In combination with the vertically-movable plates N' and the vertically-movable arms M', the wheel P', provided with a cam-groove, and the lever-connection, substantially as described, connecting said wheel with both the arms M and plates N', whereby the simultaneous elevation of the plates and arms is effected.

38. In combination with a harvesting and binding mechanism, the intermediate rotary driving-clutch W', having its parts united by the radially-moving dog *n*, the movable arm *s*, whereby the dog is forced inward, the toggle-joint *t*, connected with said arm, and the arm *w*, arranged in position to be acted upon by the accumulating gavel, and connected, substantially as described, with the toggle *t*, whereby the pressure of the gavel is applied to retract the arm *s* and permit the dog of the clutch to move radially into engagement.

39. In a grain-binder, the binder-driving clutch provided with the radially-moving dog or pawl, in combination with the movable arm *s* and devices, substantially as described, to lock said arm normally forward in the path of the dog, that it may disengage the same, the trip-arm arranged to be actuated by the pressure of the gavel, and intermediate mechanism, substantially as described, by which the trip-arm is enabled to move the arm *s* momentarily out of the path of the dog, whereby the arm *s* is caused to stop and start the binder and arrest the parts in a fixed position.

40. In a grain-binder, the driving-clutch consisting of a loose driving-wheel having a radially-movable dog with a side roller thereon, combined with a driven wheel fast to its shaft, having internal teeth adapted, as described and shown, to engage the roll and present thereto radial faces extending inward past the center of the roll, whereby the roll is permitted to engage firmly and the driving strain caused to assist in the disengagement of the roll after the initial movement of the dog has taken place.

41. In combination with the cord-clamping wheel, the binder arm or needle, the rotary tying-bill, and the rocking frame or support for said bill, arranged to move in a plane parallel with that in which the binder-arm is moved, whereby the tyer is caused to move bodily in the direction of the length of the cord.

42. In combination with the cord-retaining devices, a binder arm or needle, a rotary tying-bill, a frame wherein the tying-bill is supported, adapted to move the bill in the direction of the length of the cord, and a stationary throat-plate located between the tying-bill and the gavel, and slotted, as described, to retain the ends of the applied band in position to be acted upon by the tyer during its rotation and its movement along the cord.

43. The combination, substantially as described, of the tubular spindle *t'*, a fixed jaw thereon, the movable jaw having its shaft or spindle arranged to slide within the tubular spindle, the external sleeve, *z'*, the plate or saddle *a''*, and the cam for imparting motion to said plate, whereby the opening and closing of the movable jaw is effected without restricting the rotation of the spindles and jaws.

44. In combination with the tubular spindle provided with the jaw and the pinion *d'''*, constructed as described, the internal spindle provided with the movable jaw, the external sleeve, *z'*, the plate or saddle *a''*, and the wheel B'', constructed, as described, with a cam-groove to actuate the plate *a''*, and with the teeth and flange to impart an intermitting rotation to the pinion *d'''*, whereby the tying-bill is given an intermitting rotation and its jaws opened and closed at the proper intervals.

45. In combination with the movable tyer-support, the rotary cord-clamping wheel, the actuating-dog *a''''*, and its supporting-bar *b''''*, the latter connected with and operated by the movable tyer-support, substantially as described.

46. In combination with the cord-clamping wheel J'', the actuating-dog *a''''*, and its bar *b''''*, the shoulder *c''''* on the stationary frame, arranged to co-operate with the dog, as described, whereby the dog is thrown positively into engagement with the wheel and the usual springs avoided.

47. The combination of a bed or plate, on one side of which the gavel is bound, with a cord-clamping crown-wheel applied flatwise against the opposite side of said plate, said clamping-wheel having cord-receiving notches in its annular flange, whereby it is adapted to receive and retain the cord at a point in close proximity to the gavel.

48. In combination with the slotted plate interposed between the gavel and the tying mechanism, the rotary tying-bill located upon said plate, the cord-clamping crown-wheel applied flatwise to said plate and adapted to receive the cord in notches in its annular flange, and the binder-arm adapted, as described, to pass the cord across the bills of the tyer and transversely across the face of the clamping-wheel, as described and shown.

49. In combination with the throat-plate having the slot *s''*, with the offset rear end *t''*, the vibratory stripper-plate, the rotary tyer, and means, substantially as described, whereby said tyer is caused to move toward the holder during the tying operation lengthwise of the slot in the throat-plate until beneath the offset portion thereon, and the stripper-plate vibrated while the tyer is in such position, whereby the taking up of the cord by the tyer and the removal of the completed knot therefrom are effected.

50. In combination with the tyer-operating shaft *i''* and its stop-motion pinion *o''*, constructed as described, the stripper-operating bar *x''*, the wheel *c''*, provided with the toothed section and delay surface to operate the pinion, and with the cam-groove to operate the bar, as described.

51. In a grain-binder, the binding-table having at one end a rearward extension provided with an upright member to engage the bound bundles at one end, in combination with an ejector-arm adapted to carry the bundles outward past said arm, whereby the bundles are turned and delivered lengthwise of the field.

52. In combination with a grain-binding table and an ejector-arm, substantially as described, the backward extension located at one end of the table and provided with an upright horizontally-curved guard or extension.

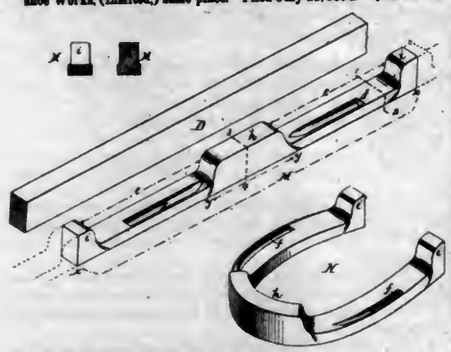
53. In combination with the horizontally-adjustable frame F, provided with conveyer-chains, a journal or pivot around which said frame is free to move, and a driving-pulley for said chains having its shaft arranged concentric with the journal of the frame.

54. In combination with a swinging frame, F, and its conveyer-chains, the tubular journal G, to sustain said frame, and the chain-driving shaft extended through said journal.

55. In combination with the harvester-frame, the overhead bar S, the horizontally-adjustable frame F, and the journal for said frame, secured at its lower end to the main frame, and sustained at its upper end by means of a box or bearing applied to the bar S, as shown.

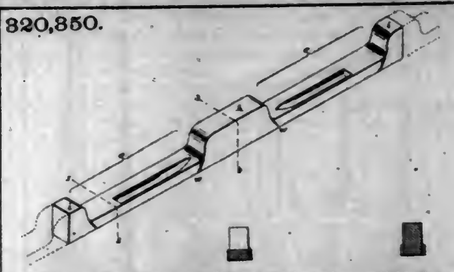
56. In combination with the main platform, the secondary platform, and the elevated frame F, provided with the secondary conveyers, the arm N'', extending from the inner end of the cutter-bar backward, as described, whereby the passage of the grain in a proper manner beneath the frame F is secured.

320,849. MANUFACTURE OF HORSESHOES. PETER F. GREENWOOD, Catasauqua, Pa., assignor to himself and the Bryden Forged Horseshoe Works, (Limited,) same place. Filed July 21, 1884. (No model.)



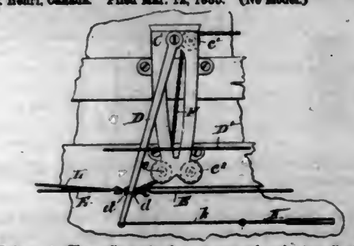
Claim.—The within-described mode of manufacturing horseshoes, the said mode consisting of the following successive steps, namely: first, rolling a bar, D, to the condition shown in Fig 4; second, severing the bar into sections M; third, reducing each section to the bent blank N; fourth, drop-forging each bent blank, and, fifth, removing the fins from the said blank, all substantially as set forth.

320,850. HORSESHOE-BLANK. PETER F. GREENWOOD, Catasauqua, Pa. Filed Feb. 19, 1885. (No model.)



Claim.—The within-described blank for horseshoes, said blank consisting of central and end portions, *h* and *i*, with intermediate depressed portions, *e e*, wider than the said central and end portions, substantially as shown and described.

320,851. CAR-BRAKE. LOUIS H. HEBERT, St. Johns, and JOSEPH J. HEBERT, St. Henri, Quebec, assignors of one-third to Arthur Joseph Hebert, St. Henri, Canada. Filed Mar. 12, 1885. (No model.)



Claim.—1. The railway brake apparatus herein described, consisting of the friction device A, thrown into connection with the trailing axle of the locomotive by a lever in the cab, the chain *b*, wound up by said friction device, the rods E E, levers D, frames C, having sheaves, the chains F, and the usual brake-levers, beams, and shoes, all combined, arranged, and operating substantially in the manner specified.

2. In a brake apparatus, the combination of the rods E E, lever D, frame C, having sheaves, the chain F, brake-lever G, shoes *g g* and their connections, and means for drawing upon said lever D, all arranged and operating substantially as and for the purpose specified.

320,852. SKATE. MACAJAH C. HEDLEY, Richmond, Ind. Filed Nov. 20, 1884. (No model.) Patented in Canada Feb. 10, 1885, No. 21,069.



Claim.—1. In combination with the sole-plate of a skate, hangers applied to the under side thereof at or near its opposite edges, sliding clamps passing through said hangers, and a right-and-left-hand screw journaled in the hangers and passing through threaded seats in the clamps, substantially as described and shown.

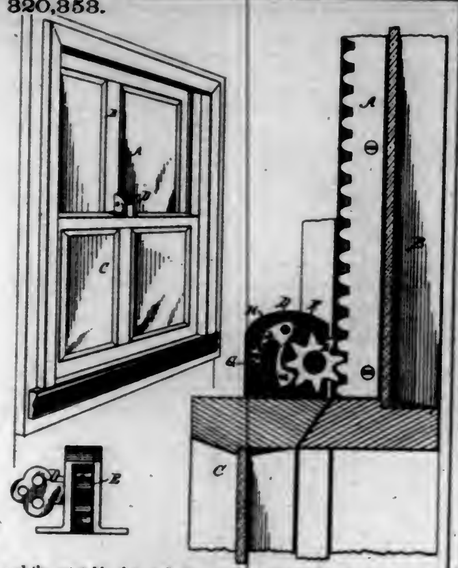
2. In combination with the sole-plate A, hangers B B, provided with recesses c and perforated lugs *d*, clamps D D, seated in the recesses *c*, and right-and-left-hand screw C, journaled in the lugs *d* of the hangers and passing through threaded seats in the clamps, all substantially as set forth.

320,853. SASH-FASTENER. REINHOLD E. HEINRICH, Cleveland, Ohio. Filed Jan. 31, 1885. (No model.)

Claim.—1. The combination, with sliding window-sashes, of the rack A, attached to the upper sash, the box D, having lateral apertured flanges, and secured to the upper bar of the lower sash, and the pinion, dog, and detent inclosed by said box, all as shown and described, to operate as specified.

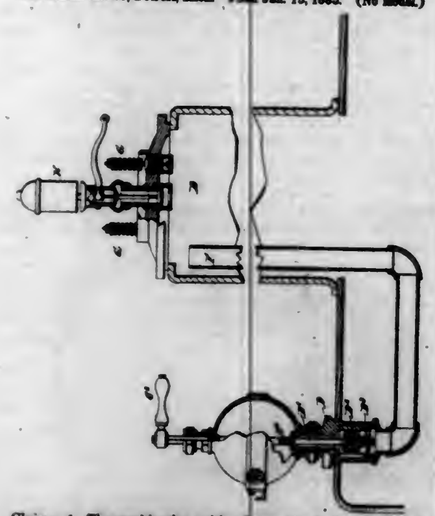
2. The combination, with the box D and pinion E, of the dog F, pivoted at its upper end, and having nose *a* and rearwardly-curved arm

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b, and the rotatable detent G, arranged beneath said arm, all as shown and described, to operate as specified.

320,354. STEAM-DOME FOR LOCOMOTIVES. CLARENCE B. HODGES and ELIJAH MCCOY, Detroit, Mich. Filed Jan. 15, 1885. (No model.)



Claim.—1. The combination, with a locomotive-boiler, of a supplemental steam-dome supported by a stem attached to the boiler-shell, said steam-dome having connected thereto steam attachments, substantially as and for the purpose described.

2. The combination, with a locomotive-boiler, of a supplemental steam-dome, globular in form, and having connected thereto steam attachments usually tapped into the shell of the boiler and supported by a single stem connected with the boiler, said stem provided with a valve for governing admission of steam into the said dome, substantially as and for the purpose described.

3. The combination, with a locomotive-boiler, of a supplemental steam-dome having connected thereto steam attachments usually tapped into the shell of the boiler and supported by a single stem, said stem removably connected with a plug, which is in turn engaged with the boiler, substantially as and for the purpose described.

4. The combination, with a boiler, of a supplemental steam-dome having connected thereto steam attachments usually tapped into the shell of the boiler and connected with the boiler by a single stem, and in connection therewith a security-valve adapted and operating to close automatically and prevent escape of steam and water in case of accident to the steam-dome, substantially as described.

5. A supplemental steam-dome having connected thereto steam attachments usually tapped into the shell of the boiler, and provided with a single stem, said stem adapted for ready detachable connection with a boiler-shell, substantially as and for the purposes described.

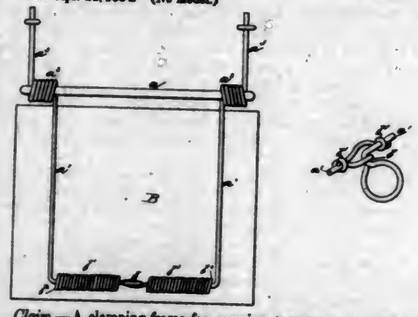
6. A supplemental steam-dome having connected thereto steam attachments usually tapped into the shell of the boiler and provided with a valve for governing admission of steam into the dome, and an automatic security-valve beneath the two connected by a stem, whereby the security-valve is held open except in case of accident, substantially as described.

7. The combination, with a steam-dome having connected thereto steam attachments usually tapped into the shell of the boiler, its admission-valve, and a security-valve connected therewith, of a spring for assisting the security-valve to instantly close upon its seat in case of accident, substantially as described.

8. The combination, with the supplementary steam-dome, of injector steam-throttles, the said throttles governed by hand-levers, substantially as described.

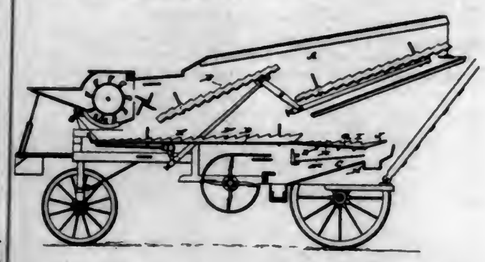
9. The combination, with the supplemental steam-dome having connected thereto steam attachments usually tapped into the shell of the boiler, of a dry pipe connecting said supplemental dome directly with the main steam-dome of the boiler, substantially as described.

320,355. TAG-HOLDER FOR RAILROAD-CARS. GEORGE W. HAGERT, Chicago, assignor of one-half to John A. Cook, Englewood, Ill. Filed Apr. 21, 1884. (No model.)



Claim.—A clamping-frame for securing tags upon cars, consisting of the two wires *a' a'*, having their upper ends twisted in a spring-coil about a hinge-rod, *a*, and their lower ends twisted upon each other and formed with prongs *b²*, substantially as and for the purpose set forth.

320,356. GRAIN-SEPARATOR. EDWARD HUBER, Marion, Ohio. Filed Mar. 25, 1885. (No model.)



Claim.—1. In a grain-separator, the oscillating bottom having hinged tail section or extension, and provided with longitudinal ratchet-bars extending slightly over said tail-section, substantially as and for the purpose set forth.

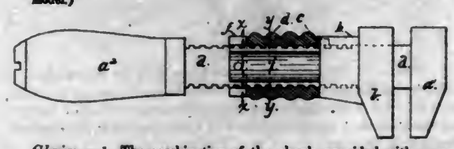
2. The combination, with the imperforate oscillating bottom, of the hinged tail-section, perforated throughout the greater part of its length, and having imperforate rear end, and the blast-fan, substantially as and for the purpose set forth.

3. The combination, with the tailings-spout and the oscillating bottom, of the hinged tail-section having longitudinal ratchet-bars provided with rearwardly-extending arms extending over the tailings-spout of the machine, substantially as and for the purpose herein set forth.

4. The combination of the oscillating bottom, the tail section having imperforate rear end and perforated front end, and hinged to the rear end of the oscillating bottom, and the deflecting-boards secured transversely under the same, substantially as and for the purposes herein set forth.

5. The combination of the tailings-spout, the oscillating bottom having longitudinal ratchet-bars extending slightly beyond its rear edge, the hinged tail-section having perforated front and imperforate rear end, longitudinal ratchet-bars secured on the upper side of said tail-section and extending at its rear end over the tailings-spout, and transverse deflecting-boards secured on the under side of said tail-section, all arranged and operating substantially as and for the purpose herein set forth.

320,357. WRENCH. JACOB HUBER, Toledo, Ohio, assignor to Chas. P. Crosby and William F. Crosby, Chicago, Ill. Filed Feb. 7, 1885. (No model.)

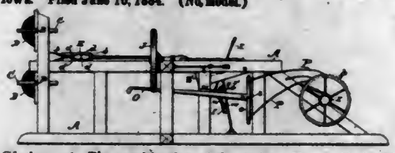


Claim.—1. The combination of the shank provided with a segmental thread and having its sides flattened, the movable jaw provided with projections, and the locking-sleeve encircling said projections and rotating upon the shank, and provided with an internal segmental thread and held to and sliding longitudinally simultaneously with the said jaw, whereby the latter may be adjusted along and locked at any desired point on the shank, substantially as set forth.

2. The combination of the shank provided with a segmental thread and having its sides flattened, the sliding sleeve encircling and rotating upon the shank, and provided with an internal segmental thread and having stop-shoulders on its end next the movable jaw, the movable jaw held to and movable simultaneously with the sliding sleeve, and a check-pin or stop arranged on the jaw to engage with the stop-shoulders on and limit the rotation of the sleeve, substantially as set forth.

3. The combination of the wrench having two of its opposite sides flattened and provided with a segmental thread, the movable jaw having arms lapped along the flattened sides of the shank, the locking-sleeve encircling the shank having an internal segmental thread, and the retaining-ring encircling the shank in rear of the locking-sleeve and detachably connected with the arms of the movable jaw, substantially as set forth.

320,358. FENCE-MAKING MACHINE. LUKE HUSKAMP, Keokuk, Iowa. Filed June 10, 1884. (No model.)



Claim.—1. The combination of the twister F, provided with the mouth *f*, the grooves *g* along the sides of the twister, and the holes *g'*, connecting the mouth with the grooves, and the bearings G, encircling the twister around the grooves, substantially as shown and described.

2. The combination of the reel-heads I', having the recesses R, opening both at the end and at one side of the heads, and the cross-pin S, substantially as shown and described, whereby the fabric and the slats *r*, upon which it is wound, may be permitted to drop from the reel-heads, as set forth.

3. The combination of the frame A, provided with a stop, A', the crank-wheel J, and the twisters F, journaled thereon, the rag-wheels H on the twisters, the chain K around the crank-wheel and rag-wheels, and the stop-pin *k*, removably placed in a link of the chain, the stop A' being in the path of the pin *k*, substantially as shown and described.

4. The combination of the frame A, the two independent reel-heads I' journaled therein, the ratchet-wheels *p*, secured to the journals of the said heads, the rock-shaft *c*, the two cross-heads *b*, secured thereon, the two pairs of pawls P, attached to the said heads and adapted to engage the said ratchet-wheels, and a hand-lever, O, substantially as shown and described.

5. The combination, with the sliding bars *j* and the fingers *i* thereon, of the hand-lever L, and the connections consisting of the rock-shaft M, lever *l*, provided with the loop *l'*, and the lever *m*, provided with the adjustable roller *m'*, substantially as shown and described.

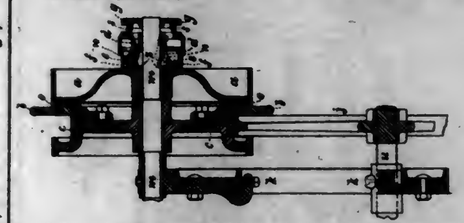
6. The combination, with the lever L, rock-shaft M, the arm N, and the adjustable roller N', of the arm *n* and the split fingers *n'* thereon, substantially as shown and described.

7. The combination, with the bell Q, fixed to the frame A, of the spring *q*, also fixed to the frame, having an upward curve in the path of the slats, and adapted to strike the bell on the passage of a slat, as shown and described.

320,359. GRAINING WOOD. GEORGE H. HULBER, Chartiers, Allegheny County, and WILLIAM SHOPE, Millvale, Pa. Filed Mar. 7, 1885. (Specimens.)

Claim.—The herein-described improvement in the art of graining wood surfaces, consisting in applying transparent fillers, then applying varnish, graining on the surface so formed, and varnishing, substantially as and for the purposes set forth.

320,360. FRICTION CLUTCH-PULLEY. GEO. F. HUSSNER, Worcester, Mass., assignor to the Knowles Loom Works same place. Filed May 16, 1885. (No model.)



Claim.—1. The combination, with hub *f*, provided with pins *e*, dogs *d*, and adjusting-screws *n*, of the clutch-slide *g* and means for operating the same, substantially as shown and described.

2. The combination, with the friction face pulley *a*, of the hub *f*, provided with pivoted dogs *d*, having adjustable screws *n*, and the clutch-slide *g*, constructed and operated substantially as shown and described.

3. The shipper-handle A, shipper-lever D, and shipper-arm *h*, in combination with the clutch-slide *g*, for throwing into and out of gear the friction-pulley *a*, in the manner substantially as shown and described.

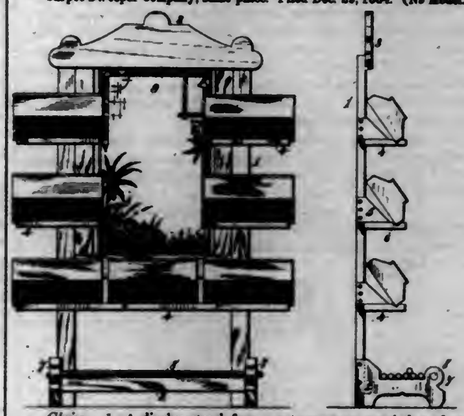
320,361. METHOD OF PREPARING AND TREATING STARCH. W. T. JESS, Buffalo, N. Y. Filed May 13, 1885. (No specimens.)

Claim.—1. The herein-described method of producing a wort suitable for the manufacture of beer or ale, which consists in steeping the corn, then draining the corn, then coarsely crushing or grinding the corn, then separating the crude starch from the coarse offal by sifting, then mashing the separated starch and the barley-malt, and draining off the wort, substantially as set forth.

2. The herein-described method of producing a wort suitable for the manufacture of beer or ale, which consists in steeping the corn, then draining the corn, then coarsely crushing or grinding the corn, then separating the crude starch from the coarse offal by sifting, then developing the crude starch under pressure, then mashing the developed starch and the barley-malt, and draining off the wort, substantially as set forth.

3. The herein-described method of manufacturing beer or ale, which consists in steeping the corn, then draining the corn, then coarsely crushing or grinding the corn, then separating the crude starch from the coarse offal by sifting, then mashing the separated starch and the barley-malt and draining off the wort, then boiling the wort, adding the hops, draining off the liquid, and cooling and fermenting the same, substantially as set forth.

320,362. SHOW STAND AND RACK FOR DISPLAYING CARPET-SWEEPERS. CHARLES B. JUDD, Grand Rapids, Mich., assignor to Bissell Carpet Sweeper Company, same place. Filed Dec. 29, 1884. (No model.)

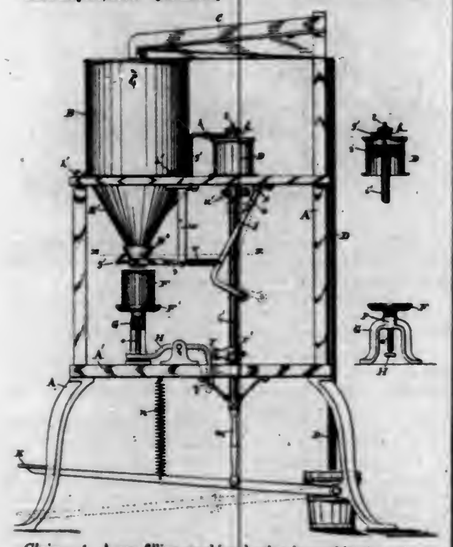


Claim.—1. A display-stand for carpet-sweepers, consisting of uprights supporting shelves upon which the sweepers are mounted, a suitable rack for the detached handles, and an advertising-plaque or show-card displayed between the uprights, substantially as described.

2. A display-stand for carpet-sweepers, composed, essentially, of uprights having shelves which are grooved to receive the edge of the

sweeper-case, a rack for the handles, mounted upon one end of said stand, and an advertising-plaque or show-card arranged between the uprights, substantially as described.

320,363. CAN-FILLING MACHINE. EDWARD S. JUDGE, Baltimore, Md., assignor to the Warfield Manufacturing Company, same place. Filed May 19, 1885. (No model.)



Claim.—1. A can-filling machine having in combination a hopper with a discharge-orifice and an air-exhauster to withdraw air from the can, as set forth.

2. A can-filling machine having in combination a hopper with a discharge-orifice having an air-exhaust opening, and an air-pump or equivalent exhauster connected with the said opening, as set forth.

3. A can-filling machine having in combination a hopper with a discharge-orifice, an air-exhaust opening, an elastic ring surrounding both said orifice and opening, and an air-exhauster connected with said opening, as set forth.

4. A can-filling machine having in combination a hopper with a discharge-orifice, a valve controlling said orifice, and an air-exhauster to withdraw air from the can, as set forth.

5. A can-filling machine having in combination a hopper with a discharge-orifice, an air-exhaust opening in proximity to said orifice, an air-exhauster, a pipe connected with the air-exhaust opening, attached to the hopper, and provided with a coupling for connection with the air-exhauster, as set forth.

6. A can-filling machine having in combination a hopper with a discharge-opening, a valve controlling said opening, a vertically-lifting can-seat, and an air-exhauster to withdraw air from the can, as set forth.

7. A can-filling machine having in combination a hopper with a discharge-opening, a valve controlling said opening, an air-exhauster to withdraw air from the can, and a single treadle or equivalent means to operate the valve and air-exhauster, as set forth.

8. A can-filling machine having in combination a hopper with a discharge-opening, a vertically-lifting can-seat, an air-exhauster to withdraw air from the can, and a single treadle or equivalent means to operate the can-seat and air-exhauster, as set forth.

320,364. STOPPER FOR FRUIT-JARS, &c. THOMAS KENNEDY, Philadelphia, Pa. Filed Jan. 12, 1885. (No model.)



Claim.—1. A vessel having an oblong inside seat and corresponding stopper with an eye, in combination with an upwardly-curved spring-retainer passing through the eye, and having a flattened head to rest on the mouth of the vessel, substantially as and for the purpose set forth.

2. A vessel having an oblong inside seat and an oblong stopper provided with an eye, in combination with a spring retaining-bar having a closed loop adapted to said eye, substantially as set forth.

320,365. TOE-WEIGHT. HUXHUM P. KENT, Providence, R. I. Filed Sept. 18, 1884. (No model.)

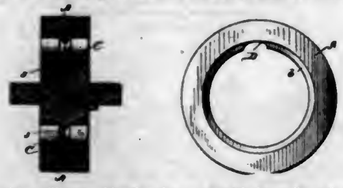


Claim.—1. The combination, in a toe-weight for horseshoes, of a U-shaped spring provided at its ends with bolts, said spring contacting with the sides of the weight, and adapted when turned to draw the bolts outwardly, so as to disengage them from a bar attached to the shoe, substantially as described.

2. In a toe-weight for horseshoes, a semi-spherical or oval block, A, having a dovetailed recess, transverse perforations, and projecting portions *b*, adjacent to said perforation, and a U-shaped spring having bolts attached at its ends, in combination with an angle-bar having a longitudinal dovetailed projection and recesses *h h*, substantially as and for the purpose set forth.

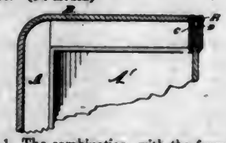
3. The combination, in a toe-weight, of an angle-piece, F, consisting of the vertical dovetail G and a horizontal portion, the latter being perforated for attachment of the shoe, a block, A, provided at its rear with a vertical dovetail cavity for the reception of said vertical dovetail portion G, recesses *h h*, formed in the upper portion of said angle-piece, the flange *c*, located on the upper side of said block A, a U-shaped spring embracing said blocks and carrying at its ends bolts, which horizontally extend into said blocks, as specified, to engage the recesses *h h* when said spring is moved to a horizontal position, substantially as set forth.

320,366. ANTI-FRICTION WHEEL OR ROLLER. WAYNE KRATZER, Allentown, assignor of two-thirds to Charles Ziegenfus and F. A. S. Helverson, both of Lehigh County, Pa. Filed Apr. 21, 1885. (No model.)



Claim.—The combination, in an anti-friction roller-wheel, of the outer rim or tread, A, having a tongue projection on its inner circular surface, a shaft or hub having a corresponding projection or tongue upon its periphery, said projection or tongue having a part of it cut away to form a recess for the insertion of the rolls, substantially as described.

320,367. SCHOOL-SLATE. EDWARD L. KRAUS, Slatington, Pa. Filed Jan. 19, 1885. (No model.)



Claim.—1. The combination, with the frame of a slate having a longitudinal recess or notch around its edge, of endless cords of soft elastic material the diameters of which united have a greater width than that of the frame, and webs uniting the said cords of sufficient width when secured within the notch adjacent to its bottom and sides to hold the cords down on the edge of the slate-frame with their adjacent sides pressed together, substantially as specified.

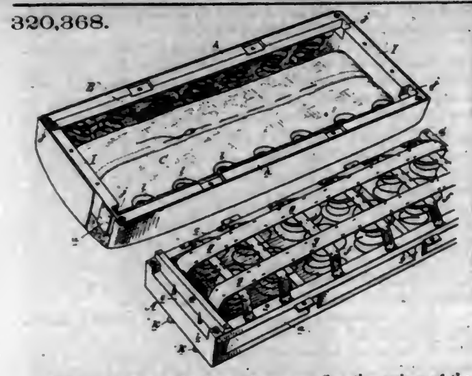
2. The combination of the frame A, provided with the notch or recess D, with the cords or rolls B, web or uniting-cord E, and spring-strip C, substantially as specified.

320,368. SPRING-SEAT FOR RAILWAY-CARS. REINHARDT F. LEENDORFF, Detroit, Mich. Filed Dec. 10, 1884. (No model.)

Claim.—1. A spring-seat consisting of two frames, the lower one carrying two or more rows or series of springs and the upper carrying the edge springs and the upholstering, the parts being constructed, combined, and operating substantially as and for the purposes described.

2. In a spring-seat having a detachable upper frame carrying the edge springs and the upholstering, a canvas supporting the upholstering between the edge springs, and having an opening in it for restuffing, substantially as specified.

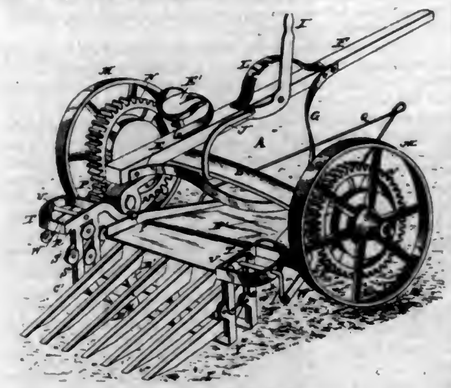
320,368.



3. In a spring-seat, the lower frame carrying the springs of the seat proper, and adapted to fit within an upper frame, and supporting it and forming a partial support for the edge springs carried by the upper frame, substantially as and for the purposes set forth.

4. In a seat having edge springs and seat-springs, a strainer for the edge springs, and a strainer for the seat-springs, connected together by a slack portion of webbing, substantially as and for the purpose specified.

320,369. POTATO-DIGGER. WILLIAM F. LETSCH, Carbon Cliff, Ill. Filed Mar. 27, 1885. (No model.)

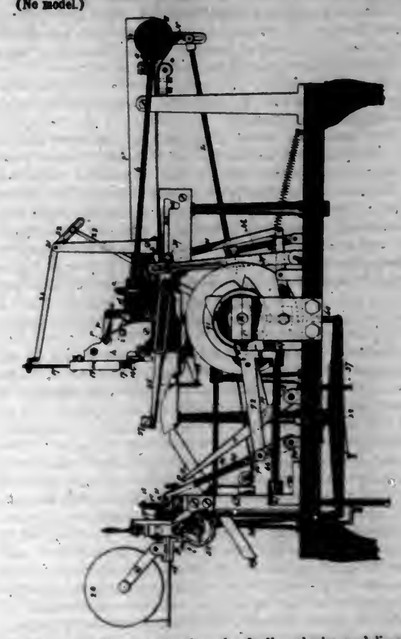


Claim.—1. In a potato-digger, the combination of a transverse frame-beam having rearwardly-extending brackets and downwardly-extending journal-boxes, the revolving axle mounted in the latter, means for adjusting the frame and its attachments upon or with relation to the axle, a scoop mounted pivotally between the rearwardly-extending brackets of the frame-beam, and having rearward-extending brackets at its rear corners, provided with downwardly-extending arms, vertically-reciprocating frames mounted to slide upon the said arms and equipped with rearwardly-extending fingers, and suitable operating mechanism, substantially as and for the purpose herein set forth.

2. In a potato-digger, the combination, with the herein-described adjustable frame, of the pivoted scoop having rearwardly-extending brackets provided with downwardly-extending arms, bails or frames provided at their ends with diagonal cross-pieces, having grooved rollers arranged at different levels, and engaging the edges of said arms, fingers mounted upon and extending rearwardly from said bails or frames, and mechanism for reciprocating the latter vertically, substantially as and for the purpose set forth.

3. The combination of the adjustable frame having rearwardly-extending brackets, pinions journaled to the latter, and arranged to be operated by suitable spur-wheels, the pivoted scoop having rearwardly-extending brackets, rock-shafts journaled in the latter, and having cranks connected by pivoted rods or pitmen, with wrist-pins upon the pinions, bails or frames having rearwardly-extending fingers, and provided with inclined cross-pieces having grooved rollers located in different horizontal planes, and bearing upon the edges of arms extending downwardly from the brackets of the scoop, and pivoted rods or pitmen connecting the said bails or frames with the ends of arms or cross-bars mounted upon the rock-shafts, substantially as and for the purposes herein set forth.

320,370. CIGARETTE-MACHINE. FRANK J. LUDINGTON, Waterbury, assignor to James G. English, New Haven, Conn. Filed July 30, 1884. (No model.)



Claim.—1. The combination of a feeding device to deliver a predetermined quantity of tobacco, a cutter to cut from the mass said predetermined quantity of tobacco, a rolling-table having a cavity below and substantially parallel with the cutter, the said cavity being concave in transverse section, an apron one end of which is made fast to the rolling-table forward of said cavity, the other end attached to a device, with mechanism for imparting to said device a reciprocating movement over said rolling-table to and from said cavity, and a reciprocating follower parallel with said cavity, the working-face of said follower concave in transverse section and arranged to force the said quantity of tobacco into the cavity upon the apron, and substantially as described.

2. The combination of the rolling-table 6, constructed with a cavity, 7, the said cavity concave in transverse section, flexible apron 9, attached at one end to the said table forward of said cavity, the other end attached to a bar, with mechanism for imparting reciprocating movement to said bar over said table toward and from said cavity, a feeding device, substantially such as described, to deliver a predetermined quantity of tobacco over said cavity, a vertical reciprocating cutter, 5, arranged to cut such predetermined quantity from the mass, the follower 16, the under face of said follower concave in transverse section, and guard 27, with mechanism, substantially such as described, to force said guard down upon the apron doubled over the tobacco and directly in advance of the tobacco, substantially as described.

3. The combination of the endless band G, forming the bottom of a hopper, a second endless band, T, arranged over and parallel with the upper run of said band or bottom of the hopper, mechanism, substantially such as described, to impart to said two bands an intermittent advance movement, the bar *k*, parallel with the drums over which said bands run, and forming a substantial continuation of the bottom of the hopper, the presser-bar 2, vertically-reciprocating cutter 5, the follower 16, the under face of said follower concave in transverse section, apron 9, and rolling-table 6, constructed with its cavity 7 concave in transverse section, substantially as and for the purpose described.

4. The combination of the endless band G, forming the bottom of a hopper, a second endless band, T, arranged over and parallel with the upper run of said band or bottom of the hopper, mechanism, substantially such as described, to impart to said two bands an intermittent advance movement, the bar *k*, parallel with the drums over which said bands run, and forming a substantial continuation of the bottom of the hopper, the presser-bar 2, vertically-reciprocating cutter 5, the guard 27, with mechanism, substantially such as described, to force said guard down upon the apron doubled over the tobacco and directly in advance of the tobacco, apron 9, and rolling-table 6, constructed with its cavity 7 concave in transverse section, substantially as and for the purpose described.

5. The combination of the rolling-table 6, constructed with a trans-

verse cavity, 7, the apron 9, one end of which is attached to said table forward of said cavity, the other end attached to a bar, with mechanism, substantially such as described, to impart reciprocating movement to said bar over said table and toward and from said cavity, gripping-fingers 104, extending up through openings in the apron provided for the purpose, and mechanism, substantially such as described, to impart to said fingers a rising-and-falling movement, with the guard 27, with mechanism, substantially such as described, to force said guard down upon the apron doubled over the tobacco and directly in advance of the tobacco, substantially as specified.

6. The combination of the rolling-table 6, constructed with the cavity 7, flexible apron 9, one end attached to the table forward of said cavity, the other end to a bar over the table, mechanism, substantially such as described, to impart reciprocating movement to said bar toward and from said cavity, the fingers 104, with mechanism, substantially such as described, to impart an up-and-down movement to said fingers through corresponding openings provided in said apron, the guard 27, with mechanism, substantially such as described, to force said guard down upon the apron doubled over the tobacco and directly in advance of the tobacco, a follower, 16, with mechanism, substantially such as described, to impart a vertical reciprocating movement to said follower, substantially as described.

7. The combination of the two endless bands G T, arranged substantially parallel to each other, and with their adjacent runs in the same direction, mechanism, substantially such as described, to impart an intermittent advance movement to said bands, the bar *k*, parallel with the forward drum of said band G, and forming, substantially, a continuation of the working-run of said band, the vertical reciprocating cutter 5, the rolling-table 6, constructed with the transverse cavity 7 parallel with said bar *k*, the apron 9, one end attached to the table forward of said cavity, the other to a bar transversely over said table, mechanism, substantially such as described, to impart to said bar a reciprocating movement over the rolling-table toward and from said cavity, the guard 27, with mechanism, substantially such as described, to force said guard down upon the apron doubled over the tobacco, and directly in advance of the tobacco, the gripping-fingers 104, extending up through openings in the apron made for the purpose, with mechanism, substantially such as described, to impart an up-and-down movement to said gripping-fingers, substantially as described.

8. The combination of the two endless bands G T, arranged substantially parallel to each other, and with their adjacent runs in the same direction, mechanism, substantially such as described, to impart an intermittent advance movement to said bands, the bar *k*, parallel with the forward drum of said band G, and forming, substantially, a continuation of the working-run of said band, the vertical reciprocating cutter 5, the rolling-table 6, constructed with the transverse cavity 7 parallel with said bar *k*, the apron 9, one end attached to the table forward of said cavity, the other to a bar transversely over said table, mechanism, substantially such as described, to impart to said bar a reciprocating movement over the rolling-table toward and from said cavity, the vertical reciprocating follower 16, the gripping-fingers 104, extending up through openings in the apron made for the purpose, with mechanism, substantially such as described, to impart an up-and-down movement to said gripping-fingers, substantially as described.

9. The combination of the endless bands G T, arranged substantially parallel to each other, and with their adjacent runs in the same direction, mechanism, substantially such as described, to impart an intermittent advance movement to said bands, the bar *k*, parallel with the forward drum of said band, and forming, substantially, a continuation of the working-run of said band, the vertically-reciprocating cutter 5, spring presser-bar 2, rolling-table 6, constructed with the transverse cavity 7 parallel with said bar *k*, the apron 9, one end attached to the table forward of said cavity, the other to a bar transversely over said table, mechanism, substantially such as described, to impart to said bar a reciprocating movement over the rolling-table toward and from said cavity, the gripping-fingers 104, extending up through openings in the apron made for the purpose, with mechanism, substantially such as described, to impart an up-and-down movement to said gripping-fingers, substantially as described.

10. The combination of the endless bands G T, arranged substantially parallel to each other, and with their adjacent runs in the same direction, mechanism, substantially such as described, to impart an intermittent advance movement to said bands, the bar *k*, parallel with the forward drum of said band, and forming, substantially, a continuation of the working-run of said band, the vertically-reciprocating cutter 5, spring presser-bar 2, rolling-table 6, constructed with the transverse cavity 7 parallel with said bar *k*, the apron 9, one end attached to the table forward of said cavity, the other to a bar transversely over said table, mechanism, substantially such as described, to impart to said bar a reciprocating movement over the rolling-table toward and from said cavity, the guard 27, with mechanism, substantially such as described, to force said guard down upon the apron doubled over the tobacco and directly in advance of the tobacco, the gripping-fingers 104, extending up through openings in the apron made for the purpose, with mechanism, substantially such as described, to impart an up-and-down movement to said gripping-fingers, substantially as described.

11. The combination of the endless bands G T, arranged substantially parallel to each other, and with their adjacent runs in the same direction, mechanism, substantially such as described, to impart an intermittent advance movement to said bands, the bar *k*, parallel with the forward drum of said band, and forming, substantially, a continuation of the working-run of said band, the vertically-reciprocating cutter 5, spring presser-bar 2, rolling-table 6, constructed with the transverse cavity 7 parallel with said bar *k*, the apron 9, one end attached to the table forward of said cavity, the other to a bar transversely over said table, mechanism, substantially such as described, to impart to said bar a reciprocating movement over the rolling-table toward and from said cavity, the gripping-fingers 104, extending up through openings in the apron made for the purpose, with mechanism, substantially such as described, to impart an up-and-down movement to said gripping-fingers, and the vertically-reciprocating follower 16, substantially as described.

12. The combination of the endless bands G T, arranged substantially parallel to each other, and with their adjacent runs in the same direction, mechanism, substantially such as described, to impart an intermittent advance movement to said bands, the bar *k*, parallel with the forward drum of said bands, and forming, substantially, a continuation of the working-run of said band, the vertically-reciprocating cutter 5, spring presser-bar 2, rolling-table 6, constructed with the transverse cavity 7 parallel with said bar *k*, the apron 9, one end attached to the table forward of said cavity, the other to a bar transversely over said table, mechanism, substantially such as described, to impart to said bar a reciprocating movement over the rolling-table toward and from said cavity, the gripping-fingers 104, extending up through openings in the apron made for the purpose, with mechanism, substantially such as described, to impart an up-and-down movement to said gripping-fingers, and the vertically-reciprocating follower 16, substantially as and for the purpose described.

13. The combination of the rolling-table 6, constructed with the transverse cavity 7, the apron 9, one end attached to the table forward of said cavity, the other attached to a bar, 10, transversely across and over said table, mechanism, substantially such as described, to impart reciprocating movement to said bar over the table and toward and from said cavity, gripping-fingers 104, extending up through openings in the apron made for the purpose, with mechanism, substantially such as described, to impart an up-and-down movement to said gripping-fingers, the wrapper-delivering device consisting of a horizontal bar, 95, and gripping-fingers 97, the said bar constructed with notches corresponding to said fingers 104, and mechanism, substantially such as described, to impart to said bar and fingers a reciprocating movement toward and from said gripping-fingers 104, and substantially as and for the purpose described.

14. The combination of the rolling-table 6, constructed with a transverse cavity, 7, the apron 9, one end attached to the table forward of said cavity, the other attached to a bar, 10, transversely across and over said table, mechanism, substantially such as described, to impart reciprocating movement to said bar over the table and toward and from said cavity, gripping-fingers 104, extending up through openings in the apron made for the purpose, with mechanism, substantially such as described, to impart an up-and-down movement to said fingers, the horizontal bar 95, fingers 97 on said bar, the said bar constructed with notches corresponding to said fingers 104, mechanism, substantially such as described, to impart to said bar and fingers 97 a reciprocating movement toward and from said gripping-fingers 104, a pair of feeding-rolls and vertically-reciprocating cutter arranged to deliver to said bar and fingers 97 the paper for a single wrapper, and the cutter to cut off the paper thus delivered, substantially as described.

15. The combination of the rolling-table 6, constructed with a transverse cavity, 7, the apron 9, one end attached to the table forward of said cavity, the other attached to a bar, 10, transversely across and over said table, mechanism, substantially such as described, to impart reciprocating movement to said bar over the table and toward and from said cavity, gripping-fingers 104, extending up through openings in the apron made for the purpose, with mechanism, substantially such as described, to impart an up-and-down movement to said fingers, the horizontal bar 95, fingers 97 on said bar, the said bar constructed with notches corresponding to said fingers 104, mechanism, substantially such as described, to impart to said bar and fingers 97 a reciprocating movement toward and from said gripping-fingers 104, a revolving paste-wheel, 73, a pasting-wheel, 81, arranged upon a slide parallel with the surface of the paper held by said bar 95 and fingers 97, a vertically-reciprocating bar, 88, in the path of said pasting-wheel 81, and so that said bar will receive a coating of adhesive material from said pasting-wheel and deliver the same to the paper held as aforesaid, substantially as described.

16. The combination of the rolling-table 6, constructed with a transverse cavity, 7, the apron 9, one end attached to the table forward of said cavity, the other attached to a bar, 10, transversely across and over said table, mechanism, substantially such as described, to impart reciprocating movement to said bar over the table and toward and from said cavity, gripping-fingers 104, extending up through openings in the apron made for the purpose, with mechanism, substantially such as described, to impart an up-and-down movement to said fingers, the horizontal bar 95, fingers 97 on said bar, the said bar constructed with notches corresponding to said fingers 104, mechanism, substantially such as described, to impart to said bar and fingers 97 a reciprocating movement toward and from said gripping-fingers 104, a pair of feeding-rolls and vertically-reciprocating cutter arranged to deliver to said bar and fingers 97 the paper for a single wrapper, and the cutter to cut off the paper thus delivered, a revolving paste-wheel, 73, a pasting-wheel, 81, arranged upon a slide parallel with the surface of the paper held by said bar 95 and fingers 97, a vertically-reciprocating bar, 88, in the path of said pasting-wheel 81, and so that said bar will receive a coating of adhesive material from said pasting-wheel and deliver the same to the paper held as aforesaid, substantially as described.

17. The combination of the rolling-table 6, constructed with a transverse cavity, 7, the apron 9, one end of which is attached to said table forward of said cavity, the other end attached to a bar, with mechanism, substantially such as described, to impart reciprocating movement to said bar over said table and toward and from said cavity, gripping-fingers 104, extending up through openings in the apron provided for the purpose, and mechanism, substantially such as described, to impart to said fingers a rising-and-falling movement, with the guard 27, with mechanism, substantially such as described, to force said guard down upon the apron doubled over the tobacco and directly in advance of the tobacco, and a wrapper-delivering device consisting of a horizontal bar, 95, and gripping-fingers 97, the said bar constructed with notches corresponding to the said fingers 104, mechanism, substantially such as described, to impart to said bar and fingers 97 a reciprocating movement toward and from said gripping-fingers 104, substantially as described.

18. The combination of the rolling-table 6, constructed with the cavity 7, flexible apron 9, one end attached to the table forward of said cavity, the other end to a bar over the table, mechanism, substantially such as described, to impart reciprocating movement to said bar toward and from said cavity, the fingers 104, with mechanism, substantially such as described, to impart an up-and-down movement to said fingers through corresponding openings provided in said apron, the guard 27, with mechanism, substantially such as described, to force said guard down upon the apron doubled over the tobacco and directly in advance of the tobacco, a follower, 16, with mechanism, substantially such as described, to impart a vertical reciprocating movement to said follower, and a wrapper-delivering device consisting of a horizontal bar, 95, and gripping-fingers 97, the said bar constructed with notches corresponding to the said fingers 104, mechanism, substantially such as described, to impart to said bar and fingers 97 a reciprocating movement toward and from said gripping-fingers 104, substantially as described.

19. The combination of the two endless bands G T, arranged substantially parallel to each other, and with their adjacent runs in the same direction, mechanism, substantially such as described, to impart an intermittent advance movement to said bands, the bar *k*, parallel with the forward drum of said band G, and forming, substantially, a continuation of the working-run of said band, the vertically-reciprocating cutter 5, the rolling-table 6, constructed with the transverse cavity 7 parallel with said bar *k*, the apron 9, one end attached to the table forward of said cavity, the other to a bar transversely over said table, mechanism, substantially such as described, to impart to said bar a reciprocating movement over the rolling-table toward and from said cavity, the guard 27, with mechanism, substantially such as described, to force said guard down upon the apron doubled over the tobacco and directly in advance of the tobacco, the gripping-fingers 104, extending up through openings in the apron made for the purpose, with mechanism, substantially such as described, to impart an up-and-down movement to said gripping-fingers, and a wrapper-delivering device consisting of a horizontal bar, 95, and gripping-fingers 97, the said bar constructed with notches corresponding to the said fingers 104, mechanism, substantially such as described, to impart to said bar and fingers 97 a reciprocating movement toward and from said gripping-fingers 104, substantially as described.

20. The combination of the two endless bands G T, arranged substantially parallel to each other, and with their adjacent runs in the same direction, mechanism, substantially such as described, to impart an intermittent advance movement to said bands, the bar *k*, parallel with the forward drum of said band G, and forming, substantially, a continuation of the working-run of said band, the vertical reciprocating cutter 5, the rolling-table 6, constructed with the transverse cavity 7 parallel with said bar *k*, the apron 9, one end attached to the table forward of said cavity, the other to a bar transversely over said table, mechanism, substantially such as described, to impart to said bar a reciprocating movement over the rolling-table toward and from said cavity, the vertical reciprocating follower 16, the gripping-fingers 104, extending up through openings in the apron made for the purpose, with mechanism, substantially such as described, to impart an up-and-down movement to said gripping-fingers, and a wrapper-delivering device consisting of a horizontal bar, 95, and gripping-fingers 97, the said bar constructed with notches corresponding to the said fingers 104, mechanism, substantially such as described, to impart to said bar and fingers 97 a reciprocating movement toward and from said gripping-fingers 104, substantially as described.

21. The combination of the endless bands G T, arranged substantially parallel to each other, and with their adjacent runs in the same direction, mechanism, substantially such as described, to impart an intermittent advance movement to said bands, the bar *k*, parallel with the forward drum of said band, and forming, substantially, a continuation of the working-run of said band, the vertically-reciprocating cutter 5, spring presser-bar 2, rolling-table 6, constructed with the transverse cavity 7 parallel with said bar *k*, the apron 9, one end attached to the table forward of said cavity, the other to a bar transversely over said table, mechanism, substantially such as described, to impart to said bar a reciprocating movement over the rolling-table toward and from said cavity, the gripping-fingers 104, extending up through openings in the apron made for the purpose, with mechanism, substantially such as described, to impart an up-and-down movement to said gripping-fingers, and a wrapper-delivering device consisting of a horizontal bar, 95, and gripping-fingers 97, the said bar constructed with notches corresponding to the said fingers 104, mechanism, substantially such as described, to impart to said bar and fingers 97 a reciprocating movement toward and from said gripping-fingers 104, substantially as described.

22. The combination of the endless bands G T, arranged substantially parallel to each other, and with their adjacent runs in the same direction, mechanism, substantially such as described, to impart an intermittent advance movement to said bands, the bar *k*, parallel with the forward drum of said band, and forming, substantially, a continuation of the working-run of said band, the vertically-reciprocating cutter 5, spring presser-bar 2, rolling-table 6, constructed with the transverse cavity 7 parallel with said bar *k*, the apron 9, one end attached to the table forward of said cavity, the other to a bar transversely over said table, mechanism, substantially such as described, to impart to said bar a reciprocating movement over the rolling-table toward and from said cavity, the guard 27, with mechanism, substantially such as described, to force said guard down upon the apron doubled over the tobacco and directly in advance of the tobacco, the gripping-fingers 104, extending up through openings in the apron made for the purpose, with mechanism, substantially such as described, to impart an up-and-down movement to said gripping-fingers, and a wrapper-delivering device consisting of a horizontal bar, 95, and gripping-fingers 97, the said bar constructed with notches corresponding to the said fingers 104, mechanism, substantially such as described, to impart to said bar and fingers 97 a reciprocating movement toward and from said gripping-fingers 104, substantially as described.

23. The combination of the endless bands G T, arranged substantially parallel to each other, and with their adjacent runs in the same direction, mechanism, substantially such as described, to impart an intermittent advance movement to said bands, the bar *k*, parallel with the forward drum of said band, and forming, substantially, a continuation of the working-run of said band, the vertically-reciprocating cutter 5, spring presser-bar 2, rolling-table 6, constructed with the transverse cavity 7 parallel with said bar *k*, the apron 9, one end attached to the table forward of said cavity, the other to a bar transversely over said table, mechanism, substantially such as described, to impart to said bar a reciprocating movement over the rolling-table toward and from said cavity, the gripping-fingers 104, extending up through openings in the apron made for the purpose, with mechanism, substantially such as described, to impart an up-and-down movement to said gripping-fingers, and the vertically-reciprocating follower 16, with a wrapper-delivering device consisting of a horizontal bar, 95, and gripping-fingers 97, the said bar constructed with notches corresponding to the said fingers 104, mechanism, substantially such as described, to impart to said bar and fingers 97 a reciprocating movement toward and from said gripping-fingers 104, substantially as described.

24. The combination of the endless bands G T, arranged substantially parallel to each other, and with their adjacent runs in the same direction, mechanism, substantially such as described, to impart an intermittent advance movement to said bands, the bar *k*, parallel with the forward drum of said band, and forming, substantially, a continuation of the working-run of said band, the vertically-reciprocating cutter 5, spring presser-bar 2, rolling-table 6, constructed with the transverse cavity 7 parallel with said bar *k*, the apron 9, one end attached to the table forward of said cavity, the other to a bar transversely over said table, mechanism, substantially such as described, to impart to said bar a reciprocating movement over the rolling-table toward and from said cavity, the guard 27, with mechanism, substantially such as described, to force said guard down upon the apron doubled over the tobacco and directly in advance of the tobacco, the gripping-fingers 104, extending up through openings in the apron made for the purpose, with mechanism, substantially such as described, to impart an up-and-down movement to said gripping-fingers, and the vertically-reciprocating follower 16, with a

wrapper-delivering device consisting of a horizontal bar, 95, and gripping-fingers 97, the said bar constructed with notches corresponding to the said fingers 104, mechanism, substantially such as described, to impart to said bar and fingers 97 a reciprocating movement toward and from said gripping-fingers 104, substantially as described.

25. The combination of the rolling-table 6, constructed with a transverse cavity, 7, the apron 9, one end of which is attached to said table forward of said cavity, the other end attached to a bar, with mechanism, substantially such as described, to impart reciprocating movement to said bar over said table and toward and from said cavity, gripping-fingers 104, extending up through openings in the apron provided for the purpose, and mechanism, substantially such as described, to impart to said fingers a rising-and-falling movement, with the guard 27, with mechanism, substantially such as described, to force said guard down upon the apron doubled over the tobacco and directly in advance of the tobacco, the horizontal bar 95, fingers 97 on said bar, the said bar constructed with notches corresponding to said fingers 104, mechanism, substantially such as described, to impart to said bar and fingers 97 a reciprocating movement toward and from said gripping-fingers 104, a pair of feeding-rolls and vertically-reciprocating cutter arranged to deliver to said bar and fingers 97 the paper for a single wrapper, and a cutter to cut off the paper, substantially as described.

26. The combination of the rolling-table 6, constructed with the cavity 7, flexible apron 9, one end attached to the table forward of said cavity, the other end to a bar over the table, mechanism, substantially such as described, to impart reciprocating movement to said bar toward and from said cavity, the fingers 104, with mechanism, substantially such as described, to impart an up-and-down movement to said fingers through corresponding openings provided in said apron, the guard 27, with mechanism, substantially such as described, to force said guard down upon the apron doubled over the tobacco and directly in advance of the tobacco, a follower, 16, with mechanism, substantially such as described, to impart a vertically-reciprocating movement to said follower, the horizontal bar 95, fingers 97 on said bar, the said bar constructed with notches corresponding to said fingers 104, mechanism, substantially such as described, to impart to said bar and fingers 97 a reciprocating movement toward and from said gripping-fingers 104, a pair of feeding-rolls and vertically-reciprocating cutter arranged to deliver to said bar and fingers 97 the paper for a single wrapper, and the cutter to cut off the paper, substantially as described.

27. The combination of the two endless bands G T, arranged substantially parallel to each other, and with their adjacent runs in the same direction, mechanism, substantially such as described, to impart an intermittent advance movement to said bands, the bar *k*, parallel with the forward drum of said band G, and forming, substantially, a continuation of the working-run of said band, the vertical reciprocating cutter 5, the rolling-table 6, constructed with the transverse cavity 7 parallel with said bar *k*, the apron 9, one end attached to the table forward of said cavity, the other to a bar transversely over said table, mechanism, substantially such as described, to impart to said bar a reciprocating movement over the rolling-table toward and from said cavity, the guard 27, with mechanism, substantially such as described, to force said guard down upon the apron doubled over the tobacco and directly in advance of the tobacco, the gripping-fingers 104, extending up through openings in the apron made for the purpose, with mechanism, substantially such as described, to impart an up-and-down movement to said gripping-fingers, the horizontal bar 95, fingers 97 on said bar, the said bar constructed with cavities corresponding to said fingers 104, mechanism, substantially such as described, to impart to said bar and fingers 97 a reciprocating movement toward and from said gripping-fingers 104, a pair of feeding-rolls and vertically-reciprocating cutter arranged to deliver to said bar and fingers 97 the paper for a single wrapper, and a cutter to cut off the paper, substantially as described.

28. The combination of the two endless bands G T, arranged substantially parallel to each other, and with their adjacent runs in the same direction, mechanism, substantially such as described, to impart an intermittent advance movement to said bands, the bar *k*, parallel with the forward drum of said band G, and forming, substantially, a continuation of the working-run of said band, the vertical reciprocating cutter 5, the rolling-table 6, constructed with the transverse cavity 7 parallel with said bar *k*, the apron 9, one end attached to the table forward of said cavity, the other to a bar transversely over said table, mechanism, substantially such as described, to impart to said bar a reciprocating movement over the rolling-table toward and from said cavity, the vertical reciprocating follower 16, the gripping-fingers 104, extending up through openings in the apron made for the purpose, with mechanism, substantially such as described, to impart an up-and-down movement to said gripping-fingers, the horizontal bar 95, fingers 97 on said bar, the said bar constructed with notches corresponding to said fingers 104, mechanism, substantially such as described, to impart to said bar and fingers 97 a reciprocating movement toward and from said gripping-fingers 104, a pair of feeding-rolls and vertically-reciprocating cutter arranged to deliver to said bar and fingers 97 the paper for a single wrapper, and a cutter to cut off the paper, substantially as described.

29. The combination of the endless bands G T, arranged substantially parallel to each other, and with their adjacent runs in the same direction, mechanism, substantially such as described, to impart an intermittent advance movement to said bands, the bar *k*, parallel with the forward drum of said band, and forming, substantially, a continuation of the working-run of said band, the vertically-reciprocating cutter 5, spring presser-bar 2, rolling-table 6, constructed with the transverse cavity 7 parallel with said bar *k*, the apron 9, one end attached to the table forward of said cavity, the other to a bar transversely over said table, mechanism, substantially such as described, to impart to said bar a reciprocating movement over the rolling-table toward and from said cavity, the gripping-fingers 104, extending up through openings in the apron made for the purpose, with mechanism, substantially such as described, to impart an up-and-down movement to said gripping-fingers, the horizontal bar 95, fingers 97 on said bar, the said bar constructed with notches corresponding to said fingers 104, mechanism, substantially such as described, to impart to said bar and fingers 97 a reciprocating movement toward and from said gripping-fingers 104, a pair of feeding-rolls and vertically-reciprocating cutter arranged to deliver to said bar and fingers 97 the paper for a single wrapper, and a cutter to cut off the paper, substantially as described.

30. The combination of the endless bands G T, arranged substantially parallel to each other, and with their adjacent runs in the same direction, mechanism, substantially such as described, to impart an intermittent advance movement to said bands, the bar *k*, parallel with the forward drum of said band, and forming, substantially, a continuation of the working-run of said band, the vertically-reciprocating cutter 5, spring presser-bar 2, rolling-table 6, constructed with the transverse cavity 7 parallel with said bar *k*, the apron 9, one end attached to the table forward of said cavity, the other to a bar transversely over said table, mechanism, substantially such as described, to impart to said bar a reciprocating movement over the rolling-table toward and from said cavity, the guard 27, with mechanism, substantially such as described, to force said guard down upon the apron doubled over the tobacco and directly in advance of the tobacco, the gripping-fingers 104, extending up through openings in the apron made for the purpose, with mechanism, substantially such as described, to impart an up-and-down movement to said gripping-fingers, the horizontal bar 95, fingers 97 on said bar, the said bar constructed with cavities corresponding to said fingers 104, mechanism, substantially such as described, to impart to said bar and fingers 97 a reciprocating movement toward and from said gripping-fingers 104, a pair of feeding-rolls and vertically-reciprocating cutter arranged to deliver to said bar and fingers 97 the paper for a single wrapper, and a cutter to cut off the paper, substantially as described.

31. The combination of the endless bands G T, arranged substantially parallel to each other, and with their adjacent runs in the same direction, mechanism, substantially such as described, to impart an intermittent advance movement to said bands, the bar *k*, parallel with the forward drum of said band, and forming, substantially, a continuation of the working-run of said band, the vertically-reciprocating cutter 5, spring presser-bar 2, rolling-table 6, constructed with the transverse cavity 7 parallel with said bar *k*, the apron 9, one end attached to the table forward of said cavity, the other to a bar transversely over said table, mechanism, substantially such as described, to impart to said bar a reciprocating movement over the rolling-table toward and from said cavity, the gripping-fingers 104, extending up through openings in the apron made for the purpose, with mechanism, substantially such as described, to impart an up-and-down movement to said gripping-fingers, and the vertically-reciprocating follower 16, the horizontal bar 95, fingers 97 on said bar, the said bar constructed with notches corresponding to said fingers 104, mechanism, substantially such as described, to impart to said bar and fingers 97 a reciprocating movement toward and from said gripping-fingers 104, a pair of feeding-rolls and vertically-reciprocating cutter arranged to deliver to said bar and fingers 97 the paper for a single wrapper, and a cutter to cut off the paper, substantially as described.

32. The combination of the endless bands G T, arranged substantially parallel to each other, and with their adjacent runs in the same direction, mechanism, substantially such as described, to impart an intermittent advance movement to said bands, the bar *k*, parallel with the forward drum of said band, and forming, substantially, a continuation of the working-run of said band, the vertically-reciprocating cutter 5, spring presser-bar 2, rolling-table 6, constructed with the transverse cavity 7 parallel with said bar *k*, the apron 9, one end attached to the table forward of said cavity, the other to a bar transversely over said table, mechanism, substantially such as described, to impart to said bar a reciprocating movement over the rolling-table toward and from said cavity, the guard 27, with mechanism, substantially such as described, to force said guard down upon the apron doubled over the tobacco and directly in advance of the tobacco, the gripping-fingers 104, extending up through openings in the apron made for the purpose, with mechanism, substantially such as described, to impart an up-and-down movement to said gripping-fingers, and the vertically-reciprocating follower 16, the horizontal bar 95, fingers 97 on said bar, the said bar constructed with notches

corresponding to said fingers 104, mechanism, substantially such as described, to impart to said bar and fingers 97 a reciprocating movement toward and from said gripping-fingers 104, a pair of feeding-rolls and vertically-reciprocating cutter arranged to deliver to said bar and fingers 97 the paper for a single wrapper, and a cutter to cut off the paper, substantially as described.

33. The combination of the rolling-table 6, constructed with a transverse cavity, 7, the apron 9, one end of which is attached to said table forward of said cavity, the other end attached to a bar, with mechanism, substantially such as described, to impart reciprocating movement to said bar over said table and toward and from said cavity, gripping-fingers 104, extending up through openings in the apron provided for the purpose, and mechanism, substantially such as described, to impart to said fingers a rising-and-falling movement, the guard 27, with mechanism, substantially such as described, to force said guard down upon the apron doubled over the tobacco and directly in advance of the tobacco, the horizontal bar 95, fingers 97 on said bar, the said bar constructed with notches corresponding to said fingers 104, mechanism, substantially such as described, to impart to said bar and fingers 97 a reciprocating movement toward and from said gripping-fingers 104, a revolving paste-wheel, 73, a pasting-wheel, 81, arranged upon a slide parallel with the surface of the paper held by said bar 95 and fingers 97, a vertically-reciprocating bar, 88, in the path of said pasting-wheel 81, and so that said bar will receive a coating of adhesive material from said pasting-wheel and deliver the same to the paper held as aforesaid, substantially as described.

34. The combination of the rolling-table 6, constructed with the cavity 7, flexible apron 9, one end attached to the table forward of said cavity, the other end to a bar over the table, mechanism, substantially such as described, to impart reciprocating movement to said bar toward and from said cavity, the fingers 104, with mechanism, substantially such as described, to impart an up-and-down movement to said fingers through corresponding openings provided in said apron, the guard 27, with mechanism, substantially such as described, to force said guard down upon the apron doubled over the tobacco and directly in advance of the tobacco, a follower, 16, with mechanism, substantially such as described, to impart a vertical reciprocating movement to said follower, the horizontal bar 95, fingers 97 on said bar, the said bar constructed with notches corresponding to said fingers 104, mechanism, substantially such as described, to impart to said bar and fingers 97 a reciprocating movement toward and from said gripping-fingers 104, a revolving paste-wheel, 73, a pasting-wheel, 81, arranged upon a slide parallel with the surface of the paper held by said bar 95 and fingers 97, a vertically-reciprocating-bar, 88, in the path of said pasting-wheel 81, and so that said bar will receive a coating of adhesive material from said pasting-wheel and deliver the same to the paper held as aforesaid, substantially as described.

35. The combination of the two endless bands G T, arranged substantially parallel to each other, and with their adjacent runs in the same direction, mechanism, substantially such as described, to impart an intermittent advance movement to said bands, the bar *k*, parallel with the forward drum of said band G, and forming, substantially, a continuation of the working-run of said band, the vertical reciprocating cutter 5, the rolling-table 6, constructed with the transverse cavity 7 parallel with said bar *k*, the apron 9, one end attached to the table forward of said cavity, the other to a bar transversely over said table, mechanism, substantially such as described, to impart to said bar a reciprocating movement over the rolling-table toward and from said cavity, the guard 27, with mechanism, substantially such as described, to force said guard down upon the apron doubled over the tobacco and directly in advance of the tobacco, the gripping-fingers 104, extending up through openings in the apron made for the purpose, with mechanism, substantially such as described, to impart an up-and-down movement to said gripping-fingers, the horizontal bar 95, fingers 97 on said bar, the said bar constructed with notches corresponding to said fingers 104, mechanism, substantially such as described, to impart to said bar and fingers 97 a reciprocating movement toward and from said gripping-fingers 104, a revolving paste-wheel, 73, a pasting-wheel, 81, arranged upon a slide parallel with the surface of the paper held by said bar 95 and fingers 97, a vertically-reciprocating bar, 88, in the path of said pasting-wheel 81, and so that said bar will receive a coating of adhesive material from said pasting-wheel and deliver the same to the paper held as aforesaid, substantially as described.

36. The combination of the two endless bands G T, arranged substantially parallel to each other, and with their adjacent runs in the same direction, mechanism, substantially such as described, to impart an intermittent advance movement to said bands, the bar *k*, parallel with the forward drum of said band G, and forming, substantially, a continuation of the working-run of said band, the vertical reciprocating cutter 5, the rolling-table 6, constructed with the transverse cavity 7 parallel with said bar *k*, the apron 9, one end attached to the table forward of said cavity, the other to a bar transversely over said table, mechanism, substantially such as described, to impart to said bar a reciprocating movement over the rolling-table toward and from said cavity, the vertical reciprocating follower 16, the gripping-fingers 104, extending up through openings in the apron made for the purpose, with mechanism, substantially such as described, to impart an up-and-down movement to said gripping-fingers, the horizontal bar 95, fingers 97 on said bar, the said bar constructed with notches corresponding to said fingers 104, mechanism, substantially such as described, to impart to said bar and fingers 97 a reciprocating movement toward and from said gripping-fingers 104, a revolving paste-wheel, 73, a pasting-wheel, 81, arranged upon a slide parallel with the surface of the paper held by said bar 95 and fingers 97, a vertically-reciprocating bar, 88, in the path of said pasting-wheel 81, and so that the said bar will receive a coating of adhesive material from said pasting-wheel and deliver the same to the paper held as aforesaid, substantially as described.

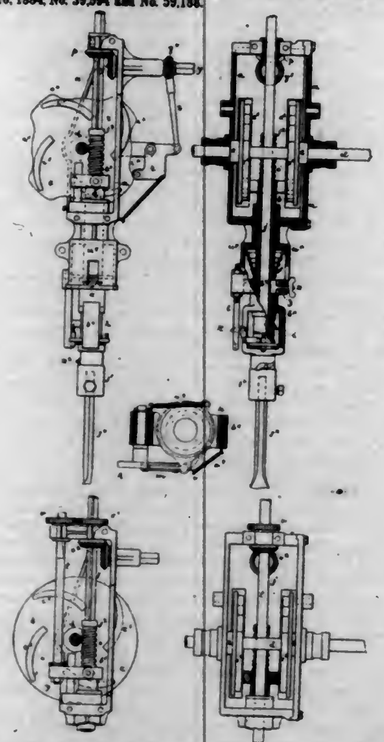
37. The combination of the endless bands G T, arranged substantially parallel to each other, and with their adjacent runs in the same direction, mechanism, substantially such as described, to impart an intermittent advance movement to said bands, the bar *k*, parallel with the forward drum of said band, and forming, substantially, a continuation of the working-run of said band, the vertically-reciprocating cutter 5, spring presser-bar 2, rolling-table 6, constructed with the transverse cavity 7 parallel with said bar *k*, the apron 9, one end attached to the table forward of said cavity, the other to a bar transversely over said table, mechanism, substantially such as described, to impart to said bar a reciprocating movement over the rolling-table toward and from said cavity, the gripping-fingers 104, extending up through openings in the apron made for the purpose, with mechanism, substantially such as described, to impart an up-and-down movement to said gripping-fingers, the horizontal bar 95, fingers 97 on said bar, the said bar constructed with notches corresponding to said fingers 104, mechanism, substantially such as described, to impart to said bar and fingers 97 a reciprocating movement toward and from said gripping-fingers 104, a revolving paste-wheel, 73, a pasting-wheel, 81, arranged upon a slide parallel with the surface of the paper held by the said bar 95 and fingers 97, a vertically-reciprocating bar, 88, in the path of said pasting-wheel 81, and so that said bar will receive a coating of adhesive material from said pasting-wheel and deliver the same to the paper held as aforesaid, substantially as described.

38. The combination of the endless bands G T, arranged substantially parallel to each other, and with their adjacent runs in the same direction, mechanism, substantially such as described, to impart an intermittent advance movement to said bands, the bar *k*, parallel with the forward drum of said band, and forming, substantially, a continuation of the working-run of said band, the vertically-reciprocating cutter 5, spring presser-bar 2, rolling-table 6, constructed with the transverse cavity 7 parallel with said bar *k*, the apron 9, one end attached to the table forward of said cavity, the other to a bar transversely over said table, mechanism, substantially such as described, to impart to said bar a reciprocating movement over the rolling-table toward and from said cavity, the guard 27, with mechanism, substantially such as described, to force said guard down upon the apron doubled over the tobacco and directly in advance of the tobacco, the gripping-fingers 104, extending up through openings in the apron made for the purpose, with mechanism, substantially such as described, to impart an up-and-down movement to said gripping-fingers, the horizontal bar 95, fingers 97 on said bar, the said bar constructed with notches corresponding to said fingers 104, mechanism, substantially such as described, to impart to said bar and fingers 97 a reciprocating movement toward and from said gripping-fingers 104, a revolving paste-wheel, 73, a pasting-wheel, 81, arranged upon a slide parallel with the surface of the paper held by said bar 95 and fingers 97, a vertically-reciprocating bar, 88, in the path of said pasting-wheel 81, and so that said bar will receive a coating of adhesive material from the pasting-wheel, and deliver the same to the paper held as aforesaid, substantially as described.

39. The combination of the endless bands G T, arranged substantially parallel to each other, and with their adjacent runs in the same direction, mechanism, substantially such as described, to impart an intermittent advance movement to said bands, the bar *k*, parallel with the forward drum of said band, and forming, substantially, a continuation of the working-run of said band, the vertically-reciprocating cutter 5, spring presser-bar 2, rolling-table 6, constructed with the transverse cavity 7 parallel with said bar *k*, the apron 9, one end attached to the table forward of said cavity, the other to a bar transversely over said table, mechanism, substantially such as described, to impart to said bar a reciprocating movement over the rolling-table toward and from said cavity, the gripping-fingers 104, extending up through openings in the apron made for the purpose, with mechanism, substantially such as described, to impart an up-and-down movement to said gripping-fingers, and the vertically-reciprocating follower 16, the horizontal bar 95, fingers 97 on said bar, the said bar constructed with notches corresponding to said fingers 104, mechanism, substantially such as described, to impart to said bar and fingers 97 a reciprocating movement toward and from said gripping-fingers 104, a revolving paste-wheel, 73, a pasting-wheel, 81, arranged upon a slide parallel with the surface of the paper held by said bar 95 and fingers 97, a vertically-reciprocating bar, 88, in the path of said pasting-wheel 81, and so that said bar will receive a coating of adhesive material from the pasting-wheel, and deliver the same to the paper held as aforesaid, substantially as described.

40. The combination of the endless bands G T, arranged substantially parallel to each other, and with their adjacent runs in the same direction, mechanism, substantially such as described, to impart an intermittent advance movement to said bands, the bar *k*, parallel with the forward drum of said band, and forming, substantially, a continuation of the working-run of said band, the vertically-reciprocating cutter 5, spring presser-bar 2, rolling-table 6, constructed with the transverse cavity 7 parallel with said bar *k*, the apron 9, one end attached to the table forward of said cavity, the other to a bar transversely over said table, mechanism, substantially such as described, to impart to said bar a reciprocating movement over the rolling-table toward and from said cavity, the guard 27, with mechanism, substantially such as described, to force said guard down upon the apron doubled over the tobacco and directly in advance of the tobacco, the gripping-fingers 104, extending up through openings in the apron made for the purpose, with mechanism, substantially such as described, to impart an up-and-down movement to said gripping-fingers, and the vertically-reciprocating follower 16, the horizontal bar 95, fingers 97 on said bar, the said bar constructed with notches corresponding to said fingers 104, mechanism, substantially such as described, to impart to said bar and fingers 97 a reciprocating movement toward and from said gripping-fingers 104, a revolving paste-wheel, 73, a pasting-wheel, 81, arranged upon a slide parallel with the surface of the paper held by said bar 95 and fingers 97, a vertically-reciprocating bar, 88, in the path of said pasting-wheel 81, and so that said bar will receive a coating of adhesive material from said pasting-wheel and deliver the same to the paper held as aforesaid, substantially as specified.

320,371. **ROCK-DRILLING MACHINE.** MARTIN MACDERMOTT and WILLIAM GLOVER, London, England. Filed Mar. 15, 1884. (No model.) Patented in England Sept. 17, 1881, No. 4,008, and July 5, 1883, No. 3,334; in Germany Jan. 9, 1884, No. 28,197, and in Austria-Hungary Dec. 16, 1884, No. 39,594 and No. 59,186.



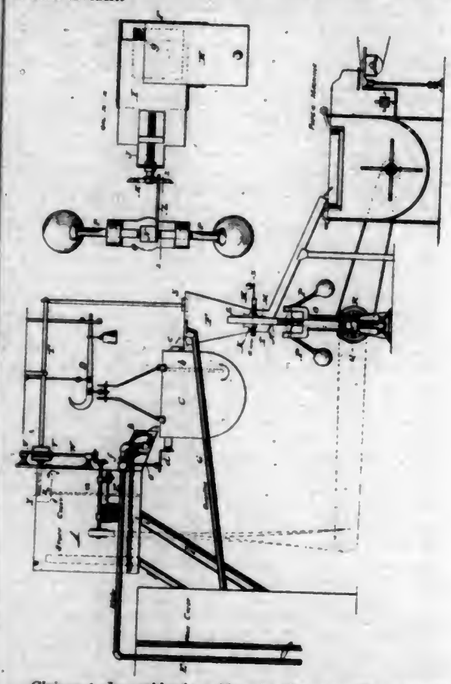
Claim.—1. In a rock-perforating machine, in combination with the drill-carrier *b* and with the drill-bar *j*, the rotating plate-cam *e*, having on its face a disconnected series of cam projections, *e'*, serving to lift the carrier, and having also a series of edge-cams, e^x, serving to turn the drill-bar, all substantially as shown and described.

2. As a means for partially rotating the drill-bar, the combination of the lifting cam-plate and its series of peripheral cams e^x, the bell-crank lever *r*, actuated thereby, the ratchet q^2 upon a shaft, the pawl s^x, engaging therewith and provided with a flat part, *z'*, spring *y*, adapted to bear against said flat part when the pawl is disengaged, and the gears *q'* and *p*, these parts co-operating together, substantially as set forth.

3. In combination the following elements, namely: the drill-holder and mechanism for rotating it, the feed-screw connected with the drill-holder, a nut engaging said screw and mechanism for rotating it, a spline engaging said screw, and a device for withdrawing it from engagement, and a catch on the feed-screw engaging a notch in the drill-holder.

320,372. **PAPER-MAKING MACHINE.** JOHN T. F. MACDONNELL, Holyoke, Mass. Filed Sept. 23, 1884. (No model.)

Brief.—Improvement on Patent No. 215,946, dated May 27, 1879, to same inventor.



Claim.—1. In combination with each other and with a paper-machine, an automatic mechanism controlled by the specific gravity of the stock to regulate its consistency, and an automatic feed mechanism connected with a mechanical governor and with a paper-machine, whereby stock may be delivered to the paper-machine of uniform consistency, and at a speed corresponding to the speed of the machine.

2. The herein-described feeding apparatus for a paper-machine, comprising, first, the balanced receptacle connected with a water-supply valve, and, second, a hopper or receptacle supplied from the balanced receptacle and provided with a valve to regulate the discharge, and with a mechanical governor connected to said valve, said parts being constructed and arranged for joint operation, substantially as hereinbefore set forth.

3. The combination, substantially as hereinbefore described and shown, of a paper-machine, an automatic feed mechanism controlled by the machine to regulate the rate of delivery of the stock, and an automatic mechanism to produce a uniform consistency of the stock delivered to the feed mechanism.

4. In combination with a paper-machine, an elevated receiver or hopper from which the stock flows constantly downward to the machine, means, substantially as described, to maintain a constant head or pressure of stock within the hopper, a gate to regulate the flow of stock from the hopper, and an automatic mechanical governor connecting the paper-machine with the gate, substantially as described, whereby the delivery of stock is controlled in accordance with the speed of the machine.

5. In combination with a paper-machine and a hopper or source of stock-supply having a constant delivery to the machine, a feed mechanism, and mechanism, substantially as described, connecting the gate with the machine, whereby the rate of delivery is varied in exact conformity to the rate of the machine.

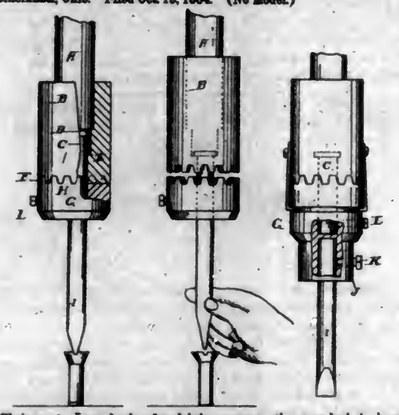
6. The feed spout or conductor and the feed-controlling valve or valves adapted for adjustment in one direction by hand, in combination with a mechanical governor adapted for connection with the paper-machine, whereby the rate of feed may be regulated according to the speed of the machine, and also regulated at will to increase or diminish the thickness of the web.

7. In combination with a paper-machine, the rotary head O, centrifugally-acting weights P, bar H, and the feed-regulating valve connected with said bar by means substantially such as described.

8. In combination with the gate and the screw for adjusting the same, the rotary shaft W, provided with arms U and V, and the float S, connected with said arms by means substantially as described, whereby the rising and falling of the float are caused to reverse the action of the valve-operating device.

9. In combination with the valve I, screw J, and wheel K, the rotary centrifugal governor having the bar N, provided with dogs L and M.

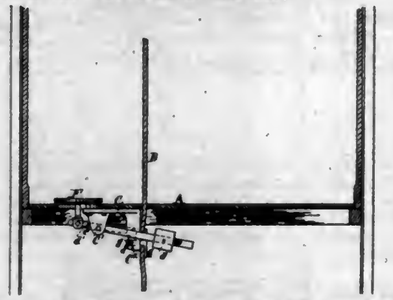
320,373. **DEVICE FOR DRIVING SCREWS.** FRANK M. MALEY, Cincinnati, Ohio. Filed Oct. 15, 1884. (No model.)



Claim.—1. In a device for driving screws, the mandrel A, having on its lower end the cylindrical head provided within with a space to receive the upper end of the bit-spindle, and having an annular shoulder, E, and provided on its lower end with radiating cogs, in combination with the bit-spindle C, having on its upper end a head, D, and a collar, G, also having radiating cogs H, the said spindle being capable of a limited end motion within the cylindrical head, as and for the purposes substantially as herein set forth.

2. The combination, with the mandrel A, of a hollow cylinder, B, shrunk thereon, and having radial teeth on its lower end, and a shoulder, E, at the lower end of the chamber in said hollow cylinder, in combination with a headed spindle, and a toothed collar, G, substantially as and for the purposes described.

320,374. **SAFETY DEVICE FOR ELEVATORS.** JOHN H. MANNING, Hartwell, Ohio. Filed Dec. 29, 1884. (No model.)



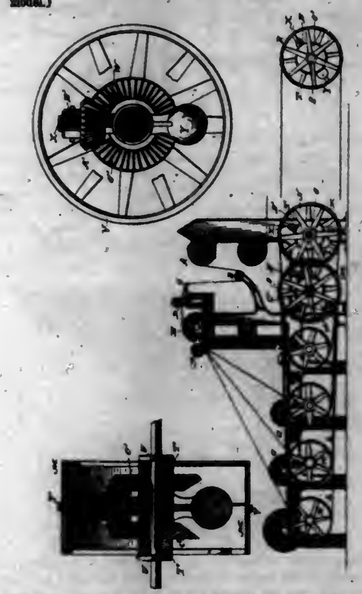
Claim.—1. A safety device to prevent manipulation of the tiller-rope of an elevator by other than a person in the cab, consisting, essentially, of mechanism, substantially such as described, which, by the force of a weight or spring, automatically grips the tiller-rope upon the removal of the pressure of the hand or foot of the operator, and, conversely, releases the grip upon the tiller-rope when such hand or foot pressure is reapplied, substantially as described.

2. A safety device to prevent manipulation of the tiller-rope of an elevator by other than the person in the cab, consisting of a movable gripping piece or binder operated by the force of a weight or spring acting through a lever which automatically presses the tiller-rope against an immovable abutment upon the exit of the operator from the cab, substantially as described.

3. In a safety device to prevent manipulation of the tiller-rope of an elevator by other than the person in the cab, the combination, with the housing C and binder G, of the levers E and D, and the weight *d*, whereby said binder is caused to grip the tiller-rope B by the force of said weight, substantially as described.

4. In a safety device to prevent manipulation of the tiller-rope of an elevator by other than the person in the cab, the combination, with the housing C and binder G, of the lever E and pedal F, whereby said binder is caused to release its grip upon the tiller-rope B by the pressure of the operator's foot upon said pedal, substantially as described.

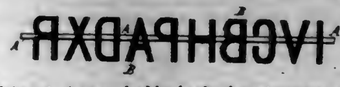
320,375. **APPARATUS FOR WINDING PAPER WEBS INTO ROLLS.** JOHN J. MANNING, Great Barrington, Mass. Filed Jan. 15, 1885. (No model.)



Claim.—1. In an apparatus for winding rolls of paper from the cutting mechanism, the combination of the removable winding-shafts having pinions secured upon them, the shafts having pinions engaging the pinions of the winding-shafts, and having suitable gears secured upon them, the equalizing-pulleys constructed as described, and connected to revolve the gears in pairs, the shafts having the said pulleys placed upon them, and means, as described, for equalizing the tension and speed of the said shafts, as and for the purpose shown and set forth.

2. In apparatus for winding rolls of paper from the cutting mechanism, the combination, with the cutting mechanism, of the winding-shafts having pinions secured upon them, the shafts J, having pinions I and pulleys K, belts L, equalizing-pulleys N, shafts O, having the equalizing-pulleys N and the pulleys P, belts Q, and the drive-shaft S, having the equalizing-pulley R, as and for the purpose shown and set forth.

320,376. **TYPE-WHEEL FOR PRINTING-TELEGRAPHS.** CARL A. MATHIESEN, New York, N. Y. Filed Sept. 4, 1884. (No model.)



Claim.—1. A type-wheel having its rim cut away so as to leave a narrow foundation or support for the type, and provided with skeleton type arranged thereon, and having substantially all of the material thereof removed excepting the mere outline of the character represented thereby, substantially as described.

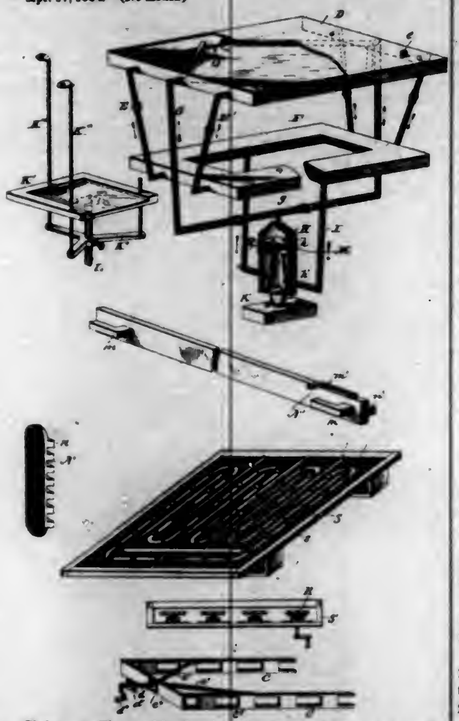
2. A type-wheel for printing-telegraph instruments and like purposes, having type from which all of the material is removed excepting the mere outline of the character represented, substantially as described.

320,377. **PROCESS OF ELECTRO-DEPOSITING NICKEL.** JEAN A. MATHIEU, Port Leyden, N. Y. Filed Apr. 21, 1882. (No specimens.)

Brief.—Uses propionate of nickel.

Claim.—The process of electro-deposition of nickel herein described, consisting in placing the article to be coated with nickel in a bath consisting of a solution of propionate of nickel, connecting said article with the negative pole, and an anode in the bath with the positive pole of a generator of electricity, and passing an electric current through said bath, substantially as described.

320,378. INCUBATOR. WILLIAM F. MAULICK, Columbia, Pa. Filed Apr. 17, 1884. (No model.)



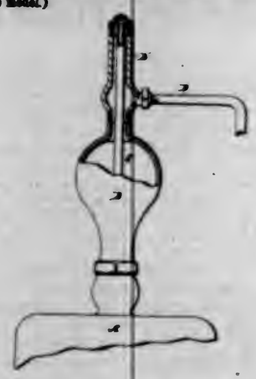
Claim.—1. The combination, in an incubator, of the upper tank, D, the lower tank, F, the burner H, having upper and lower sections, A A', with connecting-tubes A'', central flue for the lamp, and perforated band M between the sections, and pipes E E' I G, the latter entering the upper tank and terminating in diverging pipes or branches G', substantially as set forth.

2. The combination, in an incubator, of a case or receptacle provided with a series of openings on opposite sides extending horizontally, a rectangular slide having a series of slots, as described, and adapted to cover and uncover the openings in the case, and means of operating said slide, substantially as set forth.

3. In an incubator, a shelf-supporting means consisting of a casting, N, having rack-bars *n*, in combination with a casting, N', having hooks *m*, flange *n'*, and retaining means *m'*, substantially as shown.

4. The combination, in an incubator, of an egg-supporting tray, S, provided with a serpentine opening or passage, *r*, an endless chain located on the under side of the tray, as described, and a series of egg-carriers extending through said opening or passage, and actuating means for said chain, substantially as set forth.

320,379. LUBRICATOR. ELIJAH MCCOY, Detroit, Mich. Filed May 1, 1885. (No model.)



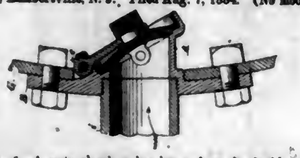
Claim.—1. In a lubricator, a steam equalizing pipe or conduit, said pipe or conduit rising to a point higher than the level of the steam-pipe which leads from the boiler to the condenser, substantially as described.

2. In a lubricator, a steam equalizing pipe or conduit, said lubricator provided with an elongated neck, B', at its top, to or near the top of which said equalizing-pipe extends, said neck provided at a distance below its top with means for receiving a steam-pipe, whereby steam may be admitted from the boiler, substantially as described.

3. In a lubricator, a steam equalizing pipe or conduit located wholly or partially within the body of the lubricator, said pipe or conduit rising to a point higher than the level of the steam-pipe which leads from the boiler to the condenser, substantially as described.

4. In a lubricator, a steam equalizing pipe or conduit located wholly or partially within the body of the lubricator, said lubricator provided with an elongated neck, B', at its top, to or near the top of which said equalizing-pipe extends, said neck provided at a distance below its top with means for receiving a steam-pipe, whereby steam may be admitted from the boiler, substantially as described.

320,380. CHECK-VALVE FOR STEAM-BOILERS. RICHARD MCDOWELL, Lambertville, N. J. Filed Aug. 7, 1884. (No model.)



Claim.—1. A gate-check valve located on the inside of the boiler, in combination with a feed-pipe, *i*, and adapted to be operated by means of an injector or pumps in the manner specified.

2. A check-valve located on the inside of the boiler, in combination with an outside check-valve adapted to be operated in connection therewith by means of injector or pumps, as and for the purpose described.

3. A check-valve located on the inside of the boiler, and adapted to be operated as described, in combination with the feed-pipe *i*, as specified, and for the purpose set forth.

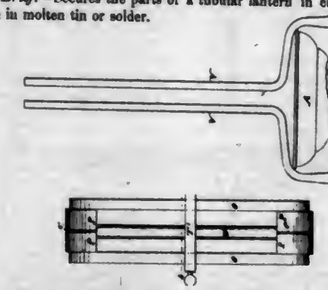
4. A check-valve provided with a socket, E, or suitable projection formed to engage with a tool inserted from the outside of the boiler for the purpose of grinding and seating said valve, as described and specified.

5. A check-valve attached to the interior side of the boiler, constructed of a casting, A, as herein described, and provided with the guard D, for the purpose of holding the hanger *a'* in position should the bolt *n* become broken or detached, as set forth and specified.

6. A check-valve constructed as herein described, consisting of the casting A, provided with the flange B, guard D, and lip *d*, in combination with the hanger *a'* and valve *a*, provided with the socket E, for the purpose of grinding and seating said valve by means of a tool inserted from the outside of the boiler, all as and for the purpose herein specified and set forth.

320,381. PROCESS OF MANUFACTURING TUBE-LANTERNS. FERDINAND METROSE, St. Louis, Mo. Filed Jan. 12, 1885. (No model.)

Brief.—Secures the parts of a tubular lantern in clamps and dips them in molten tin or solder.

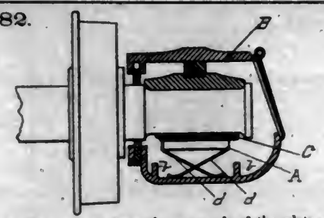


Claim.—The process herein described of manufacturing tube-lanterns, which consists in placing the air-tubes between forms in which they are clamped, dipping them as thus held in a solution to seal the seams, placing the ring and collars in position on the fount, placing the fount with its ring and collars in tongs, dipping the fount in a solution to seal the seams, and finally securing the air-tubes to the fount-ring, substantially as set forth.

320,382. CAR-AXLE LUBRICATOR. REUBEN MUNRO, San Francisco, Cal. Filed Sept. 23, 1884. (No model.)

Claim.—1. The combination, with the car-axle, absorbent material C, and perforated plate A, of the springs *d d*, formed of strap-pieces secured at the ends of the plate A and bent into an inclined position, as

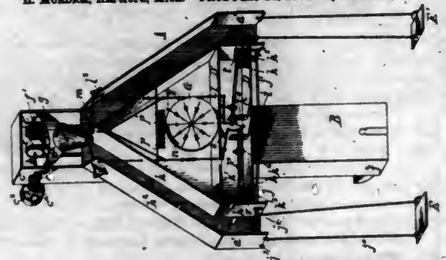
320,382.



shown, so that the springs from the two ends of the plate cross each other and rest upon the box under the opposite ends of said plate.

2. The combination, with the car-axle, absorbent material C, plate A, and springs *d d*, of the box B, having the ledges or projections *b b* on the bottom thereof, as and for the purpose set forth.

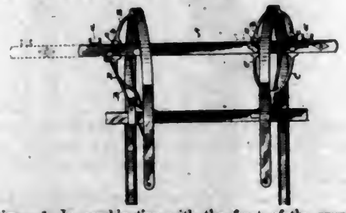
320,383. GRAIN-WEIGHING AND TALLYING MACHINE. ISRAEL H. MURDEN, Hartford, Mich. Filed June 14, 1884. (No model.)



Claim.—1. The combination, in a grain weighing and bagging machine, of devices for supporting two bags or other receptacles to be filled with the grain, a movable discharge-chute located above the same so as to direct grain alternately into one bag or the other, a plurality of intermediate devices independently connecting the chute with the bag-supporting devices and adapted to be adjusted to alternately operate and change the position of the chute upon the successive filling of the bags with different quantities of grain, substantially as set forth.

2. The combination, in a grain-weighing and registering apparatus, of one or more beams suitably fulcrumed and provided with poises, bag-supporting devices, each carrying a link connected to one of said beams by means of a roller playing in a slot in said beam, substantially as set forth.

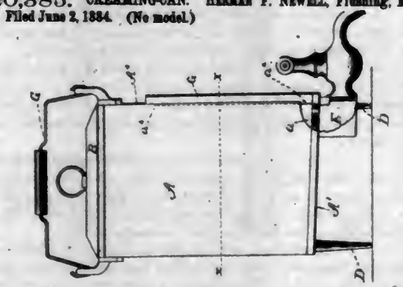
320,384. SHIFTING DRAFT-BAR. BURDINE B. MYERS, Mann's Choice, Pa. Filed Apr. 7, 1885. (No model.)



Claim.—1. In combination with the front of the runners of a sleigh, the supporting-frames provided with overhanging arm *c*, having thumb-screws, the draft-bar, and the pivoted bars D D.

2. In combination with the front of the runner of a sleigh, the supporting-frames provided with overhanging arms having thumb-screws, the draft-bars, and the pivoted bars D D, and the brace E, substantially as described.

320,385. CREAMING-CAN. HERMAN P. NEWELL, Flushing, Mich. Filed June 2, 1884. (No model.)



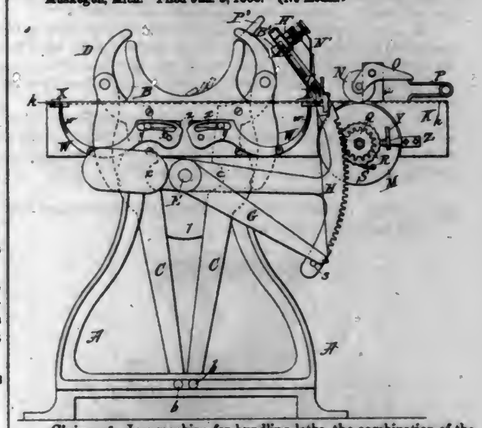
Claim.—The improved creaming-can herein described, consisting of the body or can flattened in cross-section, and having its front plate provided with a vertical slot, *a'*, and having its bottom A' inclined downward toward its forward end, and provided near such end with an opening, *a*, the legs D, whereby such can is held above the supporting-surface, the transparent plate F, placed over the slot *a'*, the retaining-plate G, secured over the plate F, and provided with a vertical series of separated openings, *g*, and the discharge-chamber located below the can and communicating therewith through the opening *a*, and having a discharge-pipe and a controlling-cock therein, substantially as and for the purposes specified.

320,386. COMPOUND STRIP FOR NECK-WEAR. ISAAC NOAR, New York, N. Y. Filed Mar. 7, 1885. (No model.)



Claim.—A compound strip of material for the manufacture of articles of apparel, consisting of a base-strip of paper or coarse fabric, a back strip of thin rubber, and a covering-strip of ornamental fabric wider than the base-strip and having its edge portions folded over the edges of the base-strip upon the rubber, the whole closely connected by pressure, substantially as specified.

320,387. MACHINE FOR BUNDLING LATHS. THOMAS W. NOTTER, Muskegon, Mich. Filed Jan. 3, 1885. (No model.)



Claim.—1. In a machine for bundling laths, the combination of the frame A, having saddles B B, the shaft E, the cam-slotted wheels I, mounted on said shaft, and the pivoted clamping-jaws C C, having vibrating fingers D D, and provided with studs *e e* for engaging the cam-slots in the wheels I, substantially as described.

2. The combination of the frame A, provided with cross-pieces K, having guideways *k* formed therein, the shaft E, the lever G, and the segment-gear H, mounted on said shaft, said gear being provided with studs *s s'*, the pinion Q, meshing with the segment-gear, the rag-wheel R, feed-wheel M, provided with pawl S, and the adjustable pressure-wheel N, substantially as described.

3. The combination of the frame A, pivoted jaws C C, having studs *e e*, the wheels I, mounted on a shaft, E, and having cam-slots *d d*, for engaging the studs *e e*, the weighted cam U, pivoted to the cross-piece K, and having a hooked projection, *v'*, the knife T, connected to said cam by links *t t*, and the connecting-bar V, pivoted to one of the jaws C, and provided with a hooked projection, *v*, for engaging the cam, substantially as described.

4. The combination of the frame A, having cross-pieces K, provided with guideways *k*, guides X X, and slots *z z*, the pivoted wire-raising arms W W, having slots *x x* and spring-fingers *w w*, and the pivoted clamping-jaws C C, having studs *y y*, for engaging the slots *z z*, substantially as described.

5. The combination of the frame A, having cross-pieces K, provided with guideways *k* and guides X X, the pivoted arms W W, having spring-fingers *w w*, the feed-wheel M, journaled above the guideway *k*, and having its periphery provided with a milled groove, the pivoted bearing O, the pressure-wheel N, journaled in said bearing, and the spring P, for holding the wheels M and N in contact, substantially as described.

6. The combination of the frame A, having cross-pieces K, provided with guides X X, slots *z z*, and guideways *k*, the pivoted clamping-jaws C C, having studs *y y*, the pivoted arms W W, having slots *x x* and spring-fingers *w w*, and the laterally-movable slide L, arranged

above and adapted to cover and uncover the guideway *k*, said slide being provided with rollers *i i*, guide-slots *u u*, pins *p p*, and springs *m m*, substantially as described.

7. The combination, with the frame A, having saddles B, pivoted clamping-jaws C C, pivoted wire-raising arms W W, and a shaft, E, carrying a lever, G, and segment-gear H, for actuating a wire-feed mechanism, of a lever, A^2, pivoted to an arm, A', of said segment-gear, the spring C', attached to said lever, and having pins C^2 C^2, the rotary tyer B', supported by the arm A' and lever A^2, and having concentric barrels D' H', springs G' I', ratchet E', pawls F' M', and a cord, N', attached to the outer barrel, H', and lever G, substantially as described.

320,388. CAR-COUPLING. THOMAS B. NUTTING, Sr., Morristown, N. J., assignor to himself, and THOMAS B. NUTTING, Jr., New York, N. Y. Filed Mar. 6, 1885. (No model.)



Claim.—1. In a car-coupling, the combination, with the draw-head A, of the hook B, having projecting shoulders G H upon its rear end, the hinging-bolt C, and the stop-bolt D E, for the said shoulders G H to engage with, substantially as herein shown and described, whereby the cars will couple themselves when run together, as set forth.

2. In a car-coupling, the combination, with the draw-head A, the coupling-hook B, the hinging-bolt C, and the cranks I, of the bail J and the chain K, substantially as herein shown and described, whereby the said coupling-hook can be readily raised from the platform or top of the car to uncouple the cars, as set forth.

3. In a car-coupling, the hooks B, made substantially as herein shown and described, with their free ends and upper sides rounded, to adapt one hook to slide over the other when the cars are run together, and thus couple the said cars automatically, as set forth.

320,389. VEHICLE-SPRING. JOHN G. PARSONS, Cincinnati, Ohio. Filed July 31, 1884. (No model.)

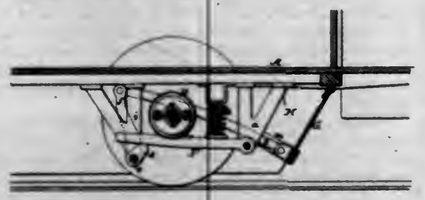


Claim.—1. In a vehicle, the ordinary side springs, in combination with a half semi-elliptic spring, E, secured to each side spring at or near its center and each shackled to a body-loop and a cross-bar, F, the springs E being in vertical line with the side springs and their front ends resting thereon, and the cross-bar F extending from the center of one side spring to the center of the other at a horizontal plane lower than that of the centers of said side springs, as set forth.

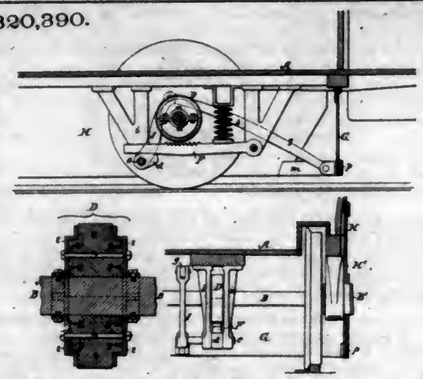
2. In a vehicle, the ordinary springs B, half semi-elliptic springs E, body-loop, and shackle, in combination with the front spring, C, as set forth.

320,390. SAFETY DEVICE FOR RAILWAY-CARS. SEWARD PRESSER, Chicago, Ill., and THOMAS SHINKLECOMER, Philadelphia, Pa. Filed June 9, 1884. (No model.)

Brief.—A wheel-fender in which, when the apron yields, it turns a cam which raises a brake against a brake-wheel mounted upon the wheel-axle. The brake-wheel is made of rubber sections secured between pronged disks.



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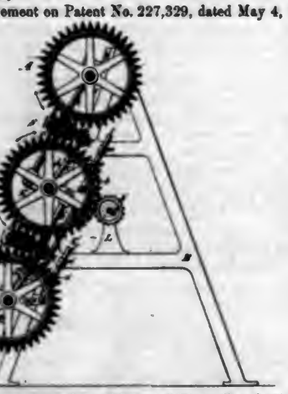
Claim.—1. The combination of the axle having a brake-wheel, D, the bar F, the pivoted apron G, and devices, substantially as described, whereby on the yielding of the apron the bar is pressed against the brake-wheel, as set forth.

2. The combination of the apron G, the axle and its wheel D, the arm F, and the rock-shaft *e*, with cam *d* and arm *f*, connected to the apron, as set forth.

3. The brake-wheel D, consisting of the rubber blocks *s* and opposite disks, *t*, with prongs *y*, as set forth.

320,391. MACHINE FOR FELTING HAT-BODIES. AUGUSTE PELISSE, Newark, N. J., assignor to John T. Waring, Yonkers, N. Y. Filed Apr. 6, 1885. (No model.)

Brief.—Improvement on Patent No. 227,329, dated May 4, 1880.



Claim.— 1. The combination, with two felting-rollers having between them an open trough-like cavity, of a stop-roller of smaller diameter than the said felting-rollers, arranged between them, substantially as and for the purpose herein described.

2. The combination, with two felting-rollers having between them an open trough-like cavity, of an interposed stop-roller of smaller diameter than the said felting-rollers, and having a higher peripherical velocity, substantially as herein described.

3. The combination, with two felting-rollers having between them an open trough-like felting-cavity, of an interposed stop-roller of smaller diameter than said felting-rollers, and adjustable inward and outward between the said felting-rollers, substantially as and for the purpose herein described.

4. The combination, with two felting-rollers having between them an open trough-like cavity, and having unequal peripherical velocities, of an interposed stop-roller, substantially as herein described.

5. The combination, with two felting-rollers of curved longitudinal profile having between them an open trough-like cavity, of an interposed stop-roller the longitudinal profile of which is the counterpart of the curved longitudinal profile of the felting-rollers, substantially as herein described.

6. The combination, with two felting-rollers having between them an open trough-like cavity, and having their axes so arranged in an inclined plane that the lower of said rollers projects in front of the upper one, of a stop-roller arranged between and behind the said felting-rollers, substantially as and for the purpose herein described.

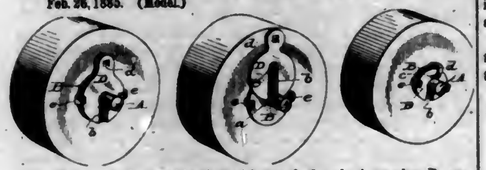
7. The combination, with two felting-rollers having between them an open trough-like cavity, and having bearings which are adjustable to vary the width of said cavity, and a stop-roller interposed between

the said felting-rollers, of connections between said bearings and said stop-roller, whereby the adjustment of the said bearings nearer to each other brings the stop-roller farther in between the felting-rollers, substantially as herein described.

8. The combination of the middle felting-roller, A', the lever K, fulcrumed on the journals of the said roller, the movable journal-boxes b b^2 of the upper and lower felting-rollers, and the connections h h' between the said lever and the said journal-boxes, substantially as and for the purpose herein described.

9. The combination of the felting-rollers A A' A^2, the levers K, fulcrumed on the journals of the middle roller, A', the movable journal-boxes b b^2 of the upper and lower rollers, A A^2, the arms d d^2, carrying the stop-rollers C C', the rods l l', connected with said levers K, the guides m m', for said arms, the arms n n', and the guides o o', for the arms d d^2, attached to said arms l l', for producing the simultaneous adjustment of the upper and lower felting-rollers and the stop-rollers, substantially as herein described.

320,392. ROLLER-SKATE. WILLIAM H. PETERSON and MICAJAH C. HENLEY, Richmond, Ind.; said Peterson assignor to said Henley. Filed Feb. 26, 1885. (Model.)

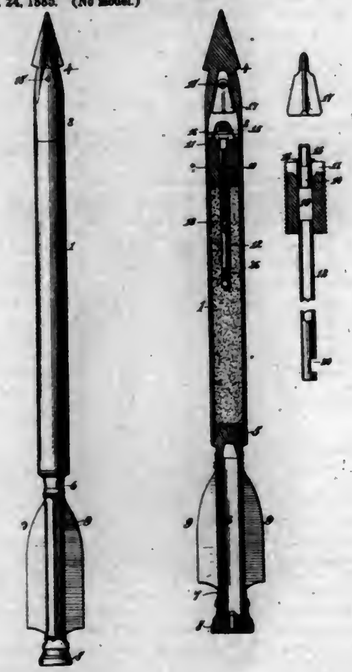


Claim.—1. In combination with notched axle A, washer B, provided with lips *e*, and disk or slide D, having slot *b*, the washer and the disk being provided one with a recess, *c*, and the other with a tongue or lip to enter said recess and lock the parts together.

2. In a roller-skate, the combination of axle A, provided with notches *a*, roller C, mounted upon said axle, washer B, encircling the axle and provided with lips *e* and recess *c*, and disk D, formed with slot *b* and tongue *d*, all substantially as described and shown.

3. In combination with a notched axle, a washer having a central perforation to permit it to be passed over the end of the axle, and a disk provided with a slot to permit it to be passed laterally upon the notched portion of the axle, said washer and disk being provided with interlocking portions, substantially as described and shown, whereby each prevents the other from being displaced so long as the interlocking portion remains in engagement.

320,393. BOMB-LANCE. ERBY PIERCE, New Bedford, Mass. Filed Mar. 24, 1885. (No model.)



Claim.—1. The combination, with the magazine of a bomb-lance, of the front closing-plug having an axial bore and provided in its outer end with lateral slots or openings intersecting said bore, the independent nipple arranged in and of a less diameter than said bore and seated upon and supported by the outer end of the front closing-plug, and the fuse-tube extending from the rear end of said plug, substantially as described.

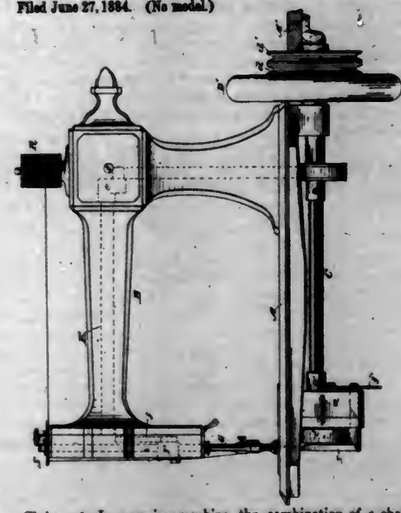
2. The combination, with the magazine of a bomb-lance, of the front closing-plug having an axial bore and provided in its outer end with lateral slots or openings intersecting said bore, the nipple having a tube-extension and provided with a horizontal flange seated upon and supported by the outer end of the plug.

3. The combination, with the magazine of a bomb-lance, of a front closing-plug having an axial bore and slots intersecting the upper end thereof, an independent nipple having a tubular end extending within the bore of the plug and provided with an annular flange that rests upon the end of the plug above its slots, and a wire for confining the cap on the nipple, substantially as described.

4. In a bomb-lance, the combination of the plug having an axial bore and openings communicating therewith, the independent nipple-tube supported upon the front end of said plug, and the fuse-tube extending from the rear end of said plug with the magazine, the lance-head, and the plunger or hammer, substantially as described.

5. In a bomb-lance, the combination of the nipple, the plug having the axial bore, and the fuse-tube with the wire for holding the cap on the nipple, substantially as and for the purpose described.

320,394. SEWING-MACHINE. JOHN W. POST, New York, N. Y. Filed June 27, 1884. (No model.)



Claim.—1. In a sewing-machine, the combination of a shaft having a crank-disk provided with a recess in its face, a crank-pin arranged in said recess, and a pivoted looper having an offset or projecting portion adapted to be received into said recess and having a cam-slot formed in said offset portion, substantially as set forth.

2. In a sewing-machine, a crank-disk adapted to co-operate with interchangeable chain, double-chain, and lock-stitch loopers, said disk having in its face a recess in which is arranged a crank-pin, a hole for the reception of the crank-pin of the lock-stitch looper, and a face-cam for moving the double-chain stitch looper laterally, combined with mechanism for operating said crank-disk and at will with one of said loopers, substantially as set forth.

3. In a sewing-machine, the combination, with the bed-plate having a bored bracket, of a looper having a cam-slot near its center, a pivot-shaft for said looper at the lower end thereof, a device for removably securing said shaft in said bracket, and mechanism for operating said looper, substantially as set forth.

4. In a sewing-machine, the combination, with the bed-plate having a depending bored bracket, of a looper having a pivot-shaft extending through said bracket and provided with an annular recess, and a slotted locking-latch adapted to engage said recess to hold the looper-shaft and looper in place, substantially as set forth.

5. In a sewing-machine, the combination, with a shaft having a crank-disk provided with a crank-pin and a face-cam, of a double chain-stitch looper having on one face a projecting lug, a longitudinally-movable pivot-shaft connected with said looper, and a spring for moving said shaft in opposition to the movements imparted thereto by said face-cam, substantially as set forth.

6. In a sewing-machine, the combination, with the bed-plate thereof

having dowel-pins, one of which is provided with an undercut recess, of a bracket having vertical and horizontal portions, the latter provided with holes for the reception of said pins, a locking-lever having an inclined portion for engagement with said undercut pin, and a lock-stich looper and bobbin-supporter, both connected with the vertical portion of said bracket, and thus attachable to and removable from the machine therewith, substantially as set forth.

7. In an interchangeable-stitch sewing-machine, the combination, with a bed-plate having a milled seat, a^6, and dowel-pins, one of the latter being provided with an undercut recess, of a bracket having vertical and horizontal portions, the latter portion fitting against said milled seat and being provided with holes for the reception of said pins, a locking-lever pivoted to the horizontal portion of said bracket and having an inclined portion for engagement with the undercut dowel-pin, and a lock-stitch looper and bobbin-supporter, both connected with the vertical portion of said bracket, substantially as set forth.

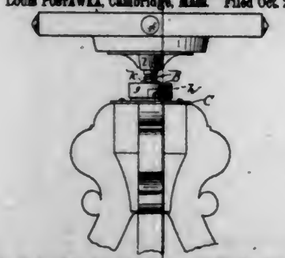
8. In a sewing-machine, the combination, with a lock-stitch looper having a crank-pin, of a disk having a hole for the reception of said pin, a bracket having a recess, and a link jointed to the arm of said looper and arranged in said recess, said link having a thickness closely corresponding to the width of said recess and being thus adapted to be steadied and guided by the walls thereof, substantially as set forth.

9. In a sewing-machine, the combination, with a removable bracket, of a bobbin-supporter carried thereby and composed of a fixed and a pivoted arm, and a locking-lever pivoted to said bracket at a point in a vertical line between the ends of said arm and thus adapted to bear against the same to hold it in working position between its pivot and its free end, substantially as set forth.

10. In a sewing-machine, the combination of a bobbin-supporter composed of two arms recessed for the reception of the bobbin-case, one of the said arms having an open face and an inwardly-projecting lip or lug, a bobbin-case, and a bobbin supported therein, said lug projecting over the bobbin and thus serving to hold the latter in its case, substantially as set forth.

320,395. OILING DEVICE FOR ADJUSTABLE CHAIRS AND STOOLS.

LOUIS POSTAWKA, Cambridge, Mass. Filed Oct. 27, 1884. (No model.)



Claim.—1. In combination with the nut and adjusting-screw of an adjustable seat-support, an oil-receptacle provided with absorbent packing, which is held constantly and positively in contact with the screw-threads opposed thereto through openings in the walls of the receptacle, for the purpose of lubrication, in the manner substantially as described.

2. An oil cup or receptacle having a central opening through the bottom thereof for the passage of the adjusting-screw of a seat-support, and an annular projection surrounding such opening provided with apertures through which absorbent packing may be pressed against the screw for the purpose of lubrication, in the manner substantially as described.

3. In combination with the support for an adjustable seat, a nut and chambered adjusting-screw provided with perforations into said chamber, through which absorbent packing which holds a lubricating material may project, in the manner and for the purpose specified.

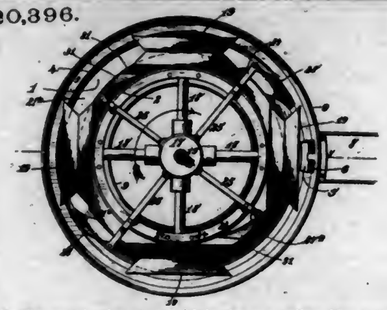
320,396. MACHINE FOR CRUSHING AND AMALGAMATING ORES.

SAMUEL T. RICHARDSON, Baltimore, Md., assignor to John K. Pancoast, same place. Filed Aug. 18, 1884. (No model.)

Claim.—1. The combination of the circular trough having an inner wall, an outer wall provided with a concave inner face, and the intermediate ridge having grinding-surfaces inclining from the central apex downward and outward, with crushing-rolls having grooved peripheries traveling on the ridge with the peripheral edges of the outer flanges of the rolls in scraping contact with the concave face of the outer wall of the trough, substantially as described.

2. The combination of the circular trough having inner and outer walls and an intermediate grinding-ridge, a vertical shaft, crushing-rolls carried by said shaft and having grooved peripheries traveling on the ridge, rods radiating from the shafts, and two sets of scrapers carried by the rods and moving, respectively, between the inner wall and ridge and the outer wall and ridge for alternately carrying the material being crushed from one side of the ridge to the other, substantially as described.

320,396.



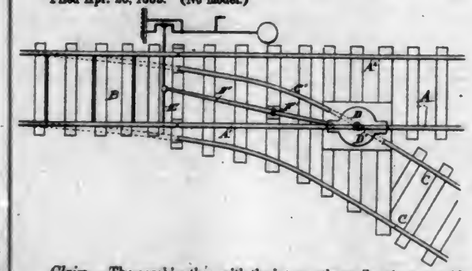
3. The combination of a trough having a grinding-ridge pyramidal in cross-section, crushing-rolls having grooved peripheries traveling on the ridge, and two sets of scrapers traveling, respectively, on opposite sides of the ridge, substantially as described.

4. In a mill for crushing ore, the combination, with the annular trough, of a grinding-ridge having two grinding-surfaces which incline from an apex downwardly and toward the walls of the trough, a series of grooved crushing-rolls turning upon said ridge, and a scraper following each roll upon alternate sides of the grinding-ridge, said scrapers consisting of a plate, the forward end whereof lies upon the grinding-surface, whence it is curved upward and narrowed to a point at the rear end, which overhangs the apex of the ridge, and a guard or curb-plate rising from that edge of the scraper-plate which is adjacent to the trough-wall, substantially as and for the purpose described.

5. In an ore-mill, the combination, with the trough 1, of the grinding-ridge 21, the grooved rolls 19, the ring-brace 22, arms 25, the scrapers 28 following each alternate roll, the scrapers 31 following the other rolls, the adjacent scrapers moving on opposite sides of the grinding-ridge, substantially as and for the purpose described.

320,397. RAILWAY-SWITCH.

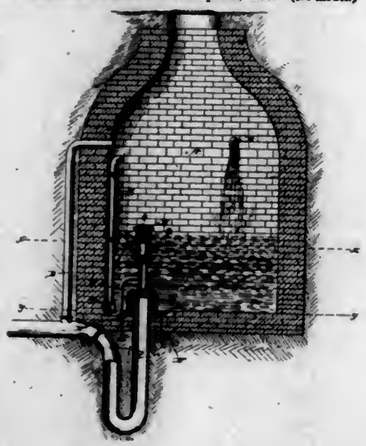
SAMUEL RITCHIE, Wausau, Wis. Filed Apr. 20, 1885. (No model.)



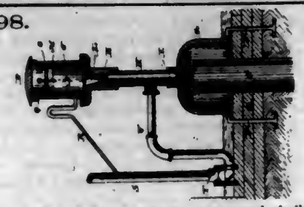
Claim.—The combination, with the intersecting rails, of a turn-table, switching rail or rails carried thereby, a lever, F, and shifting-shaft, as set forth.

320,398. DEVICE FOR FLUSHING TANKS, SINKS, &c.

ANDREW ROSEWATER, Omaha, Nebr. Filed Apr. 14, 1885. (No model.)



320,398.



Claim.—1. In a flushing device for sewers and similar apparatus, the combination of a tank, an inverted siphon-pipe having one end opening above the bottom of the tank and having its other end passing into the discharge-pipe, a bell-shaped air-chamber placed with its mouth over the open end of the siphon-pipe, and means, substantially as described, for allowing the compressed air in the chamber to escape, allowing fluid in the tank to rush out through the chamber and siphon-pipe, as and for the purpose shown and set forth.

2. In a flushing device for sewers and similar apparatus, the combination of a tank, a discharge-pipe shaped as an inverted siphon, having its open end projecting above the bottom of the tank, a bell-shaped air-chamber placed with its open mouth over the open end of the siphon-pipe and provided with a valve-seat in its top, a valve playing upon the said valve-seat, a tube or chamber extending from the valve-seat to above the high-water level in the tank, and means for opening the valve when the fluid in the tank reaches high-water level, as and for the purpose shown and set forth.

3. In a flushing device for sewers and similar apparatus, the combination of a tank, a discharge-pipe shaped as an inverted siphon, having its open end projecting above the bottom of the tank, a bell-shaped air-chamber placed with its open mouth over the open end of the discharge-pipe and provided with a valve-seat in its top, a valve playing upon the said valve-seat and opening upward, provided with a float, a casing extending from the valve-seat to above the high-water level, and a siphon-pipe having its knee at high-water level, and having one leg entering the lower end of the casing above the valve-seat and having its other leg opening near the bottom of the tank, as and for the purpose shown and set forth.

4. In a flushing device for sewers and similar apparatus, the combination of a tank, a discharge-pipe shaped as an inverted siphon, having its open end projecting above the bottom of the tank, a bell-shaped air-chamber placed with its open mouth over the open end of the discharge-pipe and provided with a valve-seat in its top, a casing extending from the said valve-seat to above the high-water level, an upwardly-opening valve playing upon the valve-seat and provided with a float, a vertical pipe open at its top and formed with a cup or chamber at its lower end raised above the bottom of the tank, a siphon-pipe opening with one leg in the said pipe and with its other leg in the casing above the valve-seat, and having its knee at high-water level, and a pipe having its lower upwardly-bent end opening into the chamber at the lower end of the vertical open pipe and having its upper end opening into the air-chamber below the valve-seat, as and for the purpose shown and set forth.

5. In a flushing device for sewers and similar apparatus, the combination of a tank, a discharge-pipe, C, shaped as an inverted siphon, and having its open end projecting above the bottom of the tank, the air-chamber E, having pipe H, casing J, having valve-seat K, closed top P, and perforations Q, valve L, having float N, vertical pipe S, having chamber T at its lower end, siphon-pipe R, opening in pipe S and in casing J, and having its knee in high-water level, and pipe U, having its lower upwardly-bent end opening in chamber T and having its upper end opening in pipe H, as and for the purpose shown and set forth.

6. In a flushing device for sewers and similar apparatus, the combination of a tank having a recess in its bottom, inverted siphon-shaped discharge-pipe having its open end projecting above the bottom of the said recess, and an air-chamber placed with its mouth over the open end of the siphon-pipe, and having its lower edge below the low-water level in the tank, and means to supply air to the air-chamber when the water-level is at low-water mark and above the lower edge of the air-chamber, as and for the purpose shown and set forth.

320,399. FRUIT-DRIER.

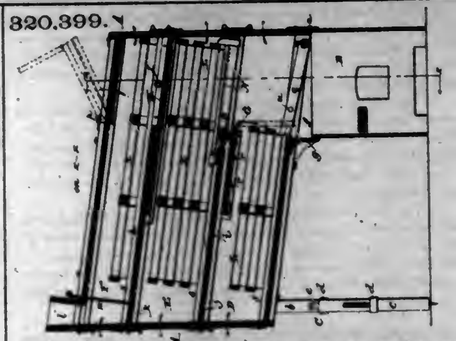
BENJAMIN L. RYDER, Chambersburg, Pa. Filed Apr. 2, 1883. Renewed Apr. 9, 1885. (No model.)

Claim.—1. In a fruit-drier, the combination of a stationary furnace or heater, a body mounted at one end upon said furnace and adjustable as to inclination independently thereof, and an adjustable device, substantially as described, supporting the opposite end of said body.

2. The combination, in a fruit-drier, of the stationary furnace, a laterally-extending flue hinged at one end to said furnace, adjustable independently thereof and communicating internally therewith, and the adjustable leg C at the opposite end of the body, as described and shown.

3. In a fruit-drier, the combination of the following elements: a body having longitudinal flues arranged one above another, a furnace or heater communicating with the body at the forward end, and means,

320,399.



substantially as described, for opening or positively closing direct communication between the flues at their forward ends, whereby the course of the air-currents may be controlled and varied, as described.

4. In a fruit-drier, the combination of a body having longitudinal flues, a furnace or heater communicating with said body at one end, and gates, substantially as described, for opening or closing the two ends of the upper flue at will, whereby said flue may be placed in communication with the furnace or completely isolated, as required.

5. In a fruit-drier, the furnace or heater, the body provided with overlying flues and communicating at one end with the furnace, the means for supplying bleaching-fumes to the upper flue, the chimney, and means, as described, whereby the upper flue may be closed and isolated or opened to permit the heated air to ascend through the same to the chimney for the purpose of discharging the bleaching-fumes therefrom.

6. In combination with the furnace or heater, the body provided with the chimney and with the three overlying flues communicating with each other at the rear end, and the gates or slides G and H for connecting or disconnecting the flues with each other at the forward ends.

7. The combination, in a fruit-drier, of the furnace or heater, the body having the three flues with the openings j and k at the rear end, and the gates G, H, and m, arranged as described.

8. In a fruit-drier, the combination of the furnace or heater, the body connected with said furnace and provided with horizontal or approximately horizontal flues located one above another, doors located at the ends of the respective flues and opening outward therefrom for the purpose of permitting the trays to be withdrawn and transferred from one flue to another, and slides or gates, arranged substantially as shown, for connecting and disconnecting the flues at their forward ends, whereby the heat produced may be permitted to ascend directly to the top of the apparatus or compelled to pass through the flues to the rear.

9. In combination with the bleaching flue or chamber, the furnace or heater, a conducting-pipe, I, and the sulphur pan or receptacle K, connected with and arranged to be heated by the furnace.

10. In combination with the stationary furnace and the body adjustable as to its inclination thereon, the hinged board g, whereby a close connection is maintained between the body and furnace.

11. In combination with the body, an approximately horizontal flue or chamber with a door at its ends, the reciprocating rack-bar N, and the hand-crank and pinion for operating the same, substantially as described.

12. In a fruit-drier having a horizontal or approximately horizontal flue, the pivoted gravitating frame q, substantially as described, to arrest the motion of the trays.

13. The combination of the stationary furnace, the body hinged thereto, and the hinged board or flap g.

14. The trays constructed, as shown, with the shoulders, the wide end bars, and the narrow side bars, whereby they are caused to interlock when placed one upon another and the circulation of air between them permitted.

15. A fruit-drier having a body with horizontal overlying flues, said body being constructed in horizontal separable sections, substantially as described, whereby it may be stowed in compact form for transportation.

320,400. MANUFACTURE OF STARCH.

JOHN C. SCHUMAN, Akron, assignor to William T. Jebb, Buffalo, N. Y. Filed May 13, 1885. (No specimens.)

Claim.—The herein-described method of extracting crude starch from Indian corn or maize, which consists in first steeping the corn, then thoroughly draining the corn, then coarsely grinding or crushing the corn, and then separating the crude starch from the coarse offal by sifting, substantially as set forth.

320,401. METHOD OF PREPARING AND TREATING STARCH.

JOHN C. SCHUMAN, Akron, assignor to William T. Jebb, Buffalo, N. Y. Filed May 13, 1885. (No specimens.)

Claim.—1. The herein-described method of extracting the starch from the corn and preparing the mash, which consists in steeping the corn, then draining the corn, then coarsely grinding or crushing the corn, then separating the crude starch from the coarse offal by sifting, and then mashing the separated starch, substantially as set forth.

2. The herein-described method of extracting the starch from the corn and preparing the mash, which consists in steeping the corn, then draining the corn, then coarsely grinding or crushing the corn, then separating the crude starch from the coarse offal by sifting, then developing the separated starch under pressure, and then mashing the developed starch, substantially as set forth.

3. The herein-described method of manufacturing distilled spirits from Indian corn, which consists in steeping the corn, then draining the corn, then coarsely grinding or crushing the corn, then separating the crude starch from the coarse offal by sifting, and then mashing, fermenting, and distilling the starch and the coarse offal separately, substantially as set forth.

320,402. MANUFACTURE OF STARCH. JOHN C. SCHUMAN, Akron, assignor to William T. Jobb, Buffalo, N. Y. Filed May 18, 1885. (No specimens.)

Claim.—1. The herein-described process of manufacturing refined starch from Indian corn, which consists in steeping the corn, then draining the corn, then coarsely grinding or crushing the corn, then separating the crude starch from the coarse offal by sifting, and then refining the separated crude starch, substantially as set forth.

2. The herein-described process of manufacturing refined starch from Indian corn, which consists in steeping the corn, then draining the corn, then coarsely grinding or crushing the corn, then separating the crude starch from the coarse offal by sifting, then grinding the separated crude starch with water, and then refining the ground starch, substantially as set forth.

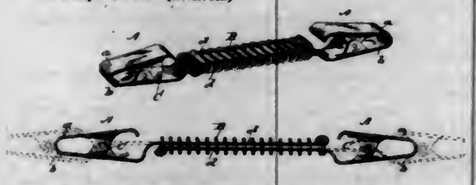
3. The herein-described process of manufacturing refined starch from Indian corn, which consists in steeping the corn, then draining the corn, then coarsely grinding or crushing the corn, then separating the crude starch from the coarse offal by sifting, then grinding the separated crude starch with water, then separating the remaining fibrous matter and offal from the starch by sifting with water, then treating the separated starch with caustic alkali, and then depositing the starch, substantially as set forth.

320,403. MANUFACTURE OF GRAPE-SUGAR AND GLUCOSE. JOHN C. SCHUMAN, Akron, assignor to William T. Jobb, Buffalo, N. Y. Filed May 18, 1885. (No specimens.)

Claim.—1. The herein-described process of manufacturing grape-sugar or glucose from Indian corn or maize, which consists in steeping the corn, then draining the corn, then grinding or crushing the corn, then separating the crude starch from the coarse offal by sifting, and then converting the separated crude starch into grape-sugar or glucose, substantially as set forth.

2. The herein-described process of manufacturing grape-sugar or glucose from Indian corn or maize, which consists in steeping the corn, then draining the corn, then grinding or crushing the corn, then separating the crude starch from the coarse offal by sifting, then grinding the crude starch with water, then acidulating the starch-liquid, and then converting it into grape-sugar or glucose, substantially as set forth.

320,404. CUFF-HOLDER. CHRISTOPHER C. SHELBY, New York, N. Y. Filed Apr. 7, 1885. (No model.)



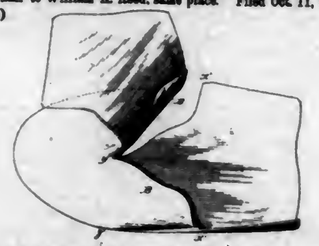
Claim.—As an improved article of manufacture, the herein-described cuff-holder, consisting of the spiral spring and the two clasps, each clasp having the rear portion of one of its jaws prolonged to form a shank which extends through the spring in opposite directions and connected to it at one end by being bent around one or more of the coils of the same, substantially as described.

320,405. SUSPENDER-BUCKLE. CHRISTOPHER C. SHELBY, New York, N. Y. Filed Apr. 22, 1885. (No model.)



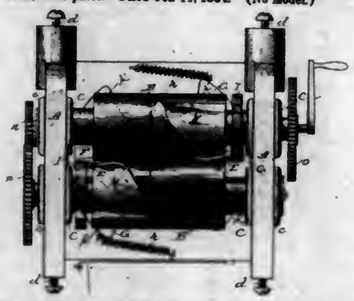
Claim.—In a suspender-buckle, the combination, substantially as described, of a buckle-frame having the two cross-bars and a locking-lever pivoted between them, and having the short inwardly-projecting clamping-jaw near its inner end, and having also a device—such as a hook—at its outer end for the connection of the suspender-end, whereby when the buckle is applied to the webbing or body of the suspender, as described, and the locking-lever is turned down, the short clamping-jaw of the lever will co-operate with the two cross-bars of the buckle-frame to securely hold the webbing, while the pull upon the outer end of the locking-lever will operate to keep said lever turned down, substantially as described.

320,406. SHOE. GEORGE W. SLEEPER, Westborough, Mass., assignor of one-half to William A. Reed, same place. Filed Oct. 11, 1884. (No model.)



Claim.—A shoe-upper having the front and side portions, B, of full thickness and the counter or upper part thereof formed out of the upper and under split portions of the blank, substantially as described.

320,407. MACHINE FOR SPLITTING THE UPPERS FOR SHOES. GEORGE W. SLEEPER, Westborough, Mass., assignor of one-half to William A. Reed, same place. Filed Oct. 11, 1884. (No model.)

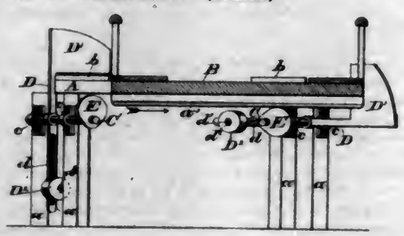


Claim.—1. The mode of forming a shoe-upper out of a blank of substantially the form described, the said mode consisting in splitting the leather of the blank a part of the distance from the rear of the blank toward the front, said portion so split being of substantially equal width, and then tapering the split portions to a point on the central longitudinal line of the blank, whereby lateral unsplit portions of the leather are left, all substantially as set forth.

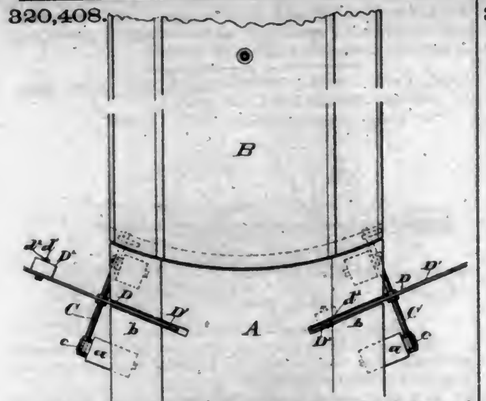
2. A machine for splitting uppers in accordance with the described plan, consisting of a pair of rollers having cylindrical portions and cut-away portions, said cut-away portions having the inclined sides terminating at or near the central line, and a knife arranged in the described relation to the rollers and to the inclined sides of the cut-away portions thereof, substantially as described.

3. A machine for splitting uppers, consisting of a pair of rollers having cylindrical portions and cut-away portions, said cut-away portions having the inclined sides terminating at or near the central line, in combination with a knife and means, substantially as described, for turning and varying the position of its edge, for the purpose set forth.

320,408. SAFETY-GATE FOR BRIDGES. LUTHER F. SMITH, Green Bay, Wis. Filed Jan. 13, 1885. (No model.)



320,408.

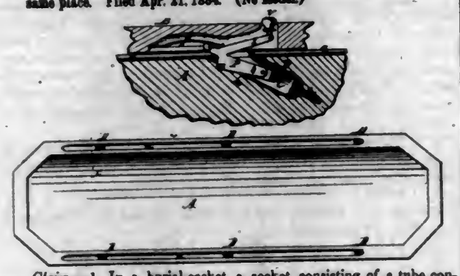


Claim.—The combination of rock-shaft C, eccentric E, the guard and its lever, and a weight on the latter with a turn-bridge, as set forth.

320,409. DECORATING WALL-HANGINGS AND OTHER FABRICS. WILLIAM SOCHERSKY, New York, N. Y. Filed Apr. 23, 1885. (Specimens.)

Claim.—As a new article of manufacture, a decorated fabric composed of a stiffened and embossed textile material—such as muslin—coated with a suitable liquid—such as a solution of shellac—and finally painted with suitable coloring-matters.

320,410. BURIAL-CASKET. WILLIAM A. SPARKS and NICHOLAS RAPPLETEA, Rochester, N. Y., assignors to the Stein Manufacturing Company, same place. Filed Apr. 21, 1884. (No model.)



Claim.—1. In a burial-casket, a socket consisting of a tube constructed with a beveled upper end and set into an inclined hole in the casket, so that the beveled end will stand level, in combination with a hook attached to the lid, projecting forward in an inclined direction to engage with the inclined edge of the socket, the socket being self-retaining in the wood by reason of its incline, as herein set forth.

2. In a burial-casket, the combination of inclined hooks on the under side of the lid, inclined tubes or sockets set into the edges of the casket to receive the hooks, and screws passing through the bottom of the tubes for adjusting the same higher and lower, as set forth.

3. In a burial-casket, the combination, with the hook and tube, of a catch pivoted to the hook and a slot formed in the tube with which the catch engages, the catch being provided with means by which it can be operated from the outside of the lid to disengage the parts, as set forth.

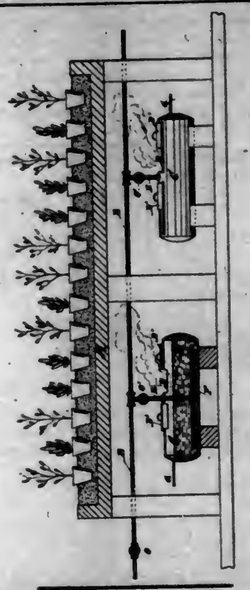
4. In a burial-casket, the combination of the tube D, provided with the slot *n*, the hook C, slotted in its center, the catch P, pivoted in the slot, and provided with a shoulder, *m*, which rests in the slot of the tube, and the thumb-knob *v*, pivoted to an arm, *s*, of the catch, as shown and described, and for the purpose specified.

320,411. VAPOR APPARATUS FOR HOT-HOUSES, &c. HERMANN STEINER, Brooklyn, N. Y., and MAX LIMPRICHT, Union Hill, N. J. Filed Apr. 3, 1885. (No model.)

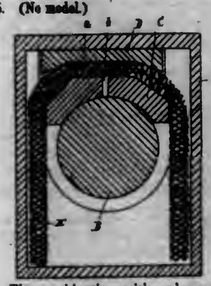
Claim.—The combination of a hot-house having shelf A, with inlet-pipe B, branch pipe E, tank C, having door D', and with cock to admit or exclude steam from the branch pipe, substantially as herein shown and described, and for the purpose specified.



320,411.



320,412. CAR-AXLE BOX. EDWD. B. STRONG, Detroit, Mich. Filed Apr. 29, 1885. (No model.)

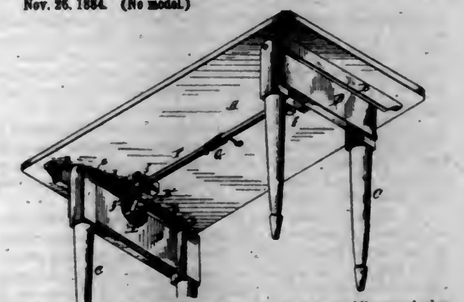


Claim.—1. The combination, with a channeled brass bearing, and with lubricating-wicks arranged upon either side of an oval center thereof, of a rocking block adapted to compress the wicks alternately, as and for the purposes set forth.

2. In a car-axle box, and in combination therewith and with a car-axle journal, a brass bearing having one or more lateral channels formed in its upper face, communicating with passages leading downward through such bearing, and a wedge between such bearing and the top of the box, the parts being constructed and operated substantially as and for the purposes set forth.

3. In a car-axle box, the bearing-brass C, having transverse channels *a* arranged upon either side of an oval center, and having perforations *b*, combined with the wicks E and the wedge D, having recesses *c*, and resting upon the oval center of the brass, as and for the purpose specified.

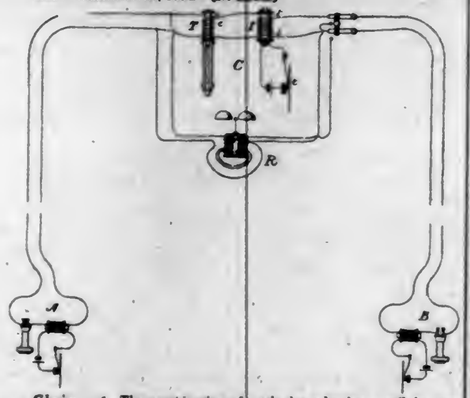
320,413. FOLDING TABLE. ORLANDO A. THAYER, Paris, Me. Filed Nov. 26, 1884. (No model.)



Claim.—In a folding table, the top A, having rigidly attached to the same transverse bar B B, with inwardly-projecting portion *b b*, be-

tween which are located recesses B', having shoulders *b'*, the legs C, connected to each other by cross-pieces D, having beveled recesses E, in combination with the central longitudinal bar, F, attached pivotally to the table-top, and provided at each end with projecting portions *f'*, with straight edges at their outer end, and spring G, embracing said bar, the ends of said spring being attached to the bar and table-top, substantially as shown, and for the purpose set forth.

320,414. TELEPHONE-CIRCUIT. HENRY S. THORNBERRY, Boston, Mass. Filed Nov. 20, 1884. (No model.)



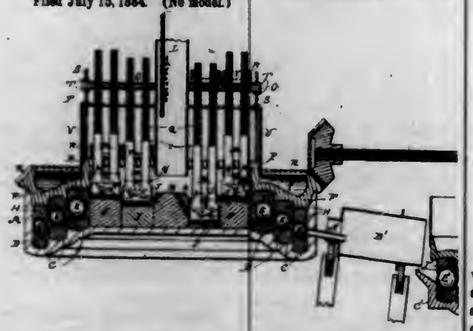
Claim.—1. The combination of a telephone having a coil in two sections and a metallic circuit, in the opposite sides of which the said coil-sections are respectively placed.

2. The combination of a metallic circuit and an electro-magnet having a coil in two sections, respectively located in opposite sides of said circuit.

3. The combination of a metallic circuit and an inductorium, the secondary coil of which is divided into two equal sections included in opposite sides of the said circuit, respectively.

4. The combination of a receiving-telephone having a coil or helix divided into two equal sections, an inductorium, the secondary coil of which is composed of two equal sections, and a metallic circuit, the opposite sides of which respectively include one section of coil of each of said instruments.

320,415. QUARTZ-MILL. JACOB G. TITUS, Elizabethtown, N. Mex. Filed July 15, 1884. (No model.)



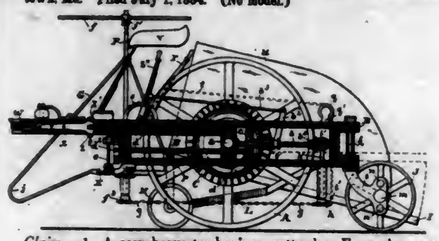
Claim.—1. A quartz-mill consisting of a tub having a circular groove or trough in its bottom, a series of balls placed in said trough, a rotary plate or cover having a corresponding circular groove and adapted to rotate on and with the balls, a battery of stamps carried by said cover and dies in the bottom of the tub for operating the stamps as the cover is revolved, substantially as shown and described.

2. The combination, with the tub A, provided with the cone B, having guide-grooves K and the inclined dies J arranged around the cone, of the rotating frame F and the stamps G, carried by said frame, and each composed of two standards and a die secured to their lower ends, substantially as herein shown and described.

3. The combination, with the tub A, provided with the central cone, B, having guide-grooves K and the inclined dies J arranged around the cone of the rotating frame F, provided with the apertured plates O P, the stamps G, the springs Q, surrounding the standards of the stamps, and the central hopper, L, projecting down through the frame over the cone, substantially as herein shown and described.

4. The combination of the stamp-die having a dovetail tenon and rib, the two parallel standards having recesses in their lower ends for said rib, and the bolt securing said standards together on opposite sides of said tenon, substantially as shown and described.

320,416. CORN-HARVESTING MACHINE. HENRY F. URIE, Chestertown, Md. Filed July 1, 1884. (No model.)



Claim.—1. A corn-harvester having a cutter-bar, E, a reel mounted on a vertical shaft, and gatherer-rods G, projecting before the cutter and bracing the reel-shaft, as set forth.

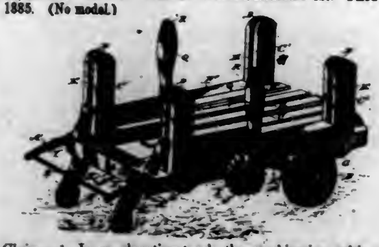
2. A corn-harvester having in combination a frame, B, having at its rear a pulley, *q*, and carried by a main wheel, A, a side wheel, H, a cutter-bar, E, a platform, I, having its front end hinged higher than the said cutter-bar, a brace-bar, L, extending from the said frame to the side wheel below the hinged platform, a lever, *r*, at the front of the frame, and a chain, *t*, having one end attached to the lever and the other to the platform, and passing over the said pulley *q*, as set forth.

320,417. PROCESS OF EXTRACTING ARSENIC AND MERCURY CONTAINED IN THE RESIDUES OBTAINED IN THE DISTILLATION OF MERCURIAL ORES. ALEXANDRE VAN STRAALEN, Pola de Lena, Asturias, Spain. Filed Mar. 9, 1885. (No specimens.) Patented in Spain Mar. 22, 1884; in Austria-Hungary Dec. 29, 1884, and in Italy Dec. 31, 1884.

Claim.—1. The process herein described for the extraction of mercury and arsenic contained in the residues or soot obtained in distilling their ores by heating said residues or soot gradually in a close vessel under pressure to the temperature required for decomposing the mercurial and the arsenical compounds and condensing the products of distillation, the decomposition of said compounds being assisted by suitable reagents, to the action of which they are subjected, substantially as described.

2. The process of separating arsenic and mercury by heating the mass and thereby melting the arsenical compound and volatilizing and condensing the mercury, substantially as described.

320,418. TRUCK. JOHN R. WALKER, Richland Mo. Filed Apr. 22, 1885. (No model.)



Claim.—1. In an elevating-truck, the combination, with a transverse shaft for operating the same, and having a pawl and ratchet-wheel at each side of the truck, of a rock-shaft having arms connected with the said pawls and adapted to throw them out of action, and a foot-lever for operating said rock-shaft and adapted to act as a brake at the same time that it causes the pawls to be disengaged, substantially as and for the purpose set forth.

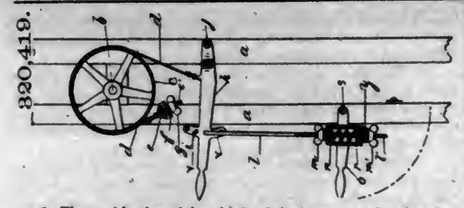
2. In an elevating-truck, the combination, with the ratchet-wheels for operating said mechanism, of a hollow slotted handle, a rod passing through said handle, the lower end of which engages with the ratchet-wheel, and the upper end is bent at an angle and projects through said slot, and a hook for engaging with the said bent portion and keeping the lower part from engaging with the said pawl, substantially as and for the purpose set forth.

320,419. FRICTION ATTACHMENT FOR FLOUR-PACKERS. CHAS. F. WALTERS, Richmond, Ind., assignor to the Richmond City Mill Works. Filed May 6, 1885. (No model.)

Claim.—1. The hinged lever *h*, provided with the projections *v v*, having holes *i*, combined with the belt *d* and rod *l*, as and for the purposes herein described.

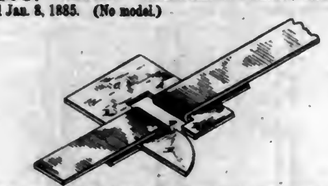
2. The case *n*, provided with projection *n'*, in combination with rod *l*, collar *y*, spring *r*, nuts *m m'*, and lever *o*, substantially in the manner and for the purposes herein described.

320,419.



3. The combination of the wheel *c*, belt *d*, constructed as described, lever *h*, rod *l*, case *n*, spring *r*, and lever *o*, as and for the purposes set forth.

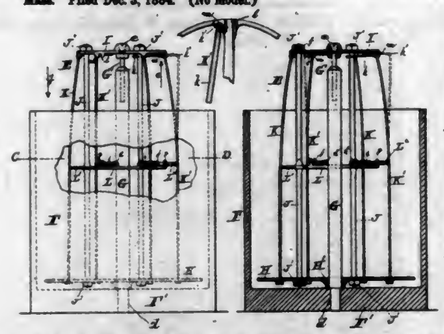
320,420. BALE-TIE. CHRISTOPHER C. WARREN, Meridian, Miss. Filed Jan. 8, 1885. (No model.)



Claim.—1. A bale-band tie or buckle having one side extended beyond the general contour of the said tie, and curved from its outer edge toward an opening in the same, where the extension is shouldered, substantially as and for the purpose specified.

2. A bale tie or buckle consisting of two parallel sides, connected at one end by a cross-piece, one side having an angle-extension, and the other a direct extension, which is curved from its outer edge toward an opening in the tie, where it is shouldered, substantially as and for the purpose specified.

320,421. WIRE REEL AND TUB. EDWARD L. WARREN, Worcester, Mass. Filed Dec. 3, 1884. (No model.)



Claim.—1. The combination of the bottom frame part, H, provided with a central vertical opening, and with sockets to receive the lower ends of guard-rods K K', and frame part L, provided with sockets, guides, stops, and a central pivot-screw, for the purpose described, with the holding-rods J, their nuts J', standard G, guard-rods K K', central frame part L, provided with stationary and sliding braces, and the tub or jar F, constructed and arranged substantially as shown and described, for the purpose stated.

2. The combination of the stationary and adjustable guard-rods K K' with the bottom frame part, H, provided with a central vertical opening, and with sockets to receive the lower ends of said guard-rods K K', frame part L, provided with stationary and sliding braces, top frame, I, provided with sockets, guides, and stops for the rods K K', frame-holding rods J, and their nuts J', substantially as and for the purposes set forth.

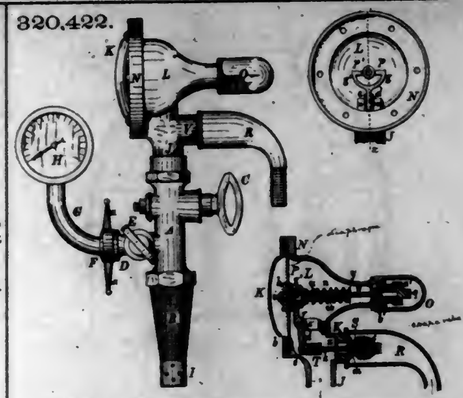
3. The combination of the stationary and adjustable guard-rods K K' with the frame part L, provided with stationary braces L', sliding braces L^2, guides *g h*, and spiral springs *i*, substantially as and for the purpose set forth.

4. In a wire-reel, the combination of the top frame, I, provided with guides *l* and stops *m*, with the adjustable guard-rods K', substantially as and for the purpose stated.

5. The combination of the tub or jar F, made of earthenware or similar material, with the standard G and wire-reel E, substantially as and for the purpose set forth.

320,422. PRESSURE-REGULATOR FOR FERMENTING LIQUIDS. MARION WARREN, Rochester, N. Y. Filed Mar. 11, 1885. (No model.)

320,422.



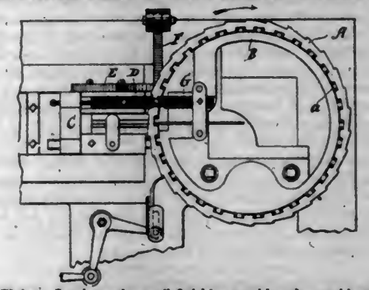
Claim.—1. In a pressure-regulating bung, the combination, with the diaphragm-chamber L, provided with inlet-pipe J and outlet-pipe V, of the diaphragm P, spring *n*, valve-stem *e*, adjusting-screw *q*, lever *d*, and the normally-closed valve S.

2. In a pressure-regulating bung, the combination, with the diaphragm-chamber L, provided with inlet J and outlet V, of the diaphragm P, the adjustable spring, the stem having the grooved head, the forked lever *d*, and the normally-closed valve S.

3. The pressure-regulating attachment for single casks, consisting of the body or chamber L, provided with the bung B, the diaphragm P, the valve S, the intermediate centrally-pivoted lever, *d*, and the adjustable spring *n*, combined for joint operation, as described and shown.

4. In a pressure-regulator for attachment to individual casks containing fermenting liquids, the tubular body provided with the threaded bung or plug, in combination with the diaphragm-chamber, the vertically-arranged diaphragm, the spring connected therewith, the horizontally-moving valve S, and the connecting-lever *d*, said parts constructed and combined for joint operation, substantially as described, whereby the vertical vibration of the cask is prevented from moving the diaphragm and valve.

320,423. MACHINE FOR MARKING HORSESHOE-NAILS. CHARLES W. WOODFORD, Essex, N. Y. Filed Feb. 25, 1885. (No model.)



Claim.—In a horseshoe-nail-finishing machine, the combination, with an intermittently-rotating ring carrying in pockets nail-blanks or nails, of a tripping device for raising and holding the heads of such nails above the surface of the ring, and a reciprocating die or dies for impressing the desired device on each nail-head, substantially as described.

320,424. LAMP AND LAMP-SHADE. GEO. W. WOODWARD, Brooklyn, N. Y. Filed Sept. 19, 1884. (No model.)

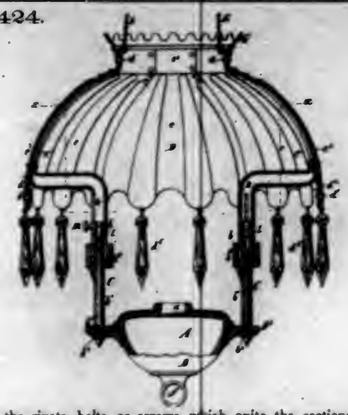
Claim.—1. The combination, with a shade and reservoir-holder, of extensible and contractible suspenders extending from the shade to the reservoir-holder, substantially as specified.

2. The combination of a reservoir-holder, a metal shade, suspenders extending from the metal shade to the reservoir-holder, and chains or suspending devices connected to the shade, substantially as specified.

3. The combination, with a shade composed of sections, of rivets, bolts, or screws uniting them together, and ornaments fastened to the

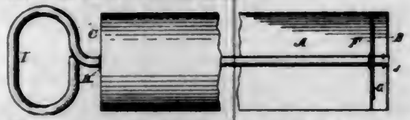


320,424.



shade by the rivets, bolts, or screws, which unite the sections of the shade, substantially as specified.

320,425. HAND FIRE-EXTINGUISHER. JAMES S. ZERBE, Hartwell, Ohio. Filed Jan. 28, 1885. (No model.)



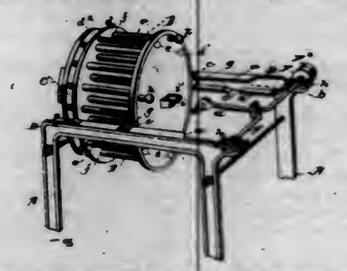
Claim.—1. A portable fire-extinguisher consisting of a tube, A, a piston-rod provided with a perforated piston and a loose disk or valve, a perforated head, B, adapted to receive the end of the piston-rod, and the latter held by means of solder applied substantially as described.

2. In a hand fire-extinguisher, the tube having at each end a plain head centrally perforated, provided with a plunger or piston-rod within having at its outer end the handle I and on its inner end the head F and valve G, said rod resting in the apertures or openings of the heads, so that when said plunger or rod is soldered to the said heads the tube will be hermetically sealed, substantially as herein set forth.

3. In a hand fire-extinguisher, the piston-rod or plunger within the tube having a suitable head and valve within, with the opposite ends of said rod resting and closing up the central orifice of the heads, and soldered to said heads by fusible solder, so that by a torsional movement of the plunger it is wrenched from the heads, the said plunger can be reciprocated within the tube, and the inner end of the rod being removed from the orifice of the forward end an opening will be formed sufficiently large to eject the contents of the fluid therefrom, substantially as herein set forth.

4. In a hand fire-extinguisher, the tube A, having the plain heads B C centrally perforated, in combination with the plunger or piston-rod E within said tube and secured in the central orifices of said heads or ends by means of fusible solder or otherwise, said rod having a perforated head and valve, and on its outer end the handle, the whole arranged as and for the purpose substantially as herein set forth.

320,426. CREAM-TESTING CHURN. NATHANIEL S. ANDREWS, Dubuque, Iowa, assignor of one-half to Hiram F. Burnap, same place. Filed Feb. 14, 1885. (No model.)



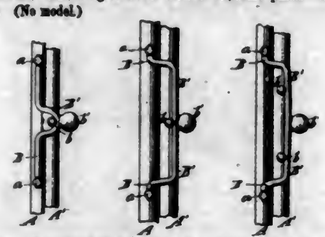
Claim.—1. The combination, with a churn-body having lugs, of the supporting-frame A, with beams B B, having upper flanges, *a*, provided with slots *c*, and lower flanges, *a'*, provided with slots *c'*, arranged substantially as and for the purposes set forth.

2. The frame or churn C, for holding the milk or cream vessels, consisting of the perforated disk *d*, the correspondingly-recessed disk *d'*, the intermediate connecting rods or bolts, *e*, the center rod or bolt, E, and its nut E', and the covering or fastening disk d^2, combined substantially as and for the purposes set forth.

3. The combination of the frame or churn C, provided with the guides or lugs *g g*, and the supporting-frame A, with beams B B, having the flanges *a*, provided with the slots *c*, and the lower flanges, *a'*, provided with the slots *c'*, beveled on one side, substantially as described, and for the purposes set forth.

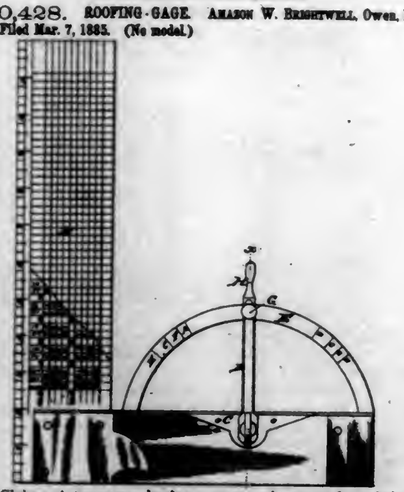
4. The frame or churn C, having the center rod or bolt, E, provided with bracket *i'* and pin *i*, and the supporting-frame A, provided with the crank-shaft F, gearing for driving said shaft, and a connecting-pitman, G, having the hooked end G', all combined and arranged substantially as and for the purposes set forth.

320,427. BAG AND POCKET-BOOK FASTENER. CHARLES BLUM, New York, N. Y., assignor to R. Wolf & Co., same place. Filed Apr. 7, 1885. (No model.)



Claim.—The combination, with the two portions A A' of a pocket-book or bag frame, of a fastening consisting of a crank or bail having its two ends pivoted in line with each other to the frame portion A and deflected or offset between its ends, and one or more pins or studs, *b*, fixed to the frame portion A' between the pivotal points of the crank or bail, and with which the offset portion of the crank or bail may be engaged to hold the frame portions together, substantially as herein described.

320,428. ROOFING-GAGE. AMASON W. BRIGHTWELL, Owen, Ind. Filed Mar. 7, 1885. (No model.)



Claim.—A try-square having a segmental strap and a radial arm adjustable upon the latter, said segment being graduated and marked with letters, and the blade of the try-square being provided with a scale having three vertical columns giving various pitches for roofs, and letters corresponding with those upon the segment, indicating the angles for the ends of rafters, and horizontal rows of figures indicating the width of buildings and the length of rafters, the whole arranged and adapted to operate substantially as and for the purpose herein set forth.

320,429. TOY. WILLIAM M. CAMPBELL, London, England. Filed July 14, 1884. (No model.) Patented in England May 8, 1884, No. 7,441; in Germany July 5, 1884, No. 30,069; in Belgium July 5, 1884, No. 65,599, and in France July 5, 1884, No. 163,165.



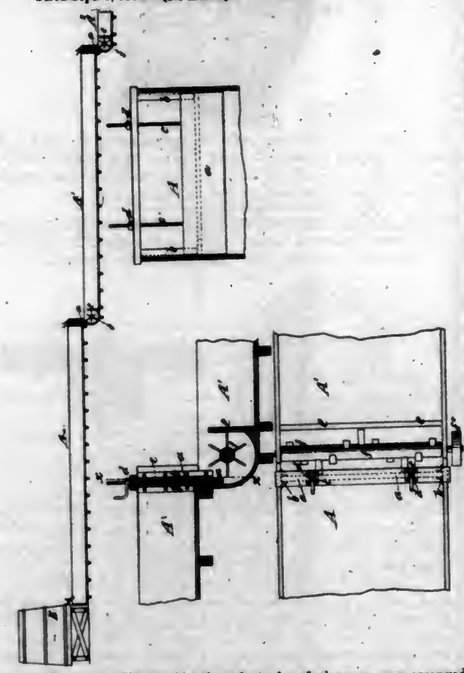
Claim.—1. The combination of one or more imitation snakes coiled in the form of uniform helices or spirals, and a support or supports therefor, provided with passage-ways forming a suitable spiral path for each snake along which it may travel by gravity, substantially as herein specified, as a new toy.

2. The combination, in a toy, of one or more imitation snakes coiled in the form of uniform helices or spirals, and a support or supports therefor, provided with corresponding passage-ways in the form of holes conformed to a spiral path or paths, substantially as herein specified.

3. The combination, with a support or supports having passage-ways in the form of holes conformed to a spiral path or paths, of imitation snakes, one or more, coiled in the form of uniform helices or spirals, each extending through two or more of said holes, and provided with a movable part having a tappet projection to engage with the walls of said holes as the snake passes therethrough, substantially as herein specified.

4. The combination, in a toy, of one or more imitation snakes coiled in the form of uniform helices or spirals, a support or supports therefor, provided with a passage-way or passage-ways, forming a suitable spiral path for each snake, and a wheel within which said supports are mounted, substantially as herein specified.

320,430. STARCH-DEPOSITING PLANE. WESLEY DURYEA, Brooklyn, assignor to the Glen Cove Manufacturing Company, Glen Cove, N. Y. Filed Sept. 5, 1884. (No model.)



Claim.—1. The combination of a series of planes or runs arranged one in advance of another, with the tail of each resting on the head of the next, and a transverse partition in the head of each plane or run in advance of the first, and forming therein a weir, over which the starch-milk flows, substantially as and for the purpose herein described.

2. The combination of a series of planes or runs arranged one in advance of another, with the tail of each resting on the head of the next, transverse partitions forming weirs in the heads of said planes or runs, and stirrers or agitators for preventing the deposit of starch behind said partitions or weirs, substantially as and for the purpose herein described.

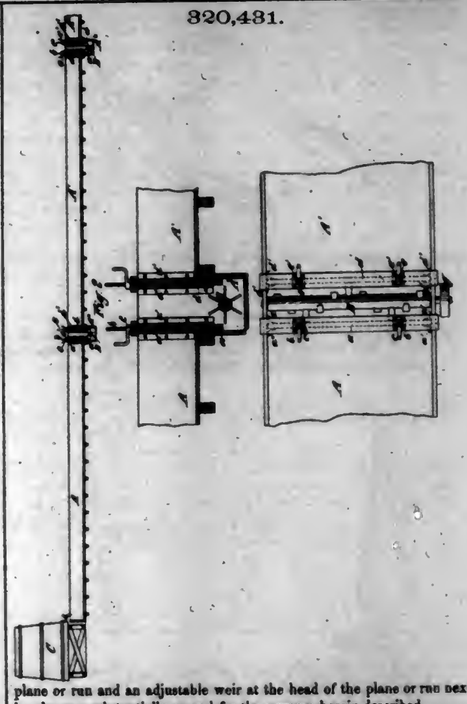
320,431. STARCH-DEPOSITING PLANE. WESLEY DURYEA, Brooklyn, assignor to the Glen Cove Manufacturing Company, Glen Cove, N. Y. Filed Sept. 5, 1884. (No model.)

Claim.—1. The combination of a number or series of planes or runs arranged one in advance of another, and having between the tail of each plane or run and the head of the next a drop, pocket, or cavity, substantially as and for the purpose herein described.

2. The combination of a number or series of planes or runs arranged one in advance of another, and having between the tail of each plane or run and the head of the next a drop, pocket, or cavity, and a stirrer or agitator in each drop, pocket, or cavity, substantially as and for the purpose herein described.

3. The combination of a series of planes or runs arranged one in advance of another, and having an adjustable gate at the tail of each

320,431.

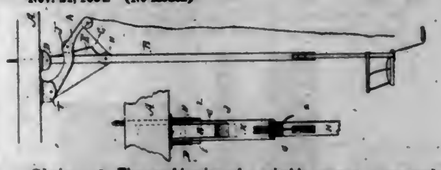


plane or run and an adjustable weir at the head of the plane or run next in advance, substantially as and for the purpose herein described.

4. The combination, with a series of planes or runs arranged one in advance of another, of a drop, pocket, or cavity between the tail of each plane or run and the head of the next plane or run, an adjustable gate at the tail of each plane or run and an adjustable weir at the head of the next plane or run, substantially as and for the purpose herein described.

5. The combination, with a series of planes or runs arranged one in advance of another, and connected by drops, pockets, or cavities, of an adjustable gate at the tail of each plane or run, an adjustable weir at the head of the next plane or run, and stirrers or agitators in said drops, pockets, or cavities, which prevent the deposit of starch therein, substantially as and for the purpose herein described.

320,432. SWING. WILLIAM W. ELLIOTT, Galveston, Tex. Filed Nov. 21, 1884. (No model.)



Claim.—1. The combination of a suitable support, a suspension-hook, a single hanger, and suitable castings, which are applied to opposite sides of the upper end of the hanger for the purpose of guiding its movement, substantially as shown.

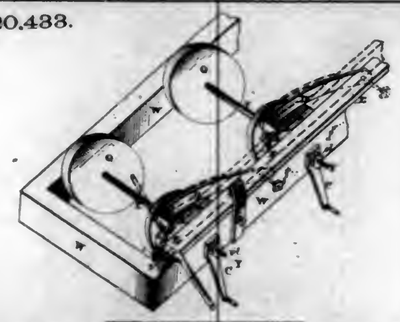
2. The combination of a suitable support, a single hanger having its width increased at that point where the friction-roller of the operating-lever bears against it, with the operating-lever provided with a friction-roller to bear against the front edge of the hanger, a second roller, over which the cord passes, a friction-roller attached to the hanger, and an operating-cord, substantially as set forth.

320,433. WIRE-STRETCHER. FRANCIS M. EWERS, Edison, Ohio. Filed Nov. 18, 1884. (No model.)

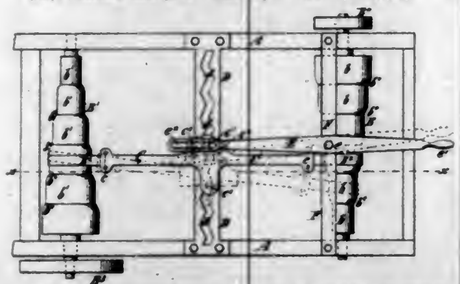
Claim.—The combination of the inclined frame which is supported at one end by a wheel, the rods which are passed through the frame, the disks and ratchets which are placed upon the rods and between which the spools are held, the pawls, and the rod for operating the pawls, substantially as shown.



320,433.



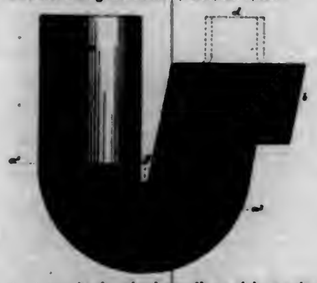
320,434. PULLEY AND BELT-SHIPPER FOR MACHINERY. WILLIAM H. GRAY, Brooklyn, N. Y., assignor to the Glen Cove Machine Company, (Limited,) same place. Filed May 11, 1885. (No model.)



Claim.—1. The combination, with a pair of reversely-set stepped-cone pulleys and a belt driving from one to the other of them, of a belt-shipper consisting of a bar having shipper-forks at its opposite ends engaging the belt, a zigzag or serpentine guide to which the belt-shipper is fitted, and a hand-lever connected with the belt-shipper and serving to move the same along said serpentine or zigzag guide, whereby in moving the belt-shipper one end and fork will be moved in advance of the other in order to shift the belt from a step of one cone-pulley onto a step smaller in diameter before it is shifted from a step of the other cone-pulley onto a step larger in diameter, substantially as herein described.

2. A pair of reversely-set stepped-cone pulleys having inclined or bevel shoulders joining their steps, in combination with a belt driving from one to the other of them, a belt-shipper, and a hand-lever for operating the belt-shipper, substantially as and for the purpose herein described.

320,435. TRAP FOR SOIL AND OTHER PIPES. SAMUEL S. HELLYER, London, County of Middlesex, England. Filed Oct. 10, 1884. (No model.) Patented in England Mar. 25, 1880, No. 1,269.



Claim.—1. A trap having the descending or inlet portion *a*, where it runs into the bowl-like part of the trap, translated into a form about square in cross-section, and of a cross-sectional area about equal to a square, one side of which equals in length the diameter of the cylindrical portion *a* of the trap.

2. In a trap having the bowl portion about square in cross-section, and having the descending or inlet pipe cylindrical in shape and of less area in cross-section than the bowl portion, but translated into the square form of the latter, as described, the dip *e*, extending down, so as to make the cross-sectional area of the bowl portion of the trap less at the locality immediately beneath said dip, all substantially in the manner and for the purposes hereinbefore described.

3. The trap hereinbefore described having the top portion, or that part located immediately over the up-stand, made flat and in a plane which is nearly at right angles to the line of the up-stand or ascending portion of the trap, substantially as and for the purpose described.

4. In the water-closet trap herein shown and described, in which the bowl-like, the ascending portion, and the outflow portion are all square in cross-section, the formation of the upper part of the trap with an angle at the point *c*, substantially as and for the purpose set forth.

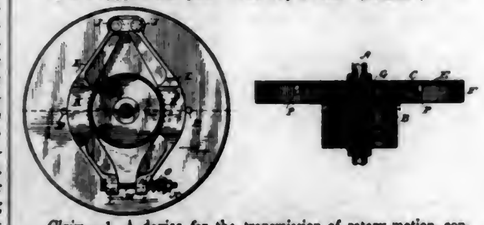
5. In the water-closet trap herein shown and described, composed of a single piece and having the bowl-like, the up-stand, and also the outflow portions about square in cross-section, the formation of the trap so as to present an angle at the line *e*, all substantially as and for the purposes hereinbefore set forth.

320,436. SCRUBBING-BRUSH. WILLIAM R. HOCK, Catasauqua, Pa., assignor of one-half to James Seyfried, same place. Filed Oct. 14, 1884. (No model.)



Claim.—In a scrubbing-brush, the combination of the brush A B, plates or castings H, having recessed cheeks G, and slotted diverging arms I, and handle-socket E, having a ball, F, at its lower end, substantially as and for the purpose herein shown and specified.

320,437. DEVICE FOR TRANSMITTING ROTARY MOTION. SVEN JÖNSSON, Copenhagen, Denmark, assignor to Burmeister & Wain's Maskin, og Skibsbyggeri, same place. Filed May 4, 1885. (No model.)



Claim.—1. A device for the transmission of rotary motion, consisting of friction devices arranged to engage a flanged pulley until the speed of rotation exceeds a certain limit, when, by the centrifugal action thus produced, they shall be thrown out of engagement, substantially as herein described, for the purpose shown and specified.

2. In a device for transmitting rotary motion, the combination of a fixed pulley, a loose band-wheel adjoining the same, friction devices pivoted or arranged to slide radially upon the side of the band-wheel adjoining the pulley, and adapted to engage the latter, or a flange extending laterally therefrom, a spring or springs arranged to force the said friction devices into contact with the pulley or its flange, and means for regulating the tension of the said spring or springs, substantially as and for the purpose herein set forth.

3. In a device for transmitting rotary motion, the combination, with a shaft, of a fixed pulley, a loose band-wheel adjoining the same, a pair of arms pivoted to the said band-wheel and adapted to bear against the sides of the said pulley, a bolt connecting the free ends of the said arms, and a spring arranged between the free end of one of said arms and the head or nut of the said bolt, substantially as and for the purpose set forth.

4. In a device for transmitting rotary motion, the combination, with a shaft, of a fixed pulley, a loose band-wheel adjoining the same, a pair of arms pivoted to the said band-wheel, and having concave, thickened, or re-enforced serrated portions adapted to bear against the said pulley, and a spring or springs arranged to force the said arms into contact with the said pulley, substantially as and for the purpose set forth.

5. In a device for transmitting rotary motion, a loose band-wheel having a pair of pivoted arms adapted to bear frictionally against the sides of a fixed pulley adjoining the said band-wheel, a spring mounted upon a bolt connecting the free ends of the said arms between one of said arms and the head or nut of said bolt, and acting to force the said arms into frictional contact with the pulley, and stop-studs arranged upon the face of the band-wheel to prevent the outward movement of the pivoted arms more than sufficiently to release their bite upon the pulley when the centrifugal power acting upon the said arms shall overcome the tension of the spring, substantially as and for the purpose herein set forth.

320,438. TELEPHONE-SUPPORT. THOMAS W. LANE, Boston, Mass. Filed Mar. 30, 1885. (No model.)



Claim.—1. A telephone-support composed of an extensible and contractible oscillating standard, connected at its lower end to a support and adapted to hold a telephone at its upper end, as set forth.

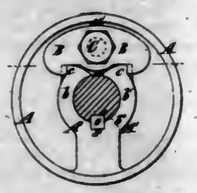
2. A telephone-support composed of two telescopic sections, the one formed at its lower end to be universally pivoted to a support, and the other adapted to hold a telephone at its upper end, and provided with wings or arms formed to bear on the operator, as set forth.

3. A telephone-support composed of two telescopic sections, the one having a yielding piston or washer within the other, as set forth.

4. The combination of a chair or support and a telephone-holding extensible and contractible standard pivotally connected thereto, as set forth.

5. The combination of a chair or support, a telephone-holding extensible and contractible standard pivotally connected thereto, and provided with wings or arms formed to bear upon the operator, as set forth.

320,439. SHAFT-COUPLING. EDWARD D. MACKINTOSH, Brooklyn assignor to Paul Pryibil, New York, N. Y. Filed May 13, 1885. (No model.)



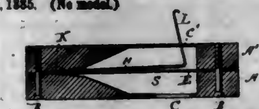
Claim.—1. In a shaft-coupling, the combination, with a longitudinally-divided clamp having adjacent projections on opposite sides of its line of division, of a yoke fitted to the said projections and operating with a wedge-like action thereon for clamping the coupling upon shafts when moved in a direction lengthwise of the coupling, substantially as herein described.

2. In a shaft-coupling, the combination, with a longitudinally-divided clamp having adjacent projections on each side of its line of division, the outer or opposite edges of said projections being divergent from each end of the coupling inward, of yokes having their jaws or recesses correspondingly divergent and fitted to the said projections, and a bolt whereby said yokes may be drawn inward from opposite ends of the coupling or toward each other, in order to cause them to operate with a wedge-like action upon the projections of the clamp, substantially as herein described.

3. In a shaft-coupling, the combination, with a longitudinally-divided clamp, A', having on opposite sides of its line of division projections *c* the outer edges of which diverge from each end of the clamp inward, of yokes B B', fitted to the said projections, and a tightening-bolt, C, passing through one yoke and screwed or tapped into the other yoke, substantially as herein described.

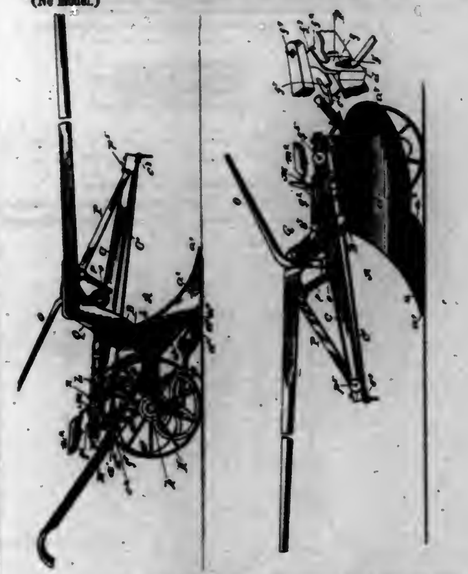
4. In a shaft-coupling, the combination, with a longitudinally-divided clamp consisting of two jaws, one of which is divided transversely midway of the length of the clamp, and which have on opposite sides of the line of longitudinal division projections *c*, of yokes embracing said projections and operating with a wedge-like action thereon when moved lengthwise of the clamp, in order to tighten said clamp upon two adjacent shafts, substantially as herein described.

320,440. MOUTH-HARP. JOHN MCMANEL, Louisville, Ky. Filed Apr. 27, 1885. (No model.)



Claim.—The combination of the plate E and reed H, having a finger-piece, L, with the case A A', substantially as described, and for the purpose set forth.

320,441. PLOW. CHARLES E. MURRAY, Brandt, Ohio; Samson Boyer, administrator of said Charles E. Murray, (deceased,) assignor to Gowdy & Snyder, same place. Filed Aug. 6, 1884. Renewed May 16, 1885. (No model.)



Claim.—1. The combination, with the plow-beam, of the two-part standards having slots and serrated faces for vertical adjustment, and having the transverse downwardly-bent flanges and the bolts having the lower hook-shaped ends engaging the said flanges, as and for the purpose shown and set forth.

2. The combination of the inclined spindle for the brace-wheel, said spindle consisting of a hollow truncate-conical upper portion having a perforation at its upper and lower end, and having a wick-aperture at its upper side, and a shorter truncate-conical lower portion having a recess, the inclined brace-wheel having a conical bore in its hub, and having the upper end of the said bore beveled, the cap having the beveled lower edges and the collar at its top, the dirt-excluding cap fitting with its central aperture around the collar of the aforesaid cap and covering the hub, the bolt passing through the spindle, the nut and washer fitting upon the end of the said bolt, the flexible packing-disk fitting around the bolt at its head, and the soft-metal filling in the recess in the lower end of the spindle, as and for the purpose shown and set forth.

3. The combination, with a plow and a riding attachment, of an elbow-arm pivoted at its bend to the side of the riding attachment and pivoted at the end of one arm to the forward end of the plow-beam, an extensible arm pivoted to the side of the riding attachment at one end and with a universal joint at the other end to the rear end of the plow-beam, and a hand-lever pivoted between the ends of the arms upon the

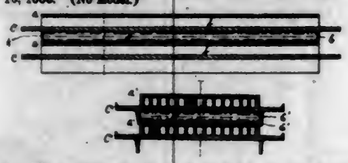
side of the riding attachment, and having a roller at the end of its shorter lower arm adapted to bear against the rear bent arm of the elbow-arm and against the inner end of the extensible arm, as and for the purpose shown and set forth.

4. The combination, with a plow and a riding attachment, of the arm P, pivoted to the side of the riding attachment, having its forward end perforated at p^4 and provided with the flat spring p^2, having perforation p^3 at its end, and the bolt p^5, bearing with its head against the spring, passing through the perforations in the spring and in the arm secured in the forward end of the plow-beam, as and for the purpose shown and set forth.

5. The combination of the curved flanged backbone L, fitting over a portion of the periphery of the riding-wheel, and having a longitudinal slot, P, formed with a T-shaped portion at its upper end, the curved seat-spring M, and the notted bolt n, passing through the lower end of the spring and sliding in slot P, bearing with its nut m against the upper sides of the edges of the slot, as and for the purpose shown and set forth.

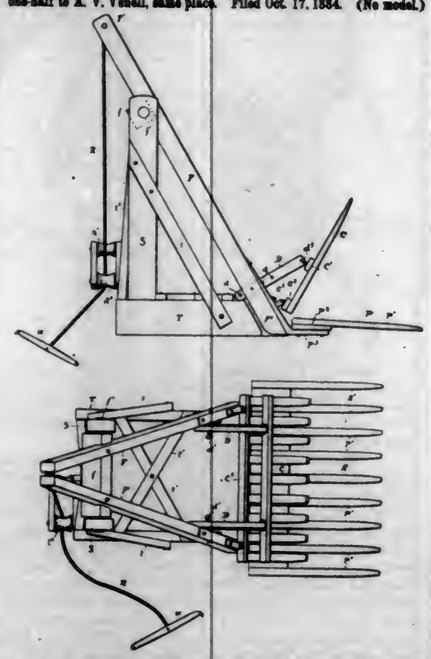
6. The combination, with the plow and the riding attachment, of the extensible arm Q, pivoted to the side of the riding attachment, and having the lips q^4 at its othes end, the bolt q^5, pivoted with its flat head between the lips, having laterally-projecting lugs q^6 at the edges of the head, and secured to the rear end of the plow-beam, and the cam-lever q^7, having the inclined teeth q^8 upon the outer face of its inner end pivoted upon bolt q^6, and adapted to wedge with its teeth under the lugs upon the head of the bolt, as and for the purpose shown and set forth.

320,442. OIL-PRESS MAT. GEORGE OLIVER, Charlotte, N. C. Filed Apr. 15, 1885. (No model.)



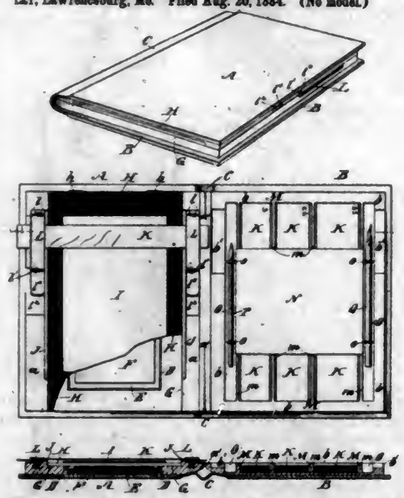
Claim.—The combination, in an oil-press box, of a perforated plate, and a cloth woven with cotton threads longitudinally and woolen or hair threads crosswise.

320,443. HAY-STACKER. HENRY ORCHARD, Peoria, Ill., assignor of one-half to A. V. Vesell, same place. Filed Oct. 17, 1884. (No model.)



Claim.—The standard consisting of upright beams *s*, horizontal timbers T, and braces t t' and t^2, in combination with the beam *f* and gudgeons f', adapted to revolve in bearings at the upper ends of said beams *s*, triangularly-arranged frame-beams F, rigidly secured to said beam *f*, a rope, R, fastened to the end F' of said frame-beams and passing between sheaves R' R^2, the skeleton platform P, affixed to the ends F^2 of said frame-beams by the angle-irons P^2, the teeth *c*, having securing cross-boards c' c^2, hinges c^3, for pivotally holding said teeth to the said frame F, the perforated braces D', pivoted to said teeth, and the pins d'', whereby said teeth may be angularly adjusted, substantially as and for the purpose specified.

320,444. CASE FOR COPY-BOOKS AND COPIES. DANIEL A. RADLEY, Lawrenceburg, Mo. Filed Aug. 20, 1884. (No model.)



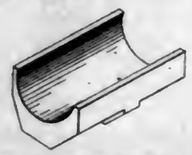
Claim.—1. A copy book or case made in two parts, A B, connected at C, to open and close, as specified, and said part A having the recesses D G, the hinged plate H, slated on the outer face, and the hinged copy-slip clamps L L, and said part B having a series of recesses or pockets, M, for the copy-slips K, a cap, N, spanning the pockets and leaving them open at both ends, and pen and pencil recesses O O, substantially as shown and described.

2. The part A of the copy-case made with the recess D, the recess G, a hinged plate, H, lying in the recess G and forming the cover to the recess D, and forming, also, the writing-tablet, and the clamp-plates L L, for holding the copy K over the tablet, substantially as shown and described.

3. The part A of the copy-case made with the recess D, the recess G, a hinged plate, H, lying in the recess G and forming the cover to the recess D, and forming, also, the writing-tablet, and the clamp-plates L L, for holding the copy-slips K over the tablet, and the outer face of the plate H being slated for pencil-writing, substantially as shown and described.

4. The part A of the copy-case made with a hinged writing-tablet, H, and copy-slip clamps at each side of the tablet, and said tablet extending from and between opposite edges of the case to afford free passage of the copy-book or paper I under the copy-slip, substantially as shown and described.

320,445. JOURNAL-BEARING AND METALLIC COMPOUND THEREFOR. ARTHELOW M. RANDOLPH, Brainerd, Minn., assignor to himself, and James G. Butterfield and J. S. Wheeler, both of Sioux City, Iowa. Filed Apr. 2, 1885. (No model.)



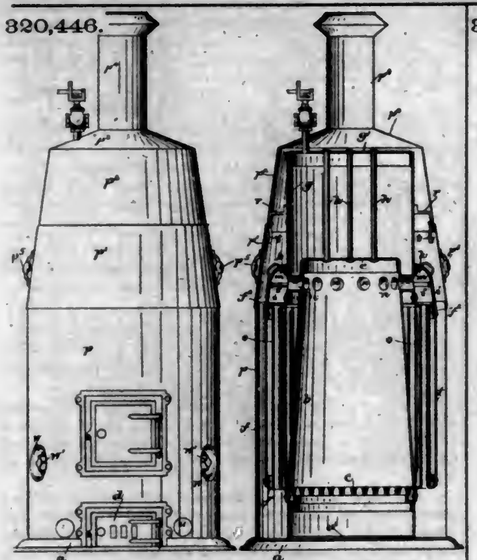
Claim.—1. The new metallic compound consisting of lead, tin, zinc, antimony, and phosphorus, in the proportions substantially as set forth.

2. The journal-bearing cast in one solid piece, like a brass bearing, and composed of lead, tin, zinc, and antimony, in the proportions substantially as described.

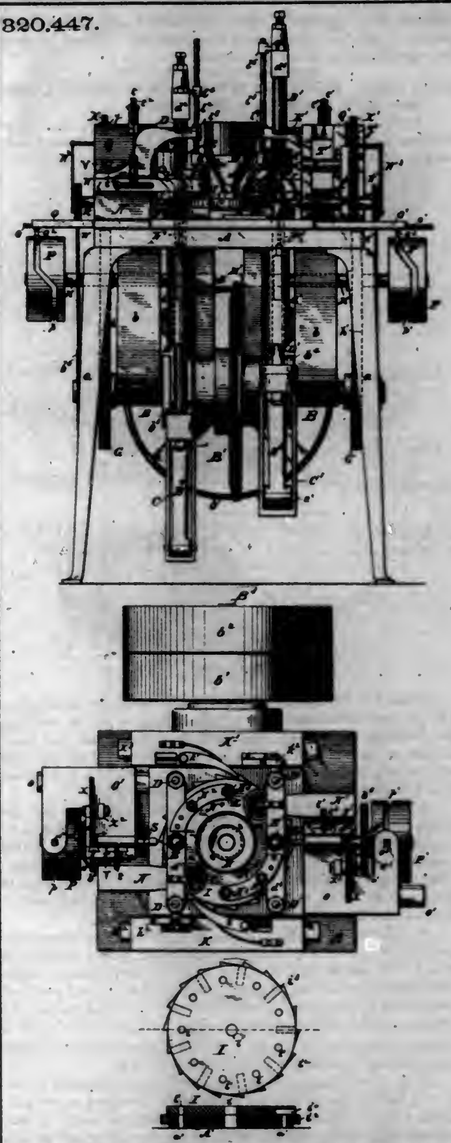
3. The new metallic compound consisting of lead, tin, zinc, and antimony, in the proportions substantially as set forth, and possessing the qualities or distinguishing characteristics substantially as specified.

320,446. STEAM-GENERATOR. JAMES E. SHAPLEY, Binghamton, N. Y., assignor of one-half to William M. Shapley, same place. Filed Aug. 4, 1884. (No model.)

320,446.



320,447.



Claim.—1. The fire-box, and boiler inclosing it having internal flues near the top of the fire-box, and the annular chamber surrounding the boiler and communicating with said flues, and having the curved covers *k*, for permitting access to the flues entering said chamber, combined with the flues extending downward from said chamber through the boiler at the side of the fire-box, and the jacket surrounding the boiler, and provided with a movable section at or near its top, with a stack or chimney to discharge the products of combustion after having passed upward between the boiler and jacket, substantially as described.

2. The fire-box and boiler provided with flues, combined with the jacket surrounding the said boiler, having a movable section or cover, and holding devices for supporting the said cover in the position to afford access to the flues, substantially as described.

3. The fire-box and boiler and annular chamber surrounding the boiler near the upper end of the fire-box, provided with removable covers, and flues communicating with the said chamber, combined with the jacket surrounding the said boiler, having a removable portion or cover, affording access to the covers of the annular chamber, substantially as described.

4. The fire-box and boiler provided with flues, combined with the jacket surrounding the said boiler, composed of a cylindrical portion surrounding the lower portion of the boiler, a tapering portion surrounding the upper portion of the boiler and independently supported therefrom, and a movable portion covering the space between the said upper and lower portions, substantially as described.

5. The fire-box and boiler provided with an opening near its lower end, and a jacket surrounding the said boiler, combined with a plug closing the said opening of the boiler, accessible from the outside of the jacket, which is provided with a depressed portion surrounding the said plug, substantially as described.

320,447. PILL AND LOZENGE MACHINE. GEORGE A. SMITH, Norristown, Pa. Filed Apr. 9, 1885. (No model.)

Claim.—1. In a machine for forming pills or lozenges, the combination, with a double-crank shaft and intermittently-rotating matrix, of two pairs of dies operating alternately, substantially as shown and described.

2. In a machine for forming pills or lozenges by compression, the combination, with two pairs of dies, of an intermittently-rotating matrix having an odd number of holes for the entrance of said dies, substantially as shown and described.

3. In a machine for forming pills or lozenges by compression, the combination, with a matrix having an odd number of holes for the dies, and having twice as many ratchet-teeth as holes, of reciprocating slides on opposite sides of said matrix, carrying pawls which alternately engage with said ratchet-teeth and impart an intermittent rotation to said matrix, substantially as shown and described.

4. In a machine for forming pills or lozenges by compression, and having upper and lower dies between which said pills or lozenges are formed, and a matrix in which said dies operate, the combination, with the lower die, of a wiper or cleaner operating on said lower die below the upper surface of said matrix, substantially as shown and described.

5. In a machine for forming pills or lozenges by compression, and having a lower die which compresses upwardly, the combination, with said die and a matrix having radial slots or mortises, of a wiper or cleaner which reciprocates in and out of said radial openings and cleans or wipes the die, substantially as shown and described.

6. In a machine for forming pills or lozenges by compression, and having a matrix intermittently rotated by slides, carrying pawls which engage with ratchet-teeth on said matrix, and having dies which reciprocate vertically, the combination, with said slides and the rods on which said dies are supported, of standards on said slides having inclined slots and rollers carried on said rods, which move in said slots, whereby said slides are moved from said rods, substantially as shown and described.

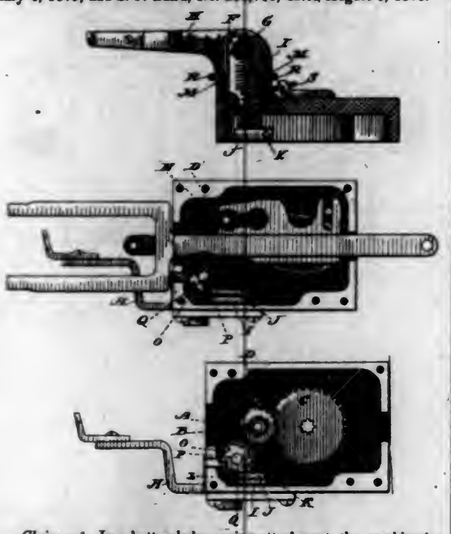
7. In a machine for forming pills or lozenges by compression, the combination, with a vertically-moving upper die, of a horizontally reciprocating and oscillating shaft carrying a wiper or brush, said shaft being sustained on a slide which is drawn upwardly by a weight and moved downwardly by the die, substantially as shown and described.

8. In combination with the upper and lower dies of a machine for forming pills or lozenges by compression, the mechanism for wiping or cleaning said dies, comprising the reciprocating slide O, shafts R S,

weighted slide T, pulley W, pinnan W^2, wheel X, sliding rack Y, and pinions z z', said several parts being constructed and combined for operation substantially as shown and described.

320,448. BUTTON-HOLE SEWING-MACHINE. WILLIAM E. TEDLL, Jersey City, N. J. Filed Dec. 10, 1883. (Model.)

Brief.—This device is designed as an improvement on the constructions shown in the patents of S. Rockwell, No. 211,932, dated February 4, 1879, and S. J. Baird, No. 208,768, dated August 6, 1878.



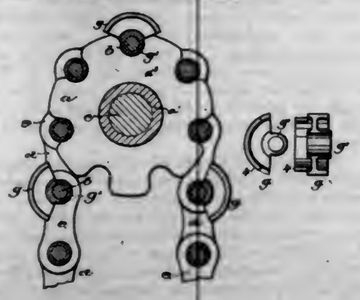
Claim.—1. In a button-hole sewing attachment, the combination, with the master-wheel of a series of gears, such as shown, for actuating the oscillating and feeding mechanisms, of a ratchet and gear wheel mounted on the same short vertical shaft, and a pawl adapted to engage with said ratchet and attached to the lower extremity of a heel pivoted to an L-shaped swinging lever, substantially as set forth.

2. In a button-hole sewing attachment, the combination, with the ratchet-wheel and gear-wheel mounted on the same shaft, of the lever H, provided with adjustable means for controlling its oscillation, and having pivoted thereto the heel I, pawl J, secured to the heel, spring L, interposed between said heel and pawl, and the master-wheel of a series of gears, such as shown, for actuating the oscillating and feeding mechanisms, substantially as set forth.

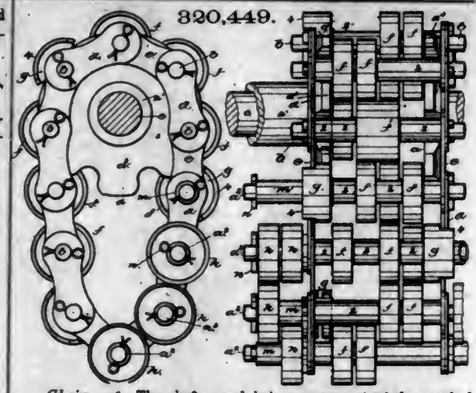
3. The combination of the pivoted lever H, capable of being reciprocated, heel I, pivoted to said lever, set-screws R, passed through lugs on said lever against opposite sides of said heel, pawl J, secured to the lower extremity of the heel, spring L, interposed between said pawl and heel, ratchet Q, adapted to be actuated by said pawl and mounted on the same vertical short shaft with the pinion O, and the master-wheel of a series of gears, such as shown, for actuating the oscillating and feeding mechanisms, substantially as shown and described.

4. In a button-hole sewing attachment, the combination of the lever H, having pivoted thereto the heel I, pawl J, secured to said heel, ratchet and gear wheels mounted on the same shaft and adapted to communicate motion to the master-wheel, and set-screws R, passed through lugs on said lever against opposite sides of said heel, whereby the normal height of the lever may be changed, substantially as described.

320,449. PATTERN-CHAIN FOR LOOMS. HORACE WYMAN, Worcester, Mass. Filed Nov. 20, 1882. (No model.)



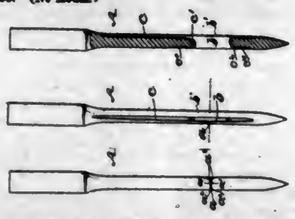
320,449.



Claim.—1. The shaft c and hub a, composed of the notched disks a^3 a^3 and sleeve a', combined with the rods b, secured together in a chain by links d e, and provided with the usual risers and sinkers and the supplemental segmental risers g, engaging the notched disks, as set forth.

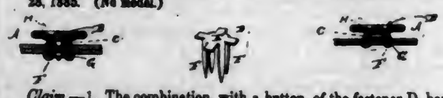
2. The shaft c and hub a, composed of the notched disks a^3 a^3 and sleeve a', combined with the rods b, secured together in a chain by links d e, and provided with the usual risers and sinkers and the supplemental segmental risers g, engaging the notched disks, and the endwise extensions a^3 a^3 of the rods b, provided with risers A and sinkers m, as set forth.

320,450. NEEDLE. THOMAS C. ADAMS, Brooklyn, N. Y. Filed Jan. 31, 1885. (No model.)



Claim.—The needle A, slotted at a, and rounded above and below the eye, as shown at c' c^2, and recessed, as shown at c^4 c^5, above and below the eye, respectively, substantially as and for the purpose set forth.

320,451. BUTTON-FASTENER. WILLIE C. WALKER, Richmond, Va., assignor of two-thirds to George B. McAdams, same place. Filed Mar. 28, 1885. (No model.)

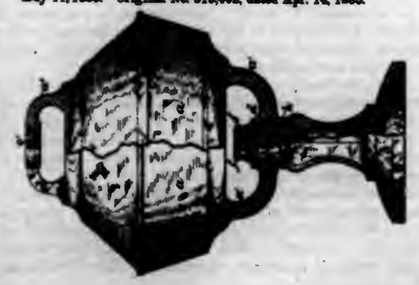


Claim.—1. The combination, with a button, of the fastener D, having the arms F, for securing the same to a fabric, and the ring arranged on the under side of the button and above the fabric, substantially as specified.

2. The combination, with a button, of the fastener D, having the arms F, and the rings arranged, respectively, on the under side of the button and the opposite side of the fabric to which the button is attached, substantially as specified.

REISSUES.

10,609. GLASSWARE. BENJAMIN BENNETT, Pittsburg, Pa. Filed May 11, 1885. Original No. 315,462, dated Apr. 14, 1885.



Claim.—1. The combination of a glass vessel, having arms which extend from the outer side thereof to a socket situated below the same and connected with said arms, with a stem or similar projection capable of being connected with and detached from said socket, substantially as and for the purposes described.

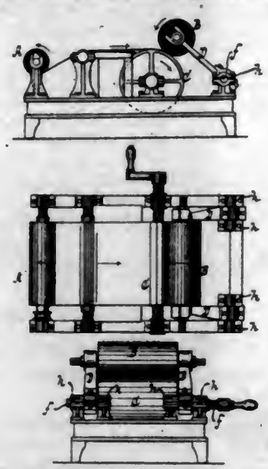
2. The combination of a glass vessel, having integral arms which extend from the outer side thereof, and a socket situate below said side and connected with said arms, with a stem or similar projection, one end of which is capable of being inserted within the socket, and being fastened thereto by means of a screw-nut which is screwed upon the projecting end of said stem and between the said socket and the said side of said vessel, substantially as and for the purposes described.

10,610. FIRE-PLACE. EDWIN CHICKERING, Cedar Rapids, Iowa. Filed Mar. 11, 1885. Original No. 308,465, dated Nov. 25, 1884.



Claim.—In combination with an open fire-place, an open fire-box provided with a hollow angular chimney-supporting and heat-deflecting hood, D, having a sliding damper, E, on its under side, a slab, b, a grate, A, air-spaces C C C at the back and sides of the said fire-box closed on top, an air-space above the slab b, and a mantel, all constructed and adapted to operate substantially in the manner and for the purposes described.

10,611. MACHINE FOR WINDING UP PAPER. GILBERT E. JONES, New York, N. Y. Filed Mar. 11, 1885. Original No. 186,256, dated Jan. 16, 1877.



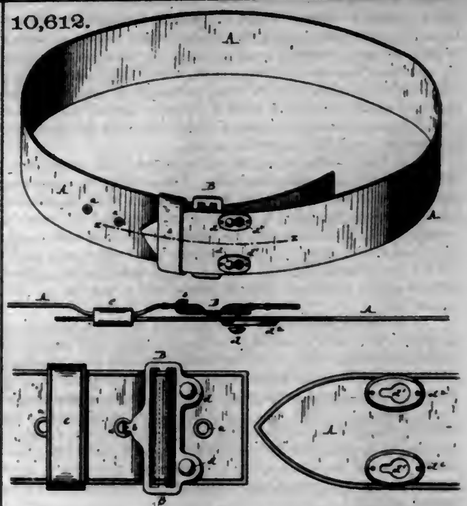
Claim.—In a winding-machine, the combination, with the delivering-roll and the power-roll, of a winding-up roll which is held in arms, guides, or ways which are provided with frictional boxes or slides, and which is thrown toward the power-roll by gravity.

10,612. WAIST-BELT. LOUIS SANDERS, Brooklyn, assignor to Eliza Sanders, New York, N. Y. Filed Mar. 24, 1885. Original No. 312,168, dated Feb. 10, 1885.

Claim.—1. A belt having a series of eyelets near one end, in combination with an adjustable sliding plate provided with an inwardly-turned hook for engaging said eyelets, a loop on the inside of the plate for holding the plate to the belt-strap, and a headed projection on the outside of the plate for engaging the other end of the belt, substantially as described.

2. The combination of a belt provided at its outer end with a fixed slotted metallic plate and at its inner end with a series of holes, and an adjustable buckle consisting of a plate provided on its under side with a loop, through which the belt passes, at its rear edge with an inwardly-projecting hook, which grasps said belt through one of said holes, and on its face or front side with outwardly-projecting headed studs, which interlock with said fixed slotted plate, substantially as set forth.

10,612.



10,613. SELF-WINDING WATCH. HERMANN VON DER HEYDT, Chicago, Ill., assignor to himself and Carl Müller, same place. Filed Dec. 27, 1884. Original No. 293,691, dated Feb. 19, 1884.



Claim.—1. In a self-winding watch, the combination, with a vibrating winding-pendulum, of a spring-actuated detent adapted to engage the pendulum, a notched or serrated wheel, as K, engaged with the detent, means connecting said wheel with the mainspring-barrel, whereby the wheel is caused to rotate with the barrel, and means actuated by the part of the watch mechanism which is moved in winding, constructed to rotate the said wheel relatively to the barrel when the watch is wound to a desired extent, whereby the detent will be caused to engage the pendulum, substantially as described.

2. In a self-winding watch, the combination, with the vibrating winding-pendulum, of a pivoted detent constructed to engage the pendu-

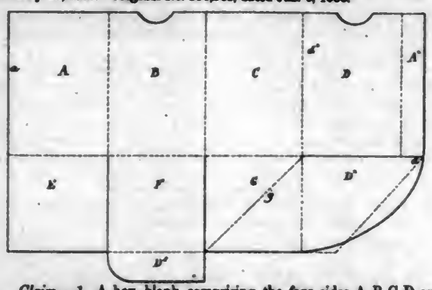
lum, a notched or serrated wheel, K, mounted concentrically with the mainspring-arbor, and engaged with the said detent, a spring, *n*, applied to hold the detent in position for engagement with the wheel K, a yielding connection between the barrel and the wheel K for causing the rotation of the said wheel with the barrel, and means for causing a partial backward rotation of the said wheel K when the watch is wound to a desired extent, whereby the detent is caused to engage the pendulum, substantially as and for the purpose set forth.

3. In a self-winding watch, the combination, with the pendulum A, of mechanism for preventing overwinding of the mainspring, comprising a pivoted detent adapted to engage the pendulum, a wheel, K, mounted upon the mainspring-arbor, a cam-wheel, G, upon the said arbor, a notched wheel, H, mounted upon the barrel and provided with a tooth or projection, *r*, a spring, *q'*, connecting the barrel with the wheel K, and a finger, *q*, attached to the wheel K, and adapted for engagement with the tooth *r* of the said wheel H, substantially as and for the purpose set forth

4. In a self-winding watch, in combination with the pendulum A, mechanism to prevent overwinding of the mainspring, said mechanism consisting of a cam-wheel, G, on the barrel containing the mainspring, intermittent wheel H, having a tooth, *r*, to press against the finger *q*, the latter being pivoted to the wheel K, and having a continuation to form a spring, *q'*, to force the wheel K around in the direction of the revolving barrel when the mainspring is unwinding, and catch-click L, engaging at its point with the teeth of the wheel K, and held in position by means of the spring *n*, and provided with a projection, *p*, to fit into a recess, *p'*, in the pendulum, substantially as described, and for the purpose set forth.

5. In a self-winding watch, the band M, fitting within recesses, one on each inner face of the two plates of a watch, and formed near the edges of the said plates, and having its ends projecting into the pendulum-chamber to allow the pendulum to strike against them in its vibrations, thus preventing noise and operating to accelerate the vibrations of the said pendulum, substantially as described.

10,614. PAPER BOX. CHARLES M. ARTHUR, Evansville, Wis. Filed May 11, 1885. Original No. 310,241, dated Jan. 6, 1885.



Claim.—1. A box-blank comprising the four sides A B C D and lap A', arranged continuously in line with each other, the end flaps E, F, and G, continuous with the sides A, B, and C, the tuck D^2, continuous with the flap F, and a member, D', continuous with the side of the flap G and extending toward the free edge of the lap-piece A', substantially as described, and for the purposes set forth.

2. A collapsed partly-made box constructed from the parts described, and having the parts A' and D' permanently secured, respectively, to the sides A and D, as set forth.

3. A box constructed from the blank composed of the members described, and having the member D' permanently secured to the side D, substantially as and for the purposes set forth.

4. In a telescoping box, the combination, with an inner part, I, of the box, of an outer open-ended part, I, constructed from the blank described, and having the member D' pointed and permanently secured at its pointed extremity to the side D, substantially as and for the purposes set forth.

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DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE LANDRETH.

TRADE-MARK.

Decided April 23, 1884.

1. Neither the color alone nor the form alone of a package nor the color of an article of commerce can constitute a trade-mark.
2. The doctrine of the United States courts, so far as it goes, is in entire consonance with that of the courts of Great Britain and France that color alone cannot constitute a valid trade-mark.
3. As words, characters, and symbols descriptive in their application to any merchandise cannot be appropriated by any one to his exclusive use, for the same reason ordinary materials sold in the market and adapted for manifold uses cannot be appropriated to any particular one of these uses by any person to the exclusion of the public from the same employment of them.
4. Colored fabrics being commonly on sale and in use, there can be no legal restriction upon their use by any person for any lawful purpose that suits his convenience.
5. The word "device" is used in respect to trade-marks in a sense totally different from that in which it is employed in connection with mechanical contrivances. It does not signify an expedient or scheme for any purpose but an emblematic figure, mark, or sign capable of being imprinted or otherwise displayed upon merchandise.

Application of Oliver Landreth, filed January 12, 1884.

BUTTERWORTH, *Commissioner:*

The following opinion has been prepared by the Examiner of Trade-Marks as his answer to reasons of appeal:

The matter presented is a red bag to be used for seed-peas. Applicant specifies certain words of a descriptive character, which may be imprinted on it, but says—

> The essential feature of my trade-mark is the red bag, and I therefore claim the use, broadly, of a red bag in which the pea-seed is packed for the trade, either plain, or with any or all of the above words picture, (!) printed, stamped, woven, therein, or otherwise fixed thereon. It is not necessary that the bag be canvas, as it may be formed of red paper, or of any other fabric; but I prefer canvas on account of its strength.

The so-called fac-simile filed in the case is not such, but a drawing in black lines, representing in outline a bag gathered at the top and sealed, and having descriptive words printed upon it. The Examiner holds that this is not such a fac-simile as the law requires. Although no amendment has been made in this particular, an exhibit has been filed, showing the actual red canvas bag employed by applicant, and this objection is waived pending the appeal.

For a better understanding of the merits of the case it is observed that in a similar application filed simultaneously with this a blue bag is claimed as a trade-mark for spinach-seed. In all other respects the cases are identical, and the decision in one concludes the office upon the other, and upon an entire series, which, if the decision is favorable, are to be presented by this applicant, involving the use of bags of different colors to distinguish different seeds of his production from those of other parties.

It is evident, though not apparent from the single case, that applicant's purpose is to secure the exclusive use of a system of packing seeds, in which each kind of seed shall be indicated and its origin shown by the color of the package alone. It is also evident that were the right of applicant to the exclusive use of such a system recognized by the Office it would be impossible to maintain it in the courts under trade-mark law, since it would be in any one's power, without infringing a single one of the so-called trade-marks, to employ a similar system or any number thereof, within the almost infinite limits of arithmetical permutation. Perhaps this consideration alone is enough to show the impracticability of making the matter set forth perform the office of a trade-mark. As requested by applicant, both the exhibits referred to are presented herewith. There is no limitation in respect to the matter claimed as essential in this case, except the color of the receptacle. As to shape and material, it is limited to nothing, except that it must be such material as can be made into a bag—paper, silk, canvas, leather, india-rubber, mosquito-netting, flannel, any textile stuff capable of receiving a red color—and the bag may be of any shape or size, an envelope, a lady's reticule, a gunny-sack, as well as the particular canvas bag shown in the exhibits.

Now, the Examiner takes the position that color alone, unlimited by form or specific device, cannot constitute a legal trade-mark. In this position he is sustained by the Office decision in the case of Williston, cited in Browne On Trade Marks, (272.) The application file shows no reference to the Commissioner, and no Office record shows it to have been brought to his attention; but the author of the work cited was the Examiner who acted upon the case, and he states in his remarks upon it that the Commissioner was consulted in person. The claim, as shown by the file, was for the colors of two labels or wrappers, or a single color, and color regardless of form was insisted upon. The Examiner was upheld in his rejection.

> A contrary opinion [says the author] would virtually have conceded the right of any man to select a certain color by which his goods should be designated, a peculiarly-colored paper in which his merchandise should be wrapped, and his exclusive right to that color. The effect would have been, if such a wild theory were maintained, to gradually throttle trade.

In *Harrington* v. *Libby* (12 O. G., 188) this language was quoted by the court with approval. (U. S. Cir-

cuit Court, So. Dist. N. Y.) The matter involved in this case was a decorated pail as a package for paper collars. Held that, such pail being a common article of commerce, the right of the claimant was not clear to seize it and make a title to its exclusive use for a special purpose by calling it a trade-mark. Injunction was refused. In the case *Mooman* v. *Hoge*, (2 Sawyer, 78,) also quoted in the above case, the United States Circuit Court, District of California, held that a barrel of peculiar dimensions could not become a trade-mark irrespective of the brands upon it. Another case having a close bearing on the present issue is that of Teter for a red color in illuminating-oil. This was appealed to the Commissioner, who reversed the Examiner in a decision, recorded Vol. 17, Ms. Decisions, p. 420, and directed the case to issue. So far the authority of the Office appears to be adverse to the Examiner's position; but the present owners by assignment, The Red C Oil Manufacturing Company, in their registration No. 9,952, January 9, 1883, have abandoned the whole matter claimed by the former registrant, and restrict themselves to a colored label in which the word and letter "Red C" are prominent, and the oil of a red color appears only in their statement as the particular goods on which the trade-mark is used. If they had regarded the matter formerly registered as a valuable or even tenable trade-mark, it is reasonable to suppose they would not have abandoned it, since the value of a trade-mark, if not in direct proportion to its age, is greatly enhanced by long use. It does not appear that any court ever directly determined upon the legality of this alleged trade-mark. In the case *United States* v. *Rider* in the United States District Court, Maryland, Rider was charged with counterfeiting this trade-mark and was acquitted by the jury. Being a criminal case, it is not reported, and there was no written decision; but the *Baltimore American* of October 8, 1878, reports that Judge Giles, in giving the case to the jury, expressed his opinion that the color of the oil could not be a valid trade-mark, although registered in the Patent Office. This expression of opinion, along with the failure of the suit, seems to account sufficiently for the voluntary abandonment of the alleged trade-mark, and to show that the Commissioner was in error in permitting it to be registered. The conclusion to be drawn from these various decisions is that neither the color alone, nor the form alone, of a package, nor the color alone of an article of commerce can constitute a trade-mark.

If we regard the authority of other nations, it should be added that the British statutes for registration of trade-marks, both the former law and that now in force, set forth specifically what shall constitute a trade-mark for the purposes of the act, and in both it will be noticed that color as an element is entirely ignored. This determines the practice of the British courts, in which this element is treated as a subordinate accessory, needful perhaps as a means of distinguishing form in devices, but otherwise of little value. Such a case as that now presented could not stand a moment in a British court. Recognized of high authority in trade-mark cases are the decisions of the French courts In the case *Darcy, Bickford, Watson et Cie.* contre *Nier*, in the *Tribunal Correctionel de Nimes* (criminal court,) the Tribunal held that jurisprudence and authors concur that color alone cannot constitute a trade-mark; that independent of color a concurrence of other circumstances is necessary. Plaintiff having appealed from this decision, it was reviewed by *La Cour de Nimes.* (Answering to a circuit court.) Regarding the sufficiency of color alone to constitute a trade-mark, the court used this language:

Held, that if color cannot sometimes constitute a trade-mark it is because color isolated from all combination can scarcely serve for a distinctive sign. It has been determined that a tint given to a product in the process of manufacture cannot constitute a color-mark, and, further, that an artificial color extending to the entire product constitutes a commercial quality of the merchandise rather than a distinctive mark for it. That in these conditions, outside of a patent for invention, color cannot create a monopoly to the exclusion of other manufacturers; but held that from the moment that color, either by its special arrangement or by its application to certain parts of the product, however simple the arrangement, arrives at forming a distinctive sign capable of striking the eyes of the purchaser, it enters into the category of signs which can be employed as trade-marks.

This case is fully reported in *Annales de la Propriété Industrielle*, Vol. 25, p. 81.

Adverse to this position, so distinctly enunciated by the French Court, and apparently the accepted doctrine in Europe and America, applicant cites *Knott* v. *Morgan*, a British case to be found in Cox's Manual, (57.) In this case no exclusive right in the plaintiff to the peculiar color on his omnibusses was recognized. It was not in any sense a trade-mark case; but injunction was granted to restrain the defendant from trading upon the plaintiff's reputation. Applicant also cites *Morgan* v. *Troxell*, (Supreme Court of New York, Cox Manual, 674.) Here a silver-foil wrapper for soap was employed having a blue band upon it passing around the cake. This arrangement of contrasting colors, simple as it is, brought the case precisely within the category named by the French Tribunal and separates it most widely from such a case as that now in question. In *Sawyer* v. *Horn*, (U. S. Circuit Court Md. Dist., Cox Manual, 667,) laundry-bluing was put up in package consisting of a blue cylinder with a red top. Under the French ruling this might constitute a trade-mark, but the court was very cautious not to so pronounce. Injunction was granted, "whether the complainant has a trade-mark or not," because there was no question that the respondent's bluing was so put up as to mislead customers.

With the single exception of the Red Oil decision, the Examiner is unable to find an authority on either continent in support of such a case as that in issue; and in this decision, while directing the issue of the case, it is interesting to remark that the Commissioner himself indicated a doubt as to the real validity of the trade-mark. It was a doubt which he resolved in favor of the applicant in view of the fact that from his refusal there was no appeal. He expressed the feeling that while by his refusal he might prevent the applicant from enjoying a right he was possibly entitled to exercise, on the other hand if it should turn out that the matter in question was no trade-mark no harm could result. This decision, then, can be regarded only as a reference of the question to the final determination of the courts and of public opinion. If the very language of the decision, however, does not remove it from the category of authorities on the subject, this is done by the subsequent history of the case, and we are left absolutely without an authority of the Office or of the courts on which such a case as applicant's can rest for validity. The doctrine of the U. S. Courts, as far as it goes, is in entire consonance with that of the British and French, that color alone cannot constitute a valid trade-mark.

With these determinations for our guidance it is perhaps needless to inquire closely into the principles upon which the tribunals of so many lands have based their conclusions. In the judgment of the Examiner these principles are not far to seek. As words, characters, and symbols, descriptive in their application to any merchandise, cannot be appropriated by any one to his exclusive use, for the same reason ordinary materials sold in the market and capable of employment for manifold uses cannot be exclusively appropriated to any particular one of these uses by any one. They are the common property of the public. Be the restriction ever so slight it is still a restriction, an abridgement of the public right. He who proposes to fence in any part of the highway must show a stronger title than his mere inclination. It is not enough to plead that since all the rest of the broad highway is open to him the traveler is not impeded. Public rights are, and always must be, more jealously guarded than private rights, since they are more liable to encroachment from the lawless and unthinking. Hence the slightest approach to such an intrusion must be resisted.

Red materials, suitable for bags, being commonly on sale and in use, there can be no legal restriction upon their use by any person for any lawful purpose that suits his convenience. If the contrary were true, if it were in the power of the applicant to appropriate to his own use a red bag for peas, it would be equally in the power of the next man to appropriate a blue bag to the same merchandise, the next a green bag, and so on. Who can say where the line must be drawn? Is there any reason why the trader who chooses should be prevented from adopting a white bag to distinguish his goods if this door is once opened? Such a suggestion needs no answer. There can be no restriction on the use of white paper or white fabrics for any lawful purpose, and the Examiner can see no reason why this is not just as true of red cloth and red paper or of cloth or paper of any hue or shade commonly sold and used.

In the ordinary definitions given of a trade-mark the Examiner believes he finds one source of the confusion that exists upon this question in some minds, and at the same time an additional reason for the position taken by the courts. Upton opens his first chapter on the Law of Trade-Marks with this definition:

A trade-mark is the name, symbol, figure, letter, form, or device adopted and used by a manufacturer, etc.

The present British law, in its enumeration of the matter which must be contained in a trade-mark for registration, after certain other essentials, none of which involves color, says:

(c.) A distinctive device, mark, brand, heading, label, ticket, or fancy word or words not in common use.

These may be regarded as fair examples of the languages used by writers in defining a technical trade-mark. If we consider carefully the terms employed—"name, symbol, mark, figure, word," &c.—we find in none of them any ambiguity except in the single word "device," which is employed by every writer. To persons unaccustomed to nice distinctions in the meaning of words this one, with its diversity of meanings, has often been misleading. It has been defined, first, a contrivance, scheme, expedient, and the various synonyms of these words; second, artifice, stratagem, trick, and other words of like meaning; and, third, emblem, symbol, type, sign, &c. In the Patent Office it is constantly used to signify a mechanical contrivance. In common language elsewhere and in literature it signifies a trick, a stratagem, or an expedient for any purpose. This last interpretation, perhaps, is the principal source of confusion, since it leads many to imagine that any expedient they may fix upon to distinguish their goods may constitute a lawful trade-mark. Such is the "device" of putting them up in packages of particular shape or dimensions, which the decisions heretofore cited show to be untenable as trade-marks. Such, precisely, is the matter of the present application. It is a device in the sense that it is an expedient. As indicated by applicant in his written and oral statement, it is part of a system by which he attempts to distinguish his goods; but it is in no sense a device as the word is used in the British law and in the treatises on the subject. To determine accurately what this meaning is it will not be amiss to notice how the word is used by writers upon a subject in some respects analogous, and upon which language has for centuries been used with remarkable precision—to wit, heraldry. When Scott, in Marmion, speaks of

Scotland's arms, *device*, and crest,
Embroidered round and round,

and elsewhere of the streamers

Various in shape, *device*, and hue,

no close study is necessary to see that whatever specific meaning attaches to the word "device," it is something quite distinct from mere color. It is a design capable of representation by embroidery. So in Boutell's Heraldry, (London, 1864,) p. 13, where it is said—

The shield * * * has at almost all times been decorated with some *device* or figure,

the last words are used synonymously, and indicate a decorative design or symbol on the surface of the shield. Citations of this character might be multiplied indefinitely. Only one will be given. The author last named, in his work entitled "English Heraldry," p. 13, says:

Among the earliest shields and banners of arms * * * many are found to be without any *device* whatever, their distinction consisting simply in some peculiarity of the colouring.

It would be difficult to express more clearly in language that a device and a mere peculiarity in color are two quite distinct things in the art of heraldry. It is not strange that to Americans, to whom heraldry is scarcely known, save as a relic of institutions in which they have no concern, this specific meaning of the word should have been lost sight of; and, especially, that those to whom its use in the customary Patent Office sense is habitual, should fail to recognize its clearly-defined significance when unrelated to a mechanical structure; and yet we cannot conceal from ourselves that the emblematic language of this art is closely analogous to that of trade-marks. The symbols represented on a shield or escutcheon or panel indicated the person or family of their owner; and in the same way the marks impressed or in any way produced by a manufacturer upon his merchandise serve to identify them with their origin. So when trade-marks came to be treated of in statutes and in the works of authors the language of arms afforded the

readiest and, perhaps, the only terms that could be employed in their discussion. Hence the strict sense of the word "device;" and as in arms it might be a picture, a motto, or any of the curious blazonry of the art, but never a mere surface of solid color, so a device in the trade-mark sense may be almost anything in the range of fancy—a name, picture, monogram, quaint design of any sort, but never can consist in the mere application of color to the merchandise or the packages thereof. Such body-color may be the field on which the trade-mark is exhibited, as the knight's shield constituted the field on which his arms were emblazoned, and nothing more. A single stripe or bar of contrasting color imposed on such a body, a chevron, or any other mark or distinctive pattern, however simple, may form a sufficient trade-mark, since it constitutes a true "device."

The space the Examiner has given to this question indicates the importance he attaches to it. He has studied it more closely because, as before stated, there is no American decision in which it is discussed, except the Commissioner's in the Red Oil case, and that, for reasons given, cannot now be regarded as authoritative.

To grant the registration asked would be, in his judgment, an abrupt departure from established precedents. With the possibility that by long use and identification in the minds of purchasers with his particular goods, the applicant may acquire rights of some sort analogous to those of trade-marks, in which, in the interest of commerce, he might be sustained by the courts, yet the Examiner can find no authority which, in his opinion, would justify him, in the present conditions, in admitting the matter presented to registration as a trade-mark.

The Examiner has very carefully and fully examined the questions raised in the appeal, and I am content to adopt his decision as my own. His action is affirmed.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—Southern District of New York.

HOLLIDAY *et al.* v. MATHESON *et al.*

Decided May 26, 1885.

1. The owner of a patent in the United States who has sold the patented article in England without restrictions or conditions cannot treat as an infringer one who has purchased the article in England of the vendee, or restrain him from using or selling it in the United States.
2. Where the owner of the patent sells the patented article under circumstances which imply that the purchaser is not to acquire an unqualified property in it, as where a license accompanies the transfer, the purchaser's rights are limited to the extent of the monopoly granted to him.

Messrs. Dickerson & Dickerson for complainants.

Messrs. Frost & Coe for defendants.

WALLACE, *J.:*

This motion for a preliminary injunction raises the question whether the owner of a patent in the United States for an invention, who has sold the patented article in England without restriction or conditions, can treat as an infringer one who has purchased the article in England of a vendee of the patentee, and can restrain him from using or selling the article here. This question has been decided adversely to the complainant in this court upon a motion to punish the defendants for contempt in violating an injunction obtained in a former suit between the parties; and it was held by Judge Wheeler, in substance, that the sale carried all the rights to the article which the complainants, the venders, had, including the right to use it or sell it wherever the complainants could do so. (*Holliday* v. *Matheson*, Opinion Ms.) That decision is controlling upon this motion, but it is proper to add that the reasons upon which it proceeds are satisfactory and would prevail if the question were an original one between these parties and in this court.

When the owner sells an article without any reservation respecting its use or the title which is to pass, the purchaser acquires the whole right of the vender in the thing sold—the right to use it, to repair it, and to sell it to others—and second purchasers acquire the rights of the seller, and may do with the article whatever the first purchaser could have lawfully done if he had not parted with it. The presumption arising from such a sale is that the vender intends to part with all his rights in the thing sold, and that the purchaser is to acquire an unqualified property in it; and it would be inconsistent with the presumed understanding of the parties to permit the vender to retain the power of restricting the purchaser to using the thing bought in a particular way, or in a particular place, for a limited period of time, or from selling his rights to others. It is quite immaterial whether the thing sold is a patented article or not, or whether the vender is the owner of a patent which gives him a monopoly of its use and sale. If these circumstances happen to concur, the legal effect of the transaction is not changed unless by the conditions of the bargain the monopoly right is impressed upon the thing purchased, and if the vender sells without reservation or restriction he parts with his monopoly so far as it can in any way qualify the rights of the purchaser.

The purchaser does not acquire any right in the monopoly, but he does acquire the right of unrestricted ownership in the article he buys as against the vender, including as an inseparable incident the right to use and enjoy it and to transfer his title to others. (*Bloomer* v. *McQuewan*, 14 How., 549; *Goodyear* v. *Beverly Rubber Co.*, 1 Cliff., 348; *Washing Machine Co.* v. *Earl*, 3 Wall. pr., 320; *Bloomer* v. *Milliger*, 1 Wall., 340, 351; *Mitchell* v. *Hawley*, 16 Wall., 544, 548; *Paper Bag Cases*, 105 U. S., 770; *Day* v. *The Union Rubber Co.*, 3 Blatch., 494; *McKay* v. *Wooster*, 2 Sawyer, 373; *Wilder* v. *Kent*, 15 Fed. Rep., 217.) The cases like *Hatch* v. *Adams* (2 Fed. Rep., 434) and *Societe, &c.* v. *Tilghman's Pat. Sand Blast Co.*, (25 L. J., Ch. 1,) relied on by the complainants, have no application to a case like this. When the owner of a patent sells the patented article under circumstances which imply that the purchaser is not to acquire an unqualified property in the thing purchased, as where a license accompanies the transfer, the purchaser's rights are limited to the extent of the monopoly granted to him. Those cases involved the extent of the monopoly acquired in a patented article under a license or territorial right from the owner of the patent, the article having been originally sold under the license.

The motion is denied.

FOREIGN PATENT LAWS.

PATENT REGULATIONS OF JAPAN.

IMPERIAL PROCLAMATION NO. 7.

It is hereby notified that the following regulations as to patents have been published and will be enforced on and after the 1st July, 1885.

N. B.—The rules respecting patents published on the 7th April, 1871, and Imperial Proclamation No. 105, published in March, 1872, have been repealed.

By order of H. I. M. the MIKADO.

Prince SANJO SANETOSHI,
Prime Minister of State.
Count MATSUKATA MASAYOSHI,
Minister of Agriculture and Commerce.

April 18, 1885.

ARTICLE 1. Inventors of useful articles desirous of having the exclusive sale of the same shall apply to the Minister of Agriculture and Commerce, and obtain his special permission. The Minister of Agriculture and Commerce shall, if advisable, deliver certificates of special permission for their exclusive sale.

ART. 2. In applying for a patent a detailed statement of the invention and the necessary diagrams will be affixed to the written application. The invented article, or a specimen, shall, if necessary, be ordered to be submitted.

ART. 3. The terms of a patent right may not exceed fifteen years, reckoned from the date of its certificate.

ART. 4. Patents cannot be applied for in the case of articles of the nature specified below:

(1.) Articles that have previously been invented by others.

N. B.—This provision does not extend to patents that have been transferred by their owners.

(2.) Articles that have been publicly used or known before the patents have been applied for.

(3.) Articles that tend to disturb social tranquillity or demoralize customs and fashions, or are injurious to health.

(4.) Medicines.

ART. 5. For inventions deemed necessary for war purposes, or those the general use of which is deemed important, the Minister of Agriculture and Commerce will not grant patents, and in the case of those for which patents have previously been granted he may cancel the same. In the case of inventions described above the Minister of Agriculture and Commerce will grant appropriate sums of money to the inventors by way of compensation.

ART. 6. Privileges by securing patents, as well as the patents, may be hereditary. When a successor has inherited a patent he shall report the fact to the Minister of Agriculture and Commerce within three months.

ART. 7. Persons desirous of transferring to, or acquiring from, another person patents, they must apply for the permission of the Minister of Agriculture and Commerce.

ART. 8. When a patentee effects improvements upon his invention he may apply for a fresh patent.

N. B.—The effect of additional patents may not exceed that of the original patents.

ART. 9. Persons desirous of obtaining patents for articles that are improvements upon other patented inventions must secure the consent of the original patentees. If the original patentee should refuse his consent and the Minister of Agriculture and Commerce deem the refusal obstructive to the improvement of the invention, he may grant the improver special permission to use the original invention together with the improved part. In such cases as have been mentioned above the Minister of Agriculture and Commerce shall cause the improvers to give appropriate sums of money to the original inventors by way of compensation.

ART. 10. Patentees must indicate on their inventions the date and term of the patents. In the case of articles, the nature of which precludes such indication, the date and term must be marked on the cover or otherwise.

ART. 11. The register of patentees, with other details, shall be submitted for public inspection by the Minister of Agriculture and Commerce.

ART. 12. When patentees change the places of their registration or their residences or names, they must report the fact to the Department of Agriculture and Commerce within three months.

ART. 13. When certificates of patents have been lost or damaged the patentees must apply to the Minister of Agriculture and Commerce for the delivery of fresh certificates.

ART. 14. In cases mentioned below patents shall be declared void and the return of the certificates of the patents shall be ordered:

(1.) When any contravention of the provisions of article 4 has been discovered.

(2.) When any misrepresentation of facts has been discovered in the written applications and details of the inventions.

ART. 15. Patents will become void in the following cases:

(1.) When the inventions have not been practically publicly applied within two years after the date of the certificates of the patents, or when their execution has been suspended for two years without any representation of the circumstances of the case to the authorities.

(2.) When patented inventions have been imported from abroad and sold.

ART. 16. When certificates of patents are granted or canceled, or when any loss of patent right has occurred, the Department of Agriculture and Commerce will publicly notify the fact.

ART. 17. Persons applying for patents shall pay the undermentioned fees.

N. B.—Should the written applications be dismissed the fees shall be returned.

(1.) For persons applying for patents lasting for five years, 10 yen.

(2.) For persons applying for patents lasting for ten years, 15 yen.

(3.) For persons applying for patents lasting for fifteen years, 20 yen.

(4.) For persons applying for the transfer of patents, 5 yen.

(5.) For persons applying for additional patents, 5 yen.

(6.) For persons applying for fresh certificates of patents, 1 yen.

ART. 18. Officials concerned in the granting of patents may not apply for patents.

ART. 19. If the marks described in article 10 are not made, no appeal for any claim of damage may be made.

ART. 20. Persons who have counterfeited patented inventions, or imported them from abroad, or clandestinely used any patent, shall be liable to imprisonment with labor for a period not less than one month and not exceeding one year and a fine of not less than 4 yen and not exceeding 40 yen.

ART. 21. Persons who have applied to articles of the same kind as others manufactured under patent marks that bear a close resemblance to those used by the owners of such patents, shall be liable to imprisonment with labor for a period of not less than fifteen days and not exceeding six months, and a fine not less than 2 yen and not exceeding 20 yen.

ART. 22. Persons who have sold articles in contravention of articles 20 and 21, with previous knowledge of the fact, shall be liable to a fine not less than 4 yen and not exceeding 40 yen.

ART. 23. In the cases mentioned in articles 20, 21, and 22 the infringing articles and the apparatus used for the perpetration of the offenses shall be confiscated and handed over to the patentees, and in the case of articles previously sold their price shall be exacted from the offender and also given to the patentees.

ART. 24. Persons who have obtained rights by fraudulent means or sham patents shall be liable to imprisonment for a period not less than fifteen days and not exceeding six months, and a penalty of not less than 2 yen and not exceeding 20 yen.

ART. 25. Persons who have failed to make the reports mentioned in the second clause of article 6 and article 12 within the prescribed periods shall be liable to a penalty of not less than 1 yen and not exceeding 1.95 yen.

ART. 26. To contraventions of these regulations the provisions in the criminal code for the simultaneous commission of several crimes shall not be applied.

ART. 27. The offenses mentioned in articles 20, 21, and 22 shall be dealt with at the instance of the patentees.

ART. 28. When patentees have made appeals, judges may temporarily suspend the sale of the articles to which such appeals relate.

Appendix.

Persons desirous of obtaining the exclusive sale of articles invented after the publication of the patent rules on the 7th April, 1871, and before the publication of these regulations, and which were reported to the authorities according to the additional provisions of notification No. 105, published in March, 1872, may apply to the Minister of Agriculture and Commerce for their patents within six months after the date of the enforcement of these regulations, even though they be such as are generally used or known.

Persons who have made use of the inventions described above before the publication of these regulations may apply to the Minister of Agriculture and Commerce for special permission for their use within one year after the date of the enforcement of these regulations. In such cases they shall pay fees to the same amount as those for the granting of patents mentioned in article 17.

Notification No. 5 Council of State.

It is hereby notified that the Patent Regulations having been published, the following Regulations are issued as to the mode of procedure to obtain patents.

Prince SANJO SANETOSHI,
Prime Minister.
Count MATSUKATA MASAYOSHI,
Acting Minister of the Agricultural and Commercial Department.
April 18, 1885.

ARTICLE 1. Applications and reports in connection with patents shall be sent to the Agricultural and Commercial Department through the prefectural authorities.

ART. 2. When application is made for a patent, there must be two letters of application and three statements of details and diagrams sent in, together with the patent fee. When more than one person is connected with the invention, they shall all sign the documents sent to the department.

ART. 3. Written statements, details, and diagrams are to be sent to the prefectural authorities in a sealed form, and in that form

they will be forwarded to the Minister of the Agricultural and Commercial Department.

ART. 4. The following must be stated in all applications for patents:

(1.) The name of the invention.
(2.) The duration of the patent applied for.
(3.) A declaration that it is not contravening the regulations.
(4.) A declaration that there are no misrepresentation of facts made in the written application and statement.

ART. 5. In the details the following must appear:

(1.) The object of the invention and explanation of its nature.
(2.) An explanation of the diagrams, when such are submitted.
(3.) A detailed description of the manufacture, structure, composition, and the way of employing the invention.
(4.) The uses to which the invention may be applied.
(5.) The social rank, name, and address of the inventor.

ART. 6. The diagrams must be numbered, and their respective parts shall be marked with letters or numerical figures to correspond with the explanations.

ART. 7. Any one applying for the transfer of the whole or part of the patent, in accordance with the 7th article of the regulations, must send in two letters of application, a copy of the agreement between the parties, and the certificate of patent, together with the fee.

ART. 8. Any person applying for additional patent rights should do so as provided in articles 2 and 3.

ART. 9. Any person desirous of obtaining the special permission stated in the second part of article 9 of the regulations, shall send in two applications, stating the circumstances of the case.

ART. 10. When it is reported, as stated in articles 6 and 12 of the regulations, that the name of the patentee is altered, the Minister of the Agricultural and Commercial Department shall indorse the fact on the certificate of patent.

ART. 11. When any one applies for a fresh certificate, a detailed account of the circumstances of the case must be sent in.

ART. 12. In a case where a patentee has discovered omissions or misstatements in the letters of application and diagrams, he shall send in two applications with a detailed account of the circumstances of the case. But when by addition or altering some important part the invention is completely changed, no application will be received.

ART. 13. When patentees allow others by mutual consent to use the invention, the fact should be reported and the document signed by both parties.

ART. 14. When, after a patent has been declared void through a contravention of the provisions of the first part of article 4 of the regulations, and the original inventor applies again for the patent, its term shall not exceed that granted to the original patent.

ART. 15. Any person who desires to obtain permission to use articles, as provided for in the second clause of the regulations, shall send in two applications containing a detailed account of their previous employment.

THE LIBERIAN PATENT ACT OF 1864.

(OFFICIAL COPY.)

AN ACT to promote the progress of the arts, manufactures, agriculture, and commerce.

It is enacted by the Senate and House of Representatives of the Republic of Liberia in Legislature assembled:

SECTION 1. That there shall be established an office to be termed the Patent Office, which shall be under the control of the Secretary of State, whose duty it shall be to superintend, execute, and perform all such acts and things touching and respecting the granting and issuing of letters patent for new and useful discoveries, inventions, and improvements, as are hereby provided for, or shall hereafter be by law directed to be done and performed, and shall have charge and authority of all books, records, papers, and all other things belonging to the said office.

SEC. 2. It is further enacted that all patents issuing from the said office shall be issued in the name and under the seal of the Republic of Liberia, and be signed by the President of the Republic, and countersigned by the Secretary of State, and shall be recorded together with descriptions, specifications, and drawings in the said office, in books to be kept for that purpose. Every such patent shall contain a short title of the invention or discovery, correctly indicating its nature and design, and its terms, grant to the applicant or applicants, his or their heirs, administrators, executors, or assigns, for a term not exceeding twenty years, the full and exclusive right and liberty of making, using, and vending to others to be used, the said invention or discovery, referring to the specifications for the particulars thereof, a copy of which specifications with the illustrative drawings shall be annexed to the patent specifying what the patentee claims as his invention or discovery.

SEC. 3. It is further enacted that any citizen or citizens having discovered or invented any new and useful art, machine, manufacture, process, composition of matter, or any new and useful improvement in any art, machine, manufacture, process or composition of matter, or having invented or discovered a new and useful application of any known substance or matter, or composition of matter, or any new and useful application of any known article of manufacture, device, or apparatus, to any art, manufacture, machine, process, or composition of matter, such invention or discovery, or such application not being known or used by others within the limits of this Republic, and not being described in any book or other publication in this country, before his or their discovery thereof, may make application in writing to the Secretary of State, expressing such desire, and the Secretary of State may on due proceedings had, grant a patent therefor; but before any inventor shall receive a patent for any such invention, discovery, or new application, he shall deliver a written description thereof, and of the manner and process of making, constructing, using, applying, and compounding the same, in such full, clear, and exact terms as to enable any person skilled in the art or science to which it appertains, or with which it is most nearly connected to make, construct, apply, compound, and use the same, and shall particularly specify and point out the part, improvement, or combination which he claims as his own invention or discovery. He shall furthermore accompany the whole with a drawing or drawings and written references, where the nature of the case admits of drawings. The applicant shall furthermore make oath or affirmation that he does verily believe that he is the original and first inventor or discoverer of the art, machine, composition, application, or improvement for which he solicits a patent, and that the same was not known or used within the limits of the Republic of Liberia prior to his said invention, and that he is a citizen of this Republic, the said oath or affirmation to be taken before any person authorized by law to administer oaths.

SEC. 4. It is further enacted that on filing such application, description, and specifications, and the payment of the fees hereinafter provided, the Secretary of State shall make or cause to be made an examination of the alleged new invention or discovery, and if it should appear to the Secretary of State that the same had not been invented or discovered, or known by any other person in this country, and had not been described in any book or other publication in this country prior to the discovery thereof by the applicant, then it shall be the duty of the Secretary of State to issue a patent therefor; but whenever it shall appear to the Secretary of State that the applicant was not the first inventor or discoverer thereof, or that what is claimed as new had been known to others in this country, or had been described in some publication in this country prior to the time of the alleged invention or discovery of the applicant, then it shall be the duty of the Secretary of State to refuse the grant of letters patent to the applicant therefor.

SEC. 5. It is further enacted that if any alien or aliens shall have invented or discovered any new art, machine, manufacture, process, or composition of matter, or any new and useful improvement of any art, machine, manufacture, process, or composition of matter, or has invented or discovered a new and useful application of any known substance or machine or composition of matter, or any new and useful application of any known article of manufacture, device, or apparatus to any art, manufacture, machine, process, or composition of matter, such invention or discovery, or such application, not having been known or used by others within the limits of this Republic, or if any alien or aliens shall be the legal owner or owners of such invention or discovery, on application, and shall express a desire to introduce the same and put it into active operation in this country, then it shall be the duty of the Secretary of State, on due proceedings held, as provided for in third section of this act, to issue letters patent therefor; but before letters patent can be granted to such applicant he shall deliver, with the description of the invention or discovery claimed, a certificate signed and sealed by the mayor or governor of the city or State in which he resides, or by a duly authorized notary public, which certificate shall set forth that the applicant is the original and first discoverer of the thing claimed, or that he has purchased the right, title, and interest in this country to the said invention or discovery.

SEC. 6. It is further enacted that when any alien or aliens shall have obtained letters patent for any invention or discovery it shall be his or their duty to put the same in active operation in this Republic within three years from the date of the said patent, and any refusal or neglect on the part of the patentee to do this shall be considered as an abandonment by him of his patent to the public.

SEC. 7. It is further enacted that before any application for a patent shall be considered by the Secretary of State the applicant shall pay into the treasury or into the office of the Secretary of State, to the credit of the treasury, if he be a citizen of this Republic, the sum of twenty-five dollars; if he be an alien, the sum of fifty dollars; and the moneys received under this act shall constitute a fund for the payment of salaries of such assistants as the Secretary of State may deem necessary for carrying this act into effect.

SEC. 8. It is further enacted that every patent shall be assignable in law, either as to the whole interest or any individual part thereof, by any instrument of writing, which assignment, and also every grant and conveyance of the exclusive right under any patent to make and use, and to grant to others to make and use the thing patented, within and throughout the whole or any specified portion of the Republic of Liberia, shall be recorded in the office of the Secretary of State within one year from the execution thereof.

SEC. 9. It is further enacted that all actions for damages for making, using, or selling the thing whereof the exclusive right is secured by any patent, and all suits, controversies, and cases arising under this act shall be cognizable, as well in equity as at law, by the Supreme Court of the Republic of Liberia.

SEC. 10. It is further enacted that it shall be the duty of the Secretary of State to make, or cause to be made, exact copies of all patents issued, and also of all drawings appertaining to the said patents, which copies shall be properly classified and shall be retained as permanent records in the office of the Secretary of State, and the said copies shall be open for inspection at reasonable hours to all who may desire to peruse the same. And it shall furthermore be the duty of the Secretary of State to furnish, on reasonable terms, certified copies of any patents or documents relating thereto.

Approved December 23, 1864.

THE OFFICIAL GAZETTE OF THE United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

VOL. 31—No. 12. TUESDAY, JUNE 23, 1885. PRICE—$5 per year.

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GERMAN REGISTRATION OF TRADE-MARKS.

The following communication is published for the information of persons who have registered trade-marks in Germany:

IMPERIAL GERMAN LEGATION,
WASHINGTON, *June* 9, 1885.

The undersigned, Imperial German Envoy Extraordinary and Minister Plenipotentiary, has the honor, in pursuance of instructions received, to make the following communication to the Hon. Thomas F. Bayard, Secretary of State of the United States:

According to the Imperial law for the protection of trade-marks, dated November 30, 1874, (Sec. 5, No. 3,) a registered trade-mark is forfeited if ten years have elapsed since its registration without any notice having been given of its further extension, or if the same period has elapsed since such notice without a renewal of the same. As this law took effect May 1, 1875, the provision of Sec. 5, No. 3, has been applicable since the 1st of May last. In the case of foreign manufacturers, however, it will probably, in the nature of things, not actually take effect until somewhat later.

Some foreign manufacturers might possibly not bear in mind the condition of affairs which is entailed by the aforesaid legal provision, and might consequently lose their trade-mark rights in Germany. In order to prevent this, together with any complaints that might arise therefrom, the Imperial Government takes occasion to inform the United States Government with regard to the situation, and to leave it to decide whether it would not be well to notify American manufacturers what must be done by them if they desire to retain their trade-mark rights in Germany.

The undersigned avails himself of this additional occasion to renew to the Honorable Secretary of State the assurance of his most distinguished consideration.

H. v. ALVENSLEBEN.

The HON. THOMAS F. BAYARD,
Secretary of State of the United States, Washington.

31 O G—12—1

Issue of June 23, 1885.

Patents	453	No. 320,452 to No. 320,904,	inclusive.
Designs	4	No. 16,134 to No. 16,137,	inclusive.
Trade-Marks	13	No. 12,330 to No. 12,342,	inclusive.
Labels	7	No. 4,484 to No. 4,490,	inclusive.
Reissues	2	No. 10,615 to No. 10,616,	inclusive
Total issue	479		

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	1	....	Nebraska	7	....
Arizona Territory	....	....	Nevada	....	....
Arkansas	1	....	New Hampshire	3	....
California	12	....	New Jersey	31	1
Colorado	1	1	New Mexico Territ'y	....	....
Connecticut	15	....	New York	81	5
Dakota Territory	2	....	North Carolina	1	....
Delaware	....	....	Ohio	40	3
District of Columbia	5	....	Oregon	2	....
Florida	1	....	Pennsylvania	42	2
Georgia	2	....	Rhode Island	3	1
Idaho Territory	....	....	South Carolina	1	....
Illinois	33	1	Tennessee	4	....
Indiana	12	1	Texas	5	....
Indian Territory	....	....	Utah Territory	1	....
Iowa	10	....	Vermont	3	....
Kansas	6	....	Virginia	3	....
Kentucky	2	....	Washington Territ'y	1	1
Louisiana	1	1	West Virginia	1	....
Maine	2	....	Wisconsin	14	....
Maryland	5	1	Wyoming Territory	....	....
Massachusetts	39	....	United States Army	....	....
Michigan	12	1	United States Navy	....	....
Minnesota	8	....			
Mississippi	....	....	Total to citizens of the United States	426	20
Missouri	13	1			
Montana Territory	....	....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Argentine Republic	....	....	Germany	7	....
Austria-Hungary	1	....	Ireland	....	....
Barbadoes	....	....	Mexico	....	....
Belgium	....	....	Newfoundland	1	....
Bermuda	....	....	Russia	....	....
British Columbia	....	....	Scotland	2	....
Canada	5	....	Spain	....	....
Chili	....	....	Sweden	....	....
Colombia, U. S. of	....	....	Switzerland	....	....
Cuba	....	....	West Indies	....	....
Denmark	....	....			
Ecuador	....	....	Total to citizens of foreign countries	31	
England	12	....			
France	3	....			

DESIGNS.

16,134.—ORGAN-CASE.—*Levi K. Fuller*, Brattleborough, Vt. Application filed April 27, 1885. Term of patent 14 years.

16,135.—FIRE-PLACE FRONT.—*Edwin A. Jackson*, New York, N. Y. Application filed January 24, 1885. Term of patent 3½ years.

16,136.—FIRE-PLACE FRONT.—*Edwin A. Jackson*, New York, N. Y. Application filed February 24, 1885. Term of patent 3½ years.

16,137.—CARPET.—*David G. Melville*, Medford, assignor to *The Roxbury Carpet Company*, Boston, Mass. Application filed April 25, 1885. Term of patent 3½ years.

TRADE-MARKS.

[Certificates of registration of Trade-Marks numbered 8,191 and upward are registered under the act of March 3, 1881.]

12,330.—CRUSHED HOMINY.—*Austin, Nichols & Co.*, New York, N. Y. Application filed May 13, 1885.
"The word 'FLAKE.'"

12,331.—LINIMENT.—*James F. Ballard*, St. Louis, Mo. Application filed May 1, 1885.
"The word 'SNOW.'"

12,332.—STOVES AND RANGES FOR COOKING AND HEATING PURPOSES. *Jacob Born*, New Orleans, La. Application filed February 6, 1885.
"The figures of a star and crescent."

12,333.—WHITE OR LIGHT-COLORED PRINTING, WRITING, AND WRAPPING PAPER.—*J. W. Butler Paper Company*, Chicago, Ill. Application filed May 16, 1885.
"The words 'WAWASA MILLS.'"

12,334.—BOOTS, SHOES, AND SLIPPERS.—*Alfred J. Cammeyer*, New York, N. Y. Application filed March 6, 1885.
"The word 'SURPRISE.'"

12,335.—LIQUID MEDICINES FOR THE CURE OF IMPURE BLOOD OR DERANGED BOWELS.—*August Danner*, Allegheny, Pa. Application filed May 21, 1885.
"The words 'GESUNDHEIT ESSENS,' or 'ESSENCE OF HEALTH.'"

12,336.—PREPARED PAINT.—*Hartmann, Le Doux & Maecker*, New York, N. Y. Application filed May 26, 1885.
"The words 'RAHTJEN'S COMPOSITION.'"

12,337.—ALL KINDS OF FIELD, GARDEN, GRAIN, GRASS, TREE, SHRUB, AND FLOWER SEEDS.—*Oliver Landreth*, Philadelphia, Pa. Application filed June 1, 1885.
"The picture of a bell."

12,338.—BALSAM OR SALVE.—*Virgile L'Eplattenier*, New York, N. Y. Application filed April 6, 1885.
"The arbitrary words 'SWISS' and 'RACINE,' and the symbol of a Greek cross on a red field."

12,339.—OINTMENT OR COSMETIC.—*Francis C. Renner*, New Midway, Md. Application filed May 22, 1885.
"The words 'ROSE JELLY.'"

12,340.—DRAWING MATERIALS.—*E. G. Soltmann*, New York, N. Y. Application filed May 23, 1885.
"A T-square and triangle."

12,341.—STOVE-POLISH.—*Randall H. Wetherell*, Hoboken, N. J Application filed May 29, 1885.
"The arbitrary words 'NEW ERA.'"

12,342.—REMEDY FOR CATARRH, HAY-FEVER, COLDS, &c.—*David O. Wilhelm*, Denver, Colo. Application filed April 29, 1885.
"The word 'NASALINE.'"

LABELS.

4,484.—Title: "COTTINGHAM'S LINIMENT."—*William H. Cottingham*, Noblesville, Ind. Application filed June 1, 1885.

4,485.—Title: "CREAMERY 5LBS. CHOCOLATES."—*Gray, Toynton & Fox*, Detroit, Mich. Application filed May 27, 1885.

4,486.—Title: "EWING'S AGUE MIXTURE."—*H. E. Holmes*, Walla Walla, Wash. Ter. Application filed June 1, 1885.

4,487.—Title: "FEMALE REGULATOR" (FOR A MEDICINE.)—*Joseph Lariviere*, Lincoln, R. I. Application filed May 28, 1885.

4,488.—Title: "HONEY DEW COUGH SYRUP."—*H. C. Royer*, Massillon, Ohio. Application filed June 1, 1885.

4,489.—Title: "CHIONANTHUS COMPOUND."—*H. C. Royer*, Massillon, Ohio. Application filed June 1, 1885.

4,490.—Title: "ROYER'S GERMAN SPECIFIC."—*H. C. Royer*, Massillon, Ohio. Application filed June 1, 1885.

PATENTS

GRANTED JUNE 23, 1885.

320,452. COMBINED COLLAR-STUD AND NECKTIE-HOLDER. CHARLES BABCOCK, Troy, N. Y. Filed Mar. 28, 1885. (No model.)



Claim.—1. In a combined collar-stud and necktie-holder, a shoe and slotted head connected by a tubular stud or post, in combination with a hook adapted to enter the slot in the head, and provided with a supporting-stem adapted to travel longitudinally within said post, substantially as and for the purposes set forth.

2. A collar-stud composed of a shoe and slotted head connected by a tubular stud or post, in combination with a hook adapted to pass in and out of said head and supported by a stem having a spring-catch adapted to engage with stops in said post or head, substantially as described, and for the purposes set forth.

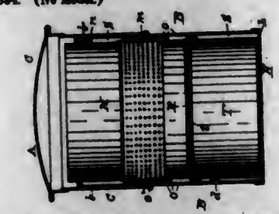
320,453. TRUSS. ANDREW R. BARNETT, Taunton, Mass. Filed Mar. 25, 1885. (No model.)



Claim.—1. In a truss, the combination, with the pad having the socket-plate attached thereto, the socket of said plate projecting outward, of the bolt G, having the ball working in the socket, the cap-plate I, arranged on the bolt and concaved on its inner face to fit the convex outer surface of the socket, the spring A, and the nut J, binding against the spring to cause the latter to force the cap-plate into frictional contact with the socket, as set forth.

2. In a truss, the pad having the socket-plate, in combination with the bolt having the ball working in the socket, the spring A, slotted at one end, and the nut working over the threaded outer end of the bolt against the spring, said bolt being flattened on opposite sides to leave cut-away portions *a* through the threads, so that the bolt may be slid through the slot of spring A without being turned, as set forth.

320,454. DINNER-PAIL. WILLIAM BORD, Green Island, N. Y. Filed Oct. 30, 1884. (No model.)

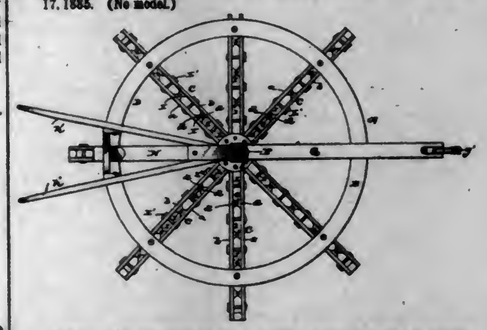


Claim.—1. In a dinner-pail, the combination of the pail-sides having perforations, trays, vessels, or food-receptacles having a less diameter than the pail-body, and adapted to be inserted within the latter, so as to leave an annular space between said vessels and the inner sides of the pail, and ribs or projections in said annular space, substantially as and for the purposes set forth.

2. In the dinner-pail, the combination of the sides made with perforations O, the trays R and M, and the vessel T, having smaller diameters than the pail-body, and adapted to be inserted in the latter, so as to produce the annular space S, and projections or ribs arranged in said annular space between the outer surface of said trays and vessel and the inner surface of the pail-sides, substantially as and for the purposes set forth.

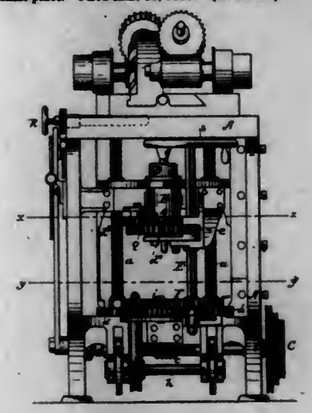
3. In a dinner-pail, the combination of the perforations O, made in the sides of the pail, the vessel T, the upper tray, M, and the middle tray, R, the latter made with side perforations, and said trays and vessel being constructed and adapted to be inserted and arranged within the pail-body, as shown and described.

320,455. HARROW. MANLY D. BROSNER, Ilion, N. Y. Filed Mar. 17, 1885. (No model.)



Claim.—The combination of the circular harrow having the circular plate or ring E and the pivotal bolt at the center of the harrow, the draft-beam G, and the guide-beam H, having handles, said beams being pivoted independently of each other on the bolt F, and the straps A secured to the guide and draft beams, and bearing over and under the projecting outer flange or edge of the ring E, substantially as described.

320,456. MACHINE FOR MAKING TWIST-DRILLS. FRANK BOURNE, New Bedford, Mass., assignor to the Morse Twist Drill and Machine Company, same place. Filed Mar. 18, 1885. (No model.)



Claim.—1. In a machine for making twist-drills, the forwarding mechanism for giving an accelerated forward motion to the drill-blank past the cutters, it consisting in the combination, with the forwarding-screws, of levers which bear against and lift the forwarding-screws, and cams mounted upon a suitable driving-shaft, the cams being arranged to bear against and lift the levers, all substantially as herein set forth.

2. In a machine for making twist-drills, the combination, with a rotary sleeve which carries and rotates the drill-blank, of a rotating shaft, E, said shaft being connected by intermediate gearing, substantially as described, both with the drill-rotating sleeve and also with the main source of power of the machine, all substantially as herein set forth, and for the purposes herein specified.

3. In a machine for making twist-drills, the combination, with cutters arranged to be moved laterally toward and away from the central line of the drill-blank, of right and left handed screws *l l*, their pinions N N, and a rack, O O, for actuating the pinions, all substantially as herein set forth.

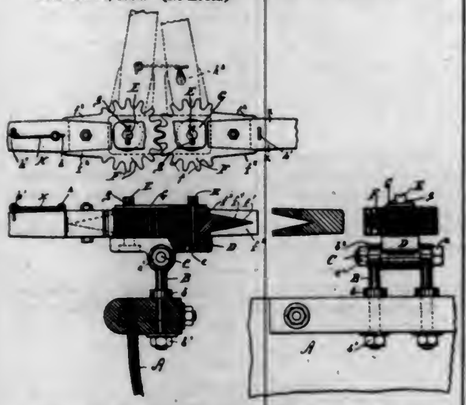
4. In a machine for making twist-drills, the combination of the cutters K, mounted in laterally-movable supports, the screws *l l*, pinions N, rack O, arm P, and forwardly-moving carriage B, all substantially as herein set forth.

320,457. BOTTLE-STOPPER. JOHN'S BYRNE, Chicago, Ill. Filed Apr. 5, 1884. Renewed May 15, 1885. (No model.)



Claim.—A bottle-stopper consisting of spring A, formed at its upper end with a ring, F, the stem B, having hook E at upper end to engage the ring F, and washers *b* and *l* and rubber C at its lower end, substantially as and for the purpose shown.

320,458. ROWING APPARATUS. WILLIAM CRNCOSKI, Kouts, Ind. Filed Oct. 13, 1884. (No model.)



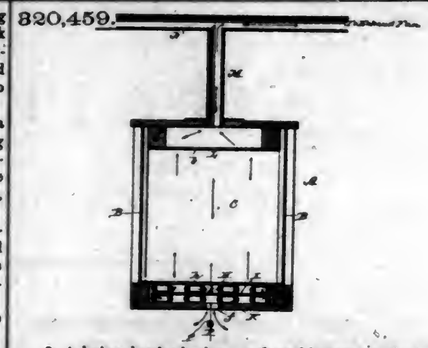
Claim.—1. In rowing apparatus, the combination of the uprights B, attached to the boat, the bottom plate, D, the pivot-bolt C, the castings F and F', having teeth upon their peripheries, and having the recessed shanks, provided with the side flanges, f^2, to resist lateral strain, the top plate, G, and the oar handle and blade having each a cut-away portion to fit the recessed shanks of the castings, substantially as described.

2. In a rowing apparatus, the combination, with the divided portions of the oar, of a suitable link and catches for fastening said portions together when not in use, substantially as described.

320,459. TOBACCO-DRIER. ROBERT W. COPPER, Liberty, Va., assignor of one-half to George T. Cauthorn, same place. Filed Dec. 30, 1884. (No model.)

Claim.—1. A drying-chamber having a perforated bottom, a perforated false bottom, and a perforated ceiling, steam-pipes which are located below the false bottom, and a plate which is placed between said steam-pipes for the purpose of distributing the heated air evenly below the false bottom, substantially as described.

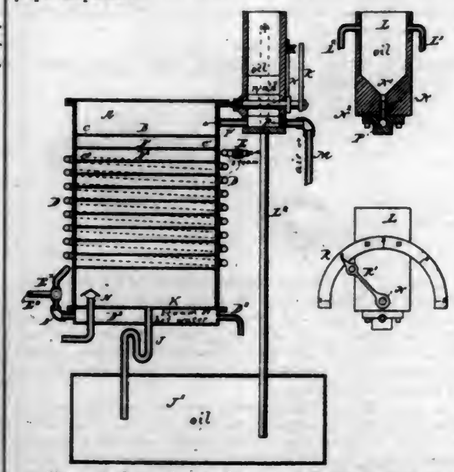
320,459.



2. A drying-chamber having a perforated bottom, a perforated false bottom, and a perforated ceiling, steam-pipes which are located between the bottom and the false bottom, and a plate located between said steam-pipes for the purpose of distributing the heated air evenly below the false bottom, means for creating a draft through the chamber, and a perforated steam-pipe which is located below the chamber for the purpose of discharging vaporized steam into the chamber, substantially in the manner and for the purpose described.

320,460. CARBURETOR. FRANKLIN COPELAND, Dedham, Mass. Filed Dec. 3, 1883. (No model.)

Brief.—Oil is fed to the carburetor through a measuring-valve having a pointer arranged over a graduated plate to indicate the quantity of oil passing through the valve. The carburetor is surrounded by a steam-coil, and has a steam heating-chamber at the bottom for maintaining the proper temperature.



Claim.—1. In a carburetor, the combination of the tank L, the revolving valve N, having openings n n' n^2 n^3, and indicating-hand R', with the slit N^3 and air-pipes P and M, whereby the hydrocarbon fluid is combined with the air in the pipe P, and this mixture of air and hydrocarbon fluid is injected into generator A, all operating together substantially as described, and for the purpose set forth.

2. In a carburetor, the combination of the generator A, having disks B B' B^2, with the coil D D, pipe E' E^2 D, and the chamber D^2, all arranged to operate together substantially as described, and for the purpose set forth.

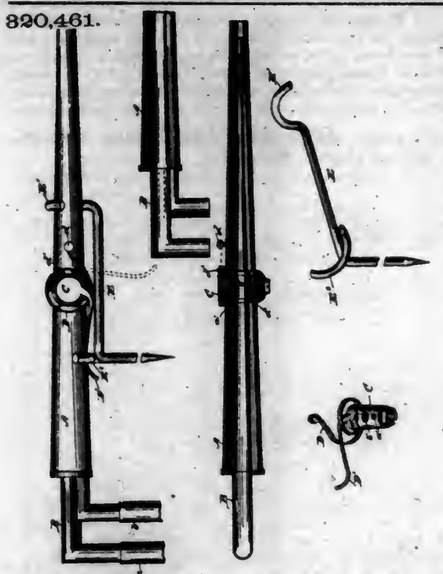
320,461. BLOW-PIPE. GEORGE D. COWEN, Trenton, Mass. Filed July 2, 1884. (No model.)

Claim.—1. In combination with the air and gas pipes, the valve for shutting off the gas and air blast, and a stand for the blow-pipe with which said valve co-operates, whereby when the blow-pipe is placed in the stand the gas and air blast will be turned off, substantially as described.

2. The combination, with the blow-pipe provided with the valve opened by the spring and having the arm, of a stand for supporting the same, and so constructed that when the blow-pipe is placed in the stand the gas and air blast will be shut off, substantially as described.

3. The blow-pipe provided with the valve operated by the spring, and having the arm for co-operating with the stand, in combination with

320,461.



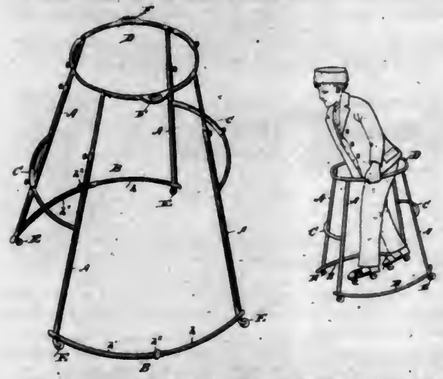
said stand provided with the front and rear forks, substantially as described.

4. The combination, with the air and gas tubes, of the valve having three perforations, the central one for the passage of the air and the two outside ones for gas, and the groove in line with one of the outside perforations, substantially as described.

5. In a blow-pipe, and in combination with the internal air-tube and the external gas-tube, the valve perforated and grooved, as described, the arm attached thereto, and a stand or support, against which said arm is caused to press and so turn the valve by the weight of the pipes, substantially as described.

6. In a blow-pipe, and in combination with the blast and gas pipes, a valve provided with an actuating-arm, and a stand or support for the pipe, adapted, when the latter is applied, to make contact with the arm, and thus actuate the valve, substantially as described.

320,462. SKATER'S APPLIANCE. WILLIAM J. COWING, Washington, D. C. Filed Jan. 15, 1885. (No model.)



Claim.—1. An appliance for assisting skaters, consisting, essentially, of uprights and standards adapted to travel over the surface skated upon, and an open-top frame supported upon said uprights at a height sufficient to give support to the user's hands and adapted to entirely surround his body, the opening in said top frame being large enough to not only accommodate the user's body, but also to admit of its free play therein, substantially as described.

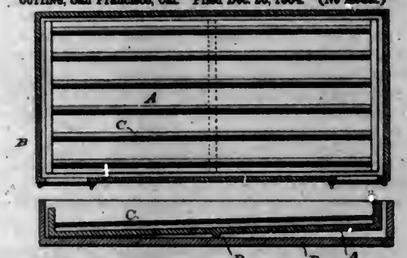
2. In the herein-described appliance for assisting skaters, the combination, with the uprights mounted on rollers or runners, of the open-top frame adapted to entirely surround the body of the user and yet permit of the free play of the same therein, the lower bars or braces connecting the uprights at the sides and the upper bars or braces connecting the uprights at the front and rear above a point where interference with the "striking out" of the user would take place, substantially as described.

3. The combination of the uprights, the bars connecting said uprights at sides, front, and rear, as described, and an open-top frame constructed with a removable section or sections for the purpose of conveniently admitting the user's body within the frame, substantially as described.

4. The combination, with the uprights, of the bars connecting the uprights at the sides, the detachable bars connecting the uprights at front and rear, and the open-top frame made up of separable parts, substantially as described.

5. In an appliance such as described, the combination of uprights, connecting-bars, and open-top frame, said parts all being made of sliding sections and provided with means for locking, whereby the device is rendered capable of adjustment to different-sized persons, as set forth.

320,463. EGG-TURNING DEVICE FOR INCUBATORS. LEWIS CUTTING, San Francisco, Cal. Filed Dec. 26, 1884. (No model.)



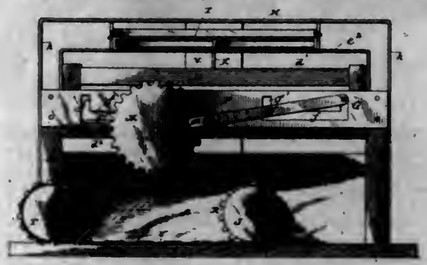
Claim.—1. In an egg-turning device for incubators, the supplemental tray A within the drawer of an incubator, provided on its under side with a rocker, D, which adapts it to be tilted from right to left or left to right, and thus change somewhat the position of the eggs, constructed and arranged to operate substantially as described.

2. In an incubator, the tray A, provided with longitudinal strips or egg-supports C and rocker D, constructed, arranged, and operating substantially in the manner and for the purpose as herein set forth and specified.

320,464. VARNISH. WILLIAM E. B. DAVIES, Allegheny, Pa. Filed June 6, 1884. (Specimens.)

Claim.—A compound or varnish consisting of rosin, crude turpentine, naphtha, black oxide of manganese, oxide of lead, umber, essence of bergamot, and linseed oil, combined in about the proportions named.

320,465. MACHINE FOR MEASURING AND ELEVATING GRAIN. SAMUEL R. DAXON, Perrytea, Ill. Filed Mar. 12, 1885. (No model.)



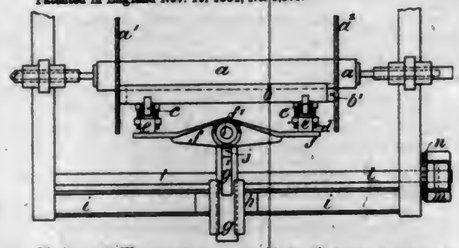
Claim.—1. The combination of the reciprocating bottomless box divided into compartments, the frame in which the box slides, said frame having a bottom or plate, which forms a bottom for each of the bottomless compartments successively, and a scale or balance to which said frame is suspended, substantially as described.

2. The combination of the box A, having sides F, provided with the horizontal slots *f* and vertical end slots, *f'*, the frame D, having center plate or bottom, d^4, the sliding bottomless box E, divided into compartments and having projecting rods G, that extend into the slots *f*, the chain-wheel M, journaled to the frame D, pitman N, connecting said wheel and the sliding box, the scale or balance to which the frame D is suspended, the sprocket-chain with which the wheel M gears, and actuating-wheels for the chain, substantially as described.

3. The combination of the box A, having sides F, provided with the horizontal slots *f* and vertical end slots, *f'*, the frame D, having center plate or bottom, d^4, the sliding bottomless box E, divided into compartments, and having projecting rods G, that extend into the slots *f*, the chain-wheel M, journaled to the frame D, pitman N, connecting said wheel and the sliding box, the scale or balance to which the frame D is

suspended, the sprocket-chain with which the wheel M gears, actuating-wheels for the chain, and an elevator connected with the box A, and gears for actuating the elevator, substantially as described.

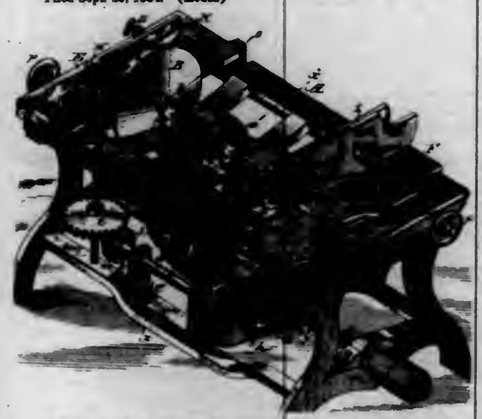
320,466. WARP-SIZING MACHINE. ASPDEN P. DICKINSON, Blackburn, County of Lancaster, England. Filed Nov. 23, 1883. (No model.) Patented in England Nov. 19, 1881, No. 5,075.



Claim.—1. The yarn-beam *a*, provided with flanges a' a^2 near its ends, in combination with the presser-roll *b* in contact with the flange a', the presser-roll b' in contact with flange a^2, and devices for supporting said presser-rolls in contact with the yarn wound on said beam and tilting said presser-rolls, substantially as set forth.

2. The yarn-beam and the presser-rollers *b* b', in combination with the anti-friction rollers *c* c', which support said presser-rollers, the supports for said anti-friction rollers c', and the devices for supporting and adjusting said rollers *c* independently of one another, substantially as set forth.

320,467. MACHINE FOR DRESSING FELLIES. WILLIAM GARDNER, Lancaster, Ohio, assignor of one-half to Charles H. Neil, same place. Filed Sept. 29, 1884. (Model.)



Claim.—1. In a machine for dressing the rims of vehicle-wheels, the combination, with a revolving abrading-wheel and a revolving feed-roller, of a head provided with adjustable and pivoted bearing-plates, between which the rim is held, substantially as and for the purpose set forth.

2. In a machine for dressing the rims of vehicle-wheels, a revolving face-plate or abrading-wheel and a feed-roller, in combination with an adjustable head carrying pivoted and adjustable bearing-plates connected to its front side, substantially as and for the purpose specified.

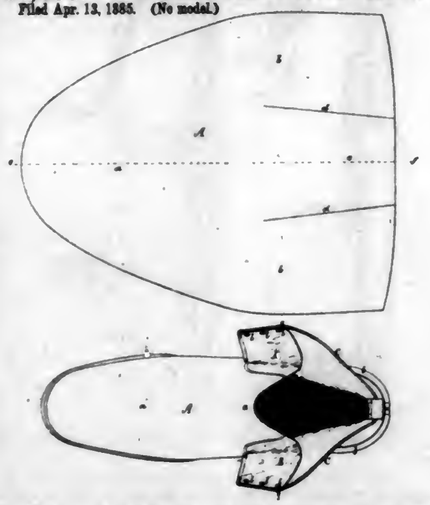
3. In a machine for dressing the rims of vehicle-wheels, a revolving abrading-wheel and feed-roller, in combination with a head hinged to an adjustable bracket, and provided upon its front side with pivoted and adjustable bearing-plates, between which the rim is held while being operated upon by the abrading-wheel, substantially as and for the purpose described.

4. In a machine for dressing the rims of vehicle-wheels, a revolving abrading-wheel and feed-roller, in combination with a pivoted table, having connected thereto an adjustable bracket provided with an adjustable head, the latter provided with pivoted and adjustable bearing-plates, substantially as and for the purpose set forth.

5. In a machine for dressing the rims of vehicle-wheels, the combination, with a revolving abrading-wheel and feed-roller, of a pivoted table, a bracket carrying a head having bearing-plates, and means for adjusting, respectively, the bracket and head, consisting of a hand-screw engaging with a screw-threaded hole in a lug connected to the under side of the bracket and extending through a slot in the table, and a hinged slotted plate, and set-screw connected to the head, and a block projecting from the bracket, substantially as and for the purpose described.

6. In a machine for dressing the rims of vehicle-wheels, the combination, with a pivoted table carrying an adjustable bracket and head, the latter having pivoted and adjustable bearing-plates, of means for rendering the bracket automatically yielding, consisting of a curved spring bearing against the back edge of the bracket and having its tension regulated by a thumb-screw, substantially as and for the purpose specified.

320,468. BOOT OR SHOE. WILLIAM C. GILLMAN, Milford, Mass. Filed Apr. 13, 1885. (No model.)



Claim.—1. In a bellows-top shoe, the combination of the vamp, quarters, and tongue in one piece, crimped along its middle, so as to raise the tongue to its proper angle with the quarters, with ankle-pieces arranged above and stitched to the quarters, and with intermediate pieces slitted at their lower ends and there straddling the quarters, and lapped on the tongue and stitched thereto and to the ankle-pieces at their front edges, all being substantially as set forth.

2. A bellows-top shoe having the vamp *a*, tongue *c*, and quarters *b b* in one piece, extending to the middle of the back of the heel and crimped along its middle, so as to raise the tongue to its proper angle with the quarters, also having ankle-pieces C, connected at the back of the shoe and extending above and stitched to the quarters, and also having intermediate pieces, B, lapped on the tongue and stitched thereto and to the ankle-pieces at their front edges, all being substantially as hereinbefore set forth, and represented in the accompanying drawings.

320,469. ATTACHMENT FOR SLEEVE, HOSE, AND GARMENT SUPPORTERS. CHRISTINA J. HALEY, New York, N. Y. Filed Feb. 16, 1885. (No model.)



Claim.—1. The safety-pin, in combination with the slotted plate hinged or pivoted to the pin, so as to swing or turn, as and for the purpose set forth.

2. The safety-pin, in combination with the slotted metallic plate having its upper edge rolled or bent over the side bar of the pin, as and for the purpose set forth.

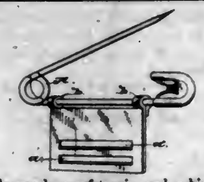
320,470. HOSE, SLEEVE, AND GARMENT SUPPORTER. CHRISTINA J. HALEY, New York, N. Y. Filed Feb. 26, 1885. (No model.)

Claim.—1. In a supporter for sleeves, &c., the combination of the webbing or equivalent body, the clasp or pin at one end of the latter, a slotted plate at the other end of said body, and a safety-pin attached to the plate, the latter being hinged to the pin so as to swing in and out, as desired, as and for the purpose set forth.

2. In a supporter for sleeves, hose, garments, &c., the combination of the webbing or equivalent body, a clasp or other device for connect-

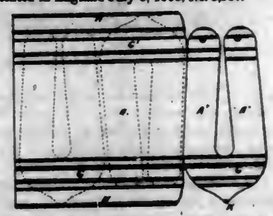


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ing the webbing to the goods, a safety-pin, and a hinged slotted plate, as set forth.

320,471. HORSESHOE AND HORSESHOE-BLANK. THOMAS H. HEARD, Sheffield, County of York, England. Filed Nov. 1, 1883. (No model.) Patented in England July 5, 1883, No. 3,237.



Claim.—1. A rolled plate of metal having on its surface near each longitudinal edge parallel ribs or ridges to constitute material for toe and heel calks of horseshoes that may be cut therefrom.

2. A cut wrought-metal horseshoe-blank having integral ribs or protuberances across the heel and toe portions of which to form the calks.

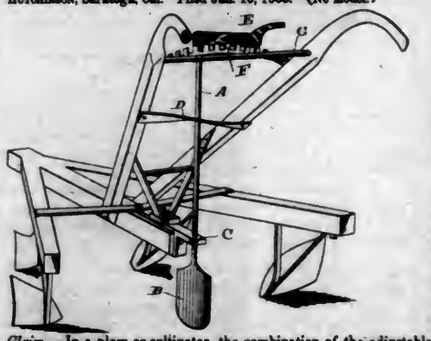
3. A cut wrought-metal horseshoe the body and calks of which are integral and homogeneous.

320,472. LATCH AND LOCK COMBINED. WILLIAM HILL, Mount Vernon, Ill. Filed June 16, 1884. (Model.)



Claim.—The combination, with a suitable casing, of a spring-actuated bolt adapted to slide therein, said bolt having the shoulders *f*, a spring-actuated plate engaging said shoulders, nibs *g* on said plate, and tumblers pivoted to the inner sides of the casing, said tumblers having recesses or slots at their ends, substantially as set forth.

320,473. GUIDING DEVICE FOR CULTIVATORS, &c. SEABORN P. HUTCHINSON, Saratoga, Cal. Filed Jan. 10, 1885. (No model.)

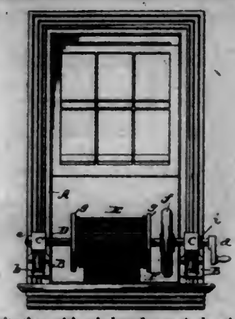


Claim.—In a plow or cultivator, the combination of the adjustable blade or rudder-plate B, having a vertical spindle, A, the supports C D, rack-bar F, and pawl E, substantially as shown and described.

320,474. FIRE-ESCAPE. MARSHALL B. INGERSOLL, Regina, Manitoba, Canada. Filed May 12, 1885. (No model.) Patented in Canada Apr. 7, 1884, No. 25,731.

Claim.—1. In a fire-escape, the combination, with a window-casing and brackets secured thereto, of a shaft, a ladder wound upon said shaft, and boxes supporting the shaft and loosely mounted in the brackets, as set forth.

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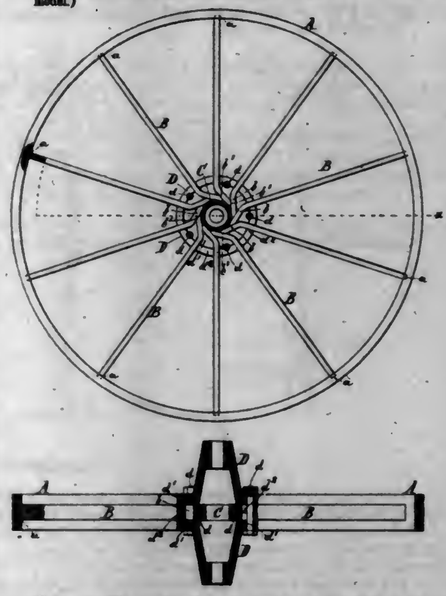


2. In combination with window-frame A, brackets B, secured to the inner faces thereof, blocks C, mounted in said brackets, shaft D, journaled in said blocks, and ladder E, wound upon said shaft, and provided with weight F, all constructed and arranged to operate as set forth.

3. In a fire-escape, the combination, with a window-casing, of brackets B, secured thereto, and provided with opening *a*, and blocks C, provided with stem *b* and holes *c*, and adapted to support the ladder shaft or reel, as set forth.

4. In combination with casing A, brackets B, provided with hole *a*, blocks C, provided with stems *b*, shaft D, journaled in the blocks C, and provided with ladder E, and hand-wheel *f*, as and for the purpose set forth.

320,475. PULLEY OR WHEEL. FELIX A. JACOBS, HENRY L. JACOBS, and WILLIAM E. JACOBS, Columbus, Ohio. Filed Dec. 11, 1884. (No model.)



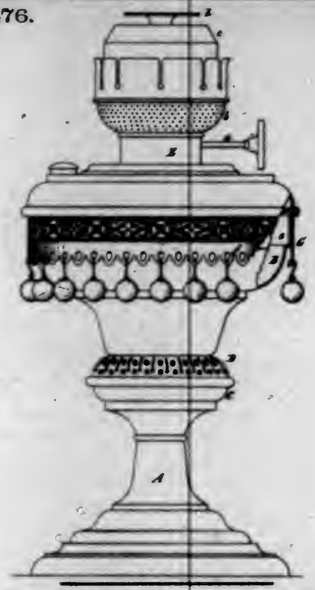
Claim.—1. The combination of a continuous iron felly or rim, A, having inner mortises, *a*, spokes B, having centrally interlocking end portions, *b*, and a central tightening hub or eye or key, C, substantially as and for the purpose described.

2. The combination of the rim or felly A, centrally-interlocking elastic spokes B, central tightening-key, hub, or eye, C, and clamping half-hubs D, substantially as and for the purpose described.

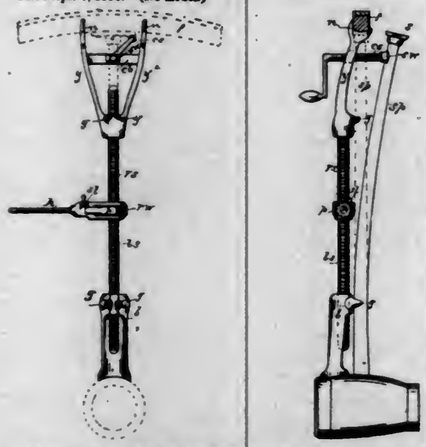
320,476. STAND-LAMP. NICHOLAS JEKEMS, Waterbury, Conn., assignor to Holmes, Booth & Haydens, same place. Filed Mar. 2, 1885. (No model.)

Claim.—A new article of manufacture, comprising the following elements, to wit: a metal reservoir having an externally-cylindric portion and an inwardly extending or receding lower portion, and a strip secured to the cylindric portion extending below the cylindric portion and provided below the cylindric portion and opposite the inwardly-extending portion of the reservoir with perforations for receiving hooks or fastenings of pendants.

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320,477. WHEEL-JACK. JESSE F. JOHNSON, Indianapolis, Ind. Filed Apr. 3, 1885. (No model.)



Claim.—1. The wheel-jack herein described, comprising the right-and-left screw and base *b*, the yoke having arms *y y'*, notches *n n*, united by the cross-bar *cb*, the crank-screw *cs*, having swivel *sw*, and ratchet-wheel or nut connected with the right-and-left screw, with means for operating the same, all combined substantially as described.

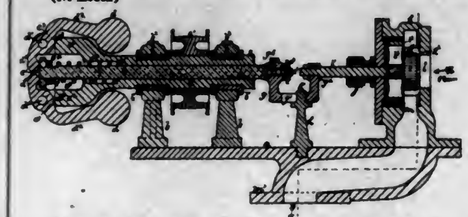
2. A wheel-jack having a suitable base, threaded to receive the lower portion of the right-and-left screw, a top piece threaded to receive the upper portion of the same screw, and having one or more notches for the felly to rest in, in combination with a ratchet mechanism for operating the same, substantially as described.

3. A wheel-jack having a base and top adapted to be moved in opposite directions or drawn toward each other by suitable mechanism for operating a right-and-left screw entering the threaded openings in the top and base, in combination with a screw mechanism operating substantially at right angles to the lifting-screw, for pressing the spoke out of line, substantially as described.

4. A wheel-jack whose base is adapted to rest against the hub, its upper part to press against the under side of the felly, the two connected by means of a right-and-left screw, and provided with guides for holding the spoke in place, and suitable mechanism for pressing the spoke out of line, all combined substantially as described.

5. A wheel-jack having a base adapted to rest upon the hub of the wheel, and a top piece provided with arms for receiving the felly, the two connected by means of a right-and-left screw adapted to be operated in either direction by suitable ratchet mechanism having guides *g* on the top and base for partly inclosing the spoke, the crank-screw *cs*, provided with a swivel, *sw*, for forcing the spoke out of line, all combined substantially as described.

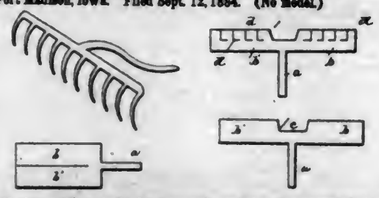
320,478. STEAM-GOVERNOR. JOHN KELLY, Allegheny, Pa., assignor of one-half to Henry Clay Bair, same place. Filed Aug. 12, 1882. (No model.)



Claim.—1. The combination of the rotatory shaft, balls pivoted thereto having arms, central sliding rod against which the ends of the ball-arms bear, a slotted sliding bearing having a journal-box in one end, and a valve, the stem of which is connected to the said sliding bearing, substantially as and for the purposes described.

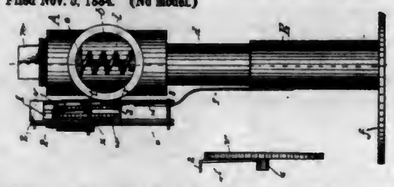
2. The combination of a rotatory longitudinally-moving stem of a steam-governor, a slotted sliding bearing, and the non-rotatory sliding stem of the valve which controls the admission of steam to the steam-engine, substantially as and for the purposes described.

320,479. METHOD OF MAKING RAKES. FREDERICK S. KREISINGER, Fort Madison, Iowa. Filed Sept. 12, 1884. (No model.)



Claim.—The method of manufacturing rakes, consisting, essentially, in forming the shank, splitting the blank and opening the split portion into shape on opposite sides of and in the same plane with the shank, cutting and drawing the teeth, and, finally, carving the teeth and the shank, substantially as and for the purpose set forth.

320,480. REGISTERING-FAUCET. LOUIS C. LANE, Cincinnati, Ohio. Filed Nov. 5, 1884. (No model.)



Claim.—1. In combination with a faucet and with its valve-stem, a sliding outlet, tube, or sleeve, connected to such stem, and a registering device connected with and operated by such tube, the movements of the tube serving to effect the opening and closing of the valve, and also to actuate the registering mechanism.

2. In combination with the body, the reciprocating valve-stem *h*, and its valve, and spiral spring *l*, the sliding sleeve E, its plate *f*, rod *g*, lever *r*, pawl *t*, spring *u*, wheel *v*, spring v^3, and wheel *w*, and a dial, all substantially as and for the purpose set forth.

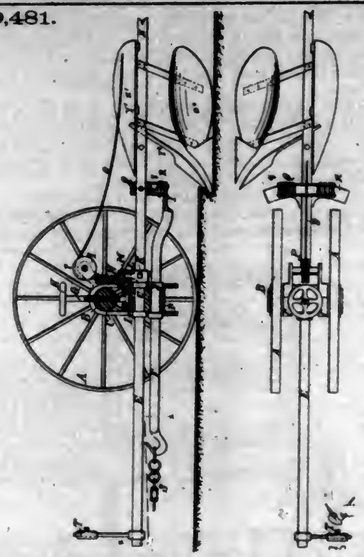
320,481. PLOW. JEAN D. LEFÈVRE, Guise, France. Filed Oct. 13, 1884. (No model.) Patented in France Sept. 17, 1883, No. 157,961.

Claim.—1. The rocking beam E, carrying two plowshares, Z' Z^2, and the necessary accompanying parts, in combination with supporting means, as A B, and the draw-bar F, and a mechanical connection, as Q R, whereby a side draft of the animals on the draw-bar effects the turning of beam E, substantially as herein specified.

2. In a plow, the block D, having a longitudinal slot, *d*, in combination with the draw-bar F, having a collar, J, and horizontal sector R, and with the vertical sector Q, and beam E, carrying two plowshares arranged for joint operation, substantially as and for the purposes herein specified.

3. The locking-dog M, with means, as N O, for moving it, in combination with the rocking beam E, carrying two plowshares, Z' Z^2, and

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with means, as F R Q, for revolving the latter by a lateral draft of the animals, substantially as herein specified.

4. The partial counter-weight T, in combination with the rocking beam E, two plowshares, Z' Z^2, and provisions, as F R Q, for rotating the beam by the force of the animals, as herein specified.

320,482. APPARATUS FOR COMPRESSING AIR AND STORING THE SAME. CHARLES LEAVITT, Cleveland, Ohio. Filed Nov. 24, 1884. (No model.)

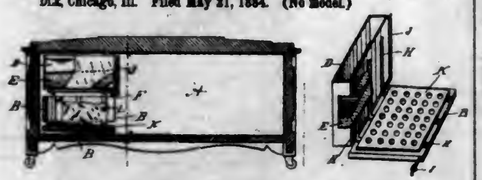


Claim.—1. In an apparatus for compressing and storing air, an arrangement of hermetically-constructed tanks connected to each other by tubular connections, each of which is provided with a valve in combination therewith, counter-weights L' M', air-pump put in communication with said storage-tanks by an air-pipe, D, and branch pipes, substantially as described, and for the purpose set forth.

2. The combination, with the air-pipe D, branch pipe F, and storage-tank C, of valves H and K, counter-weight M', arranged to co-operate in relation to and co-ordinately with the valve Q, substantially as described, and for the purpose specified.

3. The combination of the storage-tanks A, B, and C, (more or less in number,) in communication with each other by tubular connections B', provided with valves for opening and closing said connections, air-pipe D, put in communication with the tanks by branch side pipes, having in connection therewith piston-valves, counter-weight, and air-pump, substantially as described, and for the purposes herein set forth.

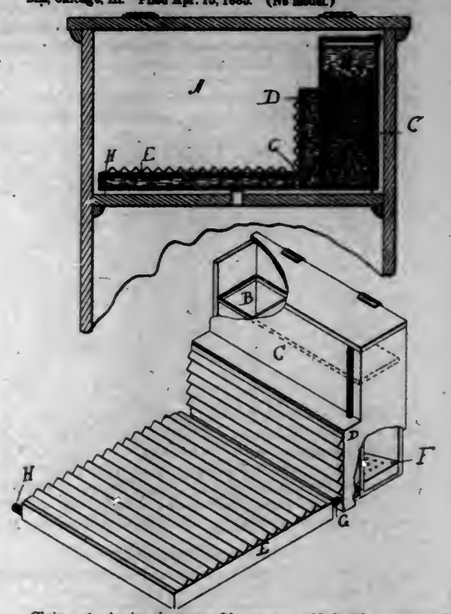
320,483. COMBINED WATER COOLER AND FILTER. JOSEPH LINDLE, Chicago, Ill. Filed May 21, 1884. (No model.)



Claim.—1. The combination, with the water-reservoir, of the single broad flat pipe or cooling-jacket B, detached from the surrounding walls and partly or wholly inclosing the sides of the ice, and connected by a pipe with a similar flat section thereof extending under the ice, substantially as shown.

2. In a refrigerator, the single broad flat pipe or ice-inclosing jacket B, disconnected from the outer walls and connected with the filtering-tank above and with the flat water-box extending under the ice-space, substantially as set forth.

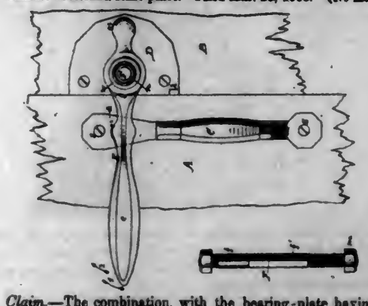
320,484. WATER-COOLER AND REFRIGERATOR. JOSEPH LINDLE, Chicago, Ill. Filed Apr. 15, 1885. (No model.)



Claim.—1. An ice-chest or refrigerator provided with a water-tank and filtering-chamber at one end, a water-cooling chamber in front of the filtering-chamber, and a water-cooling chamber on the bottom of the ice-chest, substantially as described.

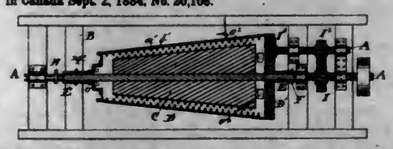
2. An ice-chest or refrigerator provided with a water-tank and filtering-chamber at one end, a broad, flat, thin water-cooling chamber in front of the filtering-chamber, and a broad, flat, thin water-cooling chamber on the bottom of the ice-chest, substantially as described.

320,485. LEVER-LATCH. JOHN J. MAAS, Albany, N. Y., assignor to Charles Croissant, same place. Filed Mar. 28, 1885. (No model.)



Claim.—The combination, with the bearing-plate having inclined surface *a* and attached to the door, of bearing-plate D, attached to the jamb, and the latch E, having feet e^2 e^3, and pivoted to said plate D between such feet, the latch being adapted to engage the inclined surface of the plate, the foot e^2 being adapted to exert a pressure upon the door, and the foot e^3 a reacting pressure upon the jamb, substantially as and for the purpose described.

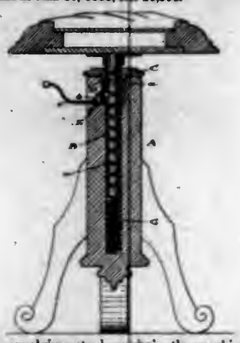
320,486. GRAIN-GRANULATING MACHINE. GEORGE MALCOLM, Tavistock, Ontario, Canada. Filed Sept. 30, 1884. (No model.) Patented in Canada Sept. 2, 1884, No. 20,108.



Claim.—The frame B and the conical case D, provided with the teeth *b'* and openings o^3, in combination with the adjustable conical cylinder C, provided with teeth *a'*, shaft A, and suitable mechanism for re-

volving said case and cylinder in different directions, substantially as described, and for the purposes set forth.

320,487. PIANO-STOOL AND LIKE ARTICLES. WILLIAM A. MATTHIE, Montreal, Quebec, Canada. Filed Jan. 16, 1885. (No model.) Patented in Canada Jan. 16, 1885, No. 20,991.



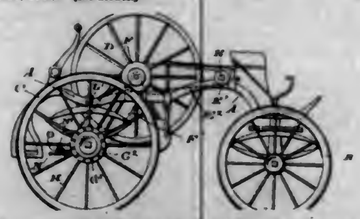
Claim.—In a revolving stool or chair, the combination, with the stand A, the sleeve C, inserted in a recess in said stand, and the spindle B, working through said sleeve and in a socket in said stand, of the dog D, pivoted in a recess in said sleeve and forming a section thereof, and provided with a projection, *d*, and tail *b*, the spring E between said tail and sleeve, and the handle F, connected to said tail and working through a recess in the stand A, substantially as and for the purpose specified.

320,488. MONUMENT. ARCHIBALD MCKELLAR, Bridgeport, Conn. Filed Aug. 10, 1883. (No model.)



Claim.—As a new article of manufacture, a metallic monument consisting of white bronze and having a portion of its surface configured in imitation of rough-hewn stone, whereby an imitation of granite is produced, substantially as set forth.

320,489. HOSE-CARRIAGE. STEPHEN R. MCLAUGHLIN, San Francisco, Cal., assignor of one-half to Valentine Wipfler, same place. Filed Dec. 10, 1884. (No model.)

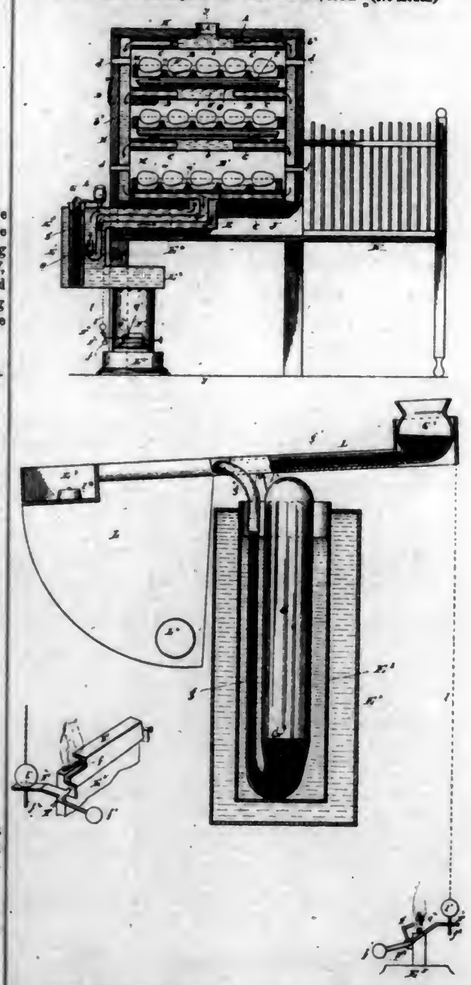


Claim.—1. In a hose-carriage, the herein-described automatic hose-winding device, consisting of a chain-wheel on the reel-shaft, a chain connecting with a chain-wheel on a sliding friction clutch or collar secured upon the rear wheel-hub, and means for throwing said friction-clutch in and out of gear, substantially as shown, for the purpose set forth.

2. In a hose-carriage, the combination, with the reel D and chain-wheel F, of the chain F' and chain-wheel J, forming part of a friction-clutch mounted upon the wheel-hub, and having mechanism with which to throw the said clutch in and out of gear, substantially as shown and set forth.

3. In a hose-carriage, the combination of the reel D, chain-wheel F, chain F', fixed sleeve G, washer G^2, bolts G^3, sliding collar I, chain-wheel J, yoke K, pivoted to a lug, L', and connecting-bar M, lever N, and supporting-bar O, provided with a clamp-screw, N', substantially as shown and set forth, for the purpose specified.

320,490. HEAT-REGULATING DEVICE FOR INCUBATORS. JACOB K. MISCUTER, Philadelphia, Pa. Filed Feb. 28, 1884. (No model.)



Claim.—1. In an incubator, the combination of a hot-water-circulating boiler, a burner to heat said boiler, a valve to control the size of the flame from said burner, and a regulator, automatically operated by the varying changes in temperature of the atmosphere exterior to the incubator, to control said valve, substantially as and for the purpose specified.

2. In an incubator, the combination of a hot-water-circulating boiler, a burner to heat said boiler, a valve to control the size of the flame from said burner, and a regulator, automatically operated by the varying changes in temperature of the atmosphere exterior to the incubator, and also directly by the water in said boiler, to control said valve, substantially as and for the purpose specified.

3. In an incubator, the combination of a hot-water-circulating boiler, a burner to heat said boiler, a valve to control the size of the flame from said burner, and a regulator, automatically operated by the varying changes in temperature of the atmosphere exterior to the incubator, to control said valve, said regulator consisting of a balanced lever, a column of mercury, a rarefied atmosphere supporting said mercury, and a receptacle to contain said mercury and rarefied atmosphere supported in water of the temperature of that in the circulating-boiler, substantially as and for the purpose specified.

4. In an incubator, the combination of a hot-water-circulating boiler, a burner to heat said boiler, a valve to control the size of the flame from said burner, and a regulator, automatically operated by the varying changes in joint temperatures of the atmosphere exterior to the incubator and water in said boiler, to control said valve, said regulator consisting of a balanced lever, a column of mercury, a rarefied atmosphere supporting said mercury, and a receptacle to contain said mercury and rarefied atmosphere supported in water of the temperature of that in the circulating-boiler, substantially as and for the purpose specified.

5. In an incubator, a regulator to control the temperature, consisting of hot-water receptacle E^2, supported in and surrounded by the water in the hot-water circulator of the incubator, U-shaped vessel having legs G *g*, mercury G^2, a rarefied atmosphere in leg G above the mercury, and exposed to the atmosphere, a burner to keep the water warm, a valve to control the flame of said burner, and devices, controlled by the height of the column of mercury, to automatically actuate said burner-valve, substantially as and for the purpose specified.

6. In an incubator, a regulator to control the temperature, consisting of hot-water receptacle E^2, U-shaped vessel having legs G *g*, mercury G^2, a rarefied atmosphere in leg G above the mercury, lever L, bulb G', tube g^2, a burner to keep the water warm, a valve, F, to control the flame of said burner, and connecting mechanism by which said lever L operates said valve F, substantially as and for the purpose specified.

7. In an incubator, a regulator to control the temperature, consisting of hot-water receptacle E^2, U-shaped vessel having legs G *g*, mercury G^2, a rarefied atmosphere in leg G above the mercury, lever L, bulb G', tube g^2, a burner to keep the water warm, a valve, F, to control the flame of said burner, and connecting mechanism by which said lever L operates said valve F, consisting of chain *l*, weights *l' f'*, and arm F^2, substantially as and for the purpose specified.

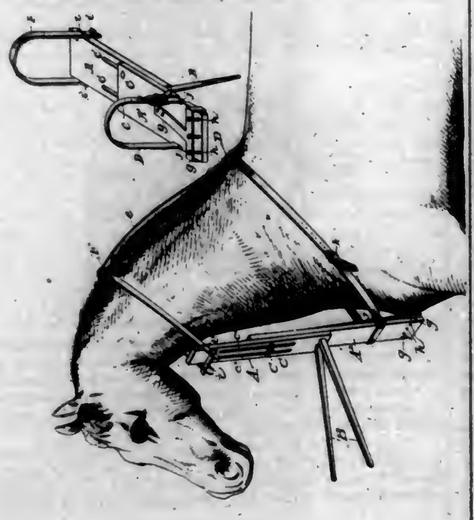
320,491. FASTENING FOR NECKTIES. GEO. E. MITCHELL, Brooklyn, N. Y. Filed July 24, 1884. (No model.)



Claim.—1. In a necktie-fastener, the pivotally-connected crossed arms having fingered ends to engage the collar-button, a spring, and hooks to engage the lower edge of the collar to hold the fingered ends of the arms in operative position, combined with a pin to secure the tie or bow, substantially as set forth.

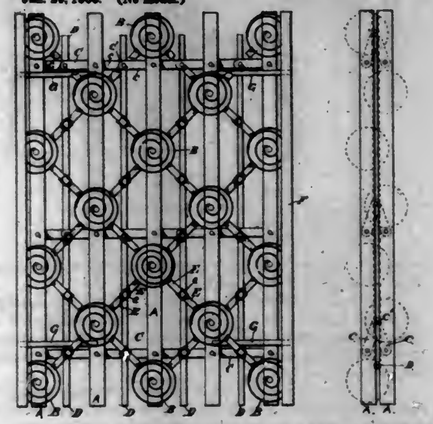
2. A necktie-fastener comprising pivotally-connected arms A A, having hooked ends B B, and the fingers C C, a pin, D, and its guard, and a spring, H, substantially as shown and described.

320,492. ANIMAL-POKE. SAMUEL M. MOORE, Lakin, Ill. Filed Feb. 25, 1884. (No model.)



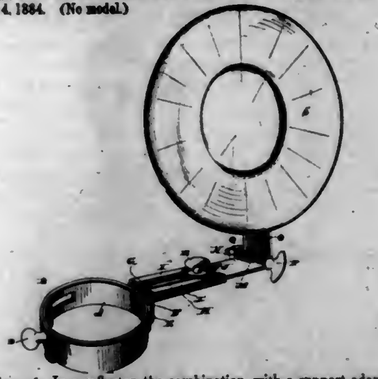
Claim.—An animal-poke consisting of the upper member, A, and the lower member, A', adjustably connected by the bolts C, the bow F, secured to the upper member by the staples i' and key *i*, strap D, held to the lower member by staples *j*, its ends being fastened together by the buckle *k*, the strip *e*, connecting the bow and strap, the spring-plate *g*, and the prods *h*, all substantially as described.

320,493. SPRING-BED. JAMES NEWHOUSE, Jersey City, N. J. Filed Jan. 29, 1885. (No model.)



Claim.—In an adjustable spring-bed, the combination of the slats A, conical springs B, pivot-links C, rigid rods D, link-plates E, short links *e*, metallic stripe F, and diagonal braces G.

320,494. REFLECTOR. JAMES R. PARK, La Vergne, Tenn. Filed June 4, 1884. (No model.)



Claim.—1. In a reflector, the combination, with a support adapted to be removably secured to a lamp, of a removable jointed arm adjustably secured to said support and a reflector secured to said jointed arm, substantially as set forth.

2. In a reflector, the combination, with a jointed arm having a reflector-plate secured to one section, of a horizontal support provided with guides adapted to receive the other section of said arm in horizontal adjustment, substantially as set forth.

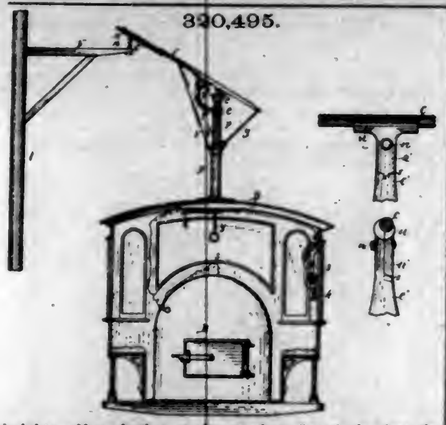
3. In a reflector, the combination, with a reflector-plate secured to one section of a jointed arm, the lower section of which arm is provided with a screw-threaded perforation, of a slotted horizontal support and a thumb-screw adapted to pass through said slotted support and engage said perforation, thereby holding the lower sections of the arm in any required horizontal adjustment, substantially as set forth.

4. A reflector-support consisting of a spring-metal collar, one end of which is provided with an elongated closed slot, and the other end having a screw-threaded stud secured thereto and passing through said slot, a nut adapted to fit said stud, whereby the collar is locked in the desired adjustment, and a jointed arm detachably secured to the collar and capable of angular and horizontal adjustment, substantially as set forth.

320,495. TRAIN-SIGNAL. MARCUS F. PARRISH and SCHUYLER J. MUNN, Niles, assignors of one-third to Horace B. Peck, Allegan, Mich. Filed Mar. 22, 1885. (No model.)

Claim.—1. In a train-signal, the combination of an engine or other vehicle, a conducting-arm support, a conducting-arm, and a friction-plate

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swiveled to said conducting arm for engaging a line of wire along the engine-track, substantially as set forth.

2. The combination of an engine or other vehicle, a conducting-arm support, a double-incline way secured thereto, a conducting-arm swiveled to said support and provided with a friction-wheel for traversing said way, and flexible braces connecting the conducting-arm and its support, substantially as set forth.

3. The combination of a line of wire, an armed supporting-post for said wire, the fixed clamp part secured to the arm of the supporting-post and provided with a mortise, the detachable part provided with a tenon and to detachably enter said mortise, the upper inner faces of the clamp parts being concaved to receive the wire, and a detachable clamping-bolt, all substantially as set forth.

320,496. GARMENT MEASURING AND FITTING DEVICE. WILLIAM B. POLLOCK, Philadelphia, Pa. Filed Jan. 14, 1884. (No model.)



Claim.—1. A measuring and fitting device comprising a series of separable frames or sections, each composed of separately and independently adjustable flexible straps pivoted one to the other in triangular form throughout the sections, and means for securing the straps in their adjusted position, whereby said sections may be adjusted to fit the figure of the individual under measurement, and then laid flat upon the goods to be cut, substantially as set forth.

2. A measuring and fitting device comprising a number of frames or sections separable from each other, and composed of separately and independently-adjustable straps, all pivoted one with the other, and having openings and studs and fastening devices therefor, as and for the purpose set forth.

3. A measuring and fitting device comprising a number of frames or sections separable from each other, and composed of overlapping and single straps all pivoted together, and having openings, studs, and fastening-catches for said studs, substantially as and for the purpose set forth.

4. A garment measuring and fitting device comprising a number of frames or sections separable from each other, and composed of separately and independently adjustable single and overlapping straps, one of the overlapping straps having a stud, and the other or its mate having one or more openings, in combination with a fastening device or catch for said stud, substantially as and for the purpose set forth.

5. A garment measuring and fitting device comprising a number of frames or sections separable from each other and composed of separately and independently adjustable single and overlapping straps, one strap of the overlapping straps having a loop or keeper and a stud, and the other or its mate having one or more openings for engagement with said stud, in combination with a fastening spring-catch, one end of which is secured to the loop and the other engages with said stud, substantially as set forth.

6. In a measuring and fitting device composed of separable sections, the combination of flexible waist and bust straps, and the flexible adjustable dart-straps B C, substantially as shown and described.

7. In a measuring and fitting device composed of separable sections, the combination of bust and waist straps *a* and *e*, each made in sections, adjustable dart-straps B and C, and brace-straps D E, as and for the purpose set forth.

8. In a measuring and fitting device composed of separable sections, the combination of bust and waist straps *a* and *e*, each made in sections, and the adjustable dart-straps B C, one end of each of which is pivoted to the waist-strap and the other engaging with a fastening device on the bust-strap, substantially as and for the purpose set forth.

9. In a measuring and fitting device, the combination of bust-straps *a*, jointed between the darts, the adjustable dart-straps B C, and waist-strap *e*, made in sections adapted to be connected together and disconnected, as and for the purpose set forth.

10. A measuring and fitting device composed of separable sections or frames having separately and independently adjustable flexible contour, outline, dart, and bracing straps pivoted one to the other, in combination with belt *a*, substantially as and for the purpose set forth.

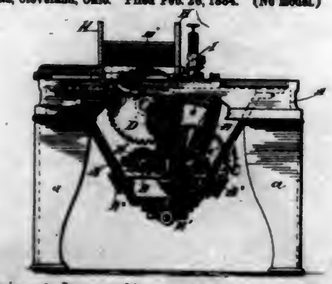
11. In a garment measuring and fitting device composed of separable sections made up of pivoted or swiveled straps, the armhole-strap a^x, composed of sections, one of which has a series of studs, a^{16}, for engagement with holes in one of the other sections, as and for the purpose set forth.

12. In a garment and fitting device formed of straps overlapping each other, the combination of studs k^x, having lateral openings k^{11}, the loop or keeper k^x, and spring catch or fastener n^x, having pin n^{12}, substantially as and for the purpose set forth.

13. A measuring and fitting device composed of separable sections made up of adjustable straps swiveled or pivoted together by eyelets p^{12}, in combination with the fastening-springs A, substantially as and for the purpose set forth.

14. A measuring and fitting device composed of separable sections or frames having separately and independently adjustable flexible contour, outline, dart, and bracing straps pivoted one to another in triangular form throughout the sections, substantially as shown and described.

320,497. MACHINE FOR DRESSING CARBONS. WILLIAM J. POSSONS, Cleveland, Ohio. Filed Feb. 26, 1884. (No model.)



Claim.—1. In a machine for dressing carbons, the combination, with a receiving-way constructed and adapted to receive a card of carbons, a reciprocating knife for separating the carbons from the card, and an annular cutter for dressing the surface of the carbons, of a reciprocating cross-head for transferring the carbons to and forcing them through the annular cutter, substantially as set forth.

2. In a machine for dressing carbons, the receiving-way consisting of end pieces formed with grooves for receiving and guiding the opposite ends of a card of carbons, and transverse plates or bars located opposite and parallel to each other near the upper portion of the receiving-way, and arranged to serve as a gage to arrest the feed of a crooked or imperfect carbon-card, substantially as set forth.

3. In a machine for dressing carbons, the combination, with a receiving-way constructed with grooved end pieces for receiving and guiding a card of carbons, a reciprocating knife arranged to operate at right angles to the receiving-way and sever the carbons from the card, an annular cutter through which the carbons are forced for dressing the surface of the carbons, and a reciprocating cross-head for transferring the carbons to and forcing them through the annular cutter, of gearing and connecting mechanism, substantially as described, for retaining the knife beneath the card, to serve as a support therefor while a separated carbon is being dressed, substantially as set forth.

4. In a machine for dressing carbons, the combination, with two receiving-ways, each provided with grooved end pieces for receiving and guiding a card of carbons, reciprocating knives arranged to work at right angles to the receiving-ways, near their lower ends, and sever the carbons from the card, and annular cutters through which the carbons are forced to dress their surface, of a single reciprocating cross-head located between the receiving-ways, for transferring the carbons to and forcing them through the annular cutters, substantially as set forth.

5. In a machine for dressing carbons, the combination, with a receiving-way constructed with grooved ends for receiving and guiding a card of carbons, a reciprocating knife constructed and arranged, substantially as described, to sever the carbons from the card, and an annular cutter for dressing the surface of the carbons, of a reciprocating cross-head for transferring the several carbons from the grooved way to and through the annular cutter, and gearing and connecting devices, substantially as described, for feeding the cross-head forward at a slow rate of speed in forcing the carbons through the annular cutter and returning it quickly, substantially as set forth.

6. In a machine for dressing carbons, the combination, with two annular cutter-holders located in close proximity to each other and secured to the same head or stock, of annular cutters removably secured within the holders, said cutters each constructed and arranged to allow the carbons to be forced through them and operated upon by their inner edges, substantially as set forth.

7. In a machine for dressing carbons, the combination, with two annular cutter-holders arranged in line with each other, and annular cutters removably secured within the holders, of blocks for supporting said holders, and means, substantially as described, for adjusting the blocks, substantially as set forth.

8. In a machine for dressing carbons, the combination, with a slitted holder and an adjusting or tightening ring encircling the same, of an annular cutter removably secured within the holder, said cutter having an inner cutting-edge, substantially as set forth.

9. In a machine for dressing carbons, the combination, with two cutter-holders and annular cutters removably secured therein, of blocks for supporting said cutter-holders, a spring for forcing the blocks in one direction, and a cam for moving them in an opposite direction, substantially as set forth.

10. In a machine for dressing carbons, the combination, with a block having a cutter-holder supported therein and a casing having an inclosed spring connected to the block, of another block provided with a cutter-holder, a cam interposed between said blocks, and annular cutters removably secured within the holders, substantially as set forth.

11. In a machine for dressing carbons, the combination, with a cutter-holder and an annular cutter removably secured therein, said cutter constructed with a central opening, through which the carbon is forced to have its surface dressed, of gearing for imparting rotary adjustment to the cutter-holder, substantially as set forth.

12. In a machine for dressing carbons, the combination, with two cutter-holders, each having an annular cutter removably secured therein, said cutter constructed with a central opening, through which the carbon is forced for dressing its surface, of means, substantially as described, for adjusting said annular cutters eccentrically to compensate for wear, substantially as set forth.

13. In a machine for dressing carbons, the combination, with two cutter-holders located in close proximity to each other and secured to the same head or stock, and an annular cutter removably secured within each holder, of gearing on each cutter-holder, constructed and arranged substantially as described, for rotating said cutter-holders in opposite directions, substantially as set forth.

14. In a machine for dressing carbons, the combination, with two cutter-holders and annular cutters, each provided with a central opening, through which the carbons are forced for dressing, the cutters being separated to allow of the discharge of chips between them, of gearing, substantially as described, for rotating the cutters in opposite directions, substantially as set forth.

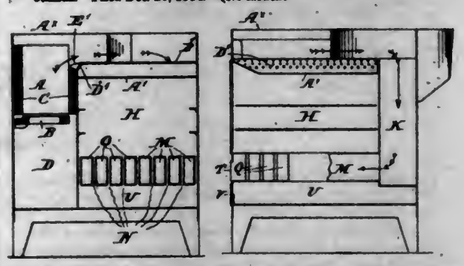
320,498. DRIER. WILLIAM J. POSSONS, Cleveland, Ohio. Filed Feb. 26, 1884. (No model.)

Claim.—1. The combination, with a furnace having an elongated hot-air flue and an endless carrier moving in said flue, of a feeding-hopper located at or near one end of the horizontal flue, and a receiving-hopper located at or near the opposite end of said flue, substantially as set forth.

2. A drying-furnace having a horizontal flue, the opposite ends of which are provided with openings, in combination with an endless carrier passing through said flue and openings and returning under the furnace, pulleys located outside of the furnace and supporting the carrier, a feeding-hopper located outside of and at one end of the furnace and adapted to feed the articles to the carrier, and a receiving-hopper located outside of and at the opposite end of the furnace for receiving the articles after they have passed through the furnace.

3. The combination, with a furnace provided with an elongated horizontal flue, a fire-box at one end of said flue, and a chimney at the opposite end of said flue, of a horizontal endless carrier located within said flue and constructed and arranged to support articles to be dried in direct contact with the heated airs and products of combustion and subject them to a gradually-increasing temperature, substantially as set forth.

320,499. COOKING-STOVE. GEORGE R. PROWSE, Montreal, Quebec, Canada. Filed Dec. 29, 1884. (No model.)



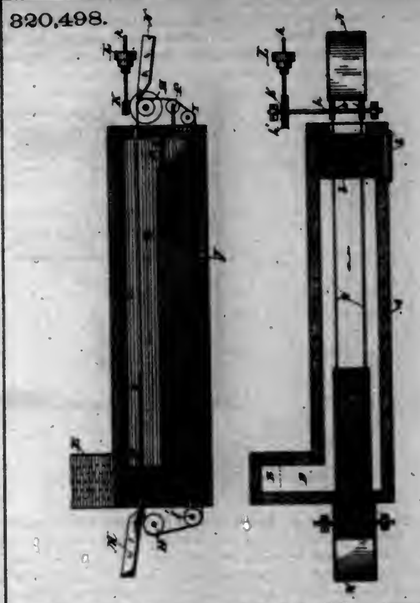
Claim.—1. The combination of the fire-box A, oven H, uptake and downtake flues K and R, and tubes M and Q, having slot-openings N between them, as shown, constructed arranged, and operating substantially as shown and described, for the purposes set forth.

2. The combination of the fire-box A, oven H, having perforations at D', uptake and downtake flues K and R, tubes M and Q, having slot-openings N between them, as shown, and space U, having a controlling-regulator by which a current of air is admitted to the oven, the whole constructed and arranged substantially as described, for the purposes set forth.

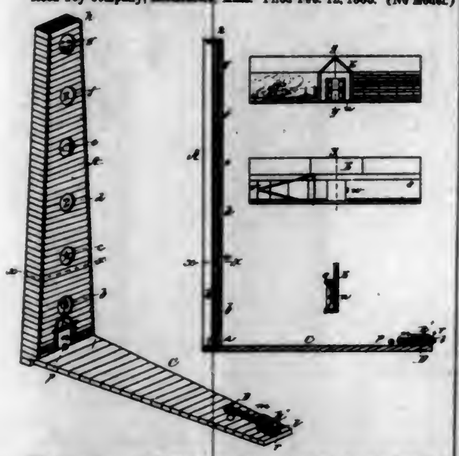
320,500. GUN-WAD. CHARLES R. PUE, Baltimore, Md. Filed Jan. 16, 1885. (No specimens.)

Claim.—A gun-wad made from felt composed of woolen rags, scrap carpet, and burlap mixed with wool and hair, substantially as set forth.

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320,501. MECHANICAL TOY OR GAME. WILLIAM S. REED, Leominster, Mass., and THOMAS J. WALLIS, London, England, assignors to the W. S. Reed Toy Company, Leominster, Mass. Filed Feb. 12, 1885. (No model.)

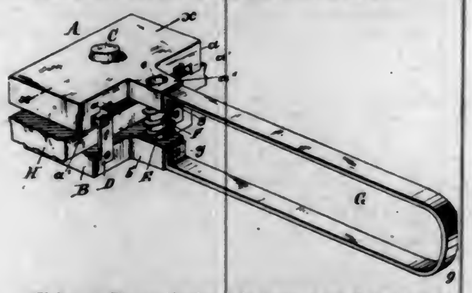


Claim.—1. As an improvement in mechanical toys or games, a holder case or receptacle of any desired design having a suitable guideway and one or more openings, in combination with a series of target-blocks, tablets, figures, or images successively exposed to view by spring-actuated mechanism or by gravity after each preceding one is displaced by a ball or other missile or object, substantially as shown and described.

2. A holder case or receptacle having a vertical guideway and one or more openings, a series of target-blocks, tablets, &c., either colored, illustrated, or not, and a spring for discharging or projecting a ball or other object thereat, whereby one target is displaced and the next one brought into line in its exposed or firing position, substantially as set forth.

3. In combination, a holder having a guideway, a series of targets, B, a follower actuated by a spring, and a stop for limiting the advance movement of and arresting the targets when in their firing position, as described.

320,502. MACHINE FOR FORMING CAR-FOLLOWERS. HENRY REYN, Cincinnati, Ohio. Filed Apr. 22, 1885. (No model.)



Claim.—1. The combination of the blocks A and B, having holes and pin-punch C, the block A, having flanges a' a', serving as cutting-edges, substantially as set forth.

2. The combination of the block B, having a tapering hole, b, projection b', straps D D, and the block A, having a straight hole, grooves a a, flanges a' a', projection a'', and pin-punch C, formed with punching end c, with spring-handle G, stud E, and spiral spring F, all as described, and for the purpose set forth.

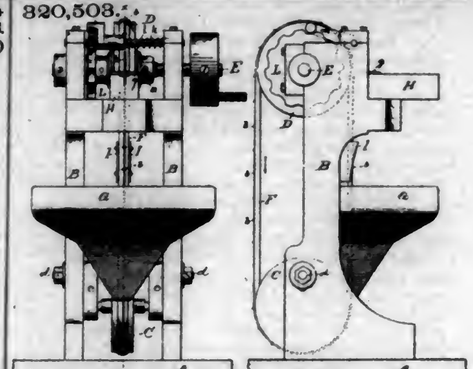
320,503. MACHINE FOR FEEDING BUTTON-FASTENERS. FRANCIS H. RICHARDS, Springfield, Mass., assignor to the American Button Fastener Company, New Britain, Conn. Filed Nov. 28, 1884. (No model.)

Claim.—1. In a feeding mechanism, the combination of the belt or carrier having feeding-pins thereon, a frictional driving mechanism for carrying said belt, a stop for arresting its motion, and a driver for unloading the feeding-pins when the belt is stopped, substantially as described, and for the purpose specified.

2. In a feeding mechanism, the combination of the feeding-belt having a groove in its face and feeding-pins or projections, with a driver adapted to lie within said groove and unload the pins at the proper time, substantially as described, and for the purpose specified.

3. The combination of the feeding-belt bearing holding-pins, a frictional driving mechanism for carrying said belt, the receiver H, the stop-plate g, the notched wheel or disk L, rigidly secured to the main shaft, and the driver located at the mouth of the receiver and operatively connected with said wheel or disk, substantially as described, and for the purpose specified.

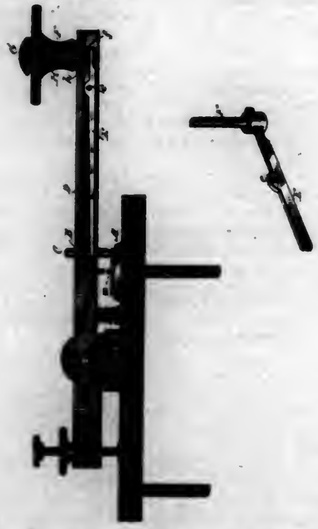
320,503.



4. In a feeding mechanism, the feeding-belt provided with feeding-pins or projections and made of a width corresponding to the length of a given member of the article to be fed, with the knock-offs I I, between which the belt passes, substantially as described, and for the purpose specified.

5. The combination of the feeding-belt having pins or projections, mechanism for operating said belt, the hopper through which said belt passes, the knock-offs for discharging improperly-fed fasteners, the receiver H, the driver h at the mouth of said receiver, and mechanism for operating said driver, substantially as described, and for the purpose specified.

320,504. CIRCUIT-CLOSER. JUDSON E. ROOT, Westfield, N. Y. Filed Mar. 27, 1885. (No model.)

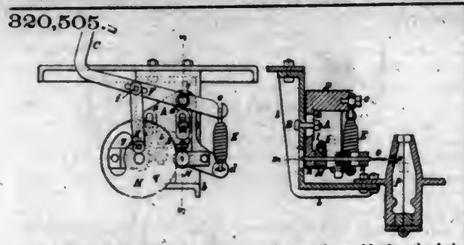


Claim.—The combination of a key provided with a vertical guide, a pin held and movable in said guide, a lever pivoted to said key and connected at one end with the pin, and a trip at the other end of the lever made in sections adjustable one upon the other, substantially as and for the purposes set forth.

320,505. MACHINERY FOR DRILLING HOLES IN BOTTLES. DAN RYLANDS, Stairfoot, Barnsley, County of York, England. Filed May 14, 1884. (No model.) Patented in England Nov. 19, 1883, No. 5,445.

Claim.—1. The combination, attached to a bottle-mold, of the spindle m, the end of which carries a punch or drill, O, actuated by suitable driving machinery and capable of being adjusted by means of the bolts B B and the slots a a in the frame work A, so as to allow of the drilling of a hole in any required part of the bottle, with the spring E, for the purpose of withdrawing the punch O from the mold after the hole is drilled, all substantially as described.

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2. The combination, when attached to a bottle-mold, of the spur-wheel H and pinion-wheel N, with the cam K, and reciprocating lever k, with treadle C, and spindle m, substantially as and for the purpose herein set forth.

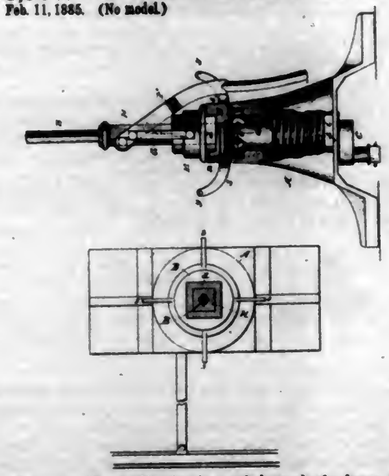
320,506. PLUMB-LEVEL. CHARLES SCHOFIELD, Minneapolis, Minn. Filed Feb. 3, 1885. (No model.)



Claim.—1. The combination, with a case having a glass front and glass on its back, of an interior cup bearing a graduated disk, a pintle having bearings in said cup and disk, and an end bearing on one or both of said glasses, a pointer and a weight attached to said pintle, the said weight being provided with a threaded rod or pins having adjustable nuts thereon, substantially as and for the purpose set forth.

2. The combination, with a suitable case having front and back glasses, of a graduated disk, a pivot-pin having its bearings substantially as described, and carrying the pointer g, weight h, rod h', and nuts n, when constructed and arranged substantially as described.

320,507. SWITCH-STAND. FRED. W. SNOW, Hillburn, N. Y. Filed Feb. 11, 1885. (No model.)



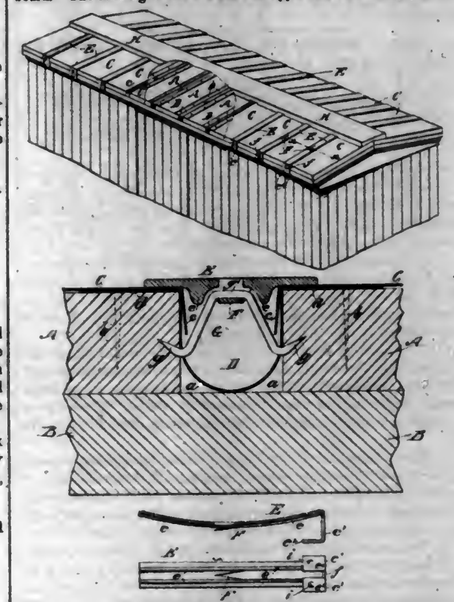
Claim.—1. The combination, in a switch-stand, of a frame, A, provided with a sliding block, a, or portion having beveled teeth c, a target-shaft having a crank at the lower end, extending through the block and carrying a sliding head, E, with an angular projection, d, at the lower side, and means for adjusting the said head vertically, a head-block, D, arranged above the block a, provided with corresponding teeth, and having at the upper side a recess corresponding to the projection d, all substantially as set forth.

2. The combination, with the stand, crank-shaft, a sliding and non-rotating toothed block, a, sliding and rotating block E, and intervening head-block D, having a recess adapted to a projection, d, of radiating ears s upon the head-block, corresponding in number to the number of sides of the projection d, substantially as set forth.

3. The combination of the stand A, toothed block a, crank target-shaft B, block E, having a projection, d, block-operating lever F, connected to the block E, head-block D, having teeth at the under side and provided with a recess adapted to receive the projection d, and with ears s, all substantially as set forth.

320,508. ROOFING. CHARLES H. STARR, Logansport, Ind. Filed July 29, 1884. (No model.)

Brief.—Metallic gutters are located in spaces between the roofing-boards, with flanges resting on said boards. The gutter-flanges are covered by roofing-plates spanning the boards, and having flanges entering the gutters. A cap-plate for the gutter, of concavo-convex form longitudinally, has a tongue engaging a staple whose upturned ends pass through the gutter and into the roofing-boards. The lower end of the cap-plate is forked, and its inturned flanges are secured to the roofing-board. The running-board overlies the upper end of the cap-plate.



Claim.—1. As an improvement in roofing, gutters D, secured in spaces a' between the roof-boards A, and roofing-plates C, spanning the roof-boards between the gutters, and having downturned flanges c c entering the gutters, and cap-plates E, held over the gutters on the roofing-plates, substantially as shown and described.

2. The combination, with the roof-boards A, spaced at a, the gutters D, held in the spaces a, and the roofing-plates C, spanning the roof-boards between the gutters, and having flanges c c entering the gutters, of the cap-plates E, having tongues F, and the fastenings G, held in the gutters and engaged by the tongues, substantially as shown and described.

3. The combination, with the roof-boards A, spaced at a, of the gutters D, held in the spaces, and having flanges d d resting on the roof-boards, and the roofing-plates C, spanning the roof-boards between the spaces a, overlapping the flanges d d of the gutters, and having flanges c c entering the gutters, and the caps E, held to the plates C over the gutters, substantially as shown and described.

4. The combination, with the roof-boards A, spaced at a, the gutter D, and the roofing-plates C, of the cap-plate E, having its outer end forked to form a space, f, for discharge of water from the gutters, substantially as shown and described.

5. The combination, with the roof-boards A, spaced at a, the gutter D, and the roofing-plates C, of the cap-plate E, having its outer end forked to form arms e' e', providing a space, f, as specified, and also having inturned ends e^2 e^2, through which the fastenings nails or screws may be passed upward into the roof-boards, substantially as shown and described.

6. The cap-plate E, made with a tongue, F, adapted to enter a staple-fastening fixed in the gutter, substantially as shown and described.

7. As a new and improved article of manufacture, the cap-plate E, made with a tongue, F, and forked outer end, e' e', having inturned flanges e^2 e^2, substantially as shown and described.

8. As a new and improved article of manufacture, the cap-plate E, made in a concavo-convex form longitudinally in its body portion, substantially as shown and described.

9. As a new and improved article of manufacture, the cap-plate E, made in concavo-convex form longitudinally in its body portion, and with a tongue, F, and forked outer end, e' e', having inturned flanges e^2 e^2, substantially as shown and described.

10. As a new and improved article of manufacture, the fastening G, made with a cross bar or head, g', adapted to be engaged by the

tongue of the cap-plate, and with upturned pointed ends *g g*, substantially as shown and described.

11. The combination, with the roof-boards A, gutters D, roofing-plates C, and cap-plate E, having a tongue, F, of the fastening G, having a head, *g'*, and the upturned ends *g g*, hooking into the boards A, to resist lifting of the cap-plates, substantially as shown and described.

12. The combination, with the roof-boards A, spaced at *a*, of the gutters D, held in the spaces, the roofing-plates C, the caps E, having forked outer ends provided with inturned flanges e^2 e^2, to hook under the eaves of the roof, and the running-board H, substantially as shown and described.

320,509. FOUNTAIN-PEN. CLARENCE W. TAYLOR, Janesville, Wis. Filed Nov. 14, 1884. (No model.)



Claim.—1. The combination, with a pen-holder and a pen, of an ink-reservoir located within the holder, an ink well or receptacle adapted to directly feed the pen, said well being connected with the reservoir by a capillary tube for the passage of ink and by an air-chamber for the passage of air, substantially as set forth.

2. In a fountain-pen, the combination, with an ink well or receptacle adapted to directly feed the pen, and an ink-reservoir connected with the well by a capillary tube, of an air-chamber located between the well and reservoir, and an adjustable perforated stop adapted to fit within the air-chamber, substantially as set forth.

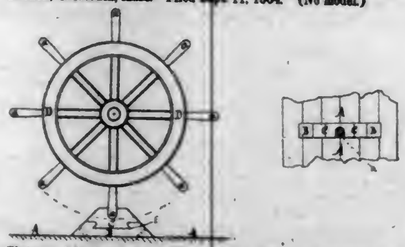
3. The combination, with the pen-holder and a pen, of an ink reservoir located in the handle, an ink-well located immediately beneath the pen, said well being connected with the outside air by a permanent opening and with the reservoir by a capillary tube for the passage of ink, and by an air-chamber for the passage of air, substantially as set forth.

4. The combination, with an ink-well located immediately beneath the pen, and an ink-reservoir adapted to furnish ink to the said well, of an adjustable double stop adapted to fit and slide within an opening between the well and the reservoir and admit air to the reservoir at points suited to different angles of the holder, substantially as set forth.

5. The combination, with an ink-well and an ink-reservoir connected therewith by a capillary tube, of an adjustable stop located in an opening between the well and the reservoir, provided with an air-channel adapted to transmit air from a perforation in the holder to the well and from the well to the reservoir, substantially as set forth.

6. The combination, with a pen-holder having an ink-well located immediately below the slit or hole in the pen, and provided with an ink-opening communicating with a passage from the ink-reservoir and an outside air-opening, of a cap adapted to completely cover the pen and close said outside air-opening, substantially as set forth.

320,510. LOCK FOR STEERING-GEAR OF VESSELS. GORHAM H. TAYLOR, Yarmouth, Mass. Filed Sept. 11, 1884. (No model.)



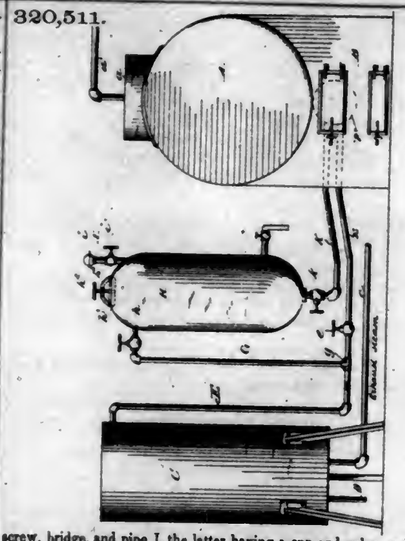
Claim.—A lock for the steering-wheels of vessels, consisting of the block B, secured to the deck beneath the wheel and provided with a dove-tail, into which is fitted the removable block C, said block C having a vertical groove to receive a spoke, *a*, of the wheel D, all substantially as described.

320,511. FEED-WATER CLEANER. FRANK TROWBRIDGE, Fond du Lac, Wis. Filed Feb. 25, 1885. (No model.)

Claim.—1. In a feed-water cleaner, the combination, with the feed-water heater C, a boiler, A, supply-pipe E, having valves *a a'*, vessel H, interposed between said boiler and heater, pipe G, connecting said pipe E with the vessel H, and pipe K, connecting the vessel H directly with the boiler A, all constructed and arranged substantially as shown and described.

2. In a feed-water cleaner, the combination of the following elements, viz: a boiler, a mud-drum, supply-pipes K, E, and G and their valves, compound receiving-vessel having hand-hole and plate, hand-

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screw, bridge, and pipe I, the latter having a cup and valve, and water-heater having a feed-pipe, substantially as described.

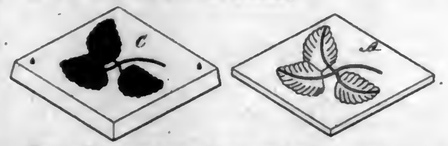
320,512. MAN-HOLE COVER FOR BOILERS. FRANK TROWBRIDGE, Fond du Lac, Wis. Filed Mar. 9, 1885. (No model.)



Claim.—1. In a man or hand hole cover for steam-boilers, sewers, &c., the combination of the cover, screw-eyes, a pivotal bolt, and cover-securing bolt, substantially as described.

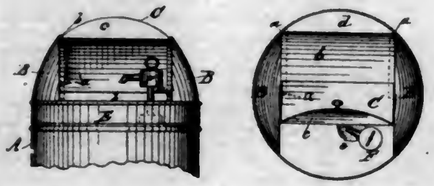
2. A man or hand hole cover comprising the following elements: a flanged cover having a gasket or packing-ring, screw-eyebolts, a pivotal bolt, and a securing-bolt having screw-threaded end, in combination with a bridge or arch and nut, substantially as described.

320,513. PROCESS OF PRODUCING ORNAMENTAL DESIGNS ON BRITANNIA AND OTHER SOFT METALS. JAMES W. TUFTS, Medford, Mass. Filed Sept. 12, 1884. (No specimens.)



Claim.—The herein-described method of making dies for producing ornamental designs on britannia and other soft metals, the same consisting in, first, roughly cutting, excavating, or punching out the design by hand in a metal plate or block, then taking from the mold thus made a soft-metal counterpart by pressing soft metal therein, and subsequently finishing said soft-metal counterpart by hand-engraving to produce all of the fine lines, &c., which are to appear upon the finished article, and then taking an electrotype from said hand-finished soft-metal counterpart to form the die or mold, substantially as set forth.

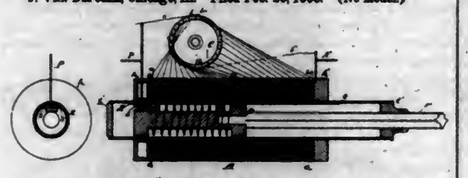
320,514. OIL-TANK. SYLVESTER VAN ANTWERP, Syracuse, N. Y. Filed Feb. 19, 1885. (No model.)



Claim.—1. An oil-tank cover consisting of the convex sides B, with flanges *a* upon their upright curved edges mounted parallel to each other, the curved back *b*, secured to the sides and lying parallel to the curve of the edges and flanges upon the sides, the cover C, provided with lip *c*, fitting and sliding under the back *b* and over the flanges *a*, and the plate *d*, substantially as shown and described.

2. An oil-tank consisting of the body A, provided with a pan, E, extending over the whole top of the tank and having a drip, *e*, in its bottom, and the pump F, in combination with the cover consisting of the convex sides B, with flanges *a* upon their upright curved edges mounted upon the body parallel to each other, the curved back *b*, secured to the sides and lying parallel to the flanges *a*, the cover C, provided with lip *c*, fitting and sliding under the back *b* and over the flanges *a*, and the plate *d*, substantially as shown and described.

320,515. ELECTRO-MAGNETIC RECIPROCATING ENGINE. CHAR. J. VAN DEPOELE, Chicago, Ill. Filed Feb. 20, 1885. (No model.)



Claim.—1. In an electro-magnetic reciprocating engine, a sectional solenoid, as described, having an iron core wound with suitable coils of wire, making the same an electro-magnet, the coils of said core being in parallel circuit with the coils in the solenoid A, through which the current flows, substantially as described.

2. In an electro-magnetic reciprocating engine, a sectional solenoid, A, having an electro-magnet for its core and current-controllers for shifting the current in the sectional solenoid, so as to cause the electro-magnetic core to make a to-and-fro movement within the solenoid, substantially as described.

3. In an electro-magnetic reciprocating engine, a sectional solenoid, A, provided with an electro-magnet for its core, having its coil connected alternately with the sections on the opposite ends of the solenoid, and through which the current is passing, substantially as described.

4. In an electro-magnetic reciprocating engine, a sectional solenoid having movable core and a belt connected with and moved by said core for shifting the current in the sectional solenoid to produce a continual reciprocating motion of said core, substantially as described.

5. In an electro-magnetic reciprocating engine, a sectional solenoid, the successive coils of the same in electrical communication with the sections of a commutator, said commutator being provided with a semi-rotary brush-holder carrying positive and negative brushes and automatically moving said brushes over the commutator to shift the current in the sectional solenoid, and thus cause its core to be moved to and fro, substantially as described.

6. In an electro-magnetic engine, a sectional solenoid having a movable core, which in its backward movement moves the brushes over the commutator, in combination with a sliding weight for changing the position of the brushes on the cessation of the forward motion of the core, substantially as described.

7. In an electro-magnetic engine, a sectional solenoid, an electro-magnet, as a core, having its current always in the same direction, and a current-controller for changing the course of the current through the solenoid, substantially as described.

8. In an electro-reciprocating engine, a sectional solenoid having a commutator and movable brushes upon the same, and a core or plunger moved to and fro by the electro-magnetic action of the solenoid, said core or plunger carrying at its forward end a rod for receiving a tool, and connection between the core and the brushes for shifting the brushes of the commutator and causing the displacement of magnetic attraction between the sections of the solenoid and the movable plunger, substantially as described.

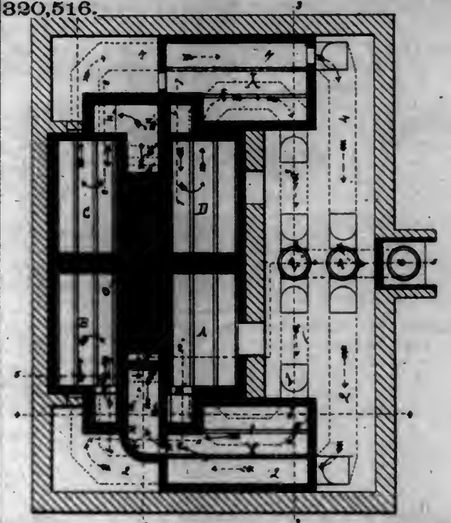
9. In an electro-magnetic reciprocating engine, a sectional solenoid having at each end thereof an iron disk for strengthening the action of the core and preventing its motion being carried too far, substantially as described.

10. In an electro-magnetic reciprocating engine, a sectional solenoid having at each end thereof an iron disk, the disk at one end being the heaviest to increase the force at that end, substantially as described.

320,516. GLASS AND OTHER FURNACES OF THE REGENERATOR TYPE. EDWARD WALSH, Jr., St. Louis, Mo. Filed Dec. 15, 1884. (No model.)

Claim.—1. In a glass or other furnace in which the currents of air and gas, by separate flues or conduits, are led through separate regenerator-chambers into a combustion-chamber, from whence, through regenerator-chambers and draft-conduits, the products of combustion are let to outside air, an auxiliary regenerator-chamber, and means for connect-

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ing the currents of air or gas, or the products of combustion, with the auxiliary chamber, at the same time disconnecting the currents of air or gas or the draft-current from a main regenerator, so that an auxiliary chamber can be used instead of a main chamber, substantially as described.

2. In a furnace in which the currents of air and gas, by separate flues or conduits, are led through separate regenerator-chambers into a combustion-chamber, from whence, through separate regenerator-chambers and draft-conduits, the products of combustion are let to outside air, the combination of auxiliary chambers X and Y, constructed and arranged as described, flues 1, 2, 3, and 4, doors M and N, openings W W, butterfly-valves H H, air and gas regulating valves E F, a draft-stack having draft-regulating valve G, and removable brick wall or arch L, arranged and operating substantially as described, and for the purposes set forth.

3. In a furnace in which the currents of air and gas, by separate flues or conduits, are led through separate regenerator-chambers into a combustion-chamber, from whence, through separate regenerator-chambers and draft-conduits, the products of combustion are let to outside air, the combination of ports A' B' and A' B' in combustion-chamber, auxiliary chamber X Y, constructed and arranged as described, flues 1, 2, 3, and 4, doors M and N, openings W W, butterfly-valves H H, air and gas regulating valves E F, a draft-stack having a draft-regulating valve, G, and removable brick wall or arch, L, arranged and operating substantially as described, and for the purposes set forth.

320,517. FASTENING FOR BUTTONS. GEORGE W. WASHBURN, West New Brighton, N. Y. Filed Apr. 25, 1885. (No model.)



Claim.—1. The combination, with the body of a button or the like, of a rigidly-attached flat post perpendicular to its back, and a shoe in the form of a long tapering oval rigidly united with said post near its larger end, the post being transverse with reference to the shoe, and said larger end of the shoe projecting as a rigid heel, substantially as herein specified.

2. The combination, with the body of a button or the like, of a rigidly-attached support for the back of the fabric, to which it is thereby connected, adapted to be inserted endwise through the fabric, and a spring-detent having a serrated end opposed to said support to resist escape or withdrawal, substantially as herein specified.

3. The combination, with the body of a button or the like, of a rigidly-attached support for the back of the fabric, to which it is thereby connected, adapted to be inserted endwise through the fabric, and a spring-detent having a serrated end opposed to said support, and attached

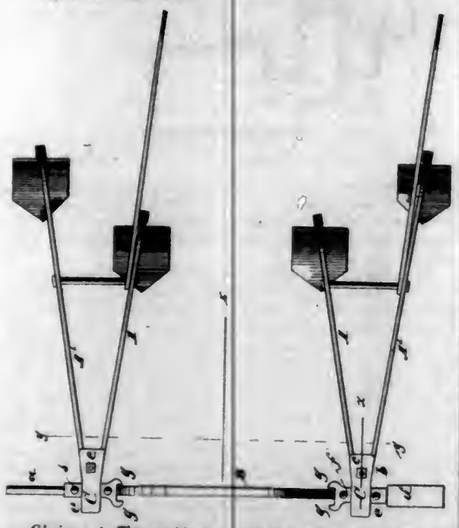
by a hinge-joint, substantially as herein specified, for the purpose set forth.

320,518. WOOD ORNAMENTATION. GARDNER A. WATKINS, Gardner, Mass., assignor to Heywood Brothers & Co., same place. Filed Aug. 27, 1884. (No model.)



Claim.—The above-described method of surface ornamentation, which consists in making a groove in the surface to be ornamented of the outline of the desired figure, overlaying the figure with the ornamental sheet, and securing the edges of the sheet in the groove by a spline, substantially as set forth.

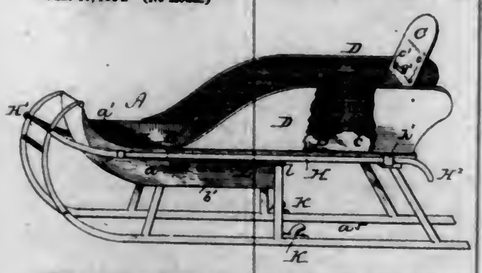
320,519. CULTIVATOR. WILLIAM S. WEIR, Monmouth, Ill. Filed Aug. 6, 1883. (No model.)



Claim.—1. The combination, with the arch or bow B and the drag-bar or beam-coupling C, of the ears *g g*, projecting laterally from and forming a rigid part of the coupling, and extending on opposite sides of the arch or bow above its wheel axle or spindle for preventing the arch or bow from falling down, substantially as described.

2. The box or bar *a*, having the ears *g* and adjusting-holes *f*, and half-box *h*, in combination with the plates *b*, having the projections *e*, substantially as and for the purpose specified.

320,520. SLED. CHAS. H. WEBSTER, Jr., Philadelphia, Pa. Filed June 19, 1884. (No model.)



Claim.—1. A sled having fixed seat B, depressed box or foot-rest B', and folding sides D', and back C, having stud and bolt devices, as and for the purpose set forth.

2. The fixed seat B, supported upon runners and having a depressed or low-down foot-box, B', and folding sides and back, substantially as shown and described.

3. The combination, with seat D, of a folding back, C, having openings *c'*, and folding sides D, having a locking-bolt, G, and integral studs *g'*, substantially as shown and described.

4. A sled having folding or hinged sides D, provided with a lock or catch and pins *g'*, and the folding back C, having openings, *c*, substantially as shown and described.

5. The locking-bolt herein described, composed of a casing and keeper having sides *g* and projecting studs *g'*, a sliding bar, G^3, having studs g^2, and a spring, g^3, for locking bar G^3 in its casing and keeper, substantially as and for the purpose set forth.

6. A locking-bolt for sleds having angular sides *n* and studs *g''*, substantially as shown and described.

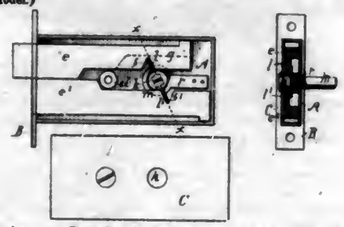
7. The combination, with the hinged or folding pieces C and D D, of a bolt, G^3, having angular sides *g* and studs *g'*, as and for the purpose set forth.

8. The sled-bolt G^3, having knob g^4 and an elliptical-shaped spring, g^3, in the path of travel of said knob, substantially as shown and described.

9. A sled having eyes K on its runners, swiveled eyes *k'*, and removable guard-rail H, substantially as and for the purpose set forth.

10. The combination, with sled A, of the swiveled eyes *k'*, movable guard-rail H, having cross-bar H', substantially as and for the purpose set forth.

320,521. LOCK. CHARLES E. WHITTLESEY, New Haven, Conn., assignor of one-half to Henry T. Peck, same place. Filed Feb. 4, 1885. (Model.)



Claim.—1. In a door-lock, the combination, with a cylinder, *A*, journaled in spring-bearings in the case and having two opposite radial arms, *l l'*, of parallel bolts engaging therewith, said cylinder adapted to move lengthwise in its bearings, thereby disengaging one of the arms from the bolt it operates, in the manner substantially as described.

2. In combination with the case of a door-lock, a journaled cylinder, A, having two opposite radial arms, *l l'*, two parallel bolts, *s s'*, having notches for engaging the arms of the cylinder, a spring, *r*, adapted to maintain the arm *l* in engagement with its corresponding bolt, and the spindle *m*, all arranged and operated in the manner and for the purpose described.

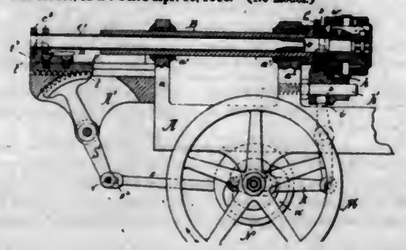
320,522. RIDING-SADDLE. THEODORE J. WENT, Fort Leavenworth, Kans. Filed Apr. 2, 1885. (No model.)



Claim.—1. A saddle having side bars hinged together at the pommel and cantle by curved arms forming an arc of a circle, and that slide in a line with each other, to enable the side bars to be adjusted to any requisite angle, the pivotal points or axis being on a line with the upper edges of the bearing-surfaces of the side bars, and means for clamping the curved arms together, substantially as described.

2. The combination of the side bars, B, and the curved arms *a*, forming an arc of a circle, and adapted to work in a line with each other and adjust the side bars, substantially as described.

320,523. WIRE-FEEDING MECHANISM. SAMUEL L. WORSLEY, Taunton, Mass., assignor to the Brown & Sharpe Manufacturing Company, Providence, R. I. Filed Apr. 10, 1885. (No model.)



Claim.—1. The combination, with a chuck and chuck opening and closing mechanism, and a wire-feeding tube and tube-operating mechanism, of a cam having a wrist-pin operatively connected therewith, and rods connecting the cam with the chuck opening and closing mechanism, and the wrist-pin with the tube-operating mechanism, as and for the purpose described.

2. The combination, with a chuck and chuck opening and closing mechanism, and a wire-feeding tube and tube-operating mechanism, of a cam provided with a wrist-pin adapted to be moved toward or from the axis of the cam, and rods for connecting the chuck opening and closing mechanism with one part of the cam, and the tube-operating mechanism with the wrist-pin, as and for the purpose set forth.

3. In wire-feeding mechanism, a wire-feeding tube and tube-operating mechanism, combined with a cam provided with an adjustable wrist-pin, adapted to be moved toward or from the axis of the cam, and means for connecting the wrist-pin with the tube-operating mechanism, for the purpose specified.

4. The combination, with a chuck and chuck opening and closing mechanism, and a wire-feeding tube and tube-operating mechanism, of a cam having a wrist-pin operatively connected therewith, means for positively connecting the chuck opening and closing mechanism with the cam, and a rod attached to the wrist-pin and loosely connected with the tube-operating mechanism, to permit lost motion between said cam and the tube-operating mechanism, as set forth.

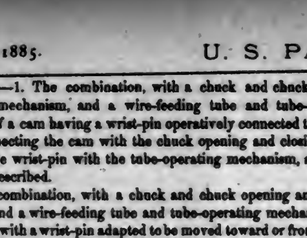
5. The combination, in a chuck, of a chuck-body provided with a sleeve and with movable jaw-holders having jaws, of cams *g*, pivoted to the chuck-body and extending into the sleeve, the jaw-operating levers, the ends of which engage the jaw-holders and cams, and having their fulcra between said ends, as and for the purpose described.

6. The combination, with the jaw-holders having jaws and the jaw-operating levers, of the hollow screws *f*, provided with pivots, for the purposes specified.

7. The combination, with a wire-feeding tube and tube-operating mechanism, of a cam provided with a slide-block having attached stud, and an adjusting-screw to move the slide-block toward or from the axis of the cam, and a rod connecting the stud with the tube-operating mechanism, substantially as set forth.

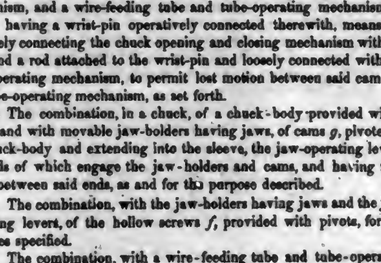
8. The combination, with a cam-wheel and a wire-feeding tube, of a slide engaging the tube and provided with a rack-bar, a lever having a toothed segment, and a rod connecting the lever with the cam-wheel, for the purpose specified.

320,524. NECK-YOKE. ALONZO B. ARNOLD, Gladbrook, Iowa, assignor of one-half to J. E. Carey, same place. Filed Sept. 18, 1884. (No model.)



Claim.—The improved neck-yoke and pole-coupling composed of the pole-tip A, having a brace, D, the duplex pintle B B C, the bolt F, and the open clips G, adapted to be fixed to yoke-bars having annular grooves and provided with eyes at their lower ends, to be thereby adjustably and detachably connected with the pintles B, substantially as and for the purposes stated.

320,525. PACKING FOR PISTON-RODS. WILLIS AUGUSTUS, Keokuk, Iowa. Filed Feb. 4, 1885. (No model.)



Claim.—1. In a packing for piston-rods and similar articles, a metallic packing-ring provided with a rectangular end operating within a spherically-concaved socket, for the purpose substantially as described.

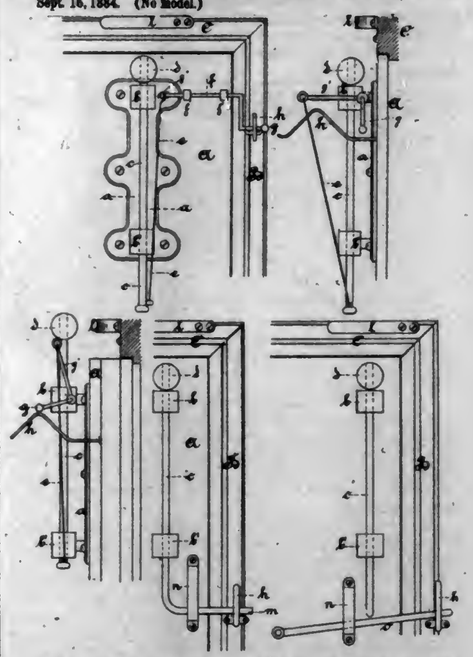
2. In a packing for piston-rods and similar articles, a stuffing-box provided with a gland having an enlargement extending outward, forming an oil-cell, a socket provided with a flange extending into said cell, and a metallic packing-ring constantly forced into the socket by a spring, all adapted to operate as described.

320,526. PROCESS OF PREPARING LOGWOOD EXTRACT. CHAS. E. AVERY, Jacksonville, Fla. Filed Nov. 22, 1884. (No specimens.)

Claim.—1. The oxidation of logwood liquors or extracts of the same after their extraction from the wood and before they are mingled with the necessary mordants by the formation of hæmatein from hæmatoxylin under the action of the oxidants set forth, such as solution of bleaching-powder, hypochlorous acid, chloric acid, chlorates or nitrates of the alkalies, and alkaline earths, as set forth.

2. The oxidation of logwood liquors or extracts of the same after their extraction from the wood and before they are mingled with the necessary mordants by oxidizing substances, such as solutions of chlorates of potash or of lime, or nitrates of potash, soda, or lime, which, while mixing with the logwood-liquor at moderate temperatures, oxidize slowly or not at all, but on raising the temperature, particularly under pressure or by the addition of acids or acid salts, become oxidizers of hæmatoxylin to hæmatein, as set forth.

320,527. DOOR-CHECK. WILHELM RAHRE, Berlin, Germany. Filed Sept. 16, 1884. (No model.)

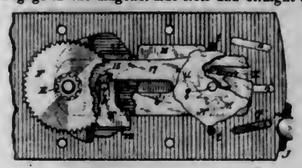


Claim.—A rod, *c*, provided with a head, *d*, and attached to a door, in combination with a spring attached to the door-frame and arranged to be struck by said head, and an arm attached to said door-frame and operating to throw said rod into position for said head to be engaged by said spring, substantially as set forth.

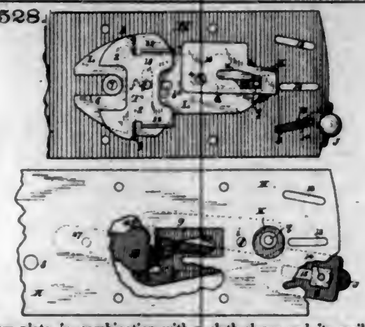
320,528. BUTTON-HOLE ATTACHMENT FOR SEWING-MACHINES. SAMUEL J. BAIRD, Covington, Ky., assignor to the Eureka Manufacturing Company, Cincinnati, Ohio. Filed July 28, 1882. (Model.)

Brief.—The invention relates to improvements upon the attachment for which Letters Patent No. 242,248, dated May 31, 1881, were granted to same inventor.

Claim.—1. The directing-lever 8, provided with a slot within which is an adjustment-nut and set-screw, the upper portion of the latter serving to engage in the diagonal side slots and straight central slot in



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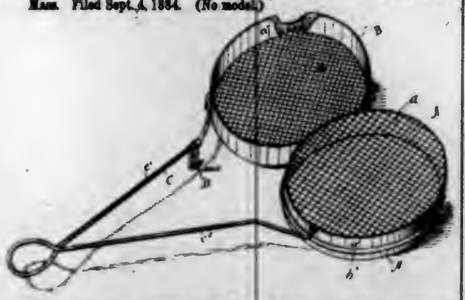


the bottom plate, in combination with a cloth-clamp and its oscillating mechanism, substantially as and for the purposes described.

2. The slotted pawl 16, pivoted to and oscillating on the pawl-carrier L, and controlled by the post *q*, in combination with a ratchet and cam wheel, and means for reciprocating the pawl-carrier, substantially as and for the purposes described.

3. The pawl 16 and reciprocating pawl-carrier L, one end of which slides on a fixed bearing and the other on an adjustable bearing, *q*, with the ratchet and cam wheels M N, in combination with a cloth-clamp, and devices for its reciprocation, substantially as and for the purposes described.

320,529. BROILER OR TOASTER. MARY G. BARBOUR, Bradford Mass. Filed Sept. 4, 1884. (No model.)

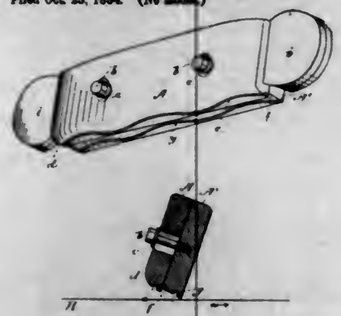


Claim.—1. As a new article of manufacture, a broiler or toaster comprising the sections A B, each of which has a wire net-work, *a*, and one of which is made slightly larger than the other, and the flexible or yielding handle *c*, whereby the two sections may be moved vertically and laterally in relation to each other, all substantially as and for the purposes described.

2. A broiler or toaster having the two sections or parts A B, formed substantially as described, the flexible or yielding handle *c*, formed as described, whereby the two sections are fastened together in a manner to provide vertical and lateral movements in relation to each other, and the locking device D, all substantially as and for the purposes described.

3. A broiler or toaster having one section, B, provided with the net-work *a* and the bead *b'*, and another section, A, having the wire net-work *a*, and adapted to shut over the frame of the section B, and the connecting-handle *c*, all substantially as and for the purposes described.

320,530. SPREADING-TOOL FOR MACHINES FOR COATING FABRICS WITH PLASTIC MATERIAL. ALBERT C. BARSTOW, Salem Depot, N. H. Filed Oct. 23, 1884. (No model.)



Claim.—1. The spreading-tool for coating fabrics with plastic material, formed in two parts adjustable upon each other, and presenting to the work a lower face having two beveled edges, one on each section of the tool, whereby two scraping-edges are presented to the fabric at different heights, separated from each other by a recess, substantially as described.

2. A wooden spreading-tool for machines for coating fabrics with plastic material, formed with a double working-face having two scraping-edges at different heights, separated from each other by a recess, substantially as described.

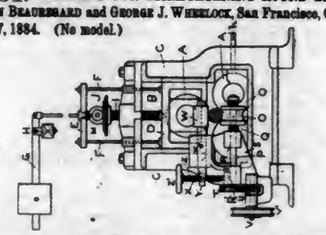
3. A spreading-tool having a working-face with two scraping-edges at different heights, and formed with the curve *d* on its forward lower surface, substantially as described.

4. The curved groove *e* in the lower working-face of a spreading-tool, substantially as described.

5. The curved groove *g* in the lower working-face of a spreading-tool, substantially as described.

6. The spreading-tool formed at its lower working-face into the curve *d*, and the bevel *f*, and provided with the grooves *e* and *g*, substantially as described.

320,531. MACHINE FOR STRAIGHTENING ROUND BARS. NAPOLEON BEAUREGARD and GEORGE J. WHEELOCK, San Francisco, Cal. Filed Aug. 7, 1884. (No model.)



Claim.—1. In a bar-straightening machine, the combination of the rollers A A A, housings C C', boxes B B', frames D, and mechanism, substantially as described, for adjusting the upper roller, both horizontally and vertically, with relation to the lower ones, as and for the purpose described.

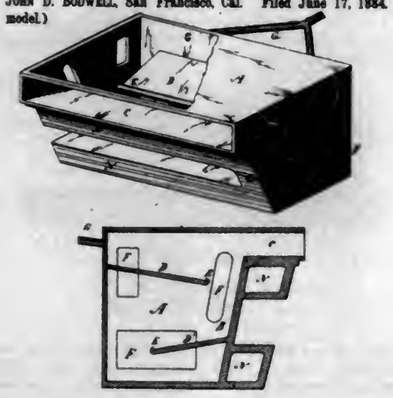
2. In a bar-straightening machine, the combination of the rollers A A A, housings C C', boxes B B', and mechanism, substantially as described, for adjusting each roller to set obliquely with relation to the others to effect a feeding motion to the bar passing between them, as and for the purpose described.

3. In a bar-straightening machine, in combination with the straightening-rollers, the feeding device herein described, consisting of the roller O, shaft P, with its revolving mechanism, roller W, lever X, nut Y, screw Z, and bracket S, supported on fulcrum-bolt *a*, substantially as described.

4. A bar-straightening machine consisting of three rollers, A A A, supported in suitable frames, C C', spur-gears *i i* on lower rollers, simultaneously driven, frames D for boxes of upper roller, counter-balances, substantially as shown, attached to frames D D, and depressing-screws I I, with their actuating machinery, as and for the purpose described.

5. In a bar-straightening machine, as a means of adjusting the upper roller to accommodate various-sized bars, the combination, with said roller, of the sliding frames D, suitably held and guided in the housings C C', and carrying the boxes for journals of the rollers, counter-balances E F G H, as shown, screws I I, gears J and M, boxes K, shaft L, and hand-wheel N, arranged and operating substantially as described.

320,532. APPARATUS FOR THE COMBUSTION OF LIQUID FUEL. JOHN D. BODWELL, San Francisco, Cal. Filed June 17, 1884. (No model.)

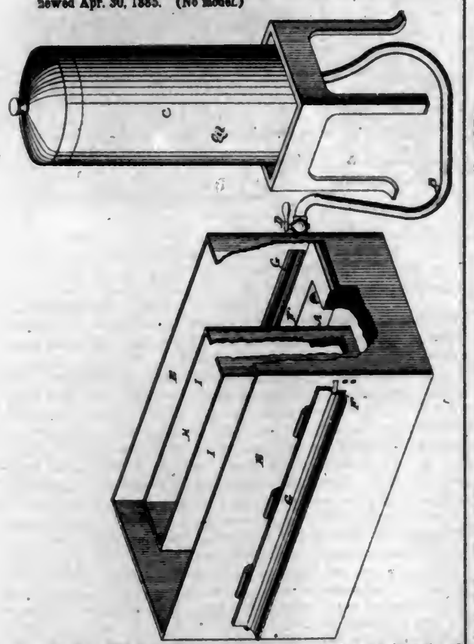


Claim.—1. In an apparatus for the combustion of liquid fuel, a chamber having inclined shelves extending inwardly from its opposite walls, said shelves having raised beads or ledges upon their lower or discharge edges, substantially as herein described.

2. In an apparatus for the combustion of liquid fuel, a chamber having inclined shelves projecting inwardly from opposite sides, the rear inclined wall with the opening C near the top, said wall having the passages N formed horizontally in its front and connected at one end, substantially as herein described.

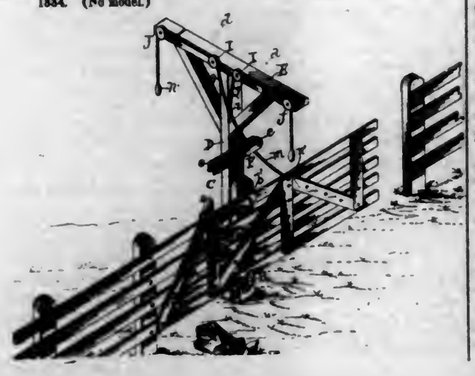
3. In an apparatus for the combustion of liquid fuel, a chamber having vertical front and end plates and a horizontal top and bottom, the rear of said chamber being inclined and having a horizontal opening or passage extending across near the top, as shown, in combination with inclined shelves projecting inwardly from the front and rear walls of the chamber, and provided with raised beads or ledges, as shown, and air-passages or dampers formed in the end walls of the chimneys, substantially as herein described.

320,533. DEVICE FOR THE COMBUSTION OF LIQUID FUEL. JOHN D. BODWELL, San Francisco, Cal., assignor to the California Perfection Fuel Manufacturing Company, same place. Filed Jan. 22, 1883. Renewed Apr. 30, 1885. (No model.)



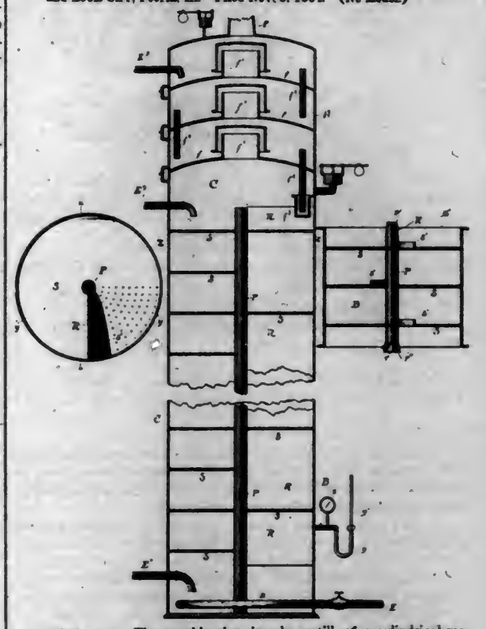
Claim.—The base A, having the interior continuous channel and central opening, H, in combination with the central extension, I, and an exterior surrounding extension, E, provided with continuous longitudinal openings F, and curved adjustable valve G, extending the length of opening F, as set forth.

320,534. GATE. GEORGE BRISTOL, Reedsburg, Wis. Filed Mar. 15, 1884. (No model.)



Claim.—The combination, with the fence and gate, constructed as described, of the vertical post D, provided at its upper end with the transverse bar E, and above the gate with the pulley-block F, carrying pulleys *e*, arranged as shown, the ropes *g g*, passing over pulleys on the upper transverse bar, E, the said ropes being connected at their inner ends above the block F with a single rope, *m*, passing downwardly between the said pulleys *e*, guided by the pulley-block, and connected to the top rail of the gate about midway of its length, whereby the gate may be opened and closed by either rope *g* from opposite sides of the fence, substantially as specified.

320,535. COMBINED BEER AND SPIRIT STILL. DELOSS S. BROWN and LOUIS SIPP, Peoria, Ill. Filed Nov. 3, 1884. (No model.)



Claim.—1. The combination, in a beer-still, of a cylindrical metallic column, a radial partition extending vertically therein, and approximately-horizontal sector-mutilated shelves so secured in said column that said sector-cuts shall in the different shelves be on alternate sides of said partition, as and for the purpose specified.

2. The combination, in a beer-still, of a cylindrical metallic column, a radial vertical partition therein, a central supporting and separating pipe, and approximately-horizontal sector-mutilated shelves so secured in said column that said sector-cuts shall be on alternate sides of said partition, as and for the purpose specified.

3. In a beer-still, the combination, with the cylindrical column, the central pipe, and the vertical partition extending from said pipe to the circumference of said column, of the shelves S, having a narrow sector cut from each and flanged at one edge of each of said cuts, as and for the purpose specified.

4. In a beer-still, the combination, with the cylindrical column, the central pipe, and the vertical partition extending from said pipe to the circumference of said column, of the shelves S, arranged as shown, and having a flanged sector-cut in each, and perforations, substantially as and for the purpose described.

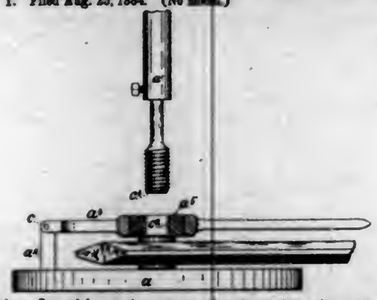
5. In a beer-still, the flanged cylindrical section B', the tapering and flaring section of pipe P, the partition R, extending from said pipe to the circumference of said cylindrical section and bent at its lower edge, and the shelves S, all constructed and arranged substantially as set forth, and for the purpose described.

6. In a beer-still, the combination of the column B, pipe P, centrally located therein, the shelves S, arranged as shown, steam-inlet pipe E, beer-inlet pipe E^2, slop-discharge E', and the combined pressure-gage G, and mercury-gage consisting of glass tube *g'*, and U-bend *g*, as set forth.

7. The herein-described combined beer and spirit still consisting of a cylindrical metallic column, in combination with a radial partition extending vertically in the lower portion of said column, approximately-horizontal sector-mutilated shelves secured in the lower part of said column to said vertical partition, a pipe for admitting beer upon the upper of said shelves, steam-inlet and slop-outlet pipes below the lowest of said shelves, and a second series of shelves occupying the upper portion

of said column and adapted to more highly distill the alcoholic vapor separated from the beer on the lower series of shelves, as set forth.

320,536. METHOD OF CUTTING SCREW-THREADS. ORRIN BEVANT, Westfield, Mass., assignor to John B. Pierce and Joseph Bond, Buffalo, N. Y. Filed Aug. 25, 1884. (No model.)



Claim.—In articles to be put together in sections, the within-described mode of cutting the screw-threads, consisting in passing the tap through a guide secured in contact with the article to be cut, substantially as described.

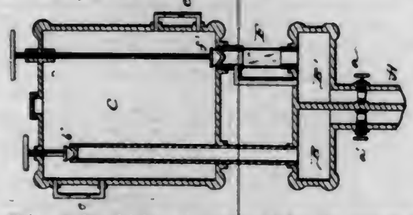
320,537. SPIRIT-LEVEL. BOSWELL B. BUTT, Newark, N. J. Filed Aug. 14, 1884. (No model.)



Claim.—1. A pocket-level, substantially as described, consisting of a stock having a single aperture, as *b*, and two spirit-tubes, as D E, visible therein, one spirit-tube being arranged parallel with the straight edge and the other at right angles thereto, as set forth.

2. In a level-indicator, the body A, having the groove *a'* and one or more offsets, *a*, in combination with the glass D, as herein specified.

320,538. LUBRICATOR. SAMUEL G. CABELL, Washington, D. C., assignor of two-thirds to Robert W. Hanna and Milton S. Cabell, Quincy, Ill. Filed June 5, 1884. (No model.)



Claim.—1. In a lubricator for engine-cylinders, the combination, with the oil-reservoir, of a valve located at the bottom thereof controlling a channel for allowing the oil to feed by gravity to the working parts of the engine, and a valve at or near the top controlling a steam-channel for admitting steam for condensation and affording a passage for the oil, whereby a convertible gravity and hydrostatic lubricator is secured.

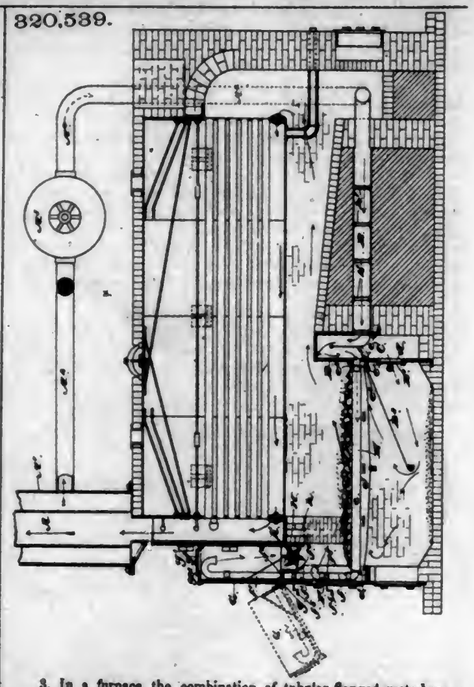
2. In a lubricator for engine cylinders, the combination, with the oil-reservoir C, of a valve, *f'*, located at the bottom thereof controlling a channel for allowing the oil to feed by gravity to the working parts of the engine, and a valve at or near the top controlling a steam-channel for admitting steam for condensation and affording a passage for the oil, and tubes *c c* for indicating the amount of oil in the reservoir, all as set forth.

320,539. FURNACE FOR BOILERS. DONALD D. CATTANACH, Providence, R. I. Filed Mar. 27, 1885. (No model.)

Claim.—1. In a furnace, the combination of tubular flanged grate-bars, vertical pipes of different lengths attached to said grate-bars, and a broad flue connecting with a hollow bridge-wall, substantially as described.

2. In a furnace, the combination of tubular flanged grate-bars, a hollow bridge-wall having apertures in the lower portion thereof, and an inclined apron secured to the bridge-wall and in front of the apertures therein, substantially as described, and for the purposes specified.

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3. In a furnace, the combination of tubular flanged grate-bars, a hollow bridge-wall connected with the tubes of said grate-bars, vertical pipes of different lengths connecting with the front part of the grate-tubes, and the hinged magazine, substantially as described.

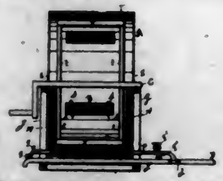
4. In a furnace, the combination of tubular flanged grate-bars, vertical pipes of different lengths attached to said grate-bars, a broad flue connecting with the hollow bridge-wall, a blower connected with this flue, and a jacket encircling the stack and connected with the said blower, substantially as described, and for the purposes specified.

5. In a furnace, the combination, with the hollow flanged grate-bars, of a hollow bridge-wall attached to grate-tubes at one end, short and long vertical pipes connected to the other end of said grate-tubes, the separable joints of said pipe, dampers in the same, and a hinged magazine, with the coal-feeding mechanism, substantially as described.

6. In a furnace, the combination, with tubular flanged grate-bars having short and long pipes connected therewith at one end and with the hollow bridge-wall at the other, of an inclined apron connected with the bridge-wall, a broad flue having right-angled extensions, a deflector in front of said flue, a pipe connecting the flue with the blower, and a cylindrical jacket encircling the smoke-stack and connected with the blower, substantially as described, and for the purposes specified.

7. In a furnace, the combination of a hinged magazine having vertical tubular pipes registering with tubular grate-bars, and means for regulating the flow of air through said pipe, substantially as described.

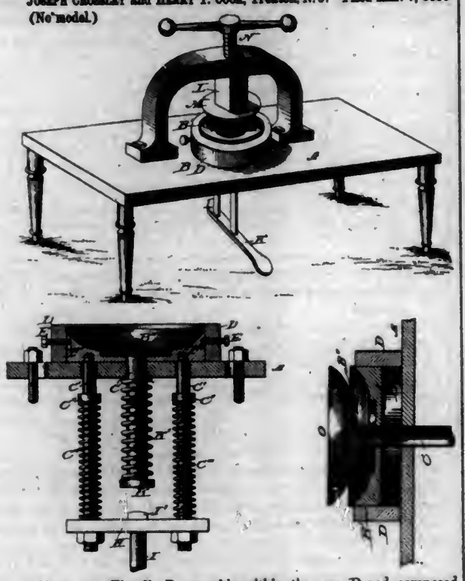
320,540. FEATHER-RENOVATOR. ORRIS S. CRANE, Detroit, Mich. Filed Sept. 3, 1884. (No model.)



Claim.—1. In a feather-renovator, the drum, made of sheet metal and mounted upon a suitable frame, in combination with the screening-frame F, having the wire-covering *z* and pocket *r*, formed in said screen, and a revolving beater within said drum, substantially as set forth.

2. In a feather-renovator, the drum A, made in two parts, the lower part having the heating-chamber W, and series of pipes *d d* and P, arranged in the lower section of said drum, substantially as specified, of a revolving beater within said drum, the screens *s* and sliding doors *h*, and the screens B, having pockets *r*, when arranged and combined substantially as set forth.

320,541. PRESS FOR FORMING ARTICLES OF POTTERY-WARE. JOSEPH CROSSLEY and HENRY T. COOK, Trenton, N. J. Filed Mar. 7, 1885. (No model.)



Claim.—1. The die B, movable within the case D and composed of the parts B' and B'', substantially as shown and described.

2. The die B, composed of the part B', provided with stops, and of the part B'', in combination with the case D, substantially as shown and described.

3. The part B'', provided with the shaft C, in combination with the part B', provided with the shafts C' C', substantially as shown and described.

4. The die B, composed of the part B'', provided with the shaft C, and the part B', provided with the shafts C' C', in combination with the case D, substantially as shown and described.

5. The part B'', provided with the shaft C, such shaft carrying the collar K and spring K', in combination with the part B', provided with the shafts C' C', carrying the collars C'' C'' and springs C''' C''', and with the bar H and rod I, substantially as shown and described.

6. The die B, composed of the part B'', provided with the shaft C, such shaft carrying the collar K and spring K', and of the part B', provided with the shafts C' C', carrying the collars C'' C'' and springs C''' C''', in combination with the case D and the bar H and rod I, all substantially as shown and described.

7. The die B, composed of the part B' and of the part B'', in combination with the case D, substantially as shown and described.

320,542. ELECTRICAL GAME-INDICATOR FOR POOL-TABLES. ELIAS CURTIS, Kansas City, Mo. Filed July 29, 1884. (No model.)



Claim.—1. The combination, with a gaming-table, of an electric battery and indicating device having connecting wires leading from said battery and indicating device to a projection provided with a circuit-closing arm and a hanger, whereby upon the removal of the hanger said indicating device automatically produces an audible or visible signal showing a game to be in progress, substantially as specified.

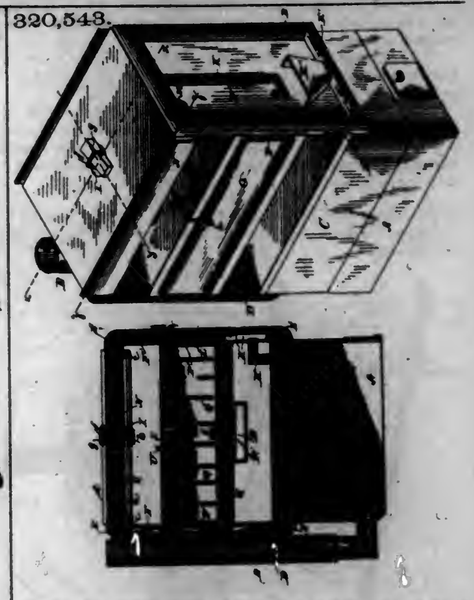
2. A billiard-table provided with a hook, insulator, head, hinged arm, joint, and rigid arm, in combination with a battery and indicating device, for the purposes substantially as shown and described.

320,543. FRUIT-DRIER. JOSEPH R. DEW, Knoxville, Tenn. Filed May 12, 1884. (No model.)

Claim.—1. In a fruit-drier, the combination, with the boiler and the corner steam-pipes connected by horizontal steam-pipes, of the herein-described steam-boxes communicating at their corners or ends with the corner steam-pipes and having their bottoms drawn up or raised at their centers, whereby the water of condensation is caused to run to the corners of the steam-boxes and back through the steam-pipes to the boiler, as set forth.

2. In a fruit-drier, the combination, with the steam-boxes having the thimble or opening, of the fruit-drawers provided with a loop or ex-

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tension which passes through the thimble or opening, and means, substantially as described, for detachably securing the loop or extension in the opening, for the purpose set forth.

3. In a fruit-drier, the combination, with the steam-boxes having a central opening or thimble, of the fruit-drawer having its side walls clasping the sides of the boxes, a loop or equivalent device passing through the opening or thimble of the boxes, and means, substantially as described, for securing the loop in place to hold the drawers against the under side of the boxes, as set forth.

4. The combination, with the steam-boxes, of the bleacher-frames normally closing the space between the boxes, and a pivoted rod having arms for holding the bleacher-frames in place, as set forth.

5. The combination, with the boiler, of the steam-boxes arranged in a series one above the other, the walls F F', connecting the ends of the boxes and openings through the walls to allow communication with the boxes, semi-cylindrical strips fitted to the outside of the walls over the openings so as to form steam-pipes D, and corresponding strips fitted to the walls at the top and bottom, forming steam-pipes E E', which communicate with the ends of the pipes D, arranged and combined as set forth.

6. In a fruit-drier, the combination, with the boiler, and a funnel communicating therewith and located on the outside of the boiler, of the steam-boxes connected together by the end walls to form the casing or frame for the boxes, the corner steam-pipes fitted to the outside of the end wall and communicating with the boxes, the horizontal steam-pipes connecting the vertical corner pipes, and the water-escape pipe arranged on the outside of the end wall of the casing above the funnel and connecting with the top horizontal steam-pipe, so that the water of condensation escaping from the water-pipe will drip into the funnel, for the purpose set forth.

7. In a fruit-drier, the combination, with the boiler, and the funnel for supplying water to the same located on the outside of the boiler, of the steam-boxes, the steam-pipes connecting with the boiler and delivering steam to the boxes, and the water-escape pipe I, connecting with the steam-pipes and located in a vertical line on the outside of the boxes above the funnel, the lower end of the escape-pipe being turned up or provided with an elbow, so that the water of condensation escaping from the latter will drip into the funnel and return to the boiler, as set forth.

8. In a fruit-drier, the combination, with the steam-boxes, of the herein-described bleacher consisting of two frames independently removable, and each of which has a series of inwardly-projecting wires or hangers upon which the fruit is suspended, as set forth.

9. In a fruit-drier, the combination, with the steam-boxes, of the herein-described bleacher normally closing the space between the boxes, and provided with a series of wires or hangers upon which the fruit is suspended, for the purpose set forth.

10. In a fruit-drier, the combination, with the steam-boxes having a central opening or thimble, of the bleacher-frames fitting in the space between the boxes, and the sulphur-burner having its pipe projecting up through the thimble or opening into the bleaching-chamber, as set forth.

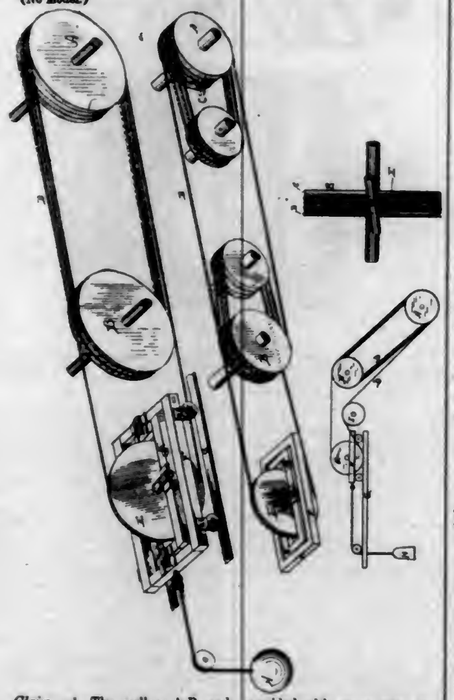
11. In a fruit-drier, the fruit-drawer N, consisting of the wooden

slats *a* and *b*, grooved metal end slats, *c c*, and metal side walls, *d*, substantially as specified.

12. In a fruit-drier, the combination, with the steam-box G, having the central thimble, I, of the fruit-drawer N, provided with the loop *f*, and the wedge *g*, substantially as specified.

13. In a fruit-drier, the combination, with the steam-boxes, of the bleacher-frames P, having flange-walls P' and angular wires Q, and the sulphur-burner R, secured to the lower steam-box and having its pipe projecting up through the thimble into the bleaching-chamber, substantially as specified.

320,544. DEVICE FOR TRANSMITTING POWER. WALLACE H. DODGE, Mishawaka, Ind. Filed Oct. 27, 1884. Renewed May 26, 1885. (No model.)



Claim.—1. The pulleys A B, each provided with one or more peripheral grooves, C, the endless belt or rope D, combined with a wheel, E, a carriage, F, for said wheel, and a rectilinear track or guideway, G, for the same, said carriage being impelled away from said pulleys by a constantly-acting force, substantially as set forth.

2. The pulleys A B, the rope D, placed thereon, and the idler E, combined with the carriage F *g*, adjustable to vary the angular position of the wheel E to adapt it to the number of grooves employed on the pulleys A B, and a yielding device to impel said carriage and idler E away from said pulleys A B and keep said rope D always tant.

3. The combination of the pulleys A B, the rope D, placed thereon, the idler E, mounted upon the carriage F, adapted to move only in a right line, a track or guideway, G, and an impelling weight attached to said carriage.

4. The pulleys A B, rope D, placed thereon, the inclined idler E, mounted upon a carriage, F, impelled by gravity, and a rectilinear track or guideway, G, for said carriage, combined with one or more guide-pulleys, I, whereby the angular position of the carriage F and track G as to the pulleys A B may be changed, as desired.
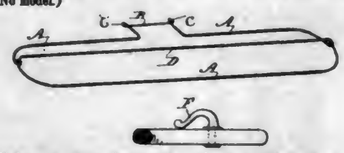
320,545. FILTERING-TANK. ANDREW DOUGHTON, Jerseyville, Ill. Filed Apr. 18, 1885. (No model.)

Claim.—The combination, with a tank, A, located in a stream of running water and provided with a sluice, *a*, of the supplementary tank



b, provided with a sluice, *c*, and filtering-box *d*, both tanks constructed and adapted for co-operative effect, substantially as and for the purpose set forth.

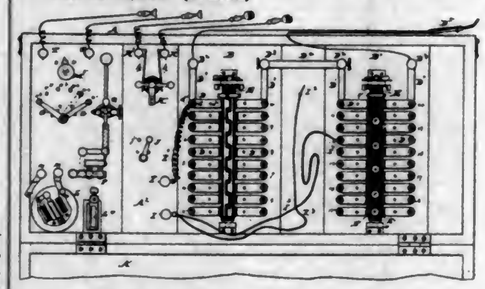
320,546. HARNESS ATTACHMENT. GEORGE L. EASON, Des Moines, Iowa, assignor of one-half to R. I. Scott, same place. Filed Apr. 13, 1885. (No model.)



Claim.—1. As an improved article of manufacture, an attachment for harness, composed of an elongated wire frame having an extension at its front and center that is provided with eyes at its corners, and a bar or wire extending through the center of the frame from its opposite ends, for the purposes stated.

2. The combination of the guard composed of the elongated frame A, having a lateral extension, B, eyes C, and a central part, D, with the crupper of a harness, having hooks F, or their equivalents, substantially as shown and described, to operate in the manner set forth, for the purposes stated.

320,547. MEDICAL BATTERY. OTTO FLEMMING, Philadelphia, Pa. Filed Mar. 17, 1883. (No model.)



Claim.—1. In a cautery-battery, two or more main batteries of a number of cells each, and conductors to couple up said batteries in series, in combination with commutators permanently secured to the frame-work of said cells to couple up the cells of each of said batteries either for quantity or intensity, whereby a current of the required degree of intensity and quantity may be obtained, substantially as and for the purpose specified.

2. In a cautery-battery, two or more main batteries of a number of cells each, and conductors to couple up said batteries in series, in combination with commutators permanently secured to the frame-work of said cells to couple up the cells of each of said batteries either for quantity or intensity, and means, substantially as described, to regulate the depth of immersion of the battery-plates in the exciting-fluid, whereby a current of the required degree of intensity and quantity may be obtained, substantially as and for the purpose specified.

3. In a medical battery, one or more main or powerful batteries adapted to cauterizing purposes, combined with binding-posts for the electrodes, commutators permanently secured to the frame-work of said cells to couple up the plates of said batteries or batteries for quantity or intensity, a faradic apparatus, and a switch for putting said faradic apparatus in circuit with said main battery, by which the induction may be increased above the normal limit of said faradic apparatus, substantially as and for the purpose specified.

4. In a medical battery, one or more main or powerful batteries adapted to cauterizing purposes, combined with binding-posts for the electrodes, commutators permanently secured to the frame-work of said cells to couple up the plates of said batteries or battery for quantity or intensity, a faradic apparatus, a switch for putting said faradic apparatus

in circuit with said main battery, and means, substantially as described and shown, consisting of two interrupters, one for rapid and the other for variable rates of slow vibrations to regulate the number of interruptions per second, substantially as and for the purpose specified.

5. In a medical battery, one or more main or powerful batteries adapted to cauterizing purposes, combined with binding-posts for the electrodes, commutators permanently secured to the frame-work of said cells to couple up the plates of said battery or batteries for quantity or intensity, a faradic apparatus, a switch for putting said faradic apparatus in circuit with said main battery, and switches to increase or diminish the length of wire in circuit in the secondary coil of the inductorium forming part of the faradic apparatus, substantially as and for the purpose specified.

6. The combination, in an interrupter for a faradic apparatus, of the electro-magnet P, support Q^2, adjusting-ring Q^4, arm Q', carrying a weight, Q^2, on one end and the armature Q^3 on the other, spring *q*, pivot-shaft q^2, electrical-conductor spring q^3, screw *p*, arm P^4, post P^5, connecting electric circuits, and a battery, substantially as and for the purpose specified.

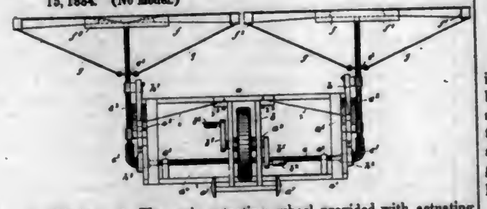
7. The combination, in an interrupter for a faradic apparatus, of the electro-magnet P, support Q^2, adjusting-ring Q^4, arm Q', carrying a weight, Q^2, on one end and the armature Q^3 on the other, spring *q*, pivot-shaft q^2, electrical-conductor spring q^3, screw *p*, pivoted arm P^4, post P^5, spring-armature, connecting electric circuits, and a battery, substantially as and for the purpose specified.

8. The combination, in an interrupter for a faradic apparatus, of the electro-magnet P, support Q^2, adjusting-ring Q^4, arm Q', carrying a weight, Q^2, on one end and the armature Q^3 on the other, spring *q*, pivot-shaft q^2, electrical-conductor spring q^3, screw *p*, arm P^4, and post P^5, with an induction-coil, and switches to increase or decrease the length of wire in circuit in the secondary coil of said induction-coil, connecting electric circuits, and a battery, substantially as and for the purpose specified.

9. The combination, in an interrupter for a faradic apparatus, of the electro-magnet P, support Q^2, adjusting-ring Q^4, arm Q', carrying a weight, Q^2, on one end and the armature Q^3 on the other, spring *q*, pivot-shaft q^2, electrical-conductor spring q^3, screw *p*, arm P^4, and post P^5, with an induction-coil, switches to increase or decrease the length of wire in circuit in the secondary coil of said induction-coil, connecting electric circuits and a battery, a powerful main or cautery battery, and a switch to put said main battery in circuit with the primary wire of the induction-coil interrupter and their battery, substantially as and for the purpose specified.

10. The combination, in an interrupter for a faradic apparatus, of the electro-magnet P, support Q^2, adjusting-ring Q^4, arm Q', carrying a weight, Q^2, on one end and the armature Q^3 on the other, spring *q*, pivot-shaft q^2, electrical-conductor spring q^3, screw *p*, arm P^4, post P^5, induction-coil N, contact-pins—such as N' to N^6—levers O O', having insulating-pins *o o'*, and connecting-circuits, all as shown, and for the purpose specified.

320,548. AIR-SHIP. JOSEPH S. FOSTER, Salem, Mass. Filed Sept. 15, 1884. (No model.)



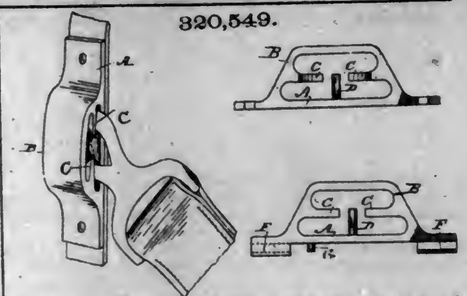
Claim.—1. The main actuating-wheel provided with actuating cranks and pedals, and the shaft actuated thereby, having flexible and upwardly-turned portions, and the propelling devices connected with and actuated by the said upwardly-turned portions, substantially as described.

2. In an apparatus for aerial locomotion, a rotary propelling device having arms with acting faces oppositely inclined from a central longitudinal line, substantially as described.

3. The frame-work provided with lateral wings, and the actuating-shaft extending across the said frame-work, combined with the upwardly-extended shafts having flexible connection with and receiving motion from the actuating-shaft, and propelling devices thereon, the oscillating arms supporting the said shafts independent of each other, and appliances for independently adjusting and retaining the said arms in any desired angular position, substantially as described.

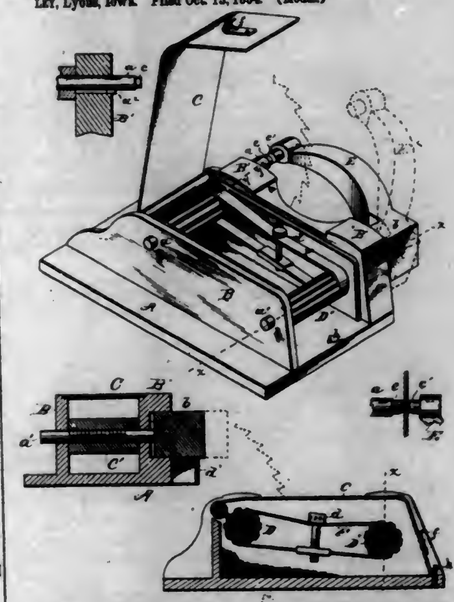
320,549. TRACE-CARRIER. MILTON B. FRESER, Walnut, Iowa. Filed Apr. 13, 1885. (No model.)

Claim.—A metal trace-carrier composed of a flat base, A, having perforations or loops at its ends, an integral arch, B, having triangular-



shaped projections C, and a tongue, D, extending vertically from the base A, in combination with a hip-strap in a harness, for the purposes stated.

320,550. SAW-GUIDE. GEORGE S. GARDNER and JAMES W. MCAULEY, Lyons, Iowa. Filed Oct. 13, 1884. (Model.)



Claim.—1. In a saw-guide, the combination of the nuts D D', having threaded holes extended longitudinally through the nuts, the threaded bolts *a a'*, extended through the nuts, the spring-band F, extended around smooth portions of the nuts, set-screw *d*, extended through the band, the adjustable arm E, formed with the threaded bolt *a'*, and having the angular portion *b*, the angular recess *b'*, formed in the box A, and the guide-pins *c c'* on the bolt *a* and arm E, substantially as and for the purposes described.

2. The combination, with the box formed of the bed-plate A, sides B B', and lid C, of the nuts D D', having threaded holes extended longitudinally through the nuts, the threaded bolts *a a'*, extended through the nuts, the spring-band F, extended around smooth portions of the nuts, set-screw *d*, extended through the band, the adjustable arm E, formed with the threaded bolt *a'*, and having the angular portion *b*, the angular recess *b'*, formed in the box A, and the guide-pins *c c'* on the bolt *a* and arm E, the nuts, band, and set-screw being inclosed within the box, substantially as and for the purpose set forth.

3. The combination, with the box having the angular recess *b'* and the projection *d'*, the threaded nut D, threaded bolt *a*, extended through the nut, and the guide-pin *c* on the end of the bolt, of the adjustable arm E, provided with the guide-pin *c'*, and having the threaded bolt *a'*, and the angular portion *b'*, formed on the arm, substantially as and for the purposes described.

320,551. SASH-LOCK. HORACE E. GILMORE, Spring Hill, Kans., assignor of one-half to John S. Mackey, same place. Filed Apr. 27, 1885. (No model.)

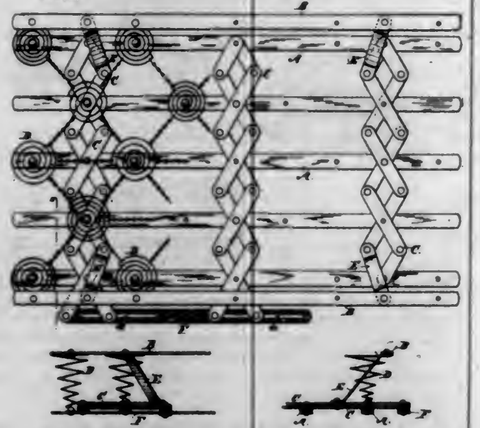
Claim.—In a window-sash lock, a vertical rod having ratchets and notches at its upper and lower ends and connected to the window-frame,

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in combination with suitable blocks or casings connected to the sashes and having central holes for the rod and containing a spring-bolt, said bolt at its inner end being U-shaped and passing through double perforations in the casing, for the purpose set forth.

320,552. SPRING-BED. THOMAS H. HALLIDAY, Brooklyn, assignor to Nat H. Van Winkle, New York, N. Y. Filed Aug. 7, 1884. (No model.)



Claim.—1. In a bed-bottom, the combination of the lower slats, A, spiral springs D, double-jointed arms C, upper slats, B, and braces E, pivoted at one end to the joints of the double-jointed arms C, and connected with the upper slats, B, as and for the purpose specified.

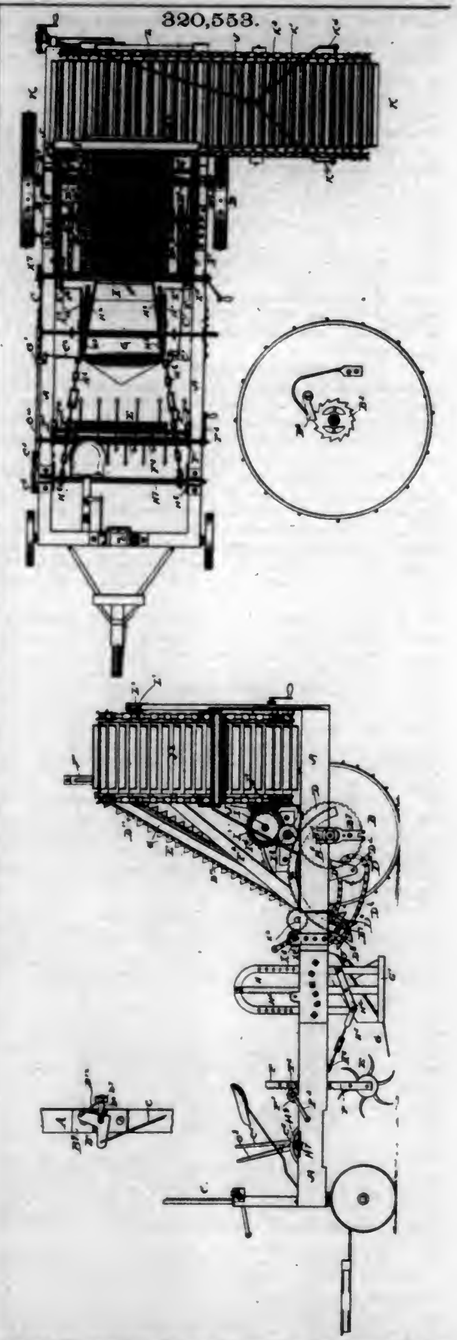
2. In a bed-bottom, the combination of the lower slats, A, springs D, upper slats, B, braces E, pivoted to the slats B, and the arms C, the double-jointed arms C pivoted to each other and to the slats A, and the guide-bar F, with slots *a*, all arranged substantially as described, and for the purposes specified.

320,553. EARTH SCRAPER AND ELEVATOR. JOCHIM H. HAHAN and CHRISTIAN HAHAN, Omaha, Nebr. Filed Dec. 10, 1883. (No model.)

Claim.—1. The combination, with the main frame provided with the bearings F^4 and set-screws F^5, of the rotary cutter E, the rack-arms F, and the shaft F^2, provided with the crank F^3, substantially as specified.

2. The combination, with the frame A, provided with the bearings H', of the scraper G, the inverted-U frames H, with perforated parallel arms, thumb-screws H^3, middle rack-bars H^2, inclined braces H^4, pivoted arms H^5, stay-chains H^6, and the transverse shaft H', with ratchets and detents H^8, substantially as specified.

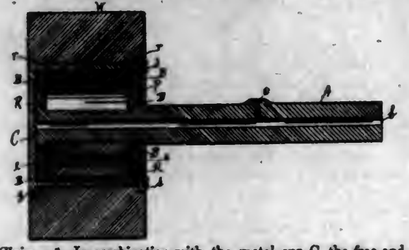
320,553.



3. The combination, with the frame A, provided with the endless elevator E, and mechanism, substantially as described, for operating said elevator E, of the hinged side carrier provided with the supporting-roller K^3, the ball K^2, rope L, pulley and strap guide on the corner standard, and the winch, pawl, and ratchet for operating the rope, substantially as specified.

4. The combination of the main frame, the endless elevator E, the elevator-frame F^{10}, having vertical slotted arms, curved racks hinged to the lower end of the elevator-frame G, guides in the main frame for the curved racks, and gears moving the curved racks and raising or lowering the elevator, substantially as described.

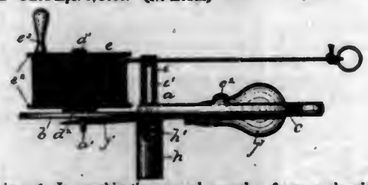
320,554. ANTI-FRICTION BEARING FOR ROLLER-SKATES. WINFIELD S. HARMON, Detroit, Mich. Filed Jan. 15, 1885. (No model.)



Claim.—1. In combination with the metal cup C, the free end of the axle having reduced portion D, housed within said cup, also the series of rollers and rings, as specified, the plate P, attached to said cup, said cup and plate attached to the wheel W, substantially as specified.

2. The combination of the axle having oil-channels O *b*, as specified, and reduced bearing D, the wheel W, provided with the recesses *r r*, the metal cup having flange *f*, the series of rollers journaled within the rings B B, and the plate P, secured to said cup and wheel by screws, substantially as specified.

320,555. CHALK-LINE REEL. HENRY F. HASLAM, New Britain, Conn. Filed Apr. 9, 1885. (No model.)



Claim.—1. In combination, a reel, *c*, and a frame, *a*, bearing an axis, *d*, and having a handle, *c*, with the laterally-open socket therein adapted to receive and hold the handle of an awl, all substantially as described.

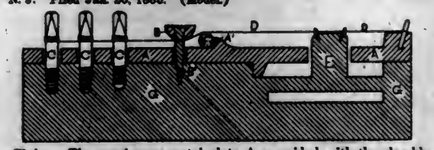
2. In combination, a line-reel, *c*, and a frame, *a*, having a handle, *c*, an axis supporting the reel, and a guard projecting from the frame below and across the reel and adapted to form a support for the device while unreeling the cord, all substantially as described.

3. In combination, a line-reel and a frame bearing the axis supporting the reel, and having a handle with an awl-socket, and also a shoulder projecting below and across the reel and adapted to form a support for the device while unreeling the cord, and a guide for the cord attached to the frame, all substantially as described.

4. In combination, the frame *a*, having the handle *c*, with an awl-socket, the sliding cord-guide *i*, the guard *g*, projecting from the frame below and across the reel, the axis *d*, projecting from the frame parallel to the guard and supporting the reel *c*, with the spiral spring d^3, held between the reel and the frame, and the screw d^4, all substantially as described.

5. In combination, a line-reel, *c*, having a barrel, *c'*, with cord-loop c^4 and sides c^3 on the barrel, and a handle, c^2, on one of the sides, said reel and its parts being all cast in one piece, and a metallic frame, *a*, with the axis *d* for the reel and the guard below and on the same side as the axis, and a handle, *c*, having an awl-socket, the said frame and its parts being cast in one piece, all substantially as described.

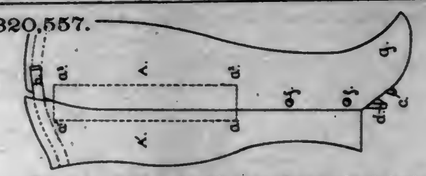
320,556. UPRIGHT PIANO. CHARLES M. HATTERSLEY, Trenton, N. J. Filed Jan. 20, 1885. (Model.)



Claim.—The continuous metal plate A, provided with the shoulder A', made in one therewith, in combination with the bearing-bar F, the presser-bar B, held by screws B', passing through openings in the plate directly into the wrest-plank G, substantially as shown and described.

320,557. LEGGIN. CLARA E. HOMER, Auburn, N. Y. Filed Dec. 8, 1884. (No model.)

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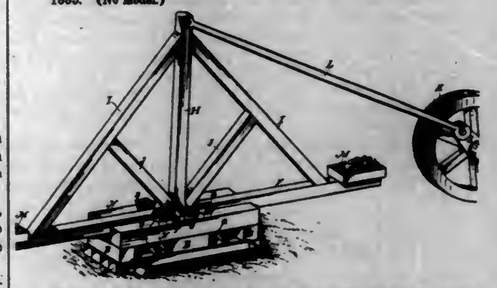
Claim.—As an improved article of manufacture, a leggin having its opening closed by the elastic portion *a a' a² a³*, the buttons *f*, or their equivalents, and the elastic band *b*, all arranged substantially as set forth.

320,558. COMBINED SPECTACLES AND WATCH-MAKER'S EYE-GLASS. GRANVILLE H. HULL, Lafayette, Ind. Filed Apr. 14, 1885. (No model.)



Claim.—The combination, with a pair of spectacles, S, of an eye-glass, E, a bracket, B, secured to the joint *s* of the spectacle-frame and supporting the eyeglass E, the spectacle-frame S, the bracket B, and the eyeglass E being connected together in such a manner as to allow the eyeglass to be thrown in front of the spectacle-lenses and away from them, substantially as described and specified.

320,559. ROCK-CRUSHER. CORNELIUS W. HUSON, Weaverville, Cal., assignor of one-half to William P. Jenkins, same place. Filed Feb. 12, 1885. (No model.)



Claim.—1. In a rock-crusher, the concave bed C, having the screen G at each end, in combination with the convex die D, the block E, to which said die is bolted, and the counterbalanced rock-beam F, to which the block is attached, substantially as herein described.

2. In a rock-crusher, the concave fixed bed C, in combination with the counterbalanced rock-beam F, standard H, diagonal braces, the block E, secured under the beam, and the convex die D, secured to the block and resting in and tangential to the bed, substantially as hereby described.

3. In a rock-crusher, the mud-sills A, cross-sills B, and concave bed C on one of the cross-sills, in combination with the rock-beam F, block E, convex die D, and the side beams, N, resting on the cross-sills, and having feed apertures or hoppers *n*, communicating with the spaces at and between the ends of the bed and die, substantially as herein described.

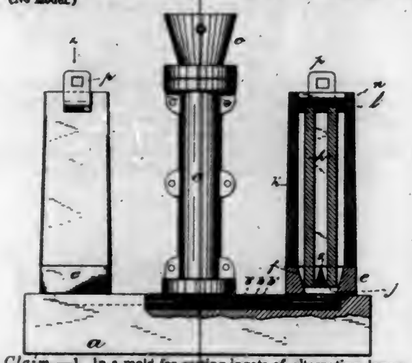
4. A rock-crusher comprising the mud-sills A, cross-sills B, concave bed C on one of the cross-sills, the screens G at the ends of the bed, the rock-beam F, block E, convex die D, resting in and tangential to the bed, the side beams, N, having feed apertures or hoppers *n*, communicating with the spaces at and between the ends of the die and bed, and the discharge-chutes Q, communicating with the screens and emerging between the cross-sills B, substantially as herein described.

5. In a rock-crusher, the concave bed C and the side beams, N, in combination with the convex die D, the counterbalanced rock-beam F, and the safety-guards consisting of the journals O, extending from the sides of the rock-beam, and the bearings P on the side beams, substantially as herein described.

6. A rock-crusher comprising the mud-sills, cross-sills, side beams, N, the flanged concave bed C on one of the cross-sills, the convex die D, resting in and tangential to the bed, the block E, to which the die is bolted, the rock-beam F, to which the block is secured, the screens G at each end of the bed and die, the feed apertures or hoppers *n* in the side beams, the discharge-chute Q between the cross-sills, and the means by which the die is rocked, consisting of the standard H, the beam F.

the pitmso L, and means for operating the same, substantially as and for the purpose described.

320,560. MOLD FOR CASTING INGOTS OF ALTERNATE LAYERS OF METAL. JOHN ILLINGWORTH, Newark, N. J. Filed Mar. 17, 1884. (No model.)



Claim.—1. In a mold for casting ingots of alternating layers of metal, a plate-receptacle having inclines *f* and wedge-shaped guides *g*, substantially as and for the purposes set forth.

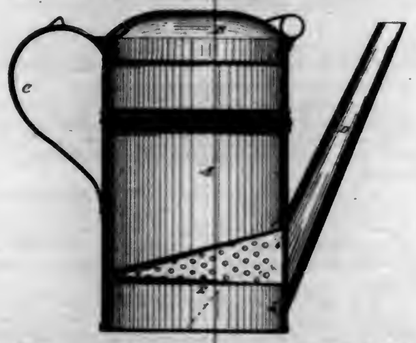
2. In combination, the base *a*, the funnel, and one or more plate-receptacles, each consisting of a foundation-piece provided with means for spacing and supporting one or more metal plates and a hollow upright, *h'*, said base having therein passages *b*, leading from said funnel to said receptacle or receptacles, substantially as and for the purposes set forth.

3. The combination of a funnel, one or more ingot-molds, one or more metal plates in each mold, and a passage extending from the funnel to each mold or plate-receptacle, and to a position under the plate or plates therein, whereby the metal passes beneath and upwardly on both sides of the plate or plates, as and for the purposes set forth.

4. In a mold for casting ingots of alternating layers of metal, a plate-receptacle having ledges *j*, inclines *f*, and guides *g*, arranged and operating substantially as and for the purposes set forth.

5. In combination, the base having passages therein, the funnel, the uprights *h'*, and foundation-pieces *e*, provided with wedge-shaped projections, all said parts being arranged and operating substantially as set forth.

320,561. COFFEE AND TEA POT. WILLIAM T. JONES, Woodstock, Iowa. Filed Mar. 15, 1884. (No model.)

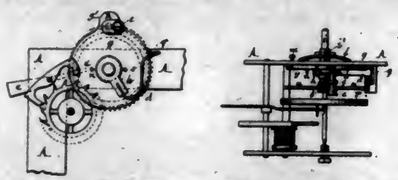


Claim.—1. A strainer for coffee and tea pots, tapering in form and extending from the opening in the lower end of the spout, substantially the entire width of the pot, whereby a portion of the strainer will be free from contact with the grounds when the pot is tipped to pour out the coffee or tea, substantially as and for the purpose set forth.

2. A tapering strainer of sufficient length to extend across the coffee or tea pot, substantially the entire width thereof, and provided with means, substantially as described, for detachably connecting it over the opening in the lower end of the spout, substantially as and for the purpose specified.

3. A tapering strainer of sufficient length to extend substantially the entire width of a coffee or tea pot, and provided with a plate at its open end having an opening, said plate extending beyond the sides of the strainer to form flanges, and means for detachably securing the plate around the opening in the spout, substantially as and for the purpose described.

320,562. REGULATOR FOR TIME-PIECES. ARTHUR JUNGHANS, Schramberg, Würtemberg, Germany. Filed Feb. 19, 1885. (No model.) Patented in Germany Dec. 11, 1884, No. 31,642; in France Dec. 18, 1884, No. 165,997, and in England Jan. 12, 1885, No. 413.



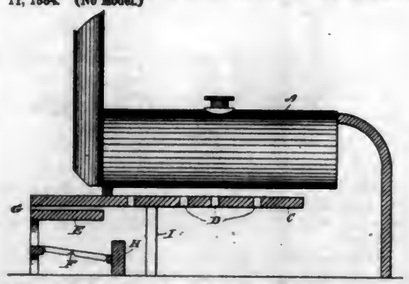
Claim.—1. The combination, with a spindle, *i*, cam-plate *g*, mounted upon a sleeve of the spindle, a crank, *h*, pivoted to the cam-plate, a split pillar, *e*, having a clamping-ring, *f*, and a balance-spring, *a*, secured to said pillar *e*, substantially as set forth.

2. The combination of a cam-plate, *g*, a spindle, *i*, having a crank, *k*, a bent spring, *d*, having a slot, *p*, and finger *q*, and a balance-spring, *a*, passing through the slot *p* of the spring *d*, substantially as set forth.

3. The combination of the spindle *i*, cam-plate *g*, the periphery of which corresponds to the exterior winding of the balance-spring, a crank, *h*, pivoted to said cam-plate and carrying a split pillar, *e*, and a balance-spring, *a*, attached to said pillar, substantially as set forth.

4. The combination of the cam-plate *g*, pivoted crank *h*, axially-turning split pillar *e*, having conical ends, a clamping-ring, *f*, for compressing the conical ends of the pillar, and a balance-spring clamped by said split pillar, substantially as set forth.

320,563. FURNACE. WILLIAM KENT, Jersey City, N. J. Filed Aug. 11, 1884. (No model.)

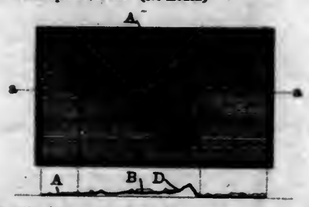


Claim.—1. The combustion-chamber in the rear of the furnace, covered by the roof C, in combination with the flame-walls I J, placed in said combustion-chamber, substantially as shown and described.

2. In a water-tube steam-boiler setting, the combination of the roof C of the furnace, extending from the front to a point beyond the bridge-wall, the low bridge-wall H, and the flame-walls I J, substantially as shown and specified.

3. In a water-tube steam-boiler, the arrangement of the roofs L and O and the baffle-plates M and N, so as to cause the products of combustion to travel under nearly the whole length of the boiler before entering the nest of tubes, as shown and specified.

320,564. RELIEF MAP, CHART, &c. LOUIS R. KLEMM, Hamilton, Ohio. Filed Apr. 27, 1885. (No model.)



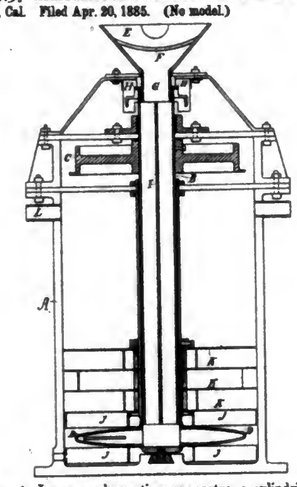
Claim.—1. As a new article of manufacture, a map, chart, or the like, having a contrasting body and ground formed with a water-proof cleansable surface adapted to receive obliterative crayon or other marks, substantially as and for the purpose set forth.

2. As a new article of manufacture, a map, chart, or the like, having a body and ground formed with a water-proof cleansable surface adapted to receive obliterative crayon or other marks, the body being thrown into relief or superficial projection with reference to the ground, substantially as and for the purpose set forth.

3. As a new article of manufacture, a map, chart, or the like, constructed in relief and having a slated surface, substantially as and for the purpose set forth.

4. As a new article of manufacture, a map, chart, or the like, having a slated surface in three or more tints or colors, substantially as and for the purpose set forth.

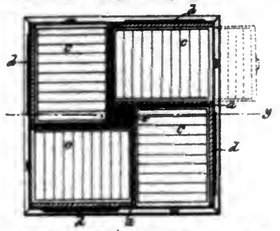
320,565. **AMALGAMATING APPARATUS.** WALTER E. KOCH, Soulsbyville, Cal. Filed Apr. 20, 1885. (No model.)



Claim.—1. In an amalgamating apparatus, a cylindrical vessel or chamber having the hollow vertical rotating pipe, the radial discharge-arms revolving beneath the body of mercury contained in the vessel, the feed-hopper discharging into the upper end of the pipe, as shown, in combination with a vertical partition or diaphragm extending from top to bottom of the pipe, substantially as herein described.

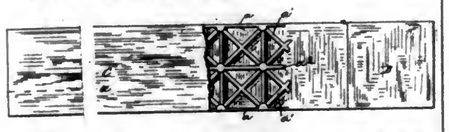
2. An amalgamating apparatus comprising a chamber having a vertical revolving pipe with a central diaphragm and tapering slotted branch pipes, a stationary hopper with a discharge-nozzle, a packing between the nozzle and revolving pipe, the perforated screens K, and the radial arms J, substantially as herein described.

320,566. **DISPLAY-CASE FOR GOODS.** JOHN N. LEONARD, Warehouse Point, Conn. Filed Nov. 8, 1883. (No model.)



Claim.—The herein-described rotating display-case for goods, consisting of rectangular case *a*, having a series of drawers, *b*, on each face thereof, and at one side of the central line of the case, said drawers being of less than half the width of the case, and extending back at the rear beyond the central line of the case when closed, and a mirror, *d*, in each face of the case at the side of the drawers, all combined and arranged substantially as shown and described.

320,567. **TILE-SETTING.** ANDREW H. LORD, Chicago, Ill., assignor to Charles H. Hitchcock and John A. Cooper, both of same place. Filed Dec. 5, 1883. Renewed Nov. 24, 1884. (No model.)

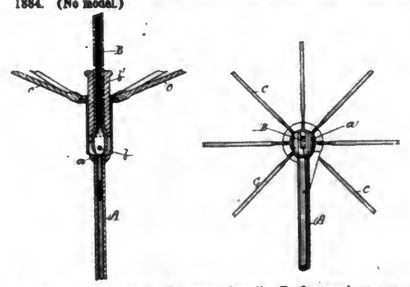


Claim.—1. A panel or strip of tile consisting of a metallic lattice-work frame and tiles applied and secured thereto by mortar or cement applied to the backs of the tiles and filling the said frame, substantially as and for the purposes set forth.

2. The frame A, composed of outside bars, *a*, and inside lattice-bars, *a'*, of less thickness than the former, in combination with the tiles B, and the mortar or cement filling C, all applied to form a panel of tiling, substantially as and for the purposes set forth.

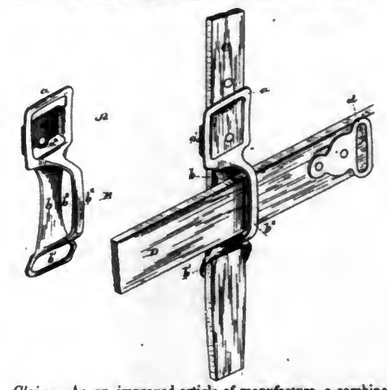
3. The herein-described method of setting tiles, the same consisting in, first, laying the tiles in the desired pattern upon their faces on a level surface; second, applying to the backs of the tiles a metallic lattice-work frame of the same pattern; third, filling the frame with mortar or cement, by which the tiles are secured to the frame, and, fourth, setting the completed article or panel as an entire piece in the position desired.

320,568. **SUNSHADE.** ANDREW LYON, Malden, Mass. Filed Dec. 5, 1884. (No model.)



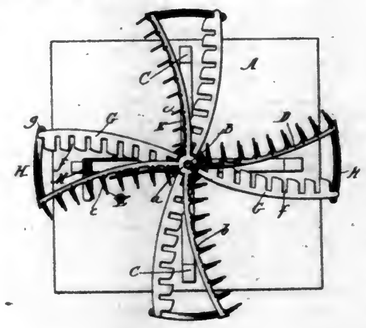
Claim.—In a sunshade, the upper handle, B, flattened at one end, and combined with the main handle A by a tip, *a*, and pin *b*, substantially as set forth.

320,569. **COMBINED PAD-BUCKLE AND TRACE-CARRIER.** OGDEN MALLORY, Auburn, Cal. Filed Mar. 9, 1885. (No model.)

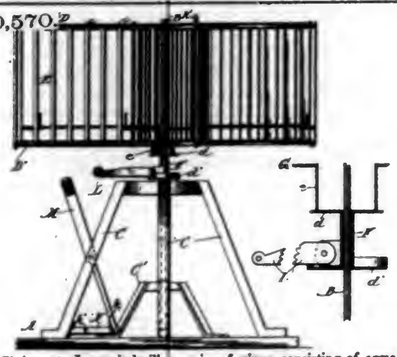


Claim.—As an improved article of manufacture, a combined pad-strap buckle and trace-carrier, consisting of the buckle A, having a frame, *a*, and a depressed transverse center piece, *a'*, with a tongue, a^3, and the trace-carrier B, having a base-piece, *b*, connected with and in the same plane as the frame of the buckle, an inwardly-inclined end loop, *b'*, and a front piece, b^3, bent to form a plain loop, b^3, substantially as herein described.

320,570. **WINDMILL.** JOSEPH MARCUS, Chicago, Ill. Filed Mar. 31, 1885. (No model.)



320,570.

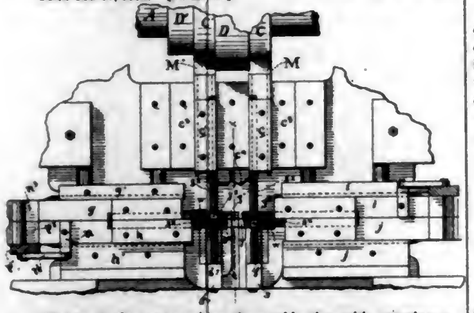


Claim.—1. In a windmill, a series of wings consisting of arms radiating from a common shaft, and vertical flaps pivotally mounted between such arms, in combination with a series of notched arms, and mechanism for forcing such arms between the flaps when desired, as set forth.

2. In a windmill, a series of wings consisting of arms radiating from a common shaft, and vertical flaps pivotally mounted between such arms, in combination with a series of notched arms, a guide for each arm supported upon the wing-frames, and mechanism for forcing such arms between the flaps when desired, as set forth.

3. In a windmill, a series of wings consisting of arms radiating from a common shaft, and vertical flaps pivotally mounted between such arms, in combination with a series of notched arms secured to a sleeve mounted upon the main shaft, an arm secured to said sleeve, and a pivoted lever adapted to contact with such arm when desired to force the notched arm between the flaps, as set forth.

320,571. NUT-MACHINE. SAMUEL H. MARKHAM, Cleveland, Ohio. Filed Oct. 10, 1884. (No model.)



Claim.—1. In a nut-machine, the combination, with actuating machinery, of two sets of converging hammers, four hammers being in each set, and each several set converging separately, and two piercers and two crowners, all adapted to forge two nuts simultaneously and by one and the same operation of said machinery, substantially as set forth.

2. In a nut-machine, the combination, with actuating mechanism, of two sets of converging hammers, each said set consisting of four hammers, one said set lying in plane immediately under the plane in which the other said set lies, said combination adapted to forge two nuts simultaneously and by one and the same operation of the said mechanism, substantially as set forth.

3. In a nut-machine, the combination, with actuating mechanism, of two sets of converging hammers, said sets lying in different planes from each other and adapted to forge two separate nuts simultaneously, substantially as set forth.

4. In a nut-machine, the combination, with actuating mechanism, of two sliding hammers actuated by said mechanism, said hammers pushing two forged nuts simultaneously into two orifices provided in said machine, substantially as set forth.

5. In a nut-machine, the combination, with shaft A, provided with cam D, of lever P, operating shear-holder N, said holder retracted by lever *d*, which swings on shaft d^2, and is operated by spring R, substantially as set forth.

6. In a nut-machine, the combination, with shaft A, interlocked by pinions with shafts T T', said shafts being provided with cams V V' and W W', of converging hammer-slides *g* A *i j*, said slides armed with hammers s^2, substantially as set forth.

7. In a nut-machine, the combination, with shaft A, provided with cam D', said cam operating lever U, said lever journaled in head-piece O^2, of slide K, yoked to the front end of said lever and having rigid with it the two piercer-holders G H, substantially as set forth.

8. In a nut-machine, the combination, with shaft A, provided with cam B, of lever B', operating shaft B^2, said shaft journaled in head-piece O^2, and operating the two depending slides E', with crowners E F attached, substantially as set forth.

9. In a nut-machine, the combination, with shaft A, interlocking by pinions with shafts T T', shaft T provided with cams W W', and shaft T' provided with cams V V', of the four lateral sliding hammer-holders, *g h i j*, said holders armed with hammers s^2, substantially as set forth.

10. In a nut-machine, the combination, with shaft A, provided with cams C C', and bearing-arms M M', of sliding hammer-holders *c c'*, armed with hammers s^2, substantially as set forth.

11. In a nut-machine, the combination, with shaft A, interlocked by pinions with shafts T T', shaft T being provided with the double cam W W^2, and shaft T' provided with double cam V V^2, of sliding hammer-holders *i h'*, armed with hammers s^2, said hammers on said sliding hammer-holders being adapted to push forged nuts into orifices *w*, substantially as set forth.

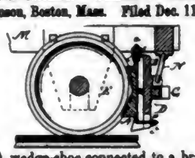
320,572. MACHINE FOR FREEZING CREAM, &c. ALFRED W. MARSHALL, Mortimer Street, Cavendish Square, County of Middlesex, England. Filed Apr. 20, 1885. (No model.) Patented in England Feb. 7, 1884, No. 2,911.



Claim.—1. A freezing-machine consisting of a tub with fixed central pivot on which the central hollow spindle of the pan can turn freely, the boss or sleeve of the mixer being mounted freely on the said hollow spindle and provided with a bar which comes against a stop in or on the tub, substantially as described.

2. A freezing-machine consisting of a shallow tub, D, with fixed central pivot C, on which the central hollow spindle, A, on the pan B can be turned freely by handle K, the sleeve or boss E of the mixer being mounted freely on the spindle A, and provided with cross-bar F, which comes against a stop, G, in or on the tub, substantially as shown on the drawings.

320,573. CAR-BRAKE. WILLIAM H. MASON, Everett, assignor to William H. Johnson, Boston, Mass. Filed Dec. 11, 1884. (No model.)



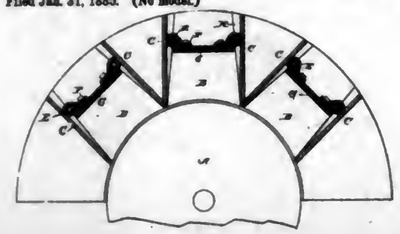
Claim.—1. A wedge-shoe connected to a brake-frame by arms so that it may have a vertical movement, in combination with spring devices whereby the shoe, when pressed against a wheel, is automatically brought into action, and when the pressure is removed resumes its normal position, substantially as described.

2. The within-described mechanism for operating a shoe-brake, consisting of the crank-shaft H and the lever F', in combination with a plate having projections or lugs O O' thereon, whereby the brake is firmly locked and unlocked, substantially as shown and described.

3. In combination with the wedge-shoe A and its frame, the brake-operating mechanism consisting of the levers, crank-shaft, and plate, all substantially as and for the purpose shown and described.

4. A brake-shoe, A, provided with a friction-roll, D, and spring or elastic cushions *c c'*, in combination with its frame, substantially as described.

320,574. WOOD-GRINDER. EDWARD F. MILLARD, Marinette, Wis. Filed Jan. 31, 1885. (No model.)



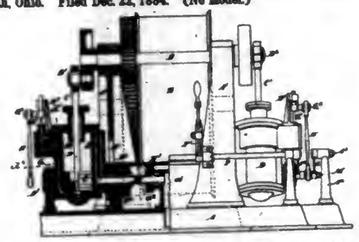
Claim.—1. The combination of a grindstone with the hoppers having projecting flanges on their opposing sides, for the purpose set forth, substantially as described.

2. The combination of a grindstone with the hoppers having inclined projecting flanges on their opposing faces, and followers that are adapted to move in the hoppers, substantially as described.

3. The combination of a grindstone with the hoppers having their sides formed of plates, which plates are provided with a vertical central rib or groove on their opposing faces and with inclined flanges, and followers that are guided by the vertical ribs or grooves, substantially as described.

4. The combination, with a grindstone, of the hoppers having their sides formed of plates, which plates are provided with ribs or grooves and with inclined flanges on their opposing faces, and followers having anti-friction wheels, which engage with the ribs or grooves, for the purpose set forth, substantially as described.

320,575. OSCILLATING STEAM-ENGINE. ENOS L. MOORE, Portsmouth, Ohio. Filed Dec. 22, 1884. (No model.)



Claim.—1. In an oscillating engine, the trunnion D^2, having a concentric interior tube, D^3, for the reception of the live steam, as set forth.

2. In an oscillating engine, the trunnion D^2, having a concentric tube, D^3, extending beyond the trunnion and connected to a source of live steam, *a'*, as set forth.

3. In an oscillating engine, the trunnion D^2, having concentric live-steam tube D^3, and an exhaust-chamber, as a^2, surrounding said tube D^3, as and for the purposes set forth.

4. The trunnion D^2, having an annular exhaust-passage connecting the cylinder with a chamber, as a^2, and having a concentric tube, D, connected by a stuffing-box, E', with a source of steam-supply, *a'*, the said chamber a^2 surrounding the tube D^3 to prevent loss of heat therefrom, and all combined, arranged, and operating as set forth.

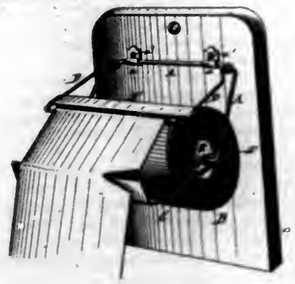
5. In an oscillating engine, the cylinder D, having a solid trunnion, D', and a hollow trunnion, D^2, the latter adapted to both receive and discharge the steam, in combination with the valve-operating link H, having its shifting end traversed in a path crossing the line of the trunnions, and with the valve-stem G' and its connected valve, all arranged for joint operation substantially as herein specified.

6. The link H, in combination with the valve-stem G' of an oscillating engine, and with the pin M and means, as N P P' P^2 Q, for not only holding it, but also for shifting it from one side to the other so as to reverse the motion, substantially as and for the purpose herein specified.

7. In an oscillating engine, the link L, turning on a center, A^3, out of line with the pin G^2, in combination with the pin M and link H, connected to the valve-stem, and with means, P' and its connections, for shifting M into the position * * so as to lock the engine by the force of the steam, as herein specified.

8. Two oscillating cylinders, D, a movable center-pin, M, and suitable connections for locking each or operating each in either direction, in combination with each other, and with a single controlling-shaft, P, as herein specified.

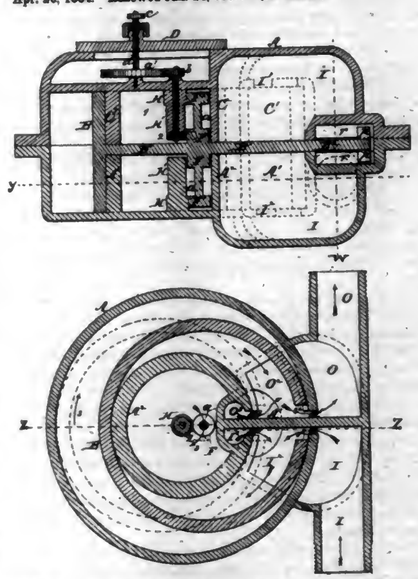
320,576. TOILET-PAPER HOLDER. ALLEN A. MYERS, New York, N. Y. Filed Feb. 17, 1885. (No model.)



Claim.—1. The combination of a roll of toilet-paper, a hinged bail supporting the same, a forward-extending bail provided with a serrated knife at the front end and applied by its rear ends to the roll-holding bail, and a guide-bail hinged to the upper part of the main bail and bearing on the top of the roll, substantially as set forth.

2. The combination of a roll of toilet-paper, a roll-holding bail hinged to the wall and applied to the perforated core of the roll, a bail having a serrated knife at the front end, and applied by eyes and rests made integral therewith to the roll-holding bail, and a guide-bail hinged to the upper part of the roll-holding bail and having an adjustable slide-plate, substantially as set forth.

320,577. OSCILLATING WATER-METER. LEWIS H. NASH, Brooklyn, assignor to the National Meter Company, New York, N. Y. Filed Apr. 26, 1884. Renewed Jan. 24, 1885. (No model.)



Claim.—1. The combination, with a meter-case having inlet and outlet ports divided by a radial abutment terminating in an enlargement around the center of the case, of a ring-piston having an external guide-arm upon which it swings, a confining case-guide for said arm, ports or passages in the piston-wall, and studs carried by the piston and by the case, whereby the movement and dividing function of the piston is controlled, substantially as herein set forth.

2. The combination of a meter-case having inlet and outlet ports divided by an abutment, substantially as described, with a piston having an external guide-arm adapted to form a joint with the walls of the case, and having, also, ports or passages in its outer wall, and co-operating studs carried by the case and by the piston, substantially as herein set forth.

3. The ring-piston having an external guide-arm, ports or passages in its outer wall, and one or more interior studs, substantially as described, combined with a meter-case having inlet and outlet ports divided by an abutment, and one or more studs co-operating with the piston-studs, said case having a wall opening or chamber formed with guide-bearings for said piston-arm, substantially as herein set forth.

4. The piston having an external guide-arm, B^3, provided with pins, ports or passages in its outer wall, and a transverse web, combined with a meter-case having inlet and outlet ports divided by an abutment, and having a chamber or grooved guideway, *r*, for said arm-pins, having the joint-forming bearings *s s*, and fixed and movable studs, substantially as described, for the purpose specified.

5. The combination, in a water-meter, of the case having the dividing abutment and ring projections, with an eccentrically-moving piston having a guide-arm projecting from its outer wall, and ports or passages in the latter, with an inclosed guide for said arm formed within the meter-case, and means, substantially such as described, for controlling the dividing movement of the piston.

6. The combination, with a meter-case having inlet and outlet ports divided by an abutment, substantially as described, of a piston having an external guide-arm, and a port or passage, *v*, in its outer wall on each side of the said abutment, and means, substantially such as described, co-operating with said guide-arm for controlling the movements of said piston in dividing the case.

7. The case A of a water-meter, having inlet and outlet head-ports divided by an abutment and the vertical wall-ports x x' on each side of said abutment, as described, combined with an eccentrically-operating ring-piston having an external guiding-arm, and side ports, v v, on each side of said abutment, substantially as described, for the purpose specified.

8. The case A of a water-meter, having inlet and outlet head-ports divided by an abutment, and having vertical wall-ports x x' x^2 x^3 on each side of said abutment, as described, combined with an eccentrically-operating ring-piston having an external guiding-arm, and side ports, v v, on each side of said abutment, the said case-wall and piston-ports communicating with the inlet and discharge passages I O, substantially as described, whereby the water has a free flow into and from the discharging-spaces of the meter when the piston is in the positions described.

9. The combination, with the meter-case having inlet and outlet ports divided by an abutment, as described, of an eccentrically-oscillating ring-piston having a controlling connection with the case adapted to yield to an obstruction to the movement of the piston, substantially as described, for the purpose specified.

10. The combination, in a water-meter, of a case having inlet and outlet ports divided by an abutment, as described, with an eccentrically-oscillating ring-piston having side ports and a controlling connection, consisting of one or more fixed interior case-studs and a coacting piston stud or studs, having a bearing, F', connected with the piston by an arm, a, adapted to yield or bend sidewise, for the purpose stated.

11. The combination, with the meter-case having the radial abutment and the ring projections and one or more studs, H, of an eccentrically-oscillating piston having a coacting stud or studs, F', side ports, and an external guide-arm, B^3, and a confining or controlling guide for said arm arranged in the case outside of its chamber, for the purpose described.

12. The ring-piston having a transverse web, B', side ports, v v, an external guide-arm, B^3, and studs F' F', combined with a case having the following elements, viz: the radial abutment, the ring projections, the studs H H, a confining guide or groove for the piston-arm in the case-wall, and inlet and outlet ports, all constructed and arranged for operation substantially as herein set forth.

13. The meter-case having the radial abutment terminating in an enlargement, A^2, around the center of the case, formed with the ports and passages x^2 x^3 I^3 O^3 on each side of said radial abutment, said case having the inlet and outlet head-ports, and the outer wall-ports, x x', and the inlet and outlet passages I and O, combined with an eccentrically-oscillating piston having the side ports, v v, and means, substantially such as described, for guiding and controlling the piston in its path, for the purpose described.

14. The meter-case having the radial abutment dividing the inlet from the outlet ports, the ring projections, and the inclosed guide or groove r, formed within the radial abutment, combined with an eccentrically-oscillating piston having an external guide-arm adapted to operate within said guide or groove, the said piston being controlled in its path, as described.

15. The case having inlet and outlet ports divided by an abutment, combined with a piston having an external arm having a bearing in the case, substantially as described, for the purpose specified.

16. The case A, having inlet and outlet ports divided by an abutment, and the vertical wall-ports x x' x^2 x^3 on each side of said abutment, combined with a piston adapted to have an eccentrically-oscillating movement within said case, as described, for the purpose specified.

17. The combination, with a case having inlet and outlet ports divided by an abutment, of a piston provided with wall-ports v v on each side of said abutment, as described, for the purpose specified.

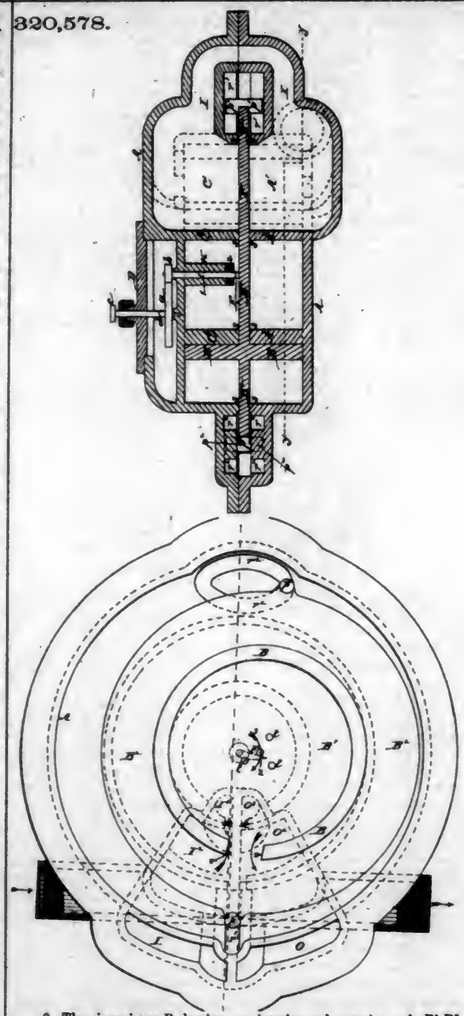
18. The combination of the piston B with a case having inlet and outlet ports divided by an abutment having an enlarged head, A^3, provided with the wall-ports x^2 x^3, and passages I^3 O^3 at its junction with the radial abutment part A', substantially as described, for the purpose specified.

320,578. OSCILLATING WATER-METER. LEWIS H. NASH, Brooklyn, assignor to the National Meter Company, New York, N. Y. Filed Apr. 26, 1884. Renewed Jan. 24, 1885. (No model.)

Claim.—1. The combination, with a meter-case having inlet and outlet ports divided by a radial abutment terminating in an enlargement around the center of the case, of a ring-piston having an external surrounding web or flange provided with two or more pins or studs, and corresponding confining or controlling guides for said studs, arranged in the case outside of the chamber, whereby to control the eccentrically-oscillating movement of the piston to divide the case into receiving and discharging spaces, substantially as described.

2. The meter-case having inlet and outlet ports divided by an abutment, and having a radial groove and an oval groove, substantially as described, combined with a ring-piston having an external surrounding flange or web provided with pins or studs adapted to operate within said case-grooves, for the purpose stated.

320,578.



3. The ring-piston B, having an interior and exterior web, B' B^2, the latter surrounding the piston and provided with pins or studs p' p^2, and having side ports on each side of said web, combined with a case having the ring projections C^2 A^2, confining or controlling grooves or guides r' r^2, and inlet and outlet ports, all constructed and arranged for operation, substantially as herein set forth.

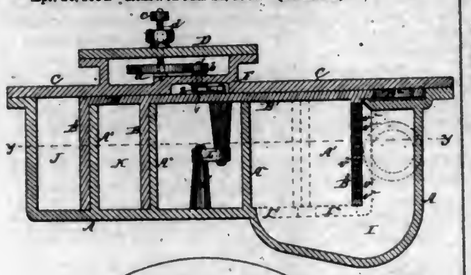
4. The meter-case having the inclosed guide or groove r' formed within the radial abutment, and the inclosed guide or groove r^2 formed within the flanges of said case, combined with an eccentrically-oscillating piston having an external wall-web provided with controlling pins or studs adapted to operate within said guides or grooves, substantially as herein set forth.

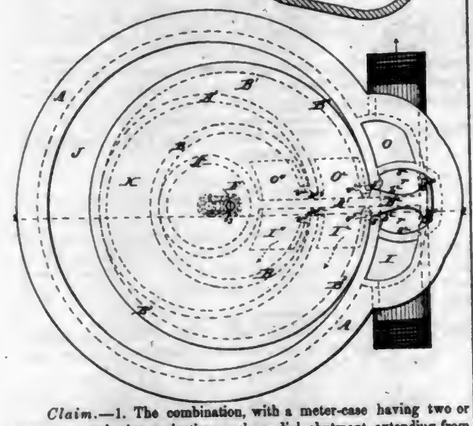
5. The meter-case having the abutment dividing the inlet and outlet ports, as described, combined with a piston having a transverse web provided with perforations t to equalize the pressure of the water on the opposite sides thereof.

6. The ring-piston having a perforated transverse web and side ports, v v, combined with a case having the ring projections formed with the ports x^2 x^3 and passages I^3 O^3, communicating with the inlet and outlet ports in the case-heads, in the manner and for the purpose set forth.

7. The combination, with the case A, composed of two flanged sections having inlet and outlet ports divided as described, of a ring-piston having an interior transverse web, B', and a surrounding web, B^2, adapted to form a joint all around the case outside of its chamber, and means, substantially such as described, arranged within the case and upon the external piston-web, for controlling the movement of said piston.

320,579. OSCILLATING WATER-METER. LEWIS H. NASH, Brooklyn, assignor to the National Meter Company, New York, N. Y. Filed Apr. 26, 1884. Renewed Jan. 24, 1885. (No model.)





Claim.—1. The combination, with a meter-case having two or more concentric ring projections and a radial abutment extending from the inner one to the side of the case, of an eccentrically-oscillating piston composed of two or more concentric rings, the outer one forming a guide-bearing upon said abutment, and inlet and outlet head-ports opening into said concentric ring projections, having direct communication with the inlet and outlet passages, substantially as described, for the purpose specified.

2. The combination, with a meter-case having inlet and outlet ports divided by a radial abutment, as described, and having two or more ring projections, the outer one forming a guide-bearing upon said abutment, of an eccentrically-oscillating piston composed of two or more rings having an external arm adapted to form a joint with the radial abutment at every point in the movement of the piston, and means, substantially such as described, co-operating with said abutment for controlling the piston in its path, for the purpose specified.

3. The combination, with a meter-case having inlet and outlet ports divided by an abutment, as described, of an eccentrically-oscillating piston having a side slot adapted to form a guiding-bearing upon said abutment within the chamber of the case, and having an external arm adapted to form a joint with the abutment outside of the chamber-case, and means, substantially such as described, for controlling the piston in its path, for the purpose specified.

4. The ring-piston having a side slot, e, supplemented by perforations or openings on each side of said slot, and an external joint-forming arm, combined with a case having inlet and outlet ports divided by an abutment, and the connected controlling-studs, substantially as described, for the purpose specified.

5. The combination, in a water-meter, of a case having inlet and outlet ports divided by an abutment, as described, of an eccentrically-oscillating ring-piston having a side slot and a controlling connection with the case, consisting of the fixed interior case-stud, and a coacting piston connected by a yielding bearing, substantially as described, for the purpose specified.

6. The combination of the case having inlet and outlet ports divided by an abutment and by ring projections, as described, with a piston having two or more eccentric rings, the outer ring having the side slot, e, and ports or passages v^3 in its wall, and the inner ring having the wall-ports v, and means, substantially such as described, for controlling the piston.

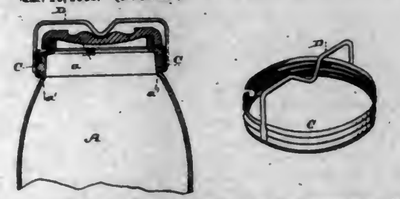
7. The combination of the case A, having inlet and outlet ports divided by an abutment, with a ring-piston having a side slot, e, adapted to form a guide, f f, upon said abutment, provided with wall ports or passages on each side of said guide, as herein set forth.

8. The case having the head-ports and the outer wall-ports, x x, divided by an abutment, as described, combined with a ring-piston having the wall-slot e, adapted to form a guide, f f, upon said abutment, and the wall-ports v^2 v^3, arranged as and for the purpose described.

9. The water-meter herein described, consisting of the case A, having the inlet and outlet ports, a radial dividing-abutment, A', for said ports, and two or more concentric ring projections, A^2 A^2, a ring-piston having a transverse web, B', an external arm, B^3, two or more concentric ring projections, B B^2, the connected studs H' F', the said rings A^2 B B^2 and the case-wall having the ports x x' x^2 x^3 and v v, and the said piston operating the registering-gearing by the pin F, all constructed and arranged for operation, substantially as described.

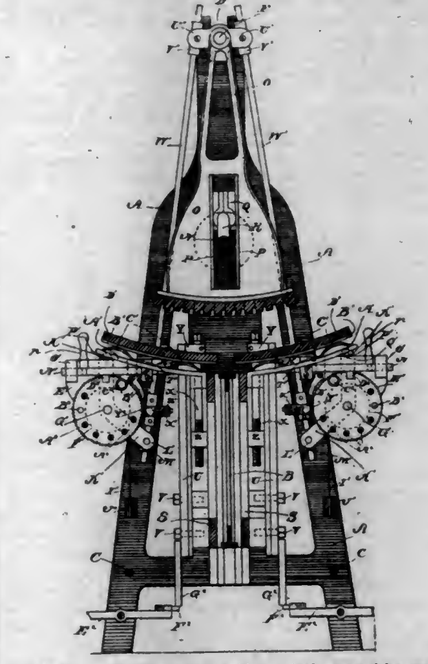
10. The combination of the case A, having inlet and outlet ports and a dividing-abutment, with a ring-piston having a transverse web, the wall-slot e, adapted to form a guide, f f, upon said abutment, a radial arm, B^2, and a case-chamber, the said arm being adapted to form a joint with the said chamber-walls in the eccentrically-oscillating movement of the piston upon the abutment, substantially as described, for the purpose specified.

320,580. FRUIT-JAR. CARLTON NEWMAN, San Francisco, Cal. Filed Mar. 16, 1885. (No model.)



Claim.—A fastening for binding the lid or cover of a jar to its seat, comprising the solid metal band or ring C, internally threaded and adapted to fit upon an externally-threaded neck of the jar, and the bail D, bearing on the center of the lid and having its ends secured to the metal band or ring, substantially as herein described.

320,581. HAT-SIZING MACHINE. SEYMOUR C. PALMER, South Norwalk, Conn. Filed Jan. 13, 1885. (No model.)



Claim.—1. In a hat-sizing machine, a single upper sizing-surface, in combination with one or more hat-roll supports capable of vertical adjustment and adapted to be lowered without the field of action of said surface, and means for automatically imparting to the upper sizing-surface a simultaneous oscillating and vertically-reciprocating movement, whereby the hat-roll is revolved, and at the same time compressed after the manner of hand-sizing, substantially as set forth.

2. In a hat-sizing machine, an upper sizing-surface adapted to be automatically oscillated transverse to the hat-roll, in combination with means for automatically raising and lowering said surfaces simultaneously with the oscillation, substantially as set forth.

3. In a hat-sizing machine, the upper sizing-surface adapted to be oscillated, and at the same time have a vertical reciprocation, whereby the hat-roll is revolved and compressed, substantially as set forth.

4. In a hat-sizing machine, the combination, with lower sizing-beds adapted to be dropped automatically, of an upper sizing-surface constructed and arranged to have two movements—namely, an oscillation transverse to the lengthwise direction of the hat-roll, and a vertical reciprocation, whereby said roll may be operated upon and then relieved from pressure after the manner of hand-sizing, substantially as shown and described.

5. In a hat-sizing machine, the combination, with a power-shaft which operates the upper sizing-surface of the hat-roll supports, means connected to said shaft for automatically dropping said supports at a predetermined time, and the upper sizing-surface capable of simultaneous oscillatory and vertically reciprocatory movements, substantially as set forth.

6. In a hat-sizing machine, the driving-shaft having arranged thereon the lifting-cranks and oscillating crank, in combination with the rock-shaft, hangers, and sizing-surfaces, as specified.

7. In a hat-sizing machine, the driving and oscillating shafts connected by rods G, the latter shaft supporting the hangers and imparting a vertical reciprocation thereto, while the crank R on the former gives said hangers an oscillatory movement, in combination with the sizing-surfaces adapted to be separated automatically, and means for restoring said surfaces to their juxtaposition, as and for the purpose set forth.

8. In a hat-sizing machine, the upper sizing-surface, operated as described, in combination with the lower sizing-surfaces, independent of each other, adapted to be elevated by the treadles E^2, and retained in an elevated position by the bolts N', said bolts being under the control or automatic mechanism for withdrawing the same, as shown and described

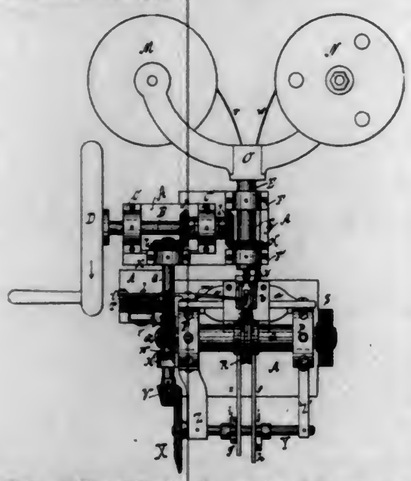
9. In a hat-sizer, the upper sizing-surface, in combination with the independent lower sizing-surfaces, the bolts N', operated by the ratchet-wheels and operating the bell-crank levers, and retaining-pawls to free said ratchet and allow them to return to their normal position, as and for the purpose set forth.

10. The herein-described combination of the upper and lower sizing-surfaces, the former having an oscillating and vertically-reciprocating movement, the latter being actuated by the treadles E^2, bolts N', and ratchet-wheels F', as specified.

11. In combination with the lower sizing-surfaces or beds of a hat-sizer, the bolts N', ratchet-wheels F', actuated by the pawls Y', and revolved backward by the weights J', bell-crank levers K', and retaining-pawls S', both connected to and operated by the bolts N', substantially as and for the purpose specified.

320,582. MACHINE FOR MAKING LOOPED TWISTED WIRE.

FREDERIC W. PANSE and CHRISTIAN F. KLOTZ, New York, N. Y. Filed Nov. 26, 1884. (No model.)



Claim.—1. The combination of a revolving spindle with reels for wire mounted thereon, two carriages secured in suitable ways and provided with movable pins, mechanism, substantially as described, for alternately inserting said pins between the wires and withdrawing them therefrom, and mechanism for actuating the moveing parts, substantially as specified.

2. The combination of a revolving spindle with reels for wire mounted thereon, two carriages secured in suitable ways and provided with movable pins, mechanism, substantially as described, for alternately inserting said pins between the wires and withdrawing them therefrom, delivery-press roll, and mechanism for actuating the moving parts, substantially as specified.

3. The combination of the revolving spindle E with its head *u*, reels M and N, mounted upon the spindle, ways *a* and *b*, sliding carriages *c* and *d*, shaft Y, with cams *i* and *j*, and connecting-rods *e* and *f*, for operating said carriages, pins *r* and *r'* within the sliding carriages, cam-wheel T, levers *m* and *m'*, for alternately inserting said pins between the wires and withdrawing them therefrom, and delivery press-rolls R and R', substantially as specified.

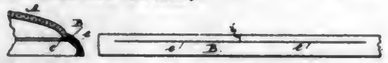
320,583. EXPLOSIVE COMPOUND.

RUSSELL S. PENNIMAN, Jenkintown, Pa., assignor of one-half to John C. Schrader, McClainsville, N. J. Filed May 3, 1883. (No specimens.)

Claim.—A high explosive composed of nitrate of ammonia in a finely divided or granulated condition, and protected from contact with the atmosphere by a fluid or viscous coating or envelope composed of petroleum or its soft educts or products, in combination with chlorate of potash operating as an explosive or detonator for firing the protected nitrate, substantially as specified.

320,584. WATCH-CASE BEZEL.

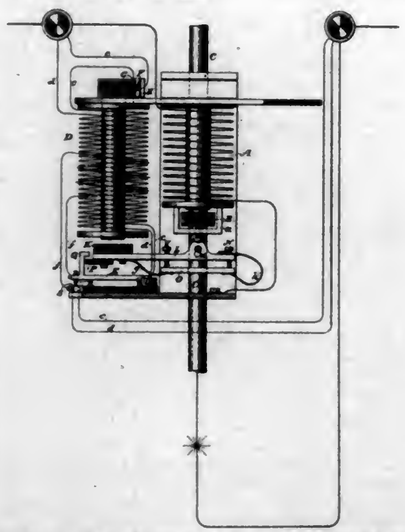
CHARLES V. PEYN, Brooklyn, N. Y. Filed Mar. 23, 1885. (No model.)



Claim.—The watch-glass ring or bezel having an incision at one side in a plane parallel to the seat for the glass, or nearly so, and a transverse separation at the seat, as set forth, to form two springs, so as to allow for the more free introduction of the glass, substantially as specified.

320,585. ELECTRIC-ARC LAMP.

GUSTAVE PFANNKUCHE, Hartford, Conn., assignor to the Schuyler Electric Light Company, same place. Filed Nov. 22, 1884. (No model.)



Claim.—1. The combination of cores A A', magnetically-unsymmetrical armature-clutch B, and the iron carbon-holder C, substantially as set forth.

2. As a means for establishing the arc of an electric lamp, the combination of an iron clamp through which an iron carbon-holder can normally slide, means for lifting the two sides of the clamp in succession, and an iron carbon-holder which is first mechanically clutched and lifted by the clamp, and is then supported by magnetic attraction.

3. The combination of an iron clamp and an iron carbon-holder, said clamp in its first position leaving the carbon-holder free to slide therethrough, and in its second position mechanically clutching and raising said holder, and in its third position supporting the holder by electro-magnetic attraction, substantially as set forth.

4. A clamp for an electric lamp which is itself the armature of an electro-magnet, in combination with an iron carbon-holder, substantially as set forth.

5. A clamp for an electric lamp which is itself an armature of an electro-magnet in which the iron is so distributed that one end is attracted in advance of the other, substantially as set forth.

6. The combination, in an electric lamp, of two shunt-wire branches, one being normally closed while the second is normally open, an armature for closing the second branch, and an armature for breaking both of said branches.

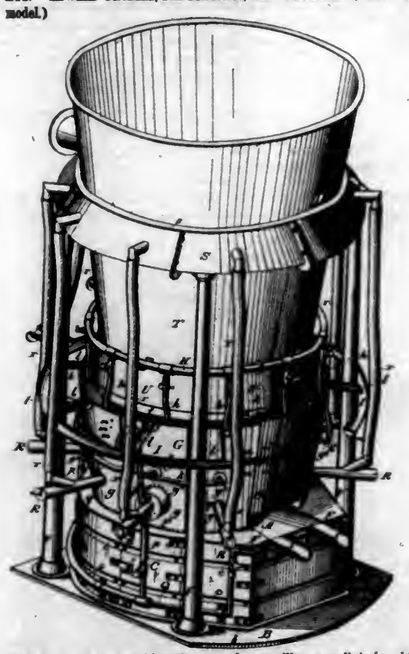
7. In an electric lamp, an electro-magnet for effecting the feeding of the carbons, having two parallel coils, the first being normally closed and the other open, an armature to close the second coil, and a second armature and a feeding-clutch so arranged as to break both branches after feeding the carbons.

8. The combination of shunt electro-magnet D, shunt branches *c d*, armature H, for closing branch *c*, and armature K, for feeding the carbons and for breaking both branches.

9. The combination of shunt electro-magnet D, shunt branches *c d*, contact-points R S, and resistance-wire *f*, substantially as set forth.

320,586. CUPOLA-FURNACE HAVING SECTIONAL WATER-JACKETS.

EDWARD PROBERT, San Francisco, Cal. Filed Jan. 7, 1884. (No model.)



Claim.—1. In an ore blast-furnace, the curvilinear wall A, in which the crucible is formed, said wall having a projecting working front, F, the sides of which are tangential to the circle of the wall, in combination with the bands *c*, passing completely around wall A and the front F, and bolted thereto, substantially as herein described.

2. In an ore blast-furnace, the curvilinear wall A, of fire-rock or fire-brick, in which the crucible is formed, said wall having a projecting working front, F, the sides of which are tangential to the circle of the base, and the series of iron slabs C, fitted to and encircling said wall and front, in combination with the iron bands *c*, passing completely around said slabs and bolted thereto, whereby an envelope is formed around the masonry or fire-brick wall, substantially as herein described.

3. In an ore blast-furnace, the curvilinear wall A, in which the crucible is formed, said wall having a projecting working front, F, the sides of which are tangential to the circle of the wall, and the series of iron slabs C, fitted to and encircling said wall and front, in combination with the foundation-plate B, embedded in the earth, and having a curb, *b*, within which the wall A and slab C rest, and the iron bands *c*, passing completely around said slabs and bolted thereto, substantially as herein described.

4. In an ore-smelting furnace, the annular water-jacket or hydrocycle G surrounding and in direct contact with the region of fusion, said hydrocycle being constructed of a single series of independent and separately-removable cells or compartments, in combination with means by which said cells are bound and clamped together into a rigid whole, consisting of the bars *m* bolted to each, and having outwardly-turned perforated ends, the slotted bolts *m'*, and the cutters m^3, substantially as herein described.

5. In an ore-smelting furnace, the annular water-jacket or hydrocycle G surrounding the region of fusion, said hydrocycle consisting of the series of independent and separately-removable curvilinear water-tight cells or compartments *g* bound together, and each having a T-coupling in its outer wall, whereby a water-connection may be made throughout the series, a water-inlet through pipes *h*, and a discharge over its top, and the encircling launder I, substantially as herein described.

6. In an ore-smelting furnace, the annular water-jacket or hydrocycle surrounding the region of fusion, and consisting of independent and separately-removable water-tight cells bound together, one of which is slightly raised above the adjoining ones, top and bottom, and discharges therein from its top, in combination with the wall A upon which the hydrocycle rests, and having its working front in communication with the crucible under said specified section, substantially as and for the purpose herein described.

7. In an ore-smelting furnace, the annular water-jacket or hydrocycle G surrounding and in direct contact with the region of fusion, and consisting of the independent and separately-removable water-tight cells *g*, in combination with the bars *m*, bolted to each cell, the slotted bolts *m'*, and cutters m^3 by which said cells are bound together into a rigid whole, the encircling pipe H, and the short pipes *h* by which the cells are supplied with water, the T-coupling g^2 and tubular connection *k* by which a water-communication between the several cells is effected, and the lip or spout *l* and encircling launder I by which the water is carried off, all arranged and operating substantially as herein described.

8. In an ore-smelting furnace having one set or series of blast-tuyeres at the region of fusion and a diameter greater than twice the throw of the blast from said tuyeres, one or more sets or series of supplementary or additional blast-tuyeres in the same horizontal plane as the first set and alternating therewith, said additional tuyeres projecting within the furnace a sufficient distance to throw their blasts into the spaces which lie nearer the center or beyond the limit of the throw of the blast from the first set or series of tuyeres, the blasts from which are directed to the spaces lying between the supplementary tuyeres, substantially as herein described.

9. In an ore-smelting furnace having one set or series of blast-tuyeres at the region of fusion opening through and protected by the water-jacket of the furnace, said furnace having a diameter greater than twice the throw of the blast from said tuyeres, one or more sets or series of supplementary or additional blast-tuyeres in the same horizontal plane as the first set and alternating therewith, said additional tuyeres projecting within the furnace a sufficient distance to throw their blasts into the spaces which lie nearer the center or beyond the limit of the throw of the blast from the first set or series of tuyeres, and a water-jacket or casing surrounding each of said inwardly-projecting tuyeres, substantially as herein described.

10. In an ore-smelting furnace having a water-jacket or hydrocycle surrounding the region of fusion, the short blast-tuyeres *q*, let through said water-jacket and flush with the inner wall, in combination with the long tuyeres P in the same horizontal plane and alternating with tuyeres *q*, said long tuyeres projecting into the furnace and having a surrounding water-space, P', and means for supplying said space with water, substantially as herein described.

11. In an ore-smelting furnace, the hydrocycle G surrounding the region of fusion, and consisting of independent and separately-removable cells or compartments *g*, bound together and each having an apron or top piece, *g'*, partially inclosing the top and sloping to the interior, in combination with the shell T, supported by pillars V above, and not resting on the hydrocycle, and the layer of brick *t* between the apron *g'* and the base of the shell, substantially as herein described.

12. In an ore-smelting furnace, the shell T, having an encircling-flange, *s*, near its top, in combination with the supporting-pillars V, and the wind-chamber S, triangular in cross-section, said wind-chamber encircling, though independent of, the shell and forming a hollow girder resting on the pillar and supporting the flange *s* whereby the shell is supported, substantially as herein described.

13. In an ore-smelting furnace, the base-plate B and crucible base-wall A, and the hydrocycle G surrounding the region of fusion and resting on wall A, said hydrocycle consisting of independent and separately-removable cells or compartments *g*, bound together to form a rigid trough, in combination with the shell T having the flange *s* and independent wind-chamber S, triangular in cross-section and encircling loosely said shell, and the pillars V resting on the base-plate and bearing under the wind-chamber, whereby said chamber is supported without resting on the hydrocycle, substantially as herein described.

14. In a ore-smelting furnace, the shell T, the upper and greater portion of which has the shape of an inverted truncated cone, its exterior and interior surfaces being parallel, and the lower and smaller portion of which flares outwardly to form a return slope at U, just above the region of fusion of the furnace, substantially as herein described.

15. In an ore-smelting furnace, the shell T, the upper and greater portion of which has the shape of an inverted truncated cone, its interior and exterior surfaces being parallel, and the lower and smaller portion of which flares outwardly to form a return slope at U, just above the

region of fusion, in combination with the hydrocycle G below the return slope and surrounding the region of fusion, and the tayeres P, all arranged and operating substantially as herein described.

320,587. NURSERY CHAIR AND CARRIAGE. VICTOR RATHKNECHT, Chicago, Ill. Filed Sept. 3, 1884. (No model.)

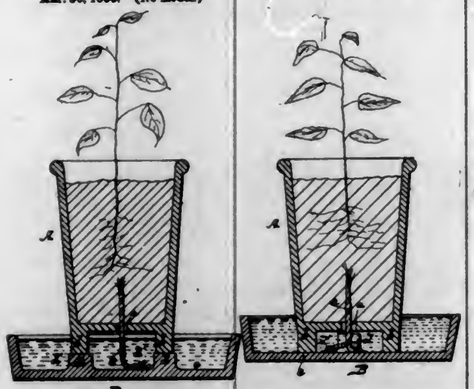


Claim.—1. The combination, with pivoted legs A A', seat C, hinged to leg A only, foot-rest B, hinged to said seat, and slotted strip E, secured to the foot-rest and to a round of leg A, as set forth.

2. The combination, with pivoted legs A A', of seat C, hinged to leg A and provided on its bottom with cleat *c*, as set forth.

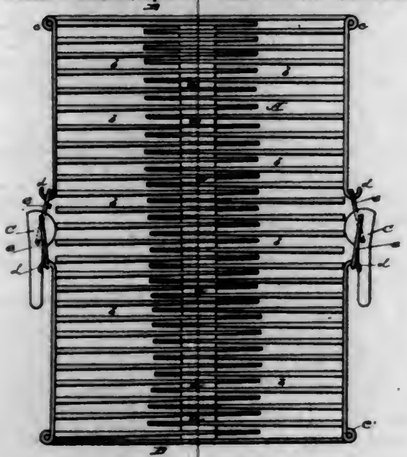
3. The combination, with pivoted legs A A', the latter provided with an enlarged free and upper end, of seat C, hinged to leg A, foot-rest B, hinged to the seat and connecting-strip E, as set forth.

320,588. FLOWER-POT. SOLOMON J. RHOADS, Metropolis, Ill. Filed Mar. 30, 1885. (No model.)



Claim.—The combination, with the bowl A, having the feet made integral therewith, and a perforation in its bottom, and provided with the wick *s*, of the saucer B, provided with the upwardly-projecting lugs, made integral therewith, as described, and for the purpose specified.

320,589. APPARATUS FOR HOLDING SHINGLES FOR PAINTING. WILLIAM W. ROBINSON, Ripon, Wis. Filed Feb. 7, 1885. (No model.)



Claim.—The methed shown and described for packing shingles prior to dipping them in paint, consisting in interposing between each shingle a block passing through the center of the bandle, thus preventing the shingles from touching one another, thereby permitting the same to be painted on all parts thereof except where the blocks are interposed, as and for the purpose specified.

320,590. PROCESS OF PURIFYING HYPOSULPHITE LEACHING SOLUTIONS. EDWD. H. RUSSELL, Park City, Utah. Filed Aug. 29, 1884. (No specimens.)

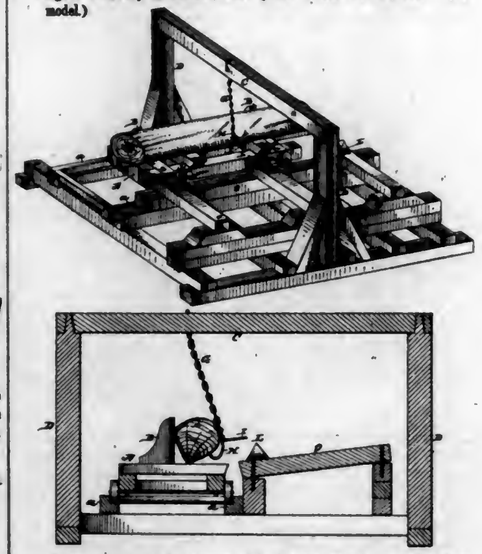
Claim.—1. In the art of leaching ores with hyposulphite solutions wherein the solutions are reused after the precipitation of precious metals therefrom, the process of removing caustic alkalies from the solution, which consists in adding to the solution sulphate of iron, substantially as described.

2. As an improvement in the art of leaching with hyposulphite solutions, the process of purifying the solutions after they have been used, which consists in adding to the solution a solution of sulphate of iron to remove the alkaline impurities, substantially as described.

3. As an improvement in the art of leaching ores or metallurgical products with a hyposulphite solution, the process of removing caustic alkalies from the solution after use and preparing it for reuse, which consists in adding to it a solution of sulphate of iron until the green precipitate, consisting of hydrate of iron, ceases to form, substantially as set forth.

4. The process of removing alkaline impurities from hyposulphite leaching solutions, which consists in adding to the solution a soluble salt or compound of iron containing an agent having affinity for such alkaline impurities, substantially as and for the purpose described.

320,591. LOG-TURNER. DANIEL J. SALTSMAN, Brewton, Ala., assignor to Henry H. Malone, same place. Filed Jan. 12, 1885. (No model.)



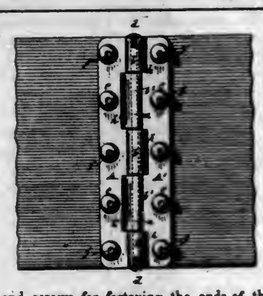
Claim.—1. As an improvement in log-turners, the traveling log-carriage moving on ways in a longitudinal line, in combination with the chain G, attached to and depending from a stationary beam above the path of the carriage, a hook, H, on the end of the chain, and arranged at right angles to the plane of movement of the log-carriage, the length of the chain being just sufficient to allow the hook to catch under the log, arranged and operating, whereby, as the carriage is moved, the increased tension on the chain alone causes the hook to turn the log, as set forth.

2. As an improvement in log-turners, the combination, with the traveling log-carriage A and joist or beam C, supported above the carriage, of the chain G, attached to and depending from the beam or joist above the path of the carriage, the hook H on the end of the chain, and arranged at right angles to the line of movement of the carriage, and a handle, I, projecting outward from the hook, the length of the chain being just sufficient to allow the hook to catch under the log, and thus as the carriage is moved the tension on the chain is increased to cause the hook to turn the log, as set forth.

320,592. BELT-COUPLING. FREDERICK SANDVOS, New York, N. Y. Filed Apr. 24, 1885. (No model.)

Claim.—1. A belt-coupling consisting of hinged leaves having sleeves with stop-shoulders that extend alternately in opposite directions

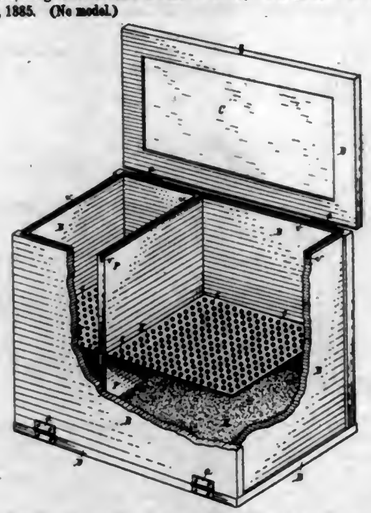
320,592.



over the leaves, and screws for fastening the ends of the belt to the leaves, substantially as set forth.

2. The combination, in a belt-coupling, of the hinged leaves A A', having sleeves *b b'*, provided with shoulders *h h'*, extending alternately in opposite directions, countersunk screws for attaching the belt ends to the leaves, a pintle passing through said sleeves, and stop-screws screwed into the end sleeves, substantially as set forth.

320,593. JEWELER'S DUST-BOX. JAMES A. SHERWOOD, Plainwell, Mich., assignor of one-half to John W. Gilkey, same place. Filed Mar. 28, 1885. (No model.)

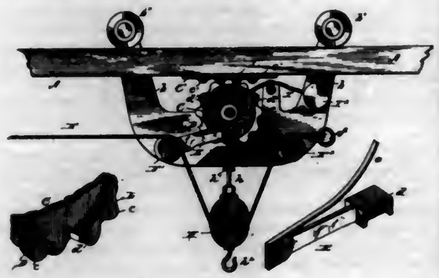


Claim.—1. A jeweler's dust-box having separate compartments for different pieces of jewelry, said compartments being provided with a central perforated partition and with suitable covers, substantially as set forth.

2. A jeweler's dust-box having separate compartments for different pieces of jewelry, two opposite sides of the box being provided with transparent inclosures, substantially as set forth.

3. A jeweler's dust-box having separate compartments, doors or covers to said compartments, a packing between the doors and the wall inclosures, and a partition between the compartments, substantially as set forth.

320,594. HAY ELEVATOR AND CARRIER. ROBERT L. SHORT, Janesville, Wis., assignor to the Springfield Machine Company, Springfield, Ohio. Filed Nov. 5, 1884. (No model.)



Claim.—1. In a hay elevator and carrier, the combination, with the supporting rail or track, of the toothed stop-plate secured thereto, and the carriage provided with the cogged disk, adapted to be engaged by the toothed stop-plate for stopping and holding the carriage.

2. In a hay elevator and carrier, the supporting rail or track, and the toothed stop-plate secured thereto, in combination with the carriage, adapted to travel on said rail or track, and provided with the cogged disk, and a pivoted latch for locking said disk against rotation.

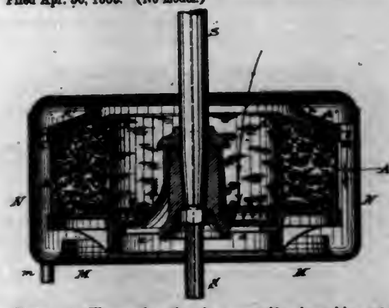
3. In a hay elevator and carrier, the combination, with the rail or track provided with the toothed stop-plate, of the carriage provided with the cogged disk, the pivoted latch for locking said disk against rotation, and the pin or head upon the elevator-block for operating said latch to release the cogged disk and the carrier.

4. The rail or track provided with the toothed stop-plate, and the carriage adapted to travel upon said rail and provided with the toothed disk, in combination with a pivoted latch adapted to engage a slot or notch in said disk, the pin on the elevator-block for operating said latch, and flanges on the disk for engaging the head of the pin on the elevator-block, all substantially as described.

5. The combination of the rail or track, the toothed stop-plate secured thereto, the carriage adapted to travel upon said rail or track, the toothed disk carried by said carriage, the pivoted latch for locking said disk, the pin or head on the elevator-block for operating said latch to release the disk, the flanges on the toothed disk for engaging the head on the elevator-block, and the secondary latch for locking the disk after it has been released from the stop-plate, substantially as described.

6. The combination, with the traveling carriage, of the toothed stop-plate and the cogged disk engaging therewith, the pivoted latch, the elevator-pulley provided with a head or pin for operating said latch, and cord-pulleys, arranged substantially as described, whereby the latch is adapted to be operated by tension on the cord in either direction.

320,595. CENTRIFUGAL MACHINE. AUGUST L. SIEBERTH, Jr., St. Louis, Mo., assignor to himself, and Tulie H. Mueller, New York, N. Y. Filed Apr. 30, 1885. (No model.)



Claim.—1. The combination, in a centrifugal machine, of a rotating basket having a fixed flange and an inner false flange arranged at some distance from the body of the basket, and an annular body of filtering material supported between the false flange and the bottom of the basket, substantially as set forth.

2. The combination of a rotating basket having a fixed flange and an interior false flange, the inner diameter of which is smaller than that of the fixed flange, a layer of porous fabric located at the connection of the basket with the false flange, an annular body of filtering material supported between the bottom and the false flange of the basket, and a valve extending over the bottom of the basket, substantially as set forth.

3. The combination of a rotating basket having a fixed flange and an inner false flange, an annular body of filtering material supported between the bottom and the false flange of the basket, a depressed central portion of the bottom having openings, and a bell-shaped valve extending over the openings of the depressed bottom, substantially as set forth.

4. The combination of a rotating basket having a fixed top flange, an inner false flange, and a bottom with a central depressed portion, valve extending over the openings of the depressed portion and having a perforated rim, and a body of filtering material supported between the false flange and the bottom of the basket, substantially as set forth.

5. The combination of a rotating basket having a fixed top flange and a bottom with a depressed central portion, a false flange arranged below the top flange, so as to form a ring-shaped opening between it and the body of the basket, a packing arranged below the annular opening, an annular body of filtering material supported between the false flange and the bottom of the basket, and a valve extending over the depressed portion, and having a bent-up and perforated rim, substantially as set forth.

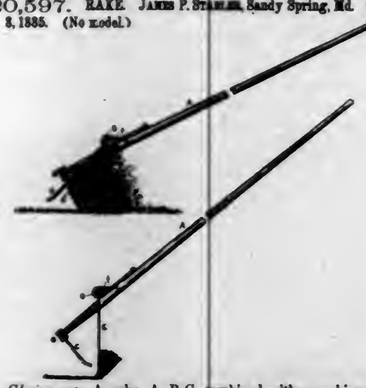
320,596. LINK SLEEVE-BUTTON. THOMAS W. F. SMITTEN, Brooklyn, N. Y. Filed June 20, 1884. (No model.)

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Claim.—The combination, with the button-head and eye of a link-button, of a link having at one or both of its ends a hook, *b*, and an inwardly-turned end portion, *c*, at the extremity of the hook, the body of the link forming a guard to prevent the head from being moved while in a plane transverse to the plane of the hook sufficiently to pass the inwardly-turned end portion, substantially as herein described.

320,597. RAKE. JAMES P. STARKEY, Sandy Spring, Md. Filed May 8, 1885. (No model.)



Claim.—1. A rake, A B C, combined with a rocking head, D, hinged parallel to the rake-head B and crossing the handle A, and provided with the cleaner-fingers E, which project therefrom between and beyond the rake-teeth C and constitute a combined guard and cleaner, as set forth.

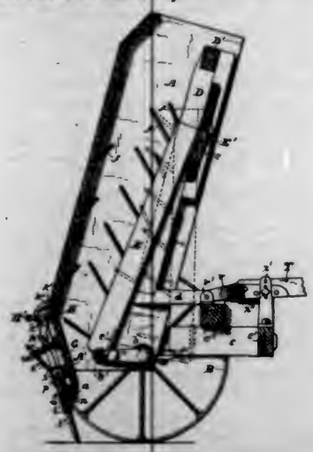
2. A rake, A B C, combined with a hinged cleaner the fingers whereof project between and beyond the rake-teeth C and terminate at a point where a slight elevation of the rake-handle will cause said fingers to engage the ground, as set forth.

3. A rake, A B C, combined with a cleaner the fingers whereof project beyond the rake-teeth and are adapted to act as gages to prevent the teeth C from penetrating the ground too deeply.

4. A rake, A B C, combined with a cleaner, D E, hinged to the rake-handle brace, and a spring, F, connected at one end to said handle and at the other end to the rocking head D, as and for the purpose set forth.

320,598. HAY RAKING AND LOADING MACHINE. GEORGE A. STEDMAN, New York, N. Y., and DAVID R. STEDMAN, Elizabeth, N. J., assignors of one-half to Robert J. Bevan, Berlin, Md. Filed Mar. 19, 1884. (No model.)

Brief.—The walking-rakes are operated directly from the supporting-axle, and their upper ends are secured to a cross-head working in guides in the elevator-chute. The gathering rake-teeth are secured in a rake-head which slides in an inclined way.



Claim.—1. The combination, in a hay-loading machine, of carrying-wheels, a crank-axle uniting and rotating with them, and a series of toothed reciprocating bars for elevating the hay, joined to said axle and receiving their motion directly therefrom, substantially as shown and described.

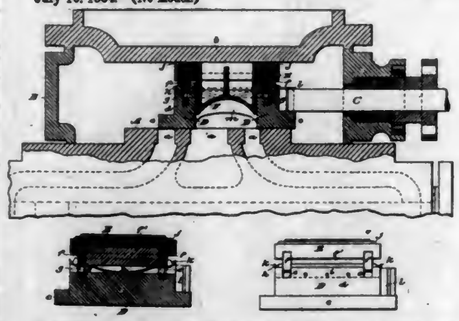
2. The combination, in a hay-loading machine, of carrying-wheels, a crank-axle uniting and rotating with them, a chute through which the hay is elevated, and a series of toothed reciprocating bars joined to said axle and receiving their motion directly therefrom, and arranged to feed the hay through said chute, substantially as shown and described.

3. In a hay-loading machine, the combination of the carrying-wheels, the crank-axle uniting and rotating with them, the chute, the series of toothed reciprocating bars joined to said axle at their lower extremities and receiving their motion directly therefrom, and at their upper ends joined together and adapted to travel in guideways at the sides of said chute, substantially as set forth.

4. The combination of a series of rake-teeth, a rake-head upon which they are mounted, and which is arranged to travel in bearings or guideways, a rock-shaft, and crank-arms and links uniting said rake-head with the rock-shaft, the crank-arms being fixedly joined to the latter, whereby the turning of the rock-shaft will cause said rake-head to travel in its bearings, substantially as set forth.

5. The combination of the series of rake-teeth, the rake-head arranged to travel in bearings or guideways, the rock-shaft, the crank-arms and links uniting the rake-head with the rock-shaft, the ratchet fixed to the rock-shaft, and the pawl engaging with said ratchet, substantially as set forth.

320,599. BALANCED SLIDE-VALVE. FRANK M. STEVENS, New York, N. Y., assignor to the Stevens Locomotive and Machine Company. Filed July 10, 1884. (No model.)



Claim.—1. A balanced slide-valve comprising a valve proper with grooves in its top to receive packing-strips, the said packing-strips, and a balance-plate having grooves in its lower face to receive the upper edges of said packing-strips and mounted on the latter, all constructed and arranged to operate substantially as described and shown.

2. A balanced slide-valve comprising the open-topped valve proper of rectangular form, provided with grooves *e* in the tops of its sides, the packing-strips *f f'*, the springs that uphold said strips, and the balance-plate E, provided with grooves *e'* in its lower face, the said packing-strips being fitted into said grooves *e* and *e'*, substantially as and for the purposes set forth.

3. A balanced slide-valve comprising the valve proper, D, provided with grooves for the packing, the said packing, and the balance-plate E, provided with grooves to receive the packing, and with the pendent deflector F, substantially as shown, and for the purposes set forth.

4. The combination, to form a balanced slide-valve, of the valve proper, D, provided with grooves to receive the packing, the said packing, and the balance-plate E, also provided with grooves to receive the packing, and with rabbets *j* at its upper edges, to provide a surface for the steam-pressure to act on, substantially as and for the purposes set forth.

5. The combination, to form a balanced slide-valve, of the open-topped valve proper, D, provided with straight grooves *e* to receive the springs *h* and packing-strips *f f'*, and with the exterior rabbets, *k*, the said springs and packing-strips, the balance-plate E, provided with grooves *e'*, to receive the upper edges of the packing-strips, and with rabbets *j*, and the pendent concave deflector F, secured to or forming a part of plate E, all constructed and arranged to operate substantially as set forth.

320,600. HAME AND CLIP FOR HARNESS. CHRISTOPHER STOETZEL and FRANK C. STOETZEL, Newark, N. J. Filed Feb. 4, 1885. (No model.)

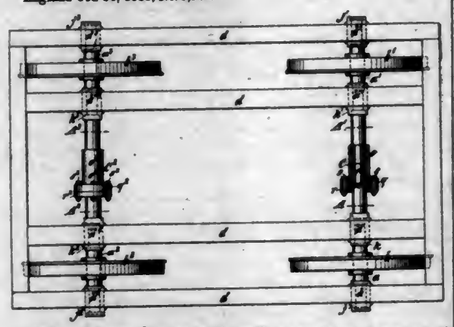
Claim.—1. The combination, with the hame provided with a draft-eye having a round opening and rear offset, *e*, and pivoted locking-plate *f*, of a clip having the bent extremity provided with the lug *b*, substantially as set forth and shown.

320,600.



2. In combination, a hame provided with a draft-eye the clip eye or opening in which is provided with a regular unindented or unbroken edge at the outer face of the draft-eye, but at the under or inner face broken or indented by an offset, *e*, which extends but partly through the said draft-eye, as shown, and a clip bent at the end in the form of a hook, and having on one side a laterally-projecting lug to engage the under side of said draft-eye, said parts being arranged and combined substantially as set forth.

320,601. RAILWAY-CARRIAGE. JAMES E. S. THORNHILL, Berwick, THOMAS FORENALL, Fairfield, and EDWARD THORNHILL, Ardwick, County of Lancaster, England. Filed Mar. 24, 1884. (No model.) Patented in England Oct. 30, 1883, No. 5,144.



Claim.—The combination, with a railway-carriage or tram-car, of the wheels *b b' b² b³*, the axles *a a' a² a³*, one for each wheel, and each having two journals, the axle-boxes *j k*, *j' k'*, *j² k²*, *j³ k³*, two for each axle, and the couplings, one between each two axles, which are in line with each other, all substantially as herein described.

320,602. KNOB ATTACHMENT. GARRET VAN WINKLE, North Plainfield, N. J. Filed Oct. 16, 1884. (No model.)



Claim.—1. The combination, with the knob having an undercut or dovetailed recess, the shank-sections B C, having diverging or angular ends to be passed into the dovetailed recess and opened out by closing the outer parts of the shank-sections, and means for holding such sections together, substantially as set forth.

2. The combination, with the knob having an undercut or dovetailed recess, of shank-sections with diverging or angular ends passed into the dovetailed recess, and a sleeve surrounding the shank-sections and holding them together, substantially as set forth.

3. The combination, with the knob having an undercut or dovetailed recess, of shank-sections with interlocking projections and recesses and diverging ends passed into the recesses, and a sleeve or collar surrounding the shank-sections, substantially as set forth.

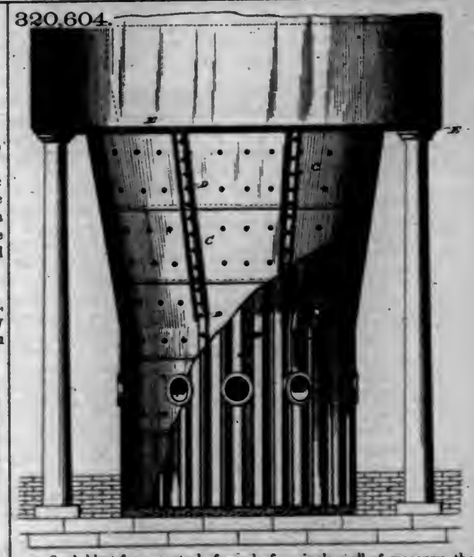
320,603. PROCESS OF TANNING. ELIAS S. WARD, Newark, N. J. Filed June 11, 1884. (No specimens.)

Claim.—The process of tanning hides herein described, to wit: of subjecting the said hides to a rotary motion, causing the same to be completely immersed in the tanning-liquor and then lifted entirely out of said liquor, whereby they are drained and aerated, and of reversing the rotary motion of the hides at intervals, thereby untwisting the said hides and exposing every part thereof to the action of the liquor.

320,604. BLAST-FURNACE. PETER L. WEIMER, Lebanon, Pa. Filed Apr. 13, 1885. (No model.)

Claim.—1. A blast-furnace stack having projections formed in the masonry constituting the walls of the stack, in combination with a metallic casing provided with a series of air-inlets, arranged on different horizontal planes, and outlets, substantially as described.

320,604.

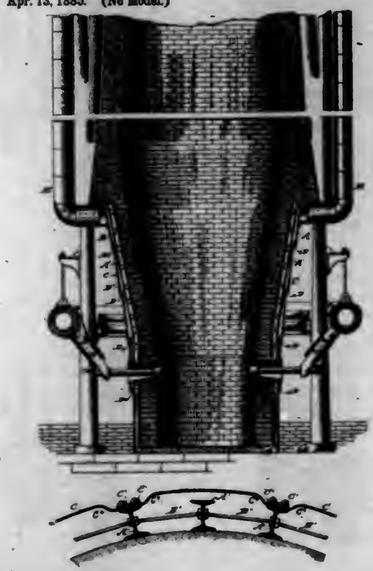


2. A blast-furnace stack formed of a single wall of masonry, the inner surface of which is exposed to the heat of the furnace and the outer surface to constantly-changing currents of air, said outer surface having projections formed in the masonry, in combination with a metallic casing perforated, as shown, and adapted to supply air at different points below the mantle in direct contact with the heated wall and in quantities varying as the temperature of the furnace rises and falls, substantially as described.

3. A blast-furnace stack having projections formed in the masonry constituting the wall of the stack and extending to the top of the furnace, in combination with a metallic casing composed of detachable sections perforated below the mantle, as shown, and imperforated above the mantle, substantially as described.

4. A blast-furnace stack composed of a single wall of masonry surrounded by a metallic casing forming an annulus between the stack and the casing, in combination with projections formed in the masonry and separating the annulus into a series of independent air-chambers supplied with air through inlets arranged in different horizontal planes in the casing, whereby the ascending column of heated air is augmented by supplies of cool air, substantially as described.

320,605. BLAST-FURNACE. PETER L. WEIMER, Lebanon, Pa. Filed Apr. 13, 1885. (No model.)



Claim.—1. The combination, with the crucible and bosh of a blast-furnace, of a cooler or refrigerator operating automatically to admit air in varying quantities at different points in the height of the structure upon the outer surface of the masonry forming the wall of said crucible and bosh, substantially as described.

2. The combination, with the crucible and bosh of a furnace, and a binding consisting of beams of metal separated and connected, as shown, of an air-chamber formed by the wall of the stack and an outer casing, to which air is admitted automatically and in varying quantities, substantially as described.

3. The combination, with the crucible and bosh, of a series of air-chambers formed by the vertical beams, connected as shown, the outer surface of the masonry, and the casing, substantially as described.

4. In a blast-furnace, the combination, with the binders for the crucible and bosh, consisting of beams of metal separated and connected as shown, of a casing having annular air-inlets, substantially as described.

5. In a blast-furnace, the combination of the stack and an inclosing jacket or casing composed of separate horizontal sections having annular air-inlets formed between them, substantially as described.

6. A blast-furnace stack, in combination with an inclosing jacket or casing provided with air-inlets arranged in different horizontal planes below the mantle, and an outlet or outlets communicating with the annulus formed by the wall of the stack and the casing, substantially as described.

7. The combination of a blast-furnace stack and a surrounding casing or jacket provided with air-inlets arranged in different horizontal planes, and outlets open to the atmosphere, adapted to apply air directly to the outer surface of the masonry forming the walls of the crucible and bosh automatically in quantities varying as the temperature of the furnace rises and falls, substantially as described.

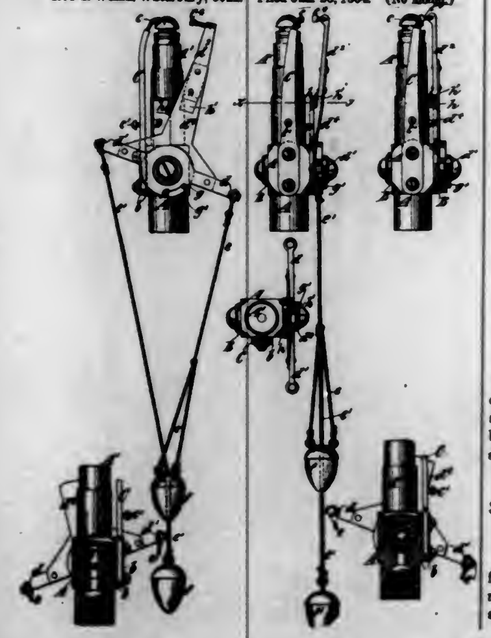
8. A furnace-stack composed of a single wall of masonry surrounded by a metallic casing open to the atmosphere at both ends and provided with a series of intermediate air-inlets, the supply of air being controlled automatically by varying degrees of heat in the crucible and bosh and operating to change the temperature of the ascending column of air, substantially as described.

9. A furnace-stack, in combination with a casing provided with a series of annular air-inlets arranged in different horizontal planes, the supply of air being controlled automatically by varying degrees of heat in the furnace and the ascending column of heated air supplied with cold air at different points in the height of the stack.

10. The combination of the furnace-stack, the air-chambers, and the casing formed in sections, curved, substantially as shown, to provide for expansion of the casing.

11. The combination of the stack, the I-beams, the horizontal coupling-rods, the casing, and suitable means for connecting the casing to the flanges of the beams, substantially as described.

320,606. ELECTRIC LIGHTING DEVICE FOR GAS-BURNERS. LE ROY S. WHITE, Waterbury, Conn. Filed Jan. 28, 1884. (No model.)



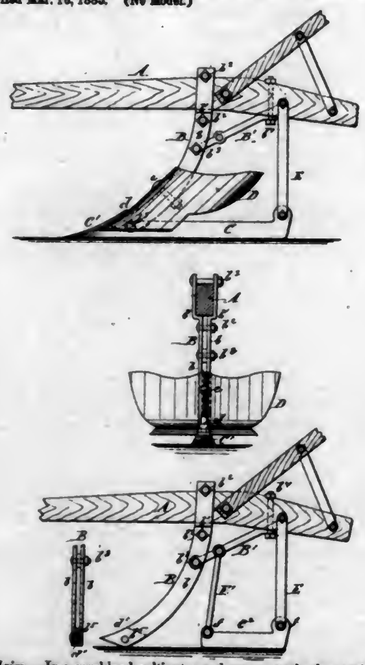
Claim.—1. The combination, with a gas-burner having a straight-way-cock plug and electric contacts, one carried by the plug and the other fixed to an electric conductor on the burner, of the arms *d d'*, the pendent devices *e e'*, and the indicators *f f'*, the former, *f*, being made hollow and receiving the device *e'* through it, whereby the said indicators are caused to approach and recede from each other as the cock is opened and closed, substantially as and for the purpose herein described.

2. The combination, with a gas-burner having a straightway-cock plug capable of movement in opposite directions to open and close, of an electric conductor provided with a fixed contact on the burner, an arm projecting from and movable with said plug and carrying a movable contact, and a stationary cam upon the burner serving to deflect said arm outward in turning the plug to close, substantially as and for the purpose herein described.

3. The combination, with a gas-burner having a straightway-cock plug capable of movement in opposite directions to open and close, of an electric conductor provided with a fixed contact on the burner, an elastic or yielding arm projecting from and moving with said plug and carrying a movable contact, a lip or projection, *h'*, on said arm, and a stationary cam on the burner serving to act upon said lip or projection to deflect said arm inward as the plug is turned to open, substantially as and for the purpose herein described.

4. The combination, with a gas-burner having a straightway-cock plug capable of movement in opposite directions to open and close, of an electric conductor provided with a fixed contact on the burner, an elastic or yielding arm projecting from and moving with said plug and carrying a movable contact, a lip or projection, *h'*, on said arm, and a stationary cam, *h*, on the burner serving to act upon said lip or projection to deflect said arm inward as the plug is turned to open, and outward as the plug is turned to close, substantially as and for the purpose herein described.

320,607. CULTIVATOR. ALBERT WILHELM, Pleasant Hill, Tex. Filed Mar. 16, 1885. (No model.)

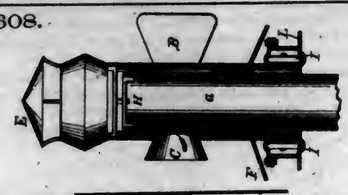


Claim.—In a combined cultivator and sweep-stock, the combination of a beam, a double stock strapped to the beam, and having a diamond-shaped point bolted to the lower end, an inclined brace bolted to the beam and stock, and a sweep-stock strapped to the beam and brace, substantially as set forth.

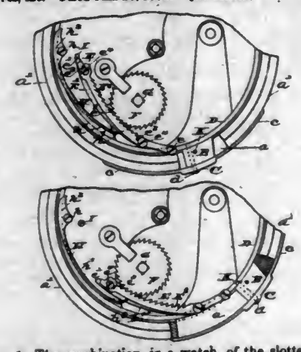
320,608. CHIMNEY TOP AND VENTILATOR. WILLIAM P. WILSON, Trenton, N. J., assignor of one-half to Thomas Craig, same place. Filed Jan. 2, 1883. Renewed May 22, 1885. (No model.)

Claim.—The outer pipe, A, provided with the vane B, mouth C, flaring collar F, spider H, and wheels I, in combination with the chimney or ventilator G, roof-plate L, collar M, and annular collar N, all substantially as shown and described.

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320,609. WATCH-WINDING DEVICE. ARTHUR G. WHEEMAN, Webster Groves, Mo. Filed Jan. 26, 1885. (No model.)



Claim.—1. The combination, in a watch, of the slotted rim *a'*, the block B, the boss C, the ring D, the pawl E, the spring H, the stop I, and the ratchet F, as and for the purpose described.

2. The combination, in a watch, of the ring D, the pawl E, the ratchet F, the spring H, and the stop I, substantially as described.

3. The combination, in a watch, of the ring D, the pawl E, the ratchet F, and the stop I, as and for the purpose specified.

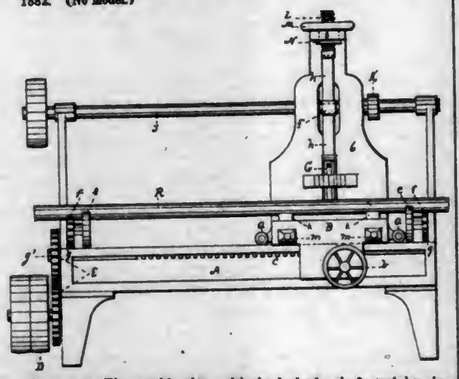
4. The combination, in a watch, of the ring D, the pawl E, made in the two parts E' and E², constructed as described, the ratchet F, and the spring H, substantially as set forth.

5. The combination of the spring H, widened at A², and the ring D, as and for the purpose set forth.

6. The combination of the ring D, the part E', the part E², having the end *e²*, and the stop I, as described.

7. The combination of the case L, the pin J, and the block B, having the hole K, as and for the purpose described.

320,610. SHAFT-STRAIGHTENING MACHINE. AUBIN WOOD, Worcester, Mass., assignor to Charles N. Hair, same place. Filed Sept. 11, 1882. (No model.)



Claim.—1. The combination, with the bed of a shaft-straightening machine, of the shaft-supporting rotating rolls *e e*, sliding carriage C, sliding on the bed, and vertically-adjustable rests *k k*, said rests being carried by and supported in the base of the sliding carriage C, together with means for applying pressure to the shaft carried by the sliding head, all combined and operating as described, and for the purpose set forth.

2. The combination, with the toggle-joint F and actuating eccentric I, of the spring P, as and for the purpose set forth.

3. The straightening-machine consisting of the rotating friction-rolls *e e*, traversing carriage B, blocks *k k*, wedges *m m*, toggle-joint F, and threaded fulcrum L, capable of vertical adjustment, as and for the purpose set forth.

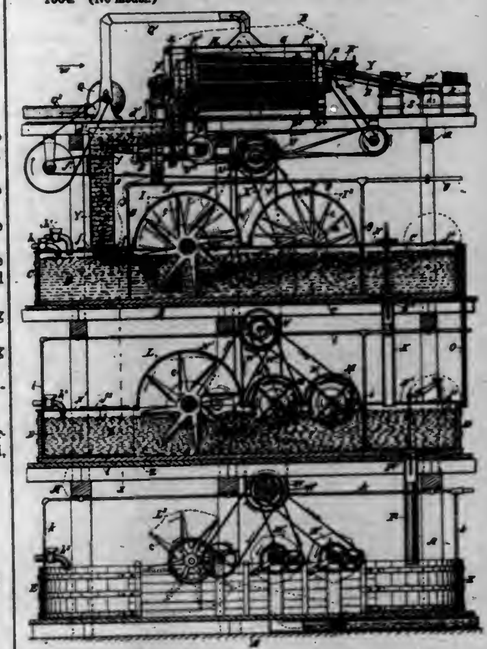
320,611. PLOW. REMARD H. ADAIR, Stovall, assignor of one-half to L. R. Fawkes, Aledo, Tex. Filed Apr. 30, 1885. (No model.)



Claim.—1. The combination, with a plowshare, of cutting-knives secured to the rear end thereof and extending rearwardly therefrom and in a slightly upward direction, substantially as set forth.

2. The combination, with a plowshare, of cutting-knives secured to the rear end thereof and extending rearwardly therefrom in an upward direction, and a bar, *g*, connecting the mold-board and landside and arranged below the cutting-knives, substantially as set forth.

320,612. PROCESS OF AND MACHINERY FOR PREPARING PULP FROM PAPERS. HIRAM ALLEN and LYMAN S. MASON, Sandy Hill, N. Y., assignors to Hiram Allen and Loren Allen, same place. Filed June 10, 1884. (No model.)



Claim.—1. The herein-described improvement in repulping papers, which consists in progressively introducing the papers in dry loose pieces into water in a circuit-vat, and simultaneously and thereafter subjecting the introduced papers in the water in the vat (with or without heat or alkali) to the repeated submerging and soft-fiber separating action of only a paddle-wheel or paddle-wheels deeply and moderately rotating in the water in the vat, as set forth.

2. The combination, with a rotary paper-dusting engine and a pulping apparatus having a circuit-vat, of a conduit or conveyer for automatically transferring the dusted papers from the dusting-engine into the circuit-vat, substantially as set forth.

3. The combination, with a rotary paper-dusting engine and a circuit-vat furnished with a paddle-wheel, of a conduit or conveyer for progressively transferring the dusted papers in loose condition from the dusting-engine into said circuit-vat, substantially as described.

4. The combination, with a rotary paper-dusting engine and two circuit-vats, each furnished with a paddle-wheel, of a conduit or conveyer made adjustable, substantially as described, whereby the dusted papers can be transferred at will from the dusting-engine into each of the circuit-vats at different times, as set forth.

5. The combined dusting, pulping, and washing apparatus consisting of a rotary paper-dusting engine, the pulping circuit-vat C, furnished

with the paddle-wheel I, the conduit or conveyer for transferring the papers from the dusting-engine into said pulping-vat, the pulp reducing and washing circuit-vat D, furnished with the paddle-wheel L and washer M, and a valved conduit, K, for transferring the pulp in water from the vat C into the vat D, substantially as set forth.

6. The combined dusting, pulping, and washing apparatus consisting of a rotary paper-dusting engine, the two pulping circuit-vats C C', each furnished with a rotary paddle-wheel, the adjustable conduit or conveyer adapted to transfer the papers from the dusting-engine into each of said pulping-vats at different times, the two pulp reducing and washing circuit-vats D D', each furnished with a rotary paddle-wheel and rotary washers, and valved conduits for transferring the pulp in water from the vat C into the vat D, and from the vat C' into the vat D', substantially as described.

7. The combined dusting, pulping, washing, and bleaching apparatus consisting of a rotary paper-dusting engine, the circuit-vats C C', each furnished with a rotary paddle-wheel, the adjustable conduit or conveyer for transferring the papers from the dusting-engine into each of said circuit-vats at different times, the two circuit-vats D D', each furnished with a rotary paddle-wheel and rotary washer, the valved conduits for transferring the pulp in water from the vat C into the vat D, and from the vat C' into the vat D', the circuit-vats E E', each furnished with a rotary paddle-wheel and rotary washer, the valved conduits for transferring the pulp in water from the vat D into the vat E, and from the vat D' into the vat E', and means for operating the said dusting-engine, paddle-wheels, and washers, substantially as set forth.

8. The improved paper-pulping apparatus consisting of the circuit-vat C, having an essentially level or unobstructed bottom throughout, the rotary paddle-wheel I, dipping deeply into one stretch of the circuit-vat, the steam-supply pipe *g*, for admitting steam into water in the vat, and the cover N, having the opening *j*, for admitting papers into the vat forward of the paddle-wheel, substantially as set forth.

9. The combined paper-pulping and washing apparatus, consisting of the pulping circuit-vat C, furnished with a rotary paddle-wheel, a steam-supply pipe for introducing steam into water in the vat, and a cover, N, over the paddle-wheel and vat, the pulp reducing and washing circuit-vat D, furnished with a rotary paddle-wheel, rotary washer, and cover N', over that vat and paddle-wheel, the valved conduit for discharging the hot pulp and water from the vat C into the vat D, and a conduit, O, for simultaneously conducting back steam and vapor from the covered vat D into the covered vat C, substantially as set forth.

10. The combination, with a paper-dusting engine having a rotary beater, a rotary screen surrounding the beater, and a close chamber immediately surrounding the screen, of an exhausting-blower having its suction in communication with said chamber, substantially as described.

11. A paper-dusting engine furnished with the feeding-apron R, and the paper-supporting tables S, having dust-pits *m*, covered by screens, and arranged in respect to the feeding-apron, as described.

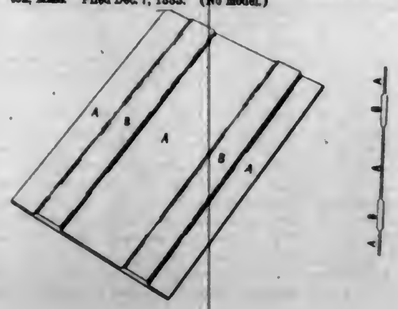
12. The improved paper-dusting engine composed of the tapering tubular screen G, having the internal lengthwise ribs *n*, the tapering toothed beater F, within the screen, and means for simultaneously rotating the said tapering screen and tapering beater at greatly different speeds, as described.

13. In a paper-dusting engine, the tapering rotary beater composed of the shaft *p*, heads *p'*, tapering staves *q*, and series of pin-teeth *o*, all shaped, arranged, and secured together substantially as described.

320,613. PROCESS OF STRAIGHTENING AND ANNEALING GUN-BARRELS. CHARLES E. BAILEY, Springfield, Mass. Filed Nov. 12, 1884. (No specimens.)

Claim.—The process of straightening and annealing gun-barrels, which consists in submitting the barrels while red-hot from the rolls to one or more blows between dies, and immediately after, and while in said heated state, packing them in an annealing-box, substantially as set forth.

320,614. RE-ENFORCED PAPER FABRIC. JOSEPH H. BEALE, Boston, Mass. Filed Dec. 7, 1883. (No model.)



Claim.—1. As an improved manufacture, a paper fabric having continuous re-enforced strips extending across the fabric, and formed integral therewith.

2. A paper fabric having continuous re-enforced strips formed of a different fiber and united in the pulp with the sheet, as set forth.

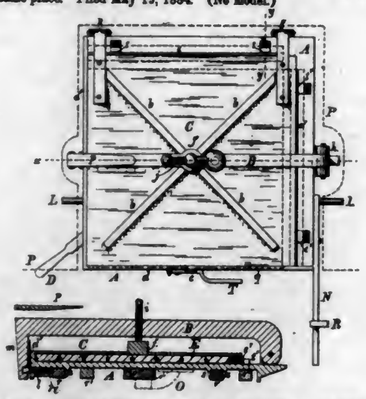
320,615. CARPET-LINING. JOSEPH H. BEALE, Boston, Mass. Filed July 31, 1884. (No model.)



Claim.—1. A carpet-lining composed of two sheets of paper, the edges of one being folded over upon the other and secured in position by strips of paper pasted over the folded edges and upon the other sheet, and a filling material secured between the said sheets by means of a strip of paper pasted over a series of holes formed in one of the sheets and upon the filling material opposite said holes, so as to unite the filling to the strip, as described.

2. A carpet-lining composed of two sheets of paper and provided with a filling material secured between said sheets by means of a strip of paper pasted over a series of holes formed in one of the sheets and upon the filling material opposite said holes, so as to unite the filling to the strip and retain it in position with the sheet, substantially as described.

320,616. APPARATUS FOR UNITING WOOD FOR FLOOR-COVERINGS. HENRY BIEDERN, Rochester, N. Y., assignor to Charles E. Rider, same place. Filed May 19, 1884. (No model.)

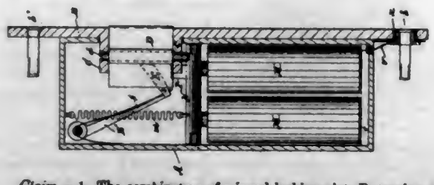


Claim.—1. In combination with the bed-plate A, having ribs *d d'*, presser-bars *e e'*, platen C, the frames *r r'*, toggles *v v'*, and lever D, substantially as described, and for the purpose above set forth.

2. The combination, with the bed-plate A, having ribs *d d'* and presser-bars *e e'*, of suitable mechanism adapted to move the bars simultaneously to and from the ribs, substantially as and for the purposes set forth.

3. The combination, with the bed-plate A, having ribs *d d'* and presser-bars *e e'*, of the sliding frames *r r'*, attached to the bars by arms *t t'*, and mechanism adapted to impart motion to the frames, substantially as described.

320,617. ELECTRIC LOCK. CHARLES BLATTMANN, New York, N. Y. Filed Mar. 14, 1885. (No model.)



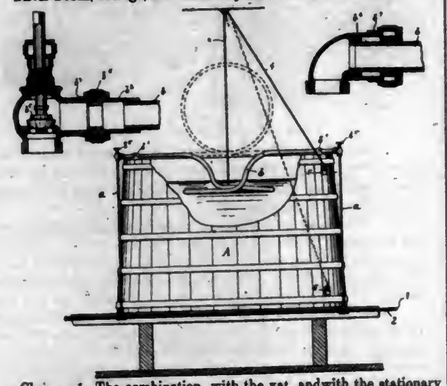
Claim.—1. The combination of winged locking-plate D, turning on an arbor or bolt, *d*, with a stop, P, connected with mechanism operated by electro-magnets for throwing it against and away from said locking-plate, in the manner and for the purpose described.

2. The combination of locking-plate D with wedge-shaped block E, electro-magnets M M, armature N, and stop P, substantially as described.

3. The combination of locking-plate D with wedge-shaped block E, electro-magnets M M, armature N, stop P, and spring *m*, substantially in the manner and for the purpose set forth.

4. The combination of locking-plate D with arbor or bolt *d*, electro-magnets M M, hinged armature N, spring *m*, and stop P, substantially as and for the purpose specified.

320,618. APPARATUS FOR ATTEMPERATING OR COOLING BEER. DAVID BOYLE, Chicago, Ill. Filed July 12, 1884. (No model.)

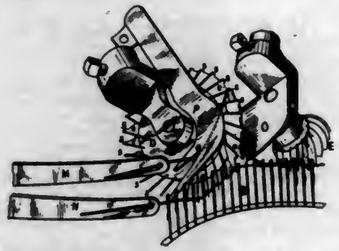


Claim.—1. The combination, with the vat, and with the stationary supply and return conduits, of the vat-pipe swiveling about said conduits, said vat-pipe being bent in horizontal coil, and arranged at one side of the axial line of the swivel and near the top of the vat, substantially as described.

2. The combination, with the vat, and with the stationary supply and return conduits for the circulating brine, of the vat-pipe swiveled to said conduits, and arranged in simple horizontal coil near the top of the vat, said vat-pipe being provided with cord and catches, substantially as described, for holding it in raised or lowered position relatively to the vat, substantially as set forth.

3. The combination, with the vat, and with the stationary supply and return pipes for the cooling agent, of the vat-pipe swiveled thereto and sustained in bearings on the vat, substantially as described.

320,619. KNITTING-MACHINE. JOHN BRADLEY, Chelmsford, Mass. Filed Dec. 10, 1883. (No model.)



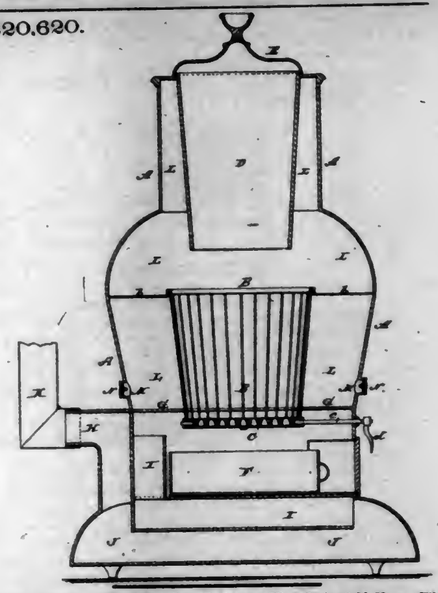
Claim.—1. The stitch-wheel D, having a series of radial incline blades, the working-faces of which are provided with projecting nibs *s* at each edge, substantially as described, as and for the purposes set forth.

2. The combination, with the needle-head provided with a series of needles, of the stitch-wheel D, having a series of blades, the working-faces of which are provided with projecting nibs at each edge, spring-plate P, having the notch *e*, fixed cutter O, and thread-guides M and N, as and for the purposes set forth.

320,620. STOVE. BURT A. BRIGDEN and EDWIN CANNON, Jr., Moravia, N. Y. Filed May 13, 1884. (No model.)

Claim.—The combination, with the stove-body A and the fire-pot B C, of the partition G, at or near the base of the fire-pot, a smoke-flue, H, below the line of said partition, and draft-openings M in the sides of the body A above the said partition and below the center of the fire-pot, whereby the draft will not pass through the whole body of coal, but only through the lower portion of the same, thereby causing a complete and even combustion of the coal and gases, substantially as shown and described.

320,620.



320,621. CRUTCH. JOHN R. BROOKS, West Springfield, Mass. Filed Mar. 23, 1885. (No model.)

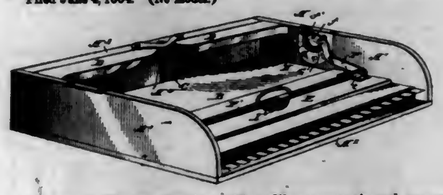


Claim.—1. An extension-crutch consisting of the common trussed frame *b b' a*, and a reversible shaft, C, pivoted to the lower end of said frame, substantially as described.

2. An extension-crutch consisting of the common trussed frame *b b' a*, with extension-shaft C pivoted thereto and provided with a series of perforations, *r*, for longitudinal adjustment, substantially as described.

3. An extension-crutch consisting of a common trussed frame with perforated shaft C pivoted thereto, and held in position by one or more clasps, E and E', substantially as described.

320,622. TEMPORARY BINDER. AARON L. BROWN, Chicago, Ill. Filed June 4, 1884. (No model.)



Claim.—1. The combination, with a filing-receptacle and presser, of arms uniting said receptacle and presser, pivoted upon the inner faces of the opposite sides of the receptacle, and springs located within recesses in said sides, constructed to move in the direction of the planes of the sides and engaged with the said arms, substantially as and for the purpose set forth.

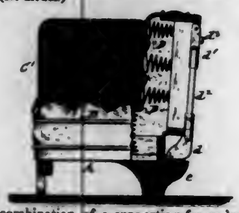
2. The combination, with a filing-receptacle and a presser, of arms uniting the said receptacle and presser, said arms being pivoted upon the inner faces of the sides of the receptacle, and provided with studs *f'*, and springs located in recesses of the sides of the receptacle, constructed to move in the direction of the plane of said sides, and arranged to bear upon the studs *f'*, substantially as and for the purpose set forth.

3. The combination, with a filing-receptacle provided with recesses A^5 and curved slots G' in its sides, and a presser, of arms uniting the presser and filing-receptacle, said arms being pivoted upon the inner faces of the sides of the receptacle, and provided with outwardly-projecting studs *f'*, passing through the slots G' and entering the recesses A^5, and springs H, located within said recesses and constructed to bear upon the studs, substantially as and for the purpose set forth.

4. The combination, with a filing-receptacle provided with recesses A^5 in its sides, and a presser, of arms F, attached to the presser, pivoted to the inner faces of the sides of the receptacle, and provided with studs *f'*, plates G, covering the recesses A^5, and provided with curved slots

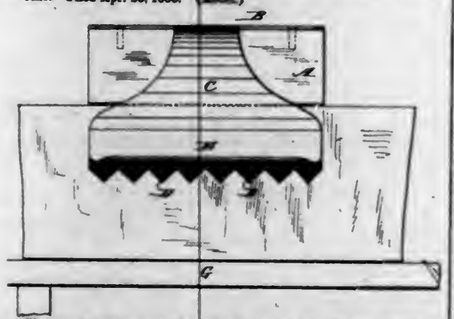
G', for the entrance of the studs *f'*, and springs H, secured within the said recesses, and constructed to bear upon the said studs, substantially as and for the purpose set forth.

320,623. BED-LOUNGE. ROBERT H. BRYANT, Brooklyn, N. Y. Filed Feb. 2, 1885. (No model.)



Claim.—The combination of a supporting-frame having rear legs, with backwardly-extending brackets, a fixed seat-section, a hinged back section, front and rear legs pivoted to said back section, and pivot-links connecting said front and rear legs in pairs, said front legs resting on the brackets and supporting the back section in raised position when thrown in line with the connecting-links, substantially as set forth.

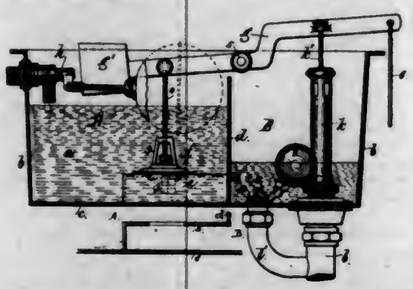
320,624. GRIP FOR ICE-SHAVERS. HARRY G. CARNELL, Dayton, Ohio. Filed Apr. 28, 1885. (Model.)



Claim.—1. An ice-grip formed of a spring-metal plate secured on a block and forming two prongs curved downward and toward each other at the sides of the block, and having teeth on their end edges, substantially as herein shown and described.

2. An ice-grip formed of a spring-metal plate secured to a block and forming two side prongs curved downward and toward each other at the sides of the block, which prongs have teeth formed in their ends and have guards or flanges on their outer sides near the toothed edges, substantially as herein shown and described.

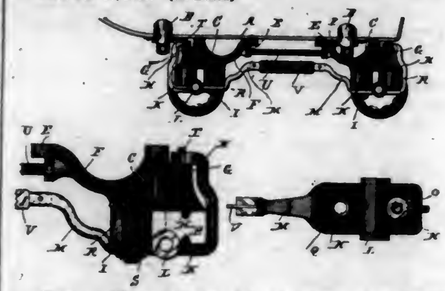
320,625. CISTERN FOR WATER-CLOSETS. PETER CARNEY, New York, N. Y., assignor to the J. L. Mott Iron Works, same place. Filed Mar. 12, 1885. (No model.)



Claim.—1. The combination, with a cistern for water-closets having a partition and the trunk *e* opening through the same, of the weighted lever *g*, pipe *l*, and valves *f* and *i*, and a valve, *m*, and its lever and float within the compartment B, and a pipe, *l'*, from the valve *m* to the pipe *l*, whereby a preliminary flushing is given to the closet when the lever *g* is operated, substantially as set forth.

2. The combination, with the water-closet cistern, of a valve to supply water into the cistern, a pipe to allow a preliminary wash to pass to the closet, a float and valve to close the same by the accumulation of the water, and a lever and valve and pipe to discharge the water from the cistern to the closet, substantially as specified.

320,626. ROLLER-SKATE. SAMUEL D. CASTLE, Bridgeport, Conn. Filed Feb. 19, 1885. (No model.)



Claim.—1. The combination of brackets secured to the foot-plate, castings carrying the rollers which are loosely secured to the brackets, springs interposed between the castings and the brackets, and a spring connecting the castings together.

2. A skate-truck consisting of a bracket adapted to be secured to the foot-plate and having boss G, stud I, and lug H, and a casting having an arm with an eye which is loosely pivoted to boss G, a lug, P, corresponding with lug I, and a tapered hole through which the stud passes, and springs R, interposed between the casting and the bracket.

3. The brackets secured to the foot-plate and having bosses E and rod U; connecting said brackets together, in combination with castings carrying the rollers which are loosely secured to the brackets and are provided with arms M, springs R, interposed between the castings and brackets, and a spring, V, whose opposite ends are secured to arms M.

4. The brackets secured to the foot-plate and having bosses G and downwardly-projecting studs I, in combination with castings which carry the rollers and are provided with arms N, loosely pivoted to bosses G, arms M, connected by spring V, and tapering holes through which the studs pass, and springs interposed between the castings and the brackets.

5. In a skate, brackets C, having studs I and lugs H, in combination with castings K, having holes Q and lugs P, and springs consisting of blocks of rubber which are interposed between the castings and brackets, one being held in place by lugs H and P and the other by stud I, which passes through it.

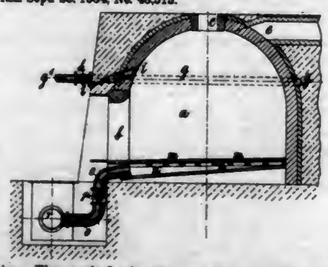
6. In a skate, brackets C, having bosses G and studs I, in combination with castings having arms loosely pivoted to bosses G, holes tapering downward and inward through which the studs pass, and arms M, which are connected together by a corrugated spring, V.

7. In a skate, trucks consisting of brackets secured to the foot-plate, castings pivotally connected to the brackets and connected together by a corrugated spring, and rubber blocks interposed between the brackets and castings.

8. The brackets secured to the foot-plate and connected together by rod U, in combination with castings K, pivoted to the brackets and connected together by a spring, V.

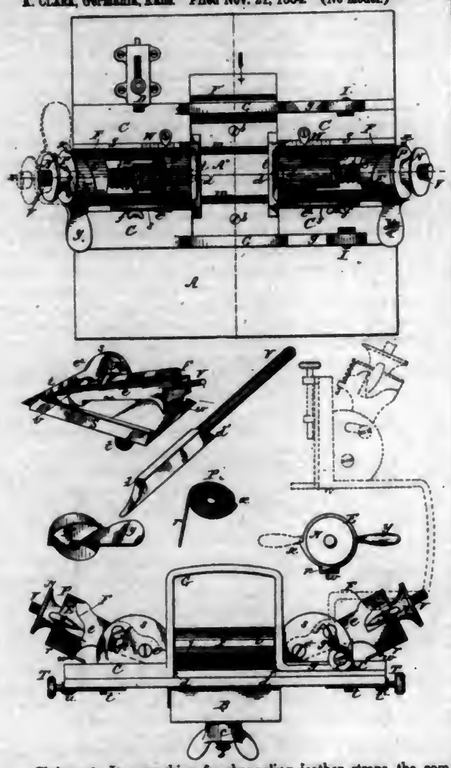
9. In a skate, the brackets having slugs G and stud I, and castings K, having arms N, with eyes O, having tapered holes, and tapered holes through which the studs pass, and pins S and T, which hold the parts in place.

320,627. METHOD OF COKING COAL. ARTHUR M. CHAMBERS and THOMAS SMITH, Sheffield, County of York, England. Filed Nov. 12, 1884. (No model.) Patented in England Mar. 11, 1884, No. 4,706; in Germany Aug. 25, 1884, No. 36,724; in France Sept. 2, 1884, No. 151,508, and in Belgium Sept. 25, 1884, No. 63,513.



Claim.—The method of coking consisting in introducing an upwardly or horizontally directed current of hot air alone to the interior of the upper part of the oven and drawing the products of combustion down through the coal, the oven being without other inlet than said hot-air pipe during said operation, and the direction of the jet or current of air away from the coal insuring uniform pressure on the latter and preventing it being burned away or injured, substantially as set forth.

320,628. MACHINE FOR CHANNELING HARNESS-STRAPS. THOS. K. CLARK, Germania, Kans. Filed Nov. 21, 1884. (No model.)



Claim.—1. In a machine for channeling leather straps, the combination, with the adjustable cutter-carriages, of the cutter-stocks pivoted thereto, the cutting-blades, and the screws *f*, passing through slotted projections *s* in said carriages, whereby the cutter-stocks are adjusted and secured in proper relative angles for oblique channeling, substantially as herein set forth.

2. The combination, in a machine for channeling straps, of the adjustable cutter-carriages, the cutter-stocks pivoted thereto, and the cutting-blades, with the springs *j*, the thumb-nuts N, and the cam-buttons E, the said cutter-stocks having end cam formations, F, corresponding with the cam-buttons, substantially as herein described, for the purpose specified.

3. The combination, with the cutter-carriages and the cutter-stocks pivoted thereto, of the cutter-blades, the springs *j*, the thumb-nuts N, the cam-buttons E, and the washers locked to the cutter-stocks between the cam-buttons and the thumb-nuts, substantially as described, for the purpose specified.

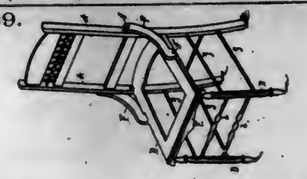
4. The combination, in a machine for channeling leather straps, of the adjustable carriages each having a side vertical slotted projection, *s*, with the cutter-stocks each having an end cam formation, F, the cam-buttons E, the thumb-nuts N, the springs *j*, and the set-screws *f*, passing through the slots of said carriage projections into the cutter-stocks, substantially as described, for the purpose specified.

5. The cutter-stock *c* and the carriage S, pivoted together, as described, the former carrying the cutter-blade *d*, and adjustable upon its pivot to vary its inclination by the slot *g*, and the clamp-screw *f*, in combination with the adjusting-screws T, the lugs *t u*, the springs *j*, the adjusting-nut N, and the adjusting cam-buttons, substantially as described, for the purpose specified.

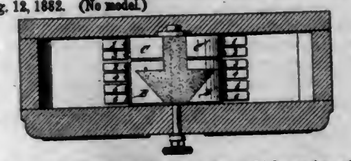
320,629. CHAIR. CHARLES CLOSTERMAN, Cincinnati, Ohio. Filed Feb. 13, 1885. (No model.)

Claim.—1. In a knockdown chair, the combination, substantially as specified, of the chair-back framed together, as shown, and the metal stirrup C, pivoted to the inside of the back posts, with the front composed of the legs D, rounds *d*, and top piece, E, and the seat B, secured at the rear end to the stirrup and detachably secured to the top piece, E, whereby the front may be conveniently separated from the back and seat, for the purpose set forth.

2. The combination, substantially as specified, of the back rails, A, seat B, pivotally secured to the back rails by the metal coupling-piece C, with the front D, *d*, and E, framed together, as shown, and the side braces, F, detachably secured to the back and seat by the screws *f f'*, for the purpose set forth.



320,630. ELECTRIC SWITCH. LEO DAFT, Greenville, N. J. Filed Aug. 12, 1882. (No model.)



Claim.—1. A switch for electric motors, which consists of a cylinder or cylindrical surface having upon it four connecting-plates, two of which serve to reverse connections and the other two of which serve to vary the resistance of the circuit controlled by them, and the connections shown for enabling said operations to be accomplished, substantially as described.

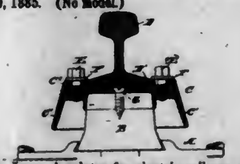
2. The combination of an electric motor and a switch and connections, substantially as described, consisting of a connection from each of the commutator-brushes, from one extremity of the coils surrounding the field-magnet, and from one of the poles of the generator, the other pole of the generator being connected directly to one extremity of the field-coil, whereby the current through the armature may be reversed without changing the direction of the current through the field-coils, substantially as described.

3. The combination of an electric motor, one or more resistances, a switch, and connections, substantially as described, whereby the relations of the poles of the armature to the poles of the field-magnets may be changed and the resistance of the circuit varied.

4. An electric switch which consists of a cylinder having upon it two rectangular plates which in the operation of the switch reverse a circuit, and two other plates which present an edge at an angle to the movement of the switch, whereby cutting-springs bearing upon the surface of said cylinder may be successfully brought in contact with the electrical connection upon the cylinder or with the insulating material between the plates at the will of the operator, substantially as described.

5. An electric switch which consists of a cylinder of insulating material, having upon it the plates C C' and the angular plates B B', presenting a conducting-surface at an angle to the motion of the cylinder, substantially as described.

320,631. INSULATOR FOR TRACKS. LEO DAFT, Greenville, N. J. Filed Mar. 9, 1885. (No model.)



Claim.—1. In an insulator for electric-railway rails, the combination, with a shoe, of a curtained cap adapted to support and having means for securing the rail thereto, and insulating material interposed between the shoe and cap, substantially as described.

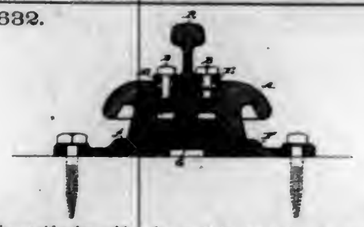
2. In an insulator for electric-railway rails, the combination, with a shoe, of an insulating-standard supported on the shoe, and a cap having a downwardly-extending hood or curtain and provided with a socket into which the insulating standard enters, substantially as described.

3. The combination of a shoe having a dovetailed slot, an insulating-standard secured to the shoe, and a cap secured to the standard and having a hood or curtain and adapted to support the rail upon its upper surface, substantially as described.

320,632. ELECTRIC CONDUCTOR. LEO DAFT, Greenville, N. J. Filed Mar. 9, 1885. (No model.)

Claim.—1. An insulator for rails or conductors, consisting of a standard of insulating material, upon which the rail is placed, provided with holes for the securing-bolts and having cavities in the under side for the reception of a moisture-repelling substance, substantially as described.

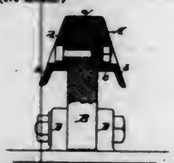
320,632.



2. The combination, with a shoe made in two parts, of a standard of insulating material supporting a rail, bolts passing through the rail and the standard, and moisture-repelling substance covering the ends of the bolts, substantially as described.

3. The combination of the two-part shoe, the insulating standard secured therein, the rail upon the standard having an interposed elastic substance, bolts passing through the rail and standard, the nuts in the cavities of the standard securing the bolts, and moisture-repelling substance in the cavities of the insulator, substantially as described.

320,633. INSULATOR FOR TRACKS. LEO DAFT, Greenville, N. J. Filed Mar. 9, 1885. (No model.)

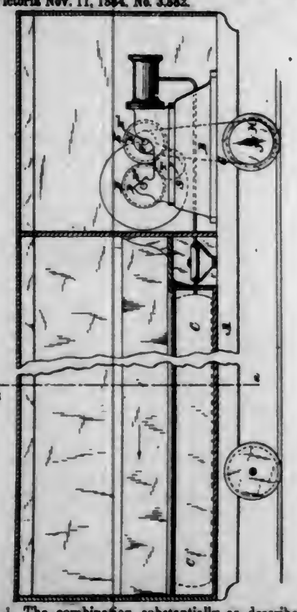


Claim.—1. An electric conductor or rail having an exterior bearing-surface for the current-takers, and provided with sides or curtains extending downwardly at an angle, substantially as described.

2. An electric conductor or rail having downwardly-extended sides or curtains, and having slots or grooves in the under side for the reception of insulators, substantially as described.

3. The combination, with an electric rail or conductor having downwardly-extending sides or curtains, of shoes or supports, and insulators interposed between the supports and the rail, whereby the insulators are protected from moisture, substantially as described.

320,634. TRAM-CAR MOTOR. JOHN DAMES and BENJAMIN BARNES, Melbourne, Victoria, Australia. Filed Feb. 7, 1885. (No model.) Patented in Victoria Nov. 11, 1884. No. 3,882.



Claim.—1. The combination, substantially as described, with a street-car provided with seats for passengers, storage-tanks for storing a motive power under pressure, a gas-engine connected with said storage-tanks and mounted on the car, and one of the wheel-axles of said car, of transmitting mechanism for transmitting motion to the wheel-axle, consisting of the friction-wheel D on the engine-shaft, the friction-wheel E on a counter or intermediate shaft, E^2, the chain-sheave F on said shaft, the chain-sheave H on one of the axles of the car, and the driving-chain G, substantially as and for the purpose specified.

2. The combination, substantially as described, with the axle J of the car A, carrying a chain-sheave, F, the gas-engine mounted on said car, the engine-shaft D^2, carrying friction-wheel D, the counter-shaft E^2, carrying friction-wheel E, and chain-sheave H, and the chain G, of the lever N, pivoted on the engine-shaft and carrying said counter-shaft E^2, said parts being arranged for co-operation, for the purpose specified.

3. The combination, substantially as described, with the axle J of the car A, carrying a chain-sheave, F, the gas-engine mounted on said car, the engine-shaft D^2, carrying friction-wheels D D', the counter-shaft E^2, carrying friction-wheels E E', and chain-sheave H, the lever N, fulcrumed on the engine-shaft and carrying the counter-shaft E^2, and the chain G, of the lever P, shaft Q, secured to an arm of lever N, and with which shaft lever P is connected eccentrically, and the friction-wheel T, supported by links from shaft Q and adapted to be brought in frictional gear with wheel E', said parts being arranged for co-operation, as set forth, for the purpose specified.

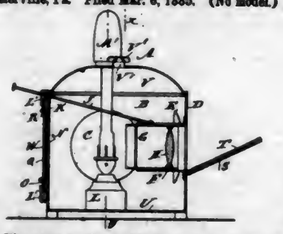
320,635. PIPE-COUPLING. GEORGE A. DAUDT, Jersey City, N. J. Filed Apr. 7, 1883. (No model.)



Claim.—1. A coupling or connection composed of a screw-threaded portion, *g*, provided with a shoulder and nut, whereby it may be secured in a tube-plate or tube-sheet, and a number of branches, the lower branches, *f'*, being approximately in line horizontally with the bottom of the portion *g*, and the upper branches, *f*, being offset above said portion *g*, substantially as herein described.

2. The coupling or connection comprising the screw-threaded portion *g*, provided with the inwardly-beveled shoulder *g'* and the nut A, and a number of branches extending from the portion *g*, and with which tubes may be connected, substantially as herein described.

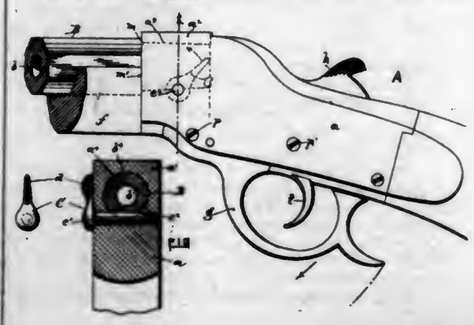
320,636. MAGIC LANTERN. HENRY DAVENPORT and GEORGE DAVENPORT, Somerville, Pa. Filed Mar. 6, 1885. (No model.)



Claim.—1. The combination, with the box A, of the mirrors C E, the lens-tube F, the sliding tube G, the lens H in the same, and the rod J, substantially as herein shown and described.

2. The combination, with the box A, of the mirrors C E, the tube F, the sliding tube G, the lens H, and the rod J, extending from the tube G to the top of the back of the box, substantially as herein shown and described.

320,637. FIRE-ARM. WM. H. DAVENPORT, Uxbridge, Mass. Filed Feb. 26, 1885. (No model.)



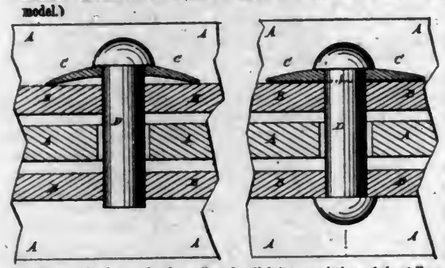
Claim.—1. In a rifle, the breech-frame provided with a socket, and having a breech-block and hammer, and suitable operating mechanism therefor, in combination with the barrel fitted to said socket, and the locking-pin passing transversely through both the frame and barrel, whereby said barrel is removably mounted and secured in position, as set forth.

2. In a rifle, the combination, with the breech-frame *a*, having the barrel B taper-fitted therein, and suitable locking and firing means, of the locking-pin C, consisting of the partially-screw-threaded stem having the short arm or lever *d* secured thereto, all constructed, arranged, and adapted for operation substantially as shown, and for the purpose set forth.

3. The improvement in rifles which consists in the combination, with the recessed breech-frame and the barrel fitted thereto, of a locking-pin passing transversely through the recessed portion of said breech-frame and the under side of the barrel, said pin being screw-threaded and having a lever-shaped head, substantially as shown, and for the purpose hereinbefore set forth.

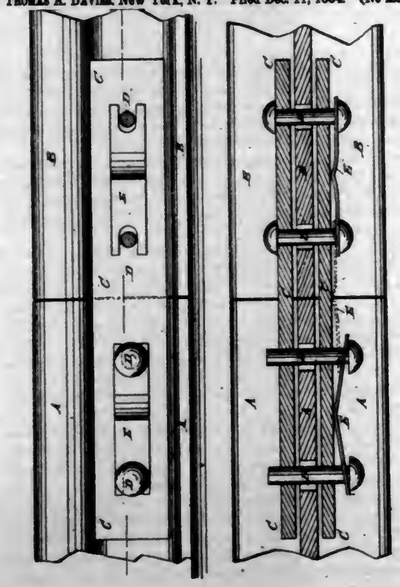
4. In a rifle provided with suitable breech-locking and firing mechanism, the removably-mounted barrel B, having its rear end, B', taper-turned and fitted within the frame *a*, in combination with the lever-headed locking pin or key C, having a slightly-tapering stem, *c'*, provided with the screw-thread c^3, said pin extending transversely through the frame *a* and the under side of the barrel, the lever *d* of said pin being exteriorly of the frame, all constructed, arranged, and adapted for operation substantially as shown, and for the purpose described.

320,638. MEANS FOR SECURING FISH-PLATES TO RAILROAD-RAILS. THOMAS A. DAVIES, New York, N. Y. Filed Oct. 17, 1884. (No model.)



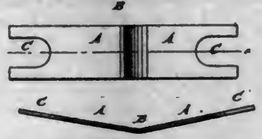
Claim.—A give-and-take railroad-rail joint consisting of the following elements in combination, namely: two rails with proper holes in the webs at the ends thereof, two fish-plates with corresponding holes in them, two bolts each with two immovable heads while in action, and two metallic spring-washers with holes in them, substantially in the manner and for the purposes herein described.

320,639. FASTENING FISH-PLATES IN RAILROAD-RAIL JOINTS. THOMAS A. DAVIES, New York, N. Y. Filed Dec. 11, 1884. (No model.)



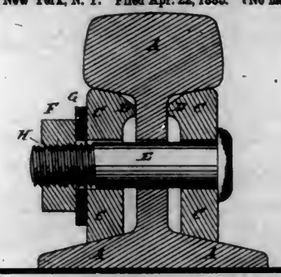
Claim.—The combination, with the rails A B, the fish-plates C, and the rivets D, of the angular springs E, substantially as herein shown and described, whereby the wear of the joint will be constantly taken up, and the joint held firm and rigid during the entire life of the rails, as set forth.

320,640. FULCRUM METALLIC SPRING-WASHER FOR RAILROAD-RAIL JOINTS. THOMAS A. DAVIES, New York, N. Y. Filed Dec. 11, 1884. (No model.)



Claim.—The powerful metallic spring-washer A, having apertured ends and an angle in its middle part to serve as a constant fulcrum by resting against the object to be held, substantially as shown and described.

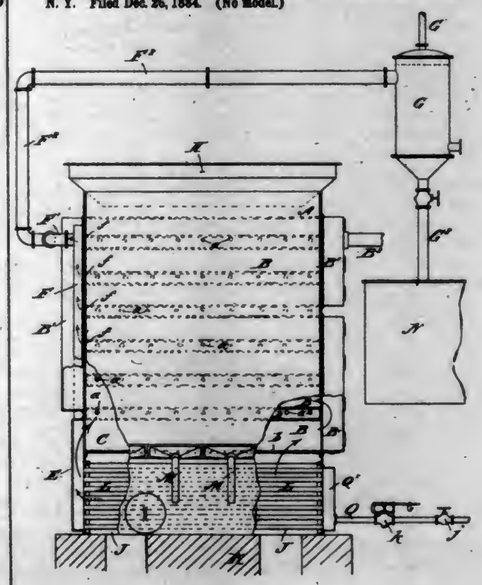
320,641. FISH-PLATE FOR RAILROAD-RAIL JOINTS. THOMAS A. DAVIES, New York, N. Y. Filed Apr. 22, 1885. (No model.)



Claim.—1. A fish-plate, C, made, substantially as herein shown and described, with a flange, D, upon its inner side near its upper edge, whereby the said fish-plate will always adjust itself to three distinct bearings, as set forth.

2. The combination, with the rails A B, and the fish-plates C, fitting between the heads and base-flanges of the rails, and having flanges D along their inner sides, near their upper edges, resting against the webs of the rails, of the angular spring-washers G, and the bolts and nuts E F, substantially as herein shown and described, whereby the ends of the rails will be held rigidly from vertical and lateral movement, as set forth.

320,642. BONE-BLACK DRIER. EDWARD P. EASTWICK, New York, N. Y. Filed Dec. 26, 1884. (No model.)



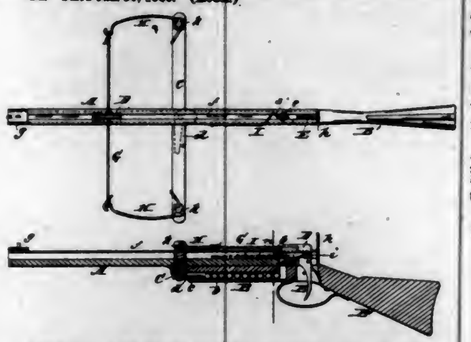
Claim.—1. The combination, with a bone-black drier, of a condenser, G, to which water is supplied through a suitable pipe, the condenser being connected with the drier by suitable pipes or conduits and with a receptacle to receive the water from the condenser, substantially as described.

2. The chamber J, containing pipes L, connected with a main heat-passage arranged adjacent to the drying-passage for the bone-black, the main heat-passage being connected with the drying-passage and the latter with passages leading to the condenser, substantially as described.

3. The bone-black drier provided with side pipes, F, connected with the condenser G by suitable pipes or conduits and with the drying-chamber by openings *f*, substantially as and for the purposes set forth.

4. The bone-black drier constructed to form the horizontal triangular passages B, central passage, C, between said horizontal passages, irregular drying-passages H', and passages *d*, the latter being connected with the pipes F F' F², substantially as described.

320,643. MAGAZINE SPRING-GUN. STEPHEN D. EAGLE, Hazleton, Pa. Filed Jan. 30, 1885. (Model.)



Claim.—1. A spring-gun consisting, essentially, in the grooved barrel A, having a slot, *f*, in its upper side, the notched follower D, provided with a vertical arm projecting up through the slot and having an aperture, the cross-bar C, the spring H, the cord G, passing through the aperture in the vertical arm of the slide and secured at its ends to the springs, and the trigger E, constructed to engage the notched follower, substantially as set forth.

2. In a spring-gun, the barrel A, the magazine B, the passage leading from the magazine to the bore of the gun-barrel, the spring I, having a bend, *s*, crossing the bore in advance of the passage *e*, and a straight portion extending from the bent portion S across the top of passage *e*, the trigger E, the notched follower D, and means for operating the same, the said follower being constructed to be drawn rearward to uncover the passage *e*, and to close or partially close said passage when engaged by the trigger, substantially as set forth.

3. In a spring-gun, the barrel A, the magazine B, the vertical passage *e*, communicating with the bore thereof, the notched follower D, and the trigger E in rear of the passage *e*, said follower when drawn back being constructed to uncover the passage *e* and to close it when in engagement with the trigger, whereby when the barrel is raised and the follower pulled back a ball may roll into the bore in front of the follower, and said passage be closed by the forward movement of the follower to engage the trigger, substantially as set forth.

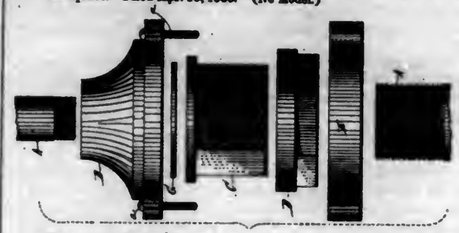
4. In a spring-gun, the barrel A, the follower D, means for operating the same, the trigger E, the magazine B, having a passage, *e*, at its rear end communicating with the bore of the barrel, and an opening, *c*, at its forward end, and the pivoted latch, *d*, constructed to open and close said opening, substantially as set forth.

320,644. MOLDING. EMIL FILLMANN, Chicago, Ill. Filed May 5, 1885. (No model.)



Claim.—Burnished pearls made of silver leaf, lacquered, in combination with ornamented metallized moldings, as set forth.

320,645. INSULATING PIPE-UNION. CHARLES H. FISHER, New York, N. Y., assignor to the Archer & Pancoast Manufacturing Company, same place. Filed Apr. 15, 1885. (No model.)

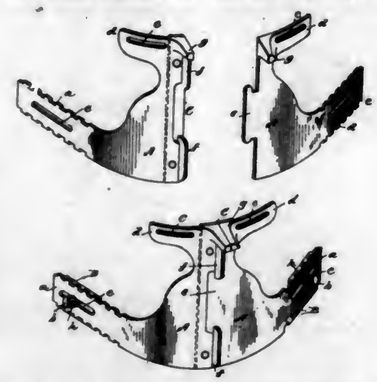


Claim.—1. The herein-described insulating pipe-union, composed of the two main parts for receiving the ends of the pipe-sections, the coupling-ring, the insulating-shell having the angular or irregular interior and exterior, and the screws or bolts for uniting the two main parts, substantially as shown and described.

2. In an insulating pipe-union, the combination, with the coupling-ring and one of the main parts, of the second main part having the interior thread and the angular or irregular exterior, an insulating-shell fitted thereon and in an angular or irregular opening in the coupling-ring, substantially as and for the purposes set forth.

3. In an insulating pipe-union, the combination of the two main parts, the coupling-ring, the angular or irregular insulating-shell, and the leather disk interposed between the main parts, substantially as and for the purposes set forth.

320,646. HORSE-COLLAR FASTENING. NOBLE A. FISHER and TITUS K. BURGESS, Sacramento, Cal. Filed Mar. 7, 1885. (No model.)



Claim.—1. A fastening for horse-collars, consisting of the plates A A, one of which is provided at its meeting edge with a vertical flange separated by a middle interspace, and the opposite one with a horizontal rigid tongue having lateral shoulders adapted to engage the said flanges of the opposite plate, substantially as specified.

2. A horse-collar fastening consisting of the plates A A, having the vertical rigid flanges *f f*, separated by an interspace, the rigid tongue on the opposite plate having lateral shoulders to engage the said flanges, and the inner horizontal plate, C, adapted to prevent disengagement of the plates, substantially as specified.

3. As an improved article of manufacture, the fastening for horse-collars described, consisting of the plates A A, having at their meeting edges the rigid fastening devices, the rigid lugs *g g*, the upper slotted arms, *d d*, the lower slotted and notched arms, *a a*, the notched plates having securing-screws, and the inner plate, C, all adapted to be applied to a horse-collar, substantially as specified.

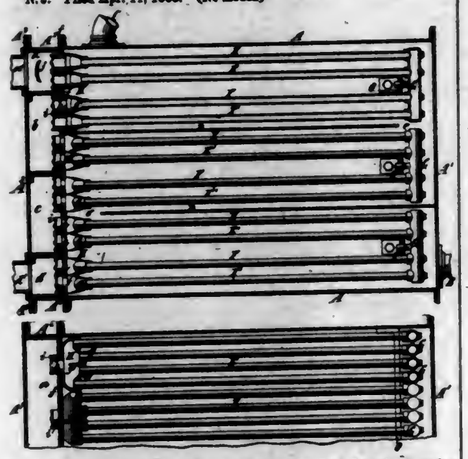
4. The combination, with the plates A, having means for securing them to a collar, one of which plates is provided with a rigid tongue adapted to engage rigid bars or flanges on the opposite plate, substantially as specified.

5. The combination, with the notched plates B, adapted to be secured to a horse-collar, of the fastening-plates having the notched arms, and means for bringing the notches of the respective devices in engagement with each other, substantially as specified.

6. The combination of the plates A A, one of which is provided with the tongue *e* and lug *g*, and the opposite one with rigid bars or flanges adapted to receive the said tongue, a stop-plate, C, on the inner side to prevent the disengagement of the tongue, and a lug, *g*, to engage a similar lug on the said plate, substantially as specified.

7. In a horse-collar fastening, the combination, with the plates having the slotted and notched arms *a a*, of the plate B, having the notched edges and a threaded aperture, and the threaded rod *b*, having means for turning the same, whereby the said plates may be adjustably connected, substantially as specified.

320,647. SURFACE-CONDENSER. THOMAS GANNON, Jersey City, N.J. Filed Apr. 11, 1883. (No model.)



Claim.—1. The combination, with a condenser shell or body and a head containing separate steam-chambers arranged one above another, of upper and lower direct tubes leading from each chamber, upper and lower return-tubes leading to the next lower chamber, and a single manifold independent of and within the shell or body, whereby the outer ends of the two direct and two return tubes in each vertical tier are connected, substantially as described.

2. The combination, with the shell or body A and the head A², containing separate steam-chambers arranged one above another, of the direct and return tubes arranged in vertical tiers, the tubes in each tier being connected by bends or manifolds independent of and within the shell or body, and the couplings H, each comprising a number of branches, *g*, with which the tubes are connected, and which are all arranged in one horizontal plane, and a single branch or extension, *h*, externally screw-threaded, and provided with a nut, *i*, substantially as described.

3. The combination, with the direct and return tubes of a condenser, and a bend or manifold connecting them, of a stud or pin, *o*, projecting inwardly from the bend or manifold, and a bar or support, O, with which it engages, extending across the shell or body on the inner side of the bend or manifold, substantially as and for the purpose specified.

4. The combination, with the direct and return tubes of a condenser and bends or manifolds arranged one within the other, and connecting said tubes, of a stud or pin, *o*, projecting inward from the inner bend or manifold, and a bar or support, O, with which it engages, and which extends across the shell or body inside the inner bend or manifold, and a stud or pin, *o'*, projecting inward from the outer bend or manifold, and engaging with a socket, *o²*, on the inner bend or manifold, substantially as and for the purpose described.

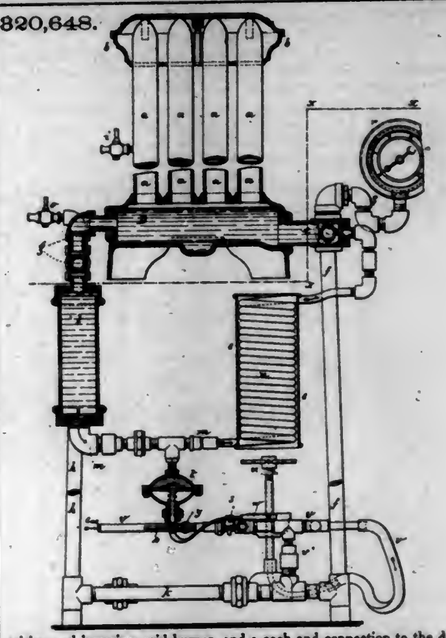
5. The combination, with the shell or body A and the head A², containing separate steam-chambers arranged one above another, of the direct and return tubes, and the couplings H, each comprising a number of branches, *g*, with which the tubes are connected, and which are in the same horizontal plane, and a single branch or extension, *h*, externally screw-threaded, and provided with a nut, *i*, and each having the diaphragm or partition *g'*, substantially as described.

320,648. PORTABLE HEATING APPARATUS. CHARLES D. P. GIBSON, Jersey City, N. J., assignor to A. & W. S. Carr Company, New York, N. Y. Filed May 27, 1884. (No model.)

Claim.—1. The combination, with the radiator-pipes and base and the pipes *e g*, of the circulating-cylinder *l* and pipe *m*, and the coil *n*, connecting the pipes *e g*, and a burner for heating the coil, a case and diaphragm acted upon by the pressure in the apparatus, a cock for regulating the supply of combustible material, and connections from said diaphragm to said cock and to the burner, whereby the supply of gas or fluid is regulated and the burner raised or lowered by the pressure upon said diaphragm, substantially as specified.

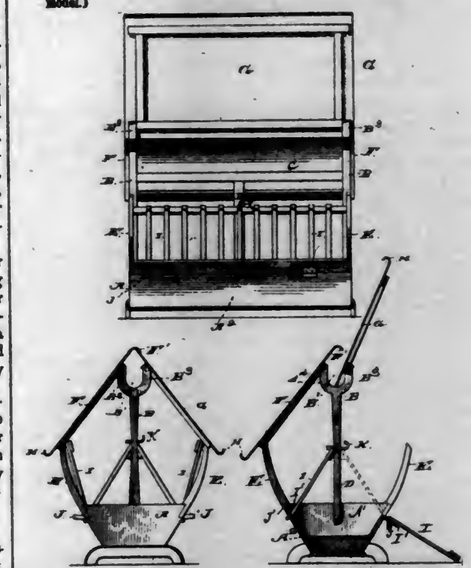
2. The combination, with the radiator-pipes and base and the pipes *e g*, of a heating-coil, a case for the same, and pipes connecting said coil to the radiating-pipes and base, a burner, and a lever and diaphragm for

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raising and lowering said burner, and a cock and connection to the diaphragm to admit the burning gas or fluid, substantially as set forth.

320,649. SHEEP-RACK. SAMUEL GILLOGLY, Keifer, assignor of one-half to Abraham Lynn, Blue Rock, Ohio. Filed Dec. 12, 1884. (No model.)



Claim.—1. In a sheep-rack, the combination, with the main trough having its ends projected upward, of the rack-frames pivoted at their lower edges to the main trough, and provided at said edges with grain-troughs having their ends open and capable of adjustment between and out from the end boards of the main trough, substantially as set forth.

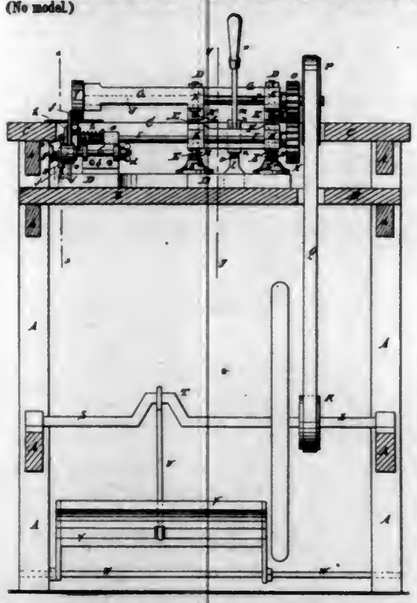
2. In a sheep-rack, the combination, with the main frame having end boards, A', of the slat frame provided with a trough having open ends and pivoted to swing, substantially as described, whereby the open ends of the trough may be closed, as set forth.

3. In a sheep-rack, the combination of the main trough, the standards B, the section F, provided with ridge-flange F', and the section G,

pivoted to the standard and having its upper edge movable to and from the under side of flange F', substantially as set forth.

4. The combination of the main trough provided with arms E, the standards B, provided in their upper ends with recesses B', forming arms B^2 B^2, the roof-section F, supported at its lower edge on arms E, and having its upper edge extended over recess B, and provided with a ridge-flange, F', and the section G, pivoted to arms B^2, and extended at its upper edge above such arms, and movable down into recess B', or up against the flange F', substantially as set forth.

320,650. MACHINE FOR CUTTING CLOTH, LEATHER, AND OTHER SUBSTANCES. CHARLES GOETTLER, New York, N. Y. Filed Oct. 11, 1884. (No model.)



Claim.—1. The combination, with the horizontal shaft J, mounted in fixed bearings and provided with the feed-roller Y, of the vertically-adjustable horizontal shaft I, provided with longitudinally-adjustable feed-roller X, means for rotating said shafts, and a knife held adjacent to the outer sides of the said rollers and at right angles to their shafts, substantially as set forth.

2. The combination, with the bed-plate D, provided with the vertical rods E E, of the upper horizontal bar, G, rigidly secured to the upper ends of the rods E, the lower horizontal bar, F, loosely mounted on the said rods below the bar G, springs H, interposed between the bar F and the bed-plate to move said bar vertically, the shafts J I, journaled in the fixed and adjustable bars, respectively, and a knife held adjacent to the outer sides of the said rollers and at right angles to the shafts thereof, substantially as set forth.

3. The combination, with the bed-plate D, the vertical rods E, the fixed bar G, shaft J, feed-roller Y, of the vertically-adjustable bar F, the shaft I, journaled therein, the box *u*, the feed-roller X, held to rotate with and slide on its shaft, the spring Z, interposed between the bearing *a* and the feed-roller, and a knife held adjacent to the outer sides of the rollers and at right angles to their shafts, substantially as set forth.

4. The combination, with the horizontal shafts I J and the feed-rollers X Y, of the bolt *c* in the plane of the said shafts, and provided with an adjusting-nut, *d*, a head, *e*, a slot therein at right angles to the bolt, the knife passed through said slot, and the screw *g*, for securing the knife in position, substantially as set forth.

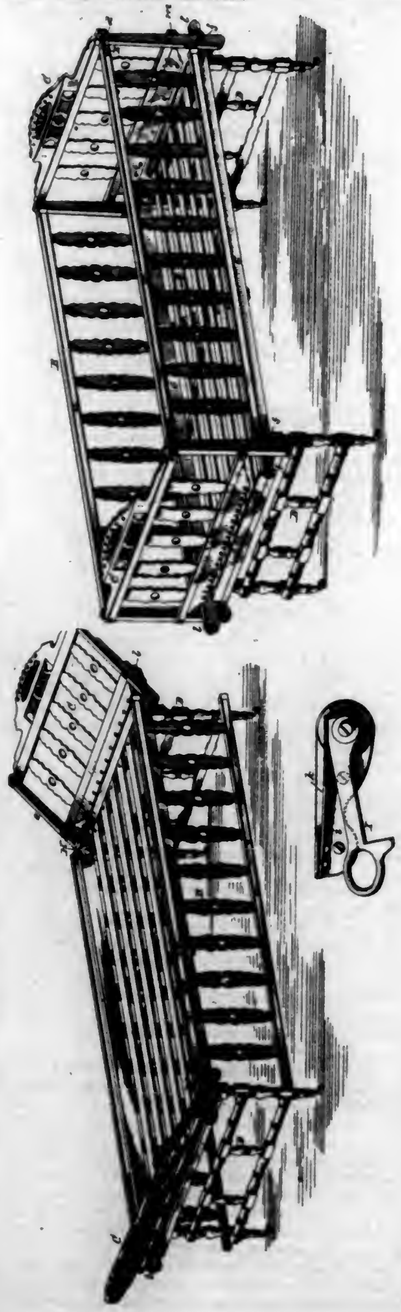
5. In a machine for cutting cloth, leather, and other substances, the combination, with the cylindrical bolt-head *e*, carrying the knife *f*, and the bed-plate D, of the right and left screws *i j*, and the right and left nut *k*, substantially as herein shown and described, whereby the knife can be readily regulated, as set forth.

6. The combination, with the horizontal shafts, the feed-rollers thereon, of a longitudinally-adjustable knife, and pivoted or rocking bearing therefor, and a screw or analogous device for operating said bearing, whereby a double adjustment is afforded the knife, as described.

7. The combination, with the bed-plate, the vertical rods E, and bracket *l* thereon, of the fixed and vertically-movable bars G F, the horizontal shafts J I, and their feed-rollers Y X, the springs H H, the lever *m*, pivoted to the bracket *l*, and also connected with the vertically-movable bar F for depressing said bar and its shaft, and the knife, substantially as set forth.

8. The combination, with shafts J I, having the rollers Y X, of the horizontal bars G F, provided with the bearings K therefor, open at their under sides, the brackets M, projecting from the bars G F, parallel with the bearings K, and set-screws L, extending up through said brackets, the lower movable parts of the bearings interposed between the shafts and the set-screws, as described, and a knife or cutter, substantially as set forth.

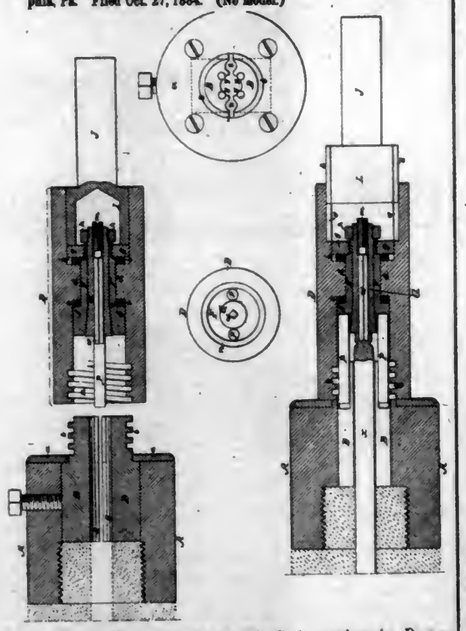
320,651. CRIB, SETTEE, AND LOUNGE. SAMUEL HALL, Bloomfield, N. J. Filed June 2, 1884. (No model.)



Claim.—1. A combined crib, settee, and lounge consisting of a body-frame, folding side sections and folding end sections, and the longitudinal bars extending some distance beyond the ends of the body-frame to provide a stop and support for the end sections to retain them at an acute angle when in use as a lounge, substantially as and for the purpose set forth.

2. In a combined crib, settee, and lounge, a body-frame having its side bars extending beyond the ends thereof and provided with folding legs held extended by spring-latches consisting of a pivoted catch held against the legs by a spring bearing on the pivoted end of the catch, in combination with the folding side sections, the hinges pivoted thereto and connected to the body-frame, and means for holding the end sections in an upright position, consisting of a slotted hook and spring-catch to engage therewith, substantially as and for the purpose specified.

320,652. DRIFTING DEVICE FOR LATHES. JOHN HALL, Philadelphia, Pa. Filed Oct. 27, 1884. (No model.)



Claim.—1. The combination of a chuck, A, a tool-carrier, D, movable from and toward said chuck, a drifting-tool, *w*, and a chuck therefor capable of rotating in the tool-carrier, as set forth.

2. The combination of a chuck, A, a tool-carrier, D, movable from and toward the same, a drifting-tool, *w*, a chuck therefor, free to turn in the carrier, and mechanism, substantially as described, whereby said chuck is caused to turn in unison with the chuck A, as specified.

3. The combination of the chuck A, having openings *t*, the tool-carrier D, movable from and toward the chuck, the drifting-tool *w*, and a chuck for the latter free to turn in the carrier, and having projecting pins *p*, adapted to enter the openings *t* in the chuck A, as set forth.

4. The combination of the chuck A, having a screw-threaded projection, *b*, the tool-carrier D, having a screw-thread, *n*, adapted to that of the chuck, a drifting-tool, *w*, and a chuck therefor free to turn in the carrier, as set forth.

5. The combination of a rotating chuck, A, with the hardened steel pins *y*, contained in but projecting from longitudinal openings in the jaws of the chuck, and having a keying effect upon the work held in the chuck, as set forth.

320,653. SHEET-METAL-BENDING MACHINE. CHRISTOPHER C. HARE, Kansas City, Mo. Filed Oct. 2, 1884. (No model.)

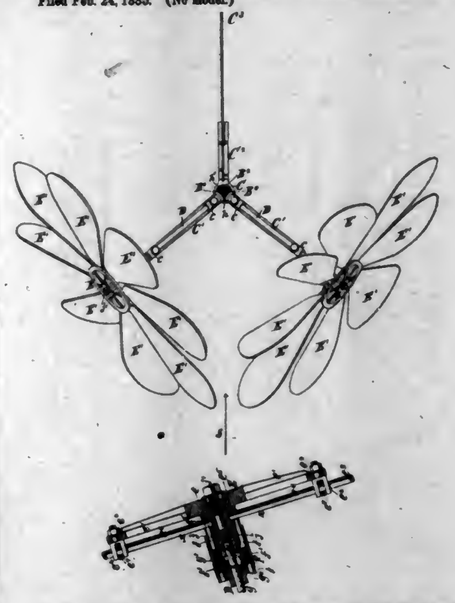


Claim.—1. The combination, with the clamp, of a folding jaw or leaf having a folding edge or former, and a second folding-leaf for bending the metal over the aforesaid former, said second leaf and clamp being relatively adjustable, substantially as set forth.

2. The combination, with the clamp A B and the folding-leaf C, having the former E, substantially as described, of the folding-leaf F, pivoted to the front of the jaw B, so as to be capable of being turned back, as set forth.

3. The combination, with the clamp A B and the folding-leaf C, having the former E, of the additional folding-leaf, F, adjustable in length, and having a brace for supporting it in any desired position, as set forth.

320,654. WIND-MOTOR. THOMAS J. HARRISON, Brooklyn, N. Y. Filed Feb. 24, 1885. (No model.)



Claim.—1. The combination, in a wind-motor, of two shafts and bearings wherein said shafts are arranged at an angle to each other, as described, two wheels on said shafts, each wheel having sails supported by pivots which are radial to its shaft, a frame supporting said wheels and shafts, and a central shaft with which the two wheel-shafts are geared and to which they transmit motion, substantially as herein described.

2. The combination, in a wind-motor, of two shafts and bearings wherein said shafts are arranged at an angle to each other, as described, two wheels on said shafts, each wheel having sails supported by pivots which are radial to its shaft, a vane arranged midway between said angular shafts, a central shaft with which the wheel-shafts are geared, and a frame supporting said wheels and their shafts and said vane, and which is mounted to turn on a vertical axis, substantially as herein described.

3. The combination, in a wind-motor, of a wheel consisting of a frame or spider, and sails having radial pivots supported in said frame or spider, a shaft for said wheel, a sliding sleeve on said shaft provided with bolts or pins for locking the sail-pivots, and connections through which said sleeve may be moved to lock the sails while the motor is in operation, and also moved to unlock the sails, substantially as herein described.

4. The combination, in a wind-motor, of a wheel consisting of a spider or frame, and sails, each composed of a frame which is prolonged to form a pivot radially supported in the said spider or frame and a covering for the said frame, and locking devices consisting of sliding bolts arranged transversely to the said pivots and engaging with said pivots to lock the sails, substantially as herein described.

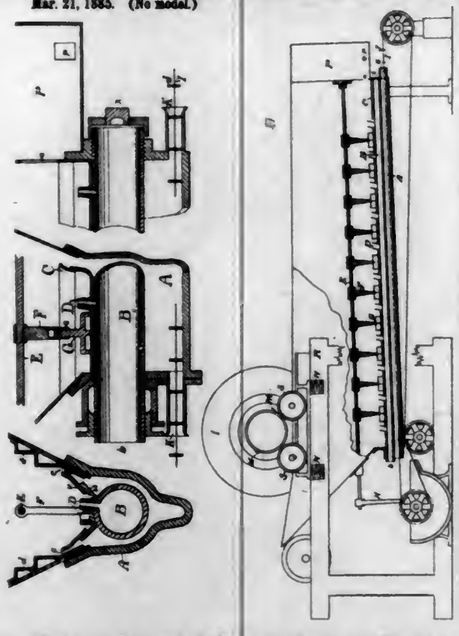
5. The combination, in a wind-motor, of a wheel comprising pivoted sails, a shaft therefor, a hollow upright shaft with which the wheel-shaft is geared, a sleeve upon the wheel-shaft provided with spring-actuated pins or bolts for locking the sail-pivots, a sliding rod within the upright shaft, and connections between the upper end of said rod and the sliding locking-sleeve, whereby the same may be moved to lock and unlock the sail-pivots, substantially as herein described.

6. The combination, in a wind-motor, of a wheel-shaft, a wheel having sails supported by pivots radial to said shaft, a sliding rod, *g*, extending lengthwise of the shaft, and the sleeve F, with its spring-actuated locking-bolts *f*, adapted to engage with the said pivots, and which is con-

nected with the said rod, whereby the sails may be locked and unlocked by a lengthwise movement of said rod, substantially as herein described.

7. The combination, in a wind-motor, of a hollow wheel-shaft, D, a wheel having sails supported by pivots radial to said shaft, a sleeve, F, sliding upon said shaft and provided with spring-actuated locking-bolts *f* for engaging the said pivots, a rod, *g*, within the shaft and connected with the sleeve, and a spring, *j*, for moving the rod and sleeve to unlock the sails, substantially as herein described.

320,655. MACHINE FOR EXTRACTING FROM PULVERIZED ORES GOLD AND SILVER. JACOB L. HAYWARD, Framingham, Mass. Filed Mar. 21, 1885. (No model.)



Claim.—1. In a tank, the bottom (or bottoms or valleys) A, in combination with the supply-pipes B, false bottom C, and conveyers I, to run the entire length of tank 2, having spaces between the sides of each valley and the supply-pipe B to admit the free discharge of mercury as may pass through the longitudinal spaces *c c* into the bottom beneath.

2. The supply-pipe B, with orifices D D at short intervals throughout its entire length and passing through the bottom or valley A, and in combination with false bottom C, substantially as and for the purposes set forth.

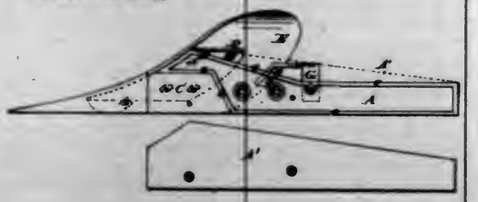
3. The false bottom C, in combination with the pipe B and valley A, arranged to leave longitudinal spaces or opening *c c* between its outer edges and amalgam plates *d d* on the sides of the valley or valleys of the tank, substantially as and for the purposes set forth.

4. The conveyer I, in combination with false bottom C, pipe B, and valleys A, substantially as and for the purposes set forth.

5. The combination of the bearings of the friction-wheels S, resting upon springs N, and the projections M on the trunnions of the cylinder 1, and cylinder 1, and tank 2, provided with amalgamated plates, substantially as and for the purposes set forth.

6. The combination of tank 2, cylinder 1, tailings-tank P, valley A, false bottom C, conveyers I, pipe B, with orifices D, rock-shaft E, arms F, fingers G, jar motion M, and tubes K, substantially as and for the purposes set forth.

320,656. PLOW. WILLIAM H. HODGSON, Winona, Minn. Filed Sept. 23, 1884. (No model.)

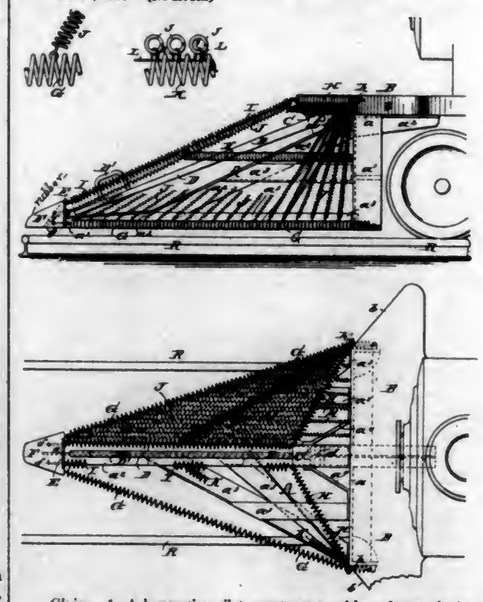


Claim.—1. The landside portion A of the plow-frame, constructed with a recess or pocket, *b*, in combination with the short bar C of the share, essentially as described.

2. The combination, with the share B and the landside A, having a pocket or recess, *b*, in it, of the short bar C, extended backward as described and arranged to fit within said pocket or recess, and whereby the same bolt or bolts that hold the landside-plate are also made to hold said bar, substantially as specified.

3. The combination of the dead-lay D with the share B, the landside A, landside-plate A', and the short bar C, arranged to extend back of the junction of the landside-plate with the share, and united with the landside-plate, essentially as described.

320,657. LOCOMOTIVE-PILOT. FRANK B. HOBBS, Buffalo, N. Y. Filed Jan. 15, 1885. (No model.)



Claim.—1. A locomotive-pilot constructed with a frame sloping downward to each side and tapering forward, and an elastic covering supported over the frame, and consisting of coiled springs arranged to receive the shock of collision lengthwise, so as to be stretched thereby, substantially as herein set forth.

2. The combination, in a locomotive-pilot, of the frame A, consisting of plates or bars attached to the buffer-beam B and to each other, a forward plate, E, and springs G H I J K M, and the push-bar D, all constructed and arranged substantially as herein set forth.

3. The combination, in a locomotive-pilot, of the frame A, consisting of plates or bars attached to the buffer-beam B and to each other, the forward plate, E, elastic nose-piece or buffer F, and springs G H I J K M, and the push-bar D, substantially as herein set forth.

4. A locomotive-pilot constructed with a sloping and tapering spring-covering, which directly receives the shock of collision, and is connected to a buffer-beam, B, having its ends cut away at *b*, to incline backward from the adjacent spring-surface of the pilot, substantially as herein set forth.

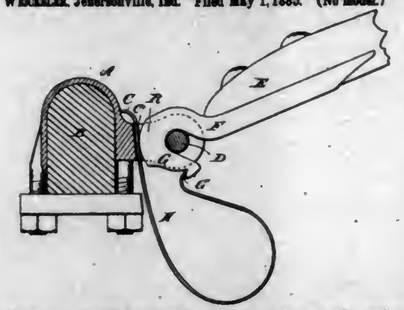
320,658. PANTALOON-PROTECTOR. FRANKLIN R. HOGEBOOM Brooklyn, N. Y. Filed Feb. 2, 1884. (No model.)



Claim.—1. A pantaloon-holder consisting of a flat plate provided on its inner face with clasping tongues or tangs and on its upper edge with a hook, substantially as herein shown and described.

2. A pantaloon-holder consisting of the plate A, having bent and pointed ends *d*, and provided with the clamping-tangs *c* on its inner surface, and the upwardly-projecting hook *e*, substantially as herein shown and described.

320,659. THILL-COUPLING. GEORGE H. HOLBROOK and MATHIAS J WECKELER, Jeffersonville, Ind. Filed May 1, 1885. (No model.)

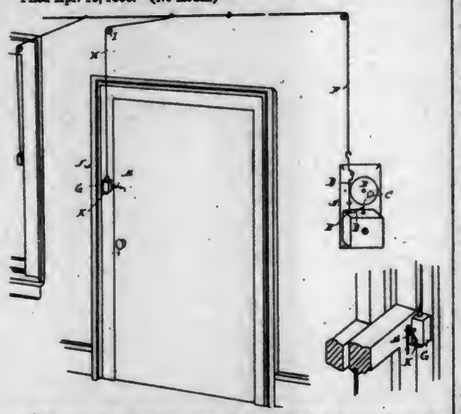


Claim.—1. A thill-coupling hook having a downwardly-projecting lug, provided in its lower end with a notch or recess for receiving the end of a spring, substantially as herein shown and described.

2. The combination, with an axle-clip provided with jaws, and a bolt held in the said jaws, of a thill-coupling hook having a downwardly-projecting prong provided with a recess, and of a spring held between the jaws of the clip and having its free end resting in the recess in the said hook, substantially as herein shown and described.

3. The combination, with the clip A, having jaws C and the bolt D, of the spring H, held between the jaws C, and having lateral projections H' at its upper end, which spring has its lower end curved, and the coupling-hook F, having a downwardly-projecting lug, G, provided with a recess or notch, G', at its lower end, substantially as herein shown and described.

320,660. BURGLAR-ALARM. ALEXANDER JACOBS, St. Clair, Mich. Filed Apr. 15, 1885. (No model.)



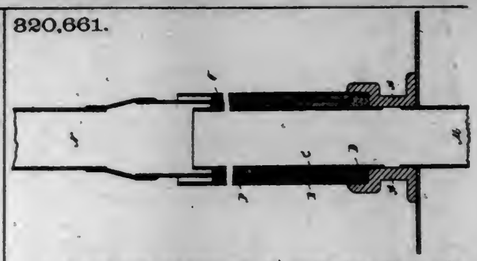
Claim.—1. In a burglar-alarm, the combination of a weight-supporting platform arranged in proximity to a door or window, a weight attached to the operating-cord and supported by said platform, and a rod arranged in the path of the weight, whereby the opening of the door or window moves the weight from its platform, substantially as and for the purpose specified.

2. In a burglar-alarm operating as described, the combination of the weight G, staple K, sliding rod M, and alarm-cords H I, all combined and operating as described.

320,661. GAS-TIGHT EXPANSION-JOINT. DEMING JARVIS, Detroit, Mich. Filed Mar. 18, 1885. (No model.)

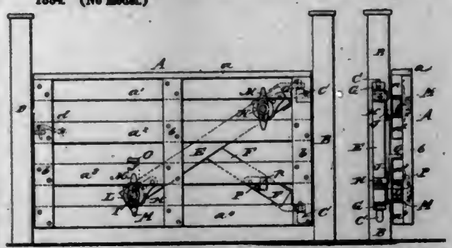
Claim.—1. In a gas-proof expansion-joint for the purposes described, the combination of the collar A and the pipe-joints B C, secured thereto and forming an annular cup, with the top of the inner rim lower than that of the outer one, the pipe-joint O, forming a dividing-diaphragm in the upper portion of said cup, and the packing P, substantially as described.

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2. In a gas-proof expansion-joint, the combination, with the collar A, having annular internal shoulder, as shown, and threaded above and below said shoulder, the pipe B, secured to said collar above its shoulder, the pipe C, secured to the collar below said shoulder, with its top below the top of the pipe B, and forming an annular chamber, D, between said pipes, and the pipe O, projecting into said chamber and dividing it into an inner and outer section, and the packing P in said chamber, substantially as described.

320,662. GATE. PAUL T. KEEGAN, Albany, Wis. Filed Dec. 16, 1884. (No model.)



Claim.—1. The herein-described gate-hanging crane, consisting of the forwardly-inclined bar E, the rearwardly-inclined bar F, secured to the bar E at or about the middle of its length, the rollers K L, journaled in the ends of the bar E, the guide-bar J, having flange O, secured on the pivot of the lower roller, L, the keeper P, secured to bar F, and the eye portion G of a gate-hinge on the ends of the said bars, substantially as specified.

2. The combination, with the gate A, post B, and crane E F, of the hinges C G, the rollers K L, supported by axles I and guard-bars J M, and the lower bar, J, having the flanges O overhanging the gate-rail, substantially as herein set forth.

3. The combination, with the gate A, post B, and crane E F, of the hinges C G, rollers K L, supported by axles I and guard-bars J M, and the keeper P, fixed to the crane-bar F, substantially as herein set forth.

4. The combination, with the gate A, post B, and crane E F, of the hinges C G, rollers K L, supported by axles I and guard-bars J M, the lower bar, J, having the flange O, and the keeper P, fixed to the crane-bar F, all constructed and operating substantially as herein set forth.

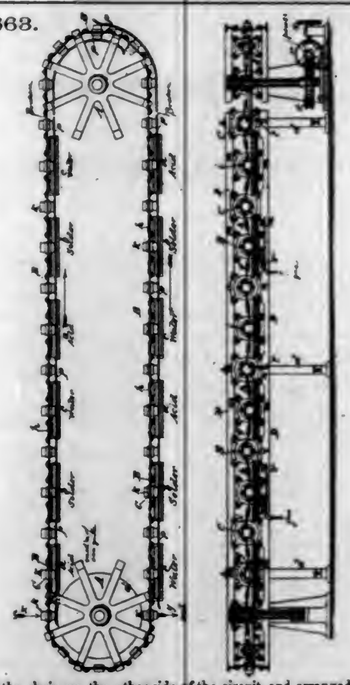
320,663. CAN-SOLDERING MACHINE. FRANK M. LEAVITT, Brooklyn, assignor to Eliphalet W. Bliss, New Utrecht, N. Y. Filed May 7, 1885. (No model.)

Claim.—1. A can-soldering machine consisting of an endless chain or ring of can-holders movable in a closed or endless circuit, and adapted to rise and fall intermittently as they advance, and partly revolve at intervals, in combination with a series of soldering-troughs, one half arranged on the inside of the ring on one side of the circuit in relation with one end of the cans, and the other half arranged on the outside of the ring on the opposite side of the circuit in relation with the opposite end of the cans, substantially as herein set forth.

2. In a soldering-machine, an endless chain or ring of intermittently rising and falling and rotary can-holders movable in a closed or endless circuit and disposed in an inclined or oblique plane, in combination with a series of soldering-tanks arranged in two tiers, one tier being placed at the bottom of the incline on the outside of the ring, and the other tier at the top of the incline on the inside of the ring, and in operative relation with the ends of the cans carried by the can-holders, substantially as herein set forth.

3. In a soldering-machine, the combination, with an endless chain, of linked can-carriages movable in a closed or endless circuit and provided with can-holders carrying cans radial to the circuit, in combination with a series of soldering-troughs, one half arranged on the inside of the chain on one side of the circuit, and the other half placed on the

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outside of the chain on the other side of the circuit, and arranged in operative relation with the can-holders, substantially as herein shown and described.

4. In a soldering-machine, the combination of an endless chain of linked can-carriages, a fixed guiding-track on which the train moves, a propelling device to advance the chain in said track in a continuous manner, with two sets of soldering-troughs, one set placed within the chain on one side of the circuit and the other set placed without the chain on the opposite side of the circuit, arranged and operating substantially as and for the purpose set forth.

5. In a soldering-machine, the combination of an endless chain of linked can-carriages, a fixed endless guiding-track in which the same moves, a propelling device to advance the chain in said track in a closed or continuous circuit, rotary can-holders in said carriages, holding the cans radial to the circuit, and two sets of soldering-troughs, one set placed within the chain on one side of the circuit, and the other placed without the chain on the other side of the circuit, substantially as shown and described.

6. The combination, with the inclined frames *d*, the inclined chain-wheels A, the guiding-tracks D, and an endless chain of can-holders moving therein around the wheels, of the level troughs *a b c*, placed in two tiers in relation with the two sides of the chain, substantially as herein shown and described.

7. A soldering-machine formed by the combination, with the endless chain, of linked carriages B, indented or zigzag guiding-track D, rotary can-holders C, cams *t u*, and soldering-troughs, arranged substantially as set forth.

8. The combination of the chain-wheels A, the endless chain of linked carriages B, rotary can-holders C, guiding-track D, cams *t u*, and troughs *a b c*, arranged and operating substantially as shown and described.

9. The combination, with the endless chain, of linked carriages B, rotary can-holders C, guiding-track D, guard-rails *p*, and troughs *a b c*, arranged and operating substantially as and for the purpose set forth.

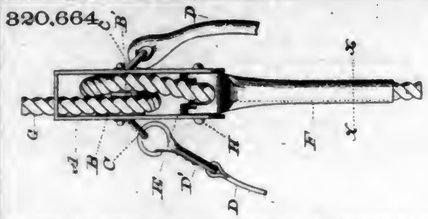
10. In a soldering-machine, the combination, with a progressive can-carriage, of a rotary can-holder revolvable in the carriage, one part having a notch into which a projection on the other part falls when the holder is rotated to bring one side of the can into position for soldering, substantially as herein set forth.

11. In a can-soldering machine, substantially such as set forth, the combination, with the ring-shaped can-carriage B, having the notch *w*, of the rotary can-holder C, arranged and operating substantially as and for the purpose set forth.

320,664. FIRE-ESCAPE. CHARLES G. LEE, Poughkeepsie, N. Y. Filed July 14, 1883. (No model.)

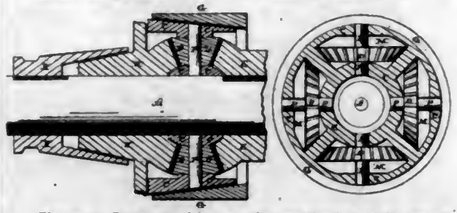
Claim.—In a fire-escape, the brake E and F, in combination with

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the rope, the friction-cylinder, and guide-pin B', substantially as described and shown.

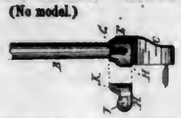
320,665. REVERSING-GEAR FOR TRACTION-ENGINES. ISAAC LEDDER, Sturgis, Mich. Filed May 12, 1885. (No model.)



Claim.—1. In a reversing-gear, the combination of the gear H, wheel C, pinions D, gear E, and a friction clutch or brake which is applied to the wheel C, substantially as described.

2. The combination of the gear H, the wheel C, pinions D, gear E, and the friction-brakes G K, substantially as set forth.

320,666. SEWING-MACHINE. CHARLOTTE LENZ, Cleveland, Ohio. Filed Oct. 6, 1884. (No model.)



Claim.—The combination, with a sewing-machine attachment adapted to be attached to the presser-bar by means of a collar and set-screw, of the plate H, provided with the slots J and K, and the set-screw I, whereby said plate is adjustably secured to the collar of the attachment, for the purpose set forth.

320,667. DRAIN AND DRAIN-TILE. FRANCIS M. MARQUIS, Zanesfield, Ohio. Filed Oct. 3, 1884. (No model.)

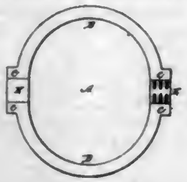
Claim.—1. The combination of a drain-tile which is composed of segmental sections with blocks which are adapted to be placed between the bearing-edges of said sections for the purpose of increasing the capacity of the tile, substantially as described.

2. The combination, with a drain-tile which is composed of segmental sections provided with bearing-flanges, of blocks which are adapted to be placed between said bearing-flanges for the purpose of increasing the capacity of the tile, substantially as described.

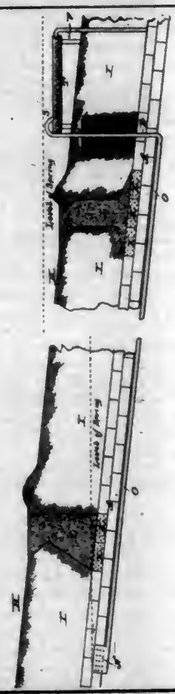
3. A subterranean drain which is provided with perforated sections, shafts which extend from said perforated sections to the surface, and which shafts are filled with sand, gravel, or other suitable filtering material, and dams which are located at the lower side of said shafts, for the purpose set forth, substantially as described.

4. The combination, with a subterranean drain, of a perforated section which forms a part of the drain, and a water-pipe which is connected to said section and which extends along the drain, the lower end of said pipe being bent upward and brought above the surface of the ground at a level lower than its upper end, substantially as described.

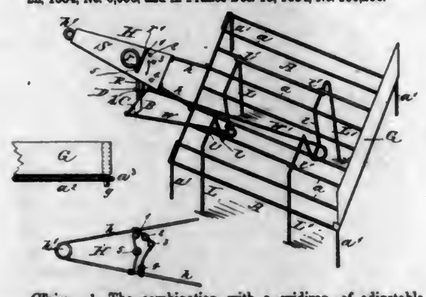
5. The combination of a subterranean drain which is provided with a perforated section which forms a part of the drain, a water-pipe which is connected to said perforated section, and which extends along the drain, the lower end of said pipe being brought above the surface of the ground, a tank which is located beneath the discharge end of the pipe, and a drain-pipe which connects the tank with the drain, substantially as described.



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320,668. BROILER. ANTOINE M. L. MATHIOLY, L'Isle-en-Jourdain, France. Filed Sept. 12, 1884. (No model.) Patented in England Apr. 22, 1884, No. 6,656, and in France Dec. 18, 1884, No. 159,250.



Claim.—1. The combination, with a gridiron, of adjustable legs whereby said gridiron may be adjusted vertically relatively to the source of heat, for the purpose specified.

2. The combination, with a gridiron, of a detachable guard-plate, G, applied to one end of the gridiron, substantially as and for the purpose specified.

3. The combination, with a gridiron provided with fixed supporting-legs, of adjustable auxiliary legs of greater length than the fixed legs, for the purpose set forth.

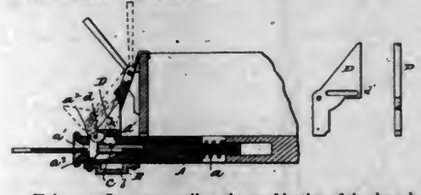
4. The combination, substantially as herein described, with a gridiron, of adjustable legs, an operating-rod connected with said legs, and a stop for locking the legs in position when adjusted, for the purpose specified.

5. The combination, substantially as herein described, with a gridiron, of adjustable legs, a cross-head, connecting-rods for connecting said legs with the cross-head, and a stop for locking the cross-head into position, for the purpose set forth.

6. The combination, substantially as herein described, with a gridiron and its handle, of four adjustable legs arranged in pairs, a cross-head, connecting-rods for connecting the legs in pairs to opposite ends of the cross-head, an operating-rod for rotating said cross-head, and stops formed on or secured to the handle for locking the cross-head in position when adjusted, for the purposes specified.

7. The combination, substantially as herein described, with the gridiron A, its handle H, and the sleeve S, provided with holes 1 2 3 4 5, of the legs L L', the rods W W', the cross-head C, the rod R, and locking-arm r', for the purpose specified.

320,669. CAR-COUPLING. JAS. E. MASKLIN, Baltimore, Ohio. Filed Apr. 16, 1885. (No model.)

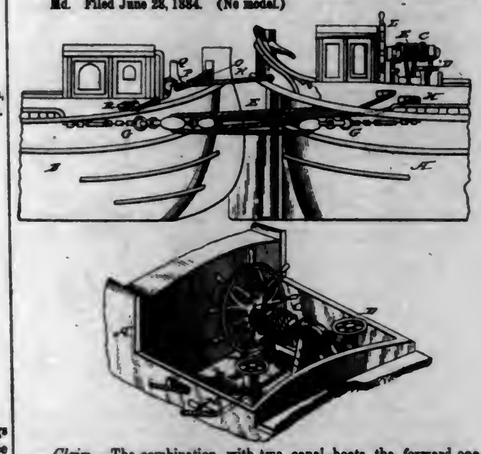


Claim.—1. In a car-coupling, the combination of the draw-head, a coupling-pin pivoted thereto and provided above its pivot with a slot elongated in a direction at approximately right angles to the length of the pin, and a pivoted lever slotted lengthwise, and a stud or pin entering the slot of the coupling-pin and the slot of the lever, substantially as set forth.

2. The combination, in a car-coupling, of the draw-head, the coupling-pin, a transverse shaft journaled above the draw-head, a lever secured to said shaft and connected with the coupling-pin, and a bail-spring passed across the front of the lever coiled on the transverse shaft on opposite sides of said lever and suitably secured, substantially as set forth.

3. The improved car-coupling, substantially as herein described, consisting of the draw-head, the coupling-pin pivoted thereto and provided above its pivot with a slot elongated in a direction at right angles to the length of the pin, the transverse shaft journaled above the draw-head, a lever secured to said shaft and provided at its opposite end with a pin or stud projected into the slot of the coupling-pin, and the bail-spring passed across the lever coiled at its ends on the transverse shaft, and provided with bearing-extensions, substantially as set forth.

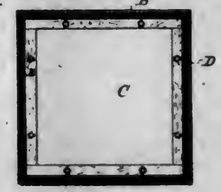
320,670. STEERING CANAL-BOATS. CHARLES MCCABE, Antietam, Md. Filed June 28, 1884. (No model.)



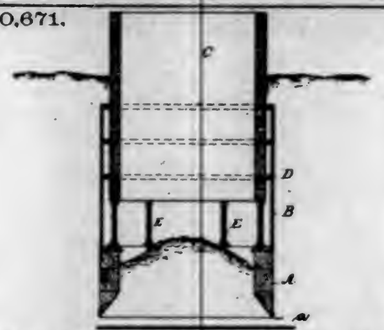
Claim.—The combination, with two canal-boats, the forward one of which is provided with a horizontal windlass operated by the steersman's wheel and a pair of vertical capstans arranged at the sides of said windlass, of a connecting-rope wound at its middle upon the windlass reeved over pulleys attached to both sides of the bow and stern of the boats and secured at its ends to the capstans, as and for the purpose shown and set forth.

320,671. CAISSON OR CRIB. JOHN MCGOVERN, Murphysborough, Ill., assignor of one-half to Peter Joffroy, same place. Filed Aug. 9, 1884. (No model.)

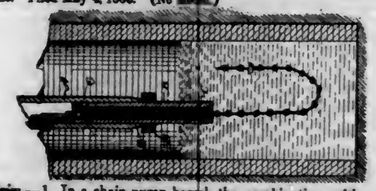
Claim.—The caisson or crib for use in sinking shafts, consisting of the timbered portion A; the extension B, of boiler-iron, made large enough to inclose the permanent walls of the shaft, and the horizontal rib D, extending around the inner surface of the extension B, substantially as set forth.



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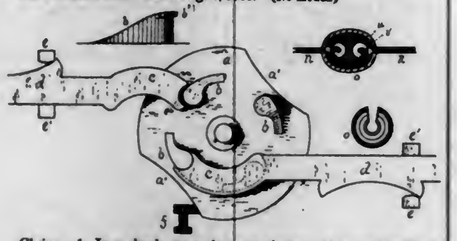
320,672. CHAIN-PUMP BARREL. CHARLES H. MILLER, Columbus, Ohio. Filed May 4, 1885. (No model.)



Claim.—1. In a chain-pump barrel, the combination, with a main tube or barrel of greater interior diameter than the pump-buckets, of an interiorly-arranged sliding or telescopic working-barrel, and means for retaining the latter in any position to which it may be adjusted, substantially as and for the purpose set forth.

2. In a chain-pump barrel, the combination of an upper or main barrel beveled and exteriorly screw-threaded at its lower end, a telescopic or extensible working-barrel fitted in the lower end of said main barrel, and a tapering clamping-nut, substantially as and for the purpose herein set forth.

320,673. CHECK-ROWER FOR CORN-PLANTERS. JAMES H. MONTGOMERY, Elwin, Ill. Filed Aug. 6, 1883. (No model.)

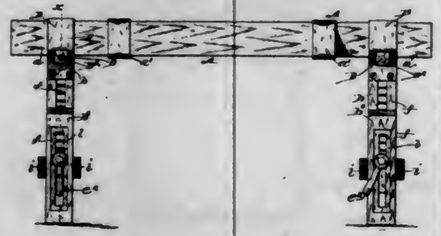


Claim.—1. In a check-rower for corn-planters, the combination of a rotating plate provided with a series of projections, and reciprocating push-bars provided with vertical concavities c'' in their ends adapted to engage with projections of the plate, and also provided with segmental recesses c', that conform to the outline of said projections and effect an absolute stop in the plate when the stroke of the push-bar is completed, as set forth.

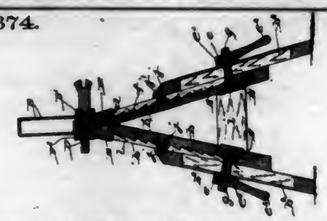
2. In a check-rower, the plate *a*, having inclined projections *b*, provided with rims b', as and for the purpose set forth.

3. In a check-rower, the projections *p*, in combination with drive-bar *e d* and plate *a*, as and for the purpose set forth.

320,674. TRESTLE. GEORGE W. MURRAY, Mount Crawford, assignor of one-half to F. E. Staling, Harrisonburg, Va. Filed May 1, 1885. (No model.)



320,674.

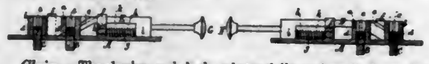


Claim.—1. In a trestle, the adjustable legs having teeth on their outer face, in combination with the stationary legs having beveled studs or projections meshing with said teeth, and a nutted bolt for securing said legs together, substantially as shown and described.

2. In a trestle, the combination of bars *a*, each in part held by a socket, B, and having a socket or keeper, a', and legs b b', vertically adjustable, and stationary legs b^2 b^3, secured together by means of bolts and nuts, substantially as shown and described.

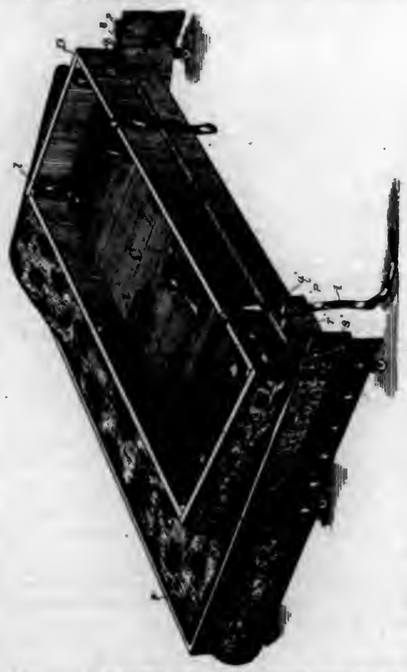
3. A trestle adjustable vertically by means of legs having inclined teeth adapted for reception of a coincident stud or projection rigidly secured to each of the stationary legs, the legs being held rigidly in position and the teeth thereby meshed together by means of nutted bolts, substantially as shown and described.

320,675. SASH-LOCK. THOMAS R. NICHOLS, Lynn, Mass. Filed Apr. 13, 1885. (No model.)



Claim.—The duplex sash-lock, substantially as described, consisting of the support-plate provided with the slide and bolt-guides, the two bolts having studs, as described, and of the two obliquely-grooved bolt-slides, and their impelling-knobs and retracting-springs, all being arranged and applied essentially and to operate as set forth.

320,676. SOFA-BED. WILLIAM OTT, Chicago, Ill. Filed Nov. 17 1884. (No model.)

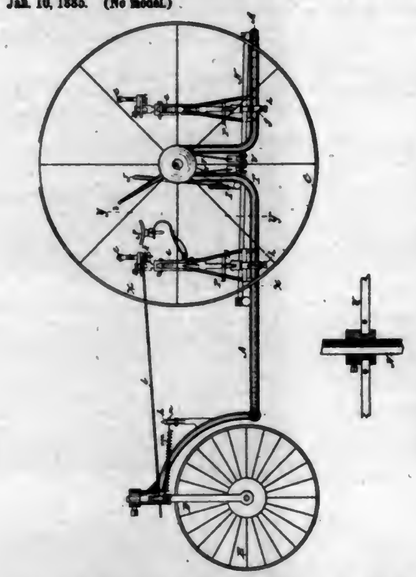


Claim.—1. A sofa-bed in which the seat portion forms the bed and having its back provided with a receptacle for bedclothes and hinged at or near its lower end upon the frame, whereby it may be lowered to remove the bedclothes without moving the sofa-bed from a position against the wall, and raised to permit access to the bed, substantially as described.

2. In a sofa-bed, the back B, provided in its rear side with a receptacle, C, for bedclothes and hinged to the frame of the said sofa-bed, lock mechanism for sustaining the said back when raised to a vertical position, and a suitable handle connected with the said lock mechanism for releasing it to permit the said back to be lowered, substantially as described.

3. The combination, with a sofa-bed, A, of a back, B, hinged to the frame of the said sofa-bed and suitably upholstered on its front side and provided in its rear side with a receptacle, C, for bedclothes, lock mechanism D, for sustaining the said back when raised to a vertical position, a suitable handle, *c*, connected with the said lock mechanism for the purpose of releasing the same from its engagement with the said back to permit the said back to be lowered in a forward direction, and fastening means adjusted upon the said receptacle to sustain the said bedclothes within the same, substantially as described.

320,677. TRICYCLE. THEOPHILUS H. PARSELLE, Malvern, Ohio. Filed Jan. 10, 1885. (No model.)



Claim.—1. The combination, in a velocipede, of a driving-wheel, an axle fixed therein, two clutches fixed on the axle and having teeth on their adjacent ends, the teeth of one clutch facing one way in the circle of revolution and the teeth of the other clutch facing the other way, a spool mounted to revolve freely on the axle between the clutches, having teeth on its ends to engage the teeth of the clutches, and having a circumferential groove in the spool, a spring adapted at one end to engage the said groove, and fixed at the other end to the frame in which the axle is journaled, and means, substantially such as described, to hold the spring in its normal position, or to either one side or the other side thereof, substantially as described, whereby the spool is caused to engage either clutch with a springing action or to be disengaged from both.

2. The combination of a velocipede-axle, two spools and clutches thereon, a rock-shaft beneath and at right angles to the axle, a two-armed lever secured midway upon the rock-shaft, chains or belts connecting the two arms of the lever with the two spools on the axle, another two-armed lever secured upon the rock-shaft, and treadles adjustably secured on the said lever, substantially as shown and described.

3. The combination of a rock-shaft journaled in a velocipede-frame, a two-armed lever secured midway on the rock-shaft, treadles pivoted on the lever-arms, and brace-rods pivoted at one end to the treadles, and pivoted at or near the other end to a fixed portion of the frame above or below the center of the lever, substantially as shown and described.

4. The combination of a rock-shaft journaled in a velocipede-frame, a two-armed lever secured midway on each arm, a treadle pivoted on each block, a rod pivoted at one end to each treadle, and slotted along the other end, and a binding-screw through the slot securing the rods to a central fixed portion of the frame on a pivot, substantially as described, whereby the treadles may be adjusted to increase or decrease the leverage, and the brace-rods may be adjusted thereto while maintaining pivotal connections.

5. The combination of a rock-shaft journaled in a velocipede-frame, a two-armed lever secured midway upon the rock-shaft, a treadle upon each arm of the lever, a second lever pivoted midway upon the frame over the first-named lever, a handle upon each arm of the second lever, and rods connecting the two levers diagonally, substantially as shown and described.

6. The combination of a rock-shaft journaled in a velocipede-frame, a two-armed lever secured midway upon the shaft, a second two-armed lever pivoted midway upon the frame over the first-named lever, rods connecting the two levers diagonally, and pivot-blocks for the ends of the rods made adjustable along the arms of the levers, substantially as shown and described.

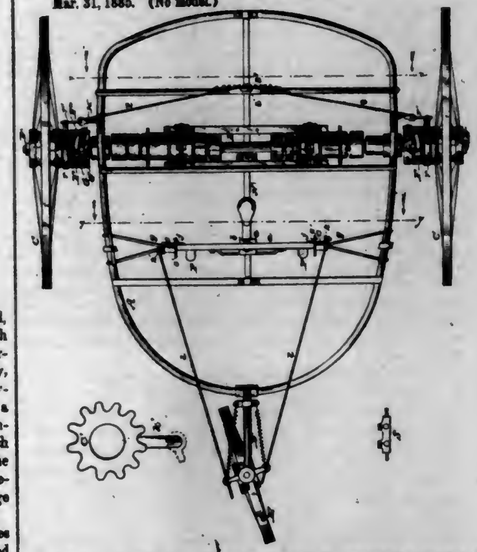
7. The combination of a rock-shaft journaled in a velocipede-frame, and treadles thereon, an axle journaled at right angles to the rock-shaft, a spool and set of clutches on the axle each side of its center, a two-armed lever secured midway upon the rock-shaft beneath the axle, a two-armed lever journaled on the axle, and chains or straps connecting each end of the fixed lever with each adjacent end of the journaled lever, the said chains or straps passing midway over the aforesaid spools, substantially as shown and described.

8. The combination of the rock-shaft N, the foot-lever O, the hand-levers *a*, the diagonal rods *d*, the adjustable blocks *f*, the vertical post *e*, fixed to the frame, and the post *b*, vertically adjustable on the post *e*, the hand-levers *a* being pivoted to the adjustable post *b*, substantially as shown and described.

9. The combination of the frame A, the braced portion *g*, provided with broad ends g', fitted to the said frame, the set-screw *h*, the post *e*, secured to the portion *g*, and provided with a journal-bearing at its lower end, and the post *b*, vertically adjustable in its upper end, substantially as shown and described.

10. The combination of the frame A, the wheel E, the fork D, the lever *a*, the blocks *j*, adjustably secured thereon, the handles *c*, the arms *k*, and the rods *l*, substantially as shown and described.

320,678. TRICYCLE. THEOPHILUS H. PARSELLE, Malvern, Ohio. Filed Mar. 31, 1885. (No model.)



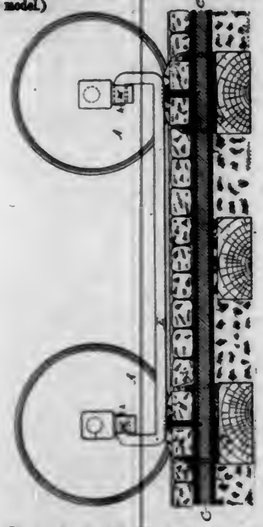
Claim.—1. The combination of an axle, B, journaled to revolve in a carriage-frame, A, wheels C, journaled to revolve upon the axle, collars G', secured thereon, the wheel-hubs provided with teeth F, double pawls G, centrally pivoted to the collars G', and having each two knobs, G^2, beside a central notch, and a spring provided at one end with a nib, F^3, to engage the pawl, and secured at the other end to the collar G', substantially as shown and described.

2. The combination of the post *e*, the extension *b* thereon, the hand-lever *a*, centrally pivoted to the extension *b*, the centrally-pivoted foot-lever O, the blocks *f*, fitted to slide on the lever O, the blocks f^2, fitted to slide on the lever *a*, set-screws for both sets of blocks, and the diagonal rods *d*, connecting the blocks *f* and f^2, substantially as shown and described.

3. The combination of the lever *a*, the spools or handles *c*, journaled thereon, and provided with the teeth c', the lever *k*, provided with the crank *k'*, and the rod *l*, connecting the said crank with an arm of the guide-wheel, as shown and described.

4. The combination of the lever O, the block Q, longitudinally adjustable thereon, the pedal P, pivoted in the block, the rock-shaft S, journaled directly above the pivot of the lever O and provided with holes and set-screws, and the rods R, fitting said holes and pivoted to the pedals, substantially as shown and described.

320,679. ELECTRICAL RAILWAY. WILLIAM PAINTER, Baltimore, Md., assignor of one-half to Lewis R. Keizer, same place. Filed July 3, 1884. (No model.)



Claim.—1. In an electric railway, the combination of the following instrumentalities: a track and a car having an electromotor thereon, a fixed source of electrical energy, a conductor inclosed in insulating material and laid contiguous to the track, a series of exposed contact-points in electrical connection with said conductor, and means for establishing and maintaining electrical contact between said contact-points and the electromotor as the car advances, said connection being made directly with the fixed contact-points and independent of the track on which said car runs, or other permanent exposed conductor, substantially as and to the effect set forth.

2. The means herein described for conducting a power-current to an electromotor on a moving car, consisting of an insulated conductor provided with fixed contact-points arranged at intervals, and a contact-blade attached to said car and in electrical connection with the motor thereon, adapted to slide over and upon said fixed contact-points, whereby electrical connection is established and continuously maintained between the conductor and the electromotor as the car advances, said contact being made directly with the fixed contact-points and independent of the track on which said car runs, or other permanent exposed conductor, substantially as set forth.

3. The means for electrical propulsion herein described, consisting of a wholly insulated conductor buried beneath the surface of the roadway, and provided with a series of exposed fixed contact-pins, the said pins projecting therefrom above the surface of the ground, and successively making direct connection with a contact device attached to the motor-car and in electrical connection with the motor thereon independent of the track or other permanent exposed conductors, said connection being made directly with the fixed contact-points and adapted to span the spaces between contiguous contact-points, whereby electrical connection is established and maintained between the buried conductor and the electromotor, substantially as set forth.

4. An insulated conductor located contiguous to the track, and provided with contact pins and grooved blocks for supporting and protecting said contact-pins, combined with a contact device attached to the motor-car and in electrical connection with the motor thereon, arranged to strike into and through said grooves and make connection with the contact-points successively as the car advances, substantially as set forth.

5. The combination, with the insulated conductor and contact-pins in electrical connection therewith, of grooved blocks having said pins located in the grooves thereof at a distance below the surface of said blocks, whereby the pins are held in place and protected from contact with vehicles, &c., substantially as set forth.

6. An electromotor-car provided with a contact-blade, in combination with an insulated conductor having contact-pins in electrical connection therewith, and a block for inclosing said pins, having a flaring groove, whereby the blade is directed into said groove, and the escape of dirt and foreign substances is facilitated, substantially as set forth.

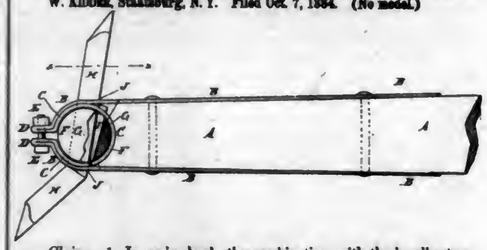
7. A grooved block of insulating material adapted to resist wear of street traffic, combined with a contact-pin seated in the groove thereof, substantially as and for the purpose set forth.

8. The grooved stone block with rounding top, in combination with the contact-pin seated in the groove therein, substantially as and for the purpose set forth.

9. An insulated conductor, contact-pins in electrical connection therewith, and insulating-blocks for supporting and protecting said pins, in combination with means for attaching the blocks to the tie or sill to sustain said blocks in fixed position with respect to the track, substantially as set forth.

10. In combination with an insulated conductor and a series of fixed contact-pins in electrical connection therewith, a yielding contact device attached to the motor-car and in electrical connection with the motor thereon, and adapted to make electrical connection directly and continuously with said contact-pins, substantially as set forth.

320,680. ICE-HOOK. GEORGE W. PALMER, New York, and GEORGE W. KIDDER, Staatsburg, N. Y. Filed Oct. 7, 1884. (No model.)

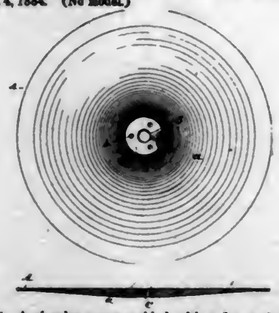


Claim.—1. In an ice-hook, the combination, with the handle-strap B, having socket C, lugs D, and apertures J in its middle part, and provided with a clamping-bolt, E, of the cylinder F, having aperture G, the prong H, and the wedge-key I, substantially as herein shown and described, whereby the said prong can be firmly secured in place and can be readily adjusted, as set forth.

2. In an ice-hook, the handle-strap B, made substantially as herein shown and described, with socket C, lugs D, and apertures J in its middle part, and provided with a clamping-bolt, E, whereby the said handle-strap is adapted to receive and hold adjustably a prong-holding cylinder and its prong, as set forth.

3. In an ice-hook, the cylinder F, made substantially as herein shown and described, with an aperture, G, to receive and hold detachably a prong and its fastening wedge-key, as set forth.

320,681. CIRCULAR SAW. WILLIS J. PERKINS, Grand Rapids, Mich. Filed Apr. 4, 1884. (No model.)



Claim.—1. A circular saw provided with a flat surface on one side and on its opposite side with a stiffening-flange formed integral therewith, the said flange having a plane portion about the eye of the saw, and tapered from said plane portion to the saw-teeth, substantially as herein described, and for the purpose set forth.

2. A circular saw provided with a series of perforations around the eye, with a flat surface on one side, and on its opposite side with a stiffening-flange formed integral therewith, the said flange having a plane portion about the eye of the saw, and tapered from said plane portion to the saw-teeth, substantially as set forth.

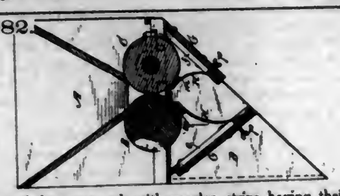
3. A circular saw provided with a stiffening-flange formed integral with the saw-plate, said saw being provided with a threaded eye for securing the saw to the arbor, substantially as set forth.

320,682. COTTON-SEED CRUSHER. THEODORE A. PERRY, Plymouth, N. C. Filed Sept. 5, 1884. (No model.)

Claim.—1. In a cotton-seed crusher, two revolving rollers, a discharge-chute, and a suitable hopper, in combination with suitable supporting-brackets for said rollers, which are cast with flanges upon their inner sides, arranged as shown, for attaching thereto the chute-boards, and at their vertical edges with outwardly-projecting clamping-plates, for connecting the crusher to the cotton-gin, substantially as and for the purpose set forth.

2. In a cotton-seed crusher constructed substantially as described, the combination, with the rollers and scrapers consisting of flat springs

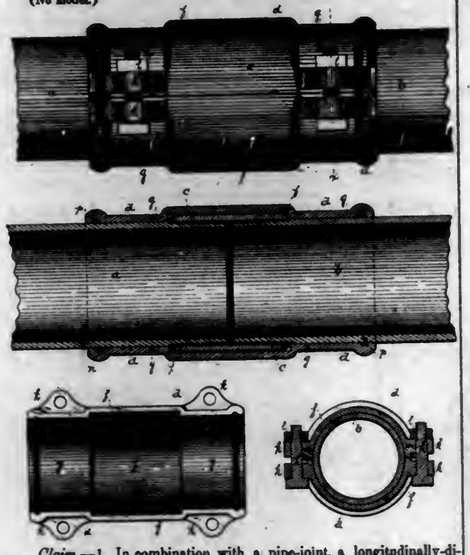
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provided at their upper ends with wooden stripe having their edges metal-faced, of suitable set-screws for regulating the pressure of the scrapers, substantially as and for the purpose described.

3. A cotton-seed crusher comprising a suitable hopper, two rollers, means for revolving them at different rates of speed, means for adjusting one of said rollers, brackets cast with flange-plates and clamping-plates, the boards forming the chute, the clamps for the gin, and adjustable scrapers having at their upper ends wooden stripe metal-faced at their edges, substantially as and for the purpose specified.

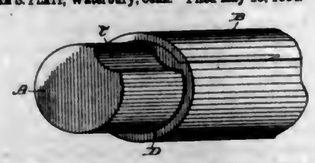
320,683. PIPE-COUPLING. CLARENCE PHILLIS, Pittsburg, Pa., assignor of one-half to J. B. Phillips, same place. Filed Feb. 13, 1885. (No model.)



Claim.—1. In combination with a pipe-joint, a longitudinally-divided cylindrical covering-box having a depression to receive the socket of the pipe-joint, and broad bearing-faces on each side thereof conforming to the body of the tubing and adapted to be clamped around the same, substantially as and for the purposes set forth.

2. In combination with a pipe-joint, a longitudinally-divided cylindrical covering-box having a depression to receive the socket of the pipe-joint, and broad bearing-faces on each side thereof conforming to the body of the tubing, and suitable packing between the edges of the box and the body of the tubing, substantially as and for the purposes set forth.

320,684. METHOD OF MAKING ELECTRICAL CONDUCTORS. WILLIAM S. PLATT, Waterbury, Conn. Filed May 15, 1884. (No model.)

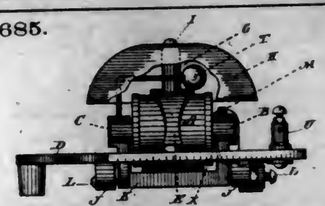


Claim.—The method herein described of making electrical conductors, the same consisting in providing a core of iron or steel having in its face a longitudinal channel, then enveloping said core with a sheath of copper or other suitable material, the edges of said sheath being overlapped and forced within said channel, substantially as set forth.

320,685. ELECTRIC BELL. HENRY B. PORTER, Chicago, Ill. Filed May 15, 1884. (No model.)

Claim.—1. In an electric bell, a single helix secured to the frame

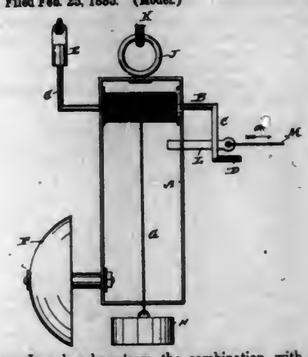
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by a yoke having attached thereto or formed integral therewith an upright post, to which the bell is secured, substantially as set forth.

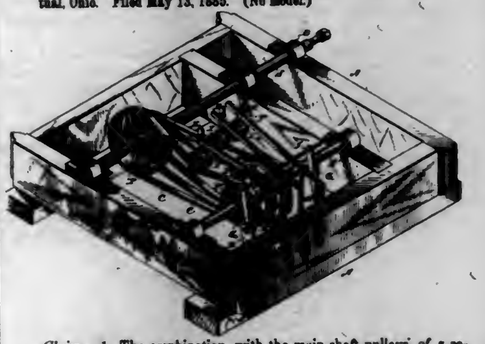
2. In an electric bell, the U-shaped armature pivoted to the frame in a vertical plane and having attached thereto a flexible circuit-breaker and a spring adapted to return said armature to its normal position, in combination with the single helix secured to the frame by a yoke having an upwardly-projecting post adapted to support the bell and the point of contact insulated from the frame and passed through a lug projecting upwardly therefrom, substantially as shown and described.

320,686. BURGLAR-ALARM. MORRIS PRATT, Milton Junction, Wis. Filed Feb. 25, 1885. (Model.)



Claim.—In a burglar-alarm, the combination, with a frame, of a shaft journaled in the same and having a crank on the end of which a ball is secured, of a cord secured to the shaft, a weight secured to the cord, a gong on the frame, and a sliding latch or bolt in the frame adapted to lock the shaft and prevent it from revolving, substantially as herein shown and described.

320,687. DEVICE FOR CHANGING SPEED. JACOB S. PRICE, Mutual, Ohio. Filed May 13, 1885. (No model.)



Claim.—1. The combination, with the main-shaft pulleys, of a series of feed-pulleys, each separate band for said pulleys being provided with an idler adjustably secured to a handle pivoted on an adjustable frame, substantially as and for the purpose set forth.

2. In a feed-device for saw-mills, the combination, with the springs E, of the handles F, mounted upon an adjustable frame, and one or more idlers adjustably secured to said handles, substantially as and for the purpose set forth.

3. The combination, with the handles suitably held at their free ends, of the bars G, adjustably secured to slotted brackets H, whereby said bars can be moved forward or backward toward the belts, substantially as and for the purpose set forth.

320,688. PISTON-ROD PACKING. WILLIAM H. PRINCE, Cleveland, Ohio. Filed Apr. 27, 1885. (No model.)

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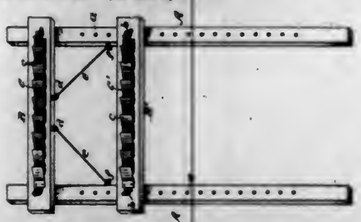


Claim.—1. In a metallic packing for steam-engine piston-rods, the ring A, consisting of sections *e* and *f*, arranged in relation to and in combination with the ring B, consisting of sections *c* and *g*, constructed substantially as described, and for the purpose set forth.

2. A metallic packing for steam-engine piston-rods, the rings A and B, each of which consists, respectively, of sections *e* and *f* and *c* and *g* and case *b*, in which said rings are so fitted that there shall be an annular space between them and the case, and said case having in the sides thereof perforations, respectively, *n n* and *o o*, relatively to the sections of the rings, follower *d*, collar *a*, and gasket, in combination with the stuffing-box and piston-rod, constructed and arranged substantially as described, and for the purpose specified.

3. The combination of the two-part packing-rings A and B, perforated case inclosing said rings, springs *i*, follower and collar *a*, gasket, and stuffing-box, all constructed and arranged in the manner substantially as described, and for the purpose specified.

320,689. PLAITING APPARATUS. OLLIE T. RAWEY, Melissa, Tex. Filed Jan. 31, 1885. (No model.)



Claim.—1. The combination, in a plaiting apparatus, of a fixed transverse bar, a second transverse bar adapted to be adjusted relative thereto, and means for securing the said adjustment, each of said bars being provided with a transverse metallic strip bent to form inclined ribs, substantially as set forth.

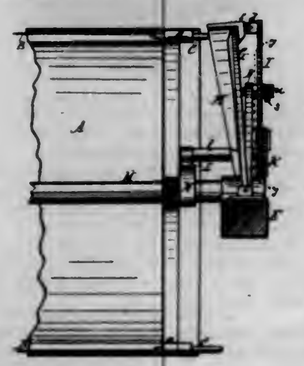
2. The combination, in a plaiting apparatus, of metallic strips bent to present inclined ribs, and spring-clip devices adapted to engage said ribs to hold the material when folded thereon, substantially as set forth.

3. The combination, in a plaiting apparatus, of an adjustable folding frame having two parallel bars provided with metallic strips bent to present ribs, substantially as set forth.

4. The combination, in a plaiting apparatus, of the bars A, having holes *a* therein, the fixed bar B, the adjustable bar B′, provided with pins *b*, the hinged braces *c*, and the metallic strips C and C′, substantially as set forth.

5. The combination, in a plaiting apparatus, of an adjustable folding frame provided with the metallic strips C and C′, bent to present ribs, and clips E, consisting of jaws *i*, centrally pivoted together and provided with the spring *j*, substantially as set forth.

320,690. MESH-CLEANING ATTACHMENT FOR BOLTING-REELS. LEWIS V. RATHBUN, Rochester, N. Y. Filed Mar. 3, 1884. (No model.)



Claim.—1. In a bolting-reel, the combination, with the reel, the cords, and the spring-bolts, of a segment-plate pivoted at its bottom to turn toward and from the end of the reel, a wedging cam-plate pivoted to the segment and moving forward and back with it, and mechanism for giving an intermittent forward and back motion to the segment and cam plate as the reel revolves, as set forth.

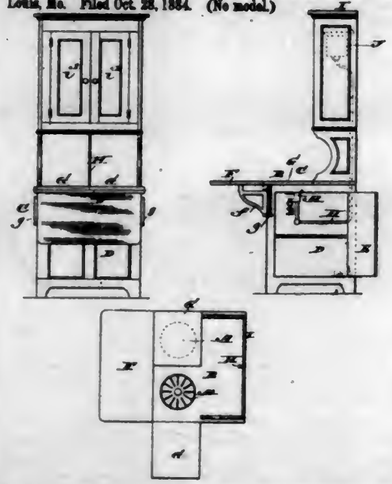
2. In a bolting-reel, the combination, with the reel, the cord, and the spring-bolts, of a segment-plate pivoted at its bottom to turn toward and from the end of the reel, a wedge-shaped cam-plate pivoted to the segment and moving forward and back with it, a gear-wheel which receives motion by the revolution of the reel-shaft, and a cam on the gear-wheel and a lug on the cam-plate, which, by one striking the other, impart the rocking motement to the segment, as set forth.

3. In a bolting-reel, the combination, with the reel, the cords, and the spring-bolts, of the pivoted segment, the wedge-shaped segment, the gear-wheel, the cam on the gear-wheel engaging with the lug on the cam-plate, the pinion engaging with the gear-wheel, and mechanism connecting the pinion with the reel-shaft, whereby motion is imparted to the gearing, as set forth.

4. In a bolting-reel, the combination, with the reel, the cords, and the spring-bolts, of the segment pivoted at its lower end, the cam-plate pivoted to the segment, the gear-wheel provided with a cam which engages with the lug on the cam-plate, the pinion engaging with the gear-wheel, the pawl for giving motion to the pinion, the shaft of the crank to which the pawl is attached extending into the reel, and the arm attached to the shaft and operated upon by a cam on the reel-shaft, as herein set forth.

5. In a bolting-reel, the combination, with the reel and means for striking the reel-cloth, of the gear-wheel I, the cam *d*, the pinion K, made of greater thickness than the gear-wheel, and the forked washers *s s* on the journal of the gear-wheel for adjusting the latter out and in, as set forth.

320,691. CABINET GASOLINE-STOVE. FANNIE C. RAWLINGS, St. Louis, Mo. Filed Oct. 28, 1884. (No model.)



Claim.—1. In a cabinet gasoline-stove, the combination of the cupboard C, having openings in its top, the burners A, situated in said cupboard and under the openings, the supply-pipe H, the reservoir J, and the closet I, supported by the cupboard C, inclosing the reservoir and provided with shelves and doors, substantially as set forth.

2. In a cabinet gasoline-stove, the combination of a cupboard, C, having a stove-top and burners A beneath the same, the pipe H, the oil-reservoir J, and the cupboard I, inclosing the reservoir, isolated from the heating devices of the stove, and provided with shelves and doors, substantially as set forth.

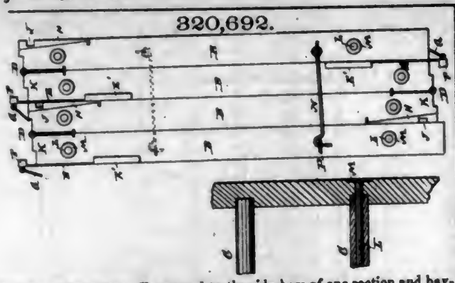
3. In a cabinet gasoline-stove, the combination of a stove-top having openings therein, burners situated beneath said openings, and leaves hinged to said top in line with its upper surface, whereby they are adapted to turn back and fit upon the stove-top and cover the openings, substantially as set forth.

320,692. FOLDING LADDER. JOHN READY, Littleton, N. H. Filed Mar. 20, 1885. (No model.)

Claim.—1. In a ladder-section, the combination, with the side bars B, of the rungs C, the rods I, and the rings M at the ends of the said rods and in the side pieces, substantially as herein shown and described.

2. In a ladder, the combination, with ladder-sections hinged together, of the springs E, secured to the side bars of one section and having heads F, and of the blocks H, secured on the side bars of the adjacent section and having recesses J for receiving the heads on the spring, substantially as herein shown and described.

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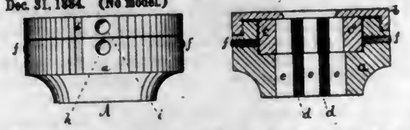


3. In a folding ladder, the combination, with ladder-sections hinged together and having shoulders K formed on the ends, of the springs E, secured on the side bars of one section and having heads F, and of the block H, secured in the side bars of another section and having recesses J, substantially as herein shown and described.

4. In a folding ladder, the combination, with a ladder-section, of the springs E, having the thickened ends E′, and the heads F, substantially as herein shown and described.

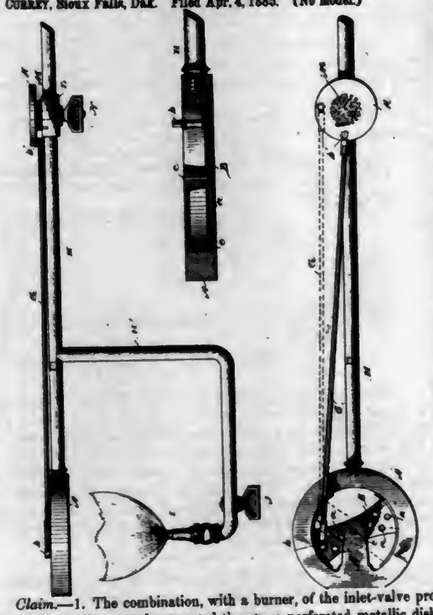
5. In a folding ladder, the combination, with hinged ladder-sections, of the springs E, having heads F, the rings G, and the blocks H, having recesses J, substantially as herein shown and described.

320,693. SCREW-PLATE. GEORGE L. REED, Derby Line, Vt., assignor to Fred D. Butterfield and H. Stewart Haskell, same place. Filed Dec. 31, 1884. (No model.)



Claim.—The combination, with the circular collet having the guiding-jaws *d d* and the rectangular recess for containing the die, of the cap or cover *b*, screwed upon the collet and retaining the die within the recess, substantially as described.

320,694. GAS-EXTINGUISHER. DWIGHT C. RICE and ARTHUR L. CURREY, Sioux Falls, Dak. Filed Apr. 4, 1885. (No model.)



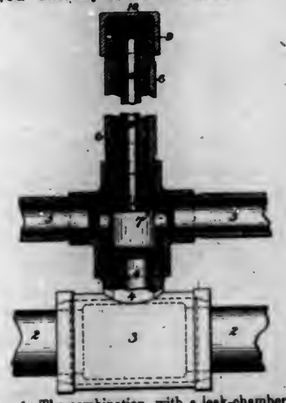
Claim.—1. The combination, with a burner, of the inlet-valve provided with a spring, a rod connected thereto, a perforated metallic disk, and a ring of dissimilar metal, said disk being placed within said ring and connected with said rod, substantially as and for the purpose set forth.

2. The combination, with a burner and valve, said valve being provided with a spring, of a ring and disk of dissimilar metals placed above the burner, said disk being placed within the ring and connected to a rod and valve, whereby, when the gas is extinguished, the ring acts through the intervention of the connecting device to automatically close the valve, substantially as and for the purpose set forth.

3. The combination, with a metal ring, A, secured to the gas-pipe above the burner, of the movable perforated disk B, connected with the inlet-valve by means of a rod and a spring, substantially as and for the purpose set forth.

4. The combination of a burner and a valve, N, provided with a spring, M, with a ring placed above the burner, and a disk with the ring and connection between the disk and valve, whereby the heat of the gas holds the disk in position against the metallic ring, and when cooled permits the spring to turn the valve and shut off the flow of gas, substantially as and for the purpose set forth.

320,695. LEAK-DETECTOR FOR GAS-MAINS. JAMES J. RICKETTS, Pittsburg, Pa. Filed May 11, 1885. (No model.)

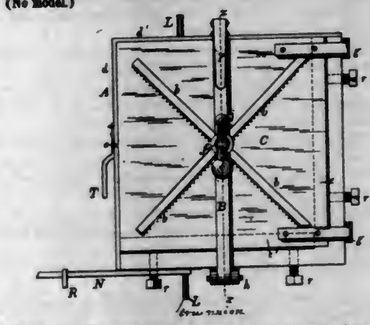


Claim.—1. The combination, with a leak-chamber for collecting leaking gas from an underground gas-pipe, of a leak-detecting pipe leading thence toward the level of the ground, and a valve for opening and closing communication between the leak-chamber and said detecting-pipe, substantially as and for the purposes described.

2. The combination, with a leak-chamber for collecting leaking gas from an underground gas-pipe, of a leak-detecting pipe leading thence toward the level of the ground, a leak-conduit communicating with the chamber and discharging into the open air, and a valve for closing communication between the leak-conduit and the leak-chamber, and opening communication between the latter and the detecting-pipe, substantially as and for the purposes described.

3. The combination, with a leak-chamber for collecting leaking gas from an underground gas-pipe, of a leak-conduit leading thence, and a drop-valve for closing communication between the chamber and the leak-conduit, said valve provided with a hollow stem extending toward the level of the ground, whereby when the leak-conduit is closed from the chamber communication between the latter and the valve-stem is established, substantially as and for the purposes described.

320,696. APPARATUS FOR UNITING WOOD FOR FLOOR-COVERINGS, &c. CHARLES E. RIDER, Rochester, N. Y. Filed May 12, 1884. (No model.)



Claim.—1. The combination consisting of the bed-plate A, having ribs *d d′*, the presser-bars *e e′*, and the removable platen C, substantially as described.

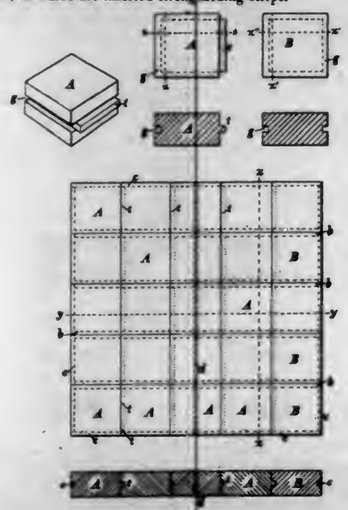
2. The combination consisting of the bed-plate A, having ribs *d d'*, the presser-bars *e e'*, the platen C, and the bar B, substantially as described.

3. The combination consisting of the bed-plate A, having ribs *d d'*, the presser-bars *e e'*, the platen C, and the opening *c*, substantially as described.

4. The combination consisting of the bed-plate A, having ribs *d d'*, the presser-bars *e e'*, the platen C, the opening *c*, and the pivots L L, substantially as described.

320,697. WOOD FLOORING. CHARLES E. RIDER, Rochester, N. Y. Filed Dec. 6, 1884. (No model.)

Brief.—Tile for flooring, consisting of blocks having three sides grooved and one side with a tongue, and other blocks having four sides grooved. Tongues or strips are inserted in the contiguous grooves in the assemblage of blocks, and grooves are cut in the under surfaces of the blocks, in which are inserted strengthening-strips.



Claim.—1. The wood flooring-block A, having three grooves and one tongue, substantially as described, and for the purpose set forth.

2. The combination of the wood flooring-block A, having three grooves and one tongue, with the block B, having four grooves, substantially as described, and for the purpose set forth.

3. The combination of the wood flooring-blocks A A, having each three grooves and one tongue, with the tongues *b b*, inserted into the grooves between the contiguous rows of said blocks, substantially as described, and for the purpose set forth.

4. The combination of the wood flooring-blocks A A, having each three grooves and one tongue, and the blocks B B, having each four grooves, with the tongues *b b*, inserted into the grooves between the contiguous rows of said blocks, substantially as described, and for the purpose set forth.

5. The combination consisting of the wood flooring-blocks A A, having each three grooves and one tongue, the blocks B B, having each four grooves, the tongues *b b*, inserted into the grooves between the contiguous rows of said blocks, and the tongues *c c*, cemented into the grooves presented in the edges of the assemblage, substantially as described, and for the purpose set forth.

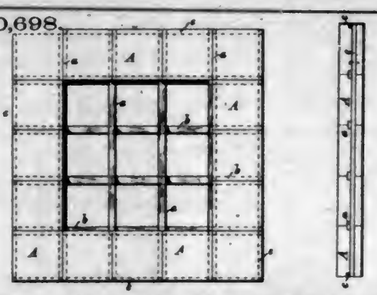
6. The combination of the wood flooring-blocks A A, having each three grooves and one tongue, with the tongues *b b*, inserted into the grooves between the contiguous rows of said blocks, and the tongues *d d*, cemented into grooves cut in the under surface of the assemblage, substantially as described, and for the purpose set forth.

7. The combination consisting of the wood flooring-blocks A A, having each three grooves and one tongue, the blocks B B, having each four grooves, the tongues *b b*, inserted into the grooves between the contiguous rows of blocks, the tongues *c c*, cemented into the grooves presented in the edges of the assemblage, and the tongue *d*, cemented into a groove cut on the under surface of the assemblage, substantially as described, and for the purpose set forth.

320,698. WOOD FLOORING-TILE. CHARLES E. RIDER, Rochester, N. Y. Filed Dec. 19, 1884. (No model.)

Brief.—A wooden tile composed of grooved blocks held in position by cross-keys and tongues cemented in peripheral grooves around the tile.

320,698.



Claim.—1. The combination of the grooved blocks A A and keys *a* and *b* with the tongue *c*, cemented into the peripheral groove of the assemblage, substantially as described, and for the purposes set forth.

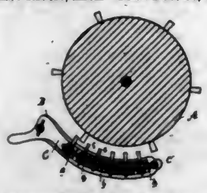
2. As a new article of manufacture, a portable wooden tile consisting of the grooved wooden blocks A A, held in position by the keys *a* and *b* and tongues *c*, the last named being cemented to the peripheral blocks in a groove around the tile, substantially as described, and for the purposes set forth.

320,699. WATCH-KEY. DUDLEY ROBERTS, Waltham, Mass. Filed July 21, 1884. (No model.)



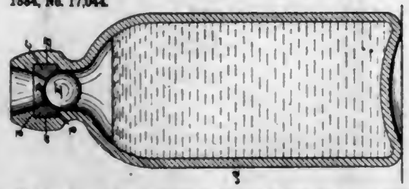
Claim.—A watch-key consisting of the shank or stem *a*, having the conical end, in combination with a cylindrical handle, B, having the recess *b*, such recess corresponding with and receiving the conical end of the shank *a*, and the screw *c*, passing through the handle B into the shank *a*, whereby the stem and handle are held by the contact of their conical end and recess without other instrumentality, all as fully set forth.

320,700. CONCAVE FOR THRASHING-MACHINES. GEORGE A. ROBERTS, Three Rivers, Mich. Filed Nov. 26, 1884. (No model.)



Claim.—A concave for thrashing-machines, comprising a series of hollow cylindrical bars, each carrying teeth on the apex or highest point of its surface, in combination with the dividing-plates *i* and collars *j*, interposed between said plates and the points of nearest approach of the bars thereto, and the tension-bolts *g*, passing through said bars, collars, and plates, substantially as and for the purpose specified.

320,701. BOTTLE-STOPPER. WILLIAM L. ROORBACH, Philadelphia, Pa. Filed Mar. 27, 1885. (No model.) Patented in England Dec. 30, 1884, No. 17,044.

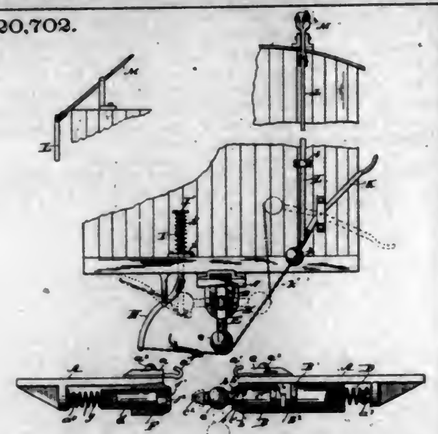


Claim.—As an improvement in the class of internal bottle-stoppers, a stopper, in combination with a bottle having in its neck a groove formed with side, top, and bottom walls, the said top and bottom walls being at or nearly at right angles with the axis of the bottle, and a rubber packing, the outside circumference of which conforms to the shape of the groove, and its inner circumference having a rise from the lower edge to near the center thereof, forming a ridge, both upper and lower edges of said inner circumference being flush with the inner wall of the neck of the bottle, substantially as described.

320,702. CAR-COUPLING. JAMES ARTHUR ROSS, Plymouth, Pa. Filed May 4, 1885. (No model.)

Claim.—1. In a car-coupling, the gravitating draw-bar C, having the arrow-head c^3, weighted arm E, piston C', and lugs c', the cylinder B, having locking-notches *b* and spring D, in combination with the draw-head F, having the mouth *f*, substantially as shown and described.

320,702.



2. In a car-coupling, the gravitating draw-bar C, having the arrow-head c^3, in combination with the draw-head F, having the removable mouth-piece *f'*, provided with the mouth *f''*, substantially as shown and described.

3. In a car-coupling, the gravitating draw-bar C, having the arrow-head c^3, in combination with the draw-head F, having the mouth *f''* and shoulder f^3, and the bumper-piston G, provided with the spring *g*, substantially as shown and described.

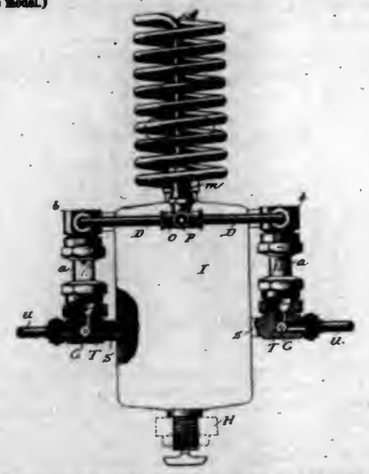
4. In a car-coupling, the cylinder B, formed in two parts, B' B^2, provided with the locking-notches *b*, the gravitating draw-bar C, having the arrow-head c^3, weighted arm E, piston C', and lugs c', and spring D, in combination with the draw-head F, having the mouth *f''* and shoulders f^3, substantially as shown and described.

5. In a car-coupling, the gravitating draw-bar C, having the weighted arm E, in combination with the crank-lever H, connecting-chain A, arm I, and spring *i*, all arranged and operating substantially as shown and described.

6. In a car-coupling, the gravitating draw-bar C, having the weighted arm E, in combination with the hand-lever K, provided with the weight *k* and chain *k'*, connecting the lever and arm E, substantially as shown and described.

7. In a car-coupling, the gravitating draw-bar C, having the weighted arm E, in combination with the lever K, provided with the weight *k*, connecting-chain *k'*, and lifting-rod L, all arranged and operating substantially as shown and described.

320,703. LUBRICATOR. PHILIP L. SCHMITT, Quincy, Ill., assignor to the Peerless Oil Ejector Company, same place. Filed Apr. 10, 1885. (No model.)

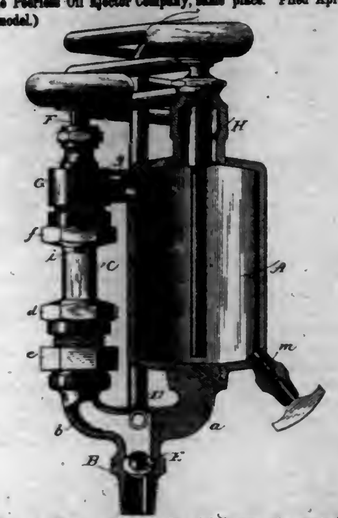


Claim.—1. A lubricator consisting of the reservoir I, a steam-supply pipe connected with a condensing-coil communicating with the reservoir, sight-feed tubes on each side of the reservoir, equalizing branch pipes D, extending from the main supply-pipe P to the caps of the sight-feed tubes, and direct connections between the sight-feed tubes and the parts to be lubricated, substantially as described.

2. In combination, the oil-reservoir of the lubricating-cup, the steam-supply pipe P and its lateral branches D, the sight-feed tubes arranged upon each side of the reservoir condensing-coil, and the regulating-valve *m*, placed in the said pipe A above the junction of the branches D with the pipe P, all substantially as described.

3. In combination with the reservoir of a lubricator-cup, the pipe P and its branches D, the pipe A, extending upward from the junction of the pipes P and D and terminating in a coil wound downward around the said pipe A, and communicating with the reservoir at the top thereof, substantially as described.

320,704. LUBRICATOR. PHILIP L. SCHMITT, Quincy, Ill., assignor to the Peerless Oil Ejector Company, same place. Filed Apr. 10, 1885. (No model.)



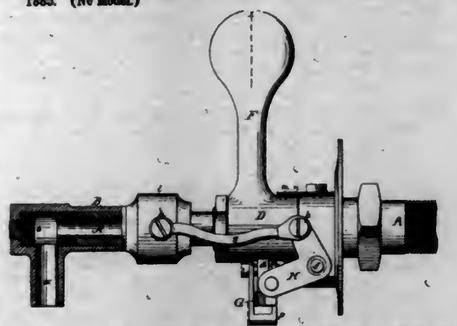
Claim.—1. The combination, in a lubricator, of a central stem, B, adapted to be connected with the steam-space branches *a b*, extending laterally from said stem, the branch *a* being solid and adapted to support the reservoir, and the branch *b* being adapted to support the glass tube arranged parallel with the reservoir, substantially as described.

2. The combination, in a lubricator, of the reservoir A, the stem B, having branch *a* for the support of said reservoir, and branch *b* for the support of the glass tube, arranged parallel to the said reservoir, the pipe D, connected with the stem B, extending upward and coiled about itself, the end of the coil being connected with the reservoir and communicating therewith, substantially as described.

3. The combination, in a lubricator, of the reservoir A, the stem B, having branch *a*, adapted to support the reservoir, and branch *b*, adapted to support the glass tube, the pipe D, extending from the stem B to the upper end of the reservoir, with the branch pipe *l* between said pipe D and the glass tube, all substantially as described.

4. The combination, in a lubricator, of the reservoir, the steam-pipe D, adapted to be connected to a plug, H, said plug having a passage extending through one part thereof for the admission of steam and a second passage for the admission of oil to the reservoir, substantially as described.

320,705. FAUCET. PETER SCHOFIELD, Pomona, N. J. Filed May 18, 1885. (No model.)



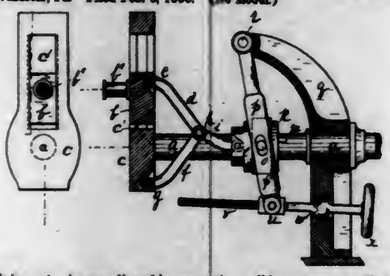
Claim.—1. The combination of the tubular stem of the faucet, the sliding tube B, the levers connected thereto, a cross-bar connected to said

levers, and the sleeve D, having a weighted handle, and a cam for acting on said cross-bar, as set forth.

2. The combination of the tubular stem, the sliding tube, the levers connected thereto, the cross-bar G, and the sleeve D, having a weighted handle, a cam, and a yoke, *p*, as specified.

3. The combination of the tubular stem, the sliding tube, the bell-crank levers connected thereto, and having a cross-bar, the sleeve D, having a weighted handle, and a cam acting on said cross-bar, and a spring-pin for retaining the sleeve in the mid-position, as specified.

320,706. MECHANICAL MOVEMENT. HERMANN SCHULER-BERGE, Rochester, Pa. Filed Feb. 6, 1885. (No model.)



Claim.—1. As an adjustable eccentric, a slide connected with a rotary shaft and movable toward and away from the axis thereof, in combination with a non-rotatory yoke or lever capable of moving the slide during rotation of the shaft, said slide being capable of transmitting motion, substantially as and for the purposes described.

2. As an adjustable eccentric, the combination, with a rotary shaft, of a slide capable of rotating therewith, and movable toward and away from its axis, and provided with a circular surface for transmitting motion, lever-arms connecting with said slide and with said shaft, and capable of imparting the said motion to the slide, and a non-rotatory yoke for actuating the said levers, substantially as and for the purposes described.

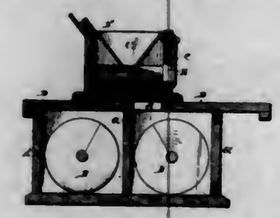
3. As an adjustable eccentric, the combination, with a rotatory shaft, of a slide capable of rotation therewith and movable toward and away from its axis, and provided with a circular surface for transmitting motion, a lever-arm connecting with said slide and capable of imparting said motion thereto, substantially as and for the purposes described.

4. As an adjustable eccentric, the combination, with a rotatory shaft, of a slide capable of rotation therewith and movable toward and away from its axis, and provided with a circular surface for transmitting motion, lever-arms connecting with said slide and with said shaft and capable of imparting the said motion to the slide, a sleeve mounted on the shaft, rotatory therewith, movable longitudinally thereon, and connected with said lever-arms, and a non-rotatory yoke for actuating said sleeve, substantially as and for the purposes described.

5. The combination, with a rotatory shaft, of a slide capable of rotation therewith and movable toward and away from its axis, and provided with a circular surface for transmitting motion, lever-arms connecting with said slide and with said shaft and capable of imparting the said motion to the slide, a sleeve mounted on the shaft, rotatory therewith, movable longitudinally thereon, and connected with said lever-arms, a collar loosely mounted on said sleeve so that the latter may rotate therein, and a non-rotatory yoke connected with said collar and capable of moving the collar and the sleeve, substantially as and for the purposes described.

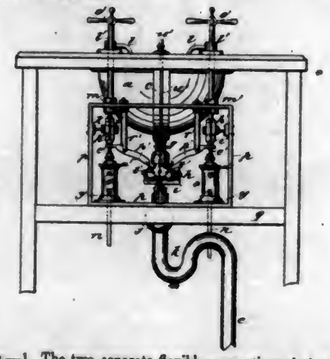
6. The combination, with a rotatory shaft, of a slide capable of rotation therewith and movable toward and away from its axis, and provided with a circular surface for transmitting motion, lever-arms connecting with said slide and with said shaft, and capable of imparting the said motion to the slide, a non-rotatory yoke for actuating said levers, and a screw-shaft gearing into said yoke and capable of moving the same by rotation of the shaft, substantially as and for the purposes described.

320,707. CONVEYER FOR FLOUR-BOLTS AND MIDDLINGS-PURIFIERS. FRED. J. SCHUPP, Marshall, Mo. Filed Mar. 14, 1885. (No model.)



Claim.—In a conveyer for flour and middlings purifiers, the combination, with an elongated hopper, a series of wedge-shaped partitions arranged transversely across said hopper, and hand-holes formed in one side of the hopper between the transverse partitions, of a chest located below the hopper and divided into two compartments by a longitudinal partition, and provided with clearing-doors, and the sliding cut-off gates located between the hopper and the chest, and provided with a single opening, all combined substantially as set forth.

320,708. AUTOMATIC SEAL-TRAP FOR WASH-BASINS AND WATER-CLOSETS. WM. D. SCHUYLER, New York, N. Y. Filed June 25, 1883. (No model.)



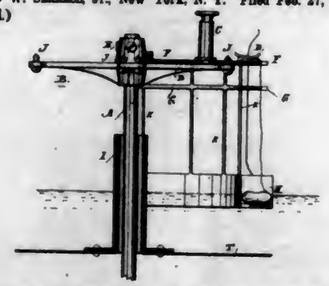
Claim.—1. The two separate flexible connections *t' v'* and the rod *w*, in combination with the lever *i* of the automatic discharge-valve, and the lever *p'* of the inlet valve-stem, as shown and described, whereby the discharge-valve may be operated either in conjunction with or independently of the inlet-valve, as desired, as set forth.

2. The combination, with the operating-lever of a discharge-valve of a wash-basin or other vessel, of the stem *c'* of an inlet-valve provided with a sliding shackle, *h'*, and a lever, *p'*, connected at one end to the inlet-valve stem, and secured at its opposite end by a flexible connection to the operating-lever of the discharge-valve, substantially as shown and described.

3. The combination, with the valve *h*, arranged in the waste-pipe, and the lever *i*, connected to said valve and carrying a weight, *j*, on its free end, of the inlet-valve *t*, valve-stem *c'*, the sliding nut-shackle *h'* on the upper end of the valve-stem, the rod *l'*, having its lower end screw-threaded, and the lever *k'*, having its short arm engaging the valve-stem, of the inlet-valve, and its long arm connected by a flexible connection with the lever *i*, substantially as herein shown and described.

4. The combination, with the frame *p*, the guide-bracket *k'*, provided with the ways *j'*, the shackle-nut *h'*, secured to the inlet valve-stem *c'*, and provided with the tongues *i'* and the rod *l'*, of the support *r'*, the lever *p'*, the chain *t*, the lever *i*, the weight *f'*, and waste-valve *h*, substantially as herein shown and described.

320,709. COCOON-HOLDER FOR SILK-REELING MACHINES. EDWARD W. SERRELL, Jr., New York, N. Y. Filed Feb. 27, 1884. (No model.)



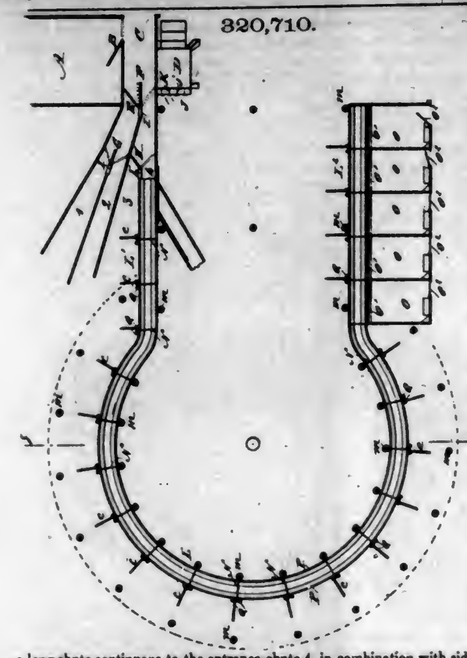
Claim.—1. The combination, with the water-holding vessel and the shaft A, of a sectional magazine formed of separate holders, each containing compartments for cocoons and separately removable, substantially as specified.

2. The combination, with the basin T, central shaft, A, and plate or arms B, of cocoon-holders formed in sections, and each section provided with several compartments for the cocoons, substantially as specified.

320,710. STRUCTURE FOR HANDLING VICIOUS ANIMALS. C. F. SHEDD, Fairfield, Nebr. Filed July 3, 1884. (No model.)

Claim.—1. The walls P P, built parallel with each other to form

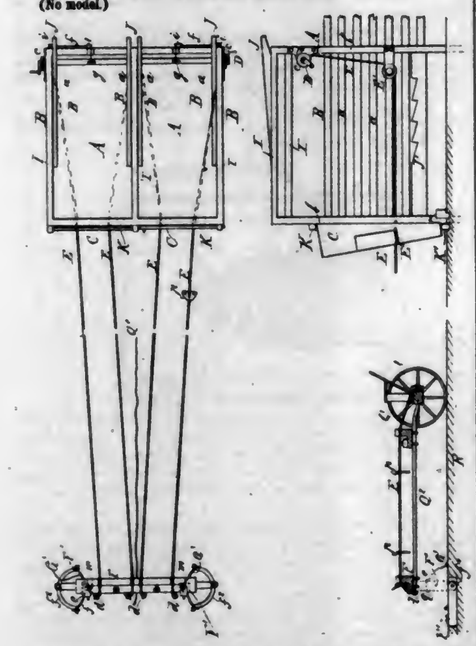
320,710.



a long chute continuous to the entrance-chute 4, in combination with side chutes and gates E F H, for separating the animals, as set forth.

2. The walls P P, made parallel with each other and connected at one end to the walls that inclose the stalls O, and at the other to the entrance-chute 4, the walls P P being provided with gates N, substantially as and for the purposes set forth.

320,711. STALL. C. F. SHEDD, Fairfield, Nebr. Filed Sept. 24, 1884. (No model.)



Claim.—1. A harnessing-stall having the horizontally-swinging doors at its front end provided with slots E', for the purpose set forth, a forwardly-adjustable rear door suspended at its upper end by pivots mounted between the top side rails of said stall, and means for locking the forward doors and also the rear door in its several positions, substantially as set forth.

2. The combination, with the harnessing-stall having slotted doors C and a rear door, of the crank-shaft D, ropes E, and yoke F, substantially as described.

3. The harnessing-stall provided with the swinging and sliding door H, in combination with the notched rods J, for holding the top of the gate, and means, substantially as described, for holding the lower end of the gate, substantially as set forth.

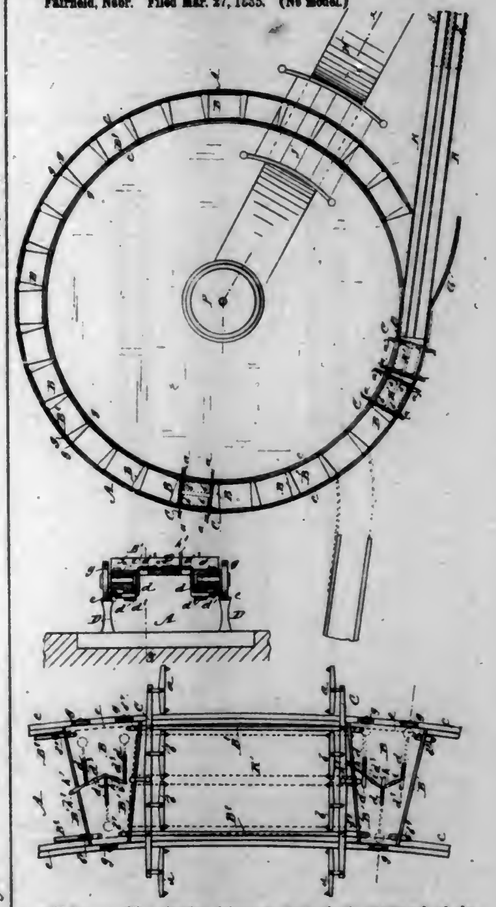
4. The gate H, held to the stall by bar *h*, and adapted to swing and slide, and provided with the follower H' at its lower end, in combination with the notched bars J, substantially as and for the purposes set forth.

5. The stall A, provided with the doors C, and with bars for holding the doors at top and bottom, in combination with means, substantially as described, for operating the holding-bars simultaneously, as set forth.

6. The combination, with the stall A and door C, of the bars K K' and lever L, the ends of the bars K K' being attached to the lever on opposite sides of its fulcrum by the plates *j j'* and cords *k k'*, passing over suitable pulleys, *l*, substantially as described.

7. The neck-yoke F, held by hinged posts F', and ball G', in combination with the stalls A, leading-ropes E, and winding-shaft D, substantially as described.

320,712. DRIVEWAY FOR TRAINING HORSES. C. F. SHEDD, Fairfield, Nebr. Filed Mar. 27, 1885. (No model.)



Claim.—1. The circular driveway or track A, composed of the flanged rails *c*, placed upon the posts D, arranged to form a drive between the lines of posts below the level of the rails, substantially as described.

2. The circular driveway or track A, composed of the circular rails *c*, made in sections, and formed with upper and lower horizontal flanges projecting in opposite directions from the upper and lower ends of the web, substantially as described.

3. The truck B, provided with the arms *d*, in combination with the levers *h h'*, linked together and pivoted at *i i'*, and having the arms *d* attached to them, substantially as described.

4. The combination, with two or more vehicles, B, of the rods B², for coupling the vehicles together, substantially as described.

5. The circular elevated driveway or track A, having the gate G, formed in one side of the track, substantially as and for the purposes set forth.

6. The combination, with the circular track and vehicles B, of the leading-ropes R for guiding the horse to be trained to the track and vehicle, substantially as described.

7. The combination, with two or more vehicles, B, of the side ropes, R' R', leading from one vehicle to the other, substantially as described.

8. The combination, with two vehicles, B, adapted to run upon circular track A, of the side ropes, R', uprights or posts B', and the coupling-rods B², substantially as described.

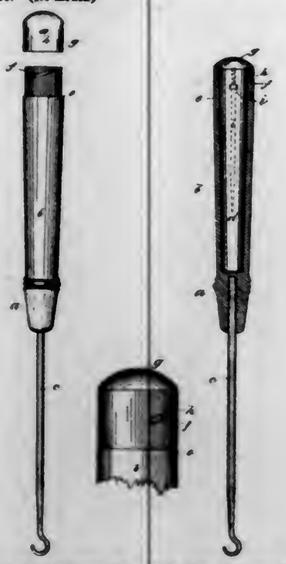
9. The vehicles B, consisting of triangular platforms *e*, each provided with three wheels, *g*, two at one end and one at the other, substantially as herein shown and described.

10. The combination, with two vehicles, B, having plates B', double-trees C, and single-trees *a b*, of the rods B² and ropes R', substantially as shown and described.

320,713. IMPRESSION-SHEET FOR MAKING STEREOTYPE-PLATES. CHARLES A. SEEDS, Westmoreland, Kans. Filed Feb. 23, 1884. (No specimens.)

Claim.—An impression-sheet for forming a matrix or mold for stereotype-plates, that is composed of soft blotting-paper or other fibrous substance impregnated with a mixture of glycerine and plumbago, substantially as described.

320,714. SHOE-BUTTONER. JOHN L. SOMMER, Newark, N. J. Filed Mar. 13, 1885. (No model.)



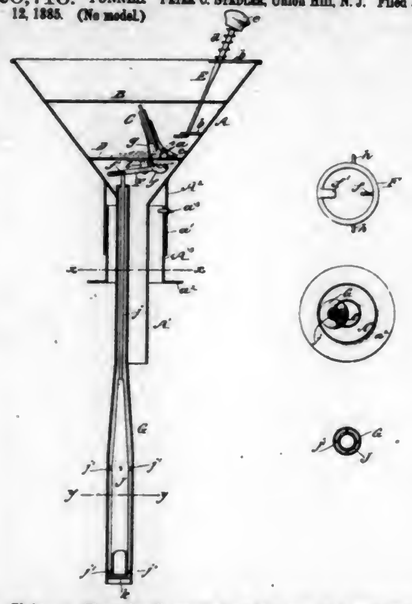
Claim.—In a shoe-buttoner, the combination of a button-hook having a hollow handle, the outer end of the handle being reduced in size and provided with an external inclined groove, with a cap adapted to fit on the outside thereof, having an internal stud to engage in said groove, as and for the purpose set forth.

320,715. CLOSING APPARATUS FOR BOTTLES, &c. HERMANN SPRENGEL, Dantzic, Prussia, Germany. Filed Nov. 13, 1884. (No model.)



Claim.—The combination of a spring-stopper, and catches carried thereby, with a bottle carrying eyes, and a ring, H, to hold the catches in engagement with the said eyes, substantially as described.

320,716. FUNNEL. PETER C. STADLER, Union Hill, N. J. Filed Jan. 12, 1885. (No model.)

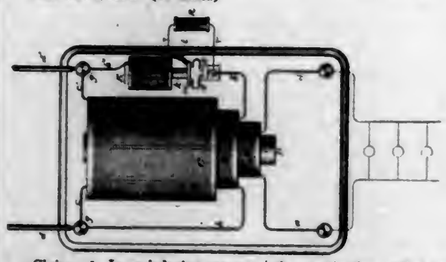


Claim.—1. The valve C, provided with the plate *g*, in combination with the pivoted ring F, provided with the tongue *f* and plate *f'*, and the float J, substantially as and for the purposes set forth.

2. The valve C, provided with the plate *g*, the pivoted ring F, provided with the plate *f'* and tongue *f*, in combination with the float and float-rod, the ring F being pivoted out of center, substantially as and for the purposes set forth.

3. The funnel provided with the tube A^2, and adjustable tube A^3, fitted in the tube A^2, said tube A^2 having a series of adjusting-apertures, *a'*, which receive an adjusting-pin, a^2, entering an aperture in the tube A^3, substantially as and for the purposes described.

320,717. INDUCTION-COIL. WILLIAM STANLEY, Jr., Pittsburg, Pa. Filed Dec. 4, 1884. (No model.)



Claim.—1. In an inducing apparatus, the combination, with a secondary coil in electrical connection with a working-circuit, of two primary coils wound in opposite directions and both in circuit with a source of electrical energy, the one being in a continuously-closed circuit and the other in a circuit adapted to be alternately opened and closed, substantially as set forth.

2. In a system of electrical distribution consisting of a main circuit leading from a generator of electricity and one or more local or work circuits not in electrical connection with the main circuit, the combination, with each of the working-circuits, of an inducing apparatus consisting of two primary coils of wire in electrical connection with the main circuit, a secondary coil located within the magnetic field of the primary coils and in electrical connection with the working-circuit, and means for alternately breaking and closing the circuit through one of the primary coils, substantially as and for the purposes set forth.

3. In an inducing apparatus, the combination of a coil, C, in a continuously-closed circuit with a source of electrical energy, a coil, B, in electrical connection with the same source of energy and adapted to have its circuit alternately broken and closed, and a coil, A, in electrical connection with a circuit containing translating devices, substantially as and for the purposes set forth.

4. In a system of distribution consisting of a main circuit and local or work circuits, the combination, with each working-circuit, of an inducing apparatus consisting of a core, D, a coil, A, in electrical connection with the working-circuit, a coil, B, on an alternately open and closed circuit with the main, and a coil, C, on a continuously-closed circuit with the main, substantially as and for the purposes set forth.

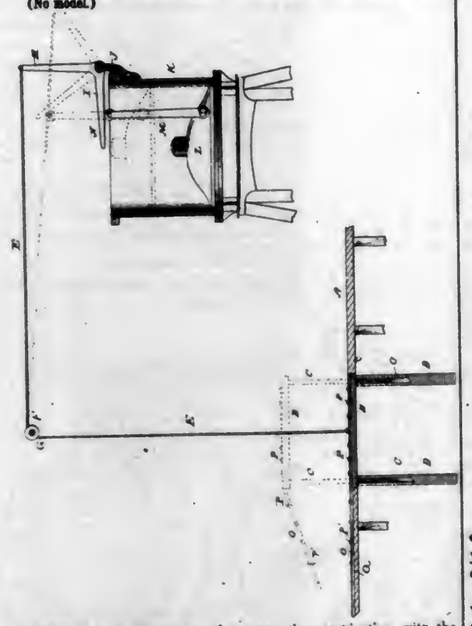
5. In an inducing apparatus, the combination of two coils wound in opposite directions about a central core and both in circuit with a source of electrical energy, the one coil being in a continuously-closed circuit and the other in a circuit adapted to be alternately opened and closed, substantially as and for the purposes set forth.

320,718. CARPENTER'S SQUARE. WILLIAM STEERS, Brattleborough, Vt. Filed Sept. 15, 1884. (No model.)



Claim.—The combination of the blade C, having on its face the graduated arc and at its inclosed end a toothed quadrant-rack, the tangent-screw A, entirely inclosed within the stock B, and the tightening-screw *a*, all substantially as and for the purpose described.

320,719. BALE HEADING AND LIFTING ATTACHMENT FOR PRESSES. SCHUYLER B. STEERS, New Orleans, La. Filed May 14, 1885. (No model.)



Claim.—1. In a cotton or other press, the combination, with the piston or other reciprocating portion thereof, of a hinged platform connected to or forming a part of the floor of the building, and chains, ropes, or their equivalent, connecting the free end of said platform and reciprocating portion of the press, substantially as and for the purpose set forth.

2. The combination, with the piston or other reciprocating portion of a cotton or other press, of a platform having a series of rollers journaled in the upper face thereof, and depending guide and steadying bars or posts, and ropes, chains, or a lever or levers connecting said platform and the vertically-reciprocating portion of the press, substantially as and for the purpose set forth.

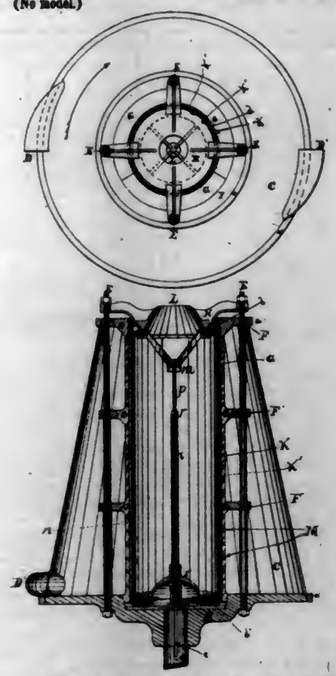
3. The combination, with the piston or other reciprocating portion of a cotton or other press, of a platform arranged in or resting upon the floor, devices connecting said platform and a reciprocating portion of the press, whereby said platform is automatically reciprocated during the operation of the press, and guide bars or posts depending from the under side of the platform for the purpose of supporting said platform and steadying the same during its reciprocatory movement, substantially as and for the purpose set forth.

4. The combination, with a piston or other reciprocating portion of a cotton or other press, of a platform, devices connecting said platform and the reciprocating portion of the press for the purpose of securing the raising of the platform, and rails or bars extending from the platform to afford ways along which the bales may be slid therefrom to a wagon, substantially as set forth.

5. The combination, with the piston or other reciprocating portion of a press, of a platform arranged in or resting upon the floor, and one or more ropes, chains, or levers, or their equivalents, connecting said platform and vertically-reciprocating portion of the press, substantially as and for the purpose set forth.

6. The combination, with the piston or other reciprocating portion of a press, of a platform arranged in or resting upon the floor, ropes, chains, or levers connecting said platform and reciprocating portion of the press, whereby as said portion of the press reciprocates said platform will be raised and lowered, and an inclined guideway to secure the removal of bales from said platform, substantially as described.

320,720. MACHINE FOR FORMING PULP INTO VESSELS OF VARIOUS KINDS. GRENVILLE M. STEVENS, Portland, Me. Filed July 9 1884. (No model.)



Claim.—1. The perforated cylinder G, the rods, and the inner and outer sieves of different textures, in combination with the conical bottom I', yoke H, aperture L, and rods J and *p*, and arms I, the same to be operated as herein set forth.

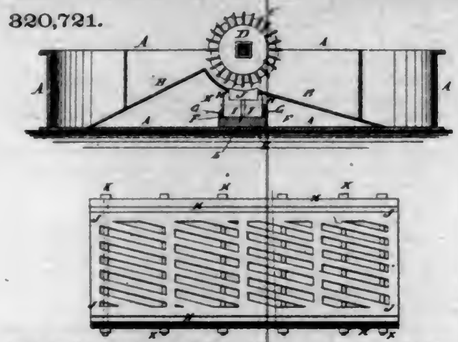
2. In combination with the inner cylinder, G, and its contained devices, the outer cylinder with scuppers D, and the flange B, as herein set forth.

3. The combination, with the cylinder G, of the movable part of the yoke A, arms I, and rods J and *p*, to regulate the height of the vessel to be formed, as herein set forth.

320,721. BED-PLATE FOR PAPER-PULP ENGINES. FREDERICK S. TAYLOR, Riegelsville, N. J. Filed Apr. 20, 1885. (No model.)

Claim.—1. The cast-metal bed-plate J, made with a series of in-

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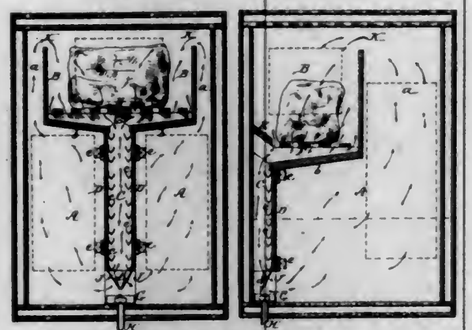


clined slots forming a series of inclined bars and a series of cross-bars, substantially as herein shown and described.

2. The combination, with the cast-metal bed-plate J, of the clamping-bars H, having inwardly-projecting arms I to support the said bed-plate, the wooden bar L, interposed between the ends of the arms I, and the transverse fastening-bolts K, substantially as herein shown and described, whereby the said bed-plate will be firmly supported, securely held in place, and can be readily detached and replaced, as set forth

320,722. REFRIGERATOR. WILLIAM J. TAYLOR, Chester, N. J., assignor to the Ridgway Refrigerator Company, (Limited,) Philadelphia, Pa. Filed Apr. 16, 1885. (No model.)

Brief.—Improvement on Patent No. 159,843, dated February 16, 1875, to J. H. Ridgway.



Claim.—1. The combination, with an ice-box, open at its top and at its bottom, and an air-tight preserving-chamber, of a vertical air-circulating conduit open at its top and at its bottom, having metallic troughs on its inner wall or walls, arranged substantially as described, for the purpose specified.

2. The combination, with an ice-box, open at its top and at its bottom, and an air-tight preserving-chamber, of a vertical air-circulating conduit, C, open at its top and at its bottom, having interior wall-troughs, arranged as described, a cover, E, and a sealed drip-pan, as herein described, for the purpose specified.

3. The combination, with an ice-box and an air-tight preserving-chamber, of a vertical air-circulating conduit formed by one or more solid hinged sides provided with metallic troughs arranged on the inner wall thereof, substantially as described, for the purpose specified.

4. In a closed refrigerating-chamber, an ice-box open at the top and bottom, in combination with metallic troughs carried by a door hinged vertically to the wall of said chamber, so as to be opened within the latter, substantially as described, for the purpose specified.

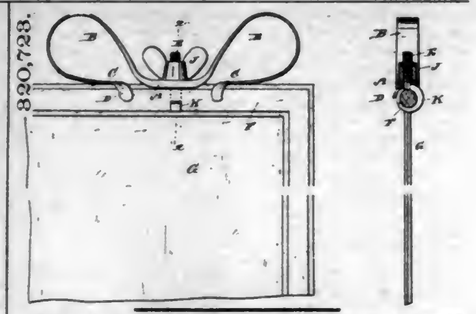
5. The combination, in a closed refrigerating-chamber, of an ice-box open at the top and at the bottom, and a vertical conduit lined with wall-projecting troughs extending from its upper end, opening into said ice-box, to its lower end, opening into said chamber, substantially as described, for the purpose specified.

320,723. REIN-HOLDER. GEORGE O. TEETER, Teeterville, Ontario, Canada. Filed Dec. 13, 1884. (No model.)

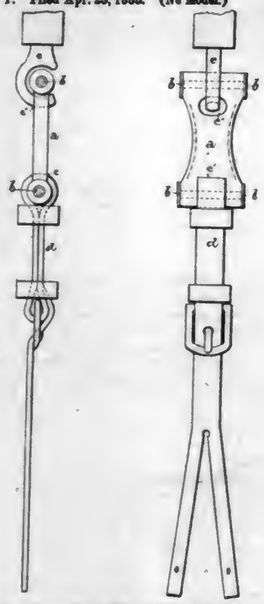
Claim.—1. In a rein-holder, the combination of the spring-strip A, having open loops B, provided with flanges D on the ends of the hook K, and the nut J, substantially as herein shown and described.

2. A rein-holder consisting of a strip having loops B formed of its ends, the said loops each being provided with a flange, D, on the free end, substantially as herein shown and described.

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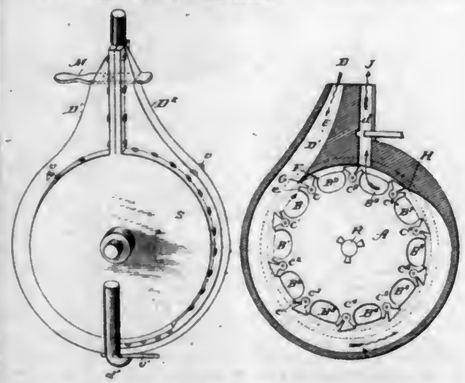


320,724. CHECK-REIN ATTACHMENT. WILLIAM W. THOMPSON, Orient, N. Y. Filed Apr. 23, 1885. (No model.)



Claim.—In combination with a check-rein, the strap *a*, provided with the holes *c' c''*, doubled upon itself, and folded over the rivets *b*, and said rivets, substantially as shown.

320,725. ROTARY STEAM-ENGINE. LINDSAY H. THOMAS, Dubuque Iowa. Filed Feb. 3, 1885. (No model.)



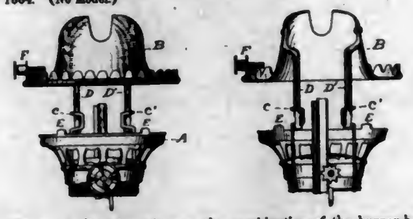
Claim.—1. In a rotary engine, a piston having the series of chambers on its periphery, and a series of valves pivoted in the walls separating the chambers, combined with an induction steam-passage and exhaust-port, all substantially as described.

2. The rotary piston having the series of chambers in its periphery, and the series of valves pivoted in the walls between the chambers, in combination with the steam-passages D' D^2 and the exhaust-port *d'*, all substantially as described.

3. In combination with the rotary piston having a series of chambers in its periphery, a recess between said chambers to receive the pivoted valves, the case consisting of the outer annular shell, N, formed with steam-passages, as described, and the side plates S S, bolted to the annular shell N, all substantially as described.

4. In combination with the rotary piston having a series of chambers in its periphery, recesses between said chambers to receive pivoted valves, a case consisting of the outer annular shell, N, formed with steam-passages, and side plates, S S, bolted thereto, grooves O in the piston-periphery and corresponding to grooves T in the shell N, and an elastic ring fitted to said grooves, all substantially as described.

320,726. LAMP-BURNER. JUDSON R. UNDERWOOD, Meriden, assignor to the Osborn & Cheesman Company, Ansonia, Conn. Filed May 14, 1884. (No model.)

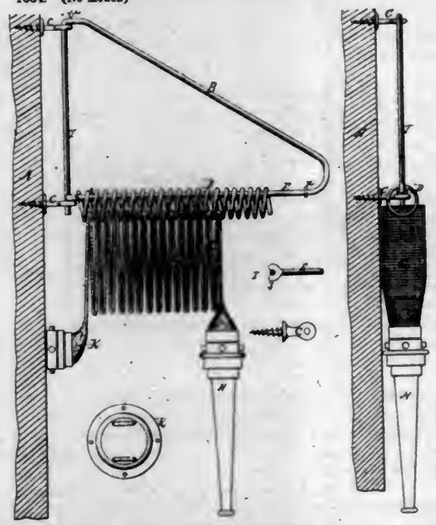


Claim.—1. In a lamp-burner, the combination of the burner-base A, the supporting-standards C and C' of the bent form, substantially as described, secured thereto, and having perforations near their upper ends, the burner-cone B, and the burner-rods D and D', carrying the cone B, and passing through the perforations at the upper ends of the said standards, substantially as described, and for the purpose specified.

2. In a lamp-burner, the supporting-standards C and C', bent at their upper ends and provided with eyes or perforations for engagement with the rods D and D', substantially as described, and for the purpose specified.

3. In a lamp-burner, in combination with the base-plate A, provided with lugs E, the standards C C', secured within said base-plate and provided at their upper ends with a double bend and perforations, as shown, and the cone B, having secured fixedly thereto rods D D', adapted to fit movably in the bent perforated standards, said cone being formed with slots in its base rim to receive the lugs E when the cone is in its lowered position, all substantially as and for the objects specified.

320,727. RACK OR FIRE-HOSE HOLDER. RICHARD VOSE, New York, N. Y., assignor to John C. N. Guibert, same place. Filed July 11, 1884. (No model.)

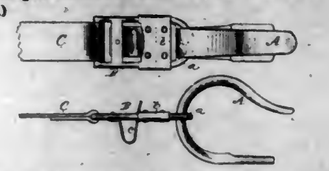


Claim.—1. As a new article of manufacture, a rack or fire-hose holder constructed with swing-arms, spiral spring adjusted on said arm for holding said hose, substantially as described, and for the purpose specified.

2. As a new article of manufacture, a rack or fire-hose holder having arms B, E, and I, the arm E adjusted to be removed from contact with arm I, in combination with spiral D, substantially as described, and for the purpose specified.

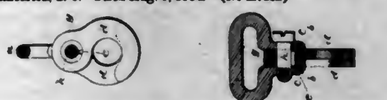
3. As a new article of manufacture, a rack or fire-hose holder having arm N, in combination with bracket, spiral spring, with or without a nozzle-holder, substantially as described, and for the purpose specified.

320,728. CHECK-REIN FASTENER. WILLIAM A. WALES, Plainville, Conn., assignor to Allison N. Clark, same place. Filed Feb. 25, 1885. (No model.)



Claim.—The herein-described check-rein fastener, consisting of the frame B, having the eye *a* at one end, the follower *b*, mounted to slide thereon, and a metal spring acting against said follower to force it toward the rear side of said eye, substantially as described, and for the purpose specified.

320,729. SPRING-JOINT FOR HOOKS, &c. WILLIAM H. WALKER, Charleston, S. C. Filed Aug. 9, 1884. (No model.)

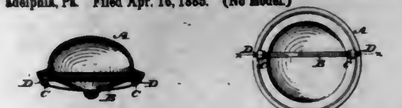


Claim.—1. The combination, with two or more arms or hooks each provided with an opening, of an expansible ring located within said openings and a bolt or device for securing the parts together.

2. The combination, with two or more arms or hooks each provided with an opening, of an outwardly-expanding split metal ring forced into said openings and a bolt or pin for securing the parts together.

3. A device for holding the lugs or arms of hooks, compasses, dividers, &c., in any desired position, consisting, essentially, of a split ring made of spring metal, and adapted to be forced into the openings in said legs or arms and surround the pivot-pin, substantially as set forth.

320,730. BUTTON COVER OR SHEATH. THOMAS F. WALTER, Philadelphia, Pa. Filed Apr. 16, 1885. (No model.)

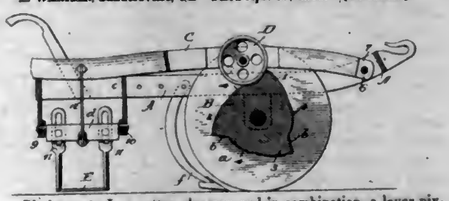


Claim.—1. A sheath or cover for a button, consisting of the body A, provided with a spring, B, extending across the back of said body, and having its ends secured to said body, substantially as described.

2. A sheath or cover for a button, consisting of a body provided with a spring extending across the back thereof, the ends of said spring being loosely secured in ears attached to the said body, substantially as described.

3. A sheath or cover for a button, consisting of a body, A, having ears C, secured thereto on opposite sides thereof, and provided with a spring, D, having its ends loosely secured in ears C, substantially as described.

320,731. COTTON CULTIVATOR AND HOE COMBINED. RICHARD L. WARTHEN, Sandersville, Ga. Filed Apr. 15, 1885. (No model.)



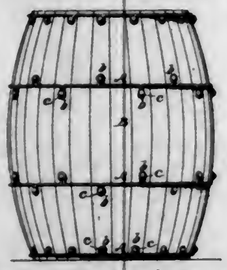
Claim.—1. In a cotton-chopper, and in combination, a lever pivoted at one end, means for reciprocating vertically the lever, a rock-shaft carrying a chopping-blade, and suitable connections between the rock-shaft and the free end of the lever, all substantially as described.

2. In a cotton-chopper, and in combination, a lever reciprocating vertically, a rock-shaft arranged longitudinally of the machine, or in the direction of its motion, a cutting or chopping blade attached to the rock-

shaft, and suitable connections between the said shaft and the lever, all substantially as described, and for the purpose set forth.

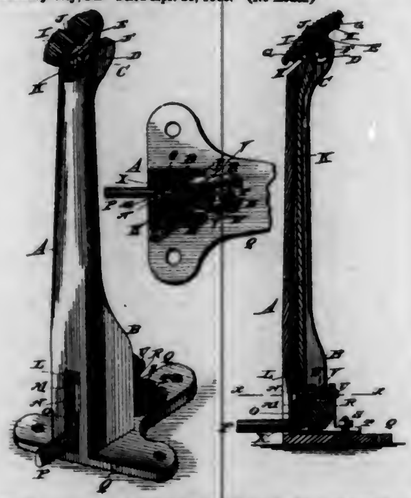
3. In a cotton-chopper, and in combination with the frame thereof, the pivoted lever having connections with the chopping-blade, and operated substantially as described, and having the transverse arms 8 extending toward or quite to the frame, whereby the said lever is steadied in its position, substantially as described.

320,732. HOOP OR BAND FOR BARRELS AND OTHER LIKE RECEPTACLES. JAMES W. WINSTON, New York, N. Y. Filed Oct. 15, 1884. (No model.)



Claim.—A hoop or band for barrels and other like receptacles made of a single strand of wire of circular form in the same plane for the greater portion of its length with a series of intervening portions at regular or irregular distances apart constructed to form close nailing-loops, essentially as shown and described.

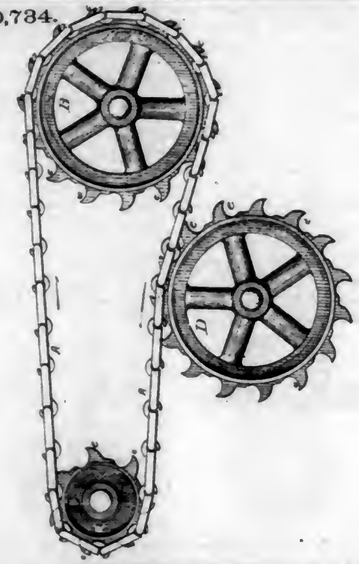
320,733. SHOE-MAKER'S RASPING-TOOL. THOMAS S. WHEATLEY, Mahanoy City, Pa. Filed Apr. 25, 1885. (No model.)



Claim.—1. In a shoe-maker's rasping-tool, the combination of a flanged upright, a plate pivoted to the upper end of the same and having a detachable rasping-tool, a vertically-sliding rod connected pivotally with the said pivoted plate and having a lug at its lower end, a foot block or plate having a sliding pin or bolt adapted to engage perforations in the lower end of the said sliding rod, and a vertically-sliding treadle-plate having beveled flanges adapted to engage and operate the latch pin or bolt, substantially as and for the purpose herein set forth.

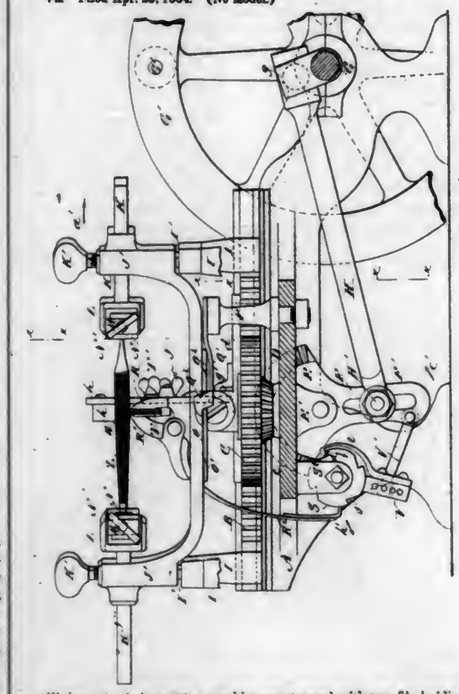
2. In a shoe-maker's rasping-tool, the combination of the flanged upright, the pivoted plate, the slide-rod, the vertically-adjustable and flanged treadle-slide, and the foot-block having a spring-latch adapted to engage perforations in the vertically-sliding operating-rod, and to be operated by flanges upon the treadle-plate, substantially as and for the purpose herein set forth.

320,734. BELT-GEARING. WILLIAM N. WHITELEY, Springfield, Ohio. Filed May 16, 1885. (No model.)



Claim.—The combination of an open-linked chain belt with wheels B and C, provided with sprockets *e*, concave on their draft faces, substantially as set forth.

320,735. SAW-FILING MACHINE. JOHN H. C. WINSTON, Lynchburg, Va. Filed Apr. 23, 1884. (No model.)



Claim.—1. A saw-filing machine constructed with two file-holding frames adapted to reciprocate in opposite directions, to operate both files in opposite directions simultaneously to cut and return, and means for moving the saw transversely to the said frames, substantially as herein shown and described.

2. A saw-filing machine constructed with two file-holding frames adapted to reciprocate in opposite directions, to operate both files in opposite directions simultaneously to cut and return a clamp or jaw for holding the saw, means for automatically feeding the saw, and means for automatically clamping the saw between the two jaws while the files are cutting, substantially as herein shown and described.

3. In a saw-filing machine, the combination, with two reciprocating file-holding frames for operating both files in opposite directions simultaneously to cut and return, means for automatically raising the files above the saws during the return-stroke of the files, and means for feeding the saw, substantially as herein shown and described.

4. In a saw-filing machine, the combination, with two reciprocating file-holding frames, of a clamp for holding the saw, means for automatically pressing the jaws of the clamp together during the time that the files cut, and means for automatically releasing the saw during the time that the files are making the return-stroke, substantially as herein shown and described.

5. In a saw-filing machine, the combination, with two horizontally-reciprocating racks, of standards on the same, and a file-holding frame on the standard of each rack, substantially as herein shown and described.

6. In a saw-filing machine, the combination, with two horizontally-reciprocating racks, of two standards on each rack, a file-holding frame held on the standards of each rack, and of means for holding the files in the file-holding frames, substantially as herein shown and described.

7. In a saw-filing machine, the combination, with the file-holding frame J, of the bars K, passing through the end standards of the said frame, and having forks L formed on their inner ends, of file-holding blocks in the forks, and the screws K', for locking the bars K in place, substantially as herein shown and described.

8. In a saw-filing machine, the combination, with a file-holding frame, J, of the bars K, having forks L on their inner ends, the frames M, held in the said forks, the file-holding blocks N, held in the said frames, and the screws N', for adjusting the file-holding blocks, substantially as herein shown and described.

9. In a saw-filing machine, the combination, with two horizontally-reciprocating racks, of standards on the same, file-holding frames resting on the standards, and means for lifting the file-holding frames during the movement of the racks in one direction, and holding down the said frames during the movement of the racks in the opposite direction, substantially as herein shown and described.

10. In a saw-filing machine, the combination, with the horizontally-reciprocating and vertically-movable file-holding frames, of plates projecting laterally from the same, and of the fork Q, the ends of which are adapted to engage with the said plates and raise the file-holding frames during their movement in one direction and press them down during their movement in the opposite direction, substantially as herein shown and described.

11. In a saw-filing machine, the combination, with the file-holding frames, of the laterally-projecting plates O, provided with the beveled ends O' and O², and of the V-shaped frame Q, one of its shanks being provided at the end with a hook, Q², substantially as herein shown and described.

12. In a saw-filing machine, the combination, with the cog-wheel C, and the racks B, engaging with the same, of standards on the racks, and file-holding frames held on the said standards, substantially as herein shown and described.

13. In a saw-filing machine, the combination, with the cog-wheel C, and the beveled pinion D, connected with the same, of the racks B, engaging with the cog-wheel, standards on the racks, file-holding frames on the standards, and of a rocking semicircular rack engaging with the beveled pinion, substantially as herein shown and described.

14. In a saw-filing machine, the combination, with the cog-wheel C, and the beveled pinion D, connected with the same, of the racks B, engaging with the cog-wheel, standards on the racks, file-holding frames on the standards, the rocking semicircular rack E, having an arm, F, and the connecting-rod, H, connecting the said arm with the crank-shaft, substantially as herein shown and described.

15. In a saw-filing machine, the combination, with a cog-wheel, C, and the beveled pinion D, united with the same, of the racks B, engaging with the cog-wheel, standards on the racks, file-holding frames on the standards, a rocking semicircular rack, E, having an arm, F, provided with a longitudinal slot, F', the connecting-rod H, and the pintle H', provided with a winged nut, H², substantially as herein shown and described.

16. In a saw-filing machine, the combination, with reciprocating file-holding frames, of a fixed jaw, R, a hinged jaw, R', and the spring R³, for pressing the jaw R' against the jaw R, substantially as herein shown and described.

17. In a saw-filing machine, the combination, with a reciprocating file-holding frame, of the fixed jaw R, the pivoted jaw R', and the grooved saw-holder T between them, substantially as herein shown and described.

18. In a saw-filing machine, the combination, with a reciprocating file-holding frame, of the fixed jaw R, the pivoted jaw R', the grooved saw-holder T between them, and of the screw T', for holding the saw-holder in place, substantially as herein shown and described.

19. In a saw-filing machine, the combination, with reciprocating file-holding frames, of the fixed jaw R, the hinged jaw R', the spring-arm R³, resting against the notched wheel S, and means for revolving the notched wheel, substantially as herein shown and described.

20. In a saw-filing machine, the combination, with reciprocating file-holding frames, of the fixed jaw R, the hinged jaw R', the spring-arm R³, connected with jaw R', the notched wheel S, the pivoted lever V, and the spring-pawl U, substantially as herein shown and described.

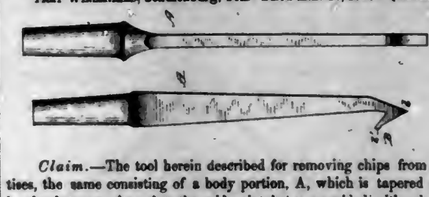
21. In a saw-filing machine, the combination, with the reciprocating file-holding frames, of the fixed jaw R, the hinged jaw R', the spring-arm R³ on the jaw R', the notched wheel S, the rocking lever V, the spring-pawl U on the same, the rocking rack E, for reciprocating the file-holders, and bar V', connecting the said rack with the lever V, substantially as herein shown and described.

22. In a saw-filing machine, the combination, with the reciprocating file-holding frames, of the slotted plate *d*, held on one of the reciprocating frames, the pawl *k*, for shifting the saw, the pivoted lever *h*, and the hook *g'*, pivoted to the lower end of the lever *h*, and passing into the slot *e* of the plate *d*, substantially as herein shown and described.

23. In a saw-filing machine, the combination, with the reciprocating file-holders, of the slotted plate *d* on one of the racks B, the standard *n*, the lever *h*, provided with a longitudinal slot, *h*², the pin or screw *l*, the winged nut *o*, the pawl *k*, pivoted to the upper end of the lever *h*, and the hook *g'*, pivoted to the lower end of the lever *h*, substantially as herein shown and described.

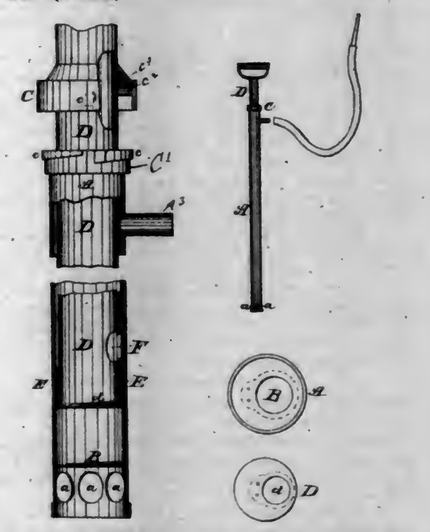
24. In a saw-filing machine, the combination, with the reciprocating racks and means for reciprocating them, of the standards I on the racks, pins I', projecting upward from the said standards, and the file-holding frames J, provided at their ends with tubular sockets J', for receiving the pins I' on the standards I, substantially as herein shown and described.

320,736. TOOL FOR REMOVING CHIPS FROM MORTISES. GODFREY WINZENRIED, Schulenburg, Tex. Filed Mar. 16, 1885. (No model.)



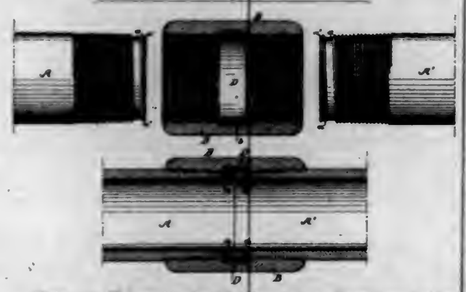
Claim.—The tool herein described for removing chips from mortises, the same consisting of a body portion, A, which is tapered from its shank to near its point, the said point being provided with a barbed portion having a round swell, *b'*, substantially as shown, and for the purpose set forth.

320,737. PUMP. JOHN WOCK, Canton, Ohio, assignor of one-half to John C. Skelton and Albert Hoeffen, both of same place. Filed July 26, 1884. (No model.)



Claim.—In a lift-pump, the combination of the pump-barrel A, having at its upper end the inclined flanges *c*, the hollow valved plunger D, working within barrel A, the cap C, fitted about plunger D and formed of a band larger in diameter than tube A, and having lugs *c'* on its inside, and a top converging from it to the plunger D and a packing in the converging top, as shown, for the purpose set forth.

320,738. PIPE-COUPLING. EDWARD W. WOLFE, Reading, Pa., assignor to Reading Iron Works, same place. Filed May 1, 1885. (No model.)

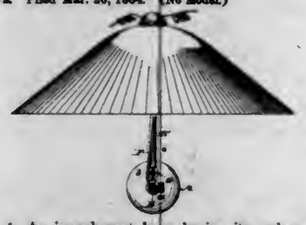


Claim.—1. The combination of a threaded coupling-sleeve, having an interior soft-metal packing, with pipe-sections having threaded ends adapted to said sleeve and abutted against each other therein, as set forth.

2. The combination of sections of pipe, having annular grooves *a* near their ends and screw-threads at the extreme ends, with a threaded coupling-sleeve having an interior soft-metal packing, substantially as described.

3. The combination of pipe-sections, having tapering threaded ends, annular grooves *a* near their ends, and screw-threads at the extreme ends, with a correspondingly-threaded coupling-sleeve provided with an interior central packing, substantially as set forth.

320,739. INCANDESCENT LAMP. JOHN A. YUNCK, Sharon Hill, and JOHN STUREE, Philadelphia, assignors to Henry C. Terry, trustee, Philadelphia, Pa. Filed Mar. 26, 1884. (No model.)



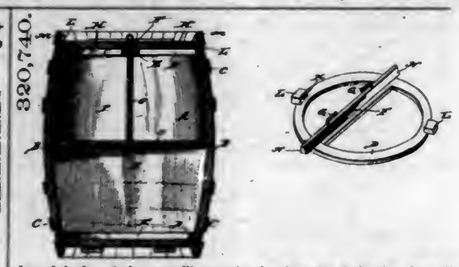
Claim.—1. An incandescent lamp having its carbon mounted loosely on supporting-wires and provided with supporting-arms, and means attached to one of said supporting-arms for electrically connecting said supporting-arms and one of said supporting-wires, the said arm and wire being normally insulated from each other, substantially as and for the purpose set forth.

2. The arms B', in combination with the carbon C, the intermediate wires, B D, the insulator *a*, interposed between one of said arms B' and its wire B, the laterally-movable external spring, F, attached to said arm B', and normally closing circuit by contact with said wire B, and the rotatable button G, attached to said arm B' and provided with a cam, which, on the turning of said button, forces said spring away from said wire B and breaks the circuit, substantially as set forth.

3. The carbon C and wires D, extending from the ends thereof, in combination with the wires B, supporting-arm B', insulator *a*, and means attached to said arm B' for electrically connecting one of said arms B' and one of said wires B, substantially as and for the purpose set forth.

4. The carbon C, having wire D, in combination with wire B, having a curved end, which serves as a direct support for the wire D, arm B', and means for electrically connecting said arm B' and wire B, substantially as and for the purpose set forth.

320,740. TRUNK. CASPER ZIMMERMAN, Owatonna, Minn. Filed Mar. 21, 1885. (No model.)



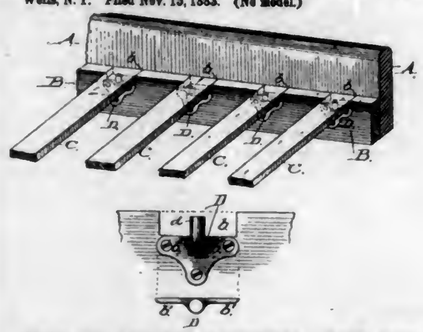
Claim.—1. The combination, with a barrel-shaped body, of an annular head or rim secured within each end of the same, each of said heads or rims having a diametrical brace and tops or covers hinged to said braces, substantially as and for the purpose set forth.

2. As an improvement in trunks, the combination of a barrel-shaped body, interior annular heads or bands secured within the ends of the same and provided with lugs extending into recesses at the ends of the body and having sockets, as described, and covers hinged to transverse braces of the said heads and having locks the bolts of which are adapted to enter the sockets in the lugs at the edges of the said heads, substantially as and for the purpose herein set forth.

3. As an improvement in trunks, the combination, with a barrel-shaped body, of the metallic annular heads or bands having laterally-extending socketed lugs and transverse braces provided with ribs to which the covers are hinged, substantially as herein described, for the purpose set forth.

4. As an improvement in safety-trunks, the combination of a barrel-shaped body, partitions within the same dividing it into suitable compartments, the annular heads or bands secured at the ends of the same and having laterally-extending socketed lugs and transverse braces provided with ribs, and the doors or covers hinged thereto and covering the interior compartments, and having locks the bolts of which are adapted to enter the socketed lugs, substantially as herein described, for the purpose set forth.

320,741. FASTENING FOR BEDSTEAD-SLATS. WM. B. ARRAMS, Wells, N. Y. Filed Nov. 15, 1883. (No model.)



Claim.—As a new article of manufacture, a casting herein described, having a body portion approximately of a width equal to that of the ordinary slat-receiving recesses formed in a bedstead-rail, and provided with a straight upper edge, a vertical lug or projection, *d*, formed integral with said body portion, the rear face of both body portion and lug being flat and flush with each other, substantially as shown and described.

320,742. SINK-CLEANER. FRED. E. ALLEN, North Grafton, Mass. Filed Nov. 20, 1884. (No model.)



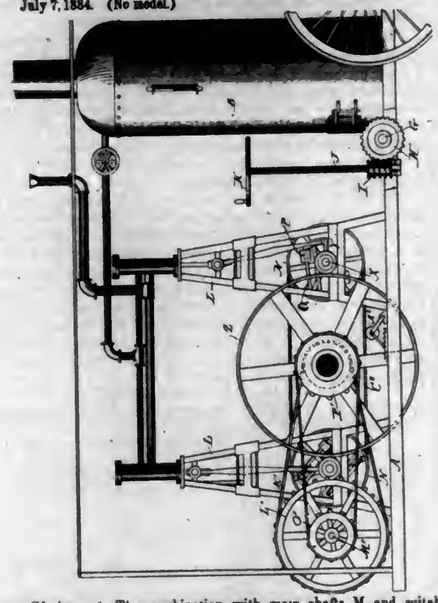
Claim.—1. The combination, with a handle having a suitably-attached pan, of a longitudinally-sliding rod having a pivoted arm or lever carrying a scraper or brush at one end thereof, substantially as and for the purpose herein shown and specified.

2. The combination, with a handle having a suitably-attached pan, of a longitudinally-sliding rod having a pivoted arm or lever carrying a scraper or brush at one end, and means for attaching the other or handle end of the said lever temporarily to the handle in a position about parallel to the said sliding rod, substantially as and for the purpose herein set forth.

3. The combination of a longitudinally-recessed handle having a pan suitably attached thereto, a longitudinally-sliding rod having a flange or collar at its inner end, a spring arranged to force the said rod in an inward direction into the handle, and a perforated lug at the outer end of the handle adapted to receive a stud at the upper end of the arm or lever, substantially as and for the purpose herein set forth.

4. The combination of a longitudinally-recessed handle, a ferrule or cap having an opening, an upwardly-extending perforated lug, and a downwardly-extending arm to which is secured a pan, a longitudinally-sliding rod having a flange or collar at its inner end, between which and the cap or ferrule a spring is interposed, and an arm or lever pivoted to the outer end of the said sliding rod, and having a scraper or brush at its lower end, and at its upper end a stud adapted to engage the perforated lug of the cap or ferrule, substantially as and for the purpose herein set forth.

320,743. TRACTION-ENGINE. ALBERT C. ANES, Chicago, Ill. Filed July 7, 1884. (No model.)



Claim.—1. The combination, with main shafts M and suitable mechanism for driving the same, of shafts X, connected by knuckle-joints to the main shafts, friction-wheels Y, friction fly-wheels Z, and traction-wheels E', as and for the purpose set forth.

2. The combination, with main shafts M and suitable mechanism for driving the same, of shafts X, connected by knuckle-joints to the main shafts and mounted in uprights A', friction-wheels Y, mounted upon said shafts X, fly-wheels Z, and traction-wheels E', as and for the purpose set forth.

3. The combination, with main shafts M and suitable mechanism for driving the same, of shafts X, connected by knuckle-joints with the main shafts and mounted in uprights A', friction-wheels Y, mounted on said shafts X, fly-wheels Z, traction-wheels E', and suitable mechanism for adjusting uprights A', as and for the purpose set forth.

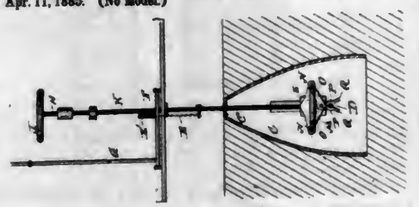
4. The combination, with uprights A', mounted in sliding blocks *b*, of arms *c*, rod *d*, connected therewith, lever *e*, and suitable mechanism for holding said lever in a given position, as set forth.

5. The combination, with uprights A', mounted in sliding blocks *b*, of springs *a*, arms *c*, rod *d*, lever *e*, and suitable mechanism for holding said lever in a given position, as set forth.

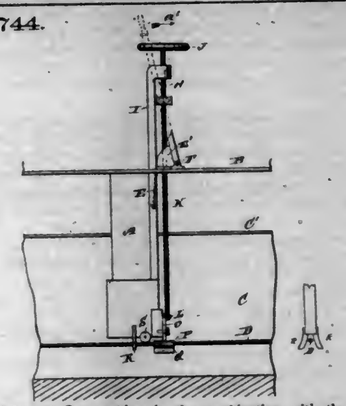
6. The uprights A', mounted in sliding blocks *b*, and suitable rod-connections with levers *e*, in combination with said levers, blocks *f*, and suitable mechanism for sliding said blocks backward and forward, as set forth.

7. The uprights A', mounted in sliding blocks *b*, and suitable rod-connections with levers *e*, in combination with said levers, blocks *f*, rods *k*, provided with rollers *n*, and cross-piece C', mounted upon the machine-frame, as set forth.

320,744. CABLE-GRIP. DAVID B. ANDERS, Philadelphia, Pa. Filed Apr. 11, 1885. (No model.)



320,744.

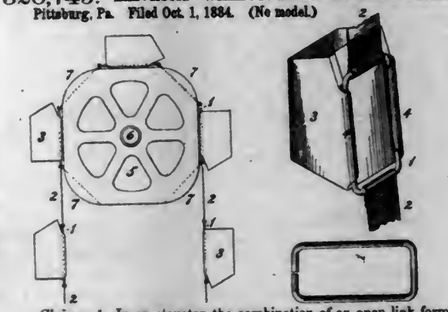


Claim.—1. In a cable-grip, the combination, with the bar A, of the gripping-levers O, the rod K, the slotted or grooved piece L, and the screw H, for operating the rod K, substantially as herein shown and described.

2. In a cable-grip, the combination, with the bar A, of the gripping-levers O, pivoted to the same, mechanism for operating said levers, the chain E, the shaft F, the quadrant E', and the lever G, substantially as herein shown and described.

3. In a cable-grip, the combination, with the bar A, of cable-gripping levers pivoted to the same, the guide-lugs R, and the roller S on the lower end of the said bar A, substantially as herein shown and described.

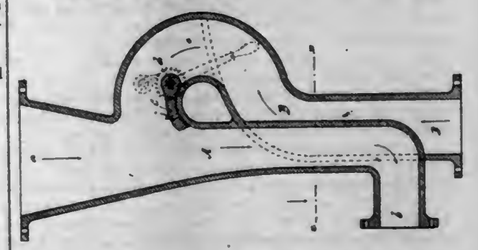
320,745. ELEVATOR. WILLIAM M. BARBOTT and JOHN H. ROBERTS, Pittsburg, Pa. Filed Oct. 1, 1884. (No model.)



Claim.—1. In an elevator, the combination of an open link formed of a section of wire bent into rectangular form, with its ends located adjacent one to the other without being secured together, and a cup or bucket connected to said link by double flanges upon its back turned over and clamped down upon the sides of the link, substantially as set forth.

2. In an elevator, the combination of a chain composed of alternate open and strap links, the open links having the ends of the sections of wire of which they are formed adjacent and unconnected, and the strap-links being coupled to the ends of the open links, and a series of cups or buckets connected to the open links by double flanges turned over the sides thereof, substantially as set forth.

320,746. STEAM-CONDENSER. THOMAS BARBER, Flatbush, N. Y. Filed Jan. 29, 1885. (No model.)



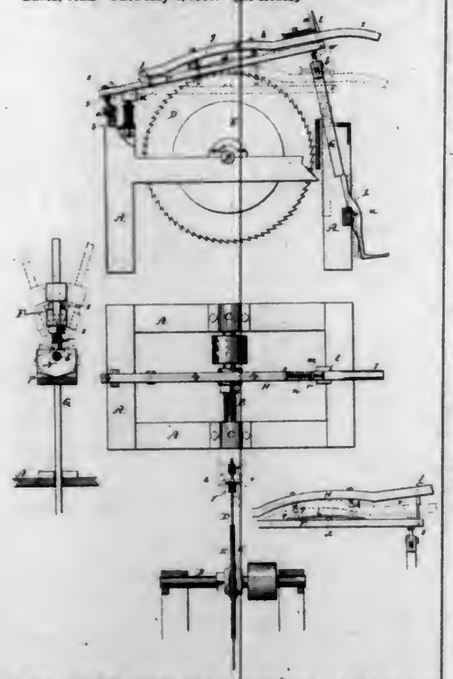
Claim.—1. A steam-condenser consisting of a condensing-pipe, A, having an open end, *a*, for connecting with an engine, and provided at

its other end with a lateral bend, *b*, for connecting with a suction-pump, and a cold-water pipe partially surrounding the condensing-pipe and having an approximately semicircular bend, *c*, so that the cold-water pipe opens into the condensing-pipe laterally at or near right angles thereto, substantially as described.

2. A steam-condenser consisting of a condensing-pipe, A, having one end, *a*, for connecting with an engine, and the other end, *b*, for connecting with a suction-pump, a cold-water pipe partially surrounding the condensing-pipe and opening thereinto at or near right angles thereto, and a pivoted swinging valve, C, arranged at the point of communication between the condensing and cold-water pipes for controlling the distribution of water into the condensing-pipe, substantially as described.

3. A steam-condenser consisting of a condensing-pipe, A, which receives the exhaust steam at one end, while its other end is adapted to be connected with the suction-pump, a cold-water pipe, B, which partially surrounds said condensing-pipe and opens into the same near its receiving end, a valve, C, situated in the cold-water pipe, and a slot or slots formed in said valve, substantially as and for the purpose described.

320,747. **STAVE-JOINTING MACHINE.** HENRY D. BARNES, New Haven, Conn. Filed May 4, 1885. (No model.)



Claim.—1. The combination of a circular saw, a jack hung upon pivots at right angles to the axis of and in the plane of the saw, and whereby said jack is adapted to be turned to either side of the saw, the said jack also hung upon a pivot parallel with the axis of the saw, whereby it is adapted to be moved up and down in a vertical plane, the said jack consisting of the bar F, adapted to receive the stave to be jointed, and the lever H, hung upon the upper side of the bar F, and provided with dogs adapted to bear upon the stave and give to it its proper curvature on the said bar F, substantially as described.

2. The combination of the circular saw D, bar F, hung upon the pivots *a b* in the central plane of the saw, the said pivot *a* being in a support hung upon a pivot, *t*, the axis of which is at right angles to the pivot *a*, the other pivot, *b*, in a vertical slide, G, the said bar F provided with a stop, *e*, and a block, *d*, upon its back, the lever H, hung in rear of said stop and extending forward, dogs *g h* in said stop, the one in rear and the other forward of said block *d*, and a spring-latch, *l*, adapted to engage said lever in its set position, substantially as described.

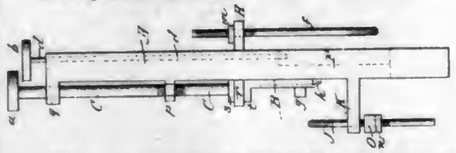
3. The combination of the circular saw D, bar F, hung upon pivots *a b* in the central plane of the saw, the one of said pivots, *a*, being in a support hung upon a pivot, *t*, at right angles to the axis of the pivot *a*, said bar provided with a block, *d*, upon its back, the lever H, hung in rear of said block and extending forward, the dogs *g h* in said lever, one at the rear and the other in front of said block, a latch, *l*, adapted to engage said lever in its set position, and a stop, M, adapted to support the bar F in its raised position over the saw, substantially as described.

4. The combination of the circular saw D, the bar F, hung upon pivots *a b* the line of axis of which is in the central plane of the saw, the one of said pivots, *a*, being in a support hung upon a pivot, *t*, the axis of which is at right angles to the axis of the pivot *a*, the pivot *b* supported by a vertical slide, G, the said bar having a block, *d*, upon its back, the lever H, hung to said bar F in rear of said block and extending forward, dogs *g h* in said lever, the one in rear and the other in front of said block, spring-latch *l*, adapted to engage said lever when in its set position, and the pedal L, arranged to support the said slide G in its up position, substantially as described.

5. The combination of the circular saw D, the bar F, hung upon pivots *a b*, the axis of said pivots being in the central plane of the saw, the said bar made adjustable with relation to the pivots, whereby it may be set to a greater or less distance from the pivots, the bar provided with a block, *d*, upon its back, the lever H, hung upon a pivot in rear of said block and extending forward, the dogs *g h*, the one in rear and the other in front of said block, said dogs made adjustable with relation to said lever, and a spring-latch, *l*, adapted to engage said lever when in its position, substantially as described.

6. The combination of the circular saw D, the bar F, hung upon pivots *a b*, the axis of said pivots being in the central plane of the saw, the connection between the bar and one of the pivots being a spindle, *w*, constructed with the foot N, through which foot the pivots extend, the said foot inclined upon its under side from the center upward to the right and left, and a bearing beneath upon which said inclined surface may strike, the bar constructed with a block, *d*, upon its back, the lever H, hung upon the back of said bar in rear of the block and extending forward, the stops *g h*, the one in rear of and the other in front of said block, and a spring-latch adapted to engage said lever when in its set position, substantially as described.

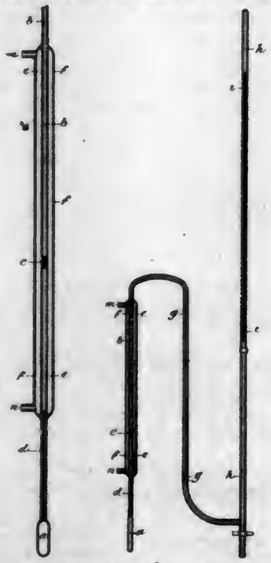
320,748. **AXLE-TOOL.** ALBERT W. BARTHOLOMEW, Manchester, N. H. Filed Aug. 6, 1884. (No model.)



Claim.—1. In an axle-tool, the combination of stock A, provided with a guide-recess for the tool-block, and an adjustable guide-yoke, J, with tool-block B, cutter *h*, and feed-screw C, substantially as described.

2. In an axle-tool, the combination of stock A, provided with a recess for the dies, the dies D D', the latter provided with means for adjustment, and the yoke *f*, substantially as set forth.

320,749. **AIR-THERMOMETER.** GEO. T. BAILEY, Midcalder, County of Mid-Lothian, Scotland. Filed June 25, 1884. (No model.)



Claim.—1. A thermometer formed with a bulb or expanding-vessel, a measuring-tube, and a piston or indicator in the measuring-tube, the bulb or expanding-vessel and the measuring-tube containing dry air or other suitable gas, and the piston or indicator dividing the dry air or other suitable gas in the measuring-tube, and cutting off the outer air from the dry air or other suitable gas to be measured.

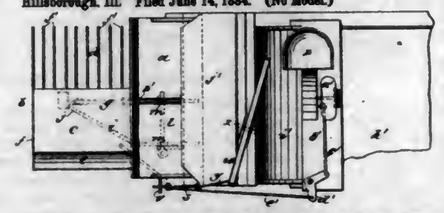
2. A thermometer formed with a bulb or expanding-vessel, a measuring-tube, a piston or indicator in the measuring-tube, and a tube of small capacity connecting the bulb or expanding-vessel with the measuring-tube, the bulb or expanding-vessel, the measuring-tube, and the tube of small diameter containing dry air or other suitable gas, and the piston or indicator cutting off the outer air from the dry air or other suitable gas to be measured.

3. A thermometer formed with a bulb or expanding-vessel, a measuring-tube, a piston or indicator in the measuring-tube, and a casing forming a steam-space around the measuring-tube above and beneath the piston or indicator, the bulb or expanding-vessel, and the measuring-tube containing dry air or other suitable gas, and the piston or indicator cutting off the outer air from the dry air or other suitable gas to be measured.

4. A thermometer formed with a bulb or expanding-vessel, a measuring-tube, a piston or indicator in the measuring-tube, and an extension to the measuring-tube to provide a pressure-regulator, the bulb or expanding-vessel, the measuring-tube, and the extension to the measuring-tube, containing dry air or other suitable gas, and the piston or indicator cutting off the outer gas from the gas to be measured.

5. A thermometer formed with a bulb or expanding-vessel, a measuring-tube, a piston or indicator in the measuring-tube, an extension to the measuring-tube, and a barometer connected to the extension, the bulb or expanding-vessel, the measuring-tube, and the extension to the measuring-tube, containing dry air or other suitable gas, the piston or indicator cutting off the outer gas from the gas to be measured, and the barometer forming an antomatic pressure-regulator.

320,750. **BUNDLE-DROPPER FOR HARVESTERS.** ADAM H. BELL, Hillsborough, Ill. Filed June 14, 1884. (No model.)



Claim.—1. The dropper-platform *b*, connected to the harvester-frame by the pivot-arm *g*, and having the front supporting-arm, *i*, said arms being constructed and arranged to rise or yield by the shocks of the machine, substantially as described.

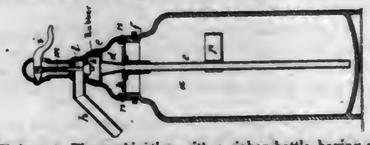
2. The dropper-platform *b*, in combination with the pivot-arm *g*, by which it is connected to the harvester-frame and the front supporting-arm, *i*, and the supporting-rod *l*, to which said arms *g* and *i* are pivoted, and extension-arms *o*, projecting from the platform under beam *n*, for the support of the platform, substantially as described.

3. The dropper-platform *b*, in combination with the pivot-arm *g*, by which it is connected to the harvester-frame and the front supporting-rod, *i*, the supporting-rod *l*, to which said arms *g* and *i* are pivoted, the eye-studs *p*, in which is arranged the rod *l*, and the extension-arms *o*, projecting from said pivots, substantially as described.

4. The pivot-arm *g* and supporting-arm *i*, formed of one rod or tube and with eyes *m* and extensions *o*, and combined with the platform *b*, pivot-rod *l*, and the beam *n*, substantially as described.

5. The combination of the elbow-latch *s*, the harvester-frame upon the front, at one end of which is arranged said latch, the stop-arm *v*, the platform *b*, to which is connected said arm, and a tripping-lever connected to said latch, substantially as described.

320,751. **SIPHON-BOTTLE.** THEODOR BERGMANN, Gaggenau, Baden, assignor to Gebr. Stollwerck, Cologne-on-the-Rhine, Germany. Filed Mar. 31, 1885. (No model.)

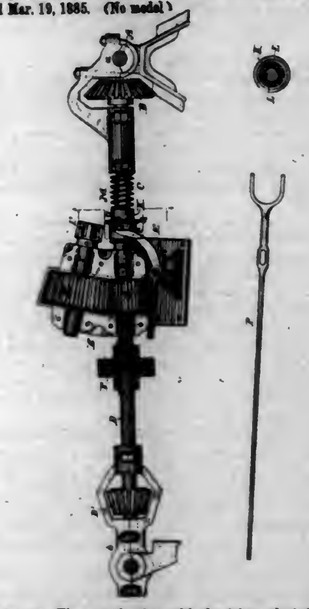


Claim.—1. The combination, with a siphon-bottle having a shouldered mouth, of a siphon-head *c*, a plate, *b*, seated on the shouldered mouth of the bottle, the tube *c*, fixed to the under side of the plate, and the funnel-shaped pipe *d*, fixed to the upper side of the plate and communicating with the tube through the said plate, substantially as described.

2. In a siphon bottle or apparatus for producing aerated drinks, the combination, with the removable head *e*, having an inner flange fitting hermetically upon the pipe *d*, and a lower flange fitting hermetically upon the bottle *a*, of the pipe *d*, the plate *b*, and the pipe *c*, substantially as and for the purpose specified.

3. The combination of the siphon-bottle, the plate *v*, seated at the upper end thereof, the tube *c*, depending from the under side of the plate the pipe *d*, rising from the upper side of the plate and having a flanged upper end covered with rubber, and the siphon-head *e*, hinged to the bottle and adapted to bear against the flanged end of the pipe, substantially as described.

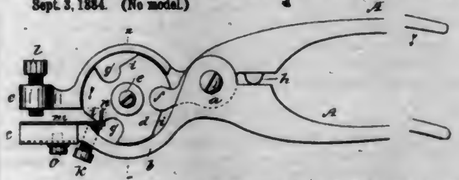
320,752. **TRACTION-ENGINE.** EDGAR M. BIRDSALL, Auburn, N. Y. Filed Mar. 19, 1885. (No model.)



Claim.—1. The combination, with the driven shaft C of a traction-engine, of the inclined shaft I, and connecting-gears, and the coupling mechanism, substantially as and for the purposes set forth.

2. The combination of the driven shaft C, severed at *c*, and provided with a fixed sleeve upon one part and a sliding sleeve, K, upon the other, and spring and shipping-lever, and an inclined shaft, I, provided with a fixed sleeve, I', all constructed and operating substantially as set forth.

320,753. **SAW-SET.** JOHN A. BORTHWICK, Atlantic City, N. J. Filed Sept. 3, 1884. (No model.)



Claim.—1. In a saw-set, the pivoted disk *d*, formed with one or more flat surfaces, *i*, and combined with lever-handles, by one of which the disk is given a movement to bend the saw-tooth, substantially as described.

2. In a saw-set, the combination of the handle A, formed with jaws *c c*, the slotted disk *d*, pivoted upon the handle A, and the handle A', formed with a lug engaging with the disk, substantially as described.

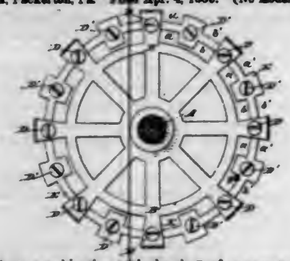
3. In a saw-set, the rotating disk *d*, formed with flat surfaces *i*, beveled at one side, substantially as described.

4. In a saw-set, the combination of the rotating disk *d*, the jaws *c c*, the screws *l*, the anvil *k*, and adjustable plate *m*, substantially as shown and described.

5. In a saw-set, the plate *m*, formed with flanges *n*, in combination with the jaws *c*, the anvil *k*, and the rotary disk *d*, substantially as described.

6. In a saw-set, the combination of the rotary disk *d* and adjustable anvil *k* with the handles A A', substantially as specified.

320,754. ARMATURE FOR DYNAMO-ELECTRIC MACHINES. A. H. BOWMAN, Packerton, Pa. Filed Apr. 4, 1885. (No model.)



Claim.—1. In combination with the shaft of an armature of a dynamo-electric generator, two disks, B and B', fixed upon said shaft, links F, shaped as shown, and provided each with a hole, A, at or near the center, and with grooves at the two ends, rods C', provided with the heads D on one end and screw-threads upon the other, passing through the said holes A and screwed into a female screw contained in the farthest link from the head D, and rods C, connecting the two disks B and B', and each fitting into the grooves at the ends of every link, substantially as described.

2. A section of an armature of a dynamo-electric generator, consisting of links E, provided with holes A at their centers and rods C', passing through said holes and adapted to retain the links in a definite position, substantially as described.

3. In combination with links E of a section of an armature of a dynamo-electric generator, a rod, C', provided with the head D upon one end and a screw-thread upon the other end, said rod passing through holes A in said links and screwing into a female screw contained in the link farthest from the head D, substantially as described.

4. An armature-section consisting of links fastened together side by side by means of a rod passing through holes at or near the center of each, substantially as described.

5. An armature-section composed of links which contain a hole at the center, said hole being adapted to receive a rod, and grooves at the two ends, said grooves being adapted to fit upon a second rod parallel to the first, substantially as and for the purpose specified.

6. An armature-section provided with grooves *a* and *a'* and *b* and *b'*, and consisting of links, shaped as shown, and connected side by side by means of a rod passing through a hole perforated in each link, substantially as and for the purpose specified.

7. In combination with an armature-section composed of links held together by a rod passing through their centers, grooves D at each end of each link, said grooves being adapted to receive a rod which connects the two disks B and B', fixed upon the shaft of the armature, substantially as described.

8. In combination with links held together by a rod passing through their centers, an insulating-paper, F, inserted between said links, substantially as described.

9. In combination with the two disks B and B', fixed upon the shaft of an armature, rods C, connecting the said disks, and each rod fitting into two grooves, each of said grooves belonging to adjacent sections of said armature, substantially as described.

10. In an armature, links each provided with small lateral projections, substantially as shown and described, and for the purpose specified.

11. In an armature, links each having a hole at or near the center, a semicircular groove at each end, and lugs or ears upon one side, substantially as described and shown.

320,755. MACHINE FOR GRINDING TOOLS. NICHOLAS BRICKELL, Brickley, Ark., assignor of one-half to Thomas J. Brickell, same place. Filed Oct. 20, 1884. (No model.)

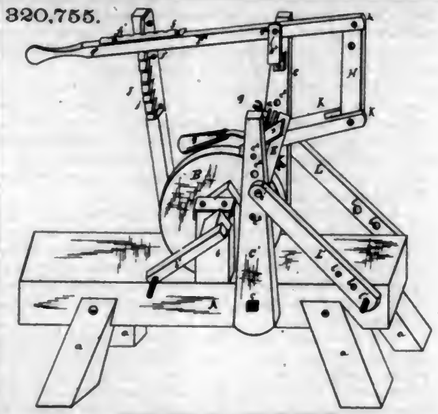
Claim.—1. A device for grinding tools, composed of a bench, A, grindstone B, uprights attached to the said bench and adjusted in position by braces L L', having holes *i* to engage pins *i'*, clamp G, having set-screws *g*, and a handle, *g'*, rocking cross-piece E, arm K, connecting-link H, lever F, having a plate, *f*, and a post, J, having a plate, *j'*, in which are notches *j*, substantially as shown and described.

2. A device for holding tools to be ground, comprising uprights C C', rocking cross-piece E, clamp G, arm K, connecting-link H, lever F, and notched post J, all substantially as and for the purpose set forth.

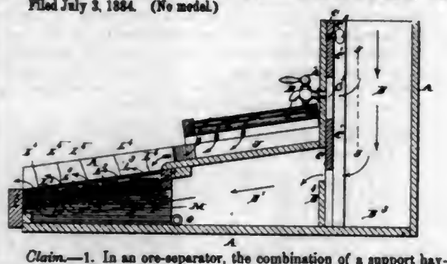
3. In combination with a grindstone and bench, uprights C C', having adjustable braces L L', a rocking cross-piece, E, clamp G, and handle *g'*, substantially as set forth, for the purpose specified.

4. A rocking piece, E, having pieces g^2 g^3 and a thumb-screw, g^4, and upright bearings C C', combined with a clamp, G, having set-screws for holding and a handle for turning the tool to be ground, substantially as shown and described, for the purpose set forth.

320,755.



320,756. ORE-SEPARATOR. WILLIAM L. CARD, La Crosse, Wis. Filed July 3, 1884. (No model.)



Claim.—1. In an ore-separator, the combination of a support having inclined upper edges, a stationary ore-bed mounted in inclined position on the edges of the support and comprising a perforated bottom, L, side pieces, L', end pieces, L^2, and partitions L^3, forming a series of pockets, L^4, shot or equivalent material in the pockets, a water-chamber beneath the bed, and means to cause an upward flow of water through the chamber, the inclination of the bed causing the dropping of the auriferous material at the inside of each pocket.

2. The combination of a stationary and inclined ore-bed having a slotted bottom and a series of pockets, strips to vary the area of the bottom openings, shot or equivalent material in the said pockets, devices for delivering the auriferous material onto the ore-bed, a water-chamber beneath the ore-bed, and means to regulate the upward flow of water through the shot or equivalent material, as set forth.

3. The combination of the water-tower provided with a partition at its lower end forming a mud-chamber and a water-gate adjustably held against its front wall, chambers to receive the water from the tower, an ore-bed having a perforated bottom containing shot or equivalent material, and means for delivering the auriferous material onto the bed, substantially as and for the purpose set forth.

4. The combination of the water-tower provided with a slotted adjustable water-gate and one or more cocks in its front wall opposite the slots in the gate, combined working-table and screen, table onto which the material falls from the screen, ore-bed, and chambers for the passage of water from the tower to the bed, substantially as and for the purpose set forth.

5. The combination of the water-tower provided with a slotted adjustable water-gate and one or more cocks in its front wall opposite the slots in the gate, combined working-table and screen, removable extension-table onto which the material falls from the screen, removable ore-bed supported on inclined strips, and chambers for the passage of water from the tower to the ore-bed, substantially as and for the purpose set forth.

6. In combination with the water-tower, gate, and chambers, the removable ore-bed, and means for delivering the auriferous material onto the ore-bed, said ore-bed having a perforated bottom to permit the precious metal to fall through into the chamber beneath, substantially as set forth.

7. In combination with the water-tower, gate, and chambers, the removable tapering ore-bed, and means for delivering the auriferous material onto the ore-bed, said ore-bed having a perforated bottom and provided with strips to partly close the perforations, as desired, all arranged and operating substantially as and for the purpose set forth.

8. The inclined removable ore-bed, increasing in width toward its lower end and consisting of side pieces, end pieces, perforated bottom,

and rifles forming pockets containing shot or equivalent material, substantially as shown and described, for the purpose set forth.

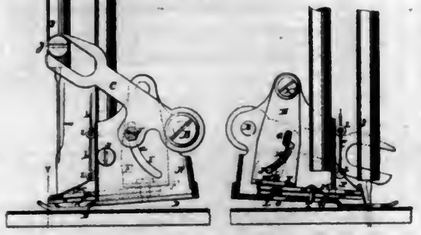
320,757. SHEATHING FOR BUILDINGS. DENISON S. CHESEBRO, Geddes, N. Y. Filed Mar. 14, 1885. (No model.)



Claim.—As an improved article of merchandise, sections of sheathing for buildings, consisting of the corrugated plate *b*, attached to the plain metallic plate *a*, the plate *a* having projections *e e* beyond the side and top edges of the plate *b*, and the latter having a projection beyond the bottom edge of the plate *a*, for splicing onto said projections the adjacent section of sheathing, substantially as described and shown.

320,758. EMBROIDERING ATTACHMENT FOR SEWING-MACHINES. FRANKLIN H. CHILTON, New York, N. Y., assignor to the Empress Embroiderer Company, same place. Filed May 29, 1884. (Model.)

Brief.—The arms, one of which has a thread-eye, reciprocate longitudinally and at the same time laterally. The sliding plate consists of the lower bent end of a plate whose upper end is pivotally secured to the bracket attached to the presser-bar.



Claim.—1. An embroidering attachment for sewing-machines, consisting of the bracket A and foot D, a slide working in said bracket, arms M N, pivotally secured to the slide and provided with points R S, one of the latter being provided with a thread-eye, and means, substantially as described, for giving the arms a horizontal sliding movement and their ends a transverse movement from or toward each other, substantially as set forth.

2. An embroidering attachment for sewing-machines, consisting of the bracket A and foot D, pivoted arms M N, having points R S, and one of which is provided with a thread-eye, and means, substantially as described, for imparting to the arms a longitudinal movement, and also for moving their front ends transversely across and beyond each other, substantially as set forth.

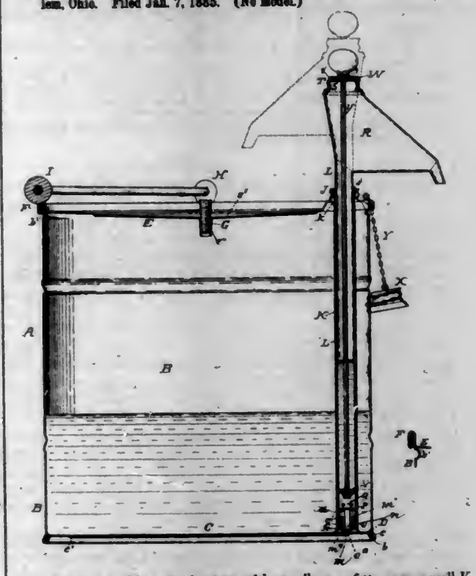
3. In an embroidering attachment for sewing-machines, the pivoted arms M N, having points R S, one of which has a thread-eye, in combination with a sliding piece, F, slotted pivoted plate E, actuating-lever C, the latter carrying a pin, J, which moves in the connected slots of plate E, and means for giving the arms M N a transverse lateral movement on their pivot toward or from each other, substantially as set forth.

4. In an embroidering attachment for sewing-machines, the pivoted arms M N, having points R S, one of which has a thread-eye, in combination with the pivoted plate E, having connected cam-slots G H and horizontal portion F, the actuating-lever C, carrying the pin J, and the bracket A, having cam-slot I, substantially as and for the purposes set forth.

5. In an embroidering attachment for sewing-machines, the arms M N, having points R S, one of which has a thread-eye, in combination with the sliding piece to which said arms are pivoted and which is in connection with an actuating-lever, the pins T V, and connected cam-slots W X, whereby the lateral movement of the arms M N toward or from each other is controlled, substantially as set forth.

6. In an embroidering attachment for sewing-machines, the pivoted arms M N, having points R S, one of which has a thread-eye, in combination with a sliding piece, F, to which the arms are pivoted and which is actuated from the needle-bar, the pins T V, cam-slots W X, pin L, and slot O, the whole being arranged substantially in the manner and for the purposes specified.

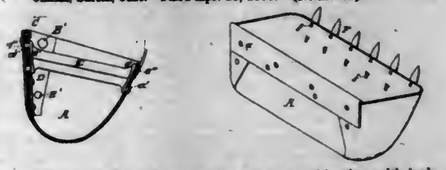
320,759. OIL-CAN. WILLIAM H. CLARK and WILLIAM J. CLARK, Salem, Ohio. Filed Jan. 7, 1885. (No model.)



Claim.—1. The combination, with an oil-can, of the pump-well K, having its lower end fixed athwart the annular depression or channel *c'* of the can-bottom, substantially as set forth.

2. The combination, in an oil-can, of the body B, the bottom C, and a pump-well, the body having folded lower edge, *b*, the bottom having oil-conduit *c*, and flared downturned marginal flange *c*, embraced by the folded lower edge and soldered thereto, the pump-well being secured athwart the oil-conduit.

320,760. ELEVATOR-BUCKET. WILLIAM H. CLARK and WILLIAM J. CLARK, Salem, Ohio. Filed Apr. 15, 1885. (No model.)



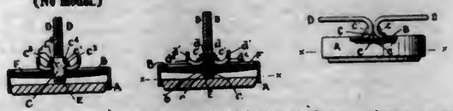
Claim.—1. In an elevator-bucket, the combination, with body A, of the interior strengthening-plate or re-enforce, C D, applied and attached to the inner rear and ends and perforated to receive the belt-rivets, as set forth.

2. In an elevator-bucket, the combination, with body A, of the brace E, having the upper and lower knife-edges, *e*, the collars *e'*, and the spurs *e''*, which spurs are clinched or riveted to the body in the manner set forth.

3. In an elevator-bucket, the combination, with body A, of the plano-convex teeth F, whose spurs *f* and shanks *f'* are clinched to the bucket-body in the manner explained.

4. In an elevator-bucket, the combination, with body A, of the re-enforce C D, the brace E *e e' e'' e'''*, and the teeth F, substantially as set forth.

320,761. BUTTON OR STUD. JOHN COSTELLO, North Attleborough, Mass., assignor to Cooke & Eddy, Providence, R. I. Filed May 1, 1885. (No model.)



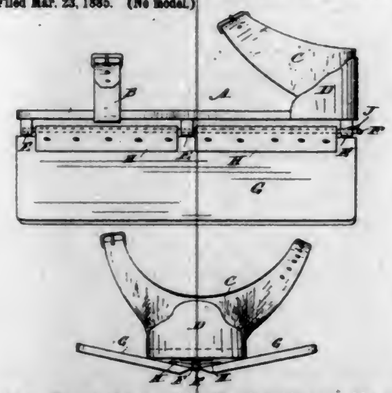
Claim.—1. As an improved article of manufacture, a button or stud having a shoe composed of two J-shape members, and a head furnished

with a stud in two parts, *c c*, provided with curved flanges or hinge members *c'*, which engage the concave faces of the curved portions of the shoe members and hinge or hook them to the head, substantially as set forth.

2. The combination, with a button or stud head, of a stud, C, provided with curved flanges or hinge members *c'*, and capable of a longitudinal movement with relation to the head, as described, the J-shape shoe members hooked upon said stud, and a spring or springs operating to take up the wear on the shoe members and the head, substantially as set forth.

3. The combination of the J-shape shoe members, and the stud in two parts, *c c*, attached to the button-head, provided with curved flanges or hinge members *c'*, and embracing the edges of the shoe members and hinging or hooking them to the head, substantially as set forth

320,762. SWIMMING-SHOE. JOHN AUDLEY COUPER, Marietta, Ga. Filed Mar. 23, 1885. (No model.)



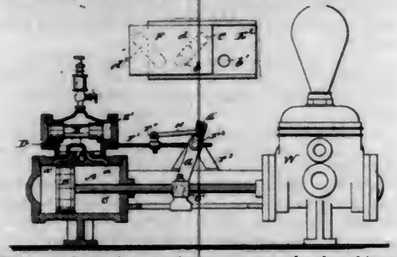
Claim.—The combination, with a foot-plate, of apertured lugs projecting from the bottom of the same, a shaft or rod held on the lugs, wings hung on the rod, and a spring-catch for locking the rod in place in the lugs, substantially as herein shown and described.

320,763. PREPARATION, MANUFACTURE, AND TREATING OF YARN, HEMP, AND OTHER MATERIALS EMPLOYED IN THE MANUFACTURE OF CORDAGE. MOSES H. DAY, Roxbury, Mass. Filed May 5, 1885. (No specimens.)

Claim.—1. As a new article of manufacture used in the preparation, manufacture, and treatment of yarn, hemp, and other materials employed in the manufacture of cordage, rope, and cables in their various forms, the within-described compound, consisting, substantially, of two per cent. of cotton-seed oil and ninety-eight per cent. of tar, as set forth.

2. The within-described process of treating yarn, hemp, and other materials used in the manufacture of cordage and rope in their various forms, the same consisting in saturating the said material with a compound of, substantially, two per cent. of cotton-seed oil and ninety-eight per cent. of tar, as set forth.

320,764. VALVE-GEAR FOR DIRECT-ACTING STEAM-PUMPS. JOHN C. DEAN, Indianapolis, Ind., assignor to Dean Bros. Steam Pump Works, same place. Filed Apr. 7, 1885. (No model.)



Claim.—1. In a valve-gear for steam-pumps, the pivoted lever G, deriving its motion from the piston-rod C, and having a segmental slot, G', the link H, the valve-rod F', and the auxiliary sliding valve F, having diagonal cavities *d* and *d'*, in combination with the sub-cylinder E', having ports *b b'* and *c*, and the auxiliary piston E, carrying the main valve D, substantially as shown and described.

2. In a valve-gear for steam-pumps, the pivoted lever G, deriving its motion from the piston-rod C, the stud G^2, fastened in segmental slot G', the connecting-link H, the valve-rod F', and the auxiliary sliding valve F, provided with diagonal cavities *d* and *d'*, in combination with the sub-cylinder E', having ports *b b'* and *c*, and the auxiliary piston E, carrying the main valve D, substantially as shown and described.

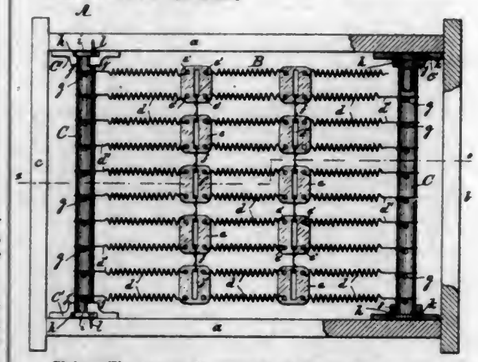
3. In a valve-gear for steam-pumps, the auxiliary piston E, the sub-cylinder E', having the ports *b* and *b'* and the exhaust-port *c*, in combination with the auxiliary sliding valve F, provided on its under side with the diagonal cavities *d* and *d'*, substantially as shown and described.

4. In a valve-gear for steam-pumps, the auxiliary sliding valve F, provided on its under side with diagonal cavities *d* and *d'*, in combination with the valve-rod F', the dog F^1, the connecting-link H, the stud G^2, adjustable in the segmental slot G', and the pivoted lever G, actuated by the movement of the piston-rod C, substantially as shown and described.

5. In a valve-gear for steam-pumps, the pivoted lever G, provided on its upper end with a segmental slot, G', in combination with the stud G^2, adjustable in said slot G', the connecting-link H, and the dog F^1, fastened to the valve-rod F', substantially as shown and described.

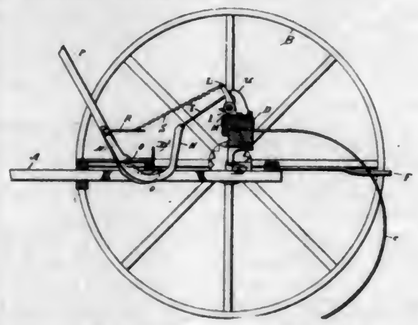
6. In a valve-gear for steam-pumps, the ports *b* and *b'* and exhaust-port *c*, arranged in a triangular form on the face of the valve-seat E^2, in combination with the auxiliary valve F, having the diagonal cavities *d* and *d'* on the under side of the said valve F, substantially as shown and described.

320,765. SPRING BED-BOTTOM. JOHN R. DEHM, Pottsville, Pa. Filed Dec. 5, 1884. (No model.)



Claim.—The bottom B, composed of slotted plates *e*, coiled and straight wires *d d'*, and connecting-links *f*, in combination with the rollers C, for tightening up the bottom, substantially as described.

320,766. HORSE HAY-RAKE. ROBERT W. DIXON, Springfield, Ohio, assignor to the Springfield Manufacturing Company, same place. Filed Dec. 20, 1883. (No model.)



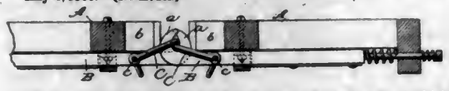
Claim.—1. In a hay-rake, the pivoted trip-lever and a foot-piece pivoted thereto, and adapted to be connected with a rock-shaft which controls the engagement of pawls with ratchets fixed to the supporting-axle, said foot-piece being adapted to be actuated by the driver.

2. In a hay-rake, the pivoted trip-lever and the foot-piece pivoted thereto near its toe, and connected at its heel to a rock-shaft which controls the engagement of pawls with ratchets fixed to the supporting-axles.

3. In a hay-rake, the combination of the trip and hand levers having a common pivotal point, the one being adapted to be engaged by the other, and the trip-lever being connected with the rake-head and provided with a foot-piece pivoted thereto and connected with a rock-shaft which controls the engagement of pawls with ratchets fixed to the supporting-axle, whereby the rake-head is actuated to elevate the teeth.

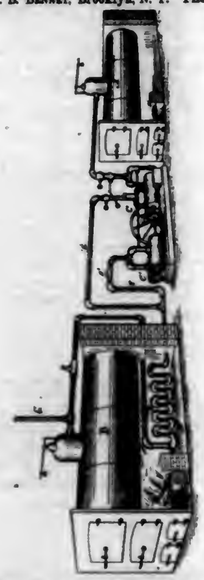
4. In a hay-rake, the combination of a trip-lever and a hand-lever having a common pivotal point and adapted to engage each other, the trip-lever being provided with a pivoted foot-piece, the rake-head connected with the trip-lever, and the rock-shaft having an arm connected to the foot-piece, whereby the rake-tines may be elevated either by hand or by the draft of the machine.

320,767. CAR-COUPLING. NOYES R. ECCLESTON, Oxford, N. Y. Filed May 6, 1885. (No model.)



Claim.—In a car-coupling, hooked bars, the hooked ends of which are adapted to pass each other and to form a recess between the walls of the hooks, links connected to shafts passing through said hooked bars, the said links being of shorter length than the hooked bars and adapted to be held from vertical movement in the recess between the faces of the hooks, and a suitable handle, substantially as described.

320,768. APPARATUS FOR COMBINING HOT AIR AND STEAM FOR HEATING PURPOSES AND POWER. WILLIAM T. FENTON, New York, and DAVID S. B. BENNET, Brooklyn, N. Y. Filed Mar. 26, 1884. (No model.)



Claim.—1. The combination, with the conveying-pipes, of a boiler to supply steam into such pipes, an air-pump to enforce a circulation within such pipes, and a heater to heat the air and steam, substantially as specified.

2. The combination of a high-pressure boiler, a steam air-pump actuated by steam from such boiler, a heating-coil in the chamber behind the bridge-wall, through which coil the air is passed, and a connection for the exhaust-steam from the steam air-pump to the pipe through which the air is forced, substantially as set forth.

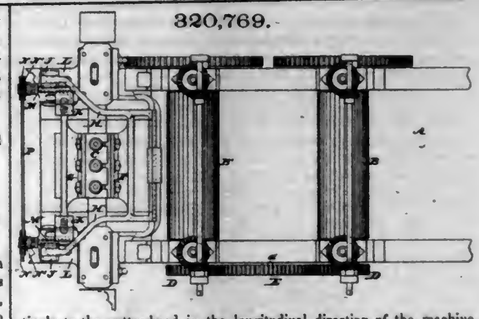
3. The combination, with an air-forcing apparatus, and the engine to actuate the same, of heating and circulating pipes through which the air from the air-forcing apparatus and exhaust-steam from the engine are passed, and a boiler to supply additional steam into the same pipes, substantially as specified, whereby the air as it is forced through the pipes produces a circulation and augments the efficiency of the steam; substantially as specified.

320,769. WOOD-PLANING MACHINE. HENRY FEYH and JOHN L. MURPHY, Philadelphia, Pa., assignors to L. Power & Co., same place. Filed June 14, 1883. (No model.)

Claim.—1. In a planing-machine, the feed-rollers B B', mounted on the frame, and the gear-wheels D, connected with said rollers, in combination with the gear-wheel E, mounted on the frame, intermeshing with said gear-wheels, and having its axis approximately above the axes of said rollers, whereby it acts as a lifter for the front roller, B, substantially as described.

2. Pressure-bars arranged on each side of the cutter-head of a planing-machine, and provided with adjusting devices, whereby the pressure-bars are simultaneously moved in opposite directions and adjusted relatively to the cutter-head in the longitudinal direction of the machine, substantially as and for the purpose set forth.

320,769.

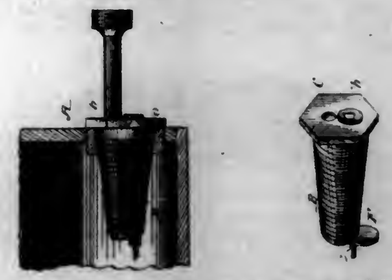


3. Pressure-bars arranged on each side of the cutter-head of a planing-machine, in combination with devices for adjusting vertically said pressure-bars and cutter-head, and with screws, whereby said pressure-bars are simultaneously moved in opposite directions and adjusted relatively to the cutter-head in the longitudinal direction of the machine, as set forth.

4. Pressure-bars arranged on each side of the cutter-head and provided with threaded lugs, in combination with screws engaging therewith, whereby the pressure-bars are simultaneously moved in opposite directions and adjusted relatively to the cutter-head in the longitudinal direction of the machine, substantially as and for the purpose set forth.

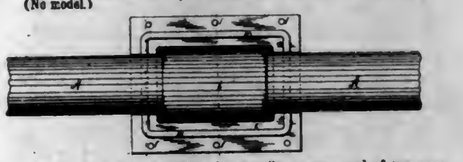
5. The cutter-head C, in combination with pressure-bars F and G and adjusting devices, and means consisting of a rotary shaft having suitable connections for operating screws bearing on said bars, whereby the said pressure-bars are simultaneously moved in opposite directions, the said bars F and G being one in front and the other in rear of said cutter-head, substantially as described.

320,770. FAUCET, &c. MICHAEL FITZGERALD, Troy, N. Y. Filed June 2, 1884. (No model.)



Claim.—The combination, with the externally and internally threaded bushing *a* and the threaded body B, having longitudinal bore C threaded upon the outer portion and branched upon the inner portion, as shown, and having also the conical smooth bore D, of the conical valve-stem E, having squared portion *c* and threaded portion *d*, the oscillating valve F, and the pipe-connection H, all arranged and constructed for joint operation, as and for the purposes set forth.

320,771. PIPE-JOINT PROTECTOR. BENJAMIN FORD, Pittsburg, Pa., assignor of one-half to John D. Ford, same place. Filed May 11, 1885. (No model.)



Claim.—1. A protector for pipe-couplings, composed of two concaved shells with enlarged central cavity adapted to embrace the coupling and contracted at each end, each shell having internally a continuous groove along its face and across the contracted ends, and making a complete circuit around the central cavity, in combination with a continuous packing-strip laid in said groove, and suitable means of clamping such shells upon the pipe-joint, substantially as described.

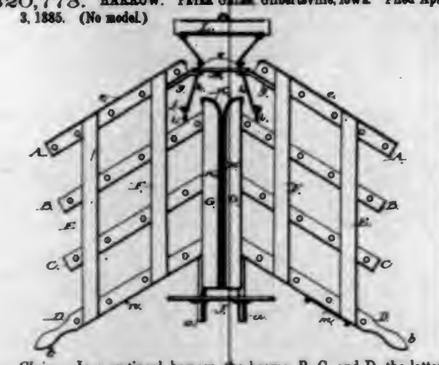
2. In a pipe-joint protector, the combination of two concaved sections adapted to be drawn together around the pipe-joint, each grooved continuously around on its inner face, and suitable continuous packing laid in said grooves, substantially as described.

3. The combination of the concaved shells having cavity *c*, necks *d*, flanges *e*, and grooves *i* continuous, as described, with a continuous packing, *m*, laid in said grooves, and suitable means of clamping said shells together, substantially as described.

320,772. CLEANING COMPOUND FOR CARPETS, PLUSH, &c. T. W. FORD, Belpre, Ohio. Filed Mar. 31, 1885. (No specimens.)

Claim.—The composition herein described, consisting of water, oil of cocoa, aqua-ammonia, vegetable-oil soap, spirits of turpentine, borax, and glycerine, in about the proportions specified.

320,773. HARROW. PETER GALER, Gilbertsville, Iowa. Filed Apr. 3, 1885. (No model.)



Claim.—In a sectional harrow, the beams, B, C, and D, the latter having handles *b*, in combination with the runners G, to which the beams are attached, handles *a a*, for raising the harrow at the center, the front beams, A, sustained by the connecting-beams F, the plates *g*, secured to the beams A, and a means whereby the strain or draft is borne upon those beams which are secured to the runner-beams, substantially as herein described.

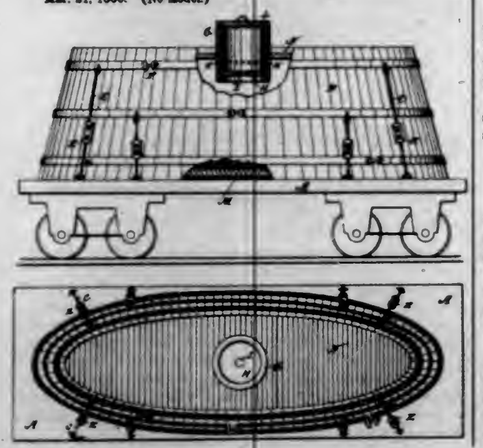
320,774. ROLLER FOR SKATES. WILLIAM GARDNER, New York, N. Y., assignor to Allie E. Beecher, same place. Filed Feb. 13, 1885. (No model.)



Claim.—1. A skate-roller composed of layers of wood veneer, the end fibers of one layer alternating with the side fibers of adjacent layers, and the side fibers of the outer layers supported by the end fibers of a chamfered disk-layer, as D, as and for the purpose set forth.

2. The roller described, consisting of the layers *a a'* a^2, &c., arranged to cross grain and secured together, the layer D, arranged to support the side fibers of the layer a^2, and the layers M, to increase the axle-bearing, all arranged to serve as a whole for the purpose set forth.

320,775. FLUID-CAR. JOHN R. GATHRIGHT, Jeffersonville, Ind. Filed Mar. 21, 1885. (No model.)

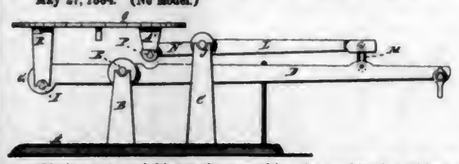


Claim.—1. The combination of a railway platform-car, a tank, nearly as wide and long as the car, mounted thereon, the said tank composed of staves standing on end, tapered upward, and widest on their outer faces, one or more hoops surrounding the tank and bearing on every stave thereof, and bolts connecting the hoops with the car, substantially as shown and described, whereby a tank occupying the length and breadth of a car is held thereon and all the staves are held together, as and for the purpose specified.

2. The combination of a platform-car, a tank thereon in the form of a truncated cone, hoops on the tank free to slide vertically, and screw-bolts connecting the hoops with the car, substantially as shown and described.

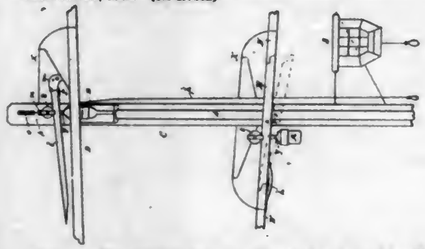
3. The combination of a car mounted on wheels, a tank, substantially as described, secured thereon, the top of the tank being practically horizontal and extending nearly the length and breadth of the car, a stand-pipe passing through the top of the tank down into the body thereof, and fitted closely and rigidly into the said top, a loose removable cover and a fixed perforated bottom for the stand-pipe, said bottom located in the stand-pipe below the general level of the top of the tank and above the lower edge of the stand-pipe, and vent-holes through the sides of the stand-pipe close below the top of the tank, substantially as shown and described.

320,776. COUNTER-SCALE. ALBERT GERDUM, Cleveland, Ohio. Filed May 27, 1884. (No model.)



Claim.—A weighing-scale comprising, in combination with the platform or scale-pan and the scale-frame, the beam composed of connected levers separately fulcrumed in the said scale-frame at points between their ends, the platform being supported at the end of said levers partly by one and partly by the other lever, substantially as described.

320,777. CASH-CARRIER. ROBERT F. GIBSON, Zanesville, Ohio. Filed Dec. 24, 1884. (No model.)



Claim.—1. The combination, with an inclined track and its offsetting post, of a guide fixed to said post, a cash box, cup, or receptacle sliding on said guide, means for raising it, a cash-box with supporting-pulley, and a switch for directing the pulley of the cash-box to the track, substantially as described.

2. The combination, with the inclined track and offsetting post, of the cash-box receptacle sliding on guides attached to the post, the cash-box provided with a pulley, the switch *l*, and the spring *n*, for lodging the cash-box pulley and holding it while its carrier is descending, as set forth.

3. The track D', having the movable section E, with spring *h*, spring-bolt *i*, and trigger *f*, in combination with the cash-box, as shown and described.

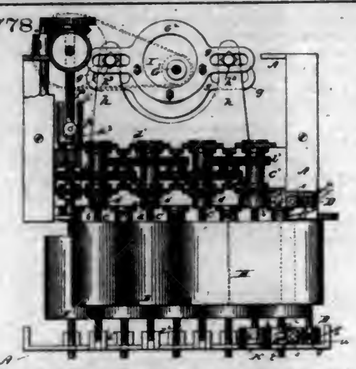
320,778. CONDENSER FOR CARDING-MACHINES. WEBSTER GILL, Camden, N. J. Filed Apr. 16, 1883. (No model.)

Brief.—The gears through which the rubbing-rolls are rotated are so supported as to partake of the longitudinal reciprocating motion imparted to the rolls, and the bearings are also so constructed as to be capable of adjustment.

Claim.—1. The combination, with a train of gearing for communicating motion to the rubbing-rolls of a condenser, of an inclosing-box for said gearing made in two or more separable sections, substantially as and for the purpose set forth.

2. The combination, with a set of rectilinearly-reciprocating rub and drawing rolls, of gears whereby said rolls are rotated, and a box or support for said gears, with eccentrics and connections, as shown, for imparting a lateral motion to said box in unison with said rolls, whereby the latter and their gears are moved together, substantially as shown and described.

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3. The combination, with the gearing-box C', having shaft-openings in its sides, of pillow-blocks E, having adjusting-brackets F, gear *d'*, having hubs *d*, and rolls B, having shafts C, supported at one end in said hubs, substantially as shown and described.

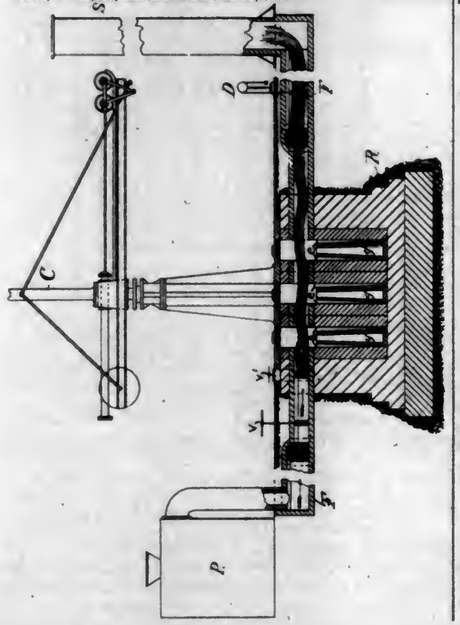
4. The combination of the laterally-reciprocating train of gears and a box containing the same with a shaft fixed in position except as to rotation on its axis, and a sliding joint or coupling connecting the shaft of the first wheel of said train with said stationary shaft, substantially as shown and described.

5. The combination, with the gearing-box C', the upper rolls, B, the gearing d' d^3, and means, substantially as described, for operating said gearing, of the adjustable pillow-blocks E, and means for adjusting the same, substantially as shown and described.

6. The combination, with the rubbing-rolls of the condenser and gear-wheels connected with the shaft of said rolls, of a gear-box, an eccentric-shaft and intermediate connections, substantially as described, for imparting a reciprocating motion thereto, so as to cause said gears to move laterally with the rolls which they drive, substantially as shown and described.

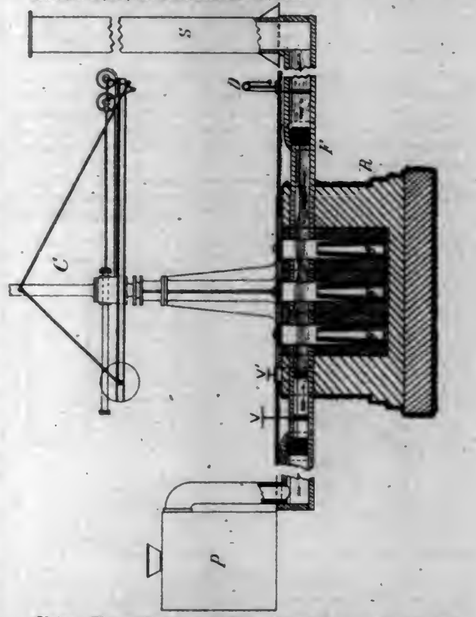
7. The combination, with an upper and a lower set of rolls, of two boxes, each containing a train of gearing connected with one set of rolls, and two separate eccentrics, and intermediate connections between the same and the boxes, whereby the latter are reciprocated alternately, substantially as described.

320,779. APPARATUS FOR TREATING METAL INGOTS. JOHN GJERS, Middlesbrough-on-Tees, North Riding, County of York, England. Filed Apr. 7, 1884. (No model.) Patented in England Mar. 5, 1884, No. 4,425; in France Mar. 8, 1884, No. 160,807; in Belgium Mar. 10, 1884, No. 64,448; in Luxemburg Mar. 20, 1884, No. 371; in Austria Oct. 24, 1884, No. 11,409, and in Sweden Jan. 23, 1885.



Claim.—The means or apparatus for supplying to steel ingots such additional heat as may be necessary while said ingots are undergoing a soaking process, consisting in the combination, with a suitable soaking pit or pits, of a gas-producer, gas flue or flues leading over the pits, gas and air valves, damper, and chimney, substantially as described.

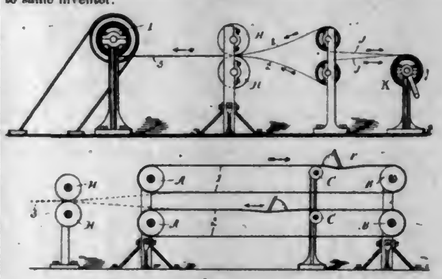
320,780. METHOD OF TREATING STEEL INGOTS. JOHN GJERS, Middlesbrough-on-Tees, North Riding, County of York, England. Filed May 19, 1885. (No model.) Patented in England Mar. 5, 1884, No. 4,425; in France Mar. 8, 1884, No. 160,807; in Belgium Mar. 10, 1884, No. 64,448; in Luxemburg Mar. 20, 1884, No. 371; in Austria Oct. 24, 1884, No. 11,409, and in Sweden Jan. 23, 1885.



Claim.—The auxiliary process of supplying additional heat to steel ingots while undergoing a soaking process in previously-heated soaking-pits, consisting in conducting a gas-flame or heated products of combustion over, but not directly impinging upon, the extreme tops of the ingots, substantially as described.

320,781. PROCESS OF MANUFACTURING WATER-PROOF FABRICS. FRANK E. HALL, Boston, Mass., assignor to the Hall Rubber Company, same place. Filed Dec. 29, 1884. (No model.)

Brief.—Improvement on Patent No. 299,638, dated June 3, 1884, to same inventor.

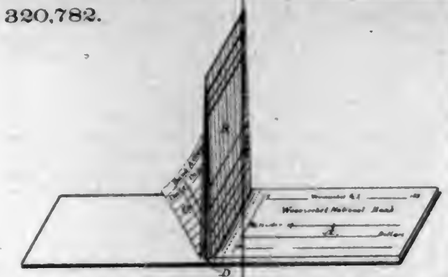


Claim.—The herein-described process of making double-textured water-proof cloth, consisting in first coating the two fabrics, while one or both of them is in the form of an endless band, with a thin solution of adhesive and water-proof material, then severing said fabric bands to reduce them to the strip or roll form, and subsequently uniting the two by pressure to form a composite sheet, substantially as set forth.

320,782. CHECK-BOOK. JENNISON C. HALL, Providence, R. I. Filed Sept. 23, 1880. (Model.)

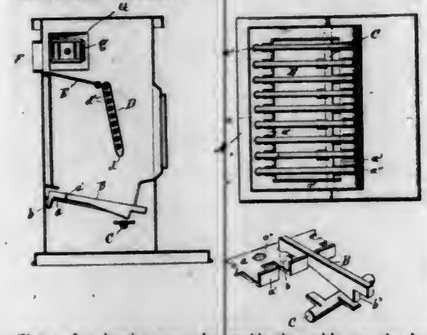
Claim.—1. A check-book having two or more record-leaves arranged, substantially as described, so that by folding each record-page, when in use, may be directly before the writer without intervening leaf or stub, as the check to be detached is being written upon.

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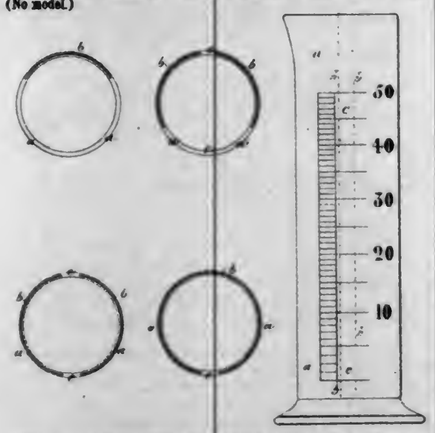
2. In a bank check-book, the combination, with the covers and a number of blank checks, arranged as described, of a series of leaves provided with deposit and check account rulings, and arranged, substantially as described, so that the deposit account shall be concealed by the check account when the latter is being written upon, substantially as described.

320,783. GRATE. JACOB F. HESS, LENERD HESS, FREDRICK H. SNYDER, JACOB F. SNYDER, and CHARLES F. SNYDER, Massillon, Ohio. Filed Mar. 12, 1884. (No model.)



Claim.—In a heating-stove, the combination, with a casting having guides thereon, independent bars loosely supported on said casting between said guides, said bars being of uniform shape, and provided with depending prongs or hooks at their rear ends and with shoulders at their front ends, of a rock-bar constructed to vertically agitate the front ends of the bars in sets of alternate bars, substantially as set forth.

320,784. GRADUATED MEASURING-VESSEL. JAMES J. HICKS, 8 Hatton Garden, County of Middlesex, England. Filed Mar. 18, 1885. (No model.)



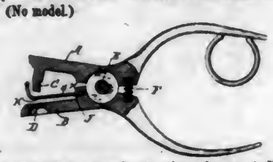
Claim.—1. A glass vessel for measuring liquids or other materials which comprises a body having a receptacle for the matter to be measured or gaged, an enamel strip extending on each side of a space at front to the rear, and an opening through which the liquid can be supplied to and removed from the vessel, substantially as set forth.

2. A glass vessel for measuring liquids or other materials, having a body formed with a receptacle, an enamel strip extending around the back and sides of the body, concealing the receptacle, except along a narrow space forming the correct line of sight through which the matter is to be viewed, and an opening for the reception and removal of the matter, substantially as set forth.

3. A glass vessel or body having enamel strips *b* on each side thereof, leaving a narrow space, *c*, between the strips, through which the contents can be viewed, and graduations over one or more of the strips at the sides of the narrow space.

4. A glass body or containing-vessel having enamel strips extending around the sides of the body, except along narrow spaces *c* at front and rear, substantially as set forth.

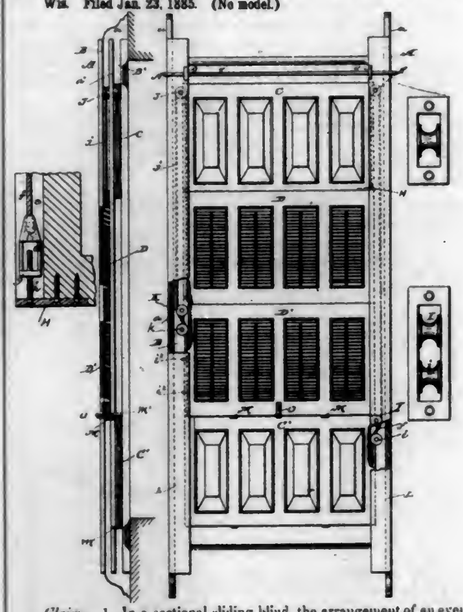
320,785. TICKET-PUNCH. WARREN HILL, Boston, Mass. Filed Apr. 20, 1885. (No model.)



Claim.—1. In a ticket-punch, the pivoted jaws A B, provided, respectively, with the male die C and female die D, the jaw B being constructed with the hub H, in combination with the stripper G, formed of a single piece of bent wire having its ends inserted longitudinally in the hub H, substantially as set forth.

2. The jaw A, carrying the male die C, and the jaw B, provided with the female die D, in combination with the wire stripper G, bent, as shown, to form two adjacent arms curved outwardly, as at K, to inclose the die, and lying nearer to each other at each side thereof, substantially as and for the purpose set forth.

320,786. INSIDE SHUTTER. WALTER A. HOLBROOK, Milwaukee, Wis. Filed Jan. 23, 1885. (No model.)



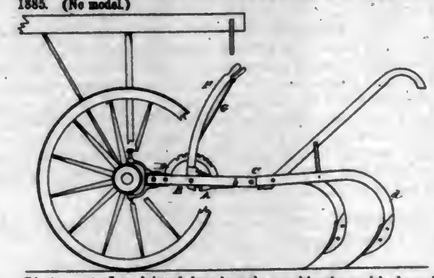
Claim.—1. In a sectional sliding blind, the arrangement of an even number of sections into counterbalancing pairs in such manner that the middle two sections shall form one pair, the next higher and next lower section another pair, and so on, the members of each pair being so connected by cords or otherwise that depressing the lower member will correspondingly raise the upper member, substantially as specified.

2. In a sectional sliding blind, the combination of the counterbalancing sections C and C', moving in the grooves B', or their equivalents, the latter section being provided with the catches *m* and *m'* on its lower, and upper edges, respectively, with the similar counterbalancing sections, D and D', moving in the grooves B, or their equivalents, the latter section being provided with the catch M, substantially as specified.

3. In combination with inside window-blinds made in sections, the projecting side strips, *a a*, fixed to the inside of the window and provided with grooves B B', or their equivalents, allowing sections to slide in front of plastering and uncover the whole window, substantially as specified.

4. In a sliding sectional blind, the combination, with the casing A, sections C C', and pulleys F and I, of the cord *f*, metallic loop G, plate H, and screw *h*, substantially as specified.

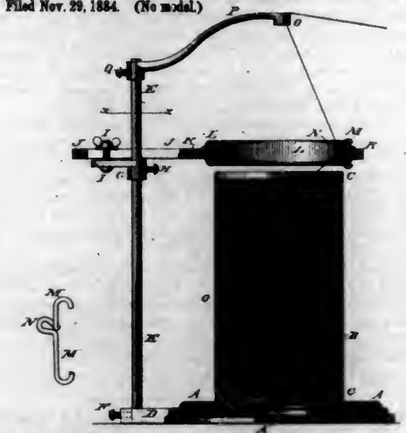
320,787. CULTIVATOR-GEARING. FRANK L. HOLCOMB, Manhattan, Kans., assignor of one-half to John F. Mensing, same place. Filed Feb. 2, 1885. (No model.)



Claim.—1. In a jointed drag-bar, the combination, with the axle and forward section, *b*, of the rear section, *d*, the pivot-bolt C, the geared arm A, the segment-gear B, and the bolt *e*, substantially as shown and described.

2. The combination of the jointed sections *b d* of the drag-bar, the pivot-bolt C, the geared arm A, geared segment B, the lever F, spring-pawl G, and rack D, substantially as shown and described.

320,788. THREAD-UNWINDER. LYMAN R. HOPKINS, Brooklyn, N. Y. Filed Nov. 29, 1884. (No model.)



Claim.—1. A thread-unwinder constructed substantially as herein shown and described, and consisting of the base A, having pin B and arm D, the standard E, the adjustable arm G, having clamping-screw I, and the annular plate K, having slotted arm J, the ring L, the traveler M, having central eye N, and the adjustable arm P, having guide-eye O, as set forth.

2. In a thread unwinder, the combination, with the base A, guide-arm P, and the adjustable plate K J, of the ring L and traveler M, substantially as shown and described.

3. In a thread-unwinder, the combination, with the standard E and the ring-carrying annular plate K, having slotted arm J, of the adjustable arm G, having clamping-screw I, substantially as herein shown and described, whereby the said annular ring-carrying plate can be readily adjusted, as set forth.

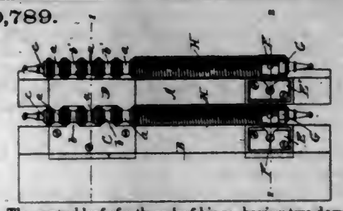
4. The combination, with the ring L, of the traveler M, formed with hooks at its opposite ends, embracing the upper and lower edges of the ring, and with an eye, N, at or near its middle, said eye being to one side of the vertical plane of the traveler, to prevent its binding on the ring, as described.

320,789. SPRING-HINGE. DANIEL W. HOOKLEY, Chicago, Ill. Filed Aug. 25, 1884. (Model.)

Claim.—1. In a three-leaf and double-acting hinge, the central leaf thereof, provided with two downward projections, I, to serve as spring seats and guides, in combination with spiral springs H, seated upon such projections, substantially as described.

2. In a three-leaf double-acting hinge, the combination of the downwardly-projecting guides and seats I, the cylindrical plugs G, extending upwardly, and the device composed of the plate E and vertical tube F, in one piece, substantially as and for the purpose described.

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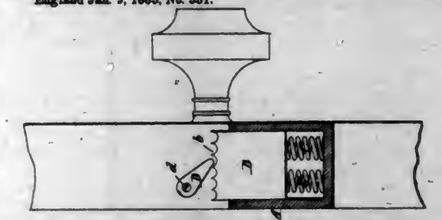


3. The central leaf of a three-leaf hinge, having two downward projections, I, each provided with a vertical groove, *h*, and a notch, *h'*, adapted to guide and confine the springs H and lock them against revolving motion, substantially as described.

4. The device composed of the plate E and the tube F, in one piece, and fastened to the jamb and door, adapted to support the plug G, substantially as described.

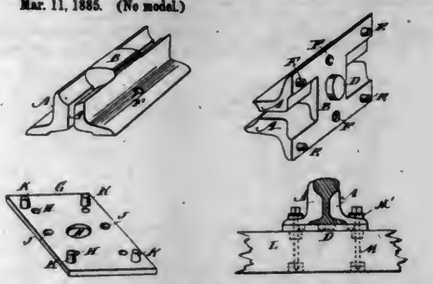
5. The plug G, provided with a series of recesses, *d*, constructed upon one side with inclined planes and upon the other with perpendicular shoulders, to the end that when a pin, *e*, is inserted in one of them the plug may be revolved in the proper direction to wind up the spring, but not in the direction to unwind the same without removing the pin *e*, substantially as described.

320,790. DOOR LATCH OR CHECK. MATTHEW P. ISMAY, Newcastle-upon-Tyne, England. Filed Jan. 23, 1885. (No model.) Patented in England Jan. 9, 1885, No. 331.



Claim.—The combination, with a door and the frame thereof, of a pivoted latch secured to one, a sliding rack secured to the other, and a spring for holding said latch and rack in contact with each other, as set forth.

320,791. RAIL-CHAIR. GEORGE W. JAQUES, Barton, Ohio. Filed Mar. 11, 1885. (No model.)



Claim.—1. In a rail-chair, the combination, with the side pieces, A, united by the cross-piece B, and provided with the tenons D E, and the plate G, having apertures for the tenons, and also having tenons K on its under side, of the bolts M, for holding the chair on the sleeper L, the nuts on the lower ends of the bolts being countersunk in the under side of the sleeper, and of elastic washers, and iron washers, and nuts on the upper ends of the bolts, substantially as herein shown and described.

2. In a rail-chair, the combination, with the side pieces, A, united by a cross-piece, B, and provided with the tenons D E, of the plate G, having apertures for the tenons, and also having tenons K on its under side, substantially as herein shown and described.

3. In a rail-chair, the combination, with the side pieces, A, united by a cross-piece, B, and provided with apertures F, and the tenons D and E, of the plate G, having apertures H J, and of the bolts M, passed through the sleeper and through the bottom parts of the pieces A, substantially as herein shown and described.

320,792. KEY-RING. GEORGE W. JOPSON, Meriden, Conn. Filed Dec. 1, 1884. (No model.)

Claim.—1. A key-ring consisting of the ring proper, having its ends separated, and provided in one of said ends with a longitudinal slit, and a sleeve placed on the ring proper, and adjustable across the space

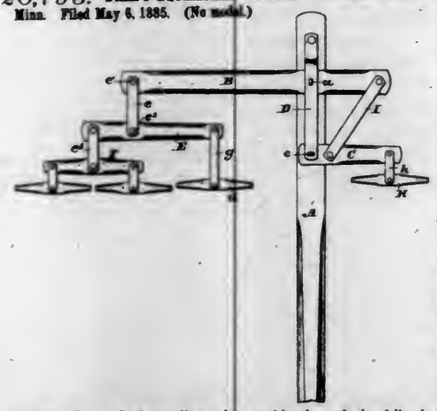
320,792.



between its ends, and provided with a projection fitted to the slit of the ring, substantially as set forth.

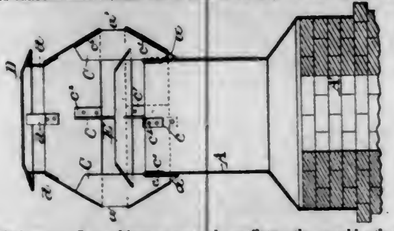
2. The combination, in a key-ring, of the ring proper, having its ends separated, and provided in one end with a slit dividing said end into arms, which are given an outward tension, the sleeve placed on said slitted end, and provided with an inward projection fitted to the slit in the ring, substantially as set forth.

320,793. DRAFT-EQUALIZER. GODFREY J. KAPLAN, Owatonna, Minn. Filed May 6, 1885. (No model.)



Claim.—In a draft-equalizer, the combination of the following elements, viz: pole A, the short and long levers C B, pivoted thereto, the single-tree H, flexibly connected to lever C, the diagonal clip I, pivoted to both of said levers to communicate motion between them, the lever E, flexibly attached to the longer end of B, the double and single trees F and G, flexibly attached to E, the clip-brace D, and pivots *a* and *c*, substantially as and for the purposes described.

320,794. CHIMNEY CAP AND VENTILATOR. WILLIAM J. KAYSER and CHARLES KAYSER, Milwaukee, Wis. Filed May 27, 1884. (No model.)



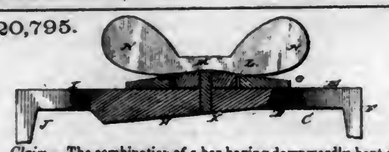
Claim.—1. In a chimney cap and ventilator, the combination of the upper and lower truncated cones with supporting-pieces C, having slots c^4, adapted to receive the edges of the shield, as described.

2. In a chimney cap and ventilator, the combination of the cones B and B', the supporting-pieces C, having flanges *c*, *c'*, and c^2, and open slot c^4, and shield E, adapted to fit into the slots of the supporting-pieces, and cap D, with fastening-pieces *d* d^1, substantially as shown and described, and for the purpose set forth.

320,795. DEVICE FOR STRETCHING CARD-CLOTHING. GEORGE E. KIMBALL, Franklin, Mass. Filed Jan. 15, 1884. (No model.)

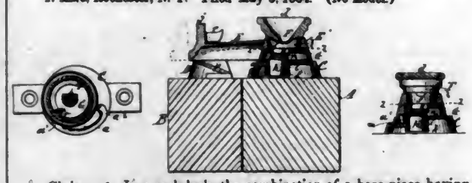


320,795.



Claim.—The combination of a bar having downwardly-bent pointed outer ends, having a longitudinal recess in its under side, and having two shoulders forming a recess between them, having a longitudinal slot at its inner portion, with a bar having downwardly-bent pointed outer ends, sliding with its inner end in the longitudinal recess in the other bar, a pin or bolt projecting through the slot between the shoulders upon the recessed and slotted bar, and an eccentric disk turning upon the upper end of the said pin, fitting between the shoulders upon the recessed bar, and having wings or similar means for holding it while turning it, as and for the purpose shown and set forth.

320,796. FASTENING FOR MEETING-RAILS OF SASHES. HIRAM T. KING, Rochester, N. Y. Filed May 3, 1884. (No model.)

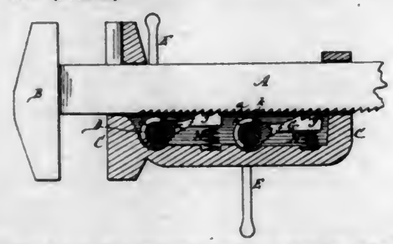


Claim.—1. In a sash-lock, the combination of a base-piece having a circular groove in one edge, with depressions or cavities at its ends, a cam journaled to turn in the base-plate, and a lever provided with a socket resting between the base-plate and the cam, with a pin projecting down and resting in the groove of the base-plate, and so arranged, as described, as to lock in and engage with the depressions or cavities of the groove when thrown to the farthest extent, as set forth.

2. In a sash-lock, the combination of the base-plate having a circular groove in one edge, with cavities or depressions at the ends of the groove, a cam journaled to turn in the base-plate, a lever provided with a socket at one end resting upon and operated by the cam, and provided with a pin that rests in the groove of the base-plate, a washer provided with shoulders that rests upon the cam and acts upon the pin, and a spring beneath the washer, as shown and described, and for the purpose specified.

3. In a sash-lock, the combination of the base-plate C, having groove *a a' a²*, the cam or eccentric F, journaled to turn in the base-plate, the lever E, having a socket that rests on the cam and is provided with a pin, *m*, that rests in the groove of the base-plate, and a plate, D, forming a catch provided with the inclined way *p* at its bottom and the inclined horn *r* at its top, between which the hook end of the lever rides in closing, as shown and described, and for the purpose specified.

320,797. WRENCH. HIRAM T. KING, Rochester, N. Y. Filed Feb. 5, 1885. (No model.)

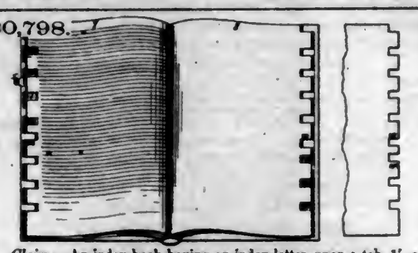


Claim.—1. The combination, with the ratchet-bar and movable jaw, of an eccentric mounted in the jaw and operated by a lever, a dog resting on the eccentric provided with teeth that engage reversely with the teeth of the ratchet-bar, a spring that rests behind the dog to press it up to place, and a pin or screw on the eccentric that passes through a slot in the eye of the dog, as shown and described, and for the purpose specified.

2. The combination, with the ratchet-bar and movable jaw, of two eccentrics mounted in the jaw, two dogs resting on the eccentrics, with springs for pressing the dog up to place, and pins in the eccentrics which pass through slots in the eyes of the dogs, said devices being used in alternation, one serving as a stop against back action of the jaw while the other is moving it forward, as herein set forth.

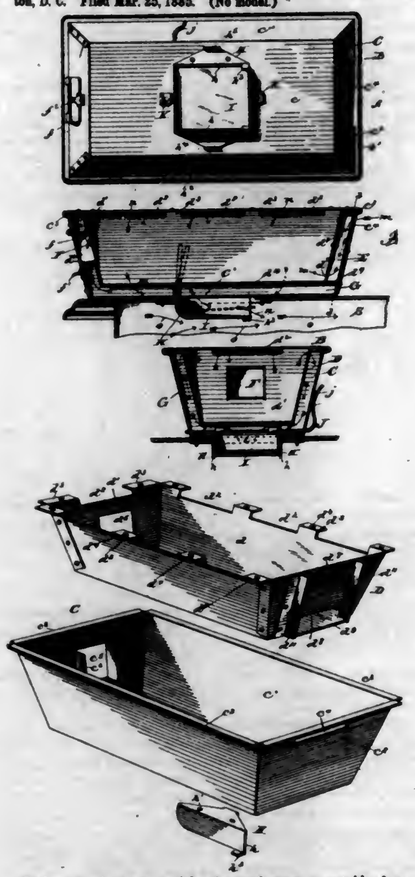
320,798. INDEX-BOOK. WILLIAM M. KINNARD, Dayton, Ohio. Filed May 19, 1884. (Model.)

320,798.



Claim.—An index-book having an index-letter upon a tab, 1', and like index-letters upon the left and right hand sheets, with the remaining leaves of the book slotted upon each side, so as to expose said letters to view, substantially as set forth and specified.

320,799. PORTABLE FURNACE. WILLIAM H. H. KNIGHT, Washington, D. C. Filed Mar. 25, 1885. (No model.)



Claim.—1. As a new article of manufacture, a portable furnace or summer stove consisting of the following-named elements, to wit: an inclosing shell or case having parallel sides and ends, a top having apertures to receive cooking utensils, an interior shell or combustion-chamber depending from said top, air-flues communicating with said combustion-chamber, and a smoke-exit situated at the middle of the bottom of the inclosing-shell, substantially as and for the purpose described.

2. In a portable furnace or summer stove, an inclosing shell or case having parallel sides and ends, a top having apertures to receive cooking utensils, an interior shell or combustion-chamber depending from said top within and at a distance from the exterior shell, and provided with openings in its side walls near the top of the same, partitions between the exterior and interior shells, forming a flue, openings connecting said flue and openings through the exterior shell connecting with said flue, and a smoke-exit situated at the middle of the bottom of the inclosing-shell, substantially as described.

3. In a portable furnace or summer stove, a top provided with one or more openings to receive cooking utensils, and an interior shell or combustion-chamber secured thereto and depending therefrom, said chamber provided near its bottom with an air-inlet and at its top with one or more openings for the passage of smoke, &c., in combination with an exterior shell secured to said top and surrounding the combustion-chamber at a distance therefrom, and a projecting smoke-flue secured to the middle of the bottom of said exterior shell, substantially as described.

4. In a portable furnace or summer stove, and in combination with the exterior shell or walls thereof, a projecting smoke-flue having a movable and adjustable side, substantially as described.

5. In a portable furnace or summer stove, an air-flue, E, consisting in the openings c^6 in the exterior shell, and d^6 in the combustion-chamber, and connecting-passage E, arranged substantially as described, in combination with the exterior shell, C, combustion-chamber D, depending from the top, top B, and a smoke-exit, as and for the purpose set forth.

6. In a portable furnace, the combination of a projecting smoke-flue at the middle of the furnace-bottom, substantially as described, with the exterior shell, C, combustion-chamber D, depending from the furnace-top, openings d^3, and air-inlet E, having openings c^4 d^6, as and for the purpose set forth.

7. In a portable furnace or summer stove, the combination of the interior shell or combustion-chamber, D, depending from its top, said chamber having air-inlet E and smoke-passages d^4, and surrounded by an exterior shell, C, with said exterior shell, C, provided at its bottom with an opening, C', projecting angle-strips H, and interposed flap I, substantially as described.

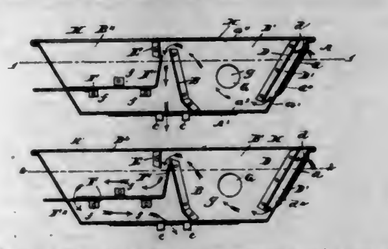
8. In a portable furnace or summer stove, the combination of a top, B, having openings *b*, combustion-chamber D, and exterior shell, C, with a door, F, air-inlet E, openings d^2, and smoke-exit having flap or damper I, substantially as described.

9. In a portable furnace or summer stove, the combination of the interior shell or combustion-chamber, D, exterior shell, C, air-inlet E, openings d^2, air-space G, openings C', and projecting flanges *h*, with the flap or damper I and rod J, having upwardly-turned portion *j*, whereby to hold said flap in any desired position, substantially as described.

10. In a portable furnace or summer stove, projecting ears or lugs K, in combination with the exterior shell, C, of said furnace, and a downwardly-projecting smoke-exit secured thereto, substantially as described.

11. In a portable furnace or summer stove, the combination of the internal shell or combustion-chamber, D, having an opening, d^3, at its bottom, openings d^2 at its top, and a door, with an exterior shell, C, having openings c^4 at its top, opening C' at its bottom, top B, having openings *b*, and an air-space, G, between the shells D and C, substantially as and for the purpose described.

320,800. PORTABLE FURNACE. WILLIAM H. H. KNIGHT, Washington, D. C. Filed Apr. 17, 1885. (No model.)

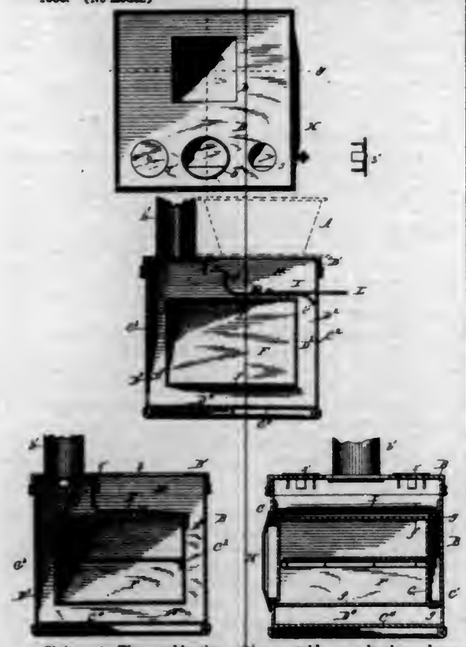


Claim.—1. In a portable furnace or summer stove, a fixed transverse partition extending across the stove at the middle and from the bottom nearly to the top thereof, in combination with a sliding horizontal partition having an upwardly-projecting portion, a fixed partition located a short distance from and projecting downward from the top of the stove to a point a short distance below the upper edge of said fixed transverse partition, smoke-exit arranged at the bottom of the stove, and air-inlets communicating with the combustion-chamber, substantially as described.

2. In a portable furnace or summer stove, the combination of the following-named elements, to wit: side walls, *a*, end walls, *a' a²*, top a^4, bottom a^3, fixed transverse partitions B, D, and E, sliding partition F, smoke-exit C, air-inlet flue D, openings *d*, and utensil-receiving openings H in the top a^4, all arranged, combined, and operating substantially as described.

3. A portable furnace or summer stove having an inclosing shell of rectangular form, a combustion-chamber, an air-flue to said combustion-chamber, a smoke-exit situated at the middle of the bottom of the inclosing-shell, and a plate or disk of greater width than the bottom of the furnace secured to said bottom surrounding the smoke-exit and projecting at each side of said bottom, substantially as described.

320,801. PORTABLE OVEN. WILLIAM H. H. KNIGHT, FRANK H. KNIGHT, and ALEXANDER M. PROCTOR, Washington, D. C. Filed May 13 1885. (No model.)

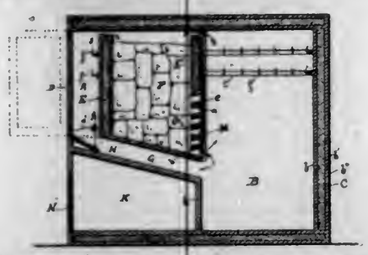


Claim.—1. The combination, with a portable oven having a down-draft inlet and an interior oven-chamber, of a shield interposed between said down-draft inlet and the oven-chamber, substantially as described.

2. In a portable oven having a down-draft inlet and an interior oven, a movable shield having a damper-flange, and means, as L, for operating it, as set forth.

3. In a portable oven, as described, the combination, with the shell B, having heat-receiving inlet b and draft-exit b' in the top B, of the interior oven-chamber arranged to form flues D^2 D^4 D^3, as shown, the damper-shield, and the covered holes a a', arranged adjacent to the exit, the whole adapted to serve with a summer stove, as A, as and for the purposes set forth.

320,802. REFRIGERATOR. JOHN KOCH, Wheeling, W. Va. Filed Mar. 19, 1885. (No model.)



Claim.—1. A refrigerator or meat-safe embodying in its construction a compartment, B, for the storage of large pieces of fresh meat, a compartment, A, for keeping small cuts of meat arranged to expose the meat to public view, and an ice-chamber, F, situated between the two compartments, substantially as herein shown, and for the purpose set forth.

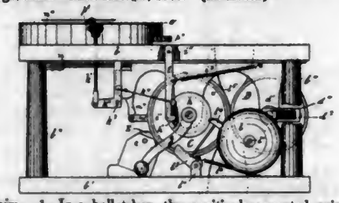
2. The combination, with the ice-chamber F, constructed with a barred space, O, of the sliding door M, substantially as and for the purpose set forth.

3. The combination, with the refrigerator having chambers B F K and slanting passage G, between the chambers K and F, communicating with the chamber B, of the doors H and D, connected by a cord, d, passing over the pulley g, whereby the two doors are simultaneously operated, substantially as specified.

4. The combination, with the refrigerator having the chambers E B, connecting-passage G, and door H, of the door D, having glazed openings and connected to the door H by means of cords passing over pulleys, substantially as and for the purposes specified.

5. In a refrigerator or meat-safe, the combination of the compartments A and B, ice-chamber F, flue G, and compartment K, arranged and combined substantially as herein shown.

320,803. BALLOT-BOX. JOHN H. LASKEY, Boston, Mass., assignor of two-thirds to Isaac F. Dobson, same place, and Benjamin F. Davies, Cambridge, Mass. Filed Mar. 27, 1885. (No model.)

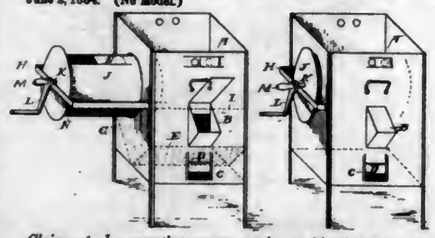


Claim.—1. In a ballot-box, the positively-operated printing-roller C and loosely-rotated friction-roller D, in combination with the intermediate ballot-guides, F F, having the middle perforation, f'', and side stripe, f' f', as and for the purpose set forth.

2. In a ballot-box, the positively-operated printing-roller C and the notched disk h h', in combination with the locking-lever i i', its spring i^3, and the releasing mechanism, consisting of knob k, rod k', knee-lever k'', and connecting-rod k^4 to the lever i, as and for the purpose set forth.

3. In a ballot-box register, the upper index-plate, o, and its pointers n'' p^5, combined with the lower index-plate, r, and the pointers r^3 r^4, with their intermediate connecting mechanism, in a manner and for the purpose as set forth.

320,804. PEANUT-ROASTER. THOS. LEE, Cincinnati, Ohio. Filed June 2, 1884. (No model.)



Claim.—1. In a roasting apparatus, the combination of a case, A, a roasting-cylinder, and a sliding frame which carries the same, and a grate below the cylinder composed of an angular perforated plate, E G, secured to the case A, substantially as set forth.

2. In a roasting apparatus, the combination of a case, as A, a cylinder, and a sliding frame which carries the same, a grate below the cylinder, composed of an angular plate, E G, secured to the case, and a feeding-chute in the side of the case for the introduction of fuel, and a hinged cover for said chute, substantially as shown and described.

320,805. GATE. ROSWELL J. LEITZEL and HENRY FROCK, Kratzerville, Pa.; said Frock assignor to said Leitzel. Filed Nov. 22, 1884. (No model.)

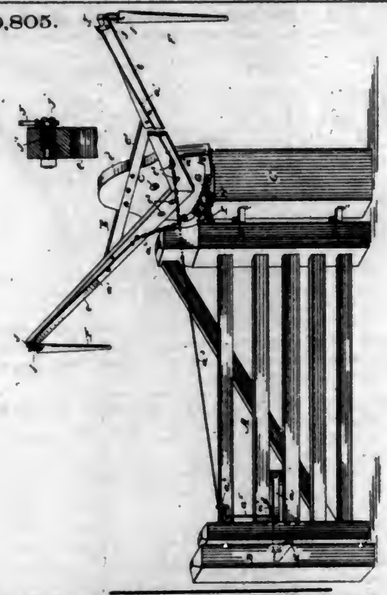
Claim.—1. The combination, with a swinging gate having a toothed sector or gear, of an operating-lever having a curved rack, a pinion meshing with said rack and sector or gear, pendent handles, spring-retracted bell-crank levers, by which said handles are attached to the outer ends of the arms of said operating-lever, a latch and connections between the latter and the said bell-crank levers, whereby said latch will be lifted during the first part of the downward movement of the handles before the operating-lever is moved, and the gate, when opened, will be swung away from the operator, substantially as set forth.

2. The combination, with the gate A, of the operating-lever E, handles F, curved rack G, pinion H, gear or sector I, levers J, springs j'', links or rods a', chains a^3, link or rod a^3, lever a^4, link a^4, and latch a, substantially as set forth.

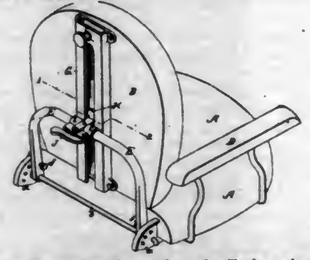
3. The combination, with the swinging gate A, having the latch a and the gear or sector I, of the lever E, pendent handles F, levers J, lifting-springs j, the lever a^4, connected with the latch, and connections between the said levers J and the lever a^4, all substantially as shown and described.



320,805.



320,806. DENTAL CHAIR. M. LUKENS LOBB, Philadelphia, Pa. Filed Oct. 20, 1884. (No model.)



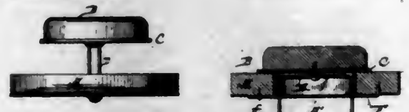
Claim.—1. The combination of the yoke E, the undercut bar G the disk H, fitted to said bar and having projecting arms, the lever I, hung to said arms, and the cam-lever J, pivoted to the lever I, as set forth.

2. The combination of the yoke E, the slotted and undercut bar G, the disk H, guided by said bar and having projecting arms, the lever I, hung to said arms, and the cam-lever J, pivoted to said lever I, as set forth.

3. The combination of the yoke E, the undercut bar G, the disk H, fitted thereto and having projecting arms, the lever I, hung to said arms, the set-screw m, carried by one arm of the lever, and the cam-lever J, carried by the other arm of the same, as set forth.

4. The combination of the yoke E, having collars i i', the undercut guide-bar, the disk H, fitted thereto and having arms A A' arranged between the said collars, the lever I, hung to said arms, and the cam-lever J, pivoted to the lever I, substantially as specified.

320,807. VALVE. CHAS. T. LORNOR, Superior, Nebr. Filed Apr. 2, 1885. (No model.)

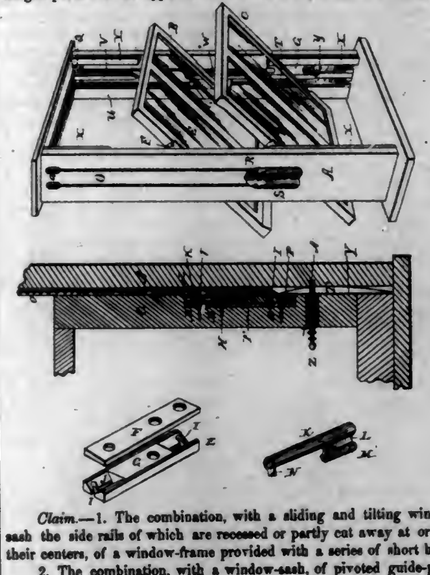


Claim.—1. The improved valve for well-buckets having depending bails formed of a single piece of wire, in combination with the rod F, independent of the valve C, which passes through said bails, and is designed by its removal to admit the valve with its attached wire to be removed from the valve-seat, substantially as shown, and for the purpose set forth.

2. In a valve for well-buckets, the valve B and transverse plate E, the latter being provided with upturned edges and a central perforation, in combination with the bails D D and rod F, substantially as shown and for the purpose set forth.

320,808. WINDOW. MARTIN S. MILLARD, Kansas City, and GEORGE H. KING, Salisbury, assignors of one-third to William H. H. Tainter, Kansas City, Mo.; said Millard assignor of his remaining right to Michael Jordon, Hermann, Mo. Filed Aug. 21, 1882. (No model.)

Brief.—Pivoted guide-plates having T-slots at their upper and lower ends and recesses on their under sides under the T-slots are secured to the side rails of the window-sash, flush therewith. Thimbles on a bracket of tubular sash-cord guides are removably secured in the slot and recess at the upper end of said guide-plates. The window-frame has a series of short beads, and the side rails of the sash are partly cut away, so that the sash is adjustable while in a horizontal position. The window-frame is grooved to accommodate the sash-cord. The lower inside face of the window-frame has concave recesses. A single cord secured to the sashes passes over a pulley mounted on a bolt, uniting a flanged portion to the upper shouldered and flanged end of a weight.



Claim.—1. The combination, with a sliding and tilting window-sash the side rails of which are recessed or partly cut away at or near their centers, of a window-frame provided with a series of short beads.

2. The combination, with a window-sash, of pivoted guide-plates having T-slots at their upper and lower ends, as set forth.

3. The combination, with a window-sash, of guide-plates pivoted to and flush with the side rails, and having T-slots at their upper and lower ends, and recesses on their under sides, under said T-slots, as set forth.

4. The combination, with a window-sash, of the pivoted guide-plates having T-slots, and recesses under said T-slots, and the thimble or sash-cord guides secured in the slots at the under ends of said pivoted guide-plates, as set forth.

5. The combination, with the pivoted guide-plates, of the cylindrical sash-cord guides having brackets provided with thimbles removable from the T-slots at the upper ends of said guide-plates, as set forth.

6. The combination of the guide-plates G, having slots I and recesses J, with the cylindrical cord-guides K, having brackets L, lugs or thimbles M, and hooks N, as set forth.

7. The combination, with the sash having recessed side rails, of the plates F, pivoted plates G, flush with said side rails, and having slots I and recesses J, the cylindrical cord-guides K, having brackets L, lugs M, and hooks N, and the sash-cord, all arranged as set forth.

8. The combination, with a window-frame provided with a series of short beads, of a sliding and tilting window sash the side rails of which are partly cut away, pivoted plates secured to the sash, and sash-cords secured to the pivoted plates, whereby the sashes can be adjusted while in a horizontal position, substantially as set forth.

9. The combination, with a window-frame grooved to accommodate the sash-cords and provided with a series of short beads, of pivoted window-sashes and cords secured indirectly to the said sashes.

10. The combination, with the window-frame having a series of short beads, grooves, or recesses, T, of the sash or sashes having recessed side rails provided with plates F, pivoted plates G, having slots I and recesses J, cylindrical cord-guides K, having brackets L, lugs M, and hooks N, and the sash-cords, all arranged as set forth.

11. The combination, with a window-frame provided with a series of short beads and a window-sash the side rails of which are recessed or

partly cut away at or near their centers, of a spring-actuated catch secured to the sash and engaging the frame.

12. The combination, with the tilting sashes, constructed and arranged as shown and described, of the window-frame having concave recesses Y, as and for the purpose set forth.

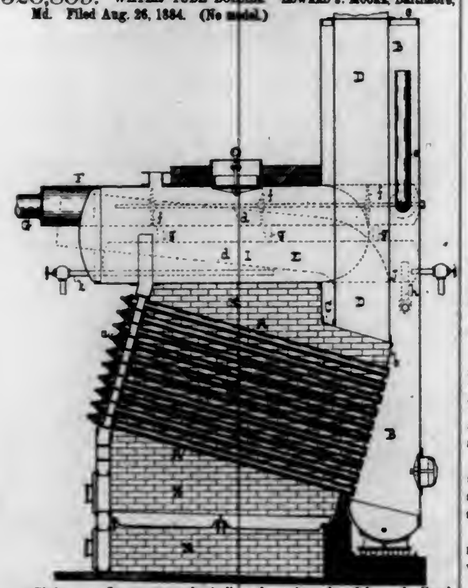
13. The combination, with the tilting sashes, constructed and arranged as shown and described, of the window-frame A, having a series of short beads and the concave recesses Y, as and for the purpose set forth.

14. The combination, with a sash-weight having a flange at its upper end, of a detachable plate and a connecting-bolt upon which a pulley is journaled, as set forth.

15. The herein-described sash-weight, consisting of the body P', having vertical grooves Q' and flange R', the detachable plate S', having shoulders T' and lug U', the connecting bolt or rivet V', and the pulley R, journaled upon said bolt or rivet, as set forth.

16. The combination, with a window-frame and two sashes, each provided on opposite sides with a pivoted plate, whereby the sashes can be tilted, of two sash-cords, the opposite ends of which are secured to their respective pivoted plates on the same side of the sash, and two weights, the said cords and weights being so arranged that a single weight on each side operates both sashes, substantially as set forth.

320,809. WATER-TUBE BOILER. EDWARD J. MOORE, Baltimore, Md. Filed Aug. 26, 1884. (No model.)



Claim.—1. In a water-tube boiler, the tubes placed in an inclined position and at one end inserted at a right angle in a tube-sheet forming a part of and situated within a vertical cylindrical shell, substantially as and for the purpose specified.

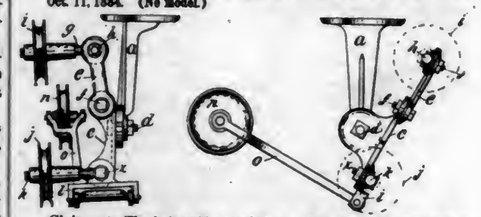
2. In a water-tube boiler, the tubes at one end inserted in a tube-sheet forming a part of a cylindrical shell having a flue, the lower end of which is in communication with the space around the said tubes and adapted to carry off the products of combustion, substantially as and for the purpose specified.

3. In a water-tube boiler, a vertical cylindrical shell, with which the rear ends of the said tubes are in communication, combined with a horizontal shell extending from the vertical one over the said tubes and connected to the front head or leg, substantially as specified.

4. In combination with the steam-drum and steam-pipe of a water-tube boiler, a horizontal cylinder inserted between the said drum and pipe, of larger transverse area than the said steam-pipe, containing perforated diaphragms, and a second cylinder situated underneath the first and in communication therewith through the medium of suitable pipes, and another pipe to connect the said lower cylinder with the water-tubes of the boiler, substantially as and for the purpose specified.

5. In combination with the steam-drum and steam-pipe of a water-tube boiler, a horizontal cylinder inserted between the said drum and pipe, of larger transverse area than the said steam-pipe, containing perforated diaphragms, and a second cylinder situated underneath the first and in communication therewith through the medium of suitable pipes, and another pipe leading from near the center of the second cylinder to connect the same with the water-tubes of the boiler, substantially as and for the purpose specified.

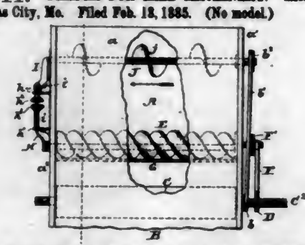
320,810. BELT-GUIDE. JONATHAN J. MOORE and JAMES A. BALL, Thorntown, Ind., assignors of one-half to J. C. Taylor, same place. Filed Oct. 11, 1884. (No model.)



Claim.—1. The belt-guide consisting of the standard *a*, bracket *c*, arm *e*, shafts *g* and *k*, bolts *d*, *f*, *h*, and *x*, and pulleys *i* and *j*, all combined in the manner specified.

2. The combination, with a belt-guide, a binder-pulley, and an arm carrying said pulley, of a bracket formed integral with one of the shafts of said belt-guide, and forming a hinged support for said arm, substantially as and for the purpose specified.

320,811. FEEDER FOR MILL MACHINERY. RICHARD M. NAKE, Kansas City, Mo. Filed Feb. 13, 1885. (No model.)



Claim.—1. In a roller-mill, the combination, with a hopper, of pivoted feed-valves in the throat thereof, a feeder above these valves, a rotary propeller-shaft movable endwise by the action of the grain on its blades, and the spring-actuated adjustable devices between the propeller-shaft and the said feed-valves, substantially as and for the purposes described.

2. The combination, with the hopper of a roller-mill, of a feed-screw and means for imparting motion thereto, the valves pivoted below said screw, an endwise movable rotating shaft bearing propeller-blades, a vertically-movable spring-actuated rod, adjustable as described, an angular lever, and slotted arms connected to said rod, substantially as described.

3. The combination of the hopper, the valves G G, the rod H, the spring, the nuts and guides, the angular lever I, the slotted levers, the endwise-movable propeller-shaft, and means for effecting its rotation, substantially as described.

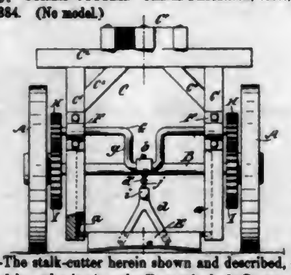
4. In a roller-mill, the combination, with the hopper and crushing-rolls, of a screw-feeder, the endwise-movable propeller-shaft, and feed-valves and connecting devices, substantially as described.

5. In a roller-mill feeder, the combination, with the crushing-rolls, the hopper, and the endwise-movable propeller-shaft, of the spring-actuated rod, the adjustable nut A^2, applied to said rod for adjusting the tension of the spring, and the feed-valves, substantially as described.

6. In a feeder for mill machinery, an endwise-movable propeller, a hopper, and valves, substantially as set forth, in combination with a screw-feeder and an adjustable tension device, as described.

7. The combination, in a roller-mill, of a hopper, an endwise-movable rotary propeller-shaft, pivoted valves, and connecting devices actuated by said propeller, substantially as described.

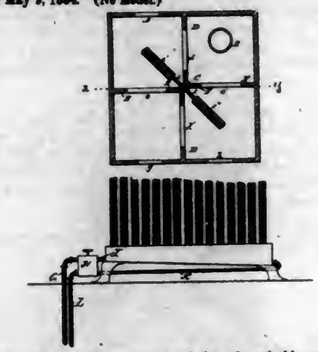
320,812. STALK-CUTTER. JAS. K. PATTERSON, Creta, Nebr. Filed July 9, 1884. (No model.)



Claim.—The stalk-cutter herein shown and described, consisting of the frame C, drive-wheels A, axle B, crank-shaft G, cog-wheels H I, and knife E, connected to the crank by the rod *d* and wrist-piece *b*,

the knife being guided in the grooves *a* of the uprights C', and provided with the spring *j*, substantially as and for the purposes set forth.

320,813. RADIATOR-VALVE. W. BAIRD PATTON, Duluth, Minn. Filed May 9, 1884. (No model.)



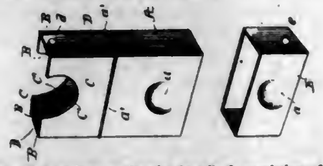
Claim.—1. A radiator-valve consisting of a suitable casing through which passes a shaft carrying wings set at diametrically-opposite points thereon, said casing being provided with two or more partitions with openings having valve-seats adapted to be closed by said wings, substantially as described.

2. A radiator valve-body having inlet and outlet ports and two diaphragms dividing the interior of the valve into four chambers, said diaphragms being provided with openings and valve-seats, in combination with a shaft carrying wings adapted to fit said seats and openings, and to change the direction of passage of steam through the valve, substantially as shown and described.

3. The combination, with a radiator, of a single valve for regulating the admission of steam, said valve comprising a shaft carrying wings and a body having inlet and outlet ports and a diaphragm with seat-openings opened and closed by said wings, substantially as shown and described.

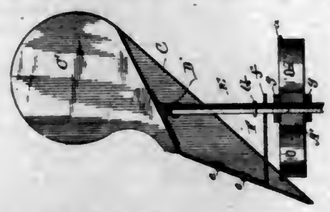
4. The combination, with a valve-casing having internal diaphragms with openings forming seats for valves, of a shaft having arms *c c*, which carry detachable valves c^3 c^3, adapted to fit the said openings, substantially as described.

320,814. CAR-TICKET OR STAMP BOX. ISAAC G. POLLARD, Sunville, Pa. Filed Mar. 27, 1885. (No model.)



Claim.—The pocket-case herein described, consisting of the box divided at its open ends by slits B into sections C C and D D, said sections being given an outward tension, a stud, *d*, near the upper end of one of the sections, and the cover having a recess fitted and arranged to be engaged by the stad *d*, substantially as set forth.

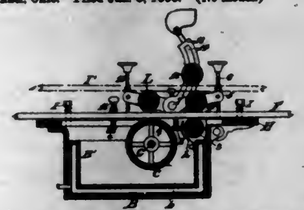
320,815. CHIMNEY-COWL. GEORGE W. POWERS, JAMES H. JONES, and JAMES M. POWERS, Streator, Ill. Filed Apr. 23, 1885. (No model.)



Claim.—1. The combination, in a rotary chimney-cowl, of a stationary spindle having a flange thereon, a cone or shield, a bracket slotted as described, bolts passing through said slots and engaging said cone, and a socket, the parts being combined substantially as set forth.

2. In a rotary chimney-cowl, a revolving pyramidical-shaped cone provided with a depending socket and a vane, C', and adjustable bracket F, with perforated ends, and a stationary spindle having a flange, G, screw-threaded end, and securing-nuts *g*, in combination with the annular flanged rim with inwardly-projecting arms which form a bearing for the spindle, the parts being organized substantially as shown, and for the purpose set forth.

320,816. GLUING AND STAINING MACHINE. WILLIAM RABBE Cincinnati, Ohio. Filed Jan. 8, 1885. (No model.)



Claim.—1. In a gluing or staining machine, the combination of the distributing-drum having its periphery provided with spiral grooves, the feed and pressure rollers arranged in advance of said glue-distributing drum, the scraper or doctor blade acting upon the periphery of the drum and having laterally-adjustable supplementary scrapers and the stationary brush for smoothing the glue or other substance upon the object to be coated, substantially as described.

2. The gluing-roller C, formed of two or more detachable sections, C' D, adjustably attached to the shafts, substantially as specified.

3. In a glue or staining machine, the combination of the guide 8, spring-bolts I, arms 5, pressure-roller 4, vertical screw 6, and pivoted arm 13, carrying the adjustable roller 12, with the distributing-roller C and roller L, arranged above the latter, substantially as described.

4. In combination with the rollers L and 4, the adjustable arms to which they are journaled yieldingly secured to the table H by the guide 8 and spring-bolts I, substantially as specified.

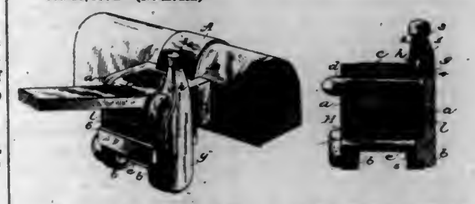
5. In a gluing-machine, the combination of the gluing-rolls C and N with the gluing-founts O and B, located, respectively, above and below the gluing-rolls, provided with suitable feed-rolls for simultaneously applying glue or stain upon both sides of the material, substantially as specified.

6. In combination with the gluing-fount O and gluing-wheel N, the gate 25, connected to a weighted arm, which is automatically operated by the pressure-roller *i*, working on the under side of the stuff F, substantially as specified.

7. In combination with the gluing-machine adapted to spread glue on the under side of the stuff F, the detachable glue-fount frame M, adapted to work in connection with the gluing-roll N, substantially as specified.

8. In a gluing-machine, the combination, with the feeding-rollers 3, squeezing-roll 4, and gluing-rollers L and C, of the squeezing-roll 12, journaled above and adapted to work in connection with feed-roll 4, whereby the stuff I' is glued by returning to said squeezing-rolls, substantially as specified.

320,817. THILL-COUPLING. NEWTON RICHEY, Ashland, Ohio. Filed Oct. 25, 1884. (No model.)



Claim.—1. In a thill-coupling, in combination with a socket, the eye of the shaft-iron, the bolt connecting the eye to the socket and the stop-arm which holds the bolt, the pressure-bolt fixed to the arm, and cut away on one side, and the pressure-plate and spring, substantially as described.

2. In a thill-coupling, the combination, with a socket, of the pressure-bolt and stop-arm provided with a locking-spring, the pressure-plate H, resting upon the pressure-bolt, the said plate having flanges 6 6, extending across at the front and rear between the sides of the socket, and the spring *l*, interposed between the pressure-plate and the eye of the shaft, all substantially as described.

320,818. STAMP. WILLIAM S. SHARPNECK, Denver, Colo., assignor to Herbert N. Nichols, same place. Filed Feb. 24, 1885. (No model.)

Claim.—1. The combination, in a stamp, of a cylinder and piston, with a valve controlling the access of air to said cylinder, and a shaft and connections therewith, substantially as described, for giving motion to one of said parts, whereby the other part is raised by the partial vacuum formed in the cylinder, as set forth.

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2. The combination, in a stamp, of a cylinder, a piston working air-tight therein, and a valve governing the access of air to said cylinder, with a rotary shaft and connections therewith, substantially as described, for giving motion to said piston, whereby the movement of the latter creates a partial vacuum in the cylinder and raises the same, substantially as described.

3. The combination, in a stamp, of a cylinder, R, provided with gland W', and carrying the shoe S, with the reciprocating piston Q, working air-tight therein, and the valve *b*, governing the access of air to said cylinder, whereby the shoe is lifted by the partial vacuum formed in the cylinder, substantially as described.

4. The combination, in a stamp, of a reciprocating piston, Q, reciprocating cylinder R, provided with ribs, the fixed cylinder W, and the lining X, surrounding said ribs and having water-passages, substantially as described.

5. The combination, in a stamp, of the reciprocating piston Q, the reciprocating cylinder R, the fixed cylinder W, having a water-passage, *w''*, and the lining X, constructed and arranged to leave a water-chamber on the outside of the body of said lining, substantially as described.

6. The combination, in a stamp, of a reciprocating cylinder, R, a piston, Q, working air-tight therein, and a valve, *b*, communicating with the interior of the cylinder and operated by the motion thereof through connections, substantially as described.

7. The combination, in a stamp, of a reciprocating cylinder, R, a reciprocating piston, Q, working air-tight therein, and a valve, *b*, communicating with the interior of the cylinder, and mechanism, substantially as described, for opening said valve as the piston nears the bottom of its stroke and closing it as the piston rises, substantially as described.

8. The combination, in a stamp, of a reciprocating cylinder, and a reciprocating piston working therein, with a valve, *b*, connecting with the interior of the cylinder, a stationary arm, *e*, and a lever, *c*, connected to the plug of said valve and operated by the said stationary arm *e* and the motion of the cylinder, substantially as described.

9. The combination, in a stamp, of a reciprocating cylinder, the shoe S, attached thereto, and a reciprocating piston, Q, working in said cylinder, with the valve *b*, communicating with the interior of the cylinder, a lever, *c*, connected to the plug of said valve, and an adjustable arm, *e*, having a swivel-pin, *d*, through which lever *c* works, substantially as described.

10. The combination, in an ore-stamp, of a reciprocating shoe, its carrier and the guides for the same, with a guard (as the extension *w*) extending below the guides in which said carrier works, and surrounding, without touching, said shoe, substantially as and for the purpose specified.

320,819. PROCESS OF MAKING REFINED CAST-STEEL AND OF STEEL-COATING WROUGHT-IRON. THOMAS SHERMAN, Dunkirk, N. Y. Filed Apr. 14, 1885. (No specimens.) Patented in England June 3, 1883, No. 2,862.

Claim.—The process of making refined steel from wrought-iron, which consists in packing the wrought-iron in an annealing-box, in a compound of charcoal, chloride of sodium, bicarbonate of soda, bisulphite of soda, sulphate of zinc, substantially in the proportions described, and employed in conjunction with broken limestone, and subjecting the boxes to heat, substantially as set forth and described.

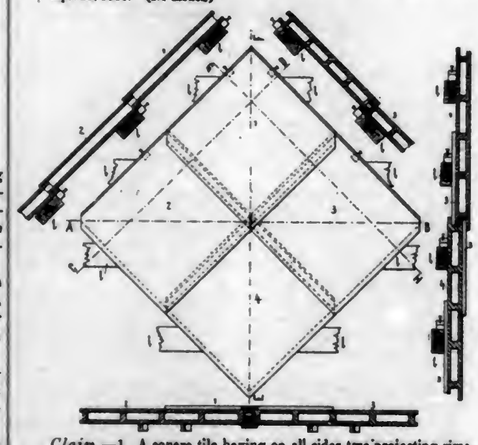
320,820. PROCESS OF DYEING. RUDOLF SILBERBERG, Jersey City N. J., assignor of one-half to Henry W. Hoops, Jr., same place. Filed Mar. 25, 1885. (No specimens.) Patented in Canada Apr. 20, 1885, No. 21,458.

Claim.—The improvement in dyeing fabrics containing cotton with aniline dyes, the same consisting in first immersing the fabric in boiling water, and then immersing it in a mixture of a solution of oxalate of chromium and a solution of caustic soda, then washing the fabric, and then dyeing with an aniline die in the usual manner, substantially as set forth.

320,821. MORDANT. RUDOLF SILBERBERG, Jersey City, N. J., assignor of one-half to Henry W. Hoops, Jr., same place. Filed May 8, 1885. (No specimens.) Patented in Canada Apr. 20, 1885, No. 21,458.

Claim.—A mordant for preparing fabrics for dyeing with aniline dyes, consisting of a mixture of a solution of oxalate of chromium and a solution of caustic soda, substantially as described.

320,822. TILE. PAUL SIEBOTH, Darmstadt, Hesse, Germany. Filed Apr. 23, 1885. (No model.)



Claim.—1. A square tile having on all sides two projecting rims, *h* and *i*, adapted to form with the like rims of another tile a double-lap joint, substantially as described.

2. A square tile having the projecting rims *h* and *i*, and which consists of the top wall, *f*, the bottom wall, *g*, and the connecting-walls *e*, leaving between them hollow spaces, substantially as specified.

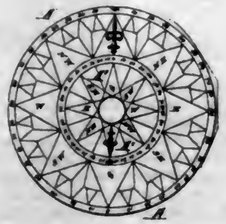
320,823. MARINER'S COMPASS. ROBERT L. SLEATER, St. John's, Newfoundland. Filed Mar. 19, 1885. (No model.) Patented in England Oct. 23, 1884, No. 14,060.

Claim.—1. In a mariner's compass, the combination, with a surrounding casing and condensing and achromatic lenses, of a transparent compass-card having two sets or series of notations and points thereon, the points of the outer series being marked in the ordinary manner, while the points of the inner series are marked in reverse order thereto, substantially as described.

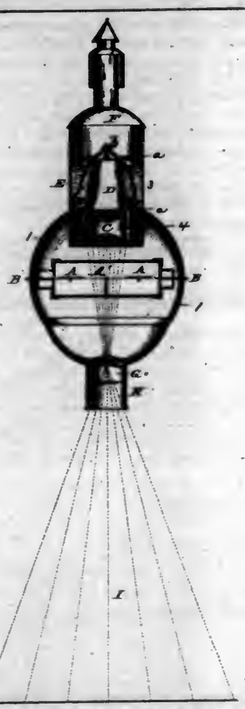
2. In a mariner's compass, the combination, with a surrounding casing and condensing and achromatic lenses, of a transparent compass-card the points of which are marked in reverse order, so that the reflected image will appear correct, substantially as described.

3. The combination, with the casing 1, of the cylinder 3, diaphragms *a a*, chimney F, and reflecting-cylinder D, the space intermediate of said diaphragms and cylinders D and 3 serving as an oil chamber or receptacle, substantially as described.

4. The combination, with the casing 1, cylinder 3, having chimney F and diaphragms *a a* and reflecting-cylinder D, of the inner concentric cylinder, 4, provided with the condensing-lenses C, substantially as described.

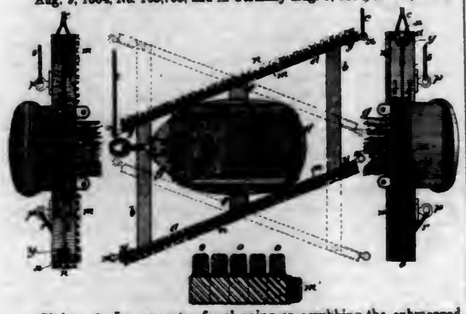


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5. The combination, with the casing 1, cylinder 3, reflecting-cylinder D, and condensing-lenses C, of the achromatic lens G, for reflecting or projecting the image from the transparent compass-card, substantially as described.

320,824. APPARATUS FOR CLEANING SUBMERGED PARTS OF SHIPS. ALEXANDER D. SPIER, Glasgow, County of Lanark, Scotland, assignor of two-tenths to Archibald Scott Brown, same place, and David Hunter, Troon, Scotland. Filed July 1, 1884. Renewed Apr. 8, 1885. (No model.) Patented in England June 14, 1884, No. 8,973; in France Aug. 9, 1884, No. 163,705, and in Germany Aug. 9, 1884, No. 31,491.



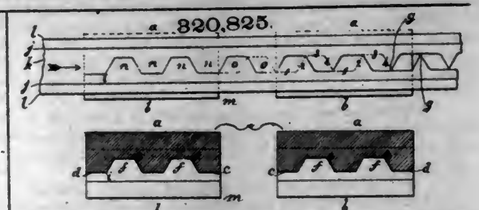
Claim.—1. In apparatus for cleaning or scrubbing the submerged parts of the sides and the bottoms and keels of ships afloat, a jointed frame having brushes or scrubbers on the front edges, or on both the front edges and on the outer flat sides of its top and bottom members, and rings or eyes at the extremities of the said members, and rings or eyes at the backs of the said members or on the mid or end ties, substantially as and for the purpose set forth.

2. In apparatus for the purpose set forth, the combination of a jointed frame provided with auxiliary brushes or scrubbers and rings or eyes, as set forth, with a main brush or scrubber carried in and by the frame, substantially as described.

320,825. DIE FOR MAKING BARBED METALLIC FENCING. ANSON P. THAYER, Brooklyn, N. Y., assignor to Thomas W. Hall, same place. Filed Nov. 20, 1883. (No model.)

Claim.—In dies for simultaneously slitting a double blank strip apart and forming two barbed rods therefrom by ribs and grooves relatively disposed for, first, slitting the strip apart and forming projections

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containing the material for one barb and the waste to be cut away between two barbs alternately with corresponding notches with one set of ribs and grooves, and, second, shearing the waste pieces by another set of ribs and grooves, said dies consisting of two separate pairs separately located a distance from each other of two or more barbs apart on each rod, and each pair having two ribs and grooves, adapting said dies to form two notches and projections and to complete two barbs on each rod by one and the same operation, substantially as described.

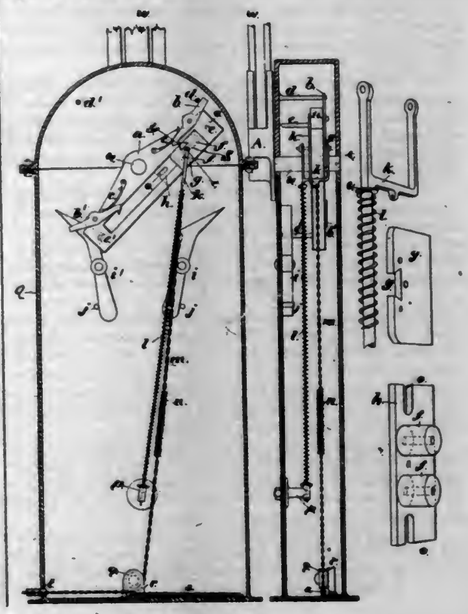
320,826. AUTOMATIC WASTE-VALVE FOR ENGINE-CYLINDERS. WARREN R. TOWNSEND, Grand Rapids, Mich., assignor to himself and Charles S. Knight, same place. Filed Dec. 18, 1884. (No model.)



Claim.—In a waste-valve, the combination, with the body A, provided with the inlet *a* and outlet *b* and the valve-stem *d*, of the cap *e*, provided with the tube *i*, projecting down into the body and serving as a shield and guard to the valve-stem, substantially as herein shown and described.

320,827. RAILROAD-GATE. GEORGE W. WAY, Portland, and ALMON F. HILL, Deering, assignors to the Hill & Way Gate Company, Portland, Me. Filed Jan. 4, 1884. (No model.)

Brief.—Fixed to the shaft upon which the gate is mounted is an oscillating beam. A carriage is movable in a slot in said beam and may be held stationary at either end by latches. To the carriage the operating draft-chain is secured by means of a forked arm which is secured to the carriage. The long arm of the forked piece is surrounded by an expansive spring, which moves the carriage up or down within the slot in the beam. An alarm-bell is connected with the shaft in such a manner as to be automatically sounded when the shaft turns. The lower ends of the rails forming the gate are set in and secured to tangs of the casting which is secured to the shaft.



Claim.—1. The combination, substantially as set forth, of the shaft, an oscillating beam fixed thereto, a carriage movable on said beam, a draft-chain connected with said carriage for shifting the same, and a shifting line of power, also connected to said carriage, for oscillating the beam.

2. The combination, substantially as set forth, of a rock-shaft, an oscillating beam fixed thereto, a carriage movable on said beam, a draft-chain connected to said carriage for shifting the same on the beam, and a spring for oscillating the beam.

3. The combination, substantially as set forth, of a shaft, a gate-arm operated thereby, an oscillating beam attached to said shaft, a carriage movable on said beam, latches pivoted to said beam for grasping the carriage at the ends of its movement, and stops for releasing said latches at the extremes of the oscillations of the beam.

4. The combination of a shaft, a gate-arm operated thereby, an oscillating beam fixed to said shaft, latches for grasping the downward ends of said beam, a carriage movable on said beam for releasing the latch therefrom, means for shifting said carriage, and means for oscillating the beam to close or open the gate-arm.

5. The combination, substantially as set forth, of the shaft, a gate-arm operated thereby, an oscillating beam fixed to said shaft, a carriage movable on said beam, a draft-chain connected to said carriage for shifting the same, and provided with a spring for imparting elasticity to the chain, a spring for drawing back the draft-chain when the latter is released, and means for automatically oscillating the beam.

6. The combination, substantially as set forth, of a shaft, a gate-arm operated thereby, an oscillating beam fixed to said shaft and provided with a longitudinal slot a carriage movable in said slot, means for shifting said carriage, a latch for locking said arm, adapted to be released by the movement of the carriage, and means for oscillating the beam to open or close the gate.

7. The combination, substantially as set forth, of a shaft, a gate-arm operated thereby, an oscillating beam fixed to said shaft and provided with a longitudinal slot, a carriage movable in said slot, a forked arm connected to said carriage, an eye through which said arm projects, a draft-chain connected to said arm, and an expansive spring surrounding the same for oscillating the beam.

8. A skeleton gate-arm consisting of a casting composed of a shank having a pivot-hole, and provided with bolt-holes and tangs, said tangs projecting from one side of said shank near opposite edges thereof, the tangs of one edge being opposite the space between the tangs of the other edge, and converging rails attached to said tangs, substantially as described.

9. The combination, substantially as set forth, of a shaft, a gate operated thereby, an oscillating beam attached to said shaft, means for oscillating said beam to open or close the gate, a bell or alarm, and mechanism for automatically sounding the latter simultaneously with the closing of the gate.

10. The combination, substantially as set forth, of a shaft, a gate operated thereby, an oscillating beam attached to said shaft, a carriage movable on said beam, means for shifting said carriage, means for oscillating said beam to open or close the gate, a bell or alarm, and mechanism for automatically sounding the latter simultaneously with the closing of the gate.

11. The combination of a shaft, a gate operated thereby, a toothed segment attached to said shaft, a bell or alarm, a pivoted lever for sounding the latter, provided with a pivoted pawl which engages the teeth of said segment, and a spring for holding said pawl in contact with said segment, said spring permitting said pawl to yield during the opening of the gate, substantially as set forth.

12. The combination, substantially as set forth, of a shaft, a gate operated thereby, an oscillating beam attached to said shaft, means for oscillating said beam to open or close the gate, a toothed segment, also attached to said shaft, a bell or alarm, a pivoted lever for sounding the latter, provided with a pivoted pawl which engages the teeth of said segment, and a spring for holding said pawl in contact with said segment.

13. The combination, substantially as set forth, of a shaft, a gate operated thereby, an oscillating beam attached to said shaft, a carriage movable on said beam, means for shifting said carriage, means for oscillating said beam to open or close the gate, a toothed segment attached to said shaft, a bell or alarm, a pivoted lever for sounding the latter, provided with a pivoted pawl which engages said segment, and spring for holding said pawl in contact with said segment.

14. In a gate-operating mechanism, the combination of a main shaft and a shifting beam fixed thereon, said beam being adapted to carry a shifting carriage or frame movable from end to end thereof by a draft-chain communicating therewith, and to be actuated to shift the gate by a power acting on either side of the main shaft.

15. In a gate-operating mechanism, the combination of a rock-shaft and an oscillating beam fixed to and extending across said shaft at an angle of forty-five degrees, or thereabout, substantially as described

16. In a gate mechanism, the combination of a main shaft, a gate-arm attached thereto, and an oscillating beam fixed to and extending obliquely across said shaft, substantially as described.

17. In a gate-operating mechanism, the combination of a rock-shaft, an oscillating beam fixed to and extending obliquely across said shaft, and a shifting-spring adapted to operate at either end of said beam on opposite sides of said shaft, to rock the latter for the opening and closing of the gate, substantially as described.

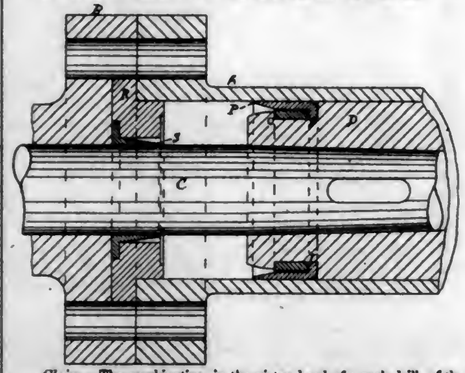
18. In a gate mechanism, the combination of a rock-shaft, an oscillating beam fixed to and extending obliquely across said shaft, a shifting-spring adapted to operate at either end of said beam on opposite sides of said shaft to rock the latter for the opening and closing of the gate, and a gate-arm attached to said shaft.

320,828. PENCIL-HOLDER. JOSEPH C. WILKIN, Buchtel, Ohio. Filed Feb. 24, 1885. (No model.)



Claim.—A pencil-holder consisting of a tubular case of sheet metal or other suitable material, slotted longitudinally from end to end and having a swelled or bulging middle part and flanges at its opposite ends, said ends being provided with rubber sleeves held in place by the flanges, substantially as and for the purpose herein shown and specified.

320,829. PISTON-HEAD PACKING FOR ROCK-DRILLS. LEANDER S. WOODBURY, Calumet, Mich. Filed Jan. 12, 1885. (No model.)

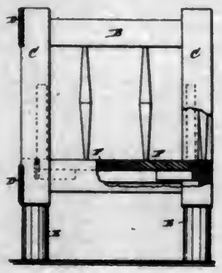


Claim.—The combination, in the piston-head of a rock-drill, of the fibrous cup-shaped packing-ring P, formed substantially as shown, with the piston-head D, formed as shown, so that the packing-ring can be pressed into the groove of the same, as set forth, and the elastic ring O, so made as to fill the space in the groove not taken up by the packing-ring, and serving to hold the packing-ring in place, and also as an elastic cushion for any lateral thrust of the packing-ring against it, all substantially as and for the purposes herein set forth.

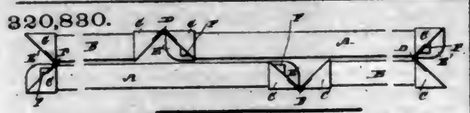
320,830. FOLDING CRIB. MARY E. WOODWARD, Parker, Dak. Filed Jan. 29, 1885. (No model.)

Claim.—1. A folding crib formed of the two side pieces, A, and the two end pieces, B, each provided at each end with a corner-piece having a triangular cross-section, the said corner-pieces being hinged together in pairs alternately at the inner and outer edges, one corner-section of each pair being provided at its lower end with a leg, E, substantially as shown and described.

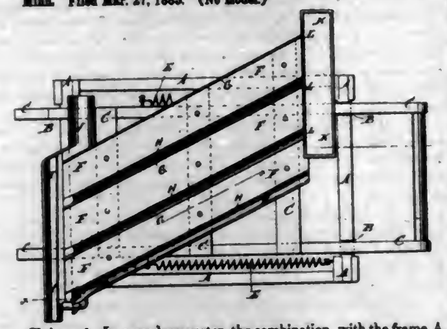
2. A folding crib comprising two side pieces and two end pieces provided at each end with corner-pieces hinged together and legs depending from one corner-piece of each pair, the upper ends of said legs forming shoulders E', adapted to serve as a support for the adjacent corner-piece when the crib is adjusted for use, substantially as set forth.



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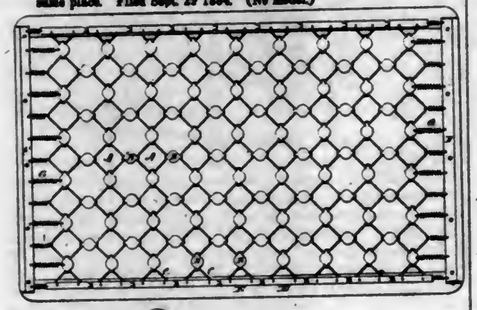
320,831. FLAXSEED-SEPARATOR. GEORGE ADAMS, Sherburne, Minn. Filed Mar. 27, 1885. (No model.)



Claim.—1. In a seed-separator, the combination, with the frame A, having ends of unequal height and provided with guide-recesses B in its top cross-bars, of the sliding frame C, having shoulders D, and the parallel plates F, having flanges G along their upper side edges and grooves H along their lower side edges, the discharge-spouts I J, connected with the lower ends of the plates F and grooves H, and the feed-box K, provided with discharge-openings L, substantially as herein shown and described, whereby round seeds can be readily separated from flaxseed, as set forth.

2. In a seed-separator, the combination, with the stationary frame A and the sliding frame C, carrying the flanged and grooved plates F, the discharge-spouts I J, and the feed-box K, of the springs E, substantially as herein shown and described, whereby steadiness is given to the movements of the said frame, as set forth.

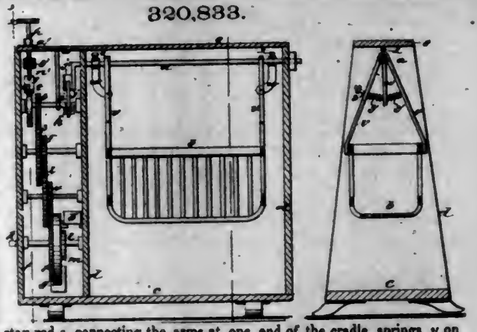
320,832. SPRING BED-BOTTOM. JOHN ALEXANDER, Hartford, Conn., assignor, by mesne assignments, of one-half to John Carleton Alexander, same place. Filed Sept. 29 1884. (No model.)



Claim.—A bed-bottom composed of series of quadrangular-shaped links, the several links connected to each other at their adjacent angles, combined with connected metal links E, extending along each side of the bottom, and with half-quadrangular-shaped links C, attached to said straight links E and connected to the adjacent links at the bottom, substantially as described.

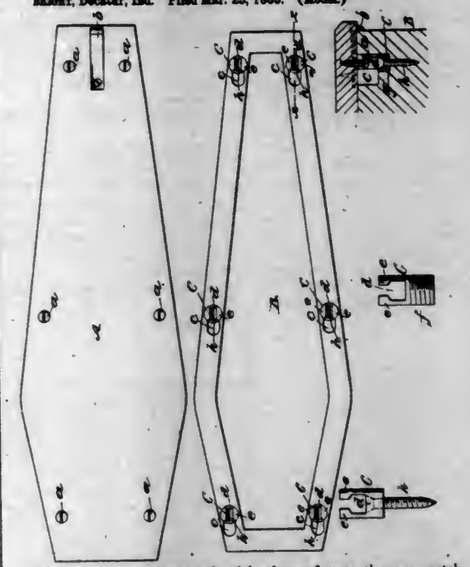
320,833. AUTOMATIC CRADLE-ROCKER. EDWARD ANDERSON, Chicago, Ill. Filed May 21, 1884. (No model.)

Claim.—1. The automatic rocking-cradle herein described, consisting, essentially, in the supporting-frame, the driving mechanism in one end thereof, the rock-shaft *a*, operated from said mechanism, the cradle *b*, provided with arms *v*, loosely mounted on said shaft, and having the stay-rod *z*, connecting the arms at one end of the cradle, springs *y* on said rod, and the driving-arms *w*, rigidly secured at their upper ends to the rock-shaft, and extending between the springs *y y* on the rod *z*, substantially as set forth.



2. The combination, with the supporting-frame, the rock-shaft *a*, journaled therein, and the cradle *b*, suspended therefrom, of the spring-operating driving mechanism on said frame, the crank-shaft A, connected with the rock-shaft, and a friction-disk, *o*, on said crank-shaft, the screw *p*, journaled in the frame, the curved bar *u* at the lower end of the screw, curved shoe *u'* below the bar *u* and adjacent to the friction-disk, the guide-pins *q*, connecting the bar *u* and shoe *u'*, stays *t*, and spiral springs *s*, mounted thereon between the bar and shoe, substantially as set forth.

320,834. FASTENING DEVICE FOR COFFINS. SOLOMON A. ARNOLD, Decatur, Ind. Filed Mar. 25, 1885. (Model.)



Claim.—1. As an improved article of manufacture, the screw-catch C, adapted for vertical insertion in the upper edge of a box or coffin, having the transverse opening *d*, contracted at its upper side and forming flanges *c*, as set forth.

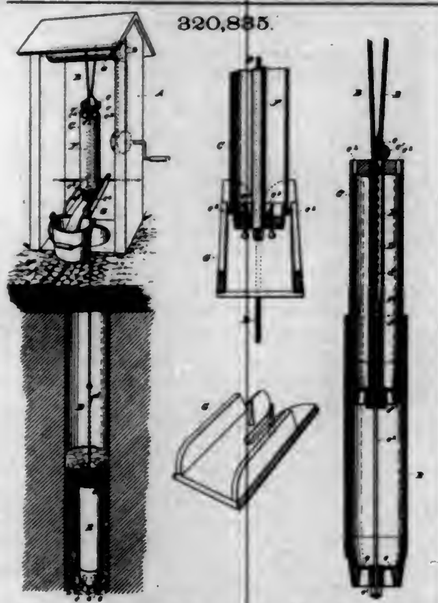
2. The combination of the coffin B, provided with the oblong recesses *c*, the screw-catch C, having the transverse dovetail recess *d* secured in the recesses *c*, and the lid A, provided with the screws *a*, substantially as herein shown and described.

320,835. WELL-BUCKET. JAMES S. ARNOLD, near Roanoke, Tex. Filed Jan. 17, 1885. (No model.)

Claim.—1. The combination of the bucket E, provided with the valves *e e* and axial rod e^2, with the bucket C, provided with the valves c^1 c^1 and tube F, the washers c^2 and f', coil-spring f, and proper mechanism to raise one bucket and lower the other simultaneously, substantially as specified.

2. The combination of the upper bucket, C, and the lower external bucket, E, the former having a central vertical tube adapted to receive the rod for operating the valve of the lower bucket, and the spring arranged around the said rod, all adapted to operate substantially as specified.

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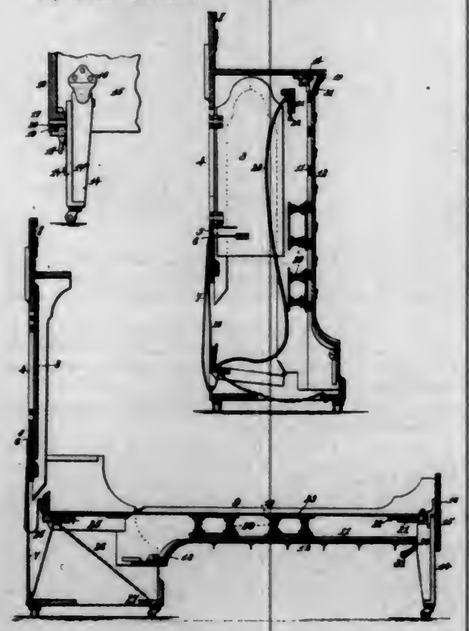


3. The combination, with the upper internal bucket and the lower external bucket, of the plate *a'*, the rod *a''*, washer *f'*, the tube in the upper bucket, spiral spring arranged thereon, the chain D, pulley *c'*, and the ropes B, all adapted to operate substantially as specified.

320,836. OINTMENT. DELIAN H. BRANLON, Lockport, N. Y. Filed Apr. 8, 1885. (No specimens.)

Claim.—A medicine for the treatment of piles, composed of about two hundred and forty grains of red precipitate, about eighty grains of blue vitriol, about one hundred and sixty grains of powdered opium, about one hundred and sixty grains of zinc oxide, about two hundred and forty grains of powdered nutgalls, thoroughly intermingled with about six ounces of mullein, about five ounces of elder-bark, about three pounds of mutton-tallow, and about one pound of lard.

320,837. FOLDING BED. LEVI C. BOYINGTON, Chicago, Ill. Filed May 26, 1885. (No model.)



Claim.—1. In a folding bedstead, the combination, with side rails composed of two sections of unequal lengths, hinged together, the inner end of the long section being pivoted to the base of the casing, of an elastic bed-bottom suspended from end bars fastened to the outer end of each section, the construction being such that when the bed is folded the short section will lie horizontally in the bottom of the case, while the long section is perpendicular, substantially as described.

2. In a folding bedstead, the combination, with side rails composed of two sections of unequal lengths, hinged together, the inner end of the long section being pivoted to the base of the casing, of an elastic bed-bottom suspended from end bars fastened to the outer end of each section, inelastic connections limiting the upward movement of the short section, and straps limiting its downward movement, substantially as described.

3. In a folding bedstead, the combination, with the pivoted side rails, of legs pivoted between the foot-board and an ear-plate mounted thereon, and a hinged cornice closing a space between the foot-board and the false front, through which the legs turn in and out, substantially as described.

4. In a folding bedstead, the combination, with the pivoted side rails, of legs pivoted between the foot-board and the false front, and having support upon the same and upon the flange of the side rails, and spring-latches mounted upon said legs and engaging with catch-pins upon the outer angles of the side rails, substantially as described.

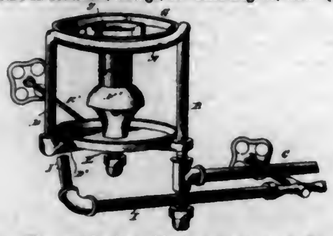
5. The combination, with the casing 1, of the pivoted side rails, 10, the hinged short rails 25, the elastic bottom 23, and chains 26, connected to the rail mounted on said short rails and to the lower front part of the case, substantially as described.

6. The combination, with the pivoted side rails, 10, of the legs 14, the spring-latches 18, and latch-pins 19, substantially as described.

7. The combination, with the pivoted side rails, 10, of the legs 14, pivoted to the foot-board 15, said legs receiving support upon the foot-board, the side rail, and the edge of the false front 12, substantially as described.

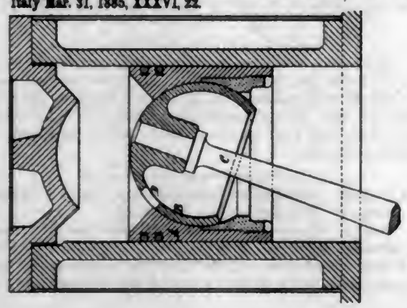
8. The combination, with the side rails, 10, of the pivoted legs 14, the spring-latches 18, latch-pins 19, and hinged cornice 31, substantially as described.

320,838. GENERATOR FOR HYDROCARBON-VAPOR BURNERS. ADELBERT M. BRAINARD, Chicago, Ill. Filed Aug. 27, 1884. (No model.)



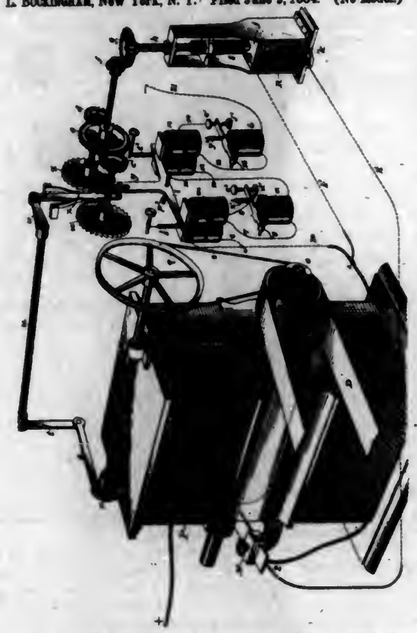
Claim.—The combination, with the injector-nozzle E', a cup, G, located over said nozzle, a tubular support for the cup, constituting a direct vapor-passage between the nozzle and the chamber within the cup, and a disk, H, applied over the cup and forming in conjunction therewith a mixing-chamber having an annular exit-opening, of a tubular generator, A, extending wholly or partially around the cup at a point below and adjacent to the annular exit-opening, and the tubes B and D, connected with and supporting the generator independently of the disk and cup, one of said tubes being connected with an oil-supply pipe and the other having connection with a lateral branch, D, which is connected to the injector-nozzle, substantially as and for the purpose described.

320,839. PISTON. PETER BROTHERHOOD, Lambeth, County of Surrey, England. Filed Feb. 12, 1885. (No model.) Patented in England Jan. 22, 1885, No. 944; in Belgium Jan. 22, 1885, No. 67,811, and in Italy Mar. 31, 1885, XXXVI, 22.



Claim.—The combination, with an annular piston having its interior formed as a spherical zone, of a spherical boss attached to a connecting-rod and exposed to the pressure of the working-fluid, substantially as described.

320,840. REGULATOR FOR DYNAMO-ELECTRIC MACHINES. C. L. BUCKINGHAM, New York, N. Y. Filed June 9, 1884. (No model.)



Claim.—1. The combination of a normally inactive motor capable of rotation in both directions to vary the electro-motive force of a dynamo-electric machine, two main-line electro-magnets, one of whose armature-levers normally rests upon a front stop and the other upon a back stop, and electrical contacts, one of which is broken by one electro-magnet upon an increase of main-line current to cause rotation of said motor in one direction, and the other of which is broken by a decrease of main-line current to cause said motor to rotate in the opposite direction.

2. The combination of a dynamo-machine, a shunt-branch around the field-coils of said dynamo-machine, a variable resistance in said shunt, a motor capable of remaining inactive and of effecting rotation in either direction for controlling said shunt-resistance, and two electro-magnets, one of which is responsive to an increase and the other to a decrease of current, placed in the working-circuit for controlling the operation of said motor.

3. The combination of a normally inactive motor capable of effecting rotation in either direction, a dynamo-machine regulator controlled by said motor for varying the current strength of the working-circuit, two main-line electro-magnets, one of which is responsive to an increase and the other to a decrease of current, for controlling the operation of said motor, and a dynamo-electric machine.

4. The combination of a working-circuit, two electro-magnets in said circuit respectively responsive to an increase and decrease of current above or below a normal strength, whose armatures are so adjusted that normally one rests on a front stop and the other on a back stop, and a motor whose rotation in one direction is controlled by one of said electro-magnets, while the rotation of said motor in the opposite direction is controlled by the second of said electro-magnets.

5. The combination of a main line, two relay-magnets whose armatures are so adjusted that normally one rests on a front stop and the other on a back stop, and a gear-train and a motor which communicates rotation in one direction upon the attraction of that relay-armature which normally rests on its back stop, and which communicates rotation in an opposite direction upon the retraction of that relay-armature which normally rests upon its front stop.

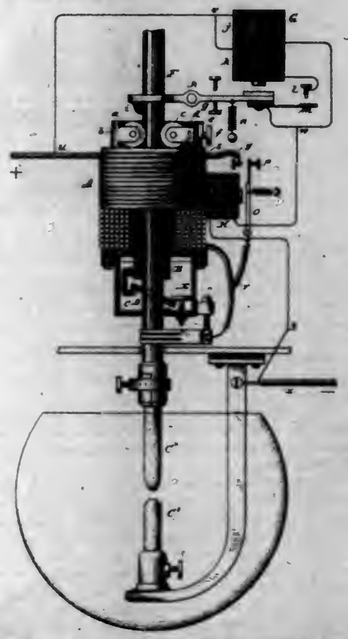
6. The combination of a dynamo-machine, a shunt-branch around the field-coils of the machine, a carbon pile in said shunt, a screw-press for varying the resistance of said shunt, a motor for rotating the screw of said press in a to-and-fro direction, and two relay-magnets whose armatures are adjusted, as described, to direct the rotary action of said motor in one direction or the other.

7. In a dynamo-machine regulator, the combination of relay electro-magnets *a b*, whose armatures are adjusted as described, local branches which are normally closed by said relay-amatures, one at front and the at back contact, differential electro-magnets *m n*, armature-lever *l*, double pawl-arm *x*, geared with the shaft of the dynamo-machine, gear-trains *w c e f g* and *c d e f g*, or their equivalents, screws *h i*, and carbon pile R.

8. In a dynamo-machine regulator, the combination of relay electro-magnets *a b*, whose armatures effect electrical contact, one at a front and the other at a back stop, two electro-magnets respectively controlled by said relay electro-magnets, armature-bar *l*, arm *y*, and double pawl-arm *x*, and ratchet-wheels *w z*.

9. In a dynamo-machine regulator, the combination of two differential electro-magnets, *m n*, whose differential coils are normally closed, and two relay electro-magnets, *a b*, for opening and closing branches embracing coils of said differential electro-magnets, substantially as described.

320,841. ELECTRIC-ARC LAMP. C. L. BUCKINGHAM, New York, N. Y. Filed Aug. 26, 1884. (No model.)



Claim.—1. In an electric lamp, the combination of a lifting electro-magnet for establishing an arc, a clamping apparatus for supporting the carbon against the action of gravity which is independent of the lifting and feeding apparatus, and a second electro-magnet and feeding apparatus which are independent of the lifting and supporting devices.

2. In an electric lamp, the combination of an arc-branch electro-magnet, a shunt-branch electro-magnet which is called into action when the normal arc is established, and a clutch for establishing the arc through the agency of the arc-branch electro-magnet, which clutch is unlocked from the carbon-holder and returned to its normal position under the control of the shunt electro-magnet, and which remains in readiness to re-establish the arc in case of an overfeeding of the carbon-holder.

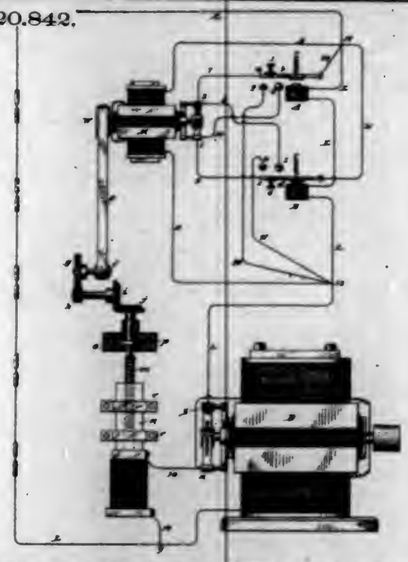
3. In an electric lamp, the combination of a clutch and mechanism for causing the clutch to first lift the carbon apparatus, to then cause the clutch to release the carbon, and to immediately return said clutch to a position to again lift said carbon upon an abnormal diminution of arc resistance.

4. In an electric lamp, the combination of a lifting electro-magnet and a clutch, a short circuit for said lifting electro-magnet, and a shunt electro-magnet for opening and closing said short-circuit, whereby the clutch is adapted to lift and release the carbon and to be returned to its original position upon the establishment of a normal arc.

320,842. REGULATOR FOR DYNAMO-ELECTRIC MACHINES. C. L. BUCKINGHAM, New York, N. Y. Filed Dec. 13, 1884. (No model.)

Claim.—1. The combination of a variable resistance in a shunt around the field-magnets of a dynamo-electric machine to vary its electro-motive force, an electric motor whose rotating armature is normally stationary but which is capable of rotation in either direction for varying said shunt resistance, and two main-line relays one of whose armature-levers normally rests on front stop and the other on a back stop and

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adapted to cause rotation of said motor-armature in either direction upon an increase or decrease of main-line current.

2. The combination of an adjustable resistance for varying the electro-motive force of a dynamo-electric machine, and an electric motor for controlling said resistance whose armature-circuit is normally broken, two main-line relays, one of whose armature-levers normally rests on a front stop, but which upon a decrease of main-line current is retracted to back contact, thereby completing the armature-circuit of the motor, so as to cause one polarity of current to flow therein, and the other of whose armature-levers normally rests on a back stop, but which is attracted to front contact upon an increase of main-line current, thereby closing the armature-circuit of the motor, so as to cause an opposite polarity of current to flow therethrough.

3. The combination of an electric motor having a normally-broken armature-circuit for varying the resistance of a field-magnet shunt, and two main-line relays respectively operative upon an increase and a decrease of current, one to close the armature-circuit of the motor and direct one polarity of current over it, and the other to also close said armature-circuit and direct an opposite polarity of current over the same.

4. The combination of an electric motor having a normally-broken circuit for controlling the said motor, a variable resistance controlled by said motor, and two main-line relays for independently closing said motor-circuit and directing different polarities of current through the same.

5. The combination of a dynamo-electric machine, an electric motor for varying the electro-motive force of said dynamo-machine capable of rotation in either direction, and two main-line relays and electrical circuits, one of which is closed by one relay to cause rotation in one direction, while a second circuit is closed by the other relay to cause rotation in the opposite direction.

6. The combination of two main-line electro-magnets, responsive, respectively, to strong and weak currents, an electric motor whose armature rotation in one direction is controlled by one of said electro-magnets, and whose armature rotation in the opposite direction is controlled by the other of said electro-magnets, and a dynamo-machine regulator controlled by said motor for varying the strength of current of the working-circuit.

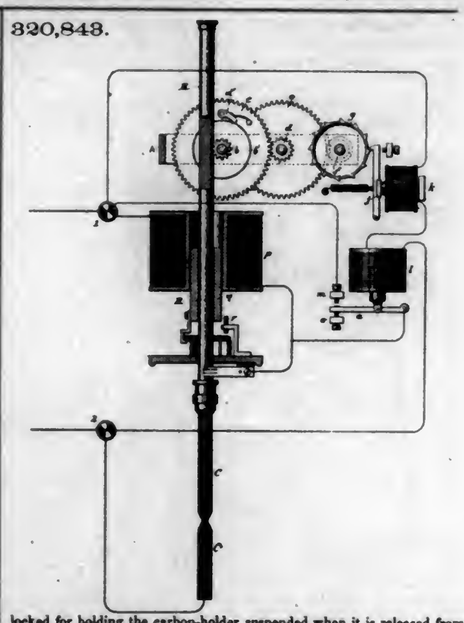
320,843. ELECTRIC-ARC LAMP. C. L. BUCKINGHAM, New York, N. Y. Filed Jan. 14, 1885. (No model.)

Brief.—The clutch which raises the upper carbon to establish the arc is immediately thereafter restored to its original position to again establish the arc in the event of the carbons accidentally coming together.

Claim.—1. In an electric lamp, the combination of a lifting-clutch, an arc-branch electro-magnet for raising said clutch, a shunt-branch electro-magnet for causing the clutch to release the carbon-holder and return to its normal position, and a feeding device controlled by a shunt-branch electro-magnet, which permits the carbon-holder to feed under the action of gravity.

2. The combination of an arc-branch electro-magnet, a lifting-clutch which is first actuated by said arc-branch electro-magnet, a carbon-holder provided with rack-teeth which is lifted by said clutch, a shunt-branch electro-magnet to control the release of said clutch from the carbon-holder and its return to its original position, a train of wheels which is normally

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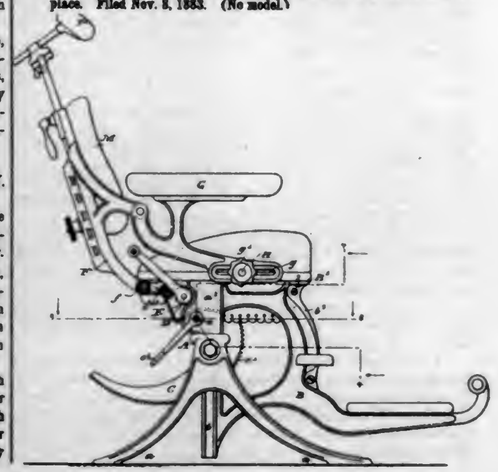
locked for holding the carbon-holder suspended when it is released from the lifting-clutch, and a shunt-branch electro-magnet for releasing said train of wheels to permit the carbons to feed.

3. The combination of a carbon-holder, a lifting-clutch, an arc-branch electro-magnet adapted to raise said clutch, and a shunt-branch electro-magnet for controlling its release and return to its original position, a gear-train for controlling the feed movement of said carbon-holder, and a shunt-branch electro-magnet for releasing said train.

4. The combination of a gear-train whose last wheel has a free backward movement, a carbon-holder having rack-teeth with which said wheel gears, and which is suspended against the action of gravity by said train, a shunt-branch electro-magnet, an escapement-wheel controlled by said electro-magnet for releasing said train, a lifting-clutch adapted to raise the carbon-holder, and an electro-magnet for controlling the release and return of said clutch to its original position.

5. The combination of a suspending and feeding train of wheels, a shunt-branch electro-magnet for controlling said train, a carbon-holder, a clutch adapted to raise and release said carbon-holder and to return to its original position in readiness to re-establish the arc in case of over-feeding, an arc-branch electro-magnet to control said clutch, and a second shunt-branch electro-magnet adapted to short-circuit the arc-branch magnet upon the forming of a normal length of arc.

320,844. ADJUSTABLE CHAIR. WILLIAM E. BURK, Philadelphia, Pa., assignor to the S. S. White Dental Manufacturing Company, same place. Filed Nov. 8, 1883. (No model.)

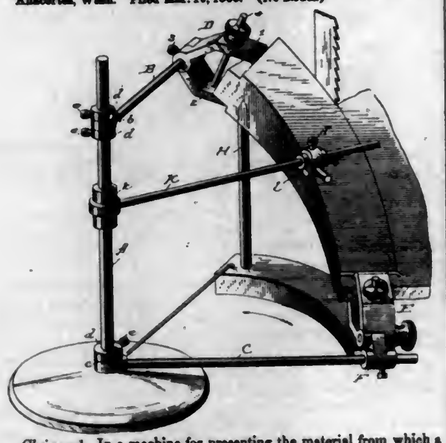


Claim.—1. The combination, substantially as hereinbefore set forth, of the base of the chair, the cycloidal lifting figure mounted in said base, the slide-frame carrying the seat-frame of the chair and fitted to slide vertically in said base, the elevating-shaft mounted in said slide-frame geared with said lifting figure to raise and lower said slide-frame and the parts of the chair carried thereby, and the detent to retain said slide-frame in its adjusted position.

2. The combination of the base of the chair, the slide-frame mounted therein and fitted to slide up and down, the cycloidal figure controlling the sliding movements of said slide-frame and fitted between the side pieces or members of said frame, the elevating-shaft and pinion, and an independent clamp-bolt to clamp or bind the members of said slide-frame upon said lifting figure, substantially as described.

3. The combination of the seat-frame of the chair, the chair-back and back-pad, the pivotal connection between said seat-frame and said back, whereby said back may be adjusted backward and forward and laterally relatively to the chair-seat, the sliding arms also connecting the said back with said seat-frame, the clamp-connection between said arms and said seat-frame, whereby the backward and forward adjustment of said back is effected, and the laterally-sliding clamp-connection between said sliding arms and said back, whereby the lateral adjustment of the back-pad is effected, substantially as described.

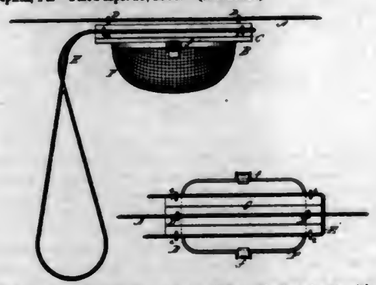
320,845. GUIDE FOR SAWING STAIR-RAILS. STROWE BURNELL, Anacortes, Wash. Filed Mar. 19, 1885. (No model.)



Claim.—1. In a machine for presenting the material from which a stair-rail is to be cut to the saws, consisting of a central vertical standard, arms extending therefrom having vertical adjustment thereon and adapted to be swung horizontally to any desired position, and adjustable clamps on said arms, all substantially as described.

2. The combination, with the vertical central post, of the vertically-adjustable arms extending therefrom and adapted to swing thereon, and the clamps for holding the material to be cut in proper inclined position to be fed to the saws, and a horizontal rod adapted to slide and turn on said post, and carrying an adjustable block for holding a pencil, all substantially as described.

320,846. CASH AND MESSAGE CARRIER. F. A. BYRAM, Philadelphia, Pa. Filed Apr. 23, 1885. (No model.)



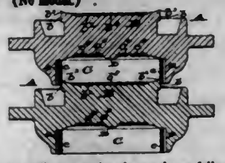
Claim.—1. A carrier comprising a sliding block or body with a projecting or impelling spring which moves along with the carrier as the latter travels, substantially as shown and described.

2. The combination, with a sliding carrier, of an endless elastic cord for impelling said carrier, substantially as shown and described.

3. A carrier consisting of a block, C, with eye-screws D D, an elastic cord, E, and a detachable basket, substantially as shown and described.

4. The combination of a taut wire suspended by its ends, a block or body suspended thereon and having an impelling-spring which travels with said body, and a detachable basket or receptacle, substantially as shown and described

320,847. OIL-EXPRESSING BOX. RODNEY S. CATHCART, Palestine, Tex., assignor to the American Cotton Oil Company, St. Louis, Mo. Filed Mar. 23, 1885. (No model.)



Claim.—1. An oil-expressing box whose follower is fitted to the chamber C, and whose edges are raised at *b' b'*, substantially as and for the purpose described.

2. An oil-expressing-box follower whose face is channeled and provided with a perforated plate, substantially as described, and for the purpose set forth.

3. An oil-expressing-box follower whose face is channeled at *b²* and provided with the perforated plate *b²*, and having the raised edges *b' b'*, in combination with the chamber C, substantially as described.

4. An oil-expressing box the ceiling of whose chamber C is channeled and provided with a perforated plate, as and for the purpose described.

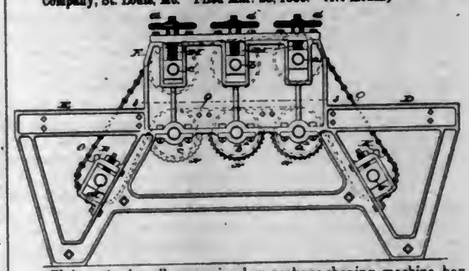
5. An oil-expressing box the ceiling of whose chamber C is provided with a rib or ribs, D, as and for the purpose described.

6. An oil-expressing box the ceiling of whose chamber C is channeled, in combination with the channeled follower B, substantially as described.

7. An oil-expressing box the ceiling of whose chamber C is channeled, as and for the purpose described.

8. An oil-expressing box the ceiling of whose chamber C is channeled and provided with the perforated plate, in combination with the follower B, whose face is channeled and provided with the perforated plate and having the raised edges, substantially as described.

320,848. OIL EXPRESSING BOX PACKAGE SHAPING MACHINE. RODNEY S. CATHCART, Palestine, Tex., assignor to the American Cotton Oil Company, St. Louis, Mo. Filed Mar. 23, 1885. (No model.)



Claim.—1. An oil expressing box package shaping machine having a series of pairs of rolls, the rolls of the various pairs being variously spaced apart, substantially as and for the purpose described.

2. The combination of the rolls A A', B B', C C', relatively arranged as shown and described, and the tables D E, substantially as set forth.

3. The combination of the fluted convex rolls A A', the fluted convex rolls B B', and the straight rolls C C', substantially as described.

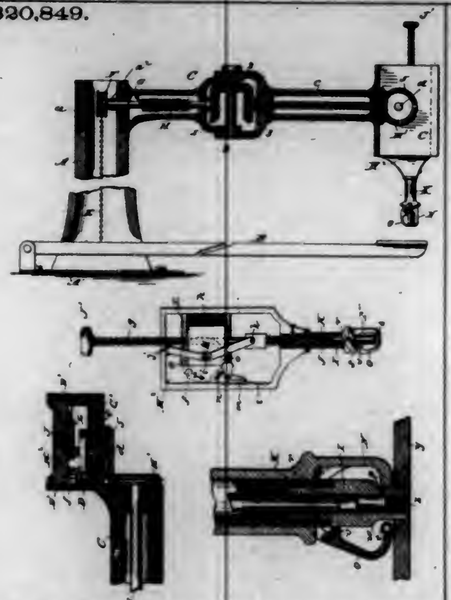
4. The combination of the tables D E, the rolls A A', B B', C C', relatively arranged as described, the shafts J M, the sprocket-wheels K L N, and the chain-belt O, substantially as described.

320,849. MACHINE FOR UNITING SOLES TO UPPERS OF BOOTS OR SHOES. FRANK CHASE, Boston, Mass., assignor to Charles F. Johnson, same place, trustee. Filed Mar. 23, 1885. (No model.)

Claim.—1. The combination of the supporting-standard, the swinging arm, the head-stock carried by said arm and capable of motion upon the three axes *a c d*, and the plate for carrying the punch and driver, mounted and vertically movable upon said head-stock, substantially as and for the purposes hereinbefore set forth.

2. The combination of the supporting-standard, the swinging arm formed with an elbow-joint, *b*, the head-stock carried by said arm and capable of movement upon the three axes *a c d*, and the plate for carrying the punch and driver, mounted and vertically movable upon said head-stock, substantially as and for the purposes set forth.

320,849.



3. The combination, with the punch and driver, and the plate in which the same are mounted, of the thread-guide and the swiveled thread-guide-carrying stem, substantially as and for the purposes hereinbefore set forth.

4. The presser-foot, the thread-guide, and the swiveled stem carrying the same, in combination with the punch and driver and plate in which the same are mounted, substantially as and for the purposes hereinbefore set forth.

5. The combination, with the reciprocating punch and driver, of the thread-guide and the presser-foot formed with a guide-recess, *p*, substantially as and for the purposes set forth.

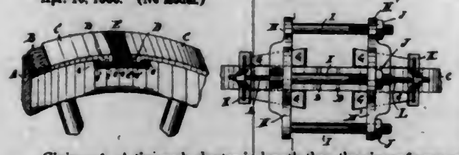
6. The thread-guide support and the spring-controlled thread-guide jointed thereto, in combination with the reciprocating punch provided with a cam or protuberance, whereby when the punch descends the thread-guide is operated to remove the thread from the path of the punch, substantially as and for the purposes hereinbefore set forth.

7. The combination, substantially as hereinbefore set forth, with the vertically-movable punch-supporting plate, the punch mounted therein, and the mechanism for reciprocating said punch, of means, substantially as described, whereby said plate is locked against upward movement while the punch is doing its work.

8. The combination of the head-stock, the oscillatory crank-pin, the treadle, and the intermediate mechanism whereby the crank-pin is operated from the treadle, of the punch, the plate in which it is mounted, and the slide and toggle-lever for actuating said punch, substantially as and for the purposes hereinbefore set forth.

9. The oscillatory crank-pin and cam-disk by which it is carried, in combination with a head-stock, the punch, the vertically-movable punch-carrying plate, the slide and toggle-lever through which the crank-pin operates the punch, the ratchet *l*, and the detent or pawl *m*, operated by the cam-disk to engage the ratchet at the time and in the manner substantially as hereinbefore set forth.

320,850. TIRE-TIGHTENER. MILTON CRANE, Haverhill, Mass. Filed Apr. 10, 1885. (No model.)



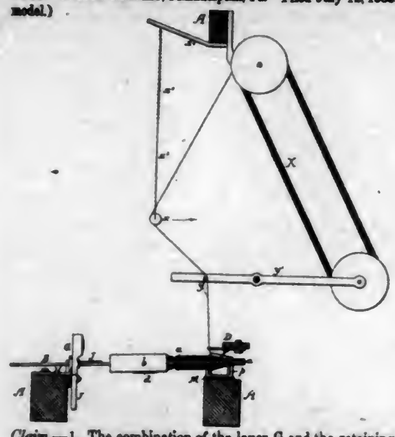
Claim.—1. A tire made shorter in length than the circumference of the wheel on which it is fitted, and provided at each end with a dovetailed projection, in combination with a key or plate provided with corresponding recesses and projections, substantially as and for the purpose set forth.

2. A key or plate, E, provided with projections *e* on one side, in combination with the dovetailed ends of the tire provided with the recesses *e'*, whereby the ends of the tire and the plate are firmly riveted together, as described.

3. The key or plate E, constructed with the dovetailed grooves *f f* and a central dovetailed projection, *f'*, in combination with the tire C, as and for the purpose set forth.

4. A tire-setter consisting of the jaws G', the frames H H', bolts I, and nuts J, in combination with the tire C, substantially as described

320,851. MACHINE FOR WINDING BOBBINS FOR LOOM-SHUTTLES. JOHN H. CROWLEY, Philadelphia, Pa. Filed July 12, 1883. (No model.)



Claim.—1. The combination of the lever G and the retaining-catch J with a winding-spindle carried by the lever and having a projection for actuating the catch as the spindle is moved rearward, and with a frictional driving device for the spindle, as set forth.

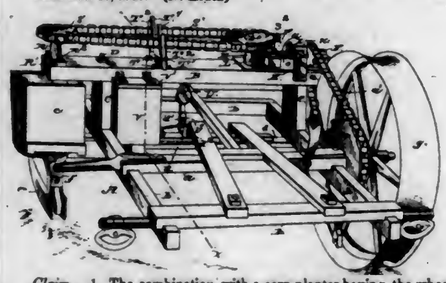
2. The combination of the lever G with the retaining-catch J, having a beveled end, *h*, the spindle carried by the lever, and having a projection adapted to actuate the catch, and a frictional driving device for the spindle, as set forth.

3. The combination of the weighted lever G, having a slot, *f*, with the weighted and pivoted retaining-catch J, the spindle adapted to the slot *f* and having a catch-actuating projection, and the frictional driving device for the spindle, as set forth.

4. The combination of the frame A and the bolts N with the rollers F and the plates M, carrying the said rollers, and having curved slots *l*, for the reception of the bolts N, as set forth.

5. The combination of the upper and lower hank-rollers, and the fixed bearing for the upper roller, with the suspended rod *x* and the lever *y'*, carrying the lower hank-roller, and having a thread-guiding pin, *y*, as set forth.

320,852. CHECK-ROW CORN-PLANTER. ISAAC CRUZAN and BENJAMIN F. CARGAY, Pomona, Kans.; said CRUZAN assignor to said Cargay. Filed Feb. 10, 1885. (No model.)

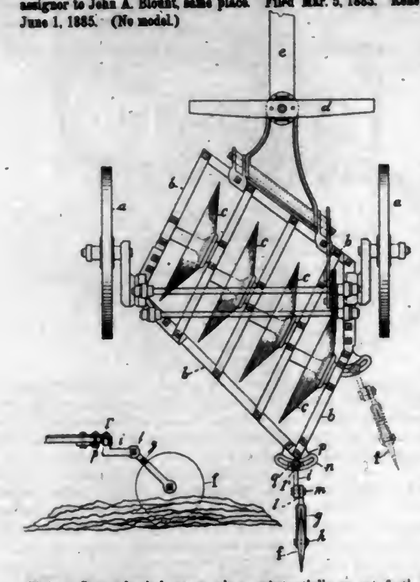


Claim.—1. The combination, with a corn-planter having the wheel *h*, seed-hoppers, and seed-slide, of the beam B, that is adapted to be secured to the frame of the corn-planter, the sand-hopper having the valve and slide connected to the seed-slide, horizontal shaft G, having a sprocket-wheel loosely attached thereto, and a clutch and gear-wheel, sprocket-wheels M and S, chain S', having projection S^2, rock-shaft T', having arms that are adapted to be inclined by the projections S^2, and arm T^2, and pivoted lever U', connected to said arm and to the seed-slide, substantially as described.

2. The combination, with a corn-planter having the wheel *h*, seed-hoppers, and seed-slide, of the beam B, that is adapted to be secured to the frame of the corn-planter, the sand-hopper having the valve and slide connected to the seed-slide, horizontal shaft G, having a sprocket-wheel loosely attached thereto, and a clutch and gear wheel, sprocket-wheels M and S, wheel S being adapted to be adjusted on the beam,

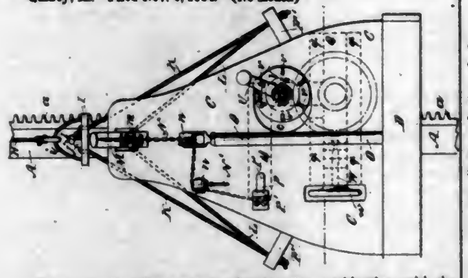
chain S', having projection S^2, rock-shaft T', having arms that are adapted to be inclined by the projection S^2, and arm T^2, and pivoted lever U', connected to said arm and to the seed-slide, substantially as described.

320,853. ROTARY PLOW. HERBERT H. CUMBACK, Springfield, Ohio, assignor to John A. Blount, same place. Filed Mar. 5, 1883. Renewed June 1, 1885. (No model.)



Claim.—In a wheeled rotary plow, substantially as set forth, and in combination with the frame *b b*, the rotary rudder-disk *f*, journaled in the bifurcated arm *g*, having serrated face to correspond with the arm *i*, having similar face, the bracket *p*, having slot *n*, and the adjusting-nut *r* all adapted and arranged as and for the purposes set forth.

320,854. FIRE-ESCAPE AND ELEVATOR. CHARLES R. S. CURTIS, Quincy, Ill. Filed Nov. 6, 1884. (No model.)



Claim.—1. In a fire-escape or elevator, the combination, with the post A, having a rack, *a*, of the carriage B, fitted to slide on the post and connected by spring-pressed cam-brakes F, ropes K, plate I, bolt J, and nut *j*, with the hoisting-rope H, and said carriage having a pinion, S, fitted to a sliding frame, Q, and adapted to be thrown into and out of gear with the rack *a*, substantially as herein set forth.

2. In a fire-escape or elevator, the combination, with the post A, having a rack, *a*, of the carriage B, fitted to slide on the post, spring-pressed cam-brakes F, ropes K H, plate I, bolt J, and nut *j*, and the pinion S, fitted to a sliding frame, Q, and the lever M and ropes L, adapted to keep the cam-brakes off the post when the carriage is to be moved by the hand-gearing, substantially as herein set forth.

3. In a fire-escape or elevator, the combination, with the guide-post A, having a rack, *a*, the carriage B, spring-pressed cam-brakes F, ropes K H, plate I, bolt J, and nut *j*, of the frame Q, fitted to slide in the carriage and carrying the pinion S, adapted to gear with the rack *a*, the screw W, for shifting the frame Q, and the lever M, connected by ropes L with the cam-brakes, substantially as herein set forth.

4. The combination, with the post A, carriage B, and hand-gearing on the carriage for raising and lowering the said carriage, of a bracket, P', fixed to the carriage, a stud end, *p*, attached to the hand-gearing and adapted to protrude through the bracket P', and the chain N, lever M, and cords L, whereby, when the chain N is connected with the stud end *p*, said chain will automatically be detached to release the cam-brakes and hold the carriage while the hand-gearing is being disengaged from the post A, substantially as herein set forth.

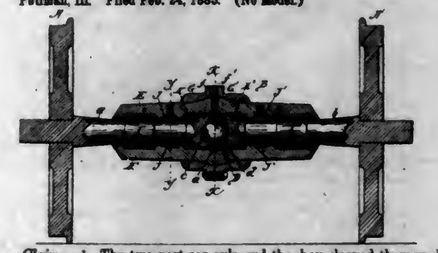
5. The combination, with the post A, carriage B, cam-brakes F, the frame, Q, of the hand-gearing, and the lever M, cords L, and chain N, of a stud, P, fixed on frame Q, and having an end, *p*, and the bracket P', fixed to the carriage and receiving said end *p*, substantially as herein set forth.

6. A fire-escape and elevator constructed with a carriage, B, sliding on a post, A, having a rack, *a*, spring-pressed cam-brakes F, ropes K H, plate I, bolt J, nut *j*, lever M, ropes L, chain N, a bracket, P', on the carriage, the frame Q, supporting the hand-gearing adapted to be engaged with and disengaged from the rack *a* of post A, the screw W, and a stud or bolt connected to said frame, and adapted to enter a hole in the bracket P' and protrude through the bracket for connection of the chain N, all substantially as herein set forth.

7. The crank U, made in two jointed sections, and having the stop u^4 and spring X, in combination with the gearing for moving the carriage B by engagement with the rack *a* on the post A, and a plate, V, fixed to the sliding frame Q, which supports said gearing, and having stops *v*, against which the crank-stop u^4 strikes, substantially as herein set forth.

8. The combination, with an elevator guide-post, and an elevator having cams for automatically stopping its descent should the elevator-rope break, and an adjustable hand-gearing for moving the said elevator adapted to be thrown into and out of engagement with the guide-post, a locking-connection between said hand-gearing and elevator, and a movable part or arm for holding the cams out of engagement with the guide-post by a suitable connection, the said part or arm being connected with the adjustable hand-gearing to release the cams as the hand-gearing is moved away from the guide-post, substantially as set forth.

320,855. CAR-AXLE. CORNELIUS DECKER and ALEXANDER TROMBLY, Pullman, Ill. Filed Feb. 24, 1885. (No model.)

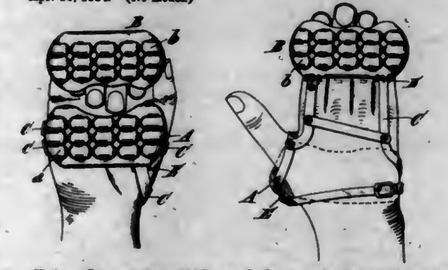


Claim.—1. The two-part car-axle and the box sleeved thereon, in combination with a ball-and-socket bearing between the opposing ends of said two-part axle, substantially as described.

2. The two-part car-axle, in combination with a two-part box surrounding and joining both members of the axle, and a two-part ring sleeved on said box, substantially as described.

3. A transversely-divided axle and car-wheel rigid thereon, in combination with a ball-and-socket joint between the opposing ends of the axle, and a box sleeved on said axle, substantially as described.

320,856. CLOTHES-RUBBING PAD. WILLIAM S. F. DILLON, Madeira, assignor of one-half to William E. Arnold, Madisonville, Ohio. Filed Apr. 10, 1884. (No model.)



Claim.—In a clothes-rubbing pad, the combination, with the finger-pad B, provided with a loop, B', of the wrist-pad A, detachably secured to the hand of the operator by strap C, substantially as herein set forth.

320,857. SPRING TAKE-UP FOR WAX-THREAD SEWING-MACHINES. CORNELIUS DRUHEN and WILLIAM WYKER, Jefferson City, Mo., assignors to said DRUHEN and James Madison Stewart, same place. Filed Dec. 9, 1884. (Model.)

Claim.—1. In a spring take-up for wax-thread sewing-machines, the combination, with the slotted plate *a*, provided with the arm *c*, having projection *h*, of the guide-carrier *d*, pivoted to the arm *c*, and pro-

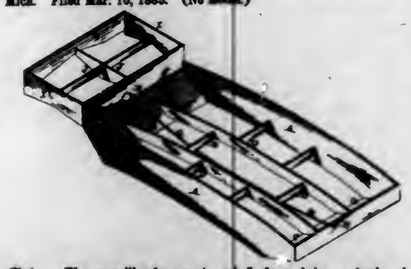
320,857.



vided with the lugs *g*, projecting on opposite sides of the projection *h*, the set-screw *i*, and the spring *l*, secured to the arm *c*, and having its free end resting against the edge of the carrier, substantially as herein shown and described.

2. In a spring take-up for wax-thread sewing-machines, the combination, with the slotted plate *a*, provided with the arm *c*, having the extension *h*, the guide-carrier *d*, pivoted to the said arm and provided with the lugs *g*, and the set-screw *i*, of the spring *l*, having one end adjustably secured in a slot of the said arm by the set-screw *m*, and its free end resting against the carrier, substantially as herein shown and described.

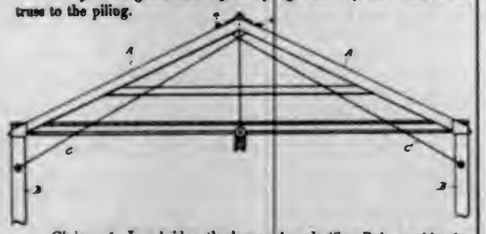
320,858. PAVING SIDEWALKS. JOHN H. DUKE, Jr., Grand Rapids, Mich. Filed Mar. 10, 1885. (No model.)



Claim.—The metallic frames A and I, formed in a single piece, and adapted to be filled with paving material, so as to form both a paving-block and a step, substantially as specified.

320,859. BRIDGE. CHARLES D. DUNDAS, North Auburn, Nebr. Filed Apr. 29, 1884. (No model.)

Brief.—Diagonal rods adjustably tightened by nuts anchor the truss to the piling.



Claim.—1. In a bridge, the beams A and piling B, in combination with the rods C, having adjustable nuts *a*, as shown and described, and for the purposes set forth.

2. In a bridge, the beams A and adjustable rods C, crossing each other near their upper ends, in combination with piling B, as described, and for the purposes set forth.

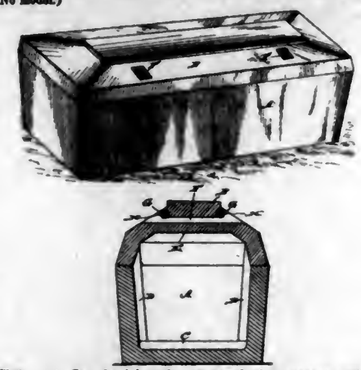
320,860. TRUCK. JOHN ERCH, Milwaukee, Wis. Filed Jan. 29, 1885. (No model.)



Claim.—1. In trucks, the combination of the truck's bed-frame H and the supporting-springs I I and O O, in pairs over the front and rear axles, respectively, one pair being placed lengthwise and the other crosswise of the truck-bed, said springs being supported at their middle, and having a slight movement in lugs at their outer ends, substantially as set forth.

2. In trucks, the combination of the bed-frame H, the supporting-springs I I and O O, in pairs, one pair lengthwise and the other crosswise of the bed, and supported in such pairs upon trusses over the front and rear axles, respectively, and the brace-rods R R, attached at one end to the bed-frame H and at the other end to the trusses M M, and having movement as described, substantially as set forth.

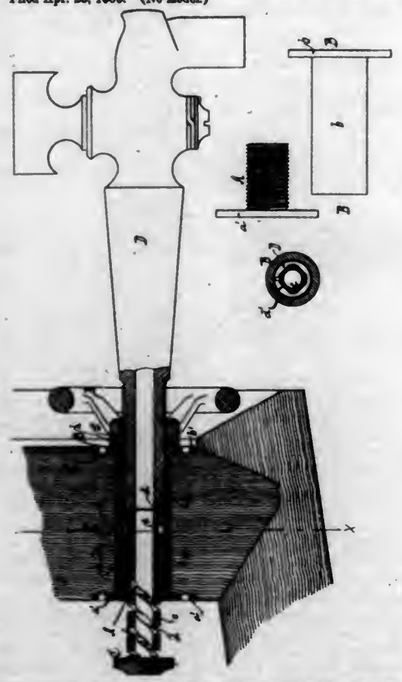
320,861. BURIAL-CASE. JONAS J. FIDLEY, New Carlisle, Ind., assignor of one-half to Granville S. Dullner, same place. Filed Apr. 7, 1885. (No model.)



Claim.—1. In a burial-vault composed of a concrete substance, a suitable box and a cover for the same, the top of which is provided with transverse ribs upon its inner side, each of said ribs having a slot passing longitudinally through it and through the sides of the cover, substantially as and for the purpose set forth.

2. In a burial-vault composed of a concrete substance, a suitable box, a cover for the same, the inner under side of which is provided with ribs, each of said ribs having a transverse slot passing through it, and each of said slots being provided upon its upper surface with a series of rollers, substantially as and for the purpose set forth.

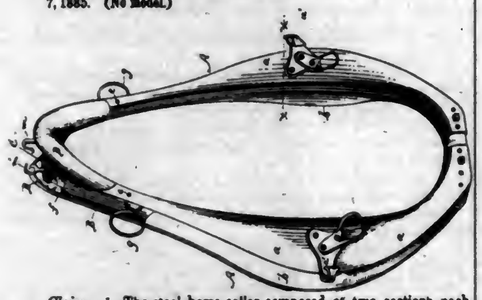
320,862. TAP-HOLE BUSH. ADOLPH FISCHER, Ravenswood, N. Y. Filed Apr. 23, 1885. (No model.)



Claim.—1. A tap-hole bush consisting of the following elements, to wit: the internally-screw-threaded shank *b*, having the lateral flange *b'* at its outer end, the externally and internally screw-threaded shank *a*, provided with the lateral flange *a'* at one end and having its other end terminating adjacent to the center of the shank *b*, to constitute a stationary annular stop, K, and a screw-threaded valve-stem, *c*, fitting the shank *a*, and provided at one end with a valve, C, and at its other end with an attached laterally-projecting stop to abut the shoulder formed by the end of the shank *a*, substantially as and for the purposes described.

2. The combination, with the tap-hole bush and with the internal screw-thread formed therein, of the valve C, having a screw-thread formed on its tubular stem to engage with the internal screw-thread of the tap-hole bush, and the spiral slot *d*, formed in the valve-stem, substantially as shown and described.

320,863. HORSE-COLLAR. EPHRAIM FISHER, Philadelphia, Pa., assignor to the Steel Horse Collar Company, Fitchburg, Mass. Filed May 7, 1885. (No model.)



Claim.—1. The steel horse-collar composed of two sections, each forged from a sheet of steel, to form thin side flanges, one overlying the other, and separated by an uninterrupted groove, whereby a greater degree of spring action is provided for the draft attachments, which are secured to the upper or front flange, substantially as shown and described.

2. The combination, with the lateral elastic flange *a* of the steel-collar section A, of the draft-hook attached to the same near its edge, as shown and described.

3. The combination, with a steel-collar section, A, having substantially a U shape in cross-section, of a supplemental spring which is interposed between the two flanges *a* and *b* of said section, as specified.

4. The combination, with a steel-collar section, A, having substantially a U shape in cross-section, of a curved plate-spring which is bolted to the front flange, *a*, and bears with its free end upon the rear flange, *b*, as shown and described.

5. The combination, with the adjustable top piece, B, and flanged steel-collar section A, arranged to slide one in the other, of the fastening-bolt passing through the outer flange, *a*, of said section, and through the contiguous edge of said top piece, as shown and described.

6. The combination, with the collar-coupling and neck-pad, of the piece B, having its eye or top portion projected laterally forward, so that the bearing on the pad is located nearer its front than its rear side, as shown and described.

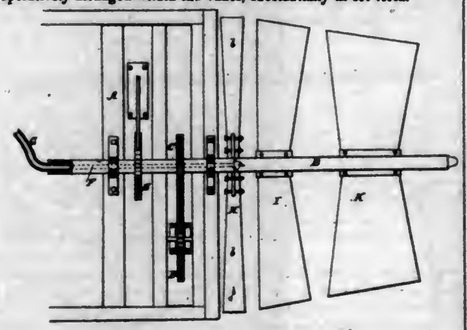
320,864. LOCOMOTIVE COW-CATCHER. JOHN FLECK, Louisville, Ky. Filed Feb. 12, 1885. (No model.)

Claim.—1. In a locomotive cow-catcher or device for removing obstructions from the track, a revolving projecting rod, two or more vanes carried thereby, and steam-ports located therein, all constructed to act in combination substantially as set forth.

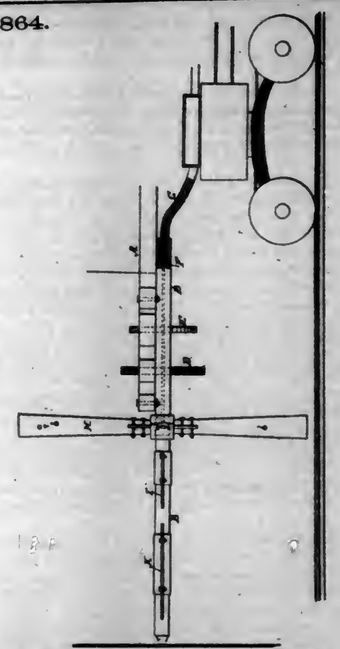
2. In a locomotive cow-catcher, a horizontally-projecting rod, in combination with two or more vanes having their wings arranged at an inclined angle with respect to said rod, substantially as set forth.

3. In a locomotive cow-catcher, a revolving projecting rod, two or more vanes carried thereby, and a pawl-and-ratchet movement connected with the rod, the whole in combination as set forth.

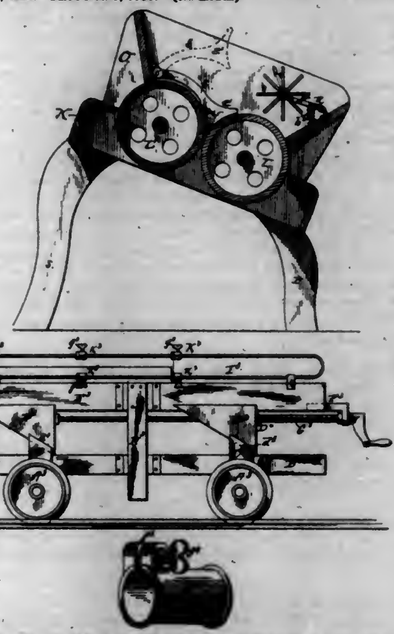
4. In a locomotive cow-catcher, a projecting rod, in combination with two or more vanes carried thereby, having their wings arranged at an inclined angle with respect to the rod, and provided with steam-ports operatively arranged within the vanes, substantially as set forth.



320,864.



320,865. BRICK AND TILE MACHINE. FREDERICK E. FRAY, Bucyrus, Ohio. Filed Jan. 5, 1885. (No model.)



Claim.—1. The tempering-chamber comprised of the base A, adapted to have mounted thereon the shafts and gearing of the mill, the lower section, B, formed on and projected from the side of the base A, and the upper section, C, formed with a receiving-aperture and hinged to the lower section, all substantially as described.

2. The combination of the rotating hollow shaft E, formed with a flaring core, as *c*, at its free end, and the fixed shaft F, formed with a flaring conical end, G, to set within the flaring core at the free end of the rotating shaft, substantially as described, and for the purpose stated.

3. In combination, the rotating hollow shaft E, provided with a packing-box fitted in the tube at the free end of the shaft and having a

central flaring bearing, with the fixed shaft F, formed with a flaring conical end, G, having its seat within the packing-box and provided with adjusting-nuts at the other end, substantially as described, and for the purpose set forth.

4. In combination with the rotating shaft E, provided in its free end with a bearing, *j*, having a flaring bore, the fixed shaft F, formed with a flaring conical end, G, adjusted to the core of the conical bearing of the rotating shaft, substantially as described, and for the purpose stated.

5. The metal cross J, having its arms formed elliptical in cross-section and set with a plain cutting-edge toward the tempering-chamber, with the side of the arms bearing diagonally to a line at right angles to the face of the cross and having the back edges of the arms irregular in conformation, substantially as described, and for the purpose stated.

6. In combination with the base A and the tempering-chamber B C, the crusher-frame K, arranged at an incline over the entrance to said chamber, substantially as described, and for the purpose stated.

7. In combination with the hopper provided with a perforation in its end board, and the crushing-rollers, the scraper or cleaner S, having a handle, *c'*, projected through the perforation in the side of the hopper parallel with the axes of the rollers and provided with the scraper *d'*, having its face set at right angles to the handle and formed with a neck bent to fit over one of the rollers, and a head, *e'*, curved to set over the other roller, substantially as described.

8. In combination with the hopper of a clay-mill, a metal plate formed with fingers or rods and hinged to the edge of the hopper, an elastic support to sustain the plate, and a rotary shaft provided with arms arranged to pass between the spaces in the plate, substantially as described.

9. In combination with the hopper of a clay-mill, a metal plate formed with fingers or rods and hinged to the ends of the hopper, a spring interposed between the plate and the end of the hopper, and a rotary shaft provided with arms arranged to pass through the spaces between the fingers of the plate, substantially as described.

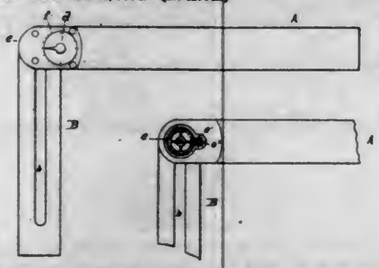
10. In combination with the tempering-chamber or shell of a pug-mill, the frame K, mounted on the tempering-chamber in an inclined position, the hopper mounted on the inclined frame, the metal plate formed with fingers and hinged to the end of the hopper, and elastic supports to sustain the plate in position, the rotary shaft provided with arms arranged to pass through the spaces between the fingers of the plate and the crushing-rollers, all substantially as and for the purpose stated.

11. The frame formed or provided with vertical side blocks mounted on axles and having inclined upper ends, the side blocks connected by cross-pieces and having their lower faces or edges inclined to set on the inclined ends of the lower side blocks, the upper frame set on the cross-pieces of the interposed sliding block and having depending side pieces fitted to grooves in the side pieces of the lower frame, and the operating-screws, all arranged and combined substantially as set forth.

12. The wire spool or thimble K^3, consisting of a cylindrical band open or split on one side for the length thereof and formed with threaded lugs provided with a set-screw, substantially as and for the purpose stated.

13. In combination with the cutting-table of a tile-making machine, a metal frame hinged to the side of the frame of the cutting-table and provided with spools or thimbles consisting of a cylindrical band opened or split on one side for the length thereof and formed with perforated threaded lugs having a set-screw, substantially as described, and for the purpose stated.

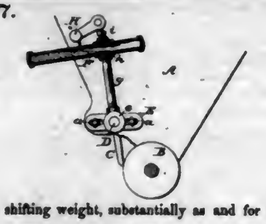
320,866. BEVEL. CHARLES PETERS and JOHN N. TODD, Minneapolis, Minn. Filed Nov. 29, 1884. (No model.)



Claim.—The combination, with the stock of a bevel-square, of a spur-wheel adapted to be turned by the bevel-blade, a pinion in mesh with such spur-wheel and of one-fourth its diameter, a pointer operated by the pinion-pivot, and a graduated scale for indicating the angle of the blade and stock, substantially as set forth.

320,867. FEEDING MECHANISM FOR MILLS, &c. PETER FOUSE, Davenport, Iowa. Filed Apr. 6, 1885. (No model.)

Claim.—1. In combination with a feed-hopper, a gate for controlling the feed-opening, and a tube or holder connected with the gate and



containing a shifting weight, substantially as and for the purpose explained.

2. In combination with a feed-hopper and its gate, an arm projecting laterally from the gate and provided with an automatically-shifting weight, substantially as described and shown.

3. In combination with feed-hopper A and gate C, rod D, provided with arm *g*, and tube F, carried by said arm and containing mercury or equivalent shifting weight.

4. In combination with hopper A, its feeding device, and gate C, provided with pivots or journals, adjustable boxes E for said pivots, whereby the gate may be adjusted bodily to and from the feeding device at both ends.

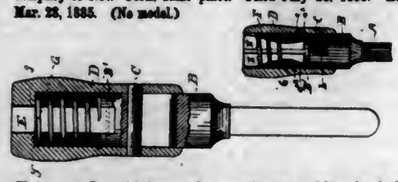
5. In combination with hopper A, rod D, provided with counter-balance F, and gate C, secured to said rod by set-screws whereby the angular positions of the counter-balance and gate may be varied at will.

6. In combination with hopper A and rod D, gate C, secured to said rod, and arm *g*, carrying counter-balance F and secured to rod D by means of a set-screw, whereby it may be set to any desired angle upon the rod.

7. In combination with hopper A, gate C, counter-balance F, provided with a self-shifting weight, and a stop to limit the upward movement of said counter-balance.

8. In combination with hopper A, having recesses *l*, gate C, provided with counter-balance F, and adjustable stop G, provided with locking-pin H to enter the recess *l* and retain the stop at the required adjustment.

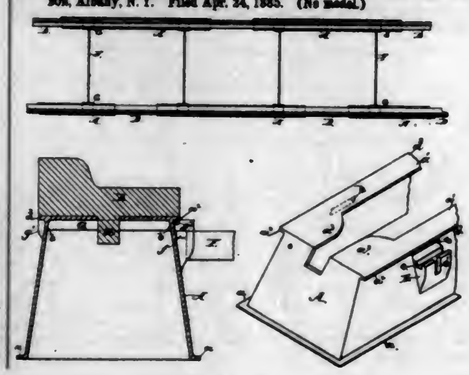
320,868. BIT-BRACE. HIRAM E. FULLER, New York, N. Y., assignor, by direct and mesne assignments, to the Fuller Manufacturing Company of New York, same place. Filed July 23, 1883. Renewed Mar. 23, 1885. (No model.)



Claim.—1. In a bit-brace, the combination, with a shank formed with a transverse recess at its outer end, of clamping-jaws formed with beveled inner ends, and secured by cross-pins extending across said recess, a sliding sleeve, and a coil-spring secured between the jaws and sleeve, the whole being arranged substantially as described, whereby the jaws are allowed a slight longitudinal movement to securely hold the bit.

2. In a bit-brace, the combination, with a recessed shank, a coil-spring, and a sliding sleeve, of clamping-jaws loosely secured within said recess by cross-pins and beveled at their inner ends, whereby the jaws are forced together by the contact of their beveled ends with the cross-pins, substantially as set forth.

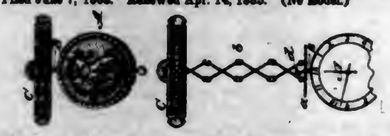
320,869. CONSTRUCTION OF RAILWAY-TRACKS. THOMAS H. GIBBON, Albany, N. Y. Filed Apr. 24, 1885. (No model.)



Claim.—1. A metallic sleeper consisting of an oblong metallic box opened at the top and bottom or perforated, and provided with horizontal external and internal flanges, *a*, *a'*, *a²*, and *a³*, also having mortises *b* on each side near the ends, and immediately under said mortises *b* on one side of box, lugs provided with recesses for receiving the head *f* and shoulder *f'* of the transverse rod F, and tongue *d* of rail D, in combination with the plate G, which is adapted to slide in mortise *b*, to form a support and lock for rail D, as herein specified, said plate being also designed to secure the ends of the transverse rods to the metallic tie A, as herein specified.

2. The combination, in a railway-track, of a longitudinal metallic sleeper, rail, tie-rods, and securing-plate G, and the wedge, as set forth.

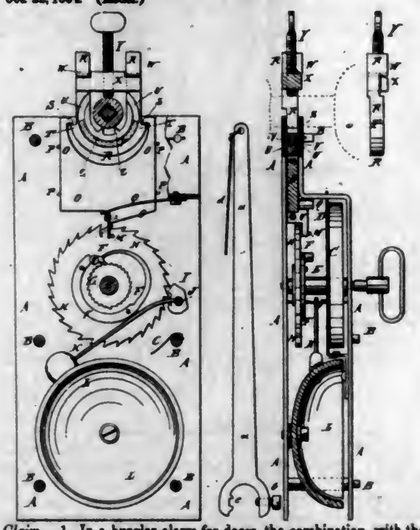
320,870. BREASTPIN-WATCH. DANIEL GOLDSMITH, New York, N. Y. Filed June 7, 1883. Renewed Apr. 14, 1885. (No model.)



Claim.—1. The combination, with a breastpin, brooch, or other article of jewelry, of a watch and an extensible suspension device connecting the watch with the breastpin and adapted to be contained within or behind the breastpin when the watch or locket is in its normal position, substantially as herein shown and described.

2. The combination, with a breastpin, brooch, or other article of jewelry, of a watch, a spring-pulley within the breastpin or brooch, and a chain secured thereto and to the watch, whereby the watch, when released, will be automatically returned to its normal position, substantially as herein shown and described.

320,871. BURGLAR-ALARM. WILLIAM GOLDSPOHN, Lodi, Wis. Filed Oct. 22, 1884. (Model.)



Claim.—1. In a burglar-alarm for doors, the combination, with the case A, the spring C, the escapement I, the shaft of which carries the bell-hammer, and the escapement-wheel H, having pin M, of the sliding block O, having arm N and interior shoulders, S, the bow R, having exterior shoulders, T, undercut shoulders W, and curved grooves U, the yoke and screw X Y, and the guides V, substantially as herein shown and described, whereby a movement of the said bow will release the alarm, as set forth.

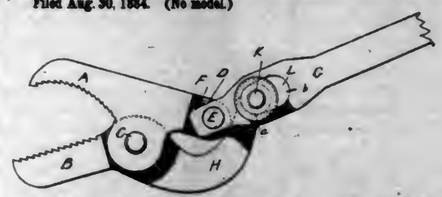
2. In a burglar-alarm for doors, the combination, with the rocking bow R, having shoulders W, of the yoke X and hand-screw Y, substantially as herein shown and described, whereby the said bow can be readily secured to the shank of a door-knob, as set forth.

3. In a burglar-alarm for doors, the combination, with the casing A and the ratchet-wheel H, provided with pin M, of the sliding block O, having arm N, the bow R, and the spring Q, substantially as herein shown and described, whereby the prompt descent of the said block when released will be secured, as set forth.

4. In a burglar-alarm for doors, the combination, with the sliding block O, having interior shoulders, S, of the bow R, having exterior shoulders, T, substantially as herein shown and described, whereby a movement of the said bow will raise the said block, as set forth.

5. In a burglar-alarm for doors, the combination, with the bow R, having circular grooves U and the casing A, of the curved guides V, substantially as herein shown and described, whereby the said bow will be pivoted to the said casing, as set forth.

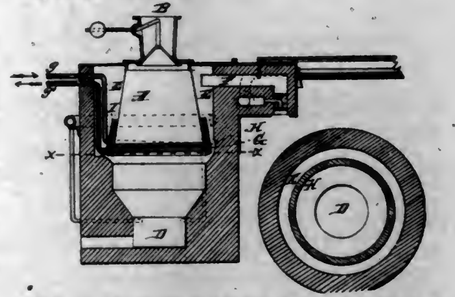
320,872. PIPE-WRENCH. JAS. F. GUTHRIE, Jr., Cambridge, Mass. Filed Aug. 30, 1884. (No model.)



Claim.—1. In a wrench, two jaws, A B, pivoted to each other, the jaw A being pivoted to one end of a handle, and the jaw B pivoted to the handle in an elongated slot, L, substantially as and for the purpose specified.

2. In a wrench, two jaws, A B, pivoted to each other, the jaw A being pivoted to one end of a handle, and the jaw B pivoted to the handle in an elongated slot, L, its pivot K being provided with a loose sleeve, M, substantially as and for the purpose specified.

320,873. GAS-PRODUCER. JAS. HENDERSON, Bellefonte, Pa. Filed July 19, 1883. (No model.)



Claim.—1. The combination, substantially as before set forth, of the gas-producer with an iron fuel-retort having an outer covering of refractory material.

2. The combination, substantially as before set forth, of the gas-producer with an iron fuel-retort having a cooling-chamber at the lower portion thereof, water-supply pipe connected therewith, and an outer covering of refractory material.

320,874. BUTTON. EDWIN J. HOWE, Newark, N. J., assignor to Carter, Sloan & Co., same place. Filed May 2, 1885. (No model.)



Claim.—1. A button whose face is provided on its under side with lugs opposite to each other, and having notches between them, a central shouldered post, and a laterally-swinging arm having bent or angular ends, the latter adapted to be rotated after insertion in the button-hole of a cuff or analogous article, and locked in the notches between the lugs, substantially as described.

2. A button composed of the face-plate A, having the inclined lugs or flanges *a* on its under side, with the notches *c* between them, the shouldered or tenoned post C, the swinging spring-arm B, and the cap *b*, substantially as and for the purposes set forth.

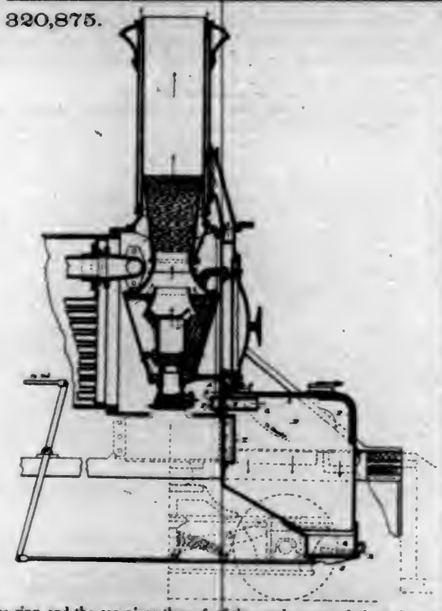
320,875. SPARK-EXTINGUISHER. GEORGE D. HUNTER, Terre Haute, Ind., assignor of four-sixths to Thomas C. Van Nuys and Morton C. Hunter, both of same place. Filed Feb. 27, 1885. (No model.)

Claim.—1. In a spark-extinguisher, the combination, with the exhaust-nozzle having a lateral discharge, of a spark-receptacle having an opening opposite to the said discharge, and provided with a wearing-plate by which the incoming solid particles of combustion may be resisted.

2. In a spark-extinguisher, the combination, with an exhaust-nozzle having a lateral discharge, of a spark-receptacle secured to and communicating with the smoke-box opposite said discharge, provided with a sheathing and wearing-plate by which the incoming solid particles of combustion are resisted.

3. In a spark-extinguisher, the combination, with the smoke-box,

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the ring, and the cap-piece thereof, of the spark-receptacle lapped across the same to within close proximity of the door and connected to the cap-piece.

4. In a spark-extinguisher, the combination, with the smoke-box, the ring, and the cap-piece having an aperture, of the spark-receptacle having a corresponding aperture lapped across the said cap-piece to within close proximity of the door, the bolts, the double sets of nuts, and the washers, whereby the several parts are connected together.

5. In a spark-extinguisher, the combination, with the smoke-box, the ring, and the cap-piece, of the spark-receptacle communicating with the smoke-box and lapped across the cap-piece to within close proximity of the door, the bolts and the nuts fitting within the apertures in the receptacle, the cup-shaped washers, and the nuts fitting against the same.

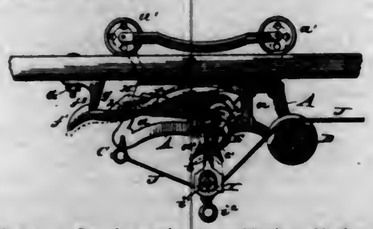
6. In a spark-extinguisher, the combination, with the smoke-box, of the spark-receptacle connected thereto and communicating therewith, lapped across the same to within close proximity of the door and provided with a wearing surface or plate.

7. In a spark-extinguisher, a spark-receptacle provided with an interior sheathing or lining and a cast-iron wearing-plate embracing one or more sides.

8. In a spark-extinguisher, the combination, with the smoke-box, of the spark-receptacle provided with an aperture within which the flanges on the cylinder-saddle extend, and with a cap to cover the same.

9. In a spark-extinguisher, the combination, with the exhaust-nozzle having an auxiliary discharge, of a spark-receptacle having an opening opposite to said discharge and provided with an escape opening or openings independent of the smoke-box, and a wearing-plate by which the incoming solid particles of combustion may be resisted.

320,876. HAY-CARRIER. RICHARD C. JORDAN, Ottawa, Ill. Filed Oct. 30, 1884. (No model.)



Claim.—1. In a hay-carrier, the combination, with the pivoted locking-hook E, provided with the shoulders e^3 and the hook e^4, and arranged to be rotated by the loop *i*, of the locking-bar H, provided with the slot h^3 and shoulders h^3, and arranged to be lifted by the detent G substantially as specified.

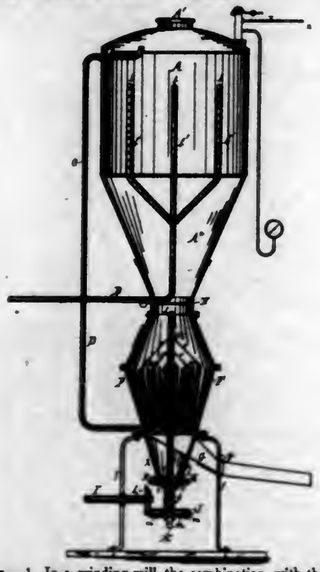
2. In a hay-carrier, the combination, with a carrier-frame having a swinging locking-hook pivoted thereto, and a detent-bar fixed to the beam on which the carrier travels, of a detent-bar and a locking-bar, each pivoted to the carrier-frame, and so arranged that the swing of the locking-hook will cause it to engage the locking-bar before said hook releases the detent-bar from the detent, substantially as specified.

3. In a hay-carrier, the combination, with the carrier-frame having a swinging locking-hook pivoted thereto, and a detent-bar fixed to the beam on which the carrier travels, of a detent-bar and a locking-bar, each pivoted to the carrier-frame, and so arranged that the detent will engage the detent-bar before said detent releases the locking-bar from the locking-hook, substantially as specified.

4. In a hay-carrier, the combination, with the beam B and detent G, of the carrier-frame provided with supporting-rollers, the detent-bar F, constructed as described, and provided with the guide-point f^6 at the curved portion thereof, the locking-hook E, funnel-shaped tube e^2, block I, provided with the loop *i*, and operating-rope J, substantially as specified.

5. In a hay-carrier, the combination, with the beam B, detent G, and carrier-frame A, of the detent-bar F, constructed as shown, the locking-bar H, having one end hook-shaped and slotted longitudinally, and the opposite end beveled outward and downwardly, the locking-hook E, block I, provided with the loop *i* and pulley *i'*, and the rope fixed to the ring C, and passing under the pulley *i'* and over the pulley D, substantially as specified.

320,877. COMBINED MALT-CUTTER AND VEGETABLE-CRUSHER. ELIAS KAUFFELD, Pittsburg, Pa., assignor of one-half to Thomas Miller, same place. Filed Dec. 27, 1884. (No model.)



Claim.—1. In a grinding-mill, the combination, with the grinding-cones and with the beveled gearing through which motion is imparted to the same, one of said gears having an internally-threaded sleeve, of a screw-threaded shaft for communicating motion to the cones, and a detachable head or coupling rigidly connecting said shaft and gear, substantially as shown and described.

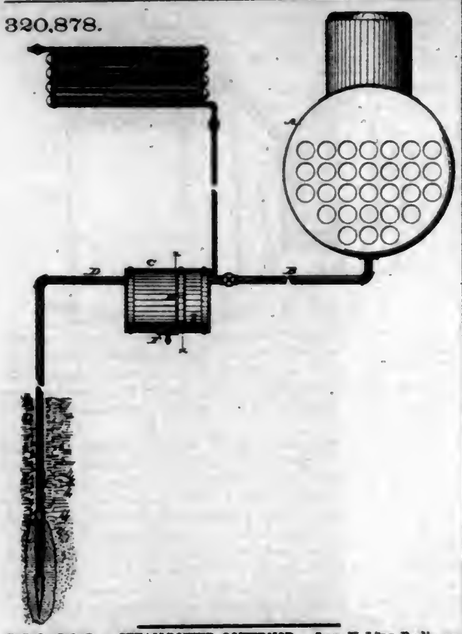
2. In a grain, malt, or vegetable mill, the combination of shells N N and O O with shaft H, screwing into the sleeve *j* of gear-wheel J, its lower end being squared and fitting into a hole in plate M, secured to the bottom of said gear-wheel J, substantially as described, whereby the shaft may be vertically adjusted by turning said plate, as set forth.

320,878. BLOW-OFF APPARATUS. THOMAS G. LOVERGROVE, Philadelphia, Pa., assignor of one-half to Sherman & Delaplaine, same place. Filed Mar. 4, 1884. (No model.)

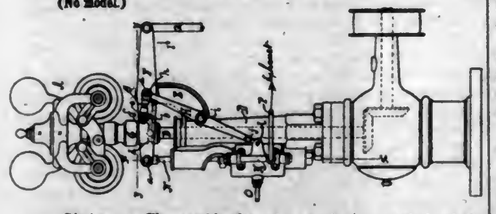
Claim.—A steam-boiler and a pipe for blow-off therefrom driven or sunk into the ground to the water-strata thereof and in communication therewith, in combination with a mud and scale drum intermediate of said pipe and boiler and in communication therewith, substantially as and for the purpose set forth.



320,878.



320,879. STEAM-POWER GOVERNOR. CARL V. LUDE, Berlin, assignor to Schäffer & Budenberg, Buckau, Germany. Filed May 7, 1885. (No model.)

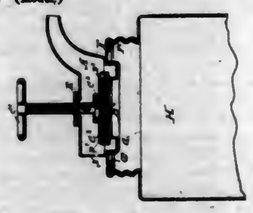


Claim.—1. The combination of a standard, a vertical spindle therein, a vertically-sliding sleeve on the spindle, and governor-balls for actuating the sleeve, with a cylinder arranged on the standard and having a piston, a valve-chest connected with the cylinder, a valve in the chest, and connecting devices between the sleeve, the piston, the valve, and the throttle-valve of a steam-engine or other motor, substantially as described.

2. The combination of a standard, a vertical spindle therein, a vertically-sliding sleeve on the spindle, and a ball-governor for actuating the sleeve, with a cylinder supported by the standard and having a piston, a valve-chest connected with the cylinder, and a valve in the chest, and connections between the piston and the throttle-valve of a steam-engine or other motor, substantially as described.

3. The combination, with the governor of a steam-engine or other motor and with the throttle-valve, of a cylinder, a valve actuated by the governor and constructed to control the admission of steam or compressed air to the cylinder, a piston fitted into said cylinder, the lever F for connecting the piston to the throttle-valve, and the bell-crank lever G G', connected to the levers H and F and to the sleeve of the governor, substantially as shown and described.

320,880. VALVE AND FAUCET. RIVERIUS MARSH, New Brunswick, N. J., assignor of one-half to Hine & Co., New York, N. Y. Filed Nov. 15, 1884. (Model.)

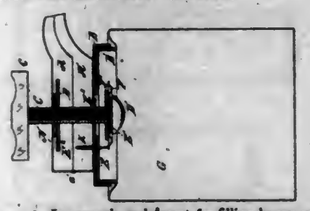


Claim.—1. In a faucet for filling lamps and for other purposes, the spout A, constructed and arranged from a single piece of metal so as to form the body of the faucet and the seat for the valve, in combination with the screw-plunger C, shell C^3, washer D', and packing D, substantially as described.

2. In a faucet for filling lamps and for other purposes, the spout A and the cap or cover F, in combination with the screw-plunger rod C, round at the lower end and constructed and arranged to revolve inside the packing-shell C^3 and against the metal washer D', and the packing D, substantially as and for the purpose specified.

3. In a faucet for filling lamps and for other purposes, the screw-plunger C, with thumb-piece C', and round head C^3, threaded washer or nut E, washer D', shell C^3, and packing D, in combination with the spout A, constructed and arranged to form the body of the faucet, and having vent B', substantially as described.

320,881. NOZZLE AND FAUCET. RIVERIUS MARSH, New Brunswick, N. J. Filed Mar. 21, 1885. (No model.)



Claim.—1. In a nozzle and faucet for filling lamps and for other purposes, the sections A and A', constructed and arranged as described, in combination with a can-top, jar-cap, or other vessel having a communication between the said vessels and the nozzle, substantially as described.

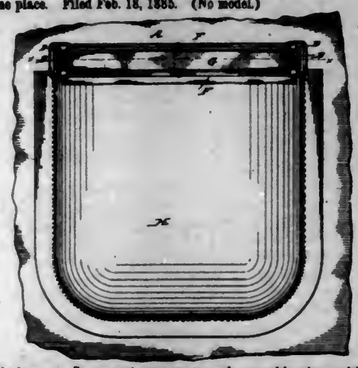
2. In a nozzle and faucet for filling lamps and for other purposes, the sectional nozzle with its vent N and nut D and valve-opening E^3, in combination with the screw C, having a thumb-piece, C', and head D', and cork or packing E', valve shell or rest F, cork or packing F', and cork washer or packing E^2, substantially as shown and described.

3. In a nozzle-valve and faucet for filling lamps and for other purposes, the sectional nozzle and screw C, with their packings, shell, and nut, in combination with a jar or can or other vessel having a screw, B', at the top, and a cap or top with a corresponding screw, B, fitting the same, and a packing or cork, E, substantially as shown and described.

4. In a nozzle, valve, and faucet, the spring and rod K, in combination with the shell or rest F, substantially as described.

5. In a nozzle, valve, and faucet, the combination of the following parts: the sectional spout composed of sections A and A', having a vent, N, the screw C, having thumb-piece C' and head D', packing E', shell F, rod and spring K, and packing F', packing E^2, valve-opening E^3, and nut D, all constructed and arranged substantially as shown and described.

320,882. POCKET-PROTECTOR. JOHN F. MCCRYSTAL and JOHN P. SIEGFRIED, Sandusky, Ohio; said Siegfried assignor to Patrick I. Crossen, same place. Filed Feb. 18, 1885. (No model.)



Claim.—1. In a pocket-protector, the combination, with a rigid plate or frame, the ends of which are provided with slots from which slits extend to the edge of such plate, of an elastic band arranged in the said slots, substantially as and for the purpose set forth.

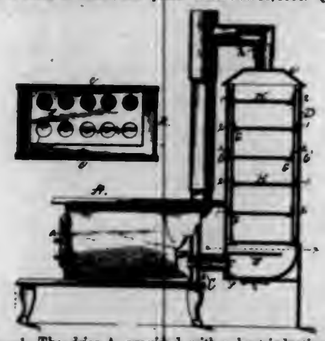
2. In a pocket-protector, the herein-described plate or frame provided at its ends with slots formed by tongues struck up and bent inward over the body of the plate and having slits extending from said slots to the edge of the plate, in combination with an elastic band arranged in said slots, substantially as and for the purpose set forth.

3. In a pocket-protector, the herein-described plate or frame, con-

sisting of a plate having slots at the ends and slits extending from said slots to the edge of the plate, a longitudinal slot, and creased or corrugated sides, in combination with an elastic band arranged in said end slots, substantially as and for the purpose set forth.

4. The combination, with a garment, of a pocket-protector consisting, mainly, of a rigid plate or frame secured permanently to such garment behind the pocket at or near the mouth or opening of the same, and an elastic strap or band suitably attached to such plate or frame and extending round the pocket in front of the latter and behind the cloth of the garment, substantially as and for the purposes herein shown and specified.

320,883. FRUIT-DRIER. MARTIN B. MILLER, Martinsburg, Pa., assignor to Sarah H. Miller, same place. Filed Feb. 12, 1885. (No model.)



Claim.—1. The drier A, provided with a heat-induction aperture at its base, a cold-air register in the bottom thereof, and a pipe at the top thereof, and having an interior perforated bottom plate secured to the side of the casing and made shorter and narrower than the horizontal area of the interior of the drying-chamber, the shelf-supports arranged on the sides of the casing with alternate supports in contact therewith, and the intermediate supports set with a space between their backs and the casing, and the trays resting on the flanges of the supports, all arranged and combined substantially as and for the purpose stated.

2. The combination of the oven of a cooking-stove or range, having a register set in the door of the oven and a pipe leading from the side of the oven and projected through the wall of the stove, with a drier provided with a heat-induction aperture at its base connected to the pipe in the oven of the stove, and an interior bottom plate secured to the side of the casing, said bottom being perforated and made shorter and narrower than the horizontal area of the interior of the drying-chamber, a series of shelf-supports with shelves arranged thereon, said supports and shelves being disposed to throw the current of heated air back of alternate opposite supports and across the drying-chamber, and an exit-pipe, substantially as and for the purpose stated.

320,884. PLASTIC COMPOUND RESEMBLING IVORY. GEORGE M. MOWRAY, Adams, Mass., assignor to the American Zylonite Company, same place. Filed Feb. 16, 1884. (Specimens.)

Claim.—1. The within process of producing imitation ivory, consisting in tinting the surface of layers of a composition of pyroxyline and inert matters with coloring-matter, substantially as described.

2. The within process of producing imitation ivory, consisting in coloring the surface of the layers or alternate layers of pyroxyline compound and then uniting the same to other layers of like composition, substantially as set forth.

3. The within process of producing imitation ivory, consisting in forming a composition of pyroxyline and neutral matters, then sheeting the same, next coloring the surfaces of sheets of such composition and uniting such sheets together by pressure, substantially as described.

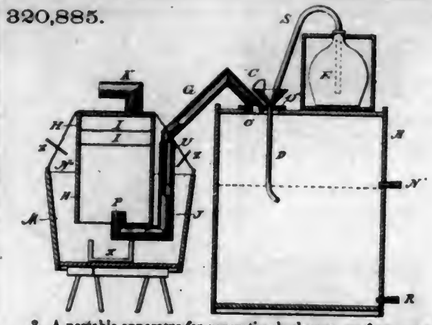
4. As a new article of manufacture, a product composed of a series of sheets of a composition of pyroxyline and neutral matter of uniform composition, with at least one surface of the superposed sheets colored and the sections united together either by heat and pressure or by solvents and pressure, substantially as described.

320,885. PORTABLE GAS-GENERATOR FOR FILLING BALLOONS. CARL E. MYERS, Mohawk, N. Y. Filed Jan. 30, 1885. (No model.)

Claim.—1. In combination with other necessary parts of a portable apparatus for generating hydrogen gas from water by the action of sulphuric acid on iron particles, the gas-generator tank A, having orifices O′ N′ R, when constructed and arranged to operate substantially as described, and for the purposes mentioned.

2. The combination of the curved acid-pipe D, flange O″, and the gas-pipes G and J, connected by an adjustable sliding and revolving joint U, constructed and arranged to operate substantially as shown and described, and for purposes mentioned.

320,885.



3. A portable apparatus for generating hydrogen gas from water by the action of sulphuric acid upon iron particles, consisting, substantially, of a generating-tank, A, washing-tub M, and connecting-pipes G U J, the tub M or its overflow-point N″ being elevated at a higher level than the gage-vent N′ in the generator A, as shown and described, and for purposes mentioned.

4. The generator-tank A, having described openings O′ N′ R, in combination with the cup-shaped cleaning-hoe V, described and shown.

5. In combination with the washing-tub M and one or more pipes, J, the support X, gasometer H, and twisted strainer-cords Z Z, confining the whole together without preventing rotation of H, as described.

6. In combination with carboy E, elevated on or above generator A, the siphon S, hooded funnel C, and curved pipe D, constituting an extension of the siphon system, as described and shown, and arranged to precipitate by gravity preponderance the acid contents of E to and within generator A without influx of air or waste escape of hydrogen.

7. In combination with the washing-fluid in tub M, the gas-escape pipe P, subdivided into perpendicular and corrugated channels forming the star or ray shaped bubble-breaker, described and shown, and operating by surging of gas and fluid through it to convert the same into foam or to shatter a single large bubble into many small ones without said breaker acting to considerably close the escape-pipe, as would a perforated or serrated diaphragm or plate.

8. In a portable hydrogen-gas apparatus, the combination of an elevated carboy, E, containing sulphuric acid, siphon S, containing water, hooded funnel C, and the curved pipe D, constituting a siphon-extension terminating under water within a gas-generator, A O′ N′ R, containing water and iron particles, flange O, and gas-pipe G, having sliding and revolving joint U, connecting a pipe, J, terminating in a bubble-breaker, P, within tub M, containing lime-water, together with pipe-support X, gasometer H, and twisted strainer-cords Z Z, all arranged, combined, and constructed to operate substantially as described and shown, and for purposes mentioned.

320,886. HOISTING-MACHINE. ARCHELAUS POGE, St. Paul, Minn. Filed May 21, 1885. (No model.)

Claim.—1. In a hoisting apparatus, a frame-work, B′, a boom composed of a substantially horizontal section, c', and a downwardly and outwardly inclined section, c^2, as a continuation thereof, a traveler, D′, adapted to run upon said boom as a track, the hoisting-bucket suspended from said traveler, and means for elevating said bucket and moving said traveler, substantially as and for the purpose set forth.

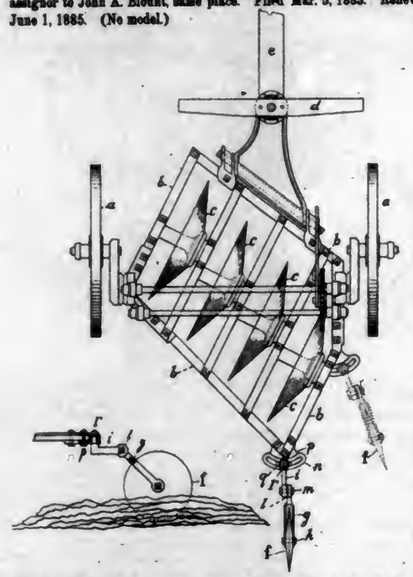
2. In a hoisting apparatus, a frame-work, B′, having a receptacle, B^2, in its lower part, a boom composed of a substantially horizontal section, C′, and a downwardly and outwardly inclined section, C^2, a traveler, D^2, adapted to be moved outward and held toward the front of said horizontal section by a cable and weight or other similar suitable device, a traveler, D′, adapted to run upon said inclined section C^2, and having the hoisting-bucket G′ suspended therefrom, substantially as and for the purpose set forth.

3. The combination of the frame-work B′, having the receptacle or hopper B^2 in its lower part, a boom composed of the substantially horizontal sections C′ and the inclined sections C^2, pivoted supporting-frame C^3, in which the rear end of said horizontal section is supported, suspension-rods B^3, outhangers B^3, guys e, traveler D^2, provided with the cable and weight, traveler D′, from which the hoisting-bucket G′ is suspended, hoisting-cable g, flexible trip m^3 m^4, and means whereby said hoisting-bucket is elevated, substantially as set forth.

4. The combination of the frame-work B′, having the receptacle or hopper B^2 in its lower part, a boom composed of substantially horizontal section, C′, and inclined section C^2, pivoted supporting-frame C^3, in which the rear of said horizontal section is supported, outhangers B^3, guys e, traveler D^2, provided with cable and weight, traveler D′, from which the hoisting-bucket G′ is suspended, hoisting-cable g, flexible trip m^3 m^4, main driving-shaft M′, carrying the friction-pinion M^4, countershaft M^5, carrying friction-wheel M^6, and drum M^{10}, to which the end

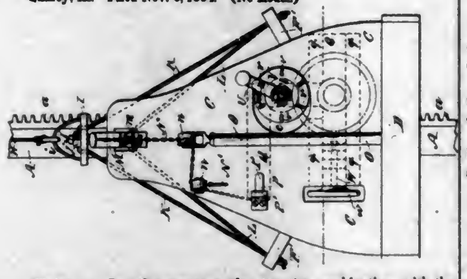
chain S′, having projection S^2, rock-shaft T′, having arms that are adapted to be inclined by the projection S^2, and arm T^2, and pivoted lever U′, connected to said arm and to the seed-slide, substantially as described.

320,853. ROTARY PLOW. HERBERT H. CUMBACK, Springfield, Ohio, assignor to John A. Blount, same place. Filed Mar. 5, 1883. Renewed June 1, 1885. (No model.)



Claim.—In a wheeled rotary plow, substantially as set forth, and in combination with the frame b b, the rotary rudder-disk f, journaled in the bifurcated arm g, having serrated face to correspond with the arm i, having similar face, the bracket p, having slot n, and the adjusting-nut r all adapted and arranged as and for the purposes set forth.

320,854. FIRE-ESCAPE AND ELEVATOR. CHARLES R. S. CURTIS, Quincy, Ill. Filed Nov. 6, 1884. (No model.)



Claim.—1. In a fire-escape or elevator, the combination, with the post A, having a rack, a, of the carriage B, fitted to slide on the post and connected by spring-pressed cam-brakes F, ropes K, plate I, bolt J, and nut j, with the hoisting-rope H, and said carriage having a pinion, S, fitted to a sliding frame, Q, and adapted to be thrown into and out of gear with the rack a, substantially as herein set forth.

2. In a fire-escape or elevator, the combination, with the post A, having a rack, a, of the carriage B, fitted to slide on the post, spring-pressed cam-brakes F, ropes K H, plate I, bolt J, and nut j, and the pinion S, fitted to a sliding frame, Q, and the lever M and ropes L, adapted to keep the cam-brakes off the post when the carriage is to be moved by the hand-gearing, substantially as herein set forth.

3. In a fire-escape or elevator, the combination, with the guide-post A, having a rack, a, the carriage B, spring-pressed cam-brakes F, ropes K H, plate I, bolt J, and nut j, of the frame Q, fitted to slide in the carriage and carrying the pinion S, adapted to gear with the rack a, the screw W, for shifting the frame Q, and the lever M, connected by ropes L with the cam-brakes, substantially as herein set forth.

4. The combination, with the post A, carriage B, and hand-gearing on the carriage for raising and lowering the said carriage, of a bracket, P′, fixed to the carriage, a stud end, p, attached to the hand-gearing and adapted to protrude through the bracket P′, and the chain N, lever M, and cord L, whereby, when the chain N is connected with the stud end p, said chain will automatically be detached to release the cam-brakes and hold the carriage while the hand-gearing is being disengaged from the post A, substantially as herein set forth.

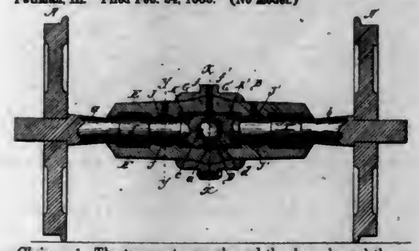
5. The combination, with the post A, carriage B, cam-brakes F, the frame, Q, of the hand-gearing, and the lever M, cords L, and chain N, of a stud, P, fixed on frame Q, and having an end, p, and the bracket P′, fixed to the carriage and receiving said end p, substantially as herein set forth.

6. A fire-escape and elevator constructed with a carriage, B, sliding on a post, A, having a rack, a, spring-pressed cam-brakes F, ropes K H, plate I, bolt J, nut j, lever M, ropes L, chain N, a bracket, P′, on the carriage, the frame Q, supporting the hand-gearing adapted to be engaged with and disengaged from the rack a of post A, the screw W, and a stud or bolt connected to said frame, and adapted to enter a hole in the bracket P′ and protrude through the bracket for connection of the chain N, all substantially as herein set forth.

7. The crank U, made in two jointed sections, and having the stop u^4 and spring X, in combination with the gearing for moving the carriage B by engagement with the rack a on the post A, and a plate, V, fixed to the sliding frame Q, which supports said gearing, and having stops v, against which the crank-stop u^4 strikes, substantially as herein set forth.

8. The combination, with an elevator guide-post, and an elevator having cams for automatically stopping its descent should the elevator-rope break, and an adjustable hand-gearing for moving the said elevator adapted to be thrown into and out of engagement with the guide-post, a locking-connection between said hand-gearing and elevator, and a movable part or arm for holding the cams out of engagement with the guide-post by a suitable connection, the said part or arm being connected with the adjustable hand-gearing to release the cams as the hand-gearing is moved away from the guide-post, substantially as set forth.

320,855. CAR-AXLE. CORNELIUS DECKER and ALEXANDER TROMBLY, Pullman, Ill. Filed Feb. 24, 1885. (No model.)

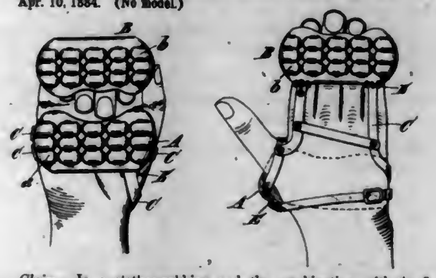


Claim.—1. The two-part car-axle and the box sleeved thereon, in combination with a ball-and-socket bearing between the opposing ends of said two-part axle, substantially as described.

2. The two-part car-axle, in combination with a two-part box surrounding and joining both members of the axle, and a two-part ring sleeved on said box, substantially as described.

3. A transversely-divided axle and car-wheel rigid thereon, in combination with a ball-and-socket joint between the opposing ends of the axle, and a box sleeved on said axle, substantially as described.

320,856. CLOTHES-RUBBING PAD. WILLIAM S. F. DILLON, Madeira, assignor of one-half to William E. Arnold, Madisonville, Ohio. Filed Apr. 10, 1884. (No model.)

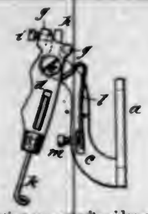


Claim.—In a clothes-rubbing pad, the combination, with the finger-pad B, provided with a loop, B′, of the wrist-pad A, detachably secured to the hand of the operator by strap C, substantially as herein set forth.

320,857. SPRING TAKE-UP FOR WAX-THREAD SEWING-MACHINES. CORNELIUS DRUMM and WILLIAM WYKES, Jefferson City, Mo., assignors to said DRUMM and JAMES MADISON STEWART, same place. Filed Dec. 9, 1884. (Model.)

Claim.—1. In a spring take-up for wax-thread sewing-machines, the combination, with the slotted plate a, provided with the arm c, having projection h, of the guide-carrier d, pivoted to the arm c, and pro-

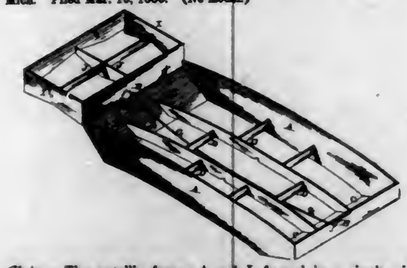
320,857.



vided with the lugs *g*, projecting on opposite sides of the projection *h*, the set-screw *i*, and the spring *l*, secured to the arm *c*, and having its free end resting against the edge of the carrier, substantially as herein shown and described.

2. In a spring take-up for wax-thread sewing-machines, the combination, with the slotted plate *a*, provided with the arm *c*, having the extension *h*, the guide-carrier *d*, pivoted to the said arm and provided with the lugs *g*, and the set-screw *i*, of the spring *l*, having one end adjustably secured in a slot of the said arm by the set-screw *m*, and its free end resting against the carrier, substantially as herein shown and described.

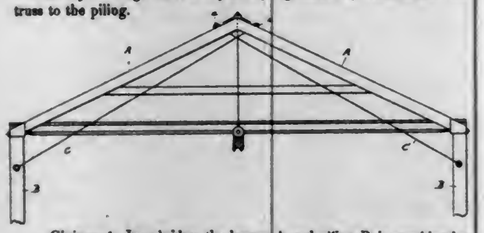
320,858. PAVING SIDEWALKS. JOHN H. DUKE, Jr., Grand Rapids, Mich. Filed Mar. 10, 1885. (No model.)



Claim.—The metallic frames A and I, formed in a single piece, and adapted to be filled with paving material, so as to form both a paving-block and a step, substantially as specified.

320,859. BRIDGE. CHARLES D. DUNDAS, North Auburn, Nebr. Filed Apr. 29, 1884. (No model.)

Brief.—Diagonal rods adjustably tightened by nuts anchor the truss to the piling.



Claim.—1. In a bridge, the beams A and piling B, in combination with the rods C, having adjustable nuts *a*, as shown and described, and for the purposes set forth.

2. In a bridge, the beams A and adjustable rods C, crossing each other near their upper ends, in combination with piling B, as described, and for the purposes set forth.

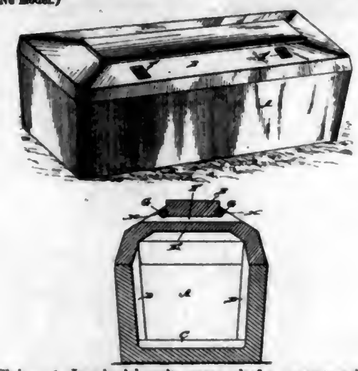
320,860. TRUCK. JOHN ERCK, Milwaukee, Wis. Filed Jan. 29, 1885. (No model.)



Claim.—1. In trucks, the combination of the truck's bed-frame H and the supporting-springs I I and O O, in pairs over the front and rear axles, respectively, one pair being placed lengthwise and the other crosswise of the truck-bed, said springs being supported at their middle, and having a slight movement in lugs at their outer ends, substantially as set forth.

2. In trucks, the combination of the bed-frame H, the supporting-springs I I and O O, in pairs, one pair lengthwise and the other crosswise of the bed, and supported in such pairs upon trusses over the front and rear axles, respectively, and the brace-rods R R, attached at one end to the bed-frame H and at the other end to the trusses M M, and having movement as described, substantially as set forth.

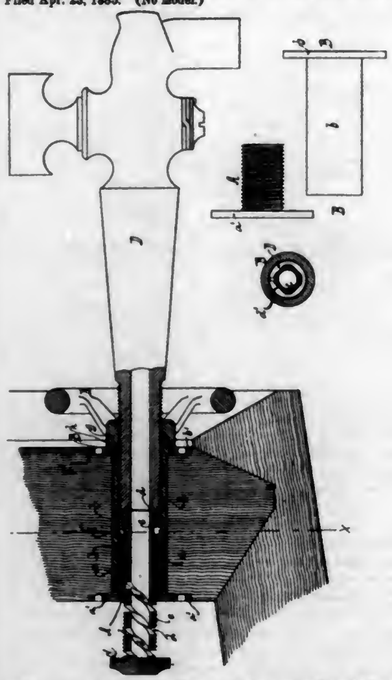
320,861. BURIAL-CASE. JONAS J. FINLEY, New Carlisle, Ind., assignor of one-half to Granville S. Dullner, same place. Filed Apr. 7, 1885. (No model.)



Claim.—1. In a burial-vault composed of a concrete substance, a suitable box and a cover for the same, the top of which is provided with transverse ribs upon its inner side, each of said ribs having a slot passing longitudinally through it and through the sides of the cover, substantially as and for the purpose set forth.

2. In a burial-vault composed of a concrete substance, a suitable box, a cover for the same, the inner under side of which is provided with ribs, each of said ribs having a transverse slot passing through it, and each of said slots being provided upon its upper surface with a series of rollers, substantially as and for the purpose set forth.

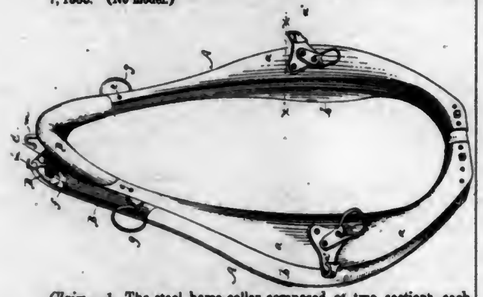
320,862. TAP-HOLE BUSH. ADOLPH FISCHER, Ravenswood, N. Y. Filed Apr. 23, 1885. (No model.)



Claim.—1. A tap-hole bush consisting of the following elements, to wit: the internally-screw-threaded shank *b*, having the lateral flange *b'* at its outer end, the externally and internally screw-threaded shank *a*, provided with the lateral flange *a'* at one end and having its other end terminating adjacent to the center of the shank *b*, to constitute a stationary annular stop, K, and a screw-threaded valve-stem, *c*, fitting the shank *a*, and provided at one end with a valve, C, and at its other end with an attached laterally-projecting stop to abut the shoulder formed by the end of the shank *a*, substantially as and for the purposes described.

2. The combination, with the tap-hole bush and with the internal screw-thread formed therein, of the valve C, having a screw-thread formed on its tubular stem to engage with the internal screw-thread of the tap-hole bush, and the spiral slot *d*, formed in the valve-stem, substantially as shown and described.

320,863. HORSE-COLLAR. EBENEZER FISHER, Philadelphia, Pa., assignor to the Steel Horse Collar Company, Fitchburg, Mass. Filed May 7, 1885. (No model.)



Claim.—1. The steel horse-collar composed of two sections, each forged from a sheet of steel, to form thin side flanges, one overlying the other, and separated by an uninterrupted groove, whereby a greater degree of spring action is provided for the draft attachments, which are secured to the upper or front flange, substantially as shown and described.

2. The combination, with the lateral elastic flange *a* of the steel-collar section A, of the draft-hook attached to the same near its edge, as shown and described.

3. The combination, with a steel-collar section, A, having substantially a U shape in cross-section, of a supplemental spring which is interposed between the two flanges *a* and *b* of said section, as specified.

4. The combination, with a steel-collar section, A, having substantially a U shape in cross-section, of a curved plate-spring which is bolted to the front flange, *a*, and bears with its free end upon the rear flange, *b*, as shown and described.

5. The combination, with the adjustable top piece, B, and flanged steel-collar section A, arranged to slide one in the other, of the fastening-bolt passing through the outer flange, *a*, of said section, and through the contiguous edge of said top piece, as shown and described.

6. The combination, with the collar-coupling and neck-pad, of the piece B, having its eye or top portion projected laterally forward, so that the bearing on the pad is located nearer its front than its rear side, as shown and described.

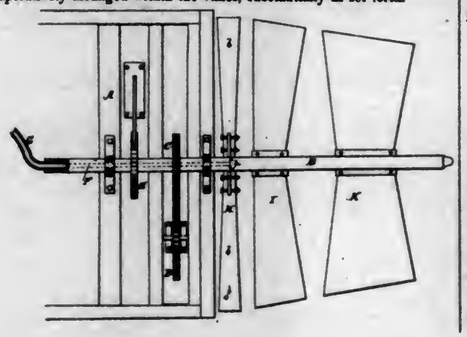
320,864. LOCOMOTIVE COW-CATCHER. JOHN FLECK, Louisville, Ky. Filed Feb. 12, 1885. (No model.)

Claim.—1. In a locomotive cow-catcher or device for removing obstructions from the track, a revolving projecting rod, two or more vanes carried thereby, and steam-ports located therein, all constructed to act in combination substantially as set forth.

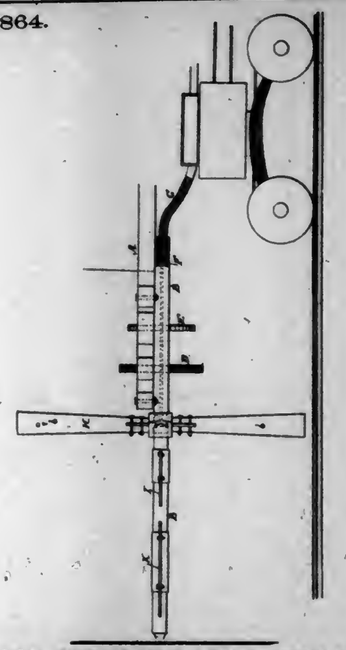
2. In a locomotive cow-catcher, a horizontally-projecting rod, in combination with two or more vanes having their wings arranged at an inclined angle with respect to said rod, substantially as set forth.

3. In a locomotive cow-catcher, a revolving projecting rod, two or more vanes carried thereby, and a pawl-and-ratchet movement connected with the rod, the whole in combination as set forth.

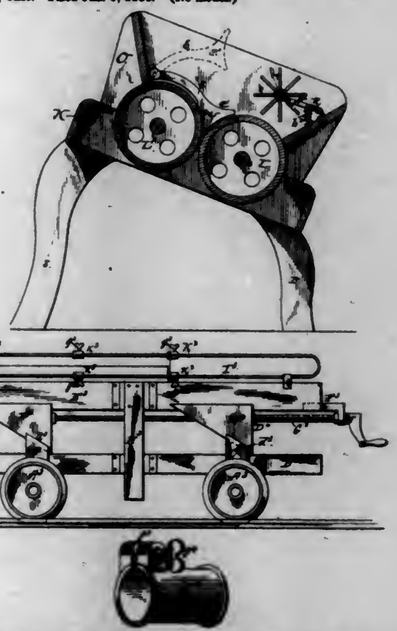
4. In a locomotive cow-catcher, a projecting rod, in combination with two or more vanes carried thereby, having their wings arranged at an inclined angle with respect to the rod, and provided with steam-ports operatively arranged within the vanes, substantially as set forth.



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320,865. BRICK AND TILE MACHINE. FREDERICK E. FREY, Bucyrus, Ohio. Filed Jan. 5, 1885. (No model.)



Claim.—1. The tempering-chamber comprised of the base A, adapted to have mounted thereon the shafts and gearing of the mill, the lower section, B, formed on and projected from the side of the base A, and the upper section, C, formed with a receiving-aperture and hinged to the lower section, all substantially as described.

2. The combination of the rotating hollow shaft E, formed with a flaring core, as *c*, at its free end, and the fixed shaft F, formed with a flaring conical end, G, to set within the flaring core at the free end of the rotating shaft, substantially as described, and for the purpose stated.

3. In combination, the rotating hollow shaft E, provided with a packing-box fitted in the tube at the free end of the shaft and having a

central flaring bearing, with the fixed shaft F, formed with a flaring conical end, G, having its seat within the packing-box and provided with adjusting-nuts at the other end, substantially as described, and for the purpose set forth.

4. In combination with the rotating shaft E, provided in its free end with a bearing, *j*, having a flaring bore, the fixed shaft F, formed with a flaring conical end, G, adjusted to the core of the conical bearing of the rotating shaft, substantially as described, and for the purpose stated.

5. The metal cross J, having its arms formed elliptical in cross-section and set with a plain cutting-edge toward the tempering-chamber, with the side of the arms bearing diagonally to a line at right angles to the face of the cross and having the back edges of the arms irregular in conformation, substantially as described, and for the purpose stated.

6. In combination with the base A and the tempering-chamber B C, the crusher-frame K, arranged at an incline over the entrance to said chamber, substantially as described, and for the purpose stated.

7. In combination with the hopper provided with a perforation in its end board, and the crushing-rollers, the scraper or cleaner S, having a handle, *c'*, projected through the perforation in the side of the hopper parallel with the axes of the rollers and provided with the scraper *d'*, having its face set at right angles to the handle and formed with a neck bent to fit over one of the rollers, and a head, *e'*, curved to set over the other roller, substantially as described.

8. In combination with the hopper of a clay-mill, a metal plate formed with fingers or rods and hinged to the edge of the hopper, an elastic support to sustain the plate, and a rotary shaft provided with arms arranged to pass between the spaces in the plate, substantially as described.

9. In combination with the hopper of a clay-mill, a metal plate formed with fingers or rods and hinged to the ends of the hopper, a spring interposed between the plate and the end of the hopper, and a rotary shaft provided with arms arranged to pass through the spaces between the fingers of the plate, substantially as described.

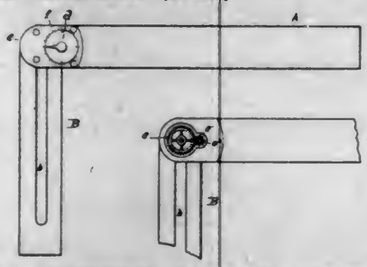
10. In combination with the tempering-chamber or shell of a pug-mill, the frame K, mounted on the tempering-chamber in an inclined position, the hopper mounted on the inclined frame, the metal plate formed with fingers and hinged to the end of the hopper, and elastic supports to sustain the plate in position, the rotary shaft provided with arms arranged to pass through the spaces between the fingers of the plate and the crushing-rollers, all substantially as and for the purpose stated.

11. The frame formed or provided with vertical side blocks mounted on axles and having inclined upper ends, the side blocks connected by cross-pieces and having their lower faces or edges inclined to set on the inclined ends of the lower side blocks, the upper frame set on the cross-pieces of the interposed sliding block and having depending side pieces fitted to grooves in the side pieces of the lower frame, and the operating-screws, all arranged and combined substantially as set forth.

12. The wire spool or thimble K^3, consisting of a cylindrical band open or split on one side for the length thereof and formed with threaded lugs provided with a set-screw, substantially as and for the purpose stated.

13. In combination with the cutting-table of a tile-making machine, a metal frame hinged to the side of the frame of the cutting-table and provided with spools or thimbles consisting of a cylindrical band opened or split on one side for the length thereof and formed with perforated threaded lugs having a set-screw, substantially as described, and for the purpose stated.

320,866. BEVEL. CHARLES PETERS and JOHN N. TODD, Minneapolis, Minn. Filed Nov. 29, 1884. (No model.)

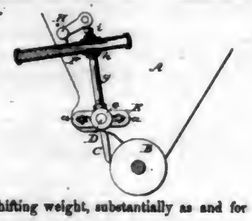


Claim.—The combination, with the stock of a bevel-square, of a spur-wheel adapted to be turned by the bevel-blade, a pinion in mesh with such spur-wheel and of one-fourth its diameter, a pointer operated by the pinion-pivot, and a graduated scale for indicating the angle of the blade and stock, substantially as set forth.

320,867. FEEDING MECHANISM FOR MILLS, &c. PETER FUCHS, Davenport, Iowa. Filed Apr. 6, 1885. (No model.)

Claim.—1. In combination with a feed-hopper, a gate for controlling the feed-opening, and a tube or holder connected with the gate and

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containing a shifting weight, substantially as and for the purpose explained.

2. In combination with a feed-hopper and its gate, an arm projecting laterally from the gate and provided with an automatically-shifting weight, substantially as described and shown.

3. In combination with feed-hopper A and gate C, rod D, provided with arm *g*, and tube F, carried by said arm and containing mercury or equivalent shifting weight.

4. In combination with hopper A, its feeding device, and gate C, provided with pivots or journals, adjustable boxes E for said pivots, whereby the gate may be adjusted bodily to and from the feeding device at both ends.

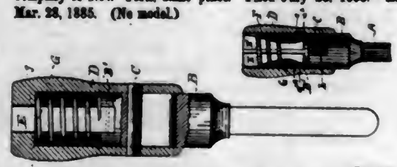
5. In combination with hopper A, rod D, provided with counter-balance F, and gate C, secured to said rod by set-screws whereby the angular positions of the counter-balance and gate may be varied at will.

6. In combination with hopper A and rod D, gate C, secured to said rod, and arm *g*, carrying counter-balance F and secured to rod D by means of a set-screw, whereby it may be set to any desired angle upon the rod.

7. In combination with hopper A, gate C, counter-balance F, provided with a self-shifting weight, and a stop to limit the upward movement of said counter-balance.

8. In combination with hopper A, having recesses *l*, gate C, provided with counter-balance F, and adjustable stop G, provided with locking-pin H to enter the recess *l* and retain the stop at the required adjustment.

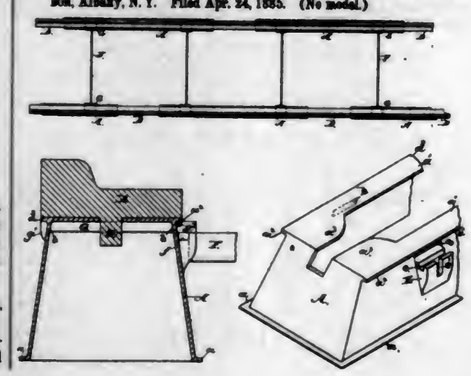
320,868. BIT-BRACE. HIRAM E. FULLER, New York, N. Y., assignor, by direct and mesne assignments, to the Fuller Manufacturing Company of New York, same place. Filed July 28, 1883. Renewed Mar. 28, 1885. (No model.)



Claim.—1. In a bit-brace, the combination, with a shank formed with a transverse recess at its outer end, of clamping-jaws formed with beveled inner ends, and secured by cross-pins extending across said recess, a sliding sleeve, and a coil-spring secured between the jaws and sleeve, the whole being arranged substantially as described, whereby the jaws are allowed a slight longitudinal movement to securely hold the bit.

2. In a bit-brace, the combination, with a recessed shank, a coil-spring, and a sliding sleeve, of clamping-jaws loosely secured within said recess by cross-pins and beveled at their inner ends, whereby the jaws are forced together by the contact of their beveled ends with the cross-pins, substantially as set forth.

320,869. CONSTRUCTION OF RAILWAY-TRACKS. THOMAS H. GIBSON, Albany, N. Y. Filed Apr. 24, 1885. (No model.)



Claim.—1. A metallic sleeper consisting of an oblong metallic box opened at the top and bottom or perforated, and provided with horizontal external and internal flanges, *a*, *a'*, a^2, and a^3, also having mortises *b* on each side near the ends, and immediately under said mortises *b* on one side of box, lugs provided with recesses for receiving the head *f* and shoulder *f'* of the transverse rod F, and tongue *d* of rail D, in combination with the plate G, which is adapted to slide in mortise *b*, to form a support and lock for rail D, as herein specified, said plate being also designed to secure the ends of the transverse rods to the metallic tie A, as herein specified.

2. The combination, in a railway-track, of a longitudinal metallic sleeper, rail, tie-rods, and securing-plate G, and the wedge, as set forth.

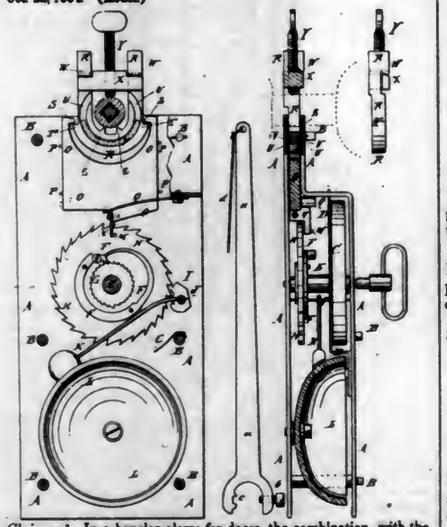
320,870. BREASTPIN-WATCH. DANL. GOLDSMITH, New York, N. Y. Filed June 7, 1883. Renewed Apr. 14, 1885. (No model.)



Claim.—1. The combination, with a breastpin, brooch, or other article of jewelry, of a watch and an extensible suspension device connecting the watch with the breastpin and adapted to be contained within or behind the breastpin when the watch or locket is in its normal position, substantially as herein shown and described.

2. The combination, with a breastpin, brooch, or other article of jewelry, of a watch, a spring-pulley within the breastpin or brooch, and a chain secured thereto and to the watch, whereby the watch, when released, will be automatically returned to its normal position, substantially as herein shown and described.

320,871. BURGLAR-ALARM. WILLIAM GOLDSPOHN, Ledi, Wis. Filed Oct. 22, 1884. (Model.)



Claim.—1. In a burglar-alarm for doors, the combination, with the case A, the spring C, the escapement I, the shaft of which carries the bell-hammer, and the escapement-wheel H, having pin M, of the sliding block O, having arm N and interior shoulders, S, the bow R, having exterior shoulders, T, undercut shoulders W, and curved grooves U, the yoke and screw X Y, and the guides V, substantially as herein shown and described, whereby a movement of the said bow will release the alarm, as set forth.

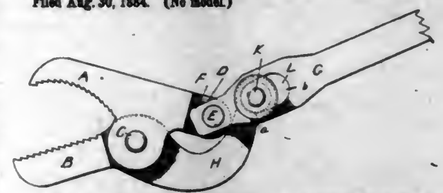
2. In a burglar-alarm for doors, the combination, with the rocking bow R, having shoulders W, of the yoke X and hand-screw Y, substantially as herein shown and described, whereby the said bow can be readily secured to the shank of a door-knob, as set forth.

3. In a burglar-alarm for doors, the combination, with the casing A and the ratchet-wheel H, provided with pin M, of the sliding block O, having arm N, the bow R, and the spring Q, substantially as herein shown and described, whereby the prompt descent of the said block when released will be secured, as set forth.

4. In a burglar-alarm for doors, the combination, with the sliding block O, having interior shoulders, S, of the bow R, having exterior shoulders, T, substantially as herein shown and described, whereby a movement of the said bow will raise the said block, as set forth.

5. In a burglar-alarm for doors, the combination, with the bow R, having circular grooves U and the casing A, of the curved guides V, substantially as herein shown and described, whereby the said bow will be pivoted to the said casing, as set forth.

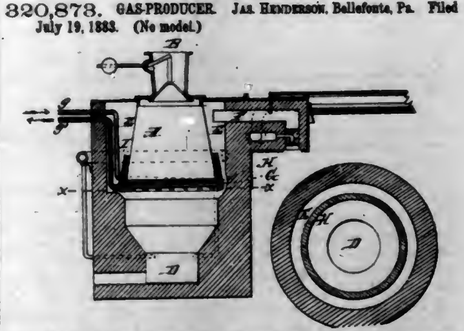
320,872. PIPE-WRENCH. JAS. F. GUTHRIE, Jr., Cambridge, Mass. Filed Aug. 30, 1884. (No model.)



Claim.—1. In a wrench, two jaws, A B, pivoted to each other, the jaw A being pivoted to one end of a handle, and the jaw B pivoted to the handle in an elongated slot, L, substantially as and for the purpose specified.

2. In a wrench, two jaws, A B, pivoted to each other, the jaw A being pivoted to one end of a handle, and the jaw B pivoted to the handle in an elongated slot, L, its pivot K being provided with a loose sleeve, M, substantially as and for the purpose specified.

320,873. GAS-PRODUCER. JAS. HENDERSON, Bellefonte, Pa. Filed July 19, 1883. (No model.)



Claim.—1. The combination, substantially as before set forth, of the gas-producer with an iron fuel-retort having an outer covering of refractory material.

2. The combination, substantially as before set forth, of the gas-producer with an iron fuel-retort having a cooling-chamber at the lower portion thereof, water-supply pipe connected therewith, and an outer covering of refractory material.

320,874. BUTTON. EDWIN J. HOWE, Newark, N. J., assignor to Carter, Sloan & Co., same place. Filed May 2, 1885. (No model.)



Claim.—1. A button whose face is provided on its under side with lugs opposite to each other, and having notches between them, a central shouldered post, and a laterally-swinging arm having bent or angular ends, the latter adapted to be rotated after insertion in the button-hole of a cuff or analogous article, and locked in the notches between the lugs, substantially as described.

2. A button composed of the face-plate A, having the inclined lugs or flanges *a* on its under side, with the notches *c* between them, the shouldered or tenoned post C, the swinging spring-arm B, and the cap *b*, substantially as and for the purposes set forth.

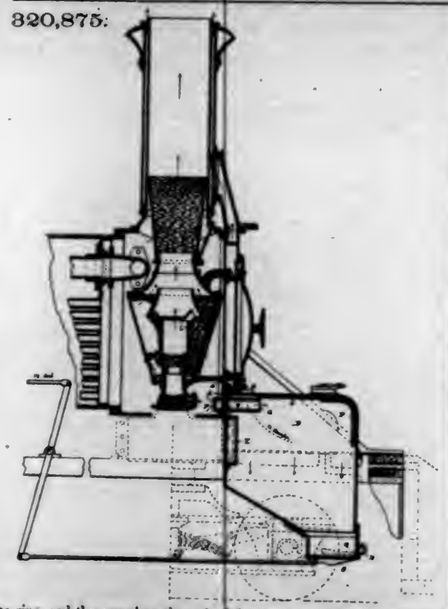
320,875. SPARK-EXTINGUISHER. GEORGE D. HUNTER, Terre Haute, Ind., assignor of four-sixths to Thomas C. Van Nuys and Morton C. Hunter, both of same place. Filed Feb. 27, 1885. (No model.)

Claim.—1. In a spark-extinguisher, the combination, with the exhaust-nozzle having a lateral discharge, of a spark-receptacle having an opening opposite to the said discharge, and provided with a wearing-plate by which the incoming solid particles of combustion may be resisted.

2. In a spark-extinguisher, the combination, with an exhaust-nozzle having a lateral discharge, of a spark-receptacle secured to and communicating with the smoke-box opposite said discharge, provided with a sheathing and wearing-plate by which the incoming solid particles of combustion are resisted.

3. In a spark-extinguisher, the combination, with the smoke-box,

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the ring, and the cap-piece thereof, of the spark-receptacle lapped across the same to within close proximity of the door and connected to the cap-piece.

4. In a spark-extinguisher, the combination, with the smoke-box, the ring, and the cap-piece having an aperture, of the spark-receptacle having a corresponding aperture lapped across the said cap-piece to within close proximity of the door, the bolts, the double sets of nuts, and the washers, whereby the several parts are connected together.

5. In a spark-extinguisher, the combination, with the smoke-box, the ring, and the cap-piece, of the spark-receptacle communicating with the smoke-box and lapped across the cap-piece to within close proximity of the door, the bolts and the nuts fitting within the apertures in the receptacle, the cup-shaped washers, and the nuts fitting against the same.

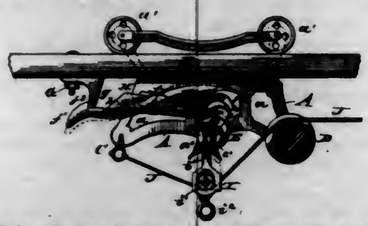
6. In a spark-extinguisher, the combination, with the smoke-box, of the spark-receptacle connected thereto and communicating therewith, lapped across the same to within close proximity of the door and provided with a wearing surface or plate.

7. In a spark-extinguisher, a spark-receptacle provided with an interior sheathing or lining and a cast-iron wearing-plate embracing one or more sides.

8. In a spark-extinguisher, the combination, with the smoke-box, of the spark-receptacle provided with an aperture within which the flanges on the cylinder-saddle extend, and with a cap to cover the same.

9. In a spark-extinguisher, the combination, with the exhaust-nozzle having an auxiliary discharge, of a spark-receptacle having an opening opposite to said discharge and provided with an escape opening or openings independent of the smoke-box, and a wearing-plate by which the incoming solid particles of combustion may be resisted.

320,876. HAY-CARRIER. RICHARD C. JORDAN, Ottawa, Ill. Filed Oct. 30, 1884. (No model.)



Claim.—1. In a hay-carrier, the combination, with the pivoted locking-hook E, provided with the shoulders e^3 and the hook e^4, and arranged to be rotated by the loop *i*, of the locking-bar H, provided with the slot h^2 and shoulders h^3, and arranged to be lifted by the detent G substantially as specified.

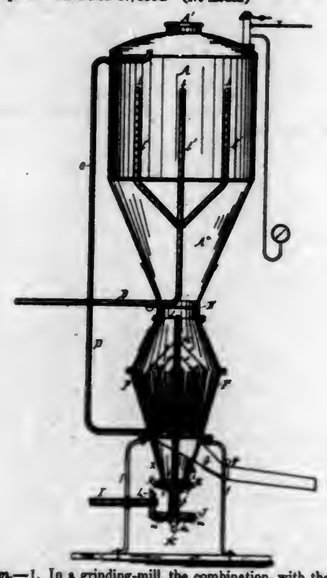
2. In a hay-carrier, the combination, with a carrier-frame having a swinging locking-hook pivoted thereto, and a detent-bar fixed to the beam on which the carrier travels, of a detent-bar and a locking-bar, each pivoted to the carrier-frame, and so arranged that the swing of the locking-hook will cause it to engage the locking-bar before said hook releases the detent-bar from the detent, substantially as specified.

3. In a hay-carrier, the combination, with the carrier-frame having a swinging locking-hook pivoted thereto, and a detent-bar fixed to the beam on which the carrier travels, of a detent-bar and a locking-bar, each pivoted to the carrier-frame, and so arranged that the detent will engage the detent-bar before said detent releases the locking-bar from the locking-hook, substantially as specified.

4. In a hay-carrier, the combination, with the beam B and detent G, of the carrier-frame provided with supporting-rollers, the detent-bar F, constructed as described, and provided with the guide-point f^6 at the curved portion thereof, the locking-hook E, funnel-shaped tube e^2, block I, provided with the loop *i*, and operating-rope J, substantially as specified.

5. In a hay-carrier, the combination, with the beam B, detent G, and carrier-frame A, of the detent-bar F, constructed as shown, the locking-bar H, having one end hook-shaped and slotted longitudinally, and the opposite end beveled outward and downwardly, the locking-hook E, block I, provided with the loop *i* and pulley i', and the rope fixed to the ring C, and passing under the pulley i'' and over the pulley D, substantially as specified.

320,877. COMBINED MALT-CUTTER AND VEGETABLE-CRUSHER. ELIAS KAUFFELD, Pittsburg, Pa., assignor of one-half to Thomas Miller, same place. Filed Dec. 27, 1884. (No model.)



Claim.—1. In a grinding-mill, the combination, with the grinding-cones and with the beveled gearing through which motion is imparted to the same, one of said gears having an internally-threaded sleeve, of a screw-threaded shaft for communicating motion to the cones, and a detachable head or coupling rigidly connecting said shaft and gear, substantially as shown and described.

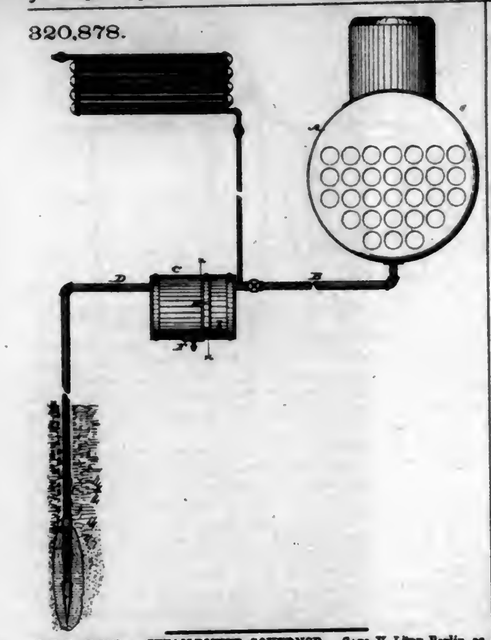
2. In a grain, malt, or vegetable mill, the combination of shells N N and O O with shaft H, screwing into the sleeve *j* of gear-wheel J, its lower end being squared and fitting into a hole in plate M, secured to the bottom of said gear-wheel J, substantially as described, whereby the shaft may be vertically adjusted by turning said plate, as set forth.

320,878. BLOW-OFF APPARATUS. THOMAS G. LOVEGROVE, Philadelphia, Pa., assignor of one-half to Sherman & Delaplaine, same place. Filed Mar. 4, 1884. (No model.)

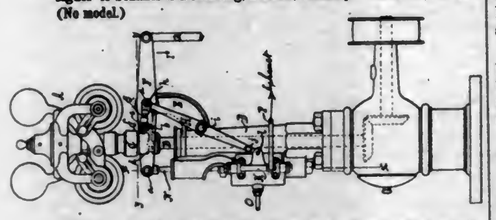
Claim.—A steam-boiler and a pipe for blow-off therefrom driven or sunk into the ground to the water-strata thereof and in communication therewith, in combination with a mud and scale drum intermediate of said pipe and boiler and in communication therewith, substantially as and for the purpose set forth.



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320,879. STEAM-POWER GOVERNOR. CARL V. LÜDE, Berlin, assignor to Schäffer & Budenberg, Buckau, Germany. Filed May 7, 1885. (No model.)

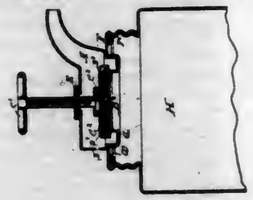


Claim.—1. The combination of a standard, a vertical spindle therein, a vertically-sliding sleeve on the spindle, and governor-balls for actuating the sleeve, with a cylinder arranged on the standard and having a piston, a valve-chest connected with the cylinder, a valve in the chest, and connecting devices between the sleeve, the piston, the valve, and the throttle-valve of a steam-engine or other motor, substantially as described.

2. The combination of a standard, a vertical spindle therein, a vertically-sliding sleeve on the spindle, and a ball-governor for actuating the sleeve, with a cylinder supported by the standard and having a piston, a valve-chest connected with the cylinder, and a valve in the chest, and connections between the piston and the throttle-valve of a steam-engine or other motor, substantially as described.

3. The combination, with the governor of a steam-engine or other motor and with the throttle-valve, of a cylinder, a valve actuated by the governor and constructed to control the admission of steam or compressed air to the cylinder, a piston fitted into said cylinder, the lever F for connecting the piston to the throttle-valve, and the bell-crank lever G G', connected to the levers H and F and to the sleeve of the governor, substantially as shown and described.

320,880. VALVE AND FAUCET. RIVERIUS MARSH, New Brunswick, N. J., assignor of one-half to Hine & Co., New York, N. Y. Filed Nov. 15, 1884. (Model.)

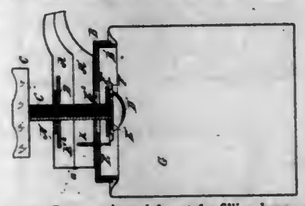


Claim.—1. In a faucet for filling lamps and for other purposes, the spout A, constructed and arranged from a single piece of metal so as to form the body of the faucet and the seat for the valve, in combination with the screw-plunger C, shell C^2, washer D', and packing D, substantially as described.

2. In a faucet for filling lamps and for other purposes, the spout A and the cap or cover F, in combination with the screw-plunger rod C, round at the lower end and constructed and arranged to revolve inside the packing-shell C^2 and against the metal washer D', and the packing D, substantially as and for the purpose specified.

3. In a faucet for filling lamps and for other purposes, the screw-plunger C, with thumb-piece C', and round head C^3, threaded washer or nut E, washer D', shell C^2, and packing D, in combination with the spout A, constructed and arranged to form the body of the faucet, and having vent B', substantially as described.

320,881. NOZZLE AND FAUCET. RIVERIUS MARSH, New Brunswick, N. J. Filed Mar. 21, 1885. (No model.)



Claim.—1. In a nozzle and faucet for filling lamps and for other purposes, the sections A and A', constructed and arranged as described, in combination with a can-top, jar-cap, or other vessel having a communication between the said vessels and the nozzle, substantially as described.

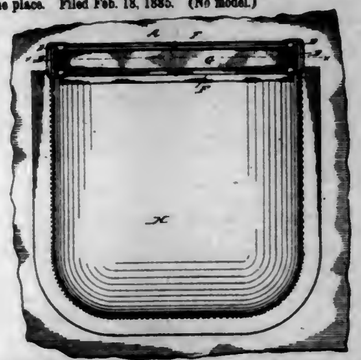
2. In a nozzle and faucet for filling lamps and for other purposes, the sectional nozzle with its vent N and nut D and valve-opening E^3, in combination with the screw C, having a thumb-piece, C', and head D', and cork or packing E', valve shell or rest F, cork or packing F', and cork washer or packing E^2, substantially as shown and described.

3. In a nozzle-valve and faucet for filling lamps and for other purposes, the sectional nozzle and screw C, with their packings, shell, and nut, in combination with a jar or can or other vessel having a screw, B', at the top, and a cap or top with a corresponding screw, B, fitting the same, and a packing or cork, E, substantially as shown and described.

4. In a nozzle, valve, and faucet, the spring and rod K, in combination with the shell or rest F, substantially as described.

5. In a nozzle, valve, and faucet, the combination of the following parts: the sectional spout composed of sections A and A', having a vent, N, the screw C, having thumb-piece C' and head D', packing E', shell F, rod and spring K, and packing F', packing E^2, valve-opening E^3, and nut D, all constructed and arranged substantially as shown and described.

320,882. POCKET-PROTECTOR. JOHN F. MCCAFFAL and JOHN P. SIEGFRIED, Sandusky, Ohio; said Siegfried assignor to Patrick I. Crossen, same place. Filed Feb. 18, 1885. (No model.)



Claim.—1. In a pocket-protector, the combination, with a rigid plate or frame, the ends of which are provided with slots from which slits extend to the edge of such plate, of an elastic band arranged in the said slots, substantially as and for the purpose set forth.

2. In a pocket-protector, the herein-described plate or frame provided at its ends with slots formed by tongues struck up and bent inward over the body of the plate and having slits extending from said slots to the edge of the plate, in combination with an elastic band arranged in said slots, substantially as and for the purpose set forth.

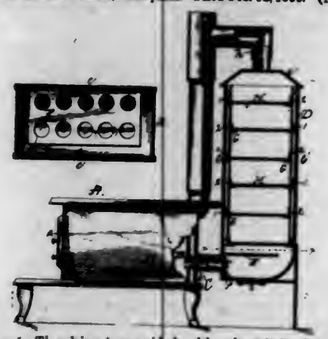
3. In a pocket-protector, the herein-described plate or frame, con-

sisting of a plate having slots at the ends and slits extending from said slots to the edge of the plate, a longitudinal slot, and creased or corrugated sides, in combination with an elastic band arranged in said end slots, substantially as and for the purpose set forth.

4. The combination, with a garment, of a pocket-protector consisting, mainly, of a rigid plate or frame secured permanently to such garment behind the pocket at or near the mouth or opening of the same, and an elastic strap or band suitably attached to such plate or frame and extending round the pocket in front of the latter and behind the cloth of the garment, substantially as and for the purposes herein shown and specified.

320,883. FRUIT-DRIER.

MARTIN B. MILLER, Martinsburg, Pa., assignor to Sarah H. Miller, same place. Filed Feb. 12, 1885. (No model.)



Claim.—1. The drier A, provided with a heat-induction aperture at its base, a cold-air register in the bottom thereof, and a pipe at the top thereof, and having an interior perforated bottom plate secured to the side of the casing and made shorter and narrower than the horizontal area of the interior of the drying-chamber, the shelf-supports arranged on the sides of the casing with alternate supports in contact therewith, and the intermediate supports set with a space between their backs and the casing, and the trays resting on the flanges of the supports, all arranged and combined substantially as and for the purpose stated.

2. The combination of the oven of a cooking-stove or range, having a register set in the door of the oven and a pipe leading from the side of the oven and projected through the wall of the stove, with a drier provided with a heat-induction aperture at its base connected to the pipe in the oven of the stove, and an interior bottom plate secured to the side of the casing, said bottom being perforated and made shorter and narrower than the horizontal area of the interior of the drying-chamber, a series of shelf-supports with shelves arranged thereon, said supports and shelves being disposed to throw the current of heated air back of alternate opposite supports and across the drying-chamber, and an exit-pipe, substantially as and for the purpose stated.

320,884. PLASTIC COMPOUND RESEMBLING IVORY.

GEORGE M. MOWBRAY, Adams, Mass., assignor to the American Zylonite Company, same place. Filed Feb. 16, 1884. (Specimens.)

Claim.—1. The within process of producing imitation ivory, consisting in tinting the surface of layers of a composition of pyroxyline and inert matters with coloring-matter, substantially as described.

2. The within process of producing imitation ivory, consisting in coloring the surface of the layers or alternate layers of pyroxyline compound and then uniting the same to other layers of like composition, substantially as set forth.

3. The within process of producing imitation ivory, consisting in forming a composition of pyroxyline and neutral matters, then sheeting the same, next coloring the surfaces of sheets of such composition and uniting such sheets together by pressure, substantially as described.

4. As a new article of manufacture, a product composed of a series of sheets of a composition of pyroxyline and neutral matter of uniform composition, with at least one surface of the superposed sheets colored and the sections united together either by heat and pressure or by solvents and pressure, substantially as described.

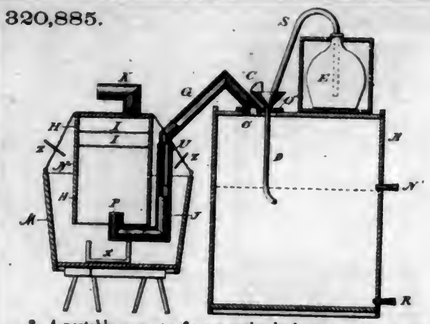
320,885. PORTABLE GAS-GENERATOR FOR FILLING BALLOONS.

CARL E. MYERS, Mohawk, N. Y. Filed Jan. 30, 1885. (No model.)

Claim.—1. In combination with other necessary parts of a portable apparatus for generating hydrogen gas from water by the action of sulphuric acid on iron particles, the gas-generator tank A, having orifices O' N' R, when constructed and arranged to operate substantially as described, and for the purposes mentioned.

2. The combination of the curved acid-pipe D, flange O'', and the gas-pipes G and J, connected by an adjustable sliding and revolving joint U, constructed and arranged to operate substantially as shown and described, and for purposes mentioned.

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3. A portable apparatus for generating hydrogen gas from water by the action of sulphuric acid upon iron particles, consisting, substantially, of a generating-tank, A, washing-tub M, and connecting-pipes G U J, the tub M or its overflow-point N'' being elevated at a higher level than the gage-vent N' in the generator A, as shown and described, and for purposes mentioned.

4. The generator-tank A, having described openings O' N' R, in combination with the cup-shaped cleaning-hoe V, described and shown.

5. In combination with the washing-tub M and one or more pipes, J, the support X, gasometer H, and twisted strainer-cords Z Z, confining the whole together without preventing rotation of H, as described.

6. In combination with carboy E, elevated on or above generator A, the siphon S, hooded funnel C, and curved pipe D, constituting an extension of the siphon system, as described and shown, and arranged to precipitate by gravity preponderance the acid contents of E to and within generator A without influx of air or waste escape of hydrogen.

7. In combination with the washing-fluid in tub M, the gas-escape pipe P, subdivided into perpendicular and corrugated channels forming the star or ray shaped bubble-breaker, described and shown, and operating by surging of gas and fluid through it to convert the same into foam or to shatter a single large bubble into many small ones without said breaker acting to considerably close the escape-pipe, as would a perforated or serrated diaphragm or plate.

8. In a portable hydrogen-gas apparatus, the combination of an elevated carboy, E, containing sulphuric acid, siphon S, containing water, hooded funnel C, and the curved pipe D, constituting a siphon-extension terminating under water within a gas-generator, A O' N' R, containing water and iron particles, flange O, and gas-pipe G, having sliding and revolving joint U, connecting a pipe, J, terminating in a bubble-breaker, P, within tub M, containing lime-water, together with pipe-support X, gasometer H, and twisted strainer-cords Z Z, all arranged, combined, and constructed to operate substantially as described and shown, and for purposes mentioned.

320,886. HOISTING-MACHINE.

ARCHELAUS PUGH, St. Paul, Minn. Filed May 21, 1885. (No model.)

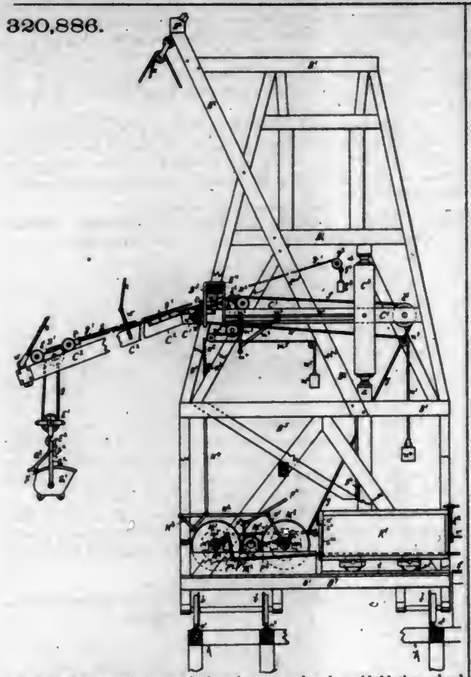
Claim.—1. In a hoisting apparatus, a frame-work, B', a boom composed of a substantially horizontal section, c', and a downwardly and outwardly inclined section, c^3, as a continuation thereof, a traveler, D', adapted to run upon said boom as a track, the hoisting-bucket suspended from said traveler, and means for elevating said bucket and moving said traveler, substantially as and for the purpose set forth.

2. In a hoisting apparatus, a frame-work, B', having a receptacle, B^3, in its lower part, a boom composed of a substantially horizontal section, C', and a downwardly and outwardly inclined section, C^3, a traveler, D^3, adapted to be moved outward and held toward the front of said horizontal section by a cable and weight or other similar suitable device, a traveler, D', adapted to run upon said inclined section C^3, and having the hoisting-bucket G' suspended therefrom, substantially as and for the purpose set forth.

3. The combination of the frame-work B', having the receptacle or hopper B^3 in its lower part, a boom composed of the substantially horizontal sections C' and the inclined sections C^3, pivoted supporting-frame C^3, in which the rear end of said horizontal section is supported, suspension-rods B^3, outhangers B^3, guys e, traveler D^3, provided with the cable and weight, traveler D', from which the hoisting-bucket G' is suspended, hoisting-cable g, flexible trip m^3 m^4, and means whereby said hoisting-bucket is elevated, substantially as set forth.

4. The combination of the frame-work B', having the receptacle or hopper B^3 in its lower part, a boom composed of substantially horizontal section, C', and inclined section C^3, pivoted supporting-frame C^3, in which the rear of said horizontal section is supported, outhangers B^3, guys e, traveler D^3, provided with cable and weight, traveler D', from which the hoisting-bucket G' is suspended, hoisting-cable g, flexible trip m^3 m^4, main driving-shaft M', carrying the friction-pinion M^4, countershaft M^6, carrying friction-wheel M^8, and drum M^{10}, to which the end

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of said hoisting-cable is attached, and means whereby said friction-wheel may be thrown in contact with and disconnected from said friction-pinion, substantially as and for the purpose set forth.

5. In a hoisting apparatus, a frame-work, B', a boom composed of a substantially horizontal section, C', and a downwardly and outwardly inclined section, C^3, as a continuation thereof, and adapted to be adjusted laterally within said frame-work, a traveler, D', adapted to run upon said boom as a track, the hoisting-bucket suspended from said traveler, and means for elevating said bucket and moving said traveler, substantially as and for the purpose set forth.

6. In a hoisting apparatus, a supporting-trestle or frame-work, A, having a series of rails, a' a^2 a^3, a frame-work, B', supported upon said rails by trucks b, and provided with receiver B^5, adjustable boom C' C^3, and bucket G, means for elevating said bucket and dumping its contents into said receiver, tracks t in said frame B', upon which a car, K', is adapted to run, a system of extended rails, t', corresponding to said rails t and at right angles to said frame A, and rails a' a^2 a^3, a pair of rails, t^2, at right angles to said rail t', and connected therewith by turn-tables T, substantially as and for the purpose set forth.

7. The combination, with a frame, B', having receiver B^5 and supporting a swinging boom, C' C^3, upon which a bucket, G', is adapted to be elevated to dump its contents into said receiver, and provided with rails t, on which a car, K', is adapted to run, and adapted to be moved upon rails a' a^2 a^3 of a system of rails, t', corresponding to said rails t, the ends of said rails t' being adjustable at their junction with said rails t, substantially as and for the purpose set forth.

8. The combination of a frame, B', having receptacle B^5, and rails t, an extended system of rails, t', car K', adapted to run upon said rails, and provided with hinged sides K^3 K^4, automatic tipping mechanism consisting of the levers c', chains c^4 c^5 c^7, latch c^8, rod c^{10}, having enlargement c^{11}, catch c^{12}, adjustable trip-block c^{13}, drum M^9, cable v', snatch-block v^3, tightening-rod K^2, and means, substantially as described, whereby the motion of said drum may be reversed, as and for the purpose set forth.

320,887. MIXING WHITE LEAD WITH OIL.

WILLIAM H. PULSIFER, St. Louis, Mo., assignor to himself and Samuel J. Colgate, New York N. Y. Filed Dec. 24, 1884. (No specimens.)

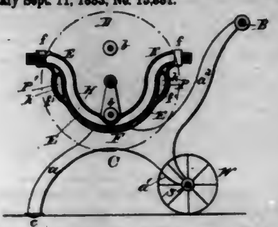
Claim.—1. The process of mixing by agitation a liquid pulp of white lead and water with oil until the water is expelled and the oil and lead are thoroughly incorporated, substantially as described.

2. The process of manufacturing white lead mixed with oil by the following steps, in the following order, viz: first, forming a liquid pulp of white-lead water; second, adding oil thereto in a suitable receptacle; third, agitating the material until the oil is combined with the lead and the water is separated; fourth, drawing off the water, substantially as described.

3. The process of manufacturing white lead mixed with oil by the following steps in the following order, viz: first, forming a liquid pulp of white lead and water; second, adding oil thereto in a suitable receptacle; third, agitating the material until the oil is combined with the lead and the water is expelled, substantially as described.

320,888. INDIA-RUBBER PUMP.

PIERRE J. RUFFEL, Paris, France. Filed Nov. 21, 1883. (No model.) Patented in England Feb. 27, 1883, No. 1,073, and Sept. 19, 1883, No. 4,482; in France July 27, 1883, No. 156,526; in Belgium Aug. 30, 1883, No. 62,452; in Germany Aug. 30, 1883; in Austria-Hungary Sept. 11, 1883, No. 34,464 and No. 46,736, and in Italy Sept. 11, 1883, No. 15,381.



Claim.—1. In a pump of the class described, the combination, with the compressible suction and force hose, of compressible cushions located at the points of greatest compression of the hose, in combination with a compressing wheel or roller, as described, for the purpose specified.

2. In a pump of the class described, the combination, substantially as herein set forth, of a suction and force hose composed of two sections of flexible tubing contained one within the other, and a compressing wheel or bowls, with a rigid support and elastic cushions secured within recesses formed in said support, for the purposes specified.

320,889. EAR-PICK.

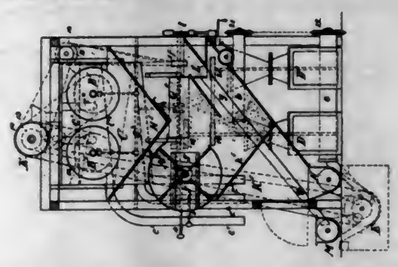
JACOB RUOFF, Providence, R. I. Filed Feb. 4, 1884. (No model.)



Claim.—An ear-pick consisting of the handle, as described, and the rubber pick A, placed on one end thereof having the spheroidal end b and projection or projections on the sides thereof, all formed of rubber, substantially as and for the purpose set forth.

320,890. APPARATUS FOR HULLING, ASSORTING, AND CLEANSING COCOA-BEANS.

HEINRICH STOLLWERCK, Cologne-on-the-Rhine, Prussia, Germany, assignor to Gebr. Stollwerck, same place. Filed Feb. 17, 1884. (No model.)



Claim.—1. The combination of a series of blowers increasing in power from one end to the other of the series, a series of rocking sieves arranged in front of the discharge-openings of said blowers and increasing in the size of their mesh from one end to the other of the series, a series of receptacles located to the rear of said sieves to receive products blown therefrom, and a valve, e, controlling an opening at the rear of said receptacles, substantially as described.

2. The combination of a rotary assorting-sieve composed of a series of sections having perforations gradually increasing in size from one end of the series to the other, a series of blowers increasing in power from end to end of the series, a series of rocking sieves arranged between said blowers and rotary assorting-sieve in front of the discharge-openings of said blowers, a series of receptacles located to the rear of said sieves to receive products blown therefrom, and a valve, e, controlling an opening at the rear of said receptacles, substantially as described.

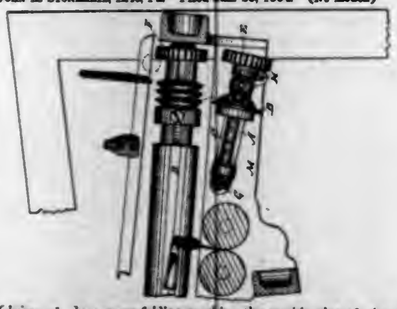
3. The combination of a rotary assorting-sieve composed of a series of sections having perforations gradually increasing in size from end to end of the series, a rocking screen composed of a series of finely-perforated sieves arranged one above the other, and a conduit leading from

the topmost sieve of the rocking screen into the rotary sieve, substantially as described.

4. The combination of a rotary assorting-sieve composed of a series of sections having perforations increasing in size from end to end of the series, a rocking screen composed of a series of finely-perforated sieves arranged one above the other, a divider suspended above the top sieve of the rocking screen, and having its lower portion cut away adjacent to its ends, and a conduit leading from said top sieve into the rotary sieve, substantially as described.

5. An apparatus for hulling, assorting, and cleaning cocoa, comprising a grinding-mill, a rocking sieve, a conveyer connecting said mill and sieve, a rotary sieve composed of a series of sections having perforations increasing in size from end to end, a conduit connecting the rocking screen therewith, a series of hoppers located beneath the sections of the rotary screen, a series of blowers beneath said hoppers of increasing power from end to end of the series, and having adjusting-slides S, a series of rocking sieves in front of the openings to the blowers, a series of receptacles to the rear of said last sieve having valve-controlled openings, trough-receptacles underneath said sieves and blowers, inclined slides in said trough-receptacles, and a conveyer for said receptacles, substantially as described.

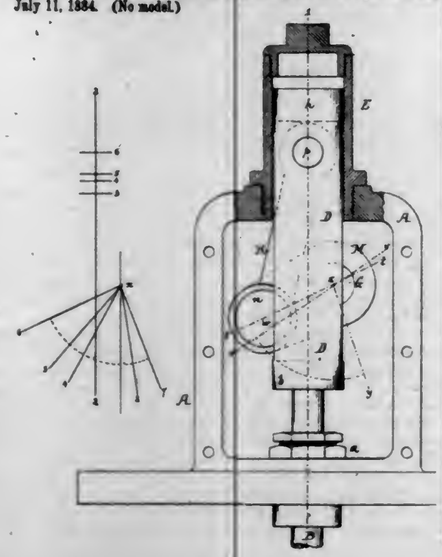
320,891. TRIMMING DEVICE FOR PAPER-FOLDING MACHINES. JOHN H. STONEBRETZ, Erie, Pa. Filed Jan. 28, 1884. (No model.)



Claim.—1. In a paper-folding machine, the combination of a bracket pivoted at one end to the framing of the machine, a shaft mounted in said bracket and carrying a revolving cutter and a gear-wheel, and a gear-wheel mounted on a rotating roller-shaft in the machine for transmitting a positive rotary motion to the first gear-wheel and to the cutter when the said bracket is turned on its pivot, so as to bring the cogs of the two wheels into gear, substantially as shown and described.

2. In a paper-folding machine, the combination, with a roller having gear F, of shaft C, having gear E and cutter B, pivoted frame A and clamping-screw H, substantially as described, and for the purpose set forth.

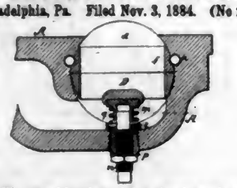
320,892. VALVE-OPERATING MECHANISM. GEORGE S. STRONG, Philadelphia, Pa., assignor to John T. Morris, trustee, same place. Filed July 11, 1884. (No model.)



Claim.—1. The combination of the valve-spindle and the rock-shaft G with an arm, M, attached to the shaft and connected to the spindle at a point substantially as set forth, the said arm having a movement from a position at about right angles to the spindle to a point on or beyond a line drawn through the center of the shaft G and parallel with the said spindle.

2. The combination of the valve-spindle and the rock-shaft G with an arm, M, and a connecting-link, H, the said arm M having a movement within the limits of the lines 6 7 past a line drawn through the center of the shaft G, and of the connection of the link with the spindle, substantially as set forth.

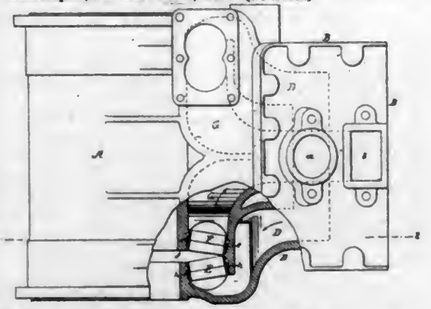
320,893. CYLINDER AND VALVE FOR ENGINES. GEORGE S. STRONG, Philadelphia, Pa. Filed Nov. 3, 1884. (No model.)



Claim.—1. The combination of the circular valve-chest of a steam-engine, with a valve-seat having edges made in arcs of circles to coincide with the bore of the chest, and keyways partly in the edges of the seat and partly in the walls of the chest, with keys for securing the chest in place and forming a packing between the two, as set forth.

2. The combination of the circularly-chambered valve-chest of a steam-engine, and a valve-seat fitted thereto, with tubular keys A, introduced into holes drilled partly into the seat and partly in the wall of the chest, substantially as specified.

320,894. CYLINDER FOR STEAM-ENGINES. GEORGE S. STRONG, Philadelphia, Pa. Filed Dec. 1, 1884. (No model.)



Claim.—1. The combination of the cylinder, having a port, *f*, a steam-valve on one side thereof, and an exhaust-valve on the other, with the steam-inlet *a* and outlet *b*, adjacent to each other, and the passages D and G, leading from the port to the said inlet and outlet, substantially as set forth.

2. The combination of the cylinder, having ports *f* at opposite ends, a steam-valve on one side and an exhaust-valve on the other side of each port, with the steam-inlet *a* and outlet *b*, adjacent to each other, and the passages D and G, the latter having a partition, *w*, substantially as described.

3. The combination of a steam-cylinder, having a port, *f*, with steam and exhaust passages D and G, leading from opposite sides thereof, and having valves E F on opposite sides of said port, and at an angle to each other, substantially as set forth, to bring them close together.

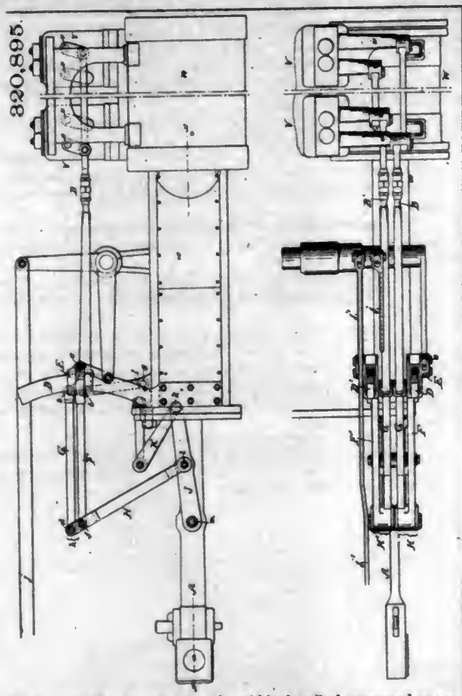
4. The combination of the cylinder with the saddle or extension B, cast in one piece therewith, and containing inlet and exhaust ports D G, with steam and exhaust valves at both ends of the cylinder, substantially as set forth.

320,895. VALVE-MOTION. GEORGE S. STRONG, Philadelphia, Pa. Filed Apr. 3, 1885. (No model.)

Claim.—1. The combination, in valve-gear for steam-engines, of the following elements, namely: first, the pivoted link F, having a fulcrum-pin, *f*; second, a connecting-rod, A, lever J, pivoted thereto and to a pivoted link, K, on the same side of the connecting-rod as the rest of the valve-gear, a rod, H, pivoted to the lever J and to the link F by the fulcrum-pin *f*; third, a link, G, connected also to the fulcrum-pin *f* and to the valve-rod B, all substantially as set forth.

2. The combination, in valve-gear for steam-engines, of the following elements, namely: first, a fixed segment, D, and a block, E, adjustable thereon; second, a lever or link, H, and connecting-rod A, lever J, and link K, pivoted on the same side of the connecting-rod as the rest

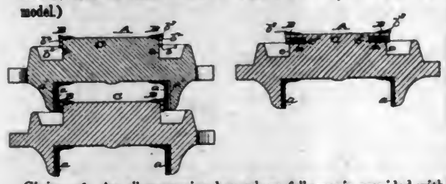
320,895



of the valve-gear, for imparting the within-described compound movement to the lever H; and, third, a link, F, connecting the adjustable block to the lever H by a pin, *f*, to which lever is also connected the valve-rod, substantially as set forth.

3. The combination, in valve-gear for steam-engines, of the following elements, namely: first, a fixed segment, D, and a block, E, adjustable thereon; second, a lever, H, having its fulcrum-pin connected to the said block, and having an arm, *h*, connected to the valve-spindle; and, third, the connecting-rod A, lever J, and link K, pivoted on the same side of the connecting-rod as the rest of the valve-gear, for imparting the within-described movement to the lever H, all substantially as set forth.

320,896. OIL-EXPRESSING BOX. THOMAS P. SULLIVAN, Webster Groves, and EVAN McM. HAZARD, St. Louis, Mo. Filed Mar. 23, 1885. (No model.)



Claim.—1. An oil-expressing box whose follower is provided with a strip to close the joint between the follower and the sides of the box.

2. An oil-expressing box whose follower is provided with a strip to close the joint between the follower and the side of the box, said strip being laterally adjustable upon the follower, for the purpose described.

3. In combination with the box A and the follower C, the strip B, having the lip *b*², substantially as described.

4. The combination of the follower C, chambered at *c'*, with the strip B, having the leg *b'*, and the spring D, substantially as described.

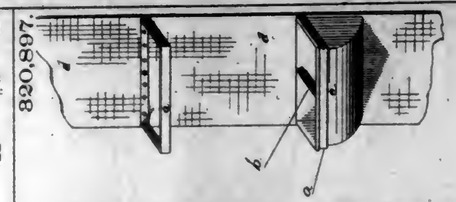
320,897. ELEVATOR-BUCKET. CHARLES M. THOMAS, Buffalo, N. Y. Filed Nov. 12, 1884. (No model.)

Claim.—1. The combination of a belt, supporting-band, bucket, and a means, substantially as described, to lock the bucket in place, for the purpose shown.

2. An elevator-belt having a supporting-band, in combination with an elevator-bucket adapted to fit within the supporting-band, and provided with a means, substantially as stated, to lock the same in position, substantially as shown.

3. The combination of a belt, *a'*, band *a*, bucket *c*, and fastening-rod *b*, constructed and operating substantially as shown.

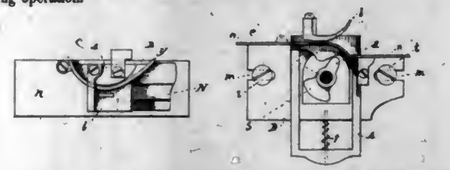
320,897



4. As a new article of manufacture, a removable elevator-bucket consisting of a supporting-band adapted to be secured to an elevator-belt and a bucket adapted to rest within and be locked to the band, substantially as shown.

320,898. SEWING-MACHINE. ROLLIN D. TUCKER, Lynn, Mass., assignor to the Tucker Seam Welting and Machine Company, Nashua, N. H. Filed June 13, 1884. (Model.)

Brief.—The jaws clamp the material and also the welt-strip passing through the guide and move them together in feeding, for the stitching operation.



Claim.—1. A feed mechanism for sewing-machines, consisting of two clamps, both carried on a block or carriage, one of the clamps being movable, a cam for moving the block or carriage forward and also for raising one clamp, and mechanism for moving the block and clamp in reverse direction, all substantially as described.

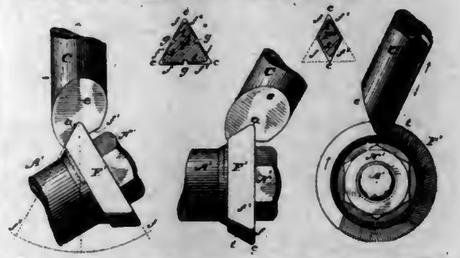
2. A feed mechanism for sewing-machines, consisting of a lower fixed clamp and an upper movable clamp, both carried on a laterally-movable block, cams on the main shaft adapted to raise the upper clamp and advance the movable block, and mechanism to return the block and depress the movable clamp, all substantially as described.

3. In a sewing-machine, and in combination with the clamps which hold and feed the material, a welt-guide movable with the feed-clamps, substantially as described.

4. In a sewing-machine, an upper and lower clamp for clamping the material carried on a laterally-moving block, mechanism for separating the clamps, a welt-guide fixed to the said laterally-moving block, and mechanism for moving the block, all substantially as described.

5. In a sewing-machine, a laterally-moving block having a fixed lower and movable upper clamp and a fixed welt-guide, cams on the main shaft for advancing the block and lifting the movable clamp, and mechanisms for giving the return movements to the movable clamp and block, substantially as described.

320,899. FILE AND METHOD OF CUTTING THE SAME. WILLIAM TUCKER, East Brookfield, Mass. Filed May 29, 1884. (No model.)



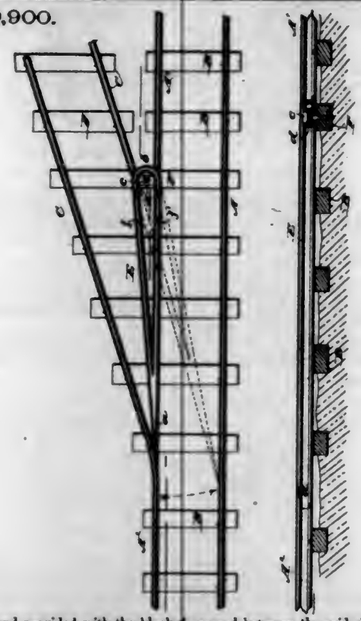
Claim.—1. A saw-file continuous toothed, as herein specified—that is to say, having each cut or tooth formed continuously and unbrokenly in or on both faces and the corner of the file-edge or of each file-edge, substantially as and for the purposes set forth.

2. The within-described method of cutting or toothing saw-files, consisting in forming the cuts or teeth simultaneously in or on both faces and the corner of each file-edge by means of a bifurcated chisel directed so that its axis is at equal angles from the respective faces, or thereabout, substantially as illustrated, for the purposes set forth.

320,900. RAILWAY-SWITCH. DAVID H. VALENTINE, Brooklyn, N. Y. Filed Feb. 25, 1885. (No model.)

Claim.—1. The herein-described switch-beam, consisting of the triangular beam E, having independent sides *f f'* for a portion of its

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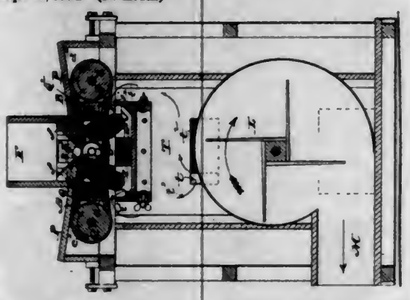


length, and provided with the block *d*, secured between the said sides at the larger end, as set forth.

2. The combination, with the rails A A′ A² of a double track and the crossing-rails C C′, of the triangular switch-beams E E, pivoted to form continuations of rails A C and A′ C′, and of a length to swing across the main tracks, substantially as described.

3. The switch-beam E, made triangular in form and having its sides curved, substantially as and for the purposes set forth.

320,901. COTTON-GIN. ANDREW J. VANDERGRIFT, St. Louis, Mo. Filed Sept. 11, 1884. (No modal.)



Claim.—1. The combination, in a cotton-gin, of the double series of belts A B, the drums *a b*, and the sheaves *a′ b′*, the belts A and the belts B being driven in opposite directions, substantially as described.

2. A cotton-gin having the double series of belts A B, the drums *a b*, and sheaves *a′ b′*, and means for forcing an air-current past said belts and sheaves, the belts A and the belts B being driven in opposite directions, substantially as and for the purpose described.

3. The combination, substantially as described, of the shafts C D E, the drums *a b*, the sheaves *a′ b′*, and the belts A B.

4. The combination, substantially as described, of the shafts C D E, the drums *a b*, the sheaves *a′ b′*, the belts A B, and the hopper F.

5. The combination, substantially as described, of the shafts C D E, the drums *a b*, the sheaves *a′ b′*, the belts A B, the hopper F, and the rake N.

6. A cotton-gin combining in its construction the two series of belts A B and the rake N, the belts A and the belts B being driven in opposite directions, substantially as and for the purpose described.

7. The combination of the hollow shaft E, having the perforated shell *e* and the porous plugs *e²*, with the sheaves *a′ b′*, substantially as described.

8. The combination of the belts A B, the sheaves *a′ b′*, and the brushes H H′, substantially as described.

9. The combination of the belts A B, the sheaves *a′ b′*, the brushes H H′, and the brushes I I′, substantially as described.

10. The combination, in a cotton-gin, of the belts A B, the sheaves *a′ b′*, the chamber J, and means for forcing an air-current past said belts and sheaves into said chamber.

11. The combination of the belts A B, the sheaves *a′ b′*, and the chamber J, substantially as described.

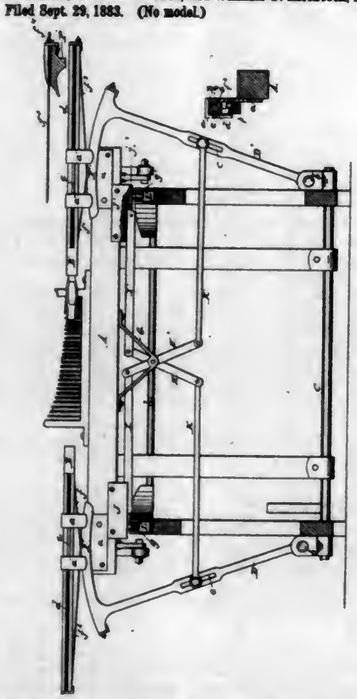
12. The combination, in a cotton-gin, of a belt and sheave adapted to receive between them the fiber of the cotton being ginned with a chamber into which the fiber after being separated from the seed can be received.

13. The combination of the belts A B, the sheaves *a′ b′*, the brushes I I′, the chamber J, having the openings *j j*, and the mote-box T, substantially as described.

14. The combination of the chute K, the fan L, the belts A B, the sheaves *a′ b′*, and the chamber J, having the opening *j″*, substantially as described.

15. The combination, in a cotton-gin, of the double series of belts A B, the drums *a b*, and sheaves *a′ b′*, a hopper through which the seed-cotton is supplied to said belts and sheaves, means for generating an air-current past said belts and sheaves, and a device for removing the denuded seed from the region of the belts and sheaves, substantially as described and shown.

320,902. POSITIVE SHUTTLE-MOTION FOR LOOMS. FREDERICK K. WRIGHT, CHARLES W. GAGE, and WILLIAM F. HITCHCOCK, Homer, N. Y. Filed Sept. 29, 1883. (No modal.)

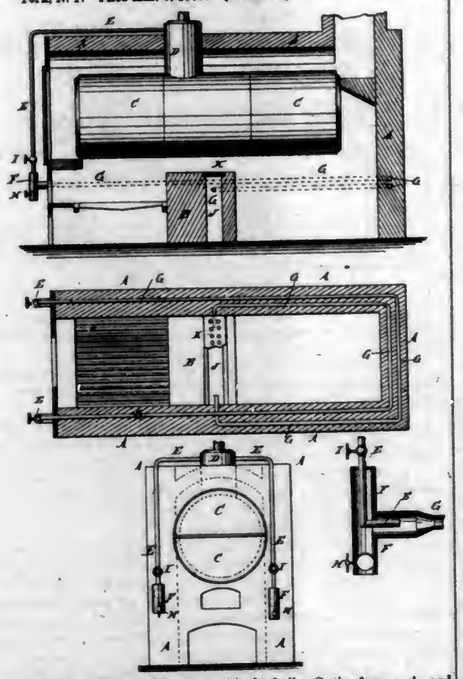


Claim.—1. The combination of the lay, the carriers, the flexible ribbons *f f² f′ f²*, the rocker-arms F F′, connected to the carriers by said ribbons, the picker-staffs D D′, united to the rocker-arms near the heels of said arms, and the cam-grooved bars L L′, with shear-levers H H′, the connecting-arms I I′, secured at their inner ends to the tops of the levers H H′, and at their outer ends being provided with the rollers *g* to enter the cam-grooves, and the connecting-rods K K′, connected at their inner ends to the lower limbs of the levers H H′ and at their outer ends to the picker-staffs, and means for operating the lay, substantially as and for the purpose specified.

2. The combination of the lay, the carriers, the picker-staffs, means for connecting the carriers and the picker-staffs, and the cam-grooved bars L L′, with the shear-levers H H′, the connecting-arms I I′, secured at their inner ends to the tops of the levers H H′, and at their outer ends being provided with rollers *g* to enter the cam-grooves, and connecting-rods K K′, connected at their inner ends to the lower limbs of the levers H H′ and at their outer ends to the picker-staffs, and means for operating the lay, as and for the purpose set forth.

3. The combination, with the frame and cam-grooved bars fixed thereto, of the lay, the shuttle-carriers, the picker-staffs, ribbons connecting the carriers and picker-staffs, and levers and rods, substantially as described, for imparting motion to said picker-staffs from the said cam-grooves as the lay vibrates, as and for the purpose set forth.

320,903. FEEDING AIR TO FURNACES. WILLIAM WRIGHT, New York, N. Y. Filed Mar. 6, 1885. (No model.)



Claim.—The combination, with the boiler C, the furnace A, and the bridge-wall B, having the chamber J, provided with a perforated cover, K, of the pipes G, embedded in each side wall from front to and around the rear wall and returned to opposite sides of the chamber J, the T-heads F in front of the furnace, the horizontal arms of which are connected with the pipes G, valves H in the lower open ends of the vertical arms of said heads, and the pipes E, connecting steam-space of the boiler with the upper end of the vertical arms of the heads, and valves I in said pipes E, substantially as set forth.

320,904. SEAL. EDWARD J. BROOKS, East Orange, N. J., assignor to E. J. Brooks & Co., New York, N. Y. Filed May 20, 1885. (No model.)

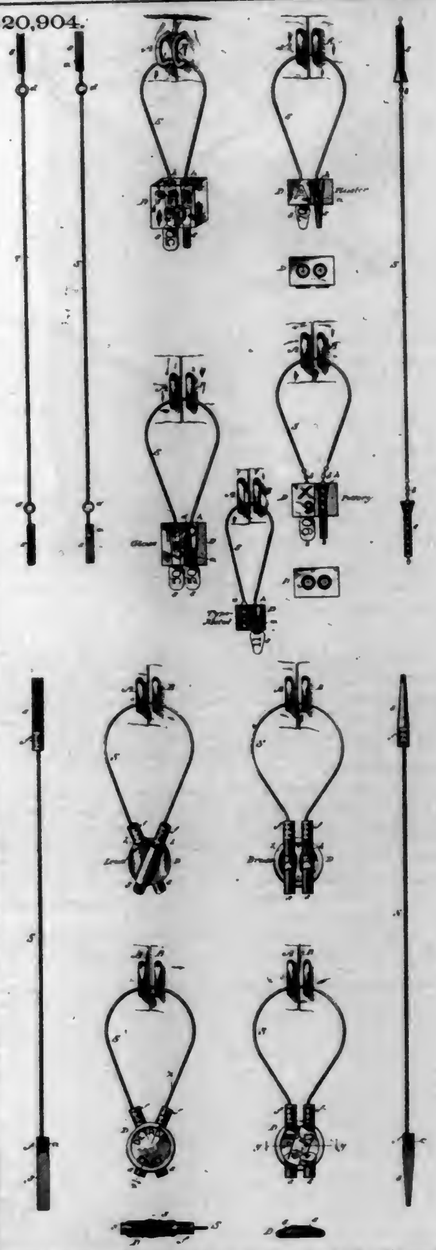
Claim.—1. In combination with a seal-disk having a threading-hole or threading-holes, a flexible shackle of hard wire, having each or either of its ends provided with a soft-metal securer cast fast thereon and expanded laterally by pressing, to fasten the seal, substantially as herein specified.

2. The combination, substantially as herein specified, of a hard or brittle seal-disk, preferably of transparent glass, having a threading-hole or threading-holes extending therethrough, and a flexible shackle of hard wire, having each or either of its ends provided with an anchoring device, a soft-metal securer cast fast thereon, and a stop which prevents the passage through the seal-disk of a portion of the securer containing said anchoring device, the protruding end of the securer being expanded by pressing, to prevent escape backward, whereby access to the anchoring device by cutting is prevented, in the manner set forth.

3. The combination, substantially as herein specified, of a hard or brittle seal-disk having a threading-hole or threading-holes and a flexible shackle of hard wire having each or either of its ends embedded in a soft-metal securer cast fast thereon and a stop which prevents the passage through the seal-disk of that portion of the securer containing the extremity of the wire, the protruding end of the securer being expanded by pressing to prevent escape backward, whereby splicing a severed securer is prevented, in the manner set forth.

4. The combination of a hard or brittle seal-disk having a pair of threading-holes, and a flexible shackle of hard wire, having both ends provided with soft-metal securers, and stops to prevent their passage fully through the seal-disk, the protruding end of one securer being inserted in the seal-disk and its protruding end pressed to preliminarily

320,904.



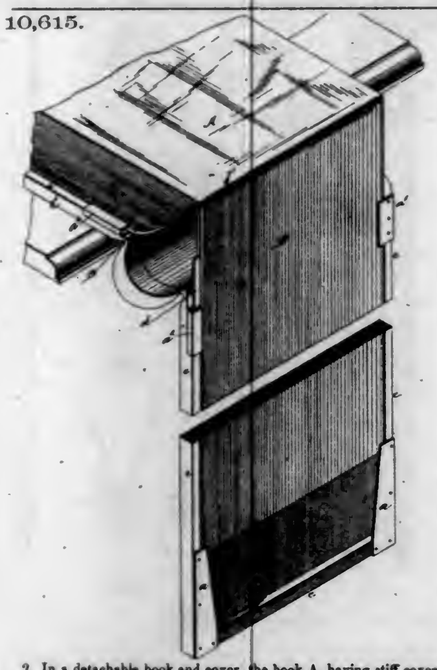
unite the parts, and the other adapted to be so inserted and pressed to fasten the seal, substantially as herein specified.

REISSUES.

10,615. REMOVABLE BOOK-COVER. JAMES M. BRONSON, Chicago, Ill. Filed July 25, 1884. Original No. 290,846, dated Dec. 25, 1883.

Claim.—1. A removable cover for books, constructed with integral flanges around its edges to form a socket of a depth sufficient to receive the inner book-cover and provided with overlapping pieces at the outer and inner corners, which hold the book firmly in place, but allow it to slide freely endwise, substantially as shown and described.

10,615.



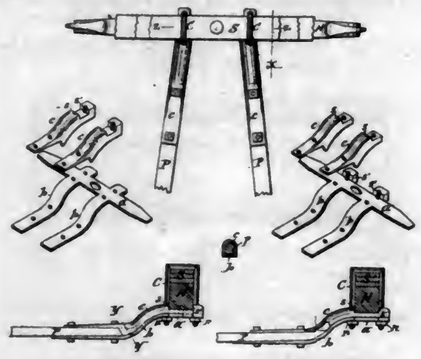
2. In a detachable book and cover, the book A, having stiff covers B, the inner ends of which extend close up to the sewing, and having a projecting piece of metal, *d*, on one edge, in combination with the cover C, provided with flanges *c c*, forming a socket in which the inner book-cover is recessed, the retaining stripe of metal *a a'*, and metal groove or guide a^2, all constructed and arranged to operate substantially as and for the purpose set forth.

3. In a detachable cover for books, the cover C C, forming sockets in which the inner book-covers, B B, are recessed, in combination with the overlapping metal corner pieces *a a* at the outer corners and the metal strips *a'* at the inner corners, whereby the covers are firmly held in place, but the book left free to slide within the socketed outer cover, substantially as and for the purpose set forth.

4. The combination, with the book-cover C, of the metal pieces *a a' a^2*, substantially as and for the purpose set forth.

5. The inside book-cover, B, provided with a projecting tongue, *d*, on its edge, substantially as and for the purpose set forth.

10,616. DROP-PERCH FOR VEHICLES. HENRY W. PELL, Rome, N.Y. Filed Apr. 7, 1885. Original No. 314,714, dated Mar. 31, 1885.



Claim.—1. In combination with the head-block and perch, the brace *c*, formed concave in cross-section between its points of attachment, substantially as described and shown.

2. In combination with the head-block and perch, the brace *c*, deflected downward from the head-block, and formed concave in cross-section, substantially as set forth and shown.

3. In combination with the head-block and perch, the brace *c*, provided with an abutting shoulder at the back of the head-block, and formed concave in cross-section, substantially as set forth and shown.

4. In combination with the head-block and perch, the brace *c*, provided with an abutting shoulder at the back of the head-block, and bent downward from the head-block, and formed concavo-convex in cross-section, substantially as described and shown.

5. In combination with the head-block, perch, and arm *b*, the brace *c*, formed concavo-convex in cross-section, and resting with the edges of its concave side on the arm *b*, substantially as set forth and shown.

6. In combination with the head-block H and arm *b*, the brace *c*, formed concavo-convex in cross-section, and resting with the edges of its concave side on top of the arm *b*, and the perch P, having its end inserted into the concavity of the brace *c*, substantially as described and shown.

7. In combination with the head-block H and perches P P, the transom-plate *a*, having the arms *b b* integral with it and extended under the perches, and the braces *c c* on top of the perches, and extended across the top of the transom-plate, and countersunk in the under side of the head-block, substantially as described and shown.

8. In combination with the head-block H, perches P P, and the transom-plate *a*, formed with the arms *b b*, the braces *c c* on top of the arms *b b*, and extended between and across the transom-plate and head-block, and shouldered against the side of the head-block, substantially as shown and set forth.

PHOTO LITH. NORRIS PETERS WASH. D.C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—Southern District of New York.

THE GOLD AND STOCK TELEGRAPH COMPANY *v.* THE COMMERCIAL TELEGRAPH COMPANY *et al.*

Decided April 1, 1885.

1. In complainant's reissued patent for an improvement in telegraphic printing instruments for registering the price of gold and stocks the word "jointly," in a claim for "two or more type-wheels moving independently, * * * arranged so as to print jointly or separately upon one strip of paper," is construed, in view of the state of the art and in the light of the specification, to mean a united action or action in co-operation, and not a simultaneous action, of the wheels.
2. The defendants allege non-infringement, for the reason that the wheels of their instrument have a locking device which prevents their moving independently, "because it is a condition of the rotation of one wheel that the other shall first be brought to a state of rest;" but this is not the sense in which the patentee used the term "independently." By it he only meant that one wheel is not linked to the other, so that both must rotate together. As defendants' instrument differs from complainant's only in respect of the locking device, the allegation of infringement is sustained.
3. Complainant's patent, originally issued to the inventor, E. A. Callahan, was applied for in December, 1867, and bears date of April 21, 1868. An English patent for the Callahan invention bears date of March 16, 1868, the date of the filing of the provisional specification, and was sealed on August 21, 1868. Upon these facts it is *held* that the complainant's patent did not expire on March 16, 1885.

Mr. C. L. Buckingham and *Messrs. Dickerson & Dickerson* for the plaintiff.

Mr. Samuel A. Duncan and *Mr. Roscoe Conkling* for the defendants.

SHIPMAN, *J.:*

This is a bill in equity to restrain the defendants from the infringement of Reissued Letters Patent No. 3,810, granted to the plaintiff, as assignee of Edward A. Calahan, January 25, 1870, for an improvement in telegraphic printing instruments for registering the prices of gold and stocks. The original patent was dated April 21, 1868. Upon the trial of the case infringement of the second claim only of the reissue was alleged. The claim is in these words:

2. Two or more type-wheels moving independently and controlled by magnetism, and arranged so as to print jointly or separately upon one strip of paper in two or more lines, substantially as specified.

To understand and construe the claim which is in controversy, it is important to know the state of the art at the date of the invention. In this case the defendants took no testimony, and therefore the history of the art, so far as it relates to this claim, is to be learned from the reference which was made to it in the cross-examination and subsequent examination of the plaintiff's expert. The Theiler (French) and the Johnson (English) patents for the Theiler invention, which seems to be conceded to have embodied the state of the art at the time of the Calahan invention, are not in evidence; but a general statement, and one which will be sufficient, can be given of the extent of the evidence which Calahan made.

Theiler had a two-wheel instrument, the wheels being moved by one electro-magnet, and being geared together and necessarily rotating together. Letters were placed upon one wheel and figures were placed upon the other, and the letters were printed upon one line and the figures were printed upon another line of the same tape by depressing the corresponding type-wheel; but it was necessary to have complicated mechanism, so as to prevent impressions from one wheel when the other alone was being printed from.

Calahan printed letters in one line and figures in another line of a tape by the aid of two type-wheels, one of which could be rotated to the exclusion of the other, and a single press-pad. His wheels moved or rotated independently of each other, while in the Theiler machine one wheel could not be moved without rotating the other. He says in his specification that his invention was intended, among other things, to dispense with the complicated mechanism theretofore made use of to cause an impression to be made when the type-wheel had been brought to a proper position, and describes his device as follows:

A magnet and armature are employed in effecting the movement of the type-wheel, so that the same is turned to the required position, and then by an independent motion, separately controlled from that of the type-wheel, the impression is made, so that the type-wheel can remain after it is adjusted or be again moved previous to the impression being made. The impression is made on a strip of paper by two type-wheels, so that the printing is in two lines, and the figures and fractions for denoting the prices or quotations are contained upon a wheel and combined therewith. Letters are provided for printing on the same strip of paper to denote the article to which the quotations relate. As the different machines will generally be but a short distance apart, it is preferred to make use of two or more wires communicating through the entire circuit of machines. One of these wires transmits the pulsations of electricity that act upon a magnet and adjust the type-wheel to the proper letter or number. The other wire transmits the pulsations of electricity which, acting in a magnet, produce the impression upon the paper.

In the drawings three circuit-wires are represented—one for the alphabet-wheel, another for the number or figure wheel, and the third for giving the impression; but the number of wires employed is unlimited. * * *

The two type-wheels *k* and *l*, although on separate shafts, stand contiguous to each other, so as to be impressed separately or jointly upon the same strip of paper that is fed along beneath them, the impression from the respective wheels forming two different lines of printing. * * * Each of the wheels *l* and *k* has a blank space that is turned toward the paper while the other wheel only is being printed from.

This blank space prevents the wheel which, for the time being, it is not desired to print from from making impressions on the paper.

The independent rotation of the type-wheels, as distinguished from type-wheels which must continuously and necessarily rotate together, is the principal feature of the invention of the second claim, and it is not a prerequisite to this independence of rotation that

each wheel should be under the control of its own independent magnet. This is a feature of the Calahan machine; but it is not a part of the second claim. The claim requires that each type-wheel shall move or rotate by magnetic action independently of the other, and that it shall not be necessary to the movement of one that the other should at the same time be rotated also, and that a strip of paper and one impression-pad shall be moved up against the type-wheels by a magnet, so that impressions from the character upon either or both wheels may be made upon the strip of paper, and thus a message may be printed exclusively from one wheel, or may be printed in two lines from the characters on both wheels—that is, by the united or joint action of both wheels; but it is not a requisite that this printing shall be done simultaneously.

The great contest in this case was in regard to the meaning of the word "jointly," the defendants insisting that it meant simultaneously, and the plaintiff insisting that it meant by united action, or acting in cooperation, and thus that, when there was occasion to use both letters and figures upon a single strip, as is usually the case in transmitting stock quotations, such printing could be done in two lines by the united or joint action of the two wheels. The latter is, in my opinion, the correct interpretation of the claim, for three reasons:

First. The improvement or the advance in the art did not in fact consist in simultaneous printing. It did not remedy an existing evil, and was not the thing which the patentee apparently wanted to accomplish.

Second. The patent does not mention simultaneous printing as a thing which the instrument was necessarily to do. It points out that the wheels were so arranged with reference to each other that they could be used on one strip of paper jointly or separately—that is, either or both could be used to make one message, and when both were used the impression from the respective wheels formed different lines. The idea which the specification and the claim convey is that the operator can use both wheels, and so a double-line message can be produced by their joint action; but there was no requirement that they must be used simultaneously.

Third. While the Calahan instrument, before a unison device was added to it, had the capacity of simultaneous printing, such printing is not and was not supposed to be of practical value.

The defendants' or the Field instrument has two wheels—one a figure-wheel and the other a letter-wheel—on separate shafts, both controlled by magnetism and each moving independently. The wheels print by their united action in two lines upon one strip of paper moved up by a press-pad, and can print by the use of either wheel separately. As in the Calahan machine, both wheels are provided with a blank space which is turned toward the paper while the other wheel is being used to print from.

The difference between the machine of the Calahan patent and the Field machine is that the latter has a device by which, after a wheel has ceased to print, it returns automatically to the zero-point, and is locked there before the other wheel can be rotated. In the opinion of the defendants their machine is relieved from the charge of infringement because the wheels do not move independently and cannot print simultaneously. The latter suggestion is disposed of by the conclusion that the claim does not require such printing. The defendants say that their wheels do not move independently, because it is a "condition of the rotation of one wheel that the other shall first be brought to a state of rest." This does not prevent independence of motion in the sense in which Calahan used the term "independent." One wheel is not linked to the other, so that both must rotate together, which is what he desired to avoid. Either wheel is rotated without thereby rotating or moving the other—a result which he desired to gain. So far as is disclosed by the record, the allegation of the infringement is sustained.

The next point is in regard to the duration of the Calahan patent, the defendants insisting that no injunction can issue because the patent expired on March 16, 1885. William Edward Newton received, upon a communication from Elisha W. Andrews and Edward A. Calahan, an English patent for the Calahan invention, which was sealed on August 21, 1868, and dated March 16, 1868, the day on which the provisional specification, with the petition of Newton, was filed at the office of the Commissioner of Patents. The original United States patent to Calahan was dated April 21, 1868, and from the copy of the original patent, which is in evidence, it appears that the application must have been made as early as December 28, 1867.

The effect of the sixteenth section of the act of March 2, 1861, taken in connection with section 6 of the act of March 3, 1839, upon the duration of United States patents for an invention which had been previously patented abroad, has been frequently discussed. (*De Florez* v. *Reynolds*, 17 Blach., C. C. R., 436.) But I am not aware that it has been supposed that the sixth section of the act of 1839 related to patents which were issued by the United States before an English patent had been sealed and published. In this case the English patent was sealed five months after the patent in suit was issued, and although the English patent was, when published, dated March 16, 1868, I do not suppose that such date has an effect upon the life of the subsequently issued United States patent. It will also be noticed that the application for the United States patent was made before the provisional specification was filed in the office of the English Commissioner of Patents. The decision of Judges Grier and Kane in *French* v. *Rogers* (1 Fish., 133) in 1851 was to the effect that a United States patent issued after the issue of the English patent, but applied for before the date of the application for the English patent, was not within the sixth section of the act of 1839. This point was left undecided by the Supreme Court in *O'Reilly* v. *Morse*, (15 How., 62,) decided in 1853.

The second claim of the original Calahan patent was as follows:

> 2. Two or more type-wheels separately controlled by magnetism, and arranged side by side, or with their axis on the same line, so as to be impressed jointly or separately on one strip of paper, substantially as and for the purposes set forth.

The second claim of the reissue does not enlarge the original claim. It is a more exact and more clearly defined statement of the invention than the original patent contained; but the original claim would probably have received the same construction.

There should be a decree for an injunction and an accounting. The terms of the decree will be settled upon hearing.

U. S. Circuit Court—Southern District of New York.

THE CONTINENTAL STORE SERVICE CO. *v.* THE NEW YORK STORE SERVICE CO *et al.*

Decided June 3, 1885.

The motion for a preliminary injunction to restrain alleged infringement is denied, because the plaintiff claims only the equitable title by assignment, and the affidavits showing said title and those denying it do not leave the question free from reasonable doubt, and because said question of title is now in course of investigation by a State court of competent jurisdiction.

Mr. John Murray Mitchell and *Mr. E. N. Dickerson* for the plaintiff.

Mr. Samuel W. Weiss and *Hon. Roscoe Conkling* for the defendants.

SHIPMAN, *J.*:

This is a motion for a preliminary injunction to restrain the defendant from the alleged infringement of seven Letters Patent Nos. 309,197, 309,198, 309,199, 309,200, 309,201, 309,202, and 309,303, all issued on December 16, 1884, to Milton Clark for improvements in cash and carrying cars and systems for store service. The defendant has the apparent legal title to said patents. The plaintiff claims to have the equitable title to all of them, and, also, that on or about September 17, 1884, (applications for said patents having been previously filed,) said Milton Clark assigned to the plaintiff five of the inventions secured by said several patents and delivered to it proper assignments thereof; but that, before they were placed on record, he wrongfully withdrew them from its possession. Said patents were subsequently, by assignment dated December 16, 1884, assigned by Milton Clark to Curtis Clark, and were thereafter assigned by Curtis Clark to the defendant with knowledge, as the plaintiff claims, on the part of both of these assignees of the fraudulent acts of Milton Clark and of the rights of the plaintiffs to the patents. The plaintiff and the defendant are each manufacturing under said patents.

Before the filing of this bill the New York Supreme Court had granted, upon affidavits produced by the plaintiff, an injunction against the defendants selling or disposing of said patents, or from putting in use the mechanism pertaining thereto, and a reference had been ordered to take proof as to the facts stated in the moving and opposing affidavits, and to report the testimony and the referee's opinion thereon. Upon appeal to the General Term so much of this order as restrained the defendant from the use of the mechanism was vacated upon the ground that courts of the United States are vested with exclusive jurisdiction of the prevention of the infringement of patented inventions, and, as modified, the order was affirmed. The question in regard to the title of the patents is therefore now in course of investigation before a court of the State of New York, which has jurisdiction of the subject, and is also the only question of fact in dispute upon this motion. The General Term considered that the question was of such importance that it could not be satisfactorily determined upon affidavits.

On or about July 31, 1883, Milton Clark, who had previously conveyed certain patents and applications for patents relating to cash-cars and systems for store-service to the Continental Cash Car Company, the predecessor and assignor of the plaintiff, made a written agreement, under seal, with said company, by which he agreed to transfer and assign to it, without further consideration, all future improvements made or designed or invented by him relating to the cash-car system. The plaintiff insists that, in pursuance of this agreement, the five patents of which mention has been made were actually assigned and the assignments thereof were delivered by Milton Clark to the plaintiff, but that before the assignments were recorded they were retaken into his own possession, and that the patents were subsequently assigned to Curtis Clark in pursuance of a system of fraud upon the plaintiff, which was well known to said Curtis Clark. The defendant says that after the contract of July 31, 1883, a new parol agreement, with reference to the inventions which were the subject of said patents, was entered into between Milton Clark and the plaintiff, and that the assignments were executed to be left in escrow, and were left in escrow with the scrivener, not to be delivered until this agreement should be carried out by the plaintiff, and that they were subsequently withdrawn from the scrivener's possession, because the plaintiff would not consummate or execute the new agreement, and assignments were afterward made in good faith to Curtis Clarke. The bill proceeds upon the theory that the plaintiff has a legal title to the patents, and its case upon this motion depends upon the question whether assignments were delivered to it in September, 1884. If assignments were never delivered, and it never had a legal title, the plaintiff would hardly ask, under the averments of the bill, for an injunction *pendente lite* upon the ground that Milton Clark had improperly broken his contract with the knowledge and privity of Curtis Clark and the subsequent knowledge of the defendant, and that the defendant should therefore be directed to convey a title.

Upon the question whether the assignments were left with the scrivener as the plaintiff's agent to take effect immediately and for record, or were left in escrow and were not to be delivered until he was so instructed by Milton Clark, there is a conflict of testimony, which must prevent me from making an order or finding upon affidavits alone. In order to issue a temporary injunction upon this bill the fact should clearly appear that the assignments were delivered to the scrivener unconditionally for the plaintiff. I do not intend to say that upon final hearing this will not clearly appear; but the question is not left free from reasonable doubt upon the affidavits.

The motion is denied.

U. S. Circuit Court—Southern District of New York.

ABBOTT *v.* HOOLE MANUFACTURING AND BAGGAGE CHECK COMPANY.

Decided February 24, 1885.

Complainant's patent, No. 268,591, for an improved baggage-check holder, has a single claim for a combination, including "flanges bent over" for holding the check securely. Defendant's check has the flanges, but is unlike that of complainant in any other respect. As defendant uses but one element of complainant's combination, there is no infringement.

Mr. B. F. Sawyer for the complainant.

Mr. C. B. Collier for the defendant.

COXE, *J.*:

The complainant is the inventor of an improved baggage-check holder for which Letters Patent No.

268,591 were granted December 5, 1882. The claim is as follows:

A baggage-check holder formed from a single piece of metal, with a slotted side, having a lip to guide the check or card readily into the holder, and a plain side, with flanges bent over, so as to form a rigid and strong holder for the protection of the check or card, with directions as to the route and destination appearing on one side of the holder through the slots, the other side of the holder bearing directions to a place of return and having also a strap adjacent to its month, substantially as set forth.

The prominent features of the invention are: First. A baggage-check holder formed from a single piece of metal. Second. A face-plate with three distinct openings. Third. A back plate about one-fourth of an inch wider than the face-plate, bent up an eighth of an inch at the two opposite edges. Between these flanges the face-plate fits, when bent over, so as to make an inclosed space for the insertion of a paper card or check, upon which is printed the starting-point, the route, and the destination. The printing is seen through the three openings in the face-plate. Fourth. A back plate with flanges bent up, but without openings of any kind, so as to form a rigid and strong holder, the directions for use being stamped into the metal. Fifth. A strap adjacent to the month of the holder, with a wide end to keep it from being drawn through the slots, and so attached as not to cover or obscure the lettering on either side of the holder. Sixth. A lip to guide the check or card readily into the holder.

The alleged infringing device of the defendant consists of a baggage-check composed of two flat metal plates, between which is placed the destination-card, the one having a rectangular opening near its lower end, with lettering above it, indicating the railroad and the number of the check; the other having the opening and the order of lettering in the reverse order—that is to say, the opening near the top and the lettering near the bottom. The letter-plate is made wider than the former, and its edges are bent up about an eighth of an inch, the former fitting between the flanges thus formed. Both plates and the destination-card are provided near each end with slots to receive a strap, to which they are attached at one end by an ordinary slip-noose. The free end of the strap is then passed through the slots at the other end of the plates and card, thus locking all three closely together and exposing the entire face of one plate, and the card through its opening the face of the other plate, and also its opening being concealed behind the strap.

The defendant is a licensee under prior letters patent, No. 230,455, granted July 27, 1880, to William W. Wilcox for new and useful improvements in baggage-checks. The checks manufactured by the defendant are in exact accordance with the description and claim of this patent, except that in the spring of 1883 they commenced turning up the edges of one plate, as aforesaid; thus adding strength, durability, and greater security to the destination-card The Wilcox patent makes no claim to this feature, but the description contains these words:

Others (checks) consist of a single brass plate with flanges embracing the destination-card, the detachment of which is prevented by passing the strap through the slot in one end of both plate and card, while in other devices the card is held and exposed between two brass plates, one of which is bent at its ends and the other slotted to receive such ends, said plates being held together by the strap passing through the bent ends or by a latch pivoted upon the slotted plate.

It will be seen, then, that the prominent characteristics of defendant's check are: First, it is formed of two pieces of metal; second, it is reversible, having rectangular openings on both sides, through which the destination-card is exposed; third, one side is always partially covered by the strap; fourth, the strap passes through slots in both ends of the card and metal plates.

The difference between complainant's and the defendant's check are many and obvious. The complainant uses one piece of metal; the defendant uses two. The complainant has a face-plate with three distinct openings; the defendant has but one opening of the same size in both plates. The one has a back plate without openings of any kind, and a lip to guide the card; the other does not use either of these features. The one attaches his strap so that both sides of the holder are exposed; the other is particular to obscure one side with the strap. The defendant's holder is reversible; the complainant's is not. In short, the only point of similarity between the two is the fact that both adopt flanges to prevent lateral sliding of the plates and to give strength and durability to the check.

The complainant insists that the use of this feature renders the defendant liable. His contention, to quote from the complainant's brief, is as follows:

The complainant claims * * * that the use, adoption, or application of any material or important part or portion of the combination or construction of his baggage-check holder to any other check unauthorized by him, is an infringement upon his rights under said letters patent.

The complainant, also, being called as an expert in his own behalf, testified that in his opinion the fact which determined the infringement of the defendant was that its checks have flanges upon their opposite sides. Can this proposition be maintained? It is thought not. If the only feature claimed had been the flanges, it is by no means clear that the patent could have been upheld. In view of the prior state of the art it certainly would not show a very high order of inventive talent to adopt them in the manner indicated; and so the patentee appears to think, for in answer to the last question addressed to him he stated that defendant's check had been strengthened and "a mechanical error" corrected by adding the flanges. If leaving them off showed mechanical ignorance, putting them on showed mechanical skill, not invention. But the claim is not intended to cover a single feature, but a variety of features. It is for a combination. Both sides, apparently, agree in this construction. The rule in such cases is very plain, and is well stated in the case of *Rowell* v. *Lindsay*, recently decided by the Supreme Court. The court say:

The patent of the plaintiffs is for a combination only. None of the separate elements of which the combination is composed are claimed as the invention of the patentee; therefore none of them standing alone are included in the monopoly of the patent. * * * (*The Corn-planter Patent*, 23 Wall., 224; *Merrill* v. *Yeomans*, 94 U. S., 573; *Water Meter Co.* v. *Desper*, 101 U. S., 332-337; *Miller* v. *Brass Co.*, 104 U. S., 350.) These authorities dispose of the contention of the plaintiffs' counsel that their patent covers one of the separate elements which enters into the combination—namely, a slotted wooden beam—because, as they contend, that element is new, and is the original invention of the patentees. The patent being for a combination, there can be no infringement unless the combination is infringed.

As before stated, it is not contended that the defendant uses more than one element of the complainant's check, namely, the flanges, and as these are no more a part of his invention than the lip, the plain back plate, the single piece of metal, and the mode of attaching the strap, none of which the defendant uses, it must be held that there is no infringement.

The bill must be dismissed with costs.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 31—No. 13. TUESDAY, JUNE 30, 1885. PRICE—$5 per year.

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Order No. 264.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., June 24, 1885.

On the 4th day of February, 1876, Commissioner DUELL made an order, as follows:

SPECIAL ORDER.

In view of the more recent interpretations put upon the law in relation to rejected and abandoned applications, they being no longer held as a bar to the issue of a patent, and no notice being taken of them in an examination of pending applications, it is ordered that the files, drawings, and models of such applications, and all records pertaining thereto, be kept in the secret archives of the Office. No such model, drawing, or file will be exhibited to any person except the applicant or his properly authorized attorneys.

Rule 171 declares that—

Certified copies of the files in cases of rejected and abandoned applications may be furnished to applicants or to other persons when specifically ordered by the Commissioner.

These files are not open to public inspection, and no one should be permitted to examine or have a copy of them without a "special order" of the Commissioner. Such order should only be made upon *special application*, which should be in writing, verified as to all material averments not shown by the records and files of the Office, and must be full and complete, to the end that the Commissioner may from *its contents* determine whether or not it can be granted.

M. V. MONTGOMERY,
Commissioner.

Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., June 13, 1885.

SIR: I am directed by the Secretary to inform you that he has ordered that R. M. Thompson, of Washington, D. C., and Nashville, Tennessee, be not recognized from and after this date as attorney in the prosecution of any claim or other matter before the Department of the Interior or any bureau thereof.

I am, sir, very respectfully, your obedient servant,
GEO. M. LOCKWOOD,
Chief Clerk.

The Commissioner of Patents.

Issue of June 30, 1885.

Patents	508	No. 320,905 to No. 321,412, inclusive.
Designs	7	No. 16,138 to No. 16,144, inclusive.
Trade-Marks	34	No. 12,343 to No. 12,376, inclusive.
Labels	6	No. 4,491 to No. 4,496, inclusive.
Reissues of patents	2	No. 10,617 to No. 10,618, inclusive.
Total issue	557	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	1	....	Nebraska	3	....
Arizona Territory	....	....	Nevada	....	....
Arkansas	1	....	New Hampshire	2	....
California	12	1	New Jersey	17	1
Colorado	3	....	New Mexico Territ'y	1	....
Connecticut	11	....	New York	110	8
Dakota Territory	2	....	North Carolina	3	1
Delaware	....	....	Ohio	45	1
District of Columbia	3	....	Oregon	1	....
Florida	....	....	Pennsylvania	44	3
Georgia	1	....	Rhode Island	5	....
Idaho Territory	....	....	South Carolina	1	....
Illinois	41	7	Tennessee	4	....
Indiana	24	....	Texas	6	....
Iowa	9	....	Utah Territory	....	....
Kansas	4	2	Vermont	3	1
Kentucky	3	1	Virginia	1	....
Louisiana	....	....	Washington Territ'y	1	....
Maine	1	....	West Virginia	....	....
Maryland	7	1	Wisconsin	8	....
Massachusetts	55	3	Wyoming Territory	....	....
Michigan	18	1	United States Army	....	....
Minnesota	4	....	United States Navy	....	....
Mississippi	2	....			
Missouri	18	1	Total to citizens of the United States	475	32
Montana Territory	....	....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Australia	....	....	France	3	1
Austria-Hungary	....	....	Germany	6	2
Barbadoes	....	....	Holland	1	....
Belgium	2	....	Italy	....	....
Bermuda	....	....	Japan	....	....
Brazil	....	....	Mexico	1	....
Canada	12	....	Scotland	....	....
Cape of Good Hope	....	....	Sweden	1	....
Colombia, U. S. of	....	....	Switzerland	1	....
Cuba	....	....	West Indies	1	....
Denmark	3	....			
Egypt	....	....	Total to citizens of foreign countries	40	8
England	9	5			

DESIGNS.

16,138.—CARRIAGE-STEP.—*Julius M. Foote*, Newark, N. J. Application filed October 20, 1884. Term of patent 7 years.

16,139.—HOPPER FOR CLOSETS.—*Henry W. Mansur*, Boston, Mass. Application filed April 18, 1885. Term of patent 14 years.

16,140 and 16,141.—THERMOMETER-BACK.—*Charles H. Myers*, Phelps, N. Y. Applications filed April 30, 1885. Term of patents 14 years.

16,142.—FIRE-PLACE GRATE.—*Joseph A. Read* and *Edward L. Cuisly*, Philadelphia, Pa., assignors to *Gilbert Combs*, *John Bawden*, and *John H. Bawden*, all of Freehold, N. J. Application filed April 30, 1885. Term of patent 7 years.

16,143.—HAIR CRIMP.—*Cornelius C. E. Van Alstine*, Paterson, N. J. Application filed December 2, 1884. Term of patent 3½ years.

16,144.—GIMP.—*Henry Wynkoop*, Philadelphia, Pa. Application filed May 14, 1885. Term of patent 7 years.

TRADE-MARKS.

[Certificates of registration of Trade-Marks numbered 8,191 and upward are registered under the act of March 3, 1881.]

12,343.—CHEWING-GUM.—*Adams & Sons*, New York, N. Y. Application filed May 22, 1885.
"The words 'TUTTI FRUTTI.'"

12,344.—HAIR TONIC.—*Bloomingdale & Rich*, New York, N. Y. Application filed April 27, 1885.
"The representation of a shield bearing the words 'AMMONIATED BAY-RUM.'"

12,345.—DRESS-SHIELDS.—*Augustus H. Brinkmann*, Baltimore, Md. Application filed May 15, 1885.
"The word 'FEI-ORA.'"

12,346.—A MEDICINE, THE VEHICLE OF WHICH IS IN GRANULAR FORM.—*Antoine Charles Chantemesse*, Paris, France. Application filed May 25, 1885.
"The words 'DOSIMETRIC GRANULES.'"

12,347.—POWDERS FOR THE CURE OF CHOLERA IN ANIMALS AND FOWLS.—*Henry Copeland*, Rich Square, N. C. Application filed May 6, 1885.
"The letter-symbol 'C. C. C.' inclosed by the circular border."

12,348.—WHEAT-FLOUR.—*Fisher & Wise*, Boston, Mass. Application filed May 25, 1885.
"The arbitrarily-selected word 'CHROMACH'S.'"

12,349.—EXTRACT OF MEAT.—*Liebig's Extract of Meat Company*, (*Limited,*) London, England, Fray Bentos, Uruguay, and Magdalena, Argentine Republic. Application filed June 3, 1885.
"The representation of an ox and a sheep."

12,350.—EXTRACT OF MEAT.—*Liebig's Extract of Meat Company*, (*Limited,*) London, England, Fray Bentos, Uruguay, and Magdalena, Argentine Republic. Application filed June 3, 1885.
"The fac-simile signatures 'D. M. v PETTENKOFER' and 'H. v. LIEBIG.'"

12,351.—EXTRACT OF MEAT.—*Liebig's Extract of Meat Company*, (*Limited,*) London, England, Fray Bentos, Uruguay, and Magdalena, Argentine Republic. Application filed June 3, 1885.
"The fac-simile signature 'J. v. LIEBIG.'"

12,352.—SMOKING AND CHEWING TOBACCO.—*Henry W. Meyer*, Brooklyn, N. Y. Application filed April 29, 1885.
"The words 'MACK THE HUNTER.'"

12,353.—KID GLOVES.—*Newman & Levinson*, San Francisco, Cal. Application filed May 16, 1885.
"The words 'RUPPE & CIE., PARIS,' appearing as a copy of the handwriting of some person. A stroke or flourish, as of a pen, appears carried under each line from right to left, commencing at the last letter of each line."

12,354.—LAUNDRY-SOAP.—*Oberne, Hosick & Co.*, Chicago, Ill. Application filed May 16, 1885.
"The arbitrarily-selected word 'SWEET,' the numeral '16,' and the pictorial representation of a young girl."

12,355.—CHAMPAGNE-WINES.—*Rheingauer Schaumweinfabrik Schierstein*, Schierstein, Germany. Application filed June 5, 1885.
"The word 'RHEINGOLD.'"

12,356.—CERTAIN SANITARY TOWELS.—*Southall Bros. & Barclay*, Birmingham, England. Application filed June 3, 1885.
"Squares of net-work, a frame, and the words 'SOUTHALL'S SANITARY TOWEL FOR LADIES.'"

12,357.—VITREOUS MATERIAL AND CERTAIN ARTICLES MADE THEREFROM.—*The Vitrite Company*, London, England. Application filed January 26, 1885.
"The arbitrary word 'VITRITE.'"

12,358.—FOOD FOR INFANTS AND INVALIDS.—*Wells & Richardson Company*, Burlington, Vt. Application filed May 6, 1885.
"Two circles linked together, one containing a picture of cows at a watering-place, the other a field of grain with sheaves in the foreground and a farm-house in the background, associated with the words 'LACTATED FOOD.'"

12,359.—PRESERVED COCOANUT.—*Croft & Allen*, Philadelphia, Pa. Application filed June 6, 1885.
"The words 'SAN BLAS.'"

12,360.—MAIZE-STARCH.—*Danville Refining Company*, Danville, Ill. Application filed June 1, 1885.
"The word 'IMPERIAL' and a crown with flowing ribbons attached with the words 'PURE WHITE' thereon."

12,361.—COPPER OR BRASS KEROSENE-LAMPS.—*Adolph Geiss* and *Leonard L. Kleine*, Chicago, Ill. Application filed May 25, 1885.
"The words 'CHICAGO ELECTRIC.'"

12,362.—BITTERS.—*Emil Jeserich*, Kansas City, Mo. Application filed March 27, 1885.
"The picture of a woman holding in her right hand a bottle and clad in a Roman toga; on her right side some chemical apparatus is shown, her left resting on books, the whole resting on a platform in a niche, and surrounded by an arch ornamented on both sides by branches of the coca-plant, associated with the name 'DR. JESERICH'S CELEBRATED COCA BITTERS.'"

12,363.—FUR AND WOOL HATS.—*Knights of Labor Co-operative Hat Company*, Haverhill, Mass. Application filed May 21, 1885.
"A Maltese cross and the letters 'S O M A,' and a small hat inscribed thereon."

12,364.—TOILET-SOAP.—*Susan F. McBride* and *Alexander D. Williamson*, Chicago, Ill., (administrators of *S. W. McBride*, deceased.) Application filed June 9, 1885.
"The words 'PEACH BLOSSOM.'"

12,365.—WHEAT-FLOUR.—*Oliver & Imboden Company*, Wichita, Kans. Application filed May 4, 1885.
"The word 'TALLY-HO.'"

12,366.—WHEAT-FLOUR.—*Oliver & Imboden Company*, Wichita, Kans. Application filed May 4, 1885.
"The word 'KETTLE-DRUM.'"

12,367.—TACKS.—*Pennsylvania Tack Works*, Norristown and Philadelphia, Pa. Application filed April 14, 1885.
"Two oblong figures or squares which are united at their corners by straight lines."

12,368.—PLUG-TOBACCO.—*Perkins & Ernst*, Covington, Ky. Application filed June 8, 1885.
"The coin one-cent piece used as a tag."

12,369.—SILK RIBBONS AND DRESS GOODS.—*Phœnix Manufacturing Company*, Paterson, N. J., and Allentown, Pa. Application filed April 18, 1885.
"A circular design having a white background and a series of blades with gilt shading and black dots on the same, with a tablet running obliquely across the design, the upper right corner of which turns over on the face of it. The tablet has a white ground, on which is written, in black letters, the word 'ADELAIDE,' the whole design inclosed in a border."

12,370.—MATHEMATICAL INSTRUMENTS.—*Conrad Proebster, Jr.*, Nuremberg, Germany. Application filed June 6, 1885.
"A dagger and the initials 'C. P.'"

12,371.—RANGES AND FURNACES.—*Jeremiah J. Richardson*, New York, N. Y. Application filed May 28, 1885.
"The arbitrary word 'DUPLEX.'"

12,372.—LAGER-BEER.—*Jacob Ruppert*, New York, N. Y. Application filed March 28, 1885.
"The word 'RUPPINER.'"

12,373.—HOOF-OIL.—*Andrew Spietaler*, New York, N. Y. Application filed April 11, 1885.
"The word 'ANDREW'S,' and the representation of a horse with a man kneeling in front of him in the act of oiling the hoof."

12,374.—PORTABLE CASE CONTAINING SELECTED INSTRUMENTS AND STANDARD REMEDIES.—*The San Chemical Company*, Cincinnati, Ohio. Application filed May 22, 1885.
"The words 'THE SUN.'"

12,375.—SMOKING, FINE-CUT, AND PLUG TOBACCO.—*The Wellman & Imaire Tobacco Company*, Quincy, Ill. Application filed June 3, 1885.
"The words 'SWEET LOTUS.'"

12,376.—BLEACHED, WHITE, AND COLORED COTTONS.—*Joseph W. Woods*, Boston, Mass. Application filed May 21, 1885.
"The arbitrary words 'SACO MANUFACTURING COMPANY' written in full or abbreviated."

LABELS.

4,491.—Title: "SAFE PROLONGER OF LIFE" (FOR A MEDICINE.)—*Joseph Bard*, Chicago, Ill. Application filed June 5, 1885.

4,492.—Title: "THE INFALLIBLE ORIENTAL CHOLERA ANTIDOTE." *Horatio Bateman*, Brooklyn, N. Y. Application filed May 28, 1885.

4,493.—Title: "SADIO PARAENSE" (FOR SOAP.)—*Brewster, Rutherford & Co.*, Brooklyn, N. Y. Application filed June 8, 1885.

4,494.—Title: "DIETRICH'S LINIMENT."—*John Dietrich*, Fairbury, Ill. Application filed April 4, 1885.

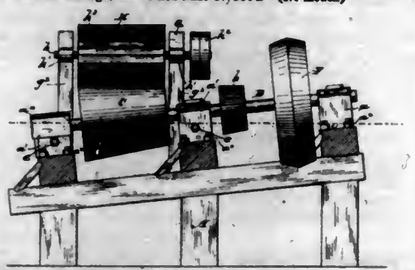
4,495.—Title: "INDIA SILK STYLES" (FOR PRINT GOODS.)—*The Eddystone Manufacturing Company*, (*Limited,*) Philadelphia, Pa. Application filed June 6, 1885.

4,496.—Title: "ENGLISH COMPOUND EXTRACT OF PENNYROYAL AND TANSY."—*George B. Hubbard* and *William Gray*, Detroit, Mich. Application filed June 3, 1885.

PATENTS

GRANTED JUNE 30, 1885.

320,905. CLAY-CRUSHING MACHINE. FRANK ALSIP and CHESTER T. DRAKE, Chicago, Ill. Filed June 17, 1884. (No model.)



Claim.—1. A mechanism for crushing clay and removing stones therefrom, consisting of two co-operating conical rolls arranged with their axes at an angle to the plane of the horizon, and their upper surfaces substantially horizontal, as contradistinguished from conical rolls the axes of which are horizontal.

2. In combination with the supporting-frame and driving-gear, the two co-operating conical rolls having their rolls in a common plane oblique to the horizon, and their top surfaces in a common horizontal plane, as contradistinguished from rolls the top surfaces of which are inclined longitudinally.

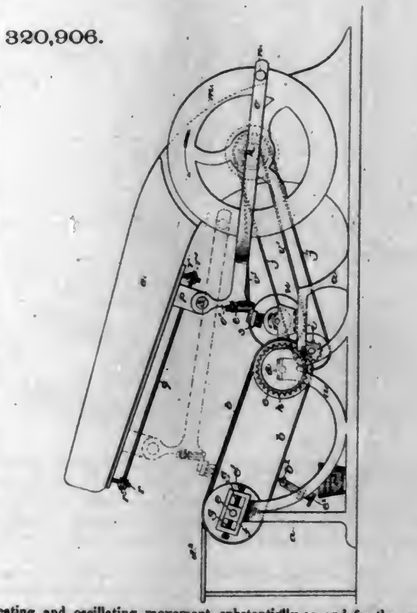
3. In a clay-crushing machine, the combination of the adjusting-rods E E' with conical clay-crushing rollers having their axes arranged in a plane oblique to the plane of the horizon, and means for propelling the same, substantially as described.

4. In a clay-crushing machine, the combination of the conical rollers C D, shafts B B', arranged as described, with suitable bearings, adjusting-rods E E', set-screws *e*, and caps a^1 a^1, substantially as described.

5. In a clay-crushing machine, the combination of the conical rollers C D upon the tilted shafts B B' with a grooved muller constructed and arranged as described, and means for propelling said shafts and muller, respectively, substantially as and for the purposes set forth.

6. In a clay-crushing machine, the combination, with suitable rolls, of a muller arranged upon one end of a pivoted frame, provided with movable weights, whereby the downward pressure of said muller may be increased or diminished at will, substantially as described.

320,906. LEATHER-DRESSING MACHINE. FRED B. BATCHELDER, Malden, Mass. Filed July 5, 1882. (No model.)



Claim.—1. In a leather-finishing machine, a traveling flexible leather-supporting surface or endless table, combined with a spreading device and actuating mechanism, whereby it is caused to reciprocate or travel forth and back over the endless table, substantially as set forth.

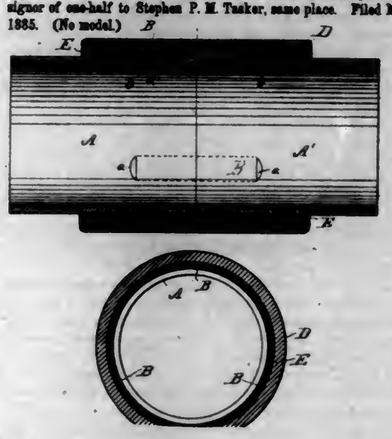
2. In a leather-finishing machine, a traveling flexible leather-supporting surface or endless table, a tank to contain the dressing material, and a rotating feeding device or feed-roller in contact with or partly submerged in the dressing material in said tank, combined with a spreading device and actuating mechanism, whereby said spreading device is caused to travel forth and back over the endless table, and to be alternately brought in contact with the feed-roller and the leather on the endless table, to convey dressing material from the former to the latter, substantially as described.

3. The flexible traveling leather-supporting surface or endless table, combined with a dressing-spreading device and a cleaning device for removing the dressing from the said endless table, substantially as described.

4. The leather-supporting surface, combined with the dressing-spreading device, its actuating-pitman, and sliding carriage or cross-head at one end and actuating-crank at the other end of the said pitman, arranged as described, whereby the said spreading device has a reciprocating and oscillating movement, substantially as and for the purpose described.

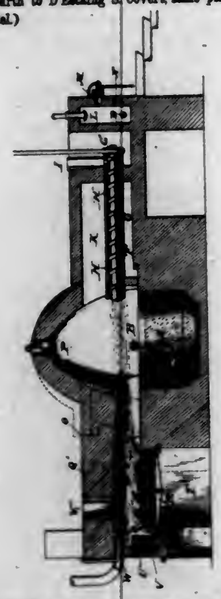
5. The leather-supporting surface or table and spreading device having a reciprocating motion over the said table, combined with a tank to contain the dressing material, and a feeding device, whereby the said material is conveyed from the said tank to the said spreading device, substantially as described.

320,907. PIPE-COUPLING. HIRAM R. BORIE, Philadelphia, Pa., assignor of one-half to Stephen P. M. Tasker, same place. Filed Mar. 19, 1885. (No model.)



Claim.—The combination, to form a pipe-coupling, of two sections of pipe, each provided with holes, indentations, or depressions, one or more double hooks, the hooked extremities of which are adapted to take into said holes, indentations, or depressions, a collar circumscribing the hooks in place upon the tubes, and packing introduced between the collar and the tubes, substantially as set forth.

320,908. SMELTING ORES. MATHEW D. BRETT, Denver, Colo., assignor of one-fourth to D'Estaing S. Covert, same place. Filed Sept. 2, 1884. (No model.)



Claim.—1. The process of smelting ores, substantially as herein set forth, which consists in gradually feeding the ores through a conveyer, subjecting them therein to a temperature sufficient to desulphurize and reduce them to a semi-liquid state by the action of hot air, and concentrating the flames and heat from several sources directly upon the semi-liquid mass.

2. The combination, with a sump having an arched top or dome, of a series of fire-boxes, constructed and arranged substantially as described, and inclined concentrating-passages leading from the boxes to the interior of the sump, whereby the flames may be concentrated and confined in the sump, as and for the purposes described.

3. The combination, with a sump, of an ore-conveyer consisting of a tube having a suitable hopper and a screw-conveying rod and a series of perforations in the tube, the whole being arranged in the exhaust smoke-chamber leading from the sump, whereby the ores are desulphurized and delivered directly at the smelting-point in a liquid or semi-liquid state, substantially as described.

4. The combination, with a sump having an arched top or dome containing a lead bath and metallic matte, of a series of fire-boxes located at one side of the sump, having inclined passages adapted to concentrate the flames and heat at the mouth of the conveyer, and a conveyer adapted to deliver the ore into the concentrated flames and heat, substantially as described.

5. The combination, with an arched sump containing a lead bath and a metallic matte, and provided with means for maintaining the same at a constant level, of a series of fire-boxes at one side of the sump, arranged to concentrate the heat and flames, an exhaust smoke-chamber at another side, and a conveyer located in said chamber, the arrangement being such that the flames and heat pass into the sump, are concentrated at the smelting-point without scorifying the lead bath, and are drawn through the exhaust-chamber, heating the ore in the conveyer, substantially as described.

6. The combination, with a sump and fire-boxes connected therewith, arranged to concentrate the flames and heat in the sump, of a smoke or dust chamber containing an ore-conveyer, a condensing-chamber connected therewith, an exhausting apparatus connected with the condensing-chamber, whereby the flames and heat are drawn into the sump and concentrated, and the products of combustion are drawn through the chambers, and means for supplying water to the condensing-chamber, as and for the purpose set forth.

7. The combination, with the sump containing a lead bath and a metallic blanket, of fire-boxes connected to said sump and a sump-arch having an opening at the top and an ore-conveyer located in the smoke-chamber, whereby the ordinary ores may be conveyed to the sump in a semi-liquid state, and the rich ores may be dropped directly into the sump at the smelting-point, substantially as described.

320,909. JOURNAL-BEARING. CHARLES F. BRIGHAM, Boston, Mass. Filed Dec. 29, 1884. (No model.)

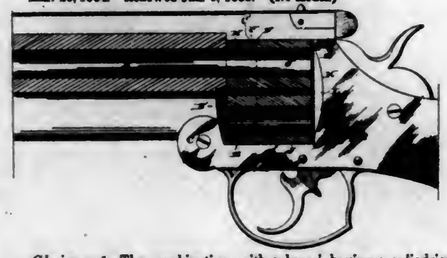


Claim.—1. The metallic skeleton or frame having a metallic bearing portion, combined with a filling of fibrous or pulp material molded into the said frame and around the said bearing portion, substantially as described.

2. The metallic skeleton or frame having a metallic bearing portion, combined with a filling of fibrous or pulp material molded into the said frame and around the said bearing portion, and a metallic cover fastened to the said frame, substantially as described.

3. The metallic frame consisting of end and side portions, and a bearing portion extending between the ends and separated from the side portions by ribs, thus leaving spaces between the bearing and side portions of the frame, substantially as described.

320,910. REVOLVER. WM. C. A. BULLOCK, Meridian, Miss. Filed Mar. 20, 1884. Renewed Jan. 6, 1885. (No model.)



Claim.—1. The combination, with a barrel having a cylindrical cap at its rear end, of a revolving cartridge-holding cylinder recessed about its forward end, and journaled to a pin projecting rearwardly from said barrel and secured at its front end, said recess forming shoulders adapted to bear flush against the rim of the cap when in position, substantially as set forth.

2. In a gun, the combination, with a barrel having a cylindrical cap formed integral therewith, of a revolving cartridge-holding cylinder recessed at its front end, said recess forming shoulders adapted to bear flush against the rim of the cap when in position, substantially as set forth.

320,911. APPARATUS FOR TREATING THE PRODUCTS OF RENDERING-TANKS. LYDIA J. CADWELL, Chicago, Ill. Filed Nov. 3, 1884. (No model.)

Claim.—1. The combination, with a steam rendering-tank, of a filter or strainer having a valve connection with the rendering-tank, whereby the pressure within the latter may operate to force the liquid containing the fat through the filter, substantially as described.

2. The combination, with a steam rendering-tank and a vessel provided with a filter or strainer and connected with the rendering-tank, of an inlet-pipe arranged to deliver into the mass of solid material supplied to the filtering-vessel, substantially as and for the purpose set forth.

3. The combination, with a steam rendering-tank, a filter or strainer, and a connecting-pipe leading from the former to the latter, of a pipe arranged to discharge in or adjacent to the delivery end of said connecting-pipe, whereby the fatty substances may be mechanically detached from the solids as the latter are admitted to the filter through said connecting-pipe, substantially as described.

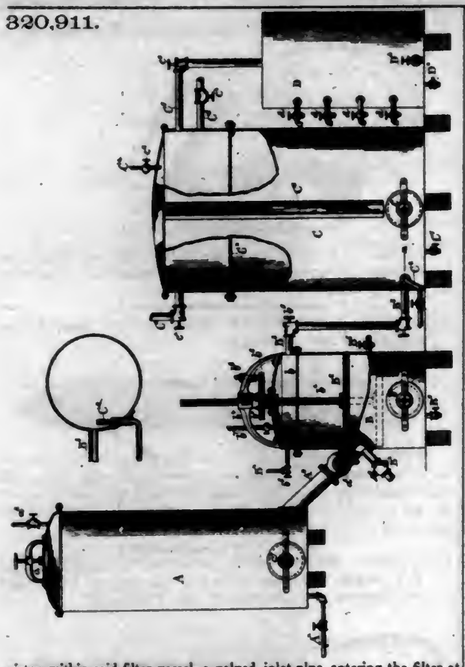
4. The combination, with a steam rendering-tank, of a vessel constructed to express liquid from solids, and a valved pipe or passage connecting said vessel with the rendering-tank, substantially as described.

5. The combination, with a steam rendering-tank, of a vessel connected by a valved passage with the said tank, a perforated piston within said vessel, means for operating said piston, and a filter arranged to strain the material passed through the apertures of the piston, substantially as described.

6. The combination, with a steam rendering apparatus, of an ascending filter connected at its receiving end by a valved passage with the rendering-tank, a perforated piston within said filter-vessel, and a water-inlet pipe entering the filter-vessel at a point above the lowest position of the piston, substantially as described.

7. The combination, with a steam rendering-tank, of an ascending filter connected at its receiving end with the rendering-tank, a perforated

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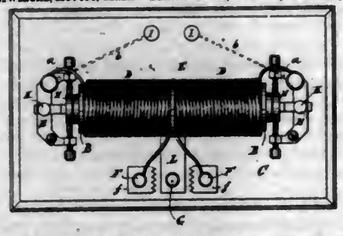
piston within said filter-vessel, a valved inlet-pipe entering the filter at a point above the lowest position of the piston, and a valved outlet arranged to discharge the water from the space above the piston when the latter is depressed, substantially as described.

8. The combination, with the ascending filter of a steam rendering apparatus, of a water-inlet pipe arranged to deliver into the space above the filter proper and a discharge-pipe at the bottom of the filter-vessel, substantially as described.

9. The combination of a steam rendering-tank, a filter-press, a receiving-tank, and valved pipes connecting them, respectively, whereby the separation of the fatty matters from the solids after rendering may be effected by a continuous operation, substantially as described.

10. The combination, with a steam rendering-tank, of an ascending filter, B or C', connected at its receiving end with the tank, and an inlet-pipe discharging into the filter, by which water may admitted to float the fatty substances to the elevated point of discharge, substantially as described.

320,912. PROTECTOR FOR ELECTRICAL INSTRUMENTS. DAVID J. CARTWRIGHT, Revere, Mass. Filed Feb. 28, 1885. (No model.)



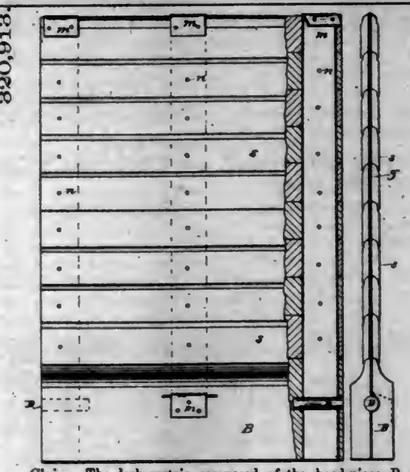
Claim.—1. A protector for electrical instruments, having the core of its electro-magnet connected to ground and its armature connected to a shunt containing the telephone or other instrument to be protected, substantially as and for the purpose set forth.

2. The combination of the core A, electrically connected to the ground, the coils D D, each connected to opposite sides of the line, and the armature-levers H H, connected, respectively, to one of the terminals of the telephone or other instrument to be protected, substantially as and for the purpose set forth.

3. The combination of the core A, coils D D, angle-irons B B, supporting the core, and ground-plate L, electrically connected to the angle-irons B B, substantially as and for the purpose set forth.

320,913. SLATTED DESK-CURTAIN. FRANCE A. COFFIN, Indianapolis, Ind. Filed Oct. 23, 1884. (No model.)

320,913.



Claim.—The desk-curtain composed of the head-piece B, slats s, hinging one upon another, connected by metal strips let into grooves on each end of the slats and secured by the dowel-pin D, and a central metal strip passing through the slats and coming out of the side of the head-piece B, all combined substantially as described.

320,914. NUT-LOCK. JOSIAH C. COCKERLEY, South Milford, Ind. Filed Apr. 25, 1885. (No model.)



Claim.—1. In a nut-lock, the bolt and nut, in combination with the washer slitted or divided horizontally to form two spring-sections, the outer one of which is adapted to be forced inward by the pressure of the nut, said washer being slitted longitudinally to form a spring-tongue which is normally on a line with the outer spring-section, so that when the latter is pressed inward during the operation of the nut the tongue will come up against one of the sides of the nut, as set forth.

2. The herein-described nut-locking washer formed in a single piece, comprising two spring-sections having their outer ends sprung apart to give increased elasticity and allow them to yield, and a tongue provided on one side of the sections so as to come up against the side of the nut, as set forth.

3. In a nut-lock, the bolt and nut, in combination with the washer formed with two spring-sections having the front or outer ends sprung apart, aligned perforations provided through the sections, a longitudinal slot formed in the outer section to provide a spring-tongue which is on a line with the normal position of the outer section, and a cut-away portion formed in the inner section to allow the movement of the tongue inwardly, whereby said tongue remains in its position while the nut is being operated to press the outer spring-section inward, as set forth.

4. In a nut-lock, the bolt and nut, in combination with a washer, comprising a plate slitted or divided horizontally for a portion of its length to form two spring-sections, the outer ends of which are sprung apart, aligned perforations provided through the latter, a longitudinal slot formed in the outer section to provide a spring-tongue which is on a line with the normal position of the outer section, and a cut-away portion formed in the inner section to allow the movement of the tongue, for the purpose set forth.

320,915. ORNAMENTING THE HANDLES OF ARTICLES OF GLASSWARE. JOHN S. DIGNAM, London, Ontario, Canada. Filed Sept. 5, 1884. (No model.)



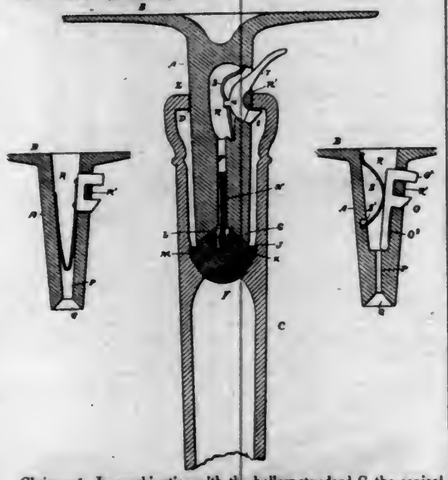
Claim.—1. A dish or cover having hollow transparent glass handles or cover knobs adapted to receive and display an internal decoration.

2. A dish or cover having hollow handles of cover knobs formed of glass or like substance, and decorated on the inner surface.

3. A dish or cover having hollow handles or cover knobs formed of glass or similar material and containing an ornamental article.

4. A hollow transparent handle or cover knob adapted to receive and display an internal decoration to be attached to the dish or cover in such a way as to be readily removed.

320,916. STOOL-PEDESTAL. JOHN S. DUNLAP, Peoria, Ill. Filed Feb. 14, 1884. (No model.)



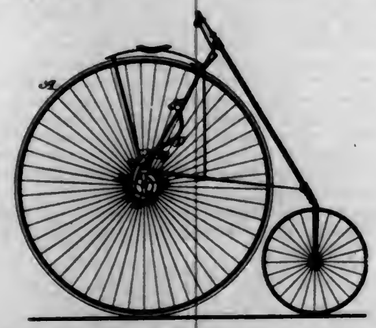
Claim.—1. In combination with the hollow standard C, the conical bearing F, loosely mounted within said standard, and the arm A of a stool or similar article, said arm having the conical recess G in its lower extremity and having said recess resting upon said conical bearing, substantially as set forth, and for the purpose of preventing the admission of dust and sand to the bearing-surfaces.

2. The hollow standard C, having an unbroken flange at the upper end of the interior thereof, in combination with the pivotal arm A, mounted loosely within said standard, the catch O, pivotally held in a recess in said arm, and a spring for outwardly impressing said catch, substantially as and for the purpose specified.

3. The hollow standard C, having a contracted throat near the medial part thereof and the annular projection J just above said contraction, in combination with the conical bearing F, having projections K, and an easily-fusible material, M, whereby said bearing is rigidly secured in place upon said contracted throat, as set forth.

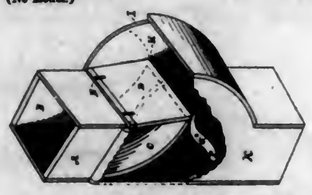
4. The hollow standard C, and the conical bearing F, fixed therein, in combination with the pivotal arm A, mounted loosely in said standard and provided with the recess R, the channel P, and the conical recess G, as and for the purposes described.

320,917. BICYCLE. WILLIAM N. EUSTER, Canton, Ohio. Filed Apr. 6, 1885. (No model.)



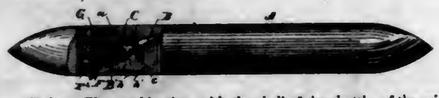
Claim.—In a bicycle, the combination of the frame *b*, provided with a suitable step and having the top extension, C, of the tread lever or arm D, fulcrumed to said top extension and directly over the axle, and of the strap D' and the drum E, all arranged substantially as shown and described, and for the purpose set forth.

320,918. SEWER-TRAP. LOUIS FALL, Lima, Ohio. Filed Feb. 18, 1885. (No model.)



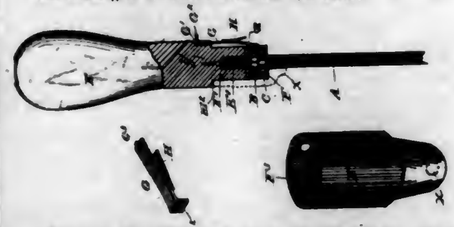
Claim.—In a sewer-trap, the combination, with the chute C and pivoted piece F, forming a continuation of the chute, of the pivoted door D, as and for the purpose set forth.

320,919. LOOM-SHUTTLE. CORNELIUS FALVEY, Norwich, Conn. Filed Aug. 24, 1883. (No model.)



Claim.—The combination, with the shell of the shuttle, of the spindle having a longitudinally-slotted shank, the pin to which said spindle is pivoted, and the spring surrounding the shank and abutting against the pin, the spring F', and the pin *h*, substantially as described, and for the purposes set forth.

320,920. SCREW-DRIVER. NATHANIEL W. FARRAND, Westfield, N. Y., assignor to Florence A. Farrand, same place, and Ella U. Clark East Hamburg, N. Y. Filed Dec. 20, 1884. (No model.)



Claim.—1. In a ratchet screw-driver, the combination, with the blade provided with oppositely-arranged ratchets, of a handle recessed for the reception of the upper end of the blade, and having within the recess a central metal bearing for the extreme upper end of the blade, substantially as specified.

2. In a ratchet screw-driver, the combination, with the blade provided with oppositely-arranged ratchets, of a handle recessed and provided with a separate central metal bearing for the upper end of the blade, and a ferrule provided with a bearing for the blade, substantially as specified.

3. In a ratchet screw-driver, the combination of the blade provided with oppositely-arranged ratchets, the handle provided with a recess and a metal bearing therein for the blade, and a groove for the reception of the pawl, and a ferrule provided with a groove for the pawl and with a bearing for the blade, substantially as specified.

4. In a ratchet screw-driver, the combination, with the blade and ferrule, of a handle recessed for the reception of the upper end of the blade, and a rivet, screw, or bolt arranged to serve as a separate central metal bearing for the extreme upper end of the blade and to retain the parts in operative position, substantially as specified.

320,921. COMPOUND FOR INSULATING ELECTRIC WIRES. R. S. FERGUSON, Waukegan, and WM. SCHUMACHER and WM. TUBMAN, Chicago, Ill. Filed Feb. 27, 1885. (No specimens.)
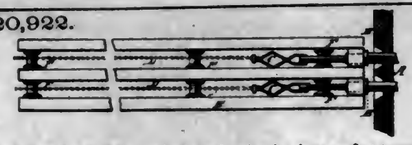
Claim.—1. The herein-described compound for insulating electric wires, the same consisting of a base composed of pine-pitch and beeswax, or tallow, or linseed-oil, or other materials holding moisture in suspension and rendering the pitch flexible when cool.

2. The herein-described compound for insulating electric wires, the same consisting of pine-pitch, rubber, and asbestus, mixed with beeswax, or tallow, or linseed-oil, in the manner and proportions specified.

320,922. DRAW-BENCH. JOHN J. FISHER, Cleveland, Ohio. Filed June 14, 1884. (No model.)

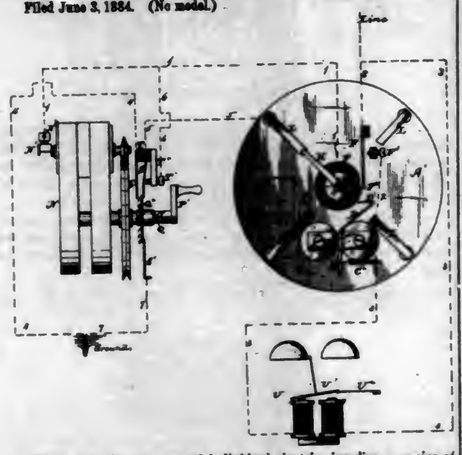
Claim.—An improvement in draw-benches for the manufacture of tubes, the two dies of unequal size placed side by side upon the same bench in front of the furnace, together with the tongs and chains connected therewith, in virtue of which two tubes may be drawn at the

320,922.



same time, such tube being twice heated and twice drawn—first to weld and then to reduce—substantially as set forth.

320,923. INDIVIDUAL SIGNALING APPARATUS. ELLEN F. FROST, Boston, Mass., assignor of one-half to Thomas W. Gleason, same place. Filed June 3, 1884. (No model.)



Claim.—1. In a system of individual electric signaling, a series of bells normally short-circuited, means, as indicated, for breaking the short circuit round the said bells and for including the bell-magnets each at its own time in the main circuit, a series of generators, one for each station, and electrical connections, substantially as described, adapted to generate and transmit magneto-electric currents of one direction to actuate the short-circuit-breaking mechanism and to include any predetermined bell in the main circuit, and to transmit, when reversely operated, currents of similar duration but opposite direction to ring the desired bell when so included, substantially as set forth.

2. The combination, in a system of electric signaling, of a series of magneto-generators adapted to transmit at the will of the operator intermittent currents of either direction, with a series of step-by-step mechanisms, each actuated by an electro-magnet and the polarized armature thereof, and with an auxiliary polarized armature for each mechanism of the series, said armature being adapted to engage a projecting arm of the step-by-step mechanism and to arrest the same once in each revolution when influenced by currents of similar direction to those required to actuate the said mechanisms, but to release the said arm when currents of opposite direction are transmitted.

3. In an individual signaling system, a series of polarized bells biased to respond to intermittent currents of definite direction normally short-circuited, a series of electrically-actuated step-by-step rotary devices, each adapted to break the short-circuit round its own bell and to include the bell-magnet in the main-line circuit, a unison consisting of a rotating arm attached to each rotatory device and of a polarized armature engaging therewith at a like point in the revolution of all of the said rotatory devices, and a magneto-generator at each station adapted to transmit pulsations of definite polarity to actuate the rotatory devices and to operate the unison, and when reversely operated to transmit pulsations of opposite polarity to release the unison and to ring the bell, substantially as described.

4. An individual electric signaling instrument comprising a magneto-electric generator provided with circuit-changing devices whereby currents of either polarity or direction may be transmitted to line as required, a polarized bell normally shunted or short-circuited, and adjusted to respond to currents of one given direction, an electro-magnetic step-by-step actuating mechanism adapted when operated to break the said short-circuit round the bell, an electro-magnet and polarized armature controlling the said actuating mechanism, and adjusted to operate only under the influence of currents of opposite direction to those which ring the bell, an auxiliary polarized armature arranged to engage a rotating arm attached to the actuating mechanism and to arrest the same at a constant point in each revolution thereof, and a series of stop keys and levers adapted when operated to stand in the path of said rotating arm and to make electric contact therewith and short-circuit the generator at the moment when the required distant bell is introduced into the circuit, substantially as and for the purposes described.

5. An individual electric signaling system comprising the following elements: a main circuit, a series of magneto-electric generators included in a shunt of said main circuit and provided with circuit-changing devices whereby currents of either direction may be emitted from said generator as required, an auxiliary and normally-open shunt-circuit for each generator adapted to be automatically closed when a suitable number of currents have been sent to line, a series of polarized bells biased so as to respond to currents of given direction only, and normally short-circuited, a series of step-by-step actuating mechanisms controlling the short-circuit round the said bells and adapted to break the same and include the bell in the main circuit after a definite number of currents of direction opposite to that required to ring the bell have been sent to line, circuit-closing devices actuated by the same mechanism for closing the auxiliary shunt-circuit of the home generator after the requisite number of actuating-currents have been sent, and an auxiliary polarized armature attached to each actuating mechanism to engage with a projecting arm thereof, whereby the several mechanisms may be brought to a common starting-point, as set forth.

6. In an individual telephone signal, and in combination with rotating devices operated step by step, an arm, H, secured to said devices, and an armature actuated by a current of one polarity and provided with an elastic tip, H', arranged to be engaged by a second polarized armature actuated by currents of a reverse polarity, and to thereby arrest the motion of said step-by-step devices and to spring out of engagement with said armature when the same is actuated in the manner set forth.

7. In an individual telephone signal, and in combination with electrically-rotated step-by-step devices, and a magneto-generator operating the same, a contact-arm, H, carrying spring H², secured to and rotated by said devices, a series of springs, L, circumferentially arranged around the axis of said arm and arranged to be individually brought into engagement with the same in the manner set forth, and connections whereby contact between said arm and spring will shunt said magneto upon itself.

8. In a telephone-signal, and in combination with signaling mechanism, a magneto-generator actuated by a crank, in the manner set forth, and a sleeve, P', and a contact-making flange, Q², thereon, and automatic means whereby when crank P is turned in the one direction said flange will make one series of contacts, and when said crank is turned in the other direction said flange will make another series of contacts, as and for the purposes specified.

9. In a telephone-signal, and in combination with the electrically-rotated step-by-step devices, a magneto-generator actuating the same, switch devices actuated by said magneto, and connections, as set forth, whereby when said magneto has been cut out of circuit by the said step-by-step devices a reversal of the rotation of the crank of said magneto will operate said armature and switching devices thereon to change the circuit, as set forth.

320,924. GLAND OR PACKING-FOLLOWER. ROBERT M. PETER, New York, assignor of one-half to Timothy O'Meara, Brooklyn, N. Y. Filed Jan. 20, 1885. (Model.)



Claim.—1. In a stuffing-box for holding packing, a gland provided inside of the barrel which enters the stuffing-box with a packing-chamber and at the end between this and the packing of the main stuffing-box an annular recess or chamber provided with a passage leading to a condenser or to the open air, as and for the purposes described.

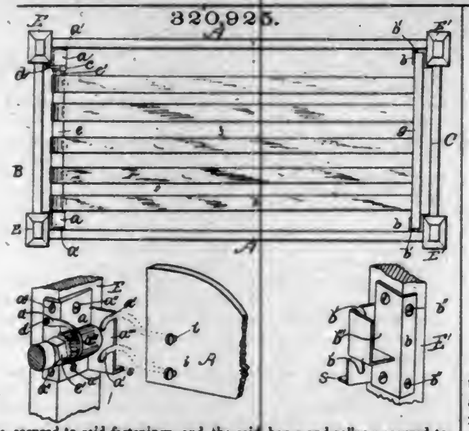
2. In a stuffing-box for holding packing, a gland provided between the piston-rod and the walls of said stuffing-box with an annular chamber provided with a passage in said gland between the packing-chamber in the same and the walls of the main stuffing-box, the said passage connecting at the flange of gland with an angular passage leading to a condenser or to the open air, for the purpose above set forth.

3. In a stuffing-box for steam-engines, a gland provided inside next to the piston-rod with a packing-chamber adapted to receive a gland within the radius of main gland and also a passage to the flange of said main gland, as shown, all being combined with an annular recess within the said main gland between its face and the main packing of the stuffing-box, substantially as and for the purpose set forth.

320,925. BEDSTEAD. JEREMIAH GARRARD, Muncie, Ind. Filed Mar. 2, 1885. (No model.)

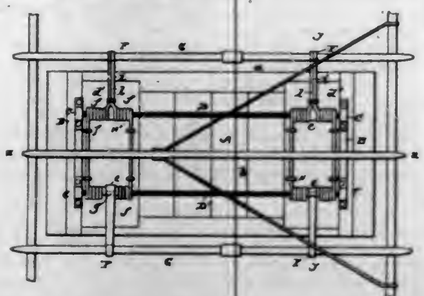
Claim.—A bedstead provided with fastenings *a b*, having slots *a b'*, sockets *a''' b'''*, and projections *s*, the side rails, A, bar *g*, and roller

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e, secured to said fastenings, and the said bar *g* and roller *e* secured together with strips *f*, whereby the said bedstead is firmly bound together lengthwise, substantially as and for the purpose set forth.

320,926. CARRIAGE-SPRING. SELDEN GILBERT, New Haven, Conn. Filed Oct. 1, 1884. (No model.)



Claim.—1. In a vehicle, the combination, with the body, of the springs secured to the bottom thereof, and having a coiled or twisted portion, and evening-rods passing through said coiled or twisted portion and journaled at their ends, for the purpose set forth.

2. In a vehicle, the combination, with the body, of the coiled springs secured to the bottom thereof, evening-rods passing through the coils of said springs, and curved arms fixed on the rods and connecting with the coils, for the purpose set forth.

3. In a vehicle, the combination, with the body, of the springs secured to the under side thereof, the evening-rods journaled to the body, and arms connecting the arms and springs to the side bars, as set forth.

4. In a vehicle, the combination, with the body, of the coil-springs secured to the bottom thereof at each end, and having their coils running longitudinally with the body, and parallel evening-rods passing through the coiled portion of the springs and journaled to the bottom, for the purpose set forth.

5. The herein-described spring, comprising the end coils and transverse connecting bars or arms, all formed in one piece, as set forth.

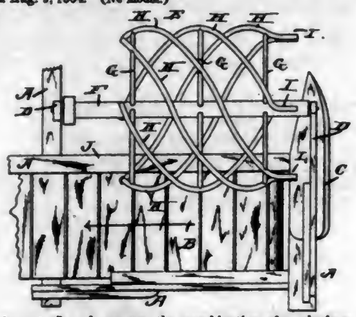
6. The herein-described spring, comprising the end coils and transverse connecting bars or arms, each coil consisting of two twisted branches or portions separated from each other, the entire spring being formed in a single piece, as set forth.

7. In a vehicle, the combination, with the body, of the parallel evening-rods journaled in boxes secured to the under side of the body, the springs mounted on the rods and attached to the body, and arms fixed on the rods and connected to the springs, the said arms being suitably attached to the side bars of the vehicle, as set forth.

8. In a vehicle, the combination, with the body, of the parallel evening-rods journaled to the under side of the same, arms fixed on the ends of the rods, springs having end coils mounted on the rods and connected with the arms, and transverse bars for connecting the coils, which bars are attached to the body, as set forth.

9. In a vehicle, the combination, with the body, of the parallel evening-rods journaled in the under side thereof, the springs secured to the body and mounted on the rods, and arms fixed on the rods and connecting with the springs on opposite sides of the rods, so as to offset or equalize the action on the rods, for the purpose set forth.

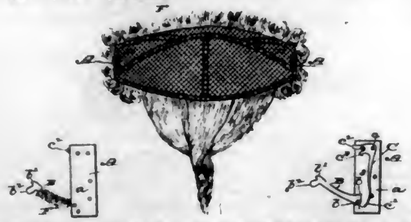
320,927. HARVESTER-REEL. DANIEL GINGRICH, Overpeck, Ohio. Filed Aug. 9, 1884. (No model.)



Claim.—1. In a harvester, the combination of a platform-carrier, the reel-axis parallel to the path thereof, reel-ribs arranged helically with a circumferential advance exceeding the longitudinal advance, and terminating portions of the reel-ribs arranged parallel to the axis of the reel.

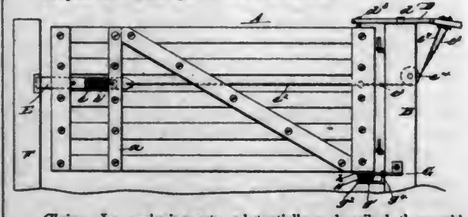
2. In a harvester, the combination of a platform-carrier, the reel-axis parallel with the path thereof, reel-ribs arranged helically, and terminating portions of the reel-ribs arranged parallel with the axis of the reel.

320,928. WIG. ALEXANDER F. GODEFROY, St. Louis, Mo. Filed Nov. 11, 1884. (No model.)



Claim.—A wig having the herein-described fastener, the same consisting of the casing A A, the arm B, and the spring C, substantially as described.

320,929. SWINGING GATE. HENRY J. GOFF and THOMAS E. PLOUGHE, Kempton, Ind. Filed Apr. 19, 1884. (No model.)



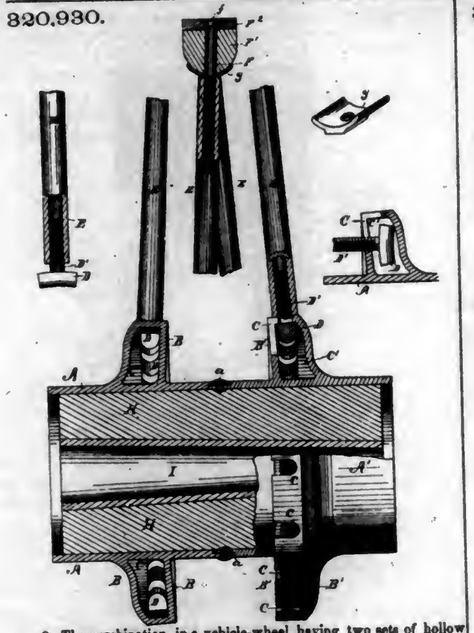
Claim.—In a swinging gate, substantially as described, the combination of the hinge-post B, and a plate, as G, secured to the lower part of the post B, and having reverse inclines *g g'* and plane portions *g²*, the gate A, having a spring-latch and a friction-roller, as H, resting upon the plate G, means for operating the latch, the lever D, pivoted to the top of the hinge-post, and having a slot which embraces a pin, *d²*, beyond the vertical plane of the hinges, and connections, as shown, whereby the action of the lever D forces the roller H to ride along the plate G, as and for the purposes set forth.

320,930. VEHICLE-WHEEL. ARTHUR W. GRANT, Springfield, Ohio. Filed Feb. 24, 1885. (No model.)

Claim.—1. In a vehicle-wheel, the combination, with the hub and rim or tire, of a series of hollow metallic spokes internally screw-threaded at their ends and having headed bolts screwed therein, said bolts being adapted to engage the hub and rim of the wheel, substantially as shown and described.

2. In a vehicle-wheel, the metallic hub provided with two hollow annular flanges, said flanges being provided with spoke or bolt receiving openings formed through a portion of two faces of the flanges, in combination with the hollow spokes E, their headed bolts D', engaging the flanges as shown, and the headed bolts F, engaging the spokes and tire, substantially as described.

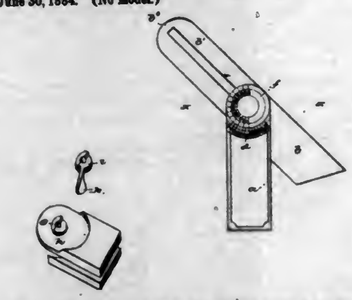
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3. The combination, in a vehicle-wheel having two sets of hollow spokes, E, set at an angle to each other and at an angle to the line of circumference of the wheel, of the hub A A', provided with the hollow flanges B B', set at an angle to the hub, said angle corresponding, substantially, to inclination of the spokes connected therewith, said flanges having the openings C formed therein, and being adapted to receive the headed bolts D', substantially as shown and described.

4. In a wheel having a metallic hub provided with hollow annular flanges having the openings C formed therein, as shown, and hollow metallic spokes internally screw-threaded at their ends, as described, the combination, with said spokes and hub, of the bolts D', screw-threaded at their shank and provided with elongated curved heads D, the width of said heads being nearly equal to the diameter of their shanks, their curve being equal to the curve or radius of the flange, substantially as described.

320,931. BEVEL-SQUARE. JONATHAN O. GROVER, Lynn, Mass. Filed June 30, 1884. (No model.)

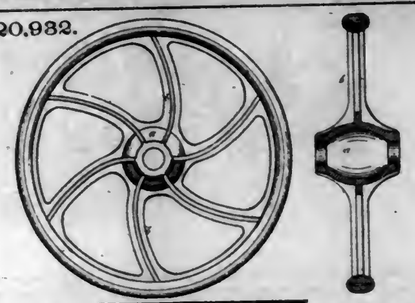


Claim.—The combination of the slotted blade *b*, graduated disk *f*, having the tongue *g* extending partially across the under face thereof to fit and slide in the slotted blade, the stock *a*, slitted and concaved at its end to fit the blade and disk, the concaved edge having graduations, as shown, the pivot-socket *e*, having the spirally-inclined cam projection *h*, the handled clamping-piece *i*, having cam-faces to fit the said cam projection *h*, and the fastening-screw *c*, all as shown and described.

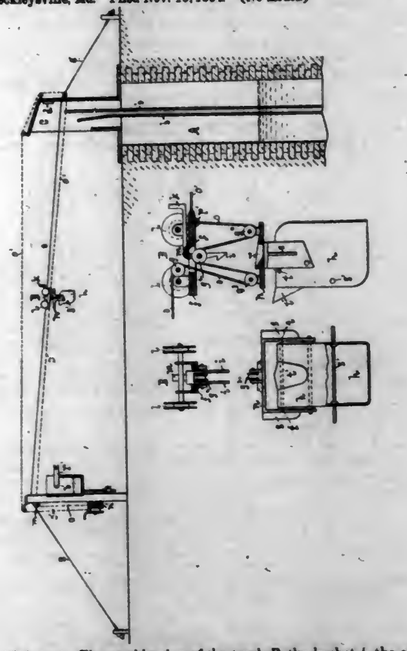
320,932. VEHICLE-WHEEL. THOMAS M. HAMMOND, Cleveland, Ohio. Filed July 12, 1884. (No model.)

Claim.—The improved iron wheel consisting of the hollow conical hub *a*, curved ribbed spokes *b*, and concave felly, each of said parts being of equal bulk, whereby said wheel may be annealed without liability to cracking or breaking, as and for the purpose specified.

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320,933. WATER-CONVEYING APPARATUS. ABRAHAM C. HARE, Beckleysville, Md. Filed Nov. 15, 1884. (No model.)



Claim.—1. The combination of the truck B, the bucket *h*, the cord *o*, and the pulleys *g*, *g²*, *g³*, and *g⁴*, as herein shown and specified.

2. The combination of the well A, the guides *b*, bifurcated at the top, and the bucket-frame *n*, provided with guide-wings *z*, as herein described.

3. The combination of the truck B, the wires *e*, the bifurcated guides *b*, and the bucket-frame *n*, provided with wing-guides *z*.

4. The combination of the frame *f*, the hook *i*, and the pulley *g³*, mounted at the pivoted point of the hook, as herein shown.

5. The combination of the bucket *h* and the rod *s'*, running through the same and its end projecting therefrom, whereby the sides of the bucket are prevented from being damaged.

6. In a well device, the combination of the frame *n*, the bucket *h*, pivoted thereto on one side of the center, and the lugs *t*, for the purpose as herein specified.

7. The combination of the wires *e*, the truck B, the box *b'*, the pivoted bucket *h*, and the pivoted arms *r'*, whereby as the rod *s* describes an arc of a circle from the pivoting-point of the bucket the arm may oscillate accordingly.

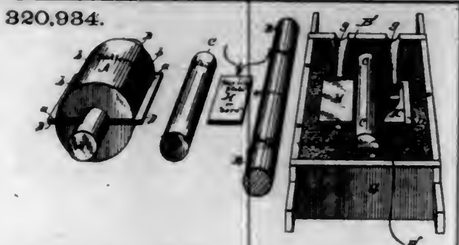
8. The combination of the reel *n'*, the cords *o* and *o'*, wound in opposite directions thereon, and the truck B, as herein specified.

9. The combination of the frame *n*, the bucket *h*, pivoted thereto, and the rod *t*, running through and projecting from either side of the bucket, as herein shown and set forth.

320,934. SAND MOLD. JOHAN HOBBS, East Brookfield, Mass. Filed May 28, 1884. (No model.)

Claim.—1. A sand mold for casting a shaft-coupling, comprising the main cavity K', the chill-print cavities B', and core-print cavities D', in combination with a chill, C, seated in the cavities B', and parting

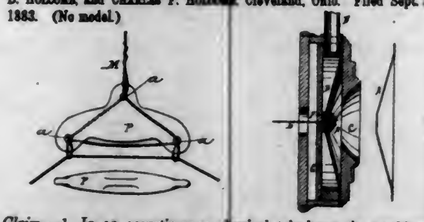
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cores H, laid in the print-cavities D', and sprue-holes adapted to admit metal to both halves of the mold simultaneously, as shown and described, whereby two separate halves of a coupling may be cast in one mold at the same time.

2. The combination of the sand mold comprising the main cavity K', the print-cavities B' and D', parts H H and C, adapted to fit the said print-cavities and forming a complete partition through the mold, and sprue-holes connecting with the mold at both sides of the partition, as set forth, whereby metal may be admitted to the two halves of the mold simultaneously, for the purpose described.

320,935. MECHANICAL TELEPHONE. JAMES R. HOLCOMB, JOHN D. HOLCOMB, and CHARLES F. HOLCOMB, Cleveland, Ohio. Filed Sept. 3, 1883. (No model.)



Claim.—1. In an acoustic or mechanical telephone, the combination and arrangement of the conical diaphragm A with the straight diaphragm G and mouth-piece C, substantially as and for the purposes set forth and described.

2. In an acoustic or mechanical telephone, the combination, with two diaphragms, of a flexible hearing-tube, E, arranged to connect the chamber B with an ear-piece, as and for the purposes set forth and described.

3. In an acoustic or mechanical telephone, the combination, with the diaphragm A and diaphragm G, of the inclined sounding-board I and bracket L, as and for the purposes set forth and described.

320,936. MACHINE FOR BENDING TUBE-SKELPS. JAS. HOOVEN, Norristown, Pa. Filed Nov. 23, 1884. (No model.)



Claim.—1. In a skelping-machine, the female roller E, consisting of the two halves e e', each having the recess e' and the facing-surfaces e^2 e^2, the latter forming the nave of the roller, whereby the halves are kept from springing when forced together, as set forth.

2. In a skelping-machine, the female roller N', having the groove n', its bottom curved, and the edges n^2 n^2 tangential, as described, in combination with the roller M', much narrower than the groove n', whereby the edges of the skelp bearing on the parts n^2 n^2 are forced inward, as and for the purpose set forth.

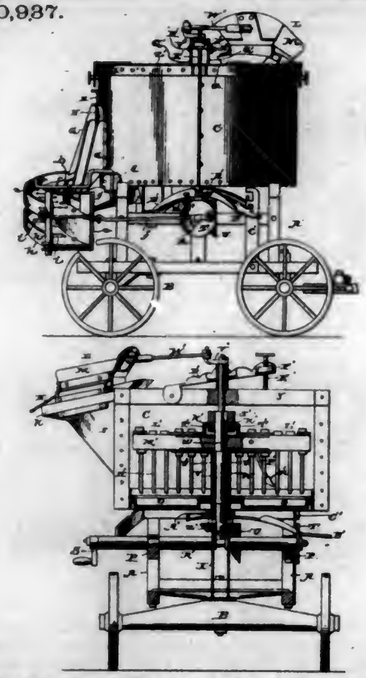
320,937. DRY-ORE AMALGAMATOR. HENRY KAPPNER, Elizabeth, Colo. Filed Apr. 18, 1885. (No model.)

Claim.—1. The combination of the tub having the riffles in its bottom and openings (one or more) in its side with the rotating stirrer located in the tub, the screen for receiving the sand or ore as it is discharged from the tub, and the chute having the riffles located below the screen, substantially as described.

2. The combination of the tub having the openings (one or more) in its side with the rotating stirrer located in the tub, the hinged screen for receiving the sand or ore as it is discharged from the tub, and the hinged chute having the riffles and located below the screen, and means for reciprocating the free ends of the screen and chute, substantially as described.

3. The combination of the tub having the riffles in its bottom and the openings in its side arranged on an ascending plane and slides or doors for the openings with the vertical rotating shaft in the tub, the

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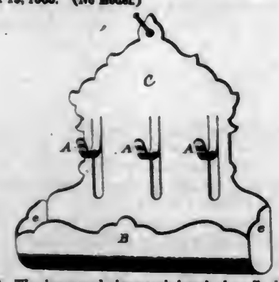


lever hinged to a beam in the upper side of the tub, the screw for raising or lowering the free end of the lever, and the stirrer swiveled to a collar that depends from the hinged lever, whereby the stirrer may be raised or lowered in the tub, substantially as described.

4. The combination of the tub having the riffles in its bottom and the openings in its side arranged on an ascending plane and slides or doors for the openings and the vertical sleeve in the center of the tub with the rotating shaft that passes through the vertical sleeve, the lever hinged to a beam in the upper side of the tub, the screw for raising or lowering the free end of the lever, and the stirrer sliding on the squared or splined portion of the rotating shaft, and the collar depending from the hinged lever, the stirrer being swiveled to said collar, substantially as described.

5. The separator embodying the following elements: the tub having the riffles in its bottom, the openings in its side arranged on an ascending plane, slides or doors for the openings, the hopper communicating with the tub, the rotating stirrer located in the tub, the screw and lever for raising and lowering the stirrer, the reciprocating screen or sieve operating over the mouth of the hopper, and the hinged reciprocating screen for receiving the sand and ore as it is discharged from the tub, and the hinged reciprocating chute under the screen having the riffles in its bottom, substantially as described.

320,938. CIGAR-SUPPORT. CLARK C. KNOWLTON, Buffalo, N. Y. Filed Sept. 15, 1883. (No model.)

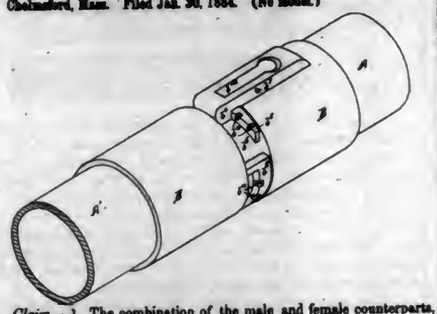


Claim.—1. The improved cigar-rack herein described, consisting of the supporting back plate C, the ash-receptacle B, projecting from the front of the back plate at the base thereof, and the cigar-holders A A A, projecting from the front of the back plate C above the ash-receptacle B, substantially as described and shown.

2. As a new article of manufacture, a cigar-rack formed of a plate of sheet metal bent at one end toward one side into trough shape and

having an eye punched in its opposite end, plates secured across the ends of the trough, and hooks struck up from the central portion of the plate and bent toward the same side on which the trough is formed, substantially as specified and shown.

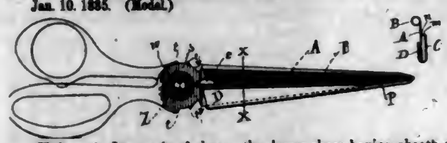
320,939. HOSE-COUPLING. LEWIS F. LOVEJOY, Lowell, Mass., assignor of two-thirds to Charles W. Marvy, same place, and George A. Byam, Chelmsford, Mass. Filed Jan. 30, 1884. (No model.)



Claim.—1. The combination of the male and female counterparts, the one provided with inclines having notches, and the other provided with hooks and with a lever having a pawl on its outer end, and a spring, as and for the purpose specified.

2. The combination of the male and female counterparts, the one provided with inclines having notches, and the other provided with hooks, one of said hooks having a slot, and a lever provided with a pawl and pivoted to said hook within said slot, and a spring placed within said slot under the free end of said lever, as and for the purpose specified.

320,940. SHEARS. ANDREW J. LYTLE, Hillsborough, Ohio. Filed Jan. 10, 1885. (Model.)



Claim.—1. In a pair of shears, the lower shear having sheath or lap flange D, made in one piece with blade C, substantially as and for the purposes specified.

2. In a pair of shears, the lower shear having sheath or lap flange D, terminating at a distance from the point of blade C, and leaving the portion P of the blade free of said sheath, substantially as and for the purposes specified.

3. The lower shear having sheath D, angulated cutting-edge n, the sheath terminating at a distance from the point of the blade C, substantially as and for the purposes specified.

4. In a pair of shears, the blade C, made of thin metal, cutting-edge n, and hinge portion and shoulder f, and an opposing blade, substantially as and for the purposes specified.

320,941. LAMP-BRACKET. SANFORD W. MACOMBER, Troy, assignor to Lloyd Olin Eldredge, Brooklyn, N. Y. Filed Oct. 6, 1884. (No model.)



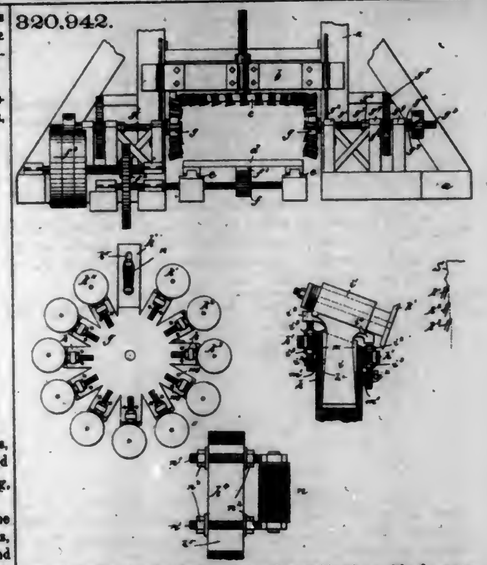
Claim.—1. The split ring G, having notches n, combined with the plate I, having projections m, as specified.

2. The combination of the clamp A, having perforated head, with the adjustable rod D, and interchangeable arms E F, and ring G, each of the parts E F G being directly applicable to said rod D, substantially as specified.

320,942. STONE-DRESSING MACHINE. JONATHAN MANN, Milton, Mass. Filed Jan. 17, 1885. (No model.)

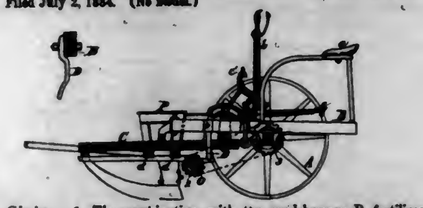
Claim.—1. In a stone-dressing machine, the combination, with a cutter-head having arms h, provided with sockets h^2, of cutters rotatable in holders i', having shanks i, secured in said sockets, and screws i^2, and nuts engaging ears h' on the arms, and lugs on the holders to adjust such holders longitudinally in the sockets, and wedges m or their described equivalent for adjusting the holders at an angle to their sockets, substantially as and for the purpose described.

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2. In a stone-dressing machine, the combination, with the cutter-head provided with rotary cutting-disks, of a bushing-cutter, n, adjustably secured in a slotted arm of such cutter-head by screw-bolt n', and nuts n^2 n^2, substantially as described.

320,943. CORN-PLANTER. JAMES A. MARLAY (administrator of Michael Ruhstetler, deceased) and ANDREW RUHSTETLER, Dayton, Ohio, assignors to the Farmers Friend Manufacturing Company, same place. Filed July 2, 1884. (No model.)



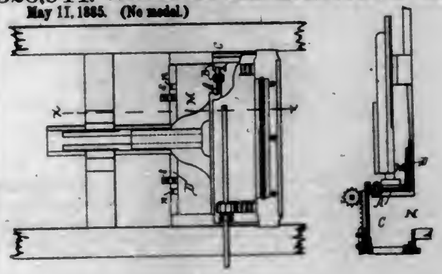
Claim.—1. The combination, with the seed-hopper P, fertilizer-hopper G", and the elongated hopper-shank G, of the valve H, extending from front to rear of the shank G, and provided with incline A, and operated by slide E for dropping the fertilizer intermittently with the seed, substantially as specified.

2. The slide E, in combination with the seed-wheel E', with lugs 1, driving-pawls e e', and inclined pivoted stop-pawls F, substantially as specified.

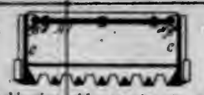
3. The slide E, provided with the driving-pawls e e', in combination with the stop-pawls F, pivoted on said slide, having the forward end inclined to engage at a single contact-point with the lugs 1, substantially as described.

4. The combination, with the divided clutch-shaft O, shipping-lever 11, pivoted to the runner-frame and engaging with the clutch, of the inclined stud D, attached to the main frame and adapted to engage with the shipping-lever and move it laterally as the runner-frame is raised to unship the clutch and throw the fertilizer mechanism out of gear, substantially as described.

320,944. BRICK-MACHINE. HENRY MARTIN, Lancaster, Pa. Filed May 17, 1885. (No model.)



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Claim.—1. The combination, with a pressing-chamber, of a plunger with beveled filling-bars, having grooves adapted to receive the ends of the top plate of said plunger, substantially as herein specified.

2. The combination, with a pressing-chamber and plunger, of a curtain hinged at the top to the back of said chamber, and adapted by the outward pressure of its lower edge to fit tightly against the back part of the plunger-plate, substantially as herein specified.

3. The combination, with a pressing-chamber having a curtain hinged to its back plate, of lugs projecting from said back plate over the top edge of the curtain to prevent the latter from being forced upward, as herein more fully specified.

320,945. ICE-CREEPER. MAX B. MAYER, Louisville, Ky. Filed Apr. 21, 1885. (No model.)

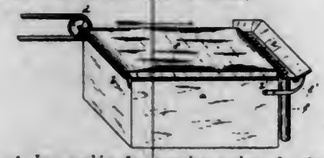


Claim.—1. The herein-described ice-creeper, comprising the straight shank formed with clamping portions, substantially as described, arms *f*, projecting from the clamping portions, and spurs projecting from the arms *f*, as set forth.

2. An ice-creeper comprising a shank having upwardly-extending arms, extending rearwardly from which are arms *d*, arms *b'*, formed by turning the ends of arms *d* downwardly, arms *f*, extending inwardly from the arms *b'*, and the spurs *g*, projecting downwardly from the arms *f*, substantially as set forth.

3. An ice-creeper comprising the shank *a*, vertical arms *b b'*, longitudinal arms *d*, transverse arms *f*, and spurs *g*, as set forth.

320,946. MACHINE FOR PACKING CRACKERS. JAMES MCCLURG, Allegheny, Pa. Filed Oct. 13, 1883. (No model.)



Claim.—1. In a machine for arranging crackers, &c., for packing, the combination of an endless traveling apron or carrier, a guide-hopper arranged at the delivery end of the carrier, and detachable cylindrical pockets or receptacles arranged in the bottom of the guide-hopper, substantially as and for the purposes specified.

2. In a machine for arranging crackers, &c., for packing, the combination of an endless traveling apron or carrier and detachable longitudinally-separable cylindrical pockets or cracker-receptacles arranged at the delivery end of the traveling carrier, substantially as and for the purposes specified.

3. A series of detachable longitudinally-separable pockets or receptacles for cracker-packing machines, having all the semi-cylindrical sections on a side united laterally by a flange or face-plate, substantially as and for the purposes specified.

320,947. ART OF DECORATING SHELLS. THOMAS MCCOSKER, St. Louis, Mo. Filed Oct. 22, 1884. (No model.)



Claim.—1. As an improvement in the art of decorating shells, marking the outlines of a figure by drilling holes in the inside surface of the shell, connecting these holes together by a cut line, and inserting a coloring material in the figures thus engraved, substantially as described, and for the purposes specified.

2. As a new article of manufacture a shell, the inside surface of which is is engraved with a figure or figures made by drilling holes in the smooth inside surface to form the outline of a particular figure, uniting these holes by a cut line, and inserting a coloring material in the engraving thus made.

320,948. RAZOR-STROP. ALEXANDER MCDONALD, Worcester, Mass., assignor to Joseph R. Torrey, same place. Filed Aug. 30, 1884. (No model.)



Claim.—1. In a razor-strop, the combination, with a rigid body, of an endless unpierced stropping-belt, substantially as set forth.

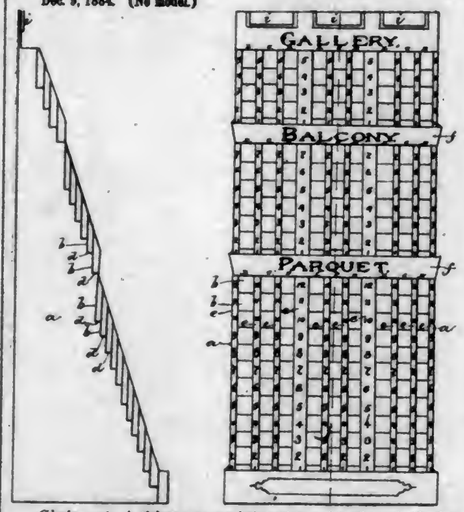
2. In a razor-strop, the combination of a rigid body, a stropping-belt, a tightening plate for said belt, and an adjusting-screw for said plate arranged wholly inside of the said belt, substantially as set forth.

3. In a razor-strop, the combination of a rigid body having a handle and a mortise or opening near its handle end, an endless stropping-belt, a tightening-plate for said belt, and an adjusting-screw for said plate arranged at the end of said body opposite to the said handle and wholly inside of said belt, substantially as set forth.

4. In a razor-strop, the combination of a rigid body having a handle and a mortise or opening near its handle end, and a side formed of a separate piece, an endless stropping-belt, a tightening-plate for said belt, and an adjusting-screw for said plate arranged at the end of said body opposite to said handle and wholly inside of said belt, substantially as set forth.

5. In a razor-strop, the combination, with the rigid body-block, the endless stropping-belt, and the tightening-plate for the latter, of an adjusting-screw abutting at one end against said plate, and a threaded nut through which the other end of said screw passes, substantially as set forth.

320,949. TICKET-CASE. CHAS. E. MCELROY, Brockton, Mass. Filed Dec. 9, 1884. (No model.)



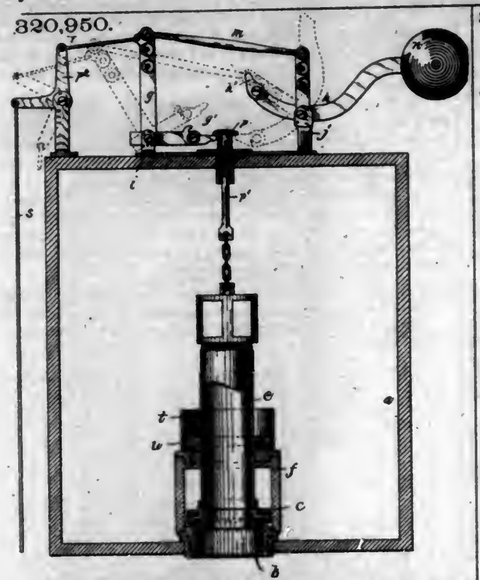
Claim.—1. A ticket-case consisting of two side pieces inclined at their front edges, a series of vertical partitions extending across from one side piece to the other, horizontal bottom pieces extending forward from the lower edge of each partition to the rear side of the partition in front of it, and inclined strips crossing the tops of the vertical partitions and secured thereto at intervals to forms rows of vertical pockets, as set forth.

2. A ticket-case consisting of side pieces inclined at their front edges, vertical partitions extending from one side piece to the other, bottom pieces extending forward from the bottom of each partition, inclined strips crossing the tops of the vertical partitions and secured thereto at intervals to form rows of vertical pockets, and broad horizontal bands dividing the front of the case into sections, substantially as described.

320,950. WATER-SUPPLY APPARATUS FOR WATER-CLOSETS. TIMOTHY MCHUGH, Boston, Mass., assignor of one-half to Ward & Curley, same place. Filed Mar. 23, 1885. (No model.)

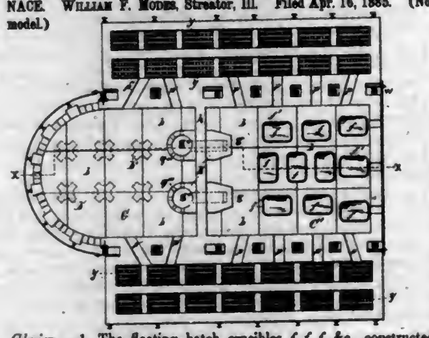
Claim.—In a water-supply apparatus for water-closets, the combination, with the valve *c*, having a shouldered stem, *p'*, of the three-armed lever *h*, having a weight on one arm and a pivoted toe on another arm, which toe engages with the shoulder of the valve-stem only when said

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weight is raised, the two-armed lever *g*, having on one arm a pivoted toe which engages with said shoulder when the lever *g* is in its normal position, the rod *m*, connecting an arm of the lever *g* with an arm of the lever *h*, the bell-crank lever p^2, connected to one arm of the lever *g*, and the pull-down rod *s*, connected to the lever p^2, the arrangement being such that when said levers are moved from their normal position the lever *g* is caused to first lift and then release the valve-stem, and the weighted lever is put in position to raise the valve automatically when the levers are released, as set forth.

320,951. REGENERATING AND REVERBERATING GLASS-FURNACE. WILLIAM F. MODES, Streator, Ill. Filed Apr. 16, 1885. (No model.)



Claim.—1. The floating-batch crucibles *f f f*, &c., constructed with slots *f'* in their sides for the molten glass to escape into the tank, as and for the purpose specified.

2. The bridge-wall *h*, combined with one or more siphons, *g*, for the glass to enter the gathering end of the tank from the charging end, as specified.

3. The bridge-wall *h*, combined with one or more siphons, *g*, and one or more skimmer-pots, *g''*, as and for the purpose specified.

4. One or more skimmer-pots combined with a bridge-wall, *h*, of a glass-furnace, the said pots having one or more openings for glass to pass into the gathering-chamber, as specified and shown.

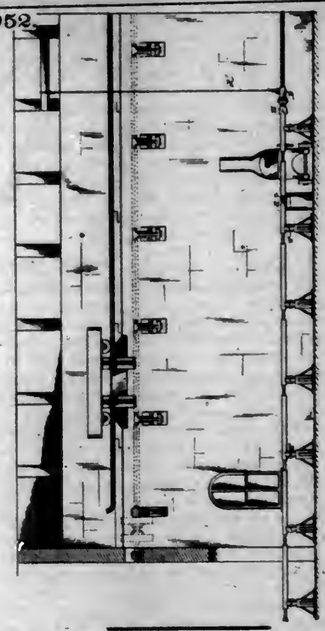
5. The combination of the checker-work *y y* with the tank G C, crucibles *f f f*, &c., and gas-flues *p p' p''*, formed in the side wall to the tank, as set forth, and for directing the gas-flame, as specified.

6. The combination of the four-armed supports *b'* with the blocks *b*, forming the bottom of the tank, as specified.

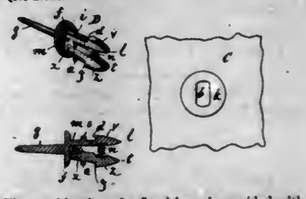
320,952. METHOD OF MAKING LONG LENGTHS OF SHAFTING. THOMAS R. MORGAN, Sr., Alliance, Ohio. Filed May 8, 1885. (No model.)

Claim.—The method of making square cold-rolled shafts of unlimited length for traveling cranes, consisting in turning round bearings on the shaft-sections and forming the ends of the shaft-sections in suitable shape for welding, and then welding a sufficient number of the shaft-sections together to form a single continuous shaft of the desired length.

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320,953. FASTENER. ALBERT P. MOSER, Malone, N.Y. Filed Nov 13, 1884. (No model.)



Claim.—The combination of a fixed jaw, *l*, provided with a straight inner face, with a tapered head, with an exterior shoulder, *d*, and with a projection or stud, *i*, back of said shoulder, a movable jaw pivoted to said fixed jaw and provided with a tapered head, *t*, with a shoulder, *y*, back of said head opposite the shoulder of said fixed jaw, and with a lateral stud or projection, *a*, opposite the stud of the fixed jaw, and an expansive spring interposed between said jaws, the heads of said jaws when the latter are closed together forming a conical point adapted to readily receive the eyelet of the curtain, substantially as described.

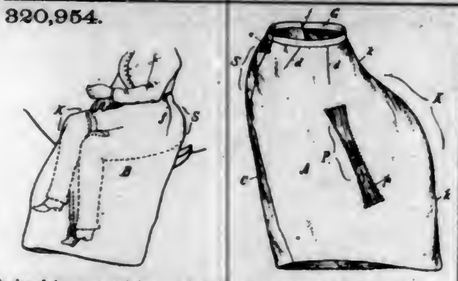
320,954. LADY'S RIDING-HABIT. GEORGE MÜLLER, Philadelphia, Pa., assignor to Hughes & Müller, same place. Filed July 14, 1884. (Model.)

Claim.—1. As a new article of manufacture, a lady's riding-skirt, the back pattern—that is to say, the under or saddle breadth—of which is provided with an opening which, when the skirt is worn upon a saddle, presents itself in such position as to receive the pommels, substantially as and for the purposes set forth.

2. As a new article of manufacture, a lady's riding-skirt, the back or saddle side of which is provided with a cut, slit, or kindred opening



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inclosed by or containing a plaited gusset, substantially as and for the purposes set forth.

3. As a new article of manufacture, a lady's riding-skirt, the apron-pattern of which is formed with a short lap-line and the back pattern with a longer lap-line, the said two lap-lines of which are worked together and united to form a front seam, and the said patterns of which, when united by said front seam, are conformed to the shape and contour of a knee, substantially as and for the purposes set forth.

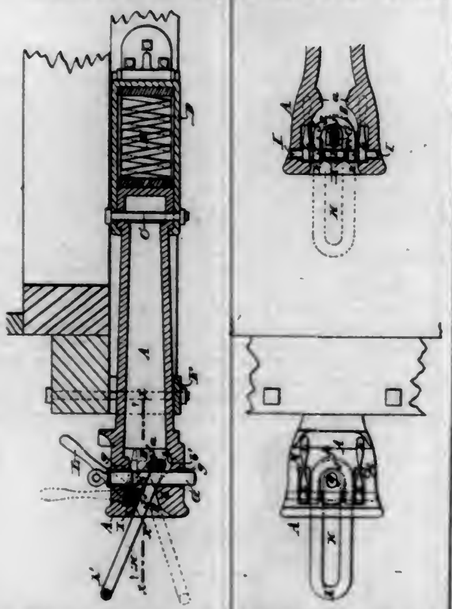
4. As a new article of manufacture, a lady's riding-skirt, the fore part and back of which are conformed, when united by a front seam, to the shape and contour of a knee, and when united by a back seam and provided with suitable cuts, to the shape and contour of a buttock, substantially as and for the purposes set forth.

5. As a new article of manufacture, a lady's riding-skirt, the back or saddle side of which is provided with an opening or pommel-pocket and the fore part and back of which are conformed to the shape and contour of a knee, substantially as and for the purposes specified.

6. As a new article of manufacture, a lady's riding-skirt, the back or saddle side of which is provided with an opening or pommel-pocket, and the fore part and back of which are conformed to the shape and contour of a buttock, substantially as and for the purposes specified.

7. As a new article of manufacture, a lady's riding-skirt the back or saddle side of which is provided with an opening or pommel-pocket, and the fore part and back of which are conformed to the shape and contour of a knee and of a buttock, substantially as and for the purposes specified.

320,955. CAR-COUPLING. JOHN O'BRIEN, Austin, Minn., assignor to himself and Fay R. Smith, same place. Filed Oct. 5, 1884. (No model.)



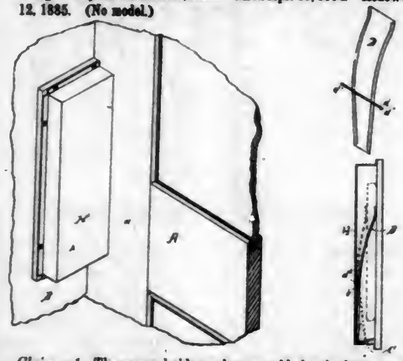
Claim.—1. The combination, in a car-coupling, and with the draw-head A, pin G, and link H, of a shaft, I, journaled in the top part of the draw-head in front of the coupling-pin, and carrying a plate, J, the free edge of which projects toward the rear of the draw-head, adapted to lift the outer end of the link when the shaft is turned, substantially as shown and described.

2. The combination, in a car-coupling, and with the draw-head A, having a projection, *b*, on the floor of its link-pocket, and the pin G and link H, of the plate J, fixed to a shaft, I, journaled in front of the pin G, and the free edge of said plate J extending behind the pin, substantially as shown and described.

3. The combination, in a car-coupling, and with the draw-head A, pin G, link H, and plate J, fixed to a shaft, I, journaled in the top of the draw-head in front of the coupling-pin, the free edge of the plate extending in rear of said pin, as specified, of a spring acting to swing and hold the plate J upward, substantially as shown and described.

4. The combination, in a car-coupling, and with the draw-head A, pin G, link H, and plate J, the free edge of which extends in rear of the coupling-pin, said plate being held to a shaft, I, journaled in the top of the draw-head in front of the coupling-pin, as specified, of the arms or levers L, substantially as shown and described.

320,956. PAPER-HOLDER. CHARLES E. OSGOOD and LEWIS F. LONGMORE, Lowell, assignors, by mesne assignments, to said Longmore and George A. Byam, Chelmsford, Mass. Filed Apr. 28, 1884. Renewed Jan. 12, 1885. (No model.)



Claim.—1. The paper holder or box provided at its lower end with a trap-door adapted to be readily opened when said holder or box is empty, in combination with a lever pivoted to the inside of the front of said box above said trap-door, and bent above its pivot toward the back of said box, whereby said trap-door is prevented from being opened when a newspaper is in the box above said trap-door and in contact with the upper end of said lever, as and for the purpose specified.

2. The combination of the box provided at its lower end with a trap-door adapted to be readily opened when said box is empty, loops secured to the inside of the front of said box above said trap-door, the lever provided with ears turning in said loop and above said ears bent toward the back of said box, whereby said trap-door is prevented from being opened when a newspaper is in the box above said trap-door and in contact with the upper end of said lever, as and for the purpose specified.

3. The paper-holder consisting of a box having an open side adapted to be opened and closed by the opening and closing of the door of a house, said box being provided with a trap-door adapted to be readily opened when said box is empty, in combination with the lever pivoted to the inside of the front of said box above said trap-door, whereby the trap-door is prevented from being opened when a newspaper is in the holder above said trap-door and in contact with said lever above its pivot, as and for the purpose specified.

320,957. BUTTON-HOLE SEWING-MACHINE. FREELAND W. OSTROM, Bridgeport, Conn., assignor to the Wheeler & Wilson Manufacturing Company. Filed Aug. 14, 1884. (No model.)

Claim.—1. The vibrating tie-bar carrying the feed-pawl, the feed-wheel, and a gear carried thereby, in combination with the sliding bar, the independent sliding plate, and gear O^2.

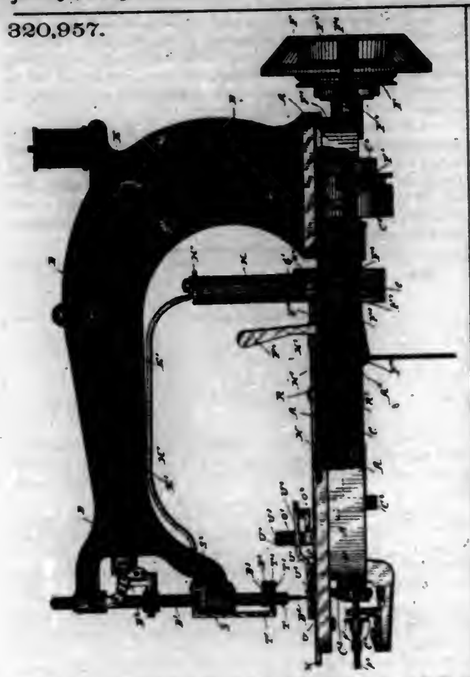
2. The feed-wheel, a gear carried thereby, and an independently-sliding bar actuated by said gear, in combination with the sliding and turning plates, and mechanism—for example, gears O^2 O^3—for connecting the turning-plate with the sliding bar.

3. The combination, with clamping and stitching mechanism, of the double-pointed feed-pawl and actuating mechanism, the feed-wheel and a pinion carried thereby, the sliding plate, and a bar engaging the pinion and adapted to slide independently of said plate.

4. The combination, with clamping and stitching mechanism, the pinion, feed-wheel, and double-pointed feed-pawl, of a turning-plate carried by the sliding plate, a bar having teeth engaging the gear and carried by the sliding plate, but adapted to move independently thereof, and intermediate mechanism whereby motion may be imparted to the turning-plate from the sliding bar.

5. The feed-wheel and pinion, in combination with the sliding and

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turning plates, and an independent sliding bar having sections N^6 N^6 of rack-teeth, and gears O^2 O^3, whereby the turning-plate is actuated.

6. The combination, with the feeding mechanism and the sliding plate having a notch, N^3, of a catch engaging said notch, a turning-plate carried by the sliding plate, and intermediate gearing, as O^2 O^3, which acts to rotate the turning-plate when the sliding plate is held and to carry both plates forward when the sliding plate is not held.

7. The turning-plate having the gear-teeth O, and a segment-gear engaging therewith and carrying a gear, O^2, in combination with the sliding bar having sections N^5 N^6 of rack-teeth, the sliding plate, and the feed-wheel and pinion.

8. The combination, with the tight and loose pulleys, the brake, friction and brake springs, and rod, of the catch-lever and its plate, and adjustable dogs upon the sliding plate, one of which acts to release the catch-lever and the friction-spring at the completion of a button-hole.

9. The combination, with the sliding and turning plates, the cloth-clamp, and actuating mechanism, of the catch-lever and its plate, the stop mechanism, and adjustable dogs on the sliding plate, whereby the length of the button-hole may be regulated.

10. The sliding plate having a notch at one side and a catch adapted to engage said notch, in combination with the feed-wheel having a pin upon one side, and a lever having cam-faces which act on the catch, and walls against which said pin acts, thereby releasing the sliding plate.

11. The double-acting cam-lever against which the catch rests, and which is provided with walls Q' Q^4 and with cam-faces Q^3 Q^5, in combination with the feed-wheel having pin L^3, the sliding plate, and the catch.

12. The cam-lever having cam faces Q^3 Q^5, which act against the catch, and walls Q' Q^4, against which pin L^3 acts, in combination with spring Q^2, which returns the cam-lever to its normal position, the sliding plate having notch N^3, the spring-actuated catch, and the feed-wheel carrying pin L^3.

13. The feed-pawl and actuating mechanism, in combination with the vibrating tie-bar which carries said pawl, and the feed-wheel having a pin which comes in contact with the tie-bar when a revolution has been nearly completed, whereby the feed-wheel is caused to vibrate without forward movement.

14. Stud K^3, carrying the vibrating tie-bar and the feed-wheel, and actuating mechanism, in combination with a double-pointed pawl, and trip-lever carried by the tie-bar, and the feed-wheel having a pin which comes in contact with said tie-bar when the revolution is nearly completed, whereby said feed-wheel may be caused to feed in either direction until said pin strikes the tie-bar.

15. The sliding plate and the turning-plate carried thereby, in combination with a reversible feeding mechanism, intermediate connecting mechanism—for example, the independent sliding bar and gearing—for connecting both plates with the feeding mechanism, and a spring-catch, whereby the sliding plate is moved forward a predetermined distance, then held while the turning-plate is caused to make a half-revolution, and then released and moved forward to complete the button-hole.

16. The combination, with a reversible feeding mechanism, the sliding bar, and gears O^2 O^3, of the sliding plate carrying the turning-plate, and having a pin which engages a slot with a curvature at its center, as and for the purpose set forth.

17. The sliding plate and the turning-plate carried thereby, in combination with feeding mechanism, intermediate connecting mechanism—for example, the sliding bar and gearing, as shown—a spring-catch engaging the sliding plate, and adjustable dogs on the sliding plate which act on the catch-lever which controls the friction and brake mechanism, whereby the sliding plate is moved forward a predetermined distance, then held and the turning-plate moved half round, when the sliding plate again moves forward until one of the adjustable dogs engages the catch-lever.

18. The sliding plate having a pin which engages a slot with a curvature at its center, and the turning-plate having a pin which engages two slots connected by a clearance, in combination with the spring-catch, the cam-lever, the feed-wheel carrying a pin, and mechanism—for example, the sliding bar and gearing—between the feed-wheel and the two plates, whereby the sliding plate is moved forward, then obliquely by said curve, and held while the turning-plate is turned half round, when the sliding plate moves obliquely again, then forward, as before.

19. The guide-plate having parallel longitudinal slots on opposite sides of the needle-guard, the outer ends of which are connected by a curved slot or clearance, and a longitudinal slot with a curvature at its center, in combination with the sliding and turning plates having pins which engage said slots, and operating and connecting mechanism.

20. The guide-plate having slots P^4, P^4, P^5, and P^7, sliding plate having pin N^7, and the turning-plate having pin O^6, and gear-teeth O', in combination with segment O^3, carrying gear O^2, the sliding bar having rack-teeth N^5 N^6, and the feed-wheel and pinion.

21. The sliding plate having notch N^3, and pin N^7, engaging slot P^7 with curvature P^6, and the turning-plate having pin O^6 engaging in slots P^6, P^4, and P^5, in combination with catch R, the feed-wheel, and connecting mechanism.

22. In a button-hole sewing-machine, the combination of the following instrumentalities, to wit: a turning-plate to which the work is secured, a sliding plate which carries the turning-plate, a spring-catch engaging the sliding plate, feeding mechanism, and intermediate connecting mechanism—for example, the sliding bar and gearing—and the slotted guide-plate engaged by pins upon the sliding and turning plates, whereby both plates are fed forward to stitch the first straight side, then moved slightly from the direct line to stitch the first quarter of the eyelet, then the sliding plate is held and the turning-plate rotated to stitch the outer half of the eyelet, after which the turning-plate again moves forward to complete the button-hole.

23. In a button-hole sewing-machine, a plate having an aperture corresponding in general outline with a button-hole, in combination with a foot having a downwardly-projecting flange adapted to fit within said aperture, and a serrated plate loosely secured to the foot outside of said flange and adapted to yield vertically relatively to the flange when the foot is lowered.

24. The turning-plate having a bracket to which the foot is pivoted, and an aperture corresponding in general outline with a button-hole, in combination with a flange projecting from the foot and adapted to fit within said aperture, a serrated plate secured to the foot through which the flange projects and which is adapted to yield vertically relatively thereto, and a cam-lever to clamp it down, whereby the cloth within the aperture is stretched like a drum-head after being clamped.

25. The turning-plate having an aperture corresponding in general outline with a button-hole, in combination with a flange upon the foot which fits within said aperture, an independent serrated plate surrounding the flange, which is adapted to bear upon the turning-plate and to yield vertically relatively to the flange, and a cam-lever for pressing the serrated plate down upon the work.

26. A plate having an aperture, in combination with a swinging foot carried by said plate, said foot having a flange which is adapted to fit within the aperture, and a serrated plate which is loosely attached to the foot and is forced downward by springs located between said serrated plate and the foot.

27. An open foot for button-hole sewing-machines having a serrated plate loosely attached thereto which holds the work, springs which press said plate downward, and a flange projecting below said plate, in combination with a plate having an aperture which receives said flange, and a cam-lever for pressing down the foot, whereby the cloth within said aperture and flange is tightly stretched and the button-hole fully opened from end to end.

28. The combination, with a plate having an aperture and carrying a swinging foot, and mechanism for imparting longitudinal motion to said plate, of a combined needle-guard and cord-carrier, which projects upward into said slot and is provided with cross-slots and side grooves, whereby the cord may be fed in either direction.

29. A plate having an aperture and carrying the foot, and mechanism for imparting movement to said plate, in combination with a needle-

guard and cord-carrier having an elongated needle-slot, a hole through which the cord enters from below, a longitudinal slot communicating therewith, cross-slots at each side, and a main-cord slot crossing the needle-slot midway of its length, whereby the cord may be fed in either direction and will pass between the two lines of stitching.

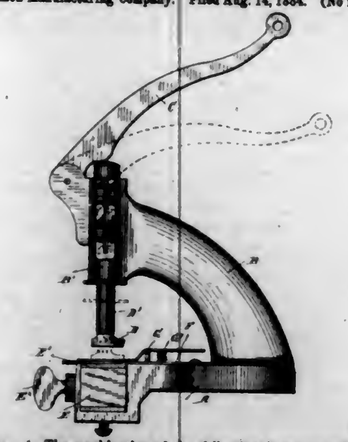
30. The needle-bar having a collar at its lower end provided with an inward projection, and the needle-carrier pivoted to said projection and having an upwardly-projecting arm, in combination with the vibrator pivoted to the head in a vertical line with the needle-carrier pivot, and having a vertical slot in which the carrier-arm slides, and a connecting-bar which imparts motion to the vibrator.

31. The combination, with the spindle and disks for holding the cord-spool, and the cord-holder having openings p and p^3 and grooves p^4, p^5, and p^6, which permit the cord to be fed either way, of the foot, the sliding and turning plates, and actuating mechanism.

32. The vibrating lever having arms H^3 H^4, which actuate the feed-wheel and the needle-vibrator, in combination with the sliding plate, the turning-plate carried thereby, which carries the foot, the catch engaging the sliding plate, and intermediate connecting mechanism—for example, the sliding bar and gears G^2 G^3—whereby the foot is moved forward and turned, then forward again, and the needle is caused to descend alternately within the button-hole and into the goods surrounding it.

33. The needle-bar having a collar, the needle-carrier pivoted thereto and having an arm, T', and the slotted vibrator pivoted back of the needle-bar, around which it curves and extends downward in front of the head, in combination with an arm pivoted to the vibrator, whose other end is pivoted in a slot in the needle-vibrating arm, said slot being an arc of a circle of which the vibrator-pivot is the center, as and for the purpose set forth.

320,958. DEVICE FOR CUTTING AND CENTERING BUTTON-HOLES. Freeland W. Ostrom, Bridgeport, Conn., assignor to the Wheeler & Wilson Manufacturing Company. Filed Aug. 14, 1884. (No model.)



Claim.—1. The combination of the following instrumentalities, to wit: first, a cloth-clamp having a central opening; second, a cutting device consisting, essentially, of a bed having a groove corresponding in outline with the cloth-clamp and a cutter, actuated in any suitable manner, which cuts the button-hole; and, third, a clamping-arm attached to a sewing-machine, which is adapted to hold the cloth-clamp and the work therein firmly in place upon the machine, whereby, having adjusted the clamp, the accurate cutting of the button-hole and accurate centering in the machine are made certain.

2. The cloth-clamp having a central opening, the cutter, and a bed having a groove corresponding in outline with the cloth-clamp, in combination with a plate upon a sewing-machine having an opening corresponding with the opening in the clamp and a clamping-arm attached thereto and having a flange adapted to fit within the opening in the cloth-clamp, whereby when said clamping-arm is pressed down the cloth within the opening is stretched and the button-hole opened from end to end.

3. The cutting device consisting of a cutter and actuating mechanism, a cutting-bed, and a grooved plate, in combination with a clamp adapted to engage the cloth and to rest in said groove, whereby the location of the button-hole is determined by the adjustment of the clamp.

4. A sewing-machine plate having an opening corresponding in outline with a button-hole and having attached thereto a swinging clamping-arm with a flange adapted to fit said opening, in combination with a clamp adapted to engage the cloth and having a central opening adapted to receive the flange, whereby the button-hole is accurately centered in the machine.

5. A sewing-machine plate having an opening corresponding in outline with a button-hole, a clamping-arm pivoted thereto and having a flange engaging said opening, in combination with a cloth-clamp having an opening which is adapted to engage said flange, and a cam-lever for clamping down the arm, whereby the goods within said opening is stretched and the button-hole fully opened.

6. A sewing-machine cloth-plate having an elongated opening, a bracket, and a standard, a clamping-arm pivoted to said bracket and having a flange adapted to engage the opening in the cloth-plate, and springs at the sides of said flange, in combination with a cloth-clamp adapted to engage said flange against which said springs bear, a cam-lever adapted to clamp down the arm, and a spring adapted to raise it when the cam-lever is lifted.

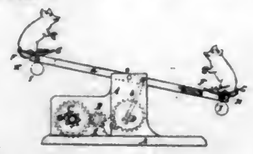
320,959. ROPE OR CORD FASTENING. George R. Pearl, Lynn, Mass. Filed Jan. 29, 1885. (No model.)



Claim.—1. A cord or lacing fastener composed of a hook and having a projection, c, just in rear of the main bend and pointing relatively to said bend in reverse direction from the point of the hook, as set forth.

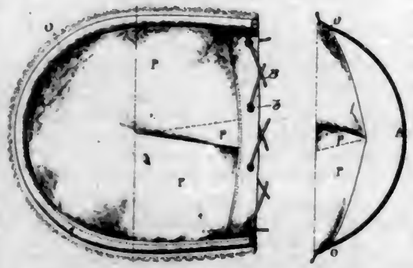
2. The combination, with a shoe, of a cord-fastening hook secured thereto at or near the head of the hook, said hook having the projecting point d a little way from the side of the shoe and having the projection c at the rear of the bend extending in reverse direction from point d, substantially as described

320,960. IMPLEMENT FOR GYMNASTIC PERFORMANCE WITH RATS, BIRDS, &c. Joe B. Peirano, New York, N. Y. Filed Mar. 28, 1884. (No model.)



Claim.—The combination, in a gymnastic toy for the purpose described, of a tilting or pivoted support, with a pivoted performer's seat, balanced as described, and mechanism for actuating said support, as specified.

320,961. BREAST-SHIELD. James B. Phillips, New York, N. Y. Filed Jan. 10, 1884. (No model.)

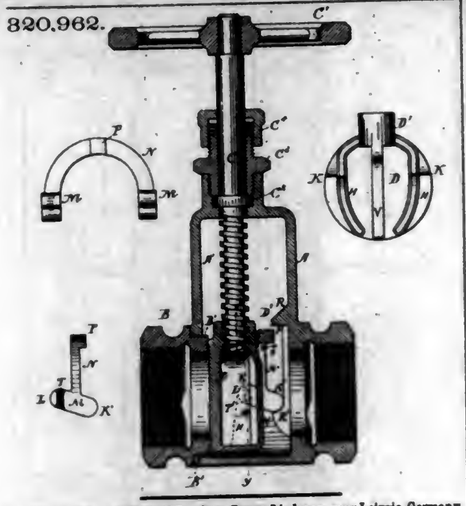


Claim.—The breast-pad described, consisting of the concavo-convex body A, formed of two or more layers of open fabric, as hair-cloth, and the open-work lining P, having a less degree of convexity, stitched and bound as described, and having series of holes b, all constructed, arranged, and operating relatively to the cord B, as and for the purposes set forth.

320,962. VALVE. George F. Pottle, Medford, assignor of one-half to Warren S. Hill, Hyde Park, and Royal O. Storrs, Dedham, Mass. Filed Apr. 11, 1885. (No model.)

Claim.—In a clear-way valve, the combination of the valve D, having a guard-piece, V, and shoulders K K, with the toggle-piece M M N P, and the case A, having a projection, R, legs T' T', and shoulders R' R', all operating together substantially as described and before set forth.

320,962.



320,963. MORDANT. Otto Prinz, Lindenau, near Leipsic, Germany. Filed Mar. 12, 1884. (No specimens.)

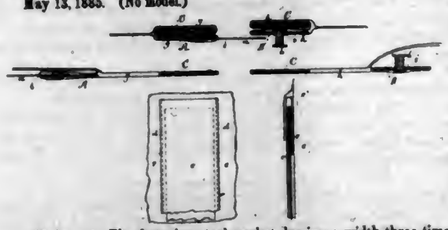
Claim.—1. The process of producing soluble antimony compounds, which consists in decomposing sugar or equivalent carbon hydrates by alkaline bodies, acidulating the solution, and then treating the same with an antimony compound, substantially as specified.

2. The process of producing soluble antimony compounds which consists in decomposing sugar or equivalent carbon hydrates by alkaline bodies with the assistance of a current of air, acidulating the solution, and then treating the same with an antimony compound, substantially as specified.

3. The process of producing soluble antimony compounds, which consists in decomposing sugar or equivalent carbon hydrates by alkaline bodies, with the assistance of metallic oxides, acidulating the solution, and then treating the same with an antimony compound, substantially as specified.

4. The process of producing soluble antimony compounds, which consists in decomposing sugar or equivalent carbon hydrates by alkaline bodies, with the assistance of a current of air and metallic oxides, acidulating the solution, and then treating the same with an antimony compound, substantially as specified.

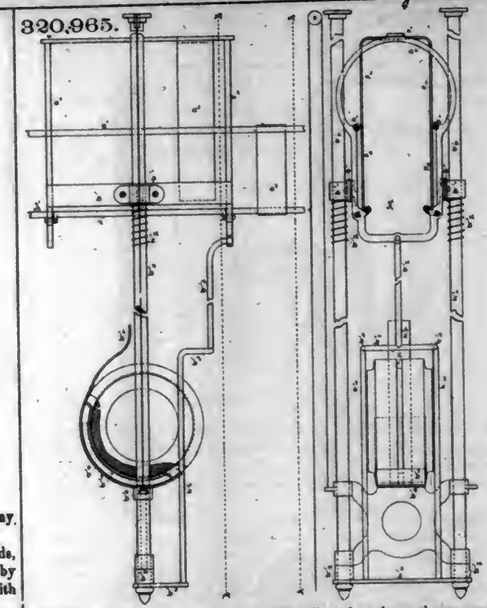
320,964. CORSET. Lydia S. Purinton, Westborough, Mass. Filed May 13, 1885. (No model.)



Claim.—1. The fastening-steel pocket having a width three times that of its fastening-steel, and also having eyes or lateral openings for the fastening devices of such steel to extend through, in combination with such fastening-steel, and also with an auxiliary steel of like width arranged within it, (the said pocket,) and to fold with the pocket against and in rear of the part thereof covering the fastening-steel, all being substantially as set forth.

2. The steel or rib pocket provided at its mouth with a short auxiliary pocket closed at such mouth, and extending and opening within the main pocket, substantially as set forth.

320,965. CASH-CARRYING APPARATUS. David H. Rice, Lowell, Mass. Filed May 27, 1885. (No model.)



Claim.—1. In combination with the track A', the elevator-cup b^2, provided with the deflector b^4, bent over the cup with such a curve and at such a distance as to cause the carrier to strike against it when the cup is elevated and suddenly stopped and the carrier to be deflected out of said cup, and appliances for elevating and stopping said cup suddenly, substantially as described.

2. The combination of the guide-rods b^5 b^5, the cup b^2, sliding thereon and provided with the deflector b^4, curved over said cup, the pivoted track-sections a a, and one or more springs, b^{13}, adjusted to throw the cup and deflector quickly downward after the trap-sections have dropped beneath the carrier in the cup, and thus give an impulse to the carrier on the track, substantially as described.

3. The combination of the track A', provided with pivoted track-sections a a, the vertically rising and falling elevator-cup b^2, provided with the arm b^4, projecting upward above the carrier-seat in said cup in position to pass between said track-sections in advance of the carrier being elevated and push aside another carrier traversing the said track, and mechanism for elevating said cup, substantially as described.

4. The combination of the elevator-cup b^2, provided with the spline b^3, and the carrier provided with the groove c, registering therewith when the carrier is in position in the cup, substantially as described.

5. The combination of the track A', the elevator-cup b^2, adapted to pass freely through between the rails of said track, and the vertical guide-rods b^5 b^5, placed on each side of the path of the carrier when elevated in said cup, and mechanism for elevating said cup, substantially as described.

6. The combination of the track A', the elevator-cup b^2, adapted to pass freely through between the rails of said track, the vertical guide-rods b^5 b^5, fixed on each side of the path of the carrier in said cup, the front guard-rod, b^{12}, extending upward from a point beneath which the carrier is introduced into the cup, and mechanism for elevating said cup, substantially as described.

7. The combination of the track A', having a trap or space therein or connected therewith for the passage of the carrier downward, and the articulated basket formed of the series of pivoted side bars, d^6 d^6, their opposite connecting-rods d^5 d^5, and one or more supporting-pieces for said side bars, adjusted to regulate the distance which said opposite rods d^5 d^5 can approach each other while allowing them to recede from each other, substantially as described.

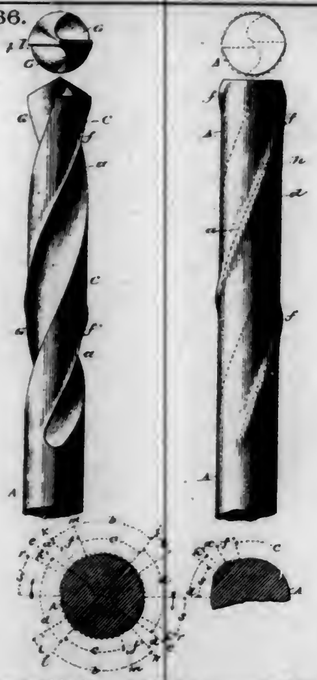
8. In combination with the articulated basket formed of the pivoted side bars, d^6 d^6, and opposite connecting rods d^5 d^5, and one or more supporting-pieces for said side bars, adjusted to regulate the distance which said opposite rods d^5 d^5 can approach each other while allowing them to recede from each other, the pivoted bail d^7, substantially as described.

9. The combination of the track provided with a space or trap for the passage of the carrier downward and a receiver beneath said trap provided with a swinging bottom part pivoted to the receiver by side bars, and pivots d^9 d^9 above the lower end of the same, and adapted to be swung from under the carrier and allow the latter to drop downward out of the receiver, substantially as described.

320,966. METAL DRILL. Francis H. Richards, Springfield, Mass., assignor to J. D. Cox, Jr., and F. F. Prentiss, both of Cleveland, Ohio. Filed July 26, 1883. (Model.)

Claim.—1. As a new article of manufacture, the improved drill-blank herein described, consisting in a round drill-body, having ridges thereon which correspond, substantially as described, to the cutting-edges to be made in a drill, substantially as described.

320,966.



2. As a new article of manufacture, the improved drill-blank herein described, consisting in a cylindrical drill-body having ridges which are higher at the point than toward the shank of the drill, substantially as described, and for the purpose specified.

3. As a new article of manufacture, the improved relieved drill-blank herein described, consisting in a round drill-body having spiral ridges thereon which correspond, substantially as described, to the cutting-edges to be made in a twist-drill, substantially as described, and for the purpose specified.

4. As a new article of manufacture, the improved relieved drill-blank herein described, consisting in a cylindrical drill-body having spiral ridges thereon which are higher at the point than toward the shank of the drill, substantially as described, and for the purpose specified.

5. As a new article of manufacture, the improved drill herein described, consisting of a cylindrical drill-body grooved substantially as described, said body being without longitudinal relief, and being provided with elevated cutting-edges at one side of the lands, which edges have a longitudinal relief, substantially as set forth.

6. As a new article of manufacture, the improved twist-drill herein described, consisting of a cylindrical drill-body grooved substantially as described, said body being without longitudinal relief, and being provided with elevated cutting-edges at one side of the lands, which edges have a longitudinal relief, substantially as set forth.

320,967. MANUFACTURE OF METAL DRILLS. FRANCIS H. RICHARDS, Springfield, Mass., assignor to J. D. Cox, Jr., and F. F. Prentiss, both of Cleveland, Ohio. Filed Aug. 1, 1883. (No model.)

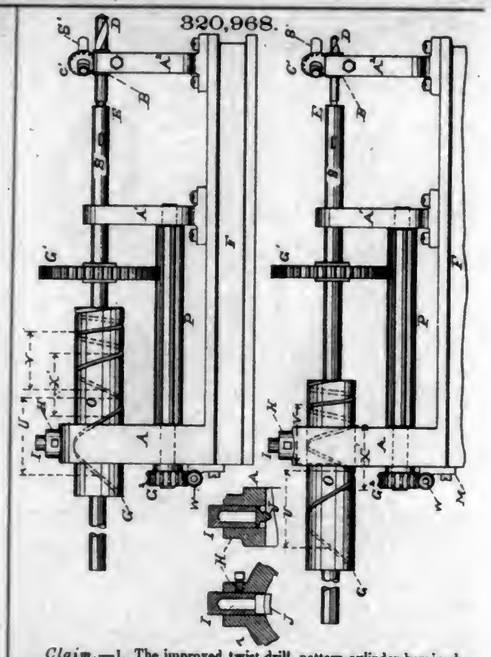


Claim.—1. The improved method herein described for making relieved drills, consisting in first shaping the metal into a cylinder having ridges corresponding in number and position to the grooves the drill is to have, and next making the finished grooves so that one side thereof shall be in the highest part of said ridges, substantially as described.

2. The improved method herein described for making relieved twist-drills, consisting in first shaping the metal into a cylinder having spiral ridges corresponding in number and position to the grooves the drill is to have, and next making the finished grooves so that one side thereof shall be in the highest part of said ridges, substantially as described.

320,968. MACHINE FOR MAKING TWIST-DRILLS. FRANCIS H. RICHARDS, Cleveland, Ohio, assignor to J. D. Cox, Jr., and F. F. Prentiss, both of same place. Filed Aug. 15, 1883. (No model.)

320,968.



Claim.—1. The improved twist-drill pattern-cylinder herein described, having the groove G of a pitch increasing by a geometrical ratio, substantially as described, and for the purpose described.

2. In a twist-drill-making machine, the combination of a frame-work having bearing A and A', spindle S, a pattern-cylinder having a groove of a pitch increasing by a geometrical ratio, said cylinder being adjustable longitudinally on said spindle, a resistance-pin carried in bearings A and fitting said groove, and spindle-turning mechanism, substantially as described, for rotating said spindle S, substantially as described.

3. In a twist-drill-milling machine, the combination of the cutter C', formed substantially as described, a support, as B, for said drill, and drill holding and feeding mechanism, substantially as described, adapted to spirally feed the drill to the cutter, with a pitch increasing in geometrical ratio, substantially as set forth.

4. In a twist-drill-making machine, the combination of the drill-holding spindle S, gear G', fixed thereon, the pinion P, meshing with said gear, and spindle-feeding mechanism, substantially as described, for imparting a longitudinal motion to said spindle and gear, substantially as set forth.

5. The drill-supporting bushing B, having bearing-surfaces L and enlargements B, substantially as and for the purpose described.

6. The combination of spindle S, gear G', pinion P, spindle-feeding mechanism, substantially as described, for imparting longitudinal motion to said spindle, worm-gear G^2, fixed to said pinion, and worm W, substantially as set forth.

320,969. MACHINE FOR MAKING TWIST-DRILLS. FRANCIS H. RICHARDS, Cleveland, Ohio, assignor to J. D. Cox, Jr., and F. F. Prentiss, both of same place. Filed Aug. 15, 1883. (No model.)

Claim.—1. In a twist-drill-making machine, the combination of a pattern-cylinder, O, having a groove, G', of increasing pitch, a resistance-pin, J, operated in said groove, and feeding mechanism having as a part thereof gears G^2 and G^3, resistance-pin I, and a shaft, P, with a spiral groove therein, whereby the rate of feed imparted by said feeding mechanism to said cylinder O is modified, substantially as and for the purpose described.

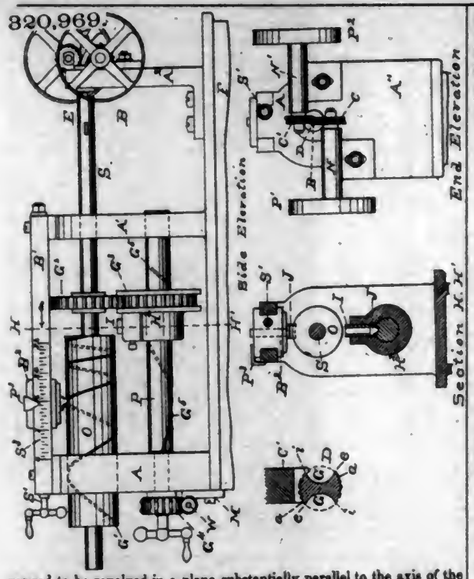
2. In a twist-drill-milling machine, in combination, the milling-cutters C C', having a suitable form, size, and position to back off the cutting-edges of or form the grooves in a drill, a holder for holding said drill in a position to be acted on by said cutters, the pattern-cylinder O, having a groove of increasing pitch, the resistance-pin J, adapted to act in said groove, and a feeding mechanism adapted to rotate said pattern-cylinder with a decreasing velocity, for the purpose described.

3. The combination of a drill-holding spindle provided with a former of increasing pitch, a spirally-grooved feed-shaft, and connecting gearing, substantially as described, between said spindle and shaft, substantially as set forth.

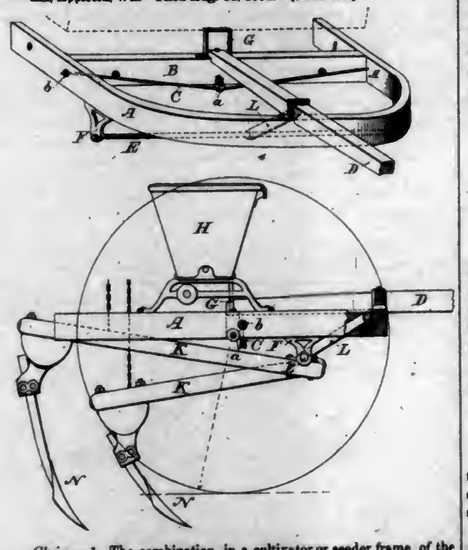
4. In a drill-milling machine, the combination of a cutter, as C or C', having concave teeth corresponding to the relief of the drill, and arranged to be revolved in a plane substantially parallel to the axis of the drill, a spindle carrying said cutter, rest D, and the sliding drill-holding spindle S, substantially as described, and for the purpose specified.

5. In a drill-milling machine, the combination of a frame having fixed bearing A A', drill-holding spindle S, pattern-cylinder O, fixed on said spindle and provided with groove G', of increasing pitch, guide B', block B^3, and resistance-pin J, all arranged and operating substantially as described, and for the purpose specified.

320,969.



320,970. CULTIVATOR AND SEEDER FRAME. GUILFORD D. ROWELL, Appleton, Wis. Filed Aug. 11, 1884. (No model.)

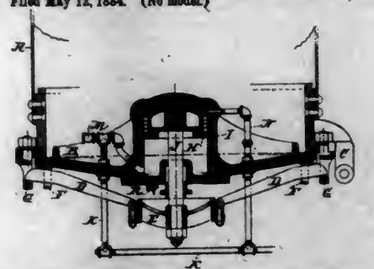


Claim.—1. The combination, in a cultivator or seeder frame, of the curved piece A, forming the front and ends of said frame, the cross-girt B, provided near its center with stud *a*, truss-rod C, secured at its ends in the sides of said frame and passing underneath said stud, and the cross rod or bar E, to which the hoes and drag-bars are pivoted, substantially as and for the purposes set forth.

2. The combination, with a seeder-frame provided with the cross-girt B, of the truss-rod C, secured in the sides of said frame and passing underneath a stud, *a*, projecting from and secured to the central part of said girt, the seed-box H, and the brace G, inserted between said seed-box and the girt B, substantially as and for the purposes set forth.

3. The combination, in a cultivator and seeder frame, of the curved part A, forming the front and ends of said frame, the cross-girt B, connecting said ends, the cross-rod E, the ends of which are supported in brackets depending from and secured to the ends of said frame, and the brace L, supporting said cross-rod at the center, substantially as and for the purposes set forth.

320,971. DOOR FOR DIGESTERS. THOMAS F. ROWLAND, New York, N. Y. Filed May 12, 1884. (No model.)



Claim.—1. The combination, in a digester or other similar structure, of a door for closing the same, one or more lever-bars for securing the door in the closed position, and a cylinder and piston, the piston being arranged to extend and withdraw said bars, substantially as and for the purpose set forth.

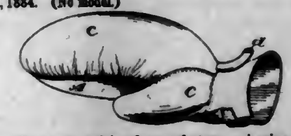
2. The combination of the door, a system of lever-bars arranged radially thereon, and a piston and cylinder attached to the door, said piston being arranged to extend and withdraw said bars, substantially as and for the purpose set forth.

3. The combination of the door, a system of levers arranged thereon, a cross-head common to said levers, and a cylinder and piston, said piston being arranged to operate said bars through the medium of said cross-head, substantially as set forth.

4. In combination with the door of a digester or similar structure, bars for holding the door in its closed position, and a locking cylinder and piston, said piston being arranged to operate said bars, and said cylinder communicating with the interior of the digester, for the purpose set forth.

5. In combination with the door of a digester or similar structure, bars for holding the door in its closed position, and a locking cylinder and piston, said piston being arranged to operate said bars, and said cylinder communicating with the interior of the digester by means of a channel provided with a valve arranged to operate as and for the purpose set forth.

320,972. BOXING-GLOVE. ALBERT R. RUBEY, Cleveland, Ohio. Filed Feb. 23, 1884. (No model.)



Claim.—As a new article of manufacture, a boxing-glove consisting, essentially, of a glove having a thumb-stall, an outer covering secured at its edges to the back of the glove, an outer side of the thumb-stall, a flexible air-bag interposed between the back of the glove and back and outer side of the thumb-stall and the outer covering, and a tube for inflating the bag, substantially as set forth.

320,973. ROLLING-MILL HOOKING AND CARRYING MACHINE. LOUIS S. SAYLOR, Indianapolis, Ind., assignor of two-thirds to Jackson Saylor and John Thomas, both of same place. Filed Feb. 7, 1885. (No model.)

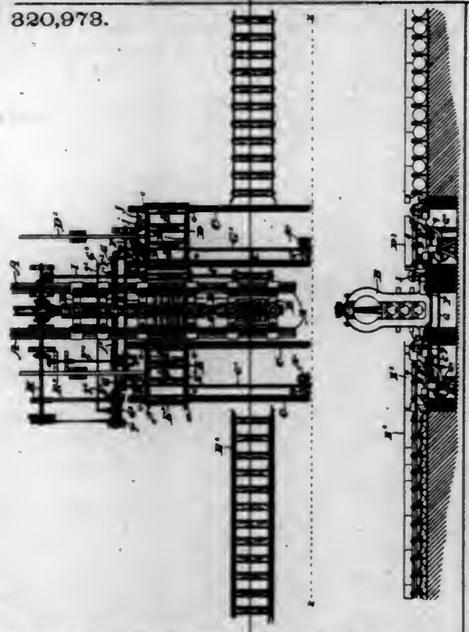
Claim.—1. The combination, with the rolls of a rolling-mill, of tables mounted on tracks parallel with said rolls and provided with rollers mounted on the swinging arms, and cam-shafts for operating the same, for the purposes specified.

2. The combination, with the rolls of a rolling-mill, of traveling tables mounted on tracks parallel with the rolls, and rollers therein mounted on pivoted swinging arms, shafts running parallel with the tracks carrying eccentrics, and connecting-rods connecting said eccentrics with said swinging arms.

3. The combination of the rolls of a rolling-mill, tables mounted on tracks parallel with said rolls, a shaft running transversely of said rolls and tracks and connected to each of said tables, and a clutch whereby the direction of rotation of said shaft may be reversed, and said tables thus moved in either direction along said tracks, substantially as set forth.

4. The combination, in a rolling-mill, of tables for handling the partly-rolled rails, mounted on tracks parallel with the rolls, a shaft, F,

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carrying pinions *f*, rack-bars secured to said tables and engaging with said pinions, a clutch, F', a connecting-rod, f^3, and a lever, F^3, by which the same may be operated, substantially as shown and described, and for the purposes specified.

5. The combination, in a rolling-mill, of tables for handling the partly-rolled rails, rising and falling rollers therein, shafts carrying eccentrics for operating said rising and falling rollers, a shaft, G, running transversely of the mill and engaging with each of said shafts, the loose pulleys on said transverse shaft running in opposite directions, each provided with a clutch-face, the clutch arranged between them, a connecting-rod, and an operating-lever for operating said clutch, substantially as set forth.

6. The combination, in a rolling-mill, of tables for handling the partly-rolled rails, mounted on tracks parallel with the rolls and provided with rising and falling sets of rollers, shafts carrying eccentries for operating said rollers, said shafts being provided with arms g^7, for limiting their movement, and stops A', for limiting the movement of said shafts, substantially as set forth.

7. The combination, in a rolling-mill, of the table E, for assisting in handling the partly-rolled rails, mounted on tracks running parallel with the rolls and provided with pins e' or similar engaging devices, and a permanent table-section, E^4, said table E, when it reaches the proper position, being adapted, by means of said pins, to engage with said table-section, and both being provided with rising and falling rollers, which, when the two are engaged, are thus adapted to move simultaneously, substantially as shown and described, and for the purposes specified.

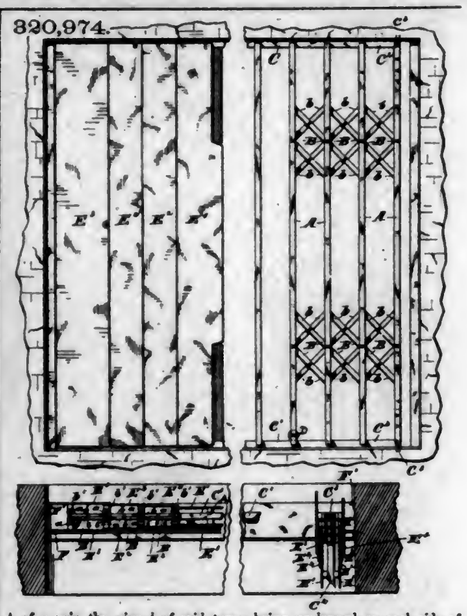
8. The combination, in a rolling-mill, of a table, D, having rollers therein, the shafts of said rollers being provided with miter-gears d^3, and a shaft, J, running transversely of said rollers, and provided with similar miter-gears with which the miter-gears on the roller-shafts will engage when the table is brought into proper position, whereby said rollers may be driven by said shaft, said shaft J being also provided with a loose gear and a clutch operated by the table, substantially as set forth.

9. The combination, in a rolling-mill, of a table, D, mounted and adapted to run on tracks and provided with rollers, the shafts of which are provided with gears on their ends, a transverse shaft, J, provided with similar gears and also with a loosely-mounted gear, and a clutch, said loosely-running gear being in engagement with a continuously-moving gear, arms d^9 on said table, a pivoted lever, D^4, with which said arms are adapted to engage, a pivoted lever, J', connected to said clutch, and a connecting-rod, d^5, connecting said two levers, whereby as said table comes into position said clutch is operated to engage with said loosely-running gear and said shaft, and through it the rollers in the table set in motion, substantially as set forth.

320,974. FIRE-PROOF SHUTTER. CHARLES C. SCHNEIDER, Cincinnati, Ohio. Filed Feb. 12, 1885. (No model.)

Claim.—1. The vertical rods A, arranged in pairs, each rod carrying a groove or channel, *a*, and the lazy-tongs located between the rods

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A of a pair, the pins *b* of said tongs being prolonged on each side of said tongs and located and working in their respective grooves, and the leaves, as E E' E^2 E^3, secured to said vertical rods, and each leaf, respectively, passing under or over its adjacent leaf, substantially as and for the purposes specified.

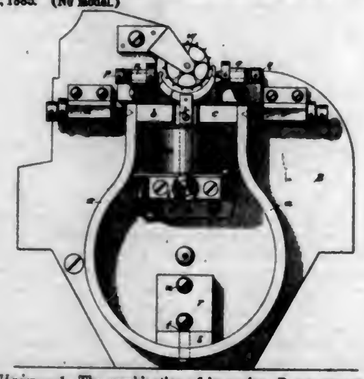
2. The vertical rods A, arranged in pairs, and provided with grooves or channels *a*, and the lazy-tongs located between the rods A of a pair, the pins *b'* of said tongs located and working in said grooves *a*, and the leaves, as E E' E^2 E^3, secured to said vertical rods on the outer side of the latter, and each leaf sliding alongside of its adjacent leaf, substantially as and for the purposes specified.

3. The vertical rods A, arranged in pairs, each rod carrying a groove or channel, *a*, and the lazy-tongs located between the rods A of each pair, the pins *b'* of said tongs located and working in said grooves *a*, and the leaves, as E E' E^2 E^3, secured to said vertical rods, each leaf passing alongside of its adjacent leaf, and the upper and lower guide-bars C C', respectively located between ends of opposing vertical rods A, substantially as and for the purposes specified.

4. The collapsing frame consisting of rods A and tongs B, in combination with the guide-bars C C', having detached short end pieces, C^2, provided with axial lugs C^3, substantially as and for the purposes specified.

5. The piece F, in combination with leaves on a collapsing sheathed hinged shutter, substantially as and for the purposes specified.

320,975. ELECTRO-MAGNETIC ESCAPEMENT APPARATUS FOR PRINTING-TELEGRAPHS. GEORGE B. SCOTT, Brooklyn, N. Y. Filed Jan. 2, 1885. (No model.)



Claim.—1. The combination of base-plate B, permanent flexible magnet *a*, rigidly fixed to said base-plate at one point, adjusting-screws *f g*, electro-magnet *m*, and armature *k*, substantially as described.

2. The combination of electro-magnet *m*, axial armature-lever *k*, adjustable pole-pieces *b c*, and permanent magnet *a*, having flexible arms rigidly fixed to its support at or near its neutral point.

3. The combination of electro-magnet *m*, axial armature *k*, escapement-pallets *l*, escapement-wheel *w*, limiting-stops *p q*, flexible permanent magnet *a*, rigidly connected to a base-plate, B, at one point, adjusting-screws *f g*, brackets *d e*, for supporting said adjusting-screws, and brackets *n o*, for adjusting the limiting-stops *p q*, as described.

4. The combination of plate B, bracket *h*, secured thereto, electro-magnet *m*, supported by said bracket, plate *i*, journal *j*, armature *k*, permanent magnet *a*, having flexible arms, bracket *r*, for connecting the permanent magnet to the base-plate, and adjusting-screws *f g*.

5. The combination of a vertical plate, B, having brackets *h r d e n o*, permanent flexible magnet *a*, electro-magnet *m*, axial armature *k*, adjusting-screws *f g*, and adjustable stops *p q*, substantially as described.

6. The combination of a vertical plate, B, brackets *h r*, flexible permanent magnet *a*, electro-magnet *m*, axial armature *k*, pole-pieces *b c*, and adjusting-screws *f g*.

7. The combination of a base-plate, B, bracket *r*, flexible permanent magnet *a*, pole-pieces *b c*, and adjusting-screws *f g*.

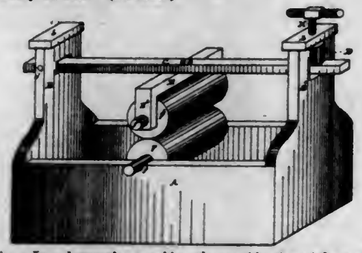
320,976. SCREW-THREAD GAGE. ALFRED SHEDLOCK, Brooklyn, N. Y. Filed Aug. 20, 1884. (No model.)



Claim.—1. A screw-thread gage consisting of a piece of metal provided on its edge with grooves converging toward each other and having graduations on its side, substantially as and for the purpose set forth.

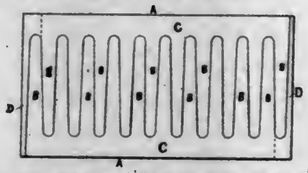
2. In a screw-thread gage, a disk having on its periphery a series of grooves gradually and uniformly approaching together and numbers marked on its side which indicate the divisions of a measure-unit the adjacent parts of the grooves correspond to, substantially as set forth.

320,977. DAMPENING-MACHINE. GEORGE I. SHORET, Lynn, Mass. Filed May 10, 1884. (No model.)



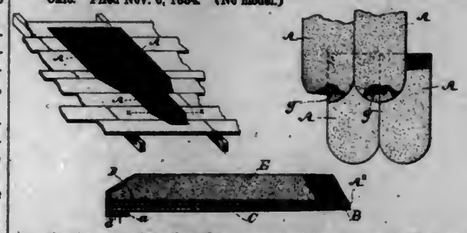
Claim.—In a dampening-machine, the combination of the pressure-rolls F F^2, so mounted that the ends of the rolls where the surfaces are in contact are exposed and free, with the water-receptacle A and the spring-beam C, all arranged and operated substantially as described, whereby the work to be operated upon may be inserted sidewise between the rolls and only a portion of the fabric come within the action of the rollers.

320,978. MANUFACTURE OF PRONGED HOES. FRANK A. SIBLEY, Newport, N. H. Filed May 7, 1884. (No model.)



Claim.—The herein-described improvement in the art of manufacturing pronged hoes, which consists in taking a rectangular blank of homogeneous sheet-steel and cutting therefrom simultaneously by dies two hoes having prongs that taper gradually toward their ends, so that the prongs of one shall form the spaces of the other, then cutting off one end of each hoe, then dropping by means of dies formed so as to reverse the taper of the prongs by reducing the thickness thereof, and expanding the width and rounding or beveling the face of the same gradually toward their ends, then cutting or grinding the ends square, and finishing the same to shape and securing the shank, substantially as described.

320,979. FLEXIBLE ROOFING-TILE. LEXOR B. SNOW, Cleveland, Ohio. Filed Nov. 6, 1884. (No model.)



Claim.—1. A roofing-tile composed of layers treated with a protecting and preserving solution, the exposed surface of the tile having an independent covering, substantially as set forth.

2. A roofing-tile composed of three or more layers, an interior layer being of less length than the tile, substantially as set forth.

3. A roofing-tile composed of layers treated with a preserving and protecting solution, the exposed surface of the tile having a covering of cloth, or its equivalent, provided with a rough wearing coating, substantially as set forth.

4. A tile provided at its lower or weather end with a projecting flexible lip, for purposes as set forth.

5. A roofing-tile consisting of layers suitably attached to each other and protected by a solution against moisture and heat, the outer one of said layers provided with a flexible lip at its weather end, for purposes substantially set forth and described.

6. A roofing-tile consisting of layers of felt, or its equivalent, said layers saturated and cemented together by a water-resisting and a heat-resisting solution, said tile covered in all its weather-exposed portions with a textile saturated with the same mixture that is applied to the said layers, said tile being provided at its weather end with a flexible lip, substantially as set forth.

7. A roofing-tile composed of three or more layers, saturated with a preserving and protecting solution, one interior layer or more being partial and extending rearward only slightly beyond the line of the weather-exposure of the tile, the exterior one of said layers being covered in all its weather portions by a painted and sanded textile, said textile being provided with a projecting and flexible lip, substantially as set forth.

8. In a roofing-tile, the combination, with two or more layers saturated and cemented together by a protecting solution and an exterior weather covering of cloth, paint, and sand, of an intermediate layer between these said other portions, said layer also treated with a similar protecting solution and provided with a projecting flexible lip at its weather extremity, said lip also saturated, painted, or covered, substantially as set forth.

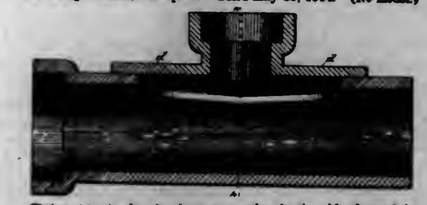
9. A roofing-tile made as described, and provided at its weather end with a device whereby said end may be tightly bound down to the roof or to a subjacent tile, for the purposes set forth.

10. A flexible roofing-tile composed of a material that adapts it to receive a solution by which it powerfully resists fracture, moisture, and heat, substantially as set forth.

320,980. METHOD OF PREPARING RUBBER PLATES FOR THE VULCANIZER. JOSEPH SPYER, Santa Fé, N. Mex. Filed May 19, 1885. (No specimens.)

Claim.—The hereinbefore-described method of preparing dental casts for the vulcanizer, consisting of forming the plate with rubber, drying it, then coating it with thin liquid rubber, then adding sheet-rubber, then covering it with plaster mixed with potash alum, and vulcanising without flasks, substantially as set forth.

320,981. PIPE. JAMES STEEL, Memphis, Tenn., assignor of one-half to George Mahan, same place. Filed May 13, 1884. (No model.)

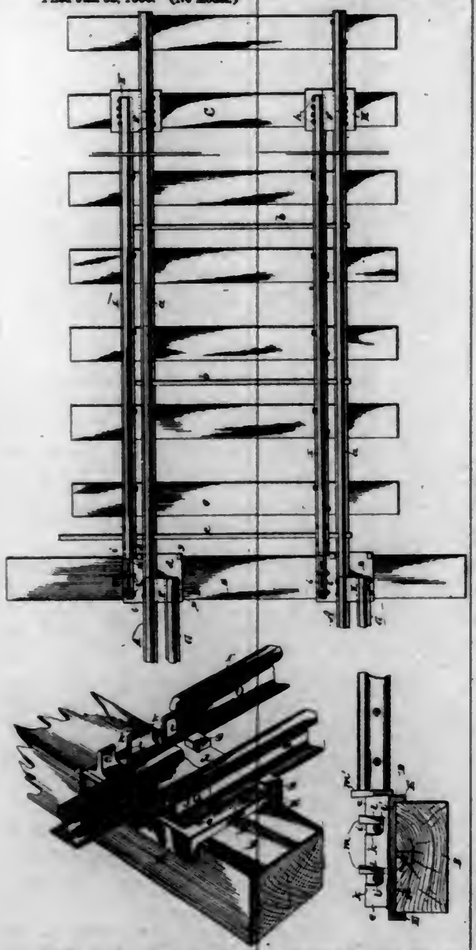


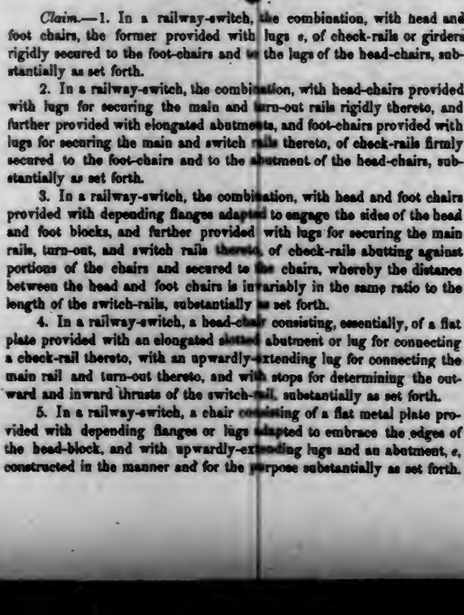
Claim.—1. A pipe having an opening in the side thereof, in combination with a plate for covering said opening having a curved bearing-surface for engaging with the pipe beyond the edges of the slot, substantially as described.

2. A pipe having an opening in the side thereof and a flange projecting therefrom a suitable distance from the edges of said opening, in

combination with a plate having a curved bearing-surface for engaging with the pipe beyond the edges of said opening, held from displacement by the flanges, substantially in the manner set forth.

320,982. RAILROAD-SWITCH. JOHN R. STEPHENS, Portland, Oreg. Filed Jan. 22, 1885. (No model.)





Claim.—1. In a railway-switch, the combination, with head and foot chairs, the former provided with lugs *s*, of check-rails or girders rigidly secured to the foot-chairs and to the lugs of the head-chairs, substantially as set forth.

2. In a railway-switch, the combination, with head-chairs provided with lugs for securing the main and turn-out rails rigidly thereto, and further provided with elongated abutments, and foot-chairs provided with lugs for securing the main and switch rails thereto, of check-rails firmly secured to the foot-chairs and to the abutment of the head-chairs, substantially as set forth.

3. In a railway-switch, the combination, with head and foot chairs provided with depending flanges adapted to engage the sides of the head and foot blocks, and further provided with lugs for securing the main rails, turn-out, and switch rails thereto, of check-rails abutting against portions of the chairs and secured to the chairs, whereby the distance between the head and foot chairs is invariably in the same ratio to the length of the switch-rails, substantially as set forth.

4. In a railway-switch, a head-chair consisting, essentially, of a flat plate provided with an elongated slotted abutment or lug for connecting a check-rail thereto, with an upwardly-extending lug for connecting the main rail and turn-out thereto, and with stops for determining the outward and inward thrusts of the switch-rail, substantially as set forth.

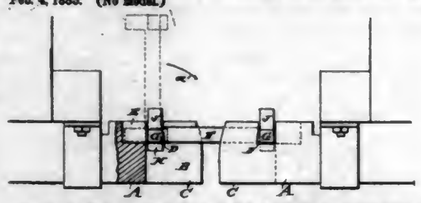
5. In a railway-switch, a chair consisting of a flat metal plate provided with depending flanges or lugs adapted to embrace the edges of the head-block, and with upwardly-extending lugs and an abutment, *e*, constructed in the manner and for the purpose substantially as set forth.

6. In a railway-switch, the combination, with head and foot chairs, the former having elongated slotted abutments thereon, and means for connecting the switch-rails to said chairs, of check-rails of equal length with the switch-rails, and adapted to abut against and be secured to the abutments on the head-chairs, and be rigidly secured to the foot-chairs, substantially as set forth.

7. In a railway-switch, the combination, with the head and foot chairs, switch-rails, and check-rails, of lugs formed on the head-chairs or head and foot chairs, adapted to form abutments for the check-rails, fish-plates, or their equivalent connecting the lugs and check-rails, and wedges inserted in slots or recesses formed in the lugs for adjusting the relative positions of the check-rails and chairs, substantially as set forth.

8. In a railway-switch, a chair provided with seats for the main switch and check rails, and further provided with oblong perforations for receiving one or two spikes, as the strain may require, substantially as set forth.

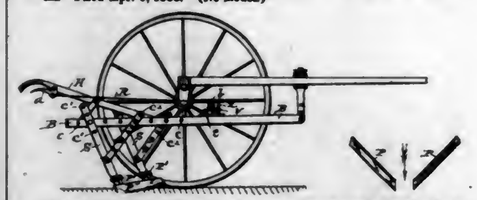
320,983. CAR-COUPLING. WINFIELD S. TEMPLE, Sidney, Ill. Filed Feb. 4, 1885. (No model.)



Claim.—1. The coupling piece or link F, having a cross-piece, G, at each end and a short lug, H, projecting downward from the middle of each cross-piece, and a longer lug, J, projecting upward from the middle of each cross-piece, substantially as herein shown and described.

2. The combination, with a draw-head having a recess, B, a transverse groove, D, and a longitudinal groove, E, of the coupling piece or link F, having cross-pieces G on the ends, a short lug, H, projecting downward from each cross-piece, and a longer lug, J, projecting upward from each cross-piece, substantially as herein shown and described.

320,984. CULTIVATOR ATTACHMENT. LEONARD THEIS, Cabery, Ill. Filed Apr. 2, 1885. (No model.)



Claim.—In the cultivator and scraper shown and described, the combination, with the beams B B', both pivotally attached to the cultivator-frame at their front ends and each having the adjustable standards S and adjustable braces D, of the yoke or arch-beam *v*, having the row of notches *b'* at one end and pivotally attached at one end to one of said beams, and adjustably attached at its opposite notched end to the other one of said beams, forked standard *z*, having the latch *b*, coil-spring *t*, and rod R, for connecting said latch with the hand-lever *a*, pivotally attached to the outer end of the handle H, as and for the purpose set forth.

320,985. FILTER. JOHN THOMSON, Brooklyn, N. Y. Filed May 1, 1884. (No model.)

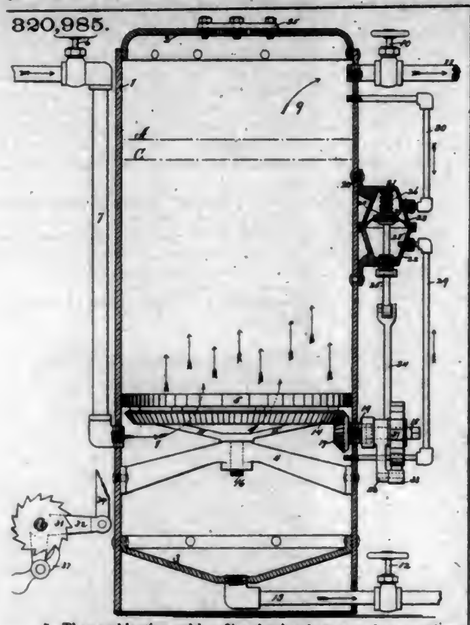
Claim.—1. The combination of the cylinder or casing, a grate for supporting the defecating material, supported to revolve within said casing, means, substantially as described, for turning the grate, an inlet-pipe and waste-pipe communicating with the cylinder below the defecating material and provided with cocks, and an outlet-pipe provided with a cock and communicating with the cylinder above the defecating material, substantially as described.

2. In combination, a cylinder, a bed of defecating material, a grate sustaining said bed, and means for ingress and egress of fluid, the said grate being pivotally mounted and capable of being rotated, substantially as and for the purpose specified.

3. The cylinder-grate sustaining the defecating material, combined with a gear at or below the lower face of the grate, a pinion, and means for rotating the pinion from outside of the cylinder, for the purpose set forth.

4. The grate, upon the lower surface of which is formed or secured a gear adapted to intermesh a pinion and to be rotated thereby, and having downwardly-projecting arms ending as a central pivot, in combination with the girder, the cylinder, and the defecating-bed, substantially as specified.

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5. The combination, with a filter having ingress and egress chambers, of the differential motor apparatus consisting of a sub-cylinder containing a diaphragm or piston and a spring, substantially as described, one compartment of the sub-cylinder being connected with the main ingress-chamber and the other compartment of the sub-cylinder with the main egress-chamber, and the piston connected with the apparatus desired to be operated, whereby an excess of pressure in the ingress-chamber above any desired normal pressure will impart motion to the piston and its connections, substantially as set forth.

6. In combination, the cylinder containing ingress and egress chambers, the defecating-bed, the grate pivotally supported, and the differential motor, substantially as described, and connections between the grate and motor, substantially as described, whereby the said grate is rotated by the differential action of the pressure within the main cylinder, as herein set forth.

320,986. CAR-WHEEL. JOHN L. TUCKER, Chelsea, Mass., assignor of one-half to Hiram A. Foster, same place. Filed Mar. 28, 1885. (No model.)



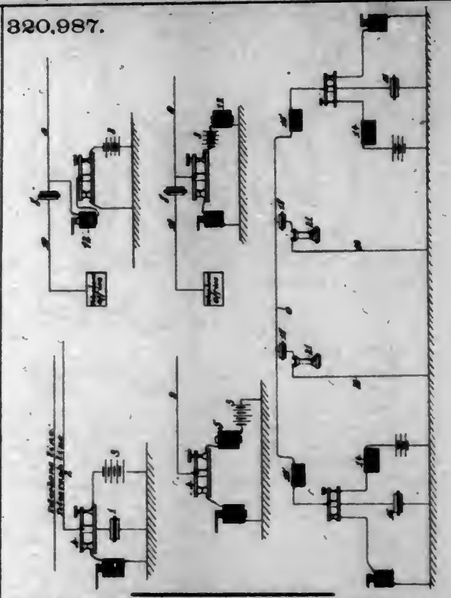
Claim.—A car-wheel formed with an inner section, A, and outer section, C, one section being cast in place relatively to the other, and the two being interlocked by the act of casting, and so as to allow independent rotation of each, substantially as specified.

320,987. METHOD OF PREVENTING INTERFERENCE IN COMBINED TELEGRAPHIC AND TELEPHONIC SYSTEMS. FRANÇOIS VAN RYSSELBERGHE, Schaarbeck, Belgium. Filed May 27, 1885. (No model.) Patented in Belgium Feb. 20, 1882, No 57,121, May 15, 1882, No. 57,836, and May 17, 1882, No. 57,947; in France Feb. 26, 1882, No. 147,515, and May 19, 1882, No. 149,042; in England Mar. 17, 1882, No. 1,303, and May 24, 1882, No. 2,466; in Italy Mar. 29, 1882, No. 1,029, and July 13, 1882; in Germany June 9, 1882, No. 22,633, and June 17, 1882, No. 21,451; in Canada Aug. 17, 1882, No. 15,333, and Aug. 30, 1882, No. 15,363; in Luxemburg Dec. 8, 1883; in Portugal Jan. 18, 1884; in India Jan. 29, 1884; in Sweden Feb. 12, 1884; in Spain Apr. 23, 1884; in Denmark June 18, 1884; in Brazil July 5, 1884; in Argentine Republic July 19, 1884, and in Uruguay Dec. 12, 1884.

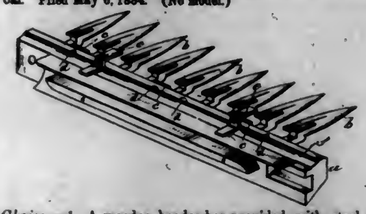
Claim.—1. The method of rendering telegraphic or other electric currents, whether direct, (primary,) induced, or derived, inaudible in telephones, consisting in rendering gradual the emission and extinction of the telegraphic or other electric current, substantially as described.

2. The method of transmitting telegraphic and telephonic messages over the same line wire or wires, consisting in rendering gradual the emission and extinction of the telegraphic current, substantially as herein set forth.

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320,988. HARVESTER FINGER-BAR. WM. L. WALKER, Cdpay, Cal. Filed May 6, 1884. (No model.)



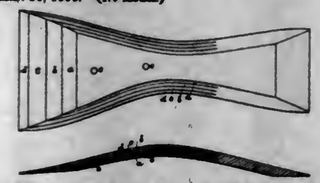
Claim.—1. A wooden header-bar provided with steel plates at short intervals on its front face, projecting just above the horizontal top face of the bar, forming the front rests for the sickle, and the steel pins driven into the top face and forming the rear rests for the sickle, substantially as specified.

2. The combination, with the header-bar having the half-oval drop or descent *f* in rear of the sickle, of the plates *c* and the pins *d*, as and for the purpose set forth.

3. A wooden header-bar provided with steel plates on its front face to project above the top face of the bar, for the purpose set forth.

4. A header-bar having metallic pins projecting upwardly, for the purpose set forth.

320,989. SHANK-STIFFENER. JEREMIAH M. WATSON, Sharon, Mass. Filed Mar. 30, 1885. (No model.)

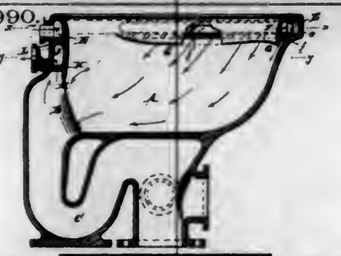


Claim.—The mode, substantially as specified, of treating a shoe-shank-stiffener blank, such mode consisting in slitting or dividing it one or more times for a portion of its length to form in it a series of layers or leaves, as described, subjecting it to the action of steam, as explained, and subsequently pressing or arching it in its steamed condition within a mold, and finally inserting nails or rivets through its series of leaves and desiccating it, as set forth.

320,990. PORCELAIN WATER-CLOSET BOWL. RICHARD H. WATSON, Philadelphia, Pa. Filed Apr. 17, 1885. (No model.)

Claim.—A porcelain water-closet bowl constructed with double walls in whole or in part, with air-spaces between them, whereby lightness is preserved, while the internal and external shapes are varied at pleasure, substantially as and for the purpose herein set forth.

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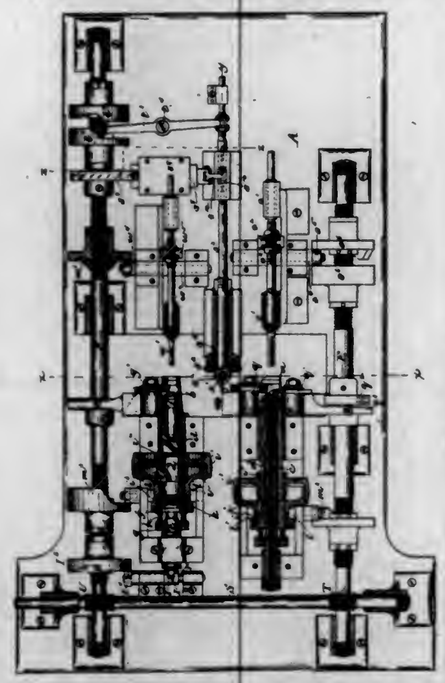
320,991. EAR-RING. CHARLES E. WESCOTT, Providence, R. I. Filed May 1, 1885. (No model.)



Claim.—1. As an improved article of manufacture, an ear-ring having its shank or wire provided with a circumferential shoulder, *a*, and a fastening member, C, having a hole, *c*, of less diameter than that portion of the shank immediately forward of said shoulder, and spring-arms *c'* integral with the material of the fastening member and radiating from the hole therein, substantially as set forth.

2. The combination, with the fastening member C, having an expansible hole, *c*, in its wall or body, and integral spring-arms *c'* radiating from said hole, of the shank A, having a circumferential shoulder, *a*, and of such length between said shoulder and its free end that said end will engage the interior back wall of the fastening member when the latter is locked in place on the shank, substantially as set forth.

320,992. MACHINE FOR ROUGHING OUT PINIONS FOR WATCHES. CHARLES V. WORRD, Waltham, Mass. Filed Apr. 14, 1885. (No model.)



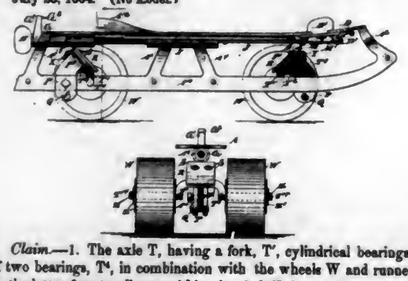
Claim.—1. In a machine for roughing out pinions, &c., the combination of two chucks located side by side and facing in the same direction, cutters and mechanism to operate them, substantially as described, a carrier mechanism, substantially as described, whereby said carrier is engaged with a blank projecting from one chuck, swung over to the other chuck, and at the same time semi-rotated, and a plunger which forces the blank from the carrier into the second chuck, as set forth.

2. The combination, with the two chucks, arranged as described, of the rock-shaft having the holder s^3, mechanism to oscillate the rock-shaft and reciprocate it longitudinally, the sleeve s^2, which moves longitudinally with the rock-shaft, the bevel-gear s^4, affixed to said sleeve, and the carrier-arm journaled in the holder and provided with the carrier *s* and with pinion s^5, meshing with the bevel-gear s^4, as set forth.

3. The combination, with the chuck *a* and the accompanying cutters *q q'*, of an external feeding-rod *o*, having spring-fingers formed to grasp a blank, and mechanism, substantially as described, for reciprocating said rod, as set forth.

4. The combination of the chuck having the spring-jaws, the sliding tube *d*, adapted to close said jaws and permit them to open, the spring-pressed clutch composed of the members i i^2, the one engaged, as described, with the tube *d*, and the other-journaled on said tube, and bearing against a shoulder, i^3, affixed thereto, as set forth.

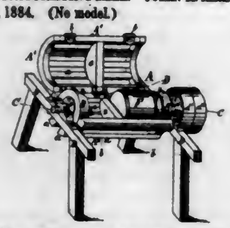
320,993. ROLLER-SKATE. LEVI D. YORK, Portsmouth, Ohio. Filed July 28, 1884. (No model.)



Claim.—1. The axle T, having a fork, T', cylindrical bearings T^3, and two bearings, T^4, in combination with the wheels W and runner A^9 A^{10}, the latter free to vibrate within the fork T' by turning on the said bearing T^3, as herein specified.

2. The combination, with the body and runner A^9 A^{10} of an ice-skate, of a clamp, P, held to the runner adjustably by mechanism, as Q, the axle-frame T, having inclined bearing T^3 in said clamp, the spring R, secured to the clamp and bearing on the axle-frame, and the rollers W, as and for the purpose set forth.

320,994. TRITURATING-MILL. JOHAN R. ALSING, New York, N. Y. Filed Nov. 10, 1884. (No model.)



Claim.—1. The combination of separately-chargeable jars F with a revoluble drum, A, having interior compartments and provided with a cover, A', for receiving, retaining, and removing the said jars, substantially as specified.

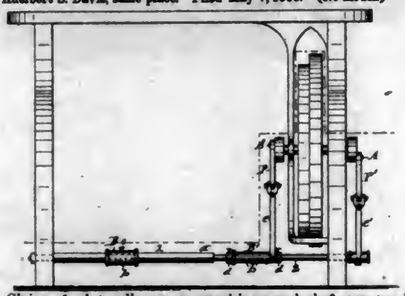
2. In combination with removable jars F, the drum A, divided longitudinally in two parts, A' A^2, hinged together and provided with fastening devices *b*, and transverse partitions *c*, one of the said parts, A^2, having end walls, B, and journals C, mounted to revolve in bearings *d*, substantially as and for the purpose set forth.

320,995. COMBINED DARNER AND MENDER. GEORGE F. ATKINSON, San Francisco, Cal. Filed Dec. 6, 1884. (No model.)



Claim.—In combined darners and menders, the mender described, having the finger-shaped part B, the straight part C, the tapering part D, the thimble-tenon G, and the needle-holder E and thimble H, in combination with the egg-shaped stretcher A, having the tapering socket F, for the purpose of securing a perfect joint without a shoulder upon the mender not effected by shrinkage of the wood, and to secure a needle and thimble holder, the thimble serving as a cap for the needle-holder to keep the needles from falling out when the mender is withdrawn from the stretcher A, constructed and operated substantially as and for the purposes set forth.

320,996. TREADLE. ANSEL BALL, Seneca Falls, N. Y., assignor to Adelbert S. Davis, same place. Filed May 7, 1885. (No model.)



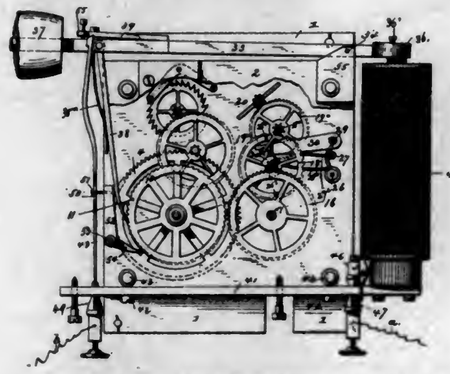
Claim.—1. A treadle-power comprising a rock-shaft, two treadles, one of which is rigidly attached to the rock-shaft and the other is pivoted on said shaft, and two pitman-levers rigidly attached, respectively, to the rock-shaft and to the pivoted treadle, substantially as shown and set forth.

2. The combination of a rock-shaft formed with a cylindrical portion and a square or polygonal portion, a treadle pivoted on the cylindrical portion, and a treadle clamped on the square or polygonal portion of the rock-shaft, substantially as described and shown.

3. In a treadle-power, the combination, with a rock-shaft and a pitman-lever rigidly attached thereto, of a treadle rigidly attached at one end to the rock-shaft, a secondary treadle pivoted at one end on said shaft, and a pitman-lever rigidly attached to the pivoted treadle at the pivot thereof, substantially as described and shown.

4. The combination of the rock-shaft formed with a cylindrical portion and a square or polygonal portion, a treadle having a cylindrical sleeve embracing the cylindrical portion of the rock-shaft and having integral with it a pitman-lever, collars clamped on the rock-shaft at opposite ends of the aforesaid sleeve, a treadle having a square or polygonal sleeve embracing the correspondingly-shaped portion of the rock-shaft, a set-screw clamping said sleeve on the shaft, and a pitman-lever rigidly attached to the rock-shaft, all constructed and combined substantially in the manner described and shown.

320,997. ELECTRIC CLOCK. FERDINAND BAUMAN, Waldenburg, Switzerland. Filed Dec. 12, 1883. (No model.)

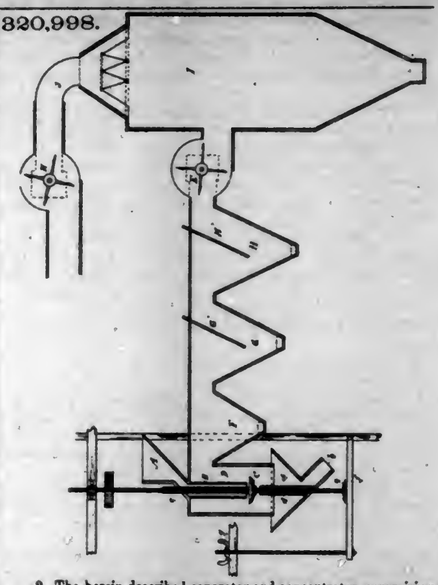


Claim.—In an electric clock, the combination, substantially as described, of electro-magnet 44, armature-lever 33, contact-piece 39, spring 50, pawl 38, detent 54, and ratchet-wheel 10, all arranged to operate substantially as herein shown and described.

320,998. ORE SEPARATOR AND CONCENTRATOR. JOSEPH BEHR, San José, Cal. Filed Jan. 24, 1885. (No model.)

Claim.—1. An ore-concentrator comprising an inner vertical open-ended cylinder, a shaft extending through it, a distributing-disk upon said shaft, a protecting-sleeve upon the disk, an outer concentric cylinder with open ends to admit of a current of air passing through it, a hopper beneath said cylinder into which the coarser material may fall, and a sleeve on the hopper for protecting the shaft, substantially as herein described.

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2. The herein-described separator and concentrator, comprising the concentric vertical open-ended cylinders, rotating distributing-disk, and successive chambers or receptacles with their diaphragms, the fan by which the draft through the chambers is produced, a dust-chamber into which said fan discharges having a discharge-opening from its upper side, a second suction-fan, and a covering of fibrous material placed over said discharge-opening, substantially as herein described.

320,999. TERRESTRO-SIDEREAL SPHERE. JOHANNES G. BERNEIKE and M. LOUISE BERNEIKE, Brooklyn, N. Y. Filed Mar. 31, 1884. (No model.)



Claim.—1. The combination, with the globe E, of a pivot corresponding with the prolongation of the polar axis of the globe, and a slotted meridian-bar, G, carrying a figure representing the observer, the slotted meridian-bar being capable of sliding upon the said pivot to allow the figure representing the observer to stand at the pole, as herein specified.

2. The combination, with the horizon-plate H, of the curved bars I J, crossing each other at right angles, the meridian-bar G, and a wire,

g, extending from the said curved bars to the meridian-bar G, and representing a radius of the earth extended to the observer's zenith.

3. The combination, with the globe E and spindle D, of the sleeve K, and a hollow sphere composed of wires *l l*, *m m*, and *n n*, as described.

4. The combination, with a hollow sphere formed of wires *l m n*, as described, of the equatorial band M and the ecliptic band N, pivoted to the said bar M at diametrically-opposite points.

5. The combination, with a hollow sphere, constructed as herein described, of a curved bar, O, supporting a pivot, *r*, representing the pole of the ecliptic, and a curved arm, *t*, and disk S, turning on the pivot *r*, as herein described.

6. The combination, with a hollow sphere, constructed as herein described, of the arm *v*, the pivot *r*, representing the pole of the ecliptic, and the stud *w*, representing the pole of the moon's orbit and carrying the arm P, and the ball Q, representing the moon, as described.

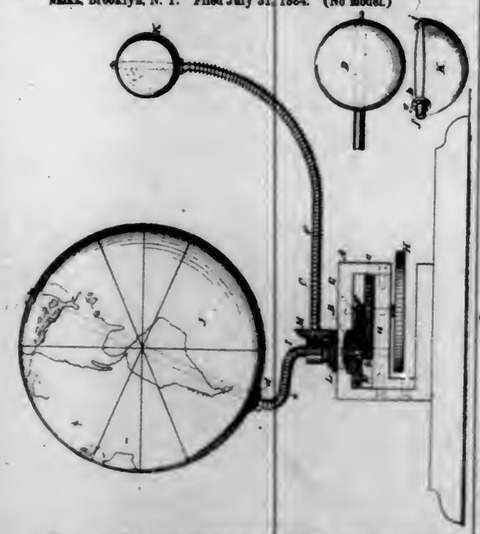
7. The combination, with the slotted horizon-plate H, of bridge-pieces *f* and meridian-bars G I, substantially as and for the purpose herein described.

8. The combination, with the spindle D, of the spring *c*, milled head F, and binding-screw *d*, as described.

9. The combination, with a skeleton sphere formed of wires *l m n*, representing meridians and circles, of the hemispherical frame R, formed of wires *l' m'*, representing hour-circles and diurnal-circles, the wires *l'* alternating in position with the wires *l* when the said spherical frame R is placed upon the hollow sphere, as herein specified.

10. The combination, with the hemispherical frames R, constructed substantially as described, of wires *a'*, outlining the constellations, and stars *b'*, representing the constellations, as herein described.

321,000. TELLURIAN. JOHANNES G. BERNEKE and M. LOUISE BERNEKE, Brooklyn, N. Y. Filed July 31, 1884. (No model.)



Claim.—1. The combination, in a tellurian or similar astronomical instrument, of a sphere representing a heavenly body, a shell inclosing one half of the said sphere, an arm for supporting the sphere, and an elastic spiral surrounding the arm and connected with the shell and capable of communicating motion to the shell, as herein specified.

2. The combination, with the sphere D and arm C, for supporting the said sphere, of a hemispherical shell, K, provided with an apertured collar, *g*, and the elastic spiral *e*, as described.

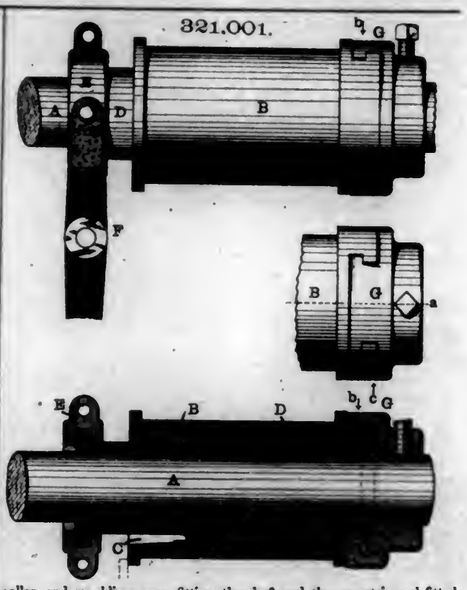
3. The combination of the sleeve B, arm C, and flexible spiral *e'*, surrounding said arm, the fixed miter-wheel L, and movable miter-wheel M, as specified.

4. The combination, in a tellurian, of the arms C, sphere D, hemispherical shell K, flexible spiral *e'*, the sphere J, rod I, and flexible spiral *e*, and mechanism for imparting motion to the spirals *e e'*, as herein specified.

321,001. SHIFTING-ECCENTRIC. FRANK X. BLACK and GUSTAV KAPPENBERGER, Hamilton, Ohio, assignors to the Black & Clawson Company, same place. Filed Apr. 17, 1885. (No model.)

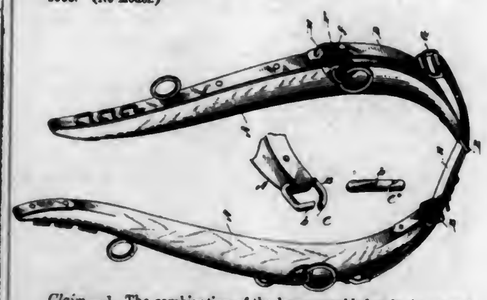
Claim.—In an adjustable eccentric, the combination of a shaft, a collar rigidly secured to the shaft and provided with guideways transverse to the shaft, an eccentric having a cylindrical bore oblique to the axis of the eccentric, and having jaws engaging the guideways of said

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collar, and an oblique core fitting the shaft and the eccentric and fitted to slide thereon and therein, substantially as and for the purpose set forth.

321,002. HAME. JACOB BLOEDEL, Wyandotte, Kans. Filed Apr. 11, 1885. (No model.)



Claim.—1. The combination of the hame provided at its lower end with an open strap loop or keeper, the connecting-bar pivoted at its upper end to the hame, and the strap secured to the lower end of the connecting-bar and adjustable into and out of the loop or keeper, substantially as set forth.

2. The combination of the hame, the strap loop or keeper arranged at the lower end thereof, a staple fixed to the side of the hame, a connecting-bar provided at one end with a strap-loop and at its other end with an opening fitted to the staple, and with a slot or slit extended from such opening to the edge of the bar, and the strap secured in the loop of the connecting-bar and carried thence through the loop or keeper of the hame, substantially as set forth.

321,003. ORE-ROASTING FURNACE. WM. BROCKER, San Francisco, Cal. Filed Mar. 29, 1884. (No model.)

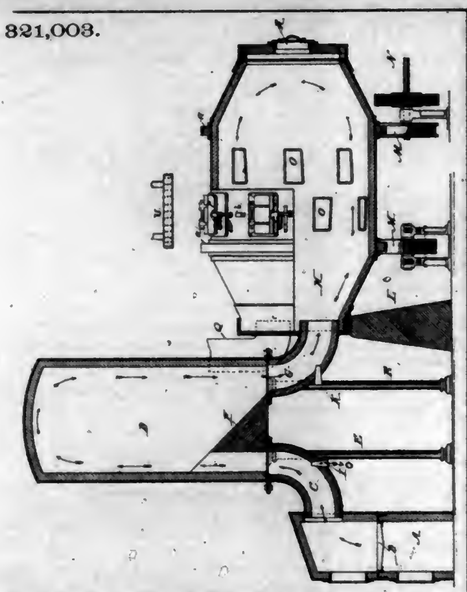
Claim.—1. A revolving ore-roasting cylinder provided with one or more series of elevating-pockets formed by openings through the cylinder, frames surrounding said openings upon the outer face of the cylinder, and doors adapted to close such pockets, as set forth.

2. A roasting-cylinder provided with one or more series of elevating-pockets closed by hinged doors, as described, in combination with means for revolving said cylinder, as described.

3. A roasting-cylinder provided with two or more series of elevating-pockets, the pockets of adjacent series being inclined from opposite ends of the cylinder, in combination with means for revolving the cylinder, as set forth.

4. A roasting-cylinder provided with a series of elevating-pockets arranged in an oblique line from end to end thereof, and formed by openings through the cylinder, frames surrounding the openings upon the outer face of the cylinder, and doors adapted to close such pockets, as set forth.

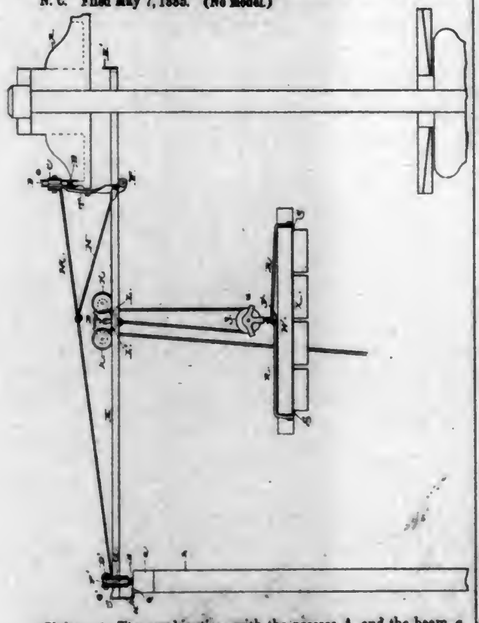
321,003.



5. The combination, with chamber D, of revolving cylinder H, provided with pockets O, and means for forcing a hot-air blast and pulverized ore through said chamber to said cylinder, as described.

6. The combination, with chamber D, provided with incline F, of revolving cylinder H, provided with pockets O, and means for forcing a hot-air blast and pulverized ore through said chamber to said cylinder, as described.

321,004. HOISTING APPARATUS. GEORGE H. BRYANT, Winston, N. C. Filed May 7, 1885. (No model.)



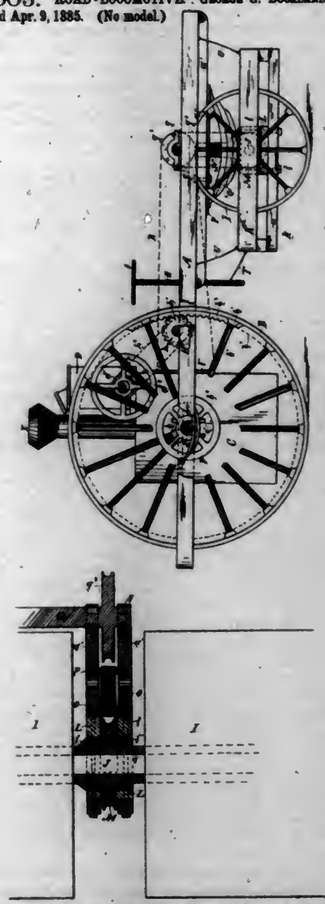
Claim.—1. The combination, with the presses A and the beam *a*, having the rails B B', of the carriages O O', connected together and having the grooved wheels running on the rails, the rails H, supported by the carriages O O', at right angles to the rails B B', and the carriage P, adapted to travel on the rails H, and a hoisting-tackle, substantially as described.

2. The combination, with the presses A and the beam *a*, having the rails B B', of the carriages O O', connected together and having the grooved wheels running on the rails, the carriage O having the hangers T and the rollers G, the carriage O' having the rollers G', the rails H on the rollers G G', the carriage P, having the wheels K, running on the rails H, and a hoisting-tackle, substantially as described.

3. The combination, with the shapes, of the bent bars R, having hooks S, the loop Y, uniting the bars, and a hoisting-tackle attached to the loop, substantially as described.

4. The combination, with the presses A and the beam *a*, having the rails B B', of the carriages O O', connected together and having the grooved wheels running on the rails, the carriage O having the hangers T and the rollers G, the carriage O' having the rollers G', the rails H on the rollers G G', and having the connecting-plate H' at one end and the bent plate H^2 at the opposite end, the plate or bar Q on the beam *a*, with which the plate H^2 engages, the carriage P, having the wheels K, running on the rails H, and a hoisting-tackle depending from the carriage P, substantially as described.

321,005. ROAD-LOCOMOTIVE. GEORGE G. BUCKLAND, Tulare, Cal. Filed Apr. 9, 1885. (No model.)



Claim.—1. In a road-locomotive, the main frame A and traction-wheels B, having wide flanged rims, as described, in combination with the boiler C, located within the circumference of and between the wheels, and carried by the main frame, the engine D, supported by the boiler, and having shaft *d*, and power-transmitting mechanism connecting said shaft with the wheels, substantially as herein described.

2. In a road-locomotive, the main frame A, and the boiler C and engine D, carried by the frame, in combination with the wide flanged or rimmed wheels B B, encircling and inclosing boiler and engine, the independent axles E, on which said wheels are loosely mounted, a pivot-connection between the inner ends of the axles and the boiler, and a vertically-playing spring-connection between their outer ends and sides of the main frame, whereby the wheels may adapt themselves to inequalities of surface, and power-transmitting devices between the engine and wheels, substantially as herein described.

3. In a road-locomotive, the main frame A, and the boiler C and

engine D, carried by the frame, in combination with the wide flanged or rimmed wheels B B, encircling and inclosing boiler and engine, the independent axles E, on which the wheels are loosely mounted, the grooved bearings e' on the sides of the boiler, and pins e, by which the inner ends of the axles are pivoted to the boiler, the vertically-slotted bearings e^2 on the sides of the frame, in which the outer ends of the axles play, the sleeves f on the axles, and springs F on the sleeves, connecting the axles with the frame, for the purpose described, and power-transmitting devices between the engine and wheels, substantially as herein described.

4. In a road-locomotive, the main frame A, the boiler C, having bars c, by which it is supported from the main frame, and the engine D, carried by the boiler, in combination with the axles E, carried by the main frame and boiler, the wide-rimmed wheels B B, mounted on the axles, and encircling and inclosing the boiler and engine, and suitable mechanism for transmitting the power of the engine to the wheels, substantially as herein described.

5. In a road-locomotive, the main frame A, the boiler C, having bars c, by which it is supported from the main frame, and the engine D, carried by the boiler, and having shaft d, in combination with the axles E, carried by the main frame and boiler, the wide-rimmed wheels B B on the axles, and encircling the boiler and engine, and the power-transmitting mechanism consisting of the annular gear-bands b^3 on the wheels, the counter-shaft H on bars c, having pinions h, engaging gear-bands b^3, the pulleys h' on said shaft, the pulleys d' on the driving-shaft d, and the belts h^2, connecting said pulleys, all arranged and adapted to operate substantially as herein described.

6. In a road-locomotive, the frame supporting rear wheels, I, having independent hubs i, their inner ends telescoping, in combination with the axle J, passing through both hubs, and the swiveling or pivoted truck-frame K, in which said axle is mounted, substantially as herein described.

7. In a road-locomotive, the main frame A, having central longitudinal bars, a', in combination with the wheels I I, having independent hubs, the axle J, passing through said hubs, the truck-frame K, by which the axle is carried, said frame having central longitudinal bars, k, the boxing L, secured centrally to the bars k, and receiving the hubs of the wheels, the steering-center N on the boxing, and pivoted in the main frame above, and the springs O on the boxing, and supporting the main frame, substantially as herein described.

8. In a road-locomotive, the frame A, having center bars, a', in combination with the wheels I I, having hubs i, telescoping and clutching their inner ends, the axles J, passing through the hubs, the truck-frame K, by which the axle is carried, and having bars k, the slotted boxing L, secured centrally to bars k, and receiving the hubs of the wheels, the steering-center N on the boxing, and pivoted in the bars a' of the main frame, the springs O on the boxing, and supporting the main frame, and the mechanism by which power is transmitted to said wheels, consisting of the central sheave, M, on one of the hubs i, the counter-shaft Q on the main frame, having a sheave, q^3, and the belt q^3, connecting sheaves q^2 and M, substantially as herein described.

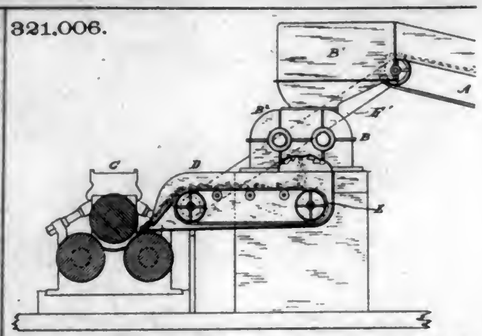
9. In a road-locomotive, the main frame A, the forward wheels, B B, boiler C and engine D, and power-transmitting mechanism between engine and wheels, in combination with the rear wheels, I I, having hubs i, telescoping and clutching their inner ends, the axle J, passing through the hubs, the truck-frame K, by which the axle is carried, and having bars k, the slotted boxing L, secured centrally to the bars k and receiving the hubs of wheels I I, the steering-center N on the boxing and pivoted in the main frame above, the springs O on the boxing, supporting the rear of the frame, and the mechanism by which the power of the front wheels is transmitted to the rear wheels, consisting of the counter-shaft Q on the main frame, the pulley q' on its end, the pulley b^4 on the hub of the forward wheel, and intervening belt, R, the sheave q^3 on the inner end of shaft Q, the sheave M on the outer hub of one of the wheels I, and intervening belt, q^3, all arranged and adapted to operate substantially as herein described.

10. A road-locomotive comprising the main frame A, the forward large wheels, B B, having wide rims, the boiler C and engine D, supported by the main frame within the circumference of the wheels B B, the power-transmitting mechanism consisting of gears, pulleys, and belts between the engine and said wheels, the pivoted truck-frame K under the rear of the frame, the independent rear wheels, I I, in said truck-frame, and springs on said frame, supporting the main frame, power-transmitting mechanism consisting of pulleys and sheaves, shafts and belts connecting the front and rear wheels, and the rotating spindle S and chains T, by which the rear wheels are turned to guide the machine, substantially as herein described.

321,006. APPARATUS FOR TREATING SUGAR-CANE. HENRY J. CHAPIN, New York, N. Y. Filed Jan. 2, 1885. (No model.)

Claim.—The combination, with the carrier A, hopper B', shredder B, and extractor C, of the water-tight chute D with inclined bottom, and the carrier E, located in said chute and connecting the shredder

321,006.



with the extractor, and the belt E', connecting the two carriers A E, all arranged for joint operation as and for the purposes set forth.

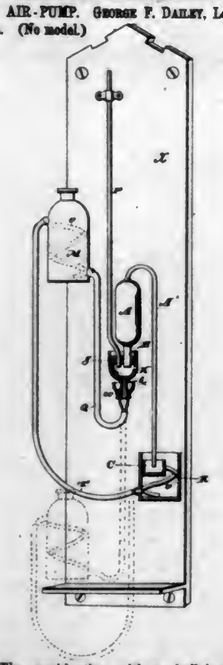
321,007. CRUSHING-ROLL. HENRY J. CHAPIN, New York, N. Y. Filed Jan. 2, 1885. (No model.)



Claim.—1. A hollow crushing-disk for grinding-mills cast in the form of a triangle in cross-section, comprising the ring a, toothed surfaces b, and webs d, as specified.

2. The combination, with grinding-ring cast hollow and triangular in cross-section, and having toothed surfaces b c and annular ring-surface a, of soft-metal studs g, projecting centrally from the inner surface of the ring a, as set forth.

321,008. AIR-PUMP. GEORGE F. DAILEY, Leadville, Colo. Filed Mar. 12, 1884. (No model.)



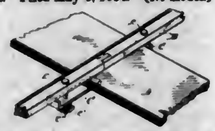
Claim.—1. The combination, with the bulb having a downwardly-extending discharge-tube connected to the upper end thereof, a mercury-vessel, in which said discharge-tubes terminates, and the exhaust-tube in communication with the lower end of the bulb and extending upwardly to or above the height of the barometric mercury column, of the movable reservoir, a flexible tube connecting the reservoir with the exhaust-tube and bulb, and a flexible tube leading from the upper portion of the reservoir to the lower part of the mercury-vessel, in which the discharge-tube terminates, substantially as set forth.

2. The combination, with a mercury-reservoir provided with an inlet at its upper portion and an outlet at its lower portion, of an inclined way leading from the inlet to the lower portion of the reservoir, substantially as and for the purpose set forth.

3. The combination, with the Geisler pump having the short tube B extending downward from its bulb, of the cup K, having its lower end connected by a flexible tube with the reservoir, and its upper portion provided with a plug, through which the said short tube B and the lower end of vertical tube P are sealed into said cup, substantially as described.

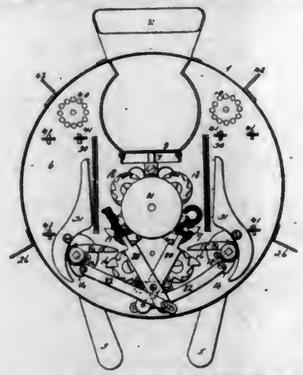
4. The combination, with the bulb open at the top and bottom, a downwardly-extending tube connected to the upper end of the bulb, the vertically-movable reservoir communicating with the lower end of said bulb through the intervention of a flexible tube, and a vertical tube, P, communicating at its lower end with said reservoir and extending upwardly above the height of the barometric mercury column, of the mercury seal-cup receiving the lower end of the downwardly-extending tube, the receiver inclosing the seal-cup, and a flexible tube connecting the receiver and movable reservoir, substantially as set forth.

321,009. QUILTING ATTACHMENT FOR SEWING-MACHINES. H. T. DAVIS, New York, N. Y., assignor to the Davis Quilting Frame Company, same place. Filed May 6, 1884. (No model.)



Claim.—In combination with a quilting-frame having anti-friction rollers, substantially as described, and the sewing-machine table, a supporting-track formed in sections, and a clamp on each of the meeting ends of said sections, whereby they are secured to the table and united so as to form a continuous way, as set forth.

321,010. MONEY RECEIVING, REGISTERING, RECORDING, AND TICKET-ISSUING DEVICE. HENRY T. DAVIS, London, England. Filed Jan. 31, 1885. (No model.) Patented in England Nov. 29, 1882, No. 5,683, Apr. 2, 1884, No. 5,819, and July 28, 1884, No. 10,666.

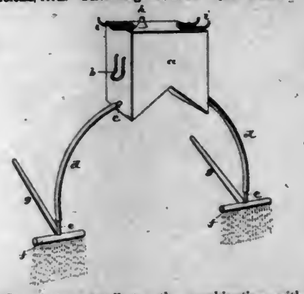


Claim.—1. In a money-receiving, registering, and ticket-issuing device, the combination, substantially as herein specified, of an oscillating hollow cylinder having a spring-clip and containing a rolled ribbon of tickets, an issuing-tube through which said ribbon passes, and a pair of toothed check-levers acting successively on the ribbon within said tube, for the purpose set forth.

2. In a money-receiving, registering, and ticket-issuing device, the combination, substantially as herein specified, of a ribbon of tickets, an issuing-tube through which said ribbon passes, having a series of apertures in its protruding end extending transversely across the same, and a series of plungers aligned with said apertures, respectively, for stamping the tickets with distinguishing-marks located in different relative positions thereon.

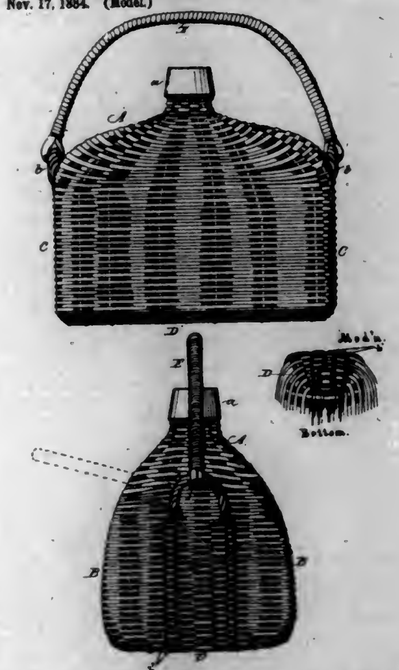
3. In a money-receiving, registering, and ticket-issuing device, the combination, with a hopper and locked bag to receive the money, of a tilting bottom for the hopper, a registering train or counter, an oscillating hollow cylinder having a spring-clip, and provided with a rolled ribbon of voucher-tickets, an issuing-tube through which said ribbons passes, a pair of issue-controlling check-levers acting on said ribbon within said tube, and a hand-pull recoil-spring, and transmitting mechanism for simultaneously actuating said tilting bottom, counter, and ticket-issuing cylinder, and subsequently actuating said check-levers one after the other, substantially as herein specified.

321,011. POISON-DISTRIBUTER. JOHN P. DUNCAN and EDWARD D. PILLOW, Helena, Ark. Filed Aug. 16, 1884. (No model.)



Claim.—In a poison-distributer, the combination, with a tank the bottom of which is shaped to conform to the back of a horse, and provided with loops and hooks, of flexible tubes secured on opposite sides to the lower edge of the tank, the elongated sprinkler secured to the outer end of each flexible tube, and handles rigidly secured to and projecting rearwardly from the sprinklers, the said handles being sufficiently long to enable the sprinklers to be manipulated by a person riding behind the tank, substantially as set forth.

321,012. DEMIJOHN. EDWARD R. EMERSON, New York, N. Y. Filed Nov. 17, 1884. (Model.)



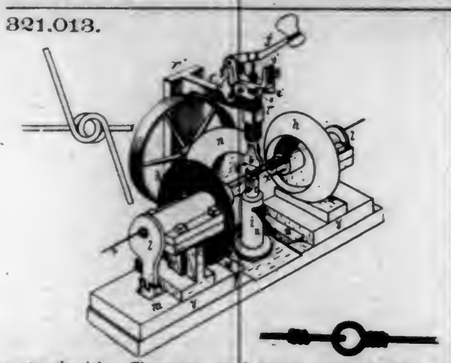
Claim.—1. As an improved article of manufacture, the demijohn herein described, consisting of a glass vessel covered with a suitable material having greater length than height, the sides of which are curved inward toward the top in a conical form and the ends at right angles to the sides and bottom, and provided with a suitable handle and month, substantially as specified.

2. A demijohn made of glass and covered with a suitable material, having greater length than height, the sides of which are curved upward and inward in a conical form, and the ends at right angles to the sides and bottom, having a month placed at the center of the top and a handle connected with the ends of the demijohn, the connections serving as pivots on which the demijohn can be swung, substantially as specified.

321,013. MACHINE FOR FORMING INTERLOCKING-EYES. ROBERT FARIES, Decatur, Ill. Filed Sept. 10, 1884. (No model.)

Brief.—Wires are passed in through each of the hollow shafts so that their ends overlap, the wires resting on the lower vertical shaft. The upper vertical shaft is then lowered and the lower vertical shaft

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turned to the right. The upper vertical shaft is turned to the left, forming interlocking hooks. The hollow shafts are then advanced, and, coming in contact with a bevel friction-wheel, rotate, twisting the end of each hook about the main wire.

Claim.—1. A vertical tubular limitedly-rotating shaft, *t*, provided with upward projections *x*, a vertical tubular rotating shaft, *s*, provided with downward projections *y*, a rod, *g'*, adapted to operate vertically in shaft *s* and reciprocatingly penetrate shaft *t*, and suitable means for operating rod *g'* and rotating shaft *s*, all adapted to operate in combination for the purpose of effecting an interlock between two ends of wire, substantially as set forth.

2. The combination, in a machine for forming interlocking-connections between two ends of wire, of a vertical tubular limitedly-rotating shaft, *t*, vertical tubular rotating shaft *s*, rod *g'*, frame *g*, block *e'*, levers *f f'*, and platform *a*, provided with spur c and incline *e*, as and for the purpose set forth.

3. The combination of shafts *t s*, rod *g'*, frame *g*, levers *f f'*, and platform *a*, provided with spur *c*, incline *e*, segmental elevation *b*, and radial elevation *d*, as and for the purpose set forth.

4. The combination of tubular rotating shaft *s*, tubular shaft *t*, having a limited amount of rotary motion, standard *i*, and lever *u*, as and for the purpose set forth.

5. The combination of cylindrical shafts *h'*, provided with rotating pulleys, tubular shaft *p*, provided with slots *p' p''*, and friction-spring *q*, located in slot *p'*, all constructed and arranged to co-operate for the purpose of coiling an end of wire around the body of the same, as set forth.

6. The combination, with cylindrical shaft *h'*, provided with friction-pulley *h*, slotted shaft *p*, and spring *q*, of brace or bumper *k*, constructed and arranged to operate as and for the purpose set forth.

321,014. CAR-COUPLING. MARTIN FENNELL, Skaneateles, N. Y., assignor of one-half to John McNamara, same place. Filed Apr. 20, 1885. (No model.)



Claim.—1. The combination of the draw-head C, provided with the horn E, having the convex and concave surfaces E' E², of the bail H, having the enlargement H', whereby said link when at a certain angle to an opposite coupler may disconnect itself by riding upon the said convex portions, substantially as specified.

2. The combination of the draw-head C, projecting curved horn E, having the convex surface E', and the concave surface E², the bail H, having the lateral enlargement H', and lip H², with devices for raising said link, substantially as specified.

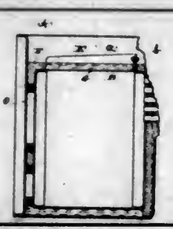
3. The combination of the draw-head C, projecting curved horn E, having the convex surface E', and the concave surface E², with the bail H, mounted upon a rock-shaft having a bearing in rear of said horn and within the draw-head, said shaft being bent at each end to form crank-handles, substantially as shown and described.

321,015. STEAM-BOILER. CHARLES M. GIDDINGS, Massillon, Ohio. Filed Apr. 2, 1885. (No model.)

Claim.—1. The combination, with a boiler, of a water-box open at the rear end and at the top and rigidly secured to the upper surface of the crown-sheet.

2. The combination, with a boiler, of the water-retaining box, consisting, essentially, of two side sections and one end section rigidly secured to each other and to the upper surface of the crown-sheet, substantially as set forth.

321,015.



321,016. SEPARATOR FOR STEAM-BOILERS. CHARLES M. GIDDINGS, Massillon, Ohio. Filed Apr. 2, 1885. (No model.)



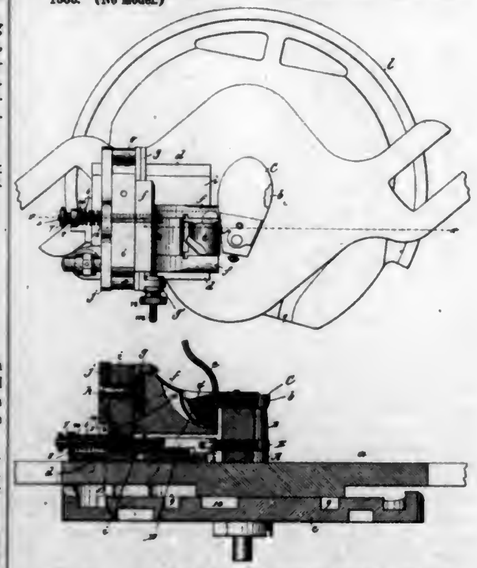
Claim.—1. A steam-boiler "drying" mechanism, consisting, essentially, of a baffle-plate the upper edges of which are separated slightly from the shell of the boiler, a trough located above the baffle-plate and provided with a cover, as described, and a steam-pipe communicating with said trough.

2. In a steam-boiler, the combination, with a steam-dome and a steam-pipe passing upwardly through the bottom of said dome, of a pipe or casing, E, closed at the top and open at the bottom and covering the upper open end of the steam-pipe.

3. In a steam-boiler, the combination, with a steam-dome closed at the bottom and a steam-pipe passing upwardly through said closed bottom and terminating within the dome, of a casing or pipe having a closed upper end and open lower end, the said dome, pipe, and casing being arranged substantially as shown.

4. In a steam-boiler, the combination, with pipes located the one within the other in the steam-dome, and arranged to form return-bends in the steam passage-way and in open relation with a cover-trough located in the steam space in the boiler, a baffle-plate arranged below and partially surrounding said trough, substantially as set forth.

321,017. HEEL-TRIMMING MACHINE. CHARLES W. GLIDDEN, Lynn, assignor to James W. Brooks, trustee, Cambridge, Mass. Filed Mar. 31, 1885. (No model.)

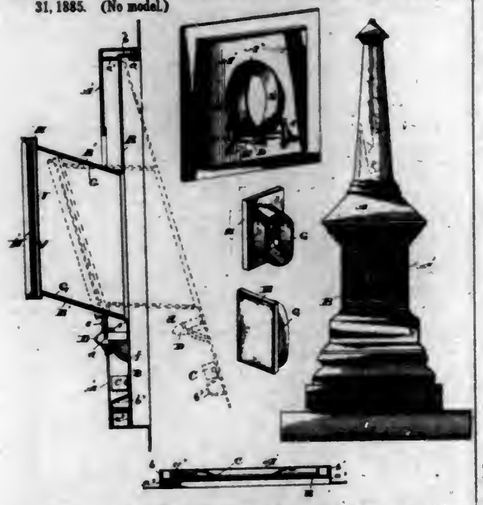


Claim.—1. In a heel-trimming machine having a nail-box, a grooved form-plate, a trimming-lever, a turn-table plate, a bearing-block, a knife-holder and knife, the combination, with the auxiliary pattern-plate located below the nail-box, of the adjustable follower moving with the bearing-block and turn-table plate and traveling against the auxiliary pattern-plate to lessen the strain of the knife against the regular pattern-plate located above the nail-box, the combination being and operating substantially as described.

2. The turn-table plate *d*, the bearing-block *i*, the follower D, and its loosely attached screw, combined with the spring and the slotted nut screwed into an ear of the turn-table plate, to operate substantially as described.

3. In a heeling-machine, the nail-box and driver-plate, combined with the follower and the intermediate auxiliary pattern-plate, to operate substantially as described.

321,018. MONUMENT. BENEDICT GOODMAN, Auburn, Ind. Filed Mar. 31, 1885. (No model.)



Claim.—1. In a metal monument, the combination, with sunken panels with openings in the central portion thereof, of covers for the respective panels with openings, and inclined tubes secured around the openings of the covers, and extending rearward and upward through the openings of the respective panels, and embracing inner tubes with casings for pictures or other articles at the rear end, substantially as set forth.

2. In metal monuments, the combination, with sunken panels, a ledge, *a*, and stops *a'*, *a²*, and *a²*, arranged as shown, of the cover B, with the part *b*, extending forward to rest on the ledge *a*, the parts *b'*, extending rearward and overlapping the stops *a²*, and the ribs *b²*, arranged to engage and rest upon the stops *a²*, substantially as set forth.

3. In metal monuments, the combination, with a sunken panel, a cover detachably secured over the face of the panel, substantially as shown, of the catch D, and curved key-hole for connecting with the cover, the bar E, for engaging the catch, and lip *e'*, arranged to be engaged by a key inserted through the curved key-hole, substantially as set forth.

4. In a metal monument provided with sunken panels cut away in the central part, covers arranged, respectively, over the faces of the panels, openings in the covers, and tubes secured to the respective covers around such openings, said tubes extending inward and upward through the openings of the panels, of inside tubes with cases at the rear for receiving pictures or other articles, the inner tubes fitting snugly in the said inclined tubes, substantially as set forth.

5. In a monument, the combination, with a sunken panel, a cover detachably secured over the face of the panel, and the tube B', secured to the cover, of a tube located within the tube B', and the case H, secured to the rear end of said inner tube, substantially as set forth.

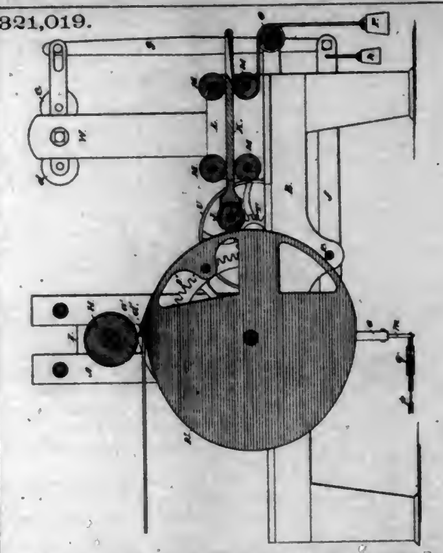
321,019. MACHINE FOR BENDING RAKE-TEETH. ALBERT J. GREEN, Dayton, Ohio, assignor of one-half to the Stoddard Manufacturing Company, same place. Filed Apr. 27, 1883. (No model.)

Claim.—1. In a rake-tooth-bending machine, the combination of a rotatable former, one or more pressure-rollers, a gripping mechanism operating to grip the blank after the former commences to rotate, and a device for releasing the gripping mechanism after the completion of the bending operation and after the tooth has left the pressure-rollers and retaining-rollers, whereby the completed tooth is permitted to drop from the former, substantially as described.

2. In a rake-tooth-bending machine, the combination of the rotatable former, one or more pressure-rollers, a gripping mechanism operating to grip the blank after the former commences to rotate, and an automatic device actuated by the pressure-roller to cause the release of the gripping mechanism after the completion of the bending operation, whereby the completed tooth is permitted to drop from the former, substantially as described.

3. In a rake-tooth-bending machine, the combination of a rotatable former, one or more pressure-rollers, a gripping mechanism operated by the pressure-roller to grip the blank after the former commences to rotate, and an automatic device, also actuated by the pressure-rollers, to

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cause the release of the gripping mechanism after the completion of the bending operation, whereby the blank is gripped, bent around the former, and the completed tooth is permitted to drop, substantially as described.

4. In a rake-tooth-bending machine, the combination, with the tooth-former E, of bolts attached thereto and extending to its periphery, one or one set of which are provided with clamping-jaws, and a connecting-lever whereby the depression of one bolt causes the projection of the other, substantially as and for the purpose specified.

5. In a rake-tooth-bending machine, the combination and relative arrangement of the revolving tooth-former provided with gripping and releasing mechanism, an upper main pressure-roller for bending the teeth to the former, and a rear retaining-roller or equivalent device for holding the teeth to the former until such time as it is desired to release the teeth from the former.

6. In a rake-tooth-bending machine, the tooth-former E, having a grooved periphery for retaining the teeth in a vertical plane, and provided with inclines *c'*, head-block *d'*, and bolts *t* and *u*, connected by a bell-crank, *s*, the former of which bolts has a clamping-jaw, *a'*, substantially as and for the purpose specified.

7. In a rake-tooth-bending machine having a revolving tooth-former, the combination, with said tooth-former, of a cam arranged upon its shaft, and lever mechanism provided with tightening-pulleys operated by said cam, whereby, upon releasing the lever mechanism from said cam, the tightening-pulleys take up the slack of the driving-belt and cause the starting of the machine, and whereby, when the tooth-former and cam have made one entire revolution, the cam again re-engages with the lever mechanism and causes slack in the driving-belt, whereupon the machine stops, substantially as described.

8. In a rake-tooth-bending machine, the combination, with the cam G, of the weighted pivoted beam *f*, carrying a spring-projected bolt, *k*, engaging with said cam, lever *m*, and chain *p*, the link *g*, and pivoted beam *b*, provided with tightening-pulleys *c d*, substantially as and for the purpose specified.

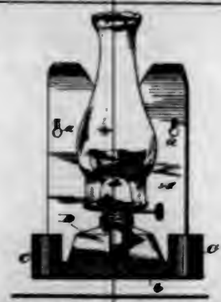
9. In a rake-tooth-bending machine, the combination of a rotatable former, one or more pressure-rollers, mechanism for automatically gripping the blank after the former commences to rotate, a device for automatically releasing the gripping mechanism when the tooth is fully formed, with mechanism for rotating the former, and a stop mechanism for arresting the former after the completed tooth has been released and discharged from it and the former has returned to its initial or starting point, substantially as described.

321,020. LAMP-BRACKET. ORRIN R. GRIMSHAW, Warren, Ohio. Filed Feb. 3, 1885. (No model.)

Claim.—1. A lamp-bracket consisting, essentially, of a reflector having devices for its attachment to a wall or other support, and a shelf rigidly secured to and supported by said reflector.

2. In a lamp-bracket, a reflector provided with suitable means for securing it to the wall, in combination with a shelf connected therewith an upwardly-projecting rim creased or otherwise prepared for a match-scratch, and match-boxes on either side arranged to form braces for supporting the shelf, substantially as set forth.

321,020.



321,021. WATCH-CASE. EDWIN HAAS, Philadelphia, Pa. Filed Jan. 14, 1885. (No model.)



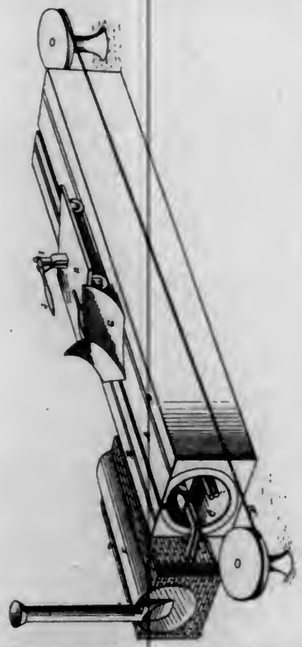
Claim.—1. A as new article of manufacture, a watch-case, an outer cap of which is provided with an independent bezel or recess, of any desired configuration, adapted to receive interchangeable and removable design-plates, substantially as specified.

2. The combination, in a watch-case, of an outer cap having an independent bezel of any desired configuration, as A', and a removable plate, as B, bearing a design, initial, or monogram, substantially as specified.

3. The combination, with the outer cap of a watch-case, of a removable initial-plate having a design upon its back conforming to the general design of the cap, substantially as specified.

321,022. ENDLESS-ROPE TRACTION-RAILWAY. ANDREW S. HALLIDIE, San Francisco, Cal. Filed Nov. 3, 1879. Patented in England Nov. 15, 1879, No. 4,666.

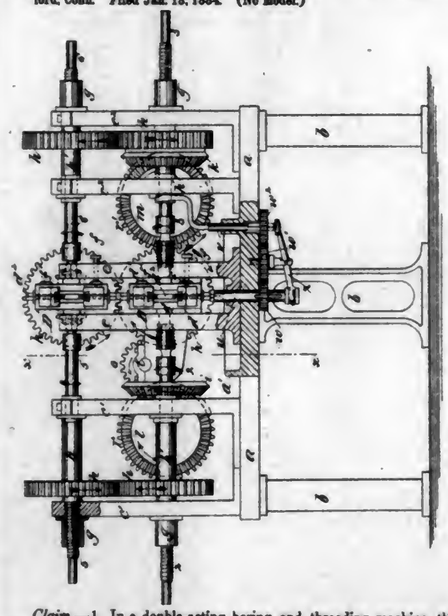
Brief.—The cable-tube is warmed by interior pipes, whereby snow may readily be removed from the track above by a plow propelled by the cable.



Claim.—1. In combination with an endless traveling rope or cable moving in an underground tube or tunnel, a snow plow or scraper having a shank passing through the slot in the tube and provided with a gripping device, by which it may be connected with and propelled by the cable, substantially as described.

2. The combination, in one apparatus, of an endless traveling rope moving in a slotted underground tube, a plow or scraper having a gripping apparatus adapted to connect it with the traveling cable, and a hot-air, gas, or vapor pipe or pipes secured to the sides of the tube, whereby the ice and snow may be loosened from the track, so as to be removed by the scraper without strain upon the apparatus, substantially as herein described.

321,023. SCREW-TAPPING MACHINE. THORVALD F. HAMMER, Branford, Conn. Filed Jan. 13, 1884. (No model.)



Claim.—1. In a double-acting boring and threading machine, the combination, with two tiers of two or more spindles, placed one over the other and geared to act in opposite directions, the spindles of each tier converging to a common center, of two double-jawed rotary chucks, mounted one over the other in relation with the respective tiers of spindles, and at the convergence thereof, substantially as and for the purpose set forth.

2. The combination, with a fixed frame-work, and the two series of tapping-spindles mounted thereon, one series over the other, and arranged to act in reverse order, as set forth, of the fixed chuck-standards *e e*, and the two double-jawed rotary chucks D D', trunnioned in said standard, one above the other in line with the respective series of spindles, substantially as set forth.

3. In a duplex boring and threading machine, the combination, with the rotary and reciprocating spindles 1 2 and 3 4, arranged superposed in two tiers converging to work-holding chucks, of the directly-intermeshing spur-wheels *h h* on the spindles of each tier, and the bevel or miter wheel *i* on the spindle of one tier having its intermeshing bevel or miter wheel *l* geared with the next spindle of the tier, substantially as shown and described.

4. In a boring or threading machine, the combination, with the rotary and reciprocating spindles 1 2 3 4 5 6, arranged in two tiers and converging to a center, of the chucks D D', arranged at said center, the intermeshing spur-wheels *h h* of said spindles, the gearing *i l r* and *k m r'*, and a driving-shaft imparting motion to said gearing, arranged and operating substantially as and for the purpose set forth.

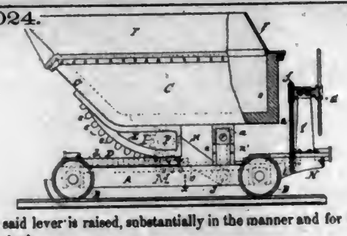
5. The combination, with the work-holding chuck or chucks located one over the other, and provided with clamp-screws, of the wrench or key spindle *u*, arranged in line with the screw of the lower or inaccessible chuck and normally retired from said screw, with a manipulating device located at a lateral distance from the said screw, and operative connections between said manipulating device and key-spindle for imparting a rotary and reciprocating motion to said key-spindle, substantially as and for the purpose set forth.

6. The combination, with chucks arranged substantially as shown, of the key-spindle *u*, rotary manipulating spindle or crank-shaft *v*, connecting-lever *x*, and suitable gearing or rotating connection between said spindles, arranged and operating substantially as and for the purpose set forth.

321,024. DUMPING-CAR. J. M. HARTMAN, Philadelphia, Pa. Filed Mar. 14, 1885. (No model.)

Claim.—1. The combination of the body, toothed sectors attached thereto, toothed rails D, arranged upon the truck beneath said sectors, the jointed lever attached to the rear portion of the car, and means

321,024.

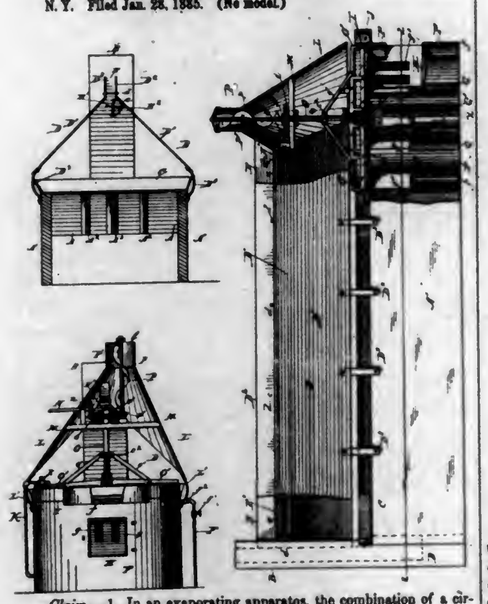


whereby said lever is raised, substantially in the manner and for the purposes set forth.

2. The combination, with a car-body supported upon sectors and rails which terminate in rear of the front axle of the truck, and having suitable tilting mechanism applied at the rear end of said body, of an inclined end or spout extending forward beyond said axle, whereby a maximum projection of the load is effected without bringing the center of gravity forward of the axle.

3. The combination of the car-body having a fire-brick lining which terminates below the top thereof, and the removable cast-iron plates F, arranged above the lined portion, substantially as set forth.

321,025. EVAPORATING APPARATUS FOR BRINE, &c. MARTIN P. HAYES, Chicago, Ill., assignor of one-half to Joseph M. Duncan, Warsaw, N. Y. Filed Jan. 28, 1885. (No model.)



Claim.—1. In an evaporating apparatus, the combination of a circular heating-receptacle, a pan with an outwardly and downwardly sloping bottom, located on said receptacle, and a revolving shaft carrying scraper-blades, substantially as described.

2. In an apparatus for evaporation of brine, the combination of a circular heating-receptacle having supply and exit pipes, a pan supported on said receptacle, a roof located over said pan, and an exhausting-fan located below or over the roof-opening, substantially as described, and for the purpose set forth.

3. In an evaporating apparatus, the combination of a circular heating-receptable, a pan having a sloping bottom, a shaft carrying scraper-blades, and an exhausting fan located on a plane above said pan, substantially as described.

4. In an evaporating apparatus, the combination of a circular heating-receptacle having a furnace and supply and exit pipes, a pan, a revolving shaft carrying scraper-blades adapted to force the salt outwardly into a pocket or receptacle of the pan, a roof located over the pan, having an exit in its top, and a fan adapted to carry off the steam arising during the evaporation of the brine, substantially as and for the purpose set forth.

5. The combination of the heating-receptacle having a furnace and supply and exit pipes, walls G, having openings, pan I, having an inclined bottom and a pocket, a revolving shaft, O, carrying scraper-blades, a roof conical in form, having an exit at its top and located over the pan I, and a fan, P, located below the roof-opening, substantially as described.

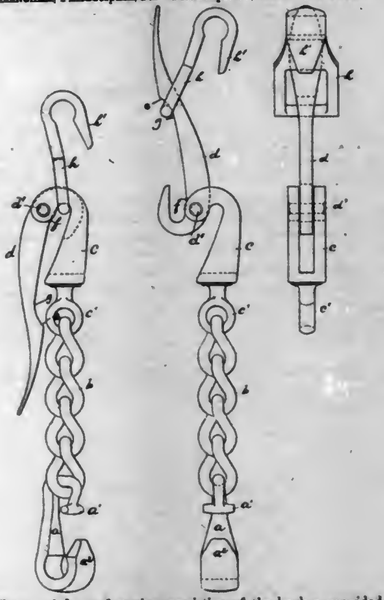
6. In an evaporating apparatus, the combination of the pans C I heating-receptacle F, furnace H, located within said receptacle, flues A. roofs D L, located over said pans, and each provided with an opening, and exhausting-fans, substantially as described, and for the purpose set forth.

7. The combination of a circular heating-receptacle, F, having supply and exit pipes F' K, furnace H, wall G, having openings, front pan, I, having a pocket, and located over the heater, pan C, roofs D L, fans E P, shaft O, carrying scraper-blades, and means for revolving said fans and shaft, substantially as described.

8. In an evaporating apparatus, the combination of a pan, a roof located over said pan, and having a flume, and a fan arranged in close proximity to such flume, and adapted to be revolved by any suitable motor, whereby the steam arising from the pan is exhausted, substantially as described.

9. In an evaporating apparatus, the combination of flues A, pan C, roof D, made in two longitudinal sections supported at their lower ends, and a fan and casing located in close proximity to the flume or exit of the roof, substantially as described.

321,026. HAME-FASTENER. WILLIAM L. HEINZER and HENRY B. GILLINGHAM, Philadelphia, Pa. Filed Apr. 21, 1885. (No model.)



Claim.—A hame-fastening consisting of the hook *a*, provided with the malleable or clinchable portion a^3, twisted-link chain *b*, hooked head *c*, provided with the eye *c'*, hooked lever *d*, provided with the recess *e f* and pivoted on head *c*, and the hook *h*, provided with the malleable or clinchable portion *h'*, substantially as set forth.

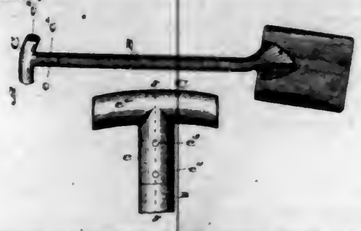
321,027. FIRE-KINDLER. JAMES E. HIGNUTT, Denton, Md. Filed Feb. 5, 1884. (Specimens.)



Claim.—1. The herein-described fire-kindler, consisting of corn-cobs dipped in a solution of resin, tallow, and sulphur, in about the proportions specified.

2. As an improvement in fire-kindlers, corn-cobs dipped or immersed in a solution of resin, tallow, and sulphur, in or about the proportions stated, then removed and mixed with other cobs in a plain state—that is, those which have not been coated—and, finally, bundled by the use of wire or other fastening, as and for the purpose set forth.

321,028. SHOVEL-HANDLE. EDWARD K. HOLTON, Webster Grove, assignor to St. Louis Shovel Company, St. Louis, Mo. Filed Feb. 14, 1885. (No model.)



Claim.—As a new manufacture, the hollow T-shaped handle C, having the socket *c*, slit at *c' c'*, substantially as described.

321,029. HOOF-TRIMMER. CHARLES E. HUNT, Wayne, Nebr. Filed Nov. 24, 1884. (No model.)

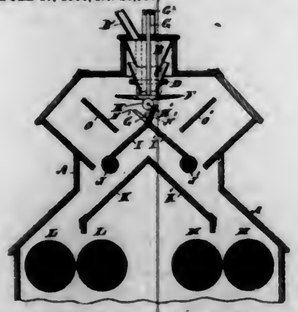


Claim.—1. The combination, in a hoof-trimmer, of a clamp, a main bar connected therewith and movable longitudinally along and rotarily on the connection, and a rim-blade mounted on the main arm, substantially as set forth.

2. In a hoof-trimmer, a clamp or claw consisting of a plate of spring metal having its ends curved toward each other and given a tension in a like direction, the said ends being adapted to bind on the hoof and provided with an inwardly-extended supporting-bar, combined with a main arm pivoted to said supporting-bar, substantially as set forth.

3. The herein-described hoof-trimmer, consisting of the clamp having supporting-bar B, the main arm having sharpened edges and provided with slot D^2, the stud C, projecting from bar B through the slot D^2 and the rim-blade mounted on the main bar, substantially as set forth.

321,030. ROLLER-MILL FEED MECHANISM. WILLIAM HUTCHISON, Ottawa, Ontario, Canada. Filed Feb. 5, 1885. (No model.) Patented in Canada Jan. 19, 1885, No. 20,917.



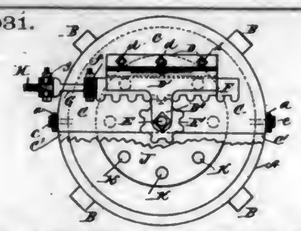
Claim.—1. The combination, with the fixed and adjustable feed-hoppers B C, of the rotary saucer F, divergent feed-boards I I', and adjustable hinged shutters N N', whereby the feed material thrown out by the saucer is divided equally to the two pairs of rollers, L L, M M, by adjustment of the shutters, as set forth.

2. The combination, with the fixed and adjustable feed-hoppers B C, of the cant-boards O O', rotary saucer F, divergent feed-boards I I', having adjustable hinged shutters N N', rollers J J', and feed-boards K K', whereby the material thrown out by the saucer is distributed and conveyed in a thin film to the rollers L L M M, as set forth.

321,031. WASHING-MACHINE. ALFRED T. JACKSON, Hickory Grove, Ky. Filed June 3, 1884. (No model.)

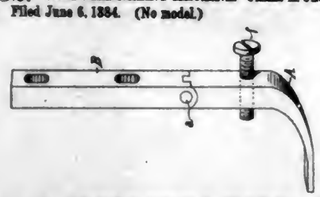
Claim.—1. In a washing-machine, the combination, with the tub suitably supported and provided with a top or cover, of the vertical shaft E, journaled therein, depending into the tub and carrying an agitator within the same, the plate or casting D, secured to the cover and formed with the raised portion or elevation D', and the perforated arm or extension D'', the latter providing a bearing for the upper end of the shaft E, a pinion, E', fitted thereon, the rack-bar F, working in the ways formed by the elevated part D' and engaging the pinion E', and a lever for working the rack-bar, as set forth.

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2. In a washing-machine, the combination, with the tub suitably supported and having a cover made in sections, of the plate or casting D, fitted to one of the cover-sections and formed with a raised part or elevation, D', and an extension or arm, D'', the shaft E, carrying the agitator within the tub and provided with a pinion, E', at its upper end, a rack-bar, F, moving in the ways formed by the elevation D' and engaging with the pinion E', a pitman, G, connecting with the rack-bar, a plate, H', secured to the bottom of the tub, a lever, H^2, fulcrumed in the plate and connected to the pitman, and an operating-handle, H, for the lever, as and for the purpose set forth.

321,032. SOLE-CHANNELING MACHINE. JAMES E. JACKSON, Lynn, Mass. Filed June 6, 1884. (No model.)



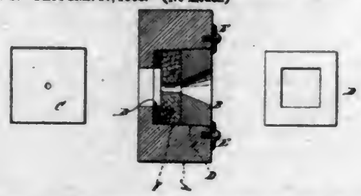
Claim.—1. In a channeling-machine of substantially the construction described, the combination of a channeling-knife, H, and a fender-foot, A, said foot being adapted to permit of horizontal adjustment toward the knife, substantially as and for the purposes stated.

2. In a channeling-machine of substantially the construction described, the fender-foot composed of leg part B and foot part A, said leg part B being secured to the machine and supporting the part A, substantially as described, and the foot part A being adapted to permit of independent adjustment toward and from the channeling-knife, as and for the purposes stated.

3. In a channeling-machine of substantially the construction described, in combination with the fender-foot constructed in two pieces or parts, as set forth, the spring *f* and screw *f*, arranged to operate substantially as and for the purposes stated.

4. As a new article of manufacture, a fender-foot for channeling-machines, composed of the leg portion B and the foot portion A, formed in separate parts and united together by a joint, *d*, substantially as and for the purposes described.

321,033. WIRE-DRAWING DIE. ELIAS M. JOHNSON, New York, N. Y. Filed Mar. 17, 1883. (No model.)



Claim.—1. The combination, in a wire-drawing tool, of a holder, A, having an opening formed, as set forth, to receive a rectangular steel block fitting said opening, and having a central draw-orifice, substantially as set forth.

2. The combination of the die-holder A, die-plate C, and tallow-cup B, substantially as described.

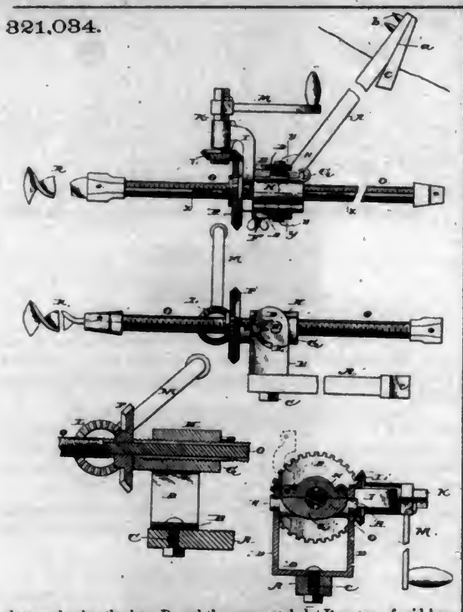
3. The combination of the die-holder A, tallow-cup B, die-plate C, and elastic cushion D, substantially as described.

321,034. COAL-DRILLING MACHINE. JAS. T. JOHNSON and THOS. THOMPSON, What Cheer, Iowa. Filed Apr. 22, 1885. (No model.)

Claim.—1. The combination of the supporting-bar, the bracket B, swiveled thereon, the frame G, journaled in the bracket, and having the curved extension or arm I, the screw O, working in the frame, the mitered gear-wheel P, feathered or splined on the screw, the mitered pinion L on a shaft journaled in the arm I and meshing with wheel P, and a crank for rotating the pinion, substantially as described.

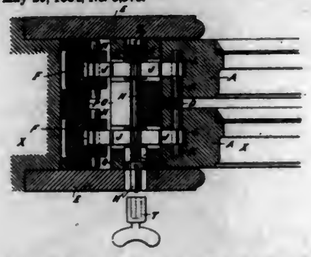
2. The combination of the supporting-bar, the bracket B, swiveled

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thereon, having the lugs D, and the segmental slot E in one of said lugs, the frame G, journaled in the bracket and having the curved arm I, the screw O, working in the frame, the miter-gear wheel P, feathered on the screw, the miter-pinion L on a shaft journaled in arm I, and meshing with wheel P, a crank for rotating the pinion, and the set-screw F, passing through slot E and entering frame G, for the purpose set forth, substantially as described.

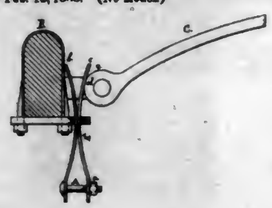
321,035. SASH-BALANCING DEVICE. HUGH JONES, Liverpool, County of Lancaster, England, assignor to the Patent Window Fittings Company, same place. Filed Oct. 22, 1884. (No model.) Patented in England May 29, 1884, No. 8,373.



Claim.—1. A window-sash having a rack on its edge formed by a groove, L, and wooden teeth K, in combination with a metal pinion, J, and a weighted rack, F, provided with a groove, M, and wooden teeth N, which project and form a guide with the bars P for the weight, substantially as and for the purposes set forth.

2. The combination of the spindle H, having a right-and-left-hand screw, R, and nuts Q, whereby through the pinions J the sashes A, and also the weights M, are caused to bind against the separating-bar D and center guide, P, substantially as set forth, and as shown in the drawings hereto annexed.

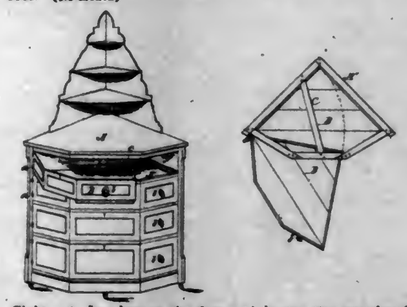
321,036. THILL-COUPLING. FRANK D. KERNOCHAN, Middletown, N. Y. Filed Feb. 13, 1883. (No model.)



Claim.—1. In a thill-coupling, the combination of the clips, the shaft-irons, outwardly-extending curved springs, and suitable means for adjusting the said springs, substantially as and for the purpose set forth.

2. The combination of the curved spring A', the regulating screw or bolt A, clip B, and shaft-iron *e*, all constructed, arranged, and operating as shown in Fig. 1, and in the manner described.

321,037. BUREAU. DANIEL R. KINLEY, Marion, Iowa. Filed Jan. 8, 1885. (No model.)



Claim.—1. In a bureau, the frame A', having the cross-bar C, in combination with the drawer B, hinged thereto at one corner, substantially as specified.

2. In a bureau, the combination of frame A', having cross-bar C, and stop *c*, with the drawer B, having pulls *b*, and the hinge *a*, all constructed, arranged, and operating substantially as and for the purpose set forth.

321,038. PIPE-TONGS. GEORGE B. KOONS, Halfmoon Bay, Cal. Filed Mar. 16, 1885. (No model.)



Claim.—In a pipe-tongs, a lever-arm having its outer end curved to form a hooked jaw having a concave gripping-surface, in combination with a hinged movable hook-shaped jaw pivoted to the lever and having its toothed portion overlapping the lever so as to stand opposite the fixed jaw, substantially as herein described.

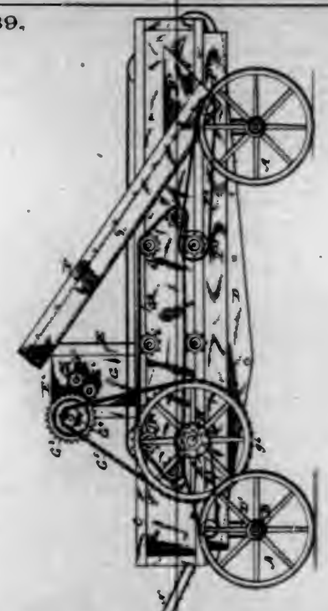
321,039. CIDER-PRESS. EMANUEL W. LEHMAN, Carlisle, Pa. Filed Nov. 6, 1884. (No model.)

Claim.—1. The combination, with a cider-mill, of the gradual non-elastic pressure-rollers I I I' I', arranged at varying distances one above the other, final compression-rollers covered with elastic material, the endless aprons arranged one above the other to pass around the upper and lower tier of rollers, and the endless chain for connecting the rollers, substantially as and for the purpose described.

2. The combination of the presser and compression rollers arranged in pairs one above the other, the endless aprons arranged to pass around said rollers, and the idler-rubber O O, arranged in advance of the foremost pair of presser-rollers to wring the apron before its return to the forward end of the machine, substantially as described.

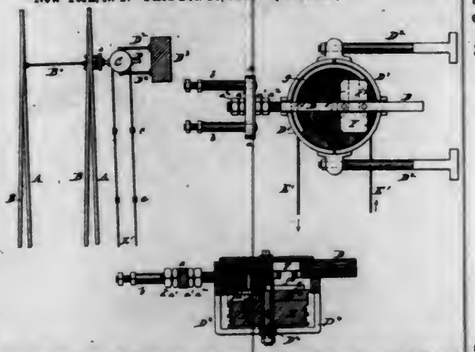
3. The combination, in a cider-mill, of the running-gear with the mill-frame E, rollers I I' I', endless chain G', aprons K K', and apple-elevator apron P, and driving-belt P^2, all actuated from counter-shaft H, connected with the shaft of the grinding-cylinder, substantially as and for the purpose described.

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4. The combination, in a cider-mill, of pressure-rollers I I' I², the endless aprons K K', the counter-shaft H, driven from the shaft of the grinding-cylinder, and the endless apron N, supported upon rollers arranged relatively under the apron K' and driven from the center shaft H, substantially as and for the purpose described.

321,040. LOCK FOR RAILROAD-SWITCHES. RICHARD LEHMANN, New York, N. Y. Filed Dec. 10, 1884. (No model.)



Claim.—1. The combination, with the switch-rails, of a slide-rod having recesses attached to the switch-rails, a transverse block attached to the slide-rod and provided with guide-pieces at the under side, a disk having a crank-pin and a segmental flange adapted to engage the recesses of the slide-rod, and means, substantially as described, for turning the disk in either direction for setting and locking the switch, substantially as set forth.

2. The combination of a slide-rod attached to the switch-rails and having bottom recesses, a transverse block attached to the slide-rod and provided with guide-pieces at the under side, a disk having an adjustable crank-pin and a flange extending along a part of the circumference of the disk, a double pulley attached to the disk, and actuating wire cords attached to the pulley and passed in opposite direction around the same, substantially as set forth.

321,041. CHUCK FOR GEM-SETTINGS. CHARLES I. LOVERIN, Brooklyn, N. Y. Filed July 21, 1884. (No model.)

Claim.—1. The herein-described chuck having spaces or radial cuts between its jaws and provided intermediate between said cuts with recesses, as 2, substantially as described.

2. The herein-described spring-chuck having saw-cuts forming the face thereof into jaws and provided with the recesses 2, substantially as described.

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3. The herein-described chuck having a central bore, which at its face is of a diameter less than that of the article to be held, and provided with cuts and recesses into which projections or cramps upon the article may enter, substantially as described.

321,042. CARTRIDGE. ABEL S. LYMAN, New York, assignor to Livingston Middleditch, Brooklyn, N. Y. Filed Sept. 8, 1884. (No model.)



Claim.—1. A cartridge formed of powder or other explosive material compacted into a cake within a cylindrical shell or case, and pierced longitudinally by a free unobstructed perforation, substantially as and for the purpose set forth.

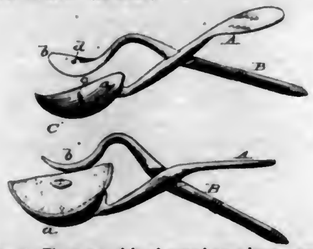
2. A cartridge formed of explosive material placed within a cylindrical shell or case, and provided with a free unobstructed perforation extending through it longitudinally from end to end, and protected by such shell from the action of fire upon its outer cylindrical surface and at its rear end, substantially as and for the purpose set forth.

321,043. ART OF GUNNERY. ABEL S. LYMAN, New York, assignor to Livingston Middleditch, Brooklyn, N. Y. Filed Dec. 29, 1884. (No model.)



Claim.—The herein-described improvement in the art of gunnery, which consists in arranging at the rear of a projectile a charge of powder formed into a longitudinally-perforated cake which has its outer surface protected against the fire of primary ignition, so that only the exposed surface of the cake will become at first ignited, whereby the burning area of the charge will continuously increase during the combustion of the charge and a uniform or continuously-increasing pressure will be exerted upon the projectile, substantially as set forth.

321,044. LEMON-SQUEEZER. FRED M. MAY, Minneapolis, Minn. Filed Oct. 11, 1884. (No model.)

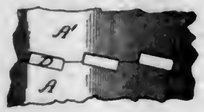


Claim.—1. The new article of manufacture herein described, consisting of levers A and B, crossing each other, pivoted at the point of crossing, and provided, respectively, with elliptical concave bowl *a* and elliptical convex presser *b*, arranged to hold and press pieces of lemon, as set forth.

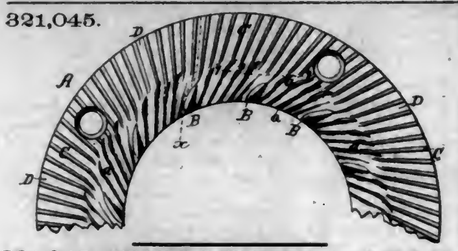
2. The herein-described implement for holding and squeezing pieces of lemon, consisting of levers A and B, crossing each other and pivoted together, the lever A being provided with bowl *a*, having stud or pin C, and lever B, having presser-plate *b*, provided with hole *d*, as and for the purpose explained.

321,045. METALLIC GRINDING-RING. JOHN G. MOLE, Batavia, Ill. Filed Mar. 3, 1885. (No model.)

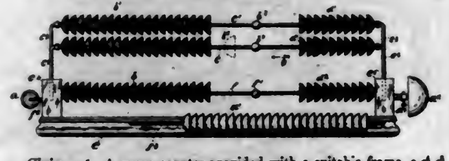
Claim.—A grinding-ring having the furrows on the working-face gradually diminishing in depth as they approach the skirt and faces of the grinding-teeth, the grinding-teeth C, the ridges B, and the series or groups of ridges *a*, substantially as described.



321,045.



321,046. GAME COUNTER AND REGISTER. ADAM NICKEL, Buffalo, N. Y. Filed Mar. 9, 1885. (No model.)



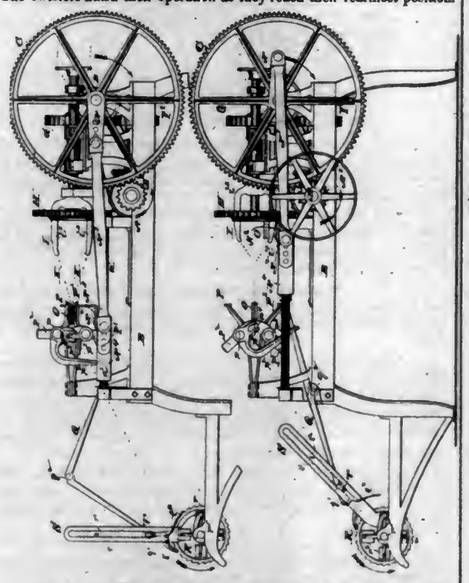
Claim.—1. A game-counter provided with a suitable frame, e e^1 e^2, having one or more rows of red buttons, *b*, one or more rows of black buttons, d^2, adapted to move on the rods f to or from a stop, f', and a row of buttons, *a*, adapted to be moved on the transverse rod f^2, substantially as and for the purpose described.

2. In a game-counter substantially as above described, the combination of one or more rows of white buttons, *b'*, with one or more rows of black buttons, d', all mounted upon the removable rods $e c' c^3$, and adapted to be moved to or from a stop, b^3, for the purposes described.

3. A game-counter consisting of a frame, *e*, and a series of buttons, *b* d^2, adapted to slide along the wires f to or from the stop f', in combination with the removable rods c c' c^3, each having a series of buttons, *b'* d', adapted to slide thereon to or from the stops b^3, as and for the purposes described.

321,047. MACHINE FOR MANUFACTURING FENCES. CHARLES A. NORLING, St. Louis, Mo., assignor of two-thirds to Frederick W. E. Best, same place, and William D. Van Blarcom, Alton, Ill. Filed Aug. 19, 1884. (No model.)

Brief.—By moving forward the twisters spread the wires so that the picket may be forced snugly up to the crotch of the wires, and by moving back they draw the wires together over the picket. After the picket enters the compressors and the compressors clamp the wires upon it the twisters begin to rotate, moving back as the twisting goes on. The twisters finish their operation as they reach their rearmost position.



Claim.—1. The combination, substantially as described, of the frame B, the shafts A F' G', the clutch E^2, the gears E E' F F² G H, and the twister I.

2. The combination, substantially as described, of the frame B, the shafts A F' G' G^2, the clutch E^2, the gears E E' F F^2 G, the train H H, and the twisters I I.

3. The combination, substantially as described, of the shafts D G', the cams L L, the pitmen L' L', the cross-bar L^2, the uprights L^3 L^3, and the twisters I I.

4. The combination of the shaft G', the gear H, and the twister I, said twister being adapted to be slipped forward and backward through said gear, as described.

5. In a machine for manufacturing fences, the twisters I, said twisters being constructed as described, and being adapted to be moved forward and backward in the machine, as and for the purpose described.

6. The combination, substantially as described, of the train H H H, the twisters I I I, and the shafts G' G^2 G^3, said twisters being loose upon said shafts and their arms i' i' projecting through said gears, for the purpose set forth.

7. The combination of the shaft D, the cam parts l l', the slotted pitman L', the cross-plate L^2, the uprights L^3, and the twister I, substantially as described.

8. The combination of the shafts A D F' G' G^3, the clutch E^2, the gears E E' F F^2 G, the train H H, the cams L L, the pitmen L' L', and the twisters I I, substantially as described.

9. The combination of the shafts A D F' G', the sprocket-wheel M, the chain M', the grooved cam-wheel M^2, the clutch E^2, the shifter M^3, the gears E E' F F^2 G, and the twister I, substantially as described.

10. The combination of the shafts A F' G', the shifter M^3, the clutch E^2, the gears E E' F F^2 G H, and the twister I, substantially as described.

11. The combination of the twisters I, the compressors P P', and a feeder for transferring the paling from the twisters to the compressors, substantially as described.

12. The compressors P P', adapted to compress the wires upon the paling, as and for the purpose described.

13. The combination of the ways n n, the slides N^4, the compressor P, having the arm p^2 and the notched lug p^3, and the compressor P', having the pin p^4, substantially as described.

14. The combination of the cross-bars P^2 and P^3, carrying, respectively, the compressors P and P', and adapted to rock in the bearings p and p', respectively, substantially as described.

15. The combination of the compressors P P' and the twisters I, substantially as described.

16. The combination of the compressors P P' and the twisters I, said twisters being constructed and arranged to be capable of receiving a forward and backward movement in the machine as well as a rotary motion, substantially as described.

17. The combination of the compressors P P' and the reel R, substantially as described.

18. The combination of the twisters I, the compressors P P', and the reel R, substantially as described.

19. The combination of the way n, the slide N^4, the block q, the pitman Q, the lever S, carrying a pawl, and the reel R, carrying a ratchet, r, substantially as described.

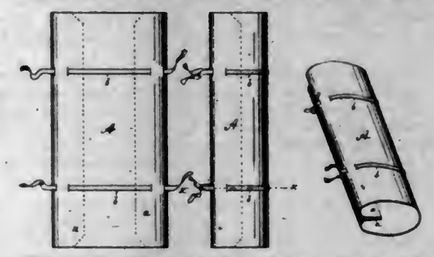
20. The combination of the pitman Q, the lever S, having the double rack s' s^2, the dog T, and the holder t', having the rider t^2, substantially as described.

21. The combination of the reel R, the lever S, having the double rack s' s^2, the dog T, the holder t', having the rider t^2, and the pitman Q, substantially as described.

22. The combination of the slide N^4, the block q, the pitman Q, jointed at q^2, the arm S, the pawl on said arm, and the reel R, substantially as described.

23. The collapsible reel P, consisting of the shaft r^2, the heads r^3 r^4, having the slots r^7, and the bars r^5, having the pins r^6, substantially as described.

321,048. WRAPPER FOR SILKS AND OTHER PIECE-GOODS. THOMAS J. OAKLEY, New York, N. Y. Filed Jan. 14, 1885. (No model.)



Claim.—1. As a new article of manufacture, a wrapper, A, having flaps *a a* and slots back of said flaps, in combination with tapes *b*, passed through said slots, substantially as specified.

2. The combination of wrapper A, folded over near opposite sides, and having slots back of the folds with tapes *b*, which embrace the body of the wrapper, and have binding ends that project beyond the folds, substantially as herein shown and described.

321,049. ELECTRIC MOTOR. JOHN M. PENDLETON, New York, N. Y., assignor to the Equitable Electric Company, same place. Filed Oct. 7, 1884. (No model.)

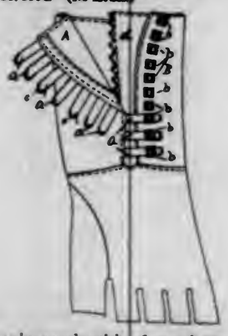


Claim.—1. In an electromotor, the combination of an armature having three radial cores, each provided with a coil of wire, with a commutator having three plates, each connected to an inner and outer end of the coils on adjacent cores, and two brushes diametrically arranged in contact with the commutator, substantially as and for the purpose set forth.

2. The combination, with a field-magnet having two poles diametrically arranged, and their cores of one continuous piece of metal, of a three-pole armature and commutator, and brushes constructed and connected, as described, whereby the two poles of the armature on one side of a central line passing through the field-poles are of one polarity of opposite kind to the third pole on the other side of the central line, substantially as set forth.

3. In combination, the brush *l*, slotted yoke *n*, provided with a threaded stem and thumb-nut, and the slotted post *m*, substantially as set forth.

321,050. GLOVE-FASTENING. GEORGE W. PRENTICE, Providence, R. I. Filed Dec. 31, 1884. (No model.)



Claim.—1. As an improved article of manufacture, a glove provided with a series of straps, each strap provided with a metal clip or tag on its end and buckles at the wrist-opening, substantially as set forth.

2. The combination, in a glove provided with a wrist-opening and a fly or gore secured thereto, of a series of straps and buckles secured at opposite sides of the said opening, substantially as set forth.

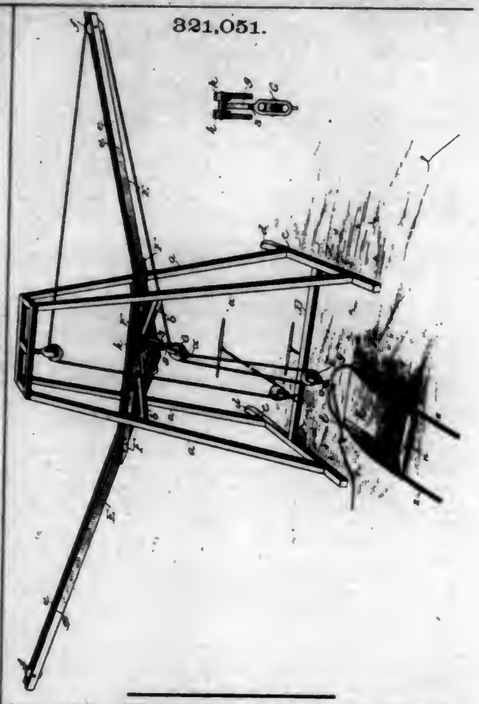
321,051. EXCAVATOR. HENRY EDINGTURFF, Mountain View, Cal. Filed Jan. 20, 1885. (No model.)

Claim.—1. A machine for hoisting earth from ditches and the like and for excavating, consisting of a frame or tower adapted to be moved, fixed inclined arms extending laterally from the frame and meeting at their lowest point, and a traveling block and rope with suitable pulleys combined with a scraper, all combined and operating substantially as described.

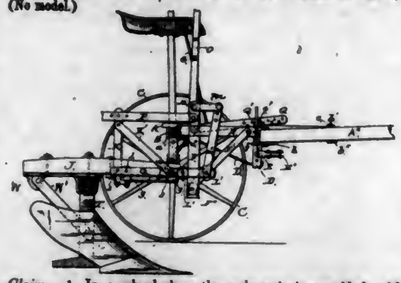
2. In combination, the frame, the fixed inclined derrick, arms extending laterally from the frame, composed of two scantlings placed side by side, and separated by distance-pieces, the said arms meeting at their lowest point and braced to the frame, sheaves in the end of each of said arms, a moving block attached to an arm having wheels adapted to run on the derrick-arms, and a hoisting-rope and pulleys, all substantially as described.



321,051.



321,052. WHEEL-PLOW. EDMUND D. REYNOLDS and OLIVER R. REYNOLDS, Brockton, Mass. Filed Apr. 26, 1884. Renewed Jan. 5, 1885. (No model.)



Claim.—1. In a wheel-plow, the pole-stub A, provided with the clasp-plate *a'*, in combination with the pole A'; angle-plate *b*, braces A', and tie-straps *b'* and *b''*, all constructed to operate substantially as and for the purpose described.

2. The standards F, the lower ends of which are bent to form three sides of a rectangular figure, and the braces A', in combination with the frame G *g*, provided with the friction-wheels L, the straps F', brace F'', all constructed substantially as set forth.

3. The draft-bars G G, carrying the friction-wheels L, in combination with the bars *g*, having their outer ends bent up at right angles and secured between the bars G G, substantially as and for the purpose set forth.

4. The vertically-adjustable frame G *g* and standards F F, in combination with the bar H, plate I, and beam J, all constructed to operate substantially as and for the purpose set forth.

5. The vertically-adjustable frame G *g*, in combination with the standards K, braces K', adjustable bars P, and standards F, all constructed to operate substantially as and for the purpose set forth.

6. The standards F and shaft M M, provided with the arms *m m'*, in combination with the block N, provided with the arm N', and the lever O, all constructed to operate substantially as and for the purpose set forth.

7. The shaft M, provided with the arms *m m* and lever O, in combination with the adjustable links *m'*, standards F, and adjustable frame G *g*, substantially as and for the purpose set forth.

8. The block N, provided with the arm N'' and lever O, in combination with the notched bar Q and the slotted angle-plate *b*, all constructed to operate substantially as and for the purpose set forth.

9. The block N, provided with the arm N'' and lever O, in combination with the notched and perforated bar Q, the slotted angle-plate *b*, and the pivoted foot-plate Q', all constructed to operate substantially as and for the purpose set forth.

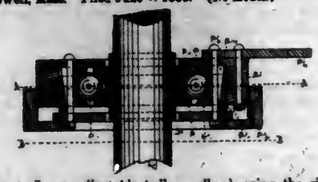
10. The adjustable beam J and frame G *g*, in combination with the adjustable and swinging plate I, block R, and plate H, all constructed to operate substantially as and for the purpose set forth.

11. The standard T, having its upper end bifurcated and bent at right angles, in combination with the cap-plate T', the housing U, provided with recesses *u''*, the bolt *t'*, and the yoke-bolt V, substantially as and for the purpose set forth.

12. The cap-plate T', provided with the projection W, recessed to fit the brace W', and having the housing U to receive the standard T, in combination with the brace W', substantially as and for the purpose set forth.

13. The draft-bars G G, standards K, bar P, and brace K', in combination with the standards F, substantially as and for the purpose set forth.

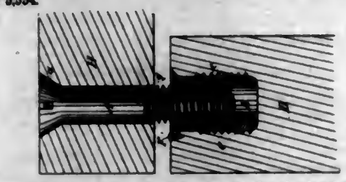
321,053. BALL AND ROLLER BEARING FOR SHAFTS. DAVID H. REE, Lowell, Mass. Filed June 1, 1885. (No model.)



Claim.—1. In an adjustable ball or roller bearing, the ring *b*, provided with a bearing track or surface for the ball to traverse upon around its inner or outer circumference, and a dividing-slot, *b'*, crossing said bearing-surface in a line or lines at an angle with relation to the axis of the shaft and adapted to bring the rolling ball into contact successively with its different parts transversely of the bearing-surface, and mechanism for adjusting the size of said ring in said bearing, substantially as described.

2. The combination, in a ball-bearing, of the ring *b*, provided with the transverse slot *b'*, and forming the outer or inner ball-bearing surface, the opposite inner or outer ball-bearing surface, the series of balls between them, and the tubular wedge *d'*, adapted to bear upon said ring and move its bearing-surface nearer to the opposite one, substantially as described.

321,054. SCREW-FASTENING FOR BOXES OR CASES. EUGEN RITTER, Ehrenfeld, Germany. Filed Feb. 23, 1885. (No model.) Patented in Germany Feb. 26, 1884, No. 28,254, and in England Apr. 8, 1884, No. 5,554.



Claim.—A screw having threads at one end and a head at the opposite end, in combination with a cylindrical nut or socket having its interior threaded to receive and hold the screw, and its exterior threaded so that it may be screwed into the edges of the box or case, and having also a transverse hole or slot for the introduction of a locking-pin, substantially as herein described.

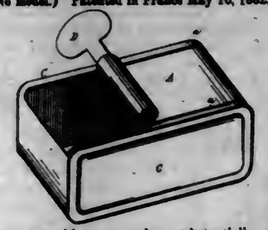
321,055. SASH-FASTENER. WILLIAM ROBINSON, Chicago, Ill. Filed June 19, 1884. (No model.)



Claim.—1. In a sash-fastener, the combination, with bolt C, having notch *b*, of disk E, having top plate, E', and lever D, pivoted to disk E, and having a shank engaging notch *b*, and a thumb-plate, D', projecting over top plate, E', substantially as and for the purposes specified.

2. In a sash-fastener, the combination, with the spring-actuated bolt C, of disk E, having grooved projection *d*, to support the said bolt, and lever D, having a shank engaging a notch in the bolt, and a projecting thumb-plate, D', for operating the same, substantially as and for the purposes specified.

321,056. BOX. ARSÈNE SAUPIQUET, Nantes, France. Filed Apr. 25, 1884. (No model.) Patented in France May 10, 1882, No. 148,892.

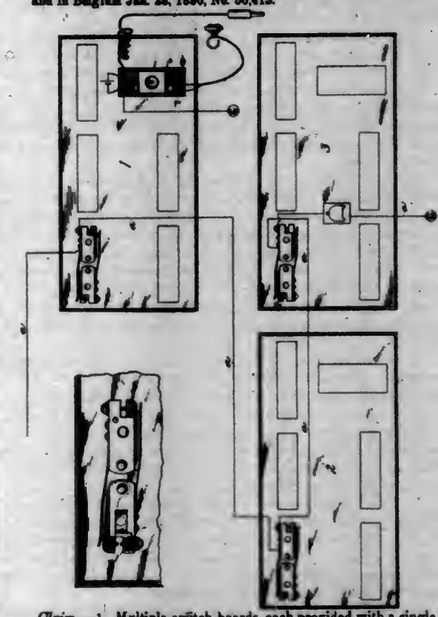


Claim.—1. A packing can or box, substantially as described, having the material of which it is constructed weakened in lines, as *a a*, to facilitate the opening of the box, as set forth.

2. A packing can or box having its band portion or body A provided with longitudinal weakened lines *a a*, as and for the purposes set forth.

3. The can described, having its body A provided with weakened lines *a a*, and with a tapering loose flap, B, the whole adapted to serve with a key, D, as set forth.

321,057. MULTIPLE SWITCH-BOARD SYSTEM. CHAS. E. SCRIBNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Sept. 22, 1884. Renewed May 23, 1885. (No model.) Patented in England Nov. 20, 1879, No. 4,903; in France Jan. 16, 1880, No. 134,596, and in Belgium Jan. 28, 1880, No. 50,413.



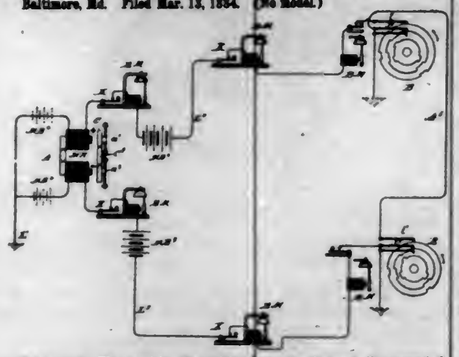
Claim.—1. Multiple switch-boards, each provided with a single bolt or switch for each subscriber, the bolts or switches of each subscriber on the different boards being connected together and the bolt of the last board being connected with the ground, substantially as and for the purpose specified.

2. In a multiple switch-board system of telephone exchange, the combination, with the different telephone-lines, of spring-jack switches, one switch for each line on each board and each line being connected from the switch on the last board to the ground connection, and connecting-plugs at the different boards provided with flexible cords, whereby the contact-points of the spring-jack of any given line on any given board may be separated to cut off said line from its normal ground connection by the insertion of a plug in said spring-jack, while a new connection is formed between the line and the flexible conducting-cord of the inserted plug.

3. The combination, with a telephone-line, of two or more switch-boards, each provided with a different spring-jack switch, through which switches said line is connected one after the other and from the switch on the last board to ground, one contact-point of each of said switches being connected normally to line and the other contact-point to ground, and plugs, whereby the contact-points of any given switch may be separated, thereby cutting off the line from the ground-contact of the switch

in which a plug is inserted, while a new connection is formed between the line-contact of the switch and the inserted plug.

321,058. FIRE AND POLICE ALARM TELEGRAPH. CHAS. SELDEN, Baltimore, Md. Filed Mar. 13, 1884. (No model.)



Claim.—1. The combination, with a loop-circuit normally grounded at a central office, of two sections of main battery, one in each side of the normally closed or intact loop-circuit, a relay-magnet coil in each side of the loop, and a signal mechanism having line and earth connections for sending a predetermined or set signal, either by opening of the loop-circuit or by grounding thereof.

2. The combination, with a loop-circuit normally grounded at a central office, and having in each side or leg a section of main battery whose circuit is completed normally over the loop-circuit, of a transmitter provided with circuit closing and breaking devices adapted to send a predetermined signal by grounding both sides of the loop-circuit, one side before the other, and also by opening said loop-circuit, and apparatus at the central office responsive to breaks and ground, as and for the purpose described.

3. The combination, with a loop-circuit normally charged, a normal ground therefor at a central office, and a relay-magnet coil in the loop at each side of the ground, of a box signaling apparatus for sending a predetermined signal by completing a ground for the loop-circuit to each side of the box a predetermined number of times, according to the signal to be transmitted, and for opening the loop-circuit a corresponding number of times at every operation of the box, whereby the signal may be sent to central office either by grounding the loop or by opening a side of the loop when accidentally grounded, as and for the purpose described.

4. The combination, with a normally-charged loop-circuit grounded at a central office, and a differentially-wound receiver having its two coils connected, respectively, at opposite sides of the ground-connection, of a box-signal apparatus having means whereby at each operation thereof the loop-circuit will be opened to send the proper signal in case one side of the loop be grounded, and will also be grounded from both sides of the box to send the same signal in case the loop-circuit be broken, either upon one side or the other of said box.

5. The combination, with a normally-closed loop-circuit grounded at the central office, of two relay armature-levers, a coil or coils in each side of the normally-closed loop-circuit, a common local circuit controlled by said relay-levers, transmitters placed in said closed circuit, and receiving apparatus responsive to the changes of current produced on the closed circuit by the action of said transmitters.

6. The combination, with the grounded loop-circuit, of two relay-armatures, each controlled by a coil in one side of the loop, a common local circuit for said levers, and reversible stops whereby said levers may close said circuit either on front or back stop.

7. The combination, with a loop-circuit grounded at a central office, of a differential relay, the two coils of which are respectively in the two sides of the loop-circuit, batteries in the two sides, respectively, of the loop arranged to normally charge the loop, but to maintain the relay unaffected, and a signaling apparatus adapted to send its signal by grounding the sides of the loop one before the other, and by opening the loop-circuit.

8. The combination, substantially as described, with a grounded loop-circuit normally charged, of a differentially-wound relay, whose coils are respectively connected so that the relay will be normally neutral, means for grounding a side of said loop-circuit to send one class of signals to be received by said relay, and means for opening said charged-loop circuit for sending signals to be received on receiving or signaling magnets or bells normally charged by the current on said loop-circuit.

9. The combination, with a loop-circuit normally closed and grounded at the central office, of a battery in each side of the normally-closed loop, a relay apparatus having two controlling electro-magnetic coils—one in each side of the loop—a box-signal apparatus for sending signals either by opening a side of the loop or by grounding said loop, and Morse keys and suitable receivers in said normally-closed loop-circuit.

10. The combination, with a loop-circuit normally closed and grounded at a central office, of a receiving relay-recoil in each side of the closed loop, two armature-levers—one for each side—a single local circuit, and means whereby each of said levers may be made to close the local on either front or back contact at pleasure.

11. The combination, with a loop-circuit grounded at the central office, of a differential horseshoe relay-magnet having a divisible yoke and divisible armature, whereby said relay may be transformed into two relays, as and for the purpose described.

12. The combination, with the loop-circuit, of the bisected horseshoe-relay, bisected armature, two relay-levers, connected, respectively, to opposite ends of the armature, relay contact-stops for each lever, and a common local circuit containing a register or recorder.

13. The combination, with the grounded loop-circuit normally charged, of the differential horseshoe-magnet normally neutral, means for bisecting said magnet and its armature, relay-contacts controlled by each half of the armature, and adjustable to work on open or closed circuit, a common local circuit containing a register or recorder, and a transmitter on the loop-circuit adapted to send a predetermined signal by successively but in any desired order grounding the sides of the loop one before the other, and opening the loop for each element of the signal to be transmitted, as and for the purpose described.

14. The combination, in a district or fire telegraph system, of a loop-circuit grounded at the central office, and a differential relay, one coil of which is in one side and the other in the other side of the loop, and a section of battery in each side of the loop combined to normally charge the loop-circuit, without, however, charging the relay, as and for the purpose set forth.

15. The combination, with the loop-circuit, of the three transmitting disks or surfaces and the circuit opening and closing spaces thereon for each element of the signals, arranged in the manner described, to ground one side of the loop-circuit, to ground the other side thereof, and to open-circuit the loop, said groundings and openings of the loop taking place in any desired order, whereby a signal will be sent according to the condition of the loop, either by grounding one side only of the loop, the other being at such time open, when the loop-circuit is in normal condition, by grounding either open side of the loop or by opening either grounded side.

16. The combination, in a district or fire alarm telegraph box, of a compound signaling disk or surface consisting of three signaling disks, surfaces, or portions, independently adjustable with relation to one another, as and for the purpose described, whereby the order of the breaking of the line and grounding of the two sides thereof may be varied.

17. The combination, with the loop-circuit, of two loop-circuit disks, W' W^2, and a ground-circuit disk, adjustable with relation to one another about their axis, whereby the order of the breaking of the line and grounding of the two sides thereof may be varied.

18. The combination, with the loop-circuit grounded at the central office, of a relay-lever, a relay-coil in each side of the loop, and adjustable contact-stops, whereby each lever may be arranged to work either on open or closed circuit.

321,059. METAL-SCREW MACHINE. LUCIEN P. SMITH, Hartford, Conn., assignor of one-half to George Best, same place. Filed Sept. 8, 1884. (No model.)

Claim.—1. In a metal-screw machine, in combination, a rotary feed-shaft bearing a disk having projecting pins, and levers bearing each a cam and movable in a plane parallel to the axis of the feed-shaft, the projecting pins and the cams co-operating to translate the rotary motion of the disk into the vibratory motion of the lever, all substantially as described.

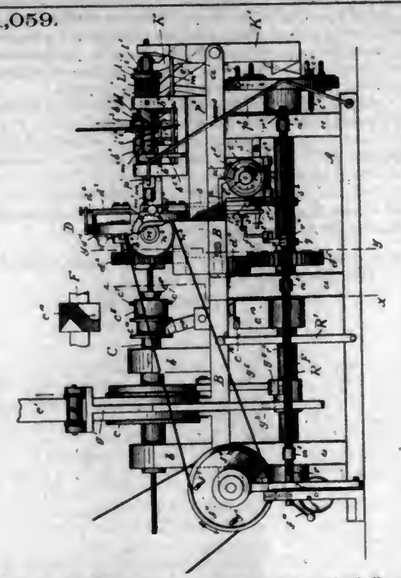
2. In a metal-screw machine, in combination, a rotary feed-shaft bearing a disk having projecting pins that are adjustable as to circular position and degree of projection, and a feed-lever movable in a plane parallel to the axis of the shaft and bearing a cam in the path of one or more of the pins, all substantially as described.

3. In a metal-screw machine, in combination, a rotary feed-shaft bearing a disk having projecting and adjustable pins, and the feed-lever movable in a plane parallel to the axis of the feed-shaft and bearing a removable cam, all substantially as described.

4. In a metal-screw machine, in combination, a rotary hollow rod-spindle bearing a chuck, a sliding tool-head bearing a clamp, a rotary feed-shaft having a disk with projecting pins, and levers bearing cams, whereby the sliding tool-head is reciprocated, all substantially as described.

5. In combination, in a metal-screw machine, a rotary feed-shaft bearing a disk with projecting pins or lugs, the levers with cams movable by said disk, the sliding tool-head, and cog-wheel fixed to the feed-shaft and in mesh with an idler pivoted to the bed-frame of the machine, and the latter in mesh with a cog-wheel borne on a stem fast in the tool-head and bearing a cam-disk, whereby the tool-slides are operated, all substantially as described.

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6. In combination, in a screw-machine, a rotary rod-spindle, with means for holding the rod or stock against longitudinal motion while the screw is being formed, a sliding tool-head, a rotary cam-arm with cams, and tools radially movable in the tool-head and advanced and released by the said cams in working, all substantially as described.

7. In a screw-cutting machine, a sliding tool-head, rotary cam-arm with cams, one or more cutting-tools, and a work-rest opposite each tool and movable by the said cams simultaneously with and in opposite direction to the tool, all substantially as described.

8. In combination, a sliding tool-head bearing a series of sliding tools, a rotary cam-arm bearing cams, whereby the tools are operated, and a locking-latch, d^{16}, all substantially as described.

9. In combination, a sliding tool-head bearing a cutting-tool, a rotary cam-arm bearing cams whereby the tool is operated, and a locking-latch, d^{16}, with an adjustable pin, d^{17}, all substantially as described.

10. In combination, in a screw-cutting machine, the rotary rod-spindle C, bearing chuck c^2, a sliding die-holder and die, with means for rotating the die after the thread has been cut by the rotation of the rod held in the spindle, feed-lever e, return-lever e', and disk E, borne on the feed-shaft F, all substantially as described.

11. In a screw-machine, in combination, a sliding die-holder bearing a clutch device, the part fixed to the holder bearing a tooth, and a pawl and trip device, all substantially as described.

12. In a screw-machine, in combination with rod-spindle C, bearing chuck c^2, the die-spindle I, with its axis in the line of the rod-spindle bearing clutch part i', pulley i^2, spring i^3, pawl i^4, and trip device i^5, with feeding mechanism, all substantially as described.

13. In combination, the cam-sleeve L, bearing cam l^2, slotter-shaft M, bearing pins m^5 m^4, slotted bearing b^2, the spring-stop b^3, the slotter-arm m, the holder m', the spring m^7, arranged on the slotter-shaft, and the slotter-feeding mechanism, all substantially as described.

14. In combination, the oscillating and sliding slotter device bearing a holder, m', and an extractor-rod, p', pivoted to the frame of the machine and operated by a pin projecting from the rotary disk E, all substantially as described.

15. In a screw-machine, in combination, the worm-shaft f, bearing the sliding pulley f^4, the shifter-lever f^7, the sliding stop-rod R, bearing block r', and the stop-lever R', all substantially as described.

16. In combination, the worm-shaft f^3, with sliding pulley f^4, and clutch device f^5, the shifter-lever f^7, the stop-rod R, and the device whereby the rod is shifted by the breaking of the belt c', all substantially as described.

17. In a screw-machine, in combination, the worm-shaft f', bearing a sliding pulley and clutch device, the shifter-lever f^7, the sliding stop-rod R, the arm r^4, bearing a cam, and feed-shaft F, bearing a pin whereby the arm is moved, all substantially as described.

18. In a screw-machine, in combination, the rotary rod-spindle C, bearing the chuck device c^2, the sliding tool-head arranged transversely of the axis of the rod-spindle and bearing a series of cam-operated tools, a die borne in a sliding holder fixed against rotation while the thread is being cut, the sliding and oscillating slotting device, the rotary saw, and the feed mechanism whereby the devices are operated, all substantially as described.

19. In a screw-machine, in combination with the stop-rod R, the feed-shaft F, bearing collar q, having pin q', the arm r^4, bearing the cam, the feeler mechanism S, the arm s^4 of which projects toward and underneath a projection on the arm r^4, all substantially as described.

20. In combination with the feeler mechanism S, the pawl-lever t^6, bearing pawl t^8, ratchet-gear t^4, fast to worm-shaft t^3, that bears the worm t^9 in mesh with worm-gear t, bearing counter-disk t^7, removably connected to the gear t, and bearing a lug, t^5, all substantially as described.

21. In combination with the feeler mechanism S, a counting mechanism, T, the bent lever u, bearing an index-finger, u', having the lug u^2, connected by a rod, u^3, to the tilter r^3, borne on the arm r^4 of the stop mechanism, and a projecting lug or pin, t^6, on the ratchet-gear, all substantially as described.

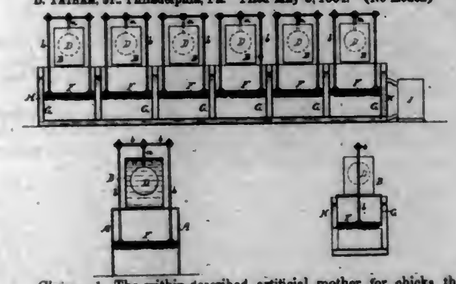
22. In a counting device, in combination with the feeler and stop mechanism, the worm-gear t, bearing the adjustable counter-disk t^7, and means for securing the disk to the gear-wheel, all substantially as described.

23. In a screw-machine, in combination with the sliding tool-head D, the taper device V, all substantially as described.

24. In a taper device, in combination with the sliding tool-head, having a tool-holder with projecting arm v, the taper-block v^2, and the tilting-block v^3, pivoted to the bracket and having the undercut end v^4, all substantially as described.

25. In a screw-machine, in combination with the sliding tool-head, a sliding cutting-tool and tool-rest arranged in line with each other and operated in opposite directions by means of a rotary cam-block, all substantially as described.

321,060. ARTIFICIAL MOTHER FOR RAISING CHICKENS. HENRY B. TATHAM, Jr., Philadelphia, Pa. Filed May 5, 1884. (No model.)

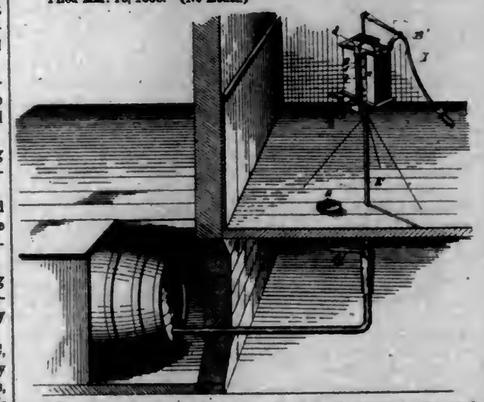


Claim.—1. The within-described artificial mother for chicks, the same comprising a water-vessel, a submerged float, a disk or cover for the chicks, and means for connecting said disk or cover to the float, as set forth.

2. The combination of a casing, G, a water-vessel, a submerged float, and a disk carried and partially counterbalanced by the letter and free to move vertically in the casing, as set forth.

3. The combination of a water-vessel, a submerged float, a disk carried and partially counterbalanced by the latter, a casing, G, an outer casing, H, and a heater, whereby warm water is caused to circulate within the casing H and around the casing G, as set forth.

321,061. MEASURING-PUMP. JOHN H. THORN, Youngstown, Ohio. Filed Mar. 16, 1885. (No model.)

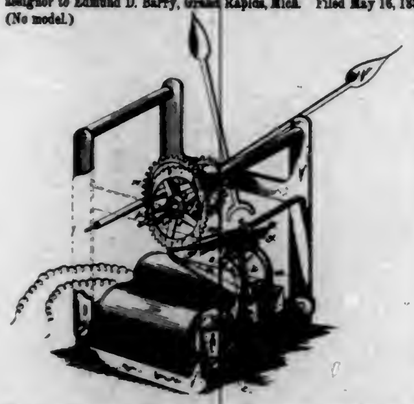


Claim.—1. In a measuring-pump, the measuring-tank A, mounted directly on top of the pump-barrel and communicating therewith, a sucker-rod passing through said tank or receptacle and into the pump-barrel,

and a sliding valve adapted to slip over the sucker-rod and close the top of the pump-barrel by the weight of the liquid in the measuring-tank, as set forth.

2. In a measuring-pump, the two-part chamber D', secured to and communicating with the measuring-tank A, the chamber *b*, provided with the strainer, in combination with the indicating-tube, open at both ends and communicating with the measuring-tank, as set forth.

321,062. MECHANICAL MOVEMENT. SVEN TIDEMAN, Chicago, Ill., assignor to Edmund D. Barry, Grand Rapids, Mich. Filed May 16, 1885. (No model.)



Claim.—1. In a mechanical movement, the combination of an impulse-lever, a pawl connected thereto and engaging with a wheel, a spring for returning said impulse-lever to its normal position, and means for actuating said lever, substantially as described.

2. In a mechanical movement, the combination of an impulse-lever, a pawl connected thereto and engaging with a wheel, a spring for supporting said pawl and returning said impulse-lever to its normal position, and means for actuating said lever, substantially as described.

3. In a mechanical movement, the combination of an impulse-lever having a detent attached thereto, a pawl hinged to said lever and engaging with a wheel, a spring for returning said impulse-lever to its normal position, and means for actuating said lever, substantially as described.

4. In a mechanical movement, the combination of an impulse-lever having a detent attached thereto, a pawl hinged to said lever and engaging with a wheel, a spring for supporting said pawl and returning said impulse-lever to its normal position, and means for actuating said lever, substantially as described.

5. In a mechanical movement, the combination of an impulse-lever, a pawl hinged thereto and engaging with a wheel, a ratchet for preventing the backward movement of the wheel, a spring for returning said impulse-lever to its normal position, and means for actuating said lever, substantially as described.

6. In a mechanical movement, the combination of an impulse-lever, a pawl hinged thereto and engaging with a wheel, a ratchet for preventing the backward movement of the wheel, a spring for supporting said ratchet and for returning said impulse-lever to its normal position, and means for actuating said impulse-lever, substantially as described.

7. In a mechanical movement, the combination of an impulse-lever, a pawl hinged thereto and engaging with a wheel, a ratchet for preventing the backward movement of the wheel, a spring for supporting said pawl and ratchet and for returning said impulse-lever to its normal position, and means for actuating said lever, substantially as described.

8. In a mechanical movement, the combination of an impulse-lever having a detent attached thereto, a pawl hinged to said lever and engaging with a wheel, a ratchet for preventing the backward movement of the wheel, a spring for returning said impulse-lever to its normal position, and means for actuating said lever, substantially as described.

9. In a mechanical movement, the combination of an impulse-lever having a detent attached thereto, a pawl hinged to said lever and engaging with a wheel, a ratchet for preventing the backward movement of the wheel, a spring for supporting said ratchet and for returning said impulse-lever to its normal position, and means for actuating said lever, substantially as described.

10. In a mechanical movement, the combination of an impulse-lever having a detent attached thereto, a pawl hinged to said lever and engaging with a wheel, a ratchet for preventing the backward movement of the wheel, a spring for supporting said pawl and ratchet and for returning said impulse-lever to its normal position, and means for actuating said lever, substantially as described.

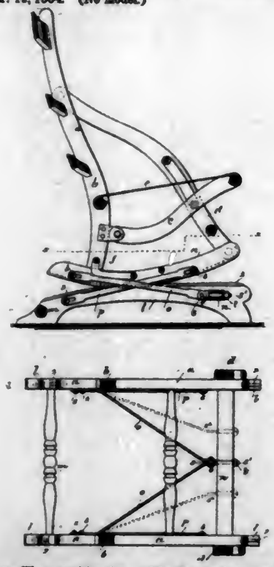
11. In a mechanical movement, the combination of an impulse-lever, a pawl hinged thereto and engaging with a wheel, a ratchet, and a spring for operating each of said parts, substantially as described.

12. In a mechanical movement, the combination of an impulse-lever having a detent attached thereto, a pawl hinged to said lever and engaging with a wheel, a ratchet for preventing the backward movement of the wheel, and a spring for supporting the pawl and ratchet and operating each of said parts, substantially as described.

13. In a mechanical movement, the combination of an impulse-lever having a detent attached thereto, a pawl hinged to said lever, a ratchet, a spring for operating said lever, pawl, and ratchet, a wheel engaging with the detent, pawl, and ratchet, and means for actuating said lever, substantially as described.

14. In a mechanical movement, the combination of a lever, *a*, having a detent, *b*, a pawl, *g*, ratchet *m*, spring *k*, wheel W, and means for operating the same, substantially as described.

321,063. ROCKING-CHAIR. JOHN E. WAKEFIELD, Worcester, Mass. Filed Mar. 19, 1884. (No model.)

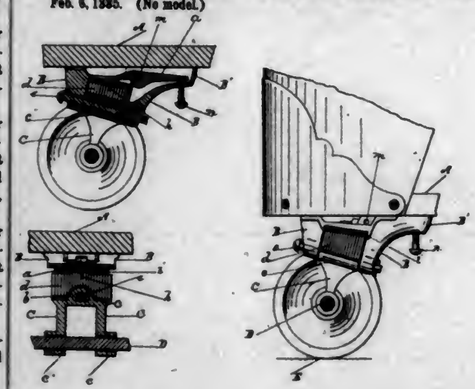


Claim.—1. The combination, with the rockers and base, of the pairs of bars *p p*, pivoted at their back ends to the base and at their front ends to the rockers, the pairs of bars *o o*, occupying diagonal positions to each other, and pivoted at their rear ends to the rockers and connected at their front ends with the base at a distance from the bearers, substantially as set forth.

2. The combination, with the rocking-chair and its base, of the bars *o* and *p*, crossing each other, and pivoted to their respective ends, and the bolt *s'* and nut *t*, connecting the bars *o* to the base, and acting to compensate wear, substantially as set forth.

3. The combination, with the chair and rockers, of bearers for the rockers, and bars *o* and *p*, crossing each other, and pivoted at their respective ends, one set of bars diverging so as to act as braces, substantially as set forth.

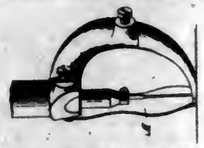
321,064. ROLLER-SKATE. JASPER N. WARD, Richmond, Ind. Filed Feb. 6, 1885. (No model.)



Claim.—In a roller-skate, the hanger-frame B B, provided with a hollow extension, B', combined with a lever, *a*, temper-screw *n*, pressure-plate *h*, and rubber cushion *d*, substantially in the manner and for the purpose herein set forth.

321,065. NEEDLE-GUARD FOR SEWING-MACHINES. SIMON W. WARDWELL, Jr., Woonsocket, R. I. Filed Dec. 7, 1883. Renewed Dec. 11, 1884. (No model.)

Brief.—The guard-plate is substantially parallel with and extends vertically throughout the entire extent of the movement of the needle. It serves to prevent the shoe-upper from being punctured or injured by the needle.



Claim.—1. The combination, with a boot and shoe sewing machine, of a work-guide attachment consisting of a narrow vertical plate of a length greater than the throw of the needle, connected to the machine in a position adjacent the needle and at the side of the same to bear upon the sole of the boot or shoe and to extend vertically upward throughout its entire length, whereby the upper of the boot or shoe being operated upon cannot be injured in the operation of stitching, substantially as set forth.

2. The combination, with the presser-foot of a shoe or boot sewing machine and a reciprocating needle, of a plate or blade carried by said foot and extending vertically upward throughout its entire length at the side of the path of the needle, thereby preventing the needle bearing upon the upper of the shoe when being operated upon, substantially as specified.

3. The combination of the presser-foot of a shoe or boot sewing machine, and the vertical blade A, extending upward alongside the path of the needle from a point adjacent to the slot in the presser-foot, and connected at the upper end to the foot or bar and bearing at its lower end upon the material and forming one side of the needle-slot, substantially as described.

321,066. CLASP-FASTENING FOR BRACELETS. GEO. W. WASHBURN, West New Brighton, N. Y. Filed Apr. 6, 1885. (No model.)



Claim.—1. The combination, with an ordinary clasp-fastening or snap-catch, of a locking-bar attached to its ordinary finger-piece by a pivot, and adapted to interpose its body between said pivot and the top of the shell of the fastening or catch for locking the spring-tongue to which said finger-piece is attached, substantially as herein set forth.

2. In combination with the finger-piece, spring-tongue, and shell of a clasp-fastening or spring-snap, a locking-bar having a bifurcated pivot-end fitted to said finger-piece, a pair of lugs on its back, and a pivot passing through said lugs and finger-piece, whereby said bar when reversed forms an effectively located and relatively large surface to receive the pressure of the finger or thumb in opening the unlocked fastening, substantially as herein set forth.

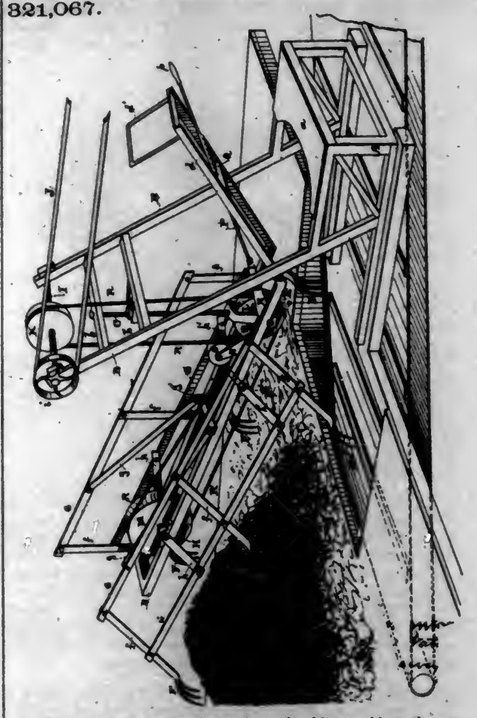
3. The within-described locking-bar, having pivot-lugs on its back and bearing-lugs beyond the pivot on its face, in combination with the finger-piece, spring-tongue, and shell of a clasp-fastening or spring-snap, and a pivot passing through said pivot-lugs and finger-piece, substantially as herein set forth, for the purposes stated.

321,067. RAKE FOR CONDUCTING GRAIN TO THRASHING-MACHINES. JAMES T. WATKINS, San Francisco, Cal., assignor to Byron Jackson, same place. Filed July 18, 1884. (No model.)

Claim.—1. In a rake for conducting grain to a thrashing-machine, the combination, with a supporting-frame and a swiveling suspended frame adapted to be turned to various inclinations horizontally and vertically, of forks having shanks, connecting-bars for said forks, and means whereby said forks are adapted to engage and advance the grain, substantially as described.

2. In a rake for conducting grain to thrashing-machines, a supporting-frame and the swiveling suspended frame, in combination with the forks F, having shanks *f*, connecting-bars for said forks, and a mechanism, as described, for operating the forks continuously during the swiveling of the frame, substantially as described.

321,067.



3. In a rake for conducting grain to thrashing-machines, the combination of the supporting-frame, the swiveling frame D, having an extension, *d*, whereby said frame is readily swiveled to various inclinations horizontally and vertically, and forks mounted on said frame for engaging and advancing the grain, substantially as herein described.

4. In a rake for conducting grain to thrashing-machines, the combination, with supporting-frame, the frame D, and forks mounted thereon for engaging and advancing the grain, of an oscillating forked suspension or pivot rod, C, whereby said frame may be horizontally or vertically inclined, as herein described.

5. The combination, in a rake for conducting grain to thrashing-machines, of the frame A, standards B, depending oscillating pivot-rod C, frame D, pivoted horizontally to the lower end of rod C, devices for engaging and advancing the grain, and the extension *d* of the frame D, substantially as herein described.

6. In a rake for conducting grain to thrashing-machines, the supporting-frame A and swiveling frame D, in combination with a series of forks, F, carried by the frame D, and a mechanism for imparting to the forks a reciprocating curvilinear motion, substantially as herein described.

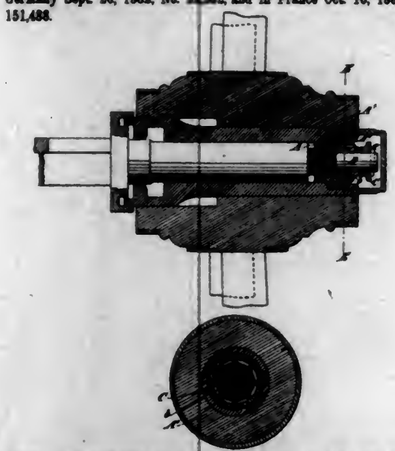
7. In a rake for conducting grain to thrashing-machines, the supporting-frame A and swiveling frame D, in combination with a series of forks, F, bars G, and connecting-bars *g*, as described, and the rotating crank-shafts H H', substantially as herein described.

8. In a rake for conducting grain to thrashing-machines, the supporting-frame A, the rod C, pivoted vertically in said frame, the frame D, pivoted horizontally in the lower end of the rod, whereby it is swiveled horizontally and vertically, and the lever *d*, by which said frame is operated, in combination with the independent series of connected and swinging forks F, carried by the frame D, the crank-shafts H H', and bars G *g*, substantially as herein described.

9. In a rake for conducting grain to thrashing-machines, the frame A, standards B, pivot-rod C, having a forked lower end, the swinging frame D, pivoted to and suspended by rod C and having extension *d*, the series of forks connected with each other and with frame D, and the means for operating the forks, consisting of the crank-shafts H H', the driving-shaft I, and endless rope R, operating on suitable pulleys, substantially as herein described.

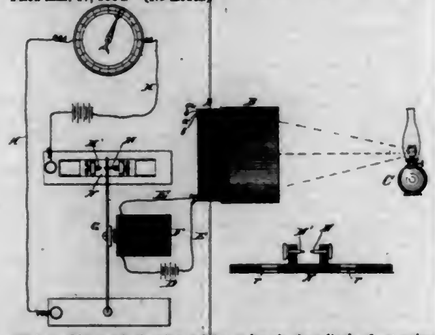
10. In a rake for conducting grain to thrashing-machines, the pivot-rod C, the suspended and swiveling frame D, having extension *d*, forks F, carried by said frame, the crank-shafts H H', and endless rope, cable, or belt R, operating on suitable pulleys to drive the shafts, in combination with a pivoted bent lever, N, having tightener-pulley O and handle-rod P, adapted to engage with a bar, Q, on the lever *d*, substantially as herein described.

321,068. HUB-ATTACHING DEVICE. CARL T. WERNER, Offenbach-on-the-Main, Germany. Filed June 29, 1883. (No model.) Patented in Germany Sept. 26, 1882, No. 21,382, and in France Oct. 10, 1882, No. 151,488.



Claim.—The combination, with the axle-box and the axle having the cylindric end portion D, flattened on one side, of the nut A, having a flange, A', bearing against a seat on the axle-box, and a cylindric portion extending inward from said flange and entering the axle-box, and also having beyond or outside said flange a hollow polygonal head, A'', the sleeve C, having its interior cylindric, with a flattened portion corresponding to the axle portion D, and entering the hollow head A'', and the key or cotter *c*, the said sleeve C and head A'' being provided with interlocking teeth *b*, which extend longitudinally upon their adjacent cylindric surfaces, substantially as herein described.

321,069. ELECTRICAL REGISTERING APPARATUS. CHARLES W. WEBB, Brooklyn, assignor of one-half to Charles Kruse, New York, N. Y. Filed Mar. 17, 1884. (No model.)



Claim.—The method, substantially as herein described, of actuating a registering device, which consists in causing each person or object passing a given point to intercept rays of light falling upon a selenium surface included in an electric circuit, whereby another electric circuit is closed and a registering device included therein actuated.

321,070. CAR-BRAKE. EARL A. WESCOTT and EDMUND R. BRISTOL, Minneapolis, Minn. Filed Jan. 23, 1885. (No model.)



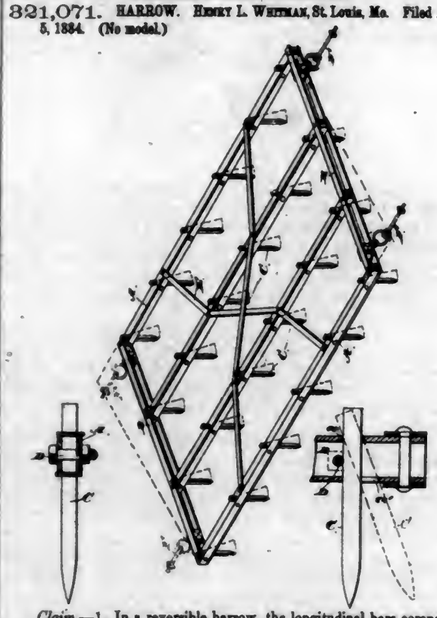
Claim.—1. The combination, with the supply-pipe of an atmospheric-brake system, of a suspended post and a lever connecting it with a valve of the supply-pipe.

2. A post suspended from the truck of a railway-car or engine-truck over the rail, in combination with the supply-pipe of an atmospheric brake, a valve leading to the supply-pipe, and mechanism connecting the post with said valve, whereby the lifting of the post by contact with the rail or other obstruction will open the valve and apply the brakes, substantially as set forth.

3. The combination, with the supply-pipe of an atmospheric-brake system, of a valve leading therefrom, a link, *d*, lever D, and a post suspended from the short arm of lever D over the rail, as and for the purpose set forth.

4. The combination, with the pipe H, of tubes G and their valves, levers D, links *d*, posts F, and guides E, as and for the purpose set forth.

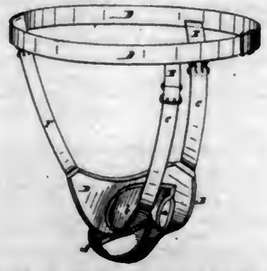
321,071. HARROW. HENRY L. WHITMAN, St. Louis, Mo. Filed Aug. 5, 1884. (No model.)



Claim.—1. In a reversible harrow, the longitudinal bars composed of angle-iron bolted together, the tops of one set of bars being provided with apertures nearly the size of the teeth, and the bottoms of the corresponding parallel bars having slots longer than the width of the teeth, in combination with the straight teeth, the transverse clamping-bolts, and the end bars, substantially as set forth.

2. In a reversible harrow, the combination of the longitudinal bars constructed of angle-iron and provided with apertures and slots having beveled walls, as described, the transverse clamping-bolts at one side of the slots, and the reversible devices, substantially as set forth.

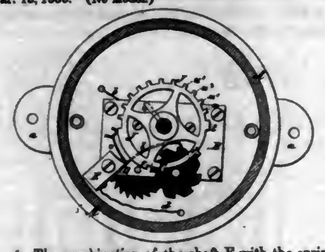
321,072. SUSPENSORY-BANDAGE. EDWARD G. WINCHESTER, Ashburnham, Mass. Filed Apr. 29, 1885. (No model.)



Claim.—1. The scrotum-supporter, substantially as described, consisting of the bearing-plate, provided with an opening into the rear part of the sack, and of the sack, open in rear and in its upper part, and projecting from the said bearing-plate, as set forth, the opening in the upper part of the sack being for reception of the penis, while the scrotum may be in the sack, and the bearing-plate is against the parts of the body in immediate contiguity of the penis and scrotum.

2. The combination of the belt and the three suspensory-straps, extending therefrom to the corners of the bearing-piece, with such bearing-piece, and with the sack projecting therefrom and opening through it, and provided with a penis-receiving opening, all being substantially as set forth.

321,073. TELEGRAPHIC CALL-INSTRUMENT. FRANK B. WOOD, New York, N. Y., assignor to the New Haven Clock Company, same place. Filed Mar. 13, 1885. (No model.)

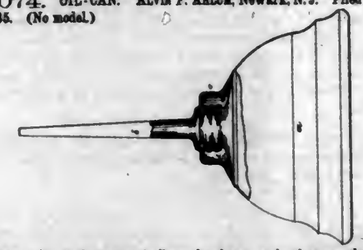


Claim.—1. The combination of the shaft F with the spring I, arm *n*, pawl *p*, having pin *r* and spring *q*, and with the shield L and ratchet-wheel *g*, substantially as herein shown and described.

2. In a signaling-instrument, the combination of the forked contact-piece *m l* with the notched wheels J and H, which are geared together to simultaneously produce the requisite signals by joint action, as specified.

3. The combination of the shaft F with the spring I, toothed wheel *h*, ratchet-wheel *g*, arm *n*, pawl *p*, spring *q*, pin *r*, shield L, shaft *j*, notched wheels H J, forked contact-piece D, and pointer G, substantially as herein shown and described.

321,074. OIL-CAN. ALVIN F. AHLUM, Newark, N. J. Filed Apr. 9, 1885. (No model.)



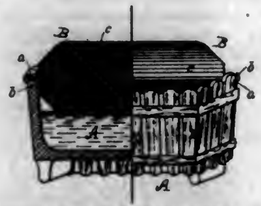
Claim.—1. A sheet-metal oil-cup having a projecting mouth formed one therewith, a second sheet soldered to said body and forming a drip-receptacle therewith, the inner of the two parts being threaded and provided with a threaded spout, substantially as set forth.

2. In combination, a body having a projecting mouth, and a threaded sheet soldered to the inside of said body and forming a drip-receptacle therewith, and a spout secured on said threaded portion, substantially as and for the purposes set forth.

3. In combination, a body having a projecting mouth, a sheet secured within said mouth and forming therewith a receptacle for drippings, and a spout secured on the said sheet, substantially as set forth.

4. In combination, a body having a projecting mouth the edge of which is inwardly turned, a screw secured within said mouth and forming a receptacle therewith, and a spout secured upon said screw, substantially as set forth.

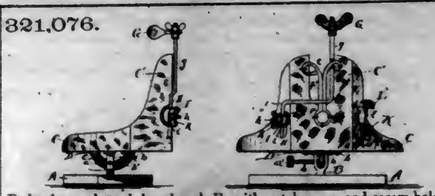
321,075. MOISTENING-ROLLER. DAVID A. ALDEN, Malden, assignor of one-half to Cotton & Gould, Boston, Mass. Filed Nov. 24, 1884. (No model.)



Claim.—In combination with the liquid-receptacle A, having bearings *a* in its edges, the slender shaft or spindle *b*, journaled in said bearings, and the continuous sheet *c*, of absorbent material, which is wound in successive layers on said shaft or spindle, forming a roll which turns in the liquid at its under side in order that it may be used as a moistening-roller, substantially as set forth.

321,076. INFANT'S POSING-CHAIR. MYRON T. BALDWIN, La Grange, Ill. Filed Dec. 10, 1884. (No model.)

Claim.—1. In a tiltable posing-chair, the combination, with a legless base, A, of a plate, B, having supports *b b* and cross-bar *b'*, a plate,

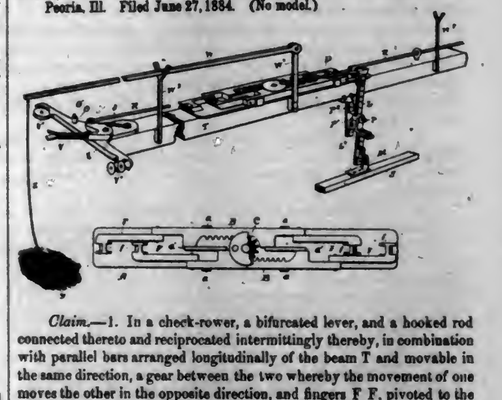


D, having sockets *d d*, and arch E, with notches *e e*, and screw-holes *d' d'*, the threaded hole *a*, thumb-screw *a'*, and chair-seat C, substantially as set forth.

2. In combination with a posing-chair having a seat, C, the back C', provided with an opening, *c*, and the spring-clamp F, as herein described.

3. In combination with a posing-chair, the removable arm-rest L and rod *l*, and a clamp formed of a base-plate, H, having a threaded stem, *h*, a plate, I, having recesses *i i*, and a thumb-nut, K, as herein set forth.

321,077. CORN-PLANTER CHECK-ROWER. LORENZO D. BENNER, Peoria, Ill. Filed June 27, 1884. (No model.)



Claim.—1. In a check-rower, a bifurcated lever, and a hooked rod connected thereto and reciprocated intermittingly thereby, in combination with parallel bars arranged longitudinally of the beam T and movable in the same direction, a gear between the two whereby the movement of one moves the other in the opposite direction, and fingers F F, pivoted to the ends of the said bars B, whereby, when they are engaged by the hook of the rod R, they are allowed movement sufficient for one to pass over the other, substantially as described.

2. In a check-rower, the bars B and means whereby the reciprocation of one of said bars shall conversely affect the other, in combination with the fingers F, one pivoted to each end of the said bars B, and the crooks *f*, formed at the free ends of said fingers, substantially as and for the purpose specified.

3. In a check-rower, the plate A, ears *a*, and central ribs, *a'*, in combination with the pinion C, having bearings projecting from said plate, and the rack-bars B, as set forth.

4. In combination with the bifurcated lever V and rod R, having hook *r*, the rack-bars B, crooked fingers F, pinion C, plate A, ears *a*, and ribs *a'*, as and for the purpose herein set forth.

5. In combination with the pinion C and connecting-rod D, the lever L, having fulcrum-pin P, vertically adjustable, the angle-iron E, adapted to be longitudinally adjusted along said lever, and the pin N, similarly adjustable, substantially as and for the purpose described.

6. In a lever for transmitting the reciprocatory motion of the check-rower to the feed-slide of the planter, the lever L, means for making the lower arm thereof transversely adjustable, and fulcrum-pin P, vertically movable, in combination with the angle-iron E, and pin N, longitudinally adjustable upon the lever L, substantially as and for the purpose specified.

7. The angle-iron E, lever L, lower portion, L^2, thereof adjustably secured thereto by the rectangular arm L^3 L^4, and the pin N, in combination with the pin P and arms P' P^2, all joined together, as shown and described, by means of suitable tongue-and-groove joints, slots, bolt-holes, and bolts, for the purpose described.

8. In a check-rower, the metal cross-head *i*, removable stop O, bifurcated lever V, and hooked rod R, in combination with the beam T, plate A, fast thereon, pinion C, rack-bars B, and crooked fingers F, pivoted to said bars, as set forth.

9. In a check-rower, the beam T, plate A, bars B, fingers F, and pinion C, in combination with the connecting-rod D, angle-iron E, lever L, fulcrum-pin P, vertically adjustable on the arm P^2, projecting from said beam T, the pin N, and slotted eye M, fast on the feed-slide S of the planter, as described.

10. In a check-rower, the transverse beam T, rack-bars B, longitudinally movable thereon, crooks formed at the ends of said bars and adapted to slide the one up over the other, and the pinion C, meshing

with said rack-bars, in combination with the hooked rods R and bifurcated levers V, substantially as and for the purpose specified.

321,078. FURNITURE-DRAWER. CHARLES E. BIRCKHEAD, Washington, D. C. Filed Mar. 12, 1885. (No model.)



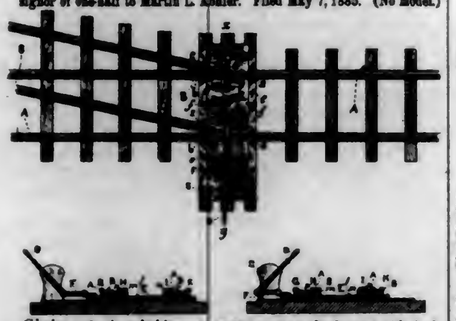
Claim.—1. In a furniture-drawer, the combination, with a case, A, and guides F, located within the case, of the slides B, provided with stops *a* and *b*, castings or plates C, secured on said slides, notches formed in the plates, and enlarged heads which act as stops and bearings, substantially as herein described.

2. As an improvement in furniture-drawers, the slides B, provided with stops *a* and *b*, in combination with metallic plates secured to the slides, said plates being provided with notches *d*, and enlarged heads with inclined inner walls, which serve as stops for the drawer and as bearings for suitable castings on the sides of the drawer, substantially as herein described.

3. A furniture-drawer, in combination with castings E and suitable slides provided with plates having notches in which the castings E rest and are supported at the proper angle, substantially and for the purpose set forth.

4. A furniture-drawer provided with rabbets on its inner sides, in combination with the flap, suitable castings with T-shaped heads attached to the flap, and slotted arms which are pivoted in the rabbets beyond the inner sides of the drawer and adapted to engage the castings, substantially as described.

321,079. RAILROAD-SWITCH. PETER E. BIRD, Jenkintown, Pa., assignor of one-half to Martin L. Kohler. Filed May 7, 1885. (No model.)



Claim.—1. A switching apparatus composed of a movable bed-plate, E, with the sections of rail G H I K mounted thereon, as and for the purpose described.

2. In a switching device consisting of a movable bed-plate, E, with the sections of rail G H I K mounted thereon, the projections *n n* on the sections G and K, as and for the purpose described.

3. In a switching device consisting of a movable bed-plate, E, with sections of rail G H I K mounted thereon, the side pieces, *m m*, on the sections H and I, capable of motion round the pivot *r*, as and for the purpose described.

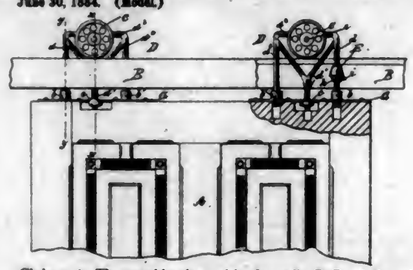
321,080. SNAP-HOOK. CHARLES BLANCHARD, Cincinnati, Ohio. Filed May 5, 1885. (No model.)



Claim.—1. A snap-hook consisting of the hook part A, having the bracket *a*, projections *a'*, and depressions a^2, and a spring-actuated sliding piece, B, substantially as described.

2. The combination, substantially as specified, of the hook part A, having bracket *a* and depressions a^2, with the piece B, consisting of an open box having a portion of its top cut away to permit it to slide transversely and the sides to pass upon opposite sides of the hook part in the depressions a^2, and a spring, C, to hold said sliding piece normally in its forward position against stop a^2 or the hook end of part A.

321,081. DOOR-HANGER. CHARLES W. BULLARD, Chicago, Ill. Filed June 30, 1884. (Model.)



Claim.—1. The combination, with the rails B B, of the wheels C C, the bracket D, composed of the rods d d' d^2 d^3, substantially as set forth, plate G, and pulley E, substantially as and for the purposes specified.

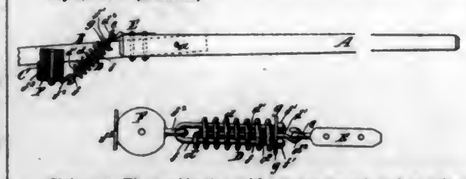
2. The bracket D, made of round rods, and having the arms d, d', and d^2, substantially as and for the purpose set forth.

3. The bracket D, substantially in the form shown, in combination with the plate G, provided with the hole *a* and collars *b b'*, and the nut *c*, substantially as and for the purposes set forth.

4. The cone-shaped pulley A, in combination with the wheels C C, bracket D, and rails B B, substantially as and for the purposes set forth.

5. The combination, with the door A and the plate G, attached thereto, of an independent bracket at each end thereof, having a central threaded arm, d', passing through plate G, and adapted to receive a nut, *e*, on the under side of said plate, substantially as and for the purposes specified.

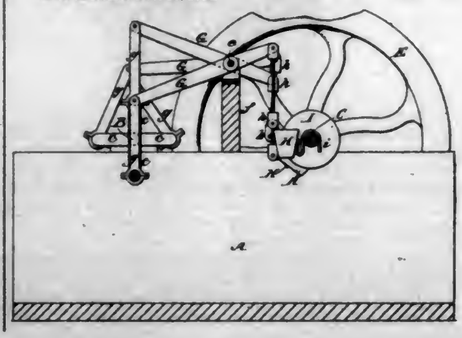
321,082. TONGUE-SUPPORT FOR VEHICLES. FRANK CALLAN, Binghamton, assignor of one-half to Charles Cook, New York, N. Y. Filed May 7, 1885. (No model.)



Claim.—1. The combination, with a tongue or pole and an axle of a vehicle, of an extensible spring-support connected at one end with the inner end of the pole, and at the other end connected with the axle at a point below the pole, and serving by its elastic resistance to extension to sustain the tongue or pole and prevent its falling, substantially as herein described.

2. The spring-pole or tongue-support herein described, consisting of the spiral spring *d*, having one end portion or arm, d', bent inward, and extending through the spring to and beyond the other end of the spring, and there provided with a hook, d^2, the plate or follower *g*, against which one end of the spring bears, and a U-shaped loop or shackle, *f*, arranged within the spring, and having its ends secured to the plate or follower *g*, substantially as herein described.

321,083. APPARATUS FOR TRANSMITTING POWER. LOUIS G. CARRAGA Y SAENZ, Puebla, Mex. Filed May 29, 1885. (No model.) Patented in Mexico Nov. 16, 1884.

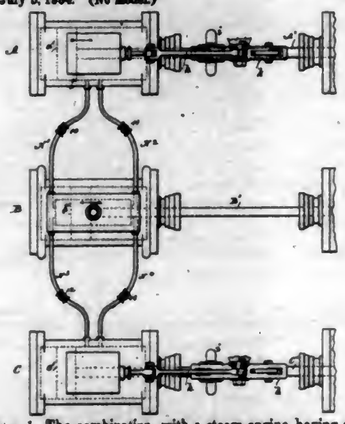


Claim.—1. An apparatus for transmitting power in which is combined a rotatable shaft provided with a power-accumulating balance-wheel, one or more disks fast on said shaft, and one or more loose balls carrying reciprocating tapering pockets constructed to receive the disk or disks partly within them and between the balls in said pocket or pockets, substantially as specified.

2. The combination of the shaft C, one or more disks, I, mounted on said shaft, one or more tapering pockets, H, fitted to rock from the center of motion of said shaft, and constructed to receive the disks partly within them, and the loose balls *k k*, essentially as shown and described.

3. The shaft B, having a series of cranks, *c*, set in different angular relation with each other, in combination with the levers G, connected with said cranks, the shaft C, with its disks I and balance-wheel E, the rocking tapering pockets H, connected with said levers, and constructed to receive the disks I partly within them, and the loose balls *k k*, substantially as specified.

321,084. STEAM-ENGINE. LEON B. CARRICABURU, New York, N. Y. Filed July 5, 1884. (No model.)



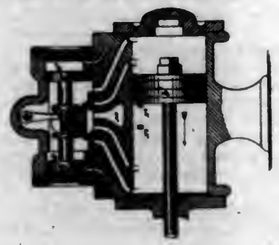
Claim.—1. The combination, with a steam-engine having a cylinder, piston, valve, and mechanism for moving the valve, of a second steam-engine, cylinder, piston, valve, and cylinders and pistons to move the steam-valve, and steam pipes or passages leading from the cylinder of the first engine to the cylinders and valve-moving pistons of the second engine, whereby the first-named engine is entirely independent of the second engine, and the second engine is entirely dependent upon the first engine for the steam that moves its valve, substantially as specified

2. The combination, with two steam-engines, A C, having independent valve-moving mechanism, of an intermediate steam-engine, B, having valve-moving pistons and cylinderr, connecting steam-pipes from said cylinders of the valve-moving pistons to the steam-cylinders of the engines A C, and automatic valves in the steam passage-way of the engine B, substantially as specified.

3. The combination, with two steam-engines, A C, having independent valve-moving mechanism, of an intermediate steam-engine, B, having valve-moving pistons and cylinders, connecting steam-pipes from said cylinders of the valve-moving pistons to the steam-cylinders of the engines A C, and cocks or valves in the said pipes, substantially as specified.

4. The combination of three steam-engines, A B C, each having a cylinder, piston, piston-rod, and valve, with the connecting devices, substantially as set forth, whereby the valve of the engine B is dependent for its movement upon one of either the other two engines, and one or two of the engines can be stopped without interfering with the other engine or engines, substantially as specified.

321,085. STEAM-ACTUATED VALVE. LEON B. CARRICABURU, New York, N. Y. Filed Mar. 30, 1885. (No model.)



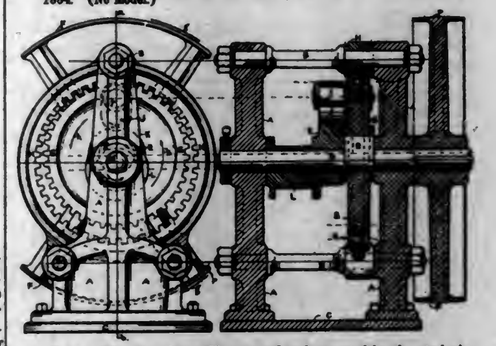
Claim.—1. The combination, with an engine having a cylinder, piston, valve, and valve-actuating pistons and cylinders, of a second steam-engine cylinder, and ports leading directly from the second cylinder to the valve-actuating cylinders and pistons of the first engine, substantially as specified.

2. The combination, with the cylinder of the first engine and its valve and valve-actuating pistons and cylinders, of ports leading into a second steam-cylinder, and a piston in such cylinder that acts as a valve to the said ports to admit steam by one of the ports to move the valve and valve-actuating pistons of the first engine, and to confine the vapors in the other port and in the cylinder with which it is connected to cushion the valve-actuating piston of the first engine, substantially as specified.

3. The combination of two steam-cylinders and their pistons, two steam-valves, valve-actuating pistons and their cylinders, and ports leading directly from each cylinder to the valve-actuating cylinder of the adjacent engine, substantially as specified, whereby the piston of one engine acts as a valve to the ports leading directly to the valve-moving devices of the adjacent engine, and the said ports do not pass through and are not influenced by any valve or moving device, as set forth.

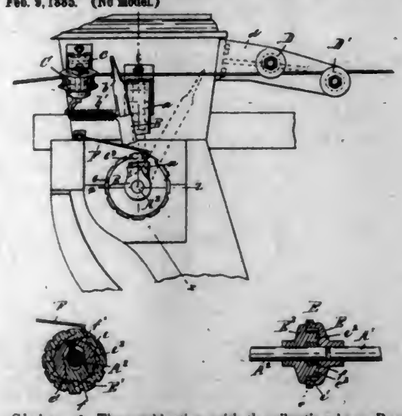
4. The combination of two engine-cylinders and their pistons and ports, two valve-moving pistons and their cylinders, a D-valve to one engine, and a B-valve to the other engine, and ports leading from the cylinder of one engine to the valve-moving cylinder of the other engine, substantially as set forth.

321,086. APPARATUS FOR TRANSMITTING DIFFERENTIAL ROTARY MOTION. GEORGE F. CLEMONS, Springfield, Mass. Filed Dec. 3, 1884. (No model.)



Claim.—The slotted arm K, engaged and operated by the stud-pin I, substantially as shown and described, in combination with mechanism, substantially as herein set forth, for transmitting differential rotary motion.

321,087. CHECK-ROWER. OCTAVIUS J. COLTON, Galesburg, Ill. Filed Feb. 9, 1885. (No model.)



Claim.—1. The combination, with the vibrating lever B and its shaft A^2, of the intermittently-rotating shaft A' and a yielding clutch connecting the said shafts, substantially as and for the purposes specified.

2. The combination, with the head E', having internal ratchet-teeth, e', of the head E^2, provided with spring-pawl *f*, to engage the said ratchet-teeth, substantially as and for the purposes specified.

3. The combination, with the shaft A' and the seed-dropping mechanism operated thereby, of the head E', mounted on said shaft and having internal ratchet-teeth, e', and the oscillating head e^3, provided with

spring-pawl *f* to engage said ratchet-teeth, substantially as and for the purposes specified.

4. The combination, with the shaft A′, which operates the seed-dropping mechanism, the said shaft being provided with a head, E′, having internal ratchet-teeth, *e′*, of the shaft A^3, carrying the vibrating lever B, and having a head, E^2, provided with a spring-pawl, *f*, to engage the ratchet-teeth *e′*, substantially as and for the purposes specified.

5. The combination, with the shaft A′, having head E′, provided with internal ratchet-teeth, *e′*, of the shaft A^3, arranged in line with the shaft A′, and provided with a head, E^2, having a spring-pawl to engage with the ratchet-teeth *e′*, the inner end of the shaft A^3 having its bearing in the hub of the head E′, substantially as and for the purposes specified.

6. The combination, with the shaft A′, having head E′, provided with internal ratchet-teeth, *e′*, and external notches, *e*, of a catch, F, to engage with the said notches *e*, and the oscillating head E^2, provided with a spring-pawl, *f*, to engage with the ratchet-teeth *e′* and with the lug e^3 to raise the catch F, substantially as and for the purposes specified.

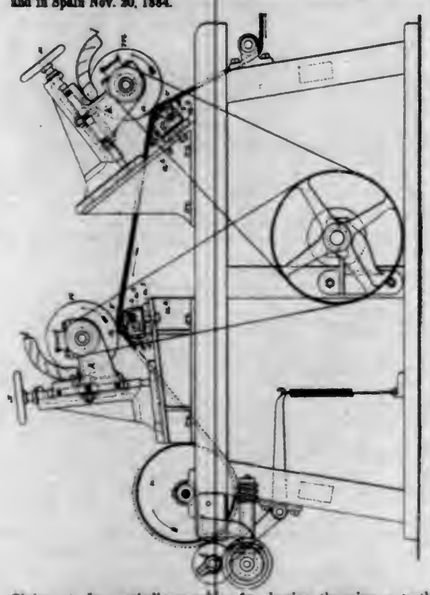
7. The combination, with the shaft A′, having a hollowed head, E′, provided with the internal ratchet-teeth, *e′*, of the shaft A^3, having a head, E^2, provided with a boss or projection, e^3, fitting within the hollow in the head E′, and a pawl, *f*, sliding in ways in the projection e^3, and thrust radially outward by a suitable spring to engage with the ratchet-teeth *e′*, substantially as and for the purposes specified.

8. The combination of the intermittently-rotating shaft which operates the dropping mechanism, the oscillating shaft, a yielding clutch connecting the said shafts, and a stop arranged to engage and fix the first-named shaft at the end of the operative movement, substantially as and for the purposes set forth.

9. The combination, with the notched head E′, mounted on the shaft A′, of the oscillating head E^2, provided with a lug, e^3, and the catch F, substantially as and for the purposes set forth.

321,088. MACHINE FOR GRINDING WIRE CARDS.

WILHELM DECKER, Mittweida, Saxony, Germany. Filed Mar. 19, 1884. (No model.) Patented in England Dec. 15, 1881, No. 5,491, and Jan. 8, 1884, No. 924; in France Feb. 9, 1883, No. 140,466; in Germany Nov. 16, 1883, No. 28,440; in Belgium Nov. 29, 1883, No. 63,378; in Austria-Hungary Sept. 12, 1884, and in Spain Nov. 20, 1884.



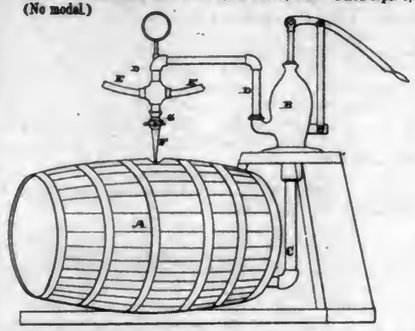
Claim.—1. In a grinding-machine for shaping the wires or teeth of a card-strip into needle-points, the combination, with the grinding-rollers *m n*, having right and left hand spiral grooves therein, of an anvil to each roller, means, substantially as described, for drawing along the strip of card-clothing, bearings for said rollers, and supports for said anvils, said bearings and supports being at an inclination to each other, so that the strip of card-clothing passes to and leaves each grinding-roller at the same angle and passes in a straight line from one roller to the other, substantially as specified.

2. In combination with the roller *m* or *n* and bearing for the same, the anvil *a*, base-piece a^2, support a^3, screw *o*, and nut o^3, whereby the anvil can be adjusted in its relation to the grinding-roller, substantially as specified.

3. The combination, with the grinding-roller and the anvil *a*, base a^2, support a^3, screw *o*, and nut o^3, of the guides *v v*, having dovetailed lower portions entering grooves in the base a^2, the screw *s*, and nuts s^2, substantially as and for the purposes specified.

321,089. MIXING AND AGITATING APPARATUS FOR PLANT-WASHES.

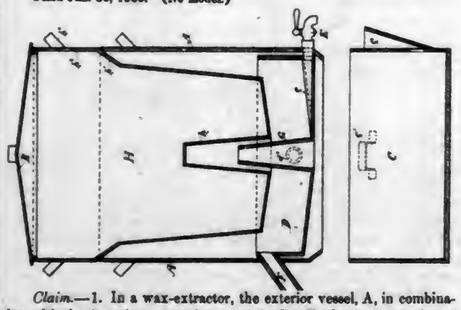
EDWARD J. DELANEY, San José, Cal. Filed Apr. 9, 1885. (No model.)



Claim.—In a mixing and agitating device for plant-washes, the combination, with the reservoir, of a pump having its suction connected with the lower part of the reservoir, and the discharge-pipe having branches and spray-nozzles, and a continuation or nozzle which discharges into the reservoir, together with a regulating-cock, substantially as herein described.

321,090. BEESWAX-EXTRACTOR.

JOSEPH D. ENAS, Napa City, Cal. Filed Jan. 30, 1885. (No model.)



Claim.—1. In a wax-extractor, the exterior vessel, A, in combination with the foraminous vessel or comb-basket H, the lower portion of which lies within and its upper portion extends above the vessel A, substantially as and for the purpose herein described.

2. In a wax-extractor, the exterior vessel, A, in combination with the vessel or comb-basket H, the lower portion of which is foraminous and lies within the vessel A, while its upper portion extends above said vessel and is provided with handles h^3, substantially as and for the purpose herein described.

3. In a wax-extractor, the exterior vessel, A, in combination with the vessel or comb-basket H, the lower portion of which is foraminous and lies within the vessel A, and its upper portion extends above and has a diameter equal to that of said vessel, whereby said comb-basket is supported upon and by the rim of vessel A, substantially as and for the purpose herein described.

4. In a wax-extractor, the exterior vessel, A, and the water-pan D within its base, in combination with the inverted truncated conical-shaped foraminous vessel or comb-basket H within vessel A and above the water-pan, substantially as and for the purpose herein described.

5. In a wax-extractor, the exterior vessel, A, and the water-pan D within its base, in combination with the inverted truncated conical-shaped foraminous vessel or comb-basket H, having an upper unperforated portion, *h′*, the slope of whose sides is greater than the foraminous portion, substantially as herein described.

6. In a wax-extractor, the exterior vessel, A, and the water-pan D within its base, in combination with the vessel or comb-basket H, having a cylindrical top portion, h^3, extending above vessel A, and of a diameter equal to that of said vessel, a portion, *h′*, extending downwardly within vessel A, and of an inverted truncated conical shape, and a foraminous lower portion with the vessel having sides sloping at a less angle than portion *h′*, substantially as and for the purpose herein described.

7. In a wax-extractor, the exterior vessel, A, having a spout or lip, d', in combination with the interior water-pan, D, and the tube d^3, connecting the lip d' with the water-pan, substantially as and for the purpose herein described.

8. In a wax-extractor, the exterior vessel, A, in combination with the interior water-pan, D, the discharge-spout F, projecting from the top of said pan outwardly through the exterior vessel, the lip d' on the exterior vessel having its top just below the level of the discharge-aperture of pan D, and the tube d^3, connecting the lip d' with the pan, substantially as herein described.

9. The wax-extractor consisting of the open-ended cylindrical vessel or casing A, having a lip, d', the steam-generating kettle C, into which it fits, the vessel or comb-basket H, having a cylindrical top portion, h^3, extending above and resting on the top of vessel A, and provided with handles h^3 and a cover, B^2, an inverted conical portion, *h′*, within the vessel A, and an inverted conical base or lower portion perforated, as described, and provided with a central perforated hollow cone, *h*, and the water-pan D, having a central open-ended hollow cone, G, a discharge or overflow spout, F, a drain-faucet, E, and a feed-tube, d^3, communicating with lip d' on the vessel A, all arranged substantially as and for the purpose herein described.

321,091. TRUSS-PAD.

HIRAM G. FARR, Boston, Mass. Filed Sept. 15, 1884. (No model.)



Claim.—1. The hollow elastic pad A, with its shoulder *c*, and the plate B, with its peripheral groove *d*, in combination with a fastening tied or sprung over the pad, for preventing it from being accidentally separated from the plate, substantially as described.

2. The elastic pad A, with its central opening *a*, the grooved plate B, with its openings *s e*, and the elastic ring C, substantially as and for the purpose specified.

321,092. NEUTRAL SIZING MATERIAL FOR PAPER-MAKERS' USE.

ROBERT A. FISHER, Philadelphia, Pa. Filed Mar. 25, 1885. (No specimens.)

Claim.—1. The process described of manufacturing a porous material for paper-makers' use, containing sulphate of alumina and sulphate of zinc free from iron and so neutral that it does not affect the color of artificial ultramarine-blue, substantially as herein set forth.

2. The process herein described of producing from any suitable aluminous substance free from iron a porous sizing material for paper-makers' use, which contains sulphate of alumina and sulphate of zinc, and is free from iron, and so neutral that it does not affect the color of artificial ultramarine-blue, substantially as herein set forth.

3. The process herein described of producing from any suitable aluminous material free from iron a porous sizing material for paper-makers' use, which consists, essentially, in first preparing a solution of sulphate of alumina free from iron, next making such solution neutral or slightly basic by the use of oxide of zinc or other suitable neutralizing material, then, if insoluble matter be present, removing the same to obtain a clear solution, then concentrating the clear solution (if not already sufficiently concentrated) to 65° Baumé, more or less, adding bicarbonate of soda to the hot viscid mass, and finally, after the mass shall have sufficiently cooled, to break it into lumps of the desired size, substantially as herein set forth.

321,093. NEUTRAL SIZING MATERIAL FOR PAPER-MAKERS' USE.

ROBERT A. FISHER, Philadelphia, Pa. Filed Mar. 25, 1885. (No specimens.)

Claim.—1. The process described of manufacturing a white porous material for paper-makers' use, containing sulphate of alumina, sulphate of zinc, and ferrous sulphate, and so neutral that it does not affect the color of artificial ultramarine-blue, substantially as herein set forth.

2. The process herein described of producing directly from any aluminous substance containing iron a white porous sizing material for paper-makers' use, which contains both zinc and iron and is so neutral that it does not affect the color of artificial ultramarine-blue, substantially as herein set forth.

3. The process herein described of producing from any aluminous material containing iron a white porous sizing material for paper-makers' use, which consists, essentially, in first preparing a solution of sulphate of alumina containing iron, next reducing ferric sulphate to ferrous sulphate, next making such solution neutral or slightly basic by the use of oxide of zinc or other suitable neutralizing material, then if any insoluble matter be present removing the same to obtain a clear solution, then concentrating the clear solution, if not already sufficiently concentrated, to 65° Baumé, (more or less,) then adding bicarbonate of soda to the hot viscid mass, and, finally, after the mass shall have sufficiently cooled, to break it into lumps of the desired size.

321,094. MANUFACTURE OF AN ALUMINOUS SIZING MATERIAL FOR PAPER-MAKERS' USE.

ROBERT A. FISHER, Philadelphia, Pa. Filed May 1, 1885. (No specimens.)

Claim.—1. The process herein described of manufacturing a porous material for paper-makers' use, consisting, essentially, of sulphate of alumina and water, and free or nearly free from iron, substantially as described.

2. The process herein described of producing directly from any aluminous substance containing iron a porous material for paper-makers' use, consisting, essentially, of sulphate of alumina and water, and free or nearly free from iron, substantially as described.

3. The process herein described of producing directly from any aluminous substance containing iron a porous material for paper-makers' use, consisting, essentially, of sulphate of alumina and water, and free or nearly free from iron, the process consisting, essentially, in first preparing, by the usual methods known to alum-makers, a solution of sulphate of alumina containing iron, then in converting nearly all the iron contained in the aluminous solution into insoluble Prussian blue by means of a slight excess of yellow prussiate of potash, then removing the incidentally-formed soluble Prussian blue and the slight excess of yellow prussiate of potash by means of oxide of zinc or equivalent substance, then freeing the solution of sulphate of alumina from Prussian blue and other insoluble matter by subsidence, filtration, or otherwise, then concentrating the aluminous solution to 65° Baume, (more or less,) then adding bicarbonate of soda and stirring the same rapidly into the hot viscid sulphate of alumina, and, finally, when sufficiently cool, crushing the porous or vesicular mass into lumps of the desired size, substantially as and for the purpose set forth.

321,095. MANUFACTURE OF A SIZING MATERIAL FOR PAPER-MAKERS' USE.

ROBERT A. FISHER, Philadelphia, Pa. Filed May 1, 1885. (No specimens.)

Claim.—1. The process herein described of manufacturing a porous material for paper-makers' use, containing sulphate of alumina and sulphate of magnesia free from iron, and so neutral that it does not affect the color of the ultramarine-blue used in paper-making, substantially as described.

2. The process herein described of producing directly from an artificial hydrate of alumina a porous material for paper-makers' use, containing sulphate of alumina and sulphate of magnesia free from iron, and so neutral that it does not affect the color of the ultramarine-blue used in paper-making, substantially as described.

3. The process herein described of producing directly from an artificial hydrate of alumina a porous material for paper-makers' use, containing sulphate of alumina and sulphate of magnesia free from iron, and so neutral that it does not affect the color of the ultramarine-blue used in paper-making, the process consisting, essentially, in first dissolving artificial hydrate of alumina free from iron in sulphuric acid and water, then adding to the resulting hot fluid sulphate of alumina magnesia or carbonate of magnesia, then cooling the hot fluid mass till it begins to thicken, then adding bicarbonate of soda and stirring the same into the hot viscid sulphate of alumina and magnesia, to produce a porous or vesicular structure, and, finally, breaking the mass after it has sufficiently cooled into lumps of the desired size, as and for the purpose above set forth.

321,096. SIZING MATERIAL TO BE USED IN THE MANUFACTURE OF PAPER.

ROBERT A. FISHER, Philadelphia, Pa. Filed Feb. 18, 1885. (Specimens.)

Brief.—Improvement on the patent of Pemberton, No. 82,747, and Pelraeous, No. 269,957.

Claim.—1. The process described of manufacturing a white porous material for paper-makers' use, containing sulphate or alumina, sulphate of zinc, and ferrous sulphate, substantially as herein set forth.

2. The process herein described of producing directly from any aluminous substance containing ferric oxide a white sizing material for paper-makers' use which contains both zinc and iron, substantially as herein set forth.

3. The process herein described of producing directly from any aluminous substance containing ferric oxide a white sizing material for paper-makers' use, consisting, essentially, in first heating sulphuric acid, and mixing into it any ferruginous alum-clay, adding water from time to time to prevent overflow, next drawing off the liquid into settling-tanks and decanting the clear liquid, then treating the liquid with metallic zinc and adding bicarbonate of soda, and, finally, cooling the mass and crushing into lumps of desired size.

321,097. MANUFACTURE OF SIZING FOR PAPER-MAKERS' USE.

ROBERT A. FISHER, Philadelphia, Pa. Filed Mar. 6, 1885. (No specimens.)

Claim.—1. The process herein described of manufacturing a porous material for paper-makers' use containing sulphate of alumina and water free or nearly free from iron.

2. The process herein described of producing directly from any aluminous substance containing iron a porous material for paper-makers'

use containing sulphate of alumina and water free or nearly free from iron.

3. The process described of producing directly from any aluminous substance containing iron a porous material for paper-makers' use containing sulphate of alumina and water free or nearly free from iron, the process consisting, essentially, in first heating sulphuric acid and mixing into it any finely-ground ferruginous alum-clay, and adding water from time to time to prevent overflow, next removing all or nearly all the iron contained in the resulting solution of sulphate of alumina by means of plumbic oxide or other oxide of lead, dioxide or sesquioxide of manganese, or permanganate of potash, or any other substance that will precipitate iron from aluminous solutions, then separating all suspended or insoluble matter by subsidence or by filtration, then concentrating the clear solution thus obtained, then adding bicarbonate of soda and stirring the same rapidly into the hot viscid sulphate of alumina, and, finally, when cold, crushing the porous vesicular mass thus obtained into lumps of the desired sizes.

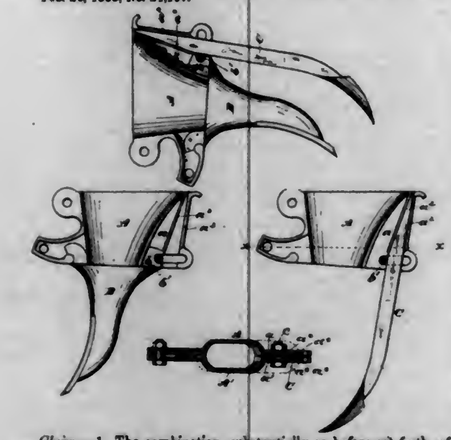
321,098. MANUFACTURE OF SIZING MATERIAL FOR PAPER-MAKERS' USE. ROBERT A. FRASER, Philadelphia, Pa. Filed Mar. 12, 1885. (No specimens.)

Claim.—1. The process described of manufacturing a porous material for paper-makers' use, containing sulphate of alumina, sulphate of zinc, and ferrous sulphate, substantially as herein set forth.

2. The process herein described of producing directly from any aluminous substance containing iron a white porous sizing material for paper-makers' use, which contains both zinc and iron, substantially as herein set forth.

3. The process herein described of producing directly from any aluminous substance containing iron a white porous sizing material for paper-makers' use, consisting, essentially, in first heating sulphuric acid and mixing into it any ferruginous alum-clay, adding water from time to time to prevent an overflow, then reducing ferric oxide to ferrous oxide by the action of zinc either before or after the chemical reaction of the acid and clay is complete, then decanting the clear liquor, then concentrating the same to density of 65° Baumé, (more or less,) then mixing bicarbonate of soda into the hot viscid mass to produce a porous or vesicular structure, and finally breaking the mass after it has sufficiently cooled into lumps of the desired size.

321,099. SOWING-MACHINE. THOMAS D. GALLOWAY, Oshawa, Ontario, Canada. Filed Feb. 12, 1885. (No model.) Patented in Canada Feb. 26, 1885, No. 31,167.



Claim.—1. The combination, substantially as before set forth, of a drill-tooth and a deeper running hoe attached thereto, so as to operate in the wake thereof.

2. The combination, substantially as before set forth, of the receiving-funnel of a drill-tooth, the detachable tubular drill-point, and the hoe attached to the funnel in rear of the drill-point.

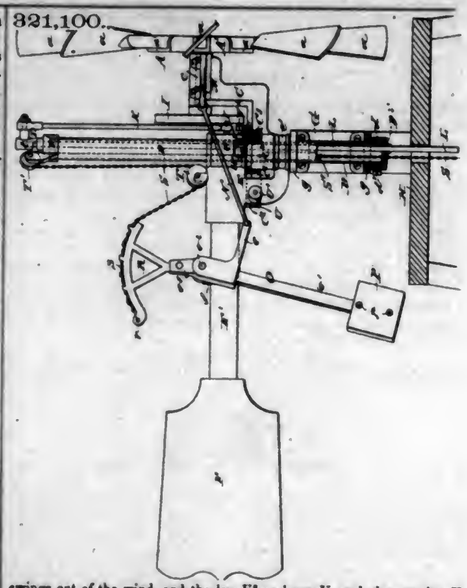
3. The combination, substantially as before set forth, of the receiving-funnel and the hoe attached thereto in a position, substantially as described, so as to leave room for a tubular drill-point in advance of it.

4. A receiving-funnel constructed substantially as described, so that both a tubular drill-point and a hoe may be carried thereby at the same time.

321,100. WINDMILL. JAMES M. GOODHUE, St. Charles, Ill., assignor to Goodhue & Sons, same place. Filed Jan. 24, 1885. (Model.)

Claim.—In a windmill, the combination, with the wheel A, shaft B, arm C, disk-wheel I, and the vane arm or hinge, of the brake-lever V, pivoted to arm C and adapted to strike the vane as the wind-wheel

321,100.



swings out of the wind, and the lug V^2 on lever V, and the cam-lug X on the vane, substantially as herein set forth.

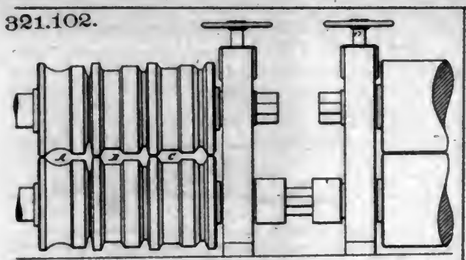
321,101. REVOLVING CHAIR. C. ARNOLD GRAEF, Bay Ridge, N. Y. Filed Jan. 19, 1885. (No model.)

Claim.—In a revolving chair, the combination, with the bar C, carrying the revolving seat-spider A, and provided with side rack-teeth, L, and the socket F, attached to the legs G, of the lever-pawl M and the spring O, substantially as herein shown and described, whereby the said bar will be securely supported and can be readily raised and lowered, as set forth.

321,102. ROLL FOR REROLLING OLD RAILS. WILLIAM H. GRAHAM, Pittsburg, and ALLAN C. MILLIKEN, Millvale, Pa. Filed Aug. 20, 1884. (No model.)

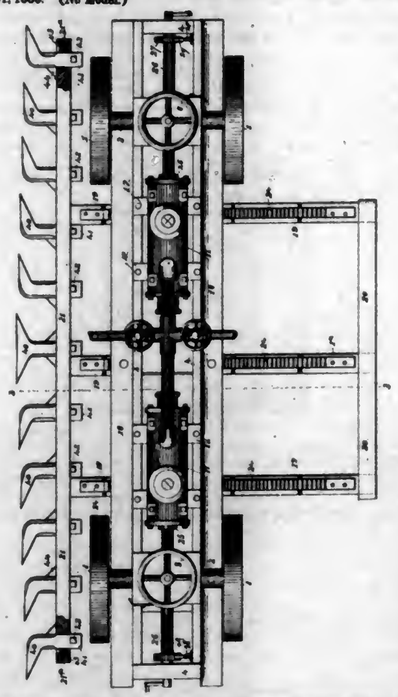
Claim.—In a rolling-mill for worn-out rails, the combination, with a pair of rollers having oval or flat surfaces, of a pair of rollers constructed of three corresponding counterpart sections which are formed

321,102.



with grooves of the successive configuration shown, whereby the rail is consecutively brought to the shapes represented, substantially in the manner and for the purposes described.

321,103. COAL-MINING MACHINE. JONATHAN W. HARRISON, Ypsilanti, assignor of one-half to Charles R. Miller, Adrian, Mich. Filed Aug. 31, 1883. (No model.)



Claim.—1. In a coal-mining machine, the combination, with a stationary frame and a reciprocating frame supported and guided thereon, of a cutter-frame supported by said reciprocating frame and sliding transversely thereof, said cutter-frame being articulated so as to fold up in a vertical plane, in the manner and for the purpose set forth.

2. In a mining-machine, the combination of cutter-bar 21, having a series of recesses, 23°, a series of teeth, 40, supported in the bar 21, and springs 43, for maintaining said teeth in upright position.

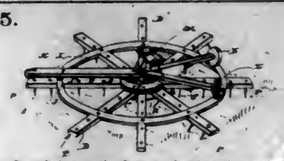
321,104. COMBINED PIPE-BOWL COVER AND STUFFER. GEORGE HAVELL and ALFRED G. WILLIAMS, Newark, N. J., assignors to Wm. Demuth & Co., New York, N. Y. Filed Aug. 7, 1884. (No model.)



Claim.—The combination of the pipe-bowl with a hinged cover having a slotted bottom plate, the telescopic rings, their expanding-spring, and the plunger-rod provided with the short feather *a* and knob N, whereby the rod may be turned and the plunger locked inside the bowl, substantially as and for the purpose set forth.

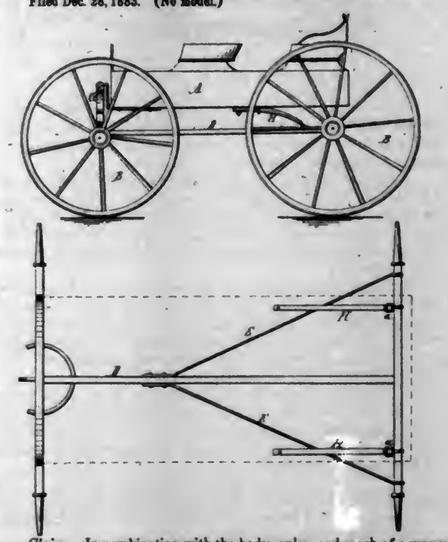
321,105. ROTARY HARROW. CLINTON HAWLEY, Mulberry Grove, Ill. Filed Nov. 25, 1884. (No model.)

321,105.



Claim.—In a harrow, the hub A, having the radial tooth-bars secured to the same, and the annular ring G, secured above the hub, in combination with the bolt or spindle H, the draft-bar K, slotted at its center to receive the spindle, a seat mounted on the draft-bar, the rear end of the latter being bifurcated or forked and provided with friction-wheels L L, the friction-roller J, depending from the draft-bar at the front end, and the grooved roller R, working horizontally against the periphery or edge of the ring G, as set forth.

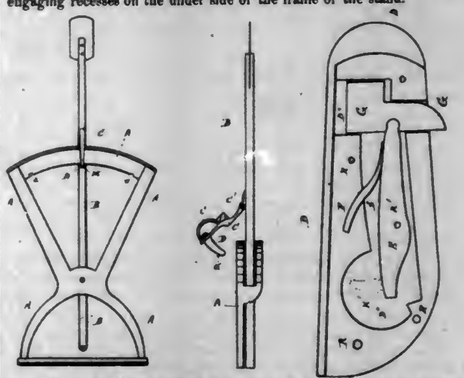
321,106. SPRING-CARRIAGE. CHARLES C. HAYES, Penn Yan, N. Y. Filed Dec. 26, 1883. (No model.)



Claim.—In combination with the body, axles, and reach of a wagon or carriage, and with a cross elliptic spring in front, two longitudinal short curved or semi-elliptic steel springs rigidly attached at one end to the body under its rear corners and at the other end connected with the hind axle by loop-eyes or shackles, substantially as and for the purpose herein specified.

321,107. SWITCH-LOCK. FRANK P. HILBURN and GEORGE L. HOEHN, Mount Vernon, Ind. Filed May 13, 1884. (No model.)

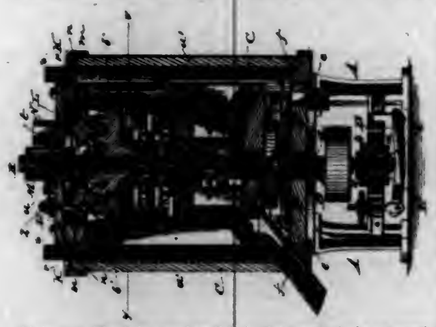
Brief.—A pivoted handle on the lever carries a lock or plug having a spring-pressed bolt, said plug entering a slot in the lever, and engaging recesses on the under side of the frame of the stand.



Claim.—1. The combination of the lever B and handle C, having hinge C', with the plug D, having bolt G, adapted to engage with a slot in the lever B, as described, and for the purposes set forth.

2. The combination of handle C, plates D D', rivets K, and spring F, with lever E, adapted to vibrate on pivot R', and bolt G, as described, and for the purposes set forth.

321,108. BRAN DUSTER AND CLEANER. LEVI S. HOGEBOOM and HENRY B. SMITH, Three Rivers, Mich. Filed Aug. 2, 1884. (No model.)



Claim.—1. The disintegrating-disks having, respectively, an annular series of teeth which taper from their base, are higher on their outer than their inner sides, and are provided on opposite sides with vertical circular grooves, substantially as specified.

2. The combination, with the top plate, L, of the bushing M, having the annular flange provided with perforations to receive securing-screws, and having a plane side, *v*, and the rectangular feed-hopper secured to the said plate L against the plane side of the bushing-flange, whereby the latter may be prevented from turning in its seat, substantially as specified.

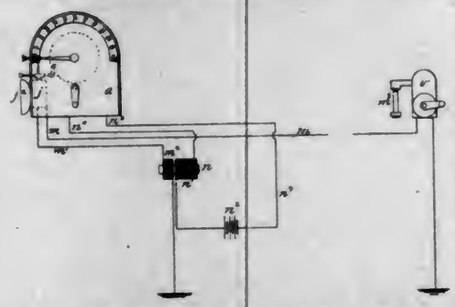
3. The combination of the central vertical shaft, the disintegrating-disk S, secured to the said shaft by the set-screw passing transversely through its hub, the top plate, L, the bushing M, the ring having the under annular flange, W, secured to the bushing M, as shown, and the non-revolving disintegrating-disk adjustably connected to the plate L by threaded bolts and nuts, substantially as specified.

4. The combination, with the top plate, L, of the upper annular plate, K, having the inner flange, *n*, the bottom plate, B, having the flange *f*, the uprights H, recessed on opposite sides, rods I, strips *h*, and boards *a'*, adapted to enter the recesses of the said uprights and form the flour-case, substantially as specified.

321,109. CALCIMINE. KARL A. HOHENSTEIN, Brooklyn, N. Y., assignor to David McMeekan and Arabella G. Wright, both of same place. Filed Mar. 30, 1885. (No specimens.)

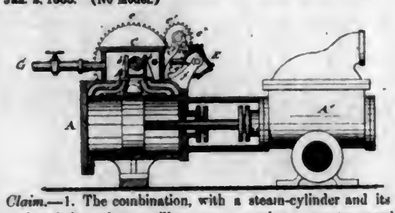
Claim.—A calcimine consisting of lime, caseine, borax, and a soluble gum, substantially as set forth.

321,110. METHOD OF PRODUCING ELECTRIC RESPONDING-SIGNALS. ALFRED G. HOLCOMBE, New York, N. Y., assignor to the Equitable Electric Company, same place. Filed Feb. 24, 1885. (No model.) Patented in England Aug. 27, 1884, No. 11,715.



Claim.—That improvement in the art of automatically returning predetermined signals from a called to a calling station electrically which consists in transmitting electrical impulses from the calling to the called station, causing said electrical impulses to set in motion a predetermined set of additional primary electrical impulses at the called station, which primary impulses set up a set of secondary electrical impulses, and causing said secondary impulses to be transmitted to the signaling-station, thereby communicating to the calling-operator the predetermined information it was desired to automatically transmit from the called or distant station.

321,111. VALVE-GEAR. FRANK W. JENKINS, Brooklyn, N. Y. Filed Jan. 2, 1885. (No model.)

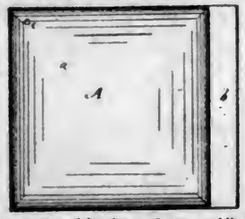


Claim.—1. The combination, with a steam-cylinder and its slide-valve, of an independent auxiliary motor moving at greater speed than the slide-valve and intermediate transmitting mechanism by which motion is imparted to said slide-valve by the motor, substantially as set forth.

2. The combination, with the main steam-cylinder, having separate steam supply and exhaust passages, and its slide-valve, of a transverse cam-shaft actuating said slide-valve, transmitting-gearing, and an auxiliary steam-motor that moves at greater speed than the slide-valve and imparts rotary motion to the gearing and crank-shaft, substantially as set forth.

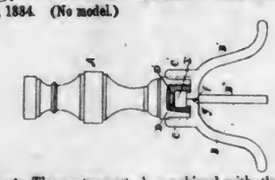
3. An independent valve-gear for steam-cylinders of direct-acting pumps, consisting of a slide-valve, a transverse cam-shaft actuating said slide-valve, an intermediate transmitting-gearing, and an auxiliary steam-engine that moves at greater speed than the slide-valve and imparts rotary motion to the gearing, substantially as set forth.

321,112. BLINDER FOR BRIDLES. HERBERT A. JOHNSON, Medina, N. Y. Filed Nov. 20, 1884. (No model.)



Claim.—As a new article of manufacture, a blinder made from paper-pulp or paper-board, the body portion of which is waterproofed, hardened, and finished, and the flange of which is left in the soft and flexible state necessary for attaching it to the bridle, as herein set forth.

321,113. PIANO-STOOL. ANDREW J. KEDNEY, Ayer, Mass. Filed May 23, 1884. (No model.)

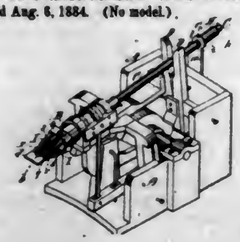


Claim.—1. The center-post A, combined with three or more supporting-legs having projecting sector-shaped necks, and an annular retaining-ring encircling said projecting necks, substantially as described.

2. The center-post A, centrally bored at its lower end, the supporting-legs B B' B², provided with the upward supporting-extensions C C' C², and having the projecting necks D D' D², and the annular retaining-ring E, combined and arranged substantially as set forth.

3. The center-post A, combined with three or more supporting-legs having interlocking splines and grooves, and provided with projecting sector-shaped necks, and an annular retaining-ring encircling such projecting necks, substantially as set forth.

321,114. NAIL-PLATE FEEDER. DAVID W. KEITH, West Wareham, Mass. Filed Aug. 6, 1884. (No model.)



Claim.—1. In a nail-plate feeder, the combination, with a nipper-rod, of a movable stop or projection applied thereto and adapted to be thrown out to catch against a stationary edge or portion of the machine to limit the forward movement of the nipper-rod, and means for retaining and tripping or releasing the said stop, substantially as and for the purpose set forth.

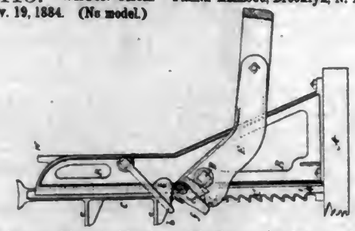
2. In a nail-plate feeder, the nipper-rod C, provided with movable stops or projections G, adapted to be thrown out from opposite sides thereof to catch against a stationary edge or portion of the machine to limit the forward movement of the nipper-rod, in combination with the slide H, having a projection, *l*, adapted to be brought into contact with a rest or projection, *m*, whereby the slide is moved to release or trip the stops G, substantially in the manner and for the purpose described.

3. In a nail-plate feeder, the combination, with the nipper-rod C, of the movable stops G, placed within slots or recesses *e*, and adapted, when released, to be projected outward by springs *k*, and having inclines 12^{i}, as described, and the slide H, with its projection *l*, adapted to retain the stops flush with the surface of the nipper-rod and release or trip the same when slid upon the rod C, as the latter advances, by contact with a rest or projection, *m*, all constructed to operate substantially as and for the purpose set forth.

4. In a nail-plate feeder, the combination, with the barrel B, of the two pairs of nail-plate guides I I, each pair consisting of a rigid arm, *q*, and a spring, *r*, bearing upon opposite surfaces of the nail-plate, substantially as and for the purpose set forth.

5. In a nail-plate feeder, the combination, with the barrel B, of the two pairs of nail-plate guides I I, secured thereto by the caps *t* and screws *w*, each pair consisting of a rigid arm, *q*, and a spring, *r*, provided with a stop-arm, *s*, so arranged that the rigid arms *q q* of the two pairs of guides will bear upon opposite surfaces of the nail-plate, substantially as and for the purpose described.

321,115. WAGON-JACK. FRANK KELLOGG, Brooklyn, N. Y. Filed Nov. 19, 1884. (No model.)

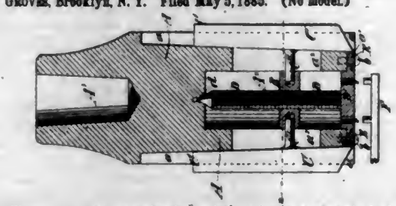


Claim.—1. The combination, with the ratchet-bar, standard, and lifting-pawl, of a lever pivoted to the standard and provided with the cam projections *s*, that liberate the lifter-pawl from the ratchet-teeth when the lever is depressed to its fullest extent, substantially as set forth.

2. The combination, with the standard, ratchet-bar, lever, and lifting-pawl, of a pawl or clevis pivoted to the standard and provided with cam projections that are acted upon by the lever to disconnect the clevis from the ratchet-teeth, substantially as set forth.

3. The combination, with the lever and ratchet-bar, of a standard in which the ratchet-bar slides, and a pin upon such standard, and a ring or loop upon the lever for holding the latter in position when turned up vertically, substantially as set forth.

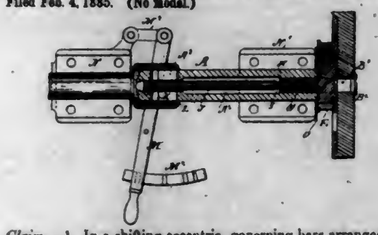
321,116. ADJUSTABLE REAMER. PATRICK J. KELLY and JAMES GROVES, Brooklyn, N. Y. Filed May 5, 1885. (No model.)



Claim.—1. The combination, with a reamer shell or body having longitudinal grooves and a cavity or recess, of cutters dovetailed into said grooves and provided with inwardly-projecting pins or studs, a follower arranged within the recess or cavity of the shell or body and receiving the pins or studs of the cutters, and a screw held against longitudinal movement within the shell or body and engaging with said follower, and serving by its turning to adjust the cutters lengthwise of the shell or body, substantially as herein described.

2. The combination, with the shell or body A, provided with longitudinal grooves or seats *a*, and having an internal recess or cavity, A^3, of the cutters C, dovetailed into said grooves or seats, and having inwardly-projecting pins or studs C', the head or follower B, receiving the such pins or studs, and the screw D, the inner end of which has a bearing at *d*, which engages with said follower, and which has a flanged head, and a cap applied to the end of the shell or body to retain the screw in place therein, substantially as herein described.

321,117. VALVE-GEAR. ABRAHAM R. LANDIS, Waynesborough, Pa. Filed Feb. 4, 1885. (No model.)



Claim.—1. In a shifting-eccentric, governing-bars arranged within and across the shaft and provided with diagonally-disposed ribs upon the sides thereof facing the axis of the shaft, in combination with a diagonally-ribbed bar located within the shaft, substantially as specified.

2. The combination of a centrally-bored shaft, an operating-rod, a ribbed bar arranged in the bore, and a governing-bar ribbed upon the side thereof facing the center of the shaft and arranged across the shaft and in engagement with the axial ribbed bar, substantially as and for the purpose described.

3. The combination of a bored and slotted shaft, an eccentric mounted thereon, governing-bars arranged within the eccentric and passing transversely through the shaft, a central bar having ribs adapted to mesh with the ribs of the governing-bars, an operating-rod connecting with the central bar and with a sliding collar mounted on the shaft, and a sleeve connected with a lever, substantially as and for the purpose described.

4. The combination of a bored and slotted shaft, an eccentric mounted thereon, a central bar provided with a transverse key, a sliding collar made in halves, and a sleeve therefor, whereby said collar is wholly inclosed, substantially as and for the purpose described.

5. The combination of the hollow shaft A, eccentric E, the transverse ribbed bars F^3, the central ribbed bar, G^3, rod J at the end thereof, the split collar L, its sleeve L^2, and the lever M, constructed substantially as described, and for the purpose set forth.

6. The combination of a centrally-bored shaft, an operating-rod, a ribbed bar arranged in the bore, and ribbed governing-bars arranged across the shaft and in engagement with the axial ribbed bars, with a disk, B, eccentric E, having dovetailed base-piece D, and recessed frame C, secured to the disk by bolts, substantially as and for the purpose described.

7. The combination of the hollow shaft A, central rod, J, and key K, the split collar L and its sleeve L^2, and bosses L^3 thereon provided with concentric grooves, with the lever M, made of two halves having cavities *m'* to receive the bosses, substantially as and for the purpose described.

8. The combination of the hollow shaft A, central rod, J, and key K, the collar L, its sleeve L^2, and bosses thereon, with the lever M, having its inner end provided with ball-sockets, and the link M^3, having ball-journals at each end, substantially as and for the purpose described.

321,118. ORE SEPARATING AND CONCENTRATING MACHINE. HENRY LANDRIN, Anglet, Basses-Pyrénées, France, assignor to David Block, San Francisco, Cal. Filed Oct. 8, 1884. (No model.)

Claim.—1. In an ore separator and concentrator, the combination, with the vessel with an outwardly-flared upper end, of the hopper with an outwardly-flared upper end resting upon the said upper flared end of the vessel, and having an operating or shifting lever, said hopper having its bottom or floor comprising a series of pivoted wings, and the roller supported by the cylinder and acting upon said wings, substantially as and for the purpose set forth.

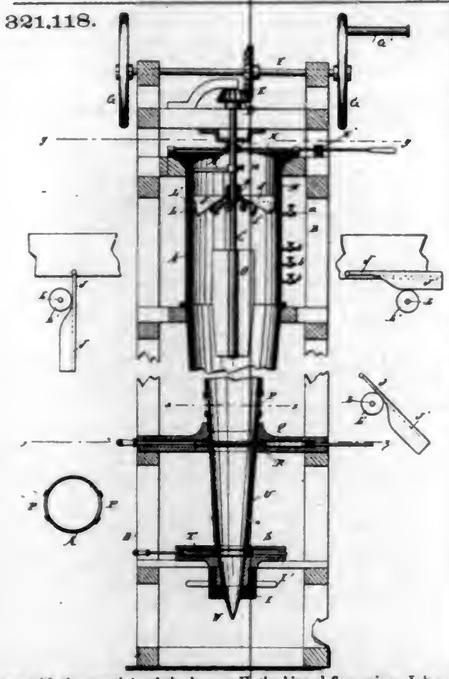
2. In an ore separator and concentrator, the combination, with the cylinder or vessel and its shaft having blades and a rake, of the hopper having a floor comprising a series of movable wings arranged immediately of the said rake and blades, substantially as and for the purpose set forth.

3. In an ore separating and concentrating machine, the combination, with the vessel A, of the hopper H in the top of the same, which hopper has its floor formed of a central hub, and wings pivoted in said hub and in the bottom of the hopper, substantially as herein shown and described.

4. In an ore separating and concentrating machine, the combination, with the vessel A, of the hopper H, having hinged floor-wings J, and the rollers L', held on the sides of the vessel A below the floor-wings, and means for shifting the hopper, substantially as herein shown and described.

5. In an ore separating and concentrating machine, the combina-

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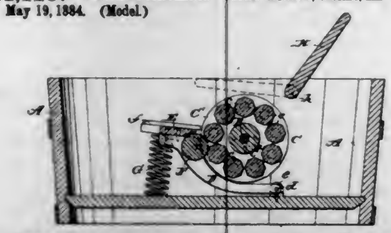


tion, with the vessel A, of the hopper H, the hinged floor-wings J, having flanges J', provided with inner beveled ends, and the rollers L', held on the sides of the vessel below the said wings, and means for shifting the hopper, substantially as herein shown and described.

6. In an ore separator and concentrator, the combination, with the vessel having the lower tapering part, of the cut-offs and the inverted conical chamber detachably connected to said tapering part of vessel, said cut-offs being arranged intermediately of the upper end of said tapering part and the conical chamber, substantially as and for the purpose set forth.

7. In an ore separating and concentrating machine, the combination, with the vessel A, of the hopper H, having the hinged floor-wings J, the handle-lever N, connected with the hopper, and the rollers connected to the vessel and acting upon said wings, substantially as herein shown and described.

321,119. WASHING-MACHINE. PETER LAWSON, Moline, Ill. Filed May 19, 1884. (Model.)

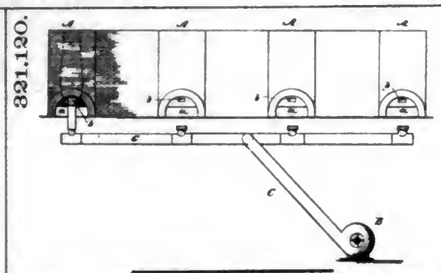


Claim.—In a washing-machine, the combination, with the tub A and the washing-wheel C, journaled in the tub, and having its periphery formed of independently-rotating and plane-sided or angular rollers *c*, of the curved arms D, pivoted at *d* to the bottom of the tub, and connected together by board E, the pressure-roller F, journaled in the said frame, and the springs G between the free end of the frame and the bottom of the tub, substantially as herein shown and described.

321,120. ART OF MANUFACTURING PORTLAND CEMENT. ROBERT W. LESLEY and DAVID GRIFFITH, Egypt, Pa., assignors to the Pennsylvania Patent Right Company, same place. Filed Nov. 22, 1884. (No model.)

Claim.—The method of destroying the clinker bridge formed in a kiln by and during the operation of calcining cement-making material to a clinker, by directing against the under face of said bridge a current of cold air, so as to effect the cooling and consequent contraction and breaking down of the bridge, substantially as hereinbefore set forth.

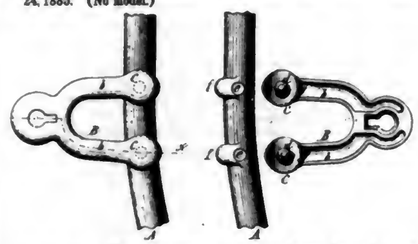
321,120.



321,121. MANUFACTURE OF CEMENT. ROBERT W. LESLEY and DAVID GRIFFITH, Egypt, Pa., assignors to the Pennsylvania Patent Right Company, same place. Filed Nov. 22, 1884. (No specimens.)

Claim.—The method of artificially seasoning cements by subjecting the same, after the final grinding operation and in pulverulent condition, to the action of a forced current of air charged with moisture, substantially as described.

321,122. HAME. GEORGE J. LETCHWORTH, Buffalo, N. Y. Filed Mar. 24, 1885. (No model.)

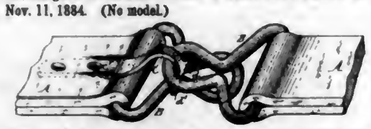


Claim.—1. The combination, with the hame-body A, provided with an opening, *s*, of a draft-eye, B, having its leg *b* provided with a stud, *d*, whereby the draft-eye is secured to the hame-body, substantially as set forth.

2. The combination, with the hame-body A, provided with an opening, *e*, and an enlargement or lug, *f*, opposite said opening *e*, of a draft-eye, B, having its leg resting against the enlargement of the hame, substantially as set forth.

3. The combination, with the hame-body A, provided with an opening, *e*, and a lug, *f*, opposite said opening, of a draft-eye, B, having its leg *b* resting against the lug *f*, and provided with a stud, *d*, which secures the draft-eye to the hame-body, substantially as set forth.

321,123. TRACE-CARRIER. ANDREW MAXWELL, Mount Sterling, Ill., assignor of one-half to Pratt & Letchworth, Buffalo, N. Y. Filed Nov. 11, 1884. (No model.)



Claim.—The combination, with the trace and eockeye, of a trace-carrier, C, composed of a shank, *c*, having an upward bend, which is secured to the trace, and an end bar, *d*, which is adapted to engage in the opposite cockeye, sufficient space being left between the shank and the adjacent cockeye for the insertion of the opposite cockeye, substantially as set forth.

321,124. APPARATUS FOR THE MANUFACTURE OF GAS. WM. F. C. M. MCCARTY, Philadelphia, Pa., assignor to Adolph Ohl, James McC. Creighton, and Bernard C. Lauth, all of same place, and Jane Logan, Hagerstown, Md. Filed May 20, 1885. (No model.)

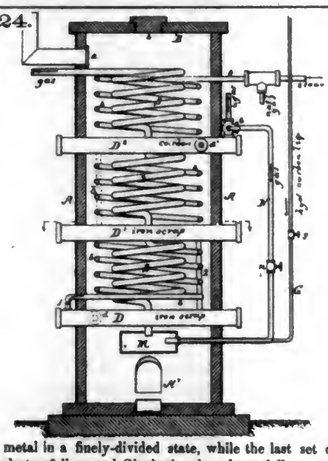
Claim.—1. The combination of the furnace with two or more rows of retorts in the combustion-chamber of the furnace and a connected heating-coil, *b*, between the retorts in said combustion-chamber, as set forth.

2. The combination of the furnace with two or more rows of retorts in the combustion-chamber of the furnace, and a superheating-coil, S, between said retorts in the combustion-chamber and connected to the last retort of the series, as and for the purpose described.

3. The combination of the furnace with two or more rows of retorts, a heating-coil, *b*, between the latter, and a chamber, M, the said retorts, coil, and chamber all being in the combustion-chamber of the furnace, substantially as specified.

4. The herein-described gas-making apparatus, consisting of a furnace having a series of retorts communicating with each other, and an inlet at one end and an outlet at the other, and the first set of retorts

321,124.

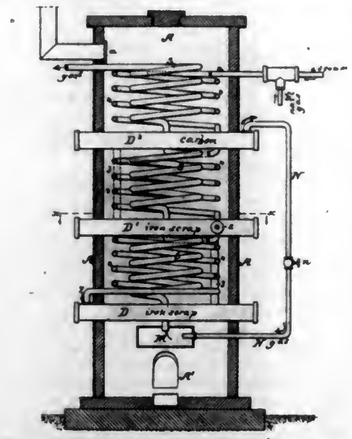


containing metal in a finely-divided state, while the last set of retorts contains hydrate of lime and Glauber's salt, substantially as and for the purpose set forth.

5. The herein-described gas-making apparatus, consisting of a furnace having therein banks of retorts, one above the other and communicating with each other, the lower retorts containing metal in a finely-divided state and the upper retorts containing hydrate of lime and Glauber's salt, substantially as set forth.

6. The herein-described gas-making apparatus, consisting of a furnace containing a series of retorts communicating with each other, a preliminary heating-coil connected to the first retort, and a superheating-coil connected to the last retort, both the coils and the retorts being in the combustion-chamber of the furnace, as set forth.

321,125. PROCESS OF MAKING GAS. WM. F. C. M. MCCARTY, Philadelphia, Pa., assignor to Adolph Ohl, James McC. Creighton, and Bernard C. Lauth, all of same place, and Jane Logan, Hagerstown, Md. Filed May 20, 1885. (No model.)

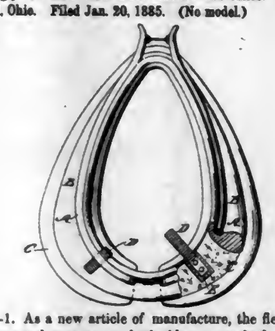


Claim.—1. The herein-described process of converting natural gas into illuminating-gas, said process consisting in subjecting the said gas in the presence of steam to the action of heat, then passing the mixture in contact with iron under heat, and then in contact with a carbon, substantially as set forth.

2. The process herein described of making illuminating-gas, said process consisting in first subjecting the natural gas of the earth in the presence of steam to the action of heat, then subjecting the mixture to the action of finely-divided iron or other material to take up the oxygen, and a carbon under heat, and then superheating the resultant gas, substantially as described.

3. The herein-described process of converting natural gas into illuminating-gas, said process consisting in subjecting the said gas in the presence of steam to the action of heat, and of a material to take up the oxygen of the steam, and then passing the resultant gas in contact with a carbon, substantially as set forth.

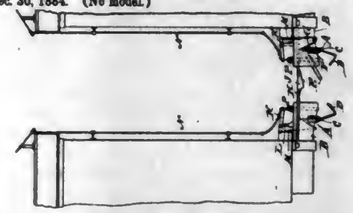
321,126. SWEAT-PAD FOR HORSE-COLLARS. E. L. MCCLAIN, Greenfield, Ohio. Filed Jan. 20, 1885. (No model.)



Claim.—1. As a new article of manufacture, the flexible pad-fastenings D, corrugated upon one or both sides, as set forth.

2. The flexible pad-fastening D, made wedge-shaped or tapering in thickness, substantially as and for the purposes described.

321,127. CAR-COUPLING. JOSEPH MCCOY, Independence, Mo. Filed Dec. 30, 1884. (No model.)



Claim.—1. The combination, with a draw-head, of a swinging V-shaped or other angular link-lifter arranged under the draw-head, and of a tripping-lever arranged at the side of the draw-head and connected with the link-lifter, substantially as herein shown and described.

2. The combination, with a draw-head, of the shaft C, the link-lifter D, secured on the same, the lug F, and the V-shaped piece G, hinged to the said lug, substantially as herein shown and described.

3. The combination, with a draw-head, of a link-lifter hinged or pivoted below the bottom of the same, and a piece arranged at the side of the draw-head and connected by means of chain and lever with the coupling-pin, substantially as herein shown and described.

4. The combination, with a draw-head, of a link-lifter hinged below the bottom of the draw-head and connected with a piece arranged to swing on the side of the draw-head, and of a horizontal bar arranged on the other side of the draw-head, and having a beveled head projecting beyond the end of the draw-head, substantially as herein shown and described.

5. The combination, with the draw-head B, of the shaft C, the link-lifter D, the hinged piece G, the lever K, the coupling-pin P, the chain M, connecting the lever K with the piece G, and of the bar H, arranged at the side of the draw-head, and provided with a beveled head projecting beyond the end of the draw-head, substantially as herein shown and described.

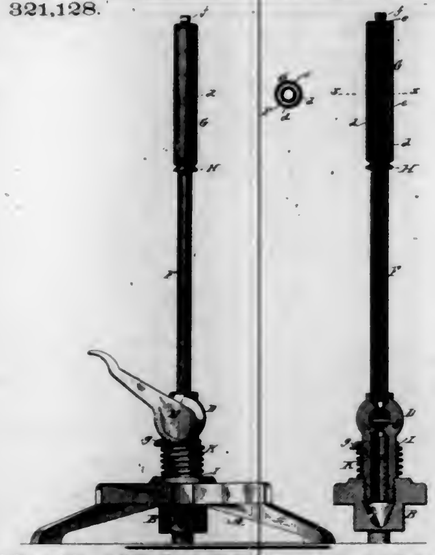
321,128. BOTTLE-WASHER. HENRY P. MERRIAM, Lawrence, Mass. Filed Oct. 9, 1884. (No model.)

Claim.—1. In a device for washing bottles or other vessels, the combination, with a vertical or upright perforated tube, a faucet for controlling the supply of water thereto, and a deflecting circumferential flange projecting from the exterior of said tube, of an obliquely-perforated cylindrical cap placed over the end of the tube and detachably connected thereto, substantially as and for the purpose specified.

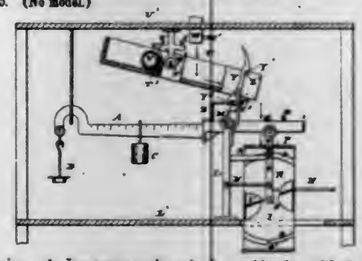
2. In a device for washing bottles or other vessels, an upright perforated tube and a revolving cylindrical perforated cap, in combination with means for detachably connecting the cap to the tube, consisting of a pivot provided at its lower end with a screw-nut to engage with a screw-threaded hole in the end of the tube, and at its upper end with a head having a conical bearing or base, substantially as and for the purpose specified.

3. In a device for washing bottles or other vessels, an upright perforated tube provided at its upper end with a revolving perforated cylindrical cap, in combination with means for controlling the discharge of water to the tube, consisting of a suitable faucet, a sleeve, a spring coiled around it, and ratchets or segmental gears upon both sleeve and lever, and operating substantially as and for the purpose set forth.

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321,129. AUTOMATIC GRAIN-SCALE. JOHN F. MILLIGAN, St. Louis, Mo., assignor of one-half to George S. Foster, same place. Filed Feb. 24, 1885. (No model.)



Claim.—1. In an automatic scale, in combination with the graduated beam and dumping-receptacle, the tilting box provided with a rolling weight and arranged to act as a chute when the receptacle is in the position to receive the material and to act as a receiver while the receptacle is dumping, substantially as shown and described.

2. In an automatic scale, the combination of the beam, dumping-receptacle, tilting box, and supply-spout, arranged and operating substantially as shown and described, for the purpose set forth.

3. In an automatic scale, the combination of the beam, dumping-receptacle, two-part tilting box, supply-spout, and rolling weight in one part of the box, arranged and operating substantially as shown and described, for the purpose set forth.

4. In an automatic scale, the combination of the beam, dumping-receptacle, two-part tilting box, one part acting as a chute and the other adapted to contain a weight, hangers or stands supporting the box and provided with projections to limit the tilting of the box, and supply-spout, arranged and operating substantially as shown and described, for the purpose set forth.

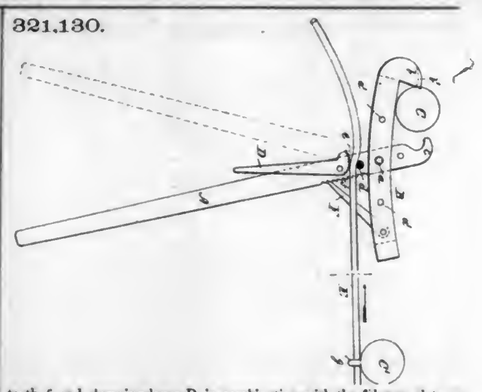
5. In an automatic scale, the combination of the beam, dumping-receptacle, weighted tilting box, dog secured to a support and adapted to engage a pin on the box, and the arm on the beam for coming in contact with the dog as the receptacle descends and disengages it from the pin on the box, substantially as shown and described, for the purpose set forth.

6. In an automatic scale, the combination of the beam, dumping-receptacle, weighted tilting box, dog secured to a support and adapted to engage a pin on the box, and bifurcated at its lower end, pin fitting between the fingers of the dog to limit its movement, and the arm on the beam for coming in contact with the dog as the receptacle descends and disengaging it from the pin on the box, substantially as shown and described, for the purpose set forth.

321,130. COMBINED WIRE-STRETCHER AND STAPLE-PULLER. ELA MOORE, Walla Walla, Wash. Filed Aug. 18, 1884. (No model.)

Claim.—1. In a device for stretching wire, the handle A, having

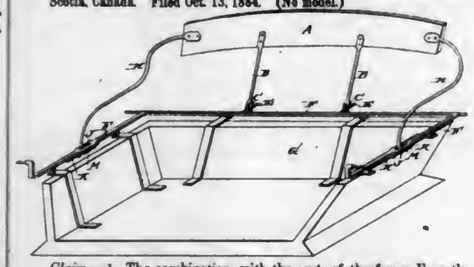
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teeth *f*, and clamping-lever D, in combination with the fulcrum plate or head B, made on a curve, and provided at one end with the hook *b* and at the under side of the opposite end with the depending pawl F, substantially as set forth.

2. The device herein shown and described, consisting of the main lever A, formed with the hook c and teeth *f* and provided with the pin *d* and jaw D, in combination with the fulcrum-head B, curved, provided with the pawl F, and formed with the hook *b*, substantially as set forth.

321,131. CARRIAGE-SEAT. CHARLES MORGAN, Bridgewater, Nova Scotia, Canada. Filed Oct. 13, 1884. (No model.)

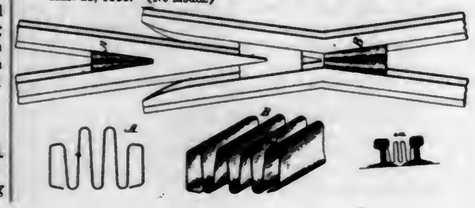


Claim.—1. The combination, with the seat, of the frame F on the same, the back bar, A, the side bars, H, secured to the ends of the same and passed through slots in the side bars of the frame F, the rods K, secured to the lower ends of the bars H and guided in pendants or brackets L L on the frame F, and of the spiral springs M, encircling said rods between the rear ones of said pendants and the lower ends of said bars, substantially as herein shown and described.

2. The combination, with the seat G, of the back bar, A, having downwardly-projecting arms B, terminating in eyes C, the rods E, projecting from a frame on the seat, and the bars H, secured on the ends of the bar A, and arranged to slide in the side pieces of the frame F, the lower ends of said frame F being secured to rods K, sliding in brackets or pendants L of said frame, and encircled by springs M between the rear one of said pendants and the lower ends of said bars, substantially as herein shown and described.

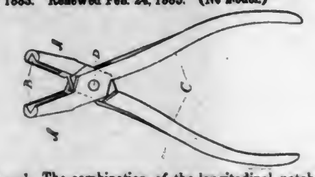
3. The combination, with the seat G, of the back bar, A, the downwardly-projecting arms B, terminating in eyes C, the rollers D, hung in said eyes of arms B, the rods E, projecting toward the front or rear from a frame and through the eyes of said arms on the seat, and of bars H, secured on the ends of the bar A and arranged to slide in the side pieces of the frame F, the lower ends of said bars H being secured to rods K, sliding in brackets L of the frame F, and encircled by springs between the rear ones of said brackets and the lower ends of said bars, substantially as herein shown and described.

321,132. MEANS OF BLOCKING AND GUARDING RAILS, SWITCHES, &c. COLLINS P. NEWTON and WILLIAM S. WING, Omaha, Nebr. Filed Mar. 23, 1885. (No model.)



Claim.—A corrugated iron or other corrugated metal device, as shown herein, to be used for blocking and guarding railway-frogs, guard-rails, and switches, as described.

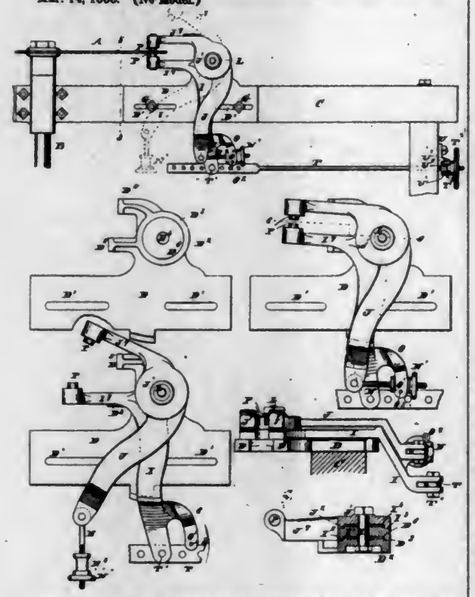
321,133. NUT-PLIERS. HENRY F. OSBORNE, Newark, N. J. Filed Feb. 23, 1883. Renewed Feb. 24, 1885. (No model.)



Claim.—1. The combination of the longitudinal notches B with the jaws of a pair of pliers, substantially as shown and described.

2. As a new article of manufacture, a pliers having jaws provided with longitudinal notches adapted to fit the corners of a nut, substantially as shown and described.

321,134. SAW-GUIDE. DARIUS PARKHURST, St. Louis, Mo., assignor to the Kingsland & Ferguson Manufacturing Company, same place. Filed Mar. 14, 1885. (No model.)



Claim.—1. In a saw-guide, the combination of the levers supported on a suitable base, arms formed upon the levers between which the saw works, and an adjustable connection hinged to one of said levers and adapted to be readily disengaged from the other, whereby one arm of the guide is adapted to be swung around to permit the removal of the saw from the mandrel, substantially as set forth.

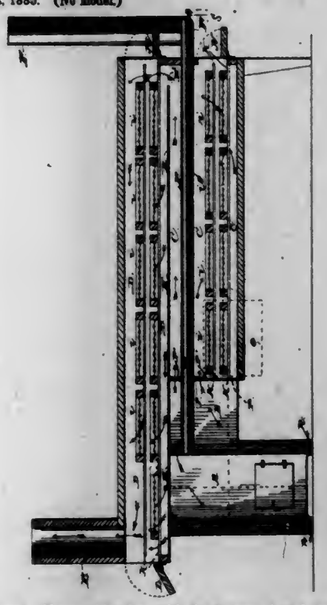
2. In a saw-guide, the combination of the base, levers pivoted to the base, arms on the levers between which the saw works, horn on one of the levers provided with prongs, threaded rod hinged to the other lever, and hand-wheel on the rod having a groove fitting between the prongs of the horn, arranged and operating substantially as shown and described, and for the purpose set forth.

3. In a saw-guide, the combination of the base, levers pivoted to the base, arms on the levers between which the saw works, horn on one of the levers provided with prongs, threaded rod provided with a hand-wheel connecting the levers, rod connected to one of the levers and screw-threaded on its outer end, hand-wheel fitting over the screw-threaded end of the rod and having a circumferential groove, and a bracket supported independently of the saw-guide provided with prongs fitting in the groove of the wheel, substantially as shown and described, and for the purpose set forth.

4. In a saw-guide, the combination of the base, projections D^6 on the base, levers connected to the base by a pivot-bolt, arms on the levers, an adjustable connection hinged to one of said levers and adapted to be readily engaged with and disengaged from the other, and a rod provided with an adjusting-wheel connecting one of the levers to the frame of the saw, substantially as and for the purpose set forth.

5. In a saw-guide, the combination of the base D, having bearing D^3, shoulder D^4, and projections D^5, lever I, having bearing I' resting upon the bearing D^3, bearing I^2, and arm I^3, lever J, having bearing J^2 resting upon the bearing I^2, and arm J^3, connecting pivot-bolt L, adjustable connection securing the inner ends of the levers together, and adjusting-rod connecting the levers to the frame of the saw, all arranged and operating substantially as shown and described, for the purpose set forth.

321,135. FRUIT-DRIER. LEWIS W. PARSONS, Los Gatos, Cal. Filed Jan. 12, 1885. (No model.)

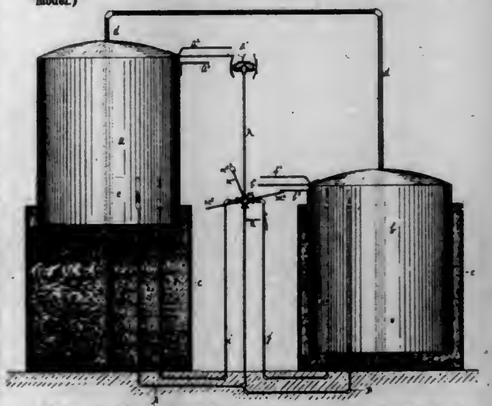


Claim.—1. The combination, with the furnace A and reservoir B, of the plate H, extending over the reservoir and furnace, and the smoke-flue connected to the furnace and extended through the lower flue, C, of the drier horizontally to the rear end of the drier, and the exhaust-flue E at the front of the upper flue, D, as set forth.

2. The combination, with the furnace A and hot-air reservoir B, of the fruit-drier casing connected therewith, and the sheet-metal plate H, resting upon the furnace and hot-air reservoir, and extending rearwardly and dividing the drier into the upper and lower flues, as set forth.

3. The combination, with the furnace, hot-air reservoir, and smoke-flue and exit-flue, of the sheet-metal division-plate resting on the furnace and hot-air reservoir, and extending over the smoke-flue to form the upper and lower drying-chambers, as set forth.

321,136. GAS REGULATOR AND METER. JOSEPH N. PEW, Pittsburg, and THOMAS L. SHIELDS, Sewickley, Pa. Filed Oct. 20, 1884. (No model.)



Claim.—1. The combination, in a gas regulator and reservoir, of several reservoir-tanks capable of rising with the inflow of gas-pressure and of falling with the outflow of the same, with a reversing inflow-

valve by which the gas may be caused to flow into one of said tanks and to be shut off from the other, and an outflow-valve capable of being operated so as to cause the gas to discharge from the tank from which the gas-supply has been cut off, and to shut off said discharge from the other of the tanks, substantially as and for the purposes described.

2. The combination, in a gas regulator and reservoir, of several reservoir-tanks capable of rising with the inflow of gas-pressure and of falling with the outflow of the same, with a reversing inflow-valve by which the gas may be caused to flow into one of said tanks and to be shut off from the other, or to be shut off from both thereof, and an outflow-valve capable of being operated so as to cause the gas to discharge from the tank from which the gas-supply has been shut off, and to shut off said discharge from the other of said tanks, said valves being operated by means of the action of the reservoir-tanks thereon as said tanks rise and fall, for the purpose of measuring the gas and regulating the pressure thereof, substantially as described.

3. The combination, in a gas regulator and reservoir, of several reservoir-tanks capable of rising with the inflow of gas-pressure and of falling with outflow of the same, with a reversing inflow-valve by which the gas may be caused to flow into one of said tanks and to be shut off from the other, or be shut off from both thereof, substantially as and for the purposes described.

4. The combination, in a gas regulator and reservoir, of several reservoir-tanks capable of rising with the inflow of gas-pressure and of falling with the outflow of the same, with a reversing inflow-valve by which the gas may be caused to flow into one of said tanks and to be shut off from the other, or may be shut off from both, said valve being so operated by means of action of the reservoir-tanks thereon as said tanks rise and fall, substantially as and for the purposes described.

5. The combination, in a gas regulator and reservoir having several reservoir-tanks capable of rising with the inflow of gas-pressure and of falling with the outflow of the same, of an inflow-valve having suitable projecting arms or handles whereby the valve may be turned so as to discharge gas into either of said reservoirs and to shut it off from both, with projections or arms fixed to the tanks and capable of engaging and operating the arms of said valves during motion of one of the tanks, whereby gas may be turned off from the rising tank when it shall have reached the desired height and caused to flow into the other tank during the downward motion of the full tank, substantially as and for the purposes described.

6. The combination, in a reversing-valve the shell of which communicates with gas-supply pipes and outlet-pipes situate at right angles to each other, substantially as herein shown and described, of a revoluble plug situate within said valve-shell and having a transverse passage extending through the same, with a suitable arm affixed to said plug, and capable of revolving the same, whereby the gas may be alternately shut off from both of said outlet-pipes and caused to flow into one of the same by successive one-eighth revolutions of said handle in the same direction, and a moving gas-tank arranged to engage with the arm so as to operate the valve, substantially as and for the purposes described.

7. The valve *m*, having extending arms for reversing the same by action of a moving gas-tank thereon, in combination with a rising weighted arm, m^3, for completing the motion of said valve after the said arm m^3 has passed a vertical position, and a moving gas-tank, substantially as described.

321,137. COMPOSITION OF MATTER FOR FACING BROWN STONE AND FOR MAKING ARTIFICIAL STONE. BENJAMIN E. RATCLIFFE, New York, N. Y. Filed May 29, 1885. (No specimens.)

Claim.—The herein-described composition of matter, composed of oil, sand, and litharge, in about the proportions specified.

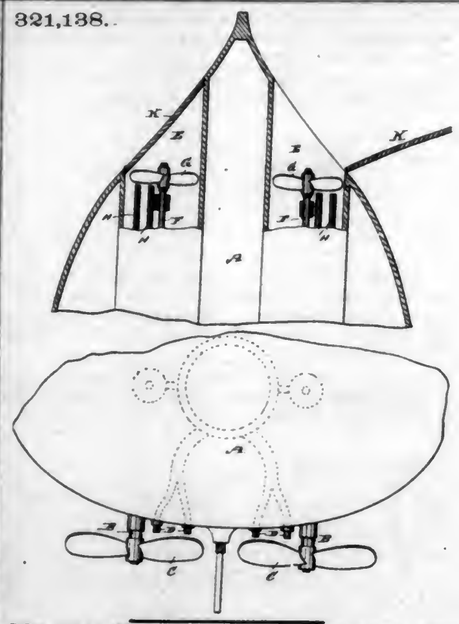
321,138. PROPELLING MARINE VESSELS. WILLIAM O. ROBBINS, New York, N. Y. Filed June 30, 1884. (No model.)

Claim.—1. The combination, with a vessel provided with the shafts B, projecting from the stern and carrying propeller-wheels C, of the air-pipes D, leading from an air condensing or forcing apparatus and projecting from the stern parallel with the propeller-shaft, and extending into close proximity to the blades of the wheel, substantially as herein shown and described, whereby currents of air may be delivered upon the blades of the wheel for revolving the same, and provision made for using short propeller-shafts, thereby lessening danger of breaking and reducing the friction, as set forth.

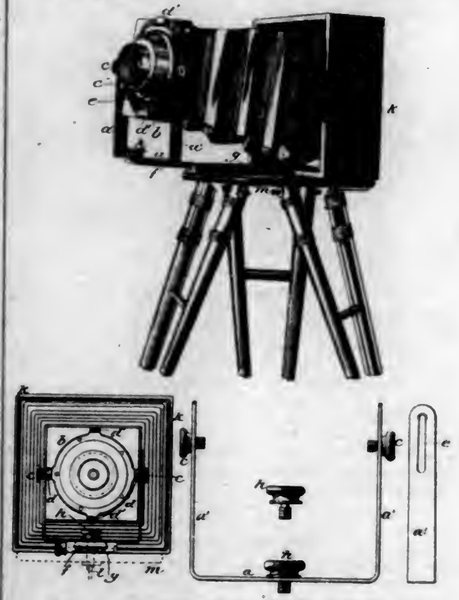
2. The combination, with a vessel provided with the compartments E in the bow, of shaft F, arranged in said compartments and carrying propeller-wheels G on the ends, and air-pipes H, projecting into the compartments and into close proximity to the propeller-wheels, substantially as herein shown and described, whereby provision is made for stopping and turning the vessel, as set forth.

3. A vessel provided with the compartments E in its bow, having hinged doors K, in combination with propeller-wheels arranged in said compartments, and air-pipes projecting into close proximity to the propeller-wheels, substantially as herein shown and described, whereby the doors will be automatically opened and closed, as and for the purpose set forth.

321,138.



321,139. PHOTOGRAPHIC CAMERA. THOMAS SAMUELS, Hadley-Monken, County of Middlesex, England, assignor of one-half to Alexander Melville Clark and William Clark. Filed Sept. 17, 1884. (No model.) Patented in England May 3, 1884, No. 7,201; in France Sept. 1, 1884, No. 164,039; in Belgium Sept. 2, 1884, No. 66,194, and in Germany Sept. 9, 1884, No. 31,170.



Claim.—1. In combination with a bellows-body camera, a lens mounted and supported, substantially as shown, so as to be capable of an oscillating adjustment both on a horizontal and a vertical axis, and of sliding adjustment in the vertical and lateral directions, substantially as and for the purpose herein specified.

2. In combination with a bellows-body camera, a U-shaped slotted frame and pivotal clamping-screws passing through the slots of the U-frame and screwing into sockets on the front of the body, to form a horizontal axis for the lens, and to permit of its adjustment, substantially as shown and described.

3. In combination with a bellows-body camera, a U-shaped slotted frame and pivotal clamping-screws forming a horizontal axis for the lens, substantially as described, and a clamping-screw passing through a slot in the U-frame and connecting said frame to the focusing-rack motion or other part of the base-board and forming a vertical axis for the lateral adjustment of the lens, substantially as shown and described

321,140. TWO-WHEELED VEHICLE. JOSEPH F. SAUNDERS and THEOPHILUS T. WHITCOMB, Elizabeth City, N. C. Filed Jan. 3, 1885. (No model.)



Claim.—1. As an improvement in two-wheeled vehicles, the bed-plate D, formed in one piece and fixed to the axle to form a support to the shaft and spring at each side of the vehicle, substantially as herein set forth.

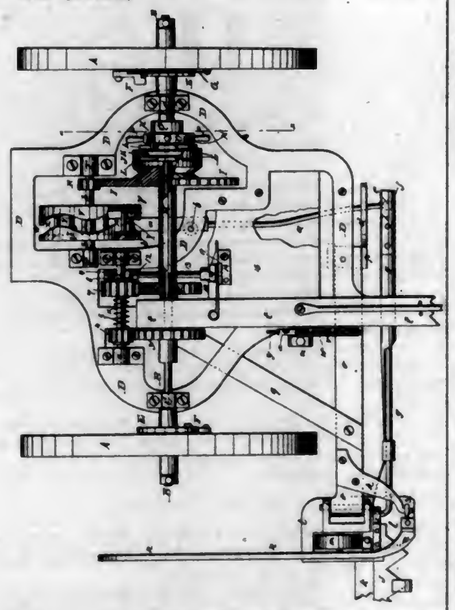
2. The combination, in a two-wheeled vehicle, of the axle A, bed-plates D, fixed thereto, the springs C, clipped to the bed-plates, and the shafts B, held adjustably by bolts O in grooves J of the bed-plates, substantially as herein set forth.

3. The combination, in a two-wheeled vehicle, of the axle A, bed-plates D, fixed thereto, the springs C, clipped to the bed-plates, and the shafts B, provided with plates M, having ribs L, and said bed-plates having grooves J, centrally notched at K, and inclining downward each way from said notches, and the bolts O, substantially as herein set forth.

4. The combination, with the bed-plate D, having a groove, J, to receive the shaft, and notched at K, of the plate M, having a rib, L, entering notch K, and provided with depending end flanges, *m m*, substantially as herein set forth.

5. As an improved article of manufacture, the bed-plate D, formed with the bottom ribs, *d d*, to embrace the axle, the upper groove, *h*, to receive the spring or its bed-block, and the upper groove, J, inclined downward toward each end, from a central notch, K, to receive the shaft, substantially as herein set forth.

321,141. MOWER. BENJ. SAUNDERS, Claverack, N. Y. Filed June 23, 1884. (No model.)



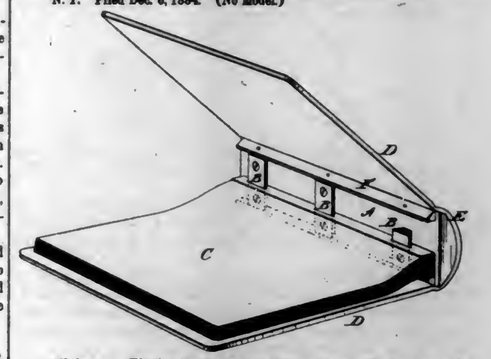
Claim.—1. In a mower, the combination, with the axle B and the main gear-wheel I, of the ratchet-wheel J, secured to the gear-wheel I, the hub L', secured to the axle, and having radial arms L, the spring-pressed pawls K, pivoted in the ends of the said arms, having pins N, and the cam-ring O, having handles P, and free to turn on said hub, substantially as herein shown and described, whereby the said gear-wheel and axle can be readily thrown into and out of gear with each other, as set forth.

2. In a mower, the combination, with the axle B and the main gear-wheel I, of the gear-wheels 3 4 7 10, the shaft, spring, and clutch-pin 5 11 9, the forked arm, rod, and lever 12 13 16, and the sleeve H, substantially as herein shown and described, whereby the said gear-wheel and axle can be readily thrown into and out of gear with each other, as set forth.

3. In a mower, the combination, with the axle B and the main gear-wheel I, of the ratchet-wheel J, the hub L', having radial arms L, the spring-pressed pawls K, having pins N, and the cam-ring O, having handles P, and the gear-wheels 3 4 7 10, the shaft, spring, and clutch-pin 5 11 9, the forked arm, rod, and lever 12 13 16, and the sleeve H, substantially as herein shown and described, whereby the said main gear-wheel can be driven at a slow or a fast speed, as set forth.

4. In a mower, the cam-wheel made, substantially as herein shown and described, in two parts, U V, having scalloped rims, and connected by bolts X and adjusting-screws Y, whereby the said cam-wheel can be adjusted to receive a larger or a smaller pin and to take up the wear, as set forth.

321,142. BACKING FOR BOOKS. GUSTAV A. SCHURMANN, New York, N. Y. Filed Dec. 6, 1884. (No model.)

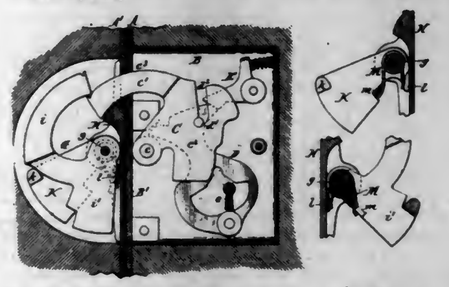


Claim.—1. The backing A for books, provided with the dovetailed cross-strips B and retaining-strips F, substantially as described.

2. The combination of the backing-piece A, provided with the dovetailed cross-strips B, the covers D, and the flexible back-piece E, substantially as described.

3. The leaves or sections C, having dovetailed grooves in their back edges, in combination with the fixed dovetailed cross-strips B, arranged to engage with the grooves in the leaves, and the rigid backing A, carrying said strips, substantially as described.

321,143. HANDLE FOR SLIDING DOORS. OBADIAH SEELY, Syracuse, N. Y., assignor to E. C. Stearns & Co., same place. Filed Dec. 31, 1884. (Model.)



Claim.—1. In a door-pull, the combination of a handle composed of a curved bolt and a weighted rear portion, a support to which the handle is pivoted below its curved bolt, and a stop which supports the handle in its retracted position, whereby the handle is returned to its retracted position by the weight of its rear portion when released, substantially as set forth.

2. In a door-pull, the combination, with a support or casing, of a movable handle having a notch in its front end, and a stop which supports the handle in its retracted position, with the notched end projecting beyond the face of the support or casing, substantially as set forth.

3. The combination, with a curved handle adapted to be freely projected and retracted, of a support to which the handle is pivoted, and a locking mechanism whereby the handle can be secured in a projected position, substantially as set forth.

4. The combination, with the handle C, composed of a curved bolt,

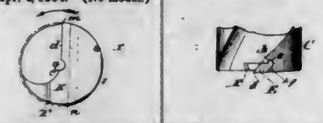
c', and weighted rear portion, c^2, provided with a slot, d^4, and shoulder f, of the tumbler D, provided with a pin, d'', and a detent, E, substantially as set forth.

5. The combination, with a movable handle, a casing or support to which the handle is attached, and a locking device whereby the handle can be shot forward and secured in a projected position, of an opposing movable handle adapted to come in contact with the locking-handle, a casing or frame to which the opposing handle is attached, and a yielding support which permits the opposing handle to recede before the pressure of the entering locking-handle, substantially as set forth.

6. The combination, with the supporting-plate H and the handle G, composed of the curved bolt i and rear arm, i', of the carrier-arm K and spring M, constituting a yielding support, whereby the handle G is held in its normal position and permitted to recede under pressure, substantially as set forth.

7. The combination, with the face-plate H, of the handle G, composed of the curved bolt i and rear arm, i', pivoted to said face-plate, the carrier-arm K, provided with stops k and i, and the spring M, bearing against the arm K and arm i', substantially as set forth.

321,144. TWIST-DRILL. ALBERT SÖDERSTRÖM, Stockholm, Sweden. Filed Apr. 4, 1884. (No model.)

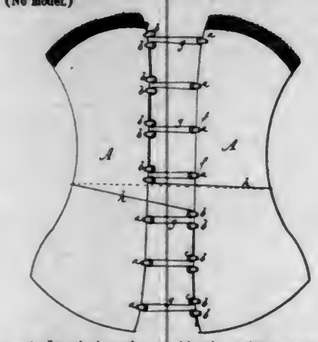


Claim.—1. A flat-pointed twist-drill having one spiral groove of depth reaching radially beyond the center at and above the cutting-point, substantially as and for the purpose set forth.

2. A twist-drill having one cutting-edge and spiral groove, and reduced in size on the side of the least resistance on a portion of its surface slightly exceeding the semi-circumference, as and for the purpose set forth.

3. In combination with a flat-pointed twist-drill grooved across the face of its cutting end, as explained, a bit or tooth, E, adapted to be secured in the said groove, and provided on its back or inner surface with a rib or ridge, e, fitting in a corresponding groove in the cutting end, substantially as and for the purpose set forth.

321,145. LACING. CHARLES F. SPENCER, Rochester, N. Y., assignor to Abram S. Mann and Elbert B. Mann, both of same place. Filed Oct. 27, 1884. (No model.)

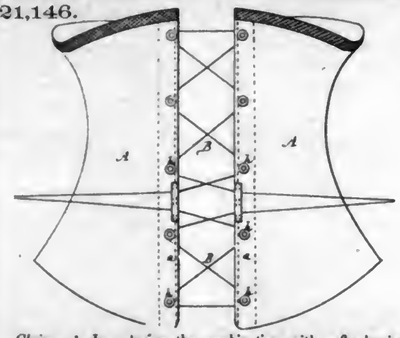


Claim.—1. In a lacing, the combination, with a corset or other analogous article to be laced, of a set of single bearings placed on one side of the slit, a set of double bearings placed on the other side, the two being diametrically opposite to each other, and a cord attached to one side passing around one of the double bearings, thence around the single bearing, thence back around the other double-bearing, thence along the side of the slit to the next double bearing, and in the same manner around the remaining bearings, whereby the lacing extends at right angles across the slit, in the manner and for the purpose specified.

2. In a lacing, the combination, with a corset or other analogous article to be laced, of a set of single bearings placed on one side of the slit, a set of double bearings placed on the other side, the two being diametrically opposite, and two cords, one attached at the top and the other at the bottom, passing around the bearings at right angles to the slit, as described, the free ends of the cords meeting intermediately and extending outward in opposite directions, as shown and described, and for the purpose specified.

321,146. LACING FOR CORSETS, GLOVES, &c. CHARLES F. SPENCER, Rochester, N. Y., assignor to Abram S. Mann and Elbert B. Mann, both of same place. Filed Dec. 6, 1884. (No model.)

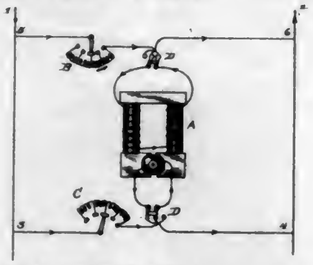
321,146.



Claim.—1. In a lacing, the combination, with a fly having two sides or flaps, of a bearing consisting of a shaft, a roller on the shaft located inside the fly, two washers on the shaft on opposite sides of the roller, also located within the fly, and two washers on the shaft on the outside of the fly, serving to attach the bearing to the fly, and a lacing-cord passing from side to side around the rollers, substantially as set forth.

2. In a lacing, the roller-bearing herein described, consisting of the shaft b, provided with the shoulders f f, the roller c, resting and turning freely on the shaft, the washers g g, resting on the reduced ends of the shaft and forming guides for the roller, and the outside washers, h h, for attaching the bearing to the fly, and a lacing-cord passing from side to side around the rollers, as shown and described, and for the purpose specified.

321,147. ELECTRO-DYNAMIC MOTOR. FRANK J. SPRAGUE, New York, N. Y., assignor to the Sprague Electric Railway and Motor Company. Filed Feb. 27, 1885. (No model.)



Claim.—1. A shunt-wound electro-dynamic motor provided with means for varying its armature-current and independent means for varying the strength of its field-magnet, substantially as set forth.

2. A shunt-wound electro-dynamic motor provided with means for varying the strength of its field-magnet and with an adjustable resistance in its armature-circuit, substantially as set forth.

3. The combination, with a shunt-wound electro-dynamic motor, of independently-adjustable resistances in its armature and field-circuits, substantially as set forth.

4. The combination, with a shunt-wound electro-dynamic motor, of a circuit-reverser, and an adjustable resistance in its armature-circuit, and means for varying and reversing its field magnetism, substantially as set forth.

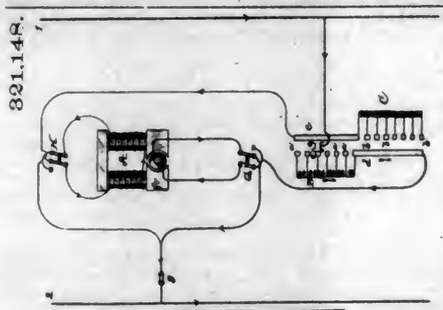
5. The combination, with a shunt-wound electro-dynamic motor, of a circuit-reverser, and an adjustable resistance in its armature-circuit, and a circuit-reverser and an adjustable resistance in its field-circuit, substantially as set forth.

321,148. ELECTRO-DYNAMIC MOTOR. FRANK J. SPRAGUE, New York, N. Y., assignor to the Sprague Electric Railway and Motor Company. Filed Mar. 3, 1885. (No model.)

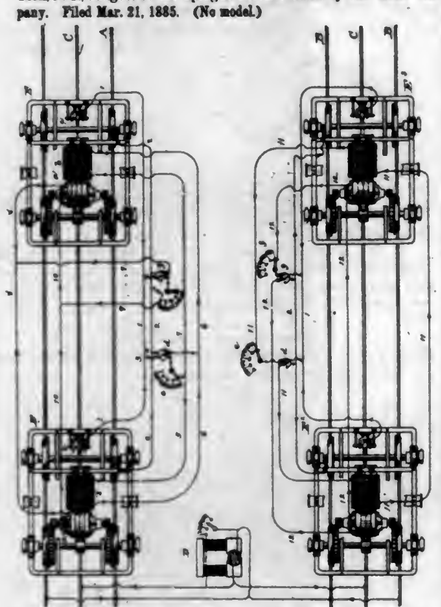
Claim.—1. The method of operating an electro-dynamic motor, which consists in starting the motor with low potential at the armature terminals and strong field-magnet, gradually increasing the armature-circuit potential, and then gradually decreasing the strength of the field-magnet, substantially as set forth.

2. The method of operating an electro-dynamic motor, which consists in starting the motor with resistance in its armature-circuit and little or no resistance in its field-circuit, gradually cutting out resistance from the armature-circuit, and then gradually increasing the resistance of the field-circuit, substantially as set forth.

321,148.



321,149. ELECTRIC RAILWAY SYSTEM. FRANK J. SPRAGUE, New York, N. Y., assignor to the Sprague Electric Railway and Motor Company. Filed Mar. 21, 1885. (No model.)



Claim.—1. In an electric railway system, the combination of two or more motors mounted upon the same car or train of cars and propelling the same, and a current-regulator for simultaneously controlling the field-magnets of all said motors, substantially as set forth.

2. In an electric railway system, the combination of two or more motors mounted upon the same car or train of cars and propelling the same, a current-regulator for simultaneously controlling the field-magnets of all said motors, and a current-regulator for simultaneously controlling the current in the armatures of all said motors, substantially as set forth.

3. In an electric railway system, the combination of two or more motors mounted upon the same car or train of cars and propelling the same, a common field-circuit for said motors, and an adjustable resistance in said field-circuit, substantially as set forth.

4. In an electric railway system, the combination of two or more motors mounted upon the same car or train of cars and propelling the same, a field-circuit common to all said motors, and an adjustable resistance, and a circuit-reverser in said field-circuit, substantially as set forth.

5. In an electric railway system, the combination of two or more motors mounted upon the same car or train of cars and propelling the same, a common field-circuit for said motors, and a current-regulating device therein, a common armature-circuit and a current-regulating device therein, and means for reversing the direction of rotation of the motor, substantially as set forth.

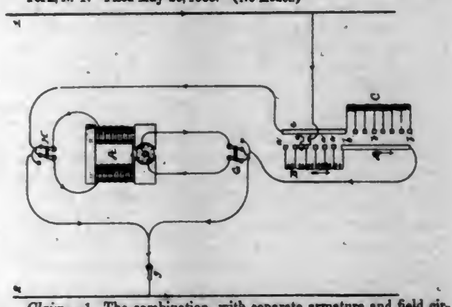
6. In an electric railway system, the combination of two or more motors mounted upon the same car or train of cars and propelling the same, having their armatures in multiple-arc relation to each other and their field-magnets in shunt relation to the armatures, a current-regulating device common to all said armatures, and a current-regulating device common to all said field-magnets, substantially as set forth.

7. In an electric railway system, the combination of two or more motors mounted upon the same car or train of cars and propelling the same, having their field-magnets in multiple-arc relation to each other and their armatures in shunt relation to all the field-magnets, a current-regulating device common to all said field-magnets, and a current-regulating device common to all said armatures, substantially as set forth.

8. In an electric railway system, the combination of two or more motors mounted upon the same car or train of cars and propelling the same, having their field-magnets in multiple-arc relation to each other and their armatures in multiple-arc relation to each other, and all the field-magnets in shunt relation to all the armatures, a current-regulating device common to all the field-magnets, and a current-regulating device common to all the armatures, substantially as set forth.

9. In an electric railway system, the combination of two or more motors mounted upon the same car or train of cars and propelling the same, a common field-circuit for said motors, an adjustable resistance and a circuit-reverser therein, a common armature-circuit for said motors, and an adjustable resistance and a circuit-reverser therein, substantially as set forth.

321,150. ELECTRO-DYNAMIC MOTOR. FRANK J. SPRAGUE, New York, N. Y. Filed May 30, 1885. (No model.)



Claim.—1. The combination, with separate armature and field circuits, of an adjustable resistance in each of said circuits and a single switch for controlling both such resistances, substantially as set forth.

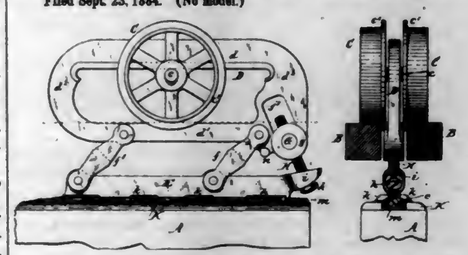
2. The combination, with an electro-dynamic motor, of a series of resistance-coils in the armature-circuit of the motor, contact-terminals for said coils, a contact-terminal for the field-circuit, and a contact connected with the supplying-circuit traveling between said field-resistance terminals and said field-circuit terminal, substantially as set forth.

3. The combination, with an electro-dynamic motor, of a series of resistance-coils in the field-circuit of the motor, contact-terminals for said coils, a contact-terminal for the armature-circuit, and a contact connected with the supplying-circuit traveling between said resistance-terminals and said armature-circuit terminal, substantially as set forth.

4. The combination, with an electro-dynamic motor, of a series of resistance-coils in the armature-circuit of the motor and a series of resistance-coils in the field-circuit of the motor, a set of contacts for each series of resistances, and a contact connected with the supplying-circuit and movable along the contacts of both series, substantially as set forth.

5. The combination, with an electro-dynamic motor, of a series of resistance-coils in the field-circuit thereof and contact-terminals for said resistance-coils, a series of resistance-coils in the armature-circuit and contact-terminals therefor, a contact in the armature-circuit contiguous to said field-resistance contacts, a contact in the field-circuit contiguous to said armature-resistance contacts, and a contact connected with the supplying-circuit traveling between said field-resistance contacts and the contiguous armature-circuit contact, and between said armature-resistance contacts and the contiguous field-circuit contact, substantially as set forth.

321,151. DOOR-HANGER. EDWARD C. STEARNS, Syracuse, N. Y. Filed Sept. 23, 1884. (No model.)

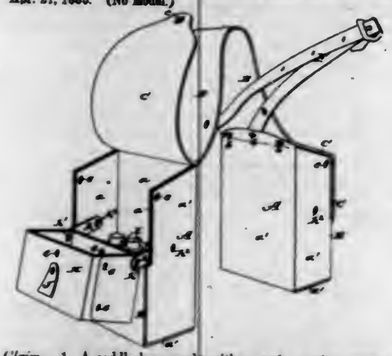


Claim.—1. In a door-hanger, the combination, with the base-plate and rider-bar, of connecting-links pivoted to the base-plate and rider-bar, and supporting the rider-bar on the base-plate, and an adjusting-screw

and nut, which adjustably connect also the rider-bar with the base-plate, substantially as set forth.

2. In a door-hanger, the combination, with the base-plate E and rider-bar D, of pivoted bars or links *f f'*, connecting the rider-bar with the base-plate, a cylindrical screw-nut, G, seated in the rider-bar to turn therein, and an adjusting-screw, H, substantially as set forth.

321,152. SADDLE-BAGS. JOSEPH J. STEPHENS, Coalesburg, Mo. Filed Apr. 21, 1885. (No model.)

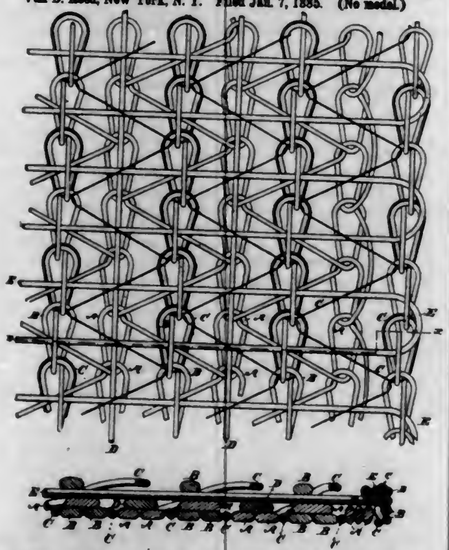


Claim.—1. A saddle-bag made with a body portion open at the top, and having a low front wall, E, in combination with a tray, H, hung to the body by links *h h*, substantially as herein set forth.

2. A saddle-bag made with a body portion open at the top, and with a low front wall, E, a tray, H, hung to the body by links *h h*, a flap, C, hinged at the upper rear corner of the body, and adapted to cover the top and front of the tray, and the fastening D on wall E, substantially as herein set forth.

3. Saddle-bags consisting of opposite body portions A A, open at the top, and having low front walls, E E, and provided with trays H H, hung by links *h h*, as described, and a strap, B, connected to the upper back corners of the bodies A A, and extended opposite ways to form the flaps C C, adapted to cover the tops and fronts of the trays, and to fasten to the walls E, substantially as herein set forth.

321,153. BELTING. BENJAMIN L. STOWE, Brooklyn, assignor to J. Van D. Reed, New York, N. Y. Filed Jan. 7, 1885. (No model.)

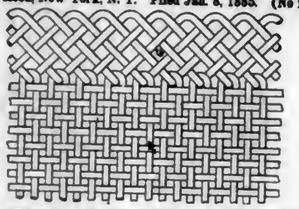


Claim.—1. Belting composed of a solid knit selvaged fabric of the width required for the belt, having incorporated in it straight longitudinal strands, substantially as and for the purposes hereinbefore set forth.

2. A solid knit selvaged fabric belt having incorporated in it straight longitudinal strands and weft, and formed or provided with a frictional facing, substantially as hereinbefore set forth.

3. A solid knit selvaged fabric belt in which the warp-threads are combined with straight longitudinal strands, a weft, and binding-strands, as and for the purposes hereinbefore set forth.

321,154. BELTING. BENJAMIN L. STOWE, Brooklyn, assignor to J. Van D. Reed, New York, N. Y. Filed Jan. 8, 1885. (No model.)



Claim.—The combination, with a fabric belt, of separate projecting fabric-edges secured thereto or incorporated therewith, and having criss-cross or zigzag threads to receive the wear, substantially as hereinbefore set forth.

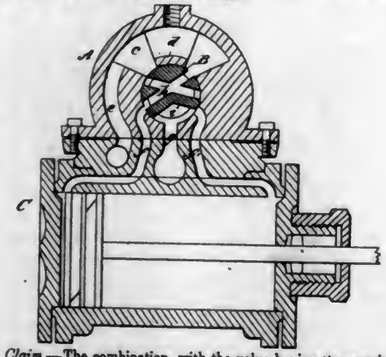
321,155. SWEAT-PAD HOOK. JACOB STRAUS, St. Louis, Mo. Filed Feb. 24, 1885. (No model.)



Claim.—1. A sweat-pad provided with the hook made in two parts, substantially as described, one of which is adapted to slide upon the other, substantially as and for the purpose set forth.

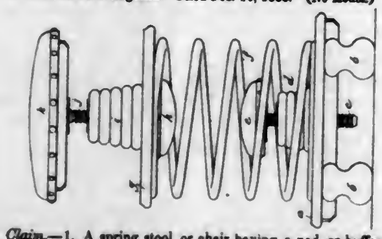
2. In a sweat-pad attachment, the hook consisting of two sliding plates connected together by lips formed on one of the plates, substantially as described, extending through a slot in the other plate and bent over to secure the two together, substantially as and for the purpose set forth.

321,156. ROTARY STEAM-VALVE. GEORGE W. STPHER, Seneca, Kans. Filed Jan. 6, 1885. (No model.)



Claim.—The combination, with the valve having the crossing passages or slots and the exhaust-cavity, of the valve case or chamber having in one side the supply-passage connecting with a chamber in its upper part, and a bridge forming a bearing for the upper surface of the valve, and the cylinder supply and exhaust ports, substantially as and for the purpose set forth.

321,157. PORTABLE EXERCISING STOOL OR CHAIR. GEORGE J. F. TATE, London, England. Filed Feb. 16, 1885. (No model.)



Claim.—1. A spring stool or chair having a pad or buffer, A, and an adjustable pad or buffer, *a*, to permit it to act as a bumper with the pad A for affording bodily exercise, in combination with a seat adjustable as to its height, the buffers being also adapted to be brought closely together to render the seat firm or rigid, substantially as shown and described.

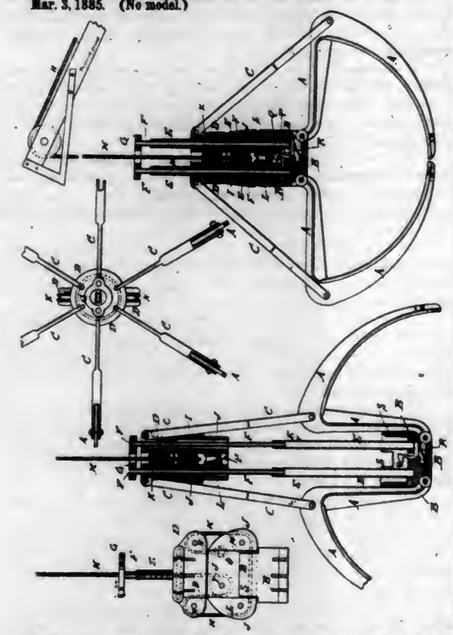
2. The portable exercising stool or chair consisting in the combination of a base-plate, *a*, and top plate, *g*, a spiral-spring connection on and between such plates, the two bumpers interposed between the plates and surrounded by such spring-connection, and a seat above the top plate, substantially as shown and described.

3. The improved portable exercising stools or chairs consisting of the two plates *a* and *g*, the interposed bumpers, one of which is adjustable, the spring or springs *f*, and the seat above the top plate, substantially as shown and described.

4. The improved portable exercising stools or chairs consisting of the two plates *a* and *g*, the interposed bumpers *e* and *h*, the spring or springs *f*, and the adjustable seat *k*, substantially as shown and described.

5. In combination, the top and bottom plates, *g a*, their top and bottom pads, *e h*, and a spiral-spring connection, serving also the duty of holding or uniting the plates together.

321,158. GRAPPLING-BUCKET. WILLIAM G. THOMPSON, Brooklyn, assignor to himself and Emma L. Hayward, Port Richmond, N. Y. Filed Mar. 3, 1885. (No model.)



Claim.—1. In a grappling-bucket, the combination, with the foot-block B, carrying the bucket-arms A, the head-block D, carrying the connecting-bars C and the pulleys K N, and the hoisting rope or chain H, of the center block, J, having pulleys I L M, the pin and catch-hook P Q, the telescopic guides E F, and the cross-head G, substantially as herein shown and described, whereby the said bucket can be controlled by a single rope or chain and will be opened and closed automatically, as set forth.

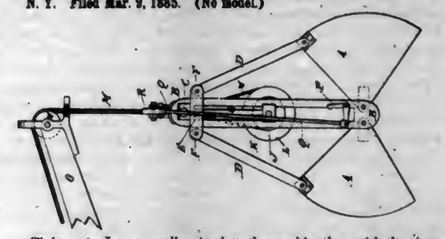
2. A grappling-bucket, constructed substantially as herein shown and described, with a separate sliding block, J, interposed between the foot-block B and the head-block D, and with a rope reeved around pulleys in said sliding intermediate and head blocks, whereby the said bucket is adapted to be controlled by a single rope or chain, as set forth.

3. In a grappling-bucket, the combination, with the sliding intermediate block, J, and the foot-block B, of the pin P and the spring-hook Q, substantially as herein shown and described, whereby the said blocks can be locked together automatically, as set forth.

4. In a grappling-bucket, the combination, with the foot-block B, sliding block J, having a pin, P, and the spring-hook Q, of the telescopic guides E F and the cross-head G, substantially as herein shown and described, whereby the said hook will be disengaged to open the bucket by the said cross-head coming in contact with the derrick-arm, as set forth.

5. In a grappling-bucket, the foot-block B, made substantially as herein shown and described, with an annular flange, S, around its top, whereby the material is prevented from getting upon the said top and obstructing the downward movement of the center block, as set forth.

321,159. GRAPPLING-BUCKET. WILLIAM G. THOMPSON, Brooklyn, N. Y. Filed Mar. 9, 1885. (No model.)



Claim.—1. In a grappling-bucket, the combination, with the slotted side bars, B, the sliding cross-bar E, the short ropes or chains K K, the hoisting rope or chain M, and the pulleys J J L, of the sliding shaft H and the stop-bars G, together with means for locking or holding the said shaft H during the closing of the scoops, substantially as herein shown and described, whereby the said shaft is free to move downward and is kept from being raised against the sliding cross-bar, as set forth.

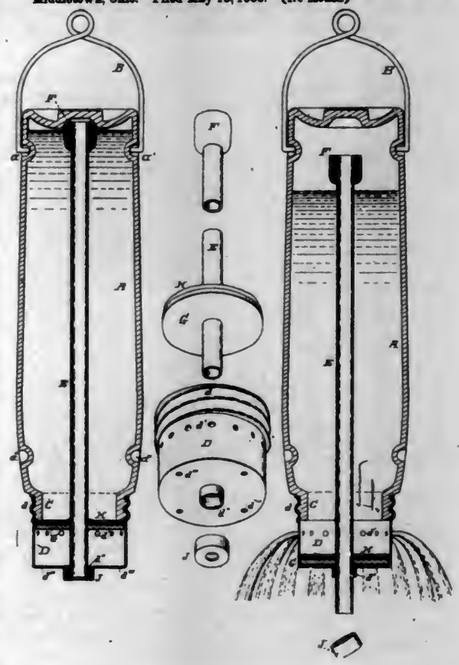
2. In a grappling-bucket, the combination, with the buckets or scoops A, connected by arms D to cross-bar E, slotted side bars, B, and the sliding shaft H, of the angular hooks P, the connecting-rods Q, and the levers R, substantially as herein shown and described, whereby the said sliding shaft will be caught automatically and held as it reaches the lower limit of its movement, and will be released automatically as the bucket approaches the derrick-arm, adapting the bucket to be operated by a single rope, as set forth.

321,160. SURGICAL-INSTRUMENT HANDLE. ANTON J. UNGER, Brooklyn, assignor to himself and John Zorn, New York, N. Y. Filed Sept. 19, 1884. (No model.)



Claim.—The combination of a recessed handle, A, having transverse pins *a a'*, an interchangeable blade or tool, B, having a shank, B', provided with recesses *b b'*, a locking-lever, C, fulcrumed into the recess of the handle, and a cam-shaped inner end and a handle at the opposite end, said cam-shaped inner end engaging an arc-shaped recess of the shank B', so as to lock or release the same, substantially as set forth.

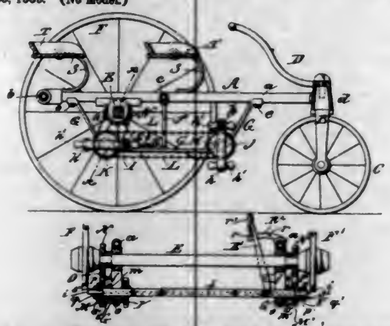
321,161. CHEMICAL FIRE-EXTINGUISHER. JOHN A. WAGNER, Middletown, Ohio. Filed May 18, 1885. (No model.)



Claim.—1. In a fire-extinguisher, the combination of bottle A, constructed for suspension in the inverted position, the cap D, having the series of orifices d', the nipple d'', and the ventage d''', the gravitating tubular air-inlet E, having the piston G, fitting within the cap, and the annular pad F, adapted to press hermetically against the upper end of the bottle in the normal condition of the apparatus, and to be held to such condition by solder, in the manner and for the purpose explained.

2. In a fire-extinguisher, the combination of bottle A, constructed for suspension in the inverted position, the cylindrical cap D, having the series of orifices or ajutages d', the nipple d'', and one or more ventages, d''', and the gravitating tubular air-inlet E, having the piston G, fitting within said cap D, and having the annular pad F, adapted to press hermetically against the upper end of the bottle in the normal condition of the apparatus, and to be held to such condition by capsule J, soldered to the nipple d''', as and for the purpose set forth.

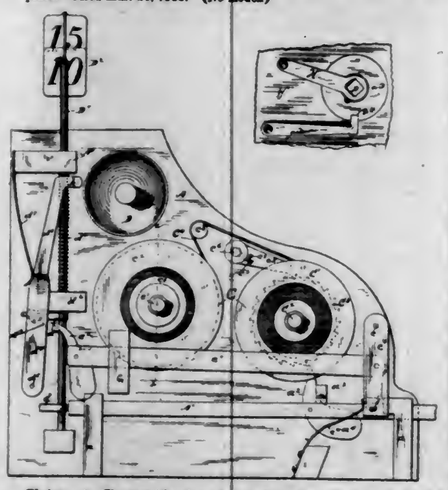
321,162. TRICYCLE. THEODOR R. A. WEBER, New York, N. Y., and CARL G. E. HENNIG and ALFRED E. PFOMMELT, Paterson, N. J. Filed Feb. 25, 1885. (No model.)



Claim.—1. The main wheels F F', provided with sprocket-wheels N N', the shaft I, provided with sprocket-wheels M M', and connected to wheels N N' by chains O P, in combination with the sliding clutch-blocks q q', the rod R, and lever R' the rod R being attached to the clutch-blocks for sliding them, and the wheels M M' being loose upon the shaft and recessed at p p', substantially as and for the purposes set forth.

2. The main wheels F F', provided with sprocket-wheels N N', the shaft I, provided with sprocket-wheels M M', and connected to wheels N N' by chains O P, in combination with the sliding clutch-blocks q q', the rod R, lever R', the wheel M M' being loose upon the shaft and recessed at p p', the treadle-shaft H, the sprocket-wheel J of said latter shaft, and the chain-belt L, substantially as and for the purpose set forth.

321,163. CASH REGISTER AND INDICATOR. CHRISTIAN J. WEINMAN, Dayton, Ohio, assignor of one-fourth to Theresa S. Moorman, same place. Filed Mar. 20, 1885. (No model.)



Claim.—1. The combination, in a cash-register such as described, of an oscillating spindle carrying a tablet, and a reciprocating key-bar for actuating said spindle, substantially as described.

2. In a cash-register such as described, the combination, with the oscillating tablet-spindles and the registering mechanism, of a reciprocating key-bar carrying the devices for actuating the register and tablet, substantially as described.

3. In a cash-register such as described, and in combination with the actuating key-bars, the oscillating spindles of unequal lengths, and the tablets mounted upon said spindles, whereby contiguous tablets are rotated in different planes to prevent contact, substantially as described.

4. In a machine such as described, and in combination with the actuating-bar, the oscillating tablet-spindle and its arm, and the spring applied to the tablet-spindle and acting in opposition to the thrust of the actuating-bar, substantially as described.

5. In combination with the oscillating spindle carrying the tablet and the bar for operating said spindle, the reciprocating locking-bar and the detent applied to the spindle, substantially as described.

6. In combination with the reciprocating actuating-bar, its pawl, and the registering mechanism with which the said pawl co-operates, the vertical spindle, its arm and tablet, the spring applied to said spindle, and the locking-bar for retaining the spindle with its tablet exposed, substantially as described.

7. In combination with the reciprocating actuating-bars and the oscillating tablet-spindles, the reciprocating locking-bar applied to the several spindles, and intermediate operating mechanism, such as indicated, for communicating motion from each actuating-bar to the locking-bar, substantially as described.

8. In a cash register and indicator such as described, and in combination with the longitudinally-reciprocating actuating-bar and oscillating tablet-spindles operated thereby, the pawl applied to the said bar, the ratchet-wheel and winding-pulley, the supply-pulley, and the registering-tape, substantially as described.

9. In a cash-register such as indicated, and in combination with a series of independent longitudinally-reciprocating actuating-bars, each provided with a pawl, the series of registering tapes or bands, their carrying-pulleys, and the independent winding-pulleys, each provided with a ratchet-wheel, substantially as described.

10. In a cash-register such as described, and in combination with the actuating-bars thereof, a series of winding-pulleys, the registering tapes or bands applied thereto, and the series of carrying-pulleys, each provided with a friction-brake, substantially as described.

11. In combination with the winding-pulleys and the registering tapes or bands applied thereto, the series of supply-pulleys mounted upon a single rotatable shaft, the friction disks or brakes applied thereto, and a detent for holding said shaft stationary, substantially as and for the purpose set forth.

12. In combination with the actuating-bars and their pawls, the series of winding-pulleys and their ratchet-wheels, the pawls applied to said ratchet-wheels, the carrying-pulleys and their friction-brakes, and the tapes or bands extending from the carrying to the winding pulleys, substantially as described.

13. In combination with the winding-pulleys, the ratchet-wheels and detaining-pawls, the tapes or bands and the series of carrying-pulleys mounted upon a shaft, the friction-brakes applied to said pulleys, and the detent for holding the shaft stationary and permitting it to be rotated, when desired, to rewind the tapes upon the supply-pulleys, substantially as described.

14. In combination with the reciprocating bars, the bell, and oscillating tablet-spindles, the reciprocating locking-bar carrying the bell-hammer and actuated at each reciprocation of the said bars, substantially as described.

15. In combination with the reciprocating bar and oscillating tablet-spindle, the locking bar sustained upon pivots and engaging a detent on the said tablet-spindle, the reciprocating bar carrying a pawl engaging a portion of the said locking-bar, substantially as described.

16. In a cash-register such as described, the combination, with the registering mechanism, of the series of pulleys, the ratchet-wheel applied thereto, the signal-shaft having the series of pawls provided with pins mounted thereon, and the pins on the shaft for engaging the pins on the pawls to raise the latter out of contact with the ratchet-wheels when it is desired to turn back the registering mechanism, substantially as described.

17. In combination with a series of actuating key-bars, a registering device for each key-bar, and a series of oscillating tablet-spindles arranged in line, the tablets of contiguous spindles being located at different levels, substantially as described.

18. In a registering apparatus of the character indicated, the combination of a series of independent actuating key-bars, and a series of tablet-spindles, turning bearings, and devices, substantially such as indicated, for communicating a partial rotation to each spindle to exhibit its tablet at each reciprocation of the corresponding key-bar, substantially as and for the purpose set forth.

321,164. RACK FOR NEWSPAPER-FILES. HORATIO D. WEST, St. Paul, Minn. Filed Jan. 22, 1885. (No model.)

Claim.—1. A rack for newspaper-files, having one or more substantially horizontal grooves, each formed with a narrow longitudinal opening at its lower side and a wider opening or space above said lower side, substantially as and for the purpose set forth.

321,164.



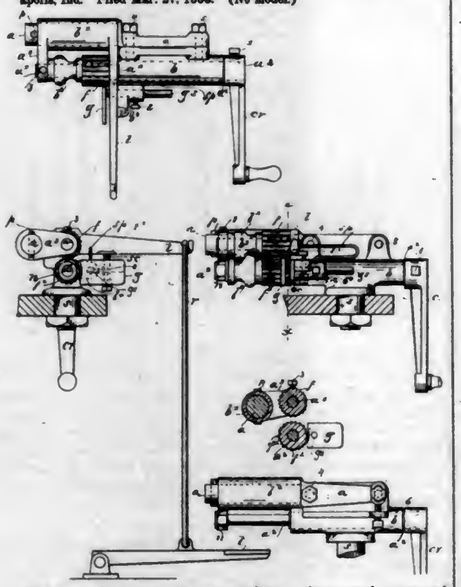
2. A rack for paper-files, provided with a series of substantially horizontal bars arranged in pairs, the two bars of each pair being parallel to each other, and said bars being set closer together at their lower edges than at a point above the same, substantially as shown and described.

3. The herein-described rack for paper-files, consisting of a desk or case, A, provided with a board or support, C, and with a series of bars, a, secured to said board, with their lower edges closer together than the upper portion of the bars, substantially as shown.

4. In combination with bars a and intermediate grooves or spaces, b, each bearing a distinguishing-mark, a series of files, D, each marked to correspond with one of the grooves or spaces.

5. In combination with the grooves or spaces b and the files D, each bearing a distinguishing-mark, an index, E, bearing the names of the papers contained in the files, together with the distinguishing-marks of the respective files and grooves.

321,165. PIPE-CRIMPING MACHINE. WM. A. WHEELER, Indianapolis, Ind. Filed Mar. 27, 1885. (No model.)



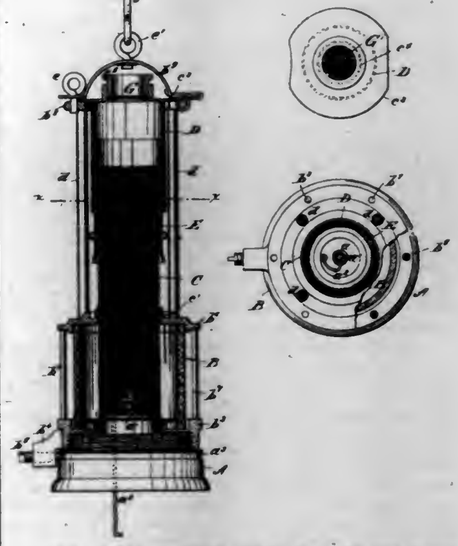
Claim.—1. In a pipe-crimping machine, a frame-work composed of a hollow boxing, b', the arm a^3, and the lever l, carrying the short axle a', having bearings in the arm a^3 and the lever l, the fluted roll f, having parallel sides, and the bead-roll b^3, mounted on such axle a', this frame-work rotatable on an axle, a, which is pivoted at 4 to the boxing b, so as to allow a movement in a vertical plane on such pivot 4, the opposite end of the axle a continued to form an arm having an elliptical slot in its extremity, through which the bolt 5 passes, the axle a^3, having the parallel-faced fluted roll f', and the bead-roll b^3, mounted thereon and rotatable in a boxing, b, into which the bolts 4 and 5 enter, a suitable crank mounted on the opposite end of the axle a^3, all combined substantially as described.

2. In a pipe crimping and beading machine, a set of beading and crimping wheels, the latter having parallel faces mounted on the driving-shaft, a corresponding set loosely mounted on an axle journaled in the arms of a frame adapted to be rotated on a separate axle connected with the main frame, so as to be thrown forward and downward and to bring the two sets of beading and fluting wheels at a proper position to bead and crimp the pipe-joint, in combination with the curved spring sp, one end thereof adapted to enter an opening in the boxing of the driving-shaft, the other into an opening in the side of the frame that carries the shaft on which the upper set of rolls are loosely mounted, the spring adapted and arranged to force the set of rolls apart when the pressure is removed, the lever l, the connecting-rod r, and the treadle t, for bringing the sets of rolls together, and the crank for actuating the driving-shaft, all combined substantially as described.

3. The arm a, with its connected axle, the rotatable frame composed of the boxing b', arm a^3, and lever l, carrying the shaft a', with a beading and fluting roll loosely mounted thereon, the arm a being pivoted near its center to the boxing b, its opposite end clamped by the bolt 5 through an elliptical slot therein to the boxing b, the axle a^3, carrying the lower set of beading and fluting rolls, the adjusting-screw 6, for limiting the movement of the slotted end of the arm a, the gage-plate g, connected to the guide-shaft gs, and the adjusting-screw sc, for stopping the movement of the lever l, all combined substantially as described.

4. In a pipe-crimping machine, two sets of beading and crimping wheels, the latter having parallel faces, the lower set rigidly mounted on a driving-shaft, the upper set loosely mounted on a shaft sustained in the sides of a frame which is adapted to be rotated forward and downward, so as to bring the faces of the two sets of beading and crimping wheels in contact with each other, the axle of such rotatable frame being connected to the main frame by a pivot, which allows a rotary movement of such axle in a vertical plane, and being provided with mechanism for limiting the vertical movement of such axle, all combined substantially as described.

321,166. SAFETY-LAMP. JOHN L. WILLIAMS, Shenandoah, Pa. Filed Jan. 24, 1885. (No model.)



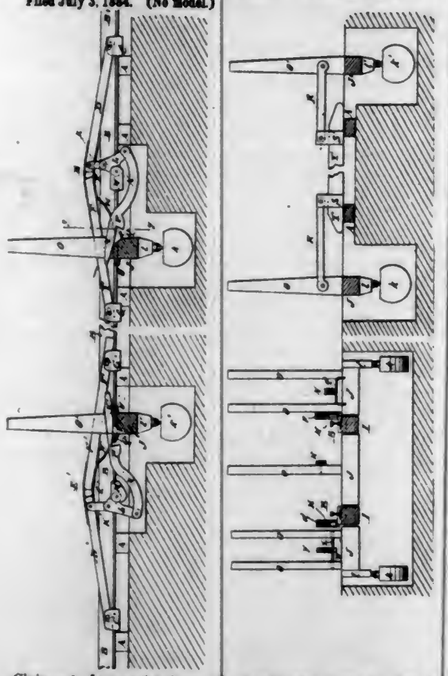
Claim.—1. The combination, with the base of the lamp, its wick-tube, and a glass cylinder at the lower part of the lamp, of a wire-gauze cylinder extending down within the said cylinder, a stationary sleeve projecting downward from the upper part of the lamp, and a sliding sleeve on the said wire-gauze cylinder, substantially as herein shown and described.

2. The combination, with the base of a lamp, the ring b^4, supported above the same, the glass cylinder between said base and ring, and the wire-gauze cylinder C, projecting down through the ring of the ring b^4, supported above the ring b^4, the sleeve D, depending from the ring b^4, and the sliding sleeve E, substantially as herein shown and described.

3. The combination, with the base of the lamp, the stationary sleeve D, and the sliding sleeve E, of the ring b^4, supported above the base and provided with the annular groove c', to receive the lower end of the sliding sleeve, and the wire-gauze cylinder C, projecting through the said ring, substantially as herein shown and described.

4. The upper sleeve, D, with its perforated cap-piece c^3, in combination with the wire-gauze G, arranged to cover the perforation in said cap-piece a screw-socket adapted to receive said gauze, and the screw-gland c^3, for holding said gauze in place and to provide for its removal from the lamp, substantially as specified.

321,167. RAILROAD-GATE. ALBERT M. WOODRUFF, Athens, Mich. Filed July 3, 1884. (No model.)



Claim.—1. In a railroad-gate, the combination, with the rail B and the gate-shaft J, having staple Q, rigid arms *l*, and suspended weights *k*, of the push-bar N, having shoulder P, the elbow-lever L, and connecting-bar K, and the inclined bars D F, connected at their inner ends by a flexible connection, E, held up by a spring and pivoted at their slotted outer ends to supports C G, substantially as herein shown and described, whereby the said gate will be opened by the wheels of an approaching train, as set forth.

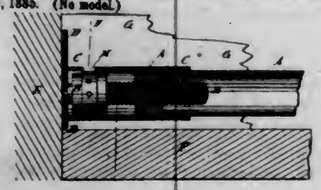
2. In a railroad-gate, the combination, with the gate J O and the push-bar N, having shoulder P, of the cam U, substantially as herein shown and described, whereby the said push-bar will be raised by the outward movement of the said gate, as set forth.

3. In a railroad-gate, the combination, with the rail B and the gate J O, of the cross-bar and rollers *i j*, the horizontal bar *d*, the flexible connections *c c*, the inclined bars *a f*, having slotted outer ends, the lifting-springs *b g*, and the pivotal supports Y *h*, substantially as herein shown and described, whereby the opening of the gate will be completed and the gate held open by the wheels of a passing train, as set forth.

4. In a railroad-gate, the combination, with the rail B and the gate J O, having pin or staple X, of the pivoted bar V, having two shoulders, W W, and the double-inclined bar Z, substantially as herein shown and described, whereby the gate will be automatically locked when partly open and fully closed, and will be unlocked by the wheels of a train passing away from the said gate, as set forth.

5. In a railroad-gate, the combination, with the two gates J O and J' O', of the pivoted bars R R' and the sliding bar T, substantially as herein shown and described, whereby the two gates will be made to move together, as set forth.

321,168. STAIR-ROD. THOMAS WORLEY, New York, N. Y. Filed Apr. 21, 1885. (No model.)



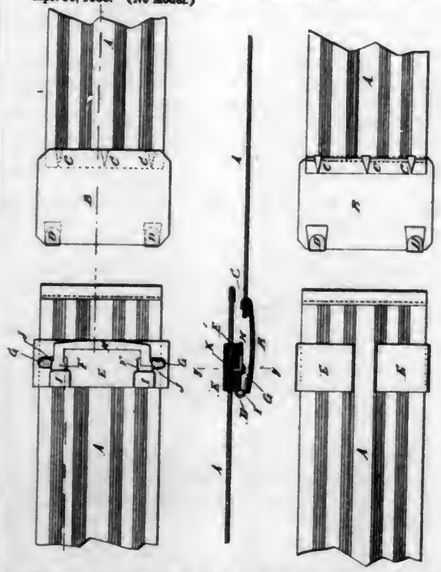
Claim.—1. In a stair-rod, the combination, with the center rod, A, having interior screw-threads at its ends, of the screws B, having radial perforations in their shanks to receive a lever-pin for operating them, substantially as herein shown and described, whereby the said stair-rod can be secured in place by turning the said screws out against the side boards of the stairs, as set forth.

2. In a stair-rod, the combination, with the center rod, A, having screw-threads at its ends, and the end screws, B, having radial perforations in their shanks, of the caps C, having flanged outer ends, and provided with transverse slots to give access to the radial perforations of the said screws, substantially as herein shown and described, whereby the said screws will be covered, as set forth.

321,169. ART OF MAKING WHISKY. FRANCIS M. YOUNG, Chicago, Ill. Filed Apr. 17, 1885. (No specimens.)

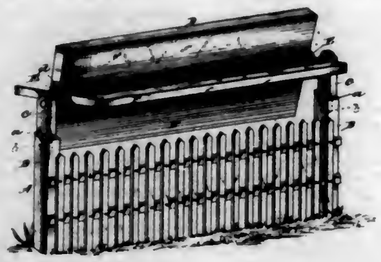
Claim.—The improvement in the art of manufacturing whisky, consisting in the preparatory acidulation of the mash to a degree which would require for neutralization the addition of not more than about two per cent. of a normal alkaline solution by the addition to the mash of a properly determined quantity of liquid slop to produce such degree of acidulation, whereby the subsequent formation of acid at the expense of the sugar and starch in the grain is prevented or reduced, substantially as herein described.

321,170. BELT-CLASP. GEO. E. ZELTMACHER, Brooklyn, N. Y. Filed Apr. 30, 1885. (No model.)



Claim.—In a belt-clasp, the slide made substantially as herein shown and described, and consisting of the plate E, bent to form a belt-receiving socket and provided with the apertures F, the pivot-bearings G, and the hook-receiving sockets I, and the crank-lever H, having on the ends of its arms pivots J, and the points K, projecting at right angles with the plane of the said lever, in combination with the buckle B, substantially as herein shown and described, whereby the said slide can be readily released from, adjusted upon, and secured to a belt, as set forth.

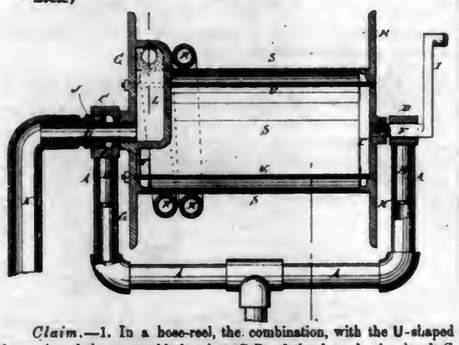
321,171. FENCE. ISAAC W. ARCHIBALD, Elgin, Ill. Filed Sept. 10 1884. (No model.)



Claim.—1. The combination, with the posts of a fence provided with extensions, of the herein-described reel attachment, comprising the shaft E, having the longitudinal dovetail projections *d*, and the wings having the inner ends dovetailed at *e*, to receive the projections of the shaft, as and for the purpose set forth.

2. The combination, with the posts of a fence having extensions, of the reel attachment comprising the shaft E and the radial wings attached to the same, and having a series of fingers or bars, as and for the purpose set forth.

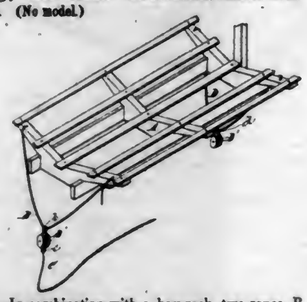
321,172. HOSE-REEL. LUTHER C. BALDWIN, Manchester, N. H., assignor to John Chase Thurston, same place. Filed July 8, 1884. (No model.)



Claim.—1. In a hose-reel, the combination, with the U-shaped frame A and the removable bearings C D, of the drum having heads G H, the former provided with passage L, the journal F, passing through the bearing D and screwed into the head H, the hollow journal E, screwed into the head G and communicating with the passage L, a coupling for connecting the journal E with the water-supply, and a hose-coupling communicating with the passage L, substantially as set forth.

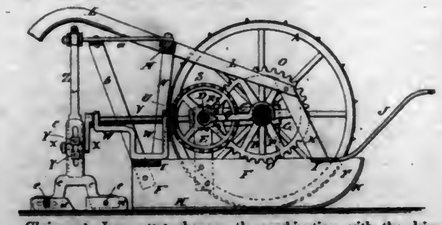
2. In a hose-reel, the combination, with the spool-journals E F, of the bearings C D, having pins B, and the tubular U-support A, substantially as herein shown and described, whereby the said spool will be firmly supported, and can be readily attached to and detached from its support, as set forth.

321,173. HAY-BINDER. GEORGE BAKER, Oakfield, Mich. Filed June 18, 1884. (No model.)



Claim.—In combination with a hay-rack, two ropes, B and D, secured to the ends of the side pieces of the rack, each secured permanently at one end and tied detachably and adjustably with regard to length at the other end, two pulley-blocks, B' and D', sliding with their eyes *b* and *d* upon the end ropes, and a rope, C, secured at one end to one block and reeved through both blocks, as and for the purpose shown and set forth.

321,174. COTTON-CHOPPER. JAMES F. BARRINGER, Bennettsville, S. C. Filed Dec. 2, 1884. (No model.)



Claim.—1. In a cotton-chopper, the combination, with the drive-wheels, of runners pivoted to the axle of the said wheels and carrying the hoes and their operating mechanism, substantially as herein shown and described, whereby provision is made for causing the hoes to enter the ground at a uniform depth, as set forth.

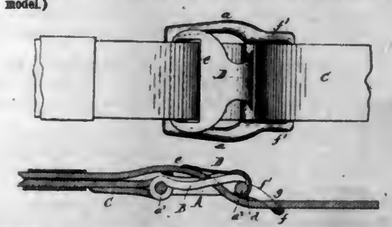
2. In a cotton-chopper, the combination, with the drive-wheels and axle A B and the runners F, of the pivoted bars C, the shaft D, and the standards E, substantially as herein shown and described, whereby the said wheels and axle and the runners will be drawn forward together, but can move up and down independently of each other, as set forth.

3. In a cotton-chopper, the combination, with the wheels and axle A B, the runners F, and the swinging extension-bar Z *c*, carrying the chopping-hoes, of the gear-wheels O R S U and the crank-shaft V X, substantially as herein shown and described, whereby the said swinging hoe will be vibrated by the advance of the machine, as set forth.

4. In a cotton-chopper, the combination, with the runners F, of the extension-bar Z *c*, carrying the chopping-hoes and having the slot Z', the handles L, the cross-bar M, attached to the handles, and the bars *a b*, substantially as herein shown and described.

5. In a cotton-chopper, the extension-bar carrying the chopping-hoes, made substantially as herein shown and described, and consisting of the upper bar, Z, having slot Z', and the lower bar, *c*, having slotted upper end and a forked lower end, and provided with a slot in its rear prong, whereby the chopping-hoes can be readily adjusted to work deeper or shallower in the ground, and to leave more or less plants for a hill, as set forth.

321,175. BUCKLE. JAMES M. BASINGER, Buffalo, N. Y., assignor of one-half to Pratt & Letchworth, same place. Filed Feb. 27, 1885. (No model.)

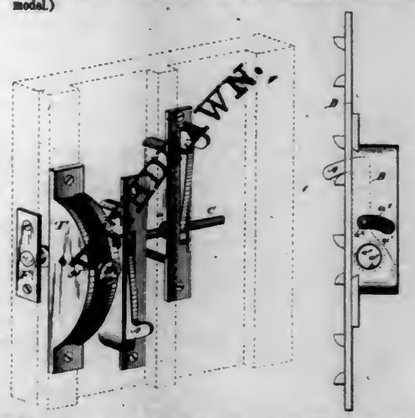


Claim.—1. The combination, with the buckle-frame provided with a hinged tongue resting with its free end upon one of the cross-bars of the buckle-frame, of a movable guard hinged to the buckle-frame and adapted to be closed down upon the tongue and cover the free end of the same, substantially as set forth.

2. The combination, with a buckle, of a movable guard adapted to be closed down upon the tongue and provided with a loop or opening to receive the billet, substantially as set forth.

3. The combination, with a buckle-frame having a hinged tongue resting with its free end upon the front cross-bar, a^3, of the buckle-frame, of the loop *g*, arranged on the forward end of the buckle-frame below said cross-bar a^3, whereby the buckle-frame is held against the strap and the tongue against the front cross-bar of the buckle-frame, substantially as set forth.

321,176. SASH-FASTENER. JOHN Y. BASSELL, Cincinnati, Ohio, assignor to Rebecca G. Bassell, same place. Filed Aug. 4, 1884. (No model.)



Claim.—1. In a sash-fastener, and in combination with the recessed sash, a locking-dog pivoted to the frame, and provided with an interlocking portion whose bearing-surfaces are formed in arcs of circles of which the pivot is the center, substantially as described.

2. In a sash-fastener, and in combination with the sliding sash and the recesses therein, a pivoted locking-dog mounted in bearings in the frame and provided with an arc-shaped engaging portion, whereby the dog can be inserted and withdrawn from the recess in the sash without moving the latter, substantially as and for the purpose set forth.

3. In a sash-fastener, and in combination with the window-sash and its attached strike-plate, provided with a shoulder or offset, as described, a pivoted locking-dog having the arc-shaped bearing-surfaces and the notches near the outer end thereof, substantially as described.

4. In a sash-fastener, and in combination with the window-sash, the spring-pressed locking-dog having an arc-shaped engaging portion and a pivot concentric therewith, and the operating key or spindle passing through said pivot and engaging a lug or projection therein, substantially as described.

5. In a sash-fastener, and in combination with the locking-dog thereof, the actuating-spindle provided with a flange or collar at one end and an interlocking stud or projection, and an escutcheon having a notched collar or opening for the reception of the end of the spindle, to prevent longitudinal movement of the latter and form a bearing therefor, substantially as described.

6. In a sash-fastener, and in combination with the locking-dog thereof and the operating-lever, the angular or feathered actuating-spindle and the escutcheon, the latter adapted to form a bearing for the end of the spindle and prevent its withdrawal, substantially as described.

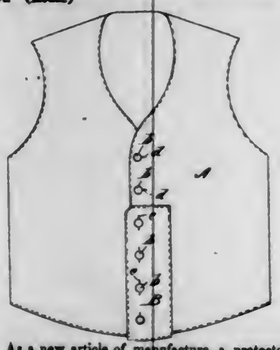
7. In a sash-fastener, and in combination with the pivoted dogs, the operating-lever, and the escutcheon, the removable actuating-spindle adapted to be inserted through the said operating-lever and escutcheon, and to be locked in position by a collar or flange on the latter resting between a stud and collar on the end of the said spindle, substantially as described.

8. In a sash-fastener, and in combination with the locking-dogs and actuating-spindle, the operating-lever connected at one end to said spindle and provided with a sliding portion or extension for engagement with a locking-plate, substantially as described.

9. In a sash-fastener, and in combination with the actuating-spindle and the locking-dogs controlled thereby, the operating-lever applied to said spindle and provided with a locking device for engagement with a fixed plate or escutcheon, substantially as described.

10. In a sash-fastener, and in combination with the actuating-spindle and the locking-dogs controlled thereby, the operating-lever applied to said spindle, and carrying the outer sliding section provided with wings or projections for engaging suitable recesses or projections in an escutcheon or plate, substantially as described.

321,177. VEST-PROTECTOR. THOMAS S. BEALS, Detroit, Mich. Filed June 24, 1884. (Model.)



Claim.—1. As a new article of manufacture, a protector for vests consisting of a piece of fabric, B, provided with a vertical series of button-holes, *c*, corresponding with and adapted to engage the ordinary buttons, *b*, on a vest, substantially as set forth.

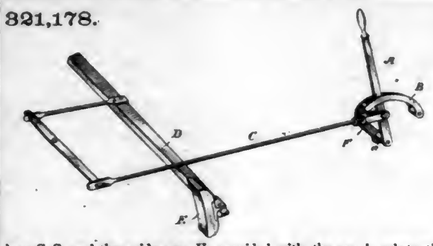
2. In a protector for vests, a protector, B, composed of one or more thicknesses of fabric and provided with a vertical series of button-holes corresponding with and adapted to engage the ordinary buttons of a vest, and a fly secured to the fabric to cover the button-holes, whereby fabric-covered buttons on the vest are protected from wear, substantially as set forth.

321,178. WAGON-BRAKE. CHARLES BERRINGER, Defiance, Ohio, assignor to the Turnbull Wagon Company, same place. Filed May 20, 1885. (No model.)

Claim.—1. A brake-rod adjuster consisting of a threaded sleeve formed with lugs, whereby it can be secured to the brake-lever, and a rearwardly-extending guide-arm provided with an eye, through which the brake-rod is guided to the threaded sleeve, substantially as set forth.

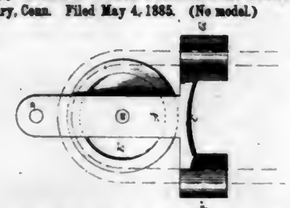
2. The combination, with a brake-lever and a screw-threaded brake-rod, of the adjuster F, consisting of the threaded sleeve *f*, having the

321,178.



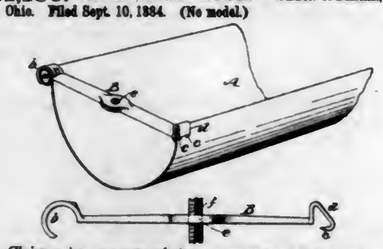
lugs G G, and the guide-arm H, provided with the eye *h*, substantially as and for the purpose described.

321,179. PULLEY. FRANK S. BELANGER and EUGENE B. BELANGER, Waterbury, Conn. Filed May 4, 1885. (No model.)



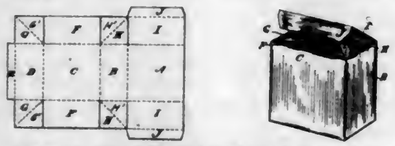
Claim.—The herein-described improvement in pulleys, consisting of the block composed of the two arms A B, connected at their two ends, combined with the pulley E, arranged upon a pintle between the arms for free revolution, the said block constructed with tubular extensions F G below the pulley and at each side, the passage through the tubular portions being in a line tangential to the periphery of the pulley, substantially as described.

321,180. EAVES-TROUGH HANGER. WILSON C. BERGER, Canton, Ohio. Filed Sept. 10, 1884. (No model.)



Claim.—An eaves-trough hanger consisting of the horizontal bar having the curved grasp *b* at one end, and at the other end the bend *d* and points *c*, adapted to inclose the edge of the trough, penetrate the same, and lock beneath the angle of bar B, substantially as set forth.

321,181. PAPER BOX. FRANK P. BURLEY, Toronto, Ontario, Canada. Filed May 3, 1885. (No model.) Patented in Canada Apr. 23, 1885, No. 21,515.



Claim.—1. As an article of manufacture, the herein-described box, consisting of the sides A, B, C, and D, with the flaps F, G, H, and I, and flap J, cut and folded substantially as described.

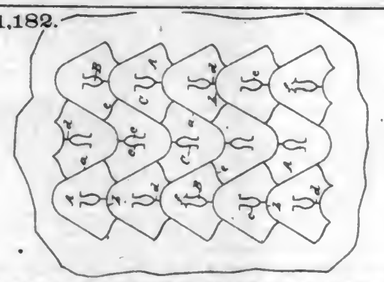
2. As an article of manufacture, the herein-described box, consisting of the sides A, B, C, and D, and flap E, with the parts F, G, H, and I, and flap J, cut and folded substantially as described.

321,182. MANUFACTURE OF BOOTS OR SHOES. GUILLAUME BOIVIN, Montreal, Quebec, Canada. Filed Jan. 12, 1885. (No model.) Patented in Canada Nov. 21, 1884, No. 20,607.

Claim.—1. The improvement in the art of dividing sheet-leather or other material into uppers for boots or shoes, consisting in dividing the same by waved lines *a* and transverse lines *c*, in the manner described and shown, thereby forming each upper in a single piece and separating them from each other without waste.

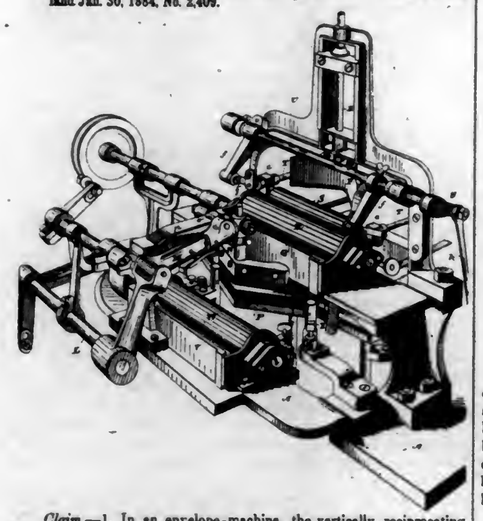
2. The improvement in the art of dividing sheet-leather into uppers for boots or shoes, consisting in dividing the toe of one upper from the

321,182.



top edge of another, the outer edge of one from the outer edge of another, and the back or heel edge of one from the heel edge of another, in the form and manner herein described.

321,183. ENVELOPE-MACHINE. LOUIS P. BOUVIER, Toronto, Ontario, Canada, assignor, by direct and mesne assignments, of three-fourths to John Fitzallen Ellis, Philip Thomas Perrott, and Thomas James Clark, all of same place. Filed Sept. 24, 1883. (No model.) Patented in England Jan. 30, 1884, No. 2,409.



Claim.—1. In an envelope-machine, the vertically-reciprocating picker arranged to gum and raise one side of the top blank, in combination with the reciprocating auxiliary gummer constructed to fall directly upon the edge of the seal-flap, and mechanism, substantially as described, for drawing said auxiliary gummer off the flap while the picker is resting on the blank, as set forth.

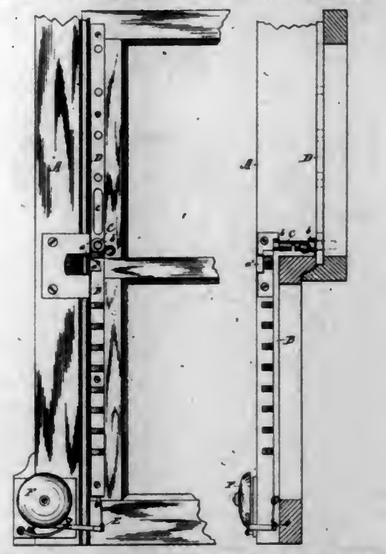
2. The gum-dish Q, located immediately over the pile of blanks, and the vertically-reciprocating picker supplied with gum from said gum-dish and arranged to carry the gum to one flap of the blanks, in combination with the second gum-dish located in front of the pile of blanks and provided with a gum-supplying surface, as W, on a level with the upper blank, and an auxiliary gummer arranged to be carried from said gum-dish to a point directly over the seal-flap of the blank and dropped thereon, and then drawn therefrom in a horizontal plane while the said picker is resting upon and holding the blank, substantially as described.

3. In an envelope-machine having a gumming-dish located over the pile of blanks, a vertically-reciprocating picker arranged to gum and pick up one side of the top blank sufficiently high to permit the carriers to pass below it, in combination with a spring finger or fingers placed on the bottom of the gum-dish, so that the blank carried up against it by the picker is pushed off the picker onto the carriers with a positive yet gentle elastic force.

4. In an envelope-machine, the vertically-reciprocating gummer arranged to gum one side of the top blank, in combination with the auxiliary reciprocating gummer for gumming the seal-flap, and mechanism, substantially as described, constructed to carry said gummer from the gum-dish to the edge of said flap, and then lower it directly upon the same and draw it off while the gummer is resting on the blanks, substantially as set forth.

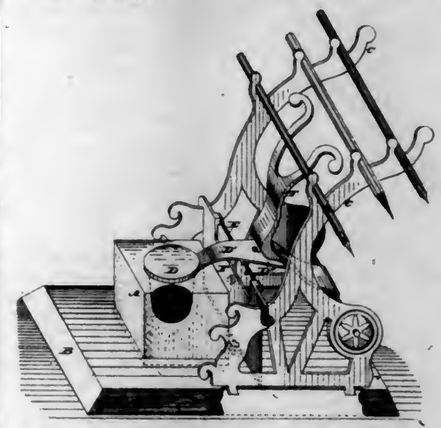
5. In an envelope-machine having a gum-dish located over the pile of blanks, the vertically-reciprocating picker constructed and arranged to gum and raise one side of the top blank, and the roller arranged to convey the gum from the gum-dish to the under side of the picker, in combination with the reciprocating auxiliary gummer, the second gum-dish located near another edge of the blank and carrying a roller whose upper surface is substantially on a level with the top blank, and mechanism, substantially as described, for carrying said auxiliary gummer over the edge of the blank and free from contact with the same, and then dropping said gummer upon the blank and drawing it therefrom in a horizontal position while the picker is resting on the other edge, as set forth.

321,184. COMBINED BURGLAR-ALARM AND SASH-FASTENER. JOHN BRADY, Philadelphia, Pa. Filed Mar. 17, 1885. (No model.)



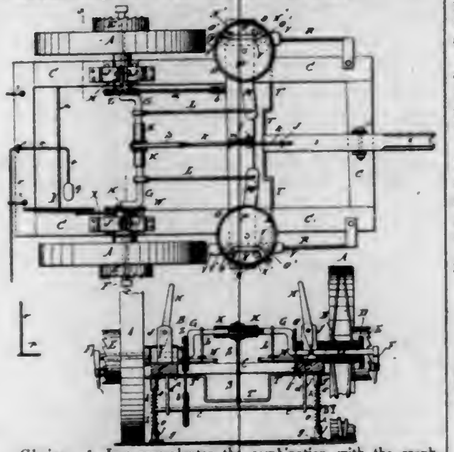
Claim.—The combined sash supporter, lock, and alarm herein described, consisting of the bar D, attached to the front of the upper sash, and provided with bolt-holes, toothed bar B, attached to the front of the lower sash, and having a plain space at its upper end, and formed with bolt-guides *b b*, containing bolt C, the spring-bolt *a*, arranged in the window-frame to move parallel to the sash and engage with the toothed bar, and alarm F, fastened to the window-frame and connected to the lower sash, substantially as shown, and for the purpose set forth.

321,185. INKSTAND. ISAAC BROOKE, Pottstown, Pa. Filed Sept. 8, 1883. (No model.)



Claim.—In an inkstand, a self-closing cover having an arm at the rear thereof pivoted to the frame, and having a rearward-projecting tongue, and a lever which is pivoted to the open rack and formed with a forwardly-projecting part, which overhangs the tongue of the cover, substantially in the manner and for the purpose set forth.

321,186. CORN-PLANTER. EDWIN M. CALEF and TRUMAN L. TRACY, Missouri Valley, Iowa. Filed Jan. 5, 1885. (No model.)

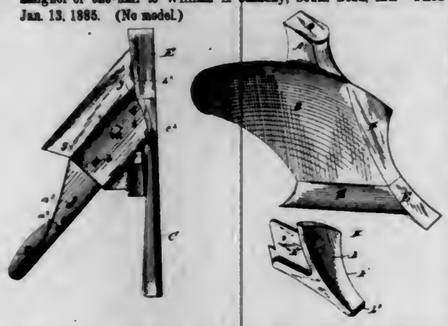


Claim.—1. In a corn-planter, the combination, with the crank-axle G at the rear part of the frame, and the rods L S, of the seed-box O, having an apertured false bottom, P, and spouts Q Q, the pivoted plate N, having seed-receiving holes constructed to be brought into line with the spouts, and an arm, M, extending through the side of the seed-box and connected to rod L, the crank-lever T, journaled below the seed-box, connected with the rod S, and provided with crank-arm U, and the horizontal plate V, passed through slots in both spouts, provided with holes V', and connected to the crank-arm U, substantially as set forth.

2. In a corn-planter, the combination, with the axle G, the frame C, and the hangers *d*, of the shaft *c*, pulleys Z *b* on the axle and shaft G *c*, respectively, the band *a*, connecting the same, the cross-rods *e*, rigidly secured to the ends of the shaft *c*, the tubes *f*, mounted to slide on the rods *e*, and provided with feet *g*, and spiral springs *h* on the rods *e*, between the shaft *c* and the tubes *f*, substantially as set forth.

3. In a corn-planter, the combination, with the frame C, provided at its rear end with a cross-rod, *n*, of the rod *o*, journaled on the rear cross-bar of the frame and on the rod *n*, the said rod being bent downward at right angles to its rear arm, and there provided with a shoe, *p*, the forward arm being parallel with the rear arm, and provided with a weight, *q*, substantially as set forth.

321,187. PLOW. GEORGE B. CASADAY, Hudson, La Porte County, assignor of one-half to William L. Casaday, South Bend, Ind. Filed Jan. 13, 1885. (No model.)



Claim.—1. In a plow, the combination, with the standard, of a hollow reversible point fitted upon the lower forward end of the standard, and a removable wing operating when secured in position to positively lock the point in place, substantially as shown and described.

2. In a plow, the combination, with the standard, of a hollow reversible point fitted upon the lower forward end of the standard, and a hollow reversible wing fitted on a wing bearing on the standard, and operating when in position to positively lock the point in place, substantially as shown and described.

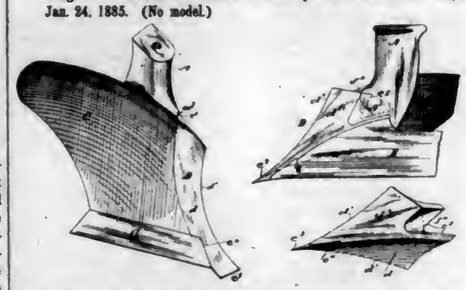
3. In a plow, the combination, with the standard, mold-board, and a reversible cutter, of a hollow reversible point fitted on the lower forward end of the standard and forming a continuation of the cutter, and a hollow reversible wing fitted on a wing bearing on the standard, and operating when in position to positively lock the point in place, substantially as shown and described.

4. In a plow, the combination, with the standard and mold-board of a removable and reversible shin or cutter secured to the standard and presenting when either side is in use a cutting-edge and a wearing-surface conforming to and forming a continuation of the mold-board, substantially as shown and described.

5. In a plow, the combination, with the standard and mold-board, of the removable and reversible shin or cutter having two opposite wearing-faces and cutting-edges and two sets of bearing-surfaces independent of the wearing-faces, and upon which it is supported and connected to the standard, substantially as shown and described.

6. In a plow, the removable and reversible shin or cutter K, having the duplicate wearing-faces and cutting-edges, and the duplicate shoulders k^3 and bearing k^2 on its lower end, in combination with the standard having the shoulder a^4, the mold-board and hollow reversible point engaging when adjusted with the bearing k^2, all constructed and arranged substantially as shown and described.

321,188. PLOW. GEORGE B. CASADAY, Hudson, La Porte County, assignor of one-half to William L. Casaday, South Bend, Ind. Filed Jan. 24, 1885. (No model.)



Claim.—1. In a plow, a reversible combined cutter and point, having two cutting-edges and two corresponding converging faces continued to a common point, substantially as shown and described.

2. In a plow, the combination, with the standard and mold-board, of a reversible combined cutter and point secured to the standard, and having two cutting-edges and opposite corresponding and converging faces continued to a common point, and presenting when either face is in use a point, a cutting-edge, and a wearing face conforming to and forming a continuation of the mold-board, substantially as shown and described.

3. In a plow, the combination, with the standard, mold-board, and landside, of a reversible combined cutter and point secured to the standard, and presenting when either face is in use a point, a cutting-edge, and a surface conforming to and forming a continuation of the mold-board, and a surface conforming to and forming a continuation of the landside, substantially as shown and described.

4. In a plow, a standard, a mold-board, and a reversible combined cutter and point secured to the standard, in combination with a removable wing operating when in position to overlap the combined cutter and point and positively lock the same in place, substantially as shown and described.

5. In a plow, a mold-board, a standard having a V-shaped shoulder, A', a reversible combined cutter and point having a V-shaped notch, f^4, interlocking with the shoulder on the standard, in combination with a reversible wing, said wing operating when in place to overlap the cutter and point and positively lock the same in position, substantially as shown and described.

6. In a plow, a mold-board, a standard provided with a V-shaped shoulder, A', and a raised triangular shoulder, a^4, on its lower end, in combination with a reversible combined cutter and point provided with the V-shaped notch f^4 and triangular recesses e^4, and a reversible wing operating when in position to engage with one of the recesses e^4 and lock the combined cutter and point in place, substantially as shown and described.

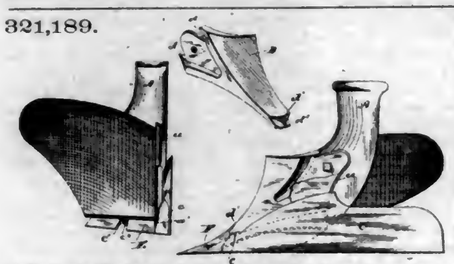
7. In a plow, a mold-board, a standard having a V-shaped shoulder, A', a reversible combined cutter and point having a V-shaped notch, f^4, interlocking with the shoulder on the standard, in combination with a hollow reversible wing secured on a suitable bearing on the standard and operating when in position to interlock with the combined cutter and point and hold the same in place, substantially as shown and described.

321,189. PLOW. GEORGE B. CASADAY, Hudson, La Porte county, assignor of one-half to William L. Casaday, South Bend, Ind. Filed Apr. 23, 1885. (No model.)

Claim.—1. In a plow, a hollow reversible combined wing and point having two opposite corresponding and converging wearing faces continued to a common edge, and two opposite and corresponding points, substantially as shown and described.

2. In a plow, the combination, with a standard and mold-board, of

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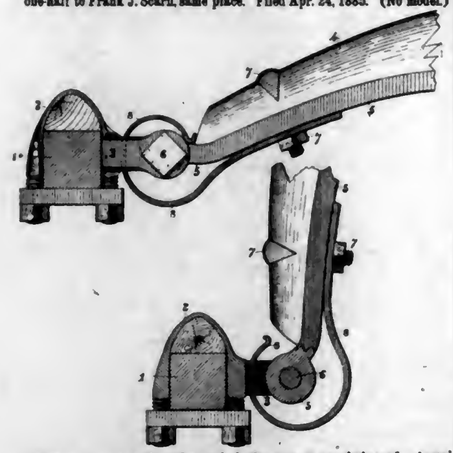


a hollow reversible combined wing and point fitted upon a wing bearing on the standard, and having two opposite corresponding wearing faces and points, substantially as shown and described.

3. In a plow, the combination, with the standard and mold-board, of a removable cutter secured to the standard and a hollow reversible combined wing and point fitted on a wing bearing on the standard, having two opposite corresponding wearing faces and points, and operating when secured in place to engage with the lower end of the cutter and lock the same in position, substantially as shown and described.

4. In a plow, the combination, with the standard and mold-board, of a reversible cutter secured to the standard and having two opposite and corresponding faces and cutting-edges, and a hollow reversible combined wing and point fitted upon a wing bearing on the standard, having two opposite corresponding wearing faces and points, and operating when in position to engage with the lower end of the reversible cutter and lock it in place, substantially as shown and described.

321,190. ANTI-RATTLER AND SHAFT-SUPPORT FOR THILL-COUPLINGS. BLANCHARD CHAMBERLAIN, Bellefontaine, Ohio, assignor of one-half to Frank J. Scarff, same place. Filed Apr. 24, 1885. (No model.)



Claim.—1. An anti-rattler and shaft-support consisting of a metal spring bent in scroll or helix form to adapt it to exert pressure to hold the shafts against rattling when they are drawn down in position for use, and to support them when they are elevated, substantially as herein set forth.

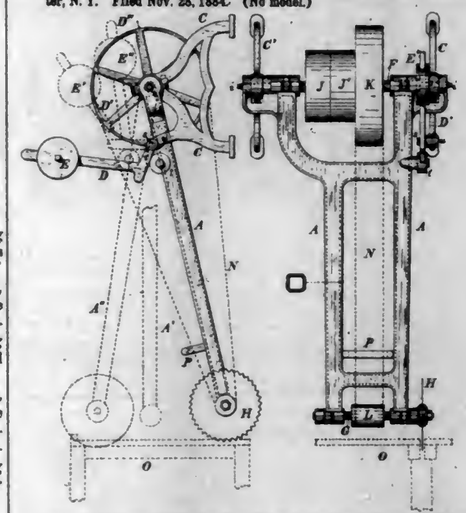
2. In combination with the shaft-iron 5 and axle-clip 2 3, the scroll-spring 8, bolted by its base to the shaft and shaft-iron, bearing in one direction against the face of the clip to support the shafts when elevated, and contracted by the drawing down of the shafts so as to bear also against the heel of the shaft or shaft-iron, as explained.

321,191. MANUFACTURE OF GLAZED LEATHER. THOMAS R. CLARK, New York, N. Y. Filed Nov. 28, 1884. (No specimens.)

Claim.—1. The improvement in the art of manufacturing glazed leather, which consists, substantially as herein described, in first tawing skins with oil or oleaginous compounds; second, drying them; third, subjecting them to repeated drenchings in successive baths of clean naphtha until fully cleansed and whitened; fourth, drying and staking them; and, finally, dyeing and glazing them in the customary manner.

2. The method, substantially as described, of manufacturing glazed leather, which consists in first tawing the skins with oil or compounds of oil; second, drying them; third, subjecting them to repeated drenchings in successive baths of clean naphtha until fully cleansed and whitened; fourth, washing them in alcohol or an equivalent solvent; and, fifth, drying and staking the same preparatory to coloring and finishing them.

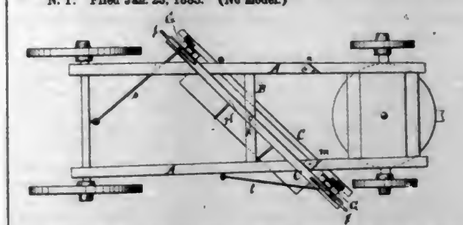
321,192. CIRCULAR SAWING MACHINE. JOHN CONNELL, Rochester, N. Y. Filed Nov. 28, 1884. (No model.)



Claim.—1. The combination of the fixed brackets or hangers C, the pendulous saw-frame suspended therefrom, and the weighted lever pivoted to the bracket and acting directly on the frame to urge the same backward, as described.

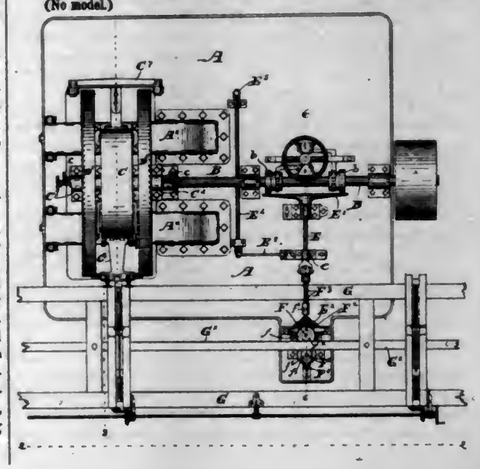
2. The pendulous saw-frame having the roller or projection thereon and the angular weighted lever mounted on a fixed axis above the roller and acting on the latter, as described.

321,193. ROAD SCRAPER OR PLANER. HIRAM D. COOK, Dry Brook, N. Y. Filed Jan. 23, 1883. (No model.)

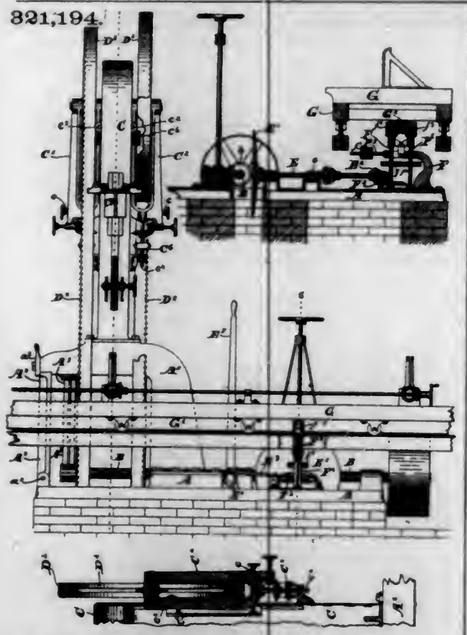


Claim.—In a road scraping or planing device, a frame, C, in combination with a vertical adjustable scraper or planer, F, a pivot, *k*, cleats *m* and *n*, and hook-bars *s* and *t*, substantially as described.

321,194. BAND-SAW MILL. JOSEPH COOK, Indianapolis, Ind., assignor to Sinker, Davis & Company, same place. Filed Mar. 17, 1885. (No model.)



321,194.



Claim.—1. The combination, in a band-saw mill, of a frame supporting the pillar, a mandrel mounted in bearings on said frame and carrying two band-wheels, two short shafts carrying band-wheels mounted in bearings supported by said pillar, and two band-saws mounted on said band-wheels, the teeth of which face outwardly from each other, said saws being in line, and thus adapted to run in the same kerf while in operation.

2. The combination, in a band-saw mill, of the supporting frame-work, a pillar-base, A′, thereon, open at one side and extending over the lower band-wheels, and provided at said open side with the swinging support A^3, hinged to the frame, whereby said open side can be closed and the free end of said pillar-base thus supported when the mill is in operative condition, substantially as and for the purposes set forth.

3. The combination, in a band-saw mill, with the frame-work and main shaft or mandrel mounted in bearings on said frame-work and carrying band-wheels on its outer end, of said band-wheels, a pillar-base, A′, secured to said frame-work and extending up and over said band-wheels, a downwardly-projecting stud, A^3, secured to the under side of said pillar-base and provided with a bearing in its lower end for the extreme lower end of said mandrel, and a hinged support, A^3, pivoted under the overhanging end of said base and formed to support said end when in a raised-up position, whereby said base is strengthened and its bearing for said mandrel made more steady and firm while in operation, substantially as set forth.

4. The combination, in a double band-saw mill, of the frame-work, the pillar, wheel-housings adjustably secured on said pillar, band-wheels mounted on independent shafts on said housings, means of independently adjusting said housings, the mandrel, band-wheels on said mandrel, and saws facing outwardly and mounted on said band-wheels.

5. The combination, in a double band-saw mill, of the frame-work, the pillar provided with ways on each side, independent shafts carrying the upper band-wheels, wheel-housings carrying said shafts, and vertical adjustable slides mounted in the ways in said pillar and carrying said wheel-housings, and means for adjusting the same, substantially as set forth.

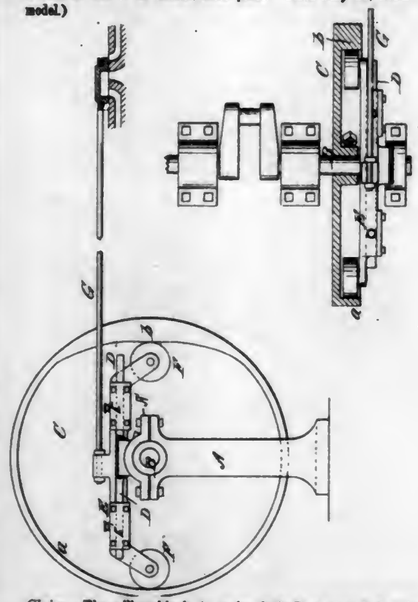
6. The combination, in a double band-saw mill, of a pillar, C, mounted on a base on the frame-work and provided in its sides with vertical ways, slides C^3 C^4, mounted and adapted to move in said ways, wheel-housings C′ C^2, pivoted to said slides and carrying independent shafts, band-wheels D^3 and D^4, mounted on said shafts, the screw-shafts c^3 c^4, for adjusting said slides, the lower bearings of which are supported by weighted levers C^5 C^6, and said weighted levers supported on fulcrums on the frame-work, substantially as set forth.

7. The combination, with a double band-saw mill, of a feed mechanism consisting of two friction-wheels mounted and longitudinally adjustable upon the shaft or mandrel, rack-bars secured to and extending toward each other from said friction-wheels, a pinion located centrally between said friction-wheels and engaging with both said rack-bars, a friction-plate adapted to be operated by either of said friction-wheels, and connecting mechanism running from said friction-plate to the log-carriage, and means whereby said friction-plate may be thrown into contact with either of said friction-wheels.

8. The combination, with the saws arranged facing in each direction and their operating mechanism, of the mandrel having two correspondingly-adjustable friction-wheels *b* mounted thereon, the shaft E, having a universal joint, a friction-plate, E′, on the end of said shaft next said friction-wheels, a pinion on the other end of said shaft engaging with the carriage-driving gear, and a sliding bearing arranged on said shaft near said universal joint, to which is connected means for moving said jointed shaft from side to side, whereby said friction-plate may be thrown into engagement with either of the friction-wheels *b*, substantially as set forth.

9. The combination, with a log-carriage, of two vertical shafts secured together and provided with wheels or pinions upon their upper ends which extend up alongside the feed-bar of said carriage, loose collars upon said shafts, links secured to said collars and to a central link, and a weighted lever secured to said central link, whereby the upper ends of said shafts are drawn toward each other, and the wheels or pinions thereon held into close contact with the feed-bar on the log-carriage.

321,195. VALVE-GEAR. JOHN R. DEERING, Emporia, Mo., assignor to himself and J. M. Bickel, same place. Filed July 19, 1884. (No model.)



Claim.—The pillow-block A, main shaft B, mounted therein, the box A′, provided on its upper side with the horizontal slideway D, the slide E, having a longitudinal groove, the plates E′, bolted to the slide, as shown, for holding it to the slideway, the friction-rollers F at opposite ends of the slideway, the flanged disk C *a*, secured to shaft B and provided with the eccentric portion *b*, and the valve-rod G, removably connected to the slide E and to a slide-valve, substantially as set forth.

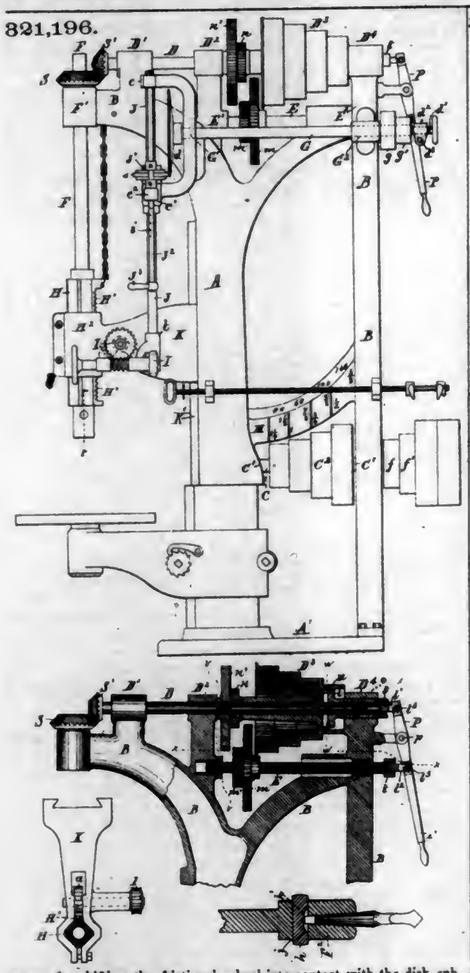
321,196. DRILLING-MACHINE. ULRICH EBERHARDT and HENRY E. EBERHARDT, Newark, N. J. Filed Feb. 11, 1885. (No model.)

Claim.—1. The combination, with the drill-spindle F and the split bearing H^2, surrounding the same, of the rectangular sleeve H, having the rack-teeth H′, formed integral therewith, for transmitting the feed movement to the sleeve, substantially as herein shown and described.

2. In a column-drill press, the combination, with the cone-shaft D, having the gear *n* secured thereto, and the cone D^3, fitted loosely thereon, provided with the gear *n*, of the clutch having the hub *l* fitted to the end of the shaft D, the back gears mounted upon the back-gear shaft E parallel with the cone-shaft D, as described, and the lever P, provided with the links *l*′ and *l*², arranged to shift the clutch in one direction and the back-gearing shaft in the opposite direction, substantially as and for the purpose set forth.

3. In a column-drill press having the drill-feeding shaft driven by a frictional wheel, and having the cone-shaft driven by a counter-shaft, C, with the cone C^3, as described, the combination, with the drill-feeding shaft having the frictional wheel secured thereon, of a frictional disk mounted upon a shaft driven by a belt from the said counter-shaft, and

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means for shifting the frictional wheel into contact with the disk, substantially as shown and described.

4. In a column-drill press having the cone-shaft driven by a counter-shaft, the combination, with the drill-feeding shaft, of a frictional driving-wheel and disk, an independent shaft for carrying said disk, speed-cones applied to the said disk-shaft and counter-shaft, and a belt to drive the disk-shaft from the counter-shaft C, the cones operating to vary the effect of the belt for drilling wrought or cast iron, substantially as shown and described.

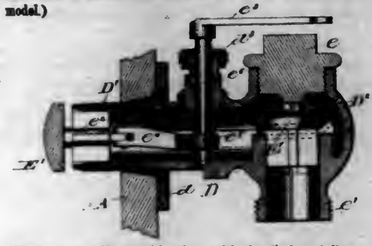
5. The drill-frame A B, provided with the counter-shaft C and cone C^3, arranged substantially as described, and the stationary bar M, arranged adjacent to the several belt-faces upon the cone, and provided with figures opposite the several faces of the cone to indicate the corresponding sizes of the drills which should be used with the belt applied thereto.

6. In a column-drill press provided with a frictional feed-wheel, the combination, with the shifters for shifting the wheel *e*, of the rod J^3, attached to the said shifters, and provided with the figures for indicating the proper setting of the wheel, substantially as shown and described.

7. The combination, with a drill-spindle having a central socket for the shank of the tool and provided with a transverse hole at the bottom of the socket, of the grooved plug, constructed as described, and inserted movably in said hole, and adapted both to rotate the tool and to force it out of its socket when required, substantially as shown and described.

8. The combination, with a drill-press spindle, of a cone-shaft geared thereto, a cone running loosely thereon, and back gearing adapted to drive the cone-shaft when desired, a feeding mechanism for moving the spindle longitudinally, and means for driving the feeding mechanism independently of the cone-shaft, and thereby reversing the relation of the feed to the rotations of the drill when operated by the back gear.

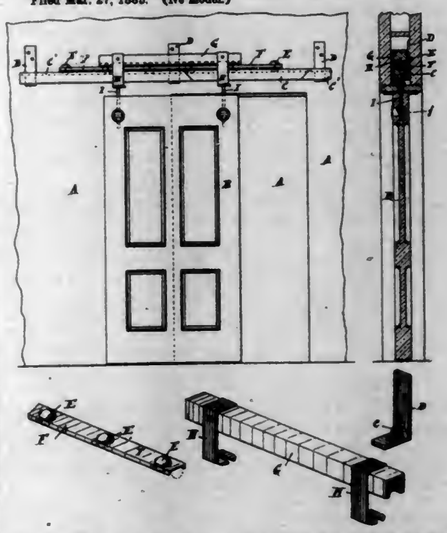
321,197. VALVE FOR STEAM-BOILERS. WILLIAM R. EDWARDS and FRED. J. SCHULTZ, Milwaukee, Wis. Filed Nov. 19, 1884. (No model.)



Claim.—1. The combination, with the feed or delivery pipe of a boiler injector or pump, of a check-valve, and a stop-valve within the boiler having its stem projecting out of the feed-pipe and provided with a crank to operate it positively, substantially as set forth.

2. The combination, with the feed or delivery pipe of a boiler injector or pump, of a stop-valve seated on the orifice of the said pipe inside the boiler, and provided with means within the boiler, and provided with an arm within the feed-pipe, and a lever upon the projecting shaft to operate it, substantially as set forth.

321,198. HANGING DOOR. CHARLES W. EMERSON, Boston, Mass. Filed Mar. 27, 1885. (No model.)



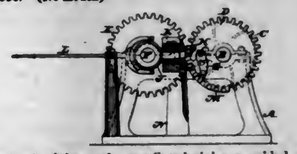
Claim.—1. In a door-hanger, the combination, with the hangers D, of a track divided into three sections, C C′ C′, the two end sections being permanently secured in position, and the central section, C, being removable, substantially as and for the purpose set forth.

2. The combination of the door B, the adjusters I, suspenders H, bar G, balls or rollers E, spacer F, and track C C′, substantially as shown and described.

3. The hangers D D, provided with the A-shaped projection *e*, in combination with the rail C C′ of a door-hanger, as shown and described.

4. In a door-hanger, the spacer-bar F and balls or rollers E, in combination with the track C C′ and bar G, as shown and described.

321,199. MECHANICAL MOVEMENT. LORENZO D. FARRA, Philadelphia, Pa., assignor of one-half to Horace F. McCann, same place. Filed Jan. 6, 1885. (No model.)



Claim.—1. A pinion and a mutilated pinion provided, respectively, with a cam and a finger, substantially as and for the purpose set forth.

2. Pinions, substantially as described, in combination with a stud on one of the pinions, a wiper on the other pinion, and a spring-arm, said arm engaging with said stud, and being released by the action of said wiper, for the purpose set forth.

3. Pinions, substantially as described, in combination with a clutch, guides secured to one of the pinions, a finger connected with said clutch, and a cam on the other pinion, said finger being movable in the guides and rotatable therewith, as stated.

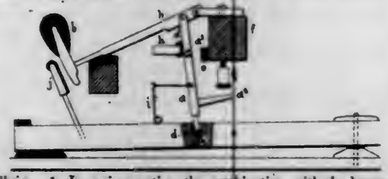
321,200. BOOT OR SHOE. PHILIPP FISCHER, New York, N. Y. Filed Apr. 9, 1885. (No model.)



Claim.—1. A shoe-blank consisting of two parts, A' A^2, one part, A', having a slit and intended to form the vamp and part of the quarter and leg, and the other part being cut so that it can be connected to the free end of the vamp and the leg end of the part A', whereby a shoe is formed having two seams, one situated in the leg portion, and the other extending across one side of the vamp, substantially as described and shown.

2. A shoe-blank consisting of two parts, A' A^2, one part having a slit and intended to form the vamp and part of the quarter, and the other part intended to be connected to the free end of the vamp and the leg, both parts being cut concavely at the respective leg ends which form the seam in the leg portion, substantially as shown.

321,201. PIANO-ACTION. WILHELM FISCHER, Leipsic, Saxony, Germany. Filed Feb. 19, 1885. (No model.)



Claim.—1. In a piano-action, the combination, with the hammer *b* and key-lever *c*, of a jack or hopper consisting of two parts, *a* and *a'*, jointed together and connected with the stem of the hammer and the key-lever, as described, the arm a^2 on the jack part *a*, the spring *i*, and the stop *g*, substantially as and for the purpose described.

2. The combination, in a piano-action, of the hammer *b*, key-lever *c*, jointed jack *a a'*, arm a^2, spring *i*, and stop *g*, the two jack parts being provided with the lugs or shoulders *m*, substantially as and for the purpose specified.

3. The combination, in a piano-action, of the hammer *b*, key-lever *c*, jointed jack *a a'*, arm a^2, spring *i*, and stop *g*, the lower jack part, *a*, carrying a hammer-check, *z*, as hereinbefore set forth.

321,202. WHISTLE. ALVIN L. FISHER, New Brunswick, N. J., assignor to the Overman Wheel Company, Chicopee, Mass. Filed Jan. 30, 1885. (No model.)

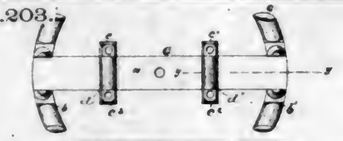


Claim.—A whistle or call having two sheet-metal tubes, each of different length, and a common mouth-piece made of the same material and provided at its outer end with a lip or flange formed by expanding the metal at such point and turning it outward and under, substantially as set forth.

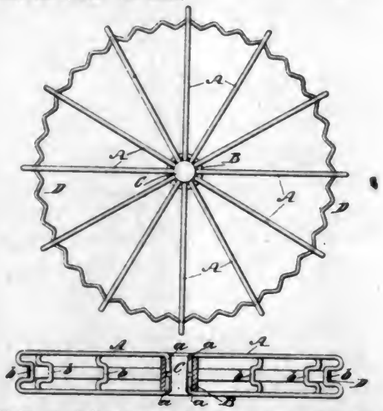
321,203. FIFTH-WHEEL. JULIUS H. FOOTE, Newark, N. J. Filed Oct. 20, 1884. (No model.)

Claim.—As a new article of manufacture, the described part G of the fifth-wheel of a carriage provided with the perforated lugs c c^3 and the rib *d*, extending transversely across said bar *a*, said rib and lugs being integrally a part of said bar, and said rib being rounded, as and for the purpose described.

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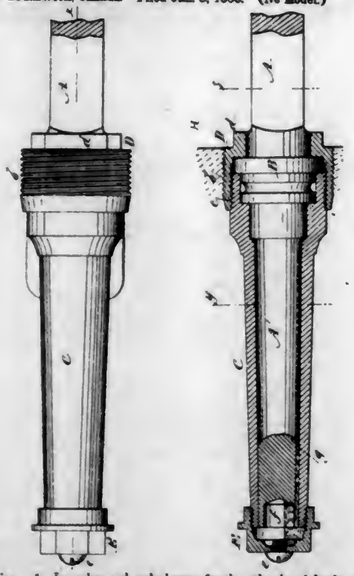
321,204. WIRE FRAME. HENRY F. FORDHAM, Greenport, N. Y. Filed Mar. 6, 1885. (No model.)



Claim.—1. A frame composed of the wires A, bent to form hooks *a*, held by the tube or ferrule B and rivet or key C, substantially as described.

2. The wires A, folded and bent to form the hooks *a*, in combination with a ring, B, and rivet or key C, the wires A being held at their outer ends by a surrounding ring, substantially as described.

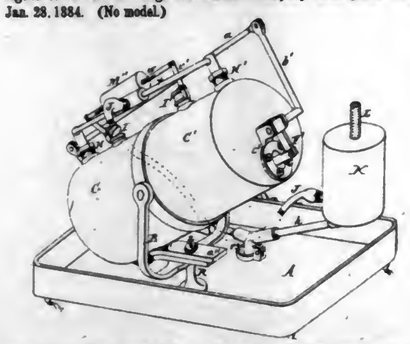
321,205. CARRIAGE AXLE AND BOX. JOSIAH FOWLER, St. John, New Brunswick, Canada. Filed Jan. 3, 1885. (No model.)



Claim.—1. In axles and axle-boxes for the wheels of draft-vehicles, the internally and externally screw-threaded cap D, in combination with the axle A, having an enlarged collar, B, at or near the inner end of the journal A', and the axle-box C, having its inner and enlarged end of like diameter, or thereabout, as the collar, and constructed to engage with the interior thread, *c*, of the cap that enters by its exterior screw-thread, *b*, the hub of the wheel, the whole being arranged in relation with each other, and the inner end of the axle-box and the inner back face of the cap having said collar close in between them, whereby the wheel is enabled to run noiselessly without the aid of washers, substantially as specified.

2. The combination of the axle A, with its collar B at or near the inner end of its journal A', and an oil recess or chamber, *f*, in its outer end, and longitudinal groove *g*, the axle C, provided with an outer hollow end cap, E, having a screw plug or stopper, *e*, and the internally and externally threaded screw-cap D, arranged to screw onto the inner end of the axle-box and into the hub of the wheel, and having the collar B within and between it and the inner end of the axle-box, essentially as shown and described.

321,206. AIR-COMPRESSOR. WILLIAM T. FOX, Rochester, N. Y., assignor to the Steam Gauge and Lantern Company, same place. Filed Jan. 28, 1884. (No model.)



Claim.—1. The combination, with the oscillating chambers C C', of a stop to arrest the oscillation, consisting of the rubber band *a' a''*, attached at its center to a suitable support, R, substantially as and for the purposes set forth.

2. The combination, with the oscillating chambers C C', provided with suitable water inlet and outlet and air-outlet valves, of the air-inlet valves I I', attached to the upper sides of the chambers, bent levers *v v'*, weight M'', and screw-threaded rod *w*, substantially as set forth.

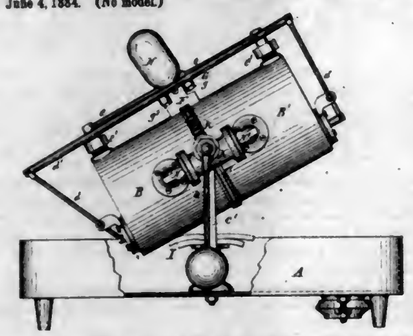
3. The pivoted counterweighted water-trap composed of a chamber, K, in which the water separates from the air, a pipe through which the compressed air enters said chamber, a pipe through which the dry air escapes from said chamber, and a pipe through which the water is automatically discharged, substantially as set forth.

4. The combination, with the oscillating air-compressing apparatus, of a flexible air-pipe, J, through which the compressed air is discharged from the compressing apparatus, and a pivoted counterweighted water-trap, K, connected with the flexible pipe and provided with an escape-pipe for the dry air, and a pipe through which the water is automatically discharged, substantially as set forth.

5. The combination, with the movable trap K, of the arm *f*, weight *g*, and tube *h*, arranged to close the trap by contact between its open end, and suitable packing, *q'*, substantially as described.

6. The combination, with a hydraulic air-compressing apparatus and the pipe through which the compressed air is delivered therefrom, of a pivoted counterweighted water-trap which is connected with said air-pipe, and which consists of a chamber in which the water carried off by the compressed air is deposited, a discharge-pipe through which the water is automatically discharged, and an air-pipe through which the compressed air is discharged free from water, substantially as set forth.

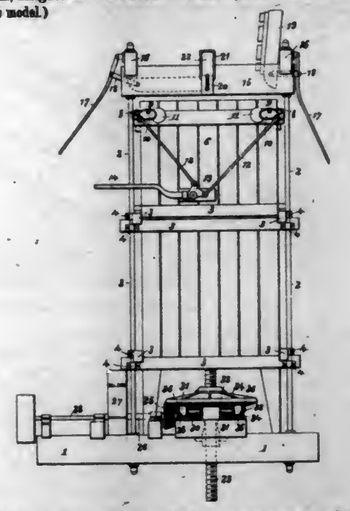
321,207. AIR-COMPRESSOR. WILLIAM T. FOX, Rochester, N. Y., assignor to the Steam Gauge and Lantern Company, same place. Filed June 4, 1884. (No model.)



Claim.—1. The combination, with the tilting air-chambers B B', of a weight, H, pivoted to said air-chambers, and valves and ports arranged on opposite sides of its pivot, whereby the weight is held on one or the other side of the trunnions by which the air-chambers are supported, substantially as set forth.

2. The combination, with the tilting air-chambers B B', of the air-inlet passages *f f''*, and air-valves *g g'*, attached to a rocking beam, G, and a weight, H, whereby said passages are alternately opened and closed, substantially as set forth.

321,208. COTTON AND HAY PRESS. ROBERT GARSIDE, Memphis, Tenn., assignor to J. E. Randle & Co., same place. Filed Mar. 23, 1885. (No model.)

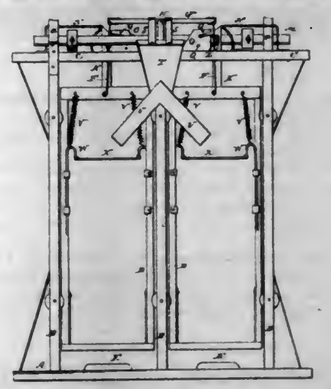


Claim.—1. In combination with four corner posts or rods for a cotton or hay press, a self-supporting press-box having binding-frames whose faces are recessed to receive said posts and clamped to said posts by metallic straps, substantially as set forth.

2. In combination with the hinged or removable battens of a cotton or hay press, the pivoted locking-dogs, a bell-crank lever and links connecting said bell-crank lever to the outer ends of said locking-dogs for operating the same by a single movement, substantially as set forth.

3. The pivoted locking-dogs for the hinged or removable battens of a cotton or hay press weighted at their inner ends to adapt them to automatically lock when pressure is released.

321,209. AUTOMATIC WEIGHING AND SACKING MACHINE. F. M. GLADISH, Aullville, Mo. Filed Dec. 31, 1884. (No model.)



Claim.—1. The combination of the sacking and weighing frames, the hooks connected thereto, the weighing-beams provided with rollers, and suitable guides for forcing the hooks in contact with the rollers, substantially as set forth.

2. In a sacking and weighing frame, the combination of the two sacking-frames, which have a vertical movement in the main frame, a walking-beam to which both frames are connected, a movable spout, the hooks, the weighing-beams provided with rollers, and the spring-guides for forcing the hooks in contact with the rollers, substantially as specified.

3. The combination of the weighing-beams, suitable ears, between which the beams are pivoted, the rods Q, which pass through the ears, and the studs or projections which extend vertically from the beams for the purpose of preventing the beams from becoming displaced, substantially as described.

4. The combination of the bag-holders, the spring-rods X, and the springs which support the bag-holders in position, substantially as set forth.

321,210. STRAW-CARRIER. EDGAR L. HALL, Kinmswick, Mo. Filed Aug. 16, 1884. (No model.)



Claim.—1. In a straw-carrier, the combination of the elevator frame, the open endless rake, the lower imperforate floor extending from end to end of the frame over the lower portion of the rake, and an upper open floor arranged directly beneath the upwardly-moving portion of the rake, and constructed of cross-bars secured to the side pieces of the frame, and short lengths of parallel longitudinal wires, whose ends are inserted in adjacent cross-bars flush with the surface thereof, and forming a series of riddles extending from end to end of the floor, as set forth.

2. In a straw-carrier, the combination of the elevator-frame, the open endless rake, and an open floor arranged directly beneath the upwardly-moving portion of the rake, and constructed of cross-bars and longitudinal wires flush at top with said bars and secured thereto by their downturned ends, substantially as set forth.

321,211. FOLDING COT. HENRY D. HARD, Oneida, N. Y. Filed Oct. 16, 1884. (No model.)



Claim.—1. The combination, in a cot, of the side bars and cross-bars connecting the same at the ends, the said cross-bars being rounded to lock the foot and head board levers, and mortised to receive the lower slats, substantially as specified.

2. The combination, with the side bars and rounded end bars, of the leg-levers pivoted to the side bars, and the head and foot board levers pivoted to the leg-levers, the said head and foot board levers being recessed to engage the cross-bars and lock the parts when the cot is set up, substantially as specified.

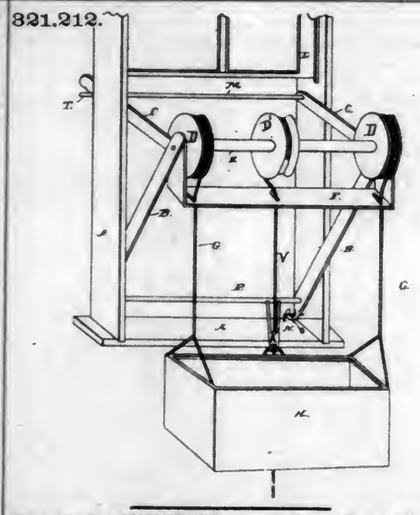
3. The combination of the side bars, the rounded and mortised cross-bars, the bowed slats, the leg and head and foot board levers, and the rung connecting the head and foot board levers, the said rung being adapted to support the slats when the cot is set up, substantially as specified.

321,212. FIRE-ESCAPE. SAMUEL HARGRAVE, Sr., and ARTHUR M. LEE, Pomona, Ill. Filed Apr. 29, 1885. (No model.)

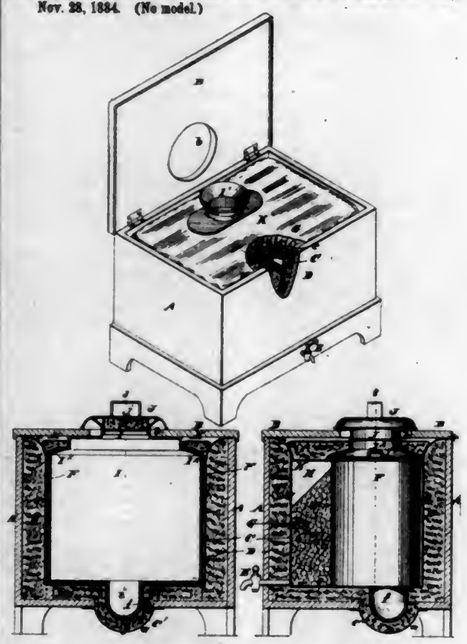
Claim.—1. The window-sill A A, having pins N N, bars B B C C M, hooks O O, shaft E, pulleys D D D', and cables G G V, in combination with the collapsible cage formed in the manner herein described.

2. The bars B B C C, connected by bar P and shaft E, having pulleys D D D', pins N N, hooks O O, sill A A, bar M, guide-frame F, slotted as shown, and cables G G V, in combination with the cage H and clamp K, the whole co-operating in the manner and for the purpose set forth.

321,212.



321,213. REFRIGERATOR. JOHN M. HARNEY, Florissant, Mo. Filed Nov. 28, 1884. (No model.)



Claim.—1. A refrigerator having an ice-receptacle inclosed at sides and bottom, with a chamber containing non-conducting packing, and at top a removable cushion and a cover of wood, the cover and cushion having orifices for the neck of a can contained in a vessel set in the ice-box, leaving space for ice in said box, substantially as set forth.

2. The combination of an outer wooden case, an inner metal case, non-conducting chamber between the cases, an open-topped metal vessel within the case, a can to contain liquid fitting removably the open-topped vessel, a flexible and elastic cushion stuffed with material to prevent the entrance of heat into the ice-chamber, and having an orifice for the neck of the can, and a cover to the outer case having an orifice for the neck of the can.

3. The combination, in a refrigerator, of a can, I, vessel F, and cases C and A, having the depressions *i f C' a* therein, substantially as and for the purpose set forth.

321,214. GIMLET-POINTED ROLLED WOOD-SCREW. HAYWARD A. HARVEY, Orange, N. J. Filed May 9, 1884. (No model.)

321,214.



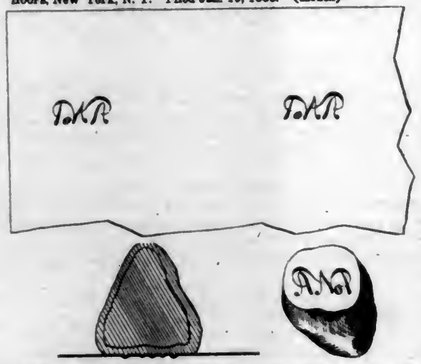
Claim.—As a new article of manufacture, a rolled gimlet-pointed screw the thread of which is composed of two ridges of metal extending outwardly from and spirally around the body and point of the screw and folded together, their united apices forming the apex of the finished screw-thread.

321,215. GATE. JOSEPH HAUSE, Mangansville, Md. Filed July 16, 1884. (No model.)



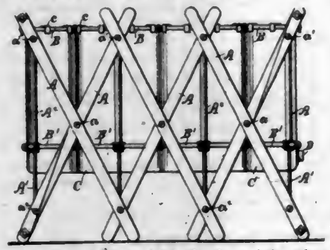
Claim.—In a swinging gate, the combination of the gate-post, a frame arranged at the lower end of the latter and provided with bearings for a diagonal shaft, a tilting segmental frame arranged upon the said shaft, a crank at the rear end of the latter, a bell-crank lever pivoted to the side of the gate-post, a pivoted rod connecting the short arm of said lever with the arm upon the diagonal shaft, and a suitable operating rod or rods, substantially as and for the purpose set forth.

321,216. MARKING CHOCOLATE-CREAM DROPS AND OTHER CONFECTIONERY. JOHN S. HAWLEY, Brick Church, N. J., and HERMAN W HOOPS, New York, N. Y. Filed Jan. 19, 1885. (Model.)



Claim.—The method of marking chocolate-cream drops and other confectionery, substantially as herein shown and described, which consists in impressing the mark upon paper and laying the drops while warm and plastic upon paper and over the impressed marks to cool and harden, whereby the marks will be formed in relief or in intaglio upon the drops, as set forth.

321,217. PORTABLE BATH-TUB. CLARENCE A. HAYWARD, Providence, R. I. Filed Nov. 11, 1884. (No model.)



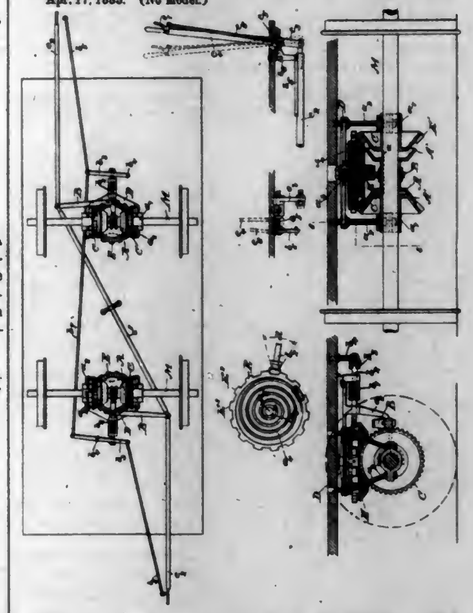
Claim.—1. An improved portable bath-tub consisting of a supporting-frame composed of a series of bars connected together as a collapsible frame, and a flexible receptacle attached to said frame and arranged to be folded thereby, substantially as set forth.

2. The combination, with the bars A, united together as described, of the hinged arms, the connecting-bars A^3 A^4, and the detachable water-receptacle, substantially as specified.

3. The combination, with the bars A, united together as described, of the extensible rods A' A^2, the hinged arms B B', the connecting-bars A^3 A^4, and the flexible water-receptacle, as set forth.

4. The combination, with the frame composed of the bars A, united as described, the extensible rods A' A^2, and the arms B B', of the flexible water-receptacle C, and the strips *c*, for securing said receptacle to the frame, as specified.

321,218. CAR BRAKE AND STARTER. EYVIND L. HEIDENREICH, Chicago, Ill., assignor of one-half to John A. McLennan, same place. Filed Apr. 17, 1885. (No model.)



Claim.—1. In a car brake and starter, the combination, with an axle, of a clutching device arranged to slide on and revolve with the axle, a clutching device mounted loosely on the axle and provided with cogs upon its outer flared surface and with clutch-teeth at the base of said cogs which are engaged by corresponding teeth of the aforesaid clutching device, a cog-wheel engaging with the cogs on the said clutching device, a spiral spring secured at one end to the said cog-wheel, and having its other end secured to a fixed part, and of levers for engaging the sliding clutching devices with the clutching devices mounted loosely on the axle, substantially as shown and described.

2. In a car brake and starter, the combination, with a car-axle, of a sleeve mounted to slide on and turn with the axle and having clutch-cups at its ends, of two clutch-cups mounted loosely on the axle adjacent to the ends of the above-mentioned sleeve, cogs formed on the clutch on the axle, said latter clutch also having clutch-teeth at the base of the cogs, with which engage the clutch-cups of the said above-mentioned sleeve, a cog-wheel engaging with the said clutches on the axle, a spring having one end secured to the said cog-wheel and the other end to a fixed part, and a lever for shifting the sleeve to engage the clutching devices on one end of the sleeve with the adjacent clutch on the axle, substantially as herein shown and described.

3. In a car brake and starter, the combination, with the axle, of the sleeve A, having the clutch-cups A' on the ends, the clutches C, mounted loosely on the axle and having teeth E' upon their outer flared surfaces, and clutch-teeth at the base of said teeth E', with which clutch-teeth engage the clutch-cups A', the cog-wheel E, engaging with the teeth E' of the clutches C C, and having teeth on its rim, the spring a^4, coiled in the wheel E, and levers and rods for shifting the clutch-sleeve and operating the bolt, substantially as herein shown and described.

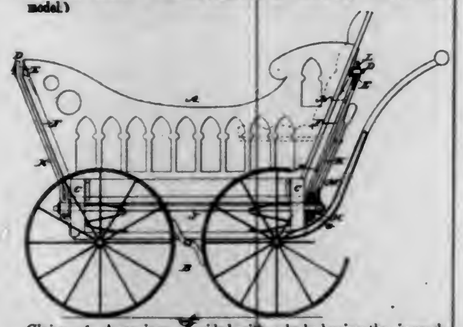
4. In a car brake and starter, the combination, with the axle, of the sleeve A, having the clutch-cups A' on the ends, the clutches C, mounted loosely on the axle and having teeth E', the cog-wheel E, engaging with the teeth E' of the clutches C C, and having teeth on its rim, the spring a^4, coiled in the wheel E, the sliding bolt b^3, the spring b', acting on the same, the lever b^2, connected with the bolt, the rod b^4, and the rod c^3, for shifting the sleeve A, substantially as herein shown and described.

5. In a car brake and starter, the combination, with the axle, of the sleeve A, having the clutch-cups A' on the ends, the clutches C, mounted loosely on the axle and having teeth E', the cog-wheel E, en-

gaging with the teeth E' of the clutches C C, and having teeth on its rim, the spring a^4, coiled in the wheel K, the sliding bolt b^3, held in a bracket, a^7, the spring b', the lever b^2, the lever B, for shifting the sleeve A, the rod c^2, connected with the lever B, the rod b^2, connected with the lever b^3, the lever c^4, connected with the rod c^3, the angle-lever b^4, connected with the lever b^3, the rod c^5, and the elbow-lever c' on the lever c^4, substantially as herein shown and described.

6. In a car-brake and starter, the combination, with the axles, of the sliding sleeves A on the same, provided with the clutch-cups A', the clutches C on the axles having teeth, the cog-wheels E, the springs a^4, the levers B, connected by a rod, c^3, the sliding bolts b^3, the levers b^2, the rod b', connecting the levers b^2, the rods c^2 and b^3, the lever c^4, the elbow-lever b^4, and rods for connecting the lever c^4 and elbow-lever b^4, substantially as herein shown and described.

321,219. COMBINED CARRIAGE AND CRADLE. HENRY H. HEMELRIGHT and GEORGE W. STONE, Pottstown, Pa. Filed May 11, 1885. (No model.)



Claim.—1. A carriage provided with a body having the journals at its ends pivotally supported in bearings having a rising and falling motion, substantially as and for the purpose set forth.

2. A carriage having its body provided with journals which are mounted on rising and falling supports, in combination with means for raising said supports, substantially as described.

3. The body A, with journals D, in combination with the rising and falling supports F, the yokes G on said supports, the eccentric H within said yokes, and the operating-shaft J, to which said eccentrics are secured, substantially as described.

4. The rising and falling arms or rods F, on which the carriage-body is hung, in combination with standards K, on which said arms are guided, substantially as and for the purpose set forth.

321,220. CAP FOR FRUIT-JARS. CHARLES G. IMLAY, Camden, N. J. Filed Jan. 16, 1885. (No model.)

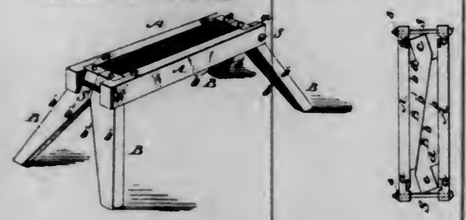


Claim.—1. A screw-cap for fruit-jars, having a metallic clamp located inside the same and fastened directly to said cap, substantially as described.

2. The combination, with a metallic screw-cap for a fruit-jar, of a clamp fastened in said cap by the metal of the latter spun over its ends, substantially as shown and described.

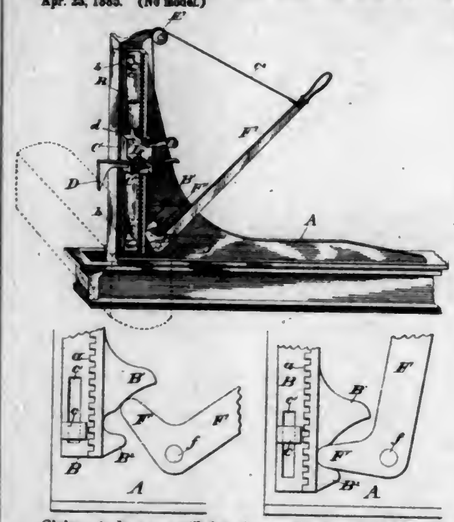
3. The combination, with a screw-cap for fruit-jars, of a clamp located inside the same, said clamp consisting of a spring-bar having its end rigidly secured to the cap, substantially as set forth.

321,221. GRINDSTONE-FRAME. JULIUS B. JOHNSON, Johnson, Nebr. Filed Oct. 17, 1884. (No model.)



Claim.—In a knockdown grindstone-frame, the combination of the side pieces, A A, having inner face grooves, *a a*, near their opposite ends, the legs B B, obliquely shouldered at their one end, *c*, and tapering on their inner sides, *b'*, relatively to their outer sides, *b*, toward their opposite ends, and the bolts S, all as herein shown and described, and for the purpose set forth.

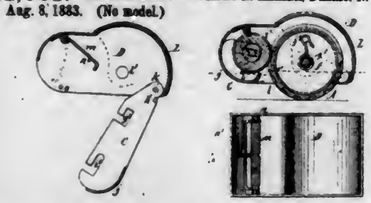
321,222. SAW-MILL DOG. LOUIS JOHNSON, Milwaukee, Wis. Filed Apr. 23, 1885. (No model.)



Claim.—1. In a saw-mill dog, the combination of a sliding tooth-carrier and its locking-pawl with a vertically-sliding supporting-bar and a lever engaging at one end with the supporting-bar, while its other end is connected with the sliding carrier and its locking-pawl by means of a band passing over a pulley on the frame and secured to the arm of said pawl, as set forth.

2. In a saw-mill dog, the supporting-bar of the tooth-carrier having cam-lugs on its lower end, in combination with a lever having a finger for engagement with said cam-lugs, a sliding tooth-carrier and its locking-pawl, and a band connecting the upper end of the lever with the arm of said pawl and passing over a pulley on the frame, as set forth.

321,223. HAND-STAMP. WILLIAM H. KEELER, Buffalo, N. Y. Filed Aug. 8, 1883. (No model.)



Claim.—1. The combination, with a type-wheel, of a casing having an opening through which a portion of the type-wheel projects, an ink-roller, and a frame in which the type-wheel and ink-roller are mounted and which is movably attached to the casing, substantially as set forth.

2. The combination, with a type-wheel, A, of a casing, D, having an opening, *l*, an ink-roller, B, a frame, C, and a shield, *j*, secured to the casing, substantially as set forth.

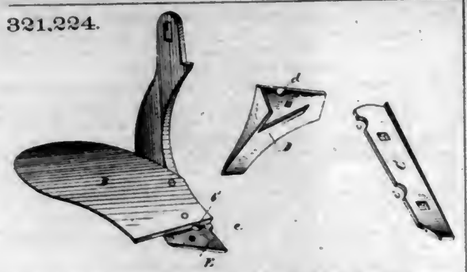
3. In a pocket hand-stamp, the combination, with the casing D, having an opening, *l*, of a frame, C, movably attached to the casing, type-wheel A, and ink-roller B, supported in the frame C, spring *m*, secured to the casing and adapted to hold the ink-roller against the type-wheel, and a movable cover, L, pivoted to the sides of the casing and adapted to close the opening *l* of the casing, substantially as set forth.

321,224. PLOW. GEORGE A. KELLY, Longview, Tex., assignor to the Longview Kelly Plow Manufacturing Company, same place. Filed Apr. 23, 1885. (No model.)

Claim.—1. In a plow, the combination of the frog E, having teat *e*, with the mold-board B, having recess *b'*, and the point D, having recess *d*, substantially as shown and described.

2. In a plow, the combination, with the landside portion of the

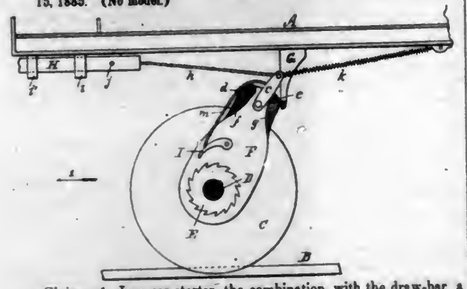
321,224.



standard having depending lugs c c, of the landside C, having correspondingly-shaped recesses c' c', substantially as shown and described.

3. The combination, with the standard A, provided with integral frog E, teat *e*, and lugs c c, of the share B, having recess *b'*, the point D, having recess *d*, and the landside C, having recesses c' c', as and for the purpose set forth.

321,225. CAR-STARTER. JOHN KING, Medway, Mass. Filed May 15, 1885. (No model.)

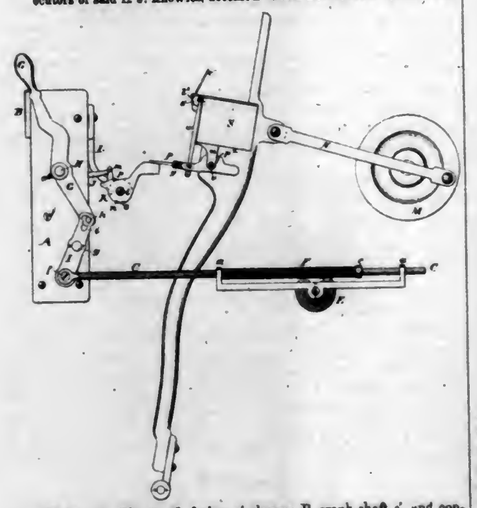


Claim.—1. In a car-starter, the combination, with the draw-bar, a ratchet-wheel mounted upon the axle, the lever, and pawl secured to the latter, of the shipper-bar, by means of which the pawl engages with the ratchet prior to the advance of the lever, substantially as herein set forth.

2. The combination, with the ratchet-wheel E, lever F, and pawl pivoted thereto, of the spring-actuated shipper-bar c, by means of which the pawl I is held disengaged from the ratchet during the retreat movement of the lever, as and for purposes herein described.

3. The combination, with the ratchet-wheel, its pawl, and the shipper-bar, of the stops *d e*, whereby the shipper-bar operates the lever F only after the pawl has engaged with or been released from its ratchet, substantially as stated.

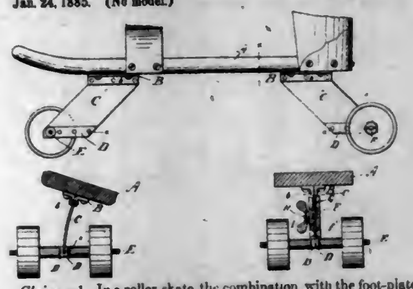
321,226. WEFT STOP-MOTION FOR LOOMS. LUCIUS J. KNOWLES, Worcester, Mass.: Francis B. Knowles and Henry A. Marsh surviving executors of said L. J. Knowles, deceased. Filed Dec. 2, 1880. (No model.)



Claim.—1. The lay S, feelers *e'*, dagger P, crank-shaft *s'*, and connecting-rod *w*, in combination with the breast-beam B, rock-shoe K, finger J, shaft H, and a belt-shifting mechanism, substantially as described.

2. The dagger P, adapted to be attached on the under side of the lay, the connecting-rod *w*, the shaft *s'*, and the feelers *e'*, in combination with the bracket *t*, adapted to be attached to the lay, and the cam or shoe K, adapted to be attached to the breast-beam, substantially as described.

321,227. ROLLER-SKATE. ISRAEL LANCASTER, Chicago, Ill. Filed Jan. 24, 1885. (No model.)



Claim.—1. In a roller-skate, the combination, with the foot-plate and the rollers, of an elastic connecting-blade and suitable castings for the same, said castings (one or both) having their points of attachment to the blade in substantially parallel and horizontal planes, and said rollers being journaled at one side of the line of the normal resultant of flexure of the spring-blades, substantially as described.

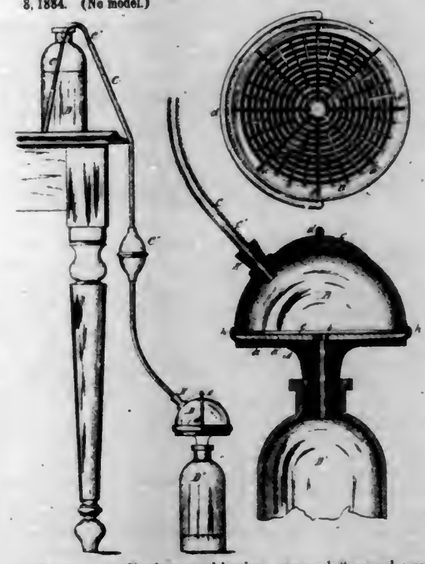
2. In a roller-skate, the combination, with the foot-plate and the rollers, of an elastic connecting-blade and a deflecting-rib on said blade, substantially as described.

3. In a roller-skate, the combination, with the foot-plate and the rollers, of the elastic connecting-blades and the inclined deflecting-ribs having sharp bearing-edges, substantially as described.

4. In a roller-skate, the combination, with a foot-plate, the rollers, and an elastic connecting-blade, of adjusting mechanism for regulating the elasticity of said connecting-blade, substantially as described.

5. In a roller-skate, the combination, with the foot-plate, the rollers, and the elastic connecting-blades, of the adjusting plates and screws, substantially as described.

321,228. FILTER. VICTOR M. LAW, Cedar Rapids Iowa. Filed Dec. 8, 1884. (No model.)

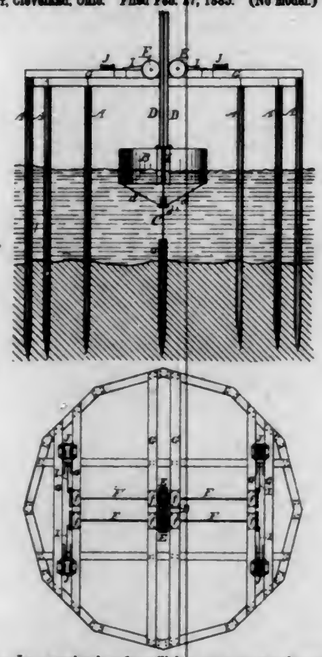


Claim.—1. A filtering-vessel having a grooved floor and a central opening, said grooves being of different depths, the deeper ones having inclined bottoms and connecting with the central openings, and the shallower ones having level bottoms and connecting with the deeper grooves, and a filtering material resting upon the said bottom above said grooves, substantially as and for the purpose set forth.

2. In a hermetically-sealed filtering-vessel, the combination, with a grooved base-plate having a downwardly-extending lug near its center

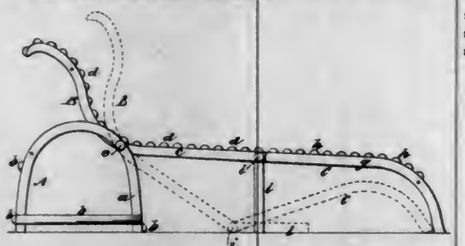
and an upwardly-flanged rim, a perforation in said plate extending through said lug, of a series of deeper grooves leading into said perforation, a series of shallower grooves leading into said deeper grooves, a ring of elastic material around the inner edge of said plate, a disk of filtering material resting on said ring, a cover hermetically sealed thereon, and means, substantially as described, for leading the liquid to be filtered into said vessel, substantially as and for the purpose set forth.

321,229. MECHANISM FOR UTILIZING WAVE-POWER. CHARLES LEAVITT, Cleveland, Ohio. Filed Feb. 27, 1885. (No model.)



Claim.—In a mechanism for utilizing wave-power, the combination of the following elements, viz: the piling A, float or buoy B, riding on the upright rod C, supported centrally within the inclosure of piling, and provided with the racks D D, operating pinions or gears E E, attached to shafts F F, supported in boxes *f f*, resting on the timbers and framework G, and having cranks H, connected by pitmen I to pumping-cylinders J, all constructed and arranged to operate substantially as and for the purposes described.

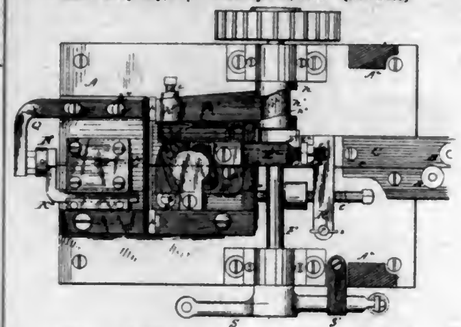
321,230. CONVERTIBLE CHAIR. EDWARD H. LEWIS, Nashville, Tenn. Filed Nov. 18, 1884. (No model.)



Claim.—1. The combination, with the section A and the curved section B, pivoted thereto, of the pivoted section C, provided with the legs *l* at its pivoted end, and having its free end bent to serve as legs when turned down into a horizontal position, substantially as herein shown and described.

2. In an easy or reclining and convertible chair, the combination of the section A, composed of connected upwardly-bent side pieces *a a*, forming both arms and legs, the section B, composed of connected bent side pieces *c c*, forming both seat and back, the pivots *e e*, connecting said sections, the bent extension-section C, composed of connected bent side pieces *g g*, and arranged to shut up within the side pieces *c c* of the section B, the pivots *i i*, and the swinging leg or legs *l l*, substantially as and for the purposes herein set forth.

321,231. MACHINE FOR RIVETING UMBRELLA-FRAMES. A. LOEBEL, Jersey City, N. J. Filed Apr. 23, 1885. (No model.)



Claim.—1. In a machine for inserting pivots, the combination, with the guide-wire *k* and chuck K, of the lever L, bar M, having shoulder *m*, and the shaft F², carrying the cam M², substantially as described.

2. In a machine for inserting pivots, the combination of the longitudinally-reciprocating jaws E E', connected by links *e e*, the slide E², to which jaw E is pivoted, the transverse shaft F, carrying the cam F', and the yoke E³, substantially as described.

3. The combination, with the jaws E E', having longitudinal and lateral motion, of the shaft F', the cam-collar *h*, the lever *h*², and the pivotal bar *i*', substantially as set forth.

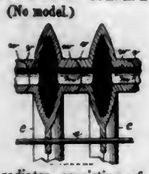
4. The combination, with the jaws E E', of the beveled stud G, link *g'*, lever *g*², shaft F², roller or stud *g*⁴, and grooved cam F³, as described.

5. The combination, with the jaws E E', movable longitudinally and laterally, and the reciprocating stud G, of the adjustable wedge fitted to the jaw E, substantially as and for the purpose described.

6. The eye-plate P, in combination with the mandrel or guide-wire, and the devices for moving the latter and feeding the pivot-wire.

7. The combination, with an organized machine for inserting and cutting pivots, of a pivot-heading tool comprising a power-actuated plunger and an anvil, said tool being mounted on the frame of the machine and within ready access of the operator, substantially as set forth.

321,232. STEAM-RADIATOR. JOHN H. LOUNSBURY, Westfield, Mass. Filed Dec. 29, 1884. (No model.)



Claim.—A steam-radiator consisting of hollow sections, having joint connections near one end of the sections, consisting of the perforated boss *w*, of convex form, and the perforated boss *v*, having concave face, and of a joint near the other end of the sections having square-shouldered boss and socket, said bosses being integral with the respective sections, and means, substantially as described, for locking the sections and joints together, as set forth.

321,233. COVERING FOR STEAM-BOILERS, &c. JÜRGEN G. MAARDT, Copenhagen, Denmark. Filed May 11, 1885. (No model.)



Claim.—A compound or composition for making fire-proof covering or coating for steam-boilers, steam-pipes, and for similar purposes where it is desired to prevent undue radiation of heat, the same consisting of a mixture of sawdust or similar comminuted material, soluble glass, and chalk or slaked lime, molded into suitable shapes, then boiled in a solution of chlorealcium or its chemical equivalent, and then lixiviated to remove the soluble salts by treating or washing with boiling water, substantially as set forth.

321,234. PROCESS OF STAINING PAPER, &c. MARY B. MARTIN, New York, N. Y. Filed Dec. 10, 1884. (No specimens.)

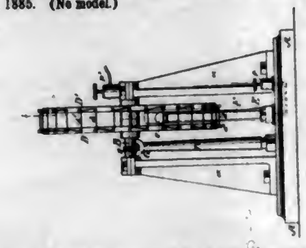
Claim.—1. The process, substantially as before set forth, of coloring material by the application thereto of a wash of color, and by subsequently absorbing the surplus color, substantially as before set forth.

2. The process, substantially as before set forth, of coloring and bronzing material by the application thereto of a wash of color, by absorbing the surplus thereof, and by the application to the material of bronze, all substantially as above set forth.

3. As a new article of manufacture, material colored with a wash of color, the surplus of which has been removed by absorption, substantially as before set forth.

4. As a new article of manufacture, a bronzed material colored with a wash of color, the surplus of which has been removed by absorption, substantially as before set forth.

321,235. LIGHTNING-PROTECTOR FOR ELECTRICAL CIRCUITS. W. F. C. M. MCCARTY, Philadelphia, Pa., assignor of one-half to Adolph Ohl, James McC. Creighton, and Bernard C. Lauth, all of same place. Filed Mar. 16, 1885. (No model.)

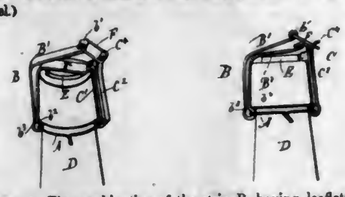


Claim.—1. A lightning-protector for electrical circuits, consisting of a traversing carrier having a series of contact-wires, a finger in the circuit to make contact with said wires, and an earth-connection to ground the circuit on the burning out of one of said contact-wires, substantially as set forth.

2. A lightning-protector for electrical circuits, consisting of a pair of disks or wheels, transverse connecting-wires, a motor to turn said disks, a finger to make contact with the transverse wires, and electrical connections, substantially as described, to ground the circuit on the burning out of a transverse wire.

3. The combination of a traveling carrier having a series of contact-wires and a spring-finger adapted to be acted on thereby and connected to the line, with a contact-post connected to the ground and with which the spring-finger makes contact when released, substantially as specified.

321,236. BOTTLE-STOPPER. EDWARD H. MORGAN, Cincinnati, Ohio, assignor of one-half to Michael E. Kuhn, same place. Filed Oct. 16, 1884. (Model.)



Claim.—1. The combination of the strip B, having leaflets B' B², loop F, strip C, having leaflets C' C², and cord or wire A, substantially as and for the purposes specified.

2. The combination of cord or wire A and strip B, consisting of leaflet B', provided with shoulder *b*² and with eye or hook *b'*, leaflet B², having shoulder *b*² and lip or head *b*, strip C, consisting of leaflet C', having hook C³, and leaflet C², having hook C⁴, hook C³ engaging head *b*, and loop F, connecting, when the stopple is closed, the strip *b'* and the hook C⁴, substantially as and for the purposes specified.

3. The spring-limb B' and cork limb or strip B² and strip C, for engaging limb B' and strip B², and cord or wire A, substantially as and for the purposes specified.

321,237. CORK-RETAINER. EDWARD H. MORGAN, Cincinnati, Ohio, assignor of one-half to Michael E. Kuhn, same place. Filed Oct. 16, 1884. (Model.)



321,238. MUSIC-LEAF TURNER. EDWARD NEGRONI, 32 Brunswick Square, County of Middlesex, England. Filed Oct. 17, 1884. (No model.) Patented in England June 25, 1884, No. 9,413.

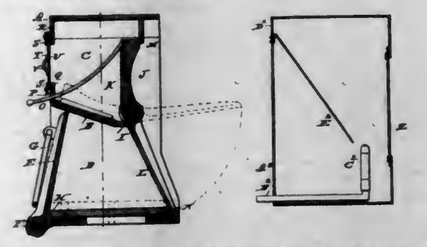


Claim.—1. In an apparatus for turning over leaves of music or books, the combination of a series of pivoted levers and a pivot-pin, with the turning-piece D, free to move longitudinally as well as to rotate on said pin, and having a catch to engage with the lowermost lever and a spring to move said piece longitudinally on the pin into engagement with the successive levers, substantially as described.

2. The combination of a pivot-pin and a series of pivoted levers to turn the leaves of music, with a turning-piece, D, free to move longitudinally on the pivot, as well as to rotate thereon, and having a catch, *d*, a spring to return it to its normal position, and a spring to move it longitudinally on the pivot into engagement with the successive levers, substantially as described.

3. The combination of a series of pivoted levers to turn the sheets of music, and a pivot-pin, with a piece, D, free to move longitudinally and rotate on the pin, and having a catch to engage with the successive levers, and having also a pulley portion and a cord to operate it, substantially as set forth.

321,239. BAKE-OVEN. JOHAN L. W. OLSEN, Copenhagen, Denmark. Filed Nov. 20, 1884. (No model.)



Claim.—1. A door-frame for bake-ovens having a transverse partition whereby it is divided into an upper and a lower compartment, in combination with a door pivoted near the inner end of the said partition, and having upwardly and downwardly extending wings that close, respectively, the upper and lower compartments, substantially as and for the purpose set forth.

2. A door-frame for bake-ovens having an upper and a lower compartment, in combination with a pivoted door having upwardly and downwardly extending wings to close the inner ends of the said compartments, and a door hinged to the lower outer edge of the bottom compartment, and adapted to close the outer end of the said compartment, substantially as and for the purpose set forth.

3. The combination, with a door-frame having an upper and a lower compartment, and provided with an inner pivoted door having upwardly and downwardly extending wings to close both of said compartments, of a sliding frame adapted to be arranged in front of the upper compartment, and provided with a glass through which, when the inner door is open, the progress of the baking may be inspected, substantially as and for the purpose set forth.

4. A door-frame for bake-ovens provided with a transverse inclined partition, a door pivoted near the inner end of the same and having upwardly and downwardly extending wings, a detachable glazed slide at the outer edge of the upper compartment, and a door hinged at the outer bottom edge of the lower compartment, and provided with a hinged handle adapted to rest upon the floor and support the door when the latter is open, substantially as and for the purpose set forth.

321,240. JOINT FOR ELECTRIC CABLE. WILLIAM R. PATTERSON, Chicago, Ill., assignor to the Western Electric Company, same place. Filed May 12, 1885. (No model.)



Claim.—The combination, with the wipe-joint of the lead pipe of a telegraph-cable, of the armor *a*, bound closely thereto by the wire *b*, said wire *b* being held in place by the solder, substantially as and for the purpose specified.

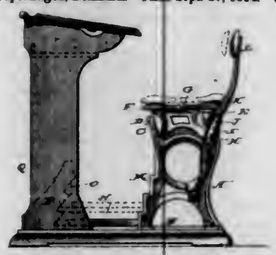
321,241. ROLLER FOR FLOUR-MILLS. JUNIUS PAULY, Port de Mouley dier Dordogne, France. Filed Apr. 18, 1885. (No model.) Patented in France Dec. 27, 1883, No. 159,424.



Claim.—1. In a roller-mill for making flour, the combination of grinding and crushing rollers, composed of the sections *a a'*, recessed, respectively, at *b* and *b'* and at *c* and *c'*, and match-jointed at *d* and *d'*, and having the metal axis *f*, and interposed cement *e*, as and for the purpose specified.

2. In a roller-mill for making flour, the combination of grinding and crushing rollers, composed, respectively, of the described recessed sections *a* and *a'*, the metal axis *f*, and interposed cement *e*, together with the annular shoulders *g* and the metal bands *g'*, the end plates, *h*, and their holding-bolts, as specified.

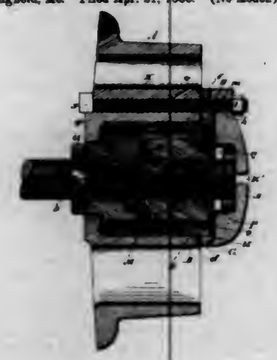
321,242. ADJUSTABLE SCHOOL SEAT AND SETTEE. JOHANNES PEDERSEN, Copenhagen, Denmark. Filed Sept. 27, 1884. (No model.)



Claim.—1. In a school-seat, the combination, with a seat adjustable vertically and forwardly at the same time, as shown and described, and provided with laterally-projecting lugs, of a back having its side pieces pivoted at their lower ends to rock in a vertical plane and provided with a series of steps engaged by the lugs upon the seat, whereby the back may be swung forward to support the seat as the latter is raised and brought forward, substantially in the manner and for the purpose shown and described.

2. In a school-seat, the combination of the side uprights having brackets provided with steps, as described, and with forwardly and upwardly extending guide arms or brackets at the upper rear corners, the back levers having notched slots, and the seat-frames adapted to rest in the stepped brackets and having studs adjustable in the slotted and notched levers, substantially as and for the purpose shown and set forth.

321,243. SELF-LUBRICATING CAR-WHEEL. PAUL B. PERKINS, North Springfield, Mo. Filed Apr. 21, 1885. (No model.)



Claim.—1. The combination, with a wheel or pulley having a central opening and a removable axle-box secured therein and adapted to form an annular oil-chamber, said axle-box being provided with a perforated flange, of a cap provided with an oil-supply opening and secured to the flanged end of the axle-box, substantially as set forth.

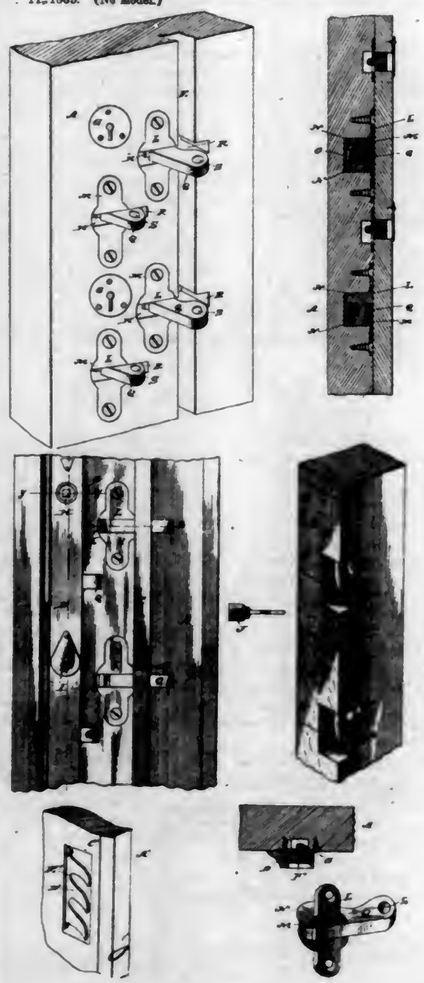
2. The combination, with a wheel having a central opening, of a flanged axle-box passing through said opening and provided with oil passage-ways L and N, a cap resting against the flange of the axle-box, and bolts for securing the cap and axle-box to the wheel, substantially as set forth.

321,244. METHOD OF PRODUCING PHOTO-RILIEVOS. LUDWIG H. PHILIPPI, Hamburg, Germany. Filed Jan. 8, 1883. (No specimens.) Patented in Italy Oct. 4, 1882, No. 16/14,636, and in Belgium Oct. 16, 1882, No. 59,109.

Claim.—1. The process of producing photo-rilievo engravings having depressions of equal depth upon their surface, which consists of covering a plate of non-corrosible material with a uniform layer of corrosible material, forming the design upon the said corrosible material in non-corrosible varnish, and etching away the exposed portions of the corrosible material down to the non-corrosible plate, substantially as set forth.

2. A photo-rilievo engraving as produced by the hereinbefore-described process, consisting of a uniform layer of corrosible material in combination with a non-corrosible base-plate, so that the depressions etched through the said corrosible material are of equal depth all over the plate, substantially as set forth.

321,245. WINDOW. JOHN S. PIHLSTRÖM, Chicago, Ill. Filed Apr. 11, 1885. (No model.)



Claim.—1. In a window, the herein-described sash-hinging device, consisting of a plate or casting comprising two lugs connected by a backing and by a pintle, in combination with the hinge-arm consisting of a plate having a perforation at its outer end, and provided at its inner end with a slot having semicircular recesses, whereby it is adjusted and compressed or clasped upon the pintle, substantially as and for the purpose herein set forth.

2. The combination of the window-frame, the center and inner beads having detachable lower ends, the hinge-plates having horizontally-swinging perforated arms, said plates and arms being normally embedded in one of the inner sides of the window-frame and retained by the beads, and the sashes having plates or leaves provided with downward-extending pintles, substantially as set forth.

3. The combination, with the swinging sashes having detachable sash-cords, of a plate hinged in a recess in the side of the window-frame adjoining the free ends of the sashes, and provided with downward-extending notches, substantially as and for the purpose herein set forth.

4. As an improvement in windows, the combination of the frame, the center and inner beads having detachable lower ends, the hinges embedded in one of the inner sides of the frame and having horizontally-swinging arms perforated at their outer ends, the sashes having leaves or plates provided with downward-extending pintles, the sash-cords connected detachably to the sashes, and a plate hinged to the sides of the window-frame adjoining the free ends of the sashes, and having downwardly-inclined notches, all arranged and operating substantially as and for the purpose herein shown and specified.

321,246. HASP-LOCK. CHARLES P. POND, Camden, N. Y. Filed Mar. 27, 1885. (Model.)



Claim.—1. The combination, with the hasp A, having a hook-prong, B^2, of the locking-piece C, the stem E on the same, the sliding bolt L, and the locking mechanism in the stem E, for operating the bolt, substantially as herein shown and described.

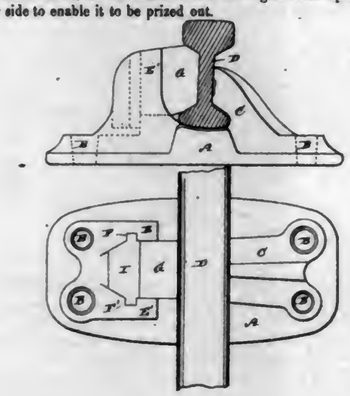
2. The combination, with the hasp A, of the locking-piece C, the stem E on the same, the bolt L on the stem, the spring O in a recess in the locking-piece, and a lock mechanism for operating the bolt in the stem E, substantially as herein shown and described.

3. The combination, with the hasp A, of the locking-piece C and tubular stem E, the pin F, having a head, G, provided with the recess H, and of the bolt L, substantially as herein shown and described.

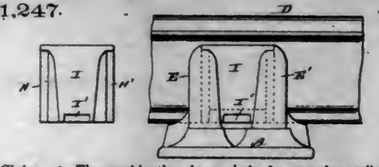
4. The combination, with the hasp A, of the locking-piece C, having the stem E, provided with the groove P, the pin P', the bolt L, having the notch Q, the pin Q', and of the head G, acting on the bolt and held to turn on the inner end of the stem E, substantially as herein shown and described.

321,247. RAILWAY AND TRAMWAY CHAIR, &c. JOHN POTTER, Sherwood Rise, Mansfield, County of Nottingham, England. Filed Jan. 10, 1885. (No model.) Patented in England June 26, 1884, No. 9,420.

Brief.—A chair having rail-holding jaws, those on one side provided with lugs entering openings in the webs of the rails, and those on the other side provided with vertical grooves for holding the projections on the metal block. A wooden key-block is inserted between the metal block and the rail, and the metal block has a groove or opening on its under side to enable it to be prized out.



321,247.



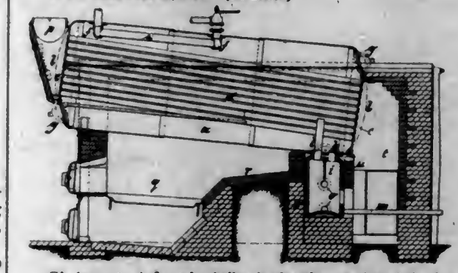
Claim.—1. The combination, in a chair for securing railway or tramway rails, of a jaw, C, with the jaws E E', having vertical grooves F F', the key G, and the block I, having projections or splines H H', adapted to be passed through the grooves F F', substantially as herein shown and described.

2. The combination, in a chair for securing railway or tramway rails, of the jaw C with the jaws E E', the key G, block I, and the lug J on the jaw C, substantially as herein shown and described.

3. The combination, in a chair for securing railway or tramway rails, of the jaw C with the jaws E E', the key G, and the block I, having a recess I' in the bottom, substantially as herein shown and described.

4. The combination, in a chair for securing railway or tramway rails, of the jaw C with the jaws E E', the block I, having splines, feathers, or projections H H', and having its inner side beveled, and of the key G, substantially as herein shown and described.

321,248. FIRE-TUBE BOILER. NATHANIEL W. PRATT, Brooklyn, N. Y. Filed June 20, 1884. (No model.)



Claim.—1. A fire-tube boiler having that portion of the heads which form parallel tube-sheets inclined at an acute angle in reverse relative position above and below the axis of the surrounding shell, in combination with connecting-tubes placed at an angle to said axis.

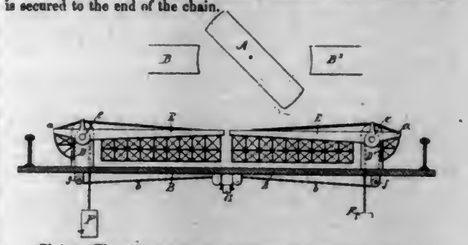
2. In a fire-tube boiler, a concave or convex head having a flattened area about equal to the space occupied by the heating-tubes, whereby said tubes may be arranged at any desired horizontal plane or inclination, and stays for the remaining or surrounding portion of the head dispensed with.

3. A fire-tube boiler having heads equal in area to the space occupied by the heating-tubes only, said heads being connected with the shell of the boiler by intermediate taper courses.

4. A shell having an area of increased thickness formed by overlapping the sheets a sufficient distance to include independent rows of rivets on each edge, with space between said rows of rivets to contain connections made through the double thickness.

321,249. SAFETY-GATE FOR PIVOT-BRIDGES. JESSE H. QUACKENBUSH, East Saginaw, Mich. Filed Feb. 25, 1884. (No model.)

Brief.—A cam on the bridge operates a lever pivoted beneath the roadway, and having a chain passing over a sprocket-wheel concentric with the pivot of an arm or gate extending across the roadway. A weight is secured to the end of the chain.



Claim.—The combination of a pivot-bridge having a cam or projection, H, an arm or gate, E, pivoted to the permanent portion of the structure, and a lever, G, beneath the same, with a chain, *b*, attached at one end to the lever, passing over a sprocket-wheel concentric with the pivot-pin of the said arm or gate, and weighted at its opposite end, all substantially as set forth.

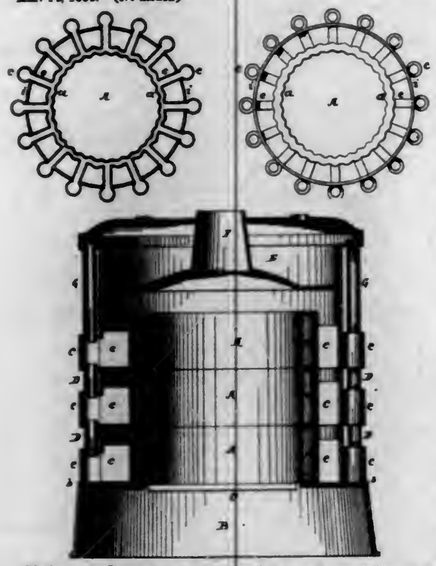
321,250. KNITTED GARMENT. WILLIAM REICHMAN, New York, N. Y. Filed Aug. 20, 1884. (No model.)



Claim.—1. As a new article of manufacture, the within-described knitted garment, having its rear and front portions connected together at the shoulders by means of the inserted knitted shoulder-straps *c' c'*, having fashioned edges, as and for the purpose intended, substantially as described.

2. In a knitted garment of the character described, the combination of the front and rear sides, A B, with the knitted neckband C, having a middle portion, *c*, and integral end shoulder-straps, *c' c'*, all arranged as set forth and illustrated, as and for the purpose intended, substantially as described.

321,251. STEAM-GENERATOR. JOHN ROSE, Akron, Ohio. Filed Mar. 14, 1885. (No model.)



Claim.—1. In a steam-generator, the case A, consisting of the annular hollow shell *a*, with hollow radial arms *e e*, connecting with and projecting therefrom, terminating in hollow cylindrical ends *c c*, and the annular solid shell *i*, embracing said arms between their ends, all constructed and arranged substantially as and for the purpose hereinbefore set forth.

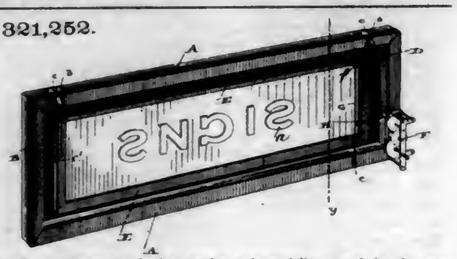
2. In a steam-generator, the combination of a number of cases placed one on another, each of said cases consisting of an annular hollow central shell with hollow radial arms projecting therefrom, and having an annular vertical shell embracing said arms between the ends thereof, said cases being united by screw-threaded nipples entering adjacent faces of the arms near their outer extremities, substantially as shown, and for the purpose specified.

3. The herein-described steam-generator, consisting of the cases A A A, each having radial arms *e e*, shell *i*, and cylindrical ends *c c*, united by nipples D D, the whole resting on the base B, and surmounted by the case having an overhanging cornice united with the upper case A by nipples G G, and provided with the flue F, all constructed and arranged substantially as shown, and for the purpose specified.

321,252. SIGN. CHRISTOPHER C. SCALES, Toronto, Ontario, Canada, assignor of one-half to Eugene Harmon Davis, same place. Filed Aug. 21, 1884. (No model.)

Claim.—1. A sign composed of transparent or translucent letters burned or otherwise made in a sheet of colored glass held stationary, in combination with a contrastingly-colored sheet of glass having transparent or translucent letters corresponding with those in the stationary sheet, and flexibly suspended behind the stationary sheet, so that it can

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receive a vibratory swinging motion, substantially as and for the purpose specified.

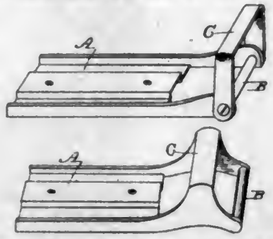
2. A stationary glass, B, having transparent or translucent letters made on it, in combination with the glass C, having letters *a* made in it to correspond with those on B, and flexibly supported by the hangers D, substantially as and for the purpose specified.

3. The flexible hangers D, suspended from the top rail of the frame A on the pin *c*, and pivoted at *c'* to the frame E, which is shaped as specified, and contains the lettered glass C, in combination with a stationary glass, B, lettered as specified, and contained in the frame A.

4. The combination, with the frame A, cut away as shown, and provided with the plates *b*, of the frame E, flexible hangers D, pivoted at one end to the ends of the frame E near its longitudinal center, and their other ends passing through the plates *b*, and the pins *c*, passed through the free ends of said hangers above said plates, substantially as and for the purposes specified.

321,253. HAME-TUG. CHRISTIAN C. SCHWAMER, Winterset, Iowa. Filed Dec. 8, 1884. (No model.)

Brief.—Improvement on Patent No. 286,230, dated October 9 1883.



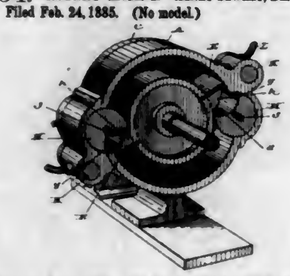
Claim.—1. The improved hame-tug section composed of a body having perforations to admit the passage of rivets to fasten a clip thereto, and a cross-bar and loop at its rear end, for the purposes stated.

2. The improved hame-tug section composed of a flanged, arched, and perforated body, A, a cross-bar, B, and a loop, C, for the purposes specified.

3. In a hame-tug, the combination of a metal section having perforations in its front end, a loop and cross-bar at its rear end, with a detachable clip, and a main and rear portion hinged to the cross-bar of the front section, as and for the purposes stated.

4. The combination of a hame-tug section, A B C, a clip, D, and a cover, H, with a body, G, having a series of loops, and a trace-fastening device at its rear end, substantially as shown and described, for the purposes specified.

321,254. ROTARY ENGINE. HENRY SEWERT, Barrie, Ontario, Canada. Filed Feb. 24, 1885. (No model.)



Claim.—1. In a rotary engine in which steam is admitted from opposite sides and the piston has opposite wings, as described, the cylinder A, having semi-cylindrical recesses to receive the dividing-blocks, and steam-inlet ports opening into such recesses, combined with the dividing-blocks and piston, and with exhaust-ports, as set forth.

2. The cylinder A, having recesses to receive the dividing-blocks,

arranged upon opposite sides of the cylinder, the steam-inlet ports *e*, entering such recesses, above upon one side and below upon the other, in combination with the dividing-blocks H, having recesses *d*, the piston D, having wings E, and exhaust-ports P, as set forth.

3. In a rotary engine, as described, the dividing-blocks H, having their shafts journaled in movable bearings N, and means, as O, for adjusting said bearings, as and for the purposes set forth.

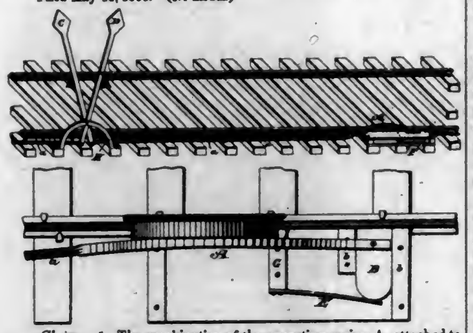
4. In a rotary engine in which the steam is admitted within the recess which receives the dividing-blocks, the blocks H, having recesses *d*, and cut away as shown, combined and arranged with the cylinder to leave steam-space within the recess and adjacent to the steam-inlet, as set forth.

321,255. VEHICLE-AXLE NUT. ALLEN V. SMITH, Canton, Ohio. Filed Jan. 22, 1885. (No model.)



Claim.—The combination of the nut A, provided with the exteriorly-threaded raised flange F, and formed with slots B, extending through its sides and open at their lower ends, the sliding collar D, fitting around the lower portion of nut A, and provided with interior projections E, entering the slots in said nut, and the adjustable collar C, fitting on flange F and bearing against collar D, substantially as described.

321,256. RAILWAY-SIGNAL. ABRAHAM B. SNYDER, Louisville, Ohio. Filed May 13, 1885. (No model.)

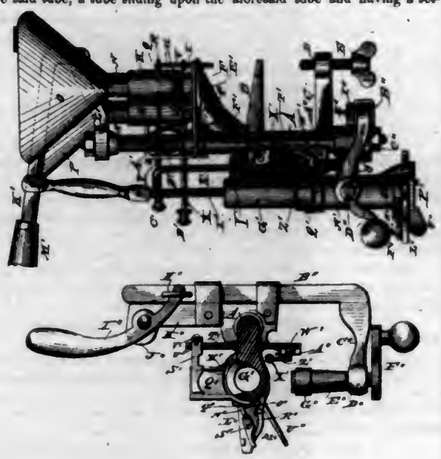


Claim.—1. The combination of the operating-spring A, attached to the sliding block B, the spring E, and the operating-rods *a*, attached to the signals C and D, all arranged substantially as described, and for the purpose specified.

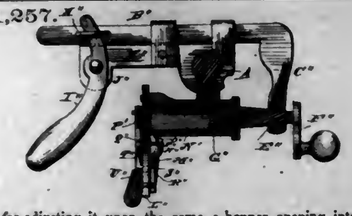
2. The combination of the operating-spring A, attached to the rod *a*, the signals provided with a bell or bells, and the sliding block B, all arranged substantially as described, and for the purpose specified.

321,257. CARTRIDGE-LOADING MACHINE. CHARLES STRAND and JOHN GILBURG, Fowler, Ind. Filed Apr. 27, 1885. (No model.)

Claim.—1. In a cartridge-loading machine, the combination of a rigid discharge-tube, a cut-off slide reciprocating across the lower end of the said tube, a tube sliding upon the aforesaid tube and having a set-



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screw for adjusting it upon the same, a hopper opening into the said sliding tube, and having a rod projecting from one end sliding in a perforation in the corresponding end of the lower cut-off slide, and a rod having its perforated end fitting upon the rod connecting the slides for reciprocating the slides simultaneously, as and for the purpose shown and set forth

2. In a cartridge-loading machine, the combination of the platform having the perforations G and H, tubes I and J, projecting from the said perforations, tubes K and L, having the set-screws and sliding adjustably upon the aforesaid tubes, the hoppers O and P, the slides R T and R T, sliding in the transverse slots Q in the sliding tubes and at the lower ends of the tubes I and J, rods V, projecting downward from the rear ends of the upper slides, and fitting in perforations in the rear ends of the lower slides, and the horizontal operating-rods X and Y, having knobs at their forward ends and springs for forcing them forward, and having their bent rear ends provided with perforations fitting upon rods V, as and for the purpose shown and set forth.

3. In a cartridge-loading machine, the combination of a charging-cylinder, a rammer reciprocating in the same, a platform secured at the lower end of the charging-cylinder at the lower edge of a transverse slot in the same, a rod sliding in a bearing transverse to the cylinder, and provided at one end with an arm sliding upon the platform and at the other end with projecting lips, forming a notch between them, and a plate secured at the lower end of a rod sliding parallel with the rammer, and having an inclined flange at its outer end for engaging the said notch, as and for the purpose shown and set forth.

4. In a cartridge-loading machine, the combination of the charging-cylinder having a transverse slot at its lower end and a platform projecting from the lower edge of the said slot, a tube passing from the powder and shot hoppers into the lower end of this cylinder, a cylinder for supporting the shell below the lower end of the cylinder, a rammer reciprocating in the charging-cylinder, a rod sliding transversely to the cylinder, and having at one end a wad-carrying arm sliding upon the platform at the end of the cylinder, and having lips at its other end formed with a notch between them, and a rod secured to the rammer and sliding parallel with the same, and provided at its lower end with a plate having its outer edge provided with a flange inclined with its upper end away from the upper end of the cylinder engaging the notch, as and for the purpose shown and set forth.

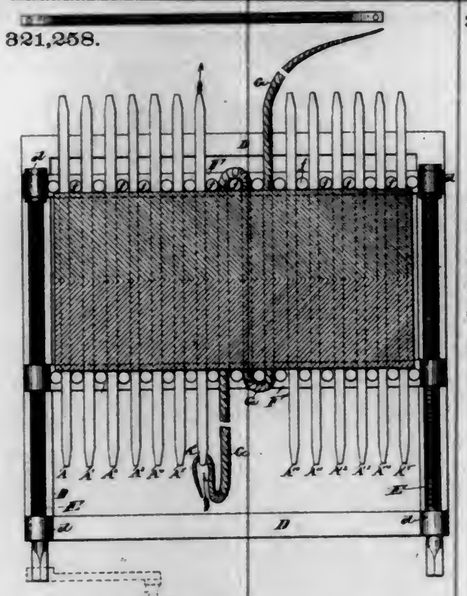
5. In a cartridge-loading machine, the combination of the shell-holding casing, the sliding bar having the crimping-shaft journaled in its forwardly-projecting arm and provided at the other end with the bail, the crimping-shaft having the shouldered inner end and having the crank at its outer end, and the lever having its inner end engaging the bail upon the sliding bar, as and for the purpose shown and set forth.

6. The combination of the cylinder for holding the shell, having the flange at its lower end formed with a notch, the slide pivoted at its inner end to swing under the end of the cylinder and having the outwardly-projecting arm at its outer end, the catch-lever having the lip at its inner beveled end for resting upon the upper side of the flange of the cylinder and having the spring bearing against its outer end, the pivotal pin of the catch-lever turning in a perforation in the arm of the slide and having an inwardly-projecting arm at its lower end, and the thumb-lever pivoted at the inner end of the swinging slide and bearing against the arm of the pivotal pin, as and for the purpose shown and set forth.

321,258. MAT FOR SEED-PRESSES. CHARLES H. STRUBING, Milwaukee, Wis. Filed May 4, 1885. (No model.)



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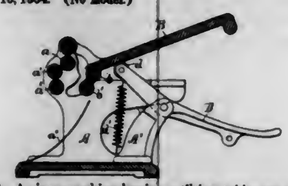


Claim.—1. A mat for presses, &c., consisting of a series of longitudinal cords interlaced about a series of transverse cords, then compressed and bound together by the transverse cords, as set forth.

2. In a mat, the combination of the transverse cords with the longitudinal cords, the latter interlaced with the former, and having increased diameters toward their outer ends.

3. A mat formed with side ridges and intermediate level surface, as described.

321,259. CIGAR-MACHINE. GEORGE W. TANNER, Providence, R. I. Filed May 10, 1884. (No model.)



Claim.—1. A cigar-machine having a tilting table carrying a series of rollers and mounted upon a frame carrying also a series of rollers, the said rollers being arranged to roll the fillings and to discharge the same by tilting the table, substantially as described.

2. The frame A, carrying the rollers a a' a^2, in combination with the hinged table B, carrying the rolls b b', as described.

3. The combination, with the frame A, of the hinged table B and the attachments for raising and lowering said table, as described.

4. The combination, with the frame A, having the bracket A' and standard A^2, and carrying the chute a^3 and rollers a a' a^2, of the table B, having the rollers b b' and the handles b^2, the lever D, with its spring d' and roller d, the shaft C', carrying the wheel C, and the gear c c' c^2 c^3 c^4 c^5, as described.

321,260. METHOD OF MAKING RIVET-STUDS. JOSEPH TILLOTSON, Worcester, Mass., assignor to A. H. Hammond, same place. Filed Apr. 24, 1885. (No model.)

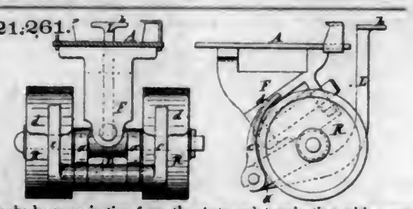


Claim.—The improved method of forming or making a stud or studs upon a piece of metal or other surface hereinbefore described—namely, compressing the metal or material between hard surfaces, one or more of which have a hole or holes therein, into which the metal extends to form the stud or studs—substantially as set forth.

321,261. ROLLER-SKATE. JAS. A. TURNBULL, Syracuse, N. Y. Filed Feb. 20, 1885. (No model.)

Claim.—1. In a roller-skate, the combination, with the rollers, of

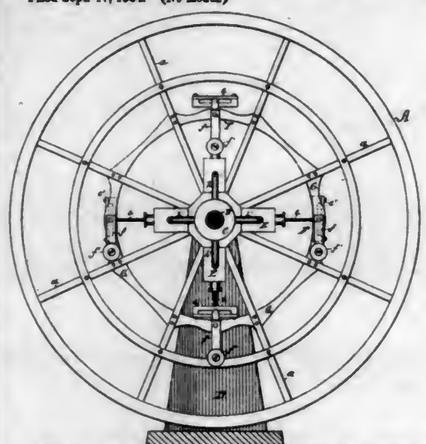
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a brake-lever projecting from the skate and terminating with a step, to receive the pressure from the companion skate, as set forth.

2. The combination, with a roller-skate, of a lever pivoted eccentrically in relation to the axes of the hind rollers, and its free end extended to the rear of the skate and terminating with a step, b, back of the heel of the skate, and brake-shoes connected with and actuated by said lever, substantially in the manner described and shown.

321,262. WATER-MOTOR. HORACE L. WALKER, Ottumwa, Iowa. Filed Sept. 17, 1884. (No model.)



Claim.—1. In a water-motor, the combination of a water-wheel, A, with a series of double-acting pumps, E, which rotate with it, the weights f', attached to levers f, for working said pumps, and cranks F, connected to the pump-pistons and to said levers, substantially as described and shown, and for the purpose set forth.

2. In a water-motor, the combination of the hollow center casting, C, divided centrally by the partition J, with the water-wheel A, of which it forms the hub, with the pumps E, and the cranks F, connected to the pump-pistons and to the said wheel, substantially as described and shown.

3. In a water-motor, the combination of rings G, water-wheel A, to the arms of which they are attached, pumps E, provided with yokes e', cranks F, and levers f, provided with weights f', substantially as described and shown.

4. In a water-motor, the combination of the packing-boxes b' with the hollow shaft B, center casting, C, divided by partition J, pipes h and i, pumps E, and water-wheel A, having connection with the pump-pistons through the cranks F, substantially as shown and specified.

321,263. CAN-HEADING MACHINE. FRANCIS A. WALSH, Milwaukee, Wis. Filed July 21, 1884. (No model.)

Brief.—The can-bodies, with the bottoms placed in position, are supported by can-holders mounted on an intermittingly-rotated table. The can-bodies are first carried under a forming-chuck and the can-holder is locked, while the chuck seams the body and the bottom together. The can is then carried under a clasping-head, which descends, grasps the can, and rotates it (with its can-holder) while a beading-roller is held against it, and forms a bead on the side of the body.

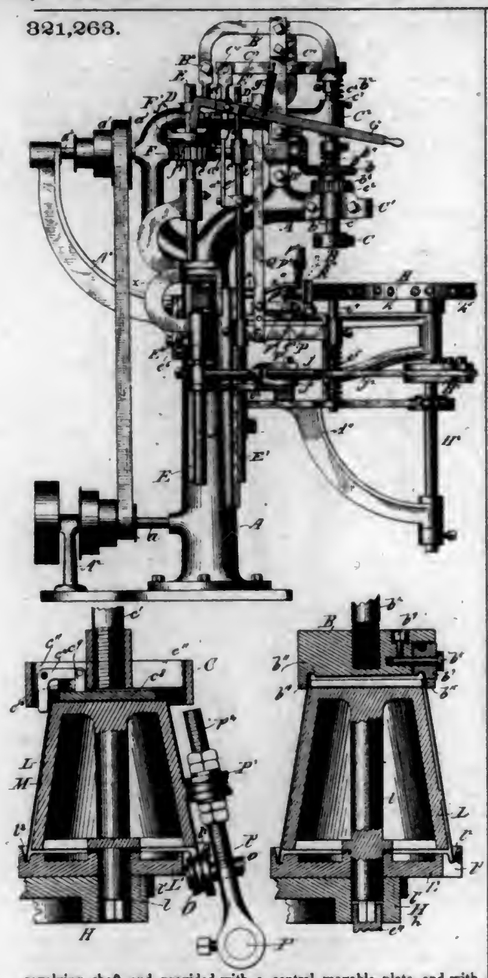
Claim.—1. In a can-heading machine, an intermittently-rotating work-table having removable blocks let into its circumference, in combination with interchangeable can-holders, as set forth.

2. The intermittently-rotating work-table, in combination with removable blocks h^4, as set forth.

3. A circular forming-chuck having an annular groove on its upper face for receiving the edge of a can-body, in combination with a can-support, means, substantially as described, for revolving the can, and a forming-roller projected through an opening in said forming-chuck, substantially as set forth.

4. The combination of a can-support, a clasping-head secured on a

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revolving shaft and provided with a central movable plate, and with bell-crank levers pivoted thereto, adapted to grip the can automatically when depressed, and a beading-roll running on a pivoted spindle provided with a cam for pressing the said roll against the edge of the can, substantially as set forth.

5. The combination of a can-support, a clasping-head secured to a revolving shaft and provided with a central movable plate, and with bell-crank levers pivoted thereto, adapted to grip the can automatically when depressed, and a rock-shaft provided with formers, and with levers connecting it with the working parts of the machine, so that the said formers are pressed against the edge of the can as it revolves, substantially as set forth.

6. The combination of a vertically-sliding shaft having a former secured thereon and provided with mechanism for revolving it, a revolving cam-wheel, and a lever pivoted in the framing of the machine, so that the motion of the said cam-wheel is communicated through the lever to the said sliding shaft, and the former depressed and brought in contact with the can at the proper time, substantially as set forth.

7. The combination of a vertical shaft geared to the driving-shaft and carrying a revolving cam-wheel, a vertical shaft provided with an anti-friction roller receiving reciprocating movement from said cam-wheel, a vertical spring-bolt provided with a square socket, and a can-holder provided with a square-ended shank for engaging with said socket, substantially as described and shown.

8. The combination of the revolving shaft E, carrying trip-rollers e^4, the rock-shaft J, having arms e^5 and j, the double plate H', having the spring-pawl h^3, an adjustable connecting-link, and a ratchet-wheel for revolving the table, substantially as described and shown.

9. In a can-heading machine, the combination, with the rock-shaft P', of the clamp-section carried thereby, and a like section secured to the table, as set forth.

10. In a machine for heading and beading cans, in combination with the stand having suitable bearings and supports, the horizontal driving-shaft and its pulleys, wheel a^4, and bevel-pinion a^5, the vertical shaft E, carrying the worm-wheel F, with sockets f' f', and cam-wheel F', having cams f^2 f^3 and f^5 f^6, and spring-clutch f, the shaft E', having roller e, for reciprocating the table-locking pin, and the yoke D, having anti-friction roller d, substantially as shown and described, and for the purpose set forth.

11. In a machine for heading and beading cans, in combination with the stand having suitable bearings and supports, substantially as described, the shaft a^2, having worm-wheel a^4, and vertical shaft E, having cam-wheel F', with cams f^2 f^3 and f^5 f^6, worm-wheel F, the shaft E', having roller e, for reciprocating the table-locking pin, yoke D, having anti-friction roller d and post B^2, the lever B', vertical shaft b', having adjustable head b^3, collar b^4, spring b^5, pinion b, suitably feathered, and the heading-former B, substantially as shown and described, and for the purpose set forth.

12. In a machine for heading and beading cans, the vertical shaft E, having cam-wheel F', with cams f^2 f^3 and f^5 f^6, yoke D, having anti-friction roller d and post B^2, and shaft b', carrying the adjustable head b^3, in combination with the vertical rod E', suitably mounted in the stand and carrying the anti-friction roller e on upper end of arm e', and arm e^3 on lower end of the said rod, carrying the locking bolt or rod e^4, with spring e^5, substantially as shown and described, and for the purpose set forth.

13. In a machine for heading and beading cans, the shaft E, having cam-wheel F' and worm-wheel F, connected, substantially as described, with the driving mechanism, the arm E^2, carrying the anti-friction rollers e^6 e^6, in combination with the shaft J, having horizontal arms j and e', slotted supporting-piece j'', lever j^3, double plate H', with spring-pawl h^3, ratchet-wheel h', and work-table H, keyed onto the upper end of shaft H^2, substantially as shown and described, and for the purpose set forth.

14. In a machine for heading and beading cans, the shaft E, having cam-wheel F' and driving connection, substantially as described, yoke D, having anti-friction roller d, in combination with the rod Q, the crank-lever P', with adjustable bearings p' p' and arm p^3, the rod o, carrying the former O, and stem p^4, carrying the former P^2, substantially as shown and described, and for the purpose set forth.

15. In a machine for heading and beading cans, in combination with the work-table H, having suitable notches A^6 A^6 and perforations A^7 A^7, the semicircular can-support R', having suitable fastening r r' r^2, the semicircular can-support R, having sleeved stem R^2, and crank-lever P', having suitable bearings, p' p', and crank p^3, connected to rod Q and operated by the intermittent vertical movement of the yoke D, substantially as shown and described, and for the purpose set forth.

16. In a machine for heading cans, in combination with the revolving work-table H, having perforations h h, the chuck L', working on stem l, dowel-pins l' l', groove l^2, and semicircular opening l^3, substantially as shown and described, and for the purpose set forth.

17. In a machine for heading and beading cans, in combination with the work-table H, having perforations h h, the can-holder L and can-chuck L', the forming-head B, attached to the vertical shaft b', and having flange b^{10} and groove b^{11}, and carrying the heading-formers in suitable recesses around its rim, substantially as shown and described, and for the purpose set forth.

18. In a machine for heading and beading cans, in combination with the work-table H, having perforations h h h, and the crank-lever P', actuating the former O on the arm o through the arm p^3, and having the stem p^4, to carry the former P^2, the can-holder L, having stem l, and the supporting-chuck L', having dowel-pins l' l', groove l^2, and semicircular opening l^3, substantially as shown and described, and for the purpose set forth.

19. In a machine for heading and beading cans, in combination with the shaft E, having cam-wheel F', with cams f^2 f^3 and f^5 f^6, yoke D, having anti-friction roller d, and posts B^2 and C^2, and the shaft b', having bevel-pinion b, with pinion b^2, the lever C^3, vertical shaft c', having nut c^3, loose collar c^4, with pivoting-bolts c^5 c^5, spring c^6, collar c^7, and clasping-head C, with clasping-levers c^{10}, central plate c^8, spring c^{12}, and pinion c^9, substantially as shown and described, and for the purpose set forth.

20. In a machine for heading and beading cans, in combination with the driving mechanism, substantially as described, and the rock-shaft P', having adjustable bearings p' p', crank p^3, and arm p^4, the rod o, suitably pivoted in the frame and carrying the former O, substantially as shown and described, and for the purpose set forth.

21. In a machine for heading and beading cans, in combination with the driving mechanism, substantially as described, and the rock-shaft P', having adjustable bearings p' p', crank p^3, and stem p^4, the adjustable former P^2, substantially as shown and described, and for the purpose set forth.

22. In a machine for heading and beading cans, in combination with the driving mechanism, substantially as described, and the lever P', having suitable bearings, p' p', and crank p^3, the spring b^{13}, fastened in

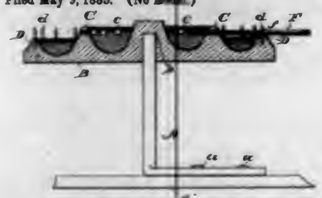
any suitable manner onto the said lever P', substantially as shown and described, and for the purpose set forth.

321,264. BARBED FENCE. EDWIN S. WHEELER, Saugatuck, assignor of one-half to Clarence L. Wheeler, Sharon, Conn. Filed Oct. 6, 1884. (No model.)



Claim.—As an article of manufacture, the herein-described cast-metal barb for wire fence, consisting of the open sleeve A, having barbs *a*, cast as an integral part of said sleeve, and projecting radially from its surface and from points midway in the length of the sleeve, so that a portion of the sleeve extends each side of said barbs, substantially as described.

321,265. DENTAL-TOOL HOLDER. LUTHER T. WHITE, Cortland, N. Y. Filed May 9, 1885. (No model.)

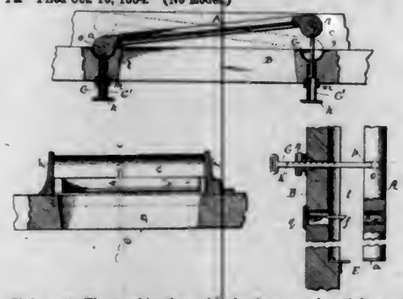


Claim.—1. A holder for dentists' tools, having the tool-bearings arranged radial to a common center to bring the working-points into juxtaposition, as set forth.

2. A revolving tool-holder having radial tool-bearings and means for locking each tool in its bearings, substantially as set forth.

3. A revolving disk having ribs C D, with horizontal holes in the rib C and pins upon the rib D to engage apertures in the shank of each tool, the bearings for the tools being arranged radially, as set forth.

321,266. RAILROAD-CAR WINDOW. JOHN R. WHITNEY, Radnor Pa. Filed Oct. 16, 1884. (No model.)



Claim.—1. The combination, with the frame or side of the car having rounded vertical depressions upon opposite sides of the window, of a sash having its side edges thickened and rounded off to form beads or nosings on the inside face thereof, adapted to fit closely into the said depressions, substantially as set forth.

2. The combination, with the frame or side of the car and sash connected as described, of one or more movable locking arms or rods, G, pivotally secured to each side edge of the sash, and supporting the same and extending from the latter through the frame or side of the car and through bearings, and adapted to be moved in or out, and to be secured in any position to which they are adjusted, substantially as described.

3. The combination, with the frame or side of the car and sash connected as described, of the movable locking arms or rods G, extending from the sash through the frame or side of the car to a swiveled bearing, G', and adapted to be moved in or out, and to be secured in any position to which they are adjusted, substantially as described.

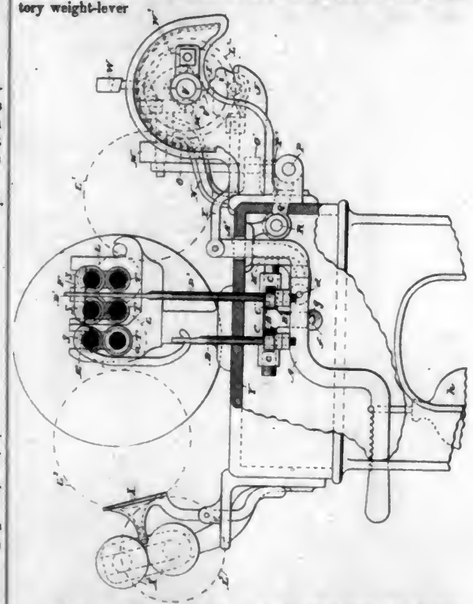
4. The combination, with the frame or side of the car and sash connected as described, and arms G, of movable catches *f*, attached to the frame or car, and adapted to lock into the circular shoulders *u* in the nosings of the sash, substantially as described.

5. The combination, with the frame or side of the car and sash connected as described, of the friction-plates D and E, with their lugs, slots, and notches arranged on the sash and frame, substantially as described.

6. The combination, with the sash adapted to be moved out at either end, of the curved cleats or guards *k*, substantially as and for the purpose described.

321,267. DRAWING-FRAME, &c. JAMES H. WILSON, Lowell, Mass. Filed Jan. 20, 1885. (No model.)

Brief.—The lower ends of the stirrups of the weighted top rolls are secured to hanger-bars, which form bearings for a sliding rod which carries a knife-edge to take in notches in the lower side of the weight-lever, whereby the distribution of weight upon the front and rear rolls is readily adjusted. A stop-motion device is connected with this vibratory weight-lever



Claim.—1. The combination, with the weight-lever and the drawing-rolls, of the mechanism through the intermediary of which the pressure of said lever is caused to be exerted upon said rolls provided with a weight-lever bearing which is adjustable toward and away from the axis of oscillation of said lever, substantially as and for the purposes hereinbefore set forth.

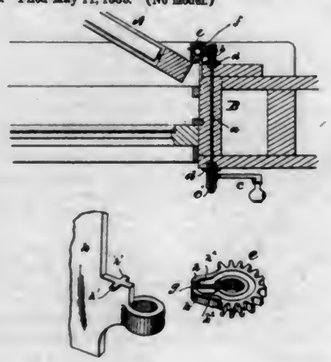
2. The drawing-rolls, the saddles, their stirrups, and hanger-bar, in combination with the weight-lever and the sliding bearing-arm carried by said hanger-bars and adjustable with reference to said lever, substantially as and for the purposes hereinbefore set forth.

3. The combination, with the stop-motion mechanism, of the vibratory weight-lever forming part of the roll-weighting mechanism and connected to and adapted to operate the stop-motion mechanism, substantially as and for the purposes hereinbefore set forth.

4. The vibratory weight-lever, in combination with the stop-motion shaft, the spider thereon, the sliding roller-lap stop-motion piece connected to said weight-lever, and the inclined bearing for said piece, substantially as and for the purposes hereinbefore set forth.

5. The stop-motion shaft and spider thereon, in combination with the sliding stop-motion piece and the inclined recessed bearing for the same, substantially as and for the purposes set forth.

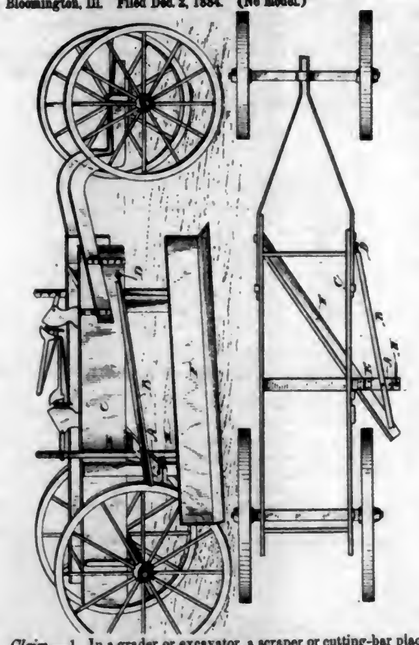
321,268. SHUTTER-WORKER. JOHN N. WORTHINGTON, Springfield, Ohio. Filed May 11, 1885. (No model.)



Claim.—1. The combination, with a shutter-hinge, of the gear having a slot with lugs each side thereof adapted to engage either side of said hinge, a worm engaging in said gear, a shaft extending through the window-casing, and a crank on the end of said shaft, substantially as specified.

2. The combination, with the shutter-hinge having the projections *k'* thereon, of the gear provided with projecting lugs adapted to extend on each side of said hinge, and having depressions into which the projections are adapted to engage, the worm, and shaft, and the crank on the end of said shaft, substantially as set forth.

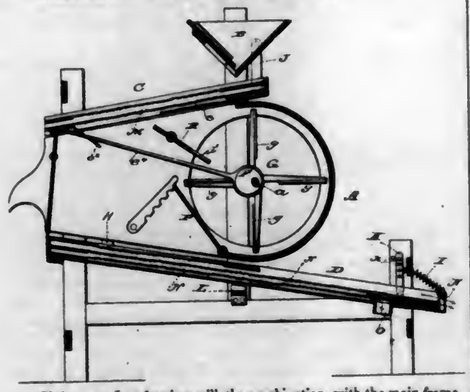
321,269. GRADER OR ROAD-SCRAPER. BENJAMIN R. ABBOTT, Bloomington, Ill. Filed Dec. 2, 1884. (No model.)



Claim.—1. In a grader or excavator, a scraper or cutting-bar placed obliquely to the line of travel, in combination with a folding draft-arm on the side of the machine, substantially as described, and for the purposes set forth.

2. In a grader or excavator, a scraper or cutting-bar placed obliquely to the line of travel, in combination with a hinged or folding draft-arm on the side of the machine, said draft-arm being provided with a brace-arm, also hinged to the machine, substantially as and for the purposes set forth.

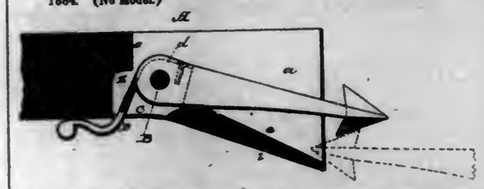
321,270. FANNING-MILL. THOMAS M. BALES and CHARLES P. RILEY, Connersville, Ind. Filed Nov. 20, 1884. (No model.)



Claim.—1. In a fanning-mill, the combination, with the main frame, of the upper and lower screens, the straps, as described, for supporting the same, the drive-shaft *a*, eccentric F, the rod *d'*, connected at its forward end to the said eccentric and at its rear end to the upper screen-frame, the spring I, connecting the lower screen-frame to the main frame, and means for vertically jarring the screens, substantially as specified.

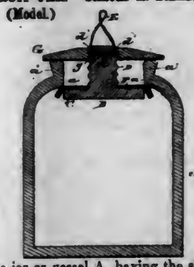
2. In a fanning-mill, the combination, with the main frame, the upper and lower screens, the drive-shaft, and divided fan, of the eccentric F, rod *d'*, wind-board P, adapted to be adjustably supported with relation to the fan, as shown, and the wind-board R, pivoted and slotted for the reception of the said rod, whereby the direction of the blast may be cut off or varied upon the upper screen, substantially as specified.

321,271. CAR-COUPLING. LEE ANDERSON, Paris, Tex. Filed Oct. 30, 1884. (No model.)



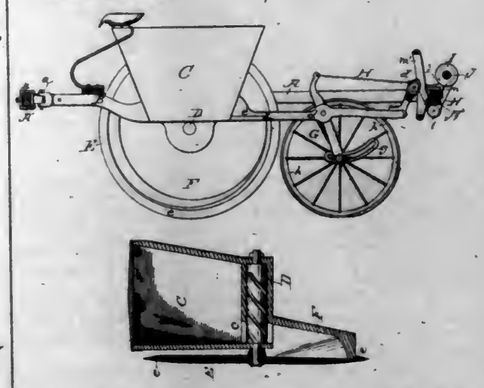
Claim.—The combination, with the draw-head having the downwardly and forwardly inclined floor Z and the floor slot or opening, of the coupling-bar having a curved or angular lever secured to its rear end and extending first downward through said opening and then under the draw-head, substantially as specified.

321,272. FRUIT-JAR. SAMUEL R. BARNITZ, Lewis, Iowa. Filed Mar. 28, 1885. (Model.)



Claim.—The jar or vessel A, having the shoulder *a*, in combination with the disk C, provided with a threaded stem, D, and having its diameter less than the internal diameter of the mouth of the jar, the gasket F, having a central opening to slip over the stem D and cover the upper face of the disk, said gasket having its diameter greater than the disk, and its periphery made thicker, so as to cover the peripheral edge of the disk, and a clamping-bar, G, of a length greater than the diameter of the jar, and provided with a threaded central opening to engage the stem D, as set forth.

321,273. GRAIN-DRILL. HENRY C. BEEBE, Canton, Ill. Filed Sept. 6, 1884. (No model.)



Claim.—1. The combination, with a rectangular frame, a grain-drill or corn-planter adjustable therein, and lever G, of arm *d*, cord H, and drum I.

2. The combination, with the hopper of a grain-drill or seed-planter, of a rotary colter journaled in bearings under said hopper, and a shield bearing, as shown, against said colter in such manner that the seed dis-

charged from the hopper as it falls between them will drop into the furrow made thereby.

3. The combination, with a grain-drill or seed-planter, of a rotary colter having a circumferential bead on its inner surface near the periphery, and a shield, as described, having its forward edge protected by said bead for about a quadrant of a circle, as hereinbefore fully set forth.

4. In a grain-drill, the combination, with a hopper having an opening in its bottom, and bearings below said bottom for the axle of the rotary colter, of said axle, having pockets in its periphery in alignment with the opening in the bottom of said hopper, said rotary colter, and a shield, the forward edge of which bears against the side of said colter.

321,274. GAS-BURNER. WILLIAM C. BOONE and WILLIAM A. WHITFIELD, Brooklyn, N. Y. Filed May 13, 1884. (No model.)



Claim.—The combination of the circumferentially screw-threaded valve G, the axially-movable valve-stem E, the internally-screw-threaded base A, body B, and lever F, the valve being screwed into the thread of the socket, and the parts arranged for joint use and operation, substantially as and for the purpose herein set forth.

321,275. SEAL. EDWARD J. BROOKS, East Orange, N. J., assignor to E. J. Brooks & Co., New York, N. Y. Filed May 11, 1885. (No model.)
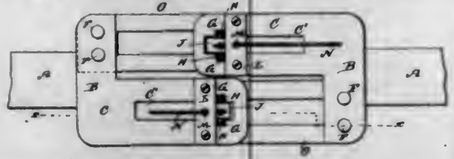


Claim.—1. A soft-metal seal-disk provided with a protector of hard material embedded within the same, so as to be interposed between the shackle ends and the respective faces of the seal-disk, substantially as herein specified, to prevent or resist cutting into and opening such seal-disk, in the manner set forth.

2. A protector having a pair of disks parallel or substantially parallel with each other and provided with edge-guards, substantially as herein specified, in combination with a soft-metal seal-disk inclosing said protector, and a flexible shackle the ends of which are united within said protector by said seal-disk, for the purpose set forth.

3. A protector having a pair of perforated disks parallel or substantially parallel with each other, in combination with a soft-metal seal-disk inclosing said protector, and a flexible shackle the ends of which are united within said protector by said seal-disk, substantially as herein specified.

321,276. CAR-COUPLING. ERNEST M. BROWN, New Boston, Ill. Filed Nov. 11, 1884. (No model.)



Claim.—1. The combination, with a draw-head, of a swinging link having a cross-pin resting in V-shaped recesses G in the said draw-head, and a coupling-pin hinged to the links, substantially as herein shown and described.

2. The combination, with a draw-head having V-shaped recesses G, of the link J, having a cross-pin H, and of the pin K, hinged to the link J, substantially as herein shown and described.

3. The combination, with a draw-head, of the cross-piece L, the link J, having a cross-pin, H, resting in V-shaped recesses G in said head, said link being hinged on the draw-head, and the pin K, hinged to the link, substantially as herein shown and described.

4. The combination, with a draw-head, of the cross-piece L, having an aperture, M, the link J, having a cross-pin, H, resting in V-shaped recesses in said draw-head, the pin K, hinged to the link, and the cord N, passed through the aperture M and secured to the top of the link J, substantially as shown and described.

5. A draw-bar provided with a head, from one side of the face of which two longitudinal slotted prongs project, and which is provided with a coupling-pin, in combination with a coupling-link of an opposite draw-head, substantially as herein shown and described.

6. The draw-head provided on one side of its face with the two slotted prongs, C, and with the notch or recess D in the other side, said recess holding a link, in combination with the coupling-pin of an opposite draw-head, substantially as herein shown and described.

7. The combination of the draw-heads, each having two slotted prongs, C, and a notch, D, the links O, the pins F, and coupling-pins hung in the top prong of each draw-head, substantially as herein shown and described.

8. The combination, with the link O, of the hinged latches Q, substantially as herein shown and described.

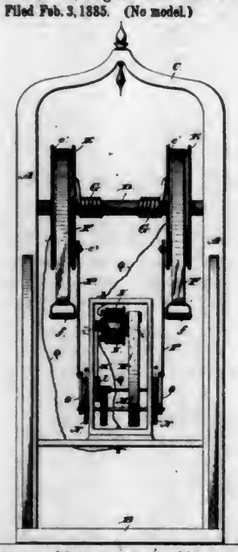
9. The combination, with the link O, of the hinged latches Q and the springs R, substantially as herein shown and described.

321,277. SHEET-METAL CAN. THEODORE W. BURGER, Dunellen, N. J., and HENRY A. LEE, New York, N. Y. Filed Apr. 23, 1885. (No model.)



Claim.—The combination, with a can-body, of a can-cover composed of a disk-shaped part made of the same size as the upper portion of the can-body, and a circular part or band made larger than the upper portion of the can-body and contracted to join the disk-shaped part, and having an outward flare, substantially as specified.

321,278. EXERCISING-MACHINE. GEORGE P. CLARKE and GERARD HARSIN, New York, N. Y., assignors of one-third to Charles E. Furman, same place. Filed Feb. 3, 1885. (No model.)

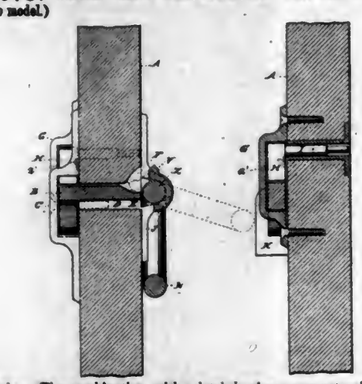


Claim.—1. An exercising apparatus in which are combined the following elements, to wit: a resisting-pull that is adapted to be moved in one direction by an operator and to be returned to its normal position by means of springs or weights, a magneto-electric mechanism, means whereby the reciprocating action of said pull will be communicated to and caused to set in motion said electric mechanism, and means whereby the electric currents thus produced will be transmitted through said pull to the person of the operator, substantially as and for the purpose specified.

2. In an exercising apparatus, in combination with a pull and a resisting-spring therefor, a magneto-electric mechanism actuated by such pull, and suitable connections whereby the electric current from such mechanism is conveyed to the person of the operator, substantially as and for the purpose shown.

3. The hereinbefore-described apparatus, in which are combined with the driving-shaft of a magneto-electric mechanism a ratchet-wheel, N, ratchet-lever O, and pawl o, connecting-rod P, insulated spring-resisting wheel E, having a crank-pin, e^3, pull-bands F, and wires Q, for connecting said bands with said electric mechanism, substantially as and for the purpose set forth.

321,279. LATCH. GEO. J. CLINE, Goshen, Ind. Filed Mar. 14, 1885. (No model.)



Claim.—The combination, with a latch having a rear extension and a pendent pivoted handle provided with a stud to act on the rear extension, of the front guard limiting the play of the latch, and the pivoted locking-tongue in said guard having a key-seat at the outer end of its pivot, substantially as specified.

321,280. COFFIN. SAMUEL COOMER, Poultney, Vt. Filed Mar. 30, 1885. (No model.)

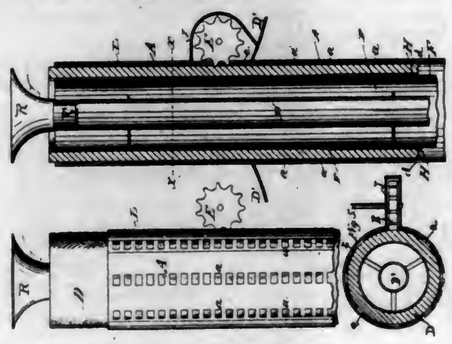


Claim.—1. A coffin made of slate or its equivalent, and having a side overlapping an end at its corner, and secured to the bottom, said bottom extending out beyond the joint thus formed and secured to a re-enforcing corner-piece, substantially as specified.

2. A coffin made of slate or its equivalent, having two of its opposite sides or ends overlapping the remaining sides or ends, all of which are rounded at the corners and provided with re-enforcing corner-pieces adapted to fit the same, substantially as specified.

3. A coffin made of slate or its equivalent, and having a projecting bottom, re-enforcing corner-pieces, a projecting cover, and molding arranged in the recesses at the sides and ends, substantially as specified.

321,281. ARGAND LAMP-BURNER. JAMES A. COWLES, Chicago, Ill. Filed Oct. 18, 1883. (No model.)



Claim.—1. In combination with an Argand lamp-burner, a wick-raising tube, and means for raising and lowering the same and a pressure-ring, substantially as and for the purpose shown.

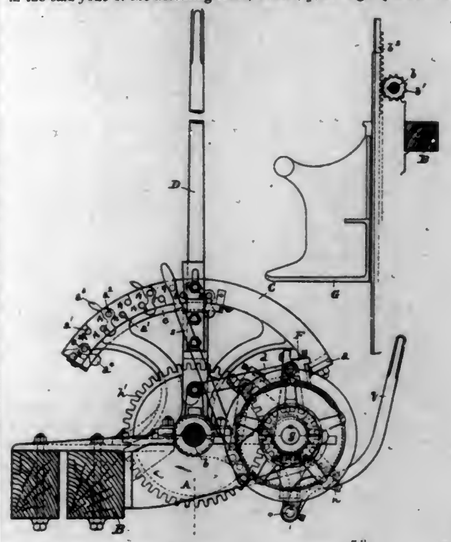
2. In an Argand lamp-burner, the combination of a wick-raising tube and means for raising and lowering the same, a pressure-ring located within said wick-raising tube, an inner air-tube and an outer tube, and a flame-spreader located above the air-tube, substantially as and for the purpose shown.

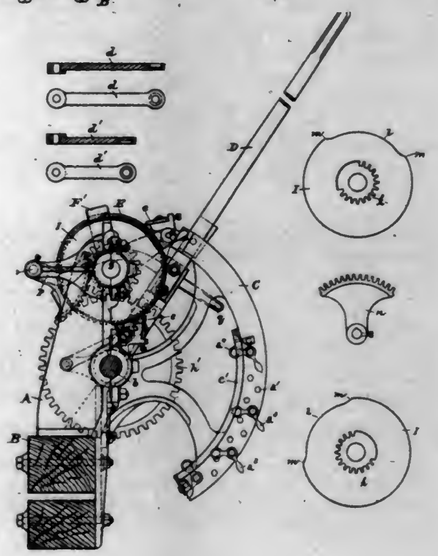
321,282. SAW-MILL SET-WORKS. ALEXANDER DELANEY and JOHN M. BOND, Richmond, Va. Filed Apr. 14, 1885. (No model.)

Claim.—1. In set-works for head-blocks of saw-mills, the combination of the actuating-lever, a quadrant having pin-holes and guards c, and stop-pins, each provided with a pendant, as set forth.

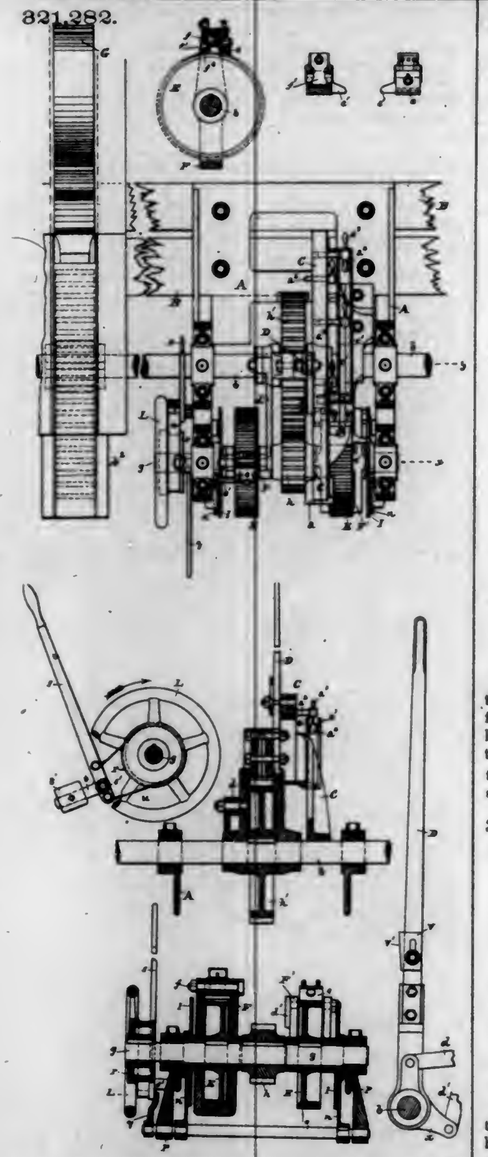
2. In set-works for head-blocks of saw-mills, the combination of the actuating-lever, provided with a stop having an inclined side which projects beyond the side of the lever and arranged to slide lengthwise of the lever, and a quadrant having stops against which the said inclined side abuts, as set forth.

3. The combination of the knees having racks, a main shaft, *b*, having pinions engaging with the racks, an actuating-lever, D, having a yoke pivoted loosely on the main shaft and provided with an extension, *x*, below the shaft, a spur-wheel, *h'*, keyed to the main shaft and turning in the said yoke of the actuating-lever, a shaft, *g*, having a pinion, *h*, en-





321,282.

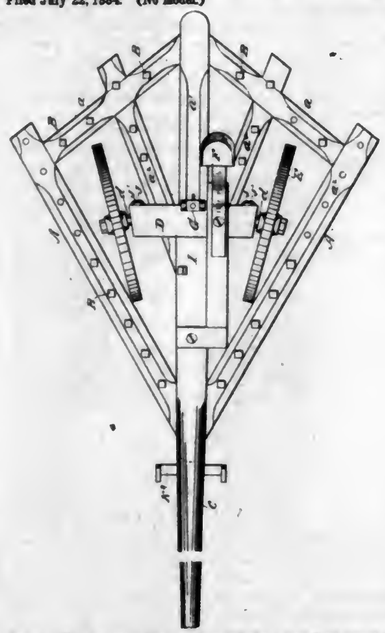


gaging with the aforesaid spur-wheel, and two ratchet-wheels, E, one each side of the pinion, a pawl-lever for each ratchet-wheel, a link-rod, *d*, connecting one side of the yoke with the pawl-lever of one ratchet-wheel, and a link-rod, *d'*, connecting the extension on the opposite side of the yoke with the pawl-lever of the other ratchet-wheel, as set forth.

4. In set-works for head-blocks of saw-mills, the combination of the knees having racks, a shaft having pinions engaging with the racks, and provided with a spur-wheel, *h'*, a shaft having a pinion, *h*, and a ratchet-wheel, a pawl-carrying lever, F, mounted on the latter shaft and having a pawl with a lateral projection, *e'*, a cam-plate loosely mounted on the said shaft for disengaging the pawl, and a lever to actuate the pawl-lever, as set forth.

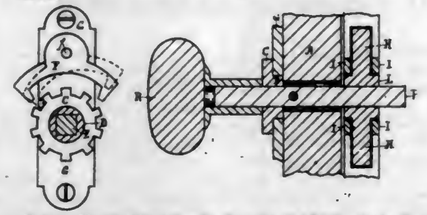
5. In set-works for head-blocks of saw-mills, the combination of a shaft, a ratchet-wheel on the shaft, a lever having a pawl with a lateral projection, a cam-plate loosely mounted on the shaft and having its rim divided to form two sections of different diameters, the greater one of which will lift the pawl, and provided with a sparred hub, a rock-shaft, and a sector on the rock-shaft to engage with the sparred hub of the cam-plate, as set forth.

321,283. WHEEL-HARROW. DAVID H. DOLBY, Huntington, Ind. Filed July 22, 1884. (No model.)



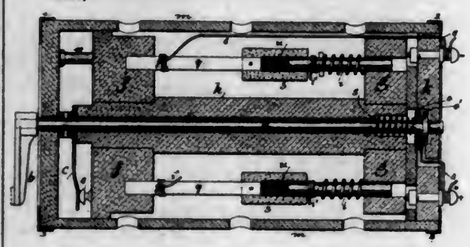
Claim.—The improved harrow hereinbefore described, consisting of the tooth-frame, the sulky having its wheels operating within the tooth-frame, the guides J, secured on said sulky, the bars J', secured at their lower ends to the tooth-frame and projected upward through guides J, the lever G, cord or link H, rack I, and the draft-links K K', whereby the draft is applied independently to both sulky and tooth-frame, all substantially as and for the purpose specified.

321,284. SASH-BALANCE. HENRY E. DORMAN, Worcester, Mass., assignor, by direct and mesne assignments, of a part to Amos K. Roberts and John L. Tuttle, both of same place. Filed Nov. 24, 1884. (No model.)



Claim.—The combination, with the rack-bar K, the holder I, and the cog-wheel H, having hubs on its opposite faces journaled in the holder I, of the shank P, fitting in an angular hole through the hub of wheel H, a plate, G, carrying a latch, F, and a toothed wheel, C, fitting around shank P, and formed with a rounded hub turning in plate G, substantially as described.

321,285. RHEOSTAT. JOHN DOYLE, Hoboken, N. J., assignor to himself, and C. Coles Dusenbury, New York, N. Y. Filed Dec. 10, 1884. (No model.)



Claim.—1. The combination, with the central shaft, *a*, and circuit-closer, of the heads *f* and *g* and connecting column *h*, the range of resistances around the central column, the circular range of contact-pins, and the circuit-connections, substantially as set forth.

2. The combination, in a rheostat, of a range of resistances, each of which is composed of metallic pieces of inferior conductivity, non-conducting holders for the same, circuit-wires for connecting the resistances in series, contact-pins, and a movable switch for bringing into the electric circuit more or less of the resistances, substantially as specified.

3. The combination, with the case *m* and heads *f* and *g*, of the connection between the heads, the range of resistances supported by the heads *f* and *g*, the shaft *a*, extending from the head *g* to the head *h*, and a circuit-closer and handle, substantially as set forth.

321,286. COMBINED TRUCK AND BAG-HOLDER. EBENEZAR J. EARL, Charlotte, Mich., assignor of one-half to Orrin N. Lumbert, Elkhart, Ind. Filed Feb. 24, 1885. (No model.)

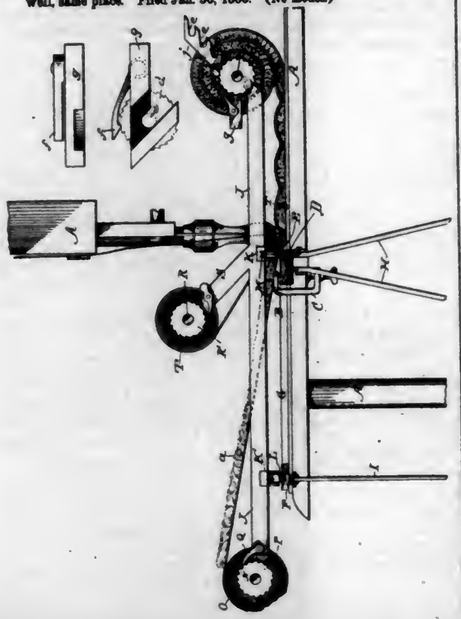


Claim.—1. The combination of a horizontal support for the foot of the bag, a bag-holder frame consisting of the side and top bars, connected with said support and adapted to tilt to different angles, a bag-holder connected with the top of said frame, and the brace-arms hinged to said bag-support and adapted to adjustably engage with the side bars of the bag-holder frame, all substantially as set forth.

2. The combination of the bag-holder frame, a support for the foot thereof, and a bag-holder consisting of the flexible flaring arms having the rear point or loop, and a supporting-bar hinge-connected with said arms between the rear loop and their free ends, said bar being provided with open hooks for detachable connection with the bag-holder frame, all substantially as set forth.

3. The combination of the truck, the floor thereof forming a support for the foot of the bag, the bag-holder frame having the flexible side bars detachably and pivotally connected with the sides of the truck, the upper square bar and the side lugs, the notched brace-arms hinge-connected with the truck, and a bag-holder provided with square open hooks for detachable connection with said upper square bar, substantially as set forth.

321,287. QUILTING ATTACHMENT FOR SEWING-MACHINES. DAVID R. FRALEY, Lexington, N. C., assignor to himself and Baxter Shemwell, same place. Filed Jan. 30, 1885. (No model.)



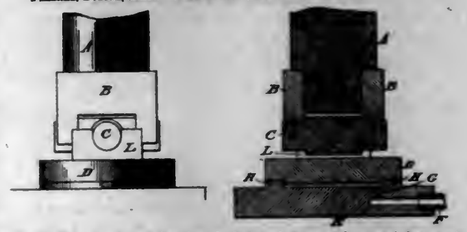
Claim.—1. The combination of the long rail D, provided with the rib E; the short rail F, the cross-bars G, joining the two rails, and the movable frame consisting of end beams, J, longitudinal beams K K', firmly secured thereto, the cloth roll-shafts N R and *c*, journaled in the end beams, J, the two grooved rollers M, journaled in the end beams, J, to engage the rib E, and the roller L, journaled to the beam K', substantially as shown and described.

2. The combination of the long rail D, provided with the rib E, the short rail F, secured parallel therewith, the movable quilt-frame comprising the end pieces, J, provided with raised arms S, the shaft R, journaled therein above the plane of the frame, the shafts N and *c*, journaled in opposite ends of the said frame, the roller L, journaled in the frame to engage the rail F, the rollers M, journaled in the frame to engage the rib E, and the presser-bar K, directly in line with the rollers M above the rib E, substantially as shown and described, whereby the upper and lower cloths of the quilt, when first brought together upon the wadding, are held between parallel bars, and the work of laying and guiding the quilt accurately is facilitated.

3. The combination of the end beams, J, provided with the turned-up slanting notched ends *j*, the longitudinal beams K and K', fixed to beams J, the shafts N and R, journaled in the end beams, as described, and the shaft *c*, removably journaled in the slanting ends *j* of the beams J, substantially as shown and described.

4. The combination of the end beams, J, provided with the turned-up notched ends *j*, the longitudinal beams K K', the shafts N R and *c*, journaled in the end beams, the block *g*, gained in at one side to fit the raised end *j* and notched in its lower side to fit the shaft *c*, the detent *f*, pivoted to the block *g*, and the ratchet-wheel *d* on the shaft *c*, substantially as shown and described.

321,288. STEP-BEARING FOR VERTICAL SHAFTS. JOSEPH P. FRIZELL, Boston, Mass. Filed Nov. 7, 1884. (No model.)



Claim.—1. A step-bearing inclosing between the revolving part D and the fixed part E a chamber, H, filled with liquid under pressure, in combination with a device for centering or equalizing the pressure or load of the shaft on the bearing-surfaces, thereby causing these surfaces to maintain themselves by their mutual attrition in a condition to hold the liquid.

2. The crossed pivot C, with its bearings on the parts B and D, forming a gimbal for the centering or equalization of the pressure of the shaft on the bearing-surfaces, substantially as described, and for the purpose specified.

3. The circular form of the chamber H and the projection on the cover D, extending and fitting into the chamber H, thereby securing the shaft in a fixed alignment.

4. The minute orifice G, connecting the supply-pipe F with the chamber H, for the purpose set forth.

321,289. STIFFENER FOR CORSETS, &c. JAMES F. J. GUNNING, Toronto, Ontario, Canada. Filed Aug. 7, 1884. (No model.)



Claim.—1. The stiffeners B, cut shorter than the section C, and the fly A, securing said stiffeners in position, in combination with said section C, and the covering-piece D, arranged to cover the whole, substantially as and for the purpose specified.

2. The stiffeners B, cut shorter than the section C, and secured in position by the fly A, in combination with said section C, and the cap E, arranged to cover and protect the ends of the stiffeners B, substantially as and for the purpose specified.

3. The stiffeners B, cut shorter than the section C D, and secured in position by the fly A, in combination with said section C, and the cap E, arranged to cover the ends of the stiffeners B, and the covering-piece D, arranged to cover the whole, substantially as and for the purpose specified.

321,290. ROLLER-SKATE. ALBERT HALL, Richmond, Ind. Filed Jan. 8, 1885. (Model.)



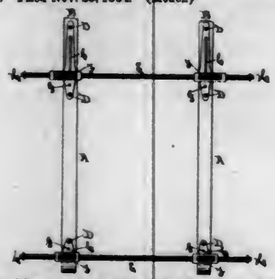
Claim.—1. The combination of the axle B, and the ears D, provided with lugs 2, engaging with the sleeve E, which is rigidly secured to the hub of the roller A, whereby the parts are held in fixed relation, substantially as specified.

2. The combination of the axle B, the frame C, having ears *r*, the brackets M, provided with lugs N, the pivot O, passing through the ears *r* and lugs N, and the spring H, seated between frame C and bracket M, substantially as described.

3. The combination of axle B, frame C, having an opening, F, and provided with ears *r*, the brackets M, having lugs N, the pivot O, extending through the ears *r* and lugs N, and the headed temper-screw G, tapping vertically through the frame C, substantially as described.

4. The combination, with the frame C, having opening F and ears *r*, the pivot O, and bracket M, having lugs N, of the rubber H, plate L, having its inner end, *i*, turned over to prevent displacement, and headed temper-screw G K, substantially as described.

321,291. CARRIAGE-AXLE IRON. CHARLES F. HARRINGTON, Lyndhurst, N. J. Filed Nov. 25, 1884. (Model.)



Claim.—1. The combination, with the handles and axles of a carriage, of castings forming the supports and braces for the handles and shoulders or bearings upon the axles, said castings being secured to the parts by two or more screws, bolts, or rivets, and adapted and arranged to keep the gear true and square, substantially as shown and described.

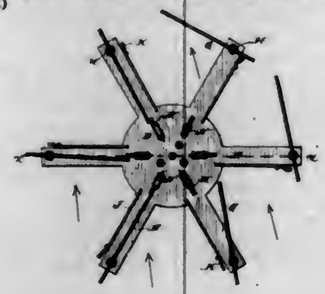
2. A casting adapted and arranged to form a bearing upon a round axle, being secured thereto by a rivet or rivets passing therethrough, and to the carriage handle or frame by two or more bolts or screws, substantially as shown and described.

3. A carriage-axle made of round metal and provided with castings forming shoulders, as set forth, said castings being secured to the axle by a rivet or rivets passing therethrough, and adapted and arranged to form the supports for the carriage-handles, substantially as shown and described.

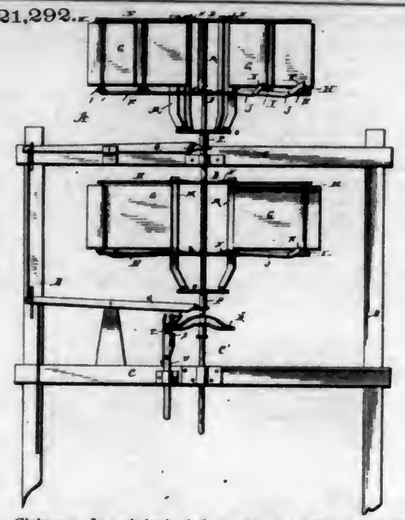
4. The combination, with a round axle, of a casting encircling the same, as set forth, said casting being secured to the axle by a rivet or rivets passing therethrough and engaging with the carriage handle or frame, substantially as shown and described.

5. In a carriage, handles or supports A, castings C, prepared for the reception of screws D and rivets F, and axles E, passing through said castings, being held in place by the rivets, the whole combined and arranged to operate substantially as shown and described.

321,292. WINDMILL. THOMAS HATFILL, Mount Hope, Kans., assignor of one-fourth to F. E. Tracey, same place. Filed Apr. 24, 1885. (No model.)



321,292.

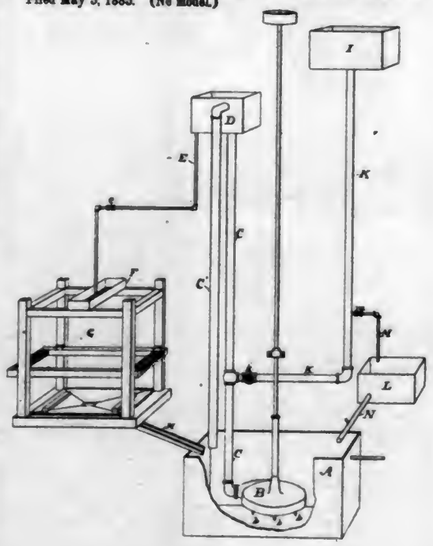


Claim.—1. In a wind-wheel, the combination, with a suitable frame, of a vertical shaft journaled in the same, a pair of disks or hubs having radial arms, beveled latch-bars pivoted to the rear sides of the lower arms and having stops at their outer ends, vanes pivoted between the upper and lower arms by pivoting-pins near the outer edges of said vanes, and lock-bars adapted to form rests for the inner ends of the said vanes when in operative position, substantially as and for the purpose herein set forth.

2. In a wind-wheel, the combination of a vertical shaft, a pair of hubs or disks having radial arms, vanes pivoted, as described, between the said arms, latch-bars pivoted to the rear edges of the lower arms; lock-bars arranged to slide vertically in slots in the disks or hubs, and connected with the latter by pivoted links, and mechanism for operating the said lock-bars, substantially as and for the purpose herein set forth.

3. In a wind-wheel, the combination of the central vertical shaft, the disks or hubs having radial arms, the vanes pivoted vertically between the outer ends of the said arms, the pivoted latch-bars, the vertically-sliding lock-bars connected with the disks or hubs by pivoted links, and having converging lower ends, a disk mounted upon a sleeve sliding vertically upon the central shaft and supporting the lock-bars, and a forked lever adapted to manipulate the said sleeve, substantially as and for the purpose herein set forth.

321,293. SAND AND WATER FEEDING MECHANISM FOR STONE SAWING OR RUBBING MACHINES. ELI J. HAWLEY, Manchester, Vt. Filed May 5, 1885. (No model.)



Claim.—1. An apparatus for supplying sand and water to stone sawing or rubbing machines, consisting of a tank for containing sand and water, a centrifugal pump in communication with said tank, a discharge-pipe connected with said pump, a reservoir located on a plane above the machine with which the discharge-pipe is connected, and means, substantially as described, for conveying the mingled sand and water from the reservoir to the stone being worked, as specified.

2. An apparatus for supplying sand and water to stone sawing or rubbing machines, consisting of a tank for containing sand and water, a centrifugal pump placed in said tank, a reservoir located above the plane of the machine, a pipe connected with the pump and leading to the reservoir to convey thereto mingled sand and water from the tank, and means, substantially as described, for conveying the sand and water from the reservoir to the stone being worked, as and for the purpose set forth.

3. In an apparatus for supplying sand and water to stone sawing or rubbing machines, a tank for containing sand and water, a centrifugal pump in communication with said tank, a reservoir located above the plane of the machine, a discharge-pipe connected with the pump and leading to the reservoir, a water-tank located on a higher plane than the reservoir, and a pipe connected with the water-tank and tapped into the discharge-pipe for supplying the sand-and-water tank with water, and at the same time cleansing the pump, substantially as described.

321,294. STORE-SERVICE APPARATUS. HARRIS H. HAYDEN, New York, N. Y. Filed June 18, 1884. (No model.)



Claim.—1. The combination, in a store-service apparatus, of a wire having a movable support, and adjusting means at one end, constructed, substantially as described, to alter the angle of the wire without altering the tension thereof.

2. The combination, with the adjustable wire of a store-service apparatus, of a terminal support connected to the wire and guided by devices, substantially as described, to maintain a uniform tension on the wire whatever may be its position, substantially as described.

3. The combination, in a store-service apparatus, of the counters, desks, ways, and termical way-supports movable upon bearings in curved paths, substantially as set forth.

4. A store-service apparatus provided with wire ways with slides to which the ways are attached at their movable ends, and with curved guides for the said slides, substantially as set forth.

5. The combination, with the movable wire and slide of a store-service apparatus, of a vertically-arranged support provided with a curved guide or bearing for the slide, substantially as specified.

6. The combination, with the slide and movable way of a store-service apparatus, of a guide for the slide, constructed and arranged, substantially as set forth, to permit the vertical adjustment of the slide and maintain a uniform tension upon the way, substantially as described.

7. The combination of a way of a store-service apparatus, secured at one end to a fixed support and at the other to a slide, and a guide for said slide, constructed and arranged to permit the slide to travel in a curved path, for the purpose specified.

8. A support for the movable slide attached to the wire way of a store-service apparatus, provided with a curved bearing for said slide, substantially as set forth.

9. The combination, with the wire way and slide of a store-service apparatus, of a vertically-arranged support having a curved bearing for the slide at the edge farthest from the point where the wire is connected to the fixed support, substantially as set forth.

10. The combination, in a store-service apparatus, of the wire way slide support having a curved bearing for the slide, and means, substantially as described, for permitting the adjustment of said support to bring the bearing in line with the direction of the wire, substantially as specified.

11. A vertically-movable slide for the wire way of a store-service apparatus, adapted to a guide, and provided with a cord extending to the counter, in combination with a locking device for holding the slide in its elevated position.

12. A vertically-movable slide connected to one end of a store-service way, in combination with a lock for holding the support in its elevated position, and with means, substantially as described, for releasing the slide from either end of the line.

13. The combination of the movable slide connected to one end of a store-service way, a lock for holding the slide when elevated, releasing means, substantially as described, and cords connected to the slide and arranged to permit the same to be raised and lowered from the salesman's station, substantially as described.

14. A support for the slide of a store-service apparatus, consisting of a vertical bar and a curved bar connected thereto and constituting a bearing for the slide, substantially as specified.

15. The combination, in the support for the slide of a store-service apparatus, of a vertical bar and a curved rod secured to said bar by adjustable connections, substantially as specified.

16. The combination of the slide connected to the way, means, substantially as described, for arresting the slide before reaching the limit of its downward movement, a catch for retaining the slide in its upward position, and means, substantially as described, for operating the catch to release the slide from the salesman's station, substantially as described.

17. The combination of the vertical bar D, curved rod A, adjustably connected to said bar, and extension-braces between the rod and the bar, substantially as set forth.

18. The combination, with the vertical rod D, of the curved rod A, and bearings F F', supporting the rod A, and adjustably connected to the rod D, substantially as set forth.

19. The combination, with the slide connected to the wire way of a store-service apparatus, and with means, substantially as described, for arresting the slide before it reaches the limit of its downward movement, of a catch for retaining the slide in its elevated position, and means, substantially as described, for operating said catch from the main desk, for the purpose set forth.

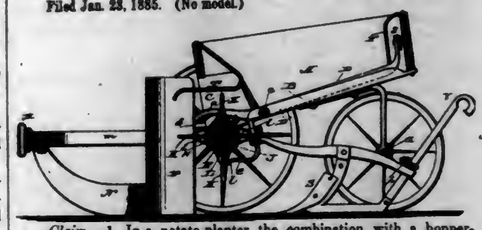
20. The combination of the guide and slide connected to the wire by a pivoted arm or frame, substantially as described.

21. In a store-service apparatus, a way fixed at one end and movable at the other by means of a slide adapted to be moved on a curved guide in order to change the inclination of the way.

321,295. GRAINING COMPOSITION. THOMAS HEAD, Copetown, Ontario, Canada. Filed Mar. 2, 1885. (No specimens.) Patented in Canada Sept. 30, 1884, No. 20,292.

Claim.—The herein-described composition of matter, to be used by mixing with mineral and other powdered paints, for ornamenting and decorating light-colored painted wood or other material, consisting of tincture of arnica, spontaneous fermented vinegar, white glue, pyroligneous acid, and the oil of turpentine, mixed in the manner and proportions specified.

321,296. POTATO-PLANTER. LOUIS P. HILDEBRAND, Decatur, Ill. Filed Jan. 23, 1885. (No model.)



Claim.—1. In a potato-planter, the combination, with a hopper-box supported on wheels, of rising and falling agitator-bars in the inclined floor of the box, substantially as specified.

2. The combination, with a hopper-box having a throat in its end, of the agitator-bars and the feeding-reel having cam projections adapted to operate the agitator-bars, substantially as specified.

3. The feeding-reel consisting of the body, its radial feeding-fingers adapted to pass between the respective agitator-bars, and the lateral cams, in combination with the planter-box, its front axle, the clutch-sleeves, springs, and wheels, substantially as specified.

4. The combination, with the hopper-box and its front throat-opening, of the floor slats or bars having convex front ends forming the floor of the throat and the spring-fingers in the top of the throat, substantially as specified.

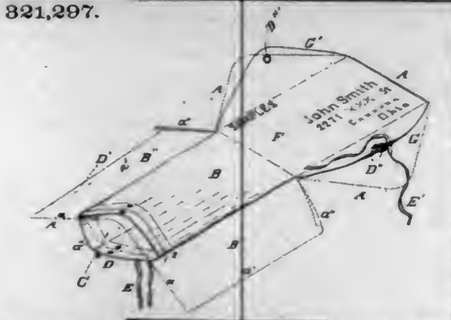
5. The combination, with the hopper-box having its floor-bars inclined downward from the rear to the front where the throat is located, of the agitator-bars alternating with the floor-bars, the feed-reel and cam, the axle carrying said reel, the rear axle, the opener and its chute in front, and the covering-shovels under the hopper-box having handles projecting in rear, substantially as specified.

6. The combination, in a potato-planter, of alternate fixed inclined bars and rising and falling agitator-bars, forming the bottom of the hopper, substantially as specified.

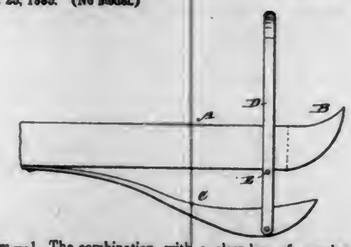
321,297. REVERSIBLE ENVELOPE. JACOB HOFFMANN, Cincinnati, Ohio. Filed Dec. 30, 1884. (Model.)

Claim.—The reversible retentive safety-mailing envelope, consisting of the reversible bag, pouch, or pocket C, whose mouth is adapted to be secured in the described infolded condition by the fastenings D D' E, and having at its bottom the integral prolongation F, with places for two distinct addresses on its obverse and reverse faces, and whose reversible closing wings G G' are provided with the fastenings D'' D''' E', substantially as set forth.

321,297.



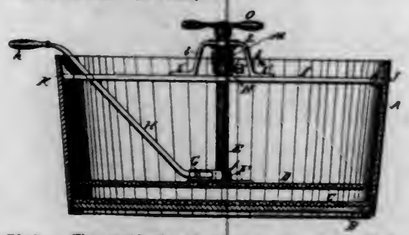
321,298. NAIL-EXTRACTOR. LEWIS HOWARD, Watkins, N. Y. Filed Mar. 25, 1885. (No model.)



Claim.—1. The combination, with a claw-bar, of a spring-bit secured to the under side of the bar, and a clevis pivoted to the bit below the claw-bar and having between the same the pin E, serving to move the claw-bar from the bit when the bit rests on some solid object, substantially as herein shown and described.

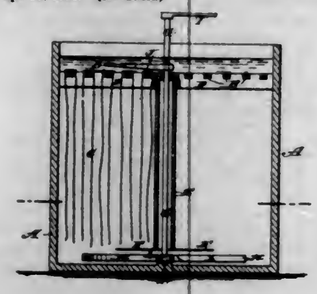
2. The combination, with a claw-bar, of a spring-bit secured to the under side of the bar, the clevis D, pivoted to the bit, and a cross-pin uniting the shanks of the clevis between the bar and the bit, substantially as herein shown and described.

321,299. WASHING-MACHINE. JOSIAH HOWELL, McKeesport, Pa. Filed Apr. 25, 1884. (No model.)



Claim.—The combination of tub A, cross-bar I, hinged thereto at one end and having fastening-catch J at the other end, vertical shaft E, adjustable spring M, surrounding said shaft above the cross-bar, plate L, secured to said cross-bar and forming a bearing for said spring, movable collar N, disk D, and lever H, connected to said disk and extending upward and over the edge of the tub, all constructed and arranged substantially as described.

321,300. LIMING-VAT. THOMAS JOHNSTONBAUGH, Clearfield, Pa. Filed Apr. 28, 1885. (No model.)



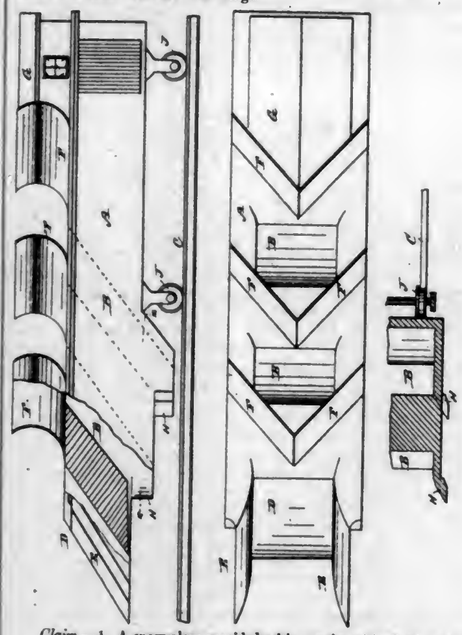
Claim.—1. The combination, with the liming-vat A, provided with hide-rack B, of a pendent tube, E, a screen-frame, F, fixed thereto, the shaft G, journaled so as to rotate inside of tube E, and stirrers H, fixed to the shaft below frame F, substantially as herein set forth.

2. The combination, with the liming-vat A, provided with hide-rack B, of a pendent tube, E, a screen-frame, F, fixed thereto, the shaft G, rotating in said tube, the stirrers H, fixed to the shaft below frame F, and a stirrer, J, fixed to the shaft above the rack B, substantially as herein set forth.

3. The combination, with the liming-vat A, provided with hide-rack B, of a pendent tube, E, a screen-frame, F, fixed thereto, the shaft G, rotating in said tube, the stirrers H, fixed to the shaft below screen-frame F, made of blades having upper faces inclining upward and backward, and a stirrer, J, fixed to the shaft G above rack B, substantially as herein set forth.

321,301. SNOW-PLOW. PETER O. KING, Valley City, Dak. Filed June 11, 1884. (No model.)

Brief.—A snow-plow consisting of a series of inclined ways, one behind the other, at different elevations above the track and provided at their lower ends and sides with wings.



Claim.—1. A snow-plow provided with a series of inclined ways, one arranged behind the other from front to rear, the distance from the lower end of each inclined way to the track gradually increasing toward the front, said ways having wings at their lower ends and sides, substantially as herein shown and described.

2. A snow-plow having a series of inclined ways, each provided with wings H at the lower ends and sides, substantially as herein shown and described.

3. A snow-plow having an inclined way, D, at its front end, and wings E at the sides of the inclined way, the inclined ways B, the bottom wings, H, and the top wings or guards, F, substantially as herein shown and described.

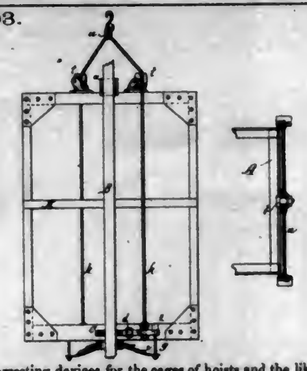
321,302. ARTIFICIAL DIAMOND. ERNEST E. KIPLING, Roselle, N. J. Filed Mar. 27, 1885. (No specimens.)

Claim.—As a new article of manufacture, an artificial rose diamond, either with or without the reflector coating, substantially as described.

321,303. SAFETY DEVICE FOR ELEVATOR-CAGES, &c. PETRUS F. LAARMAN, Amsterdam, Holland. Filed June 18, 1884. (No model.)

Claim.—1. In arresting devices for the cages of hoists and the like, the combination, with the uprights, of the cage suitably sustained and provided at its top or bottom with a guide-rail, a pivoted brake-lever having one of its arms embracing an upright, and its other arm attached to a suspending cord or chain, and an arresting-stop therefor, and springs, weights, or elastic buffers for forcing the said lever to grip the upright when operated, substantially as described.

321,303.



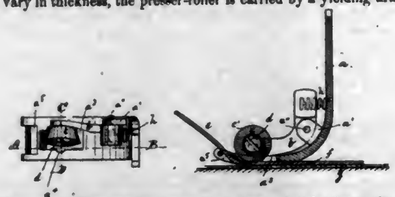
2. In arresting devices for the cages of hoists and the like, the combination, with the uprights, of the cage suitably sustained, a guide-rail secured across the top or bottom of the cage and capable of limited movement horizontally, the brake-lever embracing the upright at one end and pivoted and connected otherwise, as described, and weights or springs for causing said brake to grip the upright when operated, substantially as set forth.

3. In arresting devices for hoists and the like, the combination, with the cage guided between uprights and suitably sustained by ropes or chains, of brake-levers pivoted to the bottom of the cage at opposite sides, one arm thereof being formed to embrace the uprights and the other formed with eyes in which the suspended chains are secured, an arresting-stop for maintaining such levers horizontal, normally, draw-bars depending from the outer ends of said levers, and a spring connecting such bars, whereby on breakage of the chains the levers are made to grip the uprights, substantially as described and shown.

4. In arresting devices for elevators, hoists, and the like, the combination, with the cage, of the brake-claws C or C', springs *i* or *x*, and weights or buffers G R, substantially as described.

321,304. SEWING-MACHINE PRESSER-FOOT. HENRY P. LANCASTER, Lynn, Mass. Filed Feb. 19, 1885. (No model.)

Brief.—The device is for applying seam-stays to boots and shoes to cover up and also stay the seams. As both the uppers and the seam-stays vary in thickness, the presser-roller is carried by a yielding arm.



Claim.—1. The combination, with a presser-foot having a slot and a needle-hole, of a yielding and revolving roller arranged in said slot, with its axis or center directly opposite and at one side of the needle-hole, substantially as and for the purpose described.

2. The combination, with a presser-foot having a slot and a needle-hole, of a yielding and revolving conical roller arranged in said slot, with its axis or center approximately in line with the needle-hole, substantially as and for the purpose described.

3. The combination, with a presser-foot having a slot, of a swinging spring-impelled lever pivoted upon the presser-foot, and a roller journaled on the lever to revolve in the slot of the presser-foot, substantially as described.

321,305. SOFA-BED. JACOB LOEBIG, Chicago, Ill. Filed Sept. 18, 1884. (No model.)

Claim.—1. In a combined sofa and bedstead, the three sections A B C, hinged as described, and a head-section pivoted in the section B, and devices for supporting the same in an inclined position, substantially as set forth

2. The combination, in a combined sofa and bedstead, of the three sections A B C, hinged as described, and the head-section pivoted in the section B, devices for supporting the same in an inclined position, and headed springs H for holding the section C at right angles with the section A, substantially as set forth.

3. In a combined sofa and bedstead, the combination of three sections, A B C, hinged together as described, and provided with springs arranged on a horizontal line, with cords on their upper face, and adapted to form a continuous bed-bottom, the section A being provided with the sides D, the section D with pivoted head-section, and the section C with pivoted blocks G, and headed springs H, carried by the section A, for

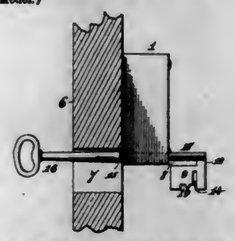
321,305.



holding the section C, together with its blocks G, at right angles with the said section A, substantially as and for the purpose set forth.

4. The combination, in a combined sofa and bedstead, of the section A, provided with the sides B, in which is secured the spring *i*, having its head projecting as described, a section, C, hinged to said section A, and having side bars E, recessed to receive the ends of a transverse bar, F, carrying cams *f*, spring *k*, arranged as specified, and means for moving said cams to cause them to contact with said heads, substantially as set forth.

321,306. LOCK. THOMAS W. MARKHAM, Huntsville, Tex. Filed Mar. 24, 1885. (Model.)



Claim.—1. A lock having a recess in its edge for supporting the stem of a key and shut off from the interior of the lock, and a key-aperture upon its inner face only, substantially as described.

2. A lock having key-apertures 4 5 upon its interior face only, and a recess, 2, in one edge, adapted to support the stem of the key, substantially as described.

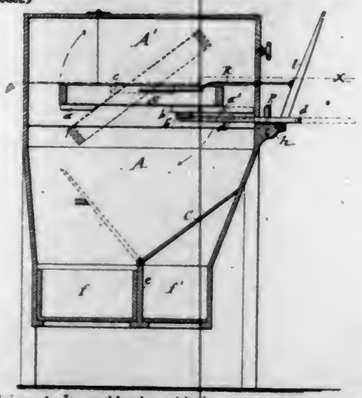
3. A key having a stem, a ward-bit, a bit for connecting the ward-bit to the stem, and recesses that separate the ward-bit and stem and the ward-bit and connecting-bit, said recesses being arranged at an angle to each other, substantially as described.

4. A key having a stem, 18, a ward-bit, 9, separated therefrom by a recess, 8, and a bit, 10, connecting the ward-bit 9 to the stem 18, substantially as described.

5. The combination of a lock having a recess, 2, in one edge thereof, key-aperture 4 5 on the interior face only thereof, and a key having stem 18, ward-land 9, ward 10, and recess 8, adapted to control such lock, substantially as described.

6. The combination of a lock having a recess, 2, in one edge thereof, a key-aperture, 4 5, on the inner face only thereof, and a door, 6, having key-aperture 7, whose upper portion registers with the recess, the remainder being below or exterior to the lock-case, substantially as described.

321,307. ASH-SIFTER. JOHN MCAULIFFE, Oswego, N. Y., assignor of one-half to David P. Fitzgibbons, same place. Filed Apr. 15, 1885. (No model.)

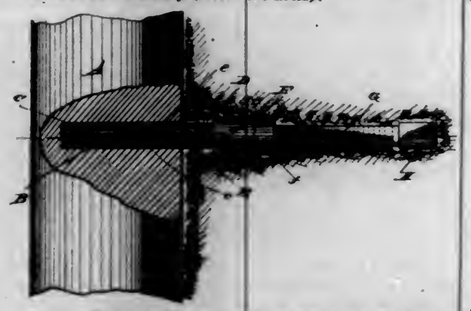


Claim.—1. In combination with the case A, the stationary guides *a* and *c*, removable support *b*, the sieve S, mounted on the guides *a* and support *b*, and the reciprocating rod R, pivotally connected with the central portion of the sieve and extended into the guides *c c*, to be supported thereby during the tilting of the sieve, substantially as described and shown.

2. In combination with the case A, the stationary guides *a* and *c*, the slide *d*, the support *b*, attached to said slide, the sieve S, mounted on the guides *a* and support *b*, and the reciprocating rod R, pivotally connected with the central portion of the sieve and extended into the guides *c*, all combined to operate substantially as described and shown.

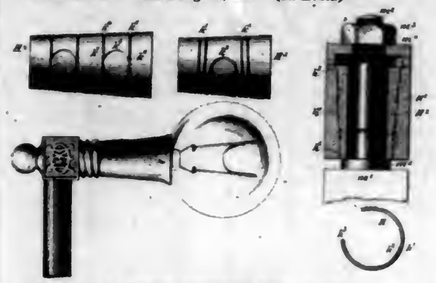
3. The herein-described ash-sifter, comprising the case A, the guides *a c*, the slide *d*, having perforations at its outer end, the locking-pin *p*, passing through the perforations, the support *b*, attached to the opposite end of the slide, the sieve S, mounted on the guides *a* and support *b*, the reciprocating rod R, pivotally connected with the central portion of the sieve and extended thereat into the guides *c*, the lever *l*, connected with said rod, the partition *c*, and the chute C, pivoted on top of the partition, all constructed substantially in the manner specified and shown.

321,308. METHOD OF BLASTING TIMBER. WILLIAM T. MCCALL, St. Clair, Ala. Filed May 5, 1885. (No model.)



Claim.—The herein-described method of splitting logs, which method consists in making a radial canal in the log, inserting therein a cartridge of some slow exploding material, with its base at the bottom of the canal and its center in the axial line of the log, tamping the cartridge to prevent the explosion from expending itself through the mouth of the canal, and firing the cartridge through a properly primed groove or canal in the tamp.

321,309. MOLD FOR MAKING INCANDESCENTS. OTTO A. MOSES, New York, N. Y. Filed Aug. 13, 1884. (No model.)



Claim.—1. A filament-carbonizing mold consisting of a core having grooves formed in its outer surface for receiving the filaments, and a tubular inclosing-case for said core.

2. A filament-carbonizing mold consisting of a core having the shape of a frustum of a cone, and having grooves formed in its surface for receiving the filaments, and an inclosing-case for the same having a bore conforming to the outer surface of the core, substantially as described.

3. A filament-carbonizing mold consisting of a tubular core having grooves formed in its outer surface for receiving the filaments and an inclosing tubular case for said core.

4. A filament-carbonizing mold consisting of a core having grooves formed in its outer surface for receiving the filaments, which grooves are electroplated with nickel or other similar metal, and an inclosing-case for said core.

5. An iron filament-carbonizing mold constructed in two sections, in the one of which there is formed a groove for receiving the filaments, the surface of which groove is electroplated or otherwise protected with nickel, and the second of which sections covers said grooves.

6. A filament-carbonizing mold consisting of a tubular conical-shaped core having one or more grooves formed in its outer surface for receiving one or more filaments, and an inclosing-case for the same, which core has a tapering bore conforming in shape to the outer surface of said core, in combination with a post extending through said core and having a shoulder at its base for engaging one of said cores, and means, substantially such as described, for pressing the outer section of the mold over said shoulders.

7. The combination, substantially as hereinbefore set forth, of the filament-carbonizing mold consisting of the section H′, and the section H^2, having the grooves *k*, the rod *m*, having the screw-thread m^2, the nut m^3, turning upon said screw-thread, the washer m^4, having the flange m^5, and the shoulder m^6 at the base of the rod.

8. A filament-carbonizing mold consisting of a core having grooves formed in its outer surface for receiving the filaments, and means, substantially such as described, for inclosing and protecting the filaments during the process of carbonization.

321,310. TUCKER ATTACHMENT FOR SEWING-MACHINES. SINGERMER NEEDLER, Sedalia, Mo., assignor of one-fourth to D. H. Smith, same place. Filed Feb. 24, 1885. (Model.)

Brief.—The sliding indicator is used for spacing or denoting the desired distances apart of the tucks; the curved sliding blade for determining the widths.

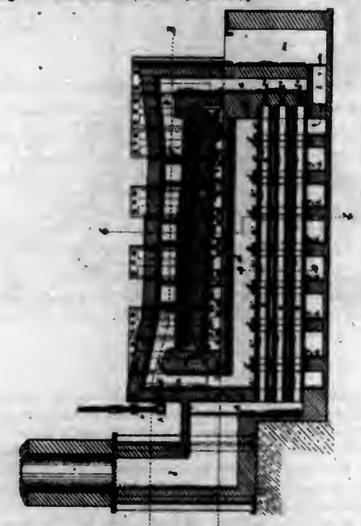


Claim.—1. In a tucking attachment, the plate A, bent double so as to form an upper and lower section, and which is provided with a finger which extends to the needle-hole, incombination with the curved plate and the slide to which the plate is fastened, substantially as shown.

2. The combination of the plate A, bent double so as to form an upper and lower section, and which is provided with a finger which extends to the needle-hole, with the curved blade, the slide to which the blade is secured, and the set-screw for locking the slide in place, substantially as described.

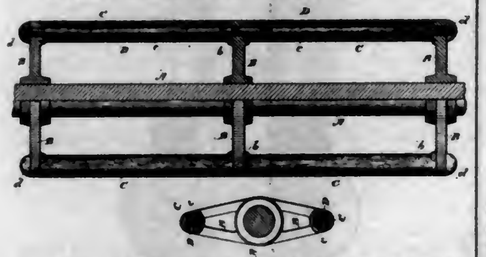
3. The plate A, bent double so as to form an upper and lower section, and provided with a finger, B, in combination with a slide-indicator, the curved plate, the slide, and the set-screw, substantially as specified.

321,311. METALLURGICAL FURNACE. SAMUEL T. OWENS, Pittsburg, Pa. Filed June 19, 1884. (No model.)



Claim.—The combination, in a metallurgical furnace, of a chamber arranged under the bed provided with a series of flues for conveying away the waste products of combustion, composed of sections of clay pipes supported at the joints by suitable piers, air-inlet passages entering said chamber below the level of the waste-flues, a dome-chamber arranged above the waste-flues, a flue leading from said chamber to the bridge-wall of the furnace, and a gas-supply pipe or pipes discharging at or near the bridge-wall, substantially as and for the purposes described.

321,312. FELT-WHIPPER FOR PAPER-MAKING MACHINES. WM. A. PHILPOTT, Jr., Niagara Falls, N. Y., assignor to Philpott & Loupple same place. Filed Sept. 24, 1884. (No model.)



Claim.—1. A felt whipper or beater for paper-making machines, having the whipping-arm made of a tube of brass or other metal, substantially as described.

2. A felt whipper or beater for paper-making machines, comprising a shaft, metal arms or supports projecting therefrom, and a whipping arm or arms consisting of a tube or tubes of brass or other metal set in grooves in the heads of said arms or supports, substantially as described.

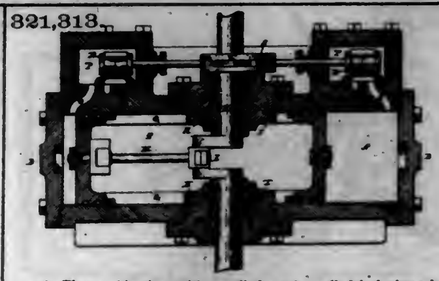
3. A felt whipper or beater comprising a shaft, arms projecting therefrom and carrying at their ends a tube or pipe of brass or other metal, and a rod passing through said tube and secured at its ends to said arms, substantially as described.

4. The whipping-arm consisting of a metal tube filled with resin, asphaltum, or similar material, substantially as described.

321,313. STEAM-ENGINE. DELMAR D. PINKHAM, Longview, TEX. Filed Mar. 24, 1885. (No model.)

Claim.—1. The combination, with a piston slotted longitudinally of journal-boxes in a cylinder, said boxes having an extension which rests in the slot and acts as a guide for the said piston, substantially as and for the purpose specified.

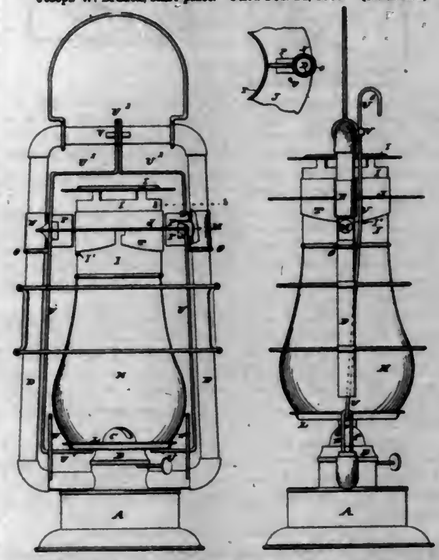
321,313. [sic] STEAM-ENGINE. WILLIAM H. SMITH, Jr., Chicago, Ill. Filed Dec. 15, 1884. (No model.)



2. The combination, with a cylinder, of a cylindrical piston longitudinally slotted, a crank-shaft with the crank within the cylinder, and journal-boxes for the shaft, said boxes having extensions which rest within the slots in the piston and act as guides therefor, substantially as and for the purpose specified.

3. A cylinder having a longitudinally-slotted piston, a crank-shaft with the crank within the said cylinder and connected to the piston, journal-boxes with extensions acting as guides to the piston in the slots of which they rest, a cam on the shaft, exterior to the cylinder, and a slotted yoke connected to the slide valve or valves, said cam engaging in the slots in the yoke, substantially as and for the purpose specified.

321,314. LANTERN. FRANK REDSCHMIDT, St. Louis, Mo., assignor to Joseph W. Branch, same place. Filed Feb. 24, 1885. (No model.)



Claim.—1. In a lantern, the combination of the fount, tubes, globe, disk on which the globe rests, plate-cap fitting within the plate on top of the globe, sleeves fitting over the tubes and secured to the plate, and wires connecting the said disk and plate, and by which the globe is raised and lowered from the burner, substantially as and for the purpose set forth.

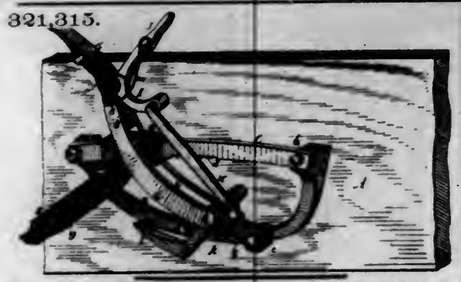
2. In a lantern, the combination of the fount, tubes, globe, disk on which the globe rests, plate-cap fitting within the plate on top of the globe, sleeves fitting around the tubes and secured to the plate, wires connecting the said disk and plate, and by which the globe is raised and lowered from the burner, and the loops through which the wires pass, the tubes being provided with openings, and the sleeves being provided with necks, through which air enters the tubes, for the purpose set forth.

321,315. WAGON-BRAKE LEVER. GEORGE P. RIESTER, Salem, Ind. Filed May 14, 1885. (No model.)

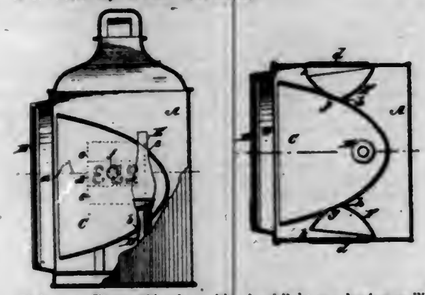
Claim.—1. The combination of the hand-lever G, spring-acted thumb-lever I, connecting-pitman H, pawl F, pivoted to the hand-lever, locking-bar C, having notches *d*, and brake-rod slide D, substantially as and for the purpose described.

2. The slide D of the brake mechanism, having a passage entirely through it, and provided with separated V-shaped projections on its sides, in combination with the bar C and lever G, having slot A, substantially as and for the purpose described.

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321,316. LOCOMOTIVE HEAD-LIGHT. GEORGE S. RILEY, Rochester, N. Y. Filed May 13, 1885. (No model.)



Claim.—1. The combination, with a head-light case having an illuminated number and signal-glasses displayed on each side, of a main reflector provided with side openings, and a side reflector arranged at each side of said main reflector within the head-light case and having an opening that registers with the corresponding opening in the side of the main reflector, substantially as described.

2. The combination of a head-light case having side numbers and signal-glasses, a main reflector placed within said case and provided with side openings, side reflectors placed on each side of the main reflector but within the head-light case, and provided with openings that register with the corresponding openings in the main reflector, and lenses or glass disks placed in said openings, substantially as described.

3. The combination of a head-light case having side numbers and signal-glasses, a main reflector provided with side openings, and side reflectors placed in contact with the main reflector and having openings that register with the side openings in the main reflector, the front edges or rims of said side reflectors being out of contact with the sides of the head-light case, to create a space at *k* for the access of diffused light, substantially as described.

4. The combination, with the head-light case A, having number and signal-glasses *d e*, of the main reflector C, provided with side openings, *f f*, the side reflectors, F F, having openings registering with the said openings *f f*, and the lenses *g g*, placed in said openings, substantially as described.

321,317. AUTOMATIC TIME-RECORDER AND STATION-INDICATOR. GEORGE K. SCHLOSSLHOLZ, Philadelphia, Pa. Filed July 25, 1884. (No model.)

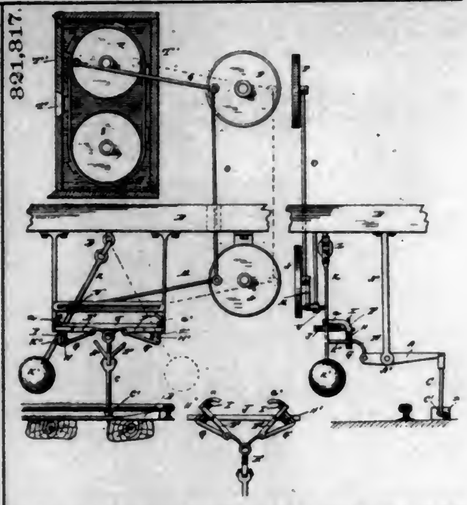
Claim.—1. An operating mechanism for a station and time indicator, consisting of a weighted rod or pendulum suspended from a car in a normally-inclined position and released at the proper moment.

2. In a station and time indicator, a weighted rod or pendulum actuating the indicator, the said pendulum being kept in a normal inclined position by spring-catches and released by a lever which is operated by a stop or incline on the roadway, substantially as described.

3. In a station and time indicator, the combination, with a weighted rod or pendulum actuating the indicator, of a releasing mechanism consisting of two pivoted catches provided at their free or outer ends with projecting arms for giving an impulse to the weighted rod when released, and connected at their inner ends with one end of a lever, the other end of which carries a dependent headed bar which comes in contact with a stop or incline on the roadway, the whole braced and supported on a railway-car, substantially as and for the purpose specified.

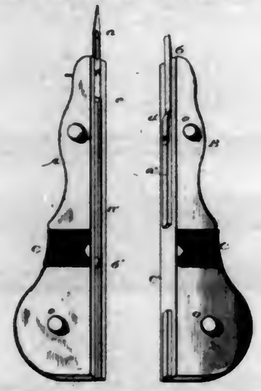
4. In combination with an operating pendulus weighted rod, an indicator connected to the said rod by wheels and connecting-rods through which the impulse is given when the rod is released, substantially as described.

5. In combination with a station-indicator, a time-recording mechanism consisting of a numbered or otherwise marked ribbon or band operated by a clock, and a punch engaging with the said ribbon and operated by pivoted rods provided with stops which engage with one of the connecting-rods of the station-indicator, the said pivoted rods being connected together and to the punch by levers, the entire device acting as a complete station and time indicator, substantially as specified.



6. As a complete station and time indicating system, the combination of a pivoted lever with its drop-bar operated by an inclined block or stop on the roadway, a weighted vibrating bar normally held by spring-catches connected to the lever, connecting-rods and wheels, and drums carrying an endless belt with station-indicating signs or plates thereon, oscillating rods with pins thereon to engage with the connecting-rods, a punching-stamp, a clock mechanism, and a figured time-band, all arranged, supported, and operating substantially as described.

321,318. HAND-EMBROIDERING MACHINE. SILAS A. SCOFIELD, Morenci, Mich. Filed Dec. 1, 1884. (No model.)



Claim.—1. In an embroidering-machine, the combination, with the sliding blocks A B, of a needle and loop-holder attached, respectively, to the outer ends of said blocks, the needle being formed on one side for the reception of the loop-holder and on its opposite side with a channel or groove, substantially as described.

2. The combination of the block A, provided with the groove *a'* and pin *b'*, and the needle *a*, having bevel *c*, the block B, formed with the tongue *a''*, inclined at its upper extremity, as at *d*, and separated or divided, as at *c'*, and the loop-holder secured to the block and bent to conform to said incline *d*, substantially as described.

3. The combination, with the blocks A and B, formed with the corresponding tongue and groove, of the needle *a*, formed in each of its sides with a recess or channel, and provided with the eye having beveled edges, and the loop-holder *b*, adapted to work in the side of the needle, substantially as described.

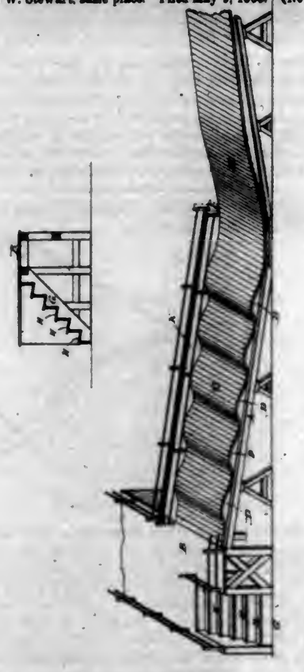
4. In an embroidering-machine, the combination, with the sliding blocks carrying at their outer ends a needle and loop-holder, of an elastic connection acting to draw said blocks together, substantially as and in the manner described.

321,319. PLOW. ABNER SNOW, Round Rock, assignor of one-half to W. D. Herrick, Williamson County, Tex. Filed Apr. 9, 1885. (No model.)



Claim.—The combination, with the plow-body having slots formed with an enlargement at their forward ends near the lower edge of the mold-board, and having a laterally-projecting lug upon the landside near the point, of a detachable share and point having inwardly-projecting headed studs for engaging the slots in the mold-board, and having a perforated landside flange fitting upon the lug at the land side of the body, as and for the purpose shown and set forth.

321,320. INCLINED FLOOR OR PLATFORM FOR SKATING-RINKS. WILLIAM STAATS, New York, N. Y., assignor of forty-nine one-hundredths to George W. Stewart, same place. Filed May 9, 1885. (No model.)



Claim.—1. The inclined undulated floor for skating-rinks, constructed of a series of inclined supports fashioned to present upon their upper supporting-edges a series of longitudinal curves, in combination with flooring-boards secured transversely upon said supporting-edges, substantially in the manner and for the purpose herein set forth.

2. The combination, with an undulated inclined way, constructed substantially as described, of an inclined plane extending upwardly from the foot thereof with a double gradient, substantially as set forth.

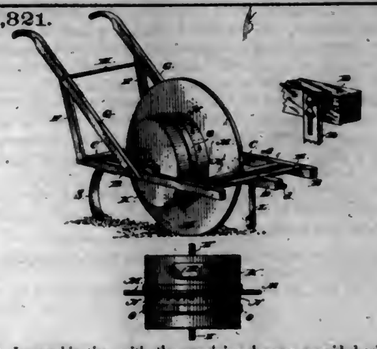
3. The combination, with the upper end of an undulated inclined way in a skating-rink, of a stairway constituting an approach thereto, and constructed with its several steps each inclined from front to rear, substantially in the manner and for the purpose herein set forth.

321,321. COTTON-PLANTER. JOHN H. STANTON, Newborn, Ga. Filed May 17, 1884. (No model.)

Claim.—1. In a cotton-planter, the plow-foot for cutting the furrow, made in the form of a loop, with the passage therethrough extending in the direction of the travel of the machine, substantially as and for the purpose described.

2. In a cotton-planter, the plow or furrow-cutter formed of a bar bent at its lower end upward and inward to form a loop, substantially as and for the purpose described.

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3. In combination with the revolving hopper provided with the charging-opening, and with slots beyond the ends of the opening, the cover for the opening, consisting of a metal plate or strip longer than the distance between the slots and with its ends adapted to enter and extend into the slots when the strip is straightened out, substantially as shown and described.

321,322. SCHOOL-DESK. JAMES H. STOGLEMAN, Lincolnville, Ind. Filed Feb. 18, 1885. (No model.)



Claim.—The combination, with the standards A A of a desk, of the seat-irons C C, having forwardly-curved arms *c'*, the brace *b*, pivoted in the seat-iron C, and braces *b'*, pivoted to the standards A, and the upper curved braces, *d d*, pivoted at their lower ends to the seat-irons near their rear extremities and at their upper ends to the standards A, and curved in such a manner as to draw the seat *c'* up beneath the desk E when the said seat is swung backward, substantially as described.

321,323. TELEPHONE-TRANSMITTER. HENRY S. THORNBERRY, Boston, Mass., assignor to the American Bell Telephone Company, same place. Filed July 5, 1884. (No model.)



Claim.—1. A telephonic transmitter comprising a mass of finely-divided conducting particles confined and resting upon a diaphragm located at an angle between a horizontal and a perpendicular.

2. In a telephone-transmitter, an adjustable chamber containing particles of finely-divided conducting material resting upon a flexible diaphragm fixed at an angle between a horizontal and perpendicular.

3. In a telephonic transmitter wherein the means for varying the circuit consists of a mass of finely-divided conducting particles, a chamber for containing such particles, and having means for regulating the size of said chamber to admit of a greater or less quantity of such particles.

4. The combination, in a telephone-transmitter, of a mass of finely-divided conducting material resting by gravity upon a metallic diaphragm, a damper consisting of a disk of animal tissue, cork, rubber, or similar material cemented to the diaphragm at or near its center, and clamped thereto at its periphery by a perforated cap or ring, with an intervening ring or washer to prevent displacement of the damper, substantially as described.

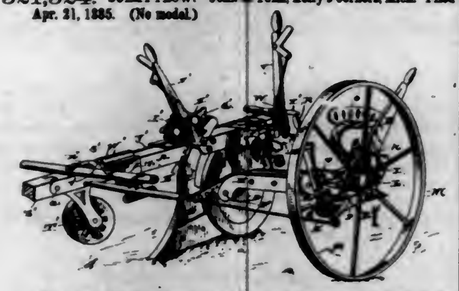
5. An electric telephonic transmitter comprising a mass of finely-divided conducting particles confined and resting upon a diaphragm located at an angle between a horizontal and perpendicular, and a damper consisting of a thin sheet of animal tissue, rubber, cork, or other like material.

6. The combination, in a telephone-transmitter, of an inclosing-chamber containing finely-divided conducting material resting upon a metallic diaphragm, with a damper consisting of a disk of animal tissue, cork, or rubber cemented to the diaphragm at or near the center thereof.

7. In a telephonic transmitter, the combination of a chamber for containing the current-varying medium, means for varying the size of said chamber, a flexible metallic diaphragm upon which the said medium normally rests by gravity, a mouth-piece, and an inclosing-case, the whole arranged to permanently retain the diaphragm at an angle between a horizontal and perpendicular, substantially as described.

8. In a telephonic transmitter, the combination of the chamber C, adjustable plunger S, conducting particles *s*, diaphragm *p*, damper *d*, and trumpet or mouth-piece T.

321,324. SULKY-PLOW. JOHN R. TURK, Kelly's Corners, Mich. Filed Apr. 21, 1885. (No model.)



Claim.—1. The combination of the axle, the supporting-wheel, the plow-beam hinged to the axle, the landside-wheel journaled in the brackets which form the hinge, the plow fulcrumed to the shaft of the landside-wheel, having its standard curved and provided with rack-teeth, and the hand-lever F', having segmental gear G', meshing with the rack-teeth of the plow-standard, and the lever V, for inclining the beam, the plow, and the landside-wheel, substantially as described.

2. The combination of the plow-beam, the plow, the landside-wheel, the scraper N', hinged to the plow-beam, and the spring O', secured to the scraper and to the beam, substantially as described.

3. The combination of the axle having the vertical bracket G at one end, the lever H, having the rack-teeth I and the spindle L, and fulcrumed to the bracket G, the supporting-wheel on the spindle, the pawl engaging with the rack-teeth, the plow-beam hinged to the axle, the landside-wheel journaled in the brackets that form the hinge, the plow fulcrumed to the shaft of the landside-wheel, a lever for raising or lowering the plow, and the lever V, for inclining the beam, the plow, and the landside-wheel, substantially as described.

4. The combination, in a sulky-plow, of the axle having the supporting-wheel at one end, the bracket B, hinged to the opposite end of the axle and having the spindle C, the plow-beam secured to the bracket, the landside-wheel on the spindle C, the plow fulcrumed also on said spindle, a lever for raising or lowering the plow, and a lever for tilting the bracket, the beam, the landside-wheel, and the plow, substantially as described.

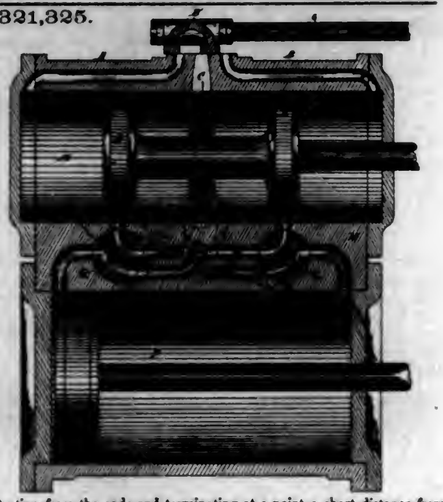
5. The combination, in a sulky-plow, of the axle having the supporting-wheel at one end, the bracket B, hinged to the opposite end of the axle and having the spindle C, the plow-beam secured to the bracket B, the landside-wheel on the spindle C, the plow fulcrumed also on said spindle, a lever for raising or lowering the plow, a lever, V, for tilting the bracket, the beam, the landside-wheel, and the plow, the caster R', swiveled to the front end of the plow-beam, the wheel journaled in the caster, the pole hinged to the caster, and a spring-actuated bolt working on the front end of the beam for engaging a notch, U', in the caster, substantially as described.

321,325. COMPOUND STEAM-ENGINE. ISAAC A. TURNER, Detroit, Mich., assignor of one-half to Henry C. Hodges, Charles C. Hodges, Clarence B. Hodges, and Charles H. Hodges, same place. Filed Mar. 12, 1884. Renewed June 8, 1885. (No model.)

Claim.—1. In a steam-engine composed of two cylinders side by side, with a division-wall common to both, wherein the steam-passages connecting said cylinders are formed, the two-way valves located within said passages and coupled to a wrist-pin common to both valves, whereby the same may be simultaneously operated, in combination with the piston-heads D E, secured to a single stem and working within the cylinder A, with the exhaust-port C of said cylinder located between them, and the single valve B', controlling the admission of steam alternately to the ends of the cylinder A, and at the same time exhausting the steam from the opposite end through itself into the space between the heads D and E, substantially as shown and described.

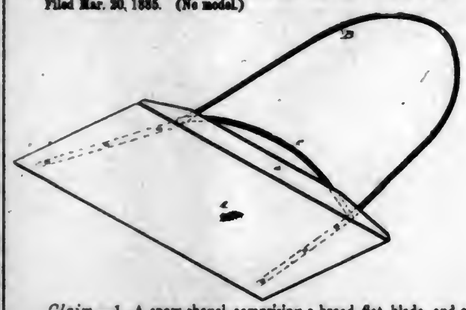
2. In a compound engine, two cylinders, A and F, valves K between the same, the cylinder A, provided with two separate ports, B,

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starting from the ends and terminating at a point a short distance from the center, an exhaust-port, C, leading from the center of the cylinder to the atmosphere, and a passage leading from the outside of said cylinder at a point between the nearest ends of said ports B into the center of the cylinder in combination with a valve, B, constructed to alternately open and close communication between the ports B and the exhaust-port C through the passage C', substantially as described.

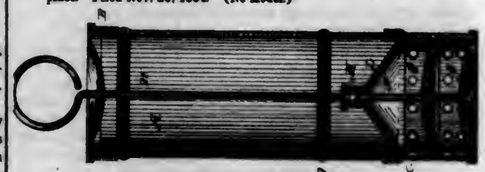
321,326. SNOW-SHOVEL. HAMILTON D. WAITE, Watertown, N. Y. Filed Mar. 20, 1885. (No model.)



Claim.—1. A snow-shovel comprising a broad flat blade, and a double curved handle having its ends extending under and across the blade and fastened thereto close to its sides, whereby an unequally-distributed load may be readily lifted, substantially as shown and described.

2. A snow-shovel comprising a flat blade, a bent handle having divergent ends which extend under and across the blade, so as to support the same, and a cross-bar or rod close to the blade and extending from one branch to the other of the bent handle, substantially as described.

321,327. EGG-BEATER. JOHN E. WELLING, Georgetown, Ky., assignor of two-thirds to James E. Cantrill and Justice Webb, both of same place. Filed Nov. 20, 1884. (No model.)

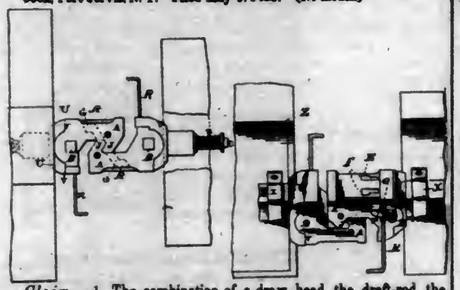


Claim.—1. In a combined egg-beater and cream-whipper, the combination, with a bottomless cylindrical can, of a bottom having a perforated rim the upper part of which closely fits the bottom of said can, a dasher, a suitable handle for operating said dasher within said can and bottom part, and a perforated cover fitting the top of said can, substantially as and for the purpose set forth.

2. The combination, with a bottomless cylindrical can, of a perforated bottom having a perforated flange or rim, a dasher fitting in said can composed of a number of circular disks secured on a central shaft,

the lower ones of which are perforated and the top one has a screw-threaded lug secured to its central portion, a handle the lower end of which is screw-threaded, and a suitable centrally-perforated cover, all combined substantially as shown, and for the purpose set forth.

321,328. CAR-COUPLING. FRANK A. WHITBROOK and WINFIELD S. COOK, Port Jervis, N. Y. Filed May 9, 1885. (No model.)

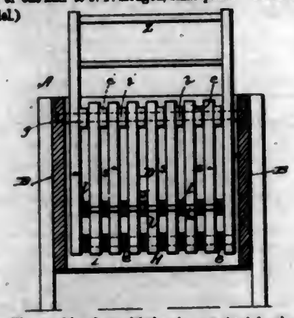


Claim.—1. The combination of a draw-head, the draft-rod, the casing, the follower-castings, and the springs placed therein, whereby the head is given a free lateral play and can be moved back and forth, substantially as shown.

2. The combination of the hook-shaped draw-head, having suitable recesses therein, with the uncoupling-plates, which are placed in the openings, the operating-shaft provided with arms which engage with the plates, and the rod or shaft R for operating the plates from one side of the draw-head, substantially as set forth.

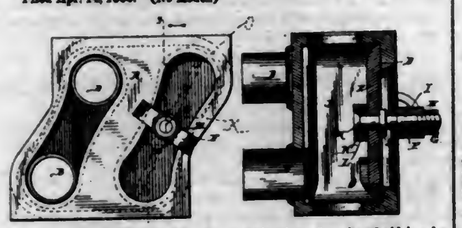
3. The combination of the draw-head having the recesses T in one side, a bolt, B, the draft-rod C, the nut S, and the shaft R, which has its bearing in the nut S, the operating-shaft O, provided with arms, and the draft-plates, substantially as shown.

321,329. WASHING-MACHINE. CYRUS WHEELER, Brighton, Iowa, assignor of one-half to J. F. Hodgen, same place. Filed Apr. 28, 1884. (No model.)



Claim.—The combination, with the elongated tub having the journal-bearings C, of the swinging barred end frame E, extended to form a handle, the swinging barred end frame F, the parallel barred bottom pivoted to the end frames, and the parallel barred loose pressure-frame J, having its ends seated in the intervals between the bars of the end frames and the adjacent sides of the bars *e* and *l*, having notches, substantially as specified.

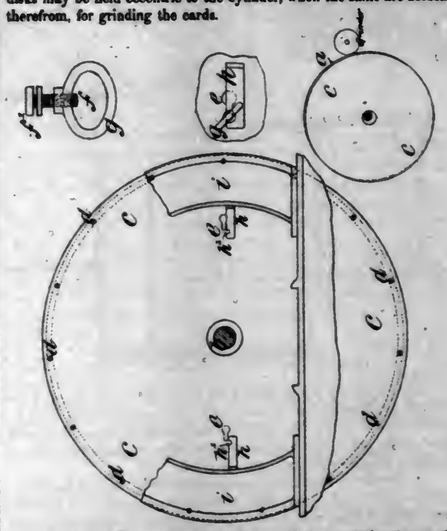
321,330. HEADER FOR STEAM-BOILERS. ROBERT R. ZELL, New York, N. Y., assignor to the Safety Steam Generator Company, same place. Filed Apr. 14, 1885. (No model.)



Claim.—In a steam-boiler, the combination of a rhomboid header having two hand-holes opening for two tubes, each in the header, covering-plates bearing with their edges against the inner sides of the edges of the holes, and having each a longitudinal rib upon their inner faces formed with an enlargement at its middle, provided with a perforation conically countersunk at its inner end, yokes crossing the middles of the hand-holes, resting with their ends upon the edges of the hand-holes and having perforations at their middles, and bolts having conical heads at their inner ends fitting in the conical countersinks and having shoulder-bearings on the outer faces of the covering-plates, and having nuts upon their outer ends bearing against the outer sides of the yokes, the bolts passing with their outer ends through the perforations in the yokes, as and for the purpose shown and set forth.

321,331. CARDING-MACHINE. GEORGE ASHWORTH and ELIJAH ASHWORTH, Manchester, County of Lancaster, England. Filed Nov. 28, 1883. (No model.) Patented in England May 15, 1883, No. 2,432; in France Nov. 20, 1883, No. 158,678; in Belgium Dec. 27, 1883, No. 63,671, and in Germany Jan. 11, 1884, No. 26,029.

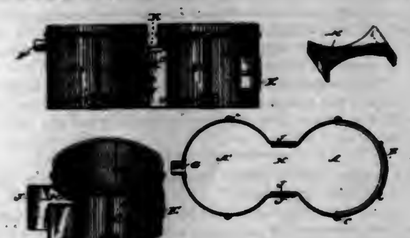
Brief.—Metal disks are detachably secured to the ends of the main cylinder. By means of handles fitting into slots formed in the disks, the handles resting on brackets secured to the main frame, said disks may be held eccentric to the cylinder, when the same are detached therefrom, for grinding the cards.



Claim.—1. The combination of the cylinder and the frame of a carding-engine, having supporting-brackets, with a metal disk, means, substantially as described, for detachably securing the disk to one end of the cylinder, and handles for said disk, as set forth.

2. The combination of the frame of a carding-engine, having brackets *h h*, provided with notches *h'*, with the main cylinder, a disk, *c*, adapted to be detachably secured to the end of the cylinder, and having slots *e*, and screw-holders *f g*, for sustaining the disk in an eccentric position with relation to the cylinder during the grinding of the carding-surface, substantially as set forth.

321,332. PORTABLE FURNACE. JOSEPH W. BARNEY, Aroma, Ind. Filed Apr. 9, 1885. (No model.)

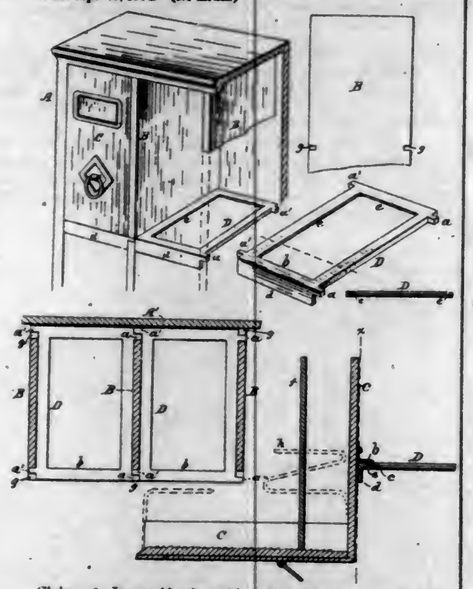


Claim.—1. A portable furnace consisting of a series of two or more drums or cylinders open at their upper and lower ends, and connected by bottomless flues or passages constructed of wings or flaps cut from the bodies of the said cylinders, placed together overlapping each other, connected by riveting, and provided with top covering-plates, substantially as herein described, for the purpose set forth.

2. In a portable furnace, the combination of a series of drums or cylinders, bottomless flues or passages connecting the same, and constructed of overlapping wings or flaps cut from the sides of said cylinders, and suitable top plates, hoops, or bands arranged near the upper ends of said cylinders and provided with suitable legs, and a door and a pine collar

or thimble attached, respectively, to the front and the rear end cylinder, substantially as herein described, for the purpose set forth.

321,333. BILL-FILE. THOMAS H. BADEN, Washington, D. C., assignor of one-half to Henry O. Towles and Benjamin F. Guy, both of same place. Filed Sept. 20, 1884. (No model.)



Claim.—1. In combination with a file-holder case provided with recessed partitions B, one or more frames having lateral projections *a a'* to enter the recesses in the partitions, the projections on one edge of the frame being out of line with the projections on the opposite edge, substantially as and for the purposes described.

2. The combination, with supporting-frame D, having front bar, *b*, provided with lip *d*, and rounded to an edge, as shown, of a file-holder constructed to slide on said frame, and provided with rectangular retaining-hook *c*, to engage with bar *b*, substantially as set forth and described.

3. The combination, with a supporting-frame, D, having front bar, *b*, rounded to an edge, as shown, of a file-holder constructed to slide on said frame, and provided with rectangular retaining-hook *c*, to engage with bar *b*, substantially as set forth and described.

321,334. RECTAL SPECULUM. WILLIAM M. BALDWIN, Jr., Newark, Ohio. Filed Feb. 20, 1885. (No model.)



Claim.—1. The herein-described speculum, consisting of the body A, D-shaped at its larger extremity and wedge-shaped at the smaller, said body being open at both ends and slotted upon one side, slide B, hinged at C and provided with a lip, H, and handle D, the body A bearing a handle, E, the whole combined and arranged to operate substantially as shown and described.

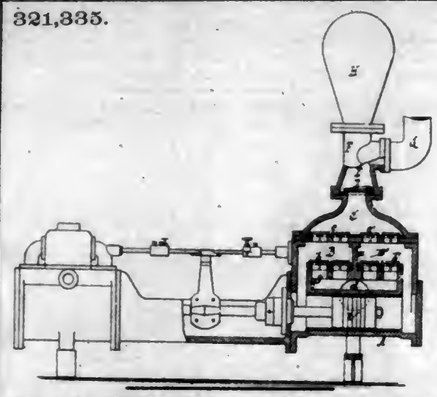
2. The combination, with a speculum slotted its entire length, of a slide adapted and arranged to fit within the slot, said slide being provided with a hinge or joint, substantially as and for the uses and purpose shown and described.

321,335. FORCE-PUMP. THOMAS BARBER, Flatbush, N. Y. Filed June 5, 1884. (No model.)

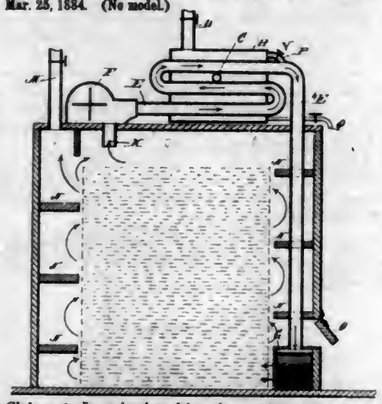
Claim.—The combination, with the pump-cylinder A, the suction-chamber S, the valves *b b'*, and the two force-chambers B B', of a single collection-chamber, C, the valve *c c'*, leading to the collection-chamber, the T-coupling F, forming the delivery-chamber E, the air-chamber H, secured to one branch of the T-coupling, the delivery-pipe G, secured to another branch of said T-coupling, and the check-valve D, situated between said collection and delivery chamber, substantially as described.



321,335.



321,336. LUMBER-DRIER. WALLER B. BEARD, Jackson, Miss. Filed Mar. 25, 1884. (No model.)

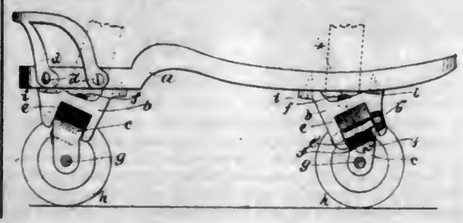


Claim.—1. In a lumber-drier, the combination, with a suitable chamber, of a rotary fan or power-blower, a steam-drum, a pipe leading from said blower through said drum and into said chamber near its floor, and means for operating said blower and supplying said drum with steam, substantially as and for the purpose set forth.

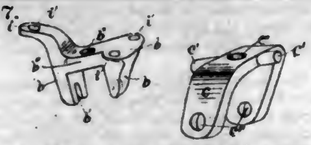
2. In a lumber-drier, the combination, with a chamber having shelves at its opposite sides arranged at different heights, of a box at one side of said chamber having perforations on one side and transverse partitions of wire-gauze across its inner section, a steam-drum, and means for circulating the air successively through said chamber and said drum, substantially as and for the purpose set forth.

3. In a lumber-drier, the combination of a suitable chamber having shelves across two of its opposite sides, and a perforated box having wire partitions across its inner section and a divider or deflector at its center, doors opening into said chamber for admitting air, two openings at the top of said chamber with a projecting wall between them, one of said openings leading into a pressure-blower and the other into a chimney, a steam-drum, a pipe leading from said blower through said drum and into said perforated box in said chamber, and a pipe having a valve and connecting the interior of said drum with the interior of said pipe leading into said box and chamber, and means for operating said blower and for supplying said drum with steam, substantially as and for the purpose set forth.

321,337. ROLLER-SKATE. CHARLES J. BECKTEL, Muncie, Ind. Filed Mar. 2, 1885. (No model.)

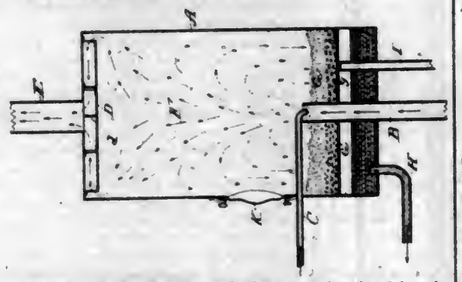


321,337.



Claim.—In a roller-skate, the inclining lugs *b b*, connected together by a cross-bar, *b'''*, which is provided with a threaded hole, *b''*, for the reception of the screw *f*, said screw *f* passing up through the washer *f'*, rubber *e'*, hanger *c*, rubber *e*, and secured by threads in the said hole *b''*, all for the purpose set forth.

321,338. FEED-WATER HEATER. WILLIAM H. BURR, Sheboygan, Wis. Filed Mar. 17, 1885. (No model.)



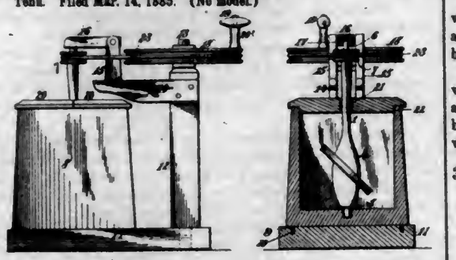
Claim.—1. The feed-water-injection pipe C, introduced into the mouth of the standing exhaust-pipe B and with its nozzle projecting downward within said mouth.

2. The filter-bed G, placed below the exhaust-inlet, supported on the perforated diaphragm attached to standing exhaust-pipe, in combination with the feed-water-injection pipe C, having nozzle projecting downward into the mouth of the standing exhaust-pipe, and the open steam-chamber F above the pipe C.

3. The hanging detachable diaphragm D, placed in the upper part of the heater and having the central partition, *d*, as and for the purpose set forth.

4. The heater-shell A, in combination with the exhaust discharge-inlet B, the feed-water-injection pipe C, having nozzle projecting downward within the mouth of the pipe B, the hanging diaphragm D, open steam-space F, filter-bed G, water-chamber G', feed-water-delivery pipe H, and overflow-pipe I, as and for the purpose set forth.

321,339. CHURN. HASLIP T. BURT and JOHN B. BURGESS, Archer, Tenn. Filed Mar. 14, 1885. (No model.)



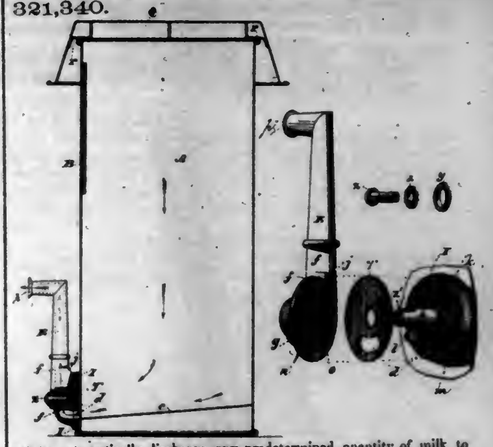
Claim.—1. The combination of a supporting-base, 11, a standard, 12, secured thereto, a horizontal arm, 14, secured to the upper end of the standard, vertical arms 15, secured to the horizontal arm, and an arm, 16, pivoted to the vertical arms, with a churn body or tank on the base, and a dasher-rod having its upper end journaled in the pivoted arm, substantially as described.

2. A churn consisting of a supporting-base, a standard rising therefrom, a horizontal arm secured to the upper portion of the standard, vertical arms secured to the horizontal arm, an arm pivoted to the vertical arms, a driving-wheel mounted in a horizontal position on the standard above the horizontal arm, a churn body or tank on the base, and a dasher-rod having its upper end journaled in the pivoted arm and having an attached horizontal pulley belted to and in the same plane with the driving-wheel, substantially as described.

321,340. CREAMING-CAN. FRANCIS G. BUTLER, Bellows Falls, Vt., assignor to Vermont Farm Machine Company, same place. Filed Nov. 20, 1878.

Claim.—1. A milk-vessel having an adjustable faucet that can be set to automatically discharge any predetermined quantity of milk to leave in the vessel a certain quantity of cream, and provided with a glass pane to ascertain the degree or place of adjustment of the faucet.

321,340.



2. A milk-setting vessel adapted for raising cream by sealing in water, having an overhanging cover and internal supports for raising the cover slightly above the vessel, as and for the purposes set forth.

3. The combination, with a milk-vessel having a translucent pane and an inclined bottom, of an adjustable discharging-faucet communicating with the vessel at the lower part of the incline, and arranged to be set to automatically discharge a predetermined quantity of the contents of the vessel.

4. The combination, with a milk-setting vessel adapted for raising cream and having a translucent pane, of an adjustable faucet opening into the bottom of the vessel and arranged to be turned on a center and in a vertical plane, and provided with the stop *j* and pointer *n* thereon, and the plate I, having stops *k* and *l*, and a scale, *m*, substantially as shown and described.

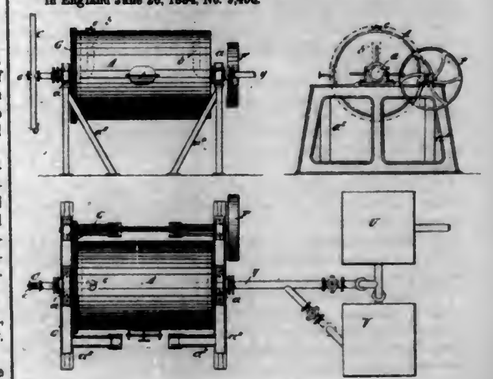
5. A milk-setting vessel adapted for raising cream by sealing in water, having an overhanging cover, and supports for raising the cover slightly above the vessel, as and for the purposes set forth.

6. The combination of a milk-can having a glass panel in its side to show the thickness of the cream and an inclined bottom with a discharging-cock applied directly to the side of the can, and a pipe applied to the cock, whereby the pipe can be so adjusted as to draw off the milk and leave the cream behind, substantially as shown and described.

7. A milk-setting vessel adapted for raising cream by standing in water, and having supports for a raised cover provided with a cover adapted to be held raised above the vessel by means of such supports, but with its lower edge below the top of the vessel.

8. A milk-setting vessel adapted for raising cream by standing in water, and having supports for a raised cover provided with a cover adapted to be held raised above the vessel by means of such supports, but with its lower edge below the top of the vessel and to dip into the water surrounding the vessel.

321,341. PROCESS OF MAKING SODIUM SULPHITE. EUSTACE CAREY, HOLBROOK GASKELL, Jr., and FERDINAND HURTER, Widnes, County of Lancaster, England. Filed May 20, 1885. (No specimens.) Patented in England June 26, 1884, No. 9,458.



Claim.—The manufacture of sulphite of soda by exposing salts to the action of sulphurous-acid gas, substantially as hereinbefore described.

321,342. FIRE-TRUCK. WM. T. COVERT, Indianapolis, Ind., assignor to the Covert Telescopic Fire Ladder and Stand Pipe Company, same place. Filed Oct. 13, 1884. (No model.)



Claim.—1. The combination, in a fire-truck, of a double frame-work coupled by a pivot-connection, the rear frame-work being pivotally mounted on the running-gear, and a steering apparatus consisting of a vertical shaft, A^3, carrying two gears, rack-bars A^4, extending forward from the axle to and engaging with one of said gears, and a shaft, A^5, engaging with and extending back from the other of said gear-wheels, substantially as described, and for the purposes specified.

2. The combination, with a fire-truck, of a steering apparatus consisting of a vertical shaft, A^3, carrying two gears, rack-bars A^4, extending from the axle and engaging with one of said gears, and a screw-shaft, A^5, engaging with and extending from the other of said gears, and means for operating the same, substantially as set forth.

3. In a fire-truck, the combination of the double frame-work A B, coupled by a pivot-connection, the rear frame-work, A, being pivotally mounted on the running-gear, and a steering apparatus consisting of a vertical shaft, A^3, mounted in bearings on the reach A^5, carrying a spur-pinion, a^4, and a screw-gear, a^5, two rack-bars, A^4, running forward from the axle and engaging with said spur-pinion, and a screw-shaft engaging with said screw-gear and running back to a point convenient to be operated, where it is preferably provided with a hand-wheel, a^6, for operating the same, substantially as set forth.

4. The combination, in a fire-truck, of a double frame-work coupled by a detachable connection whereby the rear frame-work can be uncoupled and separated from the front frame-work, and a middle wheel, I, hinged to the front frame-work and adapted to be raised up off the ground when the rear frame-work is attached, and let down onto the ground when the rear frame-work is detached, substantially as described, and for the purposes specified.

5. In a fire-truck, the combination of two mounted frames, A and B, detachably secured together, a middle wheel, I, and a pivoted housing therefor, whereby when one of said frames is detached the end of the other may be supported by said wheel, and when the two frames are connected said wheel may be raised up out of the way, substantially as set forth.

6. The combination, in a fire-truck, of the two frames A and B, the wheel I, pivoted housing I', swivel-pin I^2, and locking device I^3, substantially as set forth.

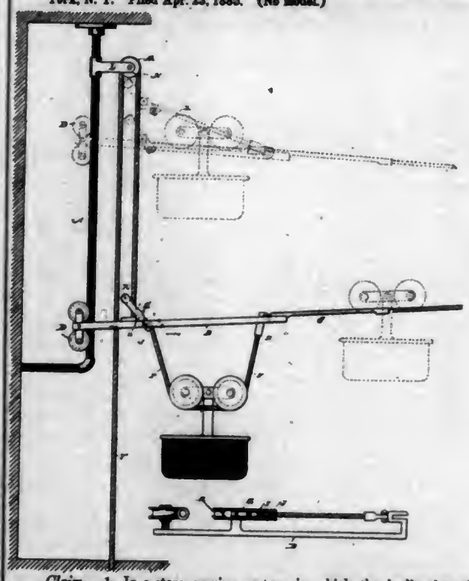
7. The combination, in a fire-truck, of the ladder, the frame on which it is mounted, the shafts D, E, and F, and the gears thereon, substantially as described, and for the purposes specified.

8. The combination, in a fire-truck, of the ladder, the frame on which it is mounted, the shaft D, having gears or segments D' and braces or arms D^2, the shaft E, having pinions E' and screw-gears E^2, and the screw-shaft F, having a screw-pinion which engages with said screw-gear wheel, and a crank, F', substantially as set forth.

9. The combination of the ladder-sections C C', one within the other, the ropes G, the shaft C^2, carrying spools G' and screw-gear c^3, and the screw-crank C^3, substantially as described, and for the purposes specified.

10. The combination, in a fire-truck, of the ladder-section C, having grooves in the sides of the side pieces which face each other, anti-friction trucks at the upper ends of said side pieces which enter said grooves, the ladder-section C', which rests in the grooves in the section C, and anti-friction trucks on the lower end of said section C', which come in contact with the inner sides of said grooves, all substantially as described, and for the purposes specified.

321,343. STORE-SERVICE APPARATUS. DARWIN E. CROSBY, Philadelphia, Pa., assignor to the Continental Store Service Company, New York, N. Y. Filed Apr. 23, 1885. (No model.)



Claim.—1. In a store-service system, in which the inclination of the wire track is governed by a vertically-moving frame, to which the end of the wire is fastened, and the car moves upon a cord or rope after leaving the main track and is trapped thereon, a single rope connected and arranged, substantially as described, and operating to raise the frame and receive the car from the main line and restore it thereto.

2. In a store-service system of the kind described, the elevator having connected thereto the rope which serves both as a means of raising the frame and receiving the car from the main track, and the lever whereby the end of the rope is elevated as the elevator reaches the desired altitude.

3. In a store-service system, in combination with the movable elevator B, the wire track secured thereto, and the single operating-cord F and bumper N, the rocking lever or frame G, arranged upon the elevator behind the space occupied by the car when at rest, and provided with suitable pulleys, as and for the purposes set forth.

4. In combination with the stay-rod A, bracket L, having pulley M, elevator B, with trigger or lever E, and provided with the rocking lever-frame G, having pulleys I J K, the single operating-cord F, arranged as described, to lift the elevator and elevate the rear of the car, substantially as and for the purpose set forth.

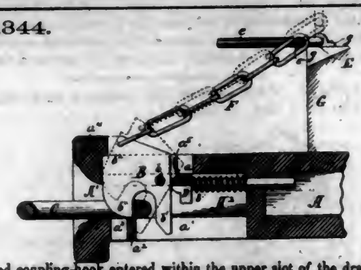
5. The lever-frame G, provided at its front end with the pulley J, and having a series of holes, 1 2 3, whereby the pulley J may be adjusted, substantially as set forth.

321,344. CAR-COUPLING. GEORGE W. CURTIS, Philadelphia, and JOHN WOOD, Jr., Conshohocken, assignors, by direct and mesne assignments, to the Curtis and Wood Automatic Car Coupler Company, Philadelphia, Pa. Filed Jan. 31, 1885. (No model.)

Claim.—1. In a car-coupling, the combination, with a slotted draw-head provided with a stop for the coupling-hook, of a spring-buffer, a coupling-hook provided with an elongated shank or stop-arm adapted to abut against the stop, and a chain-and-crank connection, the arrangement being such that when the crank is thrown back the chain is held taut and the coupling-hook sustained in such position that automatic coupling is impossible, substantially as described.

2. In a car-coupling, the combination, with a draw-head having an upper slot and a lower slot for the coupling-hook, of a spring-buffer and

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a pivoted coupling-hook entered within the upper slot of the draw-head and provided with an elongated shank which plays within said draw-head and is adapted to abut against the stop, substantially as described.

3. In a car-coupling, the combination, with a draw-head having an upper slot, a lower slot, and a coupling-stop, of a spring-buffer, a pivoted coupling-hook entered within the upper slot of the draw-head and provided with an elongated shank playing within said lower slot and adapted to abut against the stop, and a chain-and-crank connection, the arrangement being such that when the crank is thrown back the chain is held taut and the coupling-hook sustained in such position that automatic coupling is impossible, substantially as described.

4. The draw-head A, having a hollow throat or interior, A', and provided with pivot-slots $a^\times$ $a^\times$, extending forward to its mouth, substantially as and for the purposes set forth.

5. The draw-head A, having a hollow throat or interior, A', an upper slot, a, and pivot-slots $a^\times$ $a^\times$, extending forward to its mouth, in combination with a coupling-hook, B, provided with lateral pivot-pins b b adapted to the pivot-slots, and with a spring-buffer, D, provided with ears $d^\times$ $d^\times$ also adapted to the pivot-slots, substantially as and for the purposes set forth.

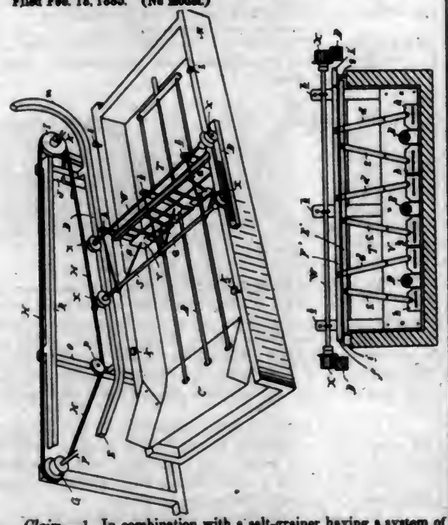
6. The draw-head A, having a hollow throat or interior, A', provided with pivot-slots $a^\times$ $a^\times$, an upper slot, a, and notches a^5 a^5, substantially as shown and described, and for the purposes specified.

7. The draw-head A, having a hollow throat or interior, A', provided with pivot-slots $a^\times$ $a^\times$, an upper slot, a, and notches a^5 a^5, in combination with a coupling-hook, B, provided with pivot-pins b b and with a spring-buffer, D, substantially as described, and for the purposes specified.

8. In combination, the draw-head, the coupling-hook, the chain, the crank, and the car provided with bearings for the crank and with the inclined channel for the chain, substantially as and for the purposes set forth.

9. As an article of manufacture, a draw-head having the upper slot, a, the lower slot, a', the pivot-slots $a^\times$ $a^\times$, the pivot-notches a^5 a^5, and the stop a^3, substantially as described.

321,345. ATTACHMENT TO SALT-GRAINERS. JOSEPH CUSSON, Bay City, Mich., assignor to John King and Samuel Cusson, same place. Filed Feb. 18, 1885. (No model.)



Claim.—1. In combination with a salt-grainer having a system of steam-pipes therein, and with a scraper adapted to remove the salt from the bottom of such grainer, a series of scrapers adapted to be projected beneath the steam-pipes, and be withdrawn therefrom laterally, substantially as and for the purposes described.

2. The combination, in a salt-grainer having steam-pipes, and with a scraper adapted to remove the salt from such grainer, a series of small scrapers arranged in pairs, and adapted to be projected under the steam-pipes, and removed therefrom by the reciprocal action of two bars, one above the other, such reciprocation being in opposite directions and connected with such small scrapers by the pivoted levers, substantially as and for the purposes specified.

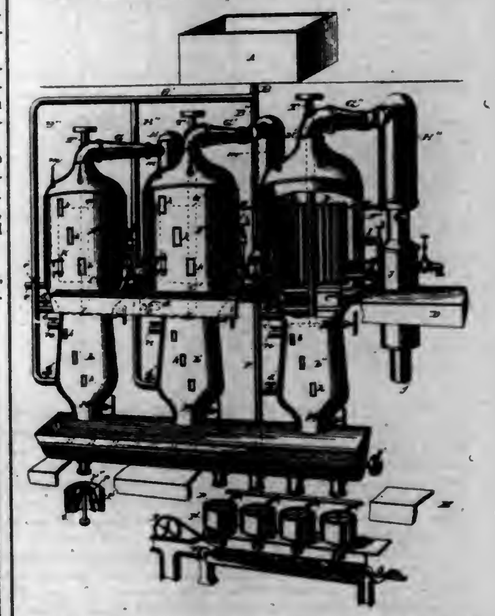
3. The combination, with a salt-grainer having steam-pipes, of the notched scraper adapted to straddle the steam-pipes, with a series of small scrapers pivotally secured to each main scraper and actuated by stops i and k through the bars E' F', and the levers connecting such bars with such small scrapers, substantially as and for the purposes set forth.

321,346. CAR-VENTILATOR. JOS. P. DOYLE, Boston, and CHAS. W. STANLEY, Medford, Mass. Filed Apr. 14, 1884. (No model.)



Claim.—The combination, with a car or vehicle, of a hood secured to the roof thereof, said hood having a closed side, and a flaring mouth opposite said closed side, the flaring mouth formed by the extension of the casing proper, and a funnel-shaped tube inside said hood, the large end communicating with the interior of the car, and the smaller end extending upward into the casing, substantially as described.

321,347. MANUFACTURE OF SALT. JOSEPH M. DUNCAN, Warsaw, N. Y. Filed Dec. 24, 1884. (No model.)



Claim.—1. An apparatus for manufacturing salt, wherein the brine receiving and evaporating vessels are arranged directly above the mixer, and the mixer directly above the washers, substantially as described.

2. The vessels C C' C'', for receiving and evaporating brine, composed of upper and lower chambers, each adapted for receiving and evaporating brine and divided by a valve, as described.

3. The vessels C C' C'', for receiving and evaporating brine, composed of upper and lower chambers, and combined with brine-feed pipes tapped into each chamber, substantially as described.

4. The vessel C, for receiving and evaporating brine, composed of upper and lower chambers, and combined with brine-feed pipes and steam-supply pipe, substantially as described.

5. The vessel C, for receiving and evaporating brine, composed of upper and lower chambers, and combined with brine-feed pipes tapped into each chamber, a steam-supply pipe, and an exhaust-pipe, substantially as described.

6. In an apparatus for manufacturing salt, the combination of the series of receiving and evaporating vessels C C' C'', composed of upper and lower chambers, the first in the series supplied with a steam-pipe, and each supplied with brine-feed pipes tapped into each upper and lower chamber and connected together by the intermediate pipes, G G' G'' and cylinders H, H', and H'', with the exhaust J, substantially as described.

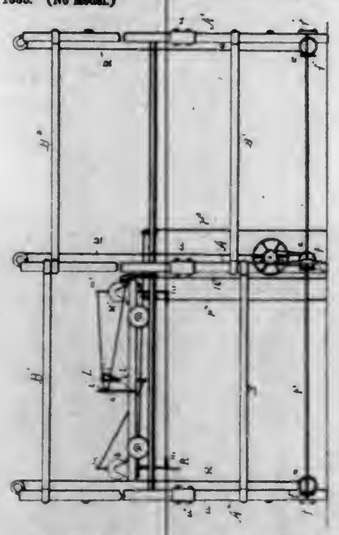
7. The combination of the vessels C C' C'', for receiving and evaporating brine, composed of upper and lower chambers provided with the valves L and M, and with brine-feed pipes tapped into each chamber, an air-supply pipe, *n*, and a mixer, N, placed immediately below said vessels, substantially as described.

8. The combination of the vessel C C' C'', for receiving and evaporating brine, composed of upper and lower chambers provided with the valves L and M, brine-feed pipes tapped into each chamber, an air-supply pipe, *n*, a mixer, N, and washers P P', arranged one directly above the other, substantially as described.

9. In combination with the vessels C C' C'', for receiving and evaporating brine, composed of upper and lower chambers, revolving scrapers arranged at the bottom of said upper chambers, substantially as and for the purposes set forth.

10. In combination with salt-making apparatus, the centrifugal baskets P, each inclosed in an outer shell, P', and provided with shafts *p*, and driven together by a single belt, substantially as described.

321,348. LUMBER-PILER. CARLOS E. DUNSHEE, Chicago, Ill. Filed Feb. 2, 1885. (No model.)



Claim.—1. In a lumber-piler, the combination of upright supports, sheaves mounted thereon at or near their tops, transverse shafts mounted thereon near their feet, drums mounted upon said transverse shafts, and a longitudinal shaft mounted in bearings attached to said upright supports and geared to said transverse shafts, with transverse cross-beams, tracks mounted upon said cross-beams, cables attached to said cross-beams, passing over said sheaves, and attached to said drums, and means for rotating said shafts, substantially as and for the purpose set forth.

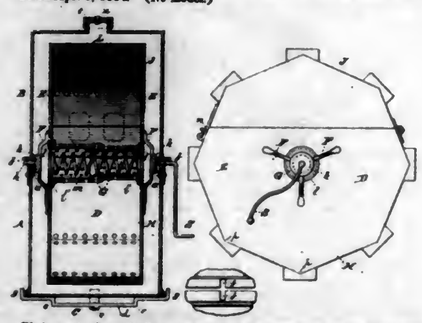
2. In a lumber-piler, the combination of vertically-adjustable tracks and a car adapted to run on said tracks, and mechanism whereby the car is moved along said tracks, with depending hooks mounted upon said car and means for swinging said hooks in contrary directions, substantially as and for the purpose set forth.

3. In a lumber-piler, the combination, substantially as set forth, of vertically-adjustable tracks, a car adapted to run upon said tracks, two mortised cylinders mounted in bearings upon said car, hooks which operate in said mortises, the arms M^2 M^3, attached to said cylinders, a transverse shaft mounted near the middle of said car, the arms L *l*, attached thereto, rods connecting the arms M^2 M^3 and arm L, the arm *k*, and swivel-pulley *k'*, with the arm attached to the track, the swivel-pulley *n*, and cord *n'*, for the purpose specified.

4. In a lumber-piler, the combination of vertically-adjustable tracks and a car adapted to run on said tracks with the pulleys *p p'*, fastened to the under side of said tracks, and the cords p^2 p^3, attached to said car and passing over said pulleys, substantially as described, and for the purpose set forth.

5. In a car adapted to run on vertically-adjustable tracks, the combination of two mortised cylinders mounted upon said car, and hooks operating in said mortises, and means for producing a partial revolution of said cylinders in opposite directions, with depending arms attached to one end of said car, substantially as and for the purpose set forth.

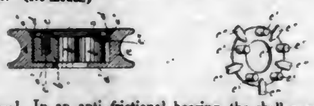
321,349. WASHING-MACHINE. GUSTAV A. EPPEL, Okawville, Ill. Filed Apr. 5, 1884. (No model.)



Claim.—1. In a boiler washing-machine, the prismatic perforated rotary holder having exterior guide-buckets and a central removable perforated sectional tube, whereby steam and water are introduced at the circumference and in the center, substantially as specified.

2. In a boiler washing-machine, the combination, with a rotary holder having openings in its sides, of a sectional perforated center tube having external annular flanges and a spring, whereby it is kept in position, substantially as specified.

321,350. ANTI-FRICTIONAL BEARING. THOMAS R. FERRALL, Boston, Mass., assignor to the Bagnall & Loud Block Company. Filed May 22, 1885. (No model.)

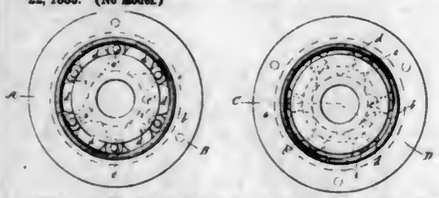


Claim.—1. In an anti-frictional bearing, the shell *a*, open in one end and having annular flange *a'* in the other, a single regulator, *c*, located at one end of the anti-frictional rollers *b b*, with side projections, *c' c'*, on which the said rollers are journaled, and having radial lugs *c''*, combined with ring or flange *d*, as herein set forth.

2. In an anti-frictional bearing, the shell A, open in one end and having annular recessed flange $A' A^2$ in the other, a single regulator, C, located at one end of the anti-frictional rollers B B, and having side projections, C' C', on which said rollers are journaled, combined with ring or flange D, as herein set forth.

3. An anti-frictional bearing having a series of rollers and one single regulator, on which said rollers are journaled, as set forth.

321,351. ANTI-FRICTIONAL BEARING. THOMAS R. FERRALL, Boston, Mass., assignor to the Bagnall & Loud Block Company. Filed May 22, 1885. (No model.)

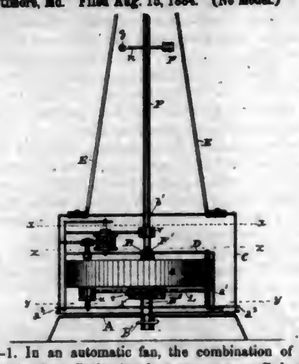


Claim.—1. The herein-described anti-friction device, consisting of two sets of rollers, *d* and *e*, located within the annular space between the shell *a* and flanged sleeve or hub *c c'*, the larger rollers, *d*, bearing against the shell and sleeve, and the smaller rollers, *e*, located alternately between the larger rollers without touching the shell and sleeve, the whole system of rollers being retained within the shell *a* by means of flange *a'* in one end and expansive spring-ring *b* in the other, as set forth.

2. In an anti-frictional bearing, the shell *a*, with its end flange, *a'*, and spring-ring *b*, as described, the flanged hub or sleeve *c c' c'*, combined with two sets of rollers, *d* and *e*, the latter serving as regulators for holding the former at a proper distance apart, and having reduced journal ends *c c'*, as and for the purpose set forth.

3. In an anti-frictional bearing, the shell *a*, with its end flange, *a'*, and spring-ring *b*, as described, the flanged hub or sleeve *c c' c'*, having interior annular recesses, *c'' c''*, combined with the anti-friction rollers *d d* and regulator-rolls *e e*, all arranged in a manner and for the purpose as set forth.

321,352. FLY-FAN. WILLIAM R. FOWLER, Philadelphia, Pa., assignor to John C. Matthai, James E. Ingram, Geo. W. Knapp, and Wm. H. Matthai, all of Baltimore, Md. Filed Aug. 15, 1884. (No model.)

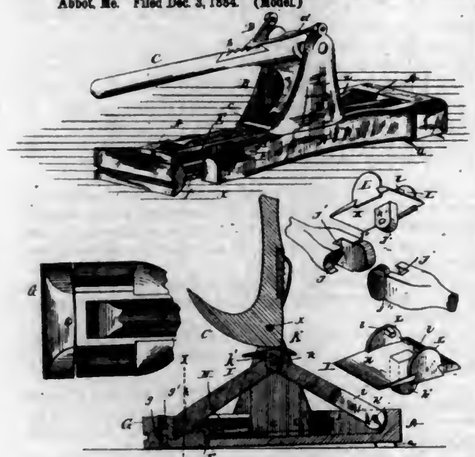


Claim.—1. In an automatic fan, the combination of a base, A, having an upright shaft, B, fixed to its center, a case, C, having a hole in the center of its top, a fan-staff spindle, P, provided with a pinion, V, and having its lower end set to turn freely in the top of the fixed shaft and projecting up through the said hole in the case, and a clock-work motor, inclosed by the case, secured thereto and connected with the pinion on the fan-staff spindle, whereby the fan-staff and inclosing-case both revolve independently while the fans are moving, as set forth.

2. An automatic fan having in combination a motor, a spindle to transmit motion to the fan-staff, a fan-staff, G, having two spring wires or strips curved away from each other, and a fan-supporting sleeve, I, movable on the said two curved strips, whereby the pressure of the curved strips on the sleeve will retain the fans at any elevation, as set forth.

3. An automatic fan having in combination a spindle, F, to transmit motion to the fans, a fan-staff, and a coupling for said parts consisting of two plates, *c d*, secured to the spindle and staff, one having two parallel grooves, *c'*, into which the other slides by a lateral movement with respect to the spindle and staff, as set forth.

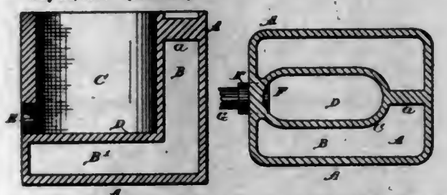
321,353. DEVICE FOR SETTING FLOOR-BOARDS. F. W. FRENCH, Abbot, Me. Filed Dec. 3, 1884. (Model.)



Claim.—1. The combination, in a device for tightening floor-boards, of a base and block located therein and adapted to play horizontally relative thereto, a toggle-joint having its members, respectively, pivoted to the sliding block and brace, a platform or plate pivotally connected to the toggle-joint at its central pivotal connection, and a lever suitably pivoted and provided with a cam-head adapted to contact with said plate and depress the same, and flanges located on said plate and engaging the edges or sides of the cam portion to guide the same and permit an upward movement thereof to elevate the toggle-joint, substantially as set forth.

2. The combination, in a device for tightening floor-boards, of a base recessed as described, a block located and guided to move horizontally in said recess, the toggle-joint having its members connected, respectively, to the base and to the block, the pivoted lever having a cam portion, as specified, a plate pivotally secured at the center of the toggle-joint, and having side flanges engaging the edges of the cam portion of the lever, and designed, when the cam portion is elevated, to effect the elevation of the toggle-joint, and a device for locking the said lever in its depressed position, substantially as set forth.

321,354. CREAMING-CAN. DANIEL FULLER, Oakwood, Mich. Filed July 24, 1884. (No model.)



Claim.—The herein-described dairy-vessel having a milk-receptacle, C, partially surrounding the same, a chamber, B B', said vessels being provided with a brace, *a*, connecting its milk-receptacle and outer wall, and with a discharge-lip, *a'*, and discharge-tube F, communicating with said receptacle C, substantially as set forth.

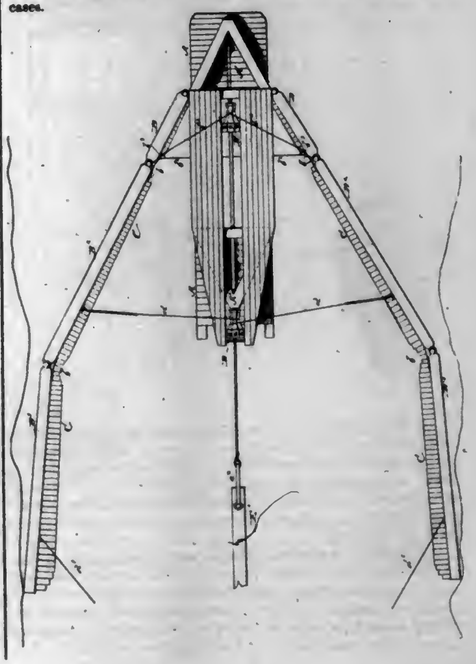
321,355. APPARATUS FOR CLEANING, WIDENING, AND DEEPENING WATER-COURSES. BENJAMIN J. GUFFORD and JAMES E. JONES, Rantoul, Ill. Filed Sept. 29, 1884. (No model.)

Claim.—1. A movable dam having a central frame with wings hinged thereto swinging in or out to dam the stream as the same is forced forward, substantially as and for the purpose set forth.

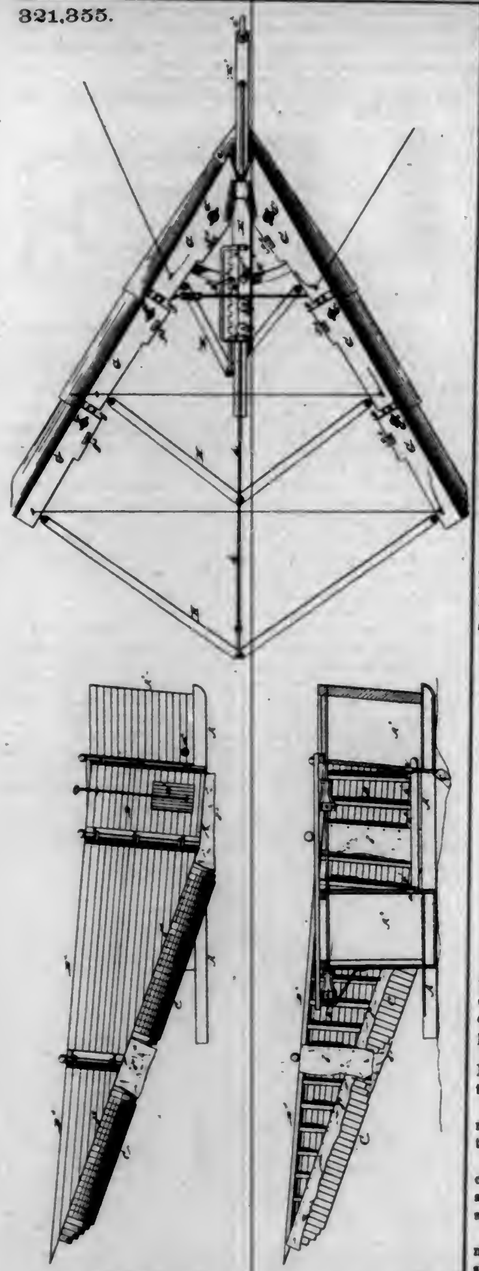
2. In a movable dam, a central frame carrying one or more tanks into and out of which water is passed at will, in combination with side wings hinged thereto and swinging freely as the stream widens or becomes narrower, substantially as and for the purpose set forth.

3. In a movable dam, a central frame carrying one or more tanks to which the water is supplied or from which it is emptied at will, in combination with hinged side wings formed in a series of jointed sections having their lower edges inclined upward toward their outer ends, and provided with strips of flexible material at their joints and along their lower edges to conform readily to the nature of the stream and render them water-tight, substantially as and for the purpose set forth.

4. The combination, with a movable dam, of a series of pieces hinged to its lower edge and formed with a straight and inclined rear edge, and their forward edges curved so as to always retain their point of contact with the bottom at the same distance in rear of their pivotal point, substantially as shown and described, whereby the volume of water resting upon and acting to pack them into contact with the earth will be the same in horizontal area, however varying in depth, in all cases.



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5. The combination, with a movable dam having hinged wings which conform to the shape of the water-course as the dam moves forward, of a plow secured to and drawn by said dam and provided with double hollow mold-boards hinged to and adjustable to and from the central frame or beam, whereby the lateral and upward pressure of the water in the stream is utilized in moving earth therefrom, substantially as shown and described.

6. In a plow for cleaning, widening, and deepening water-courses, a central frame provided with a beam and a cutter, in combination with a hollow mold-board hinged to said frame and provided with means, substantially as described, for admitting and expelling water therefrom, and movable braces for adjusting the hollow wings at any desired angle with the main frame, substantially as and for the purpose set forth.

7. In a plow for cleaning, widening, and deepening water-courses, a central frame provided with a beam and a point and cutter, in combination with hollow wings formed in sections hinged together and thin outer sides curved similar to the mold-board of an ordinary plow, gates in the forward sections to control the passage of water through the wings, gates in each section to admit water to its interior and pumps for discharging it again, and jointed braces connecting each pair of sections across the machine and connected to the main frame by cords or chains by which the wings are forced outward and held rigidly in position, substantially as and for the purpose set forth.

8. The main frame A and its tanks A′ A^2, having water inlets and outlets a a^2 a^4, closed by valves a' a^3 a^5, and carrying the windlasses B′ D, in combination with the jointed wings B B^2 B^3, hinged thereto and provided with cords or chains b^3 d d' for controlling their motion, and the flexible material b b' at the joints and along the lower edges of the sections, substantially as and for the purpose set forth.

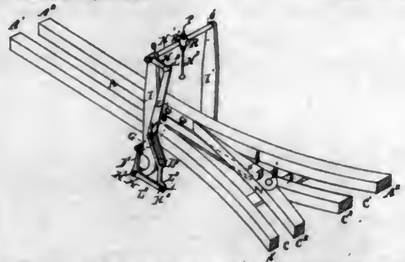
9. The hinged wings of a movable dam provided with a series of hinged pieces, C, depending therefrom, formed as herein shown and described, and for the purpose set forth.

10. In a device for cleaning, widening, and deepening water-courses, the frame E, with its beam E′, point E^2, cutter e', and capstan H′, in combination with the hollow sectional mold-boards G, hinged thereto and connected by jointed braces H with their cords h, the inlet-openings g^3 in each section, and pumps G′ and their gates g^4 to allow the water to pass through, substantially as and for the purpose set forth.

11. The combination, with a plow for cleaning, widening, and deepening water-courses, of a movable frame retaining a body of water ahead of the plow, through which body of water the excavated material is passed, whereby the water is utilized to aid in lifting and moving the material, substantially as and for the purpose set forth.

12. A plow working under water for deepening, widening, and cleaning water-courses, constructed with hollow mold-boards having means, substantially as described, for filling and emptying them of water, whereby the lifting or floating power of the water is utilized in lifting and moving the material, substantially as and for the purpose set forth.

321,356. TRACK-SWITCH. EDWIN L. GILES, Lowell, Mass. Filed Aug. 23, 1882. (No model.) Patented in France July 3, 1883, and in Germany July 3, 1883.



Claim.—1. The track or way A of a store-service apparatus, provided with branches C C′, and a movable switch-rail, B, and means for causing said switch-rail to be operated by carriers of different sizes traveling on said way, in combination with said carriers, as and for the purpose specified.

2. The combination of the rock-shaft N′, provided with the arms N^3 and N, and the switch-rail B, and connecting mechanism, as and for the purpose specified.

3. The combination of the switch B and operating mechanism with means for securing a lost motion in said operating mechanism, as and for the purpose specified.

4. The combination of the rock-shaft provided with arms N^3 N, the connecting-rod L, provided with the inclined slot L^2 and hook L′, the stationary projection V, the lever H, provided with the stud H^2, and the switch-rail B and connecting mechanism.

5. The combination, in a cash-carrier system, of main and supplemental rails, a switch, a pin or other suitable device arranged to be struck by carriers upon the rails, and connections between the pin and the switch, whereby the latter is moved by and with the pin, substantially as set forth.

6. The combination of rails, switch, connections, and pin, adjustable substantially as described.

7. The combination, in a cash-carrier system, of a main track, a branch track, a switch held normally in alignment with one of the tracks, and a lever and connecting means, whereby the switch is moved upon being struck by a carrier and is restored to position after the carrier has passed the switch, substantially as described.

321,357. CUTTER-HEAD FOR BOOT AND SHOE EDGE TRIMMING MACHINES. CHARLES A. GILMAN, Lynn, Mass., assignor, by direct and mesne assignments, to the New Enterprise Edge Trimmer Company, Portland, Me. Filed Feb. 27, 1885. (No model.)

321,357.



Claim.—1. A cutter for boot and shoe edge trimming machines, formed of a single piece of steel, and having an annular recess, B, in the side thereof, and an overhanging rim, C, said rim being slotted through in the manner shown to form cutting-edges f, as hereinbefore set forth.

2. The cutter-head, formed as described, with the hub d, the disk a, the overhanging slotted rim, and the feather-edge cutter i, disposed in the manner shown, and for the purpose set forth.

321,358. MUSIC-RECORDING ATTACHMENT FOR KEY-BOARD INSTRUMENTS. BRUNO GRENDEL, New York, N. Y. Filed July 18 1883. (No model.)



Claim.—1. The combination, with the platform over which the paper travels, of a platform carrying a series of forks supporting levers carrying markers, and another series of levers also supported in forks and connected to the former series, and each provided with a pin adapted to be arranged under the keys of an instrument and to be depressed thereby, substantially as described.

2. The combination, with the platform g, table e, paper roll n, feed-rolls a b, pivoted levers k, carrying markers m, levers h, carrying pins i, and time-measurer q, substantially as described.

3. The combination, with the platform and paper and markers adapted to be operated by the keys, of the time-markers arranged at the sides, and levers for operating the same, substantially as described.

4. The combination, with a series of markers arranged to be operated by the keys, and paper moving under said markers, of the tempo or time marker consisting of an arm, q, carrying the pencil or point m, the rod p, and lever r, connected to the rod and adapted to operate the said time-marker, substantially as described.

5. The combination, with the feed-roll b and paper, of the roll c, the surface of which is substantially divided or marked to correspond to the notes of a key-board, whereby the indentations or marks upon the paper may be read, substantially as described.

321,359. FENCE-MAKING MACHINE. JOSEPH M. HARROP, Quincy, Ill., assignor of one-half to Joseph Ash, same place. Filed Apr. 28, 1884. (No model.)

Brief.—The bar carrying the twisters is moved forward and a picket dropped down between the clamps, being guided by the forks of the twisters. The twisters are then moved back and the clamps closed onto the picket by the same movement. The twisters are then rotated, twisting the wires onto the picket, which is securely held by the clamps. The movement of a single lever reciprocates the twisters, feeds the picket, operates the clamps, and winds the finished fabric on the reel.

Claim.—1. The combination, in a fence-machine, of the twisting-forks, their gear-wheels, the moving racks, and means for operating the same, substantially as specified.

2. The combination, with the movable bar carrying the twisting-forks, the rack-bars, the rock-shaft carrying the pinions, means for rotating the winding-drum, and means for connecting the rock-shaft with the winding-drum, substantially as specified.

3. The combination, with the movable bar carrying the twisting-forks, of the rack-bars, the clamping device, and means for reciprocating and rotating the twisting-forks, and for operating the clamps, substantially as specified.

4. The combination, with the rack-bars having branch extensions, the traneverse rods forming slides for the clamping-bars, the transverse bars connected with the branches of the rack-bars, and the links connecting the clamping-bars with said transverse bars, substantially as specified.

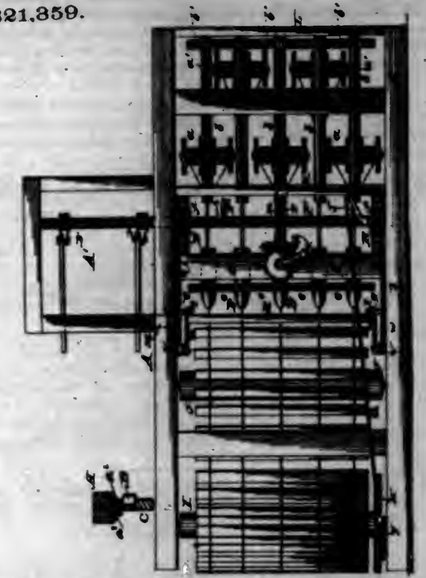
5. The combination, with the twisting-forks and their supporting movable bar, of the racks, bevel-gears c and d, and means for partially rotating the spools carrying the binding-wires, substantially as specified.

6. The combination, with the main frame, of the rack-bars, the rock-shaft carrying engaging pinions, the movable bar carrying the twisting-forks, and means for feeding the slats or pickets between the wire loops in front of the twisting-forks, substantially as specified.

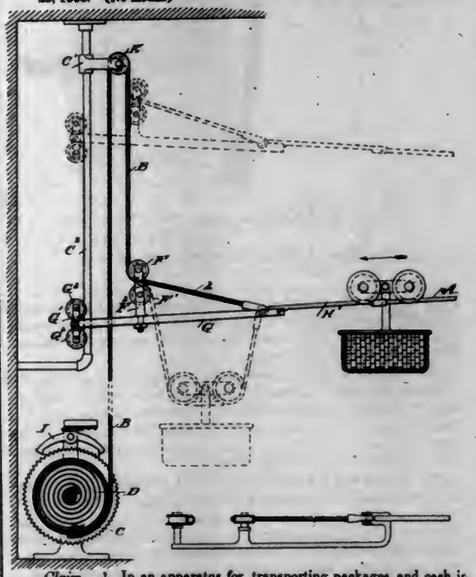
7. The combination, with the twisting-forks, gearing for rotating the forks, the movable bar supporting the same, and the rack-bars, of the shaft having the spiral spring surrounding it, and tubular spool-shafts provided with intermeshing gear-wheels, the spring being connected to the gearing and to one of the tubular shafts, substantially as specified.

8. The combination, with the main frame, of the picket-guide trough having the vertical slot, the rock-shaft, and the vibrating arms secured to the shaft for feeding forward and dropping the pickets to the twisting devices, substantially as specified.

321,359.



321,360. DEVICE FOR TRANSPORTING CASH AND PARCELS IN DRY-GOODS STORES. JOSEPH R. H. HINTON, Baltimore, Md., assignor to the Continental Store Service Company, New York, N. Y. Filed Apr. 22, 1885. (No model.)



Claim.—1. In an apparatus for transporting packages and cash in stores from the counter of the salesman to the desk of the cashier and back to the salesman, and for other similar purposes, the combination of the main track upon which the car runs, a terminal track upon which it is received, a single cord for raising and lowering the end of said track and carrier, and a volute or other suitable form of spring for aiding in raising the car and for holding it in its adjusted position, substantially as described.

2. In an apparatus for transporting packages and cash in shops, the combination of a vertically-moving arm, a single cord or wire attached to said arm, and a pulley actuated by a spring for aiding in raising said arm, and for holding it in any desired position vertically, as described.

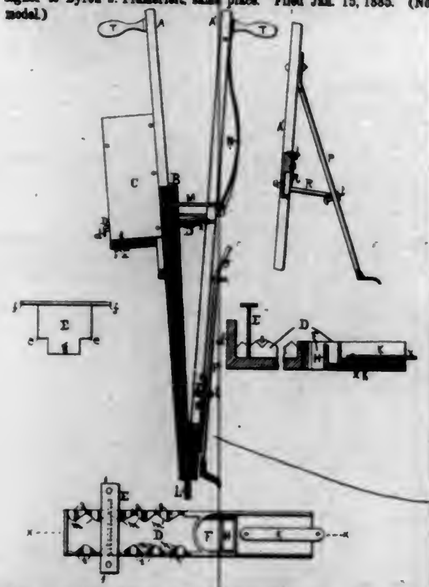
3. The combination, with the cord B, spring-actuated pulley C, having depressions in its periphery, and the double-acting dog I, whereby the car while being raised and lowered is retained in any desired position, substantially as set forth.

321,361. DRIVE-CHAIN. EDWARD HUBER, Marion, Ohio. Filed Apr. 24, 1885. (No model.)



Claim.—In a drive-chain, the combination, with the links, of a coupling-plate having its ends bent upward and toward each other, and bolts passing through perforations in the ends of the coupling-plates in the direction of the length of the chain, or transversely to the end bars of the links spanning the space of the same, substantially as and for the purpose set forth.

321,362. CORN-PLANTER. GILBERT L. HUDSON, Romeo, Mich., assignor to Byron J. Flumerfelt, same place. Filed Jan. 15, 1885. (No model.)



Claim.—1. In a planter, the combination, with a reciprocating slide carrying a seed-cup and having its lower edges serrated, of a metal plate secured below the slide and supporting the serrated edges thereof, substantially as shown and described.

2. In a planter, the combination, with a reciprocating slide carrying a seed-cup and having downwardly-projecting sides whose inner surfaces are serrated, the serrations on said inner sides being staggered, of a plate secured to the seed-box and projecting between said serrated sides, of greater width than the space between the points of said serrations, substantially as shown and described.

3. In a planter, the combination, with a reciprocating slide carrying a seed-cup and having downwardly-projecting sides whose lower edges are serrated, and whose inner sides are also serrated, said last-named serrations being staggered, of a plate secured to the seed-box below said slide, having shoulders which support the serrated edges of said slide, and having a central projection entering between the serrations on the inner sides of the slide, substantially as shown and described.

4. In a hand corn-planter, the combination of the attachable and detachable fulcrum P, having the bolts *a* and *b*, and the leg A', provided with the seat Q, plate *p*, and ball R, with the leg A and seed holding and dropping devices, substantially as described.

5. In combination with the two levers of a corn-planter, a bail pivoted to one lever and a spring secured at one end to the other lever, and having its free end adapted to engage detachably with said bail, substantially as shown and described.

321,363. MEANS FOR DRIVING ELECTRICAL CONDUCTORS INTO CONDUITS. DANIEL N. HURLBUT, Chicago, Ill. Filed Apr. 10, 1884. (No model.)



Claim.—1. In an apparatus for introducing electric conductors within conduits or pipes, the combination of a needle or carrier wire and mechanism, substantially as shown, for forcing said needle or carrier wire through a conduit or pipe and pulling it backward with the electric conducting-wire attached thereto through the conduit through which it has been pushed, substantially as described.

2. In an apparatus for introducing electric conductors within conduits, the combination of a needle or carrier wire, with rotating pressure-rollers, a guideway for receiving the needle-wire from the rollers, and a tubular conducting-guide connecting with one end of the guideway, and adapted to be connected with a conduit or pipe, substantially as described.

3. The combination, with a needle-wire and rotating pressure-rollers for advancing said needle-wire, of a conductor-guide for receiving the needle-wire from the rollers, and a coupling at one end of the conductor-guide for connecting the conductor-guide with a conduit for directing the needle-wire into the conduit or pipe through which it is driven by the pressure-rollers, substantially as described.

4. The combination, with a needle-wire and rotating pressure-rollers for advancing said needle-wire, of a guide at one side of the rollers for guiding the wire or conductor thereto, a guideway at the other side of the rollers for receiving the advancing wire or conductor therefrom, and a conductor-guide connected with said guideway, and having means to connect it with one end of a conduit or pipe for directing and guiding the needle-wire into the conduit or pipe, through which it is driven by the rollers, substantially as described.

5. The combination, with a needle-wire and rotating pressure-rollers, of a guideway for receiving the advancing needle-wire from the rollers, and a conductor-guide connected at one end with the guideway, and provided at the other end with an attached coupling for connecting it with a conduit or pipe, substantially as described.

6. The combination, with a needle-wire and rotating pressure-rollers for advancing said needle-wire, of a guide for delivering the same to the rollers, a guideway for receiving the needle-wire from the rollers, and a tubular conductor-guide connecting with one end of the guideway, and adapted to be connected with a conduit or pipe, substantially as described.

7. The combination, with a needle-wire and pressure-rollers for advancing said needle-wire, of an adjustable conductor-guide for receiving the same and directing it into any one of a series of conduits or pipes, through which said needle-wire is driven by the pressure-rollers, substantially as described.

8. The combination, with pressure-rollers, of an adjustable conductor-guide having means to connect it with the end of any one of a series of conduits or pipes, substantially as described.

9. The combination, with a needle-wire and pressure-rollers for advancing said needle-wire, of a guideway for receiving the same from the rollers, and an adjustable conductor-guide connected at one end with the guideway, and having means at its other end for connecting it with any one of a series of conduits or pipes, substantially as described.

10. The combination, with a needle-wire and pressure-rollers for advancing said needle-wire, of a conductor-guide having flexible extremities, and acting to direct the advancing needle-wire into a conduit or pipe, substantially as described.

11. The combination, with a needle-wire and pressure-rollers for advancing said needle-wire, of guides for the same located between the rollers, and a jointed adjustable conductor-guide for directing the advancing needle-wire to any one of a series of conduits or pipes, substantially as described.

321,364. REFRIGERATOR ICE-HOLDER. CHARLES HUBE, New York, N. Y. Filed Apr. 4, 1885. (No model.)



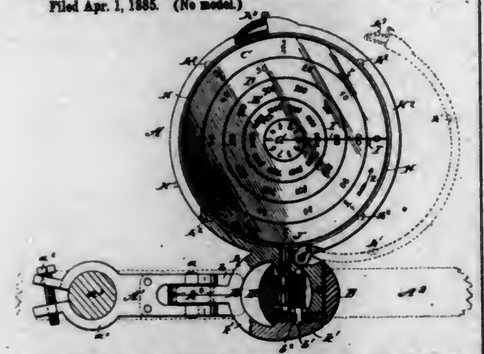
Claim.—1. The herein-described holder for ice, having the sheet-metal body B, tight cover C, secured to and movable with the body, and the coiled spring F, adapted to force the ice upward, substantially as set forth.

2. A holder for ice having the sheet-metal body B, the coiled spring F, the re-enforcing-disk *f*, and the supporting-disk *f'*, substantially as set forth.

3. The combination, with a refrigerator or receptacle, A, having a door, *a*, of the removable ice-holder having the body B, the coiled spring F, the disk or plate *f'*, the cap or cover, and attachments whereby the holder may be closed independently of the refrigerator or receptacle, substantially as set forth.

4. The combination, with the ice-holder, of the coiled spring which forces the ice upward, the tube or escape-duct for the water, and the stop-cock, substantially as set forth.

321,365. ODOMETER. BENJAMIN F. HUTCHES, Jr., Galveston, Tex. Filed Apr. 1, 1885. (No model.)



Claim.—1. In an odometer, the combination, with the casing or frame supporting within it the distance-registering dials and their driving-gearing and the worm-shaft J of said gearing, of the head K, held to said frame, the friction drive-wheel B, journaled on said head, and the pinions B' B², journaled in the head and within the drive-wheel B, substantially as herein set forth.

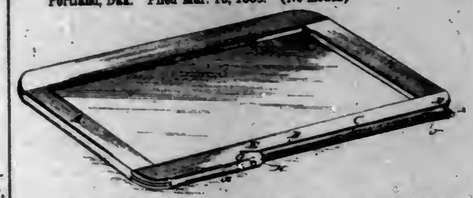
2. In an odometer, the frame for support of the dial-case and dial-gearing, constructed with hinged parts H' H², and a head, K, formed of connected parts *k k'*, and fitted with the friction drive-wheel B, adapted for connection with the prime shaft of the dial-operating mechanism, and said head being pivoted to a yoke, A', adapted for attachment to a vehicle, substantially as herein set forth.

3. In an odometer, the dial-case-supporting frame made with hinged parts H' H², a head, K, fitted with friction drive-wheel B and pinions B' B², and adapted for connection with the prime shaft of the dial-operating mechanism, and said head pivoted to a yoke, A', provided with an eye, *a'*, and a split end fitted with a clamping device, and the spring *b*, substantially as herein set forth.

4. In an odometer, the combination, with the mile-dial C and its gear-wheel C', of the wheels M M', meshing with each other and carrying, respectively, the spring-pawls *o'* *o⁴*, and the sleeves O O', supported on wheels M M', and provided, respectively, with the ratchets *o* *o²* and pinions *o³* *o⁵*, whereby the dial gear-wheel C' will be rotated in the same direction, whichever way the prime mover actuating the gearing may turn, substantially as herein set forth.

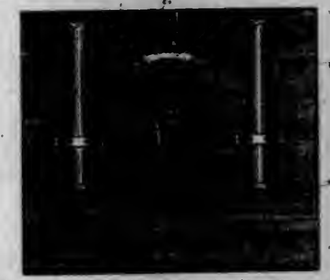
5. In an odometer, the combination, with the worm-shaft J, worm *j*, and a wheel or gearing for imparting motion to said shaft by contact with a rotating body or the ground, of a worm-wheel, L, a gear-wheel M, having a pawl, *o'*, a loose sleeve, O, held over wheel M and carrying the ratchet *o*, and a pinion, *o²*, meshing with the dial gear-wheel C', and a gear-wheel, M', meshing with wheel M, and having a pawl, *o⁴*, the loose sleeve O', held over wheel M' and carrying the ratchet *o³*, and the pinion *o⁵*, meshing with dial-wheel C', whereby dial C will be rotated in one direction, whichever way the worm-shaft and worm may turn, substantially as herein set forth.

321,366. SLATE-FRAME AND PENCIL-CASE. JOHN H. JOHNSON, Portland, Dak. Filed Mar. 10, 1885. (No model.)



Claim.—The combination, with the slate-frame A, having recess B, slot G, and shoulder H, of the tubular pencil-case C, bent from a strip of sheet metal, and having pivoted cover J and lugs D and E, all arranged and operating substantially as and for the purpose herein shown and specified.

321,367. WAGON-BOX COUPLING. DANIEL M. JONES, Wichita, Kans. Filed Mar. 5, 1885. (No model.)



Claim.—1. A device for coupling the sides of a wagon, consisting of a lever fulcrumed to the extension-board, and having a right-angular arm or projection, a hanger secured thereto, and a plate having a slot, substantially as shown and described.

2. The combination of the lever B, pawl G, ratchet-bar *f*, hanger E, and plate *a*, substantially as shown and described.

3. The plate *a*, having slot *a'*, for reception of the end of hanger E, in combination with the upper extension having rods or braces *g* and C', frame F, ratchet-bar *f*, and lever B, having pawl G, substantially as shown and described.

321,368. DISINFECTING COMPOUND. FERDINAND JOSSA, Boston, Mass. Filed Sept. 15, 1884. (No specimens.)

Claim.—The herein-described disinfecting and deodorizing compound, consisting of sulphate of lime, sulphate of iron, borax, chloride of sodium, bicarbonate of soda, and water, in the proportions specified.

321,369. METHOD OF MANUFACTURING GLASS TUBING. WESLEY L. JONES, New York, N. Y. Filed May 3, 1885. (No model.)



Claim.—1. The improved process or method of manufacturing drawn-glass tubing herein described, which consists in forming the ball in a suitable form or mold provided with a plunger for forming the central recess in the ball, then attaching the ball by its open end to a pipe, and then blowing and drawing the ball in the usual manner, substantially as set forth.

2. As an improvement in the manufacture of drawn-glass tubing, the process or method of forming the hollow ball from which the tube

is to be drawn by shaping the same in a suitable mold and then, after shaping, attaching it to the end of the pipe in contradistinction of gathering the ball upon the pipe, substantially as set forth.

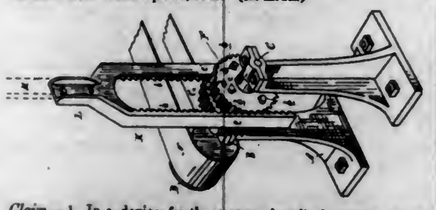
321,370. SHIRT. EDWARD ERMEN, Milwaukee, Wis. Filed Apr. 20 1885. (No model.)



Claim.—1. An open-bosom shirt slit in front from the neckband to the points 1 1, forming two flaps, *a a*, in combination with a bosom-shield permanently secured at said point 1 1, and fastening devices whereby the said bosom-shield may be worn either under the front opening or over it, as desired, substantially as set forth.

2. The combination, with the open-bosom shirt A, having laced flaps *a a*, eyes *c' c'*, and buttons *d' d'*, of the bosom-shield B, permanently secured to the shirt at the points 1 1 only, below the line of the front opening, and having button-holes *d d* and hooks *c c*, for adjustment on either side of the laced opening, substantially as set forth.

321,371. DEVICE FOR CONVERTING MOTION. HENRY C. KEIDS, Monroe, Mich. Filed Apr. 29, 1885. (No model.)



Claim.—1. In a device for the purpose described, a yoke having means for attachment to a reciprocating rod, and having parallel arms fitted with rack-teeth upon their inner faces, in combination with a pair of toothed pinions sleeved side by side upon a shaft, substantially as set forth.

2. In a device for the purpose described, a yoke having means for attachment to a reciprocating rod, and having parallel arms fitted with rack-teeth upon their inner faces, and a pair of toothed pinions sleeved side by side upon a shaft, in combination with a rack-pinion secured to said shaft between said toothed pinions, and pawls pivotally secured to said toothed pinions and engaging with said rack-pinion, substantially as specified.

3. In a device for the purpose described, the toothed pinions F G, recessed upon their inner faces and sleeved upon a shaft side by side, and embracing a rack-pinion secured between them upon the same shaft, and provided with pivoted pawls to engage with said rack-pinion, in combination with a double rack, K, constructed substantially as specified, and for the purposes set forth.

4. A device for the purpose described, consisting of a shaft, C, suitably journaled in bearings B, two toothed pinions, F G, sleeved upon said shaft and carrying pawls H, a rack-pinion, E, secured upon said shaft between said toothed pinions F G, and a rack-yoke, K, the parts being constructed, combined, and operating substantially as and for the purposes specified.

321,372. CAR-COUPLING. JOS. N. LEBOUX, Toledo, Ohio, assignor of one-half to Francis A. Van Aarle, same place. Filed Aug. 30, 1885. (No model.)



Claim.—1. The hook B, having the shoulders *b b*, with faces *z z*, curved in the arc of a circle, whose center is the point about which the hook turns, and having the surface W, against which the link strikes in entering the draw-head, rapidly retreating or very much inclined to the perpendicular, substantially as shown and described.

2. The hook B, in combination with the frame A A of the draw-head, having the slots *h h* and shoulders V V, substantially as shown and described.

3. The hook B, having the shoulders *b b*, inclined face W, and slots *y*, in combination with the frame of the draw-head A A, having the slots *h h* and shoulders V V, substantially as and for the purpose described.

4. The hook B, having the shoulders *b b*, inclined face W, and slot *y*, substantially as shown and described.

5. The series of connected cranks consisting of the handles E E, journals D D, working in suitable bearings, and the portion F F, bent as shown in the drawings, working in the slot C C on the hook B, in combination with the hook B, substantially as and for the purpose specified.

321,373. SAFETY-GATE FOR CAR-PLATFORMS. JOHN T. LOWETH, Jefferson, Ohio, assignor of one-half to Daniel Loweth, same place, and Charles F. Loweth, St. Paul, Minn. Filed May 12, 1885. (No model.)



Claim.—1. A safety gate or guard for railway-cars, in combination with an operating mechanism consisting of a cylinder and piston, and levers and connecting-rods, the cylinder receiving compressed air or steam, substantially as and for the purpose specified.

2. The operating mechanism consisting of a cylinder, a piston with a slotted cross-head thereon, and levers with short arms having pins or other engagement in the slots, and long arms normally resting under the said cylinder, substantially as and for the purpose specified.

3. The operating mechanism in the engine-cab, consisting of a supply-pipe, an exhaust-pipe, pipes leading to the gate, operating mechanism, and three-way cocks, to which all the pipes have connection, said cocks also having two other passages in them, all arranged substantially as and for the purpose specified.

4. The combination, with sliding safety gates or guards on railway-cars, of cylinders having pistons carrying slotted cross-heads, levers operated thereby and having the long arms connected by rods to the gates, pipes leading from each head of the cylinders to the engine, and an operating mechanism at the engine, consisting of a supply and exhaust pipe, and three-way cocks with two other passages in them, said cocks being connected to both supply and exhaust pipes, and to the pipes leading to the cylinders, all arranged substantially as and for the purpose specified.

321,374. CARTRIDGE. ABEL S. LYMAN, New York, assignor to Livingston Middleditch, Brooklyn, N.Y. Filed Jan. 26, 1885. (No model.)

Claim.—1. A cartridge consisting of a shell charged with a solid cake of powder or other explosive material having longitudinal holes running through it from end to end, and protected by said shell from the action of fire upon its outer surface, substantially as and for the purpose set forth.

2. A cartridge consisting of a shell charged with solid cakes of powder or other explosive material packed in the shell and extending from end to end of the shell, and each provided with one or more holes piercing them longitudinally, and being protected from the action of fire upon their outer surfaces, as and for the purpose set forth.

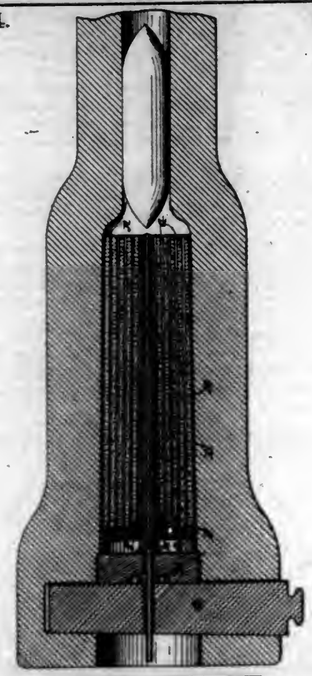
3. A cartridge consisting of a shell charged with a solid cake of powder, which is protected from the action of fire upon its outer surface by said shell, and at its rear end by the head of the shell, said cake and the head of the shell being pierced by longitudinal holes, as and for the purpose set forth.

4. A cartridge consisting of a shell charged with a solid cake of powder pierced from end to end by holes extending also through the head of the cartridge, the cartridge being provided with a projection extending rearwardly and adapted to bear against the gun, and thereby form an open space back of the head of the cartridge, as and for the purpose set forth.

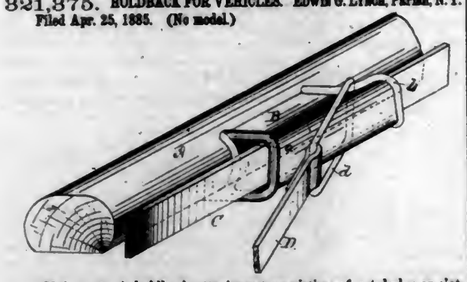
5. A cartridge consisting of a shell charged with a solid cake of powder pierced from end to end by holes extending also through the cartridge head, and provided with a firing-tube arranged to direct the igniting-flame to the front end of the powder-cake, as and for the purpose set forth.



321,374.



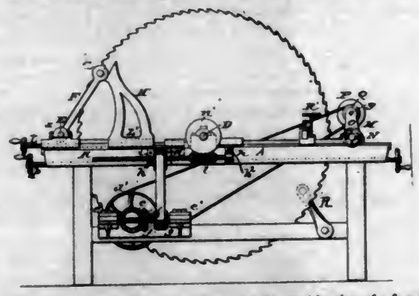
321,375. HOLDBACK FOR VEHICLES. EDWIN G. LYNCH, Parish, N.Y. Filed Apr. 25, 1885. (No model.)



Claim.—1. A holdback attachment consisting of a tabular or slotted body, *a*, provided with a front horn, *b*, constructed substantially as shown and described.

2. The combination of the holdback B, provided with horn *b* and thill A, with the tug C, and strap D, provided with ring *d*, constructed and operating together substantially as shown and described.

321,376. MACHINE FOR SWAGING AND JOINTING SAWS. WILLIAM LYON, Burlington, Iowa. Filed Apr. 5, 1884. (No model.)



Claim.—1. In a saw-swaging machine, the combination of a frame, a horizontal adjustable shaft or arbor, a horizontally-adjustable rest, and a die secured to an arm pivoted to the frame, as set forth.

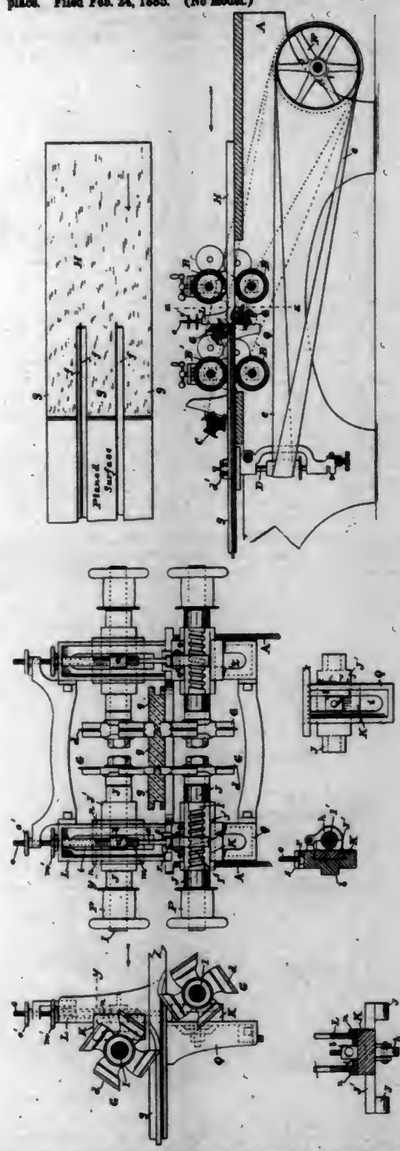
2. The combination of the pivotal anvil-bearing arm, the die thereon, and the rest therefor, substantially as described.

3. In a saw-swaging machine, the sliding frame D, provided with shaft *n*, having worm-wheel *n'*, in combination with the shaft K, having the worm-gear *l*, as set forth.

4. In a machine for swaging and jointing a circular saw, the combination of shaft *n*, screw-gear *n'*, a worm-gear, *l*, shaft K, provided with a keyway, and a pulley, *i*, provided with a lug, substantially as and for the purpose herein set forth.

5. The improvement in the means of swaging and jointing circular saws which consists in the combination of the bolted and tilted arm F, to hold die G, and the sliding support H, in combination with the pivoted frame O, carrying a shaft, *y*, with emery-wheel P and pulley Q, connected with pulley *i* by belt, and the sliding frame M, moved by worm-shaft N, substantially as and for the purpose herein described.

321,377. PLANING AND MATCHING MACHINE. JAMES B. MAHAFFEY, Baltimore, Md., assignor of one-half to Henry A. Gable, same place. Filed Feb. 24, 1885. (No model.)



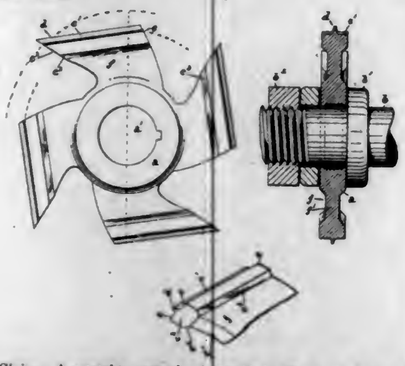
Claim.—1. In a machine for dividing a board into two or three pieces and forming tongues on and surface-planing each piece, the herein-described construction, consisting of a suitable frame, A, a surface-planer, C, mounted on the frame, the first feed-rollers B, also mounted

on the frame in front of the surface-planer, and upper and lower shafts, I, each carrying a head having tongue-cutter, G, provided with a dividing-flange, *d*, said shafts and cutters having position between the surface-planer and said first feed-rollers, whereby the rough board first is divided into pieces having tongues, and then the pieces are surface-planed, as set forth.

2. The combination of the frame A, a vertically-adjustable horizontal slide, K, on each of two opposite sides of the frame, shafts I, each turning in bearings fitted in said slides, a tongue-cutter and divider-head mounted on the inner end of each of said shafts, and a surface-planer, C, mounted on a separate shaft, as and for the purpose set forth.

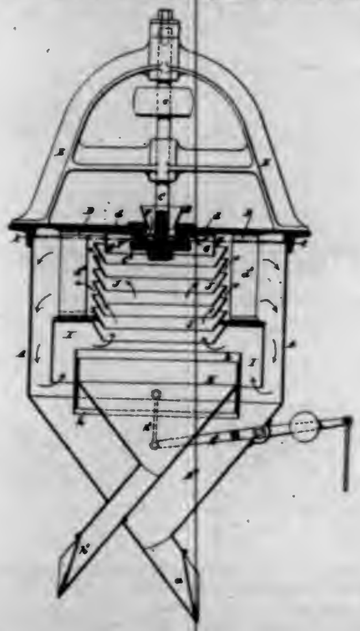
3. In a machine for tonguing and dividing boards, the combination of a horizontal slide, K, which is vertically adjustable, a plate having bearings J and fitted in the horizontal slide, a shaft, I, turning in said bearings, carrying a tongue-cutter and having a screw-thread, a movable half-nut, *h*, to take over the screw-thread of the shaft, and a vertical adjusting-screw connected with the horizontal slide, as set forth.

321,378. CUTTER-HEAD. JAMES B. MAHAFFEY, Baltimore, Md., assignor of one-half to Henry A. Gable, same place. Filed Feb. 24, 1885. (No model.)



Claim.—A rotatable cutter-head provided with an eye for attachment to a mandrel or shaft, and having a tongue-cutter with a straight peripheral face, *c'*, and a dividing-flange, *d*, extending along the face, and a depression, c^2, parallel with the peripheral face, as set forth.

321,379. SEPARATING-MACHINE. THOMAS W. B. MUMFORD and ROBERT MOODIE, Victoria Docks, County of Essex, England. Filed Mar. 18, 1885. (No model.) Patented in England Feb. 2, 1885, No. 1,455.



Claim.—1. The combination of the casing having a supply-hopper and two discharge-chutes with louvers J and hood I, and a fan within the casing to maintain a closed circulation through the louvers to separate the substances, as set forth.

2. The combination of the casing having a supply-hopper, and the discharge-chute below the same, with a second discharge-chute, louvers J, the hood I, and a fan to maintain a circulation of air through the louvers and within the casing, substantially as and for the purpose set forth.

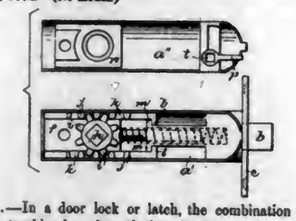
3. The combination of the casing having a supply-hopper and two discharge-chutes, one within the other, with a hood, I, louvers J, and a fan to maintain a circulation of air within the casing around the hood and between the louvers, substantially as specified.

4. The combination of the casing having a supply-hopper and two discharge-chutes with louvers J, and a hood, I, and a shaft, C, passing through the hopper and carrying the fan D, substantially as set forth.

5. The combination of the casing of a separating-machine with a shaft having a disk, C^3, bars F, and boss C^3, carrying a fan, and louvers within the casing, substantially as set forth.

6. The combination of the casing having a supply-hopper and two discharge-chutes with a fan, louvers, and a hood, I, and an annular adjustable gate, *h*, between the hood and one of the chutes, substantially as described.

321,380. MORTISE-LOCK. PATRICK MURPHY, Amesbury, Mass. Filed Jan. 17, 1884. (No model.)



Claim.—In a door lock or latch, the combination of bolt *b*, its spring *d*, the tumbler *h*, and toothed racks *k k*, said bolt being formed with projections *m m*, and said racks being formed with angles *l l*, arranged to respectively engage the angles of the bolt and actuate the same, substantially as specified.

321,381. SEWING-MACHINE SHUTTLE. JOHN H. OSBORN, Cleveland, Ohio, assignor to the Leader Sewing Machine Company, same place. Filed Aug. 13, 1884. (No model.)

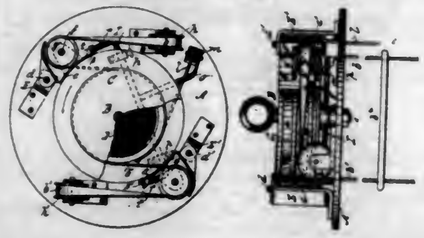


Claim.—1. The combination, with an open-ended shuttle-shell, of a sliding and swinging cap-piece for closing the same, said cap-piece having a stock provided with a raised projection, against which the operator may press in sliding the same rearward, substantially as set forth.

2. The combination, with an open-ended shuttle-shell, of a sliding and swinging cap-piece having a stock provided with a recess, and a tension-spring having a downwardly-turned point at its rear end adapted to engage said recess to hold the cap-piece in place, substantially as set forth.

3. The combination, with an open-ended shuttle-shell, and a tension-spring fixed thereto and having a thread-guard, of a sliding and swinging cap-piece having a stock provided with a bridge extending over the rear end of said thread-guard, said bridge being raised above the main portion of said stock to form a projection against which the operator may press in sliding said cap-piece and stock rearward, substantially as set forth.

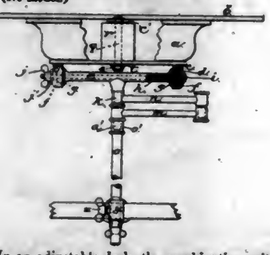
321,382. SUSPENSION DEVICE. CHARLES J. PETERSEN, Port Chester, N. Y. Filed May 23, 1885. (No model.)



Claim.—1. In a suspension device, the combination of a support or frame, a rotating spring-drum mounted thereon, a brake on the frame movable to and from the drum, a suspension cord or chain wound on the drum and passing outward therefrom over a guide on the brake and thence at an angle to the article to be supported, a lever having the parts on one side of its fulcrum connected with the brake, a clearing-cord wound upon the drum and engaging the brake-lever, and a lever mounted on the article to be supported and connected with the clearing-cord, substantially as described.

2. In a suspension device, the combination of a support or frame, a rotating spring-drum mounted thereon, a brake on the frame movable to and from the drum, a suspension cord or chain wound on the drum and passing outward therefrom over a guide on the brake and thence at an angle to the article to be supported, a rock-shaft having an arm connected with the brake, a clearing-cord engaging an opposing arm on the rock-shaft, and a lever mounted on the article to be supported and connected with the clearing-cord, substantially as described.

321,383. DESK. JAMES E. W. POOLMAN, New York, N. Y. Filed Apr. 9, 1884. (No model.)

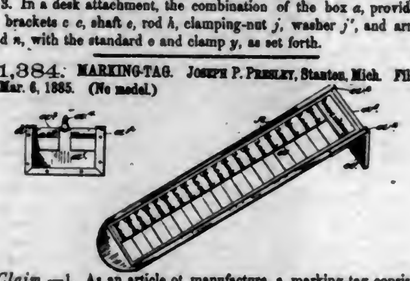


Claim.—1. In an adjustable desk, the combination, with the case or box and a suitable support, of brackets provided with sockets, a shaft journaled in said brackets, and a rod connecting the brackets and passing through the shaft, and provided with a threaded end and thumb-nut, as and for the purpose set forth.

2. The combination, with the box *a* and its support, of the brackets *c c*, having beveled sockets *d*, shaft *e*, provided with beveled journals, and rod *n*, passing centrally through said shaft and secured by a thumb-nut or equivalent device, as and for the purpose set forth.

3. In a desk attachment, the combination of the box *a*, provided with brackets *c c*, shaft *e*, rod *h*, clamping-nut *j*, washer *j'*, and arms *m* and *n*, with the standard *o* and clamp *y*, as set forth.

321,384. MARKING-TAG. JOSEPH P. PRESLEY, Stanton, Mich. Filed Mar. 6, 1885. (No model.)



Claim.—1. As an article of manufacture, a marking-tag consisting of a main strip having a series of inventory-spaces on its face, a supplementary piece, preferably integral with the main strip, and bent at right angles thereto, and a re-enforcing support to hold said parts in their relative positions to each other, substantially as described.

2. In a marking-tag, the combination of a main strip having inventory-spaces on its face, a supplementary piece, preferably arranged at right angles to the main strip, and a re-enforcing strip or strips extending over the angle and onto the main and supplementary parts, to hold them in their relative positions, substantially as described.

3. In a marking-tag, the combination of a main strip, A, having inventory-spaces *a* on its face, a supplementary piece, *a'*, arranged at right angles to the main strip, and re-enforcing strip or strips, as a^2, extending over the angle and onto the main and supplementary parts, to hold them in their relative positions, substantially as described.

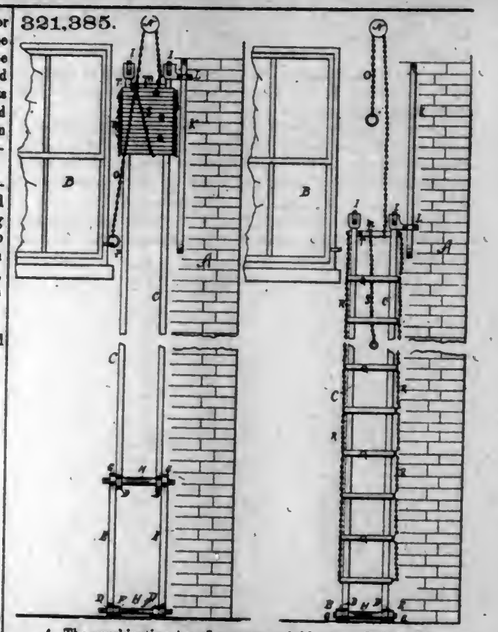
321,385. FIRE-ESCAPE. WILLIAM R. PYNE, Port-of-Spain, Trinidad, West Indies. Filed May 11, 1885. (No model.)

Claim.—1. The combination, in a fire-escape, of side stays, C, links E, guide-bar K, bracket L, chain O, pulley N, bar M, rungs Q, chains R, and chain S, substantially as and for the purposes set forth.

2. The combination, in a fire-escape, of side stays, C, links E, guide-rod K, bracket L, and chain O, substantially as and for the purposes set forth.

3. The combination, in a fire-escape, of side stays, C, links E, rungs Q, chain O, chains R, and chain S, substantially as and for the purposes set forth.

321,385.



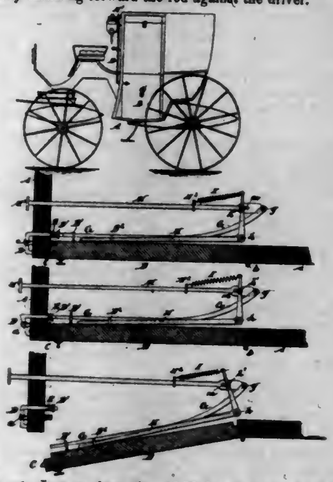
4. The combination, in a fire-escape, of side stays, C, links E, rungs Q, and chain R, substantially as and for the purposes set forth.

5. The combination, in a fire-escape, of two side stays, C, rungs Q, chains R, and chain O, substantially as and for the purposes set forth.

6. The combination, in a fire-escape, of two side stays, C, rungs Q, chains R, and chain S, substantially as and for the purposes set forth.

321,386. CARRIAGE. WILLIAM E. ROBERTS, New York, N. Y. Filed Dec. 9, 1884. (No model.)

Brief.—A sliding rod, having pivoted to it a bent bolt, when pulled upon forces forward said bolt and actuates a lever to push back the door-catch, a further pulling operating to open the door by acting on a lever, one arm of which is held by a staple on the door and the other by a pin in a longitudinal slot in the rod. Pushing said rod back, the longitudinal slot allows the bolt to move back and the door to be secured. The occupant of the vehicle can signal the driver by partly opening the door, thereby thrusting forward the rod against the driver.



Claim.—1. In a carriage, the rod M, having a provision, as *m*, for lost motion, the lever H, door B, catch-bolt C, and bolt G, and connecting means, as D, for detaching the same, all combined and adapted for joint operation, substantially as herein specified.

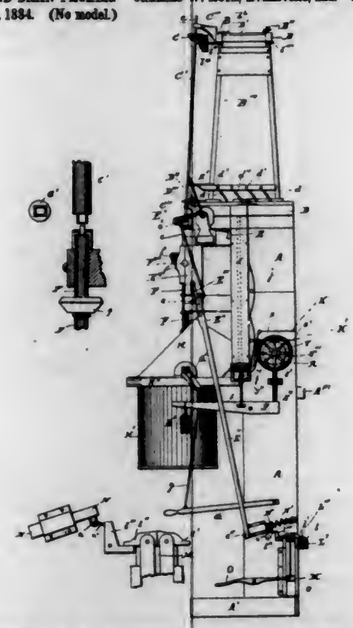
2. The lever D, in combination with the carriage-body A, door B, rod M, bolt G, lever H, and catch-bolt C, arranged to serve substantially as herein specified.

3. The spring I, in combination with the rod M, bolt G, lever H, door B, and carriage-body A, arranged for joint operation, as herein specified.

4. The carriage-body A, door B, catch-bolt C, lever D, spring E, bolt G, lever H, rod M, with its slot *m*, and spring I, arranged for joint operation, as herein specified.

5. In a carriage, the rod M, adapted to transmit pulling and thrusting motions, and door having holding-catch C, combined with a lever-connection between the rod M and door, and a lever and rod connection between said rod M and catch, all arranged for joint operation, as set forth.

321,387. COMBINED ELECTRICAL WEIGHING-SCALE AND FLOUR AND BRAN PACKER. CHARLES W. ROTH, Evansville, Ind. Filed Oct. 22, 1884. (No model.)



Claim.—1. In a combined electrical weighing-scale and flour-packer, the combination of a flour-box having a bottom of pivoted slats provided with means for automatically opening and closing the same, with a scale-box, a scale-beam, and an electric circuit, the scale-beam being adapted to open said circuit, for the purpose herein described.

2. In a combined electrical weighing-scale and flour-packer, the combination, with frame A A' A'', of lever L''', having armature L'', with electro-magnet L', battery L, wires *k k'*, scale-beam J'', provided with insulator *j''*, and metal loop *j'''*, as described, and for the purposes set forth.

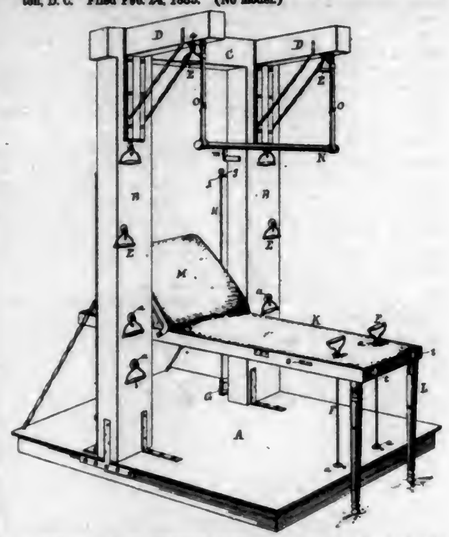
3. In a combined electrical weighing-scale and flour-packer, the scale-box D, the box J, attached to frame A, the arm J', the vertical rod *j*, pivoted at its lower extremity to the scale-beam J'', and metal loop *j'''*, in combination with wires *k k'*, battery L, electro-magnet L', and lever L''', having armature L'' as described, and for the purposes set forth.

4. In a combined electrical weighing-scale and flour-packer, the combination, with the flour-box having a bottom composed of pivoted slats, of the scale-box, the scale-beam, and the rod interposed between the scale box and beam, an electric circuit of which the beam forms a part, the magnet, and the armature-lever, and interposed devices, which, when the circuit is broken through the tilting of the beam, act to stop the feeding of the material.

5. In a combined weighing-scale and flour-packer, the combination, with the flour-box, the bottom composed of pivoted slats, the packing-cylinder, and the shaft and its attached devices within the same, of the scale-box, the scale-beam, the interposed rod, an electric circuit of which the beam forms a part, the magnet, and the armature-lever, and interposed devices, which, when the circuit is broken through the tilting of the beam, act to stop the feeding of the material.

6. In a combined electrical weighing-scale and flour-packer, the combination, with the scale-box, the rod interposed between it and the beam, the scale-beam having an insulated portion, the metallic loop, and the conducting-wires connecting, respectively, the beam and the loop, of the armature-lever and the magnet.

321,388. EXERCISING APPARATUS. JOHN E. RUEHRAH, Washington, D. C. Filed Feb. 24, 1885. (No model.)



Claim.—1. In an exercising apparatus, an upright standard and a series of handles arranged at different heights thereon, in combination with a series of ropes, one rope being attached to each of said handles, which ropes connect said handles with a weight or weights, substantially as set forth.

2. In an exercising apparatus, an upright standard, a series of handles arranged at different heights thereon, and a series of ropes, one of said ropes being attached to each of said handles, in combination with a single weight or a single set of weights, with which each of said ropes is adapted to be in turn connected, substantially as set forth.

3. In an exercising apparatus, a platform, two upright standards, and two beams attached to said standards, which extend out over said platform, in combination with a series of handles arranged in pairs on said platform, standards and beams, and a series of ropes, one of said ropes being attached to each of said handles, which ropes connect said handles with a weight or weights, substantially as set forth.

4. A plate adapted to receive weights, and a hook attached thereto, in combination with a series of fixed hooks and a corresponding series of ropes, which are normally hooked to said fixed hooks and which are adapted to be separately transferred to the hook on said weight-plate, substantially as set forth.

5. The upright standards, and the handles, ropes, and weights arranged therewith, substantially as set forth, in combination with a lounge pivoted to and between said standards, which lounge is normally supported in a substantially horizontal position, and at such a height as to enable convenient access to be had to the several handles on said standards, substantially as set forth.

6. The upright standards and the lounge arranged in connection therewith, in combination with the beams secured to the upper ends of said standards, and a horizontal bar adjustably suspended from said beams, substantially as set forth.

7. The standards B B and the catches *m m*, pivoted thereto, in combination with the lounge K, pivoted to and between said standards, and provided with grooves *o o* on the sides, with which said catches are adapted to engage, substantially as set forth.

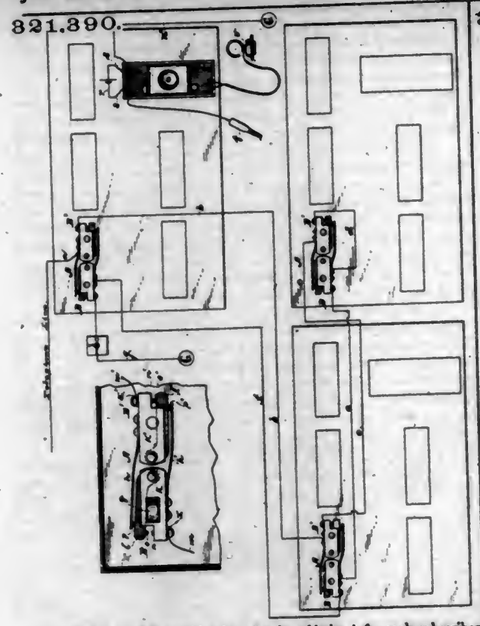
321,389. COMBINED NAIL AND SCREW. HERMANN A. SCHIRNER, Milwaukee, Wis. Filed Apr. 11, 1884. (No model.)



Claim.—A double fastening device consisting of a nail pointing in one direction and a screw pointing in the opposite direction, having threads its entire length from point to collar, together with a central bearing or hold for the driving-instrument, the nail, screw, and bearing composing an integer, substantially as set forth.

321,390. DUPLICATE SWITCH-BOARD SYSTEM FOR TELEPHONES. CHARLES E. SCRIBNER, Chicago, Ill., assignor to the Western Electric Manufacturing Company. Filed Oct. 25, 1879. Renewed May 23, 1885. (Modal.) Patented in England Nov. 29, 1879, No. 4,903; in France Jan. 16, 1880, No. 134,596, and in Belgium Jan. 28, 1880, No. 50,413.

321,390.



Claim.—1. The combination of pairs of bolts A for each subscriber upon each of the duplicate switch-boards, the several pairs belonging to a single subscriber being connected so that a plug inserted in any bolt B' cuts off the subscriber's line from all bolts B.

2. The combination of pairs of bolts, one pair on each duplicate board for each subscriber connected with the subscriber's line, which passes successively to one bolt of each pair and in reverse order to the remaining bolt of each pair, and to ground, substantially as shown and described.

3. The combination and arrangement of bolts B and B' reciprocally connected by springs *h* and *h'*, and insulated by the hard rubber *p* and *p'*, substantially as described and shown.

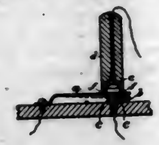
4. In a multiple switch-board system, the combination, with the different telephone-lines, of pairs of bolts or switches, one pair of switches on each board for each line, and one portion of each pair being for connection with the line and the other portion for testing, the telephone-lines being each connected through their different pairs of switches to ground, and a plug at each board whereby a test may be made by connection with the test portion of any pair, while the same plug may be used for insertion in the line portion of the same pair.

5. In a multiple switch-board system, the combination, with a telephone-line, of spring-jacks or pairs of bolts, one on each multiple board, each spring-jack or pair consisting of two parts, one portion forming a line part and the other portion a test part, and a ground-circuit provided with a terminal plug and including a battery and telephone-switching apparatus.

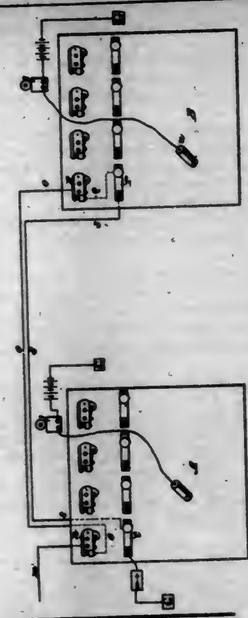
321,391. MULTIPLE SWITCH-BOARD FOR TELEPHONE-EXCHANGES. CHARLES E. SCRIBNER, Chicago, Ill., assignor to the Western Electric Manufacturing Company, same place. Filed Feb. 24, 1881, Renewed June 9, 1885. (No model.) Patented in England Nov. 29, 1879, No. 4,903; in France Jan. 16, 1880, No. 134,596, and in Belgium Jan. 28, 1880, No. 50,413.

Claim.—1. Two or more duplicate switch-boards, each provided with a switch and a test-key for each subscriber's line, and a plug and conducting-cord at each board, in combination with circuits, substantially as shown and described.

2. The combination of normally-closed telephone-line circuits with two or more multiple switch-boards, each provided with a switch and test-key for each line, and switching apparatus at each board for connecting local battery through a signal-instrument to the line of a subscriber, whereby an attendant at any given board may test and signal at the same time.



321,391.



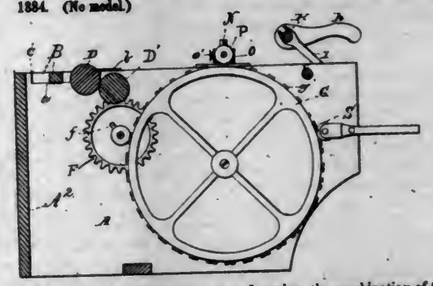
321,392. CAR-TRUCK. WILLIAM H. H. SIMM, Brooklyn, N. Y. Filed May 24, 1884. (No model.)



Claim.—1. The combination, with axles, of journal-boxes inclosing bearings operating in conjunction with the axles so as to move with the latter in the direction of their length, a truck-frame provided with slideways in which the journal-boxes and axles may move in the direction of the lengths of the axles, and rockers arranged upon the tops of the journal-boxes and supporting the truck-frame, the rockers having cam-shaped upper surfaces, whereby, when the axles and journal-boxes are moved laterally relatively to the truck-frame, the truck-frame will be raised, substantially as specified.

2. The combination, with a car-body or truck-frame, of a slideway forming part thereof, a journal-box, C, fitting within but not unconnected to the slideway, a rocker arranged between the journal-box and car-body or truck-frame, and being adapted to rock in a direction transversely to the length of the car-body or truck-frame, and lugs *k*, extending from the rocker and entering recesses *l* in the slideway, substantially as specified.

321,393. MACHINE FOR MEASURING AND MARKING CLOTH. MARCUS B. SMITH and LARS J. A. ROSWALL, Clarence, Mo. Filed Sept. 26, 1884. (No model.)



Claim.—1. In a cloth measurer and marker, the combination of the marking-wheel, the guide-roller D', having pinion E, intermediate mechanism, substantially as described, by which the marking-wheel is caused to intermittently revolve at proper intervals, the wheel J, the cam K, the lever M, and the rod N, connected with lever M and provided with

a pressing-head projected laterally over the marking-wheel, substantially as set forth.

2. In a cloth measurer and marker, a presser-rod provided with a laterally-projected vertically-adjustable head, having a roller or rotating presser-surface, in combination with the marking-wheel, substantially as set forth.

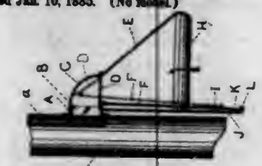
3. A cloth measurer and marker comprising, in combination, a marking-wheel, guide-rollers D D′, a pinion, E, a presser-bar, and intermediate operating mechanism, substantially as described, between pinion E and the presser and the marking-wheel, said mechanism being actuated by pinion E, substantially as set forth.

4. The combination, in a cloth measurer and marker, of the presser-rod N, the lever M, the wheel J, having cams K L, and the bar Q, substantially as set forth.

5. In a cloth measurer and marker, the combination of the guide-roller D′, having pinion E, the wheel F, meshed with pinion E, and having a pin, *f*, the marking-wheel G, having teeth *g* and characters *g′*, the wheel J, meshed with pinion E, and provided with cams K L, the lever M, the bar P, and the rod N, all arranged and operating substantially as set forth.

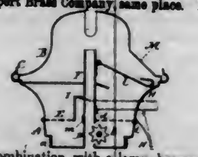
6. The combination of the bearing-bars B B, the roller D, the button *b*, the roller D′, having pinion E, the wheel F, having pin *f*, the marking-wheel, the wheel J, having cams K L, the lever M, the bar Q, the rod N, having the spring N′, and provided with adjustable brackets O and roller P, and the reeling-shaft H, substantially as set forth.

321,394. VENTILATOR FOR STOVE-PIPES. WLADISLAUS ST. MIELCAREK, Grand Rapids, Mich., assignor of one-half to FRANZ MOLINSK, same place. Filed Jan. 10, 1885. (No model.)



Claim.—The combination, in ventilators as attached to stove-pipes, of the detachable hood C E, having the incurved rim H, the apron J, the trap-door D, and the handle F, passing through the ring-bolt I, and adapted to catch therein upon the shoulder K, with the stove-pipe G and the plate B, having projecting box-edges or collar, as shown and described, and for the purpose set forth.

321,395. LAMP-BURNER. SAMUEL G. STODDARD, Bridgeport, Conn., assignor to Bridgeport Brass Company, same place. Filed Mar. 23, 1885. (No model.)



Claim.—1. The combination, with a lamp-burner having the base A, adapted to be secured to the collar of the lamp, and constructed with the perforated air-distributer E to form a chamber in the base, the fixed tube D, extending upward through the base and said air-distributer, combined with the wick-adjuster arranged in the base below said distributer, the upper part, F, of the tube arranged upon a hinge above the distributer, with a shaft extending therefrom outward through the body of the burner, the body of the burner constructed with an opening through its side, substantially as described, and whereby said upper part of the burner may be turned downward to present its upper end outside the body of the burner, while the said lower portion, D, of the tube remains stationary.

2. The combination, with a lamp-burner having the base A, constructed for attachment to the collar of the lamp, and with the air-distributer E, forming a chamber in the base, of the fixed tube D, extending upward through the base and air-distributer, the wick-adjuster in said base, the upper portion, F, of the tube hinged above the air-distributer and independent of the fixed portion D, the shaft G, extending therefrom through the body of the burner, the said body of the burner constructed with an opening through its side, and the door H, hinged at said opening and connected with the tube, substantially as described.

3. The combination, with a lamp-burner having the base A, constructed for attachment to the collar of the lamp, and with the air-distributer E, to form a chamber in the base of the burner, of the fixed wick-tube D, extending upward through the base and said air-distributer, the upper part, F, of the wick-tube hinged above the air-distributer, a shaft extending therefrom outside the body of the burner, said hinged part F constructed with a flange, *m*, on its side opposite the hinge and so as to overlap the upper end of the fixed tube D, substantially as described.

4. The combination, with a lamp-burner, the base A, constructed for attachment to the collar, and with the air-distributer to form a chamber in the base, of the fixed tube D, extending through the base and through said air-distributer, the upper part, F, of the tube hinged above the air-distributer, with a shaft therefrom extending through the body of the burner, a protector, I, above the air-distributer and surrounding the wick-tube upon its side opposite the hinge, substantially as described.

5. The combination, with a lamp-burner having the base A, constructed for attachment to the lamp-fount, and with the air-distributer E, forming a chamber in the base, of the fixed tube D, extending upward through said base and air-distributer, the upper part, F, of the tube hinged above the air-distributer, and with a shaft therefrom extending through the body of the burner, the said body constructed with an opening through its side, a door, H, hinged at said opening and in connection with the tube, and the protector I, around the tube opposite the hinge and above the air-distributer, substantially as described.

6. The combination, with a lamp-burner having the base A, constructed for attachment to the collar of the lamp, and with the air-distributer E, forming an air-chamber in the base, of the fixed tube D, extending up through the base and air-distributer, the upper part, F, of the tube hinged above said distributer, and with a shaft therefrom extending through the body of the burner, with the springs L within the body of the burner, and adapted to embrace the part F of the burner when in the vertical position, substantially as described.

321,396. SHUTTER-WORKER. GEORGE W. STOVER, Lauralton, assignor of one-half to John Lilley, Sr., Lewisburg, Pa. Filed Feb. 4, 1885. (No model.)



Claim.—1. In a shutter-worker, the combination of a shutter, a lever pivoted on a line inside that on which the shutter is hinged and extensible between its pivot and the shutter, and a handle by which the lever is operated, substantially as set forth.

2. In a shutter-worker, the combination of a shutter, a lever pivoted on a line inside that on which the shutter is hinged and extensible between its pivot and the shutter, a link connecting the lever with the shutter, and a handle by which the lever is operated, substantially as set forth.

3. In a shutter-worker, the combination of the shutter, the extensible shutter-operating lever, an extensible link connecting the shutter and the lever, and a handle which operates the lever, substantially as set forth.

4. In a shutter-worker, the combination of the shutter, the extensible shutter-operating lever E, formed of two plates or pieces, *e e′*, joined together by a pin, J, one of the plates being provided with a series of apertures, e^3, the link connecting lever E with the shutter, and a handle whereby the lever E is worked, substantially as set forth.

5. In a shutter-worker, the combination of the shutter, the extensible shutter-operating lever formed of two plates or pieces, *e e′*, joined together by a pin, *j*, each plate being provided upon one edge with a flange, e^3, the link connecting lever E with the shutter, and the handle whereby the lever is worked, substantially as set forth.

6. In a shutter-worker, the combination of the shutter, the shutter-operating lever having its outer end curved and provided with a flange, as at e^3, a link pivoted to said flanged end of the lever and uniting it with the shutter, substantially as set forth.

7. In a shutter-worker, the combination of the shutter, the arm G, which operates the lever, it being formed of spring metal, bearing downward against the window-sill at its outer end, where it is provided with a pin, *g′*, and a series of apertures in the window, into which apertures the pin *g′* is forced by the elasticity of the arm G, substantially as set forth.

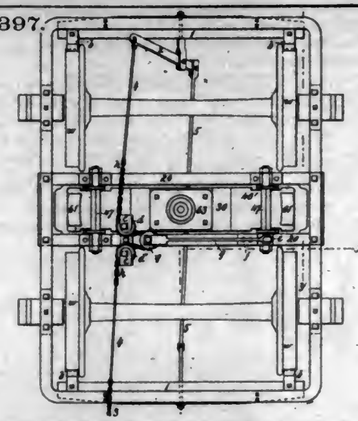
321,397. CAR-BRAKE. FRANCIS G. SUSEMIHL, Detroit, Mich. Filed July 16, 1884. (No model.)

Claim.—1. The combination, with the brake-chains or rods of a car-brake, of a lifting-lever connected to one or more of the points of suspension of the car-body on the truck, and a clamping device for locking the brake-chain to prevent further pressure being applied to the brake after the lifting-lever has acted, substantially as and for the purpose set forth.

2. In a car-brake, the combination, with the brake-beams and the actuating lever and chain, of fixed guide-pulleys and a pulley in one end of a rod and around which the chain passes, a lifting-lever connected to the other end of the rod, and the car-body partly supported by the lifting-lever, substantially as and for the purpose set forth.

3. In a clamping or locking device for the actuating chain or rod, of a car-brake, in combination, the pulleys *d* and *d′*, secured to the frame of the truck, the pulley *g′*, fitted in one end of the rod *g*, the chain *h*, passed between the pulleys *d d′* and around the pulley *g′*, and a resistance device connected to the other end of the rod *g*, substantially as and for the purpose set forth.

321,397.

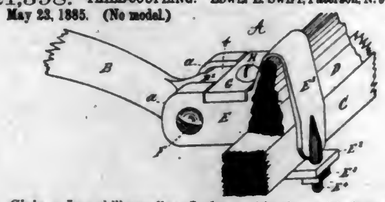


4. In a car-brake regulator, in combination, the chain *h*, forming part of the actuating rod or chain, the fixed pulleys *d* and *d′*, the pulley *g′*, and floating-rod *g*, the lifting-lever *e*, the car-body *a*, and the support-bearing of the same in the lever *e*, substantially as set forth.

5. The combination, with a car-brake comprising brake-beams 1, provided with friction-shoes *b*, connecting-rod 5, brake-lever 2, and actuating chain and rod 3 4, of a regulating device embracing the car-body *a*, lifting-lever *e*, rod *g*, provided with the pulley *g′*, the two fixed pulleys *d* and *d′*, and the chain *h*, substantially as and for the purpose set forth.

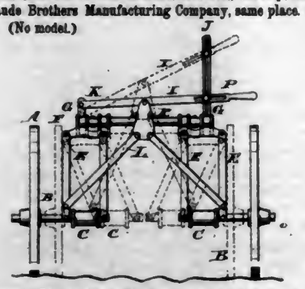
6. The lifting-lever *e*, having a bearing in which the swing-hanger pivot of a car-truck is supported, and provided with a toe, *e′*, in combination with the bearing-plate *f*, secured to the transom of the truck and provided with a notch in which the toe *e′* rests, and means, substantially as described, for rocking said lifting-lever *e* on its toe *e′*, as and for the purpose set forth.

321,398. THILL-COUPLING. EDWIN E. SWIFT, Paterson, N. J. Filed May 23, 1885. (No model.)



Claim.—In a thill-coupling, I, the combination, with the coupling-box E, the box adapted to receive and retain the thill B B′, of the thill B, having lugs *b*, adapted to engage the box E, the bolt F, the nut F′, the bolt H, for securing the rubber K, and rubber secured by bolt H, the nut H′, the covering-plate G, adapted to fit the recess, the clip E′, with axle C, and the tree D, all arranged as shown and described.

321,399. WHEEL-CULTIVATOR. HORACE G. SWOPE and WILLIAM W. SNYDER, (executor of John R. Rude, deceased,) Liberty, Ind., assignors to the Rude Brothers Manufacturing Company, same place. Filed Feb. 9, 1885. (No model.)



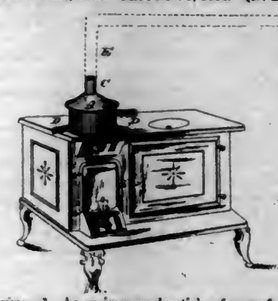
Claim.—1. In an adjustable frame or arch for wheel-cultivators, two sets of parallel vertical bars pivoted at one end to the short axles and at the other to a transverse bar, in combination with cross-rods for setting and locking the parallel bars in any desired position, substantially as described.

2. In an adjustable arch for wheel-cultivators, the parallel vertical bars E E, with cross-bars for locking the parallel bars in any desired position with the adjustable spools G G, substantially as and for the purpose specified.

3. In an adjustable frame for wheel-cultivators, two sets of parallel vertical bars pivoted to the short axles, and a transverse bar, with cross-bars pivoted to a yoke arranged to be operated by a lever for adjusting the cultivators laterally and locking them in any desired position, as and for the purpose specified.

4. In an adjustable frame for wheel-cultivators, the slotted lever I and yoke R, in combination with the slotted standard J and set-screw P, substantially as and for the purpose described.

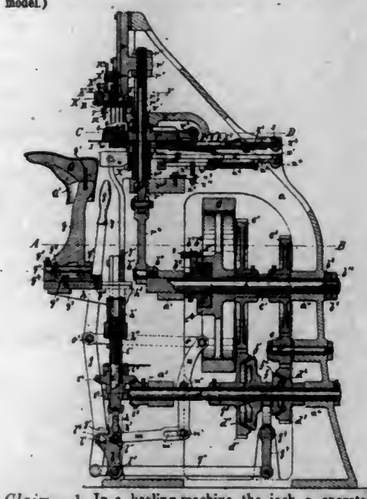
321,400. HEATING ATTACHMENT FOR STOVES. LEWIS W. TURNER, Yalesville, Conn. Filed Nov. 3, 1882. (No model.)



Claim.—1. As an improved article of manufacture, an air heating and circulating drum consisting of an air-chamber having a re-entrant bottom and inlet and outlet pipe or pipes, the total cross-sectional area of the inlet-pipes being substantially one-half the area of the outlet, and each inlet and outlet pipe having a length of more than twice its diameter, all substantially as described.

2. As an improved article of manufacture, an air heating and circulating drum consisting of an annular air-chamber having the total cross-sectional area of its inlet pipe or pipes substantially one-half the total cross-sectional area of the outlet pipe or pipes, and each inlet and outlet pipe having a length of more than twice its diameter, all substantially as described.

321,401. HEELING-MACHINE. MERRILL A. TYLER, North Easton, and EDWARD MERRITT, Brockton, Mass. Filed July 17, 1884. (No model.)



Claim.—1. In a heeling-machine, the jack *q*, operated up and down by a gradual friction-pressure device, in combination with the hinged step *l*, having the upper notches, *l′ l″*, and the releasing-treadle *p*, as and for the purpose set forth.

2. In a heeling-machine, the jack *q*, operated up and down by means of a friction-clutch device and intermediate connecting mechanism, in combination with the lever *g*, link *o*, and its adjustable stop o'' o^3, for regulating the amount of pressure, so that the clutch shall slip when the desired upward pressure on the jack is obtained, substantially as described.

3. In a heeling-machine, the block x'', horizontally pivoted to swing up and down, in combination with the laterally-expansive boot-clamps *x x*, pivoted at their rear ends to the block x'' to move horizontally, whereby an automatic vertical movement of said clamps may take place as the jack and shoe are lowered, substantially as described.

4. In a heeling-machine, the laterally-expansive and vertically-adjustable boot-clamps *x x*, combined with toothed rod *y* and pawl *y''* on the jack-support to prevent the last and jack from being disengaged when the latter is lowered, as set forth.

5. In a heeling-machine, the combination, with the spanker-plate, constructed substantially as set forth, of a supporting-frame horizontally pivoted to swing up and down, and expansive and automatically-closing heel-clamps pivoted to said supporting-frame, whereby an automatic vertical movement of said clamps will take place while introducing the said spanker-plate above the clamps, substantially as described.

6. In a heeling-machine, the combination of turret *v*, and expansive heel-clamps *z z*, with the spanker-plate 1, pivoted in its rear end at a point back of the turret *v*, for the purpose of enabling it to be swung out of or into position with a minimum of motion, as set forth.

7. In a heeling-machine, the laterally-expansive and vertically-adjustable boot-clamps *x z*, as described, combined with the adjustable shoe-gage X', for the purpose set forth.

8. In a heeling machine, the vertically-adjustable jack-support *h*, its pressure-screw *i i'*, and vertically-adjustable supporting-block *k k'*, combined with the step *l*, and its two notches, *l' l''*, the connecting mechanism to lever *g*, and the friction-clutch mechanism to permit the jack-support *h* to be released and lowered independent of the friction-clutch mechanism, as set forth.

9. In a heeling-machine, the crank-plate R^4, with its handle R^5, and cam 11, combined with the tripping-lever 12, and yielding locking-pin 9, adapted to lock into and be released from the recesses in the respective awl and driver blocks 7 and 5, as set forth.

10. In a heeling-machine, the combination, with the clutch-shaft *d*, provided with gear i^2, and shaft *i*, provided with gear i^3, of the lower pivoted step, *l*, formed with notches *l' l''*, and side projection, l^5, the blocks *k*, connected with shaft *i*, pivoted to treadle-lever *p*, and its side projection, *p'*, and lever *g*, substantially as described.

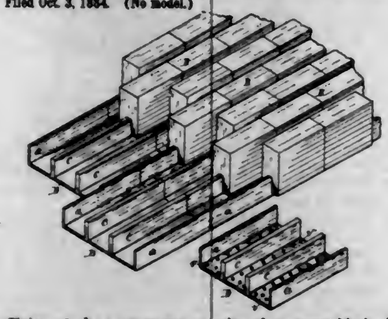
321,402. CLOCK-CASE. ALFRED D. TYRRELL, New Haven, Conn., assignor to the New Haven Clock Company, same place. Filed Mar. 9, 1885. (No model.)



Claim.—1. The combination of a plaque having an opening, B, through it, with notches *d* in the edge of the opening, the casing C, containing the movement, the said casing constructed with an outwardly-projecting flange, *e*, around the outer front end of the casing, the said casing adapted to pass through the opening in said plaque and the flange *e* to bear upon the front of the plaque around said opening, the removable ring *f*, surrounding and movable longitudinally on said casing and adapted to bear upon the reverse side of the plaque, with bolts *s* extending through the said flange, ring, and notches in the plaque, substantially as described.

2. The combination of the casing C, containing the clock-movement, constructed with an outwardly-projecting flange, *e*, around its front edge, the ring *h*, adapted to rest upon the said flange *e* and constructed with an offset, *i*, to which the dial D is attached, the glass *m*, ring *l* between the dial and glass, ring *n*, adapted to embrace the edge of the glass and rest upon the ring *h*, the removable ring *f*, and the bolts *d*, substantially as described, said rings and flanges being adapted to embrace the surrounding part and be clamped thereto by said bolts, substantially as described.

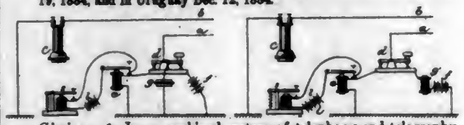
321,403. PAVEMENT. H. CHANNING UNDERWOOD, Kalamazoo, Mich. Filed Oct. 3, 1884. (No model.)



Claim.—1. In a pavement, a series of pavement-blocks having grooves in the under side, and a series of ribbed base-plates, having the ribs on the sides contiguous to each other, substantially half as thick as the width of the grooves in the blocks, whereby the base-plates are detachably locked together by the blocks fitting over said ribs, substantially as set forth.

2. In a pavement composed of base-plates and pavement-blocks, the base-plates having perforations through them, for the object stated, substantially as set forth.

321,404. MEANS FOR PREVENTING INDUCTION IN TELEPHONE AND TELEGRAPH LINES. FRANJON VAN ETHEMBERGH, Schaerbeek, Belgium. Filed Apr. 29, 1882. (No model.) Patented in Belgium Feb. 20, 1882, No. 57,121; in France Feb. 26, 1882, No. 147,515; in England Mar. 17, 1882, No. 1,903; in Italy Mar. 29, 1883; in Germany June 17, 1882, No. 21,451; in Austria July 9, 1883; in Canada Aug. 17, 1882, No. 15,333; in Luxemburg Dec. 8, 1883; in Portugal Jan. 18, 1884; in India Jan. 29, 1884; in Sweden Feb. 12, 1884; in Spain Apr. 23, 1884; in Denmark June 18, 1884; in Brazil July 5, 1884; in Argentine Republic July 19, 1884, and in Uruguay Dec. 12, 1884.



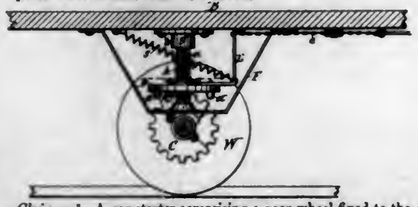
Claim.—1. In a combined system of telephony and telegraphy, the combination, with telephonic line-wires and included telephonic receivers, of telegraphic wires, including telegraphic transmitters, and a condenser, or the equivalent thereof, for causing the impulses thrown on the line by said transmitters to increase and decrease gradually in strength, essentially as set forth.

2. The combination, with a telephonic line-wire, of an inductively-adjacent telegraph-wire equipped with make-and-break telegraphic transmitters and a condenser or its equivalent, as described, for causing the telegraphic impulses to increase in strength gradually from a make and diminish in strength gradually from a break, for the purpose set forth.

3. The combination, with a telegraphic line-wire equipped with make-and-break transmitters and arranged inductively adjacent to a telephone-wire, of current-graduating devices, such as a condenser or its equivalent, arranged to cause the telegraphic impulses to increase in strength gradually from makes and to diminish gradually from breaks, for the purpose set forth.

4. The combination, with a telegraph line-wire, a normally-open key connected therewith, and a main battery connected with the circuit-closing contact of the key, of a condenser or its equivalent included in a derivation from the line, substantially as and for the purpose set forth.

321,405. CAR-STARTER. JACOB VAN ZANDT, Syracuse, N. Y., assignor of two-thirds to Alvin J. Belden and Charles Robles, both of same place. Filed Oct. 27, 1884. (No model.)

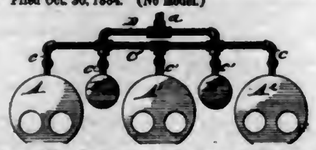


Claim.—1. A car-starter comprising a gear-wheel fixed to the car-axle, a pivoted wheel having cams adapted to engage the gear-wheel, and provided between its cams with blank spaces to allow free rotary motion to the gear-wheel, a lever for turning the cam-wheel, and draft-connection from the horses to the lever, substantially as and for the purpose set forth.

2. The combination, with a car, of the gear-wheel C, fixed to the axle, the wheel D, having cams *a a a*, with the blank spaces *b b b* between said cams, and provided with ratchets *c c*, the pivoted lever L, provided with the pawl *d* and the tractile spring S, and draft chain or cable *e*, connected with the lever L, substantially in the manner and for the purpose shown and set forth.

3. In combination with the car-body, car-axle, and gear-wheel secured to said axle, the wheel D, mounted loosely on a vertical shaft and supported yieldingly in its position, substantially as and for the purpose set forth.

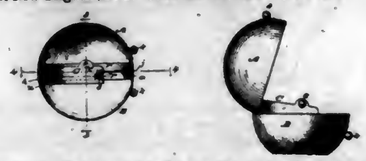
321,406. FEED-WATER HEATER AND PURIFIER. ANDREW W. WARD, Gallipolis, assignor of one-half to McIlvain & Spiegel, Cincinnati, Ohio. Filed Oct. 30, 1884. (No model.)



Claim.—1. The combination of the drums B B', arranged, respectively, between the boilers, and provided with a perforated tube, E, having a blow-off on each end, and the boilers A A' A^2, each having communication at its rear end with one or more of the drums and provided with the tubes F, arranged substantially as shown and described.

2. The combination, with the boilers A A' A^2, each provided with a tube, F, of the drums B B', each provided with a perforated blow-off tube, E, the pipe C, having the arms or extensions *c c* and *c' c'*, and the tube D, having a water-entrance therein, substantially as specified.

321,407. BALL-COVER FOR EAR-JEWELS. GEORGE W. WASHBURN, West New Brighton, N. Y. Filed Mar. 27, 1885. (No model.)

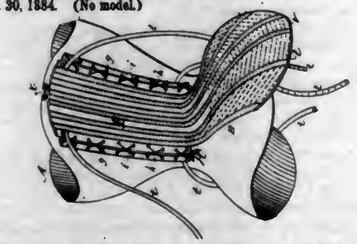


Claim.—1. An improved ball-cover for ear-jewels, composed of a pair of half-covers and a bezel, the latter secured within one half-cover and connected with the other half-cover by a hinge, and a pair of binders or snap-catches forming an inclosed double-acting fastening, substantially as herein set forth.

2. In a ball-cover for ear-jewels, the combination of a half-cover provided internally with a pair of stud-pintles, a half-cover provided internally with a hinge-bar and an edge-rim, and a partial bezel hinged at its extremities on said stud-pintles and at mid-length to said hinge-bar by a pintle parallel with the former, and constructed with a pair of binders or snap-catches to coact with said rim, substantially as herein set forth.

3. The combination, in a ball-cover for ear-jewels, of a pair of half-covers and a partial bezel, the latter secured within one half-cover and hinged within the other at mid-length, diametrically opposite the suspending-ring aperture of the ball-cover, substantially as and for the purpose herein set forth.

321,408. BUSTLE ATTACHMENT FOR CORSETS. MARK A. WATERHOUSE, Boston, Mass., assignor to Ai Waterhouse, Durham, Me. Filed Oct. 30, 1884. (No model.)



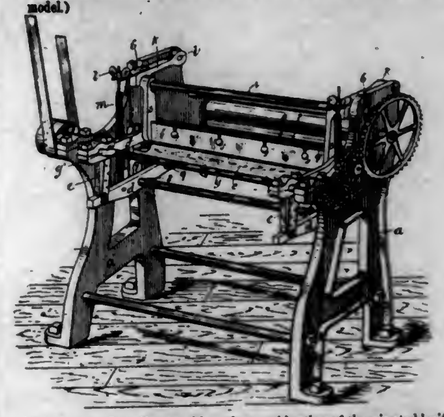
Claim.—1. A bustle attachment for corsets, consisting of a back piece or shank extending between the waist and shoulders, and a curved projection or bustle proper integral with said back piece, extending from the waist downward, said attachment being provided with longitudinal springs which are straight from the upper part thereof to the waist, and curved from the waist to the lower end of said attachment, substantially as described.

2. A bustle attachment for corsets, consisting of a back piece or shank extending between the waist and shoulders, and a curved projection or bustle proper integral with said back piece extending from the waist downward, said attachment being provided with longitudinal springs which are straight from the upper part thereof to the waist and curved from the waist to the lower end of said attachment, said attachment being divided centrally throughout its length, and the parts being laced together, substantially as described.

3. A bustle attachment for corsets, consisting of a back piece or shank extending between the waist and shoulders, and a curved projection or bustle proper integral with said back piece, extending from the waist downward, said attachment being provided with longitudinal springs which are straight from the upper part thereof to the waist and curved from the waist to the lower end of said attachment, the sides of said back piece or shank being provided with lacing-holes adapted for connection with the corset, substantially as described.

4. The combination of a corset provided at its back with vertical flaps extending between the waist and shoulders and provided with lacing-holes, and a bustle attachment consisting of a back piece or shank extending between the waist and shoulders and provided on its sides with lacing-flaps, and a curved projection or bustle proper integral with said back piece, extending from the waist downward, said attachment being provided with longitudinal springs, which are straight from the upper part thereof to the waist and curved from the waist to the lower end of said attachment, substantially as described.

321,409. LINT-MAKING MACHINE. JUSTUS WEBSTER, Boston, Mass., assignor to Grosvenor & Richards, same place. Filed Sept. 10, 1884. (No model.)



Claim.—1. In a lint-machine, the combination of the pivoted knife-frame and its knife, the vertically and laterally movable supporting-bed under the knife, the crank-shaft, and intermediate mechanism, substantially as described, whereby the knife is reciprocated laterally and the bed is reciprocated both laterally and vertically, whereby the laterally-reciprocating knife and bed are caused to alternately grasp and release the fabric, as set forth.

2. In a lint-machine, the combination of the knife, the oscillating frame supporting the knife, the vertically-movable supporting bed oscillated by a connection with the knife-frame, and mechanism, substantially as described, whereby the knife-frame is reciprocated horizontally and the supporting-bed vertically, as set forth.

3. In a lint-machine, the combination of the supporting-bed, mechanism, substantially as described, for moving said bed both laterally and vertically, the pivoted knife-supporting frame and mechanism for reciprocating said knife-frame, and the springs arranged to draw the bed upwardly toward the knife, as set forth.

4. The combination of the pivoted oscillating knife-frame, the arms *k k*, bearing upon said frame, the springs *m m*, holding up the bed, the bed *c*, having slotted arms engaged with pins on the knife-frame, the levers *d d*, supporting said bed, the crank-shaft *g*, and connecting devices, substantially as described, whereby the movements of the cranks on the crank-shaft are communicated to the knife-frame and the bed-supporting levers *d d*, as set forth.

5. The combination of the pivoted knife-frame, the bed *c*, having slotted arms 7, engaged with pins *i* on the knife-frame, the pivoted levers *d d*, supporting the bed, the crank-shaft *g*, and the rods *e e* and arms *f f*, whereby the movements of the cranks on the crank-shaft are communicated to the levers *d d* and the knife-frame, as set forth.

6. In a lint-machine, the combination of the oscillating knife and bed, the crank-shaft and intermediate mechanism, substantially as described, whereby the knife and bed are reciprocated and caused to alternately grasp and release the fabric, the elastic surfaced feed-rolls connected by gears, and a train of gearing connecting one of the arbors of said rolls with the crank-shaft, as set forth.

321,410. VULCANIZED SOFT RUBBER AND PROCESS OF MAKING SAME. FRANZ WILHÖFT, New York, N. Y. Filed Apr. 9, 1885. (Specimens.)

Claim.—1. As a new article of manufacture, vulcanized soft rubber in which all the sulphur is chemically combined with the rubber, substantially as specified.

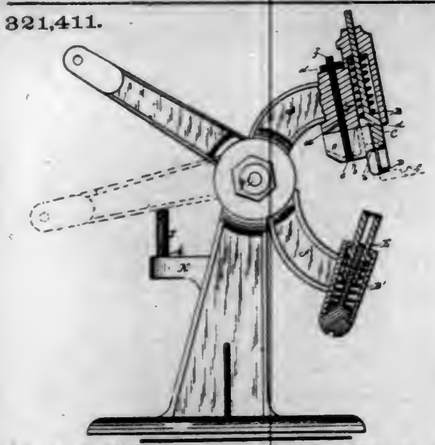
2. The process of vulcanizing soft rubber which consists in exposing it with sulphur to a minimum heat of 330° Fahrenheit, substantially as specified.

3. The process of vulcanizing soft rubber which consists in mixing it with three and three-eighths or less per cent. of sulphur and subjecting it to a heat of 330° Fahrenheit, or over, substantially as specified.

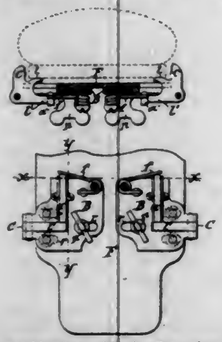
321,411. IMPLEMENT FOR SECURING BUTTONS TO FABRICS. ALEXANDER G. WILKINS, Meadville, Pa., and JAMES B. MILLER, Kent, Ohio, assignors to the Railway Speed Recorder Company, Kent, Ohio. Filed Jan. 27, 1885. (No model.)

Claim.—The head provided with slotted bolt C, and slotted and bored at *b a*, in combination with upsetting-die provided with shank *e*, and curved corner *i*, all constructed substantially as set forth.

321,411.



321,412. SKATE. CHARLES O. YALE, Rome, N. Y. Filed Jan. 3, 1885. (No model.)



Claim.—1. The combination, with the foot-plate of a skate, of jaws pivoted at opposite edges of said plate, levers extending inward from said jaws to receive the downward pressure of the foot, keys or wedges for retaining the levers in their depressed position, and springs arranged to automatically force the keys or wedges into their engagement with the levers, substantially as described and shown.

2. The combination, with the foot-plate of a skate, of plates secured thereon adjustable laterally, jaws pivoted on said plates and arranged to engage the edges of the sole of the boot or shoe, levers extending inward from the jaws to receive the downward pressure of the foot, keys or wedges for retaining the levers in their depressed position, and springs arranged to force the keys or wedges into their engagement with the levers, all combined to operate substantially as set forth and shown.

3. In combination with the foot-plate F and key or wedge *a*, the vertically-oscillatory jaw C, pivoted at its lower end, and the inward-projecting lever *l* and secondary lever *l'*, both formed integral with the jaw, substantially as described and shown.

4. In combination with the foot-plate F, the plates B B, adjustably connected to the foot-plate and projecting beyond the side edges thereof, the jaws C C, pivoted on the projecting portions of the plate B B, and provided with the inward-projecting upper levers, *l l*, and with the supplemental lower levers, *l' l'*, and the keys *a a*, entering between the plates B B and levers *l' l'*, substantially as described and shown.

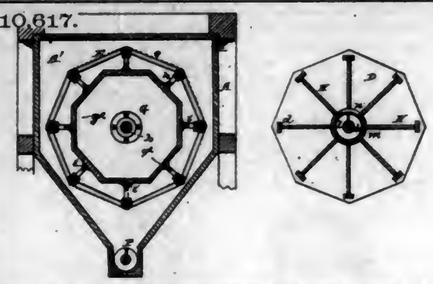
5. In combination with the foot-plate F, the plates B B, adjustably connected to said foot-plate and projecting beyond the side edges thereof, the jaws C C, pivoted on the projecting portions of the plates B B, and provided with the inward-projecting upper levers, *l l*, and the supplemental lower levers, *l' l'*, the keys *a a*, entering between the plates B B and levers *l' l'*, and the springs *f f*, pressing the said keys into their said engagement, substantially as described and shown.

REISSUES.

10,617. FLOUR-BOLT. NOAH W. HOLT, Buffalo, N. Y. Filed Mar. 31, 1885. Original No. 299,790, dated June 3, 1884.

Claim.—1. The combination, in a flour-bolt, with a reel having an outer finely-reticulated bolting-surface, and adapted to elevate material above its axis, of an interior drum rotating in the same direction with the reel, and adapted to receive material elevated by the outer bolting-surface and deliver it to the downward-moving portion of the bolting-surface, substantially as set forth.

10,617.



2. The combination, in a flour-bolt, of a reel having an outer finely-reticulated bolting-surface, and adapted to elevate material above its axis, and a many-sided interior drum rotating in the same direction with the reel, having a substantially imperforate surface, and adapted to receive material elevated by the outer bolting-surface and deliver it to the downward-moving portion of the bolting-surface, substantially as set forth.

3. The combination, with a bolting-reel, of a drum, G, secured within the reel, to revolve at the same speed and in the same direction with the reel, and having its sides g^3 arranged at an angle to the sides of the reel, substantially as set forth.

4. The combination, with a bolting-reel, of a drum, G, having tight heads *g g'*, and secured within the reel to rotate in the same direction and with the same speed as the reel, and longitudinal ribs or buckets *i*, secured to said drum and projecting toward the inner surface of the reel, whereby some of the material is elevated and carried from the ascending side to the descending side of the reel, substantially as set forth.

5. The combination, with the shaft *b*, of the reel-heads C D, longitudinal ribs *d*, secured to said heads, drum G, provided with tight heads *g g'* and secured to the shaft, and braces *h*, connecting the ribs *d* with said drum, substantially as set forth.

6. In a flour-bolt, the combination of an outer bolting-reel having a finely-reticulated surface and provided at the receiving end with a closed head having a feed-opening, a central shaft, an inner rotating drum adapted to receive material elevated by one side of the reel and deliver it to the opposite side of the reel, and ribs supported by the drum and projecting beyond the head of the drum and connected with one end of the bolting-reel, substantially as set forth.

7. In a flour-bolt, the combination of an outer reel having a finely-reticulated surface and provided at one end with a closed head having a feed-opening, a central shaft, and an inner rotating drum, shorter than the bolting-reel and adapted to receive material elevated by one side of the reel and to deliver it to the opposite side of the reel, and provided at one end with a closed head arranged at a short distance from the receiving end of the bolting-reel, whereby there is formed a vertical passage through which material can fall from the feed-opening upon the bolt-cloth, substantially as set forth.

8. In a flour-bolt, the combination, with an outer bolting-reel having a finely-reticulated surface, of a central shaft, an inner rotating drum, which is shorter than the bolting-reel, and is adapted to receive material elevated by one side of the reel and deliver it to the opposite side of the reel, and ribs attached to the drum and projecting horizontally therefrom and connected at their ends to the bolting-reel, substantially as set forth.

9. In a flour-bolt, the combination of an outer bolting-reel having a finely-reticulated surface, a central shaft, an inner rotating drum, adapted to receive material elevated by one side of the reel and deliver it to the opposite side of the reel, and braces projecting from the outer surface of the drum and adapted to support the bolt-cloth between the ends of the bolting-surface, substantially as set forth.

10. The combination of an outer bolting-reel having a finely-reticulated surface, a central shaft, an inner rotating drum adapted to receive material elevated by one side of the reel and deliver it to the opposite side of the reel, the drum having a closed head arranged at a short distance from the discharging end of the reel, and means adapted to lift unbolted material and discharge it between the closed head at the tail end of the drum and the adjacent reel-head at the tail end of the reel, substantially as set forth.

10,618. PRESERVING AND WATERPROOFING PAPER. CHARLES A. MAXFIELD, New York, N. Y., assignor to the Ozokerite Waterproof Paper Company; said Company assignor to Jacob Wallace, same place, trustee. Filed May 23, 1885. Original No. 278,443, dated May 29, 1883.

Claim.—As a new article of manufacture, paper saturated or treated with ozocerite, substantially as explained, to render it waterproof and durable.

R. PETERS, Photo-Lithographer, Washington, D. C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—Eastern District of Pennsylvania.

HEWITT *et al. v.* THE PENNSYLVANIA STEEL CO.

Decided May 26, 1885.

Bill in equity was filed January 15, 1882, and afterward various amendments were made, the last of which, October 4, 1882, brought in the heirs-at-law of one of the patentees. Meanwhile, on July 28, 1882, the patent expired. *Held* that the court could not acquire jurisdiction until the entire right in the patent was represented—namely, until October 4, 1882. At said time the right of the plaintiff to equitable relief by injunction, &c., was gone, by reason of the expiration of the patent. As the last amendment was allowed without full knowledge of the facts, the filing of said amendment must be regarded as the commencement of the suit; and as the patent had expired prior to said commencement, the court is without jurisdiction, and the bill must be dismissed.

Messrs. Strawbridge & Taylor and *Mr. Benjamin F. Thurston* for the complainants.

Hon. Wayne McVeigh and *Mr. Joseph C. Frailey* for the defendant.

BUTLER, *J.*:

On the 15th of January, 1882, the original bill was filed. The complainants were Abram S. Hewitt and Edward Cooper, both of New York, and the defendants were the Pennsylvania Steel Company, Samuel M. Felton, Eben F. Barker, Henry C. Spackman, Charlemagne Tower, Edmund Smith, William Matthews, and William M. Spackman, all of the city of Philadelphia; Luther S. Bent, of Steelton, Pennsylvania, and Francis Thompson, of Boston, Massachusetts. The bill set forth, in the usual form—

First. The grant and issue of certain letters patent of the United States numbered 72,061, and dated December 10, 1867, to Emile Martin and Pierre E. Martin, both of Paris, France, for an alleged "new and useful improved process for refining and converting cast-iron into cast-steel, and other combinations of iron and carbon," by which letters patent there was secured to them, their heirs, executors, administrators, or assigns for the term of seventeen years from the 10th day of December, 1867, the full and exclusive right of making, using, and vending the said invention or discovery throughout the United States and the Territories thereof.

Second. The surrender of said Letters Patent No. 72,061 by said Emile and Pierre E. Martin, and the grant and issue to them, thereupon, of Reissued Letters Patent No. 3,096, and dated August 25, 1868, for the same invention "for the residue of said term of seventeen years;" and,

Third. And your orators further show unto your Honors that on or about the 13th day of May, 1875, the said Pierre E. Martin and George Martin, l'administrateur delegue de la succession de Mr. Emile Martin, deceased, by an assignment in writing of that date, sold, assigned, and transferred unto Abram S. Hewitt and Edward Cooper, your orators, the whole right, title, and interest in and to said letters patent and invention, which assignment was duly recorded in the Patent Office of the United States, as by said assignment, or a duly authenticated copy thereof, and the certificate of such recording thereto affixed, ready in court to be produced, will fully and at large appear.

And your orators further show that your orators have extensively applied the said process to practical use, and have been, and but for the infringement hereinafter complained of, would still be in the undisturbed possession, use, and enjoyment of the exclusive privileges secured by the said letters patent, and in receipt of the profits of the same.

It is next charged that the defendants have infringed the patented improvement—

the exclusive right and privilege to make, use, and vend which, throughout the United States and the territories thereof, is thus by law vested in your orators.

And the relief prayed comprises injunctions, preliminary and perpetual, an account of profits, and, in addition thereto, an assessment of damages, in right of the complainants' title as set forth.

On the 16th of February, 1882, complainants' counsel filed an amendment bringing in the name of Pierre E. Martin as a plaintiff, and making other changes in the bill.

On the 4th of March, 1882, the plaintiff again amended by bringing in Pierre Blaise, George Martin, and others, "heirs at law of Emile Martin, deceased."

On the 6th of March, 1882, another amendment (which need not be more particularly referred to at this time) was made.

On the 23d of June, 1882, the defendants filed a demurrer to the bill, as defective for want of proper parties.

October 2, 1882, this demurrer was argued and the following order made:

Now, this 2d October, 1882, this cause coming on to be heard on the demurrer filed by the defendant to the complainants' bill as amended, and counsel for the respective parties having been heard thereupon, and the same having been considered by the court, it is adjudged, ordered, and decreed that said demurrer be and the same is hereby sustained, with leave to the complainants to amend their bill by making the administrator of Emile Martin a party complainant, if they shall be so advised.

On the 4th of October, 1882, the bill was again amended as follows: First. By inserting after the words "republic and," in line 25, page 1, of said bill, "Abram S. Hewitt above named in his capacity as administrator upon the estate of Emile Martin, deceased," and, second, by inserting after line 20, page 6:

And your orators further represent that the above-named heirs at law of the said Emile Martin, deceased, afterward made application to the Register for the Probate of Wills and granting Letters of Administration in and for the city and county of Philadelphia, in the Commonwealth of Pennsylvania, and within the Eastern District thereof, for letters of administration to be granted on the estate of the said Emile Martin, alias Marie Francois Emile Martin, within the said city and county, to Abram S. Hewitt, and such proceedings were had that afterward—to wit, on the 20th day of July, A. D. 1882—letters of administration upon the said estate, goods and chattels, rights and credits, which were of the said Emile Martin, were by said Register granted and committed to Abram S. Hewitt, who has duly accepted said trust and has qualified himself according to law, whereby there has devolved upon the said Abram S. Hewitt the right, title, and interest which

the said Emile Martin had at the time of his decease in and to said before-mentioned letters patent, and he holds the legal title to the same (being one undivided half of said letters patent) in trust for the said heirs at law of the said Emile Martin, deceased, and hereby appears and makes himself a party complainant in this bill of complaint.

To the bill as thus finally amended the defendants filed an answer on November 16, 1882.

Has the court jurisdiction?

Two propositions involved in this inquiry need no argument and scarcely require citation of authority.

First, that courts of equity can exercise jurisdiction in patent causes only where the circumstances call for the peculiar forms or character of relief which these courts administer. Ordinarily, the relief required is that afforded by the writ of injunction. Where, therefore, the circumstances do not call for the services of this writ the jurisdiction of equity does not ordinarily apply. (*Root* v. *Railway*, 105 U. S., 189; *Hayward* v. *Andrews*, 106 U. S., 675.)

Second, that to sustain such a suit the entire right in the patent must be represented. (*Gayler* v. *Winder*, 10 How., 494; *Blanchard* v. *Eldredge*, 1 Wall., 339.)

The patent in the case before us expired on the 28th of July, 1882. This is not only shown by the proofs, but was admitted on the argument. The original bill was filed in January preceding. At this time, therefore, (January,) if the proper parties were before the court, the plaintiff had a case calling for the services of an injunction, and the court consequently had jurisdiction. As we have seen, several changes were made in the parties between the time of filing the bill and the expiration of the patent, the last bringing in the heirs-at-law of Emile Martin, deceased. In this state of the record could the plaintiffs have had a decree? Were the proper parties in court? It seems quite plain that these questions must receive negative answers. The right of Pierre E. Martin (consisting of one-half the interest in the patent) alone was represented. No one of the several persons who had sought to do so had any authority to bring in or intermeddle with the remaining half, which had belonged to Emile Martin. It is not pretended that the attempted transfer of this interest to Hewitt and Cooper had any effect. It is clear that the interest did not descend to Emile's heirs, and that they had no authority whatever respecting it. It was personal property, and passed to the administrator, to be administered as all other personalty of the deceased. This is so fully settled by authority as to dispense with discussion. (*Shaw Valve Co.* v. *City of New Bedford*, 19 Fed. Rep., 753; *Bradley et al.* v. *Dudley et al.*, 19 Fed. Rep., 913.) It was not until the following October, several months after the patent had expired, that the interest of Emile Martin was brought in. Up to this period, therefore, no case was presented, and the defendant (in the light of subsequent developments) was entitled to a dismissal of the bill. It may be assumed that had the court been aware of the facts now ascertained the amendment would not have been allowed. Upon what valid ground should the administrator have been permitted to come into equity at a time when he was entitled to no equitable relief by attaching himself to a suit previously and improperly commenced? He could not get in by means of a new bill. The only remedies he required were those afforded by the law. And upon what just ground could Pierre Martin and those who with him claimed to own the other half, ask to have the administrator brought in? They had ceased to be entitled to any form of equitable relief. The only remedies they could then invoke are those afforded by the law. The object apparently was to deprive the defendants of trial by jury in an action at law—a right to which they were clearly entitled at the time. In *Allison* v. *Herring* (8 Law N. S. Eq., 223) the court refused leave to amend under circumstances very similar to those of this case. The amendment here was properly allowed in view of the facts disclosed at the time. To avoid injustice, however, the filing of the amendment should now be treated as the commencement of the suit. This view finds ample support in authority. Such an amendment, made under such circumstances, bears no relation to ordinary amendments which are held to relate back to the time of filing the bill. They present, in effect at least, a new case, involving different parties. In *Miller's Heirs* v. *McIntyre* (6 Peters, 63) the court so treated an amendment by which an additional defendant had been brought in after the statute of limitations had run against the plaintiff. In principle this case cannot be distinguished from the one before us. True, the party there brought in was a defendant, while here he is a plaintiff. This difference, however, is immaterial. The injustice of depriving the defendant in the former case of the bar of the statute by tacking him onto a suit previously commenced is not plainer than that of depriving the defendants here of their right to trial at law, and compelling them to appear and litigate in a court whose jurisdiction can only be made to cover the case by allowing the administrator to attach himself to the bill as an original party after the right to sue in equity had been lost. It is not necessary to enlarge on this subject.

Treating the suit as commenced when the amendment was filed in October, as we must, it is clear that the court has no jurisdiction, and the bill must be dismissed.

U. S. Circuit Court—District of Vermont.

PARKER v. MONTPELIER CARRIAGE COMPANY.

Decided May 23, 1885.

The patent herein involved was held valid in the case of *Parker* v. *Stow*, but was limited to the particular devices for changing the position of the carriage-top. As the defendant's devices appear to be the equivalents of those of the plaintiff the motion for a preliminary injunction is granted.

Messrs. Strawbridge & Taylor for the plaintiff.
Mr. Hiram A. Huse for the defendant.

WHEELER, *J.*:

This cause has been heard on a motion for a preliminary injunction to restrain an alleged infringement of Reissue Letters Patent No. 10,363, granted August 7, 1883, to the plaintiff, for an improvement in children's carriages. The same patent, with another which expired February 11, 1885, was before the circuit court for the district of Massachusetts, upon a former reissue in *Richardson* v. *Noyes*, (10 O. G., 507, 2 Ban. and Ard., 398,) and in its present form was before the circuit court for the district of Connecticut in *Parker* v. *Stow*, (23 Fed. Rep., 252.) In the former case the plaintiff obtained a decree principally, apparently, upon the patent which has now expired, the court remarking (Lowell, J.) that Richardson's patent, which was the one now in question, "must be restricted to the particular devices there specially described." The defendant relies upon this remark, and claims that the patent so restricted would not cover the alleged infringement, which is precisely the same as that adjudged to be an infringement in *Parker* v. *Stow*. The case of *Richardson* v. *Noyes* does not appear to have been before the court in *Parker* v. *Stow*, but, if it had been, there is not so much discrepancy between them as to make it probable that the decision in the latter case would have been any different. The patent in the latter case appears to have been held valid for the particular devices for changing the position of the top of the carriage relatively to the child's head, rather than for a broad invention of a movable top for such a carriage. The devices of that defendant and this vary from those particularly described in the patent only in the mode of fastening in position, and in the place of the joint, and in each of these respects each appears to be an equivalent of the other, as appears to have been held in that case. The authority of that case is not weakened by the other case, and as it covers this case, both as to validity of the patent and infringement, the plaintiff appears to be entitled to a preliminary injunction, as prayed for.

Motion granted.

U. S. Circuit Court—Southern District of Ohio.

MOSLER SAFE & LOCK CO. *v.* MOSLER, BAHMANN & CO.

Decided February 3, 1885.

1. Claims 1 and 2 of Letters Patent No. 281,640 cover an angle-bar for safe-frames, one side being cut away, so as to allow the uncut side to be bent for the purpose of making rounded corners. As it is shown that cuts for this purpose in angle-iron were not novel, and as there is no invention in the shape of the cuts or manner of making them, the claims are invalid.
2. Claim 3 of said letters patent and the combination claims of Letters Patent Nos. 273,585 and 283,136, also relating to improvements in fire-proof safes, are mere aggregations, and hence invalid.
3. *Semble*, that the inventions covered by the three patents, including the patent for the process, are separate and distinct, but not independent inventions, at least so far as they relate to the manufacture of safes, and might have been included in one patent.

Mr. Geo. J. Murray for the complainants.
Mr. James Moore for the respondents.

SAGE, *J.*:

The plaintiff sues for infringement of three patents for improvements in fire-proof safes, granted to Moses Mosler, plaintiff's assignor, as follows:

First. No. 273,585, application filed February 5, 1883, letters dated March 6, 1883. The object of this invention, as stated in the specification, is to provide an improved means of constructing the outer casing so that the safe may be filled from the bottom. The front and back frames of the safe are formed from angle-bars, which have one side cut away where the bends of the corners are to be made, and the uncut side bent around to close the joint in the corner, and form a frame with its outer corners rounded. The meeting joint at the bottom of the frame is overlapped by a short angle-piece, which is screwed or riveted to the frame uniting the joint. A sheet-metal cover is bent around the top sides and around the lower rounded corners of the frames. Upon each edge of this cover at the bottom of the safe and between the angle-frames are secured metal bars, which project beyond the edges of the cover to form rests for the bottom plate. The safe is made with the customary sheet-metal box, forming the interior receptacle, and secured to the cast-metal door-frame in the usual manner. The tops of the caster-frames conform to the curve of the rounded corners, and after the bottom plate is pushed into its place the inner bolts, which secure the caster-frames, pass through the bottom plate, which they secure, and the angle-frames. The patentee does not claim the bent angle-frames, nor the safe composed of these frames and the sheet-metal cover bent around them, (the same being shown and claimed by him in an application then pending,) but limits his claim to the combination, in a fire-proof safe, of the frames, the sheet-metal cover bent around the top sides and lower corners, with projecting metal bars and removable bottom plate, substantially as described.

Secondly. No. 281,640. This patent differs from No. 273,585 in that a particular description is given in the specification of the cuts in the side of the angle-bar where the bends are to be made; but the patentee specifies that the shape of the cut may be varied, it only being essential that sufficient metal be cut away on one side of the angle-bar to permit the other or uncut side to be bent, the cut nearest the uncut side being in the form of a curve or curves, so that when said uncut side is bent to form the corner it will bear upon and be supported by the curved end or portion of the cut, and thus be rounded by a curve similar to the curve of the cut. The claims are as follows:

1. An angle-bar for safe-frames, consisting, substantially as before set forth, of a right-angled bar, one of the sides of which is cut away, leaving a curve facing the uncut side, whereby said uncut side may be bent to bear upon said curve to form a rounded corner.
2. An angle-bar for safe-frames, consisting, substantially as before set forth, of a right-angled iron bar, one of the sides of which is cut away, with curved cuts meeting a right-angled cut, whereby the uncut side may be bent to form rounded corners.
3. In a safe, the combination of the front and back frames, formed of single bent angle-bars having one side cut away to leave curved ends, upon which the uncut side is bent to form rounded corners, and a metal sheet, E, bent around and secured to said frames to form the top sides of the safe, substantially as described.

Thirdly. No. 283,136, dated August 14, 1883. Application filed December 11, 1882. The claim is as follows:

The herein-described process of bending angle-irons, which consists in cutting away a portion of one web by a cut which severs the two webs at their junction for a distance equal to the arc of the corner to be bent, and removes sufficient of metal in front of the single part of the uncut web to permit the same to bend to the desired angle, and to insure the edges of the opening meeting to form a close joint as the bar is bent, substantially as shown and described.

In the specification the sides of the angle-bar are designated by the letters A and B, A representing the uncut web, and B the cut web. The outer opening of the cut C is made by lines at angles of forty-five degrees to the edge of the web, so that when the bar is bent the edges of this opening meet each other in a true miter. The inner opening, D, which extends outward within converging curved lines from the angle of the bar to where it meets the opening C, extending inward from the edge of B, and within converging lines, (the letter X suggesting the shape of the entire opening, excepting that the outer opening extends nearly to the angle of the bar,) has a dovetailed shape bounded by curved lines described from points upon the miter-line and the face of the uncut web A The curved ends of the web B abut against the uncut side when the bar is bent, making a close joint. The patentee states in the specification that—

the shape of the opening or cut-away portion of web B may be varied at will, so long as the meeting line or lines be not extended beyond the space bounded by the rounded corner and the edge-lines extended to web A.

The angle-bars cut out as described [it is stated in the specification] may be bent to the proper form by the machine represented in Fig. 6. In this, E represents a metal block having upwardly-projecting sides, screw-tapped to receive clamping-screw F. The opposite corners of the block are rounded to fit the inner curve of the desired corner. G is a loose block of iron, between which and the side of block E the uncut web A is clamped by screw F, the other web, B, resting on the block, the cut-away part over the rounded corner. By force applied to the projecting end of the bar it is bent around until the severed edges meet in a close joint.

The angle-bar herein shown is not claimed, as it is the subject of a pending application.

The safes described in these patents are filled through the bottom opening with fire-proof cement. The bottom is then secured in place and the casters attached.

The patentee states in specification forming part of Letters Patent No. 281,640 that before his invention safes were filled from the back, and that his safes—

can be completely finished before the filling is put in. The filling adds greatly to the weight; much labor in handling is therefore saved.

For the purposes of this suit these three patents may be considered as one, containing all the claims involved. As counsel for complainant suggests, the claims are for separate and distinct but not for independent inventions, at least so far as the manufacture of safes is concerned. They might have been all included in one application had the patentee chosen to so present them. The first and second claims in Letters Patent No. 281,640 are for an angle-bar for safes, consisting of a right-angled iron bar, one of the sides of which is cut away, (the cuts being curved and meeting a right-angled cut,) leaving a curve facing the uncut side, whereby said uncut side may be bent to form a rounded corner. The patentee states in the specification that he is aware—

that it has been proposed to make protecting corner-pieces for safes from angle-iron, from one side of which a triangular piece was cut out to permit the opposite side to bend.

He also states that—

the shape of the cut to permit the angle-bar to be bent to form rounded corners may be varied without departing from the principles of my invention, &c.

In the drawings accompanying the specification forming part of Letters Patent No. 283,136, Figure 5 represents a templet of card-board or thin sheet metal, which the patentee states he uses to determine about the shape and size of the notch or cut which it is necessary to make to admit of the bar being bent to any desired angle, and to make a corner of any desired curve. The templet is of the shape and size of a section of the angle-bar. One web is severed by a cut at right angles to its edge. The two webs are then severed at their junction for some distance upon each side of the cut. Then by bending the web so that the cut edges will pass each other, the templet may be bent to any curve or angle desired, and the lines of the cuts required to make the proper shape of opening in angle-bars to be bent to the same curve or angle marked and fixed upon. Such use of the templet as a pattern is nothing new. It is clearly shown by the testimony that cutting an opening in one web of an angle-bar to permit the bending of the bar to an angle or curve was known and used before the date claimed by complainants' assignor for his invention. Different shapes of cuts and openings are shown in exhibits put in evidence by respondents. Unless the precise cuts and shape of opening shown in the drawings attached to the specification forming part of the letters patent are patentable, the claims are worthless. But the patentee shows how, by the use of a pattern of flexible material—an old method and familiar as the use of the carpenters miter-box—he determines the lines of the cuts and the shape of the opening. In this there is no exercise of the inventive faculty. It is only what would occur to a mechanic of ordinary skill. Moreover, if the precise lines of cuts and shape of opening shown in the drawings were patentable, the patentee does not, as we have seen, so limit his claim, but seeks to cover variations, which, he says, may be made without departing from the principle of his invention.

Claims 1 and 2 in Letters Patent No. 281,640, and the claim in Letters Patent No. 283,136, are therefore adjudged invalid.

As to the combination claims, being the only claim in Letters Patent No. 273,585, and claim 3 in Letters Patent No. 281,640, the parts are old, excepting, only—and this is not material—that the precise lines of cuts and the shape of the opening of the angle-bar are not found in safes of prior manufacture. The sheet-metal cover is old. It is shown in respondent's exhibit, St. Louis safe. The bars C and lower removable plate, D, claimed in No. 273,585, are old. (See Respondent's Exhibit A and the deposition of John Hurst.) The safes in the manufacture of which they were used were square-cornered, as was then the fashion; but that is not material. When the angle-frames were bent the corners were round, and then heated and hammered upon both sides of the corners to make them square. Respondent's testimony also establishes that fire-proof safes were filled from the bottom as early as 1879 by the Cincinnati Safe and Lock Company, and in that year, probably also in 1878, by Hall's Safe and Lock Company. The complainant was the first to employ the combination claimed in the manufacture of round-cornered safes, but the change from square cornered safes was only a change in form.

The combination is nothing more than an aggregation, and falls by the application of the rulings in *Hailes* v. *Van Wormer*, (20 Wallace, 368;) *Reckendorfer* v. *Faber*, (92 U. S., 347,) and in *Pickering* v. *McCullough*, (104 U. S., 318.)

The bill is dismissed at complainants' costs.

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ABANDONMENT.

(See Priority of Invention.)

AMENDMENTS.

(See Construction of Specifications and Patents, 1.)

ANTICIPATION.

(See Priority of Invention.)

APPEALS.

(See Defense; Practice in the Courts, 1, 3, 4.)

APPLICATIONS FOR REISSUES.

(See Reissues, 2, 6.)

BILL IN EQUITY.

(See Construction of Specifications and Patents, 2; Defense.)

1. An objection that a patent for a design is for an aggregation of old ornaments and embodies no "invention" is concluded where the bill alleges infringement of the "invention" and is taken as confessed.
[*Dobson *et al.* v. The Hartford Carpet Company, 787.

2. A bill in equity implies a suit in equity with process and parties, and a bill brought under section 4915, Revised Statutes, is no exception to this rule.
[*Butterworth, Commissioner of Patents, v. Hill *et al.*, 1043.

CHANGE OF PROCESS.

(See Infringement, 11.)

CHANGE OF STRUCTURE.

(See Infringement, 1, 13, 14, 17, 18, 19, 20; Invention, 2.)

CIRCUIT COURTS.

(See Practice in the Courts, 3, 4.)

COMBINATION.

(See Construction of Specifications and Patents, 1, 5; Infringement, 1, 2, 3, 8, 9, 10, 23.)

COMMISSIONER OF PATENTS.

(See Service of Process.)

In his official capacity the Commissioner of Patents is an inhabitant of Washington, in the District of Columbia.
[*Butterworth, Commissioner of Patents, v. Hill, *et al.*, 1043.

CONSTRUCTION OF SPECIFICATIONS AND PATENTS.

(See Disclaimer; Infringement, 1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 13, 14, 17, 18, 19, 20; Injunction, 3; Invention, 1; Particular Patents; Subsequent Patents; Utility, 1.)

1. In patents for combinations of mechanism, limitations and provisos imposed by the inventor, especially such as were introduced into an application after it had been persistently rejected, must be strictly construed against the inventor and in favor of the public, and looked upon as in the nature of disclaimers.
[*Sargent v. The Hall Safe and Lock Company, *et al.*, 661.

2. Where a bill founded on a design patent with a claim for a pattern and separate claims for each of its parts is taken as confessed, it alleging infringement of the "invention," the patent will be held valid for the purposes of the suit.
[*Dobson *et al.* v. The Hartford Carpet Company, 787.

3. The joinder of such claims in one patent does not *per se* invalidate the patent or any claim at the objection of a defendant.
[*Id.

4. A claim of "the design for a carpet, substantially as shown," refers to the description and the drawing and is valid.
[*Id.

5. In complainant's reissued patent for an improvement in telegraphic printing instruments for registering the price of gold and stocks the word "jointly," in a claim for "two or more type-wheels moving independently, * * * arranged so as to print jointly or separately upon one strip of paper," is construed, in view of the state of the art and in the light of the specification, to mean a united action or action in co-operation, and not a simultaneous action, of the wheels.
[*The Gold and Stock Telegraph Company v. The Commercial Telegraph Company *et al.*, 1559.

6. *Semble*, that the inventions covered by the three patents, including the patent for the process, are separate and distinct, but not independent inventions, at least so far as they relate to the manufacture of safes, and might have been included in one patent.
[*Mosler Safe and Lock Company v. Mosler, Bahmann & Co., 1689.

CONSTRUCTION OF STATUTES.

(See Limitation of United States Patent by Foreign Patent Previously Granted, 1, 2, 3.)

1. Where the meaning of the Revised Statutes is plain, the court cannot recur to the original statutes to see if errors were committed in revising them; but it may do so when necessary to construe doubtful language used in the revision.
[*Canan v. Pound Manufacturing Company, 119.

2. Section 739, Revised Statutes, applies to suits brought under section 4915, Revised Statutes.
[*Butterworth, Commissioner of Patents, v. Hill *et al.*, 1043.

COSTS OF SUIT.

Where the master reported no profits and nominal damages in a suit in equity for the infringement of a patent for a design, and on exception by the plaintiff the circuit court allowed a sum for damages, and this court reversed its decree, the plaintiff was allowed costs in the circuit court to and including the interlocutory decree, and the defendant was allowed his costs after such decree.
[*Dobson *et al.*, v. The Hartford Carpet Company, 787.

DAMAGES AND PROFITS.

(See Costs of Suit.)

1. The usual license-fee exacted for the use of a patented invention is a proper measure for the damages sustained by its unlawful use.
[*Canan v. Pound Manufacturing Company, 119.

2. In a suit in equity for the infringement of a patent for a design for carpets, where no profits were found to have been made by the defendant, the circuit court allowed to the plaintiff as damages in respect to the yards of infringing carpets made and sold by the defendant the sum per yard which was the profit of the plaintiff in making and selling carpets with the patented design, there being no evidence as to the value imparted to the carpet by the design: *Held* that such award of damages was improper, and that only nominal damages should have been allowed.

[*Dobson *et al.* v. The Hartford Carpet Company, 787.

DECREE.

(See Defense.)

A decree entered by consent in a prior suit between the parties declaring the complainant to be the sole owners of the letters patent in suit, and that they are good and valid in law, is valid and binding upon the rights of both parties, and as to all questions determined by it is *res judicata*.

[*Tomkinson v. The Willets Manufacturing Company, 918.

DEFECTIVE PATENTS.

(See Reissues, 4.)

DEFENSE.

(See Bill in Equity, 1; Reisaues, 3; Utility, 1.)

The decree having declared the reissued patent to be valid, the attempt to show before the master that it was for a different invention from that described in the original patent, or that it was void for unreasonable delay, was inadmissible. Nor can facts (the original patent) not embraced in the allegations of the bill be introduced on appeal for the purpose of countervailing the decree.

[*Thomson *et al.* v. Wooster, 913.

DELAY IN APPLYING FOR REISSUE.

(See Defense; Reissues, 1, 2, 3, 5, 6, 7.)

DESIGNS.

(See Infringement, 15, 16.)

DILIGENCE.

(See Reissues, 1, 3, 5, 6, 7.)

DISCLAIMERS.

(See Construction of Specifications and Patents, 1.)

A disclaimer cannot be filed after the expiration of the term of a patent.

[*Vacuum Oil Company v. Buffalo Lubricating Oil Company, 918.

ENLARGEMENT OF CLAIMS.

(See Reissues, 1, 2, 5, 6, 7.)

EQUITY.

(See Bill in Equity, 2; Practice in the Courts, 1.)

EQUIVALENTS.

(See Infringement, 1, 2, 3, 21.)

EVIDENCE.

(See Defense.)

EXAMINERS-IN-CHIEF.

(See Reissues, 7.)

EXPIRATION OF PATENT.

(See Injunction, 2.)

FOREIGN PATENTS.

(See Limitation of United States Patents by Foreign Patents Previously Granted, 1, 2, 3.)

FOREIGN PURCHASERS OF PATENTED ARTICLES.

(See Infringement, 22.)

FORMER DECISIONS AFFIRMED.

(See Reissues, 5.)

The reasons of appeal, based on the aforesaid exceptions taken to the master's report, are, after examination, overruled.

[*Thomson *et al.* v. Wooster, 913.

FUNCTION.

(See Infringement, 2, 3.)

INFRINGEMENT.

(See Bill in Equity, 1; Construction of Specifications and Patents, 2; Injunction, 1, 2; Particular Patents: 1, Bartholomew; 3, 4, Bergen; 6, Blake; 9, Clark; 18, Reiher; Practice in the Courts, 3, 4.)

1. A patent for such a combination is not infringed by the use of any smaller number of its elements, either separately or in connection with others differing in form and arrangement from those for which they are substituted, unless the substituted elements are mechanical equivalents and were known to be such at the time the patent was granted.

[*Rowell *et al.* v. Lindsay *et al.*, 120.

2. Where infringement is alleged, a device in one patented combination, to be the equivalent of a device in another, must perform the same functions.

[*Id.

3. In this case one of the purposes of plaintiffs' brace-bar is to strengthen the shank, and thus decrease the quantity of material in it. The curved top of defendants' shank, which is alleged to be an equivalent, does not perform this material function, but, on the contrary, requires an increase of the quantity of material. Hence it is not an equivalent, and there is no infringement from its use in connection with the other elements of plaintiffs' combination.

[*Id.

4. The first claim of complainants' patent—viz: 1. "In a flanging-machine of the kind herein described, the extension of the lower roll beyond the end of the upper roll in order to the better support of the plate at the point of bend and prevent the formation of a ridge or bead, substantially as set forth"—*held* to be infringed by a machine which, before set to work, has the outer faces of the two rolls finsh, but is so organized that as the table upon which lies the plate to be flanged is raised to a perpendicular the upper roll is pushed back the thickness of the plate.

[*Phillips, Nimick & Co. v. D. W. C. Carroll & Co. *et al.*, 265.

5. In view of the state of the art, *Held* that, for the purpose of securing the free passage of water in one direction and preventing its escape in the other direction otherwise than gradually, the defendants had used nothing which they did not have a right to use, and had not appropriated any patentable invention which Carr had a right to cover, as against the defendants' structure, by the third claim of his reissue. All that Carr did, if anything, was to add his form of orifice to the valve and cup-leather of an existing pump-plunger.

[*Thompson *et al.* v. Boisselier *et al.*, 377.

6. Under recent decisions claim 3 of the Carr reissue must, in view of the state of the art, either be held not to involve a patentable invention, or, if it does, not to have been infringed.

[*Id.

7. Bill to enjoin infringement of letters patent for an improved hammock is dismissed because defendant uses but two of the six elements of complainant's combination and possibly an equivalent for a third element.

[*Travers v. Palmer, 382.

8. The patent is for a combination in which all the elements were known and open to public use. Its object was the accomplishment of a particular result—namely, to work electric signals on the block system. But the thing patented was the particular means devised by the inventor to accomplish that result, and to constitute in this case identity of invention, and therefore infringement, the result, the elements or their equivalents, and the combination must be the same, so that each element shall perform the same function.

[*The Electric Railroad Signal Company v. The Hall Railway Signal Company, 515.

9. In complainants' patent insulated sections of the rails as circuit-closers constitute an essential element in the combinations, the wheels and axles of the train forming an electrical connection between the opposite insulated rails at appropriate places, and so actuating the signal. The defendants dispense with insulated sections of the track and employ a separate instrument placed near the track, from which a lever connects with the track and is operated by the passing wheels of the train.

[*Id.

10. In complainants' patent a single battery is used to operate an electric circuit of considerable length by means of two wires or other metallic conductors attached to the positive and negative poles of the battery and suitably insulated from each other and from the earth. The defendants' plan does not include such a metallic circuit, but uses a circuit composed in part of the earth. In this case the evidence shows the difference is more than a mere substitution of the earth for one of the conducting-wires. It consists in the use of new elements, a new combination, and a new result.

[*Id.

11. The claim—"A fabric for collars and cuffs, or other similar articles, having outer sheets or layers of celluloid and an interlining of textile or fibrous material, substantially as and for the purposes specified"—is infringed by a fabric cut of a single sheet of chrolithion larger than the finished article, with its edges folded over upon a narrow strip of textile or fibrous material placed around the four edges of the large sheet, the different materials being made to adhere by heat and pressure.

[*The Celluloid Manufacturing Company v. The Chrolithion Collar and Cuff Company, 519.

12. Where there is a valid patent for a fabric, any one who uses the fabric without license is an infringer, whether he uses less or more than the patentee in the manufacture of similar articles.

[*Id.

13. In Letters Patent No. 186,369, granted to James Sargent, January 16, 1877, for improvements in time-locks, the combination-lock forming a member of the combinations claimed by the two claims of the patent is one which has a bolt or bearing that turns on an axis or revolves, as distinguished from a sliding bolt, and those claims are not infringed by a structure in which the combination-lock has not a turning or revolving bolt.

[*Sargent v. The Hall Safe and Lock Company *et al.*, 661.

14. Claim 2 of the patent requires that the tumblers of the combination-lock and its spindle shall be free to rotate while the bolt-work is held in its locked position by the bolt or bearing of the combination-lock.

[*Id.

15. It is not necessary that the design patented should be copied in every particular to constitute it an infringement. It is enough that it has the same general appearance if the variations are slight and to the eye of an ordinary person the two things are substantially similar.

[*Tomkinson v. The Willets Manufacturing Company, 918.

16. If the resemblance is such that a purchaser would be deceived, it will not aid the infringer to show that he has deviated slightly in details or has omitted something which an expert can discover.

[*Id.

17. Letters Patent No. 66,130, granted to James B. Clark, June 25, 1867, for an improvement in the manufacture of blanks for carriage-thill shackles, are not infringed by the manufacture of blanks for shackles in accordance with Letters Patent No. 106,225, granted to Willis B. Smith, August 9, 1870.

[*Clark *et al.* v. The Beecher Manufacturing Company, 1169.

18. The features of the Clark patent are that by dies the arms of the blank are bent into an oblique direction and the body into a curved form, so that the parts where the arms join the body are rounded on the outside as well as the inside, and that when subsequently the curved body is straightened there will be in it sufficient metal to form sharp outside corners by being pushed out into them.

[*Id.

19. The arms of the Smith blank are not bent in an oblique direction, its body is not curved, the parts where the arms join the body are not rounded either on the inside or on the outside, and in afterward straightening the back surplus metal is not pushed toward or into the corners to form them, but the existing corners already formed are forced farther apart by driving surplus metal into the back between the corners.

[*Id.

20. In view of the state of the art and the terms of the Clark patent, it must be confined, at least, to a shape which, for practical use in subsequent manipulation, has a disposition of metal which causes a sharp corner to be formed in substantially the same way as by the use of his blank.

[*Id.

21. Defendants use a certain friction device in their carriage for children, whereby the top may be secured in various positions over the child's head. Said device was known to be a substitute for the spring-latch and notches, which complainants use for the same purpose, before the date of their patent, and as the patented invention is broad enough to include equivalents of the described form infringement is proved.

[*Parker, trustee, *et al.* v. Stow, 1171.

22. The owner of a patent in the United States who has sold the patented article in England without restrictions or conditions cannot treat as an infringer one who has purchased the article in England of the vendee, or restrain him from using or selling it in the United States.

[*Holliday *et al.* v. Matheson *et al.*, 1444.

23. The defendants allege non-infringement, for the reason that the wheels of their instrument have a locking device which prevents their moving independently, "because it is a condition of the rotation of one wheel that the other shall first be brought to a state of rest;" but this is not the sense in which the patentee used the term "independently." By it he only meant that one wheel is not linked to the other, so that both must rotate together. As defendants' instrument differs from complainant's only in respect of the locking device, the allegation of infringement is sustained.

[*The Gold and Stock Telegraph Company v. The Commercial Telegraph Company *et al.*, 1559.

24. Complainant's patent, No. 268,591, for an improved baggage-check holder, has a single claim for a combination, including "flanges bent over" for holding the check securely. Defendant's check has the flanges, but is unlike that of complainant in any other respect. As defendant uses but one element of complainant's combination, there is no infringement.

[*Abbott v. Hoole Manufacturing and Baggage Check Company, 1561.

INJUNCTION.

(See Practice in the Courts, 1, 3, 4.)

1. The motion for a preliminary injunction to restrain alleged infringement is denied, because the plaintiff claims only the equitable title by assignment, and the affidavits showing said title and those denying it do not leave the question free from reasonable doubt, and because said question of title is now in course of investigation by a State court of competent jurisdiction.

[*The Continental Store Service Co. v. The New York Store Service Co. *et al.*, 1561.

2. Bill in equity was filed January 15, 1882, and afterward various amendments were made, the last of which, October 4, 1882, brought in the heirs-at-law of one of the patentees. Meanwhile, on July 28, 1882, the patent expired. *Held* that the court could not acquire jurisdiction until the entire right in the patent was represented—namely, until October 4, 1882. At said time the right of the plaintiff to equitable relief by injunction, &c., was gone, by reason of the expiration of the patent. As the last amendment was allowed without full knowledge of the facts, the filing of said amendment must be regarded as the commencement of the suit; and as the patent had expired prior to said commencement, the court is without jurisdiction, and the bill must be dismissed.

[*Hewitt *et al.* v. The Pennsylvania Steel Co., 1687.

3. The patent herein involved was held valid in the case of *Parker v. Stow*, but was limited to the particular devices for changing the position of the carriage-top. As the defendant's devices appear to be the equivalents of those of the plaintiff, the motion for a preliminary injunction is granted.

[*Parker v. Montpelier Carriage Company, 1688.

INOPERATIVE PATENTS.

(See Reissues, 4.)

INVENTION.

(See Patentability.)

1. *Held*, further, that the patented improvement here involved more than the employment of mere mechanical skill, and may fairly be ascribed to the exercise of the inventive faculty.

[*Phillips, Nimick & Co. v. D. W. C. Carroll & Co. *et al.*, 265.

2. The invention of Richardson, complainant's assignor, was not anticipated by the prior patent to Bein and Ulrich, for Richardson created a new device from an old one by altering the structure so as to abandon the principal thing which the old one was

created to do, and so as to change the principle of the mechanism in order to accomplish what the old structure did not undertake to do. This required invention.
[*Parker, trustee, *et al.*, *v.* Snow, 1171.

3. The use in succession of two distinct pairs of dies of well-known kinds, not combined in one machine, nor co-operating to one result, but each pair doing by itself its own work, is not a patentable invention.
[*The Beecher Manufacturing Company *v.* The Atwater Manufacturing Company *et al.*, 1306.

JURISDICTION.

(See Injunction, 2; Service of Process.)

LICENSE.

(See Use of Patented Articles, 1.)

LIMITATION OF UNITED STATES PATENT BY FOREIGN PATENT PREVIOUSLY GRANTED.

1. Section 4887 is not to be construed as requiring the limitation to be expressed in the patent, but merely as controlling the effect or duration of the grant.
[*Canan *v.* Pound Manufacturing Company, 119.

2. A patent granted for the term of seventeen years from the date of its issue, and not limited upon its face to expire at the time of expiration of a foreign patent granted to the same party, *held* to be valid for the term of such foreign patent.
[*Id.

3. Complainant's patent, originally issued to the inventor, E. A. Callahan, was applied for in December, 1867, and bears date of April 21, 1868. An English patent for the Callahan invention bears date of March 16, 1868, the date of the filing of the provisional specification, and was sealed on August 21, 1868. Upon these facts it is *held* that the complainant's patent did not expire on March 16, 1885.
[*The Gold and Stock Telegraph Company *v.* The Commercial Telegraph Company *et al.*, 1559.

MACHINE.

(See Reissues, 2.)

MASTER'S REPORT.

(See Former Decisions Affirmed.)

MEASURE OF DAMAGES.

(See Damages and Profits, 1.)

MECHANICAL SKILL.

(See Invention, 1.)

MODE OF OPERATION.

(See Reissues, 2.)

NEW CLAIMS.

(See Reissues, 1, 2.)

NEW ELEMENTS.

(See Infringement, 10.)

NEW MATTER.

(See Reissues, 1, 2.)

NEW RESULTS.

(See Infringement, 10; Invention, 2.)

OLD DEVICES.

(See Subsequent Patents.)

OLD ELEMENTS.

(See Invention, 3.)

PARTIAL USE.

(See Infringement, 1, 7, 12, 24.)

PARTICULAR PATENTS.

1. BARTHOLOMEW—WATER-CLOSET.
The first claim of Letters Patent No. 21,734, granted to Frederick H. Bartholomew, October 12, 1858, for an improved water-closet, and extended, October 2, 1872, for seven years from October 12, 1872—namely: "1. The use of a drip-box or leak-chamber arranged above the closet and below and around the supply-cock, substantially as described"—must, in view of the state of the art, be limited to a drip-box arranged above or on top of the closet, and is not infringed by a structure in which the drip-box is cast on the side of the trunk, near the top, but below it, and not on top of it.
[*Thompson *et al. v.* Boisselier *et al.*, 377.

2. BERGEN—CORN-PLANTERS.
Letters Patent No. 46,629, granted March 7, 1865, and Reissue Letters Patent No. 1,935, granted April 18, 1865, to George I. Bergen for an improvement in corn-planters, declared void.
[*McFarland *v.* The Deere & Mansur Manufacturing Company *et al.*, 789.

3. Passing by the fact that the state of the art shows to be requisite a less freedom of play between the frames than that provided by Bergen's slotted joint, and suggests inquiry whether this feature is not void for want of utility, it appears that Bergen was anticipated again and again by patentees who employed joints of various kinds for the same purpose, one of which is almost identical with his slotted joint, and another of which is coupled with a claim for "any other convenient contrivance" for effecting the purpose. Wherefore, if sustained as for the slotted joint, (which itself is not Bergen's invention,) the patent must be limited to the specific device, and as defendants do not use such a slotted joint as he describes there is no infringement.
[*Id.

4. It appears that two-frame planters are as old at least as that covered by a patent issued to one Brown in 1855; that that machine and all subsequent two-frame machines prior to Bergen's employed some device for raising the forward frame, either a lever or a windlass, and that these devices were before the public when Bergen introduced his windlass. Wherefore he may not invoke the doctrine of equivalents, but is entitled only to the mode of lifting the forward frame which he specially exhibited, and as he uses a windlass and the defendants a lever there is no infringement.
[*Id.

5. Passing by the fact that a patent was issued to one Vandiver in 1863, showing automatic scrapers having a reverse action, (that is, remaining in contact with the wheel until removed by a lever,) the change in which by Bergen could scarcely require invention, it conclusively appears that scrapers of this identical kind were used in 1861 on planters which were extensively sold in 1862. Wherefore, though courts are wary in allowing parol evidence to defeat a patent, the proof in this case is so complete and clear that it leaves no room for doubt that this device was known and in public use at least three years prior to the date of Bergen's patent.
[*Id.

6. BLAKE—RELIEF-VALVE FOR WATER-CYLINDERS.
The second claim of the reissued Letters Patent No. 7,886, granted to Charles E. Blake September 18, 1877, is *held* to be invalid for lack of patentable novelty, unless strictly construed, and as thus construed is not infringed by the defendants.
[*Blake *v.* The City and County of San Francisco *et al.*, 380.

7. CARR—WATER-CLOSETS.
The third claim of Reissued Letters Patent No. 978, granted to William S. Carr, June 12, 1860, for improvements in water-closets, (the original patent having been granted to him August 5, 1856, and as reissued extended, July 23, 1870, for seven years from August 5, 1870)—namely: "3. In a valve for water-closets, a cup-leather for controlling the motion of said valve in closing gradually, substantially as specified, said cup-leather moving freely in one direction, and closing against the containing-cylinder in the other direction, and the leakage of water in said cylinder allowing the movement of said cup-leather, as set forth"—construed, and the operation of the device explained.
[*Thompson *et al. v.* Boisselier *et al.*, 377.

8. The third claim of the Carr reissue involves, as an element in it, the means of leakage set forth. The only point of invention, if it could be dignified by that name, was the special means of leakage shown by Carr, but which the defendants did not use.
[*Id.

9. CLARK—MANUFACTURE OF BLANKS FOR CARRIAGE-THILL SHACKLES.
Letters Patent No. 66,130, granted to James B. Clark, June 25, 1867, for an improvement in the manufacture of blanks for carriage-thill shackles, are not infringed by the manufacture of blanks for shackles in accordance with Letters Patent No. 106,225, granted to Willis B. Smith, August 9, 1870.
[*Clark *et al. v.* The Beecher Manufacturing Company, 1169.

10. EVEREST—APPARATUS FOR DISTILLING PETROLEUM.
The second and twelfth claims of Letters Patent No. 68,426, granted September 3, 1867, to Hiram B. Everest, for an improvement in apparatus for distilling petroleum, declared void for want of novelty.
[*Vacuum Oil Company *v.* Buffalo Lubricating Oil Company, 918.

11. KANOUSE AND SANBORN—COLLAR AND CUFF.
Letters Patent No. 200,939, granted to Rufus A. Sanborn, Charles O. Kanouse, and Albert A. Sanborn, March 5, 1878, is valid.
[*The Celluloid Manufacturing Company *v.* The Chrolithion Collar and Cuff Company, 519.

12. MOSLER—FIRE-PROOF SAFE.
Claims 1 and 2 of Letters Patent No. 281,640 cover an angle-bar for safe-frames, one side being cut away, so as to allow the uncut side to be bent for the purpose of making rounded corners. As it is shown that cuts for this purpose in angle-iron were not novel, and as there is no invention in the shape of the cuts or manner of making them, the claims are invalid.
[*Mosler Safe and Lock Co. *v.* Mosler, Bahmann & Co., 1689.

13. Claim 3 of said letters patent and the combination claims of Letters Patent Nos. 273,585 and 283,186, also relating to improvements in fire-proof safes, are mere aggregations, and hence invalid.
[*Id.

14. O'HAIRE—OPERATING CAR-DOORS.
Letters Patent No. 142,810, for an improvement in operating car-doors, granted September 16, 1873, to John S. O'Haire, declared void for want of novelty. The patent was for the combination of a rod, crank, or lever, and guiding-frame secured to the front door of a street-car, and combined with an operating-lever, which enables the driver to open the rear door. As there is no evidence of invention prior to date of the application, and as the state of the art at that time shows that neither the separate elements of the devices nor the combination is new, it is held that there was no patentable invention in the contrivance described in the patent, and hence no infringement.
[*Stephenson *v.* Brooklyn Cross-Town Railroad Company, 263.

15. OLMSTED—INSULATING TELEGRAPH-WIRES.
Reissued Patents Nos. 6,954 and 6,955, granted to Joseph Olmsted, February 29, 1876, for an improvement in insulating telegraph-wires, declared void for the following reasons: The process consists in compressing the wax or other suitable material into the pores of the fibrous covering of the wire without scraping off any part of it. This process was anticipated by letters patent to Dundonald and to Baudouin in Great Britain, which describe the compressing of the wax, &c., to attain the same result, namely—the insulation of the wire. The patent is therefore invalid.
[*The Western Electric Manufacturing Company *v.* The Ansonia Brass and Copper Company, 1305.

16. The difference between the complainant's and the Baudouin process consists merely in the use of a greater quantity of wax. This may be an improvement on the latter process, but it does not involve invention.
[*Id.

17. The allegation of complainants that one of the features of its process is allowing the wax to cool before compressing it is not sustained by any mention of this feature in either the specification or claim of its patent. As the claim fails to describe this feature, it cannot be held to be covered by the patent.
[*Id.

18. REIHER—TRANSOM-LIFTERS.
The defendant Reiher's device, secured to him by Letters Patent No. 226,353, is satisfactorily shown by expert testimony to differ from Wollensak's device in that, proceeding from a different point in the state of the art, it presents a different structure operating upon a totally different principle.
[*Wollensak *v.* Reiher, 1303.

19. ROWELL—CULTIVATOR.
Reissued Letters Patent No. 2,909, granted to John S. and Ira Rowell, March 31, 1868, for an improvement in cultivators, construed and sustained. In this patent, which is for an improved cultivator, the claim covers the combination of a beam, shank, brace-bar, and bolt. In view of the prior state of the art, to sustain it it must be construed so as to confine it substantially to the form described.
[*Rowell *et al. v.* Lindsay *et al.*, 120.

20. STEPHENSON—SIGNALING DEVICE FOR STREET-CARS.
Letters Patent No. 161,568, granted March 3, 1875, to John Stephenson, for an improvement in signaling device for street-cars, declared void for want of novelty. The patent was for two bell cords, provided with a system of pull-straps, passing along the sides of a street-car, within convenient reach of the seated passengers, for signaling purposes. As the evidence shows that long prior to the application such signaling appliances had been attached to the middle of street-car ceilings, there was no invention in changing them to the sides of the cars, and hence the patent is void.
[*Stephenson *v.* Brooklyn Cross-Town Railroad Company, 263.

21. STEPHENSON—STREET-CARS.
Letters Patent No. 167,585, granted September 7, 1875, to John Stephenson, for an improvement in street-cars, declared void for want of novelty. The patent was for a combination of a bonnet in which was fixed a mirror, and an opening in the front door of a street-car, by means of which the driver can see what is transpiring within the car without turning his head. As each element is old, and as neither element performs any new office or imparts any new power to the other, and as all combined do not produce any new result or any old result more cheaply or otherwise more advantageously, this is a mere aggregation, and not a patentable combination.
[*Id.

22. WOLLENSAK—TRANSOM-LIFTERS.
Reissue Letters Patent No. 9,307, issued to John F. Wollensak for an improvement in transom-lifters, describes, broadly, "any construction, combination, or arrangement of parts which shall support the long or operating rod" for the purpose specified; but in view of the state of the art the claim must be regarded as a narrow one, and limited to the particular combination described.
[*Wollensak *v.* Reiher, 1303.

PATENTABILITY.

(See Infringement, 6; Invention, 1.)

To be patentable, a thing must not only be new and useful, but must amount to an invention or discovery.
[*Thompson *et al. v.* Boisselier *et al.* Thompson *et al. v.* Boisselier *et al.*, 377.

PATENTED ARTICLES.

(See Use of Patented Articles.)

PATENTS.

(See Disclaimers; Subsequent Patents.)

PRACTICE IN THE COURTS.

(See Bill in Equity, 1, 2; Construction of Specifications and Patents, 2; Construction of Statutes, 1, 2; Costs of Suit; Damages and Profits, 2; Decree; Defense; Disclaimers; Former Decisions Affirmed.)

The appellee, complainant below, filed his bill alleging infringement of certain letters patent, reissued, for an improved folding-guide for sewing-machines. The defendants appeared by their solicitor, but filed no answer and made no defense, and a rule that the bill be taken *pro confesso* was entered, and a decree duly made to the effect that the letters patent were valid, that defendants had infringed them, and that complainant recover the profits and damages. Under this decree the parties went before the master, whose report found certain damages and profits, and, on exceptions, the court made a decree allowing the profits, but disallowing the damages. On the appeal therefrom, assigning reasons for reversal relating to the account before the master and his report thereon, and relating to the validity of the letters patent, the decree is affirmed, for the following reasons:

1. Under the equity rules prescribed by the Supreme Court the defendants are concluded by the decree *pro confesso*, so far at least as it is supported by the allegations of the bill, taking the same to be true. They are barred and precluded from questioning its correctness on appeal, unless on the face of the bill it appears manifest that it was erroneous and improperly granted.
[*Thomson *et al. v.* Wooster, 913.

2. *Quære*, Whether the existing eighteenth rule in equity, providing that after a decree *pro confesso* "the cause shall be proceeded in *ex parte*," intended a different practice in respect of the right of the defendant to appear before the master from that contemplated by the former rules, which did not contain this *ex parte* clause.
[*Id.

A decree was made and a perpetual injunction issued against the defendant for infringement of letters patent for an improvement in concrete pavements. Defendant having varied his method of laying the pavement, but, as alleged, still infringing, complainant obtained a rule to show cause why he should not be punished for contempt. The judges were divided on the question of infringement, and certified it in three divisions for decision. On consideration thereof the case is dismissed, with direction to the circuit court to proceed according to law, for the following reasons:

3. The question to be certified under section 652 Revised Statutes must be a question of law, and must be capable of being presented in a single point.
[*The California Artificial Stone Paving Company *v.* Molitor, 1044.

4. In this case the question is a mixed one of fact and law, which the circuit court must decide for itself in the ordinary way. If the judges disagree, the defendant must be discharged, and the complainant may then either seek a review in this Court, or, which is the better way, bring a new suit for the infringement.
[*Id.

PRACTICE IN THE PATENT OFFICE.

(See Reissues, 7.)

PRIORITY OF INVENTION.

The defense of anticipation considered, and *held* that the evidence shows a failure to reduce the conception to practical use and its abandonment, thus leaving the field of invention open to others.
[*Phillips, Nimick & Co. *v.* D. W. C. Carroll & Co. *et al.*, 265.

PROCESS AND PRODUCTS.

(See Construction of Specifications and Patents, 6.)

REDUCTION TO PRACTICE.

(See Priority of Invention.)

REISSUES.

1. When a reissue is made between eight and nine years after the original, the specifications in the two patents being identical, it is not enough to support a new claim in the reissue that the inventor might have made the claim in the original patent; its subject-matter must have been either claimed in some manner in the original or included within what was there claimed.
[*Electric Gas Lighting Company *v.* Smith & Rhodes Electric Company, 792.

2. In this case the first claim in the original patent was for a circuit-breaker only, while the fifth claim of the reissue, which is sought to be founded on it, is for the machinery operating the circuit-breaker. As the claim in the original was not for a combination, the combination of the claim in the reissue cannot be said to be the same combination further restricted by additional elements. On reconsideration, it is *held* that the subject-matter of the reissue claim is not included in what was claimed in the original patent.
[*Id.

3. The fact that the reissue was applied for fourteen years after date of the patent, if urged on defense against its validity, would have been strongly presumptive of unreasonable delay; but it might possibly have been explained, and the court, which did not have the original patent before it, could not say, as a matter of law, that it was insusceptible of explanation.
[*Thomson *et al. v.* Wooster, 913.

4. To the argument that the bill avers that the validity of the original patent was established in numerous suits during the fourteen years prior to reissue, thereby averring, substantially, that it was valid and operative, and that therefore the reissue, which is dependent on the invalidity or inoperativeness of the original patent, is void, the answer is that these suits may have pertained to parts of the invention as to which the specification was clear, full, and sufficient, and the court cannot say, as mere matter of law, that there was not defectiveness or insufficiency in the specification relating to other parts of the invention, or modes of using it and putting it into operation, which were not noticed until the application for reissue was made.
[*Id.

Reissue Letters Patent No. 10,264, issued to Wollensak December 26, 1882, on surrender of original Letters Patent No. 148,538, dated March 10, 1874, for an improvement in transom-lifters. The delay in applying for reissue was for more than five years. The original patent was confined to two claims, which were the first two claims in the reissue; but seven additional claims appear in the reissue, and it was of these that infringement was alleged.

The decision of the circuit court dismissing the bill for want of equity is affirmed for the following reasons:

5. Admitting that the added claims were embraced by the original specification, nevertheless an inspection of the patent when issued would have informed the patentee that it failed to cover the area of his invention; and his failure to improve this opportunity with reasonable diligence constitutes laches, and disables him in equity from enforcing his right to the detriment of those who have thereby been led to act as though it were abandoned.
[Wollensak *v.* Reiher 1301.

6. The settled rule is, where the claim is merely expanded, that a delay for more than two years in applying for reissue invalidates the reissue, unless such delay is accounted for and excused by special circumstances. It is a question of law arising on the face of the bill where such delay is not therein explained.
[*Id.

7. The averment in the bill that complainant had presented to the Patent Office a full statement of the facts connected with the delay, and that the Examiner-in-Chief had decided that he had satisfactorily explained the delay and was entitled to reissue, is, therefore, not enough. The Patent Office expressly or implicitly decides the question of diligence in every case of reissue; but the very question for judicial review is whether the Patent Office has decided rightly, and the special circumstances held to have excused the delay should have been set out.
[*Id.

RES ADJUDICATA.

(See Decree.)

RIGHT TO USE.

(See Infringement, 22; Use of Patented Articles.)

SEPARATE PATENTS FOR SEPARATE INVENTIONS.

(See Construction of Specifications and Patents, 6.)

SERVICE OF PROCESS.

(See Commissioner of Patents.)

The Commissioner of Patents, by accepting service of a process issued under a bill brought under Section 4915, Revised Statutes, in the district of Vermont, and accompanying such acceptance with a letter declining to appear in defense of the suit, does not consent to the jurisdiction of the court, and, therefore, the court were without authority to proceed and enter the decree which has been appealed from.
[*Butterworth, Commissioner of Patents, *v.* Hill *et al.*, 1043.

SIMILAR DEVICES.

(See Infringement, 4, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24; Injunction, 3.)

STATE OF THE ART.

(See Construction of Specifications and Patents, 5; Infringement, 6.)

SUBSEQUENT PATENTS.

When the public has acquired in any way the right to use a machine or device for a particular purpose, it has the right to use it for all the like purposes to which it can be applied, and no one can subsequently obtain a valid patent to cover the application of the device to a similar purpose unless a new and different result is obtained, which result will not be deemed as new or different if it is the same in character as the old result.
[*Blake *v.* The City and County of San Francisco *et al.*, 380.

SUBSTITUTION OF PARTS.

(See Infringement, 1.)

SUITS FOR DAMAGES.

(See Costs of Suit.)

SUITS IN EQUITY.

(See Damages and Profits, 2.)

TECHNICAL TERMS.

(See Construction of Specifications and Patents, 5; Infringement, 23.)

TERM OF PATENT.

(See Limitation of United States Patent by Foreign Patent Previously Granted, 1, 2.)

TITLE TO PATENT.

(See Injunction, 1, 2.)

TRADE-MARKS.

1. Neither the color alone nor the form alone of a package nor the color of an article of commerce can constitute a trade-mark.
[*Ex parte* Landreth, 1441.

2. The doctrine of the United States courts, so far as it goes, is in entire consonance with that of the courts of Great Britain and France that color alone cannot constitute a valid trade-mark.
[Id.

3. As words, characters, and symbols descriptive in their application to any merchandise cannot be appropriated by any one to his exclusive use, for the same reason ordinary materials sold in the market and adapted for manifold uses cannot be appropriated to any particular one of these uses by any person to the exclusion of the public from the same employment of them.
[Id.

4. Colored fabrics being commonly on sale and in use, there can be no legal restriction upon their use by any person for any lawful purpose that suits his convenience.
[Id.

5. The word "device" is used in respect to trade-marks in a sense totally different from that in which it is employed in connection with mechanical contrivances. It does not signify an expedient or scheme for any purpose but an emblematic figure, mark, or sign capable of being imprinted or otherwise displayed upon merchandise.
[Id.

USE OF PATENTED ARTICLES.

(See Infringement, 12, 22; Subsequent Patents; Utility, 1.)

Where the owner of the patent sells the patented article under circumstances which imply that the purchaser is not to acquire an unqualified property in it, as where a license accompanies the transfer, the purchaser's rights are limited to the extent of the monopoly granted to him.
[*Holliday *et al. v.* Matheson *et al.*, 1444.

UTILITY.

Parties who employ a patented device ought not to expect a defense resting upon an alleged want of utility to find much favor with the court.
[*Phillips, Nimick & Co. *v.* D. W. C. Carroll & Co. *et al.*, 265.

VALIDITY OF PATENTS.

(See Construction of Specifications and Patents, 3, 4; Reissues, 4 Subsequent Patents.)

VALID PATENTS.

(See Limitation of United States Patents by Foreign Patents Previously Granted, 2; Particular Patents: 7, Carr; 11, Kanouse and Sanborn; 14, O'Haire; 15, 16, 17, Olmstead; 19, Rowell; 22, Wollensak.)

VOID PATENTS.

(See Particular Patents: 2, 5, Bergen; 10, Everest; 12, 13, Mosier; 18, Reiher; 20, 21, Stephenson; Reissues, 1, 2.)

ALPHABETICAL LIST OF PATENTEES

FOR

THE QUARTER ENDING JUNE 30, 1885.

[Claims and drawings of Designs do not appear in the Monthly Volumes or the Gazette. Separate indexes for Designs, Trade-Marks, Labels, and Disclaimers follow this.]

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
			Specification.	Drawing.	Volume.	Page.
Abbot, Isaac A., Denver, Colo. Attachment for oven-doors	318,155	May 19	1644	439	31	842
Abbot Spinner Company. (See Abbot, Theodore T., assignor.)						
Abbot Spinner Company. (See Russell, Isaac H., assignor.)						
Abbot, Theodore T., Lunenburg, assignor to Abbot Spinner Company, Boston, Mass. Machinery for spinning cotton yarn	317,607	May 12	915	234, 235	31	697
Abbot, Theodore T., Lunenburg, assignor to Abbot Spinner Company, Boston, Mass. Manufacturing cotton yarn	317,608	May 12	917	235	31	697
Abbott, Benjamin R., Bloomington, Ill. Grader or road-scraper	321,269	June 30	3131	834	31	1651
Abbott, John, Philadelphia, Pa. Carding-machine	316,215	Apr. 21	1709	448	31	323
Abbott, Nathaniel B. (See Carpenter, Oramill C., assignor.)						
Abbott, Paschal J., Dexter, Me. Flooring-clamp	317,959	May 19	1389	373	31	795
Abbott, Thomas A., assignor to National Plaster Company, Lowell, Mass. Plaster	315,691	Apr. 14	986	.....	31	185
Abbott, William. (See Ritchie, Joshua R., assignor.)						
Abecasis, Solomon, Boston, Mass. Fastening device for shoes, gloves, &c.	318,407	May 19	1981	533	31	904
Abell, Asahel, Hamilton, Ontario, Canada. Sewing-machine	319,435	June 9	631	171	31	1175
Abell, John, Woodbridge, Ontario, Canada. Straw-burning furnace	316,216	Apr. 21	1709	448	31	323
Abrams, Gustav, and N. Nilson, Dassel, Minn. Valve-gear for steam-engines	316,433	Apr. 28	2015	529	31	383
Abrams, Gustav, and N. Nilson, Dassel, Minn. Valve-gear for engines	317,071	May 5	184	46	31	556
Abrams, William B., Wells, N. Y. Fastening for bedstead-slats	320,741	June 23	2441	647	31	1518
Acheson, James E., Ainsworth, Iowa. Portable building	319,436	June 9	632	171	31	1175
Acker, Charles W., Watertown, N. Y. Shifting top for hammock-supports	316,513	Apr. 28	2119	558	31	402
Ackerman, Abraham, New York, N. Y. Sample-envelope	315,692	Apr. 14	987	258	31	185
Ackermann, George, assignor of five-sixths to A. Fischer, A. Baum, G. Balz, C. F. London, Cincinnati, Ohio, and J. Wagner, Dayton, Ky. Can-soldering machine	315,877	Apr. 14	1245	325, 326	31	232
Ackerson, Charles H., San Francisco, Cal. Support for centers for masonry arches	317,072	May 5	186	47	31	557
Acklen, Aron A., and U. C. Pipes, Arcadia, La. Hand-truck	319,046	June 2	137	37	31	1073
Acme Hub Company. (See Maris, Jared, assignor.)						
Adair, Richard H., Stovall, assignor of one-half to L. R. Fawkes, Aledo, Tex. Plow	320,611	June 23	2281	603	31	1487
Adami, Conrad, Boston, assignor to J. W. Tufts, Medford, Mass. Apparatus for dispensing soda-water	316,594	Apr. 28	2219	584	31	422
Adams, Charles D., Geneva, Ga. Two-wheeled vehicle	317,271	May 5	465	117	31	608
Adams, Charles E. (See Watson and Adams.)						
Adams, George, Sherburne, Minn. Cockle-seed separator	318,677	May 26	2340	625	31	978
Adams, George, Sherburne, Minn. Flaxseed-separator	320,831	June 23	2550	675	31	1539
Adams, Henry A., *et al.* (See Shufelt, Calvin P., assignor.)						
Adams, J. Phelps, *et al.* (See Shufelt, Calvin P., assignor.)						
Adams, James W., Chicago, Ill. Bolt-threading machine	318,678	May 26	2341	625, 626	31	978
Adams, John B. (See Smith and Adams.)						
Adams, John C., *et al.* (See Martin, Thomas F., assignor.)						
Adams, John F., Irvington, N. Y. Spool or ball holder	316,595	Apr. 28	2221	584	31	422
Adams Manufacturing Company. (See Stone, Henrie D., assignor.)						
Adams Manufacturing Company. (See Stone and Ambler, assignors.)						
Adams, Thomas C., Brooklyn, N. Y. Needle	320,450	June 16	2065	542	31	1438
Adams & Westlake Manufacturing Company. (See Dittman, Gustav H., assignor.)						
Adams, William P., Kennebunk, Me. Trunk-lock	320,036	June 16	1461	384	31	1330
Adamson, Edward, Pawtucket, R. I. Reed for looms	315,590	Apr. 14	860	226	31	159
Adamson, J. Arthur, Philadelphia, Pa. Suspender-end	318,339	May 19	1891	509	31	888
Adamson, William W., *et al.* (See Teal, Henry W., assignor.)						
Adcock, Edmund, assignor to E. B. and G. E. Preston, Chicago, Ill. Fire extension-ladder	319,047	June 2	138	37	31	1073
Addy, Charles J., Malden, assignor to Tapley Machine Company, Boston, Mass. Burnishing-machine	318,340	May 19	1891	509	31	888
Adjustable Elbow and Damper Company. (See Cram, Alonzo W., assignor.)						
Adkins, Thomas S., Fredonia, Kans. Hay-stacker	317,697	May 12	1031	268	31	719
Adsit, Abram, Traverse City, Mich. Insertible saw-tooth	317,698	May 12	1033	268	31	719
Aenis, John, Cleveland, Ohio. Folding grindstone-frame	314,986	Apr. 7	1	1	31	3
Agee, Alva J., and A. Fraser, Cheshire, Ohio. Potato-planter	316,217	Apr. 21	1711	449	31	324
Agee, Francis M., assignor of one-half to C. W. A. Lynch, Vinita, Indian Ter. Stock-feeder	316,859	Apr. 28	2607	680	31	492
Agin, Alonzo W., Latrobe, Ohio. Rail-joint	317,272	May 5	465	117	31	608
Ahlum, Alvin F., Newark, N. J. Oil-can	321,074	June 30	2890	768	31	1607
Aikin, Elias M., Dawson, Dak. Ter. Corn-harvesting machine	319,163	June 2	279	73	31	1099

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Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Aikin, William, Louisville, Ky. Sand-molding machine	318,341	May 19	1893	510, 511	31	888
Ainslie, James, Jr., Brooklyn, N. Y. Folding spring-bed bottom	320,322	June 16	1878	493	31	1403
Aitchison, James M. (See Platt and Aitchison.)						
Akerly, Charles A., and D. T. Easton, Owego, N. Y. Car-coupling	316,103	Apr. 21	1564	407	31	296
Akins, George W., Nashville, Tenn. Wheel-plow	315,211	Apr. 7	334	81	31	60
Albach, W. Harrison, and A. J. White, Mansfield, Ohio. Capsule-filler	317,462	May 12	757	193	31	669
Albecker, John. (See Bippus, Ferdinand G., assignor.)						
Alberger, John L., Buffalo, N. Y., and T. Sault, New Haven, Conn. Condensing apparatus for steam-engines	318,225	May 19	1733	463, 464	31	860
Albert, John D., Prospect, Pa. Fence-lock	318,440	May 26	2023	545	31	921
Albro, Charles E., Philadelphia, Pa. Hoisting-machine	316,718	Apr. 28	2405	627	31	456
Alcoke, Charles H., Hamilton, Ohio. Gravity railway	317,273	May 5	466	117	31	609
Alcorn, David, Jr., and R. A. Blake, New York, N. Y. Corset-steel fastening	317,699	May 12	1034	268	31	719
Alden, David A., Malden, assignor of one-half to Cotton & Gould, Boston, Mass. Moistening-roller	321,075	June 30	2891	769	31	1667
Alderton, William G., Brooklyn, N. Y. Necktie-band retainer	318,846	May 26	2574	685	31	1018
Alexander, John, assignor, by mesne assignments, of one-half to J. C. Alexander, Hartford, Conn. Spring bed-bottom	320,832	June 23	2551	676	31	1539
Alexander, John C. (See Alexander, John, assignor.)						
Alexander, Samuel G., Detroit, assignor to C. E. Wakeman & Co., Pontiac, Mich. Making combined knit and felt boots	318,342	May 19	1896	511	31	889
Alexander, W. Scott. (See Bailey and Alexander.)						
Alger, John, and J. F. Cook, assignors to A. S. Cook, Hartford, Conn. Screw-machine	319,542	June 9	777	207	31	1200
Alker, John H., Allegheny, Pa. Spike-machine	315,693	Apr. 14	988	259	31	186
Allen, Aaron J., Hope, R. I. Governor for steam-engines	319,658	June 9	933	247	31	1229
Allen, Charles E., Adams, Mass. Electric telephone	319,048	June 2	139	38	31	1073
Allen, Edward B., Portland, Me., assignor to J. W. Brooks, trustee, Cambridge, Mass. Heeling-machine	319,377	June 2	538	147	31	1150
Allen, Edwin, Norwich, Conn. Circular saw	318,938	June 2	1	1	31	1049
Allen, Erasmus W., Seneca, Kans. Washing-machine	315,212	Apr. 7	334	81	31	60
Allen, Fred. E., North Grafton, Mass. Sink-cleaner	320,742	June 23	2442	647	31	1518
Allen, Henry A., Tecumseh, Nebr. Corn-planter check-row	316,514	Apr. 28	2120	558	31	403
Allen, Hiram, and L. S. Mason, assignors to H. and L. Allen, Sandy Hill, N. Y. Machinery for preparing pulp from paper	320,612	June 23	2281	603, 604	31	1487
Allen, Horace R., Indianapolis, Ind. Portable bath-tub	320,637	June 16	1462	384, 385	31	1330
Allen, Jacob A., Cincinnati, Ohio. Detachable calk for horseshoes	318,939	June 2	2	1	31	1049
Allen, John F., New York, N. Y. Ratchet-brace	320,323	June 16	1879	493	31	1403
Allen, John G., deceased, Worcester, Mass., S. A. W. Gould, administratrix. System of distribution for electric-lighting circuits	317,960	May 19	1390	373	31	795
Allen, John S., Yonkers, N. Y. Paddle-wheel for propelling vessels	318,408	May 19	1981	533	31	905
Allen, Loren. (See Allen and Mason, assignors.)						
Allen, Richard N., Cleveland, Ohio. Brake-shoe	315,213	Apr. 7	335	81	31	60
Allen, Richard N., Cleveland, Ohio. Gear-wheel	315,214	Apr. 7	336	81	31	60
Allen, Richard N., Cleveland, Ohio. Car-wheel	318,940	June 2	3	1	31	1049
Allen, Samuel L., Philadelphia, Pa. Furrowing and covering machine	318,441	May 26	2024	545	31	921
Allen, Theodore, Ponghkeepsie, N. Y. Apparatus for broiling, toasting, &c	317,431	May 5	688	174	31	647
Allen, Trowbridge, Spring Ranche, Nebr. Device for loading live stock on wagons	319,164	June 2	281	74	31	1099
Allen, W. V., *et al.* (See Pulliam, William J., assignor.)						
Allis, Darwin F., Conway, Mass. Device for watering plants	318,075	May 19	1542	413	31	822
Almond, James, Brooklyn, N. Y. Cross-bow and arrow	315,878	Apr. 14	1251	326	31	233
Alsing, Johan R., New York, N. Y. Triturating-mill	320,994	June 30	2780	739	31	1586
Alsip, Frank, and C. T. Drake, Chicago, Ill. Clay-crushing machine	320,905	June 30	2659	707	31	1565
Altland, George W., Mount Top, Pa. Grain-drill	319,659	June 9	934	247	31	1229
Altmaier, Peter A., assignor of one-half to S. A. Barr, Harrisburg, Pa. Safety-lock for fire-arms	320,638	June 16	1463	385	31	1331
Altmeyer, Jacob, Benwood, W. Va. Cold-air blast for the protection of nail-makers	317,916	May 12	1322	354	31	775
Alvord, George E., St. Louis, Mo. Temporary binder	319,660	June 9	935	247	31	1229
Amberg, William A., Chicago, Ill. Label-holder	316,929	May 5	1	1	31	523
Ambler, Artemas C. (See Stone and Ambler.)						
Ambruster, Charles S., assignor of one-half to J. S. Watson, Yorktown, N. J. Hay-fork	316,719	Apr. 28	2407	627	31	456
American Artificial Stone Pavement Company. (See Scott, James P., assignor.)						
American Axle and Wheel Company of New York. (See Jones, Willis, assignor.)						
American Bell Telephone Company. (See Husbands, José D., assignor.)						
American Bell Telephone Company. (See Thompson, George K., assignor.)						
American Bell Telephone Company. (See Thornberry, Henry S., assignor.)						
American Bell Telephone Company. (See Woods, Granville T., assignor.)						
American Brake Company. (See Poor, George H., assignor.)						
American Brick Kiln Company. (See Moe, Seth B., assignor.)						
American Button Fastener Company. (See Richards, Francis H., assignor.)						
American Buttonhole, Overseaming and Sewing Machine Company. (See Reese, Evan C., assignor.)						
American Cotton Oil Company. (See Cathcart, Rodney S., assignor.)						
American Electric Arms and Ammunition Company. (See Russell, Samuel, assignor.)						
American Electric Headlight Company. (See Lynn and Wheeler, assignors.)						
American Machinery Company. (See Bush, Lewis, Jr., assignor.)						
American Metallic Fastening Association. (See Bacon, Henry S., assignor.)						
American Oil Stove Company. (See Fletcher and Wilder, assignors.)						
American Optical Company. (See Wells, George W., assignor.)						
American Zylonite Company. (See Mowbray, George M., assignor.)						
Ames, Albert C., Chicago, Ill. Traction-engine	320,743	June 23	2443	648	31	1519
Ames, Charles H., Union City, Pa., assignor of one-half to H. M. Gage, Jamestown, N. Y. Upholstering-spring	316,218	Apr. 21	1712	449	31	324
Ames & Frost. (See Frost and Bryant, assignors.)						
Ames, George E. (See Wild, William E., assignor.)						
Ames, John H., St. Paul, Minn. Automatic car-brake	318,076	May 19	1543	413	31	823
Amet, Edward H., assignor to H. A. Streeter, Chicago, Ill. Electric weighing and recording device	317,432	May 5	689	174	31	647
Amiro, Ambrose, assignor to himself and H. T. D'Entermont, Lower East, (Pubnico,) Nova Scotia, Canada. Floating sunken vessels	317,274	May 5	467	117	31	609
Ammerman, William M., Oakland, Ill. Corn-planter	317,275	May 5	468	118	31	609
Ammon, Jacob S. (See Gnss, Samuel M., assignor.)						
Anders, David B., Philadelphia, Pa. Cable-grip	320,744	June 23	2446	649	31	1519

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Andersen, Anders, assignor to Kjobenhavns Hesteskofabrik, Copenhagen, Denmark. Machine for forming clips on horseshoes	315,591	Apr. 14	861	226	31	160
Andersen, Anders, assignor to Kjobenhavns Hesteskofabrik, Copenhagen, Denmark. Machine for forming clips on horseshoes	315,592	Apr. 14	862	227	31	160
Anderson, Andrew G., Janesville, Wis. Cultivator-tooth	315,879	Apr. 14	1252	327	31	233
Anderson, Edward, Chicago, Ill. Automatic cradle-rocker	320,833	June 23	2552	676	31	1539
Anderson, Euclid, Peekskill, N. Y. Ratchet-drill	316,321	Apr. 21	1845	487	31	347
Anderson, George W., Westport, Ind. Steam-cut-off valve	317,609	May 12	919	235, 236	31	698
Anderson, Homer, Peekskill, N. Y. Index-plate for type-writing machines	318,077	May 19	1544	414	31	823
Anderson, James C., and F. H. Latimer, Winnipeg, Manitoba, Canada. Boiler ash-pan	315,215	Apr. 7	338	82	31	60
Anderson, John W., Boscobel, Wis. Drag-saw	320,039	June 16	1464	385	31	1331
Anderson, Joseph, Pittsburg, Pa. Glass-furnace	315,694	Apr. 14	991	260	31	186
Anderson, Lee, Paris, Tex. Car-coupling	321,271	June 30	3133	833	31	1651
Anderson, Millard F., Corning, Iowa. Machine for laying tiles	316,515	Apr. 28	2122	558	31	403
Anderson, Robert B., Bay City, Mich. Milk can or carrier	315,371	Apr. 7	529	135	31	96
Anderson, Valerius D., Cleveland, Ohio. Rendering-tank	318,156	May 19	1645	439	31	842
Anderson, William C., Cincinnati, Ohio. Cigar mouth-piece	319,165	June 2	282	74	31	1099
Andes, Henry, *et al.* (See Andes, Jacob, assignor.)						
Andes, Jacob, assignor of two-thirds to M. and H. Andes, Wilkes-Barré, Pa. Bridle and halter	318,409	May 19	1982	533	31	905
Andes, Michael, *et al.* (See Andes, Jacob, assignor.)						
Andreas, Thomas J. (See Dougherty, Tiberias, assignor.)						
Andrews, Edward N., Rutherford, N. J. Screw-threading machine	316,720	Apr. 28	2408	627	31	456
Andrews, Emanuel, Williamsport, Pa. Saw	315,372	Apr. 7	530	136	31	96
Andrews, Emanuel, Williamsport, Pa. Saw	315,373	Apr. 7	531	136	31	97
Andrews, Emanuel, Williamsport, Pa. Saw	315,374	Apr. 7	532	136	31	97
Andrews, Joseph H., *et al.* (See Moses and Andrews, assignors.)						
Andrews, Nathaniel S., assignor of one-half to H. F. Burnap, Dubuque, Iowa. Cream-testing churn	320,426	June 16	2032	533, 534	31	1432
Andrews, Nathaniel S., and J. M. Burnap, Zwingle, assignors of one-third to H. F. Burnap, Jackson County, Iowa. Device for testing cream	316,860	Apr. 28	2609	680	31	493
Andrews, Oscar. (See Moses and Andrews.)						
Andrews, William H. (See Bangs, Oliver, assignor.)						
Andrews, William S., assignor to Edison Electric Light Company, New York, N. Y. Electric lighting system and switch	317,610	May 12	921	236	31	698
Andrews, William S., assignor to Edison Electric Light Company, New York, N. Y. System of electrical distribution	317,700	May 12	1034	268	31	719
Andrews, William S., New York, N. Y., and T. Spencer, South Meriden, Conn. System of electric lighting	318,157	May 19	1646	440	31	842
Angell, Edwin E. (See Harlow and Angell.)						
Anketell, Oliver, Newark, N. J. Bran-packer	318,158	May 19	1648	440	31	843
Anlauf, Hermann, Drain, Oreg. Candlestick	315,695	Apr. 14	992	260	31	186
Annibale, Allevi, Chicago, Ill. Pump	316,434	Apr. 28	2017	529	31	383
Ansonia Brass and Copper Company. (See Walton, William R., assignor.)						
Ansonia Brass and Copper Company *et al.* (See Lyman, Charles H., assignor.)						
Ansonia Clock Company. (See Davies, Walter D., assignor.)						
Antal, Fromm, F. J. Kugler, and B. Mátyás, Buda-Pesth, Austria-Hungary. Apparatus for heating liquids	319,874	June 9	1230	324, 325	31	1280
Anthoine, James W., Eufaula, Ala. Crushing and grinding machine	319,166	June 2	282	74	31	1099
Anthony & Co., E. & H. T. (See Barker, Erastus B., assignor.)						
Anthony, Edgar W., Boston, Mass. Heating-stove	318,847	May 26	2574	685	31	1018
Anthony, Edgar W., Boston, Mass. Stove	320,111	June 16	1566	413	31	1349
Anthony, James H., assignor to Household Sewing Machine Company, Providence, R. I. Shuttle for sewing-machines	315,880	Apr. 14	1254	327	31	234
Anton, August F. (See Baxter and Anton.)						
Apffel, Alexander L., *et al.* (See Nawadny, Albert, assignor.)						
Appel, Aaron, Chicago, Ill. Marking-tag	319,543	June 9	778	207	31	1200
Apple, Titus H., Meadville, Pa. Chimney-flashing	316,861	Apr. 28	2611	681	31	493
Appleby, George W., Cohoes, N. Y. Compound valve	318,159	May 19	1649	441	31	843
Appleby, John F., assignor to Minneapolis Harvester Works, Minneapolis, Minn. Knotting mechanism for grain-binders	315,216	Apr. 7	339	82	31	61
Appleby, John F., assignor to Minneapolis Harvester Works, Minneapolis, Minn. Adjustable binder for harvesters	315,903	Apr. 21	1413	367	31	269
Appleby, John F., assignor to Minneapolis Harvester Works, Minneapolis, Minn. Knotting mechanism for grain-binders	319,167	June 2	283	75	31	1099
Archer & Pancoast Manufacturing Company. (See Deavs, Charles, assignor.)						
Archer & Pancoast Manufacturing Company. (See Fischer, Charles H., assignor.)						
Archibald, Isaac W., Elgin, Ill. Fence	321,171	June 30	3010	797	31	1628
Arci, Juan B., and J. Chapman, Brooklyn, N. Y. Steam-radiator	320,203	June 16	1679	447	31	1369
Argand Refining Company. (See Pattin, Richard, assignor.)						
Argerbright, Solomon A., Decatur, Ind. Fastening device for coffins	320,834	June 23	2553	676	31	1539
Armington, William W., Providence, R. I. Toy spring-gun	316,862	Apr. 28	2612	681	31	493
Armstrong, James D., Rocky Mount, N. C. Manure-drill	317,483	May 12	758	193	31	669
Armstrong, John B., Guelph, Ontario, Canada. Vehicle running-gear	319,049	June 2	140	38	31	1073
Armstrong, John B., Guelph, Ontario, Canada. Vehicle running-gear	319,050	June 2	142	38	31	1073
Armstrong, John B., Guelph, Ontario, Canada. Carriage-gear	319,378	June 2	539	147	31	1151
Armstrong, John B., assignor of one-half to S. P. Brockway, Chicago, Ill. Treatment of cotton-seed oil	318,410	May 19	1983	533	31	905
Armstrong, Uel W. (See Hall, Harvey N., assignor.)						
Arnold, Alonzo B., assignor of one-half to J. E. Carey, Gladbrook, Iowa. Neck-yoke	320,524	June 23	2167	572	31	1465
Arnold, Charles B., Glencoe, Ky. Hand corn-planter	315,881	Apr. 14	1255	327	31	234
Arnold, Charles N., *et al.* (See Doane, Andrew J., assignor.)						
Arnold, Daniel J. C., New London, Ohio. Brick-truck	316,322	Apr. 21	1846	488	31	347
Arnold, Fred E. (See Arnold, George W. and F. E.)						
Arnold, George W., Knoxville, Ill. Sash-balance	319,379	June 2	541	147	31	1151
Arnold, George W. and F. E., Ionia, Mich. Draft-equalizer	315,375	Apr. 7	534	136	31	97
Arnold, James S., near Roanoke, Tex. Well-bucket	320,835	June 23	2554	676	31	1539
Arnold, John M., *et al.* (See Randol, Alexander, assignor.)						
Arnold, Kilian, Brooklyn, and J. J. Gerber, Jamaica, N. Y. Zither	315,376	Apr. 7	534	137	31	97
Arnold, Oliver, assignor to T. K. Earle Manufacturing Company, Worcester, Mass. Machine for feeding wire	315,882	Apr. 14	1256	328	31	234
Arnold, Oliver, assignor to T. K. Earle Manufacturing Company, Worcester, Mass. Mechanical movement	315,883	Apr. 14	1257	328	31	234

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Arnold, Samuel C., West Lebanon, N. H. Stable-scraper	320,112	June 16	1567	413	31	1349
Arnold, William E. (See Dillon, William S. F., assignor.)						
Arnould, Ernest, Paris, France. Electrical lighting apparatus	319,380	June 2	542	148	31	1151
Arter, Alpheus, New Lisbon, and W. R. Knowles, Columbiana, Ohio. Harness-saddle	318,848	May 26	2575	685	31	1019
Arthur, Charles M., Evansville, Wis. Paper box. (Reissue)	10,614	June 16	2074	544 / 545	31	1440
Arthur, Joseph A., Louisa, Ky., assignor of one-half to W. H. Robinson and E. Muhleman, Wheeling, W. Va. Rotary engine	320,204	June 16	1679	447	31	1370
Arzberger, Moriz, Vienna, Austria. Lamp for light-houses	316,849	May 26	2577	686	31	1019
Ash, Joseph. (See Harrop, Joseph M., assignor.)						
Ashe, Robert, Boston, Mass. Machine for upsetting heads on nail-stripe	319,381	June 2	544	148	31	1151
Ashley, Harford. (See Brenton, Francis W., assignor.)						
Ashworth, Elijah. (See Ashworth, George and E.)						
Ashworth, George and E., Manchester, county of Lancaster, England. Curved guide for the traveling flats of carding-engines	318,226	May 19	1737	465	31	860
Ashworth, George and E., Manchester, county of Lancaster, England. Carding-machine	321,331	June 30	3203	854	31	1665
Aspinwall, D. La Mont, Portsmouth, assignor of one-half to J. H. Van Auken, Petersburg, Va. Combined agricultural implement	317,276	May 5	469	118 / 119	31	609
Aston, Franklin K. (See Aston, Joseph F., assignor.)						
Aston, Joseph F., assignor to himself and F. K. Aston, Watsonville, Cal. Reversible hinge	317,701	May 12	1035	269	31	720
Athay, Alfred J. (See Smith and Athay.)						
Atkins & Co., E. C. (See Black, George S., assignor.)						
Atkins, Harry T. (See Mullen and Atkins.)						
Atkinson, Frederic M. (See Haves, Martin P., assignor.)						
Atkinson, George F., San Francisco, Cal. Combined darner and mender	320,995	June 30	2781	739	31	1586
Atterbury, John T., Bynumville, Mo. Cultivator	317,277	May 5	473	119	31	609
Attwooll, Robert, Clear Lake, Iowa. Check-rein hook	319,437	June 9	633	171	31	1175
Atwood, Eliza C., Geneva, N. Y. Dust-pan	317,433	May 5	693	175	31	648
Augustus, Willis, Keokuk, Iowa. Packing for piston-rods	320,525	June 23	2168	572	31	1465
Austen, Frances M., Dickinson, N. Y. Boiler for heating fruit in jars	315,377	Apr. 7	536	138	31	97
Austin, John, Chicago, Ill. Plow	317,961	May 19	1391	373 / 374	31	795
Autophone Company. (See Morris, Henry B., assignor.)						
Avery, Charles E., Jacksonville, Fla. Generating carbonic-acid gas	316,863	Apr. 28	2612	.....	31	493
Avery, Charles E., Jacksonville, Fla. Preparing logwood extract	320,526	June 23	2169	.....	31	1465
Avery, James R., Louisville, Ky. Car-coupling	315,884	Apr. 14	1259	328	31	234
Avery, Oliver, Groton, N. Y. Reverse-gear for engines	319,051	June 2	144	39	31	1074
Avery, Richard B., Washington, D. C. Apparatus for the manufacture of vaporous and gaseous fuel and illuminating-gas	317,611	May 12	993	236 / 237	31	698
Avery, Thomas M., *et al.*, trustees. (See Church, Duane H., assignor.) (Reissue.)						
Awalt, Jessee C., Steward's Mills, Tex. Boot or shoe brace	316,930	May 5	2	1	31	521
Axt, Frederick, Franklin, Ind. Gutter box or trough	320,324	June 16	1890	493	31	1403
Ayer, J. Cullen, Boston, Mass. Apparatus for registering the flow of fluid and detecting waste	318,227	May 19	1738	465	31	860
Ayres, Abraham, New York, N. Y. Railway-switch	317,434	May 5	694	175	31	648
Babbit, Joseph W., Hiawatha, Kans. Evaporator	315,696	Apr. 14	992	260	31	186
Babbit, Joseph W., Aroma, Ind. Portable furnace	321,332	June 30	3204	854	31	1665
Babbitt, Benjamin T., New York, N. Y. Extracting glycerine from fatty matters	316,104	Apr. 21	1565	407	31	296
Babbitt, Benjamin T., New York, N. Y. Ordnance	316,105	Apr. 21	1566	407	31	297
Babbott, William M., J. H. Roberts, and C. Banker; said Banker assignor to said Babbott and J. S. McMasters, Pittsburg, Pa. Elevator-bucket	317,278	May 5	474	119	31	610
Babbott, William M., and J. H. Roberts, Pittsburg, Pa. Elevator	320,745	June 23	2446	649	31	1519
Babcock, Charles, Troy, N. Y. Combined collar-stud and necktie-holder	320,452	June 23	2077	547	31	1449
Babcock, Frank G., Dryden, N. Y. Feeding mechanism for wool-carding machines	320,205	June 16	1681	447 / 448	31	1370
Babcock, Holland C., assignor of one-half to P., L. B., and C. A. Jewell, Hartford, Conn. Harness pad or lining	317,073	May 5	187	47	31	557
Babcock, Joseph E. (See Hill and Babcock.)						
Bachus, James W., New Windsor, Ill. Window-screen	319,168	June 2	284	75	31	1100
Bacon, Ebenezer S. and J. H., Detroit, Mich. Lamp-extinguisher	315,217	Apr. 7	340	82	31	61
Bacon, Edward H. (See McIntosh, Bacon, and Vail.)						
Bacon, Frank E., Gorham, Me. Shipping-tag	316,721	Apr. 28	2411	608	31	457
Bacon, Henry S., Milford, assignor to American Metallic Fastening Association, Boston, Mass. Machine for making peg-wire	319,771	June 9	1078	286 / 287	31	1255
Bacon, Henry S., Milford, assignor to American Metallic Fastening Association, Boston, Mass. Machine for stripping metal	319,772	June 9	1080	287	31	1255
Bacon, Henry S., Milford, assignor to American Metallic Fastening Association, Boston, Mass. Boot and shoe nailing machine	319,773	June 9	1081	287	31	1256
Bacon, Henry S., Milford, assignor to American Metallic Fastening Association, Boston, Mass. Shoe-nailing machine	319,875	June 9	1233	325 / 326	31	1281
Bacon, Jerome, Oshkosh, Wis. Mechanical movement	315,378	Apr. 7	537	138	31	97
Bacon, Joseph H. (See Bacon, Ebenezer S. and J. H.)						
Baden, Thomas E., assignor of one-half to H. O. Towles and B. F. Guy, Washington, D. C. Bill-file	321,333	June 30	3205	854	31	1666
Bagaley, Ralph. (See Bole, William A., assignor.)						
Baggaley, Robert J., Nottingham, England. Composition of material for damp-proof socks or soles for boots, &c.	315,885	Apr. 14	1261	.....	31	235
Bagnall & Loud Block Company. (See Ferrall, Thomas R., assignor.)						
Bahre, Wilhelm, Berlin, Germany. Door-check	320,527	June 23	2170	572 / 573	31	1465
Bailey, Alfred M., assignor to Metropolitan Manufacturing Company, Middlefield, Conn. Clothes-wringer	318,850	May 26	2578	686	31	1019
Bailey, Charles A., Middletown, Conn. Toy	315,379	Apr. 7	538	138	31	98
Bailey, Charles A., Middletown, Conn. Toy	315,380	Apr. 7	539	139	31	98
Bailey, Charles E., Springfield, Mass. Straightening and annealing gun-barrels	320,613	June 23	2289	.....	31	1488
Bailey, Ezra B., Windsor Locks, Conn. Lathe-chuck	316,931	May 5	2	1	31	523
Bailey, George L., *et al.* (See Willmore, William C., assignor.)						
Bailey, Gilbert L., Portland, Me. Net-staff	315,107	Apr. 7	162	39	31	30
Bailey, Gilbert L., Portland, Me. Dumb-bell	318,078	May 19	1545	414	31	823
Bailey, John A., Detroit, Mich. Apparatus for reducing the ores of precious metals	315,886	Apr. 14	1261	329	31	235
Bailey, Joseph, and T. Rebholz, Troy, Ohio. Wheeled scraper	317,279	May 5	475	120	31	610
Bailey, Joseph, and T. Rebholz, Troy, Ohio. Wheeled scraper	317,280	May 5	476	120	31	610
Bailey, Leonard, Hartford, Conn. Table	315,108	Apr. 7	163	39	31	30

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Bailey, Lewis C., and W. S. Alexander, McConnellsburg, Pa. Automatic water-gage	319,052	June 2	145	39	31	1074
Bair, Francis L., East York, assignor to himself, and D. W. Detwiler, Lower Windsor, Pa. Railway-gate	320,113	June 16	1568	414	31	1349
Bair, Henry C. (See Killip, John, assignor.)						
Baird, James S. (See Henry, Frank R., assignor.)						
Baird, John T., Olney, Ill. Cartridge-shell loader	317,484	May 12	759	193 / 194	31	669
Baird, Samuel J., Covington, Ky., assignor to Eureka Manufacturing Company, Cincinnati, Ohio. Button-hole attachment for sewing-machines	320,528	June 23	2172	573	31	1465
Baker, George M., New Britain, Conn. Sash-fastening	316,219	Apr. 21	1713	450	31	324
Baker, Henry, Catskill, N. Y. Machine for stripping printers' rollers	319,544	June 9	779	207	31	1201
Baker, James B., Aberdeen, Md. Machine for silking green corn	316,864	Apr. 28	2613	681	31	493
Baker, James E., Madison, Wis. Balanced slide-valve	315,459	Apr. 14	665	173	31	125
Baker, James W., Providence, R. I. Manger	316,435	Apr. 28	2018	529	31	384
Baker, Jay, *et al.* (See Plumb, Fawcett, assignor.)						
Baker, John, Muscatine, Iowa. Device for hinging and supporting doors of process-kettles	319,169	June 2	285	76	31	1100
Baker, John A. (See Reicheneker, William C., assignor.)						
Baker, John C. (See Martin and Baker.)						
Baker, John W., Philadelphia, Pa. Regenerative gas-stove	319,438	June 9	633	171 / 172	31	1175
Baker, Macklin C., New York, N. Y. Engine-valve	319,661	June 9	936	248	31	1229
Baker, Patrick, Toronto, Ontario, Canada. Waistcoat	316,220	Apr. 21	1713	450	31	324
Baker, Pheneas T. (See Martin and Baker.)						
Baker, Pratt & Co. (See Brown, John M., assignor.)						
Baker, Rufus B., and G. H. Straw, Claremont, N. H. Machine for uniting knit fabrics	317,702	May 12	1036	269	31	720
Baker, William N., Geneseo, N. Y. Composition for plasters	316,932	May 5	3	.....	31	523
Baker, William T., A. S. Lovett, and C. D. Van Etten, assignors to Erie Embalming Company, Erie, Pa. Apparatus for embalming	317,703	May 12	1037	269 / 270	31	720
Balch, Henry B., and F. Bartt, assignors of one-third to H. L. Bishop, Kalamazoo, Mich. Grain-cleaning mill	316,722	Apr. 28	2412	608	31	457
Baldt, Frederick, Chester, Pa. Car coupling	316,323	Apr. 21	1847	466	31	347
Baldwin, Joseph F. (See Free and Baldwin.)						
Baldwin, Judson A. (See Linsley and Baldwin.)						
Baldwin, Luther C., assignor to J. C. Thurston, Manchester, N. H. Hose-reel	321,172	June 30	3011	797	31	1629
Baldwin, Myron T., La Grange, Ill. Infant's posing-chair	321,076	June 30	2891	769	31	1607
Baldwin, Nathan A. (See Tillou, Walter G., assignor.)						
Baldwin, William M., Jr., Newark, Ohio. Rectal speculum	321,334	June 30	3206	855	31	1666
Baldwin, William M., Jr., Newark, Ohio. Rectal speculum	321,270	June 30	3132	834	31	1651
Bales, Thomas M., and C. P. Riley, Connersville, Ind. Fanning-mill						
Ball, Albert, assignor to Sullivan Machine Company, Claremont, N. H. Core breaker and lifter for annular rock-drills	315,887	Apr. 14	1264	329	31	235
Ball, Albert, assignor to Sullivan Machine Company, Claremont, N. H. Core breaker and lifter for annular rock-drills	315,888	Apr. 14	1267	329	31	236
Ball, Albert, assignor to Sullivan Machine Company, Claremont, N. H. Core breaker and lifter for annular rock-drills	315,889	Apr. 14	1268	330	31	236
Ball, Albert, assignor to Sullivan Machine Company, Claremont, N. H. Prospecting or well-boring tube	316,865	Apr. 28	2614	681	31	493
Ball, Ansel, assignor to A. S. Davis, Seneca Falls, N. Y. Treadle	320,996	June 30	2762	739	31	1587
Ball, James A. (See Moore and Ball.)						
Ball, James A., Thorntown, Ind. Hay-stacker	315,109	Apr. 7	163	40	31	30
Ball, James A., Thorntown, Ind. Hay-stacker	315,994	Apr. 21	1415	367	31	269
Ball, William H., Springfield, assignor of one-half to E. Sachs and D. Pruden, Dayton, Ohio. Frame for transparencies	317,435	May 5	694	175	31	649
Ballantine, Alexander T., assignor to E. B. Ballantine, Geneva, Ohio. Protecting shafts from heat	317,962	May 19	1393	374	31	795
Ballantine, Alexander T., assignor to E. B. Ballantine, Geneva, Ohio. Stuffing-box	317,963	May 19	1394	374	31	796
Ballantine, Alexander T., assignor to E. B. Ballantine, Geneva, Ohio. Valve for compressors for ice-making apparatus						
Ballantine, Ella B. (See Ballantine, Alexander T., assignor.)						
Ballard, Charles J. R., *et al.* (See Norton, Winthrop, assignor.)						
Ballard, James, Lapeer, Mich. Washing-machine	315,218	Apr. 7	340	83	31	61
Balm, Julius A., and A. Demensy, Canton, Ohio. Extension-ladder	316,516	Apr. 28	2123	558	31	403
Baloche, Arsène, and A. Krahnass, Valparaiso, Chili. Hydraulic siphon-motor	317,074	May 5	188	47	31	557
Baltimore & Ohio Telegraph Company. (See Van Hoevenbergh, Henry, assignor.)						
Baltzell, Charles, Altoona, Pa. Cash-carrier	317,281	May 5	477	120 / 121	31	610
Balz, George, *et al.* (See Ackermann, George, assignor.)						
Bancroft, Melvin, assignor to W. B. Quigley & Co., Whitestown, N. Y. Fastening device for a series of drawers	316,596	Apr. 28	2222	585	31	422
Bangs, Andrew. (See Beale and Bangs.)						
Bangs, Oliver, New Haven, Conn. Street-railway switch	317,282	May 5	479	121	31	611
Bangs, Oliver, assignor of one-half to W. H. Andrews, New Haven, Conn. Car-coupling	318,238	May 19	1741	466	31	861
Banker, Christ. (See Babbott, Roberts, and Banker.)						
Banks, George, Oakfield, Mich. Hay-binder	321,173	June 30	3012	798	31	1629
Bannister, Louis H. (See Bannister, Willis A. and L. H.)						
Bannister, Willis A. and L. H., assignors to Eastman Dry Plate and Film Company, Rochester, N. Y. Roller-holder for photographic films	316,933	May 5	4	2	31	523
Banta, William E., assignor of two-fifths to J. M. Dodd and A. M. Crowthers, Springfield, Ohio. Electric way	318,411	May 19	1984	534	31	905
Barber, Albert E., McDowell, Ill. Watering-trough for animals	315,697	Apr. 14	993	261	31	187
Barber, Henry A., Watertown, N. Y. Suction box for paper-making machines	316,221	Apr. 21	1714	450	31	324
Barber, Ira, assignor to himself and J. F. Croft, La Porte, Ind. Road-cart	316,934	May 5	7	2	31	524
Barber, Ozias, Akron, Ohio. Socket-mold for sewer pipe presses	320,325	June 16	1881	494	31	1404
Barber, Thomas, Flatbush, N. Y. Boiler feeder and alarm	319,662	June 9	938	248	31	1230
Barber, Thomas, Flatbush, N. Y. Pulley-block	320,206	June 16	1685	448	31	1371
Barber, Thomas, Flatbush, N. Y. Steam-condenser	320,746	June 23	2447	649	31	1519
Barber, Thomas, Flatbush, N. Y. Force-pump	321,335	June 30	3207	855	31	1666
Barber, William H., Ward, Ohio. Grain sacking and weighing attachment for thrashing-machines	319,170	June 2	286	76	31	1100
Barbour, Mary G., Bradford, Mass. Broiler or toaster	320,529	June 23	2175	574	31	1466
Barbour, Pollock, Louisville, Ky. Bridle-bit	319,439	June 9	634	172	31	1176
Bard, Cephas L., San Buenaventura, Cal. Combined whip-socket, oil-can, and wrench	315,110	Apr. 7	165	40	31	31
Bard, Cephas L., San Buenaventura, Cal. Whip-socket	318,531	May 26	2146	578	31	944
Bard, J. Sprague, New York, N. Y. Pen	318,679	May 26	2344	626	31	979
Barhite, Samuel R., Lewis, Iowa. Fruit-jar	321,272	June 30	3134	835	31	1651

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Barker, Albert S., Clifton, Pa. Apparatus for instantaneous photography	319,663	June 9	939	248	31	1230
Barker, Asbury, Peekskill, N. Y. Window-blind	319,664	June 9	940	249	31	1230
Barker, Augustus M., *et al.* (See Tyler, George, assignor.)						
Barker, Erastus B., assignor to E. & H. T. Anthony & Co., New York, N. Y. Photographic plate or sheet holder	315,219	Apr. 7	341	83	31	61
Barker, Joseph H., Cincinnati, Ohio. Thill-coupling	319,946	June 16	1341	353	31	1309
Barkheimer, Joseph, Des Moines, Iowa. Electric burglar-alarm	319,053	June 2	147	40	31	1074
Barler, Augustus C., assignor, by mesne assignments, of one-half to E. R. Burley, Chicago, Ill. Flour-sifting scoop	318,680	May 26	2345	626	31	979
Barlow, Charles O., assignor of three-fourths to G. T. Emery, J. W. Sprague, Nevada City, Cal., and R. H. Lane, New York, N. Y. Machine rock-drill	316,107	Apr. 21	1569	408	31	297
Barlow, Charles O., and G. T. Emery, assignors of one-half to J. W. Sprague, Nevada City, Cal., and R. H. Lane, New York, N. Y. Power rock-drill	316,106	Apr. 21	1567	408	31	297
Barlow, Henry C., Dallas, Tex. Window-screen holder	316,222	Apr. 21	1716	451	31	324
Barlow, Joseph C., Quincy, Ill. Corn-planter	317,075	May 5	190	48	31	557
Barlow, Thomas L., Boston, Mass. Window-awning	317,485	May 12	702	194	31	670
Barnard, Everton, Albany, N. Y. Portable stove-pipe shelf	318,941	June 2	4	1	31	1049
Barnard, Obed W., Seneca, Kans. Washing-machine	317,486	May 12	763	194	31	670
Barnes, Alden and M., Bloomington, assignors to Chambers, Bering, Quinlan Company, Decatur, Ill. Corn-planter check-rower	315,220	Apr. 7	348	83, 84	31	61
Barnes, Benjamin. (See Danks and Barnes.)						
Barnes, Charles, Dayton, Ky. Automatic fire-extinguishing apparatus	316,223	Apr. 21	1717	451	31	325
Barnes, Charles, Dayton, Ky. Automatic fire-extinguisher	319,774	June 9	1089	288	31	1256
Barnes, Henry D., New Haven, Conn. Stave-jointing machine	320,747	June 23	2448	649	31	1520
Barnes, Howard C. (See Randall, George S., assignor.)						
Barnes, Joseph J., *et al.* (See Heath, George M., assignor.)						
Barnes, Laurentius F., *et al.* (See Heath, George M., assignor.)						
Barnes, Monroe. (See Barnes, Alden and M.)						
Barnett, Frederic, 106 Queen Victoria Street, London, England. Bridge for facilitating the passage of shipping, &c.	316,507	Apr. 28	2222	585	31	422
Barnett, G. & H. (See Gosling, Henry J., assignor.)						
Barney, Everett H., Springfield, Mass. Rudder hanging and steering device	319,665	June 9	941	249	31	1230
Barney, Everett H., Springfield, Mass. Roller-skate fastening	319,666	June 9	942	249	31	1231
Barney, Everett H., Springfield, Mass. Implement for attaching washers on roller-skates	319,775	June 9	1083	288	31	1256
Barney, Finis M., Kearney, Nebr. Churn	319,171	June 2	287	76	31	1100
Barney, John C., Peoria, Ill. Carriage-coupling	314,987	Apr. 7	1	1	31	3
Barnhart, Henry M. (See Huber and Barnhart.)						
Barnhart, William R., St. Louis, Mo. Machine for polishing and sorting nuts, &c.	320,396	June 16	1882	494	31	1404
Barnwell, Charlotte C., Beaufort, S. C. Folding bath-stand	316,324	Apr. 21	1848	488, 489	31	348
Barr, Edwin C. (See Hutchins, Charles W., assignor.)						
Barr, Henry G. (See Franklin and Barr.)						
Barr, Samuel F. (See Altmaier, Peter A., assignor.)						
Barrath, Edward, Brooklyn, N. Y. Power-press	316,935	May 5	8	3	31	524
Barrier, Jules J., F. Tourvieille, and J. E. Legay, Paris, France. Electrical accumulator	317,487	May 12	764	194	31	670
Barringer, Daniel M., Bennettsville, S. C. Plow	318,160	May 19	1650	441	31	843
Barringer, James F., Bennettsville, S. C. Cotton-chopper	321,174	June 30	3012	798	31	1629
Barringer, John H., Lincoln, Nebr. Self-loading cart	319,876	June 9	1235	326	31	1281
Barrow, Samuel, assignor to Sheet Iron Bellows Company, Kempton, Ind. Blower	317,436	May 5	696	175	31	649
Barrow, Thomas E., Mansfield, Ohio. Combined shaking and dumping grate	315,460	Apr. 14	666	173	31	125
Barrow, Thomas E., and H. Wade, Mansfield, Ohio. Door check and holder	315,221	Apr. 7	345	84	31	62
Barry, Charlotte M. A., Boston, Mass. Waist	318,681	May 26	2346	626, 627	31	979
Barry, Edmund D. (See Tideman, Sven, assignor.)						
Barry, Job R., Philadelphia, Pa. Steam-trap	315,890	Apr. 14	1270	330	31	236
Barry, John. (See Hudson and Barry.)						
Barse, Mills W., Olean, N. Y. Steam-boiler	319,545	June 9	780	207	31	1201
Barstow, Albert C., Salem Depot, N. H. Spreading-tool for machines for coating fabrics with plastic material	320,530	June 23	2175	574	31	1466
Bartels, Carl, Boston, Mass. Preservative coating for meats	318,851	May 26	2579	.....	31	1019
Bartens, Charles, Orange, N. J. Combined match-box and cigar-cutter	318,590	May 26	2234	597	31	957
Barth, Albin F., Grossenhain, Saxony, Germany. Ship's propeller	317,488	May 12	765	195	31	670
Bartholomew, Albert W., Manchester, N. H. Axle-tool	320,748	June 23	2451	650	31	1520
Bartholomew, Harry S., Bristol, Conn. Corn-harvester	319,054	June 2	148	40	31	1074
Bartlett, George H., Sunapee, N. H. Hame	315,891	Apr. 14	1271	331	31	237
Bartlett, George P. (See Stark and Bartlett.)						
Bartlett, Henry C., *et al.* (See Belknap, Hamlet W., assignor.)						
Bartlett, John B., Minneapolis, Minn. Movable lamp-holder	317,917	May 12	1321	335	31	775
Bartlett, John W., Moline, Ill. Wheel-plow	319,440	June 9	635	172	31	1176
Bartlett, John W., Moline, Ill. Wheel-plow	319,441	June 9	636	172, 173	31	1176
Bartlett, Marcus J., Chardon, assignor of one-half to F. H. Kelly, Cleveland, Ohio. Machine for attaching shoe-buttons	316,724	Apr. 28	2415	629, 630	31	457
Bartlett, Samuel H. (See Waite and Bartlett.)						
Bartlett, Thomas J., Colorado, Tex. Fire-place heater	319,172	June 2	288	77	31	1100
Bartley, Harvey, assignor of one-third to J. F. Steel, Pittsburg, Pa. Conduit for the conveyance of gas under pressure	317,283	May 5	480	121	31	611
Barton, Charles S., assignor to Rice, Barton & Fales Machine and Iron Company, Worcester, Mass. Paper-cutting machine	317,612	May 12	925	237	31	698
Barton, Richard T., assignor of five-sixths to A. H. Smith, New Haven, Conn. Nut-machine	316,866	Apr. 28	2615	682	31	493
Bartram, Charles E., Fredonia, N. Y. Campaign-torch	319,382	June 2	545	148	31	1151
Bartsch, Charles A., Bridgeport, Conn. Furnace for roasting copper and other ores	316,723	Apr. 28	2413	628	31	457
Bartsch, Charles A., Bridgeport, Conn. Still for concentrating sulphuric acid	318,682	May 26	2347	627	31	979
Bashore, Isaac, Walla Walla, Wash. Ter. Automatic artificial finger	319,776	June 9	1084	288	31	1256
Basinger, James M., assignor of one-half to Pratt & Letchworth, Buffalo, N. Y. Buckle	321,175	June 30	3014	798	31	1629
Bassell, John Y., assignor to R. G. Bassell, Cincinnati, Ohio. Sash-fastener	321,176	June 30	3015	798, 799	31	1629
Bassell, Rebecca G. (See Bassell, John Y., assignor.)						
Bassett, Andrew R., Taunton, Mass. Truss	320,453	June 23	2078	547	31	1449
Basto, Carlos, Rio de Janeiro, Brazil. Electric tramway	319,947	June 16	1341	353	31	1309
Batcheldor, Fred B., Malden, Mass. Leather-dressing machine	320,906	June 30	2660	707	31	1565
Batcheldor Machine Company. (See Nelson, Francis J., assignor.)						
Bate, William T., Conshohocken, Pa. Steam-boiler	319,383	June 2	546	148, 149	31	1152

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Bateman, George D., Pinckneyville, Ill. Boot-tree	319,667	June 9	942	249	31	1231
Bateman, William, San Francisco, Cal. Window-screen	316,517	Apr. 28	2124	559	31	404
Bates, Albert J., Joliet, Ill. Machine for forming and setting flat metal barbs	318,079	May 19	1546	414	31	823
Bates, Theodore C. (See Hill, Lucian, assignor.)						
Bates, Theodore C. (See Williams, Charles H., assignor.)						
Bates, Theodore C., North Brookfield, Mass. Corset-steel fastening	319,948	June 16	1344	354	31	1309
Batman, Alfred E., Joliet, Ill. Combined whip and rein holder	318,080	May 19	1547	414	31	823
Batson, Arthur L., Morrisburg, Ontario, Canada. Press for sacking bran, sawdust, &c.	10,595	May 12	1380	370	31	785
(Reissue)	318,343	May 19	1898	511	31	889
Baublits, George E., St. Joseph, Mo. Bracket						
Baud, Camille A., *et al.* (See Nawadny, Albert, assignor.)	315,381	Apr. 7	339	139, 140	31	98
Bauduin, Edward, Pola, Austria-Hungary. Engine for twin-screw vessels	316,224	Apr. 21	1718	451	31	325
Bauer, Anton C. (See Bauer, Robert A., assignor.)						
Bauer, Robert A., assignor of one-half to A. C. Bauer, Grand Rapids, Mich. V-jointer	319,173	June 2	289	77	31	1101
Baum, Adam. (See Perkins, Miner T., assignor.)						
Baum, August, *et al.* (See Ackermann, George, assignor.)	320,997	June 30	2783	739, 740	31	1587
Bauman, Ferdinand, Waldenburg, Switzerland. Electric clock	316,224	Apr. 21	1718	451	31	325
Baumbach, Emil, New York, N. Y. Railway signaling apparatus						
Baumeister & Co., L. (See Baumeister, Leopold, assignor.)						
Baumeister, Leopold, assignor to L. Baumeister & Co., Bridgeport, Conn. Vapor-burner for soldering and branding irons	317,489	May 12	766	195	31	670
Baumgartner, Alexander, assignor of one-half to J. G. Ordnung, Belleville, Ill. Stalk and cane cutter	318,942	June 2	5	2	31	1049
Baxter, Charles O., St. Louis, Mo. Picture-frame	319,668	June 9	943	250	31	1231
Baxter, Henry, and A. F. Anton, Memphis, Tenn. Wood-molding machine	315,222	Apr. 7	346	84	31	62
Baxter, Samuel, London, England. Anchor	318,229	May 19	1743	466	31	861
Bayles, William H., Port Jefferson, N. Y. Revolving ash-sifter	318,683	May 26	2348	627	31	980
Bayley, Charles H., Boston, Mass., assignor to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Cover-fastening device for sewing-machines	316,108	Apr. 21	1572	409	31	298
Bayliss, William, Wolverhampton, county of Stafford, England. Metal fencing	319,877	June 9	1237	327	31	1282
Bayliss, William, Wolverhampton, county of Stafford, England. Fence-post	319,878	June 9	1238	327	31	1282
Bazin, Ernest, Paris, France. Electric battery	316,436	Apr. 28	2019	530	31	384
Bazin, Ernest, Paris, France. Rotary electric battery	316,437	Apr. 28	2020	530	31	384
Beach, David H., Litchfield, Conn. Hand-car	317,437	May 5	697	176	31	649
Beach, Henry B., Meriden, Conn. Salt-dredge	316,725	Apr. 28	2422	630	31	458
Beach, John K., New Haven, Conn. Photographic apparatus	319,669	June 9	944	250	31	1231
Beach, Willie P., El Paso, Tex. Cartridge-belt	315,698	Apr. 14	994	261	31	187
Beal Lasting Machine Company. (See Libby, Asa S., assignor.)						
Beale, Edmond, and A. Bangs, Philadelphia, Pa. Fire-escape	317,704	May 12	1040	270	31	720
Beale, Joseph H., Boston, Mass. Re-enforced paper fabric	320,614	June 23	2290	604	31	1488
Beale, Joseph H., Boston, Mass. Carpet-lining	320,615	June 23	2290	604	31	1488
Beall, John and W. L., Decatur, Ill. Grinding-mill	316,930	May 5	9	3	31	524
Beall, William L. (See Beall, John and W. L.)						
Beals, Thomas S., Detroit, Mich. Vest-protector	321,177	June 30	3017	799	31	1630
Beam, Henry T., Palestine, assignor of one-half to W. C. Jones, Robinson, Ill. Car-coupling	317,284	May 5	482	121	31	611
Beam, Henry T., Palestine, assignor of two-thirds to W. C. Jones and A. P. Woodworth, Robinson, Ill. Car-coupling	318,591	May 26	2235	597	31	958
Beam, Henry T., Palestine, assignor of two-thirds to W. C. Jones and A. P. Woodworth, Robinson, Ill. Car-coupling	319,174	June 2	291	78	31	1101
Bean, Albert B., New Haven, Conn. Cross-bar shoe for planing-machines	316,109	Apr. 21	1572	409	31	298
Bean, Edwin E., *et al.*, trustees. (See Norton, John A., assignor.)						
Bean, Roscoe, Springfield, Ohio. Wheel	315,995	Apr. 21	1416	368	31	269
Bean, Roscoe, and A. W. Grant, assignors to Tricycle Manufacturing Company, Springfield, Ohio. Vehicle-wheel	319,777	June 9	1084	288	31	1256
Beard, Lewis W., Arcadia, La. Frame building	318,592	May 26	2235	598	31	958
Beard, Waller B., Jackson, Miss. Lumber-drier	321,336	June 30	3207	855	31	1666
Beardsley, Marcus D., Milwaukee, Wis. Grain-scourer	315,997	Apr. 21	1419	369	31	270
Beardsley, Marcus D., assignor to Milwaukee Dust Collector Manufacturing Company, Milwaukee, Wis. Machine for cleaning grain	315,996	Apr. 21	1417	368	31	269
Beardsley, Nathan S., Warsaw, N. Y. Apparatus for the manufacture of salt	320,207	June 16	1687	448	31	1371
Beardsley, William F., Boston, Mass., assignor to Manufacturers Special Machine Company, Danbury, Conn. Machine for making plaited goods	316,438	Apr. 28	2022	531, 532	31	384
Beardsley, William, Beacon, Iowa. Bottle-stopper	317,705	May 12	1041	270	31	721
Bearly, David, New Castle, Ind. Lawn-mower	314,988	Apr. 7	2	1	31	3
Beasley, W. T. (See Saunders, George E., assignor.)						
Beatty, John W., Erie, Pa. Sash-fastener	320,327	June 16	1683	494	31	1404
Beaudry, Zotique, Lynn, Mass. Jack for boots or shoes	316,867	Apr. 28	2617	682	31	494
Beauregard, Napoleon, and G. J. Wheelock, San Francisco, Cal. Machine for straightening round bars	320,531	June 23	2176	574	31	1466
Beavis, Arthur J., Monmouth, and F. S. Beavis, Peoria, Ill. Velocipede	318,532	May 26	2148	578	31	945
Beavis, Frank S. (See Beavis, Arthur J. and F. S.)						
Beavis, John, Cleveland, Ohio. Metal-rolling machine. (Reissue)	10,594	May 5	756	191	31	660
Becht, Albert L., Paris, France. Lock	317,076	May 5	192	49	31	558
Beck, Frederick, New York, N. Y. Stencil	316,225	Apr. 21	1719	451	31	325
Beck, Frederick, New York, N. Y. Stencil	318,943	June 2	7	2	31	1050
Beck, Frederick, New York, N. Y. Printing-surface	320,208	June 16	1688	449	31	1371
Beck, Robert M., Chambersburg, Pa. Governor for steam-engines	317,285	May 5	483	122	31	611
Beck, Robert M., Chambersburg, Pa. Governor for steam-engines	318,852	May 26	2579	686, 687	31	1019
Becker, Bernard E., Boston, assignor to J. A. Nelson, Brockton, Mass. Paper-box machine	315,461	Apr. 14	667	173, 174	31	125
Becker, Frederick G., assignor to D. S. Morgan & Co., Brockport, N. Y. Harvester	317,964	May 19	1396	375	31	796
Becktel, Charles J., Muncie, Ind. Roller-skate	321,337	June 30	3209	856	31	1666
Beckwith, Frank W., assignor of one-half to H. W. Fairbanks, Detroit, Mich. Box-fastener	316,598	Apr. 28	2224	585	31	423
Beckwith, Russel H., New York, N. Y. Sewer-gas trap	316,110	Apr. 21	1573	409	31	298
Bedbury, George W., assignor to J. Bourne, Jr., Portland, Oreg. Car-axle	317,706	May 12	1041	270	31	721
Beddall, Richard, Malden, Mass. Journal-bearing	314,989	Apr. 7	3	2	31	3
Bedell, George E., Herkimer, N. Y. Spring-bed frame	315,998	Apr. 21	1420	369	31	270
Bedell, George E., Herkimer, N. Y. Cot-bed	319,055	June 2	149	41	31	1075
Beebe, Charles H., Norwich, Conn. Knob attachment	318,684	May 26	2350	628	31	980
Beebe, Henry C., Canton, Ill. Grain-drill	321,273	June 30	3135	835	31	1651

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Beecher, Allie E. (See Gardner, William, assignor.)						
Beery, Samuel M. (See Wood, Luther B., assignor.)						
Beery, Samuel M., Omaha, Nebr. Rail-chair	318,685	May 26	2351	628	31	980
Beesley, Frederick, London, England. Lock for breakdown guns	320,040	June 16	1465	{385 386}	31	1331
Behm, Joseph, San José, Cal. Ore separator and concentrator	320,998	June 30	2784	740	31	1587
Behrens, Robert H. F., Hamburg, Germany. Flower-stand	318,593	May 26	2236	598	31	948
Behrens, Robert H. F., Hamburg, Germany. Flower-stand	318,853	May 26	2581	687	31	1020
Behringer, Charles, assignor to Turnbull Wagon Company, Defiance, Ohio. Wagon-brake	321,178	June 30	3019	799	31	1630
Beilby, George T., Midcalder, county of Mid-Lothian, Scotland. Air-thermometer	320,749	June 23	2452	650	31	1520
Beisheim, Henry, assignor to C. E. Rider, Rochester, N. Y. Apparatus for uniting wood for floor-coverings	320,616	June 23	2291	605	31	1488
Beisinger, Frederich, assignor of one-half to F. Widmer, Newark, N. J. Beer cooling and preserving apparatus	315,699	Apr. 14	995	261	31	187
Belanger, Eusebe B. (See Belanger, Frank S. and E. B.)						
Belanger, Frank S. and E. B., Waterbury, Conn. Pulley	321,179	June 30	3019	799	31	1630
Belcher, Henry F., Irvington, N. J. Mosaic of glass and lead glazing	317,077	May 5	193	49	31	558
Belden, Alvin J., *et al.* (See Van Zandt, Jacob, assignor.)						
Belden, Edwin S., San Francisco, Cal. Type-writing machine	315,700	Apr. 14	996	{261 262}	31	187
Belden, Edwin S., San Francisco, Cal. Type-writing machine	315,701	Apr. 14	998	{262 263}	31	188
Belden, Edwin S., San Francisco, Cal. Type-writing machine	315,702	Apr. 14	999	263	31	188
Belden, Emerson, assignor of one-half to A. Crampton, Green Island, N. Y. Door or shutter	315,111	Apr. 7	166	40	31	31
Belding, Edgar F., Fitchburg, Mass. Leather-skiving machine	320,209	June 16	1689	449	31	1371
Belding, William R., Eureka Springs, Ark. Spring-link	315,223	Apr. 7	347	84	31	62
Belina, Wenel J., assignor of one-half to J. W. Kaplaw, Owatonna, Minn. Conveyer-apron for harvesters	318,442	May 26	2025	{545 546}	31	921
Belknap, Hamlet W., assignor, by mesne assignments, to himself, H. C. Bartlett, Bradford, N. H., and J. A. Hartshorn, Boston, Mass. Composition for lubricating metallic surfaces	317,490	May 12	768	.....	31	671
Belknap, Willis H., New York, N. Y. Umbrella or parasol canopy	315,924	Apr. 7	347	85	31	63
Bell, Adam H., Hillsborough, Ill. Bundle-dropper for harvesters	320,750	June 23	2454	650	31	1521
Bell, Benjamin F., Yates Center, Kans. Hand hedge-trimmer	316,937	May 5	10	3	31	524
Bell, Charles. (See Smith and Bell.)						
Bell, Vernon, New York, N. Y. Drawers	319,175	June 2	292	78	31	1101
Bell, Webster, Boston, Mass. Winding-stop for watches	316,226	Apr. 21	1720	452	31	325
Bell, William, assignor of one-half to L. Kimball, Verona, Miss. Railway-gate and means for preventing injury to stock on railways	314,990	Apr. 7	4	2	31	3
Bell, William G. (See Otis, Elisha W., assignor.)						
Bellamy, Charles L., Arlington, N. J. Manufacture of knife-blades	319,442	June 9	638	173	31	1176
Bellamy, Charles L., Arlington, N. J. Trace-fastener	319,546	June 9	782	208	31	1201
Bellman, Oscar, assignor of one-half to S. D. Martin, Hagerstown, Md. Pipe-elbow scriber	318,843	May 26	2571	684	31	1018
Belt, Perley P., Columbus, Kans. Key and sounder	318,854	May 26	2582	687	31	1020
Bemis & Call Hardware and Tool Company. (See Call, Amos, assignor.)						
Bemis, George W., Sr., and T. Bemis, Cincinnati, Ohio, assignors of one-third to J. W. Roberts, Indianapolis, Ind. Carpet-sweeper	318,855	May 26	2582	688	31	1020
Bemis, M. Melvin. (See Wilson, Charles F., assignor.)						
Bemis, Thomas. (See Bemis, George W., Sr., and T.)						
Beucke, Herman, and P. Lorillard, Jr., New York, N. Y. Transparent picture	315,703	Apr. 14	1001	263	31	188
Bender, August, New York, N. Y. Powder-puff	319,056	June 2	151	41	31	1075
Benedict, Washington G., Boston, Mass. Pneumatic cannon	314,991	Apr. 7	5	2	31	4
Bénézit, Antoine, Villeneuve-sur-Lot, France. Alarm for shop-doors	315,999	Apr. 21	1421	369	31	270
Benjamin, George H., Short Hills, N. J. Underground conduit for electrical conductors	315,225	Apr. 7	349	85	31	63
Benjamin, George V. (See Hopkins, Garrett W., assignor.)						
Benjamin, William C (See Wren, William C., assignor.)						
Benner, Lorenzo D., Peoria, Ill. Corn-planter check-rower	321,077	June 30	2892	769	31	1607
Bennet, David S. B. (See Fenton and Bennet.)						
Bennett, Benjamin, Pittsburg, Pa. Glassware	315,462	Apr. 14	670	174	31	125
Bennett, Benjamin, Pittsburg, Pa. Glassware. (Reissue)	10,609	June 16	2066	543	31	1438
Bennett, Charles H., Blossburg, assignor to himself and J. L. Higgins, Arnot, Pa. Pump	319,547	June 9	783	208	31	1201
Bennett, John M., assignor to S. C. Tatum & Co., Cincinnati, Ohio. Broom-rack	319,176	June 2	293	78	31	1102
Bennett, Strong M., and J. H. Sullivan, Mexico, N. Y. Vehicle-axle	316,439	Apr. 28	2030	532	31	385
Bennett, Thomas G., assignor to Winchester Repeating Arms Company, New Haven, Conn. Percussion-fuse for projectiles	320,210	June 16	1692	450	31	1372
Bense, John, and A. Sievert, Rocky Ridge, Ohio. Post-hole auger	317,491	May 12	769	196	31	671
Bent, Roderic L., Gardner, Mass. Tray for children's chairs	317,707	May 12	1042	271	31	721
Bentley, Travis C., Pattonville, Tex. Bed-bottom	316,927	Apr. 21	1721	452	31	325
Benz, Carl, Mannheim, Baden, Germany. Gas-engine	316,866	Apr. 28	2610	682	31	494
Berger, Wilson C., Canton, Ohio. Eaves-trough hanger	321,180	June 30	3020	800	31	1630
Bergh, Bror F., New York, N. Y. Car brake and starter	315,704	Apr. 14	1002	264	31	188
Bergheim, George L. (See König, August, assignor.)						
Bergmann, Sigmund, New York, N. Y. Safety catch-plug for electric circuits	319,384	June 2	547	149	31	1152
Bergmann, Theodor, Gaggenau, Baden, assignor to Gebr. Stollwerck, Cologne-on-the-Rhine, Germany. Siphon-bottle	320,751	June 23	2455	651	31	1521
Bergsten, Joseph, Rockford, Ill. Towel-rack	320,211	June 16	1694	450	31	1372
Bering, James E., Decatur, Ill. Corn-planter check-rower	315,226	Apr. 7	352	86	31	63
Berkey, Julius, Grand Rapids, Mich. Caster	318,833	May 26	2140	579	31	945
Berneike, Johannes G. and M. L., Brooklyn, N. Y. Terrestro-siderial sphere	320,999	June 30	2785	740	31	1587
Berneike, Johannes G. and M. L., Brooklyn, N. Y. Tellurian	321,000	June 30	2788	741	31	1588
Berneike, M. Louis. (See Berneike, Johannes G. and M. L.)						
Berney, Alfred, Boston, Mass. Fire-box muffler	319,778	June 9	1085	289	31	1257
Bernstein, Alexander, Boston, Mass., assignor to Bernstein Electric Light Manufacturing Company, Portland, Me. Holder for incandescent electric lamps	319,177	June 2	294	78	31	1102
Bernstein Electric Light Manufacturing Company. (See Bernstein, Alexander, assignor.)						
Bernstein, Meyer, New York, N. Y. Guard for buckles for wearing-apparel	318,230	May 19	1744	466	31	861
Bernstein, William F., Philadelphia, Pa. Bed-bottom	319,178	June 2	295	79	31	1102
Berrigan, William. (See Newman and Berrigan.)						
Berst, Conrad, Orrville, Ohio. Churn	315,227	Apr. 7	352	86	31	63
Berthon, Alfred, Paris, France. Telephone-transmitter	319,548	June 9	784	208	31	1202
Beseler, Charles, New York, N. Y. Oxygen-gas attachment for gas-burners	318,161	May 19	1650	441	31	843
Besaac, Henry B. (See Gardner, Addison E., assignor.)						
Bessette, Frank B. and L. E., St. Cloud, Minn. Buckboard-wagon	318,534	May 26	2150	579	31	945

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Bessette, Luke E. (See Bessette, Frank B. and L. E.)						
Best, Frederick W. E., *et al.* (See Norling, Charles A., assignor.)						
Best, George. (See Smith, Lucien P., assignor.)						
Beswick, Samuel. (See Kay, Edward, assignor.)						
Betts, Charles L., assignor of one-half to Chicago Manufacturing Company, Chicago, Ill. Torch-lamp	316,440	Apr. 28	2031	532	31	385
Betts, Robert W., Montclair, N. J. Pulley	318,686	May 26	2352	628	31	980
Beury, George W. (See France, Yale, and Beury.)						
Bevan, William, London, England. Safety attachment for bicycles	319,385	June 2	548	149	31	1152
Bever, Fielding B., Ottawa, Kans. Driving-rein spur	319,179	June 2	296	79	31	1102
Bickel, J. M. (See Deering, John R., assignor.)						
Bickford, Erskine F. (See West, Thomas P., assignor.)						
Bickley, John H., Dover, N. J. Fence	319,057	June 2	151	41	31	1075
Bickmore, Albion P., Hyde Park, Mass. Gimbal-joint	315,112	Apr. 7	168	41	31	31
Bicknell, William A. P., New York, N. Y., assignor to D. S. Hines, W. A. Perry, and C. C. Worthington. Steam-actuated valve	320,212	June 16	1694	450	31	1372
Bidwell, Benson, Philadelphia, Pa. Electric railway	315,113	Apr. 7	169	41	31	31
Bidwell, Benson, Philadelphia, Pa., assignor of one-half to C. F. Bidwell, Indianapolis, Ind. Electric railway	318,594	May 26	2237	599	31	958
Bidwell, Charles F. (See Bidwell, Benson, assignor.)						
Bier, Henry. (See Meyer and Bier.)						
Biétrix, Vincent, St. Etienne, France. Furnace for preparing artificial fuel	319,180	June 2	297	79	31	1103
Bigelow, John, Philadelphia, Pa. Machine for trimming hat-brim curls	317,286	May 5	485	{122 123}	31	611
Biggs, David, Castleton Corners, N. Y. Filter	315,463	Apr. 14	671	174	31	126
Bihler, Anthony, Rochester, N. Y. Syringe	318,535	May 26	2150	579	31	945
Billings, Charles E., Hartford, Conn. Cutting-off tool	318,687	May 26	2352	628	31	980
Billings, Frank, Cleveland, Ohio. Apparatus for casting metal ingots	319,780	June 9	1088	289	31	1257
Billings, Frank, Cleveland, Ohio, and W. R. Hinsdale, Brooklyn, N. Y. Casting metal ingots	319,779	June 9	1086	289	31	1257
Bilz, Conrad, Linden, N. J. Water-pipe	318,856	May 26	2584	688	31	1020
Bippus, Ferdinand G., assignor of one-half to J. Albecker, Evansville, Ind. Fifth-wheel	316,869	Apr. 28	2021	683	31	494
Birckhead, Charles E., Washington, D. C. Furniture-drawer	321,078	June 30	2894	769	31	1608
Bird, Peter E., Jenkintown, Pa., assignor of one-half to M. L. Kohler. Railway-switch	321,079	June 30	2896	770	31	1608
Birdsall, Edgar M. (See Stringer, George, assignor.)						
Birdsall, Edgar M., Auburn, N. Y. Traction-engine	320,752	June 23	2456	651	31	1521
Birdsall, Edgar M., and G. Stringer, Auburn, N. Y.; said Stringer assignor to said Birdsall. Feed mechanism for saw-mill carriages	319,181	June 2	298	79	31	1103
Birge, George K., Buffalo, N. Y. Apparatus for flocking wall-paper, &c	318,944	June 2	9	2, 3	31	1050
Birley, Frank P., Toronto, Ontario, Canada. Paper box	321,181	June 30	3021	800	31	1630
Birtwistle, Richard. (See Stott and Birtwistle.)						
Bisaillon, Belian H., Lockport, N. Y. Ointment	320,836	June 23	2555	.....	31	1540
Bisbee, Wisner B., assignor to F. Taylor, Lowell, Mass. Wire basket	318,081	May 19	1548	415	31	824
Bishop, Daniel H. (See Warden, William R., assignor.)						
Bishop, Henry L. (See Balch and Burtt, assignors.)						
Bissell Carpet Sweeper Company. (See Judd, Charles B., assignor.)						
Bissell, Titus L., Charleston, S. C. Automatic time stock-feeder	317,708	May 12	1043	271	31	721
Bitner, David P. (See Buch, Milton F., assignor.)						
Bitter, William J., Toledo, Ohio. Check-rein swivel for bridles	318,443	May 26	2026	546	31	922
Bixler, David, *et al.* (See Hobart, John H., assignor.)						
Black & Clawson Company. (See Black, Frank X., assignor.)						
Black & Clawson Company. (See Black and Kaffenberger, assignors.)						
Black, Frank X., assignor to Black & Clawson Company, Hamilton, Ohio. Paper-pulp screen	316,938	May 5	11	3	31	525
Black, Frank X., and G. Kaffenberger, assignors to Black & Clawson Company, Hamilton, Ohio. Shifting eccentric	321,001	June 30	2789	741	31	1588
Black, George S., assignor to E. C. Atkins & Co., Indianapolis, Ind. Saw-jointing device	315,228	Apr. 7	354	86	31	64
Black, George S., assignor to E. C. Atkins & Co., Indianapolis, Ind. Saw-guide	315,229	Apr. 7	354	87	31	64
Blackburn, Jacob E. (See Walter and Blackburn.)						
Blackhall, Edward W., Toronto, Ontario, Canada. Ruling-machine	317,078	May 5	195	49	31	559
Blackman, Charles S., Montreal, Quebec, Canada. Holder for water-closet paper	316,228	Apr. 21	1722	452	31	326
Blackstone, Daniel. (See Blackstone, William and D.)						
Blackstone, William and D., Shelbyville, Ill. Hay rake and loader	317,614	May 12	927	238	31	699
Blackstone, William, Chattanooga, Tenn. Dumping-car	315,893	Apr. 14	1272	331	31	237
Blaine, George E., Chattanooga, Tenn. Bolster-spring	315,382	Apr. 7	542	140	31	98
Blaine, Sarah C., Chattanooga, Tenn. Bolster-spring						
Blair Manufacturing Company. (See Loud, Waldo A., assignor.)						
Blake, Edward A., Chicago, Ill. Black-leading machine	316,229	Apr. 21	1723	452	31	326
Blake, Edward W., Waterbury, Conn. Bedstead	317,709	May 12	1044	271	31	721
Blake, Francis M., Worcester, Mass. Adjustable metallic packing	318,082	May 19	1549	415	31	824
Blake, George W., New York, N. Y. Lag-screw for pipe-hangers	317,613	May 12	926	237	31	699
Blake, Robert A. (See Alcorn and Blake.)						
Blake, Samuel D., Dallas, Tex. Pantaloons and overalls	318,945	June 2	11	3	31	1050
Blaker, Achilles, assignor of one-half to A. Wheeler, Shedd, Oreg. Treating pomace for keeping the extract clear	319,549	June 9	786	.....	31	1202
Blakesley, Gilbert H., Bristol, assignor to Corbin Cabinet Lock Company, New Britain, Conn. Trunk-fastening	319,550	June 9	787	208	31	1202
Blamires, Thomas H., Huddersfield, county of York, England. Take-up and let-off mechanism for looms	318,857	May 26	2585	688	31	1020
Blanchard, Charles, Cincinnati, Ohio. Snap-hook	321,080	June 30	2897	770	31	1608
Blandow, William. (See Cave, Holm, and Blandow.)						
Blattmann, Charles, New York, N. Y. Electric lock	320,617	June 23	2293	605	31	1488
Bledsoe, Milam M., Palmyra, Mo. Grain-rack for wagons	316,441	Apr. 28	2033	{532 533}	31	386
Blenker, Bianca, New York, N. Y. Bustle	318,536	May 26	2152	579	31	945
Bleoo, Emanuel, *et al.* (See Wood, Frank B., assignor.)						
Blesch, August F., Columbus, Ohio. Float-valve for water-closets	317,710	May 12	1044	271	31	722
Blessing, James H., Albany, N. Y. Apparatus for making dry-sand cores	315,465	Apr. 14	673	175	31	126
Blessing, James H., Albany, N. Y. Revoluble joint for screw valve-stems	315,464	Apr. 14	672	175	31	126
Blew, Elisha, *et al.* (See Teal, Henry W., assignor.)						
Bliss, Elphalet W. (See Leavitt, Frank M., assignor.)						
Block, David. (See Landrin, Henry, assignor.)						
Block, Louis, assignor to De La Vergne Refrigerating Machine Company, New York, N. Y. Gas-compressor	314,992	Apr. 7	6	2	31	4
Blocki, Franz, Sheboygan, Wis. Feed-cutter	316,000	Apr. 21	1421	369	31	270

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Bloedel, Jacob, Wyandotte, Kans. Hame	321,002	June 30	2790	741	31	1588
Blomstrom, John, assignor to H. W. Price, Rockford, Ill. Glove-fastening	316,325	Apr. 21	1850	489	31	348
Bloom, Eliza, New York, N. Y. Seal-lock	320,213	June 16	1697	451	31	1373
Blossom, Edwin F., assignor of one-half to A. F. Smith, Lynn, Mass. Tool for feather-edging boot or shoe soles	316,726	Apr. 28	2423	631	31	458
Blount, John A. (See Cumback, Herbert H., assignor.)						
Blue, William H., Grafton, W. Va., assignor of one-half to E. W. Johnson, Washington, D. C. Switch-stand	319,386	June 2	549	149	31	1152
Bluhm, Charles A., assignor to himself, H. H. and F. H. Bluhm, Michigan City, Ind. Hose-carriage	318,444	May 26	2027	546	31	922
Bluhm, Fred H., *et al.* (See Bluhm, Charles A., assignor.)						
Bluhm, Henry H., *et al.* (See Bluhm, Charles A., assignor.)						
Blum, Frederick W., and A. P. Lind, Hudson, Wis. Carrier-belt	316,727	Apr. 28	2423	631	31	458
Blunt, Ferdinand S. M. (See Love, Gustave, assignor.)						
Blunt, Edward T., Blaby Hill, county of Leicester, England. Apparatus for compressing ensilage	318,595	May 26	2238	599	31	958
Blunt, George G., Petersburg, Ill. Grain-drill	314,993	Apr. 7	9	3	31	4
Blust, Charles, assignor to R. Wolff & Co., New York, N. Y. Bag and pocket-book fastener	320,427	June 16	2034	534	31	1432
Blv. J. Frank, and C. R. Cipperly, Mayville, N. Y. Screw-top for oil and other cans	316,001	Apr. 21	1422	370	31	271
Boalt, Francis B., Binghamton, N. Y. Hanging doors	315,230	Apr. 7	355	87	31	64
Boardman, William Y. A., Hyde Park, Mass. Machine for making drills	317,287	May 5	489	123	31	613
Boatman, Isaac W., assignor of one-half to Yingling & Brother, Seven Mile, Ohio. Soil-dressing machine	319,949	June 16	1345	354	31	1309
Bode, Frederick, *et al.* (See Solano, Renaldo, assignor.)						
Bodge, Joseph G., Gorham, assignor to Indurated Fibre Company, Portland, Me. Machine for forming hollow ware from paper-pulp	319,192	June 2	300	80	31	1103
Bodwell, John D., San Francisco, Cal. Apparatus for the combustion of liquid fuel	320,532	June 23	2178	574	31	1466
Bodwell, John D., assignor to California Perfection Fuel Manufacturing Company, San Francisco, Cal. Device for the combustion of liquid fuel	320,533	June 23	2180	575	31	1467
Bodwell, Joseph R. (See Burnham, Arthur M., assignor.						
Boehmke, Henry, and G. Bohlken, Cleveland, Ohio. Ground-auger anchor	315,503	Apr. 14	863	227	31	160
Boeklen, Reinhold, Brooklyn, N. Y. Gas-pressure regulator	317,918	May 12	1324	335	31	775
Boettcher, Theodor, Mendota, Ill. Two-wheeled vehicle	316,002	Apr. 21	1423	370	31	271
Bogardus, Robert, New York, N. Y. Fresh-meat-shipping can, box, or package	317,615	May 12	928	238	31	699
Bogardus, Robert, New York, N. Y. Refrigerator car and chamber	319,443	June 9	639	173	31	1177
Bogardus, Robert, Albany, N. Y., and W. A. H. Bogardus, 2d, Chicago, Ill. Refrigerator building and chamber	319,444	June 9	641	174	31	1177
Bogardus, Washington A. H., 2d. (See Bogardus, Robert and W. A. H., 2d.)						
Boggs, Joseph O., Harrisburg, Pa. Torpedo-placer	317,079	May 5	198	50	31	559
Bohannan, Wilson, Brooklyn, N. Y. Padlock	318,537	May 26	2153	579	31	945
Bohannon, Quin E., Lincoln, Nebr. Corn-sheller	316,728	Apr. 28	2424	631	31	458
Bohlken, Gerhard. (See Boehmke and Bohlken.)						
Bohn, Ferdinand. (See Brann and Bohn.)						
Bohner, George, *et al.* (See Dawson, Artemas L., assignor.)						
Boivin, Guillaume, Montreal, Quebec, Canada. Manufacture of boots or shoes	321,182	June 30	3022	800	31	1630
Boland, Dennis A., Allegheny, Pa. Reduction of friction between the rails and wheels on cars on street-railways	317,492	May 12	770	196	31	671
Boland, James, Norwich, Conn. Revolving fire-arm	317,965	May 19	1399	375, 376	31	796
Bole, William A., assignor of one-half to R. Bagaley, Pittsburg, Pa. Tube-expander	319,879	June 9	1240	327	31	1282
Bollinger, Alexander M., Kelly's Station, Pa. Drill and sucker rod joint	317,493	May 12	771	196	31	671
Bond, Charles W., Toledo, Ohio. Car-coupling	315,594	Apr. 14	863	227	31	160
Bond, John M. (See Delaney and Bond.)						
Bond, Joseph. (See Pierce and Bond.)						
Bond, Joseph, *et al.* (See Bryant, Orrin, assignor.)						
Bond, Nathan O., assignor of two-thirds to W. T. Criswell and L. C. Purman, Washington, D. C. Cooking-stove	315,383	Apr. 7	543	140, 141	31	99
Bonecutter, George W., Unionville, Mo. Buggy-top	316,442	Apr. 28	2035	533	31	386
Bonner, Andrew J., Jr., and P. Vanden Berghe, Philadelphia, Pa.; said Vanden Berghe assignor to said Bonner. Awning	316,518	Apr. 28	2125	559	31	404
Bonsilate Company. (See Lockwood, Charles S., assignor.)						
Bonsilate Company. (See Lockwood and Hyatt, assignors.)						
Bonsilate Company. (See Lockwood, Hyatt, and Stevens, assignors.)						
Bonzano, Maximilian F., Philadelphia, Pa. Device for arresting locomotives and cars	315,705	Apr. 14	1005	264, 265	31	188
Boole, George. (See Luce, Boole, and Bryon.)						
Boone, William C., and W. A. Whitfield, Brooklyn, N. Y. Gas-burner	321,274	June 30	3137	836	31	1652
Boot and Shoe Sole Laying Company. (See Coupal, Peter A., assignor.)						
Boot and Shoe Sole Laying Company. (See Eppler, Andrew, Jr., assignor.)						
Booth, Caleb H., Dubuque, Iowa. Attachment for dredge-pumps	317,080	May 5	200	50	31	559
Booth & Flinn. (See McKenna and Bulmer, assignors.)						
Booth, William, Rochdale, county of Lancaster, England. Cornet or other musical instruments	316,519	Apr. 28	2126	559	31	404
Boothby, Edward K., Portland, Me. Field or farm hoe	319,183	June 2	301	80	31	1104
Bord, William, Green Island, N. Y. Dinner-pail	320,454	June 23	2079	547	31	1449
Borie, Hiram R., assignor of one-half to S. P. M. Tasker, Philadelphia, Pa. Pipe-coupling	320,907	June 30	2662	708	31	1565
Bormann, August, and E. Ekhard, Brooklyn, N. Y. Folding ladder	320,114	June 16	1569	414	31	1349
Borrett, Joseph, London, England. Boot and shoe sole plate	320,328	June 16	1884	494	31	1404
Borthwick, John A., Atlantic City, N. J. Saw-set	320,753	June 23	2457	651	31	1521
Borton, Job, assignor to W. H. Hobbs and J. S. Smith, Barnesville, Ohio. Ironing-table	319,445	June 9	644	174	31	1177
Bortree, Maurice R., Chicago, Ill. Corset	318,344	May 19	1899	511	31	889
Boschert, Rufus E., Syracuse, N. Y. Screw-press	319,184	June 2	302	80, 81	31	1104
Boschert, Rufus E., Syracuse, N. Y. Press	319,185	June 2	304	81	31	1104
Boss, Martin P., Oakland, Cal. Amalgamating pan and settler apparatus for treating ores	315,893	Apr. 14	1274	332	31	237
Bossard, August, New York, N. Y. Electric-arc lamp	319,781	June 9	1091	289, 290	31	1257
Bossinger, Henry C. (See Tilt is and Bossinger.)						
Bossyns, Joseph, Baltimore, Md. Fire-proof floor	319,670	June 9	946	250	31	1231
Boston Vegetable Anæsthetic Company. (See Mayo, Urial K., assignor.)						
Bostwick, William W., *et al.* (See Duncan, James, assignor.)						
Botsford, Alban B., Grand Rapids, Mich. Anal speculum	315,466	Apr. 14	674	175	31	126
Bouchard, John, assignor of one-half to G. H. Webster, Chicago, Ill. Ice-machine	319,551	June 9	789	209	31	1202

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Boughton, Charles F. (See Brush and Salomons, assignors.)						
Bourke, William, Brooklyn, N. Y. Adjustable button	318,858	May 26	2586	689	31	1020
Bourne, Jonathan, Jr. (See Bedbury, George W., assignor.)						
Boutell, Ira. (See Bryan and Boutell.)						
Bouvier, Louis P., assignor of three-fourths to J. F. Ellis, P. T. Perrott, and T. J. Clark, Toronto, Ontario, Canada. Envelope-machine	321,183	June 30	3023	800, 801, 802	31	1631
Bowbin, John, and M. H. Croker, Chicago, Ill. Device for removing window-sash from frames	318,946	June 2	12	3	31	1051
Bowen, Abiel. (See Clark, James, assignor.)						
Bowen, Edmund J., assignor to T. Kelley, Maynard, Ohio. Coke-oven	315,595	Apr. 14	864	227, 228	31	160
Bowen, Robert J. (See Stedman, George A. and D. R., assignors.)						
Bower, John G., *et al.* (See McLain, Charles B., assignor.)						
Bowers, Alphonzo B., San Francisco, Cal. Dredging-machine	318,859	May 26	2587	689	31	1021
Bowers, Alphonzo B., San Francisco, Cal. Dredging	318,860	May 26	2596	689, 690	31	1023
Bowers, Joseph R., Concord, N. H. Brick-press	316,939	May 5	19	4	31	525
Bowes, James, Waterville, N. Y. Gas-generator	316,520	Apr. 28	2127	560	31	404
Bowes, William W., *et al.* (See Jacobs, Charles A., assignor.)						
Bowie, William S., Gardiner, Me., assignor of one-half to J. H. Scott, Hyde Park, Mass. Harness	318,445	May 26	2028	547	31	922
Bowker, William. (See Locke and Bowker.)						
Bowling, George S. and J. M., Clarksville, Tenn. Lifting-jack	320,214	June 16	1699	451	31	1373
Bowling, James M. (See Bowling, George S. and J. M.)						
Bowman, Alexander H., Packerton, Pa. Armature for dynamo-electric machines	320,754	June 23	2458	652	31	1522
Bowman, Cyrus. (See Phreaner, Samuel J., assignor.)						
Bowman, David D., Eureka, Cal. Folding reading-desk	317,288	May 5	491	123	31	613
Bowman, William R., Danville, Ky. Thill-coupling	319,186	June 2	305	81	31	1104
Bown, Albert, assignor of one-half to F. Plumb, Streator, Ill. Implement for crimping shells	318,412	May 19	1985	534	31	905
Bowyer, Joseph N., Alexander, Ill. Draft-equalizer	317,061	May 5	200	50	31	559
Boyd, Maggie, Riverside, Cal. Combined storm-shield and overdress	318,538	May 26	2154	580	31	946
Boyer, Samson, administrator. (See Murray, Charles E.)						
Boyington, Levi C., Chicago, Ill. Folding bed	320,837	June 23	2555	677	31	1540
Boyle & Co., E. C. (See Dodge, Charles H., assignor.)						
Boyle, David, Chicago, Ill. Gas-compressing pump	319,446	June 9	645	174	31	1177
Boyle, David, Chicago, Ill. Apparatus for attemperating or cooling beer	320,618	June 23	2294	605	31	1489
Boyle, Jay C., Pittsburg, assignor of two-thirds to W. S. Huselton and S. S. Robertson, Allegheny City, Pa. Car-coupling	317,082	May 5	201	50	31	560
Boyle, Jeffrey C., Brooklyn, N. Y. Electric liquid gage and alarm	317,289	May 5	492	124	31	613
Boyle, Robert K., Liverpool, England. Telegraph	318,345	May 19	1900	512	31	889
Boynton, Alonzo R., assignor of one-half to J. Stompe, Auburn, N. Y. Button	315,894	Apr. 14	1276	332	31	238
Boynton, Eben M., West Newbury, Mass., assignor to J. B. Watkins, Lawrence, Kans. Jetty, breakwater, or similar structure	315,384	Apr. 7	545	141	31	99
Boynton, Edward S., Bridgeport, Conn. Station train-indicator	317,616	May 12	929	238	31	699
Brackett, Jefferson B., Leeds Junction, Me. Stopper for jugs	315,114	Apr. 7	170	41	31	31
Bradbeer, Thomas J., assignor of one-half to Putnam & Wineman, Detroit, Mich. Chimney-cowl	319,552	June 9	790	209	31	1202
Bradbury, Luther M., Jr., Quincy, Mass. Sled-brake	319,950	June 16	1347	354	31	1309
Braden, William D., Denver, Colo. Well-reamer	315,596	Apr. 14	865	228	31	161
Bradford, Erastus F., Boston, Mass., assignor to Singer Manufacturing Company of New Jersey. Binding fabrics	316,521	Apr. 28	2128	560	31	404
Bradford, John, assignor to himself and M. W. Hanley, Chicago, Ill. Device for operating power grain-shovels	317,063	May 5	202	51	31	560
Bradley, Henry E., Buchanan, Mich. Spark-arrester	317,290	May 5	493	124	31	613
Bradley & Hubbard Manufacturing Company. (See Evarts, John A., assignor.)						
Bradley, John, Chelmsford, Mass. Knitting-machine	320,619	June 23	2296	606	31	1489
Brady, James, Brooklyn, and A. V. Brokhahne, New York, N. Y. Guard for razor-blades	316,731	Apr. 28	2429	632	31	459
Brady, John, Philadelphia, Pa. Combined burglar-alarm and sash-fastener	321,184	June 30	3025	802	31	1631
Brady, Patrick T., New York, N. Y. Nut-lock	315,895	Apr. 14	1277	333	31	238
Bragg, John. (See Williams and Bragg.)						
Braggins, Seth, Rochester, N. Y. Regulator for controlling combustion in furnaces	318,688	May 26	2354	629	31	981
Brahn, James, Jersey City, N. J. Rod for connecting railway-switch stands to the switch	317,617	May 12	930	239	31	699
Brainard, Adelbert M., Chicago, Ill. Generator for hydrocarbon-vapor burners	320,838	June 23	2557	677	31	1540
Bramberg, Charles, Brooklyn, assignor to Eagle Pencil Company, New York, N. Y. Combined scissors and pencil-holder	318,346	May 19	1902	512	31	889
Bramhall, Harry H., Madison, Wis. Hoop-skirt	318,162	May 19	1651	441	31	844
Branch, Joseph W. (See Reinschmidt, Frank, assignor.)						
Brandon, James, New York, N. Y. Packing for pistons	315,115	Apr. 7	171	41	31	31
Brandon, William. (See Johnson, Thomas, assignor.)						
Brandow, John W. (See Coppernoll and Brandow.)						
Brandt, Andrew G., Scranton, Pa. Thill-coupling	317,084	May 5	204	51	31	560
Brandt, John. (See Brandt, Louis and J.)						
Brandt, Louis and J., New York, N. Y. Water-closet	315,467	Apr. 14	675	175	31	126
Brangs, Paul H., Newark, N. J., assignor to United States Electric Lighting Company, New York, N. Y. Socket or holder for incandescent lamps	316,003	Apr. 21	1424	370	31	271
Brasher, Allen M., Alexandria, La. Baling-press	316,732	Apr. 28	2431	633	31	459
Braun, John, and F. Bohn, Buffalo, N. Y. Window-glass fastener	316,940	May 5	14	4	31	525
Braunfeld, Henry E., assignor of one-half to G. F. Scholler, Philadelphia, Pa. Fire-escape	316,870	Apr. 28	2022	683	31	495
Brawner, William S., St. Louis, Mo. Liniment	320,041	June 16	1466	.....	31	1331
Bray, Mellen, Newton, Mass. Musical reed	318,947	June 2	13	4	31	1051
Breach, James J., South Weymouth, Mass. Machine for grading patterns	318,539	May 26	2155	580, 581	31	946
Breach, James J., South Weymouth, Mass. Machine for cutting boot or shoe soles	318,540	May 26	2160	581, 582	31	946
Brearey, Frederick W., Blackheath, county of Kent, England. Apparatus for effecting aerial navigation	320,042	June 16	1467	386	31	1331
Breese, John H., Davenport, Iowa. Floating filter	318,689	May 26	2356	629	31	981
Breinig, Revere M., Brooklyn, N. Y. Manufacture of varnish from sludge-tar	315,597	Apr. 14	866	.....	31	161
Brennan & Co. Southwestern Agricultural Works *et al.* (See Wolfe, Harvey R. assignor.)						
Brennan, Daniel, Jr., Bayonne, N. J. Stone and ore crusher	315,468	Apr. 14	676	176	31	126
Brennan, Daniel, Jr., Bayonne, N. J. Stone and ore crusher	315,469	Apr. 14	678	176, 177	31	127
Brennan, James M., Elkhart, Ind. Self-closing cock for water-pipes	318,083	May 19	1551	416	31	824

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Brennan, William N. (See Harney, Michael C., assignor.)						
Brenton, Francis W., Foxborough, assignor of one-half to H. Ashley, Belleville, Ontario, Canada. Combined cheese-bandage and shipping-case	315,896	Apr. 14	1278	333	31	238
Brereton, Richard. (See Crump and Brereton.)						
Breslauer, Edward, assignor to T. Rolle, Berlin, Germany. Apparatus for making sand-molds for casting metal	315,116	Apr. 7	172	42	31	32
Bressler, John. (See Hunt and Bressler.)						
Bressles, Heaton J., *et al.* (See Driffill, Frederick, assignor.)						
Brett, Mathew D., assignor of one-fourth to D. S. Covert, Denver, Colo. Smelting ores	320,908	June 30	2663	708	31	1566
Brettell, Edward W., assignor of one-half to C. W. A. Romer and J. H. Wilkins, Newark, N. J. Latch	316,871	Apr. 28	2022	683	31	495
Brettell, Edward W., assignor of one-half to C. W. A. Romer and J. H. Wilkins, Newark, N. J. Key	318,861	May 26	2601	690	31	1023
Brettell, Edward W., assignor of one-half to C. W. A. Romer and J. H. Wilkins, Newark, N. J. Lock	319,058	June 2	152	41	31	1075
Bretzfield, Samuel, New York, N. Y. Belt-fastening	316,872	Apr. 28	2023	684	31	495
Brewer, Albert L., and H. Heesen, assignors to themselves and H. Brewer & Co., Tecumseh, Mich. Clay-crusher	315,897	Apr. 14	1279	333	31	238
Brewer, Albert L., and H. Heesen, assignors to themselves, H. W. Conklin, C. J. Brewer, and H. Stout, Tecumseh, Mich. Brick and tile machine	318,347	May 19	1903	513	31	890
Brewer, B. B. (See Smith and Bell, assignors.)						
Brewer, Charles J., *et al.* (See Brewer and Heesen, assignors.)						
Brewer & Co., H. (See Brewer and Heesen, assignors.)						
Brewer, Francis A., San Francisco, Cal., and W. S. How, assignors to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Forceps for applying rubber-dam clamps	315,706	Apr. 14	1006	265	31	189
Brewer, Roland L., assignor to E. Miller & Co., Meriden, Conn. Extension-chandelier	316,230	Apr. 21	1724	453	31	326
Brewster, Isaac S., Dover, N. H. Boot or shoe heel and guard	318,446	May 26	2029	547	31	922
Briant, John M., *et al.* (See Sprinkle, George E., assignor.)						
Brickell, Nicholas, assignor of one-half to T. J. Brickell, Brinkley, Ark. Machine for grinding tools	320,755	June 23	2460	652	31	1522
Brickell, Thomas J. (See Brickell, Nicholas, assignor.)						
Bridgeport Brass Company. (See Somers, George E., assignor.)						
Bridgeport Brass Company. (See Stoddard, Samuel G., assignor.)						
Bridgman, Alfred. (See Lines and Bridgman.)						
Brierley, John, Easthampton, Mass. Top roller for drawing-frames, &c.	319,187	June 2	306	81	31	1104
Brigden, Burt A., and E. Cannon, Jr., Moravia, N. Y. Stool	320,690	June 23	2398	606	31	1489
Briggs, George S., Rockford, Ill. Wheel-hub	317,494	May 12	772	197	31	671
Briggs, J. Smith, Kankakee, Ill. Car-starter	316,730	Apr. 28	2425	632	31	459
Briggs, Orlando P., assignor to Thorn Wire Hedge Company, Chicago, Ill. Machine for uncoiling wire	315,707	Apr. 14	1007	265	31	189
Briggs, Orlando P., Chicago, and C. S. Locke, Joliet, assignors to D. H. Donovan, Chicago, Ill. Barbed fence-wire machine	315,470	Apr. 14	682	178, 179, 180	31	127
Briggs, Oscar E., Binghamton, N. Y., assignor of two-thirds to G. Hull and A. D. Wales. Bracket-seat	315,598	Apr. 14	867	228	31	161
Briggs, Thomas, Manchester, county of Lancaster, England. Compound material suitable for the manufacture of lined coffee and sugar bags and other useful purposes	315,395	Apr. 7	547	.....	31	99
Brigham, Charles F., Boston, Mass. Journal-bearing	320,909	June 30	2665	708	31	1566
Brigham, Perry, assignor to himself, H. S. Chase, Boston, and W. N. Dole, Lynn, Mass. Sewing-machine attachment for sewing welts	320,043	June 16	1468	387	31	1332
Brightman, Frank E., *et al.* (See Brightman, Joseph W., assignor.)						
Brightman, Joseph W., Cleveland, Ohio. Furnace-grate	318,862	May 26	2601	690	31	1023
Brightman, Joseph W., assignor of one-half to N. W. Taylor and F. E. Brightman, Cleveland, Ohio. Furnace	318,690	May 26	2358	629, 630	31	981
Brightwell, Amazon W., Owen, Ind. Roofing-gage	320,428	June 16	2035	534	31	1492
Brill, George M., assignor of one-half to J. A. Brill, Philadelphia, Pa. Street-car	315,898	Apr. 14	1280	333, 334	31	238
Brill, John A. (See Brill, George M., assignor.)						
Brinckerhoff, Henry W., Brooklyn, N. Y. Steam-heating apparatus	318,084	May 19	1551	416	31	824
Brinkmann, Augustus H., Baltimore, Md. Shirt	317,711	May 12	1045	272	31	722
Brinly, Thomas E. C., and F. E. Heinig, Louisville, Ky. Fence-post	316,509	Apr. 22	2225	586	31	423
Brinsmead, John, London, England. Piano sounding-board	319,189	June 2	309	82	31	1105
Brinsmead, Thomas J., 18 Wigmore Street, county of Middlesex, England. Stringing pianos	319,188	June 2	308	82	31	1105
Brintnall, Thomas M., Marysville, assignor to himself, G. R. Mann, and N. P. Ogden, St. Joseph, Mo. Bolt-work for safes	315,231	Apr. 7	356	87	31	64
Brintnall, Thomas M., Marysville, assignor to himself, G. R. Mann, and N. P. Ogden, St. Joseph, Mo. Bolt-work for safes	315,232	Apr. 7	358	87, 88	31	64
Brinton, Caleb, *et al.* (See Thompson, George H., assignor.)						
Brisben, William M., Philadelphia, Pa. Hydrocarbon-injector	317,712	May 12	1047	272	31	722
Brisben, William M., Philadelphia, Pa. Cable railway	317,713	May 12	1048	273	31	722
Bristol, David N., Lansingburg, assignor to Wilbur, Du Bois & Wilbur, Troy, N. Y. Shirt-neckband protector	315,117	Apr. 7	173	42	31	32
Bristol, David N., Lansingburg, assignor to Wilbur, Du Bois & Wilbur, Troy, N. Y. Shirt-yoke shield	315,118	Apr. 7	174	42	31	32
Bristol, David N., Lansingburg, assignor to Wilbur, Krum & Wilbur, Troy, N. Y. Shirt	315,119	Apr. 7	174	42, 43	31	32
Bristol, Edmund R. (See Wescott and Bristol.)						
Bristol, George, Reedsburg, Wis. Gate	320,534	June 23	2181	575	31	1467
Britton, Andrew L., Philadelphia, Pa. Ear-muffler	315,233	Apr. 7	359	88	31	65
Britton, George G. (See Gollehon, Britton, and Lucas.)						
Broadnax, Amos, assignor to A. C. Lewis, Brooklyn, N. Y. Drive-screw	320,329	June 16	1885	495	31	1405
Brobst, Daniel, Portland, Mich. Roof-paint composition	315,471	Apr. 14	689	.....	31	128
Brock, George L. S., Decatur, Ind. Heating-drum	318,541	May 26	2176	583	31	948
Brock, Levi M., Mackinaw, Ill. Wheel-plow	319,059	June 2	154	42	31	1076
Brock, William E., Dunellen, N. J., assignor to H. T. Disbrow, Brooklyn, and H. G. Disbrow, New York, N. Y. Hammock-spreader	317,291	May 5	494	124	31	613
Brockway, Solomon P. (See Armstrong, John B., assignor.)						
Brokaw, Isaac, and W. Butler, Litchfield, Ill. Straw-stacker	319,553	June 9	791	209, 210	31	1203
Brokhahne, Alfred V. (See Brady and Brokhahne.)						
Brokhahne, Alfred V., New York, N. Y. Guard for razor-blades	315,708	Apr. 14	1010	266	31	189
Brommersberger, George, *et al.* (See Weber, Peter F., assignor.)						
Bronner, Manly D., Ilion, N. Y. Harrow	320,455	June 23	2081	547	31	1449
Bronson, James M., Chicago, Ill. Removable book-cover. (Reissue)	10,615	June 23	2654	704, 705	31	1557

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Brook, Edward, Wigan, county of Lancaster, England. Apparatus for making gas	315,709	Apr. 14	1012	266, 267	31	190
Brookbank, James O., Driftwood, Pa. Water-cooler	316,231	Apr. 21	1725	453	31	326
Brooke, Isaac, Pottstown, Pa. Inkstand	321,185	June 30	3026	802	31	1631
Brookfield, William. (See O'Brien, John, assignor.)						
Brooks, Ambrous A. and A. J., Macomb, Tex. Pitman-rod	317,919	May 12	1325	355	31	775
Brooks, Andrew J. (See Brooks, Ambrous A. and A. J.)						
Brooks & Co., E. J. (See Brooks, Edward J., assignor.)						
Brooks, Edward J., East Orange, N. J., assignor to E. J. Brooks & Co., New York, N. Y. Seal	314,994	Apr. 7	10	3	31	4
Brooks, Edward J., East Orange, N. J., assignor to E. J. Brooks & Co., New York, N. Y. Seal-press (roller)	319,387	June 2	551	150	31	1153
Brooks, Edward J., East Orange, N. J., assignor to E. J. Brooks & Co., New York, N. Y. Seal	320,904	June 23	2659	704	31	1557
Brooks, Edward J., East Orange, N. J., assignor to E. J. Brooks & Co., New York, N. Y. Seal	321,275	June 30	3137	836	31	1652
Brooks, Heman P., Brooklyn, N. Y., assignor to himself and J. L. Carson, Torrington, Conn. Bottle-stopper	319,554	June 9	793	210	31	1203
Brooks, Henry J. H., assignor to himself and C. D. M. Peele, Bloomfield, N. J. Valve-cock	315,234	Apr. 7	360	88	31	65
Brooks, James W., trustee. (See Allen, Edward B., assignor.)						
Brooks, James W., trustee. (See Glidden, Charles W., assignor.)						
Brooks, John R., West Springfield, Mass. Crutch	320,621	June 23	2299	607	31	1489
Brooks, Mott B., North Hammond, N. Y. Double-acting submerged force-pump	317,714	May 12	1050	273	31	722
Brooks, Rufus M., Greeley, Kans. Pump	316,004	Apr. 21	1425	370	31	271
Brooks, Rufus M., Greeley, Kans. Chain-pump bucket	316,005	Apr. 21	1426	371	31	271
Brooks, William H. (See Cochrane, John C., assignor.)						
Broomhall, George L., Paterson, N. J. Insulator	319,447	June 9	647	175	31	1178
Brotherhood, Peter, Lambeth, county of Surrey, England. Piston	320,839	June 23	2559	677	31	1540
Brower, Bloomfield, assignor of one-half to E. Greey, New York, N. Y. Fan-holder	315,899	Apr. 14	1282	334	31	239
Brown, Aaron L., Chicago, Ill. Temporary binder	320,622	June 23	2299	607	31	1489
Brown, Alexander E., Cleveland, Ohio. Caster-wheel for hoisting-buckets	315,235	Apr. 7	360	88	31	65
Brown, Alexander E., Cleveland, Ohio. Hoisting and conveying machine	315,900	Apr. 14	1283	334, 335	31	239
Brown, Archibald S., *et al.* (See Hunter, David, assignor.)						
Brown, Archibald S., *et al.* (See Spier, Alexander D., assignor.)						
Brown, Augustus P., Brooklyn, N. Y. Rolling-mill	316,232	Apr. 21	1726	453	31	326
Brown Carriage Company. (See Brown, John N., assignor.)						
Brown, Charles E., assignor of one-third to H. B. Walmsley, Eau Claire, Wis. Paint	319,951	June 16	1347	.....	31	1310
Brown, Daniel V., assignor to S. L. Fox, Philadelphia, Pa. Spectacles	316,873	Apr. 28	2024	684	31	495
Brown, David S., Jenkins, Mo. Device for adjusting boards, &c	316,941	May 5	14	4	31	525
Brown, Deloss S., and L. Sipf, Peoria, Ill. Combined beer and spirit still	320,535	June 23	2181	576	31	1467
Brown, Edwin L., Chicago, Ill. Ornamenting glass	315,472	Apr. 14	689	180	31	128
Brown, Ernest M., New Boston, Ill. Car-coupling	321,276	June 30	3139	836	31	1652
Brown, Fayette, Cleveland, Ohio. Blast-furnace	316,233	Apr. 21	1728	454	31	327
Brown, George H. (See Repp and Brown.)						
Brown, George W., Mansfield, Ohio. Steam-gage	318,691	May 26	2360	630	31	982
Brown, Gilman W., West Newbury, Mass. Fire-kindler	316,327	Apr. 21	1851	489	31	348
Brown, Gilman W., West Newbury, assignor to Crosby Steam Gage and Valve Company, Boston, Mass. Steam-engine pressure-recorder and speed-indicator	316,111	Apr. 21	1574	409	31	298
Brown, Israel F., New London, Conn. Cotton-gin	317,921	May 12	1327	356, 357	31	776
Brown, James S., Eureka, Cal. Flood and sluice gate	316,733	Apr. 28	2432	633	31	460
Brown, Jesse H., Syracuse, N. Y. Reamer	317,713	May 12	1051	274	31	723
Brown, John, assignor to J. W. Tufts, Medford, Mass. Sirup-fountain	317,618	May 12	921	239	31	700
Brown, John F., Brooklyn, N. Y. Extension-chandelier	319,061	June 2	157	42	31	1076
Brown, John M., Philadelphia, Pa., assignor to Baker, Pratt & Co., New York, N. Y. Device for securing furniture-standards to the floor	316,328	Apr. 21	1852	490	31	348
Brown, John N., assignor to Brown Carriage Company, New London, Conn. Vehicle-gear	318,863	May 26	2603	690	31	1024
Brown, John T., Ottawa, Ill. Horse hay-fork	319,671	June 9	947	250	31	1232
Brown, Joseph C., Burlington, Vt. Apparatus for mixing, measuring, and packaging powdered material	319,672	June 9	947	251, 252	31	1232
Brown, Lauriston S., Oriskany Falls, N. Y. Field and lawn mower	318,692	May 26	2361	630	31	982
Brown, Marcileus P., Fayetteville, Mo. Corn-planter	320,044	June 16	1469	387, 388	31	1332
Brown, Oliver H. P., Clarksville, Ark. Peach-pitter	317,966	May 19	1401	376	31	797
Brown, Philip C., Brooklyn, N. Y. Boot or shoe	318,949	June 2	16	6	31	1051
Brown, Robert, Springfield, Ohio. Harvesting-machine	315,901	Apr. 14	1286	335	31	239
Brown, Robert, Springfield, Ohio. Grain-binder	317,292	May 5	495	124, 125	31	614
Brown, Robert B., St. Louis, Mo. Wire mat for oil-presses	316,874	Apr. 28	2025	634	31	495
Brown, Robert P., Philadelphia, Pa. Envelope	320,215	June 16	1700	451	31	1373
Brown, Sampson H., Leesville, Tex. Indicator for merchandise	315,236	Apr. 7	362	89	31	65
Brown, Samuel P., Bridgeport, Conn. Tension device for sewing-machines	319,448	June 9	648	175	31	1178
Brown, Seth A., Buffalo, N. Y. Extensible service-box for the stop-cocks of gas, &c.	317,920	May 12	1326	355	31	775
Brown & Sharpe Manufacturing Company. (See Smith, George H., assignor.)						
Brown & Sharpe Manufacturing Company. (See Worsley, Samuel L., assignor.)						
Brown, Theodore H., assignor of one-half to H. C. Forsyth, Viroqua, Wis. Plastering, calcimining, and painting machine	315,902	Apr. 14	1288	336	31	240
Brown, Thomas, Sheffield, county of York, England. Animal-shears	315,237	Apr. 7	363	89	31	65
Brown, Thomas H., Milwaukee, Wis. Two-wheeled vehicle	319,060	June 2	156	42	31	1076
Brown, Thomas R., assignor of two-thirds to W. C. Meeker, Jersey City, N. J., and A. J. Manning, New York, N. Y. Railway-switch stand	318,948	June 2	14	4	31	1051
Brown, Vincent, Hassard, Mo. Fence-post	320,330	June 16	1885	495	31	1405
Brown, William H., New York, N. Y. Making seamless tubes	316,600	Apr. 28	2226	586	31	423
Browne, Arthur W. (See Johnston and Browne.)						
Brownell, A. M., *et al.* (See Hatch, Fred A., assignor.)						
Browning, Fredrick T. (See Bulkeley and Browning, assignors.)						
Browning, Ross C. (See Bulkeley and Browning.)						
Brubaker, Martin K., Mount Joy, Pa. Tobacco-dropper	316,601	Apr. 28	2227	586	31	423
Bruce, Alonzo E., Springfield, Mass. Hand threshing-machine	315,710	Apr. 14	1013	267	31	190
Bruce, John M., Pittsburg, Pa. Combined water cooler and filter	315,120	Apr. 7	176	43	31	32
Brückner, William, San Francisco, Cal. Ore-roasting furnace	321,003	June 30	2791	741, 742	31	1588

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Brunson, Dan, Jewell City, Kans. Cultivator	316,942	May 5	15	4, 5	31	525
Brush, Elden R. (See Masters and Kimball, assignors.)						
Brush, M. Wagner, Hyde Park, and M. A. Salomons, Boston, Mass., assignors of one-third to C. F. Boughton, New York, N. Y. Mechanism for evening sheets of paper on fly-boards of printing-presses	316,329	Apr. 21	1853	490	31	348
Brunn, Julius G. A. (See Therkelsen and Brunn.)						
Bryan, Henry O., *et al.* (See Sherwood, James H., assignor.)						
Bryan, William J. S., and I. Boutell, St. Louis, Mo. Sash-fastener	316,875	Apr. 28	2626	681	31	495
Bryant, Charles A., Wakefield, Mass. Soap-holder	316,734	Apr. 28	2433	633	31	460
Bryant, Charles A., Wakefield, Mass. Egg-beater	319,191	June 2	310	82	31	1105
Bryant, Edson L., assignor of one-half to Wallace & Sons, Ansonia, Conn. Shade-holder	318,693	May 26	2362	630	31	982
Bryant, Fred L. (See Frost and Bryant.)						
Bryant, George B. (See Dougherty and Bryant.)						
Bryant, George B., Philadelphia, Pa. Cable railway	317,085	May 5	205	51, 52	31	560
Bryant, George B., Philadelphia, Pa. Grip for cable railways	317,086	May 5	207	52	31	561
Bryant, George B., assignor of one-half to E. D. Dougherty, Philadelphia, Pa. Gripper for cable railways	317,967	May 19	1402	376	31	797
Bryant, George B., assignor of one-half to E. D. Dougherty, Philadelphia, Pa. Combined supporting-bracket for underground traction-railways and electrical wire conduits	318,951	June 2	18	5	31	1052
Bryant, George B., and E. D. Dougherty, Philadelphia, Pa. Cable railway	318,950	June 2	17	5	31	1052
Bryant, George H., Winston, N. C. Hoisting apparatus	321,004	June 30	2792	742	31	1589
Bryant, James, Indianapolis, Ind. Fence	317,495	May 12	772	197	31	672
Bryant, Orrin, and E. Ring, Westfield, Mass. Machine for the manufacture of whip-stocks, &c	318,348	May 19	1905	{513 514	31	890
Bryant, Orrin, Westfield, Mass., assignor to J. B. Pierce and J. Bond, Buffalo, N. Y. Cutting screw-threads	320,536	June 23	2183	576	31	1468
Bryant, Robert H., Brooklyn, N. Y. Bed-lounge	320,623	June 23	2302	607	31	1490
Bryant, Rufus P., and J. H. Gilleland, Jacksonville, Ala. Railway-tamper	318,163	May 19	1652	442	31	844
Bryant, Solon, Worcester, Mass. Corset-lacing	319,190	June 2	310	82	31	1105
Bryce, Robert, Louisville, Ky. Manufacture of hydraulic cement	315,711	Apr. 14	1015	.....	31	190
Bryce, Stephen T., Dayton, Ohio. Hot-air furnace	319,062	June 2	159	43	31	1076
Bryden Forged Horseshoe Works. (See Greenwood, Peter F., assignor.)						
Bryden, Robert C., Haverhill, Mass., assignor to Singer Manufacturing Company of New Jersey. Clamp for button-hole sewing-machines	319,880	June 9	1243	328	31	1283
Bryon, Benjamin. (See Luce, Boole, and Bryon.)						
Bubach, John G., Princeton, Ill. Pruning implement	317,716	May 12	1051	274	31	723
Buch, Milton F., assignor of one-half to D. P. Bitner, Lancaster, Pa. Railway-rail joint	317,293	May 5	497	125	31	614
Buchanan, Frank L., Howard, Ohio. Feed-trough	318,349	May 19	1907	514	31	891
Buchanan Manufacturing Company. (See Schrav, Fredrick, assignor.)						
Buchter, Frank, assignor to Morse Twist Drill and Machine Company, New Bedford, Mass. Machine for making twist-drills	320,456	June 23	2081	548	31	1449
Buck, Orlando J., Chicago, Ill. Paint-mixer	318,864	May 26	2604	691	31	1024
Buckingham, Alexander H., New Haven, Conn. Combined button and hat hook	319,192	June 2	311	83	31	1105
Buckingham, Charles L., New York, N. Y. Regulator for dynamo-electric machines	320,840	June 23	2560	678	31	1541
Buckingham, Charles L., New York, N. Y. Electric-arc lamp	320,841	June 23	2562	678	31	1541
Buckingham, Charles L., New York, N. Y. Regulator for dynamo-electric machines	320,842	June 23	2564	{678 679	31	1541
Buckingham, Charles L., New York, N. Y. Electric-arc lamp	320,843	June 23	2567	679	31	1542
Buckingham, Joseph P., New York, N. Y. Paper box	320,331	June 16	1886	496	31	1405
Buckland, George G., Tulare, Cal. Road-locomotive	321,005	June 30	2793	{742 743	31	1589
Buckley, William F., Cleveland, Ohio. Electric-arc lamp	315,473	Apr. 14	690	180	31	128
Buckley, William F., Cleveland, Ohio. Armature for dynamo-electric machines	315,903	Apr. 14	1290	336	31	240
Buckley, William F., Cleveland, Ohio. Arc lamp	318,350	May 19	1908	{514 515	31	891
Buckley, William P., assignor to himself and W. Van Der Lyn, Oxford, N. Y. Truss-frame for roofs of buildings	319,881	June 9	1243	328	31	1283
Buckner, Moses L. S., Shelbyville, Ky. Aerial drop for explosives	315,712	Apr. 14	1016	267	31	190
Bucyrus Foundry and Manufacturing Company. (See Thompson, John, assignor.)						
Budlong, William C., *et al.* (See Richards, Marcius C., assignor.)						
Buehler, Charles F., Spencerville, Ohio. Revolving clothes-rack	320,046	June 16	1475	389	31	1333
Buell, Park A., Stockton, Cal. Rabbeting cutter-head	318,596	May 26	2239	{599 600	31	959
Bulkeley, Worthington, Cleveland, Ohio, and R. C. Browning, Orange, N. J., assignors to F. T. Browning, New York, N. Y. Bed-bottom	317,922	May 12	1329	357	31	776
Bull, George, assignor of one-half to J. D. Pryor, Winfield, Kans. Bedstead	318,351	May 19	1910	515	31	891
Bullard, Charles W., Chicago, Ill. Door-hanger	317,496	May 12	773	197	31	672
Bullard, Charles W., Chicago, Ill. Door-hanger	321,081	June 30	2998	770	31	1608
Bullivant, William C., Boston, Mass. Window	318,164	May 19	1654	442	31	844
Bullock, Chester, New York, N. Y. Covering for cables or ropes used to propel vehicles	314,995	Apr. 7	12	3	31	4
Bullock, William C. A., Meridian, Miss. Revolver	320,910	June 30	2666	709	31	1566
Bulmer, George D. (See McKenna and Bulmer.)						
Bulpit, J. H. (See Wonacott, Charles, assignor.)						
Bultmann, Frederick H., Cleveland, Ohio. Sash-holder	315,474	Apr. 14	692	181	31	129
Bungart, Peter J. (See Mayer and Bungart.)						
Bunker, Le Roy S., Valton, Wis., assignor to himself and J. S. Meade, Newell, Iowa. Food-steamer	315,713	Apr. 14	1016	267	31	191
Bunker, William I., Chicago, Ill. Spring	319,555	June 9	793	210	31	1203
Bunn, David. (See McDonald, Gilbert, assignor.)						
Bunn, James H., Henning, Tenn. Seed planter and cultivator	317,968	May 19	1403	377	31	798
Buntin, George, Boston, Mass. Car and seat	316,735	Apr. 28	2434	{633 634	31	460
Buntin, George, Boston, Mass. Rest for the arms of car-seat backs	316,736	Apr. 28	2435	634	31	460
Bunting, William, Jr., Boston, Mass., assignor to Meyer-Sniffen Company, (limited,) New York, N. Y. Water-closet	317,717	May 12	1052	274	31	723
Burdett, George L., Keene, N. H. Chair	317,497	May 12	774	197	31	672
Burdick, Leander, and W. F. Coleman, assignors to Chase, Isherwood & Co., Toledo, Ohio. Tobacco-granulating machine	318,542	May 26	2177	583	31	948
Burdick, Norman, and J. A. Sandford, Albany, N. Y. Forming hinge-pin holes	317,498	May 12	774	198	31	672
Burge, John, Westfield, Mass. Automatic damper-regulator	315,904	Apr. 14	1291	336	31	240
Burger, Theodore W., Danellen, N. J., and H. A. Lee, New York, N. Y. Sheet-metal can	321,277	June 30	3140	836	31	1652
Burgess, Edward C., Islington, county of Middlesex, England. Apparatus for combustion of liquid fuel	315,238	Apr. 7	363	89	31	66

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Burgess, John B. (See Burt and Burgess.)						
Burgess, Jordan H., and J., Jr., Leesburg, assignors of one-third to E. H. Miller, Greenfield, Ohio. Leveling attachment for separators	318,865	May 26	2605	691	31	1024
Burgess, Joseph, Jr. (See Burgess, Jordan H., and J., Jr.)						
Burgess, Titus K. (See Fisher and Burgess.)						
Burgtorf, Charles W., Petaluma, Cal. Harness	316,443	Apr. 28	2035	533	31	386
Burhans, Albert, Rondout, N. Y. Neck-wear fastener	317,969	May 19	1404	377	31	798
Burk, William E., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Adjustable chair	320,844	June 23	2568	{679 680	31	1542
Burk, William H., Sheboygan, Wis. Feed-water heater	321,338	June 30	3209	856	31	1667
Burke, Melancthon T., La Crosse, Wis. Hame-fastener	315,714	Apr. 14	1017	268	31	191
Burke, Thomas, New York, N. Y. Safety-valve	315,475	Apr. 14	693	181	31	129
Burke, Thomas M., Fitchburg, Mass. Adjustable screw-cutting die-stock	316,330	Apr. 21	1854	490	31	349
Burke, William A., assignor of one-half to F. Patek, San Francisco, Cal. Grip for cable railways	317,619	May 12	933	239	31	700
Burkhard, Thomas, Brooklyn, N. Y. Bottom for cans, &c	317,620	May 12	934	239	31	700
Burkhardt, Gustav, Homer, Ill. Chimney top and ventilator	317,718	May 12	1054	274	31	723
Burkhardt, Gustav, Homer, Ill. Washing-machine	318,413	May 19	1987	534	31	905
Burkholder, John, Ashland, Ohio. Traction-wheel	317,719	May 12	1054	275	31	723
Burley, Elbridge R. (See Barler, Augustus C., assignor.)						
Burlie, John D., Kansas City, Mo., assignor of three-fourths to J. B. F. Cates, H. Lund, and M. S. Tyler. Corn-harvester	316,943	May 5	16	5	31	526
Burmeister, & Wain's Maskin, og Skibsbyggeri. (See Jönsson, Sven, assignor.)						
Burnap, Hiram F. (See Andrews, Nathaniel S., assignor.)						
Burnap, Hiram F. (See Andrews and Burnap, assignors.)						
Burnap, James M. (See Andrews and Burnap.)						
Burnell, Strong, Anacortes, Wash. Ter. Gnide for sawing stair-rails	320,845	June 23	2571	680	31	1543
Burnet, Nelson R. H., Matthews, N. C. Cotton-cultivator	318,415	May 19	1988	535	31	906
Burnham, Arthur M., Gardiner, assignor to J. R. Bodwell, Hallowell, Me. Counting attachment for machines	317,438	May 5	698	176	31	649
Burnham, George, and A. Goddard, Worcester, Mass. Drilling-machine	319,952	June 16	1348	354	31	1310
Burnham, William H., and C. H. Haley, assignors to United States Wind Engine and Pump Company, Batavia, Ill. Hay-fork	318,416	May 19	1989	535	31	906
Burns, Benjamin C., *et al.* (See McClellan, Oscar D., assignor.)						
Burns, John, Chicago, Ill. Egg-carrier	315,476	Apr. 14	694	181	31	129
Burpee, W. M. (See Watkins, Harry, assignor.)						
Burr Bed Company. (See Burr, Sanford S., assignor.)						
Burr, Frederick S., and W. M. Fuller, New York, N. Y. Apparatus for grinding ore and other materials	315,716	Apr. 14	1026	269	31	192
Burr, John A., New York, N. Y. Shutter-fastener	318,414	May 19	1987	535	31	905
Burr, John T., Stamford, Conn. Key-seating machine	319,953	June 16	1349	355	31	1310
Burr, Sanford S., Winnetka, assignor to Burr Bed Company, Chicago, Ill. Spring-bed bottom	316,444	Apr. 28	2036	534	31	386
Burrell, David H., Little Falls, N. Y. Manufacture of cheese	319,882	June 9	1244	.....	31	1283
Burrell, James, Bristol, county of Somerset, England. Grate-bar for furnaces	317,439	May 5	699	176	31	649
Burrell & Whitman. (See Pape, Hermann, assignor.)						
Burridge, Lee S., and N. R. Marshman, New York, N. Y. Type-writing machine	314,996	Apr. 7	13	4	31	5
Burridge, Lee S., and N. R. Marshman, New York, N. Y. Type-writing machine	315,386	Apr. 7	547	141	31	99
Burrows, Eugene C., Brooklyn, N. Y. Pen-holder	318,231	May 19	1745	466	31	861
Burt, Edwin E. (See Miller, James, assignor.)						
Burt, Haislip T., and J. B. Burgess, Archer, Tenn. Churn	321,339	June 30	3210	856	31	1667
Burt, Samuel S., Chicago, Ill., assignor to A. B. Wood, Ann Arbor, Mich. Type-writing machine	317,499	May 12	776	{198 199	31	672
Burtis, Willard J., Troy, N. Y. Combined collar-button and necktie-holder	319,063	June 2	159	43	31	1077
Burton, Charles H., Cleveland, Ohio. Steam-actuated valve	317,500	May 12	780	199	31	673
Burton, George D., New Ipswich, N. H., and G. W. Lord, Boston, Mass. Roller-skate	317,501	May 12	781	199	31	673
Burton, Henry, Port Huron, Mich. Reversing-gear	318,598	May 26	2241	600	31	959
Burton, Henry, assignor to W. S. and O. L. Jenks, Port Huron, Mich. Cut-off valve	318,597	May 26	2240	600	31	959
Burton, Reuben, Richmond, Va. Slop-bucket	319,388	June 2	552	150	31	1153
Burtt, Frank. (See Balch and Burtt.)						
Busell, James H., assignor of one-half to A. Leavitt, Boston, Mass. Leather-skiving machine	316,006	Apr. 21	1427	371	31	271
Bush, Lewis, Jr., assignor to American Machinery Company, Chicago, Ill. Saw-sharpening machine	315,715	Apr. 14	1018	{268 269	31	191
Bush, Lewis, Jr., assignor to American Machinery Company, Chicago, Ill. Tool for dressing emery-wheels	318,952	June 2	19	5	31	1052
Butland, John. (See Pascoe, Haines, and Butland.)						
Butler, Francis G., assignor to Vermont Farm Machine Company, Bellows Falls, Vt. Creaming-can	321,340	June 30	3211	{856 857	31	1667
Butler, Norman, Ennias, Mont. Ter. Ore-concentrator	317,021	May 12	935	240	31	700
Butler, Wesley. (See Brokaw and Butler.)						
Butler, William E., Newbern, Tenn. Evaporator for cane-juices	318,866	May 26	2606	691	31	1024
Butt, Boswell B., Newark, N. J. Spirit-level	320,537	June 23	2184	576	31	1468
Butterfield, Francis O., Lynn, Mass. Egg and fruit holding implement	319,954	June 16	1351	355	31	1310
Butterfield, Fred D., *et al.* (See Reece, George L., assignor.)						
Butterfield, James G., *et al.* (See Randolph, Arthelow M., assignor.)						
Button, Joseph, assignor of one-half to J. Conden, Baltimore, Md. Car-coupling	319,389	June 2	553	150	31	1153
Butts, V. Winslow, assignor of one-half to L. W. Ferensen, Hamden, N. Y. Thill-coupling	318,867	May 26	2607	691	31	1024
Butzmühlen, Ewald. (See Clauberg and Butzmühlen.)						
Buzard, Samuel W., Jamesport, Mo. Sash-holder	316,737	Apr. 28	2435	634	31	460
Buzzell, John G., Lynn, Mass. Buffing-roll	315,477	Apr. 14	695	181	31	129
Buzzell, John G., Lynn, Mass. Machine-box	317,087	May 5	208	52	31	561
Buzzell, John G., Lynn, Mass. Abrading-disk	317,622	May 12	936	240	31	701
Byam, George A. (See Osgood and Longmore, assignors.)						
Byam, George A., *et al.* (See Longmore, Lewis F., assignor.)						
Byce, Lyman C., and L. L. Dias, deceased, (A. Dias, administratrix,) Petaluma, Cal. Heat-regulator	319,064	June 2	161	43	31	1077
Bye, Martin. (See Howe, John C., assignor.)						
Byers, Andrew N., Rising Sun, Ohio. Tile-setting apparatus	319,449	June 9	649	175	31	1178
Byers, Joseph L., Dysart, Iowa. Twine-holder	318,868	May 26	2608	692	31	1024
Byram, Frank A., Philadelphia, Pa. Cash and message carrier	320,846	June 23	2572	680	31	1543
Byrne, Joseph, Chicago, Ill. Bottle-stopper	320,457	June 23	2083	549	31	1450
Byrne, Samuel H., Brighouse, county of York, England. Machinery for the manufacture of wire	319,556	June 9	795	211	31	1204

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Cabell, Milton S., *et al.* (See Cabell, Samuel G., assignor.)						
Cabell, Samuel G., Washington, D. C., assignor of two-thirds to R. W. Hanna and M. S. Cabell, Quincy, Ill. Lubricator	320,538	June 23	2185	576	31	1468
Cabot, Samuel, Jr., Boston, Mass. Gas-pressure regulator	315,717	Apr. 14	1028	270	31	192
Cadwell, Lydia J., Chicago, Ill. Apparatus for treating the products of rendering-tanks	320,911	June 30	2667	709	31	1566
Caesar, Gustav, *et al.* (See Caesar, Peter J., assignor.)						
Caesar, Peter J., assignor to himself, G. Caesar, M. and L. M. Newman, Chippewa Falls, Wis. Pump-faucet	319,557	June 9	797	211	31	1204
Cahoone, Charles E., Newark, N. J. Harness-saddle	318,232	May 19	1746	467	31	862
Caine, Carlos, assignor of one-half to T. E. Clark, Minneapolis, Minn. Train-signal	317,720	May 12	1055	275	31	723
Calder, James, and R. W. Courtney, Richmond, Va. Implement for applying baggage and car seals	319,450	June 9	650	175	31	1178
Caldera, Luigi, Turin, Italy. Piano-forte	315,905	Apr. 14	1291	337	31	240
Caldwell, Alonzo, Baltimore, Md. Combined pill tile and cutter	320,216	June 16	1701	451	31	1373
Caldwell, Benjamin F., Wheeling, W. Va. Cap and anchor for metallic roofing	318,352	May 19	1911	515	31	891
Calef, Edwin M., and T. L. Tracy, Missouri Valley, Iowa. Corn-planter	321,186	June 30	3027	802	31	1632
Calhoun, James G. (See Calhoun, Samuel and J. G.)						
Calhoun, Samuel and J. G., Edinburg, Ohio. Fence	317,623	May 12	937	240	31	701
California Perfection Fuel Manufacturing Company. (See Bodwell, John D., assignor.)						
Call, Amos, assignor to Bemis & Call Hardware and Tool Company, Springfield, Mass. Wrench	317,923	May 12	1330	357	31	776
Call, Amos, assignor to Bemis & Call Hardware and Tool Company, Springfield, Mass. Wrench	317,924	May 12	1331	358	31	776
Callahan, George R., *et al.* (See Keller, William N., assignor.)						
Callahan, William P., and T. De Armon, Dayton, Ohio. Box for oil-presses	319,673	June 9	950	252	31	1232
Callan, Frank, Binghamton, assignor of one-half to C. Cook, New York, N. Y. Tongue-support for vehicles	321,082	June 30	2899	770	31	1608
Callaway, James W., Temple, Tex. Door-check	315,718	Apr. 14	1029	270	31	192
Calnan, James P., Clinton, Iowa. Two-wheeled vehicle	317,925	May 12	1332	358	31	776
Cambridgeport Diary Company. (See Wade and Stone, assignors.)						
Cameron, Perley W. (See McDuff and Doherty, assignors.)						
Camp, Calvin W., Camptown, Pa. Combined truck and bag-holder	315,719	Apr. 14	1030	270	31	193
Camp, Charles B., Sturgis, Mich., assignor to Perfection Manufacturing Company, Toledo, Ohio. Cot	314,997	Apr. 7	15	4	31	5
Camp, Edmond N., Puckett, Ga. Mortising and boring machine	317,721	May 12	1056	275, 276	31	724
Campbell, Andrew H., Philadelphia, Pa. Scaffold-iron	315,720	Apr. 14	1031	271	31	193
Campbell, George P., assignor of one-half to J. O. Sloan, Cincinnati, Ohio. Car-brake	317,088	May 5	209	53	31	561
Campbell, Henry M., Bay City, Mich. Packing deep-well pumps	318,447	May 26	2029	547	31	922
Campbell, Howard, assignor to Gaar, Scott & Company, Richmond, Ind. Recleaning attachment for clover thrashing and hulling machines	315,906	Apr. 14	1295	337, 338	31	241
Campbell, Howard, and H. N. Land, assignors to Gaar, Scott & Company, Richmond, Ind. Platform for traction-engines	317,722	May 12	1058	276	31	724
Campbell, James E. (See Kramer, Charles P., assignor.)						
Campbell, James L., West Elizabeth, Pa. Thermostat	316,738	Apr. 28	2436	634, 635	31	461
Campbell, John, assignor to A. Rodgers, Muskegon, Mich. Log-loader	320,217	June 16	1701	452	31	1373
Campbell, London, Alexandria, Va. Apparatus for lighting the fires of steam fire-engines	315,721	Apr. 14	1032	271	31	193
Campbell, William H. H., Wichita, Kans. Shingle and siding gage	315,722	Apr. 14	1033	271	31	193
Campbell, William H. H., Wichita, Kans. Combined hand and foot power	318,353	May 19	1912	515	31	891
Campbell, William M., London, England. Toy	320,429	June 16	2036	534, 535	31	1432
Candee & Co., L. (See Elliott, Lewis, assignor.)						
Canfield, Isaac A., assignor to Canfield Rubber Company, Middletown, Conn. Apparatus for the manufacture of arm-pit dress-shields	317,624	May 12	938	240, 241	31	701
Canfield, Isaac A., assignor to Canfield Rubber Company, Middletown, Conn. Manufacturing dress-shields	317,625	May 12	939	241	31	701
Canfield, Isaac A., assignor to Canfield Rubber Company, Middletown, Conn. Dress-shield	317,626	May 12	940	241	31	701
Canfield, Patrick C., Ashtabula, Ohio. Plasterer's hoe	317,502	May 12	782	200	31	673
Canfield Rubber Company. (See Canfield, Isaac A., assignor.)						
Cannan, Matthew C., deceased; J. R. Coolbaugh, Wysox, Pa., administrator. Car-coupling	318,958	June 2	38	10	31	1055
Cannon, Edward W., and E. H. Jones, Milwaukee, Wis. Vehicle-top	320,332	June 16	1888	496	31	1405
Cannon, Edwin, Jr. (See Brigden and Cannon.)						
Cannon, George W., Poughkeepsie, N. Y. Nail-set	317,970	May 19	1406	377	31	798
Cantrill, James E., *et al.* (See Welling, John E., assignor.)						
Capital City Tool Company. (See Coon, James H., assignor.)						
Carbon Iron Company. (See Eames, Charles J., assignor.)						
Card, Joseph P., St. Louis, Mo. Preserving wood	317,440	May 5	700	.....	31	649
Card, William L., La Crosse, Wis. Ore-separator	320,756	June 23	2461	652	31	1522
Carder, Floyed N. (See James and Carder.)						
Cardwell, George A., Brooklyn, assignor of two-thirds to F. K. Fitch, New York, N. Y., and J. T. Murray, Newark, N. J. Harmonic printing-telegraph	315,121	Apr. 7	176	43	31	32
Cardwell, George A., Brooklyn, assignor of two-thirds to F. K. Fitch, New York, N. Y., and J. T. Murray, Newark, N. J. Harmonic printing-telegraph	315,122	Apr. 7	178	44	31	33
Careaga y Saenz, Louis G., Puebla, Mexico. Apparatus for transmitting power	321,083	June 30	2900	771	31	1608
Carey, Domnick M., Canton, Ohio. Dumping-car	315,123	Apr. 7	180	44	31	33
Carey, Eustace, H. Gaskell, Jr., and F. Hurter, Widnes, county of Lancaster, England. Making sodium sulphite	321,341	June 30	3213	857	31	1667
Carey, J. E. (See Arnold, Alonzo B., assignor.)						
Carey, Julian E., New York, N. Y. Electric-clock movement	316,112	Apr. 21	1575	410	31	299
Cargay, Benjamin F. (See Cruzan and Cargay.)						
Carhart, Edwin M., Providence, R. I. Water-wheel	318,869	May 26	2608	692	31	1025
Caris, W. I. (See Keavy, Thomas E., assignor.)						
Carlile, John H., Greeley, Kans. Combined gate-hinge and roller	319,065	June 2	162	43	31	1077
Carlin, Asa, Gonten, Mo. Harrow	319,451	June 9	651	176	31	1178
Carlin, Thomas H., Allegheny, Pa. Valve-gearing for steam-engines	316,739	Apr. 28	2439	635	31	461
Carlin, William J., Allegheny, Pa. Friction-drum	315,239	Apr. 7	364	89	31	66
Carlisle, William S., assignor to Davis Sewing Machine Company, Watertown, N. Y. Mechanical movement	317,723	May 12	1059	276	31	724
Carll, Charles W., Camden, N. J. Chimney-cap	317,294	May 5	498	125, 126	31	614
Carlton, James, assignor of one-half to E. M. Tyler, Willow, Cal. Adjustable elevator-support for derrick-wagons	319,066	June 2	163	44	31	1077

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Carman, Alvin O., Potterville, Mich. Grain-binding harvester	318,953	June 2	20	6, 7	31	1052
Carman, Alvin O., Potterville, Mich. Self-binding harvester	318,954	June 2	27	7, 8	31	1053
Carman, William W., Exeter, N. H. Steam-heating radiator	316,522	Apr. 28	2129	560	31	405
Carman, William W., Exeter, N. H. Steam-boiler	317,503	May 12	783	200	31	673
Carman, William W., Exeter, N. H. Steam-boiler	316,113	Apr. 21	1578	410	31	299
Carmichael, Alexander, La Crosse, Wis. Saw-swage	315,240	Apr. 7	365	90	31	66
Carmont, William H., Manchester, county of Lancaster, England. Device for setting india-rubber tires	320,624	June 23	2302	608	31	1490
Carnell, Harry G., Dayton, Ohio. Grip for ice-shavers	320,625	June 23	2303	608	31	1490
Carney, Peter, assignor to J. L. Mott Iron Works, New York, N. Y. Cistern for water-closets	316,740	Apr. 28	2440	635	31	461
Carpenter, Elijah, Lafayette, Oreg. Candlestick	316,741	Apr. 28	2441	636	31	461
Carpenter, Francis L., Hartland, Vt. Stove-griddle	316,742	Apr. 28	2442	636	31	462
Carpenter, George A., Limerick, Me. Lantern	319,558	June 9	799	212	31	1204
Carpenter, James, Moravia, N. Y. Fence-post anchor						
Carpenter, James W. (See Maxon, Thomas, assignor.)						
Carpenter, Oranuill C., assignor to N. B. Abbott, Brooklyn, N. Y. Machine for wiring the corks in bottles	318,955	June 2	31	8, 9	31	1054
Carpenter Straw Sewing Machine Company. (See Hooper, Mary P. C., assignor.) (Reissue.)						
Carr Company, A. & W. S. (See Gibson, Charles D. P., assignor.)						
Carr, Harland S., Wymore, Nebr. Churn	316,607	Apr. 21	1429	371	31	272
Carr, Robert S., Hamilton, Ohio. Vehicle-wheel	319,452	June 9	652	176	31	1179
Carr, Rufus B., Boston, Mass. Electric programme-signal	319,782	June 9	1092	290, 291	31	1258
Carr, Rufus B., assignor to E. Howard Watch and Clock Company, Boston, Mass. Watchman's clock	319,783	June 9	1096	291	31	1258
Carricaburu, Leon B., New York, N. Y. Steam-engine	321,084	June 30	2901	771	31	1609
Carricaburu, Leon B., New York, N. Y. Steam-actuated valve	321,085	June 30	2903	772	31	1609
Carrico, Thomas W., San Antonio, Tex. Making concrete walls, blocks, &c	319,390	June 2	554	.....	31	1153
Carroll, Bradish J., New Brighton, N. Y. Electric marine governor	318,417	May 19	1990	536	31	906
Carroll, Edgar J. (See Carroll, William T., E. J., and E. H.)						
Carroll, Elbert H. (See Carroll, William T., E. J., and E. H.)						
Carroll, William T., E. J., and E. H., Worcester, Mass. Top roll for spinning-machines, &c	320,333	June 16	1889	496	31	1405
Carroll, William T., Worcester, assignor to J. B. Parker Machine Company, Clinton, Mass. Spinning and twisting machine	316,008	Apr. 21	1430	372	31	272
Carrothers, George, Piedmont, Ohio. Cultivator-tooth	317,971	May 19	1406	378	31	798
Carson, James L. (See Brooks, Heman P., assignor.)						
Carson, John S. (See Muhl and Carson.)						
Cart, Francis G., Charleston, S. C. Collar-button	315,907	Apr. 14	1297	338	31	241
Carter, Albert S., Philadelphia, Pa. Chair	317,295	May 5	500	126	31	614
Carter, Francis W., Morgan, Tex. Meat-tenderer	315,723	Apr. 14	1034	272	31	193
Carter, James R., *et al.* (See Colesworthy, Charles W., assignor.)						
Carter, Rodney F., South Ryegate, Vt. Windlass	316,602	Apr. 28	2228	586, 587	31	423
Carter, Sloan & Co. (See Howe, Edwin J., assignor.)						
Carter, Wallace H., Hallowell, Me. Hay-knife	316,523	Apr. 28	2129	560	31	405
Carter, William H., Springville, Utah Ter. Carpet-stretcher	317,296	May 5	500	126	31	614
Cartwell, Pearl M. (See Pierce, George W., assignor.)						
Cartwright, Constant J., *et al.* (See Cox, Joseph J., assignor.)						
Cartwright, David J., Revere, Mass. Protector for electrical instruments	320,912	June 30	2671	709	31	1567
Cartwright, Robert, assignor to Yale & Towne Manufacturing Company, Stamford, Conn. Trolley for overhead tracks or tramways	318,165	May 19	1654	442, 443	31	844
Cary, James C., New York, N. Y. Sunshade attachment for hats	317,972	May 19	1407	378	31	798
Casaday, George B., Hudson, assignor of one-half to W. L. Casaday, South Bend, Ind. Plow	321,187	June 30	3029	803	31	1632
Casaday, George B., Hudson, assignor of one-half to W. L. Casaday, South Bend, Ind. Plow	321,188	June 30	3031	803	31	1632
Casaday, George B., Hudson, assignor of one-half to W. L. Casaday, South Bend, Ind. Plow	321,189	June 30	3033	804	31	1632
Casaday, William L. (See Casaday, George B., assignor.)						
Casamajor, Paul. (See Stebbins and Casamajor.)						
Case, A. Wells, South Manchester, Conn. Car-coupling	316,114	Apr. 21	1580	410	31	300
Case, Henry, assignor to M. A. Case, Brooklyn, N. Y. Sounding-rod	317,089	May 5	210	53	31	561
Case, Jarvis, Troy, Ohio. Corn-planting machine	316,743	Apr. 28	2443	636, 637	31	462
Case, Margaret A. (See Case, Henry, assignor.)						
Casey, Dennis J. (See Torrey and Casey.)						
Casey, John, Chelsea, Mass. Dummy-piano	315,724	Apr. 14	1036	272	31	194
Casey, Robert E. (See Gaines, Hiram F., assignor.)						
Cashin, Michael, San Francisco, Cal. Boiler-tube expander	319,559	June 9	800	212	31	1200
Castle, Samuel D., Bridgeport, Conn. Roller-skate	320,626	June 23	2304	608	31	1494
Cassady, George, Valley Springs, Dak. Lock for sliding doors	316,115	Apr. 21	1581	411	31	300
Cassella & Co., Leopold. (See Hoffmann, Otto, assignor.)						
Casselmann, Conrad H., Effingham, Ill. Chimney and ventilator top	317,973	May 19	1408	378	31	799
Cassidy, Peter B., assignor of one-half to J. Crawley, Pittsburg, Pa. Mail-bag catcher	317,504	May 12	783	200, 201	31	673
Castle, Goswin, Ava, N. Y. Boot or shoe	317,724	May 12	1061	276	31	725
Cates, Joseph B. F., *et al.* (See Burlie, John D., assignor.)						
Cathcart, Rodney S., Palestine, Tex., assignor to American Cotton Oil Company, St. Louis, Mo. Oil-expressing box	320,847	June 23	2573	681	31	1543
Cathcart, Rodney S., Palestine, Tex., assignor to American Cotton Oil Company, St. Louis, Mo. Oil-expressing box package shaping machine	320,848	June 23	2574	681	31	1543
Cattanach, Donald D., Providence, R. I. Furnace for boilers	320,539	June 23	2185	577	31	1468
Cauderay, Jules, Lausanne, Switzerland. Electric meter	318,166	May 19	1656	443, 444, 445	31	845
Caughrean, George H., Pleasant Hill, Mo. Machine for sacking, weighing, and registering grain	320,218	June 16	1703	452	31	1374
Caughy, Noah W., Baltimore, Md. Portable laboratory for dentists and jewelers	315,725	Apr. 14	1037	272, 273	31	194
Cauthorn, George T. (See Coffee, Robert W., assignor.)						
Cauthorn, Isaack N., Rich Hill, Mo. Hay-press	317,297	May 5	501	127	31	615
Cave, William M., C. Holm, and W. Blandow, Chicago, Ill. Lasting-tack	317,090	May 5	211	53	31	562
Cessna, Pollie C., Macon City, Mo. Gate	319,193	June 2	12	83	31	1106

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Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Chadborn & Coldwell Manufacturing Company. (See Johnston, Thomas, assignor.)						
Chaffin, Simon, assignor of one half to J. C. Parmerlee, Sedalia, Mo. Weather-strip	317,926	May 12	1333	358	31	777
Chaifant, Alexander, Mulberry Grove, Ill. Vehicle running-gear	318,354	May 19	1913	516	31	892
Chailberg, John, Marcy, Iowa. Windmill	317,298	May 5	502	127	31	615
Challenge Corn Planter Company. (See Scofield, Levi, assignor.)						
Challoner, Frank, Omro, Wis. Shingle-sawing machine	318,956	June 2	34	9, 10	31	1055
Challoner, John, Sr., Omro, Wis. Machine-brake	316,744	Apr. 28	2448	637	31	492
Chalmers, George, San Juan, Cal. Railway-switch	319,067	June 2	164	44, 45	31	1078
Chambard, Peter F., Fayette, Ohio. Hay-elevator	314,998	Apr. 7	16	4, 5	31	5
Chambard, Peter F., Fayette, Ohio. Hook	320,047	June 16	1476	369	31	1333
Chamberlain, Blanchard, assignor of one-half to F. J. Scarff, Bellefontaine, Ohio. Anti-rattler and shaft-support for thill-couplings	321,190	June 30	3034	804	31	1633
Chamberlain, Courtland A., Canton, N. Y. Car-coupling	315,908	Apr. 14	1298	338	31	241
Chamberlain, Marcus W., assignor of three-fourths to E. A. and F. S. Ely, Branchville, and P. A. Ely, Madison, N. J. Hay elevator and carrier	318,085	May 19	1553	416	31	925
Chamberlin, Franklin L., Cleveland, Ohio. Charging cartridges	320,219	June 16	1704	452, 453	31	1374
Chamberlin, Samuel W. (See Howard, James H., assignor.)						
Chamberlin, Stillman W. (See Dean, Thomas F., assignor.)						
Chambers, Arthur M., and T. Smith, Sheffield, county of York, England. Coking coal	320,627	June 23	2306	608, 609	31	1490
Chambers, Bering, Quinlan Company. (See Barnes, Alden and M., assignors.)						
Chambers, Bering, Quinlan Company. (See Rush, William B., assignor.)						
Chambers, Cyrus, Jr. (See Tricker, John N., assignor.)						
Champion, John. (See Keen, Horace F., assignor.)						
Champlain, Henry L., *et al.* (See Champlain, William C., assignor.)						
Champlain, Richard W., *et al.* (See Champlain, William C., assignor.)						
Champlain, William C., assignor of two-thirds to R. W. Champlain, Chester, and H. L. Champlain, Harrisburg, Pa. Cut-off valve gear	317,299	May 5	503	128	31	615
Chandler, Clarence A., assignor of one-half to F. C. Mann, East Bridgewater, Mass. Cotton-seed huller	317,927	May 12	1334	358, 359	31	777
Chandler, Thomas E., and E. Dodds, assignors to T. E. Chandler and F. Taylor, Indianapolis, Ind. Die for tile-machines	315,909	Apr. 14	1300	338	31	241
Chapel, A. Judson, Arkansas City, Kans. Car-coupling	317,725	May 12	1062	277	31	725
Chapin, Henry A., *et al.* (See Partridge, Andrew, assignor.)						
Chapin, Henry J., New York, N. Y. Apparatus for treating sugar-cane	321,006	June 30	2795	743	31	1590
Chapin, Henry J., New York, N. Y. Crushing-roll	321,007	June 30	2796	743	31	1590
Chaplin, Winfield S., Schenectady, N. Y. Flush-tank for water-closets, sewers, &c.	317,505	May 12	786	201	31	674
Chapman, Charles H., Groton, Mass., assignor to Eureka Spindle Company, of Massachusetts. Ring-spinning machine	316,603	Apr. 28	2229	587	31	424
Chapman, Frank H., assignor of one-half to S. O. Parker, Meriden, Conn. Snap-hook for reins	319,560	June 9	801	212	31	1205
Chapman, John. (See Arci and Chapman.)						
Chapman, Joseph, Dubuque, Iowa. Car lock and seal	319,194	June 2	313	83	31	1106
Chapman, Luke, Collinsville, Conn. Recutting files	318,957	June 2	37	.....	31	1055
Chapman, Nathan, Nantucket, Mass. Bread-cutter	318,694	May 26	2363	631	31	982
Chapman, Robert W., Newark, N. J. Sheet-metal satchel or bag handle	317,300	May 5	504	128	31	615
Charlesworth, Thomas G., Leicester, England. Apparatus for dyeing hanks of wool	315,910	Apr. 14	1302	339	31	241
Charlotte Oil Company. (See Oliver, George, assignor.)						
Charmbury, Henry, Newark, N. J. Sewing-machine	316,745	Apr. 28	2448	637, 638	31	492
Chase, Andrew J., Boston, Mass. Wall for refrigerator-structures	318,870	May 26	2610	692	31	1025
Chase, Frank, assignor to C. F. Johnson, Boston, Mass. Machine for lasting boots or shoes	319,784	June 9	1097	291, 292	31	1258
Chase, Frank, assignor to C. F. Johnson, trustee, Boston, Mass. Machine for uniting soles to uppers of boots and shoes	320,849	June 23	2575	681, 682	31	1543
Chase, Henry B., Portland, Oreg. Heater	314,999	Apr. 7	19	5	31	6
Chase, Hezekiah S., *et al.* (See Brigham, Perry, assignor.)						
Chase, Isherwood & Co. (See Burdick and Coleman, assignors.)						
Chase, J. Herbert, Brooklyn, N. Y. Mechanical musical instrument	318,448	May 26	2030	547, 548	31	922
Chase, John B., *et al.* (See Richards, Marcius C., assignor.)						
Chase, Lucien A., Elsie, Mich. Straw-stacker for grain-separators	318,695	May 26	2364	631	31	983
Chase, Lucina C., *et al.*, trustees. (See Norton, John A., assignor.)						
Chase, Milton, Haverhill, Mass. Tire-tightener	320,850	June 23	2578	682	31	1544
Chatelanat, François, Jersey City, N. J. Ash-sifter	317,974	May 19	1409	378	31	799
Cheetham, Frederick W., Hyde, county of Chester, England. Attaching wire or springs to hat-leathers, &c.	319,561	June 9	802	213	31	1205
Cheever, Charles A., trustee. (See Wheeler, Schuyler S., assignor.) (Reissue.)						
Cheney, John L., Lowell, Mass. Bobbin and spool	316,944	May 5	17	5	31	526
Cherney, Jacob, assignor of one-half to F. M. Davis, Denver, Colo. Crushing and pulverizing mill	316,331	Apr. 21	1856	491	31	349
Cheseboro, Denison S., Geddes, N. Y. Sheathing for buildings	320,757	June 23	2463	653	31	1523
Cheshire, Edward. (See Cheshire, Elizabeth and E.)						
Cheshire, Edward, assignor of one-half to E. Cheshire, Cincinnati, Ohio. Book-sewing machine	317,506	May 12	787	201, 202	31	674
Cheshire, Elizabeth. (See Cheshire, Edward, assignor.)						
Cheshire, Elizabeth and E., Cincinnati, Ohio. Book-sewing machine	317,507	May 12	791	202, 203	31	674
Cheshire, Elizabeth and E., Cincinnati, Ohio. Needle	317,508	May 12	794	203	31	675
Chess, Harvey B., Pittsburg, Pa. Catcher and drag-out for rolling-mills	319,785	June 9	1102	292, 293	31	1259
Chicago Liquid Sack Company. (See Hollett, Ira W., assignor.)						
Chicago Manufacturing Company. (See Betts, Charles L., assignor.)						
Chickering, Edwin, Cedar Rapids, Iowa. Fire-place. (Reissue)	10,610	June 16	2067	543	31	1439
Chidester, Frank H., Massillon, Ohio. Vulcanizer	315,241	Apr. 7	367	90	31	66
Chidester, John E., Waller, Tex. Baling-press	316,234	Apr. 21	1731	454, 455	31	327
Child, Frederick W., Greenwich, Conn. Tabular calculator. (Reissue)	10,592	May 5	752	190	31	659
Child, Jonathan F., Marlborough, Mass. Shoe-finishing jack	317,091	May 5	212	53, 54	31	562
Childers, Henry H., Louisville, Ky. Extension-trestle	315,726	Apr. 14	1038	273	31	194
Childs, William. (See Root and Childs.)						
Childs, William A. (See Shaw and Childs.)						
Chilton, Franklin H., assignor to Empress Embroiderer Company, New York, N. Y. Embroidering attachment for sewing-machines	317,509	May 12	794	203	31	675

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Chilton, Franklin H., assignor to Empress Embroiderer Company, New York, N. Y. Embroidering attachment for sewing-machines	320,758	June 23	2463	653	31	1523
Chilton, Franklin H., New Rochelle, assignor to Empress Embroiderer Company, New York, N. Y. Embroidering attachment for sewing-machines	318,449	May 26	2032	548	31	923
Chisholm, William, Cleveland, Ohio. Staple	315,124	Apr. 7	181	45	31	33
Chisholm, Wilson B., and J. Walker, Cleveland, Ohio. Coal-feeding device	316,746	Apr. 28	2450	638	31	493
Chisholm, Wilson B., and J. Walker, Cleveland, Ohio. Rocking grate-bar	316,876	Apr. 28	2626	685	31	495
Chittenden, Charles E., *et al.* (See Parsons, Calvin W., assignor.)						
Choinanus, Richard, Berlin, Germany. Adjustable frame for pictures, &c.	317,510	May 12	796	204	31	675
Chopard, Albert, assignor to Société Industrielle Moutier-Grandval, Moutier-Grandval, Switzerland. Stem-winding watch	317,627	May 12	941	241	31	702
Christie, James, assignor of one-half to P. Roberts, Philadelphia, Pa. Differential pulley-block	317,726	May 12	1062	277	31	725
Christie, James, assignor of one-half to P. Roberts, Philadelphia, Pa. Hoisting and hauling gear	317,727	May 12	1063	277, 278	31	725
Christie, James, assignor of one-half to P. Roberts, Philadelphia, Pa. Differential pulley-block	317,728	May 12	1064	278	31	725
Christy, William T., Newark, N. J. Water-motor	319,391	June 2	555	151	31	1153
Church, Charles F., Newark, N. J. Odometer for vehicles	315,727	Apr. 14	1039	273	31	193
Church, Duane H., Waltham, assignor, by mesne assignments, to R. E. Robbins, Boston, Mass., and T. M. Avery, Chicago, Ill., trustees. Stem winding and setting watch. (Reissue)	10,580	Apr. 14	1409	365	31	262
Church Engineering Company, Walter C. (See Church, Walter C., assignor.)						
Church, Henry A., Providence, R. I. Slide for bracelets	316,235	Apr. 21	1735	455	31	328
Church, Henry A., Providence, R. I. Bracelet-clasp	320,220	June 16	1707	454	31	1374
Church, Walter C., Brixton, county of Surrey, England. Circular slide-valve	316,237	Apr. 21	1737	456	31	328
Church, Walter C., Brixton, county of Surrey, assignor to W. C. Church Engineering Company, (limited,) London, England. Circular slide-valve	316,236	Apr. 21	1736	455, 456	31	328
Cieneoski, William, Kouts, Ind. Rowing apparatus	320,458	June 23	2084	549	31	1450
Cipperly, Clarence R. (See Bly and Cipperly.)						
Circle, Franklin P., Springfield, Ohio. Vehicle-hub	315,242	Apr. 7	368	91	31	67
Circle, Alexander M., *et al.* (See Samuels, Thomas, assignor.)						
Clark, Allison N. (See Wales, William A., assignor.)						
Clark, Daniel R., Rochester, N. Y. Stove-pipe	318,167	May 19	1660	445	31	845
Clark, Ella U., *et al.* (See Farrand, Nathaniel W., assignor.)						
Clark, Everett A. (See Walsh, Murphy, and Clark.)						
Clark, George R., Dubuque, Iowa. Window-screen	318,871	May 26	2611	693	31	1025
Clark, Henry F., Poughkeepsie, N. Y. Sight for fire-arms	319,068	June 2	168	45	31	1079
Clark, James, assignor of one-half to A. Bowen, Medina, N. Y. Steam-engine	316,332	Apr. 21	1858	491	31	349
Clark, John L. (See Nicholson, Granville, assignor.)						
Clark, Milton. (See Cowley, James T., assignor.)						
Clark, Myron W., Parma, assignor to G. T. Smith, Jackson, Mich. Conveyer for flour-bolts	319,786	June 9	1104	283	31	1259
Clark, Norman, Sterling, Ill. Machine for enlarging finger-rings	318,696	May 26	2366	631	31	983
Clark, Oscar P., and L. C. Crouch, Bentonville, Ark. Wax-end twister	317,729	May 12	1065	278	31	725
Clark, Patrick, Rahway, N. J. Combined dynamometer and safety-valve	318,697	May 26	2367	632	31	983
Clark, Robert H., assignor to N. Sperry, Seymour, Conn. Power-press	319,105	June 2	315	84	31	1106
Clark, Robert J., Chestnut Level, Pa. Harness	317,301	May 5	505	129	31	615
Clark, Rollin C., and M. H. Warren, Corry, Pa. Still and filter	318,698	May 26	2368	632	31	983
Clark, Theodore F. (See Hollenbeck, Frank A., assignor.)						
Clark, Thomas E. (See Caine, Carlos, assignor.)						
Clark, Thomas J., *et al.* (See Bouvier, Louis P., assignor.)						
Clark, Thomas K., Germania, Kans. Machine for channeling harness-straps	320,698	June 23	2307	609	31	1491
Clark, Thomas R., New York, N. Y. Manufacture of glazed leather	321,191	June 30	3035	.....	31	1633
Clark, William, Plumstead, England. Steam-boiler	315,243	Apr. 7	369	91	31	67
Clark, William, *et al.* (See Samuels, Thomas, assignor.)						
Clark, William H. and W. J., Salem, Ohio. Oil-can	320,759	June 23	2466	653	31	1523
Clark, William H. and W. J., Salem, Ohio. Elevator-bucket	320,760	June 23	2467	654	31	1523
Clark, William J. (See Clark, William H. and W. J.)						
Clark, William M., Brooklyn, N. Y. Instrument for entering and drawing tacks	319,070	June 2	171	45	31	1079
Clark, William R., Detroit, Mich., assignor to Singer Manufacturing Company of New Jersey. Braiding attachment for sewing-machines	319,069	June 2	169	45	31	1079
Clarke, Alanson P., Auburn, N. Y. Rake	316,604	Apr. 28	2230	587	31	424
Clarke, Anna B., Chicago, Ill., assignor to A. G. Jennings & Sons, Brooklyn, N. Y. Mitt	317,511	May 12	797	204	31	675
Clarke, Christopher, Northampton, Mass. Fire-escape tower	318,086	May 19	1554	417	31	825
Clarke, George H. (See Kenyon, John W., assignor.)						
Clarke, George P., and G. Harsin, assignors of one-third to C. E. Furman, New York, N. Y. Exercising-machine	321,278	June 30	3141	837	31	1652
Clarke, Joseph H., and G. W. Millard, Providence, R. I. Relay for telephone systems	316,238	Apr. 21	1738	456	31	329
Clarke, Josiah L., 6 Westminster Chambers, county of Middlesex, England. Manufacture and preparation of materials to be employed for insulating	318,233	May 19	1747	.....	31	802
Clarke, Robert, Dallas, Tex. Flour and meal bin	320,221	June 16	1708	454	31	1375
Clarke, Thomas C., Sea Bright, N. J. Subway or conduit for cable or electric railways	317,302	May 5	506	129	31	616
Clarkson, William R., Buffalo, N. Y. Ratchet mechanism for bit-braces, screw-drivers, &c.	315,000	Apr. 7	20	5	31	6
Claus, Philip H., Greenfield, Mass. Screw-cutting die	315,728	Apr. 14	1040	274	31	195
Clauberg, Friedrich A., and E. Butzmühlen, Solingen, Germany. Combined pocket-knife and scissors	318,699	May 26	2369	632	31	984
Claus, C. H. Theodore, St. Louis, Mo. Trellis for grape-vines	319,674	June 9	951	252	31	1232
Clawson, Clement C., Newark, N. J., assignor of one-half to Thurber, Whyland & Co., New York, N. Y. Automatic weighing and package-filling machine	315,729	Apr. 14	1040	274	31	195
Clawson, Clement C., Newark, N. J., assignor of one-half to Thurber, Whyland & Co., New York, N. Y. Automatic weighing and package-filling machine	315,730	Apr. 14	1045	274, 275	31	196
Clawson, Clement C., Newark, N. J., assignor of one-half to Thurber, Whyland & Co., New York, N. Y. Automatic weighing and package filling machine	315,731	Apr. 14	1045	275	31	196
Clawson, John S., Richmond, Ind. Roller-skate	319,787	June 9	1106	294	31	1260
Clayton, Herbert, Cincinnati, Ohio. Alcohol-stove	319,955	June 16	1352	355	31	1310
Clayton, James. (See Granger, Almon M., assignor.)						
Clayton, James, Brooklyn, N. Y. Combined pressure and speed governor	315,244	Apr. 7	371	92	31	67
Clayton, Joshua E., Salt Lake City, Utah Ter. Concentrator	316,116	Apr. 21	1582	411	31	300
Clayton, William, St. Louis, Mo. Automatic car-brake	315,125	Apr. 7	182	45	31	33
Clemens, Ferdinand, What Cheer, Iowa. Corn-planter	315,245	Apr. 7	372	92	31	68
Clement & Dunbar. (See Dunbar, John H., assignor.)						
Clements, John B., St. Louis, Mo. Nut-lock	315,001	Apr. 7	21	6	31	6
Clemens, George F., Springfield, Mass. Apparatus for transmitting differential rotary motion	321,086	June 30	2905	772	31	1609

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Clemson, William, Middletown, N. Y. Bicycle	316,009	Apr. 21	1432	373	31	272
Cleveland, Erastus L., Pittsburg, assignor of one-half to A. C. Milliken, Bennett Station, Pa. Car-axle lubricator	315,002	Apr. 7	22	6	31	6
Cleveland, George H. (See Miller and Cleveland.)						
Clifford, George A., Peabody, Mass. Plane	317,092	May 5	214	54	31	562
Clifford, James P., New Haven, Conn. Adjustable apparatus for gas machines and mixers	317,975	May 19	1409	378	31	799
Clime, John C., Philadelphia, Pa. Velocipede	315,003	Apr. 7	23	6	31	7
Cline, George J., Goshen, Ind. Latch	321,279	June 30	3142	837	31	1653
Cline, Leon, assignor of one-half to A. Vallee, St. Louis, Mo. Washing-machine	318,234	May 19	1748	467	31	862
Clines, Patrick, Martinsburg, Mo. Sulky-plow	316,230	Apr. 21	1740	457	31	329
Clinton, Andrew B., Milford, N. Y. Car-coupling	315,004	Apr. 7	24	6	31	7
Clinton, Charles, Spring City, Tenn. Railway-switch	319,675	June 9	952	252	31	1232
Clinton, Fred S., assignor of two-thirds to J. B. Watt and E. Schmidt, Bellaire, Ohio. Bung	320,222	June 16	1709	454	31	1375
Clock, Willard W., La Grange, Ga. Oil-mat	315,126	Apr. 7	183	45	31	33
Close, Philip C., Augusta, Ga. Cotton-press	319,196	June 2	316	84	31	1106
Closterman, Charles, Cincinnati, Ohio. Chair-seat	316,333	Apr. 21	1859	492	31	349
Closterman, Charles, Cincinnati, Ohio. Chair	320,629	June 23	2309	609	31	1491
Clondman, Francis A., Cumberland Mills, Me., assignor to S. D. Warren, Boston, Mass. Apparatus for the recovery of soda	319,956	June 16	1353	355	31	1311
Clow, William M., Will County, Ill. Device for forming openings in wire fences	315,509	Apr. 14	969	238	31	161
Clute, George M., Troy, N. Y. Lamp	316,117	Apr. 21	1585	412	31	301
Coale, Joseph M., Baltimore, Md. Muffler and safety-valve	315,732	Apr. 14	1052	{275 / 276}	31	197
Coates, George H., Worcester, Mass. Animal-shears	315,733	Apr. 14	1053	276	31	198
Cobb, Edward S., Terre Haute, Ind. Drawing-stand	315,246	Apr. 7	374	92	31	68
Cobb, Henry B., Wilmington, Del., assignor to Hale & Kilburn Manufacturing Company, Philadelphia, Pa. Car-seat	318,450	May 26	2034	549	31	923
Cobleigh, Charles C., Boston, Mass. Seamed fabric	319,453	June 9	954	176	31	1179
Cochrane, John C., Farmingdale, N. J., assignor of one-sixth to W. H. Brooks, Alexandria, Va. Machine for forming screw-threads on bolts	316,010	Apr. 21	1433	373	31	272
Cochrane, Samuel, Arlington, Va. Veterinary surgical instrument	319,454	June 9	955	176	31	1179
Cocker, Frederick, Danbury, Conn., and G. Yule, Newark, N. J., assignors to Hat Curling Machine Company, Danbury, Conn. Hat-curling machine	320,115	June 16	1570	{414 / 415}	31	1350
Cockrell, William A., Cleveland, Ohio. Grain-scourer	319,788	June 9	1107	294	31	1260
Coe, Charles E., Leesburg, Kans., assignor of two-thirds to L. G. Fath, A. Sawyer, and E. L. Waggoner, Hillsborough, Ill. Screw-threading machine	317,303	May 5	508	129	31	616
Coe, Henry I. (See Thackston, Richard D., assignor.)						
Coffee, Robert W., assignor of one-half to G. T. Canthorn, Liberty, Va. Tobacco-drier	320,459	June 23	2085	549	31	1450
Coffey, Henry D., assignor of one-third to L. N. Miller, Massie's Mills, Va. Weighing-scale	318,451	May 26	2036	{549 / 550}	31	923
Coffin, Arthur S., New Bedford, Mass. Paper box	317,976	May 19	1411	379	31	799
Coffin, Charles A., and T. Ferguson, Parkersburg, Iowa. Gate	318,355	May 19	1914	516	31	892
Coffin, Francis A., Indianapolis, Ind. Slatted desk-curtain	320,913	June 30	2672	710	31	1567
Coffin, Galen, Boston, Mass. Saw-clamp	319,455	June 9	956	177	31	1179
Coffin, John F. (See Rudling and Coffin.)						
Coffin, Robert A., Slatington, Pa. Slate-shaving machine	315,247	Apr. 7	376	92, 93	31	68
Coffman, David N., *et al.* (See Glenn, Joseph M., assignor.)						
Coffman, John M., Washington, Ohio. Fence	315,248	Apr. 7	378	93	31	68
Cogan, Robert B., assignor of two-thirds to S. C. Collin and J. Rinard, Braddock, Pa. Pipe-coupling	318,356	May 19	1914	516	31	892
Cogin, Charles W., Lynn, Mass. Nail-making machine	317,928	May 12	1337	359	31	777
Cohen, Ephraim M. (See Gahler and Pilz, assignors.)						
Cohlman, William, Philadelphia, Pa. Conduit for electrical conductors	319,197	June 2	317	84	31	1107
Cohn & Co., M. (See Hilborn, Julius, assignor.)						
Cohn, Moritz, New York, N. Y. Corset	319,676	June 9	953	253		1233
Cohn, Philip, Nuevo Laredo, Mexico. Safety attachment for elevator-cars	315,734	Apr. 14	1055	276	31	198
Coholan, Michael J., New Britain, Conn. Ventilated sewer-pipe	318,452	May 26	2038	550	31	924
Cohrs, Johann H., Hamburg, Germany. Drier	319,562	June 9	803	{213 / 214}	31	1205
Colgnet, Jean F., Lyons, France. Furnace	315,478	Apr. 14	696	182	31	129
Coit, Tracy. (See Taylor, Cyrenius H., assignor.)						
Cokayne, William, Geetingsville, Ind. Fence	320,223	June 16	1710	454	31	1375
Colahan, Charles, Cleveland, Ohio. Grain-binder	315,479	Apr. 14	697	{182 / 183}	31	130
Colahan, Charles, Cleveland, Ohio. Grain-binder	315,480	Apr. 14	699	{183 / 184 / 185}	31	130
Colahan, Charles, Cleveland, Ohio. Grain-binder	315,481	Apr. 14	701	185	31	131
Colahan, Charles, Cleveland, Ohio. Tag cutting and punching machine	315,482	Apr. 14	703	{185 / 186}	31	131
Colburn, Albert L., Derby, Conn. Device for transmitting power	315,735	Apr. 14	1056	276	31	198
Colburn, Ledyard, assignor of one-half to R. R. Colburn, Birmingham, Conn. Electric-arc lamp	316,240	Apr. 21	1742	457	31	329
Colburn, Richard R. (See Colburn, Ledyard, assignor.)						
Colby, Edward J., Cincinnati, Ohio. Watchman's time-recorder	320,116	June 16	1573	415	31	1350
Colby, John D., and J. F. Luther, Lowell, Mass. Store-tongs	316,524	Apr. 28	2130	561	31	405
Cole & Burnham Company, Eaton. (See Tomlinson, Edwin R., assignor.)						
Cole, William E., Montgomery, Ala. Lumber-drier	319,677	June 9	954	253	31	1233
Cole, William P., Montreal, Quebec, Canada. Stove-board	317,512	May 12	797	204	31	676
Colegate, Samuel J. (See Pulsifer, William H., assignor.)						
Coleman, Samuel T. J., *et al.* (See Kisinger, William S., assignor.)						
Coleman, William F. (See Burdick and Coleman.)						
Coles, David H., New York, N. Y. Combined braiding and cording attachment for sewing-machines	318,357	May 19	1915	516	31	892
Coles, Henri H., assignor to H. Troemner, Philadelphia, Pa. Grinding-mill	318,700	May 26	2370	632	31	984
Colesworthy, Charles W., Boston, assignor of two-thirds to J. R. Carter, Newton, and E. H. Palmer, Reading, Mass. Tool-holding attachment for lathes	319,071	June 2	172	46	31	1060
Collard, Richard M., assignor to L. W. Fairchild, New York, N. Y. Cigar-cutter	319,456	June 9	957	177	31	1179
Collin, Simon C., *et al.* (See Cogan, Robert B., assignor.)						
Collings, Edward Z., Camden, N. J., and C. F. Pike, Philadelphia, Pa. Preserving wood	317,730	May 12	1066	279	31	726
Collins, Stephen, Huntsville, Ala. Fruit-drier	318,543	May 26	2180	583	31	948
Colman, Hutson B., Kalamazoo, Mich. Wind-engine	317,093	May 5	215	54	31	502
Colman, Hutson B., Kalamazoo, Mich. Wind-engine	317,628	May 12	942	242	31	702
Colman, Hutson B., Kalamazoo, Mich. Power-windmill	318,453	May 26	2039	550	31	924

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Colman, Hutson B., and G. Turner, Kalamazoo, Mich. Windmill	317,731	May 12	1068	279	31	726
Colman, Hutson B., and G. Turner, Kalamazoo, Mich. Power-windmill	319,392	June 2	556	151	31	1153
Colton, George A., Syracuse, N. Y. Vise	320,224	June 16	1710	455	31	1375
Colton, Octavius J., Galesburg, Ill. Check-rower	321,087	June 30	2906	773	31	1609
Colts Patent Fire Arms Manufacturing Company. (See Ebbets, Carl J., assignor.)						
Colts Patent Fire Arms Manufacturing Company. (See Knous, Franklin F., assignor.)						
Colville, Charles S., Newark, Ohio. Spark-arrester	319,457	June 9	659	177	31	1179
Colvin, Benoni, and J. Wolfley, Freeport, Ill. Spring-hinge	318,418	May 19	1992	536	31	906
Compound Lumber Company. (See Cummings, Daniel M., assignor.) (Reissue.)						
Comstock, Henry W., Red Oak, Iowa. Telephone-switch	319,789	June 9	1109	294	31	1260
Conacher, Alexander, San Antonio, Tex. Refrigerating apparatus	317,629	May 12	943	242	31	702
Conant, Fred H., assignor to H. and G. Heywood, A. M. Greenwood, and A. Morrill, Gardner, Mass. Furniture	317,732	May 12	1067	280	31	726
Conant, Walter N., Toledo, Ohio. Roller-shelf book-case	316,241	Apr. 21	1742	458	31	329
Conden, James. (See Button, Joseph, assignor.)						
Condit, George M., Jr., Waterbury, Conn. Carpet-fastener	317,304	May 5	509	129	31	616
Condon, Richard, Lyons, Iowa. Horseshoe	315,736	Apr. 14	1057	277	31	198
Cone, William W. (See Donahue and Cone.)						
Congar, Henry. (See Stanley, James, assignor.)						
Congdon, Isaac H., Omaha, Nebr. Freight-car	315,600	Apr. 14	870	229	31	161
Conklin, Hudson W., *et al.* (See Brewer and Heesen, assignors.)						
Conley, John A., Springfield, Mass. Button	319,790	June 9	1110	295	31	1260
Conlon, John. (See Ellmaker, Isaac N., assignor.)						
Conn, John H., Englewood, Ill. Car-coupling	315,911	Apr. 14	1303	339	31	242
Connell, John, Rochester, N. Y. Circular sawing machine	321,192	June 30	3036	804	31	1633
Connelly, John S. (See Connelly, Thomas E., assignor.)						
Connelly, John S., assignor of one-half to T. E. Connelly, Pittsburg, Pa. Automatic gas-governor	316,945	May 5	18	6	31	526
Connelly, Thomas E. (See Connelly, John S., assignor.)						
Connelly, Thomas E., assignor of one-half to J. S. Connelly, Pittsburg, Pa. Chemical fire-extinguisher	317,513	May 12	798	204	31	676
Connelly, William A., Boston, Mass. Fare receiver, register, and alarm	315,737	Apr. 14	1057	277	31	198
Connelly, William E., Hubbard, Tex. Gate	318,087	May 19	1555	417	31	825
Conner, Daniel, Amesville, Ohio. Shepherd's crook	316,242	Apr. 21	1743	458	31	329
Conner, Fletcher M., Henrico County, Va. Clothes-clamp for beds	319,563	June 9	805	214	31	1205
Conner, Oliver E., Hartwell, Ohio. Hand fire-extinguisher	320,225	June 16	1713	455	31	1375
Conner, Oliver E., and T. E. McNamara, Cincinnati, Ohio. Hand fire-extinguisher	320,226	June 16	1714	455	31	1376
Conner, Wilson E. (See Cross, James M.)						
Conradson, Conrad M., assignor of one-third to F. A. Johnson, Madison, Ill. Roller-skate	317,514	May 12	799	205	31	676
Constant, Boston S., Penn. Ind. Fanning-mill	317,094	May 5	216	54	31	503
Continental Store Service Company. (See Crosby, Darwin E., assignor.)						
Continental Store Service Company. (See Hinton, Joseph R. H., assignor.)						
Conway, Jesse, assignor of one-half to J. H. Conway, Baltimore, Md. Vehicle-axle nut-lock	319,791	June 9	1111	295	31	1261
Conway, John H. (See Conway, Jesse, assignor.)						
Cook, Americus V., Dexter City, Mo. Heating-stove	316,605	Apr. 28	2231	587	31	424
Cook, Asa S. (See Alger and Cook, assignors.)						
Cook, Asa S., Hartford, Conn. Screw-machine	319,564	June 9	805	{214 / 215}	31	1205
Cook, August D., Lawrenceburg, Ind. Pump-handle	318,235	May 19	1749	467	31	862
Cook, Charles. (See Callan, Frank, assignor.)						
Cook, Charles E., and J. Mitchell, Delaware, Ohio. Harrow-tooth fastening	320,334	June 16	1690	497	31	1406
Cook, Daniel, Philadelphia, Pa. Window-screen	315,249	Apr. 7	378	93	31	69
Cook, George, Boston, Mass. Piano-forte	316,445	Apr. 28	2037	534	31	387
Cook, George W., Chicago, Ill. Window and door awning or shade	315,250	Apr. 7	379	94	31	69
Cook, Henry T. (See Crossley and Cook.)						
Cook, Hiram D., Dry Brook, N. Y. Road scraper or planer	321,193	June 30	3037	804	31	1633
Cook, James, Chattanooga, Tenn. Watch-maker's wheel-cutting engine	319,072	June 2	174	46	31	1060
Cook, John A. (See Haggett, George W., assignor.)						
Cook, John F. (See Alger and Cook.)						
Cook, Joseph, Akron, Ohio. Drinking-fountain for poultry	315,251	Apr. 7	380	94	31	69
Cook, Joseph, assignor to Sinker, Davis & Company, Indianapolis, Ind. Band-saw mill	321,194	June 30	3038	805	31	1633
Cook, Marcus E., Wallingford, Conn. Earth loader and conveyer	316,243	Apr. 21	1744	{458 / 459}	31	330
Cook, Samuel H., Johnsonville, Ill. Harrow	316,244	Apr. 21	1746	459	31	330
Cook, Winfield S. (See Westbrook and Cook.)						
Cooke, Charles H., assignor to J. B. Mathewson & Co., Providence, R. I. Locket	316,118	Apr. 21	1586	412	31	301
Cooke & Eddy. (See Costello, John, assignor.)						
Cooke, John A., Cape May, N. J. Net for catching porpoises	317,733	May 12	1069	280	31	726
Cooke, John A., Cape May, N. J. Net for catching porpoises	320,914	June 30	2673	710	31	1567
Cookerley, Josiah C., South Milford, Ind. Nut-lock	317,305	May 5	509	130	31	616
Cool, Peter, Manhattan, Kans. Carriage-axle	319,957	June 16	1355	356	31	1311
Coolbaugh, Jesse R., administrator. (See Cannan, Matthew C.)						
Coolidge, Charles P., Orange, Mass. Turbine	321,280	June 30	3143	837	31	1653
Coombe, Samuel, Poultney, Vt. Coffin	316,119	Apr. 21	1586	{412 / 413}	31	301
Coon, James H., assignor to Capital City Tool Company, Des Moines, Iowa. Device for turning axles or shafts						
Cooper, Albert. (See Metzger and Cooper.)						
Cooper, Amos B., Scandia, Kans. End-gate for wagons	317,977	May 19	1412	379	31	799
Cooper, Charles B., New York, N. Y. Die for corrugating sheet metal	318,088	May 19	1556	{417 / 418}	31	825
Cooper, Charles J., Chicago, Ill. Hame-tug	315,005	Apr. 7	26	7	31	7
Cooper, Isaac W., assignor to J. Cooper, Apollo, and A. S. Warner, Freeport, Pa. Sling	316,525	Apr. 28	2131	561	31	405
Cooper, John A., *et al.* (See Lord, Andrew H., assignor.)						
Cooper, John H., Philadelphia, Pa. Friction-clutch	317,306	May 5	510	130	31	616
Cooper, Joshua, *et al.* (See Cooper, Isaac W., assignor.)						
Cooper, William H., Quincy, Ill. Fine-cleaner for steam-boilers	315,738	Apr. 14	1060	{277 / 278}	31	199
Copeland, David, and H. J. Dargin, Rochester, N. Y. Extension-table	316,946	May 5	20	6	31	526
Copeland, David W., Syracuse, N. Y. Car-starter	319,565	June 9	806	215	31	1206
Copeland, David W., Syracuse, assignor to Copeland Manufacturing Company, New York, N. Y. Railway-gate	316,747	Apr. 28	2452	638	31	463
Copeland, Franklin, Dedham, Mass. Carburetor	320,460	June 23	2086	550	31	1450
Copeland Manufacturing Company. (See Copeland, David W., assignor.)						
Copman, Charles, New York, N. Y. Filling attachment for the hubs of pipes	315,483	Apr. 14	704	186	31	131

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Coppernoll, James M., and J. W. Brandow, Jordanville, N. Y. End-gate	316,748	Apr. 28	2453	638	31	463
Coppernoll, James M., and J. W. Brandow, Jordanville, N. Y. Wood-filler	319,792	June 9	1112	.....	31	1261
Copple, John Sibley, Iowa. Running-gear for wagons	317,515	May 12	800	205	31	676
Corbett, Philip F., Boston, Mass. Car-coupling	316,011	Apr. 21	1435	374	31	273
Corbin, Amasa, Jr., Gouverneur, N. Y. Disk-harrow	315,127	Apr. 7	184	45	31	34
Corbin, Amasa, Jr., Gouverneur, N. Y. Potato-digger	319,793	June 9	1113	295	31	1261
Corbin Cabinet Lock Company. (See Blakesley, Gilbert H., assignor.)						
Corbin Cabinet Lock Company. (See Mix, Frank W., assignor.)						
Corcoran, J. Huff, and L. Rummel, Alden, Iowa. Hay raker and loader	320,227	June 16	1715	456	31	1376
Corcoran, Mathew, and C. M. Gates, Rock Falls, Ill. Machine for making tubs	317,516	May 12	800	205	31	676
Cornelius, James, Brooklyn, N. Y. Loose-pulley and wheel lubricator	319,073	June 2	175	47	31	1060
Cornthwaite, Robert. (See Dewhurst and Cornthwaite.)						
Cornwall, Edward A., *et al.* (See Stebbins, Darius, assignor.)						
Cornwall, Edward T., *et al.* (See Stebbins, Darius, assignor.)						
Correja, Henry, Paris, France. Photographic apparatus	318,701	May 26	2371	633	31	984
Corsaden, Robert, Providence, R. I. Apparatus for collecting and drying the sedimentary matter of sewage	315,912	Apr. 14	1304	{339 340}	31	242
Corwin, George M. (See Osborn, Frank S., assignor.)						
Cory, Loretto, Shelbyville, Ind. Water-proof garment	316,245	Apr. 21	1747	{459 460}	31	330
Cosble, William, San Francisco, Cal. Horse-collar	318,544	May 26	2181	584	31	949
Cosby, Richard M., Indianapolis, Ind. Windmill	315,484	Apr. 14	705	186	31	131
Cosgrove, Lawrence, Baltimore, Md. Work-holder for metal-working machines	316,526	Apr. 28	2133	561	31	405
Costello, John, North Attleborough, Mass., assignor to Cooke & Eddy, Providence, R. I. Button or stud	320,761	June 23	2468	654	31	1523
Costello, Thomas H., Chicago, Ill. Tellurian-globe	317,307	May 5	511	{130 131}	31	617
Cothren, William H., Farmington, Me. Gas-regulator	317,734	May 12	1070	280	31	727
Cotton, Charles, Olean, N. Y. Wagon-rack	318,959	June 2	39	10	31	1056
Cotton, Charles L., assignor to Mansell Heel Machine Company, Chelsea, Mass. Machine for forming heel-blanks	320,298	June 16	1716	456	31	1376
Cotton & Gould. (See Alden, David A., assignor.)						
Cottrell, Calvert B., Stonington, Conn. Delivery apparatus for printing-presses	319,458	June 9	659	{177 178}	31	1180
Cottrell, Calvert B., Stonington, Conn. Chain and chain-guide for sheet-delivery apparatus for printing-presses	319,459	June 9	663	178	31	1180
Cottrell, Calvert B., Stonington, Conn. Sheet-delivery apparatus for printing-machines	319,460	June 9	664	{178 179}	31	1181
Cottrell, George, San Francisco, Cal. Oatmeal-machine	320,048	June 16	1477	{389 390}	31	1333
Couch, Perley T., and C. W. Woolbert, Philadelphia, Pa., assignors of one-third to E. S. Woolbert, Elmer, N. J. Grinding-mill	317,735	May 12	1071	281	31	727
Countryman, Charles R., Sherman, Wyo. Ter. Wedge	315,606	Apr. 7	28	7	31	7
Conpal, Peter A., Boston, Mass., assignor to Boot and Shoe Sole Laying Company, Portland, Me. Sole-laying machine	315,913	Apr. 14	1306	340	31	242
Conpal, Peter A., assignor to A. Seaver, trustee, Boston, Mass. Lasting-machine	317,308	May 5	513	131	31	617
Couper, John A., Marietta, Ga. Swimming-shoe	320,702	June 23	2470	654	31	1524
Courtney, Robert W. (See Calder and Courtney.)						
Couse, Charles, Belleville, N. J. Automatic lubricator for steam-engines	318,168	May 19	1661	445	31	845
Cousins, James J., San Francisco, Cal. Machine for the manufacture of stick-candy	318,454	May 26	2040	551	31	924
Contean, Louis A., Léonville, France. Rearing and mowing machine	315,387	Apr. 7	549	142	31	99
Covel, Milo, Chicago, Ill. Combined straight-edge and gage	317,517	May 12	802	206	31	677
Covel, Milo, Chicago, Ill. Saw-sharpening machine	319,794	June 9	1115	296	31	1261
Covell, Edgar C. (See Cram and Covell.)						
Covell, Edgar C., *et al.* (See Cram, Elisha S., assignor.)						
Coventry, Charles B., Chicago, Ill. Locomotive-boiler	316,947	May 5	21	6	31	527
Covert, D'Estaing S. (See Brett, Mathew D., assignor.)						
Covert, James C., West Troy, N. Y. Snap-hook	318,545	May 26	2182	584	31	949
Covert, James C., West Troy, N. Y. Chain-connection for harness	319,958	June 16	1356	356	31	1311
Covert Telescopic Fire Ladder and Stand Pipe Company. (See Covert, William T., assignor.)						
Covert, William T., assignor to Covert Telescopic Fire Ladder and Stand Pipe Company, Indianapolis, Ind. Fire-truck	321,342	June 30	3214	{857 858}	31	1668
Cowell, John J., Newark, N. J. Trunk-catch	317,736	May 12	1072	281	31	727
Cowell, Newell P. and R. A., and J. F. Herrick, Cleveland, Ohio. Car-coupling	319,883	June 9	1245	328	31	1283
Cowell, Renaselaer A. (See Cowell and Herrick.)						
Cowell, Renaselaer A., Cleveland, Ohio. Car-bumper	319,796	June 9	1119	297	31	1262
Cowen, George D., Taunton, Mass. Blow-pipe	320,461	June 23	2067	550	31	1450
Cowgill, Christian D., Terre Haute, Ind. Plotter for tinners' use	315,388	Apr. 7	550	142	31	100
Cowing, William J., Washington, D. C. Skater's appliance	320,462	June 23	2068	550	31	1451
Cowles, Alfred H. (See Cowles, Eugene H. and A. H.)						
Cowles, Edward P., Wequiock, Wis. Universal joint	317,737	May 12	1074	281	31	727
Cowles, Edwin, *et al.* (See Cowles, Eugene H. and A. H., assignors.)						
Cowles, Eugene H. and A. H., Cleveland, Ohio. Electric smelting-furnace	319,845	June 9	1334	{351 352}	31	1299
Cowles, Eugene H. and A. H., assignors of four-tenths to E. Cowles and C. F. Mabery, Cleveland, Ohio. Smelting ores by the electric current	319,795	June 9	1117	296	31	1261
Cowles, James A., Chicago, Ill. Argand lamp-burner	321,281	June 30	3144	838	31	1653
Cowley, James T., Baltimore, Md., assignor to M. Clark, New York, N. Y. Store-service apparatus	315,739	Apr. 14	1061	278	31	199
Cox, Arthur W., Newark, N. J. Last	316,246	Apr. 21	1748	460	31	331
Cox, Arthur W., Newark, N. J. Instrument for tracing the outline of the human foot	317,309	May 5	516	132	31	618
Cox, Charles J., Nottingham, England. Ornamentation of cloth	317,310	May 5	517	132	31	618
Cox, George E., *et al.* (See Solano, Renaldo, assignor.)						
Cox, J. D., Jr., *et al* (See Richards, Francis H., assignor.)						
Cox, Joseph J., assignor of two-thirds to C. J. Cartwright and C. Z. Kelso, Lawrence, Kans. Feed-cooking apparatus	315,389	Apr. 7	551	142	31	100
Cox, Robert M., Prairie City, Ill. Plaiting and ruffling attachment for sewing-machines	316,247	Apr. 21	1749	460	31	331
Cox, Sanford C., assignor to himself and J. S. Hanna, Lafayette, Ind. Feeding attachment for cylinder printing-presses	317,929	May 12	1338	359	31	777
Coyle, Thomas, Apponaug, R. I. Fork	316,334	Apr. 21	1859	492	31	350
Crabb, James T., Eminence, Ky. Hitching device	318,169	May 19	1662	445	31	846
Crabbe, James W., Brooklyn, N. Y. Roofing and siding board	318,872	May 26	2611	693	31	1025
Crafts, Samuel P., Hamden, Conn. Machine for pressing bricks	315,601	Apr. 14	871	229	31	161

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Cragg, John, Brooklyn, N. Y. Revolving letter or character sign	318,960	June 2	40	11	31	1056
Cragg, Samuel W., Baltimore, Md. Construction of pavements	315,740	Apr. 14	1063	279	31	199
Crago, William, Carbondale, Pa. Platform-spring	317,095	May 5	217	55	31	563
Craig, Daniel H., agent. (See Evans, Charles H., assignor.)	315,602	Apr. 14	872	229	31	162
Craig, John A., Lauderdale, Miss. Car-coupling						
Craig, Thomas. (See Wilson, William P., assignor.)						
Cram, Alonzo W., Haverhill, Mass., assignor to Adjustable Elbow and Damper Company, Nashua, N. H. Elbow for stove-pipes	319,884	June 9	1247	329	31	1284
Cram, Elisha S., Laconia, N. H. Sewing-machine	315,914	Apr. 14	1308	340	31	243
Cram, Elisha S., and E. C. Covell, Laconia, N. H. Mechanism for sewing and trimming fabrics	317,930	May 12	1339	{359 360}	31	778
Cram, Elisha S., assignor of three-fourths to E. C. Covell, Laconia, J. S. Crane and B. F. Drake, Lake Village, N. H. Sewing to fasten the ends of sewed seams	315,916	Apr. 14	1310	341	31	243
Cram, Elisha S., and E. C. Covell, Laconia, assignors of one-half to J. S. Crane and B. F. Drake, Lake Village, N. H. Sewing-machine	315,742	Apr. 14	1065	279	31	200
Cram, Elisha S., and E. C. Covell, Laconia, assignors of one-half to J. S. Crane and B. F. Drake, Lake Village, N. H. Sewing-machine	315,915	Apr. 14	1309	341	31	243
Cram, Elisha S., and E. C. Covell, Laconia, assignors of one-half to J. S. Crane and B. F. Drake, Lake Village, N. H. Sewing-machine	317,630	May 12	944	242	31	702
Cramer, James A., Morristown, N. J. Door saddle or sill	320,335	June 16	1891	497	31	1406
Cramer, Michael, assignor of one-third to J. J. Starin, Whitewater, Wis. Car-coupling						
Crampton, Albert. (See Belden, Emerson, assignor.)						
Crandall, Lucien S. (See Lake and Crandall.)						
Crane Brothers Manufacturing Company. (See Crane, Charles R., assignor.)						
Crane Brothers Manufacturing Company. (See Reynolds, George H., assignor.)						
Crane, Charles R., assignor to Crane Brothers Manufacturing Company, Chicago, Ill. Hydraulic valve for elevators and other apparatus	319,678	June 9	955	253	31	1233
Crane & Co. (See Crane, Edward N., assignor.)						
Crane & Co. (See Hanford, Robert G., Jr., assignor.)						
Crane, Edward N., assignor to Crane & Co., Newark, N. J. Harness-trimming	319,461	June 9	668	179	31	1181
Crane, Edward N., assignor to Crane & Co., Newark, N. J. Harness-trimming	319,462	June 9	669	179	31	1181
Crane, John S., *et al.* (See Cram, Elisha S., assignor.)						
Crane, John S. (See Cram and Covell, assignors.)						
Crane, Orris S., Detroit, Mich. Feather-renovator	320,540	June 23	2188	578	31	1468
Crane, Richard T., Chicago, Ill. Lubricator for steam-engine cylinders	315,198	Apr. 7	186	46	31	34
Crane, Thomas R., Heathsville, Va. Fertilizer-feed for drills	319,393	June 2	557	151	31	1154
Craven, Thomas, Delaware, Ohio. Corn-planter	317,311	May 5	518	132	31	618
Crawford, John M., Philadelphia, Pa. Illuminated clock	317,096	May 5	218	55	31	563
Crawford, John M., Philadelphia, Pa. Combined alarm-clock and lamp-regulating mechanism	317,312	May 5	519	132	31	618
Crawley, James. (See Cassidy, Peter B., assignor.)						
Creasy, John T. (See White, Ross, Creasy, and Gritton.)	319,959	June 16	1356	356	31	1311
Creelman, John A., Rochester, N. Y. Feed-water regulator						
Creighton, James M., *et al.* (See McCarty, William F. M., assignor.)						
Cresson, George V. (See Pessano, Antonio C., assignor.)	317,931	May 12	1339	360	31	778
Crikelair, Gustave J., New York, N. Y. Fire-alarm	317,313	May 5	521	133	31	619
Criley, Benjamin F., Isabella, Pa. Cider mill and press	319,865	June 9	1248	329	31	1284
Crisler, Bascom, Crawford, Miss. Tire-tightener	316,606	Apr. 28	2232	568	31	424
Crist, William E., New York, N. Y. Vibrating-piston engine						
Criswell, William T., *et al.* (See Bond, Nathan O., assignor.)						
Croake, Charles A., *et al.* (See Detwiler, Albert, assignor.)						
Croake, Daniel, *et al.* (See Detwiler, Albert, assignor.)	318,069	May 19	1559	418	31	826
Crocker, Frederick, Olean, N. Y. Pipe-wrench	315,129	Apr. 7	187	46	31	34
Crocker, Frederick W., Macedon, N. Y. Ice-cream box	318,599	May 26	2242	600	31	960
Crocker, Frederick W., Macedon, N. Y. Bustle	317,314	May 5	525	133	31	619
Crockett, Charles F., Mount Vernon, N. Y. Railway-car	318,873	May 26	2612	693	31	1025
Crockett, Charles F., Mount Vernon, N. Y. Chamber-pail	320,336	June 16	1892	497	31	1406
Crockett, James D., Ripley, Miss. Hame-fastener						
Croft, John F. (See Barber, Ira, assignor.)						
Crofnt, John A., *et al.* (See Wheeler, Dwight, assignor.)						
Croissant, Charles. (See Maas, John J., assignor.)						
Croker, Michael H. (See Bowbin and Croker.)	319,074	June 2	176	47	31	1060
Crompton, George, Worcester, Mass. Chimney-top	317,315	May 5	525	134	31	620
Cromwell, Andrew J., Baltimore, Md. Car-brake	318,600	May 26	2242	601	31	960
Cronemeyer, William C., Pittsburg, Pa. Fire-escape	318,601	May 26	2243	601	31	960
Cronk, William, Havana, N. Y. Post and stake bar	319,886	June 9	1248	329	31	1284
Cronyn, John L. C., Buffalo, N. Y. Cigar-holder	315,007	Apr. 7	29	.....	31	7
Crooke, John J., New York, N. Y. Manufacture of tin-foil	315,008	Apr. 7	30	.....	31	7
Crooke, John J., New York, N. Y. Tin-foil	315,009	Apr. 7	32	.....	31	7
Crooke, John J., New York, N. Y. Making tin-foil	317,738	May 12	1075	282	31	728
Crosby, Adon D., Cuba, N. Y. Combination-tool						
Crosby, Charles P., *et al.* (See Huber, Jacob, assignor.)						
Crosby, Darwin E., Philadelphia, Pa., assignor to Continental Store Service Company, New York, N. Y. Store-service apparatus	321,343	June 30	3217	858	31	1668
Crosby, George H., Somerville, Mass. Safety-valve	318,961	June 2	41	11	31	1056
Crosby Steam Gage and Valve Company. (See Brown, Gilman W., assignor.)						
Crosby, William F., *et al.* (See Huber, Jacob, assignor.)						
Cross, Frank, Washington, Ind. Burglar-alarm	319,566	June 9	807	215	31	1206
Cross, James M., assignor of one-fourth to W. E. Conner, Marietta, Ohio. Earth-auger	317,739	May 12	1076	282	31	728
Cross, John R., deceased, M. L. Cross, administratrix, and assignor, by mesne assignments, to M. L. Cross, Chicago, Ill. Wood-printing machine	317,518	May 12	803	206	31	677
Cross, Mary L., administratrix. (See Cross, John R.)	315,010	Apr. 7	34	7	31	8
Cross, Parmer R., Lowell, Ind. Cider-press	316,877	Apr. 28	2628	685	31	496
Cross, William C., Boston, Mass. Preparing uppers for lasting	317,519	May 12	804	206	31	677
Cross, William T., Whiteville, Tenn. Horse-power						
Crossen, Patrick I. (See McCrystal and Siegfried, assignors.)	320,541	June 23	2189	578	31	1469
Crossley, Joseph, and H. T. Cook, Trenton, N. J. Press for forming articles of pottery-ware	318,874	May 26	2612	{693 694}	31	1026
Crothers, Noble E., Paxton, Ill. Check-row planter	316,749	Apr. 28	2454	639	31	464
Crouan, Henri M. L., Paris, France. Cylinder						
Crouch, Lucious C. (See Clark and Crouch.)						
Crouthers, James A. (See Sanford, Hopkins A., assignor.)						
Crowden, Charles T. (See Pansey and Crowden.)						
Crowell, Horace S. (See Pattyson, William D. C., assignor.)						
Crowell, Luther C., Brooklyn, N. Y. Web-perfecting printing-machine	317,740	May 12	1077	{282 283 284}	31	728

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Crowell, Luther C., Brooklyn, assignor to R. Hoe & Co., New York, N. Y. Web-associating apparatus	316,120	Apr. 21	1588	413	31	301
Crowell, Luther C., Brooklyn, assignor to R. Hoe & Co., New York, N. Y. Mechanism for printing marks on the margins of sheets	316,121	Apr. 21	1590	414, 415	31	301
Crowell, Luther C., Brooklyn, assignor to R. Hoe & Co., New York, N. Y. Folding-machine	316,122	Apr. 21	1591	415	31	302
Crowell, Luther C., Brooklyn, assignor to R. Hoe & Co., New York, N. Y. Sheet-delivery apparatus	316,123	Apr. 21	1594	415, 416, 417	31	302
Crowell, Luther C., Brooklyn, assignor to R. Hoe & Co., New York, N. Y Delivery mechanism for web-printing machines	317,741	May 12	1083	284, 285	31	729
Crowell, Luther C., Brooklyn, assignor to R. Hoe & Co., New York, N. Y. Sheet-delivery apparatus	317,742	May 12	1087	285, 286	31	729
Crowley, John H., Philadelphia, Pa. Machine for winding bobbins for loom-shuttles	320,851	June 23	2579	682, 683	31	1544
Crown Manufacturing Company. (See Sheldon and Peacock, assignors.)						
Crowther, David W., Hagerstown, Md. Horse-hitching device	316,878	Apr. 28	2629	685	31	496
Crowther, George, assignor of one-half to T. Nieman, Cincinnati, Ohio. Bedstead	316,335	Apr. 21	1860	492	31	350
Crowthers, Abner M., *et al.* (See Banta, William E., assignor.)						
Crump, John, and R. Brereton, Philadelphia, Pa. Stone-cutting machine	318,902	June 2	43	11	31	1056
Crump, Jotham S., Westfield, N. Y. Sash-fastening	319,887	June 9	1249	329	31	1284
Cruzan, Isaac, and B. F. Cargay, Pomona, Kans.; said Cruzan assignor to said Cargay. Check-row corn-planter	320,852	June 23	2580	683	31	1544
Culbertson, John J., Paris, Tex., J. C. O'Connell, Montgomery, Ala., and B. Gaston, Paris, Tex. Box for meat and oil presses	318,875	May 26	2614	694	31	1026
Culbertson, William W. (See Roberts, Edward J., assignor.)						
Culver, Darius M., assignor of one-half to R. Owen, Tipton, Iowa. Check-row corn-planter	317,441	May 5	701	176	31	649
Culverson, Charles, Wescosville, Pa. Dumping-car	318,170	May 19	1663	446	31	846
Cumback, Herbert H., assignor to J. A. Blount, Springfield, Ohio. Rotary plow	320,853	June 23	2582	684	31	1545
Cummings, Daniel M., deceased, assignor, by mesne assignments, to Compound Lumber Company, New York, N. Y. Compound lumber. (Reissue)	10,509	May 26	2689	712	31	1040
Cummings, John. (See De Beaulieu, George, assignor.)						
Cummings, Virgil T., Groveton, Tex. Device for jointing, gaging, and setting saws	317,442	May 5	702	177	31	650
Cummins, George W. (See Herr and Cummins.)						
Cummins, John R. (See Emerson, Fairee, and Cummins.)						
Cunningham, David H., Elizabeth, N. J. Electric-lamp socket and switch	320,117	June 16	1574	415	31	1350
Cunningham, Hugh. (See Pratt, Charles E., assignor.)						
Cunningham, Phebe J., Amber, Iowa. Flower-stand	317,443	May 5	703	177	31	650
Cunningham, Richard W., *et al.* (See Hughes, James L., assignor.)						
Cuper, Camille D., Paris, France. Petticoat	319,960	June 16	1357	356	31	1311
Curlin, Seth, Covington, Tenn. Marine velocipede	315,743	Apr. 14	1067	280	31	200
Curlin, Seth, Covington, Tenn. Railway-switch	316,336	Apr. 21	1861	492, 493	31	350
Currey, Arthur L. (See Rice and Currey.)						
Currey, Edward C., assignor of one-half to A. W. Hager, Mitchell, Dak. Ter. Evener-spring for whiffletrees	319,961	June 16	1358	357	31	1312
Currie, Charles E., Butte, Mont. Ter. Car-brake	316,879	Apr. 28	2630	685	3	496
Currie, Peter, Hull, Quebec, Canada. Car-coupling	316,607	Apr. 28	2236	589	31	425
Currier, Alfred, assignor of one-half to W. H. De Camp, Grand Rapids, Mich. Windmill	318,876	May 26	2614	694	31	1026
Currin, John P. (See Repass and Currin.)						
Curry, George W., St. Louis, Mo. Caster	318,903	June 2	45	12	31	1057
Curry, Lewis M., assignor of one-half to O. F. Jordan, Jackson, Mich. Switch-stand	315,011	Apr. 7	35	7	31	8
Curtin, John, Marion, Va. Plaiting-board	316,012	Apr. 21	1437	375	31	273
Curtis, Charles R. S., Quincy, Ill. Fire-escape and elevator	320,854	June 23	2583	684	31	1545
Curtis, Elias, Kansas City, Mo. Electrical game-indicator for pool-tables	320,542	June 23	2190	578	31	1469
Curtis, George H. W., Brooklyn, N. Y. Sewing-machine	318,964	June 2	46	12	31	1057
Curtis, George W., Philadelphia, and J. Wood, Jr., Conshohocken, assignors to Curtis & Wood Automatic Car Coupler Company, Philadelphia, Pa. Car-coupling	321,344	June 30	3219	858	31	1668
Curtis, Isaac, and L. J. Russell, assignors to Winchester Repeating Arms Company, New Haven, Conn. Magazine fire-arm	316,880	Apr. 28	2630	686	31	496
Curtis & Wood Automatic Car Coupler Company. (See Curtis and Wood, assignors.)						
Curtner, Paul H., Hazleton, and C. C. Genung, Evansville, Ind. Car-brake	318,419	May 19	1992	536	31	907
Cushman, Charles W., Buffalo, N. Y. Carding railway freight-cars	316,527	Apr. 28	2134	562	31	406
Cushman, Charles W., Buffalo, N. Y. Label-holder for freight-cars	318,602	May 26	2244	601	31	960
Cusson, Joseph, assignor to S. Cusson, Bay City, and J. King, South Bay City, Mich. Salt-grainer	315,390	Apr. 7	552	142	31	100
Cusson, Joseph, assignor to J. King and S. Cusson, Bay City, Mich. Attachment to salt-grainers	321,345	June 30	3221	859	31	1669
Cusson, Samuel, *et al.* (See Cusson, Joseph, assignor.)						
Cutler, Alexander M., Bath, Me. Machine for slitting canvas and folding the edges thereof	316,337	Apr. 21	1863	493	31	350
Cutler, E. Waldo, Boston, Mass. Sleeping-car	316,013	Apr. 21	1438	375	31	274
Cutter, Francis L., Brooklyn, N. Y. Holder for cards, &c	316,948	May 5	22	6	31	527
Cutting, Lewis, San Francisco, Cal. Egg-turning device for incubators	320,463	June 23	2090	551	31	1451
Dabbs, Walter G. (See Painter, Frederick G., assignor.)						
Daft, Leo, Greenville, N. J. Electric switch	320,630	June 23	2310	610	31	1491
Daft, Leo, Greenville, N. J. Insulator for tracks	320,631	June 23	2311	610	31	1491
Daft, Leo, Greenville, N. J. Electric conductor	320,632	June 23	2312	610	31	1491
Daft, Leo, Greenville, N. J. Insulator for tracks	320,633	June 23	2313	611	31	1492
Dagnin, Eugene, Paris, France. Machine for stamping and obliterating postage-stamps	319,962	June 16	1359	357	31	1312
Dailey, Albert A., Wilson, N. Y. Car-coupling	317,316	May 5	527	134	31	620
Dailey, George F., Leadville, Colo. Air-pump	321,008	June 30	2796	744	31	1590
Dailey, William H. (See Lord and Dailey.)						
Dain, Joseph, Jr., Kansas City, Mo. Vehicle-spring	317,743	May 12	1092	286	31	730
Daingerfield, Henrietta H., Harrisonburg, Va. Adjustable and reversible foot-rest	317,978	May 19	1412	379	31	800
Dale, Oliver S. (See Lace, John H., assignor.)						
Dalton, Clarence L., assignor of one-half to R. Phares, Cincinnati, Ohio. Thill-coupling	317,520	May 12	805	207	31	677
Damm, Fred C., assignor to Peoria Target Company, Peoria, Ill. Ball-trap	317,521	May 12	806	207	31	677
Danby, George, Mount Holly, Ohio. Automatic cut-off-valve gear	317,979	May 19	1413	379	31	800
Dangler, David A., and E. H. Wackerman, Cleveland, Ohio; said Wackerman assignor to said Dangler. Vapor-burner	318,090	May 19	1560	418	31	826
Danielsen, William G., Richmond, Utah Ter. Sulky-plow	318,358	May 19	1916	517	31	892
Danks, John, and B. Barnes, Melbourne, Victoria, Australia. Tram-car motor	320,634	June 23	2314	611	31	1492
Danner, John, Canton, Ohio. Folding table	317,097	May 5	220	56	31	563
Daran, Dominique L., assignor of one-half to L. Keller, New York, N. Y. Ornamenting the surfaces of wood, &c	317,317	May 5	528	134	31	620

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Darby, George W., Allegheny City, Pa. Operating car-brakes	315,012	Apr. 7	36	8	31	8
Dargan, John, *et al.* (See Lytle, Albert E., assignor.)						
Darrow, Samuel K., Poughkeepsie, N. Y. Combined fire-screen and desk	319,198	June 2	319	85	31	1107
Dart, Albert E., assignor of one-half to S. H. Tingley, Providence, R. I. Cut-off device for flexible tubes or hose	318,091	May 19	1561	418	31	826
Daudt, George A., Jersey City, N. J. Pipe-coupling	320,635	June 23	2315	612	31	1492
Davenport, George. (See Davenport, Henry and G.)						
Davenport Glucose Manufacturing Company. (See Radenmacher, Paul, assignor.)						
Davenport, Henry and G., Somerville, Pa. Magic lantern	320,636	June 23	2317	612	31	1492
Davenport, Joseph D., Pawtucket, R. I. Adjustable staging-bracket	319,463	June 9	670	179, 180	31	1161
Davenport, William H., Uxbridge, Mass. Fire-arm	320,637	June 23	2317	612	31	1492
Davenport, William H., and J. W. Day, Uxbridge, Mass. Cutter-head for riffing-machines	315,130	Apr. 7	188	46	31	34
Daves, John F., near Tupelo, Miss. Combined agricultural implement	318,171	May 19	1664	446	31	846
David, Auguste, San Francisco, Cal. Grape stemmer and crusher	320,049	June 16	1478	390	31	1333
Davidson, Henry, Brooklyn, N. Y. Folding square	318,877	May 26	2615	695	31	1026
Davidson, John M. (See Davis, David, assignor.)						
Davidson, Mordica A., and S. F. Sanders, Union, Mo. Car-coupling	315,131	Apr. 7	189	46	31	35
Davies, Benjamin, Adlington, and J. Eckersley, Blackrod, county of Lancaster, England. Apparatus for washing piece-goods	315,252	Apr. 7	381	94	31	69
Davies, Benjamin F., *et al.* (See Laskey, John H., assignor.)						
Davies, Joseph D., Natches, Miss. Pump	315,485	Apr. 14	706	186, 187	31	132
Davies, Thomas A., New York, N. Y. Securing fish-plates to railway-rails	320,638	June 23	2319	612	31	1493
Davies, Thomas A., New York, N. Y. Fastening fish-plates in railway-rail joints	320,639	June 23	2320	613	31	1493
Davies, Thomas A., New York, N. Y. Fulcrum metallic spring-washer for railway-rail joints	320,640	June 23	2321	613	31	1493
Davies, Thomas A., New York, N. Y. Fish-plate for railway-rail joints	320,641	June 23	2322	613	31	1493
Davies, Walter D., Brooklyn, N. Y., assignor to Ansonia Clock Company, Ansonia, Conn. Alarm-clock	315,603	Apr. 14	873	229	31	162
Davies, William E. E., Allegheny, Pa. Varnish	320,464	June 23	2091	.....	31	1451
Davis, Adelbert S. (See Ball, Ansel, assignor.)						
Davis, Augustus B., Philadelphia, Pa. Combined weighing-scale and register	319,199	June 2	319	83	31	1107
Davis, Augustus C. L., Norfolk, Nebr. Siding gage or dog	316,338	Apr. 21	1865	494	31	350
Davis, Calvin R., assignor to Kimberlin Manufacturing Company, Indianapolis, Ind. Harrow attachment for cultivators	315,132	Apr. 7	190	47	31	35
Davis, Charles R., Dallas, Tex. Bed-spring	318,092	May 19	1562	419	31	826
Davis, Clayton N., assignor of one-half to Davis & Co., Fort Edward, N. Y. Shirt	318,546	May 26	2182	584	31	949
Davis & Co. (See Davis, Clayton N., assignor.)						
Davis, Daniel, Portland, Me. Toe-piece for edge-trimming machines	316,750	Apr. 28	2455	639	31	464
Davis, David, assignor of one-half to J. M. Davidson, Newburg, Ohio. Smoke-preventing furnace	317,522	May 12	807	207	31	678
Davis, David P., Jersey City, N. J., assignor to New York Safety Steam Power Company, New York, N. Y. Governor for engines	317,098	May 5	221	56	31	564
Davis, Elwin W., Geneva, Minn. Car-coupling	320,337	June 16	1892	497	31	1406
Davis, Eugene H. (See Scales, Christopher C., assignor.)						
Davis, Francis M. (See Cherney, Jacob, assignor.)						
Davis, Henry T., London, England. Money receiving, registering, recording, and ticket-issuing device	321,010	June 30	2799	744	31	1591
Davis, Henry T., assignor to Davis Quilting Frame Company, New York, N. Y. Quilting attachment for sewing-machines	321,009	June 30	2798	744	31	1591
Davis, James B., Washington, D. C. Breech-loading fire-arm	315,253	Apr. 7	381	94	31	69
Davis, James B., Washington, D. C. Gas-check for ordnance	318,093	May 19	1563	419	31	826
Davis, James E., Palmyra, assignor of one-half to T. C. Snyder, Canton, Ohio. Post-hole digger	318,359	May 19	1917	517	31	893
Davis, James P., and J. G. Robbins, Banner, Idaho Ter. Pick	316,528	Apr. 28	2135	562	31	406
Davis, John C. (See Gray, Edward J., assignor.)						
Davis, John S. (See Troy and Davis.)						
Davis, John S., assignor to Toledo Mower and Reaper Company, Toledo, Ohio. Band-securing mechanism for grain-binders	319,963	June 16	1361	358	31	1312
Davis Quilting Frame Company. (See Davis, Henry T., assignor.)						
Davis, Rees O., Milan, Mo. Hay-ricking device	317,744	May 12	1093	286	31	730
Davis, Riley L., assignor of one-half to J. F. McLean, Mooresville, N. C. Car-transfer apparatus	318,360	May 19	1918	517, 518	31	893
Davis Sewing Machine Company. (See Carlisle, William S., assignor.)						
Davis, Thomas. (See Hunter, Robert, assignor.)						
Davis, Zebulon, Cleveland, Ohio. Oil-stove	316,751	Apr. 28	2456	639	31	464
Davis, William A., New Orleans, La. Cartridge implement	317,318	May 5	531	135	31	621
Davison, Frank G., assignor to L. E. Waterman, Brooklyn, N. Y. Pocket pen and pencil holder	317,319	May 5	532	135	31	621
Davol Rubber Company. (See Sutton, Benjamin F., assignor.)						
Davy, John W., Kingston, Ontario, Canada. Fence-post	318,361	May 19	1919	518	31	893
Dawson, Artemas L., assignor of one-half to C. H. Freeman, Elk Point, Dak. Ter. Lamp-collar	315,744	Apr. 14	1068	280, 281	31	201
Dawson, Artemas L., assignor of two-thirds to C. H. Freeman, Elk Point, Dak. Ter., and G. Bohner, Chicago, Ill. Machine for attaching metal collars to lamps	315,745	Apr. 14	1070	281, 282	31	201
Dawson, Walter. (See Thatcher, Thomas, assignor.)						
Dawson, William G., Chicago, Ill. Device for converting reciprocating into rotary motion	320,338	June 16	1893	498	31	1406
Dawson, William M. (See Longcor and Dawson.)						
Daxon, Samuel R., Perryton, Ill. Machine for measuring and elevating grain	320,465	June 23	2091	551	31	1451
Day, George W., Haverhill, Mass. Inner sole for boots or shoes	315,254	Apr. 7	382	95	31	69
Day, Joseph W. (See Davenport and Day.)						
Day, Luther, Haverhill, Mass. Machine-sewed boot or shoe	318,878	May 26	2616	695	31	1027
Day, Moses H., Roxbury, Mass. Preparation, manufacture, and treating of yarn, hemp, and other materials employed in the manufacture of cordage	320,763	June 23	2470	.....	31	1524
Dayton, Melville E., *et al.* (See Wallace, J. Bennett assignor.)						
De Arguibel, Manuel C., Buenos Ayres, Argentine Republic. Rifling fire-arms	315,746	Apr. 14	1076	282	31	202
De Armon, Thomas. (See Callahan and De Armon.)						
De Bassecourt, Sosthène. (See Thury and De Bassecourt.)						
De Baun, Cornelius S. (See Higinson and De Baun.)						
De Bay, Hector, and C. De Rossetti, Cairo, Egypt. Apparatus for burning volatilizable hydrocarbons	317,444	May 5	704	177	31	650

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
DeBeaulieu, George, assignor of one-half to J. Cummings, Toledo, Ohio. Automatic car-coupling	319,200	June 2	321	85	31	1108
De Blanc, Peter G., New Iberia, La. Circular sawing machine	316,752	Apr. 28	2457	639	31	464
De Camp, W. H. (See Currier, Alfred, assignor.)						
De Forest, Charles T., New York, N. Y. Buckle	315,486	Apr. 14	708	187	31	132
De Grange, George E., and W. G. Green, New Orleans, La. Car-axle box	318,879	May 26	2617	[illegible]	31	1027
De Guerre, Frank H., and W. W. De Lano, San Francisco, Cal. Stove-grate	315,255	Apr. 7	383	95	31	70
De Gunzburg, Ury, and J. Tcherniac, Paris, France. Apparatus for making sulphocyanides	319,239	June 2	371	98, 99	31	1117
De La Matyr, Elias B., Chicago, Ill. Petroleum-burner	316,950	May 5	26	8	31	528
De La Vergne Refrigerating Machine Company. (See Block, Louis, assignor.)						
De Lafame, Nelson K., Plattsburg, N. Y. Potato-digger	316,949	May 5	23	7	31	527
De Lamater, Cornelius H., *et al.* (See Rathbun, John H., assignor.)						
De Lamater, Cornelius H., *et al.* (See Reynolds and Rider, assignors.)						
De Lamater, William, *et al.* (See Rathbun, John H., assignor.)						
De Lamater, William, *et al.* (See Reynolds and Rider, assignors.)						
De Land, George W., North Brookfield, Mass. Knife-gage for heel-trimming machines	319,465	June 9	672	180	31	1182
De Lano, Willis W. (See De Guerre and De Lano.)						
De Lanoy, Harry, Hastings-on-the-Hudson, N. Y. Mail-bag catcher	316,339	Apr. 21	1966	494	31	351
De Lanoy, Harry, Hastings-on-the-Hudson, N. Y. Mail-bag catcher	316,340	Apr. 21	1967	494	31	351
De Locht-Labre, Léon, London, county of Middlesex, England. Telephone	315,421	Apr. 7	605	156	31	109
De Planque, Edward, Hoboken, N. J. Artist's panel or plaque	319,203	June 2	324	86	31	1108
De Planque, Edward, Hoboken, N. J. Plaque or panel	319,660	June 9	957	254	31	1234
De Puy, Clarence E., Jackson, Mich. Carpet-fastener	319,204	June 2	324	86	31	1108
De Rossetti, Charles. (See De Bay and De Rossetti.)						
De Susini, Joseph, New York, N. Y. Tobacco-pulp	318,891	May 26	2619	.....	31	1027
Deam, John H., Bluffton, Ind. Drag-saw	317,745	May 12	1093	287	31	730
Dean Bros. Steam Pump Works. (See Dean, John C., assignor.)						
Dean, Charles D., *et al.* (See Sherwood, James H., assignor.)						
Dean, Henry W., Boston, Mass. Lasting-machine	319,797	June 9	1120	297	31	1262
Dean, John C., assignor to Dean Bros. Steam Pump Works, Indianapolis, Ind. Valve-gear for direct-acting steam-pumps	320,764	June 23	2471	654	31	1524
Dean, Thomas F., Boston, assignor to S. W. Chamberlin, Somerville, Mass. Device for joints in cooking utensils	315,917	Apr. 14	1311	341	31	243
Deane, Charles H., Hopeton, assignor to H. C. Shaw, Stockton, Cal. Header	319,075	June 2	178	47	31	1081
Dearborn, Wyman, Boston, assignor to F. R. Hall, Brookline, Mass. Picker-feed cotton-gin	319,064	June 16	1365	358	31	1313
Dearden, Walter, Trinidad, Colo. Filter	316,124	Apr. 21	1567	417	31	302
Dearth, Charles F., East Sangerville, Me. Floor-clamp	319,464	June 9	671	180	31	1182
Deavenport, James M. (See Deavenport, Thomas T. and J. M.)						
Deavenport, Thomas T. and J. M., Okolona, Miss. Car-coupling	316,446	Apr. 28	2038	534	31	387
Deavs, Charles, assignor to Archer & Pancoast Manufacturing Company, New York, N. Y. Combined gas and electric light fixture	318,547	May 26	2184	585	31	949
Decker, Cornelius, and A. Trombly, Pullman, Ill. Car-axle	320,855	June 23	2585	684	31	1545
Decker, Wilhelm, Mittweida, Saxony, Germany. Machine for grinding wire cards	321,088	June 30	2908	773	31	1610
Deckman, Charles J. (See Deckman, George and C. J.)						
Deckman, George and C. J., Malvern, Ohio. Apparatus for drying painted articles	315,604	Apr. 14	875	230	31	169
Deering, John R., assignor to himself and J. M. Bickel, Emporia, Mo. Valve-gear	321,195	June 30	3041	805	31	1634
Deering, William. (See Fecher and Olin, assignors.)						
Deering, William, Louisville, Ky. Cotton-gin	318,362	May 19	1920	518	31	804
Defhm, John R., Pottsville, Pa. Spring bed-bottom	320,765	June 23	2473	655	31	1524
Deimel, Gustave, Hancock, Mich. Trunk	318,455	May 26	2040	551	31	925
Delafield, A. Floyd, Noroton, Conn. Saw-clamp	316,753	Apr. 28	2458	640	31	464
Delaney, Alexander, and J. M. Bond, Richmond, Va. Saw-mill set-works	321,282	June 30	3145	838, 839	31	1653
Delaney, Joseph, Ashland, Pa. Ironing-board	317,932	May 12	1340	360	31	778
Delany, Edward J., San José, Cal. Mixing and agitating apparatus for plant-washes	321,089	June 30	2910	774	31	1610
Delany, Patrick B., New York, N. Y. Device for protection of men from disastrous effects of high-tension currents	318,172	May 19	1665	446	31	846
Delany, Patrick B., New York, N. Y. Electric cable	320,229	June 16	1718	457	31	1376
Delany, Patrick B., assignor to Standard Multiplex Telegraph Company, New York, N. Y. Telegraphic transmitting apparatus	316,125	Apr. 21	1598	417	31	303
Delany, Patrick B., assignor to Standard Multiplex Telegraph Company, New York, N. Y. Receiving apparatus for synchronous telegraphy	316,126	Apr. 21	1599	418	31	303
Delany, Patrick B., assignor to Standard Multiplex Telegraph Company, New York, N. Y. Synchronous telegraphy for fac-simile transmission	316,754	Apr. 28	2458	640, 641, 642	31	464
Dell, John, St. Louis, Mo. Device for fastening mouth-pieces to gas-retorts	318,965	June 2	48	12	31	1057
Delmege, John W., North Billerica, Mass. Telegraph-sounder	319,201	June 2	321	86	31	1108
Deloria, Louis, Chautauqua, Kans. Harrow	316,755	Apr. 28	2463	642	31	465
Demand, Adam, Sheboygan Falls, Wis. Tilting-chair	316,127	Apr. 21	1601	418	31	303
Demarest, John, assignor to J. L. Mott Iron Works, New York, N. Y. Trap for sewers	317,090	May 5	222	56	31	564
Demarest, John, assignor to J. L. Mott Iron Works, New York, N. Y. Pressure-regulator	317,746	May 12	1094	287	31	730
Demary, George T., assignor to National Heeling Machine Company, Boston, Mass. Heel-attaching machine	320,050	June 16	1479	390	31	1334
Demenay, Augustus. (See Balm and Demenay.)						
Deming, Ernest, Middletown, Conn. Belting	316,756	Apr. 28	2463	643	31	465
Dempsey, Dominick E. (See Spencer, Clare L., assignor.)						
Denuth & Co., William. (See Havell and Williams, assignors.)						
Denison, George, Princeton Junction, N. J. Fire-escape	316,757	Apr. 28	2464	643	31	465
Denison, Sylvester P., assignor of one-half to R. D. Radcliffe, New York, N. Y. Autographic telegraph	315,391	Apr. 7	553	143	31	100
Denison, Sylvester P., assignor of one-half to R. D. Radcliffe, New York, N. Y. Autographic telegraph	315,392	Apr. 7	556	143, 144, 145	31	101
Denn, Clayton. (See Yerkes and Denn.)						
Denney, Joseph M., Wartsburg, Wash. Ter. Axle-lubricator	319,679	June 9	957	253	31	1233
Denney, William F., Millbrook, Mich. Car-coupling	316,128	Apr. 21	1602	418	31	304
Dennis, John, Glenbenlah, Wis. Combined wash-bench and wringer	317,100	May 5	222	56	31	564
Dennis, John, Oswego, N. Y. Railway-bridge	319,798	June 9	1123	298	31	1262
Denno, Amos L., Salem, N. Y. Jack	318,702	May 26	2373	633	31	984
D'Entermont, Henry T. (See Amiro, Ambrose, assignor.)						
Denton, James E., Hoboken, N. J. Chuck for rock-drills	318,420	May 19	1993	536	31	906
Denton, James E., Hoboken, N. J. Chuck for rock-drills, &c	319,202	June 2	323	86	31	1108

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Denton, Joseph. (See Merritt and Müller, assignors.)						
Derby, Harry S. (See Schirmer, John A., assignor.)						
Derby, John C., New York, N. Y. Tool for cutting or trimming glass	316,430	Apr. 21	1919	525, 526	31	374
Derby, Philander. (See Parker, Frank F., assignor.)						
Derham, Samuel G., assignor of one-half to G. W. Rayner, New York, N. Y. Bottle-stopper	319,076	June 2	179	48	31	1081
Derr, Frank O., Moulton, Iowa. Trace-carrier	319,681	June 9	958	254	31	1234
Derrom, Andrew, Paterson, N. J. Composition mastic for covering roofs, telegraph-wires, &c	315,487	Apr. 14	709	.....	31	132
Detwiler, Albert, Milwaukee, Wis., assignor to D. and C. A. Croake. Gas-generator	315,747	Apr. 14	1077	282, 283	31	202
Detwiler, Daniel W. (See Bair, Francis L., assignor.)						
Denmelandt, Gottlieb, Potsdam, Prussia, Germany. Separating basic compounds from slags	318,603	May 26	2245	.....	31	960
	318,604	May 26	2246	601	31	960
Devereux, Walter B., Aspen, Colo. Blast-furnace tuyere	315,748	Apr. 14	1078	283	31	202
Devine, James J., Philadelphia, Pa. Bolt	320,543	June 23	2191	579	31	1469
Devoe, J. S., *et al.* (See Pulliam, William J., assignor.)						
Dew, Joseph R., Knoxville, Tenn. Fruit-drier						
Dewees Fabric Trimmer Company. (See Dewees, John W., assignor.)						
Dewees, John W., assignor to Dewees Fabric Trimmer Company, (limited,) Philadelphia, Pa. Fold-guide for sewing-machines	319,394	June 2	558	152	31	1154
Dewey, A. T. (See Sanborn, Clarence, assignor.)						
Dewey, Francis O., Reading, Mass. Wick-scraping attachment for lanterns	315,256	Apr. 7	384	95	31	70
Dewey, Francis O., Reading, Mass. Safety attachment for lanterns	319,799	June 9	1126	298	31	1263
Dewey, Francis O., Reading, Mass. Safety attachment for lanterns	318,966	June 2	49	13	31	1057
Dewey, Willis E., Racine, Wis. Pillow-sham holder	318,548	May 26	2185	.....	31	949
D'Heureuse, Rudolph, New York, N. Y. Malting, brewing, &c	316,758	Apr. 28	2466	643	31	466
Dewhurst, John B. and T. H., and R. Cornthwaite, Skipton, county of York, England. Spindle and bearing therefor						
Dewhurst, Thomas H. (See Dewhurst and Cornthwaite.)						
Dexter, Orel K., assignor of one-half to C. L. Simpson, Lowell, Mass. Device for cutting butter	316,759	Apr. 28	2467	644	31	466
Dias, Alzina, administratrix. (See Byce and Dias.)						
Dias, Isaac L., deceased. (See Byce and Dias.)						
Dice, Andrew F., Joliet, Ill. Barbed-wire spool	318,967	June 2	50	13	31	1057
Dick, Jacob, Greenville, Ohio. Wagon-box	318,703	May 26	2374	633	31	985
Dick, John W., Limerick, Me. Match-safe for lanterns	317,747	May 12	1095	287	31	730
Dickerman, Amos, New Haven, Conn. Machine for sizing paper tubes	316,129	Apr. 21	1604	419	31	304
Dickey, Lindsey, Vibbard, Mo. Velocipede	319,682	June 9	958	254	31	1234
Dickinson, Aspden P. (See Duxbury, Yates, Jr., assignor.)						
Dickinson, Aspden P., Blackburn, county of Lancaster, England. Warp-sizing machine	320,466	June 23	2093	551	31	1452
Dickinson, Elijah M., Fitchburg, Mass. Cutting heel-rands from counter-blanks	316,130	Apr. 21	1606	419	31	304
Dickinson, George H., East New York, N. Y. Steam-actuated valve	319,965	June 16	1368	359	31	1313
Dickson, Gilbert J., Albany, N. Y. Spade	316,014	Apr. 21	1438	375	31	274
Dickson, J. T., *et al.* (See Fox, Albert R., assignor.)						
Dickson, Joseph B., *et al.* (See Pendleton, John H., assignor.)						
Diehl, George H., Lake, Ill. Grain-drier	318,704	May 26	2375	633	31	985
Diehl, Philip, Elizabeth, N. J., assignor to Singer Manufacturing Company of New Jersey. Feeding mechanism for sewing-machines	319,800	June 9	1127	298, 299	31	1263
Diehl, Philip, Elizabeth, N. J., assignor to Singer Manufacturing Company of New Jersey. Feeding mechanism for button-hole sewing-machines	319,801	June 9	1128	299	31	1264
Diehl, Thompson R. (See Fink, John B., assignor.)						
Diehlmann, Carl F., Brooklyn, N. Y. Bolt	316,760	Apr. 28	2468	644	31	466
Dieterich, Michael, *et al.* (See Perkins, William J., assignor.)						
Digges, Charles E., Baltimore, Md., and W. L. Messick, Carter's Creek, Va. Self-leveling table for ships	317,748	May 12	1096	287	31	731
Dight, William M., Mercer, Pa. Seed-planter	318,705	May 26	2376	634	31	985
Dignam, John S., London, Ontario, Canada. Ornamenting the handles of articles of glass-ware	320,915	June 30	2674	710	31	1567
	320,339	June 16	1895	408, 409	31	1407
Dikeman, Charles W., Racine, Wis. Machine for making rugs, &c	318,549	May 26	2187	585	31	950
Dill, Joseph G., Richmond, Va. Tobacco-dusting machine						
Dilley, F. L. (See Scott, James O., assignor.)						
Dilliz, George, Millvale, Pa. Wagon-brake	318,550	May 26	2188	585	31	950
Dillon, William H., Glasgow, Ky. Pump	315,257	Apr. 7	385	95	31	70
Dillon, William S. F., Madeira, assignor of one-half to W. E. Arnold, Madisonville, Ohio. Clothes-rubbing pad	320,856	June 23	2587	685	31	1545
Dimmick, Jacob K., Newport, Ky. Apparatus for forming molds for casting metal pipe	317,101	May 5	224	57	31	564
Dimond, Charles H. (See House and Dimond.)						
Dimond, George H., assignor to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Sewing-machine	317,749	May 12	1096	288	31	731
Dingle, William, and W. Jenkins, Lake Mahopac; said Jenkins assignor to A. F. Wendt, New York, N. Y. Stuffing-box. (Reissue)	10,608	June 9	1338	352	31	1300
Dinsmore, Olonzo A. (See Scanlan and Dinsmore.)						
Dion, Léon O., assignor to J. M. Fiske, trustee, Natick, Mass. Shutter-worker	316,529	Apr. 28	2136	562	31	406
Dippry, Gideon S., Canton, Ohio. Eaves-trough hanger	319,466	June 9	673	181	31	1182
Dishrow, Hamilton T., *et al.* (See Brock, William E., assignor.)						
Dishrow, Herman G., *et al.* (See Brock, William E., assignor.)						
Dittman, Gustav H., Lake View, assignor to Adams & Westlake Manufacturing Company, Chicago, Ill. Decorating zinc	318,892	May 26	2621	.....	31	1027
Dittrick, John, Smith's Falls, Ontario, Canada. Fire-escape	319,888	June 9	1250	330	31	1264
Dix, Walter L. (See Parkhurst, Joseph P., assignor.)						
Dixon, Charles A., assignor to R. Whitehill, Newburg, N. Y. Valve mechanism	319,802	June 9	1130	300, 301	31	1264
Dixon, Maynard L., assignor to L. W. Fairchild, New York, N. Y. Combined match-box and cigar-cutter	317,980	May 19	1415	380	31	800
Dixon, Robert W., assignor to Springfield Manufacturing Company, Springfield, Ohio. Horse hay-rake	320,766	June 23	2473	655	31	1524
Doane, Andrew J., assignor of two-thirds to C. N. Arnold and T. E. Smith, Norwalk, Conn. Core-arbor	317,102	May 5	225	57	31	565
Doane, William H., Cincinnati, Ohio. Circular sawing machine	319,395	June 2	560	152	31	1154
Dobbins, David P., Buffalo, N. Y. Life-boat	316,881	Apr. 28	2632	686	31	496
Dobbins, David P., Buffalo, N. Y. Life-boat	316,882	Apr. 28	2633	686	31	497
Dobbins, Thomas C. (See Marbarger, William E., assignor.)						
Dobbs, Charles G., New York, N. Y. Buckle	319,889	June 9	1251	330	31	1264

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Dobson, Isaac F., *et al.* (See Lasker, John H., assignor.)						
Dodd, Alvin H., Hudson, N. Y. Shutter-worker	316,131	Apr. 21	1606	419	31	304
Dodd, Alvin H., Hudson, N. Y. Shutter-worker	319,205	June 2	325	87	31	1108
Dodd, John M., *et al.* (See Banta, William E., assignor.)						
Dodds, Elihu. (See Chandler and Dodds.)						
Dodge, Charles F., Pocahontas, Ill. Car-starter	315,258	Apr. 7	386	96	31	70
Dodge, Charles H., assignor of one-half to E. C. Boyle & Co., Augusta, Kans. Gage for tinner's shear-tables	318,883	May 26	2021	606	31	1027
Dodge, Ellis, Palmer, Mass. Machine for making insulator-clips	319,206	June 2	326	87	31	1109
Dodge, J. Wesley, Malden, Mass. Mechanical movement	318,456	May 26	2041	551	31	925
Dodge, Wallace H., Mishawaka, Ind. Device for transmitting power	320,544	June 23	2193	579	31	1470
Doebner, Oscar, Berlin, Prussia, and W. Von Miller, Munich, Bavaria, Germany. Formation of methoxy and ethoxy chinaldine	316,248	Apr. 21	1750	.....	31	331
Doebner, Oscar, Berlin, Prussia, and W. Von Miller, Munich, Bavaria, Germany. Formation of the hydrobase of chinaldine	316,249	Apr. 21	1752	.....	31	331
Doherty, John F. (See McDuff and Doherty.)						
Dolby, David H., Huntington, Ind. Wheel-barrow	321,283	June 30	3147	839	31	1654
Dole, Walter N., *et al.* (See Brigham, Perry, assignor.)						
Doll, Joseph H., Newark, N. J. Sleeve or collar button	319,467	June 9	674	181	31	1182
Dom, Alexander, Mount Healthy, assignor to Globe Files Company, Cincinnati, Ohio. Letter-file	316,951	May 5	28	8	31	528
Donahue, Thomas, and W. W. Cone, assignors to Eagle Lock Company, Terryville, Conn. Machine for punching lock-plates	315,749	Apr. 14	1079	283	31	202
Donaldson, George H., Westville Centre, N. Y. Folding coat-hanger	320,230	June 16	1720	457	31	1377
Donaldson, Robert B., Washington, D. C. Dental instrument	318,173	May 19	1666	447	31	847
Donohue, Patrick J., Chicago, Ill. Sash-fastener	317,321	May 5	535	136	31	621
Donovan, David H. (See Briggs and Locke, assignors.)						
Donovan, Dennis. (See O'Hara, Lewis, assignor.)						
Doolittle, Andrew J., Hamden, Conn. Shutter and door bolt	319,207	June 2	327	87	31	1109
Doormann, Cuno, Amity, Iowa. Cultivator	320,051	June 16	1480	{390 391}	31	1334
Dorman, Henry E., assignor of part to A. K. Roberts and J. L. Tuttle, Worcester, Mass. Sash-balance	321,284	June 30	3148	839	31	1654
Dormitzer, Anna, New York, N. Y. Window-cleaning chair	319,683	June 9	959	{254 255}	31	1234
Dorr, Warren, Gardiner, Me. Car-coupling	319,208	June 2	328	87	31	1109
Dorsey, Frederick, Hagerstown, Md. Machine for packing bran, &c.	320,052	June 16	1482	391	31	1334
Dorsey, Timothy J., and M. S. McQuarrie, Walla Walla, Wash. Ter. Spittoon	319,468	June 9	675	181	31	1182
Dosch, Peter. (See Studley and Dosch.)						
Dosh, Henry S., Baltimore, Md. Combined bed-bug trap and caster	317,322	May 5	536	136	31	621
Doubler, John W. H., Rockford, Ill. Bevel	316,341	Apr. 21	1669	404	31	357
Doubler, John W. H., Rockford, Ill. Chair	317,933	May 12	1341	1360	31	774
Doubler, John W. H., Rockford, assignor of one-half to M. Porter, Chicago, Ill. Lock	316,132	Apr. 21	1608	420	31	305
Donda, Frank C., New Castle, Pa. Injector	317,750	May 12	1098	288	31	731
Dougherty, Edward D. (See Bryant, George B., assignor.)						
Dougherty, Edward D. (See Bryant and Dougherty.)						
Dougherty, Edward D., and G. B. Bryant, Philadelphia, Pa. Cross-tie for railways	320,231	June 16	1721	457	31	1377
Dougherty, Michael W. (See Schmitt and Dougherty.)						
Dougherty, Tiberias, assignor of one-half to T. J. Andrews, Philadelphia, Pa. Shutter-fastener	319,209	June 2	328	88	31	1109
Doughton, Andrew, Jerseyville, Ill. Filtering-tank	320,545	June 23	2194	579	31	1470
Douglas, Archibald D. B., Seafield, Ardrossan, county of Ayr, Scotland. Safe	316,250	Apr. 21	1752	461	31	331
Douglas, James R. (See Hallett, William R., assignor.)						
Douglas, William O., Binghamton, N. Y. Bridge	315,259	Apr. 7	387	96, 97	31	70
Douglass, Anthony C., Washington, D. C. Operating compressed-air apparatus	315,013	Apr. 7	37	8	31	8
Doutney, George, Brooklyn, N. Y. Attachment for gas-cocks	319,396	June 2	561	152	31	1155
Dow, Alonzo, and L. H. Gorgas; said Dow assignor to H. Howard, Wooster, Ohio. Refrigerator-sideboard	316,608	Apr. 28	2237	589	31	495
Dow, Josiah, Lowell, Mass. Duplex crank piston-pump	318,968	June 2	51	13, 14	31	1057
Dowden, Ashford T., Prairie City, Iowa. Potato-digger	316,015	Apr. 21	1439	{375 376}	31	274
Dowell, Wesley, Hicksville, Ohio. Drilling-machine	320,053	June 16	1486	392	31	1335
Dowling, Patrick, *et al.* (See Kimball, Charles M., assignor.)						
Downey, William C., Springfield, Ohio. Grain-drill	315,260	Apr. 7	388	97	31	70
Downie, George, and A. F. Elsan, Marysville, Cal. Mill-stock feeder	320,054	June 16	1487	392	31	1335
Downie, James L., and J. E. Hardin, Allegheny, Pa. Line-chalker and plumb-bob	316,530	Apr. 28	2138	562	31	406
Downing, Jerome F., Erie, Pa. Conveyer apparatus	320,340	June 16	1896	499	31	1407
Downs, James W., Bowdon, Ga. Fertilizer and seed distributer	319,469	June 9	676	{181 182}	31	1182
Doyle, John, Hoboken, N. J., assignor to himself and C. C. Dusenbury, New York, N. Y. Rheostat	321,285	June 30	3149	840	31	1654
Doyle, Joseph P., Boston, and C. W. Stanley, Medford, Mass. Car-ventilator	321,346	June 30	3223	859	31	1669
Drake, Chester T. (See Alsin and Drake.)						
Drake, Edward G. (See Lindenberg and Drake.)						
Drake, B. Frank, *et al.* (See Cram, Elisha S., assignor.)						
Drake, B. Frank, *et al.* (See Cram and Covell, assignors.)						
Drake, Franklin J., Boston, Mass., assignor to Pope Manufacturing Company, Hartford, Conn. Velocipede-saddle	319,470	June 9	677	182	31	1183
Draper & Sons, George. (See Edmands, Artemas B., assignor.)						
Draper & Sons, George. (See Speakman, Thomas H., assignor.)						
Draper, William F., Hopedale, Mass. Bobbin-supporter for spooling-machines	315,482	Apr. 14	709	187	31	132
Draper, William F., Hopedale, Mass. Bearing for spindles	316,016	Apr. 21	1441	376	31	274
Draves, William A., Milwaukee, Wis. Drive-chain	317,103	May 5	227	57	31	565
Drawbaugh, George W., Eberly's Mill, Pa., assignor to People's Telephone Company, of New York. Telephone-transmitter	316,883	Apr. 28	2635	687	31	497
Drawbaugh, George W., Eberly's Mill, Pa., assignor to Peoples Telephone Company, of New York. Telephone-transmitter	317,445	May 5	706	177	31	651
Drayton, Benjamin A., New York, N. Y. Fan-holder	319,890	June 9	1252	330	31	1285
Drayton, Benjamin A., New York, N. Y. Bird-cage	319,891	June 9	1252	330	31	1285
Drewett, John W., New York, N. Y. Fountain attachment for pens	318,706	May 26	2378	634	31	985
Dreyer, Herman H., assignor of one half to J. H. H. Uthoff, Genoa, Ohio. Furnace-door	316,884	Apr. 28	2636	687	31	498
Dreyfus, J. R. (See Graves, John, assignor.)						
Driffill, Frederick, assignor to H. J. Bressles, Sterling, Ill., and G. A. Reynolds, Toledo, Ohio. Roller-skate	316,342	Apr. 21	1671	495	31	351

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Dronne, Constant, Port Richmond, N. Y. Weeding-tool	317,523	May 12	808	207	31	678
Dramm, Cornelius, and W. Wyker, assignors to said Dramm and J. M. Stewart, Jefferson City, Mo. Spring take-up for wax-thread sewing-machines	320,857	June 23	2587	685	31	1545
Drury, Edgar B. (See Goundry and McLeod, assignors.)						
Du Bois, Josiah S., Camden, N. J. Dynamo-electric machine	318,094	May 19	1563	419	31	826
Du Bois, N. Greenard, assignor of one-half to F. R. Malmey, Brooklyn, N. Y. Commode	319,892	June 9	1253	331	31	1285
Du Shane, James, South Bend, Ind. Secondary battery	320,232	June 16	1729	457	31	1377
Dubreuil, George A. (See Gornall, Richard, assignor.)						
Dudley, Russell G., Jersey City, N. J., assignor to Dudley Shutter Worker and Burglar Alarm Company, New York, N. Y. Shutter-worker	315,393	Apr. 7	560	145	31	101
Dudley, Russell G., Jersey City, N. J., assignor to Dudley Shutter Worker and Burglar Alarm Company of New York. Shutter-worker	318,421	May 19	1995	537	31	907
Dudley Shutter Worker and Burglar Alarm Company. (See Dudley, Russell G., assignor.)						
Dudley Shutter Worker and Burglar Alarm Company of New York. (See Dudley, Russell G., assignor.)						
Dugan, Michael, Brandt, Pa. Belt-tightener	318,707	May 26	2379	634	31	985
Duguay, George A., Montreal, Quebec, Canada. Box	316,447	Apr. 28	2039	534	31	387
Duke, John H., Jr., Grand Rapids, Mich. Paving sidewalks	320,858	June 23	2588	685	31	1546
Duke, Joseph, Glastonbury, county of Somerset, England, assignor to H. Symons. Composition for purifying gas	316,609	Apr. 28	2238	.....	31	425
Dukes, Aaron N. (See Hull, Nicholas A., assignor.)						
Dulmer, Granville S. (See Finley, Jonas J., assignor.)						
Dumler, Andrew P. (See Mulvaney, John, assignor.)						
Dumont, James H., New York, N. Y. Filter	316,885	Apr. 28	2637	687	31	498
Dunbar, John H., assignor to Clement & Dunbar, Philadelphia, Pa. Ice-cream freezer	317,446	May 5	707	178	31	651
Dunbar, Warren, Minneapolis, Minn. Automatic pressure-regulator for air-brakes	316,017	Apr. 21	1442	376	31	274
Duncan, James, assignor to himself, W. W. Bostwick, and F. C. Hay, Coshocton, Ohio. Bench-plane	315,014	Apr. 7	38	8	31	9
Duncan, John P., and E. D. Pillow, Helena, Ark. Poison-distributer	321,011	June 30	2801	745	31	1591
Duncan, Joseph M. (See Hayes, Martin P., assignor.)	321,347	June 30	3223	859	31	1669
Duncan, Joseph M., Warsaw, N. Y. Manufacture of salt	320,859	June 23	2589	685	31	1546
Dundas, Charles D., North Auburn, Nebr. Bridge	317,751	May 12	1099	{288 289}	31	731
Dunfee, James W., assignor of one-half to J. E. Mertz, Roundhead, Ohio. Rotary engine	318,095	May 19	1564	419	31	827
Dungan, William H., Rock Lane, Ind. Harrow	320,916	June 30	2675	710	31	1568
Dunkin, John M. (See Fletcher, Dunkin, Hanhart, and Trautmann.)						
Dunlap, John S., Peoria, Ill. Stool-pedestal	319,567	June 9	808	215	31	1206
Dunn, George, Middletown, Ohio, assignor to himself and Rice, Barton & Fales Machine and Iron Company, Worcester, Mass. Felt-cleaning apparatus	315,394	Apr. 7	561	145	31	101
Dunn, J. Paris, New York, N. Y. Signaling apparatus for railways	315,918	Apr. 14	1312	{341 342}	31	243
Dunn, John, Jacksonville, Fla., assignor to himself and A. A. Howlett, Syracuse, N. Y. Dumping-scow	315,015	Apr. 7	40	8	31	9
Dunn, William, assignor to C. B. McQuesten, New York, N. Y. Car-coupling	317,934	May 12	1342	361	31	778
Dunn, William W., Fort Worth, Tex. Water-wheel	316,448	Apr. 28	2041	535	31	387
Dunning, Robert A., Bath, Me. Box-loop	318,708	May 26	2379	635	31	985
Dunning, Samuel H., Paterson, N. J. Exhaust mechanism for locomotives	321,348	June 30	3226	{859 860}	31	1670
Dunshee, Carlos E., Chicago, Ill. Lumber-pile	318,709	May 26	2380	635	31	986
Dunwoody, Grant, Peoria, Iowa. Washing-machine	315,395	Apr. 7	565	146	31	102
Dupont, Philippe D., Summerville, Vt. Fork-pointing machine	315,396	Apr. 7	567	146	31	102
Dupont, Philippe D., Summerville, Vt. Fork-prong-rolling machine	315,919	Apr. 14	1314	342	31	244
Durand, David L., Derby, assignor to Osborne & Cheesman Company, Ansonia, Conn. Lamp-burner						
Durgin, Henry J. (See Copeland and Durgin.)						
Durkee, George B. (See Golding and Durkee.)						
Durkee, George B., assignor to W. Haight, Chicago, Ill. Machine for covering hose with wire	318,457	May 26	2042	552	31	925
Durosa, Patrick F., and G. Sutton, Long Island City, N. Y. Car-coupling	317,981	May 19	1416	380	31	800
Durrin, Warren A. (Jersey, Wis. Saw-mill dog	315,133	Apr. 7	191	47	31	35
Duryea, Wright, Brooklyn, assignor to Glen Cove Manufacturing Company, Glen Cove, N. Y. Starch-depositing plane	320,430	June 16	2038	535	31	1433
Duryea, Wright, Brooklyn, assignor to Glen Cove Manufacturing Company, Glen Cove, N. N. Starch-depositing plane	320,431	June 16	2039	535	31	1433
Dusenbury, C. Coles. (See Doyle, John, assignor.)						
Dusy, Frank, and A. McCall, Selma, Cal. Dirt-scraper	320,055	June 16	1487	{392 393}	31	1335
Dutcher Temple Company. (See French and Gifford, assignors.)						
Duxbury, John W., *et al.* (See Wright, E. Howard, assignor.)						
Duxbury, Yates, Jr., Over Darwen, county of Lancaster, assignor to A. P. Dickinson, Blackburn, England. Winding-on motion for machines for taping, slashing paper, &c	316,343	Apr. 21	1872	495	31	351
Dwight, William M., Detroit, Mich. Exhaust-fan	318,884	May 26	2622	696	31	1028
Dwyer, Daniel, Marshall, Tex. Life-boat	320,341	June 16	1898	500	31	1407
Dye, Charles H., Illinois Bend, Tex. Cotton-picker's sack	316,344	Apr. 21	1674	496	31	352
Dye, Henry B., Marquette, Mich. Bar or plate for elliptic springs	315,920	Apr. 14	1313	342	31	244
Dye, Henry B., Marquette, Mich. Vehicle-spring	315,921	Apr. 14	1313	342	31	244
Dyer, Edward F., Alvarado, Cal. Manufacture of beet-sugar	319,077	June 2	179	.....	31	1061
Dyer, Henry C., St. Louis, Mo. Machine for sorting feathers	320,342	June 16	1899	500	31	1406
Dyer, Richard N., *et al.* (See Stieringer and Vail, assignors.)						
Dysart, John T., Shippensville, Pa. Oxyhydrocarbon heat and fuel economizing apparatus	315,489	Apr. 14	710	187	31	132
Dysinger, Jesse H., Flushing, Mich. Combined feed-rack and stall	319,568	June 9	809	216	31	1206
Eager, James H. L. (See Streett, James R., assignor.)						
Eagle Lock Company. (See Donahue and Cone, assignors.)						
Eagle Pencil Company. (See Bramberg, Charles, assignor.)						
Eagle Pencil Company. (See Kraus, Samuel, assignor.)						
Eagle Tube Company. (See Stephens and Ritchie, assignors.)						
Eagleston, Joseph and W., assignors of one-third to W. M. Sells, Franklin County, Ohio. Belt-hanging device	319,803	June 9	1135	301	31	1965
Eagleston, William. (See Eagleston, Joseph and W.)						
Eames, Charles J., assignor to Carbon Iron Company, New York, N. Y. Making wrought-iron direct from iron ores	318,551	May 26	2189	.....	31	950
Eames, Charles J., assignor to Carbon Iron Company, New York, N. Y. Manufacturing iron sponge, wrought and steely irons directly from the ore	318,552	May 26	2190	.....	31	950
Eames, Charles J., assignor to Carbon Iron Company, New York, N. Y. Manufacturing sponge and wrought-iron directly from the ore	318,553	May 26	2192	.....	31	950

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Eames, Charles J., assignor to Carbon Iron Company, New York, N. Y. Hearth and lining of graphite for metallurgic furnaces	318,554	May 26	2193	586	31	950
Eames, Charles J., assignor to Carbon Iron Company, New York, N. Y. Deoxidizing iron ore	318,605	May 26	2248	.....	31	961
Eames, Charles J., assignor to Carbon Iron Company, New York, N. Y. Reducing iron ore	318,606	May 26	2249	.....	31	961
Eames, Charles J., assignor to Carbon Iron Company, New York, N. Y. Manufacturing wrought and steely iron direct from the ore	318,607	May 26	2250	.....	31	961
Eames, Charles J., assignor to Carbon Iron Company, New York, N. Y. Furnace for the manufacture of sponge, wrought iron, and steely iron direct from the ore	318,608	May 26	2252	602	31	961
Earl, Ebenezar J., Charlotte, Mich., assignor of one-half to O. N. Lumbert, Elkhart, Ind. Combined truck and bag-holder	321,286	June 30	3150	840	31	1655
Earle Manufacturing Company, T. K. (See Arnold, Oliver, assignor.)						
Easley, Levi, Whitt, Tex. Cotton and corn planter	316,018	Apr. 21	1444	377	31	275
Eason, George L., assignor of one-half to R. I. Scott, Des Moines, Iowa. Harness attachment	320,546	June 23	2195	580	31	1470
Eastman Dry Plate and Film Company. (See Bannister, Willis A. and L. H., assignors.)						
Eastman Dry Plate and Film Company. (See Eastman and Walker, assignors.)						
Eastman Dry Plate and Film Company. (See Walker and Eastman, assignors.)						
Eastman, Duncan K., Charlestown, N. H. Car-coupling	318,969	June 2	55	14	31	1058
Eastman, George. (See Walker and Eastman.)						
Eastman, George, and W. H. Walker, assignors, by means assignments, to Eastman Dry Plate and Film Company, Rochester, N. Y. Photographic-film holder	316,952	May 5	30	9	31	528
Easton, David T. (See Akerly and Easton.)						
Eastwick, Edward P., New York, N. Y. Top plate for bone-black kilns	316,610	Apr. 28	2239	590	31	425
Eastwick, Edward P., New York, N. Y. Bone-black drier	320,642	June 23	2322	{613 {614	31	1493
Eberhard, Ell L., *et al.* (See Sprinkle, George E., assignor.)						
Eberhardt, Henry E. (See Eberhardt, Ulrich and H. E.)						
Eberhardt, Ulrich and H. E., Newark, N. J. Drilling-machine	321,196	June 30	3041	806	31	1634
Eberhart, Lloyd, and I. D. Stevens, Joliet, Ill. Broadcast seed-sower	316,019	Apr. 21	1445	377	31	275
Eberle, Josef, Vienna, Austria-Hungary. Preparation of lithographic printing-surfaces	316,251	Apr. 21	1753	.....	31	331
Eccleston, Noyes B., Oxford, N. Y. Car-coupling	320,767	June 23	2475	655	31	1525
Eckersley, James. (See Davies and Eckersley.)						
Eckles, Myra L., Northfield, Minn. Riding-saddle	320,118	June 16	1576	416	31	1350
Eddy, Walden, Greenwich, N. Y. Potato-digger	318,236	May 19	1749	467	31	862
Edge, William C., Newark, N. J. Scarf-pin, &c	316,020	Apr. 21	1446	377	31	275
Edgerton, Edward E., Chicago, Ill. Anti-friction bearing for roller-skates	318,237	May 19	1750	468	31	862
Edison Electric Light Company. (See Andrews, William S., assignor.)						
Edison Electric Light Company. (See Edison, Thomas A., assignor.)						
Edison, Thomas A., Menlo Park, N. J., assignor to Edison Electric Light Company, New York, N. Y. Incandescent electric lamp	317,631	May 12	945	242	31	792
Edison, Thomas A., Menlo Park, N. J., assignor to Edison Electric Light Company, New York, N. Y. Incandescent electric lamp	317,632	May 12	946	243	31	703
Edison, Thomas A., Menlo Park, N. J., assignor to Edison Electric Light Company, New York, N. Y. Incandescent electric lamp	317,633	May 12	947	243	31	703
Edmands, Artemas B., assignor to G. Draper & Sons, Milford, Mass. Spinning-machine	317,323	May 5	536	{136 {137	31	622
Edmonson, Thomas J., *et al.* (See Massey, John W., assignor.)						
Edmundson, Joseph E., deceased, Athens, Ohio; M. Edmundson, administratrix. Dentifrice	315,750	Apr. 14	1020	.....	31	203
Edmundson, Margaret, administratrix. (See Edmundson, Joseph E.)						
Edson, Jacob, Boston, Mass. Spring vibrating chair	316,021	Apr. 21	1447	377	31	275
Edwards, Eaton A., Fort Meade, Dak. Ter. Anemometer	315,961	Apr. 7	390	97	31	71
Edwards, Madison, *et al.* (See Massey, John W., assignor.)						
Edwards, S. L. (See Morris, James K., assignor.)						
Edwards, William R., and F. J. Schultz, Milwaukee, Wis. Valve for steam-boilers	321,197	June 30	3046	{806 {807	31	1635
Edy, James N., *et al.* (See Smith, Thomas, assignor.)						
Edy, William D., *et al.* (See Smith, Thomas, assignor.)						
Egan, William, Purdon, Tex. Umbrella	318,710	May 26	2381	635	31	986
Ege, Alexander H. (See Richardson, John T., assignor.)						
Egge, Frederick, Bridgeport, Conn. Permutation-padlock	316,345	Apr. 21	1874	496	31	352
Eggermann, Godfrey S., Toledo, Ohio. Trunk	318,174	May 19	1667	447	31	847
Eggert, William, trustee. (See Hammerstein, Oscar, assignor.)						
Eggert, William, trustee. (See Williams, John R., assignor.)						
Erner, Frederic, St. Louis, Mo. Furnace for manufacturing illuminating-gas	315,751	Apr. 14	1081	284	31	203
Ehbets, Carl J., assignor to Colts Patent Fire-Arms Manufacturing Company, Hartford, Conn. Magazine fire-arm	316,761	Apr. 28	2469	644	31	467
Ehbets, Carl J., assignor to Colts Patent Fire Arms Manufacturing Company, Hartford, Conn. Magazine fire-arm	318,711	May 26	2382	636	31	986
Ehm, Henry, Brooklyn, N. Y. Bed-lounge	319,210	June 2	329	88	31	1109
Eickemeyer, Rudolph, Yonkers, N. Y. Hat-block chuck	317,104	May 5	228	57	31	565
Eickemeyer, Rudolph, Yonkers, N. Y. Machine for planing the folded or curled edges of hat-brims	317,324	May 5	538	{137 {138	31	622
Eickershoff, John H. (See Krieger and Eickershoff.)						
Eidelbach, Andrew C., Flatonia, Tex. Saw-sharpening machine	318,363	May 19	1921	{518 {519	31	894
Einfeldt, Emil, Davenport, Iowa. Key and key-seat	319,078	June 2	180	48	31	1081
Eisan, Albert F. (See Downie and Eisan.)						
Eisner, Joseph, Baltimore, Md. Drawers, overalls, and pantaloons	317,982	May 19	1417	380	31	800
Eisner, Frederick, New York, N. Y. Thermometer	320,119	June 16	1577	416	31	1350
Ekhard, Emil. (See Bormann and Ekhard.)						
Ekholm, Frans O., Chicago, Ill. Gun-carriage	318,238	May 19	1751	468	31	862
Ekholm, Frans O., Chicago, Ill. Gun-carriage	318,239	May 19	1752	468	31	863
Ela, Jacob, Indianapolis, Ind. Spark-arrester	316,022	Apr. 21	1448	378	31	276
Eldredge, Lloyd O. (See Macomber, Sanford W., assignor.)						
Electric Automatic Instructor Company. (See Gates, Waldo L., assignor.)						
Electrical Accumulator Company. (See Shaw, William A., assignor.)						
Electro Dynamic Light Company of New York. (See Sawyer and Man, assignors.)						
Ellacott, Joseph P. (See Lyman, Nathan R., assignor.)						
Ellinwood, Augustus E., assignor of two-thirds to L. Miller and H. Young, Akron, Ohio. Chuck	318,970	June 2	56	14	31	1058
Elliot, Charles, San Francisco, Cal. Purifying water for boilers	317,983	May 19	1418	380	31	800
Elliot, Henry, St. Louis, Mo. Railway-frog	318,240	May 19	1753	469	31	863

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drf.	Official Gazette. Vol.	Official Gazette. Page.
Elliott, Lewis, assignor to L. Candee & Co., New Haven, Conn. Roll for making india-rubber soling	315,202	Apr. 7	391	97	31	71
Elliott, Thomas, Hassard, Mo. Adjustable fruit-picking stand	317,325	May 5	543	138	31	622
Elliott, William T., Meredith, assignor to himself and A. Thompson, Warner, N. H. Apple paring and slicing machine	315,752	Apr. 14	10-2	284	31	203
Elliott, William W., Galveston, Tex. Swing	320,492	June 16	2040	535	31	1433
Ellis, Charles S. (See Reichardt and Ellis.)						
Ellis, George A., assignor to H. and G. Heywood, A. M. Greenwood, and A. Morrill, Gardner, Mass. Parasol for children's carriages	315,605	Apr. 14	876	230	31	163
Ellis, George A., and E. L. Taft, assignors to H. and G. Heywood, A. M. Greenwood, and A. Morrill, Gardner, Mass. Standard for children's carriages	319,569	June 9	811	216	31	1206
Ellis, James W., assignor of two-thirds to J. W. Parker, Brooklyn, and H. D. Harris, New York, N. Y. Composition of matter for the preservation of paper or vegetable tubing used for the insulation of telegraph-wires	319,079	June 2	181	48	31	1081
Ellis, John F., *et al.* (See Bouvier, Louis P., assignor.)						
Ellis, Larkin B., Vernon, Mich. Steam-engine	320,233	June 16	1723	458	31	1377
Ellis, William C., Worcester, Mass. Piano-action	316,023	Apr. 21	1449	378	31	276
Ellmaker, Isaac N., assignor of one-half to J. Conlon, Sterling, Ill. Sheet-metal pail	319,080	June 2	182	48	31	1082
Ellwood, Everett C., Green's Farms, Conn. Two-row seed-sower	319,211	June 2	330	88, 89	31	1109
Elmer, Jacob, Biloxi, Miss. Compound spiling for wharves and bridges	319,471	June 9	678	182	31	1183
Elrod, Edward B., Flora, Ill. Combined foot-warmer and heater	316,252	Apr. 21	1754	461	31	331
Elson, Jacob, assignor of one-half to H. B. Gross, Philadelphia, Pa. Suspender-clasp	319,212	June 2	334	89	31	1110
Ely, E. A., *et al.* (See Chamberlain, Marcus W., assignor.)						
Ely, F. S., *et al.* (See Chamberlain, Marcus W., assignor.)						
Ely, P. A., *et al.* (See Chamberlain, Marcus W., assignor.)						
Emerson, Charles W., Boston, Mass. Hanging door	321,198	June 30	3047	807	31	1635
Emerson, Edward R., New York, N. Y. Demijohn	321,012	June 30	2802	745	31	1501
Emerson, Francis, J. J. and J. L. Faires, and J. R. Cummins, McKinney, Tex. Plow	318,096	May 19	1566	420	31	827
Emerson, James E., Beaver Falls, Pa. Machine for milling recesses in saw-plates	315,753	Apr. 14	1085	{2-4 {285	31	203
Emerson, Talcott & Co. (See Jones, James H., assignor.)						
Emery, George T. (See Barlow and Emery.)						
Emery, George T., *et al.* (See Barlow, Charles O., assignor.)						
Emery, Isaiah S., Rochester, N. Y. Pocket-book	316,346	Apr. 21	1875	496	31	352
Emery, William H. (See Scott, Charles A., assignor.)						
Emmett, William, Logansport, Ind. Feathering paddle-wheel	315,263	Apr. 7	392	98	31	71
Emmitt, David M., Columbia, Mo. Fence	315,134	Apr. 7	193	47	31	35
Empire Wringer Company. (See White, Henry J., assignor.)						
Empress Embroiderer Company. (See Chilton, Franklin H., assignor.)						
Enas, Joseph D., Napa City, Cal. Beeswax-extractor	321,090	June 30	2911	774	31	1610
Engel, Johannes, Newark, N. J. Fan attachment for rocking-chairs	316,762	Apr. 28	2471	644	31	467
Engel, Mortefiore N., *et al.* (See Engel, Samuel, assignor.)						
Engel, Myrtilla E., *et al.* (See Engel, Samuel, assignor.)						
Engel, Samuel, assignor to M. E. and M. N. Engel, Chicago, Ill., and F. Seixas, South Bend, Ind. Conductor's ticket-case	317,447	May 5	710	{178 {179	31	651
Engelmann, Anton, Hanover, Prussia, Germany. Coupling for hemp and wire ropes	315,490	Apr. 14	711	178	31	133
England, George W., Merrimac, Mass. Hollow auger	317,524	May 12	809	208	31	678
Engle, Andrew, Metz, Iowa. Furnace for night-soil	315,397	Apr. 7	569	147	31	102
Engle, Stephen D., Hazelton, Pa. Magazine spring-gun	320,643	June 23	2324	614	31	1494
English, Anaido M., Boston, Mass. Button-setting instrument	319,213	June 2	335	90	31	1110
English, James G. (See Ludington, Frank J., assignor.)						
Ennis, Henry J. (See Waltemeyer and Ennis.)						
Entrekin, John C. (See Hudson and Barry, assignors.)						
Eppel, Gustav A., Okawville, Ill. Washing-machine	321,349	June 30	3228	860	31	1670
Eppler, Andrew, Jr., Boston, Mass., assignor to Boot and Shoe Sole Laying Company, Portland, Me. Sole-laying machine	315,922	Apr. 14	1316	343	31	244
Eppler, Andrew, Jr., Boston, Mass., assignor to Boot and Shoe Sole Laying Company, Portland, Me. Sole-laying machine	315,923	Apr. 14	1318	343	31	245
Eppler, Andrew, Jr., Boston, Mass., assignor to Boot and Shoe Sole Laying Company, Portland, Me. Sole-laying machine	315,924	Apr. 14	1320	343	31	245
Equitable Electric Company. (See Holcombe, Alfred G., assignor.)						
Equitable Electric Company. (See Pendleton, John M., assignor.)						
Erie City Iron Works. (See Moran, William, assignor.)						
Erie Embalming Company. (See Baker, Lovett, and Van Etten, assignors.)						
Ernst, Ferdinand L. A., New York, N. Y. Leather trimming	316,024	Apr. 21	1452	378	31	276
Ernst, William M., New York, N. Y. Disinfecting water-closets	317,634	May 12	948	243	31	703
Ervien, John A., Shoemakertown, Pa. Fork for digging vegetables	316,347	Apr. 21	1876	496	31	352
Esch, John, Milwaukee, Wis. Truck	320,860	June 23	2589	646	31	1546
Escourrou, André B., Monx, France. Injecting device for plants	318,609	May 26	2253	602	31	961
Eshelman, Benjamin, *et al.* (See Wallick, Marion, assignor.)						
Espenschied, Charles, Hastings, Minn. Device for leveling and aligning shafts	318,885	May 26	2624	696	31	1028
Espenschied, Charles, Hastings, Minn. Device for leveling and aligning shafting	318,886	May 26	2625	696	31	1028
Espy, Josiah, and D. N. Tarbox, Cedarville, Ohio. Trace-fastening	318,422	May 19	1906	537	31	907
Essex, James, Lancaster, Mo. Weather-boarding gage	318,555	May 26	2194	586	31	950
Essig, Joseph, Larwill, Ind. Belt-fastener	317,984	May 19	1420	381	31	801
Essig, Ozia A., Canton, Ohio. Plow-clevis	319,966	June 16	1368	359	31	1313
Estabrook, Joseph M. (See Higgins, John A., assignor.)						
Ethridge, Martin V. B., assignor of two-thirds to H. E. Waite, Boston, Mass., and J. Swann, New York, N. Y. Dial for time-pieces	319,804	June 9	1136	301	31	1265
Euinton, Matthew, West Upton, Mass. Combined level, square, and bevel	315,264	Apr. 7	393	98	31	72
Eureka Manufacturing Company. (See Baird, Samuel J., assignor.)						
Eureka Spindle Company. (See Chapman, Charles H., assignor.)						
Eustis, John P., Newark, N. J. Holder for vessels	318,887	May 26	2626	697	31	1029
Euston, Alexander, St. Louis, Mo. Feeder for shot-separators	319,684	June 9	960	255	31	1234
Evans, Austin C., Springfield, Ohio. Fertilizing attachment for seed-planters	319,893	June 9	1254	331	31	1285
Evans, Austin C., Springfield, Ohio. Harrow	319,894	June 9	1256	332	31	1226
Evans, Charles H., assignor of one-half to D. H. Craig, agent, New York, N. Y. Absorption ice-machine	318,971	June 2	57	14, 15	31	1058
Evans, Frederic H., Brooklyn, N. Y. Expansion-fastening for screws and bolts	317,448	May 5	712	179	31	652
Evans, James E., Cincinnati, Ohio. Anti-friction bearing	316,348	Apr. 21	1877	497	31	352
Evans, James E., Cincinnati, Ohio. Anti-friction bearing for roller-skates	316,431	Apr. 21	2001	526	31	374
Evans, Lemuel E., East Orange, N. J. Traveling-box for dogs	315,925	Apr. 14	1321	344	31	245
Evans, Thomas W., Evergreen, Tex. Calf-weaner	320,656	June 16	1489	393	31	1335
Evarts, James M., and J. H. Greenleaf, New Haven, Conn. Machine for coiling pipe	318,097	May 19	1566	420	31	827

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Evarts, John A., assignor to Bradley & Hubbard Manufacturing Company, Meriden, Conn. Suspension-pulley	319,214	June 2	337	90	31	1110
Even, Louis, Jeffriesburg, Mo. Plow attachment	318,241	May 19	1755	469	31	863
Everett, Francis A. (See Fisk, James, assignor.)						
Everingham, Francis M., East Onondaga, N. Y. Cultivator	316,886	Apr. 28	2638	687, 688	31	498
Evesson, Henry, Hempstead, N. Y. Chicken-house	319,081	June 2	183	49	31	1082
Evesson, Martin V. B., Hoboken, N. J. Base for rocking-chairs, &c	319,397	June 2	562	153	31	1155
Ewart Manufacturing Company. (See Howe, Eugene L., assignor.)						
Ewers, Francis M., Edison, Ohio. Wire-stretcher	320,433	June 16	2041	536	31	1433
Excelsior Electric Apparatus Company. (See Hald, Alfred, assignor.)						
Expanded Metal Company. (See Golding and Durkee, assignors.)						
Eyre, Thomas T., Carlisle, N. Mex. Ter. Centrifugal ore-filter	315,392	Apr. 7	570	147	31	103
Eyster, William N., Canton, Ohio. Bicycle	320,917	June 30	2676	711	31	1568
Ezell, Francis L., Nashville, Tenn. Fifth-wheel	315,926	Apr. 14	1322	344	31	245
Faber, Eberhard. (See Mussinan, Oscar, Jr., assignor.)						
Fagan, Thomas B., Van Wert, Ohio. Stock-holder	316,763	Apr. 28	2471	645	31	467
Fague, Solomon J., Washington, D. C. Support for underground electric lines	317,326	May 5	545	139	31	623
Fahlberg, Constantin, New York, N. Y., assignor of one-half to A. List, Leipsic, Germany. Manufacture of saccharine compounds	319,082	June 2	183	.....	31	1082
Faija, Henry, Westminster, county of Middlesex, England. Machine for testing cement	317,752	May 12	1100	289	31	732
Fairbanks, Crawford M., Lincoln, R. I. Cutting files	316,764	Apr. 28	2472	645	31	467
Fairbanks, Henry. (See Magoon, Charles H., assignor.)						
Fairbanks, Henry W. (See Beckwith, Frank W., assignor.)						
Fairbanks, Ira E. (See Porter, Stephen, assignor.)						
Fairchild, Le Roy W. (See Collard, Richard M., assignor.)						
Fairchild, Leroy W. (See Dixon, Maynard L., assignor.)						
Faires, Jonathan L. (See Emerson, Faires, and Cummins.)						
Faires, Joseph J. (See Emerson, Faires, and Cummins.)						
Fales, Edward, St. Louis, Mo. Window and door screen	319,685	June 9	961	255	31	1234
Fales, Edward A., Indianapolis, Ind. Making ammonium sulphate	318,972	June 2	61	15	31	1059
Fall, Louis, Lima, Ohio. Sewer-trap	320,918	June 30	2676	711	31	1568
Falvey, Cornelius, Norwich, Conn. Loom-shuttle	320,919	June 30	2677	711	31	1568
Fanning, Franklin, St. Joseph, Mo. Windmill	318,175	May 19	1668	447	31	847
Faries, Robert, Decatur, Ill. Machine for forming interlocking eyes	321,013	June 30	2803	745	31	1591
Farmer, Henry A. (See Fox, George E., assignor.)						
Farmer, James, Salford, county of Lancaster, England, and A. Lalance, Mulhouse, Germany. Apparatus for washing, bleaching, and dyeing fabrics	318,888	May 26	2027	697	31	1029
Farmer, Luther C., Minneapolis, Minn. Type-writing machine	317,753	May 12	1101	289, 290	31	732
Farmer, Moses G., New York, N. Y. Apparatus for refining copper by electrolysis	315,265	Apr. 7	394	98, 99	31	72
Farmer, Moses G., New York, N. Y. Apparatus of obtaining aluminium	315,266	Apr. 7	396	99	31	72
Farmer, Moses G., Newport, R. I. Telephone-transmitter	316,133	Apr. 21	1609	420, 421	31	305
Farmer, Moses G., Newport, R. I. Metallic shingle	316,134	Apr. 21	1611	421	31	305
Farmer, Moses G., New York, N. Y. Electric-arc lamp	316,765	Apr. 28	2473	645	31	467
Farmer, Moses G., New York, N. Y. Medical rubbing apparatus	317,327	May 5	547	139	31	623
Farmer, Moses G., New York, N. Y. Movement-cure apparatus	317,328	May 5	548	139	31	623
Farmer, Moses G., New York, N. Y. Exercising-machine	319,686	June 9	962	255	31	1235
Farmer, Moses G., New York, N. Y. Electro-depositing copper	319,687	June 9	963	.....	31	1235
Farmer, Moses G., New York, N. Y. Regulator for dynamo-electric machines	320,234	June 16	1725	458	31	1378
Farmers Friend Manufacturing Company. (See Rinnstetler, Michael and A., assignors.)						
Farr, Edward W. (See Farr and Seward, assignors.)						
Farr, George, and A. B. Seward, Cincinnati, Ohio; said Seward assignor to E. W. Farr, Peoria, Ill. Smoke-preventing furnace	317,935	May 12	1343	361	31	779
Farr, Hiram G., Boston, Mass. Vaginal dilator	316,611	Apr. 28	2240	590	31	425
Farr, Hiram G., Boston, Mass. Self-lubricating axle	316,612	Apr. 28	2241	590	31	425
Farr, Hiram G., Boston, Mass. Surcingle	316,613	Apr. 28	2241	590	31	425
Farr, Hiram G., Boston, Mass. Truss-pad	321,091	June 30	2913	774	31	1611
Farra, Lorenzo D., assignor of one-half to H. F. McCann, Philadelphia, Pa. Mechanical movement	321,199	June 30	3048	807	31	1635
Farrand, Florence A., *et al.* (See Farrand, Nathaniel W., assignor.)						
Farrand, Nathaniel W., assignor to F. A. Farrand, Westfield, and E. U. Clark, East Hamburg, N. Y. Screw-driver	320,920	June 30	2678	711	31	1568
Farrar, Benjamin F., San Francisco, Cal. Folding bed	319,083	June 2	186	49	31	1082
Farris, John, Hartford, Conn. Stringed musical instrument	315,135	Apr. 7	194	48	31	35
Fath, Leonard G., *et al.* (See Coe, Charles E., assignor.)						
Fawkes, L. R. (See Adair, Richard H., assignor.)						
Fay, Charles P., Springfield, Mass. Spring-calipers	319,215	June 2	338	90	31	1111
Fay, Norman H., and W. Scott, Dexter, Me. Bolt-dog for lathes	319,472	June 9	679	183	31	1183
Fearey, Jabez. (See Hoffmann, Edmond H., assignor.)						
Fecher, Lorenes, Jr., and W. F. Olin, assignors to W. Deering, Chicago, Ill. Grain-binder	315,754	Apr. 14	1087	285	31	204
Feiss, Julius, Cleveland, Ohio. Combination-pocket for pantaloons	319,570	June 9	812	216	31	1207
Feister, Henry P., Philadelphia, Pa. Paper-cutting machine	319,473	June 9	680	183	31	1183
Feldhaus, Henry B. (See Fink, John M., assignor.)						
Fell, Thomas M., Brooklyn, assignor to United States Steam Specialty Company, New York, N. Y. Relief-valve for steam-engine cylinders	319,571	June 9	813	216	31	1207
Fellows, Alfred, Clinton, Iowa. Spring-back for vehicle-seats	316,449	Apr. 28	2041	535	31	387
Fennell, Joseph, Cynthiana, Ky. Horse-boot	317,525	May 12	869	208	31	678
Fennell, Martin, assignor of one half to J. McNamara, Skaneattles, N. Y. Car-coupling	321,014	June 30	2805	746	31	1592
Fenner, George P., New London, Conn. Sheet-flier for printing-presses	317,329	May 5	549	140	31	623
Fenner, George P., New London, Conn. Dampening apparatus for lithographic presses	318,364	May 19	1924	319	31	894
Fenton, John H., Chicago, Ill. Elastic horse-boot	317,526	May 12	810	208	31	678
Fenton, John H., Chicago, Ill. Animal-guard	318,973	June 2	62	16	31	1059
Fenton, William T., New York, and D. S. B. Bennet, Brooklyn, N. Y. Apparatus for combining hot air and steam for heating purposes and power	320,768	June 23	2476	656	31	1525
Ferensen, Louis W. (See Butts, V. Winslow, assignor.)						
Ferguson, Robert S., Waukegan, W. Schumacher, and W. Tubman, Chicago, Ill. Compound for insulating electric wires	320,921	June 30	2679	.....	31	1568
Ferguson, Sylvester E., assignor to himself and A. McCartney, Eureka Springs, Ark. Combined bee swarmer and hiver	316,349	Apr. 21	1877	497	31	353
Ferguson, Thomas. (See Coffin and Ferguson.)						
Ferguson, William R., Marseilles, Ill. Road-grading machine	319,474	June 9	682	183, 184	31	1184

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Ferrall, Thomas R., Boston, Mass., assignor to Bagnall & Loud Block Company. Anti-frictional bearing	321,350	June 30	3229	860	31	1670
Ferrall, Thomas R., Boston, Mass., assignor to Bagnall & Loud Block Company. Anti-frictional bearing	321,351	June 30	3230	861	31	1670
Ferrier, Francis, Vallejo, Cal. Bolting-reel	319,572	June 9	815	217	31	1207
Ferris, Henry L. (See Hunt, Ferris, and Helm.)						
Fetherolf, Beneville L., Tamaqua, Pa. Gripping device for cable railways	318,098	May 19	1568	420	31	827
Fettera, David, Baltimore, Md. Glass-furnace	319,688	June 9	964	256	31	1235
Feyen, Thomas, Dubuque, Iowa. Double-tree protector	317,105	May 5	229	58	31	565
Feyh, Henry, and J. L. Murphy, assignors to L. Power & Co., Philadelphia, Pa. Wood-planing machine	320,789	June 23	2477	656	31	1525
Fielding, John. (See Tweddell, Platt, and Fielding.)						
Fillmann, Emil, Chicago, Ill. Molding	320,644	June 23	2325	614	31	1494
Fine, James F., Lake, Wash. Ter. Water-carrier	315,267	Apr. 7	397	99	31	72
Fink, John B., assignor of one-third to T. R. Diehl, Clanssville, Pa. Sad-iron	317,936	May 12	1345	362	31	779
Fink, John M., assignor of one-half to H. B. Feldhaus, Louisville, Ky. Riding-saddle	318,610	May 26	2255	602	31	962
Finkle, Joseph. (See Jennings, Isaac B., assignor.)						
Finley, Jonas J., assignor of one-half to G. S. Duliner, New Carlisle, Ind. Burial-case	320,861	June 23	2590	686	31	1546
Fischer, Adolph, Ravenswood, N. Y. Tap-hole bush	320,862	June 23	2591	686	31	1546
Fischer, Albert, *et al.* (See Ackermann, George, assignor.)						
Fischer, Charles H., assignor to Archer & Pancoast Manufacturing Company, New York, N. Y. Insulating pipe-union	320,645	June 23	2326	615	31	1494
Fischer, John A., Covington, Ky. Saw-set	318,712	May 26	2385	636	31	986
Fischer, Philipp, New York, N. Y. Boot or shoe	321,200	June 30	3048	808	31	1636
Fischer, Wilhelm, Leipsic, Saxony, Germany. Piano-action	321,201	June 30	3050	808	31	1636
Fish, H. Clay, Brooklyn, N. Y. Stewing-kettle or boiler	318,365	May 19	1925	519	31	895
Fish, Warren L., Newark, N. J Fly-wheel clutch	319,968	June 16	1370	360	31	1314
Fish, William, Pleasant Hill, Ohio. Whip	319,689	June 9	965	256	31	1235
Fish, William H. (See Terrell and Fish.)						
Fisher, Alfred A., and A. Hart, Brooklyn, N. Y. Sewing-machine	316,350	Apr. 21	1879	497, 498	31	353
Fisher, Alvin L., New Brunswick, N. J., assignor to Overman Wheel Company, Chicopee, Mass. Whistle	321,202	June 30	2051	809	31	1636
Fisher, Ebenezer, Philadelphia, Pa., assignor to Steel Horse Collar Company, Fitchburg, Mass. Horse-collar	320,863	June 23	2592	686, 687	31	1547
Fisher, Frank E., Detroit, Mich. Combined electrical and water ram for raising water	319,805	June 9	1137	302	31	1265
Fisher, George B. (See French, John M., assignor.)						
Fisher, Guyon T., Ionia, Mich. Button-setting instrument	316,025	Apr. 21	1453	379	31	276
Fisher, Jacob, Jr. (See Wilt, Benjamin, assignor.)						
Fisher, John J., Cleveland, Ohio. Draw-bench	320,922	June 30	2680	712	31	1568
Fisher, Joseph, Attleborough, Mass. Weather-strip	320,120	June 16	1578	416	31	1351
Fisher, Milton B., Johnstown, Pa. Stop-valve	316,766	Apr. 28	2476	646	31	468
Fisher, Noble A., Sacramento, Cal. Mechanism for moving street-cars on curves	315,491	Apr. 14	712	188	31	133
Fisher, Noble A., and T. K. Burgess, Sacramento, Cal. Horse-collar fastening	320,646	June 23	2327	615	31	1494
Fisher, Robert A., Philadelphia, Pa. Neutral sizing material for paper-makers' use	321,092	June 30	2913	.....	31	1611
Fisher, Robert A., Philadelphia, Pa. Neutral sizing material for paper-makers' use	321,093	June 30	2915	.....	31	1611
Fisher, Robert A., Philadelphia, Pa. Manufacture of an aluminous sizing material for paper-makers' use	321,094	June 30	2917	.....	31	1611
Fisher, Robert A., Philadelphia, Pa. Manufacture of a sizing material for paper-makers' use	321,095	June 30	2919	.....	31	1611
Fisher, Robert A., Philadelphia, Pa. Sizing material to be used in the manufacture of paper	321,096	June 30	2920	.....	31	1611
Fisher, Robert A., Philadelphia, Pa. Manufacture of sizing for paper-makers' use	321,097	June 30	2922	.....	31	1611
Fisher, Robert A., Philadelphia, Pa. Manufacture of sizing material for paper-makers' use	321,098	June 30	2923	.....	31	1612
Fisk, James, assignor to F. A. Everett, Quincy, Ill. Wire-fence machine	320,121	June 16	1579	417, 418	31	1351
Fiske, Henry G., San Francisco, Cal. Block-pavement for streets and sidewalks and mold for constructing the same	316,450	Apr. 28	2042	535, 536	31	387
Fiske, Henry G., San Francisco, Cal. Sidewalk and paving block	317,106	May 5	230	58	31	566
Fiske, Henry G., San Francisco, Cal. Artificial facing-block for buildings	317,107	May 5	231	58	31	566
Fiske, Henry G., San Francisco, Cal. Paving-block	317,108	May 5	232	58	31	566
Fiske, John M., trustee. (See Dion, Léon O., assignor.)						
Fitch, Asa M., Seymour, Ind. Plow	317,754	May 12	1104	290	31	733
Fitch, Ezra C., Newton, Mass. Watch-movement box	315,755	Apr. 14	1089	286	31	204
Fitch, Ezra C., Newton, Mass. Watch-case	315,756	Apr. 14	1090	286	31	204
Fitch, Ezra C., Nowton, Mass. Watch-case	316,767	Apr. 28	2477	646	31	468
Fitch, Ezra C., Newton, Mass. Watch-case pendant	319,091	June 9	967	257	31	1236
Fitch, Frederick K., *et al.* (See Cardwell, George A., assignor.)						
Fitch, Homer L., Youngstown, Ohio. Ice-creeper	318,366	May 19	1926	520	31	895
Fitting, John, Hammonton, N. J. Sewing-machine guide	319,690	June 9	966	256	31	1236
Fitz Gerald, Walter H., and G. C. Smith, Chicago, Ill. Fitting for watch-case springs	316,953	May 5	31	9	31	528
Fitzgerald, Daniel P., Newark, N. J. Collar or sleeve button	318,974	June 2	63	16	31	1059
Fitzgerald, Michael, Troy, N. Y. Faucet, &c	320,770	June 23	2478	656	31	1525
Fitzgerald, John W. (See Willett and Fitzgerald.)						
Fitzgibbons, David P. (See McAuliffe, John, assignor.)						
Fitzgibbons, Maurice, New York, N. Y. Protecting paper in rolls	319,969	June 16	1372	360	31	1314
Fitzmaurice, Lewis G. (See Gilchrist and Fitzmaurice.)						
Fitzpatrick, Francis B., Dallas, Tex. Saw-jointer	318,713	May 26	2387	636	31	987
Fix, Louis. (See Specht and Fix.)						
Flagg, Joseph W., Worcester, Mass. Automatic cash-carrier	316,531	Apr. 28	2139	563	31	406
Flagg, Joseph W., Worcester, Mass. Automatic cash-carrier	319,692	June 9	968	257	31	1236
Flannery, John, New York, N. Y. Anti-friction bearing	316,026	Apr. 21	1454	379	31	277
Flather, Joseph, Nashua, N. H. Feed mechanism for lathes	317,449	May 5	713	179	31	652
Flatow, Abraham, Ellenville, N. Y. Jeweler's roll	316,135	Apr. 21	1612	421	31	305
Fleck, John, Louisville, Ky. Locomotive cow-catcher	320,864	June 23	2593	687	31	1547
Fleming, John A., Pimlico, London, county of Middlesex, England. Preparation and production of insulating materials	319,084	June 2	188	.....	31	1063
Fleming, Peter F., Huntsville, Mo. Hay and wheat elevator	317,527	May 12	811	208	31	679
Flemming, Otto, Philadelphia, Pa. Medical battery	320,547	June 23	2196	580	31	1470
Fletcher, Benjamin L., J. M. Dunkin, L. Hanhart, and C. M. Trautmann, Cincinnati, Ohio; said Hanhart and Trautmann assignors to said Fletcher and Dunkin. Machine for making picket wire fence	319,695	June 9	1257	332, 333	31	1286
Fletcher, Charles A., and W. H. Wilder, assignors to American Oil Stove Company, Gardner, Mass. Wick-adjuster	318,714	May 26	2388	636	31	987

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Fletcher, Theodore, Moosomin, Assiniboia, Manitoba, Canada Egg-beater	317,755	May 12	1106	291	31	733
Fletcher, Thomas, Warrington, county of Lancaster, England. Gas-stove	316,927	Apr. 21	1455	379	31	277
Fletcher, Thomas, Warrington, county of Lancaster, England. India-rubber gas-proof tubing	318,458	May 26	2044	552	31	925
Fletcher, William N., Rhea's Mills, Tex. Combined dish-washer and churn	319,967	June 16	1369	359, 360	31	1314
Flint, Jarvis M., Thayer, Kans. Wind-wheel	317,756	May 12	1106	291	31	733
Floto, George S. H., New York, N. Y. Card and card-supporter	318,611	May 26	2256	602	31	902
Floyd, Charles A., Eastbourne, county of Sussex, England. Hansom-cab	319,216	June 2	339	90	31	1111
Floyd, John J., assignor to himself and M. Morrison, Boston, Mass. Bronzing-machine	316,351	Apr. 21	1861	498	31	353
Flumerfelt, Byron J. (See Hudson, Gilbert L., assignor.)						
Flurer, William H., Uniontown, Kans. Harness-saddle	315,757	Apr. 14	1091	286	31	204
Flynn, Thomas W., Pottsville, Pa. Friction-roller for wire cables	319,217	June 2	340	91	31	1111
Focken, Hermann, New York, N. Y. Clock-case	319,085	June 2	189	50	31	1063
Fogg, Joseph F., Gorham, Me. Water-proof wood-pulp board for roofing	319,806	June 9	1139	.....	31	1266
Foisy, Thomas F. G. (See Pagé and Goullioud, assignors.)						
Foley, Daniel. (See McCudden and Shearlock, assignors.)						
Fontayne, Albert, Chicago, Ill. Axle-box	315,927	Apr. 14	1323	344	31	246
Foote, James M., Clayton, Mich. Hay-elevator	317,109	May 5	233	59	31	566
Foote, Julius M., Newark, N. J. Fifth-wheel	321,303	June 30	3051	809	31	1636
Forbes, Charles H. (See Roberts and Forbes.)						
Forbes, Edward, Chicago, Ill. Lacing for gloves	317,528	May 12	812	209	31	679
Forbes, John, Jr., Plainwell, assignor of one-half to I. L. Lyon, Detroit, Mich. Boat	315,758	Apr. 14	1092	286	31	204
Forbes, Lorenzo W., Wilkinson, Ind. Indicator attachment for saw-mill head-blocks	316,532	Apr. 28	2141	563	31	407
Forbes, William H. (See Osborne, John W., assignor.)						
Forbis, Harbert K., Columbus, Ohio. Thill-coupling	315,759	Apr. 14	1093	287	31	205
Force, William A. (See Sawyer and Gould, assignors.)						
Forck, Joseph H. M., Taos, Mo. Revolving rake	316,954	May 5	33	9	31	529
Ford, Benjamin, assignor of one-half to J. D. Ford, Pittsburg, Pa. Pipe-joint protector	320,771	June 23	2479	656	31	1525
Ford, Franklin D., assignor of one-half to C. S. Sweetland, Providence, R. I. Barbed fence	319,807	June 9	1139	302	31	1266
Ford, Frederic G., Roxborough, Pa. Support for bed-slats	315,268	Apr. 7	398	99	31	73
Ford, Herbert L., assignor of one-half to W. Turnbull, Aiken, S. C. Railway-switch	319,398	June 2	563	153	31	1155
Ford, John D. (See Ford, Benjamin, assignor.)						
Ford, Tardy W., Belpre, Ohio. Cleaning compound for carpets, plush, &c	320,772	June 23	2480	.....	31	1526
Ford, Thomas J., assignor of one-half to D. A. Warner, Geneva, Ohio. Necktie-fastener	318,715	May 26	2389	637	31	987
Forder, Frederick, Wolverhampton, England. Spring for two-wheeled vehicles	315,928	Apr. 14	1324	344	31	246
Fordham, Henry F., Greenport, N. Y. Wire frame	321,204	June 30	3052	809	31	1636
Foreman, Milton and S. E., Randolph, Kans. Fence-post	317,757	May 12	1107	291	31	733
Foreman, Samuel E. (See Foreman, Milton and S. E.)						
Forg, Peter, Boston, Mass. Door-check	319,086	June 2	189	50	31	1063
Forknall, Thomas. (See Thornhill, Forknall, and Thornhill.)						
Forncrook, Charles C., assignor of one-half to J. W. Forncrook, Hermitage, N. Y. Seat-fastener	317,985	May 19	1420	381	31	801
Forncrook, Joseph W. (See Forncrook, Charles C., assignor.)						
Forschner, Charles, New York, N. Y. Sausage-stuffing machine	316,352	Apr. 21	1882	498	31	354
Forsholm, Rasmus, New York, N. Y. Mounting screw-propellers	315,136	Apr. 7	195	48	31	36
Forsyth, H. C. (See Brown, Theodore H., assignor.)						
Fort Dodge Gypsum Stucco Company. (See Gregory, George L., assignor.)						
Foss, Henry A., Philadelphia, Pa. File-cutting machine	319,218	June 2	340	91, 92	31	1111
Foss, John F., Tewksbury, assignor to Hopedale Machine Company, Hopedale, Mass. Mechanical movement	316,136	Apr. 21	1613	421	31	305
Foster & Co., John. (See Hall, William D., assignor.)						
Foster, George S. (See Milligan, John F., assignor.)						
Foster, Gilbert S., Concord, N. H. Hoop-planing machine	316,768	Apr. 28	2478	646, 647	31	468
Foster, Hiram A. (See Tucker, John L., assignor.)						
Foster, John B., Zurich, Ontario, Canada. Tile-making attachment for brick-machines	315,016	Apr. 7	41	9	31	9
Foster, Joseph S., Salem, Mass. Air-ship	320,548	June 23	2200	581	31	1471
Foster, Wilbur B., Rockville, Conn. Display-frame	320,122	June 16	1583	418	31	1351
Foulds, Thomas, Trevorton, Pa. Injector-condenser	317,110	May 5	234	59	31	566
Fournier, George, Paris, France. Primary and secondary battery	316,533	Apr. 28	2142	563	31	407
Fowler, Elbert W., Chicago, Ill. Device for operating safe bolt-works	317,986	May 19	1421	381, 382	31	801
Fowler, Hervey W., Chicago, Ill. Roll for reducing old rails to homogeneous bars	315,269	Apr. 7	399	100	31	73
Fowler, Hervey W., Chicago, Ill. Cam	315,270	Apr. 7	402	100	31	73
Fowler Hervey W., Chicago, Ill. Roll for making spikes	317,330	May 5	550	140, 141	31	624
Fowler, James, Burlington, Iowa. Harness check-rein	315,399	Apr. 7	572	147	31	103
Fowler, Josiah, St. John, New Brunswick, Canada. Carriage axle and box	321,305	June 30	3053	809	31	1636
Fowler, Thomas J., Birmingham, Ala., assignor, by mesne assignments, to J. C. Westbrook. Combined cotton-sweep, chopper, &c	315,400	Apr. 7	573	148	31	103
Fowler, William R., Philadelphia, Pa., assignor to J. C. Matthai, J. E. Ingram, G. W. Knapp, and W. H. Matthai, Baltimore, Md. Fly-fan	321,352	June 30	3232	861	31	1671
Fox, Albert R., assignor of two-thirds to J. T. Dickson and A. G. Sells, Kankakee, Ill. Mechanism for reciprocating the condensing-cylinders of carding-engines	316,769	Apr. 28	2479	647	31	469
Fox, Frank A., assignor to himself and J. L. Gordon, New York, N. Y. Changeable button	316,253	Apr. 21	1755	461	31	332
Fox, George E., assignor of one-half to H. A. Farmer, Rockford, Ill. Lace-reel	316,955	May 5	34	9, 10	31	529
Fox, Henry W., Baltimore, Md. Dust-excluder	318,176	May 19	1669	447	31	847
Fox, Samson, Harrogate, county of York, England. Flanging-machine	318,889	May 26	2628	697, 698	31	1029
Fox, Samuel L. (See Brown, Daniel V., assignor.)						
Fox, William T., assignor to Steam Gauge and Lantern Company, Rochester, N. Y. Pressure-regulator	319,896	June 9	1264	333	31	1287
Fox, William T., assignor to Steam Gauge and Lantern Company, Rochester, N. Y. Air-compressor	321,206	June 30	3054	810	31	1637
Fox, William T., assignor to Steam Gauge and Lantern Company, Rochester, N. Y. Air-compressor	321,207	June 30	3056	811	31	1637
Fracker, T. L., *et al.* (See Steward, Arthur P., assignor.)						
Fracker, Willard, *et al.* (See Steward, Arthur P., assignor.)						
Fraley, David R., assignor to himself and B. Shemwell, Lexington, N. C. Quilting attachment for sewing-machines	321,287	June 30	3151	840	31	1655
Frampton, Joseph, Willis, Tex. Music-holder	316,534	Apr. 28	2144	563	31	407
France, Joseph R., J. H. Yale, and G. W. Beury, Newark, N. J. Music case or portfolio	319,399	June 2	564	153	31	1155

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
France, Mary, Cleveland, Ohio. Adjustable fire-box	318,716	May 26	2389	637	31	987
Francklyn, Charles G. (See Henderson, James, assignor.)						
Frank, William, New York, N. Y. Cuff	319,219	June 2	343	92	31	1112
Franke, Henry, Brooklyn, N. Y. Lock-plate for portable railways	315,606	Apr. 14	877	230	31	163
Franklin, Benjamin W., *et al.* (See Smith, A. Buttles, assignor.)						
Franklin, George H., and H. G. Barr, Providence, R. I. Violin-bow	320,123	June 16	1584	418	31	1352
Franklin, James C., Lena, assignor to H. Stover, Z. House, and N. Hendryx, Pendleton, Oreg. Mail-bag	319,220	June 2	344	92	31	1112
Fraser, Alex. (See Agee and Fraser.)						
Fraser, Cameron. (See McDonald and Fraser.)						
Freaner, Charles H., and S. Golding, assignors of one-half to H. T. Small and W. J. Schubert, Fredonia, Kans. Glove and notion holder	320,057	June 16	1490	393	31	1335
Frech, William. (See Morris and Frech.)						
Fréchette, Isaïe, and C. L. Girard, St. Hyacinthe, Quebec, Canada. Car-axle lubricator	320,343	June 16	1900	500	31	1408
Frederick, William G., Newark, N. J. Anti-freezing attachment for water-pipes	317,331	May 5	554	141	31	624
Fredrick, Henry, Newark, N. J. Rotary water-meter	316,614	Apr. 28	2242	591	31	496
Free, John W., Chicago, Ill., and J. F. Baldwin, Cambridge, Mass.; said Baldwin assignor to said Free. Drying apparatus	316,353	Apr. 21	1884	499	31	354
Freeman, Ann M., Kansas City, Mo. Dress-cutting rule	317,332	May 5	555	141	31	624
Freeman, Augustus M., Ocean Grove, N. J., assignor to himself and J. I. Holly, New York, N. Y. Blind-slat fastening	319,087	June 2	190	50	31	1063
Freeman, Augustus M., Ocean Grove, N. J., assignor to himself and J. I. Holly, New York, N. Y. Basket	319,088	June 2	191	50	31	1063
Freeman, Charles H. (See Dawson, Artemas L., assignor.)						
Freeman, Charles H., Rochester, N. Y. Die for pressing harness-pads	315,607	Apr. 14	878	230	31	163
Freeman, James P., Chicago, Ill., assignor of nine-twentieths to E. M. Marble, Washington, D. C. Telephone-transmitter	318,423	May 19	1996	537, 538	31	907
Freeman, James P., Chicago, Ill., assignor of nine-twentieths to E. M. Marble, Washington, D. C. Telephone-transmitter	318,424	May 19	1999	538, 539	31	907
Freeman, John J. (See McKinney, Truman D., assignor.)						
Freeman, Methven T., Richmond, Va. Calculating-instrument for percentage and proportion	319,808	June 9	1140	302	31	1266
Freese, Frank G., Philadelphia, Pa. Driving-gear for street-cars	318,717	May 26	2390	637	31	987
French, Albert E., East Tawas, Mich. Extension-table	320,124	June 16	1585	419	31	1352
French, C. Hermon, and A. T. Gifford, assignors to Dutcher Temple Company, Hopedale, Mass. Drilling-machine	317,635	May 12	949	243	31	703
French, Edwin, and F. Parvin; said Parvin assignor to A. F. Pack, Emporia, Kans. Sulky-harrow	315,492	Apr. 14	714	188, 189	31	133
French, Frank W., Abbot, Me. Device for setting floor-boards	321,353	June 30	3233	861	31	1671
French, G. Herbert. (See Riley and French.)						
French, George W., and J. A. Mattern, Colfax; said French assignor to T. Mitchell, Mitchellville, Iowa. Loom	319,475	June 9	684	184	31	1184
French, John M., Chelsea, assignor of one-half to G. B. Fisher, Millis, Mass. Bridle-bit	319,897	June 9	1265	333	31	1287
French, John T., Taunton, Mass. Device for trimming wall-paper	318,556	May 26	2195	586	31	951
French, Julia B., Boston, Mass. Combined wash and bath tub	317,333	May 5	556	141	31	624
French, Melvin J. (See Kirkpatrick and French.)						
French, Zachary T., Boston, Mass., assignor to Goodyear & McKay Sewing Machine Company, Hartford, Conn. Sole-sewing machine	317,758	May 12	1108	291	31	733
French, Zachary T., Boston, Mass., assignor to Goodyear & McKay Sewing Machine Company, Hartford, Conn. Sole-sewing machine	317,759	May 12	1109	292	31	734
Frenier, John H., Rutland, Vt. Stone-sawing machine	315,608	Apr. 14	878	231	31	163
Frenyear, Thomas C., Boston, assignor of one-half to L. E. Razee, Attleborough, Mass. Push-button	317,450	May 5	714	179	31	652
Frey, Frederick E., Bucyrus, Ohio. Brick and tile machine	320,965	June 23	2595	688	31	1547
Frey, Mamie F., Indianapolis, Ind. Button-hook holder for shoes	317,451	May 5	716	180	31	652
Frick, Abraham O. (See Snyder and Frick.)						
Frick, Rudy, and O. J. Rowe, Harrisville, Ind. Hay-rake	318,459	May 26	2045	552	31	925
Friedenwald, Benjamin B., *et al.* (See Haydn, George, assignor.)						
Friedenwald, Joseph, *et al.* (See Haydn, George, assignor.)						
Friedrick, Alphonse, Brooklyn, N. Y. Construction of skylights, &c	320,235	June 16	1726	458	31	1378
Friess, Charles, and J. N. Todd, Minneapolis, Minn. Bevel	320,966	June 23	2599	689	31	1548
Frings, Charles H., Philadelphia, Pa., assignor to New Era Brewing Company, Milwaukee, Wis. Manufacturing carbonated malt beverages	316,451	Apr. 28	2043	.....	31	388
Frisbie, Milton B., Walnut, Iowa. Trace-carrier	320,549	June 23	2201	581	31	1471
Frizell, Joseph P., Boston, Mass. Step-bearing for vertical shafts	321,288	June 30	3153	841	31	1655
Frock, Henry. (See Leitzel and Frock.)						
Frommelt, Alfred E. (See Weber, Hennig, and Frommelt.)						
Frost, Abel H., and F. L. Bryant, assignors to Amee & Frost, Chicago, Ill. Machine for attaching fabrics to bed-bottom frames	319,476	June 9	686	184, 185	31	1185
Frost, Ellis F., assignor of one-half to T. W. Gleeson, Boston, Mass. Individual signaling apparatus	320,923	June 30	2681	712	31	1569
Frost, Joseph W., New York, N. Y. Electric fire-arm	319,898	June 9	1266	334	31	1287
Frost & Son, M. S., *et al.* (See Martin, Thomas F., assignor.)						
Frutchey, Matthew G., Scranton, Pa. Book-rack for church-pews, &c	316,535	Apr. 28	2144	564	31	407
Frye, William H. H., Kansas City, Mo. Cloth-measuring device	316,887	Apr. 28	2642	688, 689	31	499
Fryer, Robert M., New York, assignor of one-half to T. O'Meara, Brooklyn, N. Y. Gland or packing follower	320,924	June 30	2684	715	31	1569
Fuchs, Peter, Davenport, Iowa. Feeding mechanism for mills, &c	320,967	June 23	2599	689	31	1548
Fuhrman, William, Tomah, Wis. Thill-coupling	315,929	Apr. 14	1325	345	31	246
Fuller, Arthur. (See Judd, Edward C., assignor.)						
Fuller, Arthur A., Providence, R. I., assignor to H. Merriam, Springfield, Mass. Book-holder	317,937	May 12	1346	302	31	779
Fuller, Arthur A., Providence, R. I., assignor to H. Merriam, Springfield, Mass. Book-support	319,899	June 9	1268	334	31	1288
Fuller, Daniel, Oakwood, Mich. Creaming-can	321,354	June 30	3234	862	31	1671
Fuller, Eben E., Monticello, assignor of one-half to G. Houghton, Minneapolis, Minn. Baling-press	318,460	May 26	2046	552, 553	31	926
Fuller, Hiram E., assignor to Fuller Manufacturing Company of New York, New York, N. Y. Bit-brace	320,868	June 23	2601	689	31	1548
Fuller, J. Ensign, Chicago, Ill. Telephone-transmitter	316,888	Apr. 28	2643	689	31	499
Fuller, Jefferson, Huntington, W. Va. Car-coupling	315,401	Apr. 7	574	148	31	103
Fuller Manufacturing Company of New York. (See Fuller, Hiram E., assignor.)						
Fuller, Willard M. (See Burr and Fuller.)						
Fullgraff, Lndolph A. (See Smith, Edward G., assignor.)						
Funk, Absalom C., Monticello, Ill. Soil pulverizer and leveler	316,889	Apr. 28	2644	689	31	499

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Funk, Michael, La Crosse, Wis. Feed-water heater	317,636	May 12	950	244	31	703
Furbish, Zachary T., and F. L. Hamlen, Augusta, Me. Screw-driver	315,137	Apr. 7	196	48	31	36
Furman, Charles E. (See Clarke and Harsin, assignors.)						
Fuyat, John G., Taunton, Mass., and T. Fuyat, Providence, R. I. Machine for producing yarn of different colors	320,344	June 16	1901	501	31	1408
Fuyat, Toussaint. (See Fuyat, John G. and T.)						
Fyfe, Alexander L. (See Goldberg and Fyfe.)						
Fyfe, James. (See McKenzie and Fyfe.)						
Fyke, Jacob D., Los Angeles, Cal. Sash-pulley	318,890	May 26	2630	698	31	1030
Gaar, Scott & Company. (See Campbell, Howard, assignor.)						
Gaar, Scott & Company. (See Campbell and Land, assignors.)						
Gable, Henry A. (See Mahaffey, James B. assignor.)						
Gage, Charles W. (See Wright, Gage, and Hitchcock.)						
Gage, H. M. (See Ames, Charles H., assignor.)						
Gage, John H., Chicago, Ill. Car-cover	316,536	Apr. 28	2145	564	31	408
Gahagen, Thomas N., Templeton, Pa. Two-wheeled vehicle	318,557	May 26	2197	587	31	951
Gahler, Reinhold, and T. Pilz, assignors of one-half to E. M. Cohen, Baltimore, Md. Glue	318,367	May 19	1927	.....	31	895
Gaillard, Léopold, Livron, France. Utilizing the power of running water for propelling vessels	320,125	June 16	1586	419	31	1352
Gailliot, Carl. (See Simpson, Gladhill, and Gailliot.)						
Gaines, Hiram F., assignor of one-third to R. E. Casey, Rouse's Point, N. Y. Seal-lock	319,400	June 2	564	153	31	1155
Gaitley, John E., Troy, N. Y. Machine for coiling wire	319,810	June 9	1145	303	31	1267
Gale, Daniel J., Bristol, Conn. Calendar-clock	316,254	Apr. 21	1756	{461 462}	31	332
Gale, Horace B., Natick, Mass. Electric lighting apparatus	319,573	June 9	816	217	31	1208
Gales, Peter, Gilbertsville, Iowa. Harrow	320,773	June 23	2481	657	31	1526
Gallagher, James E., Olean, N. Y. Explosive weight for torpedoes	316,137	Apr. 21	1614	422	31	306
Gallagher, Michael, New York, N. Y. Fire-board	319,221	June 2	345	93	31	1112
Galland-Mason, Robert, Douglas, Isle of Man, England. Microphotographic attachment for spectacles	319,401	June 2	566	154	31	1156
Galle, Charles, Columbia, Mo. Cutting apparatus for harvesters	319,222	June 2	346	93	31	1113
Gallet, Victor, Brest, France. Electric alarm-clock	318,612	May 26	2256	603	31	962
Galloway, Thomas D., Oshawa, Ontario, Canada. Sowing-machine	321,099	June 30	2925	774	31	1612
Gally, Merritt, New York, N. Y. Musical reed	315,493	Apr. 14	715	189	31	134
Gandil, Charlotte A., Brooklyn, N. Y. Lady's skirt-protector	319,477	June 9	690	185	31	1185
Gannett, Jasper, Ruthven, Iowa. Corn-planter	319,223	June 2	347	93	31	1113
Gannon, Thomas, Jersey City, N. J. Surface-condenser	320,647	June 23	2328	615	31	1495
Garbe, Conrad, Berlin, Germany. Magazine-gun	315,609	Apr. 14	882	232	31	164
Gardanier, George W., New York, N. Y. Telegraphic relay	316,956	May 5	36	10	31	529
Gardiner, Delmer, Prattsburg, N. Y. Wall-paper rack	318,461	May 26	2048	553	31	926
Gardiner, George S., and J. W. McAuley, Lyons, Iowa. Saw-guide	320,550	June 23	2202	581	31	1471
Gardiner, Robert M., Fredericksburg, Ohio. Hay and grain unloader	318,558	May 26	2198	587	31	951
Gardner, Addison E., assignor of one-half to H. B. Bessac, Milan, Mich. Pendulum-level	318,099	May 19	1570	420	31	828
Gardner, John, assignor to Winchester Repeating Arms Company, New Haven, Conn. Machine for counting gun-wads	320,236	June 16	1728	458	31	1378
Gardner, John N., Chesterfield, S. C. Cotton-seed planter	316,255	Apr. 21	1759	{462 463}	31	332
Gardner, Sigmond, Savannah, Ga. Hinge for carriage-doors	320,345	June 16	1903	501	31	1408
Gardner, William, assignor of one-half to C. H. Neil, Lancaster, Ohio. Machine for dressing fellies	320,467	June 23	2094	552	31	1452
Gardner, William, assignor to A. B. Beecher, New York, N. Y. Roller for skates	320,774	June 23	2482	657	31	1526
Garfield Manufacturing Company. (See Stender, Charles F. G., assignor.)						
Garnett, Louis A., *et al.* (See Ludwig, John C., assignor.)						
Garrard, Jeptha, Cincinnati, Ohio. Platform for harvesters	316,957	May 5	37	10	31	529
Garrard, Jeremiah, Muncie, Ind. Bedstead	320,925	June 30	2986	713	31	1569
Garrett, William, Pittsburg, Pa. Conductor for wire-rod mills	318,613	May 26	2258	603	31	962
Garrett, William, Pittsburg, Pa. Rolling-mill plant	319,693	June 9	971	{257 258}	31	1237
Garrett, William, Pittsburg, Pa. Rolling-mill plant	319,694	June 9	974	258	31	1237
Garrett, William, Pittsburg, Pa. Rolling-mill for wire rods	320,237	June 16	1729	459	31	1379
Garrett, William T., Johnsontown, Va. Potato-digger	319,478	June 9	690	186	31	1185
Garrison, Garret A., Paterson, N. J. Wardrobe	315,760	Apr. 14	1094	287	31	205
Garrison, Jackson, Milnes, Va. Piston-packing	316,770	Apr. 28	2480	647	31	469
Garry Iron Roofing Company. (See Langenau, William C., assignor.)						
Garside, Robert, assignor to J. E. Randle & Co., Memphis, Tenn. Cotton and hay press	321,208	June 30	3057	811	31	1637
Garsed, Robert P., Norristown, Pa. Track-buffer	318,462	May 26	2049	554	31	926
Garsed, Robert P., Norristown, Pa. Buffer	318,463	May 26	2050	554	31	927
Garsuch, Thompson E., and T. Jones, Viola, Wis. Miter-box	318,464	May 26	2051	554	31	927
Gartside, William N., Richmond, Ind. Composition of matter for lining and facing molds	315,402	Apr. 7	575	.....	31	104
Garverick, John M., Harrisburg, Pa. Freight-car	317,111	May 5	235	59	31	567
Gaskell, Holbrook, Jr. (See Carey, Gaskell, and Hurter.)						
Gaston, Bernard. (See Culbertson, O'Connell, and Gaston.)						
Gaston, George, assignor to Gaston, McCawley & Dozier, Baltimore, Md. Overalls	317,334	May 5	557	142	31	625
Gaston, James M., Atlanta, Ga. Motor	319,970	June 16	1374	361	31	1314
Gaston, McCawley & Dozier. (See Gaston, George, assignor.)						
Gates, Charles M. (See Corcoran and Gates.)						
Gates, Henry W., Kennedy, assignor of three-fourths to E. S. Rich, East Randolph, N. Y. Construction and preservation of shingle roofs	315,930	Apr. 14	1326	345	31	246
Gates, P. Touney, New York, N. Y. Combined extension and step ladder	317,987	May 19	1424	382	31	802
Gates, Philemon T., New York, N. Y. Sectional ladder	316,958	May 5	38	10	31	529
Gates, Philetus W., Chicago, Ill. Combined boring-bar and centering-mandrel	315,271	Apr. 7	404	100	31	73
Gates, Ryerson D., and C. Kaestner, Chicago, Ill. Pulverizing-machine	319,479	June 9	692	{186 187}	31	1185
Gates, Ryerson D., Chicago, Ill. Pulverizing-machine	320,126	June 16	1587	{419 420}	31	1352
Gates, Waldo L., Bayonne, N. J., assignor, by mesne assignments, to Electric Automatic Instructor Company, Portland, Me. Automatic instructor	319,224	June 2	349	94	31	1113
Gath, Charles W., Hamilton, Ohio. Device for embalming	315,272	Apr. 7	406	101	31	73
Gathmann, Louis. (See Ryer, Benjamin F., assignor.)						
Gathmann, Louis, Chicago, Ill. Vertical centrifugal bolt or separator	319,574	June 9	818	{217 218}	31	1208
Gathmann, Louis, Chicago, Ill. Upright centrifugal flour-bolt	319,695	June 9	976	259	31	1237
Gathmann, Louis, Chicago, Ill. Combined conveyer and separator	319,809	June 9	1143	302	31	1266
Gathright, John R., Jeffersonville, Ind. Fluid-car	320,775	June 23	2483	657	31	1526

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Gaulard, Lucien, and J. D. Gibbs, 18 Warwick Street, Regent Street, county of Middlesex, England. Coil for induction or other electrical apparatus	316,354	Apr. 21	1885	499	31	354
Gay, David G., Pleasant Hill, Oreg. Trace or harness buckle	316,256	Apr. 21	1760	463	31	332
Gearing, Charles M., assignor of one-half to J. R. McKee, Jr., Pittsburg, Pa. Liquid-fuel furnace	316,690	Apr. 28	2645	690	31	499
Geary, John, Philadelphia, Pa. Electrical push-button	320,238	June 16	1731	459	31	1379
Gee, Charles E., Lowell, Mass. Shaft-coupling	318,975	June 2	63	16	31	1060
Gee, William, assignor of one-half to A. E. Hendrick, New York, N. Y. Chemical fire-extinguisher	315,610	Apr. 14	884	232	31	164
Geer, Charles W., Bethel, Conn. Culinary boiler	316,257	Apr. 21	1761	463	31	332
Gehrig, Josef K. (See Prinz, Fanatin, assignor.) (Reissue.)						
Geiger, Henry, Fox Lake, Wis. Wagon-rack	318,100	May 19	1571	421	31	828
Geissenhainer, Charles A. (See Geissenhainer, George W. and C. A.)						
Geissenhainer, George W. and C. A., Pittsburg, Pa. Wood-worker's bench-vise	317,760	May 12	1110	292	31	734
Genung, Charles C. (See Curtner and Genung.)						
Gerber, Charles, York, Pa. Caramel-cutter	318,101	May 19	1572	{421 422}	31	829
Gerber, John J. (See Arnold and Gerber.)						
Gerdom, Andrew H., assignor of one-half to D. Strasser, Albany, N. Y. Bottom bar for window-shades	316,771	Apr. 28	2481	647	31	469
Gerdum, Albert, Cleveland, Ohio. Counter-scale	320,776	June 23	2484	658	31	1526
Germantown Tool Works. (See Selsor, George, assignor.)						
Germond, Gilbert A., New York, N. Y. Fastening for freight-car doors	320,239	June 16	1732	459	31	1379
Gerwien, William. (See Scott, John R., assignor.)						
Gerwien, William, assignor of one-half to J. R. Scott, Chicago, Ill. Sliding-door lock	315,761	Apr. 14	1095	287	31	205
Gesford, Preston G., Jr., Napa, Cal. Device for adjusting and removing nuts	317,637	May 12	951	244	31	704
Gesley, Saber, Beloit, Wis. Sulky-plow	316,959	May 5	39	11	31	530
Gessner, Friedrich, Magdeburg, Prussia, Germany. Accordion	318,242	May 19	1755	469	31	863
Gessner, George, Cumberland, Md. Heating apparatus	316,772	Apr. 28	2482	648	31	469
Giant Powder Company. (See Hardy, Orlando B., assignor.)						
Gibbon, Thomas H., Albany, N. Y. Construction of railway-tracks	317,988	May 19	1425	382	31	802
Gibbon, Thomas H., Albany, N. Y. Construction of railway-tracks	320,869	June 23	2602	689	31	1548
Gibbons, Thomas, St. Louis Mo. Saw-setting device	318,976	June 2	64	16	31	1060
Gibbs, Callie F., *et al.* (See Just, John A., assignor.)						
Gibbs, John D. (See Ganiard and Gibbs.)						
Gibbs, Josiah H., *et al.* (See Herrick, Lewis W., assignor.)						
Gibbs, William H., Lyons, Iowa. Churn-dasher	316,008	Apr. 21	1456	379	31	277
Giberson, Alfred J., Boston, Mass. Filter	318,465	May 26	2052	555	31	927
Gibson, Alexander C., Chicago, Ill. Burglar-alarm	315,138	Apr. 7	197	48, 49	31	36
Gibson, Charles D. P., Jersey City, N. J., assignor to A. & W. S. Carr Company, New York, N. Y. Portable heating apparatus	320,648	June 23	2330	{615 616}	31	1495
Gibson, J. Howard, Philadelphia, Pa. Tool-holder	318,718	May 26	2291	637	31	988
Gibson, James G., Peoria, Ill. Check-rower	315,494	Apr. 14	716	189	31	134
Gibson, Robert F., Zanesville, Ohio. Cash-carrier	320,777	June 23	2486	658	31	1526
Giddings, Charles M., Massillon, Ohio. Reversing-gear	315,702	Apr. 14	1096	{287 288}	31	205
Giddings, Charles M., Massillon, Ohio. Governor	319,696	June 9	979	259	31	1237
Giddings, Charles M., Massillon, Ohio. Steam-boiler	321,015	June 30	2906	746	31	1592
Giddings, Charles M., Massillon, Ohio. Separator for steam-boilers	321,016	June 30	2906	746	31	1592
Gideon, Henry S., Crescent City, Iowa. Bee-hive	317,112	May 5	236	59	31	567
Giebermann, Rudolph, Chicago, Ill. Apparatus for distilling glycerine	319,971	June 16	1376	361	31	1315
Giffard, George W., assignor of two-thirds to O. B. Wilson and Moses Bros., Great Bend, Kans. Snap-hook	319,972	June 16	1377	361	31	1315
Giffard, George W., and J. L. Roberts, assignors of one-half to C. L. and E. W. Moses, Great Bend, Kans. Lifting-jack	315,611	Apr. 14	886	233	31	165
Gifford, Alenza T. (See French and Gifford.)						
Gifford, Benjamin J., and J. E. Jones, Rantoul, Ill. Apparatus for cleaning, widening, and deepening water-courses	321,355	June 30	3035	{862 863 864}	31	1671
Gifford, Thomas, Columbus, N. J. Combined planter, coverer, and marker	316,977	June 2	65	17	31	1060
Gilardini, Giovanni, Turin, Italy. Umbrella	319,225	June 3	352	94	31	1114
Gilbert, Andrew J., and G. Wendling, Norwalk, Conn. Portable oven	317,938	May 12	1347	362	31	779
Gilbert, Charles H., Andover, Mass. Dental-engine holder	318,177	May 19	1670	448	31	847
Gilbert, Edwin, Georgetown, Conn. Manufacture of galvanized-wire cloth	316,515	Apr. 28	2244	591	31	426
Gilbert, Jabez C. (See Huston, William, assignor.)						
Gilbert, Leander G., Buffalo, N. Y. Combined stop and check valve	315,273	Apr. 7	407	101	31	73
Gilbert, Selden, New Haven, Conn. Carriage-spring	320,926	June 30	2987	713	31	1570
Gilbert, Thomas S., assignor to I. Rosenberg & Co., New Haven, Conn. Corset	317,335	May 5	558	142	31	625
Gilburg, John. (See Strand and Gilburg.)						
Gilchrist, Daniel J., Newark, N. J. Earth and coal loader	317,761	May 12	1111	293	31	734
Gilchrist, Percy C., London, and L. G. Fitzmaurice, Bilston, county of Stafford, England. Apparatus for mounting and dismounting Bessemer converters	316,537	Apr 28	2146	564	31	408
Giles, Charles K., Chicago, Ill. Dust-proof case for watches	320,127	June 16	1590	420	31	1353
Giles, Edwin L., Lowell, Mass. Track-switch	321,356	June 30	3039	864	31	1672
Gilkey, John W. (See Sherwood, James A., assignor.)						
Gill, Napoleon, assignor of one-third to T. W. Mann, Holyoke, Mass. Cutting-pliers	316,452	Apr. 28	2044	536	31	388
Gill, Webster, Camden, N. J. Condenser for carding-machines	320,778	June 23	2487	{658 659}	31	1526
Gill, William A., Columbus, Ohio. Dinner-pail	317,762	May 12	1112	293	31	734
Gill, William T., Otterville, Mo. Curry-comb	316,138	Apr. 21	1615	422	31	306
Gilleland, John R. (See Bryant and Gilleland.)						
Gillespie, Cyrus E., Edwardsville, Ill. Ear-muff	316,029	Apr. 21	1456	380	31	277
Gillespie, Joseph U., Belmont, Ala. Cultivator	318,178	May 19	1671	448	31	848
Gilliland, Ezra T. Boston, Mass. Electric train-signaling	318,102	May 19	1574	422	31	829
Gilliland, James F., Indianapolis, Ind. Adjusting armature-springs	315,017	Apr. 7	42	9	31	9
Gilliland, James F., Indianapolis, Ind. Telegraphic sounder	315,763	Apr. 14	1097	288	31	205
Gilliland, James F., Indianapolis, Ind. Combined washer and linchpin	320,058	June 16	1491	393	31	1336
Gilliland, James F., Indianapolis, Ind. Combined washer and linchpin	320,059	June 16	1492	394	31	1336
Gilliland, Wilson H. (See Lore, George W., assignor.)						
Gillingham, Henry B. (See Heinzer and Gillingham.)						
Gillman, William C., Milford, Mass. Boot or shoe	320,468	June 23	2095	552	31	1452
Gillmore, Freeman C. (See Wagner, Peter, assignor.)						
Gillogly, Samuel, Keifer, assignor of one-half to A. Lynn, Blue Rock, Ohio. Sheep-rack	320,649	June 23	2332	616	31	1495

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Gilman, Charles A., Lynn, Mass., assignor to New Enterprise Edge Trimmer Company, Portland, Me. Cutter-head for boot and shoe edge trimming machines	321,357	June 30	3240	864	31	1672
Gilman, Willard H., Boston, Mass. Cash and parcel transmitting apparatus for store-service	318,719	May 26	2392	638, 639	31	988
Gilmore, Albert, Gilmore, Ohio. Seeder	315,931	Apr. 14	1326	345, 346	31	246
Gilmore, Horace E., assignor of one-half to J. S. Mackey, Spring Hill, Kans. Sash-lock	320,551	June 23	2203	581	31	1471
Gilson, James, and J. W. Houston, Providence, R. I. Sand-box for street-cars	319,697	June 9	980	259	31	1238
Ginger, James S., St. Louis, Mo. Combined breast-strap buckle and snap	318,179	May 19	1672	448	31	848
Gingrich, Daniel, Overpeck, Ohio. Harvester-reel	320,927	June 30	2688	713	31	1570
Girard, Charles L. (See Fréchette and Girard.)						
Githens, George M., Brooklyn, N. Y. Friction-clutch for rock-drills	317,113	May 5	237	60	31	567
Gitt, Daniel D., Arendtsville, Pa. Head-rest	318,368	May 19	1927	520	31	895
Gjers, John, Middlesbrough-on-Tees, North Riding, county of York, England. Apparatus for treating metal ingots	320,779	June 23	2489	659	31	1527
Gjers, John, Middlesbrough-on-Tees, North Riding, county of York, England. Treating steel ingots	320,780	June 23	2490	660	31	1527
Gladhill, William G. (See Simpson, Gladhill, and Gailliot.)						
Gladish, Francis M., Aullville, Mo. Automatic weighing and sacking machine	321,209	June 30	3058	811	31	1637
Gladwin, Gilbert A. (See Hammond, William E., assignor.)						
Gleeson, Patrick, Chicago, Ill. Electrotype-block	316,453	Apr. 28	2045	536	31	388
Gleeson, Thomas W. (See Frost, Ellis F., assignor.)						
Glen Cove Machine Company. (See Gray, William H., assignor.)						
Glen Cove Manufacturing Company. (See Duryea, Wright, assignor.)						
Glenn, Joseph M., assignor of two-thirds to D. N. Coffman and J. F. White, South English, Iowa. Drill	317,336	May 5	558	142	31	625
Glidden, Charles W., Lynn, assignor to J. W. Brooks, trustee, Cambridge, Mass. Heel-trimming machine	321,017	June 30	2808	746	31	1592
Globe Capsule Company. (See Krehbiel, John, assignor.)						
Globe Files Company. (See Dom, Alexander, assignor.)						
Globe Files Company. (See Nauerth, George V., assignor.)						
Globe Files Company. (See Nauerth and Jenkins, assignors.)						
Glover, William. (See Maddermott and Glover.)						
Glydon, William F. (See Lloyd and Glydon.)						
Glynn, Miguel A., Havana, Cuba. Railway-tie	317,763	May 12	1113	293	31	735
Gnehm, Robert, assignor to Society of Chemical Industry, Basle, Switzerland. Production of chlorinated derivatives of benzaldehyde	315,932	Apr. 14	1328	.....	31	247
Godcharles, Charles D., Milton, Pa. Nipper-bar for nail-machines	315,403	Apr. 7	576	148	31	104
Goddard, Asa. (See Burnham and Goddard.)						
Goddard, Calvin L., New York, N. Y. Wool-burring machinery	317,638	May 12	952	244	31	704
Goddu Improvement Company of Maine. (See Goddu, Louis, assignor.)						
Goddu, Louis, Winchester, Mass., assignor to Goddu Improvement Company of Maine. Fence-post	315,018	Apr. 7	43	9	31	9
Godefroy, Alexander F., St. Louis, Mo. Wig	320,928	June 30	2689	714	31	1570
Godfrey, Charles B., Milford, Mass. Shoe	316,454	Apr. 28	2046	536	31	388
Goettel, John, St. Paul, Minn., and W. F. Howe, Chicago, Ill. Car-coupling	315,495	Apr. 14	717	189, 190	31	134
Goettler, Charles, New York, N.Y. Machine for cutting cloth, leather, and other substances	320,650	June 23	2333	616	31	1496
Goertz, August, Newark, N. J. Satchel-handle	317,114	May 5	239	60	31	567
Goff, Henry J., and T. E. Ploughe, Kempton, Ind. Swinging gate	320,929	June 30	2690	714	31	1570
Goff, Lucius H., Richford, Vt. Device for lifting kettles	319,226	June 2	353	94	31	1114
Goldberg, Louis, Love Lane, London, and A. L. Fyfe, Loughborough Park, county of Surrey, England. Apparatus for the transmission of an electric current to moving objects	316,139	Apr. 21	1615	422, 423	31	306
Golden, Thomas, New York, N. Y. Quarter-boot. (Reissue)	10,587	Apr. 28	2711	706	31	511
Golder, William L. and W. P., Patchogue, N. Y. Grate	318,720	May 26	2396	639	31	988
Golder, William P. (See Golder, William L. and W. P.)						
Golding, John F., Chicago, Ill. Making metallic screening material	320,240	June 16	1732	459	31	1379
Golding, John F., and G. B. Durkee, Chicago, Ill., assignors to Expanded Metal Company. Machine for making slashed metallic screening	320,241	June 16	1733	460, 461	31	1379
Golding, John F., and G. B. Durkee, Chicago, Ill., assignors to Expanded Metal Company. Making slashed metallic screening	320,242	June 16	1735	461	31	1380
Golding, Simon. (See Freaner and Golding.)						
Golding, William H., Chelsea, Mass. Combined side and end lock for galleys	320,128	June 16	1591	420	31	1353
Goldman, Moses, Pittsfield, Mass. Sprinkler and atomizer	320,346	June 16	1903	501	31	1408
Goldsmith, Daniel, New York, N. Y. Breastpin-watch	320,870	June 23	2603	600	31	1549
Goldsmith, Myer I. (See Pitard, John H., assignor.)						
Goldspohn, William, Lodi, Wis. Burglar-alarm	320,871	June 23	2604	600	31	1549
Gollehon, Joseph H., G. G. Britton, and J. F. Lucas, Marion, Va. Plaiting apparatus	316,355	Apr. 21	1887	499	31	354
Gongwer, Jefferson H., Columbia City, Ind. Stove-pipe thimble	316,356	Apr. 21	1887	500	31	355
Good, David H., Canada, Kans. Conveyer for thrashing-machines	315,404	Apr. 7	577	148	31	104
Good, David H., Canada, Kans. Feeder for thrashing-machines	315,764	Apr. 14	1098	288, 289	31	205
Good, John, Brooklyn, N. Y. Machine for spreading hemp, &c.	315,765	Apr. 14	1099	289	31	206
Good, John, Brooklyn, N. Y. Machine for spreading and drawing hemp, &c	315,766	Apr. 14	1102	290	31	206
Good, John, Brooklyn, N. Y. Machine for drawing and spinning hemp	317,115	May 5	240	60, 61	31	567
Good, John, Brooklyn, N. Y. Spindle and flier for spinning rope-yarn	317,116	May 5	245	61, 62	31	568
Good, John, Brooklyn, N. Y. Machine for drawing and spinning hemp	317,117	May 5	249	62, 63	31	569
Good, John, Brooklyn, N. Y. Spindle and flier for spinning hemp, &c	317,118	May 5	252	63	31	569
Goode, William H. C., Sidney, Ohio. Earth-scraper	316,455	Apr. 28	2047	537	31	388
Goode, William H. C., Sidney, Ohio. Earth-scraper	318,721	May 26	2397	639	31	989
Goodell Company. (See Oaks, William A. C., assignor.)						
Goodfellow, William, South Norwalk, Conn. Pincushion and button-hook holder	317,989	May 19	1427	382	31	802
Goodhue, James E., assignor to Goodhue & Sons, St. Charles, Ill. Windmill	321,100	June 30	2936	775	31	1612
Goodhue & Sons. (See Goodhue, James E., assignor.)						
Goodman, Benedict, Auburn, Ind. Metal roofing	319,228	June 2	355	93	31	1115
Goodman, Benedict, Auburn, Ind. Monument	321,018	June 30	2809	747	31	1593
Goodman, Burkard, *et al.* (See Smith, William E., assignor.)						
Goodman, William H., Palmyra, Va. Harrow	320,347	June 16	1904	502	31	1409
Goodnough, John, Indianapolis, Ind. Cultivator-spring	316,140	Apr. 21	1616	423	31	306
Goodnough, John, Indianapolis, Ind. Cultivator-coupling	318,243	May 19	1756	469	31	864
Goodridge, John C., Jr., New York, N. Y. Repairing with beton or concrete	317,337	May 5	559	142, 143	31	625
Goodridge, John C., Jr., New York, N. Y. Construction and repair with beton or concrete	317,338	May 5	561	143	31	626

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Goodridge, John C., Jr., New York, N. Y. Deepening and maintaining channels for navigation	320,129	June 16	1591	420, 421	31	1353
Goodspeed, Charles P., Brooklyn, N. Y. Wick-adjusting mechanism for oil-burners	315,769	Apr. 14	1108	291	31	207
Goodspeed, Henry C. (See Hayden, Horace L., assignor.)						
Goodwin, Charles W., New York, N. Y. Lantern	319,227	June 2	354	95	31	1114
Goodwin, Edward W., Mulberry, Ohio. Fence	315,767	Apr. 14	1105	290	31	207
Goodwin, Frank W., Saxonville, Mass. Label	316,773	Apr. 28	2483	648	31	469
Goodwin, Lester, Newton, Mass. Album	318,891	May 26	2631	698	31	1030
Goodwin, Phebe C., Boston, Mass. Multiple measuring utensil	315,768	Apr. 14	1107	291	31	207
Goodwin, Seth W., Toledo, Ohio. Drawing-board	316,538	Apr. 28	2147	565	31	408
Goodyear, Francis W., Springfield, Mass. Toy spring-gun	317,119	May 5	256	64	31	570
Goodyear & McKay Sewing Machine Company. (See French, Zachary T., assignor.)						
Goodyear & McKay Sewing Machine Company. (See Littlefield, Augustine F., assignor.)						
Goolden, William M. (See Russell and Goolden.)						
Gordon, Abijah L., Helix, Oreg. Sod-ground pulverizer	316,141	Apr. 21	1617	423	31	306
Gordon, George W., Detroit, Mich. Milk and food safe	315,770	Apr. 14	1108	291	31	208
Gordon, James F., Rochester, N. Y. Grain-binding machine	320,348	June 16	1905	502, 503, 504, 505	31	1409
Gordon, James L. (See Fox, Frank A., assignor.)						
Gordon, John O., Independence, Kans. Combined end-gate and scoop-board	319,229	June 2	356	95	31	1115
Gordon & Maxwell Company. (See Maxwell, James R., assignor.)						
Gordon, Norman N., assignor of one-half to R. Lichtenstein, Rochester, N. Y. Folding table	316,142	Apr. 21	1618	423	31	307
Gordon, Thomas, assignor of one-half to E. Stein, Philadelphia, Pa. Gas-governor	315,496	Apr. 14	719	190	31	134
Gordon, Thomas, assignor of one-half to E. Stein, Philadelphia, Pa. Gas-cock	318,978	June 2	67	17	31	1060
Gore, Henry A., assignor of two-thirds to E. W. Walker and H. W. En Ten, Goshen, Ind. Broadcast seed-sower	315,405	Apr. 7	578	149	31	104
Gorgas, Lewis H. (See Dow and Gorgas.)						
Gormly, John, Provo City, Utah Ter. Radiator	319,230	June 2	357	95, 96	31	1115
Gormly, John, Provo City, Utah Ter. Radiator	319,231	June 2	358	96	31	1115
Gormly, Patrick, Philadelphia, Pa. Automatic air-valve for steam-radiators	315,933	Apr. 14	1329	346	31	247
Gornall, Richard, assignor of one-half to G. A. Dubreuil, Baltimore Md. Store-service apparatus	319,402	June 2	567	154, 155, 156	31	1156
Gornall, Richard, assignor of one-half to G. A. Dubreuil, Baltimore, Md. Store-service apparatus	319,403	June 2	571	154, 155, 156	31	1156
Gorrell, John B., assignor of two-thirds to F. A. and W. J. Hogue, La Otto, Ind. Hydraulic regulator	318,722	May 26	2398	639	31	989
Gorry, William M., Willimantic, Conn. Tool for molding the mold-boards of plows	318,979	June 2	67	17	31	1060
Gorry, William M., Willimantic, Conn. Plow	318,980	June 2	68	17	31	1060
Gorton, Orren A., New York, N. Y. Stiffening-spring for corsets, &c	319,404	June 2	573	156	31	1157
Gosling, Henry J., assignor to G. & H. Barnett, Philadelphia, Pa. Tool-handle	318,103	May 19	1577	422	31	830
Gosling, Henry J., assignor to G. & H. Barnett, Philadelphia, Pa. File-cutting machine	318,104	May 19	1578	422, 423	31	830
Gottstein, Peter R., Houghton, Mich. Coupling for straps, &c	318,369	May 19	1928	520	31	895
Gottstein, Peter R., Houghton, Mich. Barrel	318,370	May 19	1929	520	31	895
Goubert, Auguste A., Jersey City, N. J. Feed-water heater	319,232	June 2	359	96, 97	31	1116
Gould, Andrew J., Quincy, Cal. Apparatus for storing oil and utilizing the vapors of the same	318,425	May 19	2002	539	31	908
Gould, John C., Chicago, Ill. Nail-plate feeder	315,019	Apr. 7	43	9, 10	31	10
Gould, John C., Chicago, Ill. Nail-plate feeder	317,529	May 12	813	209	31	679
Gould, John C., Chicago, Ill. Nipper-rod for nail-plate feeders	318,105	May 19	1580	423	31	830
Gould, John D. (See Tisdale, Charles D., assignor.)						
Gould, John H. (See Sawyer and Gould.)						
Gould, Joshua P., Bangor, Me. Riveting sheets of metal	315,020	Apr. 7	45	10	31	10
Gould, Robert S., East Orange, N. J. Curtain-pole joint	317,339	May 5	562	143	31	626
Gould, Robert S., East Orange, N. J. Curtain-pole bracket	319,069	June 2	192	51	31	1083
Gould, Robert S., East Orange, N. J. Carpet-binding	320,130	June 16	1593	421	31	1353
Gould, Sylvia A. W., administratrix. (See Allen, John G.)						
Goullioud, Louis. (See Pagé and Goullioud.)						
Goundry, John B., and W. S. McLeod, Van Buren, assignors of one-third to E. B. Drury, Ypsilanti, Mich. Wash-bench	316,891	Apr. 28	2646	690	31	499
Gowdy & Snyder. (See Murray, Charles E., assignor.)						
Grabill, John S., Hayesville, Ohio. Horse-power for hay-carriers	315,934	Apr. 14	1330	346	31	247
Gracey, Robert, Pittsburg, Pa. Apparatus for swaging tuyeres	316,539	Apr. 28	2149	565	31	408
Graef, C. Arnold, Bay Ridge, N. Y. Revolving chair	321,101	June 30	2928	775	31	1612
Graefe, Charles, Sandusky, Ohio. Gas-cautery	319,698	June 9	981	260	31	1238
Graefe, Henry F., Gardenville, Md. Check-row corn-planter	319,405	June 2	574	156	31	1157
Graetzel, Henry F., Gardenville, Md. Check-row corn-planter	315,021	Apr. 7	46	10	31	10
Graham, Charles, Brooklyn, N. Y. Decoration of pottery-ware						
Graham, Charles, Kingston, assignor of one-half to W. F. Hallstead, Scranton, Pa. Safety-switch stand	316,258	Apr. 21	1762	463	31	333
Graham & Co., James S. (See Kane, John, assignor.)						
Graham, Hugh, Dartmouth, Nova Scotia, Canada. Car-coupling	317,120	May 5	257	64	31	570
Graham, Simon P., London, Ontario, Canada. Drill-chuck	318,466	May 26	2053	535	31	927
Graham, William H., Pittsburg, and A. C. Milliken, Millvale, Pa. Roll for rerolling old rails	321,102	June 30	2929	776	31	1612
Grand Rapids Electric Light and Power Company. (See Thomas, William M., assignor.)						
Granger, Almon M., Medford, Mass., assignor of one-third to J. Clayton, Brooklyn, N. Y. Water-elevating apparatus	317,639	May 12	955	245	31	704
Granger, Arthur O., Philadelphia, Pa. Gas-generating apparatus	318,106	May 19	1582	423	31	830
Grant, Arthur W. (See Bean and Grant.)						
Grant, Arthur W., Springfield, Ohio. Vehicle-wheel	320,930	June 30	2691	714	31	1570
Grant, John, Omaha, Nebr. Artificial-stone pavement	319,575	June 9	822	218	31	1208
Grater, Francis A., Providence, R. I. Locking-gear for windlasses	316,259	Apr. 21	1764	464	31	333
Graves, John, Brooklyn, assignor to J. R. Dreyfus, New York, N. Y. Metallic spring for vehicles	317,990	May 19	1427	383	31	802
Graves, Lorenzo S., assignor to L. S. Graves & Son, Rochester, N. Y. Elevator safety device	319,480	June 9	694	187	31	1186
Graves, Roger W., Buffalo, N. Y. Liquid-meter	319,811	June 9	1146	303	31	1267
Graves & Son, Lorenzo S. (See Graves, Lorenzo S., assignor.)						
Graves, William W., Whitesborough, Tex. Sliding gate	317,765	May 12	1115	294	31	735
Gray, Edward J., assignor of one-third to J. C. Davis, Baltimore, Md. Vehicle wheel and axle	319,973	June 16	1379	361	31	1315

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Gray, George L., Cook County, Ill. Sewing-machine attachment	315,935	Apr. 14	1331	346	31	247
Gray, Henry F., assignor to L. T. Strader, Columbus, Ohio. Printer's drying-rack	315,022	Apr. 7	47	10, 11	31	10
Gray, John W., Hartford, Conn. Rubber tube for syringes, &c	315,023	Apr. 7	49	11	31	11
Gray, Richard, Bloomington, Ill. Pile-coupling	317,764	May 12	1114	294	31	735
Gray, Watson, assignor of one-half to R. H. Webb, Three Rivers, Mich. Paper-stock drainer	318,180	May 19	1673	449	31	848
Gray, William H., assignor to Glen Cove Machine Company, (limited,) Brooklyn, N. Y. Pulley and belt-shipper for machinery	320,434	June 16	2042	536	31	1434
Gray, William H., and A. Hutchinson, assignors to Glen Cove Machine Company, (limited,) Brooklyn, N. Y. Wood-planing machine	315,406	Apr. 7	580	149 / 150	31	104
Green, Albert J., assignor of one-half to Stoddard Manufacturing Company, Dayton, Ohio. Machine for bending rake-teeth	321,019	June 30	2810	747 / 748	31	1593
Green, Andrew W., Peoria, Ill. Tuning-hammer	318,981	June 2	69	18	31	1061
Green, Francis L. (See Green, Milton E., assignor.)						
Green, James E., 2d. (See Hawes and Green.)						
Green, John, Sewickley, Pa. Preparation of boot or shoe uppers for lasting	319,699	June 9	982	260	31	1238
Green, Milton E., assignor to F. L. Green, Hartford, Conn. Device for attaching lanterns to cars, carriages, &c	319,233	June 2	361	97	31	1116
Green, Samuel F., Salamanca, N. Y. Car-coupling	318,107	May 19	1583	423	31	831
Green, William G. (See DeGrange and Green.)						
Greene, James G., Rochester, N. Y., assignor to Singer Manufacturing Company of New Jersey. Clamp for button-hole sewing-machines	319,700	June 9	983	260	31	1238
Greenfield, Edwin T., assignor of one-half to Holmes Burglar Alarm Telegraph Company, New York, N. Y. Telephone	316,360	Apr. 21	1765	464	31	333
Greenfield, Nelson. (See Schwarzschild and Greenfield.)						
Greenhalgh Samuel, Port, Jervis, N. Y. Cross-head for steam-engines	318,244	May 19	1757	470	31	864
Greenhoot, David, Cincinnati, Ohio. Supporter for wearing-apparel	315,497	Apr. 14	721	190	31	134
Greenleaf, Joseph H. (See Evarts and Greenleaf.)						
Greenleaf, Miller T. (See Grimm, Joseph, assignor.)						
Greenwald, Kasper J., Newark, N. J. Lasting-pinchers	316,357	Apr. 21	1888	500	31	355
Greenwood, Alvin M., *et al.* (See Conant, Fred H., assignor.)						
Greenwood, Alvin M., *et al.* (See Ellis, George A., assignor.)						
Greenwood, Alvin M., *et al.* (See Ellis and Taft, assignors.)						
Greenwood, Peter F., Catasauqua, Pa. Horseshoe-blank	320,350	June 16	1921	506	31	1411
Greenwood, Peter F., assignor to himself and Bryden Forged Horseshoe Works, (limited,) Catasauqua, Pa. Manufacture of horseshoes	320,349	June 16	1920	505 / 506	31	1411
Greey, Edward. (See Brower, Bloomfield, assignor.)						
Gregg, Harlan, Nashua, N. H. Registering measuring-staff	316,358	Apr. 21	1889	500	31	355
Gregory, George L., Marion, assignor of one-half to Fort Dodge Gypsum Stucco Company, Fort Dodge, Iowa. Plaster compound	315,936	Apr. 14	1332	.....	31	247
Gregory, George W. (See Haynes, Edgar K., assignor.)						
Gregory, John R., assignor of one-half to G. T. and J. G. Wallace, Wallaceton, Va. Plow attachment	317,340	May 5	563	144	31	626
Greig, Alfred, R. H. Shaw, Leeds, county of York, and J. Whittingham, Nantwich, county of Chester, England. Traction-engine	316,774	Apr. 28	2484	648 / 649	31	470
Greiner, Bruno, New York, N. Y. Music-recording attachment for key-board instruments	321,358	June 30	3241	864 / 865	31	1673
Grenville, George A., Kingsville, Ontario, Canada. Sash-holder	317,121	May 5	258	64	31	570
Gresham, James, Manchester, county of Lancaster, England. Injector	318,892	May 26	2632	698	31	1030
Gresham, James, Manchester, county of Lancaster, England. Injector	319,481	June 9	696	187	31	1186
Grey, Thomas C. (See Larkin, John C., assignor.)						
Gridley, John W., assignor to Southington Cutlery Company, Southington, Conn. Curry-comb	317,341	May 5	564	144	31	626
Griesser, William, Chicago, Ill. Partition-wall	319,576	June 9	822	218	31	1209
Griest, John M., Chicago, Ill., assignor to Singer Manufacturing Company of New Jersey. Embroidering attachment for sewing-machines	319,701	June 9	985	261	31	1238
Griest, John M., Chicago, Ill., assignor to Singer Manufacturing Company of New Jersey. Presser-foot for sewing-machines	319,702	June 9	987	261	31	1239
Griest, John M., Chicago, Ill., assignor to Singer Manufacturing Company of New Jersey. Throat-plate attachment for sewing-machines	319,703	June 9	988	261	31	1239
Griest, John M., Chicago, Ill., assignor to Singer Manufacturing Company of New Jersey. Underbraider for sewing-machines	319,704	June 9	989	261	31	1239
Griest, John M., Chicago, Ill., assignor to Singer Manufacturing Company of New Jersey. Attachment-holder for sewing-machines	319,705	June 9	990	262	31	1239
Griest, John M., Chicago, Ill., assignor to Singer Manufacturing Company of New Jersey. Tuck-marker for sewing-machines	319,706	June 9	991	262	31	1239
Griest, John M., Chicago, Ill., assignor to Singer Manufacturing Company of New Jersey. Ruffling attachment for sewing-machines	319,707	June 9	993	262	31	1240
Griffen, Arthur B., Newark, N. J. Apparatus for mixing seriform fluids	320,060	June 16	1493	394	31	1336
Griffin, Ira J., Sing Sing, N. Y. Fluid-pressure regulator	317,991	May 19	1430	383	31	803
Griffin, James K., Brooklyn, N. Y., assignor to Griffin Manufacturing Company. Ore-pulverizer	318,181	May 19	1674	449	31	848
Griffin, James K., Brooklyn, N. Y., assignor to Griffin Manufacturing Company. Reducing ores, &c	318,245	May 19	1758	470	31	864
Griffin, James L., Cusseta, Tex. Car-coupling	317,342	May 5	565	144	31	626
Griffin Manufacturing Company. (See Griffin, James K., assignor.)						
Griffith, David. (See Lesley and Griffith.)						
Griffiths, Oliver W., Brooklyn, N. Y. Package-carrier	317,640	May 12	958	246	31	705
Griggs, George H., Hornellsville, N. Y., assignor to C. F. Pike, Providence, R. I. Locomotive spark arrester and consumer	316,892	Apr. 28	2647	690 / 691	31	500
Grimes, George R., Terre Haute, Ind. Garment-hook	317,343	May 5	566	145	31	626
Grimm, Gustave H., Hudson, Ohio. Making evaporating-pans	316,893	Apr. 28	2650	691	31	500
Grimm, Joseph, assignor of part to M. T. Greenleaf, Quincy, Ill. Stove-pipe damper	317,992	May 19	1431	383	31	803
Grimmesey, Orris R., Warren, Ohio. Lamp-bracket	321,020	June 30	2814	748	31	1593
Grisacom, John, Brooklyn, N. Y. Brooding-house for chickens	319,234	June 2	362	97	31	1116
Griswold, Stephen M. (See Merritt, Samuel F., assignor.)						
Gritton, William H., Jr. (See White, Ross, Creasy, and Gritton.)						
Groff, William C., Sr., Camden, N. J. Garbage-box	317,452	May 5	716	180	31	652
Grondahl, Wilhelm A., Portland, Oreg. Steam-generator	319,235	June 2	364	97	31	1116
Groom, Patrick W., assignor to Groom Shovel Company, St. Louis, Mo. Shovel or spade handle	315,407	Apr. 7	584	150	31	105
Groom, Shovel Company. (See Groom, Patrick W., assignor.)						
Groom, Wallace P., Brooklyn, N. Y. Article of wearing-apparel provided with button-holes	320,131	June 16	1593	421	31	1353
Groom, Wallace P., Brooklyn, N. Y. Button-hole for wearing-apparel	320,132	June 16	1594	421	31	1353

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Groshon, John A., New York, N. Y. Compound steam-engine	319,900	June 9	1969	334	31	1288
Groshon, John A., New York, N. Y. Compound steam-engine	319,901	June 9	1971	335	31	1288
Gross, Henry, Chicago, Ill. Lock mechanism for safes	315,612	Apr. 14	887	233	31	165
Gross, Henry, Chicago, Ill. Lock mechanism for safes	315,613	Apr. 14	892	234	31	166
Gross, Henry, Chicago, Ill. Permutation-lock	318,982	June 2	70	18	31	1061
Gross, Henry B. (See Elson, Jacob, assignor.)						
Grosvenor & Richards. (See Webster, Justus, assignor.)						
Grout, Charles P., New York, N. Y. Tooth-crown	319,236	June 2	365	98	31	1117
Grout, Charles P., New York, N. Y. Dental tool for preparing roots for crowns	319,237	June 2	366	98	31	1117
Grout, Charles P., New York, N. Y. Applying metallic tooth-crowns	319,238	June 2	368	98	31	1117
Grout, Frank R., Chicago, Ill. Collapsible can	317,641	May 12	952	246	31	705
Grove, Winfield S., Philadelphia, Pa. Handle for children's carriages	319,902	June 9	1274	335	31	1289
Grover, Jonathan O., Lynn, Mass. Bevel-square	320,931	June 30	2693	714	31	1571
Groves, James. (See Kelly and Groves.)						
Groves, Simeon S., Griggsville, Ill. Kitchen-cabinet	317,766	May 12	1116	294	31	735
Grow, Charles M., Frederick, Md. Composing-stick	318,893	May 26	2635	699	31	1030
Grubb, William S., Baraboo, Wis. Applying boiler-coverings	317,530	May 12	814	209	31	679
Grubb, William S., Baraboo, Wis. Fish-plate fastening	317,531	May 12	815	210	31	679
Guggenheims' Sons, M. (See Woodley, Henry J., assignor.)						
Guhl, Heinrich A. H., Hamburg, Germany. Type-writing machine	318,426	May 19	2004	539 / 540	31	908
Guhl, Louis C., Roseland, Ill. Clothes-line holder	318,182	May 19	1676	449	31	849
Guibert, John C. N. (See Voss, Richard, assignor.)						
Guigon, Frank P., Franklin, Mass. Tag-attaching device	318,614	May 26	2260	603	31	963
Guild & Garrison. (See Worthen, William H., assignor.)						
Gulickson, George, Chicago, Ill. Grate for furnaces	318,467	May 26	2054	555	31	927
Gullman, C. (See Riker, Carroll L., assignor.)						
Gunning, James F. J., New Haven, Conn. Sewing-machine binder	316,359	Apr. 21	1891	500	31	355
Gunning, James F. J., Toronto, Ontario, Canada. Stiffener for corsets, &c	321,289	June 30	3154	841	31	1655
Gunning, James F. J., Toronto, Ontario, Canada. Stiffener for corsets, &c	319,974	June 16	1380	362	31	1315
Gunning, Thomas, and J. Quigley, New Haven, Conn. Water-closet	316,616	Apr. 28	2245	591	31	426
Guss, Samuel M., assignor of one-half to J. S. Ammon, Reading, Pa. Nut-lock	317,993	May 19	1432	384	31	803
Guss, Samuel M., assignor of one-half to J. S. Ammon, Reading, Pa. Bearing and bush						
Guss, Samuel M., assignor of one-half to J. S. Ammon, Reading, Pa. Binder for roll-couplings	319,240	June 2	373	99	31	1118
Guth, Frank J., Chicago, Ill. Device for exhibiting collars, scarfs, &c	319,406	June 2	576	157	31	1157
Guth, Henry, New York, N. Y. Hydrometer	317,453	May 5	717	180	31	653
Guthrie, Frank A., Gallipolis, Ohio. Machine for making metallic roofing	318,559	May 26	2198	587	31	951
Guthrie, James F., Jr., Cambridge, Mass. Pipe-wrench	320,872	June 23	2605	690	31	1549
Guy Benjamin F., *et al.* (See Baden, Thomas E., assignor.)						
Haack, Rudolph, Stettin, Prussia, Germany. Carriage for machine-guns	319,241	June 2	374	99 / 100	31	1118
Haacker, John F. (See Machris and Haacker.)						
Haas, Edwin, Philadelphia, Pa. Watch-case	321,021	June 30	2814	748	31	1594
Haas, Levi, Chester, Pa. Railway-tie	315,771	Apr. 14	1109	291	31	208
Haas, Levi, Chester, Pa. Fertilizer	318,371	May 19	1931	.....	31	896
Haberstroh, Albert, *et al.* (See Olsen, Adolph, assignor.)						
Hadden, William, Brooklyn, N. Y. Railway signaling apparatus	315,772	Apr. 14	1110	292	31	208
Hadden, William, Brooklyn, N. Y. Railway signaling apparatus	317,994	May 19	1433	384	31	803
Hadesty, George W., Drifton, Pa. Combined weather-strip and door-stop	319,490	June 9	708	190	31	1188
Hadley, George C., Mumford, N. Y. Car-step	315,024	Apr. 7	50	11	31	11
Haenichen, Friedrich and O., Philadelphia, Pa., assignors to themselves, and O. Seebass, New York, N. Y. Electric pendulum clock	316,360	Apr. 21	1893	501	31	356
Haenichen, Otto. (See Haenichen, Friedrich and O.)						
Haerr, Philip, *et al.* (See Wells, Frank R., assignor.)						
Haerry, Paul, New York, N. Y. Induction-machine	316,143	Apr. 21	1619	424	31	307
Hafely, Alfred C., New York, N. Y. Clasp for books	317,122	May 5	258	64	31	570
Haff, Edward P., Brooklyn, N. Y. Corkscrew	315,773	Apr. 14	1111	292	31	208
Haff, Edward P., Brooklyn, N. Y. Corkscrew	317,123	May 5	259	65	31	571
Hageman, Randolph F., New Madison, Ohio. Gate	315,274	Apr. 7	408	101	31	74
Hagen, Sivert, New Brighton, N. Y. Foot-boat	319,242	June 2	374	100	31	1118
Hagenbüchle, John B., New York, N. Y. Quilting-machine	317,995	May 19	1434	384 / 385	31	804
Hagenbuchle, John B., New York, N. Y. Quilting-machine	317,996	May 19	1436	385	31	804
Hager, Alphonso W. (See Currey, Edward C., assignor.)						
Haggett, George W., Chicago, assignor of one-half to J. A. Cook, Englewood, Ill. Tag-holder for railway-cars	320,355	June 16	1927	508	31	1412
Hagmeyer, John A. (See Schaefer, John C., assignor.)						
Hahn, Albert K. (See Lacrone and Hahn.)						
Hahn, Charles. (See Meuze, Friedrich W., assignor.)						
Haid, Alfred, Rahway, N. J., assignor to Excelsior Electric Apparatus Company, New York, N. Y. Electric battery	315,937	Apr. 14	1333	347	31	248
Haid, Alfred, Rahway, N. J., assignor to Excelsior Electric Apparatus Company, New York, N. Y. Galvanic battery	315,938	Apr. 14	1334	347	31	248
Haigh, George, *et al.* (See Manuel, David, assignor.)						
Haigh, Samuel, Coquitlam, New Westminster, British Columbia, Canada. Boiler-feeder	319,708	June 9	995	263	31	1240
Haight, Wilson. (See Durkee, George B., assignor.)						
Haines, James M. (See Pascoe, Haines, and Butland.)						
Hainsworth, William, Pittsburg, Pa. Forging-plant	317,767	May 12	1117	294 / 295	31	735
Hair, Charles N. (See Wood, Aurin, assignor.)						
Hakes, Frank M., Martelle, Iowa. Harrow	317,768	May 12	1120	295	31	736
Hakins, George B., assignor of one-half to H. G. Port, Norwood, N. Y. Mechanical musical instrument	315,774	Apr. 14	1113	292	31	209
Hale, James F., Stephenville, Tex. Churn-dasher	317,124	May 5	260	65	31	571
Hale & Kilburn Manufacturing Company. (See Cobb, Henry B., assignor.)						
Hale, Samuel, Bloomfield, N. J. Crib, settee, and lounge	320,651	June 23	2334	617	31	1496
Hales, H. W. (See Hales, Henry, assignor.)						
Hales, Henry, assignor to H. W. Hales, Ridgewood, N. J. Wood-filler	317,125	May 5	261	.....	31	571
Haley, Charles H. (See Burnham and Haley.)						
Haley, Christina J., New York, N. Y. Attachment for sleeve, hose, and garment supporters	320,469	June 23	2096	553	31	1452
Haley, Christina J., New York, N. Y. Hose, sleeve, and garment supporter	320,470	June 23	2097	553	31	1452
Haley, Euclaff D., Terre Haute, Ind. Eye-remedy	318,408	May 26	2056	.....	31	928
Haley, Thomas, Cambridge, Mass. Self-closing faucet	319,577	June 9	825	219	31	1209

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Halfpenny, Caroline D., Bloomsburg, Pa. Trellis	317,939	May 12	1349	363	31	780
Hall, Albert, Cypress Hill, N. Y. Automatic button-fastening machine	315,275	Apr. 7	409	102	31	74
Hall, Albert, Richmond, Ind. Roller-skate	321,290	June 30	3155	841	31	1656
Hall, Alfred W., Presque Isle, Me. Fire-kindler	318,246	May 19	1759	470	31	864
Hall, Alvah W., Meriden, Conn. Electric burglar-alarm	315,139	Apr. 7	200	49	31	36
Hall, Alvah W., Meriden, Conn. Burglar-alarm	315,140	Apr. 7	205	50	31	38
Hall, Alvah W., assignor to Hall Railway Signal Company, Meriden, Conn. Circuit for electric switch-signals	315,498	Apr. 14	721	191	31	135
Hall, Benjamin F., Newburyport, Mass. Heel for boots or shoes	316,456	Apr. 28	2047	537	31	388
Hall & Carpenter. (See Henis, William G., assignor.)						
Hall, Charles, New York, N. Y., and J. Young, Newark, N. J., assignors to said Hall. Bolt-machine	317,642	May 12	959	246 / 247	31	705
Hall, Edgar, Boston, Mass. Roller-skate	318,723	May 26	2399	640	31	989
Hall, Edgar L., Kimmswick, Mo. Straw-carrier	321,210	June 30	3060	812	31	1638
Hall, F. Rockwood. (See Dearborn, Wyman, assignor.)						
Hall, Frank E., assignor to Hall Rubber Company, Boston, Mass. Manufacturing water-proof fabrics	320,781	June 23	2491	660	31	1527
Hall, George E., New York, N. Y. Roller-feeder	317,532	May 12	816	210	31	680
Hall, Giles, East St. Louis, Ill. Roofing-shingle	318,724	May 26	2400	640	31	989
Hall, Harvey N., assignor of one-half to U. W. Armstrong, Evansville, Ind. Table-corner	319,903	June 9	1275	336	31	1289
Hall, Henry, assignor to Rensselaer Manufacturing Company, Lansingburg, N. Y. Straight-way stop-valve	318,894	May 26	2635	699	31	1031
Hall, Jennison C., Providence, R. I. Check-book	320,782	June 23	2493	660	31	1527
Hall, John, Philadelphia, Pa. Drifting device for lathes	320,652	June 23	2336	617 / 618	31	1497
Hall, Joseph L. (See Pund, Henry, assignor.)						
Hall, Luther, assignor of one-half to H. C. Willis, Boston, Mass. Tricycle	318,725	May 26	2401	640	31	990
Hall Railway Signal Company. (See Hall, Alvah W., assignor.)						
Hall Rubber Company. (See Hall, Frank E., assignor.)						
Hall, Thomas, Auburndale, Mass. Clamp for rope halters	315,614	Apr. 14	895	234	31	166
Hall, Thomas W. (See Thayer, Anson P., assignor.)						
Hall, Washington I., Chester, N. Y. Refrigerator	317,126	May 5	262	65	31	571
Hall, William. (See Midgley and Hall.)						
Hall, William D., assignor to J. Foster & Co., Beloit, Wis. Machine for embossing and ornamenting boot or shoe soles	315,775	Apr. 14	1114	292	31	209
Hall, William D., assignor to J. Foster & Co., Beloit, Wis. Shoe	317,127	May 5	264	66	31	571
Haller, Henry, Brooklyn, assignor to G. P. Roll, New York, N. Y. Seamless shoe	317,643	May 12	960	247	31	705
Hallett, William R., assignor of one-half to J. R. Douglas, Batchtown, Ill. Barrel-press	316,030	Apr. 21	1457	380	31	277
Halliday, Thomas H., Brooklyn, assignor to N. H. Van Winkle, New York, N. Y. Springbed	320,552	June 23	2203	582	31	1472
Hallidie, Andrew S., San Francisco, Cal. Endless-rope traction-railway	321,022	June 30	2815	749	31	1594
Hallock, Valentine H., Queens, N. Y. End-thrust pad for propeller and other shafts	315,776	Apr. 14	1115	293	31	209
Hallock, Valentine H., Queens, N. Y. Supporter-pad for propeller and other shafts	315,777	Apr. 14	1116	293	31	209
Hallstead, William F. (See Graham, Charles, assignor.)						
Hallwig, Arthur, Baltimore, Md. Ash-sifter	319,407	June 2	577	157	31	1158
Halsted, Albert B., Hobart, N. Y. Seat-fastener	320,243	June 16	1736	461	31	1380
Haman, Christian. (See Haman, Jochim H. and C.)						
Haman, Jochim H. and C., Omaha, Nebr. Earth scraper and elevator	320,553	June 23	2204	582 / 583	31	1472
Hambay, James T., Allegheny, assignor to Union Switch and Signal Company, Pittsburg, Pa. Switch-stand	318,726	May 26	2402	640 / 641	31	990
Hambay, James T., Allegheny, assignor to Union Switch and Signal Company, Pittsburg, Pa. Switch-stand	319,709	June 9	996	263	31	1240
Hamel, Gustavus, De Soto, Mo. School desk and seat	318,183	May 19	1676	450	31	849
Hamilton, George A., assignor to Western Union Telegraph Company, New York, N. Y. Dynamo-electric machine	319,578	June 9	926	219	31	1210
Hamilton, William M., assignor of one-half to E. D. Pelton, Euclid, Ohio. Basket	317,454	May 5	717	180	31	653
Hamilton, William M., assignor of one-half to E. D. Pelton, Euclid, Ohio. Basket	317,455	May 5	718	181	31	653
Hamlen, Franklin L. (See Furbish and Hamlen.)						
Hamlin, George B., Willimantic, Conn. Vehicle-spring	319,243	June 2	375	100	31	1118
Hamm, Ernest J., Jersey City, N. J. Window-shade	320,245	June 16	1738	462	31	1380
Hammel, Henry A. (See Kriz, Hammel, and McManus.)						
Hammer, Gustav F., Cincinnati, Ohio. Testing globe-valves	315,276	Apr. 7	411	102	31	75
Hammer, John, and X. Kern, Jr., West Brookfield, Ohio; said Hammer assignor to said Kern. Rock-drilling machine	318,727	May 26	2404	641	31	990
Hammer, Thorvald F., Branford, Conn. Screw-tapping machine	321,023	June 30	2816	749 / 750	31	1594
Hammerle, John K., Hamilton, Ohio. Mashing apparatus	317,769	May 12	1121	295	31	736
Hammers, Frank, Hebron, Iowa. Wheel-cultivator	315,277	Apr. 7	412	102 / 103	31	75
Hammerstein, Malvine. (See Hammerstein, Oscar, assignor.)						
Hammerstein, Oscar, assignor, by mesne assignments, to W. Eggert, trustee, New York, N. Y. Machine for cutting cigar-wrappers	315,408	Apr. 7	584	150	31	105
Hammerstein, Oscar, assignor to M. Hammerstein, New York, N. Y. Machine for stripping leaf-tobacco	316,540	Apr. 28	2150	565 / 566	31	408
Hammill, Richard, Chicago, Ill. Platform for fire-escapes	316,960	May 5	41	11	31	530
Hammond, A. H. (See Tillotson, Joseph, assignor.)						
Hammond, George T., Commack, N. Y. Fence	317,344	May 5	567	145	31	627
Hammond, Henry, New Haven, Conn. Manufacture of axes	316,617	Apr. 28	2246	592	31	426
Hammond, Henry, New Haven, Conn. Ax-blank	316,618	Apr. 28	2247	592	31	427
Hammond, Thomas M., Cleveland, Ohio. Vehicle-wheel	320,932	June 30	2694	715	31	1571
Hammond, Thomas W., and M. D. Quaid, Denver, Colo. Rein-holder	319,244	June 2	376	100	31	1118
Hammond, William E., assignor to G. A. Gladwin, Meriden, Conn. Pillow-sham holder	320,244	June 16	1737	461	31	1380
Hampl, Joseph, and D. Jacobs, Fort Clark, Tex. Car-coupling	318,184	May 19	1677	450	31	849
Hampson, Joseph, Newburg, N. Y. Dead-center device for lathes	316,541	Apr. 28	2151	566	31	409
Hampton, Brinton J. (See Kipe, Charles L., assignor.)						
Hamsch, John A., Traverse City, Mich. Bag holder and lifter	315,778	Apr. 14	1117	293	31	209
Haney, Solomon, Cedar Falls, Iowa. Connection for windmill and piston rods	316,031	Apr. 21	1458	380	31	277
Haney, William H., Cincinnati, Ohio. Ice-machine	315,499	Apr. 14	723	191	31	135
Hanford, Clarence C. (See Hanford, Melancthon and C. C.)						
Hanford, Melancthon and C. C., Boston, Mass. Apparatus for bleaching liquids	319,409	June 2	578	157	31	1158
Hanford, Robert G., Jr., assignor to Crane & Co., Newark, N. J. Harness attachment	318,895	May 26	2636	699	31	1031
Hanford, Robert G., Jr., assignor to Crane & Co., Newark, N. J. Gag-runner for bridles	319,408	June 2	578	157	31	1158

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Hanhart, Louis. (See Fletcher, Dunkin, Hanhart, and Trautmann.)						
Hanika, Christian, Springfield, Ohio. Adjustable creating	318,108	May 19	1584	424	31	831
Hanington, Charles F., *et al.* (See Stieringer and Vail, assignors.)						
Hanks, Alexander P. R. (See Magee, Samuel H., assignor.)						
Hanley, Michael W. (See Bradford, John, assignor.)						
Hanna, Joseph S. (See Cox, Sanford C., assignor.)						
Hanna, Robert W., *et al.* (See Cabell, Samuel G., assignor.)						
Hannahs, Frederick C. (See Jackson and Hannahs.)						
Hannas, James M., Syracuse, and F. B. Lee, Little Falls, N. Y. Card-holder	318,372	May 19	1932	521	31	896
Hannas, James M., Syracuse, and F. B. Lee, Little Falls, N. Y. Card-holder	316,542	Apr. 28	2152	566	31	409
Hansberry, Thomas K., Bloomington, Nebr. Motor	317,128	May 5	264	66	31	572
Hanscom, Orinton M., assignor to W. Read & Sons, Boston, Mass. Holster for pistols	320,246	June 16	1739	462	31	1381
Hansell, James B., Sheffield, county of York, England. Car-wheel	319,812	June 9	1149	304	31	1207
Hansen, Jens P., Odense, Denmark. Machine for sharpening saws	316,961	May 5	41	11	31	530
Hansen, Ludvig, and A. Smith, Wilmington, N. C. Apparatus for creosoting wood	317,129	May 5	265	.....	31	572
Hansen, Ludvig, and A. Smith, Wilmington, N. C. Preserving wood						
Hanson, Christian. (See Mack and Hanson.)						
Hanson, Francis O., Kenton, Ohio. Form and frame for building iron fence	318,427	May 19	2005	540	31	908
Hanson, Luther, Halifax, county of York, England. Time-check receiver	319,000	June 2	192	51	31	1084
Hanson, Luther, Halifax, county of York, England. Time-check receiver	318,896	May 26	2637	699	31	1031
Hansson, Gustav, St. Louis, Mo. Folding and extension trestle	318,728	May 26	2405	641	31	991
Hard, Charles H., Oneida, N. Y. Folding wire mattress	321,211	June 30	3060	812	31	1638
Hard, Henry D., Oneida, N. Y. Folding cot	318,469	May 26	2056	556	31	928
Hardenburgh, Benjamin F., Rockland, N. Y. Chair						
Harder, Frank E., *et al.* (See Harder, Jacob, assignor.)						
Harder, George W., *et al.* (See Harder, Jacob, assignor.)						
Harder, Jacob, Lock Haven, assignor to F. E. and G. W. Harder, Tyrone, Pa. Breech-loading fire-arm	319,482	June 9	698	187	31	1187
Hardie, Robert W., Albany, N. Y. Journal-bearing	317,345	May 5	568	145	31	627
Hardin, Joseph E. (See Downie and Hardin.)						
Hardingham, George G. M., 191 Fleet Street, county of Middlesex, England. Steam-boiler	316,032	Apr. 21	1459	380 / 381 / 382	31	278
Hardman, Fred H., Taunton, Mass. Wire-nail machine	317,130	May 5	266	66, 67	31	572
Hardman, Joseph F., Rensselaer, Ind. Wire floating fire-box	316,775	Apr. 28	2486	649	31	470
Hardwicke, James K., and E. B. Welles, Marshall, N. C. Tobacco-drier	318,729	May 26	2406	642	31	991
Hardy, George A., Old Lenton, England. Leather-finishing machine	317,770	May 12	1122	295 / 296	31	736
Hardy, Orlando B., assignor to Giant Powder Company, San Francisco, Cal. Drying apparatus	315,141	Apr. 7	208	50, 51	31	38
Hardy, William, Dundas, Ontario, Canada. Back-band for harness	317,346	May 5	569	145	31	627
Hare, Abraham C., Beckleysville, Md. Water-conveying apparatus	320,033	June 30	2695	715	31	1571
Hare, Christopher C., Kansas City, Mo. Sheet-metal-beading machine	320,653	June 23	2337	618	31	1497
Hargrave, Samuel, Sr., and A. M. Lee, Pomona, Ill. Fire escape	321,212	June 30	3061	812	31	1638
Hargraves, James, Providence, R. I. Shutter-worker	318,109	May 19	1585	424	31	831
Hargreaves, William, and W. Inglis, Bolton, county of Lancaster, England. Engine for starting or turning large engines	316,776	Apr. 28	2486	649	31	470
Harkins, George, Aleppo, Pa. Hoisting-jack	316,777	Apr. 28	2487	649	31	470
Harlow, Charles F., and E. E. Angell, Malden, Mass. Trimming attachment for sewing-machines	319,245	June 2	377	101	31	1119
Harman, Gottlieb. (See Weaver, Charles P., assignor.)						
Harmel, Ernest, assignor to Société Harmel Frères, Val Des Bois, France. Removing foreign substances from wool and other textile fibers	318,730	May 26	2407	642	31	991
Harmon, Milford, Jackson, Mich. Mechanism for brushing flour-bolts	316,778	Apr. 28	2489	650	31	470
Harmon, Winfield S., Detroit, Mich. Anti-friction bearing for roller-skates	320,554	June 23	2206	583	31	1473
Harney, John M. Florisant, Mo. Refrigerator	321,213	June 30	3062	812	31	1638
Harney, Michael C., assignor of one-half to W. N. Brennan, St. Louis, Mo. Car-axle box	315,278	Apr. 7	413	103	31	75
Harnish, Amos B., Medway, Ohio. Folding stool	318,110	May 19	1586	424	31	831
Harnsberger, James J., Decatur, Ill. Belt-replacer	315,615	Apr. 14	896	234 / 235	31	166
Harpel, Benjamin F. (See Weaver, Isaac D., assignor.)						
Harper, Nathan, Newark, N. J. Wheel-sled	315,616	Apr. 14	896	235	31	166
Harpold, Joseph, Harrisburg, Ill. Thill-coupling	319,483	June 9	700	188	31	1187
Harrington, Charles F., Lyndhurst, N. J. Carriage-axle iron	321,201	June 30	3156	841	31	1656
Harrington, Samuel H., Columbus, Ohio. Semaphore	317,347	May 5	570	146	31	627
Harrington, Theodore, Southbridge, Mass. Handle for shoe-knives	319,091	June 2	194	51	31	1084
Harris, Asa L. (See Shearer, William C., assignor.)						
Harris Button Hole Attachment Company. (See Harris, John K., assignor.)						
Harris, George W., Prospect, Kans. Peanut and coffee roaster	317,348	May 5	572	146	31	628
Harris, Henry D., *et al.* (See Ellis, James W., assignor.)						
Harris, John K., Springfield, Ohio, assignor to Harris Button Hole Attachment Company, New York, N. Y. Button-hole attachment for sewing-machines	318,470	May 26	2057	556	31	928
Harris, John K., Springfield, Ohio, assignor to Harris Button Hole Attachment Company, New York, N. Y. Button-hole attachment	318,471	May 26	2060	556	31	928
Harrison, Jonathan W., Ypsilanti, assignor of one-half to C. R. Miller, Adrian, Mich. Coal-mining machine	321,103	June 30	2929	776	31	1613
Harrison, Thomas J., Brooklyn, N. Y. Wind-motor	320,654	June 23	2339	618 / 619	31	1497
Harrison, William F., Wilmington, Del. Cutter for fine-holes in tube-sheets of boilers	318,897	May 26	2639	700	31	1031
Harrison, William P., Columbus, Ohio. Chain-pump bucket	318,615	May 26	2260	603	31	963
Harrod, Samuel B., Jennings, Ind. Fence-post	318,428	May 19	2007	541	31	909
Harrop, Joseph M., assignor of one-half to J. Ash, Quincy, Ill. Fence-making machine	321,359	June 30	3242	865 / 866	31	1673
Harsin, Gerard. (See Clarke and Harsin.)						
Hart, Albert. (See Fisher and Hart.)						
Hart, Henry C., Detroit, Mich. Toy savings-bank	317,771	May 12	1123	296	31	737
Hart, Henry C., Detroit, Mich. Soap-dish	319,246	June 2	378	101	31	1119
Hart, Richard, Byron, Ill. Thill-coupling	317,349	May 5	572	146	31	628
Hart, William H., Jr. (See Merrill, William E. T., assignor.)						
Hart, William H., Jr., Philadelphia, Pa. Buckle	316,261	Apr. 21	1767	464	31	333
Hartigan, William R., Collinsville, Conn. Hubbing-machine	317,131	May 5	268	67, 68	31	572
Hartman, Benjamin J., Wooster, Ohio. Harness-buckle	319,579	June 9	828	219	31	1210
Hartman, Benjamin J., assignor of one-half to D. W. Immel, Wooster, Ohio. Gig-saddle	319,484	June 9	701	188	31	1187
Hartman, John M., Philadelphia, Pa. Dumping-car	321,094	June 30	2921	750	31	1594
Hartshorn, Joseph A., *et al.* (See Belknap, Hamlet W., assignor.)						
Hartshorn, Stewart, Millburn, N. J. Spring shade-roller	320,947	June 16	1740	469	31	1381

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Hartupee, William D. (See Hunter, James, assignor.)						
Harty, William, Portsmouth, Ohio. Metal-heating furnace	316,963	May 5	44	12	31	530
Harvey, Hayward A., Orange, N. J. Rolled wood-screw	319,247	June 2	378	101	31	1119
Harvey, Hayward A., Orange, N. J. Gimlet-pointed rolled wood screw	321,214	June 30	3063	813	31	1638
Harvey, Patrick, Chicago, Ill. Waste-pipe trap and valve	316,962	May 5	42	12	31	530
Harvey, Patrick, Chicago, Ill. Stop and waste valve	318,247	May 19	1760	471	31	864
Harvey, Thomas A., East Saginaw, Mich. Railway step-ladder	315,939	Apr. 14	1336	347	31	248
Harvey, William H. F., *et al.* (See McMurtry, James S., assignor.)						
Harwood, Herbert J., Littleton, assignor, by mesne assignments, to Harwood Manufacturing Company, Leominster, Mass. Folding chair or settee	315,617	Apr. 14	898	235	31	167
Harwood, Herbert J., Littleton, assignor to Harwood Manufacturing Company, Leominster, Mass. Folding-seat settee	315,618	Apr. 14	899	236	31	167
Harwood Manufacturing Company. (See Harwood, Herbert J., assignor.)						
Haselton, Daniel B., assignor to Southern Cotton Picking Company, Charleston, S. C. Cotton-harvester	319,710	June 9	998	264	31	1241
Haskell, Charles S., Philadelphia, Pa. Time-recording apparatus	319,092	June 2	195	51, 52	31	1064
Haskell, H. Stewart, *et al.* (See Reece, George L., assignor.)						
Haslam, Henry F., New Britain, Conn. Chalk-line reel	320,555	June 23	2207	583	31	1473
Haslup, William, Sidney, Ohio. Scraper	316,779	Apr. 28	2490	650	31	471
Hassall, John, and M. M. Smith, New York, N. Y. Wire-nail machine	319,485	June 9	702	188, 189	31	1187
Hassall, William, Beeston, county of Nottingham, England. Joint for pipes for water, gas, electric wires, &c	318,616	May 26	2261	604	31	963
Hassenpflug, Henry, Huntingdon, Pa. Vegetable-slicer	318,560	May 26	2200	588	31	952
Hassinger, Reuben F., Adamsburg, Pa. Rotary pump	319,093	June 2	198	52, 53	31	1064
Hasskarl, Gottlieb C. H., Philadelphia, Pa. Clothes-line fastener	317,350	May 5	574	147	31	628
Hasskarl, Gottlieb C. H., Philadelphia, Pa. Railway-tie	319,813	June 9	1150	304	31	1268
Hat Curling Machine Company. (See Cocker and Yule, assignors.)						
Hat Curling Machine Company. (See Tweedy and Yule, assignors.)						
Hat Curling Machine Company. (See Yule, George, assignor.)						
Hatch, Azel F. (See Koneman and Scoville, assignors.)						
Hatch, Fred A., assignor of one-half to A. M. Brownell and J. H. Murkland, New Bedford, Mass. Dial for locks	317,772	May 12	1125	297	31	737
Hatfield, Charles B., assignor of one-half to J. C. Heughes and H. Loewer, Rochester, N. Y. Shoe-upper machine	318,731	May 26	2409	642	31	991
Hatfield, Sheridan L., Reading, Mass. Compound engine	318,898	May 26	2640	700	31	1031
Hatfield, William B., assignor to J. Rodgers & Sons, (limited,) Sheffield, county of York, England. Carving-fork	318,732	May 26	2411	643	31	992
Hatôll, Thomas, assignor of one-fourth to F. E. Tracey, Mount Hope, Kans. Windmill	321,292	June 30	3156	842	31	1656
Hatmaker, Adam H., Iuka, Ill. Tree-box	316,262	Apr. 21	1768	464	31	334
Hattersley, Charles M., Trenton, N. J. Upright piano	320,556	June 23	2208	584	31	1473
Haugk, Carl H., assignor of two-thirds to C. and C. Vogt, Brooklyn, N. Y. Cigar-bunching machine	315,279	Apr. 7	414	103	31	75
Haugk, Carl H., assignor of two-thirds to C. and C. Vogt, Brooklyn, N. Y. Temporary wrapper for cigars	320,248	June 16	1741	462	31	1381
Hauae, Joseph, Manganaville, Md. Gate	321,215	June 30	3065	813	31	1639
Hausemann, Herman, Chicago, Ill. Artificial leg	317,644	May 12	961	248	31	706
Havell, George, and A. G. Williams, Newark, N. J., assignors to W. Demuth & Co., New York, N. Y. Combined pipe-bowl cover and stuffer	321,104	June 30	2931	777	31	1613
Haven, W. D. (See Schumann, Francis, assignor.)						
Hawes, Henry C., and J. E. Green, jr., Belleville, N. Y. Roofing compound	316,964	May 5	46	.....	31	531
Hawkins, Frederick H., Brooklyn, N. Y. Ice-holder for butter-dishes, &c	315,619	Apr. 14	900	236	31	167
Hawkins, John T., Taunton, Mass. Ink-fountain for printing-presses	318,617	May 26	2262	604	31	963
Hawkins, John T., Taunton, Mass. Frictional lock-nut	318,618	May 26	2263	604	31	963
Hawkins, John T., Taunton, Mass. Mechanism for operating beds of printing-machines	319,248	June 2	379	101, 102	31	1119
Hawkins, John T., Taunton, Mass. Sheet-delivery mechanism for printing-presses	319,249	June 2	380	102	31	1119
Hawkins, Lorenzo P., Portland, Me. Insole for boots or shoes	316,780	Apr. 28	2492	650	31	471
Hawkins, Robert H., deceased, New Haven, Conn., H. G. Newton, administrator. Sewing-machine	316,963	Apr. 21	1768	465	31	334
Hawkins, Thomas S., Chattanooga, Tenn. Brick-kiln	317,351	May 5	574	147	31	628
Hawley, Clinton, Mulberry Grove, Ill. Rotary harrow	321,105	June 30	2932	777	31	1613
Hawley, Eli J., Manchester, Vt. Sand and water feeding mechanism for stone sawing or rubbing machines	321,293	June 30	3158	842	31	1656
Hawley, John S., Brick Church, N. J., and H. W. Hoops, New York, N. Y. Marking chocolate-cream drops and other confectionery	321,216	June 30	3066	813	31	1639
Haworth, George D. Chicago, Ill. Metallic felly	319,410	June 2	679	158	31	1158
Hay, Frank C., *et al.* (See Duncan, James, assignor.)						
Hay, John, Rochester, assignor to J. E. Thomson, Marion, N. Y. Watch-barrel	316,965	May 5	46	12	31	531
Haycox, William E., Cleveland, Ohio. Holder for sliding doors	317,352	May 5	575	148	31	628
Hayden, Charles H. (See Hayden, William B. and C. H.)						
Hayden, Charles J. S., Worcester, Mass. Spring locking-clasp for garments	317,645	May 12	962	248	31	706
Hayden, Harris H., New York, N. Y. Store-service apparatus	321,294	June 30	3159	843	31	1657
Hayden, Horace L., assignor of one-half to H. C. Goodspeed, Boston, Mass. Head for fabric take-up devices for knitting-machines	317,773	May 12	1126	297	31	737
Hayden, William B., Columbus, Ohio. Elevating mechanism for buildings	318,373	May 19	1933	521, 522	31	890
Hayden, William B. and C. H., Columbus, Ohio. Fire-proof floor	316,361	Apr. 21	1896	501, 502	31	356
Haydn, George, assignor of two-thirds to B. B. and J. Friedenwald, Baltimore, Md. Fluid-ejector for draining cellars	318,185	May 19	1678	450	31	849
Haydn, George, assignor of two-thirds to B. B. and J. Friedenwald, Baltimore, Md. Valve for water-closets, &c	318,899	May 26	2641	700	31	1032
Haydon, William, *et al.* (See Munzinger, Peter, assignor.)						
Hayes, Carl E., Brooklyn, assignor of two-thirds to C. Reisaner and C. E. Meier, New York, N. Y. Bolt	316,619	Apr. 28	2248	592	31	427
Hayes, Charles C., Penn Yan, N. Y. Spring-carriage	321,106	June 30	2932	777	31	1613
Hayes, Cornelius, Oswego, N. Y. Grain-elevator	317,353	May 5	576	148	31	629
Hayes, George, New York, N. Y. Skylight. (Reissue)	10,581	Apr. 21	2003	526	31	1374
Hayes, George, New York, N. Y. Metallic skylight-bar. (Reissue)	10,582	Apr. 21	2004	527	31	375
Hayes, George, New York, N. Y. Apparatus for heating water in bath-tubs	317,940	May 12	1349	363	31	780
Hayes, James H., Faxon, Minn. Car-coupling	319,250	June 2	383	102	31	1120
Hayes, Martin P., assignor of one-half to F. M. Atkinson, Chicago, Ill. Casting metals	317,533	May 12	818	210	31	680
Hayes, Martin P., Chicago, Ill., assignor of one-half to J. M. Duncan, Warsaw, N. Y. Evaporating apparatus for brine, &c	321,025	June 30	2633	750, 751	31	1595

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Hayes, Samuel J., Pittsburg, Pa. Apparatus for carbureting and odorizing natural gas	316,033	Apr. 21	1463	382	31	278
Haynes, Archibald C. (See Haynes, Edward B., assignor.)						
Haynes, Carlos B., North Adams, Mass. Starching and tentering machine	320,249	June 16	1742	463	31	1381
Haynes & Co., John C. (See Washburn, G. Arthur, assignor.)						
Haynes, Edgar K., Boston, Mass. Necktie-holder	317,354	May 5	577	148	31	629
Haynes, Edgar K., assignor of one-half to G. W. Gregory, Boston, Mass. Hard-rubber filter-case	316,457	Apr. 28	2048	537	31	389
Haynes, Edward B., assignor to A. C. Haynes, Baltimore, Md. Piano-stool	315,779	Apr. 14	1118	293	31	210
Hayward, Clarence A., Providence, R. I. Portable bath-tub	321,217	June 30	3066	813, 814	31	1639
Hayward, Emma L. (See Thompson, William G., assignor.)						
Hayward, Jacob L., Framingham, Mass. Machine for extracting from pulverized ores gold and silver	320,655	June 23	2341	619	31	1498
Haywood, Charles M. (See Thayer, William S., assignor.)	319,486	June 9	704	189	31	1187
Haywood, Cornelius, Chicago, Ill. Screen for sizing ores, &c						
Hazard, Evan M. (See Sullivan and Hazard.)						
Hazard, Rowland R., New York, N. Y. Non-resonant material for the construction of buildings, railway-tunnels, railway-carriages, &c	316,543	Apr. 28	2154	.....	31	409
Hazelton, Milton W., New York, N. Y. Sleeping-car	319,711	June 9	1000	264, 265	31	1241
Head, Thomas. (See Martin and Head.)	321,295	June 30	3162	.....	31	1657
Head, Thomas, Copetown, Ontario, Canada. Graining composition	317,132	May 5	270	68	31	573
Headington, Nimrod, and J. S. Malin, Portland, Ind. Spring for doors and gates	315,290	Apr. 7	416	104	31	75
Headley, Frank J., Milton, N. J. Can-fastener	318,733	May 26	2412	.....	31	992
Headly, Charles B., Philadelphia, Pa. Frame for eyeglasses and spectacles	318,734	May 26	2412	.....	31	992
Headly, Charles B., Philadelphia, Pa. Frame for eyeglasses and spectacles	316,264	Apr. 21	1770	465	31	334
Heaford, Edwin V., Cincinnati, Ohio. Weather-strip						
Healey, Edward S. (See Healey, James A., assignor.)	318,111	May 19	1588	424	31	832
Healey, James A., Wakefield, assignor to himself and E. S. Healey, Lynn, Mass. Crib	316,966	May 5	48	12	31	531
Healy, Byron J., Kalamazoo, Mich. Automatic flushing apparatus	317,774	May 12	1127	297	31	737
Healy, William J., Susquehanna, Pa. Locomotive driving-box	315,291	Apr. 7	417	104	31	75
Heaphy, Michael J., Lincoln, Nebr. Whip	320,471	June 23	2099	553	31	1453
Heard, Thomas H., Sheffield, county of York, England. Horseshoe and horseshoe-blank	320,133	June 16	1596	422	31	1354
Hearne, Andrew J., Battleborough, N. C. Manure-drill	319,411	June 2	580	158	31	1158
Heartwell, Oscar F., jr., assignor of one-half to A. D. Place, Des Moines, Iowa. Broadcast seed-sower	315,025	Apr. 7	51	12	31	11
Heath, George M., Rockingham, assignor, by mesne assignments, to said Heath, J. J. and L. F. Barnes, Westminster, Vt. Fire-escape	318,248	May 19	1761	471	31	865
Heath, William R., Sedalia, Mo. Portable roof for hay and grain ricks	318,619	May 26	2264	604	31	963
Heaton, Horace L., assignor of one-half to F. Woodbridge, Indianapolis, Ind. Pitman-coupling for harvesters	315,940	Apr. 14	1337	347	31	248
Heber, Robert, Titusville, Pa. Safety-shield for gas-mains	316,967	May 5	49	13	31	531
Hebert, Arthur J. (See Hebert, Louis H. and J. J., assignors.)						
Hebert, Joseph J. (See Hebert, Louis H. and J. J.)						
Hébert, Louis H., St. Johns, and J. J. Hebert, assignors of one-third to A. J. Hebert, St. Henri, Quebec, Canada. Car-brake	320,351	June 16	1921	506	31	1411
Hecker, John V., New York, N. Y. Bolting-machine for flour-mills, &c	318,923	June 2	72	18, 19	31	1061
Heckert, William, assignor to G. H. Scribner, Yonkers, N. Y. Grip for cable railways	318,619	May 26	2264	604	31	963
Heckert, William, assignor to G. H. Scribner, Yonkers, N. Y. Cable railway	318,620	May 26	2265	605	31	964
Heckert, William, assignor to G. H. Scribner, Yonkers, N. Y. Supporting traction-cables on curves	318,621	May 26	2267	605	31	964
Hedges, Jasper J., Athol, Mass. Bevel for draftsmen or artificers	318,964	June 2	73	19	31	1061
Hedges, Samuel P., Greenport, N. Y. Steam-boiler	316,144	Apr. 21	1620	424	31	307
Hedley, Edward E., assignor of one-half to N. C. Hedley, New York, N. Y. Smoke-consumer	317,775	May 12	1128	298	31	738
Hedley, N. C. (See Hedley, Edward E., assignor.)						
Heeley, Richard, Birmingham, county of Warwick, England. Rim for velocipede-wheels	315,026	Apr. 7	52	12	31	11
Heesen, Hendrick. (See Brewer and Heesen.)						
Heffernan, Edward F., Lockport, N. Y., assignor to R. J. Quigley, Toronto, Canada. Watch-case hinge	319,814	June 9	1151	304	31	1268
Heidenreich, Eyvind L., assignor of one-half to J. A. McLennan, Chicago, Ill. Car brake and starter	321,218	June 30	3067	814	31	1639
Heilbronner, Henry, and H. A. Rosback, Springfield, Ill. Barrel-stand	317,133	May 5	271	68	31	573
Helles, Gustav, New York, N. Y. Combined button-hook and coat-hanger	315,500	Apr. 14	724	191	31	135
Heine, August, Silver Creek, N. Y. Centrifugal flour-bolt	316,968	May 5	50	13	31	532
Heintgartner, Fred J. (See Huth, John, assignor.)						
Heinig, Frederick E. (See Brinly and Heinig.)						
Heinrichs, Charles F., New York, N. Y. Apparatus for making curved carbons	317,776	May 12	1129	298	31	738
Heinrichs, Charles F., New York, N. Y. Electric lamp	317,777	May 12	1130	298, 299	31	738
Heinrichs, Charles F., New York, N. Y. Electric lamp	317,778	May 12	1132	299, 300	31	739
Heinrichs, Charles F., New York, N. Y. Dynamo-electric machine	317,779	May 12	1135	300, 301	31	739
Heinze, Louis, Newark, N. J. Incandescent electric lamp	319,580	June 9	829	219	31	1210
Heinzer, William L., and H. B. Gillingham, Philadelphia, Pa. Hame-fastener	321,026	June 30	2825	751	31	1595
Heist, Henry A., *et al.* (See Wallick, Marion, assignor.)						
Helaers, Alphonse. (See Loze and Helaers.)						
Helliwell, Robert B., assignor of one-half to D., Sr., and P. J. Steinmetz, Philadelphia, and D. Steinmetz, Jr., Colmar, Pa. Steam-trap	318,249	May 19	1762	471	31	865
Hellyer, Samuel S., London, county of Middlesex, England. Trap for soil and other pipes	320,435	June 16	2044	536	31	1434
Helm, Nathan B. (See Hunt, Ferris, and Helm.)	317,780	May 12	1138	301	31	739
Helms, Francis M., and C. C. Trinkle, Veedersburg, Ind. Cultivator-tooth	316,265	Apr. 21	1771	466	31	334
Helton, John W., assignor of one-third to M. T. Owens, Waterloo, Iowa. Latch						
Helverson, F. A. S., *et al.* (See Kratzer, Wayne, assignor.)	321,219	June 30	3069	814	31	1620
Hemelright, Henry H., and G. W. Stone, Pottstown, Pa. Combined carriage and cradle	320,250	June 16	1743	464	31	1381
Hemler, Michael, Cincinnati, Ohio, assignor to Mosler Safe and Lock Company. Coupling device for safe-spindles	317,781	May 12	1139	302	31	739
Hemphill, James, Pittsburg, Pa. Casting rolls						
Hencke, Henry, Gruneck, Germany. Process of and apparatus for producing fodder from residual products of distilleries and breweries	316,145	Apr. 21	1621	424	31	307
Henderson, Edwin F., Fort Howard, Wis. Treadle	315,282	Apr. 7	417	104	31	76
Henderson, Henry A., Lynn, assignor to F. F. Raymond, 2d, trustee, Newton, Mass. Heel-nailing machine	316,894	Apr. 28	2652	691, 692, 693	31	500

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Henderson, Henry A., Lynn, Mass., assignor, by mesne assignments, to National Heeling Machine Company, Portland, Me. Heel-nailing machine. (Reissue)	10,588	Apr. 28	2712	706 707	31	511
Henderson, Henry A., Lynn, Mass., assignor, by mesne assignments, to National Heeling Machine Company, Portland, Me. Heel-nailing machine. (Reissue)	10,589	Apr. 28	2715	707 708	31	512
Henderson, Henry A., Lynn, Mass., assignor to National Heeling Machine Company, Portland, Me. Heel-nailing machine	317,646	May 12	963	248	31	706
Henderson, Henry A., Lynn, and F. F. Raymond, 2d, Newton, Mass.: said Henderson assignor to National Heeling Machine Company, Portland, Me. Heel-nailing machine	317,647	May 12	965	248 249	31	706
Henderson, James, Bellefonte, Pa. Mold for casting steel	315,741	Apr. 14	1064	279	31	200
Henderson, James, Bellefonte, Pa. Gas-producer	320,873	June 23	2606	690	31	1549
Henderson, James, Bellefonte, Pa., assignor of one-half to C. G. Francklyn, New York, N. Y. Apparatus for the combustion of gaseous fuel	315,142	Apr. 7	209	51	31	38
Henderson, James, Bellefonte, Pa., assignor of one-half to C. G. Francklyn, New York, N. Y. Mold for casting steel	316,544	Apr. 28	2154	567	31	409
Henderson, John F., Manton, Mich. Grain-separator	317,782	May 12	1140	302	31	740
Hendrick, A. Ellwood. (See Gee, William, assignor.)						
Hendryx, Norman, *et al.* (See Franklin, James C., assignor.)						
Henis, William G., assignor of one-half to Hall & Carpenter, Philadelphia, Pa. Chimney-cowl and ventilator	316,781	Apr. 28	2493	651	31	471
Henius, Max W., Bridgeport, Conn. Manufacture of corset-stays	316,034	Apr. 21	1464	382	31	278
Henley, Micajah C. (See Peterson and Henley.)						
Henley, Micajah C., Richmond, Ind. Roller-skate	316,966	Apr. 21	1771	466	31	334
Henley, Micajah C., Richmond, Ind. Roller-skate	319,712	June 9	1001	265	31	1242
Henley, Micajah C., Richmond, Ind. Skate	320,352	June 16	1923	507	31	1411
Hennig, Carl G. E. (See Weber, Hennig, and Frommelt.)						
Hennig, Carl G. E., Paterson, N. J. Tricycle	316,146	Apr. 21	1623	425	31	307
Henninges, Reinhold E., Cleveland, Ohio. Ventilator	320,251	June 16	1744	464	31	1381
Henninges, Reinhold E., Cleveland, Ohio. Sash-fastener	320,353	June 16	1924	507	31	1411
Henry, Frank R., assignor of one-fifth to J. S. Baird, Murfreesborough, Tenn. Combined heater and ventilator	316,620	Apr. 28	2249	593	31	427
Henry, John J., assignor of one-half to G. A. Schaal, Baltimore, Md. Car-brake	315,780	Apr. 14	1119	294	31	210
Hensley, Charles S., assignor of one-half to W. Hensley, Lawrence, Ind. Carrier for binders, &c	316,302	Apr. 21	1808	502	31	356
Hensley, William. (See Hensley, Charles S., assignor.)						
Henwood, John, Philadelphia, Pa. Machine for channeling slate, &c	318,735	May 26	2413	643	31	992
Henzel, Charles, New York, N. Y. Electric signal-bell	318,472	May 26	2061	557	31	928
Herig, Adam, assignor to J., A., and C. Herig, Cleveland, Ohio. Household-furniture	317,355	May 5	578	148	31	629
Herig, Christian, *et al.* (See Herig, Adam, assignor.)						
Herig, John, *et al.* (See Herig, Adam, assignor.)						
Hering, Len, Isle St. George, Ohio. Device for reefing sails	315,501	Apr. 14	725	192	31	135
Hermann, Max, assignor to Tim, Wallerstein & Co., Troy, N. Y. Shirt	319,487	June 9	705	189	31	1187
Herr, Edwin M., Denver, Colo., and G. W. Cummins, Vienna, N. J. Furnace for annealing metals	319,713	June 9	1003	265 266	31	1242
Herrick, John F. (See Cowell and Herrick.)						
Herrick, Lewis W., assignor to himself, L. A. Roller, and J. H. Gibbs, Edmore, Mich. Belt-fastener	315,781	Apr. 14	1119	294	31	210
Herrick, Rodney L., Santa Barbara, Cal. Seed-planter	315,782	Apr. 14	1120	294	31	210
Herrick, W. D. (See Snow, Abner, assignor.)						
Hertzog, Oscar S., Blue Rock, Pa. Electric railway-signal	318,186	May 19	1680	450	31	849
Herzog, F. Benedict, New York, N. Y. Electric signaling apparatus and circuit	315,027	Apr. 7	53	12	31	11
Herzog, F. Benedict, New York, N. Y. Automatic call for latent-signal transmitters	315,783	Apr. 14	1121	294 295	31	210
Herzog, F. Benedict, New York, N. Y. Bell for latent-signal transmitters	315,941	Apr. 14	1338	348	31	248
Herzog, Philip, Minneapolis, Minn. Bolt-operating mechanism	319,488	June 9	706	189	31	1188
Hess, Jacob F. and L. F. H., J. F., and C. F. Snyder, Massillon, Ohio. Grate	320,783	June 23	2494	660	31	1528
Hess, Lenerd. (See Hess and Snyder.)						
Hesse, Charles, Danville, Ill. Window-scaffold	319,714	June 9	1005	266	31	1242
Heston, David, Philadelphia, Pa. Paper box	315,283	Apr. 7	418	104	31	76
Heughes, John C., *et al.* (See Hatfield, Charles B., assignor.)						
Hewitt, Charles E., Brandon, assignor to himself and J. W. Symons, Forest Dale, Vt. Door-check	315,284	Apr. 7	419	105	31	76
Hewitt, William, assignor to Trenton Iron Company, Trenton, N. J. Metallic fabric	316,458	Apr. 28	2049	537	31	389
Hewston, John, Jr., *et al* (See Ludwig, John C., assignor.)						
Hey, Michael, Philadelphia, Pa. Try-spigot for beer	320,252	June 16	1745	464	31	1381
Heys, Alfred J., and S. Salkeld, Manchester, county of Lancaster, England. Button or other fastening for garments	320,061	June 16	1495	395	31	1336
Heysinger, Isaac W., Philadelphia, Pa. Valve-stopper for perfume and other bottles	316,147	Apr. 21	1624	425	31	308
Heywood Brothers & Co. (See Watkins, Gardner A., assignor.)						
Heywood, George, *et al.* (See Conant, Fred H., assignor.)						
Heywood, George, *et al.* (See Ellis, George A., assignor.)						
Heywood, George, *et al.* (See Ellis and Taft, assignors.)						
Heywood, Henry, *et al.* (See Conant, Fred H., assignor.)						
Heywood, Henry, *et al.* (See Ellis, George A., assignor.)						
Heywood, Henry, *et al.* (See Ellis and Taft, assignors.)						
Hibbs, Lorin T., *et al.* (See Keller, William N., assignor.)						
Hickey, John P., Washington, D. C. Feathering paddle-wheel	316,763	Apr. 28	2495	651	31	471
Hickok, William O. (See Metzger and Cooper, assignors.)						
Hicks, Ira B., Kalamazoo, Mich. Drill-chuck	318,986	June 2	75	19	31	1062
Hicks, James J., Hatton Garden, county of Middlesex, England. Clinical thermometer	317,783	May 12	1141	302	31	740
Hicks, James J., 8 Hatton Garden, county of Middlesex, England. Manufacture of thermometers	318,985	June 2	74	.....	31	1061
Hicks, James J., 8 Hatton Garden, county of Middlesex, England. Graduated measuring-vessel	320,784	June 23	2495	661	31	1528
Higgins, Jason L. (See Bennett, Charles H., assignor.)						
Higgins, John A., assignor to J. M. Estabrook, Milford, Mass. Shoe-tree	319,412	June 2	581	158	31	1159
High, William F., Reading, Pa. Fire-escape	316,969	May 5	51	13	31	592
Highbarger, John L., Sharpsburg, Md. Saw jointing and setting device	317,784	May 12	1143	303	31	740
Higinson, David G., Spring Valley, N. Y., and C. S. De Baun, Westwood, N. J. Cider and wine press	315,784	Apr. 14	1124	295	31	211
Higley, Asa L., assignor of one-half to H. J. McCheaney, Troy, N. Y. Car brake and starter	315,620	Apr. 14	901	236	31	167
Higley, Joseph L., *et al.* (See Pentz, Levi, assignor.)						
Hignutt, James E., Denton, Md. Fire-kindler	321,027	June 30	2936	751	31	1595
Hilborn, Julius, assignor to M. Cohn & Co., New York, N. Y. Corset	319,715	June 9	1006	266	31	1242
Hilburn, Frank P., and G. L. Hoehn, Mount Vernon, Ind. Switch-lock	321,107	June 30	2933	777	31	1613

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Hildebrand, Herman E., Chicago, Ill. Combined table and chair	318,250	May 19	1763	471 472	31	865
Hildebrand, Louis P., Decatur, Ill. Potato-planter	321,296	June 30	3163	843	31	1657
Hilder, Charles F., and E. Scott, Newcastle-upon-Tyne, England. Magnetic separator	315,028	Apr. 7	55	13	31	12
Hilditch, Jacob, Christiania, Norway. Self-acting mechanism for shades and blinds	315,029	Apr. 7	57	14	31	12
Hildreth, Charles H. (See Nelson, George A., assignor.)						
Hill, Alexander H., Oskaloosa, Iowa. Window-screen	317,456	May 5	719	181	31	633
Hill, Alexander H., Oskaloosa, Iowa. Folding camp-stool	317,785	May 12	1143	303	31	740
Hill, Alexander H., Oskaloosa, Iowa. School-desk inkstand	319,815	June 9	1153	304	31	1203
Hill, Alfred R., Wauseon, Ohio. Bag-holder	317,356	May 5	579	149	31	629
Hill, Almon F. (See Way and Hill.)						
Hill, Barton B., Lowell, Mass. Shell	316,970	May 5	53	14	31	592
Hill, Benjamin B., Philadelphia, Pa. Hand-stamp	315,285	Apr. 7	420	105	31	76
Hill, Benjamin B., Philadelphia, Pa. Hand-stamp	315,286	Apr. 7	422	105	31	76
Hill, Charles F., Phelps, assignor of one-half to R. Wagner, Rochester, N. Y. Saw-filing device	319,489	June 9	707	190	31	1188
Hill, Ebenezer, South Norwalk, Conn. Pneumatic ordnance	315,030	Apr. 7	58	14	31	12
Hill, Ebenezer, South Norwalk, Conn. Regulating-valve	317,357	May 5	580	149	31	629
Hill, Ebenezer, South Norwalk, Conn. Speed-governor for steam-engines	319,251	June 2	385	102	31	1120
Hill, John H., Long Island City, and J. E. Babcock, New York, N. Y. Electric burglar-alarm	316,621	Apr. 28	2250	593	31	427
Hill, Lucian, assignor to T. C. Bates, North Brookfield, Mass. Fastening for corsets	315,031	Apr. 7	61	14	31	13
Hill, Lucian, assignor to T. C. Bates, North Brookfield, Mass. Corset-steel clasp or fastening	316,148	Apr. 21	1626	425	31	308
Hill, Lucian, assignor to T. C. Bates, Brookfield, Mass. Corset-steel fastening. (Reissue)	10,596	May 12	1382	371	31	786
Hill, Richard H., Holyoke, Mass. Friction coupling device	316,149	Apr. 21	1627	425	31	308
Hill, Robert M., Lowell, Mass. Gear-cutter shaping-tool	316,784	Apr. 28	2496	651	31	472
Hill, Warren, Boston, Mass. Ticket-punch	320,785	June 23	2496	661	31	1528
Hill, Warren S., *et al.* (See Pottle, George F., assignor.)						
Hill & Way Gate Company. (See Way and Hill, assignors.)						
Hill, William, Mount Vernon, Ill. Lock and latch combined	320,472	June 23	2100	554	31	1453
Hill, William, and T. R. Wilson, Salt Lake City, Utah Ter. Photographic-printing apparatus	319,975	June 16	1382	362 363	31	1316
Hill, William E., Kalamazoo, Mich. Log-turner	315,032	Apr. 7	61	15	31	13
Hillery, Edward, Waseca, Kans. Lock for railway-switch stands	316,545	Apr. 28	2156	567	31	409
Hinchliffe, William, Nashville, Tenn. Railway-head, drawing-machine, &c	318,900	May 26	2642	700 701	31	1032
Hinckley, Henry D., assignor of one-half to A. Whitney, Hartford, Conn. Ratchet-drill	318,561	May 26	2392	588	31	952
Hinds, Justin, and L. L. Stimpson, Boston, Mass. Electric railway-signal	315,785	Apr. 14	1125	295	31	211
Hine & Co. (See Marsh, Riverius, assignor.)						
Hines, Dauphin S., *et al.* (See Bicknell, William A. P., assignor.)						
Hinkel, Ernst P., Offenbach-on-the-Main, Germany. Clasp for purses, &c	317,358	May 5	581	149	31	630
Hinman, Hugh C., Oakland, Cal. Coal scuttle or hod	316,035	Apr. 21	1465	382	31	279
Hinsdale, William R. (See Billings and Hinsdale.)						
Hinson, William P., Nashville, Mo. Wire splicer and tightener	319,716	June 9	1007	267	31	1243
Hinton, Joseph R. H., Baltimore, Md., assignor to Continental Store Service Company, New York, N. Y. Device for transporting cash and parcels in dry-goods stores	321,300	June 30	3244	866	31	1673
Hinze, William, Newark, N. J. Window-guard	319,252	June 2	387	103	31	1121
Hipsley, J. J., *et al.* (See Kock, Christian H., assignor.)						
Hipwell, Thomas. (See White and Hipwell.)						
Hitchcock, Charles H., *et al.* (See Lord, Andrew H., assignor.)						
Hitchcock, William F. (See Wright, Gage, and Hitchcock.)						
Hoagland, John. (See Pearce and Hoagland.)						
Hobart, John H., Oakland, assignor to T. H. Williams and D. Bixler, San Francisco, Cal. Pipe-coupling	315,287	Apr. 7	423	106	31	77
Hobbs, Josiah, East Brookfield, Mass. Sand mold	320,934	June 30	2696	715	31	1571
Hobbs, William H., *et al.* (See Borton, Job, assignor.)						
Hock, William R., assignor of one-half to J. Seyfried, Catasauqua, Pa. Scrubbing-brush	320,436	June 16	2046	537	31	1434
Hodesty, George W., Drifton, Pa. Coal-scuttle	317,786	May 12	1144	303	31	740
Hodge, Charles J., Houghton, Mich. Quartz-mill	317,359	May 5	582	150	31	630
Hodgen, J. F. (See Whisler, Cyrus, assignor.)						
Hodges, Charles C., *et al.* (See Turner, Isaac A., assignor.)						
Hodges, Charles H., *et al.* (See Turner, Isaac A., assignor.)						
Hodges, Clarence B., *et al.* (See Turner, Isaac A., assignor.)						
Hodges, Clarence B., and E. McCoy, Detroit, Mich. Steam-dome for locomotives	320,354	June 16	1925	507	31	1412
Hodges, Henry C., *et al.* (See Turner, Isaac A., assignor.)						
Hodges, Pliny F., Chicago, Ill. Grain-binder	315,288	Apr. 7	423	106	31	77
Hodges, Pliny F., Chicago, Ill. Grain-binder	315,289	Apr. 7	424	106 107	31	77
Hodges, Pliny F., Chicago, Ill. Grain-binder	315,290	Apr. 7	426	107	31	77
Hodges, Pliny F., Chicago, Ill. Grain-binding harvester	319,717	June 9	1008	267 268	31	1243
Hodgkin, John E., London, and E. Perrett, Westminster, England. Apparatus for cleaning the filtering media of filters	317,457	May 5	719	181 182	31	653
Hodgson, William H., Winona, Minn. Plow	320,656	June 23	2343	619	31	1498
Hoe & Co., R. (See Crowell, Luther C., assignor.)						
Hoefer, Gustave, Champoeg, Oreg. Metal-cutting tool	319,816	June 9	1154	305	31	1268
Hoefer, Lewis H., Dayton, Ohio. Type-writing machine	316,267	Apr. 21	1773	466 467	31	335
Hoeffer, Albert, *et al.* (See Wock, John, assignor.)						
Hoehn, George L. (See Hilburn and Hoehn.)						
Hoell, Christopher, St. Louis, Mo. Fire-escape	317,534	May 12	819	210 211	31	680
Hoesl, Frank B., Buffalo, N. Y. Locomotive-pilot	320,657	June 23	2343	619	31	1498
Hoeveler, William A., Pittsburg, Pa. System for conveying gas under pressure	318,901	May 26	2643	701	31	1032
Hoeveler, William A. and C. Keller, Pittsburg, Pa.; said Keller assignor to said Hoeveler. Heating and soldering implement	316,785	Apr. 28	2497	652	31	472
Hoey, James, Brooklyn, N. Y. Exhaust-steam trap	320,134	June 16	1597	422	31	1354
Hoffacker, Bertrand J., New York, N. Y. Soldering-iron	319,904	June 9	1275	336	31	1269
Hoffman, Andrew E., Fort Wayne, Ind. Saw-straightening machine	315,033	Apr. 7	62	15	31	13
Hoffmann, Charles, New York, N. Y. Gas-pressure gage	318,473	May 26	2061	557	31	929
Hoffmann, Edmond H., assignor of one-half to J. Fearey, Newark, N. J. Electrical conduit and discharger	320,253	June 16	1746	464 465	31	1382
Hoffmann, Jacob, Cincinnati, Ohio. Reversible envelope	321,297	June 30	3164	843	31	1657
Hoffmann, John P., Dubuque, Iowa. Horse-collar pad	318,251	May 19	1765	472	31	865

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Hoffmann, Otto, Mainkur, near Frankfort-on-the-Main, assignor to L. Cassella & Co., Frankfort-on-the-Main, Germany. Coloring-matter derived from naphthol	316,036	Apr. 21	1466	.....	31	279
Hogan, John J., and R. A. Miller, Galveston, Tex. Car-coupling	320,062	June 16	1495	395	31	1337
Hogeboom, Franklin R., Brooklyn, N. Y. Pantaloon-protector	320,658	June 23	2345	620	31	1498
Hogeboom, Levi S., and H. B. Smith, Three Rivers, Mich. Bran duster and cleaner	321,108	June 30	2934	778	31	1614
Hogeland, John W. and P. M., Lovilla, Iowa. Hay-stacker	318,429	May 19	2008	541	31	909
Hogeland, Peter M. (See Hogeland, John W. and P. M.)						
Hogue, Francis A., *et al.* (See Gorrell, John B., assignor.)						
Hogue, Parker P., Sandy Lake, Pa. Inspirator	319,817	June 9	1155	305	31	1268
Hogue, W. James, *et al.* (See Gorrell, John B., assignor.)						
Hohenstein, Karl A., assignor to D. McMeekan and A. G. Wright, Brooklyn, N. Y. Calcimine	321,109	June 30	2936	.....	31	1614
Hohmeier, Philip. (See Sims and Hohmeier.)						
Hohneck, Ernst, Jamestown, Dak. Ter. Combined tack and rivet	318,474	May 26	2062	557	31	929
Holbrook, Walter A., Milwaukee, Wis. Inside shutter	320,786	June 23	2497	661	31	1528
Holcomb, Abel P., Silver Creek, N. Y. Steam-generator	318,902	May 26	2044	701	31	1032
Holcomb, Charles F. (See Holcomb, James R., J. D., and C. F.)						
Holcomb, Frank L., assignor of one-half to J. F. Mensing, Manhattan, Kans. Cultivator-gearing	320,787	June 23	2499	661	31	1529
Holcomb, James R., J. D., and C. F., Cleveland, Ohio. Mechanical telephone	320,935	June 30	2697	715	31	1572
Holcomb, John D. (See Holcomb, James R., J. D., and C. F.)						
Holcomb, Wallace W. (See Sharp, Van Schaick, assignor.)						
Holcombe, Alfred G., assignor to Equitable Electric Company, New York, N. Y. Automatic responding-instrument for electric circuits	319,718	June 9	1012	268	31	1243
Holcombe, Alfred G., assignor to Equitable Electric Company, New York, N. Y. Producing electric responding-signals	321,110	June 30	2936	778	31	1614
Holden, Daniel L., Cincinnati, Ohio, assignor, by mesne assignments, to Little Giant Ice Machine Company, Covington, Ky. Ice and refrigerating machine. (Reissue)	10,590	Apr. 28	2720	708	31	514
Holden, George C., Worcester, Mass. Envelope-opener and paper-cutter	318,475	May 26	2063	557	31	929
Hollenbeck, Frank A., assignor of one-half to T. F. Clark, Syracuse, N. Y. Mortise-lock	317,941	May 12	1351	363	31	780
Hollett, Ira W., assignor to Chicago Liquid Sack Company, Chicago, Ill. Paper box or pail	317,997	May 19	1439	386	31	804
Holloway, Charles T., Baltimore, Md. Salvage-corps wagon	316,971	May 5	53	14	31	532
Holloway, Wilbur F., Cleveland, Ohio. Book-holder	318,253	May 19	1766	472	31	866
Holly, Arthur I. (See Holly, Solomon T. and A. I.)						
Holly, John I. (See Freeman, Augustus M., assignor.)						
Holly, Solomon T. and A. I., Rockford, Ill. Pillow-sham holder	317,535	May 12	821	211	31	680
Holm, Christian. (See Cave, Holm, and Blandow.)						
Holman, Charles T., Linesville, Pa. Harrow	317,787	May 12	1145	{303 304	31	741
Holman, Daniel F., Chicago, Ill. Railway-track layer	315,034	Apr. 7	63	15, 16	31	13
Holmes, Alonzo J., Saratoga Springs, N. Y. Portable folding wardrobe	318,252	May 19	1765	472	31	866
Holmes, Booth & Haydens. (See Jenkins, Nicholas, assignor.)						
Holmes Burglar Alarm Telegraph Company. (See Greenfield, Edwin T., assignor.)						
Holmes, Chester J., Stafford Springs, Conn. Window-sash	318,736	May 26	2414	644	31	902
Holmes Electric Protective Company. (See Lyon, Frank G., assignor.)						
Holmes, Hiram A., Epsom, N. H. Door-hanger	316,037	Apr. 21	1467	363	31	279
Holmes, Irving L., Providence, R. I. Adjustable stop for calipers	315,621	Apr. 14	902	237	31	167
Holmes, John. (See Warner, William F., assignor.)						
Holt, Arthur J., Grand Rapids, Mich. Electric switch	318,967	June 2	76	19	31	1062
Holt, James, Dunham Massey, county of Chester, England. Potato-digging machine	319,581	June 9	830	{220 221	31	1210
Holt, Joseph. (See Holt, William J. and J.)						
Holt, Mary J., San Francisco, Cal. Meat and provision safe	317,998	May 19	1440	386	31	804
Holt, Noah W., Buffalo, N. Y. Flour-bolt. (Reissue)	10,617	June 30	3317	884	31	1696
Holt, William J. and J., Paterson, N. J. Barber's turn-indicator	318,622	May 26	2268	605	31	964
Holton, Edward K., Webster Grove, assignor to St. Louis Shovel Company, St. Louis, Mo. Shovel-handle	321,028	June 30	2926	751	31	1596
Holtzer, Charles W., Brookline, Mass. Resetting annunciator-drops	315,035	Apr. 7	67	16	31	14
Holzbog, George, *et al.* (See Schneck, Henry P., assignor.)						
Holzbog, George H., and M. J. Weickaler, Jeffersonville, Ind. Thill-coupling	320,659	June 23	2346	620	31	1499
Holzman, Michael. (See White, Charles, assignor.)						
Honegger, Fredrick. (See Letaon and Honegger.)						
Hood, Arthur F. (See Hood, Freeman W. and A. F.)						
Hood, Freeman W., Boston, Mass. Registering device for water-meters	315,786	Apr. 14	1127	296	31	211
Hood, Freeman W., Boston, Mass. Device for regulating the throw of water-meter pistons	316,038	Apr. 21	1468	363	31	279
Hood, Freeman W., Boston, Mass. Lock for fire-arms	316,622	Apr. 28	2251	593	31	427
Hood, Freeman W. and A. F., assignors, by mesne assignments, to F. W. Hood, Boston, Mass. Piston water-meter	318,476	May 26	2064	558	31	929
Hooper, Mary P. C., New York, N. Y. Grated shovel	316,623	Apr. 28	2254	593	31	428
Hooper, Mary P. C., New York, N. Y., assignor, by mesne assignments, to Carpenter Straw Sewing Machine Company. Machine for sewing straw braid. (Reissue)	10,600	May 26	2690	{712 713	31	1040
Hoops, Henry W., Jr. (See Silberberg, Rudolf, assignor.)						
Hoops, Herman W. (See Hawley and Hoops.)						
Hooven, James, Norristown, Pa. Machine for bending tube-skelps	320,936	June 30	2698	716	31	1572
Hoover, De Witt C., Buffalo, N. Y. Combined shutter and diaphragm for photographic cameras	317,788	May 12	1148	304	31	741
Hoover, George W., Keithsburg, Ill. Car-coupling	319,253	June 2	387	103	31	1121
Hoover, Isaac W., Milan, Ohio. Potato-digger	318,254	May 19	1768	473	31	866
Hoover, William, Salt River, Mich. Railway-rail	317,536	May 12	822	211	31	681
Hopedale Machine Company. (See Foss, John F., assignor.)						
Hopf, Carl F. (See Horn and Hopf.)						
Hopkins, Garrett W., Trumansburg, assignor of one-half to G. V. Benjamin, Ithaca, N. Y. Railway snow-plow	316,972	May 5	54	14, 15	31	532
Hopkins, James S., South Framingham, Mass. Overshoe	317,360	May 5	583	150	31	630
Hopkins, Lyman R., Brooklyn, N. Y. Thread-unwinder	320,798	June 23	2499	662	31	1529
Hopper, Andrew A., St. Louis, Mo. Car-coupling	316,546	Apr. 28	2157	567	31	410
Hoppes, John J., Springfield, Ohio. Feed-water heater	318,112	May 19	1589	425	31	832
Horn, George A., Newark, N. Y. Reclining-chair	316,973	May 5	57	15	31	533
Horn, John C., and C. F. Hopf, Chicago, Ill. Folding bed	317,361	May 5	584	151	31	630
Hornbeck, Carrie E. (See Hornbeck, Cornelius F., assignor.)						
Hornbeck, Cornelius F., assignor to C. E. Hornbeck, Owego, N. Y. Potato-digger	318,113	May 19	1591	425	31	832
Horner, Joseph W., New York, N. Y. Printing apparatus	316,368	Apr. 21	1776	467	31	335

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Horning, Francilia A., *et al.* (See Horning, William, assignor.)						
Horning, William, assignor to F. A. Horning and E. J. Vibbard, Johnstown, N. Y. Corner-piece for oil-cloths	315,409	Apr. 7	585	151	31	105
Horrall, Albion, *et al.* (See Horrall, William A., assignor.)						
Horrall, Nelson, *et al.* (See Horrall, William A., assignor.)						
Horrall, Sylvester, *et al.* (See Willmore, William C., assignor.)						
Horrall, William A., assignor of one-half to A. and N. Horrall, Washington, Ind. Mail-bag	317,942	May 12	1352	363	31	780
Horton, Charles A., Pawtucket, R. I. Anti-rattler for thill-couplings	318,477	May 26	2066	558	31	929
Horton, Emmet, Dundee, N. Y. Combined hammer and nail-feeding device	319,719	June 9	1016	269	31	1244
Horton, Everett, New Haven, Conn. Automatic milling-machine	316,786	Apr. 28	2498	{652 653	31	472
Horton, Everett, New Haven, Conn. Tool for turning metals	316,787	Apr. 28	2502	653	31	473
Horton, Everett, New Haven, Conn. Die for finishing blanks from sheet metal	317,789	May 12	1149	304	31	741
Horton, Henry A. R., Cleburne, Tex. Watch-maker's pliers	317,648	May 12	968	249	31	707
Horton, James A., Reading, Mass. Molding-machine	319,413	June 2	582	{158 159	31	1159
Hoskins, John, Chicago, Ill. Muffle-furnace for assaying and annealing	315,036	Apr. 7	69	16	31	14
Hoskins, John G., Baltimore, Md. Can-filling machine	315,622	Apr. 14	903	237	31	168
Hosmer, Clara E., Auburn, N. Y. Leggin	320,557	June 23	2208	584	31	1473
Hosmer, George S., Racine, Wis. Equalizer for vehicle-springs	315,291	Apr. 7	428	108	31	78
Hotchkiss, John C., *et al.* (See Smith, William E., assignor.)						
Hotchkiss, Samuel M., Hartford, Conn. Manufacture of barrel-bodies from pulp	318,737	May 26	2415	{644 645	31	993
Hotchkiss, Samuel M., Hartford, Conn. Manufacture of barrel-bodies from pulp	318,742	May 26	2496	{649 650 651	31	994
Hotchkiss, Samuel M., Hartford, Conn. Machine for drying and pressing pulp barrel-bodies	319,976	June 16	1384	{363 364	31	1316
Hotchkiss, Samuel M., and B. A. Mason, Hartford, Conn. Manufacture of barrel-bodies from pulp	318,738	May 26	2418	{645 646	31	993
Hotchkiss, Samuel M., and B. A. Mason, Hartford, Conn. Machine for drying and pressing pulp barrel-bodies	318,739	May 26	2421	{646 647 648	31	993
Hotchkiss, Samuel M., and B. A. Mason, Hartford, Conn. Making barrel-heads from pulp	318,740	May 26	2424	648	31	994
Hotchkiss, Samuel M., and B. A. Mason, Hartford, Conn. Press for drying barrel-heads of pulp, &c	318,741	May 26	2425	{648 649	31	994
Houck, Austin S. and E., Bedford, Iowa. Corn-planter	320,063	June 16	1496	{395 396	31	1337
Houck, Edwin. (See Houck, Austin S. and E.)						
Hough, Horace C., assignor of one-half to J. B. Roberts, Oshkosh, Wis. Ironing-table	316,363	Apr. 21	1899	503	31	357
Houghton, George. (See Fuller, Eben E., assignor.)						
House, J. Carroll, Lowville, N. Y. Burial-case	320,254	June 16	1748	465	31	1382
House, James A., Bridgeport, Conn. Corset-press	316,547	Apr. 28	2158	{567 568	31	410
House, James A., Bridgeport, Conn. Corset stretching and finishing machine	318,255	May 19	1770	473	31	866
House, James A., Bridgeport, Conn. Apparatus for shaping corsets	318,256	May 19	1770	473	31	866
House, James A., Bridgeport, Conn. Automatic fire-extinguisher	318,743	May 26	2431	651	31	994
House, James A., and C. H. Dimond, Bridgeport, Conn. Sewing-machine for flossing	317,362	May 5	586	151	31	631
House, James A., and C. H. Dimond, Bridgeport, Conn. Fire-extinguisher	318,744	May 26	2432	651	31	994
House, Zoeth, *et al.* (See Franklin, James C., assignor.)						
Household Sewing Machine Company. (See Anthony, James H., assignor.)						
Housley, Daniel W., Chicago, Ill. Spring-hinge	320,789	June 23	2500	662	31	1529
Houston, John W. (See Gilson and Houston.)						
Houston, Levi, Montgomery Station, Pa. Circular sawing machine	315,502	Apr. 14	726	192	31	136
Hovde, Andreas G., Hönefos, Norway. Striking-train for clocks	316,364	Apr. 21	1900	503	31	357
Hover, R. Eugene. (See Latulip, Frederick, assignor.)						
Hovey, Dana W., Winthrop, Iowa. Cutting apparatus for harvesters	318,745	May 26	2433	652	31	995
How, W. Storer. (See Brewer and How.)						
How, Woodbury S., Cincinnati, Ohio, assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Adjustable bracket	316,459	Apr. 28	2050	538	31	389
How, Woodbury S., Cincinnati, Ohio, assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Adjustable bracket	316,548	Apr. 28	2159	568	31	410
Howard, Albert, assignor to E. Howard Watch and Clock Company, Boston, Mass. Watchman's time-recorder	319,618	June 9	1156	305	31	1268
Howard, Arthur L., New Haven, assignor to Woodruff, Miller & Co., Mount Carmel, Conn. Carriage-shaft tip	315,787	Apr. 14	1129	296	31	212
Howard, Charles T., *et al.* (See Wright, E. Howard, assignor.)						
Howard, Harlan S., Charles City, Iowa. Corn-planter	319,254	June 2	388	103	31	1121
Howard, Harvey. (See Dow and Gorgas, assignors.)						
Howard, James H., assignor to S. W. Chamberlin, Stoneham, Mass. Heel-burnishing machine	318,903	May 26	2645	{701 702	31	1033
Howard, Lewis, Watkins, N. Y. Nail-extractor	321,298	June 30	3165	844	31	1658
Howard, Stanton M., Wheeling, W. Va. Chimney and globe for lamps	317,537	May 12	823	{211 212	31	681
Howard Watch and Clock Company, E. (See Carr, Rufus B., assignor.)						
Howard Watch and Clock Company, E. (See Howard, Albert, assignor.)						
Howard, William C., New York, assignor to J. P. Noyes & Co., Binghamton, N. Y. Button	316,694	Apr. 28	2255	594	31	428
Howe, Edwin J., assignor to Carter, Sloan & Co., Newark, N. J. Button	320,874	June 23	2607	691	31	1549
Howe, Eugene L., Chicago, Ill. Machinery for feeding drop-presses	315,942	Apr. 14	1340	348	31	249
Howe, Eugene L., Chicago, Ill. Machinery for feeding drop presses	315,943	Apr. 14	1343	348	31	249
Howe, Eugene L., assignor to Ewart Manufacturing Company, Chicago, Ill. Machine for putting together chain-links	317,790	May 12	1151	{304 305	31	742
Howe, Henry W., Lawrence, Kans. Cartridge-loading board	319,255	June 2	389	103	31	1121
Howe, Henry W., Lawrence, Kans. Cartridge-shell creaser	319,256	June 2	390	104	31	1122
Howe, John C., assignor to M. Bye, Worcester, Mass. Clamp for skates	315,623	Apr. 14	904	{237 238	31	168
Howe, William F. (See Goettel and Howe.)						
Howell, Frederick W., Buffalo, N. Y. Bucket-elevator	317,791	May 12	1153	{305 306	31	742
Howell, George W., Covington, Ky. Vehicle-wheel	316,365	Apr. 21	1904	503	31	357
Howell, Henry M., New York, N. Y. Syringe	315,292	Apr. 7	429	108	31	78
Howell, Josiah, McKeesport, Pa. Washing-machine	321,299	June 30	3165	844	31	1658

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Howes, Willis H., and J. Jack, Lockport, N. Y. Carpet-lining	315,503	Apr. 14	727	192	31	136
Howlett, A. Ames. (See Dunn, John, assignor.)						
Hoyer, Charles A. (See Renleaux, Josef, assignor.)						
Hoyt, Joel S., Syracuse, N. Y. Potato digger and gatherer	317,792	May 12	1155	306	31	743
Hoyt, Lewis S., Boston, Mass. Bottle	316,460	Apr. 28	2053	538	31	389
Hoyt, Lewis S., assignor to A. G. Smalley, Boston, Mass. Stopple-receptacle	315,504	Apr. 14	728	193	31	136
Hubbard, Alva, Baltimore, Md. Construction of houses	316,895	Apr. 28	2660	693	31	502
Hubbard, Frederick H., Brooklyn, N. Y. Volatilizer	317,538	May 12	825	212	31	681
Hubbard, George M., New Haven, Conn. Coupling for vehicle-springs	320,135	June 16	1598	422	31	1354
Hubbard, John M., Lake Village, N. H. Advertiser and card-holder	319,720	June 9	1018	269	31	1245
Hubbell, Thaddeus P., Mount Vernon, Ill. Nose-guard for spectacles	319,977	June 16	1386	364	31	1316
Hubbs, Joseph G., Perryaville, Ohio. Bee-hive	315,505	Apr. 14	729	193	31	136
Hubel, Frederick A., and F. Reinhold, Detroit, Mich.; said Reinhold assignor to said Hubel. Device for stirring melted gelatine for making capsules	316,896	Apr. 28	2661	693	31	502
Huber, Edward, Marion, Ohio. Grain-separator	320,356	June 16	1927	508	31	1412
Huber, Edward, Marion, Ohio. Drive-chain	321,301	June 30	3246	866	31	1674
Huber, Edward, and H. M. Barnhart, Marion, Ohio. Unloading gravel cars	315,410	Apr. 7	586	151	31	105
Huber, Edward, and H. M. Barnhart, Marion, Ohio. Device for unloading gravel-cars	316,782	Apr. 28	2494	651	31	471
Huber, Jacob, Toledo, Ohio, assignor to C. P. and W. F. Crosby, Chicago, Ill. Wrench	320,357	June 16	1928	508	31	1413
Huber, William B., assignor of one-half to C. O. Lobeck, Fremont, Nebr. Machine for edging sheet metal	316,461	Apr. 28	2055	538	31	389
Hubka, Anton. (See Hubka, Frank and A.)						
Hubka, Frank and A., Chicago, Ill. Window-screen	318,988	June 2	77	20	31	1062
Huddleston, Samuel E. (See Leslie, Benjamin J., assignor.)						
Hudson, Charles E., Leominster, Mass. Apple-paring machine	319,905	June 9	1276	336	31	1289
Hudson, Gilbert L., assignor to B. J. Flumerfelt, Romeo, Mich. Corn-planter	321,302	June 30	3247	867	31	1674
Hudson, Harry, and M. Tobey, Salinas, Cal. Machine for breaking wheat	315,143	Apr. 7	211	51, 52	31	39
Hudson, James, Birmingham, county of Warwick, England. Tube	319,721	June 9	1019	269	31	1245
Hudson, Wilford C., and J. Barry; said Barry assignor of one-half to J. C. Entrekin, Chillicothe, Ohio. Button-hole cutter	316,366	Apr. 21	1904	504	31	357
Huehn, Conrad, assignor of one-half to J. Schake, Rochester, N. Y. Vehicle-axle	316,974	May 5	58	15	31	533
Huff, Henry D., *et al.* (See Thompson, George H., assignor.)						
Hughes, Charles, New York, N. Y. Automatic fire-lighter	319,722	June 9	1020	270	31	1245
Hughes, James, Auburn, N. Y. Automatic drill	315,411	Apr. 7	587	151	31	106
Hughes, James L., assignor of one-fourth to I. N. Van Housen and R. W. Cunningham, Lawrence, Kans. Adjustable scaffold-support	319,723	June 9	1021	270	31	1245
Hughes, John W., Oskaloosa, Iowa. Car-coupling	317,363	May 5	588	151	31	651
Hughes & Müller. (See Müller, George, assignor.)						
Hughes, Robert. (See Morgan, William F., assignor.)						
Hughes, Robert L., *et al.* (See Schmidt, Theodore, assignor.) (Reissue.)						
Huiskamp, Luke, Keokuk, Iowa. Fence-making machine	320,358	June 16	1930	508, 509	31	1413
Hull, George, *et al.* (See Briggs, Oscar E., assignor.)						
Hull, Granville H., Lafayette, Ind. Combined spectacles and watch-maker's eyeglass	320,558	June 23	2209	584	31	1473
Hull, Nicholas A., assignor to A. N. Dukes, Peru, Ind. Drawer-case	318,114	May 19	1592	425	31	833
Hull, Wolcott A., *et al.* (See Lyman, Charles H., assignor.)						
Holmes, George H., Chartiers, and W. Shope, Millvale, Pa. Graining wood	320,359	June 16	1932	.....	31	1413
Hult, Olof, Karlskrona, Sweden. Hydro-aerostatic ship-log	319,582	June 9	832	221	31	1211
Hummer, Adam, assignor of one-half to M. Youngpeter, San Francisco, Cal. Shank-stiffener for boots or shoes	318,562	May 26	2203	588	31	952
Hunger, Charles F., *et al.* (See Mead, Birdsall H., assignor.)						
Hunt, Charles E., Wayne, Nebr. Hoof-trimmer	321,029	June 30	2927	752	31	1596
Hunt, Charles E., H. L. Ferris, and N. B. Helm, Harvard, Ill. Hay elevator and carrier	316,462	Apr. 28	2056	539	31	390
Hunt, Charles E., N. B. Helm, and H. L. Ferris, Harvard, Ill. Hay-carrier	316,463	Apr. 28	2057	539	31	390
Hunt, Charles W., West New Brighton, N. Y. Hoisting-machine	320,064	June 16	1498	396	31	1337
Hunt, Eugene E., Bettsville, Ohio. Gate	318,430	May 19	2010	541	31	909
Hunt, George G., Plano, Ill., assignor of one-half to Plano Manufacturing Company, of Illinois. Frame-adjusting mechanism for harvesters	315,624	Apr. 14	906	238	31	168
Hunt, George G., Bristol Station, and G. H. Steward, assignors of three-fourths to Plano Manufacturing Company, Plano, Ill. Grain-binder	318,257	May 19	1772	473, 474	31	867
Hunt, George G., Bristol, assignor of one-half to Plano Manufacturing Company, Plano, Ill. Harvester	319,257	June 2	391	104	31	1122
Hunt, Jonathan W., and J. Bressler, Crescent City, Cal. Pencil and rule pocket	318,115	May 19	1593	425	31	833
Hunt, Kinsey S., North Branch, Mich. Stump-extractor	317,458	May 5	722	182	31	653
Hunter, David, *et al.* (See Spier, Alexander D., assignor.)						
Hunter, David, Troon, county of Ayr, assignor of eighteen-twentieths to A. D. Spier and A. S. Brown, Glasgow, Scotland. Apparatus for cleaning the sides and bottoms of ships	318,904	May 26	2648	702	31	1033
Hunter, Freeman S., Fort Ritner, Ind. Street-car heater	319,258	June 2	393	104	31	1122
Hunter, George D., assignor of four-sixths to T. C. Van Nüys and M. C. Hunter, Terre Haute, Ind. Spark-extinguisher	320,875	June 23	2607	691	31	1549
Hunter, James, Pittsburg, Pa. Gas-conductor	315,788	Apr. 14	1130	296	31	212
Hunter, James, assignor of one-half to W. D. Hartupee, Pittsburg, Pa. Gas-regulator	316,625	Apr. 28	2257	594	31	428
Hunter, Morton C., *et al.* (See Hunter, George D., assignor.)						
Hunter, Nathaniel W., Des Moines, Iowa. Coupling device for harness-straps	318,116	May 19	1594	426	31	833
Hunter, Robert, assignor of one-fourth to T. Davis, Detroit, Mich. Car-axle box	318,187	May 19	1682	451	31	850
Huntington, Charles M., East Randolph, N. Y. Friction-clutch	318,905	May 26	2650	702	31	1033
Huntington, Charles P. (See Perrin, Thomas J., assignor.)						
Huntington, Elon. (See Jessup, John C., assignor.)						
Huntington, Frank A., San Francisco, Cal. Centrifugal crushing-mill	318,117	May 19	1595	426	31	833
Huntington, Lawson G., New York, N. Y. Lamp or lantern	319,094	June 2	202	53	31	1065
Huntington, Thomas S., New York, N. Y., assignor to New Home Sewing Machine Company, Orange, Mass. Mechanical movement	316,897	Apr. 28	2662	693	31	502
Hunziker, Emil, Jersey City, N. J. Detachable horseshoe	319,906	June 9	1277	336	31	1289
Hurd, Lorenzo D., Wellsville, assignor of one-third to J. C. Sampson, Elmira, N. Y. Wagon running-gear	318,906	May 26	2650	702, 703	31	1033
Hurlbut, Daniel N., Chicago, Ill. Driving electrical conductors into conduits	321,363	June 30	3248	867, 868	31	1674
Hurter, Ferdinand. (See Carey, Gaskell, and Hurter.)						
Hurtu, Auguste J., Paris, France. Sewing-machine	315,037	Apr. 7	71	17	31	14
Husbands, José D., Valparaiso, Chili, assignor to American Bell Telephone Company, Boston, Mass. Telephone	318,907	May 26	2652	703	31	1034
Huselton, W. S., *et al.* (See Boyle, Jay C., assignor.)						
Huson, Cornelius W., assignor of one-half to W. F. Junkins, Weaverville, Cal. Rock-crusher	320,559	June 23	2210	584	31	1473

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Huss, Charles, New York, N. Y. Refrigerator ice-holder	321,364	June 30	3251	868	31	1675
Hussey, Charles A., New York, N. Y. Secondary electric clock	319,259	June 2	394	104, 105	31	1122
Hussey, Charles A., New York, N. Y., assignor of one-half to J. Snyder, Philadelphia, Pa. Electric lighting attachment for gas-fixtures	320,065	June 16	1499	396	31	1338
Huston, William, Wilmington, Del., assignor to J. C. Gilbert, Brooklyn, N. Y. Perforated tile for furnace-linings	317,459	May 5	723	183	31	654
Hutches, Benjamin F., Jr., Galveston, Tex. Odometer	321,365	June 30	3252	868, 869	31	1675
Hutchins, Charles W., assignor to E. C Barr, Springfield, Mass. Book and music holder	319,907	June 9	1278	337	31	1290
Hutchins, George F., assignor to Knowles Loom Works, Worcester, Mass. Friction-clutch pulley	320,360	June 16	1933	509	31	1413
Hutchins, Lewis, Corinna, Me. Tenoning and boring machine	317,999	May 19	1441	386	31	805
Hutchinson, Alfred. (See Gray and Hutchinson.)						
Hutchinson, Oswin W. (See Widney, Charles W., assignor.)						
Hutchinson, Seaborn P., Saratoga, Cal. Guiding device for cultivators, &c	320,473	June 23	2101	554	31	1453
Hutchison, William, Ottawa, Ontario, Canada. Roller-mill feed mechanism	321,030	June 30	2928	752	31	1596
Hnth, John, assignor of one-half to F. J. Heingartner, Canton, Ohio. Sash-fastener	319,414	June 2	584	159	31	1159
Huther, John C., Rochester, N. Y. Plastering-trowel	316,464	Apr. 28	2059	539	31	390
Hyatt, John W. (See Lockwood and Hyatt.)						
Hyatt, John W. (See Lockwood, Hyatt, and Stevens.)						
Hyatt, Thaddeus, Brooklyn, N. Y. Illuminating tiling and grating for covering vaults, roofs, &c	315,412	Apr. 7	589	152	31	106
Hyatt, Thaddeus, Brooklyn, N. Y. Illuminating-tile construction	317,943	May 12	1353	364	31	780
Hyatt, Thaddeus, Brooklyn, N. Y. Illuminating combination-tile	317,944	May 12	1355	364	31	781
Hyatt, Thaddeus, Brooklyn, N. Y. Concrete light for buildings, areas, &c	317,945	May 12	1358	365	31	781
Hyde, Andrew, Hatfield, Mass. Lock mechanism for concealed-hammer guns	315,413	Apr. 7	594	152	31	106
Hyde, James C., assignor to West Haven Buckle Company, West Haven, Conn. Garment-fastening	315,944	Apr. 14	1345	349	31	949
Hyde, Theophilus R., Jr., assignor to Scovill Manufacturing Company, Waterbury, Conn. Curtain-bar bracket	319,908	June 9	1279	337	31	1290
Hydraulic Elevator Company. (See Scofield, Levi T., assignor.)						
Ibbotson, Charles, Sheffield, county of York, England. Knife-handle	317,539	May 12	826	212	31	681
Iddings, Frank A., Warren, Ohio. Chain-link die	319,724	June 9	1022	270	31	1246
Ide, Albert L., Springfield, Ill. Governor for steam and fluid engines	319,260	June 2	395	105	31	1122
Ide, Albert L., Springfield, Ill. Steam-engine valve	319,261	June 2	397	105	31	1123
Ide, Albert L., Springfield, Ill. Valve-gear	319,819	June 9	1158	306	31	1260
Ihrig, Mary A., Springfield, Ohio. Screw adapted for ice-creepers	315,293	Apr. 7	490	108	31	78
Illingworth, James A., Meriden, Conn. Curtain fixture	315,789	Apr. 14	1131	296	31	212
Illingworth, John, Newark, N. J. Mold for casting ingots of alternate layers of metal	320,560	June 23	2211	585	31	1474
Imlay, Charles G., Camden, N. J. Cap for fruit-jars	321,220	June 30	3070	814	31	1640
Immel, David W. (See Hartman, Benjamin J., assignor.)						
Imperial Electric Light Company. (See Perkins, Charles G., assignor.)						
Indurated Fibre Company. (See Bodge, Joseph G., assignor.)						
Ingalls, Milo H., North Granville, N. Y. Lifting-jack	319,820	June 9	1159	306	31	1260
Ingels, Samuel, Centre, Ind. Flood-fence	315,991	Apr. 14	1406	365	31	261
Ingersoll, Marshall B., Regina, Manitoba, Canada. Fire-escape	320,474	June 23	2102	554	31	1453
Ingham, John F., Allegheny, assignor of one-half to J. H. Noble, Hulton, Pa. Seal-lock	315,945	Apr. 14	1346	349	31	249
Inglis, Thomas, Leith, Scotland. Machine for scouring and cleaning grain	319,909	June 9	1280	337	31	1290
Inglis, William. (See Hargreaves and Inglis.)						
Ingraham, Alexander, Minneapolis, Minn. Dust-collector	318,989	June 2	77	20	31	1062
Ingram, James E., *et al.* (See Fowler, William R., assignor.)						
Ireland, David M. (See Matthews and Ireland.)						
Ireland, David M., Waterbury, Conn. Cuspidor	317,364	May 5	589	152	31	637
Ireland, William H. (See Merritt, Henry W., assignor.)						
Irlbacker, John, Buffalo, N. Y. Beer-cooler	317,134	May 5	272	68, 69	31	573
Irvine, John B., Sherman, Tex. Wire-stretcher	316,039	Apr. 21	1470	383	31	279
Irwin, George L., Allegheny City, assignor to C. F. Wells, Pittsburg, Pa. Apparatus for the manufacture of white lead	318,374	May 19	1937	523	31	897
Irwin, John H. (See Voelker, William L., assignor.)						
Irwin, Joseph I., *et al.* (See Reeves, Alfred B. and M. T., assignors.)						
Isaacs, John D., Oakland, Cal. Concrete tube for cable railways	318,623	May 26	2269	605	31	964
Ismay, Matthew P., Newcastle-upon-Tyne, England. Door-closer	318,258	May 19	1774	474	31	867
Ismay, Matthew P., Newcastle-upon-Tyne, England. Door latch or check	320,790	June 23	2501	662	31	1529
Ittner, Anthony, St. Louis, Mo. Brushing attachment for brick-machines	315,414	Apr. 7	596	153	31	107
Ives, George H., Martin, Mich. Portable fence	315,038	Apr. 7	73	17	31	15
Ives, Hobart B., New Haven, Conn. Sash-fastening	317,540	May 12	827	212	31	681
Iwan, Henry, and L., Streator, Ill. Tile-ditching hoe	320,136	June 16	1599	423	31	1354
Iwan, Louis. (See Iwan, Henry and L.)						
Jack, John. (See Howes and Jack.)						
Jackman, David K., Poughkeepsie, N. Y. Hinge	320,255	June 16	1749	465	31	1382
Jackson, Alfred T., Hickory Grove, Ky. Washing-machine	321,031	June 30	2928	752	31	1596
Jackson, Byron. (See Watkins, James T., assignor.)						
Jackson, Charles A., Lawrence, assignor to Jackson Electric Engine Company, Boston, Mass. Electric engine	320,137	June 16	1600	423, 424	31	1354
Jackson Electric Engine Company. (See Jackson, Charles A., assignor.)						
Jackson, James E., Lynn, Mass. Sole-channeling machine	321,032	June 30	2929	752	31	1596
Jackson, Johnson A., and F. C. Hannahs, Kenosha, Wis. Infant's cradle	315,625	Apr. 14	907	238	31	168
Jackson, Joseph R., Pittsburg, Pa. Machine for bending tube-skelp	315,626	Apr. 14	908	239	31	169
Jackson, Peter H., San Francisco, Cal. Laying artificial-stone or concrete arches	317,793	May 12	1157	306	31	743
Jackson, Peter H., San Francisco, Cal. Floor and sidewalk construction	320,066	June 16	1500	396, 397, 398	31	1338
Jackson, Timothy W. (See Johnson, Horace, assignor.)						
Jackson, Walter M., Providence, R. I. Gas regulating burner	316,626	Apr. 28	2259	594	31	428
Jackson, William T., Pittsburg, Pa. Pipe-joint	317,794	May 12	1158	306	31	743
Jacobi, Alexander, St. Clair, Mich. Burglar-alarm	320,660	June 23	2346	620	31	1499
Jacobs, Alexander, Cheboygan, Mich. Saw-tooth-swaging machine	319,262	June 2	398	105	31	1123
Jacobs, Charles A., assignor to B. F. Miller and W. W. Bowes, Toledo, Ohio. Steam-engine	317,541	May 12	828	213	31	681
Jacobs, David. (See Hampl and Jacobs.)						
Jacobs, Felix A., H. L., and W. E., Columbus, Ohio. Pulley or wheel	320,475	June 23	2103	554	31	1453
Jacobs, Henry L. (See Jacobs, Felix A., H. L., and W. E.)						
Jacobs, Herman F., Weston, Mass. Cow-tail holder	319,263	June 2	400	106	31	1123

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Jacobs, J. Eugene. (See Nash, Caleb P., assignor.)						
Jacobs, Maurice Baltimore, Md. Advertising device	317,365	May 6	590	152	31	631
Jacobs, Samuel, Hutchinson, Kans. Combined blouse and pantaloon-overalls	315,506	Apr. 14	730	193	31	136
Jacobs, William E. (See Jacobs, Felix A., H. L., and W. E.)						
Jacobs, William E., Columbus, Ohio. Axle for vehicles	318,118	May 19	1506	426	31	833
Jacobsen, Niels, and H. P. Jensen, Aarhus, Denmark. Lubricator	315,627	Apr. 14	910	239	31	169
Jacobsen, Niels, and H. P. Jensen, Aarhus, Denmark. Centrifugal creamer	315,628	Apr. 14	910	239	31	169
Jacoby, Frederick. (See Thurstin and Jacoby.)						
Jaeger, Frederick, Columbus, Ohio. Apparatus for eliminating foreign substances from water for obtaining clear and pure ice	317,366	May 5	591	152	31	632
Jaeger Gustav L., New York, N. Y. Folding box	317,795	May 12	1160	307	31	743
James, Charles F., Marea, and F. N. Carder, Lincoln, Ill. Reel for check-row wires	315,790	Apr. 14	1132	297	31	212
James, Christopher R., Jersey City, N. J. Shaft-coupling	315,791	Apr. 14	1133	297	31	213
Janes, George J. L., Chicago, Ill. Lemon-squeezer	318,746	May 26	2433	652	31	995
Jaques, George W., Burton, Ohio. Rail-chair	320,791	June 23	2502	663	31	1529
Jarmin, George W. (See Pearson and Jarmin.)						
Jarves, Deming, Detroit, Mich. Retort	317,135	May 5	274	69	31	573
Jarves, Deming, Detroit, Mich. Gas-tight expansion-joint	320,661	June 23	2347	620	31	1499
Jebb, William T. (See Schuman, John C., assignor.)						
Jebb, William T., Buffalo, N. Y. Manufacturing malt liquors from starch, &c.	316,367	Apr. 21	1906	504	31	358
Jebb, William T., Buffalo, N. Y. Preparing and treating starch	320,361	June 16	1934	.....	31	1413
Jefferies, Ebenezer A. W., Alliance, Ohio. Valve	318,000	May 19	1443	{386 387}	31	805
Jefferson, Charles W., Rugby, Tenn. Lawn-tennis-net tightener	320,138	June 16	1604	424	31	1355
Jeffrey, Joseph A. (See Legg, Benjamin A., assignor.)						
Jeffrey, Peter. (See McGovern, John, assignor.)						
Jenkins, David, Evansville, Ind. Automatic hoisting cage or elevator unloader	317,136	May 5	275	69, 70	31	574
Jenkins, Frank W., Brooklyn, N. Y. Valve-gear	321,111	June 30	2937	779	31	1614
Jenkins, George K., Jamestown, Ohio. Shoe-dealer's stool and foot-support	315,507	Apr. 14	731	194	31	137
Jenkins, James T., Clements, Cal. Wedge-cutter	318,747	May 26	2434	652	31	995
Jenkins, John M. (See Nanerth and Jenkins.)						
Jenkins, Nicholas, assignor to Holmes, Booth & Haydens, Waterbury, Conn. Stand-lamp	320,476	June 23	2104	555	31	1453
Jenkins, Simeon T., assignor of one-half to T. J. McGuire, Baltimore, Md. Knockdown fruit-box	318,937	May 26	2689	712	31	1040
Jenkins, William. (See Dingle and Jenkins.) (Reissue.)						
Jenks, Orrin L., *et al.* (See Burton, Henry, assignor.)						
Jenks, William S., *et al.* (See Burton, Henry, assignor.)						
Jennings, Isaac B., assignor of one-half to J. Finkle, McPherson, Kans. Bag-holder	318,624	May 26	2270	606	31	965
Jennings & Sons, A. G. (See Clarke, Anna B., assignor.)						
Jensen, Hans P. (See Jacobsen and Jensen.)						
Jensen, William, Victoria, British Columbia. Window-blind-slat holder	316,627	Apr. 28	2260	595	31	498
Jernigan, David B. (See Torrence and Jernigan.)						
Jessup, George W., Cinnaminson, N. J. System of irrigation	315,629	Apr. 14	912	239	31	170
Jessup, John C., New York, assignor to E. Huntington, Rochester, N. Y. Grinding colors	317,367	May 5	592	.....	31	632
Jetter, Heinrich, Göppingen, Würtemberg, Germany. Corset-fastening	318,119	May 19	1597	427	31	834
Jewell, Charles A., *et al.* (See Babcock, Holland C., assignor.)						
Jewell, Lyman B., *et al.* (See Babcock, Holland C., assignor.)						
Jewell, Pliny, *et al.* (See Babcock, Holland C., assignor.)						
Jewett, George M., assignor to Smith & Egge Manufacturing Company, Bridgeport, Conn. Snap-lock	316,269	Apr. 21	1777	468	31	335
Jiencke, George, Philadelphia, Pa. Spring-motor	317,368	May 5	593	152	31	632
Jiencke, George, and A. McKee, Philadelphia, Pa. Spring-motor	315,946	Apr. 14	1348	{349 350}	31	250
Joel, Samuel, New York, N. Y. Holder for the setting of stones	319,095	June 2	203	53	31	1085
Johns, Hanson A. (See Sleeper and Johns.)						
Johnson, Allen G., Quitman, Ga. Running-gear for vehicles	319,821	June 9	1160	306	31	1269
Johnson, Alvin P., Boston, Mass. Photograph-albnm	318,908	May 26	2653	703	31	1034
Johnson, Benjamin F. (See Smith and Johnson.)						
Johnson, Charles C., Springfield, assignor to H. W. Thompson, Westminster, Vt. Paper holder and cutter	316,368	Apr. 21	1908	504	31	358
Johnson, Charles F. (See Chase, Frank, assignor.)						
Johnson, Charles F., trustee. (See Chase, Frank, assignor.)						
Johnson, Edward H., New York, N. Y. Electric telephonic transmitter	319,415	June 2	585	159	31	1159
Johnson, Edwin A., Allegheny City, Pa. Sash-fastener	315,294	Apr. 7	430	108	31	78
Johnson, Elias M., New York, N. Y. Wire-drawing die	321,033	June 30	2830	753	31	1596
Johnson, Elliott W., assignor to M. E. Johnson, Trumansburg, N. Y. Grain-drier	315,508	Apr. 14	732	194	31	137
Johnson, Eugene W. (See Blue, William H., assignor.)						
Johnson, Frederick A. (See Conradson, Conrad M., assignor.)						
Johnson, Henry, Flixton, county of Lancaster, England. Railway-signal	315,792	Apr. 14	1133	297	31	213
Johnson, Henry A., Flixton, county of Lancaster, England. Mechanism for actuating and interlocking points and signals	317,137	May 5	277	70	31	574
Johnson, Henry C., Meadville, Pa. Refrigerating apparatus for the transportation of meat, &c.	316,975	May 5	58	16	31	533
Johnson, Henry C., Meadville, Pa. Apparatus for cooling buildings, &c	316,976	May 5	60	16	31	533
Johnson, Herbert A., Medina, N. Y. Blinder for bridles	321,112	June 30	2938	779	31	1614
Johnson, Horace, assignor of one-half to T. W. Jackson, Akron, N. Y. Wagon-stake holder	317,138	May 5	279	71	31	574
Johnson, Jacob, Ashland, Nebr. Check-rein swivel	320,139	June 16	1605	424	31	1355
Johnson, James A., Charlestown, Ind. Land-roller	319,725	June 9	1023	271	31	1246
Johnson, James M., Cleveland, Ohio. Expanding screw-tap	316,040	Apr. 21	1471	383	31	279
Johnson, James T., and T. Thompson, What Cheer, Iowa. Coal-drilling machine	321,034	June 30	2831	753	31	1596
Johnson, Jesse F., Indianapolis, Ind. Wheel-jack	320,477	June 23	2104	555	31	1454
Johnson, Joe E., Prescott, Ark. Motor	317,542	May 12	899	213	31	681
Johnson, John A., Madison, Wis. Sulky-frame	319,264	June 2	400	106	31	1123
Johnson, John D., and W. H. Long, Newton, Iowa. Steam cooking apparatus	316,549	Apr. 28	2161	568	31	410
Johnson, John H., Portland, Dak. Ter. Slate-frame and pencil-case	321,366	June 30	3254	869	31	1675
Johnson, Josee, Norfolk, Va. Peanut cleaner and grader	315,793	Apr. 14	1135	{297 298}	31	213
Johnson, Julius B., Johnson, Nebr. Grindstone-frame	321,221	June 30	3071	815	31	1640
Johnson, Lewis, Oaklis, Minn. Harrow	320,067	June 16	1502	398	31	1338
Johnson, Louis, Milwaukee, Wis. Saw-mill dog	321,222	June 30	3072	815	31	1640
Johnson, Mary E. (See Johnson, Elliott W., assignor.)						
Johnson, Rasmus B., Fresno, Cal. Vineyard gang-plow	318,563	May 26	2263	589	31	952
Johnson, Thomas, assignor of one-half to W. Brandon, St. Louis, Mo. Vapor-stove	317,946	May 12	1360	365	31	781

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Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Johnson, Tom L., Cleveland, Ohio. Cable-railway mechanism	317,139	May 5	279	71	31	574
Johnson, Tom L., Cleveland, Ohio. Cable-railway system	317,140	May 5	281	72	31	575
Johnson, Tom L., Cleveland, Ohio. Cable-railway construction	317,649	May 12	969	250	31	707
Johnson, Tom L., Cleveland, Ohio. Railway rail-chair for clamping the rails	318,625	May 26	2271	606	31	965
Johnson, William D., Elmore, Ohio. Machine for cutting wooden vessels	315,509	Apr. 14	733	{194 195}	31	137
Johnson, William H. (See Mason, William H., assignor.)						
Johnson, William J., Boston, Mass. Machine for shaving stereotype-plates	315,794	Apr. 14	1137	298	31	213
Johnston, Allen, Ottumwa, Iowa. Box or case for sewing-machine attachments	315,039	Apr. 7	73	17	31	15
Johnston, Allen, Ottumwa, Iowa. Screw-machine	316,788	Apr. 28	2504	654	31	473
Johnston, Columbus, Clarksville, and S. T. Johnston, St. Louis, Mo. Rotary plow and pulverizer	315,947	Apr. 14	1351	350	31	250
Johnston, David. (See Johnston, William H. and D.)						
Johnston, Edward H., Philadelphia, Pa. Railway-switch	318,188	May 19	1683	451	31	850
Johnston, John, and B. B. Stewart, Algonquin, Ill. Corn-husking machine	316,150	Apr. 21	1628	{426 427}	31	309
Johnston, Sylvester T. (See Johnston, Columbus and S. T.)						
Johnston, Thomas, assignor to Chadborn & Coldwell Manufacturing Company, Newburg, N. Y. Meat-cutting machine	319,910 315,630	June 9 Apr. 14	1281 913	{337 338} 240	31 31	1200 170
Johnston, William, La Junta, Colo. Injector						
Johnston, William A., Clifton, and A. W. Browne, Westfield, N. Y., assignors to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Angle attachment for dental engines	319,583	June 9	834	221	31	1211
Johnston, William A., Clifton, and A. W. Browne, Westfield, N. Y., assignors to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Dental pliers for adjusting tools in hand-pieces	319,584	June 9	835	222	31	1211
Johnston, William H. and D., Tamaroa, Ill. Revolving drop-leaf table	317,141	May 5	283	72	31	575
Johnstonbaugh, Thomas, Clearfield, Pa. Liming-vat	321,300	June 30	3166	844	31	1659
Joliet Enterprise Company. (See Sunderland, Leslie E., assignor.) (Reissue.)						
Jones, Arthur, Chicago, Ill. Hand-grenade fire-extinguisher	318,909	May 26	2654	703	31	1034
Jones & Bro., C. E. (See See, James W., assignor.)						
Jones, Daniel N., Wichita, Kans. Wagon-box coupling	321,367	June 30	3255	869	31	1675
Jones, Edgar A., Three Rivers, Mich. Swinging gate	316,041	Apr. 21	1471	384	31	279
Jones, Edgar A., Three Rivers, Mich. Machine for making spiral springs	317,543	May 12	830	{213 214}	31	682
Jones, Edwyn. (See Ruck and Jones.)						
Jones, Elias H. (See Cannon and Jones.)						
Jones, Gilbert E., New York, N. Y. Machine for winding up paper. (Reissue)	10,611	June 16	2068	543	31	1439
Jones, Horace K. (See Russell and Jones.)						
Jones, Horace K., Hartford, assignor to Russell & Erwin Manufacturing Company, New Britain, Conn. Machine for spirally scoring wire	315,144	Apr. 7	213	52, 53	31	39
Jones, Horace K., Hartford, assignor to Russell & Erwin Manufacturing Company, New Britain, Conn. Wire-nail stock	318,564	May 26	2204	589	31	952
Jones, Horace K., Hartford, assignor to Russell & Erwin Manufacturing Company, New Britain, Conn. Wire-nail stock	318,565	May 26	2205	589	31	952
Jones, Horace K., Hartford, assignor to Russell & Erwin Manufacturing Company, New Britain, Conn. Nail	318,566	May 26	2205	589	31	952
Jones, Hugh, assignor to Patent Window Fittings Company, Liverpool, county of Lancaster, England. Sash-balancing device	321,035	June 30	2832	{753 754}	31	1597
Jones, James, St. Louis, Mo. Hydrant	316,042	Apr. 21	1472	384	31	280
Jones, James E. (See Gifford and Jones.)						
Jones, James H. (See Powers, Jones, and Powers.)						
Jones, James H., assignor to Emerson, Talcott & Co., Rockford, Ill. Cultivator	316,369	Apr. 21	1909	505	31	358
Jones, John E., New York, N. Y. Window frame and sash	319,265	June 2	401	106	31	1123
Jones, John H., Clio, La. Truss for roofs or bridges	318,626	May 26	2272	606	31	965
Jones, John W., Utica, N. Y. Adjustable tag	316,628	Apr. 28	2261	595	31	429
Jones, M. Henry, Raleigh, N. C. Bouquet-holder	317,650	May 12	971	250	31	707
Jones, Otis, Chicago, Ill. Hot-air furnace	315,040	Apr. 7	76	18	31	15
Jones, Richard B. (See Wetherell and Jones.)						
Jones, Theodore R., Utica, N. Y. Couch	316,043	Apr. 21	1473	384	31	280
Jones, Thomas. (See Garsuch and Jones.)						
Jones, Thomas A., *et al.* (See Wetmore, William H., assignor.)						
Jones, Wiley, Norfolk, Va. Shoe-stretcher	315,631	Apr. 14	914	240	31	170
Jones, Wiley, Norfolk, Va. Boot and shoe stretcher	319,585	June 9	837	222	31	1211
Jones, William C., *et al.* (See Beam, Henry T., assignor.)						
Jones, William T., Woodstock, Iowa. Coffee and tea pot	320,561	June 23	2212	585	31	1474
Jones, Willis, Brooklyn, N. Y., assignor by mesne assignments, to American Axle and Wheel Company of New York. Carriage-axle. (Reissue.)	10,583	Apr. 21	2006	527	31	375
Jönsson, Sven, assignor to Burmeister & Wain's Maskin, og Skibsbyggeri, Copenhagen, Denmark. Device for transmitting rotary motion	320,437	June 16	2046	537	31	1434
Jopson, George W., Meriden, Conn. Key-ring	320,792	June 23	2563	663	31	1529
Jordan, Oswald F. (See Curry, Lewis M., assignor.)						
Jordan, Richard C., Ottawa, Ill. Hay-carrier	320,876	June 23	2610	692	31	1550
Jordon, Michael, *et al.* (See Millard and King, assignors.)						
Joseph, Charles. (See Stokes, Robert L., assignor.)						
Joslin, William, Cleveland, Ohio. Car-wheel	316,977	May 5	61	16	31	534
Jossa, Ferdinand, Boston, Mass. Disinfecting compound	321,368	June 30	3256	.....	31	1675
Josselyn, Henry R. (See Stewart, Thomas S., assignor.)						
Jowitt, Josiah, Stanley, N. J. Roofing-felt and its manufacture	318,910	May 26	2654	704	31	1034
Jowitt, Josiah, Stanley, N. J. Waxing paper	318,911	May 26	2657	704	31	1035
Joy, Albert B., 26 Savile Row, and J. J. Lewen, 13 Beaumont Road, county of Middlesex, England; said Lewen assignor to said Joy. Treating plaster casts	317,369	May 5	595	.....	31	632
Joy, Thaddeus C., Titusville, Pa. Sectional steam-generator	317,370	May 5	596	153	31	632
Joyner, Edgar D., Glens Falls, N. Y. Rudder-connection for boats	317,460	May 5	724	183	31	654
Judd, Charles B., assignor to Bissell Carpet Sweeper Company, Grand Rapids, Mich. Show stand and rack for displaying carpet-sweepers	320,302	June 16	1936	510	31	1413
Judd, Edward C., assignor of one-half to A. Fuller, Lynn, Mass. Last for beating-out machines	319,096	June 2	204	53	31	1085
Judd, William S., Carthage, Mo. Band-cutter and feeder for thrashing-machines	315,948	Apr. 14	1351	{350 351}	31	250
Judge, Edward S., assignor to Warfield Manufacturing Company, Baltimore, Md. Can-filling machine	320,363	June 16	1937	510	31	1414
Judson, Junius, Rochester, N. Y. Governor	315,632	Apr. 14	915	240	31	170
Jukes, Wesley L., New York, N. Y. Manufacturing glass tubing	321,369	June 30	3256	869	31	1675

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Junger, Max, Lindenau, near Leipsic, Germany. Piano-hammer	317,651	May 12	972	251	31	707
Jungerman, Edward, Gettysburg, Pa. Device for preventing false fire-alarms	320,068	June 16	1502	398	31	1339
Junghans, Arthur, Schramberg, Würtemberg, Germany. Regulator for time-pieces	320,502	June 23	2213	585	31	1474
Junkins, William F. (See Huson, Cornelius W., assignor.)						
Jury, Fredrik H., New York, N. Y. Child's carriage	319,416	June 2	586	159, 160	31	1160
Just, John A., New York, assignor to himself, L. F. Phillips, Watertown, and C. F. Gibbs, Brooklyn, N. Y. Chlorine-gas washer	317,796	May 12	1161	307	31	743
Justus, William H., Massillon, Ohio. Apparatus for steaming grain	317,461	May 5	725	183	31	654
Kaempf, Nicolaus, Tracy, Wis. Punching and shearing machine	319,978	June 16	1387	365	31	1317
Kaestner, Charles. (See Gates and Kaestner.)						
Kaffenberger, Gustav. (See Black and Kaffenberger.)						
Kaley, John A., Carey, Ohio. Type-writing machine	317,371	May 5	597	153, 154	31	632
Kalske, Joseph S. (See Ortlepp, Friederich, assignor.)						
Kaltmeyer, Gotthold E., San Buenaventura, Cal. Seed-sower	319,586	June 9	898	222	31	1211
Kamak, Max, New York, N. Y. Button-hole cutter	316,151	Apr. 21	1633	427	31	310
Kane, John, assignor to J. S. Graham & Co., Rochester, N. Y. Pressure and feed mechanism for wood-planers	315,510	Apr. 14	736	195	31	138
Kantner, Alexander, Philadelphia, Pa. Driving-belt coupling	320,140	June 16	1605	424	31	1355
Kaplan, Godfrey J., Owatonna, Minn. Draft-equalizer	320,793	June 23	2504	663	31	1530
Kaplaw, Joseph W. (See Bellna, Wenel J., assignor.)						
Kappner, Henry, Elizabeth, Colo. Dry-ore amalgamator	320,937	June 30	2700	716, 717	31	1572
Karnatz, John C., and W. Wiese, Forest Glen, Ill. Stump-puller	319,726	June 9	1024	271	31	1246
Kauffeld, Elias, assignor of one-half to T. Miller, Pittsburg, Pa. Combined malt-cutter and vegetable-crusher	320,877	June 23	2611	692	31	1550
Kauffman, Jacob W., Miamisburg, Ohio. Tobacco-hiller	319,727	June 9	1025	271	31	1246
Kaufmann, Charles, New York, N. Y. Paper wreath	315,795	Apr. 14	1138	298	31	213
Kaufmann, Peter, Hudson, Ill. Automatic grain measure and register	319,822	June 9	1161	307	31	1270
Kay, Edward, assignor of one-half to S. Beswick, Philadelphia, Pa. Lubricator for eccentrics	317,372	May 5	601	154	31	633
Kay, Edward, assignor of one-half to S. Beswick, Philadelphia, Pa. Clutch	318,259	May 19	1775	474	31	867
Kay, James I. (See Nightengale, William O., assignor.)						
Kays, Thomas, Newton, N. J., assignor to Lawson Non-Explosive Boiler Company, New York, N. Y. Steam-boiler	315,511	Apr. 14	738	195, 196	31	138
Kays, Thomas, Newton, N. J., assignor to Lawson Non-Explosive Boiler Company, New York, N. Y. Safety-valve	318,748	May 26	2435	652	31	996
Kayser, Adolf, assignor of two-thirds to A. B. Young and H. Williams, Buffalo, N. Y. Making sodium carbonate	320,256	June 16	1750	.....	31	1382
Kayser, Charles. (See Kayser, William J. and C.)						
Kayser, William J. and C., Milwaukee, Wis. Chimney-cap and ventilator	320,794	June 23	2504	663	31	1530
Kean, Alexander L., Elizabeth, N. J. Sleeping-car seat	317,142	May 5	284	72	31	575
Kearney, Patrick D., South Bend, Ind. Vehicle-axle	315,041	Apr. 7	77	18	31	15
Kearns, Patrick, Philadelphia, Pa. Lever attachment for hand-shears	315,295	Apr. 7	431	109	31	78
Kearns, William D., Pittsburg, Pa. Splint	315,512	Apr. 14	741	196	31	138
Kearsing, John G., Newark, N. J. Manufacture and ornamentation of medallions, &c.	317,143	May 5	285	72	31	575
Keavy, Thomas E., assignor of one-half to W. I. Caris, Kent, Ohio. Button-fastener	316,432	Apr. 21	2003	526	31	374
Keck, John E., New York, N. Y. Base for cheese-covers	320,141	June 16	1606	425	31	1355
Kedney, Andrew J., Ayer, Mass. Piano-stool	321,113	June 30	2939	779	31	1614
Keech, Lawson P., Brooklyn, N. Y. Paper-filing implement	318,990	June 2	79	20	31	1062
Keefe, James B., Delaware, Ohio. Snap-hook	315,796	Apr. 14	1139	299	31	214
Keegan, Paul T., Albany, Wis. Gate	320,662	June 23	2348	621	31	1499
Keeler, William H., Buffalo, N. Y. Hand-stamp	321,223	June 30	3072	815	31	1640
Keen, Horace F., assignor of one-fourth to J. Champion, Philadelphia, Pa. Cap for chimneys and smoke-stacks	318,749	May 26	2437	653	31	996
Keene, George A., Lynn, Mass. Hub-attaching device	317,144	May 5	286	73	31	575
Keep, Oliver H., New York, N. Y. Waste-pipe for wash-basins, bath-tubs, &c.	317,373	May 5	602	154	31	633
Kehrer, William. (See Walsh, William M., assignor.)						
Keiper, Henry B., Lancaster, Pa. Device for converting motion	316,789	Apr. 28	2507	655	31	474
Keith, Charles E., Bridgeport, Conn. Hackling-machine	318,750	May 26	2437	653	31	996
Keith, David W., West Wareham, Mass. Nail-plate feeder	321,114	June 30	2939	779	31	1614
Keith, Thomas K. (See Woodward and Keith.)						
Keizer, Lewis R. (See Painter, William, assignor.)						
Kelcher, John M., Newark, Ohio. Anti-friction bearing	317,652	May 12	973	251	31	708
Keller, Charles. (See Hoeveler and Keller.)						
Keller, Friedrich, Milwaukee, Wis. Inside blind	317,797	May 12	1162	308, 309	31	744
Keller, Friedrich, Milwaukee, Wis. Inside blind, &c.	317,798	May 12	1165	309	31	744
Keller, Friedrich, Milwaukee, Wis. Ventilator	318,912	May 26	2659	704	31	1035
Keller, John F., Shepherdstown, W. Va. Fertilizing grain-drill	318,478	May 26	2066	558, 559	31	929
Keller, Louis. (See Daran, Dominique L., assignor.)						
Keller, Warren, assignor to himself and A. Lard, St. Joseph, Mo. Circular sawing machine	318,260	May 19	1776	475	31	867
Keller, William N., assignor to himself, L. T. Hibbs, and G. R. Callahan, Philadelphia, Pa. Elevated cable gravity-road	318,627	May 26	2273	606, 607	31	965
Kelley, Charles H. (See Perkins and Kelley.)						
Kelley, Charles H., Revere, assignor to C. E. Kimball, Lynn, Mass. Tool-holding attachment for lathes	318,261	May 19	1777	475	31	868
Kelley, Charles H., Revere, assignor of one-half to F. C. Perkins, Somerville, Mass. Cash-carrier	318,262	May 19	1778	475	31	868
Kelley, Charles H., Revere, assignor of one-half to F. C. Perkins, Somerville, Mass. Cash-carrier	318,263	May 19	1779	476	31	868
Kelley, Thomas. (See Bowen, Edmund J., assignor.)						
Kellogg, Frank, Brooklyn, N. Y. Wagon-jack	321,115	June 30	2941	780	31	1615
Kellogg, Harry W., Greenfield, Mass. Instantaneous shutter for cameras	315,296	Apr. 7	432	109	31	78
Kellogg, Henry, New Haven, Conn. Electrical insulator	315,633	Apr. 14	916	.....	31	171
Kellogg Newspaper Company, A. N. (See Pratt and Partridge, assignors.)						
Kellogg, William P. (See McPherson, Henry, assignor.)						
Kellow, Joseph, Pen Argyl, Pa. Rail-joint	318,189	May 19	1684	451	31	850
Kells, Edward, Cleveland, Ohio. Combined filler and faucet	318,479	May 26	2071	550	31	930
Kelly, Frederick H. (See Bartlett, Marcus J., assignor.)						
Kelly, Frederick H. (See Wilcox, William E., assignor.)						
Kelly, George A., assignor to Longview Kelly Plow Manufacturing Company, Longview, Tex. Plow	321,224	June 30	3074	815, 816	31	1640

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Kelly, Patrick J., and J. Groves, Brooklyn, N. Y. Adjustable reamer	321,116	June 30	2942	780	31	1615
Kelly, William E., New Brunswick, N. J. Press for forming heels for india-rubber boots or shoes	319,366	June 2	402	106, 107	31	1124
Kelly, William H., New York, N. Y. Folding book-rack	318,991	June 2	79	20	31	1062
Kelsey, George R., West Haven, Conn. Manufacture of buckles	316,790	Apr. 28	2508	653	31	474
Kelsey, George R., West Haven, Conn. Apparatus for bending the hinge ends of buckles	317,374	May 5	603	154	31	633
Kelsey, Henry, Concordia, Kans. Creaming-can	317,544	May 12	834	214	31	682
Kelso, Clarence Z., *et al.* (See Cox, Joseph J., assignor.)	316,044	Apr. 21	1474	385	31	2?0
Kelting, George T., Washington, D. C. Combined collar-button and necktie-fastener	319,097	June 2	204	.....	31	1065
Kendall, Anna, St. Louis, Mo. Soap for restoring color to plushes, velvets, &c.	318,480	May 26	2072	550	31	930
Kendrick, Dyer T., Providence, R. I. Camera-tripod joint	315,297	Apr. 7	434	109	31	78
Kenly, Benjamin F., Baltimore, Md. Duck-shooting blind	315,634	Apr. 14	917	240	31	171
Kennedy, David, assignor to Kennedy & Greig, Detroit, Mich. Elevator						
Kennedy & Greig. (See Kennedy, David, assignor.)						
Kennedy, Joseph R., Philadelphia, Pa. Ruler attachment for slates	320,142	June 16	1606	425	31	1355
Kennedy, Michael, Troy, N. Y. Weighing-scale	317,947	May 12	1360	365, 366	31	722
Kennedy, Samuel V., assignor to Minneapolis Harvester Works, Minneapolis, Minn. Discharging mechanism for grain-binders	316,550	Apr. 28	2162	568, 569	31	411
Kennedy, Thomas, Philadelphia, Pa. Stopper for fruit-jars, &c.	320,364	June 16	1939	511	31	1414
Kent, Alonzo F., New York, N. Y., assignor to New York Bottlers' Supplies Manufacturing Company, (limited.) Bottle-stopper	315,797	Apr. 14	1139	299	31	214
Kent, Haxham P., assignor to himself and T. W. Rounds, Providence, R. I. Check-rein clasp	316,370	Apr. 21	1913	506	31	359
Kent, Huxham P., Providence, R. I. Toe-weight	320,365	June 16	1939	511	31	1414
Kent, William, Jersey City, N. J. Steam-boiler	317,653	May 12	974	251	31	708
Kent, William, Jersey City, N. J. Furnace	320,503	June 23	2214	586	31	1474
Kenyon, John W., New York, N. Y., assignor to G. H. Clarke, Montclair, N. J. Low-water alarm	318,913	May 26	2660	705	31	1035
Kepler, Joseph W. (See Stevens, John L., assignor.)						
Kerbaugh, Joseph D. (See Parkinson, John H., assignor.)						
Kern, Theodore, Kokomo, Ind. Vaginal syringe	317,375	May 5	605	155	31	634
Kern, Xavier, Jr. (See Hammer and Kern.)						
Kernochan, Frank D., Middletown, N. Y. Thill-coupling	321,036	June 30	2833	754	31	1597
Kerr, James, London, England. Portable railway and tramway	316,629	Apr. 28	2262	595	31	429
Kesler, William, East Ringgold, Ohio. Tire-setter	315,298	Apr. 7	435	109	31	79
Kessel, John A., assignor to himself and J. Richert, Buffalo, N. Y. Fastener for rubber shoes	317,654	May 12	976	252	31	708
Kessel, John A., assignor to himself and J. Richert, Buffalo, N. Y. Rubber-shoe fastener	318,481	May 26	2073	560	31	931
Ketchum, Joseph, Brooklyn, N. Y. Producing artificial respiration	320,069	June 16	1503	399	31	1338
Ketchum, Joseph, Brooklyn, N. Y. Apparatus for producing artificial respiration	320,070	June 16	1505	399	31	1339
Keyes, E. T., *et al.* (See Kimball, Charles M., assignor.)	318,914	May 26	2661	705	31	1035
Kiam, Benjamin, Houston, Tex. Bed-clothes clamp						
Kidder, George W. (See Palmer and Kidder.)						
Kidder, Moses W. Lincoln, assignor of one-half to J. S. Rice, Cambridge, Mass. Chimney cap or ventilator	316,898	Apr. 28	2663	694	31	503
Kidder, Richard E., Worcester, Mass. Circular sawing machine	315,513	Apr. 14	742	196	31	138
Kiler, Charles M. (See Kiler, George W. and C. M.)						
Kiler, George W. and C. M., Indianapolis, Ind. Fence-post	319,923	June 9	1163	307	31	1270
Killam, Henry, New Haven, Conn. Carriage-axle	315,299	Apr. 7	436	110	31	79
Killip, John, assignor of one-half to H. C. Bair, Allegheny City, Pa. Steam-governor	318,190	May 19	1598	427	31	834
Killip, John, assignor of one-half to H. C. Bair, Allegheny, Pa. Steam-governor	320,472	June 23	2106	555	31	1454
Kilmer, Irving A. and M. D., Schenectady, N. Y. Barbed fence-rail	317,799	May 12	1166	309	31	744
Kilmer, Melvin B. (See Kilmer, Irving A. and M. D.)						
Kimball, Charles E. (See Kelley, Charles H., assignor.)						
Kimball, Charles M., assignor of two-thirds to E. T. Keyes, Toledo, and P. Dowling, Holland, Ohio. Water-elevator	318,915	May 26	2662	705	31	1035
Kimball, Charles P., Chicago, Ill. Buggy-body	316,270	Apr. 21	1778	468	31	335
Kimball, Charles R., *et al.* (See Young, Harlan P., assignor.)						
Kimball, George E., Franklin, Mass. Device for stretching card-clothing	320,795	June 23	2505	664	31	1530
Kimball, Lavirgne J. (See Masters and Kimball.)						
Kimball, Le Vert (See Bell, William, assignor.)						
Kimberlin Manufacturing Company. (See Davis, Calvin R., assignor.)						
Kimbro, Jerrymirah H. and J. A., Georgetown, Tex. Planter	315,635	Apr. 14	918	241	31	171
Kimbro, John A. (See Kimbro, Jerrymirah H. and J. A.)						
Kimmell, Theodore A., Kansas City, Mo. Fire-escape ladder	319,824	June 9	1164	307	31	1270
King, Frank S., West Brimfield, Mass. Elevator	316,152	Apr. 21	1634	427	31	310
King, George H. (See Millard and King.)						
King, Henry D., Nevada, Mo. Washing-machine	315,300	Apr. 7	438	110	31	79
King, Hiram T., Rochester, N. Y. Sash-fastening	320,796	June 23	2506	664	31	1530
King, Hiram T., Rochester, N. Y. Wrench	320,797	June 23	2508	664	31	1530
King Iron Bridge and Manufacturing Company. (See Phipps, Henry P., assignor.)						
King, John, *et al.* (See Cusson, Joseph, assignor.)						
King, John, Medway, Mass. Car-starter	321,225	June 30	3075	816	31	1641
King, Leander, Georgetown, Ohio. Brake-shoe clamp	316,630	Apr. 28	2262	595	31	429
King, Osman S., Painesville, Ohio. Car-coupling	315,514	Apr. 14	744	197	31	139
King, Peter O., Valley City, Dak. Ter. Snow-plow	321,301	June 30	3167	844	31	1658
King, Singleton L., Indianapolis, Ind. Lounge	319,491	June 9	709	190	31	1188
King, Thomas P., Chester, Ill. Machine for pricking boot and shoe heels	315,636	Apr. 14	920	241	31	171
King, William W., assignor of one-half to W. Somerville, St. Louis, Mo. Electric-arc lamp	316,791	Apr. 28	2509	655	31	474
Kingsland & Ferguson Manufacturing Company. (See Parkhurst, Darius, assignor.)						
Kingston, E. S. (See Kingston, William, assignor.)						
Kingston, William, Little Falls, assignor to E. S. Kingston, Utica, N. Y. Making last-patterns of graduated sizes	317,948	May 12	1362	.....	31	722
Kinley, Daniel R., Marion, Iowa. Bureau	321,037	June 30	2834	754	31	1597
Kinnard, William M., Dayton, Ohio. Index-book	320,798	June 23	2509	664	31	1530
Kinney, Adelbert T., Cleveland, Ohio. Smoke-consuming furnace	315,145	Apr. 7	216	53	31	39
Kinney, Samuel G., *et al.* (See Lenhardt, George, assignor.)						
Kinsman, Frank E., Plainfield, N. J. Electric fire-arm	317,545	May 12	835	215	31	682
Kinter, John H., Indiana, Pa. Gate	320,257	June 16	1751	465	31	1382
Kintz, George W. and H. E., West Henrietta, N. Y. Potato-digger	317,546	May 12	836	215	31	683
Kintz, H. Elmore. (See Kintz, George W. and H. E.)						
Kipe, Charles L., Dilworthtown, assignor of one-half to B. J. Hampton, Lenni Mills, Pa. Ash-sifter	318,567	May 26	2206	590	31	953

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Kipling, Ernest E., Roselle N. J. Artificial diamond	321,302	June 30	3168	.....	31	1658
Kirby, Jeremiah, assignor to A. Lespersance and J. B. Neven, Marysville, Mont. Ter. Amalgam-strainer	315,637	Apr. 14	922	241	31	172
Kirby, John M., and C. M. Littlejohn, Pacolet, S. C. Bedstead	317,376	May 5	605	155	31	633
Kirby, Thomas, and R. Shea, Emmetsburg, Iowa. Combined hay rake and loader	319,267	June 2	403	107	31	1124
Kirk, John A., Washington, D. C. Social attachment for bicycles	317,377	May 5	606	155	31	634
Kirkpatrick, David M., Kansas City, Mo., and M. J. French, Preston, Iowa; said Kirkpatrick assignor to said French. Oil-can	318,628	May 26	2275	607	31	966
Kirkpatrick, Wallace, Anna, Ill. Egg-tester	317,462	May 5	726	183	31	654
Kirkwood, David, Boston, Mass. Breech-loading fire-arm	318,001	May 19	1445	387	31	805
Kirwan, Thomas, Boston, Mass. Lock	317,547	May 12	838	215	31	683
Kisinger, William S., Bellevue, Ky., assignor of two-thirds to S. T. J. Coleman and E. B. Reynolds, Cincinnati, Ohio. Horseshoe-bender	320,258	June 16	1752	466	31	1382
Kittler, Friedrich W. (See Schrader and Kittler.)						
Kittleson, Ole O., Sterling, Ill. Check-row line	316,792	Apr. 28	2510	655	31	474
Kittleson, Ole O., Rock Falls, Ill. Wire-barbing machine	318,002	May 19	1446	{387 388	31	805
Kjobenhavns, Hesteskofabrik. (See Andersen, Anders, assignor.)						
Klans, Charles, Chicago, Ill. Pinch-bar	317,548	May 12	839	215	31	683
Klein, Peter L., assignor of one-half to P. H. Müller, Dusseldorf, Prussia, Germany. Drawing and unburring device for carding-engines	318,121	May 19	1309	{427 428	31	834
Klemm, Louis R., Hamilton, Ohio. Relief map, chart, &c.	320,564	June 23	2215	586	31	1474
Kline, William H., Watsontown, Pa. Step-ladder	319,728	June 9	1025	271	31	1246
Klose, William, assignor to Manly & Cooper Manufacturing Company, Philadelphia, Pa. Wire fabric for fences, screens, &c.	316,793	Apr. 28	2511	656	31	474
Klotz, Christian F. (See Panse and Klotz.)						
Klusemann, William. (See Spier, Anton, assignor.)						
Knapp, Archibald, Strawtown, Ind. Hoof parer and evener	316,978	May 5	63	16	31	534
Knapp, Edward Y., Arcata, Cal. Lumber-measuring instrument	319,911	June 9	1283	339	31	1290
Knapp, George W., *et al.* (See Fowler, William R., assignor.)						
Knapp, John C. (See Snyder and Knapp.)						
Knauer, Charles, Plymouth, Wis. Feed-cutter	319,492	June 9	710	190	31	1188
Knauth, Gustav, Brooklyn, N. Y. Guard for carving-forks	319,098	June 2	205	54	31	1085
Kneedler, John A., Grant, Pa. Railway turn-table	319,825	June 9	1165	308	31	1270
Knight, Charles S. (See Townsend, Warren R., assignor.)						
Knight, Edwin L., Springfield, Mass. Slow-closing valve	319,268	June 2	405	107	31	1124
Knight, Frank H. (See Knight and Proctor.)						
Knight, William H. H., Washington, D. C. Portable furnace	320,799	June 23	2509	665	31	1531
Knight, William H. H., Washington, D. C. Portable furnace	320,800	June 23	2512	{665 666	31	1531
Knight, William H. H. and F. H., and A. M. Proctor, Washington, D. C. Portable oven	320,801	June 23	2514	666	31	1532
Knipe, William A., Haverhill, Mass. Polishing-wheel	317,800	May 12	1166	309	31	744
Knipe, William A., Haverhill, Mass. Machine-sewed boot or shoe	319,269	June 2	406	107	31	1124
Knipe, William A., Haverhill, Mass. Cleaning and brightening leather surfaces	320,259	June 16	1754	466	31	1383
Knoeller, William M., Great Bend Village, Pa. Revolving waiter for dining-tables	316,979	May 5	64	17	31	534
Knorr, Ernest R., Washington, D. C. Measuring distances and lengths on charts and drawings distorted by disproportionate contraction, and providing for their correct republication	317,801	May 12	1167	310	31	744
Knous, Franklin F., assignor to Colts Patent Fire Arms Manufacturing Company, Hartford, Conn. Magazine fire-arm	316,899	Apr. 28	2664	694	31	503
Knous, John, assignor to Pope Manufacturing Company, Hartford, Conn. Velocipede-saddle	318,568	May 26	2207	590	31	953
Knowles, Francis B., *et al.*, executors. (See Knowles, Lucius J.)						
Knowles, Henry, Woodville, county of Leicester, England. Construction of kilns, pottery, or coke ovens, &c.	318,264	May 19	1780	476	31	868
Knowles, Henry, Woodville, county of Leicester, England. Continuous-action kiln for burning bricks, &c.	318,265	May 19	1782	{476 477	31	869
Knowles, Henry, Woodville, county of Leicester, England. Oven or detached kiln for burning bricks, pottery-ware, &c	318,266	May 19	1785	{477 478	31	869
Knowles, Horace B., Providence, R. I. Embalmer's table	316,980	May 5	65	17	31	534
Knowles Loom Works. (See Hutchins, George F., assignor.)						
Knowles, Lucius J., deceased, Worcester, Mass., (F. B. Knowles and H. A. Marsh, executors.) Weft stop-motion for looms	321,226	June 30	3076	{816 817	31	1641
Knowles, William R. (See Arter and Knowles.)						
Knowlton, Clark C., Buffalo, N. Y. Cigar-support	320,938	June 30	2702	717	31	1572
Knox, Augustus W., *et al.* (See Westmore, William H., assignor.)						
Knox, David, Lynn, Mass. Leather-cutting machine	317,463	May 5	726	184	31	654
Knox, William E., Springfield, assignor of one-half to J. P. Martindell, Clark County, Ohio. Hay-tedder	316,371	Apr. 21	1914	506	31	359
Knuth, Thomas H., New York, N. Y. Lace-fastener	320,260	June 16	1754	466	31	1383
Koch, Eberhard, New Orleans, La. Apparatus for distilling wood	316,794	Apr. 28	2511	656	31	474
Koch, John, Wheeling, W. Va. Refrigerator	320,802	June 23	2516	666	31	1532
Koch, Peter, Parkville, Mich. Bee-cabinet	319,979	June 16	1388	365	31	1317
Koch, Philippe, Nenas, Germany. Belt-fastener	317,549	May 12	839	216	31	683
Koch, Walter E., Soulsbyville, Cal. Amalgamating apparatus	320,565	June 23	2216	586	31	1475
Koch, William, New York, N. Y. Mechanical movement	315,639	Apr. 14	923	242	31	172
Kock, Christian H., Avoca, Iowa, assignor of four-fifths to R. Sehmer, P. Wiese, J. J. Hipsley, and F. A. Xanten. Lubricator for car-journals	315,638	Apr. 14	923	242	31	172
Koenig, Maximilian J., Jersey Shore, Pa. Folding head-rest	319,980	June 16	1389	365	31	1317
Kohler, Frederick E., Canton, Ohio. Horse hay-fork	318,375	May 19	1938	523	31	897
Kohler, Frederick E., Canton, Ohio. Hay-tedder	318,376	May 19	1940	{523 524	31	897
Kohler, Martin L. (See Bird, Peter E., assignor.)						
Kohrn, William A. J., San Francisco, Cal. Electric engine	319,812	June 9	1285	339	31	1291
Kollberg, Fredrick L., Chicago, Ill. Machine for flanging steam-boiler heads	317,145	May 5	287	73	31	576
Koneman, William A., Chicago, Ill. Elevator	319,099	June 2	206	54	31	1085
Koneman, William A., and H. H. Scoville; said Scoville assignor to A. F. Hatch, Chicago, Ill. Pulverizing apparatus	315,146	Apr. 7	217	53, 54	31	40
Koneman, William A., and H. H. Scoville; said Scoville assignor to A. F. Hatch, Chicago, Ill. Ore-concentrator	315,147	Apr. 7	220	54, 55	31	40
König, August, assignor to himself and G. L. Bergheim, Brooklyn, N. Y. Portable forge	318,629	May 26	2276	{607 608	31	966
Konrad, Christian, Lacona, Iowa. Fence-wire stretcher	316,153	Apr. 21	1635	428	31	310

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Konrad, Franz, Zschieren, near Dresden, assignor to himself and J. F. Notz, Dresden, Saxony, Germany. Composition for fireproofing fabrics	319,100	June 2	208	.....	31	1066
Koons, George B., Half Moon Bay, Cal. Pipe-tongs	321,038	June 30	2835	754	31	1597
Kopf, John, assignor of one-half to T. B. Mills, Brooklyn, N. Y. Fishing-reel	318,190	May 19	1685	{451 452	31	850
Koplin, William, Youngstown, Ohio, assignor to Pullman Iron and Steel Company, Pullman, Ill. Spike-machine	319,587	June 9	840	{222 223 224	31	1212
Korn, George W. (See Nebeling, Gottfried A., assignor.)						
Koscialowski, Philip J., St. Louis, Mo. Carriage and wagon jack	318,992	June 2	80	21	31	1063
Kountz, Joseph, Pittsburg, Pa. Purifying and odorizing natural gas	316,465	Apr. 28	2059	539	31	390
Kraft, Adolphus. (See Kraft, Ernest, assignor.)						
Kraft, Ernest, assignor to A. Kraft, Hamilton, Ontario, Canada. Buckle	316,372	Apr. 21	1915	506	31	359
Kraft, Ernest, assignor to A. Kraft, Hamilton, Ontario, Canada. Buckle	321,370	June 30	3257	870	31	1676
Krahn, Edward, Milwaukee, Wis. Shirt						
Krahnass, Alfred. (See Baloche and Krahnass.)						
Kramer, Charles P., assignor of one-third to J. E. Campbell, Hamilton, Ohio. Incline railway	315,640	Apr. 14	925	242	31	172
Kratzer, Wayne, Allentown, assignor of two-thirds to C. Ziegenfus and F. A. S. Helverson, Lehigh County, Pa. Anti-friction wheel or roller	320,366	June 16	1940	511	31	1414
Kraus, Edward L., Slatington, Pa. School-slate	320,367	June 16	1941	511	31	1414
Kraus, Samuel, assignor to Eagle Pencil Company, New York, N. Y. Colored lead for pencils	316,373	Apr. 21	1916	.....	31	359
Kraus, Samuel, assignor to Eagle Pencil Company, New York, N.Y. Artificial slate-pencil	316,374	Apr. 21	1917	.....	31	360
Krausch, Theodore, St. Louis, Mo. Refrigerating apparatus	316,900	Apr. 28	2666	{694 695 696	31	503
Krause, Otto H. (See Matthiessen and Krause.)						
Krause, Otto H., assignor to F. O. Matthiessen & Wiechers Sugar Refining Company, Jersey City, N. J. Making hard sugar from soft sugar	318,630	May 26	2277	608	31	966
Krebbiel, John, Detroit, Mich. Capsule-machine	315,416	Apr. 7	598	{153 154	31	107
Krebbiel, John, Detroit, Mich. Capsule-machine	315,417	Apr. 7	601	154	31	108
Krebbiel, John, assignor to Globe Capsule Company, Detroit, Mich. Capsule-machine	315,415	Apr. 7	597	153	31	107
Kreith, Bela, Buda-Pesth, Austria-Hungary. Bed-sofa	316,901	Apr. 28	2672	696	31	505
Krementz, George, Newark, N. J. Collar-button	315,418	Apr. 7	602	154	31	108
Krengel, Ernest E., Buena Vista, Oreg. Road-cart	316,902	Apr. 28	2673	696	31	505
Kretsinger, Frederick S., Fort Madison, Iowa. Making rakes	320,479	June 23	2107	555	31	1454
Kretzner, Carl F. E., Kunzendorf, Prussia, Germany. Mouth-piece of presses for the manufacture of tiles	318,267	May 19	1787	478	31	869
Krieg, John K., New York, N. Y. Embossing-machine	319,417	June 2	589	160	31	1160
Krieger, Andrew, assignor to J. Ohlen, Columbus, Ohio. Protector for insertible saw-teeth	315,419	Apr. 7	602	154	31	108
Krieger, John F., and J. H. Eickershoff, Cincinnati, Ohio. Compound steam-engine	318,003	May 19	1448	388	31	806
Kring, Henry C., Monroe, Mich. Device for converting motion	321,371	June 30	3258	870	31	1676
Kriz, William J., H. A. Hammel, and T. W. McManus, St. Louis, Mo. Combination-tool	315,148	Apr. 7	224	55	31	41
Kriz, William J., assignor of one-half to J. D. Lucas, St. Louis, Mo. Magazine-gun	318,268	May 19	1788	{478 479	31	869
Kroedel, Franz. (See Roach and Kroedel.)						
Krog, Henry, Sr., Washington, Mo. Box-fastener	317,146	May 5	289	74	31	576
Kron, Rudolf, Unterstrass, near Zurich, Switzerland. Self-cleaning pulp-straining machine	315,420	Apr. 7	603	{155 156	31	108
Krueckowski, Thomas, Barlosohno, Prussia, Germany. Calendar-clock	319,588	June 9	847	225	31	1213
Krueger, Henry F., Neenah, Wis. Roller or wheel for platform-scales, &c	316,981	May 5	67	17	31	535
Krumscheid, Jacob, Boston, Mass. Door-check	317,147	May 5	290	74	31	576
Kruse, Charles. (See Weiss, Charles W., assignor.)						
Kughler, James W., Greenville, Pa. Railway crossing and target	315,515	Apr. 14	745	197	31	139
Kugler, Franz J. (See Antal, Kugler, and Mátyás.)						
Kuhlmann, Louis, Brooklyn, N. Y. Washing-liquid	316,154	Apr. 21	1636	.....	31	310
Kuhn, Michael E. (See Morgan, Edward H., assignor.)						
Kundtz, Theodor, Cleveland, Ohio. Extension-leaf for tables	315,949	Apr. 14	1353	351	31	250
Kunkel, Daniel, Sr., Oregon, Mo. Washing-machine	319,589	June 9	849	225	31	1213
Kurtz, John A., *et al.* (See McKinley, William H., assignor.)						
Kuntze, John. (See Robinson, Clark, assignor.)						
Küntzel, Paul, and F. L. Loecsher, Stapleton, N. Y. Faucet	319,913	June 9	1287	340	31	1291
Kurtis, Joseph, Springfield, Ohio. Stove-pipe shelf	319,101	June 2	209	54	31	1066
Kux, Adolf, Berlin, Germany. Apparatus for cooling and freezing fluids	320,144	June 16	1607	425	31	1356
La Fountain, William H., Cleveland, Ohio. Carpet-cleaner	318,993	June 2	81	21	31	1063
Laarman, Petrus F., Amsterdam, Holland. Safety device for elevator-cages, &c	321,303	June 30	3169	845	31	1658
Laase, Emil. (See Latulip, Frederic, assignor.)						
Laborde, Lndovic, Fleurance, Gers, France. Apparatus for destroying phylloxera	317,802	May 12	1169	310	31	745
Lace, John H., assignor of one-half to O. S. Dale, Michigan City, Ind. Folding cradle	318,751	May 26	2439	{653 654	31	996
Lackey, William H., Akron, Ohio. Portable book-case, &c	315,301	Apr. 7	439	{110 111	31	80
Lacrone, Milton, and A. K. Hahn, Springfield, Ohio. Caster	318,752	May 26	2440	654	31	997
Ladd, Albert. (See Warren and Ladd.)						
Ladd, Hiram H., Fremont, Nebr. Rotating harrow	318,631	May 26	2278	{608 609	31	966
Ladd, Lafayette, Adrian, Mich. Machine for separating seeds from pulp	318,122	May 19	1602	428	31	834
Laffin, John M., New York, N. Y. Syringe for applying ointment, &c	320,261	June 16	1756	466	31	1383
Laidlaw, John, Glasgow, county of Lanark, Scotland. Centrifugal machine	319,493	June 9	711	191	31	1188
Laird, Peter B., Brooklyn, N. Y. Ice-creeper	319,729	June 9	1026	272	31	1246
Lake, Everett L., Syracuse, N. Y. Reamer	318,994	June 2	81	21	31	1063
Lake, Everett L., and L. S. Crandall, assignors to Lake Manufacturing Company, Syracuse, N. Y. Combined match-safe and cigar-clipper	316,466	Apr. 28	2060	540	31	391
Lake Manufacturing Company. (See Lake and Crandall, assignors.)						
Lalance, Auguste. (See Farmer and Lalance.)						
Lamb, George W., Bowie, Tex. Apparatus for hoisting bales on wagons	317,803	May 12	1170	310	31	745
Lamb, Levi L., assignor to Whitman & Barnes Manufacturing Company, Akron, Ohio. Drilling-machine	315,149	Apr. 7	225	55	31	41
Lamb, Levi L., assignor to Whitman & Barnes Manufacturing Company, Akron, Ohio. Countersinking-machine	316,271	Apr. 21	1779	468	31	335
Lamb, Salem T., New Albany, Ind. Door-spring	315,302	Apr. 7	440	111	31	80
Lambert, Harden, *et al.* (See Perkins, William J., assignor.)						
Lambert, Julius, Hoboken, N. J. Hand-bag	315,303	Apr. 7	441	111	31	80

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Lambert, Robert A., Mobile, Ala. Combined seed-planter and fertilizer-distributer	318,753	May 26	2441	654	31	997
Lambking, William, Philadelphia, Pa. Railway-rail	317,804	May 12	1171	310	31	745
Lampmann, Henry, Afton, N. Y. Grain-cleaning machine	317,635	May 12	976	252	31	708
Lamson, Charles H., Portland, Me. Cyclometer	320,145	June 16	1609	426	31	1356
Lamson, Warren H., Lynn, Mass. Pencil sharpening machine	317,550	May 12	840	216	31	683
Lancaster, Henry P., Lynn, Mass. Sewing-machine presser-foot	321,304	June 30	3170	845	31	1659
Lancaster, Israel, Chicago, Ill. Grain-binder	316,272	Apr. 21	1782	469	31	336
Lancaster, Israel, Chicago, Ill. Roller-skate	321,227	June 30	3077	817	31	1641
Land, Horatio N. (See Campbell and Land.)						
Landerholm, Andra F. (See Nelson and Landerholm.)						
Landis, Abraham B., Waynesborough, Pa. Drill-chuck	317,148	May 5	291	74	31	576
Landis, Abraham B., Waynesborough, Pa. Valve-gear	321,117	June 30	2943	780	31	1615
Landis, Frank F., Waynesborough, Pa. Gang-plow	316,045	Apr. 21	1475	385 / 386	31	280
Landrin, Henry, Anglet, Basses-Pyrénées, France, assignor to D. Block, San Francisco, Cal. Ore separating and concentrating machine	321,118	June 30	2946	781	31	1615
Lane & Bodley Company (See Starwood, James B., assignor.)						
Lane, Dennis, assignor to Lane Manufacturing Company, Montpelier, Vt. Saw-mill dog	316,273	Apr. 21	1787	469	31	337
Lane, Dennis, assignor to Lane Manufacturing Company, Montpelier, Vt. Saw-mill set-works	317,378	May 5	608	155 / 156	31	634
Lane, Dennis, assignor to Lane Manufacturing Company, Montpelier, Vt. Roller and bonnet attachment for planing-machines	317,379	May 5	609	156	31	634
Lane, Frederick A., assignor to New Haven Clock Company, New Haven, Conn. Clock-movement	317,380	May 5	610	156	31	635
Lane, Henry G., Bucyrus, Ohio. Tire-shrinker	320,071	June 16	1506	399	31	1339
Lane, Ira G., New York, N. Y. Chimney-cowl	318,632	May 26	2279	609	31	966
Lane, John A., Boston, Mass. Axle-lubricator	316,046	Apr. 21	1478	386	31	281
Lane, Louis. (See Lane, William H. and L.)						
Lane, Louis C., Cincinnati, Ohio. Registering-fancet	320,480	June 23	2108	556	31	1454
Lane Manufacturing Company. (See Lane, Dennis, assignor.)						
Lane, Richard H., *et al.* (See Barlow, Charles O., assignor.)						
Lane, Richard H., *et al.* (See Barlow and Emery, assignors.)						
Lane, Thomas W., Boston, Mass. Telephone-support	320,438	June 16	2048	537	31	1435
Lane, William H. and L., Newark, Ohio. Fire-proof lath for slates	320,072	June 16	1507	399	31	1339
Lane, William J., Poughkeepsie, N. Y. Steam-engine	315,516	Apr. 14	746	197 / 198	31	140
Laney, John H., Indiana, Pa. Farm-gate	315,798	Apr. 14	1140	299	31	214
Lange, Christian, Harlem, Ill. Bottle-stopper	319,981	June 16	1389	366	31	1317
Lange, Philipp, and E. Lindner, New York, N. Y. Electric glass-cutting machine	317,805	May 12	1171	311	31	746
Langelier, Antoine J., Providence, R. I. Heel-machine	317,149	May 5	292	74 / 75 / 76	31	577
Langenau, William C., assignor to Garry Iron Roofing Company, Cleveland, Ohio. Iron roofing	317,381	May 5	611	156	31	635
Lantz, David E., Bushnell Ill. Wagon end-gate	319,271	June 2	407	108	31	1125
Lanyon, Robert H. (See Lanyon, William and R. H.)						
Lanyon, William and R. H., Pittsburg, Kans. Apparatus for cleaning the residuum from zinc-retorts	319,270	June 2	406	108	31	1124
Laplace, Edouard. (See Laplace, Vincent and E.)						
Laplace, Vincent and E., Issondun, France. Grain-bagging apparatus	318,933	May 26	2280	609	31	967
Laqua, Frederick, Thielmanton, Minn. Harvester-reel	317,150	May 5	298	76	31	578
Larchar, Lewis, Cedar Rapids, Iowa. Railway-rail brace	318,634	May 26	2282	609	31	967
Lard, Allan. (See Keller, Warren, assignor.)						
Large, Adolphus R., Birkenhead, county of Chester, England. Apparatus for shipping and transferring coal, salt, &c	316,982	May 5	68	18	31	535
Largent, James J., assignor of one-half to M. Wilz, Peoria, Ill. Freight-car door	319,730	June 9	1027	272	31	1247
Larkin, John C., assignor of one-third to T. C. Grey, Whitefield, N. H. Brake-shoe	319,731	June 9	1028	272	31	1247
Larmanjat, Jean, Paris, France. Press for molding ornamental tiles or other articles of cement	319,826	June 9	1166	308	31	1270
Lasar, Godfrey H., St. Louis, Mo. Barb-wire machine	319,982	June 16	1390	366	31	1317
Laskey, John H., assignor of two-thirds to I. F. Dobson, Boston, and B. F. Davies, Cambridge, Mass. Ballot box	320,803	June 23	2517	667	31	1532
Latcha, Jacob A., Cleveland, Ohio. Apparatus for drying grain by means of air-currents	318,269	May 19	1791	479	31	870
Latcha, Jacob A., Cleveland, Ohio. Elevating, conveying, purifying, and drying grain	318,377	May 19	1942	524	31	898
Lathrop, Thomas A., assignor of one-half to H. T. Warner, Canton, Ohio. Feed-water heater and filter	317,806	May 12	1173	311	31	746
Latimer, Frank H. (See Anderson and Latimer.)						
Latimer, John W., Newark, Ohio. Steam-heating boiler	316,274	Apr. 21	1788	470	31	337
Latta, Emmit G., Friendship, N. Y. Bicycle	315,304	Apr. 7	442	112	31	80
Latulip, Frederic, assignor of one-half to E. Lasse, Syracuse, N. Y. Chair-seat and chair	317,382	May 5	612	157	31	635
Latulip, Frederick, assignor to R. E. Hover, Syracuse, N. Y. Die for the formation of chair seats, backs, and similar articles from caoutchouc and other plastic material	318,754	May 26	2442	655	31	997
Laubach, Henry H., *et al.* (See Schmidt, Theodore, assignor.) (Reissue.)						
Lauback, Isaac S., Boston, Mass. Sheet-metal vessel	317,807	May 12	1174	311	31	746
Lauder, George, Pittsburg, Pa. Bessemer process	315,150	Apr. 7	226	.....	31	41
Laner, Henry G. C., Iowa City, Iowa. Combined reclining and rocking chair	319,732	June 9	1029	272	31	1247
Laughlin, Henry A., Pittsburg, Pa. Combined throttle and safety valve	318,004	May 19	1450	388	31	806
Laughlin, William N., Midlothian, Tex. Stove-pipe joint	319,102	June 2	211	55	31	1086
Lauman, Charles H., Pittsburg, Pa. Annealing-furnace for glass	317,808	May 12	1174	311	31	746
Launius, Thomas C. (See Willbanks, David A., assignor.)						
Laurence, Henry, Chicago, Ill. Stay for trunks, chests, &c	318,123	May 19	1603	428	31	835
Lauth, Bernard C., *et al.* (See McCarty, William F. M., assignor.)						
Lavery, George L., Boston, Mass. Heating device	315,422	Apr. 7	608	156	31	109
Lavery, John W., *et al.* (See Shields, James H., assignor.)						
Lavigne, Joseph P., assignor to Sackett Manufacturing Company, Wallingford, Conn. Embroidering attachment for sewing-machines	318,755	May 26	2443	655	31	997
Law, James B., Darlington, S. C. Plow-gage	315,799	Apr. 14	1141	299	31	214
Law, Victor M., Cedar Rapids, Iowa. Filter	321,228	June 30	3080	817	31	1641
Lawrence, Cook C., Monroe, Wis. Carriage-top	316,983	May 5	68	18	31	535
Lawrence, Edwin, Brooklyn, N. Y. Lamp-burner	319,272	June 2	408	108 / 109	31	1125
Lawrence, John H., Sterling, Ill. Roller for sliding doors	319,494	June 9	712	192	31	1189
Lawson Non-Explosive Boiler Company. (See Kaye, Thomas, assignor.)						
Lawson, Peter, Moline, Ill. Washing-machine	321,119	June 30	2947	781	31	1616

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Lawton, Lyman T., assignor to Meriden Malleable Iron Company, Meriden, Conn. Lamp-hanger	318,756	May 26	2445	655	31	997
Lazarevitch, Constantin, assignor to himself and J. C. Lazarevitch, Brooklyn, N. Y. Fire-ladder	316,155	Apr. 21	1637	428	31	310
Lazarevitch, John C. (See Lazarevitch, Constantin, assignor.)						
Lazarus, Louis, Allegheny, Pa. Spectacle and eyeglass frame	319,733	June 9	1030	273	31	1247
Le Ross, Thomas N., Rochester, N. Y. Mixed paint	319,984	June 16	1394	.....	31	1318
Lea, Arthur H., Philadelphia, Pa. Car-coupling	315,151	Apr. 7	227	55	31	41
Leach, George W., and J. H. Smith, Stewartsville, Mo. Washing-machine	316,795	Apr. 28	2513	656	31	475
Leader Sewing Machine Company. (See Osborn, John H., assignor.)						
Leavitt, Albert. (See Busell, James H., assignor.)						
Leavitt, Charles, Cleveland, Ohio. Apparatus for compressing air and storing the same	320,482	June 23	2111	556	31	1455
Leavitt, Charles, Cleveland, Ohio. Mechanism for utilizing wave-power	321,229	June 30	3061	818	31	1642
Leavitt, Frank M., Brooklyn, assignor to E. W. Bliss, New Utrecht, N. Y. Can-soldering machine	320,663	June 23	2350	621	31	1499
Lecture, William W. (See West, Theodore S., assignor.)						
Leddell, Charles S., Morristown, N. J. Bicycle	319,983	June 16	1391	366 / 367	31	1317
Leddell, Charles S., Morristown, N. J. Velocipede	320,073	June 16	1508	400 / 401	31	1339
Leder, George, Demopolis, Ala. Apparatus for extracting oil from cotton-seed	318,191	May 19	1687	452	31	850
Lederer, Benedict B., Providence, R. I. Bracelet	319 273	June 2	410	109	31	1125
Ledue, Constant, San Francisco, Cal. Life-preserver	315,950	Apr. 14	1354	351	31	251
Ledue, Constant, Stockton, Cal. Machine for making tule bunches for life-preservers	317,551	May 12	841	216	31	684
Lee, Arthur M. (See Hargrave and Lee.)						
Lee, Cris, assignor of one-half to P. G. Reed, Paducah, Ky. Sash-holder	319,275	June 2	413	110	31	1126
Lee, Earl, Corona, N. Y. Metal-covered roof for portable houses	318,270	May 19	1792	479	31	870
Lee, Frank B. (See Hannas and Lee.)						
Lee, Henry A. (See Burger and Lee.)						
Lee, James, Jr., Stoneraville, assignor of one-half to C. Stolz, Reading, Pa. Combined rake and tedder	319,274	June 2	411	109 / 110	31	1125
Lee, Ogden G., Poughkeepsie, N. Y. Fire-escape	320,664	June 23	2353	621	31	1500
Lee, Robert, Cable, Ill. Elevator for mining purposes	318,757	May 26	2446	655 / 656	31	997
Lee, Thomas, Cincinnati, Ohio. Peanut-roaster	320,804	June 23	2519	667	31	1532
Lee, William A., Winfield, Kans. Plow	316,275	Apr. 21	1790	470	31	337
Leek, Ira G., San Francisco, Cal. Burglar-alarm	315,152	Apr. 7	230	56	31	42
Lees, Henry C., assignor to S. B. Schrack and G. H. Sherwood, Philadelphia, Pa. Upholstery trimming and making the same	317,151	May 5	298	76	31	578
Leete, John W., South Meriden, Conn. Fifth-wheel	316,276	Apr. 21	1790	470	31	337
Leete, John W., South Meriden, Conn. Thill-coupling	319,914	June 9	1288	340	31	1292
Lefèvre, Jean D., Guise, France. Plow	320,481	June 23	2109	556	31	1454
Legay, Jules E. (See Barrier, Tourvieille, and Legay.)						
Legg, Benjamin A., assignor to J. A. Jeffrey, Columbus, Ohio. Rock-drill	317,949	May 12	1363	366	31	782
Leggett, Joseph P., Carrollton, Mo. Bed-spring	318,758	May 26	2451	656	31	998
Lehman, Emanuel W., Carlisle, Pa. Cider-press	321,039	June 30	2835	755	31	1597
Lehman, John J., Portland, Mich. Land-roller	317,552	May 12	842	216	31	684
Lehman, Joseph. (See Shrock and Lehman.)						
Lehman, Leander, Harrisburg, Pa. Wagon end-gate	318,635	May 26	2283	610	31	967
Lehman, Otto A., Brooklyn, N. Y. Waist-belt clasp	319,276	June 2	414	110	31	1126
Lehmann, Richard, New York, N. Y. Lock for railway-switches	321,040	June 30	2837	755	31	1598
Lehmer, Isaac, Sturgis, Mich. Reversing-gear for traction-engines	320,665	June 23	2354	622	31	1500
Lehndorff, Reinhardt F., Detroit, Mich. Spring-seat for railway-cars	320,368	June 16	1942	512	31	1414
Leibman, Frank J., New York, N. Y. Car-axle lubricator	315,042	Apr. 7	78	19	31	16
Leineweber, Karl H. H., South Chicago, Ill. Car-brake	317,553	May 12	843	217	31	684
Leineweber, Karl H. H., South Chicago, Ill. Car-brake	317,554	May 12	844	217	31	685
Leishman, William, Two Waters Mill, Hemel-Hempstead, county of Herts, England. Paper-making machine	318,378	May 19	1943	524	31	898
Leitzel, Roswell J., and H. Erock, Kratzerville, Pa.; said Frock assignor to said Leitzel. Gate	320,805	June 23	2520	667	31	1532
Lemassena, Lillian. (See Lemassena, Theodore F., assignor.)						
Lemassena, Theodore F., assignor to L. Lemassena, Newark, N. J. Composition driving-pulley	318,759	May 26	2452	657	31	998
Lengfeld, F. J. (See Mihilla, Frank N., assignor.)						
Lenhardt, George, assignor of five-eighths to S. G. Kinney and A. E. Peppers, Detroit, Mich. Pump	316,631	Apr. 28	2263	596	31	429
Lennard, Harry, Dundas, Ontario, Canada. Knitting stockings	315,043	Apr. 7	79	19	31	16
Lenz, Charlotte, Cleveland, Ohio. Sewing-machine	320,666	June 23	2355	622	31	1500
Leonard, Francis H., Boston, Mass. Draft-regulator and soot-arrester for chimneys	316,796	Apr. 28	2514	657	31	475
Leonard, Henry W., Syracuse, and J. Stevens, Port Byron, assignors to Syracuse Paper Ware Company, Syracuse, N. Y. Calendering-machine for paper-pulp pails, &c	316,984	May 5	69	18	31	535
Leonard, Henry W., Syracuse, and J. Stevens, Port Byron, assignors to Syracuse Paper Ware Company, Syracuse, N. Y. Machine for pressing the bodies of paper-pails	316,985	May 5	71	19	31	536
Leonard, John N., Warehouse Point, Conn. Display-case for goods	320,586	June 23	2217	587	31	1475
Leonard, William W., Springfield, Mass. Vehicle device for checking horses	320,262	June 16	1756	467	31	1383
Leonhardt, John H. (See Leonhardt, William and J. H.)						
Leonhardt, William and J. H., Waverly, Md. Dumping-wagon	319,497	June 9	718	193	31	1190
Leroux, Joseph N., assignor of one-half to F. A. Van Aarle, Toledo, Ohio. Car-coupling	321,372	June 30	3259	870	31	1676
Lesher, Charles P., Lansing, Mich. Fence-post	319,277	June 2	415	111	31	1126
Lesley, Robert W., and D. Griffith, assignors to Pennsylvania Patent Right Company, Egypt, Pa. Manufacturing Portland cement	321,120	June 30	2948	781	31	1616
Lesley, Robert W., and D. Griffith, assignors to Pennsylvania Patent Right Company, Egypt, Pa. Manufacture of cement	321,121	June 30	2949	.....	31	1616
Leslie, Andrew, assignor to M. A. Leslie, St. Louis, Mo. Invalid-hammock	317,383	May 5	613	157	31	635
Leslie, Benjamin J., assignor, by mesne assignments, of one-half to S. E. Huddlestun, Butler, Ky. Shovel-plow	320,074	June 16	1515	401	31	1340
Leslie, Edward, Orangeville, Ontario, Canada. Rotary excavator for removing snow, &c	317,809	May 12	1175	312	31	746
Leslie, Mary A. (See Leslie, Andrew, assignor.)						
Lesperance, Alcandre, *et al.* (See Kirby, Jeremiah, assignor.)						
Lester, David, Lockport, N. Y. Device for administering baths	318,760	May 26	2453	657	31	999
Lester, Robert B., Brooklyn, N. Y. Watch-movement box	318,124	May 19	1604	429	31	835
Letchworth, George J., Buffalo, N. Y. Hame	321,122	June 30	2950	782	31	1616
Letsch, William F., Carbon Cliff, Ill. Potato-digger	320,369	June 16	1944	512	31	1415
Letson, Augustus F., and F. Honegger, Buffalo, N.Y. Explosive hand-grenade extinguisher	318,761	May 26	2455	657	31	999

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Lettré, Philipp, assignor to Sandland, Capron & Co., North Attleborough, Mass. Spring-hinged bracelet	318,379	May 19	1944	524	31	896
Leve, Gustave, assignor to F. S. M. Blun, New York, N. Y. Berth for sleeping-cars	315,517	Apr. 14	751	198	31	140
Leverentz, Henry, Chicago, Ill. Planing-machine attachment	316,156	Apr. 21	1639	429	31	311
Levering, William M., Philadelphia, Pa. Cable railway	315,900	Apr. 14	1142	300	31	214
Levering, William M., Philadelphia, Pa. Cable railway	319,495	June 9	713	192	31	1189
Levering, William M., Philadelphia, Pa. Cable railway	319,496	June 9	716	193	31	1189
Levy, Isaac, Chicago, Ill. Combined table and bed	315,518	Apr. 14	752	198	31	140
Lewen, John J. (See Joy and Lewen.)						
Lewis, Albert C. (See Broadnax, Amos, assignor.)						
Lewis, Benjamin B., Bristol, Conn. Machine for fastening clock pinion-leaves	318,762	May 26	2455	658	31	999
Lewis, Edward H., Nashville, Tenn. Convertible chair	321,230	June 30	3082	818	31	1642
Lewis, Eugene H., Chicago, Ill. Chemical hand fire-extinguisher	317,152	May 5	299	77	31	578
Lewis, Orlando E. (See Robinson and Lewis.)						
Libbey, E. D. (See Locke, Joseph, assignor.)						
Libby, Asa S., Everett, Mass. Machine for picking up and arranging tacks, &c	316,467	Apr. 28	2061	540	31	391
Libby, Asa S., Everett, Mass. Tack-driving machine	316,986	May 5	73	19, 20	31	536
Libby, Asa S., Everett, assignor to Beal Lasting Machine Company, Boston, Mass. Shoe-lasting machine	317,384	May 5	615	158	31	635
Lichtenstein, Rudolph. (See Gordon, Norman N., assignor.)						
Lieb, Charles A., New York, N. Y. Fire-escape and water-tower combined	316,375	Apr. 21	1918	506, 507	31	360
Liebig, Gustav A., Jr., Baltimore, Md. Finger-exercising machine	318,916	May 26	2663	705	31	1036
Ligibel, Adolph, Jersey City, N. J. Machine for riveting umbrella-frames	321,231	June 30	3083	819	31	1642
Ligowsky, George, Cincinnati, Ohio. Molding pottery	318,917	May 26	2664	.....	31	1036
Lilley, Hugh H. V., Milford, Mass. Key-ring	318,462	May 26	2073	560	31	931
Lilley, John, Sr. (See Stover, George W., assignor.)						
Lilly & Company, Eli. (See Lilly, Josiah K., assignor.)						
Lilly, Josiah K., assignor to E. Lilly & Company, Indianapolis, Ind. Jar for solid extracts	317,950	May 12	1365	367	31	783
Lilly, William H., Reading, Pa. Cigar-cutter	318,995	June 2	82	21	31	1063
Limprecht, Max. (See Steinke and Limprecht.)						
Lind, Andrew P. (See Blum and Lind.)						
Lindberg, Ludvig F., Stockholm, Sweden. Revolving light apparatus	320,146	June 16	1610	426, 427, 428, 429	31	1357
Lindenberg, Charles H., and E. G. Drake, Columbus, Ohio. Metallic helmet hat	318,192	May 19	1688	452	31	851
Lindle, Joseph, Chicago, Ill. Combined water cooler and filter	320,483	June 23	2113	557	31	1455
Lindle, Joseph, Chicago, Ill. Water-cooler and refrigerator	320,484	June 23	2114	557	31	1455
Lindner, Ernest. (See Lange and Lindner.)						
Lindsay, John P., New York, N. Y. Stocking-supporter	319,985	June 16	1395	367	31	1318
Lindsay, William E. (See Woods and Lindsay.)						
Lines, George, Holloway, and A. Bridgman, Stoke-Newington, county of Middlesex, England. Box-nailing machine	318,918	May 26	2665	706, 707	31	1036
Lingle, George W., and J. F. Roop, Stryker, Ohio. Machine for forming car-blades	318,763	May 26	2457	658, 659	31	999
Linsley, Joel, and J. A. Baldwin, Burlington, Vt. Portable folding table	319,915	June 9	1289	340	31	1292
Linthicum, Isaac, Liberty, Nebr. Car-coupling	315,801	Apr. 14	1144	300	31	215
Lipe, John, Seward, N. Y. Hop-trellis	317,385	May 5	616	158	31	635
Lippert, Ernst T., Pittsburg, Pa. Insertible saw-tooth	317,656	May 12	977	252	31	708
Lippincott, Jesse H. (See Schulze-Berge, Hermann, assignor.)						
Lipps, Jacob K. (See Trachsel, Lipps, and Turney.)						
List, Adolph. (See Fahlberg, Constantin, assignor.)						
Littell, Hardin H. (See Littell, Harvey M., assignor.)						
Littell, Hardin H., Louisville, Ky. Combined splice-bar and car-replacer	317,386	May 5	617	158	31	636
Littell, Hardin H., Louisville, Ky. Railway-rail	319,278	June 2	415	111	31	1126
Littell, Harvey M., St. Paul, Minn., assignor of one-half to H. H. Littell, Louisville, Ky. Track-scraper for railways	320,263	June 16	1757	467	31	1383
Little Giant Ice Machine Company. (See Holden, Daniel L., assignor.) (Reissue.)						
Little, Sumner B., Chapin, Iowa. Cultivator	320,147	June 16	1612	429	31	1357
Littlefield, Augustine F., Lynn, Mass., assignor to Goodyear & McKay Sewing Machine Company, Hartford, Conn. Machine for beating out welts	320,075	June 16	1516	402	31	1340
Littlejohn, Charles M. (See Kirby and Littlejohn.)						
Lloyd, A. Parlett, and F. Y. MacDonald, Baltimore, Md. Lighting device for street-lamps	315,802	Apr. 14	1144	300	31	215
Lloyd, Albert, and W. F. Glydon, Birmingham, county of Warwick, England. Manufacture of scissors	315,305	Apr. 7	445	112, 113	31	81
Lobdell, Henry L., *et al.* (See Tyler, George, assignor.)						
Lobeck, Charles O. (See Huber, William B., assignor.)						
Lochmann, Paul, Gohlis, near Leipsic, Saxony, Germany. Apparatus for spraying medicines	316,468	Apr. 28	2062	540	31	391
Locke, Charles S. (See Briggs and Locke.)						
Locke, Charles S., Joliet, Ill. Seed-planter	317,810	May 12	1177	313	31	747
Locke, Favour, Bristol N. H. Loading-winch	319,279	June 2	416	111	31	1126
Locke, Joseph, Medford, assignor to E. D. Libbey, Winchester, Mass. Glass and producing the same	316,551	Apr. 28	2164	570	31	411
Locke, Joseph, and W. Bowker, Medford, assignors, by mesne assignments, to themselves and R. Williams, Boston, Mass. Electric-wire insulator	316,469	Apr. 28	2063	541	31	391
Locke, Sylvanus D., Hoosick Falls, N. Y. Stop-motion gearing	316,797	Apr. 28	2515	657	31	475
Lockwood, Charles S., assignor to Bonsilate Company, (limited,) Albany, N. Y. Treating alkaline silicates	317,389	May 5	621	.....	31	636
Lockwood, Charles S., Albany, N. Y., and J. W. Hyatt, Newark, N. J., assignors to Bonsilate Company, (limited,) Albany, N. Y. Treating alkaline silicates, &c	317,387	May 5	618	.....	31	636
Lockwood, Charles S., Albany, N. Y., and J. W. Hyatt, Newark, N. J., assignors to Bonsilate Company, (limited,) Albany, N. Y. Treating silicate of soda in combination with zinc oxide, &c	317,388	May 5	620	.....	31	636
Lockwood, Charles S., Albany, N. Y., J. W. Hyatt and J. H. Stevens, Newark, N. J., assignors to Bonsilate Company, (limited,) Albany, N. Y. Treating gelatine when combined with tannic acid, &c	317,390	May 5	622	.....	31	636
Lockwood, Willshire, St. Louis, Mo. Artificial limb	315,519	Apr. 14	753	199	31	140
Lodge, Littleton W. T., assignor to Novelty Manufacturing Company, Indianapolis, Ind. Cuff-holder	319,280	June 2	417	111	31	1127
Loebig, Jacob, Chicago, Ill. Sofa-bed	321,305	June 30	3171	845, 846	31	1659

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Loescher, F. Louis. (See Küntzel and Loescher.)						
Loewer, Henry, *et al.* (See Hatfield, Charles B., assignor.)						
Logan, Arthur C., *et al.* (See Parsons, Calvin W., assignor.)						
Logan, Jane, *et al.* (See McCarty, William F. M., assignor.)						
Logan, William, Prairie du Sac, Wis. Fence-wire-winding device	315,803	Apr. 14	1146	300	31	215
Logan, William H., Millerstown, Pa. Stove	318,380	May 19	1945	525	31	898
Logeman, Fredrick H., St. Louis, Mo. Knockdown chair	319,281	June 2	418	112	31	1127
Lomas, John R., assignor of one-half to B. Shoninger, New Haven, Conn. Orchestra-chime	317,391	May 5	623	159	31	636
Lomas, John R., assignor of one-half to B. Shoninger, New Haven, Conn. Piano sounding-board	320,264	June 16	1758	467	31	1384
Lomax, Rush R., Plum Hollow, Iowa. Attachment for cultivators	317,392	May 5	624	159	31	637
Lonergan, Thomas, *et al.* (See Manuel, David, assignor.)						
Long, George S., assignor to himself and G. W. Williams, Hartford, Conn. Wheel	320,076	June 16	1517	402	31	1341
Long, John M., Hamilton, Ohio. Punching device	316,470	Apr. 28	2065	541	31	392
Long, John W., Waelder, Tex. Harmonic attachment for key-board musical instruments	320,148	June 16	1614	430	31	1357
Long, M. Lukens, Philadelphia, Pa. Dental chair	320,606	June 23	2521	668	31	1533
Long, William H. (See Johnson and Long.)						
Longcor, Leonard S., and W. M. Dawson, Belvidere, Ill. Buggy-top support	317,811	May 12	1180	313	31	747
Longden, Charles E., assignor to Seamless Rubber Company, New Haven, Conn. Exercising-bag	318,766	May 26	2462	660	31	1000
Longmore, Lewis F. (See Osgood and Longmore.)						
Longmore, Lewis F., assignor of two-thirds to C. W. Morey, Lowell, and G. A. Byam, Chelmsford, Mass. Hose-coupling	320,939	June 30	2702	717	31	1573
Longnecker, George W., Winchester, Ind. Buckle	319,734	June 9	1031	273	31	1247
Longshaw, Thomas, East Orange, N. J. Hat felting and sizing machine	317,555	May 12	846	217	31	685
Longview Kelly Plow Manufacturing Company. (See Kelly, George A., assignor.)						
Lonney, Thomas F., East New York, N. Y. Submarine rock-breaker	315,520	Apr. 14	754	199, 200	31	141
Loomis, Samuel L., Wright's Station, Cal. Fruit-jar	318,483	May 26	2074	560	31	931
Looper, John A., Rockpile, Ga. Car-coupling	318,767	May 26	2464	660	31	1001
Lorch, Hermann, Milwaukee, Wis. Food product	318,764	May 26	2460	.....	31	1000
Lorch, Hermann, Milwaukee, Wis. Preparing and curing spelt	318,768	May 26	2464	.....	31	1001
Lord, Andrew H., assignor to C. H. Hitchcock and J. A. Cooper, Chicago, Ill. Tile-setting	320,567	June 23	2218	587	31	1475
Lord, George W. (See Burton and Lord.)						
Lord, Simeon, and W. H. Dailey, St. Louis, Mo. Inlet-nozzle for stand-pipes	315,521	Apr. 14	758	201	31	141
Lore, George W., assignor to himself and W. H. Gilliland, Fayette, N. Y. Draft-regulator	316,552	Apr. 28	2165	570	31	411
Lorenz, Wilhelm, Carlsruhe, Baden, Germany. Forming handles for cutlery	317,393	May 5	625	159	31	637
Lorenz, Wilhelm, Carlsruhe, Baden, Germany. Lock for ordnance	318,765	May 26	2460	659, 660	31	1000
Lorillard, Pierre, Jr. (See Benecke and Lorillard.)						
Loring, Samuel, Duxbury, and E. S. Morton, Plymouth, Mass. Machine for pointing wire nails	319,735	June 9	1032	273, 274	31	1247
Lormor, Charles T., Superior, Nebr. Valve	320,807	June 23	2529	668	31	1533
Lorsch, Moses S., New York, N. Y. Water-proof garment	317,812	May 12	1181	314	31	747
Loud, Waldo A., assignor to Blair Manufacturing Company, Springfield, Mass. Lawn-mower	319,827	June 9	1167	308, 309	31	1271
Louden, William, Fairfield, Iowa. Hoisting single-tree	315,423	Apr. 7	609	156	31	109
Loudon, Charles F., *et al.* (See Ackermann, George, assignor.)						
Lounsbury, John H., Westfield, Mass. Steam-radiator	321,232	June 30	3086	819	31	1642
Love, Thomas C., Evansville, Ind. Paddle-wheel for vessels	317,657	May 12	978	252	31	708
Love, William, Port Huron, Mich. Feed-water heater	315,300	Apr. 7	446	113	31	81
Lovegrove, Thomas G., assignor of one-half to Sherman & Delaplaine, Philadelphia, Pa. Blow-off apparatus	320,678	June 23	2613	692	31	1550
Loveless, Charles B., Worthington, Minn. Ventilator	315,522	Apr. 14	758	201	31	141
Loveless, Charles B., Worthington, Minn. Ventilator	319,500	June 9	850	226	31	1213
Loveless, Leonidas W., Lafayette, Ind. Cash-box	319,498	June 9	719	193	31	1190
Lovell Manufacturing Company. (See Lovell, Melvin N., assignor.)						
Lovell, Melvin N., Erie, Pa. Adjustable spring bed-bottom	318,381	May 19	1946	525	31	898
Lovell, Melvin N., assignor to Lovell Manufacturing Company, (limited,) Erie, Pa. Tempering wire springs, &c	315,424	Apr. 7	609	157	31	109
Lovell, Melvin N., assignor to Lovell Manufacturing Company, (limited,) Erie, Pa. Apparatus for tempering wire springs	315,457	Apr. 7	656	169	31	117
Loveren, Charles L., Brooklyn, N. Y. Chuck for gem-settings	321,041	June 30	2838	755	31	1598
Loveridge, James W., Jersey City, N. J. Hot-air feeder for furnaces	319,928	June 9	1169	309	31	1271
Lovett, Arthur S. (See Baker, Lovett, and Van Etten.)						
Low, James E., Chicago, Ill. Artificial denture	319,929	June 9	1171	309	31	1271
Lowbridge, Jabez, assignor of one-half to P. Walter, Jr., Allegheny, Pa. Car-starter	317,394	May 5	626	159, 160	31	637
Lowe, Charles, Reddish, near Stockport, county of Lancaster, England. Manufacture of derivatives of aurine	316,471	Apr. 28	2066	.....	31	392
Lowe, Charles, Reddish, near Stockport, county of Lancaster, England. Manufacture of the derivatives of aurin	318,484	May 26	2075	.....	31	931
Lowe, Harry, Montpelier, Vt. Nose-band for overdraw-checks for bridles	319,916	June 9	1290	341	31	1292
Lowe, John. (See Thayer and Lowe.)						
Lowell, Franklin B., Marinette, Wis. Transporting loads over ice and snow roads	316,553	Apr. 28	2166	570	31	411
Loweth, Charles F., *et al.* (See Loweth, John T., assignor.)						
Loweth, Daniel, *et al.* (See Loweth, John T., assignor.)						
Loweth, John T., assignor of one-half to D. Loweth, Jefferson, Ohio, and C. F. Loweth, St. Paul, Minn. Safety-gate for car-platforms	321,373	June 30	3260	870, 871	31	1676
Lowrie, Harvey C., Denver, Colo. Self-locking man-hole cover for sewers, street-vaults, &c	317,153	May 5	300	77	31	578
Lowrie, Harvey C., Denver, Colo. Rod joint or coupling	317,154	May 5	304	77	31	578
Lowrie, Harvey C., Denver, Colo. Rod joint or coupling	317,155	May 5	305	78	31	579
Lowrie, Harvey C., Denver, Colo. Sewer-cleaning apparatus	317,156	May 5	306	78	31	579
Lowrie, Harvey C., Denver, Colo. Flexible coupling or joint for wooden rods	317,157	May 5	309	78	31	579
Lowrie, Harvey C., Denver, Colo. Straight-edge for laying drain-pipes	317,158	May 5	310	78	31	579
Lowry, Emory F., Jamestown, Ind. Horseshoe	317,658	May 12	979	253	31	709
Loze, Eugene, and A. Helaers, Fleurus, Belgium. Filter	319,917	June 9	1291	341	31	1292
Lozier, Henry, *et al.* (See McGlinchey, Charles E., assignor.)						
Lucas, George C., Cleveland, Ohio. Filling for railway-frogs	315,951	Apr. 14	1356	351	31	251
Lucas, John, Hastings, Minn. Grain-separator	317,813	May 12	1182	314	31	748

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Lucas, John F. (See Gollehon, Britton, and Lucas.)						
Lucas, John M. (See Lucas, Josiah P. and J. M.)						
Lucas, Joseph D. (See Kriz, William J., assignor.)						
Lucas, Josiah P. (See McFaddin and Lucas.)						
Lucas, Josiah P. and J. M., Cadiz, Ohio. Fruit-butter stirrer	316,632	Apr. 28	2264	596	31	429
Luce, George W., Albany, N. Y. Clasp for supporting garments	318,919	May 26	2667	707	31	1036
Luce, George W., G. Boole, and B. Bryon, San Francisco, Cal. Package-compressor	315,044	Apr. 7	80	19	31	16
Lüde, Carl V., Berlin, assignor to Schäffer & Budenberg, Buckau, Germany. Steam-power governor	320,879	June 23	2613	693	31	1551
Ludington, Frank J., Waterbury, assignor to J. G. English, New Haven, Conn. Cigarette-machine	320,370	June 16	1946	512, 513, 514, 515	31	1415
Ludlow, Erastus D. and G. M., Chicago, Ill. Stop mechanism for button-hole sewing-machines	315,952	Apr. 14	1357	352	31	251
Ludlow, George M. (See Ludlow, Erastus D. and G. M.)						
Ludlow, Washington I. (See Taylor and Ludlow.)						
Ludlow, Washington L., Cleveland, Ohio. Lock	315,307	Apr. 7	447	113	31	81
Ludwig, Frank A., *et al.* (See Olsen, Adolph, assignor.)						
Ludwig, John C., assignor of three-fourths to L. A. Garnett, San Francisco, and J. Hewston, Jr., Brooklyn, Cal. Induction apparatus for telegraphy	315,425	Apr. 7	611	157	31	109
Ludwig, John C., assignor of three-fourths to L. A. Garnett, San Francisco, and J. Hewston, Jr., Brooklyn, Cal. Rheotrope or current-reversing key	315,426	Apr. 7	614	158	31	110
Ludwig, John C., assignor of three-fourths to L. A. Garnett, San Francisco, and J. Hewston, Jr., Brooklyn, Cal. Polarized telegraphic relay	315,427	Apr. 7	615	158	31	110
Ludwig, John C., assignor of three-fourths to L. A. Garnett, San Francisco, and J. Hewston, Jr., Brooklyn, Cal. Generation of induced currents for telegraphic and other purposes	315,428	Apr. 7	617	158	31	110
Ludwig, Levi A. (See Winkel, Carl, assignor.)						
Luebsen, John H., St. Louis, Mo. Burglar-alarm	315,641	Apr. 14	926	243	31	173
Lufkin, John H., Springport, Mich. Hour-hand movement for time-pieces	316,798	Apr. 28	2517	657	31	475
Lugo, Orazio, New York, N. Y. Purifying water-gas	315,953	Apr. 14	1360	352	31	251
Lumbert, Orrin N. (See Earl, Ebenezar J., assignor.)						
Lund, Hans, *et al.* (See Burlie, John D., assignor.)						
Lundqvist, Alexina T., New York, N. Y. Show-case for cooling oysters, &c	319,418	June 2	589	160	31	1160
Lunkenheimer, Edmund, Cincinnati, Ohio. Oil-cup	317,464	May 5	728	184	31	654
Lushbaugh, William H., Covington, Ky. Tent	318,382	May 19	1947	525	31	899
Luther, John F. (See Colby and Luther.)						
Luttgens, Henry A., Paterson, N. J. Thill-coupling	315,642	Apr. 14	927	243	31	173
Lutz, Ferdinand F., Louisville, Ky. Horseshoe	319,103	June 2	211	55	31	1086
Lyle, David, Manchester, Jamaica, West Indies. Combined steam and hot-air engine	317,814	May 12	1184	315, 316	31	748
Lyman, Azel S., New York, assignor to L. Middleditch, Brooklyn, N. Y. Cartridge	321,042	June 30	3240	756	31	1598
Lyman, Azel S., New York, assignor to L. Middleditch, Brooklyn, N. Y. Gunnery	321,043	June 30	3242	756	31	1598
Lyman, Azel S., New York, assignor to L. Middleditch, Brooklyn, N. Y. Cartridge	321,374	June 30	3261	871	31	1676
Lyman, Charles H., assignor to Ansonia Brass and Copper Company, Ansonia, Conn., and W. A. Hull, New York, N. Y. Suspension device for lamps	318,431	May 19	2011	541	31	909
Lyman, Frederick W., Richmond, Ind. Cock for siphons	317,465	May 5	729	184	31	655
Lyman, Nathan R., assignor of one-half to J. P. Ellacott, Chicago, Ill. Machine for making printers' leads	315,045	Apr. 7	81	20	31	16
Lynch, Charles W. A. (See Ages, Francis M., assignor.)						
Lynch, Edwin G., Parish, N. Y. Holdback for vehicles	321,375	June 30	3263	871	31	1677
Lynch, Matthew W., Madison, Wis. Lock-buckle	318,569	May 26	2208	500	31	953
Lynch, Thomas J., Milford, Mass. Harness and shaft connection	318,005	May 19	1451	388	31	806
Lynd, Ives, Troy, N. Y. Lamp-wick	315,429	Apr. 7	619	159	31	110
Lynett, Frederick M., Toronto, Ontario, Canada. Grain-cleaner	315,523	Apr. 14	759	201	31	142
Lynn, Abraham. (See Gillogly, Samuel, assignor.)						
Lynn, John G., assignor of one-half to R. Woolley, Jr., Cincinnati, Ohio. Shoe-makers' pinchers	315,430	Apr. 7	619	159	31	110
Lynn, John G., assignor of one-half to R. Wooley, Jr., Cincinnati, Ohio. Boot and shoe pattern	320,149	June 16	1615	430	31	1357
Lynn, Mirabeau N., Rising Sun, Ind., assignor to Ohio Power and Light Company, Dayton, Ohio. Electric lamp	315,524	Apr. 14	761	202	31	142
Lynn, Mirabeau N., and G. N. Wheeler, Akron, Ohio, assignors to American Electric Headlight Company, Indianapolis, Ind. Steam-engine	315,643	Apr. 14	928	243	31	173
Lyon, Andrew, Malden, Mass. Sunshade	320,568	June 23	2219	587	31	1475
Lyon, Clarence S., Port Chester, N. Y. Necktie-fastening device	318,570	May 26	2209	500	31	953
Lyon, Frank G., Jersey City, N. J., assignor to Holmes Electric Protective Company, New York, N. Y. Electric burglar-alarm	316,376	Apr. 21	1920	507	31	360
Lyon, Isaac L. (See Forbes, John, Jr., assignor.)						
Lyon, William, Burlington, Iowa. Machine for swaging and jointing saws	321,376	June 30	3264	871, 872	31	1677
Lytle, Albert E., assignor of part to R. B. Smith, Chicago, Ill. Underground conduit	315,954	Apr. 14	1361	352	31	252
Lytle, Albert E., assignor of two-thirds to J. Dargan and G. E. Taggart, Chicago, Ill. Combination-tool	318,920	May 26	2669	707	31	1036
Lytle, Andrew J., Hillsborough, Ohio. Truss	316,903	Apr. 28	2674	697	31	505
Lytle, Andrew J., Hillsborough, Ohio. Shears	320,940	June 30	2703	717	31	1573
Lytle, Henry B., Webb's Mills, N. Y., assignor of one-half to W. W. Quackenbush. Combined faucet and vent	317,466	May 5	730	184	31	655
Lytle, Henry B., Boston, Mass., and J. A. McCoy, Baltimore, Md. Combined lightning-arrester and test-connection	318,571	May 26	2210	501	31	953
Maardt, Jörgen G., Copenhagen, Denmark. Covering for steam-boilers, &c	321,233	June 30	3087	820	31	1642
Maas, John J., assignor to C. Croissant, Albany, N. Y. Lever-latch	320,485	June 23	2115	557	31	1455
Mabery, Charles F., *et al.* (See Cowles, Eugene H. and A. H., assignors.)						
MacDonald, Frank Y. (See Lloyd and MacDonald.)						
MacDonnell, John T. F., Holyoke, Mass. Paper-making machine	320,372	June 16	1902	516	31	1420
Macdermott, Martin, and W. Glover, London, England. Rock-drilling machine	320,371	June 16	1900	515, 516	31	1420
Machol, David, New Haven, Conn. Tailor's chalk-cutter	319,282	June 2	419	112	31	1127
Machris, Charles, assignor of three-fourths to I. M. Wellington, Detroit, Mich. Printing-machine	318,383	May 19	1948	526	31	899
Machris, Charles X., and J. F. Haecker, Detroit, Mich. Election-slip	318,769	May 26	2465	660, 661	31	1001
Mack, Jacob A., and C. Hanson, Madison, Wis. Spring hanger	315,644	Apr. 14	929	243	31	173
Mack, William B., Boston, Mass. Injector	318,636	May 26	2284	610	31	967

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Mackey, John S. (See Gilmore, Horace E., assignor.)						
Mackie, Frank A., Ocean Grove, N. J. Seat attachment for vehicles	317,395	May 5	628	160	31	637
Mackintosh, Edward D., Brooklyn, assignor to P. Pryibil, New York, N. Y. Shaft-coupling	320,439	June 16	2049	537	31	1435
Macomber, Sanford W., Troy, assignor to L. O. Eldredge, Brooklyn, N. Y. Lamp-bracket	320,941	June 30	2705	718	31	1573
Macomber, William I., Providence, R. I. Chain bracelet	315,535	Apr. 14	764	202	31	142
Macquarrie, Donald B., Kansas City, Mo. Aerial conduit for electric wires	315,536	Apr. 14	765	202	31	143
Maclear, James, Glasgow, county of Lanark, Scotland. Apparatus for making granulated crystalline carbonate of soda	316,277	Apr. 21	1791	470	31	338
Maclear, James, Glasgow, Scotland. Soldering-tool	316,278	Apr. 21	1793	471	31	338
Madden, John D., assignor to M. F. Madden, Rochester, Minn. Potato-planter	316,279	Apr. 21	1793	471	31	338
Madden, Martin F. (See Madden, John D., assignor.)						
Maddox, William J., Scranton, Pa. Adjustable reclining-chair	320,265	June 16	1759	467, 468	31	1384
Maesel, Emma L., New York, N. Y. Basket	320,266	June 16	1761	468	31	1384
Magee, Francis. (See Moser and Magee.)						
Magee, Samuel H., assignor to himself and A. P. R. Hanks, Galveston, Tex. Rope-clamp	319,591	June 9	851	226	31	1214
Magie, E. Eldred. (See Wadhams, Edward A., assignor.)						
Maginnis, Christopher, San Francisco, Cal. Horse hay-fork	317,556	May 12	847	218	31	685
Magoon, Charles H., assignor of one-half to H. Fairbanks, St. Johnsbury, Vt. Steam-trap	318,271	May 19	1793	460	31	870
Magrath, Michael, New York, N. Y. Window and other glass	319,592	June 9	852	226	31	1214
Magruder, Henry C., Richmond, Va. Car-coupling	315,804	Apr. 14	1147	301	31	215
Mahaffey, James B., assignor of one-half to H. A. Gable, Baltimore, Md. Planing and matching machine	321,377	June 30	3265	872	31	1677
Mahaffey, James B., assignor of one-half to H. A. Gable, Baltimore, Md. Cutter-head	321,378	June 30	3266	873	31	1678
Mahan, George. (See Steel, James, assignor.)						
Maier, Robert F., Newark, N. J. Condiment	316,790	Apr. 28	2518	.....	31	475
Maillé, Aimé, Boston, Mass. Compensating pendulum	315,567	Apr. 14	766	203	31	143
Main, Joshua D., assignor of one-half to S. T. Main, Springfield, Ohio. Extension-table	316,472	Apr. 28	2067	541	31	392
Main, Samuel T. (See Main, Joshua D., assignor.)						
Malaskey, Thomas. (See Schmitt and Dougherty, assignors.)						
Malcolm, George, Tavistock, Ontario, Canada. Grain-granulating machine	320,486	June 23	2116	557	31	1455
Maley, Frank M., Cincinnati, Ohio. Device for driving screws	320,373	June 16	1965	517	31	1421
Malin, Jesse S. (See Headington and Malin.)						
Mallory, Ogden, Auburn, Cal. Trace-buckle	318,572	May 26	2212	501	31	953
Mallory, Ogden, Auburn, Cal. Combined pad-buckle and trace-carrier	320,569	June 23	2220	588	31	1475
Malmey, F. R. (See Du Bois, N. Greenard, assignor.)						
Malone, A. J. (See Rinderknecht, Charles J., assignor.)						
Malone, Henry H. (See Saltsman, Daniel J., assignor.)						
Maltbie, Paul L., Newark, N. J. Refrigerator	319,986	June 16	1396	367	31	1318
Maltby, Clinton H., assignor to National Manufacturing Company, Dayton, Ohio. Cash-register	318,485	May 26	2075	560, 561	31	931
Malter, George H., San Francisco, Cal. Feed-water heater and purifier	320,077	June 16	1518	402	31	1341
Man, Albon. (See Sawyer and Man.)						
Manchester, Thomas L. (See McHugh and Manchester.)						
Manger, Julius W. (See Moeller and Manger.)						
Manhattan Brass Company. (See White and Hipwell, assignors.)						
Mankel, Henry, Jr., McKean, Pa. Shifting-rail for carriages	319,830	June 9	1174	310	31	1271
Manly & Cooper Manufacturing Company. (See Klose, William, assignor.)						
Mann, Abram S., *et al.* (See Spencer, Charles F., assignor.)						
Mann, Elbert B., *et al.* (See Spencer, Charles F., assignor.)						
Mann, Frederic C. (See Chandler, Clarence A., assignor.)						
Mann, George R., *et al.* (See Brintnall, Thomas M., assignor.)						
Mann, Jonathan, Milton, Mass. Stone-dressing machine	320,942	June 30	2706	718	31	1573
Mann, Thomas W. (See Gill, Napoleon, assignor.)						
Manning, Alfred J., *et al.* (See Brown, Thomas R., assignor.)						
Manning, Eben J. (See Rudd and Manning.)						
Manning, Edward B., Meriden, Conn. Hot-water urn	319,736	June 9	1034	274	31	1248
Manning, Harry G., Newton, Mass. Valve-gear	319,737	June 9	1035	274	31	1248
Manning, John H., Hartwell, Ohio. Safety device for elevators	320,374	June 16	1966	517	31	1421
Manning, John J., Great Barrington, Mass. Apparatus for winding paper webs into rolls	320,375	June 16	1967	517	31	1421
Manny, John P., Rockford, Ill. Harvester	317,815	May 12	1187	316	31	749
Manny, John P., Rockford, Ill. Mowing-machine	317,816	May 12	1190	316	31	749
Mansell Heel Machine Company. (See Cotton, Charles L., assignor.)						
Manton, Joseph P., Providence, R. I. Steering mechanism for ferry-boats	317,817	May 12	1193	317	31	750
Manuel, David, assignor to himself, and G. Haigh, Hyde Park, H. C. Somes, Milton, and T. Lonergan, Canton, Mass. Door-hanger	318,125	May 19	1605	429	31	835
Manufacturers Special Machine Company. (See Beardslee, William F., assignor.)						
Manvel, Homer, *et al.* (See Peer, Perry A., assignor.)						
Marble, E. M. (See Freeman, James P., assignor.)						
Marble, George W., Chicago, Ill. Bicycle	316,047	Apr. 21	1479	387	31	281
March, Jacob M., Washington, D. C. Inside trunk-brace	315,046	Apr. 7	83	20	31	17
Marcus, Joseph, Chicago, Ill. Windmill	320,570	June 23	2221	588	31	1475
Marcy, Rufus G., Kendallville, Ind. Tubular-well valve	318,770	May 26	2466	661	31	1001
Margot, Francis P., Glenn, Mich. Stump-pulling machine	318,996	June 2	84	22	31	1063
Maris, Jared, Philadelphia, Pa., assignor to Acme Hub Company, (limited,) Dayton, Ohio. Vehicle-hub	317,159	May 5	312	79	31	580
Markham, Samuel H., Cleveland, Ohio. Nut-machine	320,571	June 23	2222	588, 589	31	1476
Markham, Thomas W., Huntsville, Tex. Lock	321,306	June 30	3173	846	31	1650
Marks, Henry. (See Williamson, Benjamin F., assignor.)						
Marley, James A., administrator. (See Runstetler, Michael and A.)						
Marlin Fire Arms Company. (See Rice, David H., assignor.)						
Marlin, John M., New Haven, Conn. Magazine for fire-arms	315,645	Apr. 14	930	244	31	173
Marlin, John M., New Haven, Conn. Magazine for fire-arms	316,554	Apr. 28	2167	570	31	412
Marmon, Daniel W., assignor to Nordyke & Marmon Company, Indianapolis, Ind. Box-supporter	318,384	May 19	1950	526	31	899
Marolle, Michel, Paris, France. Conveyer for excavators, dredgers, &c	316,377	Apr. 21	1922	507	31	360
Marquis, Francis M., Zanesfield, Ohio. Drain and drain-tile	320,067	June 23	2356	622	31	1500
Marriner, Henry W. (See Robinson and Marriner.)						
Marsden, Joseph, Far Rockaway, N. Y. Well-pump tubing	317,557	May 12	848	218	31	685
Marsh, Alfred G., assignor to Merrimack Glove Company, Warner, N. H. Mitten	319,967	June 16	1399	367	31	1319
Marsh, Carrie F., assignor of one-half to A. Pitman, Detroit, Mich. Adjustable clothing-stiffener	318,272	May 19	1794	480	31	870

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Marsh, Franklin F., Wareham, Mass. Appliance for the support of invalids	319,283	June 2	420	112, 113	31	1127
Marsh, Henry A., *et al.*, executors. (See Knowles, Lucius J.)						
Marsh, James P., Chicago, Ill. Air-valve for steam-radiators	317,818	May 12	1194	317	31	750
Marsh, James P., Chicago, Ill. Air-valve or steam-trap	319,593	June 9	852	226	31	1214
Marsh, Riverius, New Brunswick, N. J. Apparatus for setting encaustic tiles, &c	318,126	May 19	1606	429	31	935
Marsh, Riverius, New Brunswick, N. J. Nozzle and faucet	320,881	June 23	2616	693	31	1551
Marsh, Riverius, New Brunswick, N. J., assignor of one-half to Hine & Co., New York, N. Y. Valve and faucet	320,880	June 23	2615	693	31	1551
Marshall, Alfred W., Mortimer Street, Cavendish Square, county of Middlesex, England. Machine for freezing cream, &c	320,572	June 23	2224	590	31	1476
Marshall, John, Brooklyn, N. Y. Faucet for shipping-cans	315,153	Apr. 7	231	56	31	42
Marshall, John, Brooklyn, N. Y. Faucet attachment for shipping-cans	318,637	May 26	2285	610	31	968
Marshall, John E., Saegertown, Pa. Plow	319,499	June 9	721	193	31	1190
Marshall, John W., administrator. (See Sholl, Charles.)						
Marshall, Justice W., Cazenovia, N. Y. Metallic wheel	315,805	Apr. 14	1148	301	31	215
Marshall, Richard, Brooklyn, N. Y. Fan attachment for elevators	316,633	Apr. 28	2266	596	31	430
Marshall, Robert. (See Smith and Marshall.)						
Marshman, Newman R. (See Burtridge and Marshman.)						
Martel, Alfred, Montreal, Quebec, Canada. Bow-guide for violins	316,157	Apr. 21	1640	429	31	311
Martens, John A., Milwaukee, Wis. Envelope-moistener	318,921	May 26	2669	708	31	1037
Martin, Andrew J., and J. C. Baker; said Martin assignor to Mechanicsburg Machine Company, Mechanicsburg, Ohio. Seeding-machine	315,646	Apr. 14	932	244	31	174
Martin, Freeman T. (See Martin, John W., assignor.)						
Martin, Henry, Lancaster, Pa. Brick-machine	320,944	June 30	2708	718	31	1573
Martin, John, and P. T. Baker, Danville, Ill. Grain-register	319,594	June 9	854	227	31	1214
Martin, John D., and T. Head, Lowell, Mass. Clothes-drier	316,987	May 5	75	20	31	536
Martin, John M., San Francisco, Cal. Fuse-cutter	318,006	May 19	1452	389	31	806
Martin, John W., assignor to himself and F. T. Martin, Winchester, Ky. Bee-hive	318,638	May 26	2286	610, 611	31	968
Martin, Mary B, New York, N. Y. Staining paper, &c	321,234	June 30	3087	.....	31	1642
Martin, Moritz, Bitterfeld, Prussia, Germany. Flour-bolting machine	315,308	Apr. 7	449	113, 114	31	82
Martin, Orin D. D., Augusta, Ga. Car-coupling	315,647	Apr. 14	933	244	31	174
Martin, Robert H., Peterborough, N. H. Game counter or indicator	316,473	Apr. 28	2068	541	31	392
Martin, Samuel D. (See Bellman, Oscar, assignor.)						
Martin, Taylor, Sturm's Mills, W. Va. Churn	319,831	June 9	1175	310	31	1272
Martin, Thomas F., Lynn, Mass. Protector for book-corners	318,486	May 26	2078	561	31	931
Martin, Thomas F., assignor to himself, J. C. Adams, Newburg, and M. S. Frost & Son, New York, N. Y. Gas-making apparatus	320,078	June 16	1519	402	31	1341
Martin, W. H. (See Wallace, James, assignor.)						
Martin, Walter T., Danvers, Mass. Boot or shoe	316,158	Apr. 21	1641	429	31	311
Martin, Webster W., assignor of one-half to T. O. Potter, Boston, Mass. Beam, joist, &c	320,079	June 16	1521	403	31	1342
Martindale, Moses A., Elkhart, Ind. Road or tramway for vehicles	315,047	Apr. 7	84	20	31	17
Martindell, James P. (See Knox, William E., assignor.)						
Mason, Benjamin A. (See Hotchkiss and Mason.)						
Mason, Charles T., Jr., Sumter, assignor, by mesne assignments, to Mason Cotton Gin Cylinder Company, Charleston, S. C. Cotton-gin	316,280	Apr. 21	1795	472	31	338
Mason, Charles T., Jr., Sumter, assignor to Mason Cotton Gin Cylinder Company, Charleston, S. C. Cotton-gin	316,378	Apr. 21	1923	508	31	361
Mason, Charles T., Jr., Sumter, assignor to Mason Cotton Gin Cylinder Company, Charleston, S. C. Cotton-gin	316,379	Apr. 21	1924	508	31	361
Mason Cotton Gin Cylinder Company. (See Mason, Charles T., Jr., assignor.)						
Mason, Frederick, administrator. (See Mason, William.)						
Mason, Lyman S. (See Allen and Mason.)						
Mason, Peter G., *et al.* (See Meyer, Philip, assignor.)						
Mason, William, assignor to Winchester Repeating Arms Company, New Haven, Conn. Device for feeding cartridge-shells	317,396	May 5	629	160, 161	31	637
Mason, William, assignor to Winchester Repeating Arms Company, New Haven, Conn. Machine for counting gun-wads	319,284	June 2	421	113, 114	31	1127
Mason, William, deceased; F. Mason, Taunton, Mass., administrator. Cap-bar support for spinning-machines	318,385	May 19	1951	526	31	899
Mason, William H., Everett, assignor to W. H. Johnson, Boston, Mass. Car-brake	320,573	June 23	2224	590	31	1476
Mason, William T., West Acton, Mass. Thill-coupling	318,487	May 26	2079	561	31	931
Massey, John W., Shuqualak, assignor to himself, M. Edwards, Gholson, Miss., and T. J. Edmonson, Birmingham, Ala. Power-jack	315,309	Apr. 7	452	114	31	82
Masson, Etienne C. A., Lenclos, France. Spinning-mule	317,397	May 5	631	161	31	638
Masters, Egbert E., and L. J. Kimball, Sacramento, assignors to said Masters and E. R. Brush, Oakland, Cal. Window-head fastener	316,555	Apr. 28	2169	571	31	412
Mastin, Charles I. E., Brooklyn, N. Y. Ventilated garment	315,806	Apr. 14	1148	301	31	216
Mathes, Philip, Idlewood, Pa. Lock	317,398	May 5	632	162	31	638
Mathewson & Co., J. B. (See Cooke, Charles H., assignor.)						
Mathiesen, Carl A., New York, N. Y. Type-wheel for printing-telegraphs	320,376	June 16	1969	518	31	1421
Mathieu, Jean A., Detroit, Mich. Drawing and galvanizing wire	319,918	June 9	1292	.....	31	1292
Mathieu, Jean A., Port Leyden, N. Y. Electro-depositing nickel	320,377	June 16	1969	.....	31	1421
Mathioly, Antoine M. L., L'Isle-en-Jourdain, France. Broiler	320,668	June 23	2358	623	31	1501
Matson, James C. (See Matson, John and J. C.)						
Matson, John and J. C., Brookville, Pa. Churn	316,988	May 5	76	20	31	536
Mattern, Jacob A. (See French and Mattern.)						
Matteson, Rufus S., Providence, R. I. Ornamental chain	318,997	June 2	85	22	31	1064
Matthai, John C., *et al.* (See Fowler, William R., assignor.)						
Matthai, William H., *et al.* (See Fowler, William R., assignor.)						
Matthews, Henry A., Waterbury, Conn. Metal table	315,310	Apr. 7	453	114	31	82
Matthews, Henry A., and D. M. Ireland, Waterbury, Conn. Hat-stand	318,273	May 19	1795	480	31	871
Matthews, Hugh W., Baltimore, Md. Corn and cane harvesting machine. (Reissue)	10,601	May 26	2693	713, 714	31	1041
Matthews, Marmaduke, Toronto, Ontario, Canada. Lamp	317,160	May 5	313	79	31	580
Matthie, William A. C., Montreal, Quebec, Canada. Piano-stool	316,281	Apr. 21	1798	472	31	339
Matthie, William A. C., Montreal, Quebec, Canada. Piano-stool and like articles	320,487	June 23	2117	558	31	1456
Matthiessen, Franz O., Irvington, N. Y. Transforming soft sugar into hard sugar	318,639	May 26	2287	.....	31	968
Matthiessen, Franz O., Irvington, N. Y., and O. H. Krause, Jersey City, N. J. Apparatus for cementing granulated sugar into blocks	318,640	May 26	2288	611	31	968
Matthiessen & Wiechers Sugar Refining Company, F. O. (See Krause, Otto H., assignor.)						
Matuska, Anton, Chicago, Ill. Window	319,104	June 2	212	55	31	1066

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Mátyás, Balló. (See Antal, Kugler, and Mátyás.)						
Mangans, Jacob F., Bellefontaine, Ohio. Sash-fastener	318,998	June 2	85	22	31	1064
Maulick, William F., Columbia, Pa. Incubator	320,378	June 16	1970	518	31	1422
Maxey, Betsy A., Knoxville, Ill. Car-coupling	316,556	Apr. 28	2169	571	31	412
Maxfield, Charles A., assignor, by mesne assignment, to J. Wallace, trustee, New York, N. Y. Preserving and waterproofing paper. (Reissue)	10,618	June 30	3320	.....	31	1686
Maxim, Hiram S., London, county of Middlesex, England. Magazine fire-arm	319,595	June 9	855	227	31	1215
Maxim, Hiram S., London, county of Middlesex, England. Machine-gun	319,596	June 9	859	227, 228	31	1215
Maxim, Hiram S., assignor to A. Vickers and R. R. Symon, London, England. Machine-gun	317,161	May 5	314	79	31	580
Maxim, Hiram S., assignor to A. Vickers and R. R. Symon, London, England. Magazine fire-arm	317,162	May 5	318	80	31	581
Maxon, Thomas, assignor of one-half to J. W. Carpenter, Dayton, Ohio. Lifting-jack	315,807	Apr. 14	1149	301	31	216
Maxwell, Andrew, Monnt Sterling, Ill., assignor of one-half to Pratt & Letchworth, Buffalo, N. Y. Trace-carrier	321,123	June 30	2951	782	31	1616
Maxwell, James R., assignor to Gordon & Maxwell Company, Hamilton, Ohio. Valve mechanism for dnplex steam-pumps	318,641	May 26	2290	611	31	968
May, Benjamin L. (See May, Joseph B., assignor.)						
May, Charles N. (See Ralling and May.)						
May, Fred M., Minneapolis, Minn. Lemon-squeezer	321,044	June 30	2842	756	31	1598
May, Joseph B., assignor to B. L. May, Lexington, Ky. Gate	318,386	May 19	1952	526	31	900
Mayer, Emil R., New York, N. Y. Window-sash	317,659	May 12	980	253	31	709
Mayer & Loewenstein. (See Mayer and Bungart, assignors.)						
Mayer, Max B., Louisville, Ky. Ice-creeper	320,945	June 30	2709	719	31	1574
Mayer, Siegfried W., New York, and P. J. Bungart, Brooklyn, assignors to Mayer & Loewenstein, New York, N. Y. Apparatus for the manufacture of varnish	318,642	May 26	2292	612	31	989
Mayfield, I. T., *et al.* (See Mayfield, William D., assignor.)						
Mayfield, William D., assignor to W. F. and I. T. Mayfield, Fort Worth, Tex. Street-car	318,274	May 19	1796	480	31	871
Mayfield, William F., *et al.* (See Mayfield, William D., assignor.)						
Maynard, William, assignor, by mesne assignments, to W. Maynard and H. Mortimer, Boston, Mass. Sight for fire-arms	318,999	June 2	87	22	31	1064
Mayo, David C., Montreal, Quebec, Canada. Hydraulic press	316,048	Apr. 21	1480	387	31	281
Mayo, Urial K., Boston, Mass., assignor to Boston Vegetable Anæsthetic Company, Portland, Me. Anæsthetic mixture	320,150	June 16	1617	.....	31	1358
Mayo, William H., Lynn, Mass. Knitting-machine	319,000	June 2	87	23	31	1064
Mazelin, James E., Baltimore, Ohio. Car-coupling	320,669	June 23	2360	623	31	1501
McAdam, James R., Providence, R. I. Harness-rosette	317,819	May 12	1195	317	31	750
McAdams, George B. (See Walter, Willie C., assignor.)						
McAfee James. (See McCarty, Tener, and McAfee.)						
McAllister, Francis W., Baltimore, Md. Eyeglasses	315,154	Apr. 7	232	56	31	42
McArdle, Frank, Brooklyn, N. Y., assignor of one-half to C. Reisaner and C. E. Meier. Bottle-stopper fastener	319,500	June 9	722	194	31	1190
McAuley, James W. (See Gardiner and McAuley.)						
McAuliffe, John, assignor of one-half to D. P. Fitzgibbons, Oswego, N. Y. Ash-sifter	321,307	June 30	3174	846	31	1660
McCabe, Charles, Antietam, Md. Steering canal-boats	320,670	June 23	2361	623	31	1501
McCaffrey, John, Lawrence, Mass. Mechanism for lubricating the loose pulley of a shaft	316,159	Apr. 21	1642	429	31	311
McCall, Abijah. (See Duay and McCall.)						
McCall, William T., St. Clair, Ala. Blasting-plug	318,771	May 26	2467	661	31	1001
McCall, William T., St. Clair, Ala. Blasting timber	321,308	June 30	3175	847	31	1660
McCann, George W., Springfield, Ohio. Iron fence	315,648	Apr. 14	934	244	31	174
McCann, Horace F. (See Farra, Lorenzo D., assignor.)						
McCarthy, Lawrence A., Brooklyn, N. Y. Unison device for printing-telegraphs	319,001	June 2	89	23	31	1064
McCartney, Austin. (See Ferguson, Sylvester E., assignor.)						
McCarty, Michael G., Grand Rapids, Mich. Car-coupling	319,002	June 2	90	23	31	1064
McCarty, Thomas, G. E. Tener, and J. McAfee, Pittsburg, Pa. Coal and ore shift	318,488	May 26	2080	561, 562	31	932
McCarty, William F. M., assignor to A. Ohl, J. M. Creighton, B. C. Lanth, Philadelphia, Pa., and J. Logan, Hagerstown, Md. Apparatus for the manufacture of gas	321,124	June 30	2952	782	31	1616
McCarty, William F. M., assignor to A. Ohl, J. M. Creighton, B. C. Lanth, Philadelphia, Pa., and J. Logan, Hagerstown, Md. Making gas	321,125	June 30	2953	782	31	1617
McCarty, William F. M., assignor of one-half to A. Ohl, J. M. Creighton, and B. Lanth, Philadelphia, Pa. Lightning-protector for electrical circuits	321,235	June 30	3088	820	31	1643
McCaslin, Albert W., Pittsburg, Pa. Spike-extractor	317,163	May 5	321	80	31	581
McChesney, Henry J. (See Higley, Asa L., assignor.)						
McClain, Edward L., Greenfield, Ohio. Sweat-pad for horse-collars	321,126	June 30	2954	783	31	1617
McClave, William, Scranton, Pa. Grate	318,007	May 19	1452	389	31	807
McClave, William, Scranton, Pa. Combined steam and air blower for boiler-furnaces	318,008	May 19	1455	390	31	807
McClay, William C., Santa Ana, Cal. Pump	316,049	Apr. 21	1482	387	31	282
McClellan, Oscar D., assignor of two-thirds to B. C. Burns, Philadelphia, and A. Wasserman, Abington, Pa. Gas-burner	319,285	June 2	427	114	31	1128
McClelland, Thomas, Mattson, Ill. Cutting and pulverizing harrow	317,399	May 5	633	162	31	638
McClintock, George W., Boston, Mass. Landing-net	317,820	May 12	1197	317	31	750
McClure, Jesse D., Jeffersonville, Ind. Book-rest	319,105	June 2	213	56	31	1067
McClure, John, Indian Grove, Mo. Churn	316,557	Apr. 28	2170	571	31	412
McClurg, James, Allegheny, Pa. Machine for packing crackers	320,946	June 30	2710	719	31	1574
McColloch, Simon L., Wheeling, W. Va. Grain-binding machine	315,528	Apr. 14	767	203, 204	31	143
McCool, William A., Perryville, assignor of one-half to P. Oliver, Ashland County, Ohio. Roll for metal rods	319,832	June 9	1176	310	31	1272
McCool, William A., Perryville, assignor of one-half to P. Oliver, Ashland County, Ohio. Sign	319,833	June 9	1177	310	31	1272
McCord, Luther A., Clinton, S. C. Rein-holder	315,311	Apr. 7	454	114	31	82
McCord, Myron H. (See Mitchell, Oliver F., assignor.)						
McCormick, James, Princeton, Ind. Sash-holder	316,282	Apr. 21	1799	472	31	339
McCormick, James F., Indianapolis, Ind. Shaft-hanger	319,106	June 2	214	56	31	1067
McCormick, John H., New Orleans, La. Car-coupling	316,800	Apr. 28	2518	657	31	476
McCormick, Junius A., Pittsburg, Pa. Pipe-coupling	318,009	May 19	1458	390	31	807
McCoy, Elijah. (See Hodges and McCoy.)						
McCoy, Elijah, Detroit, Mich. Lubricator	320,379	June 16	1971	518	31	1422
McCoy, John A. (See Lytle and McCoy.)						
McCoy, Joseph, Independence, Mo. Car-coupling	321,127	June 30	2955	783	31	1617
McCoy, Thomas, Lawrence, Kans. Clothes-line fastener	315,312	Apr. 7	454	115	31	82

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McCray, Millard F., Glassville, Mo. Cultivator	318,922	May 26	2670	708	31	1037
McCready, Joseph, New Brighton, Pa. Car-coupling	315,048	Apr. 7	85	20	31	17
McCreight, Thomas P., Brinkley, Ark. Device for holding animals to be shod	316,558	Apr. 28	2171	571 572	31	412
McCrystal, John F., and J. P. Siegfried; said Siegfried assignor to P. I. Crossen, Sandusky, Ohio. Pocket-protector	320,892	June 23	2618	693	31	1551
McCudden, Thomas, St. Louis, and A. F. Shearlock, Festus, assignors of one-third to D. Foley, St. Louis, Mo. Wheat-scourer	315,155	Apr. 7	233	56	31	42
McCullough, Lewis H., assignor to Richmond Fire Alarm Company, Richmond, Ind. Fire-telegraph system	316,474	Apr. 28	2069	542	31	392
McCullough, Lewis H., assignor to Richmond Fire Alarm Company, Richmond, Ind. Non-interfering fire-telegraph system and apparatus	316,475	Apr. 28	2070	542	31	393
McCullough, Lewis H., assignor to Richmond Fire Alarm Company, Richmond, Ind. Electro-mechanical gong-striker	316,476	Apr. 28	2073	542	31	393
McCullough, Lewis H., assignor to Richmond Fire Alarm Company, Richmond, Ind. Multiple signal-box for fire and police telegraphs	316,477	Apr. 28	2075	543	31	394
McCumber, William H., Trenton, Mo. Swiveled clevis	318,772	May 26	2468	661	31	1001
McCusker, Thomas, St. Louis, Mo. Decorating shells	320,947	June 30	2711	719	31	1574
McDonald, Alexander, assignor to J. R. Torrey, Worcester, Mass. Razor-strop	320,948	June 30	2712	719	31	1574
McDonald, Andrew, Glasgow, county of Lanark, Scotland. Baking-powder	317,821	May 12	1198	.....	31	751
McDonald, George M. (See McDonald, John, assignor.)						
McDonald, Gilbert, Augusta, Kans., assignor of two-thirds to D. Bunn, Silver City, N. Mex. Ter. Metal-punch	316,160	Apr. 21	1643	430	31	311
McDonald, John, Middletown, assignor to himself and G. M. McDonald, Harveysburg, Ohio. Door-closer	316,283	Apr. 21	1800	473	31	339
McDonald, Ronald, and C. Fraser, Port Hawkesbury, Nova Scotia, Canada. Baking-oven	319,003	June 2	91	24	31	1065
McDonnell, Edward, *et al.* (See Sherwood, James H., assignor.)						
McDonnell, Patrick E., Chicago, Ill. Draft-equalizer	319,501	June 9	723	194	31	1191
McDonough, Thomas, Montclair, N. J. Gas-engine	315,808	Apr. 14	1150	302	31	216
McDowell, Richard, Lambertville, N. J. Check-valve for steam-boilers	320,380	June 16	1972	519	31	1422
McDuff, James E., and J. F. Doherty, assignors of one-third to P. W. Cameron, Providence, R. I. Annunciator	315,313	Apr. 7	455	115	31	83
McElroy, Charles E., Brockton, Mass. Ticket-case	320,949	June 30	2713	720	31	1574
McEwen, James, Manchester, England. Apparatus for generating carbon dioxide	317,823	May 12	1200	318	31	751
McEwen, John, New York, N. Y. Car-truck	317,822	May 12	1199	318	31	751
McFadden, Patrick, Philadelphia, Pa. Harness saddle-tree	316,801	Apr. 28	2519	658	31	476
McFaddin, William H., and J. P. Lucas, Cadiz, Ohio. Carpet-fastener	317,824	May 12	1201	318	31	751
McFarlan, Thomas, Cincinnati, Ohio, and H. E. Nottingham, Covington, Ky. Drilling-machine	315,049	Apr. 7	86	21	31	17
McGee, Mark T., Chipley, Ga. Cultivator	317,400	May 5	635	162	31	638
McGinnis, John. (See Ratcliff, James E., assignor.)						
McGlinchey, Charles E., assignor to H. A. Lozier and C. F. Stokes, Cleveland, Ohio. Table-leaf support	318,773	May 26	2469	662	31	1001
McGonnell, Charles J., Moorestown, N. J. Heater	319,286	June 2	428	114	31	1129
McGovern, George, Richmond, Va. Combined key-hole guard and cigar-cutter	318,275	May 19	1797	481	31	871
McGovern, John, assignor of one-half to P. Jeffrey, Murphysborough, Ill. Caisson or crib	320,671	June 23	2362	623	31	1501
McGowan, John H., Cincinnati, Ohio. Oil-press	315,529	Apr. 14	776	205	31	134
McGrane, John J., *et al.* (See McGrane, Thomas, assignor.)						
McGrane, Margaret A., *et al.* (See McGrane, Thomas, assignor.)						
McGrane, Thomas, assignor to J. J. and M. A. McGrane, New York, N. Y. Apparatus for casting horseshoes	315,314	Apr. 7	456	116	31	83
McGreer, John, Chicago, Ill. Automatic advertising device	319,597	June 9	861	228	31	1216
McGregor, Thomas W., Rushford, Minn. Barrel-machine	318,489	May 26	2082	502	31	932
McGrew, Alonzo H., Hurley, Dak. Ter. Railway-ditching machine	318,643	May 26	2294	612 613	31	969
McGuire, Michael G., Chicago, Ill. Heating attachment for stoves	318,774	May 26	2470	662	31	1002
McGuire, Thomas J. (See Jenkins, Simeon T., assignor.)						
McHenry, John, McDonald, Pa. Mail-bag catcher and deliverer	319,287	June 2	429	115	31	1129
McHenry, John, and J. O'Donnell, Catawissa, Mo. Band-cutter and feeder for thrashing-machines	317,401	May 5	636	163	31	639
McHugh, Hugh, and T. L. Manchester, New Bedford, Mass. Machine for molding plastic materials	318,010	May 19	1460	390	31	808
McHugh, Timothy, assignor of one-half to Ward & Curley, Boston, Mass. Water-supply apparatus for water-closets	320,950	June 30	2714	720	31	1574
McIlvain & Spiegel. (See Ward, Andrew W., assignor.)						
McIntosh, John L., E. H. Bacon, and T. Vail, San Antonio, Tex. Vehicle-brake	317,164	May 5	322	80	31	582
McIntyre, John T., Chicago, Ill. Two-wheeled vehicle	318,127	May 19	1609	429	31	836
McKaig, Merwin. (See Muncaster, Walter J., assignor.)						
McKee, Alexander. (See Jiencke and McKee.)						
McKee, Emmett M., Batavia, Ill. Metallic grinding-plate	316,478	Apr. 28	2077	543	31	394
McKee, George S., *et al.* (See Randel, Alexander, assignor.)						
McKee, J. R., Jr. (See Gearing, Charles M., assignor.)						
McKee, William J., Avon, Conn. Wire carrier and stretcher	316,161	Apr. 21	1643	430	31	311
McKeen, Thomas L., Easton, Pa. Steam-radiator	316,284	Apr. 21	1800	473	31	339
McKeen, Thomas L., Easton, Pa. Sash-fastening	316,285	Apr. 21	1801	473	31	339
McKeen, Thomas L., Easton, Pa. Sash-fastening	319,288	June 2	430	115	31	1129
McKellar, Archibald, Bridgeport, Conn. Monument	320,488	June 23	2118	558	31	1456
McKenna, Hugh, and G. D. Bulmer, Penn, assignors to Booth & Flinn, Pittsburg, Pa. Pipe-joint	319,289	June 2	431	116	31	1129
McKenzie, John, Dekorra, and J. Fyfe, Portage, Wis. Iron post	317,558	May 12	849	218	31	686
McKillen, Benjamin, Verona, Mich. Machine for shaping chain-hooks	319,290	June 2	432	116	31	1129
McKinley, William H., assignor of two-thirds to C. H. Songer and J. A. Kortz, Shannondale, Pa. Automatic switch	318,011	May 19	1461	390	31	808
McKinney, Truman D., assignor of one-half to J. J. Freeman, Tecumseh, Mich. Horse hay-fork	317,165	May 5	323	80	31	582
McKinney, William H., Evansville, Ind. Steam-boiler covering	319,738	June 9	1036	274	31	1248
McLagan, George, Stratford, Ontario, Canada. Extension-table	317,825	May 12	1202	318	31	752
McLain, Charles B., assignor to F. H. Miller and J. G. Bower, Watsontown, Pa. Table-leg	316,286	Apr. 21	1802	473	31	339
McLaughlin, Garrett B., Petersburg, W. Va. Automatic car-brake	318,775	May 26	2471	662 663	31	1002
McLaughlin, Stephen R., assignor of one-half to V. Wipfler, San Francisco, Cal. Hose-carriage	320,489	June 23	2119	558	31	1456
McLean, Andrew, New York, N. Y. Tentering-machine	315,809	Apr. 14	1152	302 303	31	216

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McLean, John F. (See Davis, Riley L., assignor.)						
McLellan, Charles H., Tom's River, N. J. Life-saving apparatus	315,315	Apr. 7	457	116	31	83
McLellan, Daniel M., Brooklyn, N. Y. Calendar	316,162	Apr. 21	1644	430	31	312
McLennan, Alexander, Pittsburg, Pa. Gas-regulating valve	315,650	Apr. 7	87	21	31	16
McLennan, John A. (See Heidenreich, Eyvind L., assignor.)						
McLennan, Kenneth, Berkeley, Cal. Budding-knife	316,559	Apr. 28	2172	572	31	413
McLeod, William S. (See Goundry and McLeod.)						
McLewee, William S., New York, N. Y. Forced-draft lamp	320,080	June 16	1522	403	31	1342
McLewee, William S., New York, N. Y. Lamp	320,081	June 16	1523	403	31	1342
McMahel, John, Louisville, Ky. Mouth-harp	320,440	June 16	2050	538	31	1435
McManus, Thomas W. (See Kriz, Hammel, and McManus.)						
McMasters, John S. (See Babbott, Roberts, and Banker, assignors.)						
McMeekan, David, *et al.* (See Hohenstein, Karl A., assignor.)						
McMeekin, Lucinda. (See McMeekin, Thomas G. W. and L.)						
McMeekin, Thomas G. W. and L., Cedar Town, Ga. Vehicle-wheel hub	316,560	Apr. 28	2173	572	31	413
McMurray, Henry B., Burgettstown, Pa. Traction-engine	318,194	May 19	1690	453	31	851
McMurtry, James S., assignor of two-thirds to M. T. Milona and W. H. F. Harvey, St. Louis, Mo. Dumping-wagon	319,739	June 9	1037	275	31	1248
McNamara, John. (See Fennell, Martin, assignor.)						
McNamara, Timothy E. (See Conner and McNamara.)						
McNicholas, Thomas, Memphis, Mo. Brick-kiln	318,490	May 26	2084	563	31	933
McNiece, William, Philadelphia, Pa. Ice-creeper	319,291	June 2	433	116	31	1130
McPherson, Henry, assignor to W. P. Kellogg, Troy, N. Y. Whip-rack	317,826	May 12	1203	319	31	752
McQuarrie, Malcolm S. (See Dorsey and McQuarrie.)						
McQuesten, Calvin B. (See Dunn, William, assignor.)						
McRea, James A., Austin, Tex. Churn	317,559	May 12	850	218	31	686
McWaters, Mary, Bethel, Conn. Corset attachment	318,776	May 26	2475	663	31	1003
Meacham, Randall, Chico, Cal. Fan attachment for vehicles	320,082	June 16	1524	404	31	1342
Mead, Birdsall H., assignor of two-thirds to S. Schmuck and C. F. Hunger, Cleveland, Ohio. Reclining-chair	316,287	Apr. 21	1803	474	31	339
Mead, Edwin D., Shortsville, N. Y. Hay and grain elevator and carrier	320,267	June 16	1702	468 469	31	1384
Mead, William S., Spencer, Ind. Car-coupling	318,777	May 26	2476	663	31	1003
Meade, James S. (See Bunker, Le Roy S., assignor.)						
Mear, Alfred H., *et al.* (See Vanden Berghe, Peter, assignor.)						
Meats, John T., Taunton, Mass. Self-stripping mechanism for carding-machines	319,107	June 2	215	56	31	1087
Mechanicsburg Machine Company. (See Martin and Baker, assignors.)						
Medart, Philip, St. Louis, Mo. Shaft-hanger	319,004	June 2	91	24	31	1065
Medart, Philip, assignor of one-half to W. Medart, St. Louis, Mo. Journal-box	320,151	June 16	1618	431	31	1358
Medart, William. (See Medart, Philip, assignor.)						
Medley, Granville E., and M. W. Williams, Hopkinsville, Ky. Lathe	318,778	May 26	2477	663	31	1003
Meeker, Rolla. (See Sprose and Meeker.)						
Meeker, Walter C., *et al.* (See Brown, Thomas R., assignor.)						
Mehaffey, James C., Kansas City, Mo. Folding table	318,779	May 26	2478	664	31	1003
Mehring, George, Chicago, Ill. Fuel-magazine for steam-generators	319,005	June 2	93	24	31	1065
Meier, Charles E., *et al.* (See Hayes, Carl E., assignor.)						
Meier, Charles E., *et al.* (See McArdle, Frank, assignor.)						
Meier, William, Newark, N. J. Spark-arrester	318,573	May 26	2213	591	31	954
Meikle & Company, Thomas. (See Meikle, James W., assignor.)						
Meikle, James W., assignor to T. Meikle & Company, Louisville, Ky. Wheel-plow	316,802	Apr. 28	2520	658	31	476
Meil, John, Baltimore, Md. Fire-kindler	320,268	June 16	1706	.....	31	1385
Meise, Eduard, Pittsburg, Pa. Forming insoles for shoes	319,740	June 9	1038	275	31	1249
Meisner, John G., Chicago, Ill. Automatic elevator-gate	319,292	June 2	434	116 117	31	1130
Meister, Carl, assignor to P. Thomsen, Philadelphia, Pa. Mouth-piece for brass musical instruments	315,810	Apr. 14	1156	303	31	217
Mendès, Joseph H. E., assignor to Société Anonyme Dite Compagnie Industrielle des Procédés Raoul Pictet, Paris, France. Compound liquid for use in the art of refrigeration	319,108	June 2	217	57	31	1087
Menges, Philipp, New York, N. Y. Piano-action	317,660	May 12	981	254	31	709
Mensing, John F. (See Holcomb, Frank L., assignor.)						
Mensor, Abe W., Jacksonville, Oreg. Combined lapel vest and overshirt	316,803	Apr. 28	2522	659	31	476
Mercer, Solomon, Bird's Run, Ohio. Sulky-frame for plows	315,316	Apr. 7	459	116	31	83
Mercer, William H., Mercer, S. C. Grain-separator	317,827	May 12	1204	319	31	752
Mergenthaler, John, Hancock County, Ohio. Railway-tie extractor and replacer	317,829	May 12	1210	320	31	753
Mergenthaler, Ottmar, Baltimore, Md., assignor to National Typographic Company, Washington, D. C. Machine for producing printing-bars	317,828	May 12	1205	319 320	31	752
Meriam, Homer. (See Fuller, Arthur A., assignor.)						
Meriden Malleable Iron Company. (See Lawton, Lyman T., assignor.)						
Merkelbach, Adolf, Bienne, Switzerland. Watch-regulator	318,780	May 26	2479	664	31	1003
Merle, Apollonie. (See Merle, Emilie and A.)						
Merle, Emilie and A., Paris, France. Adjustable model or dummy for dress-makers' use	317,830	May 12	1211	320	31	753
Merriam, Henry P., Lawrence, Mass. Bottle-washer	321,128	June 30	2956	783	31	1617
Merriam, Homer. (See Fuller, Arthur A., assignor.)						
Merrifield, Albert A., St. Albans, Vt. Indicator	316,288	Apr. 21	1804	474	31	340
Merrill, Frank M., *et al.* (See Young, Harlan P., assignor.)						
Merrill, George P., Toledo, Ohio. Traction-increaser for locomotives	316,380	Apr. 21	1925	508	31	361
Merrill, William, assignor of one-half to S. S. Mitts, East Saginaw, Mich. Circular sawing machine	316,634	Apr. 28	2206	596	31	430
Merrill, William E. T., assignor to W. H. Hart, Jr., Philadelphia, Pa. Retainer for the bands of neckscarfs	316,289	Apr. 21	1805	474	31	340
Merrimack Glove Company. (See Marsh, Alfred G., assignor.)						
Merriman, Alanson H., Meriden, Conn. Power-press	316,969	May 5	77	21	31	537
Merritt, Edward. (See Tyler and Merritt.)						
Merritt, Henry W., Somerville, assignor to W. H. Ireland, Boston, Mass. Stove-grate	317,166	May 5	324	81	31	582
Merritt, James C., and L. A. C. Müller; said Müller assignor to J. Denton, Highland Falls, N. Y. Folding chair	317,402	May 5	637	163	31	639
Merritt, James M., Marengo, Iowa. Wire-stretcher	318,012	May 19	1461	391	31	808
Merritt, Samuel F., Springfield, Mass., assignor to S. M. Griswold, New York, N. Y. Eye-glass-holder	319,293	June 2	436	117	31	1130
Merrow, Roscoe A., Farmington, Me. Car-coupling	320,152	June 16	1619	431	31	1358
Mertz, James E. (See Dunfee, James W., assignor.)						
Meschter, Jacob K., Philadelphia, Pa. Heat-regulating device for incubators	320,490	June 23	2120	559	31	1456
Messick, William L. (See Diggs and Messick.)						
Messenger, G. Frank, Stockertown, Pa. Horseshoe	318,276	May 19	1798	481	31	871

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Messinger, William T., Cambridge, Mass. Ejector	316,804	Apr. 28	2523	659	31	477
Metcalf, Benjamin A. (See Otto and Metcalf.)						
Metcalf, Erastus L., Franklin, Mass. Driving-check for horses	319,006	June 2	93	24	31	1065
Metcalf, John S., Burlington, Iowa. Grain-shoveling mechanism	319,988	June 16	1399	368	31	1319
Metropolitan Manufacturing Company. (See Bailey, Alfred M., assignor.)						
Metzdorff, Luis, Concepcion, Chili. Transposer for key-board musical instruments	317,661	May 12	992	254	31	710
Metzger, Hermann, North Springfield, Mo. Vent	319,007	June 2	94	25	31	1065
Metzger, Martin L., and A. Cooper, assignors to W. O. Hickok, Harrisburg, Pa. Ruling-machine	316,990	May 5	78	21, 22	31	537
Meuze, Friedrich W., assignor to himself and C. Hahn, Bay City, Mich. Automatic draw-bridge gate	316,635	Apr. 28	2268	597	31	430
Meyer, Cord, Jr., Maspeth, N. Y. Apparatus for the manufacture of ammonium sulphate	316,381	Apr. 21	1927	508	31	361
Meyer, Edward W. A., Boston, Mass. Glove or shoe fastening	315,811	Apr. 14	1157	303	31	217
Meyer, Gustave J. (See Moore, David B., assignor.)						
Meyer, Jacob, Pittsburg, and H. Bier, Allegheny, Pa. Wagon-brake	317,831	May 12	1213	321	31	753
Meyer, John, Pittsburg, Pa. Tree for shoe-uppers	317,560	May 12	851	219	31	686
Meyer, Philip, Falls City, assignor of two-thirds to J. Royer and P. G. Mason, Richardson County, Nebr. Drag-harrow	319,109	June 2	218	57	31	1068
Meyer-Sniffen Company. (See Bunting, William, Jr., assignor.)						
Meyer-Sniffen Company. (See Sniffen, Samuel F., assignor.)						
Meyers, Frank H., Philadelphia, Pa. Seal-lock for car-doors	317,403	May 5	639	163	31	639
Meyers, Louis, New York, N. Y. Button for gloves, &c.	317,662	May 12	984	255	31	710
Meyrose, Ferdinand, St. Louis, Mo. Manufacturing tube-lanterns	320,381	June 16	1974	519	31	1422
Michelson, Sigismund M., Milwaukee, Wis. Caster	316,382	Apr. 21	1928	509	31	361
Middleditch, Livingston. (See Lyman, Azel S., assignor.)						
Midgley, John, and W. Hall, assignors of one-half to W. F. and F. C. Sayles, Pawtucket, R. I. Stop-motion for wool-combing machines	319,989	June 16	1401	368	31	1319
Midgley, William H., Pittsburg, Pa. Laundry-starch	319,598	June 9	802	228	31	1216
Miehle, Robert, Chicago, Ill. Mechanical movement	317,663	May 12	984	255 / 256	31	710
Mihills, Frank N., East Beekmantown, assignor of one-half to F. J. Lengfeld, Chazy, N. Y. Combined lock hasp and hook	319,599	June 9	863	228	31	1216
Milburn, Henry, Jr., Talcott, W. Va. Churn-holding device	319,834	June 9	1178	311	31	1272
Miles, John A., Charleston, S. C. Inhaler or respirator	316,636	Apr. 28	2269	597	31	430
Miles, Walter, Chilton, Wis. Vehicle running-gear	320,269	June 16	1766	469	31	1385
Miles, William A., Copake Iron Works, N. Y. Stone and ore crusher	319,741	June 9	1040	275	31	1240
Millard, Edward F., Marinette, Wis. Wood-grinder	320,574	June 23	2226	590	31	1476
Millard, George W. (See Clarke and Millard.)						
Millard, Martin S., Kansas City, and G. H. King, Salisbury, assignors of one-third to W. H. H. Tainter, Kansas City; said Millard assignor of his remaining right to M. Jordon, Hermann, Mo. Window	320,808	June 23	2522	668 / 669	31	1533
Miller, Abraham, Newark, assignor to Newark Machine Company, Columbus, Ohio. Seat for seed-drills	316,805	Apr. 28	2524	659	31	477
Miller, Abraham, Newark, assignor to Newark Machine Company, Columbus, Ohio. Seed-drill	316,806	Apr. 28	2526	660	31	477
Miller, Abraham, Newark, assignor to Newark Machine Company, Columbus, Ohio. Seed and fertilizing drill	316,807	Apr. 28	2527	660	31	477
Miller, Abraham, Newark, assignor to Newark Machine Company, Columbus, Ohio. Device for raising or lowering the boots or drills of seeding-machines	316,808	Apr. 28	2529	661	31	478
Miller, Absalom N., Pottstown, Pa. Adjusting device for rolls	318,574	May 26	2214	592	31	954
Miller, Andrew. (See Watson, George, assignor.)						
Miller, Benjamin F., *et al.* (See Jacobs, Charles A., assignor.)						
Miller, Charles H., Columbus, Ohio. Chain-pump barrel	320,672	June 23	2262	624	31	1502
Miller, Charles K., and G. H. Cleveland, Camden, Me. Shirt	317,833	May 12	1215	321	31	754
Miller, Charles P. (See Smith and Miller.)						
Miller, Charles R. (See Harrison, Jonathan W., assignor.)						
Miller, Chauncey D., Poughkeepsie, N. Y. Angle attachment for dental engines	319,110	June 2	218	57	31	1068
Miller & Co., E. (See Brewer, Roland L., assignor.)						
Miller, David L., Madison, N. J. Motor	315,051	Apr. 7	89	21	31	18
Miller, E. H. (See Burgess, Jordan H. and J., Jr., assignors.)						
Miller, Francis H., *et al.* (See McLain, Charles B., assignor.)						
Miller, Henry, Ann Arbor, Mich. Wire-twister	317,832	May 12	1214	321	31	753
Miller, Isaac J., assignor to H. J. Wiggs, Nashville, Tenn. Box-fastener	318,781	May 26	2480	664	31	1003
Miller, James, assignor to himself and E. E. Burt, Atwater, Minn. Harrow-tooth fastener	318,195	May 19	1694	454	31	852
Miller, James B. (See Wilkins and Miller.)						
Miller, James B. (See Zellers and Miller.)						
Miller, Lebbeus A., Sewickley, Pa. Blower for stoves and fire-places	317,404	May 5	640	164	31	639
Miller, Lewis, *et al.* (See Ellinwood, Augustus E., assignor.)						
Miller, Lewis, Akron, Ohio. Harvester-reel	315,649	Apr. 14	935	245	31	175
Miller, Lewis, Akron, Ohio. Grain-binding harvester	316,991	May 5	84	22	31	538
Miller, Lysander N. (See Coffey, Henry D., assignor.)						
Miller, Martin B., assignor to S. H. Miller, Martinsburg, Pa. Fruit-drier	320,883	June 23	2619	694	31	1552
Miller, Oliver A. (See Tyler, Abel D., Jr., assignor.)						
Miller, Peter, Cleveland, Ohio. Shaking and dumping grate	318,013	May 19	1462	391	31	808
Miller, Rudolph A. (See Hogan and Miller.)						
Miller, Samuel H., Sacramento, Cal. Hay-press	318,644	May 26	2296	613 / 614	31	970
Miller, Samuel L., assignor to W. W. Vaughan and B. Norton, Washington, Mich. Fruit-drier	316,637	Apr. 28	2270	597	31	431
Miller, Sarah H. (See Miller, Martin B., assignor.)						
Miller, Silas E., Ainger, Ohio. Gate	317,405	May 5	641	164	31	640
Miller, Sylvester J., Millersville, Ill. Portable stacking-frame	320,153	June 16	1621	431	31	1358
Miller, Thomas. (See Kauffeld, Elias, assignor.)						
Miller, William K., Whitneyville, assignor to Woodruff, Miller & Co., Mount Carmel, Conn. Blank for wrought-metal ox-shoes	318,277	May 19	1799	481	31	871
Milligan, John F., assignor of one-half to G. S. Foster, St. Louis, Mo. Automatic grain-scale	321,129	June 30	2957	783	31	1618
Milliken, Allen C. (See Cleveland, Erastus L., assignor.)						
Milliken, Allan C. (See Graham and Milliken.)						
Mills Buttonhole Attachment Company. (See Mills, Daniel, assignor.)						
Mills, Daniel, Philadelphia, Pa., assignor to Mills Buttonhole Attachment Company, Camden, N. J. Button-hole-sewing mechanism	319,835	June 9	1179	311	31	1272
Mills, Daniel, Philadelphia, Pa., assignor to Mills Buttonhole Attachment Company, Camden, N. J. Button-hole clamp	319,836	June 9	1180	311	31	1272

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Mills, Thomas B. (See Kopf, John, assignor.)						
Millspaugh, William, Middletown, N. Y. Hand chopping-knife	319,294	June 2	436	117	31	1130
Milona, Marcus T., *et al.* (See McMurtry, James S., assignor.)						
Milsted, William N., Brooklyn, N. Y. Gas cooking-stove. (Reissue)	10,577	Apr. 7	658	169 / 170	31	117
Milsted, William N., Brooklyn, N. Y. Gas-meter	319,111	June 2	220	57	31	1068
Milwaukee Dust Collector Manufacturing Company. (See Beardslee, Marcus D., assignor.)						
Miner, Constantine, Rochester, Ind. Draft-equalizer	319,600	June 9	864	229	31	1216
Miner, Martin W., New York, N. Y. Toe protector or separator	317,834	May 12	1215	321	31	754
Minneapolis Harvester Works. (See Appleby, John F., assignor.)						
Minneapolis Harvester Works. (See Kennedy, Samuel V., assignor.)						
Minneapolis Harvester Works. (See Strunk, Daniel, assignor.)						
Minnitt, John E., and J. H. Vickers, Nottingham, England. Automatic tap for bung-holes	317,561	May 12	852	219	31	686
Minthorn, Daniel, assignor to M. N. Minthorn, Watertown, N. Y. Treating vegetable fiber for manufacture of paper-pulp	319,295	June 2	437	.....	31	1131
Minthorn, M. N. (See Minthorn, Daniel, assignor.)						
Mitchell, Adolph L., Brooklyn, N. Y. Nut-lock	320,270	June 16	1768	469	31	1385
Mitchell, Archibald, New Orleans, La. Roller-roughing machine	317,167	May 5	325	81	31	582
Mitchell, Barnard W., assignor of two-thirds to W. Trick, Hubbard, and A. Young, Youngstown, Ohio. Automatic feeder and regulator for lamps	317,835	May 12	1216	322	31	754
Mitchell, Edwin V., and M. G. Plimpton, Medfield, Mass., assignors to Willcox & Gibbs Sewing Machine Company, New York, N. Y. Straw-hat-sewing machine	317,836	May 12	1217	322	31	754
Mitchell, George E., Brooklyn, N. Y. Fastening for neckties	320,491	June 23	2122	559	31	1457
Mitchell, John. (See Cook and Mitchell.)						
Mitchell, John E., Keokuk, Iowa. Washing-machine	315,812	Apr. 14	1158	303 / 304	31	217
Mitchell, John W., Bayonne, N. J. Manufacturing gas for illuminating and heating purposes	317,406	May 5	642	164	31	640
Mitchell, John W., Bayonne, N. J. Apparatus for generating illuminating and heating gas	317,407	May 5	644	164 / 165	31	640
Mitchell, Lewis A., assignor to S. B. Ryder, Elizabeth, N. J. Wall and ceiling of buildings	318,196	May 19	1695	454	31	852
Mitchell, Oliver F., assignor of one-half to M. H. McCord, Merrill, Wis. Stove-leg attachment	318,278	May 19	1800	481	31	872
Mitchell, Thomas. (See French and Mattern, assignors.)						
Mitchell, William, Altoona, Pa. Steam-valve	320,154	June 16	1621	431	31	1358
Mitts, Sylvanis S. (See Merrill, William, assignor.)						
Mix, Frank W. (See Spiegel, Henry L., assignor.)						
Mix, Frank W., assignor to Corbin Cabinet Lock Company, New Britain, Conn. Mortise-lock	320,155	June 16	1622	432	31	1358
Mizner, Hiram, *et al.* (See Norton, Winthrop, assignor.)						
Moats, Andrew T., Pleasantville, Iowa. Miner's pick	318,279	May 19	1801	482	31	872
Moberg, Peter V., Marinette, Wis. Siding-gage	318,280	May 19	1802	482	31	872
Modes, William F., Streator, Ill. Regenerating and reverberating glass-furnace	320,951	June 30	2715	720	31	1575
Moe, Seth B., assignor to American Brick Kiln Company, Chattanooga, Tenn. Brick-kiln	316,904	Apr. 28	2676	697	31	505
Moeller, Christoph F., and J. W. Manger, Newark, N. J. Torch	315,317	Apr. 7	460	116	31	84
Moeser, Henry, Pittsburg, Pa. Preventing leakage of gas from mains	317,408	May 5	647	165	31	641
Moffet, John, New York, N. Y. Rotary engine	315,318	Apr. 7	461	117	31	84
Moffitt, Jerrey, Southbridge, Mass. Micrometer-gage	319,919	June 9	1293	341	31	1292
Mohawk Valley Scotch Cap Factory. (See Wainman, Alfred J., assignor.)						
Mohn, Fredrick, Detroit, Mich. Attachment for pneumatic beer-pumps	316,163	Apr. 21	1645	430 / 431	31	312
Mohney, James E., Eight Mile, Mo. Sulky-plow	315,813	Apr. 14	1160	304	31	217
Mole, John G., Batavia, Ill. Metallic grinding-ring	321,045	June 30	2843	756	31	1598
Molesworth, William, Brooklyn, N. Y. Syringe	319,296	June 2	438	117	31	1131
Mollnek, Franz. (See St. Mielcarek, Wladislaus, assignor.)						
Molloy, James F., West Haven, Conn. Lever-buckle	317,168	May 5	326	81	31	582
Molyneux, Robert, Ransomville, N. Y. Fire-escape	319,920	June 9	1294	342	31	1292
Monfort, Edgar A., assignor, by mesne assignments, to Universal Electric Arms and Ammunition Company, New York, N. Y. Cartridge for electric fire-arms	317,409	May 5	648	166	31	641
Monnett, Orwin B., Bucyrus, Ohio. Sheep-dip	319,990	June 16	1403	.....	31	1319
Monroe, James J., Ridgeway, Ohio. Log-carrying attachment for wagons	318,281	May 19	1803	482	31	872
Montague, Charles C., Augusta, Ark. Automatic registering-stamp	319,008	June 2	95	25	31	1065
Montant, Alphonse, New York, N. Y. Automatic supporting device	315,650	Apr. 14	936	245	31	175
Montenegro, Antonio, Madrid, Spain. Surface-drainage with special reference to the prevention of floods	319,297	June 2	439	118	31	1131
Montgomery, Frank P., San José, Cal. Map-rack	316,905	Apr. 28	2676	697	31	505
Montgomery, James H., Elwin, Ill. Check-rower for corn-planters	320,673	June 23	2263	624	31	1502
Montross, Levi H., Simcoe, Ontario, Canada. Metallic roofing	319,921	June 9	1295	342	31	1293
Moodie, Robert. (See Mumford and Moodie.)						
Mooers, Hazen, Milwaukee, Wis. Steam-radiator	319,601	June 9	865	229	31	1216
Moore, Albert W., *et al.* (See Young, Harlan P., assignor.)						
Moore, David B., assignor to himself and G. J. Meyer, St. Louis, Mo. Pill-counter	316,638	Apr. 28	2271	597	31	431
Moore, David W., *et al.* (See Wilson, Allen F., assignor.)						
Moore, Edward J., Baltimore, Md. Water tube-boiler	320,809	June 23	2525	669	31	1534
Moore, Edward Y., Evanston, Ill. Drive-chain link	316,992	May 5	85	23	31	538
Moore, Edward Y., Evanston, Ill. Sliding car-door. (Reissue)	10,604	June 2	622	168	31	1167
Moore, Ela, Walla Walla, Wash. Ter. Combined wire-stretcher and staple-puller	321,130	June 30	2958	784	31	1618
Moore, Enos L., Portsmouth, Ohio. Oscillating steam-engine	320,575	June 23	2227	590	31	1477
Moore, James P., Gardiner, Me. Bed	318,282	May 19	1803	482	31	873
Moore, Jonathan, Brooklyn, N. Y. Drinking-trough for animals	316,639	Apr. 28	2272	598	31	431
Moore, Jonathan J., and J. A. Ball, assignors of one-half to J. C. Taylor, Thorntown, Ind. Belt-guard for straw-carriers	318,491	May 26	2064	563	31	933
Moore, Jonathan J., and J. A. Ball, assignors of one-half to J. C. Taylor, Thorntown, Ind. Belt-guide	320,810	June 23	2526	669	31	1534
Moore, Lee E., Boston, Mass. Boot or shoe	317,562	May 12	853	219	31	686
Moore, Matthew R., Indianapolis, Ind. Steam-engine governor	318,782	May 26	2481	664	31	1004
Moore, Matthew R., Indianapolis, Ind. Apparatus for making sand-molds	318,783	May 26	2486	665	31	1004
Moore, Matthew R., Indianapolis, Ind. Machine for making molds for castings	318,784	May 26	2488	665	31	1004
Moore, Matthew R., Indianapolis, Ind. Flanging-machine	318,785	May 26	2491	665	31	1004
Moore, Melville M., Oxford, Miss. Curtain-cord holder	319,298	June 2	440	118	31	1131
Moore, Samuel, Providence, R. I. Manufacture of drills	315,530	Apr. 14	779	205	31	145
Moore, Samuel M., Lukin, Ill. Animal-poke	320,492	June 23	2122	559	31	1457
Moore, Silas, Cleveland, Ohio. Lathe for turning spirals	319,922	June 9	1296	342	31	1293

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Moore, Stephen A., Springfield, Ill. Blow-off for steam-boilers	316,561	Apr. 28	2174	572	31	413
Moore, William H., Gardiner, Me. Cot-bed	316,383	Apr. 21	1929	509	31	361
Moorman, Theresa S. (See Weinman, Christian J., assignor.)						
Moran, William, assignor to Erie City Iron Works, Erie, Pa. Portable tubular boiler	318,128	May 19	1610	430	31	836
Morehouse, Charles L., Brooklyn, N. Y. Car-truck	320,156	June 16	1623	432	31	1359
Morey, Charles W., *et al.* (See Longmore, Lewis F., assignor.)						
Morford, Abraham O., Port Chester, N. Y. Railway-spike	319,602	June 9	866	229	31	1217
Morgan, Charles, Bridgewater, Nova Scotia, Canada. Carriage-seat	321,131	June 30	2959	784	31	1618
Morgan, Charles H., Buffalo, N. Y. Conveyer	319,299	June 2	441	118	31	1131
Morgan & Co., Dayton S. (See Becker, Frederick G., assignor.)						
Morgan, Edward H., assignor of one-half to M. E. Kuhn, Cincinnati, Ohio. Bottle-stopper	321,236	June 30	3089	820	31	1643
Morgan, Edward H., assignor of one-half to M. E. Kuhn, Cincinnati, Ohio. Cork-retainer	321,237	June 30	3090	821	31	1643
Morgan, Garrard S. and W. B., Peoria, Ill. Draft-wagon	315,531	Apr. 14	780	205	31	145
Morgan, James. (See Morgan, Samuel, assignor.)						
Morgan, James B., Davenport, Iowa. Sponge or mop holder	315,814	Apr. 14	1163	304	31	218
Morgan, James M. (See Morgan, Lyman and J. M.)						
Morgan, Lyman and J. M., Port Washington, Wis. Cockle-separator	316,169	May 5	327	81	31	582
Morgan, Samuel, Baxterly, near Atherstone, assignor to J. Morgan, Bentley, county of Warwick, England. Clip for rope-haulage	318,492	May 26	2085	{563 564}	31	933
Morgan, Thomas R., Sr., Alliance, Ohio. Making long lengths of shafting	320,952	June 30	2716	{720 721}	31	1575
Morgan, William R. (See Morgan, Garrard S. and W. B.)						
Morgan, William F., assignor of one-half to R. Hughes, Collingwood, Ontario, Canada. Bolt	317,170	May 5	398	92	31	583
Morhard, Roman, Brooklyn, N. Y. Submarine excavator	317,664	May 12	967	256	31	710
Morhard, Roman, Brooklyn, N. Y. Dough-rolling machine	319,991	June 16	1403	369	31	1319
Morrill, Amos, *et al.* (See Conant, Fred H., assignor.)						
Morrill, Amos, *et al.* (See Ellis, George A., assignor.)						
Morrill, Amos, *et al.* (See Ellis and Taft, assignors.)						
Morris, Benjamin J., assignor of one-half to W. Stilwell, Millersburg, Ohio. Self-loading cart	317,467	May 5	731	185	31	655
Morris, Evan. (See Rehfuss, George, assignor.)						
Morris, George W., Pittsburg, Pa., and W. Frech, Chicago, Ill. Combined spring-measurer and track-indicator	315,532	Apr. 14	782	{206 207}	31	145
Morris, Henry B., assignor to Autophone Company, Ithaca, N. Y. Machine for inserting pins in music-barrels	315,052	Apr. 7	91	22	31	18
Morris, James K., assignor of one-half to S. L. Edwards, Des Moines, Iowa. Dental plate	315,319	Apr. 7	462	117	31	84
Morris, John H. and T. D., Seward, Nebr. Water-elevator	320,157	June 16	1623	432	31	1359
Morris, John T., trustee. (See Strong, George S., assignor.)						
Morris, Miles H., Chicago, Ill. Drive-well point	315,815	Apr. 14	1164	305	31	218
Morris, Thomas D. (See Morris, John H. and T. D.)						
Morrison, Benjamin P., Marion, Va. Spring-gear for vehicles	316,640	Apr. 28	2273	598	31	431
Morrison, George G., Philadelphia, Pa. Combined drilling and boring machine	319,502	June 9	724	194	31	1191
Morrison, Hugh M., Glendale, Miss. Fruit-cutter	317,563	May 12	854	219	31	686
Morrison, Michael. (See Floyd, John J., assignor.)						
Morse, Alfred B., South Easton, Mass. Sewing-machine thread-unwinder	318,923	May 26	2071	708	31	1037
Morse, Edmund A. (See Shortsleeve, David, assignor.)						
Morse, George, Gloucester, Mass. Hitching device for vehicles	315,816	Apr. 14	1166	305	31	219
Morse Twist Drill and Machine Company. (See Buchter, Frank, assignor.)						
Morstatt, George W., New York, N. Y. Chair	317,468	May 5	734	185	31	655
Mortimer, Henry, *et al.* (See Maynard, William, assignor.)						
Morton, Ephraim S. (See Loring and Morton.)						
Morton, Thomas, New York, N. Y. Sash-balance	315,533	Apr. 14	785	207	31	146
Morton, Thomas, New York, N. Y. Riveting-machine	315,817	Apr. 14	1167	305	31	219
Morton, Thomas M., Pittsburg, Pa. Steam radiator and heater	315,818	Apr. 14	1168	305	31	219
Morton, Walter S., St. Paul, Minn. Trench-building machine	315,534	Apr. 14	786	{207 208}	31	146
Morton, Walter S., St. Paul, Minn. Elevator-hatchway guard	317,564	May 12	855	220	31	687
Morton, Walter S., St. Paul, Minn. Automatic hatchway-guard	320,083	June 16	1524	404	31	1342
Morton, William A., Abilene, Kans. Lightning-arrester for wire fences	319,300	June 2	442	118	31	1131
Morwitz, Joseph, Philadelphia, Pa. Mechanical movement	315,431	Apr. 7	620	159	31	110
Morwitz, Joseph, Philadelphia, Pa. Mechanical movement	315,432	Apr. 7	621	159	31	111
Moser, Isaac S., and F. Magee, New York, N. Y. Mechanical and electric alarm-clock	317,837	May 12	1218	322	31	754
Moses, Albert P., Malone, N. Y. Fastener	320,953	June 30	2718	721	31	1575
Moses Bros. *et al.* (See Giffard, George W., assignor.)						
Moses, Clayton L., *et al.* (See Giffard and Roberts, assignors.)						
Moses, Edward W., *et al.* (See Giffard and Roberts, assignors.)						
Moses, Otto A., New York, N. Y. Apparatus for carbonizing incandescents	316,993	May 5	86	23	31	538
Moses, Otto A., New York, N. Y. Mold for making incandescents	321,309	June 30	3176	847	31	1660
Moses, Walter S., and O. Andrews, assignors of one-half to said Moses, J. H. Andrews, Gloucester, and G. Tucker, Rockport, Mass. Machine for cutting blocks of fish into layers	317,469	May 5	735	185	31	656
Mosler Safe and Lock Company. (See Heuler, Michael, assignor.)						
Moss, John, Brooklyn, N. Y. Cock for house-service and street-washer connections	315,652	Apr. 14	938	246	31	175
Moth, Morris J., *et al.* (See Powers, Jay W., assignor.)						
Moth, Robert S., *et al.* (See Powers, Jay W., assignor.)						
Mott Iron Works, J. L. (See Carney, Peter, assignor.)						
Mott Iron Works, J. L. (See Demarest, John, assignor.)						
Monlton, Stillman A., San José, Cal. Cultivator	316,164	Apr. 21	1647	431	31	312
Mowbray, George M., assignor to American Zylonite Company, Adams, Mass. Plastic compound resembling ivory	320,884	June 23	2620	.....	31	1552
Mowen, John H. (See Quint and Mowen.)						
Mower, Samuel C., Milwaukee, Wis. Reflector	315,433	Apr. 7	622	160	31	111
Mower, Samuel E., assignor to H. G. Thompson, New Haven, and H. G. Thompson, Milford, Conn. Machine for making hair-pins	319,301	June 2	443	{119 120}	31	1131
Moxham, Arthur J., Johnstown, Pa. Railway girder-rail and rail-joint	316,994	May 5	89	23	31	539
Moxham, Arthur J., Johnstown, Pa. Rolled or forged metal chair for railways	316,995	May 5	90	24	31	539
Moxham, Arthur J., Johnstown, Pa. Built-up girder-rail	317,665	May 12	988	256	31	711
Moxham, Arthur J., Johnstown, Pa. Railway-switch	318,645	May 26	2299	{614 615}	31	970
Moxham, Arthur J., Louisville, Ky. Roll for rolling car-rails	319,009	June 2	96	25, 26	31	1066
Moxham, Arthur J., Johnstown, Pa. Metal cross-tie for railways	319,010	June 2	98	26	31	1066
Moxham, Arthur J., Johnstown, Pa. Railway-frog	319,011	June 2	99	26, 27	31	1066
Moyer, Wellington B., Reading, Pa. Dumb-waiter	316,050	Apr. 21	1482	387	31	282

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Mueller, Telle H. (See Sieghörtner, August L., Jr., assignor.)						
Muhl, Frederick, and J. S. Carson, Allegheny City, Pa. Mattress	319,419	June 2	590	161	31	1161
Muhleman, Edward, *et al.* (See Arthur, Joseph A., assignor.)						
Mulholland, Richard, Dunkirk, N. Y. Vehicle-spring	315,053	Apr. 7	93	23	31	19
Mullen, Henry, and J. Noble, Jr., Westfield, Mass. Whip-core	315,653	Apr. 14	939	246	31	175
Mullen, Henry, and J. Noble, Jr., Westfield, Mass. Whip-stock	318,432	May 19	2013	542	31	910
Mullen, Robert H., and H. T. Atkins, assignors to Pearce, Atkins & Co., Cincinnati, Ohio. Manufacture of machine-belting	316,906	Apr. 28	2677	697	31	505
Muller, Carl. (See Von der Heydt, Hermann, assignor.) (Reissue.)	317,171	May 5	329	82	31	583
Müller, Carl H. F., Hamburg, Germany. Incandescent electric lamp	320,954	June 30	2719	{721 722}	31	1575
Müller, George, assignor to Hughes & Müller, Philadelphia, Pa. Lady's riding-habit	320,158	June 16	1625	432	31	1359
Müller, Hans J., assignor to Zucker & Levett Chemical Company, New York, N. Y. Core for the armatures of dynamo-electric machines	319,012	June 2	101	27	31	1067
Müller, John, Kansas City, Mo. Combined square, miter, and bevel						
Müller, Lawrence A. C. (See Merritt and Müller.)						
Müller, Paul H. (See Klein, Peter L., assignor.)	316,165	Apr. 21	1648	431	31	312
Mulligan, Edward T., West Winfield, N. Y. Hop-yard twiner	316,051	Apr. 21	1485	388	31	282
Mulqueen, Michael, Chicago, Ill. Bindings of books	320,159	June 16	1625	433	31	1359
Mulvaney, John, assignor of one-half to A. P. Dumler, Cincinnati, Ohio. Machine for heading barrels	321,379	June 30	3267	873	31	1678
Mumford, James W. B., and R. Moodie, Victoria Docks, county of Essex, England. Separating-machine	319,003	June 9	867	230	31	1217
Muncaster, Walter J., assignor of one-half to M. McKaig, Cumberland, Md. Metal bending and straightening machine	316,384	Apr. 21	1929	509	31	362
Muncey, William J., Gunnison City, Colo. Trunk-strap	318 014	May 19	1463	391	31	908
Muncey, William J., Gunnison, Colo. Ore-washer	319,996	May 5	92	24	31	539
Munger, Dexter S., Stoneham, Mass. Hitching device for vehicles						
Munger, James P. (See Richmond, Henry T., assignor.)						
Munn, Schuyler J. (See Parrish and Munn.)						
Munroe Organ Reed Company. (See Stone, Frank, assignor.)	320,382	June 16	1974	519	31	1422
Munro, Reuben, San Francisco, Cal. Car-axle lubricator	320,271	June 16	1769	{469 470}	31	1385
Munson, James E., New York, N. Y. Setting type	320,272	June 16	1775	{470 471 472 473 474}	31	1386
Munson, James E., New York, N. Y. Type-setting machine						
Munton Car Wheel Company. (See Munton, James, assignor.)	318,129	May 19	1611	430	31	836
Munton, James, Maywood, Ill. Tire-rolling machine	319,837	June 9	1190	311	31	1272
Munton, James, assignor to Munton Car Wheel Company, Chicago, Ill. Car-wheel	319,838	June 9	1191	312	31	1273
Munton, James, assignor to Munton Car Wheel Company, Maywood, Ill. Car-wheel	317,172	May 5	330	82	31	583
Munzinger, Arnold, Olten, Solothurn, Switzerland. Drier	320,273	June 16	1784	{474 475}	31	1387
Munzinger, Peter, assignor of two-thirds to J. D. Wilson and W. Haydon, Philadelphia, Pa. Gas-pressure regulator	315,535	Apr. 14	769	208	31	147
Murbarger, William E., assignor of one-half to T. C. Dobbins, Dayton, Ohio. Anti-rattler for thill-couplings	316,997	May 5	93	24	31	539
Murch, Henry L., Ellsworth, Me. Warping-chock	320,383	June 16	1975	519	31	1423
Murdick, Israel H., Hartford, Mich. Grain weighing and tallying machine						
Murdock, Edwin F. (See Murdock, William C. and E. F.)	316,166	Apr. 21	1649	{431 432}	31	313
Murdock, William C. and E. F., Washington, D. C. Paving-block						
Murkland, J. H., *et al.* (See Hatch, Fred A., assignor.)	315,955	Apr. 14	1362	352	31	252
Murphy, Edward, New York, Y. Y. Stitch regulating and feeding device	315,056	Apr. 14	1363	353	31	252
Murphy, Edward, New York, N. Y. Thread-controlling device for sewing-machines	320,160	June 16	1627	433	31	1360
Murphy, John, Brooklyn, N. Y. Guard for steamboat paddle-wheels						
Murphy, John L. (See Foyh and Murphy.)	321,380	June 30	3269	873	31	1678
Murphy, Patrick, Amesbury, Mass. Mortise-lock	316,641	Apr. 28	2274	{598 599}	31	432
Murphy, Thomas, Detroit, Mich. Boiler-furnace	316,642	Apr. 28	2276	599	31	432
Murphy, Thomas, Detroit, Mich. Furnace						
Murphy, Thomas F. (See Walsh, Murphy, and Clark.)	320,441	June 16	2051	{538 539}	31	1435
Murray, Charles E., deceased; S. Boyer administrator, and assignor to Gowdy & Snyder, Brandt, Ohio. Plow						
Murray, George J. (See Wood, Richard G., assignor.)						
Murray, George W., Mount Crawford, assignor of one-half to F. E. Staling, Harrisonburg, Va. Trestle	320,674	June 23	2364	624	31	1502
Murray, Joseph T., *et al.* (See Cardwell, George A., assignor.)	317,838	May 12	1219	323	31	755
Mussinan, Oscar, Jr., New York, assignor to E. Faber, Port Richmond, N. Y. Pencil						
Muth, Charles. (See Schumann, Henry H., assignor.)						
Muth, Charles. (See Schumann and Muth.)	320,576	June 23	2229	591	31	1477
Myers, Allen A., New York, N. Y. Toilet-paper holder	320,384	June 16	1977	520	31	1423
Myers, Burdine B., Mann's Choice, Pa. Shifting draft-bar	320,885	June 23	2021	694	31	1552
Myers, Carl E., Mohawk, N. Y. Portable gas-generator for filling balloons	318,575	May 26	2215	592	31	954
Myers, Carl E. and C., Mohawk, N. Y. Guiding apparatus for balloons						
Myers, Carlotta. (See Myers, Carl E. and C.)	315,434	Apr. 7	622	{160 161}	31	111
Myers, Frederick, New York, N. Y. Barrel-making machine						
Myers, Garson, *et al.* (See Wallace, J. Bennett, assignor.)	316,385	Apr. 21	1930	509	31	362
Myers, Garson, and J. B. Wallace, assignors to Myers Manufacturing Company, Chicago, Ill. Hydrocarbon-vapor burner	319,013	June 2	101	27	31	1067
Myers, Harry E., assignor to Myers, Osborn & Co., Cleveland, Ohio. Oil-stove	319,922	June 9	1297	342	31	1293
Myers, M. Jervis, Syracuse, N. Y. Electric battery						
Myers Manufacturing Company. (See Myers and Wallace, assignors.)						
Myers Manufacturing Company. (See Wallace, J. Bennett, assignor.)						
Myers, Osborn & Co. (See Myers, Harry E., assignor.)	319,924	June 9	1298	343	31	1293
Myers, Philip A., Ashland, Ohio. Pump	320,084	June 16	1527	404	31	1343
Myers, William H., Reading, Pa. Cigar-cutter	315,435	Apr. 7	627	162	31	112
Mygatt, John T., New York, N. Y. Envelope for packing furniture	316,562	Apr. 28	2175	573	31	413
Naery, John S., New Albany, Ind. Car-brake	320,811	June 23	2527	670	31	1534
Nake, Richard M., Kansas City, Mo. Feeder for mill machinery	319,925	June 9	1299	343	31	1294
Naramore, Henry L., Sharon, Mass. Striking mechanism for clocks						
Naramore, Joseph W., assignor to Wallace & Sons, Ansonia, Conn. Machine for sticking pins	317,173	May 5	332	83	31	583

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Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Nash, Caleb P., assignor to J. E. Jacobs, Brattleborough, Vt. Cot	317,174	May 5	334	83, 34	31	584
Nash, Lewis H., Brooklyn, assignor to National Meter Company, New York, N. Y. Oscillating water-meter	320,577	June 23	2230	591	31	1477
Nash, Lewis H., Brooklyn, assignor to National Meter Company, New York, N. Y. Oscillating water-meter	320,578	June 23	2234	592	31	1478
Nash, Lewis H., Brooklyn, assignor to National Meter Company, New York, N. Y. Oscillating water-meter	320,579	June 23	2236	592 593	31	1479
Nash, Scotto C., Harrisburg, Pa. Portable camera	315,156	Apr. 7	234	57	31	42
Nathan Manufacturing Company. (See Ruddy, Robert, assignor.)						
National Heeling Machine Company. (See Demary, George T., assignor.)						
National Heeling Machine Company. (See Henderson, Henry A., assignor.)						
National Heeling Machine Company. (See Henderson and Raymond, assignors.)						
National Improved Telephone Company. (See Perrin, Thomas J., assignor.)						
National Manufacturing Company. (See Maltby, Clinton H., assignor.)						
National Manufacturing Company. (See Ritty, James, assignor.)						
National Meter Company. (See Nash, Lewis H., assignor.)						
National Plaster Company. (See Abbott, Thomas A., assignor.)						
National Tube Works Company. (See Patterson, Peter, assignor.)						
National Typographic Company. (See Mergenthaler, Ottmar, assignor.)						
Nauerth, George V., Cincinnati, Ohio. Revolving book-case	317,175	May 5	335	84	31	584
Nauerth, George V., Cincinnati, and J. M. Jenkins, Carthage, assignors to Globe Files Company, Cincinnati, Ohio. Letter-file box	315,157	Apr. 7	237	58	31	43
Nauerth, George V., assignor to Globe Files Company, Cincinnati, Ohio. Temporary binder	316,909	Apr. 28	2530	661	31	478
Nawadny, Albert, assignor to A. L. Apffel and C. A. Baud, New Orleans, La. Fan attachment	315,320	Apr. 7	463	117	31	84
Nax, Leonhard, Philadelphia, Pa. Tobacco-pipe	315,321	Apr. 7	464	117	31	84
Naylon, Michael, Cleveland, Ohio. Shoe-fastener	315,819	Apr. 14	1169	306	31	219
Neal, William W., *et al.* (See Wells, Frank R., assignor.)						
Nebeling, Gottfried A., Remscheid, Prussia, Germany, assignor to G. W. Korn, New York, N. Y. Metallic plate for covering roofs and walls	317,176	May 5	336	85	31	585
Needles, Simgesmer, assignor of one-fourth to D. H. Smith, Sedalia, Mo. Tucker attachment for sewing-machines	321,310	June 30	3179	847	31	1660
Neff, Peter, assignor to P. Neff, Jr., Gambier, Ohio. Apparatus for manufacturing lamp-black	319,604	June 9	872	230	31	1218
Neff, Peter, assignor to P. Neff, Jr., Gambier, Ohio. Apparatus for the manufacture of lamp-black	319,605	June 9	873	231	31	1218
Neff, Peter, assignor to P. Neff, Jr., Gambier, Ohio. Apparatus for the manufacture of lamp-black	319,606	June 9	874	231	31	1218
Negroni, Edward, 32 Brunswick Square, county of Middlesex, England. Music-leaf turner	321,238	June 30	3091	821 822	31	1643
Neil, Charles H. (See Gardner, William, assignor.)						
Neild, Robert R., Stratford, Ontario, Canada. Tool-holder for planing-machines	318,646	May 26	2301	615	31	971
Nellson, William. Bath, Mich. Signaling apparatus	318,015	May 19	1464	392	31	808
Nelman, Daniel S., Fargo, Dak. Ter. Oil-filter	320,274	June 16	1786	475	31	1387
Nelson, Abram, New York, N. Y. Staple	319,607	June 9	875	231	31	1218
Nelson, Charles R., New York, N. Y. Window-bead fastener	320,161	June 16	1628	433	31	1360
Nelson, Edgar A., Washington, D. C. Point-indicator for time-pieces	315,322	Apr. 7	465	118	31	84
Nelson, Francis J., Boston, Mass., assignor to Batchelder Machine Company, Portland, Me. Machine for brushing and treating leather	316,167	Apr. 21	1650	432	31	313
Nelson, George A., assignor to C. H. Hildreth, Chicago, Ill. Folding bed	319,608	June 9	876	231 232	31	1218
Nelson, Irenæus P., assignor of one-half to N. B. Tubbs, Hamilton, Ohio. Roller-skate	319,839	June 9	1182	312	31	1273
Nelson, J. Arthur. (See Becker, Bernard E., assignor.)						
Nelson, Jabez C., Marion, Ala. Cultivator	319,609	June 9	877	232	31	1219
Nelson, Jesse. (See Nelson, Tiberius C. and J.)						
Nelson, John L., and A. E. Landerholm, Chicago, Ill. Safety steam and water gage	316,998	May 5	94	24	31	539
Nelson, Olive, Houghton Lake, Mich. Food-steamer	317,839	May 12	1220	323	31	755
Nelson, Tiberius C. and J., Hanrahan, N. C. Rice-planter	317,565	May 12	856	220	31	697
Nettleton, William A., Bridgeport, Conn. Corset	315,436	Apr. 7	628	162	31	112
Nettleton, William A., Bridgeport, Conn. Corset-stay	320,162	June 16	1629	434	31	1360
Neuert, Jacob, Sandusky, Ohio. Valve-gear for steam-engines	315,654	Apr. 14	940	246	31	175
Nevegold, William F., Bristol, Pa. Rail-fastening	319,742	June 9	1041	275	31	1249
Neven, John B., *et al.* (See Kirby, Jeremiah, assignor.)						
Nevin, Robert A., San Francisco, Cal. Ore and salt drier	319,610	June 9	878	232	31	1219
Nevins, Burnet L., Washington, D. C. Underground conductor for wires	319,112	June 2	221	58	31	1088
Nevins, Burnet L., Washington, D. C. Conduit for underground wires and cables	319,420	June 2	592	161	31	1161
New Enterprise Edge Trimmer Company. (See Gilman, Charles A., assignor.)						
New Era Brewing Company. (See Frings, Charles H., assignor.)						
New Haven Clock Company. (See Lane, Frederick A., assignor.)						
New Haven Clock Company. (See Tyrrill, Alfred D., assignor.)						
New Haven Clock Company. (See Wood, Frank B., assignor.)						
New Home Sewing Machine Company. (See Huntington, Thomas S., assignor.)						
New York Automatic Scale Company. (See Seessle, Charles, assignor.)						
New York Bottlers' Supplies Manufacturing Company. (See Kent, Alonzo F., assignor.)						
New York Safety Steam Power Company. (See Davis, David P., assignor.)						
Newark Machine Company. (See Miller, Abraham, assignor.)						
Newcomb, Horatio A., Greenfield, Mass. Mold	316,052	Apr. 21	1486	388	31	282
Newcomer, Jacob L., Baltimore, Md. Egg-beater	318,786	May 26	2493	665	31	1005
Newell, Herman F., Flushing, Mich. Creaming-can	320,385	June 16	1978	520	31	1423
Newell, Isaiah, Haverhill, Mass. Condenser for wool-carding machines	315,054	Apr. 7	94	23	31	19
Newell, Lewis T., Albany, N. Y. Gridiron	318,493	May 26	2086	504	31	933
Newhouse, James, Jersey City, N. J. Spring-bed	320,493	June 23	2123	560	31	1457
Newlin, William, Attica, assignor of one-half to J. S. Warwick, Lafayette, Ind. Wheel-plow	316,053	Apr. 21	1487	388	31	282
Newlin, William, Attica, assignor of one-half to C. C. Valentine, New York, N. Y. Wheel-plow	318,283	May 19	1804	483	31	873
Newman, Anton E., assignor of one-half to C. C. Valentine, New York, N. Y. Manufacture of fiber for paper, &c	318,433	May 19	2014	.....	31	910
Newman, Carlton, San Francisco, Cal. Fruit-jar	320,580	June 23	2239	593	31	1479
Newman, Clyde H., and W. Berrigan, Rochester, N. Y. Electrical device to enable showmen to walk on the ceiling	320,275	June 16	1787	476	31	1388
Newman, Isaac. (See Zorkowski, Abraham L., assignor.)						
Newman, Lorenzo M., *et al.* (See Caesar, Peter J., assignor.)						
Newman, Martin, *et al.* (See Caesar, Peter J., assignor.)						
Newman, Oscar M., Milton, Fla. Rice-huller	317,840	May 12	1220	323	31	755

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Newman, Samuel T., Danbury, Conn. Lathe-chuck	318,387	May 19	1954	527	31	900
Newnham, Thomas, Wainwright, Ga. Saw-swage	315,820	Apr. 14	1170	306	31	219
Newton, Charles C., Philadelphia, Pa. Milling-machine	319,302	June 2	446	120	31	1132
Newton, Collins F., and W. S. Wing, Omaha, Nebr. Blocking and guarding rails, switches, &c	321,132	June 30	2960	784	31	1618
Newton, Dudley, Newport, R. I. Cornice-gutter	317,841	May 12	1221	323	31	755
Newton, Henry G., administrator. (See Hawkins, Robert H.)						
Newton, Herbert C., Groton, N. Y. Brake-block	317,177	May 5	337	85	31	585
Nicholas, Benjamin F., Renova, Pa. Ventilated pillow and bolster with attachments	316,999	May 5	95	25	31	540
Nicholas, Thomas, Calumet, Mich. Kitchen-cabinet	318,924	May 26	2672	708	31	1037
Nicholes, John H., Sumter, assignor of one-half to A. T. Smythe, Charleston, S. C. Pea-harvesting machine	317,666	May 12	989	256 257	31	711
Nichols, Herbert N. (See Sharpneck, William S., assignor.)						
Nichols, John B., New York, N. Y. Toy	315,437	Apr. 7	629	162	31	112
Nichols, Thomas R., Lynn, Mass. Sash-lock	320,675	June 23	2365	624 625	31	1502
Nicholson, Granville, assignor to J. L. Clark, New York, N. Y. Band for strapping boxes, bales, &c	315,438	Apr. 7	630	162	31	112
Nicholson, Granville, assignor to J. L. Clark, New York, N. Y. Wire bale-tie	315,821	Apr. 14	1171	306	31	220
Nicken, Adam, Buffalo, N. Y. Game counter and register	321,046	June 30	2844	757	31	1599
Nickerson, Amos, Somerville, Mass. Hammock-spreader	320,276	June 16	1789	475	31	1388
Nida, Charles, New York, N. Y. Machine for cleaning intestines	318,130	May 19	1612	431	31	836
Nida, Charles W., New York, N. Y. Sash-fastener	318,576	May 26	2217	592	31	954
Niebel, Abner, assignor to J. W. Niebel, Tiffin, Ohio. Manure-fork	316,810	Apr. 28	2531	662	31	479
Niebel, John W. (See Niebel, Abner, assignor.)						
Niehaus, Fredrick W., McGirk, Mo. Combined scaffold and ladder	310,643	Apr. 28	2279	599	31	432
Niehaus, Henry A., St. Louis, Mo. Car-coupling	317,178	May 5	338	85	31	585
Nieman, Theodore. (See Crowther, George, assignor.)						
Nightengale, William O., McKeesport, assignor to J. I. Kay, Pittsburg, Pa. Device for handling metal	319,926	June 9	1301	343	31	1294
Niles, Sidney S., Chicago, Ill. Spring-hinge	317,410	May 5	649	166	31	641
Nilson, Nils. (See Abrams and Nilson.)						
Noar, Isaac, New York, N. Y. Necktie attachment	319,840	June 9	1183	312	31	1273
Noar, Isaac, New York, N. Y. Compound strip for neck-wear	320,386	June 16	1979	520	31	1423
Noble, Alfred H., *et al.* (See Otis, Samuel L., assignor.)						
Noble, George B., *et al.* (See Otis, Samuel L., assignor.)						
Noble, James, Jr. (See Mullen and Noble.)						
Noble, John H. (See Ingham, John F., assignor.)						
Nodle, George G., New Berlin, assignor to A. C. Tonner, Canton, Ohio. Index for gear-cutting machines	316,811	Apr. 28	2532	662	31	479
Noel, Sylvester D. (See Seward and Noel.)						
Nolan, William F. (See Powell and Nolan.)						
Nordyke & Marmon Company. (See Marmon, Daniel W., assignor.)						
Norfolk, John R., Boston, Mass. Piston water-meter	319,992	June 16	1404	369	31	1319
Norling, Charles A., assignor of two-thirds to F. W. E. Best, St. Louis, Mo., and W. D. Van Blarcom, Alton, Ill. Machine for manufacturing fences	321,047	June 30	2845	757 758	31	1599
Norris, Daniel W., Elgin, Ill. Jar for butter, &c	319,841	June 9	1184	312	31	1273
North, Albert H., Bridgeport, Conn. Carving-fork guard	317,842	May 12	1222	324	31	755
Northen, Thomas, Lineville, Ala. Combined sweep, cotton-chopper, and dirter	318,197	May 19	1696	454	31	852
Norton, Byron, *et al.* (See Miller, Samuel L., assignor.)						
Norton, Edwin, assignor to self and O. W. Norton, Chicago, Ill. Street-lamp	315,957	Apr. 14	1364	353	31	252
Norton, John A., Brookline, assignor to E. E. Bean and L. C. Chase, trustees, Boston, Mass. Electric gas-lighting apparatus	315,055	Apr. 7	96	23	31	19
Norton, John A., Brookline, assignor to E. E. Bean and L. C. Chase, trustees, Boston, Mass. Electric gas-lighting apparatus	315,056	Apr. 7	100	24	31	20
Norton, John A., Brookline, assignor to E. E. Bean and L. C. Chase, trustees, Boston, Mass. Electric gas-lighting device	315,057	Apr. 7	101	24	31	20
Norton, Oliver W. (See Norton, Edwin, assignor.)						
Norton, Wintbrop, assignor of forty-nine and one-third one-hundredths to C. J. R. Ballard, Orland, and H. Mizner, Colusa County, Cal. Traveling thrasher and separator	315,651	Apr. 14	937	245	31	175
Nottér, Thomas W., Muskegon, Mich. Machine for bundling lathe	320,387	June 16	1980	520 521	31	1423
Nottingham, Henry E. (See McFarlan and Nottingham.)						
Notz, Josef F. (See Konrad, Franz, assignor.)						
Nougués, Jean, Fils aîné, Ogen, France. Canal and navigating the same	319,303	June 2	447	121	31	1132
Novelty Manufacturing Company. (See Lodge, Littleton W. T., assignor.)						
Noyes & Co., Joseph P. (See Howard, William C., assignor.)						
Nutt, S. Prentiss, Natchez, Miss. Telephone-transmitter	319,927	June 9	1303	344	31	1294
Nutting, Thomas B., Sr., Morristown, N. J., assignor to himself and T. B. Nutting, Jr., New York, N. Y. Car-coupling	320,388	June 16	1983	521	31	1424
Nye, George E., Bristol, Pa. Knitting-machine	316,907	Apr. 28	2678	698	31	505
Nye, Sherman R., Chicopee Falls, Mass. Horse hay-rake	316,290	Apr. 21	1805	474 475	31	340
Nye, Silas H., Union City, Mich. Door-hanger	319,113	June 2	222	58	31	1088
O'Brien, John, assignor to W. Brookfield, New York, N. Y. Telegraph-insulator	316,812	Apr. 28	2534	662	31	479
O'Brien, John, assignor one-half to D. Thomas, Turner's Falls, Mass. Kiln for burning bricks	315,822	Apr. 14	1172	306	31	220
O'Brien, John, assignor to himself and F. R. Smith, Austin, Minn. Car-coupling	320,955	June 30	2721	722	31	1576
O'Brien, Martha A. (See O'Brien, Robert F., assignor.)						
O'Brien, Patrick B., New Haven, Conn. Thill-coupling	316,479	Apr. 28	2078	543	31	394
O'Brien, Robert F., assignor to M. A. O'Brien, Boonville, Mo. Device for use in soldering or making eaves-troughs	316,813	Apr. 28	2535	662	31	479
O'Brien, Thomas, assignor of one-half to W. H. Schmedlen, Coldwater, Mich. Two-wheeled vehicle	317,179	May 5	338	85	31	585
O'Connell, John C. (See Culbertson, O'Connell, and Gaston.)						
O'Connor, James T. (See O'Connor, Patrick, assignor.)						
O'Connor, Patrick, Lawrence, Mass. Coal-sifter	317,574	May 12	871	223	31	689
O'Connor, Patrick, Mount Savage, Md. Steam-boiler	319,842	June 9	1185	313	31	1273
O'Connor, Patrick, assignor of one-half to J. T. O'Connor, Mount Savage, Md. Canal-boat propeller	315,159	Apr. 7	240	58, 59	31	44
O'Connor, William H. (See Overman and O'Connor.)						
O'Connor, William H., South Chicago, Ill. Band-pulley	319,992	June 16	1407	370	31	1320
O'Donnell, James. (See McHenry and O'Donnell.)						
O'Donnell, Timothy, Jr., Bradford, Pa. Safety-bar for railway fish-plates	315,536	Apr. 14	780	208	31	147

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
O'Hara, Daniel, Waltham, Mass. Watch-case. (Reissue)	10,605	June 2	624	169	31	1167
O'Hara, Daniel, Waltham, Mass. Watch-case	316,814	Apr. 28	2536	663	31	479
O'Hara, Lewis, assignor of one-half to D. Donovan, Oswego, N. Y. Lifting-jack	317,951	May 12	1366	367	31	783
O'Meara, Jeremiah, New York, N. Y. Valve	316,168	Apr. 21	1650	432	31	313
O'Meara, Timothy. (See Fryer, Robert M., assignor.)						
O'Neill, Edward F., Storm Lake, Iowa. Harmonic attachment for key-board musical instruments	316,908	Apr. 28	2681	698	31	506
O'Neill, Joseph G., Nevada City, Cal. Window-shelf	318,200	May 19	1701	455	31	853
Oakes, Francis J., Brooklyn, N. Y. Evaporating apparatus	319,611	June 9	879	232	31	1219
Oakley, Thomas J., New York, N. Y. Wrapper for silks and other piece-goods	321,048	June 30	2848	758	31	1599
Oaks, William A. C., assignor to Goodell Company, Antrim, N. H. Fruit-paring machine	315,158	Apr. 7	237	58	31	43
Obermayer, Simon, Cincinnati, Ohio. Compound for molders' facings	317,843	May 12	1223	.....	31	755
Ochwadt, Heinrich, Von der Heydt, near Saarbrücken-on-the-Saar, Prussia, Germany. Water-gage	318,284	May 19	1805	483	31	873
Odell, Benjamin C., Brooklyn, N. Y., assignor to D. L. Thompson, C. A. Perley, and G. Waite. Convertible chair	317,000	May 5	97	25	31	540
Odell, Benjamin C., Brooklyn, N. Y., assignor to D. L. Thompson, C. A. Perley, and G. Waite. Convertible chair	317,001	May 5	98	25	31	540
Odell, Benjamin C., Kingston, N. Y., assignor to Thompson, Perley & Waite, Baldwinsville, Mass. Nursery-chair	317,180	May 5	339	86	31	585
Odell, Levi J., Fairbury, Ill. Corn-planter	319,994	June 16	1407	370	31	1320
Odenbaugh, Jefferson, Wharton, Ohio. Provision-safe	318,198	May 19	1698	454	31	852
Offutt, Joseph E., assignor to J. W. Thomas, Springfield, Ohio. Detachable hay rake and tedder	319,612	June 9	880	233	31	1219
Offutt, Joseph E., assignor to J. W. Thomas, Springfield, Ohio. Hay-tedder	320,085	June 16	1329	405	31	1343
Ogden, Nathan P., *et al.* (See Brintnall, Thomas M., assignor.)						
Ogilvie, James J., Staunton, Va. Folding fence-panel	319,995	June 16	1409	370	31	1320
Ohio Power and Light Company. (See Lynn, Mirabeau N., assignor.)						
Ohl, Adolph, *et al.* (See McCarty, William F. M., assignor.)						
Ohl, George A., Newark, N. J. Hand bending-tool	317,002	May 5	99	26	31	540
Ohlen, James. (See Krieger, Andrew, assignor.)						
Ohr, Florence, Normal, Ill. Piano-stool	315,323	Apr. 7	466	118	31	85
Oldham, John C. (See Waters, Frank M., assignor.)						
Oldham, Thomas, Leipsic, Ind. Implement for molding and necking bullets	319,304	June 2	448	121	31	1133
Olds, John D., Fort Wayne, Ind. Steam-engine valve-gear	319,114	June 2	223	58, 59	31	1088
Olds, John D., Fort Wayne, Ind. Balanced slide-valve	319,115	June 2	226	59	31	1089
Olin, William F. (See Fecher and Olin.)						
Oliver, George, Charlotte, N. C. Oil-press mat	320,442	June 16	2054	539	31	1436
Oliver, George, assignor to Charlotte Oil Company, Charlotte, N. C. Oil-press cloth	317,003	May 5	100	26	31	541
Oliver, Henry W., Jr., *et al.* (See Schulze-Berge, Hermann, assignor.)						
Oliver, Henry W., Jr., *et al.* (See Wilcox, John F., assignor.)						
Oliver, Paul. (See McCool, William A., assignor.)						
Oliver, William W. (See Svensson, Claes A., assignor.)						
Olmstead, Albert P., Troy, N. Y. Combined hasp and bolt	319,014	June 2	102	28	31	1067
Olp, Lambert L., Mount Morris, N. Y. Harvester-reel	319,116	June 2	228	60	31	1089
Olsen, Adolph, assignor of one-half to A. Haberstroh, F. A. Ludwig, and C. J. Olsen, Boston, Mass. Ventilator	318,494	May 26	2087	564	31	934
Olsen, Carl, Long Island City, N. Y. Invalid-bed	318,199	May 19	1699	455	31	853
Olsen, Charles J., *et al.* (See Olsen, Adolph, assignor.)						
Olsen, Johan L. W., Copenhagen, Denmark. Bake-oven	321,239	June 30	3093	822	31	1643
Olson, Niels, Perth Amboy, N. J. Safety-vent for beer-kegs	316,644	Apr. 28	2280	600	31	433
Onderdonk, John P., Philadelphia, Pa. Making paper bags	318,016	May 19	1465	392	31	809
Onderdonk, John P., Philadelphia, Pa. Stock for fire-arms	319,613	June 9	882	233	31	1219
Oppenheimer, Elias, New York, N. Y. Stocking or sleeve supporter	318,201	May 19	1702	456	31	854
Orchard, Henry, assignor of one-half to A. V. Venell, Peoria, Ill. Hay-stacker	320,443	June 16	2055	539	31	1436
Orcutt, Fayette H., Worcester, Mass. Guard-rail lock for railways	316,291	Apr. 21	1607	475	31	340
Ordnung, John G. (See Baumgartner, Alexander, assignor.)						
Ordway, John M., Boston, assignor of one-half to E. E. Waters, Sandwich, Mass. Obtaining substitute for albumen from fish-roe	319,503	June 9	725	.....	31	1191
Orr, William, Trenton, N. J. Wire-cloth lathing	320,163	June 16	1630	434	31	1360
Ortlepp, Friederich, assignor to J. S. Kaliske, New York, N. Y. Machine for making heels for ladies' shoes	320,164	June 16	1632	434	31	1360
Ortlip, Charles H. (See Trout and Ortlip.)						
Osborn & Cheesman Company. (See Underwood, Judson B., assignor.)						
Osborn, Frank S., East Sharon, assignor to himself and G. M. Corwin, Shinglehouse, Pa. Rein-holder	320,277	June 16	1789	476	31	1388
Osborn, John H., assignor to Leader Sewing Machine Company, Cleveland, Ohio. Sewing-machine shuttle	321,381	June 30	3270	874	31	1678
Osborne & Cheesman Company. (See Durand, David L., assignor.)						
Osborne, Henry F., Newark, N. J. Punching and cutting pliers	317,181	May 5	340	86	31	585
Osborne, Henry F., Newark, N. J. Nut-pliers	321,133	June 30	2961	784	31	1619
Osborne, John H., Philadelphia, Pa. Knitting-machine	316,563	Apr. 28	2177	573	31	414
Osborne, John W., Washington, D. C., assignor to W. H. Forbes, Boston, Mass. Inking mechanism for printing-machines	317,844	May 12	1223	324	31	755
Oxford, Joseph, Worthington, Minn. Car-coupling	317,182	May 5	341	86	31	585
Osgood, Charles E., and L. F. Longmore, Lowell, assignors, by mesne assignments, to said Longmore and G. A. Byam, Chelmsford, Mass. Paper-holder	320,956	June 30	2722	723	31	1576
Osgood, Isaac, Chicago, Ill. Rack for refrigerators	317,845	May 12	1226	324	31	756
Ostrom, Freeland W., Bridgeport, Conn., assignor to Wheeler & Wilson Manufacturing Company. Button-hole sewing-machine	320,957	June 30	2723	723, 724, 725	31	1576
Ostrom, Freeland W., Bridgeport, Conn., assignor to Wheeler & Wilson Manufacturing Company. Device for cutting and centering button-holes	320,958	June 30	2731	726	31	1578
Otis, Elisha W., Chelsea, Mass. Skate-roller	315,823	Apr. 14	1173	307	31	220
Otis, Harrison G., New York, N. Y. Plaiting-machine	320,278	June 16	1790	476	31	1388
Otis, Samuel L., Birmingham, assignor to A. H. and G. B. Noble, New Milford, Conn. Button-lathe	317,183	May 5	343	86, 87	31	585
Ott, William, Chicago, Ill. Sofa-bed	320,676	June 23	2366	625	31	1502
Otto, William A., Cedar Rapids, Iowa. Belt-gearing	318,577	May 26	2219	592	31	955
Otto, William A., and B. A. Metcalf, Cedar Rapids, Iowa. Combined belt-shifter and brake	317,411	May 5	653	166	31	641
Overman, Albert H., Chicopee, Mass. Rubber tire for wheels	315,537	Apr. 14	790	209	31	147
Overman, Bernard, and W. H. O'Connor; said O'Connor assignor to W. M. Whyte, Washington, D. C. Skylight	315,958	Apr. 14	1366	353	31	958

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Overman Wheel Company. (See Fisher, Alvin L., assignor.)						
Owen, Demus J., Lynn, Pa. Side-bar buggy	318,017	May 19	1466	392	31	809
Owen, Reuben. (See Culver, Darius M., assignor.)						
Owens, John A., McDonald, Ga. Drag-saw	320,086	June 16	1530	405	31	1343
Owens, M. T. (See Helton, John W., assignor.)						
Owens, Samuel T., Pittsburg, Pa. Metallurgical furnace	321,311	June 30	3180	847, 848	31	1661
Pace, Richard R., Lineville, Ala. Automatic vehicle-brake	317,846	May 12	1227	325	31	756
Pack, Armelder F. (See French and Parvin, assignors.)						
Packard, Cullen C., Kalamazoo, Mich. Photographic shutter	316,564	Apr. 28	2178	573	31	414
Padan Brothers & Co. (See Schmid, Charles J., assignor.)						
Paessler, Theophilus H., Malvern, Ohio. Tricycle	320,677	June 23	2367	626	31	1503
Paessler, Theophilus H., Malvern, Ohio. Tricycle	320,678	June 23	2370	626, 627	31	1503
Pagé, Charles, and L. Goullioud, assignors of one-third to T. F. G. Foley, Montreal, Quebec, Canada. Lubricator for shafts	315,538	Apr. 14	794	209	31	147
Paige, David O., Detroit, Mich. Angle-iron	319,305	June 2	449	121	31	1133
Pain, Henry J., 121 Walworth Road, county of Surrey, England. Signal-torch	319,843	June 9	1186	313	31	1273
Paine, Diehl & Co. (See Roberts, Morris, assignor.)						
Paine, George C., Boston, Mass. Cuff-fastener	319,015	June 2	103	28	31	1067
Paine, George S., Wyandotte, Mich. Fertilizing attachment for corn-planters	316,645	Apr. 28	2282	600	31	433
Paine, Henry H., Philadelphia, Pa. Tray for children's chairs	318,131	May 19	1613	431	31	836
Painter, Frederick G., assignor of one-half to W. G. Dabbs, Philadelphia, Pa. Painting	315,324	Apr. 7	467	118	31	85
Painter, William, Baltimore, Md. Bottle-stopper fastener	315,655	Apr. 14	941	247	31	176
Painter, William, Baltimore, Md. Fountain-pitcher	316,646	Apr. 28	2283	600	31	433
Painter, William, assignor of one-half to L. R. Keizer, Baltimore, Md. Electrical railway	320,679	June 23	2371	627	31	1504
Palmer, Alonzo, Three Rivers, Mich. Pump	318,018	May 19	1467	393	31	809
Palmer, Augustus H., Utica, N. Y. Electric bell	318,647	May 26	2302	615	31	971
Palmer, Dennis W., Plymouth, Me. Snap-hook	320,165	June 16	1633	434	31	1361
Palmer, Edward H., *et al.* (See Colesworthy, Charles W., assignor.)						
Palmer, George W., New York, and G. W. Kidder, Staatsburg, N. Y. Ice-hook	320,680	June 23	2374	628	31	1504
Palmer, Henry L., Brooklyn, N. Y. Making sheet-metal ware	319,306	June 2	450	121	31	1133
Palmer, John. (See Wilson and Palmer.)						
Palmer, Philip A., Chicago, Ill. Artificial denture	315,656	Apr. 14	943	247	31	176
Palmer, Seymour C., South Norwalk, Conn. Hat-sizing machine	320,581	June 23	2240	503, 504	31	1479
Pancoast, John K. (See Richardson, Samuel T., assignor.)						
Panse, Frederic W., and C. F. Klotz, New York, N. Y. Machine for making looped twisted wire	320,582	June 23	2243	504	31	1480
Pape, Hermann, Hamburg, Germany, assignor to Burrell & Whitman, Little, Falls, N. Y. Centrifugal creamer	319,307	June 2	451	122	31	1133
Paradis, John E., Momence, Ill. Marker for seeding-machines and check-rowers	316,054	Apr. 21	1489	389	31	283
Paradise, Frank D., Memphis, Tenn. Anchor for buildings	318,648	May 26	2303	615	31	971
Parizeau, Joseph, St. Jean Baptiste, Montreal, Quebec, Canada. Carriage-top	319,996	June 16	1410	371	31	1320
Park, James R., La Vergne, Tenn. Reflector	320,494	June 23	2124	560	31	1457
Parke, Amos S., Bay City, Mich. Saw-swage	315,539	Apr. 14	791	209	31	147
Parker, Aaron H., Boston, Mass. Dental plate	317,667	May 12	993	258	31	712
Parker, Abijah S., Cincinnati, Ohio. Top-prop nut	318,787	May 26	2493	666	31	1005
Parker Company, Charles. (See Parker, Stephen O., assignor.)						
Parker, Frank F., assignor to P. Derby, Gardner, Mass. Child's chair	317,668	May 12	994	258	31	712
Parker, George W., New Richmond, Ohio. Automatic cut-off	316,386	Apr. 21	1931	510	31	362
Parker, John L., Worcester, Mass. Manufacturing ferrules	315,058	Apr. 7	104	24	31	20
Parker, John M. (See Welker, Joseph, Jr., assignor.)						
Parker, John P., Ripley, Ohio. Portable screw-press	318,285	May 19	1806	483	31	873
Parker, Josiah W., *et al.* (See Ellis, James W., assignor.)						
Parker Machine Company, J. B. (See Carroll, William T., assignor.)						
Parker, Richard W., Newark, N. J. Cap for pen-holders	316,815	Apr. 28	2538	663	31	480
Parker, Russell, *et al.* (See Sutton, Benjamin F., assignor.)						
Parker, Stephen O. (See Chapman, Frank H., assignor.)						
Parker, Stephen O., assignor to C. Parker Company, Meriden, Conn. Vise	319,743	June 9	1042	276	31	1249
Parker & Whipple Company. (See Rutherford and Wood, assignors.)						
Parker, Willis D., Delphi, Ind. Machine for welding and tapering the shanks of eyebolts	318,788	May 26	2494	666	31	1005
Parkhurst, Amos F., Kewanee, Ill. Bottle-stopper fastener	319,504	June 9	726	194	31	1191
Parkhurst, Darius, assignor to Kingsland & Ferguson Manufacturing Company, St. Louis, Mo. Saw-guide	321,134	June 30	2961	785	31	1619
Parkhurst, Joseph P., assignor of one-half to W. L. Dix, Glens Falls, N. Y. Motor	320,166	June 16	1634	435	31	1361
Parkinson, James, Waltham, Mass. Self-oiler for steam-engines	315,059	Apr. 7	105	24	31	21
Parkinson, John H., assignor to himself and J. D. Kerbaugh, Bodie, Cal. Cable-railway grip	315,325	Apr. 7	468	118	31	85
Parks, William H., Jr., Marysville, Cal. Steering mechanism for headers and thrashers	319,117	June 2	229	60	31	1089
Parmelee, Wellington L., Deep River, Conn. Carpet-fastener	316,169	Apr. 21	1651	432	31	313
Parmerlee, James C. (See Chaffin, Simon, assignor.)						
Parrish, Marcus F., and S. J. Munn, Niles, assignors of one-third to H. B. Peck, Allegan, Mich. Train-signal	320,495	June 23	2125	560	31	1457
Parsell, Henry V. and Henry V., Jr., New York, N. Y. Photographic camera	316,647	Apr. 28	2286	600, 601	31	434
Parsons, A. Ingram, New York, N. Y. Rock-drill chuck	315,326	Apr. 7	469	119	31	85
Parsons, A. Ingram, New York, N. Y. Rock-drill	319,308	June 2	453	122, 123	31	1134
Parsons, Calvin W., assignor of one-fourth to A. C. Logan and C. E. Chittenden, Scranton, Pa. Lock	318,388	May 19	1955	527	31	900
Parsons, John G., Cincinnati, Ohio. Vehicle-spring	320,389	June 16	1984	522	31	1424
Parsons, Lewis W., Los Gatos, Cal. Fruit-drier	321,135	June 30	2962	785	31	1619
Partridge, Andrew, assignor of five-eighths to H. E. Wilkins and H. A. Chapin, Springfield, Mass. Truck-wheel	319,844	June 9	1186	313	31	1274
Partridge, Charles S. (See Pratt and Partridge.)						
Parvin, Frank. (See French and Parvin.)						
Pascoe, William F. D., J. M. Haines, and J. Butland, South Easton, Pa. Mixed paint	317,004	May 5	101	.....	31	541
Passmore, Levis, Philadelphia, Pa. Grate for furnaces	317,184	May 5	345	87	31	586
Patch, Asahel H., Clarkaville, Tenn. Harrow	316,648	Apr. 28	2288	601	31	434
Patchen, Abel, Westfield, N. Y. Solution of dichloride of copper, &c., for treating ores	319,118	June 2	230	60	31	1090
Patek, F. (See Burke, William A., assignor.)						
Patent Window Fittings Company. (See Jones, Hugh, assignor.)						
Patric, Charles E., Springfield, Ohio. Spring-hoe seed-drill	316,367	Apr. 21	1932	510	31	362
Patric, Lewis, Springfield, Ohio. Hot-air furnace	317,005	May 5	101	26	31	541

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Patrick, Armena. (See Tousley, Miron G., assignor.)						
Patrick, Robert, Jr., assignor to himself and J. Wilson, Galt, Ontario, Canada. Cloth-pressing machine	317,185	May 5	346	87, 88	31	586
Patrick, William A., Rutland, Vt. Shaft-bearing	318,649	May 26	2303	616	31	971
Pattberg & Brothers, Lewis. (See Pattberg, Hilarius, assignor.)						
Pattberg & Brothers, Lewis. (See Schneck, Gustav, assignor.)						
Pattberg, Hilarius, Jersey City, N. J., assignor to L. Pattberg & Brothers, New York, N. Y. Book-easel	317,566	May 12	858	220	31	687
Patten, Charles W., San Francisco, Cal. Ore-concentrator	315,824	Apr. 14	1174	307	31	220
Patterson, Calvin, Brooklyn, N. Y. Scrap-book	315,327	Apr. 7	470	119	31	86
Patterson, James K., Crete, Nebr. Stalk-cutter	320,812	June 23	2329	670	31	1534
Patterson, Peter, assignor to National Tube Works Company, McKeesport, Pa., and Boston, Mass. Tube	318,286	May 19	1808	484	31	874
Patterson, Peter, assignor to National Tube Works Company, McKeesport, Pa. Tube-coupling cover	318,925	May 26	2673	709	31	1037
Patterson, Thomas W., Clinton, Mo. Head-rest for barbers' chairs	315,540	Apr. 14	792	209	31	147
Patterson, William D., Savonas Ferry, British Columbia, Canada. Mechanical traverse-table	318,578	May 26	2220	593	31	955
Patterson, William R., assignor to Western Electric Company, Chicago, Ill. Joint for electric cables	321,240	June 30	3094	822	31	1644
Pattin, Richard, Harmar, assignor to Argand Refining Company, Marietta, Ohio. Compound from which can be made a lubricating-oil of low cold test	318,389	May 19	1957	.....	31	900
Pattison, George H., Freeport, Ill. Windmill	317,186	May 5	348	88	31	587
Pattison, George H., Freeport, Ill. Geared windmill	319,309	June 2	456	123	31	1134
Patton, John H., Harrisburg, Pa. Bicycle	318,789	May 26	2495	666	31	1005
Patton, W. Baird, Duluth, Minn. Radiator-valve	320,813	June 23	2329	670	31	1535
Patton, William P., assignor of one-half to J. R. Piper, Harrisburg, Pa. Pipe-coupling	318,790	May 26	2496	666	31	1005
Patton, William W., Philadelphia, Pa. Combined open grate and heater	317,006	May 5	104	27	31	541
Pattyson, William D. C., assignor to H. S. Crowell, Marlborough, Mass. Clasp or holding device for wearing-apparel	315,959	Apr. 14	1367	354	31	253
Paul, Almarin B., San Francisco, Cal. Ore-grinding mill	315,825	Apr. 14	1176	307	31	220
Paul, Amasa C., Minneapolis, Minn. Wire-barbing machine	316,909	Apr. 28	2682	699	31	506
Paul, George D., assignor of one-half to C. E. Vreeland, East Orange, N. J. Button	319,997	June 16	1411	371	31	1321
Pauly, Juulus, Port de Mouley dier Dordogne, France. Roller for flour-mills	321,241	June 30	3095	822	31	1644
Pausey, Herbert J., and C. T. Crowden, Clapham, county of Surrey, England. Velocipede	316,649	Apr. 22	2229	601	31	434
Pawling, Alonzo, Milwaukee, Wis. Tool-holder	319,016	June 2	105	28	31	1067
Payne, George C., Washington, D. C. Gripping implement	319,017	June 2	105	28	31	1067
Payson, George A., assignor to himself and W. H. Willits, Chicago, Ill. Pocket oil-can	317,007	May 5	105	27	31	541
Peabody, Henry O., Boston, Mass. Fertilizer-distributer	320,279	June 16	1792	476 / 477	31	1389
Peacock, Joseph V. (See Sheldon and Peacock.)						
Pearce, Atkins & Co. (See Mullen and Atkins, assignors.)						
Pearce, Frank T., and J. Hoagland, Providence, R. I. Charm for watch-chains	315,328	Apr. 7	471	119	31	86
Peare, George R., Lynn, Mass. Rope or cord fastening	320,959	June 30	2732	727	31	1578
Pearson, Henry F., and G. W. Jarmin, Genoa, Nebr. Check-row corn-planter	318,650	May 26	2304	616	31	971
Pearson, Jacob L., Philadelphia, Pa. Gripper for cable railways	315,329	Apr. 7	471	119	31	86
Pearson, Robert L., Chesterville, Md. Corn-harvester	319,310	June 2	459	123 / 124	31	1135
Pearson, William E., Sangus, Mass. Steam-muffler	318,651	May 26	2306	616	31	972
Pearson, William E., Sangus, Mass. Pop safety-valve	320,260	June 16	1794	477	31	1389
Pech, Gustavus, Storm Lake, Iowa. Apparatus for boring wells	315,826	Apr. 14	1178	307	31	221
Peck, Daniel B., Jackson, Mich. Fence	315,827	Apr. 14	1179	308	31	221
Peck, Daniel G. (See Sampson and Peck.)						
Peck, Henry T. (See Whittlesey, Charles E., assignor.)						
Peck, Horace B. (See Parrish and Munn, assignors.)						
Peck, Orrin B., Chicago, Ill. Vapor-burner	317,567	May 12	858	221	31	687
Pedersen, Johannes, Copenhagen, Denmark. Adjustable school seat and settee	321,242	June 30	3096	823	31	1644
Pedersen, Johannes T., Brooklyn, N. Y. Bit-stock	317,187	May 5	352	89	31	588
Pedersen, Sigward, Chicago, Ill., and T. Sernendinger, Philadelphia, Pa. Safety device for railway-cars	320,390	June 16	1985	522	31	1424
Pederson, Ole, Columbus, Ohio. Ruler	317,188	May 5	354	89	31	588
Pederson, Ole, Columbus, Ohio. Heating-stove	319,018	June 2	106	29	31	1068
Pedicord, Louis W., St. Joseph, Mo. Elevator alarm-bell	318,202	May 19	1703	456	31	854
Peek, Felix G. C., Philomath, Ga. Household-furniture	318,132	May 19	1614	431	31	837
Peele, Charles D. M. (See Brooks, Henry J. H., assignor.)						
Peelman, Albano F., Kensington, Ill. Combined saw-set and nail-punch	319,019	June 2	107	29	31	1068
Peer, Perry A., Comstock, assignor of one-half to B. S. and M. B. Williams and H. Manvel, Kalamazoo, Mich. Crank-shaft	315,060	Apr. 7	106	25	31	21
Peerless Oil Ejector Company. (See Schmitt, Phillip L., assignor.)						
Peirano, Joe B., New York, N. Y. Implement for gymnastic performances with rats, birds, &c	320,960	June 30	2733	727	31	1578
Pelisse, Auguste, Newark, N. J., assignor to J. T. Waring, Yonkers, N. Y. Machine for felting hat-bodies	320,391	June 16	1985	522	31	1424
Pell, Henry W., Rome, N. Y. Drop-perch for vehicles. (Reissue)	10,616	June 23	2655	705	31	1558
Pelton, Edward D. (See Hamilton, William M., assignor.)						
Pendleton, John H., Brooklyn, N. Y. Cable railway	317,008	May 5	106	27	31	541
Pendleton, John H., Brooklyn, N. Y., assignor to himself, A. H. and C. Tiers, Madison, N. J., W. G. Stephens, Chicago, Ill., and J. B. Dickson, Morristown, N. J. Drill	319,614	June 9	883	234	31	1220
Pendleton, John M., assignor to Equitable Electric Company, New York, N. Y. Electric motor	321,049	June 30	2849	758	31	1600
Penney, Edgar, Waynesborough, Pa. Steam gang-plow	316,388	Apr. 21	1934	510	31	363
Penney, Edgar, Waynesborough, Pa. Steam gang-plow	316,389	Apr. 21	1935	511	31	363
Penney, Edgar, Waynesborough, Pa. Steam gang-plow	316,390	Apr. 21	1936	511	31	363
Penney, Edgar, Waynesborough, Pa. Steam gang-plow	316,391	Apr. 21	1938	511	31	363
Penney, Edgar, Waynesborough, Pa. Steam gang-plow	316,392	Apr. 21	1940	511	31	363
Penney, Edgar, Waynesborough, Pa. Steam gang-plow	316,393	Apr. 21	1941	512	31	364
Penniman, Russell S., Jenkintown, Pa., assignor of one-half to J. C. Schrader, McClainsville, N. J. Explosive compound	320,583	June 23	2245	.....	31	1480
Pennock, Samuel, Kennett Square, Pa. Road-machine	315,541	Apr. 14	793	210	31	147
Pennock, Samuel, assignor to S. Pennock & Sons Company, Kennett Square, Pa. Road-grader	318,019	May 19	1468	393	31	809
Pennock & Sons Company, S. (See Pennock, Samuel, assignor.)						
Pennsylvania Patent Right Company. (See Lesley and Griffith, assignors.)						
Pentecost, William A., Worcester, Mass. Steam-generator	315,160	Apr. 7	241	59	31	44

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Pentucket Variable Stitch Sewing Machine Company. (See Woodward and Keith, assignors.)						
Pentz, Albert D., Elizabeth, N. J., assignor to Singer Manufacturing Company of New Jersey. Tension device for sewing-machines	319,744	June 9	1043	276	31	1249
Pentz, Levi, assignor of two-thirds to J. L. Higley and G. N. Yohe, Canton, Ohio. Barrel-elevator	319,119	June 2	231	60, 61	31	1090
People's Telephone Company. (See Drawbaugh, George W., assignor.)						
Peoria Target Company. (See Damm, Fred C., assignor.)						
Peple, Anthony, Brooklyn, N. Y. Substitute for billiard-cue chalk	315,828	Apr. 14	1180	.....	31	221
Peppers, Albert E., *et al.* (See Lenhardt, George, assignor.)						
Perfection Manufacturing Company. (See Camp, Charles B., assignor.)						
Perkins, Charles G., assignor to Imperial Electric Light Company, New York, N. Y. Electro-magnetic motor	315,161	Apr. 7	243	59	31	44
Perkins, Charles G., assignor to Imperial Electric Light Company, New York, N. Y. Conduit for electrical conductors	319,998	June 16	1412	371	31	1321
Perkins, Floyd N., Bellefontaine, Ohio. Door-lock	315,657	Apr. 14	944	247	31	176
Perkins, Francis C. (See Kelley, Charles H., assignor.)						
Perkins, Francis C., Somerville, and C. H. Kelley, Revere, Mass. Cash-carrier	318,287	May 19	1809	484	31	874
Perkins, George H. (See Weaver, E. Forrest, assignor.)						
Perkins, James P., Pullman, Ill. Paint	318,791	May 26	2497	.....	31	1005
Perkins, James P., Pullman, Ill. Making brick, &c	318,792	May 26	2498	.....	31	1005
Perkins, James P., Pullman, Ill. Making brick, &c	318,288	May 19	1810	484	31	874
Perkins, Miner T., assignor of one-half to A. Bann, Mount Sterling, Ky. Hinge for gates	320,087	June 16	1531	405	31	1343
Perkins, Paul B., North Springfield, Mo. Condenser for steam-engines	321,243	June 30	3097	823	31	1644
Perkins, Paul B., North Springfield, Mo. Self-lubricating car-wheel	316,650	Apr. 28	2290	601	31	434
Perkins, William C., assignor to Wire Goods Company, Worcester, Mass. Screw or drive hook	315,062	Apr. 7	108	25	31	21
Perkins, William J., Elliottstown, assignor of two-thirds to M. Dieterich, Dieterich, and H. Lambert, Wheeler, Ill. Baling-press	315,061	Apr. 7	106	25	31	21
Perkins, Willis J., Grand Rapids, Mich. Shingle	316,565	Apr. 28	2178	574	31	414
Perkins, Willis J., Grand Rapids, Mich. Thill-coupling	320,681	June 23	2375	628	31	1504
Perkins, Willis J., Grand Rapids, Mich. Circular saw						
Perley, Charles A., *et al.* (See Odell, Benjamin C., assignor.)						
Perlich, Hermann, Baltimore, Md. Fumigator	315,330	Apr. 7	473	120	31	86
Perret, Paul V., Chaux-de-Fonds, Switzerland. Stop-watch	315,829	Apr. 14	1180	308	31	221
Perrett, Edward. (See Hodgkin and Perrett.)						
Perrin, Thomas J., Brooklyn, assignor to C. P. Huntington, New York, N. Y. Electrical switch-board	315,331	Apr. 7	474	120	31	86
Perrin, Thomas J., Brooklyn, assignor to C. P. Huntington, New York, N. Y. Multiple switch-board	315,332	Apr. 7	476	120 / 121	31	87
Perrin, Thomas J., Brooklyn, assignor to C. P. Huntington, Greenville, Miss. Multiple switch-board	315,333	Apr. 7	477	121	31	87
Perrin, Thomas J., Brooklyn, assignor to C. P. Huntington, Greenville, Miss. Circuit for telephone-exchanges	315,334	Apr. 7	478	121	31	87
Perrin, Thomas J., Brooklyn, N. Y., assignor to C. P. Huntington, Greenville, Miss. Multiple switch-board	315,658	Apr. 14	945	247 / 248	31	176
Perrin, Thomas J., Brooklyn, assignor to C. P. Huntington, New York, N. Y. Multiple switch-board	316,394	Apr. 21	1943	512	31	364
Perrin, Thomas J., Brooklyn, assignor to C. P. Huntington, New York, N. Y. Multiple switch-board	316,395	Apr. 21	1946	513	31	364
Perrin, Thomas J., Brooklyn, N. Y., assignor, by mesne assignments, to National Improved Telephone Company, New Orleans, La. Telephone	316,816	Apr. 28	2539	663	31	480
Perrin, Thomas J., New York, N. Y., assignor to National Improved Telephone Company, New Orleans, La. Induction-coil	316,817	Apr. 28	2540	664	31	480
Perrin, Thomas J., New York, N. Y., assignor, by mesne assignments, to National Improved Telephone Company, New Orleans, La. Telephone	316,818	Apr. 28	2540	664	31	480
Perring, Merrick E., Berrien Springs, Mich. Feeder for thrashing-machines and clover-hullers	316,819	Apr. 28	2541	664	31	480
Perrott, Philip T., *et al.* (See Bouvier, Louis P., assignor.)						
Perry, Stnart, Newport, N. Y. Nail-driver	317,189	May 5	354	89, 90	31	588
Perry, Stuart, Newport, N. Y. Nail-arranger	317,568	May 12	859	221	31	687
Perry, Stuart, Newport, N. Y. Lathing apparatus	318,495	May 26	2088	564 / 565	31	934
Perry, Theodore A., Plymouth, N. C. Cotton-seed crusher	320,682	June 23	2376	628	31	1504
Perry, William A., *et al.* (See Bicknell, William A. P., assignor.)						
Pert, Henry G. (See Hakins, George B., assignor.)						
Pessano, Antonio C., assignor to G. V. Cresson, Philadelphia, Pa. Pulley	315,335	Apr. 7	480	121	31	88
Pessano, Antonio C., assignor to G. V. Cresson, Philadelphia, Pa. Pulley	315,336	Apr. 7	482	122	31	88
Pessenger, John S., Brooklyn, N. Y. Machine for setting springs	316,820	Apr. 28	2543	665	31	481
Pessenger, John S., Brooklyn, N. Y. Steam-boiler	319,120	June 2	232	61	31	1090
Peters, Andrew, Brooklyn, N. Y. Baking-powder	315,830	Apr. 14	1181	.....	31	221
Peters, Andrew, Brooklyn, N. Y. Phosphate baking-powder	315,831	Apr. 14	1182	.....	31	221
Peters, Andrew, Brooklyn, N. Y. Baking-powder	315,832	Apr. 14	1183	.....	31	221
Peters, Daniel, Cincinnati, Ohio. Combined mixer and sifter	319,311	June 2	461	124	31	1135
Peters' Leather Dash Company. (See White, John E., assignor.)						
Peters, Rudolph, and W. J. Swartzenburg, Hamilton, Ontario, Canada. Whip-holder	318,020	May 19	1469	393	31	810
Petersen, Charles J., Port Chester, N. Y. Suspension device	321,382	June 30	3271	874	31	1678
Peterson, Charles A., Galesburg, Ill. Label-cabinet	319,312	June 2	462	124	31	1135
Peterson, William H., and M. C. Henley, Richmond, Ind.; said Peterson assignor to said Henley. Roller-skate	320,392	June 16	1988	523	31	1425
Pettigrew, James R. (See Richards, Jonathan B., assignor.)						
Pettingell, Walter J., Lowell, Mass. Station-indicator	319,505	June 9	727	195	31	1191
Pettinger, John, Carpenteria, Cal. Combined shaft and pole for vehicles	316,651	Apr. 28	2292	602	31	435
Pettit, John B., Burlington, Iowa. Washing-machine	316,821	Apr. 28	2544	665	31	481
Pevey, Charles K., Worcester, Mass. Annunciator and fire-telegraph	317,569	May 12	863	221	31	688
Pew, Joseph N., Pittsburg, Pa. Joint for natural-gas conductors	317,009	May 5	107	27	31	542
Pew, Joseph N., Pittsburg, and T. L. Shields, Sewickley, Pa. Gas regulator and meter	321,136	June 30	2964	785 / 786	31	1619
Peyn, Charles V., Brooklyn, N. Y. Watch-case bezel	320,584	June 23	2246	594	31	1480
Pfannkuche, Gustave, assignor to Schuyler Electric Light Company, Hartford, Conn. Electric-arc lamp	320,585	June 23	2247	595	31	1480
Pfau, Charles. (See Pfau, Edward G. and C.)						
Pfau, Edward G. and C., Cincinnati, Ohio. Faucet	319,845	June 9	1188	314	31	1274
Pfeiffer, Casper, Rochester, N. Y. Making certain fermented beverages	318,793	May 26	2499	667	31	1005
Pfeiffer, Emil C., Portsmouth, N. H. Tire-fastener	317,847	May 12	1228	325	31	756

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Pfeiffer, Ernst, London, England. Furniture-caster	320,281	June 16	1795	477	31	1389
Pfister, John J., San Francisco, Cal. Bathing-suit	318,133	May 19	1615	431, 432	31	837
Phares, Richard. (See Dalton, Clarence L., assignor.)						
Phelps, Elnathan, Hartford, Mich. Combined fanning-mill and cockle-separator	317,412	May 5	655	167	31	642
Philadelphia Drainage Construction Company. (See Thayer, Russell, assignor.)						
Philbert, Wharton B., Linneus, Mo. Vehicle-step	315,833	Apr. 14	1184	308	31	221
Philippi, Ludwig H., Hamburg, Germany. Producing photo-rilievos	321,244	June 30	3098	.....	31	1644
Phillip, Adelbert H., Philadelphia, Pa. Liquid-elevator	315,337	Apr. 7	483	122	31	88
Phillippe, Josiah, Bicknell, Ind. Gate	316,652	Apr. 28	2293	586, 587	31	435
Phillips, Darius T., Chicago, Ill. Combined burglar-alarm, match-safe, and sash-fastener	315,439	Apr. 7	631	163	31	113
Phillips, George C., Providence, R. I. Mechanism for flushing tanks	315,063	Apr. 7	109	25	31	21
Phillips, J. B. (See Phillis, Clarence, assignor.)						
Phillips, James B., New York, N. Y. Breast-shield	320,961	June 30	2734	727	31	1578
Phillips, Lewis F., *et al.* (See Just, John A., assignor.)						
Phillis, Clarence, assignor of one-half to J. B. Phillips, Pittsburg, Pa. Pipe-coupling	320,683	June 23	2377	629	31	1505
Philpott & Leuppie. (See Philpott, William A., Jr., assignor.)						
Philpott, William A., Jr., assignor to Philpott & Leuppie, Niagara Falls, N. Y. Felt-whipper for paper-making machines	321,312	June 30	3181	848	31	1661
Phipps, Henry P., assignor to King Iron Bridge and Manufacturing Company, Cleveland, Ohio. Machine for trimming the ends of sleeve-nuts	315,542	Apr. 14	796	211	31	148
Phreaner, Samuel J., assignor of one-half to C. Bowman, Philadelphia, Pa. Ash-sifter	316,653	Apr. 28	2294	602	31	435
Piatt, John J., Rising Sun, Ind. Upright-beater baling-press	315,960	Apr. 14	1368	354	31	253
Pickering, Joseph M., Philadelphia, Pa. Brush-making machine	317,570	May 12	864	221	31	688
Pickering, Thomas R., Portland, Conn. Safety attachment for steam-engine governors	318,289	May 19	1811	485	31	874
Pickup, George A., Shelbyville, Tenn. Rotary steam-engine	318,794	May 26	2502	667	31	1006
Pieper, Henri, Fils, Liege, Belgium. Electric-arc lamp	319,745	June 9	1044	276	31	1249
Pierce, Charles E., Cambridgeport, Mass. Cracker-can	316,480	Apr. 28	2079	544	31	395
Pierce, Charles F., Chicago, Ill. Refrigerator-car	315,543	Apr. 14	797	211	31	148
Pierce, Charles P., Leominster, Mass. Device for repairing hose	316,566	Apr. 28	2180	574	31	414
Pierce, Eben, New Bedford, Mass. Bomb-lance	320,393	June 16	1789	523	31	1425
Pierce, Evelina D. (See Pierce, Walter S., assignor.)						
Pierce, G. H., *et al.* (See Thompson, Edward P., assignor.)						
Pierce, George W., assignor of one-half to P. M. Cartwell, Springfield, Ohio. Feeding device for roller-mills	320,292	June 16	1796	478	31	1389
Pierce, Henry M., Nashville, Tenn. Coke-oven	318,496	May 26	2093	565	31	935
Pierce, Henry M., Nashville, Tenn. Manufacturing coke	318,497	May 26	2094	.....	31	935
Pierce, John B., *et al.* (See Bryant, Orrin, assignor.)						
Pierce, John B., Buffalo, N. Y. Steam-radiator	316,056	Apr. 21	1491	390	31	283
Pierce, John B., and J. Bond, Buffalo, N. Y. Steam-radiator	316,055	Apr. 21	1490	389	31	283
Pierce, Walter S., assignor to E. D. Pierce, New York, N. Y. Phosphate fertilizer	317,010	May 5	108	.....	31	542
Pierson, George S., Kalamazoo, Mich. Apparatus for the intermittent discharge of sewage, &c	316,567	Apr. 28	2181	574, 575	31	414
Piette, Ludwig, Pilsen, Austria-Hungary. Method of and apparatus for coloring paper	318,652	May 26	2307	617	31	972
Piffard, Henry G., New York, assignor of one-half to C. A. Tucker, Brooklyn, N. Y. Recoil attachment for pistols	319,020	June 2	108	29	31	1068
Pigeon, Charles J. A., Paris, France. Lamp	316,481	Apr. 28	2080	544	31	395
Pigott, Michael A., St. Louis, Mo. Fifth-wheel	319,846	June 9	1169	314	31	1274
Pihlström, John S., Chicago, Ill. Window	321,245	June 30	3099	823, 824	31	1644
Pike, Charles F. (See Collings and Pike.)						
Pike, Charles F. (See Griggs, George H., assignor.)						
Pillow, Edward D. (See Duncan and Pillow.)						
Pilz, Theodor. (See Gabler and Pilz.)						
Pinke, Peter D., New York, N. Y. Vapor-bath	317,669	May 12	995	258	31	712
Pinkham, Delmar D., Longview, Tex. Steam-engine	321,313	June 30	3182	848, 849	31	1661
Piper, Edwin S., assignor, by mesne assignments, to W. E. Strong, Bristol, Conn. Removable internal bottle-stopper	318,290	May 19	1813	485	31	875
Piper, James R. (See Patton, William P., assignor.)						
Pipes, Uriah C. (See Acklen and Pipes.)						
Pisko, Emanuel, assignor to Seidenberg & Co., New York, N. Y. Box for cigars and other articles	316,654	Apr. 28	2295	602	31	435
Pitard, John H., assignor to himself and M. I. Goldsmith, Mobile, Ala. Brake-shoe	318,203	May 19	1704	456	31	854
Pitcher, Horace A., Philadelphia, Pa., assignor, by mesne assignments, to R. F. Williams, New York, N. Y. Lightning-protector	317,848	May 12	1229	325	31	757
Pitman, Alida. (See Marsh, Carrie F., assignor.)						
Pitner, William C., La Porte, Ind. Two-wheeled vehicle	317,413	May 5	656	167	31	642
Pitt, William A., Glenbrook, Conn. Combined waste and overflow valve	316,057	Apr. 21	1492	390	31	283
Pittman, Walter H., Jersey City, N. J. Automatic fan	316,655	Apr. 28	2295	603	31	435
Pittsburg Steel Casting Company. (See Wittman, Noel B., assignor.)						
Place, Alfred D. (See Heartwell, Oscar F., Jr., assignor.)						
Plano Manufacturing Company. (See Hunt, George G., assignor.)						
Plano Manufacturing Company. (See Hunt and Steward, assignors.)						
Platman, Robert, Bellona, N. Y. Seed-drill and fertilizer-distributer	319,021	June 2	108	29, 30	31	1068
Platt, James. (See Tweddell, Platt, and Fielding.)						
Platt, Percival, and J. M. Aitchison, Adolphustown, Ontario, Canada. Malt-drier	316,170	Apr. 21	1652	433	31	313
Platt, William S., Waterbury, Conn. Making electrical conductors	320,684	June 23	2379	629	31	1505
Plimpton, Melvin G. (See Mitchell and Plimpton.)						
Ploughe, Thomas E. (See Goff and Ploughe.)						
Plumb, Fawcett. (See Bown, Albert, assignor.)						
Plumb, Fawcett, Streator, Ill. Ditching-machine	316,396	Apr. 21	1948	513	31	365
Plumb, Fawcett, Streator, Ill. Kiln for burning bricks, tiles, &c	316,397	Apr. 21	1949	514	31	365
Plumb, Fawcett, assignor of one-half to J. H. Shay and J. Baker, Streator, Ill. Device for fastening roof-tiles	317,414	May 5	658	167	31	642
Plume, Frank C., Thomaston, Conn. Making dandy-rolls for paper-making	319,615	June 9	883	234	31	1220
Plume, Frank C., Thomaston, Conn. Dandy-roll for paper-making machines	319,616	June 9	884	234	31	1220
Plummer, Frank H., Henniker, N. H. Reclining-chair	318,795	May 26	2503	667, 668	31	1006
Plummer, Frank H., Henniker, N. H. Reclining-chair	318,796	May 26	2506	668, 669	31	1006
Plummer, Frank H., Henniker, N. H. Clip for the attachment of springs	318,797	May 26	2508	669	31	1007

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Poe, George H., Roundhead, Ohio. Windmill	318,498	May 26	2095	565, 566	31	935
Pohlmann, Wilhelm, Cleveland, Ohio. Sash-fastening	316,822	Apr. 28	2546	666	31	481
Poling, Totten, Menlo, Iowa. Device for welding plowshares	315,102	Apr. 7	244	59	31	45
Pollard, Isaac G., Sunville, Pa. Barrel-stand	318,392	May 19	1961	528	31	901
Pollard, Isaac G., Sunville, Pa. Car-ticket or stamp box	320,814	June 23	2531	671	31	1535
Pollock, James R., Mansfield, Ohio. Buckle	317,415	May 5	659	167	31	643
Pollock, James R., assignor of one-half to J. P. Rummel, Mansfield, Ohio. Button	315,440	Apr. 7	632	163	31	113
Pollock, Thomas D., Danbury, Nebr. Wind-engine	316,656	Apr. 28	2296	603	31	435
Pollock, William B., Philadelphia, Pa. Garment measuring and fitting device	320,496	June 23	2126	560, 561	31	1458
Pond, Charles P., Camden, N. Y. Hasp-lock	321,246	June 30	3100	824	31	1645
Poole, Lawrence V. (See Williams and Poole.)						
Poolman, James E. W., New York, N. Y. Desk	321,383	June 30	3272	874	31	1679
Poor, George H., assignor to American Brake Company, St. Louis, Mo. Locomotive-brake	315,163	Apr. 7	245	60	31	45
Poor, George H., assignor to American Brake Company, St. Louis, Mo. Locomotive-brake	317,571	May 12	866	222	31	688
Poor, George H., assignor to American Brake Company, St. Louis, Mo. Governor for automatic brakes	317,572	May 12	868	222, 223	31	688
Poor, George H., assignor to American Brake Company, St. Louis, Mo. Governor for automatic brakes	318,021	May 19	1470	393	31	810
Poor, George H., assignor to American Brake Company, St. Louis, Mo. Relieving cylinders of water of condensation	318,022	May 19	1471	394	31	810
Poor, George H., assignor to American Brake Company, St. Louis, Mo. Cylinder and piston	318,499	May 26	2098	566	31	936
Pope, Frank L., Elizabeth, N. J. Electrically-actuated railway system	320,283	June 16	1798	478	31	1389
Pope Manufacturing Company. (See Drake, Franklin J., assignor.)						
Pope Manufacturing Company. (See Knous, John, assignor.)						
Pope Manufacturing Company. (See Pratt, Charles E., assignor.)						
Pope Manufacturing Company. (See Wallace, Albert E., assignor.)						
Pope Manufacturing Company. (See White, Albert M., assignor.)						
Porter, Charles M., Philadelphia, Pa. Turn-table for cable railways	316,482	Apr. 28	2082	544	31	395
Porter, George A. (See Sutherland, John B., assignor.)						
Porter, George A., Syracuse, N. Y. Steam-boiler	317,190	May 5	362	90	31	589
Porter, George A., Syracuse, N. Y. Crank-lubricator	317,191	May 5	363	90	31	589
Porter, Henry B., Chicago, Ill. Electric bell	320,085	June 23	2380	629	31	1505
Porter, John C., St. Louis, Mo. Ore-separator	317,192	May 5	364	90	31	589
Porter, Miner. (See Doubler, John W. H., assignor.)						
Porter, Robert, Ottumwa, Iowa. Manufacture of leather articles	319,617	June 9	885	234	31	1220
Porter, Stephen, assignor of one-half to I. E. Fairbanks, Boston, Mass. Heat-indicator for ovens	315,164	Apr. 7	246	60	31	45
Porter, Thomas A., Cameron, Tex. Earth-anger	318,653	May 26	2308	617	31	972
Porter, William B., Troy, Pa. Trap for eaves-troughs	317,011	May 5	109	28	31	542
Possons, William J., Cleveland, Ohio. Machine for dressing carbons	320,497	June 23	2130	561, 562, 563	31	1458
Possons, William J., Cleveland, Ohio. Drier	320,498	June 23	2134	563	31	1459
Post, Andrew D., Keyport, N. J. Cradle	315,165	Apr. 7	247	60	31	45
Post, John W., New York, N. Y. Sewing-machine	315,067	Apr. 7	113	26	31	22
Post, John W., New York, N. Y. Tension device for sewing-machines	317,193	May 5	365	91	31	590
Post, John W., New York, N. Y. Sewing-machine	320,394	June 16	1990	523, 524	31	1425
Postawka, Louis, Cambridge, Mass. Oiling device for adjustable chairs and stools	320,395	June 16	1994	525	31	1426
Pott, Burd P., Thompson Falls, Mont. Ter. Sled-brake	319,022	June 2	110	30	31	1068
Potter, Charles, Jr., Plainfield, N. J. Lithographic-printing machine	317,194	May 5	365	91	31	590
Potter, George E., Palmer, Mass. Shutter-worker	319,999	June 16	1413	371	31	1321
Potter, Mark, Syracuse, N. Y. Car-starter	320,088	June 16	1532	406	31	1344
Potter, Thomas, Jersey City, N. J. Mechanism for automatically operating throttle and brake valves of locomotives	316,171	Apr. 21	1653	433	31	313
Potter, Thomas O. (See Martin, Webster W., assignor.)						
Potter, Thomas O., Boston, Mass. Buckle	320,089	June 16	1533	406	31	1344
Pottle, George F., Boston, Mass., assignor of two-thirds to W. S. Hill, Hyde Park, and R. O. Storrs, Dedham, Mass. Wrench	317,670	May 12	996	258	31	712
Pottle, George F., Medford, assignor of one-half to W. S. Hill, Hyde Park, and R. O. Storrs, Dedham, Mass. Valve	320,962	June 30	2735	728	31	1578
Potts, George, Indianapolis, Ind. Tile-table	316,172	Apr. 21	1654	433	31	314
Powell, Edward B., Portland, Mich. Elevator	315,166	Apr. 7	248	60	31	45
Powell, Moses W., Chicago, Ill. Fire and water proof roof	318,023	May 19	1472	394	31	810
Powell, Nelson A., Lenoir, N. C. Plow	315,441	Apr. 7	633	163	31	113
Powell, Richard J., and W. F. Nolan, Evansville, Ind. Machine for attaching buttons to garments	318,024	May 19	1473	394	31	810
Power & Co., L. (See Feyh and Murphy, assignors.)						
Power, John W., Carthage, Ind. Weather-strip	319,121	June 2	234	61	31	1091
Powers, David J., Chicago, Ill. Ditching-machine	319,421	June 2	593	161	31	1161
Powers, David J., assignor to Union Wire Mattress Company, Chicago, Ill. Folding bed. (Reissue)	10,606	June 2	626	169	31	1167
Powers, George W., J. H. Jones, and J. M. Powers, Streator, Ill. Chimney-cowl	320,815	June 23	2531	671	31	1535
Powers, James M. (See Powers, Jones, and Powers.)						
Powers, Jay W., assignor of two-thirds to M. J. and R. S. Moth, Winnetka, Ill. Pump	315,442	Apr. 7	633	163	31	113
Poyser, John, Sherwood Rise, Mansfield, county of Nottingham, England. Railway and tramway chair, &c	321,247	June 30	3101	824, 825	31	1645
P'Pool, Frank E. (See Young and P'Pool.)						
Prahar, Louis B. (See Shepard, Charles S., assignor.)						
Prahar, Louis B., assignor to himself and C. S. Shepard, Brooklyn, N. Y. Fastening for bag, pocket-book, or purse frames	316,173	Apr. 21	1657	434	31	314
Prat, Auguste. (See Prat, Emile and A.)						
Prat, Emile and A., Grenoble, France. Machine for sharpening and setting saws	316,568	Apr. 28	2183	575	31	415
Pratt, Albert W. (See Stone and Pratt.)						
Pratt, Arthur L., Kalamazoo, Mich. Money-changer	315,544	Apr. 14	799	211	31	149
Pratt, Augustus W., Waterford, N. Y. Adjustable water-line indicator for steam-boilers	315,659	Apr. 14	947	248	31	177
Pratt, Charles E., Boston, Mass., assignor to Pope Manufacturing Company, Hartford, Conn. Velocipede	318,500	May 26	2100	566	31	936
Pratt, Charles E., assignor of one-half to H. Cunningham, Chicago, Ill. Fare-register	319,847	June 9	1190	314, 315	31	1274
Pratt, Edwin E., and C. S. Partridge, assignors to A. N. Kellogg Newspaper Company, Chicago, Ill. Machine for trimming stereotype-plates	316,398	Apr. 21	1950	514	31	365

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Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Pratt, Francis A., assignor to Pratt & Whitney Company, Hartford, Conn. Frame and carriage for machines	319,618	June 9	886	235	31	1220
Pratt, Granville C., Anoka, Minn. Clay-pulverizer	315,064	Apr. 7	110	26	31	21
Pratt, Henry B., Concordville, Pa. Thill-coupling	317,849	May 12	1232	325	31	757
Pratt & Letchworth. (See Basinger, James M., assignor.)						
Pratt & Letchworth. (See Maxwell, Andrew, assignor.)						
Pratt Manufacturing Company. (See Rogers and Vose, assignors.)						
Pratt, Morris, Milton Junction, Wis. Burglar-alarm	320,686	June 23	2381	629	31	1505
Pratt, Nathaniel W., Brooklyn, N. Y. Steam-generator	318,501	May 26	2101	566, 567	31	936
Pratt, Nathaniel W., Brooklyn, N. Y. Fire-tube boiler	321,248	June 30	3103	825	31	1645
Pratt & Whitney Company. (See Pratt, Francis A., assignor.)						
Pratt & Whitney Company. (See Whitney, Amos, assignor.)						
Prax, Jean, Montreal, Quebec, Canada. Automatic measuring device for liquids	316,910	Apr. 28	2084	699	31	506
Preece, William H., London, England. Telephone-exchange system	316,911	Apr. 28	2085	699, 700	31	507
Prentice, Burton D., Castalia, Ohio. Potato-digger	316,657	Apr. 28	2297	603	31	436
Prentice, George W., Providence, R. I. Button-fastener	315,065	Apr. 7	110	26	31	22
Prentice, George W., Providence, R. I. Button and fastening	315,167	Apr. 7	250	61	31	46
Prentice, George W., Providence, R. I. Button and fastening	317,012	May 5	110	28	31	542
Prentice, George W., Providence, R. I. Glove-fastening	321,050	June 30	2850	758	31	1600
Prentiss, Charles H., Cleveland, Ohio. Apparatus for extracting paraffine from oils	316,058	Apr. 21	1493	390	31	284
Prentiss, F. F., *et al.* (See Richards, Francis H., assignor.)						
Prenzel, Henry, Philadelphia, Pa. Supporting-insulator for telegraph-wires	315,660	Apr. 14	948	248	31	177
Prenzel, Joseph, Hirschberg, Germany. Violin	316,658	Apr. 28	2299	603	31	436
Prescott, Clifford H., Lawrence, Mass. Drawing-board and T-square	315,545	Apr. 14	801	211	31	149
Prescott, De Witt C., Marinette, Wis. Reciprocating saw-mill	319,619	June 9	887	235	31	1220
Presley, Joseph P., Stanton, Mich. Marking-tag	321,384	June 30	3273	875	31	1679
Presser, William H., East Saginaw, Mich. Equalizing the tension in circular saws	316,659	Apr. 28	2299	604	31	436
Preston, Albert F., Lynn, assignor to Preston Machine Company, Boston, Mass. Machine for marking the quarters of boots or shoes for buttons and button-holes	317,416	May 5	660	168	31	643
Preston, Albert F., Lynn, assignor to Preston Machine Company, Boston, Mass. Machine for marking the quarters of boots or shoes for the buttons	318,390	May 19	1957	527	31	900
Preston, E. B., *et al.* (See Adcock, Edmund, assignor.)						
Preston, George E., *et al.* (See Adcock, Edmund, assignor.)						
Preston Machine Company. (See Preston, Albert F., assignor.)						
Preston, William M., Schoharie, N. Y. Lathe-chuck	316,912	Apr. 28	2689	700	31	507
Price, Frederick A., Gresford, near Wrexham, county of Denbigh, England. Brushing apparatus for sieves	315,066	Apr. 7	111	26	31	22
Price, Henry F., Brooklyn, N. Y. Fishing-tackle case. (Reissue)	10,598	May 19	2021	544	31	912
Price, Henry W. (See Blomstrom, John, assignor.)						
Price, Jacob, San Leandro, Cal. Seed-sower	317,013	May 5	111	28	31	542
Price, Jacob S., Mutual, Ohio. Device for changing speed	320,687	June 23	2382	630	31	1505
Price, Levi, and I. Wallach, assignors to H. Wallach & Sons, New York, N. Y. Shirt-bosom	317,417	May 5	662	168	31	643
Price, Samuel C., Detroit, Mich. Flask-pin	315,661	Apr. 14	949	248	31	177
Price, Whitman, Mount Olive, N. C. Cotton-chopper	317,195	May 5	366	91, 92	31	500
Price, William G., New Orleans, La. Fare-box	319,313	June 2	463	125	31	1136
Price, William H., Jr., Cleveland, Ohio. Printing-machine	318,798	May 26	2509	669, 670	31	1007
Price, William R., Still Pond, Md. Fire-escape	318,391	May 19	1960	527, 528	31	901
Priest, Joseph K., Nashua, N. H. Hair-clipping machine	317,671	May 12	996	259	31	713
Priestland, Charles, Birmingham, England. Knob	319,848	June 9	1194	316	31	1275
Prince, William H., Cleveland, Ohio. Piston-rod packing	320,688	June 23	2382	630	31	1505
Prindle, George S. (See Walker, Clarence T., assignor.)						
Prinz, Faustin, Milwaukee, Wis., assignor of one-fourth to J. K. Gehrig, Dundas, Minn. Middlings-purifier. (Reissue)	10,591	Apr. 28	2722	708, 709	31	514
Prinz, Otto, Lindenau, near Leipsic, Germany. Mordant	320,963	June 30	2736	.....	31	1579
Prior, Joseph M., Boston, Mass. Adjustable pitch-board	320,090	June 16	1534	406	31	1344
Probert, Edward, San Francisco, Cal. Cupola-furnace having sectional water-jackets	320,586	June 23	2249	595, 596	31	1481
Proctor, Alexander M. (See Knight and Proctor.)						
Proctor, John C., Wooster, Ohio. Sliding window-screen	316,174	Apr. 21	1657	434	31	314
Proctor, Josiah K., Philadelphia, Pa. Window-screen	318,799	May 26	2512	670	31	1007
Proctor, Josiah K., Philadelphia, Pa. Window-screen	319,422	June 2	595	162	31	1161
Prondfit, Austin, Madison, Wis. Garment-supporter	318,204	May 19	1704	456	31	854
Prouty, Enoch, Beloit, Wis. Printing-machine	317,470	May 5	736	186	31	656
Prowse, George R., Montreal, Quebec, Canada. Cooking-stove	320,499	June 23	2135	563, 564	31	1459
Prowse, Leander M., Siloam Springs, Ark. Bed-spring	315,546	Apr. 14	802	212	31	149
Pruden, David, *et al.* (See Ball, William H., assignor.)						
Prunty, John E., Baltimore, Md. Shut-off cock for nozzles	316,913	Apr. 28	2691	700	31	507
Prunty, John E., Baltimore, Md. Nozzle	318,800	May 26	2512	670	31	1007
Prüsmann, Carl, assignor to Schäffer & Budenberg, Buckau, Germany. Governor	317,850	May 12	1232	326	31	757
Pryibil, Paul. (See Mackintosh, Edward D., assignor.)						
Pryor, John D. (See Bull, George, assignor.)						
Pue, Charles R., Baltimore, Md. Gun-wad	320,500	June 23	2136	.....	31	1459
Puffer, Alvin D., Medford, assignor to A. D. Puffer's Sons, Boston, Mass. Faucet	318,801	May 26	2513	671	31	1008
Puffer's Sons, A. D. (See Puffer, Alvin D., assignor.)						
Pugh, Archelaus, St. Paul, Minn. Hoisting-machine	320,586	June 23	2624	694, 695	31	1552
Puig, Plácido T., Barcelona, Spain. Oscillating water-meter	318,926	May 26	2675	709	31	1038
Pulaski, Morris H., Philadelphia, Pa. Embroidery	319,122	June 2	235	62	31	1091
Pullar, Alfred, Edinburgh, county of Mid-Lothian, Scotland. Truss	318,434	May 19	2015	542	31	910
Pullen, Carroll J., Pawtucket, R. I. Carriage running-gear	320,000	June 16	1413	372	31	1321
Pulliam, William J., assignor of two-thirds to J. S. Devoe and W. V. Allen, Chico, Cal. Elevator-lifter for thrashing-machines	317,573	May 12	870	223	31	689
Pullman, Albert B. (See Wainwright, John W., assignor.)						
Pullman Iron and Steel Company. (See Keplin, William, assignor.)						
Pullman, Smith C., Catskill, N. Y. Alarm for railway-trains	315,662	Apr. 14	949	249	31	177
Pullman, Smith C., Catskill, N. Y. Railway-signal	319,023	June 2	111	30	31	1069
Pulsifer, William H., St. Louis, Mo., assignor to himself and S. J. Colegate, New York, N. Y. Mixing white lead with oil	320,887	June 23	2629	.....	31	1553
Pumphrey, Robert B., Baltimore, Md. Meat-cutter	319,928	June 9	1306	344	31	1295

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Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Pund, Henry, assignor to J. L. Hall, Cincinnati, Ohio. Coupling device for safe-spindles	317,471	May 5	738	186	31	656
Purdy, Zachariah V., Louisville, Ky. Horseshoe-machine	315,961	Apr. 14	1369	354	31	253
Purinton, Lydia S., Westborough, Mass. Corset	320,964	June 30	2737	728	31	1579
Purman, Louis C., *et al.* (See Bond, Nathan O., assignor.)						
Pusey, Joshua, Philadelphia, Pa. Artificial coasting or sledding course	318,025	May 19	1474	395	31	810
Pusey, Joshua, Philadelphia, Pa. Artificial coasting-course	318,026	May 19	1478	396	31	811
Putnam, Donia C., Wayne Centre, N. Y. Oscillating engine	319,423	June 2	596	162	31	1161
Putnam & Wineman. (See Bradbeer, Thomas J., assignor.)						
Putney, Alfred, London, England. Wood flooring, ceiling, or dado	316,175	Apr. 21	1658	434	31	315
Pyle, William, Wilmington, Del. Traction elevated railway	318,027	May 19	1481	396, 397	31	811
Pyne, William R., Port-of-Spain, Trinidad, West Indies. Fire-escape	321,385	June 30	3274	875	31	1679
Quackenbush, Jesse H., East Saginaw, Mich. Safety-gate for pivot-bridges	321,249	June 30	3105	826	31	1645
Quackenbush, Warren W. (See Lytle, Henry B., assignor.)						
Quaid, Martin D. (See Hammond and Quaid.)						
Queen, Emmet, Johnstown, Pa. Drill-jar	315,547	Apr. 14	803	212	31	150
Quiggle, William E., Dedham, Mass. Heel-plate for boots or shoes	317,014	May 5	113	29	31	543
Quigley & Co., W. B. (See Bancroft, Melvin, assignor.)						
Quigley, James. (See Gunning and Quigley.)						
Quigley, Robert J. (See Heffernan, Edward F., assignor.)						
Quinlan, William, Oswego, N. Y. Tap for boots or shoes	315,068	Apr. 7	115	27	31	23
Quinn, Charles C., Fargo, Dak. Ter. Switch, frog, guard-rail, and crossing flange and clearer	319,314	June 2	465	125, 126	31	1136
Quint, Henry F., and J. H. Mowen, Brooklyn, N. Y. Textile trimming	318,028	May 19	1483	397	31	812
Rabbe, William, Cincinnati, Ohio. Gluing and staining machine	320,716	June 23	2532	671	31	1535
Rachler, Michael, and I. Rothziegel, Vienna, Austria-Hungary. Heel for boots or shoes	317,575	May 12	872	224	31	689
Racey, John, assignor to himself and J. Williams, Quebec, Canada. Blind-slat check	319,020	June 9	888	235	31	1220
Radcliffe, Robert D. (See Denison, Sylvester P., assignor.)						
Radenhausen, Paul, Altona, Sleswick-Holstein, Prussia, Germany, assignor to Davenport Glucose Manufacturing Company, Davenport, Iowa. Manufacture of starch, glucose, &c.	319,315	June 2	466	.....	31	1136
Radix Manufacturing Company. (See Root and Childs, assignors.)						
Radley, Daniel A., Lawrenceburgh, Mo. Case for copy-books and copies	320,444	June 16	2056	539	31	1436
Raeke, Theodore, Baltimore, Md. Fat-cutter	319,316	June 2	467	126	31	1137
Raff, Henry L., assignor of one-half to J. Spang, Memphis, Tenn. Dumping-wagon	317,576	May 12	873	224	31	689
Railing, William B., and C. N. May, Mechanicsburg, Pa. Safety-valve and alarm for steam-boilers	317,952	May 12	1367	367	31	783
Railway Speed Recorder Company. (See Wilkins and Miller, assignors.)						
Rainey, Joseph T., Marion, Ill. Car-coupling	317,196	May 5	368	92	31	590
Raleigh, Maurice F., Evansville, Ind. Bedstead-fastening	319,317	June 2	468	126	31	1137
Rall, Henry, St. Louis, Mo. Lard and oil rendering tank	318,502	May 26	2102	567	31	936
Rall, Henry, St. Louis, Mo. Lard and oil rendering tank	318,503	May 26	2103	567	31	937
Ram, James, London, England. Game apparatus	320,091	June 16	1536	406	31	1344
Ramm, William, Kemma, Nebr. Animal-catcher	320,167	June 16	1634	435	31	1361
Ramsdell, George, Oswego, N. Y. Apparatus for manufacturing gas from wood	317,197	May 5	369	92	31	590
Randall, Aaron F., assignor of one-eighth to C. B. Randall, Washington, D. C. Apparatus for manufacturing gas	317,953	May 12	1368	367, 368	31	783
Randall, Carlos B. (See Randall, Aaron F., assignor.)						
Randall, George S., Marshfield, assignor to H. C. Barnes, Boston, Mass. Box-fastener	316,823	Apr. 28	2547	666	31	481
Randall, Isaac H., Boston, Mass. Car-spring	315,834	Apr. 14	1184	309	31	222
Randle & Co., J. E. (See Garside, Robert, assignor.)						
Randol, Alexander, Tarentum, assignor of two-thirds to J. M. Arnold, Pittsburg, and G. S. McKee, Allegheny City, Pa. Underground gas-main	315,443	Apr. 7	634	164	31	113
Randol, Alexander, Tarentum, assignor of six-tenths to G. S. McKee, Allegheny City, and J. M. Arnold, Pittsburg, Pa. Gas-burning apparatus	316,059	Apr. 21	1495	390	31	284
Randolph, Arthelow M., Brainerd, Minn., assignor to himself, J. G. Butterfield, and J. S. Wheeler, Sioux City, Iowa. Journal-bearing and metallic compound therefor	320,445	June 16	2057	540	31	1436
Raney, Ollie T., Melissa, Tex. Plaiting apparatus	320,689	June 23	2384	630	31	1506
Rankin, Thomas L., New York, N. Y., assignor to J. W. Skinkle, Chicago, Ill. House-refrigerating apparatus	316,292	Apr. 21	1808	475, 476	31	340
Rankin, Thomas L., New York, N. Y., assignor to J. W. Skinkle, Chicago, Ill. Ice-machine	316,824	Apr. 28	2547	666, 667	31	482
Rankine, William B., *et al.* (See Smith, A. Buttles, assignor.)						
Ransom, Frank H., Buffalo, N. Y. Trunk	316,176	Apr. 21	1659	434	31	315
Ransom, Frank H., and A. W. Sangster, Buffalo, N. Y., said Sangster assignor to said Ransom. Brace-hinge for trunks	316,309	Apr. 21	1951	514	31	366
Rappleyea, Nicholas. (See Sparks and Rappleyea.)						
Rasmussen, Charles W., assignor to United States Cable Railway Company, Chicago, Ill. Wire rope or cable railway. (Reissue)	10,602	May 26	2096	714	31	1041
Rasmussen, Carl P., Copenhagen, Denmark. Repetition-action for upright pianos	317,198	May 5	371	93	31	591
Rasner, Abraham, Pittsburg, Pa. Combined shaker and strainer	316,825	Apr. 28	2550	668	31	482
Ratcliff, James E., assignor of one-half to J. McGinnis, Dawson, Ill. Harvester cutter-bar	318,802	May 26	2514	671	31	1008
Ratcliff, William H., Agency, Mo. Stirrup	319,123	June 2	237	62	31	1091
Ratcliffe, Benjamin E., New York, N. Y. Composition of matter for facing brown stone and for making artificial stone	321,137	June 30	2967	.....	31	1630
Rathbun, John H., assignor of one-half to C. H. De Lamater, G. H. Robinson, and W. De Lamater, New York, N. Y. Tapping device	318,654	May 26	2309	617	31	973
Rathbun, Lewis V., Rochester, N. Y. Mesh-cleaning attachment for bolting-reels	320,690	June 23	2385	630, 631	31	1506
Rathknecht, Victor, Chicago, Ill. Nursery-chair and carriage	320,587	June 23	2253	596	31	1482
Rau, Eugene, Brooklyn, N. Y. Apparatus for steaming dyed fabrics	318,205	May 19	1706	457	31	854
Raugh, Oliver M., Newton, Iowa. Thill-coupling	316,483	Apr. 28	2092	545	31	395
Rawlings, Fannie C., St. Louis, Mo. Cabinet gasoline-stove	320,691	June 23	2386	631	31	1506
Rawson, Isaac, assignor of one-half to S. Thacher, Hornellsville, N. Y. Mower	315,071	Apr. 7	118	27	31	23
Ray, Edgar K., Franklin, Mass. Rubber overshoe	320,284	June 16	1803	479	31	1390
Raymond, Albert. (See Raymond, George and A.)						
Raymond, Albert A. (See Williams, Gurdon H., assignor.)						
Raymond, Cadwallader M., Boston, Mass. Roller-skate	316,660	Apr. 28	2300	604	31	436
Raymond, Cadwallader M., Boston, Mass. Roller-skate	318,291	May 19	1814	485	31	875
Raymond, Charles S., Oswego, N. Y. Milk-can	315,835	Apr. 14	1185	309	31	222
Raymond, Freeborn F., 2d, trustee. (See Henderson, Henry A., assignor.)						
Raymond, Freeborn F., 2d. (See Henderson and Raymond.)						
Raymond, Freeborn F., 2d, Newton, Mass. Heel-nail plate	315,069	Apr. 7	116	27	31	23
Raymond, Freeborn F., 2d, Newton, Mass. Wire-heel-nail blank	315,070	Apr. 7	117	27	31	23
Raymond, Freeborn F., 2d, Newton, Mass. Nail holder and carrier	315,458	Apr. 7	657	169	31	117

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Raymond, Freeborn F., 2d, Newton, Mass. Heel-attaching machine	316,177	Apr. 21	1659	435	31	315
Raymond, Freeborn F., 2d, Newton, Mass. Heel-nailing machine	316,661	Apr. 28	2301	604, 605	31	436
Raymond, Freeborn F., 2d, Newton, Mass. Heel-nailing machine	316,896	Apr. 28	2550	668	31	482
Raymond, Freeborn F., 2d, Newton, Mass. Heel-nailing machine	316,827	Apr. 28	2554	668, 669	31	483
Raymond, Freeborn F., 2d, Newton, Mass. Heel-nailing machine	316,828	Apr. 28	2557	669, 670	31	483
Raymond, Freeborn F., 2d, Newton, Mass. Heel-nailing machine	317,199	May 5	372	93	31	591
Raymond, Freeborn F., 2d, Newton, Mass. Heel-nailing machine	317,672	May 12	999	259	31	713
Raymond, Freeborn F., 2d, Newton, Mass. Heel-nailing machine	317,851	May 12	1233	326, 327	31	757
Raymond, Freeborn F., 2d, Newton, Mass. Heel-nailing machine	318,134	May 19	1616	432	31	837
Raymond, Freeborn F., 2d, Newton, Mass. Nail-distributer for heel-nailing machines	319,124	June 2	238	62	31	1091
Raymond, George and A., Chicago, Ill. Machine for reducing ores	315,338	Apr. 7	484	122, 123	31	89
Raymond, William F., Sandusky, Ohio. Horseshoe	317,200	May 5	376	94	31	592
Raynald, John, Philadelphia, Pa. Vault-cover	315,836	Apr. 14	1186	309	31	222
Rayner, George W. (See Derham, Samuel G., assignor.)						
Razee, Lloyd E. (See Frenyear, Thomas C., assignor.)						
Read, Osmond D., Daviess County, Ky. Lap-ring	318,292	May 19	1816	486	31	875
Read & Sons, William. (See Hanscom, Orinton M., assignor.)						
Reading Iron Works. (See Wolfe, Edward W., assignor.)						
Ready, John, Littleton, N. H. Folding ladder	320,602	June 23	2387	631	31	1506
Rebholz, Timothy. (See Bailey and Rebholz.)						
Reckenzaun, Anthony, London, England, assignor to F. Reckenzaun, New York, N. Y. Electric car	320,092	June 16	1537	407	31	1344
Reckenzaun, Frederick. (See Reckenzaun, Anthony, assignor.)						
Recordon, Ernest F., Geneva, Switzerland. Electric bell	319,318	June 2	469	126	31	1137
Redman, Andrew J., La Crosse, Kans. Thrashing-machine	317,201	May 5	377	94	31	592
Reece, George L., assignor to F. D. Butterfield and H. S. Haskell, Derby Line, Vt. Screw-plate	320,693	June 23	2388	631	31	1507
Reed, Jacob T., Reno, Nev. Wagon-jack	317,577	May 12	874	224	31	690
Reed, J. Van D. (See Stowe, Benjamin L., assignor.)						
Reed, P. G. (See Lee, Cris, assignor.)						
Reed Toy Company, W. S. (See Reed and Walsh, assignors.)						
Reed, William J., St. John's, Mich. Washing-machine	318,135	May 19	1618	433	31	838
Reed, William A. (See Sleeper, George W., assignor.)						
Reed, William S., Leominster, Mass., and T. J. Walsh, London, England, assignors to W. S. Reed Toy Company, Leominster, Mass. Mechanical toy or game	320,501	June 23	2137	564	31	1460
Rees, B. F. (See Timms, James, assignor.)						
Reese, Abram, Pittsburg, assignor of one-half to R. C. Totten, Allegheny City, Pa. Ingot-mold	318,206	May 19	1707	457	31	855
Reese, Evan C., Altoona, assignor to American Buttonhole, Overseaming and Sewing Machine Company, Philadelphia, Pa. Tuck-marker	317,418	May 5	664	168	31	643
Reese, William H. M., Calliope, Iowa. Wire-fastening device for metal fence-posts	318,655	May 26	2311	617	31	973
Reetz, William. (See Smiliere, Leon, assignor.)						
Reeve, William G. (See Rockafellow, Samuel, assignor.)						
Reeve, William S., Edwardsport, Ind. Check-rowing attachment for corn-planters	316,602	Apr. 28	2302	605	31	437
Reeves, Alfred B. and M. T., assignors to Reeves & Co. and J. I. Irwin, Columbus, Ind. Straw-carrier for stacking-machines	315,548	Apr. 14	804	212	31	150
Reeves & Co. *et al.* (See Reeves, Alfred B. and M. T., assignors.)						
Reeves, Marshal T. (See Reeves, Alfred B. and M. T.)						
Reford, Joseph W. J., Jersey City, N. J., assignor to W. Watt, Brooklyn, N. Y. Revivifying filtering material	315,837	Apr. 14	1187	310	31	222
Regan, Daniel S., San Francisco, Cal. Electric igniter for gas-engines	320,285	June 16	1804	479	31	1391
Register, Henry C., Philadelphia, Pa. Artificial tooth	319,746	June 9	1046	276	31	1250
Rehfuss, George, assignor to E. Morris, Philadelphia, Pa. Machine for shaping and curling hats	319,747	June 9	1047	277	31	1250
Reichard, Forrest, Easton, Pa. Lantern	319,319	June 2	470	127	31	1137
Reichenecker, William C., Denver, Colo., assignor of one-sixth to J. A. Baker, Washington, D. C. Guard for barbed-wire fences	319,506	June 9	728	195	31	1192
Reichert, Edward T., assignor of one-half to H. D. Welsh, Philadelphia, Pa. Secondary battery	315,339	Apr. 7	487	123	31	89
Reichert, Edward T., assignor of one-half to H. D. Welsh, Philadelphia, Pa. Secondary battery	315,340	Apr. 7	489	123	31	89
Reichman, William, New York, N. Y. Knitted garment	321,250	June 30	3106	826	31	1646
Reiff, Jacob. (See Tydeman, William H., assignor.)						
Reiff, William H., Philadelphia, Pa. Burglar-alarm	315,838	Apr. 14	1190	310	31	222
Reiher, Frank A., Chicago, Ill. Set-screw	315,839	Apr. 14	1191	310	31	223
Reilly, James, Brooklyn, N. Y. Hydrocarbon-burner	315,349	Apr. 14	805	212	31	150
Rein, Adam, Hamilton, Ohio. Cigar-boxing press	319,748	June 9	1049	277	31	1250
Reinecker, Julius E., Chemnitz, Saxony, Germany. Screw-plate	318,136	May 19	1619	433	31	838
Reinhardt, James H., and C. S. Ellis; said Ellis assignor to G. Schmalzried, Memphis, Tenn. Consecutive-numbering machine	318,803	May 26	2515	671	31	1008
Reinhold, Frank. (See Hübel and Reinhold.)						
Reinschmidt, Frank, assignor to J. W. Branch, St. Louis, Mo. Lantern	321,314	June 30	3183	849	31	1661
Reis, Alphonse, Antwerp, Belgium. Pump	317,015	May 5	114	29	31	543
Reiss, Hans, Jersey City, N. J., assignor to Singer Manufacturing Company of New Jersey. Shuttle-slide for sewing-machines	319,849	June 9	1195	316	31	1275
Reisaner, Christopher, *et al.* (See Hayes, Carl E., assignor.)						
Reisaner, Christopher, *et al.* (See McArdle, Frank, assignor.)						
Remsberg, Albert J., Warfordsburg, Pa. Fracture apparatus	320,286	June 16	1805	479	31	1391
Renchard, Francis J., Detroit, Mich. Lubricator	315,550	Apr. 14	806	213	31	150
Renchard, Francis J., Detroit, Mich. Lubricator	315,551	Apr. 14	808	213	31	150
Rengstorff, Henry, Mountain View, Cal. Excavator	321,051	June 30	2851	759	31	1600
Rensch, Henry, Quincy, Ill. Fire-escape	318,293	May 19	1816	486	31	875
Rensselaer Manufacturing Company. (See Hall, Henry, assignor.)						
Repass, William H., and J. P. Currin, Pulaski Station, Va. Combined plow and harrow	319,621	June 9	889	235	31	1220
Repp, Ephraim B., and G. H. Brown, New Windsor, Md. Top for fruit-jars	318,029	May 19	1483	398	31	812
Requa, Elias B., Jersey City, N. J. Lamp-burner	318,030	May 19	1484	398	31	812
Requa, Elias B., Jersey City, N. J. Lamp-chimney	318,031	May 19	1486	398	31	819
Reuleaux, Josef, assignor of one-half to C. A. Hoyer, Pittsburg, Pa. Furnace	317,852	May 12	1237	327, 328	31	758

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drs.	Official Gazette. Vol.	Official Gazette. Page.
Reynolds, Edmund B., *et al.* (See Kisinger, William S., assignor.)						
Reynolds, Edmund D. and O. B., Brockton, Mass. Making harrow-teeth	316,569	Apr. 28	2186	575	31	415
Reynolds, Edmund D. and O. B., Brockton, Mass. Wheel-plow	321,052	June 30	2852	759	31	1600
Reynolds, Edwin, Milwaukee, Wis. Steam pumping-engine	318,504	May 26	2104	567, 568	31	937
Reynolds, George A., *et al.* (See Driffill, Frederick, assignor.)						
Reynolds, George A., Utica, N. Y. Last	318,137	May 19	1621	433	31	838
Reynolds, George A., Utica, N. Y. Combined gate and signal for railway-crossings	319,622	June 9	890	236	31	1221
Reynolds, George H., New York, N. Y., assignor of one-half to Crane Brothers Manufacturing Company, Chicago, Ill. Controlling the operation of elevators	317,202	May 5	377	94	31	592
Reynolds, George H., and T. J. Rider, assignors of three-fourths to C. H. De Lamater, G. H. Robinson, and W. De Lamater, New York, N. Y. Direct-acting engine	318,656	May 26	2311	618	31	973
Reynolds, Oliver B. (See Reynolds, Edmund D. and O. B.)						
Reynolds, William W., Rutland, Vt. Folding platform-scale	316,178	Apr. 21	1661	435	31	315
Rhoads, Solomon J., Metropolis, Ill. Car-coupling	318,138	May 19	1622	433	31	838
Rhoads, Solomon J., Metropolis, Ill. Flower-pot	320,588	June 23	2254	596	31	1482
Rhode Island Metal Company. (See Thayer and Lowe, assignors.)						
Rhyn, Henry, Cincinnati, Ohio. Machine for forming car-followers	320,502	June 23	2138	564	31	1460
Ribble, Harry M., and J. W. Sammis, Dover, N. J. Baby-carriage	317,578	May 12	875	224	31	690
Rice, Barton & Fales Machine and Iron Company. (See Barton, Charles S., assignor.)						
Rice, Barton & Fales Machine and Iron Company. (See Dunn, George, assignor.)						
Rice, Benjamin F., Stillwater, Minn. Sweat-pad fastener	318,505	May 26	2106	568	31	937
Rice, David H., Lowell, Mass. Clutch for tricycles	316,061	Apr. 21	1497	391	31	284
Rice, David H., Lowell, Mass. Cash-carrying apparatus	318,032	May 19	1487	398, 399	31	813
Rice, David H., Lowell, Mass. Cash-carrying apparatus	318,139	May 19	1623	434	31	839
Rice, David H., Lowell, Mass. Cash-carrier apparatus	318,294	May 19	1817	486, 487, 488	31	875
Rice, David H., Lowell, Mass. Cash-carrying apparatus	320,168	June 16	1636	435	31	1361
Rice, David H., Lowell, Mass. Cash-carrying apparatus	320,965	June 30	2738	728, 729	31	1579
Rice, David H., Lowell, Mass. Ball and roller bearing for shafts	321,053	June 30	2855	759, 760	31	1600
Rice, David H., Lowell, assignor to C. G. Sargent's Sons, Graniteville, Mass. Wool-drier	316,060	Apr. 21	1496	391	31	284
Rice, David H., Lowell, Mass., assignor to St. Albans Manufacturing Company, St. Albans, Vt. Drier	316,484	Apr. 28	2063	545	31	395
Rice, David H., Lowell, Mass., assignor to Marlin Fire Arms Company, New Haven, Conn. Magazine-gun	316,485	Apr. 28	2064	545	31	395
Rice, Dwight C., and A. L. Currey, Sioux Falls, Dak. Ter. Gas-extinguisher	320,694	June 23	2389	632	31	1507
Rice, E. Wilbur. (See Thomson and Rice.)						
Rice, Henry H., *et al.* (See Stebbins, Darius, assignor.)						
Rice, John S. (See Kidder, Moses W., assignor.)						
Rice, Judson, A. Steiger, San José, and I. L. Thurber, Santa Cruz, Cal. Working and using asphaltum	319,125	June 2	239	.....	31	1091
Rich, Elton S. (See Gates, Henry W., assignor.)						
Richards, Edward W., *et al.* (See Vanden Berghe, Peter, assignor.)						
Richards, Eugene R., New York, N. Y. Hook for hats or garments	318,657	May 26	2314	618	31	973
Richards, Francis H., Springfield, Mass., assignor to American Button Fastener Company, New Britain, Conn. Button-fastener-setting machine	319,507	June 9	729	195, 196	31	1192
Richards, Francis H., Springfield, Mass., assignor to American Button Fastener Company, New Britain, Conn. Button-fastener	319,508	June 9	733	197	31	1193
Richards, Francis H., Springfield, Mass., assignor to American Button Fastener Company, New Britain, Conn. Machine for feeding button-fasteners	320,503	June 23	2139	564, 565	31	1460
Richards, Francis H., Springfield, Mass., assignor to J. D. Cox, Jr., and F. F. Prentiss, Cleveland, Ohio. Metal drill	320,966	June 30	2741	729	31	1579
Richards, Francis H., Springfield, Mass., assignor to J. D. Cox, Jr., and F. F. Prentiss, Cleveland, Ohio. Manufacture of metal drills	320,967	June 30	2743	729	31	1580
Richards, Francis H., assignor to J. D. Cox, Jr., and F. F. Prentiss, Cleveland, Ohio. Machine for making twist-drills	320,968	June 30	2744	730	31	1580
Richards, Francis H., assignor to J. D. Cox, Jr., and F. F. Prentiss, Cleveland, Ohio. Machine for making twist-drills	320,969	June 30	2747	730	31	1580
Richards, Henry J., Wilkes-Barré, Pa. Miner's lamp	320,287	June 16	1806	480	31	1391
Richards, Jonathan B., Pettigrew Mills, assignor to himself and J. R. Pettigrew, Fayetteville, Ark. Brush for flour-bolting machines	316,179	Apr. 21	1663	436	31	315
Richards, Joseph O. B., St. Louis, Mo. Hot-blast stove	315,072	Apr. 7	119	28	31	23
Richards, Marcius C., Oswego, assignor of one-half to J. B. Chase and W. C. Budlong, Aurora, Ill. Oil-can and lamp filler	315,552	Apr. 14	810	213	31	151
Richards, Ransom. (See Wetherell and Jones, assignors.)						
Richards, William B. (See Thompson and Richards.)						
Richardson, Arthur S., Reading, Mass. Shoe	319,850	June 9	1196	316	31	1275
Richardson, Christopher, Newark, N. J. Saw	315,663	Apr. 14	950	249	31	177
Richardson, Christopher, Newark, N. J. Saw-handle	320,169	June 16	1638	435	31	1362
Richardson, Dwight S., Brooklyn, N. Y. Grate-bar and grate	320,001	June 16	1417	372	31	1321
Richardson, Henry D., assignor to Wallace & Sons, Ansonia, Conn. Lamp-extinguisher	317,203	May 5	378	94	31	592
Richardson, John, San Francisco, Cal. Machine for gumming and sharpening saws	316,570	Apr. 28	2186	575, 576	31	415
Richardson, John F., Boonville, Ind. Shaft-support	319,851	June 9	1196	316	31	1275
Richardson, John L., Tuscola, Mich. Calculator	315,553	Apr. 14	811	214	31	151
Richardson, John T., Harrisburg, assignor of one-half to A. H. Ege, Mechanicsburg, Pa. Railway-frog	319,024	June 2	112	31	31	1069
Richardson, Samuel T., assignor to J. K. Pancoast, Baltimore, Md. Machine for crushing and amalgamating ores	320,396	June 16	1995	525	31	1426
Richardson, Nathan H., Brooklyn, N. Y. Device for closing doors	316,571	Apr. 28	2189	576	31	416
Richert, Johanna. (See Kessel, John A., assignor.)						
Richey, Hiram. (See Williams and Richey.)						
Richey, James L., Olney, Ill. Automatic valve for drinking-troughs	319,025	June 2	114	31	31	1069
Richey, Newton, Ashland, Ohio. Thill-coupling	320,817	June 23	2535	672	31	1535
Richford, Edwin M., 44 Snow Hill, London, England. Self-inking pocket-stamp	317,853	May 12	1239	328	31	758
Richman, Louis L., New York, N. Y. Wardrobe-bedstead	319,390	June 2	470	127	31	1137
Richmond City Mill Works. (See Walters, Charles F., assignor.)						
Richmond, Edmond, Leicester, county of Leicester, England. Car-coupling	318,140	May 19	1625	434	31	839
Richmond Fire Alarm Company. (See McCullough, Lewis H., assignor.)						
Richmond, Henry T., Malvern, Iowa, assignor of one-half to J. P. Munger. Anti-friction pad-tree	315,444	Apr. 7	634	164	31	113

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Richmond, William T., New York, N. Y. Necktie-protector	318,804	May 26	2518	672	31	1008
Rickerby, Alfred M., Brooklyn, N. Y. Heater-frame for lamps and gas-burners	316,189	Apr. 21	1664	436	31	316
Ricketts, James J., Pittsburg, Pa. Ventilator for gas-mains	320,602	June 16	1418	372	31	1322
Ricketts, James J., Pittsburg, Pa. Leak-detector for gas-mains	320,695	June 23	2390	632	31	1507
Ricketts, William F. M., Colton, Wash. Ter. Harrow	319,321	June 2	471	127	31	1137
Riddell, Joseph, and C. C. Trout, Sharon, Pa. Reamer	319,852	June 9	1197	317	31	1275
Rider, Charles E. (See Belsheim, Henry, assignor.)						
Rider, Charles E., Rochester, N. Y. Apparatus for uniting wood for floor-coverings, &c	320,696	June 23	2391	632	31	1507
Rider, Charles E., Rochester, N. Y. Wood flooring	320,697	June 23	2392	633	31	1508
Rider, Charles E., Rochester, N. Y. Wood-flooring tile	320,698	June 23	2394	633	31	1508
Rider, Thomas J. (See Reynolds and Rider.)						
Ridgway, Charles L., Boston, Mass., assignor to Ridgway Furnace and Stove Company, Nashua, N. H. Heating stove or furnace	318,295	May 19	1822	488	31	876
Ridgway Furnace and Stove Company. (See Ridgway, Charles L., assignor.)						
Ridgway Refrigerator Company. (See Taylor, William J., assignor.)						
Riesaner, Christopher, New York, N. Y. Spring-holding device	316,062	Apr. 21	1499	392	31	285
Riesaner, Christopher, New York, N. Y. Lantern	316,486	Apr. 28	2066	546	31	396
Riester, George P., Salem, Ind. Wagon-brake lever	321,315	June 30	3183	849	31	1661
Riethmayer, Jacob F., Lansdale, Pa. Machine for removing ice and snow	316,181	Apr. 21	1664	436	31	316
Rietschlin, Reinhard, Boston, Mass. Device for holding and mixing stove-polish	317,579	May 12	876	225	31	690
Riker, Carroll L., assignor to C. Gallman, New York, N. Y. Heat-regulator	318,393	May 19	1962	528	31	901
Riley, Charles P. (See Bales and Riley.)						
Riley, George S., Rochester, N. Y. Locomotive head-light	321,316	June 30	3185	849	31	1662
Riley, William H., Jr., and G. H. French, North Attleborough, Mass. Combination cuff-button and sleeve-pin	317,854	May 12	1240	328	31	758
Rinard, John, *et al.* (See Cogan, Robert B., assignor.)						
Rinderknecht, Charles J., assignor of one-half to A. J. Malone, Indianapolis, Ind. Automatic shovel mechanism	317,016	May 5	115	29	31	543
Ring, Elkanah. (See Bryant and Ring.)						
Ringen, John, St. Louis, Mo. Portable oven	316,914	Apr. 28	2092	701	31	508
Ripberger, Alexander G. T., Dresden, Saxony, Germany. Preserving food	317,673	May 12	999	.....	31	713
Ripley, Addie. (See Ripley, Edwin, assignor.)						
Ripley, Daniel C., Pittsburg, Pa. Manufacture of handled glassware	319,026	June 2	115	31	31	1069
Ripley, Edwin, assignor to A. Ripley, Sherman, N. Y. Cider-purifier	317,855	May 12	1241	{328 329}	31	758
Ritchie, John, Liverpool, county of Lancaster, England. Grain-cleaning and drying machine	316,063	Apr. 21	1500	392	31	285
Ritchie, Joshua R., assignor of one-half to W. Abbott, Philadelphia, Pa. Reversible seat	318,296	May 19	1823	488	31	877
Ritchie, Matthew L. (See Stephens and Ritchie.)						
Ritchie, Samuel, Wausau, Wis. Railway-switch	320,397	June 16	1998	525	31	1426
Ritter, John L., Brownsville, Ind. Force-feed seeding-machine	315,168	Apr. 7	250	61	31	46
Ritter, John L., Brownsville, Ind. Force-feed seeding-machine	317,204	May 5	380	95	31	592
Ritter, Eugen, Ehrenfeld, Germany. Screw-fastening for boxes or cases	321,054	June 30	2856	760	31	1601
Ritter, John A., Jr., West Baden, Ind. Cutting apparatus for harvesters	315,341	Apr. 7	490	124	31	89
Ritter, Wilhelm, Altona, Prussia, Germany. Feed-water regulator	320,093	June 16	1539	407	31	1345
Ritty, James, assignor to National Manufacturing Company, Dayton, Ohio. Cash-recorder	318,506	May 26	2107	568	31	937
Rivera, José M., Buga, United States of Colombia. Dynamo-electric machine	320,170	June 16	1639	436	31	1362
Rivers, Thomas L., Montclair, assignor of one-third to J. Thomas, Newark, N. J. Hameting	319,126	June 2	240	62, 63	31	1092
Rivoire, Joseph, Paris, France. Cushion for billiard-tables	317,017	May 5	117	29	31	543
Roach, Alfred H., Brooklyn, N. Y., and F. Kroedel, Hoboken, N. J. Temporary binder	317,856	May 12	1242	329	31	759
Robb, John, Akron, Ohio. Steam-generator	321,251	June 30	3107	826	31	1646
Robb, Walter G., Scott, Pa. Pipe-coupling	319,853	June 9	1198	317	31	1276
Robbins, Juan G. (See Davis and Robbins.)						
Robbins, Royal E., *et al.*, trustees. (See Church, Duane H., assignor.) (Reissue.)						
Robbins, William O., New York, N. Y. Propelling marine vessels	321,138	June 30	2968	786	31	1620
Roberts, Almon B., Thorndike, and C. H. Forbes, Brooks, Me. Trimming attachment for sewing-machines	317,205	May 5	382	95	31	593
Roberts, Alfred R., Philadelphia, Pa. Safety device for railway-switches	318,297	May 19	1824	489	31	877
Roberts, Alfred R., assignor to Wharton Railroad Switch Company, Philadelphia, Pa. Safety device for railway-switches	318,394	May 19	1963	528	31	901
Roberts, Amos K., *et al.* (See Dorman, Henry E., assignor.)						
Roberts, Benjamin P., Boston, Mass. Registering apparatus for check-stamps	316,293	Apr. 21	1809	476	31	341
Roberts, Charles H., Washington, Ind. Cut-off-valve gear	315,664	Apr. 14	952	249	31	178
Roberts, Charles H., Washington, Ind. Cap-plate for steam-engines	315,840	Apr. 14	1192	310	31	223
Roberts, Cyrus. (See Roberts and Schafer, assignors.)						
Roberts, Cyrus. (See Schafer, Christian, assignor.)						
Roberts, Dudley, Waltham, Mass. Watch-key	320,699	June 23	2395	633	31	1508
Roberts, Edward C., Broadford, Va. Furniture-drawer	316,294	Apr. 21	1812	476	31	341
Roberts, Edward D., Williamsburg, Iowa. Wire-stretcher	318,805	May 26	2518	672	31	1008
Roberts, Edward J., assignor of one-fourth to W. W. Culbertson, Ashland, Ky. Carbrake	316,829	Apr. 28	2559	670	31	484
Roberts, Edward P., *et al.* (See Thompson, Edward P., assignor.)						
Roberts, George A., Three Rivers, Mich. Concave for thrashing-machines	320,288	June 16	1807	480	31	1391
Roberts, George A., Three Rivers, Mich. Concave for thrashing-machines	320,700	June 23	2395	633	31	1508
Roberts, George A., and C. Schafer, assignors to C. Roberts, Three Rivers, Mich. Thrashing-machine	317,674	May 12	1001	259	31	713
Roberts, George P., Norwalk, Ohio. Match-safe	319,322	June 2	472	128	31	1138
Roberts, Isaiah L., Brooklyn, N. Y. Battery-fluid	317,206	May 5	383	.....	31	593
Roberts, J. B. (See Hough, Horace C., assignor.)						
Roberts, James, Philadelphia, Pa. Heddle supporting and operating mechanism for looms	318,658	May 26	2315	{618 619}	31	973
Roberts, John H. (See Babbott and Roberts.)						
Roberts, John H. (See Babbott, Roberts, and Banker.)						
Roberts, John W. (See Bemis, George W., Sr., and T., assignors.)						
Roberts, Joseph L. (See Giffard and Roberts.)						
Roberts, Lilly F., Kentucky Town, Tex. Pocket	320,171	June 16	1641	437	31	1362
Roberts, Morris, assignor, by mesne assignments, of one-half to Paine, Diehl & Co., Philadelphia, Pa. Window-screen	320,289	June 16	1808	480	31	1391
Roberts, Morris F., assignor of one-half to Shimer & Co., Philadelphia, Pa. Device for folding the edges of wire-cloth, sheet metal, &c	317,857	May 12	1244	329	31	759
Roberts, Percival. (See Christie, James, assignor.)						
Roberts, William E., New York, N. Y. Carriage	321,386	June 30	3275	875	31	1679
Roberts, William P., Sunbury, Pa. Folding stand or table	318,298	May 19	1825	489	31	877
Robertson, Henry B., Havensville, Kans. Combined hame-tug and trace-buckle	317,858	May 12	1245	329	31	759

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Robertson, Samuel S., *et al.* (See Boyle, Jay C., assignor.)						
Robin, Charles, Chester, Conn. Making twisted boring-tools	319,027	June 2	116	31	31	1069
Robinson, Clark, assignor of one-fourth to J. Kuntze, Hornellsville, N. Y. Detergent	319,323	June 2	474	.....	31	1138
Robinson, Edson C. (See Robinson, John S. and E. C.)						
Robinson, George H., *et al.* (See Rathbun, John H., assignor.)						
Robinson, George H., *et al.* (See Reynolds and Rider, assignors.)						
Robinson, George L., Waterbury, Conn. Button	317,018	May 5	118	30	31	544
Robinson, George W., Millview, Fla. Log-turner	315,073	Apr. 7	120	28	31	23
Robinson, George W., Millview, Fla. Device for spiraling metal	316,295	Apr. 21	1813	477	31	341
Robinson, James B., New York, N. Y. Basin attachment for bath-tube	315,342	Apr. 7	491	124	31	90
Robinson, John and W. J., Philadelphia, Pa. Basin attachment for bath-tube	316,572	Apr. 28	2190	{576 577}	31	416
Robinson, John S. and E. C., Canandaigua, N. Y. Sulky-plow	316,064	Apr. 21	1501	393	31	285
Robinson, Martin W., Somerville, Mass., and H. W. Marriner, Belfast, Me. Washing-machine	320,172	June 16	1641	437	31	1363
Robinson, Squire, Southington, Conn. Wrench	317,859	May 12	1246	330	31	759
Robinson, Stillman W., Columbus, assignor to Rote Automatic Brake Company, Mansfield, Ohio. Automatic car-brake	317,860	May 12	1247	{330 331}	31	760
Robinson, Stillman W., Columbus, assignor to Rote Automatic Brake Company, Mansfield, Ohio. Automatic car-brake	319,127	June 2	242	63	31	1092
Robinson, Stillman W., and O. E. Lewis, Columbus, Ohio. Machine for uniting soles and uppers	316,065	Apr. 21	1503	393	31	285
Robinson, Thomas C., Boston, assignor of one-half to E. B. Welch, Cambridge, Mass. Oscillating looper for sewing-machines	317,419	May 5	665	169	31	643
Robinson, Thomas C., Boston, assignor of one-half to E. B. Welch, Cambridge, Mass. Trimming mechanism for sewing-machines	319,623	June 9	891	236	31	1221
Robinson, William, National Soldier's Home, Ohio. Bed-protector	321,055	June 30	2857	760	31	1601
Robinson, William, Chicago, Ill. Sash-fastener						
Robinson, William H., *et al.* (See Arthur, Joseph A., assignor.)						
Robinson, William J. (See Robinson, John and W. J.)						
Robinson, William W., Ripon, Wis. Apparatus for holding shingles for painting	320,589	June 23	2254	597	31	1482
Robison, Joseph A., Everest, Kans. Thill-coupling	317,207	May 5	383	96	31	593
Roblee, Charles, *et al.* (See Van Zandt, Jacob, assignor.)						
Roby, James, Detroit, Mich. Fire-hose manipulator	316,830	Apr. 28	2561	671	31	484
Rochlitz, William, St. Louis, Mo. Washing-machine	319,028	June 2	116	32	31	1069
Rock, Adolphe, Parral, Estado de Chihuahua, Mexico. Refining oil, &c	316,603	Apr. 28	2304	.....	31	437
Rockafellow, Samuel, Muscatine, Iowa, assignor of one-half to W. G. Reeve, Peru, Ill. Sulky-plow	315,169	Apr. 7	252	61, 62	31	46
Rockafellow, Samuel, Muscatine, Iowa, assignor of one-half to W. H. Reeve, Peru, Ill. Car-starter	319,029	June 2	117	32	31	1069
Rockwell, William F., Meriden, Conn. Pocket-knife	317,208	May 5	384	96	31	593
Rockwood, Charles H., Marlborough, Conn. Scaffold-bracket	316,573	Apr. 28	2192	577	31	416
Rodebaugh, George W., Jackson, Mich. Saw-guide	319,624	June 9	892	236	31	1221
Rodger, William, St. Paul, Minn. Cigar-wrapper-cutting machine	319,424	June 2	598	{162 163}	31	1162
Rodgers, Alexander. (See Campbell, John, assignor.)						
Rodgers, Alexander, Muskegon, Mich. Feed-water heater	316,182	Apr. 21	1665	436	31	316
Rodgers & Sons, Joseph. (See Hatfield, William B., assignor.)						
Rodier, Louis C., Detroit, Mich. Plane	316,296	Apr. 21	1813	477	31	341
Rodier, Louis C., Detroit, Mich. Lathe	317,209	May 5	385	96, 97	31	593
Roedman, Henry H., Wilkes-Barré, Pa. Shoe-fastening	315,554	Apr. 14	816	214	31	151
Roemhildt, Henry, Baltimore, Md. Barrel-hung	318,659	May 26	2316	619	31	974
Rogers, Henry H., New York, and C. Vose, Brooklyn, assignors to Pratt Manufacturing Company, New York, N. Y. Apparatus for refrigerating paraffine-oils and other liquids	316,400	Apr. 21	1952	515	31	366
Rogers, William J., Terrell, Tex. Churn	317,019	May 5	118	30	31	544
Rohan, Philip, St. Louis, Mo. Feed-water heater	316,297	Apr. 21	1815	477	31	342
Rohrer, Jacob B., *et al.* (See Wallick, Marion, assignor.)						
Rohrback, Henry J., Chicago, Ill. Safety attachment for cable cars	316,831	Apr. 28	2563	671	31	485
Roland, Robert G., Beech Grove, Ky. Door-lock	316,574	Apr. 28	2192	577	31	416
Roll, George P. (See Haller, Henry, assignor.)						
Rolle, Theodore. (See Breslauer, Edward, assignor.)						
Roller, Louis A., *et al.* (See Herrick, Lewis W., assignor.)						
Romer, Charles W. A., *et al.* (See Brettell, Edward W., assignor.)						
Rood, Henry W. (See Weber, Adolph, assignor.)						
Roome, Henry C., Jersey City, N. J. Electric alarm and signal	316,183	Apr. 21	1667	437	31	316
Roop, James F. (See Lingle and Roop.)						
Roorbach, William L., assignor of one-half to S. Twitchell & Brother, Philadelphia, Pa. Bottle-forming tool	316,832	Apr. 28	2564	671	31	485
Root, Henry, San Francisco, Cal. Cable railway	315,992	Apr. 14	1408	365	31	261
Root, Henry, San Francisco, Cal. Cable railway	319,929	June 9	1307	{344 345}	31	1295
Root, John B., Port Chester, N. Y. Pipe-coupling	315,074	Apr. 7	121	28	31	24
Root, John B., Port Chester, N. Y. Pipe-connection	315,075	Apr. 7	122	28	31	24
Root, Judson E., Westfield, N. Y. Circuit-closer	320,504	June 23	2141	565	31	1460
Root, Lawrence O., Minneapolis, Minn. Elevated railway	315,555	Apr. 14	817	{214 215}	31	152
Root, William J., and W. Childs, Brooklyn, assignor to Radix Manufacturing Company, New York, N. Y. Center-board	319,930	June 9	1309	345	31	1295
Roorbach, William L., Philadelphia, Pa. Bottle-stopper	320,701	June 23	2396	634	31	1508
Roper, Sylvester H., Boston, Mass. Magazine fire-arm	316,401	Apr. 21	1954	515	31	366
Rosback, Henry A. (See Heilbronner and Rosback.)						
Rosch, John, New York, N. Y. Device for attaching curtains to rollers	320,290	June 16	1809	480	31	1391
Rose, Franklin A., Riverside, Iowa. Check-row corn-planter	316,833	Apr. 28	2565	671	31	485
Rose, Henry, Prairie du Sac, Wis. Combined wash-stand and dressing-case	315,343	Apr. 7	492	124	31	90
Rose, Henry M., Waterman, Ill. Disk-harrow	318,395	May 19	1963	529	31	902
Rose, John H., Norwalk, Conn. Fare register and recorder	315,963	Apr. 14	1373	355	31	254
Rose, Levi P. (See Salisbury, Silas C., assignor.)						
Rosebrook, Frank, Elmira, N. Y. Chicken-brooder	317,210	May 5	387	97	31	594
Rosenberg & Co., I. (See Gilbert, Thomas S., assignor.)						
Rosenberg, William, New York, N. Y. Lacquer for use in soldering	319,128	June 2	243	.....	31	1092
Rosenberger, Emil, Chicago, Ill. Harness-saddle	319,931	June 9	1313	346	31	1296
Rosenzweig, Aaron, New York, N. Y. Handle for culinary vessels	315,344	Apr. 7	493	125	31	90
Rosewater, Andrew, Omaha, Nebr. Device for flushing tanks, sinks, &c	320,398	June 16	1998	526	31	1426
Ross, Charles, Jr., Brooklyn, N. Y. Paint-mixer	316,487	Apr. 28	2087	546	31	396
Ross, George P., Chicago, Ill. Glove-fastener	319,030	June 2	119	33	31	1070
Ross, James A., Plymouth, Pa. Car-coupling	320,702	June 23	2397	634	31	1508

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Ross, John B., Rahway, N. J. Stone-dressing machine	315,962	Apr. 14	1371	355	31	254
Ross, Lyon P., Rockford, Ill. Folding bed	318,806	May 26	2519	672, 673	31	1009
Ross, Thomas B., Evansville, Ind. Sash-fastener	319,324	June 2	474	128	31	1138
Ross, William. (See White, Ross, Creasy, and Gritton.)						
Roswall, Lars J. A. (See Smith and Roswall.)						
Rote Automatic Brake Company. (See Robinson, Stillman W., assignor.)						
Rote, Charles V., Lancaster, Pa. Automatic car-brake	317,954	May 12	1372	368, 369	31	784
Roth, Charles W., New York, N. Y. Window cold-air refrigerator	318,507	May 26	2108	509	31	938
Roth, Charles W., Evansville, Ind. Combined electrical weighing-scale and flour and bran packer	321,387	June 30	3277	876	31	1680
Rothlisberger, Ernestc, Cincinnati, Ohio. Device for lining bands of wheel-hubs	318,927	May 26	2676	709	31	1038
Rothrock, Oscar, New York, N. Y. Feed-water heater	318,396	May 19	1965	520	31	902
Rothziegel, Ignaz. (See Rachler and Rothziegel.)						
Rough, John W., New Rochelle, N. Y. Boat	317,090	May 5	119	30	31	544
Rounds, John C., Moravia, N. Y. Mechanical telephone	318,397	May 19	1967	530	31	902
Rounds, Thomas W. (See Kent, Haxham P., assignor.)						
Roussy, Emile L., Vevay, Switzerland. Incandescent electric lamp	319,129	June 2	244	63	31	1092
Rowe, David S. (See Rowe, Lydia A. and D. S.)						
Rowe, Lydia A. and D. S., Springfield, Ohio. Pie and cake rack	320,173	June 16	1642	437	31	1363
Rowe, Oliver J. (See Frick and Rowe.)						
Rowell, Guilford D., Appleton, Wis. Cultivator and seeder frame	320,970	June 30	2749	731	31	1581
Rowell, John H., Solon, Me. Windmill	318,928	May 26	2678	710	31	1038
Rowland, Thomas F., New York, N. Y. Door for digesters	320,971	June 30	2750	731	31	1581
Rowlett, Joseph F., Richmond, Ind. Door-check	319,625	June 9	893	236	31	1222
Roy, Peter S., Denver, Colo. Pitman attachment for sewing-machines	318,207	May 19	1709	457	31	855
Royer, Jacob, *et al.* (See Meyer, Phillip, assignor.)						
Rubin, Max, Philadelphia, Pa. Pencil or crayon holder	316,402	Apr. 21	1956	516	31	367
Rubin, Max, New York, N. Y. Fan	317,211	May 5	388	97	31	594
Rubin, Max, New York, N. Y. Shawl-strap	317,212	May 5	389	97	31	594
Ruck, Richard M., Chatham, county of Kent, and E. Jones, Wallington, county of Surrey, England. Counterbalancing-float for marine torpedoes	319,626	June 9	894	237	31	1222
Rudd, Charles L., and E. J. Manning, Lake City, Minn. Hammock holder or stand	320,174	June 16	1643	437	31	1363
Ruddy, Robert, Mount Vernon, assignor to Nathan Manufacturing Company, New York, N. Y. Lubricator	316,834	Apr. 28	2567	672	31	485
Rude Brothers Manufacturing Company. (See Swope and Rude, assignors.)						
Rude, John R., deceased. (See Swope and Rude.)						
Rudling, William A., and J. F. Coffin, Southsea, county of Hants, England. Velocipede	319,130	June 2	245	64	31	1092
Ruebsam, John E., Washington, D. C. Exercising apparatus	321,388	June 30	3280	876, 877	31	1680
Ruetzel, Peter J., New York, N. Y. Button-gaiter	318,033	May 19	1490	400	31	813
Ruffel, Pierre J., Paris, France. India-rubber pump	320,888	June 23	2630	696	31	1553
Ruggles, Thomas D., Kent, Ohio. Oil-cup	317,580	May 12	877	225	31	690
Rugland, Samuel C., San Francisco, Cal. Tailors' shears	316,488	Apr. 28	2088	546	31	396
Ruhl, Jesse F., Topeka, Ill. Wagon-box	316,915	Apr. 28	2693	701	31	508
Rummel, Joseph P. (See Pollock, James R., assignor.)						
Rummel, Ludwig. (See Corcoran and Rummel.)						
Rumay, Albert R., Cleveland, Ohio. Boxing-glove	320,972	June 30	2768	731	31	1581
Runstetler, Andrew. (See Runstetler, Michael and A.)						
Runstetler, Michael, deceased, (J. A. Marley administrator,) and A., assignors to Farmers Friend Manufacturing Company, Dayton, Ohio Corn-planter	320,943	June 30	2707	718	31	1573
Runyan, John W., Catawba, Ohio. Pump-driver	315,445	Apr. 7	635	164	31	113
Ruoff, Jacob, Providence, R. I. Ear-pick	320,889	June 23	2631	696	31	1553
Rusby, Joseph R., Bloomfield, N. J. Sash-fastener	320,175	June 16	1645	438	31	1363
Rush, William B., assignor to Chambers, Bering, Quinlan Company, Decatur, Ill. Corn-planter check-rower	315,446	Apr. 7	636	164, 165	31	114
Rushforth, William H., Camden, N. J. Feed-water heater	318,880	May 26	2618	695	31	1027
Russell, Andrew J., and W. M. Goolden, London Bridge, Va. Fence	316,916	Apr. 28	2693	701	31	508
Russell, Edward H., Park City, Utah Ter. Purifying hyposulphite leaching solutions	320,590	June 23	2255	.....	31	1482
Russell & Erwin Manufacturing Company. (See Jones, Horace K., assignor.)						
Russell & Erwin Manufacturing Company. (See Russell and Jones, assignors.)						
Russell, Henry E., Jr., New Britain, and H. K. Jones, Hartford, assignors to Russell & Erwin Manufacturing Company, New Britain, Conn. Wire-notching machine	315,170	Apr. 7	255	62	31	47
Russell, Henry T., Chicago, Ill. Die for making bells	316,489	Apr. 28	2089	547	31	396
Russell, Isaac H., Easthampton, Mass. Cord-spool and tension device for grain-binders	316,917	Apr. 28	2694	701	31	508
Russell, Isaac H., East Hampton, assignor to Abbot Spinner Company, Boston, Mass. Machinery for the manufacture of cotton yarn	317,675	May 12	1002	260	31	713
Russell, Leander J. (See Curtis and Russell.)						
Russell, Samuel, Brooklyn, N. Y. Electric cartridge	319,628	June 9	897	237	31	1222
Russell, Samuel, Brooklyn, assignor to American Electric Arms and Ammunition Company, New York, N. Y. Electric primer	319,627	June 9	896	237	31	1222
Russell, Samuel, Brooklyn, assignor to American Electric Arms and Ammunition Company, New York, N. Y. Electric cartridge	319,629	June 9	898	238	31	1222
Rust, Emory G., Grand Prairie, Tex. Sash-holder	319,509	June 9	734	197	31	1193
Ru Ton, Hiram W., *et al.* (See Gore, Henry A., assignor.)						
Ruthenburg, Marcus, Cincinnati, Ohio. Automatic fire-extinguisher	318,508	May 26	2109	569	31	938
Rutherford, John B., Netawaka, Kans. Fifth-wheel	319,510	June 9	735	197	31	1193
Rutherford, John L., and A. F. Wood, assignors to Parker & Whipple Company, Meriden, Conn. Clock-case	318,435	May 19	2016	542	31	910
Ruyter, Henry. (See Traitel and Ruyter.)						
Ryan, John M., Vicksburg, Miss. Saw-tooth swage	319,425	June 2	600	163	31	1162
Ryder, Benjamin L., Chambersburg, Pa. Fruit-drier	320,399	June 16	2000	526, 527	31	1427
Ryder, Elisha, Hartford, Conn. Envelope-moistener	319,426	June 2	001	163	31	1163
Ryder, Seth B. (See Mitchell, Lewis A., assignor.)						
Ryer, Benjamin F., assignor of one-half to L. Gathmann, Chicago, Ill. Stocking	319,131	June 2	246	64	31	1092
Rylands, Dan, Stairfoot Barnsley, county of York, England. Machinery for drilling holes in bottles	320,505	June 23	2142	565	31	1460
Ryle, John, Paterson, N. J. Warping-machine	317,472	May 5	739	187	31	657
Sachs, Edward, *et al.* (See Ball, William H., assignor.)						
Sackett, Frederick E., Bridgeport, Conn. Music-leaf turner	318,509	May 26	2111	569	31	938
Sackett Manufacturing Company. (See Lavigne, Joseph P., assignor.)						
Safety Steam Generator Company. (See Zell, Robert R., assignor.)						
Safford, Henry C., Brooklyn, N. Y. Tool for boring wells	318,034	May 19	1491	400	31	813
Salisbury, Colonel, Wright, Mich. Lever-power	315,556	Apr. 14	819	215	31	152
Salisbury, Silas C., New York, assignor to L. P. Rose, Yonkers, N. Y. Apparatus for manufacturing illuminating-gas	317,581	May 12	877	225	31	690
Salkeld, Samuel. (See Heys and Salkeld.)						
Salomons, Mitchell A. (See Brush and Salomons.)						
Saltsman, Daniel J., assignor to H. H. Malone, Brewton, Ala. Log-turner	320,591	June 23	2256	597	31	1482
Salzgeber, John C., St. Louis, Mo. Coffee-roaster	316,066	Apr. 21	1504	393	31	285
Sammis, John W. (See Ribble and Sammis.)						
Samper, Silvestre, New York, N. Y. Fire-escape	318,299	May 19	1896	489, 490	31	877
Sampson, Augustus S., and D. G. Peck, Minneapolis, Minn. Artificial flag-stone	315,557	Apr. 14	819	215	31	152
Sampson, Joseph C. (See Hurd, Lorenzo D., assignor.)						
Samuel, Edward. (See Wharton and Samuel.)						
Samuel, Edward, assignor to W. Wharton, Jr., & Co., (limited,) Philadelphia, Pa. Conduit for cable or electrical railways	315,841	Apr. 14	1193	311	31	223
Samuel, Edward, assignor to W. Wharton, Jr., & Co., (limited,) Philadelphia, Pa. Cable railway	315,964	Apr. 14	1376	356	31	234
Samuel, Leopold S., Newark, N. J. Diaper	318,141	May 19	1627	434	31	839
Samuels, Thomas, Hadley-Monken, county of Middlesex, England, assignor of one-half to A. M. and W. Clark. Photographic camera	321,139	June 30	2969	786	31	1620
Sanborn, Brazilla H., Tupper's Plains, Ohio. Combined washing and wringing machine	319,325	June 2	475	128	31	1138
Sanborn, Clarence, Sacramento, assignor of one-half to A. T. Dewey, San Francisco, Cal. Lifting apparatus	319,132	June 2	246	64	31	1093
Sanborn, Samuel, San Francisco, Cal. Food for calves	317,021	May 5	120	.....	31	544
Sancan, François, Thibodeaux, La. Apparatus for delivering clean water into cisterns from roofs of buildings	316,184	Apr. 21	1669	437	31	317
Sanders, Eliza. (See Sanders, Louis, assignor.) (Reissue.)	316,185	Apr. 21	1670	437	31	317
Sanders, George A., Lake Village, N. H. Drill-rest for lathes	321,140	June 30	2970	787	31	1621
Sanders, Joseph F., and T. T. Whitcomb, Elizabeth City, N. C. Two-wheeled vehicle	10,612	June 16	2070	544	31	1439
Sanders, Louis, Brooklyn, assignor to E. Sanders, New York, N. Y. Waist-belt. (Reissue)						
Sanders, Simeon F. (See Davidson and Sanders.)	315,345	Apr. 7	494	125	31	90
Sanders, William J., Gilmer, Tex. Hearth guard or shield						
Sandford, James A. (See Burdick and Sandford.)						
Sandland, Capron & Co. (See Lettré, Philipp, assignor.)	318,208	May 19	1710	457	31	855
Sandmark, Swen P., Ishpeming, Mich. Watch-regulator	320,592	June 23	2257	597	31	1482
Sandvos, Frederick, New York, N. Y. Belt-coupling	320,291	June 16	1811	481	31	1392
Sanford, Hopkins A., New Haven, Conn., assignor of one-half to J. A. Crouthers, New York, N. Y. Wick-adjuster	318,035	May 19	1491	400	31	814
Sanford, Isaac R., Boston, Mass. Heel-protector	320,292	June 16	1812	481	31	1392
Sanford, Joseph B., Jersey City, N. J. Wharf						
Sangster, Amos W. (See Ransom and Sangster.)	320,176	June 16	1646	438	31	1363
Sanner, James M., Bradford, Pa. Pump for oil-wells	318,036	May 19	1492	400	31	814
Sargent, Henry C., Machias, Me. Hame	316,490	Apr. 28	2091	547	31	396
Sargent, John W., Cambridge, Mass. Steam-engine governor	318,037	May 19	1493	401	31	814
Sargent, John W., Cambridgeport, Mass. Mechanism for operating slide-valves						
Sargent's Sons, C. G. (See Rice, David H., assignor.)						
Sault, Thomas. (See Alberger and Sault.)	317,022	May 5	121	30, 31	31	544
Saunders, Alexander, Yonkers, N. Y. Apparatus for threading pipes and bolts	321,141	June 30	2971	787	31	1621
Saunders, Benjamin, Claverack, N. Y. Mower	317,023	May 5	122	31	31	544
Saunders, George E., assignor of one-half to W. T. Beasley, Burden, Kans. Mechanical power	315,171	Apr. 7	257	62	31	47
Saunders, William L., Jersey City, N. J. Sand and water feed mechanism for stone-sawing machines	320,293	June 16	1813	481	31	1392
Saunders, William L., Jersey City, N. J. Stone-cutting machine	320,294	June 16	1814	481, 482	31	1392
Saunders, William L., Jersey City, N. J. Mining-machine	320,295	June 16	1815	482	31	1393
Saunders, William L., Jersey City, N. J. Drill-head for channeling-machines	320,296	June 16	1816	482, 483	31	1393
Saunders, William L., Jersey City, N. J. Feeding mechanism for mining-machines	321,056	June 30	2858	760	31	1601
Saupiquet, Arsène, Nantes, France. Box	318,038	May 19	1495	401	31	814
Sawyer, Amos, *et al.* (See Coe, Charles E., assignor.)	317,677	May 12	1005	261	31	713
Sawyer, Annie E., Charlestown, Mass. Skirt-protector	317,676	May 12	1004	260	31	713
Sawyer, Howard M., Medford, Mass. Storm-hat	319,326	June 2	477	129	31	1139
Sawyer, William E., New York, and A. Man, Brooklyn, N. Y., assignors to Electro-Dynamic Light Company of New York. Electric light	315,076	Apr. 7	123	29	31	24
Sawyer, William H., Providence, R. I. Electrical conductor	319,511	June 9	736	197, 198	31	1193
Sawyer, Willard W., and J. H. Gould, Springfield, Mass.; said Gould assignor to W. A. Force, Brooklyn, N. Y. Hand-stamp	316,186	Apr. 21	1671	437	31	317
Sax, John K., Pittston, Pa. Car-wheel	317,213	May 5	390	98	31	595
Saxby, James, Tooting, county of Surrey, England. Apparatus for moving and locking railway-points						
Saxton, Oliver H., Washington, Ohio. Portable telephone						
Sayles, Frederic C., *et al.* (See Midgley and Hall, assignors.)						
Sayles, William F., *et al.* (See Midgley and Hall, assignors.)						
Saylor, Jackson, *et al.* (See Saylor, Louis S., assignor.)						
Saylor, Louis S., assignor of two-thirds to J. Saylor and J. Thomas, Indianapolis, Ind. Rolling-mill hooking and carrying machine	320,973	June 30	2753	731, 732	31	1581
Sayre, Louis A. (See Scott, L. Herbert, assignor.)						
Scales, Christopher C., assignor of one-half to E. H. Davis, Toronto, Ontario, Canada. Sign	321,252	June 30	3108	827	31	1646
Scales, George W., Lafayette, N. J. Coin attachment for pocket-books	316,664	Apr. 28	2306	605	31	437
Scanlan, Thomas F., and O. A. Dinsmore, Boston, Mass., assignors to said Scanlan. Music-rack for pianos	315,558	Apr. 14	820	216	31	152
Scarff, Frank J. (See Chamberlain, Blanchard, assignor.)						
Scatchard, Elmer E., Philadelphia, Pa. Hosiery	317,861	May 12	1251	331	31	760
Sceets, George N., Evansville, Ind. Locomotive head-light	318,510	May 26	2112	570	31	938
Schaal, Eugen, Stuttgart, Würtemberg, Germany. Composition for soap	319,854	June 9	1199	.....	31	1276
Schaal, George A. (See Henry, John J., assignor.)						
Schaar, Paul, Poessneck, Sachsen-Meiningen, Germany. Pressure-regulator for fermenting-vats	316,491	Apr. 28	2092	547, 548	31	397
Schach, Friedrich, and W. Stelter, Sedalia, Mo. Feather-renovator	318,039	May 19	1495	401	31	814
Schaefer, Frederic, assignor to L. Schlegelmilch, trustee, Boston, Mass. Manufacture of filaments for incandescent lamps	320,297	June 16	1818	483	31	1393
Schaefer, Hermann F. B., Berlin, Germany. Carbon battery-electrode	318,300	May 19	1828	490	31	878

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Schaefer, John C., assignor to himself and J. A. Hagmeyer, New York, N. Y. Safety-valve for beer-casks	318,040	May 19	1496	401	31	815
Schaefer, Joseph, Jersey City, N. J. Closet for railway-cars	320,177	June 16	1647	438	31	1363
Schafer, Christian. (See Roberts and Schafer.)						
Schafer, Christian, assignor to C. Roberts, Three Rivers, Mich. Extension-grate for thrashing-machines	318,142	May 19	1628	435	31	839
Schäffer & Budenberg. (See Lüde, Carl V., assignor.)						
Schäffer & Budenberg. (See Prüssmann, Carl, assignor.)						
Schafhaus, Jean, New York, N. Y. Brewing beer	316,067	Apr. 21	1506	394	31	286
Schake, John. (See Hnehn, Conrad, assignor.)						
Schayer, Simon, New York, N. Y. Confectionery	320,003	June 16	1420	373	31	1322
Scheidler, Reinhard, Newark, Ohio. Valve-gear for steam-engines	316,187	Apr. 21	1671	438	31	317
Schember, Philipp, Pekin, Ill. Iron wheel	315,346	Apr. 7	494	125	31	90
Schermerhon, S. Bird, Paris, Mich. Stone-boat	320,178	June 16	1647	438	31	1364
Schilling, Gustav, Detroit, Mich. Machine for crimping and preparing elastic fabric	315,242	Apr. 14	1194	311	31	224
Schimmel, Gerard W., Amsterdam, Holland. Device for picking up and affixing stamps, &c	319,328	June 2	479	120	31	1139
Schirmer, Hermann A., Milwaukee, Wis. Combined nail and screw	321,389	June 30	3282	877	31	1680
Schirmer, John A., assignor of one-half to H. S. Derby, East Saginaw, Mich. Net or veil	316,575	Apr. 28	2194	577	31	417
Schlegelmilch, George E., Philadelphia, Pa. Automatic time-recorder and station-indicator	321,317	June 30	3186	850	31	1662
Schlegelmilch, Leopold, trustee. (See Schaefer, Frederic, assignor.)						
Schlessman, Michael, Columbia City, Ind. Railway-crossing	316,576	Apr. 28	2195	578	31	417
Schlickeysen, Carl, Berlin, Germany. Screening apparatus	316,068	Apr. 21	1508	394	31	286
Schlickeysen, Carl, Berlin, Germany. Apparatus for mixing mortar, concrete, &c	316,069	Apr. 21	1509	394	31	286
Schlimbach, Edward, Long Island City, N. Y. Ale and beer pump	317,214	May 5	392	98	31	595
Schmahl, Paul, Biberach-on-the-Riss, Würtemberg, Germany. Fire-ladder	318,660	May 26	2317	619, 620	31	974
Schmaizried, George. (See Reinhardt and Ellis, assignors.)						
Schmedlen, William H. (See O'Brien, Thomas, assignor.)						
Schmid, Charles J., assignor to Padan Brothers & Co., Portsmouth, Ohio. Inner sole for boots or shoes	318,209	May 19	1711	458	31	855
Schmidt, Emil, *et al.* (See Clinton, Fred S., assignor.)						
Schmidt, Theodore, assignor to J. O. Shoup, R. L. Hughes, and H. H. Laubach, Dayton, Ohio. Paper package-box. (Reissue)	10,607	June 2	629	169	31	1169
Schmitt, John J., and M. W. Dougherty; said Dougherty assignor to T. Malaskey, Weston, W Va. Writing-desk	319,133	June 2	247	65	31	1093
Schmitt, Phillip L., assignor to Peerless Oil Ejector Company, Quincy, Ill. Lubricator	320,703	June 23	2398	634	31	1509
Schmitt, Phillip L., assignor to Peerless Oil Ejector Company, Quincy, Ill. Lubricator	320,704	June 23	2399	635	31	1509
Schmuck, Solomon, *et al.* (See Mead, Birdsall H., assignor.)						
Schnabel, Samuel W., Mayview, Mo. Safety-flue for chimneys	318,301	May 19	1630	490	31	878
Schnabl, Leopold, Vienna, Austria-Hungary. Metallic packing-ring	316,188	Apr. 21	1673	438, 439	31	317
Schneck, George W., *et al.* (See Schneck, Henry P., assignor.)						
Schneck, Gustav, Jersey City, N. J., assignor to L. Pattberg & Brothers, New York, N. Y. Stereoscope	318,302	May 19	1631	490	31	878
Schneck, Henry P., deceased. S. R. Schneck, administratrix and assignor to G. Holsbog and G. W. Schneck, Jeffersonville, Ind. Adjustable folding table and ironing-board support	315,665	Apr. 14	953	250	31	178
Schneck, Sophia R., administratrix. (See Schneck, Henry P.)						
Schneider, Hippolyte, Pittsburg, Pa. Velocipede	319,329	June 2	480	130	31	1139
Schneider, Hugo, Cleveland, Ohio. Rotary water-meter	319,134	June 2	248	65	31	1093
Schneider, John B., St. Jacob, Ill. Dinner-bucket	319,932	June 9	1314	346	31	1296
Schneider, Paul, and H. Trenkamp, Cleveland, Ohio. Vapor-burner	318,303	May 19	1631	491	31	878
Schneider, Paul, and H. Trenkamp, Cleveland, Ohio. Vapor-burner	318,304	May 19	1633	491	31	878
Schnizlein, Friedrich, Munich, Bavaria, Germany. Safety-brake for elevators	316,577	Apr. 28	2196	578	31	417
Schoenberg, Gabriel N., Boulogne, France. Drop-hammer	318,305	May 19	1633	491, 492, 493, 494	31	879
Schoenike, Gustav A., Lebanon, Wis. Spoke-extractor	319,512	June 9	737	198	31	1193
Schoenleber, Conrad, Rochester, N. Y. Lathe for turning irregular forms	316,835	Apr. 28	2568	672	31	486
Schofield, Charles, Minneapolis, Minn. Plumb-level	320,506	June 23	2143	565	31	1461
Schofield, Peter, Pomona, N. J. Faucet	320,705	June 23	2400	635	31	1509
Schofield, Silas C., Freeport, Ill. Corn-sheller	318,041	May 19	1497	402	31	815
Schofield, William, Philadelphia, Pa. Shaft-coupler	317,955	May 12	1375	369	31	785
Scholle, Carl, New York, N. Y. Striking mechanism for time-pieces	315,843	Apr. 14	1195	311, 312	31	224
Scholler, Gustavus F. (See Braunfeld, Henry E., assignor.)						
Schombel, Fritz, Chicago, Ill. Coffee and tea box	317,678	May 12	1006	261	31	714
Schrack, Samuel B., *et al.* (See Lees, Henry C., assignor.)						
Schrader, Conrad, and F. W. Kittler, Milwaukee, Wis. Fire-escape	317,862	May 12	1252	332	31	760
Schrader, John C. (See Penniman, Russell S., assignor.)						
Schray, Fredrick, assignor to Buchanan Manufacturing Company, Buchanan, Mich. Folding cabinet-bed	319,135	June 2	249	65	31	1093
Schray, Frederick, assignor to Buchanan Manufacturing Company, Buchanan, Mich. Folding bed	320,298	June 16	1820	483, 484	31	1393
Schreck, John E., New York, N. Y. Mold for making perforated glass plates	315,172	Apr. 7	258	62	31	47
Schreck, John E., New York, N. Y. Perforated glass plate for making medicinal tablets	315,173	Apr. 7	259	63	31	47
Schreiber, Charles C., Cincinnati, Ohio. Fire-proof shutter	320,974	June 30	2756	733	31	1592
Schroder, John B., Cincinnati, Ohio. Sash-pulley	315,347	Apr. 7	495	125	31	91
Schroeder, Emil, San Francisco, Cal. Graining skins	319,136	June 2	251	.....	31	1093
Schroeder, Ernest C., Itaska, Ill. Combined potato marker, hiller, and digger	316,403	Apr. 21	1957	516	31	367
Schroeder, Rudolph, New York, N. Y. Floor-covering	318,661	May 26	2320	620	31	975
Schröter, Ernst W. R., Hamburg, Germany. Topical remedy	318,662	May 26	2321	.....	31	975
Schubert, William J., *et al.* (See Freaner and Golding, assignors.)						
Schuchardt, Emil, New York, N. Y. Distance-register for vehicles	318,511	May 26	2113	570	31	938
Schnetta, H. George, Manitowoc, Wis. Street-lamp	317,215	May 5	393	98	31	595
Schuhmann, George, Reading, Pa. Valve for engines	315,244	Apr. 14	1199	312	31	224
Schultz, Adam, Cincinnati, Ohio. Beer-keg washer	318,306	May 19	1844	495	31	879
Schultz, Fred J. (See Edwards and Schultz.)						
Schultz, Johann J. H., Hamburg, Germany. Corking-machine	319,138	June 2	252	66	31	1094
Schulz, George, Toledo, Ohio. Knockdown closet	319,137	June 2	251	65	31	1093
Schulze-Berge, Hermann, Rochester, Pa. Screw-propeller	317,582	May 12	880	226	31	691
Schulze-Berge, Hermann, Rochester, Pa. Road-engine	317,583	May 12	881	226	31	691

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Schulze-Berge, Hermann, Rochester, Pa. Device for converting motion	317,584	May 12	883	226	31	691
Schulze-Berge, Hermann, Rochester, Pa. Gearing	319,513	June 9	738	198	31	1194
Schulze-Berge, Hermann, Rochester, Pa. Gear-cutter	320,179	June 16	1648	439	31	1364
Schulze-Berge, Hermann, Rochester, Pa. Mechanical movement	320,706	June 23	2401	635	31	1510
Schulze-Berge, Hermann, Rochester, assignor to himself and J. H. Lippincott, Pittsburg, Pa. Machine for printing on glassware	316,836	Apr. 28	2570	672, 673	31	486
Schulze-Berge, Hermann, Rochester, Pa., assignor to H. W. Oliver, Jr., and J. P. Witherow. Converter	316,837	Apr. 28	2577	674	31	487
Schumacher, William. (See Ferguson, Schumacher, and Tubman.)						
Schuman, John C., Akron, assignor to W. T. Jebb, Buffalo, N. Y. Manufacture of starch	316,404	Apr. 21	1959	516, 517	31	367
Schuman, John C., Akron, assignor to W. T. Jebb, Buffalo, N. Y. Manufacture of starch	316,405	Apr. 21	1962	517	31	367
Schuman, John C., Akron, assignor to W. T. Jebb, Buffalo, N. Y. Treating and preparing starch	316,406	Apr. 21	1964	517, 518	31	368
Schuman, John C., Akron, assignor to W. T. Jebb, Buffalo, N. Y. Preparing and treating starch	318,307	May 19	1847	496	31	880
Schuman, John C., Akron, assignor to W. T. Jebb, Buffalo, N. Y. Manufacture of starch	318,308	May 19	1849	496	31	880
Schuman, John C., Akron, assignor to W. T. Jebb, Buffalo, N. Y. Manufacture of grape-sugar and glucose	318,309	May 19	1851	497	31	880
Schuman, John C., Akron, assignor to W. T. Jebb, Buffalo, N. Y. Manufacture of starch	320,400	June 16	2003	.....	31	1427
Schuman, John C., Akron, assignor to W. T. Jebb, Buffalo, N. Y. Preparing and treating starch	320,401	June 16	2004	.....	31	1427
Schuman, John C., Akron, assignor to W. T. Jebb, Buffalo, N. Y. Manufacture of starch	320,402	June 16	2006	.....	31	1428
Schuman, John C., Akron, assignor to W. T. Jebb, Buffalo, N. Y. Manufacture of grape-sugar and glucose	320,403	June 16	2007	.....	31	1428
Schumann, Francis, assignor of one-half to W. D. Haven, Trenton, N. J. Steam-engine governor	318,663	May 26	2321	620, 621	31	975
Schumann, Henry H., Troy, Pa. Ladder	317,024	May 5	124	31	31	545
Schumann, Henry H., assignor of one-third to C. Muth, Troy, Pa. Ladder	319,330	June 2	482	130	31	1140
Schumann, Henry H., and C. Muth, Troy, Pa.; said Schumann assignor to said Muth. Eaves-trough	316,578	Apr. 28	2198	578	31	417
Schumann, Otto F., Brooklyn, N. Y. Curtain pole and fixture	320,094	June 16	1540	407	31	1345
Schupp, Fred. J., Marshall, Mo. Conveyer for flour-bolts and middlings-purifiers	320,707	June 23	2403	636	31	1510
Schürmann, Gustav A., New York, N. Y. Backing for books	321,142	June 30	2973	787	31	1621
Schuyler, Daniel A., New York, N. Y., assignor to Schuyler Electric Light Company of New York. Armature for dynamo-electric machines	318,664	May 26	2323	621	31	975
Schuyler Electric Light Company. (See Pfannkuche, Gustave, assignor.)						
Schuyler Electric Light Company. (See Waterhouse, Addison G., assignor.)						
Schuyler Electric Light Company of New York. (See Schuyler, Daniel A., assignor.)						
Schuyler, William D., New York, N. Y. Automatic seal-trap for wash-basins and water-closets	320,706	June 23	2404	636, 637	31	1510
Schwaner, Christian C., Winterset, Iowa. Hame-tug	321,253	June 30	3109	827	31	1646
Schwartz, John. (See Schwartz, William and J.)						
Schwartz, John F., Alma, Mich. Two-wheeled vehicle	318,807	May 26	2321	673	31	1009
Schwartz, William and J., Lake Prairie, Minn. Rattle-rake for thrashing-machines	318,310	May 19	1853	497	31	880
Schwarzschild, August, and N. Greenfield, New York, N. Y. Confectionery	315,539	Apr. 14	822	216	31	153
Schwiebert, Jean, Barmen, Prussia, Germany. Hair-curling pin	317,216	May 5	394	98	31	595
Scofield, Levi, assignor to Challenge Corn Planter Company, Grand Haven, Mich. Check-row attachment for corn-planters	318,042	May 19	1499	402, 403	31	815
Scofield, Levi, assignor to Challenge Corn Planter Company, Grand Haven, Mich. Corn-planter	318,512	May 26	2116	571	31	939
Scofield, Levi, assignor to Challenge Corn Planter, Company, Grand Haven, Mich. Corn-planter	319,331	June 2	483	130, 131	31	1140
Scofield, Levi T., Cleveland, Ohio, assignor to Hydraulic Elevator Company, Chicago, Ill. Valve-operating mechanism	317,217	May 5	394	99	31	595
Scofield, Silas A., Morenci, Mich. Hand embroidering-machine	321,318	June 30	3188	850	31	1662
Scott, Alexander, Cronly, N. C. Fiber-rubbing machine	315,666	Apr. 14	955	250	31	178
Scott, Arthur E., Lone Grove, Tex. Seed-planter	318,311	May 19	1854	497	31	881
Scott, Charles A., assignor of one-third to W. H. Emery, Oceanic, N. J. Horseshoe	319,749	June 9	1049	278	31	1250
Scott, Ernest. (See Hilder and Scott.)						
Scott, George, Montreal, Quebec, Canada. Mangle	316,838	Apr. 28	2579	674	31	487
Scott, George B., Brooklyn, N. Y. Electro-magnetic escapement apparatus for printing-telegraphs	320,975	June 30	2758	733	31	1592
Scott, George B., Brooklyn, assignor to Western Union Telegraph Company, New York, N. Y. Printing-telegraph	319,855	June 9	1199	317	31	1276
Scott, Jairus H. (See Bowle, William S., assignor.)						
Scott, James, Denver, Colo. Apparatus for finishing sewers, water-pipes, &c	317,025	May 5	124	32	31	545
Scott, James O., assignor of one-half to F. L. Dilley, Tyler, Tex. Car-axle box	319,514	June 9	740	198	31	1194
Scott, James P., assignor to American Artificial Stone Pavement Company, (limited,) Philadelphia, Pa. Manufacture of composite pavement	318,043	May 19	1501	.....	31	815
Scott, John, Willimantic, Conn. Governor for steam-engines	320,004	June 16	1421	373	31	1322
Scott, John, Willimantic, Conn. Governor	320,005	June 16	1423	374	31	1323
Scott, John R. (See Gerwien, William, assignor.)						
Scott, John R., assignor of one-half to W. Gerwien, Chicago, Ill. Latch	315,845	Apr. 14	1200	313	31	224
Scott, L. Herbert, Newark, assignor to L. A. Sayre, Madison, N. J. Machine for paring apples	319,332	June 2	486	131	31	1140
Scott, R. I. (See Eason, George L., assignor.)						
Scott, Walter. (See Fay and Scott.)						
Scott, Walter, Plainfield, N. J. Sheet-delivery apparatus for printing-presses	316,189	Apr. 21	1674	439	31	318
Scott, Walter, Plainfield, N. J. Delivery apparatus for printing-presses	316,665	Apr. 28	2307	606	31	438
Scott, Walter, Plainfield, N. J. Delivery apparatus for printing-machines	317,218	May 5	395	99	31	595
Scott, Walter, Plainfield, N. J. Printing-machine	317,679	May 12	1006	261	31	714
Scott, Walter, Plainfield, N. J. Sheet-delivery mechanism for printing-machines	318,143	May 19	1629	435	31	839
Scott, Walter, Plainfield, N. J. Delivery mechanism for printing-machines	318,808	May 26	2323	673, 674	31	1009
Scovill Manufacturing Company. (See Hyde, Theophilus R., Jr., assignor.)						
Scovill Manufacturing Company. (See Shipley, Alfred J., assignor.)						
Scoville, Hiram H. (See Koneman and Scoville.)						
Scribner, Charles E., assignor to Western Electric Company, Chicago, Ill. Multiple switch-board system	321,057	June 30	2859	761	31	1601
Scribner, Charles E., Chicago, Ill., assignor to Western Electric Manufacturing Company. Duplicate switch-board system for telephones	321,390	June 30	3283	877, 878	31	1680
Scribner, Charles E., assignor to Western Electric Manufacturing Company, Chicago, Ill. Multiple switch-board for telephone-exchanges	321,391	June 30	3284	878	31	1681
Scribner, G. Hilton. (See Heckert, William, assignor.)						
Soudder, Raymond B., New Orleans, La. Cistern and tank cleaner	320,180	June 16	1653	439	31	1364

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Seabrook, William, Edisto Island, S. C. Mouth-piece for pipes	318,210	May 19	1712	458	31	855
Seale, Thomas, San Francisco, Cal. Wire rope or cable	315,077	Apr. 7	124	29	31	24
Seaman, Alfred S., Frackville, Pa. Knife for cutting oil-cloth	318,211	May 19	1712	458	31	856
Seaman, Joseph S., Pittsburg, Pa. Machine for rolling billets	318,513	May 26	2117	571, 572	31	939
Seamless Rubber Company. (See Longden, Charles E., assignor.)						
Seaver, Augustus, trustee. (See Coupal, Peter A., assignor.)						
Seavey, George F., Boston, Mass. Culinary steamer	317,219	May 5	397	99	31	596
Seck, Heinrich, Dresden, Saxony, Germany. Machine for separating light and heavy substances	316,190	Apr. 21	1677	440	31	318
Sedgwick Manufacturing Company. (See Stuart, Robert J., assignor.)						
See, James W., Hamilton, assignor to C. E. Jones & Bro., Cincinnati, Ohio. Caster	315,560	Apr. 14	822	216	31	153
See, Joseph B., Brooklyn, N. Y. Cuff and wristband for shirts	315,174	Apr. 7	260	63	31	47
Seebass, Oscar. (See Haenichen, Friedrich and O., assignors.)						
Seeger, Robert, St. Paul, Minn. Gas-regulator	320,095	June 16	1541	408	31	1345
Seeligman, Abbott L. (See Steinam and Seeligman.)						
Seely, John, Warsaw, N. Y. Salt boiler or pan	319,630	June 9	900	238	31	1222
Seely, John A., New York, N. Y. Telephone-exchange	318,514	May 26	2122	572	31	940
Seely, Obadiah, assignor to E. C. Stearns & Co., Syracuse, N. Y. Handle for sliding doors	321,143	June 30	2974	788	31	1621
Seessle, Charles, assignor to New York Automatic Scale Company, New York, N. Y. Automatic grain-weighing apparatus	317,220	May 5	398	100	31	596
Segar, Charles T., Utica, N. Y. Folding bed or cot	316,298	Apr. 21	1816	478	31	342
Sehmer, Rudolph, *et al.* (See Kock, Christian H., assignor.)						
Seibert, Joseph S., Pullman, Ill. Metallurgic gas-furnace	315,846	Apr. 14	1201	313	31	224
Seibold, Otto F., Brooklyn, N. Y. Pen-holder	320,299	June 16	1820	484	31	1394
Seidenberg & Co. (See Pisko, Emanuel, assignor.)						
Seixas, Floriam, *et al.* (See Engel, Samuel, assignor.)						
Selden, Charles, Baltimore, Md. Fire and police alarm telegraph	321,058	June 30	2860	761	31	1602
Seligman, Emma. (See Seligman, Henry, assignor.)						
Seligman, Emma. (See Seligman, Henry and E.)						
Seligman, Henry, assignor to E. Seligman, Irvington, N. Y. Angle-hanger for mechanical telephone-lines	315,078	Apr. 7	125	29	31	24
Seligman, Henry and E., Irvington-on-Hudson, N. Y.; said Henry Seligman assignor to said E. Seligman. Mechanical telephone	320,181	June 16	1654	439	31	1365
Sellers, William, Philadelphia, Pa. Metal mold for casting steel wheels	319,515	June 9	741	199	31	1194
Sellers, William, Haverhill, Mass. Hand-rake	319,631	June 9	900	238	31	1223
Sells, A. G., *et al.* (See Fox, Albert R., assignor.)						
Sells, W. M. (See Eagleston, Joseph and W., assignors.)						
Selsor, George, assignor to Germantown Tool Works, Philadelphia, Pa. Die for making hatchets	318,312	May 19	1855	498	31	881
Semper, Conrad, Philadelphia, Pa. Grinding caustic soda	318,044	May 19	1502	.....	31	815
Serdinko, John, New Braunfels, Tex. Rotary force-pump	315,667	Apr. 14	957	251	31	179
Sergeant, Benjamin E., Greensborough, N. C. Saw-mill set-works	317,221	May 5	400	100	31	596
Sergeant, Henry C., New York, N. Y. Column-support for rock-drills	315,668	Apr. 14	958	251	31	179
Sergeant, Henry C., New York, N. Y. Tripod-support for rock-drills	316,666	Apr. 28	2309	606	31	438
Sernendinger, Thomas. (See Pedersen and Sernendinger.)						
Serrell, Edward W., Jr., New York, N. Y. Device for reeling silk from the cocoon	317,222	May 5	402	101	31	597
Serrell, Edward W., Jr., New York, N. Y. Method of and device for testing the size of silk threads	317,223	May 5	403	101	31	597
Serrell, Edward W., Jr., New York, N. Y. Cocoon-holder for silk-reeling machines	320,709	June 23	2406	637	31	1510
Serrell, Lemuel W., Plainfield, N. J. Invalid-chair	315,669	Apr. 14	959	251	31	179
Seward, Albert B. (See Farr and Seward.)						
Seward, Robert D., and S. D. Noel, Bloomington, Ind. Trough-clamp	319,139	June 2	253	66	31	1094
Sewrey, Henry, Barrie, Ontario, Canada. Rotary engine	320,254	June 30	3110	827	31	1646
Sexton, Charles M., Aurora, Ill. Pneumatic time-signal for railway-trains	317,224	May 5	404	101	31	597
Sexton, Charles M., Aurora, Ill. Train-time signal for railway-stations	317,225	May 5	406	102	31	598
Sexton, Patrick D., Worcester, Mass. Chimney-cap	319,750	June 9	1051	278	31	1251
Seyfried, James. (See Hock, William R., assignor.)						
Seymour, James M., Cleveland, Ohio. Stove attachment for grates and fire-places	317,863	May 12	1232	332, 333	31	760
Seymour, James M., Cleveland, Ohio. Stove attachment for grates	317,864	May 12	1254	333	31	761
Seymour, Joseph L., New York, N. Y. Cutting and packing kindling-wood	317,420	May 5	666	169	31	644
Shafkstall, Nathaniel, Flint, Ind. Sulky-plow	316,839	Apr. 28	2580	674	31	487
Shank, Hiram, Providence, Pa. Bag-fastener	319,516	June 9	745	199	31	1194
Shannon, John T., Carlisle, Ind. Strap-attaching device	316,667	Apr. 28	2311	606, 607	31	438
Shapley, James E., assignor of one-half to W. M. Shapley, Binghamton, N. Y. Steam-generator	320,446	June 16	2058	540	31	1436
Shapley, William M. (See Shapley, James E., assignor.)						
Sharer, George W., Terre Haute, Ind. Drier	315,348	Apr. 7	496	126	31	91
Sharp, Van Schaick, assignor of one-half to W. W. Holcomb, Weedsport, N. Y. Machine for cross-turning sheet metal	317,585	May 12	885	227	31	691
Sharpneck, William S., Denver, Colo. Rock breaker and pulverizer	315,670	Apr. 14	961	252	31	180
Sharpneck, William S., assignor to H. N. Nichols, Denver, Colo. Stamp	320,818	June 23	2536	672	31	1535
Shattuck, Aaron D., Granby, Conn. Stretcher-frame	320,300	June 16	1821	484	31	1394
Shattuck, Charles H., Boston, Mass. Car-axle box	317,680	May 12	1009	262	31	714
Shaw, Charles N., Petoskey, Mich. Meat-freezer	316,840	Apr. 28	2581	675	31	487
Shaw, Frank, New York, N. Y., and W. A. Childs, Englewood, N. J. Telephone-exchange system and apparatus	319,856	June 9	1202	318	31	1276
Shaw, Genio M., Pittsburg, Pa. Ratchet apparatus	318,212	May 19	1713	458	31	856
Shaw, H. C. (See Deane, Charles H., assignor.)						
Shaw, Henry F., Boston, Mass. Hydraulic elevator	316,070	Apr. 21	1511	394	31	286
Shaw, Richard H. (See Greig, Shaw, and Whittingham.)						
Shaw, William A., Brooklyn, assignor to Electrical Accumulator Company, New York, N. Y. Secondary battery	316,407	Apr. 21	1966	518	31	368
Shaw, William A., Pittsburg, Pa., assignor to Electrical Accumulator Company, New York, N. Y. Secondary battery	316,408	Apr. 21	1970	518	31	368
Shaw, William A., Pittsburg, Pa., assignor to Electrical Accumulator Company, New York, N. Y. Secondary battery	316,409	Apr. 21	1972	518	31	369
Shaw, William H., New York, N. Y. Sponge-holder for slate-pencils	317,026	May 5	126	32	31	545
Shay, John H., *et al.* (See Plumb, Fawcett, assignor.)						
Shea, Robert. (See Kirby and Shea.)						
Shea, Timothy F., *et al.* (See Shields, James H., assignor.)						
Shearer, John, Preston, Ontario, Canada. Cloth-pressing machine	320,006	June 16	1424	374	31	1323
Shearer, William C., assignor of one-half to A. L. Harris, Atlanta, Ga. Locomotive-engine	318,313	May 19	1856	498	31	881

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Shearlock, Alfred F. (See McCudden and Shearlock.)						
Shedd, Charles F., Fairfield, Nebr. Apparatus for training horses to harness	317,865	May 12	1255	333, 334	31	761
Shedd, Charles F., Fairfield, Nebr. Harness	319,327	June 2	478	129	31	1139
Shedd, Charles F., Fairfield, Nebr. Structure for handling vicious animals	320,710	June 23	2407	637, 638	31	1510
Shedd, Charles F., Fairfield, Nebr. Stall	320,711	June 23	2408	638	31	1511
Shedd, Charles F., Fairfield, Nebr. Driveway for training horses	320,712	June 23	2410	638, 639	31	1511
Shedlock, Alfred, Brooklyn, N. Y. Screw-thread gage	320,976	June 30	2758	733	31	1583
Sheehan, James H., assignor of one-half to E. L. Sterns, Bangor, Me. Nut-lock. (Reissue)	10,578	Apr. 7	490	170	31	118
Sheehan, Thomas, Dunkirk, N. Y. Making refined cast-steel and steel-coating wrought-iron	320,819	June 23	2537	.....	31	1536
Sheet Iron Bellows Company. (See Barrow, Samuel, assignor.)						
Sheffield, Lucius T., New York, N. Y. Artificial denture	318,579	May 26	2221	593	31	955
Sheffield, Lucius T., New York, N. Y. Artificial denture	318,580	May 26	2222	594	31	955
Sheffield, Lucius T., New York, N. Y. Artificial denture	318,581	May 26	2224	594	31	956
Sheffield, Washington W., New York, N. Y. Support for artificial dentures	320,301	June 16	1823	484	31	1394
Shelby, Christopher C., New York, N. Y. Stocking-supporter	320,404	June 16	2008	527	31	1428
Shelby, Christopher C., New York, N. Y. Cuff-holder	320,405	June 16	2009	527	31	1428
Shelby, Christopher C., New York, N. Y. Suspender-buckle	315,349	Apr. 7	498	127, 128	31	91
Sheldon, John, Birmingham, county of Warwick, England. Machine for rolling screws	318,045	May 19	1503	403	31	815
Sheldon, Richard B., and J. V. Peacock, Shortsville, assignors to Crown Manufacturing Company, Phelps, N. Y. Fertilizer-distributer	319,517	June 9	745	200	31	1194
Sheldon, William E., Medford, Mass. Cabinet-maker's clamp	318,398	May 19	1968	530	31	902
Shelton, John H., Bridgeport, Conn. Music-leaf turner	315,561	Apr. 14	823	217	31	153
Shemwell, Baxter. (See Fraley, David R., assignor.)						
Shepard, Amos D., Chicago, Ill. Neck-yoke	319,632	June 9	901	238	31	1223
Shepard, Charles S. (See Prahar, Louis B., assignor.)	317,586	May 12	886	227	31	692
Shepard, Charles S., assignor to himself and L. B. Prahar, Brooklyn, N. Y. Fastening for bag, pocket-book, and purse frames	319,519	June 9	747	200	31	1195
Shepperd, Sylvanus D., Pittstown, N. J. Governor for animal-powers	318,213	May 19	1715	459	31	856
Sherburne, Charles W., Boston, Mass. Sight-feed oil-cup or lubricator	319,518	June 9	746	200	31	1194
Sherman & Delaplaine. (See Lovegrove, Thomas G., assignor.)						
Sherman, William F., Chicago, Ill. Superstructure of elevated railways						
Sherwood, Charles B., Buffalo, N. Y. Safety receptacle for opera-glasses in theaters, &c.						
Sherwood, George H., *et al.* (See Lees, Henry C., assignor.)						
Sherwood, James A., assignor of one-half to J. W. Gilkey, Plainwell, Mich. Jeweler's dust-box	320,593	June 23	2258	597	31	1483
Sherwood, James H., assignor to E. McDonnell, C. D. Dean, J. R. Snell, and H. O. Bryan, Amsterdam, N. Y. Knitting-machine	318,515	May 26	2125	572, 573	31	941
Shickle, Frederick, St. Louis, Mo. Core-bar	319,520	June 9	748	200	31	1195
Shideler, John W., Indianapolis, Ind. Rack for exhibiting small wares	317,866	May 12	1257	334	31	761
Shields, James H., assignor to himself, J. W. Lavery, and T. F. Shea, Boston, Mass. Swinging chair	317,027	May 5	126	32	31	545
Shields, James H., assignor to himself, J. W. Lavery, and T. F. Shea, Boston, Mass. Swinging chair	317,028	May 5	127	32	31	546
Shields, Thomas L. (See Pew and Shields.)						
Shilling, David and W. W., Troy, Ohio. Wind-engine	320,182	June 16	1656	440	31	1365
Shilling, William W. (See Shilling, David and W. W.)						
Shimer & Co. (See Roberts, Morris F., assignor.)						
Shimer, Samuel J., Milton, Pa. Gage for cutter-heads	319,751	June 9	1062	278	31	1251
Shimer, Samuel J., Milton, Pa. Cutter-head	319,933	June 9	1315	346, 347	31	1296
Shipherd, William C., Cleveland, Ohio. Clip king-bolt	316,191	Apr. 21	1679	440	31	318
Shipherd, William C., Cleveland, Ohio. King-bolt	316,192	Apr. 21	1680	440	31	319
Shipley, Alfred J., assignor to Scovill Manufacturing Company, Waterbury, Conn. Manufacture of buttons	317,226	May 5	407	102	31	598
Shipley, John. (See Winebrener, John, assignor.)						
Shippee, Peter J., Fowler, N. Y. Churn	315,847	Apr. 14	1202	313	31	225
Shoenberger & Co. (See Young, William D., assignor.)						
Sholl, Charles, deceased; J. W. Marshall, Stamford, Conn., administrator. Ore-stamp	318,193	May 19	1688	452, 453	31	851
Shoninger, B. (See Lomas, John R., assignor.)						
Shook, Levi, Pittsburg, Pa. Piston-rod packing	315,350	Apr. 7	501	128	31	92
Shook, Levi, Pittsburg, Pa. Pressure-governor and regulating-valve	320,302	June 16	1824	485	31	1394
Shope, William. (See Hulmes and Shope.)						
Shorey, George L., Lynn, Mass. Dampening-machine	320,977	June 30	2759	733	31	1583
Shorey, Samuel W., Boston, Mass. Rivet	316,841	Apr. 28	2583	675	31	487
Short, Robert L., Janesville, Wis., assignor to Springfield Machine Company, Springfield, Ohio. Hay elevator and carrier	320,594	June 23	2256	598	31	1483
Shortsleeve, David, assignor to E. A. Morse, Rutland, Vt. Sand and water feed mechanism	315,848	Apr. 14	1203	314	31	225
Shotts, Isaac P., Linden, Ind. Extension-shank for bits, &c	315,079	Apr. 7	126	30	31	25
Shoup, Joel O., *et al.* (See Schmidt, Theodore, assignor.) (Reissue.)						
Shrock, Amos E., and J. Lehman, Goshen, Ind. Hand broadcast-seeder	315,562	Apr. 14	824	217	31	153
Shufelt, Calvin P., assignor of one-half to J. P. and H. A. Adams, Sandwich, Ill. Knotting mechanism for grain-binders	318,809	May 26	2524	674	31	1010
Shuler, Isaac C., Amsterdam, N. Y. Case for coffins	317,029	May 5	128	33	31	546
Sibley, Frank A., Newport, N. H. Manufacture of pronged hoes	320,978	June 30	2760	734	31	1583
Sickler, Edward E. (See Sickler, Jacob and E. E.)						
Sickler, Jacob, Otterbein and E. E. Sickler, Indianapolis, Ind. Sulky-plow	315,563	Apr. 14	825	217, 218	31	153
Siddall, Thomas, Trenton, N. J. Pipe-coupling	317,030	May 5	130	33	31	546
Siebert, Frederick, St. Louis, Mo. Pulley	319,140	June 2	255	66	31	1094
Siegfried, John P. (See McCrystal and Siegfried.)						
Sieghörtner, August L., Jr., St. Louis, Mo., assignor to himself and T. H. Mueller, New York, N. Y. Centrifugal machine	320,595	June 23	2260	598	31	1483
Siegörtner, Conrad, Hamilton, Ohio. Plow	319,031	June 2	120	33	31	1070
Sievert, Abraham. (See Benae and Sievert.)						
Sigourney Tool Company. (See Thompson, Thomas H., assignor.)						
Silberberg, Rudolf, assignor of one-half to H. W. Hoops, Jr., Jersey City, N. J. Chromium mordant	319,032	June 2	121	.....	31	1070
Silberberg, Rudolph, assignor of one-half to H. W. Hoops, Jr., Jersey City, N. J. Dyeing	320,820	June 23	2538	.....	31	1536
Silberberg, Rudolph, assignor of one-half to H. W. Hoops, Jr., Jersey City, N. J. Mordant	320,821	June 23	2539	.....	31	1536

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drfg.	Official Gazette. Vol.	Official Gazette. Page.
Silverberg, Marcus, Chicago, Ill. Permanent file for letters, invoices, &c.	318,516	May 26	2127	573	31	942
Simmons, Charles W., Providence, R. I., assignor to W. C. Wood, Washington, D. C. Combing-machine and method of working short cotton delivered therefrom	318,046	May 19	1505	404	31	816
Simmons, George W., Vernon, Ohio. Running-gear for vehicles	320,303	June 16	1825	485	31	1395
Simonds Counter Machinery Company. (See Willoughby, John M., assignor.)						
Simonds, George F., Fitchburg, Mass. Machine for forging car-axles and other metal articles	319,752	June 9	1053	278, 279	31	1251
Simonds, George F., Fitchburg, Mass. Machine for making car-wheels	319,753	June 9	1054	279	31	1252
Simonds, George F., Fitchburg, Mass. Die for forging metal articles circular in cross-section	319,754	June 9	1055	280	31	1251
Simonds, George F., Fitchburg, Mass. Forging metal bars	319,755	June 9	1056	280	31	1252
Simonds, George F., Fitchburg, Mass. Die for spherical articles	319,756	June 9	1057	280, 281	31	1252
Simonds, Nathan J. (See Stackpole, Charles F., assignor.)						
Simonis, Iwan, Verviers, Belgium. Apparatus for dyeing	318,144	May 19	1631	436	31	840
Simons, George W., Cooper's Plains, N. Y. Thill-coupling	317,421	May 5	668	169	31	644
Simons, Paul, Darmstadt, Hesse, Germany. Tile	320,822	June 23	2540	673	31	1536
Simonson, Sall, New York, N. Y. Cap	317,631	May 5	131	33	31	546
Simpson, Alexander and E. R., Scranton, and M. Speicher, Archbald, Pa. Lubricator for pistons and cylinders	316,492	Apr. 28	2093	548	31	397
Simpson, Anson D., Niverville, N. Y. Friction-clutch	320,007	June 16	1426	375	31	1323
Simpson, C. L. (See Dexter, Orel K., assignor.)						
Simpson, Ellis R. (See Simpson and Speicher.)						
Simpson, James H., W. G. Gladhill, and C. Gailliot, assignors to Wilson, Walker & Co., (limited,) Pittsburg, Pa. Link-bending machine	318,517	May 26	2129	573, 574	31	941
Simpson, Joel E., Newark, N. Y. Fertilizer-distributer	316,071	Apr. 21	1512	395	31	287
Simpson, Peter L., Minneapolis, Minn. Brick-machine	315,849	Apr. 14	1206	314, 315	31	296
Sims, John W., Jamestown, Ark. Gate	319,333	June 2	488	131	31	1141
Sims, Peter H., and P. Hohmeier, Waterloo, county of Waterloo, Ontario, Canada. Hot-air stove	316,493	Apr. 28	2094	548, 549	31	397
Sims, Winfield S., Newark, N. J. Torpedo-boat propelled and steered by electricity	319,633	June 9	901	239	31	1203
Sinclair, Ellis W., Tombstone, Ariz. Ter. Ore-concentrator	319,857	June 9	1206	318	31	1277
Sinclair, Susan L., Allegheny, Pa. Filling the recesses in the tread of car-wheels	315,080	Apr. 7	128	30	31	25
Singer Manufacturing Company of New Jersey. (See Bradford, Erastus F., assignor.)						
Singer Manufacturing Company of New Jersey. (See Bryden, Robert C., assignor.)						
Singer Manufacturing Company of New Jersey. (See Clark, William R., assignor.)						
Singer Manufacturing Company of New Jersey. (See Diehl, Philip, assignor.)						
Singer Manufacturing Company of New Jersey. (See Greene, James G., assignor.)						
Singer Manufacturing Company of New Jersey. (See Griest, John M., assignor.)						
Singer Manufacturing Company of New Jersey. (See Pentz, Albert D., assignor.)						
Singer Manufacturing Company of New Jersey. (See Reiss, Hans, assignor.)						
Sinker, Davis & Company. (See Cook, Joseph, assignor.)						
Sipf, Louis. (See Brown and Sipf.)						
Sisson, James A., Greenwich, R. I. Filling-bobbin	320,008	June 16	1427	375	31	1323
Sisum, William H. H., Brooklyn, N. Y. Car-truck	321,392	June 30	3226	878	31	1681
Skelton, John C., *et al.* (See Wock, John, assignor.)						
Skene, Charles A., Westmoreland, Kans. Impression-sheet for making stereotype-plates	320,713	June 23	2412	.....	31	1512
Skewis, Joseph. (See Taylor and Skewis.)						
Skiles, Daniel D., Edna Mills, Ind. Plow	315,351	Apr. 7	502	129	31	92
Skinkle, Jacob W. (See Rankin, Thomas L., assignor.)						
Skinner, Alonzo, Warren, Mich. Pulverizer	317,227	May 5	408	102	31	598
Skinner, George R., Rockford, Ill. Holdback-iron	319,334	June 2	488	132	31	1141
Skinner, Merrill R., Hamburg, N. Y. Pulley-block	318,314	May 19	1857	499	31	881
Slauson, James R. and W. D., Racine, Wis. Baling-press	315,850	Apr. 14	1208	315	31	226
Slauson, Willis D. (See Slauson, James R. and W. D.)						
Slauson, Willis D., Racine, Wis. Baling-press	315,965	Apr. 14	1377	356	31	254
Slauson, Willis D., Racine, Wis. Baling-press	315,966	Apr. 14	1378	356, 357	31	255
Slauson, Willis D., Racine, Wis. Power for baling-presses	319,858	June 9	1200	319	31	1277
Sleater, Robert L., St. John's, Newfoundland. Mariner's compass	320,823	June 23	2540	673	31	1536
Sleep, William H., St. Germans, county of Cornwall, England. Belt-fastener	316,668	Apr. 28	2112	607	31	418
Sleeper, George W., assignor of one-half to W. A. Reed, Westborough, Mass. Shoe	320,406	June 16	2010	527	31	1428
Sleeper, George W., assignor of one-half to W. A. Reed, Westborough, Mass. Machine for splitting the uppers for shoes	320,407	June 16	2011	528	31	1428
Sleeper, Joseph J., Concord, and H. A. Johns, Media, Pa. Composition for crayons	320,009	June 16	1428	.....	31	1324
Sleicher, John A., Albany, N. Y. Sleeping-car	315,851	Apr. 14	1209	316	31	226
Sleight, Matthew, Lee's Mills, N. C. Remedy for hog-cholera	320,096	June 16	1543	.....	31	1345
Slenaby, William P., Brooklyn, N. Y. Thimble	315,671	Apr. 14	963	252	31	180
Sloan, John O. (See Campbell, George P., assignor.)						
Slocum, William W., Jr., Reed City, Mich. Locomotive ash-pan	320,183	June 16	1658	440	31	1365
Sly, William C., Cleveland, Ohio. Rope or strap attaching device for buckles, snap-hooks, &c.	315,175	Apr. 7	261	63	31	47
Slyder, William J., assignor to Troy Burlap Manufacturing Company, Troy, Ohio. Sash-fastener	319,427	June 2	602	163, 164	31	1163
Small, H. T., *et al.* (See Freaner and Golding, assignors.)						
Smalley, Albert G. (See Hort, Lewis S., assignor.)						
Smead, Isaac D., Toledo, Ohio. School-room heater	315,081	Apr. 7	128	30	31	25
Smith, A. Buttles, assignor to W. B. Rankine and B. W. Franklin, Brooklyn, N. Y. Printing-telegraph	316,494	Apr. 28	2095	550	31	397
Smith, Aaron F. (See Blossom, Edwin F., assignor.)						
Smith, Aaron F. (See Wetmore, Joseph C., assignor.)						
Smith, Allen V., Canton, Ohio. Vehicle-axle nut	321,255	June 30	3112	828	31	1647
Smith, Amasa H., *et al.* (See Young, Harlan P., assignor.)						
Smith, Andrew. (See Hansen and Smith.)						
Smith, Andrew H. (See Barton, Richard T., assignor.)						
Smith, Caleb P., Clyde, Mo. Remedy for hog-cholera	317,228	May 5	409	.....	31	598
Smith, Charles H., assignor to Western Wheel Scraper Company, Mount Pleasant, Iowa. Sand-band for vehicles	319,522	June 9	750	201	31	1195
Smith, Charles R., and J. B. Adams, Cheboygan, Mich. Clamp	319,521	June 9	749	201	31	1195
Smith, D. H. (See Needles, Simgesmer, assignor.)						
Smith & Co., H. D. (See Ward, William S., assignor.)						
Smith, De Wane B., Deerfield, N. Y. Collar attachment for double harness	316,842	Apr. 28	2084	675	31	488
Smith, Dexter, Springfield, Mass. Revolving fire-arm	315,352	Apr. 7	503	129	31	92

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drfg.	Official Gazette. Vol.	Official Gazette. Page.
Smith, Dexter, Springfield, Mass. Revolving fire-arm	318,315	May 19	1858	499	31	881
Smith, Edward G., assignor of one-half to L. A. Fullgraff, New York, N. Y. Propelling cars upon railways	319,335	June 2	489	132	31	1141
Smith, Edward S., Waterbury, Conn. Spring-clasp	317,032	May 5	132	33	31	546
Smith, Edwin G., and C. Bell, assignors of one-third to B. B. Brewer, Sacramento, Cal. Smelting-furnace	316,609	Apr. 28	2313	607	31	439
Smith & Egge Manufacturing Company. (See Jewett, George M., assignor.)						
Smith, Eliphalet W., Newark, N. J. Connecting device for switch-boards	318,929	May 26	2079	710	31	1038
Smith, F. Rollin, Bennington, Vt. Wagon-brake	319,141	June 2	255	67	31	1094
Smith, Fay R. (See O'Brien, John, assignor.)						
Smith, Frank R., Tomah, Wis. Stump-extractor	318,810	May 26	2526	674	31	1010
Smith, Frederick B., Coldwater, Mich. Stove-truck	318,145	May 19	1633	436	31	840
Smith, Friend W., Jr., and S. S. Williamson, Bridgeport, Conn. Button-hole attachment for sewing-machines	316,410	Apr. 21	1974	519	31	369
Smith, George, Buffalo, N. Y. Broom-corn sizer	319,859	June 9	1209	319	31	1277
Smith, George A., Norristown, Pa. Pill and lozenge machine	320,447	June 16	2060	540, 541	31	1437
Smith, George C. (See Fitz Gerald and Smith.)						
Smith, George C., Chicago, Ill. Watch-case	316,072	Apr. 21	1514	395	31	287
Smith, George H., Haverstraw, N. Y. Salt-evaporating pan	317,229	May 5	409	102	31	598
Smith, George H., assignor to Brown & Sharpe Manufacturing Company, Providence, R. I. Self-lubricating loose pulley	318,399	May 19	1970	530	31	903
Smith, George L., Newark, N. J. Loop for bridles	315,672	Apr. 14	964	252	31	180
Smith, George T. (See Clark, Myron W., assignor.)						
Smith, Gerritt, Astoria, N. Y. Quadruplex telegraph	319,428	June 2	604	164	31	1163
Smith, Heman R., Attica, N. Y. Horse-power	318,518	May 26	2133	574	31	942
Smith, Henry, Jr., Baltimore, Md. Sash-cord fastener	316,193	Apr. 21	1681	441	31	319
Smith, Henry B. (See Hogeboom and Smith.)						
Smith, Henry H., Bainbridge, Pa. Car-coupling	318,665	May 26	2325	621	31	975
Smith, Isaac M., Palmyra, Ind. Saw	318,316	May 19	1859	499	31	882
Smith, James A., Decorah, Iowa, and A. J. Athay, Sparland, Ill. Object-lens for telescopes and cameras	318,666	May 26	2327	622	31	976
Smith, James H. (See Leach and Smith.)						
Smith, James H., Chicago, Ill. Camera-stand	317,230	May 5	410	103	31	598
Smith, James H., Euston Road, and R. Marshall, Earlham Grove; said Smith assignor to said Marshall; said Marshall assignor of one-half to G. H. A. Thunder, Cathcart Road, South Kensington, county of Middlesex, England. Packing for stuffing-boxes of piston-rods, &c	317,869	May 12	1259	335	31	702
Smith, James W., Chicago, Ill. Stereotype-shaving machine	316,579	Apr. 28	2198	579	31	418
Smith, Jesper, Washington, N. J. Water-wheel	318,214	May 19	1720	460	31	857
Smith, John, Kansas City, Mo. Manufacture of ridge-caps for corrugated roofing	317,868	May 12	1258	335	31	702
Smith, John A., Turner, Me. Sweat and chafe pad fastening	318,317	May 19	1860	499	31	882
Smith, John J. C. and M., Passaic, N. J. Vulcanization of rubber coverings for electrical conductors	317,587	May 12	887	.....	31	602
Smith, John S., *et al.* (See Borton, Job, assignor.)						
Smith, John S. and S., Glasgow, Scotland. Carpet	315,353	Apr. 7	504	129	31	92
Smith, John W., Chicago, Ill. Caster	318,811	May 26	2527	674	31	1010
Smith, Joseph F., Pittsburg, Pa. Coping	317,867	May 12	1257	334	31	702
Smith, Joseph G., Kinderhook, Ill. Gardening-machine	318,047	May 19	1507	404	31	816
Smith, Joseph G., Kinderhook, Ill. Seed-drill and cultivator	318,048	May 19	1509	405	31	817
Smith, Joseph P., assignor of one-half to C. Snow, Glastonbury, Conn. Mosquito-bar canopy	316,667	May 26	2329	622	31	976
Smith, Joseph W., Newton, Mass. Loop for suspender-ends	317,231	May 5	411	103	31	599
Smith, Kirk A., and J. E. Woodard, Kalamazoo, Mich. Pump-vent	320,010	June 16	1428	375	31	1324
Smith, Lucien P., assignor of one-half to G. Best, Hartford, Conn. Metal-screw machine	321,059	June 30	2868	762, 763, 764	31	1602
Smith, Luther F., Green Bay, Wis. Safety-gate for bridges	320,408	June 16	2013	528	31	1428
Smith, Madison W., and B. F. Johnson, Waverly, N. Y. Combined reversible blackboard and desk	317,588	May 12	889	228	31	602
Smith, Marcus B., and L. J. A. Roswall, Clarence, Mo. Machine for measuring and marking cloth	321,393	June 30	3287	878, 879	31	1681
Smith, Martin L., Toronto, Ontario, Canada. Pruning knife and saw combined	319,033	June 2	121	33	31	1070
Smith, Michael. (See Smith, John J. C. and M.)						
Smith, Minard M. (See Hassall and Smith.)						
Smith, Orville T., Brooklyn, N. Y. Collar or sleeve button	316,194	Apr. 21	1681	441	31	319
Smith, Ralph J., San Marcos, Tex. Ventilating-cover	316,843	Apr. 28	2585	676	31	488
Smith, Robert B. (See Lytle, Albert E., assignor.)						
Smith, Roswell T., Nashua, N. H. Machine for cutting music-paper for automatic musical instruments	318,049	May 19	1511	405	31	817
Smith, Russell L., and C. P. Miller, Savannah, Mo. Folding stock-shipping cage	318,812	May 26	2527	675	31	1010
Smith, Samuel. (See Smith, John S. and S.)						
Smith, Seth H., Delta, Ohio. Cell-package for fruit, &c	317,033	May 5	133	34	31	546
Smith, Stephen G., Hannibal, Mo. Vehicle-spring	315,176	Apr. 7	262	63	31	48
Smith, Stephen R. (See Stratton, William H., assignor.)						
Smith, Theodore E., *et al.* (See Doane, Andrew J., assignor.)						
Smith, Thomas. (See Chambers and Smith.)						
Smith, Thomas, assignor of two-thirds to W. D. and J. N. Edy, London, Ontario, Canada. Car-coupling	317,232	May 5	412	103	31	599
Smith, Thomas T., Finsbury, London, England. Electric coupling	315,673	Apr. 14	964	252	31	180
Smith, Thomas T., Finsbury, London, England. Electric-light apparatus	315,674	Apr. 14	966	253	31	181
Smith, Walter, Sharon Hill, Pa. Machine-table	319,757	June 9	1058	281	31	1252
Smith, Willard A., and I. A. Weston, assignors to Whitman & Barnes Manufacturing Company, Syracuse, N. Y. Machine for pointing cotters	319,429	June 2	608	164, 165	31	1164
Smith, William E., Ansonia, Conn., assignor to B. Goodman, New York, N. Y. Suspender-buckle	319,860	June 9	1211	320	31	1278
Smith, William E., assignor to J. C. Hotchkiss, Ansonia, Conn., and B. Goodman, New York, N. Y. Lever-buckle	315,177	Apr. 7	263	64	31	48
Smith, William H., La Crosse, Wis. Valve for steam-engines	317,870	May 12	1260	335, 336	31	702
Smitten, Thomas W. F., Brooklyn, N. Y. Link sleeve-button	320,596	June 23	2261	598	31	1483
Smoot, Daniel G., Pioneer, Ohio. Gate	316,844	Apr. 28	2585	676	31	488
Smythe, Augustine T. (See Nicholes, John H., assignor.)						
Smythe, Francis T., St. Louis, Mo. Floating water-elevator	320,184	June 16	1659	440	31	1365

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Snedekum, Charles, Bay City, Mich. Brace	319,430	June 2	612	165, 166	31	1164
Snell, Charles E., Pottsdam, N. Y. Combined wringer and mop	320,304	June 16	1826	485	31	1395
Snell, James R., *et al.* (See Sherwood, James H., assignor.)						
Sniffen, Samuel F., assignor to Meyer-Sniffen Company, (limited,) New York, N. Y. Water-closet	319,336	June 2	491	132, 133	31	1141
Snow, Abner, Round Rock, assignor of one-half to W. D. Herrick, Williamson County, Tex. Plow	321,319	June 30	3189	850	31	1663
Snow, Charles. (See Smith, Joseph P., assignor.)						
Snow, Fred. W., Hillburn, N. Y. Railway-frog	317,589	May 12	891	228	31	692
Snow, Fred. W., Hillburn, N. Y. Switch-stand	320,507	June 23	2143	566	31	1461
Snow, Isaac, New York, N. Y. Car-replacer	319,337	June 2	493	133	31	1142
Snow, Lexor B., Cleveland, Ohio. Flexible roofing-tile	320,979	June 30	2761	734	31	1583
Snyder, Abraham B., Louisville, Ohio. Railway-signal	321,256	June 30	3112	828	31	1647
Snyder, Charles F. (See Hess and Snyder.)						
Snyder, Fredrick H. (See Hess and Snyder.)						
Snyder, Jacob F. (See Hess and Snyder.)						
Snyder, John F., and J. C. Knapp, South Easton, Pa. Kitchen-safe	319,634	June 2	122	33	31	1070
Snyder, Joseph. (See Hussey, Charles A., assignor.)						
Snyder, Thomas C. (See Davis, James E., assignor.)						
Snyder, William D., Columbia City, Ind. Feeding bedstead	318,813	May 26	2528	675	31	1010
Snyder, William H., Waynesborough, Pa. Saw-mill set-works	316,299	Apr. 21	1817	478	31	342
Snyder, William H., Waynesborough, Pa. Steam gang-plow	316,845	Apr. 28	2587	676	31	488
Snyder, William H., and A. O. Frick, Waynesborough, Pa. Steam gang-plow	316,846	Apr. 28	2588	677	31	489
Snyder, William W., executor. (See Swope and Rude.)						
Sochefsky, William, New York, N. Y. Decorating wall-hangings and other fabrics	320,409	June 16	2013	.....	31	1429
Société Anonyme Dite Compagnie Industrielle des Procédés Raoul Pictet. (See Mendès, Joseph H. E., assignor.)						
Société Harmel Frères. (See Harmel, Ernest, assignor.)						
Société Industrielle Moutier-Grandval. (See Chopard, Albert, assignor.)						
Society of Chemical Industry. (See Gnehm, Robert, assignor.)						
Söderström, Albert, Stockholm, Sweden. Twist-drill	321,144	June 30	2976	788	31	1622
Solano, Renaldo, assignor of two-thirds to F. Bode and G. E. Cox, San Francisco, Cal. Gripping device for cable railways	316,670	Apr. 28	2315	606	31	439
Solinger, Moses, New York, N. Y. Machine for calendering paper	319,634	June 9	906	239, 240	31	1224
Solomon, Richard S., Cape Town, Cape of Good Hope. Friction-drill brace	320,185	June 16	1660	441	31	1366
Solvay, Ernest, Brussels, Belgium. Manufacture of chlorine	316,195	Apr. 21	1682	.....	31	319
Solvay, Ernest, Brussels, Belgium. Manufacture of hydrochloric acid	316,300	Apr. 21	1818	.....	31	343
Somers, George E., assignor to Bridgeport Brass Company, Bridgeport, Conn. Drawer-pull	315,852	Apr. 14	1210	316	31	226
Somerville, William. (See King, William W., assignor.)						
Somes, Herbert C., *et al.* (See Manuel, David, assignor.)						
Sommer, John L., Newark, N. J. Shoe-buttoner	320,714	June 23	2412	639	31	1512
Songer, Charles H., *et al.* (See McKinley, William H., assignor.)						
Sorrell, Lewis N. B., Washington, D. C. Animal-trap	318,146	May 19	1633	436	31	840
Soulliere, Leon, assignor, by mesne assignments, of one-half to W. Reets, Chicago, Ill. Automatic cut-off for batteries	319,635	June 9	907	240	31	1224
Souter, William, Leeds, Mass. Ticket-clip	315,178	Apr. 7	264	64	31	48
Souther, George, Boston, Mass. Car-truck	320,011	June 16	1429	375	31	1324
Southern Cotton Picking Company. (See Haselton, Daniel B., assignor.)						
Southington Cutlery Company. (See Gridley, John W., assignor.)						
Southwell, Charles C., Milwaukee, Wis. Dental breath-guard	319,338	June 2	493	236	31	1142
Spang, John. (See Raff, Henry L., assignor.)						
Spangler, Washington E., Way Cross, Ga. Edging sheet metal	316,196	Apr. 21	1683	441	31	319
Sparks, William A., and N. Rappleyea, assignors to Stein Manufacturing Company, Rochester, N. Y. Burial-casket	320,410	June 16	2014	529	31	1429
Sparrow, Frank M., Mattapoisett, Mass. Electric-arc lamp	315,564	Apr. 14	827	218	31	154
Spaulding, Charles F., Elizabeth, N. J. Bridge-indicator for billiard-tables	317,871	May 12	1261	336	31	762
Spaulding, Nathan W., San Francisco, Cal. Insertible saw-tooth	315,853	Apr. 14	1211	316	31	227
Speakman, Thomas H., Ware, assignor to G. Draper & Sons, Hopedale, Mass. Lever-screw for holding weight-levers of rolls of spinning-machines	316,197	Apr. 21	1684	441	31	319
Specht, Eugene, and L. Fix, Milwaukee, Wis. Heating-stove	319,934	June 9	1317	347	31	1297
Speer, William W., Pittsburg, Pa. Pipe-coupling	315,565	Apr. 14	828	218	31	154
Speicher, Mathias. (See Simpson and Speicher.)						
Speicher, Samuel S., North Manchester, Ind. Broadcast-seeding machine	316,198	Apr. 21	1685	442	31	319
Spelman, Irwin H., Cortland, Ohio. Wooden tongue for joining flooring, &c	317,233	May 5	413	103	31	599
Spence, William M., Carson, Nev. Shirt	317,872	May 12	1262	336	31	763
Spencer, Charles F., assignor to A. S. and E. B. Mann, Rochester, N. Y. Lacing	321,145	June 30	2977	788	31	1622
Spencer, Charles F., assignor to A. S. and E. B. Mann, Rochester, N. Y. Lacing for corsets, gloves, &c	321,146	June 30	2979	789	31	1622
Spencer, Clare L., assignor to D. E. Dempsey, Geneva, N. Y. Combination fish-hook	315,967	Apr. 14	1379	357	31	255
Spencer, Thomas. (See Andrews and Spencer.)						
Spencer, William F., Richmond, Ind. Seat and opera-chair	316,495	Apr. 28	2097	550	31	398
Sperry, Norman. (See Clark, Robert H., assignor.)						
Spiegel, Henry L., Indianapolis, Ind., assignor to F. W. Mix, New Britain, Conn. Case for locks	316,411	Apr. 21	1976	519	31	369
Spier, Alexander D., *et al.* (See Hunter, David, assignor.)						
Spier, Alexander D., assignor of two-tenths to A. S. Brown, Glasgow, county of Lanark, and D. Hunter, Troon, Scotland. Tackle for working ships' cleaning apparatus	318,814	May 26	2530	675	31	1011
Spier, Alexander D., assignor of two-tenths to A. S. Brown, Glasgow, county of Lanark, and D. Hunter, Troon, Scotland. Apparatus for cleaning submerged parts of ships	320,824	June 23	2541	673	31	1537
Spier, Anton, assignor of one-third to W. Klusemann, St. Louis, Mo. Air-ship	319,758	June 9	1059	281	31	1252
Spitzli, Alfred, West Troy, N. Y. Adhesive paper-lifter	317,234	May 5	414	104	31	599
Spooner, Frederick B., Brooklyn, N. Y. Suspender-buckle	317,873	May 12	1263	336	31	763
Sporer, Mathias, Hartford, Conn. Magazine fire-arm	320,186	June 16	1660	441, 442	31	1366
Sprague, Arthur A., San Rafael, Cal. Railway-station signal	317,590	May 12	892	228, 229	31	693
Sprague Electric Railway and Motor Company. (See Sprague, Frank J., assignor.)						
Sprague, Frank J., New York, N. Y. Electro-dynamic motor	315,179	Apr. 7	264	64, 65	31	48
Sprague, Frank J., New York, N. Y. Electro-dynamic motor	315,180	Apr. 7	271	65, 66, 67	31	49
Sprague, Frank J., New York, N. Y. Electric motor and generator	315,181	Apr. 7	277	67	31	50

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Sprague, Frank J., New York, N. Y. Electric motor and generator	315,182	Apr. 7	281	67	31	50
Sprague, Frank J., New York, N. Y. Electro-dynamic motor	315,183	Apr. 7	284	68	31	51
Sprague, Frank J., New York, N. Y. Electro-dynamic motor	321,150	June 30	2984	790	31	1623
Sprague, Frank J., New York, N. Y., assignor to Sprague Electric Railway and Motor Company. Operating electric railway-trains	318,668	May 26	2328	622	31	976
Sprague, Frank J., New York, N. Y., assignor to Sprague Electric Railway and Motor Company. Electro-dynamic motor	321,147	June 30	2979	789	31	1622
Sprague, Frank J., New York, N. Y., assignor to Sprague Electric Railway and Motor Company. Electro-dynamic motor	321,148	June 30	2981	789	31	1622
Sprague, Frank J., New York, N. Y., assignor to Sprague Electric Railway and Motor Company. Electric railway system	321,149	June 30	2982	790	31	1623
Sprague, Frank J., North Adams, Mass., assignor to Sprague Electric Railway and Motor Company. Electric railway	317,235	May 5	415	104, 105	31	599
Sprague, Joseph W., *et al.* (See Barlow, Charles O., assignor.)						
Sprague, Joseph W., *et al.* (See Barlow and Emery, assignors.)						
Spratt, Joseph, Victoria, British Columbia, Canada. Offal-drier	318,050	May 19	1514	405	31	817
Spriegel, Hermann, Dantzic, Prussia, Germany. Closing apparatus for bottles, &c	320,715	June 23	2413	639	31	1512
Spring, Menze, San Francisco, Cal. Hinge-joint	315,566	Apr. 14	829	2 8	31	154
Springfield Machine Company. (See Short, Robert L., assignor.)						
Springfield Manufacturing Company. (See Dixon, Robert W., assignor.)						
Springsteen, Nelson E., Detroit, Mich. Wagon-pole	316,671	Apr. 28	2318	608	31	439
Springsteen, Nelson E., Detroit, Mich. Pole-iron	317,681	May 12	1010	262	31	714
Sprinkle, George E., assignor to J. M. Briant and E. L. Eberhard, South Whitley, Ind. Double-acting force-pump	317,422	May 5	669	170	31	644
Sproat, Jesse M., North Benton, Ohio. Sap-boiling apparatus	318,815	May 26	2532	675	31	1011
Sprous, George A., and R. Meeker, Toledo, Ohio. Clothes-rack	317,236	May 5	419	105	31	600
Sprout, James M. (See Sprout, Samuel E. and J. M.)						
Sprout, Samuel E. and J. M., Muncy, Pa., assignors to said Samuel E. Sprout. Tray for drying fruit	318,436	May 19	2016	543	21	911
Spurr, William S., Franklin, Mass. Necktie	316,496	Apr. 28	2096	551	31	398
Spyer, Joseph, Santa Fé, New Mex. Ter. Preparing rubber plates for the vulcanizer	320,960	June 30	2763	.....	31	1583
Staats, William, assignor of forty-nine one-hundredths to G. W. Stewart, New York, N. Y. Inclined floor or platform for skating-rinks	321,320	June 30	3190	851	31	1663
Stabler, James P., Sandy Spring, Md. Rake	320,597	June 23	2263	598	31	1484
Stackpole, Charles F., Lynn, assignor to N. J. Simonds, Woburn, Mass. Leather-cutting press	316,073	Apr. 21	1516	395, 396	31	287
Stackpole, Charles F., Lynn, assignor to N. J. Simonds, Woburn, Mass. Leather-cutting press	316,074	Apr. 21	1518	396	31	288
Stadler, Peter C., Union Hill, N. J. Funnel	320,716	June 23	2413	640	31	1512
Stadtmueller, Max F. E., Castle Grove, Iowa. Hay-loader	320,188	June 16	1364	442	31	1367
Stahl, Sidney S., Connellsville, Pa. Cartridge-shell holder	318,215	May 19	1721	460	31	857
Stahl, Frank, Cleveland, Ohio. Shingle-sawing machine	316,301	Apr. 21	1819	478	31	343
St. Albans Manufacturing Company. (See Rice, David H., assignor.)						
Staling, F. E. (See Murray, George W., assignor.)						
Stambaugh, Charles W., Cleveland, Ohio. Fence-post	318,816	May 26	2533	676	31	1011
Standard Multiplex Telegraph Company. (See Delany, Patrick B., assignor.)						
Standeford, David W., Oakland, Cal. Centering-gage	316,918	Apr. 28	2695	702	31	509
Stanley, Charles W. (See Doyle and Stanley.)						
Stanley, James, Newark, N. J. Bridle-bit	317,034	May 5	133	34	31	546
Stanley, James, assignor to H. Congar, Newark, N. J. Belt-driving pulley	318,519	May 26	2134	575	31	942
Stanley, Nelson D., Essex Junction, Vt. Tire-upsetter	319,861	June 9	1212	320	31	1278
Stanley Rule and Level Company. (See Trant, Justus A., assignor.)						
Stanley, William, Jr., Englewood, N. J. Filament for incandescent electric lamps	316,302	Apr. 21	1821	479	31	343
Stanley, William, Jr., Pittsburg, Pa. Induction-coil	320,717	June 23	2414	640	31	1512
Stanton, John H., Newborn, Ga. Cotton-planter	321,321	June 30	3191	851	31	1663
Stanwood, James B., assignor to Lane & Bodley Company, Cincinnati, Ohio. Cross-head for steam-engines	318,216	May 19	1721	460	31	857
Stapler, Henry S., Dolington, Pa. Snap-hook	318,817	May 26	2534	676	31	1012
Stapp, Robert B., assignor, by mesne assignments, to United States Carbonous Oxide Gas Company, Denver, Colo. Apparatus for manufacturing gas	317,423	May 5	670	170	31	644
Stapp, Robert B., assignor, by mesne assignments, to United States Carbonous Oxide Illuminating Gas Company, Denver, Colo. Manufacturing gas	318,318	May 19	1861	500	31	882
Starin, Duane. (See Stocking, Daniel, assignor.)						
Starin, Jacob J. (See Cramer, Michael, assignor.)						
Stark, James N., and G. P. Bartlett, Woburn, Mass. Truss	316,303	Apr. 21	1821	479	31	344
Stark, Leopold, Brooklyn, N. Y. Trimming	319,142	June 2	256	67	31	1094
Starr, Charles H., Logansport, Ind. Roofing	320,508	June 23	2145	566	31	1461
Starr, Ferdinand W., Springfield, Ohio. Wheel-hub	319,523	June 9	751	201	31	1195
Starr, Ferdinand W., assignor of one-half to T. Wall, Springfield, Ohio. Machine for oiling and polishing wheels	319,636	June 9	909	240	31	1224
Starrett, Laroy S., Athol, Mass. Screw-thread gage	318,051	May 19	1514	406	31	817
Stauffacher, George J., Monroe, Wis. Lamp-bracket	317,237	May 5	420	105	31	600
Stanss, Herman, Whitewater, Wis. Buckle	320,012	June 16	1430	376	31	1324
Steam Gauge and Lantern Company. (See Fox, William T., assignor.)						
Stearns & Co., E. C. (See Seely, Obadiah, assignor.)						
Stearns, Edward C., Syracuse, N. Y. Door-hanger	321,151	June 30	2985	791	31	1623
Stearns, James H., *et al.* See Sutton, Benjamin F., assignor.)						
Stebbins, Darius, assignor to H. H. Rice and E. T. Cornwall, Cheshire, Conn., and E. A. Cornwall. Buckboard-wagon	317,035	May 5	135	34	31	547
Stebbins, James H., Jr., New York, and P. Casamajor, Brooklyn, N. Y. Water and alkali proof fabric	316,075	Apr. 21	1518	.....	31	288
Stedman, David R. (See Stedman, George A. and D. R.)						
Stedman, David R., Elizabeth, N. J. Window shade and awning	317,238	May 5	420	105	31	600
Stedman, George A., New York, N. Y., and D. R. Stedman, Elizabeth, N. J., assignors of one-half to R. J. Bowen, Berlin, Md. Hay raking and loading machine	320,598	June 23	2264	509	31	1484
Steel Horse Collar Company. (See Fisher, Ebenezer, assignor.)						
Steel, J. F. (See Bartley, Harvey, assignor.)						
Steel, James, Paterson, N. J. Hand-truck	319,524	June 9	752	201, 202	31	1196
Steel, James, assignor of one-half to G. Mahan, Memphis, Tenn. Pipe	320,981	June 30	2764	734	31	1583
Steele, Edward D., Waterbury, Conn. Button-fastener	316,304	Apr. 21	1822	479	31	344
Steele, Edward D., Waterbury, Conn. Button-fastener	316,305	Apr. 21	1823	479	31	344
Steers, Schuyler B., New Orleans, La. Bale heading and lifting attachment for presses	320,719	June 23	2416	640, 641	31	1513

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Steers, William, Brattleborough, Vt. Carpenter's square	320,718	June 23	2416	640	31	1513
Stegemann, Adolph, New York, N. Y. Repetition-action for upright pianos	317,874	May 12	1264	337	31	763
Steiger, Andrew. (See Rice, Steiger, and Thurber.)						
Steiger, Andrew W. (See Steiger, William T. and W. H., assignors.)						
Steiger, Walter H. (See Steiger, William T. and W. H.)						
Steiger, William T. and W. H., Howard County, Md., assignors of one-third to A. W. Steiger, New York, N. Y. Device for preventing snow-drifts in road-cuts, &c	319,143	June 2	257	67	31	1094
Stein, Emanuel. (See Gordon, Thomas, assignor.)						
Stein Manufacturing Company. (See Sparks and Rappleyea, assignors.)						
Stein, William. (See White, William, assignor.)						
Steinam, Simon, and A. L. Seeligman, New York, N. Y. Knitted or cardigan jacket	317,682	May 12	1011	262	31	714
Steinke, Hermann, Brooklyn, N. Y., and M. Limprecht, Union Hill, N. J. Vapor apparatus for hot-houses, &c	320,411	June 16	2015	529	31	1429
Steinmetz, Daniel, Sr., *et al.* (See Helliwell, Robert B., assignor.)						
Steinmetz, Philip J., *et al.* (See Helliwell, Robert B., assignor.)						
Steinway, C. F. Theodor, New York, N. Y. Panel for upright pianos	315,447	Apr. 7	638	165	31	114
Steller, Charles E., Milwaukee, Wis. Transom-lifter	317,036	May 5	135	35	31	547
Stellwagen, Edward J., Washington, D. C. Collar-button and necktie-holder	317,239	May 5	421	106	31	600
Stelter, Wilhelm. (See Schach and Stelter.)						
Stender, Charles F. G., assignor of one-half to Garfield Manufacturing Company, Chicago, Ill. Harness-loop	318,818	May 26	2535	676	31	1012
Stephens, John R., Portland, Oreg. Railway-switch	320,982	June 30	2764	{734 735}	31	1584
Stephens, Joseph J., Coalesburg, Mo. Saddle-bags	321,152	June 30	2966	791	31	1624
Stephens, Nathan, Brooklyn, and M. L. Ritchie, assignors to Eagle Tube Company, New York, N. Y. Utilizing old boiler-tubes	319,144	June 2	258	67	31	1095
Stephens, William G., *et al.* (See Pendleton, John H., assignor.)						
Stephenson, David J., Port Huron, Mich. Automatic advertising device	317,240	May 5	422	106	31	600
Stephenson, John, New York, N. Y. Car-body truss	317,683	May 12	1012	263	31	715
Stephenson, John, New York, N. Y. Car-body truss	319,525	June 9	753	202	31	1196
Stephenson, John, New York, N. Y. Car-body truss	319,526	June 9	754	202	31	1196
Stephenson, M. Elmer, Boston, Mass. Flower-stand	319,339	June 2	494	133	31	1142
Stern, Jonathan, Savannah, Ga. Time-piece dial	319,035	June 2	123	34	31	1071
Sternberg, Charles H., Lawrence, Kans. Composition for fuel	316,580	Apr. 28	2200	.....	31	416
Sternberger, Herman S., Piqua, Ohio. Folding dress-pillow	319,340	June 2	495	134	31	1142
Sterne, Louis, London, county of Middlesex, England. Spring	316,306	Apr. 21	1824	480	31	344
Sterns, Ezra L. (See Sheehan, James H., assignor.) (Reissue.)						
Stevens, Charles P., Boston, Mass. Stamp-pad	316,672	Apr. 28	2318	608	31	440
Stevens, Frank M., New York, N. Y., assignor to Stevens Locomotive and Machine Company. Balanced slide-valve	320,599	June 23	2266	599	31	1484
Stevens, Frank W., *et al.* (See Young, Harlan P., assignor.)						
Stevens, Grenville M., Portland, Me. Machine for forming pulp into vessels of various kinds	320,720	June 23	2419	641	31	1513
Stevens, Irving D. (See Eberhart and Stevens.)						
Stevens, John. (See Leonard and Stevens.)						
Stevens, John H. (See Lockwood, Hyatt, and Stevens.)						
Stevens, John H., Sandwich, Mass. Weighing-scale	319,637	June 9	911	240	31	1224
Stevens, John J., Soldier, Iowa. Churn	317,875	May 12	1265	337	31	763
Stevens, John L., assignor to J. W. Kepler, Chicago, Ill. Box-fastener	316,412	Apr. 21	1978	519	31	370
Stevens, Lellie E. (See Stevens, Lucious O. and L. E.)						
Stevens Locomotive and Machine Company. (See Stevens, Frank M., assignor.)						
Stevens, Lucious O. and L. E., Burlington, Iowa. Grain-cleaner	320,013	June 16	1431	376	31	1324
Stevens, Philip, Toledo, Ohio. Towel-rack	318,147	May 19	1635	437	31	840
Stevens, William H., Coldwater, Mich. Wheel-felly machine	317,876	May 12	1266	337	31	763
Stevens, William L., Boston, Mass. System for the transmission of power by electricity	316,076	Apr. 21	1519	{396 397}	31	288
Stevens, William L., Boston, Mass. Safety-box for electric circuits	316,077	Apr. 21	1522	397	31	288
Stevenson, Joseph P., Lewistown, Pa. Car-wheel	319,341	June 2	496	134	31	1142
Steward, Arthur P., assignor of two-thirds to T. L. and W. Fracker, Washington, D. C. Portable oven	317,878	May 12	1268	338	31	764
Steward, George H. (See Hunt and Steward.)						
Steward, John F., Chicago, Ill. Harvester	316,567	Apr. 14	830	219	31	154
Stewart, Burnet B. (See Johnston and Stewart.)						
Stewart, George W. (See Staats, William, assignor.)						
Stewart, James M. (See Drumm and Wyker, assignors.)						
Stewart, John M., Spencer, Ind. Spring for doors and gates	317,877	May 12	1267	338	31	764
Stewart, Robert, Pittsfield, Ill. Steam-boiler cleaner	319,802	June 9	1213	320	31	1278
Stewart, Sarah H., Concord, N. H. Check-rein	318,819	May 26	2537	676	31	1012
Stewart, Shaw, Stuart, Iowa. Railway-rail joint	317,037	May 5	137	35	31	547
Stewart, Thomas S., Saltsburg, Pa. End-gate for dumping-wagons	315,969	Apr. 14	1381	358	31	255
Stewart, Thomas S., Saltsburg, Pa., assignor of one-fourth to H. R. Josselyn, Chicago, Ill. Dumping-wagon	315,968	Apr. 14	1380	357	31	255
Stewart, Walter G., Reading, Pa. Drawing-board and drafting appliance	318,319	May 19	1862	500	31	892
Stewart, William, Brooklyn, N. Y. Bottle-stopper	320,189	June 16	1665	443	31	1367
Stieringer, Luther, and J. H. Vail, assignors of one-half to C. F. Hanington and R. N. Dyer, New York, N. Y. Wiring interiors for electric lights	317,879	May 12	1269	338	31	764
Stiggleman, James H., Lincolnville, Ind. School desk	321,322	June 30	3192	851	31	1663
Still, Henry, Beloit, Kans. Scuffle-hoe	318,148	May 19	1636	437	31	841
Stilson, Abel G., Cobleskill, N. Y. Floor-tube	317,684	May 12	1014	263	31	715
Stilwell, Wellington. (See Morris, Benjamin J., assignor.)						
Stimpson, James H., Springfield, Ill. Link-fitting apparatus	318,217	May 19	1723	461	31	857
Stimpson, Lorenzo L. (See Hinds and Stimpson.)						
Stimson, David S., Concord, N. H., assignor to C. L. Van Wormer, Melrose, Mass. Dumping-car	319,638	June 9	912	241	31	1225
Stirling, Allan, New York, N. Y. Hydraulic elevator for buildings	315,970	Apr. 14	1382	358	31	256
Stitzel, Frederick, and C. Weinedel, Louisville, Ky. Telegraphic relay	315,568	Apr. 14	831	219	31	155
Stivason, Kennedy H., Kittanning, Pa. Pipe-line for carrying gas	317,880	May 12	1271	339	31	764
St. John, George B., Boston, Mass. Stop-watch	319,145	June 2	259	68	31	1095
St. Louis Shovel Company. (See Holton, Edward K., assignor.)						
St. Mielcarek, Wladislaus, assignor of one-half to F. Molinak, Grand Rapids, Mich. Ventilator for stove-pipes	321,394	June 30	3289	879	31	1682
Stocking, Daniel, Fort Atkinson, assignor of one-half to D. Starin, Whitewater, Wis. Rowing-gear for boats	319,935	June 9	1318	348	31	1297
Stoddard Manufacturing Company. (See Green, Albert J., assignor.)						
Stoddard, Marvin O., Poultney, Vt. Milk-setting apparatus	315,448	Apr. 7	639	165	31	114

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Stoddard, Oren, Busti, N. Y. Windmill	320,190	June 16	1666	443	31	1367
Stoddard, Samuel G., assignor to Bridgeport Brass Company, Bridgeport, Conn. Lamp-burner	321,305	June 30	3290	879	31	1682
Stoetzel, Christopher and F. C., Newark, N. J. Hame and clip for harness	320,600	June 23	2267	509	31	1484
Stoetzel, Frank C. (See Stoetzel, Christopher and F. C.)						
Stokes, Charles F., *et al.* (See McGlinchey, Charles E., assignor.)						
Stokes, Robert L., assignor of one-half to C. Joseph, Jeffersonville, Ind. Lamp-bracket	319,146	June 2	261	68	31	1095
Stollwerck, Gebr. (See Bergmann, Theodor, assignor.)						
Stollwerck, Gebr. (See Stollwerck, Heinrich, assignor.)						
Stollwerck, Heinrich, assignor to Gebr. Stollwerck, Cologne-on-the-Rhine, Prussia, Germany. Apparatus for hulling, assorting, and cleansing cocoa-beans	320,890	June 23	2632	{696 697}	31	1553
Stolz, Christian. (See Lee, James, Jr., assignor.)						
Stompe, Joseph. (See Boynton, Alonzo R., assignor.)						
Stone, Frank, assignor to Munroe Organ Reed Company, Worcester, Mass. Reed-board	315,449	Apr. 7	641	166	31	114
Stone, George W. (See Hemelright and Stone.)						
Stone, Henrie D. (See Wade and Stone.)						
Stone, Henrie D., Boston, Mass., assignor to Adams Manufacturing Company, Portland, Me. Heeling-machine	315,675	Apr. 14	968	253	31	181
Stone, Henrie D., Boston, and A. C. Ambler, Natick, Mass., assignors to Adams Manufacturing Company, Portland, Me. Heeling-machine	315,971	Apr. 14	1383	358	31	256
Stone, Roy, New York, N. Y. Hydraulic excavating-machine	316,497	Apr. 28	2099	{551 552}	31	398
Stone, Thomas W., Columbus, Ohio. Butcher's steel	317,591	May 12	893	229	31	693
Stone, William R., and A. W. Pratt, Salem, Mass. Machine for treating hides	318,820	May 26	2538	677	31	1012
Stonemetz, John H., Erie, Pa. Trimming device for paper-folding machines	320,891	June 23	2635	697	31	1554
Storck, Henry W. (See Woodbury and Storck.)						
Storrs, Royal O., *et al.* (See Pottle, George F., assignor.)						
Stott, Samuel S., and R. Birtwistle, Haslingden, county of Lancaster, England. Machine for making elevator-buckets	318,592	May 26	2225	594	31	356
Stout, David, St. Louis, Mo. Aerial ship	319,936	June 9	1319	348	31	1297
Stout, Herbert, *et al.* (See Brewer and Heesen, assignors.)						
Stover, Daniel C., Freeport, Ill. Wire-barbing machine	318,821	May 26	2539	677	31	1012
Stover, Daniel C., Freeport, Ill. Wire-barbing machine	318,822	May 26	2541	677	31	1013
Stover, Daniel C., Freeport, Ill. Barbed-wire spool	319,147	June 2	262	68	31	1095
Stover, George W., Laurelton, assignor of one-half to J. Lilley, Sr., Lewisburg, Pa. Shutter-worker	321,396	June 30	3291	879	31	1682
Stover, Henry, *et al.* (See Franklin, James C., assignor.)						
Stover, Isaac L., Centralia, Ill. Car-coupling	318,052	May 19	1515	406	31	817
Stow, Harry, Iola, Kans. End-gate for wagons	316,307	Apr. 21	1825	480	31	344
Stowe, Benjamin L., Brooklyn, assignor to J. V. Reed, New York, N. Y. Belting	321,153	June 30	2987	{791 792}	31	1624
Stowe, Benjamin L., Brooklyn, assignor to J. V. Reed, New York, N. Y. Belting	321,154	June 30	2988	792	31	1624
Stowe, George W., New Haven, Conn. Thill-coupling	317,685	May 12	1014	263	31	715
Stowell, Nellie S., New York, N. Y. Sharpening-tool	317,494	May 5	672	170	31	645
Strack, Edward W. (See Turner and Strack.)						
Strader, Levi T. (See Gray, Henry F., assignor.)						
Strait, Hiram, Troy, N. Y. Corkscrew	317,038	May 5	138	35	31	547
Strait, Hiram, Troy, N. Y. Cuspidor	317,039	May 5	140	36	31	548
Strand, Charles, and J. Gilburg, Fowler, Ind. Cartridge-loading machine	321,257	June 30	3113	{828 829}	31	1647
Stranders, Walter, New York, N. Y., assignor to P. G. Thomson, Cincinnati, Ohio. Spelling toy or puzzle	318,823	May 26	2543	677	31	1013
Strasser, David. (See Gerdom, Andrew H., assignor.)						
Stratton, William H., assignor to S. R. Smith, New Haven, Conn. Fire-extinguisher	316,581	Apr. 28	2200	579	31	418
Straub, Albert, Gowanda, N. Y. Vehicle-spring	319,343	June 2	498	135	31	1143
Straus, Jacob, St. Louis, Mo. Sweat-pad hook	321,155	June 30	2990	793	31	1694
Straus, Max, Baltimore, Md. Furniture-leg shoe	319,342	June 2	497	134	31	1142
Strauss, Richard, Schweidnitz, Prussia, Germany. Safety apparatus for the preservation of the dead until their burial	315,569	Apr. 14	833	219	31	155
Strait, Hooper B., Culbertson, Nebr. Calf-weaner	317,881	May 12	1272	339	31	765
Straw, George H. (See Baker and Straw.)						
Strecter, Herbert A. (See Amet, Edward H., assignor.)						
Streeter, Herbert A., Chicago, Ill. Sash-bar	316,582	Apr. 28	2202	{579 580}	31	418
Streett, James R., assignor of one-half to J. H. L. Eager, Washington, D. C. Rifling-machine for heavy guns	318,824	May 26	2543	678	31	1013
Stretch, Robert, Tecumseh, Mich. Switch-stand	315,570	Apr. 14	835	220	31	155
Strickland, Ansel, Cumming, Ga. Cash-carrier	318,320	May 19	1864	500	31	893
Stricland, Palmer C. (See Wright, Christopher C., assignor.)						
Stringer, George. (See Birdsall and Stringer.)						
Stringer, George, assignor to E. M. Birdsall, Auburn, N. Y. Traction-engine	319,344	June 2	499	{135 136}	31	1143
Stripe, Horace G., Omaha, Nebr. Indicator-lock	318,218	May 19	1725	461	31	858
Strobel, Frederick, Marion, Ohio. Cylinder for clover-hullers	316,308	Apr. 21	1826	480	31	344
Strobel, Fredrick, Marion, Ohio. Concave for clover-hullers	318,825	May 26	2545	678	31	1013
Strong, Edward B., Detroit, Mich. Car-axle box	320,412	June 16	2016	529	31	1429
Strong, Edwin J., Beresford, Dak. Ter. Spring-brace for vehicles	317,040	May 5	142	36	31	548
Strong, George S., Philadelphia, Pa. Locomotive-brake	315,973	Apr. 14	1387	359	31	257
Strong, George S., Philadelphia, Pa. Steam-boiler	315,974	Apr. 14	1388	{359 360}	31	257
Strong, George S., Philadelphia, Pa. Cylinder and valve for engines	320,893	June 23	2637	{698 699}	31	1554
Strong, George S., Philadelphia, Pa. Cylinder for steam-engines	320,894	June 23	2638	{699 700}	31	1554
Strong, George S., Philadelphia, Pa. Valve-motion	320,895	June 23	2639	700	31	1554
Strong, George S., assignor to J. T. Morris, trustee, Philadelphia, Pa. Valve-gear	315,972	Apr. 14	1386	359	31	257
Strong, George S., assignor to J. T. Morris, trustee, Philadelphia, Pa. Valve-operating mechanism	320,892	June 23	2636	698	31	1554
Strong, Walter E. (See Piper, Edwin S., assignor.)						
Strong, William C., Kents Hill, Me. Adjustment for solar cameras	315,450	Apr. 7	642	166	31	114
Strouse, Isaac, New Haven, Conn. Combined corset and shoulder-brace	317,473	May 5	740	187	31	657
Strouse, Isaac, New Haven, Conn. Shoulder-brace	317,474	May 5	741	188	31	657
Struebig, Charles H., Milwaukee, Wis. Mat for seed-presses	321,258	June 30	3116	829	31	1647

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Strunk, Daniel, assignor of two-thirds to Minneapolis Harvester Works, Minneapolis, Minn. Grain-binder	318,321	May 19	1865	500, 501	31	883
Strype, William G., Wicklow, Ireland. Preparing dried blood	318,826	May 26	2546	.....	31	1014
Stuart, Robert J., assignor to Sedgwick Manufacturing Company, Poughkeepsie, N. Y. Paper-feeding machine	319,431	June 2	613	166, 167	31	1165
Stuart, Sinclair, Plainfield, N. J. Removing oil from exhaust-steam	316,673	Apr. 28	2319	609	31	440
Stuart, Sinclair, Plainfield, N. J. Shaft-coupling	316,919	Apr. 28	2696	702	31	509
Stuckert, J. Franklin, Philadelphia, Pa. Support for gutters of skylights, roofs, vaults, &c.	316,413	Apr. 21	1979	520	31	370
Studley, Elbridge G., and P. Dosch, Grand Rapids, Mich. Fly-net	315,975	Apr. 14	1389	360	31	257
Stuertz, John. (See Yunck and Stuertz.)						
Sturtevant Mill Company. (See Sturtevant, Thomas L., assignor.)						
Sturtevant, Thomas L., Framingham, Mass., assignor to Sturtevant Mill Company, Portland, Me. Screen	316,920	Apr. 28	2697	702	31	509
Sturtevant, Thomas L., Framingham, Mass., assignor to Sturtevant Mill Company, Portland, Me. Attrition-mill	316,921	Apr. 28	2698	703	31	509
Stutz, Sebastian, Pittsburg, Pa. Preventing gas-explosions	315,062	Apr. 7	130	30	31	25
Sublett, William, San Francisco, Cal. Cartridge	317,041	May 5	142	36	31	548
Suckert, Julius J., Ridgewood, N. J. Cooling and separating a lubricating agent from a compressed gas, and liquefaction of gases and production of refrigeration	320,305	June 16	1827	485, 486	31	1395
Suckert, Julius J., Ridgewood, N. J. Liquefying gases and producing refrigeration	320,306	June 16	1835	486	31	1397
Suckert, Julius J., Ridgewood, N. J. Method of and apparatus for purifying and liquefying gases and producing refrigeration	320,307	June 16	1841	486	31	1398
Suckert, Julius J., Ridgewood, N. J. Separating and cooling a sealing or lubricating liquid in apparatus for producing refrigeration	320,308	June 16	1845	487	31	1398
Suckert, Julius J., Ridgewood, N. J. Separating and cooling a sealing or lubricating liquid in producing refrigeration	320,309	June 16	1848	487	31	1398
Suckert, Julius J., Ridgewood, N. J. Method of and apparatus for separating a liquefiable gas from a condensable vapor	320,310	June 16	1851	487, 488	31	1399
Suhrheinrich, Louis, Evansville, Ind. Valve-gear	318,827	May 26	2547	678	31	1014
Sullivan, Daniel, Sparta, Wis. Railway-switch chair	317,042	May 5	143	36	31	548
Sullivan, James H. (See Bennett and Sullivan.)						
Sullivan, Jerry, Du Bois, Pa. Motor	319,527	June 9	756	202	31	1197
Sullivan Machine Company. (See Ball, Albert, assignor.)						
Sullivan, Thomas P., Webster Groves, and E. M. Hazard, St. Louis, Mo. Oil-expressing box	320,896	June 23	2641	701	31	1555
Sultzer, Joseph B., St. Louis, Mo. Scarf-shield	317,882	May 12	1273	339	31	765
Summers, John P., Tiffin, Ohio. Road-scraper	319,036	June 2	124	34	31	1071
Sunderland, Leslie E., assignor to Joliet Enterprise Company, Joliet, Ill. Machine for making barbed-wire fences. (Reissue)	10,597	May 12	1383	371, 372	31	786
Susemihl, Francis G., Detroit, Mich. Car-brake	321,397	June 30	3293	880	31	1682
Sutherland, John B., assignor of one-half to G. A. Porter, Syracuse, N. Y. Valve-gear	317,475	May 5	742	188	31	657
Sutton, Benjamin F., assignor to Davol Rubber Company, Providence, R. I. Atomizer	318,930	May 26	2680	710	31	1039
Sutton, Benjamin F., Providence, R. I., assignor of two-thirds to R. Parker and J. H. Stearns, Brooklyn, N. Y. Syringe	319,937	June 9	1320	348	31	1297
Sutton, George. (See Duross and Sutton.)						
Svensson, Claes A., assignor of one-half to W. W. Oliver, Buffalo, N. Y. Metal-shears	317,883	May 12	1274	339	31	765
Swan, Henry C., Oshkosh, Wis. Two-wheeled vehicle	319,037	June 2	126	34	31	1071
Swan, James, Seymour, Conn. Auger	320,097	June 16	1543	408	31	1345
Swan, Joseph W., Laureston, Bromley, county of Kent, England. Secondary battery	318,828	May 26	2548	679	31	1014
Swann, John, *et al.* (See Ethridge, Martin V. B., assignor.)						
Swartout, Emma J., Danbury, Conn. Machine for sewing hat-tips	316,414	Apr. 21	1980	520, 521	31	370
Swartzenburg, Walter J. (See Peters and Swartzenburg.)						
Sweeney, Andrew J., Pana, Ill. Scoop-board for wagons	315,676	Apr. 14	970	254	31	182
Sweet, William A., Syracuse, N. Y. Turning the ends of springs	320,187	June 16	1663	442	31	1367
Sweetland, Cornelius S. (See Ford, Franklin D., assignor.)						
Sweitzer, Eugene, Allegheny, Pa. Curtain-stretcher	319,345	June 2	500	136	31	1143
Sweney, Charles E., Pierceton, Ind. Check-rower apparatus for corn-planters	318,931	May 26	2681	711	31	1039
Swenson, Lorens, Cresco, Iowa. Fire-escape ladder	316,415	Apr. 21	1984	521	31	371
Swett, Albert L., Medina, N. Y. Stay-roller for sliding doors	319,938	June 9	1321	348	31	1297
Swift, Edwin E., Paterson, N. J. Thill-coupling	321,398	June 30	3296	880	31	1683
Swinnerton, William O., San José, Cal. Windmill	316,078	Apr. 21	1523	397	31	288
Swope, Horace G., and J. R. Rude, deceased, (W. W. Snyder executor,) assignors to Rude Brothers Manufacturing Company, Liberty, Ind. Wheel-cultivator	321,399	June 30	3296	880	31	1683
Symon, Robert R., *et al.* (See Maxim, Hiram S., assignor.)						
Symons, Henry. (See Duke, Joseph, assignor.)						
Symons, Henry, Totnes, county of Devon, England. Gas-carburetor	317,686	May 12	1015	264	31	715
Symons, Josiah W. (See Hewitt, Charles E., assignor.)						
Sypher, George W., Seneca, Kans. Rotary steam-valve	321,156	June 30	2990	793	31	1624
Syracuse Paper Ware Company. (See Leonard and Stevens, assignors.)						
Tabourin, Georges A., Marseilles, France. Voltaic-arc lamp	315,571	Apr. 14	837	220, 221	31	155
Tack, Charles M., St. Louis, Mo. Sink-valve	317,043	May 5	144	37	31	548
Taft, Edward A., Davenport, Iowa. Hose-truck	320,015	June 16	1434	377	31	1325
Taft, Edward L. (See Ellis and Taft.)						
Taft, George W., Abington, Conn. Machine for making, repairing, and cleaning roads	315,184	Apr. 7	288	68, 69	31	51
Taft, James O., Howell, Mich. Stock-rack	315,677	Apr. 14	971	254	31	182
Taft Twist Drill and Tool Company. (See Taft, Walter E., assignor.)						
Taft, Walter E., assignor to Taft Twist Drill and Tool Company, Providence, R. I. Machine for making drill-blanks	318,322	May 19	1867	501	31	883
Taggart, G. Ellis, *et al.* (See Lytle, Albert E., assignor.)						
Tainter, William H. H., *et al.* (See Millard and King, assignors.)						
Taltavall, Thomas R., Brooklyn, N. Y. Repeater for quadruplex telegraphs	320,311	June 16	1857	488	31	1400
Tanner, George W., Providence, R. I. Cigar-machine	321,259	June 30	3116	829	31	1648
Tansey, Vurlin G., Ashland, Nebr. Holder for ornamental and fly paper	317,241	May 5	423	106	31	600
Tapley Machine Company. (See Addy, Charles J., assignor.)						
Tarbox, David N. (See Espy and Tarbox.)						
Tarragon, Charles A., Portland, Oreg. Brick-machine	319,639	June 9	914	241	31	1225
Tasker, Stephen P. M. (See Borie, Hiram R., assignor.)						
Tate, George J. F., London, England. Portable exercising stool or chair	321,157	June 30	2991	793	31	1624
Tate, William, Winston, N. C. Grain and seed separator and grader	319,528	June 9	758	203	31	1197
Tatem, Benjamin F., Memphis, Tenn. Shelf-bracket	317,242	May 5	424	106	31	601
Tatham, Henry B., Jr., Philadelphia, Pa. Artificial mother for raising chickens	321,060	June 30	2874	764	31	1602

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Tatum & Co., Samuel C. (See Bennett, John M., assignor.)						
Taylor, Benjamin, Morrillton, Ark. Spring-frame for beds, &c	318,219	May 19	1726	461	31	858
Taylor, C. W. (See White, John F., assignor.)						
Taylor, Charles L., Swissvale, and J. Skewis, Pittsburg, Pa. Rolling beams	318,220	May 19	1727	462	31	859
Taylor, Clarence W., Janesville, Wis. Fountain-pen	320,509	June 23	2146	566	31	1462
Taylor, Crispin H., Brooklyn, assignor to T. Colt, New York, N. Y. Screw-cap for jars	318,829	May 26	2550	679	31	1014
Taylor, Daniel R., and W. I. Ludlow, Cleveland, Ohio; said Ludlow assignor to said Taylor. Car-coupling	319,863	June 9	1214	320	31	1278
Taylor, Edward G. (See Taylor, Sydney W., assignor.)						
Taylor, Eugene H. (See Tyler and Taylor.)						
Taylor, Franklin, *et al.* (See Chandler and Dodds, assignors.)						
Taylor, Franklin, assignor to Vulcanized Fibre Company, Wilmington, Del. Vulcanized fiber roller or wheel, &c	316,847	Apr. 28	2590	677	31	489
Taylor, Frederick. (See Biabee, Wisner B., assignor.)						
Taylor, Frederick S., Riegelsville, N. J. Bed-plate for paper-pulp engines	320,721	June 23	2420	641	31	1513
Taylor, George W., Baltimore, Md. Sheet-metal can	315,854	Apr. 14	1212	316	31	227
Taylor, Gorham H., Yarmouth, Mass. Lock for steering-gear of vessels	320,510	June 23	2148	567	31	1462
Taylor, J. C. (See Moore and Ball, assignors.)						
Taylor, N. W., *et al.* (See Brightman, Joseph W., assignor.)						
Taylor, Sydney W., Newport, R. I., assignor to E. G. Taylor, New York, N. Y. Sight-plumb for fire-arms	316,416	Apr. 21	1985	522	31	371
Taylor, William J., Chester, N. J., assignor to Ridgway Refrigerator Company, (limited,) Philadelphia, Pa. Refrigerator	320,722	June 23	2421	642	31	1504
Tcherniac, Joseph. (See De Günzburg and Tchernlac.)						
Teal, Furgerson, Utica, Iowa. Apparatus for watering stock	319,038	June 2	127	35	31	1071
Teal, Henry W., assignor of one-half to E. Blew and W. W. Adamson, Montrose, Mo. Motor	317,044	May 5	145	37	31	548
Teeter, George O., Tecterville, Ontario, Canada. Rein-holder	320,723	June 23	2423	642	31	1514
Teetzel, William H., Detroit, Mich. Door-check	318,323	May 19	1868	501	31	883
Tefft, Pha, Oriental, Colo. Truss	319,346	June 2	501	136	31	1143
Telfer, John C., Palatka, Fla. Rotary engine	316,309	Apr. 21	1827	480, 481	31	344
Temple, Henry, Grand Rapids, Mich. Extensible step-ladder	317,884	May 12	1276	340	31	765
Temple, Morris D., Chicago, Ill. Chain-pump bucket	316,199	Apr. 21	1686	442	31	319
Temple, Winfield S., Sidney, Ill. Car-coupling	320,983	June 30	2766	735	31	1584
Ten Eyck, Edward W., Elizabeth, N. J. Clamp for confining the ends of braid, ropes, &c.	316,310	Apr. 21	1828	481	31	345
Ten Eyck, James H., Auburn, N. Y. Hammock-support	315,354	Apr. 7	508	129	31	92
Tener, George E. (See McCarty, Tener, and McAfee.)						
Terrell, Elah, and W. H. Fish, Columbus, Ohio. Wall for the support of arches and bricks for the construction of the same	318,324	May 19	1869	501, 502	31	884
Terry, Henry C., trustee. (See Yunck and Stuertz, assignors.)						
Terry, James, Hartford, Conn. Internal bottle-stopper	320,098	June 16	1544	408	31	1345
Terry, James, Hartford, Conn. Removable bottle-stopper	320,191	June 16	1667	443	31	1367
Terry, James, Hartford, Conn. Internal bottle-stopper	320,192	June 16	1668	443	31	1367
Terry, Philo F., Green City, Mo. Hay-stacker	315,185	Apr. 7	291	69	31	52
Terry, Titus B., Toledo, Ohio. Ornamenting shears and scissors	316,311	Apr. 21	1829	481	31	345
Tewksbury, Andrew J., Haverhill, Mass. Wooden-soled shoe	315,572	Apr. 14	842	221	31	156
Thacher, Scott. (See Rawson, Isaac, assignor.)						
Thackston, Richard D., assignor of one-half to H. I. Coe, St. Louis, Mo. Self-closing hatchway	315,083	Apr. 7	131	31	31	25
Thatcher, Thomas, Utica, N. Y., assignor of one-half to W. Dawson, Scranton, Pa. Car-axle box	318,520	May 26	2135	575	31	942
Thau, Henry, *et al.* (See Wood, Frank B., assignor.)						
Thaxter, George E., Boston, Mass. Knob locking and releasing mechanism for locks	315,186	Apr. 7	294	69, 70	31	52
Thayer, Adelbert R., Cheboygan, Mich. Stopper	318,325	May 19	1870	502	31	884
Thayer, Anson P., Brooklyn, N. Y. Making barbed metallic fencing	315,085	Apr. 7	133	31	31	26
Thayer, Anson P., assignor to T. W. Hall, Brooklyn, N. Y. Making metal fence-barbs	315,084	Apr. 7	131	31	31	26
Thayer, Anson P., assignor to T. W. Hall, Brooklyn, N. Y. Die for making metallic fence-barbs	315,086	Apr. 7	134	31	31	26
Thayer, Anson P., assignor to T. W. Hall, Brooklyn, N. Y. Die for making metallic fence-barbs	315,087	Apr. 7	135	32	31	26
Thayer, Anson P., assignor to T. W. Hall, Brooklyn, N. Y. Die for making barbed metallic fencing	320,825	June 23	2543	673	31	1537
Thayer, Charles F., and J. Lowe, assignors to Rhode Island Metal Company, Providence, R. I. Making nails	318,830	May 26	2551	679	31	1014
Thayer, Ellis T., Charleston, W. Va. Self-oiling car-wheel	317,243	May 5	425	107	31	601
Thayer, Isaac, San Francisco, Cal. Machine for crushing and pressing grapes	319,640	June 9	916	242	31	1225
Thayer, John C., Chicago, Ill. Attachment for lubricators	320,312	June 16	1860	488	31	1401
Thayer, Orlando A., Paris, Me. Folding table	320,413	June 16	2017	529	31	1429
Thayer, Russell, assignor to Philadelphia Drainage Construction Company, (limited,) Philadelphia, Pa. Trap for drain-pipes	319,529	June 9	759	203	31	1197
Thayer, William C., Bainbridge, N. Y. Pendulum-level	317,885	May 12	1277	340	31	766
Thayer, William C., Chicago, Ill. Lamp	318,521	May 26	2136	575	31	942
Thayer, William S., assignor of one-half to C. M. Haywood, Owego, N. Y. Boltless railway-joint	319,641	June 9	917	242	31	1225
Thayer, William S., assignor of one-half to J. J. Van Kleeck, Owego, N. Y. Device for lowering coffins	319,642	June 9	918	242	31	1226
Theis, Leonard, Cabery, Ill. Cultivator attachment	320,984	June 30	2767	735	31	1584
Therkelsen, Anders, and J. G. A. Brunn, Copenhagen, Denmark. Governor	316,848	Apr. 28	2591	677	31	489
Thielsen, Hans, Portland, Oreg. Railway cross-tie	317,244	May 5	426	107	31	601
Thierfelder, Albrecht, Albany, N. Y. Steam-engine governor	317,592	May 12	894	229	31	693
Thies, John B., assignor of one-half to C. Wight & Son, Dayton, Ohio. Machine for manufacturing picket-fences	316,849	Apr. 28	2593	677, 678	31	489
Thomas, Albert D., Keokuk, Iowa. Brick-machine	315,855	Apr. 14	1212	317	31	227
Thomas, Benjamin F., Camden, Ind. Excavator	318,326	May 19	1870	502	31	884
Thomas, Charles M., Buffalo, N. Y. Elevator-bucket	320,897	June 23	2642	701	31	1555
Thomas, Daniel. (See O'Brien, John, assignor.)						
Thomas, Edmund M., Milwaukee, Wis. Exhaust attachment for steam-engines	319,759	June 9	1060	282	31	1252
Thomas, Eleazer, Pawtucket, R. I. Spinning-machine	318,522	May 26	2137	575	31	943
Thomas, George E., Abingdon, Va. Pole and shaft coupling	319,348	June 2	503	137	31	1144
Thomas, John, *et al.* (See Saylor, Louis S., assignor.)						
Thomas, John H., Springfield, Ohio. Tedder	315,856	Apr. 14	1217	317, 318	31	228
Thomas, John H., Springfield, Ohio. Hay-tedder	316,498	Apr. 28	2102	552	31	399

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Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Thomas, John H., Springfield, Ohio. Apparatus for straightening crank-shaft journals	317,593	May 12	895	229	31	693
Thomas, John H., Springfield, Ohio. Horse hay-rake	317,594	May 12	896	230	31	693
Thomas, John H., Springfield, Ohio. Tedder-fork	319,864	June 9	1215	321	31	1278
Thomas, Joseph W. (See Offutt, Joseph E., assignor.)						
Thomas, Josephine. (See Rivers, Thomas L., assignor.)						
Thomas, Simon S., Davisborough, Ga. Book-holder	316,499	Apr. 28	2104	552	31	399
Thomas, William, Pittston, Pa. Device for feeding air to furnaces	315,187	Apr. 7	295	70	31	53
Thomas, William M., assignor of one-half to Grand Rapids Electric Light and Power Company, Grand Rapids, Mich. Governor for electric motors, &c	316,500	Apr. 28	2104	553	31	399
Thomas, William M., assignor of one-half to Grand Rapids Electric Light and Power Company, Grand Rapids, Mich. Automatic cut-out for incandescent lamps	316,501	Apr. 28	2106	553	31	400
Thomas, William M., assignor of one-half to Grand Rapids Electric Light and Power Company, Grand Rapids, Mich. Electric cut-out	316,502	Apr. 28	2107	554	31	400
Thomas, William M., assignor of one-half to Grand Rapids Electric Light and Power Company, Grand Rapids, Mich. System of electric lighting	319,347	June 2	501	{136 {137	31	1143
Thompson, Arthur. (See Elliott, William T., assignor.)						
Thompson, Cassius C., East Liverpool, Ohio. Machine for forming pottery and glassware and finishing or turning the same	319,760	June 9	1062	282	31	1253
Thompson, Charles A., Flushing, N. Y. Exhaust-nozzle	320,016	June 16	1435	377	31	1325
Thompson, Daniel L., *et al.* (See Odell, Benjamin C., assignor.)						
Thompson, Edward H. (See Thompson, Francis and E. H.)						
Thompson, Edward P., Elizabeth, N. J., assignor of three-fourths to E. P. Roberts and G. H. Pierce, Cheyenne, Wyo. Ter. Apparatus for the separation of gold from its ores by electro chlorination and deposition	317,245	May 5	427	107	31	601
Thompson, Edward P., Elizabeth, N. J., assignor of three-fourths to E. P. Roberts and G. H. Pierce, Cheyenne, Wyo. Ter. Apparatus for the electro-deposition of gold from its chlorides	317,246	May 5	432	108	31	602
Thompson, Francis and E. H., Allegheny, Pa. Cigar-bunching machine	318,669	May 26	2331	622	31	977
Thompson, George H., Frostburg, Md., assignor to H. D. Huff and C. Brinton, Chicago, Ill. Roller-skate	319,530	June 9	760	203	31	1197
Thompson, George K., Malden, assignor to American Bell Telephone Company, Boston, Mass. Flexible tip for conducting-cords	317,887	May 12	1279	340	31	766
Thompson, Harry G., *et al.* (See Mower, Samuel E., assignor.)						
Thompson, Henry A., Farmington, Me. Protector for cow-milkers	317,045	May 5	146	37	31	549
Thompson, Henry G., *et al.* (See Mower, Samuel E., assignor.)						
Thompson, Horace W. (See Johnson, Charles C., assignor.)						
Thompson, James M., Garrison, Iowa. Clover-huller	317,595	May 12	897	230	31	694
Thompson, John, assignor to Bucyrus Foundry and Manufacturing Company, Bucyrus, Ohio. Friction-clutch	316,200	Apr. 21	1686	443	31	320
Thompson, John P., Phœnix, Md. Loom-shuttle	319,866	June 9	1218	{321 {322	31	1279
Thompson, Melchesedeck, Y., Arkadelphia, Ark. Motor for sewing-machines	316,850	Apr. 28	2594	678	31	490
Thompson, Orrin B., Jersey, Ohio. Device for overcoming dead-centers	318,831	May 26	2351	679	31	1014
Thompson, Perley & Waite. (See Odell, Benjamin C., assignor.)						
Thompson, Robert W., East Rockport, Ohio. Car-starter	316,417	Apr. 21	1986	522	31	372
Thompson, Sherman T., and W. B. Richards, Adams, N. Y. Combined punching and flanging machine	318,221	May 19	1729	462	31	859
Thompson, Thomas. (See Johnson and Thompson.)						
Thompson, Thomas H., assignor to Sigourney Tool Company, Hartford, Conn. Drilling-machine	317,886	May 12	1277	340	31	766
Thompson, Thomas H., assignor to Sigourney Tool Company, Hartford, Conn. Friction-clutch	319,867	June 9	1219	322	31	1279
Thompson, William G., Brooklyn, N. Y. Grappling-bucket	321,159	June 30	2994	794	31	1625
Thompson, William G., Brooklyn, assignor to himself and E. L. Hayward, Port Richmond, N. Y. Grappling-bucket	321,158	June 30	2992	794	31	1625
Thompson, William W., Orient, N. Y. Check-rein attachment	320,724	June 23	2424	642	31	1514
Thomsen, Peter. (See Meister, Carl, assignor.)						
Thomson, Elihu, Lynn, Mass. Electric lamp	320,018	June 16	1439	378	31	1325
Thomson, Elihu, and E. W. Rice, New Britain, Conn., assignors to Thomson-Houston Electric Company, of Connecticut. Cut-out for electric circuits	320,017	June 16	1436	377	31	1325
Thomson-Houston Electric Company. (See Thomson and Rice, assignors.)						
Thomson, J. E. (See Hay, John, assignor.)						
Thomson, John, Brooklyn, N. Y. Diaphragm fluid-meter	318,327	May 19	1872	503	31	884
Thomson, John, Brooklyn, N. Y. Filter	320,985	June 30	2768	{735 {736	31	1584
Thomson, Peter G. (See Stranders, Walter, assignor.)						
Thorn, John H., Youngstown, Ohio. Measuring-pump	321,061	June 30	2875	764	31	1603
Thorn Wire Hedge Company. (See Brigg's, Orlando P., assignor.)						
Thornberry, Henry S., Boston, Mass. Telephone-circuit	317,888	May 12	1280	341	31	766
Thornberry, Henry S., Boston, Mass. Telephone-circuit	320,414	June 16	2018	530	31	1430
Thornberry, Henry S., assignor to American Bell Telephone Company, Boston, Mass. Telephone-transmitter	321,323	June 30	3193	851	31	1663
Thornburg, John H., Harriaville, Ind. Mechanical motor	318,832	May 26	2352	680	31	1015
Thornhill, Edward. (See Thornhill, Forknall, and Thornhill.)						
Thornhill, James E. S., Beswick, T. Forknall, Fairfield, and E. Thornhill, Ardwick, county of Lancaster, England. Railway-carriage	320,601	June 23	2268	600	31	1485
Thunder, George H. A. (See Smith and Marshall, assignors.)						
Thurber, Isaac L. (See Rice, Steiger, and Thurber.)						
Thurber, Whyland & Co. (See Clawson, Clement C., assignor.)						
Thurlow, Winfield S., Boston, Mass. Lever-buckle	318,053	May 19	1516	406	31	818
Thurman, Pleasant M. and W. T., Clarence, Mo. Device for removing wagon-bodies	316,851	Apr. 28	2596	678	31	490
Thurman, William T. (See Thurman, Pleasant M. and W. T.)						
Thurstin, Albert, and F. Jacoby, O'Fallon, Mo. Corn-planter	315,857	Apr. 14	1219	318	31	228
Thurston, John C. (See Baldwin, Luther C., assignor.)						
Thurston, Spencer D., Philadelphia, Pa. Piston-rod packing	318,400	May 19	1970	530	31	903
Thury, Charles, and S. De Bassecourt, Paris, France. Corset-spring	316,852	Apr. 28	2597	678	31	490
Tideman, Sven, Chicago, Ill., assignor to E. D. Barry, Grand Rapids, Mich. Mechanical movement	321,002	June 30	2876	765	31	1604
Tidgewell, Frederick H. (See Waite and Tidgewell.)						
Tiers, Alexander H., *et al.* (See Pendleton, John H., assignor.)						
Tiers, Cornelius, *et al.* (See Pendleton, John H., assignor.)						
Tillman, William A., Grape Vine, Tex. Fence	315,088	Apr. 7	137	32	31	26
Tillotson, Joseph, assignor to A. H. Hammond, Worcester, Mass. Making rivet-studs	321,260	June 30	3117	830	31	1648

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Tillon, Walter G., New Haven, assignor to N. A. Baldwin, Milford, Conn. Needle for leather-sewing machines	318,633	May 26	2553	680	31	1015
Tin, Walleratein & Co. (See Hermann, Max, assignor.)						
Timmons, Lindsay H., Dubuque, Iowa. Rotary steam-engine	320,725	June 23	2424	643	31	1514
Timms, James, assignor of one-half to B. F. Rees, Columbus, Ohio. Car-axle box	316,503	Apr. 28	2108	554	31	400
Timms, James, assignor of one-half to B. F. Rees, Columbus, Ohio. Car-axle box	319,643	June 9	919	243	31	1226
Tinchant, Edward A., Antwerp, Belgium. Cigar-machine	319,349	June 2	503	137	31	1144
Tingley, Samuel H. (See Dart, Albert E., assignor.)						
Tisdale, Charles D., Boston, Mass., assignor of two-thirds to J. D. Gould, New York, N. Y. Railway signaling apparatus	316,201	Apr. 21	1688	443	31	320
Tisdale, Mary E., Cedar Rapids, Iowa. Egg boiler and caster	318,523	May 26	2138	576	31	943
Titus, Erastus C. Catskill, N. Y. Switch	320,019	June 16	1441	378	31	1326
Titus, Ivor R., and H. C. Bossinger, Huntington, W. Va. Car-coupling	317,889	May 12	1281	341	31	766
Titus, Jacob G., Elizabethtown, N. Mex. Ter. Quartz-mill	320,415	June 16	2019	530	31	1430
Titus, John T., San Francisco, Cal. Hose-coupling	319,350	June 2	505	138	31	1144
Tobey, Miles. (See Hudson and Tobey.)						
Tobey, Orville H., Chicago, Ill., and W. W. Tobey, New York, N. Y. Process of and apparatus for roasting ores	315,089	Apr. 7	138	32	31	26
Tobey, William W. (See Tobey, Orville H. and W. W.)						
Todd, Henry B., Meriden, Conn. Stove-pipe damper	317,046	May 5	147	38	31	549
Todd, John N. (See Friess and Todd.)						
Toennies, Charles, Hoboken, N. J. Rocking propeller	319,351	June 2	505	138	31	1144
Toglio, Peter, Charleston, S. C. Manufacture of imitation-brick weather-boarding	318,054	May 19	1517	406	31	818
Toledo Mower and Reaper Company. (See Davis, John S., assignor.)						
Tolley, Henry, Birmingham, county of Warwick, England. Breech-loading small-arm	315,758	Apr. 14	1221	319	31	228
Tomkins, William S., Boonton, N. J. Hand coal-conveyer	319,865	June 9	1216	321	31	1278
Tomlinson, Edwin R., assignor to E. Cole & Burnham Company, Bridgeport, Conn. Hose-nozzle	319,148	June 2	262	69	31	1095
Tonner, A. Clarke. (See Nodle, George G., assignor.)						
Tonner, A. Clarke, Canton, Ohio. Burglar-alarm	318,834	May 26	2555	680	31	1015
Tordoff, Joseph, Leeds, county of York, England. Manufacture of steam-boiler manholes and analogous devices	316,312	Apr. 21	1631	482	31	345
Torrence, John A., and D. B. Jernigan, Harrison, Ark. Cultivator	316,313	Apr. 21	1632	482	31	345
Torrey, Augustus, Detroit, Mich., and D. J. Casey, Cylon, Wis. Passenger-recorder	315,355	Apr. 7	509	130	31	92
Torrey, Joseph R. (See McDonald, Alexander, assignor.)						
Totton, Robert C. (See Reese, Abram, assignor.)						
Tourigne, Carlos, San Francisco, Cal. Pattern-making machine	317,687	May 12	1016	264	31	715
Tourvieille, Ferdinand. (See Barrier, Tourvieille, and Legay.)						
Tousley, Miron G., assignor to A. Patrick, Englewood, Ill. Portable elevated platform for stoves, &c	315,573	Apr. 14	843	221	31	156
Towles, Henry O., *et al.* (See Baden, Thomas E., assignor.)						
Town, S. Chester, Castile, N. Y. Fence	316,418	Apr. 21	1988	522	31	372
Towne, Henry R., assignor to Yale & Towne Manufacturing Company, Stamford, Conn. Hanger for overhead tram-rails	316,504	Apr. 28	2109	554	31	400
Towne, Nathan P., Brooklyn, N. Y. Lantern	317,047	May 5	148	38	31	549
Townsend, Warren R., assignor to himself and C. S. Knight, Grand Rapids, Mich. Automatic waste-valve for engine-cylinders	320,626	June 23	2544	674	31	1537
Townsend, Orion D., Isle St. George, Ohio. Rain-water escape	316,853	Apr. 28	2598	679	31	490
Tracey, F. E. (See Hatáll, Thomas, assignor.)						
Trachsel, John, J. K. Lipps, and W. H. Turney, Columbia City, Ind. Weather-strip	318,437	May 19	2017	543	31	911
Tracy, Truman L. (See Calef and Tracy.)						
Trahern, William C., Elm Lake, Wis. Apparatus for gathering cranberries	319,352	June 2	506	138	31	1144
Traitel, Benjamin D., and H. Ruyter, New York, N. Y.; said Ruyter assignor to said Traitel. Finger-ring, &c	317,596	May 12	898	230	31	694
Trask, Harry, Brooklyn, N. Y. Pipe-hanger	316,922	Apr. 28	2700	703	31	509
Traut, Justus A., New Britain, Conn. Bench-plane	319,039	June 2	128	35	31	1071
Traut, Justus A., assignor to Stanley Rule and Level Company, New Britain, Conn. Plane.	316,079	Apr. 21	1524	398	31	289
Trautmann, Charles M. (See Fletcher, Dunkin, Hanhart, and Trautmann.)						
Travers, Vincent P., New York, N. Y. Rope-buckle	315,859	Apr. 14	1223	319	31	229
Travers, Vincent P., New York, N. Y. Hammock-support	316,419	Apr. 21	1988	522	31	372
Travers, Vincent P., New York, N. Y. Thimble for hammocks, &c	318,524	May 26	2139	576	31	943
Trenkamp, Henry. (See Schneider and Trenkamp.)						
Trenton Iron Company. (See Hewitt, William, assignor.)						
Trick, Wilkins, *et al.* (See Mitchell, Barnard W., assignor.)						
Tricker, John N., assignor to C. Chambers, Jr., Philadelphia, Pa. Device for cleaning cut-off wires of brick-machines	318,055	May 19	1518	407	31	818
Tricycle Manufacturing Company. (See Bean and Grant, assignors.)						
Trigge, John, Mount Vernon, N. Y. Drop-light and chandelier	315,976	Apr. 14	1390	361	31	257
Trinkle, Christopher C. (See Helms and Trinkle.)						
Tripp, Hiram B., Baltimore, Md. Burglar-proof safe-door	317,688	May 12	1020	264	31	717
Tripp, Thomas, East Stoughton, Mass. Anti-friction bearing	315,356	Apr. 7	511	131	31	93
Trippe, Sylvanus L., Denver, Colo. Amalgamator	318,932	May 26	2683	711	31	1039
Troemner, Henry. (See Coles, Henri H., assignor.)						
Tromblee, Andrew, Port Henry, N. Y. Adjustable angle-sheave	315,090	Apr. 7	139	32	31	27
Trombly, Alexander. (See Decker and Trombly.)						
Trott, Stinson E., Wilmington, Ill. Carbonizing paper	319,353	June 2	508	139	31	1145
Trout, Amos, and C. H. Ortlip, Philadelphia, Pa. Pipe-thread-cutting stock	318,222	May 19	1729	462	31	859
Trout, Conrad C. (See Riddell and Trout.)						
Trowbridge, Frank, Fond du Lac, Wis. Feed-water cleaner	320,511	June 23	2148	567	31	1462
Trowbridge, Frank, Fond du Lac, Wis. Man-hole cover for boilers	320,512	June 23	2150	567	31	1462
Troy Burlap Manufacturing Company. (See Slyder, William J., assignor.)						
Troy, Daniel S., Montgomery, Ala. Propulsion of ships, &c	317,890	May 12	1282	341	31	767
Troy, Daniel S., Montgomery, Ala. Compressed air and gas locomotive-engine	317,891	May 12	1283	{342 {343	31	767
Troy, Daniel S., Montgomery, Ala. Gas-engine	317,892	May 12	1287	{343 {344	31	768
Troy, Daniel S., Montgomery, Ala. Velocipede	317,893	May 12	1291	{345 {346	31	768
Troy, Daniel S., and J. S. Davis, Montgomery, Ala. Seeding-machine	319,432	June 2	617	167	31	1166
Truax, Jacob W., Essex Junction, Vt. Turbine water-wheel	318,223	May 19	1731	{462 {463	31	859
Truesdail, Robert J., Carlyle, Ill. Dust-guard for cars	316,583	Apr. 28	2204	580	31	416
Trull, William E., Jersey City, N. J. Button-hole sewing-machine	320,442	June 16	2063	542	31	1438

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Trump, Fuller, Springfield, Ohio. Crank-shaft	318,056	May 19	1519	407	31	818
Tubbs, Napoleon B. (See Nelson, Irenaeus P., assignor.)						
Tubman, William. (See Ferguson, Schumacher, and Tubman.)						
Tucker, Charles A. (See Piffard, Henry G., assignor.)						
Tucker, George, *et al.* (See Moses and Andrews, assignors.)						
Tucker, John L., assignor of one-half to H. A. Foster, Chelsea, Mass. Car-wheel	320,956	June 30	2770	736	31	1585
Tucker, Rollin D., Lynn, Mass., assignor to Tucker Seam Welting and Machine Company, Nashua, N. H. Sewing-machine	320,898	June 23	2643	701	31	1555
Tucker Seam Welting and Machine Company. (See Tucker, Rollin D., assignor.)						
Tucker, Stephen, Winona, Tex. Cotton-cleaner	316,505	Apr. 28	2109	554, 555	31	400
Tucker, William, East Brookfield, Mass. File and cutting the same	320,899	June 23	2644	702	31	1555
Tudor, Frederic, Boston, Mass. Steam-heating apparatus	318,401	May 19	1971	531	31	903
Tudor, Frederic, Boston, Mass. Valve	319,939	June 9	1322	349, 350	31	1298
Tuecke, Friedrich, Leechburg, Pa. Cigar-perforator	317,247	May 5	434	108	31	602
Tufts, James W. (See Adami, Conrad, assignor.)						
Tufts, James W. (See Brown, John, assignor.)						
Tufts, James W., Medford, Mass. Producing ornamental designs on britannia and other soft metals	320,513	June 23	2151	567	31	1462
Tufts, Seth G., Maineville, Ohio. Roofing for buildings and other structures	315,977	Apr. 14	1391	361	31	258
Turcot, Remi, P. A., Providence, R. I. Filter	316,674	Apr. 28	2320	609	31	440
Turk, John E., Kelly's Corners, Mich. Sulky-plow	321,324	June 30	3195	852	31	1664
Turnbull, James A., Syracuse, N. Y. Roller-skate	321,261	June 30	3118	830	31	1648
Turnbull Wagon Company. (See Bebringer, Charles, assignor.)						
Turnbull, William. (See Ford, Herbert L., assignor.)						
Turner, Alfred R., Jr., Malden, Mass. Twine-package	318,933	May 26	2685	711	31	1039
Turner, Ephraim M., Fort Worth, Tex. Whip	320,193	June 16	1669	444	31	1368
Turner, Ephraim M., Fort Worth, Tex. Stirrup	320,194	June 16	1669	444	31	1368
Turner, George. (See Colman and Turner.)						
Turner, Henry, Boston, assignor to Walker & Pratt Manufacturing Company, Watertown, Mass. Stove	315,574	Apr. 14	843	221	31	156
Turner, Isaac A., assignor of one-half to H. C., C. C., C. B., and C. H. Hodges, Detroit, Mich. Compound steam-engine	321,325	June 30	3197	852	31	1664
Turner, Jacob W., and E. W. Strack, Middle Point, Ohio. Band-cutter and feeder for thrashing-machines	319,940	June 9	1398	350	31	1298
Turner, John M., Trinue, Tenn. Latch	315,978	Apr. 14	1392	361	31	258
Turner, Lewis W., Yalesville, Conn. Heating attachment for stoves	321,400	June 30	3298	881	31	1683
Turner, Wendell E., Fall River, Mass. Carpet lining	315,678	Apr. 14	971	254	31	182
Turner, William A., Brooklyn, N. Y., assignor of one-half to W. C. Wood, Washington, D. C. Breast-pump	316,584	Apr. 28	2205	580	31	419
Turney, William H. (See Trachsel, Lippa, and Turney.)						
Tuttle, Ira J., Wheatville, N. Y., assignor to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Sewing-machine shuttle	316,080	Apr. 21	1525	398	31	289
Tuttle, Ira J., Wheatville, N. Y., assignor to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Shuttle supporting and operating mechanism for sewing-machines	316,081	Apr. 21	1528	398, 399	31	289
Tuttle, John L., *et al.* (See Dorman, Henry E., assignor.)						
Tuttle, John W., Watertown, Mass. Tag-attaching device	318,583	May 26	2226	595	31	956
Tweddell, Ralph H., Westminster, county of Middlesex, J. Platt and J. Fielding, Gloucester, county of Gloucester, England. Press for flanging sheet metal	317,427	May 5	682	172, 173	31	646
Tweddell, Ralph H., Westminster, county of Middlesex, J. Platt and J. Fielding, Gloucester, county of Gloucester, England. Hydraulic valve	317,428	May 5	684	173	31	646
Tweed, Henry A., Brooklyn, N. Y. Knob for stove-doors	319,644	June 9	920	243	31	1226
Tweedy, Edmund, Danbury, Conn., and G. Yule, Newark, N. J., assignors to Hat Curling Machine Company, Danbury, Conn. Hat-brim softener	315,451	Apr. 7	643	166, 167	31	115
Tweedy, Edmund, Danbury, Conn., and G. Yule, Newark, N. J., assignors to Hat Curling Machine Company, Danbury, Conn. Hat-ironing machine	315,452	Apr. 7	645	167, 168	31	115
Tweedy, Edmund, Danbury, Conn., and G. Yule, Newark, N. J., assignors to Hat Curling Machine Company, Danbury, Conn. Hat-ironing machine	316,585	Apr. 28	2207	581	31	419
Tweedy, Edmund, Danbury, Conn., and G. Yule, Newark, N. J., assignors to Hat Curling Machine Company, Danbury, Conn. Machine for curling, finishing, or trimming hats	317,425	May 5	672	171	31	645
Tweedy, Edmund, Danbury, Conn., and G. Yule, Newark, N. J., assignors to Hat Curling Machine Company, Danbury, Conn. Hat-machine tool-coupler	317,426	May 5	677	171, 172	31	645
Twitchell & Brother, S. (See Roorbach, William L., assignor.)						
Tydeman, William H., Earlville, assignor of one-half to J. Reiff, Aurora, Ill. Machine for punching and shearing metal	316,420	Apr. 21	1989	523	31	372
Tyler, Abel D., Jr., Brockton, Mass. Boot-tree	317,476	May 5	744	188	31	657
Tyler, Abel D., Jr., assignor to O. A. Miller, Brockton, Mass. Boot-tree	319,354	June 2	508	139	31	1145
Tyler, Abel D., Jr., assignor to O. A. Miller, Brockton, Mass. Boot-tree	319,355	June 2	510	139	31	1145
Tyler, Abel D., Jr., assignor to O. A. Miller, Brockton, Mass. Boot-tree	319,356	June 2	511	139	31	1145
Tyler, E. M. (See Carlton, James, assignor.)						
Tyler, George, assignor of three-fourths to H. L. Lobdell and A. M. Barker, Rock Creek, Ohio. Grain-binder	315,091	Apr. 7	140	33, 34	31	27
Tyler, George L., Lynn, Mass. Leather-splitting machine	319,357	June 2	512	140	31	1146
Tyler, George R., Palmyra, N. Y. Telephone attachment	318,057	May 19	1520	407	31	818
Tyler, Marcus S., *et al.* (See Burlie, John D., assignor.)						
Tyler, Merrill A., North Easton, and E. Merritt, Brockton, Mass. Heeling-machine	321,401	June 30	3299	881, 882	31	1683
Tyler, T. Frank, and E. H. Taylor; said Taylor assignor to T. W. Tyler, Lynn, Mass. Machine for forming box-toes	316,082	Apr. 21	1530	399	31	290
Tyler, Thaddeus W. (See Tyler and Taylor, assignors.)						
Tynes, Samuel, Nacogdoches, Tex. Cotton-buncher	316,923	Apr. 28	2701	703	31	509
Tyrrill, Alfred D., assignor to New Haven Clock Company, New Haven, Conn. Clock-case	321,402	June 30	3304	882	31	1684
Uehling, Edward A., Bethlehem, Pa. Furnace for burning gaseous fuel	318,328	May 19	1876	503, 504	31	865
Ugland, Andrew A., Smithville, N. J. Motor for velocipedes	319,040	June 2	128	35	31	1071
Umland, George D., Osceola Mills, Wis. Thill-coupling	319,941	June 9	1329	350	31	1298
Underwood, H. Channing, Kalamazoo, Mich. Pavement	321,403	June 30	3305	882	31	1684
Underwood, Judson B., Meriden, assignor to Osborn & Cheesman Company, Ansonia, Conn. Lamp-burner	320,726	June 23	2426	643	31	1515
Unger, Anton J., Brooklyn, assignor to himself and J. Zorn, New York, N. Y. Surgical-instrument handle	321,160	June 30	2995	794	31	1695

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Union Hoist Company. (See White, Joseph J., assignor.)						
Union Switch and Signal Company. (See Hambay, James T., assignor.)						
Union Wire Mattress Company. (See Powers, David J., assignor.) (Reissue.)						
United States Cable Railway Company. (See Rasmusen, Charles W., assignor.) (Reissue.)						
United States Carbonous Oxide Gas Company. (See Stapp, Robert B., assignor.)						
United States Carbonous Oxide Illuminating Gas Company. (See Stapp, Robert B., assignor.)						
United States Electric Lighting Company. (See Brangs, Paul H., assignor.)						
United States Electric Lighting Company. (See Weston Edward, assignor.)						
United States Steam Specialty Company. (See Fell, Thomas M., assignor.)						
United States Wind Engine and Pump Company. (See Burnham and Haley, assignors.)						
Universal Electric Arms and Ammunition Company. (See Monfort, Edgar A., assignor.)						
Upperman, James D., Pittsburg, Pa. Gas-conductor	316,506	Apr. 28	2111	555	31	401
Upton, Francis R., Orange, N. J. Lightning-conductor	315,679	Apr. 14	973	254	31	182
Upton, George, deceased; M. C. Upton, Salem, K. Upton, and H. Wardwell, Peabody, Mass., executors. Apparatus for washing hair	315,092	Apr. 7	144	34	31	27
Upton, James S., Battle Creek, Mich. Grain-separator	318,535	May 26	2356	660	31	1015
Upton, King, *et al.*, executors. (See Upton, George.)						
Upton, Marian C., *et al.*, executors. (See Upton, George.)	320,416	June 16	2020	530, 531	31	1430
Urie, Henry F., Chestertown, Md. Corn-harvesting machine	315,188	Apr. 7	296	.....	31	53
Uthoff, John H. H. (See Dreyer, Herman H., assignor.)						
Utley, Hiram S., Chicago, Ill. Producing imitation stone	316,083	Apr. 21	1532	.....	31	290
Vail, Jonathan H. (See Stieringer and Vail.)						
Vail, Oliver E., Chicago, Ill. Wall-decorating material	317,248	May 5	434	108	31	602
Vail, Theron. (See McIntosh, Bacon, and Vail.)						
Vail, Thomas C., Topeka, Kans. Fastening for the backs of picture-frames	317,429	May 5	686	173	31	647
Valentine, Carleton C. (See Newman, Anton E., assignor.)						
Valentine, David H., Brooklyn, N. Y. Dumping-car	320,900	June 23	2646	702	31	1555
Valentine, David H., Brooklyn, N. Y. Railway-switch	320,195	June 16	1670	444	31	1368
Valk, Henry, Chicago, Ill. Window-sash						
Vallee, Amedee. (See Cline, Leon, assignor.)						
Van Aarle, Francis A. (See Leroux, Joseph N., assignor.)						
Van Antwerp, Sylvester, Syracuse, N. Y. Oil-tank	320,514	June 23	2152	568	31	1462
Van Auken, Calvin E., Pleasant Lake, Ind. Flood-fence	316,854	Apr. 28	2599	679	31	490
Van Auken, J. H. (See Aspinwall, D. La Mont, assignor.)						
Van Auker, John F., Youngstown, Ohio. Thill-coupling	318,836	May 26	2557	681	31	1015
Van Blarcom, William D., *et al.* (See Norling, Charles A., assignor.)						
Van Buskirk, Roswell, Newark, N. J. Syringe-nozzle	315,860	Apr. 14	1223	319	31	229
Van Choate, Silvanus F., New York, N. Y. Rail for electrical railways	319,041	June 2	130	36	31	1071
Van Depoele, Charles J., Chicago, Ill. Electro-magnetic reciprocating engine	317,249	May 5	435	109	31	602
Van Depoele, Charles J., Chicago, Ill. Electro-magnetic reciprocating engine	320,515	June 23	2153	568	31	1463
Van Der Lyn, Ward. (See Buckley, William P., assignor.)						
Van Devort, Thomas S., Superior, Mich. Cabinet-creamer	318,402	May 19	1975	531	31	903
Van Dorston, Alvin W., Portland, Oreg. Car-coupling	317,894	May 12	1294	346	31	769
Van Duzen, Ezra W., Jr., Newport, Ky. Cooking-stove	317,895	May 12	1295	347	31	769
Van Duzer, George, New York, N. Y. System of ventilating, cooling, heating, and lighting railway-cars and cooling their axle-boxes	319,358	June 2	514	140, 141	31	1146
Van Dyke, John M., Washington, N. J. Window-blind-slat fastenor	315,661	Apr. 14	1924	320	31	229
Van Dyke, John W., Brooklyn, N. Y. Water-tube boiler	315,189	Apr. 7	297	70, 71	31	53
Van Dyke, John W., Brooklyn, N. Y. Steam-generator	315,190	Apr. 7	298	71	31	53
Van Etten, Charles D. (See Baker, Lovett, and Van Etten.)						
Van Gieson, Ransford E., Brooklyn, N. Y. Automatic clasp and lifter for photographic plates	319,359	June 2	518	141	31	1146
Van Hoevenbergh, Henry, Elizabeth, N. J., assignor to Baltimore & Ohio Telegraph Company, Baltimore, Md. Electro-magnet for printing-telegraphs	316,676	Apr. 28	2323	609	31	440
Van Hoevenbergh, Henry, Elizabeth, N. J., assignor to Baltimore & Ohio Telegraph Company, Baltimore, Md. Printing-telegraph	316,677	Apr. 28	2325	610	31	441
Van Hoevenbergh, Henry, Elizabeth, N. J., assignor to Baltimore & Ohio Telegraph Company, Baltimore, Md. Printing-telegraph	316,678	Apr. 28	2329	611	31	441
Van Hoevenbergh, Henry, Elizabeth, N. J., assignor to Baltimore & Ohio Telegraph Company, Baltimore, Md. Printing-telegraph	316,679	Apr. 28	2331	611	31	442
Van Hoevenbergh, Henry, Elizabeth, N. J., assignor to Baltimore & Ohio Telegraph Company, Baltimore, Md. Page-printing telegraph	316,680	Apr. 28	2332	611	31	442
Van Hoevenbergh, Henry, Elizabeth, N. J., assignor to Baltimore & Ohio Telegraph Company, Baltimore, Md. Page-printing telegraph	316,681	Apr. 28	2336	612	31	443
Van Hoevenbergh, Henry, Elizabeth, N. J., assignor to Baltimore & Ohio Telegraph Company, Baltimore, Md. Type-wheel for printing-telegraphs	316,682	Apr. 28	2339	612	31	444
Van Hoevenbergh, Henry, Elizabeth, N. J., assignor to Baltimore & Ohio Telegraph Company, Baltimore, Md. Type-wheel for printing-telegraphs	316,683	Apr. 28	2341	612	31	444
Van Hoevenbergh, Henry, Elizabeth, N. J., assignor to Baltimore & Ohio Telegraph Company, Baltimore, Md. Type-wheel for printing-telegraphs	316,684	Apr. 28	2343	613	31	444
Van Hoevenbergh, Henry, Elizabeth, N. J., assignor to Baltimore & Ohio Telegraph Company, Baltimore, Md. Platen-shifting device for printing-telegraphs	316,685	Apr. 28	2346	613	31	445
Van Hoevenbergh, Henry, Elizabeth, N. J., assignor to Baltimore & Ohio Telegraph Company, Baltimore, Md. Transmitter for printing-telegraphs	316,686	Apr. 28	2348	613, 614	31	445
Van Hoevenbergh, Henry, Elizabeth, N. J., assignor to Baltimore & Ohio Telegraph Company, Baltimore, Md. Automatic governor for printing-telegraph transmitters	316,687	Apr. 28	2351	614, 615	31	446
Van Hoevenbergh, Henry, Elizabeth, N. J., assignor to Baltimore & Ohio Telegraph Company, Baltimore, Md. Pneumatic winding apparatus for printing-telegraphs	316,688	Apr. 28	2353	615	31	446
Van Hoevenbergh, Henry, Elizabeth, N. J., assignor to Baltimore & Ohio Telegraph Company, Baltimore, Md. Chemical printing-telegraph	316,689	Apr. 28	2356	616	31	446
Van Hoevenbergh, Henry, Elizabeth, N. J., assignor to Baltimore & Ohio Telegraph Company, Baltimore, Md. Unisoning printing-telegraphs having two type-wheels	316,690	Apr. 28	2358	616	31	447
Van Hoevenbergh, Henry, Elizabeth, N. J., assignor to Baltimore & Ohio Telegraph Company, Baltimore, Md. Unison device for printing-telegraphs	316,691	Apr. 28	2360	616	31	447
Van Hoevenbergh, Henry, Elizabeth, N. J., assignor to Baltimore & Ohio Telegraph Company, Baltimore, Md. Inking-roller for printing-telegraph type-wheels	316,692	Apr. 28	2362	616	31	447
Van Hoevenbergh, Henry, Elizabeth, N. J., assignor to Baltimore & Ohio Telegraph Company, Baltimore, Md. Chemical or fac-simile printing-telegraph	316,693	Apr. 28	2363	617	31	448
Van Hoevenbergh, Henry, Elizabeth, N. J., assignor to Baltimore & Ohio Telegraph Company, Baltimore, Md. Printing telegraphically	316,694	Apr. 28	2365	617	31	448
Van Hoevenbergh, Henry, Elizabeth, N. J., assignor to Baltimore & Ohio Telegraph Company, Baltimore, Md. Winding device for printing-telegraphs	316,695	Apr. 28	2368	617	31	448

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Van Hoevenbergh, Henry, Elizabeth, N. J., assignor to Baltimore & Ohio Telegraph Company, Baltimore, Md. Unison for printing-telegraphs	316,696	Apr. 28	2369	618	31	449
Van Hoevenbergh, Henry, Elizabeth, N. J., assignor to Baltimore & Ohio Telegraph Company, Baltimore, Md. Platen-shifting device for printing-telegraphs	316,697	Apr. 28	2371	618	31	449
Van Hoevenbergh, Henry, Elizabeth, N. J., assignor to Baltimore & Ohio Telegraph Company, Baltimore, Md. Receiver for printing-telegraphs	316,698	Apr. 28	2374	618, 619	31	450
Van Hoevenbergh, Henry, Elizabeth, N. J., assignor to Baltimore & Ohio Telegraph Company, Baltimore, Md. Unison for printing-telegraphs	316,855	Apr. 28	2600	679	31	491
Van Housen, Isaac N., *et al.* (See Hughes, James L., assignor.)						
Van Kleeck, John J. (See Thayer, William S., assignor.)						
Van Nüys, Thomas C., *et al.* (See Hunter, George D., assignor.)						
Van Rysselberghe, François, Schaerbeek, Belgium. Preventing interference in combined telegraphic and telephonic systems	320,987	June 30	2771	736	31	1585
Van Rysselberghe, François, Schaerbeek, Belgium. Preventing induction in telephone and telegraph lines	321,404	June 30	3306	882	31	1684
Van Siyke, Alexander, Fort Plain, N. Y. Combined jar-wrench and can-opener	319,645	June 9	920	243	31	1226
Van Straaler, Alexandre, Pola de Lena, Asturias, Spain. Extracting arsenic and mercury contained in the residues obtained in the distillation of mercurial ores	320,417	June 16	2021	.....	31	1430
Van Wagenen, Albert, Boston, Mass. Boot or shoe	317,477	May 5	745	188	31	658
Van Winkle, Garret, North Plainfield, N. J. Knob attachment	320,602	June 23	2269	600	31	1485
Van Winkle, Nat H. (See Halliday, Thomas H., assignor.)						
Van Wormer, C. L. (See Stimson, David S., assignor.)						
Van Wormer, Matthew, Malden, Mass. Dumping-car	316,507	Apr. 28	2112	556, 557	31	401
Van Zandt, Jacob, assignor of two-thirds to A. J. Belden and C. Roblee, Syracuse, N. Y. Car-starter	321,405	June 30	3306	883	31	1684
Vance, Samuel B. H., New York, N. Y. Stop-valve for gas-burners	316,675	Apr. 28	2321	609	21	440
Vandegrift, Andrew J., St. Louis, Mo. Cotton-gin	320,901	June 23	2647	702, 703	31	1556
Vanden Berghe, Peter. (See Bonner and Vanden Berghe.)						
Vanden Berghe, Peter, assignor of two-thirds to E. W. Richards and A. H. Mear, Philadelphia, Pa. Tinner's seaming-tool	319,761	June 9	1064	282	31	1253
Vandenburgh, George E., Stillwater, N. Y. Folding chair	315,680	Apr. 14	974	255	31	182
Varian, Samuel T., East Orange, N. J. Screen for coal, &c	319,149	June 2	263	69	31	1096
Vaughan, William W., *et al.* (See Miller, Samuel L., assignor.)						
Vedder, Nicholas A., Providence, R. I. Thill-support	317,597	May 12	900	231	31	694
Venell, A. V. (See Orchard, Henry, assignor.)						
Vent, Henry, Chicago, Ill. Stem-winding device for watches	318,329	May 19	1878	504	31	886
Verbeck, William, Oakland, Cal. Photographic and card file	316,586	Apr. 28	2211	581	31	420
Vermont Farm Machine Company. (See Butler, Francis G., assignor.)						
Vibbard, Eliza J., *et al.* (See Horning, William, assignor.)						
Vickers, Albert, *et al.* (See Maxim, Hiram S., assignor.)						
Vickers, John H. (See Minnitt and Vickers.)						
Vignon, Leo, Lyons, France. Obtaining coloring-matter from amidoazo-benzol and homologues	319,646	June 9	921	.....	31	1226
Villeroy, Eugène M., Schramberg, Würtemberg, Germany. Crushing-mill	318,670	May 26	2333	623	31	977
Vinton, John J., Youngstown, Ohio. Fence-post	317,890	May 12	1297	347	31	769
Vinton, Thomas J., Holly, Mich. Bolt-cutter	318,525	May 26	2140	576	31	943
Visscher, Frederick, Mount Sterling, Ky. Knife for harvesting tobacco	316,924	Apr. 28	2702	704	31	509
Voelker, William L., assignor to J. H. Irwin, Morton, Pa. Telephone	315,862	Apr. 14	1225	320	31	229
Vogel, Karl W., New York, N. Y. Filtering apparatus	316,925	Apr. 28	2703	704	31	510
Vogt, Carl, *et al.* (See Haugk, Carl H., assignor.)						
Vogt, Charles, *et al.* (See Haugk, Carl H., assignor.)						
Voigt, Max G., Sr., New York, N. Y. Wire-nail machine	319,150	June 2	264	69, 70	31	1096
Voit, William, Magdeburg, Prussia, Germany. Valve-gear for engines	319,433	June 2	618	167, 168	31	1166
Vollery, François, Washington, D. C. Weed-extractor	316,084	Apr. 21	1532	400	31	291
Von der Heydt, Hermann, assignor to himself and C. Muller, Chicago, Ill. Self-winding watch. (Reissue)	10,613	June 16	2070	544	31	1439
Von Förster, Max, Berlin, Prussia, Germany. Coating gun-cotton	315,357	Apr. 7	513	.....	31	93
Von Hollen, John, Charleston, S. C. Shutter-bolt	315,681	Apr. 14	975	255	31	183
Von Hollen, John, Charleston, S. C. Shutter-fastener	315,979	Apr. 14	1393	361	31	258
Von Martini, Friedrich, Frauenfeld, Switzerland. Paper-folding machine	316,314	Apr. 21	1833	482, 483, 484	31	345
Von Miller, Wilhelm. (See Doebner and Von Miller.)						
Von Rosé, Joachin, Breslau, Germany. Manufacture of beer	315,980	Apr. 14	1394	.....	31	258
Voorhees, John K., Pella, Iowa. Check-row attachment for corn-planters	315,981	Apr. 14	1395	362	31	259
Vose, Clarence. (See Rogers and Vose.)						
Vose, Richard, assignor to J. C. N. Guibert, New York, N. Y. Rack or fire-hose holder	320,727	June 23	2427	643	31	1515
Vreeland, Cyrus E. (See Paul, George D., assignor.)						
Vulcanized Fibre Company. (See Taylor, Franklin, assignor.)						
Wackerman, Edward H. (See Dangler and Wackerman.)						
Waddell, James O., Elizabeth, assignor to Waddell Manufacturing Company, Newark, N. J. Cushion for water-pipes	315,453	Apr. 7	650	168	31	116
Waddell Manufacturing Company. (See Waddell, James O., assignor.)						
Wade, Harry. (See Barrow and Wade.)						
Wade, J. Augustine, Cambridge, and H. D. Stone, Boston, assignors to Cambridgeport Diary Company, Cambridge, Mass. Machine for rounding the backs of books	317,689	May 12	1022	265	31	717
Wade, Lanslatt D., Puyallup, Wash. Ter. Gate	316,315	Apr. 21	1838	485	31	346
Wadhams, Edward A., assignor of one-half to E. E. Magie, Milwaukee, Wis. Lubricating-cup	316,202	Apr. 21	1690	443	31	320
Wagener, Samuel L., Nepean, county of Carlton, Ontario, Canada. Washing-machine	316,203	Apr. 21	1690	443	31	320
Waggoner, Edward L., *et al.* (See Coe, Charles E., assignor.)						
Wagner, John, *et al.* (See Ackermann, George, assignor.)						
Wagner, John, Boston, Mass. Apparatus for wiring sheet-metal pans	320,020	June 16	1442	378	31	1326
Wagner, John A., Middletown, Ohio. Chemical fire-extinguisher	321,161	June 30	2996	794	31	1625
Wagner, Julius, Reading, Pa. Buckle	318,059	May 19	1522	408	31	819
Wagner, Omar P., and O. E., Pontiac, Ill. Grain-measuring apparatus	315,682	Apr. 14	976	255, 256	31	183
Wagner, Oscar E. (See Wagner, Omar P. and O. E.)						
Wagner, Peter, assignor to F. C. Gillmore, Chicago, Ill. Car-seal	318,060	May 19	1523	408	31	819
Wagner, Rupert. (See Hill, Charles F., assignor.)						
Wainman, Alfred J., New Hartford, assignor to Mohawk Valley Scotch Cap Factory, Utica, N. Y. Narrowing-comb for knitting-machines	317,596	May 12	901	231	31	694

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Wainwright, John W., assignor of one-half to A. B. Pullman, Chicago, Ill. Draft-equalizer	317,897	May 12	1298	347	31	770
Waite, Frederick, and F. H. Tidgewell, Hartford, Conn. Taper-measuring tool	318,526	May 26	2141	576	31	943
Waite, Gilman, *et al.* (See Odell, Benjamin C., assignor.)						
Waite, Hamilton D., Watertown, N. Y. Snow-shovel	321,396	June 30	3198	853	31	1664
Waite, Henry E., *et al.* (See Ethridge, Martin V. B., assignor.)						
Waite, Henry E., New York, N. Y. Magneto-telephone	316,206	Apr. 21	1694	444	31	321
Waite, Henry E., New York, N. Y. Magneto-telephone	318,058	May 19	1521	407	31	819
Waite, Henry E., New York, N. Y. Electric telephone	319,042	June 2	131	36	31	1072
Waite, Henry E., New York, N. Y. Telephone apparatus	319,043	June 2	132	36	31	1072
Waite, Henry E., and S. H. Bartlett, New York, N. Y. Microphone	316,204	Apr. 21	1692	444	31	321
Waite, Henry E., and S. H. Bartlett, New York, N. Y. Magneto-telephone	316,205	Apr. 21	1693	444	31	321
Wakefield, John E., Worcester, Mass. Rocking-chair	321,063	June 30	2878	765	31	1604
Wakeman & Co., C. E. (See Alexander, Samuel G., assignor.)						
Waldron, Charles P., New York, N. Y. Oscillating steam-engine	316,207	Apr. 21	1694	445	31	321
Wales, Alexander D., *et al.* (See Briggs, Oscar E., assignor.)						
Wales, Herbert E., Haverhill, Mass. Dental file holder or carrier	315,575	Apr. 14	844	222	31	157
Wales, William A., assignor to A. N. Clark, Plainville, Conn. Check-rein fastener	320,728	June 23	2428	644	31	1515
Walker, Albert H., Eklo, Md. Thrashing-machine	316,587	Apr. 28	2211	582	31	420
Walker, Asa O., Erie, Pa. Machine for setting spiral springs	318,330	May 19	1879	505	31	886
Walker, Charles M., Cannon Street, London, England. Apparatus for utilizing the rise and fall of the tide	315,963	Apr. 14	1226	320, 321	31	229
Walker, Clarence T., Atlanta, Ga., assignor of one-half to G. S. Prindle, Washington, D. C. Machine for stripping peanuts	319,762	June 9	1065	283	31	1253
Walker, Cyrus, Indianola, Iowa. Farm-gate	317,046	May 5	148	38	31	549
Walker, Edward W., *et al.* (See Gore, Henry A., assignor.)						
Walker, Edwin, Erie, Pa. Adjustable faced plane	318,331	May 19	1880	505	31	886
Walker, Francis H., Chicago, Ill. Folding bedstead	316,086	Apr. 21	1533	400, 401	31	291
Walker, Horace L., Ottumwa, Iowa. Water-motor	321,902	June 30	3119	830	31	1648
Walker, James E., Conway, Iowa. Cultivator attachment	316,085	Apr. 21	1533	400	31	291
Walker, James T., Troy, N. Y., assignor to H. H. Wells, Washington, D. C. Bottle-stopper fastener	315,576	Apr. 14	845	222	31	157
Walker, John. (See Chisholm and Walker.)						
Walker, John R., Richland, Mo. Truck	320,418	June 16	2023	531	31	1430
Walker & Pratt Manufacturing Company. (See Turner, Henry, assignor.)						
Walker, William, Dunstable, county of Bedford, England. Sewing-machine	320,099	June 16	1545	409	31	1346
Walker, William H. (See Eastman and Walker.)						
Walker, William H., Charleston, S. C. Spring-joint for hooks, &c	320,729	June 23	2428	644	31	1515
Walker, William H., and G. Eastman, assignors, by mesne assignments, to Eastman Dry Plate and Film Company, Rochester, N. Y. Roller-holder for photographic films	317,049	May 5	149	38, 39	31	549
Walker, William H., and G. Eastman, assignors to Eastman Dry Plate and Film Company, Rochester, N. Y. Roller-holder for photographic films	317,050	May 5	154	39	31	550
Walker, William L., Capay, Cal. Harvester finger-bar	320,988	June 30	2773	736	31	1585
Wall, Thomas. (See Starr, Ferdinand W., assignor.)						
Wallace, Albert E., assignor to Pope Manufacturing Company, Hartford, Conn. Velocipede-pedal	318,149	May 19	1637	437	31	841
Wallace, George T., *et al.* (See Gregory, John R., assignor.)						
Wallace, J. Bennett, assignor of two-thirds to G. Myers and M. E. Dayton, Chicago, Ill. Balance slide-valve	319,151	June 2	265	70	31	1096
Wallace, J. Bennett, assignor to Myers Manufacturing Company, Chicago, Ill. Plumber's heater	319,868	June 9	1220	322	31	1279
Wallace, Jacob, trustee. (See Maxfield, Charles A., assignor.) (Reissue.)						
Wallace, Jacob B. (See Myers and Wallace.)						
Wallace, James D., assignor of one-half to W. H. Martin, Salina, Ohio. Churn-dasher	316,699	Apr. 28	2379	619	31	451
Wallace, James P., Bellefontaine, Ohio. Plaster-of-paris splint	316,421	Apr. 21	1990	523	31	372
Wallace, John G., *et al.* (See Gregory, John R., assignor.)						
Wallace Manufacturing Company. (See Wallace, William W., assignor.) (Reissue.)						
Wallace & Sons. (See Bryant, Edson L., assignor.)						
Wallace & Sons. (See Naramore, Joseph W., assignor.)						
Wallace & Sons. (See Richardson, Henry D., assignor.)						
Wallace, William W., Frankfort, Ind. Brick and tile machine	315,358	Apr. 7	514	131	31	93
Wallace, William W., Frankfort, Ind. Tile-table	315,350	Apr. 7	516	131	31	93
Wallace, William W., assignor to Wallace Manufacturing Company, Frankfort, Ind. Clay-crushing machine. (Reissue)	10,584	Apr. 21	2008	527	31	375
Wallach, Isaac. (See Price and Wallach.)						
Wallach & Sons, H. (See Price and Wallach, assignors.)						
Waller, Warren E., Charles City, Iowa. Horse-collar	319,044	June 2	134	37	31	1072
Wallick, Marion, assignor of thirteen-sixteenths to H. A. Heist, B. Behelman, and J. B. Rohrer, East Germantown, Ind. Railway-switch	317,599	May 12	902	231	31	694
Walmsley, H. B. (See Brown, Charles E., assignor.)						
Walsh, Edward, Jr., St. Louis, Mo. Glass and other furnaces of the regenerator type	320,516	June 23	2155	568, 569, 830	31	1463
Walsh, Francis A., Milwaukee, Wis. Can-heading machine	321,263	June 30	3120	831, 832	31	1648
Walsh, James, North Adams, Mass. Sash-fastener	317,051	May 5	158	40	31	551
Walsh, James, T. F. Murphy, and E. A. Clark, North Adams, Mass.; said Clark assignor to said Walsh and Murphy. Level	317,250	May 5	437	109	31	602
Walsh, Patrick H., Waterbury, Conn. Button	315,191	Apr. 7	300	71	31	53
Walsh, Thomas J. (See Reed and Walsh.)						
Walsh, William M., assignor of one-half to W. Kehrer, Philadelphia, Pa. Coffin	318,837	May 26	2558	681	31	1016
Waltemeyer, Joseph, and H. J. Ennis, Washington, D. C.; said Ennis assignor to said Waltemeyer. Wearing-apparel	315,360	Apr. 7	518	132	31	94
Waltemeyer, Joseph. Wearing-apparel	315,361	Apr. 7	518	132	31	94
Walter, Charles R., and J. E. Blackburn, Fredericktown, Md. Whiffletree	315,982	Apr. 14	1396	362	31	259
Walter, Hugo, Cincinnati, Ohio. Car-brake	317,690	May 12	1023	265	31	717
Walter, Merritt, New Lothrop, Mich. Rein-holder						
Walter, Peter, Jr. (See Lowbridge, Jabez, assignor.)						
Walter, Samuel, Dallas City, Ill. Buck-saw	315,577	Apr. 14	846	222	31	157
Walter, Thomas F., Philadelphia, Pa. Button cover or sheath	320,730	June 23	2429	644	31	1515
Walter, William, Philadelphia, Pa. Underground conduit for electric wires	316,700	Apr. 28	2379	619	31	451
Walter, William G., Pittsburg, Pa. Caster	318,403	May 19	1976	531	31	904
Walter, Willie C., assignor of two-thirds to G. B. McAdams, Richmond, Va. Clock-movement frame	317,606	May 12	1300	348	31	770

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Walter, Willie C., assignor of two-thirds to G. B. McAdams, Richmond, Va. Button-fastener	320,451	June 16	2066	542	31	1438
Walters, Charles F., Richmond, Ind., assignor to Richmond City Mill Works. Friction attachment for flour-packers	320,419	June 16	2024	531	31	1430
Walters, David, Cleveland, Ohio. Machine for straightening rails	318,061	May 19	1524	408 409	31	819
Walton, Joseph J., Newark, N. J. Cuspidor	317,251	May 5	439	110	31	603
Walton, William R., assignor to Ansonia Brass and Copper Company, Ansonia, Conn. Mold for casting copper ingots	315,192	Apr. 7	301	72	31	54
Wands, John C., St Louis, Mo. Metallic roofing	319,869	June 9	1222	322	31	1279
Warburton, George, assignor of one-half to W. Webster, Philadelphia, Pa. Cable railway	318,332	May 19	1882	506	31	886
Ward, Andrew W., Gallipolis, assignor of one-half to McIlvain & Spiegel, Cincinnati, Ohio. Feed-water heater and purifier	321,406	June 30	3309	883	31	1684
Ward & Curley. (See McHugh, Timothy, assignor.)						
Ward, Elias S., Newark, N. J. Tanning	320,603	June 23	2270	.....	31	1485
Ward, Ellis F., Philadelphia, Pa. Rowlock for racing-boats, &c	317,430	May 5	687	173	31	647
Ward, James H., Kalamazoo, Mich. Pillow-sham holder	317,052	May 5	159	40	31	551
Ward, Jasper N., Richmond, Ind. Roller-skate	321,064	June 30	2879	765	31	1604
Ward, William M., Harbor Grace, Newfoundland. Hose-tower and fire-escape	317,899	May 12	1300	348 349	31	770
Ward, William S., assignor to H. D. Smith & Co., Plantsville, Conn. Whiffletree-coupling	320,313	June 16	1861	489	31	1401
Warden, William R., Somerville, assignor to D. H. Bishop, Boston, Mass. Cheese-cutter	318,333	May 19	1883	506	31	887
Wardwell, Henry, *et al.*, executors. (See Upton, George.)						
Wardwell, Simon W., Jr., Woonsocket, R. I. Needle-guard for sewing-machines	321,065	June 30	2879	766	31	1605
Ware, Theodore E., Clifton, Bristol county of Gloucester, England. Bell for bicycles	320,100	June 16	1547	409	31	1346
Ware, William F., New York, N. Y. Button or knob	316,208	Apr. 21	1696	445	31	321
Warfield Manufacturing Company. (See Judge, Edward S., assignor.)						
Warfield, Solomon D., Baltimore, Md. Green-corn cutter	316,701	Apr. 28	2381	620 621	31	451
Waring, John T. (See Pelisse, Auguste, assignor.)						
Waring, John T., Yonkers, N. Y. Machine for felting hat-bodies, &c	320,101	June 16	1547	410	31	1346
Waring, John T., New York, N. Y. Machine for felting hat-bodies	320,102	June 16	1549	410	31	1346
Warner, A. S., *et al.* (See Cooper, Isaac W., assignor.)						
Warner, Denman A. (See Ford, Thomas J., assignor.)						
Warner, H. T. (See Lathrop, Thomas A., assignor.)						
Warner, Jasper P., Dowagiac, Mich. Grain force-feeding machine	315,193	Apr. 7	302	72	31	54
Warner, William F., assignor to J. Holmes, Boston, Mass. Combination-garment	315,093	Apr. 7	145	34	31	27
Warren, Christopher C., Meridian, Miss. Bale-tie	320,430	June 16	2025	532	31	1431
Warren, Edmond A., Brooklyn, N. Y. Numbering-machine	320,103	June 16	1551	410 411	31	1346
Warren, Edward L., Worcester, Mass. Wire reel and tub	320,421	June 16	2025	532	31	1431
Warren, Edward L., and A. Ladd, Worcester, Mass. Drawing wire	318,062	May 19	1525	409	31	819
Warren, Marion, Rochester, N. Y. Pressure-regulator for fermenting liquids	320,422	June 16	2027	532	31	1431
Warren, Murray H. (See Clark and Warren.)						
Warren, Samuel D. (See Cloudman, Francis A., assignor.)						
Warren, Zenas C., Springfield, Mass. Preparation of mineral filling for paper-makers' use	318,063	May 19	1526	409	31	819
Warth, Albin, Stapleton, N. Y. Driving-rein	319,360	June 2	519	141	31	1146
Warthen, Richard L., Sandersville, Ga. Cotton cultivator and hoe combined	320,731	June 23	2430	644	31	1515
Warwick, George T., Springfield, Mass. Wheel for vehicles	315,094	Apr. 7	146	35	31	28
Warwick, James S. (See Newlin, William, assignor.)						
Warwick, John, Beloit, Wis. Windmill	317,691	May 12	1024	265 266	31	717
Warwick, Thomas, Aston Juxta, Birmingham, county of Warwick, England. Bicycle-saddle	316,702	Apr. 28	2384	621	31	452
Washburn, G. Arthur, Plainville, Conn., assignor to J. C. Haynes & Co., Boston, Mass. Banjo	316,508	Apr. 28	2115	556	31	401
Washburn, George W., West New Brighton, N. Y. Fastening for buttons	320,517	June 23	2158	569	31	1463
Washburn, George W., West New Brighton, N. Y. Clasp-fastening for bracelets	321,066	June 30	2880	766	31	1605
Washburn, George W., West New Brighton, N. Y. Ball-cover for ear-jewels	321,407	June 30	3310	883	31	1685
Washer, Solomon R., Atchison, Kans. Door for grain-cars	317,900	May 12	1304	349	31	771
Washington, Lorenzo D., Knoxville, Tenn. Folding globe	316,067	Apr. 21	1535	401	31	291
Wass, Dyson D., New York, N. Y. Lubricating compound	316,703	Apr. 28	2385	.....	31	452
Wasserman, Adolph, *et al.* (See McClellan, Oscar D., assignor.)						
Waterhouse, Addison G., assignor, by mesne assignments, to Schuyler Electric Light Company, New York, N. Y. Dynamo-electric machine	318,671	May 26	2333	623	31	977
Waterhouse, Al. (See Waterhouse, Mark A., assignor.)						
Waterhouse, Mark A., Boston, Mass., assignor to A. Waterhouse, Durham, Me. Bustle attachment for corsets	321,408	June 30	3311	883	31	1685
Waterman, Lewis E. (See Davison, Frank G., assignor.)						
Waterman, Noble J., Detroit, Mich. Steam draft and pressure regulator	315,864	Apr. 14	1229	321	31	230
Waters, Edward E. (See Ordway, John M., assignor.)						
Waters, Elisha and G. A., Troy, N. Y. Life-preserver	315,095	Apr. 7	147	35	31	28
Waters, Frank M., assignor of one-fourth to J. C. Oldham, Springfield, Ohio. Mowing-machine	316,856	Apr. 28	2004	679	31	492
Waters, George A. (See Waters, Elisha and G. A.)						
Waters, John, Augusta, Ga. Boiler-cleaner	317,600	May 12	903	232	31	695
Watkins, Gardner A., assignor to Heywood Brothers & Co., Gardner, Mass. Wood ornamentation	320,518	June 23	2160	570	31	1464
Watkins, Harry, assignor of one-half to W. M. Burpee, Syracuse, N. Y. Spoke driving and tenoning machine	319,942	June 9	1329	350	31	1298
Watkins, J. B. (See Boynton, Eben M., assignor.)						
Watkins, James T., assignor to B. Jackson, San Francisco, Cal. Rake for conducting grain to thrashing-machines	321,067	June 30	2882	766	31	1605
Watson, Christopher, and C. E. Adams, Paris, Ontario, Canada. Snow-shovel	316,509	Apr. 28	2116	556	31	401
Watson, Clarence L., Attleborough, Mass. Button	320,021	June 16	1443	379	31	1326
Watson, George, assignor to himself and A. Miller, St. Charles, Minn. Machine for cross-grooving axle-trees	319,361	June 2	520	142	31	1147
Watson, George E. (See Wilson and Watson.)						
Watson, Jeremiah M., Sharon, Mass. Machinery for skiving leather	316,704	Apr. 28	2386	622	31	452
Watson, Jeremiah M., Sharon, Mass. Shank-stiffener	320,989	June 30	2774	737	31	1585
Watson, Jeremiah S. (See Ambruster, Charles S., assignor.)						
Watson, Richard H., Philadelphia, Pa. Porcelain water-closet bowl	320,990	June 30	2775	737	31	1585
Watt, Alexander, Liverpool, county of Lancaster, England. Electric driving apparatus for centrifugal machines	316,316	Apr. 21	1839	485	31	346

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Watt, Alexander, Liverpool, county of Lancaster, England. Electric driving apparatus for centrifugal machines	316,317	Apr. 21	1841	486	31	346
Watt, John B., *et al.* (See Clinton, Fred S., assignor.)						
Watt, William. (See Retford, Joseph W. J., assignor.)						
Way, George W., Portland, and A. F. Hill, Deering, assignors to Hill & Way Gate Company, Portland, Me. Railway-gate	320,827	June 23	2544	674	31	1537
Waymoth, Angustine D., Fitchburg, Mass. Wood-turning lathe	319,531	June 9	761	203 204	31	1197
Weatherhead, Albert J., Cleveland, Ohio. Force and drain faucet	319,647	June 9	922	243	31	1226
Weatherly, Alvis M., Selma, Ala. Journal-bearing	318,334	May 19	1884	506	31	887
Weaver, Benjamin, Pittsburg, Pa. Guide-box	315,362	Apr. 7	519	132 133	31	94
Weaver, Charles P., assignor of one-half to G. Harman, Morristown, Pa. Sorting-spout for tack-machines	315,194	Apr. 7	303	72	31	54
Weaver, E. Forrest, assignor of one-half to G. H. Perkins, Philadelphia, Pa. Revolving telephone-stand	317,252	May 5	440	110	31	603
Weaver, Isaac D., assignor to himself and B. F. Harpel, Lebanon, Pa. Rotary blower	320,196	June 16	1671	444 445	31	1368
Weaver, Samuel, Pottstown, Pa. Door-check	319,532	June 9	764	204	31	1198
Weaver, Solomon F., Portis, Kans. Cultivator	315,865	Apr. 14	1230	321	31	230
Weaver, Solomon F., Portis, Kans. Cultivator	315,866	Apr. 14	1232	321	31	230
Webb, Charles B., Hopkinsville, Ky. Metal breeching-eye	318,527	May 26	2142	577	31	943
Webb, Job, Alameda County, Cal. Puddling-furnace	315,096	Apr. 7	150	35	31	28
Webb, Justice, *et al.* (See Welling, John E., assignor.)						
Webb, Richard H. (See Gray, Watson, assignor.)						
Weber, Adolph, assignor of one-half to H. W. Rood, Detroit, Mich. Straight-way-valve case	316,588	Apr. 28	2213	582	31	420
Weber, George J., Boonville, Mo. Architectural column	317,053	May 5	160	40	31	551
Weber, George J., Boonville, Mo. Tire-setter	317,054	May 5	161	40, 41	31	552
Weber, Nicholas J., *et al.* (See Weber, Peter F., assignor.)						
Weber, Peter F., assignor of two-thirds to N. J. Weber and G. Brommersberger, Chicago, Ill. Coffee and tea box	319,533	June 9	765	204	31	1198
Weber, Theodor R. A., New York, N. Y., C. G. E. Hennig and A. E. Frommelt, Paterson, N. J. Tricycle	321,162	June 30	2997	795	31	1626
Webster, George H. (See Bouchard, John, assignor.)						
Webster, Justus, assignor to Grosvenor & Richards, Boston, Mass. Lint-making machine	321,409	June 30	3312	884	31	1685
Webster, William. (See Warburton, George, assignor.)						
Wecker, Carl T., Offenbach-on-the-Main, Germany. Hub-attaching device	321,068	June 30	2883	767	31	1606
Wedelin, Carl R., Gothenburg, Sweden. Horseshoe-machine	318,838	May 26	2559	681 682	31	1016
Weeden, Henry C., Boston, Mass. Supply-valve for the flushing-tanks of water-closets, &c	317,055	May 5	162	41	31	552
Weeden, Henry C., Boston, Mass. Drafting-table	318,528	May 26	2143	577	31	944
Weeden, William N., New Bedford, Mass. Toy motor	318,335	May 19	1885	507	31	887
Weese, John O., Knobel, Ark. Washing-machine	318,584	May 26	2227	595	31	956
Wegman, John, Jr., Rochester, N. Y. Middlings-purifier brush	319,763	June 9	1067	283	31	1253
Wegmann, Friedrich, Zurich, Switzerland. Roller grinding-mill. (Reissue)	10,579	Apr. 7	661	170 171	31	118
Wegmann, Friedrich, Zurich, Switzerland. Wheel-gearing for rollers of rolling-mills	319,648	June 9	923	244	31	1226
Weicksler, Mathias J. (See Holzbog and Weicksler.)						
Weidner, Bennevell B., Reading, Pa. Display-rack	318,336	May 19	1887	508	31	887
Weimer, Peter L., Lebanon, Pa. Hoisting-drum for elevators	320,022	June 16	1444	379	31	1326
Weimer, Peter L., Lebanon, Pa. Hoisting-drum for elevators	320,023	June 16	1445	379 380	31	1327
Weimer, Peter L., Lebanon, Pa. Hoisting-drum	320,024	June 16	1447	380	31	1327
Weimer, Peter L., Lebanon, Pa. Blast-furnace	320,604	June 23	2271	600	31	1485
Weimer, Peter L., Lebanon, Pa. Blast-furnace	320,605	June 23	2273	601	31	1485
Weinedel, Charles. (See Stitzel and Weinedel.)						
Weinman, Christian J., assignor of one-fourth to T. S. Moorman, Dayton, Ohio. Cash register and indicator	321,163	June 30	2998	795	31	1626
Weir, Frederic C., Cincinnati, Ohio. Railway-frog	319,362	June 2	521	142	31	1147
Weir, Robert M., Boone, Iowa. Furnace	315,867	Apr. 14	1234	322	31	230
Weir, William S., Monmouth, Ill. Cultivator	320,519	June 23	2160	570	31	1464
Weis, Joseph, Jersey City, N. J. Electric locomotive	320,025	June 16	1448	381	31	1328
Weiser, Charles W. (See Zimmerman, Christian H., assignor.)						
Weisgerber, Charles H., Jr., Philadelphia, Pa. Sled	320,520	June 23	2161	570 571	31	1464
Weisgerber, William F., New York, N. Y. Circuit-closer for primary electric clocks	319,534	June 9	766	205	31	1199
Weiss, Charles W., Brooklyn, assignor of one-half to C. Kruse, New York, N. Y. Electrical registering apparatus	321,069	June 30	2884	767	31	1606
Weiss, Philip, San Francisco, Cal. Paste-holder	315,195	Apr. 7	304	73	31	54
Weitz, Jacob, Buffalo, N. Y. Refrigerator	319,363	June 2	522	142	31	1147
Welch, E. B. (See Robinson, Thomas C., assignor.)						
Weldon, Henry J., New York, N. Y. Button-fastener	319,152	June 2	267	70	31	1096
Welker, Joseph, Jr., Central Falls, assignor to J. M. Parker, Pawtucket, R. I. Machine for feeding blanks to lathes	317,601	May 12	904	232	31	695
Weller, Michael S., Charlestown, W. Va. Hinge and frame for vault-covers	316,705	Apr. 28	2387	622	31	452
Welles, Edward B. (See Hardwicke and Welles.)						
Welles, Richard J., Athens, Pa. Harness check-book	316,510	Apr. 28	2117	557	31	402
Welling, John E., assignor of two-thirds to J. E. Cantrill and J. Webb, Georgetown, Ky. Egg-beater	321,327	June 30	3199	853	31	1664
Wellington, Frank O., Boston, Mass. Machinery for sowing fertilizing material	319,155	June 2	270	71	31	1097
Wellington, Isaac M. (See Machris, Charles, assignor.)						
Wells & Co., C. F. (See Irwin, George L., assignor.)						
Wells, Edgar J., Ticonderoga, N. Y. Oiler	319,154	June 2	269	71	31	1097
Wells, Frank R., assignor to himself, W. W. Neal, and P. Haerr, Lagonda, Ohio. Skillet-cap	315,196	Apr. 7	305	73	31	54
Wells, George W., assignor to American Optical Company, Southbridge, Mass. Bifocal lens for spectacles and eyeglasses	319,153	June 2	267	71	31	1096
Wells, Henry H. (See Walker, James T., assignor.)						
Wells, Isaac J., Nannet, N. Y. Combined fire-box, grate, and sifter for stoves	317,901	May 12	1305	349	31	771
Wells, Willet C., Tiffin, Ohio. Well-boring machine	315,868	Apr. 14	1235	322	31	231
Wells, Willet C., Tiffin, Ohio. Well-tube for drive-wells	316,318	Apr. 21	1842	486	31	346
Welsh, Henry D. (See Reichert, Edward T., assignor.)						
Wempe, Hermann H., Capioma, Kans. Apparatus for watering swine	316,319	Apr. 21	1843	486	31	347

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Wendling, George. (See Gilbert and Wendling.)						
Wendt, Arthur F. (See Dingle and Jenkins, assignors.) (Reissue.)						
Werden, Clinton A., *et al.* (See Werden, Cyrus A., assignor.)						
Werden, Cyrus A., assignor of three-fourths to W. B., F. H., and C. A. Werden, Waukegan, Ill. Horse hay-rake	316,706	Apr. 28	2388	622	31	452
Werden, Francis H., *et al.* (See Werden, Cyrus A., assignor.)						
Werden, William B., *et al.* (See Werden, Cyrus A., assignor.)						
Werk, Casimir L., Westwood, Ohio. Candle-machine	319,156	June 2	271	72	31	1097
Werner, Louis C., Broad Brook, Conn. Shuttle-box motion for looms	315,683	Apr. 14	978	256	31	184
Werum, Phillip, Stryker, Ohio. Horse hay-fork	316,857	Apr. 28	2605	680	31	492
Wescott, Earl A., and E. R. Bristol, Minneapolis, Minn. Car-brake	321,070	June 30	2885	767	31	1606
West Haven Buckle Company. (See Hyde, James C., assignor.)						
West, Horatio D., St. Paul, Minn. Rack for newspaper-files	321,164	June 30	3001	795	31	1626
West, Stillman A., Racine, Wis. Boot or shoe	315,869	Apr. 14	1236	322	31	231
West, Theodore S., Alexandria, Va., assignor of one-half to W. W. Lecture, Washington, D. C. Paper box	315,454	Apr. 7	652	168	31	116
West, Thomas P., Lynfield, assignor of one-half to E. F. Bickford, Malden, Mass. Clasp for shoes or other articles	320,104	June 16	1554	411	31	1347
Westbrook, Frank A., and W. S. Cook, Port Jervis, N. Y. Car-coupling	320,314	June 16	1802	489	31	1401
Westbrook, Frank A., and W. S. Cook, Port Jervis, N. Y. Car-coupling	321,328	June 30	3300	853	31	1665
Westbrook, John C. (See Fowler, Thomas J., assignor.)						
Westcott, Charles E., Providence, R. I. Ear-ring	320,991	June 30	2775	737	31	1586
Westcott, Charles H., Seneca Falls, N. Y. Toy building-block	319,764	June 9	1068	284	31	1253
Westcott, John H., Oneida, N. Y. Drill-chuck	315,684	Apr. 14	980	257	31	184
Westcott, John H., Oneida, N. Y. Lathe-chuck	315,685	Apr. 14	980	257	31	184
Westerman, George, Sr., Lockport, N. Y. Pile for merchant iron	316,209	Apr. 21	1697	445	31	322
Western Electric Company. (See Patterson, William R., assignor.)						
Western Electric Company. (See Scribner, Charles E., assignor.)						
Western Union Telegraph Company. (See Hamilton, George A., assignor.)						
Western Union Telegraph Company. (See Scott, George B., assignor.)						
Western Wheel Scraper Company. (See Smith, Charles H., assignor.)						
Westinghouse, George, Jr., Pittsburg, Pa. Detecting leaks in gas-mains	315,363	Apr. 7	520	133	31	94
Westinghouse, George, Jr., Pittsburg, Pa. Regulator for gas and air supply to furnaces	318,839	May 26	2566	682	31	1016
Westinghouse, George, Jr., Pittsburg, Pa. Pipe-coupling for gas-mains	318,840	May 26	2567	683	31	1017
Westinghouse, George, Jr., Pittsburg, Pa. Pipe-joint for gas-mains	318,841	May 26	2568	683	31	1017
Westinghouse, George, Jr., Pittsburg, Pa. Detecting and carrying off leakage from gas-mains	319,364	June 2	523	142	31	1147
Westinghouse, George, Jr., Pittsburg, Pa. Pipe-line for gas-supply	319,365	June 2	524	143	31	1147
Westinghouse, George, Jr., Pittsburg, Pa. Stop-valve box for pipe-lines	319,765	June 9	1069	284	31	1254
Westinghouse, H. Herman, New York, N. Y., assignor to Westinghouse Machine Company, Pittsburg, Pa. Steam-engine lubricating attachment. (Reissue)	10,586	Apr. 21	2012	528	31	376
Westinghouse, H. Herman, New York, N. Y., assignor to Westinghouse Machine Company, Pittsburg, Pa. Steam-engine. (Reissue)	10,603	May 26	2698	714 715	31	1042
Westinghouse Machine Company. (See Westinghouse, H. Herman, assignor.) (Reissue.)						
Westmeyer, Friedrich, St. Johann-on-the-Saar, Prussia, Germany. Lifting apparatus for railway-rails	316,320	Apr. 21	1844	486 487	31	347
Weston, Edward, Newark, N. J., assignor to United States Electric Lighting Company, New York, N. Y. Incandescent-lamp holder	316,088	Apr. 21	1536	402	31	292
Weston, Edward, Newark, N. J., assignor to United States Electric Lighting Company, New York, N. Y. Regulator for dynamo-electric machines	316,089	Apr. 21	1538	402	31	292
Weston, Edward, Newark, N. J., assignor to United States Electric Lighting Company, New York, N. Y. System for the transmission of power by electricity	316,090	Apr. 21	1539	402	31	292
Weston, Edward, Newark, N. J., assignor to United States Electric Lighting Company, New York, N. Y. Electro-magnetic motor	316,091	Apr. 21	1543	403	31	293
Weston, Edward, Newark, N. J., assignor to United States Electric Lighting Company, New York, N. Y. Electro-magnetic motor	316,092	Apr. 21	1544	403	31	293
Weston, Edward, Newark, N. J., assignor to United States Electric Lighting Company, New York, N. Y. Electro-magnetic motor	316,093	Apr. 21	1546	403	31	294
Weston, Edward, Newark, N. J., assignor to United States Electric Lighting Company, New York, N. Y. Incandescent lamp	316,094	Apr. 21	1548	404	31	294
Weston, Edward, Newark, N. J., assignor to United States Electric Lighting Company, New York, N. Y. Electric incandescent-lamp bracket	316,095	Apr. 21	1549	404	31	294
Weston, Edward, Newark, N. J., assignor to United States Electric Lighting Company, New York, N. Y. Electrical switch or circuit controller	316,096	Apr. 21	1550	404	31	294
Weston, Edward, Newark, N. J., assignor to United States Electric Lighting Company, New York, N. Y. Switch or circuit breaker for electric circuits	316,097	Apr. 21	1552	404	31	294
Weston, Edward, Newark, N. J., assignor to United States Electric Lighting Company, New York, N. Y. Electric-lighting system	316,707	Apr. 28	2390	623	31	453
Weston, Edward, Newark, N. J., assignor to United States Electric Lighting Company, New York, N. Y. Electric-lighting system	316,708	Apr. 28	2391	623	31	453
Weston, Edward, Newark, N. J., assignor to United States Electric Lighting Company, New York, N. Y. Electric-lighting system	316,709	Apr. 28	2393	624	31	453
Weston, Edward, Newark, N. J., assignor to United States Electric Lighting Company, New York, N. Y. Socket or holder for incandescent lamps	320,026	June 16	1449	381	31	1328
Weston, Edward, Newark, N. J., assignor to United States Electric Lighting Company, New York, N. Y. Socket or holder for incandescent lamps	320,027	June 16	1450	381	31	1328
Weston, Edward, Newark, N. J., assignor to United States Electric Lighting Company, New York, N. Y. Circuit-breaker	320,028	June 16	1451	381	31	1328
Weston, Edward, Newark, N. J., assignor to United States Electric Lighting Company, New York, N. Y. Incandescent-lamp holder	320,029	June 16	1452	382	31	1329
Weston, Edward, Newark, N. J., assignor to United States Electric Lighting Company, New York, N. Y. Holder for incandescent lamps	320,030	June 16	1453	382	31	1329
Weston, Emile R., Bangor, Me. Smoke-consuming stove and furnace	319,870	June 9	1223	323	31	1280
Weston, Irving A. (See Smith and Weston.)						
Weston, James W., New York, N. Y. Refrigerator-barrel and other like receptacles	317,902	May 12	1306	349	31	771
Weston, James W., New York, N. Y. Hoop or band for barrels and other like receptacles	320,732	June 23	2431	645	31	1516
Weston, Morton L. D., Des Moines, Iowa. Apparatus for ventilating mines	315,578	Apr. 14	847	222 223	31	157
Weston, Thomas A., assignor to Yale & Towne Manufacturing Company, Stamford, Conn. Hoisting-machine	320,315	June 16	1863	489 490	31	1401
Weston, Thomas A., assignor to Yale & Towne Manufacturing Company, Stamford, Conn. Hoisting mechanism	320,316	June 16	1867	490 491	31	1402
Weston, Thomas A., assignor to Yale & Towne Manufacturing Company, Stamford, Conn. Hoisting mechanism	320,317	June 16	1869	491	31	1402

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Weston, Thomas A., assignor to Yale & Towne Manufacturing Company, Stamford, Conn. Hoisting mechanism	320,318	June 16	1871	491 499	31	1402
Wethered, Edwin R., Woolwich, county of Kent, England. Latch and lock combined	316,098	Apr. 21	1553	405	31	295
Wetherell, George F., and R. B. Jones, assignors of one-third to R. Richards, Chicago, Ill. Presser-roll	318,064	May 19	1527	410	31	820
Wetherill, Coteswortb P., Woodville, Miss. Balanced slide-valve	319,649	June 9	924	244	31	1227
Wetmore, Joseph C., assignor to A. F. Smith, Lynn, Mass. Heel-trimming machine	316,710	Apr. 28	2395	624	31	454
Wetmore, William H., assignor of two-thirds to T. A. Jones and A. W. Knox, Raleigh, N. C. Desk	317,253	May 5	442	110	31	603
Wharton & Co., William, Jr. (See Samuel, Edward, assignor.)						
Wharton & Co., William, Jr. (See Wharton, William, Jr., assignor.)						
Wharton & Co., William, Jr. (See Wharton and Samuel, assignors.)						
Wharton Railroad Switch Company. (See Roberts, Alfred R., assignor.)						
Wharton, William, Jr., assignor to W. Wharton, Jr., & Co., (limited,) Philadelphia, Pa. Cable railway	315,983	Apr. 14	1398	362	31	259
Wharton, William, Jr., assignor to W. Wharton, Jr., & Co., (limited,) Philadelphia, Pa. Cable railway	315,986	Apr. 14	1400	363	31	260
Wharton, William, Jr., assignor to W. Wharton, Jr., & Co., (limited,) Philadelphia, Pa. Cable railway	315,987	Apr. 14	1401	363	31	260
Wharton, William, Jr., and E. Samuel, assignors to W. Wharton, Jr., & Co., (limited,) Philadelphia, Pa. Cable railway	315,984	Apr. 14	1399	363	31	259
Wharton, William, Jr., and E. Samuel, assignors to W. Wharton, Jr., & Co., (limited,) Philadelphia, Pa. Cable railway	315,985	Apr. 14	1400	363	31	259
Wheatley, Harry D., Centreville, Ohio. Music-leaf turner	318,529	May 26	2143	577	31	944
Wheatley, Thomas S., Mahanoy City, Pa. Shoe-maker's rasping-tool	320,733	June 23	2432	645	31	1516
Wheeler, A. (See Blaker, Achilles, assignor.)						
Wheeler, Abel, *et al.* (See Young, Harlan P., assignor.)						
Wheeler, Clarence L. (See Wheeler, Elonzo S., assignor.)						
Wheeler, David C., *et al.* (See Wheeler, Dwight, assignor.)						
Wheeler, Dwight, assignor of two-thirds to J. A. Crofut and D. C. Wheeler, Bridgeport, Conn. Scissors and shears	318,530	May 26	2145	578	31	944
Wheeler, Elonzo S., Saugatuck, assignor of one-half to C. L. Wheeler, Sharon, Conn. Barbed fence	321,264	June 30	3124	832	31	1650
Wheeler, George N. (See Lynn and Wheeler.)						
Wheeler, J. S., *et al.* (See Randolph, Arthelow M., assignor.)						
Wheeler, Schuyler S., Newburg, assignor to C. A. Cheever, trustee, New York, N. Y. Electric elevator. (Reissue)	10,585	Apr. 21	2009	528	31	375
Wheeler, William A., Indianapolis, Ind. Edge-curling machine	316,711	Apr. 28	2397	624 625	31	454
Wheeler, William A., Indianapolis, Ind. Pipe-crimping machine	321,165	June 30	3002	796	31	1627
Wheeler & Wilson Manufactnring Company. (See Bayley, Charles H., assignor.)						
Wheeler & Wilson Manufacturing Company. (See Dimond, George H., assignor.)						
Wheeler & Wilson Manufacturing Company. (See Ostrom, Freeland W., assignor.)						
Wheeler & Wilson Manufacturing Company. (See Tuttle, Ira J., assignor.)						
Wheelock, George J. (See Beauregard and Wheelock.)						
Whipple, Effinger E., Eaton Rapids, Mich. Cultivator	319,871	June 9	1225	323 324	31	1280
Whipple, Jane, Westfield, N. Y. Stool for tables, counters, &c	317,254	May 5	444	110	31	604
Whisler, Cyrus, assignor of one-half to J. F. Hodgen, Brighton, Iowa. Washing-machine	321,329	June 30	3301	853	31	1665
Whitcomb, James A., Washington, D. C. Necktie-fastener	315,097	Apr. 7	150	36	31	28
Whitcomb, Theophilus T. (See Sanders and Whitcomb.)						
White, Addison J. (See Albach and White.)						
White, Albert M., Waterbury, assignor to Pope Manufacturing Company, Hartford, Conn. Wheel for velocipedes	317,956	May 12	1376	370	31	785
White, Charles, Osceola, Nebr. Detachable handle and safety-lock attachment for valises, &c	318,672	May 26	2335	623	31	977
White, Charles, assignor of one-half to M. Holzman, Baltimore, Md. Embroidery-cutting machine	320,031	June 16	1454	382 383	31	1329
White, Charles P., Taunton, Mass. Clutching device	317,056	May 5	163	41	31	552
White Dental Manufacturing Company, S. S. (See Brewer and How, assignors.)						
White Dental Manufacturing Company, S. S. (See Burk, William E., assignor.)						
White Dental Manufacturing Company, S. S. (See How, Woodbury S., assignor.)						
White Dental Manufacturing Company, S. S. (See Johnston and Browne, assignors.)						
White, Henry J., assignor to Empire Wringer Company, Auburn, N. Y. Journal and bushing	318,065	May 19	1529	410	31	820
White, Howard, Philadelphia, Pa. Pencil-sharpener	318,404	May 19	1977	532	31	904
White, James, 19 Swan Street Borough, W. Ross, 60 Trinity Square Borough, J. T. Creasy, 26 Warner Street Borough, county of Surrey, and W. H. Gritton, Jr., 7 Fenchurch Street, county of Middlesex, England. Combination-rudder for vessels	316,099	Apr. 21	1555	405	31	295
White, James H., New York, and T. Hipwell, Astoria, assignors to Manhattan Brass Company, New York, N. Y. Lamp	318,150	May 19	1638	437	31	841
White, John C., Swatara, Pa. Traction-engine	317,963	May 12	1308	350	31	772
White, John E., assignor to Peters' Leather Dash Company, Columbus, Ohio. Sewing-machine	319,766	June 9	1070	284 285	31	1254
White, John F., assignor to C. W. Taylor, Gallatin, Tenn. Hand-motor for sewing-machines	317,057	May 5	164	41	31	553
White, Jonathan F., *et al.* (See Glenn, Joseph M., assignor.)						
White, Joseph J., New Lisbon, N. J., assignor to Union Hoist Company, (limited,) Philadelphia, Pa. Hoist	317,904	May 12	1309	350	31	772
White, Leonard A., Taunton, Mass. Draft slide or register	319,367	June 2	526	143	31	1148
White, Le Roy S., Waterbury, Conn. Apparatus for turning on, lighting, and shutting off gas by electricity	320,105	June 16	1555	411	31	1347
White, Le Roy S., Waterbury, Conn. Apparatus for turning on, lighting, and turning off gas by electricity	320,106	June 16	1559	412	31	1347
White, Le Roy S., Waterbury, Conn. Electric lighting device for gas-burners	320,606	June 23	2275	601	31	1486
White, Luther T., Cortland, N. Y. Dental-tool holder	321,265	June 30	3125	832	31	1650
White, Otis C., Worcester, Mass. Lathe tool-rest	315,686	Apr. 14	981	257	31	184
White, Otis C., Worcester, Mass. Photographic posing-support	316,101	Apr. 21	1560	406	31	296
White, Otis C., Hopkinton, Mass. Dentist's chair	316,100	Apr. 21	1556	405 406	31	295
White Sewing Machine Company. (See Whitney, Ruel W., assignor.)						
White, William, Bingley, county of York, England. Belting or driving band	319,366	June 2	525	143	31	1148
White, William, assignor to W. Stein, London, England. Feed-water regulator for steam-boilers	315,098	Apr. 7	151	36	31	29

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Whiteford, David, Chicago, Ill. Water-closet	318,842	May 26	2569	683, 684	31	1017
Whiteford, David, Chicago, Ill. Stop and waste cock	319,157	June 2	272	72	31	1097
Whitehead, John H., Leeds, county of York, England. Machinery for combing wool, cotton, &c.	315,197	Apr. 7	306	73	31	54
Whitehill, Robert. (See Dixon, Charles A., assignor.)						
Whitehurst, Robert W., assignor of two-thirds to A. and M. L. Wrenn, Norfolk, Va. Plow	319,872	June 9	1229	324	31	1280
Whiteley, William N., Springfield, Ohio. Belt-gearing	320,734	June 23	2433	645	31	1516
Whiteman, Abram V., New York, N. Y. Fruit-jar	320,107	June 16	1561	412	31	1348
Whitfield, William A. (See Boone and Whitfield.)						
Whitin, G. Marston, assignor to Whitin Machine Works, Whitinsville, Mass. Spinning and twisting machine	318,405	May 19	1978	532	31	904
Whitin Machine Works. (See Whitin, G. Marston, assignor.)						
Whiting, David, Ashland, Ohio. Clover-huller	316,210	Apr. 21	1698	446	31	322
Whiting, J. Hill, Detroit, Mich. Reversible friction-gearing	315,687	Apr. 14	983	257	31	185
Whiting, J. Hill, Detroit, Mich. Cable or belt tightener	317,692	May 12	1027	266	31	718
Whiting, J. Hill, Detroit, Mich. Device for operating foundry-ladles	319,158	June 2	275	72	31	1098
Whiting, Stiles H., Bridgeport, Conn. Device for holding sleeves of garments	316,712	Apr. 28	2399	625	31	454
Whiting, William M., Elizabeth, N. J. Cord-alarm for grain-binders	317,905	May 12	1310	350	31	772
Whitman & Barnes Manufacturing Company. (See Lamb, Levi L., assignor.)						
Whitman & Barnes Manufacturing Company. (See Smith and Weston, assignors.)						
Whitman, Henry L., St. Louis, Mo. Harrow	321,071	June 30	2886	767	31	1606
Whitney, Amos. (See Hinckley, Henry D., assignor.)						
Whitney, Amos, assignor to Pratt & Whitney Company, Hartford, Conn. Lathe-head	319,650	June 9	924	244, 245	31	1227
Whitney, Edgar H., Winchendon, Mass. Ratchet-brace	319,159	June 2	276	72	31	1098
Whitney, Henry M., Oswego, N. Y. Shovel	320,197	June 16	1672	445	31	1368
Whitney, John R., Radnor, Pa. Railway-car window	321,266	June 30	3126	832	31	1650
Whitney, Marcus L., Hawley, Pa. Car-coupling	316,926	Apr. 28	2704	704	31	510
Whitney, Ruel W., assignor to White Sewing Machine Company, Cleveland, Ohio. Feed mechanism for sewing-machines	317,255	May 5	445	111	31	604
Whiton, Lucius E., West Stafford, Conn. Lathe-tool	316,713	Apr. 28	2400	625	31	455
Whittemore, John R., Chicopee Falls, Mass. Harrow	315,579	Apr. 14	848	223	31	157
Whittingham, John. (See Greig, Shaw, and Whittingham.)						
Whittlesey, Charles E., assignor of one-half to H. T. Peck, New Haven, Conn. Lock	320,591	June 23	2163	571	31	1464
Whyman, Horatio O., Norfolk, Nebr. Shutter	315,580	Apr. 14	849	223	31	158
Whyte, Warren M. (See Overman and O'Connor, assignors.)						
Wicks, Samuel, Cleveland, Ohio. Combined faucet and pump	319,535	June 9	768	205	31	1199
Widmer, Frank. (See Beisinger, Fredrich, assignor.)						
Widney, Charles W., assignor to himself and O. W. Hutchinson, Wymore, Nebr. Switch-stand	319,368	June 2	526	143	31	1148
Wiegell, Saxo W. A., New York, N. Y. Bucket or receptacle for malt liquors	315,198	Apr. 7	307	73	31	55
Wiese, Peter, *et al.* (See Kock, Christian H., assignor.)						
Wiese, William. (See Karnatz and Wiese.)						
Wiggs, Henry J. (See Miller, Isaac J., assignor.)						
Wight & Son. (See Thies, John B., assignor.)						
Wigle, Frederick B., Mansfield, Ohio. Vapor-burner	318,151	May 19	1639	428	31	841
Wilber, Isaac L., Taunton, Mass. Loom-shuttle	315,100	Apr. 7	154	37	31	29
Wilbur, Du Bois & Wilbur. (See Bristol, David N., assignor.)						
Wilbur, Krum & Wilbur. (See Bristol, David N., assignor.)						
Wilcox, Daniel, Springwater, N. Y. Adjustable chair	318,673	May 26	2336	624	31	977
Wilcox, John F., assignor to J. P. Witherow and H. W. Oliver, Jr., Pittsburg, Pa. Operating converters	315,582	Apr. 14	851	224	31	158
Wilcox, John F., assignor to H. W. Oliver, Jr., and J. P. Witherow, Pittsburg, Pa. Blast appliance for converters	317,478	May 5	746	189	31	658
Wilcox, Robert, St. Kilda, Victoria. Steamship-propeller and machinery therefor	315,199	Apr. 7	307	74, 75	31	55
Wilcox, William E., assignor of one-half to F. H. Kelly, Cleveland, Ohio. Car-axle box	315,581	Apr. 14	850	224	31	158
Wild, William E., assignor of one-half to G. E. Ames, San Francisco, Cal. Ore-crushing machine	315,583	Apr. 14	853	225	31	158
Wilde, William L., Brooklyn, N. Y. Body-protector	317,693	May 12	1027	266	31	718
Wilder, William H. (See Fletcher and Wilder.)						
Wilder, William M., Franklin, Ga. Cotton-seed planter	315,099	Apr. 7	153	37	31	29
Wildhagen, Karl, Treseburg, Brunswick, Germany. Roofing composition of tar, cement, &c.	315,584	Apr. 14	854	.....	31	158
Wiley, Charles W. (See Wiley, Daniel D., G. L., and C. W.)						
Wiley, Daniel D., G. L., and C. W., Lanark, Ill. Mechanism for converting motion	315,364	Apr. 7	521	133	31	94
Wiley, George L. (See Wiley, Daniel D., G. L., and C. W.)						
Wiley, Thomas W. (See Wood and Wiley.)						
Wilhelm, Albert, Pleasant Hill, Tex. Cultivator	320,607	June 23	2276	602	31	1486
Wilhöft, Franz, New York, N. Y. Vulcanized soft rubber and making same	321,410	June 30	3314	.....	31	1685
Wilkerson, Samuel G., Ottawa, Kans. Gate	317,058	May 5	165	42	31	553
Wilkes, Joseph C., Buchtel, Ohio. Pencil-holder	320,628	June 23	2547	675	31	1538
Wilkin, Theodore S., Milwaukee, Wis. Saw-mill set-works	317,256	May 5	446	111, 112	31	604
Wilkins, Alexander G., Meadville, Pa., and J. B. Miller, assignors to Railway Speed Recorder Company, Kent, Ohio. Implement for securing buttons to fabrics	321,411	June 30	3315	884	31	1685
Wilkins, Henry E., *et al.* (See Partridge, Andrew, assignor.)						
Wilkins, John H., *et al.* (See Brettell, Edward W., assignor.)						
Wilkinson, George W., West Rutland, Vt. Car-axle	319,369	June 2	528	144	31	1148
Wilkinson, Joseph H., Boston, Mass. Differential oil-cup	315,101	Apr. 7	155	37	31	29
Will, John, Audubon, Iowa. Grain-meter	319,160	June 2	277	73	31	1098
Willard, Alexander T., Chelsea, Mass. High-pressure indicator	318,152	May 19	1640	438	31	841
Willbanks, David A., assignor of one-half to T. C. Launius, High Shoals, Ga. Tire-shrinking machine	316,511	Apr. 28	2117	557	31	402
Willcox & Gibbs Sewing Machine Company. (See Mitchell and Plympton, assignors.)						
Willer, Henry E., Milwaukee, Wis. Window-frame	315,365	Apr. 7	522	133	31	95
Willershausen, Siegfried, New York, N. Y. Spring attachment to platform rocking-chairs	315,870	Apr. 14	1237	322	31	231
Willet, Nathaniel S., Newark, N. J. Manufacture of brick	315,200	Apr. 7	311	75, 76	31	56
Willett, Ora S., and J. W. Fitzgerald, Bronson, Kans. Check-rower	317,257	May 5	448	112	31	605
Williford, Joseph L., Minneapolis, Minn. Roller-mill	315,201	Apr. 7	313	76, 77	31	56
Williford, Joseph L., Minneapolis, Minn. Mechanical movement	315,202	Apr. 7	316	77	31	57
Willhoite, Henry L., Colfax, Ill. Combined hay rake and loader	315,366	Apr. 7	523	134	31	95
Williams, Albert J., Hannibal, N. Y. Grain-reducing apparatus	318,585	May 26	2227	595, 596	31	956
Williams, Alfred G. (See Havell and Williams.)						
Williams, Bradley S., *et al.* (See Peer, Perry A., assignor.)						
Williams, Charles H., Worcester, assignor to T. C. Bates, North Brookfield, Mass. Corset	316,858	Apr. 28	2606	680	31	492
Williams, Chester L., New York, N. Y. Clothes-line frame	317,258	May 5	449	112	31	605
Williams, Elmer L., Buchanan, Mich. Combined hay tedder and rake	317,602	May 12	908	233	31	696
Williams, Eugenia A., administratrix. (See Williams, George W.)						
Williams, Fitzallan B., assignor of one-fourth to W. A. Williams, Chicago, Ill. Folding bed	316,714	Apr. 28	2401	626	31	455
Williams, Francis H., Syracuse, N. Y. Sabot for ordnance	315,102	Apr. 7	157	38	31	29
Williams, Francis M., Dows, Iowa. Grain elevator and cleaner	318,674	May 26	2337	624	31	978
Williams, George W. (See Long, George S., assignor.)						
Williams, George W., deceased, E. A. Williams, Des Moines, Iowa, administratrix. Gate-hinge	320,198	June 16	1673	445	31	1368
Williams, Gurdon H., assignor of one-half to A. A. Raymond, Greensburg, Ohio. Device for cutting and screw-threading wagon-axles	317,694	May 12	1028	267	31	718
Williams, Horace, *et al.* (See Kayser, Adolf, assignor.)						
Williams, Isaac C., Auburn, W. Va. Fire-place	315,367	Apr. 7	524	134	31	95
Williams, J. Newton, Stapleton, N. Y. Journal-bearing	315,103	Apr. 7	158	38	31	29
Williams, James, Richmond, Ind. Roller-skate	320,108	June 16	1563	412	31	1348
Williams, John. (See Racey, John, assignor.)						
Williams, John L., Shenandoah, Pa. Safety-lamp	321,166	June 30	3004	796	31	1627
Williams, John M., Salem, N. Y. Machine for separating metals and minerals	316,211	Apr. 21	1699	446, 447	31	322
Williams, John R., Newark, N. J., assignor to W. Eggert, trustee, New York, N. Y. Cigar-wrapper cutter	320,199	June 16	1674	445, 446	31	1368
Williams, Malcolm B., *et al.* (See Peer, Perry A., assignor.)						
Williams, Marion W. (See Medley and Williams.)						
Williams, Marion W., Hopkinsville, Ky. Artificial tooth	317,259	May 5	450	113	31	605
Williams, Martin, St. Johnsville, N. Y. Bag-holder	317,906	May 12	1310	350	31	772
Williams, Martin, St. Johnsville, N. Y. Thrashing-machine	317,907	May 12	1311	351	31	772
Williams, Orlando E., and L. V. Poole, Windsor, Vt. Hand-beader	319,161	June 2	278	73	31	1098
Williams, Robert. (See Locke and Bowker, assignors.)						
Williams, Robert A., Kilmichael, Miss. Portable water-bucket	317,050	May 5	166	42	31	553
Williams, Robert A., and J. Bragg, Cleveland, Ohio. Apparatus for extracting paraffine from oils	317,060	May 5	167	43	31	553
Williams, Robert E., Dallas, Tex. Bag-rack	315,688	Apr. 14	984	258	31	185
Williams, Robert F. (See Pitcher, Horace A., assignor.)						
Williams, Samuel B., Sailors Rest, Tenn. Plow	317,260	May 5	451	113	31	606
Williams, Seth J., and H. Richey, Sing Sing, N. Y. Rectangular baking-pan	318,438	May 19	2018	543	31	911
Williams, Thomas H., *et al.* (See Hobart, John H., assignor.)						
Williams, Waldo A. (See Williams, Fitzallan B., assignor.)						
Williams, William E., Pittsford, Mich. Pump	318,066	May 19	1530	410	31	820
Williamson, Benjamin F., assignor of one-half to H. Marks, St. Louis, Mo. Truss	319,372	June 2	532	145	31	1149
Williamson, Charles, Washington, Kans. Electric conductor for wire-fencing	317,908	May 12	1312	351	31	773
Williamson, Daniel A., Watsontown, Pa. Heel-trimming machine	315,203	Apr. 7	317	77	31	57
Williamson, Elwood N., near Lodge, Ill. Grain-meter	315,585	Apr. 14	854	225	31	158
Williamson, George W., *et al.* (See Winter and Williamson, assignors.)						
Williamson, John D., *et al.* (See Winter and Williamson, assignors.)						
Williamson, John J., Boston, Mass. Making electrical conductors	319,536	June 9	769	205	31	1199
Williamson, S. Stuart. (See Smith and Williamson.)						
Williamson, William C. (See Winter and Williamson.)						
Willis, Henry C. (See Hall, Luther, assignor.)						
Willis, James, Rosendale, Bournemouth, county of Hants, England. Umbrella and parasol	319,767	June 9	1074	285	31	1254
Willits, Ward H. (See Payson, George A., assignor.)						
Willmore, William C., assignor of two-thirds to S. Horrall and G. L. Bailey, Vincennes, Ind. Lifting-jack	315,871	Apr. 14	1238	323	31	231
Willoughby, John M., Woburn, Mass., assignor, by mesne assignments, to Simonds Counter Machinery Company, Nashua, N. H. Machine for manufacturing stiffeners for boots or shoes	319,873	June 9	1230	324	31	1280
Willson, Charles P., Summit Point, W. Va. Fire-escape	319,370	June 2	529	144	31	1149
Willson, Charles P., Summit Point, W. Va. Door for grain-cars	319,371	June 2	530	144	31	1149
Wilmington, William, Toledo, Ohio. Casting car-wheels	315,872	Apr. 14	1238	323	31	231
Wilson, Allen F., assignor of three-fourths to D. W. Moore and J. B. Wilson, Clayton, N. J. Fruit-jar	319,768	June 9	1075	286	31	1254
Wilson, Charles F., assignor of one-half to M. M. Bemis, Brooklyn, N. Y. Boiler-feed regulator	316,212	Apr. 21	1705	447	31	322
Wilson, Frank E., Des Moines, Iowa. Boiler-furnace	317,261	May 5	452	113	31	606
Wilson, G. Reed, Buffalo, and G. E. Watson, Lockport, N. Y. Driving-belt cleaner	317,603	May 12	910	233	31	696
Wilson, George, assignor to G. Wilson & Sons, Toledo, Ohio. Box-fastener	319,651	June 9	926	245	31	1227
Wilson, George H., St. Louis, Mo. Lamp-burner	316,422	Apr. 21	1991	523	31	373
Wilson, George W., Hartford, Conn. Buckle	319,769	June 9	1076	286	31	1255
Wilson, James D., *et al.* (See Munzinger, Peter, assignor.)						
Wilson, James H., Lowell, Mass. Drawing-frame, &c	321,267	June 30	3127	833	31	1650
Wilson, Jesse F., Terre Haute, Ind. Tree protector	318,586	May 26	2230	596	31	957
Wilson, John C., Boston, Mass. Signal-transmitter	320,032	June 16	1456	383	31	1309
Wilson, Joseph. (See Patrick, Robert, Jr., assignor.)						
Wilson, Joseph B., *et al.* (See Wilson, Allen F., assignor.)						
Wilson, Oliver, and J. Palmer, assignors to J. M. Yardley and O. Wilson, Philadelphia, Pa. Stop-motion mechanism for knitting-machines	316,423	Apr. 21	1992	523	31	373
Wilson, Oliver B., *et al.* (See Giffard, George W., assignor.)						
Wilson, Robert, Greenup, Ky. Millstone-dress	319,652	June 9	927	245	31	1227
Wilson & Sons, George. (See Wilson, George, assignor.)						
Wilson, Thomas, Philadelphia, Pa. Swing	320,319	June 16	1873	492	31	1402
Wilson, Thomas R. (See Hill and Wilson.)						
Wilson, Walker & Co. (See Simpson, Gladhill, and Gailliot, assignors.)						
Wilson, William P., assignor of one-half to T. Craig, Trenton, N. J. Chimney top and ventilator	320,606	June 23	2277	602	31	1486
Wilt, Benjamin, assignor of one-half to J. Fisher, Jr., Philadelphia, Pa. Combined harrow and pulverizer	317,909	May 12	1313	351	31	773
Wilz, Michael. (See Largent, James J., assignor.)						
Winans, Walter, Brighton, county of Sussex, England. Electric sight for fire-arms	320,300	June 16	1675	446	31	1369
Winchell, James F., Springfield, Ohio. Detachable lever for forges. (Reissue)	10,593	May 5	755	191	31	659
Winchester, Edward G., Ashburnham, Mass. Suspensory-bandage	321,072	June 30	2887	768	31	1606

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Winchester Repeating Arms Company. (See Bennett, Thomas G., assignor.)						
Winchester Repeating Arms Company. (See Curtis and Russell, assignors.)						
Winchester Repeating Arms Company. (See Gardner, John, assignor.)						
Winchester Repeating Arms Company. (See Mason, William, assignor.)						
Wine, Henry, Marion, Ind. Car-coupling	318,844	May 26	2572	684	31	1018
Winebrener, John, assignor of one-half to J. Shipley, Hecla, Ind. Cant-hook	319,373	June 2	533	145	31	1149
Wing, William S. (See Newton and Wing.)						
Wingrove, Thomas R., Baltimore, Md. Refrigerator building and apparatus	319,374	June 2	534	145, 146	31	1150
Winkel, Carl, Williamsburg, assignor of one-half to L. A. Ludwig, New York, N. Y. Paper-guard for printing-telegraphs	319,770	June 9	1077	286	31	1255
Winkley, Albert A., Faribault, Minn. Artificial leg	316,589	Apr. 28	2214	582	31	420
Winquest, Henry C., Fairfield, Iowa. Oscillating churn	316,587	May 26	2231	506	31	957
Winship, William F., Albany, N. Y. Sash-balance	317,262	May 5	453	113, 114	31	606
Winston, John H. C., Lynchburg, Va. Saw-filing machine	320,735	June 23	2434	645, 646	31	1516
Wint, Theodore J., Fort Leavenworth, Kans. Riding-saddle	320,522	June 23	2164	571	31	1464
Winter, Herman, New York, N. Y., and W. C. Williamson, assignors to G. W., J. D., and W. C. Williamson, Philadelphia, Pa. Steering machinery	318,068	May 19	1533	411	31	821
Winter, Hermann, Helena, Mont. Ter. Head-section	319,537	June 9	771	205	31	1199
Winterburn, Andrew, Albany, N. Y. Clasp for wearing-apparel	315,873	Apr. 14	1240	323	31	231
Winton, Henry D., Wellesley Hills, Mass. Railway-rail connection	315,586	Apr. 14	855	225	31	159
Winton, Henry D., Wellesley Hills, Mass. Track-instrument	317,910	May 12	1314	351	31	773
Winton, Henry D., Wellesley Hills, Mass. Electric signal	317,911	May 12	1315	352, 353	31	773
Winzenried, Godfrey, Schulenberg, Tex. Tool for removing chips from mortises	320,736	June 23	2437	646	31	1517
Wipfler, Valentine. (See McLaughlin, Stephen R., assignor.)						
Wire Goods Company. (See Perkins, William C., assignor.)						
Wiselogel, Frederick G., Indianapolis, Ind. Offal-drier	317,061	May 5	169	43	31	554
Wiseman, Arthur G., Webster Groves, Mo. Watch-winding device	320,609	June 23	2278	602	31	1487
Witherow, James P., *et al.* (See Schnize-Berge, Hermann, assignor.)						
Witherow, James P., *et al.* (See Wilcox, John F., assignor.)						
Witherow, James P., Allegheny, Pa. Apparatus for the manufacture of iron and steel	315,587	Apr. 14	856	225	31	159
Witherow, James P., Pittsburg, Pa. Appliance for regulating the blast-pressure of converters	317,263	May 5	454	114	31	606
Witherow, James P., Pittsburg, Pa. Regulating the blast-pressure of converters	317,264	May 5	455	114	31	607
Withrow, James T., Jr., assignor of one-third to J. T. Withrow, Sr., Huntsville, Ark. Automatic railway-gate	318,069	May 19	1536	411	31	821
Witman, Augustus H., Minersville, Pa. Powder-keg discharge-tube	315,874	Apr. 14	1241	323	31	232
Wittenström, Carl, Stockholm, Sweden. Facing or molding material for molds for casting metal	317,062	May 5	171	.....	31	554
Wittenström, Carl, Stockholm, Sweden. Casting apparatus	317,063	May 5	173	44	31	554
Wittenström, Carl, Stockholm, Sweden. Metal mold for castings	317,064	May 5	175	44	31	555
Wittmann, Noel B., assignor to Pittsburg Steel Casting Company, Pittsburg, Pa. Deoxidizing molten iron in the manufacture of steel	318,067	May 19	1531	.....	31	820
Witty, John B., Indianapolis, Ind. Rail-coupling	317,065	May 5	175	44	31	555
Wlach, Franz, Vienna, Austria-Hungary. Lantern	315,875	Apr. 14	1242	324	31	232
Wock, John, assignor of one-half to J. C. Skelton and A. Hoeffer, Canton, Ohio. Pump	320,737	June 23	2437	646	31	1517
Woeber, Amos, Cincinnati, Ohio. Target-trap	316,590	Apr. 28	2215	583	31	420
Woelfle, Louis, New York, N. Y. Cornice	316,715	Apr. 28	2402	626	31	455
Woerd, Charles V., Waltham, Mass. Minute wheel and pinion	318,675	May 26	2338	624	31	978
Woerd, Charles V., Waltham, Mass. Machine for roughing out pinions for watches	320,992	June 30	2776	737, 738	31	1586
Wohlenberg, Hermann, Hanover, Prussia, Germany. Screw-threading lathe	319,943	June 9	1331	351	31	1199
Wolf, Abraham, New York, N. Y. Sifter for flour, &c	319,375	June 2	536	146	31	1150
Wolf, Charles F., Terre Haute, Ind. Drier	318,588	May 26	2232	596, 597	31	957
Wolfe, Charles A., *et al.* (See Wolfe, Harvey R., assignor.)						
Wolfe, Edward W., assignor to Reading Iron Works, Reading, Pa. Pipe-coupling	320,738	June 23	2438	646	31	1518
Wolfe, Harvey R., assignor to Brennan & Co., Southwestern Agricultural Works, and C. A. Wolfe, Louisville, Ky. Saw-swage	315,104	Apr. 7	159	38	31	30
Wolfe, Newton L., Canal Winchester, Ohio. Machine for pressing molded bricks	318,934	May 26	2686	711	31	1039
Wolff & Co., R. (See Blust, Charles, assignor.)						
Wolfley, John. (See Colvin and Wolfley.)						
Wolgamuth, Edward K. (See Wolgamuth, Francis F., assignor.)						
Wolgamuth, Francis F., assignor of one-half to E. K. Wolgamuth, Philadelphia, Pa. Potato-planter	318,224	May 19	1732	463	31	859
Wonacott, Charles, assignor of one-half to J. H. Bulpit, Bishop Creek, Cal. Vehicle-axle	320,201	June 16	1676	446	31	1369
Wood, Albert B., New York, N. Y. Refrigerator	315,105	Apr. 7	160	38	31	30
Wood, Albert J., Wilder, Kans. Corn-planter	316,424	Apr. 21	1994	524	31	373
Wood, Allen F. (See Rutherford and Wood.)						
Wood, Alvinus B. (See Burt, Samuel S., assignor.)						
Wood, Arthur H., Lansing, Mich. Knob attachment	316,501	Apr. 28	2216	583	31	421
Wood, Aurin, assignor to C. N. Hair, Worcester, Mass. Shaft-straightening machine	320,610	June 23	2279	602	31	1487
Wood, De Volson, Boonton, N. J. Rock-drill	316,716	Apr. 28	2403	626	31	455
Wood, De Volson, Boonton, N. J. Rock-drill	319,653	June 9	928	245	31	1227
Wood, Edward E., Jr., Northampton, Mass. Fork guard and rest	318,070	May 19	1537	412	31	821
Wood, Edwin A., Utica, N. Y. Preventing the formation of ice on show-windows	317,265	May 5	456	114, 115	31	607
Wood, Frank B., assignor to H. Thou and E. Bleoo, New York, N. Y. Call-box	317,912	May 12	1319	353	31	774
Wood, Frank B., assignor to New Haven Clock Company, New York, N. Y. Telegraphic call-instrument	321,073	June 30	2888	768	31	1607
Wood, Hervey. (See Wood and Wiley.)						
Wood, John, Conshohocken, Pa. Adjusting device for rolling-mills	319,654	June 9	929	246	31	1228
Wood, John, Jr. (See Curtis and Wood.)						
Wood, John C., Table Rock, Nebr. Sewing-machine	320,033	June 16	1457	383	31	1330
Wood, Luther B., Omaha, Nebr. Lantern	316,425	Apr. 21	1995	524	31	373
Wood, Luther B., assignor to himself and S. M. Beery, Omaha, Nebr. Dust-guard for car-platforms	317,266	May 5	458	115	31	607
Wood, Orville K., West Chazy, N. Y. Sectional ladder	317,913	May 12	1320	354	31	774
Wood, Richard G., assignor, by mesne assignments, to G. J. Murray, Cincinnati, Ohio. Two-wheeled vehicle	317,066	May 5	176	45	31	555
Wood, Sylvanus B. and H., and T. W. Wiley, Callisburg, Tex. Churning device	316,426	Apr. 21	1996	524	31	373

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Wood, William C. (See Simmons, Charles W., assignor.)						
Wood, William C. (See Turner, William A., assignor.)						
Wood, William H., New York, N. Y. Feed-water heater	319,376	June 2	537	146	31	1150
Woodard, John E. (See Smith and Woodard.)						
Woodborne, George W., Uhrichsville, Ohio, assignor of one-half to T. R. Woodborne. Stove-pipe thimble	315,988	Apr. 14	1402	364	31	260
Woodborne, T. R. (See Woodborne, George W., assignor.)						
Woodbridge, Frank. (See Heaton, Horace L., assignor.)						
Woodbridge, James E., Hartford, Conn. Screw-threading tap	318,071	May 19	1538	412	31	822
Woodbridge, James E., Hartford, Conn. Relieving screw-tape	318,153	May 19	1641	438	31	841
Woodbridge, William E., Washington, D. C. Wire-tension apparatus	317,267	May 5	458	115	31	607
Woodbury, Daniel A., Rochester, N. Y. Connecting-rod	315,699	Apr. 14	984	258	31	185
Woodbury, Leander S., Calumet, Mich. Throttle-valve	318,072	May 19	1539	412	31	822
Woodbury, Leander S., Calumet, Mich. Rock-drill	319,045	June 2	135	37	31	1072
Woodbury, Leander S., Calumet, Mich. Piston-head packing for rock-drills	319,538	June 9	772	206	31	1199
Woodbury, Leander S., Calumet, Mich. Piston-head packing for rock-drills	320,899	June 23	2548	675	31	1538
Woodbury, Orson E., and H. W. Storck, Madison, Wis. Weather-strip	320,034	June 16	1458	383	31	1330
Woodbury, Seth H., Lynn, Mass. Guard for shielding set-screws in pulleys	315,204	Apr. 7	319	77	31	57
Woodcock, William, Elizabeth, N. J. Car-wheel lathe	316,427	Apr. 21	1997	525	31	374
Woodford, Charles W., Essex, N. Y. Machine for marking horseshoe-nails	320,493	June 16	2029	532	31	1431
Woodhouse, Samuel F., Philadelphia, Pa. Wood-filler	318,935	May 26	2687	.....	31	1040
Woodley, Henry J., assignor to M. Guggenheim's Sons, New York, N. Y. Box for packing and displaying embroidery	317,604	May 12	911	233, 234	31	697
Woodruff, Albert M., Athens, Mich. Railway-gate	321,167	June 30	3005	796	31	1628
Woodruff, Miller & Co. (See Howard, Arthur L., assignor.)						
Woodruff, Miller & Co. (See Miller, William K., assignor.)						
Woods, Alexander P., and W. E. Lindsay, Baltimore, Md. Green-corn-cutting machine	315,588	Apr. 14	853	226	31	159
Woods, Granville T., Cincinnati, Ohio, assignor to American Bell Telephone Company, Boston, Mass. Apparatus for transmission of messages by electricity	315,368	Apr. 7	525	134	31	95
Woods, William C., Alpha, Mo. Check-row planter	317,067	May 5	177	45	31	555
Woodward, Erastus, Somerville, and T. K. Keith, Haverhill, Mass., assignors to Pentucket Variable Stitch Sewing Machine Company, Exeter, N. H. Sewing-machine	316,927	Apr. 28	2705	704, 705	31	510
Woodward, George W., Brooklyn, N. Y. Lamp and lamp-shade	320,424	June 16	2030	533	31	1431
Woodward, Mary E., Parker, Dak. Ter. Folding crib	320,530	June 23	2549	675	31	1538
Woodworth, A. P., *et al.* (See Beam, Henry T., assignor.)						
Woolard, Jesse H. and J. L., Williamstown, N. C. Combined harrow and cultivator	315,106	Apr. 7	161	39	31	30
Woolard, Josephus L. (See Woolard, Jesse H. and J. L.)						
Woolbert, Charles W. (See Couch and Woolbert.)						
Woolbert, Edward S. (See Couch and Woolbert, assignors.)						
Wooley, Richard, Jr. (See Lynn, John G., assignor.)						
Wooli, John, San Francisco, Cal. Propeller	316,592	Apr. 28	2217	583	31	421
Woolley, Leonidas G., Kalamazoo, Mich. Electric motor	318,589	May 26	2233	597	31	957
Woolley, Leonidas G., assignor to Woolley Locomotive Electric Headlight Company, Indianapolis, Ind. Electric lamp	319,539	June 9	774	206	31	1200
Woolley, Leonidas G., assignor to Woolley Locomotive Electric Headlight Company, Indianapolis, Ind. Dynamo-electric machine	319,540	June 9	775	206	31	1200
Woolley Locomotive Electric Headlight Company. (See Woolley, Leonidas G., assignor.)						
Woolley, Richard, Jr. (See Lynn, John G., assignor.)						
Work, Gardner, Angola, Ind. Detachable rocker for chairs	315,369	Apr. 7	527	135	31	96
Worley, Thomas, New York, N. Y. Stair-rod	321,168	June 30	3007	797	31	1628
Worrall, Arthur J., Bridgeport, Conn. Corset-stay	317,605	May 12	912	234	31	697
Worsley, Samuel L., Taunton, Mass., assignor to Brown & Sharpe Manufacturing Company, Providence, R. I. Wire-feeding mechanism	320,523	June 23	2165	571, 572	31	1464
Worthen, William H., assignor to Guild & Garrison, Brooklyn, N. Y. Compressor-cylinder	317,068	May 5	178	45	31	555
Worthington, Amasa, Chicago, Ill. Sectional steam-boiler	320,035	June 16	1459	384	31	1330
Worthington, Charles C., *et al.* (See Bicknell, William A. P., assignor.)						
Worthington, Charles C., Irvington, N. Y. Safety apparatus for condensing-engines	317,069	May 5	180	45, 46	31	556
Worthington, John N., Springfield, Ohio. Shutter-worker	321,268	June 30	3130	833	31	1650
Wragg, George, Sharpsburg, Pa. Potato-digger	318,073	May 19	1540	412	31	822
Wren, William C., assignor to W. C. Benjamin, Brooklyn, N. Y. Apparatus for generating cold artificially	319,434	June 2	619	168	31	1166
Wrenn, Aurelius, *et al.* (See Whitehurst, Robert W., assignor.)						
Wrenn, McDonald L., *et al.* (See Whitehurst, Robert W., assignor.)						
Wright, Arabella G., *et al.* (See Hohenstein, Karl A., assignor.)						
Wright, Christopher C., Elkton, Md. Thill-coupling	315,455	Apr. 7	653	168	31	116
Wright, Christopher C., assignor of one-half to P. C. Stricland, Elkton, Md. Thill-coupling	317,070	May 5	182	46	31	556
Wright, E. Howard, assignor of one-half to C. T. Howard and J. W. Duxbury, Providence, R. I. Electric gas-lighter	316,428	Apr. 21	1998	525	31	374
Wright, E. Howard, assignor of one-half to C. T. Howard and J. W. Duxbury, Providence, R. I. Electric gas-lighter	316,429	Apr. 21	1998	525	31	374
Wright, Frederick K., C. W. Gage, and W. F. Hitchcock, Homer, N. Y. Positive shuttle-motion for looms	320,902	June 23	2650	703	31	1556
Wright, Lyman C., Shanesville, Ohio. Steam-washer	319,656	June 9	931	246	31	1228
Wright, Marcus L., Newton, N. J. Safety device for elevators	317,268	May 5	461	115	31	608
Wright, Robert, Philadelphia, Pa. Spinning-frame	318,936	May 26	2687	712	31	1040
Wright, Robert, Redditch, county of Worcester, England. Fish-hook	319,655	June 9	930	246	31	1228
Wright, William, New York, N. Y. Feeding air to furnaces	320,903	June 23	2651	704	31	1557
Wright, William H., Rochester, N. Y. Insulator for electric wires	317,479	May 5	748	189	31	658
Wrightsman, Mima, Harper, Kans. Ventilated flour-chest	316,593	Apr. 28	2218	583, 584	31	421
Wuillemin, David, Courgevand, Fribourg, Switzerland. Lace and making the same	315,589	Apr. 14	859	226	31	159
Wurm, Josef, New York, N. Y. Lock and latch combined	315,456	Apr. 7	654	169	31	116
Wyker, William. (See Drumm and Wyker.)						
Wyman, Horace, Worcester, Mass. Pattern-chain for looms	320,449	June 16	2064	542	31	1438
Wyman, Richard H., Evanston, Ill. Car-cover	319,944	June 9	1332	351	31	1199
Wysong, Ann A., Baltimore, Md. Ironing board and table	316,928	Apr. 28	2709	706	31	511
Xanten, F. A., *et al.* (See Kock, Christian H., assignor.)						
Yale, Charles O., Rome, N. Y. Skate	321,412	June 30	3316	884	31	1686
Yale, James H. (See France, Yale, and Beery.)						
Yale & Towne Manufacturing Company. (See Cartwright, Robert, assignor.)						
Yale & Towne Manufacturing Company. (See Towne, Henry R., assignor.)						
Yale & Towne Manufacturing Company. (See Weston, Thomas A., assignor.)						
Yapp, Thomas, Cleveland, Ohio. Can	317,957	May 12	1377	370	31	785

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Yardley, J. Martin, *et al.* (See Wilson and Palmer, assignors.)						
Yattaw, Sydney W., Mineville, N. Y. Barrel-tap	315,370	Apr. 7	528	135	31	96
Yeakel, Abraham M., Perkasie, Pa. Watch-case pendant	317,914	May 12	1330	354	31	774
Yearick, Joseph P., Toledo, Ohio. Gravity-railway	316,512	Apr. 28	2118	557	31	402
Yeiser, John C., Junction City, Ky. Car-coupling	316,213	Apr. 21	1707	448	31	323
Yelmini, Victor P., Sutter Creek, Cal. Gold-saving apparatus	319,657	June 9	931	246	31	1228
Yerkes, Edward, East Douglass, Mass., and C. Denn, Philadelphia, Pa. Machine for making axes	317,320	May 5	533	135, 136	31	621
Yingling & Brother. (See Boatman, Isaac W., assignor.)						
Yoch, Benhard, St. Louis, Mo. Mining-machine	318,337	May 19	1888	508	31	887
Yocom, James, Jr., Philadelphia, Pa. Divided casting	317,695	May 12	1030	267	31	718
Yocom, James, Jr., Philadelphia, Pa. Lubricator	320,109	June 16	1564	412	31	1348
Yohe, George N., *et al.* (See Pentz, Levi, assignor.)						
York, Levi D., Portsmouth, Ohio. Machine for straightening metal bars, &c	316,102	Apr. 21	1562	407	31	296
York, Levi D., Portsmouth, Ohio. Roller-skate	320,993	June 30	2778	738	31	1586
Yost, George W., Bellaire, Ohio. Finishing the mouths of glass-bottles, &c	317,269	May 5	462	116	31	608
Young, Albert B., *et al.* (See Kayser, Adolf, assignor.)						
Young, Alfred, *et al.* (See Mitchell, Barnard W., assignor.)						
Young, David T., Davenport, Iowa. Hook-and-ladder truck	315,690	Apr. 14	985	258	31	185
Young, Edward B., and F. E. P'Pool, Mansfield, Mo. Mail-bag	318,676	May 26	2339	624	31	978
Young, Francis M., Chicago, Ill. Making whisky	321,169	June 30	3008	.....	31	1628
Young, Harlan P., assignor of six-ninths to C. R. Kimball, A. Wheeler, A. H. Smith, F. M. Merrill, F. W. Stevens, and A. W. Moore, Lowell, Mass. Latch-lock	315,905	Apr. 7	319	78	31	58
Young, Henry, *et al.* (See Ellinwood, Augustus E., assignor.)						
Young, John. (See Hall and Young.)						
Young, John, Wheeling, W. Va. Nail	316,717	Apr. 28	2404	626	31	455
Young, John, Wheeling, W. Va. Making cut nails	318,845	May 26	2573	685	31	1018
Young, Lewis T., Philadelphia, Pa. Attachment for photographic cameras	317,915	May 12	1321	354	31	774
Young, Wesley, Dayton, Ohio. Implement for driving and clinching staples	317,480	May 5	749	189, 190	31	638
Young, Wesley, Dayton, Ohio. Hedge-fence	317,606	May 12	913	234	31	697
Young, William D., assignor to Shoenberger & Co., Pittsburg, Pa. Horseshoe-machine	315,206	Apr. 7	321	78	31	58
Youngpeter, Michael. (See Hummer, Adam, assignor.)						
Yule, George. (See Cocker and Yule.)						
Yule, George. (See Tweedy and Yule.)						
Yule, George, Newark, N. J., assignor, by mesne assignments, to Hat Curling Machine Company, Danbury, Conn. Hat-machine clutch	315,207	Apr. 7	324	78, 79	31	58
Yule, George, Newark, N. J., assignor, by mesne assignments, to Hat Curling Machine Company, Danbury, Conn. Hat-machine scale	315,208	Apr. 7	325	79	31	59
Yule, George, Newark, N. J., assignor, by mesne assignments, to Hat Curling Machine Company, Danbury, Conn. Hat-machine tool-vibrator	315,209	Apr. 7	330	80	31	59
Yunck, John A., Sharon Hill, and J. Stuertz, assignors to H. C. Terry, trustee, Philadelphia, Pa. Incandescent lamp	320,739	June 23	2439	647	31	1518
Zeigler, George W., Washington, D. C. Removable leg fastening and clamping attachment	317,270	May 5	463	116	31	608
Zeigler, George W., Washington, D. C. Combined trestle socket and clamp	318,154	May 19	1642	439	31	842
Zeigler, George W., Washington, D. C. Self-adjusting clamping device	318,338	May 19	1889	508, 509	31	887
Zeis, John W., Tiffin, Ohio. Ditching-machine	317,481	May 5	751	190	31	659
Zell, Robert R., assignor to Safety Steam Generator Company, New York, N. Y. Header for steam-boilers	321,330	June 30	3202	854	31	1665
Zeller, Louis, Massillon, Ohio. Steam-boiler	316,214	Apr. 21	1708	448	31	323
Zeller, Melancthon E., Bluffton, Ohio. Buckle	318,074	May 19	1541	413	31	822
Zellers, Mahlon M., and J. B. Miller, Kent, Ohio; said Zellers assignor to said Miller. Washer-making machine	320,330	June 16	1874	492	31	1403
Zeltmacher, George E., Brooklyn, N. Y. Belt-clasp	321,170	June 30	3009	797	31	1628
Zengerle, Joseph, Ansonia, Conn. Machine for covering wire with metal	320,321	June 16	1877	493	31	1403
Zerbe, James S., Hartwell, Ohio. Hand fire-extinguisher	320,425	June 16	2031	533	31	1432
Zerr, William B., Reading, Pa. Car-coupling	319,541	June 9	775	206	31	1200
Ziegenfus, Charles, *et al.* (See Kratzer, Wayne, assignor.)						
Zimmer, Conrad, Frankfort-on-the-Main, Prussia, Germany. Preparing and purifying wort for brewing purposes	315,876	Apr. 14	1243	324, 325	31	232
Zimmerman, Casper, Owatonna, Minn. Trunk	320,740	June 23	2440	647	31	1518
Zimmerman, Christian H., assignor of one-half to C. W. Weiser, Burbank, Ohio. Car-coupling	318,439	May 19	2020	544	31	912
Zimmerman, Lorenzo, Sherwood, Mich. Stable-cleaner	318,406	May 19	1979	532	31	904
Ziph, George H., St. Joseph, Mo. Culinary vessel	315,969	Apr. 14	1404	364	31	260
Zitlow, George, Glencoe, Minn. Combined back-strap and trace-buckle	317,600	May 12	1030	267	31	719
Zitzman, George, Bennett, Pa. Weather-strip	319,162	June 2	279	73	31	1099
Zorkowski, Abraham L., New York, N. Y., assignor to I. Newman, New Haven, Conn. Combined corset and garment supporter	315,990	Apr. 14	1405	364	31	260
Zorkowski, Abraham L., New York, N. Y., assignor to I. Newman, New Haven, Conn. Combined corset and garment supporter	317,958	May 12	1378	370	31	785
Zorn, John. (See Unger, Anton J., assignor.)						
Zschetzschingck, Hermann, Leipsic, Germany. Gas-stove	315,210	Apr. 7	333	80	31	60
Zucker & Levett Chemical Company. (See Müller, Hans J., assignor.)						
Zuydbeek, Harmanus, Brooklyn, N. Y. Toy	320,202	June 16	1677	447	31	1369
Zwillinger, Abraham, Vienna, Austria-Hungary. Apparatus for carbonizing bones, &c	320,110	June 16	1564	413	31	1348

ALPHABETICAL LIST OF PATENTEES OF DESIGNS.

Name, residence, and design.	No.	Date.	Official Gazette. Volume.	Official Gazette. Page.
Adams, Benjamin F., Brooklyn, N. Y. Bonbonnière	16,065	May 12	31	668
Alpaugh, Spencer M., *et al.* (See May, Charles A., assignor.)				
Alpaugh, Spencer M., *et al.* (See Wood, William, assignor.)				
Ams, Max, New York, N. Y. Cruet	16,066	May 5	31	521
Aughinbaugh & Baker Bros. (See Aughinbaugh and Morrow, assignors.)				
Aughinbaugh, Barnet A., and G. Morrow, assignors to Aughinbaugh & Baker Bros., Urbana, Ohio. Vehicle-body	16,086	May 12	31	668
Bailey, Charles A., Middletown, Conn. Gong for bells	16,044	Apr. 14	31	123
Barabeau, Père & Fils. (See Crooks, Ramsay, assignor.)				
Bawden, John, *et al.* (See Read and Calely, assignors.)				
Bawden, John H., *et al.* (See Read and Calely, assignors.)				
Bawo, Francis H., *et al.* (See Noussat, François A., assignor.)				
Bennett, Edward E. (See Norman and Bennett.)				
Bennett, Edwin, Baltimore, Md. Pitcher	16,079	May 12	31	668
Bigelow Carpet Company. (See Campbell, Jacob B., assignor.)				
Bigelow Carpet Company. (See Halliday, Arthur L., assignor.)				
Bigelow Carpet Company. (See Komori, Norie, assignor.)				
Bigelow Carpet Company. (See Loudon, Milton R., assignor.)				
Bigelow Carpet Company. (See McCallum, William, assignor.)				
Bigelow Carpet Company. (See Smith, Frank E., assignor.)				
Blair, Joseph, Philadelphia, Pa. Curtain fabric	16,034	Apr. 7	31	1
Brehmer, Henry, Stapleton, assignor to D. W. Bruce, New York, N. Y. Type	16,067	May 5	31	521
Brothwell, John G., assignor to Turner & Seymour Manufacturing Company, Torrington, Conn. Window-shade pull	16,035, 16,036	Apr. 14	31	123
Bruce, David W. (See Brehmer, Henry, assignor.)				
Calely, Edward L. (See Read and Calely.)				
Campbell, Jacob B., Yonkers, N. Y., assignor to Bigelow Carpet Company, Clinton, Mass. Carpet	16,047	Apr. 14	31	124
Candee & Co., L. (See Elliott, Lewis, assignor.)				
Capitain, William F., Chicago, Ill. Font of printing-type	16,101 to 16,106	May 26	31	920
Capitain, William F., assignor to Marder, Luse & Co., Chicago, Ill. Type	16,122	June 2	31	1048
Celluloid Brush Company. (See Thurber, Charles H., assignor.)				
Combs, Gilbert, *et al.* (See Read and Calely, assignors.)				
Cooley, Ralph B., Brooklyn, N. Y. Ten-pin	16,068	May 5	31	521
Cousins, Chastine R., Swansonville, Va. Tobacco-knife	16,067	May 12	31	668
Cox Stove Company, Abram. (See Page, J. Austin, assignor.)				
Crane, Zenas, Jr., Dalton, Mass. Writing-paper	16,060	May 12	31	668
Crooks, Ramsay, New York, N. Y., assignor to Barabeau, Père & Fils, Perigueux, France. Bottle or jar	16,069	May 5	31	521
Donnell, John W., St. Louis, Mo. Bottle	16,016	Apr. 7	31	1
Dotter, Charles T., *et al.* (See Noussat, François A., assignor.)				
Dreyfus, Bernhard, New York, N. Y. Pendant	16,070	May 5	31	521
Drown, William A., Philadelphia, Pa. Parasol	16,088	May 12	31	668
Dudgeon, Cathrine, New York, N. Y. Necktie	16,017	Apr. 7	31	1
Elizabeth Oil Cloth Company. (See McClinchie, Uriah, assignor.)				
Elliott, Lewis, assignor to L. Candee & Co., New Haven, Conn. Ornamentation of india-rubber soles	16,018	Apr. 7	31	1
Ennis & Co., George W. (See Hemming, Richard P., assignor.)				
Euston, Alexander, St. Louis, Mo. Sample-shot case	16,071	May 5	31	521
Finnegan, John, Philadelphia, Pa. Saucepan-handle	16,053	Apr. 21	31	267
Foote, Julius M., Newark, N. J. Carriage-step	16,138	June 30	31	1564
Fraser, Alexander, New Glasgow, Nova Scotia, Canada. Lamp-chimney heater	16,090	May 19	31	794
Fuller, Levi K., Battleborough, Vt. Organ-case	16,134	June 23	31	1448
Giesecke, George F., Leipsic, Saxony, Germany. Type-border	16,089	May 12	31	668
Goodsell, John F. (See Tompkins and Goodsell.)				
Gould, Robert S., East Orange, N. J. Curtain-pole or stair-rod	16,054	Apr. 21	31	267
Graham, John C., Philadelphia, Pa. Gimp	16,091, 16,092	May 19	31	794
Graham, William H., Cuero, Tex. Watch-chain	16,061	May 12	31	668
Greenfield, Nelson. (See Schwarzschild and Greenfield.)				
Grout, L. Solon, Chicago, Ill. Sign	16,093	May 19	31	794
Halliday, Arthur L., Yonkers, N. Y., assignor to Bigelow Carpet Company, Clinton, Mass. Carpet	16,019	Apr. 7	31	1
Halliday, Arthur L., Yonkers, N. Y., assignor to Bigelow Carpet Company, Clinton, Mass. Carpet	16,038	Apr. 14	31	123
Halliday, Arthur L., Yonkers, N. Y., assignor to Bigelow Carpet Company, Clinton, Mass. Carpet	16,052	Apr. 21	31	267
Halliday, Arthur L., Yonkers, N. Y., assignor to Bigelow Carpet Company, Clinton, Mass. Carpet	16,107	May 26	31	920
Harris, William, Baltimore, Md. Card-receiver	16,072	May 5	31	521
Hartshorn, Stewart, Millburn, N. J. Bracket for shade-rollers	16,037	Apr. 14	31	123
Haviland, Charles E., Limoges, France. Handle for dishes	16,048	Apr. 14	31	124
Haviland, Charles E., Limoges, France. Handle for dishes	16,060	Apr. 28	31	382
Haviland, Edwin, Plainfield, N. J. Tea-set	16,073	May 5	31	521
Hemming, Richard P., assignor to G. W. Ennis & Co., Philadelphia, Pa. Rug	16,094	May 19	31	794
Hemming, Richard P., assignor to G. W. Ennis & Co., Philadelphia, Pa. Curtain fabric	16,108	May 26	31	920
Hodgson, Joseph, Philadelphia, Pa. Fabric for seat-coverings	16,051	Apr. 21	31	267
Huestis, Harvey, Providence, R. I. Ring-setting	16,136	June 16	31	1308
Hull, Nicholas A., Peru, Ind. Sewing-machine case	16,039, 16,040	Apr. 14	31	123
Jackson, Edwin A., New York, N. Y. Fire-place front	16,135, 16,136	June 23	31	1448
Jennings, Abraham G., assignor to A. G. Jennings & Sons, Brooklyn, N. Y. Parasol-covering	16,055	Apr. 21	31	267

Alphabetical list of patentees of designs, April to June, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Jenninga & Sons, Abraham G. (See Jenninga, Abraham G., assignor.)				
Jerome, Luther E., assignor to New Haven Clock Company, New Haven, Conn. Clock-case	16,082	May 12	31	668
Johnson, Henry C., El Dorado, Ark. Buckle	16,123	June 2	31	1048
Kaldenberg, Frederick R., New York, N. Y. Pipe-stem	16,095	May 19	31	794
Kling, Orlando, Idaho Springs, Colo. Watch and clock dial	16,045	Apr. 14	31	123
Komori, Noric, New York, N. Y., assignor to Bigelow Carpet Company, Clinton, Mass. Carpet	16,041	Apr. 14	31	123
Komori, Noric, New York, N. Y., assignor to Bigelow Carpet Company, Clinton, Mass. Carpet	16,056	Apr. 21	31	267
Komori, Noric, New York, N. Y., assignor to Bigelow Carpet Company, Clinton, Mass. Carpet	16,074	May 5	31	521
Ladd, George W., Providence, R. I. Watch-case	16,127	June 16	31	1308
Little, Andrew, New York, N. Y. Font of type	16,061	Apr. 28	31	382
Little, Andrew, New York, N. Y. Type	16,124	June 9	31	1174
Lorenz, Friedrich C., Milwaukee, Wis. Child's sled	16,083	May 12	31	668
Loudon, Milton R., Jersey City, N. J., assignor to Bigelow Carpet Company, Clinton, Mass. Carpet	16,049	Apr. 14	31	124
Magowan, Frank A., *et al.* (See May, Charles A., assignor.)				
Magowan, Frank A., *et al.* (See Wood, William, assignor.)				
Mansur, Henry W., Boston, Mass. Hopper for closets	16,139	June 30	31	1564
Marder, Luse & Co. (See Capitain, William F., assignor.)				
May, Charles A., assignor to S. M. Alpaugh and F. A. Magowan, Trenton, N. J. Decorative pattern for dishes	16,042	Apr. 14	31	123
McCallum, William, Yonkers, N. Y., assignor to Bigelow Carpet Company, Clinton, Mass. Carpet	16,024	Apr. 7	31	1
McClinchie, Uriah, New York, N. Y., assignor to Elizabeth Oil Cloth Company, Elizabeth, N. J. Enameled cloth	16,096	May 19	31	794
Melville, David G., Medford, assignor to Roxbury Carpet Company, Boston, Mass. Carpet	16,137	June 23	31	1448
Memleb, Edward, New York, N. Y. Fringe-heading	16,097	May 19	31	794
Meyer, Charles T. and V. E., Bergen, N. J., assignors to E. C. Sampson, New York, N. Y. Oil-cloth	16,020 to 16,023	Apr. 7	31	1
Meyer, Charles T. and V. E., Bergen, N. J., assignors to E. C. Sampson, New York, N. Y. Oil-cloth	16,109 to 16,112	May 26	31	920
Meyer, Charles T. and V. E., Bergen, N. J., assignors to E. C. Sampson, New York, N. Y. Oil-cloth	16,115 to 15,119	June 2	31	1048
Meyer, Victor E. (See Meyer, Charles T. and V. E.)				
Miller, Fredrick C., Newport, Ky. Coupling-reach for roller-skates	16,128 to 16,130	June 16	31	1308
Morris, Edward L., Boston, Mass. Toy savings-bank	16,120	June 2	31	1048
Morrow, George. (See Anghinbaugh and Morrow.)				
Mueller, Julius, Wilmington, N. C., assignor to C. G. and W. J. Shepard, Buffalo, N. Y. Toy savings-bank	16,121	June 2	31	1048
Myers, Charles H., Phelps, N. Y. Thermometer-back	16,140 16,141	June 30	31	1564
Namur, Auguste, assignor to Tuttle & Bailey Manufacturing Company, New York, N. Y. Hot-air-register front	16,057 to 16,059	Apr. 21	31	267
New Haven Clock Company. (See Jerome, Luther E., assignor.)				
Norman, Lawrence F., and E. E. Bennett, Boston, Mass. Rubber sole	16,025	Apr. 7	31	1
Nouaat, François A., Limoges, France, assignor to F. H. Bawo and C. T. Dotter, New York, N. Y. Table-ware	16,062	Apr. 28	31	382
Page, J. Austin, assignor to A. Cox Stove Company, Philadelphia, Pa. Ornamental fire-place lining	16,131 16,132	June 16	31	1308
Pountney, William, Port Jervis, N. Y. Bottle	16,026	Apr. 7	31	1
Pountney, William, Port Jervis, N. Y. Bottle or jug	16,027	Apr. 7	31	1
Read, Joseph A., and E. L. Caley, Philadelphia, Pa., assignors to G. Combe, J. and J. H. Bawden, Freehold, N. J. Fire-place grate	16,133	June 16	31	1308
Read, Joseph A., and E. L. Caley, Philadelphia, Pa., assignors to G. Combe, J. and J. H. Bawden, Freehold, N. J. Fire-place grate	16,142	June 30	31	1564
Rosenbaum, Henry M., Philadelphia, Pa. Ace of spades for cards	16,075	May 5	31	521
Roxbury Carpet Company. (See Melville, David G., assignor.)				
Roxbury Carpet Company. (See Stearns, Thomas J., assignor.)				
Sampson, Edward C. (See Meyer, Charles T. and V. E., assignors.)				
Schreppel, Theodore, New York, N. Y. Ornamentation of picture-frames	16,028	Apr. 7	31	1
Schwarzschild, August, and N. Greenfield, New York, N. Y. Candy or confectionery	16,029 16,030	Apr. 7	31	1
Shepard, Charles G., *et al.* (See Mueller, Julius, assignor.)				
Shepard, Walter J., *et al.* (See Mueller, Julius, assignor.)				
Sigourney, Frank W., Bristol, Conn. Cigar-holder	16,125	June 9	31	1174
Smith, Frank E., New York, N. Y., assignor to Bigelow Carpet Company, Clinton, Mass. Carpet	16,050	Apr. 14	31	124
Smith, Friend W., Bridgeport, Conn. Leaves of butt-hinges	16,065	Apr. 28	31	382
Smith, Thomas W., London, England. Font of type	16,032	Apr. 7	31	1
Stearns, Edward C., Syracuse, N. Y. Casing for pulleys	16,031	Apr. 7	31	1
Stearns, Thomas J., assignor to Roxbury Carpet Company, Boston, Mass. Carpet	16,063 16,064	Apr. 28	31	382
Stearns, Thomas J., assignor to Roxbury Carpet Company, Boston, Mass. Carpet	16,098	May 19	31	794
Swanton, William H., Cambridge, Mass. Stove or range	16,077	May 5	31	521
Thegen, William, Philadelphia, Pa. Badge	16,099	May 19	31	794
Thiele, Henry, Milwaukee, Wis. Rag carpet	16,084	May 12	31	668
Thomas, George C., Waterbury, Conn. Lamp-body	16,078	May 5	31	521
Thurber, Charles H., Brooklyn, assignor to Celluloid Brush Company, New York, N. Y. Ornamentation of brush-handles	16,100	May 19	31	794
Tompkins, Samuel E., and J. F. Goodsell, Newark, N. J. Ornamentation for harness	16,114	May 26	31	920
Turner & Seymour Manufacturing Company. (See Brothwell, John G., assignor.)				
Tuttle & Bailey Manufacturing Company. (See Namur, Auguste, assignor.)				
Underhill, Emily C., New York, N. Y. Medicine-spoon	16,033	Apr. 7	31	1
Van Alstine, Cornelius C. E., Paterson, N. J. Hair-crimp	16,143	June 30	31	1564
Voorhees, Luther C., New York, N. Y. Buckle-frame	16,046	Apr. 14	31	123
Weir, Daniel J., New York, N. Y. Pulley-frame	16,113	May 26	31	920
Wood, William, Lawrence, Mercer county, assignor to S. M. Alpaugh and F. A. Magowan, Trenton, N. J. Decorative pattern for dishes	16,043	Apr. 14	31	123
Wynkoop, Henry, Philadelphia, Pa. Gimp	16,076	May 5	31	521
Wynkoop, Henry, Philadelphia, Pa. Gimp	16,144	June 30	31	1564

ALPHABETICAL LIST OF REGISTRANTS OF TRADE-MARKS.

Name, residence, and title.	No.	Date.	Official Gazette. Volume.	Page.
Acme Oil Company, Olean and New York, N. Y. Illuminating-oil	12,309	June 16	31	1308
Adams & Sons, New York, N. Y. Chewing-gum	12,175	Apr. 28	31	382
Adams & Sons, New York, N. Y. Chewing-gum	12,298	June 9	31	1174
Adams & Sons, New York, N. Y. Chewing-gum	12,343	June 30	31	1564
Allen, Merrill & Co., Washington, D. C. Remedy for the cure of fever and ague and diseases caused by malaria	12,261	May 26	31	920
American Writing Machine Company, New York, N. Y. Writing-machines	12,147	Apr. 21	31	267
American Writing Machine Company, New York, N. Y. Writing-machines	12,168	Apr. 21	31	268
Austin, Nichols & Co., New York, N. Y. Crushed hominy	12,330	June 23	31	1448
Babillion, John, Detroit, Mich. Mixed tea	12,199	May 5	31	522
Babillion, John, Detroit, Mich. Mixed tea	12,200	May 5	31	522
Bache & Co., Semon, New York, N. Y. Mirror-plates	12,299	June 9	31	1174
Ballard & Co., Stephen, New York, N. Y. Certain-named rubber goods	12,083	Apr. 7	31	2
Ballard, James F., St. Louis, Mo. Liniment	12,331	June 23	31	1448
Barkley & Co., J. C., Baltimore, Md. Roasted coffee, ground or unground	12,296	May 12	31	668
Barnet, Joaquin, Havana, Cuba. Peptone-wine	12,071	Apr. 7	31	1
Barton, William E., Syracuse, N. Y. Cigars, smoking and chewing tobacco, and cigarettes	12,297	June 2	31	1048
Bates, Reed & Cooley, New York, N. Y. Plain woven silks	12,084	Apr. 7	31	2
Beck & Co., Fr., New York, N. Y. Wall and ceiling paper-hangings	12,240	May 19	31	794
Bendiner, Samuel J., New York, N. Y. Compound preparation of cod-liver oil	12,133	Apr. 14	31	124
Bentley, Charles E., New York, N. Y. Silk braid	12,241	May 19	31	794
Bermingham, Elijah F., New York, N. Y. Shirts	12,085	Apr. 7	31	2
Bermingham, Elijah F., New York, N. Y. Furnishing-goods and underwear	12,262	May 26	31	920
Biechele, Joseph, Canton, Ohio. Hard soap	12,300	June 9	31	1174
Birch & Co., J. S., New York, N. Y. Watch-keys	12,114	Apr. 14	31	124
Bird, Alfred F., Philadelphia, Pa. Blanc-mange powder	12,115	Apr. 14	31	124
Bird, Alfred F., Philadelphia, Pa. Medicinal powders	12,116	Apr. 14	31	124
Bird, Alfred F., Philadelphia, Pa. Egg-powder	12,117	Apr. 14	31	124
Blanc, Jerome E., New York, N. Y. Vegetable depurative	12,072	Apr. 7	31	2
Bloomingdale & Rich, New York, N. Y. Hair-tonic	12,344	June 30	31	1564
Boker & Co., Hermann, New York, N. Y. Shotguns and rifles	12,156	Apr. 21	31	268
Boker & Co., Hermann, New York, N. Y. Cutlery	12,323	June 16	31	1308
Booth & Kent, New York and Gloversville, N. Y. Shoe and glove leather	12,176	Apr. 28	31	382
Born, Jacob, New Orleans, La. Stoves and ranges for cooking and heating purposes	12,332	June 23	31	1448
Boscango, Gustave, New York, N. Y. Fabrics for ladies' and children's dresses	12,134	Apr. 14	31	124
Boyle, John, Brooklyn, N. Y. Liniment	12,073	Apr. 7	31	2
Brinkmann, Augustus H., Baltimore, Md. Dress-shields	12,345	June 30	31	1564
Brockner, Washington, and L. E. Evans, New York, N. Y. Wire-netting for fencing, cages, &c	12,201	May 5	31	522
Brotherhood, James, Stratford, Ontario, Canada. Instruments for exercising the fingers, hands, and wrists	12,310	June 16	31	1308
Brussels Tapestry Company, New York, N. Y. Textile fabrics having woven figures thereon	12,285	June 2	31	1048
Bullard & Foster, Keene, N. H. Natural mineral-spring water	12,202	May 5	31	522
Butler Paper Company, J. W., Chicago, Ill. White or light-colored printing, writing, and wrapping paper	12,333	June 23	31	1448
Button, Helen, Norwich, Conn. Medicine for diseases of the throat and lungs	12,242	May 19	31	794
Button & Ottley, New York, N. Y. Shoe and leather dressing and blacking	12,243	May 19	31	794
California Fig Syrup Company, Reno, Nev., and San Francisco, Cal. Liquid purgative compounds	12,118	Apr. 14	31	124
Cammeyer, Alfred J., New York, N. Y. Boots, shoes, and slippers	12,334	June 23	31	1448
Canfield Rubber Company, Bridgeport, Conn. Dress-shields	12,244	May 19	31	794
Canton Paint and Oil Company, Saco, Me., and Boston, Mass. Oil-dressing for leather and fabrics	12,169	Apr. 21	31	268
Carnrick, John, New York, N. Y. Certain preparations of cod-liver oil	12,177	Apr. 28	31	382
Case & Willard Thresher Company, Battle Creek, Mich. Thrashing-machines and engines	12,170	Apr. 21	31	268
Caswell, Livermore & Co., Boston, Mass. Boneless cod-fish	12,119	Apr. 14	31	124
Caswell, Livermore & Co., Boston, Mass. Boneless fish	12,135	Apr. 14	31	124
Celluloid Novelty Company, New York, N. Y. Certain cuffs, collars, and shirt-fronts	12,157	Apr. 21	31	268
Chanteaud, Antoine C., Paris, France. A medicine, the vehicle of which is in granular form	12,346	June 30	31	1564
Chester Oil Company, Philadelphia, Pa. Refined petroleum	12,252	May 19	31	794
Church Finish Company, Grand Rapids, Mich. Compound for coating walls	12,086	Apr. 7	31	2
Clark & Keen, Philadelphia, Pa. Worsted cloakings	12,301	June 9	31	1174
Clark Thread Company, Newark, N. J. Spool-cotton	12,158	Apr. 21	31	268
Clemson, George N., Middletown, N. Y. Bracket, hack, and meat saws	12,263	May 26	31	920
Clotworthy, William P., Baltimore, Md. Baking-powder	12,120	Apr. 14	31	124
Collins Brothers Drug Company, St. Louis, Mo. Root and herb cordial	12,074	Apr. 7	31	2
Collins Brothers Drug Company, St. Louis, Mo. Lemon ginger, a remedy for coughs, &c	12,087	Apr. 7	31	2
Commercial Oil and Soap Company, Parkersburg, W. Va. Laundry-soap	12,286	June 2	31	1048
Comstock, William H., Morristown, N. Y. Pills	12,277	June 2	31	1048
Comstock, William H., Morristown, N. Y. Pills	12,278	June 2	31	1048
Condell, William, St. Louis, Mo. Baking-powder	12,253	May 19	31	794
Copeland, Henry, Rich Square, N. C. Powders for the cure of cholera in animals and fowls	12,347	June 30	31	1564
Cox Shoe Manufacturing Company, P., Rochester, N. Y. Boots and shoes for misses and children	12,203	May 5	31	522
Crocker Manufacturing Company, Holyoke, Mass. Matrix-paper	12,264	May 26	31	920
Croft & Allen, Philadelphia, Pa. Preserved cocoanut	12,359	June 30	31	1564
Culter & Proctor Stove Company, Peoria, Ill. Cook-stoves	12,311	June 16	31	1308
Danheiser Bros. & Co., Chicago, Ill. Chewing-gums	12,204	May 5	31	522
Danner, August, Allegheny, Pa. Liquid medicines for the cure of impure blood or deranged bowels	12,335	June 23	31	1448
Danville Refining Company, Danville, Ill. Maize-starch	12,360	June 30	31	1564
Davis & Co., Curtis, Boston, Mass. Hard soap	12,279	June 2	31	1048
Day, Jennie W. (See Slocomb and Day.)				
De Montebello & Co., Alfred, Château de Mareuil Sur Ay, Marne, France. Champagne-wine	12,088	Apr. 7	31	2
De Susini, Joseph, New York, N. Y. Cigars and all other manufactured tobacco	12,138	Apr. 14	31	124
Desbrough, George, Utica, N. Y. French uterine suppositories	12,159	Apr. 21	31	268

Alphabetical list of registrants of trade-marks, April to June, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Diamond Roller Skate Company, Richmond, Ind. Roller-skates	12,075	Apr. 7	31	2
Dietz, Robert E., New York, N. Y. Portable stoves	12,089	Apr. 7	31	2
Domestic Sewing Machine Company, New York, N. Y. Sewing-machines and attachments	12,254	May 19	31	794
Duffy Malt Whiskey Company, Baltimore, Md. Malt whisky	12,121	Apr. 14	31	124
Dunn, George V., New York, N. Y. Cure for malarial diseases	12,280	June 2	31	1048
Eagar, Martin F., Halifax, Nova Scotia, Canada. Remedy for pulmonary diseases	12,205	May 5	31	522
Eagle Pencil Company, New York, N. Y. Lead-pencils and pen-holders	12,090	Apr. 7	31	2
Eagle Pencil Company, New York, N. Y. Lead-pencils	12,091	Apr. 7	31	2
Eagle Pencil Company, New York, N. Y. Lead-pencils	12,092	Apr. 7	31	2
Eagle Pencil Company, New York, N. Y. Lead-pencils	12,093	Apr. 7	31	2
Eagle Pencil Company, New York, N. Y. Lead-pencils	12,094	Apr. 7	31	2
Eagle Pencil Company, New York, N. Y. Lead-pencils and pen-holders	12,095	Apr. 7	31	2
Eagle Pencil Company, New York, N. Y. Knives	12,122	Apr. 14	31	124
Earhart, George W., Columbus, Ohio. Coffee, either green or roasted	12,096	Apr. 7	31	2
Elson, Hall & Co., Chicago, Ill. Rubber clothing and oil-clothing	12,148	Apr. 21	31	267
Emmitt, James, Waverly, Ohio. Whiskies	12,265	May 26	31	920
Empire Soap Company, St. Louis, Mo. Toilet and laundry soap	12,149	Apr. 21	31	267
Empire Soap Company, St. Louis, Mo. Laundry and other soaps for scrubbing purposes	12,178	Apr. 28	31	382
Empire Soap Company, St. Louis, Mo. Laundry and other soaps	12,179	Apr. 28	31	382
Empire Soap Company, St. Louis, Mo. Laundry and other soaps	12,180	Apr. 28	31	382
Empire Soap Company, St. Louis, Mo. Laundry and other soaps	12,181	Apr. 28	31	382
Empire Soap Company, St. Louis, Mo. Laundry and other soaps	12,206	May 5	31	522
Esterbrook Steel Pen Manufacturing Company, Camden, N. J. Metallic pens	12,227	May 12	31	668
Esterbrook Steel Pen Manufacturing Company, Camden, N. J. Metallic pens	12,228	May 12	31	668
Evans, E. M., Palmyra, Ohio. Cough-medicine	12,245	May 19	31	794
Evans, Lemuel E. (See Brockner and Evans.)				
Fairbank & Co., N. K., Chicago, Ill. Laundry-soap	12,208	May 5	31	522
Fairbank & Co., N. K., Chicago, Ill. Family soaps	12,254	May 19	31	794
Fall River Bleachery, Fall River, Mass. Bleached cotton goods	12,207	May 5	31	522
Fearon, Low & Co., New York, N. Y. Gray and bleached sheetings, shirtings, drills, and jeans	12,302	June 9	31	1174
Feigner & Son, F. W., Baltimore, Md. Smoking and chewing tobacco, snuff, cigars, cigarettes, and cheroots	12,287	June 2	31	1048
Fisher & Wise, Boston, Mass. Wheat-flour	12,324	June 16	31	1308
Fisher & Wise, Boston, Mass. Wheat-flour	12,348	June 30	31	1564
Florida Wine Company, Philadelphia, Pa. Orange-wine	12,139	Apr. 14	31	124
Forbes, J. P., and F. A. Plaisted, San Francisco, Cal. Certain natural mineral water	12,209	May 5	31	522
Fowler, George, Kansas City, Kans. Cured pork	12,140	Apr. 14	31	124
Frank & Gutmann, New York, N. Y. Dress-shields	12,182	Apr. 28	31	382
Frishmuth Bro. & Co., Philadelphia, Pa. Smoking and chewing tobacco	12,229	May 12	31	668
Fuchs, Gustav, Chicago, Ill. Cigars, cigarettes, and manufactured tobacco	12,141	Apr. 14	31	124
Geiss, Adolph, and L. L. Kleine, Chicago, Ill. Copper or brass kerosene-lamps	12,361	June 30	31	1564
Gerstle, L., Union Depot, Tenn. Certain named proprietary medicines	12,230	May 12	31	668
Gillett, Egbert W., Chicago, Ill. Yeast-cakes	12,315	June 16	31	1308
Ginter, Lewis, Richmond, Va. Cigarettes and smoking-tobacco	12,161	Apr. 21	31	268
Globe Files Company, Cincinnati, Ohio. Paper-files, desks, and other appliances and receptacles for papers, documents, &c.	12,183	Apr. 28	31	382
Globe Files Company, Cincinnati, Ohio. Paper-files and other receptacles for papers, documents, &c.	12,184	Apr. 28	31	382
Gowans & Stover, Buffalo, N. Y. Toilet, bath, and laundry soap	12,210	May 5	31	522
Hammond, Caleb L., North Java, N. Y. Medicine to be used externally and internally	12,076	Apr. 7	31	2
Hand, David B., Scranton, Pa. Medicinal remedies for children	12,303	June 9	31	1174
Hanes & Co., P. H., Winston, N. C. Chewing-tobacco	12,211	May 5	31	522
Harris, Isaac, New York, N. Y. Cigars	12,288	June 2	31	1048
Hartmann, Le Doux & Maecker, New York, N. Y. Prepared paint	12,185	Apr. 28	31	382
Hartmann, Le Doux & Maecker, New York, N. Y. Prepared paint	12,336	June 23	31	1448
Harvey & Co., William P., Baltimore, Md. Cheese	12,123	Apr. 14	31	124
Haxall, William N., Baltimore, Md. Oil-producing seeds and their named products	12,325	June 16	31	1308
Herbst Brothers, New York, N. Y. Cotton fabrics	12,077	Apr. 7	31	2
Hercules Manufacturing Company, Cardington, Ohio. Wheat scourers, separators, and smutters	12,186	Apr. 28	31	382
Hickson, Richard L., Danville, Va. Guano	12,304	June 9	31	1174
Hirsh & Co., I. E., Newark, N. J. Buttons	12,097	Apr. 7	31	2
Hofmann, Alves M., G., and V., Chicago, Ill. Bottled soda-water	12,305	June 9	31	1174
Hofmann, George. (See Hofmann, Alves M., G., and V.)				
Hofmann, Valentine. (See Hofmann, Alves M., G., and V.)				
Holmes & Coutts, New York, N. Y. Biscuits, crackers, and wafers	12,289	June 2	31	1048
Hull, Boesger & Co., Cleveland, Ohio. Fine-cut chewing, granulated, and other kinds of smoking-tobacco, cigars, and cigarettes	12,212	May 5	31	522
Huston, Frank L., Providence, R. I. Top rolls for cotton, silk, and like manufacture	12,098	Apr. 7	31	2
Hyde & Burton, New York, N. Y. Black cotton fabrics	12,124	Apr. 14	31	124
Hyde & Burton, New York, N. Y. Certain cotton textile fabrics	12,162	Apr. 21	31	268
Jackson Company, Nashua, N. H. All kinds of cotton sheetings and shirtings	12,187	Apr. 28	31	382
Jackson Company, Nashua, N. H. All kinds of cotton sheetings and shirtings	12,188	Apr. 28	31	382
Jacobsen, Charles, Washington, D. C. Beers, porters, ales, and other malt liquors	12,306	June 16	31	1308
Jaeger's Sanitary Woollen System Company, (limited,) London, England. Furniture	12,099	Apr. 7	31	2
Jaeger's Sanitary Woollen System Company, (limited,) London, England. Certain-named woolen wearing-apparel	12,290	June 2	31	1048
Jaeger's Sanitary Woollen System Company, (limited,) London, England. Certain-named woolen bedding	12,291	June 2	31	1048
Jansen, McClurg & Co., Chicago, Ill. Steel pens and lead-pencils	12,231	May 12	31	668
Jay Eye See Liniment Company, San Francisco, Cal. Liniment for external use	12,189	Apr. 28	31	382
Jeserich, E., Kansas City, Mo. Medicine in capsules	12,213	May 5	31	522
Jeserich, Emil, Kansas City, Mo. Bitters	12,362	June 30	31	1564
Jones Bros., New York, N. Y. Baking-powder	12,190	Apr. 28	31	382
Jones & Co., New York, N. Y. Flour	12,191	Apr. 28	31	382
Kearsarge Peg Company, Bartlett, N. H. Pegs for boots and shoes	12,192	Apr. 28	31	382
Kennedy Company, F. A., Cambridge, Mass. Crackers, biscuits, wafers, cakes, and kindred articles	12,150	Apr. 21	31	267
Kennedy Company, F. A., Cambridge, Mass. Crackers, wafers, biscuits, cakes, and kindred articles	12,151	Apr. 21	31	268
Kennedy Company, F. A., Cambridge, Mass. Crackers, biscuits, wafers, cakes, and kindred articles	12,152	Apr. 21	31	268
Kennedy Company, F. A., Cambridge, Mass. Crackers, biscuits, wafers, cakes, and kindred articles	12,153	Apr. 21	31	268
Kidney, Alfred H., Philadelphia, Pa. Volatile disinfecting and deodorising solution	12,232	May 12	31	668
Klauberg & Bros., C., New York, N. Y. Razors	12,125	Apr. 14	31	124

Alphabetical list of registrants of trade-marks, April to June, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Kleine, Leonard L. (See Geiss and Kleine.)				
Knights of Labor Co operative Hat Company, Haverhill, Mass. Fur and wool hats	12,363	June 30	31	1564
Koch Microcide Company, (limited,) Philadelphia, Pa. Deodorizers and disinfectants	12,126	Apr. 14	31	124
Kunzé, Richard E., New York, N. Y. Medicinal tonic	12,100	Apr. 7	31	2
Landreth, Oliver, Philadelphia, Pa. All kinds of field, garden, and flower seeds, excepting clover and timothy seeds	12,327	June 16	31	1308
Landreth, Oliver, Philadelphia, Pa. All kinds of field, garden, grain, grass, tree, shrub, and flower seeds	12,337	June 23	31	1448
Lange, Ignatz, Chicago, Ill. Cough-tea	12,266	May 26	31	920
Leuderbach, Bert S., Newark, N. J. Certain medicinal compound for diseases of the throat and lungs	12,281	June 2	31	1048
L'Epiattenier, Virgile, New York, N. Y. Balsam or salve	12,338	June 23	31	1448
Leffingwell, Charles W., Chicago, Ill. Newspapers	12,193	Apr. 28	31	382
Levey & Co., Fredk. H., New York, N. Y. Printing-ink	12,306	June 9	31	1174
Liebig's Extract of Meat Company, (limited,) London, England, Fray Bentos, Uruguay, and Magdalena, Argentine Republic. Extract of meat	12,349	June 30	31	1564
Liebig's Extract of Meat Company, (limited,) London, England, Fray Bentos, Uruguay, and Magdalena, Argentine Republic. Extract of meat	12,350	June 30	31	1564
Liebig's Extract of Meat Company, (limited,) London, England, Fray Bentos, Uruguay, and Magdalena, Argentine Republic. Extract of meat	12,351	June 30	31	1564
Liston Beef Company, Chicago, Ill. Fluid extract of beef	12,101	Apr. 7	31	2
Liston Beef Company, Chicago, Ill. Liston's extract of beef	12,102	Apr. 7	31	2
Little, Henry W., Lewiston, Idaho Ter. Remedy for coughs, colds, &c.	12,233	May 12	31	668
Lock Seam Elbow Company, Indianapolis, Ind. Certain stove-pipe elbows	12,103	Apr. 7	31	2
Loonen, Charles, Paris, France. Toilet-brushes	12,214	May 5	31	522
Lord & Taylor, New York, N. Y. Stockings and underwear	12,104	Apr. 7	31	2
Lord & Taylor, New York, N. Y. Stockings and underwear	12,105	Apr. 7	31	2
Lucas, John, Philadelphia, Pa. Paints	12,246	May 19	31	794
Lucas, John, Philadelphia, Pa. Paints	12,247	May 19	31	794
Macbeth, George A., Pittsburg, Pa. Lamp-chimneys	12,163	Apr. 21	31	268
Macbeth, George A., Pittsburg, Pa. Lamp-chimneys	12,164	Apr. 21	31	268
Macintosh & Co., Chas., Manchester, county of Lancaster, and London, county of Middlesex, England. Certain named rubber articles of a pliable character	12,328	June 16	31	1308
Martin, Stephen E., Burlington, Vt. Medicines for diseases of the blood and nerves	12,312	June 16	31	1308
Mathias, Henry R., Athens, Ohio. Turbine water-wheel	12,316	June 16	31	1308
Mathieu, Jean A., Detroit, Mich., and Philadelphia, Pa. Disinfecting or deodorizing compounds or fluids	12,267	May 26	31	920
Mathieu, Jean A., Detroit, Mich., and Philadelphia, Pa. Disinfecting or deodorizing compounds or fluids	12,292	June 2	31	1048
McBride, S. W., deceased; S. F. McBride and A. D. Williamson, Chicago, Ill., administrators. Toilet-soap	12,364	June 30	31	1564
McBride, Susan F., *et al.*, administrators. (See McBride, S. W.)				
McConnell, Luther W., Waukesha, Wis. Certain natural mineral water	12,217	May 5	31	522
McMullen & Co., Thomas, New York, N. Y. Pale ale	12,282	June 2	31	1048
Meriam & Morgan Paraffine Company, Cleveland, Ohio. Lubricating-oil and axle-grease	12,256	May 19	31	794
Mexican Medicine Company, Austin, Tex. Blood-purifying compounds	12,127	Apr. 14	31	124
Meyer, Henry W., Brooklyn, N. Y. Smoking and chewing tobacco, cigars, and cigarettes	12,215	May 5	31	522
Meyer, Henry W., Brooklyn, N. Y. Smoking and chewing tobacco, cigars, and cigarettes	12,216	May 5	31	522
Meyer, Henry W., Brooklyn, N. Y. Smoking and chewing tobacco	12,352	June 30	31	1564
Moody, Harry L., New York, N. Y. Medicine for the prevention and cure of seasickness	12,194	Apr. 28	31	382
Morningstar, J., New York, N. Y. Candy	12,078	Apr. 7	31	2
Mourilyan, Heimann & Co., Yokohama and Hiogo, Japan. Japan silks	12,317	June 16	31	1308
Nachfolger, S. Berg, Dresden, Saxony, Germany, and Korotscha and Berditscheff, Russia. White and yellow of egg preserve and egg albumen	12,142	Apr. 14	31	124
Naegele, Eugene, Philadelphia, Pa. Gold, silver, nickel, and other watches, and eight-day and other clocks	12,079	Apr. 7	31	2
Naegele, Eugene, Philadelphia, Pa. Articles of jewelry	12,128	Apr. 14	31	124
New-York Boat Oar Company, New York, N. Y. Oars, sweeps, and sculls	12,129	Apr. 14	31	124
New York Boat Oar Company, New York, N. Y. Oars, sweeps, and sculls	12,171	Apr. 21	31	268
Newman & Levinson, San Francisco, Cal. Kid gloves	12,353	June 30	31	1564
Nonantum Worsted Company, Newton, Mass. Braids	12,268	May 26	31	920
Nonantum Worsted Company, Newton, Mass. Worsted and woolen yarns	12,269	May 26	31	920
O'Neil, Henry M., New York, N. Y. Medicines for diseases of the throat and lungs	12,195	Apr. 28	31	382
Oakley, L. & J., Newburg, N. Y. Washing-powders	12,165	Apr. 21	31	268
Oakley, L. & J., Newburg, N. Y. Soap for laundry and toilet use	12,218	May 5	31	522
Oakley, L. & J., Newburg, N. Y. Soaps of all kinds	12,234	May 12	31	668
Oberne, Hosick & Co., Chicago, Ill. Laundry-soap	12,354	June 30	31	1564
O. I. C. Co., Perry, Ga. Tonic and blood-purifier	12,248	May 19	31	794
Oliver & Imboden Company, Wichita, Kans. Wheat-flour	12,365	June 30	31	1564
Oliver & Imboden Company, Wichita, Kans. Wheat-flour	12,366	June 30	31	1564
Ostheimer Brothers, Philadelphia, Pa. Portable arms, as guns, revolvers, swords, &c.	12,270	May 26	31	920
Otrich, Charles L., Anna, Ill. Medicine for neuralgia and rheumatism	12,080	Apr. 7	31	2
Page, Norton & Co., Topeka, Kans. Wheat-flour	12,235	May 12	31	668
Paige, Henry C., New York, N. Y. Liquid medicine for cure of stomach, liver, and kidney diseases	12,318	June 16	31	1308
Paraffine Paint Company, San Francisco, Cal. Paints and paint compounds for protective and preservative purposes	12,130	Apr. 14	31	124
Parsons, George B., Hooper, Nebr. Horse-medicine consisting of powdered drugs	12,236	May 12	31	668
Patent Papier Fabrik zu Penig, Penig, Germany. Safety-paper for indicating fraudulent changes in writing	12,308	June 9	31	1174
Peckham, Robert W., Chicago, Ill. Boots, shoes, slippers, and like foot-wear	12,307	June 9	31	1174
Peerless Oil Ejector Company, Quincy, Ill. Lubricators, ejectors, and cups	12,106	Apr. 7	31	2
Pemberton, John S., Atlanta, Ga. Nerve-tonic	12,257	May 19	31	794
Pennsylvania Tack Works, Norristown and Philadelphia, Pa. Tacks	12,367	June 30	31	1564
Perkins & Ernst, Covington, Ky. Plug-tobacco	12,368	June 30	31	1564
Phoenix Manufacturing Company, Paterson, N. J., and Allentown, Pa. Silk ribbons and dress goods	12,369	June 30	31	1564
Pikesville Dairy Company, Baltimore, Md. Milk, cream, butter, and cheese	12,144	Apr. 14	31	124
Piper, Robert F., Boston, Mass. Wheat-flour	12,283	June 2	31	1048
Plaisted, F. A. (See Forbes and Plaisted.)				
Plume & Atwood Manufacturing Company, Waterbury, Conn. Nails	12,219	May 5	31	522
Procter, Joseph O., Jr., Gloucester, Mass. Boneless preparation of salted fish	12,220	May 5	31	522
Proebster, Conrad, Jr., Nuremberg, Germany. Mathematical instruments	12,370	June 30	31	1564
Pulien, James H., Winn, Me. Certain-named medical compounds	12,107	Apr. 7	31	2
Redling & Neubauer, New York, N. Y. Wine and beer	12,271	May 26	31	920

Alphabetical list of registrants of trade-marks, April to June, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Renner, Francis C., New Midway, Md. Ointment or cosmetic	12,339	June 23	31	1448
Rheingauer Schaumweinfabrik Schierstein, Schierstein, Germany. Champagne-wines	12,355	June 30	31	1564
Richardson, Jeremiah J., New York, N. Y. Ranges and furnaces	12,371	June 30	31	1564
Ricker, Crombie & McLaren, Milwaukee, Wis. Coffee	12,293	June 2	31	1048
Ricker, Crombie & McLaren, Milwaukee, Wis. Baking-powder	12,294	June 2	31	1048
Ringbauer, Carl, Cleveland, Ohio. Certain named medicinal composition	12,136	Apr. 14	31	124
Robinson, Henry A., Foxcroft, Me. Medicinal specific for cold-sores	12,061	Apr. 7	31	2
Rohe & Brother, New York, N. Y. Smoked hams and cured meats	12,221	May 5	31	522
Roman Bros., Philadelphia, Pa. Kid-gloves	12,222	May 5	31	522
Ropes, Emmerton & Co., Salem, Mass. Raw coffee	12,166	Apr. 21	31	268
Rosner, Isaac, Philadelphia, Pa. Felon-cure	12,154	Apr. 21	31	268
Ross & Co., A. M., Boston, Mass. Certain named preparations for the laundry	12,223	May 5	31	523
Ross, Jacob, Chippewa Falls, Eau Claire, and Warsaw, Wis. Whisky, brandy, wine, and gin	12,172	Apr. 21	31	268
Rubber Paint Company of Cleveland, Ohio, Cleveland, Ohio. Paint called hygienic calcimine	12,272	May 26	31	920
Ruppert, Jacob, New York, N. Y. Lager-beer	12,372	June 30	31	1564
Saint Paul Roller Mill Company, St. Paul, Minn. Flour	12,108	Apr. 7	31	2
Scanlin & Son, John, Philadelphia, Pa. Cottonades	12,237	May 12	31	668
Seabury & Johnson, New York, N. Y. Medicinal plaster	12,082	Apr. 7	31	2
Semmes, Josephine, Washington, D. C. Hair-tonic	12,284	June 2	31	1048
Shephard, John A., Burlington, Iowa. Compound of red lead and oil adapted to remain in a soft or pasty condition	12,109	Apr. 7	31	2
Sickles Saddlery Company, J. B., St. Louis, Mo. Horse-collars	12,167	Apr. 21	31	268
Sigourney, Frank W., Bristol, Conn. Cigars	12,295	June 2	31	1048
Silomon, August F., Dresden, Saxony, Germany. Paper for photographic purposes	12,319	June 16	31	1308
Six Dykstra, James J., Chicago, Ill. Physic	12,160	Apr. 21	31	268
Slocomb, Abby D., and J. W. Day, Stonington, Conn. Toilet-powder	12,320	June 16	31	1308
Soltmann, E. G., New York, N. Y. Drawing materials	12,340	June 23	31	1448
Sone & Fleming Manufacturing Company, (limited,) New York, N. Y. Illuminating-oils refined from petroleum	12,313	June 16	31	1308
Sone & Fleming Manufacturing Company, (limited,) New York, N. Y. Illuminating-oils refined from petroleum	12,314	June 16	31	1308
South Norwalk Hat Company, (Co-operative,) South Norwalk, Conn. Hats	12,110	Apr. 7	31	2
Southall Bros. & Barclay, Birmingham, England. Certain sanitary towels	12,356	June 30	31	1564
Southern White Lead Company, St. Louis, Mo. White lead	12,111	Apr. 7	31	2
Southern White Lead Company, St. Louis, Mo. White lead	12,112	Apr. 7	31	2
Spietaler, Andrew, New York, N. Y. Hoof-oil	12,373	June 30	31	1564
Stamford Manufacturing Company, New York, N. Y. Certain named drugs and chemicals for dyeing	12,143	Apr. 14	31	124
Starke, Arabella G., Richmond, Va. Plows	12,113	Apr. 7	31	2
Steel & Co., Edward T., Philadelphia, Pa. Woolens for overcoatings	12,258	May 19	31	794
Stephens, Henry C., London, England. Inks	12,238	May 12	31	668
Strong, Maurice H., Cincinnati, Ohio. Incubators and brooders	12,249	May 19	31	794
San Chemical Company, Cincinnati, Ohio. Portable case containing selected instruments and standard remedies	12,374	June 30	31	1564
Suydam, Samuel A., New York, N. Y. Ice-boxes and refrigerators	12,321	June 16	31	1308
Swamp Angel's Rheumatic Cure Manufacturing Company, Seattle, Wash. Ter. Medicine for the cure of rheumatism and like diseases	12,329	June 16	31	1308
Tomson, Peter C., Philadelphia, Pa. Essence of coffee	12,145	Apr. 14	31	124
Tomson, Peter C., Philadelphia, Pa. Lye	12,146	Apr. 14	31	124
Tucker, Samuel L., New York, N. Y. Liniment	12,173	Apr. 21	31	268
Uhlich, Friedrich A., St. Louis, Mo. Medicinal confections	12,224	May 5	31	522
Union Tobacco Works, Geo. S. Schwartz & Co., Louisville, Ky. Plug smoking-tobacco	12,296	June 2	31	1048
Valley Paper Company, Holyoke, Mass. Writing-paper	12,273	May 26	31	929
Van Antwerp & Co., Worcester, Mass. Dentifrice	12,250	May 19	31	794
Van Rensselaer, Harriette R. S., Brooklyn, N. Y. Medicine for diseases of the throat and lungs	12,174	Apr. 21	31	268
Victor Roller Skate Company, Muncie, Ind. Roller-skates, mop and brush holders, and rubber floor-scrubbers and window-cleaners	12,196	Apr. 28	31	382
Vita Company, New York, N. Y. Nasal suppositories	12,274	May 26	31	920
Vitrite Company, London, England. Vitreous material and certain articles made therefrom	12,357	June 30	31	1564
Vrooman, Gilbert L., Carthage, N. Y. Family liniment	12,131	Apr. 14	31	124
Warner Brothers, New York, N. Y. Corsets and other similar articles	12,132	Apr. 14	31	124
Weismann, Augustus W., New York, N. Y. Bitterer Ansatz	12,275	May 26	31	920
Wellman & Dwire Tobacco Company, Quincy, Ill. Smoking, plug, and fine-cut tobacco	12,322	June 16	31	1308
Wellman & Dwire Tobacco Company, Quincy, Ill. Smoking, fine-cut, and plug tobacco	12,375	June 30	31	1564
Wells & Richardson Company, Burlington, Vt. Food for infants and invalids	12,358	June 30	31	1564
Werner, August, New York, N. Y. Unfermented fruit-juices	12,276	May 26	31	920
Wetherell, Randall H., Hoboken, N. J. Stove-polish	12,341	June 23	31	1448
Wetmore, Jacob S., Englewood, N. J. Cake-soap	12,155	Apr. 21	31	268
White Dental Manufacturing Company, S. S., Philadelphia, Pa. Preparations of gold for dentists' use	12,225	May 5	31	522
Whitney & Currier, Toledo, Ohio. Pianos	12,259	May 19	31	794
Wiggin's Sons, H. B., New York, N. Y. Shade fabrics, such as hollands and prepared muslins	12,239	May 12	31	668
Wilcox Company, W. J., New York, N. Y. Lard	12,251	May 19	31	794
Wilhelm, David O., Denver, Colo. Remedy for catarrh, hay-fever, colds, &c	12,342	June 23	31	1448
Willcox, Charles H., New York, N. Y. Knitted articles of wearing-apparel	12,197	Apr. 28	31	382
Williamson, Alexander D., *et al.*, administrators. (See McBride, S. W.)				
Wilson, Walter G., Philadelphia, Pa. Crackers	12,260	May 19	31	794
Wimpfheimer & Bro., A., New York, N. Y. Silk-velvet	12,137	Apr. 14	31	124
Woods, Joseph W., Boston, Mass. Bleached, white, and colored cottons	12,376	June 30	31	1564
Worthy Paper Company, Agawam, Mass. Fine writing-paper	12,198	Apr. 28	31	382

ALPHABETICAL LIST OF REGISTRANTS OF LABELS.

Name, residence, and title.	No.	Date.	Official Gazette. Volume.	Page.
Allen, Herbert J., Portland, Me. "Mrs. Allen's Instantaneous Croup Remedy"	4,476	June 16	31	1308
Andress, Thomas J., Philadelphia, Pa. "Glass Cutter Combination" (for Combination Tool)	4,463	June 2	31	1048
Avery Lactate Company, Boston, Mass. "Lactate Baking Powder"	4,469	June 9	31	1174
Bard, Joseph, Chicago, Ill. "Safe Prolonger of Life" (for a Medicine)	4,491	June 30	31	1564
Bateman, Horatio, Brooklyn, N. Y. "The Infallible Oriental Cholera Antidote"	4,492	June 30	31	1564
Beltman, Joseph, Kansas City, Mo. "Great Five" (for five cent Cigars)	4,401	Apr. 7	31	2
Bendiner, Samuel J., New York, N. Y. "Maltoline." (for a Medical Compound)	4,414	Apr. 14	31	124
Berry, Francis M., Philadelphia, Pa. "Gangers' Tacks"	4,470	June 9	31	1174
Bidaman, Israel, New York, N. Y. "Tasteless Vegetable Pilules"	4,427	Apr. 21	31	268
Blocki, William F. (See Gale and Blocki.)				
Bonghton, E. G., Pittsford, N. Y. "Acetone Egg Pungents"	4,477	June 16	31	1308
Boyle, John, South Brooklyn, N. Y. "Marble Liniment"	4,416	Apr. 21	31	268
Braun, Max, Newark, N. J. "Max Braun's Tape Metronome (Maelzl's Time")"	4,431	Apr. 28	31	382
Bremer's Sons, Lewis, Philadelphia, Pa. "Domestic Spanish" (for Leaf Tobacco)	4,464	June 2	31	1048
Brewster, Rutherford & Co., Brooklyn, N. Y. "Sabão Paraense" (for Soap)	4,493	June 30	31	1564
British Baking Powder Company, Clifton Forge, Va. "British Baking Powder"	4,441	May 5	31	522
Buskirk, George W., New York, N. Y. "Buskirk's In and Out Notice"	4,471	June 9	31	1174
Caswell, Massey & Co., New York, N. Y. "Massey's Concentrated Essence of Coca and Pepsin"	4,465	June 2	31	1048
Caswell, Massey & Co., New York, N. Y. "Quinine Chocolates"	4,473	June 9	31	1174
Caswell, Massey & Co., New York, N. Y. "Emulsion Cod Liver Oil with Pepsin and Quinine"	4,478	June 16	31	1308
Charland, George H., Keesville, N. Y. "Wylie's Rheumatic Oil"	4,458	May 26	31	920
Cheatham, Mathew V., and C. B. Haley, Gainesville, Tex. "Cheatham's Chill Tonic"	4,440	May 5	31	522
Clum, A. H. W. (See McGee, Clum, and Walsh.)				
Condell, William, St. Louis, Mo. "Big Can," (for Baking Powder)	4,446	May 12	31	668
Cottingham, William H., Noblesville, Ind. "Cottingham's Liniment"	4,484	June 23	31	1448
De Freest, Richard M., Lansingburg, N. Y. "De Freest's Soda Flake Crackers Number One"	4,417	Apr. 21	31	268
Detroit Knitting & Corset Works, Detroit, Mich. "Dr. Ball's Coiled Spring Elastic Section Corset"	4,466	June 2	31	1048
Devins, Richard J., Montreal, Quebec, Canada. "Luby's Parisian Hair Renewer"	4,432	Apr. 28	31	382
Dietrich, John, Fairbury, Ill. "Dietrich's Liniment"	4,494	June 30	31	1564
Douglas, H. Clay, Washington, D. C. "Douglas' Diarrhœa Mixture"	4,472	June 9	31	1174
Eastman Dry Plate and Film Company, Rochester, N. Y. "Roll-Holder" (for a Holder for Photographic Films)	4,479	June 16	31	1308
Eastman Dry Plate and Film Company, Rochester, N. Y. "American Film"	4,480	June 16	31	1308
Eastman Dry Plate and Film Company, Rochester, N. Y. "United States Film"	4,481	June 16	31	1308
Eddystone Manufacturing Company, (limited,) Philadelphia, Pa. "India Silk Styles" (for Print Goods)	4,495	June 30	31	1564
Fairbank & Co., N. K., Chicago, Ill. "N. K. Fairbank & Co's Fine Family Soaps"	4,453	May 19	31	794
Fisher, Harris, Eastman, Ga. "Streeter's Health Pills"	4,433	Apr. 28	31	382
Fryer, Derrick F., Oroville, Cal. "Abietene Porous Plaster"	4,428	Apr. 21	31	268
Fryer, Derrick F., Oroville, Cal. "Abietene Ointment"	4,454	May 19	31	794
Gage, Fred F., Boston, Mass. "Douce-Haleine" (for a preparation for cleansing Artificial Teeth, &c)	4,459	May 26	31	920
Gale, Edwin O., and W. F. Blocki, Chicago, Ill. "Natural Mineral Water"	4,405	Apr. 7	31	2
Gallagher, James, Jr., New Haven, Conn. "Gallagher's Conchas" (for Cigars)	4,406	Apr. 14	31	124
Gilbert, J. N., and G. McArthur, Columbus, Ga. "McArthur's Magical Mixture" (for a Medical Compound)	4,434	Apr. 28	31	382
Graff, Andrew, Brooklyn, N. Y. "Graff's Seamless Shoe"	4,460	May 26	31	920
Graves, Charles F. (See Siddall and Graves.)				
Gray, Toynton & Fox, Detroit, Mich. "Creamery 5lbs. Chocolates"	4,485	June 23	31	1448
Gray, William. (See Hibbard and Gray.)				
Gutmann, Emil, New York, N. Y. "The Preventive Capsule Company's Remedies"	4,404	Apr. 7	31	2
Haley, Charles B. (See Cheatham and Haley.)				
Hart Rheumatic Remedy Company, Buffalo, N. Y. "Dr. Hart's Rheumatic Remedy"	4,407	Apr. 14	31	124
Hebrard, Albert O., New Orleans, La. "A. O. Hebrard's Worlds Exposition Souvenir" (for Knapsack, Matchbox, etc)	4,467	June 2	31	1048
Hegeman & Co., New York, N. Y. "Tonic Phosphates"	4,435	Apr. 28	31	382
Hegeman & Co., New York, N. Y. "Malt and Rock, 8 Years Old"	4,445	May 5	31	522
Hibbard, George B., and W. Gray, Detroit, Mich. "English Compound Extract of Pennyroyal and Tansy"	4,496	June 30	31	1564
Holmes, H. E., Walla Walla, Wash. Ter. "Ewing's Ague Mixture"	4,486	June 23	31	1448
Hughes & Watson, Jacksonville, Fla. "Browns Bronchial Balsam"	4,418	Apr. 21	31	268
Ives, Frederick, Ogdensburg, N. Y. "Ives' Catarrh Cream"	4,447	May 12	31	668
Jones, George H., Oxford, Me. "German Pile Remedy"	4,456	May 19	31	794
Knight, Alfred P., Chicago, Ill. "Knight's Steel and Pennyroyal Pills"	4,455	May 19	31	794
Langguth, George, Quincy, Ill. "Fire and Waterproof Stone Composition Paint"	4,474	June 9	31	1174
Laplant, Peter F., New Bedford, Mass. "The most Reliable Family Medicine"	4,429	Apr. 21	31	268
Lariviere, Joseph, Lincoln, R. I. "Female Regulator" (for a Medicine)	4,487	June 23	31	1448
Liston Beef Company, Chicago, Ill. "Liston's Extract of Beef"	4,408	Apr. 14	31	124
Liston Beef Company, Chicago, Ill. "Graydon's Fluid Extract of Beef"	4,409	Apr. 14	31	124
Liston Beef Company, Chicago, Ill. "Prof. Graydon's Fluid Extract of Beef"	4,410	Apr. 14	31	124
Liston Beef Company, Chicago, Ill. "Prof. Liston's Extract of Beef"	4,411	Apr. 14	31	124
Liston Beef Company, Chicago, Ill. "Liston's Extract of Beef"	4,412	Apr. 14	31	124
Liston Beef Company, Chicago, Ill. "Prof. Graydon's Pure Fluid Extract of Beef"	4,413	Apr. 14	31	124
Lockhart, R. P., Selma, Ala. "Lockhart's Hot Springs Specific"	4,415	Apr. 14	31	124
Lucia, Edgar B., East Brookfield, Mass. "Dr. La Blance's Diarrhea and Dysentery Drops"	4,436	Apr. 28	31	382
Mattson Rubber Company, New York, N. Y. "Mattson's Improved Irrigator Fountain Syringe"	4,419	Apr. 21	31	268
McArthur, Green. (See Gilbert and McArthur.)				
McGee, James F., A. H. W. Clum, and L. C. Walsh, Washington, D. C. "The American Shoe Polish"	4,475	June 9	31	1174
Megargee, Irwin N., Philadelphia, Pa. "Westport Mills." (for Writing Paper)	4,403	Apr. 7	31	2

Alphabetical list of registrants of labels, April to June, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Moellering Medicine Co., Fort Wayne, Ind. "London Liniment"	4,420	Apr. 21	31	268
Moody, Harry L., New York, N. Y. "Rex Marinus" (for a Medicine for Cure of Sea Sickness)	4,461	May 26	31	920
Morrell & Co., C. E., New York, N. Y. "The Prize Pencil Tablet"	4,442	May 5	31	522
Morrell & Co., C. E., New York, N. Y. "The Prize Linen Tablet"	4,443	May 5	31	522
Nasmyth & Co., J. H., Stratford, Ontario, Canada. "Dr. Jug's Medicine"	4,421	Apr. 21	31	268
National Suspender Company, New York, N. Y. "The Silk Corded End Brace" (for Suspenders)	4,468	June 2	31	1048
Peet, Wilbur J., Bridgeport, Conn. "Peet's Lithocolla"	4,448	May 19	31	668
Phillips, F. T., Olney, Ill. "Myrrh Tooth Soap"	4,422	Apr. 21	31	268
Phoenix Metallic Cartridge Company, South Coventry, Conn. "Double Waterproof." (for Metallic Cartridges)	4,423	Apr. 21	31	268
Porter, Alfred, Manchester, N. H. "Porter's Silver Polish"	4,430	Apr. 21	31	268
Reinbold & Marsh, Worcester, Mass. "R. & M. Tonic Confection"	4,402	Apr. 7	31	2
Richards, C. A., Boston, Mass. "Dunster's London Cordial Geneva"	4,424	Apr. 21	31	268
Royer, H. C., Massillon, Ohio. "Honey Dew Cough Syrup"	4,488	June 23	31	1448
Royer, H. C., Massillon, Ohio. "Chionanthus Compound"	4,489	June 23	31	1448
Royer, H. C., Massillon, Ohio. "Royer's German Specific"	4,490	June 23	31	1448
Ryer & Berrian, New York, N. Y. "Peptonized Soda Mint" (for Dyspepsia, &c)	4,462	May 26	31	920
Sachs, Pruden & Co., Dayton, Ohio. "Elixir Agaric, Sachs, Pruden & Co., Sole Proprietors"	4,449	May 12	31	668
Schweitzer, Julius, New York, N. Y. "Peptonic Emulsion"	4,437	Apr. 28	31	382
Schweitzer, Julius, New York, N. Y. "Pentonized Emulsion"	4,438	Apr. 28	31	382
Seve, Leopold, Harrisburg, Pa. "Madam R. Seve's Ointment"	4,482	June 16	31	1308
Sherwin-Williams Company, Cleveland, Ohio. "Creosote Paint"	4,451	May 12	31	668
Shuman & Co., A., Boston, Mass. "Caution" (for All-Wool Clothing)	4,450	May 12	31	668
Siddall, Eugene E., and C. F. Graves, Findlay, Ohio. "French Depilatory." (for a Medicinal Compound)	4,425	Apr. 21	31	268
Smith & Son, Elam G., Kentland, Ind. "Smith's German Pile Cure"	4,444	May 5	31	522
Spitz Bros. & Mork, Boston, Mass. "Duplex Knee" (for Clothing)	4,426	Apr. 21	31	268
Steffen, August, Milwaukee, Wis. "Milwaukee" (for Cigars)	4,457	May 19	31	794
Walsh, L. C. (See McGee, Clum, and Walsh.)				
Wilson, Michael W., White Plains, N. Y. "Save your Horse and Save your Money." (for Horse Medicine)	4,439	Apr. 28	31	382
Woodward, A. B., Tunkhannock, Pa. "Universal Healer" (for a Medicine)	4,483	June 16	31	1308
Zieber, William B., Philadelphia, Pa. "George Vandersliee's Famous Universal Salve"	4,452	May 12	31	668

DISCLAIMERS.

Name, residence, and invention.	No.	Filed.	Official Gazette. Vol.	Page.
Denton, Joseph B., Newtown, N. Y.; disclaimer filed by patentee. Fertilizer distributer	314,920	Apr. 16, 1885	31	268
Lockwood, Rhodes, Boston, Mass.; disclaimer filed by patentee. India-rubber eraser	167,455	Mar. 27, 1885	31	2
Tarrant, Esau, Muskegon, Mich., assignor to John Torrent; disclaimer filed by assignee. Machine for turning logs. (Reissue)	5,487	June 3, 1885	31	1174

ALPHABETICAL LIST OF INVENTIONS.

Invention.	Name.	No.	Date.	Monthly volume. Specification.	Monthly volume. Drawing.	Official Gazette. Volume.	Official Gazette. Page.
Abrading-disk	J. G. Buzzell	317,622	May 12	936	240	31	701
Accordion	F. Gessner	318,242	May 19	1735	469	31	863
Acid. Manufacture of hydrochloric	E. Solvay	316,300	Apr. 21	1818	.....	31	343
Adjustable bracket	W. S. How	316,459	Apr. 28	2050	538	31	389
Adjustable bracket	W. S. How	316,548	Apr. 28	2159	568	31	410
Adjustable chair	W. E. Burk	320,844	June 23	2568	679, 680	31	1542
Adjustable chair	D. Wilcox	318,673	May 26	2336	624	31	977
Advertiser and card-holder	J. M. Hubbard	319,720	June 9	1018	269	31	1245
Advertising device	M. Jacobs	317,365	May 5	590	152	31	631
Advertising device. Automatic	J. McGreer	319,597	June 9	861	228	31	1216
Advertising device. Automatic	D. J. Stephenson	317,240	May 5	422	106	31	600
Aerial navigation. Apparatus for effecting	F. W. Brearey	320,942	June 16	1467	386	31	1331
Aerial ship	D. Stout	319,936	June 9	1319	348	31	1297
Aeriform fluids. Apparatus for mixing	A. B. Griffen	320,060	June 16	1493	394	31	1336
Agricultural implement. Combined	D. L. Aspinwall	317,276	May 5	469	118, 119	31	609
Agricultural implement. Combined	J. F. Daves	318,171	May 19	1664	446	31	846
Air apparatus. Operating compressed	A. C. Douglass	315,013	Apr. 7	37	8	31	8
Air-brakes. Automatic pressure-regulator for	W. Dunbar	316,017	Apr. 21	1442	376	31	274
Air compressing and storing apparatus	C. Leavitt	320,482	June 23	2111	556	31	1455
Air-compressor	W. T. Fox	321,206	June 30	3054	810	31	1637
Air-compressor	W. T. Fox	321,207	June 30	3056	811	31	1637
Air-ship	J. S. Foster	320,548	June 23	2200	581	31	1471
Air-ship	A. Spier	319,758	June 9	1659	281	31	1252
Alarm: *See* Burglar-alarm. Door-alarm. Electric alarm. Fire-alarm. Grain-binder-cord alarm. Low-water alarm. Railway-train alarm.							
Album	L. Goodwin	318,891	May 26	2631	698	31	1030
Album. Photograph-	A. P. Johnson	318,908	May 26	2653	703	31	1034
Albumen from fish-roe. Obtaining substitute for	J. M. Ordway	319,503	June 9	725	.....	31	1101
Alkaline silicates. Treating	C. S. Lockwood	317,389	May 5	621	.....	31	636
Alkaline silicates, &c. Treating	C. S. Lockwood and J. W. Hyatt	317,387	May 5	618	.....	31	636
Aluminium. Apparatus for obtaining	M. G. Farmer	315,266	Apr. 7	396	99	31	72
Amalgam-strainer	J. Kirby	315,637	Apr. 14	922	241	31	172
Amalgamating apparatus	W. E. Koch	320,565	June 23	2216	586	31	1475
Amalgamating-pan and settler apparatus for treating ores.	M. P. Boss	315,893	Apr. 14	1274	332	31	257
Amalgamator	S. L. Trippe	318,932	May 26	2683	711	31	1039
Amalgamator. Dry-ore	H. Kappner	320,937	June 30	2700	716, 717	31	1572
Ammonium sulphate. Apparatus for the manufacture of	C. Meyer, Jr.	316,381	Apr. 21	1927	506	31	361
Ammonium sulphate. Making	E. A. Fales	318,972	June 2	61	15	31	1059
Anæsthetic mixture	U. K. Mayo	320,150	June 16	1617	.....	31	1358
Anemometer	E. A. Edwards	315,261	Apr. 7	390	97	31	71
Anchor	S. Baxter	318,229	May 19	1743	466	31	861
Angle-iron	D. O. Paige	319,305	June 2	449	121	31	1133
Animal-catcher	W. Ramm	320,167	June 16	1634	435	31	1361
Animal-guard	J. H. Fenton	318,973	June 2	62	16	31	1059
Animal-powers. Governor for	S. D. Shepperd	317,586	May 12	896	227	31	692
Animal-trap	L. N. B. Sorrell	318,146	May 19	1633	436	31	840
Animal-shears	T. Brown	315,237	Apr. 7	363	89	31	65
Animal-shears	G. H. Coates	315,733	Apr. 14	1053	276	31	198
Animals to be shod. Device for holding	T. P. McCreight	316,558	Apr. 28	2171	571, 572, 637, 638	31	412
Animals. Structure for handling vicious	C. F. Shedd	320,710	June 23	2407	637, 638	31	1510
Annunciator	J. E. McDuff and J. F. Doherty	315,313	Apr. 7	455	115	31	63
Annunciator and fire-telegraph	C. K. Pevey	317,509	May 12	863	221	31	688
Annunciator-drops. Resetting	C. W. Holtzer	315,035	Apr. 7	67	16	31	14
Anti-friction wheel or roller	W. Kratzer	320,366	June 16	1940	511	31	1414
Apparel. Wearing	J. Waltemeyer and H. J. Ennis	315,360	Apr. 7	518	132	31	94
Arches. Laying artificial-stone or concrete	P. H. Jackson	317,793	May 12	1157	306	31	743
Arches. Support for centers of masonry	C. H. Ackerson	317,072	May 5	186	47	31	557
Armature-springs. Adjusting	J. F. Gilliland	315,017	Apr. 7	42	9	31	9
Asphaltum. Working and using	J. Rice, A. Steiger, and I. L. Thurber.	319,125	June 2	239	.....	31	1091
Atomizer	B. F. Sutton	318,930	May 26	2680	710	31	1039
Attrition-mill	T. L. Sturtevant	316,921	Apr. 28	2698	703	31	509
Auger	J. Swan	320,097	June 16	1543	408	31	1345
Auger anchor. Ground-	H. Boehmke and G. Bohlken	315,593	Apr. 14	983	227	31	160
Auger. Earth-	J. M. Cross	317,739	May 12	1076	282	31	728
Auger. Earth-	T. A. Porter	318,653	May 26	2306	617	31	972
Auger. Hollow	G. W. England	317,594	May 12	909	208	31	678
Auger. Post-hole	J. Benso and A. Sievert	317,491	May 12	769	196	31	671

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Aurine. Manufacture of derivatives of	C. Lowe	316,471	Apr. 28	2066	.....	31	302
Aurine. Manufacture of the derivatives of	C. Lowe	318,484	May 26	2075	.....	31	931
Automatic drill	J. Hughes	315,411	Apr. 7	587	151	31	106
Automatic switch	W. H. McKinley	318,011	May 19	1461	390	31	808
Awning	A. J. Bonner, Jr., and P. Vanden Berghe.	316,518	Apr. 28	2125	559	31	404
Awning or shade. Window and door	G. W. Cook	315,250	Apr. 7	379	94	31	69
Awning. Window	T. L. Barlow	317,485	May 12	762	194	31	670
Ax-blank	H. Hammond	316,618	Apr. 28	2247	592	31	427
Ax-making machine	E. Yerkes and C. Denn	317,320	May 5	533	{135 136	31	621
Axes. Manufacture of	H. Hammond	316,617	Apr. 28	2246	592	31	426
Axle and box. Carriage	J. Fowler	321,205	June 30	3053	809	31	1636
Axle-box	A. Fontayne	315,927	Apr. 14	1323	344	31	246
Axle box. Car	G. W., Sr., and T. Bemis	318,855	May 26	2582	688	31	1020
Axle box. Car	G. E. De Grange and W. G. Green	318,879	May 26	2617	695	31	1027
Axle box. Car	M. C. Harney	315,278	Apr. 7	413	103	31	75
Axle box. Car	R. Hunter	318,187	May 19	1682	451	31	850
Axle box. Car	J. O. Scott	319,514	June 9	740	198	31	1194
Axle box. Car	C. H. Shattuck	317,680	May 12	1009	262	31	714
Axle box. Car	E. B. Strong	320,412	June 16	2016	529	31	1429
Axle box. Car	T. Thatcher	318,520	May 26	2135	575	31	942
Axle box. Car	J. Timms	316,503	Apr. 28	2106	554	31	400
Axle box. Car	J. Timms	319,643	June 9	919	243	31	1226
Axle box. Car	W. E. Wilcox	315,581	Apr. 14	850	224	31	158
Axle. Car	G. W. Bedbury	317,706	May 12	1041	270	31	721
Axle. Car	C. Decker and A. Trombly	320,855	June 23	2585	684	31	1545
Axle. Car	G. W. Wilkinson	319,369	June 2	528	144	31	1148
Axle. Carriage	P. Cool	317,305	May 5	509	130	31	616
Axle. Carriage	W. Jones (Reissue)	10,583	Apr. 21	2006	527	31	375
Axle. Carriage	H. Killam	315,299	Apr. 7	436	110	31	79
Axle iron. Carriage	C. F. Harrington	321,291	June 30	3156	841	31	1656
Axle-lubricator	J. M. Denney	319,679	June 9	957	253	31	1233
Axle-lubricator	J. A. Lane	316,046	Apr. 21	1478	386	31	281
Axle lubricator. Car	E. L. Cleveland	315,002	Apr. 7	22	6	31	6
Axle lubricator. Car	I. Fréchette and C. L. Girard	320,343	June 16	1900	500	31	1408
Axle lubricator. Car	F. J. Leibman	315,042	Apr. 7	78	19	31	16
Axle lubricator. Car	R. Munro	320,382	June 16	1974	519	31	1422
Axle nut-lock. Vehicle	J. Conway	319,791	June 9	1111	295	31	1261
Axle nut. Vehicle	A. V. Smith	321,255	June 30	3112	828	31	1647
Axle. Self-lubricating	H. G. Farr	316,612	Apr. 28	2241	590	31	425
Axle-tool	A. W. Bartholomew	320,748	June 23	2451	650	31	1520
Axle-trees. Machine for cross-grooving	G. Watson	319,361	June 2	520	142	31	1147
Axle. Vehicle	S. M. Bennett and J. H. Sullivan	316,439	Apr. 28	2030	532	31	385
Axle. Vehicle	C. Huehn	316,974	May 5	58	15	31	533
Axle. Vehicle	W. E. Jacobs	318,118	May 19	1596	496	31	833
Axle. Vehicle	P. D. Kearney	315,041	Apr. 7	77	18	31	15
Axle. Vehicle	C. Wonacott	320,201	June 16	1676	446	31	1309
Axles. Device for cutting and screw-threading wagon.	G. H. Williams	317,694	May 12	1028	267	31	718
Axles or shafts. Device for turning	J. H. Coon	316,119	Apr. 21	1586	{412 413	31	301
Bag: *See* Exercising-bag. Mail-bag. Hand-bag.							
Bag and pocket-book fastener	C. Blust	320,427	June 16	2034	534	31	1432
Bag-fastener	H. Shank	319,516	June 9	745	199	31	1194
Bag-holder	A. R. Hill	317,356	May 5	579	149	31	629
Bag-holder	I. B. Jennings	318,624	May 26	2270	606	31	965
Bag-holder	M. Williams	317,906	May 12	1310	350	31	772
Bag holder and lifter	J. A. Hamsch	315,778	Apr. 14	1117	293	31	260
Bag, pocket-book, and purse frames. Fastening for	C. S. Shepard	319,632	June 9	901	238	31	1223
Bag, pocket-book, or purse frames. Fastening for	L. B. Prahar	316,173	Apr. 21	1657	434	31	314
Bag-rack	R. E. Williams	315,688	Apr. 14	984	258	31	185
Bags, &c. Compound material suitable for the manufacture of lined coffee and sugar	T. Briggs	315,385	Apr. 7	547	.....	31	99
Baking-pan. Rectangular	S. J. Williams and H. Richey	318,438	May 19	2018	543	31	911
Baking-powder	A. McDonald	317,821	May 12	1198	.....	31	751
Baking-powder	A. Peters	315,830	Apr. 14	1181	.....	31	221
Baking-powder	A. Peters	315,832	Apr. 14	1183	.....	31	221
Baking-powder. Phosphate	A. Peters	315,831	Apr. 14	1182	.....	31	221
Bale heading and lifting attachment for presses	S. B. Steers	320,719	June 23	2416	{640 641	31	1513
Bale-tie	C. C. Warren	320,420	June 16	2025	532	31	1431
Bale-tie. Wire	G. Nicholson	315,821	Apr. 14	1171	306	31	220
Baling-press	A. M. Brasher	316,732	Apr. 28	2431	632	31	459
Baling-press	J. E. Chidester	316,234	Apr. 21	1731	{454 455	31	327
Baling-press	E. E. Fuller	318,460	May 26	2046	{552 553	31	926
Baling-press	W. J. Perkins	315,062	Apr. 7	108	25	31	21
Baling-press	J. R. and W. D. Slauson	315,850	Apr. 14	1208	315	31	226
Baling-press	W. D. Slauson	315,965	Apr. 14	1377	356	31	254
Baling-press	W. D. Slauson	315,966	Apr. 14	1378	{356 357	31	255
Baling-press power	W. D. Slauson	319,858	June 9	1209	319	31	1277
Baling-press. Upright-beater	J. J. Platt	315,960	Apr. 14	1368	354	31	253
Ball-trap	F. C. Damm	317,521	May 12	806	207	31	677
Balloon-guiding apparatus	C. E. and C. Myers	318,575	May 26	2315	592	31	954
Balloons. Portable gas-generator for filling	C. E. Myers	320,885	June 23	2621	694	31	1552
Ballot-box	J. H. Laskey	320,803	June 23	2517	667	31	1532
Bandage. Suspensory	E. G. Winchester	321,072	June 30	2887	768	31	1606
Banjo	G. A. Washburn	316,508	Apr. 28	2115	556	31	401

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Bar: *See* Post and stake bar. Splice-bar.							
Barbers' chairs. Head-rest for	T. W. Patterson	315,540	Apr. 14	792	209	31	147
Barbers' turn-indicator	W. J. and J. Holt	318,622	May 26	2268	605	31	964
Barrel	P. R. Gottstein	318,370	May 19	1929	520	31	895
Barrel-elevator	L. Pentz	319,119	June 2	231	60, 61	31	1090
Barrel-heading machine	J. Mulvaney	320,159	June 16	1625	433	31	1359
Barrel-machine	T. W. McGregor	318,489	May 26	2062	562	31	932
Barrel-making machine	F. Myers	315,434	Apr. 7	622	{160 161	31	111
Barrel-press	W. R. Hallett	316,030	Apr. 21	1457	380	31	277
Barrel-stand	H. Heilbronner and H. A. Rosback	317,133	May 5	271	68	31	573
Barrel-stand	I. G. Pollard	318,392	May 19	1961	525	31	901
Basket	A. M. Freeman	319,088	June 2	191	50	31	1063
Basket	W. M. Hamilton	317,454	May 5	717	180	31	653
Basket	W. M. Hamilton	317,455	May 5	718	181	31	653
Basket	E. L. Maesel	320,266	June 16	1761	468	31	1384
Basket. Wire	W. B. Bisbee	316,061	May 19	1548	415	31	824
Bath: *See* Vapor-bath.							
Bath-stand. Folding	C. C. Barnwell	316,324	Apr. 21	1848	{488 489	31	348
Bath-tub-basin attachment	J. and W. J. Robinson	315,342	Apr. 7	491	124	31	90
Bath-tub. Portable	H. R. Allen	320,037	June 16	1462	{364 385	31	1330
Bath-tub. Portable	C. A. Hayward	321,217	June 30	3066	{813 814	31	1639
Bath-tubs. Apparatus for heating water in	G. Hayes	317,940	May 12	1349	363	31	780
Baths. Device for administering	D. Lester	318,760	May 26	2453	657	31	999
Bathing-suit	J. J. Pfister	318,133	May 19	1615	{431 432	31	837
Batteries. Automatic cut-off for	L. Soulliere	319,635	June 9	907	240	31	1224
Battery: *See* Electric battery. Primary and secondary battery. Galvanic battery. Medical battery. Secondary battery.							
Battery-fluid	I. L. Roberts	317,206	May 5	383	.....	31	593
Beader. Hand-	O. E. Williams and L. V. Poole	319,161	June 2	278	73	31	1098
Beam, joist, &c	W. W. Martin	320,079	June 16	1521	403	31	1342
Bearing and bush	S. M. Guss	317,993	May 19	1432	384	31	803
Bearing. Anti-friction	J. E. Evans	316,348	Apr. 21	1877	497	31	352
Bearing. Anti-friction	J. Flannery	316,026	Apr. 21	1454	379	31	277
Bearing. Anti-friction	J. M. Keleher	317,652	May 12	973	251	31	708
Bearing. Anti-friction	T. Tripp	315,356	Apr. 7	511	131	31	93
Bearing. Anti-frictional	T. R. Ferrall	321,350	June 30	3229	860	31	1670
Bearing. Anti-frictional	T. R. Ferrall	321,351	June 30	3230	861	31	1670
Bearing. Anti-frictional	A. F. Littlefield	320,075	June 16	1516	402	31	1340
Beating out welts. Machine for	J. P. Moore	318,282	May 19	1803	482	31	873
Bed	T. C. Bentley	316,227	Apr. 21	1721	452	31	325
Bed-bottom	W. F. Bernstein	319,178	June 2	295	79	31	1102
Bed-bottom	W. Bulkeley and R. C. Browning	317,922	May 12	1329	357	31	776
Bed-bottom	M. N. Lovell	318,381	May 19	1946	525	31	898
Bed-bottom. Adjustable spring	J. Ainslie, Jr	320,322	June 16	1878	493	31	1403
Bed-bottom. Folding spring	A. H. Frost and F. L. Bryant	319,476	June 9	686	{184 185	31	1185
Bed-bottom frames. Machine for attaching fabrics to	J. Alexander	320,832	June 23	2551	676	31	1539
Bed-bottom. Spring	S. S. Burr	316,444	Apr. 28	2036	534	31	386
Bed-bottom. Spring	J. R. Deihm	320,765	June 23	2473	655	31	1524
Bed-bottom. Spring	H. S. Dosh	317,392	May 5	536	136	31	621
Bed-bug trap and caster. Combined	F. M. Conner	319,563	June 9	805	214	31	1205
Bed-clothes clamp	B. Kiam	318,914	May 26	2561	705	31	1035
Bed-clothes clamp	G. E. Bedell	319,055	June 2	149	41	31	1075
Bed. Cot	W. H. Moore	316,383	Apr. 21	1929	509	31	361
Bed. Cot	L. C. Boyington	320,837	June 23	2555	677	31	1540
Bed. Folding	B. F. Farrar	319,083	June 2	186	49	31	1092
Bed. Folding	J. C. Horn and C. F. Hopf	317,361	May 5	584	151	31	630
Bed. Folding	G. A. Nelson	319,608	June 9	876	{231 232	31	1218
Bed. Folding	D. J. Powers. (Reissue)	10,606	June 2	626	169	31	1167
Bed. Folding	L. P. Ross	318,806	May 26	2519	{672 673	31	1009
Bed. Folding	F. Schray	320,398	June 16	1820	{483 484	31	1393
Bed. Folding	F. B. Williams	316,714	Apr. 28	2401	626	31	455
Bed. Folding cabinet	F. Schray	319,135	June 2	249	65	31	1093
Bed frame. Spring	G. E. Bedell	315,998	Apr. 21	1420	369	31	270
Bed. Invalid	C. Olsen	318,199	May 19	1699	455	31	853
Bed-lounge	R. H. Bryant	320,623	June 23	2302	607	31	1490
Bed-lounge	H. Ehm	319,210	June 2	329	88	31	1109
Bed or cot. Folding	C. T. Segar	316,298	Apr. 21	1816	478	31	342
Bed-protector	W. Robinson	319,623	June 9	891	236	31	1221
Bed-slat support	F. G. Ford	315,268	Apr. 7	398	99	31	73
Bed-sofa	B. Kreith	316,901	Apr. 28	2672	696	31	505
Bed. Sofa	J. Loebig	321,305	June 30	3171	{845 846	31	1659
Bed. Sofa	W. Ott	320,676	June 23	2366	625	31	1502
Bed-spring	C. R. Davis	318,092	May 19	1562	419	31	826
Bed-spring	J. P. Leggett	318,758	May 26	2451	656	31	998
Bed-spring	L. M. Prowse	315,546	Apr. 14	802	212	31	149
Bed. Spring	T. H. Halliday	320,552	June 23	2203	582	31	1472
Bed. Spring	J. Newhouse	320,493	June 23	2123	560	31	1457
Beds, &c. Spring-frame for	B. Taylor	318,219	May 19	1726	461	31	858
Bedstead	E. W. Blake	317,709	May 12	1044	271	31	721
Bedstead	G. Bull	318,351	May 19	1910	515	31	871

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Bedstead	G. Crowther	316,335	Apr. 21	1800	492	31	350
Bedstead	J. Garrard	320,925	June 30	2686	713	31	1569
Bedstead	J. M. Kirby and C. M. Littlejohn	317,376	May 5	605	155	31	633
Bedstead-fastening	M. F. Raleigh	319,317	June 2	468	126	31	1137
Bedstead. Folding	W. D. Snyder	318,813	May 26	2528	675	31	1010
Bedstead. Folding	F. H. Walker	316,066	Apr. 21	1533	400, 401	31	201
Bedstead slat-fastening	W. B. Abrams	320,741	June 23	2441	647	31	1518
Bedstead. Wardrobe-	L. L. Richman	319,320	June 2	470	127	31	1137
Bee-cabinet	P. Koch	319,979	June 16	1388	365	31	1317
Bee-hive	H. S. Gideon	317,112	May 5	236	59	31	567
Bee-hive	J. G. Hubbs	315,505	Apr. 14	729	193	31	136
Bee-hive	J. W. Martin	318,638	May 26	2286	610, 611	31	968
Bee swarmer and hiver. Combined	S. E. Ferguson	316,349	Apr. 21	1877	497	31	353
Beer. Apparatus for attemperating or cooling	D. Boyle	320,613	June 23	2294	605	31	1489
Beer-cooler	J. Iribacker	317,134	May 5	272	68, 69	31	573
Beer cooling and preserving apparatus	F. Belsinger	315,699	Apr. 14	995	261	31	187
Beer. Manufacture of	J. Von Rosé	315,980	Apr. 14	1394	.....	31	558
Beeswax-extractor	J. D. Enas	321,090	June 30	2911	774	31	1610
Bell. Bicycle-	T. E. Ware	320,100	June 16	1547	409	31	1346
Bell. Electric	A. H. Palmer	318,647	May 26	2302	615	31	971
Bell. Electric	H. B. Porter	320,685	June 23	2380	629	31	1505
Bell. Electric	E. F. Recordon	319,318	June 2	469	126	31	1137
Bell. Electric signal-	C. Henzel	318,472	May 26	2061	557	31	928
Bell. Elevator alarm-	L. W. Pedicord	318,202	May 19	1703	456	31	854
Bells. Die for making	H. T. Russell	316,489	Apr. 28	2089	547	31	396
Belt. Carrier-	F. W. Blum and A. P. Lind	316,727	Apr. 28	2423	631	31	458
Belt-clasp	G. E. Zeltmacher	321,170	June 30	3009	797	31	1628
Belt clasp. Waist-	O. A. Lehman	319,276	June 2	414	110	31	1126
Belt cleaner. Driving-	G. R. Wilson and G. E. Watson	317,603	May 12	910	233	31	696
Belt-coupling	F. Sandvos	320,592	June 23	2257	597	31	1492
Belt coupling. Driving-	A. Kantner	320,140	June 16	1605	424	31	1355
Belt-fastener	L. W. Herrick	315,781	Apr. 14	1119	294	31	210
Belt-fastener	J. Essig	317,984	May 19	1420	381	31	801
Belt-fastener	P. Koch	317,549	May 12	839	216	31	683
Belt-fastener	W. H. Sleep	316,668	Apr. 28	2312	607	31	438
Belt-fastening	S. Bretzfield	316,872	Apr. 28	2023	684	31	495
Belt-gearing	W. A. Otto	318,577	May 26	2219	592	31	955
Belt-guard for straw-carriers	J. J. Moore and J. A. Ball	318,491	May 26	2084	563	31	933
Belt-guide	J. J. Moore and J. A. Ball	320,810	June 23	2596	669	31	1534
Belt-hanging device	J. and W. Eagleston	319,803	June 9	1135	301	31	1265
Belt-replacer	J. J. Harnsberger	315,615	Apr. 14	896	234, 235	31	166
Belt shifter and brake. Combined	W. A. Otto and B. A. Metcalf	317,411	May 5	653	166	31	641
Belt-tightener	M. Dugan	318,707	May 26	2379	634	31	985
Belt. Waist-	L. Sanders. (Reissue)	10,612	June 16	2070	544	31	1439
Belting	E. Deming	316,756	Apr. 28	2463	643	31	465
Belting	B. L. Stowe	321,153	June 30	2987	791, 792	31	1624
Belting	B. L. Stowe	321,154	June 30	2988	792	31	1624
Belting. Manufacture of machine-	R. H. Mullen and H. T. Atkins	316,906	Apr. 28	2677	697	31	505
Belting or driving-band	W. White	319,366	June 2	525	143	31	1148
Bench: *See* Draw-bench. Wash-bench.							
Bending-tool. Hand	G. A. Ohl	317,002	May 5	99	26	31	540
Benzaldehyde. Production of chlorinated derivatives of	R. Gnehm	315,932	Apr. 14	1328	.....	31	247
Berth Sleeping-car	G. Love	315,517	Apr. 14	751	198	31	140
Bessemer converters. Apparatus for mounting and dismounting.	P. C. Gilchrist and L. G. Fitzmaurice.	316,537	Apr. 28	2146	564	31	408
Bessemer process	G. Lauder	315,150	Apr. 7	226	.....	31	41
Beton or concrete. Construction and repair with	J. C. Goodridge, Jr	317,338	May 5	561	143	31	626
Beton or concrete. Repairing with	J. C. Goodridge, Jr	317,337	May 5	559	142, 143	31	625
Bevel	J. W. H. Doubler	316,341	Apr. 21	1869	494	31	351
Bevel	C. Friess and J. N. Todd	320,866	June 23	2399	689	31	1548
Bevel for draftsmen or artificers	J. J. Hedges	318,984	June 2	73	19	31	1061
Bicycle	W. Clemson	316,009	Apr. 21	1432	373	31	272
Bicycle	W. N. Eyster	320,917	June 30	2676	711	31	1568
Bicycle	E. G. Latta	315,304	Apr. 7	442	112	31	80
Bicycle	C. S. Leddell	319,983	June 16	1391	366, 367	31	1317
Bicycle	G. W. Marble	316,647	Apr. 21	1479	387	31	281
Bicycle	J. H. Patton	318,789	May 26	2495	666	31	1005
Bicycle-saddle	T. Warwick	316,702	Apr. 28	2384	631	31	452
Bicycle safety attachment	W. Bevan	319,385	June 2	548	149	31	1152
Bicycle social attachment	J. A. Kirk	317,377	May 5	606	155	31	634
Billiard cue chalk. Substitute for	A. Peple	315,828	Apr. 14	1180	.....	31	221
Billiard-table-bridge indicator	C. F. Spaulding	317,871	May 12	1261	336	31	702
Billiard-table cushion	J. Rivoire	317,017	May 5	117	29	31	543
Bin: *See* Flour and meal bin.							
Binder, &c., carrier	C. S. Hensley	316,362	Apr. 21	1898	502	31	356
Binder. Temporary	G. E. Alvord	319,660	June 9	935	247	31	1229
Binder. Temporary	A. L. Brown	320,022	June 23	2299	607	31	1489
Binder. Temporary	G. V. Nauerth	316,809	Apr. 28	2530	661	31	478
Binder. Temporary	A. H. Roach and F. Kroedel	317,856	May 12	1242	329	31	739
Binding fabrics	E. F. Bradford	316,521	Apr. 28	2128	560	31	404
Bird-cage	B. A. Drayton	319,891	June 9	1252	330	31	1285
Bit: *See* Bridle-bit.							
Bit-brace	H. E. Fuller	320,868	June 23	2601	689	31	1548
Bit-stock	J. T. Pedersen	317,187	May 5	352	89	31	588

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Bits, &c. Extension-shank for	I. P. Shotts	315,079	Apr. 7	126	30	31	25
Blackboard and desk. Combined reversible	M. W. Smith and B. F. Johnson	317,588	May 12	889	228	31	692
Black-leading machine	E. A. Blake	316,229	Apr. 21	1723	452	31	326
Blast-furnace	F. Brown	316,233	Apr. 21	1728	454	31	327
Blast-furnace	P. L. Weimer	320,604	June 23	2271	600	31	1485
Blast-furnace	P. L. Weimer	320,605	June 23	2273	601	31	1485
Blast-furnace tuyere	W. B. Devereux	318,604	May 26	2246	601	31	960
Blasting-plug	W. T. McCall	318,771	May 26	2467	661	31	1001
Blasting timber	W. T. McCall	321,308	June 30	3175	847	31	1660
Bleaching liquids. Apparatus for	M. and C. C. Hanford	319,409	June 2	578	157	31	1158
Blind. Inside	F. Keller	317,797	May 12	1162	308, 309	31	744
Blind, &c. Inside	F. Keller	317,798	May 12	1165	309	31	744
Blind-slat check	J. Racey	319,620	June 9	888	235	31	1220
Blind-slat fastener. Window-	J. M. Van Dyke	315,861	Apr. 14	1224	320	31	229
Blind-slat fastening	A. M. Freeman	319,087	June 2	190	50	31	1063
Blind-slat holders. Window-	W. Jensen	316,627	Apr. 28	2260	595	31	428
Blind. Window-	A. Barker	319,664	June 9	940	249	31	1230
Block: *See* Brake-block. Sidewalk and paving block. Electrotype-block. Paving-block. Toy building-block. Pulley-block.							
Blood. Preparing dried	W. G. Strype	318,226	May 26	2546	.....	31	1014
Blouse and pantaloon-overalls. Combined	S. Jacobs	315,506	Apr. 14	730	193	31	136
Blow-off apparatus	T. G. Lovegrove	320,878	June 23	2613	692	31	1550
Blow-pipe	G. D. Cowen	320,461	June 23	2087	550	31	1450
Blower	S. Barrow	317,436	May 5	696	175	31	649
Blower for boiler-furnaces. Combined steam and air	W. McClave	318,008	May 19	1455	390	31	807
Blower for stoves and fire-places	L. A. Miller	317,404	May 5	640	164	31	639
Blower. Rotary	I. D. Weaver	320,196	June 16	1671	444, 445	31	1368
Board: *See* Blackboard. Ironing-board. Cartridge-loading board. Multiple switch-board. Plaiting-board. Drawing-board. Reed-board. Electrical switch-board. Stove-board. Wagon scoop-board. Fire-board.							
Boards, &c. Device for adjusting	D. S. Brown	316,941	May 5	14	4	31	595
Boat: *See* Foot-boat. Stone-boat. Life-boat.							
Boat	J. Forbes, Jr	315,758	Apr. 14	1092	286	31	204
Boat	J. W. Rough	317,020	May 5	119	30	31	544
Bobbin and spool	J. L. Cheney	316,944	May 5	17	5	31	526
Bobbin. Filling-	J. A. Sisson	320,008	June 16	1427	375	31	1323
Body-protector	W. L. Wilde	317,693	May 12	1027	266	31	718
Boiler: *See* Culinary boiler. Salt-boiler. Egg-boiler. Steam-boiler. Heating-boiler. Tubular boiler. Locomotive-boiler. Water-tube boiler.							
Boiler ash-pan	J. C. Anderson and F. H. Latimer	315,215	Apr. 7	338	82	31	60
Boiler-cleaner	J. Waters	317,600	May 12	903	232	31	695
Boiler-coverings. Applying	W. S. Grubb	317,530	May 12	814	209	31	679
Boiler for heating fruit in jars	F. M. Austen	315,377	Apr. 7	536	138	31	97
Boiler-furnace	D. D. Cattanach	320,539	June 23	2185	577	31	1468
Boiler-furnace	T. Murphy	316,641	Apr. 28	2274	598, 599	31	432
Boiler-furnace	F. E. Wilson	317,261	May 5	452	113	31	606
Boiler-tube expander	M. Cashin	319,559	June 9	800	212	31	1204
Boiler-tubes. Utilizing old	N. Stephens and M. L. Ritchie	319,144	June 2	258	67	31	1095
Boilers. Cutter for flue-holes in tube-sheets of	W. F. Harrison	318,897	May 26	2639	700	31	1031
Boilers. Man-hole cover for	F. Trowbridge	320,512	June 23	2150	567	31	1462
Boilers. Purifying water for	C. Elliot	317,083	May 19	1418	380	31	800
Bolster-spring	S. C. Blaine	315,382	Apr. 7	542	140	31	98
Bolt: *See* Flour-bolt. Shutter-bolt. King-bolt. Shutter and door bolt.							
Bolt	J. J. Devine	315,748	Apr. 14	1078	283	31	201
Bolt	C. F. Diehlmann	316,760	Apr. 28	2468	644	31	466
Bolt	C. E. Hayes	316,619	Apr. 28	2246	592	31	427
Bolt	W. F. Morgan	317,170	May 5	328	82	31	583
Bolt-cutter	T. J. Vinton	318,525	May 26	2140	576	31	943
Bolt-machine	C. Hall and J. Young	317,642	May 12	959	246, 247	31	705
Bolt-operating mechanism	P. Herzog	319,488	June 9	706	189	31	1188
Bolt or separator. Vertical centrifugal	L. Gathmann	319,574	June 9	818	217, 218	31	1208
Bolt-threading machine	J. W. Adams	318,678	May 26	2341	625, 626	31	978
Bolts. Machine for forming screw-threads on	J. C. Cochrane	316,010	Apr. 21	1433	373	31	272
Bolting-machine for flour-mills, &c.	J. V. Hecker	318,963	June 2	72	18, 19	31	1061
Bolting-reel	F. Ferrier	319,553	June 9	815	217	31	1207
Bolting-reels. Meal-cleaning attachment for	L. V. Rathbun	320,690	June 23	2385	630, 631	31	1506
Bone-black drier	E. P. Eastwick	320,642	June 23	2322	613, 614	31	1493
Bone-black kilns. Top plate for	E. P. Eastwick	316,610	Apr. 28	2239	590	31	425
Book and music holder	C. W. Hutchins	319,907	June 9	1278	337	31	1290
Book-backing	G. A. Schürmann	321,142	June 30	2973	787	31	1621

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Book-case, &c. Portable	W. H. Lackey	315,301	Apr. 7	439	110, 111	31	80
Book-case. Revolving	G. V. Nauerth	317,175	May 5	335	84	31	584
Book-case. Roller-shelf	W. N. Conant	316,941	Apr. 21	1742	458	31	328
Book. Check-	J. C. Hall	320,782	June 23	2493	660	31	1527
Book-clasp	A. C. Hafely	317,122	May 5	258	64	31	570
Book-corner protector	T. F. Martin	318,486	May 26	2078	561	31	931
Book-cover. Removable	J. M. Bronson. (Reissue)	10,615	June 23	2654	704, 705	31	1557
Book-holder	A. A. Fuller	317,937	May 12	1346	362	31	770
Book-holder	W. F. Holloway	318,253	May 19	1706	473	31	806
Book-holder	S. S. Thomas	316,499	Apr. 28	2104	552	31	399
Book-rack. Folding	W. H. Kelly	318,991	June 2	79	20	31	1062
Book-rack for church-pews, &c	M. G. Frutchey	316,335	Apr. 28	2144	564	31	407
Book-rest	J. D. McClure	319,105	June 2	213	56	31	1057
Book. Scrap-	C. Patterson	315,327	Apr. 7	470	119	31	86
Book-support	A. A. Fuller	319,899	June 9	1268	334	31	1268
Books. Bindings of	M. Mulqueen	316,051	Apr. 21	1485	388	31	282
Books. Machine for rounding the backs of	J. A. Wade and H. D. Stone	317,689	May 12	1022	265	31	717
Boot and shoe edge trimming machines. Cutter-head for	C. A. Gilman	321,357	June 30	3240	864	31	1672
Boot and shoe heels. Machine for pricking	T. P. King	315,636	Apr. 14	930	241	31	171
Boot and shoe nailing machine	H. S. Bacon	319,773	June 9	1081	287	31	1256
Boot and shoe pattern	J. G. Lynn	320,149	June 16	1615	430	31	1357
Boot and shoe sole plate	J. Borrett	320,328	June 16	1884	494	31	1404
Boot and shoe soles. Machine for cutting	J. J. Breach	318,540	May 26	2160	581, 582	31	940
Boot and shoe stretcher	W. Jones	319,585	June 9	837	222	31	1211
Boot or shoe	P. C. Brown	318,949	June 2	16	5	31	1051
Boot or shoe	G. Castle	317,724	May 12	1061	276	31	725
Boot or shoe	P. Fischer	321,200	June 30	3048	808	31	1636
Boot or shoe	W. C. Gillman	320,468	June 23	2095	552	31	1432
Boot or shoe	W. T. Martin	316,158	Apr. 21	1641	429	31	311
Boot or shoe	L. E. Moore	317,562	May 12	853	219	31	696
Boot or shoe	A. Van Wagenen	317,477	May 5	745	188	31	658
Boot or shoe	S. A. West	315,869	Apr. 14	1236	322	31	231
Boot or shoe brace	J. C. Awalt	316,930	May 5	2	1	31	523
Boot or shoe heel	B. F. Hall	316,456	Apr. 28	2047	537	31	388
Boot or shoe heel	M. Rachler and I. Rothziegel	317,575	May 12	872	224	31	689
Boot or shoe heel and guard	I. S. Brewster	318,446	May 26	2029	547	31	922
Boot or shoe heel plate	W. E. Quiggle	317,014	May 5	113	29	31	543
Boot or shoe inner sole	G. W. Day	315,254	Apr. 7	362	95	31	60
Boot or shoe inner sole	C. J. Schmid	318,209	May 19	1711	458	31	855
Boot or shoe insole	L. P. Hawkins	316,780	Apr. 28	2492	650	31	471
Boot or shoe jack	Z. Beaudry	316,867	Apr. 28	2617	682	31	494
Boot or shoe lasting machine	F. Chase	319,784	June 9	1097	291, 292	31	1258
Boot or shoe. Machine-sewed	L. Day	318,878	May 26	2616	695	31	1027
Boot or shoe. Machine-sewed	W. A. Knipe	319,269	June 2	406	107	31	1124
Boot or shoe shank stiffener	A. Hummer	318,562	May 26	2003	568	31	952
Boot or shoe soles. Machinery for embossing and ornamenting	W. D. Hall	315,775	Apr. 14	1114	292	31	209
Boot or shoe soles. Tool for feather-edging	E. F. Blossom	316,726	Apr. 28	2423	631	31	458
Boot or shoe stiffeners. Machine for manufacturing	J. M. Willoughby	319,873	June 9	1230	324	31	1280
Boot or shoe tap	W. Quinlan	315,068	Apr. 7	115	27	31	23
Boot or shoe uppers for lasting. Preparation of	J. Green	319,699	June 9	962	260	31	1238
Boot. Quarter-	T. Golden. (Reissue)	10,587	Apr. 28	2711	706	31	511
Boot-tree	G. D. Bateman	319,667	June 9	942	249	31	1231
Boot-tree	A. D. Tyler, Jr	317,476	May 5	744	188	31	657
Boot-tree	A. D. Tyler, Jr	319,354	June 2	508	139	31	1145
Boot-tree	A. D. Tyler, Jr	319,355	June 2	510	139	31	1145
Boot-tree	A. D. Tyler, Jr	319,356	June 2	511	139	31	1145
Boots and shoes. Machine for uniting soles to uppers of	F. Chase	320,849	June 23	2575	681, 682	31	1543
Boots, &c. Composition of material for damp-proof socks or soles for	R. J. Baggaley	315,885	Apr. 14	1961	.....	31	235
Boots. Making combined knit and felt	S. G. Alexander	318,342	May 19	1696	511	31	889
Boots or shoes for buttons and button-holes. Machine for marking the quarters of	A. F. Preston	317,416	May 5	660	168	31	643
Boots or shoes for the buttons. Machine for marking the quarters of	A. F. Preston	318,390	May 19	1957	527	31	900
Boots or shoes. Manufacture of	G. Boivin	321,182	June 30	3022	800	31	1630
Boots or shoes. Press for forming heels for india-rubber	W. E. Kelly	319,266	June 2	402	106, 107	31	1124
Boring-bar and centering-mandrel. Combined	P. W. Gates	315,271	Apr. 7	404	100	31	73
Boring-tools. Making twisted	C. Rohin	319,027	June 2	116	31	31	1069
Bottle	L. S. Hoyt	316,460	Apr. 28	2053	538	31	389
Bottle-forming tool	W. L. Roorbach	316,832	Apr. 28	2564	671	31	485
Bottle, Siphon-	T. Bergmann	320,751	June 23	2455	651	31	1521
Bottle-stopper	W. Beardsley	317,705	May 12	1041	270	31	721
Bottle-stopper	H. P. Brooks	319,554	June 9	793	210	31	1203
Bottle-stopper	J. Byrne	320,457	June 23	2083	549	31	1450
Bottle-stopper	S. G. Derham	319,076	June 2	179	48	31	1081
Bottle-stopper	A. F. Kent	315,797	Apr. 14	1139	299	31	214
Bottle-stopper	C. Lange	319,981	June 16	1389	366	31	1317
Bottle-stopper	E. H. Morgan	321,236	June 30	3089	820	31	1643
Bottle-stopper	W. L. Roorbach	320,701	June 23	2396	634	31	1508
Bottle-stopper	W. Stewart	320,189	June 16	1665	443	31	1367
Bottle-stopper fastener	F. McArdle	319,500	June 9	722	194	31	1190
Bottle-stopper fastener	W. Painter	315,655	Apr. 14	941	247	31	176
Bottle-stopper fastener	A. F. Parkhurst	319,504	June 9	726	194	31	1191
Bottle-stopper fastener	J. T. Walker	315,576	Apr. 14	845	222	31	157
Bottle-stopper. Internal	J. Terry	320,098	June 16	1544	408	31	1345
Bottle-stopper. Internal	J. Terry	320,192	June 16	1668	443	31	1367

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Bottle-stopper. Removable	J. Terry	320,191	June 16	1667	443	31	1367
Bottle-stopper. Removable internal	E. S. Piper	318,290	May 19	1813	485	31	875
Bottle-washer	H. P. Merriam	321,128	June 30	2956	783	31	1617
Bottles, &c. Closing apparatus for	H. Spriegel	320,715	June 23	2413	639	31	1512
Bottles. Machine for wiring the corks in	O. C. Carpenter	318,955	June 2	31	8 9	31	1054
Bottles. Machinery for drilling holes in	D. Rylands	320,505	June 23	2142	565	31	1460
Bottles. Valve-stopper for perfume and other	I. W. Heysinger	316,147	Apr. 21	1624	425	31	308
Bouquet-holder	M. H. Jones	317,650	May 12	971	250	31	707
Bow and arrow. Cross-	J. Almond	315,878	Apr. 14	1251	326	31	233
Box:							
See Axle-box. Ballot-box. Cash-box. Coffee and tea box. File-box. Fire-box. Folding box. Fruit-box. Garbage-box. Guide-box. Ice-cream box. Jeweler's dust-box. Machine-box. Match-box. Meat and oil press box. Miter-box. Oil-expressing box. Oil-press box. Paper-box. Paper package-box. Stuffing-box. Traveling-box. Tree-box. Wagon-box.							
Box	G. A. Duguay	316,447	Apr. 28	2 39	534	31	387
Box	A. Saupiquet	321,056	June 30	2858	760	31	1601
Box-fastener	F. W. Beckwith	316,598	Apr. 28	2224	585	31	423
Box-fastener	H. Kroe, Sr	317,146	May 5	289	74	31	576
Box-fastener	L. J. Miller	318,781	May 26	2460	664	31	1003
Box-fastener	G. S. Randall	316,823	Apr. 28	2547	666	31	481
Box-fastener	J. L. Stevens	316,412	Apr. 21	1978	519	31	370
Box-fastener	G. Wilson	319,651	June 9	926	245	31	1227
Box for cigars, &c	E. Plako	316,654	Apr. 28	2295	602	31	435
Box-loop	R. A. Dunning	316,448	Apr. 28	2041	535	31	387
Box-nailing machine	G. Lines and A. Bridgman	318,918	May 26	2665	706, 707	31	1036
Box-supporter	D. W. Marmon	318,324	May 19	1950	526	31	899
Box-toes. Machine for forming	T. F. Tyler and E. H. Taylor	316,662	Apr. 21	1530	399	31	290
Boxes, bales, &c. Band for strapping	G. Nicholson	315,438	Apr. 7	630	162	31	112
Brace:							
See Boot or shoe brace. Drilling-brace. Railway-rail brace. Ratchet-brace. Trunk-brace. Vehicle-spring brace.							
Brace	C. Snedekum	319,430	June 2	612	165, 166	31	1164
Bracelet	B. B. Lederer	319,273	June 2	410	109	31	1125
Bracelet. Chain	W. I. Macomber	315,525	Apr. 14	764	202	31	142
Bracelet-clasp	H. A. Church	320,220	June 16	1707	454	31	1374
Bracelet-clasp fastening	G. W. Washburn	321,066	June 30	2880	766	31	1605
Bracelet-slide	H. A. Church	316,235	Apr. 21	1735	455	31	328
Bracelet. Spring-hinged	P. Lettré	318,379	May 19	1944	524	31	898
Bracket:							
See Adjustable bracket. Clothes-bracket. Curtain-bar bracket. Curtain-pole bracket. Lamp-bracket. Scaffold-bracket. Shelf-bracket. Staging-bracket.							
Bracket	G. E. Baublits	318,343	May 19	1898	511	31	889
Bracket-seat	O. E. Briggs	315,598	Apr. 14	867	228	31	161
Brake:							
See Car-brake. Elevator safety-brake. Locomotive-brake. Machine-brake. Sled-brake. Vehicle-brake. Wagon-brake.							
Brake-block	H. C. Newton	317,177	May 5	337	85	31	585
Brake-governor. Automatic	G. H. Poor	317,572	May 12	868	222, 223	31	668
Brake governor. Automatic-	G. H. Poor	318,021	May 19	1470	393	31	810
Brake-shoe	R. N. Allen	315,213	Apr. 7	335	81	31	60
Brake-shoe	J. C. Larkin	319,731	June 9	1028	272	31	1247
Brake-shoe	J. H. Pitard	318,203	May 19	1704	456	31	854
Brake-shoe clamp	L. King	316,630	Apr. 28	2262	595	31	429
Bran duster and cleaner	L. S. Hogeboom and H. B. Smith	321,108	June 30	2934	778	31	1614
Bran, &c. Machine for packing	F. Dorsey	320,052	June 16	1462	391	31	1334
Bran-packer	O. Anketell	318,158	May 19	1648	440	31	843
Bread-cutter	N. Chapman	318,094	May 26	2363	631	31	962
Breast-shield	J. B. Phillips	320,961	June 30	2734	727	31	1578
Breeching-eye. Metal	C. B. Webb	318,527	May 26	2142	577	31	943
Brewing beer	J. Schafhaus	316,067	Apr. 21	1506	394	31	286
Brewing purposes. Preparing and purifying wort for	C. Zimmer	315,876	Apr. 14	1243	324, 325	31	232
Brick and tile machine	A. L. Brewer and H. Heesen	318,347	May 19	1903	513	31	890
Brick and tile machine	F. E. Frey	320,865	June 23	2395	638	31	1547
Brick and tile machine	W. W. Wallace	315,358	Apr. 7	514	131	31	93
Brick-burning kiln	J. O'Brien	315,922	Apr. 14	1172	306	31	220
Brick-kiln	T. S. Hawkins	317,351	May 5	574	147	31	628
Brick-kiln	T. McNicholas	318,490	May 26	2084	563	31	933
Brick-kiln	S. B. Moe	316,904	Apr. 28	2676	697	31	505
Brick-machine	H. Martin	320,944	June 30	2708	718	31	1573
Brick-machine	P. L. Simpson	315,849	Apr. 14	1206	314, 315	31	226
Brick-machine	C. A. Tarragon	319,639	June 9	914	241	31	1225
Brick-machine	A. D. Thomas	315,855	Apr. 14	1212	317	31	227
Brick-machine brushing attachment	A. Ittner	315,414	Apr. 7	506	153	31	107
Brick-machine tile-making attachment	J. B. Foster	315,016	Apr. 7	41	9	31	9
Brick-machines. Device for cleaning cut-off wires of	J. N. Tricker	318,055	May 19	1518	407	31	818
Brick, &c. Making	J. P. Perkins	316,792	May 26	2498	.....	31	1005

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Brick. Manufacture of	N. S. Willet	315,200	Apr. 7	311	75, 76	31	56
Brick-press	J. R. Bowers	316,939	May 5	12	4	31	525
Brick-pressing machine	S. P. Crafts	315,601	Apr. 14	871	229	31	161
Brick-truck	D. J. C. Arnold	316,322	Apr. 21	1246	488	31	347
Brick weather-boarding. Manufacture of imitation	P. Toelle	318,054	May 19	1517	406	31	818
Bricks. Machine for pressing molded	N. I. Wolfe	318,934	May 26	2686	711	31	1039
Bricks, pottery-ware, &c. Oven or detached kiln for burning	H. Knowles	318,266	May 19	1785	477, 478	31	869
Bridge	W. O. Douglas	315,259	Apr. 7	307	96, 97	31	70
Bridge	C. H. Dondas	320,859	June 23	2589	685	31	1546
Bridge for facilitating the passage of shipping, &c	F. Barnett	316,597	Apr. 28	2222	525	31	422
Bridge gate. Automatic draw	F. W. Menze	316,635	Apr. 28	2268	597	31	430
Bridge. Railway	J. Dennis	319,798	June 9	1121	298	31	1262
Bridge safety-gate	L. F. Smith	320,408	June 16	2013	528	31	1428
Bridges. Safety-gate for pivot	J. H. Quackenbush	321,249	June 30	3105	826	31	1745
Bridle and halter	J. Andes	318,409	May 19	1662	533	31	905
Bridle bit	P. Barbour	319,439	June 9	634	172	31	1176
Bridle-bit	J. M. French	319,897	June 9	1205	333	31	1287
Bridle-bit	J. Stanley	317,034	May 5	133	34	31	546
Bridle-blinder	H. A. Johnson	321,112	June 30	2938	779	31	1614
Bridle cag-runner	R. G. Hanford, Jr	319,406	June 2	578	157	31	1158
Bridle-loop	G. L. Smith	315,673	Apr. 14	964	252	31	180
Bridles. Check-rein swivel for	W. J. Bitter	318,443	May 26	2026	546	31	922
Bridles. Nose-band for overdraw-checks for	H. Lowe	319,916	June 9	1290	341	31	1292
Broiler	A. M. L. Mathioly	320,668	June 23	2558	623	31	1501
Broiler or toaster	M. G. Barbour	320,529	June 23	2175	574	31	1466
Broiling, toasting, &c. Apparatus for	T. Allen	317,431	May 5	686	174	31	647
Bronzing-machine	J. J. Floyd	316,351	Apr. 21	1891	498	31	353
Broom corn sizer	G. Smith	319,859	June 9	1209	310	31	1277
Broom-rack	J. M. Bennett	319,176	June 2	293	78	31	1102
Brush-making machine	J. M. Pickering	317,570	May 12	864	221	31	698
Brush. Scrubbing	W. R. Hock	320,436	June 16	2046	537	31	1434
Bucket. Dinner	J. R. Schneider	319,922	June 9	1314	346	31	1296
Bucket elevator	F. W. Howell	317,701	May 12	1153	305	31	742
Bucket or receptacle for malt liquors	S. W. A. Wiegell	315,198	Apr. 7	307	73	31	55
Bucket. Portable water	R. A. Williams	317,059	May 5	166	42	31	553
Bucket. Slop	R. Burton	319,388	June 2	552	150	31	1153
Bucket. Well	J. S. Arnold	320,835	June 23	2554	676	31	1539
Buckle	J. M. Basinger	321,175	June 30	3014	788	31	1629
Buckle	C. T. De Forest	315,496	Apr. 14	706	187	31	132
Buckle	C. G. Dobbs	319,899	June 9	1251	330	31	1294
Buckle	W. H. Hart, Jr	316,261	Apr. 21	1767	464	31	333
Buckle	E. Kraft	316,372	Apr. 21	1915	506	31	359
Buckle	G. W. Longnecker	319,734	June 9	1031	273	31	1247
Buckle	J. R. Pollock	317,415	May 5	659	167	31	643
Buckle	T. O. Potter	320,089	June 16	1533	406	31	1344
Buckle	H. Stanes	320,012	June 16	1430	376	31	1324
Buckle	J. Wagner	318,089	May 19	1522	408	31	819
Buckle	G. W. Wilson	319,769	June 9	1076	286	31	1255
Buckle	M. E. Zeller	319,074	May 19	1541	413	31	822
Buckle	J. S. Ginger	318,179	May 19	1672	448	31	848
Buckle	O. Mallory	320,569	June 23	2220	588	31	1475
Buckle. Combined back-strap and trace	G. Zitlow	317,696	May 12	1030	267	31	719
Buckle. Combined hame-tug and trace	H. B. Robertson	317,858	May 12	1245	329	31	750
Buckle. Harness	B. J. Hartman	319,579	June 9	998	219	31	1210
Buckle. Lever	J. F. Molloy	317,168	May 5	326	81	31	592
Buckle. Lever	W. E. Smith	315,177	Apr. 7	263	64	31	48
Buckle. Lever	W. S. Thurlow	319,053	May 19	1516	406	31	818
Buckle. Lock	M. W. Lynch	318,569	May 26	2208	590	31	953
Buckle. Suspender	C. C. Shelby	320,405	June 16	2009	527	31	1426
Buckle. Suspender	W. E. Smith	319,860	June 9	1211	320	31	1278
Buckle. Suspender	F. B. Spooner	317,873	May 12	1263	336	31	763
Buckle. Trace	O. Mallory	318,572	May 26	2212	591	31	953
Buckle. Trace or harness	D. G. Gay	316,256	Apr. 21	1760	463	31	332
Buckles. Apparatus for bending the hinge ends of	G. R. Kelsey	317,374	May 5	603	154	31	637
Buckles for wearing-apparel. Guard for	M. Bernstein	318,230	May 19	1744	466	31	861
Buckles. Manufacture of	G. R. Kelsey	316,790	Apr. 28	2508	655	31	474
Buckles, snap-hooks, &c. Rope or strap attaching device for	W. C. Sly	315,175	Apr. 7	261	63	31	47
Budding-knife	K. McLennan	316,559	Apr. 28	2172	572	31	413
Buffer	R. P. Garsed	318,463	May 26	2050	554	31	927
Buffing-roll	J. G. Buzzell	315,477	Apr. 14	695	181	31	129
Buggy-body	C. P. Kimball	316,270	Apr. 21	1778	468	31	335
Buggy. Side-bar	D. J. Owen	318,017	May 19	1466	393	31	809
Buggy-top	G. W. Bonecutter	316,442	Apr. 28	2035	533	31	386
Buggy-top support	L. S. Longcor and W. M. Dawson	317,811	May 12	1180	313	31	747
Building. Frame	L. W. Beard	318,592	May 26	2235	598	31	958
Building. Portable	J. E. Acheson	319,436	June 9	692	171	31	1175
Buildings. Anchor for	F. D. Paradise	318,648	May 26	2303	615	31	971
Buildings. Artificial facing-block for	H. G. Fiske	317,107	May 5	231	58	31	566
Bullet molding and necking implement	T. Oldham	319,304	June 2	448	121	31	1133
Bung	F. S. Clinton	320,222	June 16	1709	454	31	1375
Bung. Barrel	H. Roembildt	318,659	May 26	2316	619	31	974
Bureau	D. R. Kinley	321,037	June 30	2934	754	31	1597
Burglar-alarm	F. Cross	319,566	June 9	907	215	31	1206
Burglar-alarm	A. C. Gibson	315,139	Apr. 7	197	48, 49	31	36
Burglar-alarm	W. Goldsohn	320,871	June 23	2604	690	31	1549
Burglar-alarm	A. W. Hall	315,140	Apr. 7	205	50	31	38
Burglar-alarm	A. Jacobi	320,660	June 23	2346	620	31	1492
Burglar-alarm	I. G. Lee	315,152	Apr. 7	220	56	31	42
Burglar-alarm	J. H. Luebsen	315,641	Apr. 14	926	243	31	173
Burglar-alarm	M. Pratt	320,696	June 23	2381	629	31	1506
Burglar-alarm	W. H. Reiff	315,898	Apr. 14	1190	310	31	223
Burglar-alarm	A. C. Tonner	318,834	May 26	2535	680	31	1015

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Burglar-alarm and sash-fastener. Combined	J. Brady	321,184	June 30	3025	802	31	1631
Burglar-alarm. Electric	J. Barkheimer	319,653	June 2	147	40	31	1074
Burglar-alarm. Electric	A. W. Hall	315,139	Apr. 7	200	49	31	36
Burglar-alarm. Electric	J. H. Hill and J. E. Babcock	316,621	Apr. 28	2250	593	31	427
Burglar-alarm. Electric	F. G. Lyon	316,376	Apr. 21	1920	507	31	360
Burglar-alarm, match-safe, and sash-fastener. Combined	D. T. Phillips	315,439	Apr. 7	631	163	31	113
Burial-case	J. J. Finley	320,661	June 23	2590	686	31	1546
Burial-case	J. C. House	320,254	June 17	1748	465	31	1382
Burial-casket	W. A. Sparks and N. Rappleyea	320,410	June 16	2014	529	31	1429
Burner: *See* Gas-burner. Petroleum-burner. Hydrocarbon-burner. Vapor-burner.							
Burnishing-machine	C. J. Addy	318,340	May 19	1801	509	31	888
Bush. Tap hole	A. Fischer	320,262	June 23	2591	686	31	1546
Bustle	B. Bleuker	318,736	May 26	2152	579	31	945
Bustle	F. W. Crocker	318,599	May 26	2242	600	31	960
Butter-cutting device	O. K. Dexter	316,759	Apr. 28	2467	644	31	466
Button	A. R. Boynton	315,894	Apr. 14	1276	332	31	238
Button	J. A. Conley	319,780	June 9	1110	295	31	1260
Button	W. C. Howard	316,624	Apr. 28	2255	594	31	428
Button	E. J. Howe	320,574	June 23	2607	691	31	1549
Button	G. D. Paul	319,997	June 16	1411	371	31	1321
Button	J. R. Pollock	315,440	Apr. 7	632	163	31	113
Button	G. L. Robinson	317,018	May 5	118	30	31	544
Button	P. H. Welsh	315,161	Apr. 7	300	71	31	53
Button	C. L. Watson	320,021	June 16	1443	379	31	1326
Button. Adjustable	W. Bourke	318,828	May 26	2586	669	31	1020
Button and fastening	G. W. Prentice	315,167	Apr. 7	250	61	31	46
Button and fastening	G. W. Prentice	317,012	May 5	110	28	31	542
Button and hat hook. Combined	A. H. Buckingham	319,192	June 2	341	83	31	1105
Button and necktie-fastener. Combined collar	G. T. Kelting	316,044	Apr. 21	1474	385	31	280
Button and necktie-holder. Collar	E. J. Stellwagen	317,239	May 5	421	106	31	600
Button and necktie-holder. Combined collar	W. J. Burtis	319,063	June 2	159	43	31	1077
Button and sleeve-pin. Combination cuff	W. H. Riley, Jr., and G. H. French	317,854	May 12	1240	323	31	758
Button-attaching machine. Shoe	M. J. Bartlett	316,724	Apr. 28	2415	629, 630	31	457
Button. Changeable	F. A. Fox	316,253	Apr. 21	1775	461	31	332
Button. Collar	F. G. Cart	315,907	Apr. 14	1207	338	31	241
Button. Collar	G. Krementz	315,418	Apr. 7	602	159	31	108
Button. Collar or sleeve	D. P. Fitzgerald	319,074	June 2	63	16	31	1050
Button. Collar or sleeve	O. T. Smith	316,104	Apr. 21	1681	441	31	319
Button cover or sheath	T. F. Walter	320,730	June 23	2429	644	31	1515
Button-fastener	T. E. Keavy	316,432	Apr. 21	2003	526	31	374
Button-fastener	G. W. Prentice	315,065	Apr. 7	110	26	31	22
Button-fastener	F. H. Richards	319,502	June 9	733	197	31	1193
Button-fastener	E. D. Steele	316,304	Apr. 21	1822	479	31	344
Button-fastener	E. D. Steele	316,305	Apr. 21	1823	479	31	344
Button-fastener	W. C. Walter	320,451	June 16	2066	542	31	1438
Button-fastener	H. J. Weldon	319,152	June 2	267	70	31	1096
Button-fastener-setting machine	F. H. Richards	319,507	June 9	729	195, 196	31	1192
Button-fasteners. Machine for feeding	F. H. Richards	320,503	June 23	2139	564, 565	31	1460
Button-fastening	G. W. Washburn	320,517	June 23	2158	569	31	1463
Button-fastening machine. Automatic	A. Hall	315,275	Apr. 7	409	102	31	74
Button for gloves, &c	L. Meyers	317,062	May 12	984	275	31	710
Button-hole attachment	J. K. Harris	318,471	May 26	2060	556	31	929
Button-hole clamp	D. Mills	319,536	June 9	1180	311	31	1272
Button-hole cutter	W. C. Hudson and J. Barry	316,366	Apr. 21	1904	504	31	357
Button-hole cutter	M. Kamak	316,151	Apr. 21	1633	427	31	310
Button-hole for wearing-apparel	W. P. Groom	320,132	June 16	1594	421	31	1353
Button-holes. Article of wearing-apparel provided with	W. P. Groom	320,131	June 16	1593	421	31	1353
Button-holes. Device for cutting and centering	F. W. Ostrom	320,958	June 30	2731	726	31	1578
Button-hook and coat-hanger. Combined	G. Hefles	315,500	Apr. 14	724	191	31	135
Button-hook holder for shoes	M. F. Frey	317,451	May 5	716	180	31	652
Button-lathe	S. L. Otis	317,183	May 5	343	86, 87	31	585
Button. Link sleeve	T. W. F. Smitten	320,596	June 23	2251	598	31	1483
Button or knob	W. F. Ware	316,208	Apr. 21	1696	445	31	321
Button or other fastening for garments	A. J. Hess and S. Salkeld	320,061	June 16	1495	395	31	1336
Button or stud	J. Costello	320,761	June 23	2468	654	31	1523
Button-setting instrument	A. M. English	319,213	June 2	335	90	31	1110
Button-setting instrument	G. T. Fisher	316,025	Apr. 21	1453	379	31	276
Button. Sleeve or collar	J. H. Doll	319,467	June 9	674	181	31	1182
Buttons. Manufacture of	A. J. Shipley	317,296	May 5	407	102	31	598
Buttons to fabrics. Implement for securing	A. G. Wilkins and J. B. Miller	321,411	June 30	3315	884	31	1685
Buttons to garments. Machine for attaching	R. J. Powell and W. F. Nolan	318,024	May 19	1473	394	31	810
Buttoner. Shoe	J. L. Sommer	320,714	June 23	2412	639	31	1512
Cab. Hansom	C. A. Floyd	319,216	June 2	379	90	31	1111
Cabinet-maker's clamp	W. E. Sheldon	319,517	June 9	745	200	31	1194
Cable gravity-road. Elevated	W. N. Keller	318,627	May 26	2273	606, 607	31	965
Cable-grip	D. B. Anders	320,744	June 23	2446	649	31	1519
Cable or belt tightener	J. H. Whiting	317,602	May 12	1027	266	31	718
Cables. Friction-roller for wire	T. W. Flynn	319,217	June 2	340	91	31	1111
Cables on curves. Supporting traction	W. Heckert	319,021	May 26	2267	605	31	964
Cables or ropes used to propel vehicles. Covering for	C. Bullock	314,995	Apr. 7	12	3	31	6
Cage. Folding stock-shipping	R. L. Smith and C. P. Miller	318,512	May 26	2527	675	31	1010
Caisson or crib	J. McGovern	320,671	June 23	2302	623	31	1501
Calcimine	K. A. Hohenstein	321,109	June 30	2936	.....	31	1614
Calculating-instrument for percentage and proportion	M. T. Freeman	319,808	June 9	1140	302	31	1266
Calculator	J. L. Richardson	315,563	Apr. 14	811	214	31	151

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Calculator. Tabular	F. W. Child. (Reissue)	10,592	May 5	752	190	31	659
Calendar	D. M. McLellan	316,162	Apr. 21	1644	430	31	312
Calipers. Adjustable stop for	T. L. Holmes	315,621	Apr. 14	902	237	31	167
Calipers. Spring	C. P. Fay	319,215	June 2	338	90	31	1111
Call-box	F. B. Wood	317,912	May 12	1319	353	31	774
Cam	H. W. Fowler	315,270	Apr. 7	402	100	31	73
Camera: *See* Photographic camera. Portable camera.							
Camera-stand	J. H. Smith	317,230	May 5	410	103	31	598
Camera-tripod joint	D. T. Kendrick	318,490	May 26	2072	559	31	930
Cameras. Instantaneous shutter for	H. W. Kellogg	315,296	Apr. 7	432	109	31	78
Can: *See* Collapsible can. Milk-can. Cracker-can. Oil-can. Creaming-can. Sheet-metal can. Meat-shipping can.							
Can	T. Yapp	317,957	May 12	1377	370	31	785
Can fastener	F. J. Headley	315,280	Apr. 7	416	104	31	75
Can-filling machine	J. G. Hoskins	315,622	Apr. 14	903	237	31	168
Can-filling machine	E. S. Judge	320,363	June 16	1937	510	31	1414
Can-heading machine	F. A. Walsh	321,263	June 30	3120	{830 831 832}	31	1648
Cans, &c. Bottom for	T. Burkhard	317,620	May 12	934	230	31	700
Cans. Faucet attachment for shipping	J. Marshall	318,537	May 26	2285	610	31	968
Cans. Screw-top for oil and other	J. F. Bly and C. R. Cipperly	316,001	Apr. 21	1422	370	31	271
Canal and navigating the same	J. Nouguès, Fils aîné	319,303	June 2	447	121	31	1132
Candle-machine	C. L. Werk	319,156	June 2	271	72	31	1097
Candlestick	H. Anland	315,695	Apr. 14	992	260	31	186
Candlestick	E. Carpenter	316,740	Apr. 28	2440	635	31	461
Candy. Machine for the manufacture of stick	J. J. Consins	318,454	May 26	2040	551	31	924
Cane. Apparatus for treating sugar	H. J. Chapin	321,006	June 30	2795	743	31	1590
Cane-juice evaporator	W. E. Butler	318,866	May 26	2606	691	31	1024
Cannon. Pneumatic	W. G. Benedict	314,991	Apr. 7	5	2	31	4
Canopy. Umbrella or parasol	W. H. Belknap	315,224	Apr. 7	347	85	31	61
Cant-hook	J. Winebrener	319,373	June 2	533	145	31	1149
Canvas and folding the edges thereof. Machine for slitting	A. M. Cutler	316,337	Apr. 21	1863	493	31	350
Cap	S. Simonson	317,031	May 5	131	33	31	546
Capsule-filler	W. H. Albach and A. J. White	317,482	May 12	757	193	31	689
Capsule-machine	J. Krehbiel	315,415	Apr. 7	597	153	31	107
Capsule-machine	J. Krehbiel	315,416	Apr. 7	598	{153 154}	31	107
Capsule-machine	J. Krehbiel	315,417	Apr. 7	601	154	31	108
Capsules. Device for stirring melted gelatine for making	F. A. Hubel and F. Reinhold	316,896	Apr. 28	2661	693	31	502
Car and seat	G. Buntin	316,735	Apr. 28	2434	{633 634}	31	460
Car-body truss	J. Stephenson	317,683	May 12	1012	263	31	715
Car-body truss	J. Stephenson	319,525	June 9	753	202	31	1196
Car-body truss	J. Stephenson	319,526	June 9	754	202	31	1196
Car-brake	G. P. Campbell	317,088	May 5	209	53	31	561
Car-brake	A. J. Cromwell	317,315	May 5	525	134	31	620
Car-brake	C. E. Currie	316,879	Apr. 28	2630	685	31	496
Car-brake	P. H. Curtner and C. C. Gennng	318,419	May 19	1992	536	31	907
Car-brake	L. H. and J. J. Hébert	320,351	June 16	1921	506	31	1411
Car-brake	J. J. Henry	315,780	Apr. 14	1119	294	31	210
Car-brake	K. H. H. Leineweber	317,563	May 12	843	217	31	684
Car-brake	K. H. H. Leineweber	317,554	May 12	844	217	31	685
Car-brake	W. H. Mason	320,573	June 23	2224	590	31	1476
Car-brake	J. S. Nacry	316,502	Apr. 28	2175	573	31	413
Car-brake	E. J. Roberts	316,929	Apr. 28	2559	670	31	484
Car-brake	F. G. Susemihl	321,397	June 30	3293	860	31	1662
Car-brake	H. Walter	315,982	Apr. 14	1306	302	31	259
Car-brake	C. A. Wescott and E. R. Bristol	321,070	June 30	2885	767	31	1606
Car brake and starter	B. F. Bergh	315,704	Apr. 14	1002	264	31	188
Car brake and starter	E. L. Heidenreich	321,218	June 30	3067	814	31	1639
Car brake and starter	A. L. Higley	315,620	Apr. 14	901	236	31	167
Car-brake. Automatic	J. H. Ames	318,076	May 19	1543	413	31	823
Car-brake. Automatic	W. Clayton	315,125	Apr. 7	182	45	31	33
Car-brake. Automatic	G. B. McLaughlin	318,775	May 26	2471	{662 663}	31	1002
Car-brake. Automatic	S. W. Robinson	317,859	May 12	1246	330	31	759
Car-brake. Automatic	S. W. Robinson	317,860	May 12	1247	{330 331}	31	760
Car-brake. Automatic	C. V. Rote	317,954	May 12	1372	{368 369}	31	784
Car-brakes. Operating	G. W. Darby	315,012	Apr. 7	36	8	31	8
Car-bumper	R. A. Cowell	319,796	June 9	1119	297	31	1202
Car-coupling	C. A. Akerly and D. T. Easton	316,103	Apr. 21	1564	407	31	296
Car-coupling	L. Anderson	321,271	June 30	3133	835	31	1651
Car-coupling	J. R. Avery	315,884	Apr. 14	1259	328	31	214
Car-coupling	F. Baldt	316,323	Apr. 21	1847	488	31	347
Car-coupling	O. Bangs	318,228	May 19	1741	466	31	861
Car-coupling	H. T. Beam	317,284	May 5	492	121	31	611
Car-coupling	H. T. Beam	318,581	May 26	2235	597	31	958
Car-coupling	H. T. Beam	319,174	June 2	291	78	31	1101
Car-coupling	C. W. Bond	315,594	Apr. 14	863	227	31	160
Car-coupling	J. C. Boyle	317,082	May 5	201	50	31	560
Car-coupling	E. M. Brown	321,276	June 30	3139	836	31	1652
Car-coupling	J. Button	319,389	June 2	553	150	31	1153
Car-coupling	M. C. Cannan	318,958	June 2	38	10	31	1055
Car-coupling	A. W. Case	316,114	Apr. 21	1580	410	31	306

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Car-coupling	C. A. Chamberlain	315,908	Apr. 14	1298	338	31	241
Car coupling	A. J. Chapel	317,725	May 12	1002	277	31	725
Car-coupling	A. B. Clinton	315,004	Apr. 7	24	6	31	7
Car-coupling	J. H. Conn	315,911	Apr. 14	1303	339	31	242
Car-coupling	P. F. Corbett	316,011	Apr. 21	1435	374	31	273
Car-coupling	N. P. and R. A. Cowell and J. F. Herrick.	319,883	June 9	1245	328	31	1283
Car-coupling	J. A. Craig	315,602	Apr. 14	872	229	31	162
Car-coupling	M. Cramer	320,335	June 16	1891	497	31	1406
Car-coupling	P. Currie	316,607	Apr. 28	2236	589	31	425
Car-coupling	G. W. Curtis and J. Wood, Jr	321,344	June 30	3219	858	31	1668
Car-coupling	A. A. Dailey	317,310	May 5	527	134	31	620
Car-coupling	M. A. Davidson and S. F. Sanders	315,131	Apr. 7	189	46	31	35
Car-coupling	E. W. Davis	320,337	June 16	1892	497	31	1406
Car-coupling	T. T. and J. M. Deavenport	316,446	Apr. 28	2038	534	31	387
Car-coupling	W. F. Denney	316,128	Apr. 21	1602	418	31	304
Car-coupling	W. Dorr	319,208	June 2	328	87	31	1109
Car-coupling	W. Dunn	315,015	Apr. 7	40	8	31	9
Car-coupling	P. F. Duross and G. Sutton	317,981	May 19	1416	380	31	800
Car-coupling	D. K. Eastman	318,969	June 2	55	14	31	1078
Car-coupling	N. B. Eccleston	320,767	June 23	2475	655	31	1525
Car-coupling	M. Fennell	321,014	June 30	2903	746	31	1592
Car-coupling	J. Fuller	315,401	Apr. 7	574	148	31	103
Car-coupling	J. Goettel and W. F. Howe	315,495	Apr. 14	717	{189 190}	31	134
Car-coupling	H. Graham	317,120	May 5	257	64	31	570
Car-coupling	S. F. Green	318,107	May 19	1583	423	31	831
Car-coupling	J. L. Griffin	317,342	May 5	565	144	31	626
Car-coupling	J. Hampl and D. Jacoba	318,184	May 19	1677	450	31	849
Car-coupling	J. H. Hayes	319,250	June 2	383	102	31	1120
Car-coupling	J. J. Hogan and R. A. Miller	320,002	June 16	1495	395	31	1337
Car-coupling	G. W. Hoover	319,253	June 2	387	103	31	1121
Car-coupling	A. A. Hopper	316,546	Apr. 28	2157	567	31	410
Car-coupling	J. W. Hughes	317,363	May 5	588	151	31	631
Car-coupling	O. S. King	315,514	Apr. 14	744	197	31	139
Car-coupling	A. H. Lea	315,151	Apr. 7	227	55	31	41
Car-coupling	J. N. Leroux	321,372	June 30	3259	870	31	1676
Car-coupling	I. Linthicum	315,801	Apr. 14	1144	300	31	215
Car-coupling	J. A. Looper	318,767	May 26	2464	660	31	1001
Car-coupling	H. C. Magruder	315,604	Apr. 14	1147	301	31	215
Car-coupling	O. D. D. Martin	315,647	Apr. 14	933	244	31	174
Car-coupling	B. A. Maxey	316,556	Apr. 28	2169	571	31	412
Car-coupling	J. E. Mazelin	320,669	June 23	2360	623	31	1501
Car-coupling	M. G. McCarty	319,002	June 2	90	23	31	1064
Car-coupling	J. H. McCormick	316,800	Apr. 28	2518	657	31	476
Car-coupling	J. McCoy	321,127	June 30	2933	783	31	1617
Car-coupling	J. McCready	315,048	Apr. 7	85	20	31	17
Car-coupling	W. S. Mead	318,777	May 26	2476	663	31	1003
Car-coupling	R. A. Merrow	320,152	June 16	1619	431	31	1358
Car-coupling	H. A. Niehaus	317,178	May 5	338	85	31	585
Car-coupling	T. B. Nutting, Sr.	320,338	June 16	1893	521	31	1494
Car-coupling	J. O'Brien	320,955	June 30	2793	792	31	1576
Car-coupling	J. Oxford	317,192	May 5	341	86	31	585
Car-coupling	J. T. Rainey	317,190	May 5	368	92	31	590
Car-coupling	S. J. Rhoads	318,138	May 19	1622	433	31	835
Car-coupling	E. Richmond	318,140	May 19	1625	434	31	839
Car-coupling	J. A. Ross	320,702	June 23	2397	634	31	1503
Car-coupling	H. H. Smith	318,665	May 26	2325	621	31	975
Car-coupling	T. Smith	317,232	May 5	412	103	31	599
Car-coupling	I. L. Storer	318,052	May 19	1515	406	31	817
Car-coupling	D. R. Taylor and W. I. Ludlow	319,863	June 9	1214	320	31	1278
Car-coupling	W. S. Temple	320,983	June 30	2766	735	31	1584
Car-coupling	I. R. Titus and H. C. Bossinger	317,899	May 12	1281	341	31	766
Car-coupling	A. W. Van Dorston	317,894	May 12	1294	346	31	769
Car-coupling	F. A. Westbrook and W. S. Cook	320,314	June 16	1802	489	31	1401
Car-coupling	F. A. Westbrook and W. S. Cook	321,328	June 30	3200	853	31	1665
Car-coupling	M. L. Whitney	316,926	Apr. 28	2704	704	31	510
Car-coupling	H. Wine	318,844	May 26	2572	684	31	1018
Car-coupling	J. C. Yeiser	316,213	Apr. 21	1707	448	31	323
Car-coupling	W. B. Zerr	319,541	June 9	775	206	31	1200
Car-coupling	C. H. Zimmerman	318,439	May 19	2020	544	31	912
Car-coupling. Automatic	G. De Beaulieu	319,200	June 2	321	85	31	1108
Car-cover	J. H. Gage	316,536	Apr. 28	2145	564	31	408
Car-cover	R. H. Wyman	319,944	June 9	1332	351	31	1209
Car-door fastening. Freight	G. A. Germond	320,239	June 16	1732	459	31	1379
Car door. Freight	J. J. Largent	319,730	June 9	1027	272	31	1247
Car door. Grain	S. R. Washer	317,900	May 12	1304	349	31	771
Car door. Grain	C. P. Willson	319,371	June 2	530	144	31	1149
Car-door. Sliding	E. Y. Moore. (Reissue)	10,604	June 2	622	168	31	1167
Car driving-gear. Street	F. G. Freese	318,717	May 26	2390	637	31	987
Car. Dumping	G. E Blaine	315,892	Apr. 14	1272	331	31	237
Car. Dumping	D. M. Carey	315,123	Apr. 7	180	44	31	33
Car. Dumping	C. Culverson	318,170	May 19	1663	446	31	846
Car. Dumping	J. M. Hartman	321,024	June 30	2821	750	31	1594
Car. Dumping	D. S. Stimson	319,638	June 9	912	241	31	1225
Car. Dumping	D. H. Valentine	317,429	May 5	686	173	31	647
Car. Dumping	M. Van Wormer	316,507	Apr. 28	2112	{555 556}	31	401
Car dust-guard	R. J. Truesdall	316,563	Apr. 28	2204	580	31	418
Car. Electric	A. Reckenzaun	320,092	June 16	1537	407	31	1346
Car. Fluid	J. R. Gathright	320,775	June 23	2483	657	31	1526
Car-followers. Machine for forming	H. Rhyn	320,702	June 23	2138	564	31	1460
Car. Freight	I. H. Congdon	315,000	Apr. 14	870	229	31	161
Car. Freight	J. M. Garverick	317,111	May 5	235	59	31	567

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Car, Hand	D. H. Beach	317,437	May 5	697	176	31	649
Car heater, Street	F. S. Hunter	319,278	June 2	393	104	31	1122
Car-journal lubricator	C. H. Kock	315,638	Apr. 14	923	242	31	172
Car-label holder, Freight	C. W. Cushman	318,602	May 26	2244	601	31	960
Car lock and seal	J. Chapman	319,104	June 2	313	83	31	1106
Car motor, Tram	J. Danks and B. Barnes	320,734	June 23	2314	611	31	1492
Car-platform dust-guard	L. B. Wood	317,266	May 5	438	115	31	607
Car-platform safety-gate	J. T. Loweth	321,373	June 30	3260	870 / 871	31	1676
Car, Railway	C. F. Crockett	317,314	May 5	525	133	31	610
Car replacer	J. Snow	319,337	June 2	403	103	31	1142
Car safety attachment, Cable	H. J. Rohrback	316,231	Apr. 28	2503	671	31	485
Car safety device, Railway	S. Pedersen and T. Sernendinger	320,370	June 16	1985	522	31	1424
Car sand-box, Street	J. Gibson and J. W. Houston	319,097	June 9	980	270	31	1098
Car-seat	H. B. Cobb	318,450	May 26	2034	549	31	923
Car-seat backs, Rest for the arms of	G. Buntin	316,736	Apr. 28	2415	674	31	460
Car seat, Sleeping	A. L. Kean	317,142	May 5	284	72	31	575
Car, Sleeping	E. W. Cutler	316,013	Apr. 21	1438	375	31	274
Car, Sleeping	M. W. Hazelton	319,711	June 9	1000	264 / 265	31	1241
Car, Sleeping	J. A. Sleicher	315,851	Apr. 14	1209	316	31	226
Car-spring	I. W. Randall	315,734	Apr. 14	1184	309	31	222
Car spring-seat, Railway	R. F. Lehndorff	320,369	June 16	1942	512	31	1414
Car-starter	J. S. Briggs	316,730	Apr. 28	2425	672	31	459
Car-starter	D. W. Copeland	319,095	June 9	896	215	31	1096
Car-starter	C. F. Dodge	315,278	Apr. 7	386	96	31	70
Car-starter	J. King	321,225	June 30	3075	816	31	1641
Car-starter	J. Lowbridge	317,394	May 5	636	159 / 160	31	637
Car-starter	M. Potter	320,088	June 16	1539	406	31	1344
Car-starter	S. Rockefellow	319,099	June 9	117	32	31	1069
Car-starter	R. W. Thompson	316,417	Apr. 21	1926	502	31	372
Car-starter	J. Van Zandt	321,405	June 30	3308	883	31	1684
Car-step	G. C. Hadley	315,094	Apr. 7	50	11	31	11
Car, Street	G. M. Brill	315,898	Apr. 14	1280	333 / 334	31	238
Car, Street	W. D. Mayfield	319,274	May 19	1796	480	31	871
Car tag-holder, Railway	G. W. Haggett	320,355	June 16	1927	508	31	1412
Car-transfer apparatus	R. L. Davis	318,360	May 19	1918	517 / 518	31	893
Car-ventilator	J. P. Doyle and C. W. Stanley	321,346	June 30	3223	859	31	1669
Car-wheel	R. N. Allen	318,940	June 2	3	1	31	1049
Car-wheel	J. B. Hansell	320,246	June 16	1739	462	31	1381
Car-wheel	W. Joslin	316,977	May 5	61	16	31	594
Car-wheel	J. Manton	319,337	June 9	1160	311	31	1272
Car-wheel	J. Manton	319,338	June 9	1161	312	31	1273
Car-wheel	J. K. Sax	319,511	June 9	736	197 / 198	31	1193
Car-wheel	J. P. Stevenson	319,341	June 2	406	174	31	1142
Car-wheel	J. L. Tucker	320,366	June 30	2770	736	31	1585
Car-wheel, Self-lubricating	P. B. Perkins	321,243	June 30	3097	823	31	1644
Car-wheel, Self-oiling	E. T. Thayer	317,243	May 5	425	107	31	601
Car-wheels, Filling the recesses in the tread of	S. L. Sinclair	315,090	Apr. 7	128	30	31	25
Car-wheels, Machine for making	G. F. Simonds	319,753	June 9	1054	279	31	1251
Car window, Railway	J. R. Whitney	321,266	June 30	3126	832	31	1650
Cars and cooling their axle-boxes, System of ventilating, cooling, heating, and lighting railway	G. Van Duzer	319,358	June 2	514	140 / 141	31	1146
Cars, Carding railway freight	C. W. Cushman	316,527	Apr. 28	2134	562	31	406
Cars, Closet for railway	J. Schaefer	320,177	June 16	1647	438	31	1363
Cars, Device for unloading gravel	E. Huber and H. M. Barnhart	316,782	Apr. 28	2404	651	31	471
Cars on curves, Mechanism for moving street	N. A. Fisher	315,491	Apr. 14	712	188	31	133
Cars, Unloading gravel	E. Huber and H. M. Barnhart	315,410	Apr. 7	566	151	31	105
Cars upon railways, Propelling	E. G. Smith	319,335	June 2	489	132	31	1141
Caramel-cutter	C. Gerber	318,101	May 19	1572	421 / 422	31	829
Carbon dioxide, Apparatus for generating	J. McEwen	317,923	May 12	1200	318	31	751
Carbonizing bones, &c., Apparatus for	A. Zwillinger	320,110	June 16	1564	413	31	1348
Carbons, Apparatus for making curved	C. F. Heinrichs	317,776	May 12	1129	298	31	738
Carbons, Machine for dressing	W. J. Possons	320,497	June 23	2130	561 / 562	31	1458
Carbureting and oderizing natural gas, Apparatus for	S. J. Hayes	316,033	Apr. 21	1463	382	31	278
Carburetor	F. Copeland	320,460	June 23	2086	550	31	1450
Carburetor, Gas	H. Symons	317,686	May 12	1015	264	31	715
Card and card-supporter	G. S. W. Floto	318,611	May 26	2276	602	31	942
Card-clothing, Device for stretching	G. E. Kimball	320,705	June 23	2505	664	31	1530
Card-grinding machine, Wire	W. Decker	321,068	June 30	2908	773	31	1610
Card-holder	J. M. Hannas and F. B. Lee	318,372	May 19	1932	521	31	896
Cards, &c., Holder for	F. L. Cutter	316,948	May 5	22	6	31	527
Carding-engines, Curved guide for the traveling flats of	G. and E. Ashworth	318,296	May 19	1737	465	31	860
Carding-engines, Drawing and unburring device for	P. L. Klein	318,121	May 19	1599	427 / 428	31	834
Carding-engines, Mechanism for reciprocating the condensing cylinders of	A. R. Fox	316,769	Apr. 28	2479	647	31	469
Carding-machine	J. Abbott	316,215	Apr. 21	1709	448	31	321
Carding-machine	G. and E. Ashworth	321,331	June 30	3203	854	31	1665
Carding-machine condenser	W. Gill	320,778	June 23	2487	658 / 659	31	1598
Carding machine, Condenser for wool	I. Newell	315,054	Apr. 7	94	23	31	19
Carding machine feeding mechanism, Wool	F. G. Babcock	320,205	June 16	1681	447 / 448	31	1379
Carding-machines, Self-stripping mechanism for	J. T. Meats	319,107	June 2	215	56	31	1067

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Carpet	J. S. and S. Smith	315,353	Apr. 7	504	129	31	92
Carpet-binding	R. S. Gould	320,130	June 16	1593	421	31	1353
Carpet-cleaner	W. H. La Fountain	318,993	June 2	81	21	31	1063
Carpet-fastener	G. M. Condit, Jr	317,304	May 5	509	129	31	616
Carpet-fastener	C. E. De Puy	319,204	June 2	324	86	31	1108
Carpet-fastener	W. H. McFaddin and J. P. Lucas	317,824	May 12	1201	318	31	751
Carpet-fastener	W. L. Parmelee	316,109	Apr. 21	1651	432	31	313
Carpet-fastener	J. H. Beale	320,615	June 23	2290	604	31	1488
Carpet-lining	W. H. Howes and J. Jack	315,503	Apr. 14	727	192	31	136
Carpet-lining	W. E. Turner	315,678	Apr. 14	971	254	31	182
Carpet-lining	W. H. Carter	317,296	May 5	500	126	31	614
Carpet-stretcher	C. B. Judd	320,362	June 16	1936	510	31	1413
Carpet-sweepers, Show stand and rack for displaying	T. W. Ford	320,772	June 23	2480	.....	31	1526
Carpets, plush, &c., Cleaning compound for	W. E. Roberts	321,386	June 30	3275	875	31	1679
Carriage	H. H. Hemelright and G. W. Stone	321,219	June 30	3069	814	31	1640
Carriage and cradle, Combined	P. L. Koscialowski	319,093	June 2	80	21	31	1063
Carriage and wagon jack	H. M. Ribble and J. W. Sammis	317,578	May 12	675	224	31	690
Carriage, Baby	F. H. Jury	319,416	June 2	586	159 / 160	31	1160
Carriage, Child's	J. C. Barney	314,987	Apr. 7	1	1	31	3
Carriage-coupling	J. B. Armstrong	319,378	June 2	539	147	31	1151
Carriage-gear	W. S. Grove	319,602	June 9	1274	335	31	1289
Carriage handle, Child's	C. J. Pullen	320,600	June 16	1413	372	31	1321
Carriage running-gear	C. Morgan	321,131	June 30	2959	784	31	1618
Carriage-seat	H. Mankel, Jr	319,630	June 9	1174	310	31	1271
Carriage shifting-rail	S. Gilbert	320,926	June 30	2987	713	31	1570
Carriage-spring	S. Gilbert	321,106	June 30	2932	777	31	1613
Carriage, Spring	C. C. Dacen	319,569	June 9	811	216	31	1206
Carriage standard, Child's	G. A. Ellis and E. L. Taft	316,993	May 5	68	18	31	535
Carriage-top	C. C. Lawrence	319,906	June 16	1410	371	31	1320
Carriage-top	J. Parizeau	315,605	Apr. 14	876	230	31	163
Carriages, Parasol for children's	G. A. Ellis						
Carrier: *See* Binder-carrier, Cash-carrier, Cash and message carrier, Egg-carrier, Hay-carrier, Straw-carrier, Trace-carrier, Water-carrier, Wire-carrier.							
Cart, Road	I. Barber	316,034	May 5	7	2	31	524
Cart, Road	E. E. Krengel	316,092	Apr. 28	2673	696	31	505
Cart, Self-loading	J. H. Barringer	319,876	June 9	1235	326	31	1281
Cart, Self-loading	B. J. Morris	317,467	May 5	731	185	31	653
Cartridge	A. S. Lyman	321,042	June 30	2940	750	31	1598
Cartridge	A. S. Lyman	321,374	June 30	3261	871	31	1676
Cartridge	W. Sublett	317,041	May 5	142	36	31	548
Cartridge-belt	W. P. Beach	315,698	Apr. 14	994	261	31	157
Cartridge, Electric	S. Russell	319,629	June 9	897	237	31	1222
Cartridge, Electric	S. Russell	319,629	June 9	898	238	31	1222
Cartridge for electric fire-arms	E. A. Monfort	317,469	May 5	648	176	31	641
Cartridge implement	W. A. Davis	317,318	May 5	531	135	31	621
Cartridge-loading board	H. W. Howe	319,255	June 2	389	103	31	1121
Cartridge-loading machine	C. Strand and J. Gilburg	321,237	June 30	3113	828 / 829	31	1647
Cartridge-shell creaser	H. W. Howe	319,256	June 2	390	104	31	1122
Cartridge-shell holder	S. S. Stahl	318,215	May 19	1721	460	31	857
Cartridge-shell loader	J. T. Baird	317,484	May 12	759	193 / 194	31	669
Cartridge-shells, Device for feeding	W. Mason	317,396	May 5	629	160 / 161	31	637
Cartridges, Charging	F. L. Chamberlin	320,219	June 16	1704	452 / 453	31	1374
Carving-fork	W. B. Hatfield	318,732	May 26	2411	643	31	992
Carving-fork guard	G. Knauth	319,098	June 2	905	54	31	1065
Carving-fork guard	A. H. North	317,842	May 12	1222	324	31	755
Case: *See* Book-case, Burial-case, Clock-case, Coffin-case, Display-case, Drawer-case, Fishing-tackle case, Lock-case, Music-case, Show-case, Ticket-case, Watch-case.							
Case for copy-books and copies	D. A. Radley	320,444	June 16	2056	539	31	1436
Cash and message carrier	F. A. Byram	320,846	June 23	2772	690	31	1543
Cash and parcels in dry-goods stores, Device for transporting	J. R. H. Hinton	321,360	June 30	3244	866	31	1673
Cash and parcel transmitting apparatus for store service	W. H. Gilman	318,719	May 26	2392	638 / 639	31	988
Cash-box	L. W. Loveless	319,498	June 9	719	193	31	1190
Cash-carrier	C. Baltzell	317,281	May 5	477	120 / 121	31	610
Cash-carrier	R. F. Gibson	320,777	June 23	2486	658	31	1526
Cash-carrier	C. H. Kelley	318,202	May 19	1778	475	31	868
Cash-carrier	C. H. Kelley	318,203	May 19	1779	476	31	868
Cash-carrier	F. C. Perkins and C. H. Kelley	318,227	May 19	1800	484	31	874
Cash-carrier	A. Strickland	318,320	May 19	1864	500	31	883
Cash-carrier apparatus	D. H. Rice	318,294	May 19	1817	486 / 487 / 488	31	875
Cash-carrier, Automatic	J. W. Flagg	316,531	Apr. 28	2139	563	31	406
Cash-carrier, Automatic	J. W. Flagg	319,692	June 9	968	257	31	1236
Cash-carrying apparatus	D. H. Rice	318,032	May 19	1487	398 / 399	31	813
Cash-carrying apparatus	D. H. Rice	318,139	May 19	1623	434	31	838
Cash-carrying apparatus	D. H. Rice	320,168	June 16	1636	435	31	1361

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Cash-carrying apparatus	D. H. Rice	320,965	June 30	2738	728, 729	31	1579
Cash-recorder	J. Ritty	318,506	May 26	2107	568	31	937
Cash-register	C. H. Maltby	318,485	May 26	2075	560, 561	31	931
Cash register and indicator	C. J. Weinman	321,163	June 30	2998	705	31	1626
Caster	J. Berkey	318,533	May 26	2149	579	31	945
Caster	G. W. Curry	318,963	June 2	45	12	31	1057
Caster	M. Lacrone and A. K. Hahn	318,752	May 26	2440	654	31	997
Caster	S. M. Michelson	316,382	Apr. 21	1928	509	31	361
Caster	J. W. See	315,560	Apr. 14	822	216	31	153
Caster	J. W. Smith	318,811	May 26	2527	674	31	1010
Caster	W. G. Walter	318,403	May 19	1976	531	31	904
Caster. Furniture	E. Pfeiffer	320,281	June 16	1795	477	31	1389
Casting apparatus	C. Wittenström	317,063	May 5	173	44	31	554
Casting car wheels	W. Wilmington	315,572	Apr. 14	1238	323	31	231
Casting copper ingots. Mold for	W. R. Walton	315,192	Apr. 7	301	72	31	54
Casting. Divided	J. Yocum, Jr	317,695	May 12	1030	267	31	718
Casting horseshoes. Apparatus for	T. McGrane	315,314	Apr. 7	456	116	31	83
Casting ingots of alternate layers of metal	J. Illingworth	320,560	June 23	2211	585	31	1474
Casting metal. Apparatus for making sand molds for	E. Breslauer	315,116	Apr. 7	173	42	31	32
Casting metal. Facing or molding material for molds for	C. Wittenström	317,062	May 5	171	.....	31	554
Casting metal ingots	F. Billings and W. R. Hinsdale	319,779	June 9	1086	289	31	1257
Casting metal ingots. Apparatus for	F. Billings	319,780	June 9	1088	289	31	1257
Casting metal pipe. Apparatus for forming molds for	J. K. Dimmick	317,101	May 5	224	57	31	564
Casting metals	M. P. Hayes	317,533	May 12	818	210	31	680
Casting rolls	J. Hemphill	317,781	May 12	1139	302	31	739
Casting steel. Mold for	J. Henderson	315,741	Apr. 14	1064	279	31	200
Casting steel. Mold for	J. Henderson	316,544	Apr. 28	2154	567	31	409
Casting steel wheels. Metal mold for	W. Sellers	319,515	June 9	741	199	31	1194
Castings. Machine for making molds for	M. R. Moore	318,784	May 26	2488	665	31	1004
Castings. Metal mold for	C. Wittenström	317,064	May 5	175	44	31	555
Cell-package for fruit, &c	S. H. Smith	317,033	May 5	133	34	31	546
Cement. Machine for testing	H. Faija	317,752	May 12	1100	289	31	732
Cement. Manufacture of	R. W. Lesley and D. Griffith	321,121	June 30	2949	.....	31	1616
Cement. Manufacture of hydraulic	R. Bryce	315,711	Apr. 14	1015	.....	31	190
Cement. Manufacturing Portland	R. W. Lesley and D. Griffith	321,120	June 30	2948	781	31	1616
Center-board	W. J. Root and W. Childs	319,030	June 9	1309	345	31	1295
Centering-gage	D. W. Standeford	316,918	Apr. 28	2695	702	31	509
Centrifugal machine	J. Laidlaw	319,493	June 9	711	191	31	1188
Centrifugal machine	A. L. Steghörtner, Jr	320,505	June 23	2260	598	31	1483
Centrifugal machines. Electric driving apparatus for	A. Watt	316,316	Apr. 21	1839	485	31	346
Centrifugal machines. Electric driving apparatus for	A. Watt	316,317	Apr. 21	1841	486	31	346
Chain. Drive	W. A. Draves	317,103	May 5	227	57	31	565
Chain. Drive	E. Huber	321,361	June 30	3246	866	31	1674
Chain-hooks. Machine for shaping	B. McKillen	319,290	June 2	432	116	31	1129
Chain-link die	F. A. Iddings	319,724	June 9	1022	270	31	1246
Chain link. Drive	E. Y. Moore	316,992	May 5	85	23	31	538
Chain-links. Machine for putting together	E. L. Howe	317,790	May 12	1151	304, 305	31	742
Chain. Ornamental	R. S. Matteson	318,997	June 2	85	22	31	1064
Chair: *See* Adjustable chair. Child's chair. Convertible chair. Dental chair. Dentist's chair. Folding chair. Infant's posing-chair. Invalid-chair. Nursery-chair. Reclining-chair. Revolving chair. Rocking-chair. Spring vibrating chair. Swinging chair. Tilting-chair. Window-cleaning chair.							
Chair	G. L. Burdett	317,497	May 12	774	197	31	672
Chair	A. S. Carter	317,295	May 5	500	126	31	614
Chair	C. Closterman	320,629	June 23	2309	609	31	1491
Chair	J. W. H. Doubler	317,933	May 12	1341	360	31	778
Chair	B. F. Hardenburgh	318 469	May 26	2056	556	31	928
Chair	G. W. Morstatt	317,468	May 5	734	185	31	655
Chair-rocker. Detachable	G. Work	315,369	Apr. 7	527	135	31	96
Chair-seat	C. Closterman	316,333	Apr. 21	1859	492	31	349
Chair-seat and chair	F. Latulip	317,382	May 5	612	157	31	615
Chair seats, backs, &c., from caoutchouc and other plastic material. Die for the formation of	F. Latulip	318,754	May 26	2442	655	31	997
Chalk-line reel	H. F. Haslam	320,555	June 23	2297	583	31	1473
Chandelier. Extension	R. L. Brewer	316,230	Apr. 21	1724	453	31	326
Chandelier. Extension	J. F. Brown	319,061	June 2	157	42	31	1076
Channeling-machines. Drill-head for	W. L. Saunders	320,295	June 16	1815	482	31	1393
Channels for navigation. Deepening and maintaining	J. C. Goodridge, Jr	320,129	June 16	1591	420, 421	31	1353
Charm. Watch-chain	F. T. Pearce and J. Hoagland	315,328	Apr. 7	471	119	31	86
Charts and drawings distorted by disproportionate contraction; and providing for their correct republication. Measuring distances and lengths on	E. R. Knorr	317,801	May 12	1167	310	31	744
Check for horses. Driving	E. L. Metcalf	319,006	June 2	93	24	31	1065
Check-hook. Harness	R. J. Welles	316,510	Apr. 28	2117	557	31	402
Check-rein hook	R. Attwooll	319,437	June 9	633	171	31	1175
Check-row line	O. O. Kittleson	316,792	Apr. 28	2510	655	31	474
Check-row wire. Reel for	C. F. James and F. N. Carder	315,790	Apr. 14	1132	297	31	212
Check-rower	O. J. Colton	321,087	June 30	2906	773	31	1609
Check-rower	J. G. Gibson	315,494	Apr. 14	716	189	31	134

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Check-rower	O. S. Willett and J. W. Fitzgerald	317,257	May 5	448	112	31	605
Cheese-bandage and shipping-case. Combined	F. W. Brenton	315,896	Apr. 14	1278	333	31	238
Cheese-cover base	J. E. Keck	320,141	June 16	1606	425	31	1355
Cheese-cutter	W. R. Warden	318,333	May 19	1883	506	31	887
Cheese. Manufacture of	D. H. Burrell	319,882	June 9	1244	.....	31	1283
Chest: *See* Flour-chest.							
Chicken-brooder	F. Rosebrook	317,210	May 5	387	97	31	594
Chicken-house	H. Evesson	319,061	June 2	183	49	31	1082
Chickens. Artificial mother for raising	H. B. Tatham, Jr	321,060	June 30	2871	764	31	1603
Chickens. Brooding-house for	J. Griscom	319,234	June 2	362	97	31	1116
Child's chair	F. F. Parker	317,608	May 12	994	258	31	712
Child's chair-tray	R. L. Bent	317,107	May 12	1042	271	31	721
Child's chair tray	H. H. Paine	318,131	May 19	1613	431	31	836
Chime. Orchestra	J. R. Lomas	317,391	May 5	623	159	31	636
Chimney and ventilator top	C. H. Casselmann	317,973	May 19	1408	378	31	799
Chimney-cap	C. W. Carll	317,294	May 5	498	125, 126	31	614
Chimney-cap	P. D. Sexton	319,750	June 9	1051	278	31	1251
Chimney cap and ventilator	W. J. and C. Kayser	320,794	June 23	2504	663	31	1530
Chimney cap or ventilator	M. W. Kidder	316,898	Apr. 28	2063	694	31	503
Chimney-cowl	T. J. Brabeer	319,552	June 9	790	209	31	1202
Chimney-cowl	J. G. Lane	318,633	May 26	2279	609	31	966
Chimney-cowl	G. W. Powers, J. H. Jones, and J. M. Powers.	320,815	June 23	2531	671	31	1535
Chimney cowl and ventilator	W. G. Hynds	316,781	Apr. 28	2493	651	31	471
Chimney-flashing	T. H. Apple	316,861	Apr. 28	2611	681	31	493
Chimney-flue. Safety	S. W. Schnabel	318,301	May 19	1830	490	31	878
Chimney-top	G. Crompton	319,074	June 2	176	47	31	1080
Chimney top and ventilator	G. Burkhart	317,718	May 12	1054	274	31	723
Chimney top and ventilator	W. P. Wilson	320,608	June 23	2277	602	31	1486
Chimneys and smoke-stacks. Cap for	H. F. Keen	318,749	May 26	2437	653	31	996
Chimneys. Draft-regulator and soot-arrester for	F. H. Leonard	316,706	Apr. 28	2514	657	31	475
Chinaldine. Formation of the hydrobase of	O. Doebner and W. Von Miller	316,949	Apr. 21	1752	.....	31	331
Chinaldine. Formation of methoxy and ethoxy	O. Doebner and W. Von Miller	316,948	Apr. 21	1750	.....	31	331
Chlorine. Manufacture of	E. Solvay	316,105	Apr. 21	1682	.....	31	319
Chocolate-cream drops and other confectionery. Marking	J. S. Hawley and H. W. Hoops	321,216	June 30	3066	813	31	1639
Chopper: *See* Cotton-chopper.							
Chopping-knife. Hand	W. Millspaugh	319,294	June 2	436	117	31	1130
Chuck	A. E. Ellinwood	318,970	June 2	56	14	31	1038
Chuck. Drill	S. P. Graham	318,466	May 26	2053	555	31	927
Chuck. Drill	I. V. Hicks	318,966	June 2	75	19	31	1062
Chuck. Drill	A. B. Landis	317,148	May 5	201	74	31	576
Chuck. Drill	J. H. Westcott	315,684	Apr. 14	980	257	31	1-4
Chuck for gem-settings	C. I. Loveren	321,041	June 30	2838	755	31	1598
Chuck for rock-drills, &c	J. E. Denton	319,202	June 2	323	86	31	1102
Chuck. Lathe	E. B. Bailey	316,931	May 5	2	1	31	523
Chuck. Lathe	S. T. Newman	318,387	May 19	1934	527	31	900
Chuck. Lathe	W. M. Preston	310,912	Apr. 28	2689	700	31	507
Chuck. Lathe	J. H. Westcott	315,685	Apr. 14	980	257	31	184
Chuck. Rock-drill	J. E. Denton	318,490	May 19	1903	536	31	907
Chuck. Rock-drill	A. I. Parsons	315,326	Apr. 7	469	119	31	85
Churn	F. M. Barney	319,171	June 2	287	76	31	1100
Churn	C. Berst	315,227	Apr. 7	352	86	31	63
Churn	H. T Burt and J. B. Burgess	321,340	June 30	3212	856	31	1667
Churn	H. S Carr	316,907	Apr. 21	1429	371	31	272
Churn	T. Martin	319,831	June 9	1175	310	31	1272
Churn	J. and J. C. Matson	316,988	May 5	76	20	31	536
Churn	J. McClure	316,557	Apr. 28	2170	571	31	412
Churn	J. A. McRae	317,559	May 12	850	218	31	686
Churn	W. J. Rogers	317,019	May 5	118	30	31	544
Churn	P. J. Shippee	315,847	Apr. 14	1202	313	31	225
Churn	J. J. Stevens	317,575	May 12	1265	337	31	763
Churn. Cream-testing	N. S. Andrews	320,426	June 16	2032	533, 534	31	1432
Churn-dasher	W. H. Gibbs	316,928	Apr. 21	1456	379	31	277
Churn-dasher	J. F. Hale	317,124	May 5	260	65	31	571
Churn-dasher	J. D. Wallace	316,699	Apr. 28	2379	619	31	451
Churn-holding device	H. Milburn, Jr	319,534	June 9	1178	311	31	1272
Churn. Oscillating	H. C. Winquest	318,5?7	May 26	2231	596	31	951
Churning device	S. B. and H. Wood and T. W. Wiley	316,426	Apr. 21	1996	524	31	373
Cider and wine press	D. G. Higinson and C. S. De Baun	315,784	Apr. 14	1124	295	31	211
Cider mill and press	B. F. Criley	317,313	May 5	521	133	31	619
Cider-press	P. R. Cross	315,010	Apr. 7	34	7	31	8
Cider-press	E. W. Lehman	321,039	June 30	2835	755	31	1597
Cider-purifier	E. Ripley	317,855	May 12	1241	328, 329	31	758
Cigar-boxing press	A. Rein	319,748	June 9	1049	277	31	1250
Cigar-bunching machine	C. H. Hauck	315,279	Apr. 7	414	103	31	75
Cigar-bunching machine	F. and E. H. Thompson	318,669	May 26	2331	622	31	977
Cigar-cutter	R. M. Collard	319,456	June 9	657	177	31	1179
Cigar-cutter	W. H. Lilly	318,995	June 2	82	21	31	1063
Cigar-cutter	W. H. Myers	320,084	June 16	1527	404	31	1343
Cigar-holder	J. L. C. Cronyn	319,866	June 9	1248	320	31	1284
Cigar-machine	G. W. Tanner	321,259	June 30	3116	820	31	1648
Cigar-machine	E. A. Tinchant	319,349	June 2	503	137	31	1144
Cigar mouth-piece	W. C. Anderson	319,165	June 2	222	74	31	1090
Cigar-perforator	F. Tuecke	317,247	May 5	434	108	31	602
Cigar-support	C. C. Knowlton	320,938	June 30	2702	717	31	1572
Cigar-wrapper cutter	J. R Williams	320,199	June 16	1674	445, 446	31	1368

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Cigar-wrapper-cutting machine	W. Rodger	319,424	June 2	598	102, 103	31	1162
Cigar-wrappers. Machine for cutting	O. Hammerstein	315,406	Apr. 7	584	150	31	105
Cigars. Temporary wrapper for	C. H. Haugk	320,248	June 16	1741	462	31	1381
Cigarette-machine	F. J. Ludington	320,370	June 16	1946	512, 513, 514, 515	31	1415
Circuit-breaker	E. Weston	320,022	June 16	1451	381	31	1328
Circuit-closer	J. E. Root	320,504	June 23	2141	565	31	1460
Cistern and tank cleaner	R. B. Scudder	320,1c0	June 16	1653	439	31	1364
Clamp:							
See Bed-clothes clamp. Halter-clamp.							
Brake-shoe clamp. Rope-clamp.							
Button-hole clamp. Saw-clamp.							
Cabinet-maker's clamp. Sewing-machine clamp.							
Floor clamp. Skate-clamp.							
Flooring-clamp. Trough-clamp.							
Clamp	C. R. Smith and J. B. Adams	319,521	June 9	749	201	31	1196
Clamp for confining the ends of braid, ropes, &c	E. W. Ten Eyck	316,310	Apr. 21	1828	481	31	345
Clamping device. Self-adjusting	G. W. Zeigler	318,338	May 19	1889	508, 509	31	867
Clasp:							
See Belt-clasp. Spring-clasp.							
Book-clasp. Suspender-clasp.							
Bracelet-clasp.							
Clasp for garments. Spring-locking	C. J. S. Hayden	317,645	May 12	962	248	31	706
Clasp for purses, &c	E. P. Hinkel	317,358	May 5	581	149	31	630
Clasp for shoes or other articles	T. P. West	320,104	June 16	1554	411	31	1347
Clasp for supporting garments	G. W. Luce	319,919	May 26	2067	707	31	1036
Clasp for wearing-apparel	A. Winterburn	315,873	Apr. 14	1246	323	31	231
Clasp or holding device for wearing-apparel	W. D. C. Pattyson	315,959	Apr. 14	1367	354	31	253
Clay-crusher	A. L. Brewer and H. Heesen	315,897	Apr. 14	1279	333	31	238
Clay-crushing machine	F. Alsip and C. T. Drake	320,905	June 30	2659	707	31	1565
Clay-crushing machine	W. W. Wallace. (Reissue)	10,584	Apr. 21	2008	527	31	375
Cleaner:							
See Belt-cleaner. Grain-cleaner.							
Boiler-cleaner. Peanut-cleaner.							
Carpet-cleaner. Sink-cleaner.							
Cistern and tank cleaner. Stable-cleaner.							
Cotton-cleaner. Steam-boiler cleaner.							
Feed-water cleaner. Steam-boiler-flue cleaner.							
Clevis. Plow	O. A. Essig	319,906	June 16	1308	359	31	1313
Clevis. Swiveled	W. H. McCumber	318,772	May 26	2468	661	31	1001
Clip:							
See Ticket-clip.							
Clip for rope-haulage	S. Morgan	318,492	May 26	2085	563, 564	31	933
Clip for the attachment of springs	F. H. Plummer	318,797	May 26	2508	669	31	1007
Clipping machine. Hair	J. K. Priest	317,671	May 12	996	259	31	713
Clock. Alarm	W. D. Davies	315,903	Apr. 14	873	229	31	102
Clock and lamp-regulating mechanism. Combined alarm	J. M. Crawford	317,312	May 5	519	132	31	616
Clock. Calendar	D. J. Gale	316,254	Apr. 21	1756	461, 462	31	332
Clock. Calendar	T. Kruczkowski	319,568	June 9	847	225	31	1213
Clock-case	H. Focken	319,085	June 2	189	50	31	1083
Clock-case	J. L. Rutherford and A. F. Wood	318,435	May 19	2016	542	31	910
Clock-case	A. D. Tyrrill	321,402	June 30	3304	882	31	1684
Clock. Electric	F. Banman	320,997	June 30	2783	739, 740	31	1587
Clock. Electric alarm	V. Gallet	318,612	May 26	2256	603	31	962
Clock. Electric pendulum	F. and O. Haenichen	316,360	Apr. 21	1803	501	31	356
Clock. Illuminated	J. M. Crawford	317,096	May 5	218	55	31	562
Clock. Mechanical and electrical alarm	I. S. Moser and F. Magee	317,837	May 12	1218	322	31	754
Clock-movement	F. A. Lane	317,360	May 5	610	156	31	632
Clock movement. Electric	J. E. Carey	316,112	Apr. 21	1575	410	31	299
Clock-movement frame	W. C. Walter	317,498	May 12	1300	348	31	770
Clock-pinion leaves. Machine for fastening	B. B. Lewis	318,762	May 26	2455	658	31	999
Clock. Secondary electric	C. A. Hussey	319,250	June 2	394	104, 105	31	1122
Clock-striking mechanism	H. L. Naramore	319,925	June 9	1299	343	31	1294
Clock-striking train	A. G. Hovde	316,364	Apr. 21	1900	503	31	357
Clock. Watchman's	R. B. Carr	319,783	June 9	1096	291	31	1258
Clocks. Circuit closer for primary electric	W. F. Weisgerber	319,534	June 9	766	205	31	1199
Closet. Knockdown	G. Schulz	319,137	June 2	251	65	31	1063
Cloth, leather, &c. Machine for cutting	C Goettler	320,650	June 23	2333	616	31	1496
Cloth. Ornamentation of	C J. Cox	317,310	May 5	517	132	31	618
Cloth-pressing machine	R. Patrick, Jr	317,185	May 5	346	87, 88	31	586
Cloth-pressing machine	J. Shearer	320,006	June 16	1424	374	31	1323
Clothes-drier	J. D. Martin and T. Head	316,987	May 5	75	20	31	536
Clothes-line fastener	G. C. H. Hasskarl	317,370	May 5	574	147	31	628
Clothes-line fastener	T. McCoy	315,312	Apr. 7	454	115	31	82
Clothes-line frame	C. L. Williams	317,258	May 5	449	112	31	605
Clothes-line holder	L. C. Guhl	318,182	May 19	1676	449	31	849
Clothes-rack	G. A. Sprosa and R. Meeker	317,236	May 5	419	105	31	609
Clothes-rack. Revolving	C. F. Buehler	320,046	June 16	1475	389	31	1333
Clothes-rubbing pad	W. S. F. Dillon	320,856	June 23	2587	685	31	1545
Clothes-wringer	A. M. Bailey	318,850	May 26	2578	686	31	1019
Clothing-stiffener. Adjustable	C. F Marsh	318,272	May 19	1794	480	31	870
Clover-huller	J. M. Thompson	317,395	May 12	897	230	31	604

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Clover-huller	D. Whiting	316,210	Apr. 21	1698	446	31	322
Clover-huller concave	F. Strobel	318,625	May 26	2545	678	31	1013
Clover huller cylinder	F Strobel	316,306	Apr. 21	1696	480	31	344
Clutch	E. Kay	318,279	May 19	1775	474	31	867
Clutch. Fly-wheel	W. L. Fish	319,968	June 16	1370	360	31	1314
Clutch. Friction	J. H. Cooper	317,306	May 5	510	130	31	616
Clutch. Friction	C. M. Huntington	318,905	May 26	2650	709	31	1033
Clutch. Friction	A. D. Simpson	320,007	June 16	1426	375	31	1323
Clutch. Friction	J. Thompson	316,200	Apr. 21	1696	443	31	320
Clutch. Friction	T. H. Thompson	319,967	June 9	1219	322	31	1279
Clutching device	C. P. White	317,056	May 5	163	41	31	552
Coal and ore shift	T. McCarty, G. E. Tener, and J. McAfee.	318,488	May 26	2060	561, 562	31	932
Coal-conveyer. Hand	W S. Tomkins	319,965	June 9	1216	321	31	1278
Coal-drilling machine	J T. Johnson and T. Thompson	321,034	June 30	2931	753	31	1506
Coal-feeding device	W. B. Chisholm and J. Walker	316,746	Apr. 28	2450	638	31	463
Coal-scuttle	G. W. Hodesty	317,788	May 12	1144	303	31	740
Coal scuttle or hod	H. C. Hinman	316,035	Apr. 21	1465	382	31	279
Coasting course. Artificial	J. Pusey	318,026	May 19	1478	390	31	811
Coasting or sledding course. Artificial	J. Pusey	318,025	May 19	1474	395	31	810
Coat-hanger. Folding	G. H. Donaldson	320,230	June 16	1720	437	31	1377
Cock attachment. Gas	G. Dontuey	319,206	June 2	561	152	31	1155
Cock for house-service and street-washer connections	J. Moss	314,652	Apr. 14	938	246	31	175
Cock for nozzles. Shut-off	J. E. Prunty	316,913	Apr. 28	2691	700	31	507
Cock for water-pipes. Self-closing	J. M. Brennan	318,063	May 19	1551	416	31	824
Cock. Gas	T. Gordon	318,978	June 2	67	17	31	1060
Cock. Siphon	F. W. Lyman	317,465	May 5	729	184	31	655
Cock. Stop and waste	D. Whiteford	319,157	June 2	272	72	31	1097
Cock. Valve	H. J. H. Brooks	315,234	Apr. 7	360	88	31	65
Cocks of gas, &c. Extensible service-box for the stop	S. A. Brown	317,920	May 12	1326	355	31	775
Cockle-seed separator	G. Adams	319,677	May 26	2340	625	31	978
Cockle-separator	L. and J. M. Morgan	317,109	May 5	327	81	31	582
Cocoa-beans. Apparatus for hulling, assorting, and cleansing	H. Stollwerck	320,890	June 23	2632	696, 697	31	1553
Coffee and tea box	F. Schombel	317,678	May 12	1006	261	31	714
Coffee and tea box	P. F Weber	319,533	June 9	765	204	31	1198
Coffee and tea pot	W. T. Jones	320,561	June 23	2212	585	31	1474
Coffee-roaster	J. C Salingeber	316,066	Apr. 21	1504	393	31	285
Coffin	S. Coombe	321,240	June 30	3143	837	31	1653
Coffin	W. M. Walsh	318,837	May 26	2558	681	31	1016
Coffin-case	I. C. Shuler	317,029	May 5	128	33	31	546
Coffin-fastening device	S. A. Aggerbright	320,834	June 23	2553	676	31	1539
Coffins. Device for lowering	W. S. Thayer	319,642	June 9	918	242	31	1226
Coke. Manufacturing	H. M. Pierce	318,497	May 26	2094	.....	31	935
Coke-oven	E. J. Bowen	315,595	Apr. 14	864	227, 228	31	160
Coke-oven	H. M. Pierce	318,496	May 26	2093	565	31	935
Coking coal	A. M. Chambers and T. Smith	320,627	June 23	2306	608, 609	31	1490
Cold artificially. Apparatus for generating	W. C. Wren	319,434	June 2	619	168	31	1166
Collapsible can	F. R. Grant	317,641	May 12	958	246	31	705
Collar fastening. Horse	N. A. Fisher and T. K. Burgess	320,046	June 23	2327	615	31	1494
Collar. Horse	W. Cosbie	318,544	May 26	2181	584	31	949
Collar. Horse	E. Fisher	320,863	June 23	2592	686, 687	31	1547
Collar. Horse	W. E. Waller	319,044	June 2	134	37	31	1072
Collar pad. Horse	J. P. Hoffmann	318,251	May 19	1765	472	31	865
Collar sweat pad. Horse	E. L. McClain	321,126	June 30	2954	781	31	1617
Collars, scarfs, &c. Device for exhibiting	F. J Guth	319,406	June 2	576	157	31	1157
Coloring-matter derived from naphthol	O. Hoffmann	316,036	Apr. 21	1466	.....	31	279
Coloring-matter from amidoazo-benzole and homologues. Obtaining	L. Vignon	319,646	June 9	921	.....	31	1226
Colors. Grinding	J. C. Jessup	317,367	May 5	592	.....	31	632
Column. Architectural	G. J. Weber	317,053	May 5	160	40	31	551
Comb:							
See Curry-comb.							
Combing-machine and working short cotton delivered therefrom	C. W. Simmons	318,046	May 19	1505	404	31	816
Combing machines. Stop-motion for wool	J. Midgley and W. Hall	319,989	June 16	1401	368	31	1319
Combing wool, cotton, &c. Machinery for	J. H. Whitehead	315,197	Apr. 7	209	51	31	38
Combination of gaseous fuel. Apparatus for the	J. Henderson	320,532	June 23	2178	574	31	1466
Combination of liquid fuel. Apparatus for the	J. D. Bodwell	315,238	Apr. 7	363	89	31	66
Combination of liquid fuel. Apparatus for	E. C. Burgess	320,533	June 23	2180	575	31	1467
Combination of liquid fuel. Device for the	J. D. Bodwell	319,892	June 9	1253	331	31	1285
Commode	N. G. Du Bois	320,823	June 23	2510	673	31	1536
Compass. Mariner's	R. L. Sleater	318,973	May 26	2635	699	31	1030
Composing-stick	C. M. Grow	318,898	May 26	2640	700	31	1031
Compound engine	S. L. Hatfield	317,008	May 5	178	45	31	555
Compressor-cylinder	W. H. Worthen	316,116	Apr. 21	1582	411	31	300
Concentrator	J. E. Clayton	317,945	May 12	1378	365	31	781
Concrete light for buildings, areas, &c	T. Hyatt	319,300	June 2	554	.....	31	1153
Concrete walls, blocks, &c. Making	T. W. Carrico	320,746	June 23	2447	649	31	1519
Condenser. Steam	T. Barber	320,087	June 16	1531	405	31	1343
Condenser. Steam-engine	P. B Perkins	320,647	June 23	2328	615	31	1495
Condenser. Surface	T. Gannon	317,069	May 5	180	45, 46	31	556
Condensing-engines. Safety apparatus for	C. C Worthington	316,799	Apr. 28	2518	.....	31	475
Condiment	R. F. Maier	317,887	May 12	1279	340	31	766
Conducting-cords. Flexible tip for	G. K. Thompson	320,003	June 16	1420	373	31	1322
Confectionery	S. Schaer	315,559	Apr. 14	822	216	31	153
Confectionery	A. Schwarzschild and N. Greenfield	315,669	Apr. 14	984	258	31	185
Connecting-rod	D. A. Woodbury	316,537	Apr. 28	2577	674	31	487
Converter	H. Schultze-Berge						

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Converters. Appliance for regulating the blast-pressure of	J. P. Witherow	317,263	May 5	454	114	31	606
Converters. Operating	J. F. Wilcox	315,581	Apr. 14	851	224	31	158
Converters. Blast appliance for	J. F. Wilcox	317,478	May 5	746	189	31	658
Converters. Regulating the blast-pressure of	J. P. Witherow	317,264	May 5	455	114	31	607
Convertible chair	E. H. Lewis	321,230	June 30	3082	818	31	1642
Convertible chair	B. C. Odell	317,000	May 5	97	25	31	540
Convertible chair	B. C. Odell	317,001	May 5	98	25	31	540
Conveyer	C. H. Morgan	319,299	June 2	441	118	31	1131
Conveyer and separator. Combined	L. Gathmann	319,809	June 9	1143	302	31	1266
Conveyer apparatus	J. F. Downing	320,340	June 16	1896	499	31	1407
Cooking apparatus. Feed-	J. J. Cox	315,389	Apr. 7	551	142	31	100
Cooking apparatus. Steam-	J. D. Johnson and W. H. Long	316,549	Apr. 28	2161	568	31	410
Cooking utensils. Device for joints in	T. F. Dean	315,917	Apr. 14	1311	341	31	243
Cooler: *See* Beer-cooler. Water-cooler.							
Cooling and freezing fluids. Apparatus for	A. Knx	320,144	June 16	1607	425	31	1356
Cooling buildings, &c. Apparatus for	H. C. Johnson	316,076	May 5	60	16	31	533
Coping	J. F. Smith	317,867	May 12	1257	334	31	762
Copper by electrolysis. Apparatus for refining	M. G. Farmer	315,265	Apr. 7	304	98, 99	31	72
Copper. Electro-depositing	M. G. Farmer	319,687	June 9	963	.....	31	1235
Cordage. Preparation, manufacture, and treating of yarn, hemp, and other materials employed in the manufacture of	M. H. Day	320,763	June 23	2470	.....	31	1594
Core-arbor	A. J. Doane	317,102	May 5	225	57	31	565
Core-bar	F. Shickle	319,520	June 9	748	200	31	1195
Cores. Apparatus for making dry-sand	J. H. Blessing	315,465	Apr. 14	673	175	31	126
Cork-retainer	E. H. Morgan	321,277	June 30	3090	821	31	1643
Corking-machine	J. J. H. Schultz	319,138	June 2	252	66	31	1094
Corkscrew	E. P. Haff	315,773	Apr. 14	1111	292	31	208
Corkscrew	E. P. Haff	317,123	May 5	239	65	31	571
Corkscrew	H. Strait	317,038	May 5	138	35	31	547
Corn cutter. Green-	S. D. Warfield	316,701	Apr. 28	2381	{620 621	31	451
Corn-cutting machine. Green-	A. P. Woods and W. E. Lindsay	315,588	Apr. 14	852	226	31	159
Corn-husking machine	J. Johnston and B. B. Stewart	316,150	Apr. 21	1608	{426 427	31	309
Corn-sheller	Q. E. Bohannon	316,728	Apr. 28	2424	631	31	458
Corn-sheller	S. C. Schofield	318,041	May 19	1497	402	31	815
Corn silking-machine. Green-	J. B. Baker	316,864	Apr. 28	2613	681	31	493
Cornet or other musical instrument	W. Booth	316,519	Apr. 28	2196	570	31	404
Cornice	L. Woelfle	316,715	Apr. 28	2402	626	31	455
Corset	M. R. Bortree	318,344	May 19	1899	511	31	889
Corset	M. Cohn	319,676	June 9	953	253	31	1233
Corset	T. S. Gilbert	317,335	May 5	558	142	31	625
Corset	J. Hilborn	319,715	June 9	1006	266	31	1242
Corset	W. A. Nettleton	315,436	Apr. 7	628	169	31	112
Corset	L. S. Purinton	320,964	June 30	2737	723	31	1559
Corset	C. H. Williams	316,858	Apr. 28	2606	680	31	492
Corset and garment-supporter. Combined	A. L. Zorkowski	315,990	Apr. 14	1405	364	31	260
Corset and garment-supporter. Combined	A. L. Zorkowski	317,958	May 12	1378	370	31	765
Corset and shoulder-brace. Combined	I. Stronse	317,473	May 5	740	187	31	657
Corset attachment	W. McWatera	318,776	May 26	2475	663	31	1003
Corset-bustle attachment	M. A. Waterhouse	321,408	June 30	3311	883	31	1685
Corset-fastening	L. Hill	315,031	Apr. 7	61	14	31	13
Corset-fastening	H. Jetter	318,119	May 19	1597	427	31	834
Corset-press	J. A. House	316,547	Apr. 28	2158	{567 568	31	410
Corset-shaping apparatus	J. A. House	318,256	May 19	1770	473	31	866
Corset-spring	C. Thury and S. De Bassecourt	316,852	Apr. 28	2597	678	31	490
Corset-stay	W. A. Nettleton	320,102	June 16	1629	434	31	1360
Corset-stay	A. J. Worrall	317,605	May 12	912	234	31	697
Corset-stays. Manufacture of	M. W. Henius	316,034	Apr. 21	1464	382	31	278
Corset-steel clasp or fastening	L. Hill	316,148	Apr. 21	1626	425	31	308
Corset-steel fastening	D. Alcorn, Jr., and R. A. Blake	317,699	May 12	1034	268	31	719
Corset-steel fastening	T. C. Bates	319,948	June 16	1344	354	31	1309
Corset-steel fastening	L. Hill. (Reissue)	10,596	May 12	1362	371	31	786
Corset stretching and finishing machine	J. A. House	318,255	May 19	1770	473	31	866
Corsets, &c. Stiffener for	J. F. J. Gunning	321,289	June 30	3154	841	31	1655
Corsets, &c. Stiffening-spring for	O. A. Gorton	319,404	June 2	573	156	31	1157
Cot	C. B. Camp	314,997	Apr. 7	15	4	31	5
Cot	C. P. Nash	317,174	May 5	334	83, 84	31	584
Cot. Folding	H. D. Hard	321,211	June 30	3060	812	31	1638
Cotters. Machine for pointing	W. A. Smith and I. A. Weston	319,429	June 2	608	{164 165	31	1104
Cotton and hay press	R. Garside	321,208	June 30	3057	811	31	1637
Cotton-buncher	S. Tynes	316,923	Apr. 28	2701	703	31	509
Cotton-chopper	J. F. Barringer	321,174	June 30	3012	798	31	1629
Cotton-chopper	W. Price	317,195	May 5	366	91, 92	31	580
Cotton-cleaner	S. Tucker	316,505	Apr. 28	2109	{554 555	31	460
Cotton-gin	L. F. Brown	317,921	May 12	1327	{356 357	31	776
Cotton-gin	W. Deering	318,362	May 19	1920	518	31	894
Cotton-gin	C. T. Mason, Jr	316,280	Apr. 21	1795	472	31	338
Cotton-gin	C. T. Mason, Jr	316,378	Apr. 21	1923	508	31	361
Cotton-gin	C. T. Mason, Jr	316,379	Apr. 21	1924	508	31	361
Cotton-gin	A. J. Vandegrift	320,901	June 23	2647	{702 703	31	1556
Cotton-gin. Picker-feed	W. Dearborn	319,964	June 16	1365	358	31	1313
Cotton-picker's sack	C. H. Dye	316,344	Apr. 21	1874	496	31	352
Cotton-press	P. C. Close	319,106	June 2	316	84	31	1106
Cotton sweep, chopper, &c. Combined	T. J. Fowler	315,400	Apr. 7	573	148	31	103
Couch	T. R. Jones	316,043	Apr. 21	1473	394	31	280

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Countersinking-machine	L. L. Lamb	316,271	Apr. 21	1779	468	31	335
Counting attachment for machines	A. M. Burnham	317,438	May 5	698	176	31	649
Coupling: *See* Belt-coupling. Pipe-coupling. Car-coupling. Pole and shaft coupling. Carriage-coupling. Rail-coupling. Cultivator-coupling. Rope-coupling. Electric coupling. Shaft-coupling. Harvester-pitman coupling. Thill-coupling. Vehicle-spring coupling. Hose-coupling. Wagon-box coupling. Pile-coupling. Whiffletree-coupling.							
Coupling device. Friction	R. H. Hill	316,149	Apr. 21	1627	425	31	308
Coupling for straps, &c	P. R. Guttstein	318,369	May 19	1928	520	31	895
Cover. Ventilating	R. J. Smith	316,843	Apr. 28	2585	676	31	488
Cow-milkers. Protector for	H. A. Thompson	317,045	May 5	146	37	31	549
Cow-tail holder	H. F. Jacobs	319,263	June 2	400	106	31	1123
Cracker-can	C. E. Pierce	316,480	Apr. 28	2079	544	31	395
Crackers. Machine for packing	J. McClurg	320,046	June 30	2710	719	31	1574
Cradle	A. D. Post	315,165	Apr. 7	247	60	31	45
Cradle. Folding	J. H. Lace	318,751	May 26	2439	{653 654	31	996
Cradle. Infants'	J. A. Jackson and F. C. Hannahs	315,625	Apr. 14	907	238	31	168
Cradle-rocker. Automatic	E. Anderson	320,833	June 23	2552	676	31	1539
Cranberries. Apparatus for gathering	W. C. Trabern	319,382	June 2	506	138	31	1144
Crank-lubricator	G. A. Porter	317,191	May 5	363	90	31	580
Crank-shaft journals. Apparatus for straightening	J. H. Thomas	317,593	May 12	895	229	31	693
Crayons. Composition for	J. J. Sleeper and H. A. Johns	320,009	June 16	1428	.....	31	1324
Cream-testing device	N. S. Andrews and J. M. Burnap	316,860	Apr. 28	2609	680	31	493
Creamer. Cabinet-	T. S. Van Devort	318,402	May 19	1975	531	31	903
Creamer. Centrifugal	N. Jacobsen and H. P. Jensen	315,628	Apr. 14	910	239	31	169
Creamer. Centrifugal	H. Pape	319,307	June 2	451	122	31	1133
Creaming-can	F. G. Butler	321,340	June 30	3211	{856 857	31	1667
Creaming-can	D. Fuller	321,354	June 30	3234	862	31	1671
Creaming-can	H. Kelsey	317,544	May 12	834	214	31	682
Creaming-can	H. F. Newell	320,385	June 16	1978	530	31	1423
Creating. Adjustable	C. Hanika	318,108	May 19	1584	424	31	831
Crib	J. A. Healey	318,111	May 19	1586	424	31	832
Crib. Folding	M. E. Woodward	320,630	June 23	2549	675	31	1538
Crib, settee, and lounge	S. Hale	320,651	June 23	2334	617	31	1496
Crusher: *See* Clay-crusher. Seed-crusher. Rock-crusher. Stone and ore crusher.							
Crushing and grinding machine	J. W. Anthoine	319,166	June 2	282	74	31	1099
Crushing and pulverizing mill	J. Cherney	316,331	Apr. 21	1856	491	31	349
Crushing-mill	E. M. Villeroy	318,670	May 26	2333	623	31	977
Crushing-mill. Centrifugal	F. A. Huntington	318,117	May 19	1595	426	31	833
Crushing-roll	H. J. Chapin	321,007	June 30	2796	743	31	1590
Crutch	J. R. Brooks	320,621	June 23	2289	607	31	1489
Cuff	W. Frank	319,219	June 2	343	92	31	1112
Cuff-fastener	G. C. Paine	319,015	June 2	103	28	31	1067
Cuff-holder	L. W. T. Lodge	319,280	June 2	417	111	31	1127
Cuff-holder	C. C. Shelby	320,404	June 16	2008	527	31	1428
Culinary boiler	C. W. Geer	316,257	Apr. 21	1761	463	31	332
Culinary vessel	G. H. Zipb	315,089	Apr. 14	1404	364	31	260
Cultivator	J. T. Atterbury	317,277	May 5	473	119	31	609
Cultivator	D. Brunson	316,942	May 5	15	4, 5	31	525
Cultivator	C. Doormann	320,051	June 16	1480	{300 301	31	1334
Cultivator	F. M. Everingham	316,886	Apr. 28	2638	{687 688	31	498
Cultivator	J. U. Gillespie	318,178	May 19	1671	446	31	848
Cultivator	J. H. Jones	316,369	Apr. 21	1909	505	31	358
Cultivator	S. B. Little	320,147	June 16	1612	429	31	1357
Cultivator	M. F. McCray	318,922	May 26	2670	708	31	1037
Cultivator	M. T. McGee	317,400	May 5	635	162	31	638
Cultivator	S. A. Moulton	316,164	Apr. 21	1647	431	31	312
Cultivator	J. C. Nelson	319,609	June 9	877	232	31	1219
Cultivator	J. A. Torrence and D. B. Jernigan	316,313	Apr. 21	1832	482	31	345
Cultivator	E. E. Whipple	319,871	June 9	1225	{323 324	31	1280
Cultivator	S. F. Weaver	315,865	Apr. 14	1230	321	31	230
Cultivator	S. F. Weaver	315,866	Apr. 14	1232	321	31	230
Cultivator	W. S. Weir	320,510	June 23	2160	570	31	1464
Cultivator	A. Wilhelm	320,607	June 23	2276	602	31	1486
Cultivator and hoe combined. Cotton	R. L. Warthen	320,731	June 23	2430	644	31	1515
Cultivator and seeder frame	G. D. Rowell	320,950	June 30	2749	731	31	1581
Cultivator attachment	R. R. Lomax	317,392	May 5	624	159	31	637
Cultivator attachment	L. Thels	320,964	June 30	2767	735	31	1584
Cultivator attachment	J. E. Walker	316,085	Apr. 21	1533	400	31	291
Cultivator attachment	N. R. H. Burnet	318,415	May 19	1968	535	31	906
Cultivator. Cotton-	J. Goodnough	319,243	May 19	1756	469	31	864
Cultivator-coupling	F. L. Holcomb	320,787	June 23	2499	661	31	1529
Cultivator-gearing	C. R. Davis	315,132	Apr. 7	190	47	31	35
Cultivator-harrow attachment	J. Goodnough	316,140	Apr. 21	1616	423	31	306
Cultivator-spring	A. G. Anderson	315,879	Apr. 14	1252	327	31	233
Cultivator-tooth	G. Carruthers	317,971	May 19	1406	377	31	798
Cultivator-tooth	F. M. Helms and C. C. Trinkle	317,780	May 12	1138	301	31	739
Cultivator. Wheel-	F. Hammers	315,277	Apr. 7	412	{102 103	31	75
Cultivator. Wheel-	H. G. Swope and J. R. Rade	321,399	June 30	3296	880	31	1683
Cultivators, &c. Guiding device for	S. P. Hutchinson	320,473	June 23	2101	554	31	1453

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Cup: *See* Oil-cup.							
Cupola-furnace having sectional water-jackets	E. Probert	320,586	June 23	2240	595 / 596	31	1481
Curry-comb	W. T. Gill	316,138	Apr. 21	1615	422	31	306
Curry-comb	J. W. Gridley	317,341	May 5	564	144	31	626
Curtain-bar bracket	T. R. Hyde, Jr.	319,908	June 9	1279	337	31	1200
Curtain-cord holder	M. M. Moore	319,298	June 2	440	118	31	1131
Curtain-fixture	J. A. Illingworth	315,589	Apr. 14	1131	296	31	212
Curtain pole and fixture	O. F. Schumann	320,094	June 16	1540	407	31	1345
Curtain pole bracket	R. S. Gould	319,689	June 2	192	51	31	1083
Curtain pole joint	R. S. Gould	317,339	May 5	562	143	31	626
Curtain-stretcher	E. Sweitzer	319,345	June 2	500	136	31	1143
Curtains to rollers. Device for attaching	J. Rösch	320,290	June 16	1809	480	31	1391
Cushion: *See* Billiard-table cushion. Pincushion. Water-pipe cushion.							
Cuspidor	D. M. Ireland	317,364	May 5	589	152	31	631
Cuspidor	H. Strait	317,039	May 5	140	36	31	548
Cuspidor	J. J. Walton	317,251	May 5	439	110	31	603
Cut-off. Automatic	G. W. Parker	316,386	Apr. 21	1931	510	31	362
Cut-off device for flexible tubes or hose	A. E. Dart	318,001	May 19	1561	418	31	926
Cut-off valve	H. Barton	318,597	May 26	2240	600	31	959
Cut-off-valve gear	W. C Champlain	317,299	May 5	503	128	31	615
Cut off valve gear	C. H. Roberts	315,664	Apr. 14	952	249	31	178
Cut-off valve gear. Automatic	G. Danby	317,979	May 19	1413	379	31	800
Cut-off valve. Steam	G. W. Anderson	317,609	May 12	919	235 / 236	31	698
Cutlery-handles. Forming	W. Lorenz	317,393	May 5	625	159	31	637
Cutter: *See* Bolt-cutter. Bread-cutter. Button-hole cutter. Caramel-cutter. Cheese-cutter. Cigar cutter. Cigar-wrapper cutter. Corn-cutter. Fat-cutter. Feed-cutter. Fuse-cutter. Gear-cutter. Malt-cutter. Meat-cutter. Stalk-cutter. Stalk and cane cutter. Tailor's chalk-cutter. Wedge-cutter.							
Cutter-head	J. B. Mahaffey	321,378	June 30	3266	873	31	1678
Cutter-head	S. J. Shimer	319,933	June 9	1315	346 / 347	31	1296
Cutter-head for rifling-machines	W. H. Davenport and J. W. Day	315,130	Apr. 7	198	46	31	34
Cutter-head gage	S. J. Shimer	319,751	June 9	1052	278	31	1251
Cutter-head. Rabbeting	P. A. Buell	318,596	May 26	2239	599 / 600	31	959
Cutting-off tool	C. E. Billings	318,687	May 26	2352	628	31	980
Cyclometer	C. H. Lamson	320,145	June 16	1609	426	31	1356
Cylinder	H. M. L. Crouan	316,749	Apr. 28	2454	639	31	464
Cylinder and piston	G. H. Poor	318,499	May 26	2098	566	31	936
Cylinders of water of condensation. Relieving	G. H. Poor	318,022	May 19	1471	394	31	810
Dampening-machine	G. L. Shorey	320,917	June 30	2759	733	31	1583
Damper-regulator. Automatic	J. Burge	315,904	Apr. 14	1291	336	31	240
Damper. Stove-pipe	J. Grimm	317,992	May 19	1431	383	31	803
Damper. Stove-pipe	H. R. Todd	317,046	May 5	147	38	31	549
Darner and mender. Combined	G. F. Atkinson	320,995	June 30	2781	739	31	1586
Dead-centers. Device for overcoming	O. B. Thompson	318,831	May 26	2551	679	31	1014
Dead until their burial. Safety apparatus for the preservation of the	R. Strauss	315,569	Apr. 14	833	219	31	155
Decorating shells	T. McCusker	320,947	June 30	2711	719	31	1574
Demijohn	E. R. Emerson	321,012	June 30	2802	745	31	1591
Dental breath-guard	C. C. Southwell	319,338	June 2	493	133	31	1142
Dental chair	M. L. Long	320,606	June 23	2521	668	31	1533
Dental-engine angle attachment	W. A. Johnston and A. W. Browne	319,583	June 9	834	221	31	1211
Dental-engine angle attachment	C. D. Miller	319,110	June 2	218	57	31	1088
Dental-engine holder	C. H. Gilbert	318,177	May 19	1670	448	31	847
Dental file holder or carrier	H. E. Wales	315,575	Apr. 14	844	222	31	157
Dental instrument	R. B. Donaldson	318,173	May 19	1666	447	31	847
Dental plate	J. K. Morris	315,319	Apr. 7	462	117	31	84
Dental plate	A. H. Parker	317,067	May 12	903	258	31	719
Dental pliers for adjusting tools in hand-pieces	W. A. Johnston and A. W. Browne	319,584	June 9	835	222	31	1211
Dental tool for preparing roots for crowns	C. P. Grant	319,237	June 2	366	98	31	1117
Dental-tool holder	L. T. White	321,265	June 30	3125	832	31	1650
Dentifrice	J. E. Edmundson	315,750	Apr. 14	1080		31	203
Dentist's chair	O. C. White	316,100	Apr. 21	1556	405 / 406	31	295
Denture. Artificial	J. E. Low	319,929	June 9	1171	309	31	1271
Denture. Artificial	P. A. Palmer	315,656	Apr. 14	943	247	31	176
Denture. Artificial	L. T. Sheffield	318,579	May 26	2221	593	31	955
Denture. Artificial	L. T. Sheffield	318,580	May 26	2222	594	31	955
Denture support. Artificial	W. W. Sheffield	318,581	May 26	2224	594	31	956
Designs on britannia and other soft metals. Producing ornamental	J. W. Tufts	320,513	June 23	2151	567	31	1462
Desk	J. E. W. Poolman	321,383	June 30	3272	874	31	1679
Desk	W. H. Wetmore	317,253	May 5	442	110	31	603
Desk and seat. School	G. Hamel	318,183	May 19	1676	450	31	849
Desk-curtain. Slatted	F. A. Coffin	320,913	June 30	2672	710	31	1567
Desk. Folding reading	D. D. Bowman	317,388	May 5	491	123	31	613
Desk. School	J. H. Stiggleman	321,322	June 30	3192	851	31	1665
Desk. Writing	J. J. Schmitt and M. W. Dougherty	319,133	June 2	247	65	31	1093
Detergent	C. Robinson	319,323	June 2	474		31	1138
Diamond. Artificial	E. E. Kipling	321,302	June 30	3168		31	1658

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Diaper	L. S. Samuel	318,141	May 19	1627	434	31	839
Die: *See* Screw-cutting die. Wire-drawing die. Tile-machine die.							
Die for spherical articles	G. F. Simonds	319,756	June 9	1057	280 / 281	31	1252
Digester-door	T. F. Rowland	320,971	June 30	2750	731	31	1581
Digger: *See* Post-hole digger. Potato-digger.							
Dilator. Vaginal	H. G. Farr	316,611	Apr. 28	2240	590	31	425
Direct-acting engine	G. H. Reynolds and T. J. Rider	318,656	May 26	2211	618	31	973
Dish. Soap	H. C. Hart	319,246	June 2	378	101	31	1119
Dish-washer and churn. Combined	W. N. Fletcher	319,967	June 16	1369	359 / 360	31	1314
Disinfecting compound	F. Jossa	321,368	June 30	3256	.....	31	1675
Disinfecting water-closets	W. M. Ernst	317,634	May 12	948	243	31	703
Display-case for goods	J. N. Leonard	320,566	June 23	2217	587	31	1475
Display-frame	W. B. Foster	320,122	June 16	1583	418	31	1351
Display-rack	B. B. Weidner	318,376	May 19	1887	508	31	887
Distance-register for vehicles	E. Schuchardt	318,511	May 26	2113	570	31	938
Distilling glycerine. Apparatus for	R. Glebermann	319,971	June 16	1376	361	31	1315
Distilling wood. Apparatus for	E. Koch	316,794	Apr. 28	2411	656	31	474
Ditching-machine	F. Plumb	316,396	Apr. 21	1948	513	31	365
Ditching-machine	D. J. Powers	319,421	June 2	593	161	31	1161
Ditching-machine	J. W. Zeis	317,481	May 5	751	190	31	659
Ditching machine. Railway	A. H. McGrew	318,643	May 26	2294	612 / 613	31	969
Door alarm. Shop	A. Bénézit	315,999	Apr. 21	1421	369	31	270
Door and gate spring	N. Headington and J. S. Malin	317,132	May 5	270	68	31	573
Door and gate spring	J. M. Stewart	317,877	May 12	1267	338	31	764
Door-check	W. Bahre	320,527	June 23	2170	572 / 573	31	1465
Door-check	J. W. Callaway	315,718	Apr. 14	1029	270	31	192
Door-check	P. Forg	319,080	June 2	189	50	31	1083
Door-check	C. E. Hewitt	315,284	Apr. 7	419	105	31	76
Door-check	J. Krumacheid	317,147	May 5	270	74	31	576
Door-check	J. F. Rowlett	319,625	June 9	893	236	31	1222
Door-check	W. H. Teetzel	318,323	May 19	1868	501	31	883
Door-check	S. Weaver	319,532	June 9	764	204	31	1196
Door check and holder	T. E. Barrow and H. Wade	315,221	Apr. 7	345	84	31	62
Door-closer	M. P. Ismay	318,258	May 19	1774	474	31	867
Door-closer	J. McDonald	316,283	Apr. 21	1900	473	31	339
Door-closing device	N. H. Richardson	316,571	Apr. 28	2189	576	31	416
Door handle. Sliding	O. Seely	321,143	June 30	2974	798	31	1621
Door-hanger	C. W. Bullard	317,496	May 12	773	197	31	672
Door-hanger	C. W. Bullard	321,081	June 30	2808	770	31	1606
Door-hanger	H. A. Holmes	316,037	Apr. 21	1467	383	31	279
Door-hanger	D. Manuel	318,125	May 19	1605	429	31	835
Door-hanger	S. H. Nye	319,113	June 2	292	58	31	1088
Door-hanger	E. C Stearns	321,151	June 30	2965	791	31	1623
Door. Hanging	G. W. Emerson	321,108	June 30	3047	807	31	1635
Door holder. Sliding	W. E. Haycox	317,362	May 5	575	148	31	628
Door-lock	F. N. Perkins	315,657	Apr. 14	944	247	31	176
Door-lock	R. G. Roland	316,574	Apr. 28	2192	577	31	416
Door lock. Sliding	G. Cassady	316,115	Apr. 21	1581	411	31	300
Door lock. Sliding	W. Gerwien	315,761	Apr. 14	1095	287	31	205
Door or shutter	E. Belden	315,111	Apr. 7	166	40	31	31
Door roller. Sliding	J. H. Lawrence	319,494	June 9	712	192	31	1189
Door saddle or sill	J. A. Cramer	317,630	May 12	944	242	31	702
Door-spring	S. T. Lamb	315,302	Apr. 7	440	111	31	80
Doors. Hanging	F. B. Boalt	315,230	Apr. 7	355	87	31	64
Doors. Stay-roller for sliding	A. L. Swett	319,738	June 9	1321	348	31	1297
Double-tree protector	T. Feyen	317,105	May 5	229	57	31	565
Dough-rolling machine	R. Morhard	319,901	June 16	1403	369	31	1319
Draft-bar. Shifting	B. B. Myers	320,384	June 16	1977	520	31	1423
Draft-equalizer	G. W. and F. E. Arnold	315,375	Apr. 7	534	136	31	97
Draft-equalizer	J. N. Bowyer	317,081	May 5	200	50	31	559
Draft-equalizer	G. J. Kaplan	320,793	June 23	2504	663	31	1530
Draft-equalizer	P. E. McDonnell	319,501	June 9	723	194	31	1191
Draft-equalizer	C. Miner	319,600	June 9	864	229	31	1216
Draft-equalizer	J. W. Wainwright	317,897	May 12	1298	347	31	770
Draft-regulator	G. W. Lore	316,552	Apr. 28	2165	570	31	415
Draft slide or register	L. A. White	319,367	June 2	526	143	31	1148
Drafting-table	H. C. Weeden	318,528	May 26	2143	577	31	944
Drain and drain-tile	F. M. Marquis	320,667	June 23	2356	622	31	1500
Drain-pipe tran	R. Thayer	319,529	June 9	759	203	31	1197
Drain-pipe. Straight-edge for laying	H. C. Lowrie	317,158	May 5	310	78	31	579
Drainage with special reference to the prevention of floods. Surface	A. Montenegro	319,297	June 2	439	118	31	1131
Draw-bench	J. J. Fisher	320,922	June 30	2680	712	31	1568
Drawer-case	N. A. Hull	318,114	May 19	1592	425	31	833
Drawer. Furniture	C. E. Birckhead	321,078	June 30	2804	769	31	1606
Drawer. Furniture	E. C. Roberts	316,294	Apr. 21	1812	476	31	341
Drawer-pull	G. E. Somers	315,852	Apr. 14	1210	316	31	226
Drawers	V. Bell	319,175	June 2	292	78	31	1101
Drawers. Fastening device for a series of	M. Bancroft	316,506	Apr. 28	2222	585	31	422
Drawers, overalls, and pantaloons	J. Elsner	317,992	May 19	1417	380	31	800
Drawing and spinning hemp, &c. Machine for	J. Good	317,115	May 5	240	60, 61	31	567
Drawing and spinning hemp. Machine for	J. Good	317,117	May 5	249	62, 63	31	569
Drawing-board	S. W. Goodwin	316,538	Apr. 28	2147	565	31	409
Drawing-board and drafting appliance	W. G. Stewart	318,319	May 19	1802	500	31	882
Drawing-board and T-square	C. H. Prescott	315,545	Apr. 14	801	211	31	149
Drawing-frame, &c	J. H. Wilson	321,267	June 30	3127	833	31	1650
Drawing-frames, &c. Top roller for	J. Brierley	319,187	June 2	306	81	31	1104

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Drawing-stand	E. S. Cobb	315,246	Apr. 7	374	92	31	68
Dredging	A. B. Bowers	318,860	May 26	2396	689 690	31	1023
Dredging-machine	A. B. Bowers	318,859	May 26	2587	689	31	1021
Dress-shield	I. A. Canfield	317,626	May 12	940	241	31	701
Dress-shields. Apparatus for the manufacture of armpit	I. A. Canfield	317,624	May 12	938	240 241	31	701
Dress-shields. Manufacturing	I. A. Canfield	317,625	May 12	939	241	31	701
Drier: *See* Bone-black drier. Clothes-drier. Fruit-drier. Grain-drier. Lumber-drier. Malt-drier. Offal-drier. Ore and salt drier. Tobacco drier. Wool-drier.							
Drier	J. H. Cohrs	319,502	June 9	803	213 214	31	1205
Drier	A. Munzinger	317,172	May 5	330	82	31	583
Drier	W. J. Possons	320,498	June 23	2134	563	31	1459
Drier	D. H. Rice	316,424	Apr. 28	2083	545	31	395
Drier	G. W. Sharer	315,348	Apr. 7	406	126	31	91
Drier	C. F. Wolf	318,588	May 26	2232	596 597	31	957
Drill: *See* Automatic drill. Grain-drill. Manure-drill. Metal-drill. Ratchet-drill. Rock-drill. Seed-drill. Seed and fertilizing drill. Twist-drill.							
Drill	J. M. Glenn	317,336	May 5	558	142	31	625
Drill	J. H. Pendleton	319,614	June 9	883	234	31	1220
Drill and sucker rod joint	A. M. Bollinger	317,493	May 12	771	196	31	671
Drill-blanks. Machine for making	W. E. Taft	318,322	May 19	1867	501	31	883
Drill-brace. Friction	R. S. Solomon	320,185	June 16	1660	441	31	1366
Drill fertilizer-feed	T. R. Crane	319,393	June 2	557	151	31	1154
Drill-jar	E. Queen	315,547	Apr. 14	803	212	31	150
Drills. Machine for making	W. Y. A. Boardman	317,287	May 5	489	123	31	613
Drills. Manufacture of	S. Moore	315,530	Apr. 14	779	205	31	145
Drilling and boring machine. Combined	G. G. Morrison	319,502	June 9	724	194	31	1191
Drilling-machine	G. Burnham and A. Goddard	319,272	June 16	1348	354	31	1310
Drilling-machine	W. Dowell	320,053	June 16	1496	392	31	1335
Drilling-machine	U. and H. E. Eberhardt	321,196	June 30	3041	806	31	1634
Drilling-machine	C. H. French and A. T. Gifford	317,635	May 12	949	243	31	703
Drilling-machine	L. L. Lamb	315,149	Apr. 7	225	55	31	41
Drilling-machine	T. McFarlan and H. E. Nottingham	315,049	Apr. 7	96	21	31	17
Drilling-machine	T. H. Thompson	317,886	May 12	1277	340	31	766
Drinking-fountain for poultry	J. Cook	315,251	Apr. 7	380	94	31	69
Drinking-trough for animals	J. Moore	316,639	Apr. 28	2272	598	31	431
Drop-light and chandelier	J. Trigge	315,976	Apr. 14	1390	361	31	257
Drop-presses. Machinery for feeding	E. L. Howe	315,942	Apr. 14	1340	348	31	249
Drop-presses. Machinery for feeding	E. L. Howe	315,943	Apr. 14	1343	348	31	249
Dropper: *See* Tobacco-dropper.							
Drum. Heating	G. L. S. Brock	318,541	May 26	2176	563	31	948
Drying apparatus	J. W. Free and J. F. Baldwin	316,353	Apr. 21	1884	499	31	354
Drying apparatus	O. B. Hardy	315,141	Apr. 7	208	50, 51	31	38
Duck-shooting blind	B. F. Kenly	315,297	Apr. 7	434	109	31	78
Dumb-bell	G. L. Bailey	318,078	May 19	1545	414	31	823
Dumb-waiter	W. B. Mover	316,050	Apr. 21	1482	387	31	282
Dust-collector	A. Ingraham	318,989	June 2	77	20	31	1062
Dust-excluder	H. W. Fox	318,176	May 19	1669	447	31	847
Dust-pan	E. C. Atwood	317,433	May 5	693	175	31	648
Dyed fabrics. Apparatus for steaming	E. Rau	318,205	May 19	1706	457	31	854
Dyeing	R. Silberberg	320,820	June 23	2538	.....	31	1536
Dyeing apparatus	I. Simonis	318,144	May 19	1631	436	31	840
Dyeing hanks of wool. Apparatus for	T. G. Charlesworth	315,910	Apr. 14	1302	339	31	241
Dynamometer and safety-valve. Combined	P. Clark	318,697	May 26	2367	632	31	963
Ear-jewels. Ball-cover for	G. W. Washburn	321,407	June 30	3310	883	31	1685
Ear-muff	C. E. Gillespie	316,020	Apr. 21	1456	380	31	277
Ear-muffler	A. L. Britton	315,233	Apr. 7	349	88	31	65
Ear-pick	J. Rnoff	320,589	June 23	2631	696	31	1553
Ear-ring	C. E. Westcott	320,991	June 30	2775	737	31	1586
Earth and coal loader	D. J. Gilchrist	317,761	May 12	1111	293	31	734
Earth loader and conveyer	M. E. Cook	316,243	Apr. 21	1744	458 459	31	330
Easel. Book	H. Patzberg	317,566	May 12	858	220	31	687
Eaves-trough	H. H. Schumann and C. Muth	316,578	Apr. 28	2198	578	31	417
Eaves-trough hanger	W. C Berger	321,180	June 30	3020	800	31	1630
Eaves-trough hanger	G. S. Dippry	319,466	June 9	673	181	31	1182
Eaves-trough trap	W. B. Porter	317,011	May 5	109	28	31	542
Eaves-troughs. Device for use in soldering or making	R. F. O'Brien	316,813	Apr. 28	2535	662	31	479
Eccentric-lubricator	E. Kay	317,372	May 5	601	154	31	633
Eccentric. Shifting	F. X. Black and G. Kaffenberger	321,001	June 30	2789	741	31	1588
Edge-curling machine	W. A. Wheeler	316,711	Apr. 28	2397	624 625	31	454
Edge-trimming machines. Toe-pieces for	D. Davis	316,750	Apr. 28	2455	639	31	464
Egg and fruit holding implement	F. O. Butterfield	319,954	June 16	1351	355	31	1310
Egg-beater	C. A. Bryant	319,191	June 2	310	82	31	1105
Egg-beater	T. Fletcher	317,755	May 12	1106	291	31	733
Egg-beater	J. L. Newcomer	318,786	May 26	2493	665	31	1005
Egg-beater	J. E Welling	321,327	June 30	3199	853	31	1664
Egg boiler and caster	M. E. Tisdale	318,523	May 26	2138	576	31	943
Egg-carrier	J. Burns	315,476	Apr. 14	694	181	31	129
Egg-tester	W. Kirkpatrick	317,462	May 5	726	183	31	654

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Ejector	W. T. Messinger	316,804	Apr. 28	2593	659	31	477
Ejector for draining cellars. Fluid	G. Haydn	318,185	May 19	1678	450	31	849
Elastic fabric. Machine for crimping and preparing	G. Schilling	315,842	Apr. 14	1194	311	31	224
Election-slip	C. X. Machris and J. F. Haacker	318,769	May 26	2465	660 661	31	1001
Electric alarm and signal	H. C. Roome	316,183	Apr. 21	1667	437	31	316
Electric battery	E. Bazin	316,436	Apr. 28	2019	530	31	384
Electric battery	A. Haid	315,937	Apr. 14	1333	347	31	248
Electric battery	M. J. Myers	319,923	June 9	1297	342	31	1293
Electric battery	E. Bazin	316,437	Apr. 28	2020	530	31	384
Electric battery. Rotary	P. B. Delany	320,229	June 16	1718	457	31	1376
Electric cable	W. R. Patterson	321,240	June 30	3094	822	31	1644
Electric-cable joint	E. Thomson and E. W. Rice	320,017	June 16	1436	377	31	1325
Electric-circuit cut-out	A. G. Holcombe	319,718	June 9	1012	268	31	1243
Electric circuits. Automatic responding-instrument for	W. L. Stevens	316,077	Apr. 21	1522	397	31	288
Electric circuits. Safety-box for	S. Bergmann	319,384	June 2	547	149	31	1152
Electric circuits. Safety-catch plug for	E. Weston	316,097	Apr. 21	1552	404	31	294
Electric circuits. Switch or circuit breaker for	L. Daft	320,632	June 23	2312	610	31	1491
Electric conductor	T. T. Smith	315,673	Apr. 14	964	252	31	180
Electric coupling	L. Goldberg and A. L. Fyfe	316,139	Apr. 21	1615	422 423	31	303
Electric current to moving objects. Apparatus for the transmission of an	W. M. Thomas	316,502	Apr. 28	2107	554	31	400
Electric cut-out	S. S. Wheeler. (Reissue)	10,585	Apr. 21	2009	528	31	375
Electric elevator	C. A. Jackson	320,137	June 16	1600	423 424	31	1354
Electric engine	W. A. J. Kohrn	319,912	June 9	1285	339	31	1291
Electric engine	W. E. Sawyer and A. Man	317,676	May 12	1004	260	31	713
Electric light	T. T. Smith	315,674	Apr. 14	966	253	31	181
Electric-light apparatus	L. Stieringer and J. H. Vail	317,879	May 12	1269	338	31	764
Electric lights. Wiring interiors for	H. B. Gale	319,573	June 9	816	217	31	1208
Electric lighting apparatus	J. G. Allen	317,960	May 19	1390	373	31	795
Electric-lighting circuits. System of distribution for	W. S. Andrews and T. Spencer	318,157	May 19	1646	440	31	842
Electric-lighting system	W. M. Thomas	319,347	June 2	501	136 137	31	1143
Electric-lighting system	E. Weston	316,707	Apr. 28	2390	623	31	453
Electric-lighting system	E. Weston	316,708	Apr. 28	2391	623	31	453
Electric lighting system and switch	W. S. Andrews	317,610	May 12	921	236	31	698
Electric lines. Support for underground	S. J. Fague	317,326	May 5	545	139	31	623
Electric lock	C. Blattmann	320,617	June 23	2293	605	31	1488
Electric machine. Dynamo-	J. S. Du Bois	318,094	May 19	1563	419	31	826
Electric machine. Dynamo-	G. A. Hamilton	319,578	June 9	826	219	31	1210
Electric machine. Dynamo-	C. F. Heinrichs	317,779	May 12	1135	300 301	31	739
Electric machine. Dynamo-	J. M. Rivera	320,170	June 16	1639	436	31	1362
Electric machine. Dynamo-	A. G. Waterhouse	318,671	May 26	2333	623	31	977
Electric machine. Dynamo-	L. G. Woolley	319,540	June 9	775	206	31	1200
Electric-machine regulator. Dynamo-	C. L. Buckingham	320,840	June 23	2560	678	31	1541
Electric-machine regulator. Dynamo-	C. L. Buckingham	320,842	June 23	2564	678 679	31	1541
Electric-machine regulator. Dynamo-	M. G. Farmer	320,234	June 16	1725	458	31	1378
Electric-lighting system	E. Weston	316,709	Apr. 28	2393	624	31	453
Electric-machine regulator. Dynamo-	E. Weston	316,089	Apr. 21	1538	402	31	292
Electric machines. Armature for dynamo-	A. H. Bowman	320,754	June 23	2458	652	31	1522
Electric machines. Armature for dynamo-	W. F. Buckley	315,903	Apr. 14	1290	336	31	240
Electric machines. Armature for dynamo-	D. A. Schuyler	318,664	May 26	2323	621	31	975
Electric machines. Core for the armatures of dynamo-	H. J. Müller	320,158	June 16	1625	432	31	1359
Electric meter	J. Canderay	318,166	May 19	1656	443 444 445	31	845
Electric motor	J. M. Pendleton	321,049	June 30	2849	758	31	1600
Electric motor	L. G. Woolley	318,589	May 26	2233	597	31	957
Electric motor and generator	F. J. Sprague	315,181	Apr. 7	277	67	31	50
Electric motor and generator	F. J. Sprague	315,182	Apr. 7	281	67	31	50
Electric motors, &c. Governor for	W. M. Thomas	316,500	Apr. 28	2104	553	31	399
Electric responding-signals. Producing	A. G. Holcombe	321,110	June 30	2936	778	31	1614
Electric signal	H. D. Winton	317,911	May 12	1315	352 353	31	773
Electric signaling apparatus and circuit	F. B. Herzog	315,027	Apr. 7	53	12	31	11
Electric switch	L. Daft	320,630	June 23	2310	610	31	1491
Electric switch	A. J. Holt	318,987	June 2	76	19	31	1062
Electric switch-signals. Circuit for	A. W. Hall	315,498	Apr. 14	721	191	31	135
Electric way	W. E. Banta	318,411	May 19	1924	534	31	905
Electric wires. Aerial conduit for	D. B. Macquarrie	315,526	Apr. 14	765	202	31	143
Electric wires. Underground conduit for	W. Walter	316,700	Apr. 28	2379	619	31	451
Electrical accumulator	J. J. Barrier, F. Tourvieille, and J. E. Legay.	317,487	May 12	764	194	31	670
Electrical conductor	W. H. Sawyer	319,326	June 2	477	129	31	1139
Electrical conductors. Conduit for	W. Cohlman	319,197	June 2	317	84	31	1107
Electrical conductors. Conduit for	C. G. Perkins	319,998	June 16	1412	371	31	1321
Electrical conductors into conduits. Driving	D. N. Hurlbut	321,363	June 30	3248	867 868	31	1674
Electrical conductors. Making	W. S. Platt	320,684	June 23	2379	629	31	1505
Electrical conductors. Making	J. J. Williamson	319,536	June 9	709	205	31	1199
Electrical conductors. Underground conduit for	G. H. Benjamin	315,225	Apr. 7	349	85	31	63
Electrical conductors. Vulcanization of rubber coverings for	J. J. C. and M. Smith	317,587	May 12	887	.....	31	692
Electrical conduit and discharger	E. H. Hoffmann	320,253	June 16	1746	464 465	31	1382
Electrical device to enable showmen to walk on the ceiling	C. H. Newman and W. Berrigan	320,275	June 16	1787	475	31	1388
Electrical distribution. System of	W. S. Andrews	317,700	May 12	1034	268	31	719

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Electrical instruments. Protector for	D. J. Cartwright	320,912	June 30	2671	709	31	1567
Electrical lighting apparatus	E. Arnould	319,380	June 2	542	148	31	1151
Electrical push-button	J. Geary	320,238	June 16	1731	459	31	1379
Electrical switch-board	T. J. Perrin	315,331	Apr. 7	474	120	31	86
Electrical switch or circuit controller	E. Weston	316,096	Apr. 21	1550	404	31	294
Electricity. Apparatus for transmission of messages by	G. T. Woods	315,368	Apr. 7	525	134	31	95
(Electricity.) Device for protection of men from disastrous effects of high-tension currents.	P. B. Delany	318,172	May 19	1665	446	31	846
Electricity. System for the transmission of power by	W. L. Stevens	316,076	Apr. 21	1519	396, 397	31	288
Electricity. System for the transmission of power by	E. Weston	316,090	Apr. 21	1539	402	31	292
Electro-dynamic motor	F. J. Sprague	315,179	Apr. 7	264	64, 65	31	48
Electro-dynamic motor	F. J. Sprague	315,180	Apr. 7	271	65, 56, 67	31	49
Electro-dynamic motor	F. J. Sprague	315,183	Apr. 7	284	68	31	51
Electro-dynamic motor	F. J. Sprague	321,147	June 30	2979	789	31	1622
Electro-dynamic motor	F. J. Sprague	321,148	June 30	2981	789	31	1622
Electro-dynamic motor	F. J. Sprague	321,150	June 30	2984	790	31	1623
Electro-magnetic motor	C. G. Perkins	315,161	Apr. 7	243	59	31	44
Electro-magnetic motor	E. Weston	316,091	Apr. 21	1543	403	31	293
Electro-magnetic motor	E. Weston	316,092	Apr. 21	1544	403	31	293
Electro-magnetic motor	E. Weston	316,093	Apr. 21	1546	403	31	294
Electro-magnetic reciprocating engine	C. J. Van Depoele	317,249	May 5	435	109	31	602
Electro-magnetic reciprocating engine	C. J. Van Depoele	320,515	June 23	2153	568	31	1463
Electrode. Carbon battery-	H. F. B. Schaefer	318,300	May 19	1628	490	31	878
Electrotypé-block	P. Gleeson	316,453	Apr. 28	2045	536	31	388
Elevating mechanism for buildings	W. B. Hayden	318,373	May 19	1933	521, 522	31	896
Elevator: *See* Barrel-elevator. Bucket-elevator. Electric elevator. Grain-elevator. Hay-elevator. Hay and wheat elevator. Hydraulic elevator. Liquid-elevator. Water-elevator.							
Elevator	W. M. Babbott and J. H. Roberts	320,745	June 23	2446	649	31	1519
Elevator	D. Kennedy	315,634	Apr. 14	917	240	31	171
Elevator	F. S. King	316,152	Apr. 21	1634	427	31	310
Elevator	W. A. Koneman	319,099	June 2	206	54	31	1085
Elevator	E. B. Powell	315,166	Apr. 7	248	60	31	45
Elevator-bucket	W. M. Babbott, J. H. Roberts, and C. Banker.	317,278	May 5	474	119	31	610
Elevator-bucket	W. H. and W. J. Clark	320,760	June 23	2467	654	31	1523
Elevator-bucket	C. M. Thomas	320,897	June 23	2642	701	31	1555
Elevator-buckets. Machine for making	S. S. Stott and R. Birtwistle	318,582	May 26	2225	594	31	956
Elevator-cages, &c. Safety device for	P. F. Laarman	321,303	June 30	3169	845	31	1658
Elevator-cars. Safety attachment for	P. Cohn	315,734	Apr. 14	1055	276	31	198
Elevator fan attachment	R. Marshall	316,633	Apr. 28	2266	506	31	430
Elevator for mining purposes	R. Lee	318,757	May 26	2446	655, 656	31	997
Elevator-gate. Automatic	J. G. Meisner	319,292	June 2	434	116, 117	31	1130
Elevator safety-brake	F. Schnizlein	316,577	Apr. 28	2196	578	31	417
Elevator safety device	L. S. Graves	319,480	June 9	694	187	31	1186
Elevator safety device	J. H. Manning	320,374	June 16	1966	517	31	1421
Elevator safety device	M. L. Wright	317,268	May 5	461	115	31	606
Elevators. Controlling the operation of	G. H. Reynolds	317,302	May 5	377	94	31	592
Elevators, &c. Hydraulic valve for	C. R. Crane	319,678	June 9	935	253	31	1233
Elliptic springs. Bar or plate for	H. B. Dye	315,930	Apr. 14	1315	342	31	244
Embalmer's table	H. B. Knowles	316,980	May 5	65	17	31	534
Embalming apparatus	W. T. Baker, A. S. Lovett, and C. D. Van Etten.	317,703	May 12	1037	269, 270	31	720
Embalming device	C. W. Gath	315,272	Apr. 7	406	101	31	73
Embossing-machine	J. K. Krieg	319,417	June 2	589	160	31	1160
Embroidering-machine. Hand	S. A. Scofield	321,318	June 30	3188	850	31	1662
Embroidery	M. H. Pulaski	319,122	June 2	235	62	31	1091
Embroidery. Box for packing and displaying	H. J. Woodley	317,604	May 12	911	233, 234	31	697
Embroidery-cutting machine	C. White	320,031	June 16	1454	382, 383	31	1329
Emery-wheels. Tool for dressing	L. Bush, Jr	318,952	June 2	19	5	31	1052
End-gate	J. M. Coppernoll and J. W. Brandow	316,748	Apr. 28	2453	638	31	463
End-gate and scoop-board. Combined	J. O. Gordon	319,229	June 2	356	95	31	1115
End-gate for dumping-wagons	T. S. Stewart	315,969	Apr. 14	1381	358	31	255
End-gate. Wagon	A. B. Cooper	317,977	May 19	1412	370	31	799
End-gate. Wagon	D. E. Lantz	319,271	June 2	407	108	31	1125
End-gate. Wagon	L. Lehman	318,635	May 26	2283	610	31	966
End-gate. Wagon	H. Stow	316,307	Apr. 21	1825	480	31	344
Engine: *See* Compound engine. Direct-acting engine. Electric engine. Electro-magnetic reciprocating engine. Gas-engine. Locomotive-engine. Oscillating engine. Pumping-engine. Road-engine. Rotary engine. Rotary steam-engine. Steam-engine. Traction-engine. Vibrating-piston engine. Watch-maker's wheel-cutting engine. Wind-engine.							
Engine cylinder and valve	G. S. Strong	320,893	June 23	2637	698, 699	31	1554
Engine for starting or turning large engines	W. Hargreaves and W. Inglis	316,776	Apr. 28	2486	649	31	470
Engine for twin-screw vessels	E. Banduin	315,381	Apr. 7	539	139, 140	31	98

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Engine reverse-gear	O. Avery	319,051	June 2	144	39	31	1074
Enallage. Apparatus for compressing	E. T. Blunt	318,595	May 26	2238	599	31	958
Envelope	R. P. Brown	320,215	June 16	1700	451	31	1373
Envelope-machine	L. P. Bouvier	321,183	June 30	3023	800, 801, 802	31	1631
Envelope-moistener	J. A. Martens	318,921	May 26	2669	708	31	1037
Envelope-moistener	E. Ryder	319,426	June 2	601	163	31	1163
Envelope-opener and paper-cutter	G. C. Holden	318,475	May 26	2063	557	31	929
Envelope. Reversible	J. Hoffmann	321,297	June 30	3164	843	31	1657
Envelope. Sample	A. Ackerman	315,692	Apr. 14	987	258	31	185
Evaporating apparatus	F. J. Oakes	319,611	June 9	879	232	31	1219
Evaporating apparatus for brine, &c	M. P. Hayes	321,025	June 30	2823	750, 751	31	1595
Evaporating pan. Salt-	G. H. Smith	317,229	May 5	409	102	31	598
Evaporating-pans. Making	G. H. Grimm	316,893	Apr. 28	2650	691	31	500
Evaporator: *See* Cane-juice evaporator.							
Evaporator	J. W. Babbit	315,696	Apr. 14	992	260	31	186
Excavating-machine. Hydraulic	R. Stone	316,497	Apr. 28	2099	551, 552	31	398
Excavator	H. Rengstorff	321,051	June 30	2851	759	31	1600
Excavator	B. F. Thomas	318,320	May 19	1870	502	31	884
Excavator for removing snow, &c. Rotary	E. Leslie	317,109	May 12	1175	312	31	746
Excavator. Submarine	R. Morhard	317,064	May 12	987	256	31	710
Excavators, dredgers, &c. Conveyer for	M. Marolle	316,377	Apr. 21	1922	507	31	360
Exercising apparatus	J. E. Ruebsam	321,388	June 30	3280	876, 877	31	1680
Exercising-bag	C. E. Longden	318,766	May 26	2402	660	31	1000
Exercising-machine	G. P. Clarke and G. Harsin	321,278	June 30	3141	837	31	1652
Exercising-machine	M. G. Farmer	319,686	June 9	902	255	31	1235
Exercising stool or chair. Portable	G. J. F. Tate	321,157	June 30	2991	793	31	1624
Exhaust-nozzle	C. A. Thompson	320,016	June 16	1435	377	31	1325
Explosive compound	R. S. Penniman	320,583	June 23	2245	.....	31	1480
Explosives. Aerial drop for	M. L. S. Buckner	315,712	Apr. 14	1016	267	31	190
Extension-table	D. Copeland and H. J. Durgin	316,946	May 5	20	6	31	526
Extension-table	A. E. French	320,194	June 16	1585	419	31	1352
Extension-table	J. D. Main	316,472	Apr. 28	2067	541	31	392
Extension-table	G. McLagan	317,825	May 12	1202	316	31	752
Extractor: *See* Beeswax-extractor. Nail-extractor. Spike-extractor. Spoke-extractor. Stump-extractor. Weed-extractor.							
Eye remedy	R. D. Haley	318,468	May 26	2056	.....	31	928
Eyebolts. Machine for welding and tapering the shanks of	W. D. Parker	318,788	May 26	2494	666	31	1005
Eyeglass and spectacle frame	C. B. Headly	318,733	May 26	2412	.....	31	992
Eyeglass and spectacle frame	C. B. Headly	318,734	May 26	2412	.....	31	992
Eyeglass-holder	S. F. Merritt	319,293	June 2	436	117	31	1130
Eyeglasses	F. W. McAllister	315,154	Apr. 7	232	56	31	42
Fan	M. Rubin	317,211	May 5	388	97	31	594
Fan attachment	A. Nawadny	315,320	Apr. 7	463	117	31	81
Fan. Automatic	W. H. Pittman	316,655	Apr. 28	2295	603	31	435
Fan. Exhaust-	W. M. Dwight	318,884	May 26	2622	696	31	1028
Fan. Fly-	W. R. Fowler	321,342	June 30	3232	861	31	1671
Fan-holder	B. Brower	315,899	Apr. 14	1282	334	31	239
Fan-holder	B. A. Drayton	319,800	June 9	1252	330	31	1285
Fanning-mill	T. M. Bales and C. P. Riley	321,270	June 30	3132	834	31	1651
Fanning-mill	B. S. Constant	317,094	May 5	216	54	31	563
Fanning-mill and cockle-separator. Combined	E. Phelps	317,412	May 5	655	167	31	642
Fare-box	W. G. Price	319,313	June 2	463	125	31	1136
Fare receiver, register, and alarm	W. A. Connelly	315,737	Apr. 14	1057	277	31	198
Fare-register	C. E. Pratt	319,847	June 9	1190	314, 315	31	1274
Fare register and recorder	J. H. Rose	315,963	Apr. 14	1373	355	31	254
Farm-gate	J. H. Laney	315,798	Apr. 14	1140	299	31	214
Farm-gate	C. Walker	317,048	May 5	148	38	31	549
Fastener	A. P. Moses	320,953	June 30	2718	721	31	1575
Fat-cutter	T. Raeke	319,316	June 2	467	126	31	1137
Faucet, &c	M. Fitzgerald	320,770	June 23	2478	656	31	1525
Faucet	P. Küntzel and F. L. Loescher	319,913	June 9	1287	340	31	1291
Faucet	E. G. and C. Pfau	319,845	June 9	1188	314	31	1274
Faucet	A. D. Puffer	318,901	May 26	2513	671	31	1008
Faucet	P. Schofield	320,705	June 23	2400	635	31	1509
Faucet and pump. Combined	S. Wicks	319,535	June 9	768	205	31	1199
Faucet and vent. Combined	H. B. Lytle	317,466	May 5	730	184	31	655
Faucet for shipping-cans	J. Marshall	315,153	Apr. 7	231	56	31	42
Faucet. Force and drain	A. J. Weatherhead	319,647	June 9	922	243	31	1226
Faucet. Pump-	P. J. Cæsar	319,557	June 9	797	211	31	1204
Faucet. Registering-	L. C. Lane	320,480	June 23	2108	556	31	1454
Faucet. Self-closing	T. Haley	319,577	June 9	825	219	31	1209
Feather-renovator	O. S. Crane	320,540	June 23	2188	578	31	1468
Feather-renovator	F. Schach and W. Steiter	318,039	May 19	1495	401	31	814
Feather-sorting machine	H. C. Dyer	320,342	June 16	1899	500	31	1408
Feed-cutter	F. Blocki	316,000	Apr. 21	1421	369	31	270
Feed-cutter	C. Knauer	319,492	June 9	710	190	31	1188
Feed-rack and stall. Combined	J. H. Dysinger	319,568	June 9	809	216	31	1206
Feed regulator. Boiler-	C. F. Wilson	316,212	Apr. 21	1705	447	31	322
Feed-trough	F. L. Buchanan	318,349	May 19	1907	514	31	891
Feed-water cleaner	F. Trowbridge	320,511	June 23	2148	567	31	1462
Feed-water heater	W. H. Burk	321,338	June 30	3209	856	31	1667
Feed-water heater	M. Funk	317,636	May 12	950	244	31	703
Feed-water heater	A. A. Goubert	319,232	June 2	359	96, 97	31	1116
Feed-water heater	J. J. Hoppes	318,112	May 19	1589	425	31	852

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Feed-water heater	W. Love	315,306	Apr. 7	446	113	31	81
Feed-water heater	A. Rodgers	316,182	Apr. 21	1665	436	31	316
Feed-water heater	P. Rohan	316,297	Apr. 21	1815	477	31	342
Feed-water heater	O. Rothrock	318,396	May 19	1965	529	31	902
Feed-water heater	W. H. Rushforth	318,880	May 26	2618	695	31	1027
Feed-water heater	W. H. Wood	319,376	June 2	537	146	31	1150
Feed-water heater and filter	T. A. Lathrop	317,806	May 12	1173	311	31	746
Feed-water heater and purifier	G. H. Malter	320,677	June 16	1518	402	31	1341
Feed-water heater and purifier	A. W. Ward	321,406	June 30	3309	883	31	1684
Feed-water regulator	J. A. Creelman	319,950	June 16	1356	356	31	1311
Feed-water regulator	W. Ritter	320,093	June 16	1539	407	31	1345
Feed-water regulator for steam-boilers	W. White	315,098	Apr. 7	151	35	31	29
Feeder and alarm. Boiler-	T. Barber	319,662	June 9	938	248	31	1230
Feeder. Antomatic time stock-	T. L. Bissell	317,708	May 12	1043	271	31	721
Feeder. Boiler-	S. Haigh	319,708	June 9	995	263	31	1240
Feeder. Boiler-	G. E. Hall	317,532	May 12	816	210	31	680
Feeder. Stock-	F. M. Agee	316,859	Apr. 28	2607	680	31	492
Felly-dressing machine	W. Gardner	320,467	June 23	2094	552	31	1452
Felly machine. Wheel-	W. H. Stevens	317,876	May 12	1266	337	31	763
Felly. Metallic	G. D. Haworth	319,410	June 2	579	158	31	1158
Felt-cleaning apparatus	G. Dunn	319,567	June 9	908	215	31	1206
Fence	I. W. Archibald	321,171	June 30	3010	797	31	1628
Fence	J. H. Bickley	319,057	June 2	151	41	31	1075
Fence	J. Bryant	317,495	May 12	772	197	31	672
Fence	S. and J. G. Calhoun	317,623	May 12	937	240	31	701
Fence	J. M. Coffman	315,248	Apr. 7	378	93	31	68
Fence	W. Cokayne	320,223	June 16	1710	454	31	1375
Fence	D. M. Emmitt	315,134	Apr. 7	193	47	31	35
Fence	E. W. Goodwin	315,767	Apr. 14	1105	290	31	207
Fence	G. T. Hammond	317,344	May 5	567	145	31	627
Fence	D. B. Peck	315,827	Apr. 14	1179	308	31	221
Fence	A. J. Russell and W. M. Goolden	316,916	Apr. 28	2693	701	31	508
Fence	W. A. Tillman	315,088	Apr. 7	137	32	31	26
Fence	S. C. Town	316,418	Apr. 21	1988	522	31	372
Fence. Barbed	F. D. Ford	319,807	June 9	1139	302	31	1266
Fence. Barbed	E. S. Wheeler	321,264	June 30	3124	832	31	1650
Fence-barbs. Die for making metallic	A. P. Thayer	315,086	Apr. 7	134	31	31	26
Fence-barbs. Die for making metallic	A. P. Thayer	315,087	Apr. 7	135	32	31	26
Fence-barbs. Making metal	A. P. Thayer	315,084	Apr. 7	131	31	31	26
Fence. Flood-	S. Ingels	315,991	Apr. 14	1406	365	31	261
Fence. Flood-	C. E. Van Auken	316,854	Apr. 28	2399	679	31	490
Fence. Form and frame for building iron	F. O. Hanson	318,427	May 19	2005	540	31	908
Fence-guard. Barbed-wire	W. C. Reichenecker	319,506	June 9	728	195	31	1192
Fence. Hedge-	W. Young	317,906	May 12	913	234	31	697
Fence. Iron	G. W. McCann	315,648	Apr. 14	934	244	31	174
Fence-lock	J. D. Albert	318,440	May 26	2023	545	31	921
Fence. Machine for making picket wire	B. L. Fletcher, J. M. Dunkin, L. Hanhart, and C. M. Trautmann.	319,895	June 9	1257	332	31	1286
					333		
Fence machine. Wire-	J. Fisk	320,121	June 16	1579	417	31	1351
					418		
Fence-making machine	J. M. Harrop	321,359	June 30	3242	865	31	1673
					866		
Fence-making machine	L. Huiskamp	320,358	June 16	1930	508	31	1413
					509		
Fence-panel. Folding	J. J. Ogilvie	319,995	June 16	1409	370	31	1320
Fence. Portable	G. H. Ives	315,038	Apr. 7	73	17	31	15
Fence-post	W. Bayliss	319,878	June 9	1238	327	31	1282
Fence-post	T. E. C. Brinly and F. E. Heinig	316,509	Apr. 28	2225	586	31	423
Fence-post	V. Brown	320,330	June 16	1885	495	31	1405
Fence-post	J. W. Davy	318,361	May 19	1919	518	31	893
Fence-post	M. and S. E. Foreman	317,757	May 12	1107	291	31	733
Fence-post	L. Goddu	315,018	Apr. 7	43	9	31	9
Fence-post	S. B Harrod	318,428	May 19	2007	541	31	909
Fence-post	G. W. and C. M. Kiler	319,823	June 9	1163	307	31	1270
Fence-post	C. P. Lesher	319,277	June 2	415	111	31	1126
Fence-post	C. W. Stambaugh	318,816	May 26	2533	676	31	1011
Fence-post	J. J. Vinton	317,896	May 12	1297	347	31	769
Fence-post anchor	J. Carpenter	319,558	June 9	799	212	31	1204
Fence-posts. Wire-fastening device for metal	W. H. M. Reese	318,655	May 26	2311	617	31	973
Fence-rail. Barbed	I. A. and M. D. Kilmer	317,799	May 12	1166	309	31	744
Fence-wire machine. Barbed	O. P. Briggs and C. S. Locke	315,470	Apr. 14	682	178	31	127
					179		
					180		
Fence-wire stretcher	C. Konrad	316,153	Apr. 21	1635	428	31	310
Fence-wire winding device	W. Logan	315,803	Apr. 14	1146	300	31	215
Fences. Device for forming openings in wire	W. M. Clow	315,599	Apr. 14	969	228	31	161
Fences. Machine for making barbed-wire	L. E. Sunderland. (Reissue)	10,597	May 12	1383	371	31	786
					372		
Fences. Machine for manufacturing	C. A. Norling	321,047	June 30	2845	757	31	1599
					758		
Fences. Machine for manufacturing picket	J. B. Thies	316,849	Apr. 28	2593	677	31	489
					678		
Fencing. Die for making barbed metallic	A. P. Thayer	320,825	June 23	2543	673	31	1537
Fencing. Electric conductor for wire	C. Williamson	317,908	May 12	1312	351	31	773
Fencing. Making barbed metallic	A. P. Thayer	315,085	Apr. 7	133	31	31	26
Fencing. Metal	W. Bayliss	319,877	June 9	1237	327	31	1282
Fermented beverages. Making certain	C. Pfaudler	318,793	May 26	2499	667	31	1005
Fermenting liquids. Pressure-regulator for	M. Warren	320,422	June 16	2025	532	31	1431
Fermenting-vats. Pressure-regulator for	P. Schaar	316,491	Apr. 28	2092	547	31	397
					548		
Ferrules. Manufacturing	J. L. Parker	315,058	Apr. 7	104	24	31	20
Fertilizer	L. Haas	318,371	May 19	1931	.....	31	896
Fertilizer and seed distributer	J. W. Downs	319,469	June 9	676	181	31	1162
					182		

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Fertilizer-distributer	H. O. Peabody	320,279	June 16	1792	476	31	1389
					477		
Fertilizer-distributer	R. B. Sheldon and J. V. Peacock	318,045	May 19	1503	403	31	815
Fertilizer-distributer	J. E. Simpson	316,071	Apr. 21	1512	395	31	287
Fertilizer. Phosphate	W. S. Pierce	317,010	May 5	108	.....	31	542
Fiber-rubbing machine	A. Scott	315,666	Apr. 14	955	250	31	178
Fifth-wheel	F. G. Bippus	316,869	Apr. 28	2621	683	31	494
Fifth-wheel	F. L. Ezell	315,926	Apr. 14	1322	344	31	245
Fifth-wheel	J. M. Foote	321,203	June 30	3051	809	31	1636
Fifth-wheel	J. W. Leete	316,276	Apr. 21	1790	470	31	337
Fifth-wheel	M. A. Pigott	319,846	June 9	1189	314	31	1274
Fifth-wheel	J. B. Rutherford	319,510	June 9	735	197	31	1193
File and cutting the same	W. Tucker	320,899	June 23	2644	702	31	1555
File Bill-	T. E. Baden	321,333	June 30	3205	854	31	1666
File box. Letter-	G. V. Nanerth and J. M. Jenkine	315,157	Apr. 7	237	58	31	43
File-cutting machine	H. A. Foss	319,218	June 2	340	91, 92	31	1111
File-cutting machine	H. J. Gosling	318,104	May 19	1578	422	31	830
					423		
File for letters, invoices, &c. Permanent	M. Silverberg	318,516	May 26	2127	573	31	941
File. Letter-	A. Dom	316,951	May 5	28	8	31	528
File. Photographic and card	W. Verbeck	316,536	Apr. 28	2211	581	31	490
File rack. Newspaper-	H. D. West	321,164	June 30	3001	795	31	1626
Files. Cutting	C. M. Fairbanks	316,764	Apr. 28	2472	645	31	467
Files. Recutting	L. Chapman	318,957	June 2	37	.....	31	1055
Filing implement. Paper	L. P. Keech	318,950	June 2	79	20	31	1062
Filler and faucet. Combined	E. Kells	318,479	May 26	2071	559	31	930
Filter	D. Biggs	315,463	Apr. 14	671	174	31	126
Filter	W. Dearden	316,124	Apr. 21	1597	417	31	302
Filter	J. H. Dumont	316,895	Apr. 28	2637	687	31	498
Filter	A. J. Giberson	318,465	May 26	2052	555	31	927
Filter	V. M. Law	321,228	June 30	3060	817	31	1641
Filter	E. Lote and A. Helaers	319,917	June 9	1291	341	31	1292
Filter	J. Thomson	320,985	June 30	2768	735	31	1584
					736		
Filter	R. P. A. Turcot	316,674	Apr. 28	2320	609	31	440
Filter-case. Hard-rubber	E. K. Haynes	316,457	Apr. 28	2048	537	31	389
Filter. Floating	J. H. Breese	318,669	May 26	2356	620	31	981
Filter. Oil-	D. S. Nelman	320,274	June 16	1786	475	31	1387
Filters. Apparatus for cleaning the filtering media of	J. E. Hodgkin and E. Perrett	317,457	May 5	719	181	31	653
					182		
Filtering apparatus	K. W. Vogel	316,925	Apr. 28	2703	704	31	510
Filtering material. Revivifying	J. W. J. Reford	315,837	Apr. 14	1187	310	31	222
Filtering-tank	A. Doughton	320,545	June 23	2194	579	31	1470
Finger. Automatic artificial	I. Bashore	319,776	June 9	1084	288	31	1256
Finger-exercising machine	G. A. Liebig, Jr	318,916	May 26	2663	705	31	1036
Finger-ring, &c	B. D. Traitel and H. Ruyter	317,506	May 12	898	230	31	694
Finger-rings. Machine for enlarging	N. Clark	318,696	May 26	2366	631	31	983
Fire-alarm	G. J. Crikelair	317,931	May 12	1339	360	31	778
Fire-alarms. Device for preventing false	E. Jungerman	320,068	June 16	1502	398	31	1339
Fire-arm	W. H. Davenport	320,637	June 23	2317	612	31	1492
Fire-arm. Breech-loading	J. B. Davis	315,253	Apr. 7	381	94	31	69
Fire-arm. Breech-loading	J. Harder	319,482	June 9	698	187	31	1187
Fire-arm. Breech-loading	D. Kirkwood	318,001	May 19	1445	387	31	805
Fire-arm. Electric	J. W. Frost	319,898	June 9	1266	334	31	1287
Fire-arm. Electric	F. E. Kinsman	317,545	May 12	835	215	31	682
Fire-arm lock	F. W. Hood	316,622	Apr. 28	2251	593	31	427
Fire-arm. Magazine	I. Curtis and L. J. Russell	316,880	Apr. 28	2630	686	31	496
Fire-arm. Magazine	C. J. Ehbets	316,761	Apr. 28	2469	644	31	467
Fire-arm. Magazine	C. J. Ehbets	318,711	May 26	2382	636	31	986
Fire-arm. Magazine	F. F. Knous	316,899	Apr. 28	2664	694	31	503
Fire-arm. Magazine	J. M. Marlin	315,645	Apr. 14	930	244	31	173
Fire-arm. Magazine	J. M. Marlin	316,554	Apr. 28	2167	570	31	412
Fire-arm. Magazine	H. S. Maxim	317,162	May 5	318	80	31	581
Fire-arm. Magazine	H. S Maxim	319,595	June 9	855	227	31	1215
Fire-arm. Magazine	S. H. Roper	316,401	Apr. 21	1954	515	31	366
Fire-arm. Magazine	M. Sporer	320,186	June 16	1660	441	31	1366
					442		
Fire-arm. Revolving	J. Boland	317,965	May 19	1399	375	31	796
					376		
Fire-arm. Revolving	D. Smith	315,352	Apr. 7	503	129	31	92
Fire-arm. Revolving	D. Smith	318,315	May 19	1858	499	31	881
Fire-arm safety-lock	P. A. Altmaier	320,038	June 16	1463	385	31	1331
Fire-arm sight	H. F. Clark	319,068	June 2	168	45	31	1059
Fire-arm sight	W. Maynard	318,999	June 2	87	22	31	1064
Fire-arm sight-plumb	S. W. Taylor	316,416	Apr. 21	1985	522	31	371
Fire-arm stock	J. P. Onderdonk	319,613	June 9	882	233	31	1219
Fire-arms. Electric sight for	W. Winans	320,200	June 16	1675	446	31	1369
Fire-arms. Rifling	M. C. De Arguibel	315,746	Apr. 14	1076	282	31	201
Fire-board	M. Gallagher	319,221	June 2	345	93	31	1112
Fire-box. Adjustable	M. France	318,716	May 26	2329	637	31	967
Fire-box muffler	A. Berney	319,778	June 9	1085	289	31	1257
Fire-engines. Apparatus for lighting the fires of steam	L. Campbell	315,721	Apr. 14	1032	271	31	193
Fire-escape	E. Beale and A. Bangs	317,704	May 12	1040	270	31	720
Fire-escape	H. E. Braunfeld	316,870	Apr. 28	2622	683	31	495
Fire-escape	W. C. Cronemeyer	318,600	May 26	2242	601	31	960
Fire-escape	G. Denison	316,757	Apr. 28	2464	643	31	465
Fire-escape	J. Dittrick	319,888	June 9	1250	330	31	1284
Fire-escape	S. Hargrave, Sr., and A. M. Lee	321,212	June 30	3061	812	31	1638
Fire-escape	G. M. Heath	315,025	Apr. 7	51	12	31	11
Fire-escape	W. F. High	316,969	May 5	51	13	31	532
Fire-escape	C. Hoell	317,534	May 12	819	210	31	680
					211		
Fire-escape	M. B. Ingersoll	320,474	June 23	2102	554	31	1453

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Fire-escape	O. G. Lee	320,664	June 23	2353	621	31	1500
Fire-escape	R. Molyneux	319,920	June 9	1294	342	31	1292
Fire-escape	W. R. Price	318,391	May 19	1960	527, 528	31	901
Fire-escape	W. R. Pyne	321,385	June 30	3274	875	31	1679
Fire-escape	H. Rensch	318,293	May 19	1816	486	31	875
Fire-escape	S. Samper	318,299	May 19	1826	489, 490	31	877
Fire-escape	C. Scrader and F. W. Kittler	317,862	May 12	1252	332	31	760
Fire-escape	C. P. Willson	319,370	June 2	529	144	31	1149
Fire escape and elevator	C. R. S. Curtis	320,854	June 23	2583	684	31	1545
Fire-escape and water-tower combined	C. A. Lieb	316,375	Apr. 21	1918	506, 507	31	360
Fire-escape ladder	T. A. Kimmell	319,824	June 9	1164	307	31	1270
Fire-escape ladder	L. Swenson	316,415	Apr. 21	1984	521	31	371
Fire-escape platform	R. Hammill	316,960	May 5	41	11	31	530
Fire-escape tower	C. Clarke	318,086	May 19	1554	417	31	825
Fire-extinguisher	J. A. House and C. H. Dimond	319,744	May 26	2432	651	31	994
Fire-extinguisher	W. H. Stratton	316,581	Apr. 28	2200	579	31	418
Fire-extinguisher. Automatic	C. Barnes	319,774	June 9	1062	288	31	1256
Fire-extinguisher. Automatic	J. A. House	318,743	May 26	2431	651	31	994
Fire-extinguisher. Automatic	M. Ruthenburg	318,508	May 26	2109	569	31	938
Fire-extinguisher. Chemical	T. E. Connelly	317,513	May 12	798	204	31	676
Fire-extinguisher. Chemical	W. Gee	315,610	Apr. 14	884	232	31	164
Fire-extinguisher. Chemical	J. A. Wagner	321,161	June 30	2996	794	31	1625
Fire-extinguisher. Chemical hand	E. H. Lewis	317,152	May 5	299	77	31	578
Fire-extinguisher. Hand	O. E. Conner	320,225	June 16	1713	455	31	1375
Fire-extinguisher. Hand	O. E. Conner and T. C. McNamara	320,226	June 16	1714	455	31	1376
Fire-extinguisher. Hand	J. S. Zerbe	320,425	June 16	2031	533	31	1402
Fire-extinguisher. Hand-grenade	A. Jones	318,909	May 26	2654	703	31	1034
Fire-extinguishing apparatus. Automatic	C. Barnes	316,223	Apr. 21	1717	451	31	325
Fire-kindler	G. W. Brown	316,327	Apr. 21	1851	489	31	348
Fire-kindler	A. W. Hall	318,246	May 19	1759	470	31	864
Fire-kindler	J. E. Hignutt	321,027	June 30	2826	751	31	1595
Fire-kindler	J. Meil	320,268	June 16	1766	.....	31	1385
Fire-lighter. Automatic	C. Hughes	319,722	June 9	1020	270	31	1245
Fire-place	E. Chickering. (Reissue)	10,610	June 16	2067	543	31	1439
Fire-place	I. C. Williams	315,367	Apr. 7	524	134	31	95
Fire-place heater	T. J. Bartlett	319,172	June 2	288	77	31	1100
Fire-screen and desk. Combined	S. K. Darrow	319,198	June 2	319	85	31	1107
Fire-tube boiler	N. W. Pratt	321,248	June 30	3103	825	31	1645
Fireproofing fabrics. Composition for	F. Konrad	319,100	June 2	208	.....	31	1086
Fish-hook	R. Wright	319,655	June 9	930	246	31	1228
Fish-hook. Combination	C. L. Spencer	315,967	Apr. 14	1379	357	31	255
Fish into layers. Machine for cutting blocks of	W. S. Moses and O. Andrews	317,409	May 5	735	185	31	656
Fish-plate fastening	W. S. Grubb	317,531	May 12	815	210	31	679
Fishing-reel	J. Kopf	318,190	May 19	1685	451, 452	31	850
Fishing-tackle case	H. F. Price. (Reissue)	10,598	May 19	2021	544	31	912
Flanging-machine	S. Fox	318,889	May 26	2628	697, 698	31	1029
Flanging-machine	M. R. Moore	318,785	May 26	2491	665	31	1004
Flask-pin	S. C. Price	315,661	Apr. 14	949	248	31	177
Flood and sluice gate	J. S. Brown	316,733	Apr. 28	2432	633	31	460
Floor and sidewalk construction	P. H. Jackson	320,066	June 16	1500	396, 397, 398	31	1338
Floor-boards. Device for setting	F. W. French	321,353	June 30	3233	861	31	1671
Floor-clamp	C. F. Dearth	319,464	June 9	671	180	31	1182
Floor-covering	R. Schroeder	318,661	May 26	2390	620	31	975
Floor-coverings. Apparatus for uniting wood for	H. Beisheim	320,616	June 23	2291	605	31	1488
Floor-coverings, &c. Apparatus for uniting wood for	C. E. Rider	320,696	June 23	2391	632	31	1507
Floor. Fire-proof	J. Bossyns	319,670	June 9	946	250	31	1231
Floor. Fire-proof	W. B. and C. H. Hayden	316,361	Apr. 21	1896	501, 502	31	356
Floor-tube	A. G. Stilson	317,684	May 12	1014	263	31	715
Flooring, ceiling, or dado. Wood	A. Putney	316,175	Apr. 21	1658	434	31	315
Flooring-clamp	P. J. Abbott	317,950	May 19	1389	373	31	795
Flooring tile. Wood	C. E. Rider	320,698	June 23	2394	633	31	1508
Flooring. Wood	C. E. Rider	320,697	June 23	2392	633	31	1508
Flooring, &c. Wooden tongue for joining	I. H. Spelman	317,233	May 5	413	103	31	599
Flour and meal bin	R. Clarke	320,221	June 16	1708	454	31	1375
Flour-bolt	N. W. Holt. (Reissue)	10,617	June 30	3317	884	31	1666
Flour-bolt. Centrifugal	A. Heine	316,968	May 5	50	13	31	532
Flour-bolt conveyer	M. W. Clark	319,786	June 9	1104	293	31	1258
Flour-bolt. Upright centrifugal	L. Gathmann	319,695	June 9	976	259	31	1237
Flour-bolts and middlings-purifiers. Conveyer for	F. J. Schupp	320,707	June 23	2403	636	31	1510
Flour-bolts. Mechanism for brushing	M. Harmon	316,778	Apr. 28	2489	650	31	470
Flour-bolting machine	M. Martin	315,308	Apr. 7	449	113, 114	31	82
Flour-bolting machines. Brush for	J. B. Richards	316,179	Apr. 21	1663	436	31	315
Flour-chest. Ventilated	M. Wrightsman	316,593	Apr. 28	2218	583, 584	31	421
Flour-mill roller	J. Panly	321,241	June 30	3095	822	31	1644
Flour-packers. Friction attachment for	C. F. Walters	320,419	June 16	2024	531	31	1430
Flower-pot	S. J. Rhoads	320,588	June 23	2254	596	31	1482
Flower-stand	R. H. F. Behrens	318,593	May 26	2236	598	31	958
Flower-stand	R. H. F. Behrens	318,853	May 26	2581	687	31	1020
Flower-stand	P. J. Cunningham	317,443	May 5	703	177	31	650
Flower-stand	M. E. Stephenson	319,339	June 2	494	133	31	1142
Fluid and detecting waste. Registering the flow of	J. C. Ayer	318,227	May 19	1738	465	31	860
Fluid-meter. Diaphragm	J. Thomson	318,327	May 19	1872	503	31	884
Flushing apparatus. Automatic	B. J. Healy	316,966	May 5	48	12	31	531
Flushing tanks. Mechanism for	G. C. Phillips	315,063	Apr. 7	109	25	31	21

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Flushing tanks, sinks, &c. Device for	A. Rosewater	320,398	June 16	1998	526	31	1496
Fodder from residual products of distilleries and breweries. Process of and apparatus for producing	H. Hencke	316,145	Apr. 21	1621	424	31	307
Folding box	G. L. Jaeger	317,795	May 12	1160	307	31	743
Folding chair	J. C. Merritt and L. A. C. Müller	317,402	May 5	637	163	31	639
Folding chair	G. E. Vandenburgh	315,680	Apr. 14	974	255	31	182
Folding chair or settee	H. J. Harwood	315,617	Apr. 14	898	235	31	167
Folding-machine	L. C. Crowell	316,122	Apr. 21	1591	415	31	302
Folding stand or table	W. P. Roberts	318,298	May 19	1825	489	31	877
Folding table	J. Danner	317,097	May 5	220	56	31	563
Folding table	N. N. Gordon	316,142	Apr. 21	1618	423	31	307
Folding table	J. C. Mehaffey	318,779	May 26	2478	664	31	1003
Folding table	O. A. Thayer	320,413	June 16	2017	529	31	1429
Folding table	H. P. Schneck	315,665	Apr. 14	953	250	31	178
Folding table and ironing-board support. Adjustable	J. Linsley and J. A. Baldwin	319,915	June 9	1289	340	31	1292
Folding table. Portable	S. Sanborn	317,021	May 5	120	.....	31	544
Food for calves	H. Lorch	318,764	May 26	2460	.....	31	1000
Food product	S. Hagen	319,242	June 2	374	100	31	1118
Foot-boat	H. H. Daingerfield	317,978	May 19	1412	379	31	800
Foot-rest. Adjustable and reversible	E. B. Elrod	316,252	Apr. 21	1754	461	31	331
Foot-warmer and heater. Combined	F. A. Brewer and W. S. How	315,706	Apr. 14	1006	265	31	189
Forceps for applying rubber-dam clamps	A. König	318,629	May 26	2276	607, 608	31	966
Forge. Portable	J. F. Winchell. (Reissue)	10,593	May 5	755	181	31	659
Forges. Detachable lever for	G. F. Simonds	319,752	June 9	1053	278, 279	31	1251
Forging car-axles and other metal articles. Machine for	G. F. Simonds	319,754	June 9	1055	280	31	1251
Forging metal articles circular in cross-section. Die for	G. F. Simonds	319,755	June 9	1056	280	31	1252
Forging metal bars	W. Hainsworth	317,767	May 12	1117	294, 295	31	735
Forging-plant							
Fork: *See* Carving-fork. Hay-fork. Manure-fork. Tedder-fork.							
Fork	T. Coyle	316,334	Apr. 21	1850	492	31	350
Fork for digging vegetables	J. A. Ervien	316,347	Apr. 21	1876	496	31	352
Fork guard and rest	E. E. Wood, Jr	318,070	May 19	1537	412	31	821
Fork-pointing machine	P. D. Dupont	315,395	Apr. 7	565	146	31	102
Fork-prong-rolling machine	P. D. Dupont	315,396	Apr. 7	567	146	31	102
Fountain: *See* Drinking-fountain. Sirup-fountain.							
Fracture apparatus	A. J. Remsberg	320,286	June 16	1805	479	31	1391
Frame: *See* Bed-frame. Clothes-line frame. Display-frame. Drawing-frame. Grindstone-frame. Picture-frame. Slate-frame. Spectacle and eye-glass frame. Spinning-frame. Stacking-frame. Stretcher-frame. Transparency-frame. Window-frame. Wire frame.							
Freezing cream, &c. Machine for	A. W. Marshall	320,572	June 23	2224	590	31	1476
Friction-drum	W. J. Carlin	315,239	Apr. 7	364	89	31	66
Fruit-box. Knockdown	S. T. Jenkins	318,937	May 26	2689	712	31	1040
Fruit-cutter	H. M. Morrison	317,503	May 12	854	219	31	686
Fruit-drier	S. Collins	320,543	June 23	2180	583	31	948
Fruit-drier	J. R. Dew	320,543	June 23	2191	578	31	1469
Fruit-drier	M. B. Miller	320,883	June 23	2619	694	31	1552
Fruit-drier	S. L. Miller	316,637	Apr. 28	2270	597	31	431
Fruit-drier	L. W. Parsons	321,135	June 30	2962	785	31	1619
Fruit-drier	B. L. Ryder	320,309	June 16	2000	526, 527	31	1427
Fruit-drying tray	S. E. and J. M. Sprout	318,436	May 19	2016	543	31	911
Fruit-jar	S. R. Barhite	321,272	June 30	3134	835	31	1651
Fruit-jar	S. L. Loomis	318,483	May 26	2074	560	31	931
Fruit-jar	C. Newman	320,580	June 23	2239	593	31	1479
Fruit-jar	A. V. Whiteman	320,107	June 16	1561	412	31	1348
Fruit-jar	A. F. Wilson	319,768	June 9	1075	286	31	1254
Fruit-jar cap	C. G Imlay	321,220	June 30	3070	814	31	1640
Fruit-jar top	E. B. Repp and G. H. Brown	318,029	May 19	1483	398	31	812
Fruit-picking stand. Adjustable	T. Elliott	317,325	May 5	543	138	31	622
Fuel and illuminating-gas. Apparatus for the manufacture of vaporous and gaseous	R. B. Avery	317,611	May 12	923	236, 237	31	698
Fuel. Composition for	C. H. Sternberg	316,580	Apr. 28	2200	.....	31	418
Fumigator	H. Perlich	315,330	Apr. 7	473	120	31	86
Funnel	P. C. Stadler	320,716	June 23	2413	640	31	1512
Furnace: *See* Blast-furnace. Boiler-furnace. Cupola-furnace. Glass-furnace. Hot-air furnace. Melting-furnace. Metal-heating furnace. Metallurgic gas-furnace. Metallurgical furnace. Muffle-furnace. Ore-roasting furnace. Portable furnace. Puddling-furnace. Smelting-furnace. Smoke-consuming furnace. Smoke-preventing furnace. Straw-burning furnace.							
Furnace	J. W. Brightman	318,690	May 26	2358	629, 630	31	981
Furnace	J. F. Coignet	315,478	Apr. 14	606	182	31	129

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Furnace	W. Kent	320,563	June 23	2214	586	31	1474
Furnace	T. Murphy	316,642	Apr. 28	2276	599	31	432
Furnace	J. Reuleaux	317,852	May 12	1237	327, 328	31	778
Furnace	R. M. Weir	315,867	Apr. 14	1234	322	31	230
Furnace-door	H. H. Dreyer	316,884	Apr. 28	2636	687	31	498
Furnace for annealing metals	E. M. Herr and G. W. Cummins	319,713	June 9	1003	265, 266	31	1242
Furnace for burning gaseous fuel	E. A. Uehling	318,328	May 19	1876	503, 504	31	885
Furnace for night-soil	A. Engle	315,307	Apr. 7	569	147	31	102
Furnace for preparing artificial fuel	V. Biétrix	319,190	June 2	297	79	31	1103
Furnace for roasting copper and other ores	C. A. Bartsch	316,723	Apr. 28	2413	628	31	457
Furnace for the manufacture of sponge, wrought, and steely iron direct from the ore	C. J. Eames	318,608	May 26	2252	602	31	961
Furnace-grate	J. W. Brightman	318,862	May 26	2601	690	31	1023
Furnace-grate	G. Gulickson	318,467	May 26	2054	555	31	927
Furnace-grate	L. Passmore	317,184	May 5	345	87	31	586
Furnace-grate bar	J. Burrell	317,439	May 5	699	176	31	649
Furnace. Liquid-fuel	C. M. Gearing	316,890	Apr. 28	2645	690	31	499
Furnaces. Device for feeding air to	W. Thomas	315,187	Apr. 7	295	70	31	53
Furnaces. Feeding air to	W. Wright	320,903	June 23	2651	704	31	1557
Furnaces. Hearth and lining of graphite for metallurgic	C. J. Eames	318,554	May 26	2193	586	31	950
Furnaces. Hot-air feeder for	J. W. Loveridge	319,228	June 9	1169	309	31	1271
Furnaces. Regulator for controlling combustion in	S. Braggins	318,688	May 26	2354	629	31	981
Furnaces. Regulator for gas and air supply to	G. Westinghouse, Jr	318,839	May 26	2566	682	31	1016
Furniture	F. H. Conant	317,732	May 12	1069	280	31	726
Furniture. Envelope for packing	J. T. Mygatt	315,435	Apr. 7	627	162	31	112
Furniture. Household	A. Herig	317,355	May 5	578	148	31	629
Furniture. Household	F. G. C. Peek	318,132	May 19	1614	431	31	837
Furniture-leg shoe	M. Straus	319,342	June 2	497	134	31	1142
Furniture-standards to the floor. Device for securing	J. M. Brown	316,398	Apr. 21	1852	490	31	348
Furrowing and covering machine	S. L. Allen	318,441	May 26	2024	545	31	921
Fuse-cutter	J. M. Martin	318,006	May 19	1452	389	31	806
Fuse for projectiles. Percussion	T. G. Bennett	320,210	June 16	1692	450	31	1372
Gage: *See* Centering-gage. Cutter-head gage. Gas-pressure gage. Liquid-gage. Micrometer-gage. Flow-gage. Roofing-gage. Screw-thread gage. Shingle and siding gage. Siding-gage. Steam and water gage. Tinner's shear-table gage. Water-gage. Weather-boarding gage.							
Gaiter. Button	P. J. Ruetzel	318,033	May 19	1490	400	31	813
Galleys. Combined side and end lock for	W. H. Golding	320,128	June 16	1591	420	31	1353
Galvanic battery	A. Haid	315,938	Apr. 14	1334	347	31	248
Game apparatus	J. Ram	320,091	June 16	1536	406	31	1344
Game counter and register	A. Nicken	321,046	June 30	2844	757	31	1599
Game counter or indicator	R. H. Martin	316,473	Apr. 28	2068	541	31	392
Game-indicator for pool-tables. Electrical	E. Curtis	320,542	June 23	2190	578	31	1469
Garbage-box	W. C. Groff, Sr.	317,452	May 5	716	180	31	652
Gardening-machine	J. G. Smith	318,047	May 19	1507	404	31	816
Garment. Combination	W. F. Warner	315,093	Apr. 7	145	34	31	27
Garment-fastening	J. C. Hyde	315,944	Apr. 14	1345	349	31	249
Garment-hook	G. R. Grimes	317,343	May 5	566	145	31	626
Garment-supporter	A. Proudfit	318,204	May 19	1704	456	31	854
Garment. Ventilated	C. I. E. Mastin	315,806	Apr. 14	1148	301	31	216
Gas and electric light fixture. Combined	C. Deavs	318,547	May 26	2184	585	31	949
Gas, and liquefaction of gases and production of refrigeration. Cooling and separating a lubricating agent from a compressed	J. J. Suckert	320,305	June 16	1827	485, 486	31	1395
Gas. Apparatus for generating illuminating and heating	J. W. Mitchell	317,407	May 5	644	164, 165	31	640
Gas. Apparatus for making	E. Brook	315,709	Apr. 14	1012	266, 267	31	190
Gas. Apparatus for manufacturing	A. F. Randall	317,953	May 12	1368	367, 368	31	783
Gas. Apparatus for manufacturing	R. B. Stapp	317,423	May 5	670	170	31	644
Gas. Apparatus for manufacturing illuminating	S. C. Salisbury	317,561	May 12	877	225	31	690
Gas. Apparatus for the manufacture of	W. F. M. McCarty	321,124	June 30	2952	782	31	1616
Gas-burner	W. C. Boone and W. A. Whitfield	321,274	June 30	3137	836	31	1652
Gas-burner	O. D. McClellan	319,285	June 2	427	114	31	1128
Gas-burners. Electric lighting device for	L. S. White	320,606	June 23	2275	601	31	1486
Gas-burners. Oxygen-gas attachment for	C. Beseler	318,161	May 19	1650	441	31	843
Gas-burners. Stop-valve for	S. B. H. Vance	316,675	Apr. 28	2321	609	31	440
Gas-burning apparatus	A. Randol	316,059	Apr. 21	1495	390	31	284
Gas by electricity. Apparatus for turning on, lighting, and shutting off	L. S. White	320,105	June 16	1555	411	31	1347
Gas by electricity. Apparatus for turning on, lighting, and turning off	L. S. White	320,106	June 16	1559	412	31	1347
Gas-cautery	C. Graefe	319,698	June 9	981	260	31	1238
Gas. Composition for purifying	J. Duke	316,609	Apr. 28	2238	.....	31	425
Gas-compressor	L. Block	314,992	Apr. 7	6	2	31	4
Gas-conductor	J. Hunter	315,788	Apr. 14	1130	296	31	212
Gas-conductor	J. D. Upperman	316,506	Apr. 28	2111	555	31	401
Gas conductors. Joint for natural	J. N. Pew	317,009	May 5	107	27	31	542
Gas-engine	C. Benz	316,868	Apr. 28	2619	682	31	494
Gas-engine	T. McDonough	315,808	Apr. 14	1150	302	31	216
Gas-engine	D. S. Troy	317,892	May 12	1287	343, 344	31	768
Gas-engines. Electric igniter for	D. S. Regan	320,385	June 16	1804	479	31	1391
Gas-explosions. Preventing	S. Stutz	315,082	Apr. 7	130	30	31	25

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Gas-extinguisher	D. C. Rice and A. L. Currey	320,694	June 23	2389	632	31	1507
Gas-fixtures. Electric lighting attachment for	C. A. Hussey	320,065	June 16	1499	396	31	1338
Gas for illuminating and heating purposes. Manufacturing	J. W. Mitchell	317,406	May 5	642	164	31	640
Gas from a condensable vapor. Method of and apparatus for separating a liquefiable	J. J. Suckert	320,310	June 16	1857	487, 488	31	1399
Gas from mains. Preventing leakage of	H. Moeser	317,408	May 5	647	165	31	641
Gas from wood. Apparatus for manufacturing	G. Ramsdell	317,197	May 5	369	92	31	500
Gas. Furnace for manufacturing illuminating	F. Egner	315,751	Apr. 14	1061	284	31	203
Gas-generating apparatus	A. O. Granger	318,106	May 19	1582	423	31	830
Gas. Generating carbonic-acid	C. E. Avery	316,863	Apr. 28	2612	.....	31	493
Gas-generator	J. Bowes	316,520	Apr. 28	2127	560	31	404
Gas-generator	A. Detwiler	315,747	Apr. 14	1077	262, 263	31	201
Gas-governor	T. Gordon	315,496	Apr. 14	719	190	31	134
Gas-governor. Automatic	J. S. Connelly	316,945	May 5	18	6	31	526
Gas-lighter. Electric	E. H. Wright	316,428	Apr. 21	1998	525	31	374
Gas-lighter. Electric	E. H. Wright	316,429	Apr. 21	1998	525	31	374
Gas-lighting apparatus. Electric	J. A. Norton	315,055	Apr. 7	96	23	31	19
Gas-lighting apparatus. Electric	J. A. Norton	315,056	Apr. 7	100	24	31	20
Gas-lighting apparatus. Electric	J. A. Norton	315,057	Apr. 7	101	24	31	20
Gas-lighting device. Electric	J. A. Norton	317,975	May 19	1409	378	31	709
Gas machines and mixers. Adjustable apparatus for	J. P. Clifford	315,443	Apr. 7	634	164	31	113
Gas-main. Underground	A. Randol	320,002	June 16	1418	372	31	1322
Gas-main ventilator	J. J. Ricketts	319,364	June 2	523	142	31	1147
Gas-mains. Detecting and carrying off leakage from	G. Westinghouse, Jr	315,363	Apr. 7	520	133	31	94
Gas-mains. Detecting leaks in	G. Westinghouse, Jr	320,695	June 23	2390	632	31	1507
Gas-mains. Leak-detector for	J. J. Ricketts	318,840	May 26	2567	683	31	1017
Gas-mains. Pipe-coupling for	G. Westinghouse, Jr	318,841	May 26	2568	683	31	1017
Gas-mains. Pipe-joint for	G. Westinghouse, Jr	316,967	May 5	49	13	31	531
Gas-mains. Safety-shield for	R. Heber	321,125	June 30	2953	782	31	1617
Gas. Making	W. F. M. McCarty	320,078	June 16	1519	402	31	1341
Gas-making apparatus	T. F. Martin	318,318	May 19	1861	500	31	882
Gas. Manufacturing	R. B. Stapp	319,111	June 2	220	57	31	1068
Gas-meter	W. N. Mileted	317,880	May 12	1271	339	31	764
Gas. Pipe-line for carrying	K. H. Stivason	318,473	May 26	2061	557	31	929
Gas-pressure gage	C. Hoffmann	317,918	May 12	1324	355	31	775
Gas-pressure regulator	R. Boeklen	315,717	Apr. 14	1028	270	31	192
Gas-pressure regulator	S. Cabot, Jr.	320,273	June 16	1784	474, 475	31	1387
Gas-pressure regulator	P. Munzinger	320,873	June 23	2606	690	31	1549
Gas-producer	J. Henderson	318,458	May 26	2044	552	31	925
Gas-proof tubing. India-rubber	T. Fletcher	316,465	Apr. 28	2059	539	31	390
Gas. Purifying and odorizing natural	J. Kountz	315,953	Apr. 14	1360	352	31	251
Gas. Purifying water	O. Lugo	316,026	Apr. 28	2250	594	31	428
Gas-regulating burner	W. M. Jackson	315,050	Apr. 7	87	21	31	18
Gas-regulating valve	A. McLennan	317,734	May 12	1070	280	31	726
Gas-regulator	W. H. Cothren	316,625	Apr. 28	2257	594	31	428
Gas-regulator	J. Hunter	320,095	June 16	1541	408	31	1345
Gas-regulator	R. Seeger	321,136	June 30	2964	785, 786	31	1619
Gas regulator and meter	J. N. Pew and T. L. Shields	318,965	June 2	48	12	31	1057
Gas-retorts. Device for fastening mouth-pieces to	J. Dell	319,365	June 2	524	143	31	1147
Gas-supply. Pipe-line for	G. Westinghouse, Jr	320,661	June 23	2347	620	31	1490
Gas-tight expansion-joint	D. Jarves	317,283	May 5	480	121	31	611
Gas under pressure. Conduit for the conveyance of	H. Bartley	318,901	May 26	2643	701	31	1032
Gas under pressure. System for conveying	W. A. Hoeveler	317,796	May 12	1161	307	31	743
Gas washer. Chlorine	J. A. Just	320,306	June 16	1835	486	31	1397
Gases and producing refrigeration. Liquefying	J. J. Suckert	320,307	June 16	1841	486	31	1398
Gases and producing refrigeration. Method of and apparatus for purifying and liquefying							
Gate: *See* Bridge-gate. Bridge safety-gate. Elevator-gate. End-gate. Farm-gate. Flood and sluice gate. Railway-gate. Sliding gate. Swinging gate.							
Gate	G. Bristol	320,534	June 23	2181	575	31	1467
Gate	P. C. Cessna	319,193	June 2	312	83	31	1106
Gate	C. A. Coffin and T. Ferguson	318,355	May 19	1914	516	31	892
Gate	W. E. Connelly	318,087	May 19	1555	417	31	825
Gate	R. F. Hageman	315,274	Apr. 7	408	101	31	74
Gate	J. Hanse	321,215	June 30	3065	813	31	1630
Gate	E. E. Hunt	318,430	May 19	2010	541	31	909
Gate	P. T. Keegan	320,662	June 23	2348	621	31	1490
Gate	J. H. Kinter	320,257	June 16	1751	465	31	1382
Gate	R. J. Leitzel and H. Frock	320,805	June 23	2520	667	31	1532
Gate	J. B. May	318,386	May 19	1952	526	31	900
Gate	S. E. Miller	317,405	May 5	641	164	31	640
Gate	J. Phillippe	316,652	Apr. 28	2293	602	31	435
Gate	J. W. Sims	319,333	June 2	488	131	31	1141
Gate	D. G. Smoot	316,644	Apr. 28	2585	676	31	488
Gate	L. D. Wade	316,315	Apr. 21	1838	485	31	346
Gate	S. G. Wilkerson	317,058	May 5	165	42	31	533
Gate	H. Schulze-Berge	320,179	June 16	1648	439	31	1364
Gear-cutter	R. M. Hill	316,784	Apr. 28	2496	651	31	472
Gear-cutter shaping-tool	G. G. Nodle	316,811	Apr. 28	2532	662	31	479
Gear-cutting machines. Index for	H. Burton	318,598	May 26	2241	600	31	959
Gear. Reversing	C. M. Giddings	315,762	Apr. 14	1096	287, 288	31	205
Gear. Reversing	R. N. Allen	315,214	Apr. 7	336	81	31	60
Gear-wheel	H. Schulze-Berge	319,513	June 9	738	198	31	1194
Gearing	W. N. Whiteley	320,734	June 23	2433	645	31	1516
Gearing. Belt	J. H. Whiting	315,687	Apr. 14	982	257	31	185
Gearing. Reversible friction	S. D. Locke	316,797	Apr. 28	2515	657	31	475
Gearing. Stop-motion							

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Gelatine when combined with tannic acid, &c. Treating	C. S. Lockwood, J. W. Hyatt, and J. H. Stevens.	317,390	May 5	622	.....	31	636
Generator: *See* Gas-generator. Steam-generator.							
Gimbal-joint	A. P. Bickmore	315,112	Apr. 7	168	41	31	31
Gland or packing follower	R. M. Fryer	320,924	June 30	2684	713	31	1569
Glass and other furnaces of the regenerator type	E. Walsh, Jr	320,516	June 23	2155	568, 569	31	1463
Glass and producing the same	J. Locke	316,551	Apr. 28	2164	570	31	411
Glass-annealing furnace	C. H. Lauman	317,808	May 12	1174	311	31	746
Glass bottles, &c. Finishing the mouths of	G. W. Yost	317,269	May 5	462	116	31	608
Glass-cutting machine. Electric	P. Lange and E. Lindner	317,805	May 12	1171	311	31	746
Glass cutting or trimming tool	J. C. Derby	316,430	Apr. 21	1999	525, 526	31	374
Glass-furnace	J. Anderson	315,694	Apr. 14	991	260	31	186
Glass-furnace	D. Fetters	319,688	June 9	964	256	31	1235
Glass-furnace. Regenerating and reverberating	W. F. Modes	320,951	June 30	2715	720	31	1575
Glass-ornamenting	E. L. Brown	315,472	Apr. 14	669	180	31	128
Glass plate for making medicinal tablets. Perforated	J. E. Schreck	315,173	Apr. 7	259	63	31	47
Glass plates. Mold for making perforated	J. E. Schreck	315,172	Apr. 7	258	62	31	47
Glass tubing. Manufacturing	W. L. Jukes	321,369	June 30	3256	860	31	1675
Glass. Window and other	M. Magrath	319,592	June 9	892	226	31	1214
Glassware	B. Benett. (Reissue)	10,609	June 16	2066	543	31	1438
Glassware	B. Bennett	315,462	Apr. 14	670	174	31	125
Glassware. Machine for printing on	H. Schulze-Berge	316,836	Apr. 28	2570	672, 673	31	486
Glassware. Manufacture of handled	D. C. Ripley	319,026	June 2	115	31	31	1069
Glassware. Ornamenting the handles of articles of	J. S. Dignam	320,915	June 30	2674	710	31	1567
Globe. Folding	L. D. Washington	316,087	Apr. 21	1535	401	31	291
Globe. Tellurian	T. H. Costello	317,307	May 5	511	130, 131	31	617
Glove and notion holder	C. H. Freaner and S. Golding	320,057	June 16	1490	393	31	1335
Glove. Boxing	A. R. Rumsy	320,972	June 30	2752	731	31	1581
Glove-fastener	G. P. Ross	319,030	June 2	119	33	31	1070
Glove-fastening	J. Blomstrom	316,325	Apr. 21	1850	489	31	348
Glove-fastening	G. W. Prentice	321,050	June 30	2850	758	31	1600
Glove-lacing	E. Forbes	317,528	May 12	812	209	31	679
Glove or shoe fastening	E. W. A. Meyer	315,811	Apr. 14	1157	303	31	217
Glue	R. Gabler and T. Pilz	318,367	May 19	1927	.....	31	895
Gluing and staining machine	W. Rabbe	320,816	June 23	2532	671	31	1535
Glycerine from fatty matters. Extracting	B. T. Babbitt	316,104	Apr. 21	1565	407	31	296
Gold and silver from pulverized ores. Machine for extracting	J. L. Hayward	320,655	June 23	2341	619	31	1498
Gold from its chlorides. Apparatus for the electro-deposition of	E. P. Thompson	317,246	May 5	432	108	31	602
Gold from its ores by electro chlorination and deposition. Apparatus for the separation of	E. P. Thompson	317,245	May 5	427	107	31	601
Gold-saving apparatus	V. P. Yelmini	319,657	June 9	931	246	31	1228
Gong-striker. Electro-mechanical	L. H. McCullough	316,476	Apr. 28	2073	542	31	393
Governor	C. M. Giddings	319,606	June 9	979	259	31	1237
Governor	J. Judson	315,632	Apr. 14	915	240	31	170
Governor	C. Prüsmann	317,850	May 12	1232	326	31	757
Governor	J. Scott	320,005	June 16	1423	374	31	1323
Governor	A. Therkelsen and J. G. A. Brunn	316,648	Apr. 28	2591	677	31	489
Governor. Combined pressure and speed	J. Clayton	315,244	Apr. 7	371	92	31	67
Governor. Electric marine	B. J. Carroll	318,417	May 19	1990	536	31	906
Governor. Engine	D. P. Davis	317,098	May 5	221	56	31	564
Governor. Steam	J. Killip	318,120	May 19	1508	427	31	834
Governor. Steam	J. Killip	320,478	June 23	2106	555	31	1454
Governor. Steam and fluid engine	A. L. Ide	319,200	June 2	395	105	31	1122
Governor. Steam-engine	A. J. Allen	319,658	June 9	933	247	31	1229
Governor. Steam-engine	R. M. Beck	317,285	May 5	423	122	31	611
Governor. Steam-engine	R. M. Beck	318,852	May 26	2579	686, 687	31	1019
Governor. Steam-engine	M. R. Moore	318,782	May 26	2481	664	31	1004
Governor. Steam-engine	J. W. Sargent	316,490	Apr. 28	2091	547	31	396
Governor. Steam-engine	F. Schumann	318,663	May 26	2321	620, 621	31	975
Governor. Steam-engine	J. Scott	320,004	June 16	1421	373	31	1322
Governor. Steam-engine	A. Thierfelder	317,592	May 12	894	229	31	693
Governor. Steam-engine speed	E. Hill	319,251	June 2	385	102	31	1120
Governor. Steam-power	C. V. Lüde	320,879	June 23	2613	693	31	1551
Governors. Safety attachment for steam-engine	T. R. Pickering	318,289	May 19	1911	485	31	874
Grader or road-scraper	B. R. Abbott	321,260	June 30	3131	834	31	1651
Grader. Road	S. Pennock	318,019	May 19	1468	393	31	809
Grading machine. Road	W. R. Ferguson	319,474	June 9	682	183, 184	31	1184
Grain and seed separator and grader	W. Tate	319,528	June 9	758	203	31	1197
Grain-bagging apparatus	V. and E. Laplace	318,633	May 26	2280	609	31	967
Grain-binder	R. Brown	317,292	May 5	495	124, 125	31	614
Grain-binder	C. Colahan	315,479	Apr. 14	697	182, 183	31	130
Grain-binder	C. Colahan	315,480	Apr. 14	699	183, 184, 185	31	130
Grain-binder	C. Colahan	315,481	Apr. 14	701	185	31	131
Grain-binder	L. Fecher and W. F. Olin	315,754	Apr. 14	1067	285	31	204
Grain-binder	P. F. Hodges	315,288	Apr. 7	423	106	31	77
Grain-binder	P. F. Hodges	315,289	Apr. 7	424	106, 107	31	77
Grain-binder	P. F. Hodges	315,290	Apr. 7	426	107	31	77
Grain-binder	G. G. Hunt and G. H. Steward	318,257	May 19	1772	473, 474	31	867

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Grain-binder	I. Lancaster	316,272	Apr. 21	1782	469	31	336
Grain-binder	D. Strunk	318,321	May 19	1866	500, 501	31	883
Grain-binder	G. Tyler	315,091	Apr. 7	140	33, 34	31	27
Grain-binder band-securing mechanism	J. S. Davis	319,963	June 16	1361	358	31	1312
Grain-binder-cord alarm	W. M. Whiting	317,905	May 12	1310	350	31	772
Grain-binder knotting mechanism	J. F. Appleby	315,216	Apr. 7	339	82	31	61
Grain-binder knotting mechanism	J. F. Appleby	319,167	June 2	283	75	31	1099
Grain-binder knotting mechanism	C. P. Shufelt	318,809	May 26	2524	674	31	1010
Grain-binders. Cord-spool and tension device for	I. H. Russell	316,917	Apr. 28	2694	701	31	508
Grain-binders. Discharging mechanism for	S. V. Kennedy	316,550	Apr. 28	2162	568, 569	31	411
Grain-binding machine	J. F. Gordon	320,348	June 16	1905	502, 503, 504, 505	31	1409
Grain-binding machine	S. L. McColloch	315,528	Apr. 14	767	203, 204	31	143
Grain by means of air-currents. Apparatus for drying	J. A. Latcha	318,269	May 19	1791	479	31	870
Grain-cleaner	F. M. Lynett	315,523	Apr. 14	759	201	31	142
Grain-cleaner	L. O. and L. E. Stevens	320,013	June 16	1431	376	31	1324
Grain-cleaning and drying machine	J. Ritchie	316,063	Apr. 21	1500	392	31	285
Grain-cleaning machine	M. D. Beardslee	315,996	Apr. 21	1417	368	31	269
Grain-cleaning machine	H. Lampman	317,655	May 12	976	252	31	708
Grain-cleaning machine	H. B. Balch and F. Burtt	316,722	Apr. 28	2412	628	31	457
Grain-cleaning mill	G. H. Diehl	318,764	May 26	2375	633	31	985
Grain-drier	E. W. Johnson	315,508	Apr. 14	732	194	31	137
Grain-drier	G. W. Altland	319,659	June 9	934	247	31	1229
Grain-drill	H. C. Beebe	321,273	June 30	3135	835	31	1651
Grain-drill	G. G. Blunt	314,993	Apr. 7	9	3	31	4
Grain-drill	W. C. Downey	315,260	Apr. 7	388	97	31	70
Grain-drill. Fertilizing	J. F. Keller	318,478	May 26	2066	558, 559	31	929
Grain. Elevating, conveying, purifying, and drying	J. A. Latcha	318,377	May 19	1942	524	31	898
Grain-elevator	C. Hayes	317,353	May 5	576	148	31	629
Grain elevator and cleaner	F. M. Williams	318,674	May 26	2337	624	31	978
Grain force-feeding machine	J. P. Warner	315,193	Apr. 7	302	72	31	54
Grain-granulating machine	G. Malcolm	320,466	June 23	2116	557	31	1455
Grain-meter	J. Will	319,160	June 2	277	73	31	1098
Grain-meter	E. N. Williamson	315,585	Apr. 14	854	225	31	158
Grain-meter	A. J. Williams	318,585	May 26	2227	595, 596	31	956
Grain-reducing apparatus	J. Martin and P. T. Baker	319,594	June 9	854	227	31	1214
Grain-register	G. H. Caughrean	320,218	June 16	1703	452	31	1374
Grain sacking, weighing, and registering machine	M. D. Beardslee	315,997	Apr. 21	1419	360	31	270
Grain-scourer	W. A. Cockrell	319,788	June 9	1107	294	31	1260
Grain-scourer	T. Inglis	319,109	June 2	1280	337	31	1220
Grain scouring and cleaning machine	J. F. Henderson	317,789	May 12	1140	302	31	740
Grain-separator	E. Huber	320,356	June 16	1927	508	31	1412
Grain-separator	J. Lucas	317,813	May 12	1182	314	31	748
Grain-separator	W. H. Mercer	317,827	May 12	1204	319	31	752
Grain-separator	J. S. Upton	318,635	May 26	2556	680	31	1015
Grain-separator straw-stacker	L. A. Chase	318,695	May 26	2364	631	31	983
Grain-shoveling mechanism	J. S. Metcalf	319,988	June 16	1399	368	31	1319
Grain-shovels. Device for operating power	J. Bradford	317,082	May 5	202	51	31	560
Graining composition	T. Head	321,295	June 30	3102	.....	31	1657
Graining wood	G. H. Hulmes and W. Shope	320,359	June 16	1932	.....	31	1413
Grape crushing and pressing machine	I. Thayer	319,640	June 9	916	242	31	1225
Grape stemmer and crusher	A. David	320,049	June 16	1478	390	31	1333
Grappling-bucket	W. G. Thompson	321,158	June 30	2992	794	31	1625
Grappling-bucket	W. G. Thompson	321,159	June 30	2994	794	31	1625
Grate	W. L. and W. P. Golder	318,720	May 26	2396	639	31	988
Grate	J. F. and L. Hess, F. H., J. F., and C. F. Snyder.	320,783	June 23	2494	660	31	1528
Grate	W. McClave	318,007	May 19	1452	389	31	807
Grate and heater. Combined open	W. W. Patton	317,006	May 5	104	27	31	541
Grate-bar and grate	D. S. Richardson	320,001	June 16	1417	372	31	1321
Grate-bar. Rocking	W. B. Chisholm and J. Walker	316,576	Apr. 28	2026	665	31	495
Grate. Combined shaking and dumping	T. E. Barrow	315,460	Apr. 14	666	173	31	125
Grate. Shaking and dumping	P. Miller	318,013	May 19	1462	391	31	808
Grate stove attachment	J. M. Seymour	317,864	May 12	1254	333	31	761
Grates and fire-places. Stove attachment for	J. M. Seymour	317,863	May 12	1252	332, 333	31	760
Grated shovel	M. P. C. Hooper	316,623	Apr. 28	2254	593	31	428
Gridiron	L. T. Newell	318,493	May 26	2066	564	31	933
Grinding-mill	J. and W. L. Beall	316,936	May 5	9	3	31	524
Grinding-mill	H. H. Coles	318,700	May 26	2370	632	31	984
Grinding-mill	P. T. Couch and C. W. Woolbert	317,735	May 12	1071	281	31	727
Grinding-mill. Roller	F. Wegmann. (Reissue)	10,579	Apr. 7	661	170, 171	31	118
Grinding-plate. Metallic	E. M. McKee	316,476	Apr. 28	2077	543	31	394
Grinding-ring. Metallic	J. G. Mole	321,045	June 30	2843	756	31	1598
Grinding tools. Machine for	N. Brickell	320,755	June 23	2440	652	31	1522
Grindstone-frame	J. B. Johnson	321,221	June 30	3071	815	31	1640
Grindstone-frame. Folding	J. Aenis	314,986	Apr. 7	1	1	31	3
Gripping implement	G. C. Payne	319,017	June 2	105	28	31	1067
Guard: *See* Animal-guard. Belt-guard. Car dust-guard. Carving-fork guard. Dental breath-guard. Fence-guard. Fork-guard. Hatchway-guard. Key-hole guard. Paddle-wheel guard. Razor-blade guard. Window-guard.							
Guide-box	B. Weaver	315,362	Apr. 7	519	132, 133	31	94

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Gun-barrels. Straightening and annealing	C. E. Bailey	320,613	June 23	2289	.....	31	1488
Gun-carriage	F. O. Ekholm	318,238	May 19	1751	468	31	862
Gun-carriage	F. O. Ekholm	318,239	May 19	1752	468	31	863
Gun carriage. Machine	R. Haack	319,241	June 2	374	99, 100	31	1118
Gun-cotton. Coating	M. Von Förster	316,357	Apr. 7	513	.....	31	93
Gun-lock. Breakdown	F. Beesley	320,040	June 16	1465	385, 386	31	1331
Gun. Machine	H. S. Maxim	317,161	May 5	314	79	31	580
Gun. Machine	H. S. Maxim	319,596	June 9	859	227, 228	31	1215
Gun. Magazine	C. Garbe	315,609	Apr. 14	882	232	31	164
Gun. Magazine	W. J. Kriz	318,268	May 19	1788	478, 479	31	869
Gun. Magazine	D. H. Rice	316,485	Apr. 28	2084	545	31	395
Gun. Magazine spring	S. D. Engle	320,643	June 23	2324	614	31	1494
Gun-wad	C. R. Pue	320,500	June 23	2136	.....	31	1459
Gun-wads. Machine for counting	J. Gardner	320,236	June 16	1728	458	31	1378
Gun-wads. Machine for counting	W. Mason	319,284	June 2	421	113, 114	31	1127
Guns. Lock mechanism for concealed-hammer	A. Hyde	315,413	Apr. 7	594	152	31	166
Guns. Rifling-machine for heavy	J. R. Streett	318,824	May 26	2543	678	31	1013
Gunnery	A. S. Lyman	321,043	June 30	2842	756	31	1598
Gutter box or trough	F. Axt	320,394	June 16	1880	493	31	1403
Gutter. Cornice	D. Newton	317,841	May 12	1221	323	31	755
Gutters of skylights, roofs, vaults, &c. Support for	J. F. Stuckert	316,413	Apr. 21	1079	520	31	370
Gymnastic performance with rats, birds, &c. Implement for	J. B. Peirano	320,960	June 30	2733	727	31	1578
Hackling-machine	C. E. Keith	318,750	May 26	2437	653	31	996
Hair-curling pin	J. Schwiebert	317,216	May 5	394	98	31	595
Hair-pins. Machine for making	S. E. Mower	319,301	June 2	443	119, 120	31	1131
Hair-washing apparatus	G. Upton	315,092	Apr. 7	144	34	31	27
Halter clamp. Rope	T. Hall	315,614	Apr. 14	895	234	31	166
Hame	G. H. Bartlett	315,891	Apr. 14	1271	331	31	237
Hame	J. Bloedel	321,002	June 30	2790	741	31	1588
Hame	G. J. Letchworth	321,122	June 30	2950	782	31	1616
Hame	H. C. Sargent	318,036	May 19	1492	400	31	814
Hame and clip for harness	C. and F. C. Stoetzel	320,600	June 23	2267	599	31	1484
Hame-fastener	M. T. Burke	315,714	Apr. 14	1017	268	31	191
Hame-fastener	J. D. Crockett	320,336	June 16	1892	497	31	1406
Hame-fastener	W. L. Heinzer and H. B. Gillingham	321,026	June 30	2925	751	31	1595
Hammer and nail-feeding device. Combined	E. Horton	319,719	June 9	1016	269	31	1244
Hammer. Drop	G. N. Schoenberg	318,305	May 19	1833	491, 492, 493, 494	31	879
Hammock holder or stand	C. L. Rudd and E. J. Manning	320,174	June 16	1643	437	31	1363
Hammock. Invalid	A. Leslie	317,383	May 5	613	157	31	635
Hammock-spreader	W. E. Brock	317,201	May 5	494	124	31	613
Hammock-spreader	A. Nickerson	320,276	June 16	1789	475	31	1388
Hammock-support	J. H. Ten Eyck	315,354	Apr. 7	508	129	31	92
Hammock-support	V. P. Travers	316,419	Apr. 21	1988	522	31	372
Hammock-supports. Shifting top for	C. W. Acker	316,513	Apr. 28	2119	558	31	402
Hammocks, &c. Thimble for	V. P. Travers	318,524	May 26	2139	576	31	943
Hand and foot power. Combined	W. H. H. Campbell	318,353	May 19	1912	515	31	891
Hand-bag	J. Lambert	315,303	Apr. 7	441	111	31	80
Hand-grenade extinguisher. Explosive	A. F. Letson and F. Honegger	318,761	May 26	2455	657	31	999
Hand-rake	W. Sellers	319,631	June 9	900	238	31	1223
Handle: *See* Carriage-handle. Door-handle. Knife-handle. Pump-handle. Satchel-handle. Satchel or bag handle. Saw-handle. Shovel-handle. Shovel or spade handle. Surgical-instrument handle. Tool-handle.							
Handle for culinary vessels	A. Rosenzweig	315,344	Apr. 7	493	125	31	90
Hanger: *See* Coat-hanger. Door-hanger. Eaves-trough hanger. Lamp-hanger. Pipe-hanger. Shaft-hanger. Spring-hanger.							
Harness	W. S. Bowie	318,445	May 26	2028	547	31	922
Harness	C. W. Burgtorf	316,443	Apr. 28	2035	533	31	386
Harness	R. J. Clark	317,301	May 5	505	129	31	615
Harness	C. F. Shedd	319,327	June 2	478	129	31	1130
Harness and shaft connection	T. J. Lynch	318,005	May 19	1451	368	31	806
Harness attachment	G. L. Eason	320,546	June 23	2195	580	31	1470
Harness attachment	R. G. Hanford, Jr	318,895	May 26	2636	699	31	1031
Harness back-band	W. Hardy	317,346	May 5	569	145	31	627
Harness-chain connection	J. C. Covert	319,958	June 16	1356	356	31	1311
Harness. Collar attachment for double	D. B. Smith	316,842	Apr. 28	2584	675	31	488
Harness-loop	C. F. G. Stender	318,818	May 26	2535	676	31	1012
Harness pad or lining	H. C. Babcock	317,073	May 5	187	47	31	557
Harness-pads. Die for pressing	C. H. Freeman	315,607	Apr. 14	878	230	31	163
Harness-rosette	J. R. McAdam	317,819	May 12	1195	317	31	750
Harness-straps. Coupling device for	N. W. Hunter	318,116	May 19	1594	426	31	833
Harness-straps. Machine for channeling	T. K. Clark	320,628	June 23	2307	609	31	1491
Harness-trimming	E. N. Crane	319,461	June 9	668	179	31	1181
Harness-trimming	E. N. Crane	319,462	June 9	669	179	31	1181
Harp. Mouth	J. McMahel	320,440	June 16	2050	538	31	1435

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Harrow	M. D. Bronner	320,455	June 23	2081	547	31	1449
Harrow	A. Carlin	319,451	June 9	651	176	31	1178
Harrow	S. H. Cook	316,244	Apr. 21	1746	459	31	330
Harrow	L. Deloria	316,755	Apr. 28	2463	642	31	465
Harrow	W. H. Dungan	318,095	May 19	1564	419	31	827
Harrow	A. C. Evans	319,894	June 9	1256	332	31	1286
Harrow	P. Gales	320,773	June 23	2481	657	31	1526
Harrow	W. H. Goodman	320,347	June 16	1904	502	31	1409
Harrow	F. M. Hakes	317,768	May 12	1120	295	31	736
Harrow	C. T. Holman	317,787	May 12	1145	303, 304	31	741
Harrow	L. Johnson	320,067	June 16	1502	398	31	1338
Harrow	A. H. Patch	316,648	Apr. 28	2288	601	31	434
Harrow	W. F. M. Ricketts	319,321	June 2	471	127	31	1137
Harrow	H. L. Whitman	321,071	June 30	2886	767	31	1606
Harrow	J. R. Whittemore	315,579	Apr. 14	848	223	31	157
Harrow	J. H. and J. L. Woolard	315,106	Apr. 7	162	39	31	30
Harrow and cultivator. Combined	B. Wilt	317,909	May 12	1313	351	31	773
Harrow and pulverizer. Combined	T. McClelland	317,399	May 5	633	162	31	638
Harrow. Cutting and pulverizing	A. Corbin, Jr	315,127	Apr. 7	184	45	31	34
Harrow. Disk	H. M. Rose	318,395	May 19	1963	529	31	902
Harrow. Disk	P. Meyer	319,109	June 2	218	57	31	1088
Harrow. Drag	C. Hawley	321,105	June 30	2932	777	31	1613
Harrow. Rotary	H. H. Ladd	318,631	May 26	2278	608, 609	31	906
Harrow. Rotating	E. French and F. Parvin	315,492	Apr. 14	714	188, 189	31	133
Harrow. Sulky	E. D. and O. B. Reynolds	316,569	Apr. 28	2186	575	31	415
Harrow-teeth. Making	J. Miller	318,195	May 19	1694	454	31	852
Harrow-tooth fastener	C. E. Cook and J. Mitchell	320,334	June 16	1890	497	31	1406
Harrow-tooth fastening	D. H. Dolby	321,253	June 30	3147	839	31	1654
Harrow. Wheel	F. G. Becker	317,964	May 19	1396	375	31	796
Harvester	G. G. Hunt	319,257	June 2	391	104	31	1122
Harvester	J. P. Manny	317,815	May 12	1187	316	31	749
Harvester	J. F. Steward	315,567	Apr. 14	830	219	31	154
Harvester	J. F. Appleby	315,993	Apr. 21	1413	367	31	269
Harvester-binder. Adjustable	A. H. Bell	320,750	June 23	2454	650	31	1521
Harvester bundle-dropper	W. J. Belina	318,442	May 26	2025	545, 546	31	921
Harvester conveyer-apron	H. S. Bartholomew	319,054	June 2	148	40	31	1074
Harvester. Corn	J. D. Burlie	316,943	May 5	16	5	31	526
Harvester. Corn	R. L. Pearson	319,310	June 2	459	123, 124	31	1135
Harvester. Cotton	D. B. Haselton	319,710	June 9	998	264	31	1241
Harvester cutter-bar	J. E. Ratcliff	318,802	May 26	2514	671	31	1008
Harvester cutting apparatus	C. Galle	319,222	June 2	346	93	31	1113
Harvester cutting apparatus	D. W. Hovey	318,745	May 26	2433	652	31	995
Harvester cutting apparatus	J. A. Ritter, Jr	315,341	Apr. 7	490	124	31	89
Harvester finger-bar	W. L. Walker	320,988	June 30	2773	736	31	1585
Harvester frame-adjusting mechanism	G. G. Hunt	315,624	Apr. 14	906	238	31	168
Harvester. Grain-binding	A. O. Carman	318,953	June 2	20	6, 7	31	1052
Harvester. Grain-binding	P. F. Hodges	319,717	June 9	1008	267, 268	31	1243
Harvester. Grain-binding	L. Miller	316,991	May 5	84	22	31	538
Harvester pitman-coupling	H. L. Heaton	315,940	Apr. 14	1337	347	31	948
Harvester-platform	J. Garrard	316,957	May 5	37	10	31	529
Harvester-reel	D. Gingrich	320,927	June 30	2688	713	31	1570
Harvester-reel	F. Laqua	317,150	May 5	298	76	31	578
Harvester-reel	L. Miller	315,649	Apr. 14	935	245	31	175
Harvester-reel	L. L. Olp	319,116	June 2	228	60	31	1089
Harvester-reel	A. O. Carman	318,954	June 2	27	7, 8	31	1053
Harvester. Self-binding	R. Brown	315,901	Apr. 14	1286	335	31	239
Harvesting-machine	E. M. Aikin	319,163	June 2	279	73	31	1099
Harvesting machine. Corn	H. F. Urie	320,416	June 16	2020	530, 531	31	1430
Harvesting machine. Corn	H. W. Matthews. (Reissue)	10,601	May 26	2693	713, 714	31	1041
Harvesting machine. Corn and cane	J. H. Nicholes	317,666	May 12	989	256, 257	31	711
Harvesting machine. Pea	A. P. Olmstead	319,014	June 2	102	28	31	1067
Hasp and bolt. Combined	C. P. Pond	321,246	June 30	3100	824	31	1645
Hasp-lock	R. Eickemeyer	317,104	May 5	228	57	31	565
Hat-block chuck	A. Polisse	320,391	June 16	1985	522	31	1424
Hat-bodies. Machine for felting	J. T. Waring	320,101	June 16	1547	410	31	1346
Hat-bodies, &c. Machine for felting	J. T. Waring	320,102	June 16	1549	410	31	1346
Hat-bodies. Machine for felting	J. Bigelow	317,286	May 5	485	122, 123	31	611
Hat-brim curls. Machine for trimming	E. Tweedy and G. Yule	315,451	Apr. 7	643	166, 167	31	115
Hat-brim softener	R. Eickemeyer	317,324	May 5	538	137, 138	31	622
Hat-brims. Machine for planing the folded or curled edges of	E. Tweedy and G. Yule	317,425	May 5	672	171	31	645
Hat curling, finishing, or trimming machine	F. Cocker and G. Yule	320,115	June 16	1570	414, 415	31	1350
Hat-curling machine	T. Longshaw	317,555	May 12	846	217	31	685
Hat felting and sizing machine	E. Tweedy and G. Yule	315,452	Apr. 7	645	167, 168	31	115
Hat-ironing machine	E. Tweedy and G. Yule	316,585	Apr. 28	2207	581	31	419
Hat-ironing machine	F. W. Cheetham	319,561	June 9	802	213	31	1205
Hat-leathers, &c. Attaching wire or springs to	G. Yule	315,207	Apr. 7	324	78, 79	31	58
Hat-machine clutch	G. Yule	315,208	Apr. 7	325	79	31	59
Hat-machine scale	E. Tweedy and G. Yule	317,426	May 5	677	171, 172	31	645
Hat-machine tool-coupler	G. Yule	315,209	Apr. 7	330	80	31	59
Hat-machine-tool vibrator							

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Hat. Metallic helmet	C. H. Lindenberg and E. G. Drake	318,192	May 19	1688	452	31	851
Hat shaping and curling machine	G. Rehfuss	319,747	June 9	1047	277	31	1250
Hat-sizing machine	S. C. Palmer	320,581	June 23	2240	593, 594	31	1479
Hat-stand	H. A. Matthews and D. M. Ireland	318,273	May 19	1795	480	31	871
Hat. Storm	H. M. Sawyer	317,677	May 12	1005	261	31	713
Hat sunshade attachment	J. C. Cary	317,972	May 19	1407	378	31	798
Hatchets. Die for making	G. Selsor	318,312	May 19	1855	498	31	881
Hatchway-guard. Automatic	W. S. Morton	320,083	June 16	1524	404	31	1342
Hatchway guard. Elevator	W. S. Morton	317,564	May 12	855	220	31	687
Hatchway. Self-closing	R. D. Thackston	315,083	Apr. 7	131	31	31	25
Hay and grain elevator and carrier	E. D. Mead	320,267	June 16	1762	468, 469	31	1384
Hay and grain unloader	R. M. Gardiner	318,558	May 26	2198	587	31	951
Hay and wheat elevator	P. F. Fleming	317,527	May 12	811	208	31	679
Hay-binder	G. Banks	321,173	June 30	3012	798	31	1629
Hay-carrier	C. E. Hunt, N. B. Helm, and H. L. Ferris.	316,463	Apr. 28	2057	539	31	390
Hay-carrier	R. C. Jordan	320,876	June 23	2610	692	31	1550
Hay-elevator	P. F. Chambard	314,998	Apr. 7	16	4, 5	31	5
Hay-elevator	J. M. Foote	317,109	May 5	233	59	31	566
Hay elevator and carrier	M. W. Chamberlain	318,085	May 19	1553	416	31	825
Hay elevator and carrier	C. E. Hunt, H. L. Ferris, and N. B. Helm.	316,462	Apr. 28	2056	539	31	390
Hay elevator and carrier	R. L. Short	320,594	June 23	2258	598	31	1483
Hay-fork	C. S. Ambruster	316,719	Apr. 28	2407	627	31	456
Hay-fork	W. H. Burnham and C. H. Haley	318,416	May 19	1989	535	31	906
Hay-fork. Horse	J. T. Brown	319,671	June 9	947	250	31	1232
Hay-fork. Horse	F. E. Kohler	318,375	May 19	1938	523	31	897
Hay-fork. Horse	C. Maginnis	317,556	May 12	847	218	31	685
Hay-fork. Horse	T. D. McKinney	317,165	May 5	323	80	31	582
Hay-fork. Horse	P. Werum	316,857	Apr. 28	2005	680	31	492
Hay-knife	W. H. Carter	316,523	Apr. 28	2129	560	31	405
Hay-loader	M. F. E. Stadtmueller	320,188	June 16	1064	442	31	1367
Hay-press	I. N. Canthorn	317,297	May 5	501	127	31	615
Hay-press	S. H. Miller	318,644	May 26	2296	613, 614	31	970
Hay-rake	R. Frick and O. J. Rowe	318,459	May 26	2045	552	31	925
Hay rake and loader	W. and D. Blackstone	317,614	May 12	927	238	31	699
Hay rake and loader. Combined	T. Kirby and R. Shea	319,267	June 2	403	107	31	1124
Hay rake and loader. Combined	H. L. Willhoite	315,366	Apr. 7	523	134	31	95
Hay rake and tedder. Detachable	J. E. Offutt	319,612	June 9	880	233	31	1219
Hay-rake. Horse	R. W. Dixon	320,766	June 23	2473	655	31	1524
Hay-rake. Horse	S. R. Nye	316,290	Apr. 21	1805	474, 475	31	340
Hay-rake. Horse	J. H. Thomas	317,594	May 12	896	230	31	693
Hay-rake. Horse	C. A. Werden	316,706	Apr. 28	2388	622	31	452
Hay raker and loader	J. H. Corcoran and L. Rumnel	320,227	June 16	1715	456	31	1376
Hay raking and loading machine	G. A. and D. R. Stedman	320,508	June 23	2264	599	31	1484
Hay-ricking device	R. O. Davis	317,744	May 12	1093	286	31	730
Hay-stacker	T. S. Adkins	317,697	May 12	1031	268	31	719
Hay-stacker	J. A. Ball	315,109	Apr. 7	163	40	31	30
Hay-stacker	J. W. and P. M. Hogeland	318,429	May 19	2008	541	31	909
Hay-stacker	H. Orchard	320,443	June 16	2055	539	31	1436
Hay-stacker	P. F. Terry	315,185	Apr. 7	291	69	31	52
Hay-tedder	W. E. Knox	316,371	Apr. 21	1914	506	31	359
Hay-tedder	F. E. Kohler	318,376	May 19	1940	523, 524	31	897
Hay-tedder	J. E. Offutt	320,085	June 16	1529	405	31	1343
Hay-tedder	J. H. Thomas	316 498	Apr. 28	2102	572	31	399
Hay tedder and rake. Combined	E. L. Williams	317,602	May 12	908	233	31	696
Head-light. Locomotive	G. S. Riley	321,316	June 30	3185	849	31	1662
Head-light. Locomotive	G. N. Sceets	318,516	May 26	2112	570	31	938
Head-rest	D. D. Gitt	318,368	May 19	1927	520	31	895
Head-rest. Folding	M. J. Koenig	319,980	June 16	1389	365	31	1317
Head-section	H. Winter	319,537	June 9	771	205	31	1199
Header	C. H. Deane	319,075	June 2	178	47	31	1081
Headers and thrashers. Steering mechanism for	W. H. Parks, Jr.	319,117	June 2	229	60	31	1089
Hearth guard or shield	W. J. Sanders	315,345	Apr. 7	404	125	31	90
Heat and fuel economizing apparatus. Oxyhydrocarbon	J. T. Dysart	315,489	Apr. 14	710	187	31	132
Heat-regulator	L. C. Bvee and I. L. Dias	319,064	June 2	161	43	31	1077
Heat-regulator	C. L. Riker	318,393	May 19	1962	528	31	901
Heater: *See* Car-heater. Fire-place heater. Feed-water heater. Plumber's heater.							
Heater	H. B. Chase	314,999	Apr. 7	19	5	31	6
Heater	C. J. McGonnell	319,286	June 2	428	114	31	1129
Heater and ventilator. Combined	F. R. Henry	316,020	Apr. 28	2249	593	31	427
Heater. School-room	I. D. Smead	315,081	Apr. 7	128	30	31	25
Heating and soldering implement	W. A. Hoeveler and C. Keller	316,735	Apr. 28	2497	652	31	472
Heating apparatus	G. Gessner	316,772	Apr. 28	2482	648	31	469
Heating apparatus. Portable	C. D. P. Gibson	320,648	June 23	2330	615, 616	31	1495
Heating apparatus. Steam	H. W. Brinckerhoff	318,084	May 19	1551	416	31	824
Heating apparatus. Steam	F. Tudor	318,401	May 19	1971	531	31	903
Heating boiler. Steam	J. W. Latimer	316,274	Apr. 21	1788	470	31	337
Heating device	G. L. Lavery	315,422	Apr. 7	608	156	31	109
Heating liquids. Apparatus for	F. Antal, F. J. Kugler, and B. Mátyás.	319,874	June 9	1230	324, 325	31	1280
Hedge-trimmer. Hand	B. F. Bell	316,937	May 5	10	3	31	524
Heel-attaching machine	G. T. Demary	320,050	June 16	1479	390	31	1334
Heel-attaching machine	F. F. Raymond, 2d	316,177	Apr. 21	1659	435	31	315
Heel-blanks. Machine for forming	C. L. Cotton	320,228	June 16	1716	456	31	1376

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Heel-burnishing machine	J. H. Howard	318,903	May 26	2645	701, 702	31	1033
Heel-machine	A. J. Langelier	317,149	May 5	292	74, 75, 76	31	577
Heel-nail blank. Wire	F. F. Raymond, 2d	315,070	Apr. 7	117	27	31	23
Heel-nail plate	F. F. Raymond, 2d	315,069	Apr. 7	116	27	31	23
Heel-nailing machine	H. A. Henderson	316,894	Apr. 28	2652	691, 692, 693	31	500
Heel-nailing machine	H. A. Henderson	317,646	May 12	963	248	31	706
Heel-nailing machine	H. A. Henderson. (Reissue)	10,588	Apr. 28	2712	706, 707	31	511
Heel-nailing machine	H. A. Henderson. (Reissue)	10,589	Apr. 28	2715	707, 708	31	512
Heel-nailing machine	H. A. Henderson and F. F. Raymond, 2d.	317,647	May 12	965	248, 249	31	706
Heel-nailing machine	F. F. Raymond, 2d	316,661	Apr. 28	2301	604, 605	31	436
Heel-nailing machine	F. F. Raymond, 2d	316,826	Apr. 28	2550	668	31	482
Heel-nailing machine	F. F. Raymond, 2d	316,827	Apr. 28	2554	668, 669	31	483
Heel-nailing machine	F. F. Raymond, 2d	316,828	Apr. 28	2557	669, 670	31	483
Heel-nailing machine	F. F. Raymond, 2d	317,199	May 5	372	93	31	591
Heel-nailing machine	F. F. Raymond, 2d	317,672	May 12	999	259	31	713
Heel-nailing machine	F. F. Raymond, 2d	317,851	May 12	1233	326, 327	31	757
Heel-nailing machine	F. F. Raymond, 2d	318,134	May 19	1616	432	31	837
Heel-nailing machines. Nail-distributer for	F. F. Raymond, 2d	319,124	June 2	238	62	31	1091
Heel-protector	I. R. Sanford	318,035	May 19	1491	400	31	814
Heel-rands from counter-blanks. Cutting	E. M. Dickinson	316,130	Apr. 21	1606	419	31	304
Heel-trimming machine	C. W. Glidden	321,017	June 30	2808	746	31	1592
Heel-trimming machine	J. C. Wetmore	316,710	Apr. 28	2395	624	31	454
Heel-trimming machine	D. A. Williamson	315,203	Apr. 7	317	77	31	57
Heel-trimming machines. Knife-gage for	G. W. De Land	319,465	June 9	672	180	31	1182
Heeling-machine	E. B. Allen	319,377	June 2	538	147	31	1150
Heeling-machine	H. D. Stone	315,675	Apr. 14	968	253	31	181
Heeling-machine	H. D. Stone and A. C. Ambler	315,971	Apr. 14	1383	358	31	256
Heeling-machine	M. A. Tyler and E. Merritt	321,401	June 30	3299	881, 882	31	1683
Hemp, &c. Machine for spreading	J. Good	315,765	Apr. 14	1099	289	31	206
Hemp, &c. Machinery for spreading and drawing	J. Good	315,766	Apr. 14	1102	290	31	206
Hides. Machine for treating	W. R. Stove and A. W. Pratt	318,899	May 26	2338	577	31	1012
Hinge	D. K. Jackman	320,255	June 16	1749	465	31	1382
Hinge and roller. Combined gate	J. H. Carlile	319,065	June 2	102	43	31	1077
Hinge for carriage-doors	S. Gardner	320,345	June 16	1903	501	31	1408
Hinge for trunks. Brace	F. H. Ransom and A. W. Sangster	316,309	Apr. 21	1951	514	31	366
Hinge. Gate	M. T. Perkins	318,288	May 19	1810	484	31	874
Hinge. Gate	G. W. Williams	320,198	June 16	1673	445	31	1368
Hinge-joint	M. Spring	315,506	Apr. 14	829	218	31	154
Hinge-pin holes. Forming	N. Burdick and J. A. Sandford	317,498	May 12	774	198	31	672
Hinge. Reversible	J. F. Aston	317,701	May 12	1035	269	31	720
Hinge. Spring	R. Colvin and J. Wolfley	318,418	May 19	1992	536	31	906
Hinge. Spring	D. W. Housley	320,789	June 23	2500	662	31	1529
Hinge. Spring	S. S. Niles	317,410	May 5	649	166	31	641
Hitching device	J. T. Crabb	318,169	May 19	1662	445	31	846
Hitching device for vehicles	G. Morse	315,816	Apr. 14	1166	305	31	219
Hitching device for vehicles	D. S. Munger	316,996	May 5	92	24	31	539
Hitching device. Horse	D. W. Crowther	316,878	Apr. 28	2629	685	31	496
Hoe. Field or farm	E. K. Boothby	319,183	June 2	301	80	31	1104
Hoe. Plasterer's	P. C. Canfield	317 502	May 12	782	200	31	673
Hoe. Scuffle	H. Still	318 142	May 19	1636	437	31	841
Hoe. Tile-ditching	H. and L. Iwan	320,136	June 16	1599	423	31	1354
Hoes. Manufacture of pronged	F. A. Sibley	320,978	June 30	2760	734	31	1583
Hog-cholera remedy	M. Sleight	320,096	June 16	1543	.....	31	1345
Hog-cholera remedy	C. P. Smith	317,228	May 5	409	.....	31	598
Hoist	J. J. White	317,904	May 12	1300	350	31	772
Hoisting and conveying machine	A. E. Brown	315,900	Apr. 14	1283	334, 335	31	239
Hoisting and hauling gear	J. Christie	317,727	May 12	1063	277, 278	31	725
Hoisting apparatus	G. H. Bryant	321,004	June 30	2792	742	31	1589
Hoisting bales on wagons. Apparatus for	G. W. Lamb	317,803	May 12	1170	310	31	745
Hoisting-buckets. Caster-wheel for	A. E. Brown	315,235	Apr. 7	360	88	31	65
Hoisting-cage or elevator-unloader. Automatic	D. Jenkins	317,136	May 5	275	69, 70	31	574
Hoisting-drum	P. L. Weimer	320,024	June 16	1447	380	31	1327
Hoisting-drum. Elevator	P. L. Weimer	320,022	June 16	1444	379	31	1326
Hoisting-drum. Elevator	P. L. Weimer	320,023	June 16	1445	379, 380	31	1327
Hoisting-jack	G. Harkins	316,777	Apr. 28	2487	649	31	470
Hoisting-machine	C. E. Albro	316,718	Apr. 28	2405	627	31	456
Hoisting-machine	C. W. Hunt	320,064	June 16	1498	396	31	1337
Hoisting-machine	A. Pugh	320,886	June 23	2624	694, 695	31	1552
Hoisting-machine	T. A. Weston	320,315	June 16	1863	489, 490	31	1402
Hoisting mechanism	T. A. Weston	320,316	June 16	1867	490, 491	31	1402
Hoisting mechanism	T. A. Weston	320,317	June 16	1869	491	31	1402
Hoisting mechanism	T. A. Weston	320,318	June 16	1871	491, 492	31	1402
Holdback for vehicles	E. G. Lynch	321,375	June 30	3263	871	31	1677
Holdback-iron	G. R. Skinner	319,334	June 2	488	132	31	1141

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Holder:							
See Bag-holder. Lamp-holder.							
Book-holder. Music-holder.							
Book and music holder. Nail-holder.							
Bouquet-holder. Necktie-holder.							
Car-label holder. Paper-holder.							
Card-holder. Paste-holder.							
Cigar-holder. Pen-holder.							
Clothes-line holder. Pen and pencil holder.							
Cow-tail holder. Pencil and crayon holder.							
Cuff-holder. Photographic-film holder.							
Curtain-cord holder. Pillow-sham holder.							
Dental-engine holder. Rein-holder.							
Dental file holder. Sash-holder.							
Dental-tool holder. Shade-holder.							
Door-holder. Soap-holder.							
Eyeglass-holder. Sponge or mop holder.							
Fan-holder. Spool or ball holder.							
Glove and notion holder. Stock-holder.							
Hammock-holder. Tool-holder.							
Ice-holder. Twine-holder.							
Label-holder. Vessel-holder.							
Wagon-stake holder.							
Window-screen holder.							
Holster for pistols	O. M. Hanscom	317,128	May 5	264	66	31	572
Hoof parer and evener	A. Knapp	316,978	May 5	63	16	31	534
Hoof-trimmer	C. E. Hunt	321,029	June 30	2927	732	31	1596
Hook:							
See Button-hook. Garment-hook.							
Button and hat hook. Ice-hook.							
Cant-hook. Pad-hook.							
Check-hook. Screw or drive hook.							
Check-rein hook. Snap-hook.							
Fish-hook.							
Hook	P. F. Chambard	320,047	June 16	1476	389	31	1333
Hook for hats or garments	E. R. Richards	318,657	May 26	2314	618	31	973
Hoop or band for barrels, &c	J. W. Weston	320,732	June 23	2431	645	31	1516
Hoop-planing machine	G. S. Foster	316,768	Apr. 28	2478	{646 {647	31	468
Hoop-skirt	H. H. Bramhall	318,102	May 19	1651	441	31	844
Hop-trellis	J. Lipe	317,385	May 5	616	158	31	635
Hop-yard twiner	E. T. Mulligan	316,165	Apr. 21	1648	431	31	312
Horse-boot	J. Fennell	317,525	May 12	809	208	31	678
Horse-boot. Elastic	J. H. Fenton	317,526	May 12	810	208	31	678
Horse-power	W. T. Cross	317,519	May 12	804	206	31	677
Horse-power	H. R. Smith	318,518	May 26	2133	574	31	942
Horse-power for hay-carriers	J. S. Grabill	315,934	Apr. 14	1330	346	31	247
Horses. Driveway for training	C. F. Shedd	320,712	June 23	2410	{638 {639	31	1511
Horses to harness. Apparatus for training	C. F. Shedd	317,865	May 12	1255	{333 {334	31	761
Horses. Vehicle device for checking	W. W. Leonard	320,262	June 16	1756	467	31	1383
Horseshoe	R. Condon	315,736	Apr. 14	1057	277	31	198
Horseshoe	E. F. Lowry	317,658	May 12	979	253	31	709
Horseshoe	F. F. Lutz	319,103	June 2	211	55	31	1086
Horseshoe	G. F. Messinger	318,276	May 19	1798	481	31	871
Horseshoe	W. F. Raymond	317,200	May 5	376	94	31	592
Horseshoe	C. A. Scott	319,749	June 9	1049	278	31	1250
Horseshoe and horseshoe-blank	T. H. Heard	320,471	June 23	2009	553	31	1453
Horseshoe-bender	W. S. Kisinger	320,258	June 16	1752	466	31	1382
Horseshoe-blank	P. F. Greenwood	320,350	June 16	1921	506	31	1411
Horseshoe. Detachable	E. Hunziker	319,906	June 9	1277	336	31	1289
Horseshoe-machine	Z. V. Purdy	315,961	Apr. 14	1369	354	31	253
Horseshoe-machine	C. R. Wedelin	318,838	May 26	2550	{681 {682	31	1016
Horseshoe-machine	W. D. Young	315,206	Apr. 7	321	78	31	58
Horseshoe-nails. Machine for marking	C. W. Woodford	320,423	June 16	2029	532	31	1431
Horseshoes. Detachable calk for	J. A. Allen	318,939	June 2	2	1	31	1049
Horseshoes. Machine for forming clips on	A. Andersen	315,591	Apr. 14	861	226	31	160
Horseshoes. Machine for forming clips on	A. Andersen	315,592	Apr. 14	862	227	31	160
Horseshoes. Manufacture of	P. F. Greenwood	320,349	June 16	1920	{505 {506	31	1411
Hose-carriage	C. A. Binhm	318,444	May 26	2027	546	31	922
Hose-carriage	S. R. McLaughlin	320,489	June 23	2119	558	31	1456
Hose-coupling	L. F. Longmore	320,939	June 30	2702	717	31	1573
Hose-coupling	J. T. Titus	319,350	June 2	505	138	31	1144
Hose. Device for repairing	C. P. Pierce	316,566	Apr. 28	2180	574	31	414
Hose manipulator. Fire-	J. Roby	316,830	Apr. 28	2561	671	31	484
Hose-nozzle	E. R. Tomlinson	319,148	June 2	262	69	31	1095
Hose-reel	L. C. Baldwin	321,172	June 30	3011	797	31	1629
Hose, sleeve, and garment supporter	C. J. Haley	320,470	June 23	2097	553	31	1452
Hose-tower and fire-escape	W. M. Ward	317,809	May 12	1300	{348 {349	31	770
Hose with wire. Machine for covering	G. B. Durkee	318,457	May 26	2042	552	31	925
Hosiery	E. E. Scatchard	317,861	May 12	1251	331	31	760
Hot air and steam for heating purposes and power. Apparatus for combining	W. T. Fenton and D. S. B. Bennet	320,768	June 23	2476	656	31	1525
Hot-air furnace	S. T. Bryce	319,062	June 2	159	43	31	1076
Hot-air furnace	O. Jones	315,040	Apr. 7	76	18	31	15
Hot-air furnace	L. Patric	317,065	May 5	101	26	31	541
House:							
See Chicken-house.							
Houses. Construction of	A. Hubbard	316,895	Apr. 28	2060	693	31	502
Hub-attaching device	G. A. Keene	317,144	May 5	286	73	31	575

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Hub-attaching device	C. T. Wecker	321,008	June 30	2883	767	31	1606
Hub. Vehicle	F. P. Circle	315,242	Apr. 7	368	91	31	67
Hub. Vehicle	J. Maris	317,159	May 5	312	79	31	580
Hub. Vehicle-wheel	T. G. W. and L. McMeekin	316,560	Apr. 28	2173	572	31	413
Hub. Wheel	G. S. Briggs	317,494	May 12	772	197	31	671
Hub. Wheel	F. W. Starr	319,523	June 9	751	201	31	1195
Hubs. Device for lining bands of wheel	E. Rothlisberger	318,927	May 26	2676	709	31	1038
Hubbing-machine	W. R. Hartigan	317,131	May 5	268	67, 68	31	572
Huller:							
See Clover-huller. Seed-huller.							
Rice-huller.							
Hydrant	J. Jones	316,042	Apr. 21	1472	384	31	280
Hydraulic elevator	H. F. Shaw	316,070	Apr. 21	1511	394	31	286
Hydraulic elevator for buildings	A. Stirling	315,970	Apr. 14	1382	358	31	256
Hydraulic press	D. C. Mayo	316,048	Apr. 21	1480	387	31	281
Hydraulic regulator	J. B. Gorrell	318,722	May 26	2398	630	31	989
Hydrocarbon-burner	J. Reilly	315,549	Apr. 14	805	212	31	150
Hydrocarbon-vapor burner	G. Myers and J. B. Wallace	316,385	Apr. 21	1936	509	31	362
Hydrocarbon-vapor burners. Generator for	A. M. Brainard	320,538	June 23	2557	677	31	1540
Hydrocarbons. Apparatus for burning volatilizable	H. De Bay and C. De Rossetti	317,444	May 5	704	177	31	650
Hydrometer	H. Guth	317,453	May 5	717	180	31	653
Ice and refrigerating machine	D. L. Holden. (Reissue)	10,590	Apr. 28	2720	708	31	514
Ice and snow. Machine for removing	J. F. Richbmayer	316,181	Apr. 21	1664	436	31	316
Ice. Apparatus for eliminating foreign substances from water for obtaining clear and pure	F. Jaeger	317,366	May 5	591	152	31	632
Ice-cream box	F. W. Crocker	315,129	Apr. 7	187	46	31	34
Ice-cream freezer	J. H. Dunber	317,446	May 5	707	178	31	651
Ice-creeper	H. L. Fitch	318,366	May 19	1926	520	31	895
Ice-creeper	P. B. Laird	319,729	June 9	1026	272	31	1246
Ice-creeper	M. B. Mayer	320,945	June 30	2709	719	31	1574
Ice-creeper	W. McNiece	319,291	June 2	433	116	31	1130
Ice-creeper	M. A. Ihrig	315,223	Apr. 7	430	108	31	78
Ice-creepers. Screw adapted for	F. H. Hawkins	315,619	Apr. 14	900	236	31	167
Ice-holder for butter-dishes, &c	G. W. Palmer and G. W. Kidder	320,620	June 23	2374	628	31	1504
Ice-hook	J. Bouchard	319,551	June 9	788	209	31	1202
Ice-machine	W. H. Haney	315,499	Apr. 14	723	191	31	135
Ice-machine	T. L. Rankin	316,824	Apr. 28	2547	{666 {667	31	482
Ice-machine. Absorption	C. H. Evans	318,971	June 2	57	14, 15	31	1058
Ice-making apparatus. Valve for compressors for	A. T. Ballentine	317,963	May 19	1394	374	31	796
Ice-shaver grip	H. G. Carnell	320,624	June 23	2302	608	31	1490
Incandescents. Apparatus for carbonizing	O. A. Moses	316,903	May 5	86	23	31	538
Incandescents. Mold for making	O. A. Moses	321,309	June 30	3176	847	31	1650
Incubator	W. F. Manlick	320,378	June 16	1970	518	31	1422
Incubators. Egg-turning device for	L. Cutting	320,463	June 23	2090	551	31	1451
Incubators. Heat-regulating device for	J. K. Meachter	320,490	June 23	2120	559	31	1456
Index-book	W. M. Kinnard	320,798	June 23	2509	664	31	1530
Indicator:							
See Barber's turn-indicator. Merchandise-indicator.							
Billiard-table bridge-indicator. Oven-heat indicator.							
High-pressure indicator. Station-indicator.							
Indicator	A. A. Merrifield	316,288	Apr. 21	1804	474	31	340
Indicator-lock	H. G. Stripe	318,218	May 19	1725	461	31	858
Induction and other electrical apparatus. Coil for	L. Gaulard and J. D. Gibbs	316,354	Apr. 21	1885	499	31	354
Induction-coil	T. J. Perrin	316,817	Apr. 28	2540	664	31	480
Induction-coil	W. Stanley, Jr	320,717	June 23	2414	640	31	1512
Induction-machine	P. Haerry	316,143	Apr. 21	1619	424	31	307
Infant's posing-chair	M. T. Baldwin	321,076	June 30	2891	769	31	1607
Ingot-mold	A. Reese	318,206	May 19	1707	457	31	855
Ingots. Apparatus for treating metal	J. Gjers	320,779	June 23	2489	659	31	1527
Ingots. Treating steel	J. Gjers	320,780	June 23	2490	660	31	1527
Inhaler or respirator	J. A. Miles	316,636	Apr. 28	2269	597	31	430
Injector	F. C. Douds	317,750	May 12	1098	288	31	731
Injector	J. Gresham	318,892	May 26	2632	698	31	1030
Injector	J. Gresham	319,481	June 9	696	187	31	1186
Injector	W. Johnston	315,630	Apr. 14	913	240	31	170
Injector	W. B. Mack	318,636	May 26	2284	610	31	967
Injector	T. Foulds	317,110	May 5	234	59	31	566
Injector-condenser	W. M. Brisben	317,712	May 12	1047	272	31	722
Injector. Hydrocarbon-	I. Brooke	321,185	June 30	3026	802	31	1631
Inkstand	A. H. Hill	319,815	June 9	1153	304	31	1208
Inkstand. School-desk	P. P. Hogue	319,817	June 9	1155	305	31	1208
Inspirator	W. L. Gates	319,224	June 2	349	94	31	1113
Instructor. Automatic	R. S. Ferguson, W. Schumacher, and W. Tubman.	320,921	June 30	2679	.....	31	1568
Insulating electric wires. Compound for	J. L. Clark	318,233	May 19	1747	.....	31	862
Insulating. Manufacture of and preparation of materials to be employed for	J. A. Fleming	319,084	June 2	188	.....	31	1063
Insulating materials. Preparation and production of	C. H. Fischer	320,645	June 23	2326	615	31	1494
Insulating pipe-union	J. W. Ellis	319,079	June 2	181	48	31	1061
Insulation of telegraph-wires. Composition of matter for the preservation of paper or vegetable tubing used for the	G. L. Broomhall	319,447	June 9	647	175	31	1178
Insulator	E. Dodge	319,206	June 2	326	87	31	1109
Insulator-cline. Machine for making	J. Locke and W. Bowker	316,469	Apr. 28	2063	541	31	391
Insulator. Electric-wire	H. Kellogg	315,633	Apr. 14	916	.....	31	171
Insulator. Electrical	W. H. Wright	317,479	May 5	748	189	31	658
Insulator for electric wires	H. Prenzel	315,660	Apr. 14	948	248	31	177
Insulator for telegraph-wires. Supporting	L. Daft	320,631	June 23	2311	610	31	1491
Insulator for tracks	L. Daft	320,633	June 23	2313	611	31	1492

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Insulator. Telegraph	J. O'Brien	316,812	Apr. 28	2534	662	31	479
Interlocking eyes. Machine for forming	R. Faries	321,013	June 30	2403	745	31	1591
Intestines. Machine for cleaning	C. Nida	318,130	May 19	1612	431	31	936
Invalid-chair	L. W. Serrell	315,669	Apr. 14	959	251	31	179
Invalids. Appliance for the support of	F. F. Marsh	319,283	June 2	420	112 / 113	31	1127
Iron:							
See Angle-iron. Sad-iron.							
Holdback-iron. Soldering-iron.							
Iron and steel. Apparatus for the manufacture of	J. P. Witherow	315,567	Apr. 14	856	225	31	159
Iron direct from iron ores. Making wrought	C. J. Eames	318,551	May 26	2189	.....	31	956
Iron direct from the ore. Manufacturing wrought and steely	C. J. Eames	318,607	May 26	2270	.....	31	961
Iron directly from the ore. Manufacturing sponge and wrought	C. J. Eames	318,553	May 26	2192	.....	31	956
Iron. Pile for merchant	G. Westerman, Sr	316,909	Apr. 21	1697	445	31	322
Iron post	J. McKenzie and J. Fyfe	317,558	May 12	849	218	31	686
Iron sponge, wrought and steely irons directly from the ore. Manufacturing	C. J. Eames	318,552	May 26	2190	.....	31	956
Iron wheel	P. Schember	315,316	Apr. 7	494	125	31	90
Ironing-board	J. Delaney	317,732	May 12	1340	370	31	778
Ironing board and table	A. A. Wysong	316,928	Apr. 28	2709	706	31	511
Ironing-table	J. Borton	319,445	June 9	644	174	31	1177
Ironing-table	H. C. Hough	316,363	Apr. 21	1899	503	31	357
Irrigation. System of	G. W. Jessup	315,629	Apr. 14	913	239	31	170
Ivory. Plastic compound resembling	G. M. Mowbray	320,884	June 23	2690	.....	31	1552
Jack:							
See Boot or shoe jack. Power-jack.							
Carriage and wagon jack. Shoe-finishing jack.							
Hoisting-jack. Wagon-jack.							
Lifting-jack. Wheel-jack.							
Jack	A. L. Denno	318,702	May 26	2373	633	31	984
Jacket. Knitted or cardigan	S. Steinam and A. L. Seeligman	317,682	May 12	1011	262	31	714
Jar:							
See Drill-jar. Fruit-jar.							
Jar for butter, &c	D. W. Norris	319,941	June 9	1184	312	31	1273
Jar for solid extracts	J. K. Lilly	317,950	May 12	1365	367	31	783
Jar screw-cap	C. H. Taylor	318,820	May 26	2350	679	31	1014
Jar-wrench and can-opener. Combined	A. Van Slyke	319,645	June 9	920	243	31	1226
Jetty, breakwater, or similar structure	E. M. Boynton	315,384	Apr. 7	545	141	31	99
Jeweler's dust-box	J. A. Sherwood	320,593	June 23	2258	597	31	1493
Jewelers' rolls	A. Flatow	316,135	Apr. 21	1612	421	31	305
Joint:							
See Camera-tripod joint. Pipe-joint.							
Electric-cable joint. Rail-joint.							
Gas-tight expansion-joint. Rod-joint.							
Gimbal-joint. Spring-joint.							
Hinge-joint. Stove-pipe joint.							
Universal joint.							
Journal and bushing	H. J. White	318,065	May 19	1529	410	31	920
Journal-bearing	R. Beddall	314,989	Apr. 7	3	2	31	3
Journal-bearing	C. F. Brigham	320,909	June 30	2665	708	31	1566
Journal-bearing	R. W. Hardie	317,345	May 5	568	145	31	627
Journal-bearing	A. M. Weatherly	318,334	May 19	1824	506	31	887
Journal-bearing	J. N. Williams	315,103	Apr. 7	158	38	31	29
Journal-bearing and metallic compound therefor	A. M. Randolph	320,445	June 16	2057	540	31	1436
Journal-box	P. Medart	320,151	June 16	1619	431	31	1358
Jug-stopper	J. B. Brackett	315,114	Apr. 7	170	41	31	31
Keg washer. Beer	A. Schultz	318,306	May 19	1844	495	31	879
Kettle or boiler. Stewing	H. C. Fish	318,305	May 19	1925	519	31	895
Kettles. Device for hinging and supporting doors of process	J. Baker	319,169	June 2	285	76	31	1100
Kettles. Device for lifting	L. H. Goff	319,226	June 2	353	94	31	1114
Key:							
See Watch-key.							
Key	E. W. Brettell	318,861	May 26	2601	690	31	1023
Key and key-seat	E. Einfeldt	319,078	June 2	180	48	31	1081
Key and sounder	P. P. Belt	318,854	May 26	2582	687	31	1020
Key-hole guard and cigar-cutter. Combined	G. McGovern	318,275	May 19	1797	481	31	871
Key-ring	G. W. Jopson	320,792	June 23	2503	663	31	1529
Key-ring	H. H. V. Lilley	318,482	May 26	2073	560	31	931
Key-seating machine	J. T. Burr	319,933	June 16	1349	355	31	1310
Kiln:							
See Brick-kiln. Chopping-knife.							
Brick-burning kiln.							
Kiln for burning bricks, &c. Continuous-action	H. Knowles	318,265	May 19	1782	476 / 477	31	869
Kiln for burning bricks, tiles, &c	F. Plumb	316,397	Apr. 21	1949	514	31	365
Kilns, pottery or coke ovens, &c. Construction of	H. Knowles	318,264	May 19	1780	476	31	868
King-bolt	W. C. Shipherd	316,192	Apr. 21	1680	440	31	319
King-bolt. Clip	W. C. Shipherd	316,191	Apr. 21	1679	440	31	318
Kitchen-cabinet	S. S. Groves	317,766	May 12	1116	294	31	735
Kitchen-cabinet	T. Nicholas	318,924	May 26	2672	708	31	1037
Knife:							
See Budding-knife. Tobacco-harvesting knife.							
Hay-knife. Pocket-knife.							
Knife-blades. Manufacture of	C. L. Bellamy	319,442	June 9	638	173	31	1176
Knife for cutting oil-cloth	A. S. Seaman	318,211	May 19	1712	458	31	856
Knife-handle	C. Tibbetson	317,539	May 12	826	212	31	681
Knife handle. Shoe	T. Harrington	319,051	June 2	194	51	31	1084
Knit fabrics. Machine for uniting	R. B. Baker and G. H. Straw	317,702	May 12	1036	269	31	720
Knitted garment	W. Reichman	321,250	June 30	3106	826	31	1646

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Knitting-machine	J. Bradley	320,619	June 23	2296	606	31	1489
Knitting-machine	W. H. Mayo	319,000	June 2	87	23	31	1064
Knitting-machine	G. E. Nye	316,907	Apr. 28	2678	698	31	505
Knitting-machine	J. H. Osborne	316,563	Apr. 28	2177	573	31	414
Knitting-machine	J. H. Sherwood	318,515	May 26	2125	572 / 573	31	942
Knitting-machine narrowing-comb	A. J. Wainman	317,508	May 12	901	231	31	694
Knitting-machine stop-motion mechanism	O. Wilson and J. Palmer	316,423	Apr. 21	1902	523	31	373
Knitting-machines. Head for fabric take-up devices for	H. L. Hayden	317,773	May 12	1126	297	31	737
Knitting stockings	H. Lennard	315,043	Apr. 7	79	19	31	16
Knob	C. Priesiland	319,848	June 9	1104	316	31	1275
Knob attachment	C. H. Berbe	318,684	May 26	2350	628	31	980
Knob attachment	G. Van Winkle	320,002	June 23	2269	600	31	1485
Knob attachment	A. H. Wood	316,391	Apr. 28	2216	583	31	421
Knockdown chair	F. H. Logeman	319,291	June 2	418	112	31	1127
Knockdown chair	F. W. Goodwin	316,773	Apr. 28	2463	648	31	469
Label	C. A. Peterson	319,312	June 2	462	124	31	1135
Label cabinet	W. A. Amberg	316,929	May 5	1	1	31	523
Label-holder	N. W. Caughy	315,725	Apr. 14	1037	272 / 273	31	194
Lace and making the same	D. Wuillemin	315,589	Apr. 14	859	226	31	159
Lace-fastener	T. H. Knuth	320,260	June 16	1755	466	31	1383
Lace-reel	G. E. Fox	316,955	May 5	34	9, 10	31	539
Lacing	C. F. Spencer	321,145	June 30	2977	788	31	1622
Lacing. Corset	S. Bryant	319,190	June 2	310	82	31	1105
Lacing for corsets, gloves, &c	C. F. Spencer	321,146	June 30	2979	785	31	1622
Ladder	H. H. Schumann	317,024	May 5	124	31	31	545
Ladder	H. H. Schumann	319,330	June 2	482	130	31	1140
Ladder. Combined extension and step	P. T. Gates	317,987	May 19	1424	382	31	802
Ladder. Extensible step	H. Temple	317,884	May 12	1276	340	31	765
Ladder. Extension	J. A. Balm and A. Demensy	316,516	Apr. 28	2123	558	31	403
Ladder. Fire	C. Lazarevitch	316,155	Apr. 21	1637	428	31	310
Ladder. Fire	P. Schmahl	318,660	May 26	2317	619 / 620	31	974
Ladder. Fire extension	E. Adcock	319,047	June 2	138	37	31	1073
Ladder. Folding	A. Bormann and E. Ekhard	320,114	June 16	1569	414	31	1349
Ladder. Folding	J. Ready	320,692	June 23	2387	631	31	1506
Ladder. Railway step	T. A. Harvey	315,939	Apr. 14	1336	347	31	248
Ladder. Sectional	P. T. Gates	316,958	May 5	38	10	31	529
Ladder. Sectional	O. K. Wood	317,913	May 12	1390	354	31	774
Ladder. Step	W. H. Kline	319,728	June 9	1025	271	31	1246
Ladles. Device for operating foundry	J. H. Whiting	319,158	June 2	275	72	31	1098
Lamp	G. M. Cinte	316,117	Apr. 21	1585	412	31	301
Lamp	M. Matthews	317,160	May 5	313	79	31	580
Lamp	W. S. McLewee	320,081	June 16	1523	403	31	1342
Lamp	C. J. A. Pigeon	316,491	Apr. 28	2080	544	31	395
Lamp	W. C. Thayer	318,521	May 26	2136	575	31	942
Lamp	J. H. White and T. Hipwell	318,150	May 19	1638	437	31	841
Lamp and lamp-shade	G. W. Woodward	320,424	June 16	2030	533	31	1431
Lamp. Arc	W. F. Buckley	318,350	May 19	1908	514 / 515	31	891
Lamp-black. Apparatus for manufacturing	P. Neff	319,604	June 9	872	230	31	1218
Lamp-black. Apparatus for the manufacture of	P. Neff	319,605	June 9	873	231	31	1218
Lamp-black. Apparatus for the manufacture of	P. Neff	319,606	June 9	874	231	31	1218
Lamp-bracket	O. R. Grimmesey	321,020	June 30	2814	748	31	1503
Lamp-bracket	S. W. Macomber	320,941	June 30	2705	718	31	1573
Lamp-bracket	G. J. Stauffacher	317,237	May 5	490	105	31	600
Lamp-bracket	R. L. Stokes	319,146	June 2	261	68	31	1095
Lamp bracket. Electric incandescent	E. Weston	316,095	Apr. 21	1549	404	31	294
Lamp-burner	D. L. Durand	315,919	Apr. 14	1314	342	31	244
Lamp-burner	E. Lawrence	319,272	June 2	408	108 / 109	31	1125
Lamp-burner	E. B. Requa	318,030	May 19	1484	398	31	812
Lamp-burner	S. G. Stoddard	321,395	June 30	3290	879	31	1682
Lamp-burner	J. B. Underwood	320,726	June 23	2426	643	31	1515
Lamp-burner	G. H. Wilson	316,422	Apr. 21	1991	523	31	373
Lamp-burner. Argand	J. A. Cowles	321,281	June 30	3144	838	31	1633
Lamp-chimney	E. B. Requa	318,031	May 19	1486	398	31	812
Lamp chimney and globe	S. M. Howard	317,537	May 12	823	211 / 212	31	681
Lamp-collar	A. L. Dawson	315,744	Apr. 14	1069	280 / 281	31	201
Lamp-collars. Machine for attaching metal	A. L. Dawson	315,745	Apr. 14	1070	281 / 282	31	201
Lamp. Electric	C. F. Heinrichs	317,777	May 12	1130	298 / 299	31	738
Lamp. Electric	C. F. Heinrichs	317,778	May 12	1132	299 / 300	31	739
Lamp. Electric	M. N. Lynn	315,924	Apr. 14	761	202	31	142
Lamp. Electric	E. Thompson	320,018	June 16	1430	378	31	1325
Lamp. Electric	L. G. Woolley	319,539	June 9	774	206	31	1200
Lamp. Electric-arc	A. Bossard	319,781	June 9	1091	289 / 290	31	1257
Lamp. Electric-arc	C. L. Buckingham	320,841	June 23	2562	678	31	1541
Lamp. Electric-arc	C. L. Buckingham	320,843	June 23	2567	679	31	1542
Lamp. Electric-arc	W. F. Buckley	315,473	Apr. 14	690	180	31	128
Lamp. Electric-arc	L. Colburn	316,240	Apr. 21	1742	457	31	329
Lamp. Electric-arc	M. G. Farmer	316,765	Apr. 28	2473	645	31	467
Lamp. Electric-arc	W. W. King	316,791	Apr. 28	2509	655	31	474
Lamp. Electric-arc	G. Pfannkuche	320,595	June 23	2247	595	31	1480
Lamp. Electric-arc	H. Pieper, Fils	319,745	June 9	1044	276	31	1249
Lamp. Electric-arc	F. M. Sparrow	315,564	Apr. 14	827	218	31	154
Lamp-extinguisher	E. S. and J. H. Bacon	315,217	Apr. 7	340	89	31	61

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Lamp-extinguisher	H. D. Richardson	317,203	May 5	378	94	31	592
Lamp for light-houses	M. Arzberger	318,849	May 26	2577	686	31	1019
Lamp. Forced-draft	W. S. McLewee	320,080	June 16	1522	403	31	1342
Lamp-hanger	L. T. Lawton	318,756	May 26	2445	655	31	997
Lamp holder. Incandescent	E. Weston	316,088	Apr. 21	1536	402	31	292
Lamp holder. Incandescent	E. Weston	320,029	June 16	1452	382	31	1329
Lamp holder. Incandescent	E. Weston	320,030	June 16	1453	382	31	1329
Lamp holder. Incandescent-electric	A. Bernstein	319,177	June 2	294	78	31	1102
Lamp-holder. Movable	J. B. Bartlett	317,917	May 12	1323	355	31	775
Lamp. Incandescent	E. Weston	316,094	Apr. 21	1548	404	31	294
Lamp. Incandescent	J. A. Yunck and J. Stuerts	320,739	June 23	2439	647	31	1518
Lamp. Incandescent electric	T. A. Edison	317,631	May 12	945	242	31	702
Lamp. Incandescent electric	T. A. Edison	317,632	May 12	946	243	31	703
Lamp. Incandescent electric	T. A. Edison	317,633	May 12	947	243	31	703
Lamp. Incandescent electric	L. Heinze	319,580	June 9	829	219	31	1210
Lamp. Incandescent electric	C. H. F. Müller	317,171	May 5	329	82	31	583
Lamp. Incandescent electric	E. L. Ronsay	319,129	June 2	244	63	31	1092
Lamp lighting device. Street	A. P. Lloyd and F. Y. MacDonald	315,802	Apr. 14	1144	300	31	215
Lamp. Miner's	H. J. Richards	320,287	June 16	1806	480	31	1391
Lamp or lantern	L. G. Huntington	319,004	June 2	202	53	31	1085
Lamp. Safety	J. L. Williams	321,166	June 30	3004	796	31	1627
Lamp socket and switch. Electric	D. H. Cunningham	320,117	June 16	1574	415	31	1350
Lamp socket or holder. Incandescent	P. H. Brangs	316,003	Apr. 21	1424	370	31	271
Lamp socket or holder. Incandescent	E. Weston	320,026	June 16	1449	381	31	1328
Lamp socket or holder. Incandescent	E. Weston	320,027	June 16	1450	381	31	1328
Lamp. Stand	N. Jenkins	320,476	June 23	2104	555	31	1453
Lamp. Street	E. Norton	315,957	Apr. 14	1364	353	31	252
Lamp. Street	H. G. Schuette	317,215	May 5	393	98	31	595
Lamp suspension device	C. H. Lyman	318,431	May 19	2011	541	31	909
Lamp. Torch	C. L. Betts	316,440	Apr. 28	2031	532	31	365
Lamp. Voltaic-arc	G. A. Tabourin	315,571	Apr. 14	837	220, 221	31	155
Lamps and gas-burners. Heater-frame for	A. M. Rickerby	316,190	Apr. 21	1664	436	31	316
Lamps. Automatic cut-out for incandescent	W. M. Thomas	316,501	Apr. 28	2106	553	31	400
Lamps. Automatic feeder and regulator for	B. W. Mitchell	317,835	May 12	1216	322	31	754
Lamps. Filament for incandescent electric	W. Stanley, Jr	316,302	Apr. 21	1821	479	31	343
Lamps. Manufacture of filaments for incandescent	F. Schaefer	320,297	June 16	1818	483	31	1393
Lance. Bomb	E. Pierce	320,393	June 16	1969	523	31	1425
Land-roller	J. A. Johnson	319,725	June 9	1023	271	31	1246
Land-roller	J. J. Lehman	317,552	May 12	842	216	31	684
Lantern	G. A. Carpenter	316,742	Apr. 28	2442	636	31	402
Lantern	C. W. Goodwin	319,227	June 2	354	95	31	1114
Lantern	F. Reichard	319,319	June 2	470	127	31	1137
Lantern	F. Reinschmidt	321,314	June 30	3183	849	31	1661
Lantern	C. Riessner	316,486	Apr. 28	2066	546	31	396
Lantern	N. P. Towne	317,017	May 5	148	38	31	549
Lantern	F. Wlach	315,875	Apr. 14	1242	324	31	232
Lantern	L. B. Wood	316,425	Apr. 21	1995	524	31	373
Lantern. Magic	H. and G. Davenport	320,636	June 23	2317	612	31	1402
Lantern safety attachment	F. O. Dewey	319,799	June 9	1126	298	31	1263
Lantern-wick-scraping attachment	F. O. Dewey	315,256	Apr. 7	364	95	31	70
Lanterns. Manufacturing tube	F. Meyrose	320,381	June 16	1974	519	31	1422
Lanterns to cars, carriages, &c. Device for attaching	M. E. Green	319,233	June 2	361	97	31	1116
Lap-ring	O. D. Read	318,292	May 19	1816	486	31	975
Last	A. W. Cox	316,246	Apr. 21	1748	460	31	331
Last	G. A. Reynolds	318,137	May 19	1621	433	31	838
Last for beating-out machines	E. C. Judd	319,096	June 2	204	53	31	1085
Last-patterns of graduated sizes. Making	W. Kingston	317,948	May 12	1302	.....	31	782
Lasting-machine	P. A. Coupal	317,308	May 5	513	131	31	617
Lasting-machine	H. W. Dean	319,797	June 9	1120	297	31	1262
Lasting-pincers	K. J. Greenwald	316,357	Apr. 21	1888	500	31	355
Lasting. Preparing uppers for	W. C. Cross	316,877	Apr. 28	2628	685	31	406
Latch	E. W. Brettell	316,871	Apr. 28	2622	683	31	405
Latch	G. J. Cline	321,279	June 30	3142	837	31	1653
Latch	J. W. Helton	316,265	Apr. 21	1771	466	31	334
Latch	J. R. Scott	315,845	Apr. 14	1200	313	31	224
Latch	J. M. Turner	315,978	Apr. 14	1392	361	31	258
Latch and lock combined	W. Hill	320,472	June 23	2100	554	31	1453
Latch and lock combined	E. R. Wetherell	316,098	Apr. 21	1553	405	31	295
Latch. Lever	J. J. Maas	320,485	June 23	2115	557	31	1455
Latch-lock	H. P. Young	315,205	Apr. 7	319	78	31	58
Latch or check. Door	M. P. Ismay	320,790	June 23	2501	662	31	1529
Lath-bundling machine	T. W. Notter	320,387	June 16	1980	520, 521	31	1423
Lath for slates. Fire-proof	W. H. and L. Lane	320,072	June 16	1507	389	31	1339
Lathe	G. E. Medley and M. W. Williams	318,778	May 26	2477	663	31	1003
Lathe	L. C. Rodier	317,209	May 5	385	96, 97	31	593
Lathe. Car-wheel	W. Woodcock	316,427	Apr. 21	1997	525	31	374
Lathe bolt-dog	N. H. Fay and W. Scott	319,472	June 9	679	183	31	1183
Lathe-drifting device	J. Hall	320,652	June 23	2336	617, 618	31	1497
Lathe drill-rest	G. A. Sanders	316,185	Apr. 21	1670	437	31	317
Lathe feed-mechanism	J. Flather	317,449	May 5	713	179	31	652
Lathe for turning irregular forms	C. Schoenleber	316,835	Apr. 28	2568	672	31	486
Lathe for turning spirals	S. Moore	319,922	June 9	1296	342	31	1293
Lathe-head	A. Whitney	319,650	June 9	994	244, 245	31	1227
Lathe-tool	L. E. Whiton	316,713	Apr. 28	2400	625	31	455
Lathe tool-holding attachment	C. W. Colesworthy	319,071	June 2	172	46	31	1060
Lathe tool-holding attachment	C. H. Kelley	318,261	May 19	1777	475	31	868
Lathe tool-rest	O. C. White	315,686	Apr. 14	961	257	31	184
Lathe. Wood-turning	A. D. Waymoth	319,531	June 9	761	203, 204	31	1197

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Lathes. Dead-center device for	J. Hampson	316,541	Apr. 28	2151	566	31	409
Lathes. Machine for feeding blanks to	J. Welker, Jr	317,601	May 12	904	232	31	695
Lathing apparatus	S. Perry	318,495	May 26	2088	564, 565	31	924
Lathing. Wire-cloth	W. Orr	320,163	June 16	1630	414	31	1360
Lawn-tennis-net tightener	C. W. Jefferson	320,138	June 16	1604	424	31	1355
Leaching solutions. Purifying hyposulphite	E. H. Russell	320,500	June 23	2235	.....	31	1482
Lead. Apparatus for the manufacture of white	G. L. Irwin	318,374	May 19	1937	523	31	897
Leather articles. Manufacture of	R. Porter	319,617	June 9	885	234	31	1220
Leather brushing and treating machine	F. J. Nelson	316,167	Apr. 21	1650	432	31	313
Leather-cutting machine	D. Knox	317,463	May 5	726	194	31	654
Leather-cutting press	C. F. Stackpole	316,073	Apr. 21	1516	395, 396	31	287
Leather-cutting press	C. F. Stackpole	316,074	Apr. 21	1518	396	31	288
Leather-dressing machine	F. B. Batchelder	320,906	June 30	2660	707	31	1565
Leather-finishing machine	G. A. Hardy	317,770	May 12	1122	295, 296	31	736
Leather. Manufacture of glazed	T. R. Clark	321,191	June 30	3035	.....	31	1633
Leather-skiving machine	E. F. Belding	320,209	June 16	1689	449	31	1371
Leather-skiving machine	J. H. Buell	316,006	Apr. 21	1427	371	31	271
Leather-skiving machinery	J. M. Watson	316,704	Apr. 28	2386	622	31	452
Leather-splitting machine	G. L. Tyler	319,357	June 2	512	140	31	1146
Leather surfaces. Cleaning and brightening	W. A. Knipe	320,259	June 16	1754	466	31	1383
Leather trimming	F. L. A. Ernst	316,024	Apr. 21	1452	378	31	276
Leg. Artificial	H. Hansmann	317,644	May 12	961	248	31	706
Leg. Artificial	A. A. Winkley	316,589	Apr. 28	2214	582	31	420
Leg fastening and clamping attachment. Removable	G. W. Zeigler	317,270	May 5	463	116	31	609
Leggin	C. E. Hosmer	320,537	June 23	2208	584	31	1473
Lemon-squeezer	G. J. L. Janes	318,746	May 26	2433	652	31	995
Lemon-squeezer	F. M. May	321,044	June 30	2842	756	31	1598
Lens for telescopes and cameras. Object	J. A. Smith and A. J. Athay	318,666	May 26	2327	622	31	976
Level	J. Walsh, T. F. Murphy, and E. A. Clark.	317,250	May 5	437	109	31	602
Level. Pendulum	A. E. Gardner	318,089	May 19	1570	420	31	828
Level. Pendulum	W. C. Thayer	317,885	May 12	1277	340	31	766
Level. Plumb	C. Schofield	320,506	June 23	2143	565	31	1461
Level. Spirit	R. B. Butt	320,537	June 23	2184	576	31	1468
Level, square, and bevel. Combined	M. Eninton	315,264	Apr. 7	393	98	31	72
Lever-power	C. Salisbury	315,556	Apr. 14	819	215	31	152
Life-boat	D. P. Dobbins	316,891	Apr. 28	2632	686	31	466
Life-boat	D. P. Dobbins	316,892	Apr. 28	2633	686	31	467
Life-boat	D. Dwyer	320,341	June 16	1898	500	31	1407
Life-preserver	C. Leduc	315,970	Apr. 14	1354	351	31	251
Life-preserver	E. and G. A. Waters	315,005	Apr. 7	147	35	31	29
Life-preservers. Machine for making tule bunches for	C. Leduc	317,551	May 12	841	216	31	684
Life-saving apparatus	C. H. McLellan	315,315	Apr. 7	457	116	31	83
Lifter: *See* Transom-lifter.							
Lifting apparatus	C. Sanborn	319,132	June 2	246	64	31	1093
Lifting-jack	G. S. and J. M. Bowling	320,214	June 16	1609	451	31	1373
Lifting-jack	G. W. Giffard and J. L. Roberts	315,611	Apr. 14	886	233	31	165
Lifting-jack	M. H. Ingalls	319,820	June 9	1159	306	31	1269
Lifting-jack	T. Maxon	315,807	Apr. 14	1149	301	31	216
Lifting-jack	L. O'Hara	317,951	May 12	1366	367	31	783
Lifting-jack	W. C. Willmore	315,871	Apr. 14	1238	323	31	231
Light: *See* Drop-light. Head-light. Electric light. Skylight.							
Light apparatus. Revolving	L. F. Lindberg	320,146	June 16	1610	426, 427, 428, 429	31	1357
Lightning-arrester and test-connection. Combined	H. B. Lytle and J. A. McCoy	318,571	May 26	2210	501	31	953
Lightning-arrester for wire fences	W. A. Morton	319,300	June 2	442	118	31	1131
Lightning-conductor	F. R. Upton	315,079	Apr. 14	973	254	31	192
Lightning-protector	H. A. Pitcher	317,848	May 12	1229	325	31	757
Lightning-protector for electrical circuits	W. F. M. McCarty	321,235	June 30	3088	820	31	1643
Limb. Artificial	W. Lockwood	315,519	Apr. 14	753	199	31	140
Liming-vat	T. Johnstonbaugh	321,300	June 30	3166	844	31	1658
Line-chalker and plumb-bob	J. L. Downie and J. E. Hardin	316,530	Apr. 28	2138	562	31	406
Liniment	W. S. Brawner	320,041	June 16	1466	.....	31	1331
Link-bending machine	J. H. Simpson, W. G. Gladhill, and C. Gailliot.	318,517	May 26	2129	573, 574	31	941
Link-fitting apparatus	J. H. Stimpson	318,217	May 19	1723	461	31	857
Link. Spring	W. R. Belding	315,223	Apr. 7	347	84	31	62
Lint-making machine	J. Webster	321,409	June 30	3312	884	31	1685
Liquid-elevator	A. H. Phillip	315,337	Apr. 7	483	122	31	88
Liquid-gage and alarm. Electric	J. C. Boyle	317,289	May 5	492	124	31	613
Liquid-meter	R. W. Graves	319,811	June 9	1146	303	31	1267
Lithographic presses. Dampening apparatus for	G. P. Fenner	318,364	May 19	1924	519	31	894
Live-box. Wire floating	J. F. Hardman	316,775	Apr. 28	2486	649	31	479
Lock: *See* Car-lock. Nut-lock. Door-lock. Ordnance-lock. Electric lock. Padlock. Fence-lock. Permutation-lock. Fire-arm lock. Sash-lock. Hasp-lock. Seal-lock. Latch-lock. Snap-lock. Mortise-lock. Trunk-lock.							
Lock	A. L. Becht	317,076	May 5	192	49	31	539
Lock	E. W. Brettell	319,058	June 2	152	41	31	1078

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Lock	J. W. H. Doubler	316,132	Apr. 21	1608	420	31	305
Lock	T. Kirwan	317,547	May 12	838	215	31	663
Lock	W. I. Lndlow	315,307	Apr. 7	447	113	31	81
Lock	T. W. Markham	321,306	June 30	3172	846	31	1659
Lock	P. Mathes	317,398	May 5	632	162	31	638
Lock	C. W. Parsons	318,388	May 19	1935	527	31	900
Lock	C. F. Whittlesey	320,521	June 23	2163	571	31	1464
Lock and latch combined	J. Wurm	315,456	Apr. 7	654	169	31	116
Lock-case	H. L. Spiegel	316,411	Apr. 21	1076	519	31	309
Lock-dial	F. A. Hatch	317,772	May 12	1125	297	31	737
Lock hasp and hook. Combined	F. N. Mibills	319,599	June 9	863	228	31	1216
Lock-plates. Machine for punching	T. Donahue and W. W. Cone	315,749	Apr. 14	1079	283	31	202
Locks. Knob locking and releasing mechanism for	G. E. Thaxter	315,186	Apr. 7	294	69, 70	31	52
Locket	C. H. Cooke	316,118	Apr. 21	1586	412	31	301
Locomotive ash-pan	W. W. Slocum, Jr	320,183	June 16	1658	440	31	1365
Locomotive-boiler	C. B. Coventry	316,947	May 5	21	6	31	527
Locomotive-brake	G. H. Poor	315,163	Apr. 7	245	60	31	45
Locomotive-brake	G. H. Poor	317,571	May 12	866	222	31	698
Locomotive-brake	G. S. Strong	315,973	Apr. 14	1387	359	31	257
Locomotive cow-catcher	J. Fleck	320,864	June 23	2403	627	31	1547
Locomotive driving-box	W. J. Healy	317,774	May 12	1127	297	31	737
Locomotive. Electric	J. Weis	320,025	June 16	1448	381	31	1328
Locomotive-engine	W. C. Shearer	318,313	May 19	1856	498	31	881
Locomotive-engine. Compressed air and gas	D. S. Troy	317,891	May 12	1283	{342 343}	31	767
Locomotive exhaust mechanism	S. H. Dunning	318,708	May 26	2379	635	31	985
Locomotive-pilot	F. B. Hoesl	320,657	June 23	2343	619	31	1498
Locomotive. Road-	G. G. Buckland	321,005	June 30	2793	{742 743}	31	1589
Locomotive traction-increaser	G. P. Merrill	316,340	Apr. 21	1025	508	31	361
Locomotive steam-dome	C. B. Hodges and E. McCoy	320,354	June 16	1925	507	31	1412
Locomotives and cars. Device for arresting	M. F. Bouzano	315,705	Apr. 14	1005	{264 265}	31	188
Locomotives. Mechanism for automatically operating throttle and brake valves of	T. Potter	316,171	Apr. 21	1653	433	31	313
Log-loader	J. Campbell	320,217	June 16	1701	452	31	1373
Log-turner	W. E. Hill	315,072	Apr. 7	61	15	31	13
Log-turner	G. W. Robinson	315,073	Apr. 7	120	28	31	23
Log-turner	D. J. Saltsman	320,591	June 23	2358	597	31	1482
Logwood extract. Preparing	C. E. Avery	320,526	June 23	2169	.....	31	1465
Loom	G. W. French and J. A. Mattern	319,475	June 9	684	184	31	1184
Loom-heddle supporting and operating mechanism	J. Roberts	318,658	May 26	2315	{618 619}	31	973
Loom pattern-chain	H. Wymen	320,449	June 16	2064	542	31	1438
Loom positive shuttle-motion	F. K. Wright, C. W. Gage, and W. F. Hitchcock.	320,902	June 23	2650	703	31	1556
Loom-reed	E. Adamson	315,890	Apr. 14	860	226	31	159
Loom-shuttle	C. Falvey	320,919	June 30	2677	711	31	1568
Loom-shuttle	J. P. Thompson	319,866	June 9	1218	{321 322}	31	1279
Loom-shuttle	I. L. Wilber	315,100	Apr. 7	154	37	31	29
Loom shuttle-box motion	L. C. Werner	315,683	Apr. 14	978	256	31	184
Loom-shuttles. Machine for winding bobbins for	J. H. Crowley	320,851	June 23	2579	{682 683}	31	1544
Loom take-up and let-off mechanism	T. H. Blamires	318,857	May 26	2585	688	31	1020
Loom weft stop-motion	L. J. Knowles	321,226	June 30	3076	{816 817}	31	1641
Lounge	S. L. King	319,491	June 9	709	190	31	1188
Low-water alarm	J. W. Kenyon	318,913	May 26	2660	705	31	1035
Lubricating compound	D. D. Wass	316,703	Apr. 28	2385	.....	31	452
Lubricating-cup	E. A. Wadhams	316,202	Apr. 21	1690	443	31	320
Lubricating metallic surfaces. Composition for	H. W. Bilknap	317,490	May 12	768	.....	31	671
Lubricating the loose pulley of a shaft. Mechanism for	J. McCaffrey	316,159	Apr. 21	1642	429	31	311
Lubricator: *See* Axle-lubricator. Car-journal lubricator. Crank-lubricator. Eccentric-lubricator. Pulley and wheel lubricator. Shaft-lubricator.							
Lubricator	S. G. Cabell	320,538	June 23	2185	576	31	1468
Lubricator	N. Jacobsen and H. P. Jensen	315,627	Apr. 14	910	239	31	169
Lubricator	E. McCoy	320,379	June 16	1971	518	31	1422
Lubricator	F. J. Renchard	315,550	Apr. 14	806	213	31	150
Lubricator	F. J. Renchard	315,551	Apr. 14	808	213	31	150
Lubricator	R. Ruddy	316,834	Apr. 28	2567	672	31	485
Lubricator	P. L. Schmitt	320,703	June 23	2398	634	31	1509
Lubricator	P. L. Schmitt	320,704	June 23	2399	635	31	1509
Lubricator	J. Yocom, Jr	320,109	June 16	1564	412	31	1348
Lubricator attachment	J. C. Thayer	320,312	June 16	1860	488	31	1401
Lubricator for pistons and cylinders	A. and E. R. Simpson and M. Speicher.	316,492	Apr. 28	2043	548	31	397
Lubricator for steam-engine cylinders	R. T Crane	315,128	Apr. 7	186	46	31	34
Lumber. Compound	D M Cummings. (Reissue)	10,509	May 26	2089	712	31	1040
Lumber-drier	W. B. Beard	321,336	June 30	3207	855	31	1666
Lumber-drier	W. E. Cole	319,677	June 9	954	253	31	1233
Lumber-piler	C. E. Dunshee	321,348	June 30	3226	{859 860}	31	1670
Machine-box	J. G. Bazzell	317,087	May 5	208	52	31	561
Machine-brake	J. Challoner, Sr	316,744	Apr. 28	2448	637	31	462
Machine frame and carriage	F. A. Pratt	319,618	June 9	886	235	31	1220
Machine table	W. Smith	319,757	June 9	1058	281	31	1252
Magnetic separator	C. F. Hilder and E. Scott	315,088	Apr. 7	55	13	31	12
Mail-bag	J. C. Franklin	319,290	June 2	344	92	31	1112
Mail-bag	W. A. Horrall	317,942	May 12	1352	363	31	789

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Mail-bag	E. B. Young and F. E. P'Pool	318,676	May 26	2339	624	31	978
Mail-bag catcher	P. B. Cassidy	317,504	May 12	783	{200 201}	31	673
Mail-bag catcher	H. De Lanoy	316,339	Apr. 21	1866	494	31	351
Mail-bag catcher	H. De Lanoy	316,340	Apr. 21	1867	494	31	351
Mail-bag catcher and deliverer	J. McHenry	319,287	June 2	429	115	31	1129
Malt beverages. Manufacturing carbonated	C. H. Fringe	316,451	Apr. 28	2043	.....	31	388
Malt-cutter and vegetable-crusher. Combined	E. Kauffeld	320,877	June 23	2611	692	31	1550
Malt-drier	P. Platt and J. M. Aitchison	316,170	Apr. 21	1652	433	31	313
Malt liquors from starch, &c. Manufacturing	W. T. Jebb	316,367	Apr. 21	1906	504	31	356
Malting, brewing, &c	R. D'Heureuse	318,548	May 26	2185	.....	31	949
Man-hole cover for sewers, street-vaults, &c. Self-locking	H. C. Lowrie	317,153	May 5	300	77	31	578
Manger	J. W. Baker	316,435	Apr. 28	2018	529	31	384
Mangle	G. Scott	316,878	Apr. 28	2579	674	31	487
Manure-drill	J. D. Armstrong	317,463	May 12	758	193	31	609
Manure-drill	A. J. Hearne	320,133	June 16	1596	422	31	1354
Manure-fork	A. Niebel	319,810	Apr. 28	2731	662	31	479
Map, chart, &c. Relief	L. R. Klemm	320,564	June 23	2215	586	31	1474
Map-rack	F. P. Montgomery	316,905	Apr. 28	2676	697	31	505
Marker for seeding-machines and check-rowers	J. E. Paradis	316,054	Apr. 21	1489	389	31	283
Marker, hiller, and digger. Combined potato	E. C. Schroeder	316,403	Apr. 21	1957	516	31	367
Mashing apparatus	J. K. Hammerle	317,709	May 12	1121	295	31	736
Mat: *See* Oil-mat. Oil-press mat. Seed-press mat.							
Match-box and cigar-cutter. Combined	C. Bartens	318,590	May 26	2234	597	31	957
Match-box and cigar-cutter. Combined	M. L. Dixon	317,980	May 19	1415	380	31	600
Match-safe	G. P. Roberts	319,332	June 2	472	128	31	1136
Match-safe and cigar-clipper. Combined	E. L. Lake and L. E. Crandall	316,466	Apr. 28	2060	540	31	391
Match-safe for lanterns	J. W. Dick	317,747	May 12	1095	287	31	730
Mattress	F. Muhl and J. S. Carson	319,419	June 2	590	161	31	1161
Mattress. Folding wire	C. H. Hard	318,728	May 26	2405	641	31	991
Measure and register. Automatic grain	P. Kaufmann	319,822	June 9	1161	307	31	1270
Measuring and elevating grain. Machine for	S. R. Daxon	320,465	June 23	2091	555	31	1451
Measuring and fitting device. Garment	W. B. Pollock	320,496	June 23	2126	{560 561}	31	1458
Measuring and marking cloth. Machine for	M. B. Smith and L. J. A. Roswall	321,393	June 30	3287	{878 879}	31	1681
Measuring apparatus. Grain	O. P. and O. E. Wagner	315,682	Apr. 14	976	{255 256}	31	183
Measuring device. Cloth	W. H. H. Frye	316,987	Apr. 28	2642	{688 689}	31	499
Measuring device for liquids. Automatic	J. Prax	316,910	Apr. 28	2684	699	31	506
Measuring instrument. Lumber	E. Y. Knapp	319,911	June 9	1283	339	31	1290
Measuring-staff. Registering	H. Gregg	316,358	Apr. 21	1889	500	31	355
Measuring tool. Taper	F. Waite and F. H. Tidgewell	318,526	May 26	2141	576	31	943
Measuring utensil. Multiple	P. C. Goodwin	315,768	Apr. 14	1107	291	31	207
Measuring-vessel. Graduated	J. J. Hicks	320,784	June 23	2495	661	31	1528
Meat and oil press box	J. J. Culbertson, J. C. O'Connell, and B Gaston.	318,875	May 26	2614	694	31	1026
Meat-cutter	R. B. Pumphrey	319,928	June 9	1306	344	31	1295
Meat-cutting machine	T. Johnston	319,910	June 9	1281	{337 338}	31	1290
Meat-freezer	C. N. Shaw	316,840	Apr. 28	2581	675	31	487
Meat-shipping can, box, or package. Fresh	R. Bogardus	317,615	May 12	928	238	31	699
Meat-tenderer	F. W. Carter	315,723	Apr. 14	1024	272	31	193
Meats. Preservative coating for	C. Bartels	318,851	May 26	2579	.....	31	1019
Mechanical motor	J. H. Thornburg	318,832	May 26	2552	680	31	1015
Mechanical movement	O. Arnold	315,883	Apr. 14	1257	328	31	234
Mechanical movement	J. Bacon	315,378	Apr. 7	547	138	31	97
Mechanical movement	W. S. Carlisle	317,723	May 12	1059	270	31	724
Mechanical movement	J. W. Dodge	318,456	May 26	2041	551	31	925
Mechanical movement	L. D. Farra	321,199	June 30	3048	807	31	1635
Mechanical movement	J. F. Foss	316,136	Apr. 21	1613	421	31	305
Mechanical movement	T. S. Huntington	316,897	Apr. 28	2662	693	31	502
Mechanical movement	W. Koch	315,630	Apr. 14	923	242	31	172
Mechanical movement	R. Miehle	317,663	May 12	984	{255 256}	31	710
Mechanical movement	J. Morwitz	315,431	Apr. 7	620	159	31	110
Mechanical movement	J. Morwitz	315,432	Apr. 7	621	159	31	111
Mechanical movement	H. Schulze-Berge	320,706	June 23	2401	{635 636}	31	1510
Mechanical movement	S. Tideman	321,002	June 30	2876	765	31	1604
Mechanical movement	J. L. Willford	315,202	Apr. 7	316	77	31	57
Mechanical power	G. E. Saunders	317,023	May 5	122	31	31	544
Mechanical traverse-table	W. D. Patterson	318,578	May 26	2220	593	31	955
Medallions, &c. Manufacture and ornamentation of	J. G. Kearsing	317,143	May 5	295	72	31	575
Medical battery	O. Flemming	320,547	June 23	2196	580	31	1470
Medical rubbing apparatus	M. G. Farmer	317,327	May 5	547	139	31	623
Medicines. Apparatus for spraying	P. Lochmann	316,468	Apr. 28	2062	540	31	391
Merchandise-indicator	S. H. Brown	315,276	Apr. 7	362	89	31	65
Mercurial ores. Extracting arsenic and mercury contained in the residues obtained in the distillation of	A. Van Straaler	320,417	June 16	2021	.....	31	1430
Metal barbs. Machine for forming and setting flat	A. J. Bates	318,079	May 19	1546	414	31	823
Metal bars, &c. Machine for straightening	L. D. York	316,102	Apr. 21	1562	407	31	296
Metal bending and straightening machine	W. J. Muncaster	319,603	June 9	867	210	31	1217
Metal-cutting tool	G. Hoefer	319,816	June 9	1154	305	31	1268
Metal. Device for spiraling	J. B. Robinson	316,295	Apr. 21	1813	477	31	341
Metal-drill	F. H. Richards	320,966	June 30	2741	729	31	1579
Metal-drills. Manufacture of	F. H. Richards	320,967	June 30	2743	729	31	1580
Metal-handling device	W. O Nightengale	319,926	June 9	1301	343	31	1294
Metal-heating furnace	W. Harty	316,963	May 5	44	12	31	530
Metal-shears	C. A. Svensson	317,883	May 12	1274	330	31	765

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Metal-stripping machine	H. S. Bacon	319,772	June 9	1080	287	31	1255
Metal table	H. A. Matthews	315,310	Apr. 7	493	114	31	82
Metal-turning tool	E. Horton	316,787	Apr. 28	2502	653	31	473
Metal-working machines. Work-holder for	L. Cosgrove	316,526	Apr. 28	2133	561	31	405
Metals and minerals. Machine for separating	J. M. Williams	316,211	Apr. 21	1699	446, 447	31	322
Metallic fabric	W. Hewitt	316,458	Apr. 28	2049	537	31	389
Metallic screening. Machine for making slashed	J. F. Golding and G. B. Durkee	320,241	June 16	1733	460, 461	31	1379
Metallic screening. Making slashed	J. F. Golding and G. B. Durkee	320,242	June 16	1735	461	31	1380
Metallic screening material. Making	J. F. Golding	320,240	June 16	1732	459	31	1379
Metallic wheel	J. W. Marshall	315,805	Apr. 14	1148	301	31	215
Metallurgic gas-furnace	J. S. Seibert	315,846	Apr. 14	1201	313	31	224
Metallurgical furnace	S. T. Owens	321,311	June 30	3180	847, 848	31	1661
Meter: *See* Electric meter. Fluid-meter. Gas-meter. Liquid-meter. Grain-meter. Water-meter.							
Micrometer-gage	J. Moffitt	319,919	June 9	1293	341	31	1292
Microphone	H. E. Waite and S. H. Bartlett	316,204	Apr. 21	1692	444	31	321
Middlings-purifier	F. Prinz. (Reissue)	10,501	Apr. 28	2722	708, 709	31	514
Middlings-purifier brush	J. Wegman, Jr	319,763	June 9	1067	283	31	1253
Milk-can	C. S. Raymond	315,835	Apr. 14	1185	309	31	222
Milk can or carrier	R. B. Anderson	315,371	Apr. 7	529	135	31	96
Milk-setting apparatus	M. O. Stoddard	315,448	Apr. 7	639	165	31	114
Mill: *See* Attrition-mill. Ore-grinding mill. Cider-mill. Quartz-mill. Crushing-mill. Roller-mill. Crushing and pulverizing mill. Rolling-mill. Saw-mill. Fanning-mill. Triturating-mill. Grain-cleaning mill. Windmill. Grinding-mill.							
Mill-machinery feeder	R. M. Nake	320,811	June 23	2597	670	31	1534
Mill-stock feeder	G. Downie and A. F. Eisan	320,054	June 16	1487	392	31	1335
Mills, &c. Feeding mechanism for	P. Fuchs	320,867	June 23	2599	689	31	1548
Milling-machine	C. C. Newton	319,302	June 2	446	120	31	1132
Milling-machine. Automatic	E. Horton	316,786	Apr. 28	2498	652, 653	31	472
Millstone-dress	R. Wilson	319,652	June 9	927	245	31	1227
Mining-machine	W. L. Saunders	320,294	June 16	1814	481, 482	31	1392
Mining-machine	B. Yoch	318,337	May 19	1888	508	31	887
Mining machine. Coal-	J. W. Harrison	321,103	June 30	2929	776	31	1613
Mining-machine feeding mechanism	W. L. Saunders	320,296	June 16	1816	482, 483	31	1393
Minute wheel and pinion	C. V. Woerd	318,675	May 26	2338	624	31	978
Miter-box	T. E. Garsuch and T. Jones	318,464	May 26	2051	554	31	927
Mitt	A. B. Clarke	317,511	May 12	797	204	31	675
Mitten	A. G. Marsh	319,987	June 16	1399	367	31	1319
Mixer: *See* Paint-mixer.							
Mixer and sifter. Combined	D. Peters	319,311	June 2	461	124	31	1135
Mixing, measuring, and packaging powdered material. Apparatus for	J. C. Brown	319,672	June 9	947	251, 252	31	1232
Mixing white lead with oil	W. H Pulsifer	320,887	June 23	2609	.....	31	1553
Model or dummy for dress-maker's use. Adjustable	E. and A Merle	317,830	May 12	1211	320	31	753
Moistening-roller	D. A. Alden	321,075	June 30	2891	769	31	1607
Mold: *See* Ingot-mold. Sand mold.							
Mold	H. A. Newcomb	316,052	Apr. 21	1486	388	31	282
Molds. Apparatus for making sand	M. R. Moore	318,783	May 26	2486	665	31	1004
Molds. Composition of matter for lining and facing	W. N. Gartside	315,402	Apr. 7	575	.....	31	104
Molders' facings. Compound for	S. Obermayer	317,843	May 12	1223	.....	31	755
Molding	E. Fillmann	320,644	June 23	2325	614	31	1494
Molding-machine	J. A. Horton	319,413	June 2	582	158, 159	31	1159
Molding machine. Sand-	W. Aiken	318,341	May 19	1893	510, 511	31	888
Molding machine. Wood-	H. Baxter and A. F. Anton	315,222	Apr. 7	346	84	31	62
Molding plastic materials. Machine for	H. McHugh and T. L. Manchester	318,010	May 19	1469	360	31	808
Money-changer	A. L. Pratt	315,544	Apr. 14	799	211	31	149
Money receiving, registering, recording, and ticket-issuing device	H. T. Davis	321,010	June 30	2799	744	31	1591
Monument	B. Goodman	321,018	June 30	2909	747	31	1593
Monument	A. McKellar	320,488	June 23	2118	558	31	1456
Mordant	O. Prinz	320,963	June 30	2736	.....	31	1579
Mordant	R. Silberberg	320,821	June 23	2539	.....	31	1536
Mordant. Chromium	R. Silberberg	319,632	June 2	121	.....	31	1070
Mortar, concrete, &c. Apparatus for mixing	C. Schlickeysen	316,069	Apr. 21	1509	394	31	296
Mortise-lock	F. A. Hollenbeck	317,941	May 12	1351	363	31	780
Mortise-lock	F. W. Mix	320,155	June 16	1622	432	31	1358
Mortise-lock	P. Murphy	321,380	June 30	3269	873	31	1678
Mortises. Tool for removing chips from	G. Winzenried	320,736	June 23	2437	646	31	1517
Mortising and boring machine	E. N. Camp	317,721	May 12	1056	275, 276	31	724
Mosaic of glass and lead glazing	H. F. Belcher	317,077	May 5	193	49	31	556
Mosquito-bar canopy	J. P. Smith	318,667	May 26	2328	622	31	976
Motion. Apparatus for transmitting differential rotary	G. F. Clemons	321,086	June 30	2905	772	31	1609
Motion. Device for converting	H. B. Keiper	316,789	Apr. 28	2507	655	31	474

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Motion. Device for converting	H. C. Kring	321,371	June 30	3258	870	31	1676
Motion. Device for converting	H. Schulze-Berge	317,584	May 12	883	226	31	691
Motion. Device for converting reciprocating into rotary	W. G. Dawson	320,338	June 16	1893	498	31	1406
Motion. Device for transmitting rotary	S. Jönason	320,437	June 16	2046	537	31	1434
Motion. Mechanism for converting	D. D., G. L., and C. W. Wiley	315,364	Apr. 7	521	133	31	94
Motor: *See* Car motor. Sewing-machine hand-motor. Electric motor. Electro-dynamic motor. Siphon-motor. Spring-motor. Electro-magnetic motor. Velocipede-motor. Mechanical motor. Water-motor. Sewing-machine motor. Wind-motor.							
Motor	J. M. Gaston	319,970	June 16	1374	361	31	1314
Motor	T. K. Hansberry	316,542	Apr. 28	2152	566	31	409
Motor	J. E. Johnson	317,542	May 12	869	213	31	681
Motor	D. L. Miller	315,051	Apr. 7	89	21	31	18
Motor	J. P. Parkhurst	320,166	June 16	1634	435	31	1361
Motor	J. Sullivan	319,527	June 9	756	202	31	1197
Motor	H. W. Teal	317,044	May 5	145	37	31	548
Movement-cure apparatus	M. G. Farmer	317,328	May 5	548	139	31	623
Mower	I. Rawson	315,071	Apr. 7	118	27	31	23
Mower	B. Saunders	321,141	June 30	2971	787	31	1621
Mower. Field and lawn	L. S. Brown	318,692	May 26	2361	630	31	982
Mower. Lawn-	D. Bearly	314,968	Apr. 7	2	1	31	3
Mower. Lawn-	W. A. Loud	319,827	June 9	1167	308, 309	31	1271
Mowing-machine	J. P. Manny	317,816	May 12	1190	316	31	749
Mowing-machine	F. M. Waters	316,856	Apr. 28	2604	679	31	492
Muffle-furnace for assaying and annealing	J. Hoskins	315,036	Apr. 7	69	16	31	14
Muffler and safety-valve	J. M. Coale	315,732	Apr. 14	1052	275, 276	31	197
Multiple switch-board	T. J. Perrin	315,332	Apr. 7	476	120, 121	31	87
Multiple switch-board	T. J. Perrin	315,333	Apr. 7	477	121	31	87
Multiple switch-board	T. J. Perrin	315,658	Apr. 14	945	247, 248	31	176
Multiple switch-board	T. J. Perrin	316,394	Apr. 21	1943	512	31	364
Multiple switch-board	T. J. Perrin	316,395	Apr. 21	1946	513	31	364
Multiple switch-board system	C. E. Scribner	321,057	June 30	2859	761	31	1601
Music-barrels. Machine for inserting pins in	H. B. Morris	315,052	Apr. 7	91	22	31	18
Music case or portfolio	J. R. France, J. H. Yale, and G. W. Beury	319,399	June 2	564	153	31	1155
Music-holder	J. Frampton	316,534	Apr. 28	2144	563	31	407
Music-leaf turner	E. Negroni	321,238	June 30	3091	821, 822	31	1643
Music-leaf turner	F. E. Sackett	318,509	May 26	2111	509	31	938
Music-leaf turner	J. H. Shelton	318,398	May 19	1908	530	31	902
Music-leaf turner	H. D. Wheatley	318,529	May 26	2143	577	31	944
Music-paper for automatic musical instruments. Machine for cutting	R. T. Smith	318,049	May 19	1511	405	31	817
Music-recording attachment for key-board instruments	B. Greiner	321,358	June 30	3241	864, 865	31	1673
Musical instrument. Mechanical	J. H. Chase	318,448	May 26	2030	547, 548	31	922
Musical instrument. Mechanical	G. B. Hakins	315,774	Apr. 14	1113	292	31	209
Musical instrument. Stringed	J. Farris	315,135	Apr. 7	194	48	31	35
Musical instruments. Harmonic attachment for key-board	J. W. Long	320,148	June 16	1614	430	31	1357
Musical instruments. Harmonic attachment for key-board	E. F. O'Neill	316,908	Apr. 28	2681	698	31	506
Musical instruments. Mouth-piece for brass	C. Meister	315,810	Apr. 14	1156	303	31	217
Musical instruments. Transposer for key-board	L. Metzdorff	317,661	May 12	982	254	31	710
Musical reed	M. Bray	318,947	June 2	13	4	31	1051
Musical reed	M. Gally	315,493	Apr. 14	715	189	31	134
Nail	H. K. Jones	318,566	May 26	2305	589	31	952
Nail	J. Young	316,717	Apr. 28	2404	626	31	455
Nail and screw. Combined	H. A. Schirmer	321,389	June 30	3282	877	31	1660
Nail-arranger	S. Perry	317,568	May 12	859	221	31	687
Nail-driver	S. Perry	317,189	May 5	354	89, 90	31	588
Nail-extractor	L. Howard	321,298	June 30	3165	844	31	1658
Nail holder and carrier	F. F. Raymond, 2d	315,458	Apr. 7	657	169	31	117
Nail-machine nipper-bar	C. D. Godcharles	315,403	Apr. 7	576	148	31	104
Nail machine. Wire-	F. H. Hardman	317,130	May 5	266	66, 67	31	572
Nail machine. Wire-	J. Hassall and M. M. Smith	319,485	June 9	702	188, 189	31	1167
Nail machine. Wire-	M. G. Voigt, Sr	319,150	June 2	264	69, 70	31	1006
Nail-makers. Cold-air blast for the protection of	J. Altmeyer	317,916	May 12	1322	354	31	775
Nail-making machine	C. W. Cogin	317,928	May 12	1337	359	31	777
Nail-plate feeder	J. C. Gould	315,019	Apr. 7	43	9, 10	31	10
Nail-plate feeder	J. C. Gould	317,529	May 12	813	209	31	679
Nail-plate feeder	D. W. Keith	321,114	June 30	2939	779	31	1614
Nail-plate feeders. Nipper-rod for	J. C. Gould	318,105	May 19	1580	423	31	830
Nail-set	G. W. Cannon	317,970	May 19	4406	377	31	798
Nail stock. Wire-	H. K. Jones	318,564	May 26	2204	589	31	952
Nail stock. Wire-	H. K. Jones	318,565	May 26	2205	589	31	952
Nail-strips. Machine for upsetting heads on	R. Ashe	319,381	June 2	544	148	31	1151
Nails. Machine for pointing wire	S. Loring and E. S. Morton	319,735	June 9	1032	273, 274	31	1247
Nails. Making	C. F. Thayer and J. Lowe	318,830	May 26	2551	679	31	1014
Nails. Making cut	J. Young	318,845	May 26	2573	685	31	1018

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Neck-wear. Compound strip for	I. Noar	320,386	June 16	1979	590	31	1423
Neck-wear fastener	A. Burhans	317,969	May 19	1404	377	31	798
Necktie	W. S. Spurr	316,496	Apr. 28	2098	551	31	398
Necktie attachment	I. Noar	319,840	June 9	1183	312	31	1273
Necktie-band retainer	W. G. Alderton	318,846	May 26	2574	685	31	1018
Necktie-fastener	T. J. Ford	318,715	May 26	2389	637	31	987
Necktie-fastener	J. A. Whitcomb	315,097	Apr. 7	150	36	31	28
Necktie-fastening	G. E. Mitchell	320,491	June 23	2122	559	31	1457
Necktie-fastening device	C. S. Lyon	318,570	May 26	2209	590	31	933
Necktie-holder	E. K. Harnes	317,354	May 5	577	148	31	689
Necktie-protector	W. T. Richmond	318,704	May 26	2518	672	31	1008
Needle	T. C. Adams	320,450	June 16	2065	542	31	1438
Needle	E. and E. Cheshire	317,508	May 12	794	203	31	675
Net. Fly-	E. G. Sindley and P. Dosch	315,975	Apr. 14	1389	360	31	257
Net for catching porpoises	J. A. Cooke	317,733	May 12	1069	280	31	726
Net. Landing-	G. W. McClintock	317,820	May 12	1197	317	31	750
Net or veil	J. A. Schirmer	316,575	Apr. 28	2194	577	31	417
Net-staff	G. L. Bailey	315,107	Apr. 7	162	39	31	30
Nickel. Electro-depositing	J. A. Mathieu	320,377	June 16	1969	.....	31	1421
Non-resonant material for the construction of buildings, railway-tunnels, railway-carriages, &c.	R. R. Hazard	316,543	Apr. 28	2154	.....	31	409
Nozzle	J. E. Prunty	318,800	May 26	2512	670	31	1007
Nozzle and faucet	R. Marsh	320,881	June 23	2616	693	31	1551
Numbering-machine	E. A. Warren	320,103	June 16	1551	410, 411	31	1346
Numbering machine. Consecutive	J. H. Reinhardt and C. S. Ellis	318,803	May 26	2515	671	31	1008
Nursery-chair	B. C. Odell	317,120	May 5	339	86	31	585
Nursery-chair and carriage	V. Rathknecht	320,587	June 23	2253	596	31	1462
Nut. Frictional lock-	J. T. Hawkins	318,618	May 26	2263	604	31	963
Nut-lock	P. T. Brady	315,895	Apr. 14	1277	333	31	238
Nut-lock	J. B. Clements	315,001	Apr. 7	21	6	31	6
Nut-lock	J. C. Cookerley	320,914	June 30	2673	710	31	1567
Nut-lock	S. M. Guss	316,616	Apr. 28	2245	591	31	426
Nut-lock	A. L. Mitchell	320,270	June 16	1768	469	31	1395
Nut-lock	J. H. Sheehan. (Reissue)	10,578	Apr. 7	660	170	31	118
Nut-machine	R. T. Barton	316,866	Apr. 28	2615	682	31	493
Nut-machine	S. H. Markham	320,571	June 23	2222	588, 589	31	1476
Nut. Top-prop	A. S. Parker	318,787	May 26	2493	666	31	1005
Nuts. Device for adjusting and removing	P. G. Gesford, Jr	317,637	May 12	951	244	31	704
Nuts, &c. Machine for polishing and sorting	W. R. Barnhart	320,326	June 16	1892	494	31	1404
Nuts. Machine for trimming the ends of sleeve-	H. P. Phipps	315,542	Apr. 14	796	211	31	148
Oar-blades. Machine for forming	G. W. Lingle and J. F. Roop	318,763	May 26	2457	658, 659	31	999
Oatmeal-machine	G. Cottrell	320,048	June 16	1477	389, 390	31	1333
Odometer	B. F. Hutches, Jr	321,365	June 30	3252	868, 869	31	1675
Odometer for vehicles	C. F. Church	315,727	Apr. 14	1039	273	31	195
Offal-drier	J. Spratt	318,050	May 19	1514	405	31	817
Offal-drier	F. G. Wiselogel	317,061	May 5	169	43	31	554
Oil and utilizing the vapors of the same. Apparatus for storing	A. J. Gould	318,425	May 19	2002	539	31	908
Oil-can	A. F. Ahlum	321,074	June 30	2890	768	31	1607
Oil-can	W. H. and W. J. Clark	320,759	June 23	2466	653	31	1523
Oil-can	D. M. Kirkpatrick and M. J. French	318,628	May 26	2275	607	31	966
Oil can and lamp-filler	M. C. Richards	315,552	Apr. 14	810	213	31	151
Oil-can. Pocket	G. A. Payson	317,007	May 5	105	27	31	541
Oil-cloth corner-piece	W. Horning	315,409	Apr. 7	585	151	31	105
Oil-cup	E. Lunkenheimer	317,464	May 5	728	194	31	654
Oil-cup	T. D. Ruggles	317,580	May 12	677	225	31	690
Oil-cup. Differential	J. H. Wilkinson	315,101	Apr. 7	155	37	31	29
Oil-cup or lubricator. Sight-feed	C. W. Sherburne	319,519	June 9	747	200	31	1195
Oil-expressing box	R. S. Cathcart	320,847	June 23	2573	681	31	1543
Oil-expressing box	T. P. Sullivan and E. M. Hazard	320,896	June 23	2641	701	31	1555
Oil expressing box package shaping machine	R. S. Cathcart	320,848	June 23	2574	681	31	1543
Oil from cotton-seed. Apparatus for extracting	G. Leder	318,191	May 19	1667	452	31	850
Oil mat	W. W. Clock	315,126	Apr. 7	183	45	31	33
Oil of low cold test. Compound from which can be made a lubricating-	R. Pattin	318,389	May 19	1957	.....	31	900
Oil-press	J. H. McGowan	315,529	Apr. 14	776	205	31	144
Oil-press box	W. P. Callahan and T. De Armon	319,673	June 9	950	252	31	1232
Oil-press cloth	G. Oliver	317,063	May 5	100	26	31	541
Oil-press mat	G. Oliver	320,442	June 16	2054	539	31	1436
Oil-presses. Wire mat for	R. B. Brown	316,674	Apr. 28	2025	624	31	495
Oil. &c. Refining	A. Rock	316,663	Apr. 28	2304	.....	31	437
Oil-tank	S. Van Antwerp	320,514	June 23	2152	568	31	1462
Oil. Treatment of cotton-seed	J. B. Armstrong	318,410	May 19	1983	533	31	905
Oiler	E. J. Wells	319,154	June 2	269	71	31	1097
Oiler for steam-engines. Self-	J. Parkinson	315,059	Apr. 7	105	24	31	21
Oiling and polishing wheels. Machine for	F. W. Starr	319,636	June 9	909	240	31	1234
Oiling device for adjustable chairs and stools	L. Postawka	320,395	June 16	1994	525	31	1436
Ointment	D. H. Bisnillon	320,836	June 23	2555	.....	31	1540
Opera-glasses in theaters, &c. Safety receptacle for	C. B Sherwood	319,518	June 9	746	200	31	1194
Ordnance	B. T. Babbitt	316,105	Apr. 21	1566	407	31	297
Ordnance. Gas-check for	J. B. Davis	318,093	May 19	1563	419	31	826
Ordnance lock	W. Lorenz	318,765	May 26	2460	658, 660	31	1000
Ordnance. Pneumatic	E. Hill	315,030	Apr. 7	58	14	31	12
Ore and salt drier	R. A. Nevin	319,610	June 9	878	232	31	1219
Ore, &c. Apparatus for grinding	F. S Burr and W. M. Fuller	315,716	Apr. 14	1096	269	31	192
Ore-concentrator	N. Butler	317,621	May 12	935	240	31	700
Ore-concentrator	W. A. Koneman and H. H. Scoville	315,147	Apr. 7	220	54, 55	31	49
Ore-concentrator	C. W. Patten	315,824	Apr. 14	1174	307	31	220

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Ore-concentrator	E. W. Sinclair	319,837	June 9	1206	318, 319	31	1277
Ore crushing and amalgamating machine	S. T. Richardson	320,396	June 16	1995	525	31	1426
Ore-crushing machine	W. E. Wild	315,583	Apr. 14	873	225	31	158
Ore. Deoxidizing iron	C. J. Eames	318,605	May 26	2248	.....	31	961
Ore-filter. Centrifugal	T. T. Eyre	315,398	Apr. 7	570	147	31	103
Ore-grinding mill	A. B. Paul	315,825	Apr. 14	1176	307	31	220
Ore-pulverizer	J. K. Griffin	318,181	May 19	1674	449	31	848
Ore. Reducing iron	C. J. Eames	318,606	May 26	2249	.....	31	961
Ore-roasting furnace	W. Brückner	321,003	June 30	2791	741, 742	31	1588
Ore separating and concentrating machine	H. Landrin	321,118	June 30	2946	781	31	1615
Ore-separator	W. L. Card	320,756	June 23	2461	652	31	1522
Ore-separator	J. C. Porter	317,192	May 5	364	90	31	589
Ore separator and concentrator	J. Behm	320,998	June 30	2784	740	31	1587
Ore-washer	W. J. Muncey	318,014	May 19	1463	391	31	808
Ores, &c. Machine for reducing	G. and A. Raymond	315,338	Apr. 7	484	122, 123	31	89
Ores. Process of and apparatus for roasting	O. H. and W. W. Tobey	315,089	Apr. 7	138	32	31	26
Ores, &c. Reducing	J. K. Griffin	318,245	May 19	1758	470	31	864
Ores. Solution of dichloride of copper, &c., for treating	A. Patchen	319,118	June 2	230	60	31	1090
Oscillating engine	D. C. Putnam	319,423	June 2	506	162	31	1161
Oven. Bake-	J. L. W. Olsen	321,239	June 30	3003	822	31	1643
Oven. Baking-	R. McDonald and C. Fraser	319,003	June 2	91	24	31	1065
Oven-door attachment	I. A. Abbot	318,175	May 19	1644	439	31	842
Oven-heat indicator	S. Porter	315,104	Apr. 7	246	60	31	45
Oven. Portable	A. J. Gilbert and G. Wendling	317,938	May 12	1347	362	31	779
Oven. Portable	W. H. H. and F. H. Knight and A. M. Proctor	320,601	June 23	2514	666	31	1532
Oven. Portable	J. Ringen	316,914	Apr. 28	2092	701	31	508
Oven. Portable	A. P. Steward	317,878	May 12	1268	338	31	764
Overalls	G. Gaston	317,334	May 5	557	142	31	625
Overshoe	J. S. Hopkins	317,360	May 5	583	150	31	630
Overshoe. Rubber	E. K. Ray	320,284	June 16	1803	479	31	1390
Overshoe. Rubber	W. K. Miller	318,277	May 19	1799	481	31	871
Ox-shoes. Blank for wrought-metal	O. W. Griffiths	317,640	May 12	958	246	31	705
Package-carrier	G. W. Lace, G. Boole, and B. Bryon	315,044	Apr. 7	80	19	31	16
Package-compressor	F. M. Blake	318,092	May 19	1549	415	31	824
Packing. Adjustable metallic	H. M. Campbell	318,447	May 26	2029	547	31	922
Packing deep-well pumps	L. S. Woodbury	319,538	June 9	772	206	31	1199
Packing for rock-drills. Piston-head	L. S. Woodbury	320,699	June 23	2549	675	31	1538
Packing for rock-drills. Piston-head	J. H. Smith and R. Marshall	317,869	May 12	1250	335	31	762
Packing for stuffing-boxes of piston-rods, &c	J. Brandon	315,115	Apr. 7	171	41	31	31
Packing. Piston-	J. Garrison	316,770	Apr. 28	2480	647	31	469
Packing. Piston-	W. Augustus	320,525	June 23	2168	572	31	1465
Packing. Piston-rod	W. H. Prince	320,698	June 23	2382	630	31	1505
Packing. Piston-rod	L. Shook	315,350	Apr. 7	501	128	31	92
Packing. Piston-rod	S. D. Thurston	318,400	May 19	1970	530	31	903
Packing-ring. Metallic	L. Schnabl	316,188	Apr. 21	1673	438, 439	31	317
Pad: *See* Clothes-rubbing pad. Collar-pad. Collar sweat-pad. Harness-pad. Stamp-pad. Truss-pad.							
Pad fastener. Sweat-	B. F. Rice	318,505	May 26	2106	568	31	937
Pad fastening. Sweat and chafe	J. A. Smith	318,317	May 19	1860	499	31	882
Pad hook. Sweat-	J. Strana	321,155	June 30	2990	793	31	1624
Pad-tree. Anti-friction	H. T. Richmond	315,444	Apr. 7	634	164	31	113
Paddle-wheel. Feathering	W. Emmett	315,263	Apr. 7	392	98	31	71
Paddle-wheel. Feathering	J. P. Hickey	316,783	Apr. 28	2495	651	31	471
Paddle wheel for propelling vessels	J. S. Allen	318,408	May 19	1981	533	31	905
Paddle-wheel for vessels	T. C. Love	317,657	May 12	978	252	31	708
Paddle-wheel guard. Steamboat	J. Murphy	320,160	June 16	1627	433	31	1360
Padlock	W. Bohannan	318,537	May 26	2153	580	31	945
Padlock. Permutation-	F. Egge	316,345	Apr. 21	1874	496	31	352
Pail. Chamber-	C. F. Crockett	318,813	May 26	2612	693	31	1025
Pail. Dinner-	W. Bord	320,454	June 23	2079	547	31	1449
Pail. Dinner-	W. A. Gill	317,762	May 12	1112	293	31	734
Pail. Sheet-metal	I. N. Ellmaker	319,060	June 2	182	48	31	1082
Paint	C. E. Brown	319,951	June 16	1347	.....	31	1310
Paint	J. P. Perkins	318,791	May 26	2497	.....	31	1005
Paint composition. Roof-	D. Brobst	315,471	Apr. 14	6-9	.....	31	128
Paint. Mixed	T. N. Le Roas	319,964	June 16	1394	.....	31	1318
Paint. Mixed	W. F. D. Pascoe, J. M. Haines, and J. Butland.	317,004	May 5	101	.....	31	541
Paint-mixer	O. J. Buck	318,864	May 26	2604	691	31	1024
Paint-mixer	C. Ross, Jr	316,487	Apr. 28	2087	546	31	396
Painted articles. Apparatus for drying	G. and C. J. Deckman	315,604	Apr. 14	875	230	31	162
Painting	F. G. Painter	315,324	Apr. 7	467	118	31	85
Pan: *See* Amalgamating-pan. Baking-pan. Boiler ash-pan. Dust-pan. Evaporating-pan. Locomotive ash-pan.							
Panel or plaque. Artist's	E. De Planque	319,203	June 2	324	86	31	1108
Pantaloon-protector	F. R. Hogeboom	320,658	June 23	2345	620	31	1498
Pantaloons and overalls	S. D. Blake	318,945	June 2	11	3	31	1070
Paper bags. Making	J. P. Onderdonk	318,016	May 19	1465	392	31	809
Paper box	C. M. Arthur. (Reissue.)	10,614	June 16	2074	544, 545	31	1440
Paper box	F. P. Birley	321,181	June 30	3021	800	31	1630
Paper box	J. P Buckingham	320,331	June 16	1886	496	31	1405
Paper box	A. S. Coffin	317,976	May 19	1411	379	31	799
Paper box	D. Heaton	315,283	Apr. 7	418	104	31	76

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Paper box	T. S. West	315,454	Apr. 7	652	168	31	116
Paper-box machine	B. E. Becker	315,461	Apr. 14	667	173 174	31	125
Paper box or pail	L. W. Hollett	317,997	May 19	1439	386	31	804
Paper-calendering machine	M. Solinger	319,634	June 9	906	239 240	31	1224
Paper. Carbonizing	S. E. Trott	319,353	June 2	508	139	31	1145
Paper-cutting machine	C. S. Barton	317,612	May 12	925	237	31	696
Paper-cutting machine	H. P. Feister	319,473	June 9	680	183	31	1183
Paper fabric. Re-enforced	J. H. Beale	320,614	June 23	2290	604	31	1468
Paper-feeding machine	R. J. Stuart	319,431	June 2	613	166 167	31	1165
Paper-folding machine	F. Von Martini	316,314	Apr. 21	1833	482 483 484	31	345
Paper-folding machines. Trimming device for	J. H. Stonemetz	320,891	June 23	2635	697	31	1554
Paper-holder	C. E. Osgood and L. F. Longmore	320,956	June 30	2722	723	31	1576
Paper holder and cutter	C. C. Johnson	316,368	Apr. 21	1908	504	31	358
Paper holder. Ornamental and fly	V. G. Tansey	317,241	May 5	423	106	31	600
Paper holder. Toilet	A. A. Myers	320,576	June 23	2229	591	31	1477
Paper-holder. Water-closet	C. S. Blackman	316,298	Apr. 21	1722	452	31	326
Paper in rolls. Protecting	M. Fitzgibbons	319,969	June 16	1372	360	31	1314
Paper lifter. Adhesive	A. Spitzli	317,234	May 5	414	104	31	599
Paper. Machine for winding up	G. E. Jones. (Reissue)	10,611	June 16	2068	543	31	1439
Paper-makers' use. Manufacture of an aluminous sizing material for	R. A. Fisher	321,094	June 30	2917	.....	31	1611
Paper-makers' use. Manufacture of sizing for	R. A. Fisher	321,097	June 30	2922	.....	31	1611
Paper-makers' use. Manufacture of sizing material for	R. A. Fisher	321,095	June 30	2919	.....	31	1611
Paper-makers' use. Manufacture of sizing material for	R. A. Fisher	321,098	June 30	2923	.....	31	1612
Paper-makers' use. Neutral sizing material for	R. A. Fisher	321,092	June 30	2913	.....	31	1611
Paper-makers' use. Neutral sizing material for	R. A. Fisher	321,093	June 30	2915	.....	31	1611
Paper-makers' use. Preparation of mineral filling for	Z. C. Warren	318,063	May 19	1526	409	31	819
Paper-making machine	W. Leishman	318,378	May 19	1543	524	31	898
Paper-making machine	J. T. F. MacDonnell	320,372	June 16	1962	516	31	1420
Paper-making machines. Dandy-roll for	F. C. Plume	319,616	June 9	884	234	31	1220
Paper-making machines. Felt-whipper for	W. A. Philpott, Jr	321,312	June 30	3181	848	31	1661
Paper-making machines. Suction-box for	H. A. Barber	316,221	Apr. 21	1714	450	31	324
Paper-making. Making dandy-rolls for	F. C. Plume	319,615	June 9	883	234	31	1220
Paper, &c. Manufacture of fiber for	A. E. Newman	318,433	May 19	2014	.....	31	910
Paper. Method of and apparatus for coloring	L. Piette	318,652	May 26	2307	617	31	972
Paper package-box	T. Schmidt. (Reissue)	10,607	June 2	629	169	31	1168
Paper pails. Machine for pressing the bodies of	H. W. Leonard and J. Stevens	316,985	May 5	71	19	31	536
Paper. Preserving and waterproofing	C. A. Maxfield. (Reissue)	10,618	June 30	3320	.....	31	1686
Paper-pulp engines. Bed-plate for	F. S. Taylor	320,721	June 23	2420	641	31	1513
Paper-pulp. Machine for forming hollow ware from	J. G. Bodge	319,182	June 2	300	80	31	1103
Paper-pulp pails, &c. Calendering-machine for	H. W. Leonard and J. Stevens	316,984	May 5	69	18	31	535
Paper-pulp screen	F. X. Black	316,930	May 5	11	3	31	525
Paper-pulp. Treating vegetable fiber for manufacture of	D. Minthorn	319,295	June 2	437	.....	31	1131
Paper. Sizing material to be used in the manufacture of	R. A. Fisher	321,096	June 30	2920	.....	31	1611
Paper, &c. Staining	M. B. Martin	321,234	June 30	3067	.....	31	1642
Paper-stock drainer	W. Gray	318,160	May 19	1673	449	31	848
Paper tubes. Machine for sizing	A. Dickerman	316,129	Apr. 21	1604	419	31	304
Paper. Waxing	J. Jowitt	318,911	May 26	2657	704	31	1035
Paper webs into rolls. Apparatus for winding	J. J. Manning	320,375	June 16	1967	517	31	1421
Paper wreath	C. Kaufmann	315,795	Apr. 14	1138	298	31	213
Paraffine from oils. Apparatus for extracting	C. H. Prentiss	316,058	Apr. 21	1403	390	31	284
Paraffine from oils. Apparatus for extracting	R. A. Williams and J. Bragg	317,060	May 5	167	43	31	533
Paring and slicing machine. Apple	W. T. Elliott	315,752	Apr. 14	1082	284	31	203
Paring machine. Apple	C. E. Hudson	319,905	June 9	1276	336	31	1289
Paring machine. Apple	L. H. Scott	319,332	June 2	486	131	31	1140
Paring machine. Fruit	W. A. C. Oaks	315,158	Apr. 7	237	58	31	43
Passenger-recorder	A. Torrey and D. J. Casey	315,355	Apr. 7	509	130	31	92
Paste-holder	P. Weiss	315,195	Apr. 7	304	73	31	54
Pattern-making machine	C. Tourigne	317,687	May 12	1016	264	31	715
Patterns. Machine for grading	J. J. Breach	318,539	May 26	2155	580 581	31	946
Pavement	H. C. Underwood	321,403	June 30	3305	862	31	1664
Pavement. Artificial-stone	J. Grant	319,576	June 9	822	218	31	1208
Pavement for streets and sidewalks and mold for constructing the same. Block	H. G. Fiske	316,450	Apr. 28	2042	535 536	31	387
Pavement. Manufacture of composite	J. P. Scott	318,043	May 19	1501	.....	31	815
Pavements. Construction of	S. W. Cragg	315,740	Apr. 14	1063	279	31	199
Paving-block	H. G. Fiske	317,108	May 5	232	58	31	566
Paving-block	W. C. and E. F. Murdock	316,166	Apr. 21	1649	431 432	31	312
Paving sidewalks	J. H. Duke, Jr	320,858	June 23	2598	685	31	1546
Peach-pitter	O. H. P. Brown	317,966	May 19	1401	376	31	797
Peanut and coffee roaster	G. W. Harris	317,348	May 5	572	146	31	628
Peanut cleaner and grader	J. Johnson	315,793	Apr. 14	1135	297 298	31	213
Peanut-roaster	T. Lee	320,804	June 23	2519	667	31	1532
Peanut-stripping machine	C. T. Walker	319,762	June 9	1065	283	31	1253
Pen	J. S. Bard	318,679	May 26	2344	626	31	979
Pen and pencil holder. Pocket	F. G. Davison	317,319	May 5	532	135	31	621
Pen. Fountain	C. W. Taylor	320,509	June 23	2146	566	31	1462
Pen fountain attachment	J. W. Drewett	318,706	May 26	2378	634	31	965
Pen-holder	E. C. Burrows	318,231	May 19	1745	466	31	861
Pen-holder	O. F. Seibold	320,299	June 16	1890	484	31	1394
Pen-holder cap	R. W. Parker	316,815	Apr. 28	2538	663	31	480
Pencil	O. Mussinan, Jr	317,838	May 12	1219	323	31	756

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Pencil and rule pocket	J. W. Hunt and J. Bressler	318,115	May 19	1593	425	31	833
Pencil. Artificial slate	S. Kraus	316,374	Apr. 21	1917	.....	31	360
Pencil-holder	J. C. Wilkes	320,828	June 23	2547	675	31	1538
Pencil or crayon holder	M. Rubin	316,402	Apr. 21	1956	516	31	367
Pencil-sharpener	H. White	318,404	May 19	1977	532	31	904
Pencil-sharpener	W. H. Lamson	317,550	May 12	840	216	31	683
Pencils. Colored lead for	S. Kraus	316,373	Apr. 21	1916	.....	31	359
Pencils. Sponge-holder for slate	W. H. Shaw	317,026	May 5	126	32	31	545
Pendulum. Compensating	A. Maillé	315,527	Apr. 14	766	203	31	143
Permutation-lock	H. Gross	318,992	June 2	70	18	31	1061
Petroleum-burner	E. B. De La Matyr	316,850	May 5	26	8	31	528
Petticoat	C. D. Cuper	319,906	June 16	1357	356	31	1311
Photo-relievos. Producing	L. H. Philippi	321,244	June 30	3098	.....	31	1644
Photographic apparatus	J. K. Beach	319,669	June 9	944	250	31	1231
Photographic apparatus	H. Correja	318,701	May 26	2371	633	31	984
Photographic camera	H. V. and H. V. Parsell, Jr	316,647	Apr. 28	2286	600 601	31	434
Photographic camera	T. Samuels	321,139	June 30	2969	786	31	1620
Photographic-camera attachment	L. T. Young	317,915	May 12	1321	354	31	774
Photographic cameras. Combined shutter and diaphragm for	D. C. Hoover	317,788	May 12	1148	304	31	741
Photographic-film holder	G. Eastman and W. H. Walker	316,952	May 5	30	9	31	528
Photographic films. Roller-holder for	W. A. and L. H. Bannister	316,933	May 5	4	2	31	523
Photographic films. Roller-holder for	W. H. Walker and G. Eastman	317,049	May 5	149	38, 39	31	549
Photographic films. Roller-holder for	W. H. Walker and G. Eastman	317,050	May 5	154	39	31	550
Photographic plate or sheet holder	E. B. Barker	315,219	Apr. 7	341	83	31	61
Photographic plates. Automatic clasp and lifter for	R. E. Van Gieson	319,359	June 2	518	141	31	1146
Photographic posing-support	O. C. White	316,101	Apr. 21	1560	406	31	296
Photographic-printing apparatus	W. Hill and T. R. Wilson	319,975	June 16	1382	362 363	31	1316
Photographic shutter	C. C. Packard	316,564	Apr. 28	2178	573	31	414
Photography. Apparatus for instantaneous	A. S. Barker	319,663	June 9	939	248	31	1230
Phylloxera. Apparatus for destroying	L. Laborde	317,802	May 12	1169	310	31	745
Piano-action	W. C. Ellis	316,023	Apr. 21	1449	378	31	276
Piano-action	W. Fischer	321,201	June 30	3050	808	31	1636
Piano-action	P. Menges	317,660	May 12	981	254	31	709
Piano-action	J. Casey	315,724	Apr. 14	1036	272	31	194
Piano-forte	L. Caldera	315,905	Apr. 14	1291	337	31	240
Piano-forte	G. Cook	316,445	Apr. 28	2037	534	31	387
Piano-hammer	M. Junger	317,651	May 12	972	251	31	707
Piano music-rack	T. F. Scanlan and O. A. Dinsmore	315,558	Apr. 14	920	216	31	152
Piano sounding-board	J. Brinsmead	319,189	June 2	309	82	31	1105
Piano sounding-board	J. R. Lomas	320,264	June 16	1758	467	31	1384
Piano. Upright	C. M. Hattersley	320,556	June 23	2208	584	31	1473
Pianos. Panel for upright	C. F. T. Steinway	315,447	Apr. 7	638	165	31	114
Pianos. Repetition-action for upright	C. P. Rasmussen	317,198	May 5	371	93	31	561
Pianos. Repetition-action for upright	A. Stegemann	317,874	May 12	1264	337	31	763
Pianos. Stringing	T. J. Brinsmead	319,188	June 2	308	82	31	1105
Pick	J. P. Davis and J. G. Robbins	316,728	Apr. 28	2135	562	31	406
Pick. Miner's	A. T. Moats	318,270	May 19	1801	482	31	872
Picture-frame	C. O. Baxter	319,668	June 9	943	250	31	1231
Picture-frames. Fastening for the backs of	T. C. Vail	317,248	May 5	434	108	31	602
Picture. Transparent	H. Bencke and P. Lorillard, Jr	315,703	Apr. 14	1001	263	31	188
Pictures, &c. Adjustable frame for	R. Cholnanus	317,510	May 12	796	204	31	675
Pie and cake rack	L. A. and D. S. Rowe	320,173	June 16	1642	437	31	1303
Pile-coupling	R. Gray	317,764	May 12	1114	294	31	735
Pill and lozenge machine	G. A. Smith	320,447	June 16	2060	540 541	31	1437
Pill-counter	D. B. Moore	316,638	Apr. 28	2271	597	31	431
Pill tile and cutter. Combined	A. Caldwell	320,216	June 16	1701	451	31	1373
Pillow and bolster with attachments. Ventilated	B. F. Nicholas	316,990	May 5	96	25	31	540
Pillow. Folding dress	H. S. Sternberger	319,340	June 2	495	134	31	1149
Pillow-sham holder	W. E. Dewey	318,966	June 2	49	13	31	1057
Pillow-sham holder	W. E. Hammond	320,244	June 16	1737	461	31	1380
Pillow-sham holder	S. T. and A. I. Holly	317,535	May 12	821	211	31	680
Pillow-sham holder	J. H. Ward	317,052	May 5	159	40	31	551
Pin: *See* Flask-pin. Scarf-pin. Hair-curling pin.							
Pin-sticking machine	J. W. Naramore	317,173	May 5	332	83	31	583
Pinch-bar	C. Klaus	317,548	May 12	839	215	31	683
Pincushion and button-hook holder	W. Goodfellow	317,980	May 19	1427	382	31	802
Pipe: *See* Blow-pipe. Tobacco-pipe. Sewer-pipe. Waste-pipe. Stove-pipe. Water-pipe.							
Pipe	J. Steel	320,981	June 30	2764	734	31	1583
Pipe and bolt threading apparatus	A. Saunders	317,022	May 5	121	30, 31	31	544
Pipe-bowl cover and stuffer. Combined	G. Havell and A. G. Williams	321,104	June 30	2931	777	31	1613
Pipe-coiling machine	J. M. Evarts and J. H. Greenleaf	318,097	May 19	1506	420	31	827
Pipe-connection	J. B. Root	315,073	Apr. 7	129	28	31	24
Pipe-coupling	J. H. Hobart	315,287	Apr. 7	423	106	31	77
Pipe-coupling	H. R. Borie	320,907	June 30	2662	708	31	1565
Pipe-coupling	R. B. Cogan	318,356	May 19	1914	516	31	892
Pipe-coupling	G. A. Dandt	320,535	June 23	2515	612	31	1492
Pipe-coupling	J. A. McCormick	318,009	May 19	1458	390	31	807
Pipe-coupling	W. P. Patton	318,799	May 26	2496	666	31	1005
Pipe-coupling	C. Phillis	320,683	June 23	2377	629	31	1505
Pipe-coupling	W. G. Robb	319,853	June 9	1198	317	31	1276
Pipe-coupling	J. B. Root	315,074	Apr. 7	121	28	31	24
Pipe-coupling	T. Siddall	317,030	May 5	130	33	31	546
Pipe-coupling	W. W. Speer	315,565	Apr. 14	998	218	31	154
Pipe-coupling	E. W. Wolfe	320,738	June 23	2438	646	31	1518
Pipe-crimping machine	W. A. Wheeler	321,165	June 30	3002	796	31	1627

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Drg.	Vol.	Page.
Pipe-elbow scriber	O. Bellman	318,843	May 26	2571	644	31	1018
Pipe-hanger	H. Trask	316,922	Apr. 28	2700	703	31	509
Pipe-joint	W. T. Jackson	317,794	May 12	1158	306	31	743
Pipe-joint	H. McKenna and G. D. Bulmer	319,289	June 2	431	116	31	1129
Pipe-joint protector	W. Hassall	318,616	May 26	2261	604	31	963
Pipe-lines. Stop-valve box for	B. Ford	320,771	June 23	2479	656	31	1525
Pipe mouth-piece	G. Westinghouse, Jr	319,765	June 9	1069	284	31	1254
Pipe-thread-cutting stock	W. Seabrook	318,210	May 19	1712	458	31	855
Pipe-wrench	A. Trout and C. H. Ortlip	318,222	May 19	1729	462	31	859
Pipe-wrench	F. Crocker	318,089	May 19	1559	418	31	826
Pipes. Filling attachment for the bubs of	J. F. Guthrie, Jr	320,572	June 23	2605	690	31	1549
Pistol recoil attachment	C. Copman	315,483	Apr. 14	704	186	31	131
Piston	H. G. Piffard	319,020	June 2	108	29	31	1068
Pitch-board. Adjustable	P. Brotherhood	320,839	June 23	2559	677	31	1540
Pitcher. Fountain	J. M. Prior	320,090	June 16	1534	406	31	1344
Pitman-rod	W. Painter	316,646	Apr. 28	2223	600	31	433
Plaited goods. Machine for making	A. A. and A. J. Brooks	317,919	May 12	1325	355	31	775
Plaiting apparatus	W. F. Beardslee	316,438	Apr. 28	2022	{531 532	31	384
	J. H. Gollehon, G. G. Britton, and J. F. Lucas.	316,355	Apr. 21	1887	499	31	354
Plaiting apparatus	O. T. Raney	320,689	June 23	2384	630	31	1506
Plaiting-board	J. Curtin	316,012	Apr. 21	1437	375	31	273
Plaiting-machine	H. G. Otis	320,278	June 16	1790	476	31	1388
Plane	G. A. Clifford	317,092	May 5	214	54	31	562
Plane	L. C. Rodier	316,296	Apr. 21	1813	477	31	341
Plane	J. A. Trant	316,079	Apr. 21	1524	398	31	289
Plane. Adjustable-faced	E. Walker	318,731	May 19	1880	505	31	886
Plane. Bench	J. Duncan	315,014	Apr. 7	38	8	31	9
Plane. Bench	J. A. Trant	319,039	June 2	128	35	31	1071
Planers. Pressure and feed mechanism for wood	J. Kane	315,510	Apr. 14	736	195	31	138
Planing and matching machine	J. B. Mahaffey	321,377	June 30	3265	872	31	1677
Planing-machine attachment	H. Leverentz	316,176	Apr. 21	1639	429	31	311
Planing-machine tool-holder	R. R. Neild	318,640	May 26	2301	615	31	971
Planing machine. Wood	H. Feyh and J. L. Murphy	320,769	June 23	2477	656	31	1525
Planing machine. Wood	W. H. Gray and A. Hutchinson	315,406	Apr. 7	580	{149 150	31	104
Planing-machines. Cross-bar shoe for	A. B. Bean	316,109	Apr. 21	1572	409	31	298
Planing-machines. Roller and bonnet attachment for	D. Lane	317,379	May 5	609	156	31	634
Plant-washes. Mixing and agitating apparatus for	R. J. Delaney	321,069	June 30	2910	774	31	1610
Planter	J. H. and J. A. Kimbro	315,635	Apr. 14	918	241	31	171
Planter and cultivator. Seed	J. H. Bunn	317,968	May 19	1403	377	31	798
Planter and fertilizer-distributer. Combined seed	R. A. Lambert	318,753	May 26	2441	654	31	997
Planter. Check-row	N. E. Crothers	318,874	May 26	2612	{693 694	31	1026
Planter. Check-row	W. C. Woods	317,067	May 5	177	45	31	555
Planter check-row attachment. Corn	L. Scofield	318,042	May 19	1499	{402 403	31	815
Planter check-row attachment. Corn	J. K. Voorhees	315,981	Apr. 14	1395	362	31	259
Planter. Check-row. Corn	H. A. Allen	316,514	Apr. 28	2120	558	31	403
Planter. Check-row corn	D. M. Culver	317,441	May 5	701	176	31	649
Planter. Check-row corn	I. Cruzan and B. F. Cargay	320,852	June 23	2580	683	31	1544
Planter. Check-row corn	H. F. Graetzel	319,405	June 2	574	156	31	1157
Planter. Check-row corn	H. F. Pearson and G. W. Jarmin	318,650	May 26	2304	616	31	971
Planter check-rower apparatus. Corn	F. A. Rose	316,833	Apr. 28	2565	671	31	485
Planter check-rower. Corn	C. E. Sweney	318,931	May 26	2681	711	31	1039
Planter check-rower. Corn	A. and M. Barnes	315,220	Apr. 7	343	83, 84	31	61
Planter check-rower. Corn	L. D. Benner	321,077	June 30	2892	769	31	1607
Planter check-rower. Corn	J. E. Bering	315,226	Apr. 7	352	86	31	63
	J. H. Montgomery	320,673	June 23	2363	624	31	1502
Planter check-rower. Corn	W. B. Rush	315,446	Apr. 7	636	{164 165	31	114
Planter check-rowing attachment. Corn	W. S. Reeve	316,662	Apr. 28	2302	605	31	437
Planter. Corn	W. M. Ammerman	317,275	May 5	468	118	31	609
Planter. Corn	J. C. Barlow	317,075	May 5	190	48	31	557
	M. P. Brown	320,044	June 16	1469	{387 388	31	1332
Planter. Corn	E. M. Calef and T. L. Tracy	321,186	June 30	3027	802	31	1632
Planter. Corn	F. Clemens	315,245	Apr. 7	372	92	31	68
Planter. Corn	T. Craven	317,311	May 5	518	132	31	618
Planter. Corn	J. Gannett	319,223	June 2	347	93	31	1113
	A. S. and E. Houck	320,063	June 16	1496	{395 396	31	1337
Planter. Corn	H. S. Howard	319,254	June 2	398	103	31	1121
Planter. Corn	G. L. Hudson	321,302	June 30	3247	867	31	1674
Planter. Corn	L. J. Odell	319,994	June 16	1467	370	31	1320
Planter. Corn	M. and A. Runstetler	320,943	June 30	2707	718	31	1573
	L. Scofield	318,512	May 26	2116	571	31	939
Planter. Corn	L. Scofield	319,331	June 2	483	{130 131	31	1140
Planter. Corn	A. Thurstin and F. Jacoby	315,857	Apr. 14	1219	318	31	228
Planter. Corn	A. J. Wood	316,424	Apr. 21	1994	524	31	373
Planter. Cotton	J. H. Stanton	321,321	June 30	3191	851	31	1663
Planter. Cotton and corn	L. Easley	316,018	Apr. 21	1444	377	31	275
Planter. Cotton-seed	J. N. Gardner	316,255	Apr. 21	1759	{462 463	31	332
Planter. Cotton-seed	W. M. Wilder	315,099	Apr. 7	153	37	31	29
Planter, coverer, and marker. Combined	T. Gifford	318,977	June 2	65	17	31	1060
Planter fertilizing attachment. Corn	G. S. Paine	316,645	Apr. 28	2282	600	31	433
Planter fertilizing attachment. Seed	A. C. Evans	319,893	June 9	1254	331	31	1265
Planter. Hand corn	C. B. Arnold	315,881	Apr. 14	1255	327	31	234
Planter. Potato	A. J. Agee and A. Fraser	316,217	Apr. 21	1711	449	31	324
Planter. Potato	L. P. Hildebrand	321,296	June 30	3163	843	31	1657
Planter. Potato	J. D. Madden	316,279	Apr. 21	1793	471	31	338

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Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
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Planter. Potato	F. F. Wolgamuth	318,224	May 19	1732	463	31	859
Planter. Rice	T. C. and J. Nelson	317,565	May 12	856	220	31	687
Planter. Seed	W. M. Dight	318,705	May 26	2376	634	31	985
Planter. Seed	R. L. Herrick	315,782	Apr. 14	1120	294	31	210
Planter. Seed	C. S. Locke	317,810	May 12	1177	313	31	747
Planter. Seed	A. E. Scott	318,311	May 19	1854	477	31	881
Planting machine. Corn	J. Case	316,743	Apr. 28	2443	{636 637	31	462
Plants. Device for watering	D. F. Allis	318,075	May 19	1542	413	31	822
Plants. Injecting device for	A. B. Escourrou	318,609	May 26	2253	602	31	961
Plaque or panel	E. De Planque	319,680	June 9	957	254	31	1234
Plaster	T. A. Abbott	315,691	Apr. 14	986	.....	31	185
Plaster casts. Treating	A. B. Joy and J. J. Lewen	317,369	May 5	595	.....	31	632
Plaster compound	G. L. Gregory	315,936	Apr. 14	1332	.....	31	247
Plasters. Composition for	W. N. Baker	316,932	May 5	3	.....	31	523
Plastering, calcimining, and painting machine	T. H. Brown	315,902	Apr. 14	1288	336	31	240
Platform-spring	W. Crago	317,095	May 5	217	55	31	563
Pliers. Cutting	N. Gill	316,452	Apr. 28	2044	536	31	388
Pliers. Nut	H. F. Osborne	321,133	June 30	2961	784	31	1619
Pliers. Punching and cutting	H. F. Osborne	317,181	May 5	340	86	31	585
Pliers. Watch-maker's	H. A. R. Horton	317,648	May 12	968	249	31	707
Plow	R. H. Adair	320,611	June 23	2281	603	31	1467
Plow	J. Austin	317,961	May 19	1391	{373 374	31	795
Plow	D. M. Barringer	318,160	May 19	1630	441	31	843
Plow	G. B. Casaday	321,187	June 30	3029	803	31	1632
Plow	G. B. Casaday	321,188	June 30	3031	803	31	1632
Plow	G. B. Casaday	321,189	June 30	3033	804	31	1632
Plow	F. Emerson, J. J. and J. L. Faires, and J. R. Cummins.	318,096	May 19	1566	420	31	827
Plow	A. M. Fitch	317,754	May 12	1104	290	31	733
Plow	W. M. Gorry	3 8,980	June 2	68	17	31	1060
Plow	W. H. Hodgson	320,656	June 23	2343	619	31	1498
Plow	G. A. Kelly	321,224	June 30	3074	{815 816	31	1640
Plow	W. A. Lee	316,275	Apr. 21	1790	470	31	337
Plow	J. D. Lefèvre	320,481	June 23	2109	556	31	1454
Plow	J. E. Marshall	319,499	June 9	721	193	31	1190
Plow	C. E. Murray	320,441	June 16	2051	{538 539	31	1435
Plow	N. A. Powell	315,441	Apr. 7	633	163	31	113
Plow	C. Siegörtner	319,031	June 2	120	33	31	1070
Plow	D. D. Skiles	315,351	Apr. 7	502	129	31	92
Plow	A. Snow	321,319	June 30	3189	850	31	1663
Plow	R. W. Whitehurst	319,672	June 9	1229	324	31	1260
Plow	S. B. Williams	317,260	May 5	451	113	31	606
Plow and harrow. Combined	W. H. Repass and J. P. Currin	319,021	June 9	889	235	31	1220
Plow and pulverizer. Rotary	C. and S. T. Johnston	315,947	Apr. 14	1351	350	31	250
Plow attachment	L. Even	318,241	May 19	1755	469	31	863
Plow attachment	J. R. Gregory	317,340	May 5	563	144	31	626
Plow-gage	J. B. Law	315,799	Apr. 14	1141	299	31	214
Plow. Gang	F. F. Landis	316,045	Apr. 21	1475	{385 386	31	280
Plow mold-boards. Tool for molding	W. M. Gorry	318,979	June 2	67	17	31	1060
Plow. Rotary	H. H. Cumback	320,853	June 23	2582	694	31	1545
Plow. Shovel	B. J. Leslie	320,074	June 16	1515	401	31	1340
Plow. Steam gang	E. Penney	316,388	Apr. 21	1934	510	31	363
Plow. Steam gang	E. Penney	316,389	Apr. 21	1935	512	31	363
Plow. Steam gang	E. Penney	316,390	Apr. 21	1936	511	31	363
Plow. Steam gang	E. Penney	316,391	Apr. 21	1938	511	31	363
Plow. Steam gang	E. Penney	316,392	Apr. 21	1940	511	31	363
Plow. Steam gang	E. Penney	316,393	Apr. 21	1941	512	31	364
Plow. Steam gang	W. H. Snyder	316,845	Apr. 28	2587	676	31	488
Plow. Steam gang	W. H. Snyder and A. O. Frick	316,846	Apr. 28	2588	677	31	489
Plow. Sulky	P. Clines	316,230	Apr. 21	1740	457	31	329
Plow. Sulky	W. G. Danielsen	318,358	May 19	1916	517	31	892
Plow. Sulky	S. Gesley	316,059	May 5	39	11	31	530
Plow. Sulky	J. E. Mohney	315,613	Apr. 14	1160	304	31	217
Plow. Sulky	J. S. and E. C. Robinson	316,572	Apr. 28	2190	{576 577	31	416
Plow. Sulky	S. Rockafellow	315,169	Apr. 7	252	61, 62	31	46
Plow. Sulky	N. Shaffstall	316,830	Apr. 28	2560	674	31	467
Plow. Sulky	J. and E. E. Sickler	315,563	Apr. 14	825	{217 218	31	153
Plow. Sulky	J. E. Turk	321,304	June 30	3195	852	31	1664
Plow sulky-frame	S. Mercer	315,316	Apr. 7	459	116	31	83
Plow. Vineyard gang	R. B. Johnson	318,563	May 26	2203	589	31	952
Plow. Wheel	G. W. Akins	315,211	Apr. 7	334	81	31	60
Plow. Wheel	J. W. Bartlett	319,440	June 9	635	172	31	1176
Plow. Wheel	J. W. Bartlett	319,441	June 9	636	{172 173	31	1176
Plow. Wheel	L. M. Brock	319,059	June 2	154	42	31	1076
Plow. Wheel	J. W. Meikle	316,802	Apr. 28	2520	658	31	476
Plow. Wheel	W. Newlin	316,053	Apr. 21	1487	388	31	282
Plow. Wheel	W. Newlin	318,263	May 19	1804	483	31	873
Plow. Wheel	E. D. and O. B. Reynolds	321,052	June 30	2852	759	31	1660
Plowshares. Device for welding	T. Poling	315,162	Apr. 7	244	59	31	45
Plumber's heater	J. B. Wallace	319,868	June 9	1220	322	31	1279
Pocket	L. F. Roberts	320,171	June 16	1641	437	31	1362
Pocket-book	I. S. Emery	316,346	Apr. 21	1875	496	31	352
Pocket-book coin attachment	G. W. Scales	316,664	Apr. 28	2306	605	31	437
Pocket for pantaloons. Combination	J. Feiss	319,570	June 9	812	216	31	1207
Pocket-knife	W. F. Rockwell	317,208	May 5	384	96	31	593
Pocket-knife and scissors. Combined	F. A. Clauberg and E. Butzmühlen	318,699	May 26	2369	632	31	981

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Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
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Pocket-protector	J. F. McCrystal and J. P. Siegfried	320,882	June 23	2618	693	31	1551
Points and signals. Mechanism for actuating and interlocking	H. A. Johnson	317,137	May 5	277	70	31	574
Poison-distributer	J. P. Duncan and E. D. Pillow	321,011	June 30	2801	745	31	1591
Poke. Animal-	S. M. Moore	320,492	June 23	2122	559	31	1457
Pole and shaft coupling	G. E. Thomas	319,348	June 2	503	137	31	1144
Pole-iron	N. E. Springsteen	317,681	May 12	1010	262	31	714
Pole. Wagon-	N. E. Springsteen	316,671	Apr. 28	2318	608	31	439
Polishing-wheel	W. A. Knipe	317,800	May 12	1166	309	31	744
Pomace for keeping the extract clear. Treating	A. Blaker	319,549	June 9	786	.....	31	1202
Portable camera	S. C. Nash	315,156	Apr. 7	234	57	31	42
Portable furnace	J. W. Babbit	321,332	June 30	3304	854	31	1665
Portable furnace	W. H. H. Knight	320,799	June 23	2509	665	31	1531
Portable furnace	W. H. H. Knight	320,800	June 23	2512	665, 666	31	1531
Post: *See* Fence-post. Iron post.							
Post-and-stake bar	W. Cronk	318,601	May 26	2243	601	31	960
Post-hole digger	J. E. Davis	318,359	May 19	1917	517	31	893
Pot: *See* Coffee and tea pot. Flower-pot.							
Potato-digger	A. Corbin, Jr	319,793	June 9	1113	295	31	1261
Potato-digger	N. K. De Lafiame	316,949	May 5	23	7	31	527
Potato-digger	A. T. Dowden	316,015	Apr. 21	1439	375, 376	31	274
Potato-digger	W. Eddy	318,236	May 19	1749	467	31	862
Potato-digger	W. T. Garrett	319,478	June 9	690	186	31	1185
Potato-digger	I. W. Hoover	318,254	May 19	1768	473	31	866
Potato-digger	C. F. Hornbeck	318,113	May 19	1591	425	31	832
Potato-digger	G. W. and H. E. Kintz	317,546	May 12	836	215	31	683
Potato-digger	W. F. Letsch	320,369	June 16	1944	512	31	1415
Potato-digger	B. D. Prentice	316,647	Apr. 28	2297	603	31	436
Potato-digger	G. Wragg	318,073	May 19	1540	412	31	822
Potato digger and gatherer	J. S. Hoyt	317,792	May 12	1155	306	31	743
Potato-digging machine	J. Holt	319,581	June 9	830	220, 221	31	1210
Pottery and glassware and finishing or turning the same. Machine for forming	C. C. Thompson	319,760	June 9	1062	282	31	1253
Pottery. Molding	G. Ligowsky	318,917	May 26	2664	.....	31	1036
Pottery-ware. Decoration of	C. Graham	315,021	Apr. 7	46	10	31	10
Pottery-ware. Press for forming articles of	J. Crossley and H. T. Cook	320,541	June 23	2189	578	31	1469
Powder-keg discharge-tube	A. H. Witman	315,874	Apr. 14	1241	323	31	232
Powder-puff	A. Bender	319,056	June 2	151	41	31	1075
Power: *See* Baling-press power. Lever-power. Hand and foot power. Mechanical power. Horse-power.							
Power. Device for transmitting	A. L. Colburn	315,735	Apr. 14	1056	276	31	198
Power. Device for transmitting	W. H. Dodge	320,544	June 23	2193	579	31	1470
Power-jack	J. W. Massey	315,309	Apr. 7	452	114	31	82
Power-press	E. Barrath	316,935	May 5	8	3	31	524
Power-press	R. H. Clark	319,195	June 2	315	84	31	1106
Power-press	A. H. Merriman	316,989	May 5	77	21	31	537
Power-transmitting apparatus	L. G. Carcaga y Saenz	321,083	June 30	2900	771	31	1608
Precious metals. Apparatus for reducing the ores of	J. A. Bailey	315,886	Apr. 14	1261	329	31	235
Preserving food	A. G. T. Ripberger	317,673	May 12	999	.....	31	713
Press: *See* Baling-press. Hay-press. Barrel-press. Hydraulic press. Brick-press. Oil-press. Cider-press. Power-press. Cider and wine press. Screw-press. Corset-press. Seal-press. Cotton-press. Sheet-metal-flanging Cotton and hay press. press.							
Press	R. E. Boschert	319,185	June 2	304	81	31	1104
Press for sacking bran, sawdust, &c	A. L. Battson. (Reissue)	10,595	May 12	1380	370	31	785
Presser-roll	G. F. Wetherell and R. B. Jones	318,064	May 19	1527	410	31	820
Pressure-governor and regulating-valve	L. Shook	320,302	June 16	1824	485	31	1394
Pressure indicator. High-	A. T. Willard	318,152	May 19	1640	438	31	841
Pressure-regulator	J. Demarest	317,746	May 12	1094	287	31	730
Pressure-regulator	W. T. Fox	319,896	June 9	1264	333	31	1287
Pressure regulator. Fluid-	L. J. Griffin	317,991	May 19	1430	383	31	803
Primary and secondary battery	G. Fournier	316,533	Apr. 28	2142	563	31	407
Primer. Electric	S. Russell	319,627	June 9	896	237	31	1222
Printer's drying-rack	H. F. Gray	315,092	Apr. 7	47	10, 11	31	10
Printers' leads. Machine for making	N. R. Lyman	315,645	Apr. 7	81	20	31	16
Printers' rollers. Machine for stripping	H. Baker	319,544	June 9	779	207	31	1201
Printing apparatus	J. W. Horner	316,968	Apr. 21	1776	467	31	335
Printing-bars. Machine for producing	O. Mergenthaler	317,828	May 12	1205	319, 320	31	752
Printing-machine	C. Machrie	318,383	May 19	1948	526	31	899
Printing-machine	W. H. Price, Jr	318,798	May 26	2509	669, 670	31	1007
Printing-machine	E. Prouty	317,470	May 5	736	186	31	656
Printing-machine	W. Scott	317,679	May 12	1006	261	31	714
Printing-machine beds. Mechanism for operating	J. T. Hawkins	319,248	June 2	379	101, 102	31	1119
Printing-machine delivery apparatus	W. Scott	317,218	May 5	395	99	31	595
Printing-machine delivery mechanism	W. Scott	318,808	May 26	2523	673, 674	31	1009
Printing-machine inking mechanism	J. W. Osborne	317,844	May 12	1223	324	31	755
Printing machine. Lithographic	C. Potter, Jr	317,194	May 5	365	91	31	590

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
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Printing-machine sheet-delivery apparatus	C. B. Cottrell	319,460	June 9	664	178, 179	31	1181
Printing-machine sheet-delivery mechanism	W. Scott	318,143	May 19	1629	435	31	839
Printing-machine. Web-perfecting	L. C. Crowell	317,740	May 12	1077	282, 283, 284	31	728
Printing machine. Wood-	J. R. Cross	317,518	May 12	803	206	31	677
Printing machines. Delivery mechanism for web-	L. C. Crowell	317,741	May 12	1083	284, 285	31	729
Printing marks on the margins of sheets. Mechanism for	L. C. Crowell	316,121	Apr. 21	1590	414, 415	31	301
Printing-press delivery apparatus	C. B. Cottrell	319,458	June 9	659	177, 178	31	1180
Printing-press delivery apparatus	W. Scott	316,665	Apr. 28	2307	606	31	438
Printing-press feeding attachment. Cylinder-	S. C. Cox	317,929	May 12	1338	359	31	777
Printing-press ink-fountain	J. T. Hawkins	318,617	May 26	2262	604	31	963
Printing-press sheet-delivery mechanism	J. T. Hawkins	319,240	June 2	380	102	31	1119
Printing-press sheet-delivery apparatus	W. Scott	316,180	Apr. 21	1674	439	31	318
Printing-press sheet-filer	G. P. Fenner	317,320	May 5	549	140	31	623
Printing-presses. Chain and chain-guide for sheet-delivery apparatus for	C. B. Cottrell	319,459	June 9	663	178	31	1180
Printing-presses. Mechanism for evening sheets of paper on fly-boards of	M. W. Brush and M. A. Salomona	316,329	Apr. 21	1853	400	31	348
Printing-surface	F. Beck	320,206	June 16	1668	449	31	1371
Printing-surfaces. Preparation of lithographic	J. Eberle	316,251	Apr. 21	1753	.....	31	331
Programme-signal. Electric	R. B. Carr	319,782	June 9	1092	290, 291	31	1258
Propeller	J. Wooll	316,592	Apr. 28	2217	583	31	421
Propeller and machinery therefor. Steamship-	R. Wilcox	315,199	Apr. 7	307	74	31	55
Propeller. Canal-boat	P. O Connor	315,159	Apr. 7	249	58, 59	31	44
Propeller. Screw-	H. Schnize-Berge	317,582	May 12	880	226	31	691
Propeller. Ship's	A. F. Barth	317,488	May 12	765	195	31	670
Propellers. Mounting screw-	R. Forsholm	315,130	Apr. 7	195	48	31	36
Propelling marine vessels	W. O. Robbins	321,138	June 30	2963	786	31	1620
Propulsion of ships, &c	D. S. Troy	317,890	May 12	1282	341	31	767
Protector: *See* Bed-protector. Pantaloons-protector. Body-protector. Pipe-joint protector. Double-tree protector. Pocket-protector. Skirt-protector. Heel-protector. Toe-protector. Lightning-protector. Tree-protector. Necktie-protector. Vest-protector.							
Pruning implement	J. G. Bubach	317,716	May 12	1051	274	31	723
Pruning knife and saw combined	M. L. Smith	319,033	June 2	121	33	31	1070
Puddling-furnace	J. Webb	315,096	Apr. 7	150	35	31	28
Puller: *See* Stump-puller.							
Pulley	F. S. and E. B. Belanger	321,179	June 30	3019	799	31	1630
Pulley	R. W. Betts	318,686	May 26	2352	628	31	980
Pulley	A. C. Pessano	315,335	Apr. 7	480	121	31	88
Pulley	A. C. Pessano	315,336	Apr. 7	482	122	31	88
Pulley	F. Siebert	319,140	June 2	255	66	31	1094
Pulley and belt-shipper for machinery	W. H. Gray	320,434	June 16	2044	536	31	1434
Pulley and wheel lubricator. Loose	J. Cornelius	319,073	June 2	175	47	31	1060
Pulley. Band-	W. H. O'Connor	319,903	June 16	1407	370	31	1320
Pulley. Belt-driving	J. Stanley	318,519	May 26	2134	575	31	942
Pulley-block	T. Barber	320,206	June 16	1685	448	31	1371
Pulley-block	M. R. Skinner	318,314	May 19	1857	499	31	881
Pulley-block. Differential	J. Christie	317,726	May 12	1062	277	31	725
Pulley-block. Differential	J. Christie	317,728	May 12	1064	278	31	725
Pulley. Composition driving-	T. F. Lemasena	318,759	May 26	2452	657	31	998
Pulley. Friction-clutch	G. F. Hutchins	320,360	June 16	1933	509	31	1413
Pulley or wheel	F. A., H. L., and W. E. Jacobs	320,475	June 23	2103	554	31	1453
Pulley. Sash-	J. D. Fyke	318,890	May 26	2630	698	31	1030
Pulley. Sash-	J. B. Schroder	315,347	Apr. 7	495	125	31	91
Pulley. Self-lubricating loose	G. H. Smith	318,390	May 19	1970	530	31	903
Pulley. Suspension-	J. A. Evarts	319,214	June 2	337	90	31	1110
Pulleys. Guard for shielding set-screws in	S. H. Woodbury	315,204	Apr. 7	319	77	31	57
Pulp barrel-bodies. Machine for drying and pressing	S. M. Hotchkiss	319,976	June 16	1384	303, 304	31	1316
Pulp barrel-bodies. Machine for drying and pressing	S. M. Hotchkiss and B. A. Mason	318,739	May 26	2421	646, 647, 648	31	993
Pulp barrel-bodies. Manufacture of	S. M. Hotchkiss	318,737	May 26	2415	644, 645	31	993
Pulp barrel-bodies. Manufacture of	S. M. Hotchkiss	318,742	May 26	2426	650, 650, 651	31	994
Pulp barrel-bodies. Manufacture of	S. M. Hotchkiss and B. A. Mason	318,738	May 26	2418	645, 646	31	993
Pulp barrel-heads. Making	S. M. Hotchkiss and B. A. Mason	318,740	May 26	2424	648	31	994
Pulp from paper. Process of and machinery for preparing	H. Allen and L. S. Mason	320,612	June 23	2281	603, 604	31	1467
Pulp into vessels of various kinds. Machine for forming	G. M. Stevens	320,720	June 23	2419	641	31	1513
Pulp, &c. Press for drying barrel-heads of	S. M. Hotchkiss and B. A. Mason	318,741	May 26	2425	648, 649	31	994
Pulp-straining machine. Self-cleaning	R. Kron	315,420	Apr. 7	603	155, 156	31	108
Pulverizer	A. Skinner	317,227	May 5	408	102	31	598
Pulverizer and leveler. Soil	A. C. Funk	316,889	Apr. 28	2644	669	31	479
Pulverizer. Clay-	G. C. Pratt	315,064	Apr. 7	110	26	31	21
Pulverizer. Sod-ground	A. L. Gordon	316,141	Apr. 21	1617	423	31	306

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Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
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Pulverizing apparatus	W. A. Koneman and H. H. Scoville	315,146	Apr. 7	217	53, 54	31	40
Pulverizing-machine	R. D. Gates	320,126	June 16	1587	419, 420	31	1352
Pulverizing-machine	R. D. Gates and C. Kaestner	319,479	June 9	692	186, 187	31	1185
Pump	A. Annibale	316,434	Apr. 28	2017	529	31	383
Pump	C. H. Bennett	319,547	June 9	783	208	31	1201
Pump	R. M. Brooks	316,004	Apr. 21	1425	370	31	271
Pump	J. D. Davies	315,485	Apr. 14	706	186, 187	31	132
Pump	W. H. Dillon	315,257	Apr. 7	385	95	31	70
Pump	G. Leuhardt	316,631	Apr. 28	2263	596	31	429
Pump	W. C. McClay	316,049	Apr. 21	1492	387	31	282
Pump	P. A. Myers	319,924	June 9	1298	343	31	1293
Pump	A. Palmer	318,018	May 19	1467	393	31	809
Pump	J. W. Powers	315,442	Apr. 7	633	163	31	113
Pump	A. Reis	317,015	May 5	114	29	31	543
Pump	W. E. Williams	318,066	May 19	1530	410	31	820
Pump	J. Wock	320,737	June 23	2437	646	31	1517
Pump. Air-	G. F. Dailey	321,008	June 30	2796	744	31	1580
Pump. Ale and beer	E. Schlimbach	317,214	May 5	392	98	31	595
Pump attachment. Dredge-	C. H. Booth	317,080	May 5	200	50	31	559
Pump barrel. Chain-	C. H. Miller	320,672	June 23	2362	624	31	1502
Pump. Breast-	W. A. Turner	316,584	Apr. 28	2205	580	31	419
Pump bucket. Chain-	R. M. Brooks	316,005	Apr. 21	1426	371	31	271
Pump bucket. Chain-	W. P. Harrison	318,615	May 26	2260	603	31	963
Pump bucket. Chain-	M. D. Temple	316,199	Apr. 21	1666	442	31	319
Pump. Double-acting force-	G. E. Sprinkle	317,422	May 5	669	170	31	644
Pump. Double-acting submerged force-	M. B. Brooks	317,714	May 12	1050	273	31	722
Pump-driver	J. W. Runyan	315,445	Apr. 7	635	164	31	113
Pump. Duplex-crank piston-	J. Dow	318,968	June 2	51	13, 14	31	1057
Pump. Force-	T. Barber	321,335	June 30	3207	855	31	1666
Pump. Gas-compressing	D. Boyle	319,446	June 9	645	174	31	1177
Pump-handle	A. D. Cook	318,235	May 19	1749	467	31	892
Pump. India-rubber	P. J. Ruffel	320,888	June 23	2630	696	31	1553
Pump. Measuring-	J. H. Thorn	321,061	June 30	2875	764	31	1603
Pump. Oil-well	J. M. Sanner	320,176	June 16	1646	438	31	1363
Pump. Rotary	R. F. Hassinger	319,093	June 2	198	52, 53	31	1048
Pump. Rotary force-	J. Serdinko	315,667	Apr. 14	957	251	31	179
Pump tubing. Well-	J. Marsden	317,537	May 12	848	218	31	685
Pump-vent	K. A. Smith and J. E. Woodard	320,010	June 16	1428	375	31	1324
Pumps. Attachment for pneumatic beer-	F. Mohn	316,163	Apr. 21	1645	430, 431	31	312
Pumps. Valve-gear for direct-acting steam-	J. C. Dean	320,764	June 23	2471	654	31	1594
Pumps. Valve mechanism for duplex steam-	J. R. Maxwell	318,641	May 26	2290	611	31	968
Pumping engine. Steam-	E. Reynolds	318,504	May 26	2104	567, 568	31	937
Punch. Metal-	G. McDonald	316,160	Apr. 21	1643	430	31	311
Punch. Ticket-	W. Hill	320,795	June 23	2496	661	31	1598
Punching and flanging machine. Combined	S. T. Thompson and W. B. Richards	318,921	May 19	1729	462	31	859
Punching and shearing machine	N. Kaempf	319,978	June 16	1387	365	31	1317
Punching and shearing metal. Machine for	W. H. Tydeman	316,420	Apr. 21	1989	523	31	372
Punching device	J. M. Long	316,470	Apr. 28	2065	541	31	392
Push-button	T. C. Frenyear	317,450	May 5	714	179	31	652
Quartz-mill	C. J. Hodge	317,359	May 5	582	150	31	630
Quartz-mill	J. G. Titus	320,415	June 16	2019	530	31	1430
Quilting-machine	J. B. Hagenbüchle	317,995	May 19	1434	384, 385	31	804
Quilting-machine	J. B. Hagenbüchle	317,996	May 19	1436	385	31	804
Rack: *See* Bag-rack. Printer's drying-rack. Book-rack. Sheep-rack. Broom-rack. Stock-rack. Clothes-rack. Towel-rack. Display-rack. Wagon-rack. Feed-rack. Wagon grain-rack. File-rack. Wall-paper rack. Piano music-rack. Whip-rack. Pie and cake rack.							
Rack for exhibiting small wares	J. W. Shideler	317,866	May 12	1257	334	31	761
Rack or fire-hose holder	R. Vose	320,727	June 23	2427	643	31	1515
Radiator	J. Gormly	319,230	June 2	357	95, 96	31	1115
Radiator	J. Gormly	319,231	June 2	358	96	31	1115
Radiator and heater. Steam	T. M. Morton	315,818	Apr. 14	1168	305	31	219
Radiator. Steam-	J. B. Arci and J. Chapman	320,203	June 16	1679	447	31	1369
Radiator. Steam-	J. H. Lounsbury	321,232	June 30	3086	819	31	1642
Radiator. Steam-	T. L. McKeen	316,284	Apr. 21	1800	473	31	339
Radiator. Steam-	H. Mooers	319,601	June 9	865	229	31	1216
Radiator. Steam-	J. B. Pierce	316,056	Apr. 21	1491	390	31	283
Radiator. Steam-	J. B. Pierce and J. Bond	316,055	Apr. 21	1490	389	31	283
Radiator. Steam-heating	W. W. Carman	316,522	Apr. 28	2129	560	31	405
Radiator-valve	W. B. Patton	320,813	June 23	2529	670	31	1535
Radiators. Air-valve for steam-	J. P. Marsh	317,818	May 12	1194	317	31	750
Radiators. Automatic air-valve for steam-	P. Gormly	315,933	Apr. 14	1329	346	31	247
Rail. Built-up girder-	A. J. Moxham	317,665	May 12	988	256	31	711
Rail-chair	S. M. Beery	318,625	May 26	2351	628	31	960
Rail-chair	G. W. Jaques	320,791	June 23	2502	663	31	1529
Rail-coupling	J. B. Witty	317,065	May 5	175	44	31	555
Rail-fastening	W. F. Nevegold	319,742	June 9	1041	275	31	1249
Rail-joint	A. W. Agin	317,272	May 5	465	117	31	608
Rail-joint	J. Kellow	318,189	May 19	1684	451	31	850
Rails. Machine for straightening	D. Walters	318,081	May 19	1524	408, 409	31	819
Rails, switches, &c. Blocking and guarding	C. F. Newton and W. S. Wing	321,132	June 30	2960	784	31	1618

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Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
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Rails to homogeneous bars. Roll for reducing old	H. W. Fowler	315,269	Apr. 7	399	100	31	73
Railway and tramway chair, &c	J. Poyser	321,247	June 30	3101	824, 825	31	1645
Railway and tramway. Portable	J. Kerr	316,629	Apr. 28	2262	595	31	429
Railway. Cable	W. M. Brisben	317,713	May 12	1048	273	31	722
Railway. Cable	G. B. Bryant	317,085	May 5	205	51, 52	31	560
Railway. Cable	G. B. Bryant and E. D. Dongherty	318,950	June 2	17	5	31	1052
Railway. Cable	W. Heckert	318,620	May 26	2265	605	31	964
Railway. Cable	W. M. Levering	315,800	Apr. 14	1142	300	31	214
Railway. Cable	W. M. Levering	319,495	June 9	713	192	31	1189
Railway. Cable	W. M. Levering	319,496	June 9	716	193	31	1189
Railway. Cable	J. H. Pendleton	317,008	May 5	106	27	31	541
Railway. Cable	H. Root	315,992	Apr. 14	1408	365	31	261
Railway. Cable	H. Root	319,929	June 9	1307	344, 345	31	1295
Railway. Cable	E. Samuel	315,964	Apr. 14	1376	356	31	254
Railway. Cable	G. Warburton	318,332	May 19	1892	506	31	896
Railway. Cable	W. Wharton, Jr	315,983	Apr. 14	1398	362	31	259
Railway. Cable	W. Wharton, Jr	315,986	Apr. 14	1400	363	31	260
Railway. Cable	W. Wharton, Jr	315,987	Apr. 14	1401	363	31	260
Railway. Cable	W. Wharton, Jr., and E. Samuel	315,984	Apr. 14	1399	363	31	259
Railway. Cable	W. Wharton, Jr., and E. Samuel	315,985	Apr. 14	1400	363	31	259
Railway-carriage	J. E. S. Thornhill, T. Forknall, and E. Thornhill.	320,601	June 23	2268	600	31	1485
Railway construction. Cable-	T. L. Johnson	317,649	May 12	969	250	31	707
Railway cross-tie	E. D. Dougherty and G. B. Bryant	320,231	June 16	1721	457	31	1377
Railway cross-tie	H. Thielsen	317,244	May 5	426	107	31	601
Railway cross-tie. Metal	A. J. Moxham	319,010	June 2	98	26	31	1066
Railway-crossing	M. Schlessman	316,576	Apr. 28	2195	578	31	417
Railway crossing and target	J. W. Kughler	315,515	Apr. 14	745	197	31	130
Railway-crossings. Combined gate and signal for	G. A. Reynolds	319,632	June 9	890	236	31	1221
Railway. Electric	B. Bidwell	315,113	Apr. 7	169	41	31	31
Railway. Electric	B. Bidwell	318,594	May 26	2237	599	31	958
Railway. Electric	F. J. Sprague	317,235	May 5	415	104, 105	31	599
Railway. Electrical	W. Painter	320,679	June 23	2371	627	31	1504
Railway. Elevated	L. O. Root	315,555	Apr. 14	817	214, 215	31	152
Railway. Endless-rope traction-	A. S. Hallidie	321,022	June 30	2815	749	31	1594
Railway fish-plates. Safety-bar for	T. O'Donnell, Jr	315,536	Apr. 14	789	208	31	147
Railway-frog	H. Elliot	318,240	May 19	1753	469	31	863
Railway-frog	A. J. Moxham	319,011	June 2	99	26, 27	31	1066
Railway-frog	J. T. Richardson	319,024	June 2	112	31	31	1069
Railway-frog	F. W. Snow	317,589	May 12	891	228	31	692
Railway-frog	F. C. Weir	319,362	June 2	521	142	31	1147
Railway-frogs. Filling for	G. C. Lucas	315,951	Apr. 14	1356	351	31	251
Railway-gate	F. L. Bair	320,113	June 16	1568	414	31	1349
Railway-gate	D. W. Copeland	316,747	Apr. 28	2452	638	31	463
Railway-gate	G. W. Way and A. F. Hill	320,827	June 23	2544	674	31	1537
Railway-gate	A. M. Woodruff	321,167	June 30	3005	796	31	1628
Railway-gate and means for preventing injury to stock on railways.	W. Bell	314,990	Apr. 7	4	2	31	3
Railway-gate. Automatic	J. T. Withrow, Jr	318,069	May 19	1536	411	31	821
Railway girder-rail and rail-joint	A. J. Moxham	316,994	May 5	89	23	31	539
Railway. Gravity-	C. H. Alcoke	317,273	May 5	466	117	31	609
Railway. Gravity-	J. P. Yearick	316,512	Apr. 28	2118	557	31	402
Railway grip. Cable-	G. B. Bryant	317,086	May 5	207	52	31	561
Railway grip. Cable-	W. A. Burke	317,619	May 12	933	239	31	700
Railway grip. Cable-	W. Heckert	318,619	May 26	2264	604	31	963
Railway grip. Cable-	J. H. Parkinson	315,325	Apr. 7	468	118	31	85
Railway gripper. Cable-	G. B. Bryant	317,967	May 19	1402	376	31	797
Railway gripper. Cable-	J. L. Pearson	315,329	Apr. 7	471	119	31	86
Railway gripping device. Cable-	B. L. Fetherolf	318,098	May 19	1568	420	31	827
Railway gripping device. Cable-	R. Solano	316,670	Apr. 28	2315	608	31	439
Railway-head, drawing-machine, &c	W. Hinchliffe	318,900	May 26	2642	700, 701	31	1032
Railway. Incline	C. P. Kramer	315,640	Apr. 14	925	242	31	172
Railway-joint. Boltless	W. S. Thayer	319,641	June 9	917	242	31	1225
Railway mechanism. Cable-	T. L. Johnson	317,139	May 5	279	71	31	574
Railway-points. Apparatus for moving and locking	J. Saxby	316,186	Apr. 21	1671	437	31	317
Railway-rail	W. Hoover	317,536	May 12	822	211	31	681
Railway-rail	W. Lambking	317,804	May 12	1171	310	31	745
Railway-rail	H. H. Littell	319,278	June 2	415	111	31	1126
Railway-rail brace	L. Larchar	318,634	May 26	2282	609	31	967
Railway rail-chair for clamping the rails	T. L. Johnson	318,625	May 26	2271	606	31	965
Railway-rail connection	H. D. Winton	315,586	Apr. 14	855	225	31	159
Railway-rail. Electrical	S. F. Van Choate	319,041	June 2	130	30	31	1071
Railway-rail joint	M. F. Buch	317,293	May 5	497	125	31	614
Railway-rail joint	S. Stewart	317,037	May 5	137	35	31	547
Railway-rail joints. Fastening fish-plates in	T. A. Davies	320,639	June 23	2320	613	31	1493
Railway-rail joints. Fish-plates for	T. A. Davies	320,641	June 23	2322	613	31	1493
Railway-rail joints. Fulcrum metallic spring-washer for	T. A. Davies	320,640	June 23	2321	613	31	1493
Railway-rails. Lifting apparatus for	F. Westmeyer	316,320	Apr. 21	1844	486, 487	31	347
Railway-rails. Securing fish-plates to	T. A. Davies	320,638	June 23	2319	612	31	1493
Railway-signal	H. Johnson	315,792	Apr. 14	1133	207	31	213
Railway-signal	S. C. Pullman	319,023	June 2	111	30	31	1069
Railway-signal	A. B. Snyder	321,256	June 30	3112	838	31	1647
Railway-signal. Electric	O. S. Hertzog	318,186	May 19	1680	450	31	849
Railway-signal. Electric	J. Hinds and L. L. Stimpson	315,785	Apr. 14	1125	205	31	211
Railway signaling apparatus	F. Baumbach	316,224	Apr. 21	1718	451	31	325
Railway signaling apparatus	J. P. Dunn	315,304	Apr. 7	561	145	31	101
Railway signaling apparatus	W. Hadden	315,772	Apr. 14	1110	292	31	208

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Railway signaling apparatus	W. Hadden	317,994	May 19	1433	384	31	803
Railway signaling apparatus	C. D. Tisdale	316,201	Apr. 21	1688	443	31	320
Railway-spike	A. O. Morford	319,602	June 9	866	229	31	1217
Railway-station signal	A. A. Sprague	317,590	May 12	892	228, 229	31	693
Railway-stations. Train time-signal for	C. M. Sexton	317,225	May 5	406	102	31	598
Railway-switch	A. Ayres	317,434	May 5	694	175	31	648
Railway-switch	P. E. Bird	321,079	June 30	2896	770	31	1608
Railway-switch	G. Chalmers	319,067	June 2	164	44, 45	31	1078
Railway-switch	C. Clinton	319,675	June 9	952	252	31	1232
Railway-switch	S. Curlin	316,336	Apr. 21	1861	492, 493	31	350
Railway-switch	H. L. Ford	319,398	June 2	563	153	31	1155
Railway-switch	E. H. Johnston	318,188	May 19	1683	451	31	850
Railway-switch	A. J. Moxham	318,645	May 26	2299	614, 615	31	970
Railway-switch	S. Ritchie	320,397	June 16	1998	525	31	1426
Railway-switch	J. R. Stephens	320,982	June 30	2764	734, 735	31	1584
Railway-switch	D. H. Valentine	320,900	June 23	2646	702	31	1555
Railway-switch	M. Wallick	317,599	May 12	902	231	31	694
Railway-switch chair	D Sullivan	317,042	May 5	143	36	31	548
Railway-switch lock	R. Lehmann	321,040	June 30	2837	755	31	1598
Railway-switch safety device	A. R. Roberts	318,297	May 19	1824	489	31	877
Railway-switch safety device	A. R. Roberts	318,394	May 19	1963	528	31	901
Railway-switch stand	T. R. Brown	318,948	June 2	14	4	31	1051
Railway-switch stands. Lock for	E. Hillery	316,545	Apr. 28	2156	567	31	409
Railway-switch stands to the switch. Rod for connecting	J. Brahn	317,617	May 12	930	239	31	690
Railway switch. Street-	O. Bangs	317,282	May 5	479	121	31	611
Railway system, Cable-	T. L. Johnson	317,140	May 5	281	72	31	575
Railway system. Electric	F. J. Sprague	321,149	June 30	2962	790	31	1623
Railway system. Electrically-actuated	F. L. Pope	320,283	June 16	1798	478	31	1389
Railway tamper	R. P. Bryant and J. H. Gilleland	318,163	May 19	1652	442	31	844
Railway-tie	M. A. Glynn	317,763	May 12	1113	293	31	735
Railway-tie	L. Haas	315,771	Apr. 14	1109	291	31	208
Railway-tie	G. C. H. Hasskarl	319,813	June 9	1150	304	31	1268
Railway-tie extractor and replacer	J. Mergenthaler	317,829	May 12	1210	320	31	753
Railway track-layer	D. F. Holman	315,034	Apr. 7	63	15, 16	31	13
Railway-track scraper	H. M. Littell	320,263	June 16	1757	467	31	1383
Railway-tracks. Construction of	T. H. Gibbon	317,988	May 19	1425	382	31	802
Railway-tracks. Construction of	T. H. Gibbon	320,869	June 23	2602	689	31	1548
Railway. Traction elevated	W. Pyle	318,027	May 19	1481	396, 397	31	811
Railway-train alarm	S. C. Pullman	315,662	Apr. 14	949	249	31	177
Railway-trains. Operating electric	F. J. Sprague	318,668	May 26	2328	622	31	976
Railway-trains. Pneumatic time-signal for	C. M. Sexton	317,224	May 5	404	101	31	597
Railway turn-table	J. A. Kneedler	319,825	June 9	1185	308	31	1270
Railway turn-table. Cable-	C. M. Porter	316,462	Apr. 28	2082	544	31	395
Railway. Wire rope or cable	C. W. Rasmussen. (Reissue)	10,602	May 26	2696	714	31	1041
Railways and electrical-wire conduits. Combined supporting-bracket for underground traction-	G. B. Bryant	318,951	June 2	18	5	31	1052
Railways. Concrete tube for cable	J. D. Isaacs	318,623	May 26	2269	605	31	964
Railways. Conduit for cable or electrical	E. Samuel	315,841	Apr. 14	1193	311	31	223
Railways. Guard-rail lock for	F. H. Orcutt	316,291	Apr. 21	1807	475	31	340
Railways. Lock-plate for portable	H. Franke	315,606	Apr. 14	877	230	31	163
Railways. Reduction of friction between the rails and wheels on cars on street-	D. A. Boland	317,492	May 12	770	196	31	671
Railways. Rolled or forged metal chair for	A. J. Moxham	316,995	May 5	90	24	31	539
Railways. Subway or conduit for cable or electric	T. C. Clarke	317,302	May 5	506	129	31	616
Railways. Superstructure of elevated	W. F. Sherman	318,213	May 19	1715	459	31	856
Rain-water escape	O. D. Townsend	316,853	Apr. 28	2598	679	31	490
Rake: *See* Hand-rake. Hay-rake.							
Rake	A. P. Clarke	316,604	Apr. 28	2230	587	31	424
Rake	J. P. Stabler	320,507	June 23	2263	598	31	1484
Rake and tedder. Combined	J. Lee, Jr	319,274	June 2	411	109, 110	31	1125
Rake-teeth. Machine for bending	A. J. Green	321,019	June 30	2810	747, 748	31	1593
Rakes. Making	F. S. Kretsinger	320,479	June 23	2107	555	31	1454
Ram for raising water. Combined electrical and water	F. E. Fisher	319,805	June 9	1137	302	31	1265
Ratchet apparatus	G. M. Shaw	318,212	May 19	1713	458	31	856
Ratchet-brace	J. F. Allen	320,323	June 16	1879	493	31	1403
Ratchet-brace	E. H. Whitney	319,159	June 2	276	72	31	1098
Ratchet-drill	E. Anderson	316,321	Apr. 21	1845	487	31	347
Ratchet-drill	H. D. Hinkley	318,561	May 26	2202	588	31	952
Ratchet mechanism for bit-braces, screw-drivers, &c.	W. R. Clarkson	315,000	Apr. 7	20	5	31	6
Razor-blade guard	J. Brady and A. V. Brokhahne	316,731	Apr. 28	2429	632	31	459
Razor-blade guard	A. V Brokhahne	315,708	Apr. 14	1010	266	31	189
Razor-strop	A. McDonald	320,948	June 30	2712	719	31	1574
Reamer	J. H. Brown	317,715	May 12	1051	274	31	723
Reamer	E. L. Lake	318,994	June 2	81	21	31	1063
Reamer	J. Riddell and C. C. Trout	319,852	June 9	1197	317	31	1275
Reamer. Adjustable	P. J. Kelly and J. Groves	321,116	June 30	2942	780	31	1615
Reaping and mowing machine	L. A. Conteau	315,387	Apr. 7	549	142	31	99
Reclining and rocking chair. Combined	H. G. C. Lauer	319,732	June 9	1029	272	31	1247
Reclining-chair	G. A. Horn	316,973	May 5	57	15	31	533
Reclining-chair	B. H. Mead	316,287	Apr. 21	1803	474	31	339
Reclining-chair	F. H. Plummer	318,795	May 26	2503	667, 668	31	1006
Reclining-chair	F. H. Plummer	318,796	May 26	2506	668, 669	31	1006

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Reclining-chair. Adjustable	W. J. Maddox	320,965	June 16	1759	467, 468	31	1384
Recorder: *See* Cash-recorder. Time-recorder. Passenger-recorder.							
Reed-board	F. Stone	315,449	Apr. 7	641	166	31	114
Reel: *See* Chalk-line reel. Hose-reel. Fishing-reel. Lace-reel. Harvester-reel. Wire-reel.							
Reflector	S. C. Mower	315,433	Apr. 7	622	160	31	111
Reflector	J. R. Park	320,484	June 23	2124	560	31	1457
Refrigerating apparatus	A. Conacher	317,629	May 12	943	242	31	702
Refrigerating apparatus	T. Krausch	316,900	Apr. 28	2666	694, 695, 696	31	503
Refrigerating apparatus for the transportation of meat, &c.	H. C. Johnson	316,975	May 5	58	16	31	533
Refrigerating apparatus. House-	T. L. Rankin	316,292	Apr. 21	1808	475, 476	31	340
Refrigerating paraffine-oils and other liquids. Apparatus for	H. H. Rogers and C. Vose	316,400	Apr. 21	1952	515	31	366
Refrigeration. Compound liquid for use in the art of	J. H. E. Mendès	319,108	June 2	217	57	31	1087
Refrigeration. Separating and cooling a sealing or lubricating liquid in apparatus for producing	J. J. Suckert	320,308	June 16	1845	487	31	1398
Refrigeration. Separating and cooling a sealing or lubricating liquid in producing	J. J. Suckert	320,309	June 16	1848	487	31	1398
Refrigerator	W. I. Hall	317,126	May 5	262	65	31	571
Refrigerator	J. M. Harney	321,213	June 30	3002	812	31	1638
Refrigerator	J. Koch	320,602	June 23	2516	666	31	1532
Refrigerator	P. L. Maltbie	319,966	June 16	1396	367	31	1318
Refrigerator	W. J. Taylor	320,722	June 23	2421	642	31	1514
Refrigerator	J. Weitz	319,363	June 2	522	142	31	1147
Refrigerator	A. B Wood	315,105	Apr. 7	160	38	31	30
Refrigerator-barrel and other like receptacles	J. W. Weston	317,902	May 12	1306	349	31	771
Refrigerator building and apparatus	T. R. Wingrove	319,374	June 2	534	145, 146	31	1150
Refrigerator building and chamber	R. and W. A. H. Bogardus, 2d	319,444	June 9	641	174	31	1177
Refrigerator-car	C. F. Pierce	315,543	Apr. 14	797	211	31	148
Refrigerator car and chamber	R. Bogardus	319,443	June 9	639	173	31	1177
Refrigerator ice-holder	C. Huss	321,364	June 30	3251	868	31	1675
Refrigerator-rack	I. Osgood	317,845	May 12	1226	324	31	756
Refrigerator-sideboard	A. Dow and L. H. Gorgas	316,608	Apr. 28	2237	589	31	425
Refrigerator structures. Wall for	A. J. Chase	318,870	May 26	2610	692	31	1025
Refrigerator. Window cold-air	C. W. Roth	318,507	May 26	2108	569	31	938
Register: *See* Cash-register. Fare-register. Distance-register.							
Registering apparatus. Electrical	C. W. Weiss	321,069	June 30	2884	767	31	1606
Regulator: *See* Damper-regulator. Gas-pressure regulator. Draft-regulator. Heat-regulator. Electric-machine regulator. Hydraulic regulator. Pressure-regulator. Feed-regulator. Steam draft and pressure regulator. Feed-water regulator. Time-piece regulator. Gas-regulator. Watch-regulator.							
Rein attachment. Check-	W. W. Thompson	320,724	June 23	2424	642	31	1514
Rein. Check-	S. H. Stewart	318,819	May 26	2537	676	31	1012
Rein clasp. Check-	H. P. Kent	316,370	Apr. 21	1913	506	31	359
Rein. Driving-	A. Warth	319,360	June 2	519	141	31	1146
Rein fastener. Check-	W. A. Wales	320,728	June 23	2428	644	31	1515
Rein. Harness check-	J Fowler	315,399	Apr. 7	572	147	31	103
Rein-holder	T. W. Hammond and M. D. Quaid	319,244	June 2	376	100	31	1118
Rein-holder	L. A. McCord	315,311	Apr. 7	454	114	31	82
Rein-holder	F. S. Osborn	320,277	June 16	1789	476	31	1388
Rein-holder	G. O. Teeter	320,723	June 23	2423	642	31	1514
Rein holder	M. Walter	317,690	May 12	1023	265	31	717
Rein spur. Driving-	F. B. Bever	319,179	June 2	296	79	31	1102
Rendering-tank	V. D. Anderson	318,156	May 19	1645	439	31	842
Rendering tank. Lard and oil	H. Rall	318,502	May 26	2102	567	31	936
Rendering tank. Lard and oil	H. Rall	318,503	May 26	2103	567	31	937
Rendering-tanks. Apparatus for treating the products of	L. J. Cadwell	320,911	June 30	2667	709	31	1566
Respiration. Apparatus for producing artificial	J. Ketchum	320,070	June 16	1505	399	31	1339
Respiration. Producing artificial	J. Ketchum	320,069	June 16	1503	399	31	1339
Retort	D. Jarves	317,135	May 5	274	69	31	573
Retorts. Apparatus for cleaning the residuum from zinc-	W. and R. H. Lanyon	319,270	June 2	406	108	31	1124
Reversible seat	J. R. Ritchie	318,296	May 19	1823	488	31	877
Revolver	W. C. A. Bullock	320,910	June 30	2666	709	31	1566
Revolving chair	C. A. Graef	321,101	June 30	2928	775	31	1612
Revolving drop-leaf table	W. H and D. Johnston	317,141	May 5	283	72	31	575
Revolving rake	J. H. M. Forck	316,954	May 5	33	9	31	529
Rheostat	J. Doyle	321,285	June 30	3149	840	31	1654
Rheotrope or current-reversing key	J. C. Ludwig	315,426	Apr. 7	614	158	31	110
Rice-huller	O. M. Newman	317,840	May 12	1220	323	31	755
Riding-habit. Lady's	G. Müller	320,954	June 30	2719	721, 722	31	1575
Ring: *See* Ear-ring. Key-ring. Finger-ring. Lap-ring.							
Rivet	S. W. Shorey	316,841	Apr. 28	2583	675	31	487

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Rivet-studs. Making	J. Tillotson	321,260	June 30	3117	830	31	1648
Riveting-machine	T. Morton	315,817	Apr. 14	1167	105	31	219
Riveting sheets of metal	J. F. Gould	315,020	Apr. 7	45	10	31	10
Road-engine	H. Schulze-Berge	317,583	May 12	881	226	31	601
Road-machine	S. Pennock	315,541	Apr. 14	793	210	31	147
Road or tramway for vehicles	M. A. Martindale	315,047	Apr. 7	84	20	31	17
Roads. Machine for making, repairing, and cleaning	G. W. Taft	315,184	Apr. 7	288	68, 69	31	51
Roads. Transporting loads over ice and snow	F. B. Lowell	316,553	Apr. 28	2166	570	31	411
Roaster: *See* Coffee-roaster. Peanut and coffee roaster. Peanut-roaster.							
Rock breaker and pulverizer	W. S. Sharpneck	315,670	Apr. 14	961	252	31	180
Rock-breaker. Submarine	T. F. Lonney	315,520	Apr. 14	754	199, 200	31	141
Rock-crusher	C. W. Huson	320,559	June 23	2210	584	31	1473
Rock-drill	B. A. Legg	317,949	May 12	1363	366	31	782
Rock-drill	A. I. Parsons	319,308	June 2	453	122, 123	31	1134
Rock-drill	D. Wood	316,716	Apr. 28	2403	626	31	455
Rock-drill	D. Wood	319,653	June 9	928	245	31	1227
Rock-drill	L. S. Woodbury	319,045	June 2	135	37	31	1072
Rock-drill column-support	H. C. Sergeant	315,668	Apr. 14	958	251	31	179
Rock-drill. Machine	C. O. Barlow	316,107	Apr. 21	1569	408	31	297
Rock-drill. Power	C. O. Barlow and G. T. Emery	316,106	Apr. 21	1567	408	31	297
Rock-drill tripod-support	H. C. Sergeant	316,666	Apr. 28	2309	606	31	438
Rock-drills. Core breaker and lifter for annular	A. Ball	315,887	Apr. 14	1264	329	31	235
Rock-drills. Core breaker and lifter for annular	A. Ball	315,888	Apr. 14	1267	329	31	236
Rock-drills. Core breaker and lifter for annular	A. Ball	315,889	Apr. 14	1268	330	31	236
Rock-drills. Friction-clutch for	G. M. Githens	317,113	May 5	237	60	31	567
Rock-drilling machine	J. Hammer and X. Kern, Jr.	318,727	May 26	2404	641	31	990
Rock-drilling machine	M. Macdermott and W. Glover	320,371	June 16	1960	515, 516	31	1420
Rocking-chair	J. E. Wakefield	321,063	June 30	2878	765	31	1604
Rocking-chair fan attachment	J. Engel	316,762	Apr. 28	2471	644	31	467
Rocking-chairs, &c. Base for	M. V. B. Evesson	319,397	June 2	562	153	31	1155
Rocking-chairs. Spring attachment to platform	S. Willershausen	315,870	Apr. 14	1237	322	31	231
Rocking propeller	C. Toennies	319,351	June 2	505	138	31	1144
Rod: *See* Connecting-rod. Sounding-rod. Pitman-rod.							
Rod joint or coupling	H. C. Lowrie	317,154	May 5	304	77	31	578
Rod joint or coupling	H. C. Lowrie	317,155	May 5	305	78	31	579
Rods. Flexible coupling or joint for wooden	H. C. Lowrie	317,157	May 5	309	78	31	579
Roll-couplings. Binder for	S. M. Guss	319,240	June 2	373	99	31	1118
Roll for metal rods	W. A. McCool	319,832	June 9	1176	310	31	1272
Roll for rerolling old rails	W. H. Graham and A. C. Milliken	321,102	June 30	2929	776	31	1612
Roller: *See* Door-roller. Land-roller.							
Roller-mill	J. L. Willford	315,201	Apr. 7	313	76, 77	31	56
Roller-mill feed mechanism	W. Hutchison	321,030	June 30	2928	752	31	1596
Roller-mill feeding device	G. W. Pierce	320,289	June 16	1796	478	31	1389
Roller-roughing machine	A. Mitchell	317,167	May 5	325	81	31	582
Rolling beams	C. L. Taylor and J. Skewis	318,220	May 19	1727	462	31	859
Rolling billets. Machine for	J. S. Seaman	318,513	May 26	2117	571, 572	31	939
Rolling car-rails. Roll for	A. J. Moxham	319,009	June 2	96	25, 26	31	1066
Rolling machine. Metal-	J. Beavis. (Reissue)	10,594	May 5	756	191	31	660
Rolling-mill	A. P. Brown	316,232	Apr. 21	1726	453	31	326
Rolling-mill-adjusting device	J. Wood	319,654	June 9	929	246	31	1228
Rolling-mill for wire rods	W. Garrett	320,237	June 16	1729	459	31	1379
Rolling-mill hooking and carrying machine	L. S. Saylor	320,973	June 30	2753	731, 732	31	1581
Rolling-mill plant	W. Garrett	319,693	June 9	971	257, 258	31	1237
Rolling-mill plant	W. Garrett	319,694	June 9	974	258	31	1237
Rolling-mills. Catcher and drag-out for	H. B. Chess	319,785	June 9	1102	292, 293	31	1259
Rolling-mills. Wheel-gearing for rollers of	F. Wegmann	319,648	June 9	923	244	31	1226
Rolls. Adjusting device for	A. N. Miller	318,574	May 26	2214	592	31	954
Roof. Fire and water proof	M. W. Powell	318,023	May 19	1472	394	31	810
Roof for hay and grain ricks. Portable	W. R. Heath	318,248	May 19	1701	471	31	865
Roof for portable houses. Metal-covered	E. Lee	318,270	May 19	1792	479	31	870
Roof or bridge truss	J. H. Jones	318,696	May 26	2272	606	31	965
Roof-tiles. Device for fastening	F. Plumb	317,414	May 5	658	167	31	642
Roofs and walls. Metallic plate for covering	G. A. Nebeling	317,176	May 5	336	85	31	585
Roofs. Construction and preservation of shingle	H. W. Gates	315,930	Apr. 14	1326	345	31	246
Roofs of buildings. Truss-frame for	W. P. Buckley	319,881	June 9	1243	328	31	1283
Roofs, telegraph-wires, &c. Composition mastic for covering	A. Derrom	315,487	Apr. 14	709	.....	31	132
Roofing	C. H. Starr	320,508	June 23	2145	566	31	1461
Roofing and siding board	J. W. Crabbe	318,672	May 26	2611	693	31	1025
Roofing. Cap and anchor for metallic	B. F. Caldwell	318,352	May 19	1911	515	31	891
Roofing composition of tar, cement, &c.	K. Wildhagen	315,584	Apr. 14	854	.....	31	158
Roofing compound	H. C. Hawes and J. E. Green, 2d	316,964	May 5	46	.....	31	531
Roofing-felt and its manufacture	J. Jowitt	318,910	May 26	2654	704	31	1034
Roofing for buildings and other structures	S. G. Tufts	315,977	Apr. 14	1391	361	31	258
Roofing-gage	A. W. Brightwell	320,428	June 16	2035	534	31	1432
Roofing. Iron	W. C. Langenau	317,381	May 5	611	158	31	635
Roofing. Machine for making metallic	F. A. Guthrie	318,559	May 26	2198	587	31	951
Roofing. Manufacture of ridge-caps for corrugated	J. Smith	317,868	May 12	1258	335	31	762
Roofing. Metal	B. Goodman	319,228	June 2	355	95	31	1115
Roofing. Metallic	L. H. Montross	319,921	June 9	1295	342	31	1293
Roofing. Metallic	J. C. Wands	319,869	June 9	1229	322	31	1279
Roofing-tile. Flexible	L. B. Snow	320,979	June 30	2761	734	31	1583

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Roofing. Water-proof wood-pulp board for	J. F. Fogg	319,206	June 9	1139	.....	31	1066
Rope-buckle	V. P. Travers	315,859	Apr. 14	1223	319	31	229
Rope-clamp	S. H. Magee	319,591	June 9	851	226	31	1214
Rope coupling. Hemp and wire	A. Engelmann	315,490	Apr. 14	711	188	31	133
Rope or cord fastening	G. R. Peare	320,959	June 30	2732	727	31	1578
Rotary engine	J. A. Arthur	320,204	June 16	1679	447	31	1370
Rotary engine	J. W. Dunfee	317,751	May 12	1099	288, 289	31	731
Rotary engine	J. Moffet	315,318	Apr. 7	461	117	31	84
Rotary engine	H. Sewrey	321,254	June 30	3110	827	31	1646
Rotary engine	J. C. Telfer	316,309	Apr. 21	1827	480, 481	31	344
Rotary engine	G. A. Pickup	318,794	May 26	2592	667	31	1006
Rotary steam-engine	L. H. Timmons	320,725	June 23	2424	643	31	1514
Rotary steam-engine	W. Ciencoski	320,458	June 23	2084	549	31	1450
Rowing apparatus	D. Stocking	319,935	June 9	1318	348	31	1297
Rowing-gear for boats	E. F. Ward	317,430	May 5	687	173	31	647
Rowlock for racing-boats, &c	F. Wilhöft	321,410	June 30	3314	.....	31	1085
Rubber and making same. Vulcanized soft	J. Spyer	320,980	June 30	2763	.....	31	1583
Rubber plates for the vulcanizer. Preparing	J. W. Gray	315,023	Apr. 7	49	11	31	11
Rubber tube for syringes, &c	E. D. Joyner	317,460	May 5	724	183	31	654
Rudder-connection for boats	J. White, W. Ross, J. T. Creasy, and W. H. Gritton, Jr.	316,099	Apr. 21	1535	405	31	295
Rudder for vessels. Combination	E. H. Barney	319,665	June 9	941	249	31	1230
Rudder-hanging and steering device	C. W. Dikeman	320,339	June 16	1895	498, 499	31	1407
Rugs, &c. Machine for making	A. M. Freeman	317,332	May 5	535	141	31	624
Rule. Dress-cutting	O. Pederson	317,188	May 5	354	89	31	586
Ruler	E. W. Blackhall	317,078	May 5	195	49	31	559
Ruling-machine	M. L. Metzger and A. Cooper	316,990	May 5	78	21, 22	31	537
Ruling-machine	F. H. Williams	315,102	Apr. 7	157	38	31	29
Sabot. Ordnance	C. Fahlberg	319,082	June 2	183	.....	31	1082
Saccharine compounds. Manufacture of	J. B. Fink	317,936	May 12	1345	361	31	779
Sad-iron	J. J. Stephens	321,152	June 30	2986	791	31	1624
Saddle-bags	B. J. Hartman	319,464	June 9	701	188	31	1187
Saddle. Gig-	A. Arter and W. R. Knowles	318,848	May 26	2573	685	31	1019
Saddle. Harness-	C. E. Cahoone	318,232	May 19	1746	467	31	862
Saddle. Harness-	W. H. Flurer	315,757	Apr. 14	1091	286	31	204
Saddle. Harness-	E. Rosenberger	319,931	June 9	1313	346	31	1296
Saddle. Harness-	M. L. Eckles	320,118	June 16	1576	416	31	1350
Saddle. Riding-	J. M. Fink	318,610	May 26	2255	602	31	902
Saddle. Riding-	T. J. Wint	320,522	June 23	2164	571	31	1464
Saddle. Riding-	P. McFadden	316,801	Apr. 28	2519	658	31	476
Saddle-tree. Harness	A. D. B. Douglas	316,250	Apr. 21	1752	461	31	331
Safe	T. M. Brintnall	315,231	Apr. 7	356	87	31	64
Safe bolt-work	T. M. Brintnall	315,232	Apr. 7	358	87, 88	31	64
Safe bolt-works. Device for operating	E. W. Fowler	317,986	May 19	1421	381, 382	31	801
Safe-door. Burglar-proof	H. B. Tripp	317,688	May 12	1020	264	31	717
Safe. Kitchen-	J. F. Snyder and J. C. Knapp	319,034	June 2	122	33	31	1070
Safe-lock mechanism	H. Gross	315,612	Apr. 14	887	233	31	165
Safe-lock mechanism	H. Gross	315,613	Apr. 14	892	234	31	166
Safe. Meat and provision	M. J. Holt	317,998	May 19	1440	386	31	804
Safe. Milk and food	G. W. Gordon	315,770	Apr. 14	1108	291	31	208
Safe. Provision-	J. Odenbaugh	318,198	May 19	1698	454	31	859
Safe-spindles. Coupling device for	M. Hemler	320,250	June 16	1743	464	31	1381
Safe-spindles. Coupling device for	H. Pund	317,471	May 5	738	186	31	656
Sail-reefing device	L. Hering	315,501	Apr. 14	725	192	31	135
Salt. Apparatus for the manufacture of	N. S. Beardslee	320,207	June 16	1687	448	31	1371
Salt boiler or pan	J. Seely	319,630	June 9	900	238	31	1222
Salt-dredge	H. B. Beach	316,725	Apr. 28	2422	630	31	458
Salt-grainer	J. Cusson	315,390	Apr. 7	552	142	31	100
Salt-grainer attachment	J. Cusson	321,345	June 30	3221	859	31	1669
Salt. Manufacture of	J. M. Duncan	321,347	June 30	3223	859	31	1669
Sand and water feed mechanism	D. Shortsleeve	315,848	Apr. 14	1203	314	31	225
Sand mold	J. Hobbs	320,934	June 30	2696	715	31	1571
Sap-boiling apparatus	J. M. Sproat	318,615	May 26	2532	675	31	1011
Sash-balance	G. W. Arnold	319,379	June 2	541	147	31	1151
Sash-balance	H. E. Dorman	321,284	June 30	3148	839	31	1654
Sash-balance	T. Morton	315,533	Apr. 14	785	207	31	146
Sash-balance	W. F. Winship	317,262	May 5	453	113, 114	31	606
Sash-balancing device	H. Jones	321,035	June 30	2832	753, 754	31	1597
Sash-bar	H. A. Streeter	316,582	Apr. 28	2202	579, 580	31	418
Sash-cord fastener	H. Smith, Jr.	316,193	Apr. 21	1681	441	31	319
Sash-fastener	J. Y. Bassell	321,176	June 30	3015	798, 799	31	1629
Sash-fastener	J. W. Beatty	320,327	June 16	1883	494	31	1404
Sash-fastener	W. J. S. Bryan and L. Boutell	316,875	Apr. 28	2626	684	31	495
Sash-fastener	P. J. Donohue	317,321	May 5	535	136	31	621
Sash-fastener	R. E. Henninges	320,353	June 16	1924	507	31	1411
Sash-fastener	J. Huth	319,414	June 2	584	159	31	1159
Sash-fastener	E. A. Johnson	315,294	Apr. 7	430	108	31	78
Sash-fastener	J. F. Maugans	318,998	June 2	85	22	31	1064
Sash-fastener	C. W. Nida	318,576	May 26	2217	592	31	954
Sash-fastener	W. Robinson	321,055	June 30	2857	760	31	1601
Sash-fastener	T. B. Rose	319,324	June 2	474	128	31	1138
Sash-fastener	J. R. Rusby	320,175	June 16	1645	438	31	1363
Sash-fastener	W. J. Slyder	319,427	June 2	602	163, 164	31	1163
Sash-fastener	J. Walsh	317,051	May 5	158	40	31	551
Sash-fastening	G. M. Baker	316,219	Apr. 21	1713	450	31	394

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Dr'g.	Vol.	Page.
Sash-fastening	J. S. Crump	319,687	June 9	1249	329	31	1284
Sash-fastening	H. B Ives	317,540	May 12	927	212	31	681
Sash-fastening	H. T. King	320,706	June 23	2506	664	31	1530
Sash-fastening	T. L. McKeen	316 285	Apr. 21	1801	473	31	339
Sash-fastening	T. L. McKeen	319,288	June 2	430	115	31	1129
Sash-fastening	W. Pohlmann	316,822	Apr. 28	2546	666	31	481
Sash from frames. Device for removing window	J. Bowbin and M. H. Croker	318,946	June 2	12	3	31	1051
Sash-holder	F. H. Bultmann	315,474	Apr. 14	692	181	31	129
Sash-holder	S. W. Buzard	316 737	Apr. 28	2435	634	31	460
Sash-holder	G. A. Grenville	317,121	May 5	258	64	31	570
Sash-holder	C. Lee	319,275	June 2	413	110	31	1126
Sash-holder	J. McCormick	316,292	Apr. 21	1709	472	31	339
Sash-holder	E. G. Rust	319,509	June 9	734	197	31	1193
Sash-lock	H. E. Gilmore	320,551	June 23	2203	581	31	1471
Sash-lock	T. R. Nichols	320,675	June 23	2365	624 625	31	1502
Sash. Window	C. J. Holmes	318,736	May 26	2414	644	31	992
Sash. Window	E. R. Mayer	317,659	May 12	980	253	31	709
Sash. Window	H. Valk	320 195	June 16	1670	444	31	1368
Satchel-handle	A. Goertz	317,114	May 5	239	60	31	567
Satchel or bag handle. Sheet-metal	R. W. Chapman	317,300	May 5	504	128	31	615
Sausage-stuffing machine	C. Forschner	316 352	Apr. 21	1882	498	31	354
Saw	E. Andrews	315 372	Apr. 7	530	136	31	96
Saw	E. Andrews	315,373	Apr. 7	531	136	31	97
Saw	E. Andrews	315,374	Apr. 7	532	136	31	97
Saw	C. Richardson	315 663	Apr. 14	950	249	31	177
Saw	I. M. Smith	318,316	May 19	1859	499	31	882
Saw. Buck	E. Allen	318,938	June 2	1	1	31	1049
Saw. Circular	S. Walter	315,577	Apr. 14	846	222	31	157
Saw. Circular	W. J. Perkins	320 681	June 23	2375	628	31	1504
Saw-clamp	G. Coffin	319,455	June 9	656	177	31	1179
Saw-clamp	A. F. Delafield	316,753	Apr. 28	2458	640	31	464
Saw. Drag	J. W. Anderson	320,039	June 16	1464	385	31	1331
Saw. Drag	J. H. Deam	317,745	May 12	1093	287	31	730
Saw. Drag	J. A. Owens	320 086	June 16	1530	405	31	1343
Saw-filing device	C. F. Hill	319,489	June 9	707	190	31	1188
Saw-filing machine	J. H. C. Winston	320,735	June 23	2434	645 646	31	1516
Saw-guide	G. S. Black	315,229	Apr. 7	354	87	31	64
Saw-guide	G. S. Gardiner and J. W. McAuley	320,550	June 23	2202	581	31	1471
Saw-guide	D. Parkhurst	321 134	June 30	2961	785	31	1619
Saw-guide	G. W. Rodebaugh	319,624	June 9	892	236	31	1221
Saw gumming and sharpening machine	J. Richardson	316,570	Apr. 28	2186	575 576	31	415
Saw-handle	C. Richardson	320 169	June 16	1638	435	31	1362
Saw-jointer	F. B. Fitzpatrick	318 713	May 26	2387	636	31	987
Saw jointing and setting device	J. L. Highbarger	317,784	May 12	1143	303	31	740
Saw-jointing device	G. S. Black	315,228	Apr. 7	354	86	31	64
Saw jointing, gaging, and setting device	V. T. Cummings	317,442	May 5	702	177	31	650
Saw mill. Band	J. Cook	321,194	June 30	3038	805	31	1633
Saw-mill carriages. Feed mechanism for	E. M. Birdsall and G. Stringer	319,181	June 2	298	79	31	1103
Saw-mill dog	W. A. Durrin	315,133	Apr. 7	191	47	31	35
Saw-mill dog	L. Johnson	321,222	June 30	3072	815	31	1640
Saw-mill dog	D. Lane	316,273	Apr. 21	1787	469	31	337
Saw-mill head-blocks. Indicator attachment for	L. W. Forbes	316 532	Apr. 28	2141	563	31	407
Saw-mill. Reciprocating	D. C. Prescott	319,619	June 9	887	235	31	1220
Saw-mill set-works	A. Delaney and J. M. Bond	321,282	June 30	3145	838 839	31	1653
Saw-mill set-works	D. Lane	317,378	May 5	608	155 156	31	634
Saw-mill set-works	B. E. Sergeant	317,221	May 5	400	100	31	596
Saw-mill set-works	W. H. Snyder	316,299	Apr. 21	1817	478	31	342
Saw-mill set-works	T. S. Wilkin	317,256	May 5	446	111 112	31	604
Saw-plates. Machine for milling recesses in	J. E. Emerson	315,753	Apr. 14	1085	284 285	31	203
Saw-set	J. A. Borthwick	320,753	June 23	2457	651	31	1521
Saw-set	J. A. Fischer	318,712	May 26	2385	636	31	986
Saw-set and nail-punch. Combined	A. F. Peelman	319,019	June 2	107	29	31	1068
Saw-setting device	T. Gibbons	318,976	June 2	64	16	31	1060
Saw sharpening and setting machine	E. and A. Prat	316,568	Apr. 28	2183	575	31	415
Saw-sharpening machine	L. Bush, Jr.	315,715	Apr. 14	1018	268 269	31	191
Saw-sharpening machine	M. Covel	319,794	June 9	1115	296	31	1261
Saw-sharpening machine	A. C. Eidelbach	318,363	May 19	1921	518 519	31	894
Saw-sharpening machine	J. P. Hansen	319,812	June 9	1149	304	31	1267
Saw-straightening machine	A. E. Hoffman	315,033	Apr. 7	62	15	31	13
Saw-swage	A. Carmichael	316,113	Apr. 21	1578	410	31	299
Saw-swage	T. Newnham	315,820	Apr. 14	1170	306	31	219
Saw-swage	A. S. Parke	315,539	Apr. 14	791	209	31	147
Saw-swage	H. R. Wolfe	315,104	Apr. 7	159	38	31	30
Saw swaging and jointing machine	W. Lyon	321,376	June 30	3264	871 872	31	1677
Saw-teeth. Protector for insertible	A. Krieger	315,419	Apr. 7	602	154	31	108
Saw-tooth. Insertible	A. Adsit	317,698	May 12	1033	268	31	719
Saw-tooth. Insertible	E. T. Lippert	317,656	May 12	977	252	31	708
Saw-tooth. Insertible	N. W. Spaulding	315,853	Apr. 14	1211	316	31	227
Saw-tooth swage	J. M. Ryan	319,425	June 2	600	163	31	1162
Saw-tooth-swaging machine	A. Jacobs	319,292	June 2	398	105	31	1123
Saws. Equalizing the tension in circular	W. H. Presser	316,659	Apr. 28	2299	604	31	436
Sawing machine. Circular	J. Connell	321,192	June 30	3036	804	31	1633
Sawing machine. Circular	P. G. De Blanc	316,752	Apr. 28	2457	639	31	464
Sawing machine. Circular	W. H. Doane	319,395	June 2	560	152	31	1154

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Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
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Sawing machine. Circular	L. Houston	315,502	Apr. 14	726	192	31	136
Sawing machine. Circular	W. Keller	318,260	May 19	1776	475	31	867
Sawing machine. Circular	R. E. Kidder	315,513	Apr. 14	742	196	31	138
Sawing machine. Circular	W. Merrill	316,634	Apr. 28	2296	596	31	430
Sawing machine. Circular	S. Burnell	320,845	June 23	2571	680	31	1543
Sawing stair-rails. Guide for	F. W. Niehaus	316,643	Apr. 28	2279	599	31	432
Scaffold and ladder. Combined	C. H. Rockwood	316,573	Apr. 28	2192	577	31	416
Scaffold-bracket	A. H. Campbell	315,720	Apr. 14	1031	271	31	183
Scaffold-iron	J. L. Hughes	319,723	June 9	1021	270	31	1245
Scaffold-support. Adjustable	C. Hesse	319,714	June 9	1005	266	31	1242
Scaffold. Window	C. W. Roth	321,387	June 30	3277	876	31	1680
Scale and flour and bran packer. Combined electrical weighing	A. B. Davis	319,199	June 2	319	85	31	1107
Scale and register. Combined weighing	J. F. Milligan	321,129	June 30	2957	783	31	1618
Scale. Automatic grain	A. Gerdum	320,776	June 23	2484	658	31	1526
Scale. Counter	W. W. Reynolds	316,178	Apr. 21	1661	435	31	315
Scale. Folding platform	H. D. Coffey	318,451	May 26	2036	549 550	31	923
Scale. Weighing	M. Kennedy	317,947	May 12	1360	365 366	31	782
Scale. Weighing	J. H. Stevens	319,637	June 9	911	240	31	1224
Scales, &c. Roller or wheel for platform	H. F. Krueger	316,981	May 5	67	17	31	535
Scarf-pin, &c	W. C. Edge	316,020	Apr. 21	1446	377	31	275
Scarf-shield	J. B. Sultzer	317,882	May 12	1273	339	31	765
Scarfs. Retainer for the bands of neck	W. E. T. Merrill	316,289	Apr. 21	1805	474	31	340
School seat and settee. Adjustable	J. Pedersen	321,242	June 30	3096	823	31	1644
Scissors and pencil holder. Combined	C. Bramberg	318,346	May 19	1902	512	31	889
Scissors and shears	D. Wheeler	318,530	May 26	2145	578	31	944
Scissors. Manufacture of	A. Lloyd and W. F. Glydon	315,305	Apr. 7	445	112 113	31	81
Scoop. Flour-sifting	A. C. Barler	318,680	May 26	2345	626	31	979
Scourer: *See* Grain-scourer. Wheat-scourer.							
Scow. Dumping	J. Dunn	315,918	Apr. 14	1312	341 342	31	243
Scraper	W. Haslup	316,779	Apr. 28	2490	670	31	471
Scraper and elevator. Earth	J. H. and C. Haman	320,553	June 23	2204	582 583	31	1472
Scraper. Dirt	F. Dusy and A. McCall	320,055	June 16	1487	392 393	31	1335
Scraper. Earth	W. H. C. Goode	316,455	Apr. 28	2047	537	31	388
Scraper. Earth	W. H. C. Goode	318,721	May 26	2397	639	31	989
Scraper or planer. Road	H. D. Cook	321,193	June 30	3037	804	31	1633
Scraper. Road	J. P. Summers	319,636	June 2	124	34	31	1071
Scraper. Wheeled	J. Bailey and T. Rebholz	317,279	May 5	475	120	31	610
Scraper. Wheeled	J. Bailey and T. Rebholz	317,280	May 5	476	120	31	610
Screen: *See* Fire-screen. Window-screen. Paper-pulp screen. Window and door screen.							
Screen	T. L. Sturtevant	316,920	Apr. 28	2697	702	31	509
Screen for coal, &c	S. T. Varian	319,149	June 2	263	60	31	1096
Screen for sizing ores and other substances	C. Haywood	319,486	June 9	704	189	31	1187
Screening apparatus	C. Schlickeysen	316,068	Apr. 21	1508	394	31	286
Screw-cutting die	P. H. Class	315,728	Apr. 14	1040	274	31	195
Screw-cutting die-stock. Adjustable	T. M. Burke	316,330	Apr. 21	1854	490	31	349
Screw. Drive	A. Broadnax	320,329	June 16	1695	495	31	1405
Screw-driver	N. W. Farrand	320,920	June 30	2678	711	31	1508
Screw-driver	Z. T. Furbish and F. L. Hamlen	315,137	Apr. 7	196	48	31	36
Screw-driving device	F. M. Maley	320,373	June 16	1965	517	31	1421
Screw-fastening for boxes or cases	E. Ritter	321,054	June 30	2856	760	31	1601
Screw for pipe-hangers. Lag	G. W. Blake	317,613	May 12	926	237	31	699
Screw. Gimlet-pointed rolled wood	H. A. Harvey	321,214	June 30	3063	813	31	1638
Screw-machine	J. Alger and J. F. Cook	319,542	June 9	777	207	31	1200
Screw-machine	A. S. Cook	319,564	June 9	805	214 215	31	1205
Screw-machine	A. Johnston	316,788	Apr. 28	2504	654	31	473
Screw machine. Metal	L. P. Smith	321,059	June 30	2868	762 763 764	31	1602
Screw or drive hook	W. C. Perkins	316,650	Apr. 28	2290	601	31	434
Screw-plate	G. L. Reece	320,093	June 23	2398	631	31	1507
Screw-plate	J. E. Reinecker	318,136	May 19	1619	433	31	838
Screw-press	R. F. Boschert	319,184	June 2	302	80, 81	31	1104
Screw-press. Portable	J. P. Parker	318,285	May 19	1806	483	31	873
Screw. Rolled wood	H. A. Harvey	319,247	June 2	378	101	31	1119
Screw-rolling machine	J. Sheldon	315,349	Apr. 7	498	127 128	31	91
Screw. Set	F. A. Reiher	315,839	Apr. 14	1191	310	31	223
Screw-tap. Expanding	J. M. Johnson	316,040	Apr. 21	1471	383	31	279
Screw-taps. Relieving	J. E. Woodbridge	318,153	May 19	1641	438	31	841
Screw-tapping machine	T. F. Hammer	321,023	June 30	2816	749 750	31	1594
Screw-thread gage	A. Shedlock	320,976	June 30	2758	733	31	1583
Screw-thread gage	L. S. Starratt	318,051	May 19	1514	406	31	817
Screw-threads. Cutting	O. Bryant	320,536	June 23	2183	576	31	1468
Screw-threading lathe	H. Wohlenberg	319,943	June 9	1331	351	31	1299
Screw-threading machine	E. N. Andrews	316,720	Apr. 28	2408	627	31	456
Screw-threading machine	C. E. Coe	317,303	May 5	508	129	31	616
Screw-threading tap	J. E. Woodbridge	318,071	May 19	1538	412	31	822
Screws and bolts. Expansion-fastening for	F. H. Evans	317,448	May 5	712	179	31	652
Seal	E. J. Brooks	314,994	Apr. 7	10	3	31	4
Seal	E. J. Brooks	320,904	June 23	2652	704	31	1557
Seal	E. J. Brooks	321,275	June 30	3137	836	31	1652
Seal. Car	P. Wagner	318,060	May 19	1523	408	31	819

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drf.	Official Gazette. Vol.	Official Gazette. Page.
Seal-lock	E. Bloom	320,213	June 16	1697	451	31	1373
Seal-lock	H. F. Gains	319,400	June 2	564	153	31	1155
Seal-lock	J. F. Ingham	315,945	Apr. 14	1346	349	31	949
Seal-lock for car-doors	F. H. Meyers	317,403	May 5	639	163	31	639
Seal-press (Roller)	E. J. Brooks	319,387	June 2	551	150	31	1153
Seal-trap for wash-basins and water-closets. Automatic	W. D. Schuyler	320,708	June 23	2404	{636 637	31	1510
Seals. Implement for applying baggage and car	J. Calder and R. W. Courtney	319,450	June 9	650	175	31	1178
Seamed fabric	C. C. Cobleigh	319,453	June 9	654	176	31	1179
Seaming-tool. Tinner's	P. Vanden Berghe	319,761	June 9	1064	282	31	1253
Seat: *See* Bracket-seat. Car-seat. Car-spring seat. Seed-drill seat.							
Seat and opera-chair	W. F. Spencer	316,495	Apr. 28	2097	550	31	396
Seat-fastener	C. C. Fornerook	317,985	May 19	1420	381	31	801
Seat-fastener	A. B. Halsted	320,243	June 16	1736	461	31	1380
Secondary battery	J. Du Shane	320,232	June 16	1722	457	31	1377
Secondary battery	E. T. Reichert	315,339	Apr. 7	487	123	31	89
Secondary battery	E. T. Reichert	315,340	Apr. 7	489	123	31	89
Secondary battery	W. A. Shaw	316,407	Apr. 21	1966	518	31	368
Secondary battery	W. A. Shaw	316,408	Apr. 21	1970	518	31	368
Secondary battery	W. A. Shaw	316,409	Apr. 21	1972	518	31	369
Secondary battery	J. W. Swan	318,828	May 26	2548	679	31	1014
Seed and fertilizing drill	A. Miller	316,807	Apr. 28	2527	660	31	477
Seed crusher. Cotton-	T. A. Perry	320,682	June 23	2376	628	31	1504
Seed-drill	A. Miller	316,806	Apr. 28	2526	660	31	477
Seed-drill and cultivator	J. G. Smith	318,048	May 19	1509	405	31	817
Seed-drill and fertilizer-distributer	R. Platman	319,021	June 2	108	29, 30	31	1068
Seed-drill seat	A. Miller	316,805	Apr. 28	2524	659	31	477
Seed-drill. Spring-hoe	C. E. Patrio	316,387	Apr. 21	1932	510	31	362
Seed huller. Cotton-	C. A. Chandler	317,927	May 12	1334	{358 359	31	777
Seed-press mat	C. H. Struebig	321,258	June 30	3116	829	31	1647
Seed separator. Flax-	G. Adams	320,831	June 23	2550	675	31	1539
Seeds from pulp. Machine for separating	L. Ladd	318,122	May 19	1602	428	31	834
Seeder	A. Gilmore	315,931	Apr. 14	1326	{345 346	31	246
Seeder. Hand broadcast-	A. E. Shrock and J. Lehman	315,562	Apr. 14	824	217	31	153
Seeding-machine	A. J. Martin and J. C. Baker	315,646	Apr. 14	932	244	31	174
Seeding-machine	D. S. Troy and J. S. Davis	319,432	June 2	617	167	31	1166
Seeding-machine. Broadcast	S. S. Speicher	316,198	Apr. 21	1685	442	31	319
Seeding-machine. Force-feed	J. L. Riter	315,168	Apr. 7	250	61	31	46
Seeding-machine. Force-feed	J. L. Riter	317,204	May 5	380	95	31	592
Seeding-machines. Device for raising or lowering the boots or drills of	A. Miller	316,808	Apr. 28	2529	661	31	478
Self-leveling table for ships	C. E. Diggs and W. L. Messick	317,748	May 12	1096	287	31	731
Semaphore	S. H. Harrington	317,347	May 5	570	146	31	627
Separating light and heavy substances. Machine for	H. Seck	316,190	Apr. 21	1677	440	31	318
Separating-machine	T. W. B. Mumford and R. Moodie	321,379	June 30	3267	873	31	1678
Separator: *See* Cockle-separator. Cockle-seed separator. Grain-separator. Magnetic separator. Ore-separator. Seed-separator.							
Separator-leveling attachment	J. H. and J. Burgess, Jr	318,865	May 26	2605	691	31	1024
Settee. Folding-seat	H. J. Harwood	315,618	Apr. 14	899	236	31	167
Sewage. Apparatus for collecting and drying the sedimentary matter of	R. Corscaden	315,912	Apr. 14	1304	{339 340	31	242
Sewage, &c. Apparatus for the intermittent discharge of	G. S. Pierson	316,567	Apr. 28	2181	{574 575	31	414
Sewer-cleaning apparatus	H. C. Lowrie	317,156	May 5	306	78	31	579
Sewer-gas trap	R. H. Beckwith	316,110	Apr. 21	1573	409	31	298
Sewer-pipe presses. Socket-mold for	O. Barber	320,325	June 16	1881	494	31	1404
Sewer-pipe. Ventilated	M. J. Coholan	318,452	May 26	2038	550	31	924
Sewer-trap	J. Demarest	317,099	May 5	222	56	31	564
Sewer-trap	L. Fall	320,918	June 30	2676	711	31	1568
Sewers, water-pipes, &c. Apparatus for flushing	J. Scott	317,025	May 5	124	32	31	545
Sewing and trimming fabrics. Mechanism for	E. S. Cram and E. C. Covell	317,930	May 12	1339	{359 360	31	778
Sewing hat-tips. Machine for	E. J. Swartout	316,414	Apr. 21	1960	{520 521	31	370
Sewing-machine	A. Abell	319,435	June 9	631	171	31	1175
Sewing-machine	H. Charmbury	316,745	Apr. 28	2448	{637 638	31	462
Sewing-machine	E. S. Cram	315,914	Apr. 14	1308	340	31	243
Sewing-machine	E. S. Cram and E. C. Covell	315,915	Apr. 14	1309	341	31	243
Sewing-machine	E. S. Cram and E. C. Covell	315,742	Apr. 14	1065	279	31	200
Sewing-machine	G. H. W. Curtis	318,964	June 2	46	12	31	1057
Sewing-machine	G. H. Dimond	317,749	May 12	1096	288	31	731
Sewing-machine	A. A. Fisher and A. Hart	316,350	Apr. 21	1879	{497 498	31	353
Sewing-machine	R. H. Hawkins	316,263	Apr. 21	1768	465	31	334
Sewing-machine	A. J. Hurtu	315,037	Apr. 7	71	17	31	14
Sewing-machine	C. Lens	320,666	June 23	2355	622	31	1500
Sewing-machine	J. W. Post	315,067	Apr. 7	113	26	31	22
Sewing-machine	J. W. Post	320,394	June 16	1990	{523 524	31	1425
Sewing-machine	R. D. Tucker	320,898	June 23	2643	701	31	1555
Sewing-machine	W. Walker	320,099	June 16	1545	409	31	1346
Sewing-machine	J. E. White	319,766	June 9	1070	{264 265	31	1254
Sewing-machine	J. C. Wood	320,033	June 16	1457	383	31	1330
Sewing-machine	E. Woodward and T. K. Keith	316,927	Apr. 28	2705	{704 705	31	510

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drf.	Official Gazette. Vol.	Official Gazette. Page.
Sewing-machine attachment	G. L. Gray	315,935	Apr. 14	1331	346	31	247
Sewing-machine attachment for sewing welts	P. Brigham	320,043	June 16	1468	387	31	1332
Sewing-machine attachment holder	J. M. Griest	319,705	June 9	990	262	31	1239
Sewing-machine attachments. Box or case for	A. Johnston	315,039	Apr. 7	73	17	31	15
Sewing-machine binder	J. F. J. Gunning	316,359	Apr. 21	1891	500	31	355
Sewing machine. Book-	E. Cheshire	317,506	May 12	787	{201 202	31	674
Sewing machine. Book-	E. and E. Cheshire	317,507	May 12	791	{202 203	31	674
Sewing-machine braiding attachment	W. R. Clark	319,069	June 2	169	45	31	1079
Sewing-machine. Button-hole	F. W. Ostrom	320,957	June 30	2723	{723 724 723	31	1576
Sewing-machine. Button-hole	W. E. Trull	320,448	June 16	2063	542	31	1438
Sewing-machine button-hole attachment	S. J. Baird	320,528	June 23	2172	573	31	1495
Sewing-machine button-hole attachment	J. K. Harris	318,470	May 26	2057	556	31	928
Sewing-machine button-hole attachment	F. W. Smith, Jr., and S. S. Williamson.	316,410	Apr. 21	1974	519	31	369
Sewing-machine clamp. Button-hole-	R. C Bryden	319,880	June 9	1243	328	31	1283
Sewing-machine clamp. Button-hole-	J. G. Greene	319,700	June 9	983	260	31	1238
Sewing-machine embroidering attachment	F. H. Chilton	317,509	May 12	794	203	31	675
Sewing-machine embroidering attachment	F. H. Chilton	318,449	May 26	2032	548	31	923
Sewing-machine embroidering attachment	F. H. Chilton	320,758	June 23	2463	653	31	1523
Sewing-machine embroidering attachment	J. M. Griest	319,701	June 9	985	261	31	1238
Sewing-machine embroidering attachment	J. P. Lavigne	318,735	May 26	2443	655	31	997
Sewing-machine feed mechanism	R. W. Whitney	317,255	May 5	445	111	31	604
Sewing-machine feeding mechanism	P. Diehl	319,800	June 9	1127	{298 299	31	1263
Sewing-machine feeding mechanism. Button-hole-	P. Diehl	319,801	June 9	1128	299	31	1264
Sewing-machine fold-guide	J. W. Dewees	319,394	June 2	558	152	31	1154
Sewing-machine for flossing	J. A. House and C. H. Dimond	317,362	May 5	586	151	31	631
Sewing-machine guide	J. Fitting	319,690	June 9	966	256	31	1236
Sewing-machine hand-motor	J. F. White	317,057	May 5	164	41	31	553
Sewing-machine motor	M. Y. Thompson	316,850	Apr. 28	2594	678	31	490
Sewing-machine needle-guard	S. W. Wardwell, Jr.	321,065	June 30	2879	766	31	1605
Sewing-machine pitman attachment	P. S. Roy	318,207	May 19	1709	457	31	855
Sewing-machine plaiting and ruffling attachment	R. M. Cox	316,247	Apr. 21	1749	460	31	331
Sewing-machine presser-foot	J. M. Griest	319,702	June 9	987	261	31	1239
Sewing-machine presser-foot	H. P. Lancaster	321,304	June 30	3170	845	31	1659
Sewing-machine quilting attachment	H. T. Davis	321,009	June 30	2798	744	31	1591
Sewing-machine quilting attachment	D. R. Fraley	321,287	June 30	3151	840	31	1655
Sewing-machine ruffling attachment	J. M. Griest	319,707	June 9	993	262	31	1240
Sewing-machine shuttle	J. H. Anthony	315,890	Apr. 14	1254	327	31	234
Sewing-machine shuttle	J. H. Osborn	321,381	June 30	3270	874	31	1678
Sewing-machine shuttle	I. J. Tuttle	316,080	Apr. 21	1525	398	31	289
Sewing-machine shuttle-slide	H. Reise	319,849	June 9	1195	316	31	1275
Sewing-machine shuttle supporting and operating mechanism.	I. J. Tuttle	316,081	Apr. 21	1528	{308 309	31	289
Sewing machine. Sole-	Z. T. French	317,758	May 12	1108	291	31	733
Sewing machine. Sole-	Z. T. French	317,759	May 12	1109	292	31	734
Sewing-machines. Spring take-up for wax-thread	C. Drumm and W. Wyker	320,857	June 23	2567	685	31	1545
Sewing machine. Straw-hat-	E. V. Mitchell and M. G. Plimpton	317,836	May 12	1217	322	31	754
Sewing-machine tension device	S. P. Brown	319,448	June 9	648	175	31	1178
Sewing-machine tension device	A. D. Pents	319,744	June 9	1043	276	31	1249
Sewing-machine tension device	J. W. Post	317,193	May 5	365	91	31	590
Sewing-machine thread-controlling device	E. Murphy	315,856	Apr. 14	1363	353	31	252
Sewing-machine thread-unwinder	A. B. Morse	318,922	May 26	2671	708	31	1037
Sewing-machine throat-plate attachment	J. M. Griest	319,703	June 9	988	261	31	1239
Sewing-machine trimming attachment	C. F. Harlow and E. E. Angell	319,245	June 2	377	101	31	1119
Sewing-machine trimming attachment	A. B. Roberts and C. H. Forbes	317,205	May 5	382	95	31	593
Sewing-machine trimming mechanism	T. C. Robinson	317,419	May 5	665	169	31	643
Sewing-machine tuck-marker	J. M. Griest	319,706	June 9	991	262	31	1239
Sewing-machine tucker attachment	S. Needles	321,310	June 30	3179	847	31	1660
Sewing-machine underbraider	J. M. Griest	319,704	June 9	989	261	31	1239
Sewing-machines. Combined braiding and cording attachment for	D. H. Coles	318,357	May 19	1915	516	31	892
Sewing-machines. Cover-fastening device for	C. H. Bayley	316,108	Apr. 21	1572	409	31	298
Sewing machines. Needle for leather-	W. G. Tillou	318,833	May 26	2553	680	31	1015
Sewing-machines. Oscillating looper for	T. C. Robinson	316,065	Apr. 21	1503	393	31	285
Sewing-machines. Stop mechanism for button-hole-	E. D. and G. M. Ludlow	315,952	Apr. 14	1357	352	31	251
Sewing mechanism. Button-hole-	D. Mills	319,835	June 9	1179	311	31	1272
Sewing straw braid. Machine for	M. P. C. Hooper. (Reissue)	10,600	May 26	2690	{712 713	31	1040
Sewing to fasten the ends of sewed seams	E. S. Cram	315,916	Apr. 14	1310	341	31	243
Shade-holder	E. L. Bryant	318,693	May 26	2362	630	31	982
Shade-roller. Spring	S. Hartshorn	320,247	June 16	1740	462	31	1381
Shades and blinds. Self-acting mechanism for	J. Hilditch	315,029	Apr. 7	57	14	31	12
Shaft-bearing	W. A. Patrick	318,649	May 26	2303	616	31	971
Shaft-coupler	W. Schofield	317,955	May 12	1375	309	31	785
Shaft-coupling	C. E. Gee	318,975	June 2	63	16	31	1060
Shaft-coupling	C. R. James	315,791	Apr. 14	1133	297	31	213
Shaft-coupling	E. D. Mackintosh	320,439	June 16	2049	537	31	1435
Shaft-coupling	S. Stuart	316,919	Apr. 28	2696	702	31	509
Shaft. Crank-	P. A. Peer	315,060	Apr. 7	106	25	31	21
Shaft. Crank-	F. Trump	318,056	May 26	1519	407	31	818
Shaft-hanger	J. F. McCormick	319,106	June 2	214	56	31	1067
Shaft-hanger	P. Medart	319,004	June 2	91	24	31	1065
Shaft-lubricator	C. Pagé and L. Goullioud	315,538	Apr. 14	791	209	31	147
Shaft-straightening machine	A. Wood	320,610	June 23	2279	602	31	1487
Shaft-support	J. F. Richardson	319,851	June 9	1196	316	31	1275
Shaft tip. Carriage-	A. L. Howard	315,787	Apr. 14	1129	296	31	212
Shafts and pole for vehicles. Combined	J. Pettinger	316,651	Apr. 28	2292	602	31	435
Shafts. Ball and roller bearing for	D. H. Rice	321,083	June 30	2855	{759 760	31	1601

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Shafts. Device for leveling and aligning	C. Espenschied	318,885	May 26	2024	696	31	1028
Shafts. End-thrust pad for propeller and other	V. H. Hallock	315,776	Apr. 14	1115	293	31	209
Shafts from heat. Protecting	A. T. Ballentine	317,435	May 5	694	175	31	648
Shafts. Step-bearing for vertical	J. P. Frizell	321,288	June 30	3153	841	31	1655
Shafts. Supporter-pad for propeller and other	V. H. Hallock	315,777	Apr. 14	1116	293	31	209
Shafting. Device for leveling and aligning	C. Espenschied	318,886	May 26	2025	696	31	1028
Shafting. Making long lengths of	T. R. Morgan, Sr	320,952	June 30	2716	{720 721}	31	1575
Shaker and strainer. Combined	A. Rasner	316,825	Apr. 28	2550	668	31	482
Shank-stiffener	J. M. Watson	320,989	June 30	2774	737	31	1585
Sharpening-tool	N. S. Stowell	317,424	May 5	672	170	31	645
Shawl-strap	M. Rubin	317,212	May 5	389	97	31	594
Shears: *See* Animal-shears. Tailor's shears. Metal-shears.							
Shears	A. J. Lytle	320,940	June 30	2703	717	31	1573
Shears and scissors. Ornamenting	T. B. Terry	316,311	Apr. 21	1829	481	31	345
Shears. Lever attachment for hand-	P. Kearns	315,295	Apr. 7	431	109	31	78
Sheathing for buildings	D. S. Chesebro	320,757	June 23	2403	653	31	1523
Sheave. Adjustable angle	A. Tromblee	315,090	Apr. 7	139	32	31	27
Sheep-dip	O. B. Monnett	319,990	June 16	1403	.....	31	1319
Sheep-rack	S. Gillogly	320,649	June 23	2332	616	31	1495
Sheet-delivery apparatus	L. C. Crowell	316,123	Apr. 21	1594	{416 416 417}	31	302
Sheet-delivery apparatus	L. C. Crowell	317,742	May 12	1087	{285 286}	31	729
Sheet-metal-bending machine	C. C. Hare	320,653	June 23	2337	618	31	1497
Sheet-metal can	T. W. Burger and H. A. Lee	321,277	June 30	3140	836	31	1652
Sheet-metal can	G. W. Taylor	315,854	Apr. 14	1212	316	31	227
Sheet metal. Die for corrugating	C. B. Cooper	318,088	May 19	1556	{417 418}	31	825
Sheet metal. Die for finishing blanks from	E. Horton	317,789	May 12	1149	304	31	741
Sheet metal. Edging	W. E. Spangler	316,196	Apr. 21	1683	441	31	319
Sheet-metal-flanging press	R. H. Tweddell, J. Platt, and J. Fielding.	317,427	May 5	682	{172 173}	31	646
Sheet metal. Machine for cross-turning	V. Sharp	317,585	May 12	895	227	31	691
Sheet metal. Machine for edging	W. B. Ilnber	316,461	Apr. 28	2055	538	31	389
Sheet-metal pans. Apparatus for wiring	J. Wagner	320,020	June 16	1442	378	31	1326
Sheet-metal vessel	I S. Lauback	317,807	May 12	1174	311	31	746
Sheet-metal ware. Making	H. L. Palmer	319,306	June 2	450	121	31	1133
Shelf-bracket	B. F. Tatem	317,242	May 5	421	106	31	601
Shell	B. B. Hill	316,970	May 5	53	14	31	532
Shell-crimping implement	A. Bown	318,412	May 19	1985	534	31	905
Sheller: *See* Corn-sheller.							
Shepherd's crook	D. Conner	316,242	Apr. 21	1743	458	31	329
Shingle	W. J. Perkins	315,061	Apr. 7	106	25	31	21
Shingle and siding gage	W. H. H. Campbell	315,722	Apr. 14	1033	271	31	193
Shingle. Metallic	M. G. Farmer	316,134	Apr. 21	1611	421	31	305
Shingle. Roofing	G. Hall	318,724	May 26	2400	640	31	989
Shingle-sawing machine	F. Challoner	318,956	June 2	34	9, 10	31	1055
Shingle-sawing machine	F. Stahl	316,301	Apr. 21	1819	478	31	343
Shingles for painting. Apparatus for holding	W. W. Robinson	320,589	June 23	2254	597	31	1482
Ship-log. Hydro-aerostatic	O. Hult	319,582	June 9	892	221	31	1211
Ships. Apparatus for cleaning submerged parts of	A. D. Spier	320,824	June 23	2541	673	31	1537
Ships. Apparatus for cleaning the sides and bottoms of	D. Hunter	318,904	May 26	2048	702	31	1033
Ships' cleaning apparatus. Tackle for working	A. D. Spier	318,814	May 26	2530	675	31	1011
Shipping and transferring coal, salt, &c. Apparatus for	A. R. Large	316,962	May 5	68	18	31	535
Shirt	A. H. Brinkmann	317,711	May 12	1045	272	31	722
Shirt	D. N. Bristol	315,119	Apr. 7	154	42 43	31	32
Shirt	C. N. Davis	318,546	May 26	2182	564	31	949
Shirt	M. Hermann	319,487	June 9	705	189	31	1187
Shirt	E. Krahn	321,370	June 30	3257	870	31	1676
Shirt	C. K. Miller and G. H. Cleveland	317,833	May 12	1215	321	31	754
Shirt	W. M. Spence	317,872	May 12	1202	306	31	763
Shirt-bosom	L. Price and I. Wallach	317,417	May 5	662	168	31	643
Shirt cuff and wristband	J. B. See	315,174	Apr. 7	200	63	31	47
Shirt-neckband protector	D. N. Bristol	315,117	Apr. 7	173	42	31	32
Shirt-yoke shield	D. N. Bristol	315,118	Apr. 7	174	42	31	32
Shoe	C. B. Godfrey	316,454	Apr. 28	2046	536	31	388
Shoe	W. D. Hall	317,127	May 5	264	66	31	571
Shoe	A. S. Richardson	319,850	June 9	1196	316	31	1275
Shoe	G. W. Sleeper	320,406	June 16	2016	527	31	1428
Shoe-fastener	M. Naylon	315,819	Apr. 14	1169	306	31	219
Shoe fastener. Rubber-	J. A. Kessel	317,654	May 12	976	252	31	708
Shoe fastener. Rubber-	J. A. Kessel	318,481	May 26	2073	560	31	931
Shoe-fastening	H. H. Redman	315,554	Apr. 14	816	214	31	151
Shoe-finishing jack	J. F. Child	317,091	May 5	212	53 54	31	562
Shoe-heels. Machine for making ladies'	F. Ortlepp	320,164	June 16	1632	434	31	1300
Shoe-insoles. Forming	E. Meise	319,740	June 9	1038	275	31	1249
Shoe-lasting machine	A. S. Libby	317,384	May 5	615	158	31	635
Shoe-maker's pinchers	J. G. Lynn	315,430	Apr. 7	619	159	31	110
Shoe-maker's rasping-tool	T. S. Wheatley	320,733	June 23	2432	64, 65	31	1516
Shoe-nailing machine	H. S. Bacon	319,875	June 9	1233	{325 326}	31	1281
Shoe. Seamless	H. Haller	317,643	May 12	960	247	31	705
Shoe-stretcher	W. Jones	315,631	Apr. 14	914	240	31	170
Shoe. Swimming-	J. A. Couper	320,702	June 23	2470	654	31	1524
Shoe-tree	J. A. Higgins	319,412	June 2	581	158	31	1159
Shoe-upper machine	C. B. Hatfield	318,731	May 26	2409	642	31	991
Shoe-upper tree	J. Meyer	317,560	May 12	851	219	31	686

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Shoe. Wooden-soled	A. J. Tewksbury	315,572	Apr. 14	842	221	31	156
Shoes, gloves, &c. Fastening device for	S. Abecasis	318,407	May 19	1981	533	31	904
Shoes. Machine for splitting the uppers for	G. W. Sleeper	320,407	June 16	2011	528	31	1428
Shot-separator feeder	A. Euston	319,684	June 9	960	255	31	1234
Shoulder-brace	I. Strouse	317,474	May 5	741	188	31	657
Shovel: *See* Grated shovel. Snow-shovel.							
Shovel	H. M. Whitney	320,197	June 16	1672	445	31	1368
Shovel-handle	E. K. Holton	321,028	June 30	2-26	751	31	1596
Shovel mechanism. Automatic	C. J. Rinderknecht	317,016	May 5	115	29	31	543
Shovel or spade handle	P. W. Groom	315,407	Apr. 7	584	150	31	105
Show-case for cooling oysters, &c	A. T. Lundqvist	319,418	June 2	589	160	31	1160
Shutter	H. O. Whyman	315,580	Apr. 14	849	223	31	158
Shutter and door bolt	A. J. Doolittle	319,207	June 2	327	87	31	1109
Shutter-bolt	J. Von Hollen	315,681	Apr. 14	975	255	31	183
Shutter-fastener	J. A. Burr	318,414	May 19	1987	535	31	905
Shutter-fastener	T. Dougherty	319,209	June 2	328	88	31	1109
Shutter-fastener	J. Von Hollen	315,979	Apr. 14	1393	361	31	258
Shutter-fastener	C. C. Schreiber	320,974	June 30	2756	733	31	1582
Shutter. Fire-proof	W. A. Holbrook	320,746	June 23	2487	661	31	1528
Shutter. Inside	L. O. Dion	316,529	Apr. 28	2136	562	31	406
Shutter-worker	A. H. Dodd	316,131	Apr. 21	1606	419	31	304
Shutter-worker	A. H. Dodd	319,205	June 2	325	87	31	1108
Shutter-worker	R. G. Dudley	315,393	Apr. 7	500	145	31	101
Shutter-worker	R. G. Dudley	318,421	May 19	1995	537	31	907
Shutter-worker	J. Hargraves	318,109	May 19	1585	424	31	831
Shutter-worker	G. E. Potter	319,999	June 16	1413	371	31	1321
Shutter-worker	G. W. Stover	321,396	June 30	3291	879	31	1682
Shutter-worker	J. N. Worthington	321,268	June 30	3130	833	31	1650
Sidewalk and paving block	H. G. Fiske	317,106	May 5	230	58	31	566
Siding-gage	P. V. Moberg	318,280	May 19	1802	482	31	872
Siding gage or dog	A. C. L. Davis	316,338	Apr. 21	1865	494	31	350
Sieve-brushing apparatus	F. A. Price	315,066	Apr. 7	111	26	31	22
Sifter. Ash-	F. Chatelanat	317,974	May 19	1409	378	31	799
Sifter. Ash-	A. Hallwig	319,407	June 2	577	157	31	1158
Sifter. Ash-	C. L. Kipe	318,567	May 26	2206	580	31	953
Sifter. Ash-	J. McAuliffe	321,307	June 30	3174	846	31	1660
Sifter. Ash-	S. J. Phreaner	318,653	Apr. 28	2294	602	31	435
Sifter. Ash-	P. O'Connor	317,574	May 12	871	223	31	689
Sifter. Coal-	A. Wolf	319,375	June 2	536	146	31	1150
Sifter for flour, &c	W. H. Bayles	318,683	May 26	2348	627	31	980
Sifter. Revolving ash-	W. A. McCool	319,833	June 9	1177	310	31	1272
Sign	C. C. Scales	321,252	June 30	3108	827	31	1646
Sign. Revolving letter or character	J. Cragg	318,960	June 2	40	11	31	1056
Signal: *See* Electric signal. Railway-station signal. Programme-signal. Train-signal. Railway-signal.							
Signal-transmitter	J. C. Wilson	320,032	June 16	1456	383	31	1329
Signal transmitters. Automatic call for latent-	F. B. Herzog	315,763	Apr. 14	1121	{294 295}	31	210
Signal transmitters. Bell for latent-	F. B. Herzog	315,941	Apr. 14	1338	348	31	248
Signaling apparatus	W. Neilson	318,015	May 19	1464	392	31	808
Signaling apparatus. Individual	E. F. Frost	320,923	June 30	2691	712	31	1569
Silk from the cocoon. Device for reeling	E. W. Serrell, Jr	317,222	May 5	402	101	31	297
Silk-reeling machines. Cocoon-holder for	E. W. Serrell, Jr	320,709	June 23	2406	637	31	1510
Silk threads. Method of and device for testing the size of	E. W. Serrell, Jr	317,223	May 5	403	101	31	597
Single-tree. Hoisting	W. Louden	315,423	Apr. 7	609	156	31	109
Sink-cleaner	F. E. Allen	320,742	June 23	2442	647	31	1518
Sink-valve	C. M. Tack	317,043	May 5	144	37	31	548
Siphon-motor. Hydraulic	A. Baloche and A. Krahnass	317,074	May 5	188	47	31	557
Sirup-fountain	J. Brown	317,618	May 12	931	239	31	700
Skate	M. C. Henley	320,352	June 16	1923	507	31	1411
Skate	C. O. Yale	321,412	June 30	3316	884	31	1686
Skate-clamp	J. C. Howe	315,623	Apr. 14	904	237	31	168
Skate fastening. Roller-	E. H. Barney	319,666	June 9	942	249	31	1231
Skate. Roller-	C. J. Becktel	321,337	June 30	3209	856	31	1666
Skate. Roller-	G. D. Burton and G. W. Lord	317,501	May 12	781	199	31	673
Skate. Roller-	S. D. Castle	320,026	June 23	2304	608	31	1490
Skate. Roller-	J. S. Clawson	319,787	June 9	1106	294	31	1260
Skate. Roller-	C. M. Conradson	317,514	May 12	799	205	31	676
Skate. Roller-	F. Driffill	316,342	Apr. 21	1871	495	31	351
Skate. Roller-	E. Hall	318,723	May 26	2399	640	31	989
Skate. Roller-	A. Hall	321,290	June 30	3155	841	31	1656
Skate. Roller-	M. C. Henley	316,206	Apr. 21	1771	466	31	314
Skate. Roller-	M. C. Henley	319,712	June 9	1001	265	31	1242
Skate. Roller-	I. Lancaster	321,227	June 30	3077	817	31	1641
Skate. Roller-	I. P. Nelson	319,539	June 9	1182	312	31	1273
Skate. Roller-	W. H. Peterson and M. C. Henley	320,392	June 16	1988	523	31	1425
Skate. Roller-	C. M. Raymond	316,640	Apr. 28	2300	604	31	436
Skate. Roller-	C. M. Raymond	318,291	May 19	1814	485	31	875
Skate. Roller-	G. H. Thompson	319,530	June 9	760	203	31	1197
Skate. Roller-	J. A. Turnbull	321,261	June 30	3118	830	31	1648
Skate. Roller-	J. N. Ward	321,064	June 30	2879	765	31	1604
Skate. Roller-	J. Williams	320,108	June 16	1563	412	31	1348
Skate. Roller-	L. D. York	320,993	June 30	2778	738	31	1586
Skate. Roller-	W. Gardner	320,774	June 23	2482	657	31	1526
Skate-roller	E. W. Otis	315,923	Apr. 14	1173	307	31	220
Skate-roller	E. E. Edgerton	318,237	May 19	1750	468	31	862
Skates. Anti-friction bearing for roller-	J. E. Evans	316,431	Apr. 21	2001	526	31	374
Skates. Anti-friction bearing for roller-	W. S. Harmon	320,554	June 23	2206	583	31	1473
Skates. Anti-friction bearing for roller-	E. H. Barney	319,775	June 9	1063	288	31	1256
Skates. Implement for attaching washers on roller-	W. J. Cowing	320,462	June 23	2088	550	31	1451
Skater's appliance							

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Skating-rinks. Inclined floor or platform for	W. Staats	321,320	June 30	3190	851	31	1663
Skillet-cap	F. R. Wells	315,196	Apr. 7	305	73	31	54
Skins. Graining	E. Schroeder	319,136	June 2	251	.....	31	1093
Skirt-protector	A. E. Sawyer	318,038	May 19	1495	401	31	814
Skirt-protector. Lady's	C. A. Gandil	319,477	June 9	690	185	31	1185
Skylight	G. Hayes. (Reissue)	10,581	Apr. 21	2003	526	31	374
Skylight	B. Overman and W. H. O'Connor	315,958	Apr. 14	1366	353	31	253
Skylight-bar. Metallic	G. Hayes. (Reissue)	10,582	Apr. 21	2004	527	31	375
Skylights, &c. Construction of	A. Friedrick	320,235	June 16	1726	458	31	1378
Slags. Separating basic compounds from	G. Dennelandt	318,603	May 26	2245	.....	31	960
Slate-frame and pencil-case	J. H. Johnson	321,366	June 30	3254	869	31	1675
Slate, &c. Machine for chanueling	J. Henwood	318,735	May 26	2413	643	31	992
Slate ruler attachment	J. R. Kennedy	320,142	June 16	1606	425	31	1355
Slate. School	E. L. Kranz	320,367	June 16	1941	511	31	1414
Slate-shaving machine	R. A. Coffin	315,247	Apr. 7	376	92, 93	31	68
Sled	C. H. Weisgerber, Jr	320,520	June 23	2161	570, 571	31	1464
Sled-brake	L. M. Bradbury, Jr	319,950	June 16	1347	354	31	1309
Sled-brake	B. P. Pott	319,022	June 2	110	30	31	1068
Sled. Wheel	N. Harper	315,616	Apr. 14	996	235	31	166
Sleeve, hose, and garment supporters. Attachment for	C. J. Haley	320,469	June 23	2066	553	31	1452
Sleeves of garments. Device for holding	S. H. Whiting	316,712	Apr. 28	2399	625	31	454
Sliding gate	W. W. Graves	317,765	May 12	1115	294	31	735
Sling	I. W. Cooper	316,625	Apr. 28	2131	561	31	405
Small-arm. Breech-loading	H. Tolley	315,858	Apr. 14	1221	319	31	228
Smelting-furnace	E. G. Smith and C. Bell	316,609	Apr. 28	2313	607	31	439
Smelting-furnace. Electric	E. H. and A. H. Cowles	319,945	June 9	1334	351, 352	31	1209
Smelting ores	M. D. Brett	320,008	June 30	2663	708	31	1566
Smelting ores by the electric current	E. H. and A. H. Cowles	319,795	June 9	1117	296	31	1261
Smoke-consumer	E. E. Hedley	317,775	May 12	1128	298	31	738
Smoke-consuming furnace	A. T. Kinney	315,145	Apr. 7	216	53	31	39
Smoke-preventing furnace	D. Davis	317,522	May 12	807	207	31	678
Smoke-preventing furnace	G. Farr and A. B. Seward	317,935	May 12	1343	361	31	779
Snap-hook	C. Blanchard	321,080	June 30	2897	770	31	1608
Snap-hook	J. C. Covert	318,545	May 26	2182	584	31	949
Snap-hook	G. W. Giffard	319,972	June 16	1377	361	31	1315
Snap-hook	J. B. Keefe	315,796	Apr. 14	1139	298	31	214
Snap-hook	D. W. Palmer	320,165	June 16	1633	434	31	1361
Snap-hook	H. S. Stapler	318,817	May 26	2534	676	31	1019
Snap-hook for reins	F. H. Chapman	319,560	June 9	801	212	31	1205
Snap-lock	G. M. Jewett	316,269	Apr. 21	1777	468	31	335
Snow-drifts in road-cuts, &c. Device for preventing	W. T. and W. H. Steiger	319,143	June 2	257	67	31	1094
Snow-plow	P. O. King	321,301	June 30	3167	844	31	1658
Snow-plow. Railway	G. W. Hopkins	316,972	May 5	54	14, 15	31	532
Snow-shovel	H. D. Waite	321,326	June 30	3198	853	31	1664
Snow-shovel	C. Watson and C. E. Adams	316,509	Apr. 28	2116	556	31	401
Soap composition	E. Schaal	319,854	June 9	1199	.....	31	1276
Soap for restoring color to plushes, velvets, &c	A. Kendall	319,097	June 2	204	.....	31	1085
Soap-holder	C. A. Bryant	316,734	Apr. 28	2433	633	31	460
Soda. Apparatus for making granulated crystalline carbonate of	J. Mactear	316,277	Apr. 21	1791	470	31	338
Soda. Apparatus for the recovery of	F. A. Cloudman	319,956	June 16	1353	355	31	1311
Soda. Grinding caustic	C. Semper	318,044	May 19	1502	.....	31	815
Soda in combination with zinc oxide, &c. Treating silicate of	C. S. Lockwood and J. H. Hyatt	317,388	May 5	620	.....	31	636
Soda-water. Apparatus for dispensing	C. Adami	316,594	Apr. 28	2219	584	31	422
Sodium carbonate. Making	A. Kayser	320,256	June 16	1750	.....	31	1382
Sodium sulphite. Making	E. Carey, H. Gaskell, Jr., and F. Hurter.	321,341	June 30	3213	857	31	1667
Soil-dressing machine	I. W. Boatman	319,949	June 16	1345	354	31	1309
Solar cameras. Adjustment for	W. C. Strong	315,450	Apr. 7	642	166	31	114
Soldering-iron	B. J. Hoffacker	319,904	June 9	1275	336	31	1289
Soldering. Lacquer for use in	W. Rosenberg	319,128	June 2	243	.....	31	1092
Soldering machine. Can	G. Ackermann	315,877	Apr. 14	1245	325, 326	31	232
Soldering machine. Can	F. M. Leavitt	320,663	June 23	2350	621	31	1499
Soldering-tool	J. Mactear	316,278	Apr. 21	1793	471	31	338
Sole-channelling machine	J. E. Jackson	321,032	June 30	2829	752	31	1506
Sole-laying machine	P. A. Coupal	315,913	Apr. 14	1306	340	31	242
Sole-laying machine	A. Eppler, Jr	315,922	Apr. 14	1316	343	31	244
Sole-laying machine	A. Eppler, Jr	315,923	Apr. 14	1318	343	31	245
Sole-laying machine	A. Eppler, Jr	315,924	Apr. 14	1320	343	31	245
Soles and uppers. Machine for uniting	S. W. Robinson and O. E. Lewis	319,127	June 2	242	63	31	1092
Soling. Roll for making india-rubber	L. Elliott	315,262	Apr. 7	391	97	31	71
Sounding-rod	H. Case	317,089	May 5	210	53	31	561
Sower. Broadcast seed	L. Eberhart and I. D. Stevens	316,019	Apr. 21	1445	377	31	275
Sower. Broadcast seed	H. A. Gore	315,405	Apr. 7	578	149	31	104
Sower. Broadcast seed	O. F. Heartwell, Jr	319,411	June 2	580	158	31	1158
Sower. Seed	G. E. Kaltmeyer	319,586	June 9	838	222	31	1211
Sower. Seed	J. Price	317,013	May 5	111	28	31	542
Sower. Two-row seed	E. C. Ellwood	319,211	June 2	330	88, 89	31	1100
Sowing fertilizing material. Machinery for	F. O. Wellington	319,155	June 2	270	71	31	1097
Sowing-machine	T. D. Galloway	321,099	June 30	2925	774	31	1612
Spade	G. J. Dickson	316,014	Apr. 21	1438	375	31	274
Spark-arrester	H. E. Bradley	317,290	May 5	493	124	31	613
Spark-arrester	C. S. Colville	319,457	June 9	659	177	31	1179
Spark-arrester	J. Ela	316,022	Apr. 21	1448	378	31	276
Spark-arrester	W. Meier	318,573	May 26	2213	591	31	954
Spark arrester and consumer. Locomotive	G. H. Griggs	316,892	Apr. 28	2647	690, 691	31	500
Spark-extinguisher	G. D. Hunter	320,875	June 23	2607	691	31	1549
Spectacle and eyeglass frame	L. Lazarus	319,733	June 9	1030	273	31	1247
Spectacle nose-guard	T. P. Hubbell	319,977	June 16	1386	364	31	1316

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Spectacles	D. V. Brown	316,873	Apr. 28	2624	684	31	495
Spectacles and eyeglasses. Bifocal lens for	G. W. Wells	319,153	June 2	267	71	31	1096
Spectacles and watch-maker's eyeglass. Combined	G. H. Hull	320,558	June 23	2209	584	31	1473
Spectacles. Microphotographic attachment for	R. Galland-Mason	319,401	June 2	566	154	31	1156
Speculum. Anal	A. B. Botsford	315,466	Apr. 14	674	175	31	126
Speculum. Rectal	W. M. Baldwin, Jr	321,334	June 30	3206	855	31	1666
Speed-changing device	J. S. Price	320,667	June 23	2382	630	31	1505
Spelt. Preparing and curing	H. Lorch	318,768	May 26	2464	.....	31	1001
Sphere. Terrestre-siderial	J. G. and M. L. Borneike	320,999	June 30	2785	740	31	1587
Spigot for beer. Try	M. Hey	320,252	June 16	1745	464	31	1381
Spike-extractor	A. W. McCaslin	317,163	May 5	321	80	31	561
Spike-machine	J. H. Alker	315,693	Apr. 14	988	259	31	186
Spike-machine	W. Koplin	319,587	June 9	840	222, 223, 224	31	1212
Spikes. Roll for making	H. W. Fowler	317,330	May 5	550	140, 141	31	624
Spiling for wharves and bridges. Compound	J. Elmer	319,471	June 9	678	182	31	1183
Spindle and bearing therefor	J. B. and T. H. Dewhurst and R. Cornthwaite.	316,758	Apr. 28	2466	643	31	466
Spindle and flier for spinning hemp, &c	J. Good	317,118	May 5	252	63	31	569
Spindle and flier for spinning rope-yarn	J. Good	317,116	May 5	245	61, 62	31	568
Spindle-bearing	W. F. Draper	316,016	Apr. 21	1441	376	31	274
Spinning and twisting machine	W. T. Carroll	316,008	Apr. 21	1430	372	31	272
Spinning and twisting machine	G. M. Whitin	318,405	May 19	1978	532	31	904
Spinning cotton yarn. Machinery for	T. T. Abbot	317,607	May 12	915	234, 235	31	697
Spinning-frame	R. Wright	318,936	May 26	2687	712	31	1040
Spinning-machine	A. B. Edmands	317,323	May 5	536	136, 137	31	622
Spinning-machine	E. Thomas	318,522	May 26	2137	575	31	943
Spinning machine. Ring	C. H. Chapman	316,603	Apr. 28	2229	587	31	424
Spinning-machines. Cap-bar support for	W. Mason	318,385	May 19	1951	526	31	899
Spinning-machines. Lever-screw for holding weight-levers of rolls of	T. H. Speakman	316,197	Apr. 21	1684	441	31	319
Spinning-machines, &c. Top roll for	W. T., E. J., and E. H. Carroll	320,333	June 16	1889	496	31	1405
Spinning-mule	E. C. A. Masson	317,397	May 5	631	161	31	638
Spiral springs. Machine for making	E. A. Jones	317,543	May 12	830	213, 214	31	682
Spiral springs. Machine for setting	A. O. Walker	318,330	May 19	1879	505	31	886
Spittoon	T. J. Dorsey and M. S. McQuarrie	319,468	June 9	675	181	31	1182
Splice-bar and car-replacer combined	H. H. Littell	317,386	May 5	617	158	31	636
Splint	W. D. Kearns	315,512	Apr. 14	741	196	31	138
Splint. Plaster-of-paris	J. P. Wallace	316,421	Apr. 21	1990	523	31	372
Spoke driving and tenoning machine	H. Watkins	319,942	June 9	1329	350	31	1298
Spoke-extractor	G. A. Schoenike	319,512	June 9	737	198	31	1193
Sponge or mop holder	J. B. Morgan	315,814	Apr. 14	1163	304	31	218
Spool or ball holder	J. F. Adams	316,595	Apr. 28	2221	584	31	422
Spooling-machine bobbin-supporter	W. F. Draper	315,488	Apr. 14	709	187	31	132
Spreading-tool for machines for coating fabrics with plastic material	A. C. Barstow	320,530	June 23	2175	574	31	1466
Spring: *See* Bed-spring. Bolster-spring. Car-spring. Carriage-spring. Cultivator-spring. Door-spring. Door and gate spring. Platform-spring. Vehicle-spring.							
Spring	W. I. Bunker	319,555	June 9	793	210	31	1203
Spring	L. Sterne	316,306	Apr. 21	1824	480	31	344
Spring-clasp	E. S. Smith	317,032	May 5	132	33	31	546
Spring-hanger	J. A. Mack and C. Hanson	315,644	Apr. 14	929	243	31	173
Spring-holding device	C. Riessner	316,062	Apr. 21	1499	392	31	285
Spring-joint for hooks, &c	W. H. Walker	320,729	June 23	2428	644	31	1515
Spring-measurer and track-indicator. Combined	G. W. Morris and W. Frech	315,532	Apr. 14	782	206, 207	31	145
Spring-motor	G. Jiencke	317,368	May 5	593	152	31	632
Spring-motor	G. Jiencke and A. McKee	315,946	Apr. 14	1348	349, 350	31	250
Spring-setting machine	J. S. Pessenger	316,890	Apr. 28	2543	665	31	481
Spring vibrating chair	J. Edson	316,021	Apr. 21	1447	377	31	275
Springs. Turning the ends of	W. A. Sweet	320,187	June 16	1663	442	31	1367
Sprinkler and atomizer	M. Goldman	320,346	June 16	1903	501	31	1408
Square. Bevel	J. O. Grover	320,531	June 30	2693	714	31	1571
Square. Carpenter's	W. Steers	320,718	June 23	2416	640	31	1513
Square. Folding	H. Davidson	318,877	May 26	2615	695	31	1026
Square, miter, and bevel. Combined	J. Müller	319,012	June 2	101	27	31	1067
Stable-cleaner	L. Zimmerman	318,406	May 19	1979	532	31	904
Stable-scraper	S. C. Arnold	320,112	June 16	1567	413	31	1349
Stacking-frame. Portable	S. J. Miller	320,153	June 16	1621	431	31	1358
Staging-bracket. Adjustable	J. D. Davenport	319,463	June 9	670	179, 180	31	1181
Stair-rod	T. Worley	321,168	June 30	3007	797	31	1628
Stalk and cane cutter	A. Baumgartner	318,042	June 2	5	2	31	1049
Stalk-cutter	J. K. Patterson	320,812	June 23	2529	670	31	1534
Stall	C. F. Shedd	320,711	June 23	2408	638	31	1511
Stamp	W. S. Sharpneck	320,818	June 23	2536	672	31	1535
Stamp. Automatic registering	C. C. Montague	319,008	June 2	95	25	31	1065
Stamp. Hand	B. B. Hill	315,285	Apr. 7	420	105	31	76
Stamp. Hand	B. B. Hill	315,286	Apr. 7	422	105	31	76
Stamp. Hand	W. H. Keeler	321,223	June 30	3072	815	31	1640
Stamp. Hand	W. W. Sawyer and J. H. Gould	315,076	Apr. 7	123	29	31	24
Stamp. Ore	C. Sholl	318,193	May 19	1688	452, 453	31	851
Stamp-pad	C. P. Stevens	316,672	Apr. 28	2318	608	31	440

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Stamp. Self-inking pocket	E. M. Richford	317,853	May 12	1239	328	31	758
Stamps, &c. Device for picking up and affixing	G. W. Schimmel	318,328	June 2	479	129	31	1139
Stamps. Machine for stamping and obliterating postage	E. Daguin	319,962	June 16	1359	357	31	1312
Stamps. Registering apparatus for check	B. P. Roberts	316,293	Apr. 21	1809	476	31	341
Stand: *See* Barrel stand. Bath-stand. Camera-stand. Drawing-stand. Flower-stand. Folding stand. Fruit-picking stand. Hat-stand. Wash-stand.							
Stand-pipes. Inlet-nozzle for	S. Lord and W. H. Dalley	315,521	Apr. 14	758	201	31	141
Staple	W. Chisholm	315,124	Apr. 7	181	45	31	33
Staple	A. Nelson	319,607	June 9	875	231	31	1218
Staple driving and clinching implement	W. Young	317,480	May 5	749	189, 190	31	658
Starch-depositing plane	W. Duryea	320,430	June 16	2038	535	31	1433
Starch-depositing plane	W. Duryea	320,431	June 16	2039	535	31	1433
Starch, glucose, &c. Manufacture of	P. Radenhausen	319 315	June 2	466	.....	31	1136
Starch. Laundry	W. H. Midgley	319,598	June 9	862	228	31	1216
Starch. Manufacture of	J. C. Schuman	316,404	Apr. 21	1959	516, 517	31	367
Starch. Manufacture of	J. C. Schuman	316,405	Apr. 21	1962	517	31	367
Starch. Manufacture of	J. C. Schuman	318,308	May 19	1849	496	31	880
Starch. Manufacture of	J. C. Schuman	320,400	June 16	2003	.....	31	1427
Starch. Manufacture of	J. C. Schuman	320,402	June 16	2006	.....	31	1428
Starch. Preparing and treating	W. T. Jebb	320,361	June 16	1994	.....	31	1413
Starch. Preparing and treating	J. C. Schuman	318,307	May 19	1847	496	31	880
Starch. Preparing and treating	J. C. Schuman	320,401	June 16	2004	.....	31	1427
Starch. Treating and preparing	J. C. Schuman	316,406	Apr. 21	1964	517, 518	31	368
Starching and tentering machine	C. B. Haynes	320,249	June 16	1742	463	31	1381
Station-indicator	W. J. Pettingell	319,505	June 9	727	195	31	1191
Station train-indicator	E. S. Boynton	317,616	May 12	929	238	31	699
Stave-jointing machine	H. D. Barnes	320,747	June 23	2448	649	31	1520
Steam and hot-air engine. Combined	D. Lyle	317,814	May 12	1184	315, 316	31	748
Steam and water gage. Safety	J. L. Nelson and A. F. Landerholm	316,998	May 5	94	24	31	539
Steam-boiler	M. W. Barse	319,545	June 9	780	207	31	1201
Steam-boiler	W. T. Bate	319,383	June 2	546	148, 149	31	1152
Steam-boiler	W. W. Carman	317,503	May 12	783	200	31	673
Steam-boiler	W. Clark	315,243	Apr. 7	369	91	31	67
Steam-boiler	C. M. Giddings	321,015	June 30	2806	746	31	1592
Steam-boiler	G. G. M. Hardingham	316,032	Apr. 21	1459	380, 381, 382	31	278
Steam-boiler	S. P. Hedges	316,144	Apr. 21	1620	424	31	307
Steam-boiler	T. Kays	315,511	Apr. 14	738	195, 196	31	138
Steam-boiler	W. Kent	317,653	May 12	974	251	31	708
Steam-boiler	P. O'Connor	319,842	June 9	1185	313	31	1273
Steam-boiler	J. S. Possenger	319,120	June 2	232	61	31	1070
Steam-boiler	G. A. Porter	317,190	May 5	302	90	31	589
Steam-boiler	G. S. Strong	315,974	Apr. 14	1388	359, 360	31	257
Steam-boiler	L. Zeller	316,214	Apr. 21	1708	448	31	323
Steam-boiler blow-off	S. A. Moore	316 561	Apr. 28	2174	572	31	413
Steam-boiler cleaner	R. Stewart	319,892	June 9	1213	320	31	1278
Steam-boiler covering	W. H. McKinney	319,738	June 9	1036	274	31	1248
Steam-boiler flue-cleaner	W. H. Cooper	315,738	Apr. 14	1060	277, 278	31	199
Steam-boiler header	R. R. Zell	321,320	June 30	3202	854	31	1665
Steam-boiler heads. Machine for flanging	F. L. Kellberg	317,145	May 5	287	73	31	576
Steam boiler man-holes and analogous devices. Manufacture of	J. Torloff	316,312	Apr. 21	1831	462	31	345
Steam-boiler. Sectional	A. Worthington	320,035	June 16	1459	384	31	1330
Steam-boiler separator	C. M. Giddings	321,016	June 30	2806	746	31	1592
Steam-boilers. Adjustable water-line indicator for	A. W. Pratt	315,659	Apr. 14	947	249	31	177
Steam-boilers, &c. Covering for	J. G. Naardt	321 233	June 30	3027	820	31	1642
Steam draft and pressure regulator	N. J. Waterman	315,864	Apr. 14	1239	321	31	230
Steam-engine	L. B. Carricaburu	321,064	June 30	2901	771	31	1609
Steam-engine	J. Clark	316,332	Apr. 21	1758	491	31	349
Steam engine	L. B. Ellis	320,273	June 16	1793	458	31	1377
Steam-engine	C. A. Jacobs	317,541	May 12	828	213	31	661
Steam-engine	W. J. Lane	315,516	Apr. 14	746	197, 198	31	140
Steam-engine	M. N. Lynn and G. N. Wheeler	315,643	Apr. 14	928	243	31	173
Steam-engine	D. D. Pinkham	321,313	June 30	3182	848, 849	31	1661
Steam-engine	H. H. Westinghouse. (Reissue)	10,603	May 26	2698	714, 715	31	1042
Steam-engine cap-plate	C. H. Roberts	315,840	Apr. 14	1192	310	31	223
Steam-engine. Compound	J. A. Groshon	319,900	June 9	1279	334	31	1288
Steam-engine. Compound	J. A. Groshon	319,901	June 9	1271	335	31	1288
Steam-engine. Compound	J. F. Krieger and J. H. Eickershoff	318,003	May 19	1448	368	31	806
Steam-engine. Compound	I. A. Turner	321,325	June 30	3197	852	31	1664
Steam-engine condensing apparatus	J. L. Alberger and T. Sault	318,225	May 19	1733	463, 464	31	860
Steam-engine cross-head	S. Greenhalgh	318,244	May 19	1757	470	31	864
Steam-engine cross-head	J. B. Stanwood	318,216	May 19	1721	460	31	857
Steam-engine cylinder	G. S. Strong	320,894	June 23	2638	699, 700	31	1554
Steam-engine exhaust attachment	E. M. Thomas	319,750	June 9	1060	282	31	1232

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Steam-engine lubricating attachment	H. H. Westinghouse. (Reissue)	10,586	Apr. 21	2012	598	31	376
Steam-engine. Oscillating	E. L. Moore	320,575	June 23	2227	590	31	1477
Steam-engine. Oscillating	C. P. Waldron	316,207	Apr. 21	1694	445	31	321
Steam-engine pressure-recorder and speed-indicator	G. W. Brown	316,111	Apr. 21	1574	409	31	298
Steam-engines. Automatic lubricator for	C. Couse	318,168	May 19	1661	445	31	845
Steam-gage	G. W. Brown	318,691	May 26	2360	630	31	982
Steam-generator	W. A. Grondahl	319,235	June 2	364	97	31	1116
Steam-generator	A. P. Holcomb	318,902	May 26	2644	701	31	1032
Steam-generator	W. A. Pentecoat	315,160	Apr. 7	241	59	31	44
Steam-generator	N. W. Pratt	318,501	May 26	2101	566, 567	31	936
Steam-generator	J. Robb	321,251	June 30	3107	826	31	1646
Steam-generator	J. E. Shapley	320,446	June 16	2058	540	31	1436
Steam-generator	J. W. Van Dyke	315,190	Apr. 7	298	71	31	53
Steam-generator. Sectional	T. C Joy	317,370	May 5	596	153	31	632
Steam-generators. Fuel-magazine for	G. Mehring	319,005	June 2	93	24	31	1065
Steam-muffler	W. E. Pearson	318,651	May 26	2306	616	31	972
Steam. Removing oil from exhaust	S. Smart	316,673	Apr. 28	2319	609	31	440
Steam-trap	J. R. Barry	315,890	Apr. 14	1270	330	31	236
Steam-trap	R. B. Hellwell	318,249	May 19	1762	471	31	865
Steam-trap	C. H. Magoon	318,271	May 19	1793	480	31	870
Steam trap. Exhaust	J. Hoey	320,134	June 16	1597	422	31	1354
Steam-washer	L. C. Wright	319,656	June 9	931	246	31	1228
Steamer. Culinary	G. F. Seavey	317,219	May 5	397	99	31	586
Steamer. Food	L. S. Bunker	315,713	Apr. 14	1016	267	31	191
Steamer. Food	O. Nelson	317,839	May 12	1220	323	31	755
Steaming grain. Apparatus for	W. H. Jnstus	317,461	May 5	725	183	31	654
Steel and steel-coating wrought-iron. Making refined cast	T. Sheehan	320,819	June 23	2537	.....	31	1536
Steel. Butcher's	T. W. Stone	317,591	May 12	893	229	31	693
Steel. Deoxidizing molten iron in the manufacture of	N. D. Wittman	318,067	May 19	1531	.....	31	820
Steering canal-boats	C. McCabe	320,670	June 23	2361	623	31	1501
Steering-gear of vessels. Lock for	G. H. Taylor	320,510	June 23	2148	567	31	1462
Steering machinery	H. Winter and W. C. Williamson	318,068	May 19	1533	411	31	821
Steering mechanism for ferry-boats	J. P. Manton	317,817	May 12	1193	317	31	750
Stencil	F. Beck	316,225	Apr. 21	1719	451	31	325
Stencil	F. Beck	318,943	June 2	7	2	31	1050
Stereoscope	G. Schneck	318,302	May 19	1631	490	31	878
Stereotype-plates. Impression-sheet for making	C. A. Skene	320,713	June 23	2412	.....	31	1512
Stereotype-plates. Machine for shaving	W. J. Johnson	315,794	Apr. 14	1137	298	31	213
Stereotype-plates. Machine for trimming	E. E. Pratt and C. S. Partridge	316,398	Apr. 21	1950	514	31	365
Stereotype-shaving machine	J. W. Smith	316,579	Apr. 28	2198	579	31	418
Still and filter	R. C. Clark and M. H. Warren	318,698	May 26	2368	632	31	983
Still. Combined beer and spirit	D. S. Brown and L. Sipf	320,535	June 23	2181	576	31	1467
Still for concentrating sulphuric acid	C. A. Bartsch	318,682	May 26	2347	627	31	979
Stirrer. Fruit-butter	J. P. and J. M. Lucas	316,632	Apr. 28	2264	596	31	429
Stirrup	W. H. Ratcliff	319,123	June 2	237	62	31	1091
Stirrup	E. M. Turner	320,194	June 16	1669	444	31	1368
Stitch regulating and feeding device	E. Murphy	315,955	Apr. 14	1362	352	31	252
Stock-holder	T. B. Fagan	316,763	Apr. 28	2471	645	31	467
Stock-rack	J. O. Taft	315,677	Apr. 14	971	254	31	182
Stocking	B. F. Ryer	319,131	June 2	246	64	31	1092
Stocking or sleeve supporter	E. Oppenheimer	318,201	May 19	1702	456	31	854
Stocking-supporter	J. P. Lindsay	319,985	June 11	1395	367	31	1318
Stocking-supporter	C. C. Shelby	320,301	June 16	1823	484	31	1394
Stone and ore crusher	D. Brennan, Jr	315,468	Apr. 14	676	176	31	126
Stone and ore crusher	D. Brennan, Jr	315,469	Apr. 14	678	176, 177	31	127
Stone and ore crusher	W. A. Miles	319,741	June 9	1040	275	31	1249
Stone. Artificial flag	A. S. Sampson and D. G. Peck	315,557	Apr. 14	819	215	31	152
Stone-boat	S. B. Schermerhon	320,178	June 16	1647	438	31	1364
Stone. Composition of matter for facing brown stone and for making artificial	B. E. Ratcliffe	321,137	June 30	2967	.....	31	1620
Stone cutting machine	J. Crump and R. Brereton	318,902	June 2	43	11	31	1056
Stone-cutting machine	W. L. Saunders	320,293	June 16	1813	481	31	1392
Stone-dressing machine	J. Mann	320,942	June 30	2706	718	31	1573
Stone-dressing machine	J. B. Ross	315,962	Apr. 14	1371	355	31	254
Stone. Producing imitation	H. S. Utley	315,188	Apr. 7	296	.....	31	53
Stone-sawing machine	J. H. Frenier	316,608	Apr. 14	878	231	31	163
Stone-sawing machines. Sand and water feed mechanism for	W. L. Saunders	315,171	Apr. 7	257	62	31	47
Stone sawing or rubbing machines. Sand and water feeding mechanism for	E. J. Hawley	321,293	June 30	3158	842	31	1656
Stones. Holder for the settings of	S. Joel	319,095	June 2	203	53	31	1085
Stool and foot-support. Shoe-dealer's	G. K. Jenkins	315,507	Apr. 14	731	194	31	137
Stool and like articles. Piano	W. A. C. Matthie	320,487	June 23	2117	558	31	1456
Stool. Folding	A. B. Harnish	318,110	May 19	1586	424	31	831
Stool. Folding camp	A. H. Hill	317,785	May 12	1143	303	31	740
Stool for tables, counters, &c	J. Whipple	317,254	May 5	444	110	31	604
Stool-pedestal	J. S. Dunlap	320,916	June 30	2675	710	31	1568
Stool. Piano	E. B. Haynes	315,779	Apr. 14	1118	293	31	210
Stool. Piano	A. J. Kedney	321,113	June 30	2939	779	31	1614
Stool. Piano	W. A. C. Matthie	316,281	Apr. 21	1798	472	31	339
Stool. Piano	F. Ohr	315,323	Apr. 7	466	118	31	85
Stopper: *See* Bottle-stopper. Jug-stopper.							
Stopper	A. R. Thayer	318,325	May 19	1870	502	31	884
Stopper for fruit-jars, &c	T. Kennedy	320,364	June 16	1939	511	31	1414
Stopple-receptacle	L. S. Hoyt	315,504	Apr. 14	728	193	31	136
Store-service apparatus	J. T. Cowley	315,739	Apr. 14	1061	278	31	199
Store-service apparatus	D. E. Crosby	321,343	June 30	3217	858	31	1668
Store-service apparatus	R. Gornall	319,402	June 2	567	154, 155	31	1156

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Store-service apparatus	R. Gornall	319,403	June 2	571	155, 156	31	1156
Store-service apparatus	H. H. Hayden	321,204	June 30	3150	843	31	1657
Storm-shield and overdress. Combined	M. Boyd	318,538	May 26	2154	548	31	946
Stove	E. W. Anthony	320,111	June 16	1546	413	31	1349
Stove	B. A. Brigden and E. Cannon, Jr.	319,690	June 23	2298	606	31	1489
Stove	W. H. Logan	318,360	May 19	1045	523	31	898
Stove	H. Turner	315,574	Apr. 14	843	221	31	156
Stove. Alcohol	H. Clayton	319,955	June 16	1352	335	31	1310
Stove and furnace. Smoke-consuming	E. R. Weston	319,870	June 9	1221	323	31	1290
Stove board	W. P. Cole	317,512	May 12	797	204	31	676
Stove. Cabinet gasoline	F. C. Rawlings	320,691	June 23	2386	631	31	1506
Stove. Cooking	N. O. Bond	315,383	Apr. 7	543	140, 141	31	99
Stove. Cooking	G. R. Prowse	320,499	June 23	2135	563, 564	31	1459
Stove. Cooking	E. W. Van Duzen, Jr.	317,695	May 12	1295	347	31	769
Stove-door knob	H. A. Tweed	319,644	June 9	920	243	31	1226
Stove. Gas	T. Fletcher	316,027	Apr. 21	1435	379	31	977
Stove. Gas	H. Zachetzschinger	315,210	Apr. 7	333	90	31	60
Stove. Gas cooking	W. N. Millsted. (Reissue)	10,577	Apr. 7	658	169, 170	31	117
Stove-grate	F. H. De Guerre and W. W. De Lano	315,255	Apr. 7	383	95	31	70
Stove-grate	H. W. Merritt	317,186	May 5	724	81	31	582
Stove-griddle	F. L. Carpenter	316,741	Apr. 28	2441	636	31	461
Stove. Heating	E. W. Anthony	319,847	May 26	2574	665	31	1019
Stove. Heating	A. V. Cook	316,605	Apr. 28	2231	587	31	424
Stove. Heating	O. Pedersen	319,018	June 2	106	29	31	1008
Stove. Heating	E. Specht and L. Fix	319,934	June 9	1317	347	31	1297
Stove heating attachment	M. G. McGuire	318,774	May 26	2470	662	31	1002
Stove heating attachment	L. W. Turner	321,400	June 30	3298	891	31	1683
Stove. Hot-air	P. H. Sims and P. Hohmeier	316,493	Apr. 28	2094	548, 549	31	397
Stove. Hot-blast	J. O. B. Richards	315,072	Apr. 7	119	28	31	23
Stove-leg attachment	O. F. Mitchell	318,278	May 19	1800	421	31	872
Stove. Oil	Z. Davis	316,751	Apr. 28	2456	639	31	464
Stove. Oil	H. E. Myers	319,013	June 2	101	27	31	1007
Stove or furnace. Heating	C. L. Ridgway	318,295	May 19	1822	498	31	876
Stove-pipe	D. R. Clark	318,167	May 19	1660	445	31	845
Stove-pipe elbow	A. W. Cram	319,894	June 9	1247	329	31	1284
Stove-pipe joint	W. N. Langhlin	319,102	June 2	211	55	31	1086
Stove-pipe shelf	J. Kurtis	319,101	June 2	209	54	31	1086
Stove-pipe shelf. Portable	F. Barnard	318,941	June 2	4	1	31	1049
Stove-pipe thimble	J. H. Gongwer	316,356	Apr. 21	1887	500	31	335
Stove-pipe thimble	G. W. Woodborne	315,988	Apr. 14	1402	364	31	200
Stove-pipe ventilator	W. St. Mielcarek	321,394	June 30	3289	879	31	1682
Stove-polish. Device for holding and mixing	R. Rietschlin	317,579	May 12	576	225	31	690
Stove. Regenerative gas	J. W. Baker	319,438	June 9	633	171, 172	31	1115
Stove. Vapor	T. Johnson	317,946	May 12	1360	365	31	781
Stoves. Combined fire-box, grate, and sifter for	I. J. Wells	317,901	May 12	13 5	349	31	771
Stoves, &c. Portable elevated platform for	M. G. Townley	315,573	Apr. 14	843	221	31	156
Straight-edge and gage. Combined	M. Covel	317,517	May 13	902	206	31	677
Straightening round bars. Machine for	N. Beauregard and G. J. Wheelock	320,531	June 23	2176	574	31	1466
Strap: *See* Shawl-strap. Trunk-strap.							
Strap-attaching device	J. T. Shannon	316,667	Apr. 28	2311	606, 607	31	438
Straw-burning furnace	J. Abell	316,216	Apr. 21	1709	448	31	323
Straw-carrier	E. L. Hall	321,210	June 30	3060	812	31	1638
Straw-carrier for stacking-machines	A. B. and M. T. Reeves	315,548	Apr. 14	804	212	31	150
Straw-stacker	I. Brokaw and W. Butler	319,553	June 9	791	209, 210	31	1200
Stretcher-frame	A. D. Shattuck	320,300	June 16	1821	484	31	1394
Stud and necktie holder. Combined collar	C. Babcock	320,452	June 23	2077	547	31	1448
Stuffing-box	A. T. Ballentine	317,902	May 19	1393	374	31	795
Stuffing-box	W. Dingle and W. Jenkins. (Reissue.)	10,608	June 9	1338	352	31	1300
Stump-extractor	K. S. Hunt	317,458	May 5	722	182	31	653
Stump-extractor	F. R. Smith	318 810	May 26	2526	674	31	1010
Stump-puller	J. C. Karnatz and W. Wiese	319,726	June 9	1024	271	31	1246
Stump-pulling machine	F. P. Margot	318,996	June 2	84	22	31	1003
Sugar and glucose. Manufacture of grape	J. C. Schuman	318,309	May 19	1851	497	31	880
Sugar and glucose. Manufacture of grape	J. C. Schuman	320,403	June 16	2007	.....	31	1428
Sugar into blocks. Apparatus for cementing granulated	F. O. Matthiessen and O. H. Krause	318,640	May 26	2288	611	31	968
Sugar. Making hard sugar from soft	O. H. Krause	318,630	May 26	2277	608	31	966
Sugar. Manufacture of beet	E. F. Dyer	319,077	June 2	179	.....	31	1081
Sugar. Transforming soft sugar into hard	F. O. Matthiessen	318,639	May 26	2287	.....	31	968
Sulky-frame	J. A. Johnson	319 264	June 2	400	106	31	1123
Sulpho-cyanides. Apparatus for making	U. De Günzburg and J. Tcherniac	319,239	June 2	371	98, 99	31	1117
Sunshade	A. Lyon	320,508	June 23	2219	587	31	1475
Supporter: *See* Hose-sleeve and garment supporter. Stocking or sleeve supporter. Stocking-supporter.							
Supporter for wearing-apparel	D. Greenhoot	315,477	Apr. 14	721	190	31	134
Supporting device. Automatic	A. Montant	315,650	Apr. 14	936	245	31	175
Surcingle	H. G. Farr	316,613	Apr. 28	2241	590	31	425
Surgical-instrument handle	A. J. Unger	321,160	June 30	2995	794	31	1625
Suspender-clasp	J. Elson	319,212	June 2	314	89	31	1110
Suspender-end	J. A. Adamson	318,339	May 19	1801	509	31	888
Suspender-end loop	J. W. Smith	317,231	May 5	411	103	31	599
Suspension device	C. J. Petersen	321,392	June 30	3271	874	31	1678

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Sweep, cotton-chopper, and dirter. Combined	T. Northen	318,107	May 19	1696	454	31	852
Swing	W. W. Elliott	320,432	June 16	2040	535	31	1433
Swing	T. Wilson	320,319	June 16	1973	492	31	1402
Swinging chair	J. H. Shields	317,027	May 5	126	32	31	545
Swinging chair	J. H. Shields	317,028	May 5	127	32	31	546
Swinging gate	H. J. Goff and T. E. Plonghe	320,029	June 30	2690	714	31	1570
Swinging gate	E. A. Jones	316,041	Apr. 21	1471	384	31	279
Switch: *See* Automatic switch. Railway-switch. Electric switch. Track-switch.							
Switch	E. C. Titus	320,019	June 16	1441	378	31	1326
Switch-boards. Connecting device for	E. W. Smith	318,929	May 26	2679	710	31	1038
Switch, frog, guard-rail, and crossing flange and clearer.	C. C. Quinn	319,314	June 2	465	125, 126	31	1136
Switch-lock	F. P. Hilburn and G. L. Hoehn	321,107	June 30	2933	777	31	1613
Switch-stand	W. H. Bine	319,386	June 2	549	149	31	1152
Switch-stand	L. M. Curry	315,011	Apr. 7	35	7	31	8
Switch-stand	J. T. Hambay	318,726	May 26	2402	640, 641	31	990
Switch-stand	J. T. Hambay	319,709	June 9	996	263	31	1240
Switch-stand	F. W. Snow	320,507	June 23	2143	566	31	1461
Switch-stand	R. Stretch	315,570	Apr. 14	835	220	31	155
Switch-stand	C. W. Widney	319,368	June 2	526	143	31	1148
Switch-stand. Safety	C. Graham	316,258	Apr. 21	1762	463	31	333
Swivel. Check-rein	J. Johnson	320,130	June 16	1705	424	31	1355
Syringe	A. Bihler	318,535	May 26	2180	579	31	945
Syringe	H. M. Howell	315,292	Apr. 7	429	108	31	78
Syringe	W. Molesworth	319,246	June 2	438	117	31	1131
Syringe	B. F. Sutton	319,937	June 9	1320	348	31	1297
Syringe for applying ointment, &c	J. M. Laflin	320,261	June 16	1756	466	31	1383
Syringe-nozzle	R. Van Buskirk	315,860	Apr. 14	1223	319	31	229
Syringe. Vaginal	T. Kern	317,375	May 5	605	155	31	633
Table: *See* Drafting-table. Metal table. Embalmer's table. Railway turn-table. Extension-table. Revolving drop-leaf table. Folding table. Self-leveling table. Ironing-table. Tile-table. Machine-table.							
Table	L. Bailey	315,108	Apr. 7	163	39	31	30
Table and bed. Combined	I. Levy	315,518	Apr. 14	752	198	31	140
Table and chair. Combined	H. E. Hildebrand	318,250	May 19	1763	471, 472	31	865
Table-corner	H. N. Hall	319,901	June 9	1275	336	31	1289
Table-leaf support	C. E. McGlinchey	318,773	May 26	2469	662	31	1001
Table-leg	C. B. McLain	316,986	Apr. 21	1902	473	31	339
Tables. Extension-leaf for	T. Kunditz	315,949	Apr. 14	1353	351	31	250
Tables. Revolving waiter for dining	W. M. Knoeller	316,979	May 5	64	17	31	534
Tack and rivet. Combined	E. Hohneck	318,474	May 26	2062	557	31	929
Tack-driving machine	A. S. Libby	316,996	May 5	73	19, 20	31	536
Tack. Lasting	W. M. Cave, C. Holm, and W. Blandow.	317,090	May 5	211	53	31	562
Tack-machines. Sorting-apont for	C. P. Weaver	315,194	Apr. 7	303	72	31	54
Tacks. Instrument for entering and drawing	W. M. Clark	319,050	June 2	171	45	31	1079
Tacks, &c. Machine for picking up and arranging	A. S. Libby	316,467	Apr. 28	2061	540	31	391
Tag. Adjustable	J. W. Jones	316,698	Apr. 28	2261	595	31	429
Tag-attaching device	F. P Guigon	318,614	May 26	2200	603	31	963
Tag-attaching device	J. W. Tuttle	318,563	May 26	2226	595	31	956
Tag cutting and punching machine	C. Colahan	315,482	Apr. 14	703	185, 186	31	131
Tag. Marking	A. Appel	319,543	June 9	778	207	31	1200
Tag. Marking	J. P. Presley	321,344	June 30	3273	875	31	1679
Tag. Shipping	F. E. Bacon	316,721	Apr. 28	2411	628	31	457
Tailor's chalk-cutter	D. Machol	319,292	June 2	419	112	31	1127
Tailor's shears	S. C. England	316,488	Apr. 28	2088	546	31	396
Tank: *See* Filtering-tank. Rendering-tank. Oil-tank.							
Tanning	E. S. Ward	320,603	June 23	2270	.....	31	1485
Tap. Barrel	S. W. Yattaw	315,370	Apr. 7	528	135	31	96
Tap for bung holes. Automatic	J. E Minnitt and J. H. Vickers	317,561	May 12	852	219	31	686
Tapping device	J. H Rathbun	318,654	May 26	2049	617	31	973
Target-trap	A. Woeber	316,590	Apr. 28	2215	583	31	420
Tedder	J. H. Thomas	315,856	Apr. 14	1217	317, 318	31	228
Tedder-fork	J. H. Thomas	319,864	June 9	1215	321	31	1278
Telegraph	R. K. Boyle	318,345	May 19	1900	512	31	889
Telegraph. Autographic	S. P. Denison	315,391	Apr. 7	553	143	31	100
Telegraph. Autographic	S. P. Denison	315,392	Apr. 7	556	143, 144, 145	31	101
Telegraph. Chemical or fac-simile printing	H. Van Hoevenbergh	316,693	Apr. 28	2303	617	31	446
Telegraph. Chemical printing	H. Van Hoevenbergh	316,689	Apr. 28	2296	616	31	446
Telegraph. Fire and police alarm	C. Selden	321,058	June 30	2960	761	31	1602
Telegraph. Harmonic printing	G. A. Cardwell	315,121	Apr. 7	176	43	31	32
Telegraph. Harmonic printing	G. A. Cardwell	315,122	Apr. 7	178	44	31	33
Telegraph. Printing	G B. Scott	319,855	June 9	1199	317	31	1276
Telegraph. Printing	A. B. Smith	316,494	Apr. 28	2095	550	31	397
Telegraph. Printing	H. Van Hoevenbergh	316,677	Apr. 28	2325	610	31	441
Telegraph. Printing	H. Van Hoevenbergh	316,678	Apr. 28	2329	611	31	441
Telegraph. Printing	H. Van Hoevenbergh	316,679	Apr. 28	2331	611	31	442
Telegraph. Page-printing	H. Van Hoevenbergh	316,680	Apr. 28	2332	611	31	442
Telegraph. Page-printing	H. Van Hoevenbergh	316,681	Apr. 28	2336	612	31	443
Telegraph. Quadruplex	G. Smith	319,428	June 2	604	164	31	1163

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Telegraph receiver. Printing	H. Van Hoevenbergh	316,698	Apr. 28	2374	618, 619	31	450
Telegraph repeater. Quadruplex	T. R. Taltavall	320,311	June 16	1857	488	31	1400
Telegraph-sounder	J. W. Delmege	319,201	June 2	321	86	31	1108
Telegraph system and apparatus. Non-interfering fire-	L. H. McCullough	316,475	Apr. 28	2070	542	31	393
Telegraph system. Fire-	L. H. McCullough	316,474	Apr. 28	2069	542	31	392
Telegraph transmitters. Automatic governor for printing-	H. Van Hoevenbergh	316,687	Apr. 28	2351	614, 615	31	446
Telegraph type-wheel. Printing-	C. A. Mathiesen	320,376	June 16	1969	518	31	1421
Telegraph type-wheels. Inking-roller for printing-	H. Van Hoevenbergh	316,692	Apr. 28	2362	616	31	447
Telegraphs. Electro-magnet for printing-	H. Van Hoevenbergh	316,676	Apr. 28	2323	609	31	440
Telegraphs. Electro-magnetic escapement apparatus for printing-	G. B. Scott	320,975	June 30	2758	733	31	1582
Telegraphs having two type-wheels. Unisoning printing-	H. Van Hoevenbergh	316,690	Apr. 28	2358	616	31	447
Telegraphs. Multiple-signal box for fire and police	L. H. McCullough	316,477	Apr. 28	2075	543	31	394
Telegraphs. Paper-guard for printing	C. Winkel	319,770	June 9	1077	286	31	1255
Telegraphs. Platen-shifting device for printing	H. Van Hoevenbergh	316,685	Apr. 28	2346	613	31	445
Telegraphs. Platen-shifting device for printing	H. Van Hoevenbergh	316,697	Apr. 28	2371	618	31	449
Telegraphs. Pneumatic winding apparatus for printing-	H. Van Hoevenbergh	316,688	Apr. 28	2353	615	31	446
Telegraphs. Transmitter for printing	H. Van Hoevenbergh	316,686	Apr. 28	2348	613, 614	31	445
Telegraphs. Type-wheel for printing	H. Van Hoevenbergh	316,682	Apr. 28	2339	612	31	444
Telegraphs. Type-wheel for printing	H. Van Hoevenbergh	316,683	Apr. 28	2341	612	31	444
Telegraphs. Type-wheel for printing	H. Van Hoevenbergh	316,684	Apr. 28	2343	613	31	444
Telegraphs. Unison device for printing	L. A. McCarthy	319,001	June 2	89	23	31	1064
Telegraphs. Unison device for printing	H. Van Hoevenbergh	316,691	Apr. 28	2360	616	31	447
Telegraphs. Unison for printing	H. Van Hoevenbergh	316,696	Apr. 28	2369	618	31	449
Telegraphs. Unison for printing	H. Van Hoevenbergh	316,855	Apr. 28	2600	679	31	491
Telegraphs. Winding device for printing	H. Van Hoevenbergh	316,695	Apr. 28	2368	617	31	448
Telegraphic and other purposes. Generation of induced currents for	J. C. Ludwig	315,428	Apr. 7	617	158	31	110
Telegraphic and telephonic systems. Preventing interference in combined	F. Van Rysselberghe	320,587	June 30	2771	736	31	1585
Telegraphic call-instrument	F. B. Wood	321,073	June 30	2888	768		1607
Telegraphic relay	G. W. Gardanier	316,751	May 5	36	10	31	529
Telegraphic relay	F. Stitzel and C. Weinedel	315,568	Apr. 14	834	219	31	155
Telegraphic relay. Polarized	J. C. Ludwig	315,427	Apr. 7	615	158	31	110
Telegraphic sounder	J. F. Gilliland	315,763	Apr. 14	1097	288	31	205
Telegraphic transmitting apparatus	P. B. Delany	316,125	Apr. 21	1598	417	31	303
Telegraphically. Printing	H. Van Hoevenbergh	316,694	Apr. 28	2365	617	31	448
Telegraphy for fac-simile transmission. Synchronous	P. B. Delany	316,754	Apr. 28	2458	640, 641, 642	31	464
Telegraphy. Induction apparatus for	J. C. Ludwig	315,425	Apr. 7	611	157	31	109
Telegraphy. Receiving apparatus for synchronous	P. B. Delany	316,126	Apr. 21	1599	418	31	303
Telephone	L. De Locht-Labye	315,421	Apr. 7	605	156	31	109
Telephone	E. T. Greenfield	316,269	Apr. 21	1765	464	31	333
Telephone	J. D. Husbands	318,907	May 26	2652	703	31	1034
Telephone	T. J. Perrin	316,816	Apr. 28	2539	663	31	480
Telephone	T. J. Perrin	316,818	Apr. 28	2540	664	31	480
Telephone	W. L. Voelker	315,802	Apr. 14	1225	320	31	229
Telephone and telegraph lines. Preventing induction in	F. Van Rysselberghe	321,404	June 30	3306	862	31	1684
Telephone apparatus	H. E. Waite	319,043	June 2	132	36	31	1072
Telephone attachment	G. R. Tyler	318,057	May 19	1520	407	31	818
Telephone-circuit	H. S. Thornberry	317,988	May 12	1260	341	31	766
Telephone-circuit	H. S. Thornberry	320,414	June 16	2018	530	31	1430
Telephone. Electric	C. E. Allen	319,048	June 2	139	38	31	1073
Telephone. Electric	H. E. Waite	319,042	June 2	131	36	31	1072
Telephone-exchange	J. A. Seely	318,514	May 26	2122	572	31	940
Telephone-exchange circuit	T. J. Perrin	315,334	Apr. 7	478	121	31	87
Telephone-exchange system	W. H. Preece	316,911	Apr. 28	2685	699, 700	31	507
Telephone-exchange system and apparatus	F. Shaw and W. A. Childs	319,856	June 9	1202	318	31	1276
Telephone-exchanges. Multiple switch-board for	C. E. Scribner	321,391	June 30	3284	878	31	1681
Telephone-lines. Angle-hanger for mechanical	H. Seligman	315,078	Apr. 7	125	29	31	24
Telephone. Magneto-	H. E. Waite	316,206	Apr. 21	1694	444	31	321
Telephone. Magneto-	H. E. Waite	318,058	May 19	1521	407	31	819
Telephone. Magneto-	H. E. Waite and S. H. Bartlett	316,205	Apr. 21	1693	444	31	321
Telephone. Mechanical	J. R., J. D., and C. F. Holcomb	320,935	June 30	2697	715	31	1572
Telephone. Mechanical	J. C. Rounds	318,397	May 19	1967	530	31	902
Telephone. Mechanical	H. and E. Seligman	320,181	June 16	1654	439	31	1365
Telephone. Portable	O. H. Saxton	317,213	May 5	390	98	31	595
Telephone-stand. Revolving	E. F. Weaver	317,252	May 5	440	110	31	603
Telephone-support	T. W. Lane	320,438	June 16	2048	537	31	1435
Telephone-switch	H. W. Comstock	319,789	June 9	1109	294	31	1260
Telephone systems. Relay for	J. H. Clarke and G. W. Millard	316,238	Apr. 21	1738	456	31	329
Telephone-transmitter	A. Berthon	319,548	June 9	784	208	31	1202
Telephone-transmitter	G. W. Drawbaugh	316,883	Apr. 28	2635	687	31	497
Telephone-transmitter	G. W. Drawbaugh	317,445	May 5	706	177	31	651
Telephone-transmitter	M. G. Farmer	316,133	Apr. 21	1609	420, 421	31	305
Telephone-transmitter	J. P. Freeman	318,423	May 19	1996	537, 538	31	907
Telephone-transmitter	J. P. Freeman	318,424	May 19	1999	538, 539	31	907
Telephone-transmitter	J. E. Fuller	316,988	Apr. 28	2643	689	31	499
Telephone-transmitter	S. P. Nutt	319,927	June 9	1303	344	31	1294
Telephone-transmitter	H. S. Thornberry	321,323	June 30	3193	851	31	1663
Telephones. Duplicate switch-board system for	C. E. Scribner	321,390	June 30	3283	877, 878	31	1680

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Telephonic transmitter. Electric	E. H. Johnson	319,415	June 2	585	159	31	1139
Tellurian	J. G. and M. L. Berneike	321,000	June 30	2788	741	31	1588
Tenoning and boring machine	L. Hutchins	317,999	May 19	1441	386	31	905
Tent	W. H. Lushbaugh	318,382	May 19	1947	525	31	899
Tentering-machine	A. McLean	315,809	Apr. 14	1152	302, 303	31	216
Thermometer	F. Eisner	320,119	June 16	1577	416	31	1350
Thermometer. Air-	G. T. Belby	320,749	June 23	2452	670	31	1520
Thermometer. Clinical	J. J. Hicks	317,783	May 12	1141	302	31	740
Thermometers. Manufacture of	J. J. Hicks	318,985	June 2	74	.....	31	1061
Thermostat	J. L. Campbell	316,738	Apr. 28	2436	634, 635	31	461
Thill-coupling	J. H. Barker	319,946	June 16	1341	353	31	1309
Thill-coupling	W. R. Bowman	319,186	June 2	305	81	31	1104
Thill-coupling	A. G. Brandt	317,084	May 5	204	51	31	560
Thill-coupling	V. W. Butts	318,867	May 26	2607	691	31	1024
Thill-coupling	C. L. Dalton	317,520	May 12	805	207	31	677
Thill-coupling	H. K. Forbis	315,759	Apr. 14	1063	287	31	205
Thill-coupling	W. Fuhrman	315,929	Apr. 14	1325	345	31	246
Thill-coupling	J. Harpold	319,483	June 9	700	188	31	1187
Thill-coupling	R. Hart	317,349	May 5	572	146	31	628
Thill-coupling	G. H. Holzbog and M. J. Weicksler	320,659	June 23	2746	699	31	1499
Thill-coupling	F. D. Kernochan	321,046	June 30	2833	754	31	1597
Thill-coupling	J. W. Leete	319,914	June 9	1288	340	31	1292
Thill-coupling	H. A. Luttgens	315,642	Apr. 14	927	243	31	173
Thill-coupling	W. T. Mason	318,487	May 26	2079	561	31	931
Thill-coupling	P. B. O'Brien	316,479	Apr. 28	2078	543	31	394
Thill-coupling	W. J. Perkins	316,565	Apr. 28	2178	574	31	414
Thill-coupling	H. B. Pratt	317,849	May 12	1232	325	31	757
Thill-coupling	O. M. Raugh	316,483	Apr. 28	2082	545	31	395
Thill-coupling	N. Richey	320,817	June 23	2535	672	31	1535
Thill-coupling	J. A. Robison	317,207	May 5	383	96	31	593
Thill-coupling	G. W. Simons	317,491	May 5	668	169	31	644
Thill-coupling	G. W. Stowe	317,685	May 12	1014	263	31	715
Thill-coupling	E. E. Swift	321,398	June 30	3296	860	31	1663
Thill-coupling	G. D. Umland	319,941	June 9	1329	350	31	1293
Thill-coupling	J. F. Van Auker	318,836	May 26	2557	681	31	1015
Thill-coupling	C. C. Wright	315,435	Apr. 7	603	168	31	116
Thill-coupling	C. C. Wright	317,070	May 5	192	46	31	556
Thill-coupling	B. Chamberlain	321,190	June 30	3034	804	31	1633
Thill-couplings. Anti-rattler and shaft-support for	C. A. Horton	318,477	May 26	2066	558	31	929
Thill-couplings. Anti-rattler for	W. E. Marbarger	315,535	Apr. 14	789	208	31	147
Thill-couplings. Anti-rattler for	N. A. Vedder	317,597	May 12	900	231	31	694
Thill-support	W. P. Slensby	315,671	Apr. 14	963	252	31	180
Thimble	W. Norton	315,651	Apr. 14	937	245	31	175
Thrasher and separator. Traveling	H. Campbell	315,906	Apr. 14	1295	337, 338	31	241
Thrashing and hulling machines. Recleaning attachment for clover	A. J. Redman	317,201	May 5	377	94	31	592
Thrashing-machine	G. A. Roberts and C. Schafer	317,674	May 12	1001	249	31	713
Thrashing-machine	A. H. Walker	316,587	Apr. 28	2211	582	31	420
Thrashing-machine	M. Williams	317,907	May 12	1311	351	31	772
Thrashing-machine band-cutter and feeder	W. S. Judd	315,948	Apr. 14	1351	350, 351	31	250
Thrashing-machine band-cutter and feeder	J. McHenry and J. O'Donnell	317,401	May 5	636	163	31	639
Thrashing-machine band-cutter and feeder	J. W. Turner and E. W. Strack	319,940	June 9	1338	350	31	1296
Thrashing-machine concave	G. A. Roberts	320,288	June 16	1807	480	31	1391
Thrashing-machine concave	G. A. Roberts	320,700	June 23	2395	623	31	1508
Thrashing-machine conveyer	D. H. Good	315,404	Apr. 7	577	148	31	104
Thrashing-machine elevator-lifter	W. J. Pulliam	317,573	May 12	870	223	31	689
Thrashing-machine extension-grate	C. Schafer	318,142	May 19	1628	435	31	839
Thrashing-machine feeder	D. H. Good	315,764	Apr. 14	1098	288, 289	31	205
Thrashing-machine. Hand	A. E. Brice	315,710	Apr. 14	1013	267	31	190
Thrashing-machine rattle-rake	W. and J. Schwartz	318,310	May 19	1453	407	31	820
Thrashing-machines and clover-hullers. Feeder for	M. E. Perring	316,819	Apr. 28	2541	664	31	480
Thrashing-machines. Grain sacking and weighing attachment for	W. H. Barber	319,170	June 2	286	76	31	1100
Thrashing-machines. Rake for conducting grain to	J. T. Watkins	321,067	June 30	2882	766	31	1605
Ticket-case	C. E. McElroy	320,949	June 30	2713	720	31	1574
Ticket-case. Conductor's	S. Engel	317,447	May 5	710	178, 179	31	651
Ticket-clip	W. Souter	315,178	Apr. 7	204	64	31	48
Ticket or stamp box. Car	I. G. Pollard	320,814	June 23	2531	671	31	1535
Tide. Apparatus for utilizing the rise and fall of the	C. M. Walker	315,863	Apr. 14	1226	320, 321	31	229
Tie: *See* Bale-tie. Railway cross-tie. Railway-tie.							
Tile	P. Simons	320,922	June 23	2540	673	31	1536
Tile construction. Illuminating	T. Hyatt	317,943	May 12	1353	364	31	780
Tile for furnace-linings. Perforated	W. Huston	317,459	May 5	723	193	31	654
Tile. Illuminating combination	T. Hyatt	317,944	May 12	1375	364	31	781
Tile-laying machine	M. F. Anderson	316,515	Apr. 28	2122	558	31	403
Tile-machine die	T. E. Chandler and E. Dodds	315,909	Apr. 14	1300	338	31	241
Tile-setting	A. H. Lord	320,567	June 23	2218	587	31	1475
Tile-setting apparatus	A. N. Byers	319,449	June 9	649	175	31	1178
Tile-table	G. Potts	316,172	Apr. 21	1654	433	31	314
Tile-table	W. W. Wallace	315,359	Apr. 7	516	131	31	93
Tiles, &c. Apparatus for setting encaustic	R. Marsh	318,126	May 19	1606	429	31	835
Tiles. Mouth-piece of press for the manufacture of	C. F. E. Kretzner	318,267	May 19	1787	478	31	869
Tiles or other articles of cement. Press for molding ornamental	J. Larmanjat	319,926	June 9	1166	308	31	1270
Tiling and grating for covering vaults, roofs, &c. Illuminating	T. Hyatt	315,412	Apr. 7	589	152	31	106
Tilting-chair	A. Demand	316,127	Apr. 21	1601	418	31	303

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Time-check receiver	L. Hanson	319,090	June 2	192	51	31	1084
Time-piece dial	M. V. B. Ethridge	319,804	June 9	1136	301	31	1365
Time-piece dial	J. Stern	319,035	June 2	123	34	31	1071
Time piece regulator	A. Junghans	320,562	June 23	2213	585	31	1474
Time-piece striking mechanism	C. Scholle	315,843	Apr. 14	1195	311 312	31	294
Time-pieces. Hour-hand movement for	J. H. Lufkin	316,798	Apr. 28	2517	657	31	475
Time-pieces. Point-indicator for	E. A. Nelson	315,322	Apr. 7	465	118	31	84
Time-recorder and station-indicator. Automatic	G. E. Schlegelmilch	321,317	June 30	3186	850	31	1662
Time-recorder. Watchman's	E. J. Colby	320,116	June 16	1573	415	31	1350
Time-recorder. Watchman's	A. Howard	319,218	June 9	1156	305	31	1268
Time-recording apparatus	C. S. Haskell	319,092	June 2	195	51, 52	31	1084
Tin-foil	J. J. Crooke	315,008	Apr. 7	30	.....	31	7
Tin-foil. Making	J. J. Crooke	315,009	Apr. 7	32	.....	31	7
Tin-foil. Manufacture of	J. J. Crooke	315,007	Apr. 7	29	.....	31	7
Tinner's shear-table gage	C. H. Dodge	318,893	May 26	2021	696	31	1027
Tinners' use. Plotter for	C. D. Cowgill	315,388	Apr. 7	550	142	31	100
Tire-fastener	E. C. Pfeiffer	317,847	May 12	1228	325	31	756
Tire for wheels. Rubber	A. H. Overman	315,577	pr. 14	790	209	31	147
Tire-rolling machine	J. Munton	318,129	May 19	1611	430	31	836
Tire-setter	W. Keeler	315,298	Apr. 7	435	109	31	79
Tire-setter	G. J. Weber	317,054	May 5	161	40 41	31	552
Tire-shrinker	H. G. Lane	320,071	June 16	1506	399	31	1339
Tire-shrinking machine	D. A. Willbanks	316,511	Apr. 28	2117	557	31	402
Tire tightener	M. Chase	320,850	June 23	2578	682	31	1544
Tire-tightener	H. Crisler	319,895	June 9	1248	330	31	1284
Tire-upsetter	N. D. Stanley	319,861	June 9	1212	320	31	1278
Tires. Device for setting India-rubber	W. H. Carmont	315,240	Apr. 7	365	90	31	66
Tobacco-drier	R. W. Coffee	320,459	June 23	2085	549	31	1450
Tobacco-drier	J. K. Hardwicke and E. B. Welles	318,729	May 26	2406	642	31	991
Tobacco-dropper	M. K. Brubaker	316,601	Apr. 28	2227	586	31	423
Tobacco-dusting machine	J. G. Dill	318,549	May 26	2187	585	31	950
Tobacco-granulating machine	L. Burdick and W. F. Coleman	318,542	May 26	2177	583	31	948
Tobacco-harvesting knife	F. Visscher	316,924	Apr. 28	2702	704	31	509
Tobacco-hiller	J. W. Kauffman	319,727	June 9	1025	271	31	1246
Tobacco. Machine for stripping leaf	O. Hammerstein	316,540	Apr. 28	2150	565 566	31	408
Tobacco-pipe	L. Nax	315,321	Apr. 7	464	117	31	84
Tobacco-pulp	J. De Susini	318,891	May 26	2019	.....	31	1027
Toe protector or separator	M. W. Miner	317,834	May 12	1215	321	31	754
Toe-weight	H. P. Kent	320,305	June 16	1559	411	31	1414
Tongs. Pipe	G. B. Koons	321,038	June 30	2815	754	31	1597
Tongs. Stone	J. D Colby and J. F. Luther	316,524	Apr. 28	2130	561	31	405
Tongue support. Vehicle	F. Callan	321,092	June 30	2899	770	31	1608
Tool. Combination	A. D. Crosby	317,738	May 12	1075	282	31	728
Tool. Combination	W. J. Kriz, H. A. Hammel, and T. W. McManus.	315,148	Apr. 7	224	55	31	41
Tool. Combination	A. E. Lytle	318,920	May 26	2669	707	31	1036
Tool-handle	H. J. Gosling	318,103	May 19	1577	422	31	830
Tool-holder	J. H. Gibson	318,718	May 26	2391	637	31	988
Tool-holder	A. Fawling	319,016	June 2	105	28	31	1067
Tooth. Artificial	H. C. Register	319,746	June 9	1046	276	31	1250
Tooth. Artificial	M. W. Williams	317,259	May 5	450	113	31	605
Tooth-crown	C. P. Grout	319,236	June 2	365	98	31	1117
Tooth-crowns. Applying metallic	C. P. Grout	319,238	June 2	368	98	31	1117
Topical remedy	E. W. R. Schröter	318,462	May 26	2391	.....	31	975
Torch	C. F. Moeller and J. W. Manger	315,317	Apr. 7	460	116	31	84
Torch. Campaign	C. E. Bartram	319,382	June 2	545	148	31	1151
Torch. Signal	H. J. Pain	319,843	June 9	1186	313	31	1273
Torpedo-boat propelled and steered by electricity	W. S. Sims	319,633	June 9	901	239	31	1223
Torpedo-placer	J. O. Boggs	317,079	May 5	198	50	31	559
Torpedoes. Counterbalancing-float for marine	R. M. Rock and E. Jones	319,636	June 9	894	237	31	1222
Torpedoes. Explosive weight for	J. E. Gallagher	316,137	Apr. 21	1614	422	31	306
Towel-rack	J. Bergsten	320,211	June 16	1694	450	31	1372
Towel-rack	P. Stevens	318,147	May 19	1635	437	31	840
Toy	C. A. Bailey	315,379	Apr. 7	548	138	31	98
Toy	C. A. Bailey	315,380	Apr. 7	539	139	31	98
Toy	W. M. Campbell	320,429	June 16	2036	534 535	31	1432
Toy	J. B. Nichols	315,437	Apr. 7	629	162	31	112
Toy	H. Zuydhoek	320,202	June 16	1677	447	31	1369
Toy building-block	C. H. Westcott	319,764	June 9	1068	294	31	1253
Toy motor	W. N. Weeden	318,335	May 19	1685	507	31	887
Toy or game. Mechanical	W. S. Reed and T. J. Walsh	320,501	June 23	2137	564	31	1460
Toy or puzzle. Spelling	W. Stranders	318,823	May 26	2543	677	31	1013
Toy savings-bank	H. C. Hart	317,771	May 12	1123	296	31	737
Toy spring-gun	W. W. Armington	316,862	Apr. 28	2612	691	31	493
Toy spring-gun	F. W. Goodyear	317,119	May 5	256	64	31	570
Trace-carrier	F. O. Derr	319,681	June 9	958	254	31	1234
Trace-carrier	M. B. Frisbie	320,549	June 23	2201	581	31	1471
Trace-carrier	A. Maxwell	321,123	June 30	2951	782	31	1616
Trace-fastener	C. L. Bellamy	319,546	June 9	782	208	31	1201
Trace-fastening	J. Espy and D. N. Tarbox	318,432	May 19	1906	537	31	907
Tracing the outline of the human foot. Instrument for	A. W. Cox	317,309	May 5	516	132	31	618
Track buffer	R. P. Garsed	318,462	May 26	2049	554	31	926
Track-instrument	H. D. Winton	317,910	May 12	1314	351	31	773
Track-switch	E. L. Giles	321,356	June 30	3239	864	31	1672
Tracks or tramways. Trolley for overhead	R. Cartwright	318,165	May 19	1654	442 443	31	844
Traction engine	A. C. Ames	320,743	June 23	2443	648	31	1519
Traction-engine	E. M. Birdsall	320,752	June 23	2456	651	31	1521
Traction-engine	A. Greig, R. H. Shaw, and J. Whittingham.	316,774	Apr. 28	2484	648 649	31	479
Traction-engine	H. B. McMurray	318,194	May 19	1690	453	31	851

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Traction-engine	G. Stringer	319,344	June 2	499	135 136	31	1143
Traction-engine	J. C. White	317,903	May 12	1308	350	31	772
Traction-engine reversing-gear	I. Lehmer	320,665	June 23	2354	622	31	1500
Traction-engines. Platform for	H Campbell and H. N. Land	317,722	May 12	1058	276	31	724
Traction-wheel	J. Burkholder	317,719	May 12	1054	275	31	723
Train-signal	C. Cain	317,720	May 12	1055	275	31	723
Train-signal	M. F. Parrish and S. J. Munn	320 495	June 23	2125	560	31	1457
Train-signaling. Electric	E. T. Gilliland	318,102	May 19	1574	422	31	829
Tram-rails. Hanger for overhead	H. R Towne	316,504	Apr. 28	2109	554	31	400
Tramway. Electric	C. Basto	319,947	June 16	1341	353	31	1309
Transom-lifter	C. F. Steller	317,036	May 5	135	35	31	547
Transparency-frame	W. H. Ball	315,994	Apr. 21	1415	367	31	269
Trap: *See* Animal-trap. Seal-trap. Ball-trap. Sewer-trap. Bed-bug trap. Sewer-gas trap. Drain-pipe trap. Steam-trap. Eaves-trough trap. Target-trap.							
Trap for soil and other pipes	S. S. Hellyer	320,435	June 16	2044	536	31	1434
Traveling-box for dogs	L. F. Evans	315,925	Apr. 14	1321	344	31	945
Treadle	A Ball	320,996	June 30	2782	739	31	1587
Treadle	E. F. Henderson	315,282	Apr. 7	417	104	31	76
Tree: *See* Boot-tree. Shoe-tree. Pad-tree. Single-tree. Saddle-tree.							
Tree-box	A. H. Hatmaker	316,262	Apr. 21	1768	464	31	334
Tree-protector	J. F. Wilson	318,586	May 26	2230	596	31	957
Trellis	C. D. Halfpenny	317,939	May 12	1349	363	31	780
Trellis for grape-vines	C. H. T. Claus	319,674	June 9	951	252	31	1232
Trench-building machine	W. S. Morton	315,534	Apr. 14	786	207 208	31	146
Treadle	G. W. Murray	320 674	June 23	2364	624	31	1502
Treadle. Extension	H. H. Childers	315,726	Apr. 14	1038	273	31	194
Treadle. Folding and extension	G. Hansen	318,896	May 26	2037	699	31	1031
Trestle socket and clamp. Combined	G. W. Zeigler	318,154	May 19	1642	439	31	842
Tricycle	L. Hall	318,725	May 26	2401	640	31	990
Tricycle	C. G. E. Hennig	316,146	Apr. 21	1623	425	31	307
Tricycle	T. H. Paessler	320,677	June 23	2367	626	31	1503
Tricycle	T. H. Paessler	320,678	June 23	2370	626 627	31	1503
Tricycle	T. R. A. Weber, C. G. E. Hennig, and A. E. Frommelt.	321,102	June 30	2997	795	31	1626
Tricycle-clutch	D. H. Rice	316,061	Apr. 21	1497	391	31	284
Trimmer: *See* Hedge-trimmer.							
Trimming	I. Stark	319,142	June 2	256	67	31	1094
Trimming Textile	H. F. Quint and J. H. Mowen	319,628	May 19	1483	387	31	814
Triturating-mill	J. R. Alsing	320,994	June 30	2780	739	31	1586
Trough: *See* Drinking-trough. Feed-trough. Eaves-trough.							
Trough-clamp	R. D. Seward and S. D. Noel	319,130	June 2	253	66	31	1094
Trowel Plastering	J. C. Butler	316,464	Apr. 28	2059	539	31	390
Truck	J. Esch	320,860	June 23	2589	686	31	1546
Truck	J. R. Walker	320,418	June 16	2023	531	31	1430
Truck	C. W. Camp	315,719	Apr. 14	1030	270	31	193
Truck and bag-holder. Combined	E. J Earl	321,296	June 30	3150	840	31	1655
Truck and bag-holder. Combined	J. McEwen	317,822	May 12	1199	318	31	751
Truck. Car	C. L. Morehouse	320,158	June 16	1623	432	31	1359
Truck. Car	W. H. H. Sisum	321,302	June 30	2986	778	31	1661
Truck. Car	G. Souther	320,011	June 16	1429	375	31	1324
Truck. Fire	W. T. Covert	321,342	June 30	3214	857 858	31	1668
Truck. Hand	A. A. Acklen and U. C. Pipes	319,046	June 2	137	37	31	1073
Truck. Hand	J. Steel	319,524	June 9	752	201 202	31	1196
Truck. Hook-and-ladder	D. T. Young	315,690	Apr. 14	985	238	31	185
Truck. Hose	E. A. Taft	320,015	June 16	1434	377	31	1325
Truck. Stove	F. B. Smith	318,145	May 19	1633	436	31	840
Truck-wheel	A. Partridge	319,844	June 9	1186	313	31	1274
Trunk	G. Deimel	318,455	May 26	2040	551	31	925
Trunk	G. S. Eggemann	318,174	May 19	1667	447	31	847
Trunk	F. H. Ransom	316,176	Apr. 21	1639	434	31	315
Trunk	C. Zimmerman	320,740	June 23	2440	647	31	1518
Trunk	J. M. March	315,646	Apr. 7	83	20	31	17
Trunk-brace. Inside	J. J. Cowell	317,736	May 12	1072	281	31	727
Trunk-catch	G. H. Blakesley	319,550	June 9	787	208	31	1202
Trunk-fastening	W. P. Adams	320,036	June 16	1461	384	31	1330
Trunk-lock	W. J. Muncey	316,384	Apr. 21	1629	549	31	362
Trunk strap	H. Lanrence	318,121	May 19	1603	428	31	835
Trunks, chests, &c. Slay for	A. R. Bassett	320,453	June 23	2078	547	31	1449
Truss	A. J. Lytle	316,903	Apr. 28	2674	697	31	505
Truss	A. Pullar	318,434	May 19	2015	542	31	910
Truss	J. N. Stark and G. P. Bartlett	316,303	Apr. 21	1821	479	31	344
Truss	P. Tefft	319,346	June 2	501	136	31	1143
Truss	B. F. Williamson	319,372	June 2	532	145	31	1149
Truss-pad	H. G. Farr	321,091	June 30	2913	774	31	1611
Tub: *See* Bath tub. Wash and bath tub.							
Tube. Machine for making	M. Corcoran and C. M. Gates	317,516	May 12	800	205	31	676

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Tube: *See* Floor-tube. Well-tube. Rubber tube.							
Tube	J. Hudson	319,721	June 9	1019	269	31	1245
Tube	P. Patterson	318,286	May 19	1808	404	31	874
Tube-coupling cover	P. Patterson	318,925	May 26	2673	709	31	1037
Tube-expander	W. A. Bole	319,879	June 9	1240	327	31	1282
Tube. Prospecting or well-boring	A. Ball	316,965	Apr. 28	2614	681	31	493
Tube-skelps. Machine for bending	J. Hoeven	320,596	June 30	2698	716	31	1572
Tube-skelp. Machine for bending	J. R. Jackson	315,696	Apr. 14	908	239	31	169
Tubes. Making seamless	W. H. Brown	316,600	Apr. 28	2226	586	31	423
Tubular boiler. Portable	W. Moran	318,128	May 19	1610	430	31	836
Tuck-marker	E. C. Reese	317,418	May 5	664	168	31	643
Tug. Hame-	C. J. Cooper	315,005	Apr. 7	96	7	31	7
Tug. Hame-	T. L. Rivera	319,196	June 2	240	62, 63	31	1092
Tug. Hame-	C. C. Schwaner	321,253	June 30	3109	827	31	1646
Tuning-hammer	A. W. Green	318,981	June 2	69	18	31	1061
Turbine	C. P. Coolidge	319,957	June 16	1355	356	31	1311
Tuyere-swaging apparatus	R. Gracey	316,530	Apr. 28	2140	565	31	408
Twine-holder	J. L. Byers	318,568	May 26	2608	692	31	1024
Twine-package	A. R. Turner, Jr	318,933	May 26	2685	711	31	1039
Twist drill	A. Söderström	321,144	June 30	2976	788	31	1622
Twist-drills. Machine for making	F. Buchter	320,456	June 23	2081	548	31	1449
Twist-drills. Machine for making	F. H. Richards	320,968	June 30	2744	730	31	1580
Twist-drills. Machine for making	F. H. Richards	320,969	June 30	2747	730	31	1580
Type. Setting	J. E. Munson	320,271	June 16	1769	469, 470, 471	31	1385
Type-setting machine	J. E. Munson	320,272	June 16	1775	470, 471, 472, 473, 474	31	1386
Type-writing machine	E. S. Belden	315,700	Apr. 14	996	261, 262	31	187
Type-writing machine	E. S. Belden	315,701	Apr. 14	998	262, 263	31	188
Type-writing machine	E. S. Belden	315,702	Apr. 14	999	263	31	188
Type-writing machine	L. S. Burridge and N. R. Marshman	314,996	Apr. 7	13	4	31	5
Type-writing machine	L. S. Burridge and N. R. Marshman	315,386	Apr. 7	547	141	31	99
Type-writing machine	S. S. Burt	317,499	May 12	776	198, 199	31	672
Type-writing machine	L. C. Farmer	317,753	May 12	1101	289, 290	31	732
Type-writing machine	H. A. H. Guhl	318,426	May 19	2004	539, 540	31	908
Type-writing machine	L. H. Hoefer	316,267	Apr. 21	1773	466, 467	31	335
Type-writing machine	J. A. Kaley	317,371	May 5	597	153, 154	31	632
Type-writing machines. Index-plate for	H. Anderson	318,077	May 19	1544	414	31	823
Umbrella	W. Egan	318,710	May 26	2381	635	31	986
Umbrella	G. Gilchrist	319,225	June 2	392	94	31	1114
Umbrella and parasol	J. Willis	319,767	June 9	1074	285	31	1254
Umbrella-frames. Machine for riveting	A. Ligibel	321,231	June 30	3063	819	31	1642
Underground conductor for wires	B. L. Nevins	319,112	June 2	221	58	31	1098
Underground conduit	A. E. Lytle	315,954	Apr. 14	1361	352	31	252
Underground wires and cables. Conduit for	B. L. Nevins	319,420	June 2	592	161	31	1161
Universal joint	E. P. Cowles	317,737	May 12	1074	281	31	727
Unwinder. Thread-	L. R. Hopkins	320,788	June 23	2409	662	31	1529
Upholstering-spring	C. H. Ames	316,218	Apr. 21	1712	449	31	324
Upholstery-trimming and making the same	H. C. Lees	317,151	May 5	598	76	31	578
Urn. Hot-water	E. B. Manning	319,736	June 9	1034	274	31	1248
V-jointer	R. A. Bauer	319,173	June 2	269	77	31	1101
Valises, &c. Detachable handle and safety-lock attachment for	C. White	318,672	May 26	2335	623	31	977
Valve	E. A. W. Jefferies	318,000	May 19	1443	386, 387	31	805
Valve	C. T. Lormor	320,807	June 23	2522	668	31	1533
Valve	J. O'Meara	316,168	Apr. 21	1650	432	31	313
Valve	G. F. Pettle	320,962	June 30	2735	728	31	1578
Valve	F. Tudor	319,939	June 9	1322	349, 350	31	1298
Valve and alarm for steam-boilers. Safety-	W. B. Ralling and C. N. May	317,952	May 12	1367	367	31	783
Valve and faucet	R. Marsh	320,880	June 23	2615	693	31	1551
Valve. Balance slide-	J. B. Wallace	319,151	June 2	205	70	31	1096
Valve. Balanced slide-	J. E. Baker	315,450	Apr. 14	665	173	31	125
Valve. Balanced slide-	J. D. Olds	319,115	June 2	226	59	31	1089
Valve. Balanced slide-	F. M. Stevens	320,599	June 23	2266	599	31	1484
Valve. Balanced slide-	C. P. Wetherill	319,649	June 9	924	244	31	1227
Valve case. Straight-way-	A. Weber	316,588	Apr. 28	2213	582	31	420
Valve. Circular slide-	W. C. Church	316,236	Apr. 21	1736	455, 456	31	328
Valve. Circular slide-	W. C. Church	316,237	Apr. 21	1737	456	31	328
Valve. Combined stop and check	L. G. Gilbert	315,273	Apr. 7	407	101	31	73
Valve. Combined throttle and safety	H. A. Laughlin	318,004	May 19	1450	388	31	806
Valve. Combined waste and overflow	W. A. Pitt	316,057	Apr. 21	1492	390	31	283
Valve. Compound	G. W. Appleby	318,159	May 19	1649	441	31	843
Valve. Engine-	M. C. Baker	319,661	June 9	936	248	31	1229
Valve. Engine-	G. Schuhmann	315,844	Apr. 14	1199	312	31	224
Valve for beer-casks. Safety-	J. C. Schaefer	318,640	May 19	1496	401	31	815
Valve for drinking-troughs. Automatic	J. I. Richey	319,025	June 2	114	31	31	1069
Valve for engine-cylinders. Automatic waste-	W. R. Townsend	320,826	June 23	2544	674	31	1537
Valve for steam-boilers. Check-	R. McDowell	320,390	June 16	1972	519	31	1422
Valve for steam-engine cylinders. Relief-	T. M. Fell	319,571	June 9	813	216	31	1207

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Valve-gear	J. R. Deering	321,195	June 30	3041	805	31	1631
Valve-gear	A. L. Ide	319,819	June 9	1158	306	31	1269
Valve-gear	F. W. Jenkins	321,111	June 30	2937	779	31	1614
Valve-gear	A. B. Landis	321,117	June 30	2943	780	31	1615
Valve-gear	H. G. Manning	319,737	June 9	1035	274	31	1248
Valve-gear	G. S. Strong	315,972	Apr. 14	1386	370	31	257
Valve-gear	L. Sahrheinrich	318,827	May 26	2547	678	31	1014
Valve-gear	J. B. Sutherland	317,475	May 5	742	188	31	657
Valve-gear	G. Abrams and N. Nilson	317,071	May 5	184	46	31	356
Valve-gear. Engine	W. Voit	319,433	June 2	618	167, 168	31	1166
Valve-gear. Engine	G. Abrams and N. Nilson	316,433	Apr. 28	2015	529	31	383
Valve-gear. Steam-engine	J. Nenert	315,654	Apr. 14	940	246	31	175
Valve-gear. Steam-engine	J. D. Olds	319,114	June 2	223	58, 59	31	1088
Valve-gear. Steam-engine	R. Scheidler	316,187	Apr. 21	1671	438	31	317
Valve-gear. Steam-engine	T. H. Carlin	316,739	Apr. 28	2439	635	31	461
Valve-gearing. Steam-engine	R. H. Tweddell, J. Platt, and J. Fielding.	317,428	May 5	684	173	31	646
Valve. Hydraulic	C. A. Dixon	319,802	June 9	1130	300, 301	31	1264
Valve mechanism	G. S. Strong	320,895	June 23	2639	700	31	1554
Valve-motion	L. T. Scofield	317,217	May 5	394	99	31	595
Valve-operating mechanism	G. S. Strong	320,892	June 23	2636	698	31	1554
Valve-operating mechanism	J. W. Sargent	318,037	May 19	1493	401	31	814
Valve-operating mechanism. Slide-	J. P. Marsh	319,593	June 9	852	226	31	1214
Valve or steam-trap. Air-	W. E. Pearson	320,920	June 16	1794	477	31	1389
Valve. Pop safety-	E. Hill	317,357	May 5	580	149	31	629
Valve. Regulating-	G. W. Sypher	321,156	June 30	2990	793	31	1624
Valve. Rotary steam-	T. Burke	315,475	Apr. 14	693	181	31	129
Valve. Safety-	G. H. Crosby	318,961	June 2	41	11	31	1056
Valve. Safety-	T. Kaye	318,748	May 26	2435	652	31	996
Valve. Safety-	E. L. Knight	319,268	June 2	405	107	31	1124
Valve. Slow-closing	W. Mitchell	320,154	June 16	1621	431	31	1358
Valve. Steam-	W. A. P. Bicknell	320,212	June 16	1694	450	31	1372
Valve. Steam-actuated	C. H. Burton	317,500	May 12	780	199	31	673
Valve. Steam-actuated	L. B. Carricaburu	321,085	June 30	2903	772	31	1609
Valve. Steam-actuated	G. H. Dickson	319,965	June 16	1368	359	31	1313
Valve. Steam-boiler	W. R. Edwards and F. J. Schultz	321,197	June 30	3046	806, 807	31	1635
Valve. Steam-engine	A. L. Ide	319,261	June 2	397	105	31	1123
Valve. Steam-engine	W. H. Smith	317,870	May 12	1260	335, 336	31	762
Valve-stems. Revoluble joint for screw	J. H. Blessing	315,464	Apr. 14	672	175	31	126
Valve. Stop-	M. B. Fisher	316,766	Apr. 28	2476	646	31	468
Valve. Stop and waste	P. Harvey	318,247	May 19	1760	471	31	864
Valve. Straight-way stop-	H. Hall	318,894	May 26	2635	699	31	1031
Valve. Throttle-	L. S. Woodbury	318,072	May 19	1539	412	31	822
Valves. Testing globe-	G. F. Hammer	315,276	Apr. 7	411	102	31	75
Vapor apparatus for hot-houses, &c	H. Steinke and M. Limprecht	320,411	June 16	2015	529	31	1429
Vapor-bath	P. D. Pink	317,669	May 12	995	258	31	712
Vapor-burner	D. A. Dangler and E. H. Wackerman.	318,090	May 19	1560	418	31	826
Vapor-burner	O. B. Peck	317,567	May 12	858	221	31	687
Vapor-burner	P. Schneider and H. Trenkamp	318,303	May 19	1831	491	31	878
Vapor-burner	P. Schneider and H. Trenkamp	318,304	May 19	1833	491	31	878
Vapor-burner	F. B. Wigle	318,151	May 19	1639	438	31	841
Vapor-burner for soldering and branding irons	L. Baumeister	317,489	May 12	766	195	31	670
Varnish	W. E. B. Davies	320,464	June 23	2091	.....	31	1451
Varnish. Apparatus for the manufacture of	S. W. Mayer and P. J. Bungart	318,643	May 26	2292	612	31	969
Varnish from sludge-tar. Manufacture of	R. M. Breinig	315,597	Apr. 14	866	.....	31	161
Vat: *See* Liming-vat.							
Vault-cover	J. Raynald	315,836	Apr. 14	1186	309	31	222
Vault-covers. Hinge and frame for	M. S. Weller	316,705	Apr. 28	2387	622	31	452
Vegetable-slicer	H. Hassenpflug	318,560	May 26	2300	588	31	952
Vehicle-brake	J. L. McIntosh, E. H. Bacon, and T. Vail.	317,164	May 5	322	80	31	582
Vehicle-brake. Automatic	R. R. Pace	317,846	May 12	1227	325	31	756
Vehicle drop-perch	H. W. Pell. (Reissue)	10,616	June 23	2655	705	31	1558
Vehicle fan attachment	R. Meacham	320,092	June 16	1524	404	31	1342
Vehicle-gear	J. N. Brown	318,863	May 26	2603	690	31	1024
Vehicle running-gear	J. B. Armstrong	319,049	June 2	140	38	31	1073
Vehicle running-gear	J. B. Armstrong	319,050	June 2	142	38	31	1073
Vehicle running-gear	A. Chalfant	318,354	May 19	1913	516	31	892
Vehicle running-gear	A. G. Johnson	319,821	June 9	1160	306	31	1269
Vehicle running-gear	W. Miles	320,269	June 16	1766	469	31	1385
Vehicle running-gear	G. W. Simmons	320,303	June 16	1825	485	31	1395
Vehicle running-gear	C. H. Smith	319,522	June 9	750	201	31	1105
Vehicle sand-band	F. A. Mackie	317,395	May 5	628	160	31	637
Vehicle-seat attachment	A. Fellows	316,449	Apr. 28	2041	535	31	387
Vehicle-seats. Spring-back for	J. Dain, Jr	317,743	May 12	1092	286	31	730
Vehicle-spring	H. B. Dye	315,921	Apr. 14	1315	342	31	244
Vehicle-spring	G. B. Hamlin	319,243	June 2	375	100	31	1118
Vehicle-spring	R. Mulholland	315,053	Apr. 7	93	23	31	19
Vehicle-spring	J. G. Parsons	320,389	June 16	1984	522	31	1424
Vehicle-spring	S. G. Smith	315,176	Apr. 7	262	63	31	48
Vehicle-spring	A. Straub	319,343	June 2	498	135	31	1143
Vehicle-spring	E. J. Strong	317,040	May 5	142	36	31	548
Vehicle-spring brace	G. M. Hubbard	320,135	June 16	1598	422	31	1354
Vehicle-spring coupling	S. S. Hosmer	315,291	Apr. 7	428	108	31	78
Vehicle-spring equalizer	B. P. Morrison	316,640	Apr. 28	2273	596	31	431
Vehicle-spring gear	J. Graves	317,990	May 19	1427	393	31	802
Vehicle-spring. Metallic	P. Forder	315,928	Apr. 14	1324	344	31	246
Vehicle spring. Two-wheeled	W. B. Philbert	315,833	Apr. 14	1184	308	31	221
Vehicle-step							

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Vehicle-top	E. W. Cannon and E. H. Jones	320,332	June 16	1898	496	31	1405
Vehicle. Two-wheeled	C. D. Adams	317,271	May 5	465	117	31	608
Vehicle. Two-wheeled	T. Boettcher	316,002	Apr. 21	1423	370	31	271
Vehicle. Two-wheeled	T. H. Brown	319,060	June 2	156	42	31	1076
Vehicle. Two-wheeled	J. P. Calnan	317,925	May 12	1332	358	31	776
Vehicle. Two-wheeled	T. N. Gahagen	318,557	May 26	2197	587	31	951
Vehicle. Two-wheeled	J. T. McIntyre	318,127	May 19	1609	429	31	836
Vehicle. Two-wheeled	T. O'Brien	317,179	May 5	338	85	31	585
Vehicle. Two-wheeled	W. C. Pitner	317,413	May 5	656	167	31	642
Vehicle. Two-wheeled	J. F. Sanders and T. T. Whitcomb	321,140	June 30	2970	787	31	1621
Vehicle. Two-wheeled	J. F. Schwartz	318,807	May 26	2521	673	31	1009
Vehicle. Two-wheeled	H. C. Swan	319,037	June 2	126	34	31	1071
Vehicle. Two-wheeled	R. G. Wood	317,066	May 5	176	45	31	555
Vehicle-wheel	R. Bean and A. W. Grant	319,777	June 9	1084	238	31	1256
Vehicle-wheel	R. S. Carr	319,452	June 9	692	176	31	1179
Vehicle-wheel	A. W. Grant	320,030	June 30	2691	714	31	1570
Vehicle-wheel	T. M. Hammond	320,032	June 30	2694	715	31	1571
Vehicle-wheel	G. W. Howell	316,365	Apr. 21	1904	503	31	353
Vehicle-wheel	G. T. Warwick	315,094	Apr. 7	146	35	31	28
Vehicle wheel and axle	E. J. Gray	319,973	June 16	1379	361	31	1315
Velocipede	A. J. and F. S. Beavis	318,592	May 26	2148	578	31	945
Velocipede	J. C. Clime	315,003	Apr. 7	23	6	31	7
Velocipede	L. Dickey	319,682	June 9	958	254	31	1234
Velocipede	C. S. Leddell	320,073	June 16	1508	{400 401}	31	1339
Velocipede	H. J. Pansey and C. T. Crowden	316,649	Apr. 28	2289	601	31	434
Velocipede	C. E. Pratt	318,500	May 26	2100	566	31	936
Velocipede	W. A. Rudling and J. F. Coffin	319,130	June 2	245	64	31	1092
Velocipede	H. Schneider	319,329	June 2	480	130	31	1139
Velocipede	D. S. Troy	317,893	May 12	1291	{345 346}	31	768
Velocipede. Marine	S. Curlin	315,743	Apr. 14	1067	280	31	200
Velocipede-motor	A. A. Ugland	319,040	June 2	128	35	31	1071
Velocipede-pedal	A. E. Wallace	318,149	May 19	1637	437	31	849
Velocipede-saddle	F. J. Drake	319,470	June 9	677	182	31	1183
Velocipede-saddle	J. Knoss	318,568	May 26	2207	590	31	953
Velocipede-wheel	A. M. White	317,956	May 12	1376	370	31	785
Velocipede-wheel rim	R. Heeley	315,026	Apr. 7	52	12	31	11
Vent	H. Metzger	319,007	June 2	94	25	31	1065
Vent for beer-kegs. Safety-	N. Olson	316,644	Apr. 28	2280	600	31	433
Ventilating mines. Apparatus for	M. L. D. Weston	315,578	Apr. 14	847	{222 223}	31	157
Ventilator: *See* Car-ventilator. Stove-pipe ventilator. Gas-main ventilator.							
Ventilator	R. E. Hennings	320,251	June 16	1744	464	31	1381
Ventilator	F. Keller	318,912	May 26	2659	704	31	1035
Ventilator	C. B. Loveless	315,522	Apr. 14	758	201	31	141
Ventilator	C. B. Loveless	319,500	June 9	850	226	31	1213
Ventilator	A. Olsen	318,494	May 26	2097	564	31	934
Vessel-holder	J. P. Enstle	318,897	May 26	2626	697	31	1029
Vessels. Floating sunken	A. Amiro	317,274	May 5	467	117	31	609
Vest and overshirt. Combined	A. W. Mensor	316,803	Apr. 28	2292	659	31	476
Vest-protector	T. S. Beals	321,177	June 30	3017	799	31	1630
Veterinary surgical instrument	S. Cochrane	319,454	June 9	655	176	31	1179
Vibrating-piston engine	W. E. Crist	316,606	Apr. 28	2232	588	31	424
Violin	J. Prenzel	316,658	Apr. 28	2299	603	31	476
Violin-bow	G. H. Franklin and H. G. Barr	320,123	June 16	1584	418	31	1352
Violin-bow guide	A. Martel	316,157	Apr. 21	1640	429	31	311
Vise	G. A. Colton	320,224	June 16	1710	455	31	1375
Vise	S. O. Parker	319,743	June 9	1042	276	31	1249
Vise. Wood-worker's bench-	G. W. and C. A. Geissenhainer	317,760	May 12	1110	292	31	734
Volatilizer	F. H. Hubbard	317,538	May 12	925	242	31	681
Vulcanized-fiber roller or wheel, &c.	F. Taylor	316,847	Apr. 28	2560	677	31	489
Vulcanizer	F. H. Chidester	315,241	Apr. 7	367	90	31	66
Wagon-bodies. Device for removing	P. M. and W. T. Thurman	316,851	Apr. 28	2566	678	31	490
Wagon-box	J. Dick	319,703	May 26	2374	633	31	985
Wagon-box	J. F. Ruhl	316,915	Apr. 28	2693	701	31	509
Wagon-box coupling	D. M. Jones	321,367	June 30	3255	869	31	1675
Wagon-brake	C. Behringer	321,178	June 30	3019	799	31	1630
Wagon-brake	G. Dillig	318,550	May 26	2188	585	31	950
Wagon-brake	J. Meyer and H. Bier	317,831	May 12	1213	321	31	753
Wagon-brake	F. R. Smith	319,141	June 2	255	67	31	1094
Wagon-brake lever	G. P. Riester	321,315	June 30	3173	849	31	1661
Wagon. Buckboard-	F. R. and L. E. Bessette	318,534	May 26	2150	579	31	945
Wagon. Buckboard-	D. Stebbins	317,635	May 5	135	34	31	547
Wagon. Draft-	G. S. and W. B. Morgan	315,531	Apr. 14	780	205	31	145
Wagon. Dumping-	W. and J. H. Leonhardt	319,497	June 9	718	193	31	1190
Wagon. Dumping-	J. S. McMurtry	319,789	June 9	1077	275	31	1248
Wagon. Dumping-	H. L. Raff	317,576	May 12	873	224	31	689
Wagon. Dumping-	T. S. Stewart	315,968	Apr. 14	1380	357	31	255
Wagon grain-rack	M. M. Bledsoe	316,441	Apr. 28	2033	{532 533}	31	386
Wagon-jack	F. Kellogg	321,115	June 30	2941	780	31	1615
Wagon-jack	J. T. Reed	317,577	May 12	874	224	31	690
Wagon log carrying attachment	J. J. Monroe	318,281	May 19	1803	482	31	872
Wagon-rack	C. Cottrell	318,950	June 2	39	10	31	1056
Wagon-rack	H. Geiger	318,100	May 19	1571	421	31	828
Wagon running-gear	J. Copple	317,515	May 12	800	205	31	676
Wagon running-gear	L. D. Hurd	318,906	May 26	2650	{702 703}	31	1033
Wagon. Salvage-corps	C. T. Holloway	316,971	May 5	53	14	31	532
Wagon scoop-board	A. J. Sweeney	315,676	Apr. 14	970	254	31	182
Wagon-stake holder	H. Johnson	317,138	May 5	279	71	31	574

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Wagons. Adjustable elevator-support for derrick-	J. Carlton	319,066	June 2	163	44	31	1077
Wagons. Device for loading live stock on	T. Allen	319,164	June 2	281	74	31	1099
Waist	C. M. A. Barry	318,681	May 26	2346	{626 627}	31	979
Waistcoat	P. Baker	316,220	Apr. 21	1713	450	31	324
Wall and ceiling of buildings	L. A. Mitchell	318,196	May 19	1695	454	31	852
Wall-decorating material	O. E. Vail	316,083	Apr. 21	1532	.....	31	290
Wall for the support of arches and bricks for the construction of the same	E. Terrell and W. H. Fish	318,324	May 19	1809	{501 502}	31	884
Wall-hangings, &c. Decorating	W. Sochefsky	320,409	June 16	2013	.....	31	1429
Wall-paper, &c. Apparatus for flocking	G. K. Birge	318,944	June 2	9	2 3	31	1050
Wall paper rack	D. Gardiner	318,461	May 26	2048	533	31	926
Wall-paper-trimming device	J. T. French	318,556	May 26	2195	586	31	951
Wall. Partition-	W. Griesser	319,576	June 9	1422	218	31	1209
Wardrobe	G. A. Garrison	315,760	Apr. 14	1094	287	31	205
Wardrobe. Portable folding	A. J. Holmes	318,252	May 19	1765	472	31	866
Warp-sizing machine	A. P. Dickinson	320,466	June 23	2093	551	31	1452
Warping-chock	H. L. Murch	316,997	May 5	93	24	31	539
Warping-machine	J. Ryle	317,472	May 5	739	187	31	657
Wash and bath tub. Combined	J. B. French	317,333	May 5	556	141	31	624
Wash-bench	J. B. Goundry and W. S. McLeod	316,891	Apr. 28	2646	690	31	499
Wash-bench and wringer. Combined	J. Dennis	317,100	May 5	222	56	31	564
Wash-stand and dressing-case. Combined	H. Rose	315,343	Apr. 7	492	124	31	90
Washer: *See* Bottle-washer. Ore-washer. Dish-washer. Steam-washer.							
Washer and linchpin. Combined	J. F. Gilliland	320,058	June 16	1491	393	31	1336
Washer and linchpin. Combined	J. F. Gilliland	320,059	June 16	1492	394	31	1336
Washer-making machine	M. M. Zellers and J. B. Miller	320,390	June 16	1874	492	31	1403
Washing and wringing machine. Combined	B. H. Sanborn	319,325	June 2	475	128	31	1138
Washing, bleaching, and dyeing fabrics. Apparatus for	J. Farmer and A. Lalance	318,888	May 26	2027	697	31	1029
Washing-liquid	L. Kuhlmann	316,154	Apr. 21	1636	.....	31	310
Washing-machine	E. W. Allen	315,212	Apr. 7	334	81	31	60
Washing-machine	J. Ballard	315,217	Apr. 7	340	83	31	61
Washing-machine	O. W. Barnard	317,486	May 12	763	194	31	670
Washing-machine	G. Burkhardt	318,413	May 19	1967	534	31	905
Washing-machine	L. Cline	318,234	May 19	1748	467	31	862
Washing-machine	G. Dunwoody	318,709	May 26	2380	635	31	986
Washing-machine	G. A. Eppel	321,349	June 30	3208	860	31	1670
Washing-machine	J. Howell	321,299	June 30	3175	844	31	1658
Washing-machine	A. T. Jackson	321,031	June 30	2928	752	31	1596
Washing-machine	H. D. King	315,300	Apr. 7	438	110	31	79
Washing-machine	D. Kunkel, Sr.	319,589	June 9	849	225	31	1213
Washing-machine	P. Lawson	321,119	June 30	2947	781	31	1616
Washing-machine	G. W. Leach and J. H. Smith	316,795	Apr. 28	2513	656	31	475
Washing-machine	J. E. Mitchell	315,812	Apr. 14	1158	{303 304}	31	217
Washing-machine	J. B. Pettit	316,921	Apr. 28	2544	665	31	481
Washing-machine	W. J. Reed	318,135	May 19	1618	433	31	838
Washing-machine	M. W. Robinson and H. W. Marriner	316,064	Apr. 21	1501	393	31	285
Washing-machine	W. Rochlitz	319,692	June 2	116	32	31	1069
Washing-machine	S. L. Wagener	316,293	Apr. 21	1690	443	31	320
Washing-machine	J. O. Weese	318,584	May 26	2227	595	31	956
Washing-machine	C. Whisler	321,321	June 30	3201	853	31	1665
Washing piece-goods. Apparatus for	B. Davies and J. Eckersley	315,252	Apr. 7	381	94	31	69
Waste-pipe for wash-basins, bath-tubs, &c.	O. H. Keep	317,373	May 5	602	154	31	633
Waste-pipe trap and valve	P. Harvey	316,062	May 5	42	12	31	530
Watch-barrel	J. Hay	316,065	May 5	46	12	31	531
Watch. Breastpin-	D. Goldsmith	320,670	June 23	2603	690	31	1549
Watch-case	E. C. Fitch	315,756	Apr. 14	1090	286	31	204
Watch-case	E. C. Fitch	316,767	Apr. 28	2477	646	31	468
Watch-case	E. Haas	321,021	June 30	2814	748	31	1594
Watch-case	D. O'Hara	316,814	Apr. 28	2536	663	31	479
Watch-case	D. O'Hara. (Reissue)	10,405	June 2	624	169	31	1167
Watch-case	G. C. Smith	316,072	Apr. 21	1514	395	31	287
Watch-case	E. P. Heffernan	319,814	June 9	1151	304	31	1268
Watch-case hinge	C. V. Peyn	320,584	June 23	2216	594	31	1480
Watch-case bezel	E. C. Fitch	319,691	June 9	967	257	31	1236
Watch-case pendant	A. M. Yeakel	317,914	May 12	1320	354	31	774
Watch-case pendant	W. H. Fitz Gerald and G. C. Smith	316,953	May 5	31	9	31	528
Watch-case springs. Fitting for	C. K. Gilles	320,127	June 16	1590	420	31	1353
Watch dust-proof case	D. Roberts	320,699	June 23	2395	633	31	1508
Watch-key	J. Cook	319,072	June 2	174	46	31	1080
Watch-maker's wheel-cutting engine	E. C. Fitch	315,755	Apr. 14	1089	286	31	204
Watch-movement box	R. B. Lester	318,124	May 19	1604	429	31	835
Watch-movement box	A. Merkelbach	318,780	May 26	2479	664	31	1003
Watch-regulator	S. P. Sandmark	318,208	May 19	1710	457	31	855
Watch-regulator	H. Von der Heydt. (Reissue)	10,613	June 16	2070	544	31	1439
Watch. Self-winding	A. Chouard	317,627	May 12	941	241	31	702
Watch. Stem-winding	D. H. Church. (Reissue.)	10,590	Apr. 14	1409	365	31	202
Watch. Stem winding and setting	H. Vent	318,309	May 19	1678	504	31	886
Watch stem-winding device	P. V. Perret	315,929	Apr. 14	1180	308	31	221
Watch. Stop-	G. B. St. John	319,145	June 2	259	68	31	1095
Watch. Stop-	A. G. Wiseman	320,609	June 23	2278	602	31	1487
Watch-winding device	W. Bell	316,226	Apr. 21	1720	452	31	325
Watch winding-stop	C. V. Woerd	320,992	June 30	2776	{737 738}	31	1586
Watches. Machine for roughing out pinions for	J. H. Stebbins, Jr., and P. Casamajor	316,075	Apr. 21	1518	.....	31	288
Water and alkali proof fabric	J. F. Fine	315,267	Apr. 7	397	99	31	72
Water-carrier	L. and J. Brandt	315,467	Apr. 14	675	175	31	126
Water-closet	W. Bunting, Jr	317,717	May 12	1052	274	31	723
Water-closet	T. Gunning and J. Quigley	319,974	June 16	1380	362	31	1315
Water-closet							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Water-closet	S. F. Sniffen	319,336	June 2	491	132, 133	31	1141
Water-closet	D. Whiteford	318,842	May 26	2569	683, 684	31	1017
Water-closet bowl. Porcelain	R. H. Watson	320,990	June 30	2775	737	31	1585
Water-closet cistern	P. Carney	320,625	June 23	2303	608	31	1490
Water-closet float-valve	A. F. Blesch	317,710	May 12	1045	271	31	722
Water-closets, sewers, &c. Flush-tank for	W. S. Chaplin	317,505	May 12	786	201	31	674
Water-closets, &c. Supply-valve for the flushing-tanks of	H. C. Weeden	317,055	May 5	162	41	31	532
Water-closets, &c. Valve for	G. Haydn	318,899	May 26	2641	700	31	1032
Water-closets. Water-supply apparatus for	T. McHugh	320,950	June 30	2714	721	31	1574
Water-conveying apparatus	A. C. Hare	320,933	June 30	2695	715	31	1571
Water-cooler	J. O. Brookbank	316 231	Apr. 21	1725	453	31	326
Water cooler and filter. Combined	J. M. Bruce	315.120	Apr. 7	176	43	31	32
Water cooler and filter. Combined	J. Lindle	320.483	June 23	2113	557	31	1455
Water-cooler and refrigerator	J. Lindle	320,484	June 23	2114	557	31	1455
Water-courses. Apparatus for cleaning, widening, and deepening	B. J. Gifford and J. E. Jones	321,355	June 30	3235	862, 863, 864	31	1671
Water-elevating apparatus	A. M. Granger	317,639	May 12	955	245	31	704
Water-elevator	C. M. Kimball	318,915	May 26	2662	705	31	1035
Water-elevator	J. H. and T. D. Morris	320,157	June 16	1623	432	31	1359
Water-elevator. Floating	F. T. Smythe	320,184	June 16	1659	440	31	1365
Water for propelling vessels. Utilizing the power of running	L. Gaillard	320,125	June 16	1586	419	31	1352
Water-gage	H. Ochwadt	318.284	May 19	1805	483	31	873
Water-gage. Automatic	L. C. Bailey and W. S. Alexander	319,052	June 2	145	39	31	1074
Water into cisterns from roofs of buildings. Apparatus for delivering clean	F. Sancan	316,184	Apr. 21	1669	437	31	317
Water-meter. Oscillating	L. H. Nash	320,577	June 23	2230	591	31	1477
Water-meter. Oscillating	L. H. Nash	320,578	June 23	2234	592	31	1478
Water-meter. Oscillating	L. H. Nash	320,579	June 23	2236	592, 593	31	1479
Water-meter. Oscillating	P. T. Puig	318,926	May 26	2675	709	31	1038
Water-meter. Piston	F. W. and A. F. Hood	318,476	May 26	2664	558	31	999
Water-meter. Piston	J. R. Norfolk	319,992	June 16	1404	369	31	1319
Water-meter pistons. Device for regulating the throw of	F. W. Hood	316,038	Apr. 21	1468	383	31	279
Water-meter registering device	F. W. Hood	315,786	Apr. 14	1127	296	31	211
Water-meter. Rotary	H. Fredrick	316,614	Apr. 28	2242	591	31	496
Water-meter. Rotary	H. Schneider	319,134	June 2	348	65	31	1083
Water-motor	W. T. Christy	319,301	June 2	555	151	31	1153
Water-motor	H. L. Walker	321,202	June 30	3119	830	31	1648
Water-pipe	C. Bilz	318,856	May 26	2584	688	31	1020
Water-pipe cushion	J. O. Waddell	315,453	Apr. 7	650	168	31	116
Water-pipes. Anti-freezing attachment for	W. G. Frederick	317,331	May 5	554	141	31	624
Water-proof fabrics. Manufacturing	F. E. Hall	320,781	June 23	2491	660	31	1527
Water-proof garment	L. Cory	316,245	Apr. 21	1747	459, 460	31	330
Water-proof garment	M. S. Lorach	317,812	May 12	1181	314	31	747
Water-tube boiler	E. J. Moore	320,909	June 23	2525	669	31	1534
Water-tube boiler	J. W. Van Dyke	315,189	Apr. 7	297	70, 71	31	53
Water-wheel	E. M. Carhart	318,869	May 26	2608	692	31	1025
Water-wheel	W. W. Dunn	317,934	May 12	1342	361	31	778
Water-wheel	J. Smith	318,214	May 19	1720	460	31	857
Water-wheel. Turbine	J. W. Truax	318 223	May 19	1731	462, 463	31	859
Watering stock. Apparatus for	F. Teal	319,038	June 2	127	35	31	1071
Watering swine. Apparatus for	H. H. Wempe	316 319	Apr. 21	1843	486	31	347
Watering-trough for animals	A. E. Barber	315,697	Apr. 14	993	261	31	187
Wave-power. Mechanism for utilizing	C. Leavitt	321,229	June 30	3081	818	31	1642
Wax-end twister	O. P. Clark and L. C. Crouch	317,720	May 12	1165	278	31	725
Weaner. Calf-	T. W. Evans	320,056	June 16	1489	393	31	1335
Weaner. Calf-	H. B. Strant	317,881	May 12	1272	339	31	765
Weather-boarding gage	J. Essex	318,555	May 26	2194	586	31	950
Weather-strip	S. Chaffin	317,926	May 12	1333	358	31	777
Weather-strip	J. Fisher	320,120	June 16	1578	416	31	1351
Weather-strip	E. V. Heaford	316,264	Apr. 21	1770	465	31	334
Weather-strip	J. W. Power	319,121	June 2	234	61	31	1091
Weather-strip	J. Trachsel, J. K. Lipps, and W. H. Turney	318,437	May 19	2017	543	31	911
Weather-strip	O. E. Woodbury and H. W. Storck	320,034	June 16	1458	383	31	1330
Weather-strip	G. Zitzman	319,162	June 2	279	73	31	1099
Weather-strip and door-stop. Combined	G. W. Hadesty	319,490	June 9	708	190	31	1188
Web-associating apparatus	L. C. Crowell	316,120	Apr. 21	1588	413	31	301
Wedge	C. R. Countryman	315,006	Apr. 7	28	7	31	7
Wedge-cutter	J. T. Jenkins	318,747	May 26	2434	652	31	995
Weed-extractor	F. Vollery	316,084	Apr. 21	1532	400	31	291
Weeding-tool	C. Droone	317,593	May 12	908	207	31	678
Weighing and package-filling machine. Automatic	C. C. Clawson	315,729	Apr. 14	1040	274	31	195
Weighing and package-filling machine. Automatic	C. C. Clawson	315,730	Apr. 14	1045	274, 275	31	196
Weighing and package-filling machine. Automatic	C. C. Clawson	315,731	Apr. 14	1048	275	31	196
Weighing and recording device. Electric	F. H. Amet	317,432	May 5	689	174	31	647
Weighing and sacking machine. Automatic	F. M Gladish	321,209	June 30	3058	811	31	1637
Weighing and tallying machine. Grain	I. H. Murdick	320,383	June 16	1975	519	31	1423
Weighing apparatus. Automatic grain	C. Seessle	317,220	May 5	398	100	31	566
Well-boring apparatus	G Pech	315,826	Apr. 14	1178	307	31	221
Well-boring machine	W. C Wells	315,868	Apr. 14	1235	322	31	231
Well-boring tool	H. C. Safford	318,034	May 19	1491	400	31	813
Well point. Drive-	M H. Morris	315,815	Apr. 14	1164	305	31	218
Well-reamer	W. D. Braden	315,506	Apr. 14	865	228	31	161

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Well-tube for drive-wells	W. C. Wells	316,318	Apr. 21	1842	486	31	346
Well valve. Tubular	R. G. Marcy	318,770	May 26	2466	661	31	1001
Wharf	J. B. Sanford	320,292	June 16	1812	481	31	1392
Wheat-breaking machine	H. Hudson and M. Tobey	315,143	Apr. 7	211	51, 52	31	39
Wheat-scourer	T. McCudden and A. F. Shearlock	315,155	Apr. 7	233	56	31	42
Wheel: *See* Anti-friction wheel. Car-wheel. Fifth-wheel. Gear-wheel. Iron wheel. Metallic wheel. Mitre-wheel. Paddle-wheel. Traction-wheel. Truck-wheel. Vehicle-wheel. Velocipede-wheel. Water-wheel. Wind-wheel.							
Wheel	R. Bean	315,995	Apr. 21	1416	368	31	269
Wheel	G. S. Long	320,076	June 16	1517	402	31	1341
Wheel-jack	J. F. Johnson	320,477	June 23	2104	555	31	1454
Whiffletree	C. R. Walter and J. E. Blackburn	315,361	Apr. 7	518	132	31	94
Whiffletree-coupling	W. S. Ward	320,313	June 16	1861	489	31	1401
Whiffletrees. Evener-spring for	E. C. Currey	319,961	June 16	1358	357	31	1312
Whip	W. Fish	319,689	June 9	965	256	31	1235
Whip	M. J. Heaphy	315,281	Apr. 7	417	104	31	75
Whip	E. M. Turner	320,193	June 16	1669	444	31	1368
Whip	A. E. Batman	318,080	May 19	1547	414	31	823
Whip and rein holder. Combined	H. Mullen and J. Noble, Jr.	315,653	Apr. 14	939	246	31	175
Whip-cord	R. Peters and W. J. Swartzenburg	318,020	May 19	1469	393	31	810
Whip-holder	H. McPherson	317,826	May 12	1203	319	31	752
Whip-rack	C. L. Bard	318,531	May 26	2146	578	31	944
Whip-socket	C. L. Bard	315,110	Apr. 7	165	40	31	31
Whip-socket, oil-can, and wrench. Combined	H. Mullen and J. Noble, Jr.	318,432	May 19	2013	542	31	910
Whip-stock	O. Bryant and E. Ring	318,348	May 19	1905	513, 514	31	890
Whip-stocks, &c. Machine for the manufacture of	F. M. Young	321,169	June 30	3008	.....	31	1628
Whisky. Making	A. L. Fisher	321,202	June 30	3051	809	31	1636
Whistle	C. A. Fletcher and W. H. Wilder	318,714	May 26	2388	636	31	987
Wick-adjuster	H. A. Sanford	320,291	June 16	1811	481	31	1392
Wick-adjuster	C. P. Goodspeed	315,769	Apr. 14	1108	291	31	207
Wick-adjusting mechanism for oil-burners	I. Lynd	315,429	Apr. 7	619	159	31	110
Wick. Lamp-	A. F. Godefroy	320,928	June 30	2689	714	31	1570
Wig	F. Locke	319 279	June 2	416	111	31	1126
Winch. Loading-	H. B. Colman	317,093	May 5	215	54	31	562
Wind-engine	H. B. Colman	317,628	May 12	942	242	31	702
Wind-engine	T. D. Pollock	316,656	Apr. 28	2296	603	31	435
Wind-engine	D. and W. W. Shilling	320,182	June 16	1656	440	31	1365
Wind-motor	T. J. Harrison	320,654	June 23	2339	618, 619	31	1497
Wind-wheel	J. M. Flint	317,756	May 12	1106	291	31	733
Winding-on motion for machines for taping, slashing paper, &c.	Y. Duxbury, Jr	316,343	Apr. 21	1872	495	31	351
Windlass	R. F. Carter	316,602	Apr. 28	2228	586, 587	31	423
Windlass locking-gear	F. A. Grater	316,259	Apr. 21	1764	464	31	333
Windmill	J. Chellberg	317,298	May 5	502	127	31	615
Windmill	H. B. Colman and G. Turner	317,731	May 12	1068	279	31	726
Windmill	R. M. Cosby	315,424	Apr. 14	705	186	31	131
Windmill	A. Currier	318,876	May 26	2614	694	31	1026
Windmill	F. Fanning	318,175	May 19	1668	447	31	847
Windmill	J. E. Goodhue	321,100	June 30	2926	775	31	1612
Windmill	T. Hatfill	321,292	June 30	3156	842	31	1656
Windmill	J. Marena	320,570	June 23	2221	588	31	1475
Windmill	G. H. Pattison	317,186	May 5	348	88	31	587
Windmill	G. H. Poe	318,498	May 26	2095	565, 566	31	935
Windmill	J. H. Rowell	318,928	May 26	2678	710	31	1038
Windmill	O. Stoddard	320,190	June 16	1666	443	31	1367
Windmill	W. O. Swinnerton	316,078	Apr. 21	1523	397	31	288
Windmill	J. Warwick	317,691	May 12	1024	265, 266	31	717
Windmill and piston rods. Connection for	S. Haney	316,031	Apr. 21	1458	380	31	277
Windmill. Geared	G. H. Pattison	319,309	June 2	456	123	31	1134
Windmill. Power-	H. B. Colman	318,453	May 26	2039	550	31	924
Windmill. Power-	H. B. Colman and G. Turner	319,302	June 2	556	151	31	1153
Window	W. C. Bullivant	318,164	May 19	1654	442	31	844
Window	A. Matuska	319,104	June 2	212	55	31	1086
Window	M. S. Millard and G. H. King	320,808	June 23	2522	668, 669	31	1533
Window	J. S. Pihlsirom	321,245	June 30	3099	823, 824	31	1644
Window and door screen	E. Fales	319,685	June 9	961	255	31	1234
Window-bead fastener	E. E. Masters and L. J. Kimball	316,555	Apr. 28	2169	571	31	412
Window-bead fastener	C. R. Nelson	320,161	June 16	1628	433	31	1360
Window-cleaning chair	A. Dormitzer	319,683	June 9	959	254, 255	31	1234
Window-frame	H. E. Willer	315,365	Apr. 7	522	133	31	95
Window frame and sash	J. E. Jones	319,265	June 2	401	106	31	1121
Window-glass fastener	J. Braun and F. Bohn	316,940	May 5	14	4	31	537
Window-guard	W. Hinze	319,232	June 2	387	103	31	1121
Window-screen	J. W. Bachus	319,168	June 2	284	75	31	1100
Window-screen	W. Bateman	316,517	Apr. 28	2124	559	31	404
Window-screen	G. R. Clark	318,871	May 26	2611	693	31	1025
Window-screen	D. Cook	315,249	Apr. 7	378	93	31	69
Window-screen	A. H. Hill	317,456	May 5	719	181	31	653
Window-screen	F. and A. Hubka	318,988	June 2	77	20	31	1062
Window-screen	J. K. Proctor	318,799	May 26	2512	670	31	1007
Window-screen	J. K. Proctor	319,422	June 2	595	162	31	1161

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Window-screen	M. Roberts	320,289	June 16	1808	480	31	1391
Window-screen holder	H. C. Barlow	316,222	Apr. 21	1716	451	31	324
Window screen. Sliding	J. C. Proctor	316,174	Apr. 21	1657	434	31	314
Window-shade	E. J. Hamm	320,245	June 16	1738	462	31	1389
Window shade and awning	D. R. Steelman	317,238	May 5	420	105	31	600
Window-shades. Bottom bar for	A. H. Gordom	316,771	Apr. 28	2481	647	31	469
Window-shelf	J. G. O'Neill	318,200	May 19	1701	455	31	853
Windows. Preventing the formation of ice on show-	E. A. Wood	317,265	May 5	456	114 / 115	31	607
Wire-barbing machine	O. O. Kittleson	318,002	May 19	1446	387 / 388	31	805
Wire-barbing machine	A. C. Paul	316,909	Apr. 28	2682	660	31	506
Wire-barding machine	D. C. Stover	318,821	May 26	2539	677	31	1012
Wire-barbing machine	D. C. Stover	318,822	May 26	2541	677	31	1013
Wire carrier and stretcher	W. J. McKee	316,161	Apr. 21	1643	430	31	311
Wire-cloth. Manufacture of galvanized	E. Gilbert	316,615	Apr. 28	2244	591	31	426
Wire-cloth, sheet metal, &c. Device for folding the edges of	M. F. Roberts	317,857	May 12	1244	329	31	759
Wire-coiling machine	J. E. Gaitley	319,810	June 9	1145	303	31	1267
Wire. Drawing	E. L. Warren and A. Ladd	318,062	May 19	1525	400	31	819
Wire. Drawing and galvanizing	J. A. Mathien	319,918	June 9	1292	.....	31	1292
Wire-drawing die	F. M. Johnson	321,033	June 30	2530	753	31	1596
Wire fabric for fences, screens, &c.	W. Klose	316,793	Apr. 28	2511	656	31	474
Wire-feeding machine	O. Arnold	315,882	Apr. 14	1256	328	31	234
Wire-feeding mechanism	S. L. Worsley	320,523	June 23	2165	571 / 572	31	1464
Wire frame	H. F Fordham	321,204	June 30	3052	800	31	1636
Wire machine. Barb-	G. H. Lasar	319,982	June 16	1390	366	31	1317
Wire. Machine for making looped twisted	F. W. Panse and C. F. Klotz	320,582	June 23	2243	594	31	1480
Wire. Machine for making peg-	H. S. Bacon	319,771	June 9	1078	286 / 287	31	1255
Wire. Machine for spirally scoring	H. K. Jones	315,144	Apr. 7	213	52, 53	31	39
Wire. Machinery for the manufacture of	S. H. Byrne	319,556	June 9	795	211	31	1204
Wire-notching machine	H. E Russell, Jr., and H. K. Jones	315,170	Apr. 7	255	62	31	47
Wire reel and tub	E. L. Warren	320,421	June 16	2025	532	31	1431
Wire-rod mills. Conductor for	W. Garrett	318 613	May 26	2258	603	31	962
Wire rope or cable	T. Seale	315,077	Apr. 7	124	29	31	24
Wire splicer and tightener	W. P. Hinson	319,716	June 9	1007	267	31	1243
Wire spool. Barbed-	A F. Dice	318,967	June 2	50	13	31	1057
Wire spool. Barbed-	D. C. Stover	319,147	June 2	262	68	31	1095
Wire springs. Apparatus for tempering	M. N. Lovell	315,457	Apr. 7	656	169	31	117
Wire springs, &c. Tempering	M. N. Lovell	315,424	Apr. 7	609	157	31	100
Wire-stretcher	F. M. Ewers	320 433	June 16	2041	536	31	1433
Wire stretcher	J. B. Irvine	316,039	Apr. 21	1470	383	31	279
Wire-stretcher	J. M Merritt	318,012	May 19	1461	391	31	808
Wire-stretcher	E. D. Roberts	318,805	May 26	2518	672	31	1008
Wire-stretcher and staple-puller. Combined	E. Moore	321.130	June 30	2958	784	31	1618
Wire-tension apparatus	W. E. Woodbridge	317,267	May 5	458	115	31	607
Wire-twister	H. Miller	313,-32	May 12	1214	321	31	753
Wire-uncoiling machine	O. P. Briggs	315,707	Apr. 14	1007	265	31	189
Wire with metal. Machine for covering	J. Zengerle	320,321	June 16	1877	493	31	1403
Wood. Apparatus for creosoting	L. Hansen and A. Smith	316,961	May 5	41	11	31	530
Wood. Cutting and packing kindling	J. L Seymour	317,420	May 5	666	169	31	644
Wood-filler	J. M. Coppernoll and J. W. Brandow	3 9,792	June 9	1112	.....	31	1261
Wood-filler	H. Hales	317,125	May 5	261	.....	31	571
Wood filler	S. F. Woodhouse	318,935	May 26	2687	.....	31	1040
Wood-grinder	E. F. Millard	320,574	June 23	2226	590	31	1476
Wood ornamentation	G. A. Watkins	320,518	June 23	2160	570	31	1464
Wood, &c. Ornamenting the surfaces of	D. L Daran	317,317	May 5	528	134	31	620
Wood. Preserving	J P. Card	317,440	May 5	700	.....	31	649
Wood. Preserving	E. Z. Collings and C. F. Pike	317,730	May 12	1066	279	31	726
Wood. Preserving	L. Hansen and A. Smith	317,129	May 5	265	.....	31	572
Wooden vessels. Machine for cutting	W. D. Johnson	315,509	Apr. 14	733	194 / 195	31	137
Wool-barring machinery	C. L. Goddard	317,638	May 12	952	244	31	704
Wool drier	D. H. Rice	316,060	Apr. 21	1496	391	31	284
Wool, &c. Removing foreign substances from	E Harmel	318,730	May 26	2407	642	31	999
Wrapper for silks, &c.	T. J. Oakley	321,048	June 30	2848	758	31	1599
Wrench: *See* Jaw-wrench. Pipe-wrench.							
Wrench	A. Call	317,923	May 12	1330	357	31	776
Wrench	A. Call	317,924	May 12	1331	358	31	776
Wrench	J. Huber	320,357	June 16	1928	508	31	1413
Wrench	H. T. King	320,797	June 23	2508	664	31	1530
Wrench	G. F. Pottle	317,670	May 12	996	258	31	712
Wrench	S. Robinson	320,172	June 16	1641	437	31	1363
Wringer: *See* Clothes-wringer.							
Wringer and mop. Combined	C. E. Snell	320,304	June 16	1926	485	31	1395
Yarn. Machinery for the manufacture of cotton	I. H. Russell	317,675	May 12	1002	260	31	713
Yarn. Manufacturing cotton	T. T. Abbot	317,608	May 12	917	235	31	697
Yarn of different colors. Machine for producing	J. G. and T. Fuyat	320,344	June 16	1901	501	31	1408
Yoke. Neck-	A. B. Arnold	320,524	June 23	2167	572	31	1465
Yoke. Neck-	A. D. Shepard	315,561	Apr. 14	823	217	31	153
Zinc. Decorating	G. H. Dirtman	318,882	May 26	2821	.....	31	1027
Zither	K. Arnold and J. J. Gerber	315,376	Apr. 7	534	137	31	97

ALPHABETICAL LIST OF DESIGNS.

Design.	Name.	No.	Date.	Official Gazette. Volume.	Official Gazette. Page.
Badge	W. Thegen	16,099	May 19	31	794
Bell-gong	C. A. Bailey	16,044	Apr. 14	31	123
Bonbonnière	B. F. Adams	16,085	May 12	31	668
Bottle	J. W. Donnell	16,016	Apr. 7	31	1
Bottle	W. Pountney	16,026	Apr. 7	31	1
Bottle or jar	R. Crooks	16,069	May 5	31	521
Bottle or jug	W. Pountney	16,027	Apr. 7	31	1
Brush-handles. Ornamentation of	C. H. Thurber	16,100	May 19	31	794
Buckle	H. C. Johnson	16 123	June 2	31	1048
Buckle-frame	L. C. Voorhees	16,046	Apr. 14	31	123
Candy or confectionery	A. Schwarzschild and N. Greenfield.	16,029 / 16,030	Apr. 7	31	1
Card-receiver	W. Harris	16,072	May 5	31	521
Cards. Ace of spades for	H. M. Rosenbaum	16,075	May 5	31	521
Carpet	J. B. Campbell	16,047	Apr. 14	31	124
Carpet	A. L. Halliday	16,019	Apr. 7	31	1
Carpet	A. L. Halliday	16,034	Apr. 14	31	123
Carpet	A. L. Halliday	16,052	Apr. 21	31	267
Carpet	A. L. Halliday	16,107	May 26	31	920
Carpet	N. Komori	16 041	Apr. 14	31	123
Carpet	N. Komori	16,056	Apr. 21	31	267
Carpet	N. Komori	16,074	May 5	31	521
Carpet	M. R. London	16,049	Apr. 14	31	124
Carpet	W. McCallum	16,024	Apr. 7	31	1
Carpet	D. G. Melville	16 137	June 23	31	1448
Carpet	F. E. Smith	16,050	Apr. 14	31	124
Carpet	T. J. Stearns	16 063 / 16,064	Apr. 28	31	382
Carpet	T. J. Stearns	16,098	May 19	31	794
Carpet. Rag	H. Thiele	16,084	May 12	31	668
Carriage-step	J. M. Foote	16,138	June 30	31	1564
Chain. Watch-	W. H. Graham	16 083	May 12	31	668
Cigar-holder	F. W. Sigourney	16,125	June 9	31	1174
Clock-case	L. E Jerome	16,082	May 12	31	668
Closet-hopper	H. W. Maneur	16,139	June 30	31	1564
Cloth. Enameled	U. McClinchie	16,096	May 19	31	794
Cruet	M. Ams	16,066	May 5	31	521
Curtain fabric	J. Blair	16,034	Apr. 7	31	1
Curtain fabric	R. P. Hemming	16,108	May 26	31	920
Curtain-pole or stair-rod	R. S. Gould	16,054	Apr. 21	31	267
Dish-handle	C. E. Haviland	16 048	Apr. 14	31	124
Dish-handle	C. E. Haviland	16,060	Apr. 28	31	382
Dishes. Decorative pattern for	C. A. May	16,042	Apr. 14	31	123
Dishes. Decorative pattern for	W. Wood	16,043	Apr. 14	31	123
Fabric for seat-coverings	J. Hodgson	16,051	Apr. 21	31	267
Fire-place front	E. A. Jackson	16,135 / 16,136	June 23	31	1448
Fire-place lining. Ornamental	J. A. Page	16,131 / 16,132	June 16	31	1308
Fringe-heading	E. Memleb	16,097	May 19	31	794
Gimp	J. C. Graham	16,091 / 16,092	May 19	31	794
Gimp	H. Wynkoop	16,076	May 5	31	521
Gimp	H. Wynkoop	16 144	June 30	31	1564
Grate. Fire-place	J. A. Read and E. L. Calely	16,133	June 16	31	1308
Grate. Fire-place	J. A. Read and E. L. Calely	16 142	June 30	31	1564
Hair-crimp	C. C. E. Van Alstine	16,143	June 30	31	1564
Harness. Ornamentation for	S. E. Tompkins and J. F. Goodsell	16 114	May 26	31	920
Hinges. Leaves of butt-	F. W. Smith	16,065	Apr. 28	31	382
Lamp-body	G. C. Thomas	16,078	May 5	31	521
Lamp-chimney heater	A. Fraser	16,090	May 19	31	794
Necktie	C. Dudgeon	16,017	Apr. 7	31	1
Oil-cloth	C. T. and V. E. Meyer	16,020 to 16,023	Apr. 7	31	1
Oil-cloth	C. T. and V. E. Meyer	16,109 to 16,112	May 26	31	920
Oil-cloth	C. T. and V. E. Meyer	16,115 to 16,119	June 2	31	1048
Organ-case	L. K. Fuller	16,134	June 23	31	1448
Paper. Writing-	Z. Crane, Jr	16,080	May 12	31	668
Parasol	W. A. Drown	16 088	May 12	31	668
Parasol-covering	A. G. Jennings	16,055	Apr. 21	31	267
Pendant	B. Dreyfus	16 070	May 5	31	521
Picture-frames. Ornamentation of	T. Schreppel	16,028	Apr. 7	31	1
Pipe-stem	F. R. Kaldenberg	16,095	May 19	31	794
Pitcher	E. Bennett	16,079	May 12	31	668
Pulley-casing	E. C. Stearns	16,031	Apr. 7	31	1
Pulley-frame	D. J. Weir	16,113	May 26	31	920

Alphabetical list of designs, April to June, inclusive—Continued.

Design.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Register front. Hot-air	A. Namur	16,057 to 16,059	Apr. 21	31	267
Ring-setting	H. Huestis	16,126	June 16	31	1308
Rug	R. P. Hemming	16,094	May 19	31	794
Saucepan-handle	J. Finnegan	16,053	Apr. 21	31	267
Sewing-machine case	N. A. Hull	16,039 to 16,040	Apr. 14	31	123
Shade-roller bracket	S. Hartshorn	16,037	Apr. 14	31	123
Shot case. Sample	A. Euston	16,071	May 5	31	521
Sign	L. S. Grout	16,093	May 19	31	794
Skates. Coupling-reach for roller	F. C. Miller	16,128 to 16,130	June 16	31	1308
Sled. Child's	F. C. Lorenz	16,063	May 12	31	668
Sole. Rubber	L. F. Norman and E. E. Bennett	16,025	Apr. 7	31	1
Soles. Ornamentation of india-rubber	L. Elliott	16,018	Apr. 7	31	1
Spoon. Medicine	E. C. Underhill	16,033	Apr. 7	31	1
Stove or range	W. H. Swanton	16,077	May 5	31	521
Table-ware	F. A. Noussat	16,062	Apr. 28	31	382
Tea-set	E. Haviland	16,073	May 5	31	521
Ten-pin	R. B. Cooley	16,068	May 5	31	521
Thermometer-back	C. H. Myers	16,140 to 16,141	June 30	31	1564
Tobacco-knife	C. R. Cousins	16,067	May 12	31	668
Toy savings-bank	E. L. Morris	16,120	June 2	31	1048
Toy savings-bank	J. Mueller	16,121	June 2	31	1048
Type	H. Brehmer	16,067	May 5	31	521
Type	W. F. Capitain	16,122	June 2	31	1048
Type	A. Little	16,124	June 9	31	1174
Type-border	G. F. Giesecke	16,069	May 12	31	668
Type. Font of	A. Little	16,061	Apr. 28	31	382
Type. Font of	T. W. Smith	16,032	Apr. 7	31	1
Type. Font of printing	W. F. Capitain	16,101 to 16,106	May 26	31	920
Vehicle-body	B. A. Anghinbaugh and G. Morrow.	16,086	May 12	31	668
Watch and clock dial	O. Kling	16,045	Apr. 14	31	123
Watch-case	G. W. Ladd	16,127	June 16	31	1308
Window-shade pull	J. G. Brothwell	16,035 to 16,036	Apr. 14	31	123

ALPHABETICAL LIST OF TRADE-MARKS.

Title.	Name.	No.	Date.	Official Gazette. Volume.	Page.
Ale. Pale	T. McMullen & Co	12,282	June 2	31	1048
Baking-powder	W. P. Clotworthy	12,120	Apr. 14	31	124
Baking-powder	W. Condell	12,253	May 19	31	794
Baking-powder	Jones Bros	12,190	Apr. 28	31	382
Baking-powder	Ricker, Crombie & McLaren	12,294	June 2	31	1048
Baking-powder	V. L'Eplattenier	12,338	June 23	31	1448
Balsam or salve	Liston Beef Company	12,101	Apr. 7	31	2
Beef. Fluid extract of	Liston Beef Company	12,102	Apr. 7	31	2
Beer. Lager	J. Ruppert	12,372	June 30	31	1564
Beers, porters, ales, and other malt liquors	C. Jacobsen	12,336	June 16	31	1308
Biscuits, crackers, and wafers	Holmes & Coutts	12,289	June 2	31	1048
Bitterer ansata	A. W. Weismann	12,275	May 26	31	920
Bitters	E. Jeserich	12,362	June 30	31	1564
Blanc-mange powder	A. F. Bird	12,115	Apr. 14	31	124
Blood-purifying compounds	Mexican Medicine Company	12,127	Apr. 14	31	124
Boots and shoes for misses and children	P. Cox Shoe Manufacturing Company.	12,203	May 5	31	522
Boots, shoes, and slippers	A. J. Cammeyer	12,334	June 23	31	1448
Boots, shoes, slippers, and like foot-wear	R. W. Peckham	12,307	June 9	31	1174
Braid. Silk	C. E. Bentley	12,241	May 19	31	794
Braids	Nonantum Worsted Company	12,268	May 26	31	920
Brushes. Toilet	C. Loonen	12,214	May 5	31	522
Buttons	I. E. Hirsh & Co	12,097	Apr. 7	31	2
Candy	J. Morningstar	12,078	Apr. 7	31	2
Case containing selected instruments and standard remedies. Portable	Sun Chemical Company	12,374	June 30	31	1564
Cheese	W. P. Harvey & Co	12,123	Apr. 14	31	124
Chewing-gum	Adams & Sons	12,175	Apr. 28	31	382
Chewing-gum	Adams & Sons	12,298	June 9	31	1174
Chewing-gum	Adams & Sons	12,343	June 30	31	1564
Chewing-gums	Danheiser Bros. & Co	12,204	May 5	31	522
Cigarettes and smoking-tobacco	L. Ginter	12,161	Apr. 21	31	268
Cigars	I. Harris	12,288	June 2	31	1048
Cigars	F. W. Sigourney	12,295	June 2	31	1064
Cigars and all other manufactured tobacco	J. De Susini	12,138	Apr. 14	31	124
Cigars, cigarettes, and manufactured tobacco	G. Fuchs	12,141	Apr. 14	31	124
Cigars, smoking and chewing tobacco, and cigarettes	W. E. Barton	12,297	June 2	31	1048
Cocoanut. Preserved	Croft & Allen	12,359	June 30	31	1564
Cod-liver oil. Certain preparations of	J. Carnrick	12,177	Apr. 28	31	382
Cod-liver oil. Compound preparation of	S. J. Bendiner	12,133	Apr. 14	31	124
Coffee	Ricker, Crombie & McLaren	12,293	June 2	31	1048
Coffee, either green or roasted	G. W. Earhart	12,096	Apr. 7	31	2
Coffee. Essence of	P. C. Tomson	12,145	Apr. 14	31	124
Coffee, ground or unground. Roasted	J. C. Barkley & Co	12,226	May 12	31	668
Coffee. Raw	Ropes, Emmerton & Co	12,166	Apr. 21	31	268
Collars. Horse	J. B. Sickles Saddlery Company	12,167	Apr. 21	31	268
Compound of red lead and oil adapted to remain in a soft or pasty condition	J. A. Shephard	12,109	Apr. 7	31	2
Cordial. Root and herb	Collins Brothers Drug Company	12,074	Apr. 7	31	2
Corsets and other similar articles	Warner Brothers	12,132	Apr. 14	31	124
Cotton fabrics	Herbst Brothers	12,077	Apr. 7	31	2
Cotton fabrics. Black	Hyde & Burton	12,124	Apr. 14	31	124
Cotton goods. Bleached	Fall River Bleachery	12,207	May 5	31	522
Cotton sheetings and shirtings. All kinds of	Jackson Company	12,187	Apr. 28	31	382
Cotton sheetings and shirtings. All kinds of	Jackson Company	12,188	Apr. 28	31	382
Cotton, silk, and like manufacture. Top rolls for	F. L. Huston	12,098	Apr. 7	31	2
Cotton textile fabrics. Certain	Hyde & Burton	12,162	Apr. 21	31	268
Cottons. Bleached, white, and colored	J. W. Woods	12,376	June 30	31	1564
Cottonades	J. Scanlin & Son	12,237	May 12	31	668
Cough-tea	I. Lange	12,266	May 26	31	920
Crackers	W. G. Wilson	12,260	May 19	31	794
Crackers, biscuits, wafers, cakes, and kindred articles	F. A. Kennedy Company	12,150	Apr. 21	31	267
Crackers, biscuits, wafers, cakes, and kindred articles	F. A. Kennedy Company	12,152	Apr. 21	31	268
Crackers, biscuits, wafers, cakes, and kindred articles	F. A. Kennedy Company	12,153	Apr. 21	31	268
Crackers, wafers, biscuits, cakes, and kindred articles	F. A. Kennedy Company	12,151	Apr. 21	31	268
Cuffs, collars, and shirt-fronts. Certain	Celluloid Novelty Company	12,157	Apr. 21	31	268
Cure for malarial diseases	G. V. Dunn	12,280	June 2	31	1048
Cutlery	H. Boker & Co	12,323	June 16	31	1308
Dentifrice	Van Antwerp & Co	12,250	May 19	31	794
Deodorizers and disinfectants	Koch Microcide Company	12,126	Apr. 14	31	124
Disinfecting and deodorizing solution. Volatile	A. H. Kidney	12,232	May 12	31	668
Disinfecting or deodorizing compounds or fluids	J. A. Mathieu	12,267	May 26	31	920
Disinfecting or deodorizing compounds or fluids	J. A. Mathieu	12,292	June 2	31	1048
Drawing materials	E. G. Soltmann	12,340	June 23	31	1448
Dress-shields	A. H. Brinkmann	12,345	June 30	31	1564
Dress-shields	Canfield Rubber Company	12,244	May 19	31	794
Dress-shields	Frank & Gutmann	12,182	Apr. 28	31	382
Drugs and chemicals for dyeing. Certain named	Stamford Manufacturing Company	12,143	Apr. 14	31	124
Egg-powder	A. F. Bird	12,117	Apr. 14	31	124
Egg preserve and egg albumen. White and yellow of	S. B. Nachfolger	12,142	Apr. 14	31	124
Exercising the fingers, hands, and wrists. Instruments for	J. Brotherhood	12,310	June 16	31	1308

Alphabetical list of trade-marks, April to June, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Fabrics for ladies' and children's dresses	G. Bossange	12,134	Apr. 14	31	124
Felon-cure	I. Rosner	12,154	Apr. 21	31	268
Files and other receptacles for papers, documents, &c. Paper.	Globe Files Company	12,184	Apr. 28	31	382
Files, desks, and other appliances and receptacles for papers, documents, &c. Paper.	Globe Files Company	12,183	Apr. 28	31	382
Fish. Boneless	Caswell, Livermore & Co	12,135	Apr. 14	31	124
Fish. Boneless cod	Caswell, Livermore & Co	12,119	Apr. 14	31	124
Fish. Boneless preparation of salted	J. O. Procter, Jr	12,220	May 5	31	522
Flour	Jones & Co	12,191	Apr. 28	31	382
Flour	Saint Paul Roller Mill Company	12,108	Apr. 7	31	2
Flour. Wheat	Fisher & Wise	12,324	June 16	31	1308
Flour. Wheat	Fisher & Wise	12,348	June 30	31	1564
Flour. Wheat	Oliver & Imboden Company	12,365	June 30	31	1564
Flour. Wheat	Oliver & Imboden Company	12,366	June 30	31	1564
Flour. Wheat	Page, Norton & Co	12,235	May 12	31	668
Flour. Wheat	R. F. Piper	12,283	June 2	31	1048
Food for infants and invalids	Wells & Richardson Company	12,358	June 30	31	1564
Fruit-juices. Unfermented	A. Werner	12,276	May 26	31	920
Furnishing-goods and underwear	E. F. Bermingham	12,262	May 26	31	920
Furniture	Jaeger's Sanitary Woollen System Company.	12,099	Apr. 7	31	2
Gloves. Kid	Newman & Levinson	12,353	June 30	31	1564
Gloves. Kid	Roman Bros	12,222	May 5	31	522
Gold for dentists' use. Preparations of	S. S. White Dental Manufacturing Company.	12,225	May 5	31	522
Guano	R. L. Hickson	12,304	June 9	31	1174
Guns and rifles. Shot	H. Boker & Co	12,156	Apr. 21	31	268
Hair-tonic	Bloomingdale & Rich	12,344	June 30	31	1564
Hair-tonic	J. Semmes	12,284	June 2	31	1048
Hams and cured meats. Smoked	Rohe & Brother	12,221	May 5	31	522
Hats	South Norwalk Hat Company	12,110	Apr. 7	31	2
Hats. Fur and wool	Knights of Labor Co-operative Hat Company.	12,363	June 30	31	1564
Hominy. Crushed	Austin, Nichols & Co	12,330	June 23	31	1448
Ice-boxes and refrigerators	S. A. Snydam	12,321	June 16	31	1308
Incubators and brooders	M. H. Strong	12,249	May 19	31	794
Ink. Printing	F. H. Levey & Co	12,306	June 9	31	1174
Inks	H. C. Stephens	12,238	May 12	31	668
Jewelry. Articles of	E. Naegele	12,128	Apr. 14	31	124
Knitted articles of wearing-apparel	C. H. Willcox	12,197	Apr. 28	31	382
Knives	Eagle Pencil Company	12,122	Apr. 14	31	124
Lamp-chimneys	G. A. Macbeth & Co	12,163	Apr. 21	31	268
Lamp-chimneys	G. A. Macbeth & Co	12,164	Apr. 21	31	268
Lamps. Copper or brass kerosene	A. Geiss and L. L. Kleine	12,361	June 30	31	1564
Lard	W. J. Wilcox Company	12,251	May 19	31	794
Lead. White	Southern White Lead Company	12,111	Apr. 7	31	2
Lead. White	Southern White Lead Company	12,112	Apr. 7	31	2
Leather. Shoe and glove	Booth & Kent	12,176	Apr. 28	31	382
Lemon ginger, a remedy for coughs, &c	Collins Brothers Drug Company	12,087	Apr. 7	31	2
Liniment	J. F. Ballard	12,331	June 23	31	1448
Liniment	J. Boyle	12,073	Apr. 7	31	2
Liniment	S. L. Tucker	12,173	Apr. 21	31	268
Liniment. Family	G. L. Vrooman	12,131	Apr. 14	31	124
Liniment for external use	Jay Eye See Liniment Company	12,189	Apr. 28	31	382
Lubricators, ejectors, and cups	Peerless Oil Ejector Company	12,106	Apr. 7	31	2
Lye	P. C. Tomson	12,146	Apr. 14	31	124
Mathematical instruments	C. Proebster, Jr	12,370	June 30	31	1564
Meat-extract	Liebig's Extract of Meat Company	12,349	June 30	31	1564
Meat-extract	Liebig's Extract of Meat Company	12,350	June 30	31	1564
Meat-extract	Liebig's Extract of Meat Company	12,351	June 30	31	1564
Medical compounds. Certain-named	J. H. Pullen	12,107	Apr. 7	31	2
Medicinal composition. Certain named	C. Ringbauer	12,136	Apr. 14	31	124
Medicinal compound for diseases of the throat and lungs. Certain	B. S. Landerbach	12,281	June 2	31	1048
Medicinal confections	F. A. Uhlich	12,224	May 5	31	522
Medicinal plaster	Seabury & Johnson	12,082	Apr. 7	31	2
Medicinal powders	A. F. Bird	12,116	Apr. 14	31	124
Medicinal remedies for children	D. B. Hand	12,303	June 9	31	1174
Medicinal specific for cold-sores	H. A. Robinson	12,081	Apr. 7	31	2
Medicinal tonic	R. E. Kunzé	12,100	Apr. 7	31	2
Medicine consisting of powdered drugs. Horse	G. B. Parsons	12,236	May 12	31	668
Medicine. Cough	E. M. Evans	12,245	May 19	31	794
Medicine for cure of stomach, liver, and kidney diseases. Liquid	H. C. Paige	12,318	June 16	31	1308
Medicine for diseases of the blood and nerves	S. E. Martin	12,312	June 16	31	1308
Medicine for diseases of the throat and lungs	H. Button	12,242	May 19	31	794
Medicine for diseases of the throat and lungs	H. M. O'Neil	12,195	Apr. 28	31	382
Medicine for diseases of the throat and lungs	H. R. S. Van Rensselaer	12,174	Apr. 21	31	268
Medicine for neuralgia and rheumatism	C. L. Otrich	12,080	Apr. 7	31	2
Medicine for the cure of impure blood or deranged bowels. Liquid	A. Danner	12,335	June 23	31	1448
Medicine for the cure of rheumatism and like diseases	Swamp Angel's Rheumatic Cure Manufacturing Company.	12,329	June 16	31	1308
Medicine for the prevention and cure of seasickness	H. L. Moody	12,194	Apr. 28	31	382
Medicine in capsules	E. Jeserich	12,213	May 5	31	522
Medicine, the vehicle of which is in granular form	A. C. Chanteaud	12,346	June 30	31	1564
Medicine to be used externally and internally	C. L. Hammond	12,076	Apr. 7	31	2
Medicines. Certain named proprietary	L. Gerstle	12,230	May 12	31	668
Milk, cream, butter, and cheese	Pikesville Dairy Company	12,144	Apr. 14	31	124
Mineral-spring water. Natural	Bullard & Foster	12,202	May 5	31	522
Mineral water. Certain natural	J. P. Forbes and F. A. Plaisted	12,209	May 5	31	522
Mineral water. Certain natural	L. W. McConnell	12,217	May 5	31	522
Mirror-plates	S. Bache & Co	12,299	June 9	31	1174

Alphabetical list of trade-marks, April to June, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Nails	Plume & Atwood Manufacturing Company.	12,219	May 5	31	522
Nasal suppositories	Vita Company	12,274	May 26	31	920
Nerve-tonic	J. S. Pemberton	12,257	May 19	31	794
Newspapers	C. W. Leffingwell	12,193	Apr. 28	31	382
Oars, sweeps, and sculls	New York Boat Oar Company	12,129	Apr. 14	31	124
Oars, sweeps, and sculls	New York Boat Oar Company	12,171	Apr. 21	31	268
Oil and axle-grease. Lubricating	Moriam & Morgan Paraffine Company.	12,256	May 19	31	794
Oil-dressing for leather and fabrics	Canton Paint and Oil Company	12,169	Apr. 21	31	268
Oil. Hoof	A. Spietaler	12,373	June 30	31	1564
Oil. Illuminating	Acme Oil Company	12,309	June 16	31	1308
Oil-producing seeds and their named products	W. A. Haxall	12,325	June 16	31	1308
Oils refined from petroleum. Illuminating	Sone & Fleming Manufacturing Company.	12,313	June 16	31	1308
Oils refined from petroleum. Illuminating	Sone & Fleming Manufacturing Company.	12,314	June 16	31	1308
Ointment or cosmetic	F. C. Renner	12,339	June 23	31	1448
Paint called hygienic calcimine	Rubber Paint Company of Cleveland, Ohio.	12,272	May 26	31	920
Paint. Prepared	Hartmann, Le Doux & Maecker	12,336	June 23	31	1448
Paints	J. Lucas	12,246	May 19	31	794
Paints	J. Lucas	12,247	May 19	31	794
Paints and paint compounds for protective and preservative purposes.	Paraffine Paint Company	12,130	Apr. 14	31	124
Paints. Prepared	Hartmann, Le Doux & Maecker	12,185	Apr. 28	31	382
Paper. Fine writing	Worthy Paper Company	12,198	Apr. 28	31	382
Paper for indicating fraudulent changes in writing. Safety	Patent Papier Fabrik zu Penig	12,308	June 9	31	1174
Paper for photographic purposes	A. F. Silomon	12,319	June 16	31	1308
Paper-hangings. Wall and ceiling	F. Beck & Co	12,240	May 19	31	794
Paper. Matrix	Crocker Manufacturing Company	12,264	May 26	31	920
Paper. White or light-colored printing, writing, and wrapping	J. W. Butler Paper Company	12,333	June 23	31	1448
Paper. Writing	Valley Paper Company	12,273	May 26	31	920
Pegs for boots and shoes	Kearsarge Peg Company	12,192	Apr. 28	31	382
Pencils and pen-holders. Lead	Eagle Pencil Company	12,090	Apr. 7	31	2
Pencils and pen-holders. Lead	Eagle Pencil Company	12,095	Apr. 7	31	2
Pencils. Lead	Eagle Pencil Company	12,091	Apr. 7	31	2
Pencils. Lead	Eagle Pencil Company	12,092	Apr. 7	31	2
Pencils. Lead	Eagle Pencil Company	12,093	Apr. 7	31	2
Pencils. Lead	Eagle Pencil Company	12,094	Apr. 7	31	2
Pencils. Lead	Jansen, McClurg & Co	12,231	May 12	31	668
Pens and lead-pencils. Steel	Esterbrook Steel Pen Manufacturing Company.	12,227	May 12	31	668
Pens. Metallic	Esterbrook Steel Pen Manufacturing Company.	12,228	May 12	31	668
Petroleum. Refined	Chester Oil Company	12,252	May 19	31	794
Physic	J. J. Six Dykstra	12,160	Apr. 21	31	268
Pianos	Whitney & Currier	12,259	May 19	31	794
Pills	W. H. Comstock	12,277	June 2	31	1048
Pills	W. H. Comstock	12,278	June 3	31	1048
Plows	A. G. Starke	12,113	Apr. 7	31	2
Pork. Cured	G. Fowler	12,140	Apr. 14	31	124
Portable arms, as guns, revolvers, swords, &c	Ostheimer Brothers	12,270	May 26	31	920
Powders for the cure of cholera in animals and fowls	H. Copeland	12,347	June 30	31	1564
Preparations for the laundry. Certain named	A. M. Ross & Co	12,223	May 5	31	522
Purgative compounds. Liquid	California Fig Syrup Company	12,118	Apr. 14	31	124
Ranges and furnaces	J. J. Richardson	12,371	June 30	31	1564
Razors	C. Klauberg & Bros	12,125	Apr. 14	31	124
Remedy for catarrh, hay-fever, colds, &c	D. O. Wilhelm	12,342	June 23	31	1448
Remedy for coughs, colds, &c	H. W. Little	12,233	May 12	31	668
Remedy for pulmonary diseases	M. F. Eagar	12,205	May 5	31	522
Remedy for the cure of fever and ague and diseases caused by malaria.	Allen, Merrill & Co	12,261	May 26	31	920
Ribbons and dress goods. Silk	Phoenix Manufacturing Company	12,369	June 30	31	1564
Rubber articles of a pliable character. Certain named	C. Macintosh & Co	12,328	June 16	31	1308
Rubber clothing and oil-clothing	Elson, Hall & Co	12,148	Apr. 21	31	267
Rubber goods. Certain-named	S. Ballard & Co	12,083	Apr. 7	31	2
Saws. Bracket, hack, and meat	G. N. Clemson	12,263	May 26	31	920
Seeds. All kinds of field, garden, and flower seeds, excepting clover and timothy	O. Landreth	12,327	June 16	31	1308
Seeds. All kinds of field, garden, grain, grass, tree, shrub, and flower	O. Landreth	12,337	June 23	31	1448
Sewing-machines and attachments	Domestic Sewing Machine Company	12,254	May 19	31	794
Shade fabrics, such as hollands and prepared muslins	H. B. Wiggin's Sons	12,239	May 12	31	668
Sheetings, shirtings, drills, and jeans. Gray and bleached	Fearon, Low & Co	12,302	June 9	31	1174
Shirts	E. F. Bermingham	12,085	Apr. 7	31	2
Shoe and leather dressing and blacking	Button & Ottley	12,243	May 19	31	794
Silks. Japan	Mourilyan, Heimann & Co	12,317	June 16	31	1308
Silks. Plain woven	Bates, Reed & Cooley	12,084	Apr. 7	31	2
Skates, mop and brush holders, and rubber floor-scrubbers and window-cleaners. Roller	Victor Roller Skate Company	12,196	Apr. 28	31	382
Skates. Roller	Diamond Roller Skate Company	12,075	Apr. 7	31	2
Soap. Cake	J. S. Wetmore	12,155	Apr. 21	31	268
Soap for laundry and toilet use	L. & J. Oakley	12,218	May 5	31	522
Soap. Hard	J. Biechele	12,300	June 9	31	1174
Soap. Hard	C. Davis & Co	12,279	June 2	31	1048
Soap. Laundry	Commercial Oil and Soap Company	12,286	June 2	31	1048
Soap. Laundry	N. K. Fairbank & Co	12,208	May 5	31	522
Soap. Laundry	Oberne, Hosick & Co	12,354	June 30	31	1564
Soap. Laundry	S. W. McBride	12,364	June 30	31	1564
Soap. Toilet	Empire Soap Company	12,149	Apr. 21	31	267
Soap. Toilet and laundry	Gowans & Stover	12,210	May 5	31	522
Soap. Toilet, bath, and laundry					

Alphabetical list of trade-marks, April to June, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Soaps. Family	N. K. Fairbank & Co	12,255	May 19	31	794
Soaps for scrubbing purposes. Laundry and other	Empire Soap Company	12,178	Apr. 28	31	382
Soaps. Laundry and other	Empire Soap Company	12,179	Apr. 28	31	382
Soaps. Laundry and other	Empire Soap Company	12,180	Apr. 28	31	382
Soaps. Laundry and other	Empire Soap Company	12,181	Apr. 28	31	382
Soaps. Laundry and other	Empire Soap Company	12,306	May 5	31	522
Soaps of all kinds	L. & J. Oakley	12,234	May 12	31	668
Soda-water. Bottled	A. M., G., and V. Hofmann	12,305	June 9	31	1174
Spool-cotton	Clark Thread Company	12,158	Apr. 21	31	268
Starch. Maize	Danville Refining Company	12,360	June 30	31	1564
Stockings and underwear	Lord & Tayler	12,104	Apr. 7	31	2
Stockings and underwear	Lord & Taylor	12,105	Apr. 7	31	2
Stove-pipe elbows. Certain	Lock Seam Elbow Company	12,103	Apr. 7	31	2
Stove-polish	R. H. Wetherell	12,341	June 23	31	1448
Stoves and ranges for cooking and heating purposes	J. Born	12,332	June 23	31	1448
Stoves. Cook	Culter & Proctor Stove Company	12,311	June 16	31	1308
Stoves. Portable	R. E. Dietz	12,089	Apr. 7	31	2
Suppositories. French uterine	G. Desbrough	12,159	Apr. 21	31	268
Tacks	Pennsylvania Tack Works	12,367	June 30	31	1564
Tea. Mixed	J. Babillion	12,199	May 5	31	522
Tea. Mixed	J. Babillion	12,200	May 5	31	522
Textile fabric having woven figures thereon	Brussels Tapestry Company	12,285	June 2	31	1048
Thrashing-machines and engines	Case & Willard Thresher Company	12,170	Apr. 21	31	268
Tobacco. Chewing	P. H. Hanes & Co	12,211	May 5	31	522
Tobacco, cigars, and cigarettes. Fine-cut chewing, granulated, and other kinds of smoking	Hull, Boesger & Co	12,212	May 5	31	522
Tobacco, cigars, and cigarettes. Smoking and chewing	H. W. Meyer	12,215	May 5	31	522
Tobacco, cigars, and cigarettes. Smoking and chewing	H. W. Meyer	12,216	May 5	31	522
Tobacco. Plug	Perkins & Ernst	12,368	June 30	31	1564
Tobacco. Plug smoking	Union Tobacco Works, Geo. S. Schwartz & Co.	12,296	June 2	31	1048
Tobacco. Smoking and chewing	Frishmuth Bro. & Co	12,229	May 12	31	668
Tobacco. Smoking and chewing	H. W. Meyer	12,352	June 30	31	1564
Tobacco. Smoking, fine-cut, and plug	Wellman & Dwire Tobacco Company.	12,375	June 30	31	1564
Tobacco. Smoking, plug, and fine-cut	Wellman & Dwire Tobacco Company.	12,322	June 16	31	1308
Tobacco, snuff, cigars, cigarettes, and cheroots. Smoking and chewing	F. W. Felgner & Son	12,287	June 2	31	1048
Toilet-powder	A. D. Slocomb and J. W. Day	12,320	June 16	31	1308
Tonic and blood-purifier	O. I. C. Co	12,248	May 19	31	794
Towels. Certain sanitary	Southall Bros. & Barclay	12,356	June 30	31	1564
Vegetable depurative	J. E. Blanc	12,072	Apr. 7	31	2
Velvet. Silk	A. Wimpfheimer & Bro	12,137	Apr. 14	31	124
Vitreous material and certain articles made therefrom	Vitrite Company	12,357	June 30	31	1564
Walls. Compound for coating	Church Finish Company	12,086	Apr. 7	31	2
Washing-powders	L. & J. Oakley	12,165	Apr. 21	31	268
Watch-keys	J. S. Birch & Co	12,114	Apr. 14	31	124
Watches, and eight-day and other clocks. Gold, silver, nickel, and other	E. Naegele	12,079	Apr. 7	31	2
Water-wheels. Turbine	H. R. Mathias	12,316	June 16	31	1308
Wheat scourers, separators, and smutters	Hercules Manufacturing Company	12,186	Apr. 28	31	382
Whiskies	J. Emmitt	12,265	May 26	31	920
Whisky, brandy, wine, and gin	J. Ross	12,172	Apr. 21	31	268
Whisky. Malt	Duffy Malt Whiskey Company	12,121	Apr. 14	31	124
Wine and beer	Redling & Neubauer	12,271	May 26	31	920
Wine. Champagne	A. De Montebello & Co	12,088	Apr. 7	31	2
Wine. Orange	Florida Wine Company	12,139	Apr. 14	31	124
Wine. Peptone	J. Barnet	12,071	Apr. 7	31	1
Wines. Champagne	Rheingauer Schaumweinfabrik Schierstein.	12,355	June 30	31	1564
Wire-netting for fencing, cages, &c	W. Brockner and L. E. Evans	12,201	May 5	31	522
Woolen bedding. Certain-named	Jaeger's Sanitary Woollen System Company.	12,291	June 2	31	1048
Woolen wearing-apparel. Certain-named	Jaeger's Sanitary Woollen System Company.	12,290	June 2	31	1048
Woolens for overcoatings	E. T. Steel & Co	12,258	May 19	31	794
Worsted cloakings	Clark & Keen	12,301	June 9	31	1174
Writing-machines	American Writing Machine Company.	12,147	Apr. 21	31	267
Writing-machines	American Writing Machine Company.	12,168	Apr. 21	31	268
Yarns. Worsted and woolen	Nonantum Worsted Company	12,269	May 26	31	920
Yeast-cakes	E. W. Gillett	12,315	June 16	31	1308

ALPHABETICAL LIST OF LABELS.

Title.	Name.	No.	Date.	Official Gazette. Volume.	Page.
"Abietene Ointment"	D. F. Fryer	4,454	May 19	31	794
"Abietene Porous Plaster"	D. F. Fryer	4,428	Apr. 21	31	268
"Acetone Egg Pungents"	E. G. Boughton	4,477	June 16	31	1308
"American Film"	Eastman Dry Plate and Film Company.	4,480	June 16	31	1308
"A. O. Hebrard's Worlds Exposition Souvenir" (for Knapsack, Matchbox, etc.)	A. O. Hebrard	4,467	June 2	31	1048
"Big Can," (for Baking Powder)	W. Condell	4,446	May 12	31	668
"British Baking Powder"	British Baking Powder Company	4,441	May 5	31	522
"Browns Bronchial Balsam"	Hughes & Watson	4,418	Apr. 21	31	268
"Buskirk's In and Out Notice"	G. W. Buskirk	4,471	June 9	31	1174
"Caution" (for All-Wool Clothing)	A. Shuman & Co	4,450	May 12	31	668
"Cheatham's Chill Tonic"	M. V. Cheatham and C. B. Haley	4,440	May 5	31	522
"Chionanthus Compound"	H. C. Royer	4,489	June 23	31	1448
"Cottingham's Liniment"	W. H. Cottingham	4,484	June 23	31	1448
"Creamery 5lbs. Chocolates"	Gray, Toynton & Fox	4,485	June 23	31	1448
"Creosote Paint"	Sherwin-Williams Company	4,451	May 12	31	668
"De Freest's Soda Flake Crackers Number One"	R. M. De Freest	4,417	Apr. 21	31	268
"Dietrich's Liniment"	J. Dietrich	4,494	June 30	31	1564
"Domestic Spanish" (for Leaf Tobacco)	L. Bremer's Sons	4,464	June 2	31	1048
"Double Waterproof." (for Metallic Cartridges)	Phœnix Metallic Cartridge Company.	4,423	Apr. 21	31	268
"Douce-Haleine" (for a preparation for cleansing Artificial Teeth, &c.)	F. F. Gage	4,459	May 26	31	920
"Douglas' Diarrhœa Mixture"	H. C. Douglas	4,472	June 9	31	1174
"Dr. Ball's Coiled Spring Elastic Section Corset"	Detroit Knitting & Corset Works	4,466	June 2	31	1048
"Dr. Hart's Rheumatic Remedy"	Hart Rheumatic Remedy Company	4,407	Apr. 14	31	124
"Dr. Jug's Medicine"	J. H. Nasmyth & Co	4,421	Apr. 21	31	268
"Dr. La Blance's Diarrhea and Dysentery Drops"	E. B. Lucia	4,436	Apr. 28	31	382
"Dunster's London Cordial Geneva"	C. A. Richards	4,424	Apr. 21	31	268
"Duplex Knee" (for Clothing)	Spitz Bros. & Mork	4,426	Apr. 21	31	268
"Elixir Agaric, Sachs, Pruden & Co., Sole Proprietors"	Sachs, Pruden & Co	4,449	May 12	31	668
"Emulsion Cod Liver Oil with Pepsin and Quinine"	Caswell, Massey & Co	4,478	June 16	31	1308
"English Compound Extract of Pennyroal and Tansy"	G. B. Hibbard and W. Gray	4,496	June 30	31	1564
"Ewing's Ague Mixture"	H. E. Holmes	4,486	June 23	31	1448
"Female Regulator" (for a Medicine)	J. Lariviere	4,487	June 23	31	1448
"Fire and Waterproof Stone Composition Paint"	G. Langguth	4,474	June 9	31	1174
"French Depilatory." (for a Medicinal Compound)	E. E. Siddall and C. F. Graves	4,425	Apr. 21	31	268
"Gallagher's Conchas" (for Cigars)	J. Gallagher, Jr	4,406	Apr. 14	31	124
"Gaugers' Tacks"	F. M. Berry	4,470	June 9	31	1174
"George Vanderalice's Famous Universal Salve"	W. B. Zieber	4,452	May 12	31	668
"German Pile Remedy"	G. H. Jones	4,456	May 19	31	794
"Glass Cutter Combination" (for Combination Tool)	T. J. Andreas	4,463	June 2	31	1048
"Graff's Seamless Shoe"	A. Graff	4,460	May 26	31	920
"Graydon's Fluid Extract of Beef"	Liston Beef Company	4,409	Apr. 14	31	124
"Great Five" (for five cent Cigars)	J. Beltman	4,401	Apr. 7	31	2
"Honey Dew Cough Syrup"	H. C. Royer	4,488	June 23	31	1448
"India Silk Styles" (for Print Goods)	Eddystone Manufacturing Company	4,495	June 30	31	1564
"Ives' Catarrh Cream"	F. Ives	4,447	May 12	31	668
"Knight's Steel and Pennyroyal Pills"	A. P. Knight	4,455	May 19	31	794
"Lactate Baking Powder"	Avery Lactate Company	4,469	June 9	31	1174
"Liston's Extract of Beef"	Liston Beef Company	4,408	Apr. 14	31	124
"Liston's Extract of Beef"	Liston Beef Company	4,412	Apr. 14	31	124
"Lockhart's Hot Springs Specific"	R. F. Lockhart	4,415	Apr. 14	31	124
"London Liniment"	Moellering Medicine Co	4,420	Apr. 21	31	268
"Luby's Parisian Hair Renewer"	R. J. Devine	4,432	Apr. 28	31	382
"Madam R. Seve's Ointment"	L. Seve	4,482	June 16	31	1308
"Malt and Rock, 8 Years Old"	Hegeman & Co	4,445	May 5	31	522
"Maltoline." (for a Medical Compound)	S. J. Bendiner	4,414	Apr. 14	31	124
"Marble Liniment"	J. Boyle	4,416	Apr. 21	31	268
"Massey's Concentrated Essence of Coca and Pepsin"	Caswell, Massey & Co	4,465	June 2	31	1048
"Mattson's Improved Irrigator Fountain Syringe"	Mattson Rubber Company	4,419	Apr. 21	31	268
"Max Braun's Tape Metronome (Mælzl's Time")"	M. Braun	4,431	Apr. 28	31	382
"McArthur's Magical Mixture" (for a Medical Compound)	J. N. Gilbert and G. McArthur	4,434	Apr. 28	31	382
"Milwaukee" (for Cigars)	A. Steffen	4,457	May 19	31	794
"Mrs. Allen's Instantaneous Cough Remedy"	H. J. Allen	4,476	June 16	31	1308
"Myrrh Tooth Soap"	F. T. Phillips	4,422	Apr. 21	31	268
"Natural Mineral Water"	E. O. Gale and W. F. Blocki	4,405	Apr. 7	31	2
"N. K. Fairbank & Co's Fine Family Soaps"	N. K. Fairbank & Co	4,453	May 19	31	794
"Peet's Lithocolla"	W. J. Peet	4,448	May 12	31	668
"Peptonic Emulsion"	J. Schweitzer	4,437	Apr 28	31	382
"Peptonized Emulsion"	J. Schweitzer	4,438	Apr. 28	31	382
"Peptonized Soda Mint" (for Dyspepsia, &c)	Ryer & Berrian	4,462	May 26	31	920
"Porter's Silver Polish"	A. Porter	4,430	Apr. 21	31	268
"Prof. Graydon's Fluid Extract of Beef"	Liston Beef Company	4,410	Apr. 14	31	124
"Prof. Graydon's Pure Fluid Extract of Beef"	Liston Beef Company	4,413	Apr. 14	31	124
"Prof. Liston's Extract of Beef"	Liston Beef Company	4,411	Apr. 14	31	124
"Quinine Chocolates"	Caswell, Massey & Co	4,473	June 9	31	1174
"R. & M. Tonic Confection"	Reinbold & Marsh	4,402	Apr. 7	31	2
"Rex Marinus" (for a Medicine for Cure of Sea Sickness)	H. L. Moody	4,461	May 26	31	920

Alphabetical list of labels, April to June, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
"Roll-Holder" (for a Holder for Photographic Films)	Eastman Dry Plate and Film Company.	4,479	June 16	31	1308
"Royer's German Specific"	H. C. Royer	4,490	June 23	31	1448
"Sabão Paraense" (for Soap)	Brewster, Rutherford & Co	4,493	June 30	31	1564
"Safe Prolonger of Life" (for a Medicine)	J. Bard	4,491	June 30	31	1564
"Save your Horse and Save your Money." (for Horse Medicine.)	M. W. Wilson	4,439	Apr. 28	31	382
"Smith's German Pile Cure"	E. G. Smith & Son	4,444	May 5	31	522
"Streeter's Health Pills"	H. Fisher	4,433	Apr. 28	31	382
"Tasteless Vegetable Pilules"	I. Bidaman	4,427	Apr. 21	31	268
"The American Shoe Polish"	J. F. McGee, A. H. W. Clum, and L. C. Walsh.	4,475	June 9	31	1174
"The Infallible Oriental Cholera Antidote"	H. Bateman	4,492	June 30	31	1564
"The most Reliable Family Medicine"	P. F. Laplant	4,429	Apr. 21	31	268
"The Preventive Capsule Company's Remedies"	E. Gutmann	4,404	Apr. 7	31	2
"The Prize Linen Tablet"	C. E. Morrell & Co	4,443	May 5	31	522
"The Prize Pencil Tablet"	C. E. Morrell & Co	4,442	May 5	31	522
"The Silk Corded End Brace" (for Suspenders)	National Suspender Company	4,468	June 2	31	1048
"Tonic Phosphates"	Hegeman & Co	4,435	Apr. 28	31	382
"United States Film"	Eastman Dry Plate and Film Company.	4,481	June 16	31	1308
"Universal Healer" (for a Medicine)	A. B. Woodward	4,483	June 16	31	1308
"Westport Mills." (for Writing Paper)	I. N. Megargee	4,403	Apr. 7	31	2
"Wylie's Rheumatic Oil"	G. H. Charland	4,458	May 26	31	920

DISCLAIMERS.

Invention.	Patentee.	No. of patent.	Date of patent.	Disclaimer filed.	Official Gazette. Vol.	Page.
Eraser. India-rubber	Rhodes Lockwood	167,455	Sept. 7, 1875	Mar. 27, 1885	31	2
Fertilizer-distributer	Joseph B. Denton	314,920	Mar. 31, 1885	Apr. 16, 1885	31	268
Log-turning machine	Esau Tarrant. (Reissue)	5,487	July 15, 1873	June 3, 1885	31	1174

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